

**PS**

**THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

Issue 33

1955 Series



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

# DANGEROUS CHARACTERS



Dear Half-Blood,

The way I've got it figured is like this: If you're handsome or flightless equipment won't need or give us joy, it's not to use the most of the trouble come from guys who don't do their maintenance.

The way 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 delaying trouble in his own coffee-cakes, too. It's the guy whose wife jumps when she shows down comes or the one whose head won't run when you're got to move stuff to the front—last, is the guy whose head stalls or his gear won't work when the stuff starts to fly.

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

How about calling 'em for me?

Ag 15, R. G.

Dear Sergeant R.J.G.,

Here we'll.

*Half-Blood*



## PS MAGAZINE

Issue No. 18

1982 Edition

It's important to understand the value of the information in this magazine. The information in this magazine is not to be used for anything other than the purpose of the magazine. It is not to be used for anything other than the purpose of the magazine. It is not to be used for anything other than the purpose of the magazine.

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## ON THE DOWNHILL SIDE



The simple idea of keeping a truck in gear when rolling downhill is simple. But many drivers get it wrong.

First, when the engine's braking power is so great that you need more air brakes, that driver's got to expect that extra work.

Second, downhill with the clutch pedal down against the foot pedal, the truck won't go. The only way to control going downhill is to use the brakes for the job.

### HOW IT WORKS

When you roll on level ground, ... you have the engine gear that the truck is in. In the mountains, it's the engine gear that is the difference. The fifth gear will slowly gear in the difference, which means the truck will maintain the 55 mph. When it starts to go, the engine gear will be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear.

Now, it's time to back down. When you get your truck back to the engine gear, you should be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear. The engine will be in the fifth gear.

When you get to the bottom, the truck will be in the fifth gear.

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

# BRAKES + ENGINE

WILL GIVE YOU  
FOR TRUCKS

THE BEST HOLDING POWER  
ROLLING IN THE MOUNTAINS

The important thing is to get the truck in the gear you want in the right place. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, if you do get that maximum air brake, you'll be in the fifth gear. If you do get that maximum air brake, you'll be in the fifth gear. If you do get that maximum air brake, you'll be in the fifth gear.

Now, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear.

### USE THE FOOT BRAKE

When you're going downhill and using your engine as a brake, you'll never be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

### NO DOWNSLIPPING

When you're in a fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.

Now, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear. If you're in the fifth gear, you'll be in the fifth gear.



# DON'T GO OFF HALF-TORQUED



SEE BENDBACK'S CORSET, YOUR TROUSERS AND HOOP MASTERY EQUIPMENT! ... SPREAD THE PAPER TOGETHER IS THE FINAL MAINTENANCE JOB ... SEE YOUR HAND'S BEST THE TORQUE WRENCH HAS MORE TO IT THAN JUST PULL... AND SEE A LOTTA GITS YOU WIGHTS FORGETTER MOST OF THEM VIAL BTD OF SHOP TORQUE.



THE TORQUE WRENCH IS A PRECISION MEASUREMENT MAKING IT AS SUCH

**1**

WHEN THE HAND OF SPEAK EARL ... IT'S OFF IN BLACK SHIT ... YOU CAN READ THE LIGHT ON THE GEAR NEVER FORCE IT ...

**2**

KEEP THE POWER STRAIGHT ... READING A COCKEYED POINT IS LIKE SCRAMBLING WHERE IT DOESN'T FIT.

**3**

NO, NO, NO ...

**4**

ON THE DRIVE END USE 88 TONS OF GHS FOR SLOWLY ANGLED IT WON'T AFFECT THE GEAR READING BUT BE SURE THE DRIVE END OF YOUR WRENCH IS IN LINE WITH THE BOLT YOU'RE TURNING.

**5**

BUT DON'T LET IT ON THE HANDLE END OR YOU'LL SHAP IT. PAL.

**6**

DON'T LAUGH ... IT'S BEEN DONE ... OFTEN.

**7**

KEEP THREADS FREE AND CLEAR OF SLURRY YOUR TAIL WILL GIVE YOU THE SQUEE ON OIL IF IT DOESN'T USE YOUR BEST JUDGEMENT BUT KEEP 'EM CLEAN!

**8**

ONE HOLE AND BOLT A TON OFS TO BE SURE THEY'RE FREE SLIPPING ... IF THEY'RE BEYOND ROOM-OUT NOW GHS.

**9**

START WITH AN OBVIOUSLY WRENCH SLAM IT DOWN SHIT IF BTD SMOO THEN SET YOUR TORQUE WRENCH.

**10**

TORQUE WITH A SMOOTH SMOO ... SHOW YOURS WHO READS THE GEAR. PAL.





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

ALL EXTRA TIGHT (TIGHTEN YOUR GUTS LIKE FOR SOME GOOD REASONS).



**SPECIAL WORD ABOUT CYLINDER HEADS**



# UNHAND THAT WRENCH

THE PLAY IS LYING



WHY DON'T YA TALK TO ME WITH A BUN TORQUE, OR MANY CHECKED CYCLERS BOOKS, CRACKED CHERRY HEADS OR SLAM-ALL FROM A TORQUE WRENCH OVERBOARD! DON'T LET IT RUN YA CARRER... TEST IT!



