

Issue 653

PS

April  
2007

# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-653

Approved for  
Public Release;  
Distribution is  
Unlimited

I DON'T HAVE TIME TO  
HEADSPACE AND TIME  
THIS M2. I'VE GOT A  
MISSION TO PERFORM!

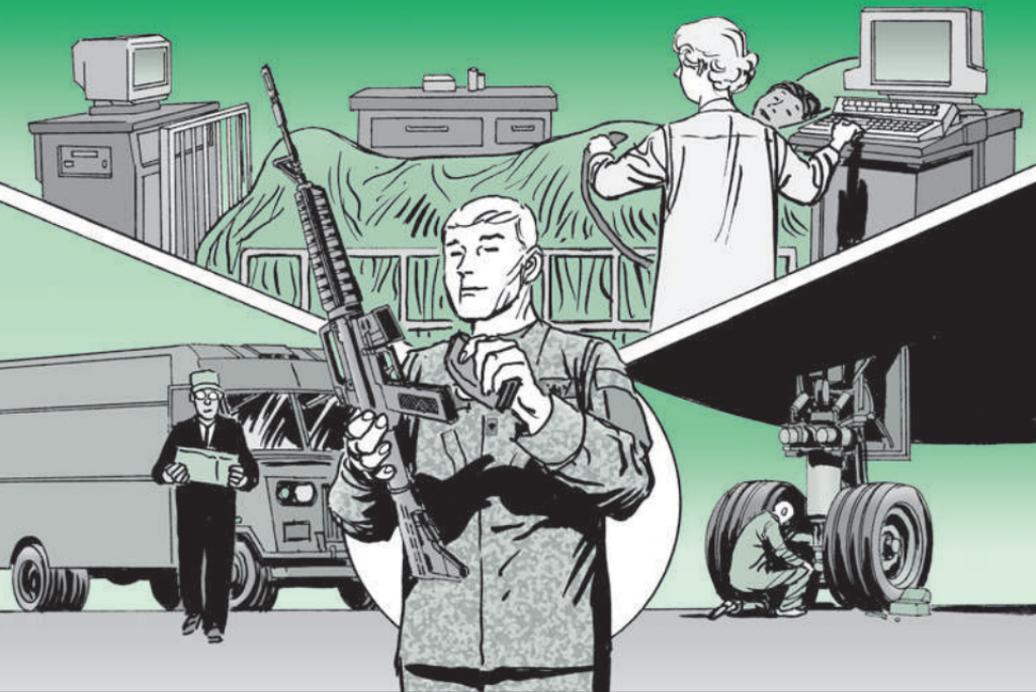
YOU NEED YOUR  
*OWN* HEADSPACE  
CHECKED, SOLDIER.

IF YOU FIRE  
THAT M2  
WITH BAD  
HEADSPACE  
AND TIMING,  
*BOTH* OF  
YOU COULD  
END UP IN  
THE GRAVE-  
YARD.

NOE  
KUBERT

M2 MACHINE GUN HEADSPACE, TIMING -- PAGE 14

# PM - Don't Take It for Granted



Outside our world of weapons, combat vehicles, military equipment and materiel, we might take a lot of preventive maintenance for granted.

There are the tires on the airliner that takes us home after deployments. Mechanical gates and optical sensors sort the gifts we've ordered by catalog. Online routers and switches keep us up-to-date on the home teams' scores.

We need technology that works, from sonograms before birth, to dentist drills, to defibrillators for heart attacks. We take it for granted that this equipment is being maintained for our benefit and survival.

The nameless and unknown keep them up and running.

But in our military world, only **you** can ensure that your weapon, your military vehicle, your equipment and materiel will work when you need it.

SO TREAT  
YOURSELF  
RIGHT!

DO YOUR  
PREVENTIVE  
MAINTENANCE.

YOUR  
LIFE  
DEPENDS  
ON IT!



# SHOW OLD BLOWER THE DOOR



**M**echanics, do any of your Strykers have a Rev G blower, PN 10639516, or a failed blower with any part number in the engine bay fan assembly? If so, then you need to replace it with a new blower, PN 10665115, as soon as possible.

If the engine bay fan assembly in a vehicle fails, is disconnected or removed, or is disabled by pulling circuit breaker #34, then hydrogen gas can accumulate in the battery box. If the concentration gets high enough and there's a spark, it could result in an explosion.

The new blower vents the gas and reduces the chance of an explosion.

Service directive SD-BCT-030, Rev 2, provides the full scoop, including how to turn in removed Rev G blowers. It also includes an interim solution for venting the battery box until a new blower is available.



Stryker...

# BIG TOW TROUBLES



**M**echanics, if a Stryker is damaged to the point that flat towing is impossible, **do not** make the mistake of using a HEMTT wrecker to tow with the Stryker's front end suspended. That type of recovery is strictly forbidden by the Stryker operator's manual.

Not only will it damage the rear suspension and hubs on the Stryker, but it can also break the HEMTT's lift cylinders.

Instead, call for an M916 tractor truck with an M870A1 semitrailer. Recover the Stryker on the trailer and take it back to a safe area for repair.

See TACOM maintenance advisory message (MAM) #07-006 for more information. You can access the MAM at:

[https://aeps2.ria.army.mil/commodity/mam/tacom\\_wn/07/mam07-006.html](https://aeps2.ria.army.mil/commodity/mam/tacom_wn/07/mam07-006.html)

You'll need your AKO login and password to access the site.

M2/M3-Series Bradley...

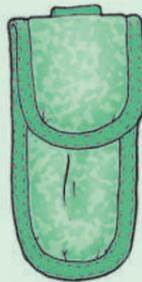
## CUTTER TAKES BITE OUT OF WIRE

**C**rewmen, a new wire cutting tool has been added to the additional authorized list (AAL) in your Bradley's -10 TMs.

The concertina wire cutter is a one-handed, multipurpose cutter that makes short work of just about any type of heavy-duty wire. It has two opposite facing cutter jaw sets that allow both top and bottom cutting with either hand. The cutter has cushion-gripped, spring-loaded handles and weighs just under one pound.

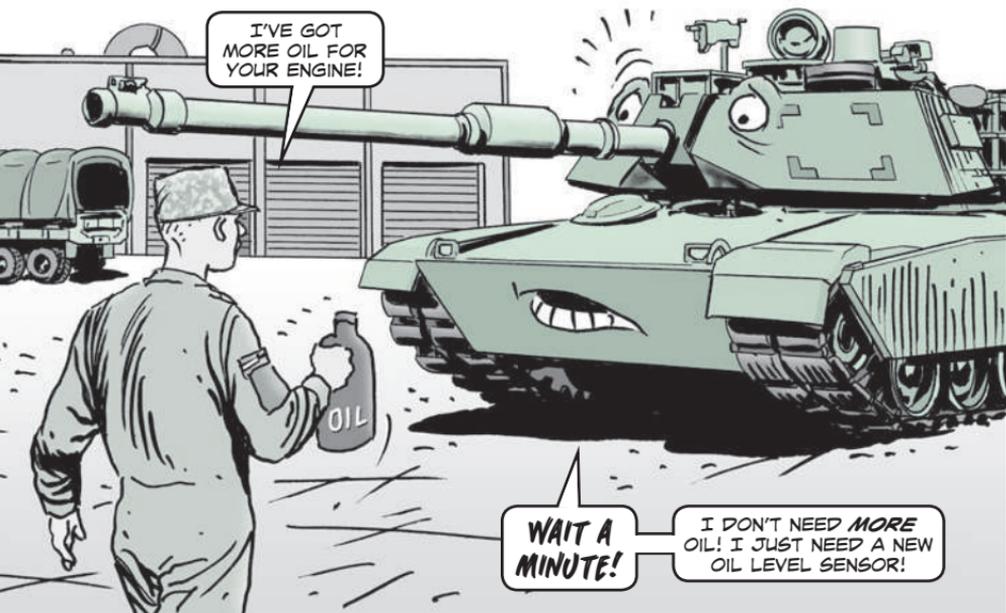
Order the concertina wire cutter with NSN 5110-01-539-6851. NSN 5110-01-539-9826 gets the wire cutter with a camouflage storage sheath.

Order cutter, NSN  
5110-01-539-6851...



...or cutter with  
sheath, NSN 5110-  
01-539-9826

# Low Oil? Don't Bet On It!



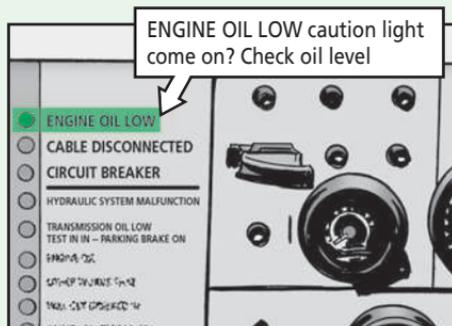
**D**rivers, an ENGINE OIL LOW caution light on the M1A1 tank's driver's panel or a warning message on the M1A2, M1A2 SEP or M104's driver's integrated display must mean your vehicle needs more oil, right?

Don't bet on it!

The problem could be with the oil level sensor, NSN 6680-01-139-3755. Some of these sensors have been sending faulty readings that lead crews and mechanics to add too much engine oil to the vehicles. That can lead to smoke, leaks and even engine damage.

If the caution light comes on or you receive a warning message, your first step is to check the oil level. If the level is good, your mechanic will need to replace the old oil level sensor.

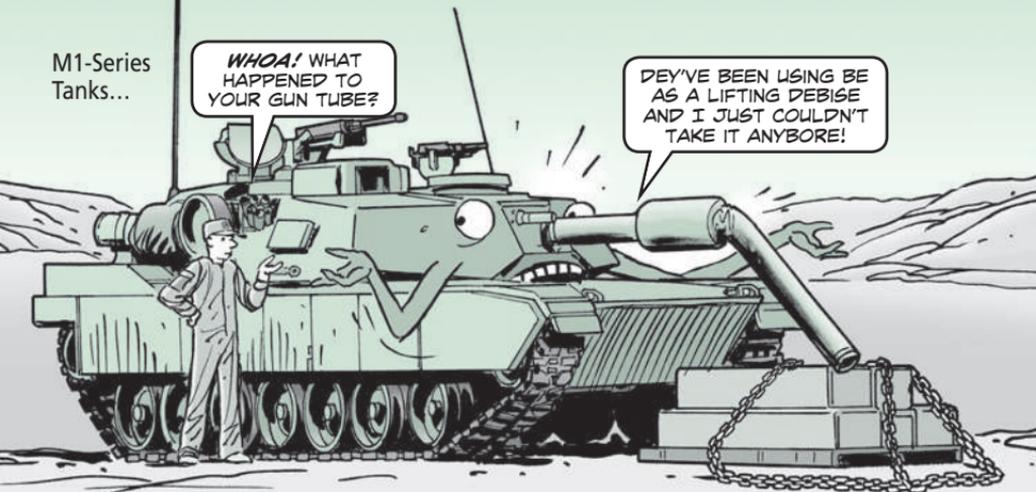
Mechanics, when replacing the sensor, make sure you use NSN 6680-01-528-1324. That brings a newer oil level sensor that will stop the false messages.



M1-Series  
Tanks...

WHOA! WHAT  
HAPPENED TO  
YOUR GUN TUBE?

DEY'VE BEEN USING BE  
AS A LIFTING DEBISE  
AND I JUST COULDN'T  
TAKE IT ANYBORE!



## TUBE IS NOT A LIFTING DEVICE

When it comes to lifting devices, the main gun on your M1-series tank should be **very** far down on the list—if it makes the list at all. And yet some crewmen continue to lift away.

Using the main gun as a lifting device during normal operations is an expensive proposition. You'll end up damaging the shrouds, bore evacuator, elevation mechanism, gimbal pins, gun cradle, seals, rotor bearings, and head assembly. You could even bend the gun tube itself. Ouch!

Sure, TM 9-2350-200-BD-2, *Battlefield Damage Assessment and Repair for Tank, Combat, Full Tracked, M1, IPM1 and M1A1* (Feb 91), lists a task using the main gun to assist in the replacement of a cannon on a disabled tank. But as it states in the TM, "BDAR fixes shall be used **only** in combat or for training at the discretion of the commander."

There just aren't many commanders who would routinely give permission for a task that is so expensive in terms of equipment. So you may want to think twice—or maybe even three or four times—before using the gun tube as a lifting device. **Then don't do it!**

### M270A1 MLRS Engine Stand NSNs

The NSNs for the engine stand (Fig 213), engine adapter plate (Fig 214) and transmission adapter plate (Fig 215) listed in TM 9-1055-647-13&P are for parts that are no longer available. So use these NSNs that will be in the TM when updated:

- Engine stand, NSN 4910-00-808-3372
- Engine adapter plate, NSN 5340-01-525-8093
- Transmission adapter plate, NSN 4910-01-536-2369
- Kit (contains engine stand and engine and transmission adapter plates), NSN 4910-01-535-5999

# Slay the Engine Oil Dragon!

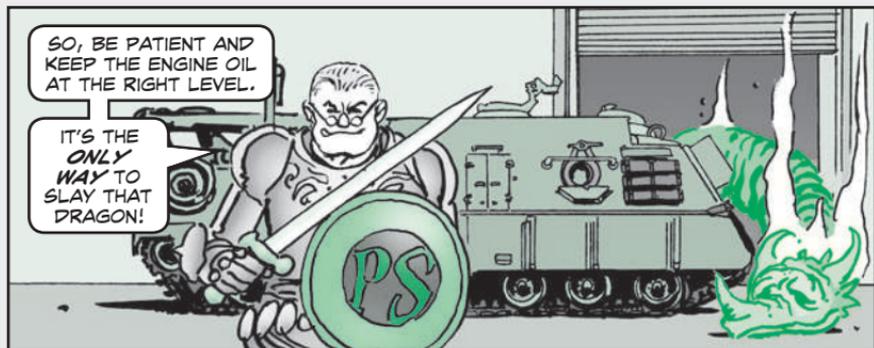


**O**perators, timing's essential when it comes to checking the engine oil level in your M88A2 recovery vehicle. Do it too early and you'll turn your vehicle into a fire-breathing dragon!

You should always wait at least two hours after shutdown before checking the engine oil level. That allows time for all the oil to drain back down from the engine.

Some operators are checking it too soon. Since the reading is low, they assume more oil should be added to bring the level up. Instead, they're adding too much oil.

At the next startup, that excess engine oil is forced up through the crankcase ventilation pipe and onto the turbocharger. The turbocharger's extreme heat ignites the oil and flames shoot out the right exhaust stack. That's dangerous!



M198  
Howitzers...

# CHANGE STENCIL ON CARRYING CASE

ALL ACTIVE AND NATIONAL GUARD HOWITZER UNITS SHOULD HAVE HAD THEIR M198 BREECHES MODIFIED BY NOW SO THEY CAN FIRE M232 MACS ZONE 5 PROPELLING CHARGES.

THE MODIFICATION BROUGHT A NEW FIRING MECHANISM BLOCK ASSEMBLY AND A NEW FIRING MECHANISM.

AS A RESULT, THE LETTERING ON THE FIRING MECHANISM'S CARRYING CASE NEEDS TO BE CHANGED TO READ...

**FIRING MECH BLOCK  
ASSEMBLY-11581434  
FIRING MECHANISM  
ASSEMBLY (M49)-11580122  
2-FIRING PIN-11578911**

YOU CAN USE BLACK PAINT AND STENCILS TO MAKE THESE CHANGES OR HAND-LETTER THEM WITH A PERMANENT MARKER AFTER PAINTING OUT THE OLD LETTERING.

M939-Series  
Trucks...

# THE REAL DEAL FOR AXLE SEALS

I KEEP ORDERING  
A SEAL ASSEMBLY  
FOR MY M939 AND  
I KEEP GETTING THE  
**WRONG SEAL!**

SOLDIER,  
YOUR TM  
NEEDS TO BE  
**UPDATED!**

Dear Half-Mast,

We had an M939-series 5-ton truck with a bad front inner axle seal. I ordered the seal assembly shown as Item 28 in Figure 236 of TM 9-2320-272-24P, but that brought the wrong seal. When that happened, I ordered just the seal shown as Item 30, but that brought the wrong part, too! How do I get the seal I need?

SPC J.D.

Dear Specialist J.D.,

*You're not the first soldier that this has happened to. The TM needs to be updated with the right information:*

*Use NSN 5330-01-271-9362 to get the seal used on M939A2s with the original Carden CV joints. Seal assembly, NSN 5330-01-271-9490, includes this seal. And use NSN 5330-00-145-8355 to get the seal for the newer, rubber-encased CV joints found on all basic, -A1, and -A2 model M939s. You'll need NSN 4320-00-734-6951 to get the seal assembly for these trucks.*

*Half-Mast*

# Muffler Misting Meaning

HEY!  
I SEE  
SMOKE!

THAT'S NOT A BIG  
DEAL, AS LONG  
AS THE CAB CAN  
STILL TILT.

Dear Editor,

On FMTVs, that's oil/air misting you see coming from the air/hydraulic unit. It's a normal venting function of the muffler on the reservoir. This is the latest word from the manufacturer.

