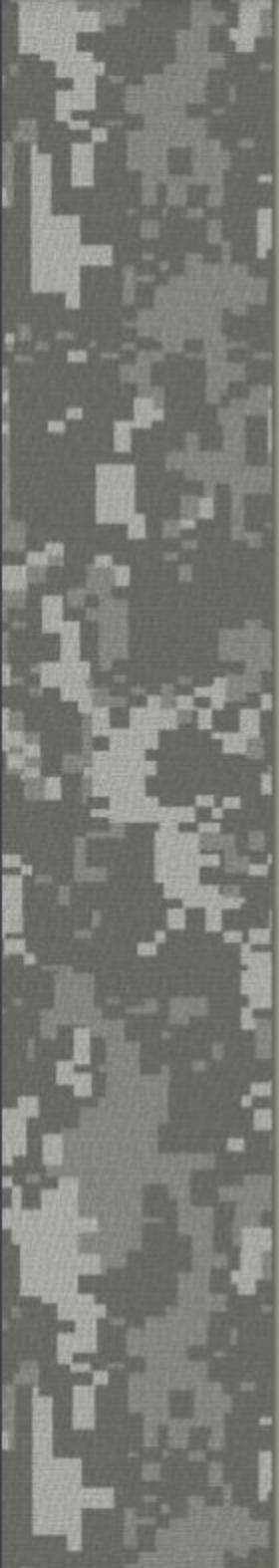

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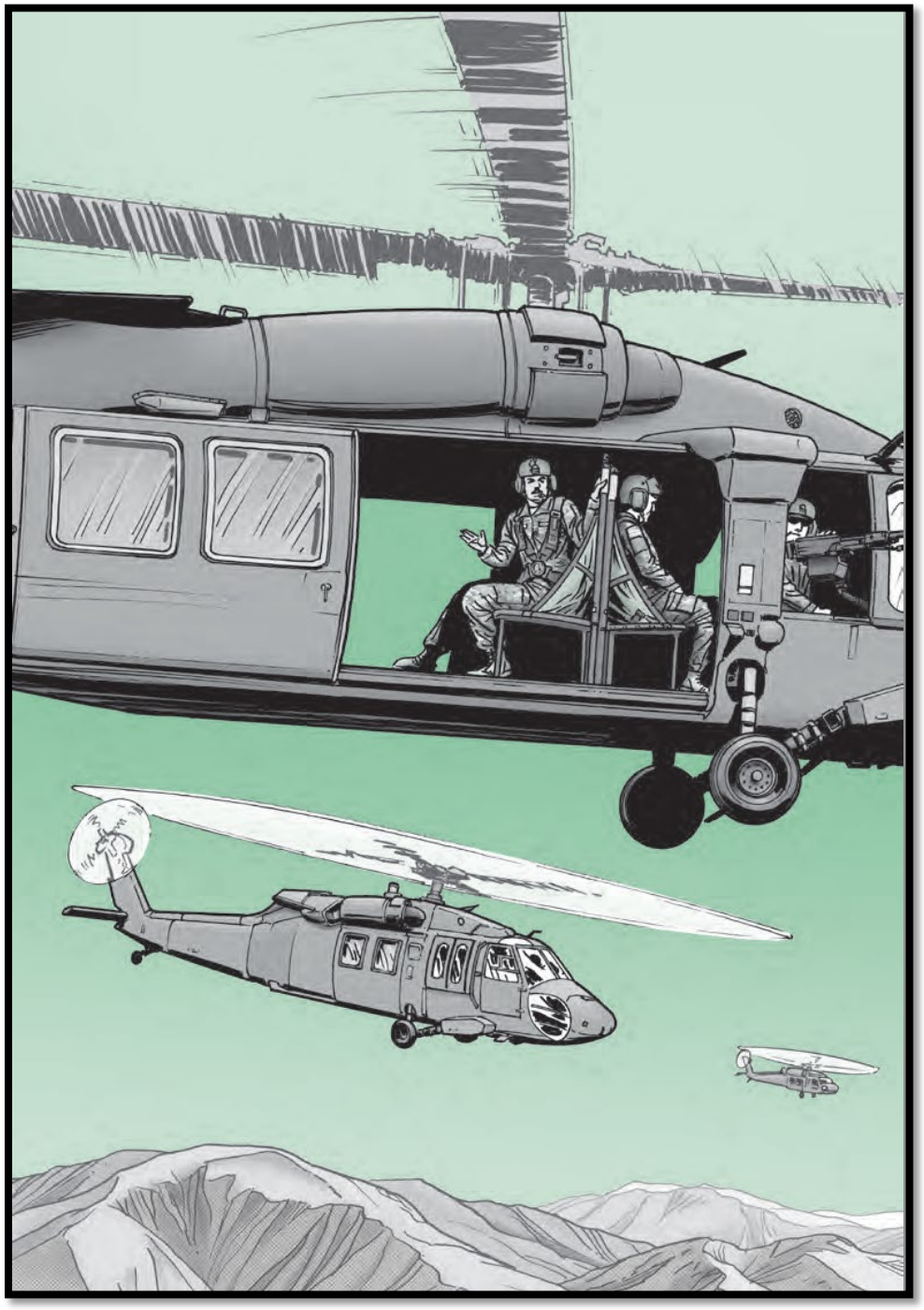


H-60 Black Hawk: Configuration Change on Primary Servos

/ Published Dec. 4, 2019

BLUF: Just because the reconfigured primary servos do not appear to have seals, doesn't mean you have to replace them.

Photo by Scott Sturkol

Mechanics,

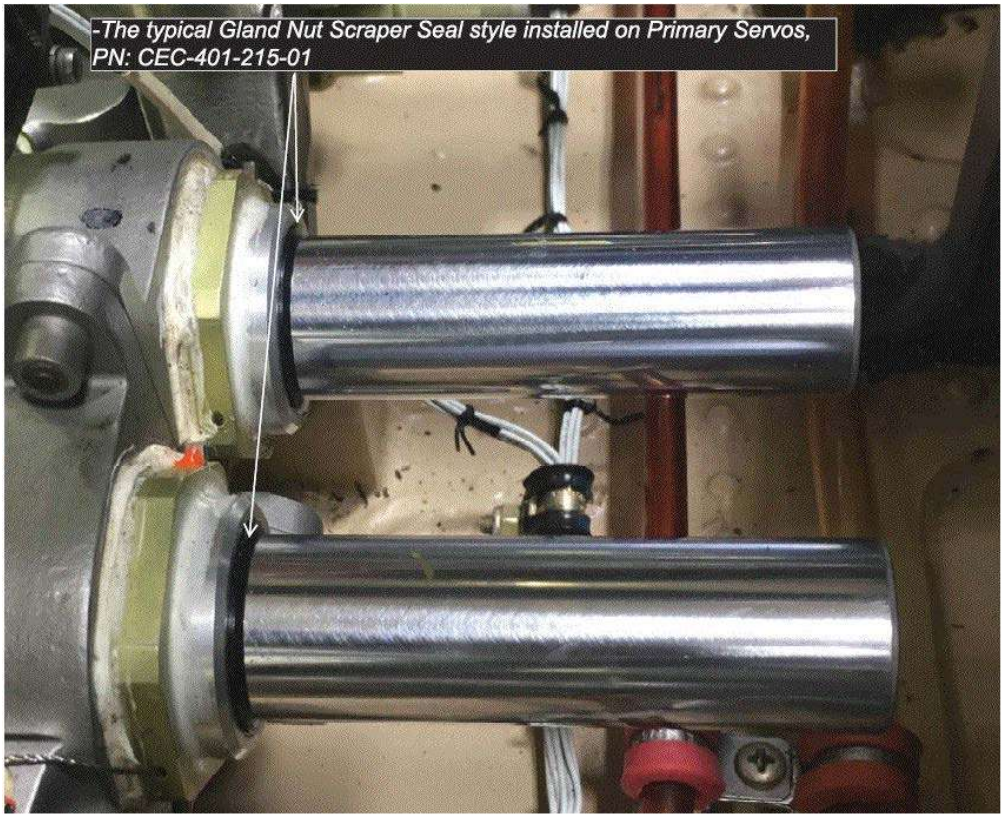
Think the seals on your Black Hawk's primary servos are missing after inspection? Maybe not.

The primary servos went through a recent configuration change that included a more environmentally-friendly chrome plating process and improved seals. Upon inspection, the seals appear to be missing. This causes mechanics to prematurely remove perfectly good servos, NSN 1650-01-625-0164, for missing seals.

With the change, the old black wiper seal was replaced with a V-spring energized rod

seal. The new seal is slightly recessed, making it trickier to see.

So during visual inspection, don’t immediately remove or reject a primary servo if you can’t see the seal. Instead, check closer for the new V-spring seal. If it’s there, the servo is good to go.



What the old seal looks like on the servos

What the preferred (new) scraper seal looks like when installed

Another view of the scraper seal visible spring, also called a v-spring rod seal

And here’s more good news: There’s no need to replace all the servos just because you received one of the new ones. The new servos can be installed alongside legacy servos on the same aircraft.

UH-60A Black Hawks: Aircraft Transfer Pointers

/ Published Dec. 4, 2019

BLUF: These best practices make transferring UH-60A aircraft through the Black Hawk Exchange and Sales Team (BEST) Divestiture Program more easier and more successful.

Photo by Pierre Courtejoie

Units,

If you're transferring your UH-60A aircraft through the Black Hawk Exchange and Sales Team (BEST) Divestiture Program, keep these key points front and center.

Point #1:

Thoroughly **read** all directives that apply to aircraft movement provided by the Utility Helicopter Project Office's (UHPO) Readiness and Fleet Management Office. They

provide specific transfer instructions that range from transfer standards, movement dates, property disposition, aircraft records and funding.

Point #2:

Ensure all aircraft historical records and current weight and balance forms accompany the transferred aircraft. At a minimum, they need to be shipped by traceable means within three working days after aircraft departure.

Point #3:

You must ensure that no removal or exchange of aircraft components takes place once aircraft records are inspected and updated and the DA Form 2408-17 inventory is completed by PEO PM Personnel. If you need to make arrangements for an on-site inventory assistance visit, contact PEO AVN's Jeff Ridenour at (256) 876-9140.

Point #4:

For units line hauling aircraft to the BEST Divesture program transfer location, follow TM 1-1520-237-S, *Preparation for Shipment of Army Model Helicopters*, (Jan 19) when loading any line haul aircraft for transport in order to prevent damage.

Point #5:

For units flying aircraft to the BEST Divesture Program transfer location, aircraft must be in flyable condition at time of transfer. All arrangements and coordination for fly-in aircraft that's listed in UHPO's movement directive must be adhered to and met for proper acceptance.

Point #6:

You must provide shipping and transfer documentation on a DD Form 1149, *Requisition and Invoice/Shipping Document,* SF Form 1103, *Government/Commercial Bill of Landing*, and DA Form 3161, *Request for Issue of Turn-In*, for any line haul or fly-in aircraft and accompanying property turned in.

Point #7:

Electronically provide the latest aircraft Unit Level Logistics System-Aviation (ULLS-A)

and/or Aircraft Notebook (ACN) transfer data. Submit the data using the DOD Secure Access File Exchange (SAFE) website within three working days after aircraft departure to the following recipient: Eric Soliz at eric.soliz@ses-i.com.

