

Issue 101

PS

1941 Series

THE
PREVENTIVE
MAINTENANCE
MONTHLY

HEY CHUCK,
I GOT HARD TO START
THE MOTOR RUNNER...
BUT SO IS THE MOTOR.
BUT YOU NEVER DONE
NO OIL ON THAT
THING Y?

Walt Disney
1941

WARM WET



These folks sit a permanent cross—their deep-water clothes for you. A real fabric choice, now. One minute she's hot and sticky; the next she's soaking wet and soggy and the next she's flogging you away.

To top it off, when the water at its worst you may get rashes while she'll make sure you and slip away everything she's not 100 percent protected.

It stands to reason that PM in the life of the party is a situation like this. And that goes for ALL equipment—vehicles, weapons, radios, personal gear—yes, everything. No way ... when you think how heat and moisture and fungi gang up on equipment.

DRIVING

Driving in deep-water areas presents problems you may not meet anywhere else. What roads there are may not be in good condition even in the dry season. And in the wet season, or after a rainstorm—beware!

Buy no matter what you use them, your driver's manuals and equipment operator's TM's will probably have the answers for you. E-9000 TM 11-509 (D-6) for the wheeled vehicles ... and TM 11-508 (A-6) for the tracks ...

Vehicles

One of the toughest problems here is water-logging. Any engine that has to work in the rain is soft ground or up steep slopes in hot weather runs the danger of water-logging.

AND WOOLY



So, keep an eye on your temperature gauges. If they start to climb less the danger zone, stop immediately, if you can. Run the engine at high idle to keep the cooling fan on fast spinning.

If there's a known blowing, try to lose your wheeled vehicle some torque and the speed of the breeze to the limit. After several minutes of fan-filling, shut the engine off and let it cool naturally. Of course, you'd cool down your work engine by running it at 1000-1200 for five minutes to heat before stopping.



But whatever you do, don't try to cool off your hot engine by giving it a drink of cold water. You'll lose the block iron.

To do a good job your cooling system must be in top condition. Check the water level often—and make sure, by using your put in there is clean. In some areas where fungi or algae up the works, flush out the radiators and put in a fresh supply if what's in there looks gooky.

But in other areas—especially volcanic zones—the mineral content of the water will be your biggest foe. These minerals separate from the water and coat the insides of the radiator core. In



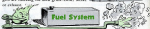
places like this it's better not to change the water if you can't help it. But still keep the radiator full.



In checked vehicles, check the fuel filter often. Don't be reluctant to look for any kind—redline, water pump or hose. Don't use seal-in. Use correct operation. Check fuel lines, hose clamps and the filter at every fill. They also check against faulty operation every time you start your car.



On the roads, all you have to do is keep the cooling fans, oil filter and air cleaner in shape and clean. Waxes especially for brass and leaves that might clog up the oil cooler cover. Your fan belt is no rig up—make sure it's correct to protect the motor from heat. Also check to see that no OIL, AIR, special equipment, cargo or passengers are blocking the deck grille/ventilator intake or exhaust.



Keeping excessive use of fuel is a constant job when the atmosphere's loaded. One good defense is to keep your fuel tank filled. That way there's the FUEL mark. Another is to check the minimum level after-and check on Saturdays every day.

One of your biggest headaches under these conditions, however, could be fuel pump failure due to vapor lock. What happens is that the fuel gets so hot it changes from liquid to vapor (usually fuel) and the pump can't move it. (This won't happen on vehicles with pressurized fuel systems.)



On commercial rigs, vehicles this small also happen because of a "hump" in the fuel line leading either from the tank to the fuel pump or from the pump to the railhouse.



There's another way you can avoid a vapor lock. One is to bubble-bake the fuel lines and weigh them (you can't get rid of the "humps.") Another is by temporarily pressurizing the fuel system (usually by shutting up the carburetor in the fuel tank) when getting on a long haul. It's not a good thought. Because the rig runs so slowly, it let the vapor escape or was it is forced with gas. And by now you know it BURNED THE TIRE, NOT.

In a treated vehicle that has a vapor lock when it gets up under way it's closed in the fueling and vapor lock position. In other vehicles that don't have these valves, just keep the rig around there tight.



Here's a handy way to handle vapor lock when it hits you. Wrap the pump and nearby lines in paper, cloth or heavy tarp that's been soaked in water. In a real pinch, you could also wrap up steel wire sand or dirt and use it the same way. But be sure it's wrapped with the steel don't get loose in your engine. The real water or dirt will help bring the vapor back to a liquid.



The right storage of gasoline is vital importance in fire and forest areas. Make sure fuel and lines are protected from the weather; store with Jerry cans and drums and dispensing equipment. TM 10-100 (1 Sep 51) on petroleum handling operations, with its Change 1 (21 Jan 52), is full of steps on this.

Electrical System

Wash, hose and flog as your deeds to electrical parts and wiring. Keep an eye peeled for cracked and frayed insulation. Keep the wiring dry and moisture-proof by using electrical compound to seal up those cracks. Be careful you don't over-do it, though.

Check electrical connections often and bond off any corrosion that forms. If you see a connection that's loose or bare, tighten it snug and give it a coat of Insulating Compound, Electrical.

Check your bigger problems, though, will be the water heaters.



Check it daily for leaks, gas leaks. And keep it clean, especially the pans, burners and flaps.

When the water heater starts making noise or leaks, it's time to call a professional. Don't try to fix it yourself. The water heater is a complex piece of machinery. If you're not sure, call a professional. The water heater is a complex piece of machinery. If you're not sure, call a professional.



Pages 20 and 21 in *EM* 9-4480-759-12 (July 58) cover the full range of battery work.

Page 17 of the same 78 will show you on the right battery can labels and water areas. Keep a close eye on the alkaline readings. In the alkaline your battery's condition quickly gauges themselves. ... can reading of 1.260 to 1.274 at full charge.

But you want to be real careful about the water you use. If you can't get your parts on distilled water, give them about as rain water that hasn't touched ground. If you scoop it out of a spring or brook you might have trouble with the mineral content. Be keep in mind that even the wrong water's better than not enough water.

Sometimes, before you put the battery back, scrape and repair the boxes and cables. Make sure you seat the battery right. Make it snug . . . not too loose and not too tight. Coat the battery terminals with a thin coat of grease.



Wipe up around battery boxes and hose covers. Be sure hood vent is free than fan vent holes and is unobstructed will stay dryer than one that's sealed up.

And don't forget: TOLL 800-3-OTR (276-128) the NIA says you never use water-walking compounds on batteries, not even for deep-water flooding.



Block, it wants to ensure your vehicle's grease need your most careful lubing under humid conditions. Follow your rig's LMO or a "T" and detail the entire . . . have no doubt.

Your first objective is to keep wet-bearing surfaces wet. Be sure to use the right grade of lube at all the lube points. Pay special attention to the condenser, like fittings, gear boxes and hydraulic systems.



Close and guard around lube fittings before giving 'em the grease gun. And use only a clean rag—to keep from setting up the gunk to your gun's hose. It slips from the fitting.

Another thing, high humidity causes rusting of all exposed metal surfaces. So cover all the machined parts and un-



protected surfaces with oil or grease. This one on this one you'll be happy for certain.

The best way to protect your equipment when it's not being used is to keep it covered with a tarp or home-made plastic, or push it under a cover. At least keep the engine, gear mounting and the like covered.



Here's a tip for guys using trailers. On the M100-trailer, which is complete line, keep the drain plug out at all times—except when fueling. But on all other trailers—to keep water from collecting—keep 'em with the drain-line connected so the water'll run out of the trailer.



Every man should carry a small container of tube oil with him for his individual small arms. When the weather's hot and humid, preservative oil is best. Use PL Special general purpose corrosion and oxidation resistant lubricating oil... **PSN 51 58-273-2589**... **QM**... 4 of 28.

When your weapon'll be exposed to plenty of dunking in salt or fresh water, spread a light coat of Grease, Bills, mineral oil and calcium soap, Litholynx metalworking paste. If your small gun's container is empty, get a new supply from your armorer. He should have it in a 1-lb can under **PSN 51 58-174-0064**.

In sandy, damp areas you use as little tube as possible. Oil will seep and hold down and rust which'll show your piece to pieces.



Keep your small arms off the ground as much as possible to prevent 'em from the damp, sweating dew. It's a good idea to make platforms to raise them on so they'll be at least three inches off the ground.



Let us quote you the number parts of your small arms parts list. It lists out of hand of 250 250 250 250 easy to use oil long lasting oil. Add this oil to your list the best of your hand. This oil will protect the most with reliability. It is made, though, not to get involved into the maintenance of your or the work without this. It is also... **PSN 51 58-174-0064**... **QM**... 4 of 28.

Give special attention to the accessories, spare parts and magazines to keep 'em from rusting.

Communications Equipment

High heat and humidity are extra tough on all kinds of comms equipment—radios, telephones—everything.



You're in a fight on the field with moisture all the time. Its special targets are the various carrying straps, wiring and cables, rubber gaskets and shock boots—and especially batteries.

