Armed Forces Pest Management Board
Technical Guide No. 31

Operational Washdown and Agricultural Inspection Preparation for Military Conveyances and Equipment

Supplement 1: Photo Guide for Tactical Rolling Stock and Rotary Winged Aircraft

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December 2021

Foreword

This Technical Guide (TG) describes procedures, outlines responsibilities, and defines requirements for preparing military conveyances (vehicles, vessels, aircraft), rolling stock, equipment, cargo and unit and personal gear to comply with agricultural and public health pest exclusion requirements for movement of ships, aircraft, equipment, and personnel, particularly from locations outside the United States (US). Note that TGs are not policy documents; they provide best management practices and technical guidance for the US Department of Defense (DoD) operations, pest management, natural resources and other DoD communities. Accordingly, TGs should not be construed or referenced as policy.

This TG will be reviewed and updated periodically to reflect current information. Users are encouraged to submit comments and suggestions for improvement to the Armed Forces Pest Management Board, via e-mail to osd.pentagon.ousd-atl.mbx.afpmb@mail.mil; by mail to Director, AFPMB, US Army Garrison–Forest Glen, 2460 Linden Lane Bldg #172, Silver Spring, MD 20910-7500; by telephone at (301) 295-7476; or by fax at (301) 295-7473.

Policy and points of contact questions related to customs and border protection and agricultural washdown preparations and inspections should be forward to USTRANSCOM/TCJ4-PI via email at transcom.scott.tcj5j4.mbx.pi-customs@mail.mil.

Policy, guidance and points of contact questions related to animal pathogen sanitation, or disinfection requirements, such as those required for African swine fever or foot and mouth disease, often associated with customs and border protection and agricultural washdown preparations and inspections, should be forwarded to DHA.NCR.VETERINARY.MBX.VETSVCS-DSCA@mail.mil.

DoD pest management policy, guidance, and point of contact information is accessible on the AFPMB website: http://www.acq.osd.mil/eie/afpmb/.

Disclaimer

Mention of specific products or services in this guide does not imply endorsement by the Armed Forces Pest Management Board, the DoD, or the US Government. The appearance of external non-DoD hyperlinks does not constitute endorsement by the DoD of those linked websites, or the information, products, or services therein. The DoD does not exercise editorial, security, or other control over the information found at non-DoD websites.

Table of Contents

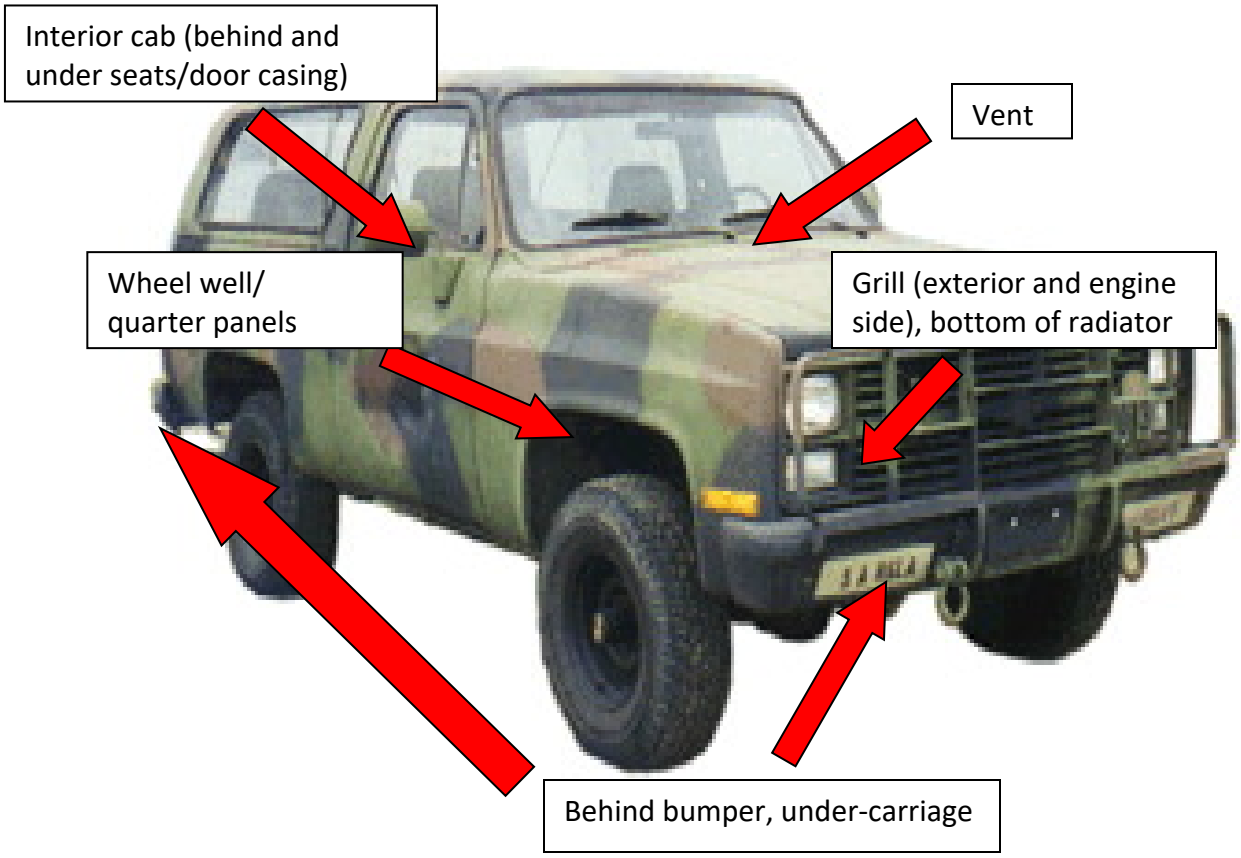
1. Pick-up trucks, SUVs and automobiles 4
2. High Mobility Multipurpose Wheeled Vehicle (HMMWV / Humvee) 14
3. Problem Areas on 5-Ton, 7-Ton and Various Other Wheeled Vehicles 26
4. General USMC Tactical Vehicles. 44
5. Vehicle Mounted Mine Detector MK III Husky 44
6. Medium Tactical Vehicle Replacement (MTVR) 7-Ton (MK 23/25/27) 44
7. Mine Resistant Ambush Protected Category II 6X6 45
8. Mine Resistant Ambush Protected Category I 4x4 46
9. Logistics Vehicle System Replacement Wrecker 47
10. MaxxPro Recovery Vehicle 48
11. Mine Roller System 49
12. Mine Resistant Ambush Protected Buffalo 49
13. Details specific to Stryker 8X8 Tactical Vehicles. 50
14. Generators 69
15. Rotary Wing Aircraft Inspections 69

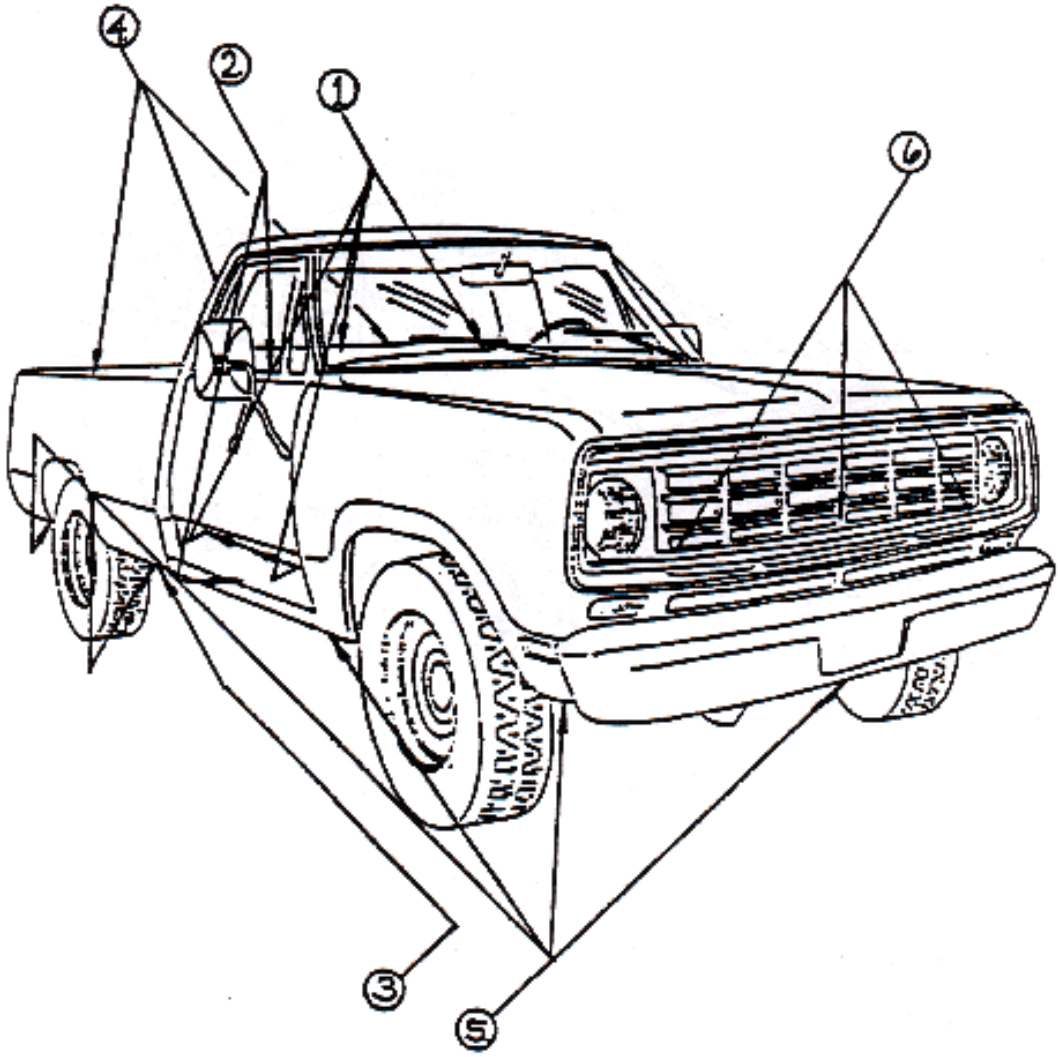
Illustrations of Specific Problem Areas by Vehicle Type

(Arrows designate areas of concern)

NOTE: Basic guidance for agricultural washdowns of tactical rolling stock is found in the main AFPMB TG 31, Operational Washdown and Agricultural Inspection Preparation for Military Conveyance and Equipment. For all vehicle types covered in these TG supplements, file size and technical guide limitations limited the publishable details covering military conveyances and cargo showing specific examples and associated problem areas. The main TG 31 and three supporting TG 31 Supplements can be downloaded on the AFPMB website at https://www.acq.osd.mil/eie/afpmb/natural_quarantine.html.

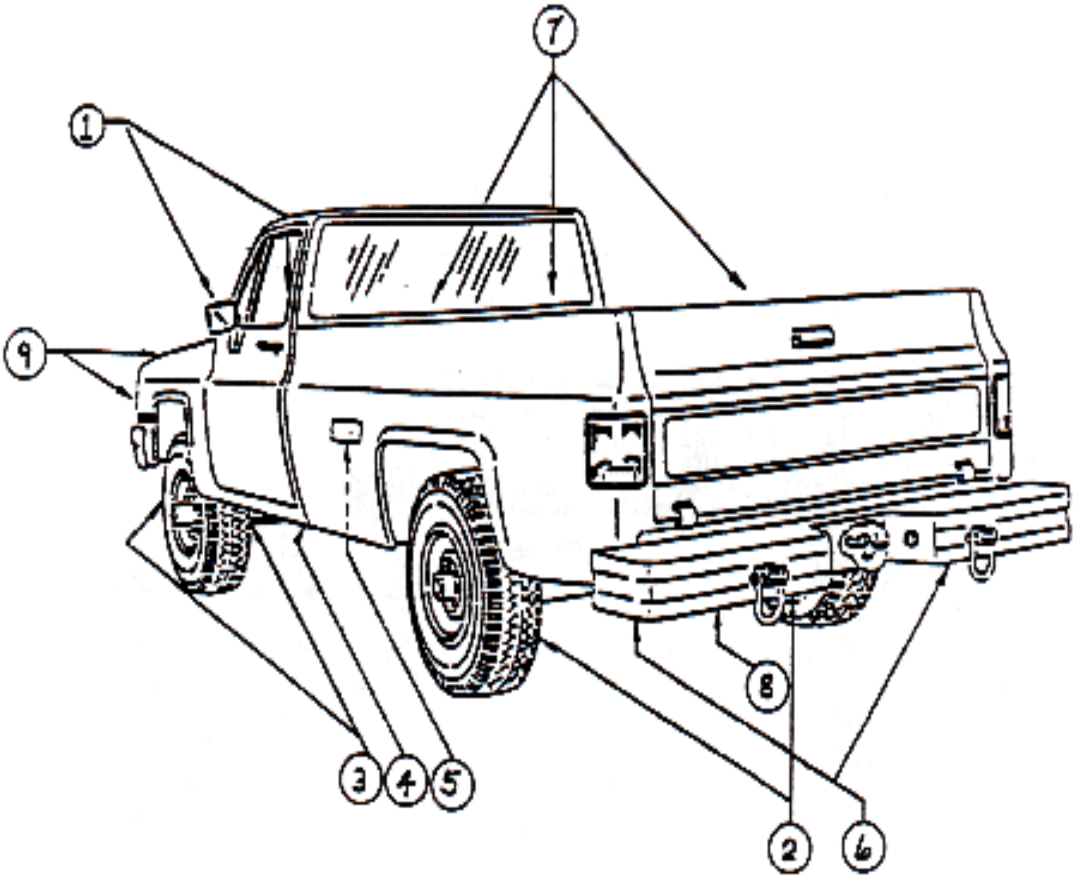
1. Pick-up trucks, SUVs and automobiles





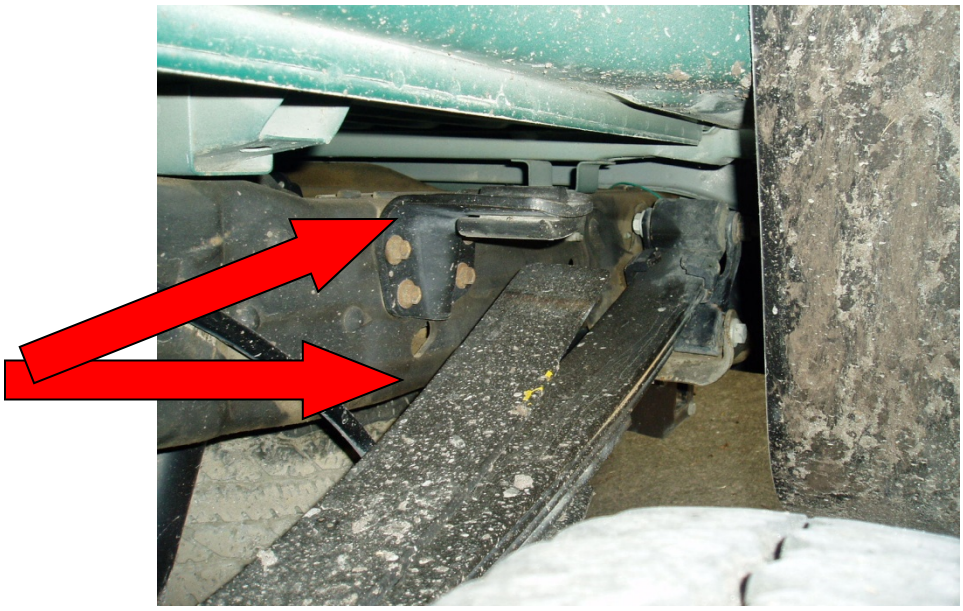
PROBLEM AREAS

1. Inside the cab, underneath the vehicle floor mat edge.
2. Underneath the seat.
3. On top of the rim of the spare tire.
4. The rear bed.
5. Ledges underneath bumpers, front and rear quarter panels.
6. Front of grill and tray under radiator.

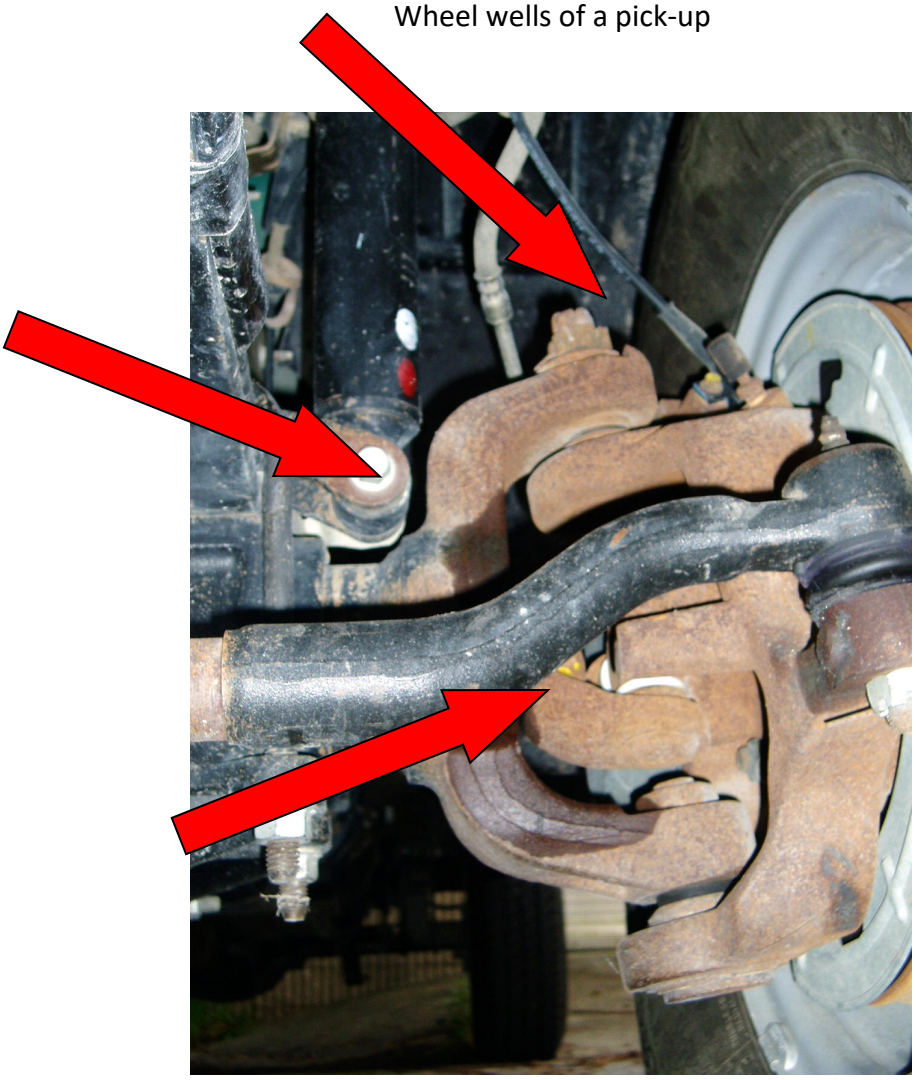


PROBLEM AREAS

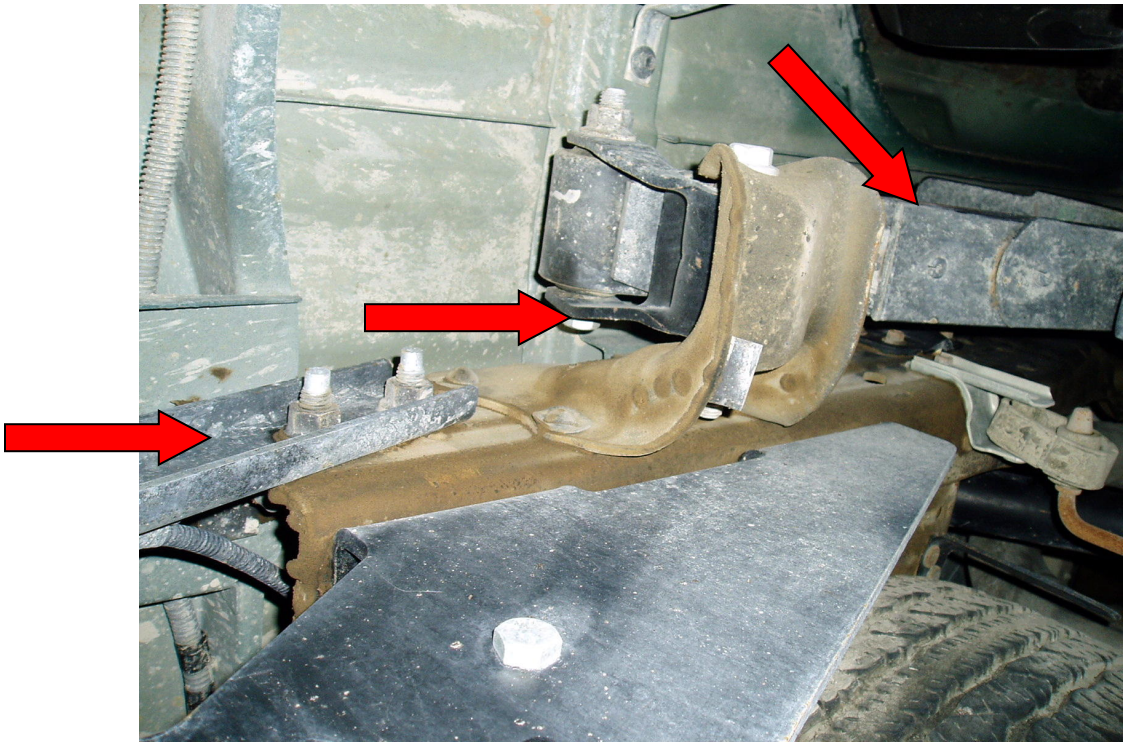
1. Twigs and/or debris in vent openings.
2. Between the rear wheel brake drums and the steel rim of the wheel.
3. On top of front suspension components.
4. On top of transmission.
5. On the fuel inlet tube, where it bends, just before it comes in contact with the body of the vehicle; view it from underneath.
6. Rear bumper area, especially behind the U-shaped protective plate that protects the wiring for the blackout lights.
7. Twigs and/or debris in bed of vehicle.
8. On top of the rim, of the spare tire.
9. Front area of grill.



