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Operational Washdown and Agricultural Inspection Preparation for Military Conveyances and Equipment

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Preface

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.

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1. Purpose

The purpose of Technical Guide 31 (TG 31) is to safeguard the national agricultural economy, natural resources, and ecosystems from risks associated with the entry or export, establishment, or spread of pathogens and pests of humans, animals or plants being potentially conveyed on transported military materiel and to provide guidance to ensure Department of Defense (DoD) personnel, gear, and equipment will clear customs and border protection cleanliness inspection requirements. Likewise, the purpose of TG 31 is ultimately to minimize preventable mission transportation delays and expensive mitigation expenses associated with contaminated equipment failing inspections upon arrival back to the United States or abroad.

The target audience of TG 31 is DoD personnel tasked and trained with ensuring deployed or redeployed equipment and other materiel are properly cleaned of soil, plants, seeds, insects and other invertebrates, and other biological materials that can do irreparable damage to the economy, agricultural commodities, environment, or military operations. TG 31 and its four supplements address the impact of dirty equipment on the economy; identification of agricultural and environmental pests; regulatory guidance; roles and responsibilities; personnel, gear, and equipment preparation; cleaning procedures and common problem areas; washdown facility setup, checklists, and environmental considerations; cleanliness inspection procedures; and identifying pest snails.

2. Economic and Mission Impacts of Dirty Equipment

Invasive animal and plant species, as well as animal and plant pathogens, impacts the national economy as well as potentially affecting Partner Nation (PN) economies. Over the past 200 years, several thousand foreign plant and animal species have become established in the US. Approximately one in seven has become invasive, leading to cost problems in the US costing more than $137 billion each year. An invasive species is a non-native species, that, when introduced, causes or is likely to cause economic or ecological harm or harm to human health, agriculture and native ecosystems. Invasive species often reduce both economic productivity as well as the ecological integrity of US agricultural and natural resources thereby having significant impact on the food supply as well as the ability to continue global export of agricultural goods or global military operations. Conservation experts have found that in the US, invasive alien plant infestations cover 100 million acres and spread at a rate of 14% per year, an area twice the size of Delaware. Invasive species impact military operations through land use restrictions, infrastructure damage, decline of ecologically essential native populations, causing or exacerbating the vulnerability of threatened and endangered species, and degrading essential ecosystem services and biodiversity.

Beyond invasive species, pathogens and pests have negative economic consequences to consider as well the potential to negatively impact international partner relationships.

Importing invasive species into the US is just as important as exporting invasive species into host and allied countries. Plant pests and pathogens, including molds, weeds, bacteria, and insects, could decimate crops, orchards, or lumber outputs to upset supply chains, create shortages, and drive up prices for goods. The inadvertent import of insects, such as mosquitoes and ticks, which can harbor infectious vector-borne diseases, or pathogens, may cause disease in animals or humans. Animal pathogens and pests have the potential to rapidly spread through animal agriculture populations; a disease outbreak can result in the immediate cessation of animal goods export, disruptions in domestic food chains with subsequent commodity shortages, the fracturing of consumer trust and restricting military mobility. Additionally, various plant and animal pathogens and pests that can be found in trace amounts of soil and organic debris, may persist in the environment and remain infectious for months to years, Introduction of an invasive species or plant and animal pathogens or pests from the US into a PN would have serious implications to both freedom of movement within theater and the DoD's relationships with international partners. Beyond damaging relationships with PNs, the DoD could incur economic reparations for damages, containment, and correction. Therefore, due diligence, preparation, and enforcement of high standard cleaning protocols are the best mitigation for these threats.

Failure to comply with agricultural entry or export requirements have and will continue to result in significant mission and transportation delays and associated clean-up and pest treatment expenses totaling tens of thousands to millions of dollars. Bottom line is that Units, Garrison, Transportation and Port Commanders are responsible for mitigating agriculture pathways to and through the US and Host Nations. Commanders (CDRs) are responsible for ensuring that the requirements specified herein and DTR 4500.9-R Part V, Chapters 505 and 506 and this document are followed to prevent agricultural pests and pathogens, including soil that may contain them, from entering, transiting, or leaving the US from units that are returning / deploying personnel and/or equipment to or from the US. CDRs are also responsible for ensuring the Host Nation (HN) requirements are met when moving equipment or cargo across national borders. Delays and mitigation costs for cargo and vehicles returned unclean can, and have been in the millions of dollars. CDRs will not allow the movement of vehicles, equipment, cargo or cargo containers from their operating location unless they are free of soil, pest infestation, and prohibited agricultural items.

In summary, invasive species along with animal and plant pathogens reduce and restrict freedom of movement, impact exercises and operations, and are costly to control, contain, or mitigate.

3. Cleanliness Issues

Issues impacting the cleanliness of equipment include soil and other dirt and debris, invasive plants and seeds, insects and other invertebrates, and other hitch-hiking species.

3.1 Soil and other Dirt and Debris

Equipment can be contaminated with soil, leaves, plant debris, seeds, insects and other arthropods, vertebrate nests, fungal, bacterial or viral pathogens and oil / grease where these items can accumulate. Serious agricultural and ecosystem/forest pathogens are easily transported in soil, even trace amounts of soil, adhered to transported military material.

3.2 Invasive Plants and Seeds

Examples of invasive plants commonly spread via seeds include kudzu, cheat grass, garlic mustard, Chinese lespedeza, Palmer amaranth / pigweed, star thistle, giant hogweed, Japanese stilt grass, autumn olive, water hyacinth and hydrilla. There are countless other examples.

3.3. Other Invasive Species

Examples of non-plant invasive species include tramp ants (yellow crazy ant, little fire ant, red-imported fire ant, etc.), mosquitoes, Asian and European spongy moth, Japanese beetles, brown tree snakes, frogs, lizards, spotted lanternfly, Asian long-horned beetle, Mediterranean and other fruit flies, coconut rhinoceros beetle, quagga or zebra mussels, giant African snails and other destructive land snail species, black widow and other spiders and associated webs, Asian long-horned beetle, emerald ash-borer, tropical bont tick, as well as various snail or insect egg masses or pupae and countless others.

3.4 Plant and Animal Pests and Pathogens

Examples of these include molds and fungal spores, parasites, bacteria, and insects such as mosquitos and ticks, which can harbor infectious vector borne diseases. Livestock pathogens such as those that cause African Swine fever are a rapidly growing and spreading devastating disease threat increasingly common across the globe.

4. Invasive Species Awareness

The following pictures are of some common examples of invasive species pests found on deployable equipment such as rolling stock and boats or ships.

Asian Gypsy Moth

European Gypsy Moth

Spotted Lanternfly

Giant African Snail

Asian Long-Horned Beetle

Mediterranean Fruit Fly

5. Regulatory Guidance

5.1 United States Law

Executive Orders (EO) 13112 and 13751 - Safeguarding the Nation from the Impacts of Invasive Species. EO 13751 (2016) updated and provided additional guidance from EO 13112 (1999). These EO's prohibit the introduction, establishment, and spread of invasive species, as well as to eradicate and control populations of invasive species that are established.

Plant Protection Act (7 USC 7701-7772, P.L. 106-224). Consolidated the authorities of the Plant Quarantine Act, Federal Plant Pest Act, Federal Noxious Weed Act, and other plant-related statutes. This act authorizes USDA to prohibit or restrict the importation or interstate movement of any plant, plant product, biological control organism, noxious weed, article or means of conveyance if necessary to prevent the introduction into the United States, or the dissemination within the United States of a plant pest or noxious weed.

Animal Health Protection Act. (7 USC 8301-8322, P.L. 107-171). Consolidated all of the animal quarantine and related laws and replaced them with one statutory framework. Protects the agriculture, environment, economy, and health and welfare of the people of the US by preventing, detecting, controlling, and eradicating diseases and pests of animals.

Lacey Act. The Lacey Act prohibits international and domestic wildlife trafficking. The Act prohibits trade in wildlife, fish, and plants that have been taken, possessed, transported or sold in violation of other federal, state, or foreign laws. Particularly important for enforcing CBP inspections.

Sikes Act. The Sikes Act mandates the implementation of an installation Integrated Natural Resource Management Plan (INRMP) that commonly documents biosecurity efforts, including associated biosecurity plans, to prevent the introduction of or to mitigate invasive plants, animals, or pathogens that are not native to the ecosystem of the military installation and cause or may cause harm to military readiness, the environment, or human health and safety. CBP inspections and command Pest Management Professional coordination of deployment / redeployment preparations with installation pest managers are frontline measures supporting this effort. INRMPs and INRMP revisions should incorporate biosecurity efforts and strive to coordinate deployment and redeployment preparations into respective standard operating procedures.

5.2 USDA Animal and Plant Health Inspection Service (APHIS)

USDA APHIS, Plant Protection and Quarantine Division is responsible for providing policy and guidance, informational materials, and co-training along with Department of Homeland Security, Customs and Border Protection (CBP) and DoD personnel assigned inspector and washdown responsibilities.

Military Cooperator Agricultural Job Aid – Inspection Aid produced by USDA for Military Personnel.

USDA Plant Pests and Diseases Program – USDA APHIS reference, identification, biology and mitigation materials and links for important agricultural pests commonly found in retrograde cargo.

5.3 US Department of the Interior

Technical Memorandum No. 86-68220-07-05 Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species – Additional guidance on how to clean equipment and prevent the spread of invasive species.

5.4 US Department of Defense

DoD Directive 4500.09E, Transportation and Traffic Management. Designates USTRANSCOM as the DoD Executive Agent for the DoD Customs and Border Clearance Program.

DoD Instruction 4150.07, DoD Pest Management Program. Establishes policy, assigns responsibilities, and prescribes procedures for the DoD Pest Management Program including invasive species

DoD Manual 4150.07, Vol 1. DoD Pest Management Program Elements and Implementation: Structure and Operations. This manual implements policy, assigns responsibilities, and provides procedures for the design and operation of the DoD Pest Management Program.

DoD Instruction 4715.03, DoD Natural Resources Conservation Program. This manual implements policy, assigns responsibilities, and provides procedures for DoD natural resources programs and required integrated natural resources management plans (INRMP). Biosecurity efforts and invasive species control and mitigation measures are generally mandated and prescribed in the installation natural resources management plan (INRMP).

Defense Transportation Regulation (DTR) 4500.9-R Part V. Chapter 505. Agricultural Cleaning and Inspection Requirements. The DTR is DoD's Military Custom and Border Clearance Program authority prescribing procedures, assigns responsibilities, and defines requirements for the prevention of the introduction of agricultural pests into the United States by the DoD

Defense Transportation Regulation (DTR) 4500.9-R Part Part V. Chapter 506. DoD Customs and Border Clearance Senior Agricultural Agent (SAA) Program. Prescribes procedures for requesting SAA Outreach Awareness training, SAA training and certification, SAA responsibilities, customs and agricultural clearance requirements, coordination and communication, and reporting procedures.

DoD Manual 4715.06, Vol 3. Regulations on Vessels Owned or Operated by the Department of Defense: Ballast Water, Welldeck Sediment and Anchor Sediment Management. Although not specifically addressed in this TG-31, invasive species including important animal and plant pathogens are also conveyed via ballast water with devastating effect. The DoD Manual covers ballast water and other ship sediment treatment requirements.

DOD Instruction 4715.05, Environmental Compliance at Installations Outside the United States. A series of manuals known as the Overseas Environmental Baseline Guidance Document (OEBGD), is composed of multiple volumes, each addressing specific areas of environmental management such as conservation; air and toxics; water; hazardous materials, storage tanks, spills, pesticides; and waste. In accordance with the authority in DoD Directives (DoDDs) 5134.01 and 4715.1E, the July 13, 2018 Deputy Secretary of Defense memorandum, and the requirements in DoD Instruction (DoDI) 4715.05 that establishes policy, assigns responsibilities and prescribes procedures for implementing environmental guidance and standards to ensure environmental protection at DOD installations and facilities in foreign countries.