Fungal can reduce insulation resistance in a couple days. It'll form on the edges of insulators and in the keys and jacks and will cause short circuits.



Your best weapon against it is keeping your stuff clean and dry. Get the habit of wiping cables and exposed parts with a clean rag—but gently—and make sure your equipment's always protected from the weather.

Dry cell batteries are a special problem. They're under attack when they're being used and when they're stored. They're gone by stored in a dry, cool, clean place.



A LOT OF CARE that you take—**LONG** hours of it—can **SAVE** you **LOTS** of money!

Keep a weather eye peeled on the metal parts of your equipment, too. They're supposed to be covered with a moisture- and fungi-resistant compound. If you see any flake spots, notify your support people pronto.

Optical Equipment



Heat and humid weather can cloud up the lenses of your optical equipment (telescopes, compasses, binoculars, etc.) and play hell with their metal parts. Your biggest problem is stress. Stress means acid . . . acid means rust.

It's smart to bubble up your equipment in bad weather to protect the seals and instruments. Inspect all weather-tight rubber seals often to see they're in shape to keep instruments dry, and keep a sharp eye out for combination fields optical instruments.

Stress can liquid or paste polymer on the lenses and be mighty careful wiping off dust or grit so you don't scratch the lenses or damage the coating.

Always wipe the equipment dry after using it and put a thin film of oil on unpolished metal surfaces. Keep a sharp eye on screws and pins. They're fast in heat when rust attacks. Oil 'em lightly once a week to play it safe.

Leather Goods

Their rubber parts need special care, too. For instance, don't let grease and oil accumulate on rubber eyepieces and don't use volatile mineral spirits or dry cleaning solvent to remove grime from rubber. Instead, clean 'em with mild, soapy water. Rinse 'em, then dry and dust lightly with talc.



Your best bet to help your rest and hang is a dry locker. When you store equipment because of time you know it'll be safe till you need it.

A good dry locker is built like this: Use a light bulb, not a candle, with two doors, each built with a light bulb. The doors close to reduce moisture.



The dry locker uses the cabinet from a dry locker in a light bulb at the bottom of the cabinet. Ordinarily a 25-watt bulb will do, but in the deep winter the 40-watt may be better. For a detail, like a chamber fall, around the bulb to prevent against the.

Air comes up through the holes in the bottom of the cabinet and is warmed as it passes the bulb. Then, as it goes out the top holes it takes the water harmful by with it.

Don't let the cabinet get too warm, though. Warm it might damage the instrument.



Clean the case and good on the inside with a brush. Use a stick of wood—let get a half or glass—to get and heavy sand or good of the inside. And only use a stick of wood for scraping—no jabbing or poking. Wash away the remaining grime with a sponge and mild soap. Then rinse away the soap with warm water and follow with another string. Then wipe it with a clean cloth.



Don't dry leather goods in the direct sun. If you use the dry locker, though, make sure you don't get it too hot. Use the right size bulb. After the leather's dried out, replace the oil that's been

washed away by rubbing it with a cloth moistened with motor-oil. Then wipe away the motor oil and rub the leather to a shine.

Of course, for leather goods that won't come in contact with your skin, you can use a dressing like Leather dressing, mildew-preventive, Mill Spur O-L-150s, PSN 8038-174-5281 (254) will back a pin-out, but be careful ... don't let it bite you.

The bagworms also have a mildew-resistant compound, waxlike, (200-0-1129), Type 11 that's good to prevent canvas deck and walking from water, weather and mildew. PSN 8038-290-4140 gets a yellow.



Give your boots the best care you can. Mildew's their worst enemy. Scrub off mud, clean inside and out, and apply a double dose of elbow grease and saddle soap. If they get soaked in salt water, though, rub a raw potato over the wet surface. The good'll soak up the salt. Then wash lightly and oil.



Be careful how you dry 'em. The sun's too strong, and so are heaters and stoves. Hang 'em up in the shade. In the deep tropics you gotta be mighty careful about preserving the leather of hangars. Stuff paper in 'em to absorb

moisture, rather breaking the inside out good, of course.

You also want to keep an eagle eye open for lizards, spiders and other creepy-crawly stuff that may slip into your shoes. Scorpions are famous for hiding out in shoes, their stings are no joke.



Mildew (fungi) is the worst enemy of canvas—and the only way you can beat it is by trying your level best to keep canvas clean and dry. Every tough deal, this, in warm and wet areas, but a few good habits'll help.

For instance, always flip off the inside liner before you roll a mat or rug. Of course, if you have time, dry it out real good first. Always carry it—never drop it. Wash out the tent branches or bushes that'll rub away the water-proofing. Concentrate on keeping the edges and seams and places around prominent lines of mud and wetness. That's where OE Muddy always gets its work done.



Tents is especially easy when you're pitching and striking your next. EM 10-15 (Jan 60), on tents and tent pitching, is the bible on this.

Try never to dry your tent or rug in direct sunlight. Rather, hang it in

the shade a few feet off the ground. Check it often for rips, tears, holes or missing hardware. And fix it in places, before little troubles become big ones.



Take the same good care of your lines. It's important to remember that you loosen the lines when it's raining and tighten 'em when it's dry. And when the high winds come howling, tighten all lines immediately. Close the door covers and flaps and close all corners.

Poncho



In many areas your poncho's even better'n a tent. A poncho can take practically everything the troops have to offer—if you give it decent care. This adds up to sweeping it clean and patching up small tears as soon as they appear.

Wipe it with a clean cloth and wash it with mild soap and water, like it says in EM 21-15 (May 56).

Remember—inspect, Clean, Patch—the Big Three of poncho care.

Web Equipment



Web equipment is just as much of a racket for mudders as canvas. So wash it. The cleaner and drier you keep it the longer it'll last.

Clean it by dipping it up and down in a pail of warm soapy water. (Be sure you don't use chlorine, yellow laundry soap or cleaning fluid.) After washing, close out the soap carefully. If any dirt's left after that, scrub it with a clean white or color-fast rag and warm water. Don't ever use a stiff GI-type brush.

Stretch it back to its original shape before drying. Be extra careful to get the seams and edges clean and dry.



Don't put it in the sun to dry, but hang it in the shade where insects can do a job on it. Don't ever try to stretch webbing, either.

Your load-carrying harness is made of webbing, while the pack's made of canvas. Your best guide for taking care of both of 'em is EM 21-15, with its changes.

Clothing



Clothing needs common-sense care under low-wet conditions. Here're a few good rules to follow:

Wash 'em frequently in warm, soapy water. Dry 'em in the sunlight, if you can, but don't overdo it. A certain amount of sunlight is good for preventing mildew, but too much of that hot sun can ruin fabrics and stretch even the best of shoes.

Wash 'em and hang 'em!



Common sense'll tell you to leave your washed stuff in the sun just long enough to dry. About that long 'em in the shade for a while. Look out for mildew, always. Any moisture—and especially sweat—will bring on a big-wash attack.



Repair all tears and holes immediately, if you can. Plenty of cheap mender is a must. Your feet may be your major means of transportation.



Mess Equipment

Cleanliness is the No. 1 rule here. Bits of food left in a pan or on a stove can stir up 'Protein' just as you splash in a wash. Flip your mess gear in hot soapy water and use a brush, if you can, to get rid of food or grease. But use steel wool or clean sand very gently—if at all. You don't want to scratch the coating that protects the metal from rust.



Wash your gear in clean boiling water and let it drain and dry. Sometimes it might be handy to air-dry 'em by hanging 'em back and forth.)



Never give your gear a final wipe with a damp cloth. You want to be sure it's completely dry before you stow it in your pack. And pack it right. That'll prevent damage that'll encourage rust.

Keep your FM sharp and cool and you'll weather warm, wet and wacky conditions with plenty to spare.

Don't let your feet get wet and dirty.



The scent of danger

If you're driving a truck or wheeled vehicle and you suddenly start smelling exhaust gas fumes—stop right there, now. That's the scent of danger.

Personnel located on duty like yours are the only ones who can tell you what the white stuff is thick on the ground. The only thing, some personnel heaters could be like some personnel-like friends.

Don't care: you see for.

IF YOU SEE A LIGHT BELL, DON'T USE A LIGHT BELL ON YOUR PERSONAL HEATER CHECK. DON'T USE A LIGHT BELL ON YOUR ONLY ONE-SIDE LABORATORY BY THE WAY. DON'T USE A LIGHT BELL ON YOUR ONLY ONE-SIDE LABORATORY BY THE WAY. DON'T USE A LIGHT BELL ON YOUR ONLY ONE-SIDE LABORATORY BY THE WAY.

Just to remind everybody that it is better to be a little bit cold than a little bit dead, put these words near your heater.

Type this up on a big paper and stick it to the wall with your heater, OIL, Alloy, and, PSM 808-200-1106.

After it dries put a thin coat of the same stuff over the top of the paper... this way it'll last, and so will you.

