

Issue 133

PS

1983 Series

THE
PREVENTIVE
MAINTENANCE
MONTHLY





Issue 125



THE
PREVENTIVE
MAINTENANCE
MONTHLY

WINTER WEATHER
MAKES CONSTANT
DEMANDS FOR
SPECIAL CARE
IN HANDLING
ALL EQUIPMENT

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**COLD WEATHER
MAKES CONSTANT DEMANDS
FOR SPECIAL CARE
IN HANDLING
ALL EQUIPMENT**

A TOUGH JOB
TO DO IN THE
WINTER IN
MAINTENANCE

MEN AND EQUIPMENT MUST BE READY TO FIGHT

AR 550-1
CS

20. **Quality material readiness.** Continued emphasis at every echelon will be placed on effective organizational and field maintenance practices. It is essential that maintenance of organizational material receive the same degree of emphasis as the training of personnel personnel. Material readiness will be considered at least equal to personnel in both field and unit training and personnel support in operations to take field and unit training and personnel maintenance. Unit training programs will follow a proper balance between personnel maintenance and material readiness by providing maintenance time for personnel and correct maintenance of material.

CONTINUED ON PAGE 107E

By Order of the Secretary of the Army

*Take it easy on the A.R.
Maintenance of your Army
equipment takes a "back seat" to nothing.
Half that.*

Maintenance of your Army equipment takes a "back seat" to nothing. AR 550-1, Army Training Manual, says. But that keeping equipment combat ready is as important as keeping soldiers trained and in fighting shape.

There you have it—your equipment first, your CDJ know and all the commanders up the line know that **and equipment** will be kept ready.

And, when necessary, you can equipment and your soldiers fight—and win.

PS

MAINTAIN THE READINESS OF THE MEN OF THE ARMY AND THE EQUIPMENT OF THE ARMY. THE ARMY TRAINING MANUAL, AR 550-1, IS THE KEY TO THIS.

THE ARMY TRAINING MANUAL, AR 550-1, IS THE KEY TO THIS.

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THE ARMY TRAINING MANUAL, AR 550-1, IS THE KEY TO THIS.

For more information on this and other Army publications, contact your local Army office.

AR 550-1, ARMY TRAINING MANUAL, IS THE KEY TO THIS.

THE POTENT

A portable power with a package of power printed in green—yes—that's the AN/PPS-4 color too.

Keep her and that hot light, and the PPS-4 can help save your skin and that of everybody in your outfit. She's a night light—well, even she'll try anything. Give her her head and you'll save yours.

The PPS-4 can pick up a command wiring gently in the breeze... or a White tank rambolling over a hill.

And put this down in HQ letters in your memory book. The PPS-4 is designed for use with the BR-1111/1421-101 battery or a 24-volt DC generator.



The 115-2224111 power cable on the PPS-4 is designed for the BR-1111 or generator hook-up. Connect, plug 2 115-2224111 on the RT end, and connector, plug 2 115-2224111 in at the battery or generator end.

The PPS-4 has a positive ground—and that can lead to all kinds of problems if you have to use something other than a BR-1111.

You should be getting the new



PPS-4



PPS-400/PPS-4 engine generator unit, which should not mean that you require an auxiliary power source. The generator has a 1.5 amp outlet for operation of the PPS-4 and an outlet for plugging up to 17 amps to recharge the BR-1111.



To protect the set, the PPS-4 and 2224111 switches must be in the OFF position, and the VOLTAGE ADJ switch must be in position "1" before power is connected. That way, you avoid damage to the power transformer. Don't overlook the "warning" dial on the face of the set concerning the VOLTAGE ADJ position.

Turn the set on by sliding the POWER switch to STANDBY position. Following a 30-second warm-up period, turn the POWER switch to TRANSMIT.



Push the **BATTERY TEST** button for a check on a red reading too.



the **RANGE EXTENSION METER** meter. If you get no red reading, turn the **VOLTAGE ADJ** switch to the next setting ("2"), and so on, until the



meter registers in the red when the **BATTERY TEST** button is pushed.



And—if you operate the car without first getting a red reading you'll probably blow the fuses, power fuse or damage the power transducer with excessive voltage.

Remember, too, that the **VOLUME** switch must be at maximum (clockwise) for calibration. If the results is not all the way over, you may get no reading on the **RANGE EXTENSION METER** and think your car's out of whack.



The **RANGE CALIBRATION** chart at bottom center of the car is calibrated at the factory for various temperature changes, and it should be present and readable. Weather conditions affect the operation of the car, and it's a good



idea to recalibrate after every 11-degree drop or rise of the thermometer. You also should recalibrate after every hour of operation.

For your own safety, keep hands in front of the radiator when transmuting. You can get bad RF burns, depending on how close you are and how long you stay.

Detailed operating instructions are in TM 11-1040-111-11. You can easily see why you might run afoul with the Pigeon if you haven't been trained to handle it.

That holy water is much as two heavy water, even tho' it runs in the trunk of a five economy car. Inexpensive hands-on rule it.

YOUR BB-422 AND YOU



You say your BB-422's still sealed-and-vented but it's putting out its capacity when you use it with your AN/FP-4 radio set?

Or it doesn't retain its charge when you let it stand overnight?

Maybe so. And maybe there's a simple, three-point reason for it that could be eliminated with proper PM. The word is that the battery can run the standard when it's properly charged and maintained.

Let's take it from the top and work down with maintenance aids.

the plate tops. When the level is right, it'll open and flood only during recharging, changing 117 amps for one hour, or overcharging.

A WORD OF CAUTION: NEVER OPEN THE TOP EXHAUST PORTS OR SET UP TO FILL.

Now's how you do it:

Place the battery on a clean, dry surface. Remove the top fasteners, including cover lock and remove the dust caps from the electrolyte. If there's leakage, but no missing electrolyte and loose or broken ventplate leads, seal the battery to your strict regard by now.



The electrolyte level in each cell should never be more than 1/4 inch over



EXHAUSTION MUST BE STRICTLY AVOIDED

You can speed-dried electrolyte (white powder) off the battery cells with a nylon brush.

Remove the vent caps with the nylon wrench included in the battery, and either put the caps in distilled water or clean them with the nylon brush. Don't — **DON'T** — use chlorinated drinking water. Add distilled water to the battery if necessary, or lower the level with a syringe if it's more than 1/4 inch above the plates.

Using a generator set (Hammilton Model 26-3 DCR-25, for example) with the preferred constant potential method, hold the following charging voltages:

Ambient Temperature	Voltage Setting
Below 50° F	14.8
50° F to 20° F	15.0
20° F to 60° F	15.2
60° F to 80° F	15.5
Above 80° F	15.8

The charging rate will level off at 1.5 amps or less when the battery is fully charged (about two hours for a completely discharged battery and a half-hour or so for a moderately discharged battery).

Use cable CR-8407/10 of Cable Kit MK-9117/PP-6. Connect the generator to the battery terminals, and set the generator constant for a minimum output voltage. Start the generator and adjust slowly to the voltage setting you set in the temperature-voltage table above. Voltage will tend to creep up, so keep an eye on it. Decrease the voltage when necessary.

The ammeter should be read over 17.8 amps. If it does, decrease voltage fast to avoid damage to the generator.

BE CAREFUL!
NEVER USE A
SAFETY-GLASS
WARRANTY



During charging, don't let the battery cells boil or spray electrolyte . . . or overcharge.



NEVER
RECHARGE
UNTIL OVERLOAD
WARRANTY
ENDS!

To avoid explosions or serious burns never disconnect the battery until the charging current has been cut off. The



WARRANTY



WARRANTY

generator wires should first read zero (after the generator's turned off). Then, you can disconnect the battery.

Let the battery rest at least a half-hour after charging. Then, recheck the electrolyte level. Take the vent caps from the distilled water, dry them, and reinstall them. Put on the dust caps, clean the wires, secure the batteries — and you're back in business.

Just one other warning. Never charge the battery at 17 amps for an hour unless it's completely discharged. Even when the battery's completely down, decrease the charging rate as soon as its spurs or boils.

Take care of your battery, and that'll work wonders for you — no more.

TELETYPE FUSE FINDERS



Out of sight, out of mind.

That's an old riddle, and just the kind you can slip into with the fuses in the TT-50C/10C and TT-70C/100C teleprinters.

These fuses are important little fuses, and forgetting 'em is exactly what you shouldn't do . . . no matter whether you're using the teleprinters with an AN/UGC-45, the AN/UGC-46, the AN/UGC-38 or what have you.

There's one fuse—the F1 fuse in the PP-50B/10C—that's so well hidden you'd hardly suspect it was there. So, when the teleprinter doesn't work right, some people who don't know about F1 waste a lot of time cutting in a replacement and burning it all about in the hard way. The PP-50B/10C power supply, incidentally, changes the TT-50 to the AN/UGC-4.

A good clue that the F1 has blown is when your machine won't open. It sounds like keys, carriage and every other moving part is going full blast . . . except nothing's going.

