

Issue 158

**PS**

1986 Series

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY



"IF YOU SPENT  
PLU TIME DOWN  
"SAMPLING OLD MACHINERY"  
INSTEAD OF FRACK  
DEPOT-LEVEL TITCS...

*Carl Foster*



When you're out in the snow, make sure it stays in the snow. That means you're laughing with a warm hand of winter, trying to measure the weather to keep their equipment operating and to top shops. One day you're whipped with howling wind, drifts, ice and bitter cold. Then you're whipped with a thaw—drifts, mud, maybe even rain. And back again to frozen rain and treacherous roads. Making winter a new year of misery.

ST. PETER'S  
**OLD MAN**

# WINTER'S BITE

IT'S A BIG YEAR for you. You're out in the snow, trying to measure the weather to keep their equipment operating and to top shops. One day you're whipped with howling wind, drifts, ice and bitter cold. Then you're whipped with a thaw—drifts, mud, maybe even rain. And back again to frozen rain and treacherous roads. Making winter a new year of misery.

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CRUISE  
SAVING  
SCHOOL

CRUISE SAVING SCHOOL

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Along with eyeballing your chains every time you take 'em off, give 'em a good cleaning and oiling. They run and give you fuel enough if they're left piled up wet and dirty, but most will lift on 'em in the beginning of the next for the whole chain assembly.

"Like a glove" is not—repeat not—how chains should fit your tires. Chains are supposed to wrap, or more, on your tires. Heavy chains are close death to tires as they gouge into the rubber. So adjust 'em on the loose side.

FOR the chains and accessories see in THE 2-1998-215-25P (200 84), pages 261-264.

Repair links are listed in THE 2-1976-1 (Feb 91), Table III, pages 126 and 127. FPN's store gives, for the old ordinary rock members are to help in the FPN's you can work up the repair kit. GPN's for your tire size.

FOR 2140-000 2140 1-800-4-8811400 for more program info. FOR 2140-000 2140 1-800-4-8811400 for more program info.

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## ICY CLAWS

These extra, icy, if you park your vehicle in water, mud or slush for the night. Problem is, the rubber just naturally takes a beating as you ease out of slush for trap.



This's a good idea even if it's below freezing when you park, because a thin coat of snow can cause ruts before you get 'stuck' again.

If your tires do get frozen in, take a couple of minutes to flip the tire frames and loose—carefully and with a shift lock—before taking off.



USE THE  
SHOULDER OF SNOW

Left this year you better be better in less time, but at least ground or hard-packed snow, the pressure will be on the out of your tires. Flipping makes less and also breaks down the tight tracks, but get out of the rutting, too, then water will get in to the fill.



USE THE  
SHOULDER SNOW SHOULDER

Note: In areas where the temperature isn't -20°F, or colder, night's work may be possible about normal for long-stay periods or overnight. Before opening the vehicle, reduce the tire pressure to normal.

## EASY DOES IT

Break the snow or mud? Just remember your typical wheeled vehicle is an animal on legs, so lay off revving up the engine and stepping the clutch or you'll have little trouble growing into big ones.



And if you're trying to get out by making—shifting back and forth as fast and reverse—make sure your driver's not too. Your engine has to be able to sleep back to fill and the gear sets have to stop revving before you shift. You don't want your gears spinning' words like a loose heading with his chin.



Besides, with power to turn or six wheels and with chains, you've got the stuff to pull you out of your hole with no sweat. If you don't have chains on when you get stuck, you'll know how to get 'em on even when if you're beamed up on the way to do it in TM 9-1079-1.



Your time may come—if it's never happened before—when you need a tow. Or maybe you're called on to give someone else a tow. Fugitives, make sure you're up on the TM breakdown for towing that particular vehicle before trying to start-up-towing or blasting out of that homeless hole.

Except when it's in the way and blocking a stream, a snowed-out track usually isn't as big a problem as it would be with its gear engaged. So if you're short on towing know-how, get someone who has.

## JUMP STARTING

You'll probably be working a hand—or giving one—to start a stalled vehicle more in winter than in other times. Jump-starting from another vehicle's battery may be more convenient, faster and safer than towing.

More important is remember in hooking the jump cables from positive to positive and negative to negative between the two battery straps. If you aren't dual sure which is which, look for the ground hookup—it runs from the negative battery post on all manual wheeled vehicles.



## BABY THOSE BATTERIES

You may not be in Alaska or some other "crucial-cold" area (-20° to -60° F), but you don't shuff off on special cold-weather-battery maintenance. You could end that last dollar out of your batteries to get stranded, so give 'em tender, loving care.



Winter's bump, with even lower temperatures, is you to come. As the mercury drops further below freezing, your batteries have to work harder to get your engine started. They feed the starter, which has to break cold-thickened oil and grease in every moving part back to the combustion.

And you draw more on your batteries for lights when daylight is shorter. Heaters take electricity, too. This along with the usual demands, such as operating communication equipment. And give your batteries a break, by turning off all electrical accessories before starting your engine.

Your well-overdue batteries may come to the rescue of some guy whose battery PM is on the other side.

A battery that isn't up to full charge—1.275 specific gravity corrected to 80° F—has to meet all of winter's demands. Give your batteries a hydrometer check and other.

A DIFFERENCE OF 20 POINTS  
TURNS ANY TWO CELLS IN YOUR  
SERIAL TO GET A REPLACEMENT!



Keep the electrolyte level over the tops of the plates to take advantage of all the juice your battery can give you.

Before adding water, the water and the battery's cells going to be operating for at least an hour or will be in a warm place for several hours. The new water has to have a chance to mix into the electrolyte or it'll freeze and hurt your battery.



These good battery-cleaning habits you developed in warmer weather are a lifesaver now. Cold packs a battery's power down anywhere, as if it's leaking concrete across a dirty, contoured top, it's getting a dirty deal all the way around.

You can up the mileage of your battery know-how by spending a chilly winter evening inside the convenient TM 9-4148-208-15 (Just 50¢ with Charge 1 / Just 60¢).



## LUBRICATION

Figure it takes 2½ times as much power to turn over your cold engine as if it is needed at 80°F. So give your batteries and starter all the help you can by getting real chemistry with your TM's lubrication instructions for unusual conditions. And look close at what your vehicle's LO spells out for different oil and grease to fit the temperature.

Different temperature ranges make a difference, too, in what grade of fuel you use in diesel and multi-fuel engines, so put your finger on the right dips in your TM or LO.

On-again-off-again heating and cooling of your engine always makes for condensation of moisture tucked in with air during operations. With the outside temperature chipping up and down, too, you've got a messy factory in your crankcase. This contaminated, sludged-up oil gives your engine heavy lubrication, causing sludge, piston, sludge or stopping them through oil lines and playing hob with bearings.

What will seep to the bottom of your crankcase. Sliding in the oil pump, it'll freeze and drop the gas as oil flows through your engine's lube system.



## TIME TO CHANGE?



All may need changing more often this time of year as a result of getting jacked up faster. When you're making your before-operation check, look close for water drops on the dipstick. If you're not sure, drop off a little oil into a glass or bottle and watch to see if any water settles to the bottom. Yes, say! Get your condenser drained and refilled fast!

Adding some oil before your legs will show if it's getting gummy and needs changing. Just because oil's a little dirty — dirty, indeed — doesn't mean it won't show it needs early changing, too.



Take a sniff of your dipstick, too. Some bad oil get by your piston before the engine leaks up. Enough of this time year ol, makes for poor lubrication and sets up a very explosive situation. Fuel compressed all the way, hot hot!

## SEEKIN' LEAKS

Water in the crankcase could be coming, too, from a leak in your cooling system. Maybe a blown gasket or a cracked block. Sometimes you'll spot this sort of trouble first when oil shows up in your radiator. If it's real bad, you might find your coolant level has dropped all of a sudden and your oil level has shot up. Then heat test for your support to dig into it.

With a pressure cap on your radiator, you won't likely lose much of the water part of your coolant by evaporation — and some of the antifreeze will get out that way. So a drop in the coolant level probably means a leak.



Check for leaks around the engine.



Antifreeze doesn't dry up quick, so you may find wet spots are usually leaks. Be suspicious of rusty or grayish-white stains on and around your radiator and wherever there's a fitting, connection or joint.

Small leaks can become big ones — and they usually do, all of a sudden, when you're operating and pressure's up in your cooling system. So treat those leaks in the punch. Musty or cracked hoses are signs of leaks in some. Other leaks you can catch early by being on the ball with close, daily inspections.

Before adding either water or antifreeze solution to raise a low coolant level, check the freezing point of the coolant to see which you need. Your antifreeze won't be "useful" if it's diluted too much with water.

