

Issue 429

PSAugust
1988**THE
PREVENTIVE
MAINTENANCE
MONTHLY**

TOOLOOSE,
ARE YOU
ABOUT
FINISHED?

NO, NO,
CONNIE,
THERE IS
MUCH WORK
TO DO!

Approved For
Public Release;
Distribution Is
Unlimited

Follow La Trek of ToolLoose to get
the whole Bolt Picture.
See Page 27 and others...

Maintenance Excellence Awards

WE ARE PLEASED TO ANNOUNCE...

LIGHT UNIT WINNERS

Active MTOE, 114th Quartermaster Co (EUSA)
Active TDA, Miesau Army Depot (USAREUR)
Reserve MTOE, 254th Supply Co (FORSCOM)
National Guard, Co B, 228th S&T Bn (PAARNG)

LIGHT UNIT RUNNERS-UP

Active MTOE, 501st Trans Co (USAREUR)
Active TDA, Maint Branch, Logistics Div, AHS (HSC)
Reserve MTOE, 674th Trans Co (FORSCOM)
National Guard, 4th Bn, 188th Inf (SCARNG)

INTERMEDIATE UNIT WINNERS

Active MTOE, 708th Support Bn (USAREUR)
Active TDA, U.S. Army Cold Regions Test Center (AMC)
Reserve MTOE, HHC 464th Engr Bn (FORSCOM)
National Guard, 121st Trans Co (PAARNG)

INTERMEDIATE UNIT RUNNERS-UP

Active MTOE, 553rd Trans Co (FORSCOM)
Active TDA, Consolidated Maint Center, Augsburg (USAREUR)
Reserve MTOE, 803rd General Support Co (FORSCOM)
National Guard, 1133rd Medium Trans Co (IAARNG)

HEAVY UNIT WINNERS

Active MTOE, Co B, 84th Engr Bn (WESTCOM)
Active TDA, Consolidated Maint Center, Stuttgart (USAREUR)
Reserve MTOE, 969th Maint Co (FORSCOM)
National Guard, 1st Bn, 133rd Inf (IAARNG)

HEAVY UNIT RUNNERS-UP

Active MTOE, 5th Mobile Surgical Hospital (FORSCOM)
Active TDA, USAISC Site-R (USAISC)
Reserve MTOE, 883rd Maint Co (WESTCOM)
National Guard, HHC, 2nd Bn, 102nd Armor (NJARNG)

... THE WINNERS OF THE SIXTH ANNUAL ...

... CHIEF OF STAFF ARMY...

... AWARD FOR MAINTENANCE EXCELLENCE! THEY ARE...

SEE DA CIRCULAR 750-87-1 FOR INFORMATION ON THE CURRENT COMPETITION AND ITS THEME!

PS

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-429, 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.

ISSUE 429 AUGUST 1988

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You are invited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems, questions or comments on material published in PS. Just write to:

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By Order of the Secretary of the Army:

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The Adjutant General

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Brake Pedal

IF YOU LEARN
TO READ MY
WARNING SIGNS...

WARNING

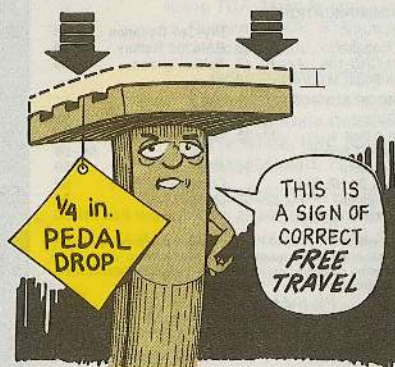
... YOU'LL SAVE
WEAR AND TEAR
ON YOUR BRAKES!

You never want to saddle up and say "go" if your brakes can't whoa.

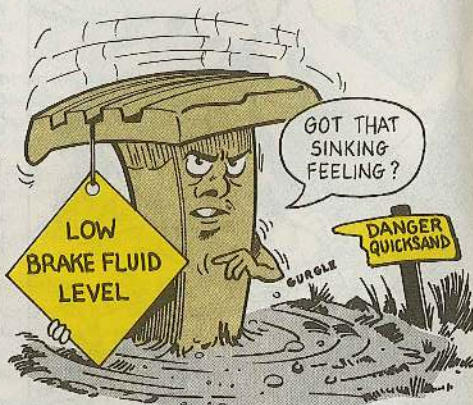
Always make sure your truck's brakes are good for the long haul by doing this:

Push down on the brake pedal. The pedal should drop about 1/4 inch or

If the pedal is soft and sinks slowly to the floor, you've got trouble. A soft



so under the weight of your foot. That's called free travel. Check the TM for your vehicle for the correct distance. The pedal should be firm once you pass the free travel on all vehicles.



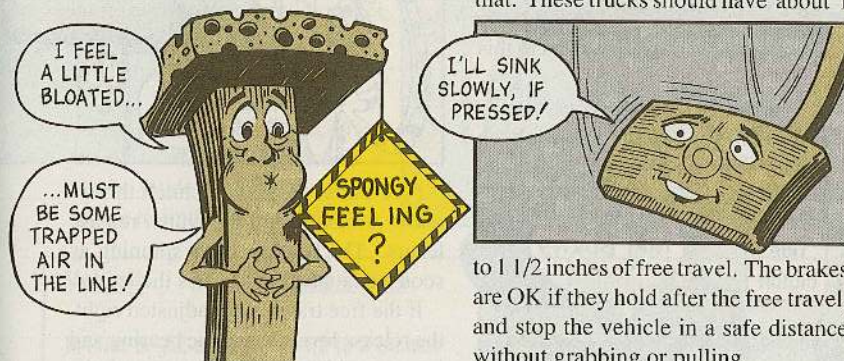
pedal usually means the hydraulic system is low on fluid, or there's air in the lines.



Warning Signs

A spongy feeling brake pedal is bad, too. It's a sign there's air trapped in the hydraulic system, or there's a weak brake hose getting ready to burst.

On a CUCV or HMMWV, if you push down and keep hard pressure on the brake pedal, the pedal will gradually sink to the floor. It's supposed to do that. These trucks should have about 1

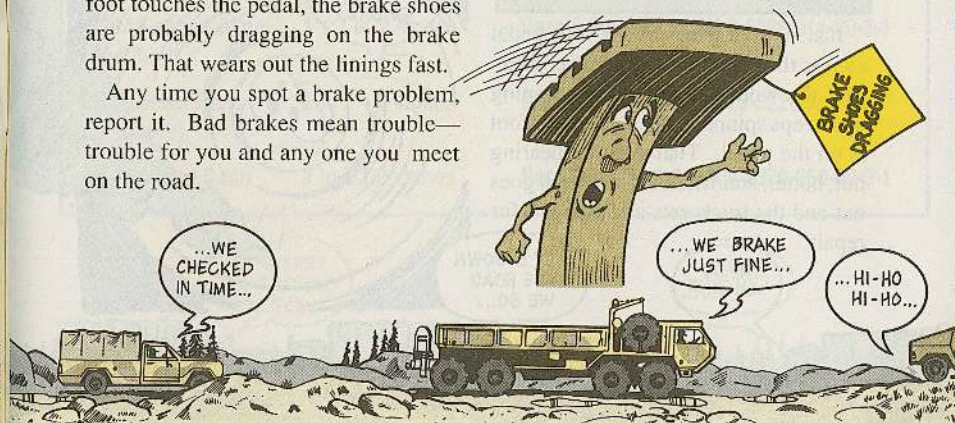


to 1 1/2 inches of free travel. The brakes are OK if they hold after the free travel, and stop the vehicle in a safe distance without grabbing or pulling.

ON THE ROAD

If you're on the road and the brakes grab or pull your truck to one side when your foot touches the pedal, the brake shoes are probably dragging on the brake drum. That wears out the linings fast.

Any time you spot a brake problem, report it. Bad brakes mean trouble—trouble for you and any one you meet on the road.



AW, SHUCKS,
I'M JUST
DOING MY JOB!

Free Travel-YES

The same thing happens if there's too little free travel in the clutch pedal. The clutch pedal is supposed to go down real easy when you start pushing, and then get firm. The easy part is called free travel.

BRAKES ARE
IMPORTANT, BUT
YOU COME
THROUGH IN
A CLUTCH!

Drivers, there are no free rides in this life.

If your left foot rides your truck's clutch pedal, you'll burn out the clutch throwout bearing. Then you'll walk.

Don't
ride
clutch

O...O...
Ooooo...
THAT BURNS
ME UP!

Just a little pressure on the pedal causes the clutch to start to disengage. The throwout bearing starts spinning and keeps spinning as long as your foot is on the pedal. That gets the bearing hot, hotter, and wham! The clutch goes out and the truck gets a tow to DS for repair.

...HI-HO
HI-HO...

...IT'S DOWN
THE ROAD
WE GO...

YIPES...
I SMELL
SMOKE!

AUG 88

Free Ride-No!

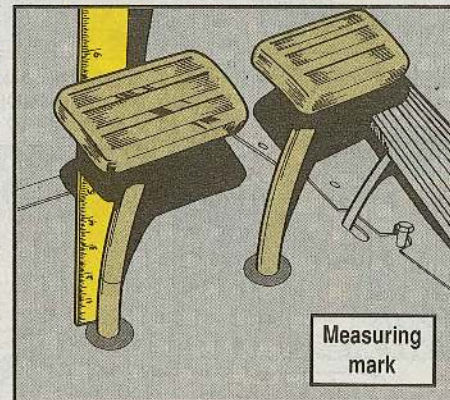
bearing, or worse, you get weaker pressure on the clutch disk. It then slips on the flywheel, and that makes heat. So much heat that it can crack the clutch disk, pressure plate, or even the flywheel.

That's why it's important to check the free travel regularly.

Mechs, you can make checking pedal free travel quick and easy with a sight gage. Here's how to make one for the M44-, M39- and M809-series trucks:

Measure up from the floor the maximum amount allowed by the TM and mark it. Paint it white. Press down until you feel resistance. If the white paint sinks out of sight, adjust the free travel.

Need to know how much free travel to measure? Here's a handy guide to how much and where to find it in the TM's:



Vehicle	Free Travel	Reference TM
M44A1 & -A2-series 2 1/2-ton (multifuel)	1 1/2 to 2 inches	Para 3-3e, Pg 3-15, TM 9-2320-209-20-3-1
M44-series 2 1/2-ton truck (all others)	1 1/2 inches to 2 inches	Pg 3-15, TM 9-2320-209-20-3-1
M39A2-series 5-ton (multifuel)	1 1/2 to 2 inches	Para 3-3a, Pg 3-2, TM 9-2320-211-20-3-1
M39-series 5-ton (all others)	2 to 2 1/2 inches	Para 2-49, Pg 2-80, TM 9-2320-211-20
M809-series 5-ton	2 to 2 1/2 inches	Para 3-6a, Pg 3-9, TM 9-2320-260-20-3-1

...FREE
TRAVEL
YES...

...FREE
RIDE NO!

AUG 88

5

Spare Tire Hold-down Bolt Replacement

One hard bounce or dragging the back end of a CUCV down a rutted trail...



BUMP!

...bends the spare tire hold-down bolt.

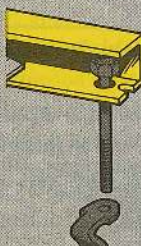


PUTTING A NEW BOLT ON THE M1008 CARGO TRUCK IS NO SWEAT...



...BUT REPLACING A BENT BOLT ON THE M1010 **AMBULANCE** IS ANOTHER STORY!

The bolt was installed before the body of the ambulance was, so there's no room between the ledges of the frame to remove the bolt.



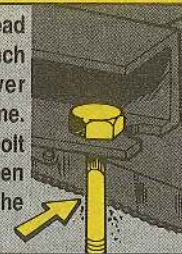
HERE'S HOW TO DO IT...

PULL OUT THE PATIENT COMPARTMENT STEPS.

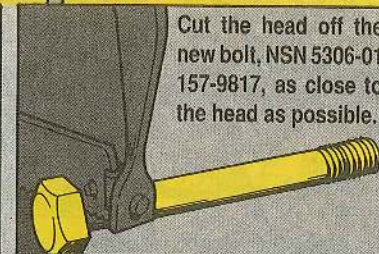
REMOVE THE SPARE TIRE LOCK AND THE SPARE TIRE.



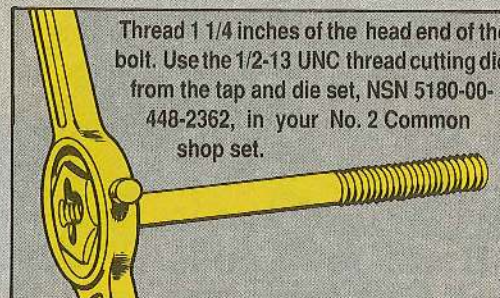
Cut the bolt head off about an inch below the lower ledge of the frame. The rest of the bolt pulls out between the ledges of the frame.



Cut the head off the new bolt, NSN 5306-01 157-9817, as close to the head as possible.



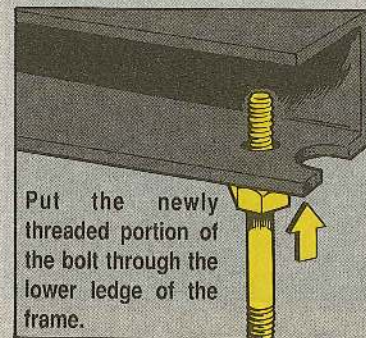
Thread 1 1/4 inches of the head end of the bolt. Use the 1/2-13 UNC thread cutting die from the tap and die set, NSN 5180-00-448-2362, in your No. 2 Common shop set.



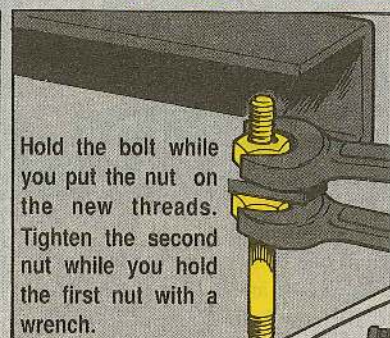
YOU'LL NEED **TWO** NUTS, NSN 5310-01-070-2105, TO KEEP THE BOLT IN PLACE.



Put the newly threaded portion of the bolt through the lower ledge of the frame.



Hold the bolt while you put the nut on the new threads. Tighten the second nut while you hold the first nut with a wrench.



