

Armed Forces Pest Management Board

Technical Guide No. 31

Guide for Agricultural and Public Health Preparation of Military Gear and Equipment for Deployment and Redeployment



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AFPMB Technical Guide No. 31: Guide for Agricultural and Public Health Preparation of Military Gear and Equipment for Deployment and Redeployment

This Technical Guide (TG), first published in 1993 as "Contingency Retrograde Washdowns: Cleaning and Inspection Procedures," describes procedures, outlines responsibilities and defines requirements for preparing military vehicles, rolling stock, and unit and personal gear to comply with agricultural and public health pest exclusion requirements for redeploying ships, aircraft, equipment, and personnel from locations outside the United States (US). Access the AFPMB web site at <http://www.afpmb.org> for related information.

This revision provides two significant updates:

(1) Photos of washdown operations are updated to include current vehicles and more detailed guidance. LT James R. Lefevre and HM2 Kerlon B. Williams, 3D Medical Battalion, CLR-35, 3D MLG, Okinawa, Japan, and Lt Col (Sel) Mark Pomerinke, HQ ACC/A3AA, Langley AFB, VA provided washdown images and diagrams essential to this update.

(2) Due to concern about the accidental transportation of foreign animal disease and plant pathogens, especially fungal spores, on gear and equipment, this update incorporates detailed guidance on preparation of personal and unit equipment and gear for troop movement within AORs, from AOR to AOR, and retrograde to the CONUS. This guidance was adapted from the US Forest Service's guide for preventing the spread of white-nose syndrome, a parasitic disease of bats—Reference 7.7. Complying with this guidance will help ensure that troop movements do not accidentally transport foreign animal disease and plant pathogens into non-endemic areas where introduction could harm the host nation food supply and further complicate DoD and State Department missions.

Preceding versions of this TG were produced by the AFPMB Quarantine/Stored Commodities Protection Committee with the following personnel/organizations providing input and review: LCDR Eric Hoffman, MSC, USN, Navy Disease Vector Ecology and Control Center, Jacksonville, FL, Lt Col John Stein, AMSA, Washington, DC; Mr. Al Bane, US Transportation Command, Scott AFB, IL; Ms. Candace Funk, USDA APHIS PPQ, Washington, DC; Ms. Susan Kostelecky, USDA APHIS PPQ; Mr. Gary Walker, Defense Supply Center Philadelphia; Dr. William Tozer of DVECC Bangor, WA; and Dr. Peter Egan, AFPMB, Washington, DC.

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This TG will be periodically reviewed and updated to ensure that its information reflects current procedures, rules and regulations. Users are encouraged to submit comments and suggestions for improvement to the Director, Armed Forces Pest Management Board, via e-mail to afpmb-webmaster@osd.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.

Disclaimer

Mention of specific equipment or material in this handbook does not imply endorsement by the Department of Defense or the component Services.

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1. **Purpose.** Agricultural and public health quarantine actions are taken to safeguard agricultural and natural resources from risks associated with the entry, establishment, or spread of pathogens and pests of humans, animals or plants. This TG provides information on cleaning techniques and inspection procedures for Department of Defense (DoD) personnel responsible for agricultural and public health preparation of personal gear, equipment, supplies and vehicles for deployment and redeployment movement as defined below:

1.1. **Deployment** is the movement of military units from home station, whether CONUS or OCONUS, to a location where they will be employed in operations or exercises.

1.2. **Redeployment** is the transfer of forces and materiel to support another operational requirement, or to return personnel, equipment, and materiel to home/demobilization stations for reintegration and out-processing.

2. Impact of Invasive Species

Over the past 200 years, several thousand foreign plant and animal species have become established in the US. About one in seven has become invasive, leading to problems that cost the US more than \$137 billion each year. An invasive species is a non-native species whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive species often reduce the economic productivity and ecological integrity of US agriculture and natural resources, and can have serious impact on the food supply. Conservation experts have found that in the US, invasive alien plant infestations cover 100 million acres and are spreading at a rate of 14 percent per year, an area twice the size of Delaware.

Examples of invasive vertebrate species in the continental US include nutria, house sparrows, European starlings, Burmese pythons, and commensal rodents (roof rat, Norway rat, and house mouse). Invasive invertebrate species that have become established in the US include zebra mussels, imported fire ants, Africanized honey bees, the Asian tiger mosquito, and many others. Invasive plants include kudzu, smooth brome, garlic mustard, lespediza, Chinese tallow, and hydrilla. In Hawaii, feral pigs, goats, and cats have severely impacted natural and environmental resources.

Invasive species may cause native population declines, species extinctions, shifts in predator/prey dynamics, shifts in species niches, changes in habitat, and reductions in ecosystem complexity. The establishment of a harmful invasive species diminishes biological diversity because, as certain species disperse to more places, the originating and invaded areas become more biologically homogeneous, and less genetically diverse.

In 1993, Congress' Office of Technology Assessment reported that devastating invasions of plants, insects, aquatic invertebrates, pathogens, and other organisms have changed

ecosystems and permanently diminished the biological diversity associated with them. Examples of these harmful invaders in the US include: melaleuca (a wetlands tree), gypsy moth, spruce bark beetle, zebra mussel, larch canker, chestnut blight, and pinewood nematodes. Concern about the incursion of other harmful invasive species, such as the brown tree snake, is on the rise, due to the demonstrated harm they can do to the ecosystem.

Invasive species' effect on food crops and the food supply is also a major concern. The highly virulent Ug99 stem rust fungus is one example of a plant pathogen of concern. An epidemic of wheat stem rust caused by Ug99 is spreading across Africa, Asia, into the Middle East, and threatens to spread to North America where it will likely have a major impact on US wheat and barley production. As it has increased its geographic distribution, it has become more virulent. It now poses a major threat to the world's supply of wheat, on which large numbers of people depend for sustenance. If Ug99 spores are carried by troops into a non-endemic area, it could possibly reduce or eliminate food crops for native populations, jeopardizing their quality of life, as well negatively impacting or leading to termination of the US' mission in the area.

Most non-native species arrive in association with human activities or transportation. Species can be brought into the country and released intentionally, or their movement and release can be an unintentional byproduct of cultivation, commerce, tourism, or travel.

Many non-native species enter the US each year as contaminants of commodities. Agricultural produce, nursery stock, cut flowers, and timber can harbor insects, plants pathogens, slugs, and snails. Weeds continue to enter the US as seed contaminants. Plant pathogens sometimes arrive as unintended contaminants of plant materials. Fish and shrimp pathogens and parasites have been introduced into the US on infected stock for aquaculture. Crates and containers can harbor snails, slugs, mollusks, beetles, and microorganisms. Military cargo transport can also bring in harmful species, such as the Asian gypsy moth and brown tree snakes. Ballast water that is released from ships as cargo is loaded or unloaded has brought in several destructive aquatic species. Soil can also harbor animal disease agents. The introduction and establishment of the Khapra beetle (*Trogoderma granarium*) into the US is one example of a non-native species that poses a serious threat to stored agricultural products, including spices, grains and packaged foods. Khapra beetle life stages originating in USCENTCOM's AOR have the potential to infest redeployed military cargo including empty containers, concrete, cardboard boxes, used bagging, wooden crates, and other items that provide harborage. Reference 7.15 provides detailed information on Khapra beetle biology and identification to reinforce cleaning and inspection measures that help insure the mitigation of the beetle in association with redeploying military personal and cargo.

3. Military Importance

The potential importation of invasive species in or on military vehicles, vessels, and equipment that are present in areas frequented by the DoD is a primary concern of the USDA. DoD personnel are often required to re-deploy from locations around the world. Associated with this movement is an elevated risk for the inadvertent introduction of exotic plant and animal pests into the US. Due to the characteristics of exotic pests, irreparable damage to human health, agriculture, forestry, or the environment may result from such introductions.

Plant debris, garbage, food, soil, and even fresh water from foreign countries may contain organisms of quarantine importance. Pathogens, insects, nematodes and a variety of other animals may be carried in such media. These organisms, if allowed to enter the US, could proliferate to catastrophic proportions, unhindered by natural enemies. Because of this risk, it is DoD policy that all organizations and personnel involved in the movement of DoD sponsored cargo, personal property and accompanied baggage will take all steps necessary to prevent the spread of exotic pests, foreign plant disease, and foreign animal disease from one location to another.

As a means to standardize, regulations and procedures pertaining to military retrograde cargo washdowns were outlined in DoD Instruction 4500.35 (Processing and Shipping DoD Sponsored Retrograde Material Destined for Shipment to the US, its Territories, Trusts and Possessions) initially during the Vietnam war era. Since then, several additional instructions and guidance documents have been developed and/or modified to insure the successful completion of washdowns.

4. Safeguarding the US from Invasive Species

Executive Order 13112 enhances and orders coordination of Federal activities to control and minimize the economic, ecological, and human health impacts caused by invasive species. The Executive order also established a National Invasive Species Council to oversee a management plan detailing the goals and objectives of the efforts of the involved Federal agencies. This Executive order provides new impetus and importance to the basic work performed by the US Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) to prevent pests and diseases that threaten our agricultural and natural resources from being introduced and becoming established in the US.

The first and most effective means of protection is through exclusion or prevention of intentional or unintentional entry of harmful invasive species. In protecting the US from harmful invasive species, APHIS is responsible for developing the procedures to exclude invasive species that can potentially affect plant and animal health, either directly or indirectly. Through its activities, APHIS protects not only agriculture but also forest, rangeland, and wetland ecosystems. APHIS works closely with USDA's Forest Service and the US Department of the Interior's Bureau of Land Management, National Park Service,

Fish and Wildlife Service, the Department of Homeland Security, and the Department of Defense. APHIS controls regulates types of invasive species and vertebrate pests that affect native ecosystems, rather than agricultural resources. Certain specific activities focus on protecting and managing threatened and endangered species as well as migratory bird populations.

5. Legal and Regulatory Guidance

The Federal Plant Protection Act 2000 (Title IV of Public Law 106-224) and the 2002 Animal Health Protection Act (Title 7, US Code 8301-8322), prohibit introducing any animal, plant or material that is considered harmful to this country's agriculture. The US Department of Agriculture (USDA), Plant Protection and Quarantine Division, is the enforcement authority for this Act. Executive Order 13112 provides information regarding invasive species. DoD Instruction 4715.5 establishes policy, assigns responsibilities and prescribes procedures for establishing the implementing environmental guidance and standards to ensure environmental protection at DoD installations and facilities in foreign countries. Responsibility for port of entry inspection has been transferred to the Department of Homeland Security, Customs and Border Protection, Agriculture Inspection (CBP-AI). There are 317 official ports of entry in the US and 14 preclearance stations in Canada and the Caribbean. Here CBP-AI enforces the import and export laws and regulations of the US federal government and conducts immigration policy and programs. Appendix J provides contact information.

Combined service instruction (SECNAVINST 6250.2A/AR 40-12/ AFJI 48-104) defines DoD quarantine policies and procedures dictated by the US Departments of Health and Human Services; Agriculture; Treasury; Interior and Commerce. These regulations are intended to prevent the introduction and dissemination domestically or elsewhere of diseases of humans, plants and animals. Most recently, DoD 4500.9-R (Defense Transportation Regulation Part V) provides customs inspection and agricultural preclearance guidelines for DoD. AFI 24-401 and AFI 24-403 through 405 provides additional Air Force guidelines for air transportable retrograde cargo.

6. Procedures

When returning to CONUS from OCONUS locations and whenever operationally feasible during relocation movements in or between theaters of operations, perform cleaning and containment procedures for personal and unit gear—see **Appendix A**. If redeploying vehicles to the CONUS, perform washdown procedures—see **Appendixes B** through **I**. Washdowns may also be required for redeployments between non-US locations—contact information for US authorities responsible for overseeing quarantine requirements is at **Appendix J**. Additional information about land snails and their control is at **Appendix K**. A job aid for use by US military personnel as guidance for conducting agricultural inspections on foreign arriving military aircraft, luggage, cargo, and personnel is at Reference 7.12.

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Appendix A. Preparing Personal and Unit Equipment and Gear for Movement

A1. Cleaning and containment procedures: Animal and plant pathogens are easily transported on boots, uniforms, and other items that military personnel wear and use in the field. Following simple procedures for containment and decontamination will reduce the potential for transfer of harmful organisms. If moving from a location where a known highly infectious pathogen is established to another 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 national and international requirements are complied with. Basic procedures include:

A1.1. Clean all clothing, footwear, and gear prior to deployment or redeployment movement. Consult agricultural and wildlife authorities for possible additional guidelines and requirements.

A1.2. Take only essential personal gear from location to location. If feasible, do not use gear that was used at a location with a pathogen of quarantine concern outside that affected location.

A1.3. When traveling from area to area, knock off dirt and mud from clothing (including inner clothing), boots, harness/ropes, helmet, backpack, headlamp, flashlight, weapons, camera and other gear, and dry-brush them clean. This is especially important because organic material, such as some clay soils, can prevent decontamination products from penetrating equipment, clothing, and boots.

A1.4. Follow cleaning and containment protocols between locations if feasible. If not feasible between individual locations, identify feasible opportunities for decontamination at the smallest possible geographic unit to minimize contamination between areas.

A2. Cleaning gear and equipment

A2.1. Weapons will be inspected by unit commanders or their designated representatives to ensure they are free of soil and other organic material.

A2.2. Mobility bags, field desks, communications equipment, and similar items should be cleaned thoroughly with hand brooms, rags, and other non-wetting methods. Compressed air may be used to assist in the cleaning process. Specifically concentrate on seams, folds, cracks, crevices, and recesses.

A2.3. Pallets and their loads must be clean of compacted soil and vegetation. If necessary, pallet loads may have to be broken down to accomplish the appropriate level of cleaning. Padlocked boxes must also be inspected.

A2.4. Camouflage nets, tents, and canvas should be cleaned of soil and dust. Hand cleaning, although time consuming, is the most effective method. Spread on a pest free surface and sweep down (no water) on both sides, paying attention to seam and flaps. Compressed air may also be used during the cleaning process.