Along with what your vehicle's TM tells you about maintaining your cooling system, stick up the days in TM 9-2010 (May 48) to be knowledgeable on "Cooling Systems: Vehicles and Powered Ground Equipment."



PREPARE YOURSELF

## TIGHTEN UP

Loose or missing bolts, nuts, rivets and other parts mean trouble—usually sooner if you ignore 'em. This includes cracking or breaking of parts when the temperature fluctuates and metal gets brittle. If there's no check, your vehicle will come out and take the bumps as one unit instead of like a string of ball-and-socket joints tearing up.



## STICKY GAGES

Gages and sending units can get sticky when cold patches and pulls their dirty innards. Make sure you're getting the messages you expect from your instruments. If not, the trouble could be right there in front of you, but a check all the way through to the sending units — and maybe farther — is the safest bet.





## SNAP, CRACKLE, POP

Rubber and leather get stiff when they're real cold and'll crack if bent quick or sharp. Glass plastic gets brittle and'll crack or break if it's hit or twisted.

Canvas that's been water soaked and then frozen can crack, too. This isn't likely, tho, if your tarp's mounted the right way on your truck or trailer so there're no low spots for rain or melted snow to puddle. Keep your tarp stretched down snug, but be ready to loosen it up when it and the ropes get wet. The ropes and canvas will stretch, pulling pressure loose, making seams and ripping whatever there's inside.

Mildew starts to grow when a warm spell hangs on for a few days. To make sure your tarp's dry and clean before stretching it over—in a clean, dry place, mark.



## DRY FUEL TANK!

Even a lousy night episode can'ty freeze a fuel tank's no place for water. You get it tho, when that dampness in the air space condenses. And it'll work on to your fuel lines, too. If it doesn't freeze and pop a pipe, it'll stop you cold when it gets into your engine. So keep that air space as small as possible by keeping your fuel tank headed.



Some water's going to get by you, tho, so you must it head-on with alcohol. That's added to gasoline at the rate of a half-pint of alcohol for each 10 gallons of fuel. You get it by adding hot Alcohol denonated grade III, 96%, O-II 700%. FOM 6810-141-7401 brings a gallon, and FOM 6810-101-0287 is for 5 gallons.

TM 5-207 Chap 551 gives you words of woe on cold weather operation and maintenance of your tactical wheeled vehicle, including a condenser (Table II on condenser, fuel, hydraulic fluid and lines).

Change 1 (Feb 51) to this TM has a special warning on adding alcohol to your fuel system:

**"CAUTION: ALCOHOL MUST NOT BE ADDED TO DIESEL FUEL SYSTEM."**

Even the alcohol's bad medicine for diesel systems and great stuff for gasoline, tho, made in gasoline it no good either. Dam engine operation and damage to valves and fuel pump diaphragms can be caused by overflooding your fuel system with alcohol.



## STAY ALIVE

Carbon monoxide is a silent killer. All it needs is a broken or cracked exhaust system to sneak out and go to work. Good insurance against a case of eight months in a tight exhaust system from door to end. And keep a window cracked for fresh air while on a long run.



If you must keep the engine idling to keep your radio going, run it at high idle—about 2000 RPM. Keep the cab well-vented and stay awake. When there's no exhaust fumes around, the next reason you take away for your last.

## CR-R-R-R-ACK

A windshield that has set out in -10°F weather for a long spell. The overnight, it is in condition to be hit by a hot blast of air from your vehicle heater. If the glass is warmed too fast it'll crack and break.

Cold soaked glass should be warmed gradually. Get the cab warmed first and then defrost the windshield from off on low and work up to high.

A good trick is to use a tin strip



of tape across the top of the windshield to act as a heat buffer. This'll keep the windshield from cracking when it's suddenly blasted with hot heater air.

## GETTIN' WITH IT



### WINTER

DRIVE SAFE AND RESPONSIBLY. WEATHER IS A FACTOR. ALWAYS WEAR YOUR SEATBELT. DON'T DRINK AND DRIVE. DON'T DRIVE WHILE TALKING ON A CELLPHONE. DON'T DRIVE WHILE DROWSY. DON'T DRIVE WHILE DISTRACTED. DON'T DRIVE WHILE IMPAIRED. DON'T DRIVE WHILE TALKING ON A CELLPHONE. DON'T DRIVE WHILE DROWSY. DON'T DRIVE WHILE DISTRACTED. DON'T DRIVE WHILE IMPAIRED.



HERE'S SOME  
5-TON GT4000S  
PARTS TIPS

**TIP 1**

If you need a replacement hydraulic bearing, check this. Part #91-4730-200 (200), it's for a roller. Use Part #91-4730-1000 along with the roller on page 14 of the CAT Blue Book.



**TIP 2**

The non-spring roller (300) if you're looking for a roller with a hole and a hole, you can get it with Part #91-4730-1000. This is the same job that's shown on page 10 of the CAT Blue Book. It's available in CAT Blue.



**TIP 3**

Looking for replacement seal rings for your 5-ton pump? Here you'll need the number—Part #91-4730-1000. And the brand label "Wald".



**TIP 4**

Here 2-ton truck a roller you looking. Be sure that you're the correct brand (Wald). Without the roller you the one that you need. Part #91-4730-1000. Keep this roller and compare it with the one that you have. It will be a "Wald" roller. Use Part #91-4730-1000.



**SIZZLE, CRACKLE AND POP**

When was the last time you looked at your 3-ton truck's battery cables and terminal connections?

Many are jammed between the batteries, hold-downs or carrier box in a way that pinches, chafes and even tears. Then the cables end up in no working and starting dead state.

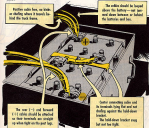
Reinstalling battery cables on any 3-ton GT4000s truck takes special care because they've really jammed when the carrier is pushed under the cab.

Moving the battery carrier into place is no stress-free job. It must be eased in place while the cables are being held so they'll keep above the batteries.

Check your 3-ton truck's battery compartment now — here's what you should look:

Battery cables here, as shown, are chafing where it needs to find the next frame.

The cables should be looped above the battery — not jammed down between or behind the batteries and box.



The rear (-) and forward (+) cables should be attached to their terminals and wrapped up when tight over the post top.

Control connecting cables and its terminals (ring bar) and not chafing against the hold-down bracket.

The hold-down bracket may not be too tight.

## GO "LEGS DOWN"

First your eyeballs to Change 3 (Jan 68) in TM 9-2120-211-10 (Mar 68) to save the pilot seat on your 602 or 6042 5-ton wheelers.

On page 3 it tells you to change para 2M on page 14 of the TM, where you find directions for raising the wheelers seats for traveling.

The important point: The skipper base assembly is supposed to be in the DOWN position and secured to the floor brackets. This supports the weight of the skipper and boom and relieves the pilot seat of this load while traveling.

Pictures on page 11 of the TM show the supports of the M142 in the right position for traveling, and the same setup goes for the M62.



## ELEMENT FOR CHANGE

USE THESE TWO SERVICE TAGS FOR THE SERVICE TAG.



Need a replacement air filter element and the gasket to make a filter change on your 5-ton wheeled engine? If so, ask for Para 8a, Oil Filter, PN 2940-894-400.

You won't find this element kit in the CRP for the M142 chassis and M542, M1242, M5442, M1642 and M2442 trucks, but it is listed on page 29 in the wheeled engine Manual, TM 9-2115-211-11P (Sep 64).

CG-9-2120-211-12 (Jan 68) states the engine air filter element changed every 6,000 miles or every 6 months. And the TM 9-2120-211-20 (Mar 61) MAC says organizational mechanics can do the job. The details on how to change the element are in Ch 1 (Jul 64) in the same 20 TM.

TIRE

PRESSURES

END 2015 24-TON TRACK

All your jockeys for GOM-1 series 24-ton tracks (and that includes the M30A1 now, too) will get the latest dope on tire pressures in TM 9-2110-209-10-10b (24).

Table 3, page 11, gives the numbers for both gasoline and modified engine jobs—with 11-00 x 20 size tires used on tracks with sprocket and 9-00 x 20 size tires used on tracks with chain. This includes data for tracks either with or without a front wheel.

This new TM supersedes TM 9-2110-115-10 (Dec 41) for the M30A1 and also the operator's portion of TM 9-2012 (Dec 34) for the other tracks in the GOM-1 series. So take note that the highway tire pressure for modified, dual-wheel jobs has been upped to 18-PSI. And it's been cut to 15-PSI for cross-country for gasoline, dual-wheeled tracks.