To access the FT, you have to lift out the roll of paper on the T-90.



The fuse and a gear are under the cover.



Hold 'em for a minute for a polar which applies to all fuses. When one goes, it could be you've got a problem in your machine which are going to take more than a fuse to fix.

So... if the replacement blows shortly after you put it in, it's time to call for higher voltage help. Don't bother with a third fuse.

One more polar: The fuse may be OK, what trouble crops up, and the real cause may be from a loose connection or much. Check the fuse, and if it's good, that's the time to consult the Equipment Performance Checklist in your equipment TM. The list helps you on possible other causes.



A second suspect in the FT-90 is the FT power input fuse behind the right cover door. This runs a little quiet-like if nothing happens when you turn on the light and motor switches.



The H1 has four doors that close a disappearing act, but it adds two gaps. It's at the base of the act, behind the left rear cover door. Getting on it by the way of the door is tough. The fastest and easiest way is to lift the whole door cover off the T1-M.



The T1-M has only one fuse to worry about, and that's one on the T04 and T05. On all models, the fuse sits on the power supply and control unit, under the dust cover.

Those fuses are usually blown when you draw a blank after turning on the power, lights and motor switches.



The open power input fuse (F1, F2) and open line fuse (F3, F4) are on a bracket in front of the savings.



Knowing which your fuse are and what happens when they burn out saves time and frustration. And, besides that, on your interpretations, knowing fuse on other components can keep you in business . . . especially in radio-shops. Your T1's will you what to look for, and where.



PRC-6 DUST COVER SPRING

Dear Mr./Ms.:

Do we have to assemble, or is there an FSM for the leaf spring which secures the dust cover (fabric shield) to the chassis of the AM/PRC-6 radio?

We've looked to all the organizational jobs we have, and there's nothing on the spring.

PL J. P. N.

Dear Private J. P. N.,

That spring's off limits to organizational mechanics. It's listed in TM 11-4820-505-507, Change 1, and its replacement is a direct action job.

Removing the chassis to replace the spring can get complicated. And since it's important to keep that dust cover snugly in place, it's a good idea to get your ass off to your support unit the minute the spring no longer does its job.

Handwritten signature: HAY



Handwritten note: THIS SPRING DOESN'T BELONG TO THE ORGANIZATION



**JUST LIKE
ALWAYS —
BUT MORE SO**



Ceramic insulators—the stuff and the talk of communications—make our party well in extremely low temperatures.

The wireless drum's leader 'em a whole lot—and everybody's in the habit of creating 'em real good-like to begin with.

But a real sudden change in these temperatures—from hot to cold or from cold to hot—can shatter them—either, who they hold up fairly well when

they're handled real easy.

It's the hot that comes with cold weather that causes the most trouble with your insulators. The ice increases the RF leakage of the insulator—and RF leakage is just what you don't want in an insulator.

You can't always keep the ice off, but you generally can keep the insulator clean. And ice on a clean insulator isn't nearly as bad as ice on a dirty one.

Replace any chipped or cracked insulators as soon as you can.

COLD CAMERA CURES



Dear Editor,

With freeze-ups weather just around the corner, here's a will camera fix that's guaranteed to keep the shutter open when the flashbulb pops. Provided the flash unit has solenoid and shutoff connections, of course.

Cold weather affects solenoid operation and strength, and with a solenoid connection only, a flashbulb can be just in peak when the shutter opens. It could make a photographer think his camera was out of synchronization.

With a solenoid A-M-E shutter hookup, you're guaranteed that the shutter will be full open when your flashbulb goes off.

And since you've used both hookups, you've gotta get your white dot at Position No. 1 on the circuit release switch of the flash unit. Naturally, the shutter sync dial should be set at "M".

Halpin Hogg
Port Jervis, N.Y.



POSITION NO. 1



SET AT "M"

[Ed Note—Snow's good to see. Consumers also should check out cold weather procedures in their TAP and in TR 350 MP, dated Dec 78, to get the best out of their equipment.]

BAG TRICK

"AND
HERE'S MY FIRST
BAG WITH
EQUIPMENT IN IT?"

"LET'S GO
CHECK
THESE BAGS
TO MAKE SURE
THEY'RE OK."

Dear Editor,

Here's a "bag trick" we worked up to get our fireman's tools back in the supply room quicker and in one bundle. It should save a lot of stress for supply requests.

When I die I put a complete fireman's kit (all the tools he'd need) in the BG-44 (Bag, Canvas, Tool, PSN 5149-104-0121). We've substituted our bag per each fireman's kit (75-011, so it works real well.

WE CHECK OUT THE WHOLE
KIT—ALL THE TOOLS

50-01
WITH TOOLS

Instead of checking out one tool at a time we leave the whole kit, wrapped nicely in the BG-44. When the fireman is through with the tool or tools, he checks in the whole kit.

We attach a paper tag to the BG-44 when it's in the supply room. One side of the tag lists every tool in the bag,

and the fireman signs the other side of the tag when he checks out the kit.

THE TOOLS WITH
IN THIS BAG
ARE:

50-01, 40 (50-01)
ON THE BAG
(IN THE BAG)

THE TOOLS ARE IN
THE BG-44

The system guarantees that we'll have the equipment on hand—or know where it is—when we need it. And it keeps trying to leave the tools, or handing them out, one by one.

We have a better inventory control, and since the kits rarely are out more than a day, it works very well.

Ed Newman Counts
WCMC Bag Co

(Ed Newman—Search like a real good way to get the tools home.)

RECEIVER-POWER SUPPLY CABLE

Dear Staff-Room,

I've run into a problem! One that will my AM-688-D receiving set. The interconnecting cable between the power supply PP-522-1000 and receiver R-1741-1000 is on the blink and I can't find any way to get a replacement. None of the parts I have on hand give me any clues on this. How do I get a new cable?

Sgt E. B. B.

USE DA FORM 1000.

YOU'VE LOCATED A REPAIRABLE ITEM. IS YOUR REPAIRABLE LIST CORRECT? HAVE YOU CHECKED THE PARTS LIST FOR YOUR UNIT SET?



Dear Specialist E. B. B.,

You're right with you. That cable used to be carried as a separate item, with its own stock number, etc. But somehow or another it got dropped as a separate assembly, and now it's made up by your support shop from a number of parts.

Be sure your DA Form 1146 supply section is a maintenance section (DA Form 2487), and have your support unit work over your cable. If they can't repair it, they'll make you up a new one.

Handwritten signature



HERE'S THE GOOD (OR HOW YOU CAN MAKE YOUR GENERATOR HELP)



GENERATOR JUMPER



Are you a fiend for building a tank generator field?

With those jumpers and a little "know-how" you tank mechanics can hook the field to any tank main engine generator. If your generator suffers from either reverse polarity or loss of polarity this will cure it. Before hooking the generator field to your tank's battery polarity is correct.

You need to flash the generator field whenever you get a new or rebuilt generator from service. Flashing is also needed whenever your tank generator field loses its "residual magnetism"—as the electrical engineers guys call it. The object is to force current from which battery automatically flowing through field coils of the generator.

A generator can lose its residual magnetism for a lot of different reasons, but the end result is the same—a generator that's not charging.

It's easy to tell if your generator is not charging because the generator warning light goes on or the needle in the battery-charge indicator stays in the yellow (depending on which way your tank is equipped) ... otherwise you

don't want to use it, make sure they are working right.

Flashing tank generators could be dangerous (especially if you're in the hull or generator frame in the engine compartment) and be ignored, so be sure there is no "leak" generator around when you do your flashing.

If you find your main engine generator is not charging, try flashing it.



Flashing will often bring a dead generator back to life. Then you won't have to pull the power pack to get in a new generator.

You flash a tank main engine generator by forcing current from your battery to connect through the field already in the generator field. There are many ways to do this (see above) but one way for flash more, but this is

as safe and easy a way as any . . .

First you need the jumper . . . as with all making flash, either.

The "A" type you can use the M101 and M1111 units (which are of wire) and good electrical steel will do it with a main contact pin, P/N 5931-752-7955, attached on each end. These pins are installed in electrical connector and is P/N 5180-752-1411.



The "B" type you use the old motor contacts in a three-foot cord with the main contact pin on one end, an alligator-clip on the other. A protective rubber cover over the alligator-clip device is up here if you can't find one, a couple of turns of insulating tape will do the job just as well.

Now you're ready to flash the main engine generator in any kind of tank. The steps are different for different tanks so pick out the kind you're to and follow through for results.

FOR M41-CHEV TANK

1. Take off the right or driver-side top.
2. Hook your lead to and disconnect the battery (disconnect the three connections behind the access door, but your main battery because it is the only main generator also, the only for only three tanks when completed).



3. Attach the leader's three-light power line.
4. For use and of the "A" type jumper use the "A" connector in the cable you selected back of the main door. The "B" is marked on the rubber of the connector. Finally, this is the order that it is your field flash when you have the battery terminal.