PUT THE SPARE BACK ON, LOCK IT IN AND PUSH THE PATIENT COMPARTMENT STEPS IN PLACE... NOW THE AMBULANCE IS **READY TO ROLL!**



HMMWV Mechanics...

...LOOSE BOLTS DRIVE
A MECH INSANE...

...GOODNESS,
GRACIOUS,
GREAT
BALL JOINTS
OF FIRE!

...AND YOU
RATTLE
MY BRAIN...

YOU SHAKE
MY NERVES...

!

Ball Joint Bolts Jolt Loose

You need to eyeball the bolts on the ball joints every time you pull a semi-annual service on a HMMWV. Those bolts loosen with the shake, rattle and roll of cross-country driving.

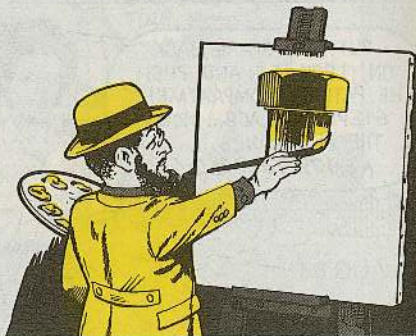
If a bolt is loose or you see a shiny spot around the bolt or nut, do not re-torque the nut. Replace it with NSN 5310-00-814-0673.

Hold one before you put a bolt back in. Pages 6-45 and 6-47 of TM 9-2320-280-20 show bolts going in from the bottom side of the control arm. That's wrong! The truck headshed says turn 'em around and put the head at the top of the control arm.

Forget that for the lower ball joints on models M996, M997, M1037 or M1042, tho. The bolt will wear into the ball joint's dustcap.

See Chapter 2 of TB 43-0001-39-2 (Apr 88) for more info.

Turn 'em around...
put the heads on top
of the control arm



2 1/2- & 5-Ton Truck Mechanics...

Old Compressor Parts Save Time and \$\$\$



It's impossible to make ends meet when you put a new air compressor on a 2 1/2- or 5-ton truck unless you save some of the parts from the old compressor.

Some mechanics turn in compressor, NSN 2530-00-863-3155, with the accessory parts still attached. They think they'll get all new stuff.

Wrong! When you order a new compressor, all you get is a new compressor.

The accessory parts then have to be ordered and the truck is deadlined until they arrive.

So hang on to the unloader valve elbow, discharge manifold, and intake air cleaner. They are Items 7, 15, and 18 of Fig. 128 in Change 1 of TM 9-2320-209-20P.

If the intake air cleaner is dirty, order a replacement when you order the compressor. You'll also need new gaskets for the discharge elbow and air cleaner, Items 4 and 17 of Fig. 128.

AUG 88

9

Brakes—Again!

The original front hydraulic brake hose on the M44-series trucks is too short for the job.

The bend and stretch the hose takes in the sharp turns make it crack and eventually fail. You need to get it changed for one that fits.

Use the same hose used for the front brakes on M809-series 5-ton trucks.

Instructions on how to do the job and all the parts you need are in Para 4-10a of TM 43-0143.

Can't find a copy in your unit or at the LAO? Write PS for a copy.

2 1/2- and 5-Ton Trucks. . .

Brake Shoe Washer Change

The flat washer in the parking brake shoe assembly on the M44-, M39- and M809-series trucks is no longer in the supply system.

Washer, NSN 5310-00-297-3314, has been replaced by NSN 5310-00-910-6692.

TM	Item	Fig.
9-2320-260-20P	9	12-3
9-2320-211-20P	13	104
9-2320-209-20P	40	111

HERE'S WHERE THE WASHER IS SHOWN IN THE TM's!

The Case of the Missing O-Ring



THAT RING WAS AN O-RING! IT WAS MISSING ON SOME FUEL FILTER KITS, NSN 2910-00-162-2033, USED ON M809-TRUCKS, M2/M3 BRADLEYS, THE MLRS, AND THE M9ACE!

HEY, GORGEOUS, THIS CASE LACKS THAT FAMILIAR RING...



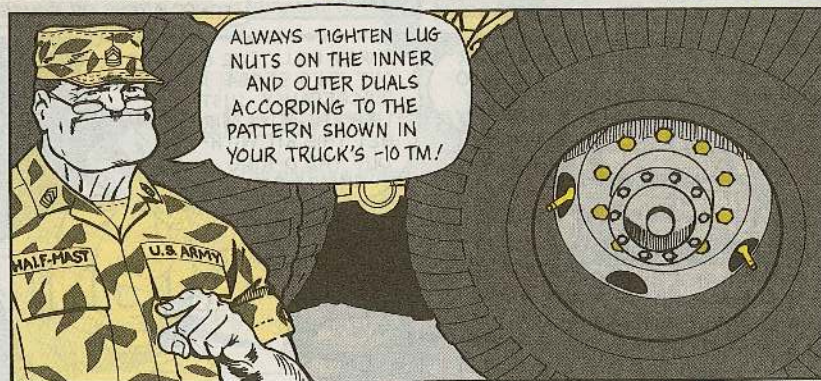
THERE WAS A RING OF TRUTH TO WHAT SHE SAID...

... A USED ONE WOULD DO IF IT WAS WASHED IN SOLVENT, PD-680 AND IT DIDN'T HAVE CUTS, FLATTENED AREAS, OR GOUGES!

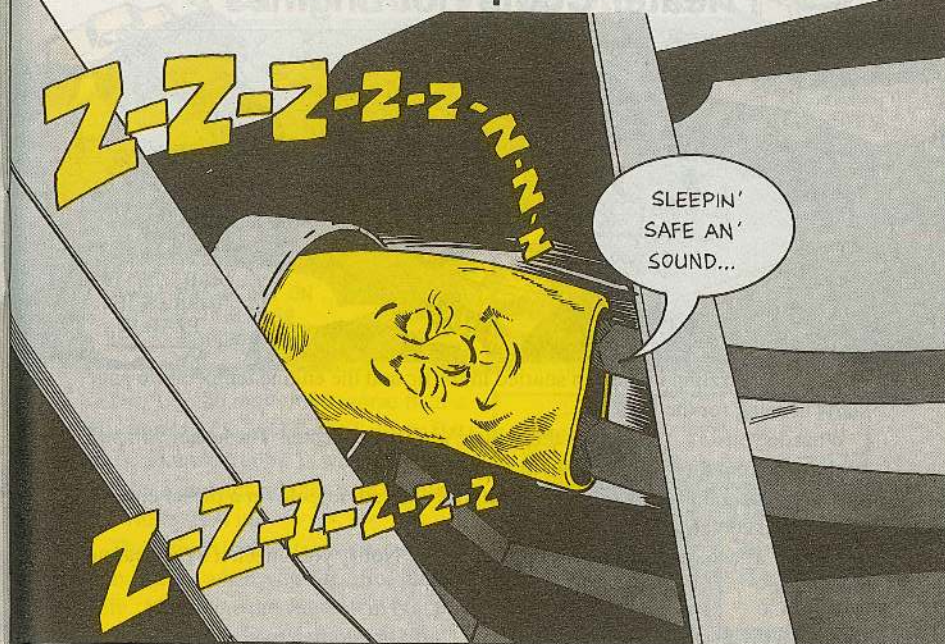


ONE THING I HAVE TO SAY ABOUT MISS BELL, SHE SURE HAS APPEAL!

Dual Wheel Dilemma



Cover Naked Receptacle Terminals



Naked cable terminals on this 5-tonner's slave receptacle are trouble waiting to happen. If anything metal, like a wrench, touches the bare terminals, it will cause a short that can start a fire.

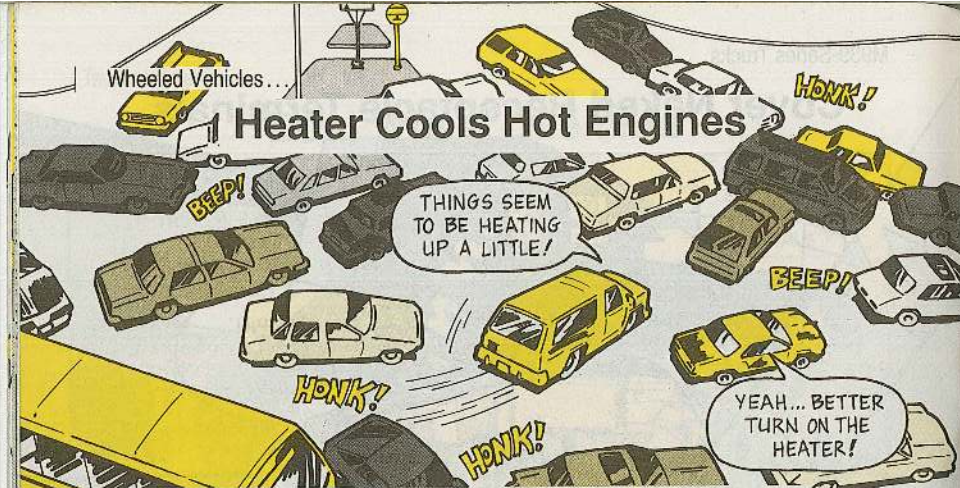
You can fix the problem real easy with a rubber sleeve, NSN 4720-01-195-7604. Here's how:

- ✓ Disconnect the battery ground cable.
- ✓ Remove the slave receptacle leads.
- ✓ Slip the cover over both cables.
- ✓ Reconnect the cables to the receptacle.
- ✓ Slide the sleeve down over the exposed metal.
- ✓ Reconnect the battery ground cable.

Another way to cover the bare ends is with a piece of rubber hose and some electrical tape. Slice the hose up one side and slip it over the positive receptacle cable. Tape it in place with electrical tape.

Wheeled Vehicles...

Heater Cools Hot Engines



So you sit sizzling in the sun snarled in traffic and the engine temperature gage starts heading for the red.

What do you do? You turn on the vehicle's hot water heater. The heater will pull heat away from the engine and help keep it cool.

If the temperature hand keeps heading for the red, idle-down a diesel engine. Diesels run cooler when idling.

Shut off a gasoline engine and allow it to cool. Notify your mech if over-heating continues.

M939/M939A1-Series Trucks...

Alcohol Evaporator Parts Available

Separate parts for the alcohol evaporator, Fig 141 of TM 9-2320-272-20P, are not shown. Here are the parts you can get:

Bottle
NSN 2530-00-755-7198

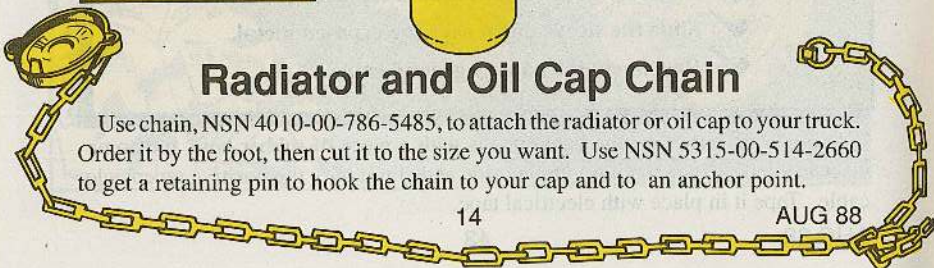
Filler plug
NSN 5340-01-160-9589

Gasket
NSN 2530-00-755-7191



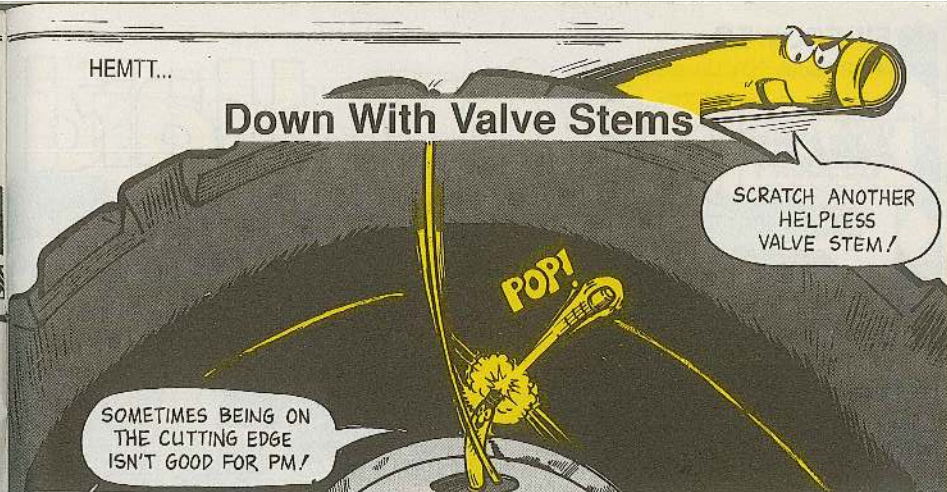
Radiator and Oil Cap Chain

Use chain, NSN 4010-00-786-5485, to attach the radiator or oil cap to your truck. Order it by the foot, then cut it to the size you want. Use NSN 5315-00-514-2660 to get a retaining pin to hook the chain to your cap and to an anchor point.



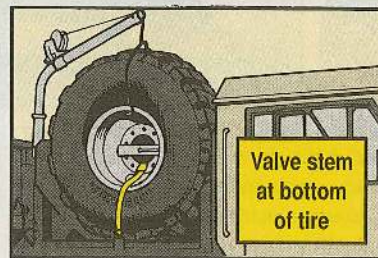
HEMTT...

Down With Valve Stems



Drivers, the only thing worse than a flat tire on a loaded HEMTT is two flat tires. Double trouble is what you get if you load and unload the spare tire with the valve stem up.

The winch cable tears or cuts the valve stem when you lift. So, play it safe. Make sure the valve stem is at the bottom of the wheel before you lift.



Two Holes to Drain

Water seeps into the high idle control box on M977 HEMTT's. The trapped water rusts the control relays, and they quit working.

Solve the rust pain by drilling two 1/4-in holes in the bottom of the box like so:

This lets water drain and keeps the rust out.