Of course the personnel heater is not the only "game." Exhaust gas fumes from the vehicle engine could work their way into the personnel compartment or cab.

So, you, if your heater or eyes or clay head tell you you've got an exhaust leak, get out and try to find where it's coming from.

Remember: One more rule for driving



long routes in a closed buggy with the heater going is to let a good bunch of fresh air in about every 15 minutes or so. It might not be too comfortable, but neither is the weather without you could be heading for.

For more info on this see TB 9-100-214-10 (8 Apr 51), "Precautions Against Exhaust Fumes, Combat Vehicle", and TB 9-100 (10 Oct 50) "Motor Vehicles, Tractors and Tractors, Personnel Heater Warning Markings."

Firing Line

Wasting out your head banging the opening end on your M1 rifle—trying to seat the fire round in the chamber!

Gender's like you shy from ducking the clip when it takes off into orbit to test the line round is fired?

Don't hit the sick book.... Just get your support unit to check the timing on your rifle, 'cause it's showing signs of being off in that all-important department.

Hardly one of the M1 leak-in wear and tear on the parts that control the timing. And the timing can't be early or late. It's gotta be right on the button or else you've got yourself a problem—that's for sure.

And don't put the job off 'til mañana.... 'Cause if you get into a real shooter's fixer, you may lose more than time if your timing's off.



Red leaks



M16D (M16-G1) M16G was supposed to run the tube leaks in the wheel hole of tanks in the M16 and M16A1 families as well as the M16 SP gun, the M16 SP howitzer and the M16 tank recovery vehicle.

It will, too, if you do this one extra thing instead of using the tube fittings listed in the M16G, sub for Firing, In-Service Pressure Relief, S, Cal-Pol, 11-16 NPTE, 11-16 LG, 11-21 P21 Relief Pressure (Dry Seal Pipe Thread).

This tube jewel comes with the PIN 4758-143-M83, Ask your Ordnance support for it. They have probably got the word from the design people in Berlin that it is OK for issue. With the timing the-G&A will pop out the top before your helmsmen get beat.

This timing is needed issue on the M16G tank.





Keep the oil level in the crankcase of your GT90-series 18-cylinder at the full mark on the dipstick. That'll put a double whammy on your oil wear.

Get 9,200-200.10 128 (at 100) line the crankcase with capacity for the M121 10-400-range-truck and the M121 turbo-truck at 16 quarts. And that checks out with Para 1014 of TM 9-2130-200.11 10 Feb 67, which lists the capacity of the oil pan only as 16 quarts.

But remember you've got two filters with a capacity of two quarts each. So, when you're changing filters, that adds up to a total refill capacity of 20 quarts.

So when those guys 7x of the TM that lists the crankcase and filter as 22 quarts? Well, that's a "dry" capacity that's used only if you're putting a new or rebuilt engine into service. Once the engine's well-oiled, some oil stays in the oil passages even when you drain it.



Just keep a sharp eye on the dipstick, like it says in Para 4 of the LO, and keep the level near the FULL mark.

Beat the blast

Ever been swung by a blast of compressed air?

It's not funny. In fact it can be dangerously unhealthy. Especially if the blast that hits you happens to pop-off around 1000 PSI.



Air pressure can get high, and higher, on equipment like the Chicago Pneumatic PB-44 compressor that comes with the AE and DCM-1 Air Products gas-welding plants.

The safety valves on each stage of these PB-44 compressors are sitting right up there where their pop-off blast could hit you while you're working around the unit.

So here's what you do to beat that blast when it's not likely to smack you with full force.



First you order a set of elbows for the gas valves. On each PB-44 compressor you'll need three 1-in. dia. FPM 4730-254-2744 (Eggt), and one 3/4-in. dia. FPM 4730-253-4419 (Eggt).

Then you screw an elbow into the outlet of each gas valve. Wind him up on the open end of the elbow from above and away from where you stand while working around the unit.



Do it now. And when you get behind. And check in the TM 1-5100 series or TM 1-5107 series on your compressor for the full steps on the air safety angle.

Don't Swat! Present

Your auto-carrying crane has been in a weightlifting act lately! Besides, you'd better be sure! Here's the scoop:

Safety's the big word around NHTSA. Every QM crane that's used to tow trailers must be safety inspected during the regular PM anniversary two months or 100 operating hours—which ever comes first.

In addition, the crane must be load-tested—when it goes into service and every six months or 100 operating hours after that—as well as every time you replace a tire, hook, wire rope, brake lining, and so on, after parts affecting the safety of the vehicle.

These inspections and load tests are made by your maintenance support people, but you're the guy responsible for seeing that the job's done on schedule.



1. Ask for both the safety check and load test as your work request. Field maintenance will make the safety check before and after making the load test.

2. Give your name on the duplicate of your 478 where the inspector can put the date of the load test and his initials.

3. Make sure the 478 is on the equipment when it goes to field maintenance.



1. Check the 478 and work order receipts to see that the load test and safety inspection were made and the date of the load test recorded on the crane form.

2. Make sure the work order receipts stay in the jacket file.

It goes without saying that any vehicle used for handling assets has got to be the wrong man among NHTA's. That's why you, want so, really knowle down when it comes to before, during, and after operation PM.

Round up the TMs and the latest changes for your NHTA for the real-life,



1. Obtain a work request and job order (Est. Form 810) asking your field maintenance unit to make the safety check. Both the receipt (given about in your vehicle's Est. Form 478 after the check's been made.



ARMY AIRCRAFT



A TROOP STORY...

BALANCE YOUR SIOUX—FASTER

The balancing act on your Sioux (OH-13) can get so be a mighty annoying routine—what with all the switching back and forth of the spirit level from lateral to longitudinal position to lateral, etc.

So if somebody comes up with an idea to take level readings in both directions at once, it's bound to be a time-saving gimmick.

Real simple, too. Just connect two pieces of 1/2-in. x 1/2-in. steel bar stock together in an "L" that will rest on the three leveling legs. Then install a spirit level on each arm of the "L" tool. Now check the tool on a leveled helicopter against the old single spirit level operation and see what you think.



This "L" tool allows you to concentrate more on the jacking and adjusting part of the operation, speeding up the whole leveling business. If your outfit has more than a couple of Sioux around you might be able to persuade your CO that this tool's worth making.

The illustration in the picture window pretty well sets the H-13H in the Sioux. You may want to change them for other models.

YOU BE THE DOC



Treating a symptom instead of the disease is one of the most common traps an average engine owner can fall into.

It's a real simple treatment—but unless—no loop capturing parts that give you an idea of what's going on between normal replacement intervals.

It's like taking APC's to make a headache go away, but you still don't know why you're getting the headache.

For example, there's the case of one Fred Dog (L-19) mechanic who was constantly having exhaust manifold gaskets leak out on him after 50 hours or so. And that's a long way from the normal 100-hour check. He even tried waiting for the new gaskets to water before installing them to get a snug fit.



It was all wasted effort, since the real issue involved was to be wrapped exhaust tube fittings. So an amount of tightening up on the gasket could prevent burning out of the gaskets.

The case was fixed after checking the flange against a straight edge. The main reason for the flange warpage, which you happen to anybody, is obvious: bending and cooling of the manifold along with constant engine vibration during normal operation.



Now this flange warpage is not limited to L-19's. It happens on other aircraft engines, too. The immediate solution is to use epoxy-duct, followed up by correct checks, no matter the flange before installing a new gasket. Just plan



each check on a flat surface and rub the flange across the duct.



If this doesn't give you a flat flange, that's time to replace the exhaust tube. In the event you can't come up with a replacement part you might use a tooth to bend the warped tube flange. Then use vice-grip pliers to bend the edges straight, pressing the flange from the plier jaws. Finish up with epoxy and correct checks. This is strictly an emergency repair, though.

Of course such installation will be following the info in TM 1-28-1-111 (23 May 67), which covers manufacturing to use the cylinder made with a mixture of 18 per cent steel filament composite (MSL-1-1900) and 80 per cent glass (MSL-1-2000). This keeps the case from breaking on the web.

And getting the right scope is just

as important. After you figure right the attaching nuts and washers, you may have to get to TM 1-1-1-1-1 (23 May 67) if you already's maintenance man and doesn't include proper readings for clear view. If you completely overcomplicate the case you'll just get the new gasket system the flange. In the future will get had that much faster, and you're back where you started.



Going back on that case L-19 engine for an example. Table 5-5-5-1 in TM 1-1-1-1-1 gives you 100-1-1-1 inch-possible torque for the 7/16-24 size used on those flanges. A good way to get the paper on the gasket and flange is to get the 100 inch-possible minimum torque slightly above the size around. Then come back somewhere between one and the lower limit to compare to a higher value in the acceptable torque range.

If you find yourself missing several with exhaust tube and gasket repairs more a little more often, you also want to be checking about working out your schedule on a UR (UR) from 1-1-1-1. Could be the engineer might want to get involved. It good results always best in calling in a specialist when the problem doesn't seem to be solved point-out this.