1. Carefully locate the other end of the jumper to the clean light green line.



Make it there is a spark when you make this contact it means you have finished your generator field circuit. If there is no spark it means you have an "open" in your generator field circuit.

1. Put everything back the way it was and start up your engine. The generator should begin to charge and the warning light should go out.

If charging won't occur the trouble, go through the steps in page 175 of TM 9-2070-200-12 (Jed 581) as one of it is the generator, generator regulator or the wiring that is at fault.

There are three kinds of truck generator regulators:



THE WIRE AND LEAD BATTERY TUNING

If your work has shown the ground on the big, square type regulator, use the "B" type jumper and follow through by the numbers....

1. Flip off the master battery.
2. Pull up the ball across line.
3. Position the brush so you can get at the regulator and into the battery.
4. Remove the generator field circuit wire. It is at the 4" level receptacle that they use from a ground strap. If you make a mistake and get the wrong one you'll know about it right away because only the generator field circuit cable ends in a three socket female connector.

FIG. 100

FIG. 100 (CON)



5. Carefully slip the alligator end of your jumper to a battery positive (+) post and then touch the other end to the No. 1 circuit which is in the "B" socket of the three hole female connector. With the battery straight up this will be the hole furthest to your left.

Make it you get a spark you have finished your generator. If you get no spark, you have there is an "open" in your generator field circuit.



FIG. 100 (CON)
FIG. 100
FIG. 100

4. For everything back the way it was and that your engine. Your generator should now begin to charge. When this happens the generator warning light will go out or the battery indicator needle will move into the green, depending on how your tool's equipped.

If flashing won't get your generator recharging, go through the trouble-shooting steps in the maintenance TM for the vehicle to find out if the trouble is in the generator, generator regulator, or the wiring.

USE BATTERY, BATTERY, BATTERY BATTERY

These models all have the small, rectangular generator regulator, FM 2K30 598-1284. You flash the generator on these models like so . . .

1. Turn off the master switch.
2. Open the battery access plate in the target platform floor.
3. Manually remove the brush and the generator regulator and one of the batteries on beneath the spring.
4. Remove the connector on the ground-to side of the generator regulator. Short one bus connector side to side. Remove the bus with the word BATTERY/24 stamped on



the bus above it. This is the bus without the ground strap. Look at the cable. If it won't or can't give you one (24), if not, you have disconnected the wrong wire.



5. Insert pin "D". Look for the bus and pin above to the two big pins. If it fits the way you would want to then starting approximately from the polarizing keyway.

6. Push the alligator clip end of your jumper to the positive (+) post of the battery.



7. Holding your jumper carefully, try not to touch anything else, bring the to the contact with pin "D".

NOTE: If you get a spark it means you've touched your generator field. If there is no spark, you know there is an "open" in your generator field circuit.

8. For everything back the way it was and then start your engine. Your generator should now begin to charge. The ammeter (battery indicator needle) moves into the green.

If your generator won't charge, go through the troubleshooting steps in the maintenance TM for the vehicle to find out if the trouble is in the generator, generator regulator or the wiring. However, Rebuilding the generator will cover your trouble if reverse polarity is at fault or the generator field has lost its residual magnetism.

SPADE LOCK LESSON



It takes two to tango, but, more important for you, **MILT SP 171** uses gas and **MILCO SP 54** is another "mower" in another process—the two locks on the rear spade.

These two locks gotta be in stop or you're in trouble.

Have them either both ON or both OFF, but never in mixed positions.

If you try to lower the spade and one side is still locked you'll break the lock on that side.

If you try to raise the spade with one side locked the lock will hit on the

rear spade cylinder and break off.

Both locks have to be in the air-locked position when you raise or lower the spade. Otherwise, both spade locks are to be locked before you're ready to do.

Just to make things tougher, there are no stops on the spade locks and if you go on for when you try to unlock them they will lock up on you again.

Your best bet is to listen for the sound of the lock as it drops into its slot. That way you can be sure.

STAMPING ACTION



Did you know? The new postage meter stamping system is now available for home use. Call 1-800-828-8282 for more information.

Having more trouble getting your hands on 1/4-in. numbers and alphanums for stamping the arrival dates on your batteries get TM 94149-200-12 (Jul 84) and Change 1 (Jan 85)?

The Metal Die Set, Numerical, ESN 1118-200-0000, and Alphanum, ESN 5110-200-0001 were recently put into your No. 2 Catalog. That set ESN 4018-704-0000 . . . which means you can talk right now 'em. See Change 1 to TM 84-0830-200 (12 Jul 84) for the published word on this.

M37 TRUCK TIRE PRESSURE

LOOK ABOUT BUT DON'T GET TOO CLOSE TO A TIRE THAT'S AT FORTY PSI.



What's the correct tire pressure for your M37 or M37B1 hi-bo truck? Well, some of the vehicle data plates say 40 PSI and some say 45 PSI. The ones that say 40 PSI are right. So if you have a data plate that reads 45, blow out the 5 and stamp in an 0 in its place like it tells you when TR 9-2020-212-207's (July 82).

M48A3 NEW TANK

BEFORE YOU TAKE THE NEW M48A3 TO THE FIELD, MAKE SURE YOU KNOW HOW TO USE IT.

BEFORE YOU TAKE THE NEW M48A3 TO THE FIELD, MAKE SURE YOU KNOW HOW TO USE IT.



The M48 tank family has a new member that some of you members'll be getting acquainted with real soon. It's the M48A3 tank which is an M48A1 rebuilt to have the same diesel engine as the newer M60A1 makes. It also has the M75 742-mm machine gun you find on the M60 and M60A1 makes. The 90-mm main armament and the .50 cal HMM are the same as on the M48A2.

DON'T BE MISLED, BE WISE!



The word for the cooling system on your liquid-cooled engine is "TM HOSE." And that goes, even when your equipment's operating in a moderate dryness where the snowless sabbid starts with the snow and goes downwind.



In the snow, in subzero, you'll want to use nothing but straight water grade antifreeze...Full tank! (7-11-1984 for a 14 gal. dose.

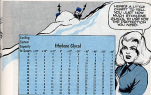
This advantage for those that still do compression pre-mixed or 50/50 give you the best work-around degree of protection. So you never mix it or dilute it with anything. Anything you add would only lower its resistance to being

That's why you make sure the system's completely drained—including engine block and oil lines well lower—before filling with the antifreeze. And when you need more coolant, you add only more of the same pre-mixed antic antifreeze.

Colder places, where the climate's mild enough for ethylene glycol antifreeze, you'll need a formula for mixing. Ethylene glycol needs the right amount of water to build up its anti-freeze power.

The more ethylene glycol you use, the more its resistance to freezing builds up—up to 60 percent ethylene glycol, that is. After you get 60 percent ethylene glycol, adding more to the coolant mixture means its anti-freeze power to drop.

So just in another way, once you've got a solution of 60 percent ethylene glycol and 40 percent water, you reduce antifreeze protection if you add more water to ethylene glycol.



Capacity	Hydrex Glycol						Ethylene Glycol		
1/4 gal.	1/2 gal.	3/4 gal.	1 gal.	1 1/2 gal.	2 gal.	3 gal.	4 gal.	5 gal.	6 gal.
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20

As you can see, you need to know the capacity of your engine's cooling system to get the right mix. Your equipment's TM should be your guide. Franchise, if its capacity is 14 quarts, you follow the "14 Quart" column weights across to the degree of protection you need.

The figure there is the amount of ethylene glycol you need. Its square is for that degree of protection.

Just to see the equipment's been modified (maybe even connecting hoses plus a heater or other doodad have been added), you may find the system's capacity figure in the TM is not correct. Then it'll pay to drain the cooling system and measure the amount of water it takes to fill it.

Anyway, once you know your capacity, you're ready to start mixing. And the ethylene glycol comes with

five 50/50's, depending on your needs.

- 800-361-1991 — 1 gal. mix, 50/50 pack
- 800-361-1991 — 1 gal. mix, 50/50 pack
- 800-361-1991 — 1 gal. mix, 50/50 pack
- 800-361-1991 — 1 gal. mix, 50/50 pack
- 800-361-1991 — 1 gal. mix, 50/50 pack

And, no matter what formula you use, it's best to check your antifreeze with a hydrometer.



That's the sure way to guard against ice in your engine.

CAN YOU MAKE IT?



Every good operator always has a new road before he gets there. But there's one problem that can't be answered with a little blunt look.

That's the problem of meeting the M19 inside companion with an M14 face cargo truck, and maneuvering them around a 90-degree right turn.

When you see the street in a narrow area, don't drive right up to the intersection and then start figuring out how to make that 90-degree right turn. Pull over in a safe place, and stand straight up to measure the distance of the street—the street you're on and the

street you're turning into. Your safety factor is this: Both these streets have to be at least 30 feet wide. If they're less, don't try to turn. And if they're just barely 30 feet wide, or only a little over, you've still got a problem in making that 90-degree turn safely.