Department of Defense Electronic Foreign Clearance Guide. Website is used to gain an understanding of US entry procedures and foreign clearance procedures for each country.

DoD Manual 4140.65 - Issue, Use, and Disposal Wood Packaging Material. Details requirements for use of specific labelled wood packing materials (e.g. pallets).

5.5 State and Territory Laws and Regulations

Though not specifically addressed in TG-31, Intrastate and Interstate movement of military cargo and conveyances are also regulated at the State and Territory levels. Some states have specific noxious weed laws and state quarantines that prohibit the transfer of potentially contaminated soil and biological material such as plant debris, seeds and agricultural pathogens. Some states require agricultural washdowns prior to transport. The State or Territory Departments of Agriculture and Departments of Natural Resources and Wildlife should always be consulted to determine area(s) specific rules. Interstate movement of invasive species and pathogens is also prohibited via the Plant Protection Act (7 USC 7701-7772, P.L. 106-224 linked above.

5.6 Allied Agency Regulations

Australian Defense Forces Force Extraction Cleaning Manual – Excellent resource Containing expansive guidance and checklists for a wide variety of military vehicles and military material.

6. Roles and Responsibilities

6.1 Commanders

Unit Commanders (CDRs) will meet the requirements specified in DTR 4500.9-R, Part V, DoD Customs and Border Clearance Policies and Procedures, and this technical guide and comply with procedures to prevent plant and animal pests, pathogens and invasive species from either entering the United States when their unit is returning or deploying personnel and/or equipment to or from the United States. Likewise, for materiel transported within the United States (Intra and Interstate transfer) or territories. Unit CDRs will ensure PN requirements are met when moving personnel and materiel across national borders. All visible soil, dirt and debris will be removed as prescribed in this guide.

6.2 Air/Sea Port and Transportation Commanders

Air/Sea Port and Transportation Commanders will ensure the requirements specified in the DTR and this technical guide are followed to the maximum extent practicable. Stated commanders will not allow movement of personnel and materiel from their facilities unless they are free of soil, pest infestation, and prohibited agricultural items.

6.3 Installation Environmental or Pest Management Personnel

To the maximum extent practicable, local installation level pest management or natural resources personnel will assist with management related to pests found in materiel scheduled for movement. In instances where quarantined or pest issues are discovered that require fumigation or control effort beyond the capability or certification levels of local resources and personnel, emergency contracts or PN assistance may be the best resource available to mitigate contaminated and subsequently frustrated materiel.

7. Personnel, Gear, and Equipment Preparation

7.1 Personnel

Animal and plant pathogens and pests are easily transported on boots, uniforms, and other items military personnel wear and use in the field both at home and abroad. Simple procedures for containment, cleaning, and disinfection or sanitation will reduce the potential for transfer of harmful organisms. If moving from a location where a known highly infectious pathogen is established to another location, where the pathogen has not been introduced, more stringent measures than those listed below may be required—always consult with quarantine and health officials to ensure compliance with national and international requirements. Basic procedures include:

Clean all clothing, footwear (including laces or Velcro straps), and gear prior to deployment or redeployment. Consult agricultural and wildlife authorities for possible additional guidelines and requirements. Veterinary services may also need to be consulted regarding animal pathogen sanitation, or disinfection, requirements. Veterinary resources, if not found on installation, can be contacted by email to DHA.NCR.VETERINARY.MBX.VETSVCS-DSCA@mail.mil.

Take only essential personal gear from location to location. If feasible, do not take gear from a location where a pathogen is of quarantine concern.

When traveling from area to area, knock off dirt and mud from clothing (including inner clothing), boots, harness/ropes, helmet, backpack, headlamp, flashlight, weapons, equipment cases, and other gear, and dry-brush them clean. Organic material, such as some clay soils, can prevent cleaning and sanitation products from penetrating equipment, clothing, and boots therefore it is essential to thoroughly clean off organic debris and material to ensure adequate cleaning.

When moving between locations and as soon as practicable, follow cleaning and containment protocols where sanitizing should be done at the smallest possible geographic unit to minimize contamination between areas.

Footwear: Scrub and rinse boots, including laces so all soil and organic material are removed. Rubber and leather boots, including soles and leather uppers, can be

decontaminated with an appropriate chemical product (See Section 8.5) for a minimum of 10 minutes, then rinsed and air-dried. Pay particular attention to grooves in soles, laces and Velcro that may contain debris or contaminants.

Clothing and washable gear: Wash in a washing machine or by hand using conventional detergents. Washing can be performed in cold, warm or hot water. Woolite® or equivalent fabric wash is a detergent that has proven effective for this procedure. Rinse thoroughly to ensure soil and other contaminants have been removed.

7.2 Gear

Weapons. Unit commanders or their designated representatives will ensure weapons and associated equipment are clean and soil-free.

Large Electronics and Communication Equipment, Field Desks, and Mobility Bags. Mobility bags, field desks, communications equipment, and similar items should be cleaned thoroughly using hand brooms, rags, and other non-wetting methods. Compressed air may be used to assist in the cleaning process. Concentrate specifically on seams, folds, cracks, crevices, and recesses where filth, dust and debris are likely to collect.

Pallets and Boxes. Pallets and their loads must be clean of compacted soil and vegetation. If necessary, pallet loads should be broken down to accomplish the appropriate level of cleaning. Boxes must also be cleaned and inspected both inside and out, even if padlocked.

Tents, Canvas and Camouflage Nets. Camouflage nets, tents, and canvas should be free of soil, debris and dust. Cleaning by hand, although time consuming, is the most effective method. Spread the nets, tents, and/or canvas on a pest-free surface and sweep down (no water) on both sides, paying attention to seams and flaps. Compressed air may also be used during the cleaning process to facilitate debris removal.

Ropes, Webbing and Harnesses. Cleaning by hand is the most effective method for cleaning harnesses, webbing, and ropes. At a minimum, spread out the harnesses, webbing, and ropes on a pest-free surface. Sweep the equipment (no water) to remove as much dirt as possible. Compressed air may be used to assist in the cleaning process.

Not all harnesses, webbing, and ropes are compatible with cleaning protocols, and may lose their physical integrity. If it can be determined that these items will not be damaged by chemical cleaning, use the following procedure: Wash rope and webbing gently ("gentle" or "delicate" cycle if using a machine) in mild detergent. Rinse in fresh, clean water for a minimum of two rinses and allow to air-dry.

Personal Electronic Equipment and Gear. Clean water resistant flashlights, headlamps, radios, headgear, etc., with soap and water. If the equipment is not water-resistant, use cleaning wipes applied directly to surfaces or casing.

Note: In some cases, specified gear may be left behind it if risk of pest/pathogen contamination cannot be mitigated.

7.3 Equipment

See AFPMB TG-31 Supplements 1-4 for problematic areas in and around specific tactical equipment such as wheeled and tracked vehicles, rotary wing and shipping containers, and pallets.

7.3.1 Vehicles, Boats, and Other Conveyances

- Sweep, compress air-clean and/or wet/dry vacuum the operator's compartment, passenger compartment, and all storage and tool compartments.
- Remove the battery; clean the battery and battery box. Reinstall the battery.
- Remove outside dual wheels and spare tires and place them in the back for later cleaning at the wash rack.
- Remove payloads, seat cushions, detachable sideboards, canvas sides/tops and any personal gear brought ashore, and leave at the mobile staging area for cleaning.
- Carefully (may be hot) check the radiator. Handpick or sweep out any vegetation, insects (arthropods) or other debris.
- Disengage collapsible sides. Clean recessed areas, ledges, etc.
- Remove engine packs from tanks and Bradley Fighting Vehicles prior to washing.
- Carefully check the engine and drive train compartment(s). Remove any vegetation, insects (arthropods), soil, or other debris.
- Remove all detachable flooring and dry and wet clean as necessary to remove all dirt and debris.

7.3.2 Containers, ISUs, and Aircraft Pallets

- Sweep and wash all surfaces, inside and outside, including those of shipping containers, ISUS, and aircraft pallets, and decks and hulls of vessels.
  - Clean all forklift tine channels on containers and ISUs.
  - Clean all twist-lock and corner castings on containers.
  - Ensure both the top and undersides of containers are cleaned and sanitized as required. Most of the pest issues on shipping containers are found on the undersides. Follow strict safety precautions when using fork lifts or cranes to lift containers prior to treatment and inspections.

- See also Supplement 3 to this TG.

7.4 Wood Packaging Material

All wood packaging material (WPM), dunnage, pallets, and crating must be soil and bark-free, free of infestation, and must meet the International Standards for Phytosanitary Measures (ISPM 15) requirements. See: DTR 4500.9-R, Chapter 505 Agricultural Cleaning and Inspection Requirements Part D1d and DoD Manual 4140.65 - Issue, Use, and Disposal Wood Packaging Material. Intra and Interstate regulations for movement of wood packing materials may also apply during stateside movement of military materiel containing WPM.

7.5 Recommended Cleaning and Disinfection Products

The following chemical products were tested in a laboratory setting and were found to be particularly effective in killing even resistant pathogens. Note: Not all of these products can be used to kill all pathogens and not all of these products are compatible with all clothing and gear—follow item and product instructions carefully and test items of unknown compatibility before using any product.

Product guidelines should be consulted for compatibility before using any disinfection or sanitizer product on specific equipment. Note: never mix detergents and quaternary ammonium compounds (e.g., Lysol® IC Quaternary Disinfectant Cleaner) directly with bleach, as this will inactivate the bleach and can produce a toxic chlorine gas.

If there is a concern for a specific pest, pathogen or disease outbreak, some countries or states may require an additional sanitation, or disinfection step with requirements to use certain product(s) for a defined amount of contact time. These additional requirements will necessitate coordination with Army Veterinary Services. Direct animal or plant decontamination questions (e.g. African swine fever or foot and mouth disease) often associated with customs and border protection and agricultural washdown preparations and inspections to DHA.NCR.VETERINARY.MBX.VETSVCS-DSCA@mail.mil.

Recommended Products:

- Woolite® Extra Delicate detergent
- Lysol® IC Quaternary Disinfectant Cleaner (with a minimum of 0.3% quaternary ammonium compound) — this is a concentrate which requires a 1:128 dilution (1 part concentrate to 128 parts water or 1 ounce of concentrate per gallon of water)
- Lysol® All-purpose Professional Cleaner
- Formula 409® Antibacterial All-Purpose Cleaner (with a minimum of 0.3% quaternary ammonium compound)
- A solution of bleach (sodium hypochlorite) mixed as follows: If the concentration of available chlorine is 5.25%: Then add 5 tablespoons (2.5 ounces or 75 ml) of bleach

to each gallon of water (or 1 gallon of bleach to 50 gallons of water). Mix thoroughly. If the concentration of available chlorine is 6.0%: Then add 4 tablespoons and 1 teaspoon (2.33 ounces or 65 ml) of bleach to each gallon of water (or 13 cups of bleach to 50 gallons of water). Mix thoroughly. Determine the percent of available chlorine by checking the bleach container's label. Sodium hypochlorite (bleach) comes in two concentrations: 5.25% or 6.0% available chlorine.

- Lysol® Disinfecting Wipes
- Virkon™ S, a disinfectant formulation with proven performance against over 500 strains of viruses, bacteria and fungi including African swine fever, foot and mouth disease (FMD), avian influenza, Salmonella and Campylobacter. Country/Operation Movement Guidance will have specific guidance on the use of Virkon™ S and related products. It is critical to follow this guidance to ensure deployment timelines are met.
- Boiling water, or steam cleaning, for those items that can withstand the high temperature.