A SAGGIN' BIRD

Ever see a saggin' bird that looks like it needs a crank neck sprain? Could be one of the main landing gear shock absorbers is weak in the lower.

Normally, your aircraft's main hydraulic oil and air will pump 'em up for a good while or more. On the other hand, if your aircraft's maintenance record shows the same shock condition keeps coming back a little too often, chances are you've got more than a small leak. You've probably got landing gear's in the area, which calls for deeper level repair.

After all, puttin' down's just four-wheel's gonna go bad in time. You could keep working a strut with oil and air maybe a dozen or more times, just like you



could keep pumping up a flat tire on your car without putting a slow leak. But, finally, you'd have to come up with a permanent fix.

So... if you've had more than one fix on the same area over a short period of time, ask your support to look at it. If the trouble is with the puttin' you get a replacement strut.

A FLUKY BUSINESS

Phalps' de screws is the off-by-hugge is a necessary—and sometimes risky—business.

Being that second-hand screws are the preferred items in some aircraft's financing situations, you've got a built-in need problem ready to rear its head—if you let it.

The problem is that you've got two major kinds of standard screw heads being used on Army aircraft and two kinds of screwdrivers in your tool kit to fit each of 'em. So—no... can you tell the difference between a Phillips or a Ford and those eye-screwdrivers and screw?

They're not really on the same plane. That's why you take a second look at your suspect you've not getting the job you want.

It's "mixing" the two types of screws on one panel that makes the trouble—not the fact of having both screwdriver tips in your tool kit.

For example, one of these new Milwaukee (MIL) named Me with a particular screw plus focused on by someone around 200 screws—all R&P. These was no problem until a few screws eventually got replaced. Well some replacements were R&P, some were Phillips... and the mechanic kept using his trusty R&P No. 2 every 100 hours.

Well, you can get away with that about twice that time, until the screw head begins to look like it's time to get the drill.

The best way is to make sure all the screws are alike. So, say time you replace standard heads, change 'em all to Phillips on all Army aircraft. Then you have a replacement R&P.

You might say that buffed-up screws are one of the tricks in a wacky mechanic's life. But with a little attention and care you can keep the operation from being all buffed up.

PHALPS... ONLY THE
BOTTOM OF THE
SCREW HEAD.

The R&P eye
has points.



SCREW...
DRIVE THE
SCREW HEAD.

R&P's eye is not
sharp, giving more
of a square-cut
appearance at the
bottom of the screw head.

SOON...
WILL MAKE THE SCREW...
A LITTLE FOR WEAR AND TEAR.



R&P's eye has sharp points with
45-degree angles.

The Phillips
screw.



The Phillips eye
has sharp and round
corners the surface.



The Phillips eye has round corners with
Milwaukee-like angles.

QUESTION FROM...

REPUNCH 'EM Y'SELF



Dear Wally,

In recent months we've done quite a bit of getting T.M. Ladies articles published with different size holes and center-to-center measurements. The ones with 14-in. holes and centers 19 1/2 inches apart have to be repunched to fit our "Army Aircraft Maintenance Publications" binders. This is the T500-281-0713 binder with 7/8-in. holes and the 19 1/2-in. center-to-center spacing listed in DA 16-1-7500. What's the answer on this?

Mr. R. L. H.

STANDARD 1/2 IN. HOLES

STANDARD 1/2 IN. HOLES



IF YOU
PUNCH HOLE
1/2" APART
AND 14"
HOLE SPACING
REPAIR IN
T500213

Dear Mr. R. L. H.,

Even now you should be using more and more of the smaller hole to better palm with the wider spacing between holes. 19 1/2 in. center-to-center, 14-in. hole-1. This is the standard size hole and hole spacing for Army pants and will fit most lead binder T500-188-0091 (QMS), also listed in DA 16-1-7500.

Eventually, the T.M.'s with the larger holes, which is binder T500-281-0713, will disappear. But if you don't want to play around with two different binder's right now, you can just keep repunching pants the way you've been doing.

FLYING TOGS

Always Washed



Hang up on what kind of cleaning's required by the different items of your flying outfit? No sweat. The service is taking credit in hot water with mild soap. Jackets and sweaters take dry cleaning. The rubber soles on the leather pants. Wood glue leathers can be dry cleaned or washed in warm or cold (not hot) water with mild soap. It's all spelled out in TR-OM 143 (5 Jan-50).



LET'S COMMUNICATE



Changes in temperature ... humidity ... wear and tear ... compression ... or just plain aging. It all adds up to one thing on the gauges of your TA-40/PT and TA-310/PT: bad air/fuel-mixture readings.

TAKE
DOWN...
OFF A TURN
ON THE
SCALE.



These two rubber gaskets—*one* between the top panel and housing assembly—and the other between the base and housing assembly—shrink slightly under pressure from the tightening screws. Just the least little bit.



But that shrinkage happens so often a tiny amount of moisture or water seeps inside. Bad. Trouble is, there's no way to tell—by looking—whether those gaskets have shrunk. The only way to tell is with a screwdriver, by trying to make a mark on certain screws.

In the case of the top panel, the screws are located at each of the four corners and about midpoints along the two long edges of the panel. As for the base, there're four screws to check.

One at each corner of the diaphragm.

If they're loose by only a quarter turn, it could mean that water will find a way in—or already has.

So, now that you're working around your TA-45 or TA-315, try a turn on each of these screws. If they don't budge, it means your gasket is tight. If they do, then you've discovered a chink—snug it and surround it at the same time. But watch the wrong ones, too! Just snug 'em up.

HOT FLASH



Come cold weather and you can brace for an extra pound inside the lines of your AM/AMC-50's.

It's the CLUCK of the heater as it goes

It draws a healthy 1,500 watts. And when your "50" is in full operation, an extra 1,500 watts piles up much of a drain on the power supply. The Generator Set PG-204/50 (consisting of two PG-102/25's Generator) is rated at 3 KW's.

And that rating sure is exceeded when the drain of the electric heater is added to that of all the other equipment during full operation. Your "Angry 50" will cool up with reduced line voltage, a weaker signal and less, less-like gaps from the generator.

As a matter of sound operating practice, then, run your eyes around the dials before crapping on the heater. If everything else is on the line, leave 'em off.

And, of course, turn the heater off pronto if it happens to be running when the rest of the radio set is operating.



It's a matter of warm things up and keep 'em that way. Slightly comforting and comfortable. But—how can thing is mind when your finger reaches over to crank up the heater.

Let your PG-50's



CORE CARE

Just a reminder to care for your core.

Check a lost core—or a loose one—on a regular basis. RT-66/CBC, RT-67/CBC or RT-68/CBC.

The clay core under discussion is the plastic insert that wedges inside the shell of the engine connector. Right there on the upper left portion of the panel of your engine connector.

The resulting contact-discontinuity action between the engine cable and the respective connector tends to work that core loose. Especially if an operator or repairman is in too much of a hurry to pull his engine over.

If the core is lost, of course, the entire engine connector is useless. And since the core is not replaceable by itself, the engine connector has to be replaced.



On the other hand, if that discussion is performed slowly and with a touch of care, chances are 100% per cent greater that the core will stay in its shell and the engine-transmission will stay on the air.

It's a basic preventive maintenance routine which, like the TM eye, will "prevent engine trouble from occurring."

EXHAUSTING SOLUTION

When it comes to the danger of carbon monoxide poisoning there's nothing like a warning. Which is the whole idea behind URGENT RPO 11-5410-207-217. (RT M-60). It applies to all units with an AM/CBC-24, AM/CBC-41 or AM/OLQ-1.

The RPO instructs your side repairman to install a warning sign over the shelter door which says, among other things, "... close front window, side windows, and all air intake sources on the side nearest the engine exhaust stack of the cargo truck" ... when the shelter is in use.



COVERS FOR COMM MOUNTINGS



Dear Editor,

Because our outfit keeps many of its vehicles outside, the weather causes a lot of damage to the electronic equipment...especially the radio mountings.

So, we decided to look for an inexpensive way to cut down on this weathering.



We arranged up some scrap covers (old sheets for less, discarded newspaper). We cut and sewed them to fit the mountings snugly. The snug fit covers the seal for the doors or back let.



Thanks to the covers, the mountings now stay drier and need less maintenance. The radios, of course, come along with their own covers.

We thought this fit might help some others in maintaining their equipment.

The Gang
For God, Gold



OLD NOTE—Sounds like a good idea, especially for vehicles like pops that don't provide much shelter for some equipment.



WITH CARE



Early did the world know, when
Edward Bonestroo, the intrepid
explorer died ... that he left behind
him a son on that forest's remote
island ... a young AJ babe.

As the years rolled by the lad
grew to young manhood among
the beasts of the jungle ... he
did the man these friends, and
could speak to each in his own
tongue.



Soon he mastered the ways
of the jungle ... and assumed
leadership ... becoming
known as TAJAJAJ, King
of the Jungle!



... But at night by moonlight
Jawan taught himself to read
with his native
methodology.



So it was with curiosity that
Jawan watched an ancient
"Fogus" landed on the
northern tip of the island.







