

CWO Rogers

Issue 108

PS

1961 Series

**THE
PREVENTIVE
MAINTENANCE
MONTH**



PM Pays

Good PM doesn't cost a penny. Pays in better operation... fewer gigs. In the showdown to see you off to victory.

Make sure, then, that you make PM a regular habit... second nature. Like, for instance, when you're mowing a vehicle, or filling a gas, or doing any one of the 1,000 things your MCO calls for.

Double-check while you're doing. PM starts with inspection and ends with performance. Make every operation a sort of prepared Be-You-Own Inspection deal.

If your equipment doesn't sound right, or gives off a funny smell (where it's not supposed to be funny) or feels

odd still in one form... or if the entire system will you everything it can spare operates.

Check it out then and there if you can. Or make a note to do it first chance you get. Or, if you don't have the authority to fix it yourself, pass the word along to the guy who does.

The important thing is to catch the defect early. When something going bad can be fixed if it's spotted in time.

In other words, keep your wits in tune with your equipment. Eyes, ears, nose and hands to detect and fix, and mouth to yell for help if you need it.

Give PM-constant repair add up to the low kind of work rates—plus constant costs.



THE PROMOTIVE MAINTENANCE MONTHLY

Volume No. 114 1981 Edition

Promotive Maintenance is the development of the long-term strategy for the equipment manager. It is a monthly publication that provides the reader with the information, techniques, and ideas that will help him to improve his equipment maintenance program. **IN THIS ISSUE**

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INSIDE RIGS



NEW SETSCREW OK'D

Set screws, PN 5004-014-10175, is going to be released from duty as part of the Nike-Hercules launching and handling rail device's stop and positioning back. The reason: A more rugged set screw has been given the nod... it'll come under PN 5004-014-1100.



But don't rush for the new ones right now 'cause the change'll be some-thing-like. Replacement will be made on an as-needed basis... until a good supply is on hand.

A light coat of oil covering moving surfaces will help.

IF YOUR DOLL NEEDS OR ...

GUIDANCE AND CONTROL SECTION DOLLY



THIS SECTION OF THE DOLLY HELPS YOU CONTROL THE DOLLY'S PLACE.

No doubt about it... the guidance and control section dolly is your Nike-Ajax dolly is like a 275-pound lineman, among, the mightiest equipment.

Nothing can be done here making you an All-American guard—but here's a quick guide released to help you keep your dolly in top shape.

As you know, credible spots that'll get your dolly out of commission, or make it unsafe, and prevent the being convenient, are its **load types**.

CRUISE! Let's go, for your own convenience.

First, drag 'round your dolly... keeping your sets packed for things like cracked wheels and split nuts. On your feet, eyeballing them, check for nut spins, corrosion and places where the paint is chipped or faded.

Make sure it's labeled. If it's okay, use a thick elbow grease.

BE SURE THE ABOVE LOOK FOR EACH MAJOR SPOT.

1. HANDLING FEET
SPARE—**Long bars, loaded, set wheels, twisted, flattened, missing lock pins** for in hand, threads stripped, handle loose, dirt, bent.

6. HANDLING FEET JOINTS—**Rings twisted out of line, don't rotate freely, rubber pads worn, missing, loose, flattened joint set loose, missing, locking assembly bent, broken, missing, collar set missing, big roller loose, set bolts missing.**

2. SWIVEL CASTERS—**Worn, showed up, fit tight, set hard, set bolt loose, set loose, missing.**

3. DOLLY BEARINGS—**Turn hard, sets loose, breaking, missing, threads stripped, don't get loose, split.**

5. CENTER WHEEL BODY—**Worn, bent, locking bolts loose, bent, missing, frame bent split.**

4. LEVELING HAND SCREWS—**Loose, bent, threads stripped, don't get loose, split, leveling screw bolts loose, showed, missing.**

STENCIL IT



CHAIN
STORAGE

Your support unit's here to your Hyster John Deere and more.

And... seeing's how they applied HVO 9-2010-208-2070 to your H400 handling unit... you've now got your... well some beams damaged by different parts of the handling unit.

You have them, that is, if your handling unit has a serial number from 79 through 130. Being so how the beams

are for chain storage, you don't need them on the other serial-numbered handling units. They already have places to put the chains.

Anyway... there's one more way to get your crew to use the HVO chain-stored beams for the chains.

That's to stencil, in letters one-half inch high, the words "CHAIN STORAGE" on the front of each beam.

OIL FOR A HAWK

Like in any system—the less is more the good. So it is with the hydraulic system in your Hawk guided wheel loader.

When you want to put into the hydraulic system a GBC (MIL-B-6069), brand of GBC (MIL-C-1580). That's the best info. FSN 9130-203-9413 got you a quart—FSN 9130-203-9412 is worth a gallon—and FSN 9130-203-9414 is good for a 5 gallon can.



TURN IT OFF



You'll see it in your TM's—TM 9-205-20-11, Publication.

That'd be the cross block type that tells you when all the fuel supply for your Hunter John M11 generator is whatever you move the equipment, the generator is sitting on from one spot to another.

The fuel shutoff valve wants to be closed when the generator's not operating 'cause the bumping the generator gets from moving around might shake enough of the fuel into the engine to cause flooding.

And flooding can lead to a couple things... hydraulic lock or—worse for the guy who's in the way—a fire or explosion.

Y'all said!



IT'S NO, SHUT THE DAM
WRENCH THE BOLT!



WHO GETS PS MAGAZINE?



Your unit can. It can get as many copies of PS Magazine as it needs. And every month. How? Make sure your local Publications Section knows how many copies your unit needs. Then your Pub Section can order enough copies for everybody on DA Form 134 from the pub depot.

Switch the hookups



There's no arguing about it.

You look on page 108 of TM 7-2590-201-20P (May 1960) and you'll see mention of an extensor kit for your M42 or M42A1 5P twin 45-mm guns. The idea of the kit is to give you a right hand and a left hand extensor—with the hooking in the right extensor—for each gun.

The trouble is... there've been so many extensor assemblies in the supply system, they've never been put into the kit. So... when you requisition the kit under P/N 1303-666-1070, you'll get an assembly which includes a right hand and a left hand extensor, with the hooking in one side or the other of the extensor. There's no telling which side of the extensor the hooking'll be in. But there's a way out.

Buy you supply extensor assembly for the gun on the left side, but you get an assembly that has the hooking rigged for using in the gun on the right. All you have to do is drive out the hooking and put it in the other side of the extensor.



The same goes when you need an assembly for the gun on the right, but get one for the gun on the left side.



Fire bottle strap

Want to carry your fire extinguisher on your back? See the Do It Right!

When you're getting out to weigh the food the extinguishers from your motor vehicle to see if they're fully charged, keep y'r motor pickup off their connecting leads.

What you want to remove is the control head and the pressure lines. It... make like a snapper, but don't go too far.



Leave the connecting head on when you weigh the bottle like it tells you in words on page 17 of FR 121—see like the picture there shows you.

And make sure you get the head from your support before you lay it down on this connecting gear.

All one strap

Point 'em the same way, no matter which one you go.

That's the standard front prop shaft on your GM4-cylinder 3-ton vehicle. Turn the slip yoke toward the transfer, input end... like it tells you in parts 2116041 and 2116115 of TM 5-8015 (13 Jan 58).

Change 5-117 Nov 59 to the TM and FR 74, page 16, and you about two shafts by different manufacturers... one 5 inches in diameter, the other 4 1/2 inches. And one goes this way, 'nother that.

Forget it. The one slide's gone out.

Whether you're browsing FON 2120-840-2140 or FRM 2120-714-8070, do

slip yoke goes under transfer, input end.

And see that the front prop shafts set all one way on your other GM4-cylinder trucks.



Flying snap rings



WARNING: NEVER REMOVE THE "SNAP RING" OR A PIN OR SPRING FROM THE



Working snap rings can lead to bills from say!, and tight rings tend to seize, but look out for flying snap rings ... they hurt and lead to making

many habits of "popping" loose when you're installing, removing or working on the mounting brackets.