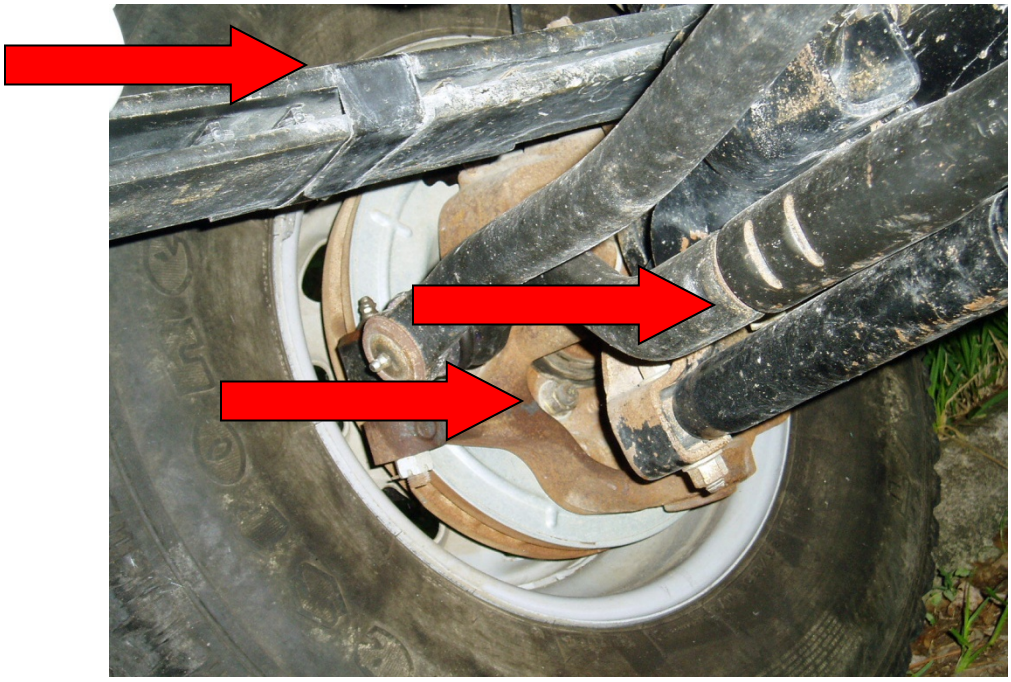
Wheel wells of a pick-up



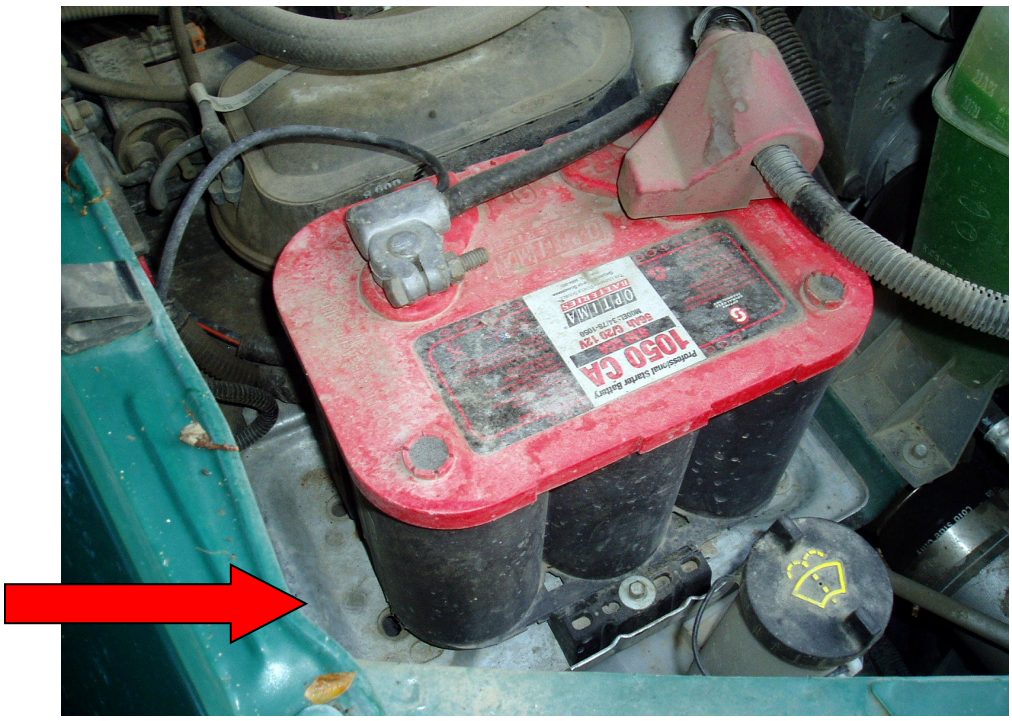
Vents at top of hood of pick-up



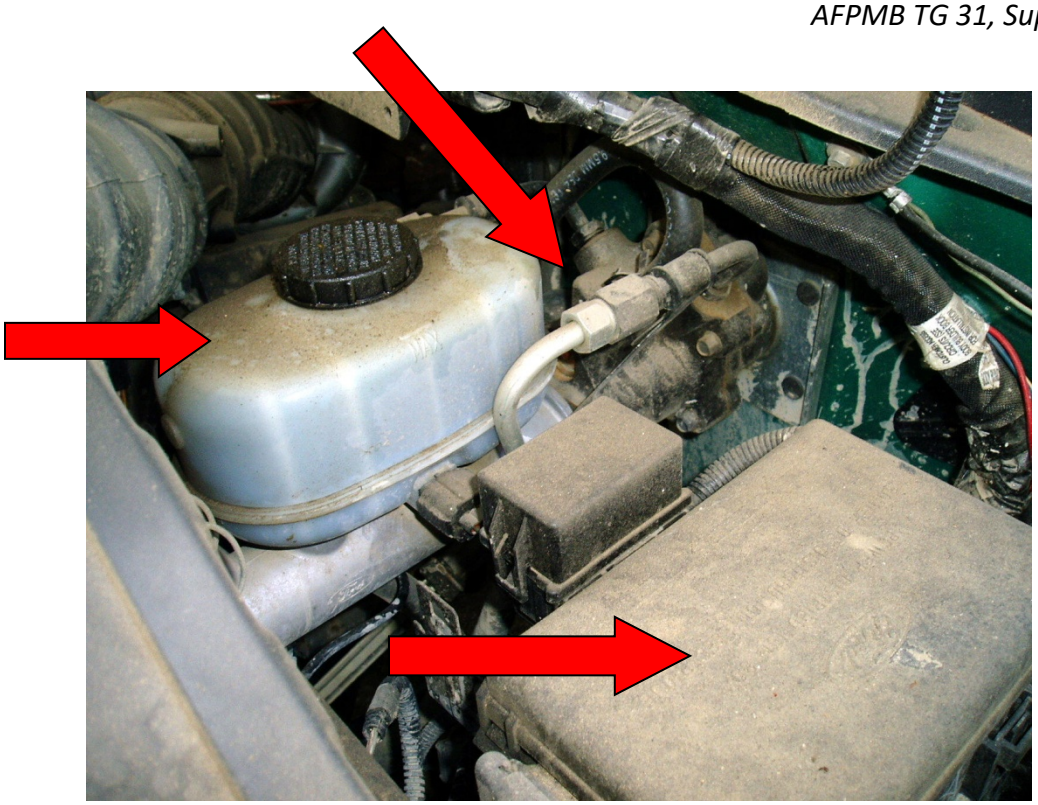
Wheel well/undercarriage of pick-up



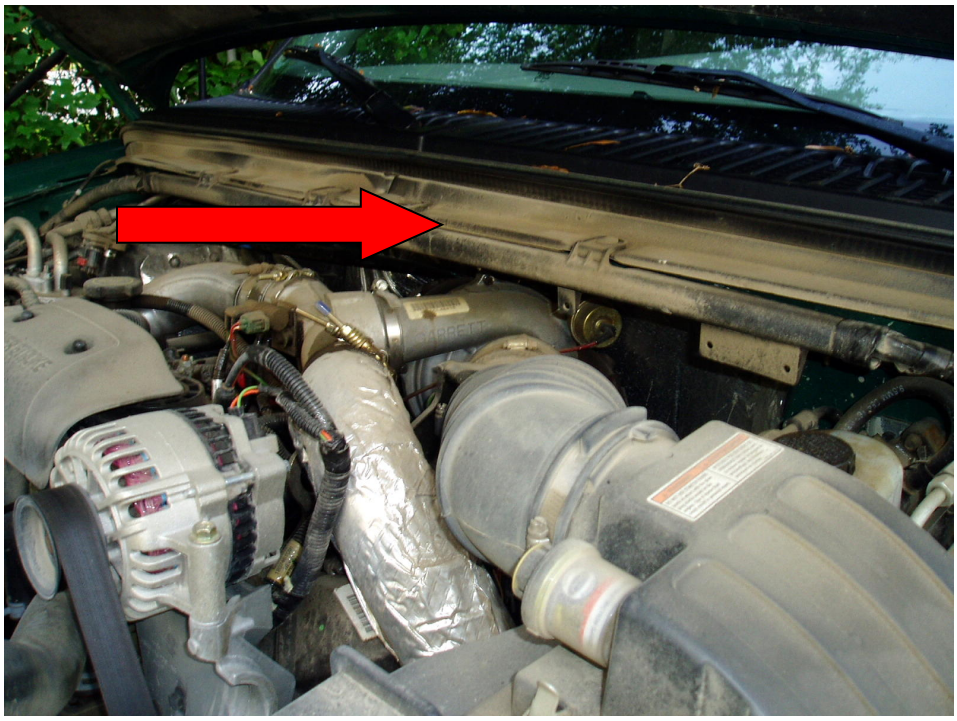
Inside wheel well, brakes and steering joints

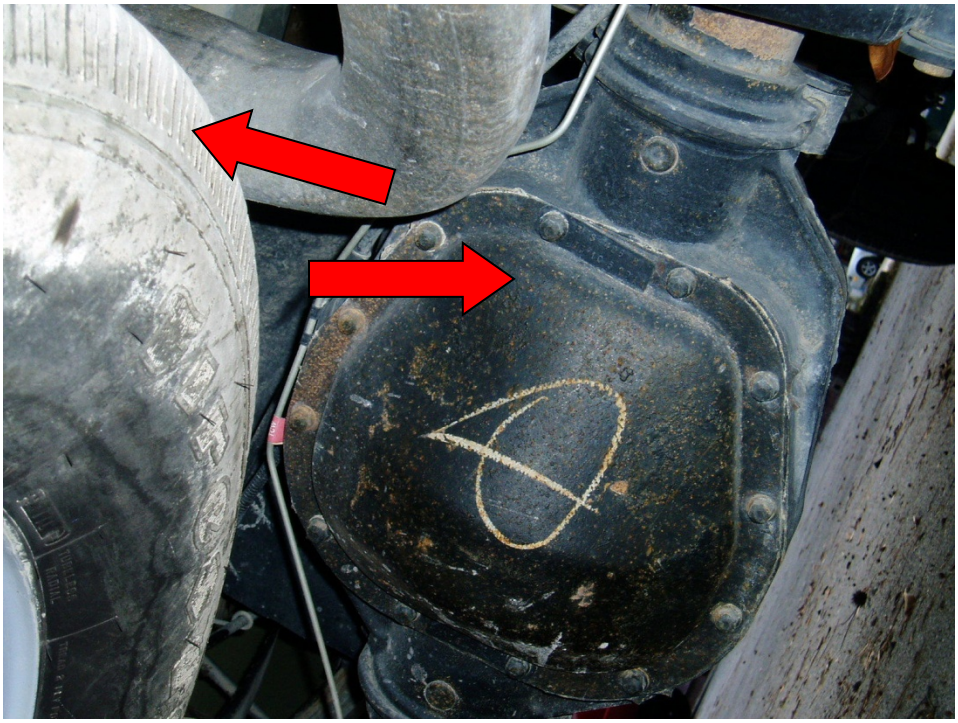


Around and underneath battery and battery box and hardware



Pick up / SUV / Automobile engine compartment problem areas





Transmission box and in and around spare tire

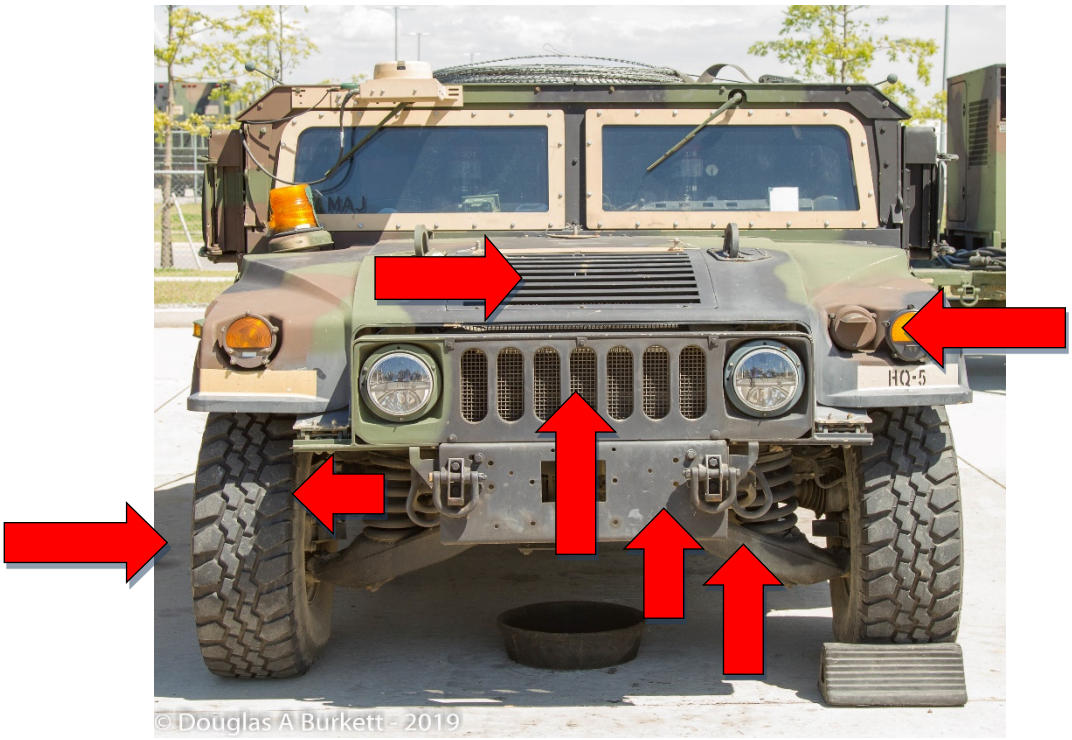
Bed of pickup truck

Area between cab and bed

Area between tail gate and bed

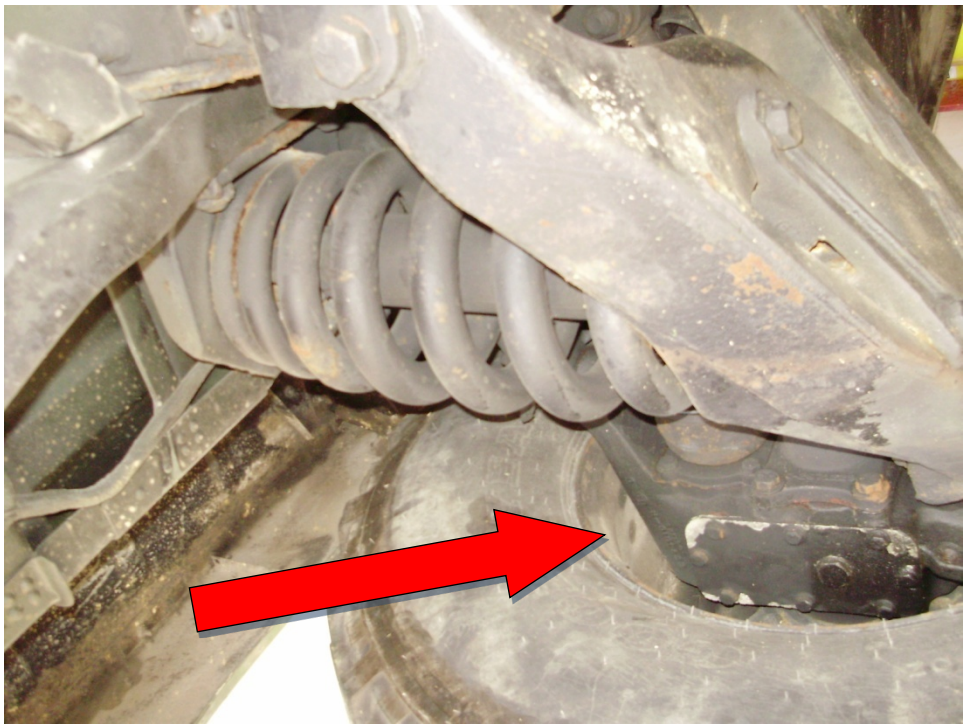
Grill areas of pickup

2. High Mobility Multipurpose Wheeled Vehicle (HMMWV / Humvee)

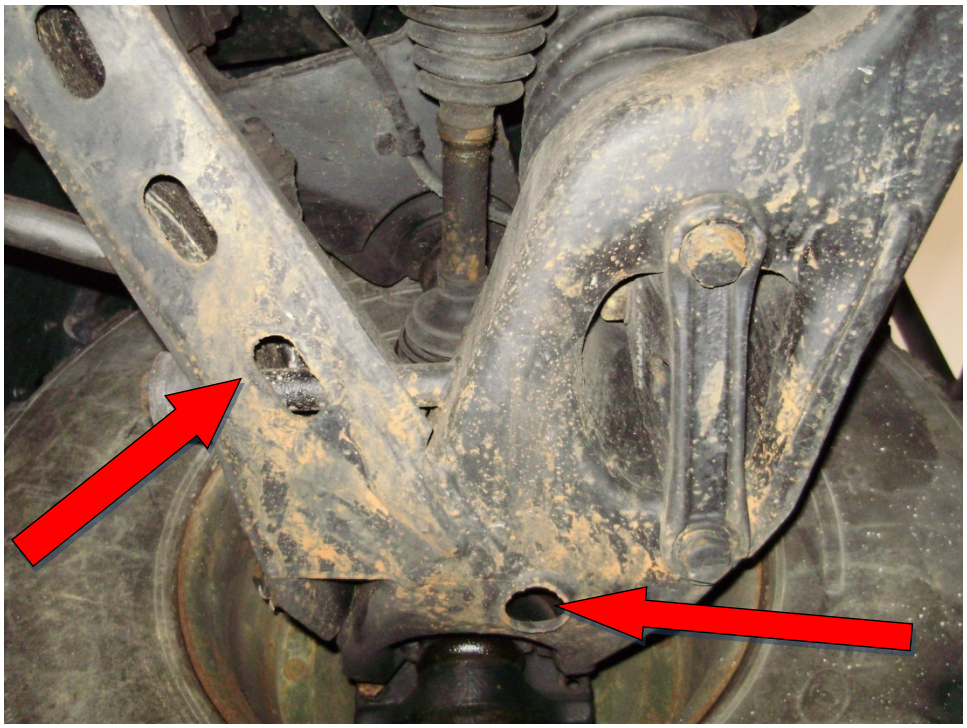


HMMWV: Clean soil, dirt, and debris from grill, suspension springs, inside wheels, tire treads, lights, armor, tow hooks, etc.