Quaternary ammonium products such as Formula 409® and Lysol® cleaner must be properly disposed of into a sanitary water system (poured down a drain or toilet) or similar system to receive required sanitary treatment. It is illegal in the US and most countries to dump these products on the ground, and dumping should not be done anywhere else. Follow the label instructions and do not wipe these products directly on skin or surfaces that come in contact with humans, working animals, or wildlife. If using bleach solution, do not store dilution for more than 24 hours as the bleach will begin to break down once it is diluted. Store bleach in opaque bottles as breakdown will also occur when exposed to sunlight.

8. Washdown

8.1. Criteria for Selecting Location

If possible, conduct early reconnaissance to inspect, interact with location contacts and begin preparations of potential washdown locations if needed. In most situations, washdown facilities will already be established, while in other contingency or exercise deployment areas, washdown facilities and assets will be minimal and possibly need to be developed or significantly modified.

Consider adverse environmental effects of washdown operation and ensure facility minimizes release of used water and contaminants into the local environment. Most, if not all, washdown operations require the use of an oil and water separator to collect and treat the large amount of petroleum, oil, and lubricant (POL) material removed from military vehicles during washdowns.

Ensure washdown operations comply with all applicable host nation laws and regulations.

Coordinate with local DoD pest and wildlife management, natural resources, quarantine, health officials, veterinary services, legal and experienced logisticians / transportation personnel for local pest concerns and to maintain positive relationships with host nations. Per chain of command direction, liaise with host nation equivalents as appropriate.

8.1.1 Hardstand

The availability of hardstand is a major limiting factor determining the duration of an operational washdown. Hardstand is defined as a surface that, even when wet, will not allow any soil transfer to tires of clean vehicles. Hardstand is absolutely essential in:

- Areas associated with the actual washing and storage of vehicles.
- Areas used for off-loading and cleaning vehicle accessory items
- Staging areas for clean vehicles awaiting backload
- All roads in between the above areas.

In reviewing the hardstand area, consider wash water run-off into the environment such as marine or aquatic habitats. Petroleum or other contaminants, as well as cleaning detergents, washed from vehicles may pass into ground or surface water sources. This can pollute water sources for local ecosystems and harm aquatic life. Freshwater run-off into brackish or saltwater habitat can also cause harm to aquatic life.

During the planning phase, consider constructing berms or implementing other containment strategies and possibly re-utilizing wash water.

The size of hardstand required will vary with the number and type of vehicles and the amount of time available. However, the following minimum criteria are required so as not to impede traffic flow during an operational washdown assuming a six vehicle capacity wash rack:

- A washdown area of at least 150 feet (46 meters) on either end of the wash rack assembly and 50 feet (15 meters) on the sides parallel to the flow of equipment.
- The staging area for accessory vehicle items and palletized supplies should be at least 100 feet (30 meters) wide and 350 feet (110 meters) long.
- The size required for the clean vehicle staging area will vary depending on how soon after washing/inspection back loading can begin. If the vehicle/cargo decks on board the ships or aircraft must be cleaned before backload can proceed, then a staging area capable of holding a larger number of vehicles/equipment should be established. Vehicles should not become re-contaminated during the backload.

8.1.2 Fresh Water Availability and High Water Pressure

IMPORTANT NOTE: SALT WATER MUST BE AVOIDED BECAUSE IT WILL CORRODE VEHICLES AND AIRCRAFT

Large quantities of fresh water are consumed in a relatively short period of time during washdown operations. Water pressure of at least 90 psi must be maintained throughout the washdown operation.

Approximately 250,000 gallons are required for an average Army battalion or Marine Expeditionary Unit composed of 300 wheeled vehicles using two (2), 5.0" (130 mm) diameter fire hoses operating at the minimum recommended pressure of 90 psi.

In many operational areas only gray water is available. Gray water is defined as non-saline, but with a number of contaminants from prior use. Though not used for sewage purposes, the storage of this water and the absence of chlorine make it a potential disease carrier for those in close contact with it during washing operations.

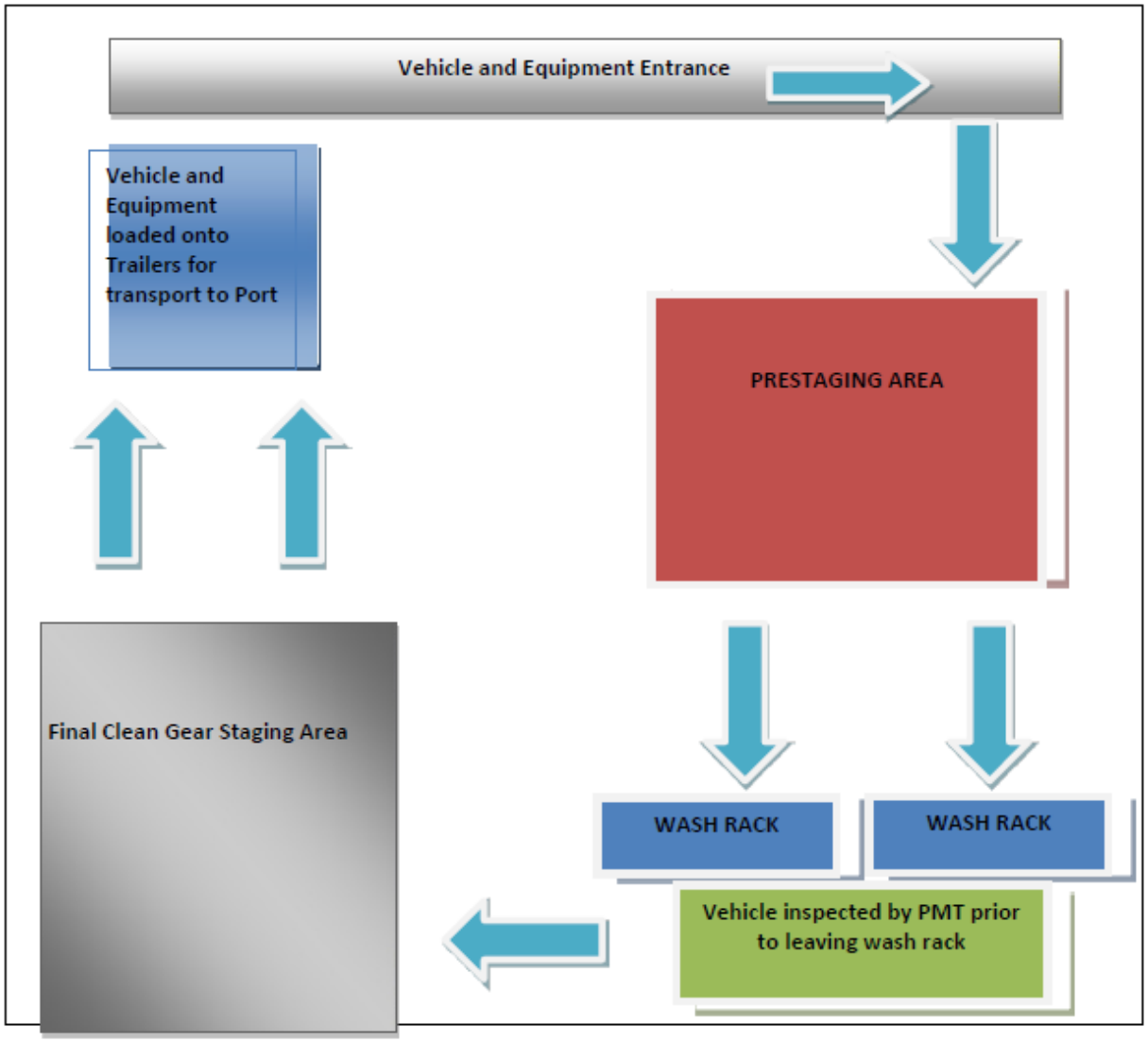
Black water, or sewage-contaminated water, is not authorized and should never be used to conduct washdown or cleaning operations. **NOTE: POTENTIAL HEALTH HAZARDS FOR WASHDOWN PERSONNEL AND OTHERS WHO MAY CONTACT THE EQUIPMENT ARE CLEARLY ASSOCIATED WITH USING SEWAGE CONTAMINATED WATER TO WASH AND RINSE**.

8.1.3 Environmental Considerations

Identify and assess potential adverse impacts of the wash operation and take all reasonable actions necessary to minimize the effects of used water and contaminants on the local environment. Wash water can contain all the contaminants being rinsed from vehicles and equipment. Depending on filth, soil, and debris content, this can include fuel, oil, soap, or other chemical residues in addition to pesticides, bacteria, pathogens, and plant and animal debris. Debris and contaminants in the water may result in mortality among fish and other aquatic organisms. In addition, the wash water can affect surface and ground water sources which can harm land plant and animal ecosystems. Such events may invite serious political and financial repercussions from the host nation. Note: Contaminants, such as POL must be captured or removed from rinse water to avoid contamination of runoff areas. The large amount of fresh water from wash operations, if allowed to run off into native bodies of salt or brackish water, can seriously alter dissolved oxygen and saline balance.

8.2 Facility Layout

The following are typical examples of washdown facility layouts.



Basic Washdown and Sanitizing Facility Example

Covered Wash Rack Example

Open Wash Rack Example

8.3 Equipment Requirements and Recommendations

The following equipment is considered essential, or in the case of wash racks, extremely helpful, to the success of an operational washdown.

Wash racks: Though not always available, the design and number of wash racks will largely determine the speed at which the operational washdown can be conducted. Wash racks must be designed with regard to the following parameters:

- Personnel safety
- Efficiency of vehicle movement on and off the rack
- Ease of work for the cleaning personnel.

Adequate clearance between the bottom of the vehicle and the ground is critical to adequately wash, inspect and, if necessary, re-wash and inspect the undercarriage. If the vehicle is too close to the ground, work crew efficiency and the inspection/rewash process are adversely affected.

The number of wash racks necessary will vary with the amount of space available. The time dedicated to cleaning each vehicle will vary depending on its initial condition and the number of wash racks. Historically, a washdown proceeds at an average rate of one vehicle per individual wash rack per half hour of daylight. However, tracked vehicles and large wheeled vehicles will take significantly longer to process, dependent on initial levels of soil and contamination on the equipment.

Note that wash racks are recommended, but not always available, thereby forcing operations to be conducted on hardstand or equivalent which will take extra time per vehicle.

A person must be assigned to guide vehicles up and down the wash racks to maintain a high safety margin.

Water pumps/hoses. The design, output and reliability of pumps can affect the speed of a washdown operation. The following provides minimum requirements and suggestions:

- A minimum of two (2) hose lines for each individual wash rack.
- Pumps must be capable of sustaining a minimum output pressure of 90 psi over multiple hours of continuous use.
- Fire Department pumper trucks work well in the absence of adequate standing reservoirs and are usually available at any seaport, airport, or military base. Several hose lines with 90 psi outputs can be routinely operated off a single truck.
- A supply of new hoses should be kept in reserve for use during the washdown in the event of ruptures.

8.4 Operational Washdown Equipment

The following guidelines can be used for operational washdowns with an average Marine Expeditionary Unit, Army Regiment, or Air Force Squadron.