A2.5. Ropes, Webbing and Harnesses:

A2.5.1. Cleaning by hand is the most effective method for cleaning harnesses, webbing, and ropes. At a minimum, knock all dirt off, spread them on a pest free surface and sweep them down (no water) to remove as much dirt as possible. Compressed air may be used to assist in the cleaning process.

A2.5.2. Not all harnesses, webbing, and ropes are compatible with chemical decontamination protocols, and may lose their integrity and become unreliable. If it can be determined that they will not be damaged by chemical decontamination, use the following procedure:

A2.5.2.1. Wash rope/webbing gently ("gentle" or "delicate" cycle if using a machine) in mild detergent.

A2.5.2.2. Rinse in fresh, clean water for a minimum of two rinses and allow to air dry.

A2.6. Footwear: Scrub and rinse boots so that all soil and organic material are removed. Rubber and leather boots, including soles and leather uppers, can be decontaminated with an appropriate chemical product listed in section A3 for a minimum of 10 minutes, then rinse and air dry.

A2.7. Clothing and washable gear: wash in a washing machine or by hand using conventional detergents. Washing can be done in cold, warm or hot water. Woolite® fabric wash is a detergent that has been proved effective for this procedure. Rinse thoroughly to ensure soil and other contaminants have been removed.

A2.8. Non-immersible gear such as flashlights, headlamps, radios, cameras, headgear, etc.: clean with soap and water if water-resistant, or use cleaning wipes applied directly on surfaces or casing.

A3. Recommended cleaning and decontamination 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 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.

A3.1. Woolite® Extra Delicates detergent.

A3.2. 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).

A3.3. Lysol® All-purpose Professional Cleaner.

A3.4. Formula 409® Antibacterial All-Purpose Cleaner (with a minimum of 0.3% quaternary ammonium compound).

A3.5. A solution of bleach (sodium hypochlorite) mixed as follows:

A3.5.1. 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.

A3.5.2 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.

A3.5.3 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.

A3.6. Lysol® Disinfecting Wipes.

A3.7. Virkon-S®, a disinfectant formulation with proven performance against over 500 strains of viruses, bacteria and fungi including Foot and Mouth Disease (FMD), Avian Influenza, Salmonella and Campylobacter.

A3.8. Boiling water, for those items that can withstand the high temperature.

A4. Disposal of Decontamination Products

A4.1. 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 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 your 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.

A4.2. Product guidelines should be consulted for compatibility before using any decontamination product on specific equipment. **Note:** never mix detergents and quaternary ammonium compounds (i.e., Lysol® IC Quaternary Disinfectant Cleaner) directly with bleach as this will inactivate the bleach and in some cases produce a toxic chlorine gas.

Appendix B. Performing Redeployment or Retrograde Movement Washdowns

Take only essential personal gear to the washdown operation—all personal gear taken to the site is considered contaminated and will be subject to cleaning and inspection.

B1. Washdown Location

B1.1. Performing an effective and efficient washdown requires specific physical facilities for cleaning and inspection. Appendix C outlines the criteria for selecting and equipping a washdown location. In addition, an experienced military inspector familiar with USDA requirements and previous operational washdown participation should be consulted when possible and included on early reconnaissance trips to potential washdown locations. Care should be taken to consider adverse effects of the wash operation and to minimize release of used water and contaminants into the local environment. See DoD Directive 6050.16 and the Overseas Environmental Baseline Guidance Document for further details.

B1.2. Every effort should be made to comply with host nation laws and regulations related to washdown operations. Coordination with local quarantine and health officials is important to maintaining a good relationship with the host nation.

B2. Operational Washdown Equipment

B2.1. Appendix D lists the items recommended to perform a successful washdown. This list is subject to modification based on the size and location of the washdown and availability of foreign national assistance.

B2.2. Personal gear used in a washdown operation is considered contaminated and will be subject to cleaning and inspection.

B3. Inspection and Cleaning Procedures. The inspectors must enforce strict, non-compromising standards. Personnel involved in an operational washdown must follow Appendix E guidelines in order to expedite re-entry approval into CONUS by USDA and USPHS officials.

B3.1. Inspectors

B3.1.1. USDA and CBP fully support DOD Agriculture Inspection training. Examples of current agricultural training programs for DOD members include:

B3.1.1.1. DOD Pre-clearance Program (DTR Part V, Chapter 506). Qualifying military personnel are trained by CBP and USDA agents to inspect and certify DOD cargo meets US entry "pre-clearance" requirements. Pre-clearance expedites re-entry of DoD cargo while reducing congestion at US ports of entry.

B3.1.2. Military Customs Inspector-Excepted Program (DTR Part V, Chapter 505, Para E). Agricultural regulations allow for MCI-E programs at select installations in the US. Under this program, CBP-AIS trains and certifies qualifying DOD personnel to conduct agricultural compliance inspections for arriving passengers and DOD aircraft.

B3.1.3. Naval Afloat CBCA Program (DTR Part V, Chapter 502, Para C). USDA and CBP train qualifying US Navy personnel to inspect and certify USN vessels (cargo holds, living quarters etc) and personnel belongings meet US entry requirements.

B3.1.4. EUCOM Military Customs and Border Clearance Agency Program (MCBCAP). MCBCAP inspectors conduct agricultural "pre-clearance" inspections on all DOD cargo leaving the EUCOM AOR for the United States. Qualifying inspectors attend a 2-day training course are conducted by USDA only.

B3.1.5. Agricultural Agent (AA) / Senior Agricultural Agent (SAA) training as necessary. USDA provides AA/SAA training to DOD forces as necessary to support retrograde movements to the US. AA/SAA are most commonly used during contingencies and DOD exercises in SOUTHCOM/PACOM/EUCOM AORs. SAA/AA inspect and certify DOD passengers, baggage and cargo meet US entry requirements.

B3.2. Administrative requirements

Necessary administrative requirements will be established by military inspectors for USDA's review and final inspection at the point of entry.

B3.2.1. Tags attached to each vehicle after cleaning are appropriate for marking vehicles. A sample of a vehicle tag is shown in Appendix G.

B3.2.2. An inspection log should be kept to track the number of vehicles and insure a double check for the tagged vehicles. A sample format for the log is shown in Appendix H.

B4. Responsibilities. During an operational washdown, certain agencies or individuals must assume the specific responsibilities as assigned below.

B4.1. DoD. The Department of Army (DALO-TSP) is the DoD Executive Agent for the Military Customs Inspection Program (MCIP-Applicable in EUCOM where there is a permanent APHIS Advisor). Overseas Unified Commanders are responsible for compliance with DoD Directive 4500.9 (establishes guidelines for processing and shipping DoD sponsored retrograde materiel).

B4.2. Headquarters or Highest Operational Command: Requests to this command should be made when lower echelon commands need upgraded manpower requirements for inspection teams, if teams cannot be acquired through internal resources.

B4.3. Major Echelon Involved

B4.3.1. The major echelon will probably be stationary within CONUS or its main base. However, coordination on operational washdowns will generally occur at this level, including needed technical advice on all matters pertaining to operational washdowns.

B4.3.2. Deploying units may request a detailed brief on how to conduct the operational washdown from this organizational level. Sufficient resources at this level would include applicable references and the senior inspector's support requirements (equipment, personnel augmentation, subject expert support).

B4.3.3. Requests to the senior inspector for other inspection team members can be made regarding appropriate USDA quarantine compliance requirements for clearing retrograde cargo.

B4.3.4. This level of command will provide budgeting and funds for travel of inspection teams to operational washdown sites during contingency and training exercises.

B4.3.5. The senior inspector of this command level has the final authority in the operational washdown for certifying pest-free vehicles, equipment, and supplies. Some exceptions do exist as follows:

B4.3.5.1. Ship or aircraft commanders in the case of mission requirements and operational necessity may be forced to proceed to CONUS with a partial certification.

B4.3.5.1.1. If only a partial certification is provided, the senior inspector will notify the appropriate USDA-APHIS Officials in Riverdale, Maryland, as well as local officials of Customs and Border Protection (CBP), with copies to commands as necessary. The notification generally details the extent of the certified material and specifies whether or not it is segregated from uncertified equipment and supplies.

B4.3.5.1.2. In the case of notification on a partial certification, appropriate commands must notify local CBP-Agriculture Inspectors and should assist the incoming activity to prepare for the reception of embarked equipment by the USDA upon its arrival in CONUS. Close coordination with local CBP-Agriculture

Inspectors at the US port of arrival is required to ensure any required cleaning of partially pre-cleared vehicles and/or equipment can occur at the US port of arrival.

B4.4. Commander or On-Site Deployed Command with Overall Authority

B4.4.1. The on-site deployed command should schedule with USDA preclearance officials for coordination and briefing of members actually involved in the deployment and subsequent washdown.

B4.4.2. Where washdown facilities are not fully adequate at the proposed overseas loading port, base, or airport, the deployed command will need to coordinate with in-country contacts or liaison agencies to delineate shortfalls and determine suitable solutions. Additional coordination may be required to negotiate through host nation support agreements as in the case of adequate fresh water washdown facilities at a final overseas loading port or site.

B4.5. Commander, Specific Deployed Units On-Site

B4.5.1. This on-site unit will determine the scope and extent of operational washdowns needed, based on the amount of equipment and supplies that need washing and inspecting. Since this unit will be doing the washdown, additional briefings with the senior inspector, USDA Preclearance officials, and the appropriate staff members should be followed up, particularly if previous briefings have not been accomplished by the higher echelon command.

B4.5.2. By using pertinent guidance given in this TG, and working with staff personnel, the onsite units will formulate a comprehensive plan for the operational washdown.

B4.5.3. Washdown equipment will be used by unit personnel. The unit should make sure the equipment is available.

B4.5.4. The inspection and cleaning procedures outlined in this TG will be followed by personnel.

B4.5.5. By working with the respective departments, appropriate personnel at this level can determine equipment and supplies that were not exposed to foreign soil contamination and which will not be off-loaded for the operational washdown. These items should be listed and certified free of contamination in writing by the senior inspector.

B4.5.6. Potential contamination problems may occur when back-loading equipment, supplies, and vehicles from previous operations ashore.

B4.5.7. Personnel and equipment requirements of the senior inspector will include additional inspectors, support vehicles, radio operators, and radios for the washdown area. The on-site deployed unit will assist the senior inspector in meeting these requirements.

B5. Contaminated Cargo: Because only a percentage of cargo entering CONUS ports of entry is examined by inspectors, there is a risk that some will reach an ultimate destination contaminated. In the event this occurs it is critical that a report be made immediately to the local APHIS State Plant Health Directors (SPHD) detailing the type and number of vehicles that were not decontaminated, any observed pathogens or pests, and what actions were taken to mitigate the contaminated vehicles.

B6. Summary

Information in this TG is intended to serve as minimum guidance for conducting operational washdowns to meet regulatory requirements. Consult with USDA APHIS Riverdale, Maryland quarantine officials and the Armed Forces Pest Management Board to identify recent changes in Quarantine requirements and new developments regarding techniques before proceeding with pre-deployment briefings.

B7. References

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[DD 2855, US Military Cargo Preclearance Program Form, September 2006.](#)

[DoD 4500.54-G, DoD Foreign Clearance Guide,](#)

[DTR 4500.9-R-Part V DOD Customs and Border Clearance Policies and Procedures, January 2011](#)

[DoD Instruction 4715.5, Management of Environmental Compliance at Overseas Installations, April 22, 1996](#)

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World Health Organization, Geneva, International Medical Guide for Ships, Second Edition. 1987

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[http://www.aphis.usda.gov/import_export/plants/manuals/online_manuals.shtml].

Appendix C: Criteria for Selecting and Equipping a Washdown Location

C1. Location Criteria

C1.1. Hardstand

C1.1.1. 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:

C1.1.1.1. Areas associated with the actual washing of vehicles,

C1.1.1.2. Areas used for off-loading and cleaning vehicle accessory items,

C1.1.1.3. Staging areas for clean vehicles awaiting backload, and

C1.1.1.4. All roads in between the above areas.

C1.1.2. In reviewing the hardstand area, consider wash water run-off into aquatic habitats including marine environments. Petroleum or other contaminants washed from vehicles may pass directly into such areas, causing harm to aquatic life. Freshwater run-off into brackish or saltwater habitat can also cause harm to aquatic life.

C1.1.3. During the planning phase, consider constructing berms or implementing other containment strategies and possibly re-utilizing the wash water.

C1.1.4. The size of hardstand required will vary with the number 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:

C1.1.4.1. 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.

C1.1.4.2. The staging area for accessory vehicle items and palletized supplies should be at least 100 feet (30 meters) meters wide and 350 feet (110 meters) long.

C1.1.4.3. 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 establish a staging area capable of holding a larger number of vehicles. Ensure vehicles do not become re-contaminated during the backload.

C1.2. Fresh Water Availability:

C1.2.1. Large quantities of fresh water are consumed in a relatively short period of time during washdown operations (SALT WATER MUST BE AVOIDED AS IT WILL CORRODE VEHICLES). 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.

C1.2.2. In many 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. Basic immunizations are needed. Due to direct and indirect health risks to personnel associated with sewage contaminated water, black water is not authorized. **NOTE: POTENTIAL HEALTH HAZARDS ARE CLEARLY ASSOCIATED WITH USING SEWAGE-CONTAMINATED WATER NOT ONLY TO WASHDOWN PERSONNEL BUT TO OTHERS WHO MAY CONTACT THE EQUIPMENT.**

C1.2.3. In addition to water quantity, insure adequate water pressure of at least 90 psi is maintained throughout the operation.

C1.3. Weather Conditions: Adverse weather conditions may delay or interrupt an operational washdown. Health and safety of the work crews during operational washdowns scheduled in areas where extreme hot or cold weather might be encountered is a significant concern. Consult a physician familiar with extreme weather medicine before a washdown is scheduled in areas where the effective temperature (including wind chill factors) might fall below 45°F/7.2°C or exceed 88°F/31°C. The length of time work crews are exposed to cold and freezing water is an additional factor that must be considered. Lightning strikes and strong winds are also threats that must be considered; follow command guidance for operations during threatening or severe weather.