CONDITION	GASOLINE		MODIFIED	
	11-00x20	9-00x20	11-00x20	9-00x20
Highway load	18	15	18	15
Cross-country load	20	15	15	15
Mod. cross and road load	15	15	15	15

END 2015 24-TON TRACK

Here's the latest tire pressure for all 15-00 size two-wheeled trailers covered by TM 9-2110-115-10 (Jan 44). This takes in everything that's mounted on the M30A1-series chassis and the M30A, M105, M108 and M207-series trailers, plus the M104.

How much air each wheel gets depends on the size of its tire.

That's the pressure you want to maintain to be just right.

CONDITION	TRAILER TIRE SIZE	
	9-00x20	11-00x20
Highway load	18	18
Cross-country load	20	15
Mod. cross and road load	15	15

# 1/4-TON TOPIX



Dear Staff Sergeant:

When side curtains are ordered on a full closure kit and installed on an M100 trailer, do they become part of the vehicle? And must they be treated as such?

Age 16, G. B.

Dear Sergeant U. C. B.:

The only time side curtains stay with a vehicle and become part of it is when they're installed separately.

When curtains are requisitioned and installed on a closure kit, they fall into a category of miscellaneous equipment covered by SB 5-15. This SB includes an M100 trailer for vehicles operating in temperatures between -40° and +12° — when the area commander wants you to have them.

You remove these kits if the vehicle is:

**A** Edged in an area where the temperature doesn't justify its use.

**B** Required by the commander for use in a combat situation.

**C** When the vehicle is classified and reclassified separately.



Staff Sergeant  
11

## SAFETY CHAINS



The need for safety chains on 1/4-ton trailers that've moved over public highways has been talked around more than a soccer ball.

Since most truck and trailer combinations don't have safety chains, the rule is usually an open one for a driver. Especially with CMSS people.

Normally, the Army doesn't manufacture its vehicles to meet every state's trailer safety requirements. This is because there are so many different things called for in the various states.

But in general . . . it is Army policy to comply with state laws on vehicle safety devices whenever possible.

Whether you use safety chains or not on your 1/4-ton trailers falls down to the policy adopted by your area commander. If he writes to meet state vehicle safety requirements, then that's the order to follow.

Some units have been pointing to TB 4-111A (Oct 54) as their authority to remove safety chains and cylinders from their 1/4-ton trailers. This TB only applied to the M100 and it was cancelled way back in 1955. This bulletin never did apply to the M41 1/4-ton trailer.



If there is a need to use chains for the M100 truck and M41 trailer combination, install two new safety chains (P/N 2448-800-5000) on the trailer. And hook 'em on the M41's lifting eye.

## GOOD PRACTICES NEVER DIE



How Not-Dead.

At one time all our radio-equipped tactical trucks were required to carry a marking on the instrument panel saying "turn off electrical accessories prior to starting."

Is this requirement still in effect?

M. E. F. R.

Dear Lieutenant E. F. R.,

Posting the warning on the dash is no longer required. The marking was required by TB Ord 1400-1071, but this TB was rescinded by DA Circular 113-4 (Sub 62).

But the requirement of turning off all electrical accessories before starting is still a good practice. And good practices are always in effect.

When you crank a truck engine, it draws all the amperes from the batteries it can get. Especially in cold weather. And putting an extra load on the batteries at a time like this could be the stress that'll break the battery's back.

There aren't some electronic equipment that may not be adequately protected against the big voltage dip while cranking.

Good starting practice always demands that all electrical accessories be turned off before cranking the engine. And it should be done whether the warning is on the dash or not.

## NO TIME FOR SPARKIN'



Dear Half-Brook,

The batteries in one of our Mercedes rental trucks keep going down and we can't seem to find the cause of the trouble. Is there supposed to be a slight arc between the negative battery cable and the negative post?

R. M. P.

Dear R. M. P.,

You found the clue to your battery mystery. You should get an arcing between your negative battery post and cable—if all electrical switches are off.

You've got a short somewhere that's putting a constant drain on your battery. Hunt for a short in your ignition switch, voltage regulator and light switch, and then, if you haven't found it, wear through your wiring harness.

Your vehicle TM usually gives all the steps on using the low-voltage check meter to check out your vehicle's electrical system. If it's not covered there, then TM 9-0910-80-11 or TM 9-0910-80-12 will do the job.

Half-Brook

## BALLS O' FIRE!



Shoving dirt around with an air hose is asking for chunks of grit or even slivers of metal in your eyes. If you don't wear your protective goggles, You'll be lucky if you wind up with only sore eyeballs. So guard your baby-eyes with those goggles in your No. 1 Common Tool Set. They're Goggles, Industrial, Item 0240-200-7912. Also, there are lots of other hazardous maintenance jobs where you'll find it safer to wear goggles.



ON A MILLION OF HORRORS...

# LOOSE SLIP-RING SCREWS



KEEP A CLOSE EYE ON THESE SLIP RING SCREWS!

Watch yourself —

On early production M100 and M100 HP hoistways the cab slip ring segments aren't held by self-locking screws, like they should be.

Equipment relocation puts the screws loose and when you go to reverse the cab, K.A.B.L.U.M.B.O.M. . . the contact arm assembly plows into the loose screws and the slip ring segments.



SEE THIS POINT WHERE YOU CAN GET THE SELF-LOCKING SCREWS



The crash damages the contact and cracks the contact holder so fine. This'll not only short out your cab elevator, it means you may be out of working power for sometime, because the contact holder is a non-replaceable item.

So best check those slip ring retaining screws right away. If they're not the self-locking kind you'd best see the supply people sooner. Keep 'em tight till you get the self-locking type.

The slip ring takes self-locking screw, P/N 1407-000-0102 (10000-21100-00), and a flat washer, P/N 1407-000-0104 (10000-0000), see TM 9-2100-20-2000-2 (Rev. 88) pages 8-5.

Later production M100's and M100's have self-locking screws on the slip ring segments, so they don't have this relocation problem.

# NOW HEAR THIS!

Make sure you've got your ear plugs all snugged into your ears while your ship's purring.

Alowann!

Great news there that without the ear plugs, the high noise level can permanently damage your hearing . . . especially on the M108/M109 SP17s and the Chinook (CH-47) helicopters.

Ear plugs come in different sizes. A big ear uses a big plug—small ear, small plug, etc. The ear plugs sized for use with your in-earmuffs located over your ears, are listed in FSC 66070-01 (Step 84).

Are the Ear Plug Size Figures (E) in a package?



Extra Small	708 401 1-444-7908
Small	708 401 1-299-8234
Medium	708 401 1-299-8235
Large	708 401 1-299-8236
Extra Large	708 401 1-299-8237

For the handy carrying container, ask for: Ear, Ear Plug, 708 401 1-299-8237 (2 in a pack).

TA 8-100 (Dec 84), Allowance of Army Medical Service Expedient Supplies, authorizes the plugs. Your unit medic will help you get a good fit.



When you were on Pkg 267 in T4 5-21-69-217-28 (Jan 68) what do you say? You'll open a sparker with measuring gage used for checking wear on the drive side of the sparker used on the multiple track of your M109 and M109 SP1's.

Along with the gage (P09 6200 757-2165) comes the template, which is held over the gage by a small chain, so you really have all the parts in one bundle.

This is fast and steady except the gage isn't handy. It's not in supply yet. So, here's what you can do. You can order number Gage, P09

5200-980-2165. One week later for the first two wire readings of H<sub>1</sub> bush and H<sub>2</sub> bush. By this time, maybe the wire gage'll be in the supply system. If you still can't get the right gage and you have to go over the wire wear limit of H<sub>1</sub> bush then, that's all you can do is get Rock, Steel, Machine, P09 1-200-224-1125, that's in your Automotive Maintenance Tool Kit. Take the measurement from the same spot used with the gage.

# GAGING IT



SPARKER WIRE GAGE  
USE ON SPROCKET GORDEL  
PLACE SPACE BETWEEN SPROCKET TEETH  
GIVING ROOM FOR TIGHT TIGHT WEAR  
CLEAR ON DRIVE SIDE IF PITCH CHANGES  
AGAIN WHEN WEAR IS IN LINE ON DRIVE  
SIDE. MEASURE GORDEL TO WEAR VALUE  
IF WEAR ON BOTH SIDES  
OF TEETH.

REAL DIRT STREET

## USING P09 ON SPOKES

1. If the sprocket on both the left and right side of the vehicle are worn and need measuring, the complete sprocket kit of materials may be swapped from left to right and vice versa.



TO SPROCKET LEFT:      WORN TO RIGHT

2. If the sprocket on only one side usually need to be removed, you can remove the sprocket from the left and place the complete sprocket on the inside and the inside sprocket on the outside of the hub.

When the wear on both sides of the bush reaches the maximum (1/4) wear limit, replace the sprocket. P09 200-784-091.