Minimum Wash Rack Site Equipment Requirements

Equipment	Quantity
Floodlight set	6
Cranes	As required
"Y" gates	3
Fire hose (1"ID)	600 ft/2 per wash rack
Fire hose (2" ID)	200 ft/2 per wash rack
Fire hose (5" ID)	200 ft/2 per wash rack
Fire nozzles (2 per wash rack)	8
Pump (55 GPM or greater)	2
Water truck (5000 gallon)	1
Steam hose (1" ID, 12 ft lengths)	6
Steam hose (1" ID)	300 ft
Air compressor and nozzles	6 or more
Steam manifold (6 stations)	1
Flatbed Trucks movement of supplies	As required
Portable head	2
Vehicle wash racks	4 or more
Wet/Dry Vacuum	6 or more as required

(**Note**: For less established wash down facilities, need a minimum of 6-8 power-washers, MOGAS, and access to a variety of scrapers, wire brushes, flashlights, leather gloves and tools needed for removal of access panels, battery boxes, armor plates, etc. See "Personal Gear" table on next page. For operations requiring disinfectants for known plant or animal pathogens (e.g., African swine fever), also recommend one or two gallon compression sprayers with appropriate nozzles.

Personal Gear

Equipment	Quantity
Cold/Wet Weather Clothing	40 sets (sizes)
Hardhats	40
Straw brooms	40
Putty knives	200
Steel rod (5 ft lengths)	12
Safety goggles	40
Rubber gloves	20 pair (assorted sizes)
Flashlights	24
Batteries	8 boxes/12 per
Rubber boots	15 pair (assorted sizes)
Water tank (3000 Gallons)	2
Wire brushes	100
Rags	As required
Ear plugs	25 pairs
Garden hose/nozzles	75 feet
Scrub brushes	100
RT forklift	4
Steam jenny	Minimum 2 as required for aircraft
Small flat bladed screwdriver	12 minimum for cleaning tracks
Waterless hand sanitizer	1 gallon
Towels	3 dozen

- All locks on compartments, boxes, tool chests, and other items must be removed prior to cleaning and inspection. If keys cannot be found, provisions must be made to cut the locks; bolt cutters should be included in the tools.
- Any required tools, such as jacks, tire irons, wrenches, or special screwdrivers must be available for removal of dual tires, gun mounts, plates, and floor mat bolts on the different vehicles.

8.5 Steps Prior to Conducting Washdown

Conference: Organize a washdown conference to include attendance by leadership and other representatives from all participating commands including legal, logistics, operations, pest management or natural resources and agricultural inspectors.

Training: Place emphasis on organization and training of washdown crews. Establish a suitable washdown crew schedule with adequate supervision by experienced personnel at each washdown point.

Vehicle Drivers/Assistant Drivers: Drivers and their assistants must remain with assigned vehicles and accessory vehicle items throughout the entire washdown cycle. This will ensure timely movement and security of accessory vehicle items and cargo.

Washdown-essential Equipment: Identify and obtain equipment items required to support operational washdowns prior to washing vehicles and equipment and schedule this equipment to be back-loaded last. Note, depending on country where washdowns operations are being conducted, units may not be able to procure required equipment from the local economy, supply system, or DLA in a timely manner. Even if available, equipment in base exchanges are likely inadequate. Pre-planning and advanced procurement of materials is often required to ensure adequate and quality washdown equipment is available during the washdown operation. This is especially true for new, rarely used, or underdeveloped washdown locations.

Isolate clean, and cover (if possible) inspected equipment/supplies in holds or specific cargo areas using some form of segregation such as wire screening or ropes to minimize contact with materials that have gone ashore. These areas should be secured to prevent cross-contamination. Don't park or store conveyances and equipment under or near trees and vegetation. Don't wash equipment and conveyances upwind of clean staging areas where cross-contamination can occur as a result. Inspectors should periodically review these areas throughout the washdown to ensure they are free of all dirt, debris, beverage cans, etc.

8.6 Cleaning

See AFPMB TG-31 Supplements 1-4 for more details on washdowns of specific conveyances.

8.6.1 Washing Standards

Boats and ships: Thorough cleaning of all decks holding vehicles or equipment that were contaminated. This includes cleaning soil from recessed areas of the decks (i.e. clover leafs, pad eyes, and tie-down channels, as well as under shelving, corners and other hard-to-reach areas). Some lower decks can be submerged with salt water to eliminate contamination problems as is commonly the case for Navy amphibious ships (e.g. LHAs, LKAs, and LHDs).

Amphibious vehicles: This includes Landing Craft Air Cushioned (LCACs), Landing Vehicle-Tracked (LVTs), and similar vehicles. Clean troop compartment, crew area, and the crew's personal equipment. If floor boards readily detach, remove and clean compartments beneath. The interiors must be soil and debris free. Ensure the exterior exposed to land operations are cleaned and/or those that are exposed to salt water during operation. Note: If vehicles washed with salt water are to be transported on aircraft, **ALL SALT WATER MUST BE REMOVED OR CONTAINED IN SUCH A WAY AS TO**

PREVENT CONTAMINATION OF AIRCRAFT WITH CORROSIVE SALT SOLUTIONS WHICH CAN SERIOUSLY DAMAGE AIRFRAMES.

Naval vessel causeways: Wash with fresh or salt water during back-loading.

Naval ship launches: Cleaning of the Captain's launch, liberty launch, or other launches is required if they are contaminated (back-loaded dirty). Thorough inspections by operator personnel are recommended. Ships' launches must meet the same washing standards as other vessels.

Fixed and rotary wing aircraft: Clean cabin area, cockpit, wheels, wheel wells, skid/runner bars, under deck plates, panels, in flap wells and all other areas where foreign debris may have lodged. Clean crew and pilot personal equipment. Always segregate cleaned/certified equipment from that requiring cleaning.

Land vehicles and rolling stock: The cleaning of motor vehicles usually consumes the greatest amount of time and often causes delays. Clean the passenger area focusing on the seat, under the seat, and floorboards. Clean equipment inside the vehicles including the areas all around the equipment. Clean storage areas, under the hood and engine compartment, and underneath the vehicles. Clean the entire exterior including underneath the vehicles and tires. Pay special attention to hard to reach areas in the engine compartment, axle and suspension under the vehicle, areas around and behind equipment, and floor board areas.

Tracked vehicles: The cleaning of tracked vehicles is by far the most difficult and time consuming task of the entire operational washdown. It is strongly recommended that cleaning begin as soon as possible after the final contingency or exercise because of the excessive amount of time required to properly clean tracked vehicles. All soil impacted in the treads, around the rubber cleats, in the tread connectors, between and behind tread guides and roller supports, and all other spaces must be removed. The interiors must be soil free, including battery boxes, storage compartments and under floor plates. Note: If tracked vehicles are to be transported on aircraft, **ALL SALT WATER MUST BE REMOVED OR CONTAINED IN SUCH A WAY AS TO PREVENT CONTAMINATION OF AIRCRAFT WITH HIGHLY CORROSIVE SALT SOLUTION**. Tracked vehicles may be cleaned in the ship's well deck if there is enough space for one complete revolution of tread. Tracked vehicles may be cleaned on shore only if they can be loaded without re-contaminating the treads. Amphibious Assault Vehicles may take on sand and water in their bilges if they are offloaded by swimming them to the shore, which is acceptable if it can be demonstrated that they were clean on the ship and the sand and water were "locally acquired."

8.6.2 Organization Prior to Cleaning

- Contaminated vehicles, equipment, and supplies are off-loaded.

- Accessory items and palletized supplies are staged in a pest free zone for cleaning.
- Vehicles proceed to a steam or washing station as determined by inspectors.
- Upon final inspection, material from mobile loads is reloaded aboard vehicles and the clean vehicles and supplies are re-embarked.

8.6.3 Before the Vehicle Arrives at The Wash Rack

- Sweep, compress air-clean and/or wet/dry vacuum the vehicle cab and all storage and tool compartments.
- Remove the battery; clean the battery and battery box. Reinstall the battery.
- Remove the outside dual wheels and spare tires and place them in the back for later cleaning at the wash rack.
- Remove all payloads, seat cushions, detachable sideboards, canvas sides/tops and any personal gear brought ashore, and leave at the mobile staging area for cleaning.
- Carefully check the radiator (may be hot). Handpick or sweep any vegetation, insects (arthropods) or other debris.
- Disengage the sides of trucks that are equipped with collapsible sides. Clean recessed areas, ledges, etc.
- Remove engine packs from tanks and Bradley Fighting Vehicles prior to cleaning (washing).

NOTE: Once equipment has been turned in for cleaning, it will remain in the pest free area awaiting movement. If equipment is removed from pest free area, it will require a new washdown and inspection to ensure it meets agricultural inspection requirements. After cleaning do not store vehicles near or beneath trees or vegetation that may harbor pests. Cover vehicles if possible.

8.6.4 Wash Rack

Vehicles will be exposed to high pressure (recommend minimum 90 psi) fresh water or steam (steam may remove valuable protective coatings).

Pay particular attention to undercarriages, fender wells, axles, springs, bumpers, wheels, behind or between armored plates, and recessed areas. Note: To prevent corrosion, never use salt water to clean vehicles/supplies/equipment.

Remove detachable parts and mobile loads

- Remove all detachable parts including the payloads, seat cushions, detachable sideboards, armored plates, canvas sides/tops, engine packs, radios and cryptology equipment, and any personal gear. Clean and stage these items in a pest free zone prior to sending the vehicle to the wash rack.

- Detach outside dual wheels and spare tires. Remove all (or every other depending on vehicle type) armored plates when possible. Set these items aside for later cleaning at the wash rack
- Remove and clean the battery and battery box and reinstall it
- Clean all surfaces
- Clean interiors and compartments

Sweep, Vacuum and/or use compressed-air to clean vehicle interiors & remove trash

- Open interior & exterior compartments and clean all surfaces, cubbies, & passenger areas
- Clean the vehicle bed, the area between the cab and bed, the engine compartment, and radiator grills removing all trash, soil, animals, insects, and debris.

Top wash

- Clean all surfaces
- Clean compartments
- Clean engine
- Clean passenger compartment
- Clean vehicle bed
- Clean areas between cab and beds
- Clean radiator grills

Wash rack

- Use high-pressured, fresh water to clean the engine compartment, all surfaces, wheel wells, tires, ledges, universal joints, and support beams. Pay particular attention to undercarriages, fender wells, axles, springs, bumpers, and any area where soil might collect. Wash any removed parts such as dual wheels, spare tires, and armored plates at this time.
- On tracked vehicles, remove all soil impacted in treads, around rubber cleats, in the tread connectors, between and behind tread guides and roller supports, and all other crevices.

