

#### ISSUE 777 AUGUST 2017



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TB 43-PS-777, 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. The use of product or company names does not constitute endorsement of those products, services or companies by the U.S. Army. The use of non-DoD hyperlinks, along with their content, does not constitute endorsement by DoD or DA. Neither DoD nor DA exercises any editorial control over, and cannot vouch for, content on non-DoD websites

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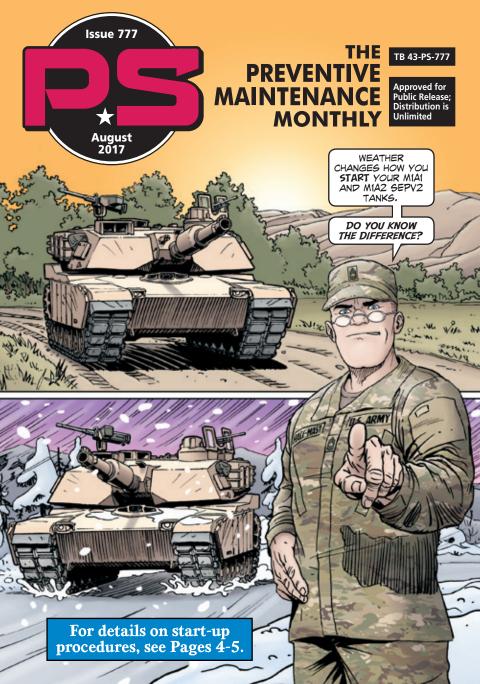
MARK A. MILLEY General, United States Army Chief of Staff

Official

GFRALD B. O'KFFFF Administrative Assistant to the Secretary of the Army

1713201

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Test Set Turn-ins M1A1, M1A2 SEPv2 Tank Startup, Shutdown M1-Series Tank Gun Tube Disposal Check M1-Series Tank Battery Drain, Replenisher Check M1-Series Tanks, WTA Only for Lubing M2/M3-Series Bradlev, M242 Gun PM



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**Games of Drones** 

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By order of the Secretary of the Army: MARK A. MILLEY General, United States Army Chief of Staff Official:

GERALD B. O'KEEFE Administrative Assistant to the Secretary of the Army

1713201







# LARs: Familiar Faces in the Field



If you're a Soldier working in a motor pool, you may have relied on field service representatives (FSRs) from original equipment manufacturers (OEMs) to do repairs, give sustainment support and provide repair parts for your unit's equipment over the past decade.

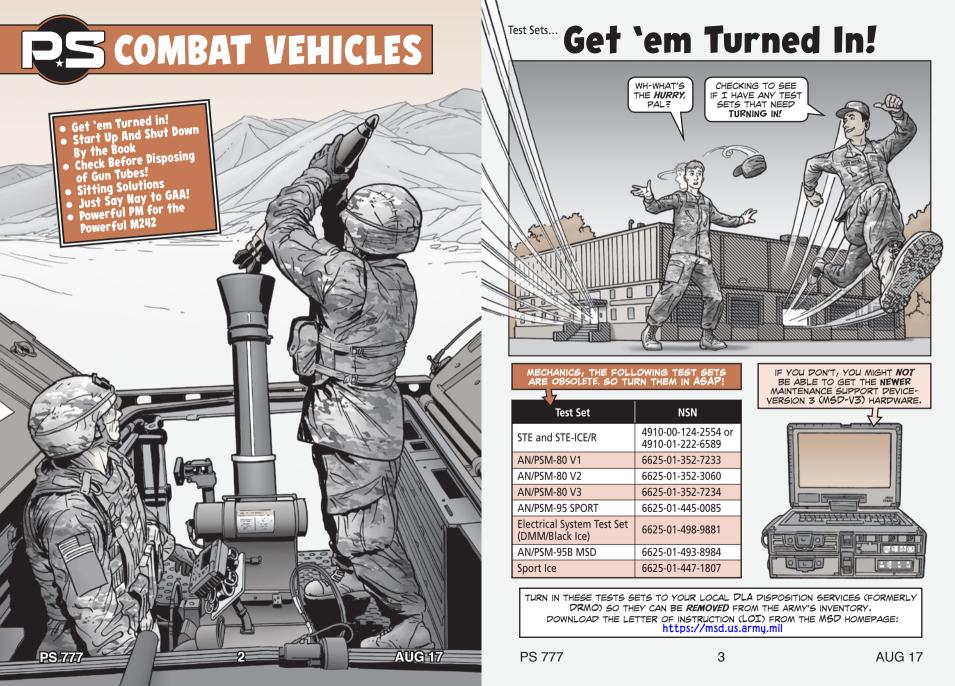
Now as military budgets shrink and with an Army-mandated reduction in FSRs, you may need to tackle the maintenance challenges of your equipment.

You do have allies: Logistics Assistance Representatives (LARs). LARs are familiar faces in the field. While they don't supply parts and labor like FSRs or OEMs do, they've been supporting Soldiers like you for years and their mission hasn't changed.

As the official link between Soldiers and AMC's life cycle management commands (LCMCs), LARs troubleshoot, teach and train units how to solve complex maintenance and supply problems.

So when a hurdle pops up, remember you've got a hotline to real help. Call your LAR. See our article about the TACOM LAR helpline at:

https://www.logsa.army.mil/psmag/archives/PS2016/759/759-14-15.pdf



WE HAVE A MISSION

TODAY.

### **Start Up And Shut Down By the Book** DON'T BE IN TOO BIG A LET'S GET GOING.

HURRY, TAKE THE TIME TO START MY

RIGHT WAY!

OP

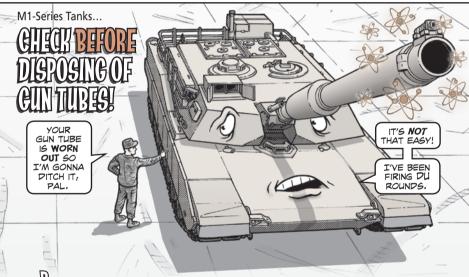
ENGINE THE

OPERATOR'S MANUALS ARE PART OF AND IF ALL THAT ISN'T COMPLICATED ENOUGH, THE START-UP PROCEDURES ARE THE TANK'S BIT. MAKE SURE YOUR TANK DIFFERENT DEPENDING ON THE CONDITIONS: HAS A COPY AND FAMILIARIZE YOURSELF NORMAL. COLD WEATHER. ABORTED STARTS. WITH THE START-UP AND SHUTDOWN PROCEDURES AND FOLLOW THEM.

#### HERE ARE SOME EASY-REFERENCE CHARTS ON WHERE TO FIND EACH ONE:

AND SLAVE STARTS.

M1A1 Tank TM 9-2350-264-10-1 (Sep 11, w/Ch 3, Jan 15) TM 9-2350-264-10-2 (Sep 11, w/Ch 3, Jan 15)		M1A2 SEP TM 9-2350-388- TM 9-2350-388-	10-1 (Apr 16)
Normal start	WP 0065 (Vol 1)	Normal start	WP 0065 (Vol 1)
Aborted start	WP 0066 (Vol 1)	Aborted start	WP 0066 (Vol 1)
Cold weather start	WP 0284 (Vol 2)	Cold weather start	WP 0349 (Vol 3)
Slave start	WP 0303 (Vol 2)	Slave start	WP 0366 (Vol 3)
Engine shutdown	WP 0086 (Vol 1)	Engine shutdown	WP 0089 (Vol 1)



Before disposing of an M1-series tank cannon tube, check first to see if the tube has fired depleted uranium (DU) rounds. Worn-out gun tubes are contaminated if they have any DU residue on their interior surfaces.

A check of the electronic gun card data will tell you if the tube has fired any DU rounds. You'll find the data at: https://tulsa.tacom.army.mil/guncard/index.cfm

Don't dispose of any contaminated gun tubes until they've been screened by your local radiation safety officer (LRSO) using the proper radiation detection equipment. Coordinate with your LRSO on how to turn in contaminated tubes.

Questions? Contact the gun tube item manager at DSN 786-2500.

CREWMEN, THE START-UP AND SHUTDOWN PROCEDURES FOR YOUR MIAI AND MIAZ SEPV2 TANKS ARE ALMOST AS COMPLICATED AS THOSE FOR AN FIG FIGHTER JET!

MAYBE THAT SHOULDN'T BE SURPRISING, SINCE BOTH TANK AND JET ARE POWERED BY A TURBINE ENGINE.

WITH THE TURBINE ENGINE AND ITS COMPLEX ELECTRONICS, THERE'S A LOT THAT CAN GO WRONG IF YOU DON'T PERFORM ALL OF THE START. UP AND SHUTDOWN STEPS IN THE PROPER SEQUENCE.

MIXED IN WITH THOSE STEPS, YOU'LL SEE A LAUNDRY LIST OF NOTES, CAUTIONS, AND WARNINGS. DON'T BE TEMPTED TO SKIM OVER THEM! EACH AND EVERY ONE IS IMPORTANT AND IGNORING THEM CAN SHORTEN THE LIFE OF YOUR VERY EXPENSIVE TURBINE ENGINE.

YOU CAN ALSO DAMAGE COMPONENTS LIKE THE STARTER, GENERATOR, BATTERIES, HULL POWER DISTRIBUTION UNIT (HPDU) AND FORCE XXI BATTLE COMMAND BRIGADE-AND-BELOW (FBCB2)



Following proper

start up and shut

down procedures...

...protects sensitive electronic components



Mil-Sarlas Tanks...