C2. Equipment Selection

C2.1. The following equipment is considered essential to the success of an operational washdown.

C2.1.1. Wash racks: 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 regards to the following parameters:

C2.1.1.1. Personnel safety

C2.1.1.2. Efficiency of vehicle movement on and off the rack

C2.1.1.3. Ease of work for the cleaning personnel.

C2.1.2. 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 is adversely affected resulting in extending the time required to complete the washdown.

C2.1.3. The number of wash racks necessary will vary with the amount of space available. Additionally time dedicated to cleaning each vehicle will vary depending on its initial condition and number of wash racks. Historically, a washdown proceeds at an average rate of one vehicle per individual wash rack per half hour of daylight.

C2.1.4. A person should be assigned to guide vehicles up and down the wash racks to maintain a high safety margin.

C2.2. 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:

C2.2.1. A minimum of two (2) hose lines for each individual wash rack.

C2.2.2. Pumps must be capable of sustaining a minimum output pressure of 90 psi for many hours of continuous use.

C2.2.3. 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.

C2.2.4. A supply of new hoses should be kept in reserve for use during the washdown in the event of ruptures.

Appendix D: Operational Washdown Equipment

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

Wash Rack Site

Equipment	Quantity
Floodlight set	6
Cranes	As required
"Y" gates	3
Fire gose (1"ID)	600 ft/2 per wash rack
Fire gose (2" ID)	200 ft/2 per wash rack
Fire gose (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	2
Steam manifold (6 stations)	1
Flatbed Trucks movement of supplies	As required
Portable head	2
Vehicle wash racks	4
Wet/Dry Vacuum	6 or more as required

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 (D-cell)	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 ft
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 inspection. If keys cannot be found, provisions must be made to cut the locks; include bolt cutters should be included in the tools .

— Any required tools, such as jacks, tire irons, wrenches, special screwdrivers, or other others must to be available for removal of dual tires, gun mounts, plates, and floor mat bolts on the different vehicles.

Appendix E: Guide for Conducting Operational Washdowns

E1. USDA Inspections: Cleaning and inspection/pre-clearance of retrograde equipment prior to redeployment does not preclude an agricultural inspection upon return to CONUS. However, close coordination with the USDA APHIS usually results in a speedy transition at the CONUS port of entry by the agricultural inspectors from Customs and Border Protection (CBP). Do not clean and inspect/pre-clear vehicles and equipment for preclearance certification too early. Such equipment may become contaminated while awaiting loading for redeployment and therefore may not be cleared upon arrival at a US port of arrival.

E2. Inspection Standards: USDA inspection standards only allow a thin film of road dust on vehicles and equipment arriving at the CONUS final port of entry. Because of these stringent standards, vehicle/equipment washing and inspection will only be conducted during daylight hours to avoid delays returning CONUS. Nighttime washing and inspection using artificial lighting saves very little time because many items may have to be rewashed and re-inspected after daylight inspection. Waivers for washing during nighttime conditions under artificial lighting have been obtained in extreme circumstances but must be justified and approved by the USDA-APHIS.

E3. Guidelines to be followed prior to conducting Operational Washdown:

E3.1. Conference: Organize a washdown conference to include attendance by representatives from all participating commands and agricultural inspectors.

E3.2. Training: Place emphasis on organization and training of washdown crews. Establish a suitable washdown crew schedule with adequate supervision at each washdown point by experienced personnel.

E3.3. 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.

E3.4. 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.

E4. Equipment/supplies certified as not exposed to contamination:

E4.1. Isolate 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.

E4.2. Inspectors should periodically review these areas throughout the washdown to ensure they are free of all dirt, debris, beverage cans, etc.

E5. 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. Fuel, oil, soap, or other chemical residues in the water may result in contamination, which may result in mortality among fish and other aquatic organisms. Such events may invite serious political and financial repercussions from the host nation. **Note:** Contaminants 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. If there are any concerns, consult with your legal staff and DoD Directive 6050.16 (DoD Policy for Establishing and Implementing Environmental Standards Overseas Installations, September 20, 1991) and the Overseas Environmental Baseline Guidance Document.

E6. Washing Standards

E6.1. Vehicles and equipment exposed to contamination and requiring less than a complete detailed cleaning: This includes any vehicle or equipment that is only minimally exposed to the natural environment because of its operational requirements. Examples would be as follows:

E6.2. 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 leaves, 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 satisfactorily eliminate contamination problems, such as some Navy amphibious ships (LHAs, LKAs, and LHDs).

E6.3. Large aircraft flightline: Clean protected areas like wheel wells and around cargo or passenger doors. Visually inspect and assess need to clean cargo and flight deck. **Note:** DO NOT USE SALT WATER.

E6.4. Amphibious vehicles: This includes Landing Craft Air Cushioned (LCACs), Light Vehicle-Tracks (LVTs), and similar vehicles. Clean troop compartment, crew area, and the crew's personal equipment. Ensure other areas 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.

E6.5. Naval vessel causeways: Wash with fresh or salt water during back loading.

E6.6. Naval ship launches: No cleaning is required of the Captain's launch, liberty launch, or other vessels unless they are contaminated (back loaded dirty). A thorough inspection by operator personnel is recommended.

E6.7. 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.

E6.8. Land vehicles: The cleaning of motor vehicles usually consumes the greatest amount of time and causes the most delays. The following procedures are recommended:

E7. Organization prior to cleaning:

E7.1. Contaminated vehicles, equipment, and supplies are off-loaded.

E7.2. Accessory items and palletized supplies are staged in a pest free zone for cleaning.

E7.3. Vehicles proceed to a steam or washing station as determined by inspectors.

E7.4. Upon final inspection, material from mobile loads is reloaded aboard vehicles and the clean vehicles and supplies are re-embarked.

E8. Before the vehicle arrives at the wash rack:

E8.1. Sweep, compress air clean and/or wet/dry vacuum the vehicle cab and all storage and tool compartments.

E8.2. Remove the battery; clean the battery and battery box. Reinstall the battery.

E8.3. Remove the outside dual wheels and spare tires and place them in the back for later cleaning at the wash rack.

E8.4. 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.

E8.5. Carefully check the radiator (may be hot). Handpick or sweep any vegetation, insects (arthropods) or other debris.

E8.6. Disengage the sides of trucks that are equipped with collapsible sides. Clean recessed areas, ledges, etc.

E8.7. Remove engine packs from tanks and Bradley Fighting Vehicles prior to cleaning (washing).

E9. At the wash racks:

E9.1. Vehicles will be exposed to high pressure (recommend minimum 90 psi) fresh water or steam (steam may remove valuable protective coatings).

E9.2. Pay particular attention to undercarriages, fender wells, axles, springs, bumpers, wheels and recessed areas. **Note:** To prevent corrosion, never use salt water to clean vehicles/supplies/equipment.

E9.3. Remove all armor plates when possible.

E10. 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 the battery box. **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 was "locally acquired."

E11. Upon completion of the cleaning procedures:

E11.1. Inspect each vehicle thoroughly to ensure that all soil has been removed. Use a flashlight, screwdriver, or putty knife where necessary. Pay particular attention to crevices in all locations. The following are common inspection checkpoints:

E11.1.1. Top access

— Floor boards

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

E11.1.2. Bottom access

light wiring

- Fender wells front and rear including access openings for tail
- 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
- All other spaces where soil might be found

Illustrations of Specific Problem Areas by Vehicle Type
(Arrows designate areas of concern)

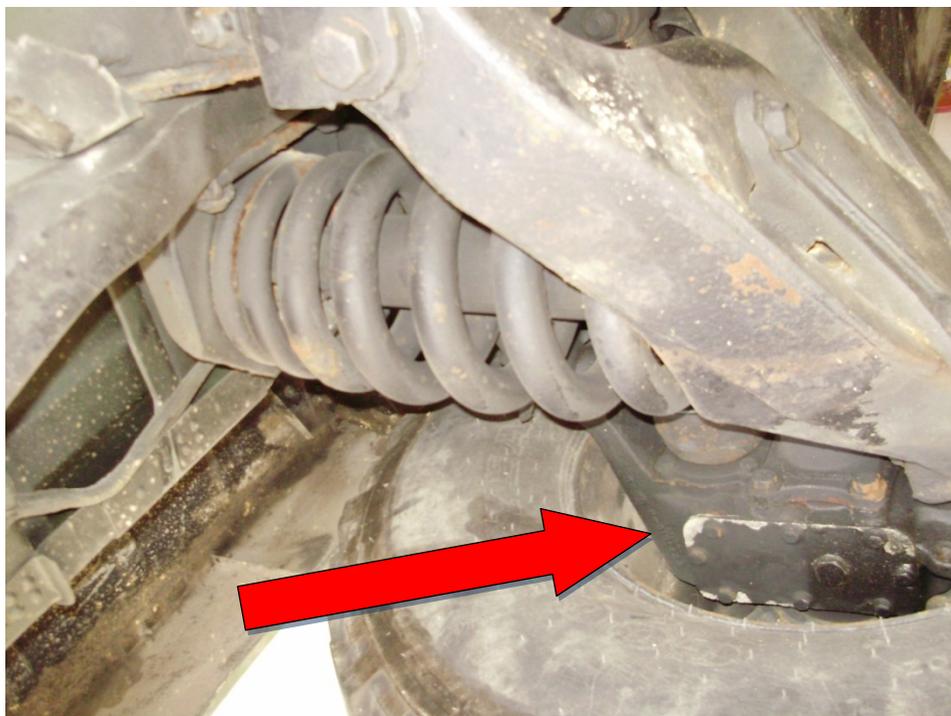
Wheeled Vehicles



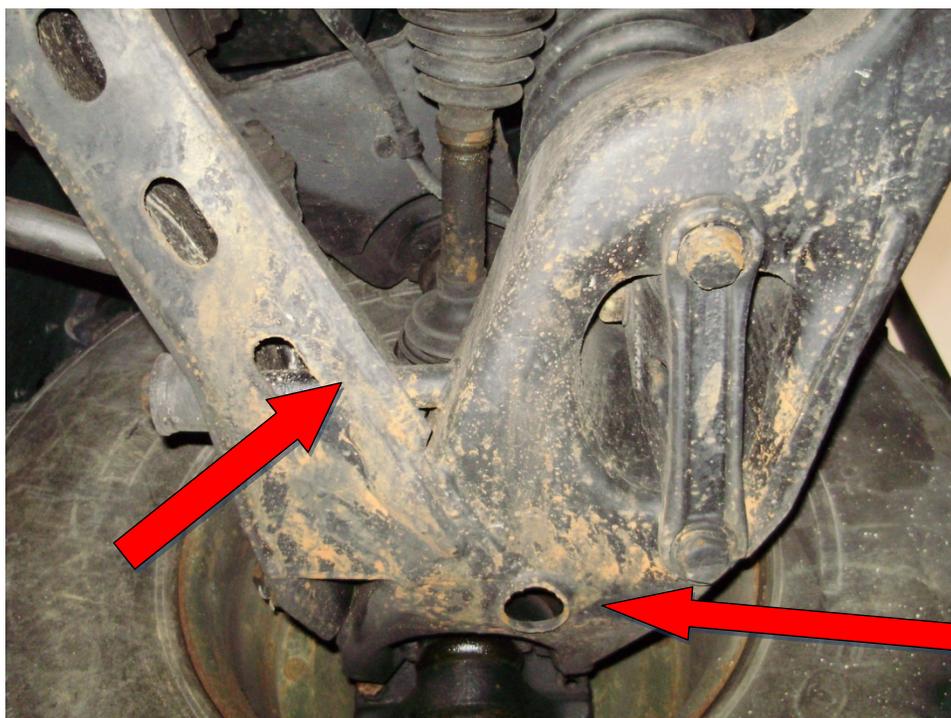
HMMWV: Clean Soil, Dirt, and Debris from grille