FACE!  
I'M NOT  
IN SHAPES  
ANymore!

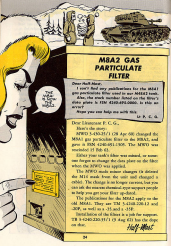
you'll shut 'em  
AND GET A NEW!

UNTIL A NEW GAGE IS AVAILABLE  
USE GAGE P09 200-981-2165.



Now you can feel "all" safe. You can stop any accidental removal of the sensor in your M109 SP1 by putting a guard over the sensor's plug-in. P09 5-2165-217-28-1-17 4-26-68 gives you the word. Now you check out the status field for the drive motor life that's called out in the P09.





## M8A2 GAS PARTICULATE FILTER

Dear Staff Writer,

I can't find any publications for the M8A2 gas particulate filter used in our M8A2 tank.

Also, the stock number listed on the filter's data plate is FM 4240-491-0000. Is this an error?

Hope you can help me with this.

Lt P. C. G.

Dear Lieutenant P. C. G.,

Here's the story:

MFWO 3-450-21/1 (28 Apr 68) changed the M8A2 gas particulate filter to the M8A2, and gave it SKN 4240-491-1000. The MFWO was rescinded 21 Feb 63.

Either your tank's filter was mislabeled, or someone forgot to change the data plate on the filter when the MFWO was applied.

The MFWO made minor changes (it deleted the M14 tank from the unit and changed a label). The change is no longer current, but you can ask the nearest chemical support people to help you get your filter up-to-date.

The publications for the M8A2 apply to the old M8A2. They are TM 3-4240-208-12 and -209, as well as a -21 and a -22F.

Installation of the filter is a job for support. TR 3-4240-220-11/1 (9 Aug 63) has the steps on that.

*Staff Writer*

IF YOUR AIR IS A BIT...

## WATCH THE PARTICULATE

When you mount the gas particulate preheater onto your 1000 series tank, you may not be able to raise the MC dome.

The shifter's seat (Part No. 10000011) may butt into the left-hand corner of the preheater seat.



The simple answer is to make with a small adjustment to the two shifter control rods. You make one of 'em about a 1/2 inch longer... the other about a 1/4 inch shorter, like so:

ROD NUMBER NO.	SHIFTER CONTROL RODS	ROD TO
10000011 ←	1 1/2" →	4 1/4"
10000012 →	1 1/4" →	4 3/4"



You may have to vary these adjustments — more or less — to get the best shifter movement. Keep enough clearance on the control rods for a safe grip. If there's not enough thread left on the rod, you'd better call support to get more help.



Two things a smart steel driver does ... he never drives up on holes straight and he never leaves an opening unattended.

Like the hole holes on his M113-series vehicles or his M114 Series, F-100-series. They need lots of love's attention.

Night 'em and they get filled with mud, rock dust and other stuff. Then, when you try to use 'em again (like when you replace your track sprockets) the holes don't work right.

Best way to protect the hole holes is with the hole themselves. Keep the hole in place even when the track sprockets (or other equipment) that they serve are in service. That way, the holes will be in good shape when you need 'em.

This is so important that some inspection teams throw a disarming gig for every hole hole without a hole—even if the hole doesn't hold anything.

## SAFE FILTER

WOW! I'M A SMART OPERATOR FOR CHECKING THAT MY TRACKS ARE SAFE TO USE. I'M A SAFE MAN.



On the gas particulate filter units, M1A1, M6, M8A1, M11, M12, M13, M8A2 and M8A3, you have to know when to replace the unit's gas filter.

This means you must always keep close tabs on the unit's operating clear in a contaminated area. How?

You record the filter's exposure time on the unit's DA Form 2499.

Your equipment's TM gives you the steps on keeping a running total on the filter's working time, how to figure up remaining life of the gas filter and how to replace and handle contaminated gas filters.

## M88 VTR LUBE CHANGE

1 quart  
SAE 15W-40

The compressing M88 uses bearings on your M88 VTR and to be lubed quarterly with G.A. grease . . . on the M88, before you hit the rock.

Some mechanics have been slipping the pip on this because the lube point is not shown on page 28 of SCS 9-2329-222-11 (Jul 63).

The lube fitting is shown on page 3 to Change 1 (Mar 65) of the SCS, but it's shown in the wrong position. It should be the way the extended SPPO 9-2329-222-10/1 (Feb 63) said—with the lube fitting at the bottom of the compressing M88 and the pressure relief fitting at the top.

REMOVE HOSE FITTING



## DECK BOLT SAVER

CRANK  
DOORS



Dear Editor,

We had a lot of trouble burning off the rear deck bolts on our M88 VTR's during winching and lifting. Then we started running them with the left and right exhaust doors open, in the UP position. That cured it, though I'd pass this along.

Old News

SP2 Edward E. Hubbs  
Fort Riley, Kansas

What you did, that kept  
you there while you're towing  
. . . could damage your buddy or  
his equipment if they're open.







# JOE'S DOPE

DOING WHAT  
YOU'RE  
SUPPOSED  
TO DO

GREETINGS  
COMPANIES, AND THE  
WELCOMING IS A REPORT  
CONCERNING THE CAPTURE  
OF ENEMY  
SERVANT J. HOOKER,  
NOW OUR PRISONER.



One Monday, Herbert J. Hooker was assigned to drive a unit of government soldiers to the border of DEPTON DOBENL. . . . Their mission was to set up a camp site for a newly arrived direct support unit.



ALRIGHT, JOE, WE  
NEEDING YOU, COME  
WORKING, AND WE'LL  
UNLOAD AND SET UP.

A-HOOKER!  
I'M  
THE LUCKY TO  
GET A LITTLE AFTER-  
OPERATION, CHECK  
ON MY REPORT.



AH! I DON'T  
LIKE THE LOOK OF  
THE GUNNER. BUT  
IT'S ACTING AGAIN!  
SHOVE SOME OF  
THEM TOGETHER!

HILL, DON'T  
FORGET TO REMEMBER  
THAT WE DON'T HAVE  
TOO MUCH MECHANICS  
AND WE DON'T HAVE  
TOO MUCH TOOLS  
TO MAKE THEM.



AND DON'T FORGET  
ABOUT THE GUNNER  
MONEY TYPE. I  
KNOW FROM THE  
PASTY GUNNER ALL  
THAT OF THE LINE  
HAS SAID THE  
MONEY.

?



BUT HOLD ON. THE ARMY'S  
GOT A GOOD SYSTEM. LET'S  
SEE IF A TRY. BECAUSE THE  
CAMERAMAN CAN BE FOUND 2004  
AND WE'RE SUPPOSE TO THE  
COMPANY MECHANIC WILL DO IT  
IF HE CAN'T, THEN HE'LL GO  
TO THE BATTALION  
MECHANIC.



THAT'S IT'S  
ALL GO TO THE  
MATTER'S NUMBER  
ON SO CLASS  
WITH MEANING  
SUPPORT! YOU  
KNOW? A WHOLE CATEGORY  
OF MAINTENANCE  
WHICH HAS THE  
BEST TOOLS  
FOR THE BEST PARTS.

ACCORDING TO THE TEAM  
SUBSTANTIAL ALLOCATION  
CLASS. I DON'T  
A GOOD JOB FOR  
A WHOLE CATEGORY  
OF MAINTENANCE  
WHICH HAS THE  
BEST TOOLS  
FOR THE BEST PARTS.



# JOE'S Dope Sheet

KEEP THE SYSTEM WORKING WHEREVER YOU ARE



## DEPOT

### MAINTENANCE

Work done in the area and of fixed state-site facilities. Includes repair activities, major overhaul.



## GENERAL SUPPORT

### MAINTENANCE

Handles jobs which cannot be done by Direct Support.



## DIRECT SUPPORT

### MAINTENANCE

Supplies all parts and technical guidance. Does work per SOP, not parts SOP or activities.



## ORGANIZATIONAL MAINTENANCE

### ORGANIZATIONAL MESSAGE

Does 20% of the maintenance education chart (MACE) authorized tasks—controls job to see do — not only parts from SOP, but maintenance hands have more tasks.

### OPERATOR

Maintenance starts less. Personnel in his job — fix checks, adjust, down, operate, reports faults on SA, 2404, Gen. -10 90.

Company Methods and Activities Methods



The Goal is "Keep Ready To Fight."

Your part is to do **your** job right.

The system will part if **spilled** with **your** work.

Good team-play delivers the Fight!

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

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, REFER TO THE INDEX LIST AT THE END FOR IT UP.