HERE ARE TWO TIPG FROM FT STEWART TO HELP YOUR MIS STAY READY FOR ACTION EVEN IF THEY'VE BEEN SITTING FOR WEEKS.

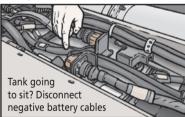
#### Dear Editor,

In many M1 tank units, tanks often sit for long periods without much attention. The biggest problem that results is battery drain.

Even with all the tank's components turned off, over time the batteries drain. If they go too long without being charged, they can become so weak that they can't be charged. If all the batteries have to be replaced, that's a \$2,000 bill.

The best way to plug battery drain is to run your M1 weekly at high idle until the batteries are fully charged. But if you know that's not going to be possible, disconnect the batteries from the main buss terminals.

For the M1A2 SEPv2, disconnect the negative 2W199, the negative 2W172 (if the tank's equipped with a rear NATO slave receptacle) and the auxiliary battery negative 2W148-7. Then disconnect positive cables 2W213-8 and 2W150-7.



For the M1A1SA, disconnect negative cables 2W199 and 2W172 (if the tank's equipped with an external NATO connector). That ensures batteries won't drain and it takes just minutes to reconnect them.

Finally, crews need to remember to check the replenisher for the gun tube. If it gets low on FRH, the gun could fire rough or even come out of battery. The gun needs to be at maximum elevation for the check. And no shortcuts if you need to add FRH. Pages 8-9 in PS 745 (Dec 14) had a good article on adding FRH to the replenisher and bleeding the recoil system.

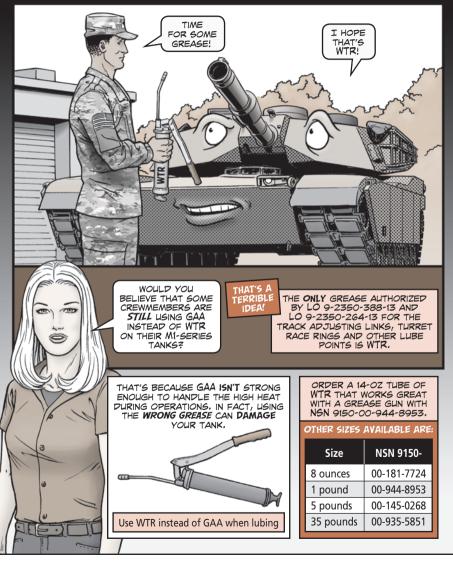
SGT John Vance Ft Stewart, GA

Editor's note: Excellent points, Sergeant! You can ind the PS 745 article at: https://www.logsa.army.mil/psmag/archives/PS2014/745/745-08-09.pdf

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### M1-Series Tanks...

# JUST SAY NAY TO GAA!



PS 777



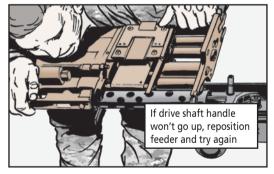
#### Dear Editor,

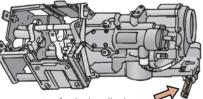
In our work taking care of the Bradleys at Ft Bliss, we've come up with a few tips to keep the M242 gun powerful:

Careful with the feeder's 14-pin connector. That connector gets damaged more than any other part on the gun. When you install the feeder, make sure it's correctly aligned on the receiver before you push up the lower straight drive shaft. If the shaft doesn't want to go up, the feeder isn't positioned right. Reposition it and try again.

Once the drive shaft handle is locked in place, the feeder handle should lock easily in the down position. If it doesn't, don't force it. That'll damage the 14-pin connector. Get your repairman to check it out.

When you remove the feeder, put its handle in the down position before you lay it on the ground. That protects the 14-pin connector.



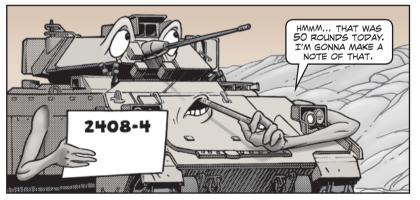


Put feeder handle down before putting feeder on ground

**Lube with GMD.** CLP isn't nearly strong enough for the M242-it needs GMD. The barrel is the only component that takes CLP. Use GMD to lube inside the locking lugs and the barrel support bearings and then CLP on the rest of the barrel.



Keep track of rounds fired on a DA Form 2408-4 card, Weapons Record Data. That's the only way to ensure parts are replaced when they should be. Update the card every time the M242 is fired. Make a new card when the old one is full. Keep the old card 90 days or until the new card is full.



Usually, the master gunner is the best one to keep track of rounds fired. He can collect the cards and store them after every firing.

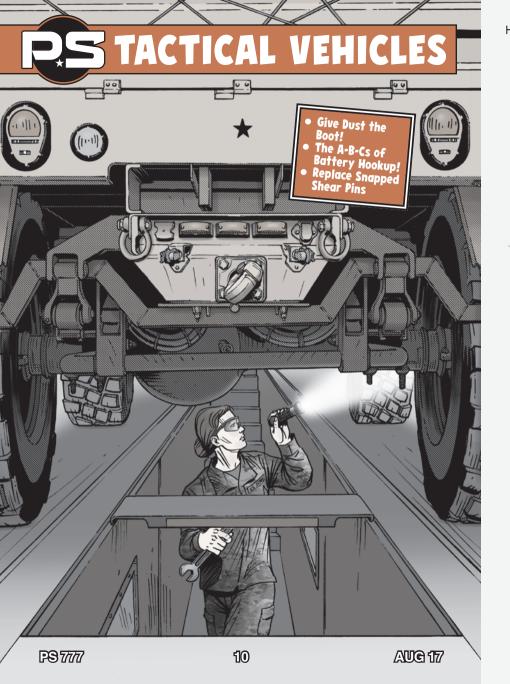
There is no need to send in the information to TACOM like you do for howitzers and mortars.

When you make the switch from the old M242 to the enhanced version, that needs to be noted both on your property book and the 2408-4.

CW2 Mike Gulsby Ft Bliss, TX



PS 777



# HMMWVS.... GIVE DUST THE BOOT!

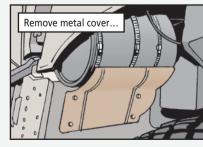


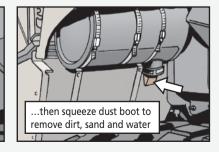
f you've just come back from the field, you've probably been through a lot of dirt, sand and mud. That means it's time to service your HMMWV's air cleaner dust boot. Dust boot, you ask? What dust boot?

Seems a lot of drivers don't know what the dust boot is, let alone where it's located. But the dust boot allows you to remove all the dirt, sand and water that collects at the bottom of the air cleaner canister. If too much of that stuff builds up, the filter element gets clogged and air flow to the engine is cut off.

You'll find the boot under the air cleaner in the wheel well. It's behind a metal cover that's designed to protect the air cleaner from road debris. But since it also hides the dust boot, lots of drivers forget it.

Just remove the screws holding the cover in place. Then give the boot a good squeeze and watch the gunk pour out! Four screws hold the cover in place for the M1113 and M1151A0-series vehicles. Only two screws are used for M1151A1-series vehicles with armor installed.





PS 777



batteries with upright see a red cap, paint or tab posts, the positive associated with the post will be slightly positive terminal. larger in diameter Occasionally, the than the negative positive cable itself post. That way, will be red. the negative clamp But the negative won't slide onto the post/cable will positive post unless ALWAYS be black. you force it. Positive terminal may be tagged red while negative terminal is *always* black SPEAKING OF FRIED ELECTRICAL COMPONENTS, TAKE SO REMEMBER, WHEN A BATTERY'S BEEN DISCONNECTED, PUT THE CABLES BACK ON A GOOD LOOK AT YOUR VEHICLE'S ALTERNATOR. YOU CAN BLOW THE GUTS OUT OF IT WITH RIGHT. THE WRONG BATTERY HOOKUP! IT'S ALSO A GOOD THAT MISTAKE ALONE CAN ADD UP TO SEVERAL HUNDRED IDEA TO REMEMBER THAT NEGATIVE (-) CONNECTS LAST DURING BUCKS! HOOKUP. CAUTION EVERYBODY NEEDS A *REMINDER* NOW AND AGAIN, SO WHY NOT ORDER A **SPECIAL DECAL**, NSN 7690-00-912-3504, TO BOOSTER-BATTERY NEG (-) CABLE MUST GO TO NEG (-). POS (+) TO STICK ON OR INSIDE THE BATTERY BOX? THE DECAL SPELLS POS (+). DISCONNECT BATTERY OUT THE PROPER HOOKUP FOR THE BATTERY TERMINALS. CABLES BEFORE USING CHARGER WOW! THAT WAS ACTUALLY EASIER THAN THE PEGS AND HOLES THING! TOLD YA! (10) (0) PLACE THE DECAL IN, ON OR NEAR YOUR BATTERY BOX! THEN STICK THE DECAL SOME-NO WHERE CLOSE BY WHERE IT CAN BATTERY BE EASILY SPOTTED BY ANYONE COVER WORKING ON THE BATTERIES.

For automotive

Sometimes you'll

PS 777

SIMPLE ENOUGH,

RIGHT?

AFTER

ALL ...

GOES TO

NEGATIVE (-).

THAT SEEMS SIMPLE BUT

GOOF UP

ON THIS

PROCEDURE ...