The DOD SAFE file exchange web address is:

https://safe.apps.mil

Questions about movement directive and transfer criteria? Contact PEO Aviation's Adam Garcia, (256) 313-3779 or James Grimsley, (256) 955-0355.

Black Hawk: Ship Repair Parts in Right Containers

/ Published Dec. 5, 2019
Mechanics,

Maintenance and overhaul programs rely on you to turn in unserviceable parts! But that's just half the story. When parts are shipped in the wrong shipping containers, unnecessary damage results. That increases the scrap rate for each part and keeps users who need those parts waiting. It also costs Uncle Sam lots of money.

If you have any unserviceable Black Hawk parts ready for turn-in, make sure you place the part in the correct shipping container.

Use this table to ensure you use the right shipping container for the UH-60A/L/M components listed:

Component	NSN	PN	Required Container NSN
Hydraulic motor pump	1650-01-224-6682	4730-20E	8145-00-522-6907
Hydraulic servo valve	1650-01-263-7870	70410-02540-102	8145-00-301-2987
Auxiliary valve assembly **(Critical item)**	1650-01-399-5104	52900-2	8110-00-254-5722
Hydraulic accumulator **(Critical item)**	1650-01-222-4316	3197170-5	8145-00-536-4925
Hydraulic accumulator **(Critical item)**	1650-01-250-3767	0204-0004	8145-00-536-4925
Primary transfer module hydraulic servo valve	1650-01-162-5035	60900-11	8145-00-522-6907

Black Hawk: Turn In Repair Parts!

/ Published Dec. 5, 2019
Mechanics,

Maintenance and overhaul programs rely on you to turn in unserviceable parts! If you have any unserviceable Black Hawk parts lying around, turn them in **ASAP**.

Without those turn-ins, on-hand inventory tanks, resulting in critical shortages. That means you wait longer for the repair parts you've ordered and readiness takes a hit.

Here is a list of unserviceable components that are especially needed for repair programs:

Component	NSN	PN
Horizontal stabilizer (UH-60A/L)	1560-01-301-8212	70200-07050-051
Stabilator fitting assembly (UH-60A/L)	1560-01-088-1709	70209-07051-052
Stabilator fitting (UH-60A/L)	1560-01-081-9253	70209-07051-050
Instrument test set (UH-60A/L)	4920-01-592-6411	06-0125-65
Hydraulic pumping unit (UH-60A/L/M)	4320-01-147-2150	1311024-003 or 70652-02950-105
Hydraulic accumulator (UH-60A/L/M) (Critical item)	1650-01-222-4316	3197170-5 or 70651-03201-105
Auxiliary valve assembly (UH-60A/L/M)	1560-01-399-5104	52900-2 or 70651-03300-102
Hydraulic accumulator (UH-60A/L/M)	1650-01-250-3767	0204-0004 or 70651-03201-104
Hydraulic servo valve (Critical item) (UH-60A/L/M)	1650-01-263-7870	70410-02540-102 or 72120-01

Hydraulic motor pump (UH-60A/L/M)	1650-01-224-6682	4730-20E or 70550-02046 or M-4730-20E
Primary transfer module hydraulic servo valve (UH-60A/L/M)	1650-01-162-5035	60900-11 or 70652-02415-042
Right hand stabilator (UH-60M) (Critical item)	1560-01-542-8455	70200-07801-102
Left hand stabilator (UH-60M) (Critical item)	1560-01-542-7904	70200-07801-101

Have a question? Contact the item manager, Mary Looney, at (256) 843-0152.

Small Unmanned Aircraft System: Parts Needed for Timely Orders

/ Published Dec. 9, 2019

Photo by 94th Airlift Wing

Mechanics,

Getting replacement parts in a timely manner for your small unmanned aircraft system (SUAS) depends on you turning in parts.

If your unit owns a Raven and PUMA SUAS aircraft, contact the PM-UAS warehouse at:

usarmy.redstone.peo-avn.list.avn-uas-suas-parts@army.mil

The warehouse tracks parts and needs all units to email their UIC, unit home location and system serial numbers. Without this information on file, delays to shipment of parts occur.

PM-UAS needs this information to document supply transactions and for configuration management. So act now! If you don’t, your orders might not arrive when you need them most.

H-60: Eyebolts Matter for Cabin Maintenance Crane

/ Published Dec. 9, 2019

Mechanics,

When there is no overhead hangar crane available to lift heavy components from an aircraft, the next best thing is your aircraft's cabin maintenance crane. It's a part of the UH-60 special tools test equipment covered by SC 9999-01-SKO.

When preparing the crane for use, follow the steps in the Cabin Maintenance Crane section of the current TM 1-1520-237-23&P in IETM EM 0013. One of the first tasks is to verify that the first generation eyebolts, PNs 70209-02136-102 or 70209-02136-104, are not installed on the aircraft.

These eyebolts are made of standard steel. If you operate the crane with these eyebolts, they may not hold up under the weight of the crane. That can lead to severe crane damage!

The correct eyebolts come with NSN 5306-01-337-0824 (PN 70219-02136-102). They're listed in the Repair Parts and Special Tools section under the Structural Assembly Upper Fuselage of TM 1-1520-237-23&P. These eyebolts are made of stronger steel to accommodate the weight of the crane and the item being removed from the aircraft.

Make a note that once a year the cabin maintenance crane must be installed on an aircraft and load tested. This is best done during annual services when the air inlets are already removed.

Load test maintenance crane once a year

MEDEVAC: Having Oxygen Bottle Bracket Trouble?

/ Published Dec. 9, 2019
Mechanics,

If your unit's interim MEDEVAC mission support system (IMMSS) oxygen bottle brackets are cracking or breaking, listen up.

PD MEDEVAC needs to know if you have broken or cracked brackets and requests that units submit a DD Form 1348-6 supply request through normal channels for replacements.

Replacing the brackets is a field sustainment requirement and submitting a supply request on a DD Form 1348-6 captures the demand data for the bracket. That's important because if there's enough demand, the bracket eventually gets an NSN assigned, which triggers the supply system to order and stock the item.

But hold on to those broken brackets. Don't throw them away.

What do you do with broken or cracked brackets? You turn them in, but there are specific instructions for how to do it. Contact Dave Dapkus at (256) 313-5539 or Mike Brooks at (256) 313-1204 for assistance.

They have the instructions you'll need for turning in broken brackets. Also, if you're having other issues with the IMMSS, it's important to let them know. Your feedback helps them solve the problems you may have with the IMMSS system.

Photo by Sgt. Thomas Calvert

MEDEVAC: Rescue Hoist Pendants Need a Home

/ Published Dec. 12, 2019
MEDEVAC mechanics,

Some rescue hoist pendants shipped in for thermal testing didn't include paperwork or the paperwork was potentially misplaced, resulting in orphaned pendants at Breeze-Eastern. If you shipped Hoist pendants for testing and haven't gotten them back, email the pendant serial numbers to Dave Creech at:

dcreech@breeze-eastern.com

If your serial number is one of the orphaned pendants, it'll be shipped to you right away.

Aviation: Foreign Object Debris Leads to Foreign Object Damage

/ Published Dec. 19, 2019

Photo by Charles Rosemond

***PS* readers in the aviation community**,

When it comes to foreign object debris (FOD) and foreign object damage (FOD), there's a very informative article on Pages 7-10 of the October 2019 issue of *Flightfax*. The story gives great information about FOD and covers housekeeping, tool control, loose hardware, aircraft covers, personal property, FOD walks, FOD prevention and more. This article will help your unit's FOD Prevention Program. For your convenience, we've attached a copy. Simply click on the Related Documents link (underneath the Share and Print icons below) to download it.

FOD...*Foreign Object Debris Leads to Foreign Object Damage*

My intent with this article is not to tell you how to organize and run a FOD program, but I do want to provoke some thinking for readers based on my aviation career and experience in the quality assurance field.

Beginning with our advanced individual training (AIT) when we started our aviation careers, our instructors, leaders, and supervisors have cautioned us about foreign object debris and foreign object damage (FOD). Remove watches, rings and identification tags before performing maintenance they would say. Empty all pockets of loose change and personal items would be the follow-on commands. But why … we would ask? We made promises like "I promised my wife/husband I would never remove my ring." Being good leaders, we explain the safety considerations and we show them the picture of the individual with the skin removed from their ring finger. How about the whole finger?

DA Pam 385-90, Chapter two defines FOD as – damage to or malfunction of an aircraft caused by an object that is alien to an area or system or is ingested by or lodged in a mechanism of an aircraft or strikes the aircraft. Some examples of FOD are ingestion of loose hardware or grass by an engine, flight controls jammed by hardware or tools, and tires cut or propellers or tail rotors damaged by debris on the ramp or taxiway.

It isn't until we begin maturing that we fully understand the dangers of "stuff" getting caught in moving parts and the potential damage it can cause. For some of us, it doesn't really hit home until we are involved, whether directly or indirectly, with an incident, accident, or a catastrophic event. Below I will discuss a few items that fall under a FOD prevention program.

Housekeeping

Let's start with housekeeping. Housekeeping is a general term, so let's just focus on FOD related. Clean as you go. How hard can it be? What are some excuses we may hear on why we can't do housekeeping?

- Operation tempos are high so we just do it once a week.
- I don't have time for daily clean-up as it is and now you want to add more clean-up?

Experience has taught me that the cleaner we keep our work areas while performing maintenance, the less time it takes at the end of the shift to wrap it up and secure equipment and any possible FOD. How many of us have seen or contributed to throwing safety wire and cotter pins on the floor? We'll sweep it up at the end of the day we figure. Oh wait, we don't have time for clean up so now that wire or cotter pin sticks in the mechanic's, inspector's or flight crew's boot as we continue maintenance or prepare for a follow-on mission. If we don't catch it, it may end up in the driveshaft area or flight controls.

FOD containers are often common practice; we started with cans, but now we have the cool FOD bags that seal. But if we are not careful while performing maintenance and using the container, it's knocked over or we don't seal the bag, now we have all this loose debris in the component area we are working. Simple, let's put it in our tool bags. That doesn't work because now we have loose debris that poses not only a FOD hazard but a personal injury hazard as well. How many of us have unintentionally stuck safety wire up our fingernails?

Tool Control

Tool storage and accountability control have come a long way over the years. Back in the day, we were issued mechanics' toolboxes with a supply catalog (SC) to annotate monthly inventories, but no foam to shadow the tools. Back to our operation tempo – we don't have time for clean-up, how do we have time for our toolbox inventories? It was my experience back in my day that to lose a tool, a statement of charges was issued, but there seemed to be little concern from my leadership to locate the tool. Sure, we were asked questions, but we would convince our leaders, as well as ourselves, the tool is not on an aircraft. Sometimes the tool would come up during a short search, but I don't remember the administrative grounding of aircraft. Often it wasn't until the next time a panel was removed that an unmarked tool would turn up.

