

1961 Series

PS

Issue 108

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY



THIS YEAR  
WE'RE  
GONNA  
KEEP 'EM!



And a weather  
Resolute

**I** resolve to keep my  
equipment *constant* ready  
at all times.

**I** resolve to keep my  
publications for my  
equipment on hand  
at all times.

**I** resolve to remember  
KYC PMS (keep your  
cotton-pickin' hands  
off it) if I'm not  
authorized.

**I** resolve to follow  
my equipment's TM  
while doing  
maintenance.

**I** resolve to use the  
right tools in every



THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY



FROM THE LOOKS OF  
YOUR EQUIPMENT, I  
WOULD SAY YOU  
DON'T READ 'EM!



A Winter Wonderland...

# SNO JOKE

That pretty, soft, innocent-looking snow can be mighty tough, steezing for anything that woods, skis, or commutes. When icebergs fall the clammy

whimpy is put on everything that makes wheels turn, tracks run and gears fire.

Salters temperatures and ice plus a blanket of snow spell plenty trouble.

A winter wonderland is a dream world for a song-writer. But to you,

it's a tank of gun steel, telephone line-gang, radio team, or operating kit-out for equipment in this man's army. It's bad news. It means sludge in crank and gear-cases, dead batteries, frozen fuel lines, ice all over—and all the other winter maintenance headaches—are on your back.

There's only one way to ease the freeze and stay ahead of the winter game. Put the heat on your Preventive Maintenance—do it more carefully, more thoroughly and more often than usual.

Then, snow and ice can't stop

## PS THE PREVENTIVE MAINTENANCE MONTHLY

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BY YOUR OWN BOPKOR!

# THE M14 RIFLE

If you've been issued the M14 rifle, And...if you realize how the M14 rifle, you can see where they both differ in their ways...and differ in its color.

They're both alike in one way, they both need maintenance. And to make it easy for you to open trouble before and when it starts, read on and you'll see the maintenance points that need checking.

Never does trouble open starts in **BOLD TYPE**. Then add up to correct grip points...and maintain the rifle now.

As you're probably noticed, there are two M14s. One has a Magazine bandaged and banded best plan, it's

the same. The other doesn't have a banded best plan and it has a standard bandaged. One day the rifle'll be around as "banded" the best plan in the same rifle. The Magazine bandaged is listed in TM 9-1894-105-30P under EBN 3004-000-0004.

If you, as the soldier, have any questions about the rifle, see your armorer-officer. And if the armorer has any, he wants to check with your Christmas supper.

**MAGAZINE FREELAND**—locking, locked movement parts, spring  
DON'T: strip light.

**RIFLED BUTT PLATE**—base, front, locking  
DON'T: strip or clean.

**SLING**—hook, locking  
Always: wash, dry.

**WIFE RIFLE**—action lock, moving base some plate don't clean, is loose, lock base, don't lock, spring and moving. This also goes for the M14 without the banded best plan.



**MAGAZINE/MAGAZINE**—COXAM, dry, spring don't hold light.



**SPRINGS**—don't clean, freely balling moving, lock light, front, front, lock, moving, DON'T: strip light, or the following maintenance, moving.

**SPRINGS VALVE**—DON'T: strip or clean, or replace, the locking, moving.

**BARREL**—edges, don't, clean.



**SOFT FOAM**—be don't use this to clean the rifle. It will ruin the barrel.

**SOFT**—brush, brush, moving, wood, dry, locked, keep your gun clean in the best for safety between the two parts, lock and the bottom of the slide, **lock**, **lock**.

**LEOPARD FOR MAINTENANCE**—action, moving.

**CLEANING ROD**—four, balling, and TIF.

**SOFT CLEANING BRUSH**—CONTAINS.

**CLEANING PATCHES**—CHARGE CLEANING BRUSH.



**FLASH SUPPRESSOR**

RIFLE—Damaged  
threads, hole.



**FRONT SIGHT**—**CRACKED,**  
**burned off, bent, loose,** (sewing  
needle hole) and black  
rust, **broken, broken, cracked,**  
**flat, not flared.**

**FLASH SUPPRESSOR**—**loose,**  
**burned, cracked, bent,** (baked  
with carbon, bent, cracked)  
**socket-head lock screw loose,**  
**missing, threads stripped,**  
**point rounded.**

**RETURN LAM**—  
**cracked, spring bent,**  
**broken off.**

**BARREL THROAT FOR FLASH  
SUPPRESSOR AND GAS CYLINDER LOCK**—**damaged**



**GAS CYLINDER  
BOWTIE**—**bent.**

**FLASH SUPPRESSOR  
BUSHING**—**loose.**

**GAS CYLINDER**—**dent in,**  
**burned, cracked, bent,** (baked  
with carbon, bent)  
**gas vent shoulder is "T"**  
**socket/splitter movement.**

**GAS CYLINDER  
LOCK**—**CRACKED,**  
**loose, flat**  
**threads.**

**GAS PISTON**—  
**burned, cracked,**  
**one broken.**

**GAS CYLINDER PLUG**—  
**loose, threads**  
**stripped, missing**  
**carbon.**



**FRONT SIGHT**—**cracked loose,** not flared, hole  
plugged, **cracked in one barrel, wide hole, flat**  
**base, missing, no DICKING LAMP when burned** (re-  
vision and marking markings not clear; **plunger**  
**is bent, threads stripped, cover cracked, set**  
**of shape, missing, right base is bent, threads**  
**stripped, aperture gone behind.**

**INTERNAL TUB ASSEMBLY**—**bar** (including foot that holds it  
to operating rod), cracked, **Mini worm, plunger bent,** spring  
weak, broken, missing (if one rifle has been set up to  
automatic fire, a **broken or missing spring is the kind of**  
**trouble that equals being—bad news** (up and plunger don't  
move back).

**MAGAZINE**—**two split of cover,**  
**damaged, budget spring weak, missing,**  
**burned, follower bent, hole**  
**followers so that hole got lost in**  
**place bent, broken, floor plate**  
**loose, too tight to remove, hole**  
**plate loose, missing.**

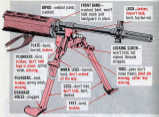


**STOCK LAMPS AND  
RETAINING SCREWS**—  
**loose, missing.**



**TELESCOPE MOUNT HOLE**—  
**threads too tight.**





**WRENCH**—rusted joint cracked.

**FRONT BIRD**—cracked bent, won't hold stock and magazine in place.

**LOCK**—broken, doesn't lock, bent, top barred.

**PLATE**—bent, barred, broken.

**HOOKING SCREW**—won't hold, not seated, breaks stripped.

**PLUNGER**—bent, broken, don't hold legs in place spring weak, missing.

**WRENCH**—lock, bent, don't extend all the way.

**WRENCH**—jaws don't move freely, plate pin missing, collar too missing.

**PLUNGER**—bent, broken, spring weak, missing.

**LOCK**—don't fit, don't lock, bent, broken.

**BARREL HOLD**—plugged.

**FEET**—bent, broken.



**SELECTOR PLUNGER**—worn, broken, bent, missing, tip rounded.

**EXTRACTOR**—bent, broken, whole leg, returned, bent up, shell worn.

**EXTRACTOR SPRING AND PLUNGER**—broken, won't hold extractor, too long, spring weak, not straight, plunger bent.

**LOCK BAR SPRING**—broken, weak, missing, coated with oil, fits too tight.

**WRENCH PIN**—broken, bent, missing tip, rounded tip, rounded, sharp pointed, broken, leg damaged, angle rounded.

**WRENCH PIN FOR BUCKING WEATHERSTRIP**—barred.

**BOLT LOCKING LUG SLIDER**—bent, broken.

**SELECTOR OR DESELECTOR LOCK**—broken, doesn't lock, there's too missing, spring weak, missing, splinter, absent, doesn't turn easily when disengaged, from rear release.



**BOLT AND ROLLER ASSEMBLY**—bolt cracked, sliding surface barred, spring and spring pin missing, bent with missing, loose chips, legs worn, broken, barred roller barred, broken, missing, doesn't turn freely.

**TRIGGER MECHANISM**...

**WRENCH**—rough legged round end of receiver, cracked, locking device damaged, it's barred.

**TRIGGER AND LEAD ASSEMBLY**—new wire, ballpoint joints broken, trigger bent, leg damaged, on left, missing, more sideways.

**WRENCH SPRING PLUNGER**—damaged.

**WRENCH SPRING**—weak, missing, tip shape, ends bent.

**WRENCH SCREW**—won't hold or bring mechanism together, twisted out of shape, broken, "too" bent out in back, point damaged.

**WRENCH LOCK**—won't lock, won't last magazine, broken pin bent, loaded sticks out beyond firing pin surface.

**WRENCH**—cracked, chipped.



**WRENCH SPRING PLUNGER**—damaged.

**WRENCH SPRING**—weak, missing, tip shape, ends bent.

**WRENCH PIN**—bent, missing, bent to metal and return.

**WRENCH SPRING**—damaged, cracked, on left.

**SAFETY SPRING**—weak, out of shape, missing.

**SAFETY**—won't work, cracked, stripped.

**WRENCH OUR CHARGER BUSH**—bent, damaged, misshape enough to bulge into locking, retaining pin slots and bend top inside surface of receiver.

**BOLT LOCK**—bent, worn, spring weak, missing, pin broken, missing, won't lock, bent back or do it return when released.

**OPERATING ROD TUBE**—barred, bent, broken.

**OPERATING ROD**—weak, cracked, worn.

**OPERATING ROD HANDLE**—cracked, bent, not after wearing, loose screws enough to hold up, ball movement, cracked, bent, barred, damaged.