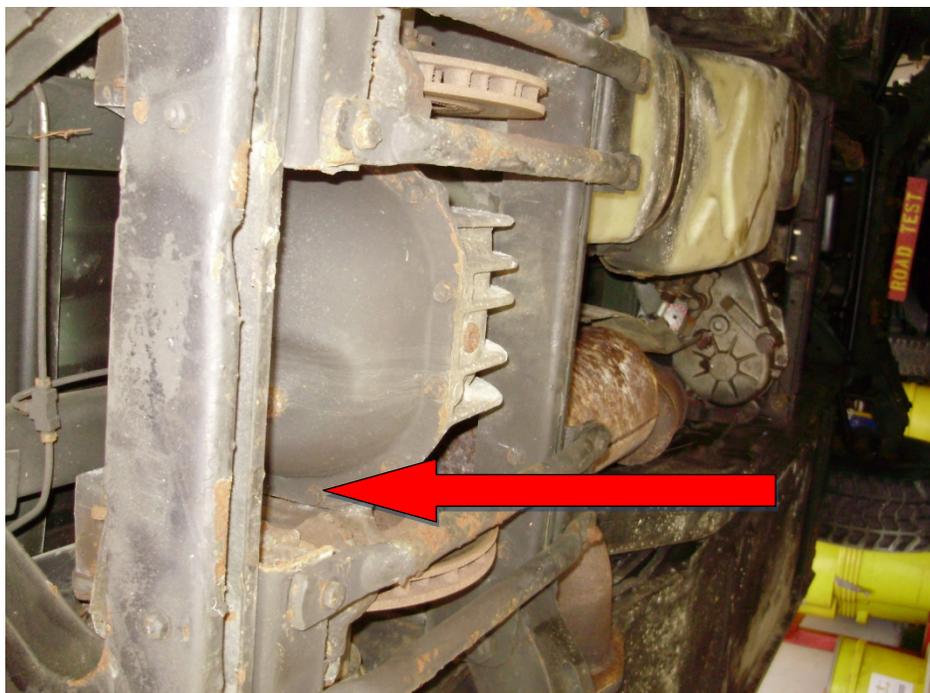
Clean any debris from vents



Behind wheel well of M1165 HMMWV



Spray directly into wheel axels into holes until water runs clear



Check for mud on all ledges of undercarriage



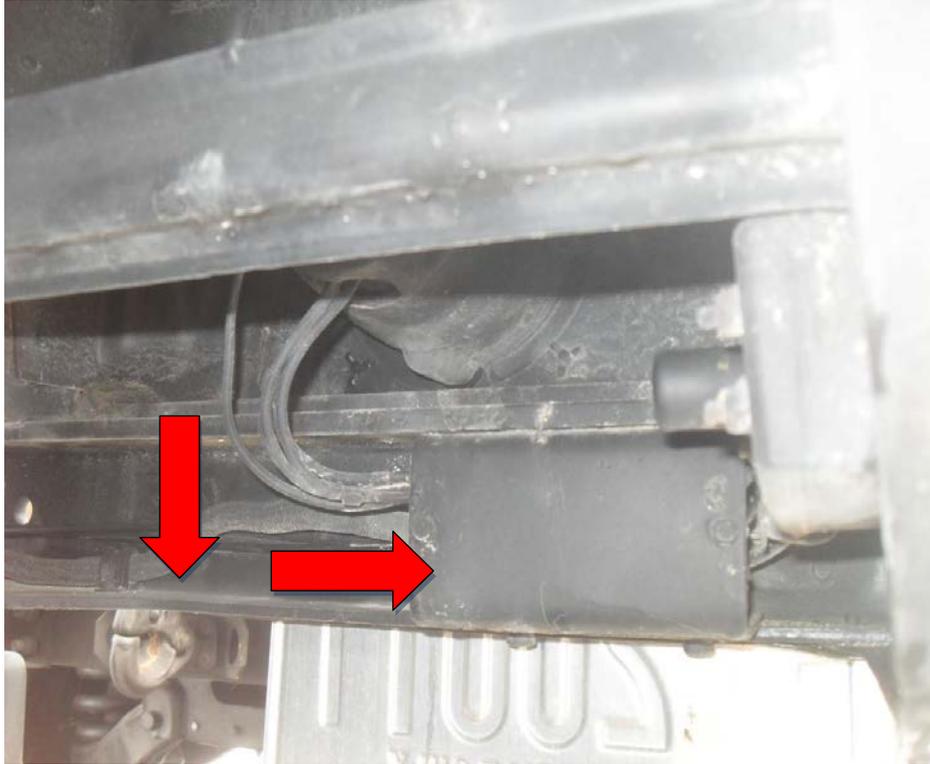
Check for mud on both sides of ledges



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



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



Check for mud under ledges



Have radios removed for thorough cleaning if possible



Inspect these spaces. 2 right-most spaces might require wiping with rag due to lack of drain hole.



Spray ledges



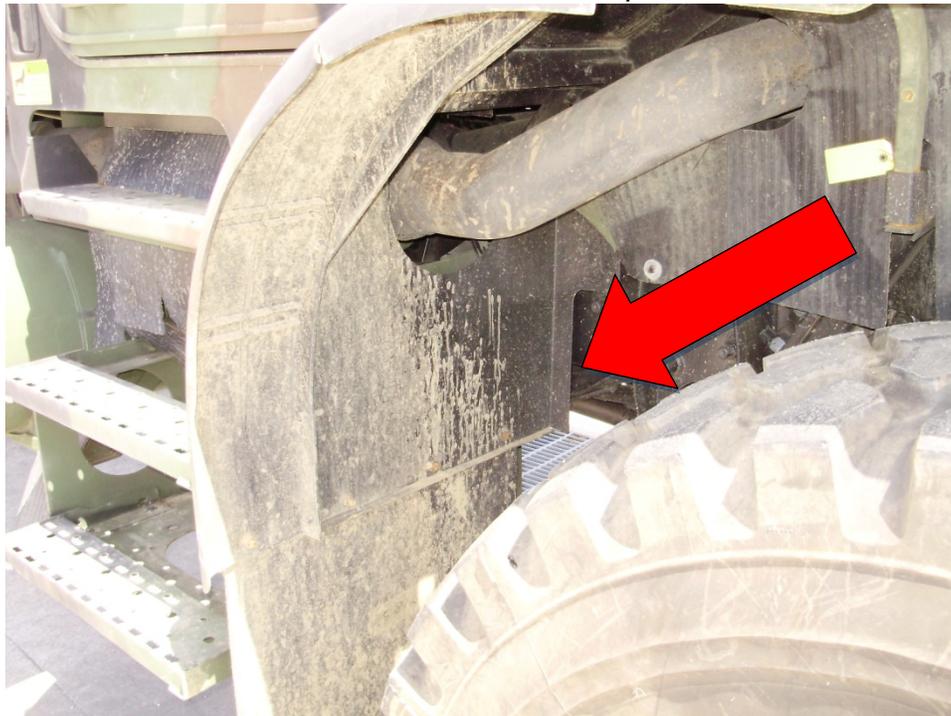
Spray into this space



7-ton armored: Clean Soil, Dirt, and Debris from grille and vents



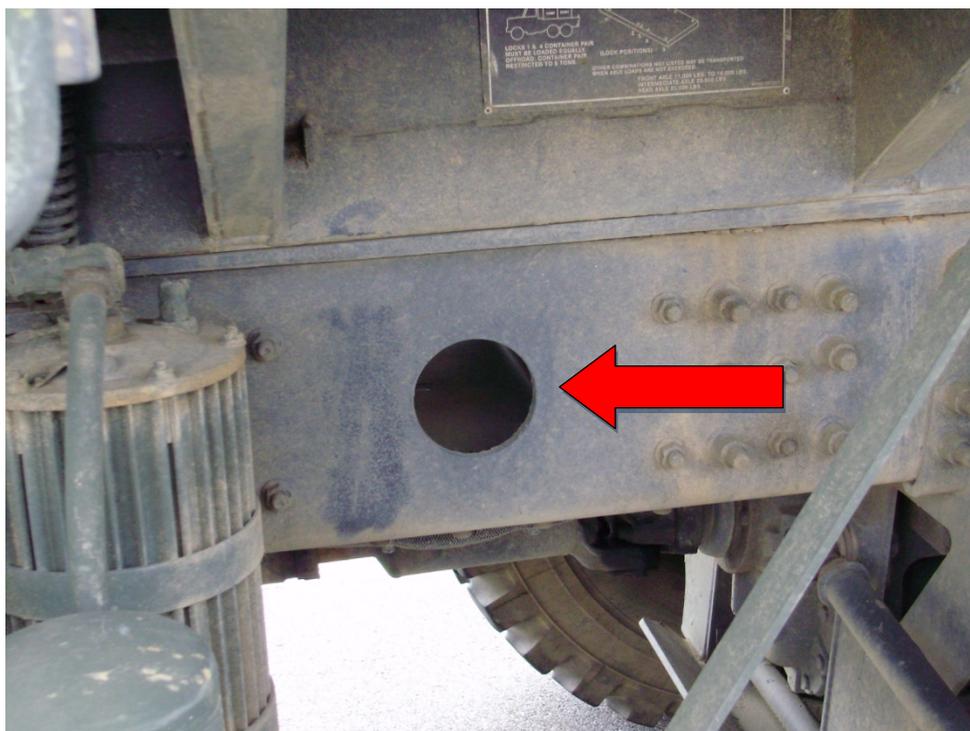
Look behind wheels to check for any soil and dirt



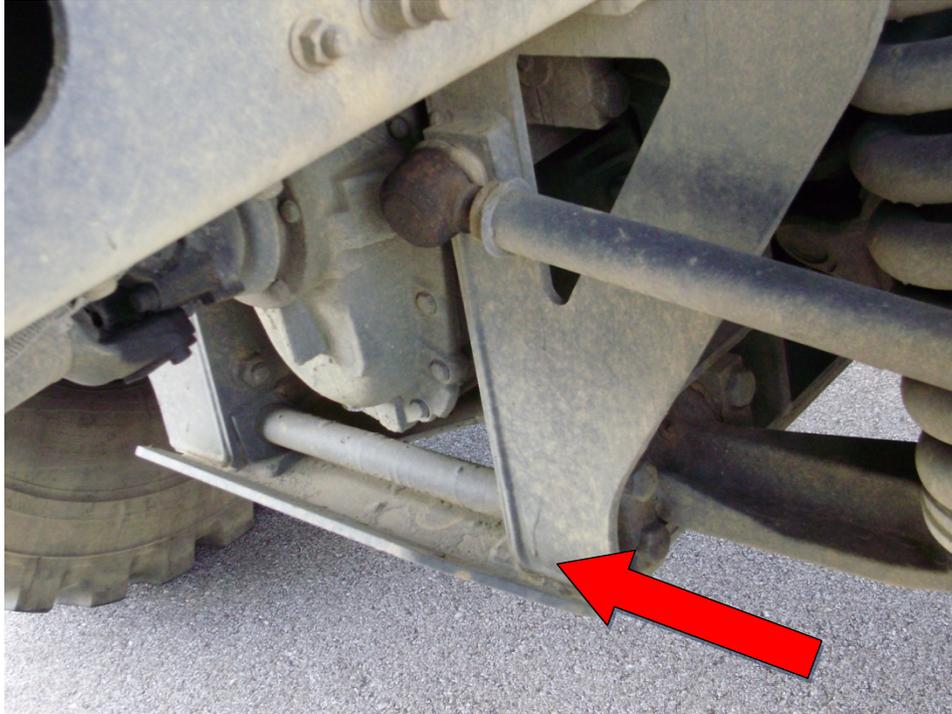
Look behind wheels to check for any soil and dirt



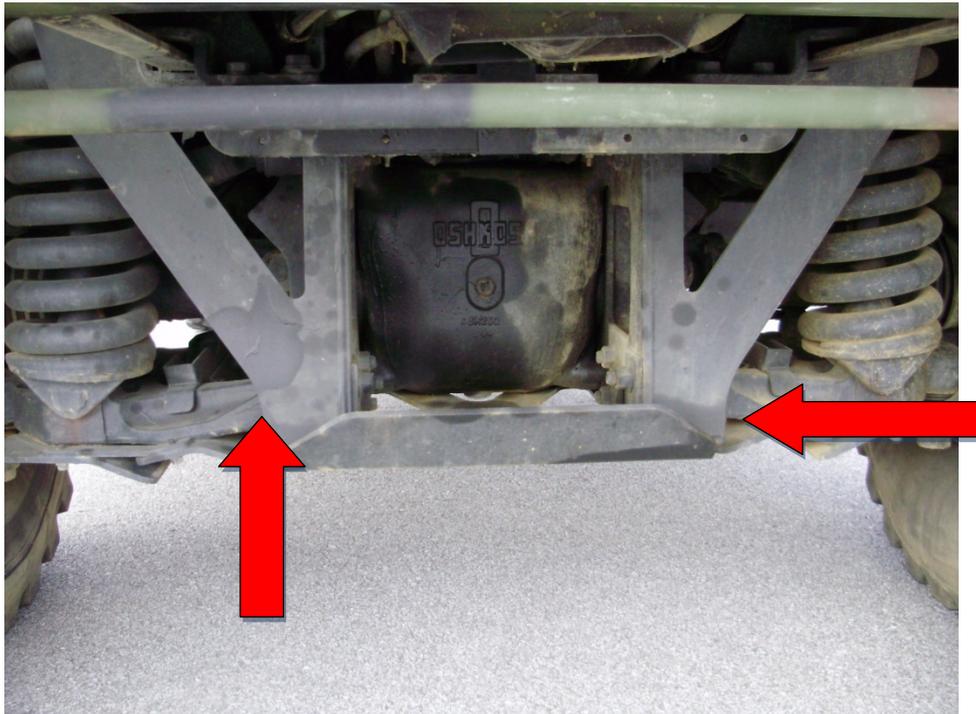
Behind wheel of 7-ton



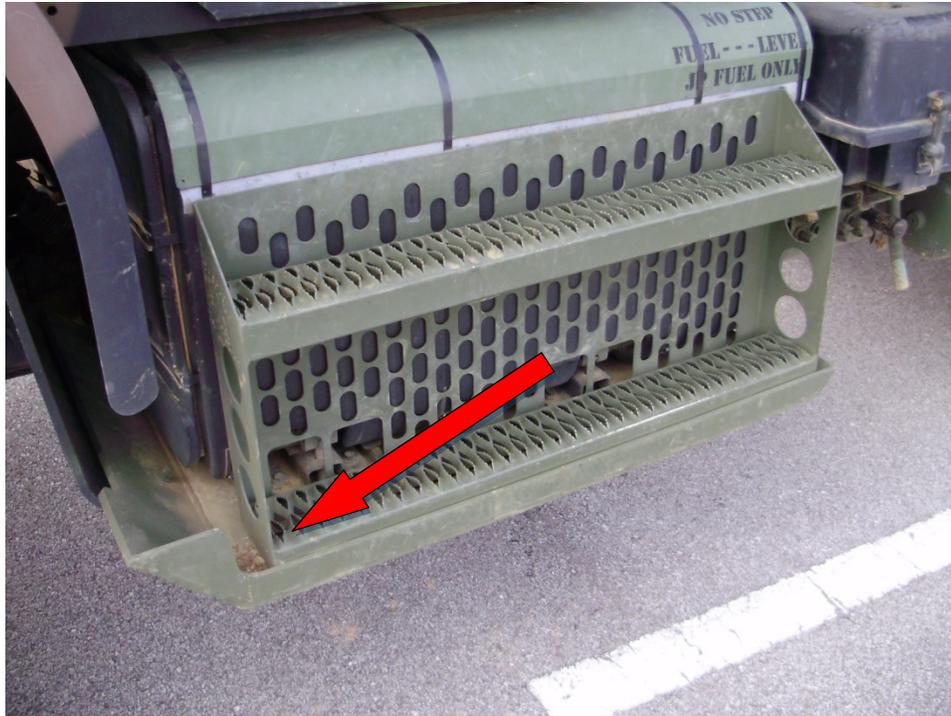
Spray directly into this space under the 7 ton carriage until water runs clear