That's right, we didn't always mark our tools. A shadowed toolbox with daily/task complete inventories mitigates the risk substantially. Now let's go out to the flight line with a tool bag and the tools we will need to perform a maintenance task. We may not shadow our tool bags, but how about an inventory document to track our task-related tools? Without an accurate inventory, as we wait for an aircraft run-up to complete while pilots perform the maintenance operational checks (MOC), we may be thinking, "did we leave something out?" Lastly, what about tool serviceability? If we don't inspect and take care of our tools, they will fail us, possibly leaving fragments which can become FOD.

Caps, Plugs, Rags and Loose Hardware

Now we are getting into expendable items and bench stocked items. Bench stocked items are tracked for replenishing requirements, but who tracks plastic caps and plugs? Why do we need to track rags? If you take the time to go back into aircraft and ground equipment safety messages, you will see caps, plugs, and rags left in components during assembly and installation.

Now let's go back to the hardware. I need this bolt for a common installation, so I'm just going to grab a couple of extras so I have them on hand. I need washers, nuts and cotter pins to go with the common bolts; before you know it, I have five pounds of loose hardware in my toolbox! Worse, I carry some of that loose hardware onto the aircraft for maintenance, to include extra hardware so I don't climb up and down multiple times, without really knowing what I have because I didn't empty my tool bag from the last time.

Life event – Our team received an aircraft from overseas for major maintenance. The UH-60 arrived via C-17 air load, with some additional components removed, and placed in shipping boxes. The crew on the "disassembly" end, concerned with FOD, had plugged the two ends of a fuel cell vent tube. Without going into too much detail, and by no means is it any one individual's fault, but rather than use a threaded plug or cap, or cover ends with a barrier material, there were black plastic caps

pushed inside the line. The assembly crew assemble the aircraft after the scheduled major maintenance and fails to conduct a component inspection prior to install. The low-level fuel check was performed with no issues. Now we proceed to pressure refuel the aircraft. Servicing appears to be normal, but when the fuel level reaches the fuel cells interconnect valve, one cell was no longer venting. By the time the fueling crew realized what was happening, the structural damage was done. Fortunately, nobody was hurt, however, we had to explain what happened, determine the root cause, and develop preventive measures for future assembly operations. With that said, improper FOD protection can be as bad as no protection.

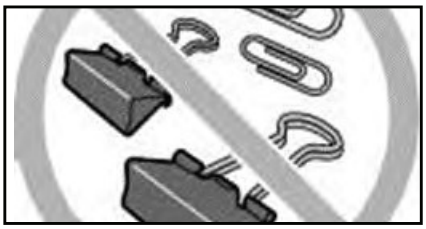
Aircraft Covers

Often expendable and usually on the DA Form 2408-17 inventory, aircraft covers typically aren't a concern. So who cares if the exhaust plug isn't tied to the aircraft, falls out over the weekend, and gets blown across the flight line. The typical procedure is, you just order a new one. Wind changes directions, the crew is taxiing during night operations, now the exhaust plug is rolling down the flight line with the potential to be drawn into the rotor system of the aircraft taxiing.

Personal Property

Should we account for personal property such as hats, pens, keys and loose change? No hats on the flight line are often standard policy, but some folks like to wear hats; sun protection is important. Simple fix – add a lanyard with a couple of alligator clips. What about pens and pencils? What about the binder clips and rings for our checklists? Ever had to wonder "where is my pen?" You decide you must have left it at home; you then just go to supply and get a new one.

How many times have we started a daily/preflight, working in the cockpit, and find a writing utensil? Even with today's electronic media, we still carry notebooks and pens/pencils. Maybe not everyone is on board with electronic note pads…nothing wrong with that. Back to finding the pen/pencil; most of the time we think nothing of it. What harm can it do? Stuck in-flight controls, the hydraulics are powerful; they'll just crush it. Wrong answer! FOD is FOD.



Now, we get back to the binder clips and checklist rings and let's include the pens/pencils. We lay our checklist down while we inspect components, maybe take some notes, and continue the daily/preflight. The aircraft is signed off and departs, but for whatever reason, the clip, ring, or writing utensil is now laying in the driveshaft area. Vibrations from the thin-walled driveshaft spinning at thousands of RPMs send the FOD into the shaft. Items in our pockets can be just as dangerous, such as keys and loose change. If laying on the pilot seats, hanging upside down, those loose items in our pockets can fall and disappear into the flight controls and hidden spaces.

FOD Walks

Let's walk the flight line. Crazy some of the things we pick up. I've seen bullets, brass casings, rocks, and of course the dropped cotter-pins, safety wire, and hardware. As a leader walking behind the line, are we enforcing or watching the personnel socialize and walk right by the FOD. Sometimes we are even caught up in with the socializing, or maybe some impromptu counseling. Whether it is the weekly

scheduled FOD walk or just moving from an aircraft back to the hangar, we should train ourselves and our personnel to always pick up FOD whenever we see it.

Now, let's document and trend the debris. Some folks respond better to graphs and colors, and it can paint a picture of what is out there and is a potential hazard. With this information, we can develop mitigation, and educate our personnel, and maybe even figure out how it gets there.

One of the major contributors to FOD is vehicles. Who checks their tires before passing through the airfield gate? Speaking of vehicles – what about the sweeper? Are we talking to base ops? The sweeper can limit a lot of what we find on our walks.

FOD Prevention

So, what do we do to prevent FOD? DA Pam 385-90 gives guidance for a FOD prevention program. With this program, personnel are appointed in writing to implement the FOD prevention program. This program is tailored to the unit and requires training and education of our soldiers, contractors and DA civilians. Training is one way to look at it, but I like to think of it as education. We often learn from our own experience and even more from shared experiences. As leaders, we should share and entertain subordinates' experiences with FOD so we all continue to learn.

FOD prevention requires full support from unit maintenance and support personnel. But without leadership support, education and or enforcement, it isn't very effective. When unit personnel all understand FOD and the FOD program and leadership enforces it, we call this total buy-in or 100% buy-in.

Conclusion

As professional maintenance technicians, we put all our efforts into accomplishing our tasks correctly and fixing the aircraft. But to do it completely, we need to integrate FOD prevention into our programs, training and instructions. The days of missing a tool or object and lackadaisically relegating it to the belief that you left it at home or your tool will turn up are long past. Lives depend on your correct repairs to the aircraft or system. Just as many lives depend on your FOD prevention efforts. When that aircraft rolls back into parking after a mission and all crewmembers head home, your efforts in maintaining the aircraft and FOD prevention are a success! ■

Michael Ward
Academic Instructor
Eastern ARNG Aviation Training Site
Michael.g.ward1.ctr@mail.mil

UH-60 Black Hawk: Sun Shades Protect Aircraft from Heat

/ Published Dec. 31, 2019

Photo by Cpl. Nnaemeka Onyeagwa

Mechanics,

Your Black Hawk will heat up fast without cover from the sun. The inside temperature can get hot enough to fry an egg!

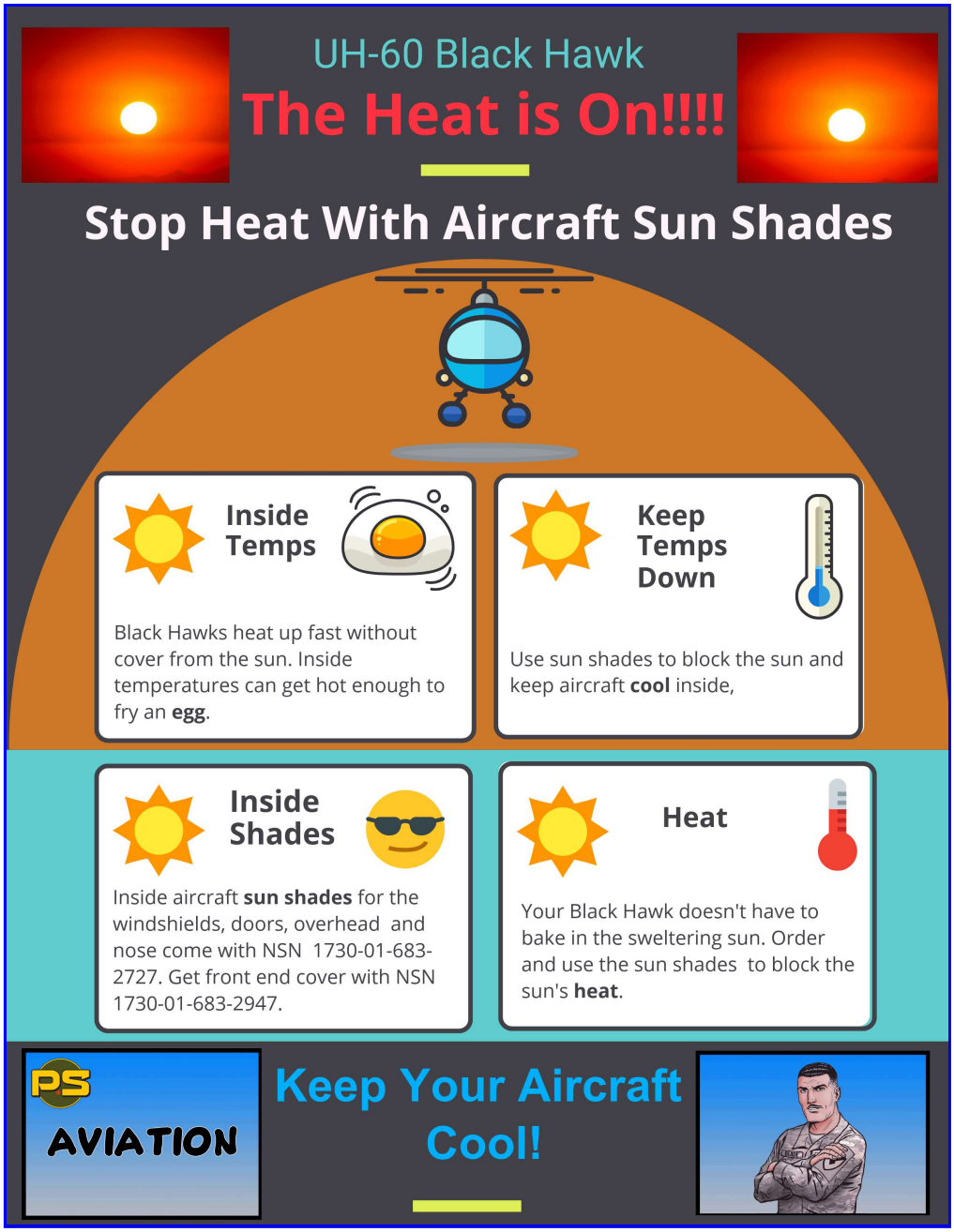
If you want to keep your aircraft temperature down, use sun shades. They'll block the sun's heat while keeping the aircraft cool inside.

The inside shades for the windshields, doors, overhead and nose of the aircraft comes with NSN 1680-01-683-2727 (PN HWIDK511). Get the aircraft front end cover with NSN 1730-01-683-2947 (PN HWGNAL511/1).

Your aircraft doesn't have to bake in the sweltering sun. Be sure to order and use sun shades to keep the inside of your aircraft cool.