ROCK-ON, IN YOUR SUPER-SANCTIFIED-  
MAY I THINK YOU'RE DOING THE WORK  
A BUNCH... BUT YOU'RE JUST FOLLIN' UP  
THE WORKS... THE UNALTERABLE  
SYSTEM DIVIDES THE WORK-LOAD  
INTO FOUR LEVELS—EACH OF WHICH  
HAS SKILLS, POWERS AND PARTS  
BE ASSOCIATED WITH THE KIND OF  
WORK ASSIGNED TO IT!



IN AN OPERATION THE SIZE OF  
THE MARYLANDERS' BATTLE  
YOU A TO US SINGULARITY AND DO IT  
SOME... OTHERS, YOU'VE HAVE  
SOMETHING LIKE A FEW, SHALL IN  
THE BATTLE TOO...

MR. OH  
LOOKS LIKE  
WE GOT  
TROUBLE!



YOU'RE RIGHT, THE BUNCH  
YOU FIGHTING WITH IS BEING THE  
COURTESY YOU TALK TO ME...  
AND IF YOU CAN GET YOUR THUMB  
ROLLING I SUGGEST WE GET  
OUT BEFORE WE ALL  
BURN IT!



WELL, DE YOU GUYS!

THAT CAN BACK TO BRUCE  
CAME, I'LL HOLD-UP BE LONG  
AS I CAN, GET A PONY TO DO  
THE AIR BUNCH BIT FOR ME.



NEVERBELLS COULDN'T HE DUCKED  
COVERING THESE DEFENSES  
AND CONFIDENCE IN VARIOUS  
WALL TO WALLS. TWO ONE  
LAST CLAIMS HE IS A MASTED  
MILITARY, BEING LEAD AND  
JACK-OF-ALL-TRADES.

HEY CHUCK, DID THAT CREEPY  
BROODERFROM THE PULLER ON  
YOUR "TAP" EAR. BY A SIMPLE  
REASON IN STEPPING UP YOUR  
KNOCKS-PER-MINUTE, NOT  
COUNTING BLOW-AROUND ME...

WAS AN OLD  
FRENCH LAND  
MINE... BUT I  
NEVER LET AND  
THINK YOU WERE  
A LITTLE BOY WHO  
AND ANOTHER BOY  
WILL...

HIMMA, A  
VERY SOLID  
REPORT,  
CONSOLE

ONLY  
ONE  
THING  
TO DO  
WITH  
HIM.

**SEND HIM BACK  
TO HIS OWN OUTFIT!**

A MAN' LEFT HIM WILL  
DO MORE DAMAGE TO THEM  
SIDE THAN A HUNDRED OF  
OUR "BROODER-SMOTHER  
LIBERATORS.

IMPOSSIBLY  
DURING  
CROSSING  
AROUND'S

THE  
OFFICE  
FOR  
THE  
MILITARY

## A CRANK IS FOR CRANKING

Anybody who'd lift a telephone set by the generator crank handle probably got mighty wet in a rainstorm.

Consider the consequences of that foul deed: The handle breaks. It can't be replaced. The telephone gets dead-lined. And so on.

It doesn't have to happen. There's plenty of better ways to lift sets such as the TA-41 and TA-112. Like, by the carrying strap, if necessary.

So, next time you see a Joe crank for the crank handle to lift the telephone, tell him about a couple better ways. It's to your interest, especially if the set being lifted is the one that might have to be used to call you or your buddy.

Another thing, since you're in-see of the rules: When you're cranking the handle, four or five turns is enough to operate the set. Anything over that usually is wasted effort . . . and makes for unnecessary wear and tear.

A final caution: The rubber gasket on the audio cup of the TA-41 and TA-112 can't be replaced via the supply system, so take care of it.



THAT JOE  
A-HEE HANGS  
UP BAWBY!



TAKE CARE  
OF GASKET



# WHEN THE MUSIC STOPS, LOOK ...



Top! A woman's slight pout made us grin for when you're listening to the receiver of your TA-45/PT or TA-511/PT telephone set for music.

When your set's dead silent, though, hold on! Before you slip it off for repair, it might just be asleep.

Take a look at the CIRCUIT RELAY-TOR SWITCH. If it's closed at CB

(common battery), you won't hear a sibilance. You get no sound until the switchboard operator or party at the other end plugs you in.

The only time you'll hear a sibilance is when the switch is in the CB (local battery) or CDB (common battery sign-  
al) position.

## LATCH ON TO THIS!



Dear Nell-Away,

I wish you'd tell your readers who use the TA-45/PT switchboard to note a second after closing the rear cover to make sure the recessed latches are recessed.

Lots of these sets will get in the reuse slot, or the rear cover won't close off the way, causing the latches to stick out. That chance they get they break off — such as when the switchboard is held in a rack or hung on something shaky — all kinds of event that can be prevented with a little care.

MC B. P.

Dear Seymour E. P.,

Wish and act.



# RIBBON RE-JOURNALS



Here follows.

We have tying white ribbon to 200-1 field wire for us. To keep deliveries from coming about us it, marking it up or getting tangled in it, we use this trick:

A thin piece of white textile tape (3M 245-000-0700) is tied to a snap hook (3M 240-000-0000). The hook end tape are put onto the field wire.

The tape's a 200 mil width (3/4" x 1/2" long), and the hook's tied to the center leg (240-000-0000) (See 3M page 111).

The beauty of this is it when we remove the wire, the hook drops to the ground and can be recovered by nothing but.

The old way of tying on the tape kept us cutting down to untangle the tape from branches, or it broke the wire.

Wright Lester Gillet  
Fort Hood, Texas

(Ed Note: That should read 1/2")

## NO PANIC BUTTON



Hold one with clear panic button. Item 11-111 (Clear Panic List) has been included, but it's also back again like ribbon. It'll do the same good. Finally, as an additional section of 11-111, Technical Radio Sets and Authorized Installations.

## KEEPS RUST ON THE RUN



your filler.

We were plagued with rust, due to condensation, on the metal parts inside our AB-12/14 vacuum lines. That is, until we started putting a light coat of electrical insulating compound on 'em before assembling the lines.

As long as the gaskets for the vacuum-mounted vacuum lines are on right and tight and the insulator itself's crack-free, moisture's not likely to get with us now.

That tube of stuff's good for the gaskets, too. It keeps 'em from drying out, hardening and cracking off its place.

We put it on every two weeks during routine operation and twice a week during steady use.

Just a little Super-Sealing vacuum's all that's needed. Getting it on will go on up the works.

You can get it in two tubes, AB-1270-114-227 or two tubes, AB-1270-114-227 or download on Page 62 in CTR-1-4 (Mag 61) Seal coating.

Get Jack L. Dettl  
Fuel Tank, N.Y.

(52 Now—Good Deal)

## PITTER, PATTER—SIZZLE, SILENCE

Your vehicle-mounted radio sets are just about waterproof under normal conditions—think the exception of the speaker-box. Where rain starts in, corrosion is, or just plain rust is up.

Now there you can do for your speaker in no time is sheltered from water. Never known to being around long up—that let's rain funnel in.



## TRY THIS POSITION



It's the position that counts . . . when you're wearing an AN/PRC-25 radio with the AN/GR-30 radio in control group.

Like us sometimes, when you crank up the radio and the control group, you get a butterfly effect as you turn up the volume on the GR-30. Maybe, too, you'll key the radio incessantly because of the volume—which can be a pain.

Next time it happens, or before it happens, turned the control group and radio on and then turn the VOLUME knob of the GR-30 to the 10 o'clock position.



After that, turn the volume up on the LECR of the GR-30.



\*Always try with the radio turned on before it is installed flying.

## PUT THE GLUE TO IT

How wonderful! What to do about that loose rubber gasket on the CR-109 panel cover for your AN/PRC-25 radio set?

Stop. Get yourself some adhesive, PN 8048-123-1887, from GSA. That number gets you a 3-oz tube for 25 cents.

It puts the "no-leakage-proof" back in your radio's vocabulary.





## TREAT YOUR RADAR ROYALLY

Winged out like a monarch butterfly, your ANIMPG-44 radar set is ready to go to work. Unlike the monarch, the set's honey is in the job it'll do for you.

Of course, the master detector's "wings" need care. When you're putting up the antenna, leaving the hoisting job to the linear actuator, you can wind up with a broken wing . . . or two.

That's why you want to make sure the hoisting motor is secured to the reflector base after the reflector is raised.



Otherwise, with only the linear actuator keeping the reflector up, a gust of wind and the pressure on the hoisting wire'll break the "lock" near the hoist crank.

Remember . . .

Be doubly sure by pairing the hoisting motor with the linear actuator to hold up the reflector like it says in paragraph 44 D, TM 11-5540-200-00 (Jan 68).

That's the problem of wings in motion.

Make sure you bring the GM-1244-2000-00 antenna through a complete up/down hoisting cycle in the opposite direction. Putting it down can wing the neck . . . that is, break the driving shaft for the pulling gear.