Check for mud and debris along the ledges on both sides



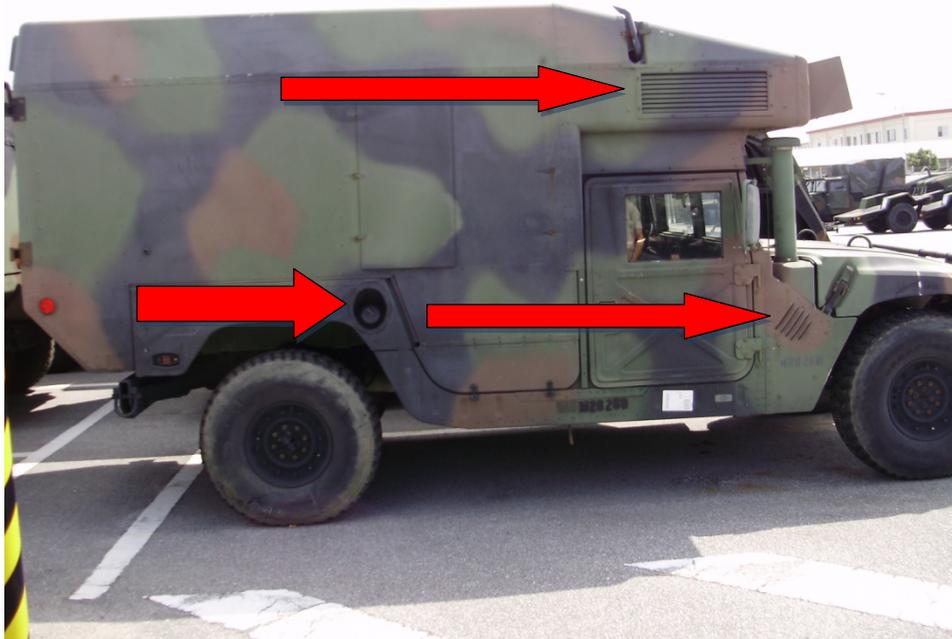
Check for mud and debris along the ledges on both sides



Spray dirt and debris out of footstep and ledges



M997: Clean Soil, Dirt, and Debris from grille



Side view



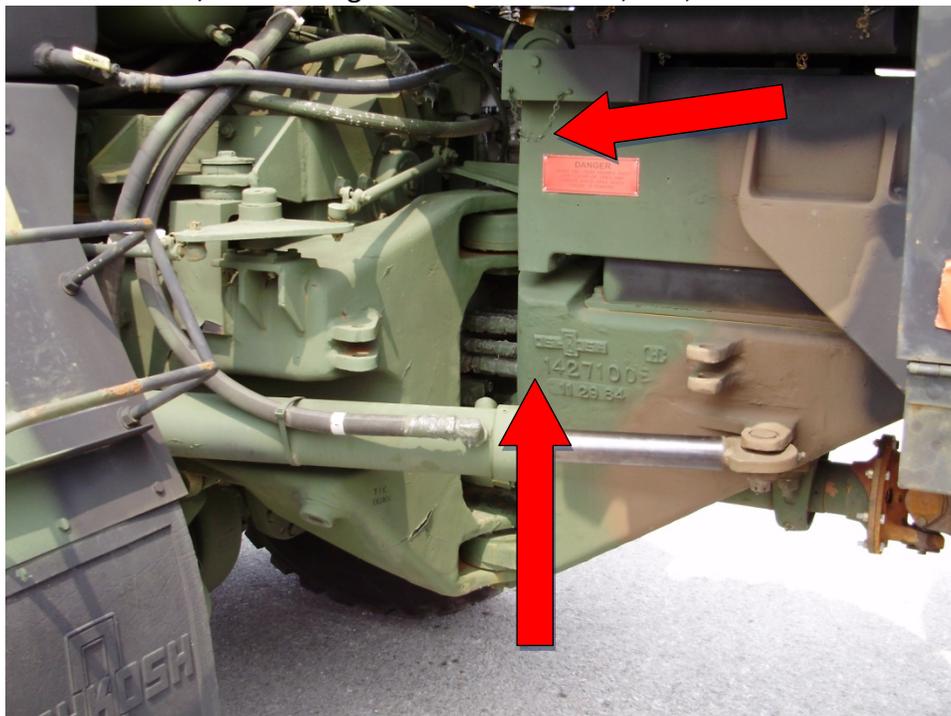
Look and feel for mud and dirt behind wheel well



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



MK48/16 LVS Cargo Vehicle: Clean Soil, Dirt, and Debris



LVS Cargo Vehicle: Spray out mud and debris



Look behind wheel for any mud



Behind wheel



Clean Soil, Dirt, and Debris from grille



Look and Feel behind wheel for mud and dirt



Spray in this space to clear leaves and debris



Behind wheel axels



7 Ton Truck with dump bed



Look under wheel for mud and dirt



MRAP Problem Areas



Clean Soil, Dirt, and Debris from grille and ledges under carriage



Figure 1: Behind Wheel Well

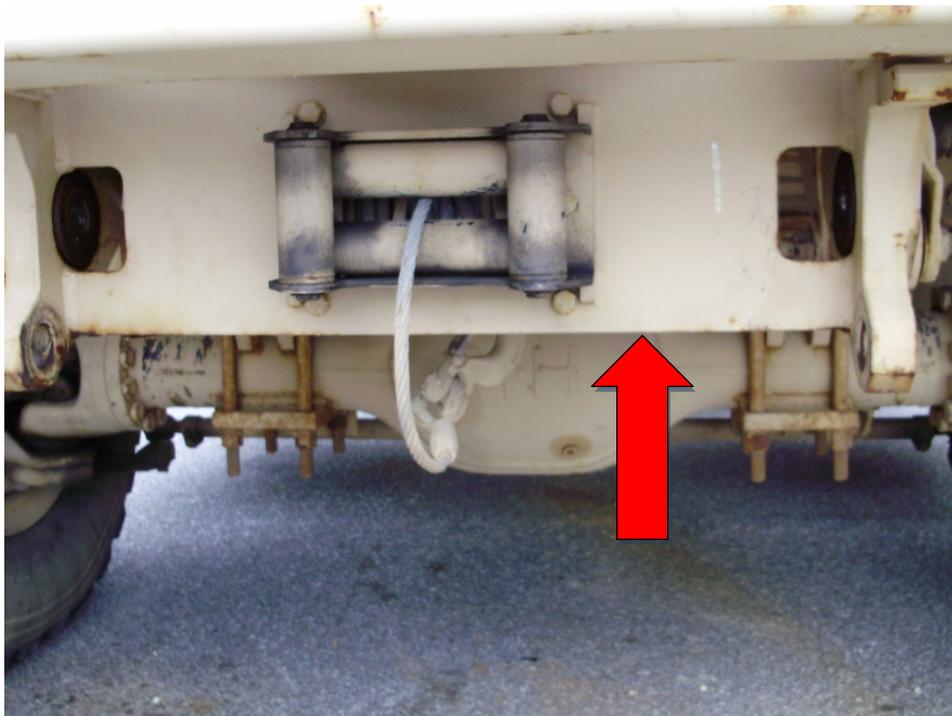


Figure 2: Check both sides of ledges for mud and debris

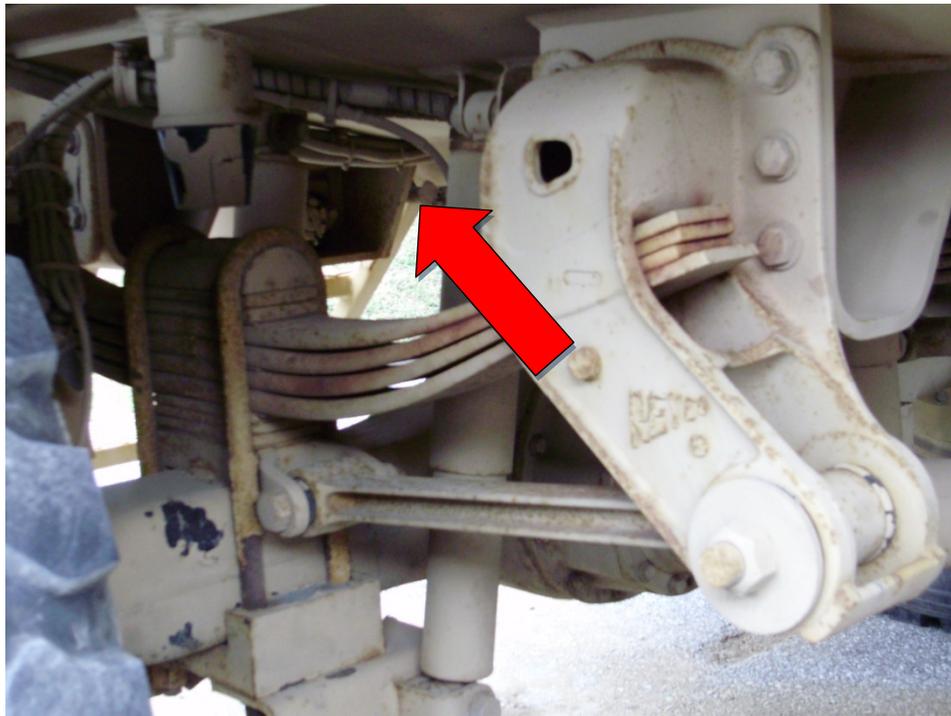


Figure 3: MRAP under carriage problem areas

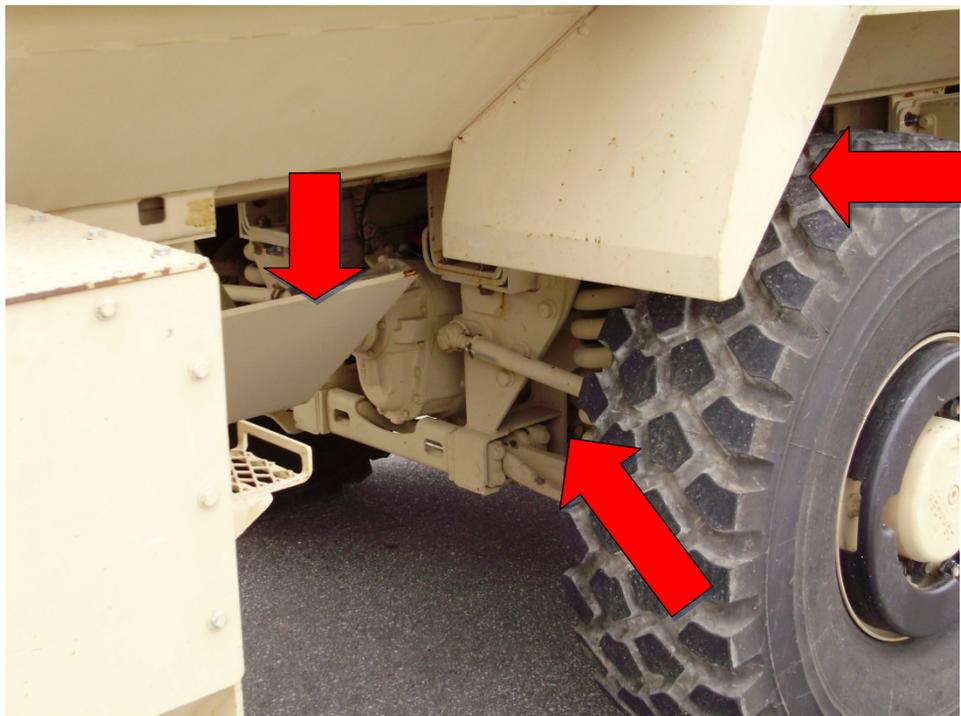
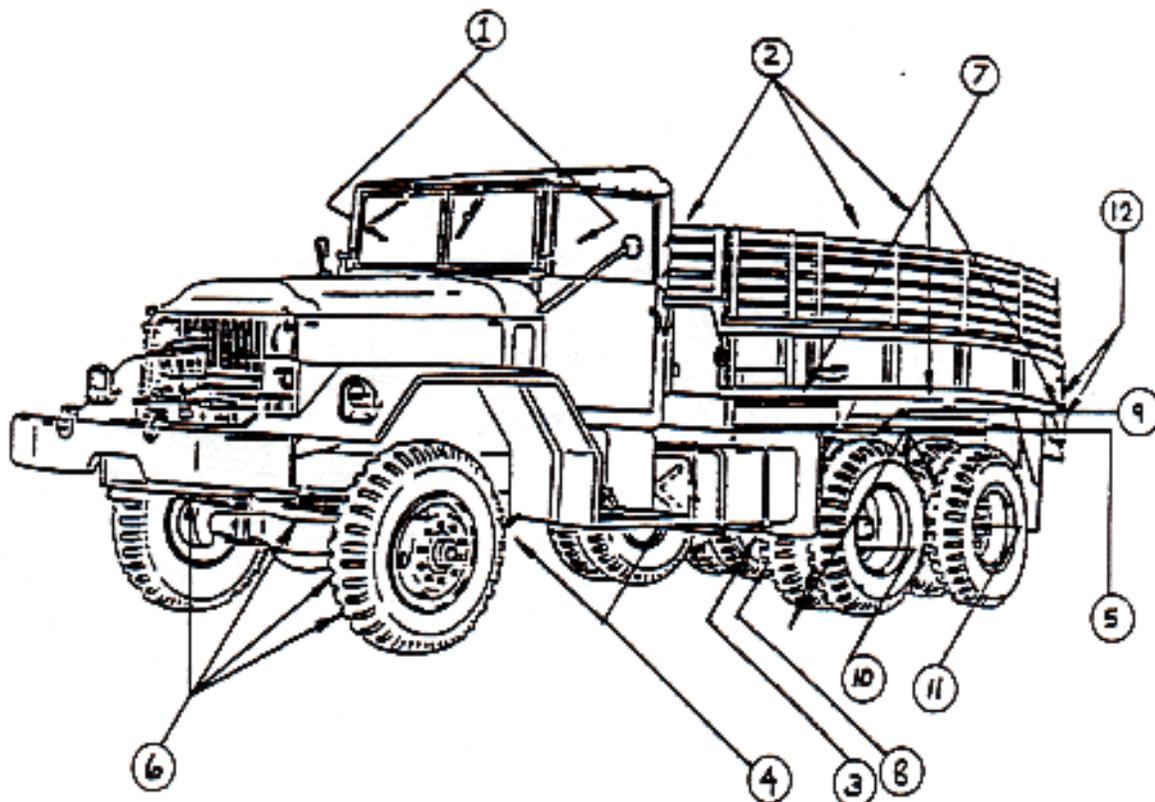