Use full front end cover on aircraft

Use inside shades for windshields, doors and overhead and nose



Consider printing this infographic and sharing it (right click to save image as)

CBRN

CBRN: Out with Old and in with the New Overboot

/ Published Dec. 5, 2019
Soldiers,

Take a look at the new CBRN molded AirBoss® lightweight overboots (MALO).

The official name in FED LOG is ***overshoes, nuclear, biological and chemical contaminates protective***.

The new MALO is made of antistatic butyl rubber and protects you from chemical agents. Plus it fits on either foot. No need to check if it's a right or left boot.

This chart compares the legacy alternative footwear solutions (AFS) overboot and

AirBoss® lightweight overboot (ALO) with the MALO sizes:

	AFS*	ALO*	MALO*
X-Small	3.5 – 5.5	3.0 – 4.0	N/A
Small	6.0 – 7.5	4.5 – 6.0	3.0 – 6.0
Medium	8.0 – 9.5R	6.5 – 8.0	6.5 – 9.0
Large	9.5W – 11.5	8.5 – 10.0	9.5R – 12.0
X-Large	12.0 – 14.0	10.5 – 13.0	12.5 – 15.0
XX-Large	14.5 – 17.0	13.5 – 15.0	15.5 – 17.5
XXX-Large	N/A	15.5 – 17.0	N/A
*US shoe sizes			

The MALO NSNs are listed here:

Small	8430-20-007-7781
Medium	8430-20-007-7783
Large	8430-20-007-7782
X – Large	8430-20-007-7784
XX – Large	8430-20-007-7785

The TM guidance provided for the AFS and ALO will be used for the MALO, too.

So continue using TM 10-8415-220-10 (Jul 08) and keep an eye out for a future update.

M26 Decon: Rinsing Soap Away Prevents Excessive Soap Buildup

/ Published Dec. 9, 2019

Photo by Sgt. 1st Class Joel Quebec

Dear Editor,

We've noticed that some of the M26 decontamination apparatus's water pump valves and pressure switch line filters have an excessive amount of soap build-up. When that happens, the water pump may not work properly.

To properly care for the M26 decon after use, operators should run **clean** soap-free water through the system for five minutes, with the pump running and the heater off. The clean water removes the remaining soap solution from the pump, heater and the pressure switch line filter.

Then the operator needs to clean the pressure switch line filter as stated in WP 0022 of TM 3-4230-238-10 (Jul 09). This will remove any remaining residue.

Also, Soldiers should pay attention when installing the pressure switch filter. Inserting the filter into the threaded bolt opening protects the line filter from being crushed while reinstalling it into the pressure switch housing.

CCDC CBC Detection Decontamination Engineering Branch
Aberdeen Proving Ground, MD

Editor's note: *Thanks for a great tip.*

NBC Bags: No Longer Free Issue

/ Published Dec. 12, 2019

Following deployment, very few of the free-issue NBC bags given to Soldiers through the Individual Chemical Equipment Management Program (ICEMP) are returned. Of the ones turned in, most are so beat up they can't be reissued.

Reduced funding means the free-issue days are over. Units are now held responsible for NBC bags issued to Soldiers. They should account for the bags on their hand receipt or through clothing records. Any shortage means unit supply will have to order replacement NBC bags, NSN 8465-01-540-9951, through normal supply channels using unit funds. The bags cost just under $45 each.

By the way, this bag holds no chemical protective qualities. It's only meant to carry your chemical gear.

Combat Vehicles

M113-Series FOV: Daily Ramp Reservoir Check a Must

/ Published Dec. 10, 2019

Photo by Sgt. Andres Chandler

Drivers,

Be sure to check your M113 FOV's ramp hydraulic reservoir. If you don't, your vehicle's ramp could let you down when you need it most.

To make sure that doesn't happen, check the fluid daily. Most importantly, check it the right way.

Make sure your vehicle is parked on level ground. Parking it on an incline could cause the sight glass reading to make it appear there's either too much or too little hydraulic fluid in the reservoir.

If you adjust the level based on a faulty reading, you could end up with too much or too little hydraulic fluid. Too much means a big mess with FRH leaking out of the

hydraulic system tank breather. Too little fluid could make your ramp act all wonky or stop working altogether.

Don’t forget that the ramp has to be all the way down when you check the fluid. Follow the ramp lowering instructions in the -10 TM. If you read the reservoir sight glass while the ramp’s closed or partially open, the reservoir will appear to have too little hydraulic fluid.

And check out the lubrication table on Card 21 of LO 9-2350-261-12 (Jul 90, w/Ch 4, Jul 97) for the M113A2 and Cards 18 and 19 of LO 9-2350-277-13 (May 12 w/Ch 1, Sep 13) for the M113A3. That’ll give you more information about keeping the hydraulic system up and running in all conditions.

M113A3 FOV: Gear Spur Replacement

/ Published Dec. 10, 2019
Mechanics,

When doing annual services on the M113A3 FOV, including the MBT and OSV, be sure to replace the variable speed fan drive's gear spur.

The gear spur, NSN 3020-01-241-9141, can wear out sooner than it should, possibly leading to engine fires.

This applies to both engine models, NSN 2815-01-412-2715 and NSN 2815-01-248-7644. It also applies whether the engine is equipped with the hydraulic speed fan drive, NSN 2930-01-320-0530, or the electronic variable speed fan drive, NSN 2930-01-644-5574.

Photo by Sgt. Devon Bistarkey

M88A2 Recovery Vehicle: Clean Engine Compartment to Prevent Fires

/ Published Dec. 10, 2019

Heeding this article could potentially save your unit over $300,000

Photo by Staff Sgt. True Thao

Engine compartment fires in M88A2 recovery vehicles have been on the rise over the past several years. The damage caused by these fires has cost the Army as least $48 million, not to mention Soldier injuries.

Investigators have determined that fuel, oil, dirt, trash and other debris in the engine compartment are causing these engine fires. Also, water pooling in engine compartments has caused corrosion and electrical shorts leading to fires. In other words, all these fires have been preventable!

Mechanics, all M88A2 recovery vehicles need to have their engine compartments cleaned of fuel, oil, dirt and other debris whenever the engine is removed for services.

Also, remove the hull drain plugs and pressure wash the engine compartment **immediately.** That takes a little time but a lot better than your unit shelling out $326,000 for a new engine!

For more information, and a checklist that walks you through the engine compartment cleaning and inspection process, check out TACOM Ground Safety Action Message at:

https://tulsa.tacom.army.mil/Safety/message.cfm?id=GSA20-001.html

You'll need a CAC to access the site.

A20 Personnel Heater: Start-up Procedure Done Right

/ Published Dec. 12, 2019
Crewmen,

Your combat vehicle's A20 personnel heater, NSN 2540-01-396-2826, will keep you warm when the temps drop. But neglect the proper start-up procedures and your heater will give you the big chill!

Sometimes operators hold the RUN-OFF-START switch on START too long. After 10 seconds in the START position, the heater automatically goes into a 4-minute purge mode. The heater's fuel supply cuts off and all remaining fuel inside the heater burns off.

Because the heater won't start, most operators assume it's defective and turn it in for repair. But the heater's not the problem! It's the improper start-up procedure that causes all the trouble.

To start the A20 heater correctly, hold the RUN-OFF-START switch on START for **four** (4) seconds, then flip it to RUN. The heater will go through a quick self-diagnosis and then should start.

If the heater still won't start, check out the troubleshooting procedures in TM 9-2540-207-14&P (Jan 07).

And if your vehicle is an M1A2 SEP or M2/M3 Bradley, refer to your TMs for vehicle-unique starting instructions.

Photo by Senior Airman Tryphena Mayhugh

M1-Series Tanks: Keep Your Engine Happy and Healthy

/ Published Dec. 13, 2019
Crew,

Your M1-series tank's AGT1500 engine can last a long time with proper care. How long? The goal is a minimum of 1,400 hours.

But with proper maintenance and operation, engines can keep going for much longer than that. Here's how to make sure your tank's engine performs like it should for many more hours:

- Take the proper precautions when running your tank through the wash rack. No high-pressure water inside the tank!
- Mechanics, doing a ground hop the wrong way is an invitation for foreign object damage (FOD). Be sure to cover the engine inlet plenum whenever the power pack is removed from the engine compartment.
- Use high thermal stability oil (HTS) in most circumstances. But check the TMs and LOs for the right oil at the right time.
- Keep the pulse jet system (PJS) buttoned up, especially during operations. Improvements in the PJS means that removing V-packs in the field for cleaning is unnecessary.
- Make sure the plenum seal's inlet screen is in good working order. That'll keep dirty air from getting past the air filtration system.
- Update the digital electronic control unit (DECU) with the latest software. That'll help the engine run cooler and therefore last longer.
- Follow the proper startup and shutdown procedures. That'll extend the life of the recuperator. A faulty recuperator means the engine gets less oxygen and less oxygen means poor engine performance.

You can get an idea of how much more service life your tank's engine has by doing the following:

- Perform the DECU engine health check. You'll find the procedures in the -10 TM.
- Inspect the engine's compressor blades. If they're fouled by carbon and suffering from FOD, the engine could be in trouble.
- Keep an eye out for a smoking engine and/or unusually high oil consumption. Reviewing your tank's Army Oil Analysis Program (AOAP) data could help determine if there's a serious problem.
- Have your field service engineer (FSE) flow test the #5 and #6 engine bearing packages. If the flow readings are out of range, the bearings could be about to fail.
- Perform the semiannual vehicle speed test. The test requires the tank to reach and maintain a specific speed based on the TM's speed test table. If it does, your tank's engine is healthy. If it doesn't, then the problem might not be the engine. Again, the TM provides the necessary follow-on checks before the engine is considered at fault.

The bottom line is that your tank's engine, if properly maintained and operated, is just getting started at 1,400 hours!

Photo by Sgt. Mason Cutrer

M2/M3-Series Bradleys: Keep Batteries Mission Ready

/ Published Dec. 13, 2019

Photo by Pfc. Meagan Mooney

Crewmen,

Take care of your Bradley's batteries so they're charged and ready at all times. You won't get far with dead or damaged batteries!

Here's a couple of power problems that can cause your next mission to fizzle out:

Master Power Switch

Forgetting to turn the Bradley's MASTER POWER switch to OFF after shutting down the engine is a common mistake, especially with inexperienced drivers. But it's also a costly mistake that can kill the batteries.

Following the engine shutdown procedures in the -10 TMs will help avoid battery drain. Just don't forget you can damage the electrical system if you turn off the MASTER POWER switch while the engine's still running.

Battery Box Covers

The battery box covers are there for a reason. Some drivers like to keep the covers loose instead of bolting them down. That makes it faster and easier to get to the batteries.

But loose battery box covers tend to bounce around during operations. And if one of the covers comes into contact with a battery terminal, the batteries can short out. That'll leave you and your Bradley stranded. So bolt those covers down. Leaving them loose isn't worth the time it saves!

M109A6 Paladin: Don’t Forget Segment Board Cleaning

/ Published Dec. 16, 2019
Crewmen,

Dirt, sand, oil and condensation tend to collect on your Paladin’s slip ring. As the cab is traversed, that crud builds up on the segment board and shorts it out.

Things only get worse from there. A shorted segment board shuts down your commo and the vehicle motion sensor. You’ll also get navigation faults in the digital fire control system.