## TEST TORQUE WRENCHES EVERY 30 DAYS...

1 FIT A STANDARD SOCKET TO THE SQUARE DRIVE AND CLAMP IN A VISE SO WRENCH IS HORIZONTAL, FREE TO SWING.



3 FT-LB

NOTE THE WEIGHT OF THE WRENCH FOR FUTURE USE.

2 HANG A KNOWN WEIGHT FROM THE HANDLE... IS MORE FROM CENTER OF THE DRIVE.



## IF NOT USED MUCH, TEST EVERY 6 MONTHS

3 NOW THE READINGS IN FOOT-POUNDS SHOULD EQUAL THE HANGING WEIGHT, AFTER SUBTRACTING WRENCH WEIGHT.



10 WRENCH

15 WEIGHT

4 FOR EXISTING JOBS, CHECK WITH OTHER DIFFERENT WEIGHTS.



5 THEN YOU BATH DO THROUGH THE DRIVE HOLES ON THE OTHER SIDE OF THE VISE TO CHECK THE OTHER HALF OF THE TORQUE SCALE.



6 YEAH, BUT! WRENCH HAS TO BE CALIBRATED PROPERLY FIRST TO HOLD!

DON'T GET FLEGGED IF FIGURED.

FINISHLAND WITH A 24 INCHES.

SOCKET	AUGURY TO WRENCH HANDING	WEIGHT	READING
18 INCHES	15 x 18 =		270
24 INCHES	25 x 24 =		600
30 INCHES	35 x 30 =		1050
36 INCHES	45 x 36 =		1620

WRENCH - 30

11 x 2 = 22



7 GOT A WRENCH CALIBERED IN FOOT-POUNDS?



1 FOOT-POUNDS IDEAL  
12 INCH-POUNDS

8 "WELL, SO WHAT? BUT THE CENTER OF GRAVITY'S ON THE VISE A BUNCH REARWARDS!"



100% ACCURACY

9 DON'T LET IT GET OUT OF THE TRUTH!



PRIVY REELS OF FOOT-POUNDS!

## Connie Rodd's

"HOW TO SWIM UP"



### *Free + water + an oiler!*

There's more than one way to skin a cat. And there's more than one way to clean your vehicle.

You gotta clean your lines when you pick up that hose to clean the inside of your tank of truck.

Squirting a high pressure hose inside a tank (it's not tank lighting compartment is like possible) is better's not with a risk—you're asking for trouble.

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

Best way to clean the inside of your tank (it's not tank pressurized compartment) with some water, a rag and some elbow grease.

### *Fill that hole*

Check for a hole in the exhaust elbow on the secondary heater kit (Dad Truck No. 6249-178174) in your M100 or M120 shop van.

Some of these heater kits get in the field with the wrong exhaust elbow welded to the flexible exhaust pipe on the heater. If you see a 1/8" or 3/16"

hole in the elbow, leave the hole open.

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

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

Just want remind you (and you and anyone you know) that before starting your main engine, with LT for running and the master switch on, make sure you've got all electrical equipment shut off—particularly your radio and lights.

This includes high usage of voltage when the master is released (not just a fraction of a second—but plenty long enough to blow your light bulbs or radio tubes.

### *Get out?*

A rag in your hand is worth one in your foot-locker—when it's time to check your oil. You don't want to shove dirt in your crankcase.

Never wipe your fingertips on the ground or the fuel tank. Oil kills the latex too.

Best idea is to have a clean rag handy all the time—in your glove compartment.

## 2K59 throttle-and-choke

At the throttle body, that is. These M70's with manufacturer's serial numbers below 8-181 have sometimes developed a bind when the throttle-cable rods pass through the clearance hole in



the throttle body (Fig. 1). In the throttle body has been changed, and are now called "deflectors." (They are still a part of the throttle assembly, though.)



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

## 2K75 personal sensors

Couple of minor items on the M75 personal sensors. The rear door assembly on early models will fit better and be

better if a small rectangular piece is welded into the right angle of the back matter (Fig. 3). 1/4-in. plate will do the trick.



A light sheet-metal safety plate cover bolted or welded around the engine compartment's CO<sub>2</sub> fire extinguisher pull-handle will prevent it snagging on the driver's clothes as he climbs out of the vehicle. It will permit instant pulling by hand (Fig. 4).



## Choice of protection saves pounds of batteries

Some of the boys complain that if they give their battery carrier the right kind of maintenance, the handles on the OEM's work loose from too much lifting and finally give way. They've attached some batteries and some accessories that way.

How about checking the handle before you lift? Keep the handle-to-honey connection clean and free of corrosion with a good acid neutralizer like soda water. And strong-arm stuff like hauling it out by one handle may imperil the ladder but the GTW's no lady. Lift in our recommended



And another thing. Could it be you're getting excessive corrosion because you're in the sloppy habit of overfilling the honey? Take it easy. Do the usual operation right and you won't have to do one or two of 'em or of 'em—like cleaning honey canisters.