12

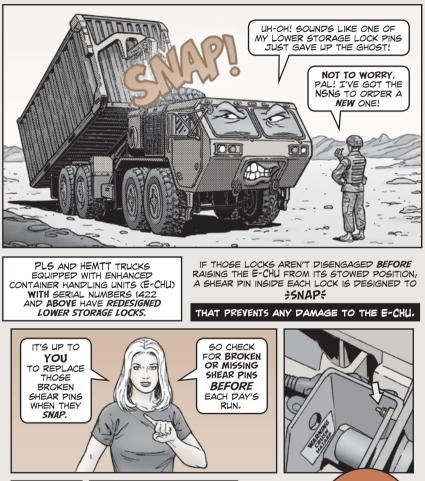
COMPONENTS

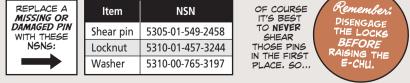
CAN GET

FRIED. TOO!

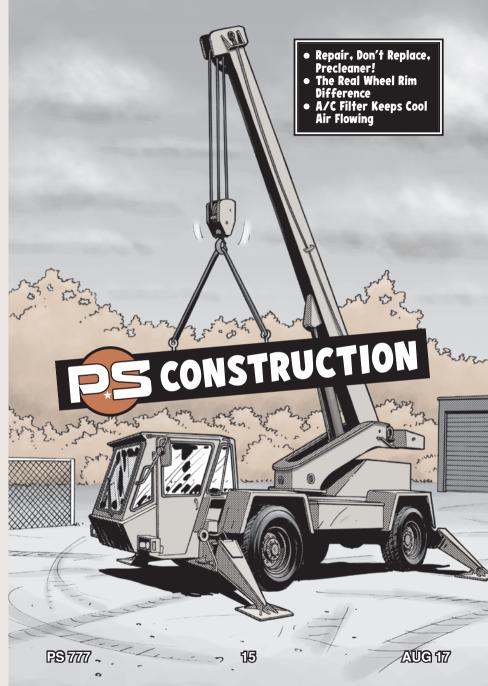
M1075/A1 PLS & M1120A2/A4 HEMTT LHS with E-CHU...

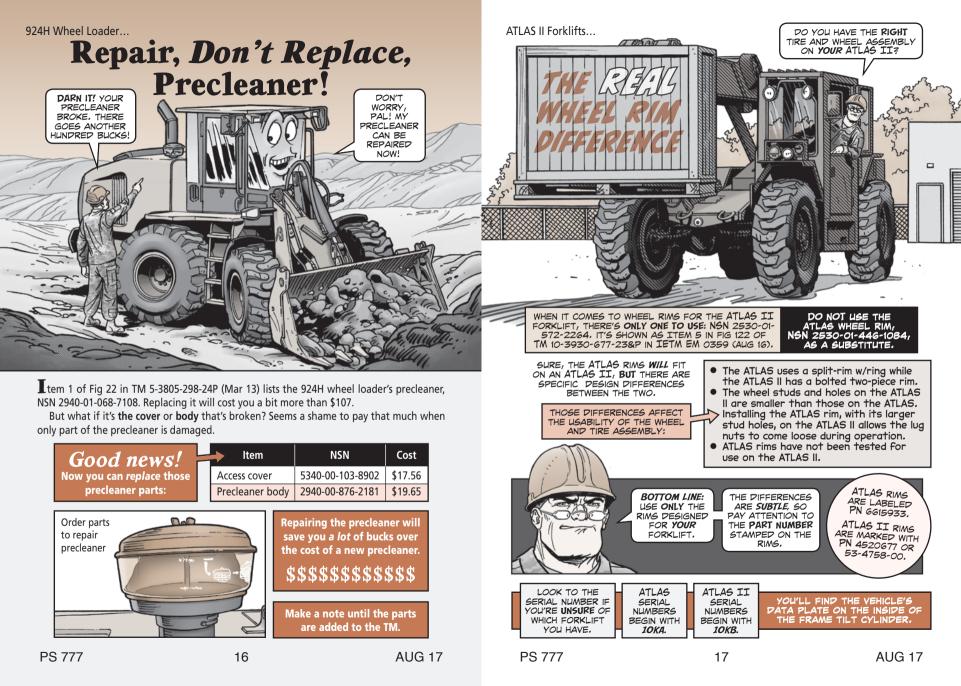
# **REPLACE SNAPPED SHEAR PINS**





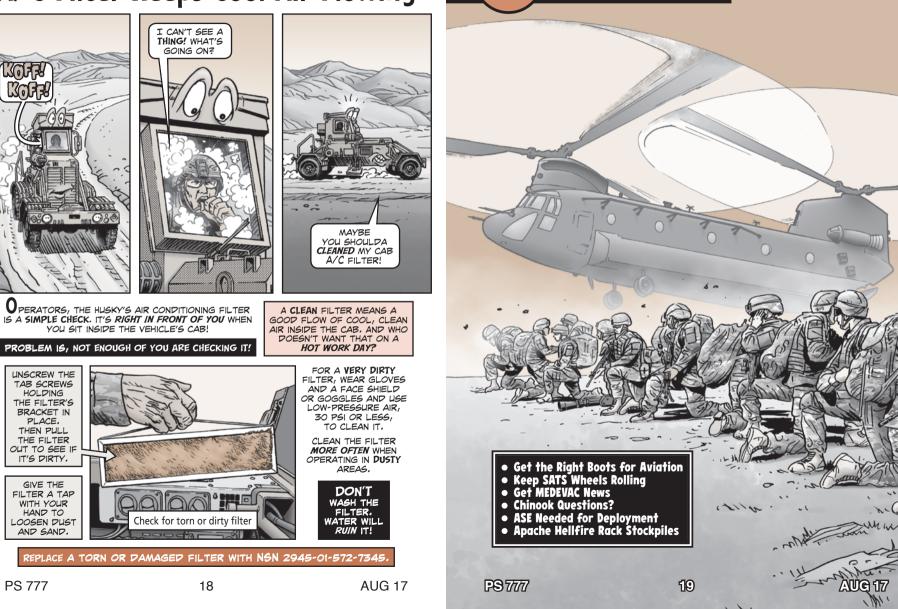
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#### MK III VMMD Husky...

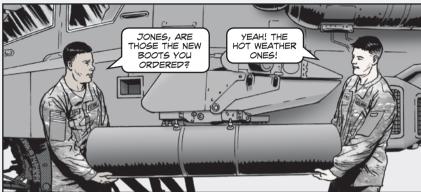
# A/C Filter Keeps Cool Air Flowing

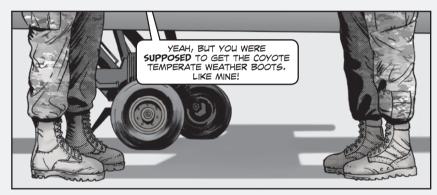


**SAVIATION** 

Aviation General...

# GET THE RIGHT BOOTS FOR AVIATION







USE THESE NONS TO GET THE SIZE YOU NEED:		
Size	NSN 8430-	
2N	01-632-2412	
2R	01-632-2430	
2W	01-632-2435	
2XW	01-632-2442	
2.5N	01-632-2448	
2.5R	01-632-2450	
2.5W	01-632-2453	
2.5XW	01-632-2456	
3N	01-632-2460	
3R	01-632-2455	
3W	01-632-2463	
3XW	01-632-2468	
3.5N	01-632-2473	
3.5R	01-632-2479	
3.5W	01-632-2482	
3.5XW	01-632-2487	
4N	01-632-2489	
4R	01-632-2492	
4W	01-632-2495	
4XW	01-632-2500	
4.5N	01-632-2501	
4.5R	01-632-2504	
4.5W	01-632-2507	
4.5XW	01-632-2510	
5N	01-632-2513	
5R	01-632-2516	
5W	01-632-2518	
5XW	01-632-2519	
5.5N	01-632-2521	
5.5R	01-632-2523	
5.5W	01-632-4951	
5.5XW	01-632-4950	
6N	01-632-4954	
6R	01-632-4958	
6W	01-632-4957	
6XW	01-632-4955	
6.5N	01-632-5308	