Keep your Paladin up and running by cleaning the segment board once a week just like it says in the -10 TM. Here’s how:

1. Turn the vehicle master power switch to OFF.
2. Remove the cover plates over the segment board.
3. Soak a nylon scrub pad, NSN 7920-00-753-5242, with isopropyl alcohol, NSN 6810-01-190-2538, and clean the exposed portion of the board. Do **not** use denatured alcohol. It’s too volatile and could result in a fire.
4. Wipe the scrubbed area of the board again with a clean cloth.
5. Manually traverse the cab enough to expose the next portion of the segment board and clean again.

Keep **manually** traversing until the entire board is clean. Watch out, though! Using power to traverse the cab will give anyone cleaning the segment board a big shock or even cause a fire!

Check out WP 0183 of TM 9-2350-314-10-2 (May 14) for the full scoop on cleaning your Paladin’s segment board.

Photo by Spc. Angel Ruszkiewicz

Stryker: Water in Hull? Drain It!

/ Published Dec. 16, 2019

Photo by Sgt. Frances Ariele L Tejada

Crewmen,

Be sure to drain the rain and washwater from the hull of your Stryker. If you don't, components sitting underneath the floor plates could be in for a hard time.

Water causes all kinds of problems, including corrosion, electrical shorts and other damage. Replacing those components means big costs for your unit, not to mention the hit that combat readiness takes.

The components most at risk are the central tire inflation system (CTIS) manifold, W409 wiring harness for the trailer lights, the electronic control unit (ECU), anti-lock brake system (ABS) and height management system (HMS).

Remove your Stryker's hull drain plugs after every mission and during weekly PMCS. That'll drain water out of the hull and make sure those components are nice and dry.

Look and smell for fuel and hydraulic fluid at the bottom of the hull first, though. Open the hull access door in the rear center floor plate during weekly PMCS and after every operation. See or smell evidence of leaks? Tell your mechanic.

If there's no evidence of fuel or hydraulic fluid leaks, go ahead and open all 15 drain hull plugs. Allow any collected moisture to drain into drip pans and dispose of it according to unit SOP. Check out TM 9-2355-311-13&P (IETM EM 0269, Sep 16) for more information on hull PM.

Construction

621G Scraper: Weekly Lube a Must

/ Published Dec. 19, 2019

Photo by Capt. Gregory Walsh

Operators, the right amount of lube in the right place means smooth operation for your 621G scraper. And here are a few places that especially need your attention.

Two separate banks of grease fittings are located in the middle of scraper's right side. These fittings get coated with dirt and sand, so make sure you wipe them down before you get started on the lube job.

Field rep points to one bank of grease fittings

Closeup of bank of grease fittings

LO 5-3805-296-13 (Sep 12) has the word. Make sure these fittings get lubed weekly with four to five shots of GAA. If any of the fittings clog and won't take grease, report them to your mechanic.

HYEX: Battery Compartment Rust Removal

/ Published Dec. 19, 2019

Photo by Capt. Stephen Bomar

Operators...

As part of your weekly PMCS, make it a point to open the battery compartment access doors on your HYEX to look for wet areas. That moisture quickly mixes with dirt and sand to create corrosion.

Look for any rust inside the compartment, especially on the bottom plate that supports the batteries in place. Report any you find to your mechanic.

Corrosion in the HYEX battery box

Mechanics...

Remove the batteries to eyeball the condition of the battery box itself. Any water or acid that collects underneath causes the bottom plate to rust and deteriorate.

Next, use a wire brush to scrape off rust and old paint. After a good cleaning, protect any bare metal with bituminous coating compound, NSN 8030-00-290-5141.

Commo/Electronics

AN/PRM-36 Test Set: Substitute Batteries

/ Published Dec. 9, 2019

Brief, We'll make this brief. If you can't find or can't get NSN 6140-01-537-5244 batteries for the AN/PRM-36 test set, order substitute batteries with NSN 6140-01-595-2506 or NSN 6140-01-413-3926.

CPOF: Software Users Manual Now Available

/ Published Dec. 9, 2019

Brief, The software user manual (SUM), TM 11-7010-653-SUM (IETM EM 0381, Mar 19) is now available for the Command Post of the Future (CPOF).

Distribution is restricted, so log in with your CAC:

https://idmng.armyerp.army.mil/

Choose the “ETM/IETM” app and search for the TM.

Nett Warrior: Phaseout of C8 Cable

/ Published Dec. 9, 2019

Photo by 1st Lt. Joshua Snell

Here's notice to users of Nett Warrior (NW) System A3/S3, NSNs 5895-01-654-8576 and 5895-01-654-8585. The NW C8 direct interface cable, NSN 5995-01-652-5151, is no longer available. The NW C7 direct interface cable, NSN 5995-01-647-6500, replaces it.

NW system users with the C8 cable can continue using it until it becomes unserviceable. The required cable matrix used for the NW System A3/S3 is the C1A Nett Warrior extension cable without ferrite, NSN 5995-01-647-6508, Nett Warrior C6 reset cable, NSN 5995-01-647-6513, and Nett Warrior C7 direct interface cable, NSN 5995-01-647-6500.

For more information, contact Danielle Kirzow at DSN (312) 206-2590 or (508) 206-2590. Or call Miguel Perez at DSN (312) 206-2583 or (508) 206-2583.

SINCGARS: Simply Stumped

/ Published Dec. 12, 2019
Dear Connie,

After searching the *PS Magazine* archives and reading through SB 11-131-2, *Vehicular Radio Sets and Authorized Installations Volume II* (SINCGARS, FHMUX, AND EPLRS) (Sep 05), I'm stumped.

I'm looking for the AN/VRC-90F SINCGARS installation kit (IK) for the M983A4, but I was only able to find the NSN for the IK for the M984 and M985 HEMTT.

These are very similar vehicles, so I'm guessing the IK might be the same. Is there a way to confirm that the MK-2204/VRC IK, NSN 5895-01-225-8658, will work for the M983A4 Light Equipment Transporter, as well as other HEMTTs?

1LT M.E.

Dear Lieutenant,

Glad to help. According to a newer version of SB 11-131-2 (Oct 11), there are three different SINCGARS IKs for the M983A4:

- For a digitized M983A4, the single SINCGARS IK is MK-3150/VRC, NSN 5895-01-590-7962.
- For a digitized M983A4, the dual SINCGARS IK is MK-3149/VRC, NSN 5895-01-590-7960.
- For a non-digitized M983A4, the dual SINCGARS IK is MK-3151/VRC, NSN 5895-01-590-7964.

You'll find this info and much more in the latest version of SB 11-131-2. Get the pub from our milSuite collection:

https://www.milsuite.mil/book/docs/DOC-585176

Connie

Photo by Spc. Shanteria Hester

AN/TYC-45V: CWLAN TM Debuts

/ Published Dec. 16, 2019
Brief, Got CWLAN? If so, TM 11-5895-2080-13&P (Jun 19) is the new operator and field maintenance manual, including RPSTL, for the AN/TYC-45V campus wireless local area network (CWLAN), NSN 5895-01-672-7091.

TM distribution is restricted, so log in with your CAC:

https://idmng.armyerp.army.mil/

Choose the “ETM/IETM” app and search for the TM.

Photo by Nicholas Nystedt

AN/TKQ-5(V)4: Fired Up About ENFIRE

/ Published Dec. 19, 2019
A new TM software user's manual (SUM) 5-6675-390-SUM (Apr 19) is available for the AN/TKQ-5(V)4 reconnaissance and surveying instrument set, NSN 6675-01-617-9193. It's commonly referred to as ENFIRE.

TM distribution is restricted, so log in with your CAC:
https://idmng.armyerp.army.mil/

Choose the "ETM/IETM" app and search for the TM.

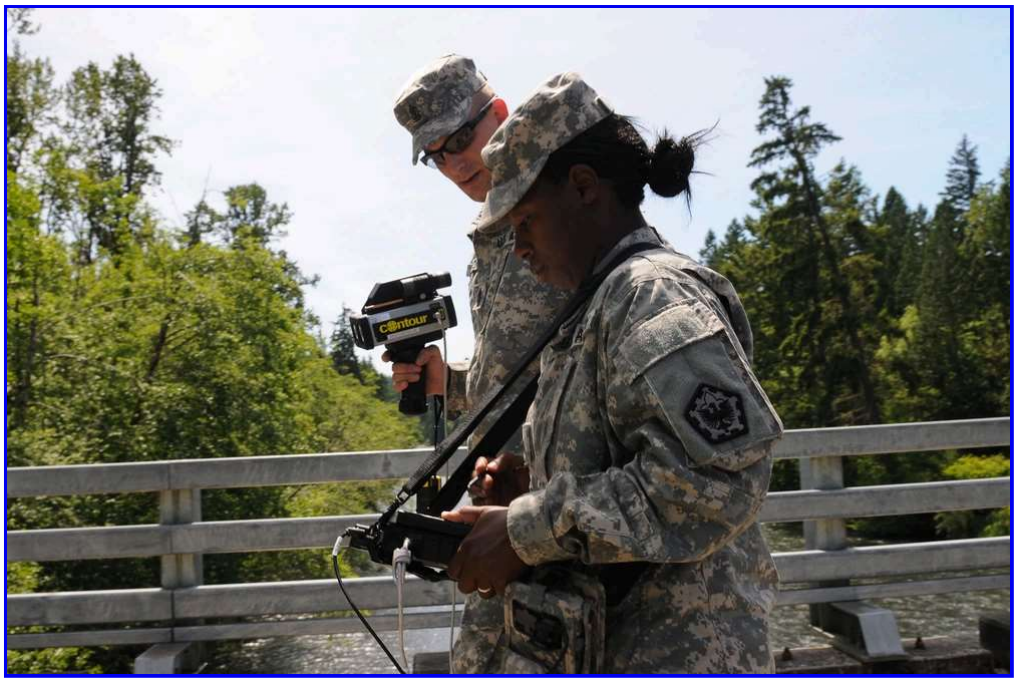


Photo by Sgt. Austan Owen

AN/FSQ-242: TM Hits the Reading Rack

/ Published Dec. 30, 2019
Brief,

Photo by K. Kassens

TM 11-5895-2076-13&P (Aug 19) is the new operator and field maintenance manual, including RPSTL, for the AN/FSQ-242 digital clock pulse generator synchronizer set, NSN 5895-01-666-9815. It's