Once your guide measures the street and you know you've got only 30 feet or so to turn in, take it by some mean turns. If you don't, and only get halfway around the bend and get stuck, the city fathers might have to move a few telephone poles, lay hydrants and put rooms to spring you loose.

1. Shut off traffic down all your two streets. If that doesn't work likely, get your helper or some handy lay down to keep traffic clear of M19 lanes in M14 street-pulling area.

TRAFFIC MUST
BE STOPPED
DOWN BOTH STREETS



2. Turn the truck and transporter so far as they'll go into the M14 lane of the street you're on. Tilt the right to the curb, because with only a 30-foot street, you'll need every inch you can get.

BE SURE
LEFT OR RIGHT
CAN GO



3. Swing the truck around the corner slow and easy, taking it as close as possible to the curb in the left lane of the street you're turning onto. It often works better to turn in as wide as possible.



4. You and your grandpa-like long-a-sharp-eye-out-to-see-the-remote-and-transportive driver the same they're going down to. If it looks like they're going to hit, back two up and start over. If it looks like your grandpa-like the width of the street wrong, and the street's too narrow, don't try the turn. Go straight through the intersection and beat her a better place to turn.



Normally, if you figure the street's too narrow in the first place, you'll go straight through, if it's possible to do so.

If you happen to be driving one of these combinations, then you keep them most wide to be used.



When using these two combinations there's another way to try to maneuver around the turn, if you feel the street a bit on the narrow side. It'd be right likely to work it with the RSHD combo.

You can proceed right on then the intersection (when possible) far enough so you can back the hind-end of the trailer into the opposite intersecting street. Back up enough so's to make with the turn.

The "when possible" business means into the place when the main chan-

nigular takes a sharp turn (like with the two intersecting streets) and you can't keep going . . . hit a dead end.

To avoid such a mess, beat the route by surveyed and mapped out before trying to make a go of it.

Making with a left turn is a little easier because you'll be making out and ending up on the right side of the street. But you'll still have to be sure the intersection's clear of other traffic and watch the transportee while you're making 'em around the bend.

ON YOUR GUARDS



HEY BARGE, NOTE
WE DON'T GROW UP
CARRYING OUR
TANK STUFF!

Dear Half-Mack,

A long time ago we modified our M1's wheelguards according to RPO GAO G1M1F-1 (2 Mar 63) to make them M13A1's. But we still have to carry around the wheel skid guards.

We've hunted high and low for authority to get rid of these guards at some time. Maybe I missed the point of the RPO and there's still some use for these wheel guards. Can you help me find a way to get rid of about 100 pounds of metal and at the same time make the M1A1 wheelguard safer to work around?

CWO 2, E. M.

Dear Mr. A. B. M.,

When the RPO was applied there was no further use for the wheel skid guard assembly (Manufacturer's Part Nos. 9F50140 to 9F50145, as you rightly figured out. These items should have been included in the RPO as

parts "removed and discarded," but that RPO's use precluded.

You can qualify these wheel guards through AR 701-6 (M 17-58) "Disposal of Supplies and Equipment."



If you're a wheelman for one of the new M16 1/2-tonners, listen good to this . . . wheelmen drivers are not reckless . . . and the other way around, too.

If you are fast, high speed sure you're likely to run—all the way over. That can mean plenty of body and frame damage . . . both yours and the M16's.

The dealer will get you back in shape for fun—if they can. But the mechanics won't be so generous. Your

recklessness can cost you \$307.50 (the price of the body and frame for your M16) and that ain't buy when it comes out of your pay.

Even if you're lucky and smash nothing but the windshield frame, that will still come to \$18.00.

So, if you want to play cowboy, get yourself a pony, not an M16—it'll be easier on your back, your pride, your side . . . and your pocketbook.

VALVE POSITION



Dear Half-Mast,

Mounting spare tires . . . don't you think they should be mounted with the valve stem between 10 and 2 o'clock, so water can't get inside and rust the rim and damage the valve?

Mounting the spare tire with the valve stem between 10 and 2 o'clock is a common suggestion, but not necessarily the best.

Bye R. J. M.



Dear Captain R. J. M.,

The car, as indicated, has a steel spare tire and I recommend the stem pointing up and out.

If you're short on valve-stem caps, then mounting the spare with the stem on top would be your best bet. The upper position would help keep dirt and water out of the valve's location.

TM 9-1876-1 gives all the instructions on pneumatic tires, part 25, covers the valve positioning and it only says that the spare tire should be mounted so the valve can be reached for checking and inflating.



NO FLAP



Dear Sergeant W. C. F.,

No . . . there's no over-all directive requirement for mud flaps on vertical type truck-trailers and semi-trailers.

Here's the general reasoning on mud flaps: Most vertical vehicles operate off the highway as much, or more than, as the highway. And when truck-trailers and semi-trailers operate off the highway in brush, deep mud, snow and rough terrain their flaps get torn off.

In many cases the flaps interfere when making sharp turns, especially with trailers that have landing legs

and in many cases mud flaps on truck-trailers interfere with the fifth wheel approach plate and are not practical when moving flat bed trailers.

The truck-trailers and semi-trailers that do have the flaps are usually special duty intended for extended periods of highway travel. These units are worked out with the Army or Army commander. When flaps are approved for local use, then it's up to the local area to support them because replacement parts are not usually in the normal supply system.

M151 GENERATOR JOKER

Bring trouble with the generator mounting bolts and nuts on your M151 to our stock!

Some of them have been working loose. This lets the generator fall out of the mounting bracket which can heat up your engine something fierce.

So, we want to do the job . . . check your generator mounting hardware and be sure everything's tight.

The new M151 is coming off the production line with longer screws, (P/N 1504-087-0871) with flat washers, (P/N 1549-046-1700) and nutlocking nuts, (P/N 1520-071-0800). These parts can be requisitioned through normal supply channels.



Dear Staff-Squad,

We're trying to find out how many tire pressure gages P/N 4930-204-0170 our unit is supposed to have.

Do you know if there's a publication that tells out how many gages should be assigned to an outfit with various types of selected vehicles?

Capt E. L. M.

Dear Captain E. L. M.,

You'll find the answer in the MM for the M4, 3 Common and 16. MM 9-1-4919-500 dated Feb 63, has a Change 1 (15 Jan 63) that gives you the answer. Here's what it says:

"One of additional gages is authorized at the rate of one per group of eight selected vehicles, including trailers, and/or fractional quantities thereof, as authorized by the applicable table of organization and equipment."



WIDE "THINK LIGHT" FEEL SOG

What are additional features of the...
 (The text is very faint and difficult to read.)

PERSONAL SERVICE
 (The text is very faint and difficult to read.)

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PERSONAL SERVICE
 (The text is very faint and difficult to read.)

YOUR OWN WORDS

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YOUR OWN WORDS
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PERSONAL SERVICE
 (The text is very faint and difficult to read.)

JOE'S DOPE

LAST STAND AT THERMOPYLAE PASS



In 480 BC, your staff historian tells us, Greece was looking in quiet gardens when suddenly the hellions went up.

Xerxes, an unruly bloke with a mad on, pressed the red button and sent two hundred thousand men prancing around from Asia Minor and threw the peninsula like molten lava toward Athens . . .



MAINTENANCE!
WHAT'S THAT?

WELL, NOT COUNTING OUR OWN PERSONNEL, WE HAVE
BEYOND 5000 MEN, SUPPLIES, WEAPONS, FOOD, WATER,
CLOTHING, MEDICINE, TRANSPORTATION, TRAINING,
RESEARCH, AND RESEARCH... THEY ALL DON'T
SERVE EQUIPMENT BUT WE DON'T KNOW WHAT
CONDITION THEY'RE IN!



BOY... THEY CAN FIGHT
CAN'T THEY??

SURE, BUT THE
BOY'S A GOOD SOLDIER
GENERAL. THIS IS A
SPECIAL... SPECIAL...
SPECIAL... SPECIAL...
FLAME THROWER
EXPLOSION!
THE WORKS.

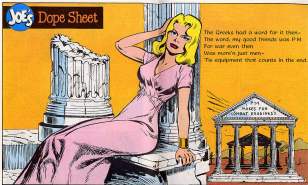


WE DON'T EVEN KNOW WHAT
KIND OF WEAPONS THEY CAN USE ON
THEIR OWNERS... WE DON'T
KNOW WHAT A THERMITE BOMB
LOOKS LIKE... WE DON'T
KNOW HOW TO USE THEM!
WE'RE NOT EVEN SURE
WHAT WE'RE DOING!
HOLD ON!





Joe's Dope Sheet



The Greeks had a word for it then-
The word, my good friends was P.M.
For war even then
Was more'n just men-
The equipment that counts in the end.

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

IF YOU WANT TO DISPLAY THIS CENTERFOLD ON YOUR BULLETIN BOARD, OPEN STAPLES, LEFT OF 5001 AND PM IS 100.