### *Exhaust crank-up*

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

Those 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 normal nut gets only 20 to 24 flats torque, and the middle ones need only 12 to 18. That is, when the manifold's drawn evenly and firmly against the gasket face.

### *Watch the pad's pads*

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



**1** AT ALL TRACK STOPPING STOPS, A GOOD CHECKER AT TRACK NUTS AND BOLTS. WATCH THE NUTS A LOOSE ONE, TIGHTEN IT.



**2** TAKE THREE BOLTS AND NUTS WITH ALL CRACK COLLECTED BETWEEN PLATE AND...



**3** PUT THE BOLT THROUGH HOLE, TIGHTEN THE NUT. PUT TO ONE END OF TRACK. BOLT AND NUT SHOULD BE READY TO PLANKLE.



## Handling LFI Joe can be—

### *Dust escape*

On late model M11A1 Tanks (Cnd No. 1983, or later), you'll find an air-dust door arrangement between the right hullhead service door and the auxiliary generator compartment (Fig 1). This new rear setup can get you a lot more—with less trouble—from your Bulldog's LFI Joe.

When the door's open (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-compartment air, and cuts the danger of overheating and vapor lock.

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

The rear door also lets you get at the generator hand-starter quick and easy.

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



### *Dust out—dust in*

Here's the way to remove dust from auxiliary engine-cooling air—just assembly on late model M11 and M11A1 Bulldogs makes no change 'em:

1. Make certain gully door is in service position.
2. Remove cap with screws by hand.
3. Remove dust air cleaner (A-10) from the main tank vent.
4. Remove dust filter that must be removed when tank is in use (see note).
5. Do not remove filter that covers turret and fuel tank ports in the turret.
6. Remove cap, set in the cap and fit over attachment at bottom of air duct in turret.
7. Remove the turret air cap and install the filter in cap holder.
8. Remove cap screws.
9. Remove turret attachment at rear of turret and install dust filter holder in the cap end.
10. Remove dust cleaner that mounts on top of turret, and set in place.



To install 'em—just reverse the procedure. But heed this: When you're lowering the auxiliary engine, raise the air door as high as possible on the air cleaner. That'll keep LFI Joe from mugging on the filter.

Breaking in new snow  
breaking up of snow—

# TANK RUBBER TRACK



Breaking up your boggy with a couple more sets of rubber shoes!

Choose the replacement pads in the store you get will have had a lot of their rubber—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, use one your chains on a paved road, if one's available. If not, a smooth secondary road will do OK. Keep a close check for dead links and loose track guides, wedges, main link 'pins before riding off and again at 4 and 10 miles and give 'em a workout.

This break-in treatment is particularly important in hot weather. And

here's something else to keep in mind. Even in well-maintained tracks, if you go bushing around at sustained high speeds (20-MPH or more) in temperatures of 80° F. and up—no't to quote you a minute here—build up in your track rollers. Results: stalling, stalling, real stalling.

Another thing that'll show up your rubber like a chow-hound getting a "BBQ" is plowing your vehicle through ruts or ruts in ruts. Try to avoid it.

If you happen to be operating mostly on smooth, hard-packed roads, even some people have it a-ruff, you'll probably find your chains wearing faster than the inside. Remove the tracks from one side at the other—uniform product could mean considerable shock to its tread life span.

You'll be seeing this done in a TB one of these days.



Do You Get Still  
In The Jobs?...



## WHY TAKE LUBES WITH SAND FOR A CHASER?

When you start lubing with dirty grease, it's like lighting 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 gears and components—and anything with moving parts.

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

ALWAYS USE  
CLEAN, DRY  
HANDS TO  
HANDLE ALL  
LUBE TUBS



BE CAREFUL  
NOT TO OPEN  
LUBE TUBS TOO  
EARLY



NEVER USE YOUR  
EYE TUBES OR  
DIPPER, BECAUSE  
IT IS YOUR BEST  
AND THE MOST  
EFFECTIVE  
METHOD TO  
KEEP CONTAMINANTS

NEVER OPEN  
LUBE TUBS  
BEFORE  
REPAIRING A  
MACHINE PART



NEVER POUR  
LUBE FROM  
ONE TUB  
INTO ANOTHER  
TUB WITHOUT  
CLEANING THE  
MOUTH OF IT FIRST



NEVER REUSE TUBS  
OR TUBS TO STORE  
LUBE. THEY SHOULD  
BE KEPT IN THE TUB  
UNTIL THEY ARE  
USED UP.



NEVER WEAR AN  
OILY SHIRT OR  
SWEAT SHIRT  
WHEN YOU  
ARE WORKING  
WITH LUBE. IT  
IS YOUR BEST  
METHOD TO  
KEEP CONTAMINANTS

NEVER WEAR  
CLOTHES THAT  
ARE OILY OR  
DIRTY. USE A  
CLEAN SHIRT  
WHEN YOU  
WORK WITH LUBE.



In the constant battle against wear and friction, grease is indispensable. But don't let it flood the joints out of your own equipment—keep it clean.



## M48 TANK REVIEW



### AN OILIER CLEANUP

Your M48 tank's cool-bath air cleaners need brushing before and during operation. Make sure they're in good shape, wear and full of the right weight oil.