You've got no worries over the unit's included in the M28 tank 'cause snap screws and washers snap the pins from going AWOL.



for trouble and a ride on the sick beds.

Specially those snap rings that sometimes take off into orbit when the mounting bracket assemblies of certain M17C range finders are banged around a little too much.

M17C range finders carrying serial numbers from 2790 to 4679 with mounting assemblies 8581485 and 8581478 are the bunnies for you (M28 tank trouble shooters to read with respect).

These assemblies are put together under heavy pressure and held together with snap ring retainers, FM 11-49-140-1125. The rings have picked up a

The safety caution shown will give you the same protection whenever the range finder's not installed in a vehicle or a shipping case.

The safe way? Yeah, you're snap. Just insert a bolt through each of the sleeves the two screws go into. Be sure 'em right with a washer and a nut — and you're in business.

Now you can top the mounting bracket with a nut to take it off the range finder, or work on a banged-up M17C without worrying about getting ahead up by a flying snap ring.

Hands off, unless

Get PMS



There's such a thing as the wrong kind of maintenance... and that sure goes for the gas pedals in your carbin.

You don't want to remove and clean the pedals just because you figure it's time for a cleaning session.

It takes quite a spell for carbon to build up on the pedals. That's for sure.

So... before you take out the pedals... look for signs that the carbon is starting to get on the heavy side—the two weapons being sluggish or not being able to return the lever.

They're drain plugs



There sure is a good reason for those two plugs being put at the back of the cradle on your 100-cu-in. machine when it gets back to depot for an overhaul.

The deal is that you remove the plugs over a month... clean the weapons... and let any water that might be inside the cradle drain out. Do the draining more often in wet weather.

PM for motor cars

You just don't have around with 1-gal. water cans. Too risky handling for your needs.

Now, it's OK to use 'em if they have pleigoric run space on the inside, but they run spot bigger's a spark-XXX! Then the cans is gone.

If you can't make up your mind whether the can's good or not, call in your work manager and get his help.

Actually, these cans need their PM, but that task bit is mighty important. Like keeping the cans clean inside and out, checking that the parts are OK,

and making 'em right. PEM 10-170, July 49, w/changes, has the whole story.)

You don't paint 'em inside (see Change 4, 8 July 195), but make sure you cover 'em like Change 1 (12 Feb 50) says—with clear tape off and sanding spalls down it to rough it-to run-making machine can rollers.



1.5" HOIST SINGLES...

Anti-flash mask



You can also use the MSA® field mask as an anti-flash mask when you're handling LHA materials in below freezing weather.

The MSA®, normally a CBR field mask, as you well know, will shield your eyes and face from the bomber's back-blast and unburned propellants.

MSA's will be issued specially for this kind of cold-weather-logic protection.... and, you'll see those masks a special form.... namely—they must be tagged to show they've been on ventilating duty.

The tag, Ed Form 16,107 "Repairable or No-Work Tag," (or similar, ready-to-use tag), must be firmly attached to the mask's head harness. The mask's complete identification and ESN should be written in indelible ink or pencil on the front of the tag. The back of the tag gets this exact info:



The MSA's come in these sizes:



RIGHT

Small

FM 4-40-288-6081

FM 4-40-288-6082

Medium

FM 4-40-288-6091

FM 4-40-288-6092

Large

FM 4-40-288-6084

FM 4-40-288-6085



LEFT

The tag becomes a permanent part of an MSA until the mask is inspected and repaired.

You'll also see these MSA's the normal good care they require, but the minor inspection checks required for CBR use, won't apply when the mask's used for anti-flash protection. As long as it gives you good eye and face protection, and it's clean, an MSA will be OK as an anti-flash mask.

You can learn a lot about the MSA from TM 3-122-11 and SB 3-122-11. Its repair parts manual is TM 3-312-11P.

OIL THE AIR FILTER



So you've got a Fairchild Service VEC-13 air conditioner on your FM power? And your customer grovels because it doesn't put out cooled air like a 14,000 BTU house should?

Your customer could be right—if they're running it with a dry air filter in the evaporator section. Part of the matter is, those filters are supposed to be "wax" (waxlike means you've got to oil 'em.)

Take off the evaporator section right side panel. If the filter is dirty, take it off and soak it in water. Then rinse the web away in clean water, and let the filter dry, dry, dry.



REMOVE

SOAK



REPLACE THE FILTER (ONLY 14 OPERATING HOURS). CLEAN IT AND OIL IT AGAIN (ONLY 48 OPERATING HOURS—CHANGE IF IT PICKS UP DUST) BUT TO MAKE THE FLOW OF CLEAN AIR TO THE COMPRESSOR.



If the evaporator coils are dirty, heat 'em to a warm cleaning while the filter's drying.



Spray a light coat of oil on the "oil mat" (oil) of the filter, holding the spray nozzle 12 to 14 inches away from the screen. For help to use the filter, check number 247521-14-7000P, supplied through supply channels from U.S. Army Logistics Maintenance Center, Columbus, Ohio. It costs \$2 a piece.



Put the filter back square in its frame, rolling over and to rebend the horizontal. Wipe off any excess or run it off, then fan-dry it.

COVER YOUR



There's one thing you've got to keep in mind when you're working with long-run crawler-mounted equipment. There's no spare tracks to keep the rig rolling. You go with the tracks you've got.

GARNEY?

There's one thing you've got to keep in mind when you're working with long-run crawler-mounted equipment. There's no spare tracks to keep the rig rolling. You go with the tracks you've got.

When a track breaks, snaps, jams or jumps the sprockets your rig is stuck out of business—along with all the other equipment that's depending on the rig's side of the rig.

To you want to keep at least one jump ahead of trouble with the tracks, before they hang down the track.

Here are six ways that jump on the job: by example* around the working area now and then during each operation.

In a distribution track, you'll see the end tracks in double drive tension list.



Follow a top right hand-sprocket and then the gear—into, normally wearing track end should see, but you should take off, why not pay to spend?



To you keep the chain of joints like it is to cover the TM, so you get a smooth flow of power to the track.

In a distribution track, like mine, you'll see the drive and being away from the track.



Your rig needs better that way, and it's not what's in a bucket or the back end.



Lower tracks don't dig on the power side, but they'll whip and vibrate and jump operator work, especially in reverse. If they work outside they'll spin off when the rig pivots, runs on a side slope, or backs up an incline.

To you need the tension like it says in the TM, especially when working on a slope—like break-in on a new track, or "padding" on an old track—will be a track in adjustment.



Some signs of trouble are under the rig when your rig's worn up or in track. You get to you can tell when a normal sign becomes a habit... when a bearing is bearing up and about to fail... when a run of rough going is working-out like to fix the "L" service track to be pulled ahead of schedule.

These track within and track carrier rollers lead a rugged life, and it's a new track to keep you back without putting on much grease you pay for work.



Condition you change track tension from right to lower or higher way around in the course of a working day. And some other reasons can check the your rig, you check the tension before it springs out for a better direction.

Tight tracks are an angle power 90 per cent. It runs so fast it shows the hardness on of track pins and bearings. Binding track also overloads the final drive, hubs, bearings and gears.

Tight track can be caused by "padding," when you work in outside the track and clay. So you can't count on tension to keep on the safe side when the track needs to "pad."

It's also a good habit to keep rock, sand, and other mud from fouling the rollers and spiders, because we tend to shake out, and kick out, most of that stuff. But there's no live again/cluster' shoes and pipe' mats or mats out of the truck before they start to dig.



And there's always room on your trip ticket to report truck parts that need replacing before they break. Since you never stop a truck twice in exactly the same position, it's easy to check all points while you're out on the job.

Then, before you push your rig, why not unload all the day's rock and mud—also you can knock off' specially in winter, when this work can freeze and do more damage than a week's work.

Like the man said, you go with the tracks you've got.

By the same token, you'll never track with the same tracks if you give 'em the weather-job care they need on any track.



KEEP 'EM WARM



When your Miles starts rattle for several points, it's no time to be rough with your generator engine once cold.

But how can you keep 'em hot, around the clock, without running up biggie fuel bills? Specially when the track is colder than a polar bear's nose?