Grease joints and Lubrication Points

- Biological material commonly adheres to grease and lubrication points on military material
- Use dry lubricants if permitted; else, clean dirty grease / lubricant joints and reapply fresh material as required
- Wipe off excess freshly applied lubricating material
- If freshly lubricated areas prove problematic with inspectors, annotate DD Form

2855, U.S. Military Agriculture Inspection Form (See: DTR Part V, Chapter 506) to indicate grease or lubricants have been reapplied and should not be considered contaminated

Wet-Vac

- Vacuum all passenger compartments
- Vacuum all tool and cargo compartments

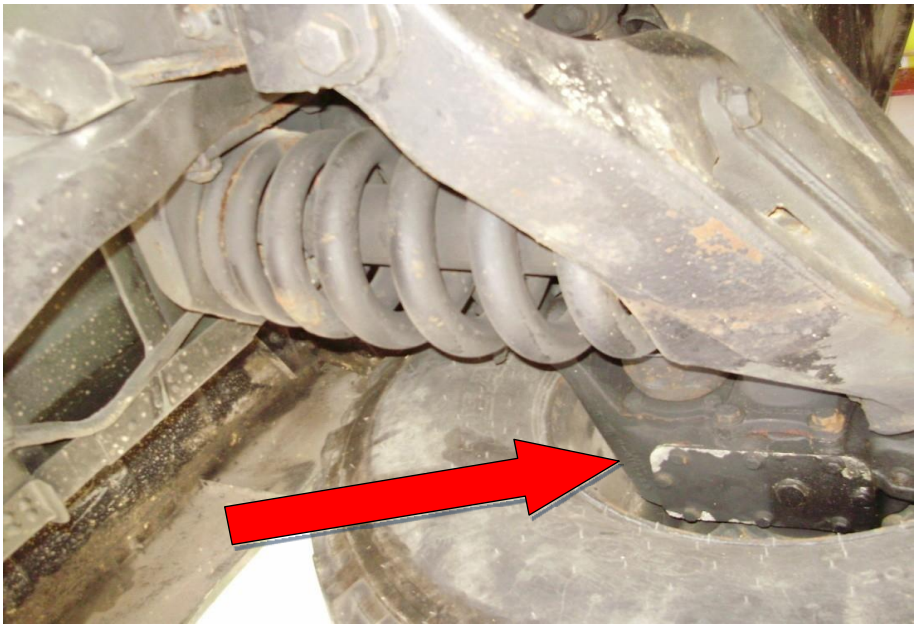
8.7 Common Problem Areas

Illustrations of specific problem areas by vehicle type

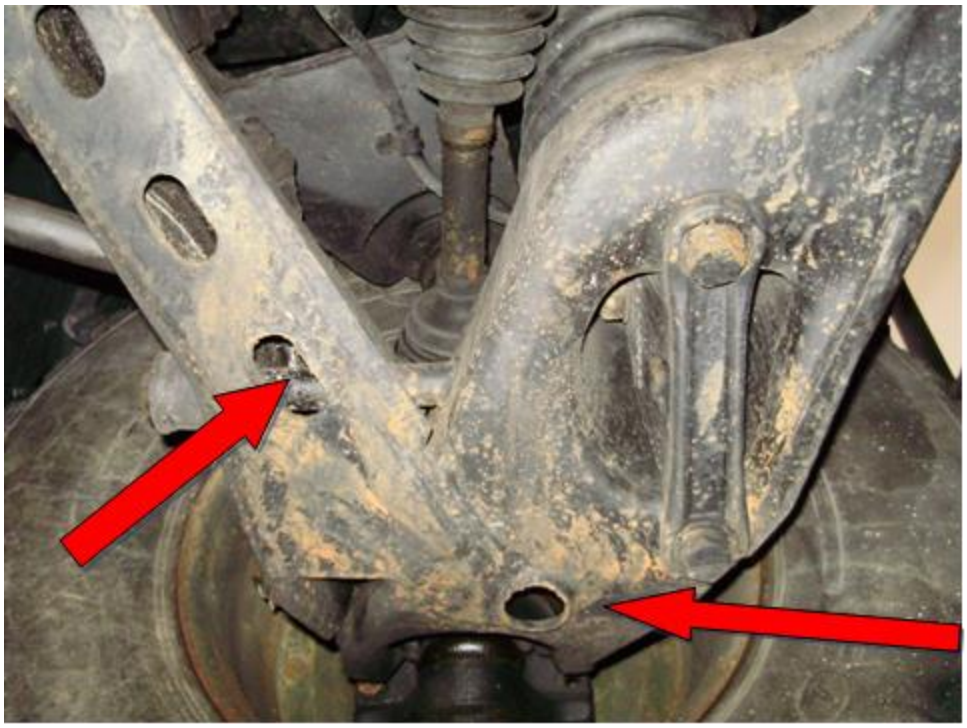
(Arrows designate areas of concern)

HMMWV: Clean soil, dirt, and debris from grill

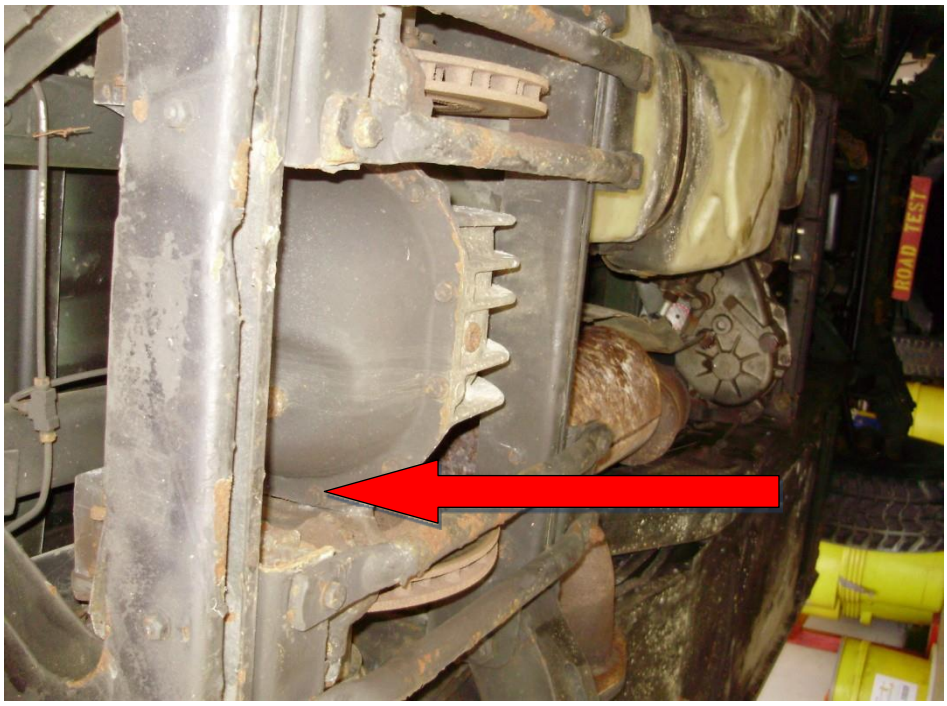
Clean any debris from vents



Behind wheel well



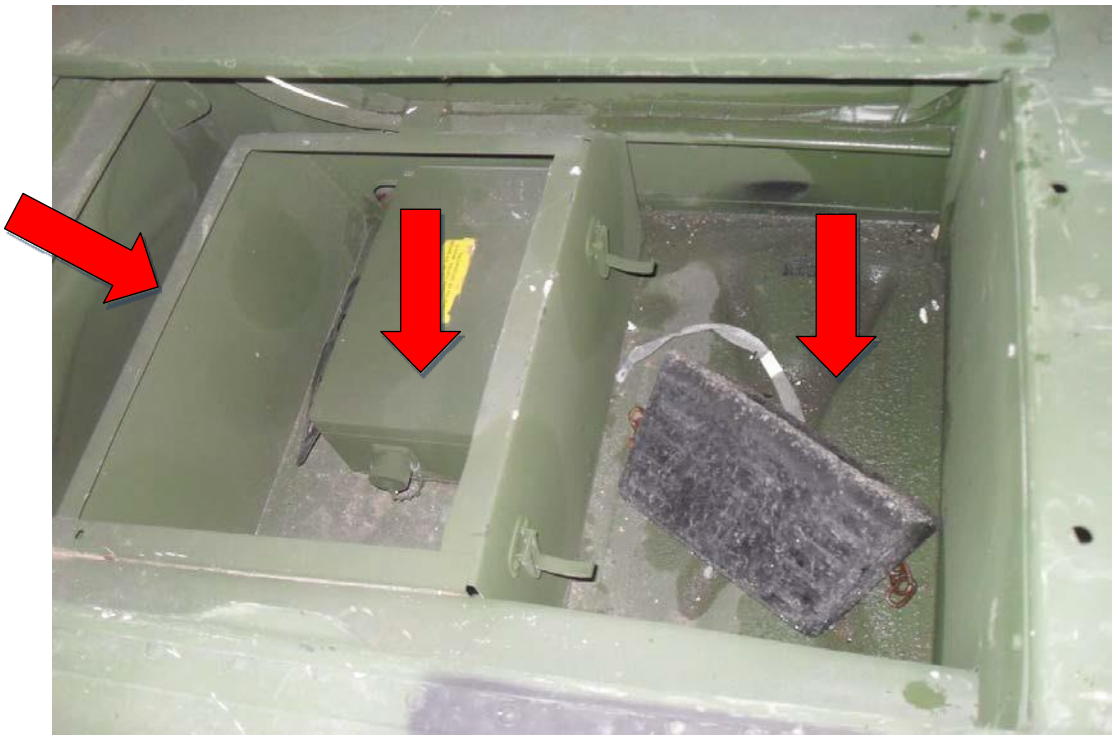
Spray directly into holes of wheel axles until water runs clear



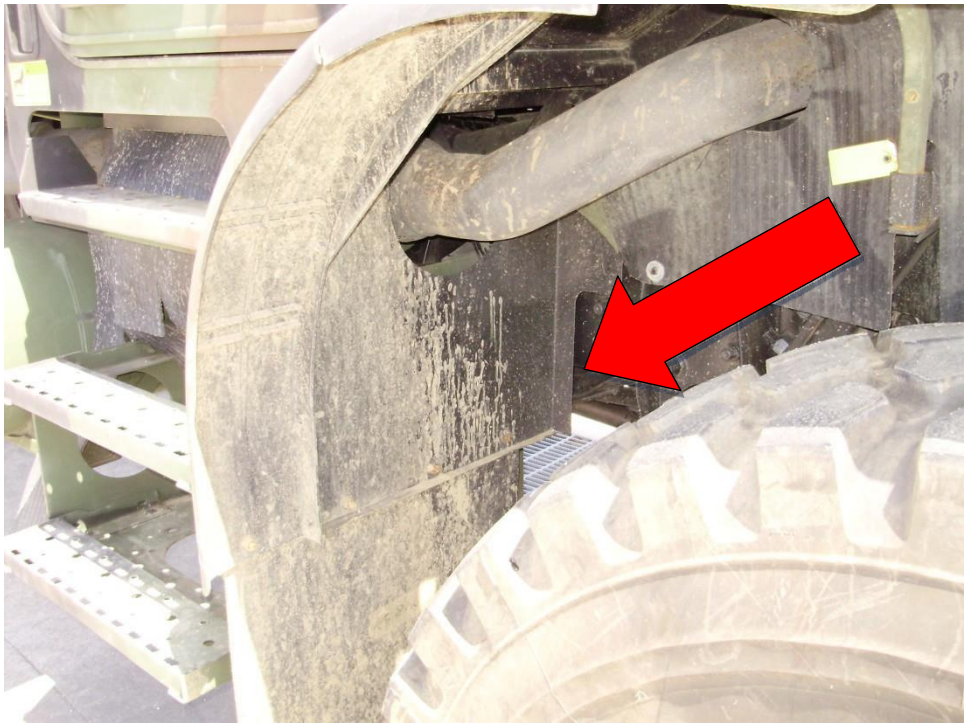
Check for mud on all ledges of undercarriage