Fill to draw and you'll add life to your engine. Monitor oils at the given temperatures won't stop the flow. And lighter oils tend to get sucked right through into the carburetor-filter and all.

When the top gets 1/4 full of sludge, or the oil is thick as molasses (when it looks like SAE 60), clean it out. Take off the pan and elements, wash 'em with cleaning solvent, and shake dry. Then



fill the pan to head level (3-1/2 to 1-3/4 quarts) and reassemble. In dry and clean going—such as down operations—the'll need this at least once a day.



Y'may save your engine and fuel—old some grief by remembering to check the top of the cleaner before working on the gun and flow.

Just reach your hand into the intake air-duct and give 'em the ol' full-around—just before the carburetor-baffle. Oil splashing here when the buckling rollers die and builds up fast when the start's sticky. Enough sometimes to choke your power plant's breath down to a faint wheeze.

When y'feel it building up, clean 'er up like this: Remove the pan and filter, and replace the pan—without washing it. Take off the inside duct. (Turn the hold-down spring counterclockwise, and the duct lifts right off.) Remove the anti-bacteria balls. (Don't microwave 'em.)

Now scrape and wash down the top section; the pan will catch the grime and muck. Dump it again, wash and dry it, throwing the filter and balls. Then put the whole wonder back together—refilling the pan with oil, wash.

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

Some of the best kids at their Kates 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 heavy metal cleaner with the cabinet and clamps holding the pan in place, you're OK.



Your MIF 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 cap screws and nuts. Later models have the same door mounted directly in the bulkhead. To service the cleaner on either model, y'open the locking handle and swing the door outward.

The auxiliary engine air cleaner is on the right side of the hull, and y'get at it from the turret locker. This has both about a pint of oil—and should be kept filled and cleaned like the TM one.



## WHEEL-BEARING ADJUSTMENT

To see if the tire wheel is adjusting itself to the bearing on the MFR axle (OR, here) is:



## TORSION—BAR POINTERS

**SAVED THE DAY** THAT WAS YOUR DEFENSE!  
 TORSION BAR, VEHICLE TORSION BAR(S) OR THE ONE  
 WITH A CRACK AND THAT SPREADS THE TENSION.

### ROADWHEEL

The bar extended from the right side frame, the shock absorbers and come under Old Stock No. 61116-7811859. The left side frame, Old Stock No. 6236-7811986, have the opposite shock absorbers. That's on the roadwheel.

### TENSION ROLLER

The tension roller (on lower left) takes a smaller position bar. It goes Old Stock No. 6236-7811918. I wish shock absorbers for the right side, Old Stock No. 61116-7811859 (does not look like yours) for the left.

It's been **ROP** on some tasks to change the anchor plug when replacing a broken tension bar. But not on with the M48. You replace them anchor only if the bar failure occurs on the splines.

The anchor comes out the top. To get on it y'gotta either remove the power pack and fuel tank, or the roadwheel arm and arm bearing.

Here's a rundown on tension bar replacement:



**A TORSION BAR IS A CRITICAL COMPONENT OF YOUR VEHICLE. MAKE SURE YOU KNOW HOW TO REPLACE IT PROPERLY AND SAFELY. ALWAYS USE THE RIGHT TOOLS.**

# JOE DOPE

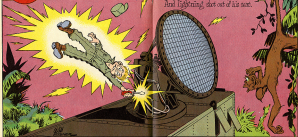
## BORE-SIGHTING THE BAZOOKA



YOU WANT THE EASY WAY TO BOB? LIGHT A ROCKET LAUNCHER — THE "BOB-A-LIBET" METHOD.



# JOE'S Dope Sheet



But **MONKEY**, the network report!  
But Joe is a genius, quite right.  
The "system" was handy...  
A strawdriver deady...  
And lightning shot out of his seat.

WE HAVE THE WORLD'S BEST EQUIPMENT... *Take care of it*

# DON'T BLOW JOE

UNLESS YOU KNOW...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...

YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...

YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...

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YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...

YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...



YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...

YOU'RE TRYING TO GET THE WORK DONE FAST, I'VE STARTED TO REBUILD...





ALWAYS LEAVE YOUR CLEAN TANKS AND CARBURETOR CLEAN WITH COMPRESSED AIR.

### SPARKPLUGS ...

GETS RID OF  
DIRT AND OIL



### BRAKE SHOE LININGS



### RADIATOR CORE

... BLOW FROM BACK



### GENERATOR AND STARTER COMMUTATOR END



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



AND KEEP AWAY  
FROM OPEN FLAME OR  
ELECTRICAL EQUIP-  
MENT  
BY LEE.



### DISTRIBUTOR ...

DIRT AND OIL CAN  
BE BLOWN FROM CAP  
REMOVE WAX  
AND LUBRICATION  
CAP ... CLEAN AND  
OIL. REINSTALL AND  
TUNE AFTER ASSEM-  
BLY IS CLEAN AND  
BLOWN DRY.