There's how you can keep 'em cooked'—for less cash than it takes to fill your engine by the hose.

All you do is buy—purchase some electric pre-heaters, and have your repair people hook 'em up in the engine in your generator engine.



They'll blanket the heater coils in the base of your diesel, then run connecting hoses to the cooling system. With the heaters plugged into your commercial current, instantaneous will eliminate all through the system—on you less practically no time warming your engine and getting up to generating speed.



PLURGE THE SURGE

If the engine on your new Cummins or Isuzu generator surges like a boat with a leak under the hull—it's most likely caused by air in the system.

Usually happens when new units are first started—or when the unit has run all the fuel under the day.

When this happens on a Cummins Model 10BT, a Cummins Model (34-4-450KW-AC), or a Cummins Model (34-4-450KW-AC), or a Cummins Model (34-4-450KW-AC), you never mess with the generator adjustments before you check out the system.



Here's the wrap:

1. First, you take the over-geared generator off the fuel pump. That'll let you get to the pipe plug in the generator cabinet.
2. Next, you run the un-geared generator on a handy place on one of the engine components. Then you disconnect the tank and the generator to the un-geared generator receptacle, and take it in place with the connector set.
3. Now you start the engine like the manual for your rig says.

Get your engine running at idle speed—then you loosen the pipe plug just enough to let the air leak out. **DON'T BLOW THE FUEL.**

4. When fuel leaks out around the loosened plug, the air's out. Then you can tighten the plug back in place. Then go through the same motions with the other pipe plug.

When both plugs are purged of air, you can stop the engine and put the over-geared generator back into the fuel pump.

Now don't go away before you run the engine again.

If it's still hard to start, run enough, or leaks again, better pull a check on the battery cables. Before we know did that you get to your rig being' out up.

Check the manual to the place where it tells about maintaining the generator and inspecting the wires. Once you get 'em back clean, it's no sweat to keep 'em that way if your fuel supply is carefully filtered.



TWO-FOUR-SIX-EIGHT...



NEW DOOR

They really add up.

Talking about Changes on TM 11-896 on Radio Transmitters T-1011/1012, T-1013/1014 and T-1015/1016 ... the basic components of your AN/GR-12 outfit are.

The book is Change 8 1112 Jan 611. It provides instructions for a bunch of fresh air for T-1011's operating in dusty and desert locations.

Change 8 shows how to install a new auxiliary door filter ... how to clean and service the new door filter, and how to get the most out of it. You'll keep us up-to-date for it.

CANNIBALIZE



Dear Mad-Man,

We've looked everywhere for the FOM's for the spring change on our H&M A-11 Hammer-Headsets. We need to get new slugs to replace lost and broken ones. Can you give us their stock number and manufacturer?

—A. J. [Name obscured] [Address obscured] [City obscured] [State obscured] [Zip obscured]



Dear Sgt. P. L.,

Those clamps have no ERT's and they can't be repaired. Because the fall-out and usage rate is so slight, they're now carried in the Signal supply system as a maintenance item.

When you do in get them through coordination from the incompatible loading-handlers, A.R. 790-08, with changes, gives you the dope.

High Effect

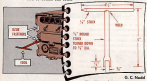
TO GET A DZUS LOOSE...

Dear Editor,

We have discussed many a knuckle while trying to cure a Dzus fastener on our communications equipment. In the boys here come up with this handy tool and it works fine. We use the screwdriver with end to break the nuts

after the fasteners are unlocked. Our knuckles are all fixed and the air isn't quite so hot as it was.

Thought we'd pass it along as a tip to other common maintenance guys.



G. C. Meuld
New Hampshire National Guard
Concord, N. H.

(Old note: a real handy tool, just be careful when prying as it can damage the part.)

SEATING VIBRATORS

Dear Editor,

Our medium size company has grown rapidly. PE-111/108's that I bought me every time I had to replace one of the three vibrators in seats.

This was always a tough job because there is no extra space between the power supply's top chassis and the vibrator-retaining spring clip. And even you get the new vibrator into position, it's hard to line it up with its socket.

So we just decided to put pencil marks on a matching pin and its pin socket in front. Marking the pencil marks makes slipping the vibrators an easy job. The red arrow pointed on the back of the vibrator was a much help because of its location. You couldn't see the arrows when you needed to.



(Old Maintenance of these power supplies have more clearance than others, but your approach will do the job for all.)

NO PAINTING, PLEASE

Here it does. This piece of signal equipment belongs to your unit . . . it has to be used. And it's got your unit marking painted on it no power to.

But what happens when the equipment goes back up the line for repair? It may come back to your unit . . . but the chances are it won't. Which means the repair shop's gotta paint out that number since it won't mean anything to another unit. Lot of time and effort wasted.

So? So try using a tag, duct or some other easily removed marking system. Save lots of money all around.



IF AT FIRST...



What's been happening, it turns out, is simply a matter of leakage. A small amount of the electric charge provided by the PP-1178/PD makes charges slip away even while the detector is still inside the charger.

But even the holder seems to leak from the light. In the right spot, a hole would give a nice reading.



If that's the case, ask the guy standing over there (the one reading a TM1 to help you for half a minute. All he has to do is hold the PP-1178 up to the light; the gamma provides a source of light and also hold the charger steady while you

poke in the detector.

Or, if you want something more permanent, build up a light source (could say steady platform, table, bench, etc.) and drill a hole in it for the light through. Then, charge ahead.



Keep the loading check unsecured as it doesn't grip the detent. Then, with the detent moved in hard enough to depress the spring, turn the charging knob until the hairline points to the left of ZERO (overcharge).



Judge the linkage curves the hairline across back to the right toward ZERO—and push the detent over at the split second it reaches the ZERO line.



One or two meters like this and you'll have enough for an entire unloading job when to pull it out.

This tip on charging explains more

about parts MG 121 of TB 500 254-0 (7 June 54). It'll let you charge your detent even though the charge may be tricky, as spelled out in the TB.

ARMY AIRCRAFT



STOP THE SLIPPING

Dear Windy Winchuck,

At one time or other a member of our air crew has had to become an amputee when he slipped off the side of our cold mountain aircraft.

We made it easier for us crew to crawl around on snow or ice by making the socks by putting non-slip points on their tops.

Actually, it not only makes for safer crawling, but the stuff lasts longer than the original paper—which can't take the straps.

We want

William Loring and Betty Beverly at
cub 984-2344, 984-2344-984-2344 pd.
St. No. 370 for the "birds."

Doing this work made us feel less safer when manning our choppers.
Hope other units find it helpful too.



Crew
28th Army Av
Fairbridge AFB, Wash.

"HOT" EXTINGUISHERS!



KEEP THE CLAMP UP
WHEN YOU OPEN AND CLOSE.

That's the cry-words! word on these new long-winded CP-150 fire extinguishers, ESN 4210-001-0011, with the characterful cylinders.

No matter how old these CP-150 extinguishers expired in a place, while the plane was being prepared for flight.

So if you have any of these new extinguishers to replace your Type A-10's, or any other type authorized for replacement by Circular 108-9 (17 Dec 48), you want to think you have high heat and check.

Also the heat from your preference, or other losses, away from the CP-150 extinguisher, and until the soap comes through saying just how much heat these characterful cylinders can take, you don't want to run the overall valve heat any higher than it has to be for opening matters.



REPORT THAT HOLE - BUT QUICK!



Oh... I'm sorry
I'll report it
I'll report it
I'll report it
I'll report it
I'll report it
I'll report it
I'll report it
I'll report it
I'll report it

Now since your pilot tends to a stop and says the holes in the field are jarring the fillings out of his teeth—give him outside a second thought.

Normal duties can take a ground crewman all over the area in a day. You'll see much more of the strip-down and at slower speeds—than the pilot usually does. Keep your eyes open and better quick. It'll help keep work and hole situations like this out.

A pilot was taxiing his Boeing 11-100 down a soft runway when the left wheel dropped into a 12-inch hole



—causing damage to the plane but no injuries.