**CONNECTOR LOCK**—missing, extractor lock pin in line, is cracked, broken.



**BORE LINE CHAMBER**—excessive pitting, carbon.



**OPERATING ROD SPRING**—compressed, force enough to hold in place, up movement of gun along rail.

**OPERATING ROD SPRING AND WRENCH SPRING**—pin bent, hole in guide worn, spring broken out of shape, broken, weak, to that force, magazine bent, broken.

It figures that you want to be on the lookout for rust on all metal parts of the rifle. And that is something else you look for—inside and outside the rifle.

Every good rifleman knows that rifle publications are important to him. There's the TRM 5-2025-110-11 (28 May 81) ... and TRM 5-2025-115-20P (22 Mar 80).

ARMY (ARS) TRM (TRM) (TRM) (TRM)

### TIPS TRIFLE HELP FOR AND YOUR RIFLE...

1. So you're disassembling your rifle and it's tougher's a job to get the locking "hook" on the trigger guard free of the locking notch in the firing mechanism housing. You know ... so you can return the guard and then remove the housing.



If you happen that the rifle fit is built into the rifle. One thing it does is make the weapon more accurate.

So don't head the hook or flip the notch to make it easier to free the trigger guard. If you figure it's not much of a fight to remove the trigger, pass along your troubles to your armorer/assistant.

2. Something else you want to remember about the trigger guard ... don't rotate it more'n 90 degrees when you're removing the firing mechanism housing. If you feel the locking stud on the guard coming in contact with the point at the bottom of the housing, you've turned the guard too much. You want to remove the housing before you feel this metal-on-metal contact.

3. The deal is that if you rotate the trigger guard too far and then go to remove the housing, you can bend the rib on the housing as it slides in the slot in the receiver. And a damaged rib'll make it tough removing and replacing the housing.

Another thing . . . take a look over and under to see if the trigger pin runs against the stock when you remove the firing mechanism housing. If it does, get your armorer to remove about  $\frac{1}{4}$  inch from the pointed end of the pin.



There's also a couple good points to keep in mind while you're assembling the firing mechanism.

First . . . make sure the bottom pointed end of the hammer-the cocking wing—is forward of the bolt. The right end cocking stud is the trigger guard. If it's not, you won't be able to install the firing mechanism right . . . and it won't work up to snuff!



Second . . . install the hammer spring housing so the return spring faces the cocking. The housing is open that way so the spring will work. You had the same deal on your old rifle.



### STOCK TIPS

The stock's not made for using as a pry bar or to hammer down war pegs. Maybe your stock is made of light-colored wood (chick) and the other guys have dark-colored stocks (owl-man). Makes no difference. One is just as good as the other—with the right treatment.

And that also includes rubbing in with new linseed oil now and again to stop splintering and drying out before they start. First we get all of how close to wooden surfaces.



You shove those studs in the front of the stock—the ones that hold the receiver? There's a right way and a wrong way to tighten them. So let your support unit handle the job.

One more thing about the stock—in case you're wondering—that's a drain-or-run-hole in the front end of it.

Another thing that you don't want to do is cut or whittle away at any part of the stock. And it's your support people's job—our parents—to repair the stock.





## GAS CYLINDER PLUG TIPS

What do you figure causes the most damage to the handguard? You're wrong. The real damage comes when you hold on to the handguard while you're tightening or loosening the gas cylinder plug.

The right way to do it is to use both one on the barrel and gas cylinder one, if the handguard's attached, grab that. If the barrel and cylinder are free . . . you can't wait for them to cool off . . . and the handguard's not attached, stick a towel between the barrel and cylinder for leverage.



In the meantime . . . that combination tool, VHS #VH-100-0011, is the only thing you need to use for creating and installing the gas cylinder plug. Use the combination tool to tighten the plug or light it you can get it. Don't think don't use any extension on the tool for added leverage when you tighten the plug. The only time you might need extra leverage is the tool is when you go to remove a locked-up plug.

Speaking about tightening up . . . you can see that the cylinder and plug threads are fine, so you have to be careful or you'll mess them up.

It's worth remembering that the only stuff you use to clean the gas piston, gas cylinder bore and gas cylinder plug is bore cleaner. The thing to do is soak the piston and plug in bore cleaner and then wipe them with patches or a clean cloth soaked with bore cleaner. You don't have to put the gas cylinder in bore cleaner, but you do clean the bore with patches or a clean cloth soaked with bore cleaner.

**Handguard**

**Plug**

Don't use any kind of abrasive or something sharp for scraping. The piston, for instance, is made in mighty fine tolerances . . . and trying to clean it with something like coarse cloth, steel wool or sand may not mess up things.

The inside of the piston, tho, can be cleaned with your dove brush and dove cleaner. The same goes for the gas cylinder plug.



The deal that is like to see most guys use of the frame is the way components of the gas system change color over the rifle's life. They figure they have to get the parts looking like new—polished as a shin. So they give the parts a good going over—down of sand blasting.

Just remember, that change of valve is moved by gas, not heat. And it doesn't have anything to do with the way the valve seals. So, slip trying to polish up those parts.

Another thing . . . spring's have the components of the gas system too made of corrosion resisting steel, they're not going to rust. So you shouldn't clean they. That's right . . . no-oil. Only the exterior surfaces get a light coat of oil.



There're two places you don't want to forget to put oil. There's the inside of the operating rod tube and the spring and plunger for the automatic assembly. You get oil for the inside of the tube with an oily gun and your cleaning rod.

You can run into a tough situation when you get carbon between the spindle valve and gas cylinder. If that this happens, it's a real job to rotate the valve. There's . . . the only time you rotate the valve from vertical to horizontal for firing is when you see the RTS pressure increases. You want to push it in and rotate it over in awhile just to break loose and get rid of some carbon.

Anyway . . . if you can't push in the valve or you can't rotate it, put a block of wood against it and give the wood a few taps until you're able to move the valve in and out. Then you should be able to turn the valve. Don't try to take it apart. That's a job for DeSoto.



Now for some quick soap. But it's important. When the firing mechanism's installed in the receiver and the receiver is on the automatic bar, make sure the new valve is working the way.

Something else that needs checking — before and after firing — is the flash suppressor and those sights. Give the suppressor and sights a couple shags. And if either moves at all, ask your receiver to see if he can spot the trouble.





If you have an empty magazine in the chamber, or when the last round leaves the rifle, and the bolt doesn't stay on the track, check the following in the magazine. It should be resting on the bolt lock to keep the bolt back.



While you're out your sights around the hole, take a look at the roller and retaining ring. They want to be held tightly. And it's a good deal if the roller spins smoothly. But it's still good even if it doesn't turn freely.



It's time to call for support and help if the roller works off the track. You'll get a new retaining ring and roller.

Does the extractor have a bad habit? Like jumping out of the hole. That's usually caused by a weak extractor don't and a weak spring and plunger.

Another thing about the extractor plunger... the second barbed head of the plunger wants to rest in the groove of the extractor. And if the plunger is bent, it'll bend up the movement of the spring. And you'll have extractor troubles. Something else... don't forget to keep a light coat of oil on the plunger.

It's time to get a new spring and plunger when the empty cartridges start flying to the right rear of the weapon when you're on automatic fire. I'm'll find the three angles on the face of the plunger are usually worn and bad and the spring is shot.



The best, one, two, and to take a ball from one rifle and get it in another unless your support just checks the ball and says it's OK. Making the best of both can mean up the magazine and you.

Don't forget the new deal on cleaning the bore. You only have to do it once with the new bore cleaner after firing. Of course, you don't stop running patches through until you run-out clean. Then you follow through with a light coat of oil.

The best way to keep the chamber clean is to do the job whenever it needs doing—or stop clean you're not sure just how clean it is.

When it comes to the bipod, you tighten or loosen the locking screws in the bottom of the right-hand jaw with your combination tool. Don't try to remove the screws. You could ruin the jaw and screw threads.





# Cornie Rodd's

"LIFE'S A LITTLE DIFF"



## Fat Guy

That last 14 inch on a screw clip may land you a few say you won't like.

In, when you ride again the moving knuckle assembly on the M1100 200001 Jeep, or the M1100 ambulance, better grab a ruler and do a bit of measuring.

Two of the four eye screws that hold the upper bearing clip to the steering knuckle flange are 1 1/2 inches long. But

the other two . . . which is double duty and means the brake line guard on the flange . . . are likely to be 1 3/4 inches long. Guess that's the one originally included in these assemblies.

Except for length, these screws are as much alike as twins. But that extra 1/4 inch in one pair can get you trouble . . . if they're shifted about. For the 1 1/2 is extra where there's no room because 1 1/2 inches long and you'll put the long pin bearing eye in a bind.

Then you'll get over-bearing, wear on the bearing eye and maybe trouble of the steering knuckle assembly.

To play it safe, replace the two 1 1/2 in screws with ones that are at least 1 3/4 in. Use it says in part 2130 17) in Change 1 (19 June 58) to TM 9-8004 14 Apr 55). Here's the one that'll do the job: screw, cap, hex hd, 5, 81,000 PSI yield strength, 1/2-13-1/2-14, 1/2-13-1/2-14, 1/2-13-1/2-14, 1/2-13-1/2-14.

While you're about it, have your mechanic take in all pairs for these vehicles to keep you from getting in trouble later with these long screws.



## Looking for tire chains?

Hope... somebody helped the tire chains from that new budget your work just got. They're not included in OEM or dealer lease with vehicles. If you're

in a situation where you need chains on more wheels than what's staff in the ground—you can get 'em by following the word in SM-300 dated April 1981.