Same's true if you jam in the antenna swivel with the antenna's still moving.

And, when the antenna swivel is engaged, don't turn the antenna handwheel. A little pressure at the handwheel with the swivel engaged can cause permanent damage.



## RESET HIGH-LOW ALARM



Are you looking high and low for the cause of a heart-stopping problem in that ANYTEC telephone terminal?

1. Take a peek at the **ADJ HIGH** and **ADJ LOW** dials in the **ADJ/ON/OFF** amplifier-pilot regulator.

Here, you did right by turning both alarm sensitivity controls to the left as far as they'd go. But, did you remember to turn 'em like it says in TM 11-1180-20 (Mar 44)?

Keepin' those controls all turned up in a counter-clockwise position'll hold 'em up to a stiff breeze. And, there goes the **ADJ** volume in the alarm circuit.

So, tie a string around your ears. Drive to a radio. After you've turned back the alarm, test 'em in the group panel, starting with **ADJ HIGH**.

## HOLD ONTO YOUR CAP



Next time you're getting ready to test a stand-up **V181** radio (type 6442) from your **RT-315**, **ANYTEC-24** radio set, or **RT-441**, **ANYTEC-68**... hold onto your **Stamco** cap!

Quite a few Japs don't read the fine print in the case of parts TM, page 1A, TM 11-1430-221-10, which tells you to hold onto the **Stamco** cap when you replace the **V181**.

Replacement radios don't have a cap... which means you use the old one or forget about using your radio at all until you can arrange one. That can be rough, all around.

## HUEY WITH A SNOOTFUL



A beauty-based biker, this 44-inch-long UH-1B Huey, but a real beauty beauty to the troops down below when a dose of heavy suppression fire's needed in a hurry.

You guys backstage see the life of the ground-landing party, though, to keep the landing and all its parts shipshape for action. There's none of the key points or double-check before they life off on their own mission.

**TIREY**—Look for dirt and debris in the body-disconnect joint that's not fully engaged, bent, frayed or loose inflicting wits.



The rotor weighs about 800 lbs fully loaded and it's a crewman job getting it on right and safely. The best way is for both guys to . . .

lift it up straight down and the hold it level till both side mounting legs are joined to the stopper's foot plate.



then, lower it gently and follow through on attaching the steel and you assembly.



If you don't hold it level you're liable to do the rotor and have a big other one straddling job's involved. "Course, you keep this same idea in mind when you make the rotor off.



**BOOT ASSEMBLY**—Look for dirt, rips and tears in the boot, buttons that are open, a loose or tipped rubber gasket (heel strip), adhesive that's "dry".

This boot protects the rotor chafing and the rotor power cable and has to be sealed tight, so use your best judgment on it. If the boot strip needs replacing or reworking, see FORM 1300-710-0040 for the strip or FORM 1300-711-0004 for the cement.



**TURBO CONTROL PANEL**—Look for dirt in the panel and see that those three levers hold in right, cracked or broken toggle switch parts won't hold in closed position, burned out SPST-1E bulb try it by flipping the main door, finally, be sure all three wiring lamps, wrong label or round-numbering counter (it should equal the number of rounds over stopper's 2000 rpm).



**FRONT AND REAR ARMO CHUTES**—Check for loose chartered fastener's missing or fast links, broken or cracked welds.



The flexible front chute should have 26 individual links, plus two end fittings. If any links are missing, the chipping could get damaged or you'd get serious jamming when the chute flexes. This is real important to check out. The rear chute section has 81 links plus the end fittings. No real reason if one or two links are missing here.

By the way, you always want to be real careful while you're handling the chute assembly that you don't hurt the wiring behind the instrument panel.

**ARMO HOLES**—Inspect for loose or missing mounting bolts and see Part 10 (the burner's sealed up), check for broken, cracked or worn sprocket teeth.



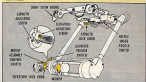
Keep a sharp eye on the burner's sense device (the fuel control switch) to see that it's adjusted right. Otherwise you might get an engine jam-up. Para 9-11 of TM 9-1810-201-12 (Jan 69) has the story on this.

You should also make sure the electrical connector's plugged into the rest of the burner when the burner's installed. After it's plugged in, you wire the hook lead right only.





**HAND CONTROL, SIGHT ASSEMBLY** — Check for dirty, scratched, cracked or broken mirror and glass reflector; burned out reflector lamp, loose or loose bracket retaining pin, other loose or missing screws; loose or out-of-light control assembly and electrical lock levers.



You want to be real careful also how you install the sight assembly in the bracket. The best way's to hold it steady and slide it in straight as the job. If you don't do it this way, odds are you'll get some bleeding and might even break the wires.

This sight assembly is parallel to the M3 subgun — you won't find it on any of the other systems. It's parallel in another way, too.



You have to use lens cleaning tissue (EOM 6940-100-2099) and nothing else on the glass ... not even a clean cloth. To get off the dirt, use your wrist's back (EOM 6028-104-0131) before you use the tissue. If you don't, you just might get some grit under the tissue and scratch the glass. And, like on all sights, guard against getting fingerprints on the glass. Like that man keeps saying, fingerprints suck glass.

And don't forget to doublecheck the vehicle lamp-out close. It should be burning when you turn the switch and you should see it in the viewing plane. This vehicle lamp has a dual filament bulb. Move the filament selector switch to see that both filaments burn. If one doesn't light up, replace the lamp (FSV 3418-114-1285). The manual Mission's your pilot's insurance on a hot mission.



**ARMED BCI**—Be on the lookout for debris and bulges in the line and wrong position (the open end of the rope should face the cockpit) since that won't clear, travel, cut, turn or load. Adjustable web straps; break bar plates; missing or unattached arrow loading indicator flag.



THE JERRY  
FOR HURRY  
M-A-M  
HELLO!

WIDE TO GET LOADED BY



Five things are more important in your neck-of-the-woods than loading your launcher exactly right. Unless the links are put on the mounts just where they belong and face the right way, for instance, you could set up a jam session come shooting time. Para 3-18 of your TM spells it out loud and clear, but here're a few points worth emphasizing:

The cartridge should pass through the link so that the top of the link just covers the groove of the loading level.



And the open end of the link should always face the rear of the cartridge. Inspect each cartridge for these things while you're loading. If you find any that don't shape up, you'll have to do the link it and face it as right.



Next, for de-linking you tear the nose end of the round on the tool and for linking the primer end faces the tool—like in Fig 2-19 of your TM.

INCIDENTALLY, HERE'S A TIP: THE BEST TIME TO LINK AND UNLINK IS WHEN THE CARTRIDGE IS IN YOUR HAND. THE SAFETY YOU WANT TO FOLLOW IS: SAFETY, FOLLOW!



That's how it works: The ammo comes in 50-round (half-round) units and for a full load you use three units at a time, right? So, OK. To save loading time, link up 75 rounds at a time, ahead of time. Join up a 50-load two ZFs, and attach one of these ZFs to each of the other two 50s—giving you two 75-round bins.



Then, when you install the ammo, the second 75-round unit will shove down all the ammo back and leave the end one in the open where you can get at it easy to attach it to the first 75-round bin which is already in the chute. You want to watch it, though, that you link up the two bins right.

When you're laying the ammo in the ammo bin, start with the first round in the forward end of the bin so that the nose of the round is pointing to the right side of the chopper. Then carefully lay the hole slightly back and back till the bin is full (about six layers).

A couple other things you should watch out for: When you attach the loading cable back to the drum end of the second belt and pull it forward through the second sheave and bouncer, make sure of these things:

1. That the end of the second is pointing to the right side of the tray with the link connector straps on the left side of the sheave.



2. That you don't yank on the cable. If the belt gets stuck, stop and back out and adjust before you start pulling again. If the study pull is what's called for



3. That the open part of the second (third) drum is always facing up.



You want to be careful, too, when you run the loading details. Sometimes the loading round will turn and block. If this happens, take your finger off the switch and line up the drum by hand. Keep on pushing the drum by hand till the first round passes the belt holding point on top of the first tray and is in line with the instruction plate marked "FIRST ROUND POSITION." But don't push the first round into the receiver.



NO. 1474  
©1964-1974

**55510**



After that, don't forget to reset the remote-controlling receiver on the turret panel control to 150—if you haven't already done so.



ACQUAINTANCE WITH THE OPERATION AND MAINTENANCE OF THIS EQUIPMENT WILL BE HELD NECESSARY FOR THE PROPER OPERATION OF THIS EQUIPMENT. (SEE MANUAL FOR MORE DETAILS.)