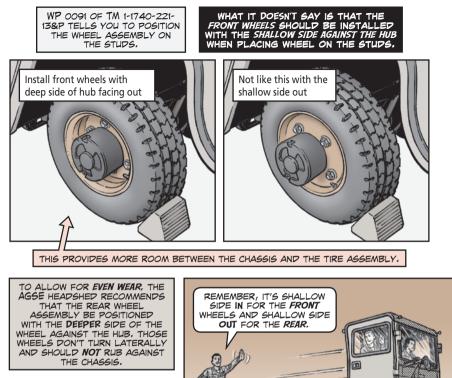
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6XW01-632-53176.5XW01-632-53207N01-632-53247W01-632-53217W01-632-53327.5N01-632-53327.5N01-632-53487.5R01-632-53407.5W01-632-53508N01-632-53508N01-632-53508R01-632-53508R01-632-55648.5N01-632-55648.5N01-632-55668.5R01-632-55669.5W01-632-55669.5N01-632-55669.5N01-632-57389.5N01-632-57409.5N01-632-57899.5N01-632-58939.5N01-632-58939.5N01-632-58939.5N01-632-58939.5N01-632-58939.5N01-632-58939.5N01-632-58939.5N01-632-589310.5N01-632-589310.5N01-632-590210.5N01-632-590310.5N01-632-591010.5N01-632-591010.5W01-632-591111N01-632-591111N01-632-625211R01-632-627211W01-632-6272	6.5R	01-632-5309
6.5XW01-632-53177N01-632-53207R01-632-53247W01-632-53317XW01-632-53327.5N01-632-53487.5R01-632-53407.5W01-632-53407.5W01-632-53407.5W01-632-53508R01-632-53518W01-632-53648.5N01-632-55648.5N01-632-55668.5R01-632-55669.5W01-632-55669.5N01-632-57409.5N01-632-58799.5N01-632-58799.5N01-632-58939.5XW01-632-58939.5XW01-632-58939.5XW01-632-58939.5XW01-632-58939.5XW01-632-589310N01-632-589410R01-632-589310.5N01-632-590310.5N01-632-590310.5N01-632-591111N01-632-591111N01-632-591111N01-632-591111N01-632-591111N01-632-625211W01-632-6272	6W	01-632-5311
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7R         01-632-5324           7W         01-632-5331           7XW         01-632-5332           7.5N         01-632-5348           7.5R         01-632-5343           7.5W         01-632-5340           7.5W         01-632-5338           8N         01-632-5336           8N         01-632-5364           8W         01-632-5564           8SW         01-632-5564           8.5N         01-632-5566           8.5N         01-632-5566           8.5N         01-632-5566           9.5W         01-632-5564           9.5N         01-632-5564           9.5N         01-632-5569           9.5N         01-632-5879           9.5N         01-632-5879           9.5N         01-632-5893           10.5N         01-632-5903           10.5N         01-632-5903           10.5N         01-632-5903           10	6.5XW	01-632-5317
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7.5W         01-632-5340           7.5XW         01-632-5350           8N         01-632-5351           8W         01-632-5351           8W         01-632-5407           8XW         01-632-5564           8.5N         01-632-5566           8.5N         01-632-5560           8.5N         01-632-5560           8.5N         01-632-5560           9.5N         01-632-5560           9.8         01-632-5560           9.8         01-632-5560           9.8         01-632-5560           9.8         01-632-5560           9.8         01-632-5560           9.8         01-632-5560           9.8         01-632-5670           9.5.N         01-632-5891           9.5.N         01-632-5893           9.5.N         01-632-5893           9.5.N         01-632-5893           9.5.N         01-632-5893           9.5.N         01-632-5893           10.7         01-632-5903           10.8         01-632-5903           10.5.N         01-632-5903           10.5.N         01-632-5911           10.5.N         01-632-5911	7.5N	01-632-5348
7.5XW         01-632-5338           8N         01-632-5351           8R         01-632-5351           8W         01-632-5407           8XW         01-632-5564           8.5N         01-632-5566           8.5R         01-632-5560           8.5W         01-632-5560           9.5W         01-632-5566           9.R         01-632-5566           9.R         01-632-5560           9.R         01-632-5560           9.R         01-632-5560           9.R         01-632-5560           9.R         01-632-5642           9.W         01-632-5642           9.W         01-632-5642           9.W         01-632-5740           9.5.N         01-632-5879           9.5.N         01-632-5893           9.5.N         01-632-5893           9.5.W         01-632-5893           9.5.W         01-632-5893           9.5.W         01-632-5893           10.0.1         01-632-5902           10.0.1         01-632-5903           10.5.N         01-632-5903           10.5.N         01-632-5910           10.5.W         01-632-5910	7.5R	01-632-5343
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8W         01-632-5544           8XW         01-632-5526           8.5N         01-632-5520           8.5W         01-632-5530           8.5W         01-632-5560           9N         01-632-5560           9N         01-632-5560           9N         01-632-5560           9N         01-632-5560           9N         01-632-5562           9W         01-632-5740           9.5N         01-632-5879           9.5N         01-632-5823           9.5W         01-632-5893           9.5W         01-632-5893           9.5W         01-632-5894           10N         01-632-5893           10W         01-632-5903           10.5N         01-632-5903           10.5N         01-632-5903           10.5N         01-632-5911           10.5W         01-632-5911           11N         01-632-5911           11N         01-632-6252           11R         01-632-6252           11W         01-632-6272	8N	01-632-5350
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10.5XW         01-632-5911           11N         01-632-6259           11R         01-632-6262           11W         01-632-6272	10.5R	01-632-5908
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Size	NSN 8430-
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12R	01-632-6377
12W	01-632-6370
12XW	01-632-6366
12.5N	01-632-6376
12.5R	01-632-6378
12.5W	01-632-6379
12.5XW	01-632-6381
13N	01-632-6383
13R	01-632-6612
13W	01-632-6384
13XW	01-632-6645
13.5N	01-632-6652
13.5R	01-632-6614
13.5W	01-632-6607
13.5XW	01-632-6382
14N	01-632-6615
14R	01-632-6636
14W	01-632-6638
14XW	01-632-6641
14.5N	01-632-6643
14.5R	01-632-6644
14.5W	01-632-6655
14.5XW	01-632-6657
15N	01-632-6762
15R	01-632-6653
15W	01-632-6667
15XW	01-632-6763
15.5N	01-632-6662
15.5R	01-632-6765
15.5W	01-632-6771
15.5XW	01-632-6770
16N	01-632-6768
16R	01-632-6775
16W	01-632-6774
16XW	01-632-6776

AGSE...

# **Keep SATS Wheels Rolling**





MAKE A NOTE THAT THESE CHANGES AND A WARNING WILL BE INCLUDED IN THE NEXT UPPATE TO TM 1-1740-221-138P THE CHANGE WILL CLARIFY WHEEL ASSEMBLY INSTALLATION.



MECHANICS, REPORTS ARE COMING IN THAT THE FRONT TIRES ON THE STANDARD AIRCRAFT TOWING SYSTEM (SATS) ARE RUBBING THE INSIDE OF THE VEHICLE'S CHASSIS.

> TURNS OUT, THE WHEELS ARE BEING INSTALLED INCORRECTLY ONTO THE FRONT AXLE HUB.

> > Installed wrong, front wheel assembly rubs against chassis during turns



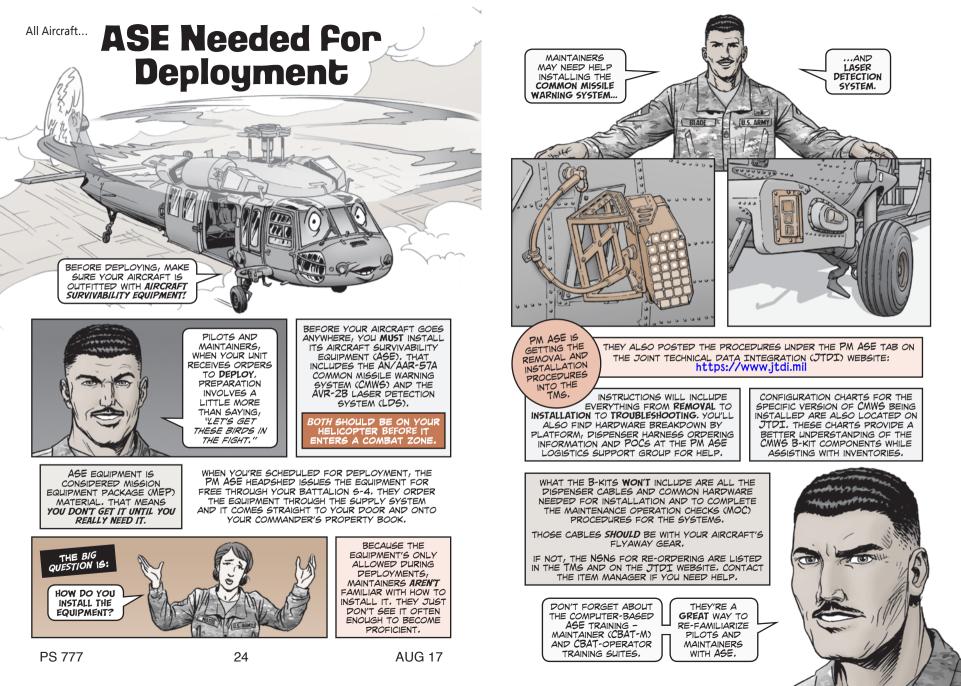
### Get MEDEVAC News

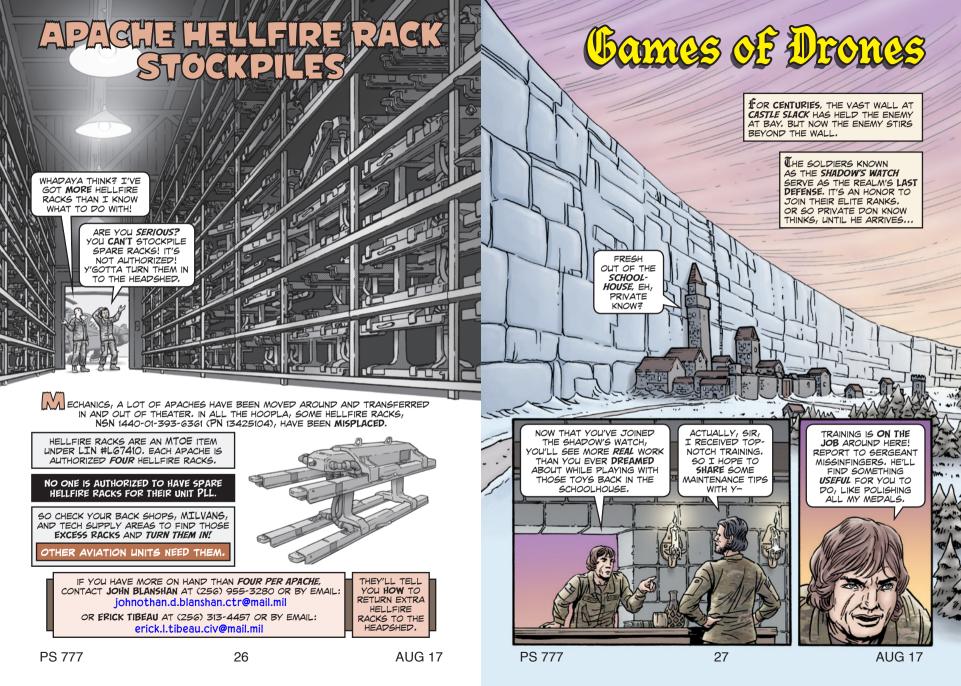
To be in the know on the latest MEDEVAC news, check out milSuite. Go to milBook which has a discussion forum for Army Aeromedical Evacuation Operations at: https://www.milsuite.mil/book/groups/army-air-medevac-operations Go to milWiki for answers to lots of MEDEVAC questions at: https://www.milsuite.mil/wiki/MEDEVAC