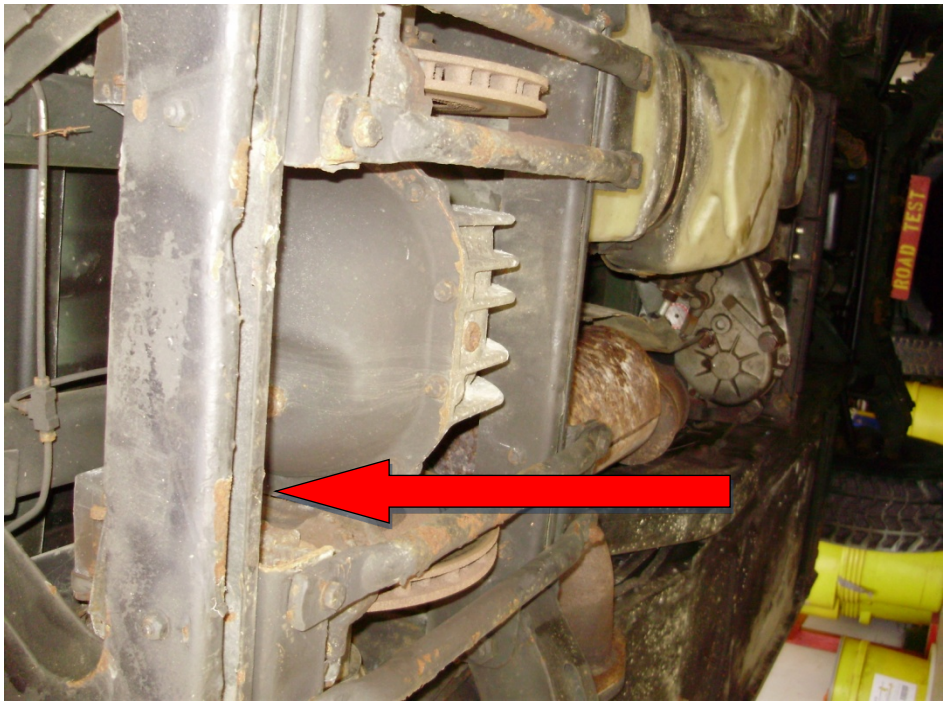
Clean debris from vents, wheel wheels, hinges, armor plate gaps, spare tire attachments/treads



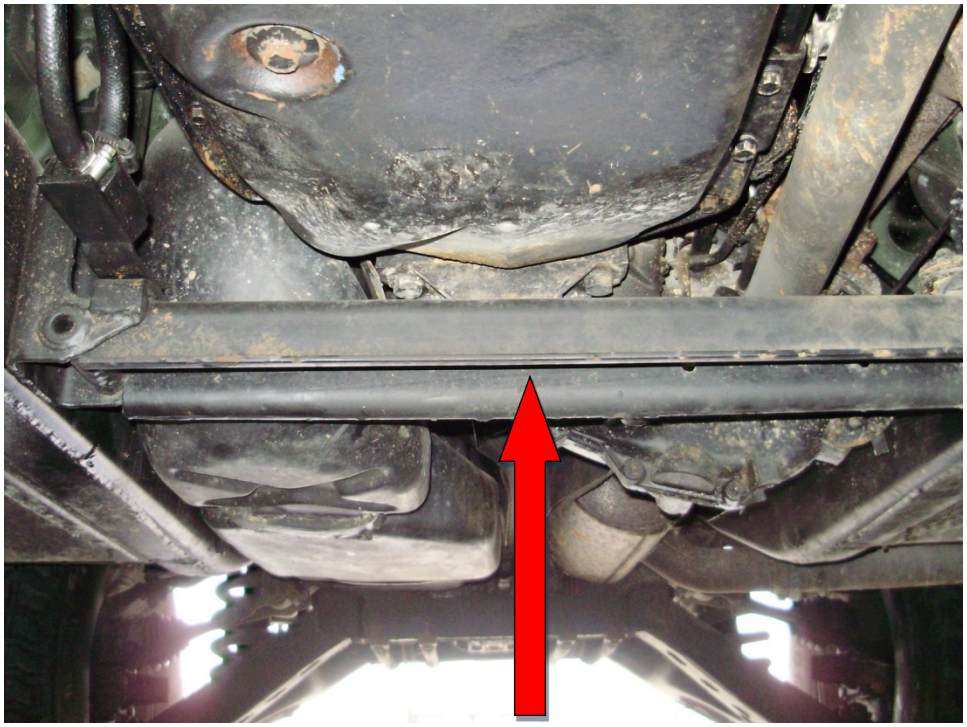
Behind wheel well of M1165 HMMWV



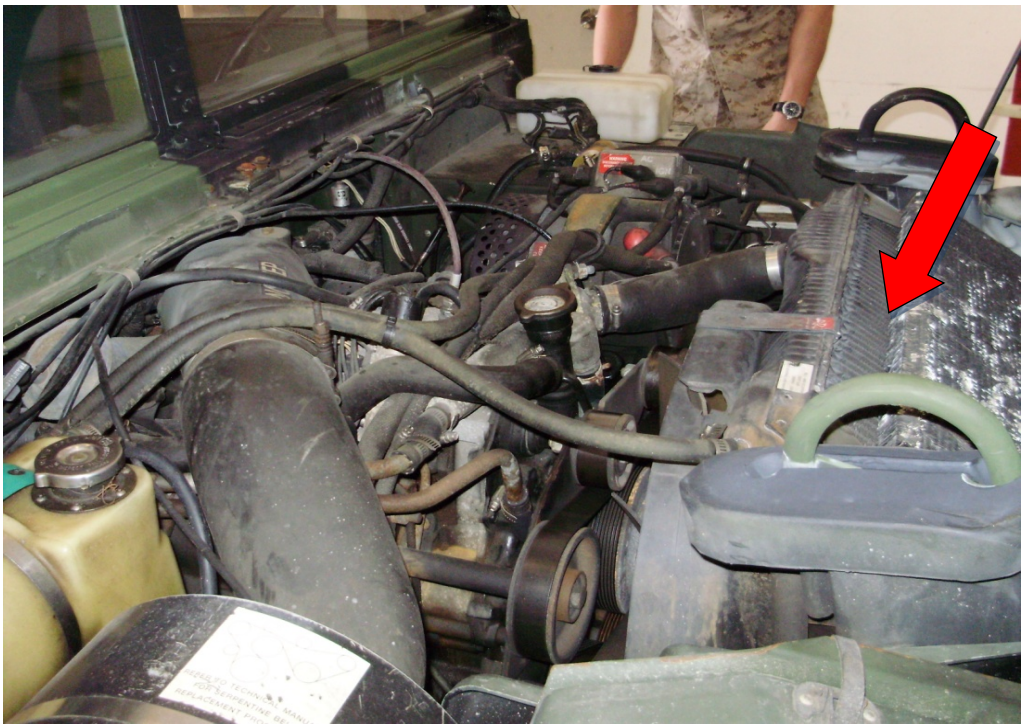
Spray directly into holes of wheel axles until water runs clear



Check for mud on all ledges of undercarriage

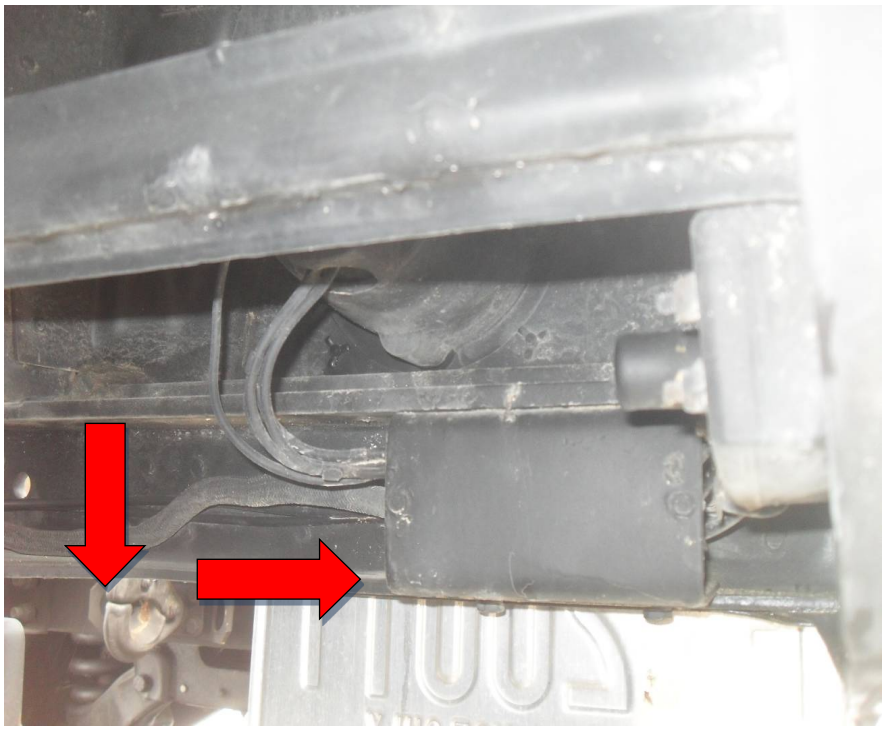


Check for mud on both sides of ledges



Check under hood for any debris (e.g. leaves, dirt in radiator)

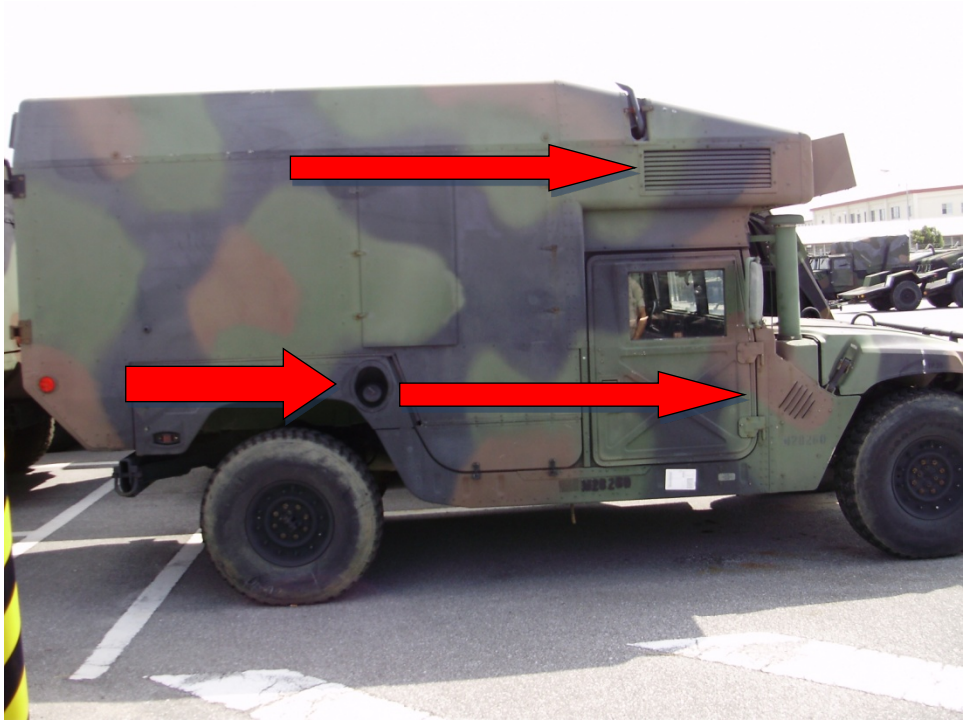
HMMWV Bed: Lift up panel to check for gravel and dirt on both sides



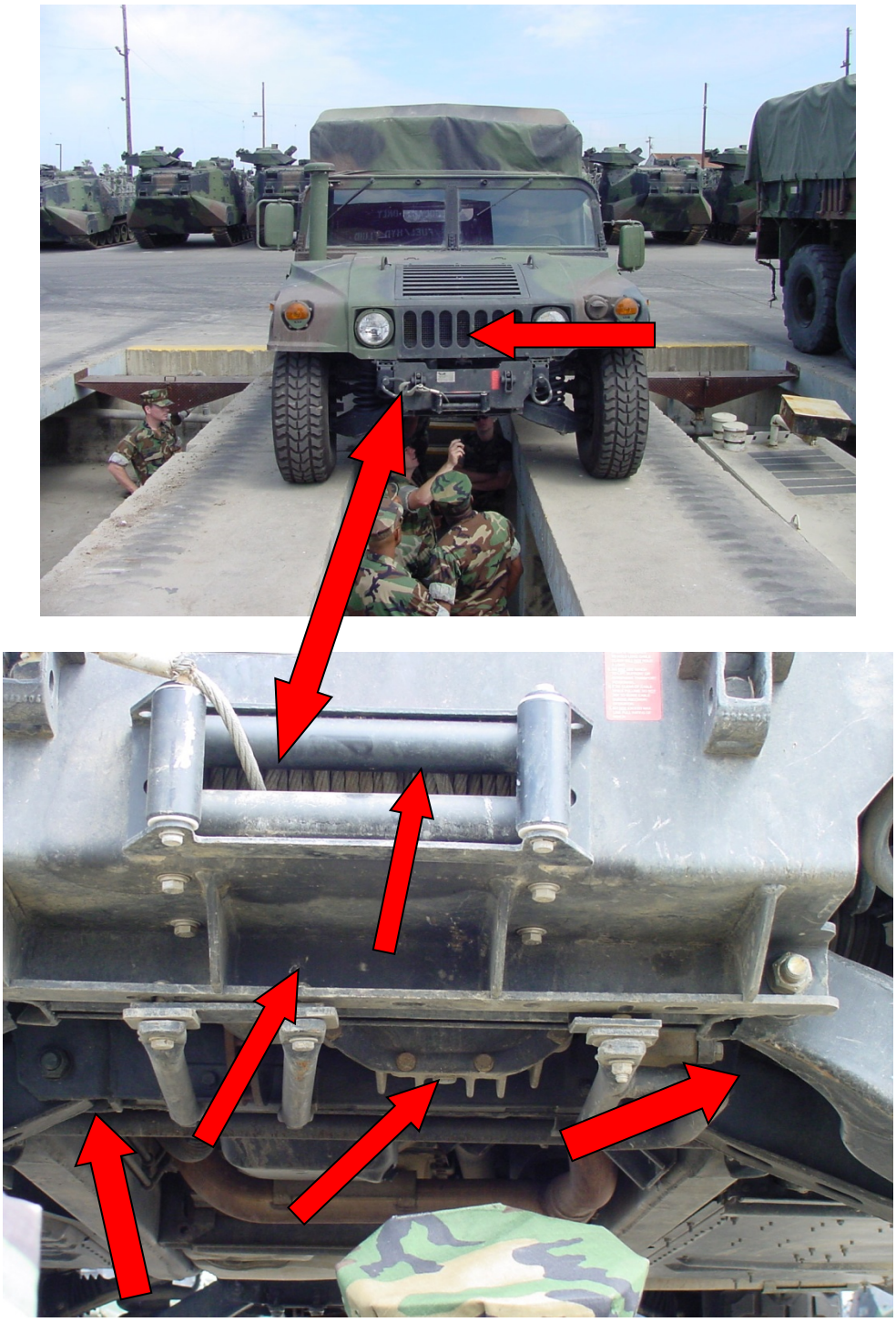
Check for mud under ledges

Pay particular attention to any plant material/soil attached barbwire or other external accessories

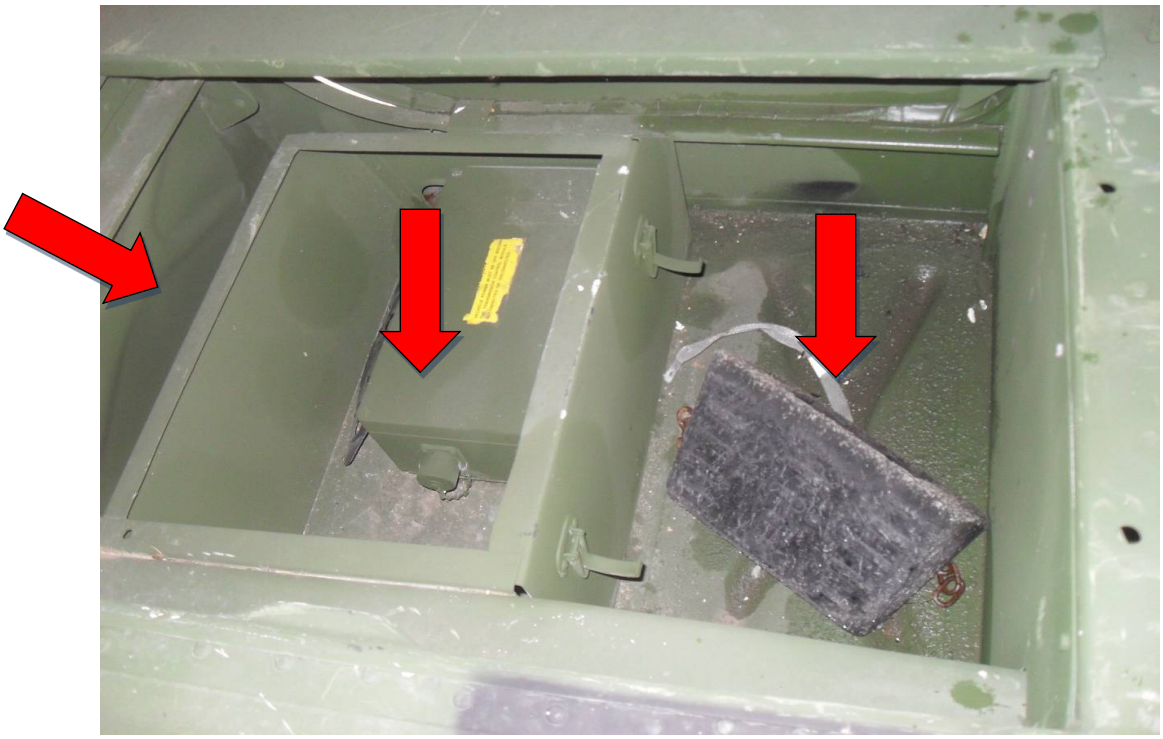
M997: Clean soil, dirt, and debris from grill



Side view



Have radios and other electronic or water sensitive equipment removed for thorough cleaning if possible. Sensitive electronics and other equipment cleaned with cloths, soft brushes, scrapers, vacuums, compressed air, etc. If not possible, equipment must be covered to protect from water and cleaning solutions.



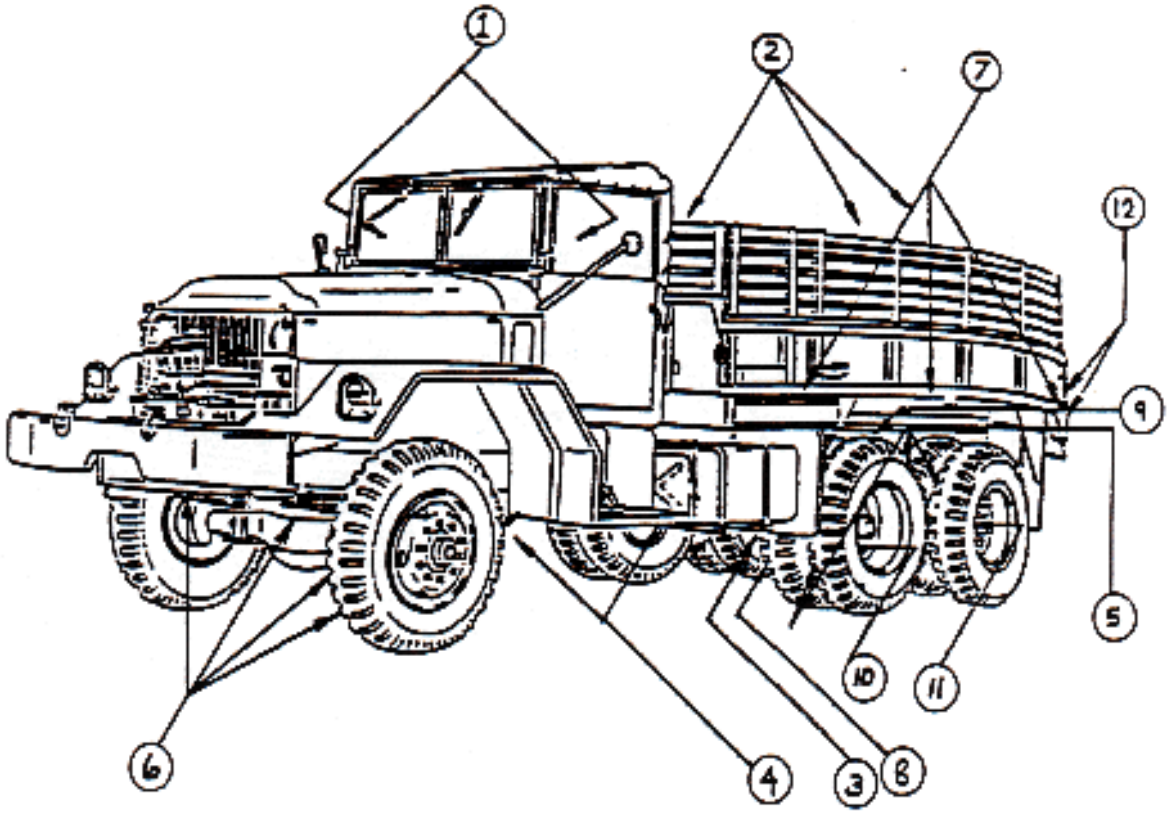
Spaces might require vacuuming, compressed air or wiping with rags due to the lack of a drain hole.