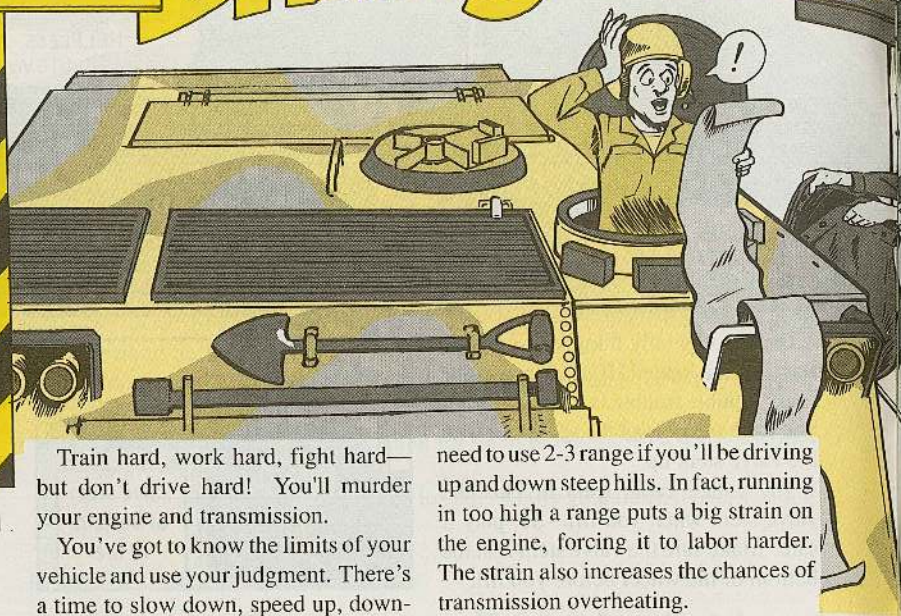
PMCS Change

PMCS just got easier on HEMTT trucks. The headshed now says the radiator's coolant level should come to the bottom of the filler neck, not 1 inch below—like it says on Page 2-51 of TM 9-2320-279-10. The new rule takes the guesswork out of this check. Make a note until your TM is revised.

HALT!

Driving Hard Takes \$ Toll

READ AND PROCEED



Train hard, work hard, fight hard—but don't drive hard! You'll murder your engine and transmission.

You've got to know the limits of your vehicle and use your judgment. There's a time to slow down, speed up, downshift, upshift and stop.

■ Select the right gear range for the terrain before you start out. There's no

need to use 2-3 range if you'll be driving up and down steep hills. In fact, running in too high a range puts a big strain on the engine, forcing it to labor harder. The strain also increases the chances of transmission overheating.

■ Use the kickdown feature of your transmission only for a needed burst of

■ As for the transmission kickdown, make sure it works. If the vehicle doesn't downshift when you floor the accelerator, the linkage may be messed up. If it is, you could be lugging your engine trying to get more speed out of it. Get your mech to fix it.

- RATES -

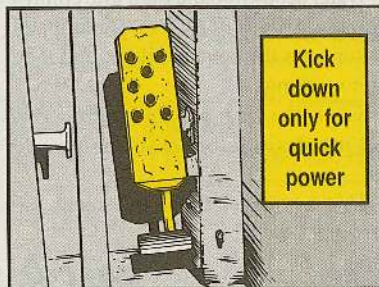
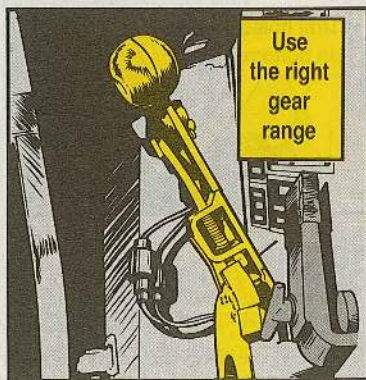
PASSENGER CARS	\$ 1.00
TRUCKS (PER AXLE)...	\$.50
TRACKED VEHICLES....	\$.50
(PER ROAD WHEEL)	
M113's	\$!!!!!
(HARD-DRIVEN)	\$!!!!!

**PAY NOW
OR
PAY LATER**

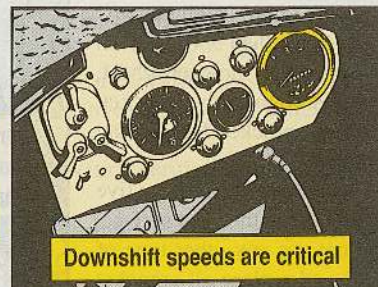
**THANK
YOU...
CALL
AGAIN**

■ Remember, too, that your carrier is not a hot rod. Accelerate smoothly and steadily, allowing your engine and transmission to do their work the way they were designed.

■ Pay close attention to the right transmission downshift speed shown on Page 2-153 of TM 9-2350-261-10.



power. Never put the pedal to the metal just to pull a heavy load—shift down instead. It's a whole lot easier on the engine and transmission.



You don't go from 2-3 range to 1-2 at 35 MPH, for example. You could have more transmission parts flying than there are hornets in a nest.

No Mixing of Sprocket Wheels, Bolts

SARGE, I TIGHTENED THE BOLTS, BUT THE SPROCKET IS **STILL** LOOSE!

DID YOU MAKE SURE THE BOLTS **MATCH** THE SPROCKET?

Sprocket wheels and the bolts that hold the sprockets on the wheels must be treated like matched sets.

Mixing the two sizes of bolts with the two types of sprocket wheels causes equipment damage and crew injury.

The older-style sprocket wheel, with part number 8763352 stamped on it, uses a 1 1/4-in self-locking bolt, NSN 5306-00-150-3146. No other bolt will do.

The new-style sprocket wheel, identified by the part number 10942567 stamped on it, uses a 1 3/4-in self-locking bolt, NSN 5306-01-131-9825.

If you put the 1-in bolt in the new-style sprocket wheel, there won't be enough threads engaging the wheel to hold the sprocket tight. It'll break off.

If you use the 1 3/4-in bolt on the old-style sprocket wheel, you can't tighten the sprocket. A loose sprocket doesn't stay in place.

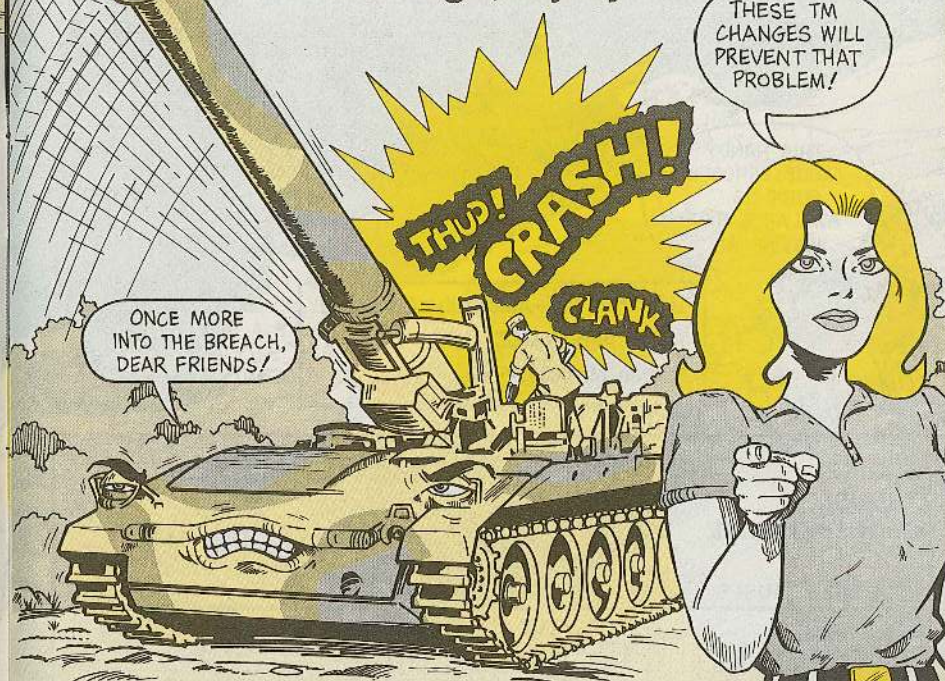
Both of these bolts have five "grooves" in the head surface. Do not use any other type of bolt, and replace all sprocket mounting bolts that do not have these grooves.

Torque the bolts to 110-115 lb-ft.



Change Order to Prevent Damage, Injury

THESE TM CHANGES WILL PREVENT THAT PROBLEM!



Page 2-56 of TM 9-2350-304-10 gives you section chiefs info that could damage your howitzer and injure your crew.

Do not release the travel lock before you make sure the cannon is in battery and the oil reserve is built up. Otherwise, you could have the tube in the well, along with anyone who happened to be in the way.

The list of steps you take to begin cannon elevation verification for the loader/rammer needs to be shortened and rearranged.

With the engine running, the transmission in neutral and the parking brake set, lower the spade. Then do these steps:

- ☛ Make sure the cannon is in battery (Page 2-54).
- ☛ Make sure the oil reserve is established and the replenisher has been checked (Page 2-78).
- ☛ Make sure the travel lock is released and stowed (Page 2-47).

The TM will be changed soon. Chiefs, use the info now.

Double up on Double Fires

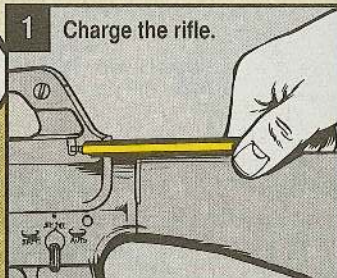
A WEAPON
THAT FAILS
THIS TEST...

...EVEN
ONCE
IN FIVE
TIMES...

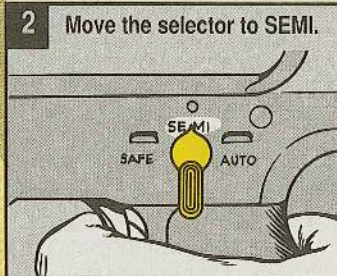
...CAN'T BE
TRUSTED
IN BATTLE!

If one of your riflemen reports a double-firing M16, armorers, check it like this:

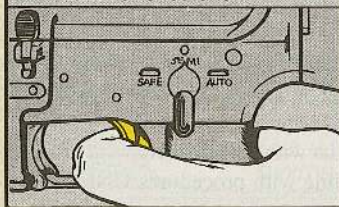
1 Charge the rifle.



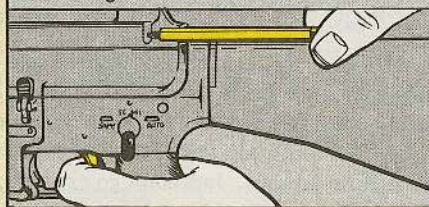
2 Move the selector to SEMI.



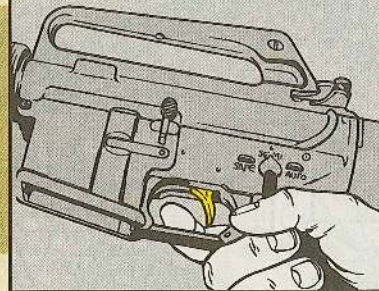
3 Squeeze the trigger. The hammer should fall.



4 Hold the trigger to the rear and charge the rifle.



5 Slowly release the trigger without any hesitation. You should hear a click and the hammer shouldn't fall.



6 Squeeze the trigger again. The hammer should fall.



Perform the test five times. If the rifle fails even once, the M16 has a worn trigger assembly or other parts that make it unsafe. Send it to DS.

For more info on the selector lever check, see Page 2-44 in TM 9-1005-249-24&P (Change 1).

Storage Straight Talk

To keep the spring in hammer springs, always store M16's with the selector on SEMI and the hammer forward.

If you leave the rifle set at SAFE, the tension from the hammer weakens and ruins the spring.

Just clear the rifle and put the selector at SEMI. Pull the trigger. That lets the hammer rest forward. Leave the lever on SEMI.

Close the ejection port cover to keep out dust.

Store the rifle with muzzle open. Muzzle caps cause barrels to sweat. Use the caps in the field to block out rain and dust.

Store with ejection
port cover closed
and muzzle open



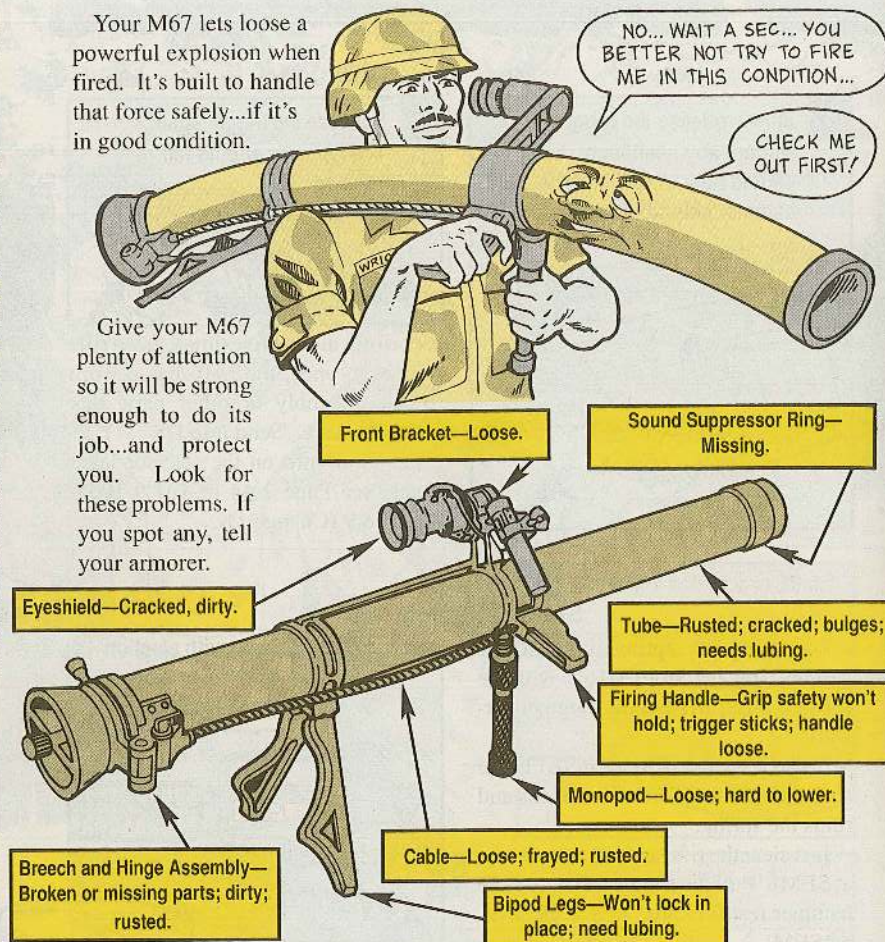
MUZZLE
CAPS ARE
JUST FOR
FIELD
WORK!



Keeping It Fit

Your M67 lets loose a powerful explosion when fired. It's built to handle that force safely...if it's in good condition.

Give your M67 plenty of attention so it will be strong enough to do its job...and protect you. Look for these problems. If you spot any, tell your armorer.