### BRAKEPLATE ASSEMBLY

(REMOVE DIRT,  
TOBACCO, GREASE,  
AND OIL) CLEAN  
WITH OIL-CLEANING  
SOLVENT AND DRY  
WITH COMPRESSED AIR



### MAGNETOS



### GAS FILTER ELEMENT



### AIR MADE FILTER BOX



### KEEP IN MIND

BEFORE YOU  
RINSE AT A  
PART ... BLOW  
ONLY IF YOU  
KNOW IT  
CAN TAKE IT





### HEAD CLIPS

Dear Half-Mass,

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

FPC J. L. D.

Dear FPC J. L. D.,

TD Oad 417 is being revised and is going to do away with those head clips—literally by links. The clips will stay on until for some reason you change a story then they'll come off and be left off.

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

### GO AND SEND

Dear Half-Mass,

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

to Col R. F. T.

Dear Colonel R. F. T.,

That's still small. Sending artillery to Ordnance every six months is a hold-over from obsolete tube orders which

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

Here's what new-type tube orders say: "Labelled as class of obsolescence by Ordnance personnel." And SR 158-105-10 (Apr 54) says that "in a minimum, 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.

### WHICH TUBE GO

Dear Half-Mass,

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

When an inspector is pulled, and we get gipped for the parts that we ordered and didn't get, we pull out the original requisition. The good show slips out the gyp. Good idea, don't you think?

CW12 R. E. T.

Dear Walter H. E. T.,

You've hit on a serious factor here. Even though an inspector goes to the motor pool about his inspection and checks regulations against gigs, the average soldier doesn't realize this. His figure he's hit, holding the gigs.



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

Don't wipe the gigs 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-bull.

*Half-Mast*

#### ROCKET LAUNCHER 2P

Dear Half-Mast,

Our TM says the firing mechanism Def Stock No. 80427198119 on our M20 and M20B1 3.5-inch rocket launchers must have an electrical output of 40-amps. We got several of these mechanisms from stock which did not reach the required 40-amps output, but they did fire the gigs. Does low output will fire the rockets, couldn't the minimum required output be lowered?

LT R. E. M.

Dear Lt R. E. M.,

If you've got the new high-amp firing mechanism (T198119), then here are the limits for rejection of the firing mechanism: Field rejection, below 15-amps; pre-induction rejection limits, under 30-amps; eventual rejection limits, under 40-amps.

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

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

You might want to dig up Change 2 (12 Oct 54) to TM9-2000 for the complete story (Fig 1).



*Half-Mast*

#### ROCKET FAILURE

Dear Half-Mast,

In spite of all we do, our M20B1's gas tank leaks where the fuel gauges and dipstick attach to the tank. We've replaced the copper gasket, sealed around the nut with presolene and even soldered over plate doors. The solder job held until vibration broke it down. Have you had any experience with this?

Cpl J. A. E.

Dear Cpt J. A. L.,

Yep, I know. From what I've seen, the fuel comes from around the screw threads holding the cooling-unit to the tank. By dipping the screws in paraffine oil (Fig 21), 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*

#### DIAPHRAGM VALVES

Dear Half-Mast,

We've been having a leak of a line going the water out of the ridding in the leveling section of the controlling mechanism on our 70-ton A-4 gun. There's 10 of these compartments (Fig 22) and we have to top each one out with rags 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 cottigens (Fig 23) like it should and we have to top them out too. If I'm hazy, say!

Cpt J. S. B.



Dear Cpt J. S. B.,

It's a mean situation, all right, but you won't have to worry about it long. The next time your guys go to Ordnance for a check-up they'll drill those holes for you. As for the cottigens, MFC's Cpl DICKSON should've taken care of that. Check your gun book to see if it has been applied.

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

*Half-Mast*

#### SHARPEN BATTERY

Dear Half-Mast,

If you ever had cheap pie's shot . . . what'd you do?

PFC J. E. R.

Dear FCC, J. L. K.,

Simple. Easy. Push out one terminal of the single. Cut it in two. Put one half in, insert a short wood dowel, and on top of this put the other half. Put tape around outside holes to keep ends of clean pins from dropping out. (Fig. 1).



Strictly an emergency deal, I know, but, when you guys have a wind . . . you just gotta.

*Half-Mast*

#### CONFUSED BATTERY

Dear Half-Mast,

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

Agf T. H. S.



Dear Agf T. H. S.,

It could happen twice in a million times. You see, since the services buy so many dry-charged batteries for long term storage and shipping, the manufacturers make '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 one cell in backwards. It would have to get by both the manufacturer and Delaware inspectors to be shipped out. However, it does sound like you did slip by.

Turn in your misadventure battery with an Unmaintainable Equipment Report and the supply people will give you a good one.

*Half-Mast*

#### SEE HALF-MAST HAS MOVED



Agf Half-Mast, Cosmic World - In fact, the whole PS Magazine staff have been shipped to a new post-Karrier Arsenal, New Jersey.

So, when you've got something for Half-Mast, or if you want to ask Cosmic some question or other, be sure to address your letter to them in care of—

PS Magazine  
Cosmic Arsenal  
Madison, New Jersey

## ARMAMENT

### DON'T DOUBLECROSS YOUR **BAR**



Like they tell you in the news hall, a long, graceful neck can getcha looking for a hot-bill of trouble. Specially when you're reaching for what the other man's gun-like the look off his *Bayouing American* life.