## Show that M-300 dot

It doesn't happen that it sometimes does—that a Government M-300 kit got sent to your organization) and instead of the maintenance work that's supposed to install it.

If you ever get a kit don't think so

you, don't get confused with it. Tack it safely away and then slip off your eye-popping that the kit's as straightforward as installing.

This'll save lots on money and stress.

## Gate on the.

Could be that you've confused about gallons and pounds when it comes to buy maintenance kit and fuel, M-300 300-300. M-300. This M-300 should get you a 1-gal out of it.

When it comes you find that you have an M-300 can. Don't worry, they're the same. A 1-gal can of that will weigh M-300 pounds, so it's the same difference when you use M-300 or 1-gal.

SM 3-1-6800

SECTION 1

Item	Quantity	Unit	Weight
...	...	...	...

SECTION 2

Item	Quantity	Unit	Weight
...	...	...	...

SECTION 3

Item	Quantity	Unit	Weight
...	...	...	...

## Detective work

No one likes a lone lone lookin' for the open air hangar, the extinguisher in your M151 1/2-ton truck.

Just make like a firelock with those penetrating eyes until they've focused on what looks like a couple capped hoses (they're really non-welded-to-the-under-side of the hood) on the inside front panel of the left rear hood—just behind the driver's seat.

You'll find the extinguisher and bracket listed in TM 9-1310 214.10 (May 64) under basic issue items. But to locate the bracket in the panel, you'll need two of these items:

ICM, 68899. Part name: Set M. 1/2" to 1 1/2" Dia. X 1/4" H. PN 124-815-1001 (M5).

Knowing where and how to hang the extinguisher will come in handy if you need the info suddenly—in comply with AR 100-11 (Mar 61) on when they'll make in for M151.



## Out of sight

YOU'RE GOING TO HAVE TO TAKE CARE OF YOURSELF. YOU'VE GOT TO TAKE CARE OF YOURSELF.



There's nothing like playing it safe. And that's what a guy can do when it comes to the fire control equipment he uses—the equipment in this case—that contains charges to keep our soldiers.

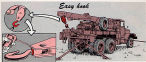
The list includes the M12, M15, M15A1, M14 and M17C range finders. M17C articulated stencils... M21 and M22 periscopes right... and M25, M11 and M58 periscopes.

What you want to do is set up a schedule as you get your support unit to

stop off at your units every 30 days to purge and then charge the equipment with a fresh batch of stencils. And if you're in a humid spot, or a place where you've got plenty changes in the climate, change it to a 30-day schedule.

It's far better than waiting until you have so much moisture in the night that the operator is froked up. And that can happen just when you need the sight the most.

## Easy load



The boom hook on your wheel loader (M302, M306, M346, M341) is made to swing easy in its collar. Just give it an occasional care, knock off all grime, and it's not likely to freeze-up on you.

If it ever does take extra muscle to make it work, that's a sign of oil leaks

in loading. If the oil doesn't help you to work it loose give it a whack or run with a hammer to shake loose any binding junk.

Look after the hook regularly and you'll not end up wrestling with it when you need the boom on a job.

## Don't be jerky

— Jerks don't go far in this man's army ... that's for sure.

— As, usually, it follows that jerky action can bring things to a screeching halt.

Right? 

Like when you M30A1 and M30A2 loaders are starting, in the M1 engine and cocking the M-100 machine gun with the M-11 charger—jerking the handle of the charger can lead to a busted cable and an MG that's NG, like no good, that is.

So, to be sure she isn't just spooled out in any gale, just use common everyday horse sense and apply a steady pressure

when you're pulling back the handle to work the gun, to apply immediate action, or to check development and closing.

It makes little accounted whether you pull it straight back, straight down or sideways (use a twisted pulley that the cable will be under care of the angle).

The main thing you remember to pull the handle with steady pressure and not a jerk.

And, when the handle moves forward, hang on to the handle.

That'll stop it from flying off over the place and out down an cable binding— one big reason for cable failure.





## Best Old Man Stories



Looking for something that'll keep your windshield, windshield wiper blades, locks and latches from freezing up? Try a 14-oz spray can of Fluid. Antifreeze FEM 6898-993-0484. It's also good for anti-icing and de-icing.

Also, for fighting fog on windshields

and windows, there's Anti-Igging Compound FEM 6898-754-0671. Works against birds, or FEM 6898-754-1072, a pine-saprem bane.

There are no your Chemical support's authorized local purchase list... but you'll see in GSA September 1981 catalog.



*Close it—fast*



Maybe you do... and then maybe you don't have a gizmo for closing the valve in the gas cylinder lock screw on your M1 rifle. There's sure nothing in FM 21-5 (Rpt M1) about closing the valve.

### GAS CYLINDER LOCK SCREW



If you have a bolt that works but it means using components of the rifle to make a gadget to do the job—you'd be playing it smart by bringing that kind of situation to a wrenching halt.

The different parts of the rifle have one reason for being where they are—to get the rounds into the chamber and started on its way out the barrel.

Using the parts for something else puts extra stress on them... and could mean having them. Could be the break won't come until the gas or valve in the rifle... and you're using it in a tight spot.

But, if you're using something to close the valve that wears damage the screw or valve... that's another story. Remember, too, if the valve won't come around without a big fight, forget it. Get yourself a new one.

## INTRODUCING...



Just as Hollywood's aging beauties must move aside for youth, the Signal Corps' TE-115 (Test Equipment, Radio and Radio-Repair) is being pushed off the maintenance scene by two newcomers.

Walking on stage for their call are Radio and Radio-Repair Kit TE-87/U and Supplementary Radio and Radio-Repair Kit TE-881 1/U.

Already listed in SB 11-150, Signal Corps Adopted Items of Material (March 1961) these maintenance kits are ready now with their relatives.

You'll appreciate these new kits, for one thing, because of their light weight. The TE-87 weighs 14 pounds. It will be issued on the same one-to-two-vehicle maintenance team as the TE-115 unit.

The "88" goes 34 pounds and it's stored for issue in every 5th equipment.

The TE-115 weighed 48 pounds.

Between them, TE-87/U and TE-881 1/U will provide all the tests found in the TE-115, plus a few extras. Your "87" picks the code word over and over again... while the "88" makes one of the one.

Here's a handy reference for taking inventory on your TE-115, while also getting familiar with its successors.

Some tools in your TE-115 may not look exactly like those you see here. No reason. It's probably because they were made by different firms.

You may spot some differences in nomenclature and P/N's. Here again there's no need to hit the pack hammer because these are the facts. This goes also for added or deleted items.

Tools that did not come from the TE-115 are shown with nomenclature and photos

tools  
included  
in a  
kit:

this color



# RADAR AND RADIO REPAIR KIT TK-87/U

## FSN 5180-890-4452

**ALUMINUM TOOL.** See 2. Used for a wide variety of plastic bonded fittings. Fits 1/2 in. to 1 1/2 in. diameter round, round square and flat. Provided clean cut to avoid delamination of plastic bonded to metal.



**PN 100-000-001**

170

**ALUMINUM TOOL.** Extruding compound. Fits 1/4 in. diameter type 2 working ends, available on special order. Not comparable with 100-000-001.



**PN 100-000-002**

170

**ALUMINUM TOOL.** See 2. Fits 1/4 in. diameter type 2 working ends, available on special order. Not comparable with 100-000-001.



**PN 100-000-003**

170

**ALUMINUM TOOL.** Electronic equipment installation type 2 working ends. Used with 1/4 in. diameter and internally measuring the compression tool. Fits 1/4 in. ground.



**PN 100-000-004**

170

**ALUMINUM TOOL.** Electronic equipment installation type 2 working ends, available on special order. Not comparable with 100-000-001.



**PN 100-000-005**

170

**BROWN POINT.** See 2. Used for marking and for 1/4 in. to 1 1/2 in. diameter.



**PN 100-000-006**

170

**BRONZE CONTACT.** Used in 100-000-001. Made of type 2 bronze. Fits 1/2 in. to 1 1/2 in. diameter type 2 working ends. Not comparable with 100-000-001.



**PN 100-000-007**

170

**BRONZE TOOL.** Used for 1/2 in. to 1 1/2 in. diameter.



**PN 100-000-008**

170

**CUTTING WHEEL.** See 2.



**PN 100-000-009**

170

**CUTTING WHEEL.** See 2. Used for 1/2 in. to 1 1/2 in. diameter.



**PN 100-000-010**

170

**EXTRACTOR.** Extractor tool used for 1/2 in. to 1 1/2 in. diameter.



**PN 100-000-011**

170



**EXTRACTOR.** See 2. Used for 1/2 in. to 1 1/2 in. diameter.



**PN 100-000-012**

170

**FLYING OFF THE HANDLE**—This rubber cover allows your right-angle hand saws to both protect the saw's cutting edge and provide the extra leverage that will help you push, pull and push-pull. It's a real life saver for the 1/2-in. and 3/4-in. hand saws, reciprocating saws, and the hand saws, too.



**FOR THE HANDLE**

100

**INSULATION TAP, 1/2-IN. (TYPE 1)**—These copper, black, stainless-steel taps are 1/2-in. in dia. and 1/2-in. in ht. by 1/2-in. in len. They're used for making cooling coils and are available in several configurations.



**FOR THE HANDLE**

101

**INSULATION TAP, 1/2-IN. (TYPE 2)**—These black, stainless-steel taps are 1/2-in. in dia. and 1/2-in. in ht. by 1/2-in. in len.



**FOR THE HANDLE**

102

**INSULATION TAP, 1/2-IN. (TYPE 3)**—These black, stainless-steel taps are 1/2-in. in dia. and 1/2-in. in ht. by 1/2-in. in len. They're used for making cooling coils and are available in several configurations.