Spray ledges

Spray into this and other spaces, being careful not to spray electronics/sensitive equipment

If possible, cover vehicles after cleaning to prevent dirt/debris, plant material, insects and other invertebrates from getting into or on clean vehicles.

3. Problem Areas on 5-Ton, 7-Ton and Various Other Wheeled Vehicles

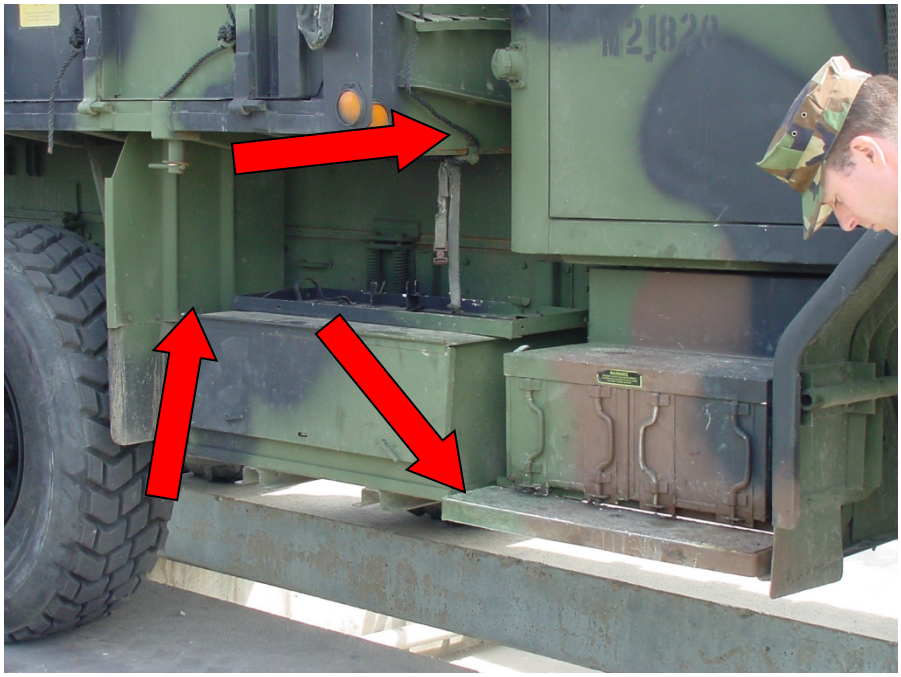


PROBLEM AREAS

1. Under and behind both seats of cab.
2. Clean the floor of truck bed.
3. Between the brake drum and steel rim of wheel, of all rear wheels.
4. Underneath the platform for the OVM box and battery box.
5. Between the dual wheels, on the outer edge of the steel rim of each wheel.
6. On the ledges of the frame cross members.
7. On the ledges of the large channels which compose the main frame.
8. Drain plug of rear differential.
9. On top of leaf spring shackles
10. In the bracket between the rear wheels, from the outside.
11. In the bracket between the rear wheels, from the inside.
12. On the bottom ledge of the very rear cross member, and in the corners.

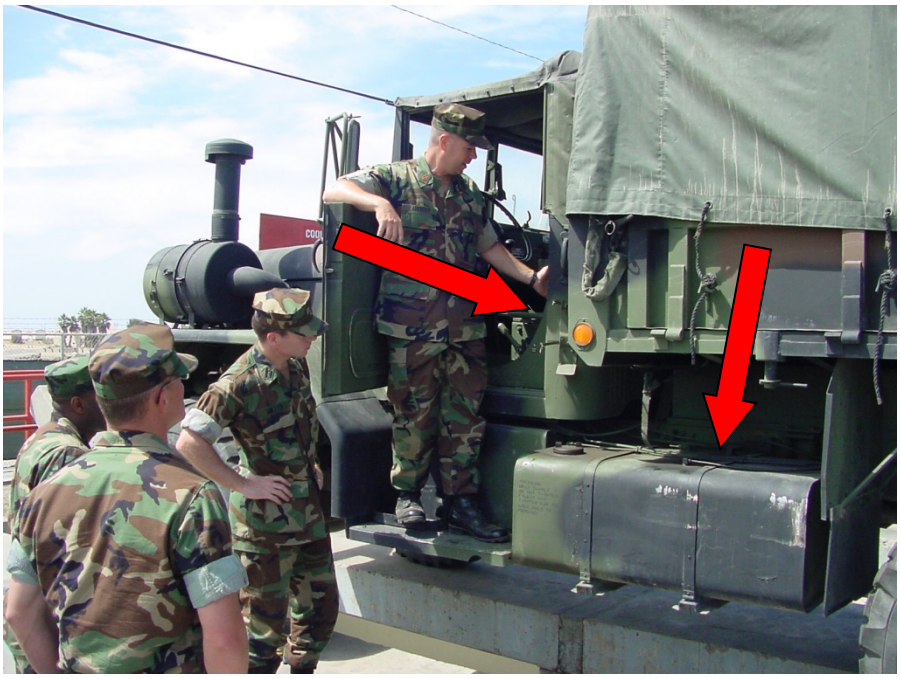
5-ton truck on wash rack (note wheels blocked to prevent rolling)

5-ton on wash rack. Problem areas include tool boxes and various ledges



All ledges and boxes should be checked for soil and debris

Undercarriage, axles, inside of wheels

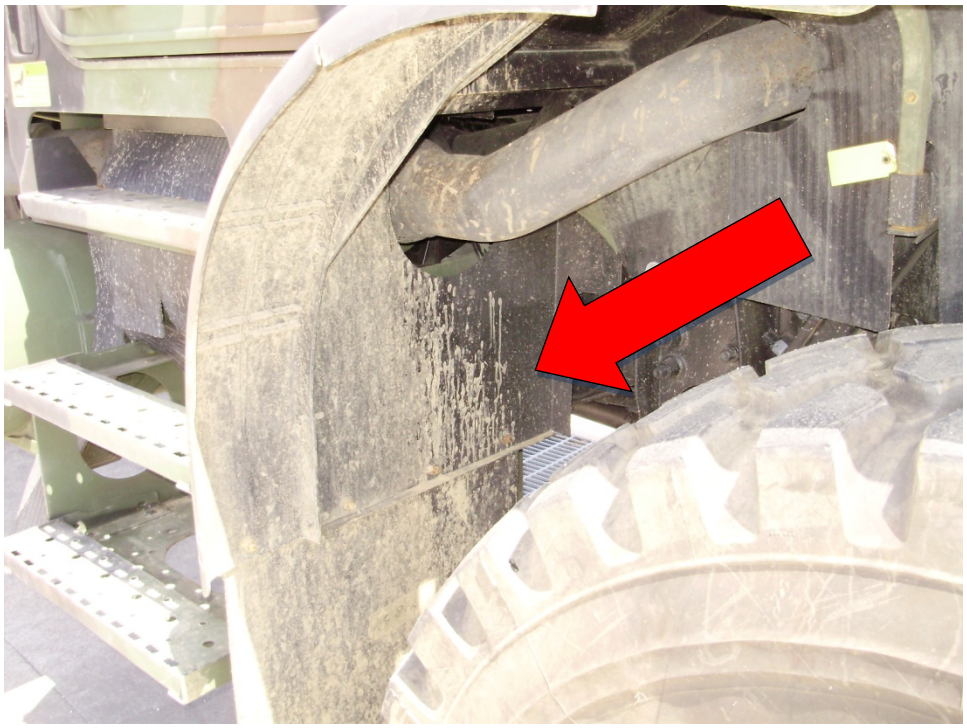


7-ton armored truck: Clean soil, dirt, and debris from grill and vents

In addition to inspecting tire treads, look behind wheels to check for soil and dirt

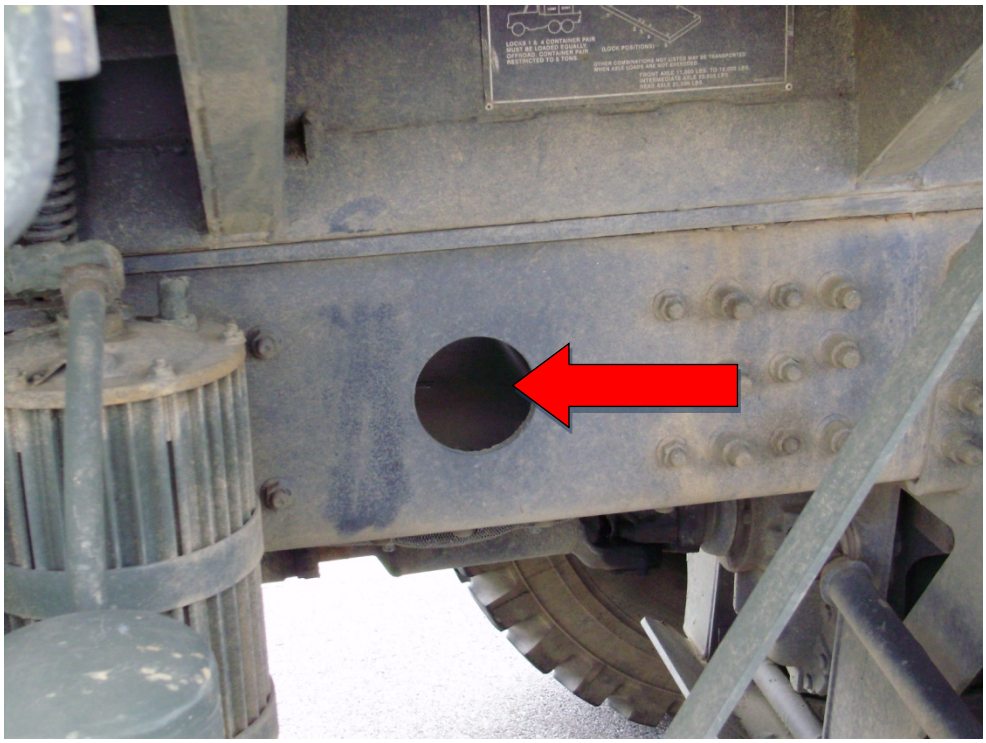
Grills, vents, gaps in armor plates, lights, suspension springs, tire treads and behind the wheels, including spares.

Grills, vents, gaps in armor plates, lights, suspension leaves and springs, tire treads and behind the wheels, attachment points, spare tire, battery and ammo boxes



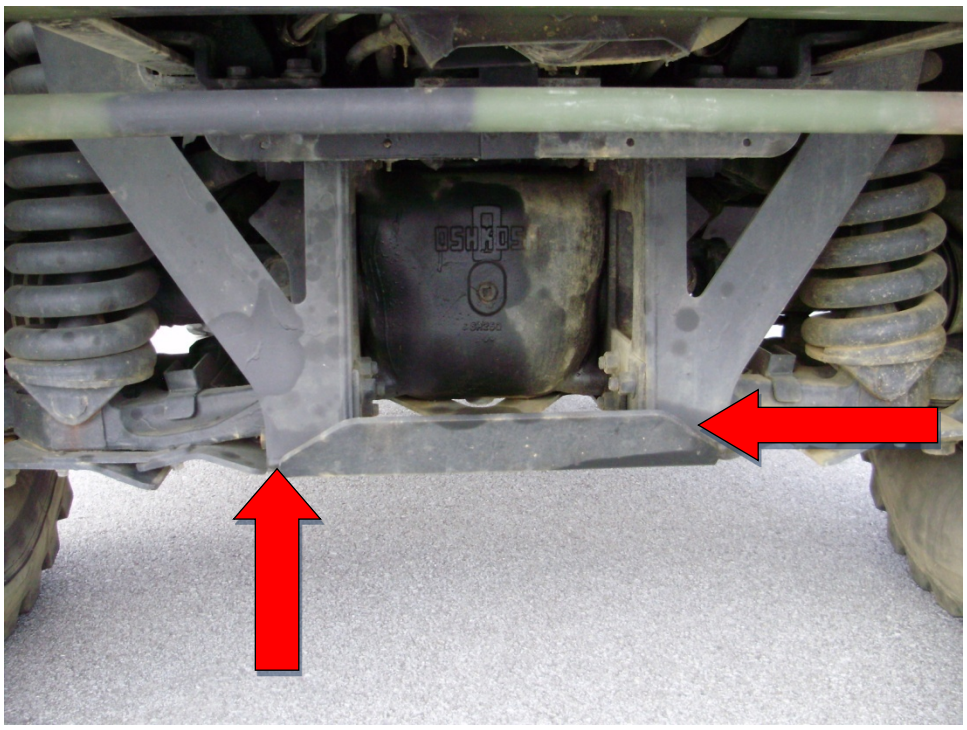
Look behind wheels to check for soil and dirt

Behind wheel of 7-ton

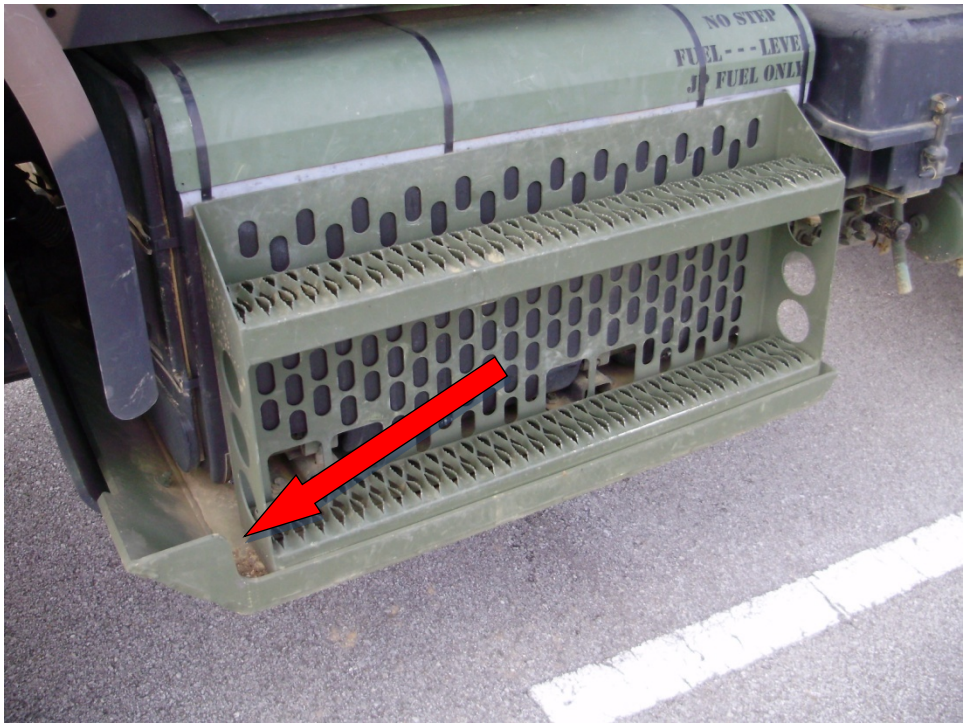


Spray directly into this and similar spaces under the 7-ton carriage until water runs clear

Check for mud and debris along the ledges on both sides. Grease hubs and lubrication points are common debris accumulation points



Check for mud and debris along the ledges on both sides

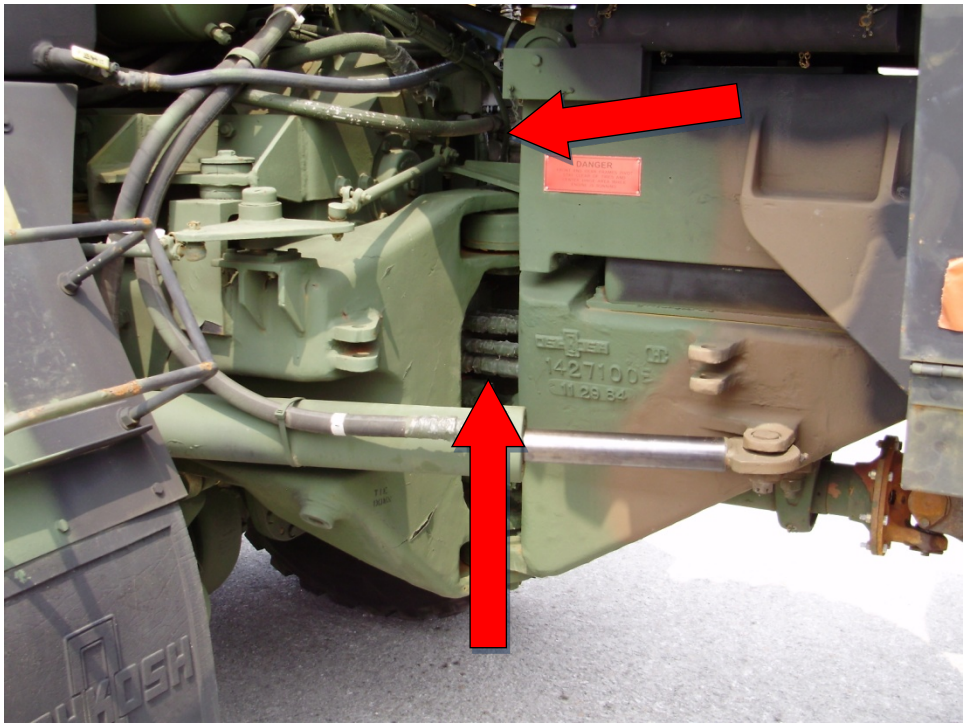


Spray dirt and debris out of footstep and ledges

Look and feel for mud and dirt behind wheel wells

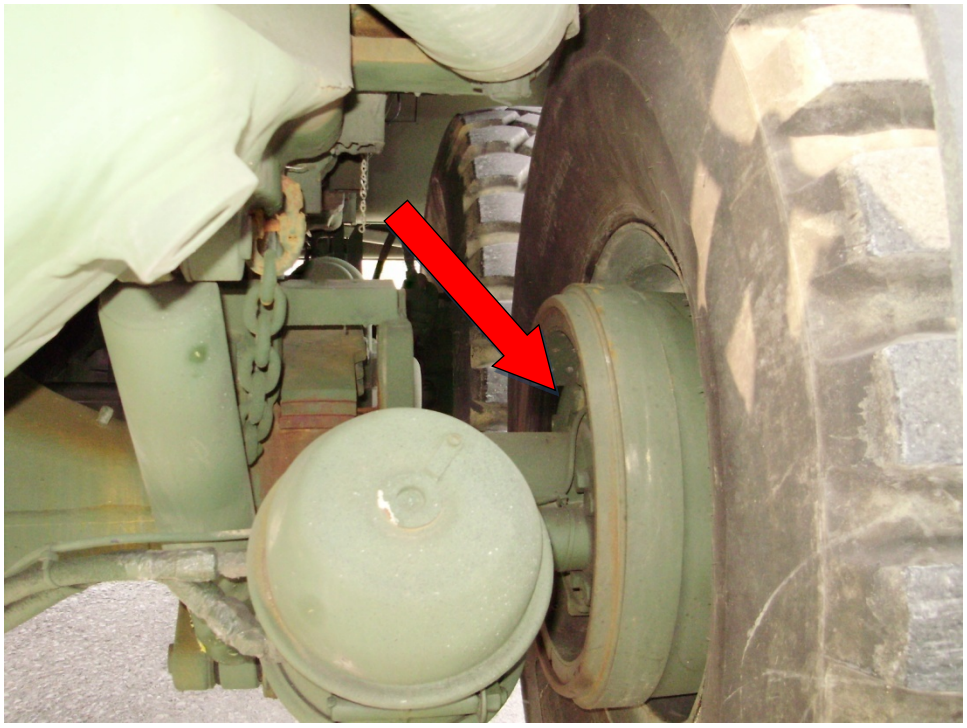
MK48/16 LVS Cargo Vehicle: Open covers to check for debris