Figure 4: Check areas for soil, dirt, and debris



PROBLEM AREAS

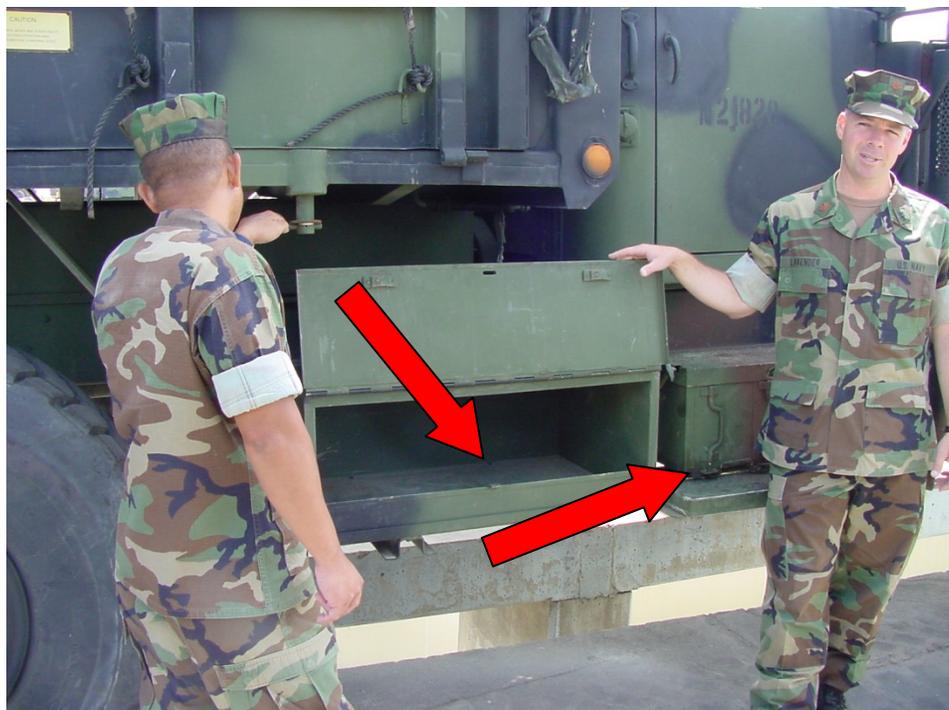
1. Under and behind both seats of cab.
2. Clean the floor of truck bed.
3. Between the brake drum and steel rim of wheel, of all rear wheels.
4. Underneath the platform for the OVM box and battery box.
5. Between the dual wheels, on the outer edge of the steel rim of each wheel.
6. On the ledges of the 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.



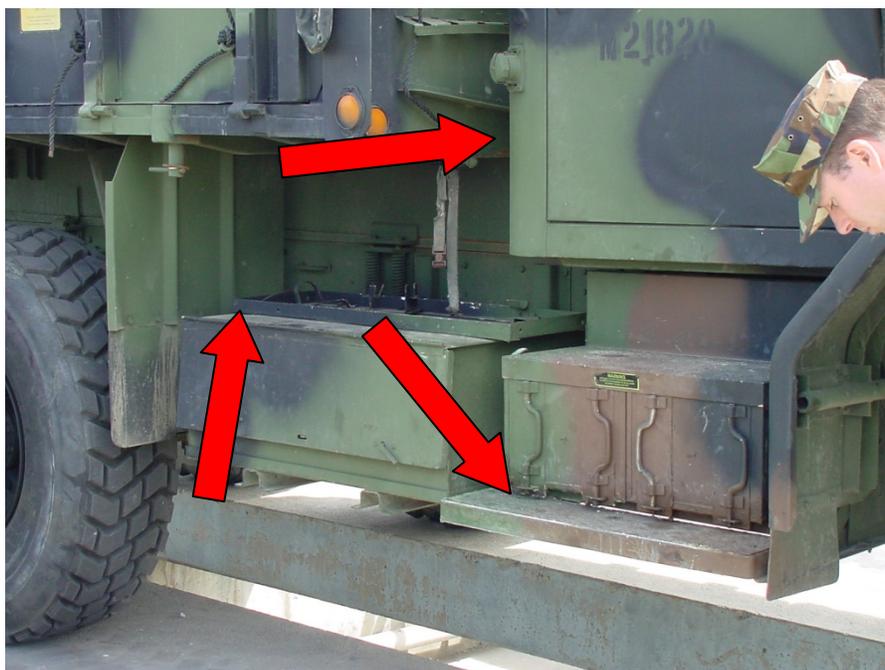
Five-ton truck on wash rack (note wheels blocked to prevent rolling)



Five-ton on wash rack



Tool box on five-ton. Area of concern for cleaning and inspection

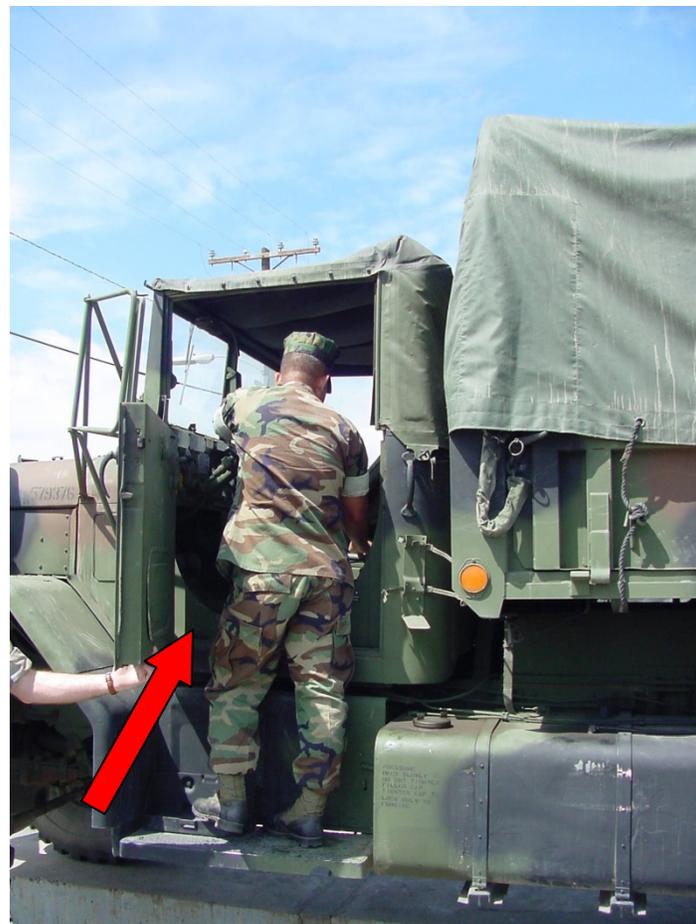


All ledges and boxes should be checked for soil and debris

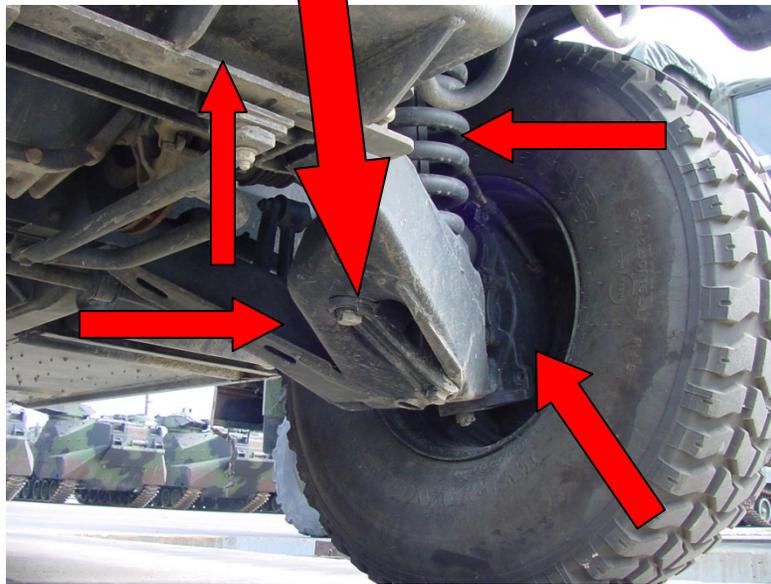


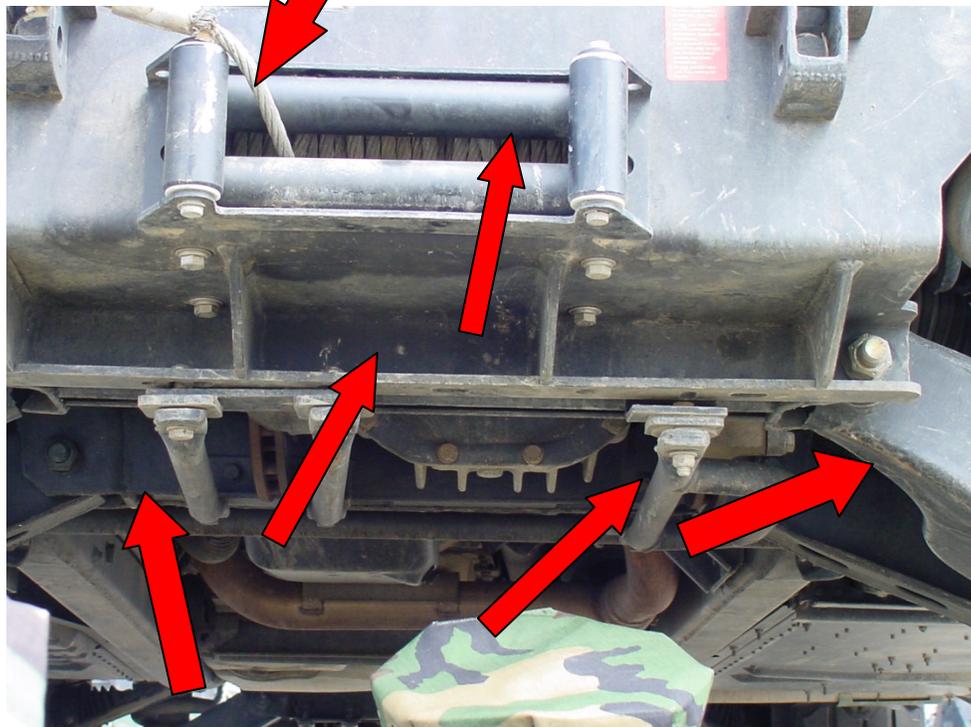
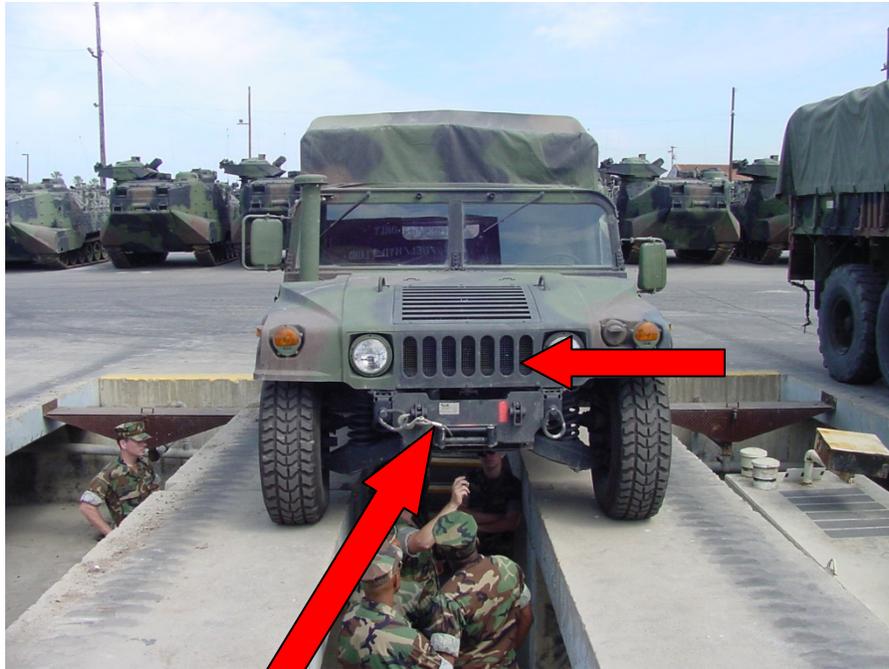
Undercarriage, axels, inside of wheels