**CONVAMPLIFIER JUNCTION BOX**—Check for debris in the box, loose mounting slide fasteners and top cover slide fasteners, weak springs, dirt and dust inside the box, loose retaining bar (make sure it's in place to hold both amplifiers snug), loose electrical connectors, clogged cooling vents, fan that won't work.

It's real important that this electrical stuff be held snug. Vibration in flight can jostle it out of business. Check your slide fasteners for stress in the box. Any dust or oil could damage the delicate equipment inside the box. Incidentally, the fine electrical connections need a 1/2 turn to be snug. And the fan has to be in working order to keep the electronics cool from getting too hot to do a day's work.



KEEP AIR IN  
WORKING ORDER

### INTERNAL TESTS

It takes yards of wiring and tons of delicate electrical parts to make up a post-launch weapon like the M1 launcher subsystem. Naturally, this requires pinpoint testing and headsup handling.

Your TM covers the electrical component trouble-shooting checks pretty thoroughly in Table 1-6. When you and your buddy tackle the job, though, be sure you do all the steps on all 18 test jacks on the conv-amplifier junction box. The one you skip could be fatal to the mission . . . and maybe the guys on it.



When you're making the voltage readings, if the readings are not right on money, don't be in a rush to replace the part. First check the "actual sense reading" column in the table. Chances are it calls for an "approximate" reading or allows a 5% leeway in the voltage readings.

While you're going through this testing bit, it's a good idea to remind yourself and your buddy once in a while to take it real easy on the connectors, pins and cables. If you're not careful, you could cause more damage than you'd normally measure in a month of testing.

# M75 GRENADE LAUNCHER

NEARBY THE GUN  
LAUNCHER IS A LOCK  
AND HANDLE FOR  
EASY WEAPON  
RETRIEVAL.



Guns who use the M75 sub-system in Viet Nam will tell you how important it is to use the list of maintenance schedules — like when every 100 rounds (and after 500 rounds at the end of the day's firing, they're gone really slow) on a mission and when the rest of the day and night manage to get in the launcher.

Don't miss out on that inspection and light lubing and cleaning bit on the launcher and its mounted parts after every period's time delivered. Especially don't skip lubing the launcher barrel guide ribs. Fuzzy place might run into a gun stoppage if you goof on this.

## HELP FOR THE GUNNER

You M75 417's and crew chiefs always want to keep in mind that if you run into any real rough maintenance or supply problems on the M75 or any other sub-system — no matter what in the world you are — you can always get an expert's help by contacting your headquarters. All of these sub-systems run top priority.

**CRIM AND COVER ASSEMBLY** — Cracked rear, missing or unseparable instruction plate, cam track worn so much that roller slips off 'em.

**BARREL** — Flare at cracked base and guide, deformed lock wedge, overheat mounting hole for roller stud, cracks, heavy or badly worn parts on roller and stud.

**RECEIVER ASSEMBLY** — Broken, cracked, bent or badly worn parts; weak or bent springs, broken or rusty firing pin, clipped or cracked at sliding blocks, badly worn cartridge position/lockdown bracket barrel lock, worn locking lip.

**HEAD AND ASSEMBLY** — Burned, worn or broken parts, bent or weak trigger spring.

**HAMMER ASSEMBLY** — Cracked or worn hammer, broken bent or weak springs, worn, cracked or broken bar and nose release.

**DRUM SPRING ASSEMBLY** — Broken or weak ed springs, bearing not attached tight to spindle.



BY  
EAGLE  
38  
FOR THE  
MAY 1958

## AIR MOBILITY



WELL, YOU WANT TO KEEP  
YOURSELF FROM GETTING  
WET, DON'T YOU? THEN  
YOU'VE GOT TO KEEP YOURSELF  
FROM GETTING WET IN THE FIRST  
PLACE.



## SNOW REMOVAL TIME FOR A MESSY HANGAR



The cold winds and snow have brought down big drifting clouds cloud with a lesson—and don't you call it a lesson! With less regular snow, it's more important than ever to see to it that hangar work areas are clean and safe.

Debris breaks under. Chances are and safety go hand-in-hand.

Now it's time that the hangar's a hard place to keep clean. First birds naturally shed a few feathers, and they get dirty, too.

But the short maintenance leaves where to get those dirty parts to catch the oil drips, leaks and seeps. He knows one, or wipe up any oil the drip parts into a pan or to keep it.

Leave oil or grease on the hangar floor and it's a safe bet that other workers will slip and break his neck, or crash in all over the place.

It's a good idea to keep floors as clean as possible. Careful work makes a lot of standing places. Tools, items and other items cluttering up the work area can make a natural landing pad to send a mechanic toward a hole in a beam or a broken bolt.

Always leave plenty of elbow room for your friends. You can do this by keeping tools, wrench, pliers, sockets, portable lights, air hoses and other equipment in a marked-off area out of the line of hangar walks.

Keep things clear of hazards and keep them clearly marked, too.

Only needed items should be hung on the hangar walls. Store crappings, you'll find, are and usable items.

Before those windy winds get too hot, take a look around and do some house-keeping. Get rid of the unnecessary items and clean up while the weather's still good.

It'll be long thereafter the spring there.

ROCK WARNING!

# CHECK YOUR FUEL!

THIS ISN'T A FUEL TANK. IT'S A BIRD'S BODY. CHECK YOUR FUEL!

BE CAREFUL! DON'T GET TOO CLOSE TO THE BIRD!



These days you can expect big temperature changes—like from low to lower—changes that can lead to a lot of condensation (water) in the fuel tanks of your bird.

There's an aside: There is—water is just about the weakest enemy you've likely to come across. Ice and snow in a carburetor keep-out dirt, but water can still clog them and throw a bird in their orbits.

To help prevent the clogs from getting a foothold, pour beer for a to keep the fuel tanks full out, of course, look for this by sampling the fuel tank.

### THE BIRD'S EYE

When an MISC, MISC or MISC Model MC-411 number pulls up to your bird you can see your hours that only show (no dirt) and dry. From that it's Gas or JP-4 gets pumped into your bird, for a couple of minutes.

Now, since water is heavier than fuel, it settles in the bottom of the tank. The fuel is topped to a point above this bottom layer so settled water can't be pumped into your bird.

Second, if there should be some water in the fuel tank that hasn't had time to settle in the tank, there's a float/separator that not only takes out the dirt—but the water as well.

And ... it's possible to wind up with contaminated fuel, especially if you're out in the woods fueling from 55-gal drums in July 2008.

### SMELL THE BIRD

The right way to tell if your bird has water in the fuel is by taking a sample when the fuel is refueled and on a daily. That's the pump in Change 2 of Jan 08 on TM 10-1007 on previous handling of aviation fuel.

It makes sense to take this PA (permitted) method sample to head off trouble, rather than have someone else take it after a bird has ingested it.

Typing the sample for dirt, alcohol, fuel, condensation, water, detergent or fuel water on the bottom of the sample jar had its problems. You could always get different opinions from other methods as to whether or not the fuel was contaminated?



FUEL SAMPLE



## USE NEW CAPSULES

Now, however, the game work has been taken out of reading the sample by use of a new capsule. The capsule's in: Detector Kit, water, unannounced and violation tests, PSM 6640-803-2264. You'll find it listed in Federal Supply Catalog 23-11, Volume 2 (1 Jul 67) . . . on page 128. The kit includes a sample sampling jar and a bundle of capsules with directions on the bundle label.

Here's the way you use the kit.

Take out the sample jar, clean and dry and then tap the lead test dropper. A ball-pen or pen should do the trick.

Use the sample for 240 cubic centimeters before you add the powder.



Next, take out one of the capsules and use the powder in it. It should be gray-white in color. If it's pink or purple that's not it because this means that moisture got into the capsule bottle. To prevent this, it's a capital idea to get inside the seal of either creating the capsule in the bottle.



Open the capsule and pour the gray-white powder into the lead sample. Water or water the lead around in the sample jar, and if there's more than 20 PPM of lead water in the sample, it will immediately turn the powder in the sample 1117482 to give a dark purple or pink . . . water like a clown. For three out the sample after the test, use ball.

If there's no color change the sample has less than 20 PPM of lead water which is acceptable and the lead is essentially dry.



When you get a water reading from a tank, draw off a quart or more and test it again. If you still get unannounced lead pipes, tell the pilot and maintenance officer—the hoses might have to be deflated.

So-o-o . . . be on the lookout for that sneaky water while these days. Keep him in check with a PA sampling of the lead.

# "HELLO, DOLLY..."



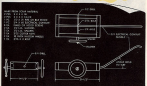
Dear Fellow,

It takes a lot of extra time and effort given for a mechanic to take his heavy general mechanic's tool box out on a job. And it never fails — the last that needs maintenance is always at the end of the line!