To carry the M67, pick it up and cradle it in your arms. That protects the sound suppressor ring and cable from being knocked or pulled off.

Clean the barrel only with CLP. Cleaning solvent streaks the barrel's finish, which leads to corrosion.

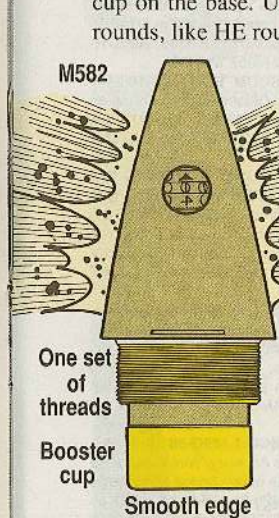
Keep track of how many rounds you fire and tell your squad leader. He needs to record them on a DA Form 2408-4 to make sure your M67 doesn't fire more than 2,000 rounds. That's all its barrel can take safely.

You'll Lose With Wrong Fuze

The wrong fuze can turn a 155-MM High Explosive (HE) round into a dud, or an illuminating round into a shrapnel-raining explosive. The results can be fatal.



All M582 fuzes have one set of threads, a smooth, flat bottom edge, and a booster cup on the base. Use an M582-series fuze only with fragmentation and burster rounds, like HE rounds.

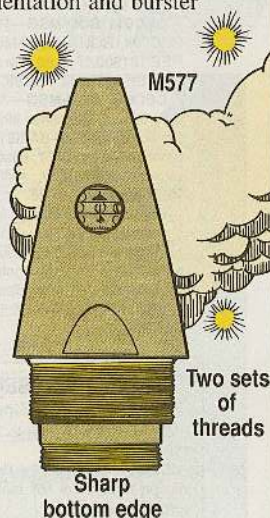


All M577 fuzes have two sets of threads, a sharp, flat bottom edge, and no booster cup.

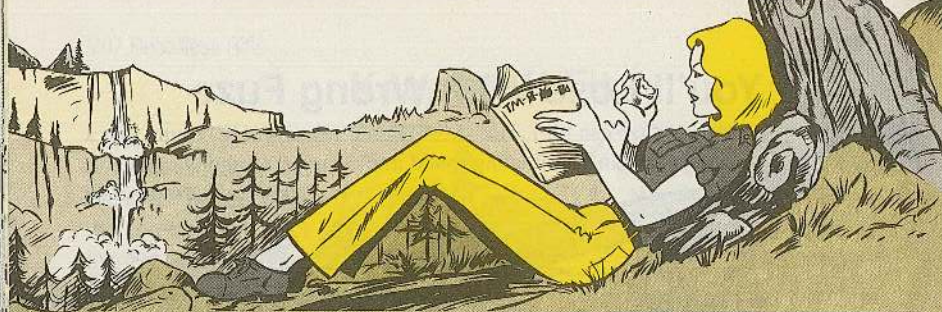
Use an M577-series fuze only with base ejection cartridges and projectiles, like illuminating and HC smoke rounds.

If you're shooting in the dark, feel for the differences. You can use your flashlight to look for the model number on the ogive if you have any doubts.

Never force a fuze into a cartridge or projectile. The right fuze should seat easily and screw all the way in with no threads showing. If the fuze won't fit, it needs to be checked out... not fired.



Your unit can order an M577 practice fuze with NSN 1390-01-M94-0120 and an M582 with 1390-01-M94-0127.



Maintenance & Safety-Of-Use Messages

AMCCOM SOU-MSG—Advisory, Technical/Maintenance, Removing M198 howitzer eye rotating bracket, NSN 1025-01-043-6617, AMSMC-MA 052210Z May 88.

AMCCOM SOU-MSG—Advisory, Operational, Rescinds AMCCOM SOU MSG 251430Z Feb 88 on MK 19 grenade machine gun ammo 40MM HEDP M430 and HE M383, AMSMC-DS 061945Z May 88.

AMCCOM Maintenance Advisory MSG-88-7—Deletes special purpose electrical cable, P/N D31-15-1425-20 (81361), NSN 6145-01-177-9247 used on the M3A4 smoke generator, AMSMC-MAR-EC (A) 181600Z May 88.

CECOM SOU-MSG—Replaces CECOM SOU MSG AMSSEL-SF-REE 181800Z Feb 88 with AMSSEL-SF-REE 192000Z Feb 88.

CECOM SOU-MSG—Advisory, Operational, Deadlines lithium-sulfur dioxide (Li-SO₂) BA-5513/U batteries made by SAFT, contract No. DAAB07-85-D-H326, AMSSEL-SF-REE 221200Z Feb 88.

CECOM SOU-MSG—Advisory, Operational, Deadlines lithium-sulfur dioxide (Li-SO₂) BA-5590/U batteries made by PCI, contract No. DAAB07-84-C-H330, date code D885B, AMSSEL-SF-REE 181600Z Apr 88.

SMART Message

SMART MSG #78—Provides info on pending change to TM 55-1520-210-23-1.

SMART MSG #79—Provides info on removal of M1 tank drive sprocket hubs.

SMART MSG #80—Replacement headlights for tactical vehicles.

CECOM SOU-MSG—Advisory, Electrical shock hazard warning on AN/TTC-39 circuit switch, AN/TTC-39A nodal control circuit switch and AN/TTC-39 message switch, AMSSEL-SF-SEP 041800Z May 88.

FORSOCOM SOU-MES-03-88—One time inspection of diving unlimited international (DUI) dry diving suits, Part numbers GDVSF, GVAC and GVDAE manufactured by GSD Sports Equipment Co, FCJ4-SME 211350Z Mar 88.

FORSOCOM SOU-MES-06-88—Advisory, M945 ribbon bridge transporter, NSN 5420-01-175-6524, Serial numbers 1 to 137, Reports failure of winch cable, hydraulic locking pin cylinder anchor bracket and hoisthook, FCJ4-SME 231000Z May 88.

TACOM SOU-MSG-88-20—Advisory, Technical/Maintenance, Inspecting tires on the M880, M886, M887, M888, M890 and M893 1 1/2-ton trucks, AMSTA-M 161400Z May 88.

TACOM SOU-MSG-88-19—Advisory, Operational, Additional PMCS for M88A1 medium recovery vehicle (MRV), AMSTA-M 181330Z May 88.

TACOM SOU-MSG-88-21—Advisory, Operational, Warning/precaution when operating the M113A3 armored personnel carrier and the M730A2 guided missile equipment carrier, AMSTA-M 200300Z May 88.

TACOM SOU-MSG-88-22—Advisory, Operational, Safety problem with the ramp on the M1059 smoke generator carrier, AMSTA-M 201430Z May 88.

TROSCOM SOU-MSG-88-8—Advisory, Protective measures against exposure to hazardous chemicals in the Topographic Support System (TSS), ASMT-MES

251800Z Mar 88.

TROSCOM SOU-MES-11-88—Advisory, Follow-on message to TROSCOM SOU MSG AMSTR-MES 211935Z Mar 88 on Emergency, snap link, mountain piton, NSN 8465-00-360-0228, AMSTR-MES 201435Z Apr 88.

TROSCOM SOU-MSG-12-88—Advisory, Weld cracks in camshaft housing bracket on aircraft crash and structural fire fighting truck, NSN's 4210-01-137-9943 and 4210-01-137-9944, AMSTR-MES 091500Z May 88.

TROSCOM SOU-MSG-13-88—One-time inspection for reserve parachute ripcord on the interim ram air parachute system (IRAPS), NSN 1670-01-212-3335, AMSTR-MES 121835Z May 88.

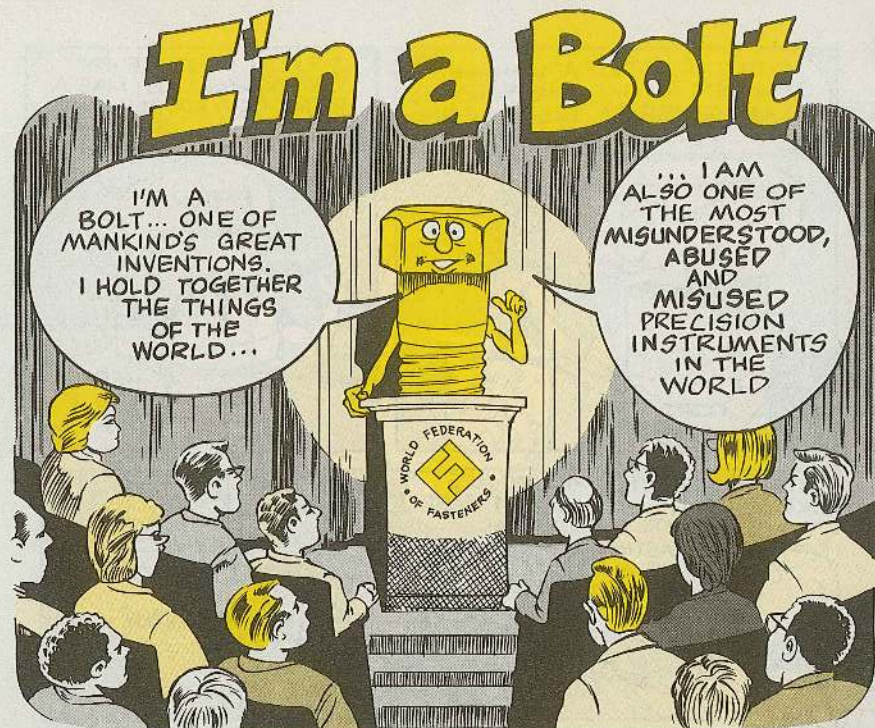
TROSCOM SOU-MES-14-88—Advisory, Maintenance, Follow-on message to TROSCOM SOU-MES-11-88, AMSTR-MES 201435Z May 88.

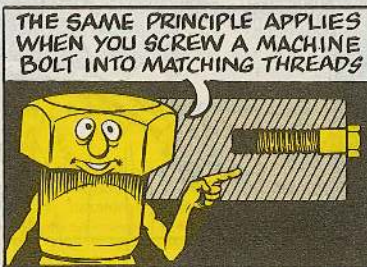
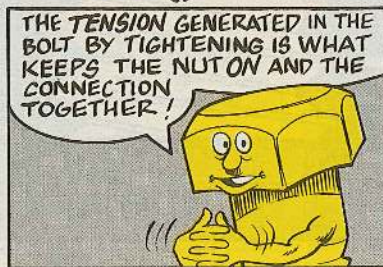
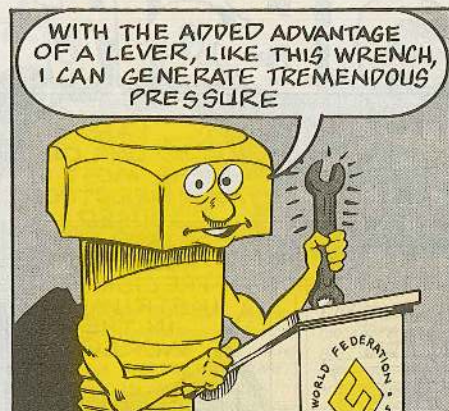
TROSCOM SOU-MSG—Disposal info for link assembly, type IV airdrop, NSN 1670-00-783-5988, manufactured by Scott Craft Co, under contract No. DAAJ09-83-C-B338, AMSTR-OPA 191430Z May 88.

TROSCOM MSG-88-19—Maintenance Advisory, Minor alteration of the shoulder pad attached to the harness, personnel parachute, ejection seat, NSN 1670-00-494-6434, AMSTR-MES 221515Z Apr 88.

TROSCOM MSG-88-20—Maintenance Advisory, Wire rope to use on M945 ribbon bridge transporter, NSN 5420-01-175-6524, AMSTR-MES 181926Z May 88.

Your Direct Support or Logistic Assistance Office (LAO) can provide you with more information.

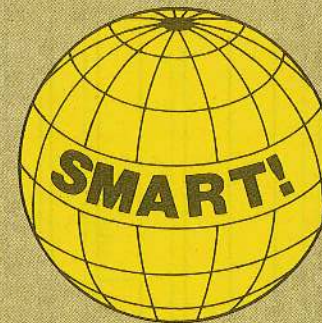




PROJECT SMART

SUPPLY and MAINTENANCE ASSESSMENT and REVIEW TEAM

For use of this form, see HQDA LTR 700-86-1, the proponent agency is DCSLOG.



STOP, BE SMART:

- HAVE YOU INCLUDED A FULL ADDRESS (*Rank, APO, Etc.*)?
- HAVE YOU INCLUDED ONLY ONE IDEA ON THIS FORM (*Multiple ideas on a single form delays your getting an answer*)?
- DO YOU KNOW THAT DA FORM 2028 IS THE WAY TO GO IF YOU WANT TO CHANGE A PUBLICATION, AND SF 368 IS ANOTHER WAY TO IMPROVE EQUIPMENT (*EIR's*)?
- DOES THE IDEA APPLY TO A SUPPLY, MAINTENANCE OR TRANSPORTATION IMPROVEMENT? IT CAN BE ANY LEVEL.
- HAVE YOU RE-READ YOUR IDEA TO INSURE IT SAYS WHAT YOU WANT IT TO SAY?
- HAVE YOU INCLUDED DIMENSIONS, IF APPROPRIATE?
- DO YOU KNOW THAT YOU DON'T HAVE TO USE THIS FORM? YOU CAN SEND US A LETTER IF YOU WANT TO GIVE US MORE INFO THAN THE FORM PERMITS OR TO SEND PHOTOS.
- MOST OF ALL, DO YOU KNOW THAT THE FOLKS AT SMART CARE ABOUT YOUR IDEA?

DA FORM 5533, OCT 86

REFERENCES (If any): _____

CURRENT PROBLEMS/PROCEDURES: (Print) _____

30

RECOMMENDATION FOR IMPROVEMENT: (Print) _____

AUG 88

AUG 88

FULL NAME

RANK

31 MILITARY ADDRESS (city, state, zip code)

31

AUTOVON PHONE NUMBER

COMMERCIAL PHONE NUMBER

LOGC SMART USE

IDEA CONTROL NUMBER

Reverse of DA FORM 5533, OCT 86

*Mail this form FREE! Official mail is authorized. SEND it through your unit or mail room.

To get the best from me, you've got to use the torque values I was born with. When your TM gives you a torque value, it's not some figure dreamed up by the TM writers. It's the value that was built into me—and it can't be changed past certain limits.

My correct torque depends on what I'm made of—and how I'm made. If I'm used for some common-type job, I can be made out of common, low-grade steel . . . and it won't take much torque to stretch me.