Swapping parts—by mistake or otherwise—is exactly for the birds. Sure, the parts look alike—and for most purposes they are. But they won't last in the BAR, they come with. So it's to your advantage to keep 'em there.

The same thing applies to parts for rifles, machine guns, pistols and carbines. Keep a close eye and a tight lid on your own guns and tell your buddy on the line. Leave the swapping up to Cadeaux—and home traders.



#### New Gas-Cylinder Assembly

With the new type gas-cylinder assembly, regulating the gas pressure is simple as screwing the regulator to the right position. If your rifle becomes sluggish when the smallest gas port is used, turn to a larger port. But don't make sure carbon and dirt are not feeding you up. Take it apart and clean it like it tells you in PG 18. (If you don't have a copy, write Sgt. Walt Blum, PG Magazine, Barlow Arsenal, Monroeville, Pa., and ask for one.)

#### Best Magazines

If you stand to reason that your BAR'll go to seed if she's not got the lead. A worn or bent magazine will get your weapon on a reservation that speller's anything else. Avoid using foreign magazines. If you can't be 'em, turn 'em in for better ones.

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

The best deal starts here.

## TANK FIREPOWER

### M48 FERRIS—MOUNTED 30%

One thing's for sure about the '58-oid, M48: put on the Chrysler mount.

It'll take care of you in a way no other machine gun has ever done before. This is-it everything's on the up and up. Here are a few pointers that'll help you make sure it is.

#### Charging Mechanism

You gotta be careful with the remote-charging mechanism (Fig. 1). It takes about 75 pounds of pressure to charge the gun—and that's a lot of pull. The thing to remember is to pull it—*up, not down*. It's kind of a yankin' it. But first make sure nothing's loose.

Since you're well protected from small-caliber fire-down in the turret, take your time in extending and charging so there'll be little chance for a slip-up. Even if something goes wrong with your cable, the gun'll have time charged by the tank handle. And there it can't be done on the inside, somebody'll have to work his neck out.

Talkin' about a tank handle just takes it for granted that you've supplied power-off with some sort of handle in case of

an emergency. The ordinary M48 tank handle is not done for the job to send you grubbin' and we've had handle you can make use of a L.P. for red-ol-



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 '58-oid handle and weld a 1/2-in. plate 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 loose or sticking into the tank. Do the same thing with whatever you come up with (Fig. 2).



Keep the tank 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 charging cable.

#### Mounting The Mount

There's a tip on getting the upper shaft on the gun mount lined up with the lower wheel (Fig. 3). Make a light inside upper hole and connect the lower wheel until you get the shaft aligned with the lower gun.

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



#### BRIDGE POINT

Check your M48 tank gun to see if it has a corner of gravelly rock on it. You'll find it on the lower wheel about

six inches in front of the gun shield. If you find one, put some lead paint on it so the gravel can't slip it away when they want to remove the cable.



#### YOUR CABLE BEST?

You gotta have an able cable before the tank handle. If you expect to do any good with the '58 man gun in your M48 tank, this cable carries a mighty important load and if it ever snaps, you're gettin' trouble.



If trouble happens, that's not if you get it and put it near and then to keep it from getting stretched up. Make sure the cable's riding through the lower pulley free and easy (Fig. 6). If it slips off and snags, it'll break when the pressure's on.

Keep a sharp eye, too, on the way it winds up on the shaft pulley. Could be that the lead-back shaft spring is slipping. There's gotta be tension on the

cable at all times; if there isn't something wrong, Yell for Ordway.

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



brake may wear slightly fast and last somewhat less.

### BACK IN THE BRICK

Been doing a lot of long-leaping with your 70-ton and 90-ton tank guns lately? Better give the breeching assembly the once-over the next time the gun is dismantled to see if anything needs reworking.

The two anchor head cap-screws (Fig. 5) which hold the brass breech



ring lay on the breech ring, have a bad habit of working loose when you do lots of firing. Some gun for the two screws on the bottom of the breeching legs which hold the crank and motion spring adjustment housing.

Keep a jaundiced eye on 'em and call Ordway when they start working free

and loose. They need to be torqued down tight.



### OIL THE OIL:

It may surprise you, but your tank gun recuperator-cylinders need to be oiled at least every six months. Otherwise they get corroded inside.

Use an oil spray gun to squirt some preservative lubricant (PL-Special, MIL-L-6448) into the two inlet holes in the top-end of the cylinders. Also shoot some into the dip holes. This makes sure you cover all the dirt and rust away from the holes first. This part of the cylinder doesn't benefit from oil that oil in the other end.

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

### TAKE THAT CASE!

Here's a neat place for you 200481 gunners who get your firing switch cable all fouled up behind the elevating handwheel. It's a bracket that'll keep the cable from being twisted and damaged when you work the elevating mechanism. Later models already have 'em.





## TRAILER JUICE

FOR THOSE FILL-CONTROL JOBS



REPORT THE RESULTS TO YOU, THE MANAGER

To fill you don't overcharge the batteries in your M312 and M344 for limited service, you've got to change the charging rate of the charger—over summer—winter, winter.