**FOR THE HANDLE**

103

**KNIFE, PICKET (TYPE 1)**—This cutting blade is 2 1/2-in. in len. and 1/2-in. in width. It's made of stainless steel & also comes in a/2 sizes.



**FOR THE HANDLE**

104

**ORANGEWOOD PICK (TYPE 1)**—This tool is 1/2-in. in dia. and 1/2-in. in len.



**FOR THE HANDLE**

105

**FOR THE HANDLE**—This tool is 1/2-in. in dia. and 1/2-in. in len.



**FOR THE HANDLE**

106

**WRENCH, SOCKET HEAD**—These wrenches are available in the following sizes:

FOR	SIZE	NUMBER 10
1/2-IN. (TYPE 1)	1/2	101
3/4-IN. (TYPE 2)	3/4	102
1-IN. (TYPE 3)	1	103
1 1/4-IN. (TYPE 4)	1 1/4	104
1 1/2-IN. (TYPE 5)	1 1/2	105
1 3/4-IN. (TYPE 6)	1 3/4	106
2-IN. (TYPE 7)	2	107
2 1/4-IN. (TYPE 8)	2 1/4	108
2 1/2-IN. (TYPE 9)	2 1/2	109
2 3/4-IN. (TYPE 10)	2 3/4	110

**FOR THE HANDLE**—This tool is 1/2-in. in dia. and 1/2-in. in len.



**FOR THE HANDLE**

107

**PAPER, GRAPHIC**—This paper is 1/2-in. in dia. and 1/2-in. in len. It's made of stainless steel & also comes in a/2 sizes.



**FOR THE HANDLE**

108

**FOR THE HANDLE**—This tool is 1/2-in. in dia. and 1/2-in. in len.



**FOR THE HANDLE**

109

**PLIERS, WRENCHING**—These pliers are used for gripping, cutting, and pulling.



**FOR THE HANDLE**

110

**PLIERS, WRENCHING**—These pliers are used for gripping, cutting, and pulling.



**FOR THE HANDLE**

111



**PLIERS, SIDE-CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**PLIERS, END CUTTING** (24)  
18in. Type III, jaws 1,  
1.00in. B, 2.75in. jaw size



**FOR DISCONNECTING**

(24)

**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**SCREWDRIVER, TORX** (24)  
1/4in. Torx, 1.00in. length



**FOR DISCONNECTING**

(24)

**QUICKEN UP YOUR**  
Metal spring types are  
flat, metal coils that  
allow coil and body to  
slide.



**FOR DISASSEMBLY**

100

**DISASSEMBLY WITH SLIT**  
This type usually fits in  
a spring hole, and has  
curved openings to fit  
the 1/2 in. hole.



**FOR DISASSEMBLY**

101

100 (right)

101 (right)

**FOR DISASSEMBLY**

**FOR DISASSEMBLY**



Original  
designer  
wanted  
this  
to  
be  
a  
new  
type.



**DISASSEMBLY WITH SLIT**  
This type usually fits in  
a spring hole, and has  
curved openings to fit  
the 1/2 in. hole.



**FOR DISASSEMBLY**

102

**DISASSEMBLY WITH SLIT**  
This type usually fits in  
a spring hole, and has  
curved openings to fit  
the 1/2 in. hole.



**FOR DISASSEMBLY**

103

**DISASSEMBLY WITH SLIT**  
This type usually fits in  
a spring hole, and has  
curved openings to fit  
the 1/2 in. hole.



**FOR DISASSEMBLY**

104

**DISASSEMBLY WITH SLIT**

**FOR DISASSEMBLY**

105



**DISASSEMBLY WITH SLIT**

Type	SLIT	SLIT	SLIT	SLIT
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.

**DISASSEMBLY WITH SLIT**

**FOR DISASSEMBLY**

106

**DISASSEMBLY WITH SLIT**

**FOR DISASSEMBLY**

107

**DISASSEMBLY WITH SLIT**

Type	SLIT	SLIT	SLIT	SLIT
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.
DISASSEMBLY	1/2 in.	1/2 in.	1/2 in.	1/2 in.

**DISASSEMBLY WITH SLIT**

**FOR DISASSEMBLY**

108

**DISASSEMBLY WITH SLIT**

**FOR DISASSEMBLY**

109





**FRAME, HAND PICKING** 1/2 lb. closed steel joint. Frame fits in standard brush box, 20" x 11" x 10 1/2" h. g.



**FIG. 010040-000**

**00**

**LACE, BRUSHES** Copper needles, one blade per 20 copper needles. Thickness: 0.0015 in. to 0.002 in., 3/16" to 1/4" in. W. 1/4" in. 1" blade length.



**FIG. 010100-000**

**00**

**WHEEL, HAND** mechanical's ball pen, 1/2 lb. one of set.



**FIG. 010100-000**

**00**

**WHEEL, HAND** mechanical's ball pen, 3/4 lb. one of set.



**FIG. 010100-000**

**00**

**WHEEL, FIG. 0001** a. shafts depending 1/2 inch in length and 1/2" dia. 1/2" dia. g. overall. 1/2" diameter dia. shaft.



**FIG. 010100-000**

**00**

**WHEEL, FIG. 0002** a. shafts depending 1/2 inch in length and 1/2" dia. 1/2" dia. g. overall. 1/2" diameter dia. shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag.

**QTY**    **PR**  
 2 ..... \$120  
 4 ..... \$200  
 6 ..... \$275  
 8 ..... \$350



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.

**QTY**    **PR**  
 2 ..... \$120  
 4 ..... \$200  
 6 ..... \$275  
 8 ..... \$350



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**

**WHEEL, WOOD** round 20000 long wheel, 1/2 lb. g. a. separable plastic construction ball 200 1/2" dia. 1/2" dia. overall. 200 1/2" g. overall. 1/2" dia. hole g. 1/2" dia. hole per set and 1/2" dia. hole 20000 in. overall for shaft for attaching to ball. furnished in bag. 20000, 20000, 20, 1/2" in. dia. hole for shaft.



**FIG. 010100-000**

**00**



**FLASK, DRAWING** (S&W)  
 100 cc. capacity, fixed jaw design.  
 1/16-in. ring size, 42 1/2-in.  
 handle of 10-in. dia.



**FOR 100-100-100**

100

**FLASK, CENTER, DOUBLE**  
 100-cc. fixed jaw design  
 1/16-in. ring size of handle,  
 42 1/2-in. handle of steel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**FLASK, MARK** (S&W)  
 steel 1/16-in. fixed jaw design,  
 1/16-in. handle of steel, 42 1/2-in.  
 handle of steel, 10 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, CROSS-DRIVER**  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, BLADE 100-100-100** (S&W)  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, BLADE 100-100-100** (S&W)  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, DRIFT (S&W)** (S&W)  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER SET, DOUBLE-ENDED, DOUBLE-ENDED**  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.

**FOR 100-100-100**

100

- 100-100-100 100
- 100-100-100 100
- 100-100-100 100
- 100-100-100 100
- 100-100-100 100
- 100-100-100 100



**TRAY, FLASK** (S&W)  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREW DRIVER, DOUBLE-ENDED, DOUBLE-ENDED**  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, DOUBLE-ENDED, DOUBLE-ENDED**  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

100-100-100 100

**FOR 100-100-100**

100-100-100

100-100-100

**FOR 100-100-100** (S&W)  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100

**SCREWDRIVER, DOUBLE-ENDED, DOUBLE-ENDED**  
 100-cc. 1/16-in. ring size,  
 42 1/2-in. length of barrel,  
 10 1/2-in. length of barrel.



**FOR 100-100-100**

100 100

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**



**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.

**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**



**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**WALKER:** 800-451-1111. 100% approved, 1-year warranty, 28-year track. It has the tracking, 28-year track and 100% approved, 1-year warranty.



**FOR TRACKING COLLAR**

**100%**

**TE-113 ITEMS NOT CARRIED OVER TO  
TR-87/JJ or TR-88/JJ  
TE-113 FSM 5100-448-7478**

**4-WIRE TEST, ELECTRONIC EQUIPMENT**, which type 3 marking ends, 3 low marker sockets, 1/2 in wide base, plastic box, 1-1/2 lb gross.

FOR 5100-104-000 04

**GENERAL TOOL, ELECTRONIC EQUIPMENT**, screwdriver type 3 marking end, suitable for plastic box, 1/2 in g weight.



FOR 5100-104-000 04

**4-WIRE TEST, ELECTRONIC EQUIPMENT**, portable screwdriver 4 marks type 3 spring ends, marker, screwdriver type 3 for low marker ends, screwdriver type 3 for ends, plastic box, 1/2 in g weight.



FOR 5100-104-000 04

WELL TOOL

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, fractional ends, 1/2 in low flutes, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in low flutes, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.

FOR 5100-104-000 04



**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.



FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.



FOR 5100-104-000 04

**WELL TOOL**, 400, right of side, low flutes, 1/2 in end, marker ends, 1/2 in end, 2 1/2 in fluted by 1/2 in g weight.



FOR 5100-104-000 04



DEAR SCOTT:

Dear kids,

Due to a special snow  
 fall thing that happened today,  
 this may be **HO!** Christmas  
 for you.

Yours  
 S. Claus

It all started yesterday when a  
 couple of friends from the creek  
 met in the coffee shop  
 decided to give me a Christmas  
 gift.

HEY SCOTT!  
 CHECK OUT-IT'S-IT!  
 WHAT WE BOUGHT FOR YOU!