Holes are bad enough as they are but this one was filled with dead-end grass. It would have helped a lot if the grass-eating crew had either filled or reported the hole . . . that's for sure.

Whether you get a word or two from the pilot, or you're just milling around the field and stumble into a hole your self—report it . . . fast quick.

IN A BIND ON BINDERS?



OH, OH! You made your point!

Your -20P's in the future will appreciate the T-ling loose leaf binders you used to keep your DD Form 781-secure—or the new DA Form 2481-secure-secure! In use in. These DA Form 200P's you submitted requesting this action have really done their job... so don't send any more.

Good those binders show up in your -20P's, here's the steps you need to get one to replace any that's been lost, destroyed or worn out:

Binder, Loose-Leaf, transparent vinyl, plastic, T-ling... ESN 1118-108



SNL 1051. You can find this listed in SN 00-1-7800 (July 88).

If you can't get one of these, then try ESN 7110444-5105 10543, which is listed in the General Services Administration Catalog for the period 1 Dec 88 through 30 Mar 89. It'll get you Binder, Ring Type, transparent, flexible... but use with the same forms.

BOUND TO GET A NUT AGAIN? GET ROGER

Dear Windy Winchbeck,

Thought I'd give this info along in the hope it might help show that you just can't take anything for granted in this aircraft business. You've got to check it yourself.

One of our Deacon 11-2042 had just been received from a private company following compliance with an MFD. You'd expect it to be in first-class shape.

But when we inspected it, we found our nut missing and our only insight on the tail plane pick up block of the ballhead assembly, as shown 24428.



Dear Clang,

Thanks for passing your thought on to PS. It wouldn't be the first time a missing nut cost a bird in this never-ending maintenance battle.



There's only one hole, nut and washer at this spot and it isn't hard to see what could happen in the air with our Deacon.

We put a new nut on and torqued both nuts. We also made out a LB for better quality control during a MFD... seemed like the normal thing to do.

Aviation Safety Center
Fort Monmouth, NJ

Windy Winchbeck

LEFT IS RIGHT—OR



Dear Windy Windback,

Over the months you have a problem with the left-hand pitch change link bearings for our Ravens' M-1110J tail rotors.

To solve yours, we couldn't get the left-hand threaded roller bearings and end, P/N 27-1-102 OPEN 1118-114-11400 from your supply. . . . always get both the right-handers, P/N 27-1-102 OPEN 27-20-204-10441.

To take up the loss of time and to keep 'em flyin', we tried an experiment that worked.

We found that it was always the left-hand threaded bearings on the inboard side that went in just right. So this gave us an idea of reversing 'em, or' to use the right-hand bearings inboard and the lefties . . . outboard. It worked.

Now, when we run short of the lefties (guys who use the TM's), we do the switch job until we once more have a good supply on hand.

The switch is made by end-for-ending the nonbacklash body of P/N 211100, P/N 1501-004-1710.

Cover
28th Army Gp
Safford AFB, Moh.



This will help establish a requirement for the gear.

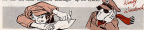
These submit a UR on the bearings, pointing out that they fail much faster than the right-hand ones.

While the aircraft engineers figure your fix won't do any damage or be a safety-of-flight hazard, it will sure fly up the system.

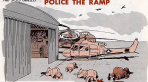
Dear Greg,

You're taking the easy way out . . . which isn't always the best. You may be "keeping 'em flyin'" with this fix, but you're helping us build up the supply and maintenance picture.

What you should do is ground the aircraft and submit an EOP requirement for the left-hand threaded bearings.



POLICE THE RAMP



FOD's might sound like "Foreign object damage" to you, but it also means "foreign gaps are careless" when it shows up on an incident report.

Now you know those maintenance engineers on the home Army aircraft will try to chew up anything they can stick into their air scoops. It's like leaving the wrong things in reach of a young 'un. And any chopper can be just like a spilled bear having a tantrum when you have loose stuff around their tail and rotor areas.

Even items as big as unattached screws and crawling insects can bite you when a downwind hit starts—and maybe make you a victim of FOD, too.

Maintenance of FOD takes good police work, and use the badge wearing eye, either. Your immediate responsibility is to police up your own work area after each job...and please keep track of all the tools you just finished using. Your fall-back responsibility is to pick up any loose hardware, tools, paper,



wood, metal or garbage of any type you spot in your ramp workbooks.

If possible, try to get the local night-time units to make periodic magnetic sweeps of your ramps and runways. But, more of all, just keep thinking about FOD and the damage it can do.



ROUGH RUB



On some F-15s the rubber cables come off second-best as the ones where they ride on the rub strip.

The rub strip (Part No. 081120-1, called for by TM 1-11-15A-207) is needed in each wing to keep the ribbed cables away from the flap jack.... a job the strip does real well. In some cases, however, by the time the 100-hour check rolls around, the strips have already made their mark on the cables.

That lemons-looking rub strip usually wears the 1/8-in. ribbed steel cables a little. And, of course, once you spot that condition you can expect the cables to start flapping.

Your safety guard against this damage is to give the ribbed cables an

extra close check at this point (Section 7L-115).

Use a strong light, and eye the cables and clean when you aim that mirror into the inspection hole. Then run a wooden, eye-covered hand over the cables as you feel for broken cable strands.

The more often you check and clean the cables, rub strip and the area all around the rub strip, the less the chance of frayed cables.

The corrosion problem is real dirty or humid locations mean you better ask the maintenance officer to run down the cleaning and checking period well before that 100-hour interval.



THE MODIFICATION KIT STORY



"I'D BE HAPPY TO TAKE YOU TO THE STORE TO GET THE KIT!"



Aircraft modification kits have a great design—comes with most tools. They're great if you have a place to hang 'em—but a blinking nuisance if you don't.

That's why the new 58 1-15-2 (28 Feb 41) gets into the picture as "Army Aircraft Modification Kits."

Happens you don't get a chance to read the new 58 for yourself, keeping in mind these conspicuous things will make busy kit use of a nuisance for you.



First of all, get these kits handled! No point spending money on improving Army aircraft if you're getting useless modifications which you might have asked for yourself. If you don't get around to installing a kit right away, carry it as spare equipment on the aircraft's DD Form 789-1 (Aircraft Inventory Record Equipment List), just as it says in AR 789-1500-2. You don't drop this kit from the 789-1 unless the kit's installed or turned in to your supply support unit as waste.

Actually, you're better off turning that kit right back to supply as soon as you get it if the aircraft kit number has been transferred or torn off or the depot. No sense having a useless kit hanging around.

Another thing—no waiting upon any more kits for spare stock. If you want replacement parts authorized by a kit after a first-time installation, you ask for them as spare parts—using your aircraft repair parts list as the new authority.

Lots of times it takes a while before the new parts are listed in your parts list, so you just reference the modification number on your supply request until the new parts show up in the list. That way the supply people will know where you get your stock numbers.

"I'D BE HAPPY TO TAKE YOU TO THE STORE TO GET THE KIT I WANT!"



**JOE'S
DOPE**

**HOLD
EVERYTHING**



FAST FACT... BOTH BECHTOLD
FRONTIER PLAZA... SET ON
RUSSELL BLVD... NEED A QUANT
OF OIL, SP. OIL, AND A PART OF
MINERAL WATER OF THESE!



**O.K.... AH WANT TWO
VOLUNTEERS!**





AND BORNARD, NO! NOT WITH IT AT ALL... PRACTICALLY EVERY PIECE OF EQUIPMENT HAS TO HOLD SOMETHING... OF SEVERAL TONS BEFORE ITS ABLE TO OPERATE!



...IN VEHICLES THERE'RE HARD CONTAINERS OF ALL KINDS.



...FROM AIR HELD IN TANKS AND COMPRESSORS TO THE FURNACE THAT HOLD LIQUID... OR THE SMALL PLANT CONTAIN POWDER!



SO, THE WAY I LOOK AT IT, MOST OF OUR EQUIPMENT IS LIKE A CONTAINER...