MK48/16 LVS Cargo Vehicle: Clean soil, dirt, and debris

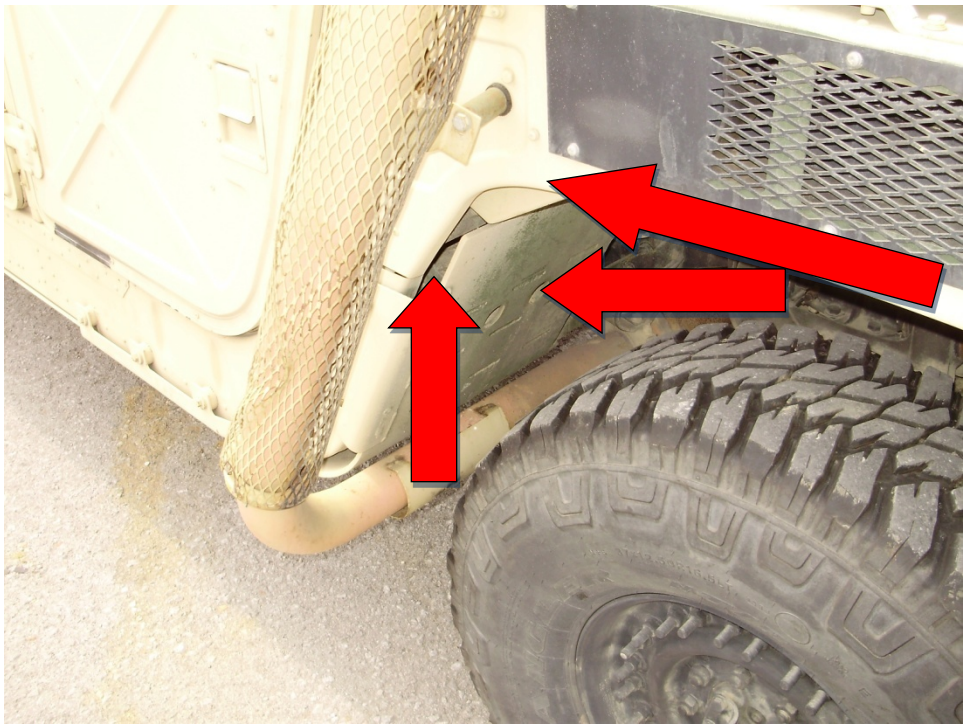


LVS Cargo Vehicle: Spray out mud and debris

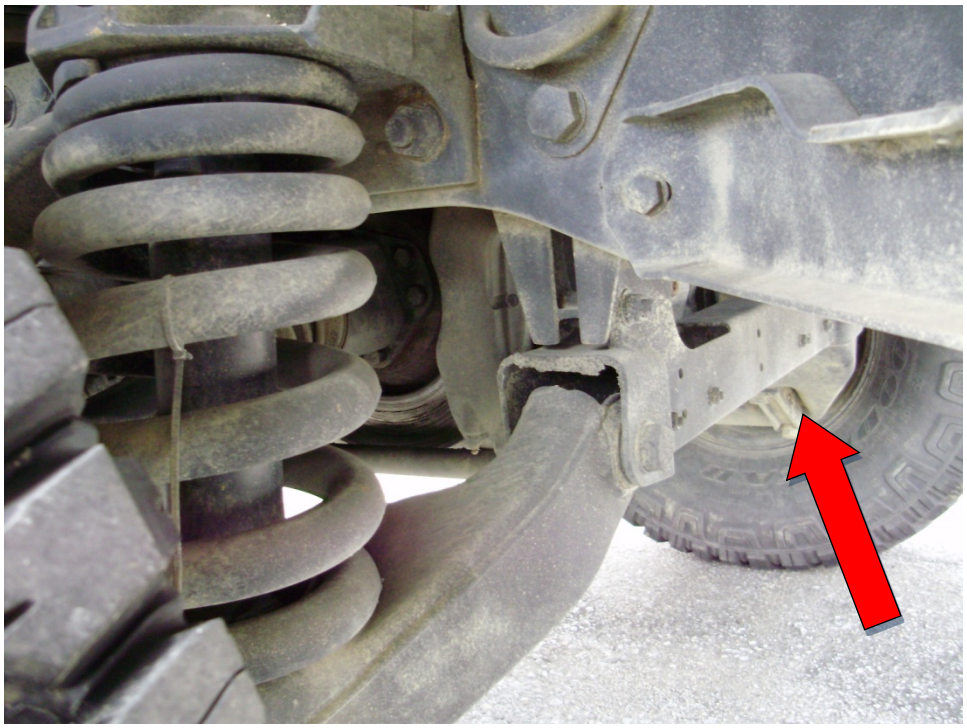
Look behind wheel for mud



Look and feel behind wheel for mud and dirt



Spray in this space to clear leaves and debris



Behind wheel axles

7-ton truck with dump bed

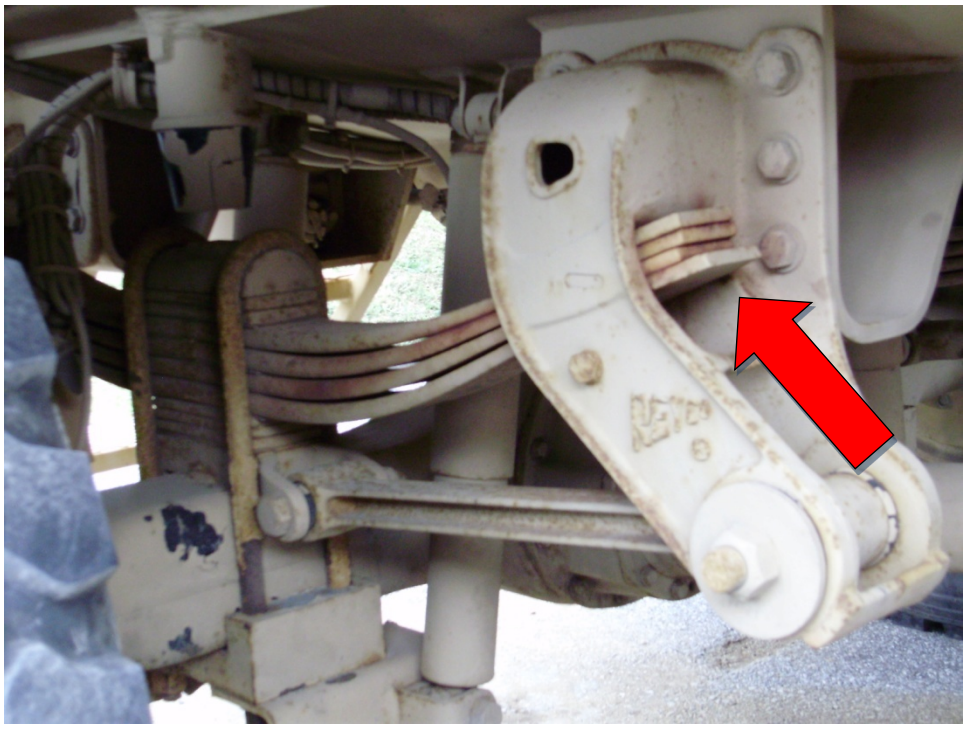
Look under wheel for mud and dirt

MRAP problem areas

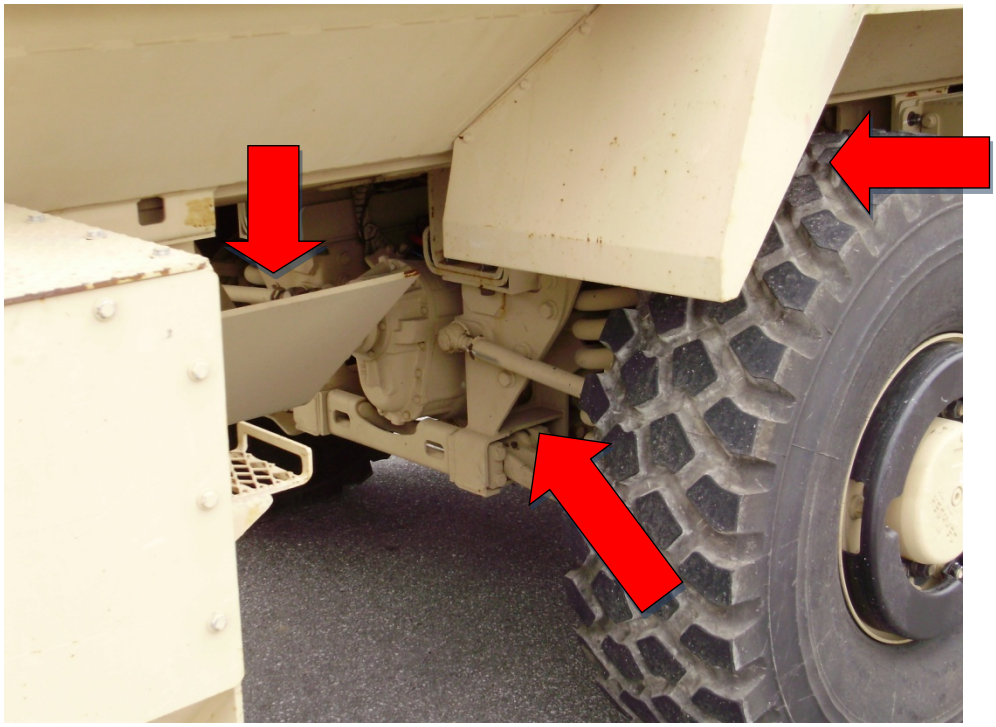
Clean soil, dirt, and debris from grill and ledges under carriage

Behind wheel well

Check both sides of ledges for mud and debris



MRAP undercarriage problem areas



Check areas for soil, dirt, and debris

4. General USMC Tactical Vehicles.

For the tactical vehicles outlined below, an accompanying USMC tactical vehicle washdown video is available on AFPMB website. Checklist details and photos provided by CPT Pablo R. Enriquez, MP, Law and Order Operations Officer, Provost Marshal Section, Operational Protection Directorate, USARSOUTH. Photos not available for the following sections:

5. Vehicle Mounted Mine Detector MK III Husky

- ✓ The Ground Penetrating Radar system should not be attached to a Husky set for redeployment. If it is, have a technician disconnect the system, and ensure the radar antenna, panels, any connectors and the networking box are taped/covered and protected, and use a low-pressure wash on the system.
- ✓ Use low-pressure water in the engine compartment which contains numerous electronics, and wait for the engine to cool before washing.
- ✓ Pay particular attention to the frame rails at the front of the vehicle where soil can collect in between connectors and on top of the shocks.
- ✓ Check the differentials crevices for dirt and rocks, and use high-pressure wash to remove as leaked oil can cause the dirt to stick.
- ✓ The area where the shocks and hydraulic arms meet is very likely area for soil to build up.
- ✓ Open comm box and remove trash, personal items, and especially any communications equipment before spraying. The box also is detachable.
- ✓ Remove the cabin air filter and use compressed air and a vacuum to clean. Do not wash with water.
- ✓ Floor padding, seat pads, and seats are removable from inside the vehicle. Spray inside, avoiding the instrument panel. If there is a graphical user interface, a detachable hard drive, and/or a camera, they must be removed prior to washing. There are not drain holes in the interior, so avoid flooding it and have a shop-vac on hand to handle water pooling.

6. Medium Tactical Vehicle Replacement (MTVR) 7-Ton (MK 23/25/27)

- ✓ Inspect, sweep and wash the SL3 compartment. It does have drain spots.
- ✓ Wash the frame rails with the SL4 by spraying from underneath. It is the best way to remove debris from the back corner. Be sure to remove the sidecars.
- ✓ Check the tow panel for dirt and rocks.
- ✓ Wash the underside of the bed from the top with side panels removed.
- ✓ Spray down on the right control arm pockets underneath the shocks.
- ✓ Spray the boots.

- ✓ Use your hand to remove debris gathered inside the coil, and wash.
- ✓ The bed rail lip, differentials and frame rails are common soil collection points.
- ✓ Spray down on the outside suspension bumps.
- ✓ Push up and spray out ISO locks where dirt can collect and get trapped use.
- ✓ Remove the primary air filter and spray from the inside out with an air hose, not water. Wash out the filter housing as well.
- ✓ Remove mud flaps from the step compartments and clean oil filter, survivability kit, and V-hole.
- ✓ Check the front suspension differentials and clean the cradle and all the crevices housed throughout.
- ✓ Flip the hood up on the engine compartment, spray from top to bottom and avoid saturating the generator and AC compressor with water.
- ✓ Use low-pressure water on the radiator, AC system, and condenser to avoid damaging the fins.
- ✓ Inspect the power steering reservoir for residue build up.
- ✓ Inside the cab do not spray any water on the fiber optic cable that runs along the dash, and avoid direct water spray on the radio amplifier behind the seats.
- ✓ Check the grooves behind the seats for debris, especially ammunition.
- ✓ Spray in between the bed and cab where the transfer case and drive shaft are.
- ✓ The batteries are external on this vehicle, so they must be removed at the wash rack and cleaned separately.

7. Mine Resistant Ambush Protected Category II 6X6

- ✓ Remove inside passenger compartment rear AC unit filter and clean by spraying with low-pressure water. Inside the AC use low-pressure water to spray up through the vent; or you can remove the screws holding the vent in place, and use low-pressure water over the evaporator. Let it drain out through the bottom. Do not use high-pressure water on the evaporator.
- ✓ Wipe down sensitive gear with a damp cloth. Do not use pressure wash on the Gyrocam, radios, 110-volt outlets, and power inverter.
- ✓ Remove any debris and low-pressure wash inside the rear bench compartments, including power cables. Avoid pulling on power cables.
- ✓ Clean behind the rear benches with a damp cloth, while removing any ammunition or debris.
- ✓ Remove the rear center floor and low-pressure wash the inside of the center floor, being cautious of the air transducer, and let it drain out.
- ✓ Search crevices around the rear bulkhead for ammunition and other debris.

- ✓ Move gunner's seat to ensure all ammunition and debris are cleared out from underneath.
- ✓ Remove rear center console panel and check for ammunition or debris, then low-pressure water cleanse.
- ✓ Clean filter behind front passenger AC panel using low-pressure water.
- ✓ Remove ammunition and debris from front passenger foot well and seat sliders. Wipe area down with a damp cloth, and avoid moving any wiring underneath the seat.
- ✓ Wipe down dashboard with a damp cloth. Do not spray dashboard.
- ✓ Pressure wash the inside of the passenger-side fuel cell.
- ✓ Remove exterior primary and secondary air filters and clean using an air hose to blow dust from the inside out.
- ✓ Remove Top Spin filters from air box and pressure wash the inside.
- ✓ Pull the pin from the door to open the Gyrocam housing, and use low-pressure water to clean inside.
- ✓ Pressure wash the rear chassis frame rails, drive-train differentials, and brake chambers, letting them drain out on vehicles with closed brake chambers.
- ✓ Remove debris and pressure wash inside of suspension coils.
- ✓ Pressure wash and wipe down the undercarriage.
- ✓ Spray V-joint and transfer case housing, and let it drain out. Note that the transfer case housing can potentially clog up with debris.
- ✓ Pressure wash upper and lower suspension control arms and brake shoes, waiting for brakes to cool before spraying.
- ✓ Remove mine roller brackets and pressure wash flanges.
- ✓ From inside the fender, spray behind the lights.
- ✓ When cleaning the engine compartment remove any lights that may be on the bumper, and unlatch the grill. Low-pressure wash the compartment, the radiator, condenser, and underneath and around the transfer case cooler. Be mindful of the generator and the voltage regulator when spraying the top of the engine.

8. Mine Resistant Ambush Protected Category I 4x4

All items previously noted on the MRAP 6X6 apply to the MRAP 4X4, in addition to the following:

- ✓ Pressure wash the winch, bracket, and winch drum, being mindful of electronics.
- ✓ Do not get engine control module wet, nor spray inside of ECM box.
- ✓ Power wash inside the driver's side fuel tank, but do not remove plate and ensure fuel tank cap is on. Use high-pressure wash until it runs clear before letting it drain out.

- ✓ Pull up rear truck, center floor shock matting and power wash the mat, and floor beneath it.
- ✓ Clean underneath and behind the air tank and its bracket clearing any debris or ammunition. Low-pressure wash the bracket, or use a damp cloth to clean if the communication systems is present.
- ✓ Do not unplug or move the fire suppression system.
- ✓ Power wash the forward compartment shock matting and the floor beneath.
- ✓ Cover bus bar fuses, located behind the front seats, with electrical tape and avoid getting the cables wet.

9. Logistics Vehicle System Replacement Wrecker

- ✓ Use low-pressure water and a damp cloth to clean seats, dash, and any other interior locations.
- ✓ High-pressure wash suspension coils, lower and upper control arms, suspension ball joints, on top of front and rear differentials, skid plates, and hollow frame.
- ✓ Remove the flap covering the chassis and high-pressure wash both.
- ✓ Unclip fuel cell armor ensuring cap is secured and use low-pressure water to clean inside and around the fuel cell, being cautious of hydraulic systems.
- ✓ Ask an operator to drop the arms, and use a damp cloth to clean them off.
- ✓ High-pressure wash inside and around the crane, doing a sweep from on top of the vehicle.
- ✓ Use low-pressure water and a damp cloth on the air tank, being mindful of the nylon lines connected to it.
- ✓ Use a damp cloth on the rear electrical box.
- ✓ High-pressure wash rear frame cross-member.
- ✓ Ensure brakes are cool before high-pressure washing the brake chambers and inside the brake shoe.
- ✓ High-pressure wash inside of rear bed, and let it drain out.
- ✓ Low-pressure wash inside of SL3 box.
- ✓ Remove the battery, low-pressure wash inside the battery box, and wipe down with a cloth. High-pressure wash the open compartment near the battery box and the closed compartment underneath it blocked by the folding steps.
- ✓ Remove primary and secondary air filters and spray from the inside out with compressed air.
- ✓ Spray low-pressure water into air-coolers and radiators.
- ✓ Ensure reservoir is secure, and use high-pressure water to clean the outside.

10. MaxxPro Recovery Vehicle

- ✓ High-pressure wash leaf springs, control arms, differentials, and tie rods.
- ✓ High-pressure wash inside of bumper, by spraying from one end to the other.
- ✓ Remove fuel cell cover, secure the cap, and high-pressure wash the box.
- ✓ Ensure the V-hole connection lip is washed.
- ✓ Low-pressure wash AC condenser.
- ✓ Low-pressure wash cables behind the AC condenser. Be mindful of the relays and fuses.
- ✓ High-pressure wash inside the rear bed frame.
- ✓ High-pressure wash inside of the sponsons and compartments avoiding electrical components inside.
- ✓ Do not pressure wash inside the crane operating system compartment because of the various electronic components and it doesn't drain. Use a vacuum to eliminate dirt build up, and finish by wiping down with a damp cloth.
- ✓ Remove feet from landing legs, & high-pressure wash around and inside legs.
- ✓ High-pressure wash inside the rear wench drum. Ensure 24v and 12v connections above the drum are sealed before spraying with water.
- ✓ High-pressure wash the pivot points on the tongue. If possible, drop the tongue before washing.
- ✓ Remove pins on the tongue locks to clean inside with high-pressure water.
- ✓ Low-pressure wash and wipe down work lights.
- ✓ Remove extra gear from VC side sponsons and use low-pressure water and a cloth to clean, being mindful of electrical lines and components.
- ✓ Cover electrical systems attached to the frame rails with a bag and tape. And avoid direct spray when pressure washing inside and around the frame.
- ✓ Spray down inside the open brake chambers and brake shoes, ensuring system is completely cool to avoid cracking the ceramic pads.
- ✓ Spray the top of the air tank where dirt and rocks collect.
- ✓ Spray on top of the drive shaft and boot, but avoid getting water inside shaft.
- ✓ Spray high-pressure water on top of the transfer case and transmission area ensuring rocks and dirt are removed from all crevices.
- ✓ Do not disconnect fire suppression system.
- ✓ Do not remove batteries unless an authorized contractor is available to do so. If the batteries are disconnected, use a socket wrench to remove the box panel, wrap up any wires with tape, and low-pressure wash the inside of the box.

- ✓ Low-pressure wash the engine compartment from the inside-out, through the radiator/ grill, being mindful of the voltage regulator, AC compressor and generator. Cover air intake with a bag prior to spraying engine bay. Do not unplug or turn off fire suppression system.
- ✓ To clean air intake filter, remove outside panel with a socket wrench, lift up the tab, and turn the cover counter-clockwise and pull filter out. Spray the filter inside out with compressed air.
- ✓ Use a damp cloth, never pressure wash, to clean inside the truck wiping down seats, dash, doors, electronic speed controller (ESC), rear floorboards, etc… Vacuum and/or dust the crevices on top of the dash and the ABS controller. Safety-wire the fire suppression system switches down, and if the "trouble" light is on for the fire suppression system notify your supervisor.
- ✓ High-pressure wash the SL3 locker and truck bed floor pans.
- ✓ High-pressure wash the truck bed wench drum. Be mindful of electrical cables connected to the wench.
- ✓ Have an operator lift the crane up, and clean inside of the crane with a damp cloth. Do not pressure wash.
- ✓ Use a damp cloth on the hydraulic reservoir. Do not pressure wash.

11. Mine Roller System

- ✓ Ensure the mine roller is disconnected from the truck before washing.
- ✓ High-pressure wash the frame (including inside) and the rollers. Do not try to remove anything. Do not high-pressure wash the hydraulic manifold or the work lights. Wipe out hydraulic manifold with a damp cloth. Do not use high-pressure water on the back manifold if it has any holes or gaps in it.