### **Chinook Questions?**

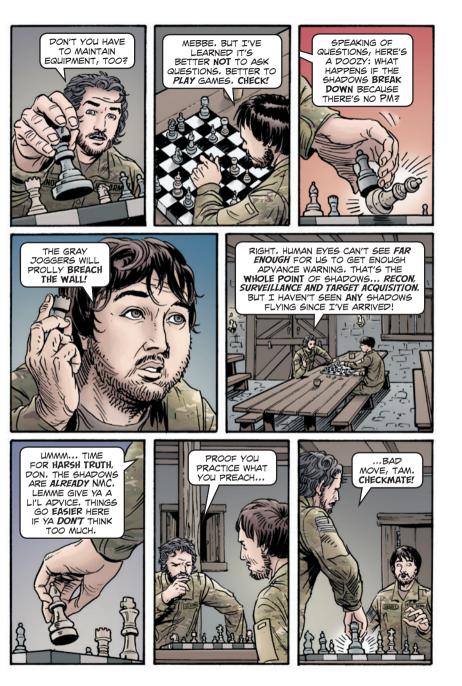
The Chinook headshed is ready to help with your questions about the cargo aircraft. Email your gueries to the CH-47 team at:

usarmy.redstone.peo-avn.list.cargo-custsupt@mail.mil









THE NEXT DAY, PRIVATE KNOW RESUMES GUARD PUTY ON THE WALL ...



GOOD GRIEF, I HAVEN'T EVEN

SEEN THEM CHECK THE OIL!

ARRGH!

IT'S NOT

LAUNCHING!



ACTUALLY,

I'M KINDA

RELIEVED IT

DIDN'T WORK.

IF IT CRASHED

SOMEONE

COULD'VE

BEEN HURT.

I DON'T SEE ANY TMS. THEY MUST BE DOING

PREFLIGHT INSPECTIONS FROM MEMORY.

BIG MISTAKE! I SHOULD BE DOWN THERE!

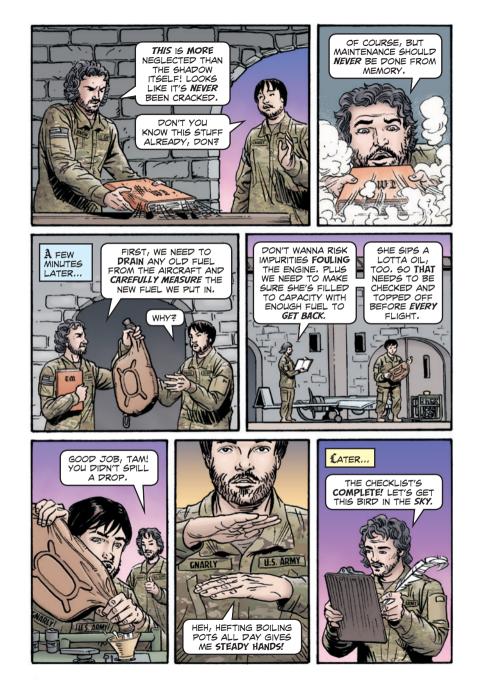


THAT NIGHT STRANGE NOISES ARE HEARD BEYOND THE WALL, AN EERIE KIND OF WAILING, IT WAKES PRIVATE KNOW IN HIS BUNK. HE WONDERS: IS IT JUST THE WINTER WIND OR ARE THE GRAY JOGGERS GETTING CLOSER? IF ONLY A SHADOW COULD DO RECON BEYOND THE WALL. BUT THE NIGHT IS DARK AND FULL OF ERRORS!

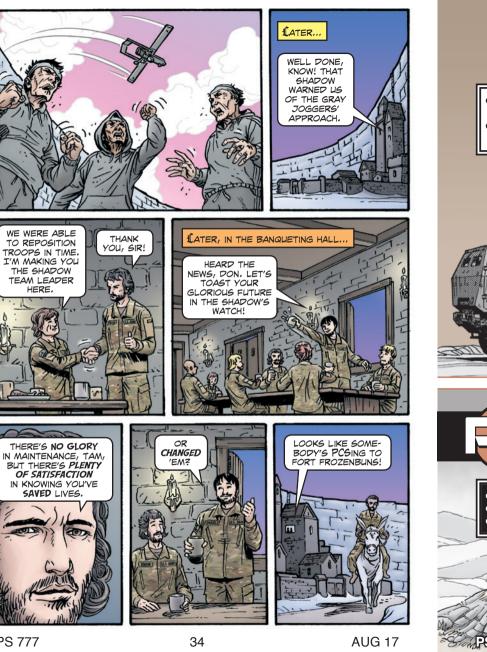
THE PREADED NIGHT COMES WHEN THERE IS NO LONGER ANY POUBT-THE GRAY JOGGERS ARE CLOSE TO THE WALL. BUT HOW CLOSE? NOT EVEN THE SHADOW KNOWS ... BECAUSE IT ISN'T WORKING!

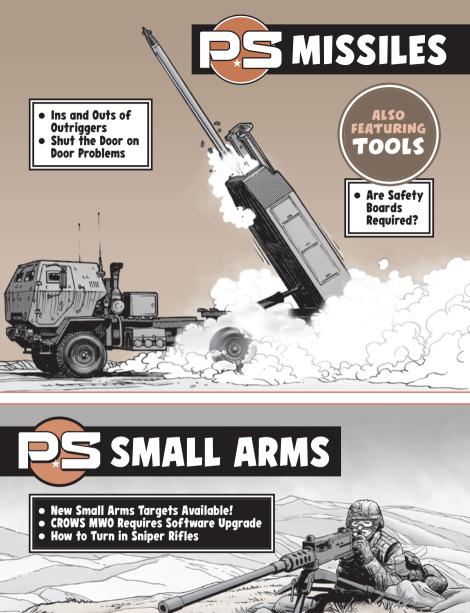






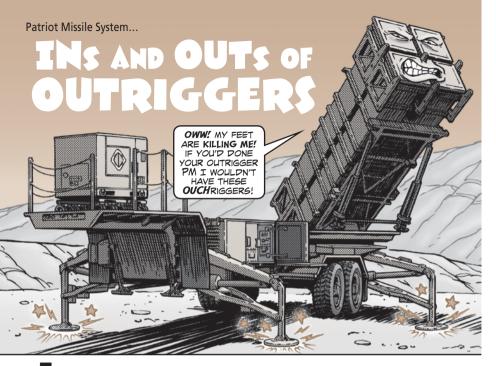






AUG 17

PS 777



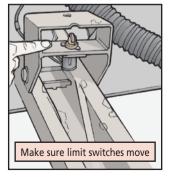
The outriggers are the feet for your Patriot's trailers. If the outriggers are bad, the Patriot doesn't have a leg to stand on! Keep a leg up on problems by remembering these ins and outs of outriggers:

### PMCS

**Limit switches**—Check all the limit switches. If a switch is crushed, the outrigger won't get the signal to stop raising. That can break the strut weld.

Sometimes the switches can corrode and jam. Then when you try to move the outrigger, the switch breaks. Prevent that by manually pushing all the switches in and rotating their wheels before you move the outriggers, especially if the outriggers haven't been moved in days.

But even if the limit switches look good, keep an eye on the outriggers when they're raised or lowered. Sometimes the pads snag and that can break the welds. Bumping a pad often unsnags it, as does reversing direction. Cleaning sand or ice away from the pad's pivots will help.

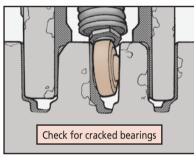


Leaks—Look for leaks. If the outriggers leak too much hydraulic fluid they will be difficult to raise or lower. Check especially under the actuators. They're usually the leakers.



Look for leaks under actuators

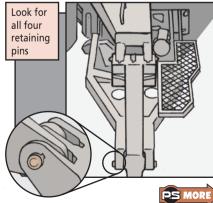
**Cracks**—If the chrome bearings or the welded areas of the outriggers have even hairline cracks, they should be reported. The outrigger could be unsafe.



Lubing — Prevent cracked bearings by lubing all seven lube points on each outrigger at least monthly with GAA. Anytime you hear an outrigger squeaking, get out the grease gun. See TM 9-2330 357-14&P for lubing instructions. Increase lubing intervals during unusual conditions, such as high temperatures or humidity.

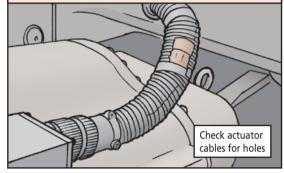
Lube all seven lube points on each outrigger

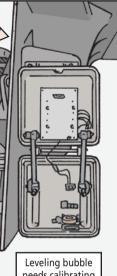
**Retaining pins**—Make sure the retaining pins for the outriggers' joint pins are installed and tight. There are four retaining pins for each leg: two on the top joint and two on the bottom joint. If the retaining pins disappear, the joint pins can work out.