Joe's

Dope Sheet

ENCLOSURES

and
SEALS

NEED

**CONSTANT
WATCHING**

To keep combat gear
in the fight,
Each enclosure and seal
must be tight.
If it doesn't contain,
Your gear ends up lame,
And your combat report
won't be right!



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

HOW? BECAUSE CONTAINERS
DO NOT TRUCK... THEY
HOLD UP... OR HOLD **OUT**!
AND MOST IMPORTANT
THEY GOTTA HOLD **UP!**



WHETHER THEY'RE OIL, THERE
A SEAL, SO SAVING, ESCAPE
OR SOAP GUY? IT'S VIBRATION!
OR FILTER AT EVERY POINT
WHERE THE EQUIPMENT HAS
TO HOLD THE LINE!



THIS IS TRUE, WHETHER IT'S HOLDING LINE, FUEL, CURRENT
AIR... OR **SOLID FLOOR!**



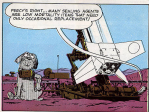
NATURALLY, BEING GUARDED IN MAINTENANCE
IS TO KNOW WHERE AND WHEN ARE, CHANGE,
AND WE'VE... A SEAL... THAT MARKS A
PECK OF EQUIPMENT VULNERABLE TO
BREAKDOWN!



RIGHT... CAUSE THE TROUBLE
AT THE CORNER AND THERE'S NO
DANGER!!



PRECISELY RIGHT... MANY SENIORS AGENTS
SEE LOW MOBILITY (EVEN THAT MOST
ONLY OCCASIONAL DISPLACEMENT)



AND

AND CORNER NEED TO BE
CHECKED EVERY TIME A TRUCK
IS OPERATED!





NO GO TOW



Dear Sgt. Dwyer,

We sure were glad to get those new D-4 Series D-4 tractors for our heavy equipment section. We've got trouble, though. The drawbar pin is too big to fit the tongue hole in some of our second equipment.

What can we do?

CYRIL E. K.



Dear Mr. K. E. K.,

Nothing.

That drawbar pin is different for a reason. Your D-4 Series D-4 is strong enough to take the gear right out of some of your older second equipment. Its drawbar pin is designed so it will fit right-into new pins that are built to take the gear. On others, it won't.

If you go modifying the drawbar pin to pull anything else, you're asking for

trouble. Of course, if you're in a spot where you only have the straight-tongue tractors and need, with only D-4 D-4's to pull it, you're really in a bind.

In that case, talk with support people. If they can't sign a receipt for you, the only answer is to take it easy. Watch your drawbar pull, and use a pointer to ease the strain.

Sgt. Dwyer

DISPENSER PARTS



Dear Herb-Max,

Here's the low: We have a German-Rupp model 1500 (410-608-1113) 30-GPM granular dispensing unit, but no publications on it whatever. However, we do have the SM's for the Barnes *WUMCA* and *WMTYCA* models.

If it turns out that the parts for the Barnes models are interchangeable with each other and with the German-Rupp model, we've got it made. But, are they interchangeable?



Dear Engineer J. B.,

Not quite that easy, Sarge.

In a nutshell, some parts for Barnes model 5117CA (P/N 4130-271-0540) can be used on Barnes model 1507 CA (P/N 4102-608-0888) and vice versa, but some of these parts are interchangeable with those on the German-Rupp.

The main difference between the two Barnes models is the power unit. Model *WUMCA* (P/N 1507 CA) takes the Wisconsin *AKND* engine, while Model *1507 CA* (P/N 1507 CA) takes the newer Wisconsin *WEND* engine.

The way you find out what parts'll go on both Barnes models when you go through SM 18-6320-281-28P and support goes through the .11P (check July 77) is to look for the letter with "a/o"

NO PARTS
FROM BARNES
MODELS CAN BE
USED ON THE
GERMAN RUPP

Eng. J. B.



labeled the part's nomenclature. This "a/o" symbol, meaning "used on", tells you which model the part's intended for. If the part doesn't have this "a/o", you know it's interchangeable.

The German-Rupp is a non-standard model not supported with spare parts. And as there's no TM or SM on it. However, when the cost of repair does not exceed 20 percent of the standard price, you can get authorization to buy needed parts locally.

Incidentally, German-Rupp normally a Stan-tilt item. If your unit should happen to get the word to cross the big pond, you're authorized to turn it in for a Barnes model.

NO BOWS

Dear Half-Mast,

Some time ago you told us how to get the correct (in PS "ST") for our truck, cargo-point number, 12122, M17.

But we still have a problem. How do we get the bows to support the contract? What's the PSN and manufacturer?

What's the PSN and manufacturer for the bows that we need?

SFC R. C.

Dear SFC R. C.,

If your bows are missing and you need new ones, you do have a problem. You see, the bows have no PSN, are not marked and are not interchangeable.

To replace these bows you'll have to have your supplier make them on a job order form 18011. They can be made from white oak by using any available bows as a sample.



Half-Mast

TRAILER TROUBLES

Dear Half-Mast,

Some of our 110-ton trailers come supplied with a U-bolt storage bracket to hold the inter-vehicle electrical cable when it's not hooked up. Other 110-ton trailers don't have this bracket, and the plugs fall or drag on the ground.

Nothing good happens to these cable plugs. They get run over by other vehicles, fill with water and freeze or get clogged with mud.

Where can we get the U-bolt brackets for the trailers that don't have them?

MSG J. B. N.

Dear MSG J. B. N.,

Early production included the 11044 trailers didn't get the U-bolts. You find them only on the 110444 trailers.

However, these U-bolts are not an issue of time, so you can't get them from the army supply system.

The only way out is to call your own



manufacturing effort on how necessary the storage bolts are ... then he can establish a local ROP to make or buy them and put them on.

What's the PSN and manufacturer for the U-bolts that we need?



Half-Mast

BONDS and GROUNDS



Dear Hal-Alex:

What's the best way of using grounding wires and bonding wires when repairing? TR 9-1009-112-20 (2) (see 1B) implies that ground wires are not needed, that bonding wires will take care of all static electricity generated between the pieces of equipment.

But I say if you just bond up the bonding wires and neglect to have a wire going into the ground (which you've bonded for trouble,

Cap'n W. G. L.

Dear Captain W. G. L.:

Old bonds to the bonding point'll tell you! Always use both bonding and grounding when recharging... especially aircraft and whatever you possibly own on other types of equipment. That's the way QM men in Part 104 of Change 1 (2) (see 10) in TM 10-1130 (Chap. 100)... and in Part 10 of TM 10-1187 (10-100).

Actually, TR 9-1009-112-20 is mainly concerned with removal of the drag chains from tank trailers. The TR makes a good case for using bonding wires, but instead of going too ahead on grounding it refers you to Part 1010 where the whole system's spelled out. In the TR's line as far as it goes, it just doesn't go into details.

But first, get the definitions straight.

Bonding is an electrical connection between metal surfaces like fuel tanks, pipes, drums, tanks, etc.) through the lines without heat causing by welding, or between two metals or pipe connections.

Grounding is the other kind, a mechanical connection between an object which has had static and earth.

1" x 1/8" GALV. BONDING WIRE TO 100'



It's true that a bonding wire'll equalize the electrostatic charges present in the two pieces of equipment. But that'll leave you with two equally positive legs of elements. What's in OK if nobody discharges 'em.

But suppose you introduce another static charge in this point-of-view, by accidently bumping it with a metal object that's grounded (like a metal handle or wrench, etc.). You could get a spark that might set things off.

But the best chance for this spark to go home is when you remove the filler-cup, leaving the vapors your own, and then touch the filler neck with the nozzle. It's right at this moment that you need bonding and grounding most.

And it's right here that the grounding wire's so important. Once you've got the make finished with the bonding and grounding completed, the static electricity'll drain from one piece of equipment to the other and finally into the earth where it can't do any harm.

That's've a couple matters in the supply system, so you can make one yourself. For example, any piece of pipe or end of

metal or copper 3 or 4 feet long will do.

Using the supply system, FM 1071-142-0007 (1000) will get you a 7/8-in. diameter ground stake of copper-plated steel in three sections meeting one line. Or FM 1071-077-0020 (2000) will get you a 3/8-in. ground stake with a 1/2-in. diameter.