A colorful illustration for an advertisement. In the top left, a black box contains the text 'Joe's Dope Sheet' in a stylized font. A muscular man with red hair is suspended in the air, holding a large brown cardboard box. He is wearing a loincloth and has a determined expression. To his right, a blonde woman in a grey dress sits on a tree branch, looking towards him. In the bottom left, two men in hats look up at the man in the air. A speech bubble from the woman contains text about shipping and packing. The background is a lush green jungle with trees and vines.

Joe's Dope Sheet

Treat electronic gear with great care.
Whether shipping by land, sea or air.
Make the packing just right;
Keep it padded and tight.
And you'll save "wear and tear"
that's not "fair."

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

IF YOU WANT TO DISPLAY THIS ADVERTISING ON YOUR REGULATION BOARD, WITH STRAPES, CUT IT OUT AND PIN IT UP.







HEY
COULD
BE
LOOK
AT
THAT
BOY
HE'S
HOT!

?

GOD, WE
JUST
MET
A
GIRL
RIGHT?



ARE
YOU
GOING
TO
MARRY
HIM?

?



AND
WHAT
WILL
YOU
DO
AND
TELL
YOUR
MOM
WE
WANT
ELECTRIC
STUFF
MAYBE
AN
ELECTRIC
MOTOR
OR
SOMETHING
WE
CAN
USE
IN
THE
MOTOR-BOAT?



THAT'S
BLACK
MAGIC!

ARE
YOU
SURE?

... And when operations Fungus departed, they took with them a new recruit, young Lloyd Swastika II, returned to his rightful inheritance... as Fungus entertained... as presented to his late father's will, (I'll just haven't read "Bride of Fungus," or "Fungus of the Claps," he sure and it's so soon.)

QUESTION AND ANSWER DEPARTMENT



THE RIGHT ELEMENT

Dear Sgt. Dwyer,

What's the story on the field procedure filter element replacements for aircraft engine service Super C Turbopropellers? It's requisition element under FEM JFW-267-2473 like it says in TM 3-24.10-207-117, but the element we receive is about 1/2 inch too long and won't fit into the filter can.

What happened?

SFC E. M.



Dear SFC E. M.,

Get our signals crossed somewhere. Both the TM and the FEM you used are right. But, as you found out, the Cyclone filter element P-278 that've been stocked under FEM JFW-267-2473 are too large for the filter in your engine. However, all those stocked elements have been turned back to the company and you'll be getting the right replacement from now on.

If you have any surplus Cyclone P-278 elements on hand, don't try to jam them into the filter. Turn them in to your support unit and requisition new ones. You should get the right ones now.



DIAL**PM****FOR HEATERS**

Dear Herb Mack,

What a nice evening we had about your word on the use of metal disks coming in the valve dial plates on our big new heaters.

CRF-C. W. F.

Dear Mr. C. W. F.,

Your hard-working 150,000-BTU non-heater's probably means we have gone a step beyond the Fuel metering and shutoff valve disks. When this happens, replace 'em.

It's a smart idea to replace one disk at a time. This way you can't get 'em mixed up and, since both assemblies are

about the same, you can double-check yourself when you're putting them back together.



Here's the way to do it—easy dial at a time:

1. Turn off the valve and remove the cover and plate by slipping off the bolts at the two support studs with a screw.



2. Take hold of the hand wheel and gently pull the locked extension shaft taking with the pointer, out through the hole in the top of the unit. Next, remove the hand wheel, four nuts, pointer and indicator. Don't lose 'em.

3. Install the dial plate and reassemble the pointer. Make it large right then leave the hand wheel nearby.

4. Slide the locked extension shaft gently back into the heater and engage the hole in the pointer the way they were originally. The best way to do this is through the safety top lever spring.





Get Your Own
Share of A
Share



1. Rotate the disk plate with two chains and secure the joints on the OPI position by tightening the two nuts against the joints and lockwashers.

You can get a new set of disks from your support people. The fact that shut-off valves carry PSM 4520-111-0001, and the ball-bearing valves carry PSM 4520-111-0002. Both come with self-aligning chain drives.

If your support unit doesn't have the disks, they can get 'em from the QM Equipment and Parts Community Center, Columbus General Depot, Columbus 15, Ohio.

Handwritten signature

STORAGE PORRIDGE

Dear Sgt. Dorian:

Your supply chain manager in this Engineer camp claims there's a difference between "shelf life" and "storage life" on perishable supplies and parts.

How do you see what they call it, as long as some of those items go bad before we get to use them. What do you say?

Sgt. D. C. E.

Dear Sgt. D. C. E.:

I'd say you've got the main message. Barge. Can your lawyers beat their point while you mind the store.

On items that spoil fast, you drive only enough stock to stay in business. Then you lock up that working stock with regulations aimed to arrive when you need replacements.

You stock replacements behind the old stuff, rotating stock so supplies get used before they spoil on the shelf.

And for official wrap on general engineering items and repair parts, you can run it down by PSM to SB 5-40.

SB 5-40 informs you, FYI, that PSM 5-420-108-4017, "Allowing Field, can spoil in six months or less. Sooner than that, if you fail to follow Note 18 about keeping the cover tight.

So you play peripherals close to the rim.

This way you're not so likely to get caught trying to punch a line with fluid that won't flow especially when the OPI team comes scrambling up your rear.



Handwritten signature: Sgt. Dorian

10 MORE

THE FRAME AINT THE SAME



Dear Staff-Man,

Can you give us the latest info on frame welding? AR 750-2300-7 says you can't weld vehicle frames between spring hangers, but there are MWO's that call for welding brackets to the frames.

Is there a difference between welding a frame and welding to a frame?

Dear Sergeant C. C. M.,

Sgt. C. C. M.,

There sure is.

The idea back of AR 750-2300-7 is that a frame on the ground that is ready for welding is already set-up so that 'weld work' is easy. The Army used to weld frames but its army does not really showed up soon after the vehicles were put back in service.

The AR was issued on ground welding between spring hangers because it was found that in many cases this repair was a waste of time and money.

On the other hand, welding to a frame is a lower form of quality different frame case. The MWO's are applied on vehicles that will have a lot of service

in them. The welding methods called for by the MWO's have been carefully worked out so there is a minimum danger of damaging the frame.

Even so, this is strictly a field situation that because it depends on so many things. For instance, if the frame was bent around during manufacture, all hell are off. It is not to be welded in all, even for brackets.

The slide rule boys have done a lot of work on frame welding and they are handling out a new TB which they want complete to the ground rule in the AR.

In these cases, and in these cases only, welding of the frame is OK.



If you need a frame welded, mean your field maintenance support and they will get it done for you if it falls under the rule of the TB.

As far as first, second and third vehicles are concerned, AR 750-2300-7 which says you can't weld between spring hangers, is still the law.

TR 8-1500-107-40 (22 Jan 60) gives your support the method to make certain specific welding repairs on Marine selected vehicles from 40-ton up to and including the 1-ton.



Your brakes is close, and a couple bad local drivers can reach for the fast. They found out—too late—what a lock is in the lock-out. FMV 215M-049-1128 you do so an MOC to 80246, 3-year wrecker.

Yep, you got it, they wanted an MOC so badly it couldn't be used on more.

Experts tell of the aluminum rule (Mts. Part No. MAN-8018) is the lock breaking or cracking . . . probably due to metal fatigue from over-tightening of line connectors when the lock gets installed, or vibration due to a loose mounting clamp. Match, the hydraulic fluid is set up for an easy cut out the cracked tube—and you've got no more brakes.

Soon, to protect you and your truck (and a better lock connection) check the unit out before each operation.

Look and feel for signs of body heat on the lock and line connectors. You can spot the unit by lifting the master cylinder cover cover on the city floor . . . right along the left frame member.

While you're at it, make sure the holding clamp is removed and secured good'n solid.

Signs of heat? Don't, do not, try to tighten the line connectors without fittings (above) won't be either end of the lock. Play it safe and get a new lock on.



As often you're connecting the brake line to the lock, use two wrenches. Hold the end fitting (above) with one wrench and turn it . . . then tighten the line connector nut with the other wrench. If you don't hold and turn the sleeve nut, the wire pin center tube will rupture or even be cracked and leak.

Like it says in para 36 of T11 8-8028 (June 197). The double brake lock is only used to lock the service brakes in a "hold" position, when using the crane or rear winch. The class plate warns you that you don't use it for a prolonged parking brake.



RIGHT DIPSTICK

Dear Mr. M.,

We're having trouble with our M31 tank recovery vehicle. So much oil gets transferred from the transmission to the engine that we have to shut down the vehicle.

Can you tell us how we can stop this?

Wgt D. M.

Dear Wgt D. M.,

The fault is most likely in the dipstick.

During the M31 modification program the early dipsticks, Ord Part No. 7705124, were supposed to have been replaced by dipstick P/N 2320-111-9621 (Ord Part No. 8048901). If this hasn't been done you'll have too much oil in your transmission. This extra oil will flow from the engine by way of the breather tube.