I can be made of really tough stuff, with a lot of special qualities, needing a tremendous amount of torque to stretch me to my best performance length.

**SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)
AND AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)
GRADE MARKING CHART**

GRADE MARKING	Specification	Material	Bolt and Screw Size, in.	Proof Load psi*	Tensile Strength min., psi.
 NO MARK	SAE-Grade 1 ASTM-A 307	Low Carbon Steel	¼ thru 1 ½ ¾ thru 4	33,000 —	60,000 60,000
	SAE-Grade 2	Low Carbon Steel	¼ thru ¾ Over ¾ thru 1 ½	55,000 33,000	74,000 60,000
 SAE-Grade 5	SAE-Grade 5	Medium Carbon Steel, Quenched and Tempered	¼ thru 1 Over 1 thru 1 ½	85,000 74,000	120,000 105,000
	ASTM-A 449		½ thru 1 Over 1 thru 1 ½ Over 1 ½ thru 3	85,000 74,000 55,000	120,000 105,000 90,000
	SAE-Grade 5.1	Low or Medium Carbon Steel, Quenched and Tempered with Assembled Lock Washer	No. 6 thru ¾	85,000	120,000
	SAE-Grade 5.2	Low Carbon Martensite Steel, Quenched and Tempered	¼ thru 1	85,000	120,000
	ASTM-A 325 Type 1	Medium Carbon Steel, Quenched and Tempered	½ thru 1 1 ½ thru 1 ½	85,000 74,000	120,000 105,000
	ASTM-A 325 Type 2	Low Carbon Martensite Steel, Quenched and Tempered	½ thru 1	85,000	120,000
	ASTM-A 325 Type 3	Atmospheric Corrosion Resisting Steel, Quenched and Tempered	½ thru 1 1 ½ thru 1 ½	85,000 74,000	120,000 105,000
	ASTM-A 354 Grade BB	Alloy Steel, Quenched and Tempered	¼ thru 2 ½ 2 ¾ thru 4	80,000 75,000	105,000 100,000
	ASTM-A 354 Grade BC	Alloy Steel, Quenched and Tempered	¼ thru 2 ½ 2 ¾ thru 4	105,000 95,000	125,000 115,000
	SAE-Grade 7	Medium Carbon Alloy Steel, Quenched and Tempered, Roll Threaded after Heat Treatment	¼ thru 1 ½	105,000	133,000
	SAE-Grade 8	Medium Carbon Alloy Steel, Quenched and Tempered	¼ thru 1 ½	120,000	150,000
	ASTM-A 354 Grade BD	Alloy Steel, Quenched and Tempered			
	SAE-Grade 8.2	Low Carbon Martensite Steel, Quenched and Tempered	¼ thru 1	120,000	150,000
	ASTM-A 490	Alloy Steel, Quenched and Tempered	½ thru 1 ½	120,000	150,000 min. 170,000 max.

*Proof Load is the measure of load that can be applied without causing permanent set.

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

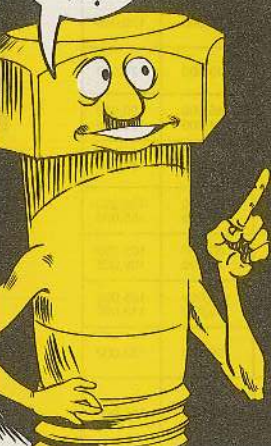
SMART
U.S. ARMY LOGISTICS CENTER
FORT LEE, VIRGINIA 23801-6000

(TAPE OR STAPLE HERE)

The mechanical advantage you get by twisting with a wrench is fantastic. By turning and turning you can stretch me completely out of shape, snap off my head, strip my threads or the nut threads, crack the nut, destroy my washers ... not to mention damaging whatever I'm holding together.

Let's say you torque me beyond my built-in limits. If my head or nut doesn't give first, I stretch out so far I can't snap back. I've lost my elasticity. But you don't know I'm sprung so you keep on torquing. Even if you get the torque reading you're looking for, it's going to be wrong. Comes the first bit of stress or strain, I'm either going to snap, or else my nut will start backing off. It's a sure bet that what you've joined together is sooner or later going to split asunder.

AS YOU CAN SEE, IF YOU WERE TO APPLY GRADE 8 TORQUE TO A GRADE 5 BOLT YOU'D DESTROY IT!



DIAMETER/ THREADS PER INCH	TORQUE LB-FT NO DASHES (GRADE 2)	TORQUE LB-FT 3 DASHES (GRADE 5)	TORQUE LB-FT 6 DASHES (GRADE 8)
1/4-20	3-5	6-8	10-12
1/4-28	4-6	8-10	9-14
5/16-18	7-11	13-17	19-24
5/16-24	7-11	14-19	23-28
3/8-16	14-18	26-31	39-44
3/8-24	15-19	30-35	46-51
7/16-14	23-28	44-49	65-70
7/16-20	23-28	44-54	69-79
1/2-13	32-37	65-75	95-105
1/2-20	34-41	73-83	113-123
9/16-12	46-56	100-110	145-155
9/16-18	47-57	107-117	165-175
5/8-11	62-72	140-150	200-210
5/8-18	67-77	153-163	235-245
3/4-10	106-116	260-270	365-375
3/4-16	115-125	268-278	417-427
7/8-9	165-175	385-395	595-605
7/8-14	178-188	424-434	663-673
1-8	251-261	580-590	900-910
1-14	255-265	585-634	943-993
1 1/4-7	451-461	1070-1120	1767-1817
1 1/4-12	488-498	1211-1261	1963-2013
1 1/2-6	727-737	1899-1949	3111-3161
1 1/2-12	816-826	2144-2194	3506-3556

The first screw of each diameter is Unified Coarse threads, and the second is Unified Fine threads.

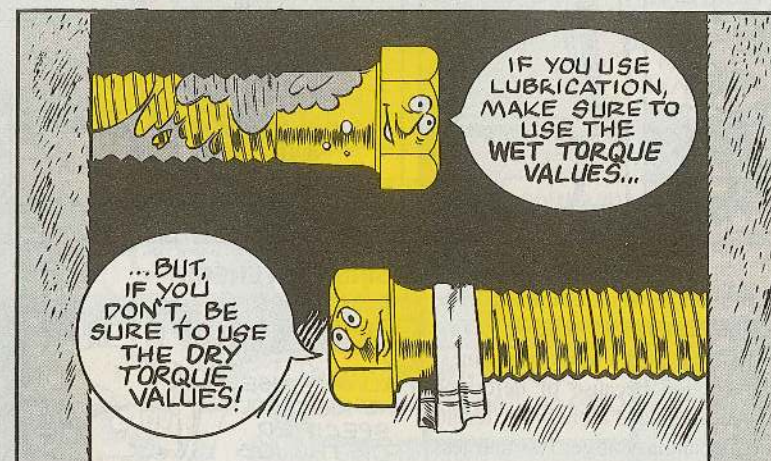
Use this chart only if your TM gives no torque values.

Also, if you tried to torque a grade eight with grade five torque, you'd never get the bolt to stretch like it should. Result—loose connections.

So, never substitute a bolt graded lower than one called for. If you substitute a higher grade bolt, the extra torque needed may be too much for the job. You could ruin the connection.

WET TORQUE VS DRY TORQUE

About 90 percent of the torque you apply goes to overcome friction; only 10 percent is used for tightening. Anything you use to lubricate fasteners reduces friction. The same amount of torque will create more tightening force—probably too much. If you use lubrication, make sure you use a wet torque value, not a dry one. On the other hand, using a wet value torque on a dry fastener will not get the right amount of clamping force.



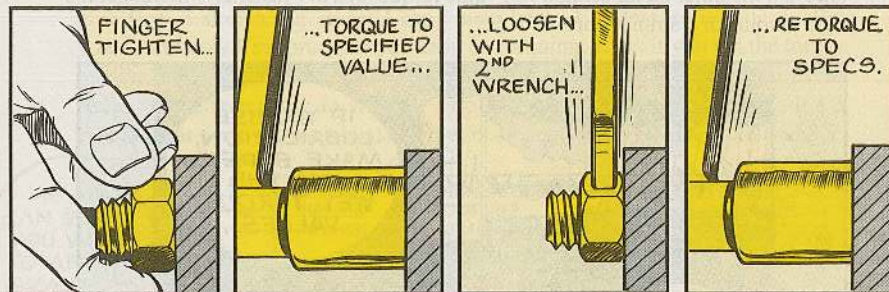
WHAT ABOUT WASHERS?

If washers are called for, they must be able to withstand the torque without thinning out. A soft washer will "beat out" under load, leaving the fastener loose enough to cause a failure. If your TM calls for washers, use only those specified. Any washer just won't do.



THE BEST WAY TO TORQUE

Make sure the threads of the nut and bolt are clean.
Run the nut up by hand until it begins to tighten.
Torque the nut to the specified value in one steady, continuous motion.
Loosen the fastener with another wrench. (Do not use a torque wrench to loosen any fastener.) Loosening cleans the threads of burrs and dirt and lets the mating surfaces seat and align with each other.
Torque to specs.



WHAT ABOUT RE-USING FASTENERS?

You can't get the same clamping force with the same amount of torque with a fastener that's been used a number of times. Increased friction because of deformed threads takes more and more of the torquing effort, meaning you get less and less holding force.

As an example, a certain bolt had a tension load of 13,250 pounds with 170 lb-ft of torque. On the sixth time the nut was installed, the 170-lb-ft of torque produced only 7,500 pounds of load, a loss of 43.5 percent. If your TM calls for a new fastener, use it. Otherwise you're asking for trouble.

There you have it. The story of my life. I can keep the things of the world together, but only with your help.



AIR MOBILITY

Airlifting...

External Loads Updated

Do you have to rig a load for external slingloading from an Army helicopter that's not listed in FM 55-450-1?

Rigging procedures for new loads have been developed, but have not yet made the FM.

To find out if there's an approved rigging for a load for which there's no listing in the FM, touch base with the Transportation School at Ft. Eustis, VA.



WRITE THEM AT...

...OR CALL THEM AT:

COMMANDANT
USA Transportation School
ATTN: ATSP-TDD-T
Ft Eustis, VA 23604-5408

AUTOVON 927- 6570/6963
or Commercial (804) 878-6570.

Aviation Messages

If your unit has not received a message you have an interest in, check with your next higher headquarters.

OH58-88-03, SOF, Maint Mandatary, Inspection of the engine accessory drive oil vent hose for proper routing, 051700Z Apr 88.
AH64-88-08, SOF, Technical, Revision to tail rotor swashplate assembly time between overhaul (TBO), 072200Z Apr 88.
CH47-88-08, SOF, Technical, Inspection of engine cross shaft, 082200Z Apr 88.
AH64-88-09, SOF, Technical, Inspection of the tail rotor servo cylinder assembly, 121800Z Apr 88.
OH-68-04, SOF, Technical, Inspection for removal of certain serial number and heat treat lot over-running clutch outer race, 261700Z Apr 88.
CH47-88-09, SOF, Operational, Identification of additional emergency descent procedures, 282200Z Apr 88.
AH-1-88-MIM-02, Differences in transmission input quill assembly P/N 205-040-263-111 and P/N 205-040-263-3, main rotor hub conversion from oil to grease, 131800Z Apr 88.
UH-1-88-MIM-02, Differences in transmission input quill assembly P/N 205-040-263-111 and P/N 205-040-263-3, main rotor hub conversion from oil to grease, 131800Z Apr 88.

CAT 1 EIR Phone:
AUTOVON 693-2066
(24 HOURS)

AH64-88-MIM-05, Serialized part tracking system (SPLTS), 132000Z Apr 88.
UH60-88-MIM-04, Serialized part tracking system (SPLTS), 132000Z Apr 88.
AH64-88-MIM-06, Advance notice of manual change to delete several inspections, 141800Z Apr 88.
AH64-88-MIM-07, Advance notice of manual change to delete several special inspections, 202000Z Apr 88.
AH64-88-MIM-08, Advance notice of manual change to add a warning concerning flight control interference, 252000Z Apr 88.

HIT's and Misses

Dear Windy,

There's some confusion about what temperature to use in making a Health Indicator Test (HIT) if the temperature is a middle reading. We use the next higher temperature, but we're not sure that's correct. What do you say?

SSG G.W.L.

TAKE TWO
ASPIRIN AND
CALL ME IN
THE MORNING!

Dear Sergeant G.W.L.,

Use the nearest outside air temperature (OAT) reading except when the OAT falls dead center between 2 temperature marks. When that happens, always record the lower mark, not the higher mark.

USE THE LOWER
TEMPERATURE WHEN THE OAT
FALLS DEAD CENTER BETWEEN
2 MARKS. FOR EXAMPLE, IF THE
OAT IS 15°C, SET THE N1% OF
YOUR UH-1H AT 89.9!

ACFT S/N		UH-1H/M, AH-1G, TH-1G EGT LOG																				ENGINE S/N										
OAT °C		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
N ₁ %		84.9	86.3	86.7	87.0	87.4	87.7	88.0	88.3	88.7	89.0	89.3	89.6	89.9	90.1	90.4	90.7	91.0	91.4	91.7	92.1	92.4	92.7	93.2	93.6	93.9	94.2	94.5	94.8	95.2	95.5	95.8
Baseline EGT																																

UH-60A...

Stow It!

O-O-H-H-H, MY
ACHING HEAD!

NEXT TIME
YOU'LL STOW
THE GUN
MOUNT RIGHT!

A gun mount stowed wrong can create a real headache for you Black Hawk gunners—or anyone else sitting in the gunner's seat.

At least one gunner got a big bump on the noggin when he was thrown forward into the gun mount as his bird landed hard.

Always stow the M60D machine gun mount right when it's not being used.

Rotate or fold the mount assembly all the way forward until the release arm assembly locks into the inward stow position.

Lock mount into
stow position

CH-47 Series...

Separation Made Easy

Some Chinook engine mechanics get in a hurry and grab a screwdriver to pry apart the engine compressor housing. This little trick breaks the ears on the magnesium housing.

Smart mechanics use four 1/4-28 bolts as jackscrews to separate the compressor housing halves.