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

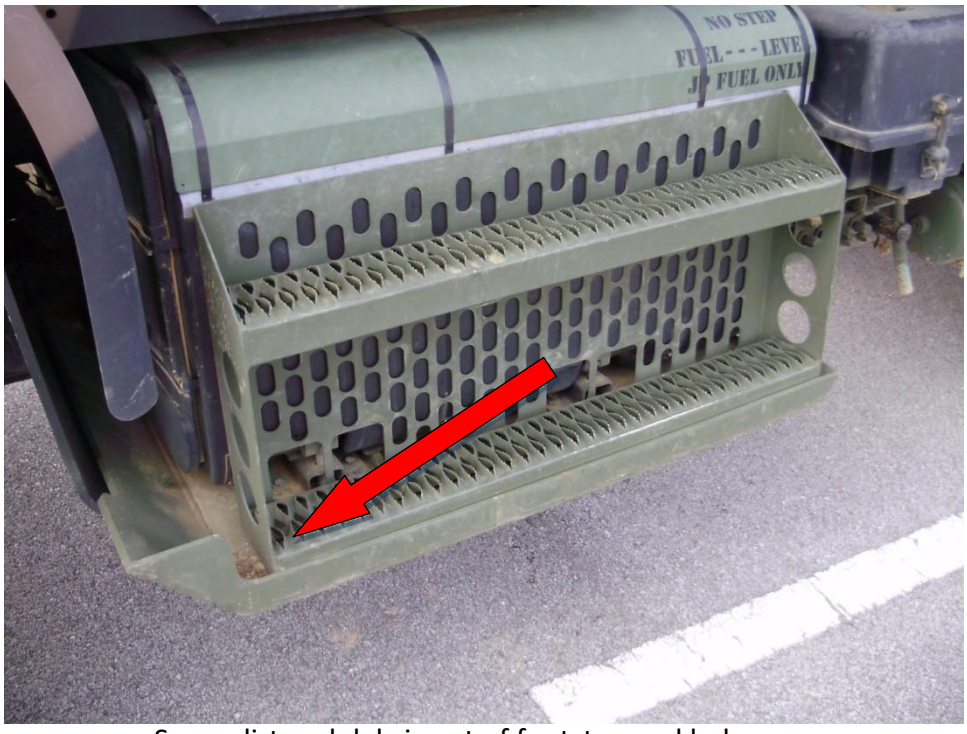
Lift up panel to check for gravel and dirt on both sides



Inspect these spaces. Spaces might require wiping with rag due to the lack of a drain hole