**Leveling bubble**—If the bubble isn't calibrated every six months, eventually it won't give true readings and you can't level the launcher. See Page 4-125 in TM 9-2330-357-14&P for leveling instructions.

Actuator motor cables—The cables often develop holes, which let in water that can short out the cables. Check the cables monthly for holes and tape any you find with shrink tape, NSN 5970-01-169-2783.

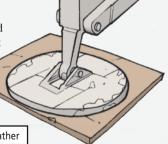




Leveling bubble needs calibrating every six months

### Operation

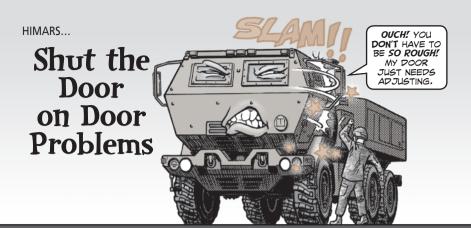
**Prevent frozen pads**—If there's any chance temperatures will go below freezing, put plywood or empty sandbags under the outrigger pads. That keeps pads from freezing to the ground. If you try to raise a frozen pad, it can break the actuator. If a pad ever does freeze, free it by pounding the ground around the pad with a sledgehammer.



Put plywood or sandbags under pads in freezing weather

**Don't forget safety chains and antenna**—If you forget to unhook safety chains before lowering the outriggers, you damage the outriggers. Before you raise the outriggers, remember to stow the antenna or the antenna will be snapped off.





Dear Editor,

If you can't shut the HIMARS' doors, your HIMARS is NMC. Fortunately, these tips will shut the door on door problems:

Don't slam the doors. When the doors get hard to close, Soldiers usually slam them shut. That just makes things worse. Slamming the doors eventually breaks the brass bushings in the hinges and damages the latch mechanism.

When the doors won't close easily, tell your repairman. He can adjust the door. The doors will probably need to be adjusted periodically depending on how much they're used.

Hands only for opening the doors. Because the doors are heavy, Soldiers often use their feet to push the doors open. Their feet slide down the door and kick the door seal. Eventually, the seal is torn, which means the door can't seal out the poisonous fumes from missile firing. And it's really not cheap to replace the seal.

To open the doors, push the door handle completely down and then use your shoulder or arm to push the door open.

> WO1 James Walker Ft Carson, CO



Dpening door with your feet tears seal

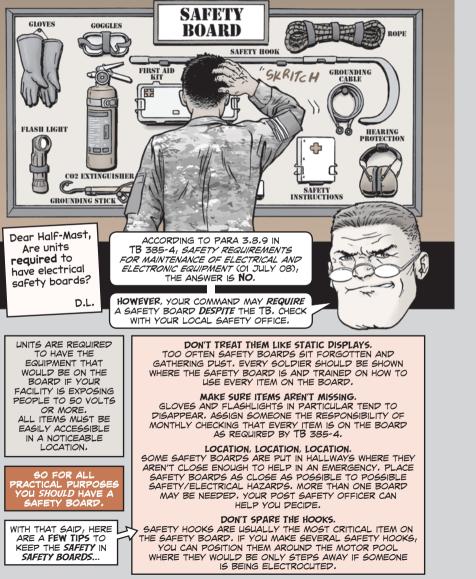
Editor's note: The door is shut on those door problems! Thanks.

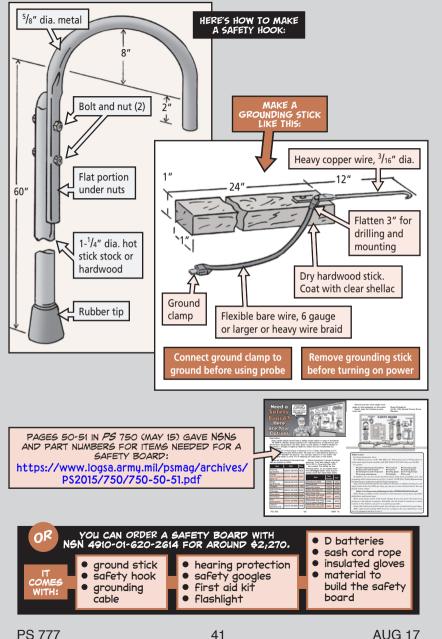
**PS 777** 

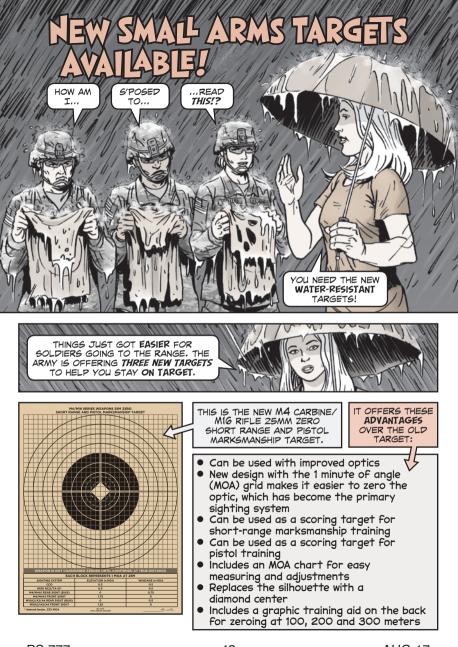
39



# ARE SAFETY BOARDS









SFC MIKE LEWIS, FT BRAGG, NC SFC ASH HESS, FT BENNING, GA SFC PAUL MEACHAM, FT CAMPBELL, KY SSG JOHN BRAPY, FT DRUM, NY

ORDER THE TARGET WITH NSN 6920-01-660-0348.

### Water-resistant Targets

RAINY DAYS TURN PAPER TARGETS INTO A MESS, WHICH IS WHY THE ARMY IS NOW OFFERING TWO WATER-RESISTANT TARGETS:



THE TWO WATER-RESISTANT TARGETS ARE PRINTED ON ALL-WEATHER WATER-RESISTANT HEAVY PLITY PAPER, WHICH LETS YOU ZERO IN NO MATTER WHAT THE WEATHER. THE ALL-WEATHER PAPER PRODUCES CLEANER, MORE PRECISE HOLES FOR QUICKER AND EASIER ASSESSMENT AND SCORING.

# **CROWS MWO Requires Software Upgrade**

If your M153 CROWS has software version 3.5 or below, it needs to be updated using MWO 9-1090-219-23-1. Report the upgrade in the Modification Management Information System (MMIS) in LIW.

Special Operations units with CROWS software version 3.10.2 don't need to do the update.

Full instructions, equipment required, software download location, and authorized personnel needed are listed in the MWO. You can find the MWO at:

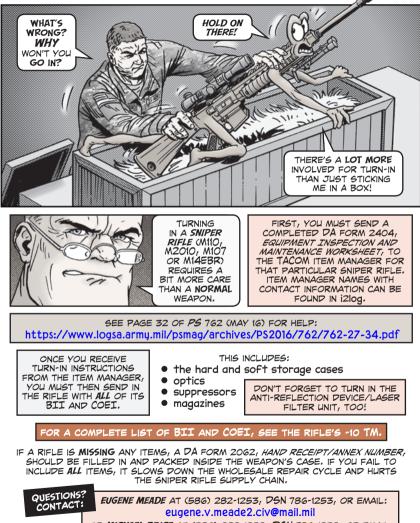
### https://liw.logsa.army.mil/mmis/#/dashboard/messages/modification

Questions? Contact Fred Torres at (586) 282-1344, DSN 786-1344, or email:

wilfredo.f.torresstevez.civ@mail.mil

or contact James Tucker at (586) 282-1345, DSN 786-1345, or email: james.w.tucker50.civ@mail.mil

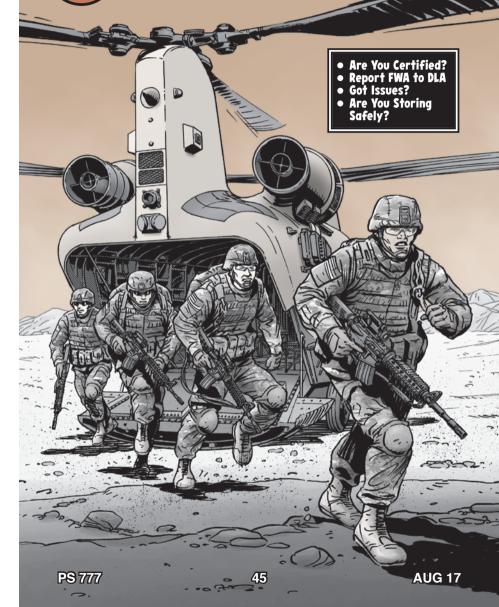
# HOW TO TURN IN SNIPER RIFLES



OR MICHAEL PRICE AT (586) 282-1252, DSN 786-1252, OR EMAIL: michael.b.price.civ@mail.mil

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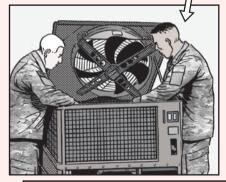
# **RS** SOLDIER SUPPORT





DO YOU DEAL WITH REFRIGERATION AND AIR CONDITIONING EQUIPMENT? IF SO, YOU NEED TO KNOW THE DIFFERENCE BETWEEN SECTIONS 608 AND 609 OF THE EPA CLEAN AIR CERTIFICATION PROGRAM.

- Section 608 is training certification to repair and support stationary A/C and refrigeration equipment.
- Section 609 is training certification to repair and support automotive air conditioning equipment.