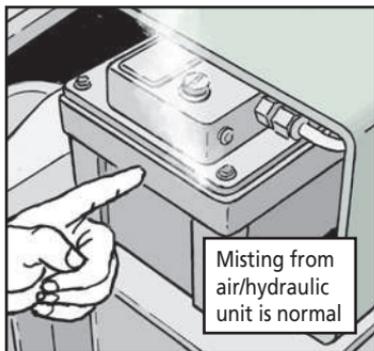
The venting is seen and heard the most when the cab or spare tire is being lowered. Then you'll hear a whooshing sound and may see "smoke" leaving the vent or muffler on the reservoir.

This "smoke" is actually a small amount of atomized oil spray mixed in the venting. It usually forms a light film of oil around the top of the reservoir after some time.

Oil in the venting seems to occur most when the reservoir is a little overfilled, but I've also seen this happen with the correct amount of oil. This shouldn't run the oil level down or saturate the top of the reservoir in between regular operator's maintenance checks, however.

Charles W. Meinke  
FMTV Equipment Specialist  
TACOM

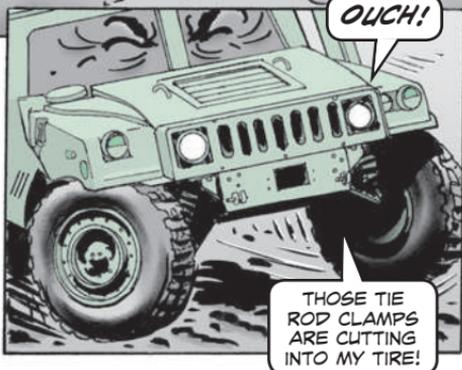
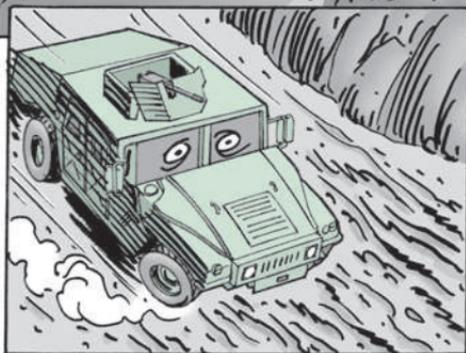
*Editor's note: Thanks for taking the mystery out of muffler misting, Sir.*



Misting from  
air/hydraulic  
unit is normal

HMMWV...

# Clamp Position Critical

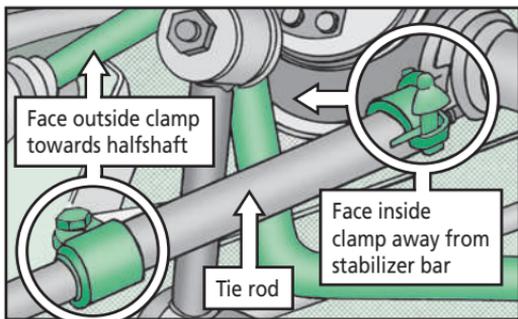


**M**echanics, tie rod clamps that are pointed the wrong way can do a lot of damage.

On a hard turn, the outside clamp can dig into the wheel or tire and the inside clamp can hit the stabilizer bar. All those parts will suffer.

You can prevent this damage by turning the clamps the right way. The outside clamp should face the halfshaft and the inside clamp should face away from the stabilizer bar.

Whenever you have a HMMWV in for services, make it a point to crawl under the truck and look at the tie rod end clamps. If they're pointed the wrong way, change 'em.





Dear Half-Mast,

I need to know which TM series covers which truck in the M915 family of vehicles (FOV). Before my unit deploys, we want to have complete and current information on hand. Then we can better maintain what we have and what we get. Can you help us?

SFC R.D.E.

Dear Sergeant R.D.E.,

Glad to do it! Use the TM 9-2320-302-series for info on your M915A3, M916A3, M917A2, and M917A2 w/MCS. And use the TM 9-2320-363-series for info on your M915A2, M916A1, M916A2, M917A1, and M917A1 w/MCS. The TM 9-2320-303-series covers your M915A4, and TM 5-3805-264-14&P covers the dump body for your M917A1, M917A2, M917A1 w/MCS, and M917A2 w/MCS.

Your pubs are current if the dates match what you see in this chart:

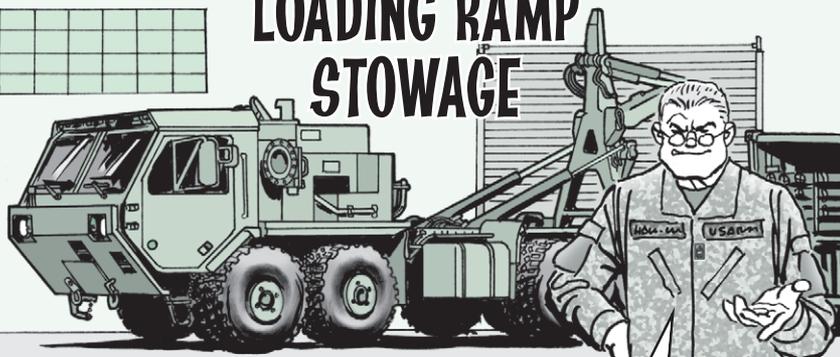
TM Number	TM Date	TM Number	TM Date
9-2320-302-10	Dec 05	9-2320-363-34-1, Chg 2	Feb 06
9-2320-302-20-1	Feb 06	9-2320-363-34-2, Chg 2	Feb 06
9-2320-302-20-2	Feb 06	9-2320-363-24P	Feb 06
9-2320-302-24P	Feb 06	9-2320-303-10	Dec 05
9-2320-302-34	Apr 06	9-2320-303-24-1	Dec 05
9-2320-363-10, Chg 1	Feb 06	9-2320-303-24-2	Dec 05
9-2320-363-20-1, Chg 4	Mar 06	9-2320-303-24P	Dec 05
9-2320-363-20-2, Chg 4	Mar 06	5-3805-264-14&P	Dec 05

By the way, if you find you don't have the latest pubs before you move out, eyeball current tech manuals online:

<https://www.logsa.army.mil/etms/online.htm>

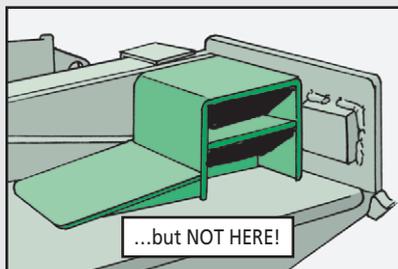
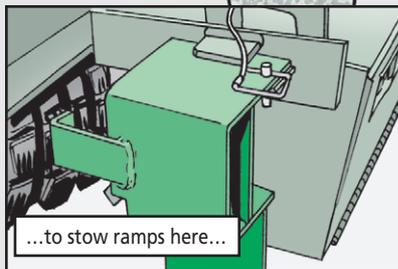
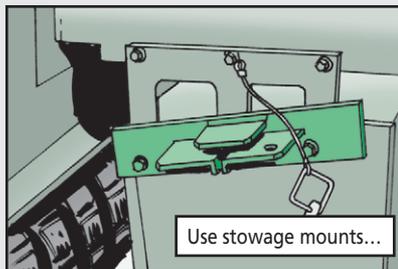
Half-Mast

# LOADING RAMP STORAGE



**OPERATORS,** MAKE SURE THE VEHICLE LOADING RAMP IS STOWED PROPERLY ON A PLS TRAILER BEFORE HEADING OUT OF THE MOTORPOOL.

THE RAMP, SHOWN AS ITEMS 7.1 AND 7.2 ON PAGE C-3 (BIT) OF TM 9-2330-385-14, SHOULD BE KEPT SECURED IN THE STOWAGE MOUNTS LOCATED ON THE BACK OF THE TRAILER.



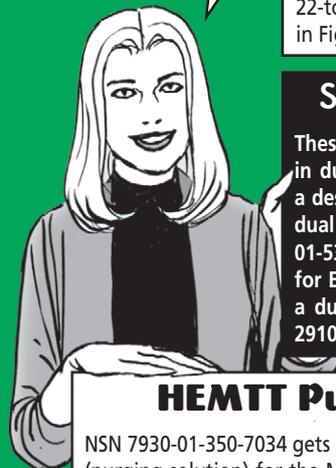
## PLS Annual Service Kit

Use NSN 2590-01-539-6378 to order the palletized loading system (PLS) truck's annual service kit. This new kit includes the semi-annual and annual-only kits.

## M1070 HET WEBSITE

Take a look at website <https://www.us.army.mil/suite/folder/1123771> for the latest info on the heavy equipment transporter's technical manual changes, air conditioning system, armor kit and wiring schematics. You'll need your AKO login and password to access this website.

CHECK OUT THESE BRIEFS!



## M871A2 Siderack Pin

Use NSN 5315-01-507-4461 to get the siderack pin for the M871A2 22-ton semitrailer. This NSN replaces the parts info shown as Item 8 in Fig 30 of TM 9-2330-386-14&P.

## Smoother Running for HMMWVs

These NSNs will keep your HMMWV's engine running smoother in dusty and desert conditions. Use NSN 4330-01-533-5626 to get a desert package kit for the HMMWV/A1/A2-series that includes a dual oil filter, NSN 4330-01-533-5641, and dual fuel filter, NSN 2910-01-533-5661. Use NSN 4330-01-533-5631 to get a desert package kit for ECV/M1114/M1151P1/M1152/M1152P1 HMMWVs that includes a dual oil filter, NSN 4330-01-533-5641, and dual fuel filter, NSN 2910-01-533-5667.

## HEMTT Purging Solution

NSN 7930-01-350-7034 gets a 6-gal container of cleaning compound (purging solution) for the M978 HEMTT fuel tanker. Use NSN 7930-01-350-7035 to get a 55-gal container. Make sure all purging solution is out of the tanker before deployment, shipment overseas, or when processed directly to a RESET program. Unload the solution by following the info in Para 2-25c in TM 9-2320-279-10-1. Then drain the tanker following Para 25-3 in TM 9-2320-279-20-3.

AND FOR HEMTT USERS...



## M978 HEMTT Fuel Service Hoses

NSN 4720-01-524-5809 gets a 60-ft fuel service hose for the M978 HEMTT fuel tanker for use in arctic conditions. Use NSN 4210-01-381-2846 to get the tanker's standard hose for regular use or fuel service in Southwest Asia.

## HEMTT Wrecker Towing FMTV

Don't know what to use to equip your M984A1/A2/A2R1 HEMTT to recover FMTV-series trucks? Order the HEMTT wrecker bracket tow kit, NSN 2540-01-483-1230. Make a note until the TM is updated.

# USE YOUR HEADSPACE AND DO TIMING



Every year soldiers and M2 machine guns are hurt because machine gunners don't correctly headspace and time their M2s before firing. Bad headspacing and timing cause ruptured cartridges, which can lead to the M2 exploding.

So it's critical that every time before you fire or when you change the barrel that you headspace and time your M2.

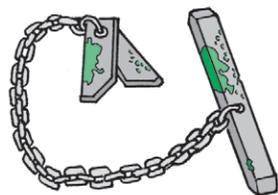
## Pre-check Checks



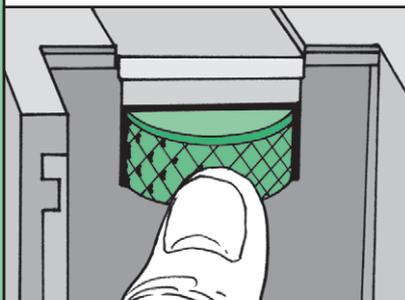
OF COURSE, IF YOUR M2 AND ITS GAUGES ARE IN BAD SHAPE YOU WON'T BE ABLE TO HEADSPACE AND TIME IT.

THAT'S WHY YOU NEED TO DO THESE CHECKS BEFORE YOU GO TO THE FIELD...

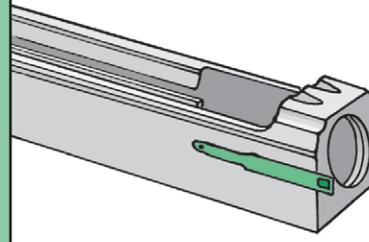
**Gauges.** If the headspace and timing gauges are bent, rusted or pitted, you can't accurately gauge, so tell your armorer. He can order new gauges with NSN 5250-00-535-1217.



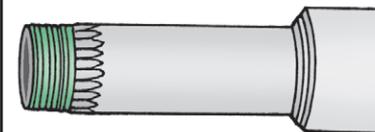
**Timing nut.** If the timing nut can be moved with one finger or it doesn't click as you move it, its spring is weak and it won't hold timing. Tell your armorer.



**Barrel locking spring.** If the spring can't hold the barrel in place, the barrel can turn during firing and headspace is lost. So test the spring by getting the correct headspace and then trying to unscrew the barrel. If the barrel turns, the spring is weak or loose. Tell your armorer.



**Barrel and barrel extension threads.** If the threads are chipped or burred, it will be difficult to screw in the barrel. What's worse, you may think you've screwed in the barrel, but you haven't, and that means bad headspace. Your armorer can usually stone chips and burrs smooth.



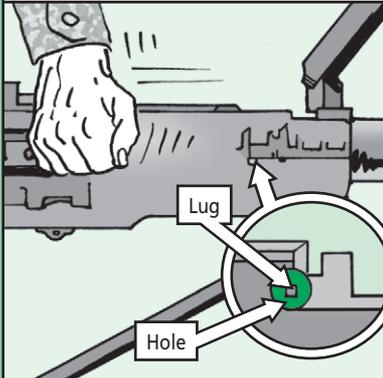
Check the barrel to make sure it's a lined barrel (one with grooves inside). Don't fire with an unlined barrel.

If everything checks out, your M2 is ready for headspacing and timing.

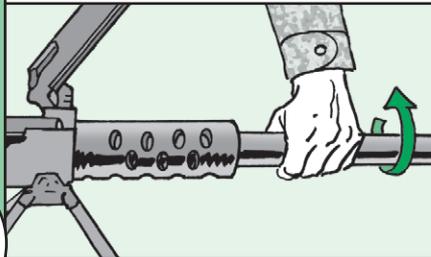
## How to Headspace

Retract the charging handle before inserting the barrel. Then follow these steps:

1. Raise the cover all the way and retract the bolt so that the barrel locking lug aligns with the  $\frac{3}{8}$ -in hole in the right side of the receiver.

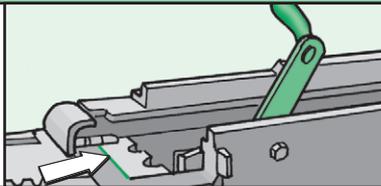


2. With the bolt retracted, screw the barrel completely into the barrel extension. Then unscrew the barrel two clicks. Allow the bolt to go forward. Try to turn the barrel. It shouldn't turn in either direction. If it does, something's wrong. Tell your armorer.



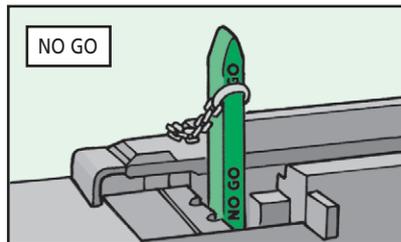
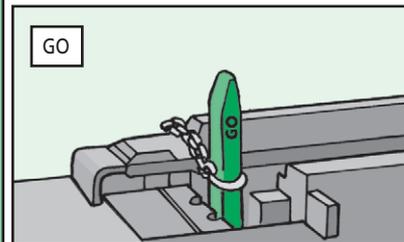
3. Charge the M2 and let the bolt go forward (but don't let it slam).

4. Retract the bolt until the barrel extension begins to separate from the trunnion block, but not more than  $\frac{1}{16}$  inch. Hold the bolt in this position until the gauge check is complete. **Don't put anything between the barrel extension and trunnion block.**



5. Raise the cartridge extractor. Push in on the alignment guide to insert the gauge. (Apply slight pressure on the gauge.) Try to insert the GO end of the headspace gauge in the T-slot between the face of the bolt and the rear of the barrel all the way up to the ring. If the GO end goes in all the way to the ring, try to insert the NO GO end. If the NO GO end won't go in, headspace is good.

If the NO GO end does fit in the slot or the GO end doesn't, retract the bolt to align the barrel locking spring lug with the  $\frac{3}{8}$ -in hole in the receiver.



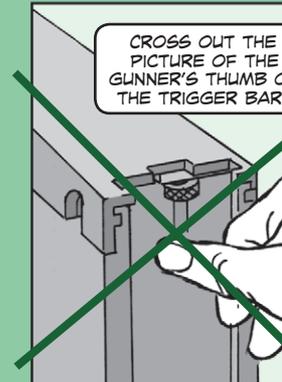
6. Screw the barrel **in** one click at a time if the NO GO end did fit or screw the barrel **out** one click at a time if the GO end didn't fit. Repeat steps 4 and 5 after each click until the GO end fits and the NO GO end doesn't. **Do not unscrew the barrel more than seven clicks.** If the M2 fails to meet the headspacing test, it's unsafe to fire.



ONCE THE M2 PASSES HEADSPACING, IT'S READY FOR TIMING.