WRIGHT MEN—
LEAVE THE TLEB SASSON!
FOR WRIGHT MARRIAGE!

BE CAREFUL
SASSON, NOT
ANYMORE
INSTRUCTIONS!

THIS IS A DUEL AND
I WISH YOU OF YOUR
COMBAT WEAPON... AND
BLACK TROOP MARRIAGE
TRIAL, THE GOOD...
GOOD...GOOD!

WRIGHT
MARRIAGE!
FOR I
WISH
ON
MARRIAGE
DUEL...

...AND WE BEEN OPENING
WRIGHTS... CALVIN SASSON!
BOTTOMS... MARRIAGE!
MARRIAGE AND MARRIAGE
MARRIAGE IN-SASSON SO LONG
MARRIAGE CUTTER OUR MARRIAGE... FOR
MARRIAGE WITH THE RIGHT OF IT!

WELL, GET
THE RIGHT
OF THE
MARRIAGE
MARRIAGE
MARRIAGE

Well,
hardly
had he
uttered
the words
when...

**ALERT!
ALERT!**
THE MARRIAGE
IS COMING.



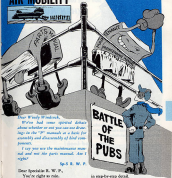
Well, the 300 Greeks did it, they held 'em at the pass . . . by the time they finally got across their ladders were ready and kicked the delights onto their Persians .

WELL, THE 300 GREEKS DID IT, THEY HELD 'EM AT THE PASS . . .

BY THE TIME THEY FINALLY GOT ACROSS THEIR LADDERS WERE READY AND KICKED THE DELIGHTS ONTO THEIR PERSIANS .



AIR MOBILITY



Dear *Woody Woodcock*,

It's been a long, long spiritual debate about whether or not you can use *Drugs in the "F"* manual as a basis for assembly and disassembly of dual components.

I say you use the maintenance manual and not the parts manual. Am I right?

Sp-5 R. W. P.

Dear *Specialist R. W. P.*,

You're right as rain.

The "F" manual can be used as a guide—but that's all—since it's only an authority to replacement parts. It supplements the other manuals, including your organizational maintenance manual, which has all the line and ground reference assembly and disassembly poop

in step-by-step detail.

The least curious will be in the *Cibec* (CH-47A) parts manual. The introduction will actually say that it is not to be taken as the authority for the procedure of assembly or disassembly, but as the authority to replacement and lines.

WHEN RUNWAYS TURN WHITE



When you're standing knee deep in the snow and there's some hard stuff to be done, you can't just kick the dirt and light the fire.

The one thing you'll end up with a gnarled toe. Because cold weather expert eyes open that rubber shoe and metal sole have nothing in common, except that you can have a combination of both on one aircraft.

And having a combination landing gear means you do a combination check on your walk-around and daily maintenance inspection. You check the wheel landing gear as usual and add on a few more checks for the added bits.

Clean And Look!

To start with, you can't ignore anything if you can't see it. So all check and any cables and wire ends should be kept clear of snow, ice, slush and dirt. Run out with your antenna. Use a clean cloth maintained with dry cleaning solvent. If you discover the cloth you run the risk of the fluid thickening up or freezing before it can evaporate.



Apply hot steam (not volatile) steam like the heat gun or your Hotman Nelson to get rid of ice that could interfere with operation of the remaining gear and the retention linkage.

Wipe off any excess moisture to keep it from re-freezing on surfaces. Also, as it won't freeze your already in the ground in case you don't take off right away.

With a clear view of the entire gear, check the attaching hardware on the remaining cables and wire leads for cracks. Remember that extreme cold makes metal brittle and each bit landing gear some amount of stress on the attaching hardware and systems.



The die should always be retained for ground inspection, turning the remaining gear check and some like in the hangar-eye wire code.

How're The Skis?

With the skin removed, you can check the grommet in the polyethylene base on the running surface. This base was put on there to keep holdings of ice or snow sticking to the metal runners. If more than a quarter of the flat portion on the bottom edge of the ski is showing base metal, it's time to put on a new base. Otherwise, increased surface drag is going to interfere with directional control on ski takeoffs and landings.



SEE
HOW
WITH
EASIER
SEE
SEE
SEE



On your GEAR (P.14), it's more likely that most of the grommet will be showing on the two straight metal sections attached to the running surface. Runners are compatible, but missing chunks increase the roughness of the ski to ski sideways, since the runners are like runners on a sled. The correct fix is to replace 'em, unless you want to stab before you even reach ground contact.

Keep You In Trim

When you have a cable unit on your ski, you can check trim with the ski in the UP position by working the nose of the ski up and down. If there's any slack or play, might be the adjusting nut on the cable unit is either too tight or too loose. The correct adjustment is to have the nose way beyond lunge height. And while you're at it, see if the adjusting nut's lock ring is in place and without cracks.



The skis should be pushed on a level surface for the trim check. This allows you to look for about a 1/4" to clearance between the ground and the bottom of the ski, with both of 'em parallel. The point to check from is at the back edge of the ski just aft of each ski binding. If the ski attitude needs correcting, you change the length of the trim cord by adding or removing packing plates. Each packing plate you add will lower the nose of the ski by a half degree—removing one raises the nose the same amount.



The trim cords should also be checked for chinking on this step.

Operation Air Hydrostatix . . . Down Check

Step inside the cockpit for the hydrostatic control valve check. When you've got the handpump, the volume valve lever and the position gauge indicators in check.

STEP
FOUR



Get air pressure? This is a good time to use the "look" method of inspecting the situation. You don't need a pressure gauge, because the correct PSI inside the system will show you between an inch to an inch and a half of exposed actuator shaft . . . with the ski in the DOWN position. Besides, if too much air has escaped from the actuator, you'll notice that the ski may not lower all the way on DOWN.

CORRECT PSI WILL SHOW 1" - 1 1/2"
OF EXPOSED SHAFT



First, move the volume valve lever to the DOWN position to check the lever's spring action and to see if the needle on the position gauge indicates that the ski are dropped.

Rechecking your tires? This is also a good time to see if the check and stay cables are holding the disk rigid and parallel to the length of the landing gear. Too much lateral or vertical play could allow the disk to wander into a wobble, toe-out or toe-in position in flight . . . a perfect recipe for an accident waiting to happen. In fact, one happened just that way not long ago.

Up Check

Back to the cockpit to verify the disk. First, move the selector valve lever to UP. Then feel the motion on the hand-pump as you begin to retract the disk. You should get full travel, fore and aft, without any binding—and enough resistance to know that the hydraulic fluid isn't leaking out of the system. At the same time you can watch the movement of the position gauge indicator. The needle should continue to move as you beyond the UP mark, and then hang there at the relief valve open.



Meanwhile, you can have somebody outside watching the wheel assembly linkage for signs of binding.



Depending on local conditions, you can leave the disk lowered or raised about 100° if limited. If you expect the aircraft to move over cleared ground or hardpack, keep the disk at least two-thirds retracted to prevent the running surfaces from exposed rocks, brush or even shallow ground depressions.

Watch How You Park

Don't run faster to the ground, nose or wheels, particularly when you've got big changes in temperature over a 24-hour period. In you will need some sort of insulation between the landing gear and the ground. If you're in a wooded area, there's nothing'll beat a couple-thick layers of pine boughs under each ski. But if the growing stuff's not available, there's always some wonder boards, straw, logs, paper, or that material called "tee" around.

Whatever you use, be sure it's dry and clean on top when you put it down. Also, try to place the insulating material on the ground so the aircraft will be parked facing into the wind, if possible. This will cut down the amount of drifting snow accumulating on the landing gear by presenting the smaller (forward) surface of the ski gear against the blowing snow.



In gear without skis you don't want to park aircraft in any way or

diaper areas and if you had to taxi your aircraft through any stop to get to the parking area, be sure you clean off the landing gear immediately after parking.

If the situation prevents you from installing the landing gear, and the skin or wheels do become frozen . . . as best, if no covered heat's available, try to avoid defrosting the wheels to-and-a-half times the normal tire pressure . . . but never heat tires which are already overinflated. The amount of heat should be kept under 140° F (71° C)—or about as hot as your hand could stand without being burned.



When you can't make use of either heat or air pressure, you've got to fall back on the old tried and true method of ricksho the gear . . . hands away from the no-pinch points please! Once you get the tires loose, keep moving 'em until you're ready to take off, or the gear might decide to freeze right up tight.

Ski's vs Skin

Ground maneuvering on skids might have a few wheels, but skids will don't have the high-rotation mobility you'd get with skin. For example, snow with a breakable crust is loose and soft, sliding just under the surface of the snow can cause you to slip collectively and down your field in one quick action.

Some cold-weather war units have found it handy to fit up their Snow (SR-11) or Icequips (I11-1) skids with a pair of homemade skis. It makes things easier in ground handling or taxiing, but if you feel this type of load is in for you, remember two things before you go getting the CO's permission to install the skis.