*So last night with my chores about done, I  
decided to deliver some socks, gifts, down to  
the DM's love outfit. So my reindeer...*



*And so I settled back... I did not check  
the personal heater against the furnace.*



*... If I had, I would have noticed ...*



*I didn't even check the seals to see if  
they were tight.*



# Joe's Dope Sheet

The driver should run his back  
With windows open a crack.  
But he loves to be warm.  
Out there in the storm:  
With smoke<sup>2</sup> in, he won't get back.

FRANKLIN HONORADE

## DANGER!

**KEEP HIM OUT**

By keeping pipes and vents tight

**FLUSH HIM OUT**

With a blast of fresh air.



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









## GO LIKE GO



Dear Half-Mast,

We've received a 2-gal drum of GO-90 and we're all shook up. The stuff looks, acts and smells great like GO. It's like the old GO-90, which was black and thick as molasses.

My question to you, Sarge: Can this new stuff be mixed with the old GO-90? For example, if there's still some old GO-90 left in the gear case, can we just fill 'er up with the new GO-90, or must we first flush out the old stuff?

Age 45, D. B.

Dear Sergeant M. G. B.,

Don't let 'em shake by the look and smell of the new GO-90, Sarge. Just be careful with it.

This new gear oil (Spec MIL-L-6814GSA) is designed to do the same job as the old GO-90 (Spec MIL-L-2184). And since the backbone number (2184) is the same, it means the new can be mixed with the old if necessary.

However, the old GO-90 will be found full rocks and used up and it should be used first.

If there's any doubt as to what's in your gear case, etc., drain it first before using the new oil. But drain it with the lub's best best operation.

SB 18-172 (14) Dec-1950 gives you the steps on this new G.O.

## HERE'S A HANDY CHART

# OLD ... AND ... NEW

Half-Mast

OLD GO-90 (MIL-L-2184)

728 7102-240-2050 ... 5-gal drum

728 7102-240-2051 ... 15-gal drum

728 7102-240-2052 ... 35-gal drum (1/2 pail)

728 7102-240-2053 ... 55-gal drum (1 1/2 pail)

NEW GO-90 (MIL-L-6814GSA)

728 7102-271-2440 ... 5-gal drum

728 7102-271-2441 ... 15-gal drum (1/2 pail)

728 7102-271-2442 ... 55-gal drum (1 1/2 pail)

## NUTS TO YOU

Dear Half-Wast:

It's not about a lug nut for the spare tire mount on one of our M121 10-ton cargo trucks. Can't seem to find it listed in OBD 7, 8, or 9 (M1 0700).

Can you tell me where to find this nut before it drives me nuts?

M. Ego, A. B.

Dear Sergeant J. K.,

Don't let this nut screw you up, Sarge.

You don't find it in the OBD 7, 8 or 9 since it is not listed on the front of them for the M119 10-ton cargo truck, or the M113 GTR series.

However, it is listed in common for all-wheel drive like me:

Part No. Replaces 1, at a length of 14 (M1 081, 1-1/2 x 1/2) (M1 082-010-082).

The washer you need to go with it is listed like this:

Washer, flat 1/2 x 1-1/2 x 1/2 (M1 081, 1-1/2 x 1/2) (M1 081, 1-1/2 x 1/2) (M1 081-010-081).



You can requisition them through regular supply channels but you guys give the supply people a reason why you need these parts.

*Half-Wast*

## GUARDING YOUR T-105/GING-10

Dear Half-Wast:

Our unit has trouble getting an antenna mounted guard for the T-105 GMC 10 transmitter in its ANTGRC-10. When we sent in a requisition for the guard you see in Fig 4, TM 11-5800-21-10, we were told to give the POW and a more complete description. Can you help us track it down?

Capt. J. E. B.

Dear Captain J. E. B.,

Replacing the guard is a job for your support. But you can lead a band by telling them about Cap. Electrical, POW 500-100-100. It's listed in TM 11-5800-100-100, for the T-105 antenna.

That switch in manufacture from "guard" to "cap" might have caught some people with their guard down.

HEY, CAP, BROTHER!



*Half-Wast*

## TRY THE TA.



WHY CAN'T  
GET MY TA FOR  
THE TA?

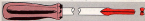


Dear Half-Mast,

I'm the organizational master pool officer for this unit and need the answer to this problem.

For some time now, I've been into trouble getting my hands on some of the special tools needed to do our PM on commercial type vehicles . . .

Like the screw driver for removing the figure-8 screws on Ford bodies . . .



. . . or the wrench needed when replacing the distributor points in Chevy Buicks for unions . . . etc.

WORKING FROM HOME



THE ANSWER,  
SEEK THE SOURCE  
NORMAL VIEW

Give me the direction that'll authorize me to get 'em, large.

CWO4, P.

Dear CWO4, P.,

A bit tricky to get 'em, but not impossible.

First, drag out a copy of TA 35-34 (15 Feb 58) and pick out the items needed.

Next, prepare a requisition (authorized by your major commander) and submit it thru channels.

Your authority is AR 735-1, Chapter 1, para 11-1a. The same AR gives the commander authority to recommend a change to the TA when he thinks the TA doesn't carry the items—underlines it.



WELL, I HAD TO  
LOOK UP THE TA  
TO MAKE SURE I  
GET A REQUISITION  
CONCERNING SOME TOOLS  
YOU WANT.

Half-Mast

## INFORMATION PLEASE

Dear Matt-Max,

Request information as to where FEN and manufacturers can be found for an electrical cable to run alternator into the STEYI sleep tank truck. We received tank without cable and we need it.

Ltj. F. M., Jr.

Dear Sergeant F. M., Jr.

The cables used with the MDD come with the sleep tank or be installed in the tank, or can be added to the hardware kit which you'll find listed in the TB that covers the sleep tank. Use TB 9-6280-227-2011. They are not part of the tank's OEM.

Here are a couple of FEN's for cables that you might want to get down since they have a different group and class number than they come with. FEN 4918-395-1091 (GMED) is for a 7-ft cable, and FEN 4918-395-1094 (FORD) is for a 21-ft cable. These used to have a group and class number of 6188.

The short cable goes from the generator to the long cable, and the long cable plugs into the tank. I think your generator is close enough for the 7-ft cable to reach the tank.



*Matt-Max*

## MORE LANTERN LIGHT

**WARRANTY**  
 1 YEAR  
 100% SATISFACTION  
 GUARANTEE  
 OR YOUR MONEY  
 BACK

Dear Matt-Max,

Flight field operations for us F-4 Phantom Corps relies and for sleep eyes on the ground. How can we get more light from our gasoline lanterns? Is there some kind of reflector we can use?

Ltj. D. R. W.

Dear Lieutenant D. R. W.,

There sure is. Ask for it under the name: REFLECTOR, Light for Gasoline Lantern Aluminum... FEN 4918-395-2019. It's a QM item.

*Matt-Max*

## SIMILAR SEMI



Dear Holt-McCarty,

We've got some F30 semitrailer vans that we TM or parts manual to take care of maintenance.

TM D-216 shows two similar semitrailers, but the numbers are M373 and M3744. Are these vehicles the same as the F30 if not, are parts interchangeable?

C. W. B.

**M3744**

**TYPE:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")

**M3743**

**TYPE:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")  
**TRAILER:** 30' x 8' 6" x 8' 6" (30' x 8' 6" x 8' 6")

Dear C. W. B.,

Good guessing, but these vehicles are not exactly the same.

The F30 is a commercial van but using van's are now getting the M3741, an Overland semi, instead.

Although the M3741 has a shorter body than the M373 or M3744, most parts of these semitrailers are interchangeable. And ... even though some may not be exact same ... it's likely that most parts are interchangeable on the F30.

Several of the semitrailer vans

M3741, M3743, M3744, M3745, M3746, M3747, M3748 and M3749 are so much alike they've been using the same TM ... TM D-216-128-15 (28 Dec 50) and Change 1 (18 Mar 51).

But the M3741 has its own parts ... TM D-216-128-16P (17 Jul 51) and TM D-216-128-14 (18 Jun 51).





**KEEP OFF**

The side seats're stacked. Or broken. It's working on something instead of the heavy cover plug on the 25M0011 and 25M0112 Hawk loader-computer.

Microsoft's . . . you can help keep the

cover plain from getting cracked by keeping your hands' work you in 'em-off the thing.

In other words . . . with sound in . . .



**SOMETHING NEW**

There've been some changes made to the link you subscribe, want to know about.

The rubber protective coating that's been recommended for protecting your 500 connect cables has been replaced to some new material. The manufacturer is the name Perseus Coating, Rubber. And the work man has done up on



**BE A WEIGHT WATCHER**

Here's something that every one of our Link's E-Z Loader crew never forgets.

It doesn't be anyone measure the direct connections from the rubber on the to know the more.

And this means be know the amount that weight is in 20 pounds.

If you don't have a right hand on it, and it goes away, the remainder can show the heavy and weight connections from the mouth. And that'll see how



the socket in load shape.

Your feet wouldn't exactly feel as good either if that 20 pounds of dead weight landed on them.

**DO IT RIGHT**

The details are plenty big—but you can still get less trouble when you go to clean the wheel on the Link's E-Z Loader motor.

Be sure to use the right tool. And don't tighten the cap screw-looking ring with your spanner wrench until you're sure-and then make sure you don't have a cross-threaded situation in your hands.



**NOT NEEDED**



You can stop looking. You're not going to find anything in your pants on taking the wheel bearings on your Link's E-Z Loader motor. And there's a good reason. The bearings don't get lubed. They get the full treatment by the people who put them together . . . and don't need to be touched again.

**FUZE DO'S AND DON'TS**



OK . . . so what do you do? Well, it tells you on page 21 of TM 0-1240-094-11. When the 25M0112 fuel you're going to install in your Link's E-Z Loader motor wheel won't fit up the hole "B" on the dial side with the letter "OF" on the reverse side you don't use it. And, it doesn't get used if the pull pins are off or missing.