## How to Time

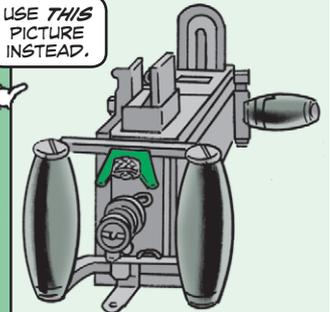
The timing procedure in WP 0006 00-15 in TM 9-1005-213-10 has changed. Cross out "Attempt to fire the gun by pushing up on rear of trigger bar". This is replaced by "Reinstall the backplate and attempt to fire by depressing the trigger. Gun should not fire."



CROSS OUT THE PICTURE OF THE GUNNER'S THUMB ON THE TRIGGER BAR.



USE THIS PICTURE INSTEAD.



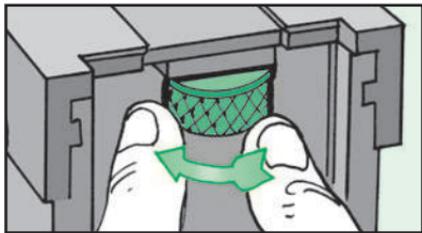
HERE'S THE NEW TIMING PROCEDURE...

**Never charge the gun with the back plate off. Do not stand directly behind the gun while removing backplate. The gun must be in single shot mode before removing backplate.**

1. Raise the cover all the way. Do not hold the barrel while charging the weapon. Charge the weapon and allow the bolt to go forward (but not slam).
2. Retract the bolt just enough to insert the FIRE gauge with the beveled edge against the barrel notches.
3. Remove the backplate.

PS MORE

4. Turn the timing adjustment nut all the way to the left, but not completely off the timing stud.



5. Remove the FIRE gauge. Put the backplate back on. Insert the FIRE gauge and press the butterfly trigger. The M2 should not fire.

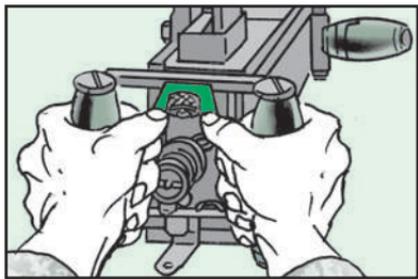
6. Remove the backplate and screw the timing nut to the right one click at a time. Reinstall the backplate. Insert the FIRE gauge and press on the butterfly trigger. Repeat this step until the M2 fires.



7. After the gun fires, remove the backplate and turn the timing nut to the right two more clicks. Reinstall the backplate, charge the M2 and let the bolt go forward without slamming.

8. Retract the bolt just enough to insert the NO FIRE gauge with the beveled edge against the barrel notches. Push on the butterfly trigger. The gun shouldn't fire.

9. Retract the bolt just enough to remove the NO FIRE gauge. Insert the FIRE gauge with the beveled edge against the barrel notches. Push on the butterfly trigger. The M2 should fire. Remove the gauge. You're done.



IF YOU HAVE ANY PROBLEMS, TELL YOUR ARMORER.

**NEVER** FIRE AN M2 THAT CAN'T BE HEADSPACED OR TIMED CORRECTLY.



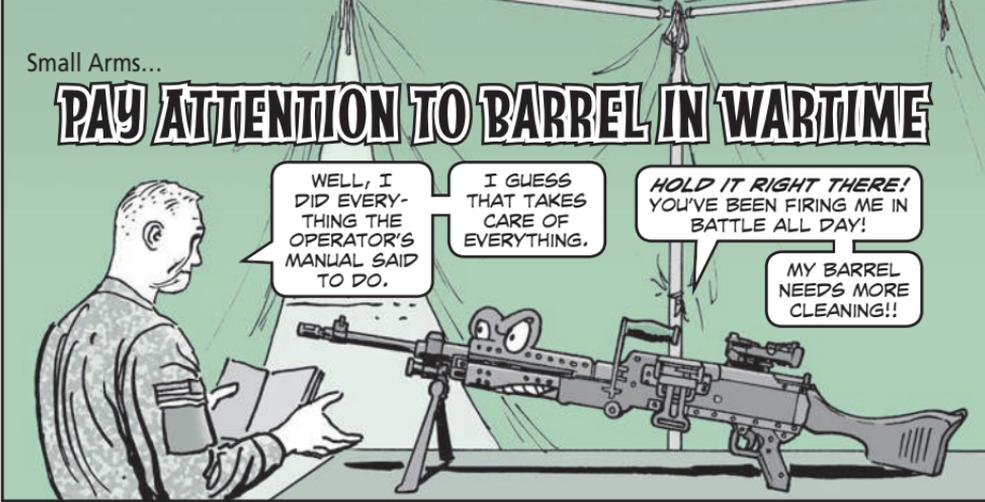
There is now a laminated card available that contains the entire headspacing and timing procedure. Your TACOM logistics assistance representative can get you a copy. Or you can contact TACOM's Walter Hilliard at DSN 793-2108/(309) 782-2108 or email:

[walter.hilliard@us.army.mil](mailto:walter.hilliard@us.army.mil)

PS END

Small Arms...

# PAY ATTENTION TO BARREL IN WARTIME



WELL, I DID EVERYTHING THE OPERATOR'S MANUAL SAID TO DO.

I GUESS THAT TAKES CARE OF EVERYTHING.

**HOLD IT RIGHT THERE!**  
YOU'VE BEEN FIRING ME IN BATTLE ALL DAY!

MY BARREL NEEDS MORE CLEANING!!

If you're in a war zone and firing your rifle or machine gun repeatedly every day, you can't give your weapon the same PM that you do after a trip to the firing range. It needs more attention if you want to be sure it will protect you in battle.

What usually needs more attention is the barrel. Lots of rounds fired means lots more carbon buildup in the barrel, especially around the chamber. Too much carbon around the chamber prevents a round from fully chambering. The weapon jams—not too great in a firefight.

So after a long day of firing, make sure you thoroughly clean your weapon, especially around the chamber and in the rest of the barrel.

You'll be glad you did.

M2  
Machine  
Gun...

## NSN for Mounting Bracket?

**HOT DOG!**  
THERE IS A  
MOUNTING  
BRACKET FOR  
MY SIGHT!

HALF-MAST  
COMES  
THROUGH  
FOR US  
AGAIN.

Dear Half-Mast,  
Is there a bracket for  
mounting sights on the  
M2 machine gun?

CW2 A.A.

Dear Chief A.A.,  
Yes, there is. Order it  
with NSN 5340-01-502-  
7233.

*Half-Mast*

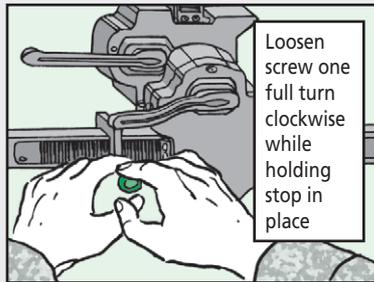
# You and Your New M192 Mount



Many of you M249 and M240B machine gunners have or will soon receive the new M192 lightweight ground mount, NSN 1005-01-503-0141. Here are some ways to get the most out of your new mount:

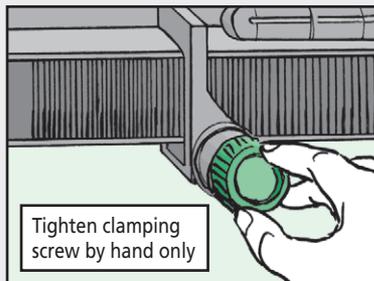
**Never use anything stronger than your fingers to tighten or loosen the mechanical stop on the traversing bar.** This is the stop located to the left of the traversing and elevation (T&E) housing that adjusts the right traverse travel limit. The stop is self-binding, so if you force it with tools you ruin it.

To loosen the mechanical stop, push the T&E housing until contact is made with the stop. Then while applying pressure to hold the stop in place, loosen the screw about one full turn clockwise. If you have trouble, try loosening the screw while simultaneously applying pressure toward the left bottom of the stop and on the right on top.



To set the stop, just put it where you want it on the traversing bar and then tighten the clamping screw snugly by hand.

**Flush the T&E.** Monthly, remove the flushing plug from the T&E housing and flush and lubricate the internal components of the T&E.

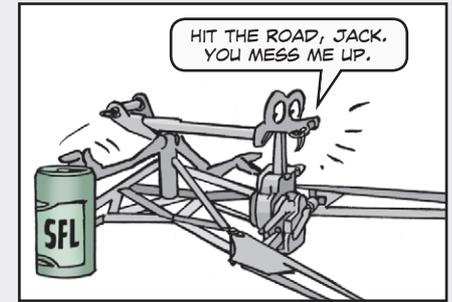


After removing the flushing plug from the side of the T&E housing, completely fill the housing with cleaning fluid or alcohol. Reinstall the plug.

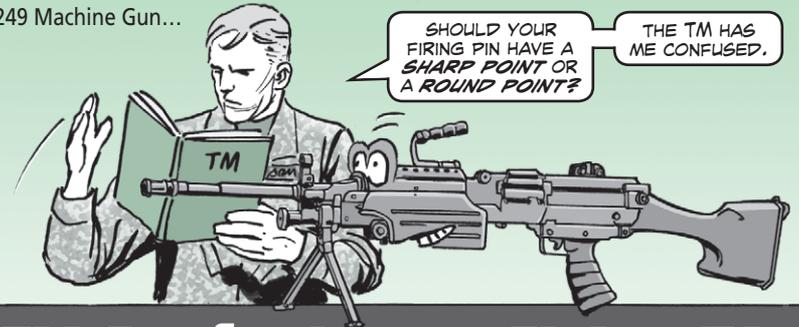
Rotate the housing in all directions to rinse the entire inside of the housing. Remove the plug and shake the fluid from inside the housing. Shake in all directions to get rid of it all.

Pour CLP in the hole. Completely rotate the housing to distribute the CLP. Let any excess CLP drain. Reinstall the plug.

**Never use solid film lubricant (SFL) on the inside of the T&E or on the T&E bars.** SFL prevents the T&E fine traverse and elevation adjustment from working properly. Lube with CLP only.



M249 Machine Gun...



## TM Confusing on Firing Pin

Dear Editor,

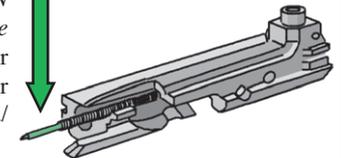
TM 9-1005-201-23&P is confusing on the PMCS check of the firing pin on Page 2-5. PMCS says to check for roundness of the firing pin. But the NOT FULLY MISSION CAPABLE IF column says the M249 is NMC if the pin is rounded. I think it would be good for PS to make clear what is correct.

William Marsh  
US Army Logistics School  
Ft Carson, CO

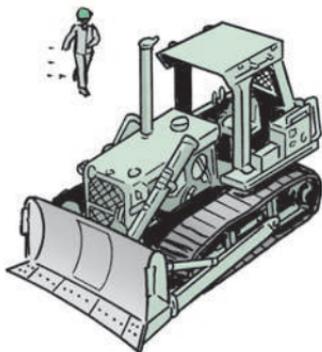
Firing pin should **not** have sharp point

**Editor's note:** The NOT FULLY MISSION CAPABLE IF column in the TM will be changed to read "Firing pin bent, broken or tip is not rounded. If spring is weak, kinked or broken. Excessive pitting on face of bolt and/ or elongated firing pin hole."

Thanks for pointing out the confusion.



# TRACK TALK

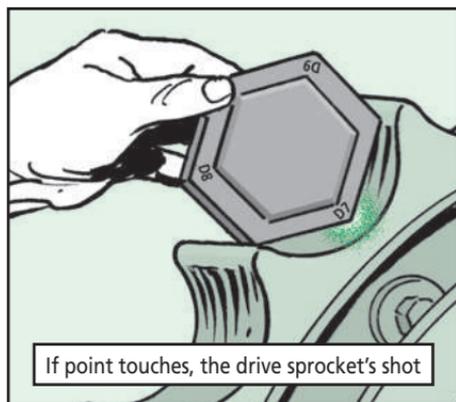


**H**ere are two special tools you mechanics need to have when eyeballing the wear limits on the tractor's sprocket and track shoes. They're not listed in the TMs, but you'll need 'em for measurements every 250 hours or quarterly.

## Sprocket Wear

Use drive sprocket wear gauge, NSN 5210-01-225-1132, to check sprocket wear on the D7G and D8 tractors.

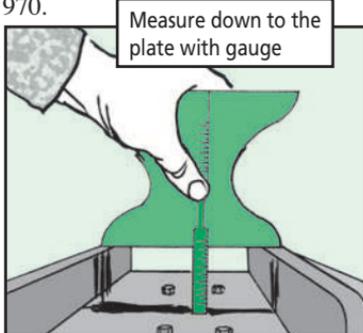
Set the point of the gauge marked for the tractor you're working on between the teeth of the drive sprocket. If the point doesn't touch bottom, the sprocket's OK. If it touches, get support to replace the sprocket.



## Track Shoe Gauge

Use the broad-based depth gauge, NSN 5210-00-221-1902, to measure the height of the grousers. Set the base across two adjacent grousers and measure down to the plate on the D7s and D8s. If the grouser is less than 1½ inches, replace the shoe.

Your authority to order both gauges is Appendix A of CTA 50-970.



# Steer Clear of Steering

**S**ay it to yourself over and over—**never** steer the excavator during construction operations.

Turning the wheel while using the dozer blade puts so much stress on the track that it can be thrown. Thrown track can crack road wheels, bend road arms and rip actuators from the hull.

And forget about sharp turns during other operations. You can throw a track that way, too.

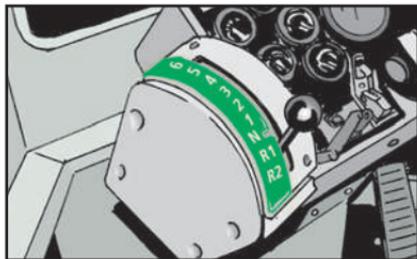
If you have to make a turn while pushing a load, use the excavator's tilt cylinders, but not the steering wheel. **That's hands off!**



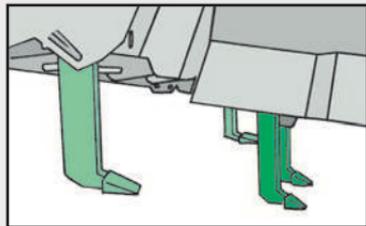
While pushing a load, use the tilt cylinders, not the steering wheel

## Ripper Shank Info

When the back ripper shanks are used, the excavator should be operated in the EARTHMOVING MODE with the transmission in FIRST SPEED REVERSE only.



All four rippers **must** be used at the same time or in symmetrical pairs.



Do not use the rippers in rock or for deep ripping.



Drive the excavator in a straight line while ripping. Do **not** turn the excavator while using the rippers. The side strain from the rippers can break off the blade.



YOU'LL FIND THIS SAME INFO ON PAGES 73-75 OF TM 5-2430-200-10.

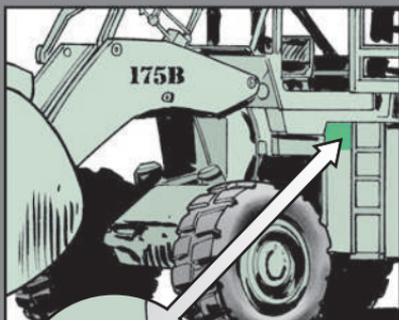
175B and  
H100C 5-Yd  
Scoop Loaders...

# Use the **Right** Serial Numbers

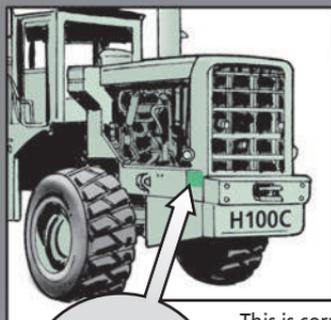


USE THE SERIAL NUMBERS ON THE VEHICLE'S FRAME WHEN IDENTIFYING THE LOADER FOR RESET INDUCTION, ORDERING PARTS, AND REFERENCING FOR TECHNICAL ASSISTANCE, VEHICLE REGISTRATION, AND PROPERTY BOOK ACCOUNTABILITY.

HERE'S WHERE YOU'LL FIND THE SERIAL NUMBERS ON THE FRAME OF THE 175B AND H100C SCOOP LOADERS.



Machine serial number stamped in frame here:  
S/N 427CXXX

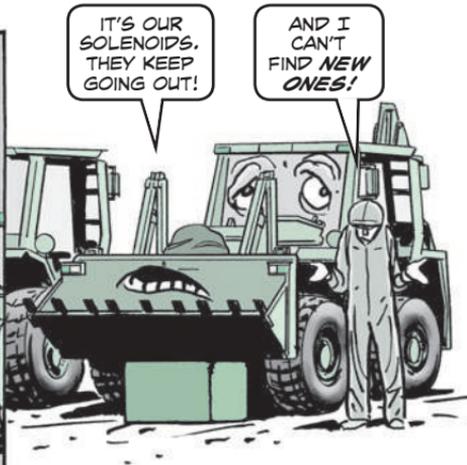


This is correct location of the vehicle serial number - it is stamped into the frame. DO NOT confuse it with the data plate inside the cab—that's the cab serial number ONLY

Do **not** use the serial numbers on the loader's data plates. The plates become illegible, accidentally switched or just flat missing. Info on the frame was stamped there during production. It's the most reliable source for the loader's serial number.