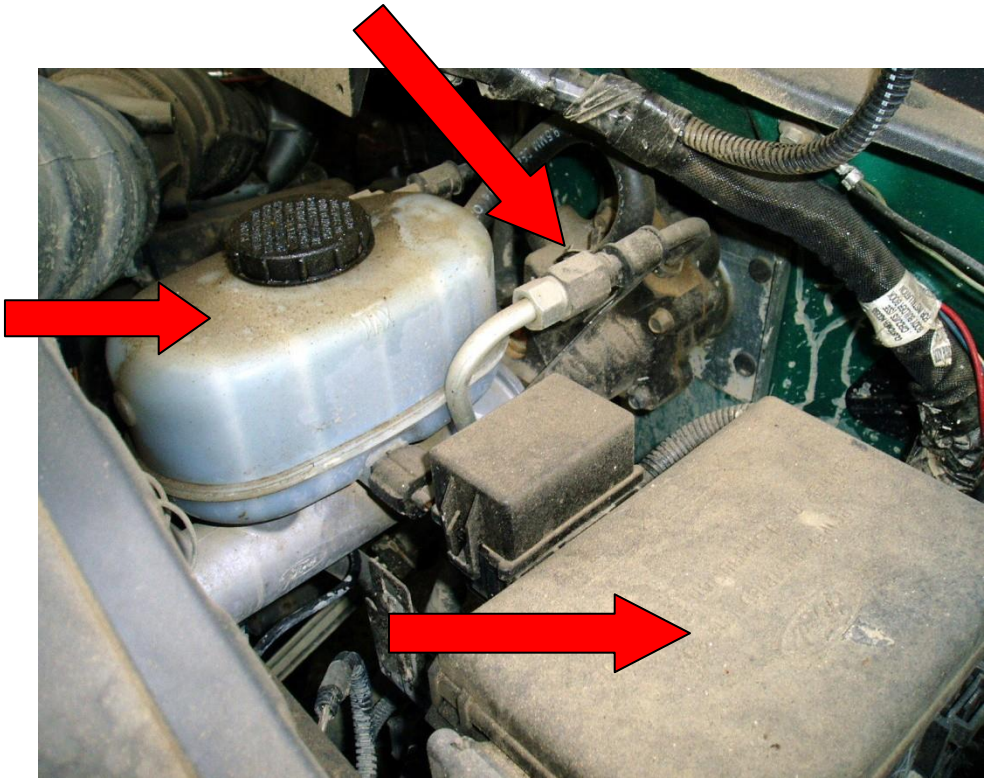


Look behind wheels to check for soil and dirt

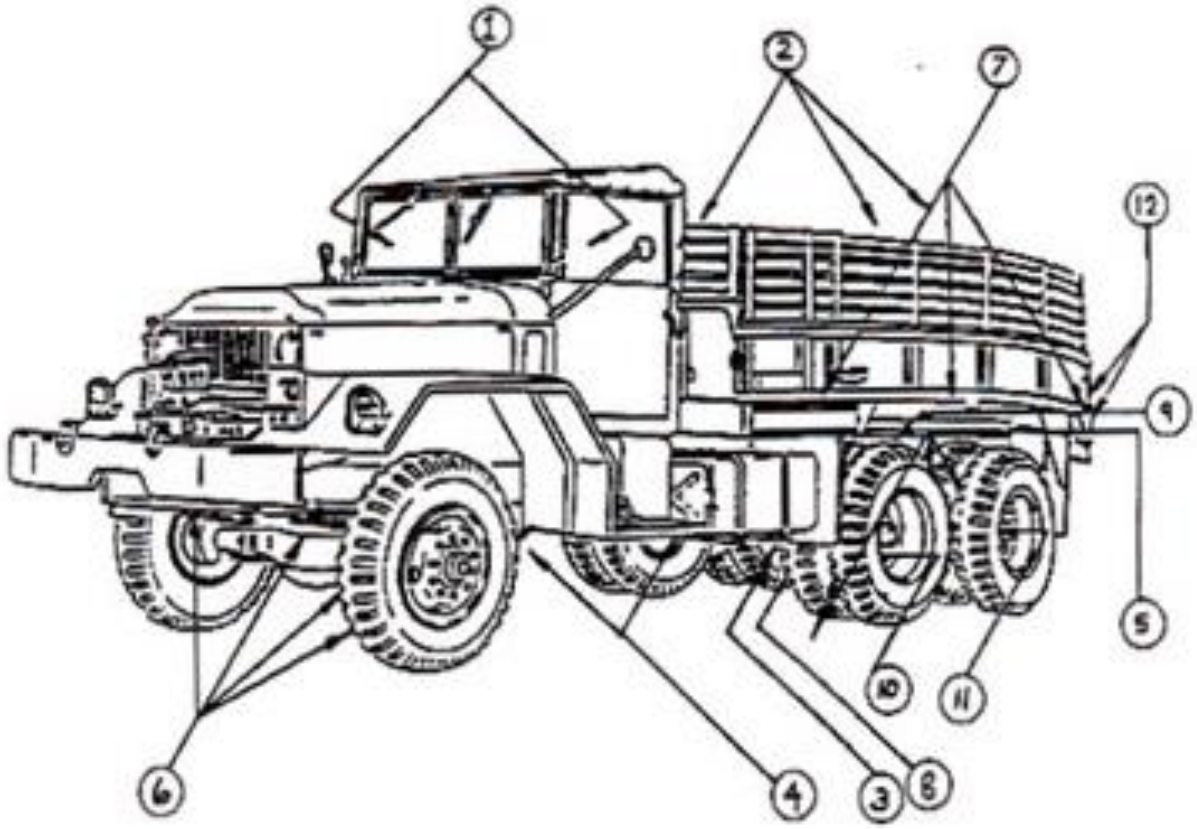


Spray dirt and debris out of footstep and ledges

Open covers to check for debris

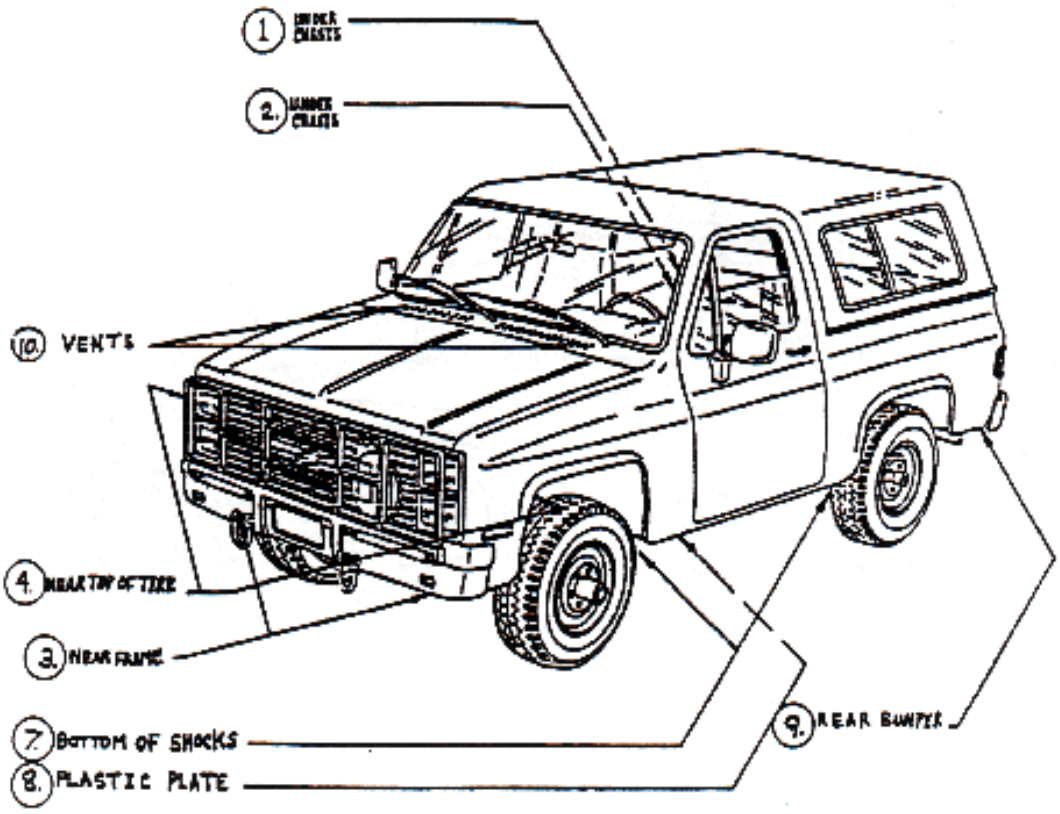


Engine compartment



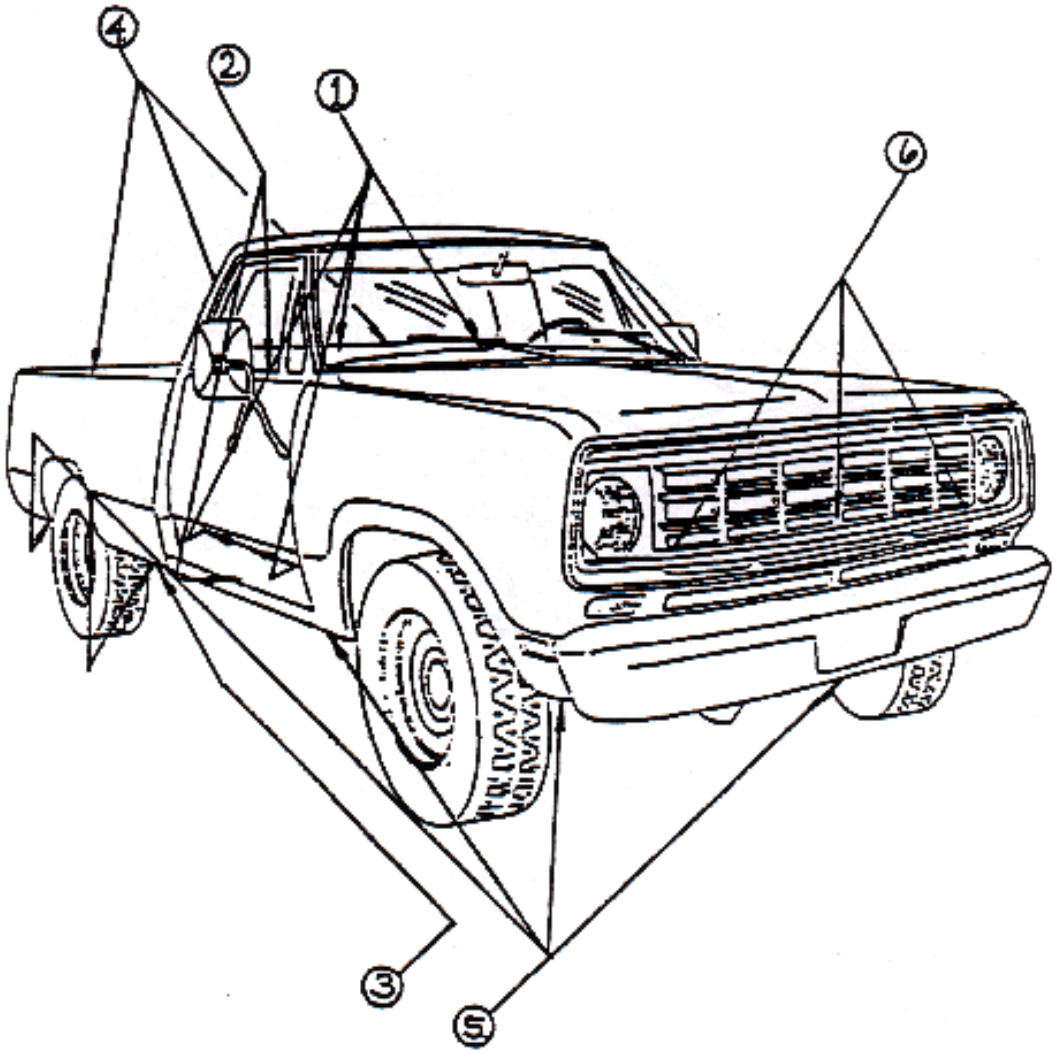
PROBLEM AREAS

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.



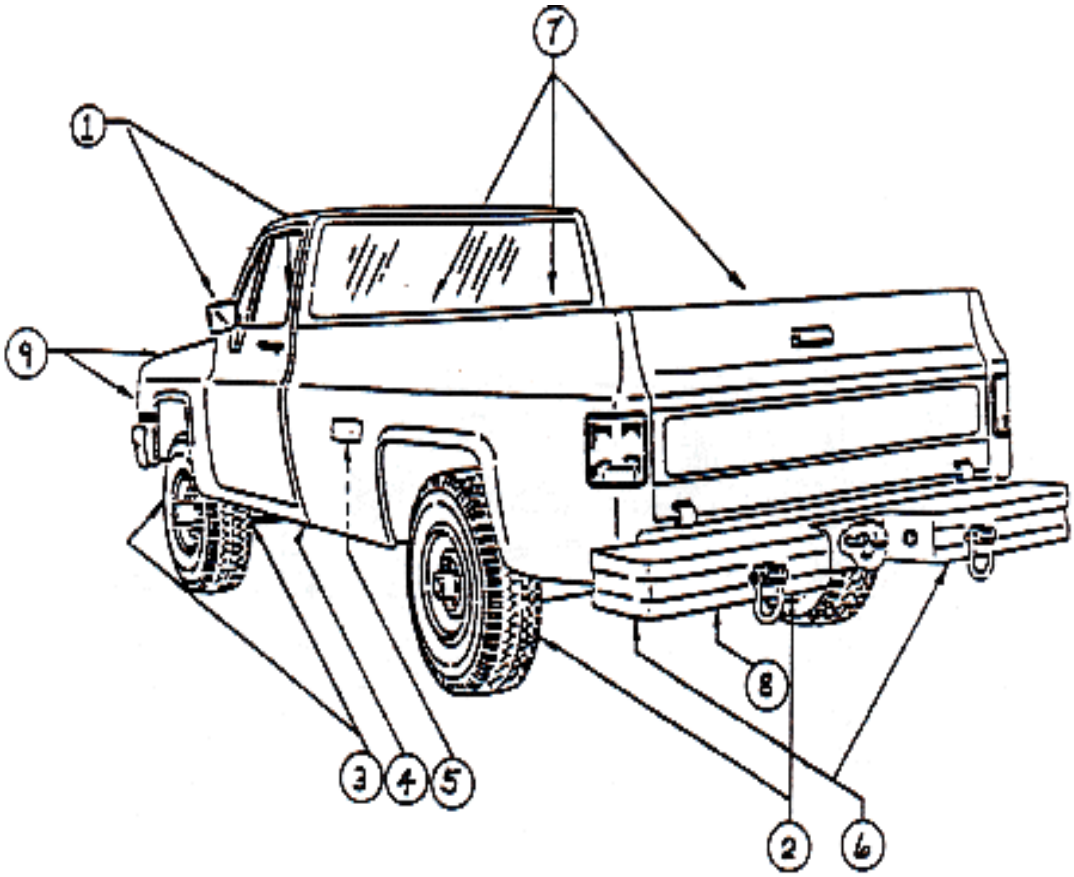
PROBLEM AREAS

1. Fuel tank filler tube where it enters vehicle body.
2. On top of fuel tank protector.
3. Shackles on stabilizer bar.
4. Top of front brake calipers.
5. Inside cab underneath edge of floor mats, weapon rack area and spare tire area.
6. On top of transmission.
7. Bottom of shocks where they join the axles.
8. Above plastic protective plate behind vehicle's front tires.
9. Rear bumper area (especially where plate covers wiring that leads to blackout lights).
10. Hood vents.



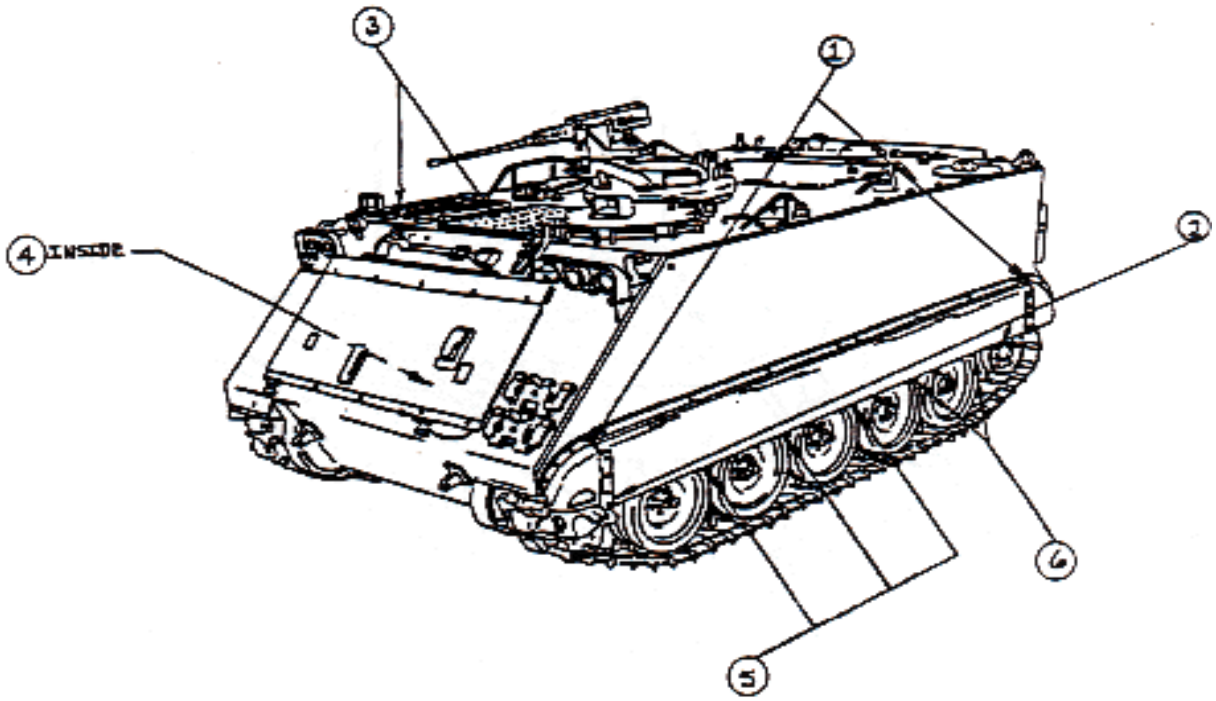
PROBLEM AREAS

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

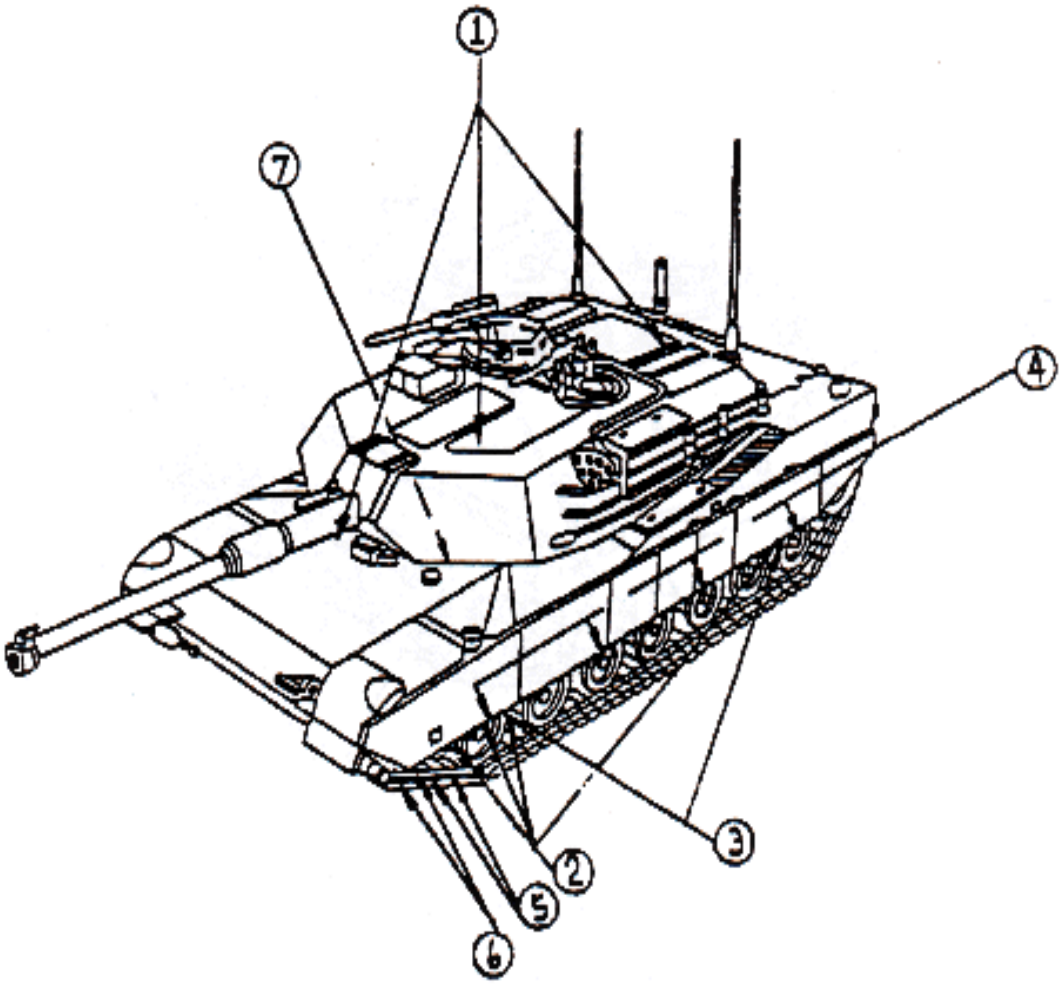
1. Twigs and/or debris in vent openings.
2. Between the rear wheel brake drums and the steel rim of the wheel.
3. On top of front suspension components.
4. On top of transmission.
5. On the fuel inlet tube, where it bends, just before it comes in contact with the body of the vehicle; view it from underneath.
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.