When you do what you can know this kind of fuel is you'll look in the cut and turn it in the number one.

If you use a roller with a face in this shape, you might end up with a dial instead of a wheel that does the job it's supposed to do.



## IS THIS DRIP NECESSARY?



Your spirits dampened by the drip-drip-drip of a leaking tank? Get fast action relief with MIL-C-1509, Type 1, the mildest-water-bec-resistant flexible compound that's guaranteed to convert your current leakage into the tension of your dreams.

You'll find this compound in **EM 5-1-031-08**, 11 May 611, 3-gallon plastic drums for legal drums... **EM 5-1-031-08-01**.

You can apply it with a brush, spray gun or by clipping... whichever way's best for you. The success of the mission depends on how well you put the stuff on and how well you let it dry afterwards.

Like any other FM operation, this requires his begins with inspection. Have the tank outdoors or in a well-ventilated area where you'll do the mending job. Go over it inch by inch. If the leakage needs cleaning or patching, now's the time to do it. The fabric's got to be free from dirt, oil, grease, wax, solder, etc., for the compound to go on right.

If you have to scrub it down, though, be mighty sure it's not dry before applying the compound.

Mix 60 percent compound and 40 percent dry cleaning solvent for spraying and brushing. You'll find this cleaning solvent in **EM 10-1-0000-14** (Rev. 41). Use **EM 10-1-0000-13** (Rev. 41) for a 1-gal can and **EM 10-1-0000-104-0000** for a 5-gal drum.



EM 5-1-031-08-01



It's a smart idea to estimate where from much of the material you'll need for the mending job. Figures are one quart per sq. ft. of material to cover 50 square feet of tank surface.

The figures on the various sizes in **EM 20-43** (Rev. 50), Tanks and Tank Picking, will show you the dimensions of most tanks.

Now that you're ready to go to work, here's the steps to take, whether you apply the compound by brush or spray gun:



EM 5-1-031-08-01  
MIL-C-1509  
AND NOTES





**SPRAYING**—Most any paint spray gun'll do as long as you use a nozzle that gives a narrow spray. After spraying, if you get too much compound in one area, brush it out even all around. Remember, too much compound in one place is as bad as too little. But guys with spraying know-how do the job if you can. Another, the military makes tents about 30 pounds of air pressure per square inch and the spray gun about 15.

**DIPPING**—The dip method is for small tents and the best halves are in the foot-cakes. You use the small gun like in the other methods and use a 3/4-gal can or whatever size is big enough for the tent. (Do only one tent at a time, anyway.)



**BRUSHING**—A whitewash brush or the like is best for small tents. But for the larger ones use a long-handle brush. Work the brush up and down and across to get the stuff in there good.



Like in the other methods, you want to make sure you get the seams done right. But be doubly sure you let the tent dry out good after it's coated. Keeping the tent's low for drying.

But don't use the dip method less'n you really have to. For one thing, it coats both sides of the fabric when only the outside really needs it. Then, too, it'll greatly increase the weight of the tent . . . not good when you have to carry that tent in your pack.



## WATCH THAT STUFF

One thing you'd better think up right now: Both the compound and the thinner are flammable and the compound also contains a strong fungicide. So don't use it near an open flame (or a fire hearth), ... and try to keep it off your skin and clothing. Make sure it doesn't get near equipment that's used for food or drinking water.



Wear a respirator when you use a spray gun. If you accidentally get any of the stuff on your skin, wash it off pronto with warm soapy water.



Actually, the stuff's more dangerous when it's wet. That's one good reason for making sure it's thoroughly dry before you fold and wear the tent. There's a story about a guy who moved his tent before it was good and dry. The next time he pitched the tent, the fumes caught fire...



## WHEN TO RE-TRAT



There's no telling for sure just how often your tent'll need re-coating. In the tropics, it'll need it more often, that's for sure.

But it's always good strategy to keep an eye on that mildew-water-dry-rot-ant-casting. That means constant inspection.

Here's that, though, in more exact PM. First off, you've got to understand that this coating doesn't make a tent mildew-proof, water-proof or fire-proof. It only makes it resistant. That coating can be rubbed in working the through webbing or cordurows, a guy running his hand on the inner surface of the tent... or a tent limb scratching against it... or the ground rubbing against it if you drag the tent—all these things'll bring back the tent's old hairy.

Do the tent job you know how when coating it... take common-sense care off it when you're done... and your tent'll weather most anything that comes along.

## ARMY AIRCRAFT



### NO MORE BLASTED BLADES

Dear Windy Windsock,

Whenever we get into any direct type operations, it's the same old battle with dirt, dust and sand—flying in all directions and piling up the most wear on the leading edge of the rotor blades on our H-17s and other choppers.

How about using a special abrasion strip on top of the rotor . . . would it affect blade balance to a dangerous point?

R. E. W.

Dear R. E. W.,

Abrasion strips are authorized for your Sioux (H-19) and some other models. They won't affect blade balance if they're installed correctly by experienced types. That's why your support people do the job—and the tape they use has to be a special type, cut and put on just so.

Take your Sioux (H-19), Robinson, Your support crew or have TB 4VN 11-18 to follow the instructions on installing these strips on metal tail rotor blades. This TB was issued because the same info was being picked up in TM 15-1128-104-54. This instruction is aimed at wearing-down the metal surface of metal tail rotor blades on leading edges.

On the main rotor blades, the sand-blasting effect you take up with a hovering H-19-chopper can be cut down with tape supplied by a tin lined in TM 15-1144-1819 (20 May 68), "Application of Vinyl Plastic Tape to Leading Edge of Metal Main Rotor Blades."



For the other choppers in your post base's inventory, see the rest of the Army models.

The use of abrasion strips for the Sierras (H-10) is spelled out in TB 4VN 11-44 (4 Oct 57), "Special Application on Rotor Blade" and TRC FORMAC 11-37-11-118 (18 Mar 68) but also be info for the Mojave (H-37).



Also, there's no objection to using these standard types on the Chassis (18-34) for both main and tail axle blades, while TMC 14-2420, 207-20 (18-34), Chapter 2, Section V, page 5-4, says you can use them on the main outer blade of the Tractor 1420-11. Of course, TC's permission is based on having the services available of some repair from field maintenance support.

Maybe I have roused up you on the

Rover (18-21) or the Challenger (18-15) as the manufacturer's recommendation applies to those two models. But if you happen to come up with blade service on either model, the engineers at TMC would like to hear about it under O&M Form 1275, please.

Anytime you expect to be operating under adverse weather conditions, always use will do a good job of coming down on blade wear.

*Alvin S. Stueck*

## OL' YALLER



Dear Whady Whadreck,

We've been given some flight-line equipment (AMP's, etc.) that's painted O&M. We feel for safety reasons these items should be repainted with yellow so pilots and mechanics can see them during ground operations, like taxiing, parking, etc.

The question is this: What do we cite for authority to make the color a change-over?

JPT A.D.

Dear Squid for Bill,

AR 140-2000-111 (18-60) "Color and Marking of Vehicles and Equipment" gives with the word on this.

Head right for section 7, para 12 for the info on painting airfield vehicles and equipment such as you mentioned. It spells out the use of a combination of gloss yellow No. 12158 and lustrous black No. 12058 colors.

Take a flip back to section IV, para 14, where it tells you how to add the

stripes. Then section 3, para 7b which says the commander responsible for your equipment can authorize repainting from O&M to yellow and black for safety reasons.

From the AR you wander over the Class 8800 in EM 5-1-8800 (10a) 100. Pick out the right FSN for the job. Depends on whether you're painting over ground or inorganic, and what the equipment you want.

*Alvin S. Stueck*



## TELL 'EM ON A 1275

Dear Wally Woodcock,

I have a problem that's been bothering me and never allows maintenance men for a long time. Many of our connectors (socket and open end) fit the nuts, bolts or whatever they are used on fine—that is, the inside part fits fine but because they've run tight they won't fit in the right spots around the nut.

This is a real serious problem as you can see. Can you do anything about it or at least pass the word to somebody who can?

SVC R. A. W.

Dear R. A. W.,

Best thing to do, Sarge, is to send in a DED Form 1275 (R&I) to:

Commanding General  
 U. S. Army Transportation Materiel Command  
 AT&M Form 1275  
 P. O. Box 300  
 Fort Belvoir  
 St. Louis 20, Missouri

But be sure to give all the info about each nut. That means you include the P&W and manufacturers. Then you tell just why that nut won't do the job for which it was intended.

AR 300-41 gives you the steps on filling out the FR. Unless you do tell the people responsible for the nut, they'll keep thinking you're happy with it.

*Wally Woodcock*

**GOOD HOUSEKEEPING  
BY THE HANGER IS...**



## EVERYBODY'S BUSINESS

Ever see, or hear about, somebody tripping over a hose, taking a fall or a spill or making an awkward fall? Well, maybe some hanger housekeeping's not what it ought to be!

Good housekeeping makes good sense. The lack of it's been the villain

behind a tremendous list of broken bones, cuts and bruises.

That's why keeping your hanger neat and its equipment clean, in good working order, and in one place is an essential, first-class job.

### HEAR, HEAR HOME

Take the hanger floor. It's got to be kept clear of dripped or spilled fuel, oil, grease and any other flammable and slippery liquids. Floors should also be clear of all types of equipment, except for items you're using.

Always leave plenty of elbow room for your clients!

You can do this by keeping bulky tools, pliers, saws, portable lights, air hoses and other equipment in a rack-off area out of the line of hanger traffic.