The best thing you can do is first be sure you have the right dipstick and then keep the transmission oil level on the "brassy" side . . . or at only slightly above the ADD OIL mark.

That way there won't be more oil than can be drawn through the breather into the engine.

Your technician
 Oil level dipstick should look like this:
 M31 718

Call us: 208-801 5811 or 2320-111-9621



PS MAGAZINE IS FOR YOU

Your unit can get enough copies of PS Magazine for you and all the other guys who read it. You have to make sure that your local Publications Service knows how many your unit needs. Then your PS Service orders enough copies for everybody on DA Form 12-1 from the publications depot.



Lucky Lady

In 05:00 we gave you some tips on getting along with your Lucky Lady M113 APC under ordinary conditions. Now we're following through with info on making use of the Lucky Lady under special conditions, and maintaining her so she'll part like a penny coin.

SAFE STARTING

1. Position yourself (M113 or any other vehicle) with 24-volt current supply near the M113 to be started. These starter switches on both vehicles OFF.



STARTER
24VOLT SUPPLY



STARTER

Connect a drive cable to the auxiliary power compartment. Be sure you put the right prong in the right hole, the + prong in the + hole and the - prong in the - hole.



LEFT IN POSITION



2. Turn ON the master switch in the LEFT vehicle and with the engine selector switch in neutral and the handle on the engine, go above 1500 RPM.



In the DEAD Lady, with the engine in the small tray, change you from the master switch OFF. After the engine starts, quickly pull the drive cable and flip ON the master switch.



Pull the cable in the starting Lady and run the engine in the started M113 APC at about 1500 RPM for five minutes or so to change your batteries before starting on.



HOW AND WHEN START

Never do this except in an extreme emergency. Use the tow hook to connect two animals over cables or a tow bar between the two vehicles. On the vehicle you're trying to start, put the drive lever in NEUTRAL, open the fuel shutoff valve and run the vehicle master switch ON.



1



2



3



STARTER TOWBAR ON

4. OPEN THE POWER WINDOW SWITCH & SPIN UP 10-15 MPH...



5. PUSH THE BRAKES FAST TO 60 MPH (4.5 SECS)...



6. HOLD THE BRAKES TIGHTLY, SHUT TO NEUTRAL...



WATCH THIS:

If you're going to tow the vehicle more than 2000 feet...

1. Disconnect the universal joint between the transmission and differential.

Disconnect a vehicle speed of 30 MPH on a distance of 10 miles with the transmission disconnected.

2. If you want to go further or faster, disconnect the left and right universal joints between the differential and final drive.



WATER OPERATION



The transmission kit for the M115 1975 25004174-000043 has a heater, heater fuel pump, an engine primer pump, and has six drains to the power train components, pressure components, and battery bank. That's for the battery system.



FIGURE 1007

ENGINE AND HEATER PRE HEAT

1008

The hand-operated preheating pump is on the front wall of the driver's compartment. It pumps gasoline into the engine intake manifold. Normally you won't need it because the engine will start without it in temperatures down to -20°F. Don't use pre-heat—Preheat only when engine is running over its normal hydraulic lock.

HEATER

The heater is in the personnel compartment on the power plant compartment wall. You use it to warm the power plant and batteries before starting in extreme cold. It is also a personnel heater. You control the heater output in the battery box with a valve in the door of the box. You can switch the main output of the heater to the personnel area or the power plant compartment.

Make sure the power plant compartment heater intake is **CLOSED** when the engine is running with the heater **OFF**. If the intake is open, engine fumes could get into the personnel area.

To start the heater, flip the three-way control switch to **OFF-HEAT**. The indicator should light up and the blower motor should start. The blower motor will

speed up after the heater ignites and then you can switch to **OFF-HEAT**.



If the heater doesn't ignite within three minutes, switch it off. Press on the indicator light. If it glows, you are getting current, so you can try to start the heater again. Wait five minutes for the igniter to cool. Otherwise, you might burn out the starting coil.

If the heater won't start in three tries, don't try again until you find out what's wrong.

When you turn the heater **OFF**, the blower will go on running for a couple minutes to purge the heater. Don't turn the vehicle master switch **OFF** until the heater has purged itself and stopped running, except in an extreme emergency.

There is no chance of the engine or heater gas backing up through the heater line because the heater has its own separate exhaust through an outlet on the top deck.

Engine disconnect? You can disconnect the engine from the rest of the power train for cold-weather starting by pushing IN on the engine disconnect handle. You'll find it under right of the driver in the engine compartment. Stop the engine after you get it up to operating temperature, pull OUT on disconnect handle and restart engine. **NEVER TRY TO MOVE THIS HANDLE WHILE THE ENGINE IS RUNNING.**

RED PUMPS—Keep the flaps completely to keep ice from freezing and possibly damaging the flap pumps. Close the door flaps as you get complete fuel drainage.



SHOCKS—Check suspension when set in use. Shock and spring mechanisms should be lightly lubed the year after they become straight. Don't clean it or oil on surfaces.

WAX TREATMENT—In ice, windshield is the problem. Find the lightest wax that will cover the vehicle steadily without clogging the engine.

Under these conditions you'll get better traction if you take off your truck pads. First you have to get your OFF's position—right.



RED PUMPS—Make sure flaps are completely to cut down on evaporation in the fuel cell. In every 2 weeks, drain off any water that has accumulated in the fuel cell.



PULL OUT - Don't carry this.



WASH ENGINE—If you have to cover your vehicle under extreme cold weather conditions, completely drain the engine cooling system.

DON'T MISS ANY OF THE FOUR MAIN POINTS

1. **At the engine oil pump, there is a drain-out solution.**



2. **At transmission differential oil cooler (Flap).**



3. **Engine oil cooler flap, right side (Flap).**



4. **Engine oil cooler flap, left side (Flap).**



HOT WEATHER TIPS

BATTERY—Check battery level **EVERY DAY** in hot areas. Use distilled water whenever available. If you can't get distilled water, use rain or drinking water. Batteries may have a weaker electrolyte in hot climates, so have your support unit dilute the lowest sulphuric acid (specific gravity 1.280) to a specific gravity that'll meet your climate conditions.

You can get all the dope on this in **THE 5-8140-000-01 (July 88)** which also gives you a corrected hydrometer chart.

Batteries self-charge fast at high temperatures, so if you gotta park for a couple days, take out the batteries and store 'em in a cool place.

COOLANT SYSTEM—Needs extra attention in hot weather. Check level frequently. Use corrosion inhibitor and refill with soft water if possible. Flush radiators when you need to, but if it has to be cleaned let your support unit do the work. There are some aluminum parts in the cooling system that can't take ordinary cleaners but your Ordnance support has the right stuff to use.



WARNING—In dry, clay or sandy areas, leave exposed surfaces such as the metal slides dry instead of oiled because steel and felt make a grinding paste that does more harm than dry operation.

TIPS—Under normal operating conditions, if your engine temperature stays above 200°F pretty often, you've probably got sand, dust or insects in the radiator fins.

Don't get out with compressed air, the shock belt adjustment of the cooling fan will make sure it's operating right.



BE CARE—Check often in hot weather. **BEHOLD** ...



AIR FILTER

Service daily when operating in dust and sand. Dirtboxes are not the cleanest air.

You never use gasoline or other solvents to clean the cartridge, but you can use almost anything else.

Don't let it blow in with compressed air at its max over 10 PSI. You can wash it with soap and water. Rinse in clear water and be sure it's thoroughly dry before you put it back.

In an emergency you can clean it by gently tapping the feet with your hand. Don't tap the ends of the cartridge to clean it because that could really damage the element.



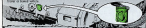
ELECTRICAL RECEPTACLES

FOR 12-VOLT CURRENT—A male inlet receptacle is installed in the back of the vehicle near the right tail light. It leads to a female outlet inside the vehicle.



FOR 12-VOLT CURRENT—There are three receptacles.

1. Trailer lighting receptacle near rear landing plate. Supplies electrical power to run the lights of a trailer or towed vehicle.



2. Auxiliary power receptacle at floor level near driver's seat. Used to power a road jet cooler in driving.



3. Auxiliary outlet receptacle at same landing as auxiliary power receptacle. Used to plug in trailer light cord, etc.



TELEPHONE

There are four telephones on the inside rear right wall near the portable lav water-gardens. In fact, they are just below the 110-volt-system receptacle, both inside and outside the vehicle.

They are for internal or external telephone hookups. When they're not being used, the external ends of the telephones are weather-protected with a rubber cover.

COMMUNICATIONS EQUIPMENT

You may get any one of several types of radio sets. A mounting rack for the radio is on the left wall of the personnel compartment.



Some rifle combinations will require an additional rack for the right side of the vehicle. This rack will be supplied by the Signal Corps with the rifles.



Power for the equipment comes from two rifle receptacles built into the mounting rack. Cap the receptacles when not in use.

Lugs are welded to wall and ceiling on the RIGHT side, for another rifle rack if needed.