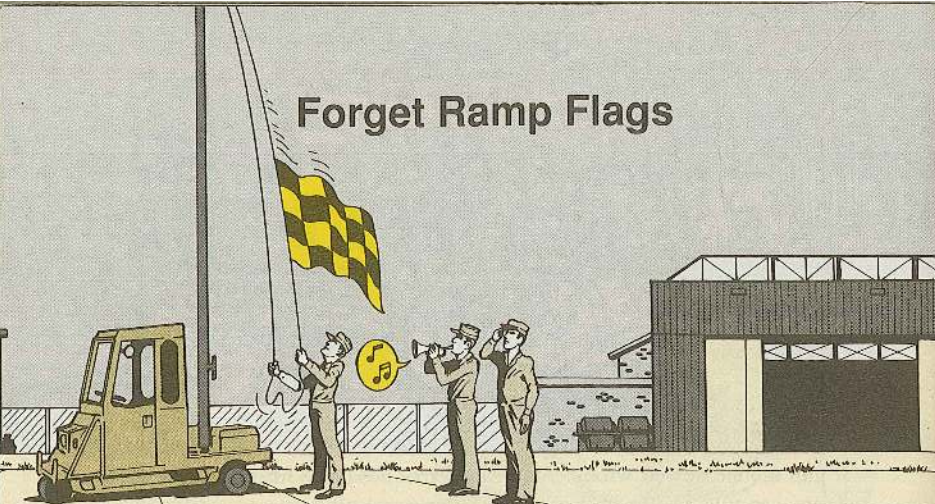
The bolts that hold the housing together will do.

Or get your AVIM machine shop to make you four T-handles from steel rods and thread them 1/4-28 about two inches on the end.

Your machine shop
can make you this
T-handle

2 inches

Forget Ramp Flags



You don't have to maintain checkered flags on your airfield vehicles any more, thanks to a SMART suggestion by Craig S. Cameron of Fort Rucker, AL.

Ramp flags were originally intended as a safety precaution on fixed wing runways. They're now considered a safety hazard in and around hovering helicopters.

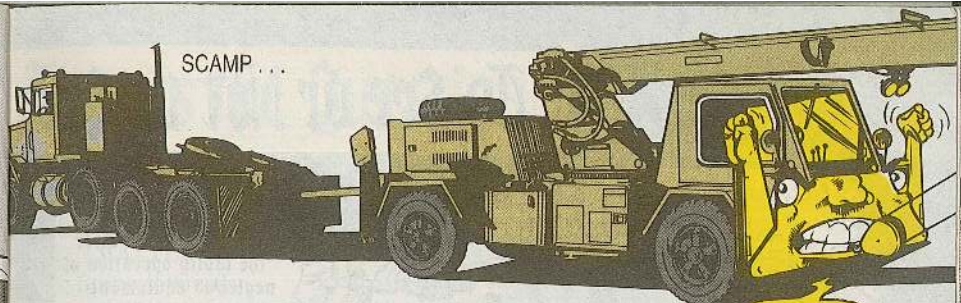
Make a note until this requirement is deleted from Para 3-5h of FM 1-300, Flight Operations and Airfield Management, and AR 750-58, Printing, Camouflage Painting, and Marking of Army Materiel.

UH-60A Blade Folding Set

If your Black Hawk came from Sikorsky without the blade folding set, NSN 1560-01-082-9202, you need to order one. Include your bird's serial number on the requisition. If you need repair parts, order them from Fig. F7 of TM 55-1520-237-23P-2.

UH-60A Vibration Absorber

The headshed says your Black Hawk doesn't need an upper cabin rear vibration absorber if the other two absorbers work OK. The word's in UH-60-MIM 88-01. Task 9, Step 2 of TM 55-1520-237-23-5 tells how to remove the rear absorber.



All the Right Moves

GO SLOW!

When you need to move your unit's 4-ton self-propelled crane for aircraft maintenance and positioning (SCAMP) to and from the field, there's more than one way to do it.

You can drive it very S-L-O-W-L-Y.

You can transport it by truck and trailer.

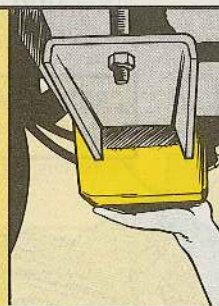
You can slingload it from a CH-47 or CH-54.

Or you can have it towed by an M916 or M920 tractor truck using the tanker's tow bar, NSN 2540-00-378-2012.

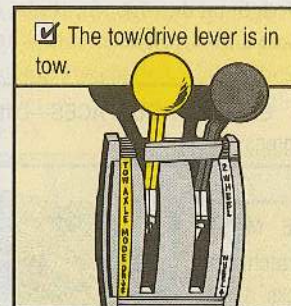
All four ways of moving from point A to point B are described in TM 5-3810-302-10, but if you tow the SCAMP, never exceed 35mph. Here are some additional checks you need to make every 25 miles if you tow the SCAMP. Make sure:

☒ Transmission, wheels and brakes are not hot when you touch them.

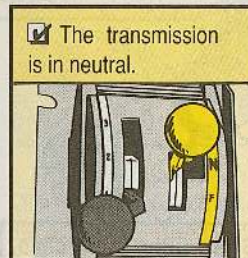
(Be careful. Wheels, brakes and the transmission may be real hot!)



☒ The tow/drive lever is in tow.



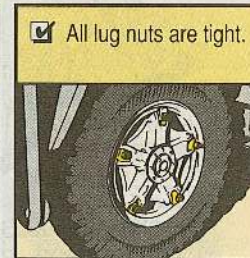
☒ The transmission is in neutral.



☒ The tow bar is securely fastened.



☒ All lug nuts are tight.



To See or Not to See: That is the Question...



To light up the night for flight, open your eyes to NVG maintenance.
Here's what you need to look for before each NVG mission:

EXTERIOR SURFACES—Dirty,
greasy or oily.

ROTARY SWITCH—Won't move
freely through three positions.

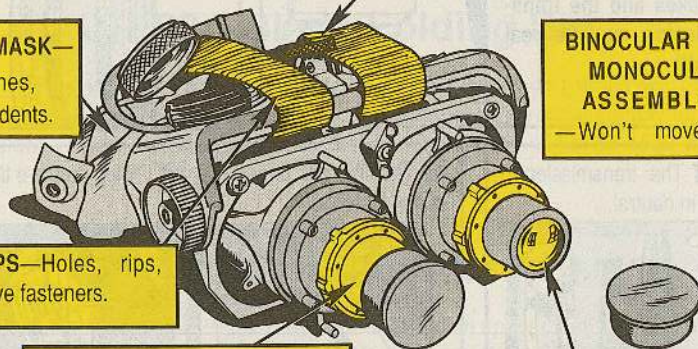
FACE MASK—
Scratches,
cracks, dents.

**BINOCULAR AND
MONOCULAR
ASSEMBLIES**
—Won't move freely.

STRAPS—Holes, rips,
defective fasteners.

**DIOPTER ADJUST RINGS AND
FOCUS KNOB**—Binding, won't
move freely.

LENSES—Dirty, scratched,
chipped or cracked.



Here's what to look for after each
NVG mission:

BATTERY COMPARTMENT—
Stripped threads.

DEMISTING SHIELDS—Finger-
prints, dirty.

CARRYING CASE—Dirty,
greasy, oily.

Dirty?



Here are some DO's and DON'Ts:

DO loosen the lever clamp before you
try to slide an eyepiece.

DON'T overtighten the lever clamp
when the eyepiece is where you want it.
That strips threads.

DO keep the self-locking nut inside
the clamp knob tight.

Keep self-locking
nut tight



DON'T forget to turn off the OFF-
ON-IR rotary switch when the goggles
are not being used. Battery power
drains fast with the switch turned to ON
or IR.

DO tighten the rotary switch knob set
screws before you use the goggles. The
socket head screw key for tightening is
stored in the carrying case.

Tighten set screw
before using goggles

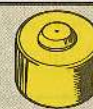


DON'T try to clean the lenses with
anything but water and lens paper, NSN
6640-00-597-6745, soft tissue paper or
a soft, clean cloth.

DO make sure the battery is installed
correctly. The flat, positive (+) end goes
into the compartment first. Unlike most
small batteries, the raised end is the
negative (-).



Flat end of
battery goes
DOWN in
compartment

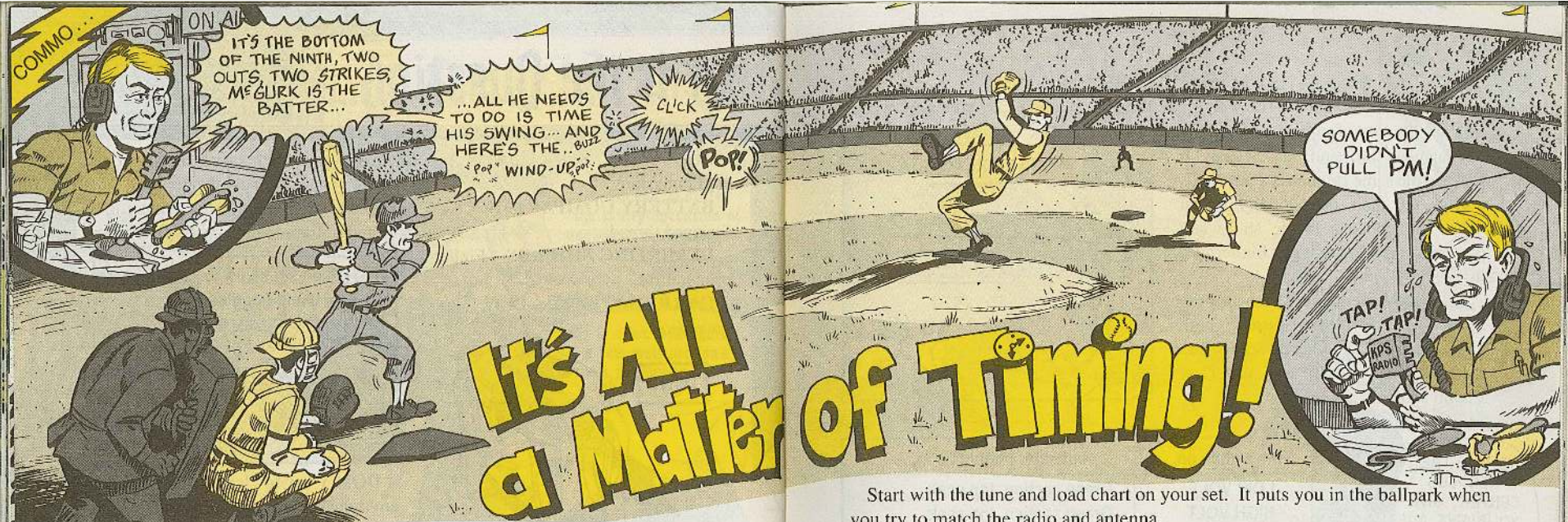


Raised end
goes **UP**
in battery
compartment

DO become thoroughly familiar
with TM11-5855-238-10, Night Vision
Goggles.

Alas, Horick,
if only you
had done
your
goggle
PM!





Sometimes timing is everything. Just ask a homerun hitter, a grenade thrower, an auto mechanic. . . or an AN/GRC-106 radio set operator.

Radio operator? Sure, you operators have to pay close attention to posted time limits or you won't be operating.

You need to wait 10 minutes for that big AM to warm up before applying any power. If you don't, the power surge could blow a cold power tube.

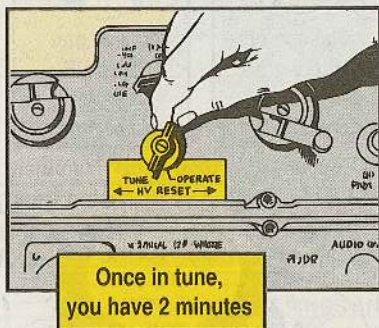
2-Minute Warning

You get only 2 minutes to tune and load your antenna. That's firm. Trying to stretch 2 minutes to 3 or more overheats your radio and blows final amplifier tubes.

If you hit 2 minutes and you're not loaded, slip your HV RESET switch to OPERATE and your receiver-transmitter's SERVICE SELECTOR to STANDBY.

Give your set a 5-minute cooling off period, then try to load your antenna again.

All the cards are not stacked against you in this game of "Beat the Clock," though. Here are some corner-cutting and time-saving tips you can use.



Start with the tune and load chart on your set. It puts you in the ballpark when you try to match the radio and antenna.

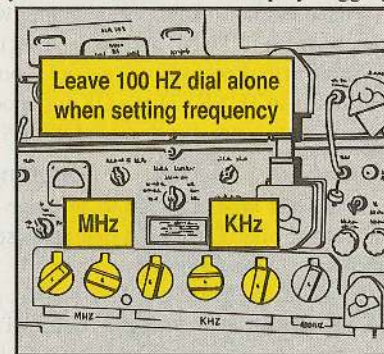
There are guides on the chart, so use the right guides. For example, if you're using the 15-ft whip antenna, use that guide, not the 50-ohm guide.

15 FOOT WHIP ANTENNA									50 OHM DOUBLET ANTENNA								
FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD
2,000	300	200	4,000	450	700	16,000	500	800	2,000	400	500	3,000	600	800	13,000	400	900
2,500	300	300	5,000	450	800	16,000	400	900	2,500	500	600	7,000	500	850	29,000	400	900
7,750	300	400	10,000	500	850	20,000	400	950									
9,500	400	500	10,000	600	950	20,000	500	950									
LOGGING									CHART								
CH	FREQ	TUNE	LOAD	ANT													

Remember either guide is only giving you a ballpark figure. You have to fine tune to put the needles dead center. Save yourself some time next trip by logging final readings in on the chart, too.

If the chart is missing, order a new one with NSN 7640-00-003-8085. This NSN is not on the AMDF, so order on DD Form 1348-6 using RIC B16.

Don't use the 100-Hz dial when setting freqs on your RT. You won't be able to tune or load because your set will be off frequency. Use only the first 5 dials. Numbers to the left of the decimal point are MHz; those to the right are KHz.

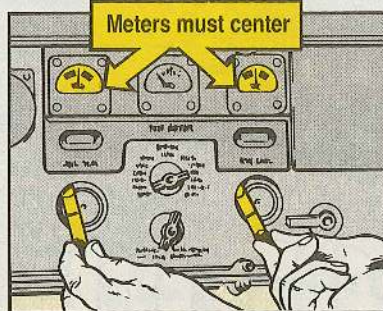


Fine Tuning

Keep in mind that your -106 won't give the same readings day after day, even if you use the same frequency. The atmosphere can change readings.

That means tune and load each day. If you use the same frequency constantly, change the dials occasionally. That keeps the contacts inside shiny and prevents corrosion that can hinder tuning.

Or, if the meters won't center at the same time, try slowly turning both knobs at once in the direction you want the meter needles to move. They should center.