Depending on the type of soil, you should drive the stake in about 1 foot or less. If the soil's not naturally damp, pour some water around the stake to make the ground more conductive.

However, if the soil's too rocky or for some other reason you can't use a stake, make darned sure you have perfect bonding connections, and make double sure the hose you use are made of conductive rubber. If you have any doubts about the hose, get your surveillance watch for safety effect to test them.

Whether to say, the use of bonding and grounding is only part of the story. You've got to watch out all the safety rules spelled out in your rules... Beginning with the one about connecting your bonds and grounds BEFORE beginning operations. You just can't be too safe around fuel.



Hal-Alex

MOTOR POOL MAINTENANCE SHOPS



Dear Staff Writer:

I need FSN's for items of equipment listed in Transportation Motor Pool Maintenance Shops as listed in TA 11-14 (29 Feb 48). How can I get them?

Sgt E. M. L.

Dear Sgt E. M. L.:

The items of equipment included in TA 11-14, which are in the Department of the Army supply system, are identified by a line item number or a federal stock number.

Now if you want to get the FSN's for those items that's identified by line item numbers, you go to the SF's that give the Adopted Items of Material. And where you have a line item number but can't find the FSN, send that line item to the stock service and ask for the FSN.

Each stock service has its own list of adopted items so here's a rundown on them:

Chemical—M 2-21.
Engine—M 1-14.
Infantry—M 1-22.
Quartermaster—M 16-109.
Signal—M 11-21.
Transportation—M 11-21.

The items listed in TA 11-14 which've not identified with a line item or an FSN are not in the Army supply system. They are identified by manufacturer's model number (or equal) or by an article number—the quantity is the allowance column.

You can identify these items by manufacturer's model number (or equal) and this list you purchase the most modern piece of equipment that's on the commercial market.

Items of equipment listed with an article number's needed by all transportation motor pool maintenance shops. For this reason, the list's only published on a special issue basis. In a case like this, the manufacturer's model (or equal) is the item recommended for your consideration.



OLD FORM - NEW ADDRESSES

Got a UCR (DA Form 488) ready to fly off to the Chief of Ordnance?

Hold it, one minute. You'll be using a new address. You now drop down to the guys who're at the Ordnance National Maintenance Point, not to the Chief of Ordnance in Wash. D.C.

You still fill out the UCR like you've done before, then go down the list to see where to send it:

COMM MISC NATURAL GAS 1400-240
240. Miscellaneous, tank, in form, and
SCAFFOLD system

Includes for mobile, ground handling
equipment, handling equipment, spacers
and related equipment, position parts, and
fuel tanks with air equipment, and training
descriptors for these ground mobile systems.

Manufactured rollers and undercarriage
and air-line spool mobile systems, and
aerostrophing equipment.

**ARMY COMBATIBLE WITH LIGHT BULB
MATERIALS, ETC 4800**

Incandescent, handling equipment, and
ET equipment, position parts, and spool
and aerostrophing systems.

**THE Commander
Army Medical and Dental Service
Agency
ATTN: (781) 201-1
Belmont Road, Belmont**

ARMY MATERIEL (PC 1000)— Infantry and Support systems

Includes the vehicle, ground handling equipment, handling equipment, guidance and control equipment, power parts, special tools and test equipment, and training devices for these ground vehicle systems.

Does not include vehicle and vehicle chassis used with these ground vehicle systems and optical sighting equipment.

ARMY MATERIEL (PC 1000)— Ground lifts and lifts like vehicles

Includes only general supply items for the vehicles.

Does not include special handling and handling equipment, mechanical handling devices for these systems and vehicle chassis used with these systems.

OFFICE AND FIELD USE
DEPARTMENT OF THE ARMY

TO: **Commander**
Army Materiel Materiel Agency
Attn: **CGM&S-2**
Beltsville Arsenal,
Beltsville.

ARMY MATERIEL (PC 1000)

Includes walking, walking machines, small arms, rifles, machine guns, automatic weapons and mounts, ground handling and handling equipment for these arms and lifts like heavy trucks, power parts, special tools and training devices for weapons material.

Does not include the control equipment for weapons material and vehicle chassis used with weapons material.

OFFICE AND FIELD USE
DEPARTMENT OF THE ARMY

TO: **Contracting Officer**
Defense Weapons Contracting
Attn: **CGM&S-200**
Rock Island, Illinois

ARMY MATERIEL (PC 1000 and 1000)

Includes the control systems, devices, computing devices, sighting devices, optical instruments, vehicles, connecting cables for the control systems, power parts, special tools and training devices for the control system.

Does not include vehicle and vehicle chassis used with the control.

OFFICE AND FIELD USE
DEPARTMENT OF THE ARMY

TO: **Contracting Officer**
Beltsville Arsenal
Attn: **CGM&S-2100**
Bridge and Towing Service
Philadelphia, Pennsylvania

ARMY MATERIEL (PC 1000)



TRUCK-APPROPRIATE MATERIALS (MC 1000, 2000, 3000, 7000, 7000, and 7000)

Include motor vehicles, military design transport vehicles, business special purpose vehicles, utility trucks, business general purpose and special purpose vehicles, trailers, utility lifts and towers, power packs, special features and tooling fixtures.

Does not include aircraft, gun mounts, and supplies for vehicles, fire control equipment and instrument mounts on vehicles, and guided missile equipment mounted on vehicles.



OFFICIAL USE ONLY
PROPERTY OF THE ARMY

**TC's Commanding General
Defense Test-Automotive
Command**
Attn: OASD-OTA
1215 Grand Street
Detroit 8, Michigan

**DEFENSE WEAPONS, WEAPONS, AND
MUNITIONS (MC 1000, 2000, 3000, 7000, 7000, 7000)**

Include defense weapons, weapons, munitions, defense weapons, and munitions, defense weapons, and munitions, defense weapons, and munitions.



OFFICIAL USE ONLY
PROPERTY OF THE ARMY

**TC's Commanding Colonel
Defense Test-Automotive
Command**
Attn: OASD-OTA
1215 Grand Street
Detroit 8, Michigan

ARMOR (MC 1000, 2000, 3000, 7000, 7000, 7000)

Include tank hulls, mounting hulls, hull sets and lifts, ship sets, mounting mechanisms, accessories and repair shop equipment, and associated test equipment.

Does not include special hulls and special test equipment.



OFFICIAL USE ONLY
PROPERTY OF THE ARMY

**TC's Commanding Colonel
Defense Test-Automotive
Command**
Attn: OASD-OTA
1215 Grand Street
Detroit 8, Michigan

Errors and omissions are not responsible for all items in the TEC group listed here. Make sure you get your TEC off to the right Tech Service.

Change 1 (1) Apr 65 (Rev. 48) (2) 28 gives you the procedure on the above columns.

YOUR M60



PART III

КОНЦЕПЦИЯ

Your new M60 tank should be as easy to maintain as the Army has invented a new maintenance method "specifically for this tank. It's KYNPHO maintenance."

KYNPHO (pronounced KAY-PEE) type maintenance involves over 20 company mechanics doing things that used to be done by the tank crew. On the tank, some maintenance operations that, on other tanks, are done at company level, are now the job of Debra's support.

The whole idea of KYNPHO is to give you (the tank crew) more time to do your main job—killing your tank from here to there and fighting the tank when you get there.

KYNPHO, like you've probably already guessed, is short for "Keep Your Cannon Firing While We Fix It"—and that's the best rule you can have for some of the complicated parts of this tank.

One kind of a TM 5-258-114-18 (page 68) if you can. It'll show you in 30 what you're supposed to maintain. Naturally, you also give the company mechanic a hand when he's working on your tank.

Starting from the ground up, this is what you should do to your M60's my healthy.



Wheels

Look over your road wheels, compensating idler wheels, and support rollers for tube leaks from bearing seals. The flanged centers on the road wheels should be torqued between 300 and 420 ft-lb. After the M60 has been driven, hand feel the bearing hubs of road wheels, idler and support rollers. Overheated wheels, idler or support roller hubs mean a badly adjusted, dry or damaged bearing.