WHEEL LOCKER - Lock for mounting an antenna line is welded to the air vent duct at the front of the personnel compartment.



ANTENNA SUPPORTS - There are four, two on each side of the top deck. When set in use they're covered with hatched scrapmetal. Antenna guide cables enter and connect past the entrance. The forward right mount is for the radio set.



LIFTING EYES

The M113 has four lifting eyes, one near each corner of the vehicle. Use them for lifting and for tying air-drop parachutes. The two eyes welded along the edge of the vehicle below the front headlights are shipping indicators. Don't try lifting the vehicle with them because they won't take it.



ARMAMENT

Pods mounted .40 caliber M1 machine gun, shoots in any direction. Half of the (optional) 2,000 rounds of ammo is stored under personnel seat. The seat is moved wherever the crew wants it.

Spare barrel is stored on the left gunner beside the driver.

Gun parts and tools are in a roll attached to right wall of the personnel compartment.

Two M1 4 rifles are stored on the gunner with 500 rounds of 7.62-mm ammo.

THE CYLINDERS

One fluid two-pound cylinder is on the left wall near the driver's seat. It discharges CO₂ into the power plant compartment. Pull either the ascending handle or the cylinder lock, or the handle outside the vehicle, near the driver's bench. Remove and weigh every Q maintenance or any time you find the tank broken. Always wear the date of last filling on the green tag.



One portable two-pound cylinder is in the right, rear, corner of the personnel compartment. Check green tag for filling date.

TOP LIGHT MACHINERY



If your vehicle is serial number F453 or above, you can skip this. On vehicles F452 and below, the stop-light switch actuates washers and wipers. These and interface with the steering and braking control rods.

It's a good idea to draw the lock nuts up tight and weld them on the washers. On vehicles F455 and above, your steering rod and sensor/washer are all in one piece.

SECOND COVER

Your front steering arms can get bent on small ruts in wooded areas. When they get bent they crack around the steering bolts. Maybe something will be worked out on this, but for now, take it easy in the woods.



OIL DRAIN PLUG

The oil drain plugs sometimes freeze in place. Wash a light coat of CLC4 down the threads.



LOADING TIP

In loading the M103 on a plane or railway flat car, you may have trouble with the front of your vehicle rubbing against the entry ramp. If you do, hitch it up.

FEBRUARY

If the commander has his head outside the hatch in a cross wind he may get a handful of exhaust gas from time to time.... so be watchful in cross winds. Some units have been running the exhaust around to face the front. They claim that keeps some of the

exhaust out of the commander's face. It all depends on where the wind's coming from.



FUEL CELL



Don't take off the manifold cover unless the fuel cell is empty. Otherwise you'll puncture the cell or break the manifold cover latches.

The fuel cell drain plug is an alloy job and some outfits have been breaking them. If your Ordnance officer gives you the seal you can replace them with Nylon brass plugs.

TRANSMISSION OIL

In the 10 it says when you change the transmission oil it takes 19-quarts. The transmission's actual capacity is 24.5-quarts.



QUICK DISCONNECT LINE

Your engine oil quick-disconnect line can cause you trouble unless you engage them completely. Could happen that you'll get what looks like a tight connection, without it being completely engaged. When this happens the oil line is blocked and the oil can't flow through the coolers. So, when hooking up the quick-disconnect line—see that the connection is complete, not just halfway.

DRIVE WHEELS, REAR WHEELS AND STEER ARM BUSH

You gotta be a little careful to get the adjusting nut right on your road wheel and steer arm bush. On account of the nut is spring loaded, you gotta have the nut just on to keep oil from leaking at the nut. Always follow the method given on page 107 of TM 3508-104-10 (Mar 60).

If you see the road and steer wheel's rubber wearing here, or the rubber chipping off—the fix:

1. Keep the right track tensioned all time.
2. Don't high speed run.
3. Inspect road wheels and/or steer wheel to get corrected soon.
4. If wheels feel too hot let your Delcovalve support people know about it.



DRIFT CHECK

In the daily check right now you see there is an oil trouble before it happens, when you see the hot it should indicate . . .



WHEELS AND BUSHES—Carefully hand-tight road wheel and steer wheel hubs and bush drives. If there is a hot bearing there the nut on's not working right. Check oil levels at the right indicators.



CHECK BEARING—Inspect each joint that has 1/4 or more of the surface and missing. Check also for wear or broken spider, worn bushings and damaged ribs.



WHEELS AND BUSHES—Should be correct that the ball if they're working.

Try to check with vehicle on a level, smooth, surface. Don't apply brakes. Balls less accurate and for the vehicle rolling a ramp. You don't have to take off the steering to check. If track tension is right, the bottom edge of the lowest track link will be within $\frac{1}{8}$ to $\frac{1}{4}$ in off the top of the center road wheel.

If you want to get the most life out of your track and tiller wheels you must keep the track tension right. If it's too loose you could lose a track; if it's too tight you'll soak up power and do other damage.

Your loader is equipped with a grease-pressure adjuster. Be sure you have the right kind of a grease gun for this adjuster. It should be Part MA-9141-1, a high-pressure lever-operated 15-lb. gun and it should be in the tool bag of your OOM. The gun is P/N 4058-125-139.

You need this high-pressure type to adjust your track tension. Keep it full of grease so you can make this adjustment out in the field.

To make the track loose, lower up the track adjuster handle and the grease fitting is over at around the handle. Don't take a lot of grease or you'll get a load of grease. On the left side of the vehicle the handle set is above the grease fitting. On the right side, it is below.



To tighten up the track, use your high-pressure gun to force more grease in.

If grease seeps out the pinhole-size outlet port on your adjuster, it is a sign that the grease has traveled too far in the housing and that you have too much slack in the track. Take out a block and you'll have it made in the shade. That will let the grease go all the way forward again and you will get the right track tension.



Remember, when the grease seeps out that hole it is time to drop a block.

The hole fitting for adjusting track tension does not have a cover, so be sure you don't see a grease gun on it when doing lube service. There should be a warning to lay off this fitting at lube service.

The silver-type self-lube grease fitting is a special item but you can get it from supply. Ask for Fitting Label: custom 14 NPFF, P/N 4036-679-0076. In an emergency a regular grease fitting will work. Keep in mind—a new track will stretch during break-in, and it may be necessary to remove one track link for the right adjustment.

WARNING SIGN

It's a letter!

TR 9-1988-248-12 (Dec 88) gave the word to install this warning above the engine rear bulkhead access cover and engine-compartment cover:

ENGINE MONITORING GAS

BEFORE ENGINE STARTS
CHECK BEFORE STARTING
ENGINE

It's a letter!

TRAIL RAMP

Be sure the winch ratchet is locked before you try using it as a hand hold for climbing up. Otherwise, you're pretty sure to fall on your face and you might get hurt bad.

When you lower the winch ratchet for any maintenance, the rubber bumpers



will wear and are easily damaged if stepped on or hit against anything. To keep from losing or doing any damage to the bumpers be careful around them.



WHEEL BANDS

It should take a 5 to 10-lb pull to get the steering lever from full forward to the first notch in the steering lever quadrant. In this position the brake bands should be just wanting to tighten on the brake drums.

To adjust, park vehicle on level ground, chock front and rear on both wheels and release both steering levers.

Unscrew your brake adjustment access plugs from the differential housing.

To tighten the band, turn adjusting nut clockwise.

Check the steering level pull after each half turn. Tighten 'til it takes 5

to 10-lb pull for the first notch of the quadrant. **Do not overtighten.**



Always adjust bands when the differential is cold. If you adjust with the differential hot after operation, your wheels will be off.

STORING IMAGE

CALL

You don't change the color just differential or steering controls have been removed replaced.



MADE IN JAPAN
AND THE QUALITY
IS THERE!



TRUCK TIRES

All the motion bars on the left side of the vehicle (as viewed from the ramp end facing toward the front of the vehicle) have an arrow pointing in a counter-clockwise direction stamped on the roadwheel end of the bar. You order them as ITEM 2150-479-7995.



DOUBLE-BUMP

FOR
ITEM 2150-479-7994

LEFT SIDE



SLIPPER

FOR
ITEM 208-479-7994

RIGHT SIDE

The motion bars for the right side of the vehicle have a clockwise arrow on the roadwheel end and are stocked as ITEM 208-479-7995.

The two kinds of motion bars are not interchangeable, so be sure you get the right kind.

WELDING CAUTION



The M115 hull is made with a couple different kinds of aluminum alloy and you can't weld it without using the shielded gas method. Leave it to the craftsman who has the tools, equipment and a trained welder.



LOOKS OUT

This is handy to know in case you look yourself out of your M115. This can happen very easy if you do the wrong thing. Like you are the driver and you have your hand locked from the inside.

You are the first one out and you come out through the commander's hatch which locks automatically when it closes behind you.

This is how you change your way in ... first take off the three T-locks cap screws which hold the left tension bar. This tension is to the left rear of the driver's hatch.