ONCE THE NEEDLES CENTER, GIVE YOUR SET A FINAL RUN-THROUGH ON THE TEST METER!

With switch on...	Indicator should be in...
LOW VOLT	Green section, top scale
HIGH VOLT	Green section, top scale
DRIVER CUR	Within 2 green wedges, top scale
PA CUR	Gray section, bottom scale
GRID DRIVE	Gray section, bottom scale
POWER OUT	Gray section, bottom scale

All set? Go to OPERATE. The test meter indicator should go to the extreme left of the scale. Give the set a minute to warm up. That gets rid of heat in the final amp and prevents transistor damage.

Tuned but not loading or operating when you switch to OPERATE? Make a quick switch to TUNE and back. That might clear it up.

Those in the know say you get only about a 75 percent accurate reading while HV RESET is in TUNE. That's OK for good performance. But, if you want to shoot for a perfect score, finish up in OPERATE with the set keyed.

Shutting Down

Your final time check is to set your RT in STANDBY for 2 minutes before shutting it off. This gives operating sets a chance to cool off before the heat exchanger shuts down.

To make sure the set will start again, see that the HV RESET is in OPERATE before you switch the set off. Left in TUNE, the high voltage reset relay won't energize, leaving you with a dead set when you're ready to start up again.

Shorter RF Cable is Best

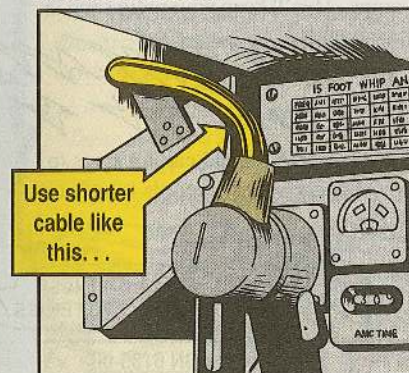


Enough's enough when it comes to the length of the CX-10171 electrical lead between your antenna and radio set.

Too much cable will keep you from loading your radio's antenna at frequencies of 23-26 MHz.

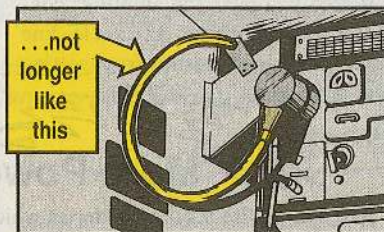
cable also reflects RF power and affects the signal, which prevents you from tuning and loading right.

After you've measured the length you need—about 4 feet—cut off the



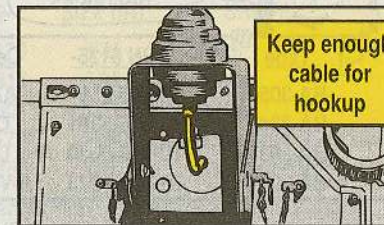
The RF cable comes in 6-ft lengths. You may need less, depending on the equipment you're using.

That excess folded or looped cable becomes part of the antenna. The extra



extra cable length.

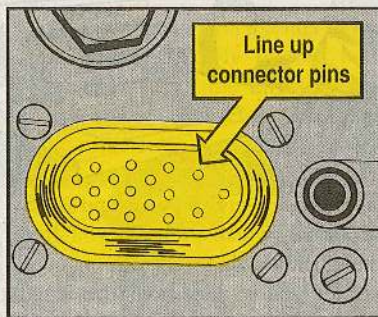
Be sure you have enough to make the connections. This is one case where shorter is better.



Stop Burned-Out Feeling

Any time you connect your amplifier-power supply group to your radio mount, make sure the power's off.

Just turn the ON-OFF switch to OFF before you slide the OA-3633 with an RT-841 into the mount. This will head off any damage from electrical arcing.

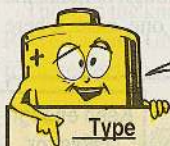


Before you push the amplifier connector into the mount receptacle, line them up. This saves pins from getting bent or broken.

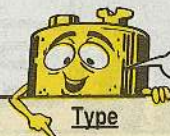
Dry-Cell Batteries...

More Power to You!

Use longer-life alkaline batteries which are replacing the old carbon zincs to operate your common equipment. Mark your battery supply records to reflect the change.



THESE ALKALINE BATTERIES...



REPLACE THESE CARBON BATTERIES!

Type	NSN 6135-	Cell	Type	NSN 6135-00-
BA-3058	00-935-2587	AA	BA-58	120-1030
BA-3042	00-935-5301	C	BA-42	120-1010
BA-3030	00-930-0030	D	BA-30	120-1020
BA-3090	01-063-1978	9-Volt	BA-90	850-3177

Make a note that the unit of issue is by the package (24).

Put Power Back in It

Before you get rid of a battery, treat it to a two-minute warmup to make sure it's bad.

Sometimes a chemical film forms over the magnesium plates of a battery after it sits around awhile.

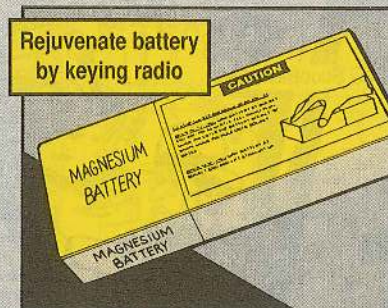
This will block or cause poor transmission.

You can save a battery and money by keying your radio a couple of minutes to rejuvenate the battery. That goes for a new battery or one that's been sitting around between missions or stored for long periods.

You can make the two-minute keying into a dummy load or an unused channel to keep from interfering with an important message that might be sent.

Soldering Iron...

Rejuvenate battery by keying radio



Cordless Kind with Tips

Dear Macon,

We need a battery-powered soldering iron for electrical and electronic components repair. Can you help with an NSN and authority?

SGT J.J.A.

Dear Sergeant J.J.A.,

NSN 3439-01-045-1817 gets a cordless, electric soldering iron with rechargeable nickel-cadmium batteries.

HERE ARE SOME TIPS FOR YOUR CORDLESS SOLDERING IRON!

NSN 3439-	SIZE (IN)	TIP SHAPE
01-073-1178	5/32	chisel
00-264-5818	5/32	regular
00-264-5807	1/16	fine tip
01-073-1179	3/16	heavy duty (high wattage)
01-043-6780	1/16	tuner extension

Use Appendix A of CTA 50-970 as your authority.

TROOP SUPPORT

MW24C Scoop Loaders

Too Loose Le Bolt

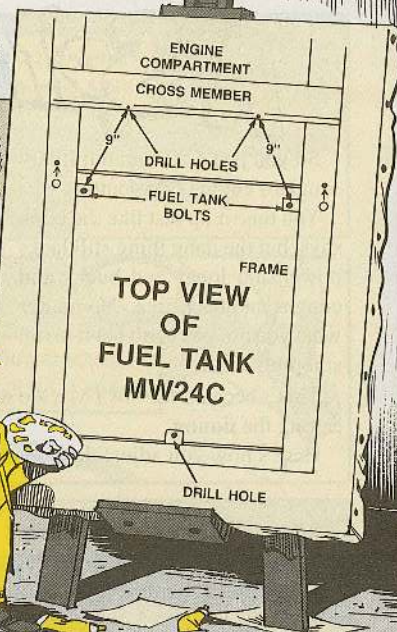
• Torque the nuts to 220 lb-ft.

• Drill a 1/8-in hole on the crossover bar between the fuel tank and the loader's frame on the rear of the loader.

• Drill a 1/8-in hole 3 inches forward of each mounting bolt on the ledge of the frame on each side of the loader. Center the holes on the ledge.

• Lace the safety wire through each bolt and the newly drilled holes near it. Twist the wire's ends tight.

That should hold, but keep an eye on the bolts during your weekly PMCS.



It's not a pretty picture when the bolts holding the fuel tank in MW24C scoop loaders come loose. The fuel tank could fall off.

So eyeball the bolts when you walk around that brute during your PMCS.

If the bolts are snug, leave 'em alone. If you spot shiny spots around the bolt heads, or if you see a loose bolt, report it.

You mechanics need to replace the original bolts with new bolts, PN MS18154-138L, CAGE 96906, and safety wire, NSN 9505-00-722-1584. Order the bolt by PN on a DD Form 1348-6 from S9G.

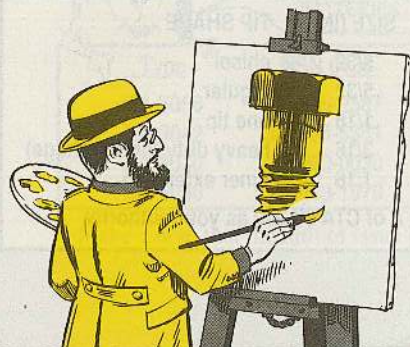
It takes 3 bolts and about 40 inches of safety wire for each loader.

Change the bolts like so:

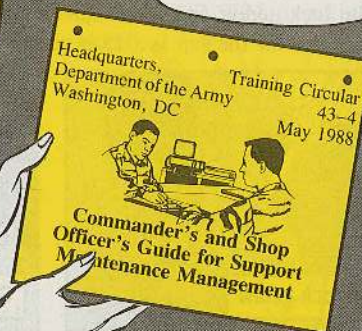
- Center a floor jack underneath the fuel tank. Put a board on the plate and raise the jack until the board touches the tank.

- Remove the 3 original bolts, washers and nuts.

- Put in the new bolts using the old washers and nuts. Snug 'em up.



EVERY COMMANDER AND
SHOP OFFICER NEEDS THE
NEW TRAINING
CIRCULAR 43-4.



A Spittin' an' a Sputterin'

So you just got a small military standard engine that sputters.

You tune it up just like the book says, but the dang thing still lacks power and lopes and bucks and coughs and backfires. No matter what you do, you can't get it to run smoothly.

That's because the -14 TM's are wrong when it comes to adjusting the points and setting the timing.

Here's how you adjust the points and set the time to stop the sputtering.

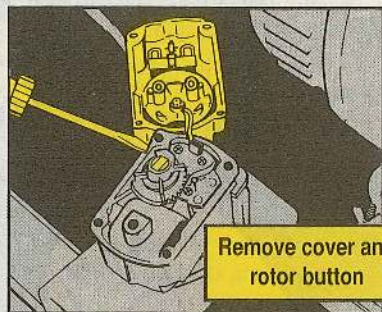
Setting Points

Remove the top cooling shroud.

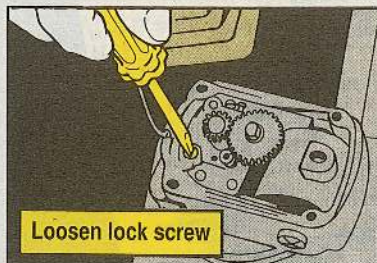
Then, take off the magneto cover—and the rotor button on the 20-HP models.

Look at the points. If they're burned, replace them.

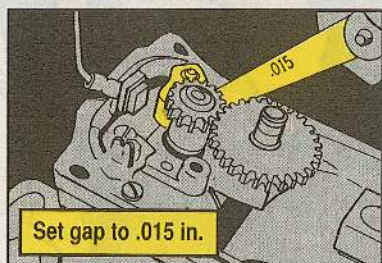
Measure the gap with the feeler gage in your general mechanics tool kit. The gap should be .015-in. If the gap is off, loosen the lock screw and move the point bracket until the gap is .015-in.



Remove cover and rotor button



Loosen lock screw



Set gap to .015 in.

Tighten the lock screw. Now doublecheck the gap!

Put on the rotor button of the 20-HP models and the magneto cover of both models.

Engine Timing

Remove the No. 1 spark plug.

Put your thumb in the No. 1 hole.

Turn the starter pulley clockwise until air comes out of the hole.

Now turn the pulley until the TDC (top dead center) mark on the flywheel lines up with the mark on the flywheel housing.

Connect the No. 1 spark plug wire to the magneto.

Hold the other end close to the magneto.

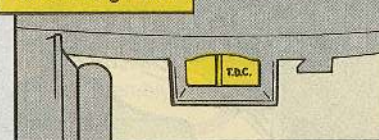
Turn the magneto gear clockwise. Stop when you get a spark. That sets basic timing.

Reinstall the Magneto.

Remove the engine speed governor so you can see the magneto gear timing mark.

Make sure the timing mark on the magneto gear lines up with the mark on the camshaft gear.

Line up TDC mark to housing mark



Turn clockwise until No. 1 sparks



Line up marks



Use Timing Light

Connect the magneto timing light, NSN 4910-00-937-5724, found in the No. 1 Common shop set to the No. 1 spark plug lead.

Start the engine and run it at operating speed.

If the timing light shows that the timing mark lines up with the flywheel housing mark, you're OK to go.

If the marks do not line up, loosen the magneto mounting bolts. Adjust the magneto to get the timing marks lined up. Tighten the bolts.

Now stop the engine, disconnect the timing light and replace the top cooling shroud.

Your sputtering engine will run smoothly.



Light UP the Night

Your nights will shine if you use these repair parts on the gasoline lantern. NSN 6260-00-170-0430.

HERE'RE THE PARTS YOU CAN GET...

NSN 6260-00-174-3873
Channel, globe

NSN 6260-00-284-0554
Generator, burner assembly c/o generator tube assembly, burner tip, air supply tube, air tube bracket, manifold tube, mantle holder, manifold block, yoke, adapter nut, screw

NSN 6260-00-284-0551
Frame assembly

NSN 6260-00-270-4061
Filler cap assembly c/o filler cap, screw, retaining ring, chain, swivel chain link, gasket, disk.

NSN 6260-00-578-7162
Funnel assembly w/ retaining ring, chain

NSN 5120-00-288-9687
Wrench assembly

NSN 6260-00-270-4060
Mantle (6 per box)

NSN 6260-00-174-3874
Quadrant, globe

NSN 6260-00-161-1859
Locknut, generator

NSN 6260-00-284-0549
Fuel valve assembly c/o knob assembly, fuel valve body, valve stem, packing, fuel feed tube, air valve tube

NSN 6260-00-284-0555
Pump plunger assembly c/o pump, tube, handle, cup, spring, spacer, 2 washers, cup and 2 locking nuts

NSN 5120-00-646-7576
Air check valve tool

There's also a spare parts kit for the lantern. It's NSN 6260-00-553-1090, and includes a plunger cap, generator tube assembly and pricker assembly.

Eyeball Appendix C of FM 10-23 (Army Food Service Operations) for PM information.