PROBLEM AREAS

1. Inside the front and rear fenders, remove fenders for inspection.
2. On top of the track tensioners.
3. Remove twigs and debris from grills and surrounding areas.
4. Underneath all floor plates inside; remove and leave loose for inspection.
5. The inside edges of all road wheels; from underneath and from the outside also.
6. On top of all axles for the road wheels and end wheels.

NOTE: Tracks are a MAJOR PROBLEM, clean thoroughly.



PROBLEM AREAS

1. Twigs and debris in the cracks and crevices of the top surfaces of the tank.
2. On top of the axles for both front and rear wheels.
3. On the inside of all road wheels and end wheels; from underneath and from the outside also.
4. On top of the axles for all road wheels, and on top of all tensioners.
5. On the support rollers, in the ledges, between the rubber surfaces.
6. On the support rollers, the inside surfaces; from the inside and outside.
7. Inside the tank, clean the floor, around the driver's footpedals.

NOTE: Tracks are a MAJOR PROBLEM, clean thoroughly.

8.8 Actions after Completing Washdown

Reassemble Detached Parts and Stage in Pest Free Zone

- Reattach clean vehicle parts and accessories, and stage in a quarantined area free from the elements for final inspection and transport.

8.9 Inspection Procedures

Thus far, this TG-31 has concentrated on washdown policy and guidance for preparing deployed or redeployed military cargo and conveyance for import or export to or from the United States. Required agricultural and custom and border protection inspection guidance and training procedures are found in DTR 4500.9-R, Chapter 506, DoD Customs and Border Clearance Senior Agriculture Agent (SAA). In Chapter 506 you will find (1) Procedures for requesting DoD Customs and Border Clearance and SAA Agent training; (2) SAA training and certification; (3) Customs and border clearance SAA responsibilities; (4) DoD Customs and agricultural clearance requirements (including required seals and DD forms and tags); (5) DoD Customs and agricultural clearance coordination and communication requirements; and (6) Required reporting procedures

Inspect each vehicle thoroughly to ensure all soil and debris has been removed. Each vehicle type has unique problematic areas that harbor soil /organic debris and commonly fail inspections. See AFPMB TG-31 Supplements 1-4 highlighting problem areas on assorted tactical conveyances and shipping containers.

Use a flashlight, screwdriver, or putty knife where necessary to remove any contamination that may have been missed during initial washdown. Pay particular attention to crevices in all locations.

The following are common inspection checkpoints:

Top access

- Floor boards
- Battery box
- All storage/tool compartments
- Motor compartments
- Wheels and tires
- Windshield base
- Windshield base
- Front and rear bumper hollows and braces
- Radiator front
- Truck beds
- All other spaces where soil might be found

Bottom access

- Fender wells front and rear including access openings for tail light wiring
- Rocker panels
- Frame, fore and aft
- Coil spring wells, front and rear
- Transmission support beam
- Rear suspension A-frame, pivot points and drain holes
- Trailer hitch bolt recess
- Front, side, and rear body lips
- Drive shaft tunnel
- Power take-offs
- Axle brackets
- Fuel tanks, between body and tank
- Transaxle brackets
- Leaf springs
- Air tank braces
- Lubrication related connections, joints and fittings
- All other spaces where soil might be found

The following inspection checklists are helpful guides to ensure all areas were cleaned and inspected on basic wheeled vehicles, tanks or tracked vehicles, containers, ISU's, and aircraft pallets. These checklists can be modified to suit mission specific needs. The checklists are modified from those developed by CPT Ryan Jalowiec, 2nd Squadron, 13th Cavalry Regiment, May 2019.

Basic Wheeled Vehicle Inspection Checklist

Vehicle Commander: _____ **Vehicle Type:_____**

Step	T.C.'s Initials	Remarks
Documentation/Technical		
Port Operations within 30 days - Date of Inspection_____ - Date of Port Operations_____		
Outside		
Document Protector with: - DD2855		
PREPARATION		
External		
- All access panels open		
- All external storage compartments are clear of BII		
- Engine compartment is accessible		
- Battery storage compartments are opened		
- Any removable screens are cleaned and laid out for inspection		
- Any removable plates are cleaned and laid out for inspection		
Internal		
- All BII is unloaded		
- Internal compartments opened		
- All removable panels are removed		
INSPECTION		
External		
All Surfaces Washed:		
No dirt/organic debris on the all external surfaces to include:		

- Around exterior lighting - Slave Receptacles Containers - External Jbox Compartments - Sponson boxes - The turret ring		
All insects / spiders / snails / plant debris (adults, larva, eggs, cobwebs, etc.) removed from external surfaces.		
Vehicle stored on an approved surface		
No signs of Class 1, 2 or 3 leak		
Tracks/Wheel Wells		
Road wheels/support wheels/torsion bars / etc. are cleaned of all dirt &n debris		
No debris is caught between the track and chassis.		
No signs of Class 1, 2 or 3 leak		
Internal		
All BII is cleaned and load plan validated		
All surfaces are clean and free of dirt/organic debris - Floor Panels - Storage compartments - All inside equipment - Wires - Seat cushions		
All sub compartments are clean and free of organic debris		
All insects / spiders / snails / plant debris (adults, larva, eggs, cobwebs, etc.) removed from external surface		
Surfaces are dry		

Tank/Tracked Vehicle Inspection Checklist

Tank/Tracked Vehicle Commander: _____

Step	T.C.'s Initials	Remarks
Documentation/Technical		
Port Operations within 30 days - Date of inspection_____ - Date of Port Operations_____		
Outside		
Document Protector with: - DD2855		
PREPARATION		
External		
- Open first, third, fifth & seventh side skirts		
- All external storage compartments are clear of BII		
- VPACs are cleaned and removed		
- Primary and Alternative Battery storage compartments are opened		
- Muzzle caps removed		
Internal		
- All BII is unloaded from inside the M1A2		
- Sub turret access panel is open		
- The ready ammo storage compartment is open		
- Breech dropped		
INSPECTION		
External		
All Surfaces Washed:		

No dirt/organic debris on the all external surfaces to include: - Front, side, back & between side skirts - around exterior lighting - Slave receptacle compartment - External Jbox Compartment - Sponson boxes - Turret ring - Duke storage compartment - Bustle racks		
All insects / spiders / snails / plant debris (adults, larva, eggs, cobwebs, etc.) removed from external surfaces.		
Vehicle stored on approved surface		
No signs of a Class 1, 2 or 3 leak		
Tracks		
Road wheels/support wheels/Torsion bars are cleaned of all dirt and foreign debris		
No debris is caught between the track and the chassis.		
No signs of Class 1, 2 or 3 leak		
Internal		
All BII is cleaned and load plan validated		
All surfaces are clean and free of dirt/organic debris (initial each sub marker) - Floor Panels - Storage compartments - All equipment inside the vehicle - Wires - Seat cushions		

The sub-turret is clean and free of dirt/foreign debris:		
All insects / spiders / snails / plant debris (adults, larva, eggs, cobwebs, etc.) removed from external surfaces.		
Surfaces are dry		

Container/ISU/Aircraft Pallet Inspection Checklist

INSPECTION		
External (includes bottom surface)		
No Holes on the external surface		
All Surfaces Washed:		
No dirt on the all external surfaces		
All insects / spiders, snails (adults, larva, eggs, cobwebs, etc.) removed from external surfaces		
Internal		
Floor Boards Secure		
All Surfaces cleaned:		
All insects / spiders / snails (adults, larva, eggs, cobwebs, etc.) removed from internal surfaces		
All wooden blocking & bracing material (dunnage) marked with USDA ISPM 15 stamp. No evidence of infestation for older wooden dunnage material		

9. Point of Contact

For questions or comments concerning this guide, please contact the Armed Forces Pest Management Board (AFPMB) by phone at (301) 295-7476 or by e-mail to osd.pentagon.ousd-atl.mbx.afpmb@mail.mil.

10. Additional References

See the AFPMB website (https://www.acq.osd.mil/eie/afpmb/) for additional reference material.

11. Glossary of Acronyms and Terms

Acronyms

AAV – Amphibious assault vehicle

AFV – Armored Fighting Vehicle

APHIS – Animal and Plant Health Inspection Service

CBP – Customs and Border Protection

CDR – Commander

CONEX – Container Express

CONUS – Continental United States

DHA – Defense Health Agency

DoD – Department of Defense, US

DoDI – Department of Defense Instruction

DoDM – Department of Defense Manual

DTR – Defense Travel Regulation

EO – Executive Order

ESC – Electronic speed controller

FMD – Foot and mouth disease

HMMWV – High Mobility Multipurpose Wheeled Vehicle ("Humvee")

HN – Host Nation

ICV – Infantry Carrier Vehicle

ISPM – International Standards for Phytosanitary Measures

ISO -- International Organization for Standardization (e.g., ISO-compliant container)

ISU – Internal airlift/helicopter Slingable-container Unit

LCAC -- Landing Craft Air Cushioned (LCACs)

LHA – Landing Helicopter Assault

LHD – Landing helicopter dock, a multipurpose amphibious assault ship

LKA – Amphibious cargo ships (formerly AKA, attack cargo ships)

LVS – Logistics Vehicle System ("Dragon Wagon")

LVT – Landing Vehicle Tracked

MB – Methyl bromide

MOGAS – Motor gas ("gasoline")

MRAP – Mine-Resistant Ambush Protected vehicle ("M-rap")

MTVR – Medium Tactical Vehicle Replacement

PN – Partner Nation

PPQ – Plant Protection and Quarantine

RT – Rough terrain

SAA – Senior Agriculture Agent

SME – Subject matter expert

SUV – Sport utility vehicle

TG – Technical Guide

USDA – US Department of Agriculture

USG – US Government

USTRANSCOM – US Transportation Command

VC – Vehicle Commander

WPM – Wood packing material

Terms and Definitions

See **Defense Transportation Regulation Definitions** (19 Mar 2021)

12. Afterword

Technical Guide 31's first predecessor appeared in the minutes of the 51st Meeting of the Armed Forces Pest Control Board (AFPCB), 28 May 1968, as *Procedures for Cleaning and Disposing of Soil Found on Retrograde Material at CONUS Bases*, subsequently published in August 1968, although not as a numbered product. In 1969, the document was retitled *Policy and Procedures for Joint Quarantine Processing of Retrograde Material* and published as a DoD memorandum. The memorandum was superseded by a DoDI for a number of years, until published separately in 1993 as Technical Information Memorandum (TIM) 31, *Contingency Retrograde Washdowns: Cleaning and Inspection Procedures*, comprising 8 guide pages with 35 pages of appendices. In 2004 the memorandum was updated and converted to a Technical Guide (TG). The Quarantine and Commodities Protection Committee undertook a major revision published in Feb 2012 as *Guide for Agricultural and Public Health Preparation of Military Gear and Equipment for Deployment and Redeployment*, incorporating updates from other agencies and new guidance for personal gear. This 2021 version updates the content and the title to *Operational Washdowns and Agricultural Inspection Preparation*, for current equipment and conditions.

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