On the H100C's, do **not** reference the numbers on the data plate inside the H100C scoop loader's cab. It's for the cab only. Some H100Cs are getting up-armored replacement cabs. The old cabs may be RESET for use on non-armored H100Cs.

# HYDRAULIC SYSTEM SOLENOIDS



**F**ailed solenoids are becoming all too common with the IHMEE's hydraulic system. Problem is, you'll scratch your head trying to find replacement solenoids for the excavator.

The manufacturer has some changes in the works. Make a note of these changes in Figs 163 and 173 in TM 5-2420-230-24P until there's a change or revision to the technical manual.



Item	Fig #	Function	PN	NSN 4810-01-
11	163	FEL lift	157B4033	No NSN
11	163	FEL 4 in 1	157B4033	No NSN
18	163	FEL float	157B4216	456-1802
29	163	FEL lift	157B4616	No NSN
19	173	B/hoe boom	157B4033	No NSN
42	173	B/hoe dipper	157B4716	No NSN
21	173	B/hoe stabilizer	157B4217	539-9405
19	173	B/hoe swing	157B4033	No NSN
19	173	B/hoe bucket	157B4033	No NSN
32	173	B/hoe auxiliary	157B4616	No NSN

You can order new solenoids without NSNs directly from Oshkosh Truck Corp. by calling (800) 392-9921, ext. 2259.

# DOZER BLADE PARTS

## Steel Blade Assembly – Army Only

MECHANICS, START WITH THE RIGHT PARTS WHEN IT COMES TO REPAIRING THE EARTHMOVER'S BULLDOZER BLADE.

SOME OF THE BLADE'S HARDWARE HAS CHANGED IN FIG 54 OF TM 5-2350-262-24P.

MAKE A NOTE OF THESE CHANGES UNTIL THE TECHNICAL MANUAL IS REVISED OR UPDATED.

Item #	NSN	Name
12	5310-00-809-8541	Extension assembly flat washers
35	3830-01-472-7506	Blade, bulldozer (steel)
36	3830-01-184-4977	Cutting edge moldboard
40	5340-01-491-7578	Extension assembly (left side)
41	5305-01-487-2938	Extension assembly bolts
62	5340-01-491-7578	Extension assembly (right side)
72	5365-01-491-5061	Bit, end, moldboard – right and left (changed from Item 45)
73	5306-01-491-9986	Bit, end, moldboard bolts (changed from Item 44)
74	5306-01-491-9984	Bolt, cutting edge moldboard (changed from Item 44)
75	5310-00-877-7527	Moldboard flat washers (changed from Item 46)
76	5310-00-838-1702	Moldboard lock nuts (changed from Item 47)

## Aluminum Blade Assembly – Marines Only

Item #	NSN	Name
12	5310-00-809-8541	Extension assembly flat washers
35	3830-01-184-4851	Blade, bulldozer, aluminum
36	3830-01-184-4977	Cutting edge, moldboard
41	5305-01-194-3001	Extension assembly bolts
43	2590-01-182-8767	Extension assembly (left side)
44	5306-01-201-8790	Moldboard bolts
45	3805-01-453-7669	Bit, end, moldboard (right and left)
46	5310-01-345-3772	Moldboard flat washers
47	5310-01-123-1421	Moldboard lock nuts
57	2590-01-182-8769	Extension assembly (right side)

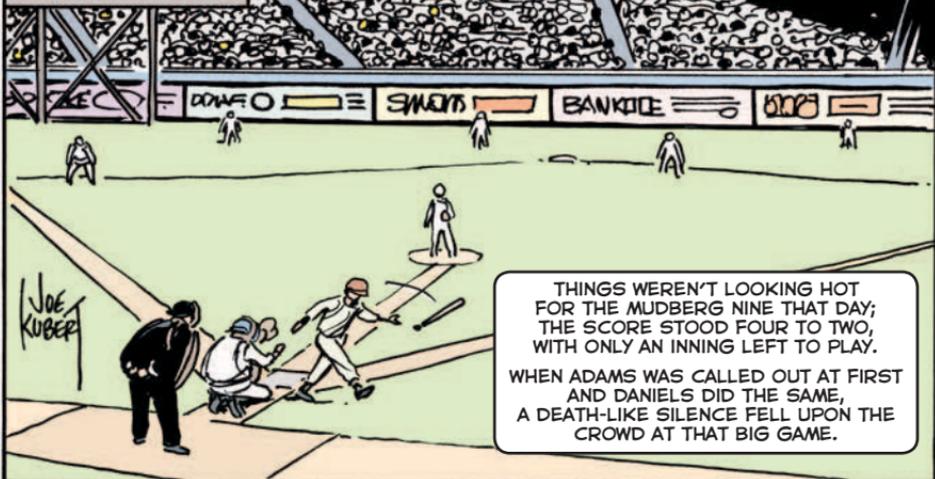
KEEP THESE NEW TORQUE VALUES HANDY FOR THE BLADE'S ATTACHING HARDWARE...



10-in bolts that fasten steel extensions to the <b>steel</b> blade	280 lb-ft
long bolts that fasten aluminum extensions to the <b>aluminum</b> blade	240 lb-ft
all cutting edge and end bit nuts on both the steel and aluminum blades	280 lb-ft

# Tracy at the Bat

HOME	MUDBURG				
5	6	7	8	9	
0	0	0	0	4	4
0	0	0	2		2

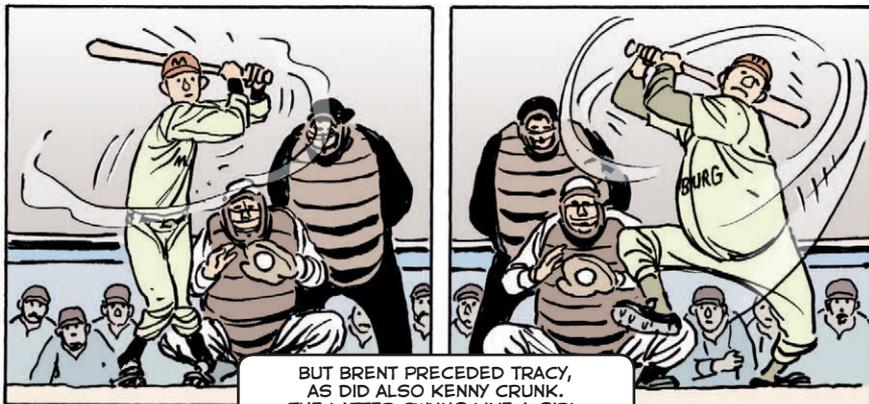


THINGS WEREN'T LOOKING HOT FOR THE MUDBERG NINE THAT DAY; THE SCORE STOOD FOUR TO TWO, WITH ONLY AN INNING LEFT TO PLAY. WHEN ADAMS WAS CALLED OUT AT FIRST AND DANIELS DID THE SAME, A DEATH-LIKE SILENCE FELL UPON THE CROWD AT THAT BIG GAME.



A FEW GOT UP TO LEAVE THE PARK, THEIR HEARTS UNABLE TO COPE. THE REST STAYED IN THEIR SEATS, STILL CLINGING TO ONE HOPE:

THEY THOUGHT, "IF ONLY TRACY COULD BUT TAKE A SINGLE WHACK, WE'RE SURE HE'D TAKE HIS LUMBER AND GIVE THAT BALL A SMACK!"



BUT BRENT PRECEDED TRACY,  
AS DID ALSO KENNY CRUNK.  
THE LATTER SWUNG LIKE A GIRL,  
THE FORMER SHOWED SOME SPUNK.

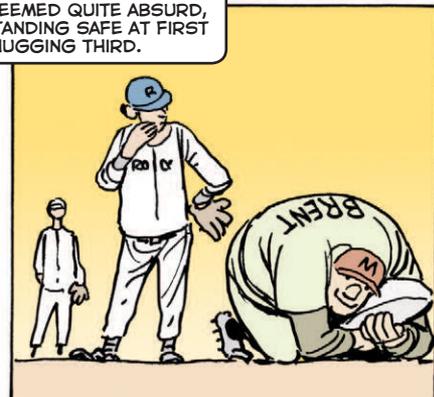
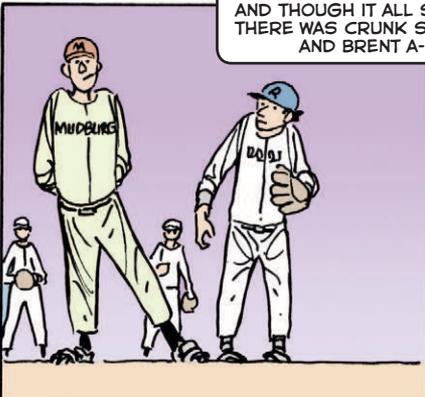


SO AMONG THE REMAINING CROWD,  
HEADS HUNG IN SOLEMN FATE,  
FOR THERE SEEMED BUT LITTLE CHANCE  
OF TRACY COMING TO THE PLATE.

BUT BRENT LET FLY A DOUBLE,  
AND QUICKLY SLID TO SECOND,  
THEN CRUNK SQUARED UP TO BUNT  
WHILE FIRST BASE SLYLY BECKONED.

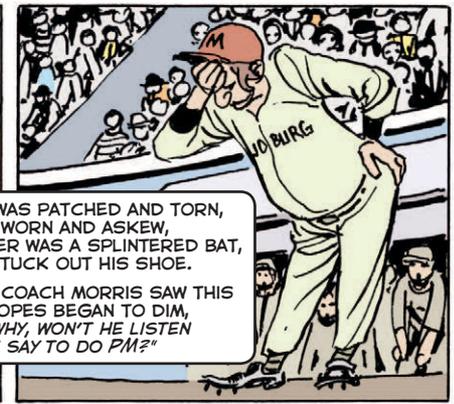
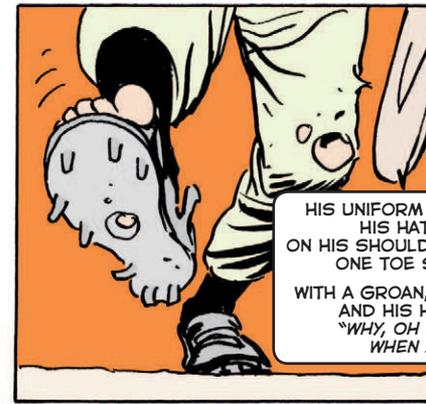
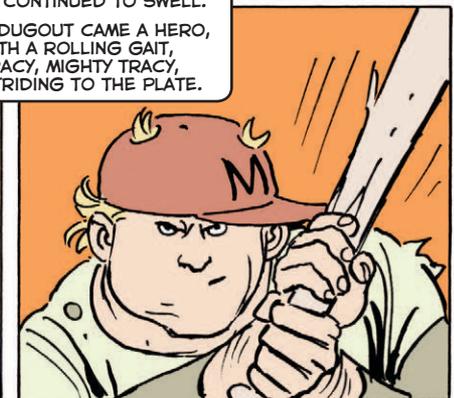
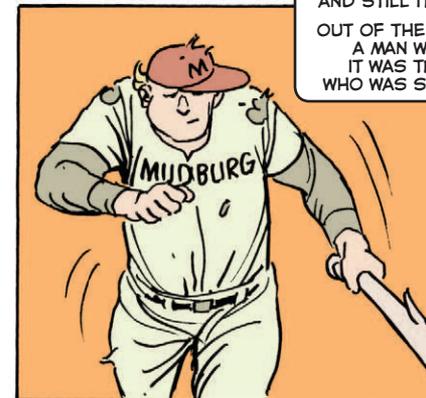


AND WHEN THE DUST HAD SETTLED  
AND THOUGH IT ALL SEEMED QUITE ABSURD,  
THERE WAS CRUNK STANDING SAFE AT FIRST  
AND BRENT A-HUGGING THIRD.



THEN FROM THE REMAINING PATRONS  
THERE CAME A TREMENDOUS YELL.  
IT RUMBLED ACROSS THE BLEACHERS  
AND STILL IT CONTINUED TO SWELL.

OUT OF THE DUGOUT CAME A HERO,  
A MAN WITH A ROLLING GAIT,  
IT WAS TRACY, MIGHTY TRACY,  
WHO WAS STRIDING TO THE PLATE.



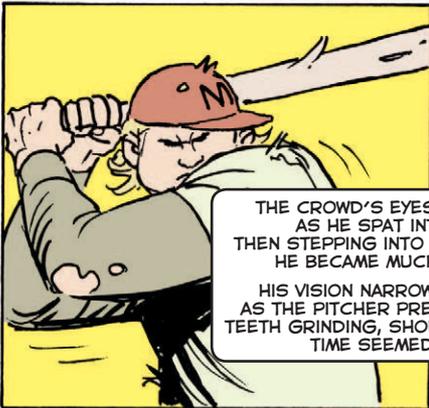
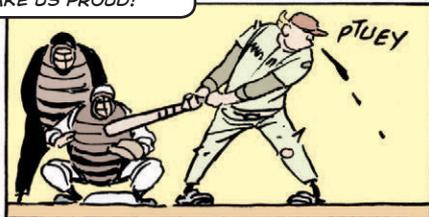
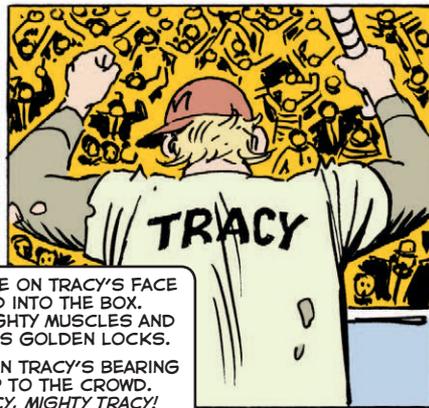
HIS UNIFORM WAS PATCHED AND TORN,  
HIS HAT WORN AND ASKEW,  
ON HIS SHOULDER WAS A SPLINTERED BAT,  
ONE TOE STUCK OUT HIS SHOE.

WITH A GROAN, COACH MORRIS SAW THIS  
AND HIS HOPES BEGAN TO DIM,  
"WHY, OH WHY, WON'T HE LISTEN  
WHEN I SAY TO DO PM?"



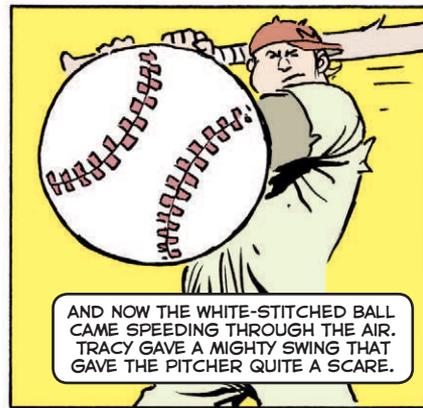
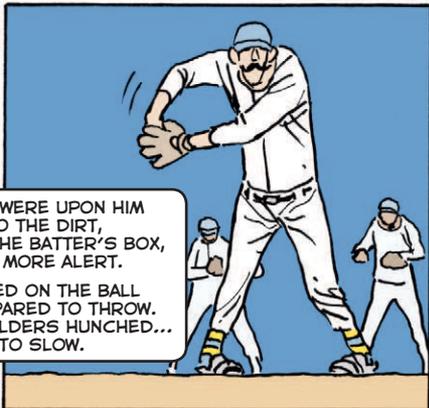
THERE WAS A SMILE ON TRACY'S FACE AS HE STEPPED INTO THE BOX. HE FLEXED HIS MIGHTY MUSCLES AND BRUSHED BACK HIS GOLDEN LOCKS.

THERE WAS PRIDE IN TRACY'S BEARING AS HE WAVED UP TO THE CROWD. THEY SAID, "TRACY, MIGHTY TRACY! IT'S TIME TO MAKE US PROUD!"

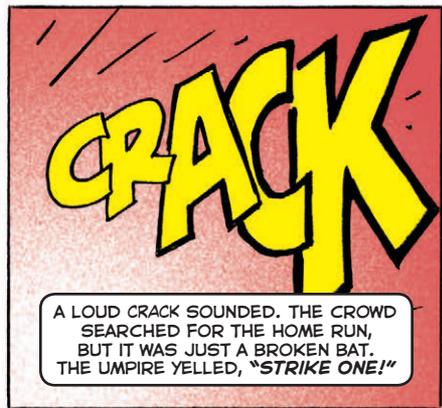


THE CROWD'S EYES WERE UPON HIM AS HE SPAT INTO THE DIRT, THEN STEPPING INTO THE BATTER'S BOX, HE BECAME MUCH MORE ALERT.

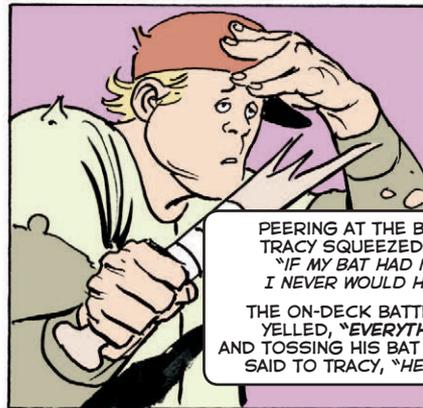
HIS VISION NARROWED ON THE BALL AS THE PITCHER PREPARED TO THROW. TEETH GRINDING, SHOULDERS HUNCHED... TIME SEEMED TO SLOW.