Leaning on the floor or wall like **RETURN STANDBY HERE** will help

You can't be too careful with handling equipment either, like your tool box. It can really trip you up.



Take the example of the 11,000 above to be in control of a hanger. A forgetful eye was walking toward the hanger with his tool box when he suddenly remembered he had left his cap behind. So he plopped the tool box on the edge of the hanger floor just for a second. His falling was the greatest... couldn't have been better if he planned it.

One of the Bureau wing men had his eyes focused on wing clearance with the hanger door when... when! He came up with a new dance step but managed to slip on his feet... no thanks to his hatless buddy.

**PLEASE RETURN  
STANDBY  
HERE**

your hanger housekeeping by showing you where the equipment should be when it's not being used. You can even use lines on the floor to mark off storage areas.



## A BATTERY FOR EVERYTHING

There's just no substitute for putting things in the right place—and that includes outdoors.

Always should be parked on the coast being worked on out of the beaten path—so that others will have room to move in or out.

When your bird's inside, make use of all the equipment you have to keep your battery clean.

Suppose your bird's down in the snow, dripping oil from the engine compartment's oil pan. Your best bet is to use a drip pan to hold the oil. It'll keep from dripping up the floor every few minutes and let you go on the leak process.



But before you lift a wrench, make sure you don't have a live bird. All vehicles on the bird should be off—especially the battery switch. If you disconnect the battery you'll be playing it safe. Because with a flow of juice and the ignition switch "OFF", an engine could still come alive... with a twist of the prop.



One fanger will relate with the words of one eye who lost his head: "But the ignition switch was off, I tell you—it was off!" I turned on the switch was off. The engine had come on life 'cause the ground from the engine to the always wasn't connected... but the battery was!



When you connect your ground main wire from your bird to the grounding stake in the floor, watch your step. You could be slipping a body trap that somebody may trip over. Put some marking tape on the wire and it'll be more visible... help prevent accidents. If you don't have grounding stakes set in the floor you might your ground connection any strength. Just tape the wire to the floor. Of course, if you have an overhead grounding cable to hook into you won't have a housekeeping problem.



When you're taking parts off the bird—like the cowling—it's good housekeeping to mark 'em out of the way. If the cowling's not going back on soon, you could put some marking tape or cloth markers on the sharp edges so nobody would walk into them.

#### TOOLS AND TOOL BOXES

How about the tools you're using. Any tool worth his salt treats 'em with loving care, right?

That means keeping your tools clean. There's nothing so annoying as scraping a hole or tightening a nut with a greasy wrench and losing your grip. You can clean your handles real easy in about quarter.



Make sure your tools go back into your tool box. This will not do a lot for the chance of having a wrench in the bird.

Bad housekeeping leads to more fires than you can shake a tin hammer. Nobody's ever highly flammable cleaning materials in your tool box, or have gas and oil-filled rags around loose. You've got to put flammable materials in a safe place and gas-filled rags in a special container that gets changed out regularly.

Another thing. Your baggage equipment should be in A-1 shape. There's always danger around frozen electric cords and air hoses and oily wrench. If you check the equipment before you use it, your next step won't be your last.

#### IF TO FUR

A new, close working team is not only a safe team—it can put you in a good frame of mind to do some of your best work.

The trouble is it only takes one to mess up another. You know the type. He goes around withed on his shoes, greasy rags in his pocket (no marks his overalls) and grease all over his tools.

He's been lucky to stay out of the hospital so far. Maybe if you drop a hint he'll see the light before it's too late.

Cover any over-the-ball mark with the TM's to keep up a clean. And T26 is

1-800-45-4466's "Ground Operations, Servicing and Maintenance of Aircraft," is a real must.

When it comes right down to it, good housekeeping is everybody's business and everybody should make it his business.



# WINTER EARTH-MOVING OPERATIONS



If you add snow that the going rough when the temperature takes a tumble and the cold wind sweeps down from the north.

With roads still to be completed, bridges to be built, and ranges to be surveyed and maintained—you know you've got to get the best use of your heavy equipment.

And, even with the best of will no picnic.

That was where winter means a slowdown in operations and all your construction equipment wears less mileage during the deep-frozen months, but that's in the long game plan. Now, it's business to sound all the year round.

## THE COLD, HARD GROUND

Frozen ground is one of the chief handicaps in making cold weather earth-moving production pay off. In order to make a double line out of the frozen earth, most times you have to break through with a ripper or scarifier.

Since you can't move dirt with a ripper and it's just a means of getting to the job or to the dump, try to keep ripping to a minimum. Rip a small area and bring it down to grade with a dozer before you make the cut any bigger. That way you'll only have to rip with another machine a half-dozen times.



IF YOU WANT TO GET DOWN TO GRADE...



Bills are worked in the same way—by breaking a small section up so grade surface may be set before the ground gets a chance to freeze solid.



You can make good use of an angle-drum, too. By sidestepping, the corner of the blade will dig in and give you a more-or-less even cut on each of your drum up on a log or mound of dirt to get the same result.



Move forward and backward until the cutting edge wears through the frozen layer of earth. Then, bring the edge under the frozen layer and lift the blade.



You can make the snow work for you in the hands against the frozen ground. By keeping the snow wet as a blanket, it'll keep the heat in the ground and will cut the depth of the freeze in half.

So, just make the snow from the snow you're going to work in one day. Leave the rest of the snow covered until you're ready to work it.

## THE WINDS GO BLIND

Winds can have the same chilling effect as a quick drop in temperature. A 20-MPH wind makes you feel just the same degree colder. Don't back the wind while you're operating—if you can help it.

Plan your job as you ready to work operating as possible with your back to the wind. Sometimes, you can start with your back to the wind and make a quick about-rip to operate... still keeping your back to the wind. Usually, you'll have to face the cold blast long enough to see where you're going.



Often, you've got a good deal if you're a wintered-up operator with cut and beam. But, take extra care to make sure all exhaust and manifold connections are bed-proof. Also make sure you don't have any oil or grease leaks around the deck area. You can do very easily without any carbon monoxide or oil fumes.

## TAKE IT SLOW AND EASY

Winter operation also means extra care has to be taken in handling your equipment. Since the ground doesn't

allow much traction, slick hill work can be tricky. Whenever you can, keep your tractor at right angles to the slope so your tracks'll dig in and grab. Slowing across the side of a slippery hill or frozen slope could be your ticket for a quick slide to the bottom.



Frozen ground can be as hard as a concrete slab. When you ride over a good size rock or pile of metal dross, you'll find that the frozen earth will give you about as much cushion as a sledge pounding a chunk of granite. Not only can this take you right to the nuts, but it also shakes up your rig and could cause serious damage.

### AVOID THE BOUNCE



Take it easy. Travel over rough ground at reduced speed. Bounce you, say away from or over around rough areas. It's a good idea to leave the work area smooth before shutting down. This won't give the chanced-up mud a

chance to freeze into rough mounds and ruts.

### SHUTDOWN CARE

Any time there's a possibility of a winter freeze on your job, park on high ground and use a plank when you shut-down to keep from being frozen or mired-in next day.

Be sure to clean the tracks of a crawler, including rollers and other track components. As you know, it's almost impossible to remove mud that's frozen and solid on, and it only takes a short time to ruin an idler or roller that's held in place.

If you're playing jockey to a rubber-tired rig, don't forget you're a cleaning job on it, too. If you're using a scraper with dozers, clean out the steel to prevent damage to the steel. You might have to do this a couple or three times a day on some jobs. It's also the area around the mechanism that operates the apron and bowl. Frozen mud could shut you down hot good. Besides, clean equipment is easier to inspect for wear or damaged parts.

### KEEP YOUR SEAT DRY

One fun hint . . . before leaving your machine, cover the operator's seat with some of operator's equipment, with canvas, cardboard, or plastic, so that you'll have a dry work area in the morning.

A frozen or wet seat doesn't make for the most comfortable operation.



## BRR...BRR...IT'S COLD OUTSIDE



Naturally, you followed the LG for your Engine's equipment and changed your engine oils to OHS robot-oil. All when the temperatures started fluctuating with the -10°F mark.



So, you're OK.

Course, this is as it should be. But, there's a couple of things to keep in mind when you've got OHS circulating through your engine.

First off, your oil consumption will probably go up. No need to get shook. You always give the dipstick a look-over before you start operations and when you shut down anyway, so just make an extra check or two during your work breaks. That way... you get an idea of how much oil you're using — then you'll know how often you ought to check it. Better to over-look at the dipstick than to get caught short and have to shut down in the middle of an operation.



Dilation and sludge will also increase, so your oil changing times will probably start coming closer together than with regular oil.

Exceeding the OHS is really dangerous. Anything less than full strength will cut down the lubing, cooling and sealing jobs it does.

### ENGINE OVERHEATING

Engine overheating is not good.

Idling for long periods of time can cause your engine to overheat, so speed it up-though during idling to make sure you have normal cooling and oil circulation.



The flash point of OHS is 200°F— that's when everything can go... whoosh!

This is much lower than the 300°F flash point of heavy duty SAE 10 oil. So, you can see that it doesn't take a whole lot to overheat the engine to a point where it can be dangerous—especially in air-cooled engines.

## FOLLOW THE SIGNALS

**TURN  
OFF  
WHEN NOT  
NEEDED**

Glow plugs can give you a lift in starting days like your EHC TD-4 engines, but the plugs'll burn out in a hurry if you keep 'em glowing too long.

Just keep 'em on long enough to do the job—when the engine's finished off the RPM's, draw the glow.

Here's the starting signal for your TD-4 1621.

### READY...SET

1. Turn on your glow plug switch for about a half minute or let 'em on for about a minute and a half when it's real cold, but no longer.