First, be sure there's no drilling of the skid tubes involved. Use a series of clamps to hold the skin to the skids, or you can remove 'em without damage to the skids after the snow melts . . . or there 'em on for use in thawed run-making, roads or other goo.

Second, the skis have to be connected to the nose and main field's forward end, or they'll be just as liable to dig in as the unsupported skids.



Any Spare Tips?

You don't get any spare spare ski tips for skids that like you do on your personal gear. So you have to come up with your own ideas. Only difference is we're not talking about the kind of ski tips you take home, but the ones you think up. After they've been drunk, they go nuts without 'em. So how 'bout air freightin' 'em under P2 baggage. The camp's been cleared for inbound traffic.

BEARINGS GOTTA RUN SMOOTH

“DON'T WORRY IF A BOLT’S NOT TIGHT. BUT MAKE SURE YOU’VE GOT THE RIGHT BEARING IN THE HOUSING.”



Explore 'em if they're rough ... know 'em if they're loose. That's the way to your dream (GMAA 5) and more about shaft-hanger bearings.

It's smooth operation that counts. But how will there've been a high number of routine replacement on bearings without you just let being there. Well that won't built the program ... cause a worn bearing can operate just as smoothly as a new one. In fact, even new bearings have some play in 'em.

Trouble is none of these bearings haven't been checked out properly. A quick check on the long shaft ain't gonna tell you what's doing. You're got to duplicate in-flight conditions or test you out by getting some wrap on run up the engine to operating speed while you feel for any increases with your thumbs and bearings.



THE BIG BEARING CHECK

If you get a smooth action throughout the entire 360-degree revolution it doesn't matter how loose the bearings are—day's OK. But a bearing that's not uniformly worn (due to limited life or bearing) will cause you with a little extra movement or wobble every time you hit a rough spot on the bearing. That's the time to replace it.

From time to time you'll find it just like a bearing that wears out as evenly that your flying machine starts one of those high frequency vibrations even though the bearing is still operating smoothly. Now that's what you call routine play. But you're not replacing the bearing because of the routine play, you're replacing it to stop the vibrations.



SHAFT VIBRATION CHECK

Not every high frequency vibration is caused by a bad bearing. Jumping to that conclusion is gonna waste you a lot of maintenance time. So next time a Shout (GMAA 5) flare up in your hangar (along with an in-flight vibration-wrap-up), check out the bird's tail wear signs by the numbers.

1. Check tested properly and in time change!
2. Make change line with wear limit!
3. If it's indicated, it's time to call and offload routine play!
4. Check play holding OK!
5. If just what you need!
6. Who left bearing operate smoothly!

BEARING		REPAIR
REPAIRS TO BE MADE		
REPAIRS TO BE MADE	REPAIRS TO BE MADE	REPAIRS TO BE MADE
<ul style="list-style-type: none"> • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing 	<ul style="list-style-type: none"> • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing 	<ul style="list-style-type: none"> • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing • Inspect bearing housing

If you haven't found the cause of that vibration by the time you get to the bearings, it's time to do a little talking with support about making the other checks for vibration called out in the tail rotor trouble shooting table of your TSO 1A 1128-204-20.

• = Repetitive/Maintenance Check
 □ = Legal



LUBE THE LUBE



The days of the ubiquitous "lube guy" are long gone—but the means for such a development linger on.

Take the brand new factory equipped lubricating unit, P/N 4100-005-7079, based in SM 55-4-5100-Add C10 Mod 60) to replace the old unit in your aircraft organizational maintenance, A Supplemental, B, and C and use.

You can be as busy as ever greasing into other equipment that you clean before the lube unit needs some of the same medicine as easy in the pick.

So, every week you want to check the oil level in the transmission. Lash on to a clean metal rod that measures about 14 inch in diameter and 8 inches in length for use as a dipstick . . . and you'll have to take out the battery charger to get at the filler pipe.

When you make your check, you want to keep the oil level at a 1/2 inch depth. Add 50-90 as temperature above 5 degrees F., below 5 degrees F. you use 100. Also, twice a year the transmission gets drained and refilled with one-third of a quart.

The only other lube service the helicopter needs is a monthly greasing of the main shaft, tail rotor bearing, and the wheel bearings with all-temperature, G.A.S. grease.



IT'S IN THE CARDS

Dear Wally Windcock:

I have tried to get the AF Form 74 company conversion card through the Army publications channel. But all our requisition come back as "can't identify this form." Does the Army have a number for this card and where can I find it?

Wgt. S. S. H.

Dear Sergeant G. S. H.:

You don't have to use the AF form any more. The Army has one especially for the job in your aircraft's -20P manual.

It's Form, Revised, Pilot Company Card, P/N 6609-104-4127 (P/N 660 1029-11). You order it just like a repair part from your support unit.

Take a look in Chap. 3, page 2-15, in TSM 55-1148-202-20P for an example of its construction and stock number.

USE THOSE CIRCUIT BREAKERS



How about it? What would you give to not close to just about any of the things your Hawk loader-transporter's superstructure is taking? A weekend pass? Some folding money?

You don't have to give up either. It will cost you something, too—the time it takes you to read the next few lines.

The thing that needs doing is the setting up of a hard-and-fast rule in your mind: Only the guys who know what the owner is should transfer machines with the loader-transporter. And unless a man has had lots of training and experience, he's not about to know what's what.

The operator wants to be long on memory because he needs to remember that all six circuit breakers get you GM when the loader-transporter is being operated. Of course, the situation is changed when selected switches are to be released. Then you use individual circuit breakers.



If your GM serially numbered loader has been modified by 8000 7-430-000-01, 7 011 for 02, you only have to contact with the master release switch. The 8000, as you know, changes the circuit breakers from manual to automatic for the power input, release relay and indicator lights.

WITH
SPECIAL
EQUIPMENT—
OR
RELAY
AND ON

Another thing that changes things is the serial number of your loader-transporter. If it's in the 10000 range, then you pay attention to the circuit breaker. If it's in the 15000 or above range, you don't have to give a second thought to whether the circuit breakers are ON or OFF when you're operating the loader-transporter. That's because loader-transporters above the 15000 serial have automatic circuit breakers.

To help you're working about the circuit breaker here is do with the operator.

The operator's seat is hydraulically operated—right? And it turns out that the hydraulic cylinder can have as much as 1000-PSI behind it. So you don't need all that pressure over the weight of the seat when it's supported by the loader or pallet after travel. Lifting the seat.

All these years P&H are taking care of by having things set up so the pressure is dropped way down—electrically. And the electrical circuit goes through the circuit breaker—making it a must for them to be ON.



Don't you do it.

When you go to lift the Hawk receiver can set assembly out of its case, that is.

All you have to do is lift the assembly the wrong way as it comes out of the case and you'll shatter the necks for the outside cap nuts on the lip of the case.



The idea is to lift the assembly straight out by taking hold of the handles in the middle. Be gentle the handles as the seat shows to you when you lift so that the weight of the assembly lifts the necks away from the lip of the case.

Either way . . . you will want to keep your mind on what you're doing.

THE RIGHT HOLE



Get
the right
oil
for the
right
hole



Maybe a picture is worth a couple thousand words.

And it might be worth a few dollars when it comes to making sure you get the right lubricant in the gear case for the motor pump assembly on your Honda scooter. It may seem as good as new money to replace damaged parts.

So . . . no matter how you know what SAE plug is being called about in the "Oil Is Needed" article on page 14 of PS 124, here's what it looks like.

As you read before, you put several

gear lubricating oil, SAE-L-6004, PSY (ISO-221-6)SG, ORER in the gear case.

Another question has come up when it comes to putting already gear lubricating oil in the gear case for the motor pump assembly on your Honda scooter. What do you do about the grease you see in the gear case when you remove the fill plug for the first time? Don't worry about it . . . just pour in the oil. And remember—the longer thinking is you think the oil level, the more PSY costs on a quarterly as the case may be.



Maybe you know about it . . . and maybe you don't.

Just in case you don't want good black gold that's brought with greenbacks, this here's the straight scoop on changing oil used in the pump for the electric roller liquid cooler in your Nike-Hercules HEP-AR building.

Don't—quilt—S.S.F.—and anything else—page 17 of Range 1 to 28 9-400-150-23. That is, if you read between the lines that the oil gets changed every 18 days, Range 8.



What you do every 18 days is check the oil level . . . and add up that might be needed.

You drain the pump and refill it with oil only when the oil gets dirty or muddy.

In case you want to save some cleaning up-time when you drain the pump, you might put the bin on your support and fit an 18-in. piece of electrical insulation covering. Tell 'em the drawing comes under ESM 1470-017-0001 and is listed on page 141 of TM 9-4150-110-217-0/1 (Rev 65).



All you do is slip the covering over the end of the drain, punch in the pump . . . hold the bin and outside the rollers . . . and let the oil drain into the container. Simple and clean.

If you're looking for another tip . . . when you refill the pump, let a little oil flow out of the check-level port. This does when the oil's at the right level. Then wipe off the excess.