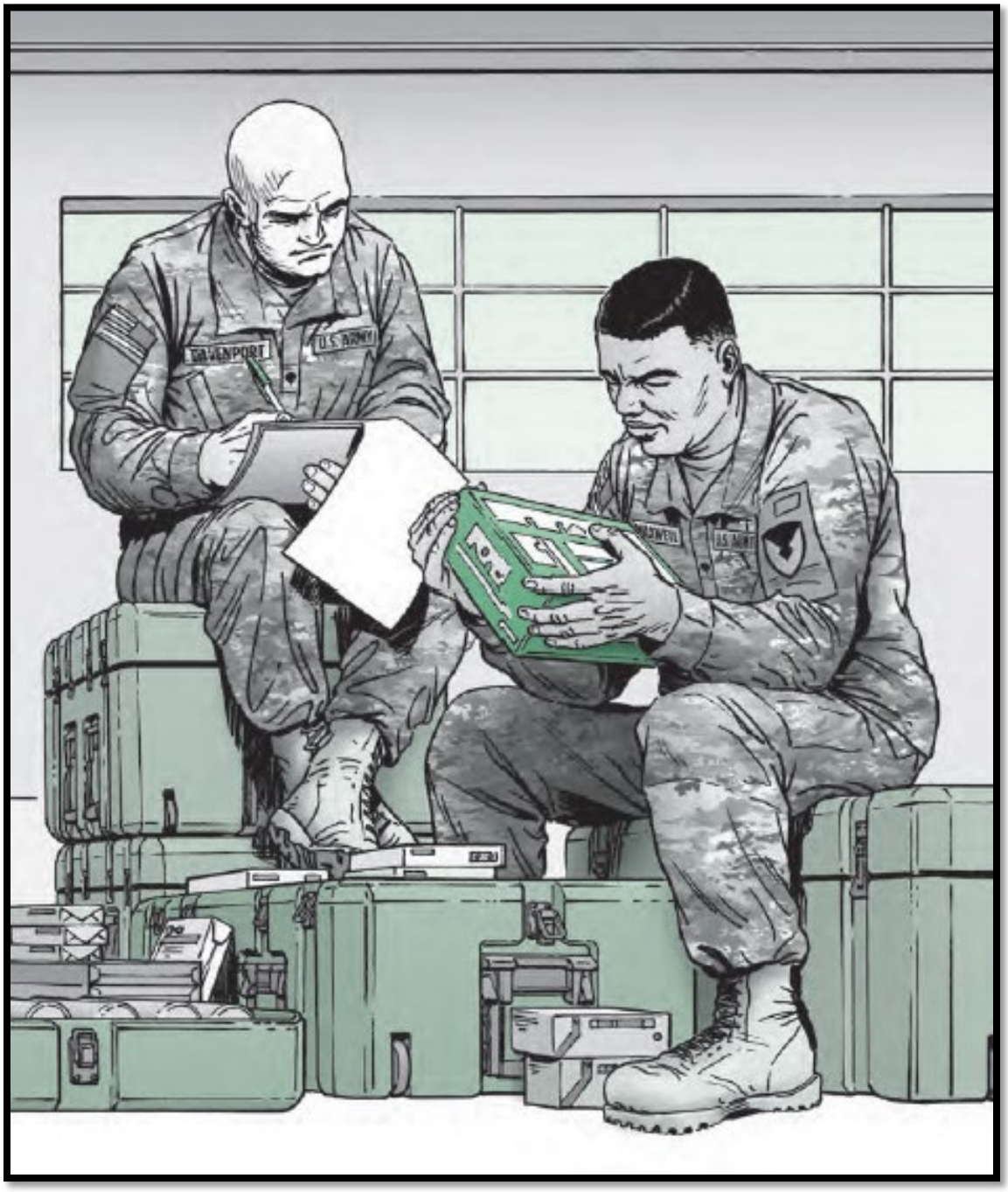
commonly referred to as the precision timing rack or PTR.

TM distribution is restricted, so log in with your CAC:

https://idmng.armyerp.army.mil/

Choose the “ETM/IETM” app and search for the TM.

Logistics Management



TMs: Readiness By the Book

/ Published Dec. 16, 2019

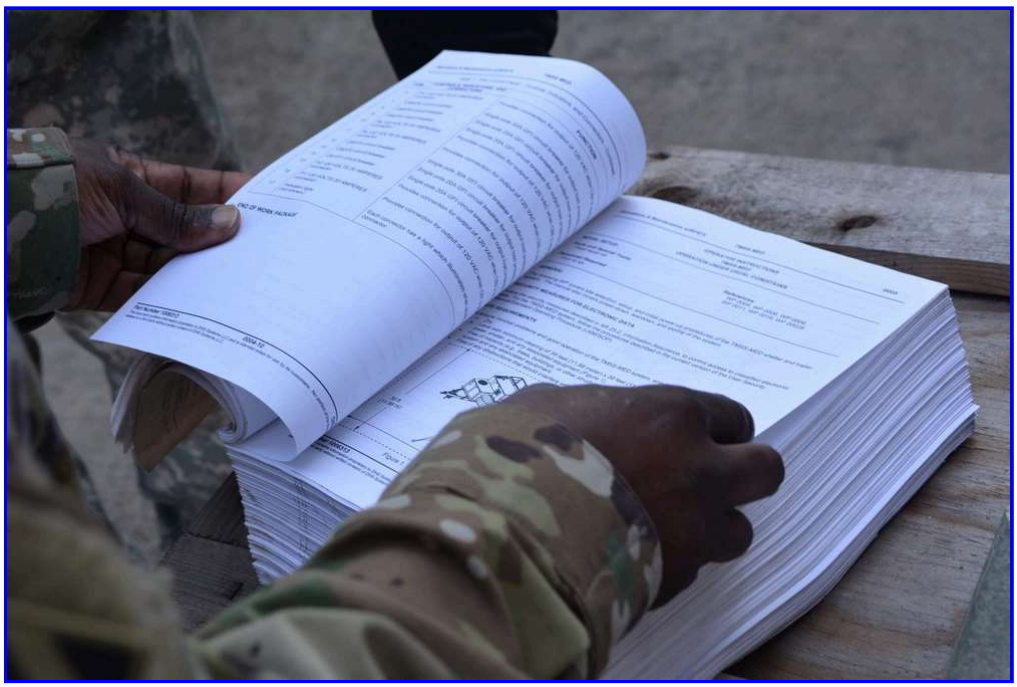


Photo by Sgt. 1st Class Stephanie Widemond

NSN no good? Does FEDLOG claim that PN doesn't exist? Sounds like you may might have a case of outdated TM syndrome!

It's not as rare as you might think. Fact is, we get plenty of equipment questions that can be answered by the latest TMs. The puzzler is why the right info isn't getting into the right hands.

One reason is that some maintainers don't know about or haven't got access to TMs. Or maybe they have access to an old paper TM, but an updated version is only available digitally. More and more TMs are only available digitally.

Sure, we hear some of you moaning about the scarcity of pubs clerks. While we can't supply more of those good folks, at least know that Army pubs, including TMs, are free to units. That's motivation for finding them! But **how** do you find them?

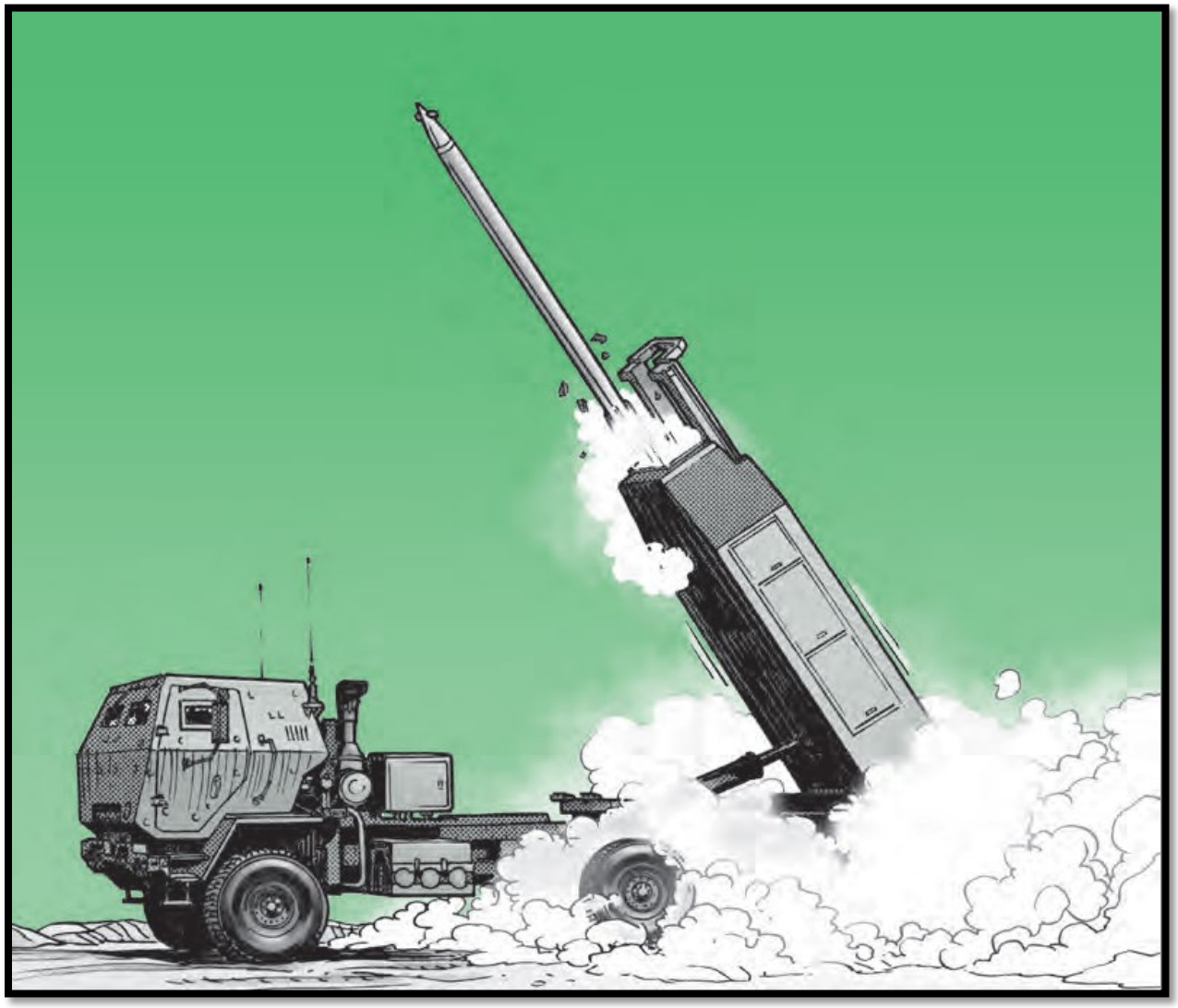
Start with the Army Publishing Directorate:

https://armypubs.army.mil/

Click Publications, Technical and Equipment, and choose the pub type, number or title you want. In the case of TMs, you'll be sent to the Logistics Data Analysis Center (LDAC) to download them. While there, you can also sign up to receive notifications when pubs are updated.

Always ensure you've got the most current TMs you need to stay on track. And remember that updated TMs help solve readiness problems.

Missiles



MLRS: Don’t Forget Safety When Doing PM

/ Published Dec. 16, 2019

Following the guidance in this article can save lives!

Crewmen,

Here are a few important safety tips to keep in mind when doing PMCS on your MLRS. Read and heed!

When you’re cranking the cab up or down, make sure to stay as low and as far under the vehicle as possible. If your head is poking out, the cab can come crashing down on it. Talk about a headache!

Always crank slowly. If you crank too fast, the cab bounces and that can break the lift mechanism. Any time you feel the cab start to bounce, immediately stop cranking! The cab is most likely to bounce when its weight shifts forward or backward, depending on which direction it’s going. So that’s when it’s especially important to crank slowly.