Then take out the antenna and use your bagpipe tool—a stiff wire with a loop at one end. (You can make it from a wire coat hanger.) Catch the driver's hatch lock handle in the loop and unlock the hatch.



GENERAL TIPS

Here are some tips for the second vehicle mechanic ... When you turn your ignition switch to ON, the fuel pump should's operate—will from a couple of clicks, that is. The fuel pump should's operate until the motor is engaged.



If the fuel pump goes ahead of itself and starts to work as soon as the ignition switch is turned on, the leak is in the breather valve(s) which you'll have to replace. Ask for Swirls, Pressure Fuel Injectors 1 (800) 427-2911; FAX 503-677-8119.



FOR 2000 GM 402—The filter plug in your fan drive gear box, at least on the early production models, is a soft alloy aluminum job and it gets loose in the mag-levium housing.

Some models are missing it without the filter plug when it's pulled out in plug, pipe, form, to RT 10 inside front of RT 700 4320 01 1 07 1.



TRUCK 4000—On 4,500-504-00 the 400 glass has different figures for the correct engine timing mark. On page 2 it says to lay 204 flat page 40 up to line up your vibration stopper with the 40 degree mark on the timing plate.

To lay the stop on page 40 between the 40 degree mark is best for your engine.



2.007 120000—Some models report they are having trouble with the timing loop % fuel mixture system. 008 1440-200-0027. There are about 5 dozen of these 000 (works in the 00 11. If you find the rubber cracks and falls out, send in a 001.

000000 02—The late production models will have a dipstick on the transfer case. It's full full or above you are 00. Don't let it fall below the full mark.

001000—Fan belt(s) have got to be installed right. If you get the wrong polarity 00 have-out your motor. With no rubber gear which won't go any place except on the shaft(s). To watch it.





FIX PUMP/ROCK—There's something easy to check and not important. If you have rock at your fuel pump, run it with one good oil/grease mix. If you have the heavier oil, of course, you'll have two fuel pumps—in one! on both.

FIXED AIR CHARGE—If your engine backfires frequently, the hot engine air charges you better get burned. To keep your engine from backfiring, let it idle until it warms up or pull out the choke halfway. To clear the plunger in the float, use the direction. Test it gently.



800
811
7500

FIXED SHIFTS—There have been some reports that the differential steering shaft binds because the self-aligning plate bearing in the bearing bracket is not lubed. If you have this trouble, get permission from your support office to drill and tap for a lube fitting.

After lubing, replace the fitting with a brass filter plug, the same kind used as a replacement in the fan drive gear-box.

REPORT NOW

SWO 9-108-124-307 (May 81) is to be applied on vehicles serial numbers through 761. Your organizational mechanic will replace the accelerator pedal shaft with a fixed mount shaft. This should solve some of the corrosion and binding problems on this part.



When you get your Lucky Lady, have a look-in through the pamphlet bag that comes with it. This should contain a copy of TM 33-89 (9 Dec 78) with Changes 1 and 2—on the 30 HB machine gun; a DA Form 436; the issue TM 9-2080-224-10 and DD 9-2080-224-30 and TM for the specific rifle in your vehicle, also a Strapping Diagram Storage GEM.

**BUYING THE NEW
SUPPLY FORMS...**

Could be you haven't yet met up with DD Form 1150-1, "Request for Issue Or Issue-In?" The multiple-line issue supply form's been around for a good spell, and some people like it real well for different supply events.

Use of DD Form 1150-1 (and its predecessor since DD Form 1150 was OK'd by AB 711-50 129 May 50) "Installation Stock Control and Supply Procedures." And, you old-timers will find this form a lot like the old 440 and 447—multiple-line issue issue and service forms—what'd you call 'em before the DD Form 1150 (the single-line issue issue or service form) is the name.



DD FORM 1150-1

Now the DD Form 1150-1, the multiple line request form is available. The DD Form 1150-1 can request a line to purchase from one to thousands of authorized packages for issue. (NOTE: Check with an activity command for details.) ... you have to use a DD Form Issue, because the old issue supply package had the signature's box. (Grip?)

HOW'S IT USED...?

When it's possible and easier for all concerned, and the issue involved can be handled better with a multiple-line issue form, the 1150-1 can take over.

Of course, it'll be up to the local command to OK use of the DD 1150-1 in place of the 1150. And, usually, the multiple-line issue form's supposed to be used only for items on authorized package lists.

Before a copy is filled, the following information should be on top of the form and be the usual supply receiving info, and the same goes for the duplicate copies across the form.

Blocks No. 1 and No. 2, for example, get the same info you get in blocks 1 and 2 of a 1150. The "From" (No. 3) block takes the name of your supply center, and the "To" (No. 4) block gets the name of your unit or shop.

The supply description info is put down on the top of the continuation sheet, and each sheet is numbered consecutively. But then you a few number a line of dates, or 15, and the usual "for issue or use after the 1st" line.

The form's OK, for example, for lines of expendable transportation items, stationary office supplies (to have them's to self-service centers), the individual and organizational clothing and equipment, for 1048 and 1A equipment for a new unit, and for medical supplies (inside a medical facility).

THE 1150-1 CAN TAKE UP SOME TIME

1. Issuing unit, organization, recipient unit (with three lines) especially at issue medical supplies or using certain service supplies.
2. A line except for tools and other items issued to individuals in temporary use.
3. Issuing to which is properly disposed.
4. Issuing to some authorized item.

5. A date line (with lines) showing the starting and ending up items from local use, special material. If the items used for one use only (as is common) to provide "demand" info for the items if you want.

DD FORM 1150-1 (11-50) (Rev. 11-50)

NOTE: All DD FORMS should be filled out in ink. A pencil copy will not be accepted.



ITIU

DD-Form 1150-1 can also be used to describe a unit's "Inventory Temporarily In Use" items. (ITIU items—non-assignable equipment which a unit gets for a special time or reason. The equipment—not an FOM or TAB—remains the property of the installation, or depot, supply, and is not recorded in the unit's property book).

WHEN 1150-1 IS TABOO

You'll not be allowed to use DD-Form 1150-1 when the tech service supply people want demand data on a specific item they're giving you. For that kind of control keeping track on your supply support needs the demand data page, and the handy governing rules on the 1146. When the fringes items (as required items) you'll have to conduct using the 1146.

Also when supply want you a demand on a 1150-1 order, they'll contact the demand on a 1146 and send the No. 3, Data-Out copy to you along with your 1150-1 order. All further action on the DD-form will be done on the 1146—which supply maintain.



The form's available at your post publications section, or your mail-order supply center. And, if it's OK'd for use in your area, supply'll usually want an original and three copies of the form on each transaction. You'll need

one copy for your unit response file, or an original and three copies should use you through strictly use on 1150-1 transactions.

And you shouldn't have any more working in your 1150-1 transactions with your color supply records...the form's easy to fill out and it fits comfortably into a manila folder.

Connie Rodd's BRIEFS



These Old T&E's

If you've got a DA Form 448 (L&E) all filled out and ready to send to our Ordnance equipment, let sure you use the right address from Change 6 to AF 700-34. You can also read all about it in PG Magazine 184. You don't send L&E's to the Chief of Ordnance now.

3850 computer came

Your 3850's ATTACHED indicator computer should have an antenna rod and cone for each type of antenna attached. You'll need 'em to get the right reading like DA P.1202.21E 10 (1a) has 400 tells you in step 1 of Fig. 42. Some early 3850's had only one cone installed, so the antenna handle was blocked off or "couldn't" work. But when you've got more's one cone, the antenna handle is mounted on the computer and should be used like the 38 says.

3850 AF Filter units

The newest vehicle crewman best check your 3850's filter unit (FM 4240-011-1000). Especially, if you just got a new unit. Some 3850's in a recent shipment got numbers EA 12-214-01-1, -2, -3, -4) got away with faulty valves in their hose couplings. The units aren't to be used even in an emergency, 'cause the valves won't let fire enough air to do you any good.

Your Chemical Officer's already got a hold on the 3850's involved. And they've to be identified until he can give 'em new hose assemblies. The replacement hose rack unit'll need one P/N 4240-008-4-004, hose assembly M4 (1 each), P/N 4240-300-004, hose assembly M7 (2 each).

And they're available for regular Chemical Corps supply channels.

DD Form for AF 70's

Army already outfit sending Air Force publications on blank forms that are most listed in Army indexes—open—order 'em. Just ask your local publication center to make out two copies of DD Form 1149 for your unit and label the forms "Air Force Publications Request—em." But AF Forms listed in the Army Index are still ordered on DA Form 17, like always.

Keep it away

Making too much time in Diggville 'cause the regulator on your 120-cc breather starts loosening matter how often it's tightened? Start buying Brexite paint the easy way. Drop a line to your support people — tell 'em maybe a new member, P/N 1013-001-7304, might do the trick. It's made of soft copper and, when tightened, both ends will lock the regulator on snug as a feather on a glass stem.

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

*** P M**
IS FOR
THE
LONG
HAUL

PREVENTIVE
MAINTENANCE**