Roller Tension

Be sure the roller rollers on the compensating idler wheels and all road wheels don't bind.



Bumper Springs

See if your vehicle bumper springs show any cracks or breaks.



Spindle Nuts



Check spindles mounting bolts for tightness. Check wear on front drive spindles with the gaps **FIM 1118-146-1128 (Chd)**.

Foreign Bar Anchors

On the 300 you can get in the first, but anchors from outside the vehicle through locked access plates. All low model 300s have **FIM 2150-706-0811** custom bar anchors. Some of the early-year (serial number 544 or below) may have different anchors but if and when you have to replace 'em, use **FIM 2150-701-0811** anchors.



Foreign Bars

The foreign bars are the same as used on the YTE 300. There are two kinds, bars for the left side of the tank and bars for the right side of the tank, and you can't use one in place of the other.

To replace any of the bars on the left side of the vehicle, use **FIM 2150-040-0405**. They have the number **7555000** stamped on the end of the bar that you push in first. This end also has an arrow pointing in a counter-clockwise direction.



The foreign bar for the right side is **FIM 2150-040-0408**, and has **7555000** and an arrow going clockwise stamped on the outboard face.

Shock Absorbers

In class, all the M00's will get shock absorbers, but Extension models will be used until shock absorbers are ready for issue.

IN ANSWER



Track Tension

Check track sag with straight-edge or tight string between No. 1 and No. 2 rollers. Loosely hold to a stop on No. 1, hold ground with a track chain centered on the No. 2 track support roller. Don't apply tension because the value of track tension.

1. Draw a wooden block about 1 inch thick between the No. 2 track support roller and the track.



2. Stretch your string or straight edge between the No. 2 and No. 3 track support rollers.

No. 2 TRACK SUPPORT ROLLER

No. 3 TRACK SUPPORT ROLLER



STRING OR STRAIGHT EDGE



3. At the point midway between the two rollers, measure the distance between the bottom of the track and the straight edge or tight string. It must be between $\frac{1}{8}$ and $\frac{1}{4}$ inch.



If it is over or under, adjust at the compensating roller ahead adjusting link. Raise your ground to loosen the adjusting link and lower your ground to tighten it. Don't forget to retighten the sliding link after an adjustment.



Enter W levels



You may see a truck monitor after school powered in some of the early TM's. Don't worry because your M80 has come. The picture was from a development model.

Fuel Filter



Normal fuel is from both tanks or lines, but you can cut off either the left or right tank in an emergency. Like this . . . put the gas valve over the left fuel header. Lift the battery access plate in the turret floor. Remove the connection wires from the isolation valve cover. Cut the locking wires on the heavy-duty isolation valve and turn the valve control shaft as far as it will go clockwise. Lock it in that position, and put everything back again.



This is only half the job. Next you have to open the fuel doors and take off the transmission shroud cover.

Under the left transmission access is the release and isolation valve wired to the M80. Cut the locking wire and turn the valve to either the LEFT or RIGHT position depending on which tank you want to fuel from, and wire it back to that position. Remember—this is for emergency only.

M80 Fuel

Helios are hard to break. So, if you're equipped with the M80 tank with the compression-ignition engine, ask your maintenance support if it's A-OK to install

"Diesel Fuel Only" over the tank's fuel M80 caps. For the right fuel—diesel fuel grade I or II, VV-0-000—see para 28 of TM 5-2508-215-25 112 Sept 88.

Make a Mark

The cast screws that hold the transmission shroud in place are really because there's no mark to tell you when they're in the locked position. You

might think you've got 'em loosened down right when the cast lip is just starting to engage.

Future production models will have

the van screw heads marked with a 'V' pointing in the direction of the van lip. That way you'll know when they're installed right.

You can get the same results with a hammer and chisel. Use your CO-2 or OTC die and drive just as your van 'V' marks.

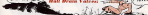


Fuel Tank Brakes



If you have to drain the fuel tanks, open the access cover at the bottom of the tank, and turn the petcock. Some of the guys have been breaking the ones off the petcock trying to turn it the wrong way.

Thing to remember is . . . to spot it, you have to a counter-clockwise direction.



Wash Basin Valves

Both raw and engine compartments valves are marked for better drainage, but you've still got to get your tank level for best results. The control handles are near the driver's seat.



Skid Case Bellows

When you take the driver's skid case bellows out of its regular position, you'll find you can't move it real handy in the turret. It's supposed to be covered between the left lounge arm, but the maintenance men had this up. MWD 5.2508.111/00/1 (21 June 61) will give you Ordnance support the steps on modifying the skid bellows so it'll fit.



Brake Hubs

The landing has been causing heat on some brake control housing boots after the heat appears from the housing, water, dirt and peck get in, making it hard to get on the brakes.

How cheap to hold the boots are being pecked has production models. You'll be able to get them fixed through your regular supply channel.

To service and repair these boots, take off the two inspection plates under the transmission.



Spring Holders

The spring holder for the capstan-rodless gunner keep you from losing the leader's hook. They will be an MWD one on this and the late production models already have it applied.

Meanwhile, some cables have temporarily welded a 1/2x10-1/2 piece of cold rolled steel to the holder until the MWD comes through.



Newfield Motors



The newfield lower roll puts out 20,000 volts which could really send your hair up straight. So, when you change a newfield lower igniter, be sure there's nobody around to accidentally flip on the master switch and give them on the newfield lower switch.

The igniter, by the way, is a Champion 140 and there's nothing around about the gapping—anywhere around 200 will do fine.

Bidge Pump



There are no switches below the piston fuel control and bigge pump wires on the driver's control panel. The bigge pump is optional equipment, and it'll be installed in a bin if it looks like you're going to need it. The rectangular plate over the generator heater switch is for the bigge pump pipe.

The bigge pump wires will be installed in the right side of the driver's compartment in the space marked off for it. Like you're already noticed, there are spaces marked down for an oil pan heater relay and a battery heater relay. They are part of the cable bin which'll be installed if or when you need it.

Take Notes



The 20 days there are three points you don't take the motor out until, the one, get correct tank and the oil (don't know where).

Other points you don't have to take because it was there even if in the case of assembly are the release handles, leader linkage and linking linkage, the master, the generator and transmission motor.

Incidentally, some of the OBD's are in the field with the wrong dipstick.



Can you see nothing but black space between the FULL and the ADD? It's FSN 2815-4075-4082 (Glad).

To get an accurate reading on your daily oil check, the engine must be running and you should let it idle for 1 or 2 minutes before you make the check.

Course you want to make a cold check before you even start the engine to make sure there's oil in it so you don't burn it up. The hot check really tells the story. Incidentally, it takes about two gallons to move the oil level from the ADD to the FULL mark.

Engine Oil Filters



A primary (secondary) and a secondary (primary) oil filter can be installed through the engine access plates in the rear compartment. Both are serviced and replaced by the company mechanic.

PRIMARY FILTER — It's behind a circular housing held by 4 self-locking nuts. To get to it, take off the nuts and use the handle to pull the filter out as far as it'll come. Wait a few minutes for the oil to drain and then loosen the filter lock screw at the top of the filter housing. Now it'll come out. Dry-cleaning solvent or mineral spirits/petrol distillate are handy solvents for the filter. If it's badly clogged it should be taken apart for cleaning.



SECONDARY FILTER — This one is the one behind the primary plate with 8 self-cleaning cones. It's removed and cleaned the same way as the primary filter. There is just one difference... **DANGER! GUARDS! SCOTCHLOD! BY DARN!**... want to be men and talk your language on this...

The difference is that the company mechanic cleans the filter but nobody at company level takes it apart. A pressure spring behind the cover plate allows use a heavy bushing if the cover plate is pulled.

Let the technicians support boys make it apart. It's their job and they've got the tools to do the job safely.



Transmission Main Oil Filter:



Annulars:



Firing Mechanism

Clean, oil or molasses can block out the electric parts of the firing mechanism. Don't clean the firing pin, firing cam or firing plunger in solvent because this can damage the insulation.