Well, here's a dolly that I put together (using scrap material) for use by all our mechanics.

Transporting the tool box on this little gem makes the long haul a breeze and lifts the mechanic's shoulders on the maintenance to be done.

Mr. L. A. B.



**Old Note**—Looks like a real down-to-line maintenance. Of course, a CO has to flash the green light on this type of project.

MURPHY-LAW PROP  
GASKETS CAN BE THE FINE ...

## A LEAKY BEAVER



The piston gasket in your Beaver's (PINA) pump are made for Murphy's Law. Put 'em in backward when you're changing a leaky gasket and you'll probably find you will have a leaky Beaver on your hands.

It's not hard to figure—the inside gasket is not an oil seal. It's simply a gasket for the cylinder. On the other hand, the outside gasket is an oil seal.

THE 10-1300-201-02 128 Aug 681 tells you how to put 'em in. You turn the blades to full high pitch position and put in the inboard gasket on the piston with the chamfered end facing the spider. It should be seated on the piston shoulder. Then, place the outboard piston gasket on the piston and against the inboard gasket with the sealing lips facing away from the spider.



Remember, too, the inboard gasket (PIN 10120) is chamfered on the small inside diameter and on the outside diameter, but the outboard gasket (PIN 10140) is chamfered only on its outside diameter.

While you're at it, you'll get a better seal if you soak the extreme end of the outboard piston gasket in oil and let it dry 24 hours before you install it. Guard against overfilling the gaskets from over-soaking, also.

# DYE KIT MATERIALS

Dear Windy,

I ran out of developer for the dye penetrant kit, FM-4023-F27-0812, and haven't been able to find a replacement.

Before I develop a case of eye strain, is there any way to replace the parts of the kit without ordering the whole kit?

SPE V. B. H.

Dear Specialist V. B. H.,

Run your eyeballs . . . there've been some changes made.

The dye penetrant kit, model MR-1, is the responsibility of the Defense General Supply Center and now carries FM 4050-737-0012.

Run your papers over Federal Supply Catalog COMSEC-02, (1) Oct 69) and you'll find they stock numbers.

Developer	Qty 20-50	FM 4050-737-0012
Penetrant	Qty 20-50	FM 4050-737-0012
Developer	Qty 20-50	FM 4050-737-0012

TRY

USA

REGIONAL

You'll also notice, on page vii, that inspection penetrant materials are purchased locally in COMSEC.

Of course it's best to make the same local purchase. But if you're out in the bushes and can't locate a manufacturer, make with a reputation in your General Services Administration (GSA) regional office.

SAC DEFENSE

GENERAL SUPPORT

SEARCHING FOR

## PARTS MINUS FSN



Dear Dick Olson,

What's the best way to file the title inserts (SA Form 1543) and the Record-of-Buyers cards (SA Form 1537) for parts that have an FSN?

Filing the records by manufacturer's number doesn't work too well since that number doesn't always provide easy identification for most parts.

EPS J. H. C.

Dear Specialist J. H. C.,

If you keep your records file sorted by FSN, your best bet is to set up a separate section in your file for the parts without FSN's. If you have only a small number of non-FSN parts, you can file the forms alphabetically by item manufacturer. But, if you have a slew of such parts you can keep the section alphabetically by manufacturer's name and then file the forms alphabetically by item number now under the manufacturer's name.

Another way to solve your filing problem is to keep your complete records file sorted alphabetically. That way you don't need two separate sections in the file. All 731-33, OK's keeping the file either way, alphabetically or by FSN.



AM 731-33  
BUNGE, I'M GLAD  
TO HEAR YOU FILE  
BUNGE WITH  
A BUNGE FILE  
ON IN FILE.



# H<sub>2</sub>O-CO<sub>2</sub>- DRY CHEMICAL

Whether it's water (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), or dry chemical, they all have something in common — they're all used to fight fires.

The type of fire extinguisher you use depends upon the class of fire you have.

The first thing you want to do is to know the A, B, C's of your fires. You have to know the class of fire so you'll know what can be used to put the fire out.

It would be simple if you could use one type of extinguisher for all types of fires, but it just doesn't work that way. If you tried to use water on a Class C fire, you might get electrocuted. So before you grab an extinguisher, make sure it's the right kind.

Here are the classes of fires and what's used to fight them:

Class	Fire-fighting material
A — Burning wood, bark, paper, cloth, wood	Water or water and foam
B — Flammable liquid fire	Carbon dioxide (CO <sub>2</sub> ), dry chemical, or foam
C — Electrical equipment fire	Non-conducting agent such as carbon dioxide, dry chemical or vapourizing liquid



The source and supply of fire extinguishers is given in TB 3-4200-200-00 (May 89), "Hand Portable Fire Extinguishers Approved for Army Use."

No need to ruin your papers trying to find the 2½-lb CO<sub>2</sub> fire extinguisher in the TB, 'cause it isn't there. Search/replace across AFM 4210-4 (11 Sep 81), by Defense Communication Supply Center did away with the 2½-lb and ran up the 3-lb CO<sub>2</sub> extinguisher to the minimum size DOD standard.

However, there's a USA Tank-Automotive Center message SHEETA-08-80DFP 3-11300 (10 Aug 89), sent to all Army headquarters authorizing the use of the 2½-lb dry chemical fire extinguisher (FM 4210-403-1 (89)) on all Army vehicles. Don't mix 'em up with those 2½-lb extinguishers that you need because they are likely to be replaced by another type.

When you ask for the 3-lb CO<sub>2</sub> extinguisher, you have to order the mounting bracket because it's not issued with the extinguisher. Ask for Stanley, Mounting, AFM 4210-268-07 (9) Item 05, 05L.

Be sure to check your local MDF's because your CO<sub>2</sub> may have decided that extinguishers are no longer needed with some equipment. In such cases the bracket should be returned.

Be real careful with those vapourizing liquid extinguishers, like carbon tetrachloride, in poorly ventilated areas. The fumes could give you a permanent headache.



### 2860 All Tank Plug

If your 2860's tank's outside serial 1450 or after you get nothing to worry about. If it's the earlier type you have had tank drain plugs 284 4728-179-1000 which would certainly not make it hard to drain the tank. When or if these plugs need to be replaced, you can always use one position or the second plug, 284 4728-100-8912, which had up better. They're in Federal Supply Catalog 44750-A-4 Oct 54, Vol. 2.

### 28105/28100 Plepper Plug

You in a fix because there's no Plepper valve on the exhaust of your 28105 or 28100? Well, if it's there you're gotta be extra careful working off your 17 minutes. Deal with that fuel by a siphon and enough water can deal through the exhaust to give your engine a hydrostatic lock that could kill it.

### Good Provider

Supply men, here's a handy job. On \$1,100 (10 for 45) "Provisioner, Packaging and Packing Materials, Supplies and Equipment Used by the Army." It provides PMA, cases, etc., as long as the alcohol, cooking, compounds, powders, greases, liquids, oils, paints, pastes, woods, steel wool, tapes, wires, tapestries, wood, wire and kinds of other stuff used for generating supplies and equipment.  
It also lists tools used in preservation and packaging.

### Tell Friends

Remember — You get five OK from 120's on one sheet. In when you order this report you'll have job for the number of sheets there'll add up to the quantity of 120's you're after.  
If you need 200 forms, for example, you'd ask for 100 sheets, making for 200 sheets, will get you 200 sheets of five each for a big fat bundle of 1,000 50s sheets.  
And, you can add the note "Five forms per sheet" to your OK from 17.

### Antenna Up... Feed Down

If you're packing a portable radio set — like the PIC 8-10 or 11 — you don't have to haul, stand up or expose yourself to keep the short antenna in a vertical position. Instead of at the wrong time-out get you feet right-side-up. When you have to fix the dial or take care, you can remain prone and still reach back and bend the spring-loaded base of the antenna until the antenna is again vertical and ready for maximum output and reception.



### Open On That A7-914...

Yes, just remember the words and forget the picture on that A7-914/O antenna story on page 29 of PG 155.  
For the screws of the antenna base plate. Recently prepared antennas have the special lag attached. Just back off the antenna support (A8-57) of your 87-500 (A7-1 PIC-12) radio radio set. Slip the special lag between the antenna support and antenna base, and tighten the antenna support.



Would You Stake Your Life <sup>with you</sup> on

the Condition of Your Equipment?

YOU  
MIGHT  
SOMEONE'S  
BEEN DRIVING  
UP YOUR  
REARVIEW  
MIRROR!!



USE THIS  
TO

**STOP**



USE THIS  
TO

**PARK**



AND

Use Parking Brake  
The Only Way In An  
**EMERGENCY**

Release It Before  
Moving Out Again