12. Mine Resistant Ambush Protected Buffalo

- ✓ High-power wash underneath the communication boxes, antenna boxes, roof rails, escape hatches, ancillary mounts, and IBS Tech lights on the top of the vehicle. Extend the boom to maximum range and high-pressure wash all points, fittings and hoses
- ✓ High-power wash the grill on top of the hood, inside the windshield and windshield wiper tray.
- ✓ Remove shock matting, and vacuum floorboards (including beneath seats) with a Shop Vac. Use a light wire brush to loosen mud.
- ✓ Fold up seats, and vacuum and wipe down the back of the seat.
- ✓ Do not entirely remove, but pull up the bottom of the blast mat to vacuum underneath.
- ✓ Use a damp cloth to clean off communications rack. Use a vacuum to clean off any trash or debris. Do not pressure wash. Using an air compressor is acceptable.
- ✓ Open up battery box, turn off the power, and remove the batteries. Low-pressure wash the battery box and cables.

- ✓ High-pressure wash inside of antennas.
- ✓ Remove gear and high-pressure wash the racks.
- ✓ Unroll wenches and high-pressure wash the cable and the drum.
- ✓ Remove gear from storage boxes, use a wire brush to loosen any mud, and vacuum the dirt out. Finish it by wiping down with a damp, not drenched, cloth.
- ✓ Do not high-pressure wash the bed, use a wire brush to loosen mud and vacuum it up.
- ✓ Low-pressure wash the gap around the fuel tank.
- ✓ High-pressure wash the rail behind the ladder and underneath the fuel tank.
- ✓ High-pressure wash brake drums, brake chambers, rims, axles, leaf springs, differentials, drivetrain, air tank release valve, and chassis.
- ✓ Disconnect the two 12v batteries in the engine bay before cleaning it. Cover the alternator with a bag. Pressure wash the remainder of the engine bay. Do not pressure wash the firewall, use a damp cloth instead.
- ✓ Open light housing panel, and low-pressure wash the inside of the housing.
- ✓ Low-pressure wash the valve bank.
- ✓ High-pressure wash the interior and exterior of the bumper, as well as the tow bracket.
- ✓ High-pressure wash the exhaust. Take a wire brush and cloth to remove as much exhaust residue as possible from exhaust and nearby Ibis Tek lights.
- ✓ High-pressure wash the tow panel (SME calls it a tow panel).
- ✓ High-pressure wash the air-to-air cooler, top to bottom. High-pressure wash the nearby channel, and use a damp cloth to clean cables.
- ✓ Remove the floor panel behind the passenger seat to disconnect the battery.
- ✓ Low-pressure wash underneath and on top of the AC condenser.

13. Details specific to Stryker 8X8 Tactical Vehicles.

Checklist details and photos provided by CPT Pablo R. Enriquez, MP, Law and Order Operations Officer, Provost Marshal Section, Operational Protection Directorate, USARSOUTH.

- ✓ For Stryker, starting at the top of the vehicle, ensure that all hatches are opened prior to starting. Hatch seals are a common area for dirt and debris to collect.
- ✓ All exterior environmental covers (i.e. engine vents) should be removed for cleaning.

- ✓ There are multiple drain plugs on the underside of the vehicle. Ensure all have been removed to allow proper drainage of standing water and dirt/debris. The drain holes have a bad tendency to clog up, so inspect them closely.
- ✓ Ensure all deck plates, engine access covers and transfer case covers are removed and cleaned.
- ✓ Ensure that cargo strap tie-downs located along vehicle sides are unrolled for cleaning.
- ✓ The vehicle has a mounted winch located on the front left side. This assembly includes a cable and guide pulleys and is a common area for accumulation of dirt/debris.
- ✓ Check above each four front wheels at the strut area where the strut enters the vehicle body.
- ✓ The interior compartment is a very challenging area to inspect. The most problematic areas are in and around the battery boxes, seating areas, and the driver's seat.

Stryker Problem Areas: The following is a list of the most difficult areas for inspection of the Stryker. The list highlights these areas as a reference and does not imply that the cleaning of these areas only will ensure compliance with Customs or CBCA regulations. Other areas will often be found and are not highlighted in this reference.

a. General Vehicle Inspection

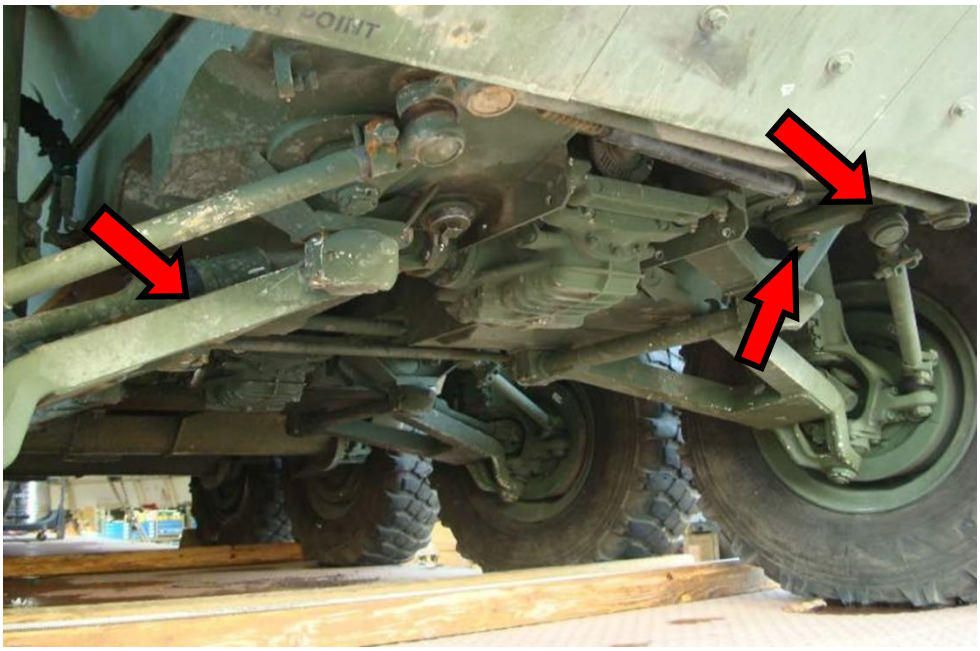
- ✓ There are multiple drain plugs on the underside of the vehicle. Ensure all have been removed to allow proper drainage of standing water and dirt/debris. The drain holes have a bad tendency to clog up, so inspect them closely.
- ✓ Remove and clean all deck plates, engine access covers and transfer case covers.
- ✓ Ensure that cargo strap tie-downs located along vehicle sides are unrolled for cleaning.
- ✓ Clean accumulation of dirt and debris from mounted winch, cable and guide pulleys located on the front left side.
- ✓ Check above each four front wheels at the strut area where the strut enters the vehicle body.
- ✓ The interior compartment is a very challenging area to inspect. The most problematic areas are in and around the battery boxes, seating areas, and the driver's seat.
- ✓ Clean and inspect the following:
    - Bracket above **each** transfer case
    - **Each** wheel U-joint and ball joint
    - "A" bracket/support at **each** wheel
    - ABS cylinder of **each** wheel

- Inside wheel bracket
- Suspension strut bracket and bottom
- Drive shaft above transfer case
- By brake lines
- Transfer case mounting bracket
- U-joints at transfer case
- Inside tire rims
- Outside storage compartments, each side
- Inside vehicle, with floorboards removed
- Under batteries
- Hatch gaskets/lips
- Various points throughout engine compartments
- Engine exhaust pipe cladding
- Ventilation ducts
- Rear hatch door
- Topside access hatch

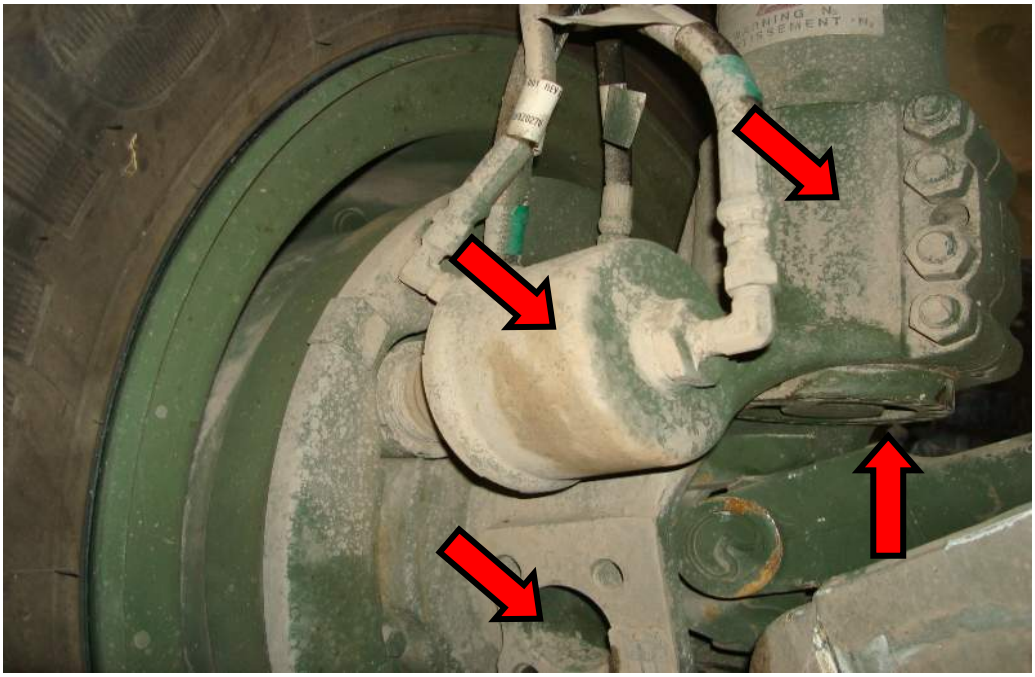
b. Slat Armor – Remove and clean Brackets and Plates

c. Engine

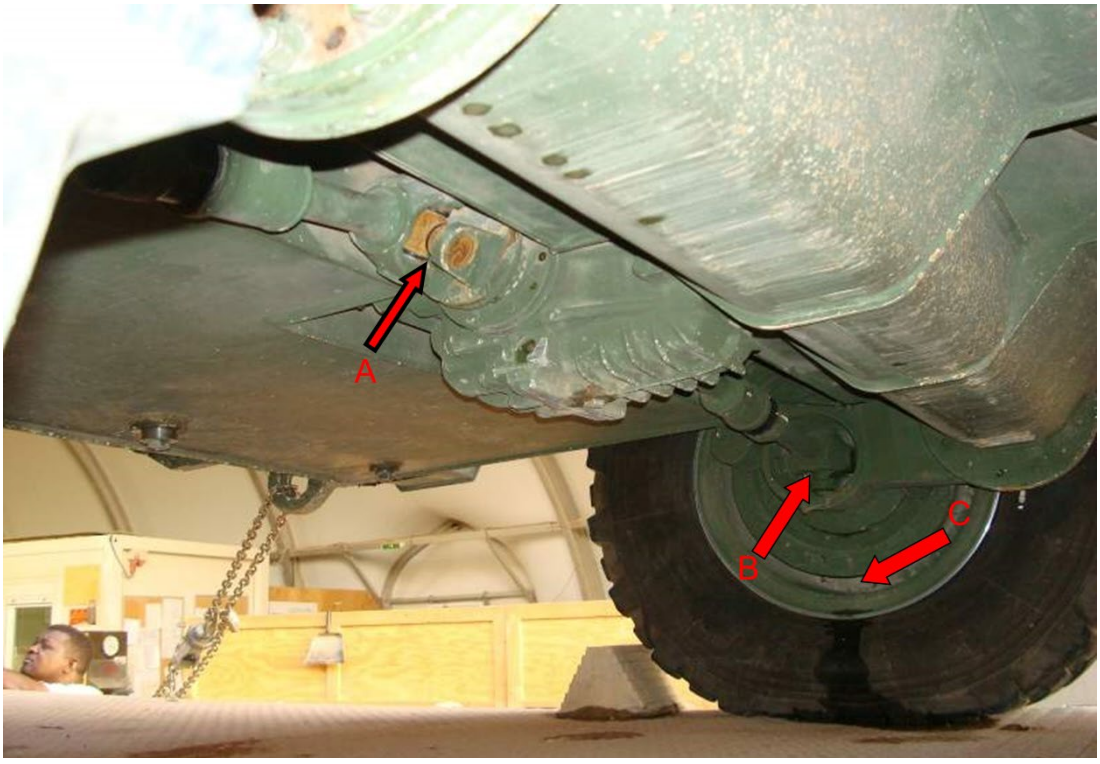
- ✓ Fan blades/housing
- ✓ Damaged rubber seal on box edge
- ✓ Coolant bottle cap secured
- ✓ Condenser fins for dirt/debris
- ✓ Bottom of box
- ✓ Forgetting to put seals on box lid



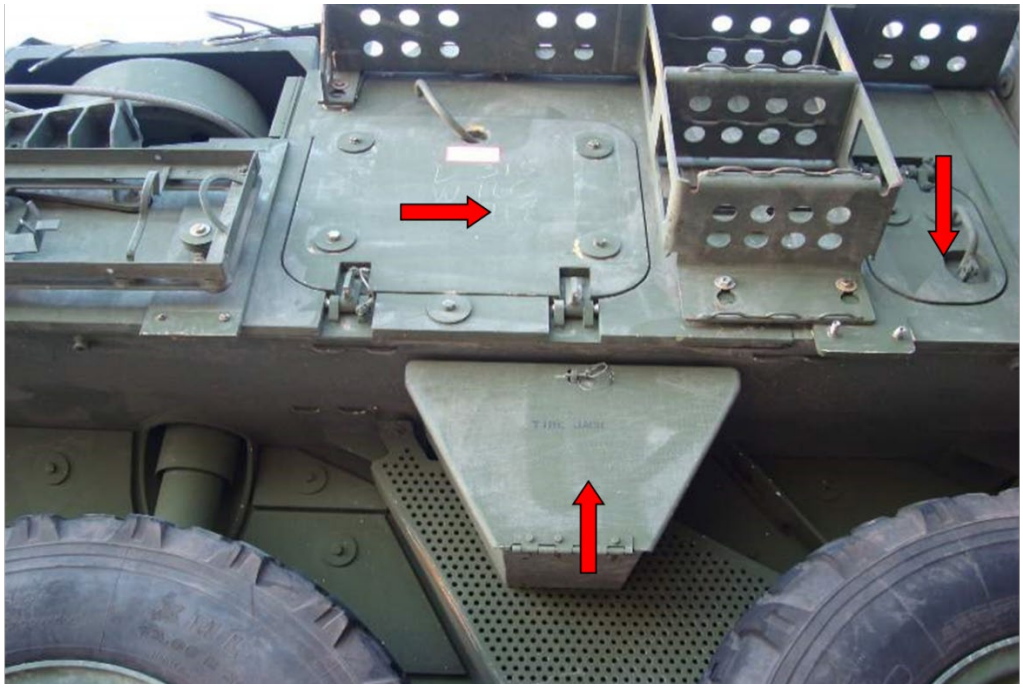
Stryker: At front end. Check **each** ball joint for dirt/mud. Check each "A" bracket/support at **each** wheel for dirt/mud.



Stryker: Dirt on ABS cylinder. Dirt inside bracket and dirt on suspension and strut and bottom.



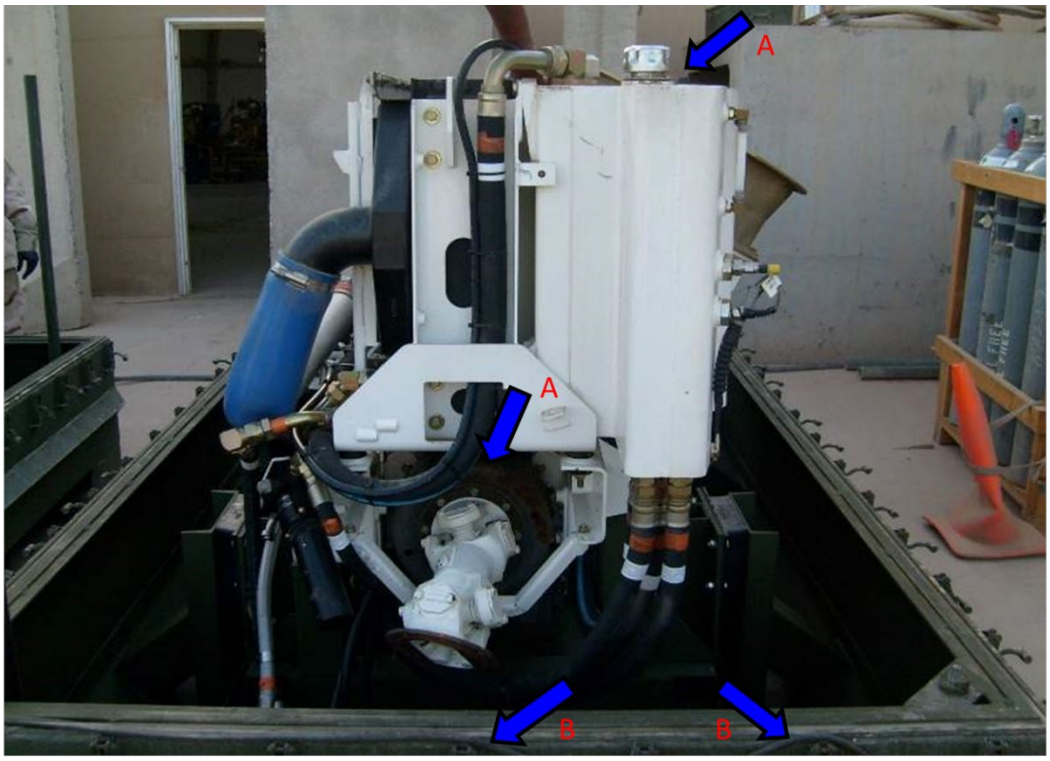
Check U-joints at transfer case. B. Check U-joints at wheel. C. Check for dirt in tire rim.



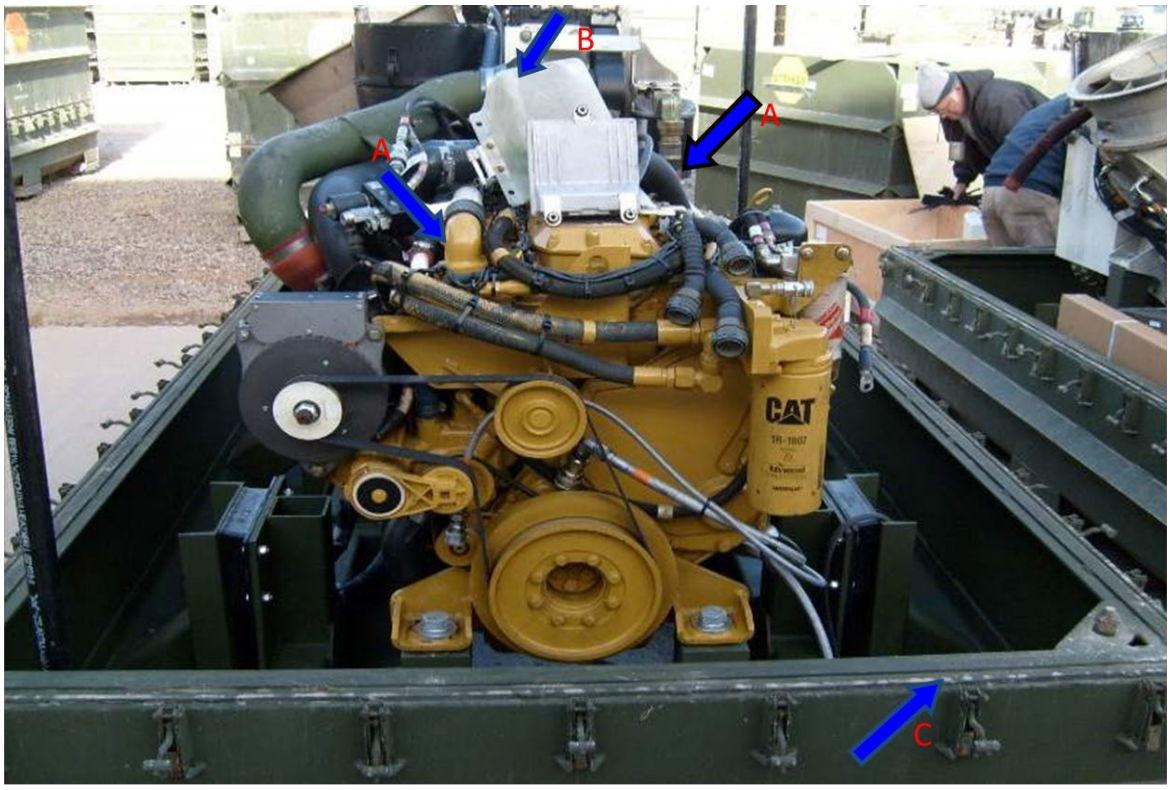
Left front side. All marked compartment hatches need to be opened and checked.

Right front side. All marked compartments need to be opened and inspected.