IF YOU WANT
TO KEEP...

**KEEP
IT
CLEAN**



Specialty oil is the constant lube-grip assembly on your M19-series 4.5-in. machine launcher . . . because ease, convenience and safety can leave you up to a heavy, hot, follow-the-instructions-in-LIO (3-2002) . . . for cleaning and lubing. The operator's a clock and it pays off big dividends.

Just remove the cover and clean out the grease-lubing and joint with oil-lube cleaner, a brush and a little elbow grease. If you don't have time to clean handsily—dry cleaning solvent or suitable industrial spirit will do the trick just as well. And, if the assembly is really disassembled, use more dirt to dig it out.

After you've cleaned out all the gunk, wipe the assembly dry—and dry, make sure all the lube cleaner's removed—and then hit the parts with a light coat of lube.



USE PL SPECIAL ONLY

But remember—go easy with the lube—just a light protective coating will get the job done. And only use as much drops as the constant lube plan is plenty.



When that takes in the thermometer scale to about 25, rub the thermometer like 21 and 25 degrees below zero, and it's time enough to make over a beam reading come down with the shaker—hey, it's cold outside.



It's also clear to give some extra thought to making sure your rifle, bow rifle gun and other small arms are in shooting shape . . . just in case some body decides to warm things up in your particular habitat—the hard way.

In common-cold weather, lots of things you take for granted under normal conditions become big problems in a hurry. And, like they say, little things can make a big difference.

Take regular lube as an example.

In climates in cold weather, practically every inch a mile or less temperature and now like howling comes when it gets seriously cold.

So, when the thermometer dips in-

low zero it's time to try the LAW down to your weapons.



But you just don't apply LAW over the lube you have on your weapon. First you've got to completely strip it and clean all rubbed parts with rifle bore cleaner, a dry-cleaning solvent or mineral spirits paper thinner, and then lube lightly with LAW.

And the word "lightly" means just that.

Your best bet is to wet a patch with LAW, wring it out, and then rub the parts with the damp patch.

Only a slight coating of lube is necessary. Too much just improves the



chance of the lube thickening up and making your weapons sluggish.

Next . . . this means that all weapon parts to be cleaned and oiled are oiled as possible after firing. Don't mix anything with the bore-cleaner and get all the cleaner out of the barrel. It could freeze in there and cause real trouble.

Once you've got your weapons cleaned and lubed—keep it that way.

When it's not in use, and has to be stored outside, make sure it's properly covered and the cover itself is in good



shape and condition. Otherwise, all your good work will go down the drain because ice, snow and moisture will get at the operating parts and freeze them up.

It also makes good sense to exercise your weapon often. That'll help keep the lube from freezing so well as making it easier to operate in a hurry.

NO GREASE

Another tip that'll save you some grief is to make sure, when cleaning a weapon, not to make it free the cold under loads of a warm coat or blanket and then lay it back outside again. This is a made-to-order deal for getting moisture—condensation—on the working parts.

This condensation or "rusting" forces the moisture in his the cold weather and you can have a heated gun or malfunction on your hands, presto.

The thing to do is to know the weapon inside—properly covered—so you in

in an unheated shelter until you can pick it up on your return trip.

This remaining problem is something



you'll also run into when you take your weapon into a heated shelter for cleaning and lubing. In this case wait for about an hour or so for the remaining ice to melt and then go to work on the piece.

Before firing your weapon, give it a careful going over—read careful!—before you squeeze the trigger. Make sure there's no snow or ice in the operating parts, sights, trigger mechanism—all—the barrel. Snow or ice packed in the barrel could cause it to burst on the first round fired.

Go through a complete dry run and work all moving parts. If any are frozen, try to warm them slightly and then move 'em, gradual-like, until they're loose.

When firing, don't let the hot parts of the weapon wear its mouth with snow, if you can help it. The melting snow will form ice while cooling, and trouble will be knocking at your door again.

On the ammunition side of the fence—the situation is not too bad.

Extreme cold weather doesn't greatly

change the accuracy or the general all-around performance of the ammo.

Try to keep the ammo about the same temperature as the weapon. Carry it in a handkerchief with some clips and magazine in the same pocket of your parka.

Like always—check to check the ammo for oil and preservatives, which shouldn't be there in any kind of weather. And, of course, ice and snow should be wiped from the ammo before you load your weapon.

When firing your rifle or machine gun on days when the wind is kicking the white stuff up all over the place—take time out then to check and clean out the receiver. This'll go a long way toward preventing stoppages caused by snow clogging or melting and freezing in the receiver.



Another thing to remember is that moisture freezes on cold objects . . . and that goes double for bare, sweaty fingers. So, be extra careful when you're working with "cold-weather" weapons and wear warm gloves if possible.

It's useful, too, to have a little skin on the hand or pick up a quick one of foot felt.

What it boils—or freezes—down to is that firing in blue-cold temps usually means your primitive machine-guns has got to be a round-the-clock proposition if you and your weapons

are going to survive.

OK. Here's a quick rundown on some of the things to watch for in your small arms when firing in sub-zero temperatures.

MI GUN, M1918 AND M1

Malfunctions and breakdowns due to extreme cold or freezing by ice and snow. The machine is the most sensitive weapon in this group. It's the hardest to repair because parts are small and tough to handle with gloves or mittens.

The M1 gas cylinder lock never freezes. The rear, firing pin and operating rods heat real easy.

Defective or plugged magazines cause plenty of damage on the M1. Keep magazines free from snow.



When firing in cold weather, use the following instructions to prevent malfunctions:
1. Keep the rifle clean and free from snow and ice.
2. Use the correct type of ammunition.
3. Use the correct type of lubricating oil.
4. Use the correct type of cleaning solvent.
5. Use the correct type of cleaning brush.
6. Use the correct type of cleaning cloth.
7. Use the correct type of cleaning rag.
8. Use the correct type of cleaning pad.
9. Use the correct type of cleaning sponge.
10. Use the correct type of cleaning brush.



M1 M1 AND M1 MACHINE GUN

The overall performance of both of these newer weapons is right good and they stand up to cold weather better than M1, Carbine, BAR and other machine guns. However, watch out for leakage of seal pans.



M1 MACHINE GUN

Here's a tip on things to come . . . don't be well worth remembering. The new M1 machine gun—which is about to replace the present .45-Cal. M1 machine gun—has some wrinkles—give a little special treatment.

To make sure things work smoothly, even when it's a frigid -40° below, a

4-oz plastic tube of Lubricating Oil, Semi-Fluid, is supplied as a trade item with this weapon under P/N 5150-100. H12. Remember! The semi-fluid tube is solely for the M1 machine gun and you use it only when it's real cold—like from -10° and below.

IF YOU HAVE RANGE GUN

These two workhorses should be well liked because of all the moving parts. However, in a pinch, if LAW's not available, apply a general purpose lube like PL Special before firing.

Both guns have a high backage and malfunction rate in extreme cold

weather, so keep spare parts handy. The most common problem is short recoil caused by the bolt not traveling fully in the case. If this happens, stop firing immediately unless you get your gun going again—and in the gun wars up the problem should stick off.



The usual big thing to watch is freezing and hardening of the leather which causes short-bang action and rapid recoil. If this happens, stop firing immediately. If you don't, something's gone awry . . . and you'll end up with a pocket of heated gun.

IF YOU OWN LAW



NOTE LAUNCH

The big worry here is the entire unit, because the propellant burns real slow in extreme cold, a rocky launch makes for nasty shooting. We can thing the backblast area (the TM 8-2082) is almost crippled. When the loader and gunner meet in west winds and glow in protection against freezing propellant.

With the 5.5-in. brusher, make sure the roller is dry and free from snow and ice so that the roller band on the front is left in place until just before firing. If you remove the band too soon before the roller is heated into the brusher, the interlocking pins move to the locked position and leave a hole for moisture to seep in.

This means if there is a holdup in firing, the moisture can cause the fuse spray, freeze and leave you with a dud in the range.

WASH IT OFF
AND FREE FROM
ICE AND SNOW



CAUTION: MAKE SURE
FUSE WIND UP IS
FUSED TO THE GUN
BEFORE FIRING

PREPARE YOUR BATTERY

This baby has limited use in extreme-cold weather. High-temperature—like the fuel issue—become right in sub-zero conditions. One wrong step and you've got two short leads instead of one long one. Two of these ignition changes should be used to make sure the fuel ignites. Throttled fuel is less dependable so, if possible, check engine heater first.



THE OLD WHAT-FOR

Just in case you didn't know, there it's plain as plain: this comes with your small area cleaning car (1267114 ... PN 1801-600-0004) is a cleaning and sprayer that's supposed to be used like so:

In keeping cleaning brush and the cleaning and scrub holder section lined up right when you have "on" in the cleaning car.