AND NOW THE WHITE-STITCHED BALL CAME SPEEDING THROUGH THE AIR. TRACY GAVE A MIGHTY SWING THAT GAVE THE PITCHER QUITE A SCARE.

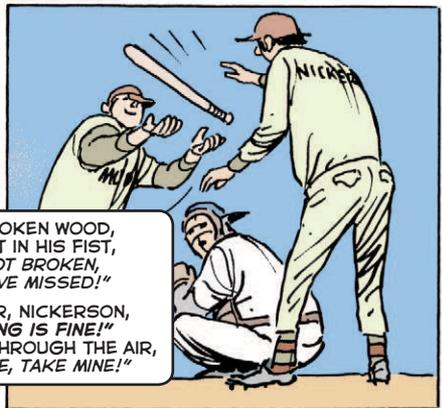


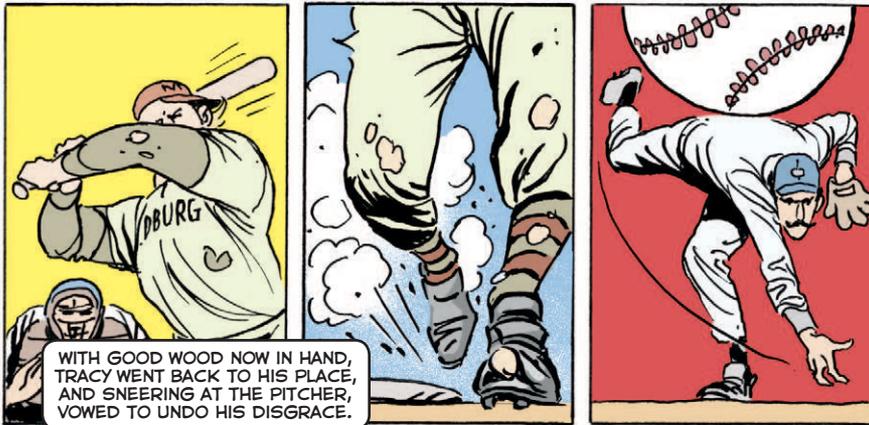
A LOUD CRACK SOUNDED. THE CROWD SEARCHED FOR THE HOME RUN, BUT IT WAS JUST A BROKEN BAT. THE UMPIRE YELLED, "STRIKE ONE!"



PEERING AT THE BROKEN WOOD, TRACY SQUEEZED IT IN HIS FIST, "IF MY BAT HAD NOT BROKEN, I NEVER WOULD HAVE MISSED!"

THE ON-DECK BATTER, NICKERSON, YELLED, "EVERYTHING IS FINE!" AND TOSSING HIS BAT THROUGH THE AIR, SAID TO TRACY, "HERE, TAKE MINE!"



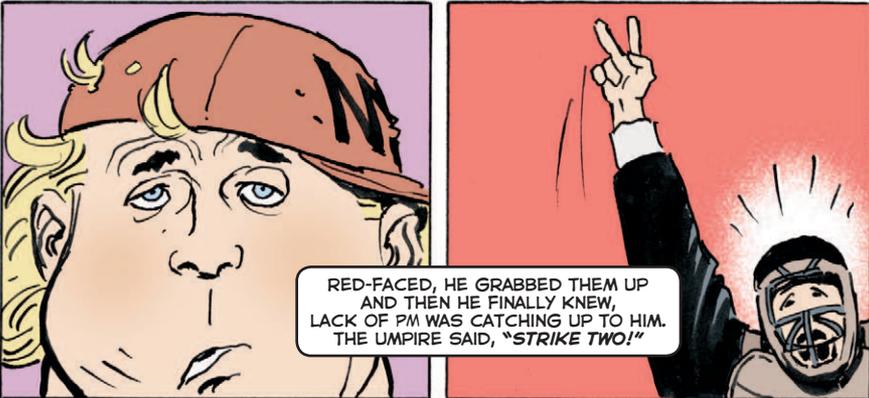


WITH GOOD WOOD NOW IN HAND, TRACY WENT BACK TO HIS PLACE, AND SNEERING AT THE PITCHER, VOWED TO UNDO HIS DISGRACE.

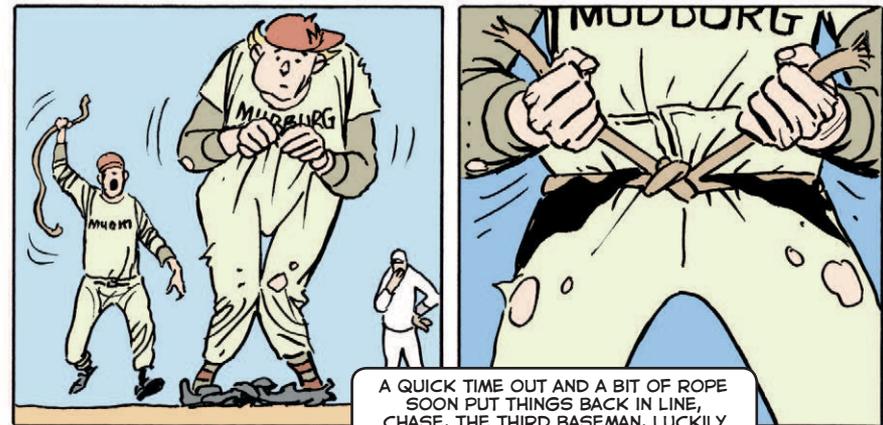


HE GROUND HIS FEET INTO THE DIRT AND PREPARED TO DO HIS BEST, AS THE PITCHER WOUND AND THREW THE BALL LIKE A MAN POSSESSED.

AGAIN TRACY SWUNG REAL HARD, DETERMINED TO REBOUND, BUT AS THE BALL HIT THE CATCHER'S MITT, TRACY'S PANTS HIT THE GROUND!

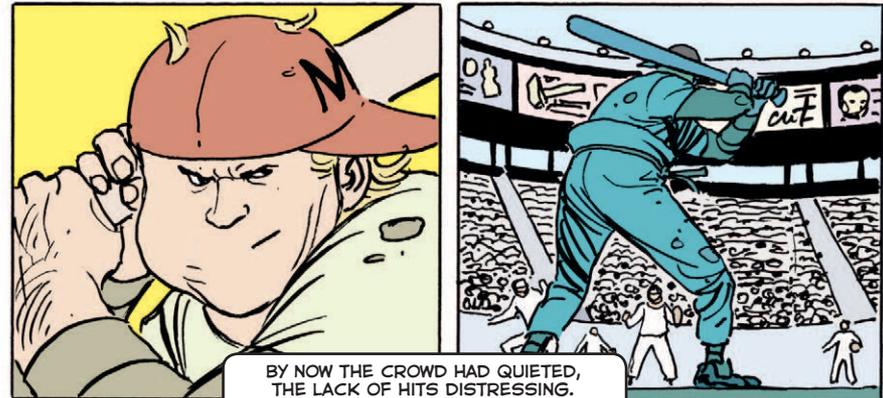


RED-FACED, HE GRABBED THEM UP AND THEN HE FINALLY KNEW, LACK OF PM WAS CATCHING UP TO HIM. THE UMPIRE SAID, "STRIKE TWO!"



A QUICK TIME OUT AND A BIT OF ROPE SOON PUT THINGS BACK IN LINE, CHASE, THE THIRD BASEMAN, LUCKILY HAD A LENGTH OF TWINE.

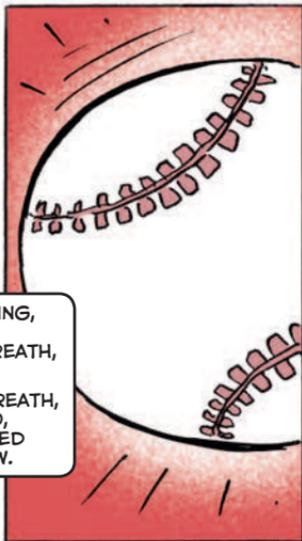
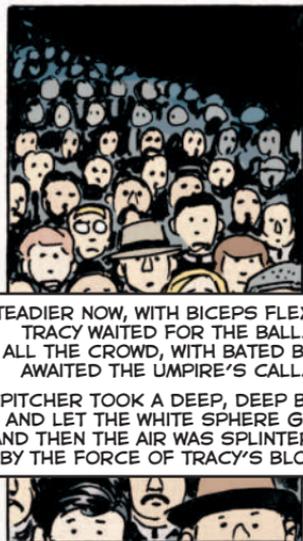
SO TRACY STALKED BACK TO THE PLATE, HIS SELF-ESTEEM IN DOUBT. "...I NEVER KNEW THAT NO PM COULD CAUSE A HITTING DROUGHT!"



BY NOW THE CROWD HAD QUIETED, THE LACK OF HITS DISTRESSING. "SURELY," THEY THOUGHT, "THIS PITCHER CAN'T KEEP TRACY GUESSING!"

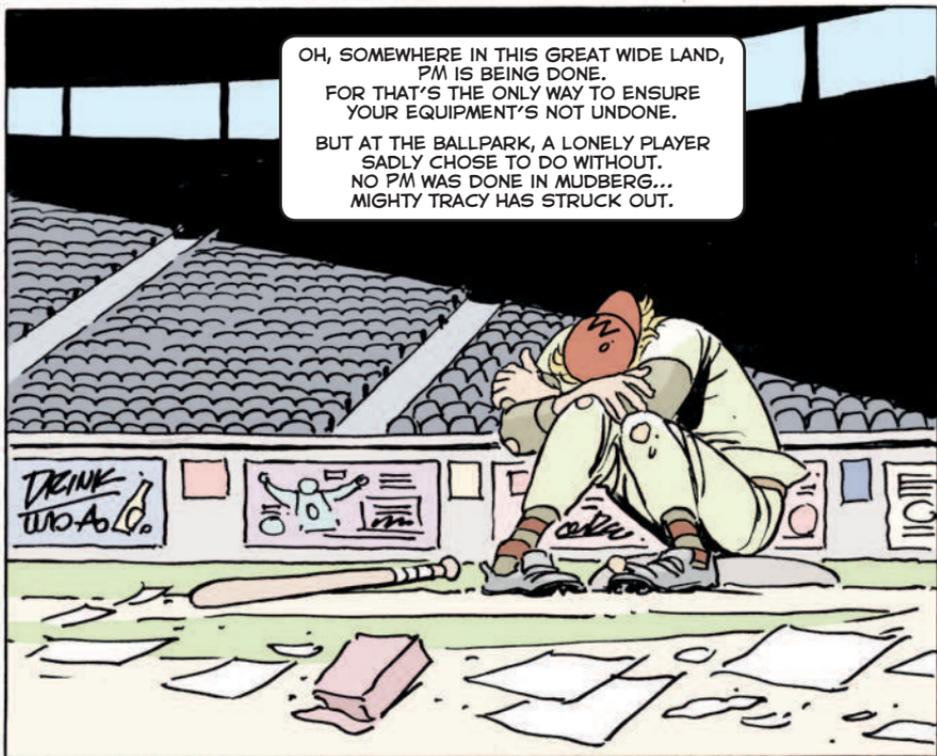
THEY SAW HIS FACE GO DARK WITH IRE, AND START TO SHOW SOME STRAIN. THEY HOPED AND PRAYED THAT TRACY WOULDN'T MISS THE BALL AGAIN.





STEADIER NOW, WITH BICEPS FLEXING,  
TRACY WAITED FOR THE BALL.  
AND ALL THE CROWD, WITH BATED BREATH,  
AWAITED THE UMPIRE'S CALL.

THE PITCHER TOOK A DEEP, DEEP BREATH,  
AND LET THE WHITE SPHERE GO,  
AND THEN THE AIR WAS SPLINTERED  
BY THE FORCE OF TRACY'S BLOW.



OH, SOMEWHERE IN THIS GREAT WIDE LAND,  
PM IS BEING DONE.

FOR THAT'S THE ONLY WAY TO ENSURE  
YOUR EQUIPMENT'S NOT UNDONE.

BUT AT THE BALLPARK, A LONELY PLAYER  
SADLY CHOSE TO DO WITHOUT.  
NO PM WAS DONE IN MUDBERG...  
MIGHTY TRACY HAS STRUCK OUT.



ARE YOU  
READY FOR  
SOME SLING  
LOADING??

**NO!** NOT UNTIL  
YOU SLING  
YOURSELF OVER  
HERE TO SEE IF  
THERE'S SAND IN  
MY HOOKS.

## SAND IN CARGO HOOK

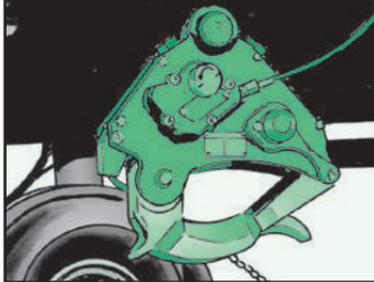
**M**echanics, working in the sandbox is no joke. Sand gets into every nook and cranny and puts extra wear and tear on everything in its path. That's why it's important to inspect everything thoroughly to the nth degree.

For example, the Chinook FWD and AFT cargo hook mechanisms clog with sand frequently and may not operate properly during sling load operations.

They may not close all the way after releasing a load. Then, when you lift off—or during flight—it opens and you lose a load. Or, the hooks may not open normally or even by using the emergency handle. If that happens, tension must be put on the sling to force the hook open. This can put the load at risk and soldiers in harm's way if the clevis comes loose and hits troops standing near by.

Inspect and clean the hooks prior to each operation like it says in Task 16-11 of TM 55-1520-240-23-10. And always perform the cargo hook operational check like it says in Task 16.1.4 of TM 55-1520-240-23-T prior to sling load missions.

Trouble with cargo hooks?  
Inspect, troubleshoot, and clean



# BLADE TAPE MARKING TOOL



**M**echanics, in the desert, Chinook rotor blades don't take a lickin' and keep on... well, you get the point.

You've got to use the fiberglass rotor blade tape kit, NSN 1615-01-529-8073, in the desert to reduce rotor blade leading edge erosion. This NSN replaces the old tape, NSN 1615-01-180-2624.

If you don't use tape, the leading edge of the blades will wear down quickly from the sand and dust in the air. Then you'll have to replace them.



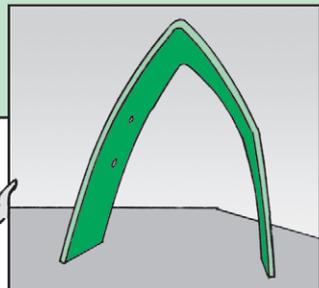
If blade tape is not installed right, you'll have to go through the difficult process of removing it and starting over. That's not an easy task, because the tape's a mess to remove.

You can have your structural repair shop make a tool that helps mark the blade for correct installation of the blade tape so you won't have to guess where the tape goes.

Here's how to make the marking tool:

- Use a thin piece of easily bendable scrap aluminum about 10 inches long and three inches wide. Deburr the edges.
- Bend the aluminum 90 degrees. Then lay it over the rotor blade leading edge and bend the aluminum to match the contour of the blade.
- Measure five inches back from the nose on the top and three inches on the bottom. Drill a 1/16-in hole in the center line of the aluminum at each of these locations and deburr the hole.
- Then measure back one inch from the nose on both the top and bottom and drill two more 1/16-in holes and deburr.

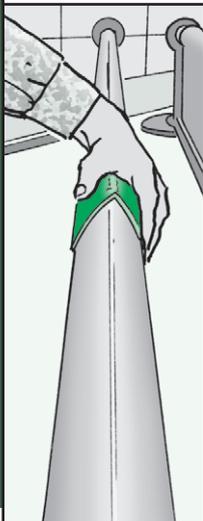
YOUR TOOL SHOULD LOOK LIKE SO WHEN PLACED ON A BLADE THAT'S BEEN PREPARED FOR BLADE TAPE.



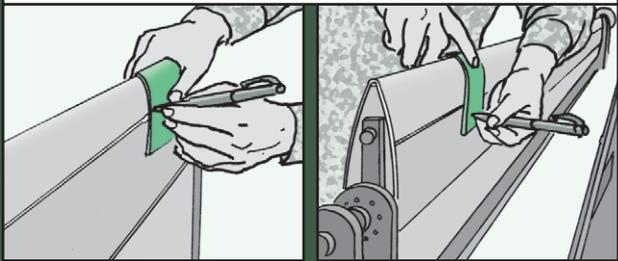
When done, you can easily mark where the 8-in and 2-in wide blade tape should be applied without guessing.

This is done by sliding this tool along the rotor blade leading edge with a pencil marker inserted in the appropriate holes. Install the tape by following to the letter the detailed instructions included in the kit.

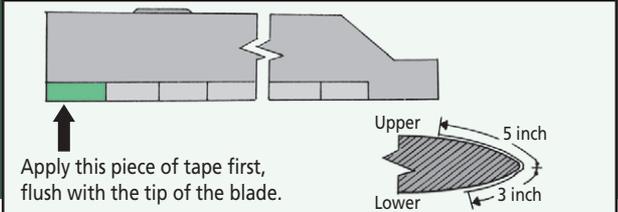
Place tool over blade's leading edge



With marker, slide tool across blade's leading edge to mark for tape, following instructions for application



Apply tape using instructions and diagram



# MEDEVAC CHECKS NEEDED, TOO



WHEN IT'S TIME TO RESCUE A DOWNED SOLDIER, JUST MAKE SURE YOUR MEDICAL HELICOPTER IS SHIPSHAPE.