2. Spin the glow motor to see that the needle has shifted the way to the right and you know all the plugs are ready to do their job.

3. Now, push the start button.

4. When the engine under load is cranking the ball without interference, wait a couple of seconds and pull the glow plug off.

### A SLOW START

No need to go into a huddle if the engine doesn't start when you first push the starter button. Crank 'ta for about 11 seconds, then wait for about a half minute to give the cranking motor a chance to cool off. Then, try again. But, don't crank 'ta for more'n 11 seconds

or a crack.

But remember—you keep the glow plugs glowing while you're cranking and waiting, huh?

When you don't need 'em, turn 'em off so you'll have 'em when you do need 'em.



## RUN 'EM HOT

You'll get better performance from your Cummins Model MPEB-12-D-160 LP-8C generator if you use higher range thermostat to bring the engine up to operating temperature.

If your engine's operating at too low a temperature, you'll want to replace with a pair of thermostats that'll raise the temperature and give you a smoother running engine.

Here's what you need: Thermostat, Flow Control (2), P/N 4430-780-8766. You can get them through regular engine supply channels. They cost \$4.97 each.

IMPACT WITH MOORE  
EARTH THERMOSTATS BY  
P/N 4430-780-8766



Follow the instructions in TM 2-8118-200-11 (Feb 64) when you do. Move the low operating range thermostat and replace them with the new ones.

## DON'T BE IDLE



You're asking for trouble when you let your John-Deere Model 4D garden tiller with the rear-drive gearshift lie around.

With the engine running and the rear-drive in neutral, the lower gears don't turn and, watch, they can't carry or splash lube on the upper shaft bearings.

This means that the bearings and seals on the upper shaft's are going to take a beating.

Too much idling can mean a side-lined rig, too, when you take a breakdown to it.

Don't let 'er idle when you're idle. It's a lot easier to start 'er up again than it is to replace bearings and seals.



## PUT IT IN WRITING

You've got your main tank on a Model 4200 Unit Rig tractor-right? One for diesel fuel and one for hydraulic oil.

Guess without saying, there'd be one one-gallon\* flap should come for your type fill the hydraulic tank with fluid out-in every way.

Remember, always check valves before using each machine's development from the works on your unit number.

Simply stand, in 1/2 hours on the top and side of the diesel fuel tank on the left side of the rig.



**DIESEL FUEL ONLY**

Now stand, also in 1/2 hours on the top and side of the hydraulic oil tank on the right side of the rig.



**HYDRAULIC OIL ONLY**

Always open the control when it'll save you a flap.

## OPEN THE VALVES

Your Model 4200 Unit Rig and Model 750 Backhoe/Loader high speed trenching machines have independent early spread hydraulic systems for the control and boom circuits, the one-way circuit, and the steering power motor circuit.

On each of these machines, the one-way valves for these circuits are located on the inboard side of the hydraulic tank.

Make sure these valves are open before you engage the engine water heater.

You don't want to start or run the engine on this equipment with the hydraulic valves closed. If you do...

**WARRANTY**



**NOT OK**



## TAKE A GOOD BITE

When an oversized log is caught or high powered your earth-digging equipment may be, it needs good, sharp teeth to bite off longwise chunks of oak leaves.

This goes double for your high speed trenching machine.

Take your Unit Rig, Model 4200, to a Filabatory.

When the work in the bucket has got chanced and blocked, the digging speed is cut way down, you waste power, and it makes for extra wear and tear on the sides of the bucket, the bucket pins, and the drive mechanism.

Loose, split, or broken teeth play hob with your payload, too.

Rebuild or replace teeth when the cutting edge has worn down 1/2 inch. But, remember, you replace teeth by the correct size to a dent.



# CONTRIBUTIONS



## FOR A BETTER BITE...

Dear Editor,

Some of the greatest guns we get under EUM #098-129-1581 is the kind that come in OEM on combat vehicles—don't screw up tight with the tube fittings. The jaws don't grab a good hold.

Inside the main handle is the small coil spring that's a part of the coupler on the end of the extension. It gets shoved into the lower chamber of the coupler so far that it can't get enough tension into the jaws to keep them from prapping off when the lever's pumped.

Well, here's how we created enough tension to make the jaws take a good hold:



We took a steel washer or two of the same size and put them between the gasket and the spring before putting the coupler together.

If the washers don't do the trick, then you know the jaws are worn-out or some other part in the coupler is shot. You can replace the jaws with EUM #098-107-0407 (Q&M) and the coupling with EUM #098-147-0481.



Old Navy—Good . . . but do you give up a UCR on the make and model of this gun. That's the best way to point out that it's defective and should be corrected correct by the manufacturer.)



## SCORPION TRACK REMOVAL

Dear Editor,

I don't agree with the advice on track removal on page 181 of TM 9-1108-113-00 (June 56).

It says to break the track between the drive sprocket and the front road wheel.

For my money that is doing it the hard way.

You can do the job in half the time if you break in the track between near the upper corner of the track like I show you here.

Break on track between here.



The TM says to break on track between here but it is a lot faster.

E. J. McRibben  
Fort Bragg, N.C.

*(Old Note—If it's worth your while you've tried your way and it really works.)*

## SCRAMBLED SCREWS



Dear Editor,

Modification tags on rubberized tire screws on the G741-series 1/2-ton vehicles are reversed in Fig 7B of TM 9-2040 (2 May 45).

The tire screw following screw is on the left. The tire anchor screw is on the right on these cars ... right!



Sgt Robert A. Miller  
Ft. Stewart, Ga.

*(Old Note—Right ... it's a sharp eye you've got. Note, also, that the screws're rigged right in items A and B of Fig 1B2 of the TM.)*

# SAFE TIE, SAFE TOW

Dear Editor,

Here's a cable we've fabricated in our shop for use when towing a disabled vehicle. Plugging one end of the cable into the trailer receptacle of the towing vehicle and connecting the other to the harness back of the light switch on the towed vehicle gives us both tail and stop lights on the towed vehicle.

All you need to make use of these safety accessories is a little time and three parts:

Part 1  
BONDING CABLE

Part 2  
GROUND

Part 3  
GROUND BAR

1. Replace tow-strap light cable, Old Man's #424.
2. Plug one end of tow-strap into vehicle, Old Man's #423-427.
3. Run electrical tape, if it.
4. Use 24-gage wire.
5. Run up the 27 amp.
6. Use old tow-strap hardware.

Part 4  
BONDING BAR

Part 5  
GROUND BAR

TO TRUCK TO TRUCK TO TRUCK

TOWING



Don't Get You Caught  
With a Flat Tire! Stop  
Now! Call Old Man's  
for more information!  
Old Man's #424.

Old Man's  
#424

Old Man's  
#424

Old Man's  
#424

Old Man's  
#424

Old Man's  
#424

Old Man's—Good deal, the 20-gage wire is a bit light. You might use 14-gage wire like the TM's recommend for added electrical wiring. Of course, that would also call for a bit larger tape.)

## Connie Rodd's

### BRIEFS

LOOK UP TO CHECK THE AIRBAGS  
BEFORE YOU GET INTO YOUR  
TRUCK. JUST  
SMART!

#### *Right ramp*

Get the right ramp for your MFD or MFD-1 combination, and here's the right name and number you'll need. Ramp, loading (welded), FM 2110-210-01-01 (DRC). You'll need two for each vehicle.

#### *Shielding the light*

Looking for the word or just what military-designed transport vehicles you can buy directional signal kits for on local purchase and how to install them? Check 58 5-300 July 1989 for the complete story.

#### *Firing lock scope*

Hey you wilderness-lovers—the new M14 firing locks on your M50 T50's and M10 like M1 hardware got you a little on-the-confused side? The M14's replace the old T50 locks and the complete scope on them is hot off the press in Change 3 to TM 9-23.80.2 30/1.

#### *Get your number*

Older model MFD and MFD-1 gas turbine trucks will need the catwalk filter after you've had MFD-1 2000-210-10 R Jan 79 applied. Tankers starting with Serial No. M47265 (Distributor or Contractor) or No. 140720 (West) don't need the catwalk filter, because they got factory-built changes in pipes and meters. Note this when you're using TB 9-2000-210-10/1 (FF Jul 88).

#### *M50 tank tip*

Never, never, never keep the starter on your M50 tank grinding away after the engine catches on or you're likely to grind up the starter jaws. The same thing could happen if you hit the starter switch before your engine is entirely stopped. And any time you have to hit the starter again—because the engine died or didn't start, or maybe your hand slipped off the button—wait! Wait at least 15 seconds before going again.

#### *A clean tank*

You don't have to climb into your M5A1-8 tank flame burner (study the flame gun operation plate, Change 3) (3 July 87) to TM 3-1048-206-13 gives you the info that's on the instruction plate . . . plus more.

#### *Use oil, not grease*

Have you been using DAB in the road wheel hubs on your M4201-11 and M4201-12 tank loader companies—the way Male 3 says in LO 9-1408-208-13 (18 June 1988) and TM 9-1408-208-13 (12 April 1988). Take a look at page 82 in TM 9-1408-208-20 (24 May 1988) and you'll see 4 ways to use Oil in the hubs. Which one to use? Oo—that's what you see.

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

THIS  
YEAR  
WE'RE  
GONNA

KEEP 'EM



And I resolve

**I** resolve to have my equipment checked ready at all times.

**I** resolve to keep my publications for my equipment in hand at all times.

**I** resolve to remember RYCPAC (Keep your copies-picks handy if it) if I'm not authorized.

**I** resolve to follow my equipment's TM while doing maintenance.

**I** resolve to use the right tool in every