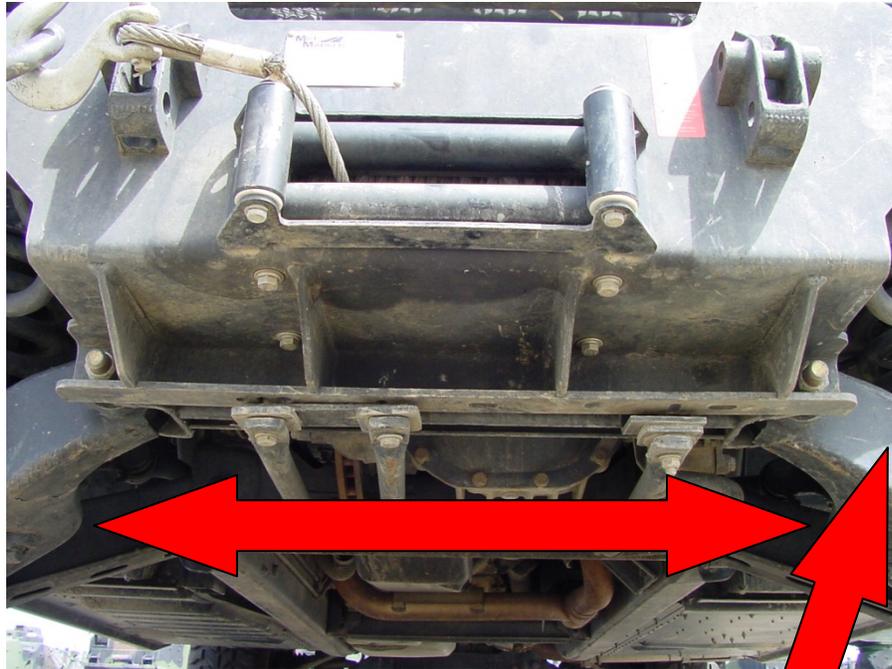




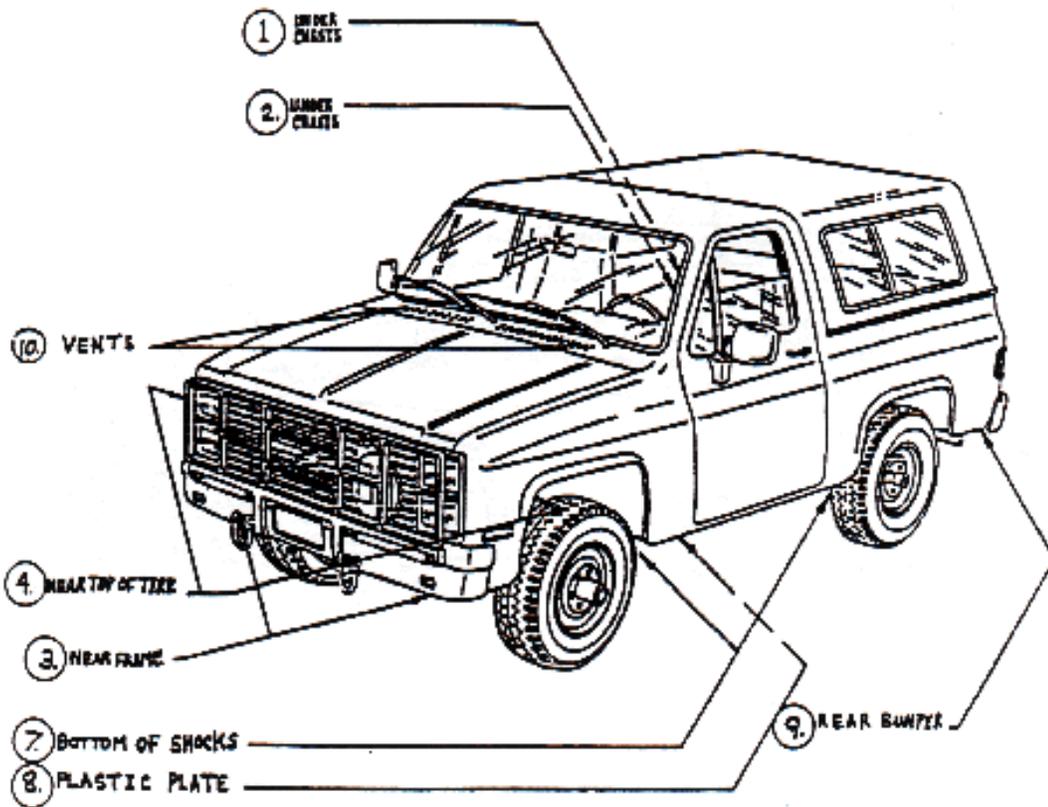








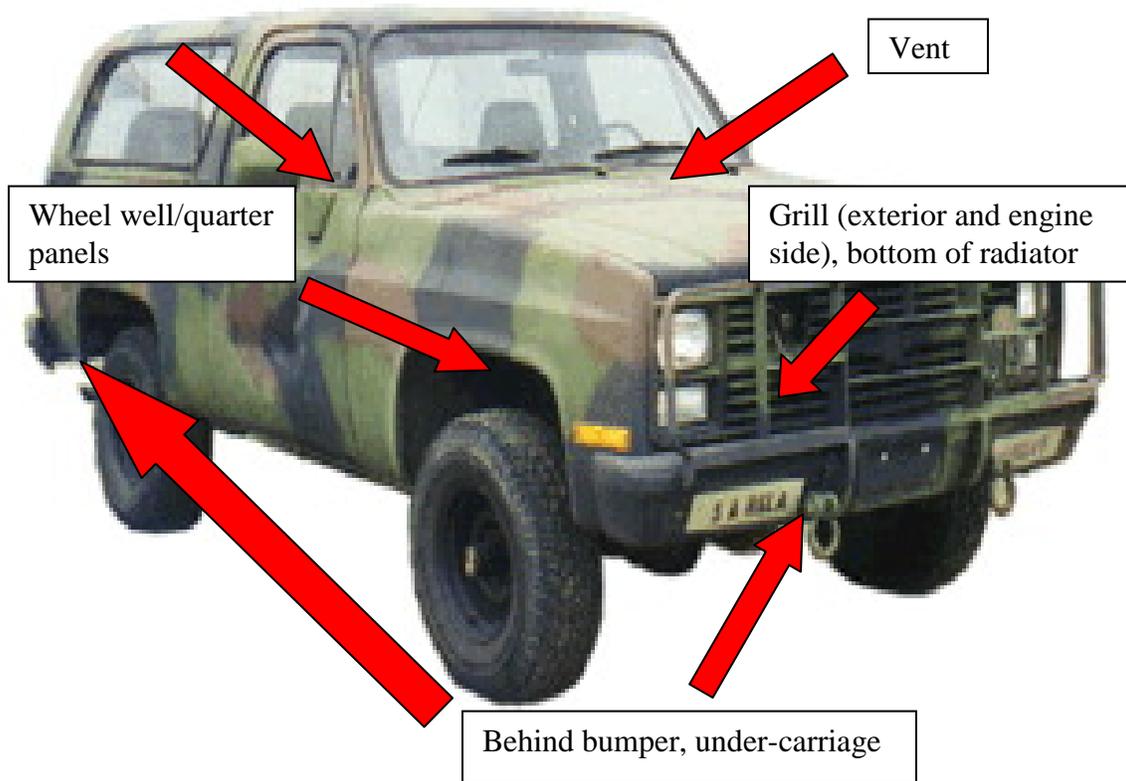


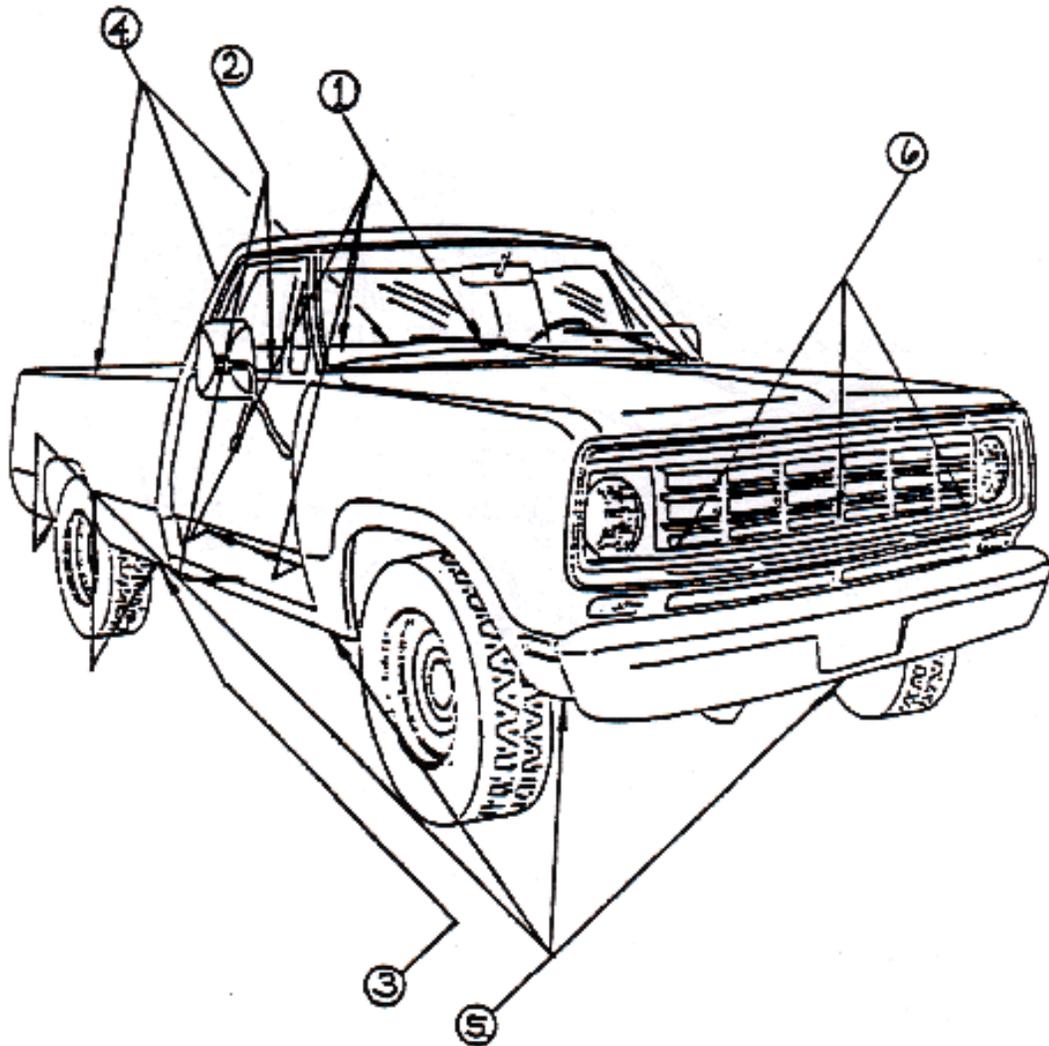


PROBLEM AREAS

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.

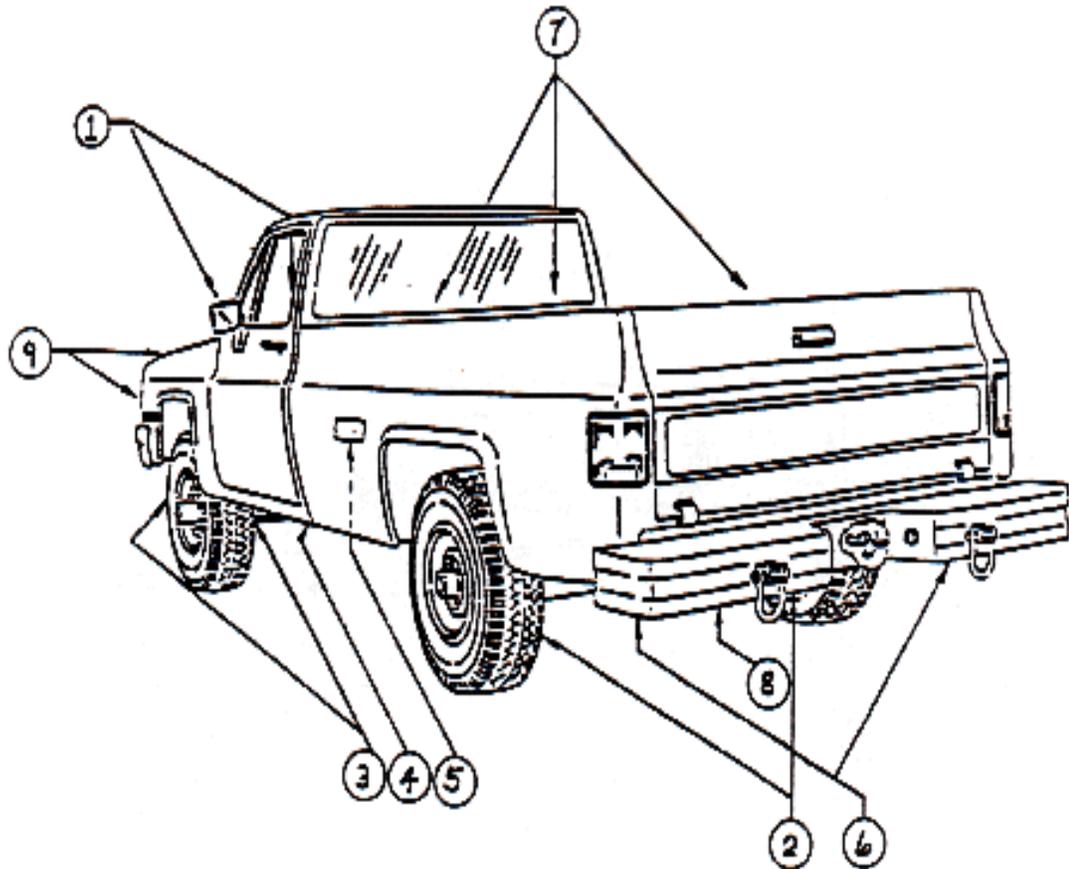
Interior cab (behind and under seats/door casing)