THAT MEANS DOING ALL INSPECTIONS WHEN THEY'RE REQUIRED.

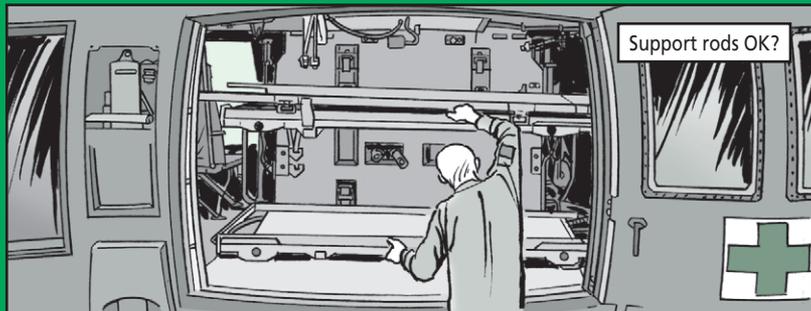


Crews, ignoring pre-flights on your Black Hawk medevac kit could mean trouble during a rescue mission.

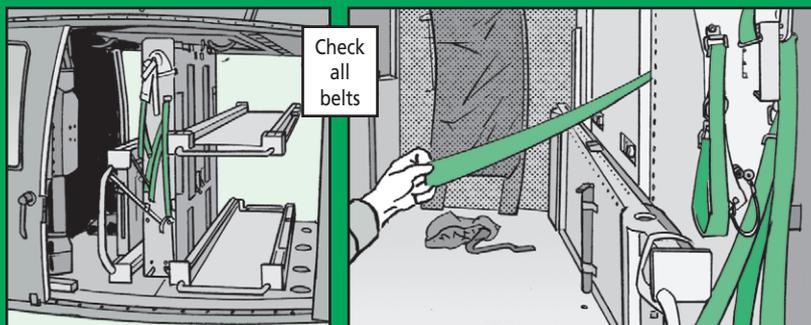
Performing glitch-free rescues mean you must do your 40-hour inspections like it says in TM 1-1520-237-PMS.

Everything must be checked, including the ambulatory patient seats. Here's a short list.

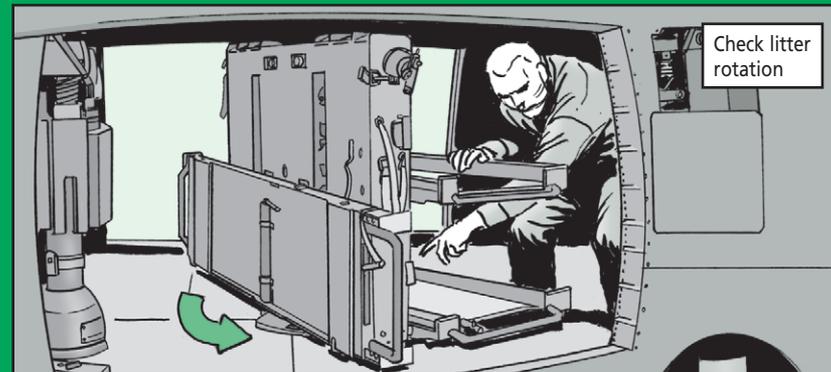
- Are the litter platform support rods secure?



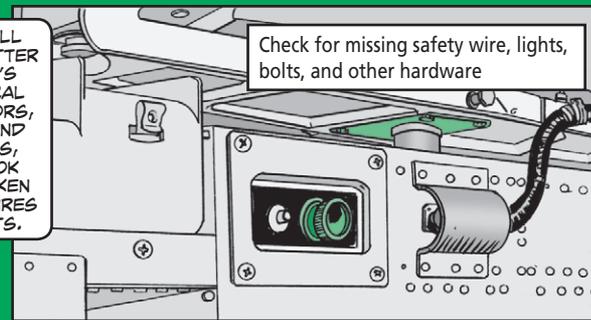
- Are the lap or litter belts frayed? Do they extend and retract properly without locking up?



- Are any floor support rivets loose or missing?
- Does the litter system rotate?



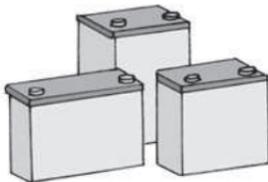
CHECK ALL OF THE LITTER SYSTEM'S ELECTRICAL CONNECTORS, LIGHTS AND SWITCHES, AND LOOK FOR BROKEN SAFETY WIRES ON BOLTS.



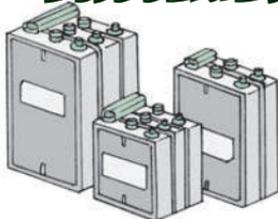
For your medical equipment maintenance and inspections, check out TM 1-1520-253-13&P if you've got problems. This TM can be found on EM 0102.

Remember, when you're using the hoist to lift a patient into the bird, the litter platform has limited rotation. Turn the platform too far and you'll hit the hoist.

# LEAD-ACID BATTERIES



# NI-CAD BATTERIES



## CAN THEY BE SERVICED TOGETHER?

Dear Half-Mast,

Regulations prohibit the use of a common area for servicing Ni-Cad and lead-acid batteries. I know this is important for free-liquid batteries, because of fumes and vapors. But does it apply to gel-cell lead-acid batteries, too?

Can dry-cell Ni-Cad and gel-cell lead-acid batteries be serviced in a common area?

Hank Yerger  
Sierra Vista, AZ

**YES,  
HANK, BUT  
READ ON...**



IF YOU ARE OPERATING IN A WAR ZONE OR OTHER AREA CONSIDERED HOSTILE, **DO NOT SERVICE THEM IN THE SAME AREA.**



*Here is the current official policy as covered in TM 11-6140-203-23&P and other battery TMs.*

*Sealed lead-acid batteries and Ni-Cad batteries may be serviced in the same area provided the two batteries are kept separated by a minimum of three feet or by a separation barrier.*

*If the sealed lead-acid and Ni-Cad batteries are damaged when in close proximity, the chemical incompatibilities could cause serious injury to personnel and damage to equipment.*

*While the TM does not speak specifically about dry-cell Ni-Cad batteries, the possibility of battery damage still exists and would pose the same danger.*

# How to Get 'em Repaired



**W**hen rigid wall (V)4 and (V)5 commo shelters, S-832/G, S-832A/G, S-842/G and S-842A/G, need repair, who does the job?

Well, it's not the manufacturer. There is no warranty on these shelters.

Repairs are done at the unit if they fit into the criteria in Chapters 2 and 3 of TM 11-5411-218-13&P for the (V)4 shelter or in Chapters 3 and 4 of TM 11-7010-342-13&P for the (V)5 shelter.

Repairs are done at direct support if they fit into the criteria in Chapter 4 of TM 11-5411-218-13&P for the (V)4 shelter or in Chapter 5 of TM 11-7010-342-13&P for the (V)5 shelter.

From there, if needed, the DS unit will contact the nearest forward repair activity (FRA).

If the problem can't be resolved by the local FRA, DS will contact the FRA TOC.

Chief  
ATTN: AMSEL-TY-MX-D  
Bldg 5 Bay 1  
11 Hap Arnold Blvd  
Tobyhanna Army Depot, PA 18466-5028

If field service representatives need more info, the Tobyhanna phone number is DSN 795-6479 or (570) 895-6479.

As a shelter moves through the repair cycle, there is some info that needs to go with it:

- ~unit name, phone number, email address and location
- ~nomenclature, NSN and serial number from shelter data plate
- ~the problem, under what conditions it happened and work already done to solve it



Field Wire...

# SAY YES TO PM!

MAYBE THERE'S A BETTER WAY TO DO THIS?



FIELD WIRE IS ROUGH AND TOUGH AND CAN TAKE QUITE A LICKING.

NORMAL USE GIVES IT PLENTY OF ABUSE, BUT SOME OF YOU SHOULD BE PENALIZED FOR PILING ON.

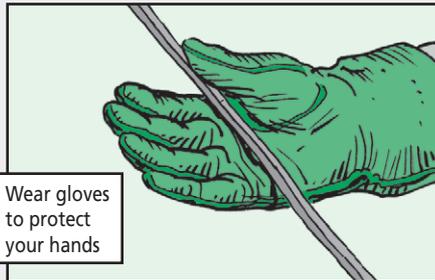


PREVENTIVE MAINTENANCE WORKS FOR WIRE, TOO. HERE ARE SOME THINGS YOU CAN DO TO EXTEND THE LIFE OF YOUR WIRE...

## Recovering It

Start your recovery by removing all tags and untying the wire where necessary.

**Skin protection**—both yours and the wire—is your next consideration. Put on leather gloves to protect the skin on your hands.



Wear gloves to protect your hands

Now lay the wire out in as straight a path as possible.

Lift the cable off the ground as much as possible as you reel it in to protect its "skin."

As you slowly reel in the wire, look it over and get a feel for how much repair work you must do. You're looking for cuts, excessive splices, worn spots, jacket deterioration and other damage.

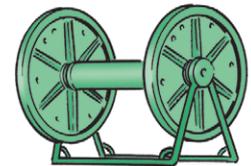
## Servicing It

When you're back from the field, set aside a day where your unit can gather and service all your wire.

Make sure you have a couple of empty reels, tape, tools and your splicing equipment on hand.



HERE ARE SOME THINGS YOU MIGHT NEED...



Item	NSN
TL-636 black electrical tape	5970-00-685-9059
TL-600 white electrical tape (for cold weather)	5970-01-262-3189
TL-83 friction tape	5970-00-644-3167
TL-29 pocket knife	5110-00-240-5943
TL-13 pliers	5120-00-239-8254
TL-13 pliers with skinners	5120-00-247-2063
CS-34 tool carrier	5140-00-498-8898
MK-356 splicing sleeve	5940-00-818-1774
MK-356 crimper tool	5120-00-679-2380
U1R splice	5940-00-935-8262
Crimper	5120-01-421-3979

TL-29 pocket knife



TL-13 pliers



TL-13 pliers with skinners





USE WIRE TAGS ON THE SPOOL OR REEL TO RECORD THE CONDITION OF THE WIRE FOR A QUICK CHECK LATER.

NSNs FOR A BUNDLE OF 50 TAGS WITH TIE-ON WIRES ARE...

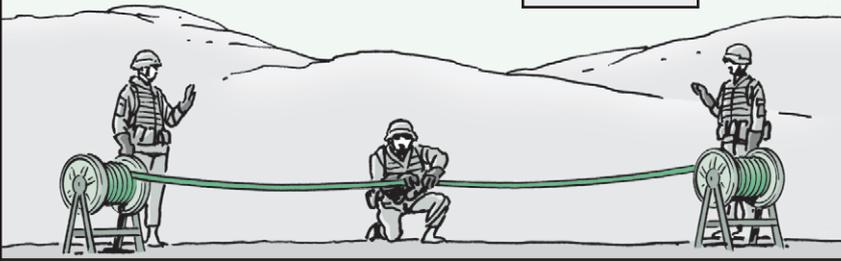
Tags	NSN 9905-00-537-
Red	8954
Yellow	8955
Green	8956
White	8957

Start your wire check by putting an empty reel on one reel unit and the reel with the used wire on another reel unit. Slowly wind the wire onto the empty reel while thoroughly checking the wire. You can clean the wire while it moves from one reel to the other, too. Look for the same damage you did when you took the wire up in the field—cuts, excessive splices, worn spots, jacket deterioration and other damage.

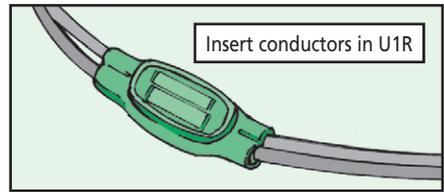
If the wire has insulation skinned off for three inches or less, but the wire is **not** broken, cover the exposed wire with electrical tape.

If the insulation or wire damage is more than three inches, cut out the damaged wire and splice it. If the wire is broken, splice it.

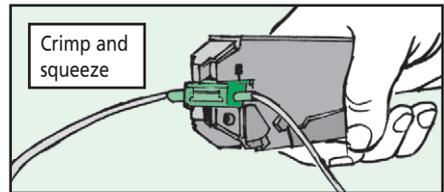
Slowly wind.  
Thoroughly check



If you're using the UIR, split each pair of conductors and insert them into the splice. Make sure the conductors go through the metal prongs and all the way to the center of the UIR.



Center the UIR in the crimper. Press firmly until the red top part of the UIR is even with the clear bottom part. No tape is needed because the insulating grease in the splice protects against electrical leakage and corrosion. The insulating grease also makes the splice waterproof.



The number of the splices and the resistance of the wire tells you the wire's condition.

Four or fewer splices in 1/2 mile of wire is OK for mission use as long as the electrical resistance checks out. If you're using WD-1 or -1A, the resistance should not exceed 241 ohms per loop mile at 70°F. If you're using WF-16, 282 ohms per loop mile should not be exceeded.

More than four splices in any 1/2 mile of wire means it can be used for training only. It's ready for disposal if you don't need it for training.

When you turn in used wire, your DRMO will probably want it cut up and turned in by the pound. Check with them to make sure.

One mile of WD-1 wire weighs about 48 pounds. WD-1A is a little lighter at about 38 pounds. WF-16 is heavier at 62 pounds per mile of wire.

To order wire and reels, use these NSNs:

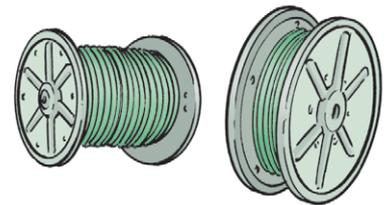
Reel	NSN 8130-00-
RL-159	174-0812*
DR-5	253-0106
DR-8	407-7859

\*Once supply is exhausted, reel will only come with wire.

Wire	Length (Ft)	NSN 6145-
WD-1A in MX-306	2,640	01-155-4257
WD-1A on RL-159	5,280	01-155-4256
WD-1A on DR-5	5,280	00-220-9933
WD-1A on DR-8	1,640	01-155-4258
WF-16 on DR-5	5,280	00-910-8847
WF-16 on DR-8	1,000	01-259-9203

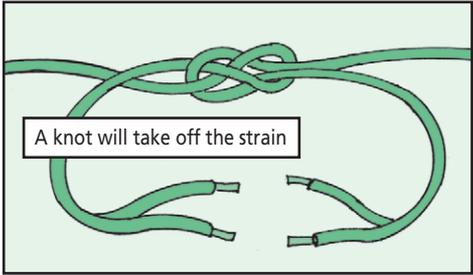
WD-1A on DR-8

WD-1A on RL-159 reel



### Splicing It

Cut off, or out, the damaged wire and tie the two ends of the wire with a single knot, leaving about six inches of wire on either end of the knot. The knot will take the strain off the line at the point you make the splice.

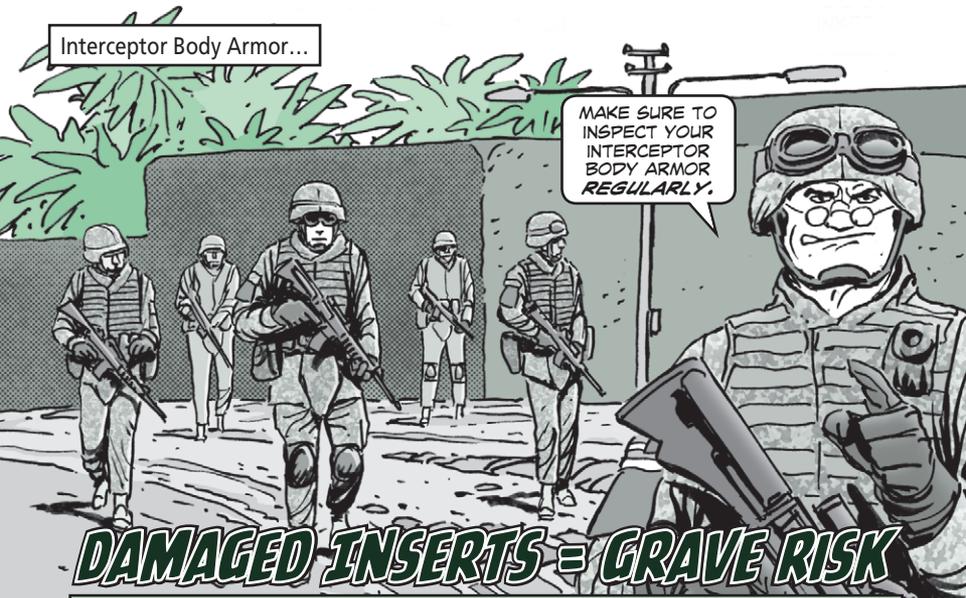


If you are using the splice kit, splice the ends and wrap the splice with insulation tape.

Finally, every commo soldier worth his wire strippers takes care of his wire by the book and the book for wire is TC 24-20, *Field Wire and Field Cable Techniques*.



Interceptor Body Armor...