Clean with dry rags and check insulation for cracks after each mission. Don't try to insect clean the inside of the turret or oil a high pressure water hose inside the tank or you'll knock things up-but good.

Some tanks have been making their own protective covers for the breech ring.



Breech Operating Handle

In the M48 the breech operating handle is on the left side of the gun so the loader can get at it real easy.

Turret Traversing Lock



This is on the loader's side. There's something else different about this lock—you don't lubricate it. The handle is plenty strong for locking but is flimsy to snap off if you use it as a foothold to climb in and out of the tank.

Storage Hooks

This is something you've got to watch. The breech and the fire control cable slings in the ready racks—coming from the loader's seat—can catch in the turret ring gear and get broken when you traverse the turret. The same thing can happen to the slings on the hull storage racks. So keep an eye on them so they don't get caught.

Watch your feet around the storage racks under the breech ring. These racks are for ammo and are not made to be used as a foot rest, 'cause they bend.





Range Finder

The MHC Range Finder has two control knobs—ones painted red. These two knobs have been painted at the factory so you don't have to care them. In fact, if you monkey with them it will screw up your calibration vehicle. KUPPICKI (pronounced Kip-Hi)... meaning "Keep Your Control Fiddling Hands Off It") is the only kind of maintenance for these knobs.



Maintenance Computer



Now you can plug paper in the address tray instead of having it connected on the computer. This will save your knuckles when the time comes to operate that remote selected handle.

Ernstorator Lock Nut Threader

They get lost up very easy when removing and replacing the heat exchanger, so watch it, boy!

Gas Traveling Locks



Adjustable within a range of a couple inches so you can have the gas in the traveling lock and the same lock on both at the same time. One is set so the braces are straight up and down when you engage the locking lever.



MED Capsule



The new MED capsule is bigger and has more valves inside so there are no more fitted upon for the tank connections. It also has a built-in dip ring to the electric outlet won't get in the way.

Erstator Fastener



It's use is to hold the capsule when you're travelling because it won't rattle the gas. Use the universal lock which is made to do the job.

Publications



According to TM 9-2150-211-00, these parts should be in the pamphlet bag that comes with the tank—SD 9-2090-207-10 (Age 600), TM 9-2090-207-10 (June 60), jacket for DA Form 478, and a diagram for storage of O.T.M.



WATCH THOSE WIRES!

On the M60 tank the manifold heater switch connector gets to be connected. If the cables are disconnected at that point, you'll get no action when you crank your thumb on the manifold heater switch to the end of the pump pump handle.

This'll get you no spark from the manifold heater and a manifold full of cold diesel fuel, which makes for awful hard cranking.

The connectors at that particular point have a nasty habit of coming apart when you crank the pump pump handle.

If you've been having that trouble, take a look at the electrical clamp. It might be positioned low on the lever so the wires above the clamp might have a loop in them.

If you can't see and correct the trouble yourself, call in your support.



CONTRIBUTIONS

HEY, GUYS! BY
DRILLING A HOLE
THROUGH THE
TOP OF THE
DOOR, YOU CAN
KEEP THE
ROOF UP!



HANG IT IN THERE

Dear Editor,

Because the M38A1 pop-up door curtain rods won't stay in the top hinges, the weight of the door tears up the door curtains and also lets a lotta daylight through the top.



This was taken care of by drilling a small hole (large enough to take a curtain pin) in the top of the support rod.

Slip a 1/4-in. CDJ washer over the end above the hinge. Then insert the pin into the rod and the rod'll stay put. We made sure the door got hung just right before we drilled the hole.

SP4 Wm. H. Wuehls
 Ft. Rucker, Alabama



Old Man—Hang it in there, boy! You sure hit upon a good simple answer, and with your CDJ's blessings, go-to-it. Some of the later M38A1's have an improved hinge and don't need this fix.

BRACKET THREADS



Dear Editor,

We've got an answer to a problem that pops up often on jeep-headlights.

There's not much thread on the three brackets found on the headlight housing when screws hold the doors on.

Remove the screws a few times, and the threading wears off.



When the threads are shot, we take a 3/16" x 2-1/2" x 1/4-in W, x 1/4-in thick machine nut, and cold weld it to the inside of the bracket. Part, PNM 1500. \$11.0055 meets the description OK.

Now, there's some thread to grab hold of.

CPG/Wm. B. Lawrence
Fort Knox, Ky.

(Ed Note—Good idea—save the rest of a new assembly on any truck with this headlight, but be sure and get your CPG's OK first. Doing your fingers to start the screw into the bracket's clear down the stripping of the threads, and it'd help to use graphite grease on the screw. Incidentally, TIR 3-1126-206-200 gives a dip-former number for the disc. When you read it, ask for Door, headlight, PNM 6278-732-109C.)

CUT OUT THE CHATTER



TRAIL'S CHATTER
WAS A
LAWYNER
BY THE NAME
OF BOB BROWN



Dear Editor,

I run across a new job hole for the other day. It's a good hole to remember when you have to run heat, wire or tubing through a run hole in a barbed, beveled, floor pan or partition.

It's a hard-to-find rubber grommet that edges the run opening on your hole that's long, cheap, there are no others.

All you do is cut a piece of wax—like a windshield wiper heat—on to around the edge of the opening. To make a piece of that wax's full use, you run the grommet a mile long.



George H. Brown
Assistant, Alabama

(Ed Note—if good for what you got a standard grommet from supply.)

CHEAP HELP



Dear Editor,

A common, ordinary spring clamp is one of the handiest, and cheapest, helps a man can have around any equipment. You can find 'em at your self-service store at any time now.

In close quarters, spring clamps are like extra hands.



You can use 'em to slip wiring out of your way—to hold exposed portions past from dragging in dirt—to get an extension tight right when you need it.

In other words, in a pinch, nothing grabs hold like a spring clamp.

A. M. Felton
Tupelo, M. T.



Ed Note: Right you are, that you've got to be sure you remove them or they could find up the works.

Connie Rodd's **BRIEFS**



You'll be real good

You don't carry 15-foot rudders like quivers ... pull them down like you've been trying with about trying a 40-man island carriage in your ribs because it looks like it might work. Forget about it, and forget about it too. It's sticky, slow, unathletic and slunk dead. In addition to worrying about breaking its wings or hooves, you'll also wreck your 106.

Watch the dip

One little dip may be keeping you from getting your pants fit for your 94 31, 94 31 A1, and 94 31A2, 3800-gal 12-hp 4-wheel gasoline tank water-truck. It's out for \$2000-2200, the way you can it listed on page 3 of 74 7-3120-308-11. It's for \$2000-2200 (AP Feb 71) and has been distributed.

Guide right

It's a deep Hange lake you that own the H-1167 guide pin for fitting up the 84-72 workend with the socket. It goes under Ord P/M 820410 ... and P/M 531-1-667-5001.

Get quick service

When left on processing Engine like Stock acquisition for minute support items? Latch onto a copy of 68-8-84 11 Mar 68. It has all the items you'll need to get these real items when you have to have them.

Get delivery - air parts

Just to ease you aircraft guys didn't have, latch onto a copy of DA Circular 28-32112 (d 41), it tells you how the new "priority distribution" system for aircraft publications works. You can get it out the DA Form 12-6; the St. Louis parts center will send it to your unit free ... easy.

Get a No. 2 cannon?

You're supposed to have these 28 generator sets (28M 2712-342-0070) and one (1) generator set, gasoline engine, 280, 280, air cooled, 1.2 hp, 120 v, 60 c, 1 hp (28M 2712-242-2520) in your No. 2 commercial kit. If there's some doubt, take a look at Change No. 2 (27 Aug 60) to your 64 P-4 8180-428.

When mating ...

You want to see the right mating ball for the inner bolts in your 84-72 workend. And the right one goes by these numbers: P/M 330-815-2894 (M 33081506). When you feel around with balls that's not the right length, or make your own out of other metal, you're setting up things for future trouble.

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Would You Stake Your Life on the Condition of Your Equipment?

NEVER GIVE UP! (BARNETT DUFF)

NEVER!