SO IF YOU BELIEVE YOU'RE UNIVERSALLY CERTIFIED TO PERFORM ALL REPAIRS DEALING WITH REFRIGERANTS, YOU MAY BE WRONG!

THE TRAINING PROGRAMS THAT AUTHORIZE FOR SECTIONS GOB AND GO9 HAVE BEEN UPDATED AND NOT ALL MOSS ARE CERTIFIED FOR BOTH TYPES OF SYSTEMS. SOLDIERS WITH THE FOLLOWING MOSS CAN BE TESTED AND CERTIFIED IN SECTION 608:

- 15R (AH-64D Attack Helicopter Repair)
- 88L (Watercraft Engineer)
- 91C (Utilities Equipment Repair\*)
- 91J20 (Quartermaster and Chemical Equipment Repairer)
- 919A (Engineer Equipment Maintenance Warrant Officer\*)

#### SOLDIERS WITH THESE MOSS CAN BE TESTED AND CERTIFIED IN SECTION 609:

- 91A (Abrams Tank System Maintainer)
- 91B (Wheel Vehicle Mechanic)
- 91C (Utilities Equipment Repairer\*)
- 91H (Tracked Vehicle Repairer)
- 91J (Quartermaster and Chemical Equipment Repairer)
- 91L (Construction Equipment Repairer)
- 91M (Bradley Fighting Vehicle System Maintainer)
- 91P (Self-Propelled Artillery System Maintainer)
- 915 (Stryker System Maintainer)
- 91X (Maintenance Supervisor)
- 915A (Automotive Maintenance Warrant Officer)
- 915E (Senior Automotive Maintenance Warrant Officer)
- 919A (Engineer Equipment Maintenance Warrant Officer\*)
  - \*These MOSs are certified to repair and support both Section 608 and 609.

### **Report FWA to DLA**

Need to report an instance of fraud, waste or abuse (FWA) to the Defense Logistics Agency (DLA)? Call the DLA Hotline at 800-411-9127 or contact them online at: http://www.dla.mil/HQ/InspectorGeneral/Business/Hotline/HotlineForm.aspx

# **Got Issues?**

Missing a back issue or two of PS Magazine? Let us help! We just need your name, rank, unit, full mailing address and PS issue number or month/year. Email your request to: usarmy.redstone.logsa.mbx.psmag@mail.mil

FOR MORE HELP, CONTACT

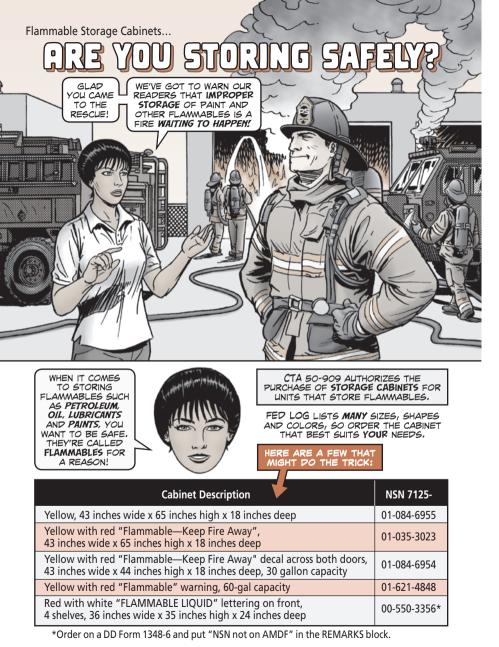
OUR REGIONAL

LOGISTICS ASSISTANCE

OFFICE, THEY

CAN PROVIDE

INFORMATION.



Safety's not ensured just because you have a storage cabinet, though. Follow these rules for handling and storing flammables:

- Tighten all container lids.
- Remove any leaking containers immediately. Clean up all spills by following your unit's HAZMAT SOP.
- Never exceed the maximum storage capacity of a cabinet. A cabinet's capacity is determined by safety, not by the number of containers it will hold. You'll find the capacity listed in the instruction sheet that comes with each cabinet. For a guick reference, tape the instructions on the inside or outside of the cabinet

• Store paint in its own cabinet.

Never store it in the same cabinet as

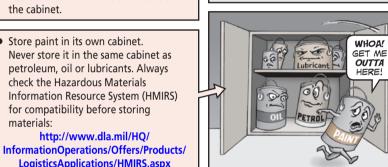
petroleum, oil or lubricants. Always

http://www.dla.mil/HQ/

LogisticsApplications/HMIRS.aspx

check the Hazardous Materials Information Resource System (HMIRS) for compatibility before storing

materials:



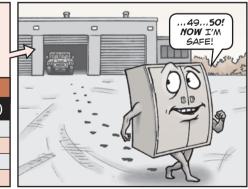
 $\sim$ 

uRRP!

BOY, I'M

STUFFED!

- Locate indoor cabinets away from areas where spark-producing tools or equipment are used. Also keep them away from areas where heat, fumes and gases build.
- Put outdoor cabinets at least 50 feet from combustible structures. Keep the area around the cabinet free of weeds and debris. Place and enforce "No Smoking" signs. Order the signs with these NSNs: NSN 7690-Letter Height (inches) 01-032-3714 1  $1^{1/2}$ 01-032-4602 01-032-4604 2 01-036-4777 3



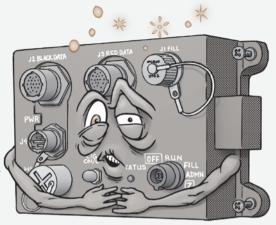
 Check out the information in the National Fire Code 30. Flammable and Combustible Liquids. If you don't have it on hand, contact your safety office. They should have copies and be able to tell you about local regulations.

**PS** COMMUNICATIONS



Blue Force Tracker





#### Dear Editor,

When we ordered hold-up batteries (HUBs) for the platform encryption device (PED) KGV-72, NSN 5810-01-564-3364 (LIN E05008) for our Blue Force Tracker (BFT), there was a problem. The HUB, NSN 6135-01-525-9943, listed in WP 0002 of TM 11-5810-268-13 (Jul 14), was a terminal item. FED LOG told us to order NSN 6135-01-435-4921.

But that's the wrong battery!

Here's a picture of the original battery on the left and what we received on the right. They are very different batteries in both size and voltage.

> Left: Original (correct) KGV-72 battery, NSN 6135-01-525-9943

Right: Incorrect KGV-72 battery, NSN 6135-01-435-4921



We talked to a BFT field service engineer who told us to order NSN 6135-01-370-2599 instead. It's the same HUB battery used in DAGRs but can also be used in KGV-72s.

FED LOG has updated the verbiage on NSN 6135-01-435-4921, stating that it's consolidated with NSN 6135-01-370-2599, but this is still confusing. They are two distinctly different batteries.

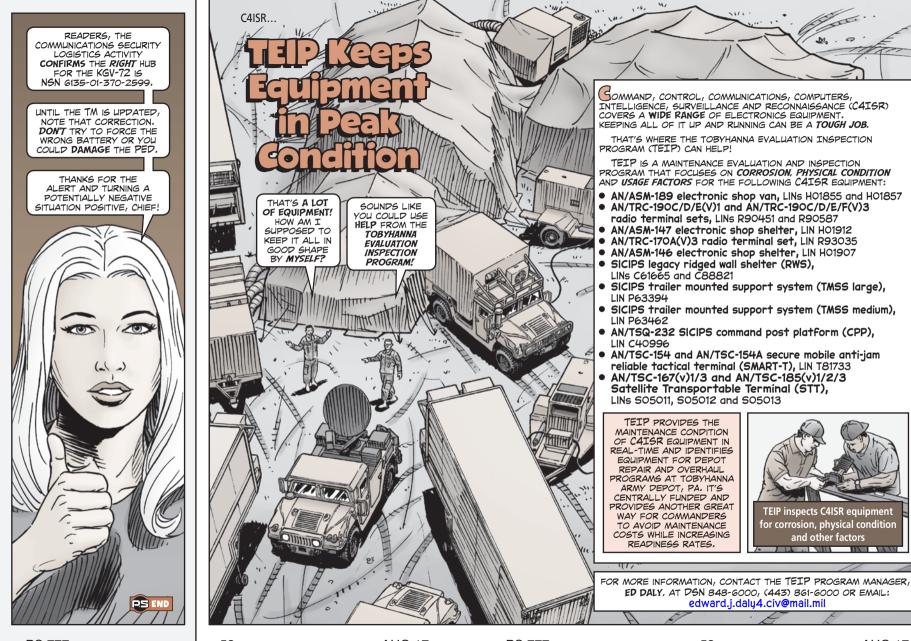
Finally, the KGV-72's batteries can last up to a year, so if you haven't changed them in that time, be sure to check the TM for battery status light quidance.