When you’re raising or lowering the cab, make sure no one else is in front of the cab. You don’t want them getting hit by the cab either.

It’s critical you install **both** jury struts before you work under the launcher. If the elevation actuators that hold up the launcher collapse without both struts in place, the launcher will crush anyone underneath it. Remember both the launcher drive system (LDS) and launcher engine have to be off before you install the struts.

But before you install those struts, make sure they’re ready to strut their stuff. Look them over for cracks, deformities and loose or missing rivets. Ensure that both ends of the struts can move freely and independently.

Also make sure they have the correct quick-release pins. Never substitute! If the locking pins are broken or missing, order more with NSN 5315-01-394-0837.

Photo by Markus Rauchenberger

Small Arms

Small Arms: Document Ammo Malfunctions

/ Published Dec. 4, 2019

Photo by Spc. Vang Seng Thao

Dear Editor,

The Army tries to provide the best small arms and ammo for our Soldiers as possible. Our weapons can fire at very high rates, but no matter how hard we try to make the best ammo, it's likely that Soldiers will experience a major weapon or ammo malfunction at some point.

Army Regulation 75-1, *Malfunctions Involving Ammunition and Explosives*, prescribes guidance on how to report ammo malfunctions. Soldiers just need to follow the procedures laid out in Chapter 2 of the AR.

The first step is helping any injured Soldiers. Next, Soldiers must ensure the weapon

is cleared and on safe, then document the conditions, state when the ammo malfunctioned and take photos of the incident.

They should start by taking pictures of the outside of the weapon, then the inside. That'll show what's been damaged and how the parts are positioned after the malfunction. And they need to secure all damaged ammo and weapon parts.

There also needs to be photos of the ammo to compare the fired and unfired rounds, showing the head stamp and the firing pin strike on the primer.

And they can't forget the remnants of linked ammo belts or loaded magazines. The last thing is to take photos of the ammo packaging, making sure to show the lot number.

Also, Soldiers should contact their local LAR or quality assurance specialist (ammunition surveillance) or QASAS to report the incident and share this information.

Units can submit ammo malfunction reports directly to JMC at:

https://mhp.redstone.army.mil/modules/Malfunction/DA4379.aspx

You'll need your CAC to access. If it's the first time going to the website, a one-time registration is required.

By the way, the email addresses for JMC are incorrect in AR 75-1. Units can email photos and reports to:

usarmy.ria.jmc.mbx.qas-malf@army.mil

Information on malfunctions we receive from LARs, QASAS and Soldiers allows JMC to assess the safety and serviceability of the ammo lot. If more data is needed, we'll conduct formal testing on the suspect ammo lot.

The JMC mission is to provide Warfighters with ready, reliable and lethal munitions at the speed of war. We definitely can use their help ensuring the ammo in the stockpile is safe to use and the best quality we can provide.

Daniel Saito
Rock Island, IL

Editor's note: *Good information, Dan. Soldiers, report your ammo malfunctions and heed this guidance.*

Ammunition: Caring for the New 9mm Round Prevents Accidents

/ Published Dec. 9, 2019
Dear
Editor,

Soldiers are now getting the new M17/ M18 modular handgun system, and with the handguns come new 9mm ammo.

There are two new rounds: the M1152 ball and M1153 special purpose. The ball bullet has a flat tip and the special purpose has an open hollow point.

New rounds for M17/M18 modular handgun

Operators need to handle the rounds with care and keep them clean and dry. They must not allow the cartridge bullets or primer to hit any hard surface, including the ground.

This is because the round could accidentally fire if a hard surface strikes the primer. The exposed lead cavity of the new M1153 bullet can be damaged if it drops to the ground. When it hits a hard surface, the open tip can close up, causing it not to perform as intended.

For those who work in security or law enforcement, it's possible they may be carrying this new ammo daily. It's important for them to remember to inspect the rounds for damage and look for obvious damage, such as the hollow point being closed up or out-of-round.

If this type of damage is found, they'll need to replace the rounds with good ones to ensure reliable performance. We can't afford a weapon stoppage due to damaged ammo!

Tell Soldiers that when it's time to clear their weapon, **don't** be Rambo and cycle the rounds through the weapon chamber! Ejecting the rounds will cause them to hit the ground.

They simply need to follow the instructions in TM 9-1005-470-10 (Mar 19) to eject the magazine and manually remove the cartridges. This will prevent the rounds from hitting the ground and being damaged. It'll also protect the hollow cavity from hitting the pistol feed ramp when cycling rounds through the weapon.

Bottom line is, Soldiers must take care of their ammo so they can get the performance they expect.

Daniel Saito
Rock Island, IL

Editor's note: *A good tip from you, Dan. Soldiers, protect your ammo*.

M230 Automatic Gun: Target These Tips

/ Published Dec. 9, 2019

Photo by Maj. Enrique Vasquez

Target these tips to keep your M230 automatic gun on target, particularly in a desert environment:

TW-25 lube is to be used only in the desert.

It's good for a sand and dust environment because it doesn't attract sand as much as GMD. But that's the **only** place where TW-25 is OK. Everywhere else, use GMD, NSN 9150-00-935-4018, because it holds up better to the intense heat that the M230 produces. Remember you need permission from TACOM to use TW-25. Your TACOM LAR can help with that. Once you've received approval and instructions, order a 4-oz tube of TW-25 with NSN 9150-01-439-1873 or a 32-oz jar with NSN 9150-01-535-8687.

Clean every two weeks in the desert, whether you're firing or not.

Even if you're using TW-25, sand is still a problem and needs to be cleaned off. And the M230 needs to be lubed again to avoid firing problems.

Don't leave gun bags on for days at a time.

Gun bags are an excellent way to protect the M230 from the weather and from dirt and sand. But they need to be removed every few days to prevent condensation that can lead to corrosion. Take off the bag and wipe away any moisture.

No pressure washing around the M230.

That not only cleans off dirt, but washes away lubricant. Clean around the gun with a damp cloth instead.

M153 CROWS II: Lock It Down Before Moving Out

/ Published Dec. 13, 2019

Photo by Pfc. Michael Ybarra

Crewmen,

It's critical that you keep your common remotely operated weapons station (CROWS) II locked whenever your vehicle is on the move. If you don't, the main frame assembly (MFA) on the CROWS can end up with serious damage.

So be sure all the locks are actually locked before moving out. That includes the azimuth (AZ) lock and the ELEVATION (EL) transport lock. And don't forget to make sure the sight servo *assembly* (SSA) clamp is in place.

Also, keep the CROWS lens caps installed except when actually preparing to fire. And if the lens caps have disappeared, as they will, order more with these NSNs:

- VIM lens cap, NSN 6760-25-150-9879
- TIM lens cap, NSN 5855-01-584-6138
- LRF lens cap, NSN 6650-25-160-3989

You can protect your CROWS by keeping it covered with the tan cover, NSN 5340-25-162-1081, or the green cover, NSN 5340-25-162-0697.

New as of 9/29/2022: Also ensure the CROWS II is locked at the lowest possible elevation for travel. Learn more **HERE**.

M240 Machine Gun: Clean Your Weapon After Firing It

/ Published Dec. 17, 2019

Photo by Capt. Monika Comeaux

Soldiers,

It's important to clean your weapon **every** time you fire it!

A maintenance facility reported receiving M240 machine guns with barrels stuck in the receiver. The cause of the problem was the weapons didn't get cleaned after they were fired.

How can this be prevented? The easy answer is, clean your weapon using some old-fashioned elbow grease. Remove the brass and copper to prevent oxidization and clean the carbon from your weapon, too.

Example of oxidation

Example of carbon buildup

Don't let **your** weapon look like this. Clean it when you come in from the range.

Small Arms: Gaging Variance for Annual Services

/ Published Dec. 18, 2019

Photo by Capt. Monika Comeaux

Let's address a frequently asked question: Is a 10-percent variance allowed on small arms weapon services, which include annual gaging?

The answer is **YES,** although there's been some debate about this fact. AR 750-1, *Army Material Maintenance Policy,* allows for the 10-percent variance when performing services. DA Pam 750-8, *The Army Maintenance Management Systems (TAMMS) Users Manual*, provides further detail, stating some services may be too critical to have a variance. In these select instances, the equipment maintenance manual states no variance is allowed. However, this no-variance prohibition does not exist in small arms weapons manuals; therefore, the 10-percent variance is allowed, per TACOM subject-matter experts.

The 10-percent variance is allowed both before and after the schedule of days, miles, or hours.

Per DA Pam 750-8, two more things to remember:

- When the service is done within the variance, the equipment's miles, kilometers, or hours are recorded on the date service was scheduled. When a service outside the variance is completed, data is recorded on the actual day the service was completed. The computer schedules the next service from the new date.

- When the service exceeds the 10 percent variance, the equipment is administratively designated NMC until the service is completed.

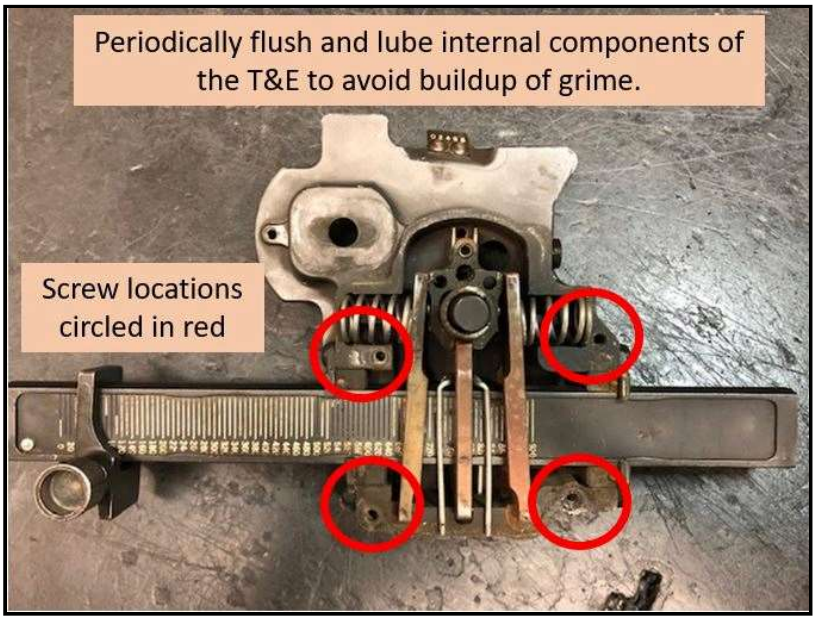
The next time small arms weapons manuals are updated, they will explicitly state the 10-percent variance is allowed for small arms weapon services.

M192 Tripod: PM Tips to Keep Your M192 in Tip-Top Shape

/ Published Dec. 19, 2019
Operators,

It's important to conduct good PMCS to keep your M192 tripod in tip-top shape. Make sure to remove any carbon and dirt that may be on the M192 mount. Then apply a thin coat of CLP and lubricate all moving parts. Don't forget to wipe off the excess CLP.