The Interceptor body armor's (IBA) soft ballistic inserts protect you against light fragmentation and 9mm rounds. And they'll keep on protecting you as long as they're intact. That's why it's important to **regularly inspect all soft ballistic inserts** for damage. Look for:

- Hits from fragmentation or small arms fire
- Cuts, rips, tears, holes, or burns
- Bunching or lumps that cannot be flattened

Damaged soft inserts have had their ballistic protection weakened. So play it safe. Always turn in damaged inserts to your supply folks as unserviceable. And get these replacements:

Soft Ballistic Inserts, Complete Set

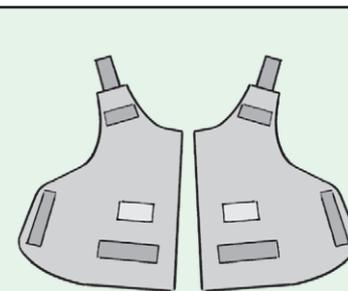
NSN 8470-01-	Size
497-8672	X-small
497-8673	Small
497-8674	Medium
497-8675	Large
497-8676	X-large
518-5986	XX-large
518-5987	XXX-large
518-5989	XXXX-large

**Back Insert**

NSN 8470-01-	Size
497-8646	X-Small
497-8648	Small
497-8649	Medium
497-8652	Large
497-8653	X-Large
518-5943	XX-Large
518-5948	XXX-Large
518-5949	XXXX-Large

Left Front Insert

NSN 8470-01-	Size
497-8662	X-small
497-8664	Small
497-8666	Medium
497-8668	Large
497-8669	X-large
518-5968	XX-large
518-5969	XXX-large
518-5975	XXXX-large



Right Front Insert

NSN 8470-01-	Size
497-8654	X-small
497-8655	Small
497-8656	Medium
497-8658	Large
497-8659	X-large
518-5953	XX-large
518-5954	XXX-large
518-5956	XXXX-large

Right Collar Insert

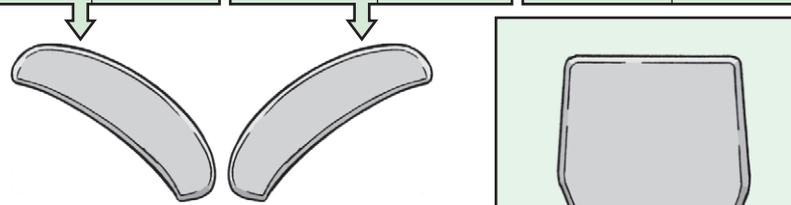
NSN 8470-01-	Size
497-8677	X-Small
497-8678	Small
497-8679	Medium
497-8680	Large
497-8683	X-large
518-5998	XX-large
518-5999	XXX-large
518-6001	XXXX-large

Left Collar Insert

NSN 8470-01-	Size
497-8684	X-small
497-8685	Small
497-8686	Medium
497-8687	Large
497-8688	X-large
518-6004	XX-large
518-6006	XXX-large
518-6007	XXXX-large

Collar Inserts, Complete Set

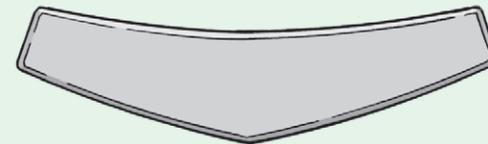
NSN 8470-01-	Size
497-8689	X-small
497-8690	Small
497-8691	Medium
497-8693	Large
497-8694	X-large
518-6013	XX-large
518-6014	XXX-large
518-6017	XXXX-large



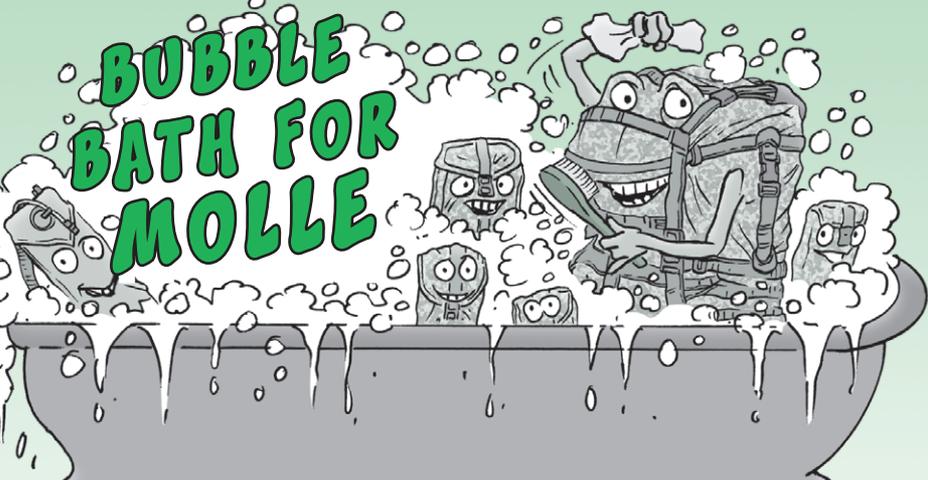
Groin Protector Insert

NSN 8470-01-	Size
497-8626	X-small to medium
497-8627	Large to X-large
518-5938	XX-large to XXXX-large

NSN 8470-01-497-8640 brings the soft ballistic insert for the **throat protector**. One size fits all.



# BOBBLE BATH FOR MOLLE



Some parts are water-resistant nylon. Others are rugged plastic. It makes no difference. Sooner or later every part of your modular lightweight load-carrying equipment (MOLLE) gets covered with dirt, mud and grime. That means it's time for a cleaning.

A bath for MOLLE every once in a while helps the parts work better and last longer. Regular cleaning also makes MOLLE more comfortable to wear.

HERE'S THE RIGHT WAY TO CLEAN...

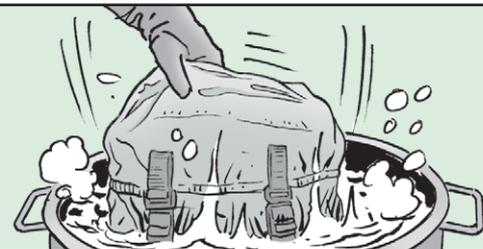


- Brush off caked-on or dried-in dirt with your hands. Or scrape it off with a flat stick or dull tool. Never use anything sharp that will cut the fabric or webbing. After you scrape off the heavy stuff, wipe away the loose dirt with a soft brush or clean cloth.

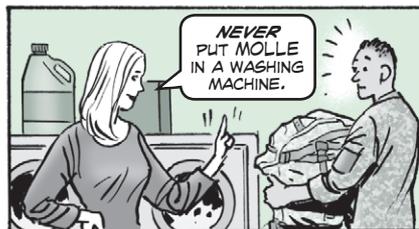
Brush off caked-on dirt



- Wash MOLLE by hand in a bucket of warm, soapy water. NSN 7930-00-929-1221 brings a mild detergent that cleans well even in hard or salty water.



Wash in warm, soapy water



NEVER PUT MOLLE IN A WASHING MACHINE.

AVOID THE USE OF CHLORINE BLEACH, YELLOW SOAP, CLEANING FLUIDS AND SOLVENTS.



THEY WILL DISCOLOR MOLLE AND BREAK DOWN THE FABRIC.



- If there are still some stubborn, soiled spots that haven't washed out, scrub them with a white or colorfast cloth. Then dip the problem areas in the soapy water again.

- After washing, rinse thoroughly in clean, warm water. Remove all traces of soap. Then stretch the fabric back to its original shape.

- Air-dry in the shade or indoors. Never use a clothes dryer. That'll not only shrink MOLLE, but also expose it to unnecessary wear and tear. And don't dry MOLLE in direct sunlight or near a heater or open flames—they'll fade and shrink the fabric.

DRY ME IN THE SHADE TO PREVENT FADING AND SHRINKING!



Hazardous Materials...

GLAD THAT'S DONE!

WHEW! YOU GOT HOT!

I THINK I'LL COOL DOWN WITH A DRINK!

# YOU'LL FIND 'EM IN THE DARNEDDEST PLACES

HEY, DUDES! I'M A RED HOT LAWN-MOWER! WHADDAYA THINK ABOUT THAT?

WE'RE IMPROPERLY-STORED HIGHLY FLAMMABLE MATERIALS! WE THINK YOU'RE AN IDIOT!

# BOOM

Dear Editor,

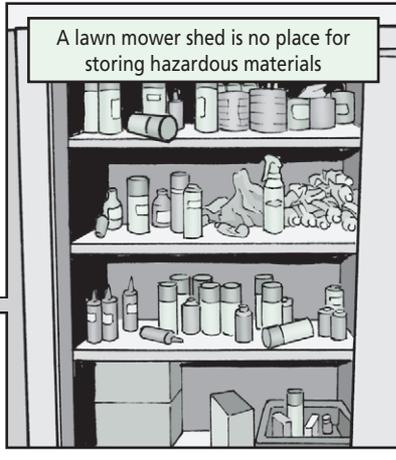
In the editorial of your October 2005 issue, you discussed hazardous materials in *motor pools*. As you pointed out, in every nook and cranny soldiers can find fuel, lube, cleaning solvents, antifreeze, degreasers and the like. They all must be handled and stored according to Environmental Protection Agency (EPA) rules and regulations on HAZMAT.

While it's true the most common place to find HAZMAT is in motor pools, here at Schofield Barracks we've found it in other places. I'm talking about company areas such as the arms room and even the shed for storing lawn care equipment. That's where soldiers try to cram everything in the same cabinet or locker—even materials that pose a fire hazard if stored close together. I've found all sorts of things stored improperly and in violation of EPA regs.

Here's just a sample:

- lubricants
- a variety of paints, primers and enamel coatings
- CLP
- polyurethane coatings
- insecticides
- rifle cleaning compound

A lawn mower shed is no place for storing hazardous materials



One company in our brigade even made a locker out of wood—yes, wood!—and used it to store flammable materials. They should have ordered some flammable storage cabinets.



Hazardous materials belong in flammable storage cabinets



So, if you're a HAZMAT officer—or anyone else concerned about hazardous materials—it's not just the motor pools that need your attention. It's the company areas as well.

MSG Russell E. Smith  
Motor Sergeant  
HHC 2nd BDE  
Schofield Barracks, HI

*Editor's note:* You really do find HAZMAT in the darnedest places. Thanks for the heads-up. By the way, if you need NSNs for flammable storage cabinets, you'll find them online:

<https://www.logsa.army.mil/psmag/archives/PS2003/609/609-54-55.pdf>

C'MON PLEASE WORK! I KNOW I SHOULD'VE TREATED YOU BETTER...AND I PROMISE I WILL....

I'LL DO ALL THE MAINTENANCE I SHOULD'VE DONE... BUT YOU GOTTA WORK NOW!

THE TIME TO BE NICE TO YOUR BIDS IS BEFORE YOU HAVE PROBLEMS WITH IT....

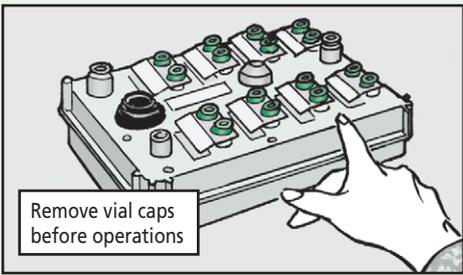
BID ADIEU TO BIDS PROBLEMS!



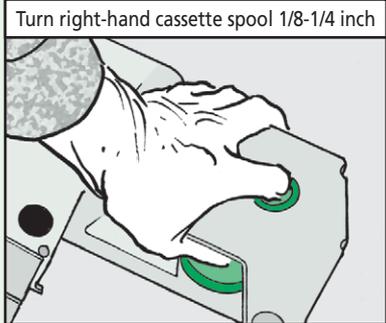
The BIDS (biological integrated detection system) is a complicated and sensitive system for detecting biological threats. But a few very **uncomplicated** tips for operating and caring for your BIDS can help you bid adieu to problems.

### Biological Detector

The assay tray has 21 vials the probes fit in. Those vials have caps on them that must be removed before you operate the biological detector or the probes will be bent. A bent probe can cause a false negative or crack a vial. Before operations, make sure all the vial caps are off and none of the probes are bent.



Never try to force the cassette assembly in place. The detector will sense the cassette is not advancing and it won't work. Try advancing the cassette's tape 1/8 to 1/4 inch by turning the right-hand spool. That usually helps the cassette fit in place.

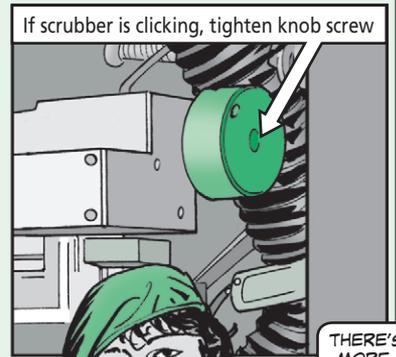
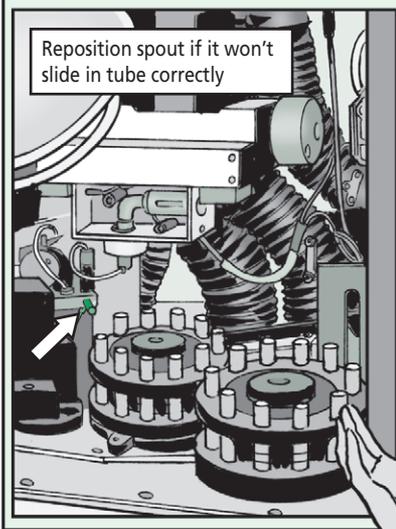


If the tape is moving but the detector doesn't sense it, the detector's sensor needs a quick cleaning. Use a cotton swab and the cleaning solution that comes with the assay kit to clean the sensor.

### Liquid Sampler

Sometimes the sampler's spout raises too high and then it won't go into the tube correctly, resulting in spills that contaminate the sampler. The fix is to turn off the sampler and reposition the spout so it can slide in the tube like it's supposed to.

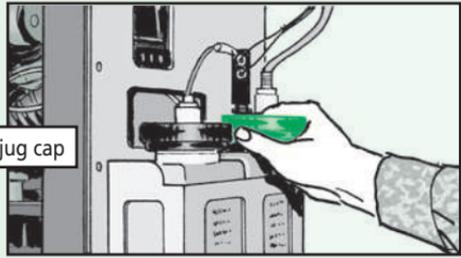
If the screw for the scrubber knob works loose, then the knob can't raise and lower the scrubber. When you hear the scrubber making a clicking sound, that means it's time to tighten the knob's screw.



PS MORE

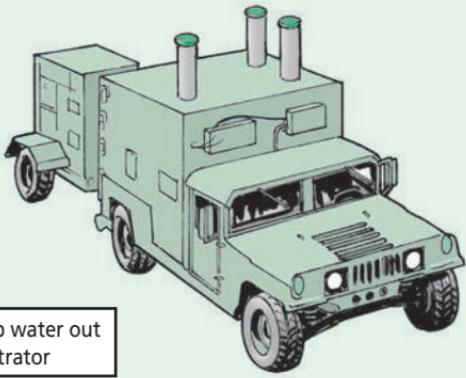
If you get low air flow when you turn on the sampler, check that the cap on the waste jug is tight. A loose cap is the most common cause.

Low air flow? Check waste jug cap



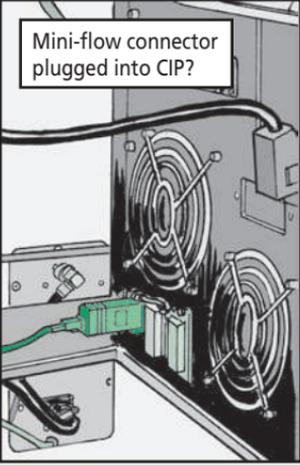
If you ever find water in either internal collector concentrator, **don't operate them.** Dry them out as much as possible and tell your contract maintenance. They need to dry out the concentrator's internal components. If you try to operate the concentrators when they're wet, it can cause big-league damage. You can seal out water by keeping the stacks covered when you're not using the BIDS. After a storm, make sure the covers haven't blown off.

Keep stacks covered to keep water out of internal collector concentrator



### Mini-flow Cytometer

If the cytometer has just come back from repair, double check that the yellow mini-flow connector is plugged into the port labeled CIP (central info processor) and not into the port labeled SERVICE or CONSOLE. If the connector is plugged in wrong, too much info goes to the CIP. Same thing happens if you forget to turn off the GPS before you operate the miniflow cytometer. The fix if this happens is to turn off the cytometer and restart it.



Mini-flow connector plugged into CIP?

VOILA!  
GOOD PM  
FOR YOUR  
BIDS!!

PS  
END



# CheckMAIT Your Maintenance Woes



EVER FEEL LIKE YOU'RE A PAWN IN A CHESS MATCH AND YOUR UNIT'S BEING CHECKMATED BY INSPECTIONS AND EVALUATIONS THAT ARE REPORTED TO THE NEXT HIGHER COMMAND?

THERE'S A TEAM THAT CAN HELP YOU CHECKMATE THE NEGATIVE EFFECTS OF INSPECTIONS AND EVALUATIONS BY HELPING YOU **FIND AND RESOLVE** MAINTENANCE WEAKNESSES.