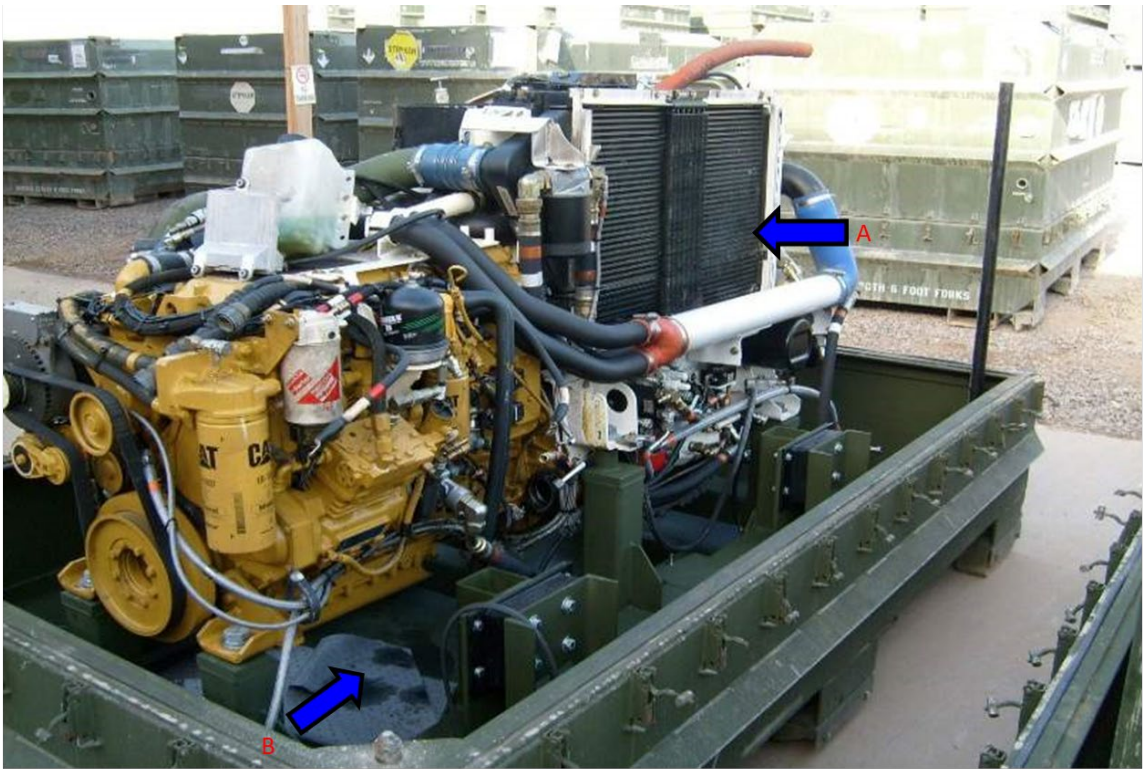
A. Check fan blades/housing. B. Dirt collects at this point. C. Check box seal for dirt/debris



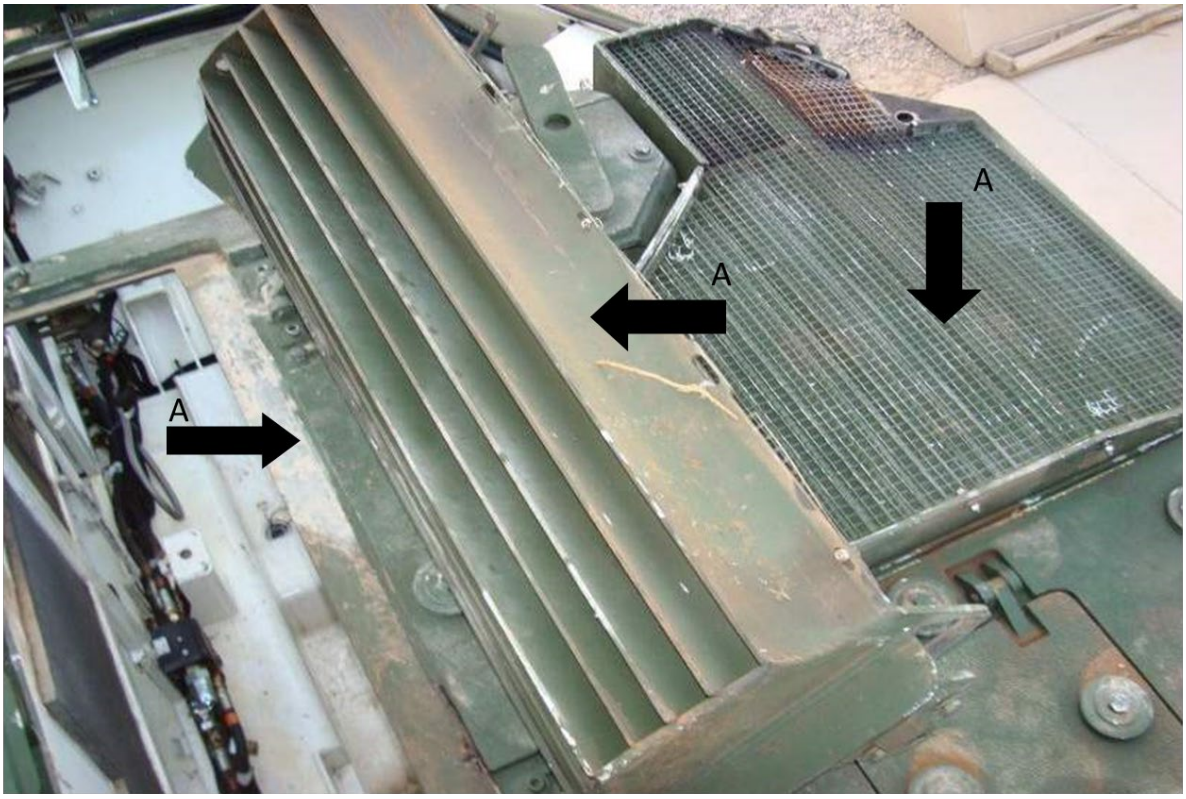
A. Dirt collects at these points. B. Check for broken seal on box edge.



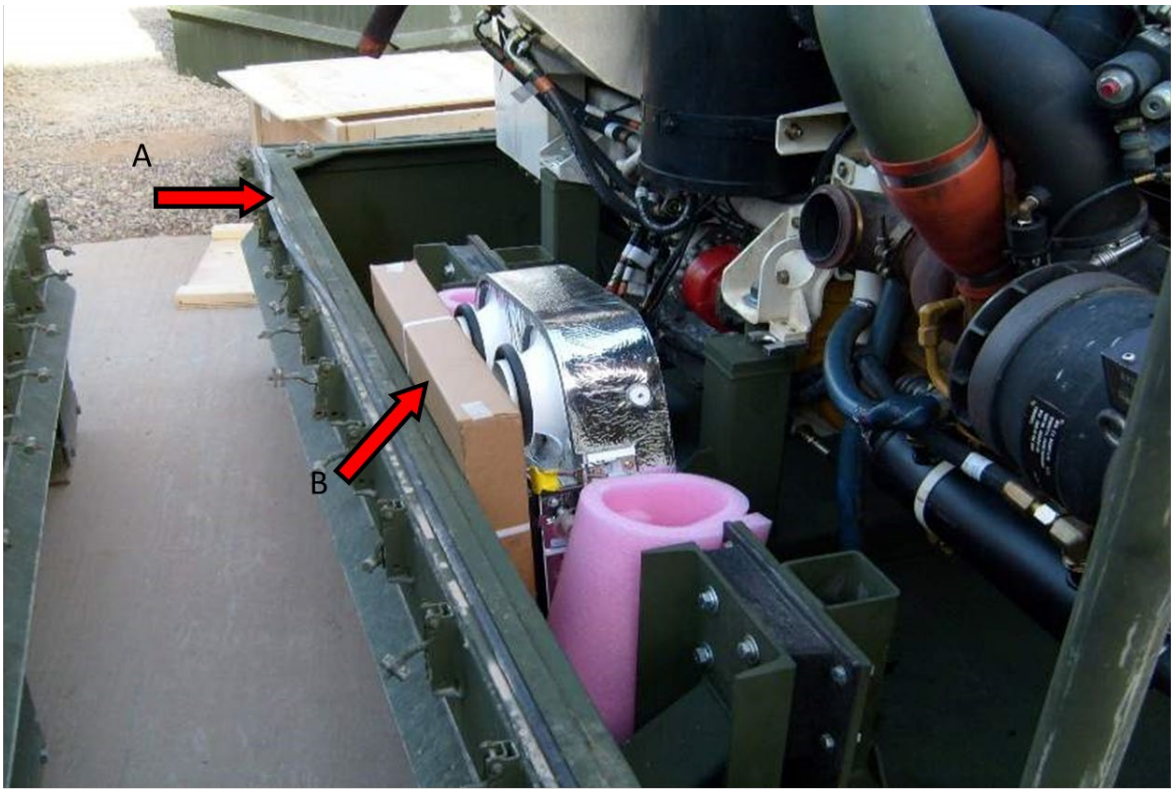
A. Dirt collects in these places. B. Verify that bottle cap is secured tightly. C Check box seal for dirt/debris.



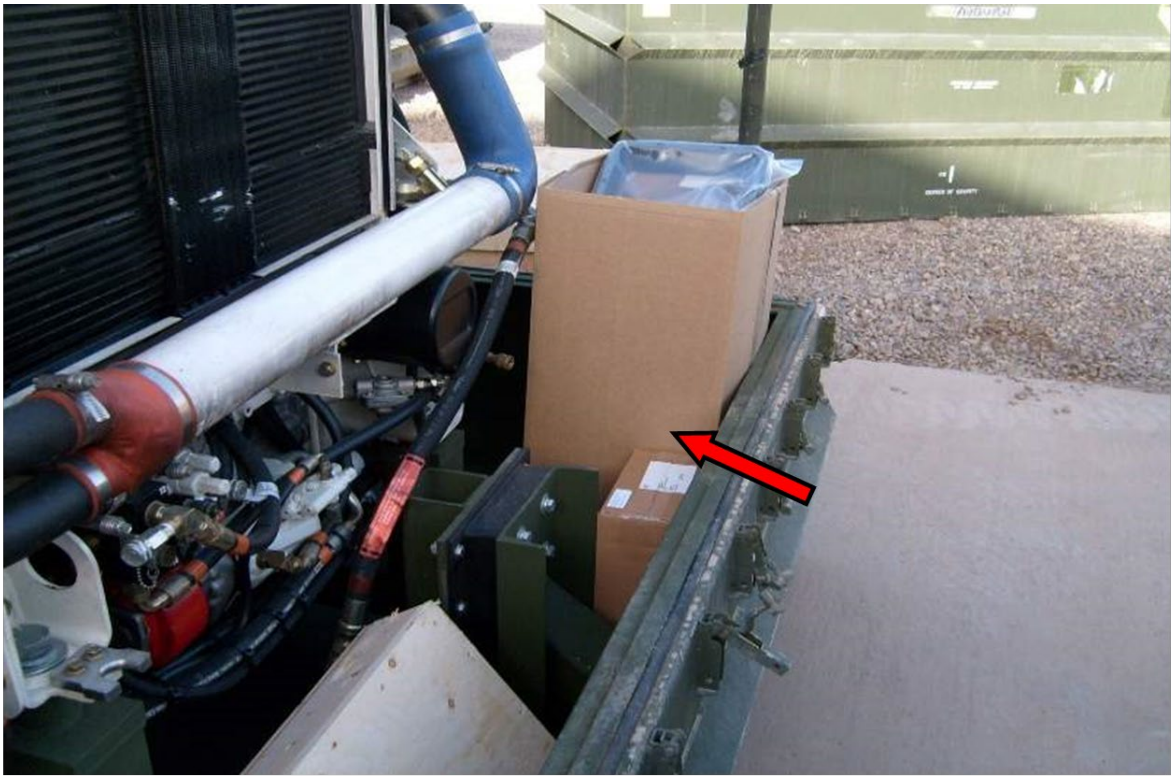
A. Check condenser fins for dirt/debris. B. Some boxes have absorbent pads like this.



Right side, access hatch over engine compartment. A. Check for dirt/debris at these points.



A. Look for damaged box seals. B. A/C add-on items packed for shipping.

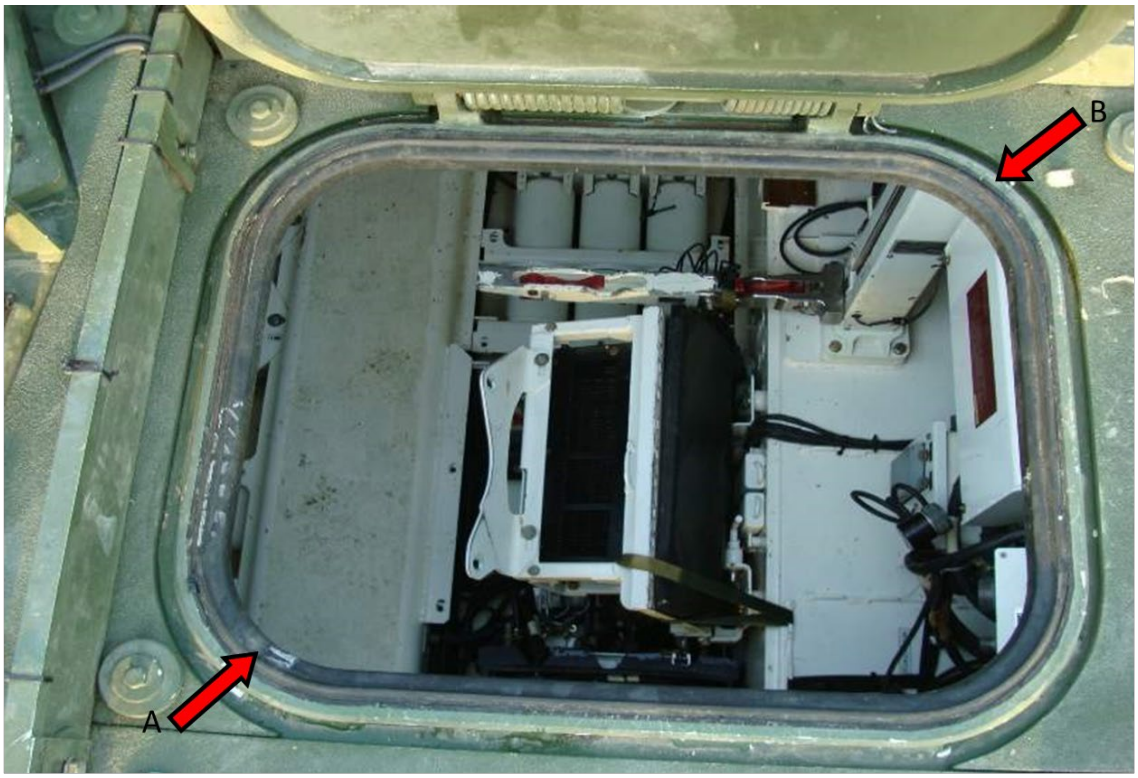


These items are more of the A/C add-on kit packaged for shipping.

Inside looking forward with floorboards removed, dirt and debris from washdown.

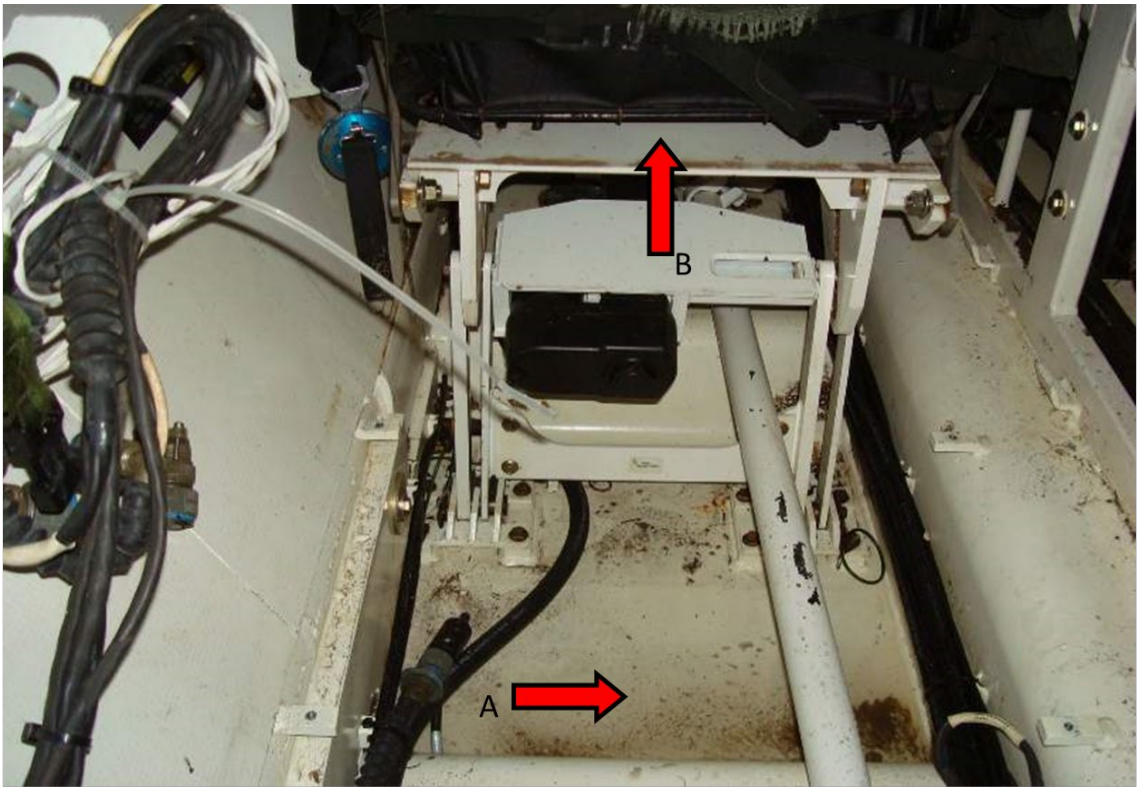
These are the dry cell batteries installed, they need to be removed for inspection underneath.

These are the dry cell batteries installed, they need to be removed for inspection underneath.

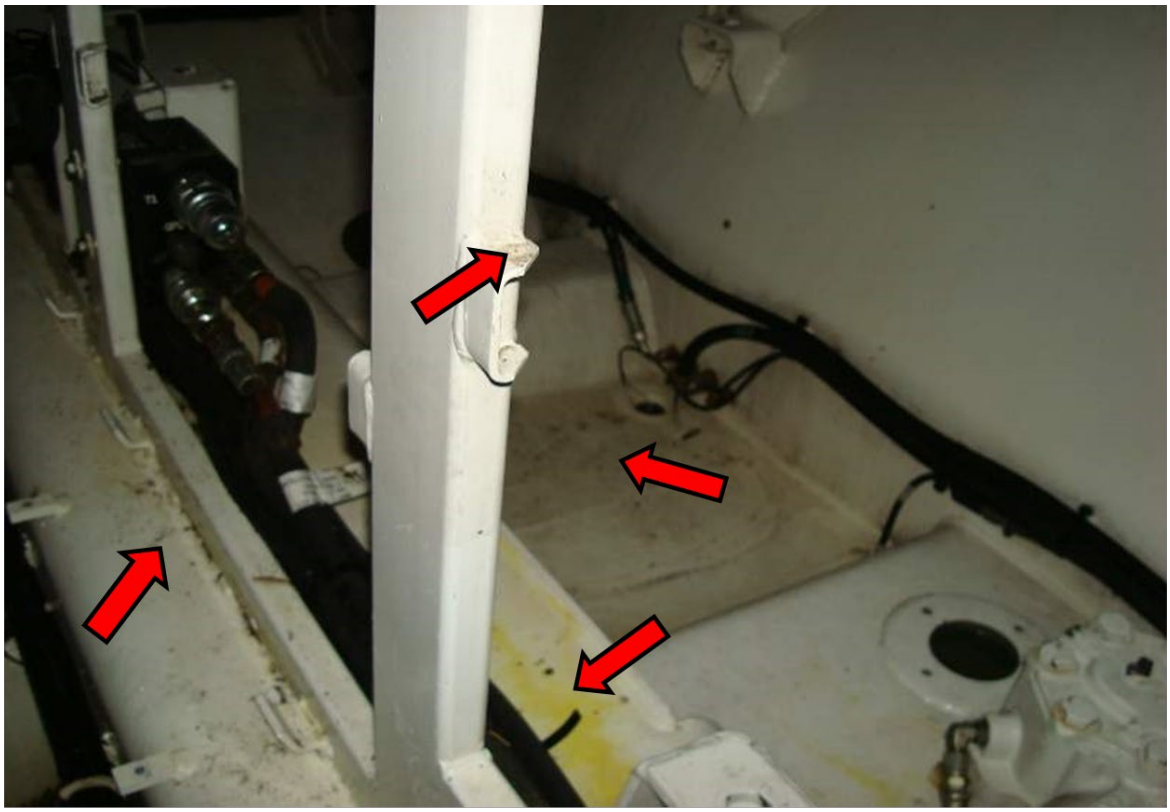


Left side passenger access hatch. A. Check gasket for dirt/damage. B. Check around lip for dirt/debris.