To keep your traversing and elevation (T&E) mechanism working properly, follow the instructions in WP 27 00-2 of TM 9-1005-245-13&P (Apr 05). And periodically flush and lube the internal components of the T&E. Flushing the T&E will prevent it from looking dirty like this:



Inside view of T&E mechanism

Maintainers,

When it comes time to remove the traverse cover of the traverse mechanism, the four screws may be stuck. Try this trick if that happens. Use a heat gun to loosen up the sealing compound that's on the threads. The screws should come out with no problem.

Also, when removing your weapon from the M192 tripod, pay close attention to the quick-release lock. Whatever you do, don't beat on it. That could damage it. Just refer to WP 28 of the TM for dismount procedures or ask your NCO to help you.

The parts section of TM 9-1005-245-13&P has some items with TBD instead of an NSN. Here's the good news. All parts now have NSNs, so search FED LOG using the part number to get the NSN that's missing.

Remember, keeping your M192 tripod clean and serviceable keeps you in the fight.

Photo by Kevin Payne

Soldier Support

Army Combat Fitness Test Equipment NSNs

/ Published Dec. 9, 2019

Photo by Kevin Fleming

Refer to this chart to keep your Soldiers fit and ready for their Army Combat Fitness Test (ACFT). Note that the only approved ACFT equipment set is NSN 7830-01-675-1851.

Nomenclature	NSN 6930-	Quantity per Set/Lane
Barbell collar/spring	01-684-6430	2
Hexagon barbell	01-684-6427	1
Kettlebell, 40lbs	01-684-6438	2
Bumper plate, 10lbs	01-684-6410	4
Bumper plate, 15lbs	01-684-6409	2
Bumper plate, 25lbs	01-684-6415	2
Bumper plate, 35lbs	01-684-6419	2
Bumper plate, 45lbs	01-684-6420	8

Medicine ball, rubber, 10lbs	01-684-6435	1
Nylon sled w/pull strap	01-684-6433	1
Measuring tape	01-684-6431	1

For more information, contact Daniel Gailor at DSN (312) 206-2599 or (508) 206-2599. Or call Danielle Kirzow at DSN (312) 206-2590 or (508) 206-2590.

TWPS BII Ice Auger NSN

/ Published Dec. 13, 2019

Order the ice auger that's part of the basic issue items (BII) for the tactical water purification system (TWPS) with NSN 3820-01-526-2892. The NSN shown as Item 2 in WP 0045 00-15 of TM 10-4610-309-10 (May 08) brings the NBC tank instead of the ice auger. So make a note until the TM gets updated.

Photo by Sgt. Patricia McMurphy

MTRCS NSN: Don’t Get Hosed

/ Published Dec. 23, 2019

Heeding this article could save your unit an unexpected $1000+ upcharge

BLUF: Order NSN 6210-00-511-8208 to get the green light lens for a MTRCS.

Photo by Spc. Charlotte Carulli

Dear Editor,

I’m bringing an NSN discrepancy to your attention that we recently discovered on the multi-temperature refrigerated container system (MTRCS).

We tried to order the green light lens for a MTRCS we maintain. We found the item in TM 10-8145-222-23P (Apr 16). The TM lists Item 27 of Fig 31 as NSN 6210-01-511-8208 (PN 101-0972-003).

MTRCS fuel level indicator light panel

When we ran that NSN through FED LOG, it came up as a non-metallic hose that was $1,053.13. When we ran the PN instead, it gave the correct item, but the NSN listed was 6210-**00**-511-8208.

I've got an awesome team working for me and want to share what they found by being diligent when ordering parts. I also want to spread the word so other units won't receive a $1,000 hose in place of a $3.52 light lens.

Thomas Turner
Ft Liberty, NC

Editor's note: *You've certainly hosed down a costly problem, Thomas! The TM needs correcting and in the case of the MTRCS, you'll need to submit a DA Form 2028 to TACOM. See our how-to article at*:

https://www.ldac.army.mil/web2/archive/PS2018/793/793-53.pdf

Tactical Vehicles

M200A1 Trailer: Lunette NSNs Update

/ Published Dec. 12, 2019

M200A1 with Adjustable Lunette

A few years back, some modifications were made to the M200A1 trailer's adjustable lunette. Since then, even more updates have taken place that led to the current configuration for the trailer in the tech manuals.

The new NSNs and part numbers for the pintle pin (Item 11) and eye hook lunette (Item 12) will be included in Fig 7 of the new TM 9-6115-782-13&P when it gets published. You'll also see the updated info in TM 9-2330-205-13&P.

In the meantime, use this chart:

Item	SMR Code	NSN	CAGE	PN	Description	QTY
11	PAFZZ	2540-01-671-2161	19207	12593531	Pin, pintle	2
12	PAFZZ	5340-01-612-1418	19207	12563535	Lunette, eye hook	2

HEMTT A4: Wiper Blade NSN

/ Published Dec. 19, 2019

Photo by Spc. Joseph Driver

If you have a HEMTT A4 with the bolt-on style wiper blade, NSN 2540-01-262-7708, you'll need to upgrade when changing blades.

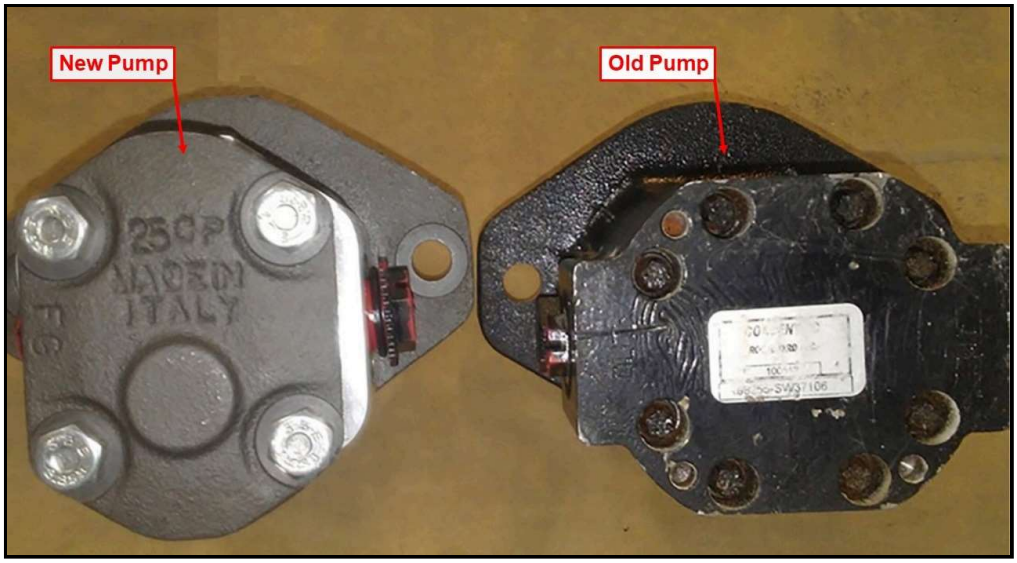
The first time you change to clip-on blades, NSN 2540-01-482-2300, you'll also need to upgrade to the new wiper arm, NSN 2540-01-626-2374. You'll find this parts information in TM 9-2320-326-13&P (IETM EM 0288, Dec 15).

M1000 HET Semitrailer: Installing New APU Hydraulic Pump

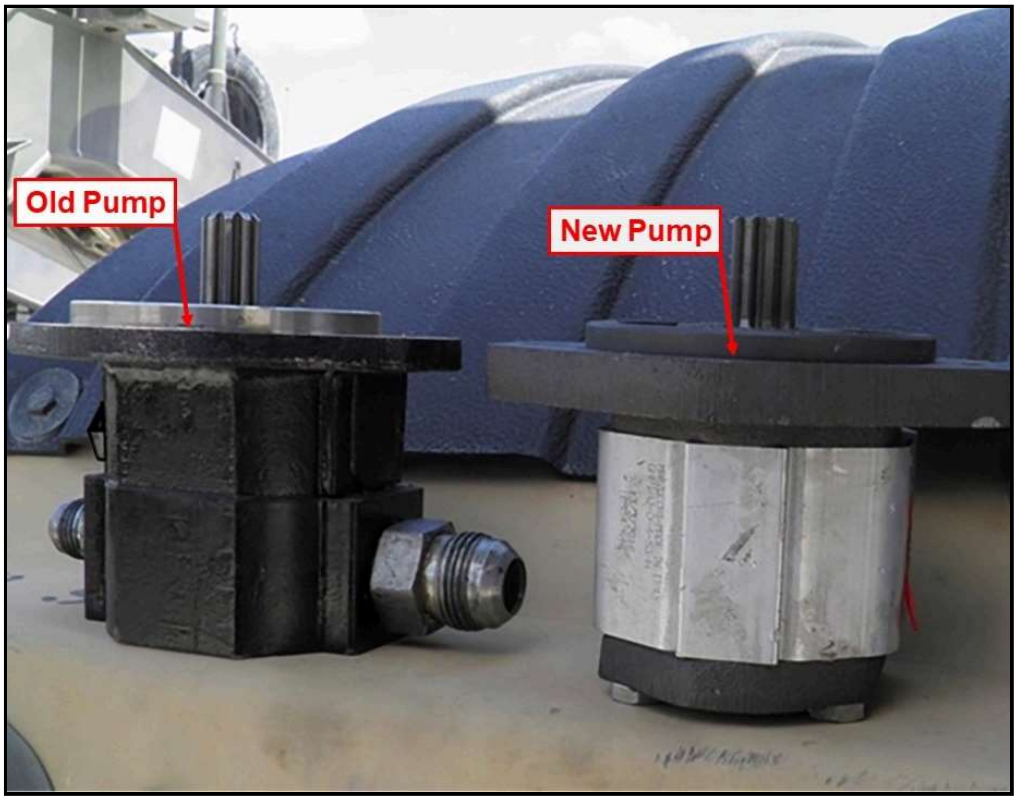
/ Published Dec. 19, 2019

Photo by Spc. Calab Franklin

Mechanics, there's a new hydraulic motor pump, NSN 4320-15-010-3304, available for your M1000 HET semitrailer's auxiliary power unit (APU).



This new pump is a different design and replaces the old, black cast-iron pump, NSN 4320-01-331-8742. When you receive the new pump, you'll notice it has an aluminum mid-body section and comes with the hydraulic inlet and outlet ports about one inch closer to the pump's mounting cap screw holes. That makes it a little tricky to remove and install when following the current instructions in WP 0107 of TM 9-2330-381-13 (Oct 09, w/Ch 1, Apr 15).



Some mechanics get around this by continuing to order the old pump. But stock is running short and soon only the new pump will be available.

Installing the new pump is possible. It just requires a few changes to the removal and installation procedures. Here are the coming changes:

Removal

In Step 4 of WP 0107-2, insert a NOTE that it may be necessary to remove the pipe-to-tube adapters in order to allow the mounting cap screws (Item 3 in Fig 1) to be removed.

Installation

In Step 2 of WP 0107-4, insert a NOTE that it's necessary to place the right-side mounting cap screw (Item 5 in Fig 1) and lock washer (Item 6 in Fig 1) on the pump's mounting hole before the right-side pipe-to-tube adapter is installed. Installing the right-side pipe-to-tube adapter first prevents the right-side mounting cap screw (Item 3 in Fig 1) from being installed.

Make a note of these changes until the TM is updated.