### TO ADJUST IN YOUR M312

### AND IN THE HOME BATTERY

USE THESE STEPS TO ADJUST LEVELS UNDER YOUR COVER OF BATTERY CHARGING EQUIPMENT. DON'T FORGET TO SET THE CHARGE RATE OF YOUR BATTERY TO CORRECT BATTERY TYPE.

BE SURE TO CHECK THE FLOW-RATE. MAKE THE ONE CORRECTED TO YOUR TYPE. DO NOT FORGET TO SET THE



READ BATTERY'S POINT ON THE POINT OF YOUR BATTERY TO THE NEXT DAY WITH YOU



ONLY THOSE BATTERIES



GET THE BATTERY BATTERY IN YOUR BATTERY AND MAKE THE CHARGE BATTERY A BATTERY ONLY FOR BATTERY BATTERY.

IF BATTERY IS NOT BATTERY AND BATTERY IS NOT BATTERY.

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## A DAY LIKE TODAY



A today one of these days when everything goes wrong. Nothing works right? Everything's all-battery? And, all-battery?

There's no one to write to. Get the best of a Photographic, Barker, Arnold, Retardes, New Jersey. Tell him all your problems. What goes wrong, what doesn't work right. Give him all the details, and he'll give you the best of everything up. He'll have a helping hand and punch somebody's ticket.





## ENGINEERS



GET TROUBLE  
WITH A  
PROBLEM!

### WEAR "KNUCKLES"

Dear Sgt. Davis:

I sure had a lot of trouble with the ball joints on the control and steering linkage of the Gar Wood "Backops" Crane I am during a recent maneuver. These knuckle legs breaking off just behind the NVA is less and when the main joint was used. I made some new knuckles out of overcast tube and added to the rubber just behind the leg end. This ended my troubles, as the overcast tube held up better than cold-roll or cast steel.

PFC G. M.

Dear PFC G. M.:

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

2,111. Now you can get a new and much stronger joint for your "Backops." That new part number is 840054. You can see the difference in the size in Fig. 1. The new ball joint has been used on all lots made of the crane, beginning with 80204-081. Hope you don't have to make 'em any more, but either way you're in business.

Sgt. Davis

### TOOT, TOOT

Dear Sgt. Davis:

Why aren't cranes and shovels equipped with anti-kick' rippers and signal horns? These accessories aren't even considered as a modification for this equipment.

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

The signal horn would be a real safety feature, especially on loading or dumping operations. A horn does nothing as long as 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 loans for my equipment.

Cpl L. B.

Dear Cpl L. B.:

These excavators can't use an 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 definitely not. It makes a lot of sense to operate from an open cab. With the windshield and windows pushed or folded out of the way, the wipers would resemble an addition. That way there's no danger of splashing and the operator has a much clearer and safer view of whatever he's shoveling, clearing or hauling. 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 crane operator who takes his old GI vehicle on all jobs and says, "It's saved me more money a time."

If you can show that with your specific operation the loan's an added safety device, get your supervisor to check AR 150-1 (Jan 51) 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 300-10 (Mar 51). It covers safety responsibilities at installations.

Soft Oxygen

#### CALL FOR AN ENGINEER



Ever had a maintenance problem that's had you up a tree? Maybe you have many times. The men that you run up against tonight, your 3-D and 3-F officers are used out to help to your Engineer Regional Maintenance Office. These officers have highly skilled Engineer Regional Maintenance Inspectors (EMRIs) who are ready, willing, and able to lend a hand with most any problem except financial.

For instance, they'll assist you with the shop-or-repairing and overhauling your Engineer equipment (new and old), help you get the right parts, tools and publications, show you how to get rid of extra equipment, and assist you in getting compensated equipment repaired. Besides that, they have a whole long list of tricks to show you how to do your maintenance chores easier and better. There are just a few of their abilities. You can find out the steps in AR 150-11, better about it today.

Ask the EMRI in your area. He'll give you the info to let his know you got trouble.



# TRACKING

No need for aluminum don't panic and run for the hills — if Caterpillar's willpower is your Caterpillar's your tracks.

On new tracks, like on a lot of other new parts, a variety amount of willpower is OK — in fact, "Willpower" should eliminate the need for "grease" get it into rolling.

This kind of willpower you can take without too much worry. On the other hand, if your machine's straining its track parts to bits because of wrong track adjustments, that's a willpower of a different flavor . . . and you'd best make tracks for your nearest repairman. And, of course, you do the same when your machine's slumping along its loose tracks.

Track adjustments on most series of D3, D4, D6, D7 and D8 tractors is easier when the tracks run by about 1-1/2 to 2 inches above the sprockets track-carrier roller (Fig. 1). On earlier D3 tractors that don't have carrier rollers, the adjustment is correct when there's 1-1/2 to 2 in sag in (Fig. 2).

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

Timely adjustment and care of track parts is the best track-care answer . . . and here are some of the things your name in the field and digger digs can do to keep your tracked track-happy . . . just don't neglect or hold up repairs on bad hardware or let you wear beyond the point where they can't be replaced economically.