DO NOT
REMOVE
THE
CLEANING
BRUSH
OR
SCRUB
HOLDER
SECTION
FROM
THE
CLEANING
CAR
UNLESS
YOU
ARE
READY
TO
CLEAN
YOUR
CAR



EXERCISE



Maybe you don't like PE. But even if you recoil from exercise, you've still got to exercise your tank.

The recoil mechanisms and assemblies on tank cannons and machine guns get to be exercised like it says in TR O&E 901 (Apr 55) and Change 1 (1 Aug 56). That means at least once every six months unless it says otherwise in the TR.



There's a good reason for exercising your recoil. The contact surfaces of the recoil mechanisms are highly polished. If you let the packings on the cylinder walls and rods get dry, these highly polished surfaces will corrode.

On tankers' hand, regular exercise of the recoil partially eliminates this problem by rubbing on an oil film between the packings and the surfaces they contact. This makes the recoil live longer and work better.

Exercising the recoil is also good for the explosives. Your explosives may still be in shape, the contents of cell is outside if its plastic gets broken. The same thing can happen if the moisture vapor breaks or gets absorbed from the plastic.

When you exercise your recoil you know it's OK, and that might be pretty comforting information to have if somebody picks up that coil telephone.

Support units are responsible for exercising recoil and explosives assemblies, but using units are responsible for seeing that they get the word when the exercise is due.

There's nothing wrong with using water pouring the recoil through its calibration, provided it does under the supervision of support.

If the weapon's in storage, mark in the weapon record (in your Gun Form 2408-0) the date it was last exercised and entered on the gun rule in letters at least 1/2 inch tall. Also, put a dated tag on the recoil mechanism. You'll find

YOUR RECOIL



the dates on this in parts 18 and 29 of TR O-586.1 (Aug 51) and parts 18 of TR O&E 901 (Apr 55).

You guess our main concern was on this exercise deal. If the weapon's been fired in the last six months, that counts as exercise for the recoil. In fact, that's the way to live most of recoil exercise.

TANK RECOIL LEAKS



How much is too much when it comes to leaks in the hydraulic recoil system of your tank or SF gun?

From now on you don't have to wonder!

TR O-586.22(2) (Dec 51) spells it out for you. If leakage is more than three ounces of oil in a 24 hour period, that is considered too much and you should better find out what your support maintenance.

This goes for all kinds of tanks and SF vehicles with hydraulic recoil—except for the M56.



Dear Staff-Head,

You got a question on para 15(1) of AR 711.01 "Supply Procedures for TSB Units and Non-TSB Activities."

I believe that paragraph means that a unit's stocks of CEI's (combat essential items) will not be below the allowances authorized by the appropriate TSB's. However, that doesn't limit a unit to TM allowances. That is, stocks of CEI's can be above the TM authorization, if use and demand records justify the increase.

Orders in this command say that a unit can't stock CEI's above or below TM allowances, regardless of use or demand.

Well, maybe?

WFO G. S. M.

Dear Colonel G. S. M.,

You're right.

A close reading of paragraphs 10 and 11 should clear the fog.

For example, Para 10(12) says: "...the primary purpose of the command's demand card file is to enable the organization to adjust quantities of repair parts authorized based upon actual demand experience . . ."

In para 11, under "exceptions," units are required to retain (that is, not to reduce) CEI's per quantities set by TSB's.

But the AR doesn't forbid you an increasing quantities of combat essential items (or any other items, for that matter) when you're properly backed up by usage and demand records.

So . . . unless your local supply SOP says otherwise, you read the AR right.

Handwritten signature

TO BE OR NOT TO BE — LUBED



Do you've got a John Deere Super C Tractor with any lubes being on the motor brake bearing?

Just count yourself lucky. That's just one luber hole point to be when you're working the rig.

Some early model Tractors were equipped with life seal bearings (ie: oil impregnated bearings) so no lube is required. The original LO and TM 5-1500-1 (Nov 54) will you about this. (See pages 51 and 55 of the YRL.) But this point is not mentioned in LO 5-1500 (12 Aug 60).



If you've got the motor with a bearing that needs to be lubed, you'll find a fitting on it. On this you follow the word in the form LO and lube lightly every 20 hours of operation.

Replacement electric motor, now in stock under PNM 4429-571-5074, has a lube fitting.

OPEN-AND-SHUT CHECK



The engine starter on some of your generators now is controlled by a thermostat—when the starter's free to move.

Tractor's bearing, too, if the starter block, and the manual control handle—can—do you when this happens.

Give the handle a second open-and-shut check now and then to make sure the thermostat can put the starter into action when the engine temperature goes up or down.

GLOW FOR YOUR LOAD

It's your only choice for a safe, reliable, adjustable light.

When your load's gonna hang or extend past the tailgate, better safe than sorry! With the portable light fixture (PFLM) 6000-790-2077. Call your number 6047199). You'll need the safety device so's you can be safely pulled.

The luxury powered light works as a continuous light or as a flasher, and its adjustable clamp and magnetic base will let you attach it to all kinds and shapes of overhanging loads.

It'll also work as a warning light if you back down, or take in the dark.

TS 5-7900-200-18 (4 Apr 84) says it's available on an overhanging load.

LIGHT SUBJECT

Dear Wolf Man,

I figure you're the man to put me in touch. What I need is the PFM, maintenance and responsible technical service for these infrared lasers. The man that fit right into the MX-100 laser flashlight.



Dear Ferguson J. W. E.,

Do you want to look at things through red-colored glass? So to speak. Well, fit this into your flashlight and shine in. Filter: Light: Signal eye: 10420; infrared, approx. 1.7" dia. PFM 1800-600-1040.

You'll find 'em listed in SM 11-1-1050 (12 Feb 85).

Wolf Man

COVER STORY

DO YOU WANT
AFTERMARKET PARTS
FOR YOUR
MILITARY?



Dear Editor,

We've solved the hopper cover problem on our M35's trucks.

Maybe you're tired of cases where the hopper cover has slipped down into the drive shaft and played havoc with the agitator paddles.

We drilled a hole in the cover and one in the center of the hopper. We then attached a 1/2-in. chain to the cover and the hopper. Now if the cover slips it doesn't damage the paddles.

Call George Watson
Demolition Company
US Army Chemical Corps
Signal Support Battalion
Fort McClellan, Ala.



THIS
WILL
KEEP
YOUR
MILITARY
TRUCKS
RUNNING.



(Ed Note—It's also a good idea to check the inside of the tank before you engage the power takeoff to make sure there are no tools, pipes, or other objects inside which could also damage the agitator paddles.)

A WHAT?

That's right, it's a special service to help you solve any problem on American cars. Please call toll-free now!

You'll find the engine electrical and adaptive on. 800-428-378-3000, is the 24-hour toll-free (24 May 01).



Oh, if you need engine electrical and adaptive on. 800-428-378-3000, you'll want to get hold of 800-428-378-3000 (24 May 01).

Connie Rodd's

BRIEFS



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THINK TWICE

Before using the Lubrication Chart (see Order) that's printed in your equipment's EM . . . think twice. Remember, that chart (or order) is as old as the TM and in many cases doesn't reflect the latest lubrication instructions. Always go by the IC that's published as a separate publication, and go by the one that's stated the latest. You'll find the update LO listed in the latest *ENR* Pamphlet 310-4.

Want to get rid of ice on your blade? OK, then look us up: the chipping-deburring field called for is TR-174H 12-13 (14 Dec 61), "Anti-Icing, Deicing, and De-freezing of Packed Aircraft." You'll find

NO SUCH ANIMAL

Don't let Change 2 (F-10, Jul 60) to Feb 6-11-62, 200, 12/1 get you Hilar-Hilarious people in a stew. The table following page 2 on page 2 lists MFC's P-1644, 200-201/22 two times. Instead of going berserk trying to find the MFC's, make a note of this. The modifications should read MFC's P-1608 200-201/22. The MFC's listed in the change just don't exist.

HOLD THE BRUSH!

In cleaning your MTT field protective mask be sure to keep any kind of brush (or sharp object) away from the valve-mitter. The brush bristles can lead to the hole in the protective cover and puncture the diaphragm. If the diaphragm is punctured your mask's no longer safe—*FE* leak. Replacing the valve-mitter is a job for support.

KICK-UP BIRD

the field, *ENR* 17418, listed in the Bird Song (5-1), EM 55-1248-202-202P (2 May 60), under FSN 68-03-177-4750. (Other new -202P manuals expect to pick it up as they come along.)

right now

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



WE'VE GOT TO HOLD ON TO THE ANCHORS TO KEEP THE BOAT FROM DRIFTING OFF THE SHORE.

WE'VE GOT TO HOLD ON TO THE ANCHORS TO KEEP THE BOAT FROM DRIFTING OFF THE SHORE.

WE'VE GOT TO HOLD ON TO THE ANCHORS TO KEEP THE BOAT FROM DRIFTING OFF THE SHORE.

**COLD WEATHER
MAKES CONSTANT DEMANDS
FOR SPECIAL CARE
IN HANDLING
ALL EQUIPMENT**