CW2 Carlos E. Morales MAARNG

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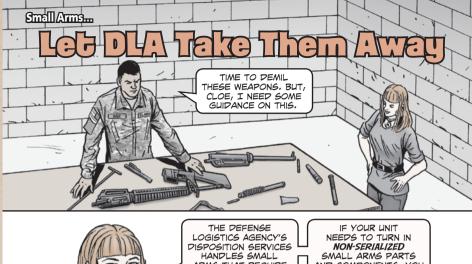
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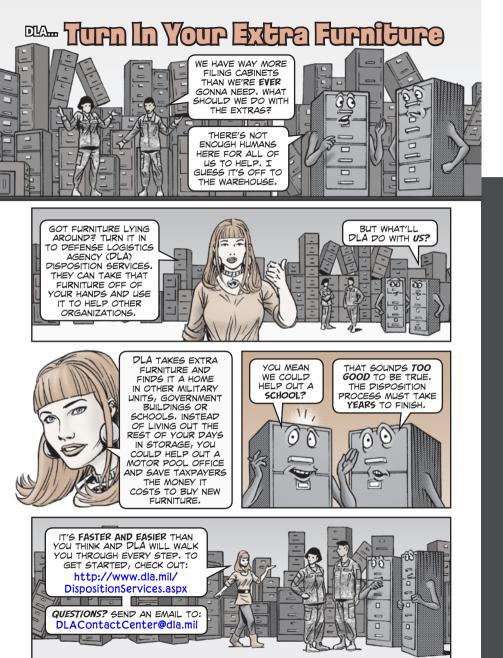
IF THE PARTS YOU'RE TURNING IN ARE SERIALIZED, THEN THE OWLY DISPOSITION SERVICES OFFICE AUTHORIZED TO TAKE THEM IS IN ANNISTON, AL. SERIALIZED ITEMS INCLUDE WEAPONS: PARTS LIKE TRIGGERS, TRIGGER ASSEMBLIES AND LOWER RECEIVERS: AND ALL WEAPON TRAINERS.

WHEN YOU NEED ASSISTANCE TO TURN IN SERIALIZED ITEMS, CONTACT CENTRAL DEMIL DIVISION ANNISTON FOR TURN-IN AND SHIPPING INSTRUCTIONS. THEY CAN PROVIDE INFORMATION REGARDING SMALL ARMS, SO YOU DON'T WASTE TIME SHIPPING THEM. WHEN POSSIBLE, THEY'LL ALSO HELP IDENTIFY ANY PROBLEMS THAT MIGHT DELAY OR PREVENT THE ACCEPTANCE OF YOUR SHIPMENT. TO CONTACT CDD ANNISTON FOR MORE INFORMATION OR ASSISTANCE, SEND AN EMAIL TO:

DispSvcsSmallArmsDemilAnniston@dla.mil

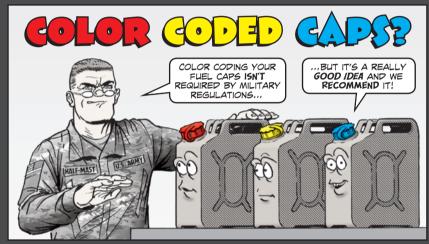


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### Fuel Cans...



Dear Half-Mast, The back cover of PS 683 (Oct O9), shows fuel cans with colorcoded caps. I can't seem to find this requirement in any CFR or NFPA ND. It's not mentioned in TM 4-15.21, Army Watercraft Safety, or TB 43-0144, Painting of Watercraft. Can you help?

Mr. R.P.

#### Dear Sir,

There aren't any specific requirements for colorcoding fuel caps spelled out in Army or DoD publications. The colors we showed correspond to the National Fire Protection Association's NFPA 30, Flammable and Combustible Liquids Code. NFPA 30 recommends the color red for gasoline, yellow for diesel and blue for kerosene. It's a great idea to color code your fuel caps, but it isn't required by any military regulation.

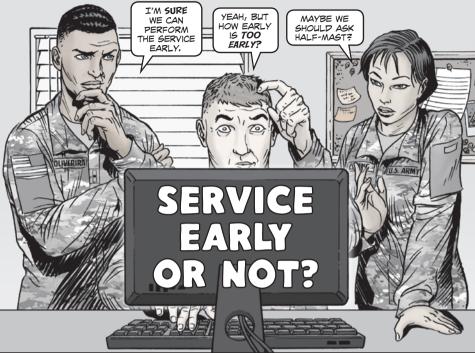
lalf-Mast

**PS 777** 

# **Old-School Way OK?**



GCSS-Army...





Dear Half-Mast,

If you perform a service early, does that count against you when you look at end of the month calculations of scheduled services versus complete services?

Mr. K.W.

#### Dear Sir,

If you conduct a service too early, it resets the next service date. However, AR 750-1 allows you to establish a 10% variance. If you perform your service before the 10 percent variance date, your next follow-on service date will shift.

If you use the multi-counter maintenance plan (usage + date), GCSS-Army will look for what triggers the due date first (hours, miles, kilometers or date etc.). So the next service date can possibly change.

Half-Mast

PS 777



### **APACHE QUADRANT PARTS NEEDED FOR REPAIR**

Repair programs only work if you turn in unserviceable parts. To keep the repair program rolling and the parts vou need available, check your area for critically needed Apache guadrant control assemblies. NSN 1680-01-375-0815 (PN 7-311511176-7), and turn them in to:

Plant 7015/RIC B52 Corpus Christi Army Depot, TX 78419

### TURN IN APACHE CONNECTING 1 INKS

If you have unserviceable AH-64 connecting links, NSN 3040-01-154-7056 (PN 1168851-101), lvina around the hangar or in the back shops, turn them in to

Plant 7015/RIC B52.

Corpus Christi Army Depot, TX 78419

For more information, contact Danielle Prude, DSN 746-6879, (256) 876-6879 or by email: danielle.r.prude.civ@mail.mil

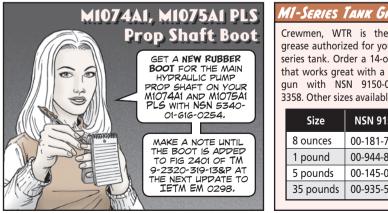
# TURN IN APACHE LAFS COMBO PAK

Mechanics, repair programs only work if you return unserviceable equipment. Check your area for any Apache internal auxiliary fuel system (IAFS) combo paks, NSN 1560-01-519-4248, (PN HM025-600-11), and turn them in to: Plant 7015/RIC B52.

Corpus Christi Army Depot, TX 78419

# **120M Grader Centershift Lock Assembly O-Ring**

Order the 120M road grader's drawbar centershift lock assembly O-ring with NSN 5331-00-580-1216. NSN 5331-01-059-1659, which is listed as Item 17 in Fig 152 of TM 5-3805-293-24P (Mar 11, w/Ch 1, Oct 12) brings the wrong O-ring. Also, make a note that NSN 5330-00-118-5519 brings a seal assembly that includes Items 9 and 10 in Fig 152.



# MI-SERIES TANK GREASE

Crewmen, WTR is the only grease authorized for your M1series tank. Order a 14-oz tube that works great with a grease aun with NSN 9150-01-262-3358. Other sizes available are:

NSN 9150-
00-181-7724
00-944-8953
00-145-0268
00-935-5851

### A1/A1P2/A1R FMTV Air Inlet Heater Relay NSN

The A1P2 parts info on Page 61 of PS 754 (Sep 15) is a little out of date. Here's the correct info: NSN 6110-01-428-8915 gets a new electromagnetic air inlet heater relay for A1 model FMTVs with the 3126 engine. The old relay, NSN 5945-01-570-7989, is a terminal item, IETM 0195 and TM 9-2320-391-13&P in IETM EM 0195 (Mar 09) show the correct NSN but have the wrong NSN for the C7 engine. NSN 5945-01-626-5759 gets the relay for A1R and A1P2 model FMTVs with C7 engines. The old relay, NSN 5945-01-544-0686, is a terminal item. You'll need to make a note of the new NSN until TM 9-2320-333-13&P in IETM EM 0294 (Jun 15) is updated.

### **MIRCS Air Filter NSN**

### **621G Scraper Air Dryer Filter**

Get a 14x20x1-in air filter element for your mobile integrated remains collection system (MIRCS) with NSN 4130-00-640-5985. It replaces NSN 4130-01-582-6467, which is shown as Item 18 in Fig 23 of TM 10-4110-263-23P (Dec 10). That NSN brings a 12x24x1-in filter that is too large.

In the past, you had to order the 621G scraper's brake air dryer assembly, NSN 2510-01-602-3753, to get a replacement desiccant filter. No longer. The filter is now available with NSN 2530-01-650-9218, a savings of almost \$790. Make a note until the filter is added in Fig 98 of TM 5-3805-298-24P.

# M119A3 VMS Bellows Coupling Kit

Need a new vehicle motion sensor (VMS) encoder bellows coupling for your M119A3 towed howitzer's digital fire control (DFC) system? Order a VMS bellows coupling replacement kit with NSN 5999-01-661-7291. Note that the kit only fixes a damaged bellows coupling, not internal failures of the VMS itself. For more information, check out TACOM Maintenance Information Message 17-023 at:

https://tulsa.tacom.army.mil/Maintenance/message.cfm?id=MI17-023.html

# **Ring Crimp NSN Update**

Pages 40-41 in PS 774 (May 17) described a way to ensure your sight stays attached to your rifle and machine gun. But the NSN we listed for the ring crimp was off a digit. It should be NSN 5940-00-143-4794.

### 120M Grader Tie Rod Boot NSN

If the rubber boot that protects your 120M grader's tie rod is damaged, you currently have to order a new tie rod, NSN 2530-01-579-8351 (left-hand) or NSN 2530-01-578-7395 (right-hand), to replace it. No more! Get just the rubber boot with NSN 2520-01-617-9136. At \$47, it'll save you about \$147 over the cost of a new tie rod. Make a note until the boot is added to Fig 83 of TM 5-3805-293-24P.

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

# DON'T DESTROY THAT DA FORM 348! I GOTCHA!

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DA Form 348

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THE EQUIPMENT OPERATOR'S QUALIFICATION RECORD IS A PERMANENT RECORD THAT FOLLOWS SOLDIERS WHEN THEY PCS, ETS OR RETIRE.

SOMEBODY HELLLP ME!

**DO NO**1 DESTROY