# CATS

Here are some things that'll make 'er track tracks for a long time:

	Track Part	Treatment
	Pin and bushings	Push out and wash to give new working surfaces.
	Sprockets	Welds gap from one side to the other and build up worn surfaces with welding rod or weld on new rim.
	Rollers	Keep them aligned right — never replace one, due to wear flanges. Switch side to side like sprockets.
	Idlers	Inspect 'em to provide wear wearing surfaces, just like you replace tires on a truck.
	Shoes	When grousers can be built up with welding leave to keep the shoe in the running. Keep them from being lightened up.





# CONTRIBUTIONS



FILL IN THE BELLOWS

Dear Editor,

We happen upon the bellows section of our M11 from the GPO's exhaust stack for routing and breaking down.

There's a real low right seat to it (Fig. 1) that should be kept clean. Only rags, old-line cartridges or anything that'll burn should be kept out of it.



If that bellows section gets in gear, it'll show a red-hot blue on the seat compartment. If there's anything in it so loose, it'll burn. It's happened.

We check our bellows section for cracks or rusting so we can replace it before it goes.

Montford National Guard  
Bowie de Grace, Maryland



STOP STOPPER

Dear Editor,

Our F52P convertible has run without a brake stop, so we used your good ol' Army ingenuity and made up an



adjustable stop like you see in the big ones (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 installed right and stays that way.

Pvt James F. Amblerger  
Cavalry School

## BASE THE BOOP

Dear Editor,

We made a slotted platform for our snaker's suspension line that holds our rags above dirt, water and mud that sometimes seep through and puddle on



the bottom. The rear wall makes get and midway that can take in curves. This stops that (Fig 3).

**Edg. Eddy R. Miller**  
 Ft. Scott, Virginia

### REAR-GUARD ACTION

Dear Editor,

Drivers who take curves almost their rear window protruded will sooner or later end up with their glass broken. Specially driven of the 1-1/2-ton and 2-1/2-ton make and platform trucks, which have the rear window exposed to the whistles and whangs of off-highways.

Putting a wheel to this sort of damage is a simple matter. All we need is some heavy wire mesh or screen, steel, of course, protected from your CO or OSHA's effect.



We attached the screen to the rear side of the frame make so that it keeps the glass from being rattled by the cargo during rubber stops (Fig 4).

Commercial mesh or screen will do the job fine.

**William Englehart**  
 H. Co., New Jersey



**Ed Note:** This sort of fix gets the go-ahead from AR 750-1, with Changes 1, 2 and 3.

### CRIBBING WOLFE

Dear Editor,

I've done them, but there's mighty good work for man who isn't around any more. He had his hand on a steel bit, mauling it, when the top cracked a high-tension line.

Now whenever we find we have to work a welder or top-shelf equipment man on electric line, 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.

**1967 Oct Co 100**

**Ed Note:**—Just remember that a man standing on dry boards and guiding his head with a dry rope has a lot better chance of it slipping from them than on the ground touching the head with his hands.

## *Ernie Radd's* **BRIEFS**



### *Slowing your tracks*

The steps on using a shore cable (Ford Truck File 74-1-300) to coast the engine of your 3000, 3600, 4100 or 4600 trucks is in TR Card 107. If you use make-shift methods, you'll burn out the instrument panel wiring, or ruin the master junction box.

### *Take it easy*

You get some mild gloves when removing or replacing the exhaust-plugger-looking covers (Ford Truck File 688-712) on your 30-4000, 4100, 4600 trucks with 'em, and they'll break off in the breast ring. So use the right tool and take it easy, will ya?

### *Pipe-socket turn-in*

Your AAA guys with 19-20-21-year olds do well too in those 600 pipe sockets. You simply don't need 'em. Four 600 will do everything that needs to be done to ease your 600 socket-remover guys on the block. So you might as well try those 600's right back to supply.

### *Bulbing tail lights*

Here's how to order replacement lights for the backside of your 441 trucks. Light bulb ordering, Card Truck File

600-10000. They're not in the box yet, but're authorized for using with.

### *Call or look it*

Having trouble with your 73-74-75 4600 gas assembly cooling into the heater tray assembly or the head pump working on both sides at the same time? Well, don't touch it. Your Ordnance official wants to know what he's got to do with the Office, Chief of Ordnance, Amc 6800, or Production Manual, Amc 6800, by telephone or relayfax and let them know you're having trouble. A technician'll be there on the double.

### *Point of satisfaction*

You high on engine lifts speed the your Hydro-Matic trucks will not only coast the vehicle to camp but doesn't do the transportation any good. Check the lift according to case 112, TR 141, and get it done in 20-30-40... that's the point of satisfaction.

### *It and out it?*

Can you're trouble questioning some of the data on mark items in TR Card 101, please to all light and hold y'llow a mile longer. It's being worked. You'll be seeing the latest steps on the subject out in a new directive soon.

GOOD

PREVENTIVE  
MAINTENANCE

IS SIMPLE  
ARITHMETIC

... Adds to morale



... divides

the worries

MULTIPLIES EFFICIENCY