NSN 6260-00-553-1090

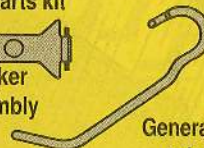
Spare parts kit



Pricker assembly



Plunger cap



Generator tube assembly

Ice Chest Pubs

There are 6 manufacturers making 200-lb ice chests under NSN 4110-00-142-2445 or 400-lb chests under NSN 4110-00-640-1941. Each manufacturer has its own service manual and assigns its own numbers to the repair parts. Those part numbers appear in the service manuals.

If your manual has done a vanishing act, request a new one for your chest, before you order parts.

HERE'RE THE SERVICE MANUALS YOU CAN GET FOR 200- AND 400-lb ICE CHESTS...

SIZE	TM-DGSC-4110-	MANUFACTURER
200/400-lb	554	Brenner Metal Products Corp.
200/400-lb	681	Morton Manufacturing Co.
200/400-lb	425	Auto Skate Co., Inc.
200/400-lb	711	Taltech International, Inc.
400-lb	508	MGR Equipment Corp.
400-lb	522	R.S.P. Industries, Inc.

ORDER THE MANUALS FROM...

Defense General Supply Center
ATTN: DGSC-SDA
Richmond, VA 23297-5000

Ignition

Ignition cable problems are putting M3A4's on the NMC list.

Moisture gets in cables and shorts them out. Heat from the M3A4 cracks cable insulator sleeves, leaving you powerless. Ignition cables are in short supply, so it takes a long time to get a replacement.

You can keep moisture out of cables by keeping your M3A4's covered or inside when they're not in use. Cover them in the field, too, in case it starts raining.

If a cable gets wet, let it air dry for 24 hours before you try to start the generator. Never stick it in the oven or any place hot. That will ruin it. Just let it dry naturally.

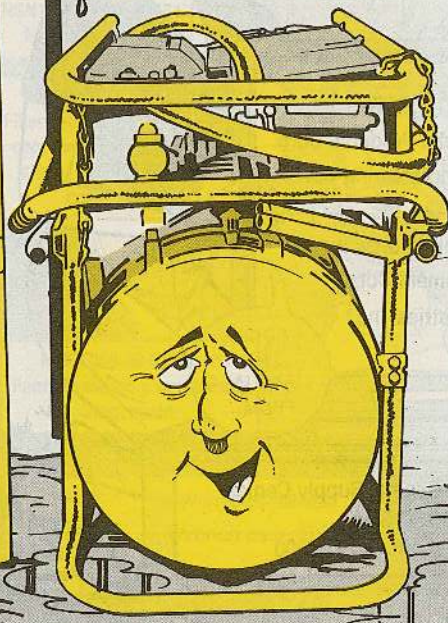
If the cable's shot, try substituting an M880 truck 13-in spark plug cable, NSN 2920-01-040-3175. M880 cables probably won't last as long because of the M3A4's high operating temperature.

Cracked Sleeves

If all that's wrong is a cracked insulator sleeve on the end of the cable, here's a fix:

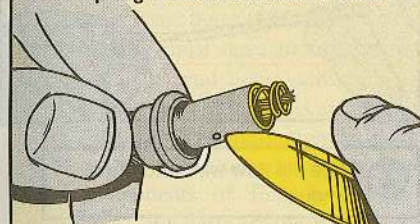
- 1 Get a new sleeve, NSN 2920-00-517-9027.

INTEMPERATE CLIMES
WILL RUIN CABLES, BUT
JUST A LITTLE CARE CAN
TURN THOSE TABLES!



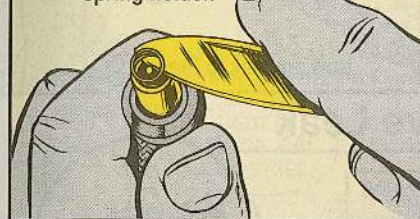
Cable Help

- 2 Carefully pry the nail at the base spring holder loose with a knife.

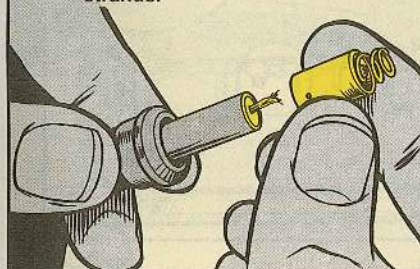


Careful-like so that you don't damage the wire. Then pull out the nail with needle-nosed pliers.

- 3 Straighten wire bent over the spring holder.



- 4 Gently pull off the insulator, being careful not to break any wire strands.

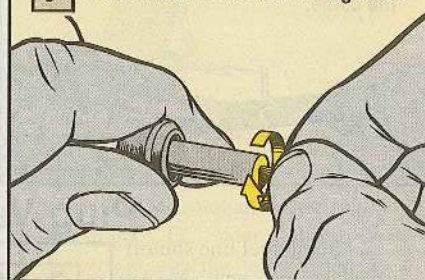


- 5 Straighten the wire. Make sure it's at least 1/4 inch long.

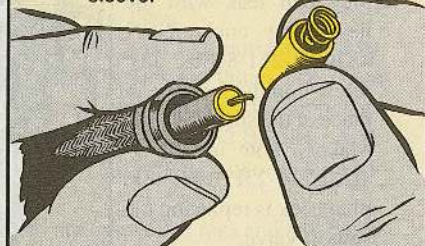


If it's not, strip off enough insulation so there is a 1/4 inch of wire showing.

- 6 Now twist the wire ends together.



- 7 Push the wire through the new sleeve.



Be careful not to damage the spring holder and sleeve.

- 8 Bend the wire ends back over the contact spring holder.

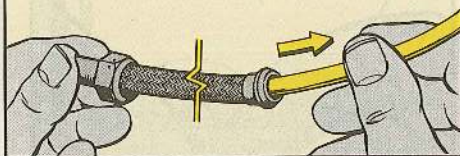


Make sure you get a good connection. No need to put the nail back.

After step 5, if the wire's too short to let you strip 1/4-in off each end, replace it with a 13 1/4-in length of wire, NSN 6145-01-010-7014, that's had 1/4-in of insulation stripped from each end.

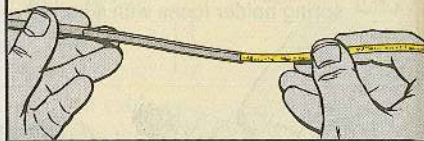
Heres how:

- 1 Hold the other insulator sleeve and pull the Teflon conduit-wire assembly out of the cable.



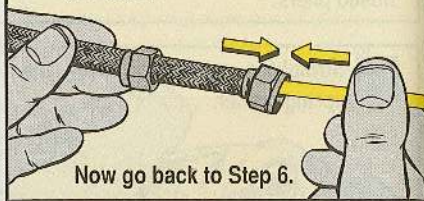
- 2 Take off the other sleeve.

- 3 Pull the wire out of the conduit.



- 4 Slide the new wire into the conduit.

- 5 Slide the conduit back into the cable.

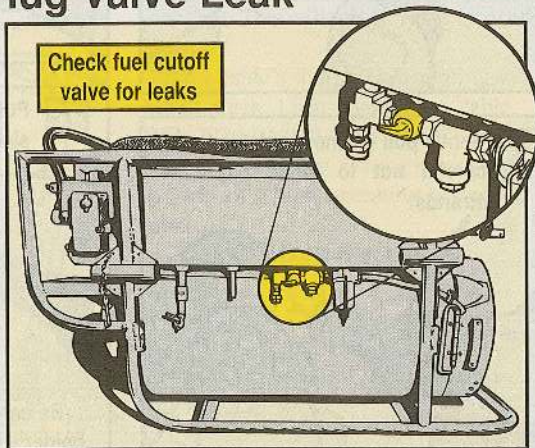


Now go back to Step 6.

Plug Valve Leak

Some fuel line shutoff valves on new M3A4 smoke generators are leaking. You mechs can plug that leak with the new plug cock, NSN 4820-01-251-8680. Just screw it in the fuel line in place of the shutoff valve. Make a note in TM 3-1040-276-23P that the plug cock is replacing the shutoff valve.

You're ready to start smokin' again.



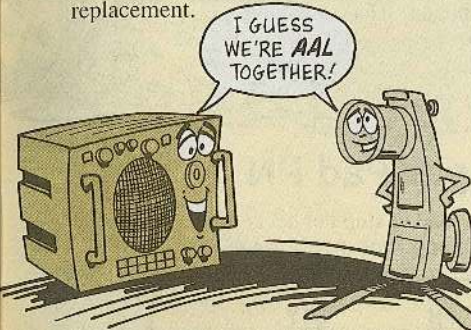
AAL You Need to Know

Knowing what BII, COEI and AAL are all about can make all the difference when you're trying to figure out what gear your unit needs and how to order it.

Basic Issue Items (BII) are what you absolutely must have to support and maintain an end item—screwdrivers, TM's and lubricating guns are usually BII. BII stay with the equipment at all times, even when the equipment's turned in. Your -10 TM is the authority for ordering BII.

Components of End Item (COEI) are parts of the end item that are packed and shipped separately. COEI stay with the end item if it's turned in. The firing pin for an M242 machine gun mounted on an M2 Bradley is an example of COEI.

COEI are listed in your -10 TM only so you will have their NSN's if you need to order replacements. That's the only time you order COEI: when you need a replacement.



items stay with your unit if an end item's turned in. The ordering authority for AAL is a CTA, MTOE, TDA, or JTA.

Expendable/Durable Supplies and Materials are things like rags and lens paper that you need to take care of an end item. They're yours to keep. Authority to order them is CTA 50-970 or CTA 8-100 (medical).



Your -10 TM is not an authority for ordering COEI. Your authority is the parts manual the item is listed in.

The only exceptions are COEI listed under ON-BOARD SPARES. Your -10 TM is the authority for ordering them.

Additional Authorization List (AAL) items are things like range finders and radio sets that support an end item like an M2 Bradley. AAL

Commercial Pubs Available

Commercial pubs for hand and power tools, spraying equipment, test sets, transistors and other AMCCOM-managed items are available on request.

YOU CAN GET AN INDEX TO THESE PUBS BY CALLING **AUTOVON** 793-6525/3835 OR **COMM** (309) 782-6525/3835 FROM 0700 HOURS TO 1400 HOURS (CENTRAL TIME) WEEKDAYS, OR WRITE TO:

HQ, AMCCOM
ATTN: AMSMC-MAS-S
Rock Island, IL 61299-6000

If there's a pub listed you need, or you want to receive the index's quarterly update, order a copy from the same address.

Soak Up the Spill

NSN 7930-01-145-5797 gets you a 25-lb bag of absorbent/anti-slip compound. The compound soaks up oil and grease spills. This helps stop injuries and reduces maintenance downtime.

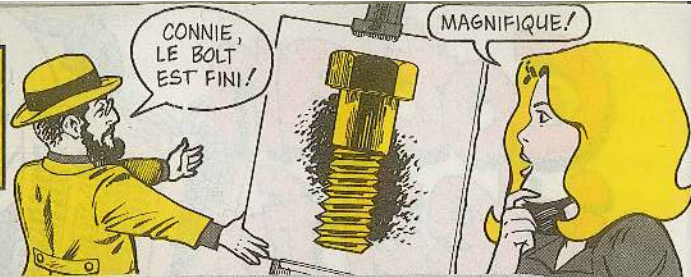
175B Bumper Pad PN

You can get the rubber bumper pads used to stop the bucket from hitting the boom arms. You won't find the parts in TM 5-3805-257-20P, but here's what you need:

ITEM	PN	QTY
11 Gage Shims	1548151	2
Cap Screws	10G1020H	4
Rubber Bumper Pads	1543010	2

Order them on DD Form 1348-6 using CAGE 40152 and RIC S9C.

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M16 Handguards

M16A1 and M16A2 rifle handguards may have up to two of their three front retaining tabs missing and still be usable. The word's in AMCCOM Msg AMSMC-MAW 041815Z May 88.

Aircraft Time Change

Local purchase of time change components or parts listed in your bird's -23 TM is strictly taboo unless you get AVSCOM's approval. See AVSCOM Msg Gen-MIM-88-01 on how to request approval.

Quick Release Pins Hit M1 PMCS

The quick release pins used on the steering and brake control cables of M1-series tanks have been added to the monthly PMCS. If you can remove the pins from the cable clevis without depressing the release button, mark the tank NMC. Get the pins cleaned and made to work again, or get them replaced. The PMCS addition will show up in updated TM's, but you can use TACOM Msg AMSTA-MCD 041030Z May 88 as authorization for this crew-level check.

Do the SPL(i)TS

You're now required to keep more detailed records of your Black Hawk's or Apache's engines, modules and components to support the serialized parts life tracking system (SPLTS). The what-for and how-to is in UH-60-MIM-88-04 and AH-64-MIM-88-05.

M16A2 Rifle Sling

In your M16A2 rifle TM 9-1005-319-10, add on Page 119: "Sling Small Arms, NSN 1005-01-216-4510, PN 12624561 (Army only)." The small arms sling already listed is for Marines only.

V-Belt PN Corrected

Oops! The part number for the upper belt for the A-Model RL-207 reeling machine on Page 47 of PS 425 is wrong. The correct part number is BB60, CAGE 24161.

Apache Inspections Relief

Special inspections 9, 26, 31 and 33 have been changed to further reduce the number of special inspections. The word's in AVSCOM Msg AH-64-88-MIM-07.

Regulator Gets New NSN

The regulator for the accumulator charging device on Pages 6 and 7 of PS 427 (Jun 88) must be ordered by NSN 4933-01-035-6274. The number listed is wrong.

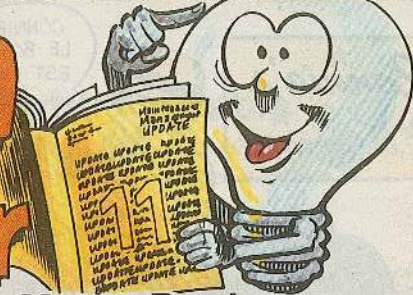
AOAP Sampling Valves

The best way for a unit to draw oil samples is through a sampling valve installed on the vehicle. Use of a sampling valve saves time, makes it easier to draw the sample, and provides a truer sample of a vehicle's oil for lab analysis. TM 9-2300-422-23&P gives you the parts and instructions for installing Army Oil Analysis Program (AOAP) sampling valves on combat, tactical and special purpose vehicles.

Distribution: To be distributed in accordance with DA Form 12-34C-R, for TB-43-series.
★ U.S. GOVERNMENT PRINTING OFFICE: 1988 — 548-004/80008

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