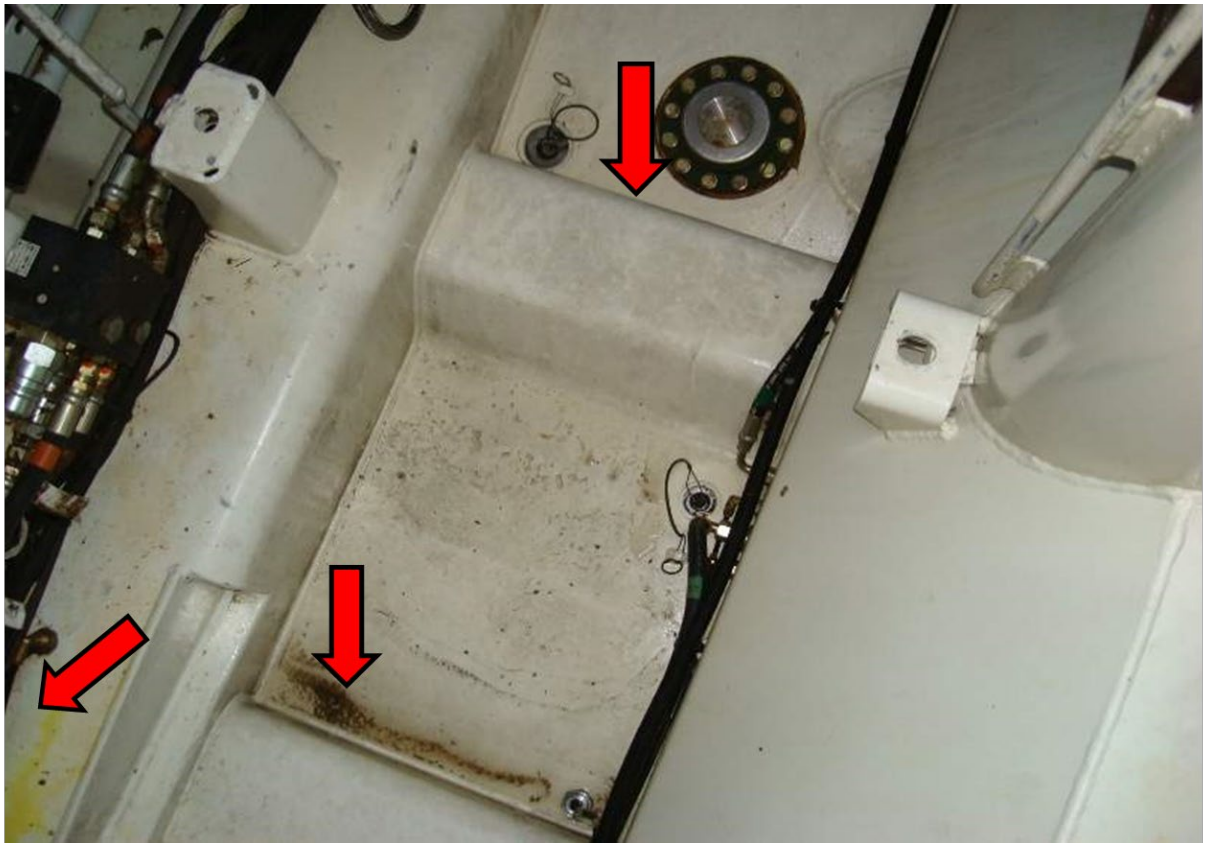
Rear hatch door. Big problem with dirt/debris/damage. A. Check carefully along edges.

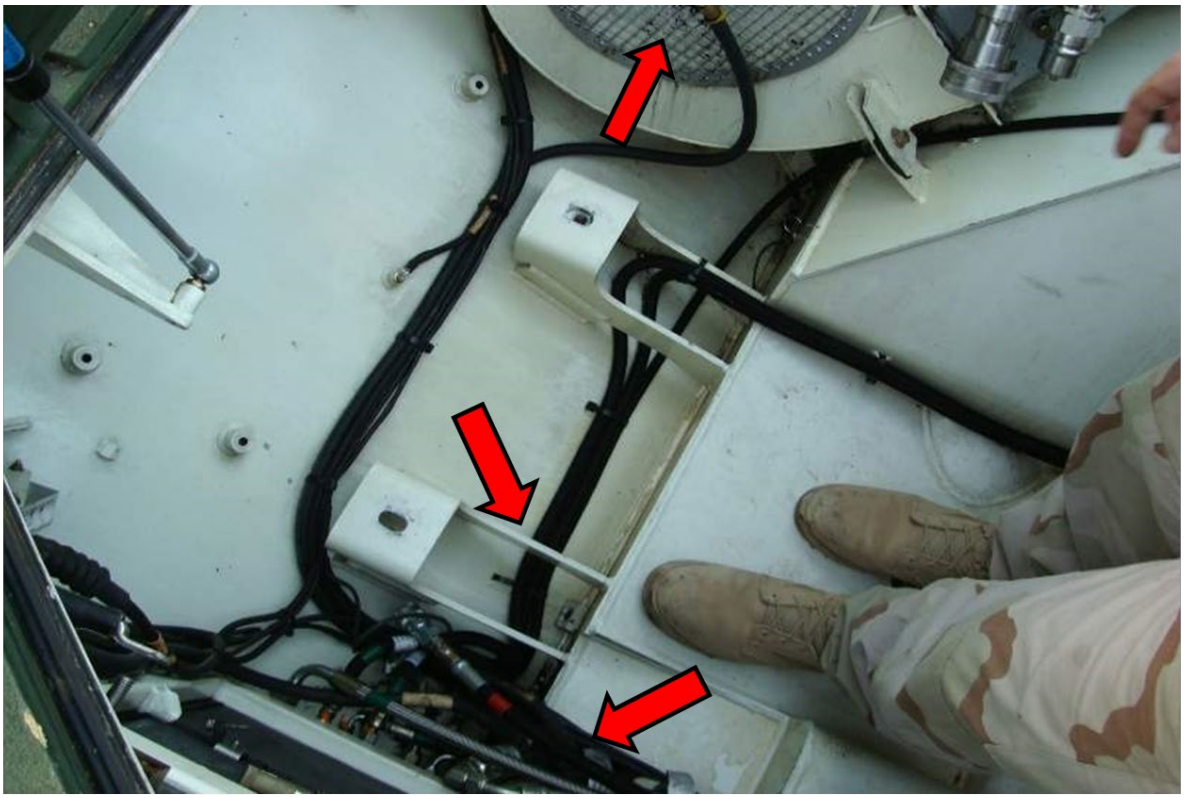


Left front behind driver seat. A. Check for dirt/mud on floor. B. Check under **all** seats for dirt/mud.

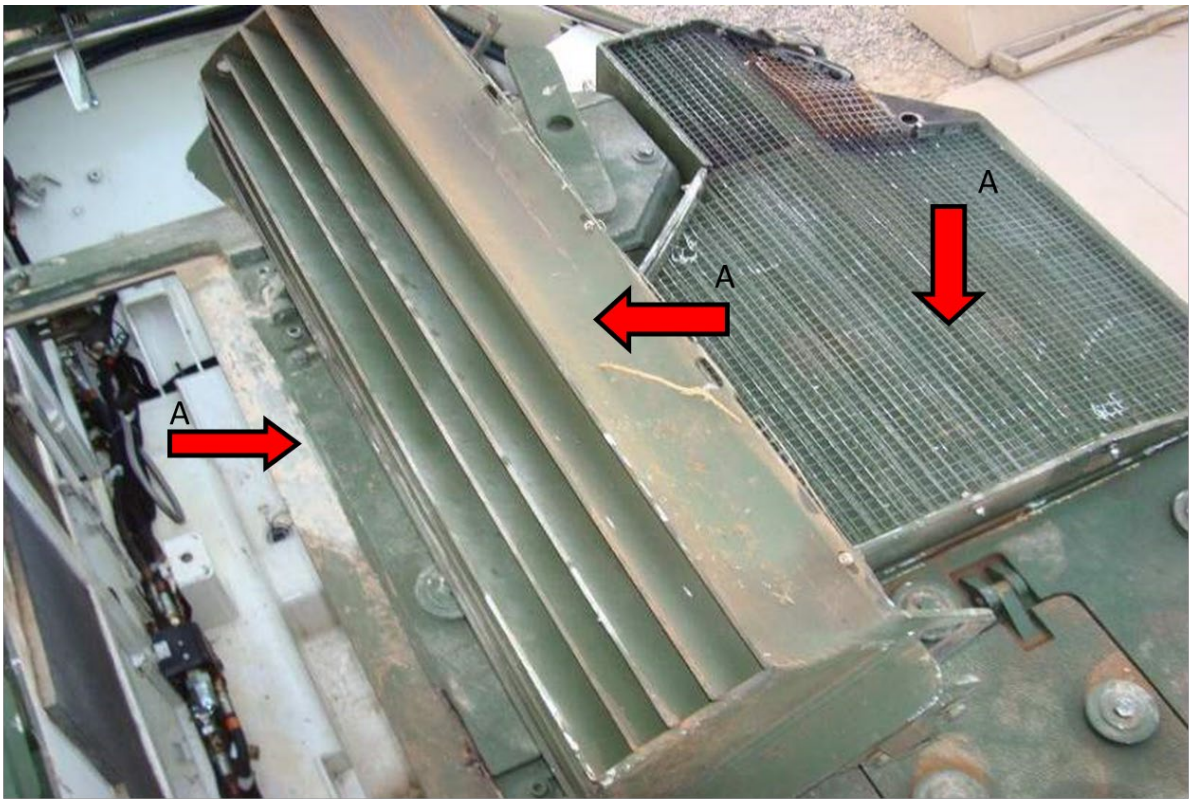


Right side of engine compartment without engine. Arrows point to several hot spots of dirt/debris.

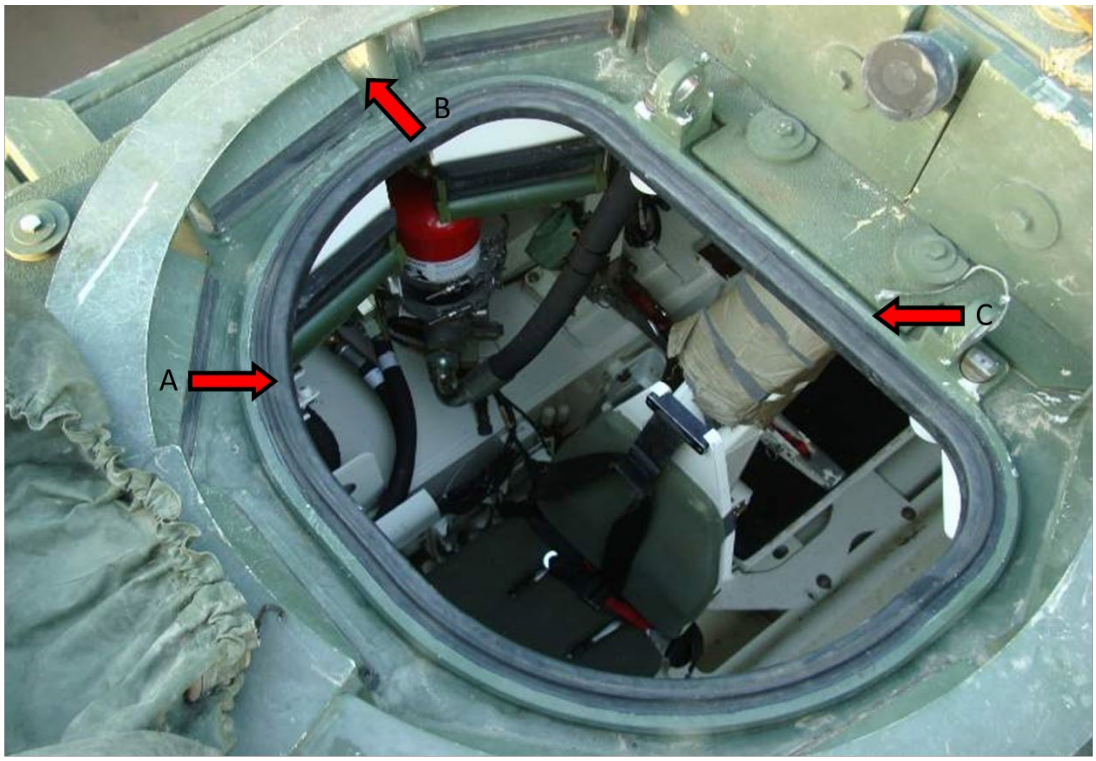




Right side, inside access hatch forward of engine compartment. Arrows point to hot spots to check.



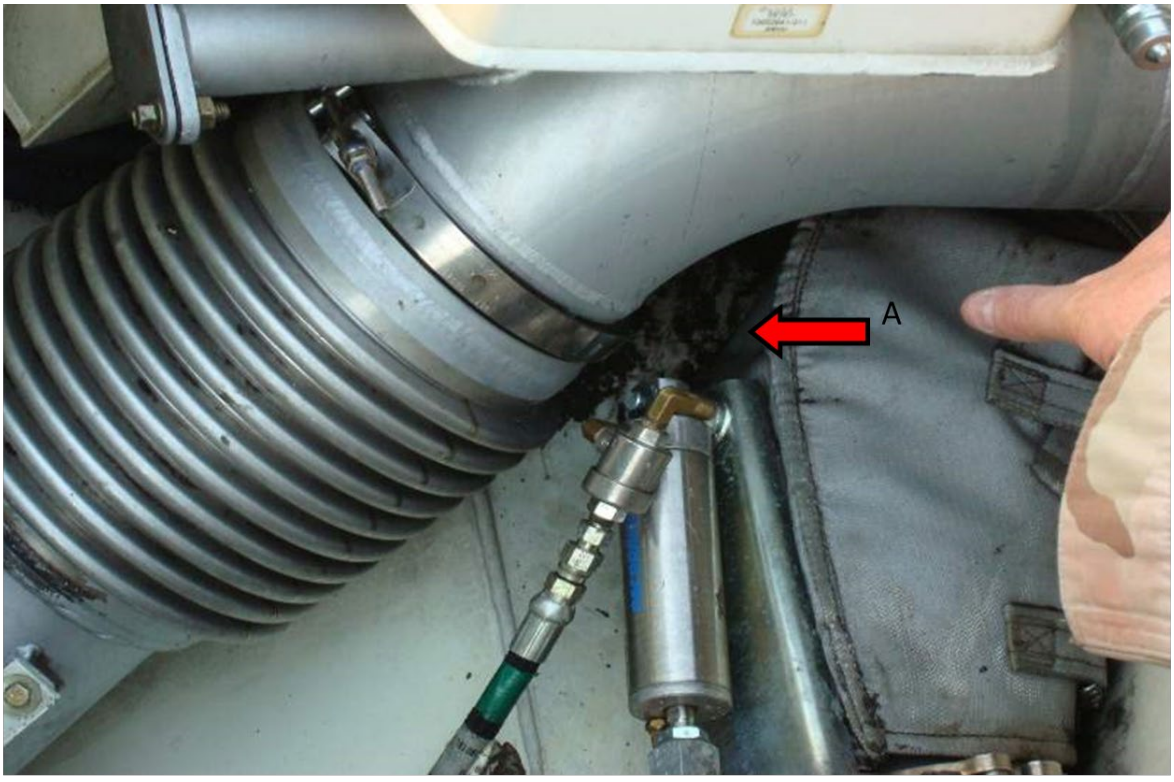
Right side, access hatch over engine compartment. A. Check for dirt/debris at these points.



Right side, gunners seat. A. Check gasket. B. Check for dirt between ports. C. Check hatch lip.

Far left front corner access. A. Check hatch gasket/lip. B. Check inside access area for dirt/mud.

Ventilation duct found throughout interior. Check for dirt/debris.



Right front in engine compartment, exhaust piping. A. Check for dirt behind exhaust cladding.

A. Customs seals are placed at 4 corners, or as close as possible. B. Paperwork goes here.

These are the mounting brackets for the slat armor, inspect for clumping dirt.

These are slat armor plates and other mounting brackets, inspect for clumping dirt.

14. Generators

- ✓ Open the side cover, disconnect the batteries, and low-pressure wash the inside of the compartment.
- ✓ Low-pressure wash inside the main compartment, top to bottom.
- ✓ Ensure the fuel tank cap is secured, and low-pressure wash around it.
- ✓ Low-pressure wash the switch and display panel.
- ✓ Open the panel underneath the display panel, take the first wing nut and cap and second wing nut off the air filter, pull the air filter out, and use compressed air to clean the filter from the inside.
- ✓ Clean the electrical boxes out with compressed air. Do not get the compartments wet.

15. Rotary Wing Aircraft Inspections

Some vehicles and equipment exposed to contamination require less than a complete detailed cleaning. This includes vehicles or equipment that is only minimally exposed to the natural environment because of its operational requirements, such as rotary wing aircraft.

Washdown Procedures

- ✓ As with military rolling stock, prepare the aircraft for washdown by removing sensitive equipment, opening all interior and exterior compartment panels, and covering electrical components with plastic to protect them from water.
- ✓ Vacuum, dust, and/or use compressed air to clean aircraft interior. Clean the cabin area, cockpit, and crew/pilot personal equipment.
- ✓ Proceed to wash rack for exterior and cabin floor washdown. Clean the wheels, wheel wells, skid/runner bars, under deck plates, panels, in flap wells and all other areas where foreign debris may have lodged.
- ✓ Always segregate cleaned/certified equipment from that requiring cleaning.

Rotary Wing Washdown Example: UH-60 Black Hawk

USDA APHIS produced cleaning guides are available for the UH-60 Blackhawk and Osprey and an accompanying video is available for the UH-60. Likewise a UH-60 video is found here.

Application of this information to other rotary wing aircraft is acceptable.

- ✓ Remove hydraulic deck cover by releasing latches, moving cover forward, and pulling the pin underneath. Be mindful of the greenhouses when removing the cover to avoid cracking the glass.

- ✓ Use a plastic bag and zip-tie to protect the vent ducts on the hydraulic system. There are three ducts, one under the back-up pump, one located just aft of the greenhouses, centerline, and one near the "coffee can" where hydraulic fluid goes.
- ✓ Place a trash bag over the mechanical mixing unit to protect its electrical components.
- ✓ Use low-pressure water to clean dirt from the hydraulic deck including the mixer mech, primary and pilot assist servos. Low-pressure water is emphasized to avoid damage to the hydraulic system electrical components.
- ✓ Use low-pressure water to spray down the rotary blades. Wash them like you would a car, from the top down. Use a cloth to wipe down the swash plate, and then spray down into the area where the transmission sits to remove residual dirt.
- ✓ Open the panels aft of the rotary blades to open the oil cooler assembly. Use low-pressure water to wash out the compartment. Spray inside the oil cooler, and wash the drive shafts.
- ✓ Open the engine compartments. Spray down engine and compartment with low-pressure water to remove fuel and oil. Check drain to remove debris that could clog it up, and ensure it drains as you wash the compartment.
- ✓ Open the auxiliary power unit (APU) compartment. Rinse compartment making sure to spray water aft for draining and under components to remove debris, being careful not to spray fire bottles directly.
- ✓ Uncover the drive shafts and use low-pressure water to clean, avoiding the viscus stamper.
- ✓ Remove intermediate gearbox fairing panel and use low-pressure water to wash this area.
- ✓ Remove the port and starboard tail [inaudible] access panels and spray inside compartment to remove dirt and debris from mechanical lines, and fuselage seams and ridges.
- ✓ Remove tail cover and use low-pressure water to rinse the tail rotor gear box, and down along the tail and cover panel.
- ✓ Next, move to the nose of the aircraft and open the compartment. DO NOT use water to clean this compartment. It is full of electronic equipment, and should be cleaned using compressed air, less than 100 PSI, and/or acid brushes and foxtail broom to remove dust and dirt.
- ✓ Clean all aircraft exterior storage compartments with compressed air/vacuum.
- ✓ Remove the fairing panels, and use low-pressure water to clean. Follow up with a damp cloth to remove dirt from lips and seams.
- ✓ Moving on to the interior of the aircraft, clean underneath the pilot seat wells. Recline the seats back and spray the avionics equipment with compressed air and/or vacuum.
- ✓ Use compressed air and a vacuum to clean cockpit switches and gauges.

- ✓ Remove the drip pan and the sound proofing from inside the crew cabin overhead to clean interior fuselage with compressed air and foxtail brush, paying particular attention to electrical components, lips and seams. Clean the drip pan and soundproofing panels with water.
- ✓ Remove cabin floor and wash aircraft floor and plates with high-pressure water to remove environmental debris. If the aircraft if used for medical transport, follow-up the pressure wash with a peroxide rinse and a disinfectant to remove and sterilize biological residue.
- ✓ Remove soundproofing from the cabin's aft bulkhead to gain access to the transmission compartment (also known as the "hell hole"). Use a vacuum and cloth to clean all surfaces and avionics components inside this compartment.