MAIT—THE MAINTENANCE ASSISTANCE AND INSTRUCTION TEAM—CONDUCTS **THREE** TYPES OF ASSISTANCE VISITS.



THE TYPE OF VISIT DETERMINES WHO SEES THE MAIT REPORT.

- Annual scheduled visits  
Report to unit commander
- Unit requested visits  
Report to unit commander
- Higher headquarters asks MAIT to assist unit  
Report to requesting/directing commander and the unit commander

SCHEDULED VISITS ARE ANNUAL VISITS THE TEAM MAKES TO EACH UNIT WHEN RESOURCES ARE AVAILABLE.

THE TEAM'S ASSESSMENT OF THE UNIT'S LOGISTICS WEAKNESSES AND PROPOSED SOLUTIONS GO TO THE COMMANDER OF THE VISITED UNIT.



IF HIGHER HEADQUARTERS REQUESTS OR DIRECTS A MAIT VISIT OF A UNIT, THE MAIT WILL REPORT BOTH TO THE UNIT COMMANDER AND THE COMMANDER REQUESTING OR DIRECTING THE VISIT.



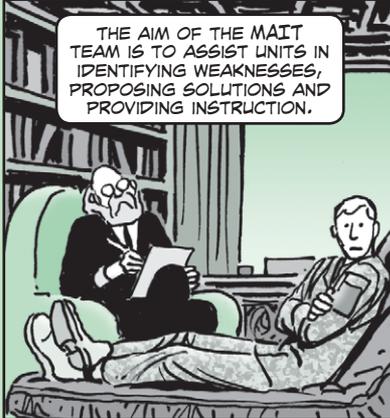
HOWEVER, IF THE UNIT COMMANDER REQUESTS A VISIT, THE MAIT PROVIDES THE ASSESSMENT REPORT ONLY TO THE UNIT COMMANDER.



MAIT VISITS ARE *NOT* JUDGMENTAL OBSERVATIONS ABOUT HOW WELL A UNIT IS PERFORMING ITS LOGISTICS (MAINTENANCE AND SUPPLY) MISSIONS.



THE AIM OF THE MAIT TEAM IS TO ASSIST UNITS IN IDENTIFYING WEAKNESSES, PROPOSING SOLUTIONS AND PROVIDING INSTRUCTION.



THE MAIT PROGRAM IS ARMY-WIDE AND COVERED BY PARA 8-15, AR 750-1, ARMY MATERIEL MAINTENANCE POLICY.

MAIT'S CAN HELP UNITS IMPROVE OPERATIONS AND MANAGEMENT IN...



- equipment operator requirements
- PMCS and equipment repair
- equipment condition and serviceability
- administrative files maintenance
- calibration and proper use of TMDE
- maintenance personnel management and training
- publications management
- facilities and shop layout
- planning, production and quality control
- safety
- shop operations and SOPs
- equipment recovery and evacuation
- demand supported repair parts
- implementation of the Army Warranty Program
- AOAP
- Army Award for Maintenance Excellence
- quality deficiency reports
- scheduled services
- HAZMAT
- tire maintenance
- CARC painting

THE MAIT PROGRAM IS DECENTRALIZED, WHICH MEANS THAT INSTALLATIONS, MACOMS, CORPS AND DIVISIONS MAY ESTABLISH THESE TEAMS.

IF ONE ISN'T AVAILABLE ON YOUR INSTALLATION, TALK WITH YOUR LOGISTICS ASSISTANCE REPRESENTATIVES OR THE INSTALLATION LOGISTICS DIRECTORATE ABOUT LOCATING THE NEAREST MAIT TEAM.



SO, WHAT ARE YOU WAITING FOR?

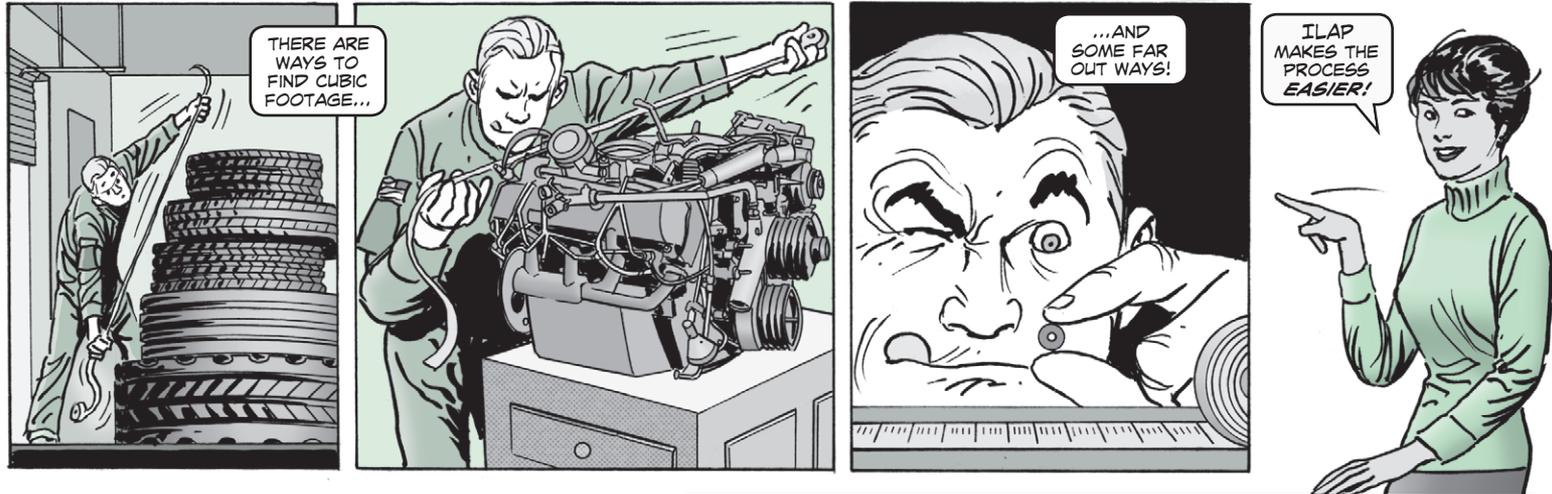
BEAT COMMAND INSPECTIONS AND EVALUATIONS TO THE PUNCH BY USING MAIT'S TO IMPROVE LOGISTICS IN YOUR UNIT.



YOU'LL NOT ONLY LOOK GOOD, YOUR UNIT READINESS WILL CHECKMATE THOSE INSPECTIONS AND EVALUATIONS.



# FINDING THE CUBIC FOOTAGE OF YOUR SHIPMENT



With each deployment or redeployment, someone in the unit will probably have to figure out the cubic footage of shipments or storage. You might just be the one.

You can find cubic footage in the CTASC Catalog Data report online in the Integrated Logistics Analysis Program (ILAP). ILAP is located on the Logistics Information Warehouse (LIW) website run by the Logistics Support Activity:

<https://liw.logsa.army.mil/index.cfm?fuseaction=login.main>

Once you're logged on to LIW, click on the **Army ILAP** icon in the center column. Expand the **Catalog** tab and select CTASC Catalog Data.

You can enter one NIIN at a time or you can import a list of previously prepared NIINs. Prepare a NIIN list by typing the complete NIINs with their hyphens. Leave no blank spaces in the file, do a hard return after each NIIN, and **be sure** to save the file as a Notepad or WordPad (\*.txt) file.

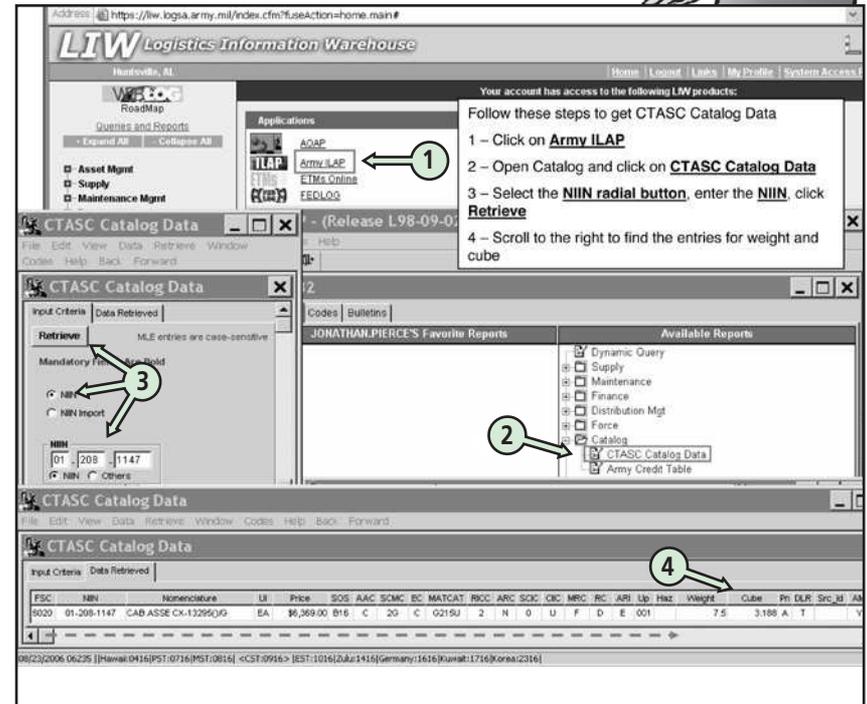
Load the "txt" file from the CTASC Catalog Data screen by clicking the radio button for **NIIN Import**. Click the **Import** button, find your "txt" file in the "Look in:" block, and **OPEN** the file. Your NIINs will display in the "NIIN(s)" box. Click **Retrieve** to run the report.

The report provides a lot of data other than the cube. You can make the report easier to use by saving it to an Excel spreadsheet. Right click on the report, go to **File**, then **Save As**. Make sure the "Save as Type:" block is set to **Excel with headers**. Change the "Save in:" block to **C\$ on 'Client' (V:)** and select the folder you want to save the Excel file in. Then in the "File name:" block, name your file. Click **Save**.

Open Excel, select **File, Open**, and find the file you just saved. Select and open it. You can right click on the heading of one or more columns and choose **Delete** to get rid of data you don't need.

If you have problems, you can get help from LOG 911:

<https://weblog.logsa.army.mil/log911/index.cfm>



Recreation...

# Sometimes... You Just Gotta Have Fun!



**R**ecreational sports can be a great way to release stress and pump a little variety into physical training.

There is a recreational kit of support equipment for softball, football, horseshoes, volleyball, badminton and darts your unit can order.

NSN 7810-00-485-1519 is a GSA non-stocked, centrally procured kit that costs \$1,207.08. It is authorized by Item D-8 in CTA 50-909, *Field and Garrison Furnishings and Equipment*, as LIN A95703.

ITS COMPONENT PARTS *DON'T* HAVE SEPARATE NSNs. THE KIT INCLUDES...

## SOFTBALL

Fielder's mitts, right-handed	7
Fielder's mitts, left-handed	2
Catcher's mitt	1
Catcher's mask	1
Bats	6
Softballs	6

## FOOTBALL

Footballs	2
Inflator	1
Air gauge	1

## VOLLEYBALL

Volleyball	1
Net	1

## BADMINTON

Badminton set	1
Shuttlecocks	12

## DART BOARD SETS

	3
--	---

## HORSESHOES

Set of Horseshoes	1
Stakes	2

## Connie's Post Scripts

### POWER GENERATION UNSERVICEABLES NEEDED

These items of power generation equipment are in short supply. If you have unserviceables, turn them in so they can be repaired and reissued.

Item	NSN
Power supply, PP-6224B/U	6130-01-223-0267
Power supply, PP-2390	6130-01-139-2514
Battery shop, AN/TSM-133	4940-01-052-3773
Generator, PU-126	6125-00-509-5605

Send them to:

Tobyhanna Army Depot  
RIC: BY6  
DODDAC: W25G1W  
XR W1BG UEF DIST Depot Tobyhanna  
Myers and Second Streets  
Warehouse 2, Bay 1  
Tobyhanna, PA 18466-5059

## SOAK UP SPILLS

Use NSN 7930-00-269-1272 to get a 44-lb bag of absorbent compound for soaking up oil and fuel spills. Just sprinkle the compound on the spill and sweep it up after the spill is absorbed. Then dispose of the compound in a proper HAZMAT container. Table 1 of CTA 50-970 is your authority for ordering the compound.

## Field Concerns Adds MLRS

Army TACMS (tactical missile system) and GMLRS (guided multiple launch rocket system) users have been able for some time now to email questions and comments about the systems to Field Concerns, a help site for the field. Now MLRS users can do the same about the M270/M270A1 and HIMARS (high mobility artillery rocket system) launchers by emailing Field Concerns at its new email address:

[mrs.fieldconcerns@msl.army.mil](mailto:mrs.fieldconcerns@msl.army.mil)

The Precision Fires Project Office will promptly respond to the emails. TACMS and GMLRS users should use the new address, too.

## SAFETY SIGNS ONLINE

Looking for safety signs to hang in your maintenance area or inside aircraft and vehicles? We've published some of their NSNs in PS 570, page 57; PS 607, page 45; and PS 624, page 57. All three articles are available online:

<https://www.logsa.army.mil/psmag/psonline.cfm>

Problem is, the Army has a limited selection in its supply system. For a larger variety of safety signs, you'll need to go through manufacturers. Two of the leading ones are Labelmaster and Grainger. You can find both online:

Labelmaster

<http://www.labelmaster.com>

Customer service number: 800-621-5808

Grainger

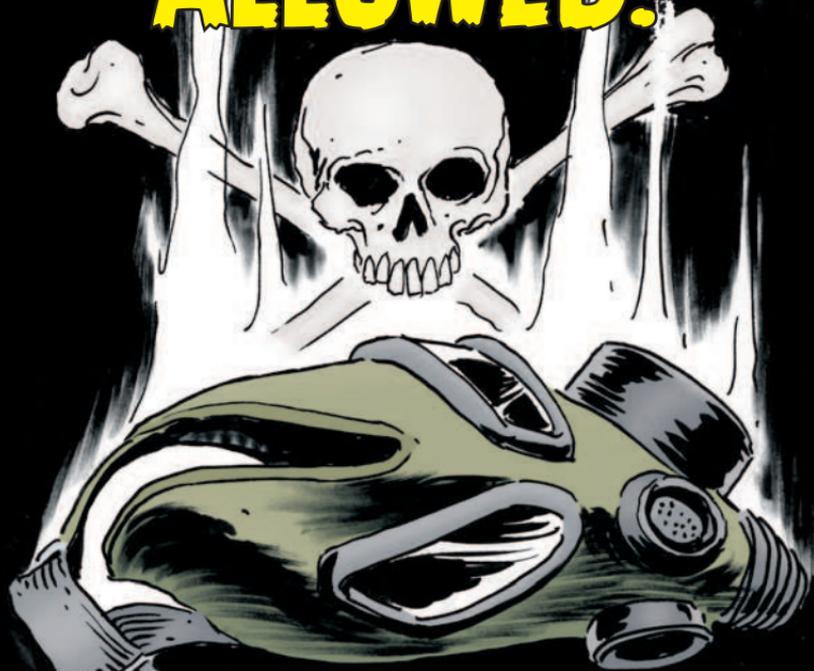
<http://www.grainger.com>

Customer service number: 888-361-8649

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

**NO FOLDING  
ALLOWED!**



**STORE YOUR MASK  
*UPRIGHT AND OPEN*  
WITH THE LENSES FACING  
*AWAY FROM THE BODY.***

**FOLDING RUINS  
YOUR MASK!**

**PS****THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

TB 43-PS-653, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers assigned to combat and combat support units and all soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user. Masculine pronouns may refer to both genders.

**ISSUE 653 APRIL 2007****COMBAT VEHICLES**

Stryker Engine Bay Blower Caution  
Stryker Towing  
M2/M3-Series Bradley Wire Cutter  
M1-Series Tank, M104 Wolverine Oil Sensor  
M1-Series Tank Lifting Advice  
M270A1 MLRS Engine Stand NSNs  
M88A2 Recovery Vehicle Engine Oil Check  
M198 Howitzer Breech Mod Stencil

**WHEELED VEHICLES**

M939-Series Truck Front Axle Seals  
FMTV Air/Hydraulic Unit Venting  
HMMWV Tie Rod Clamp Positioning  
M915 FOV Technical Publications  
M1076 PLS-T Loading Ramp Stowage  
PLS Annual Service Kit  
M1070 HET Website  
M871A2 Siderack Pin  
HMMWV Engine Filter NSNs  
HEMTT Purging Solution  
M978 HEMTT Fuel Service Hoses  
HEMTT Wrecker Towing FMTV

**SMALL ARMS**

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nvited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems and

Just write to:

**MSG Half-Mast**

**PS, the Preventive Maintenance Monthly**

**USAMC LOGSA (AMXLS-AM)**

**5307 Sparkman Circle**

**Redstone Arsenal, AL 35898-5000**

Or e-mail to:

**logsa.psmag@conus.army.mil** or

**half.mast@us.army.mil**

Internet address:

**<https://www.logsa.army.mil/psmag/pshome.html>**

By order of the Secretary of the Army:

**GEORGE W. CASEY, JR.**

General, United States Army Chief of Staff

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**JOYCE E. MORROW**

Administrative Assistant to the Secretary of the Army

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