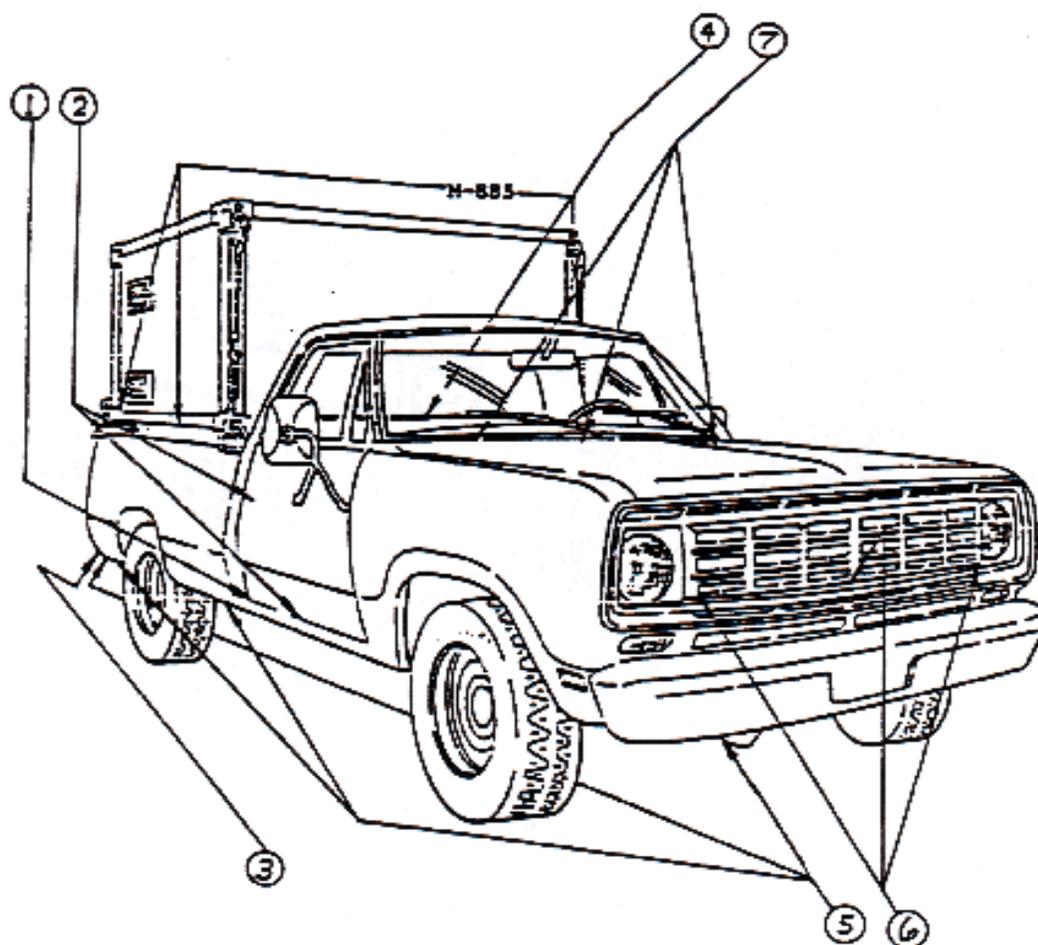
PROBLEM AREAS

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.



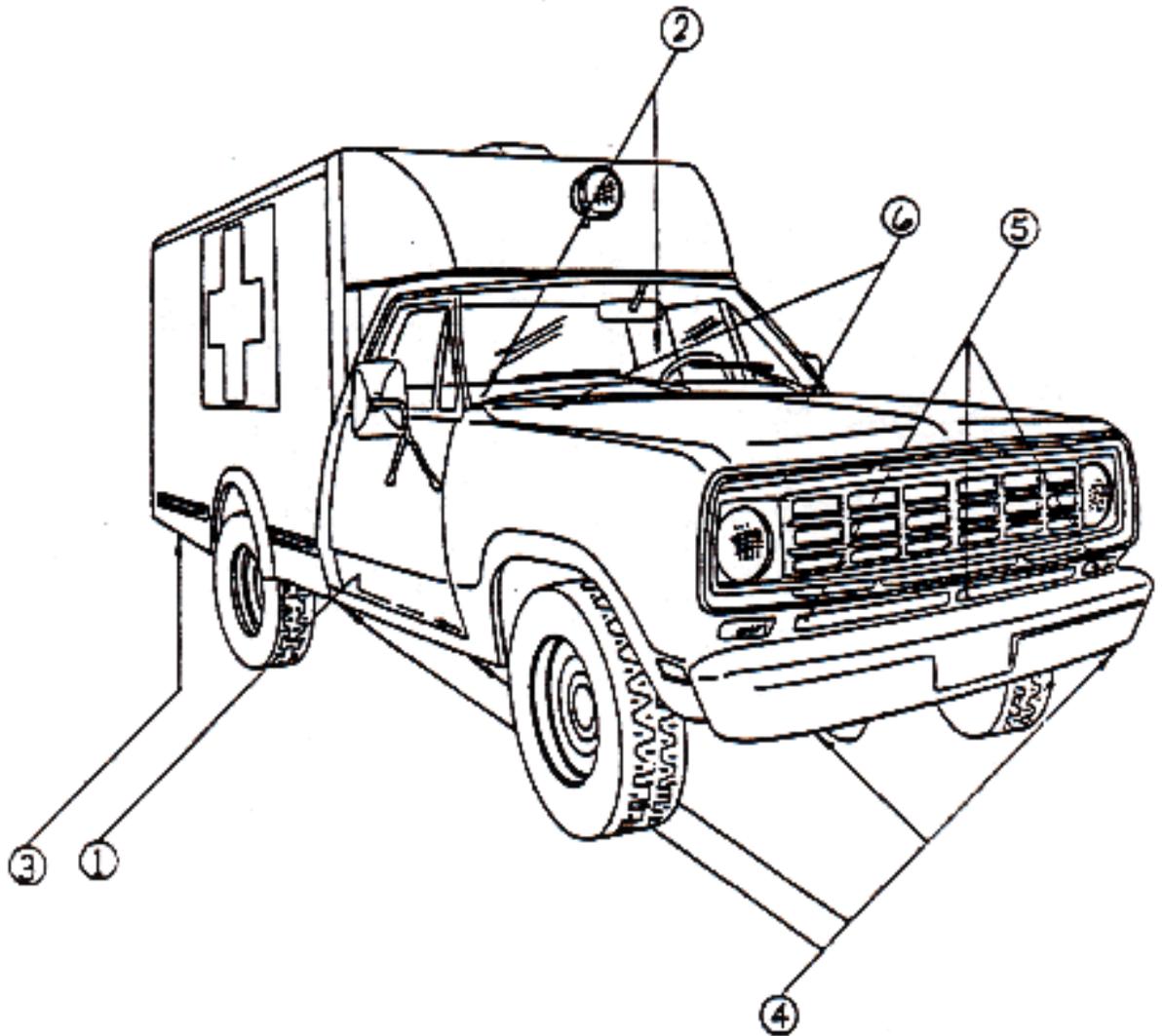
PROBLEM AREAS

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.



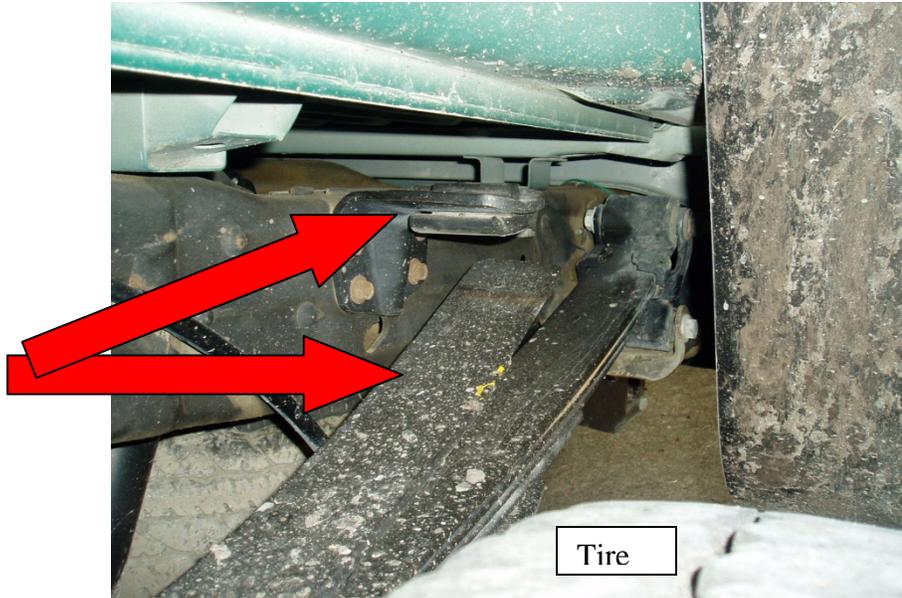
PROBLEM AREAS

1. Inside cab underneath edge of floor mats.
2. Underneath seat.
3. Spare tire mounting.
4. Underneath van and along the sides of the bed.
5. Ledges of the rear quarter panels, bumpers (front and rear).
6. Front Grill area and bottom of radiator.

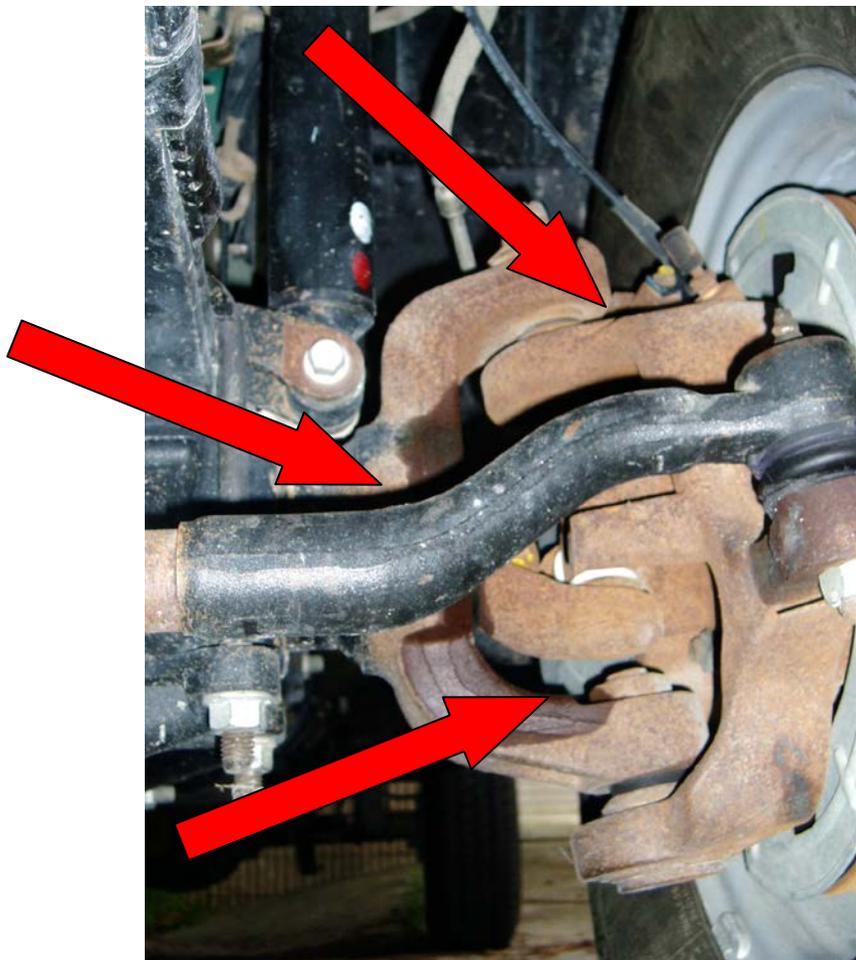


PROBLEM AREAS

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

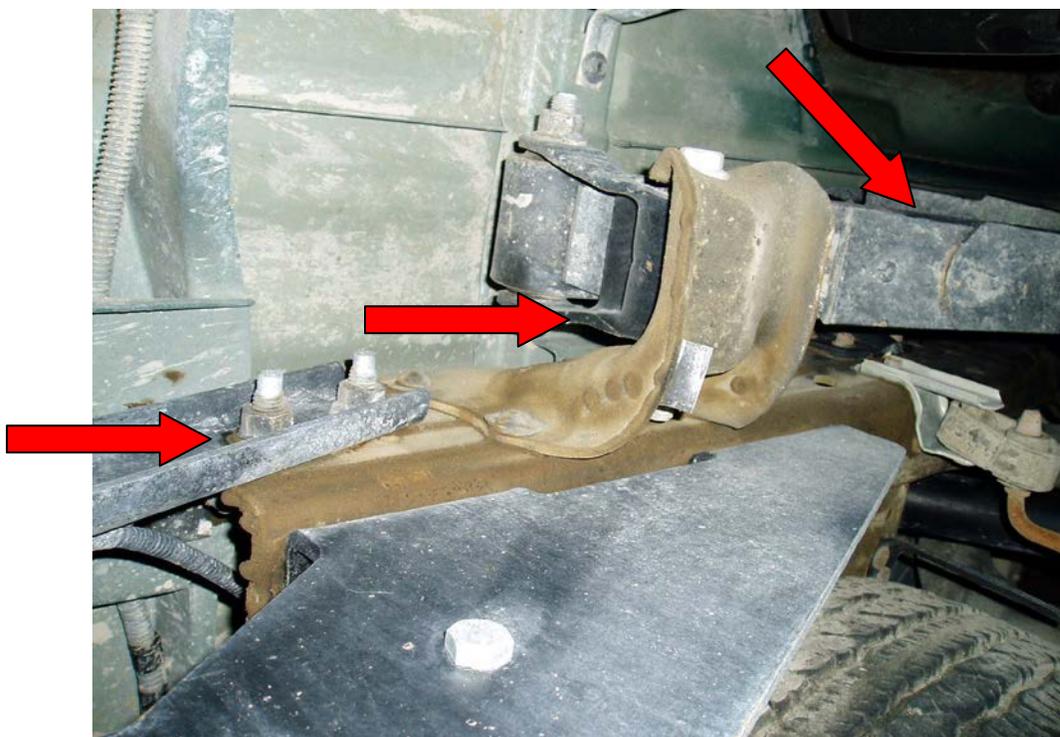


Wheel well of a pick-up

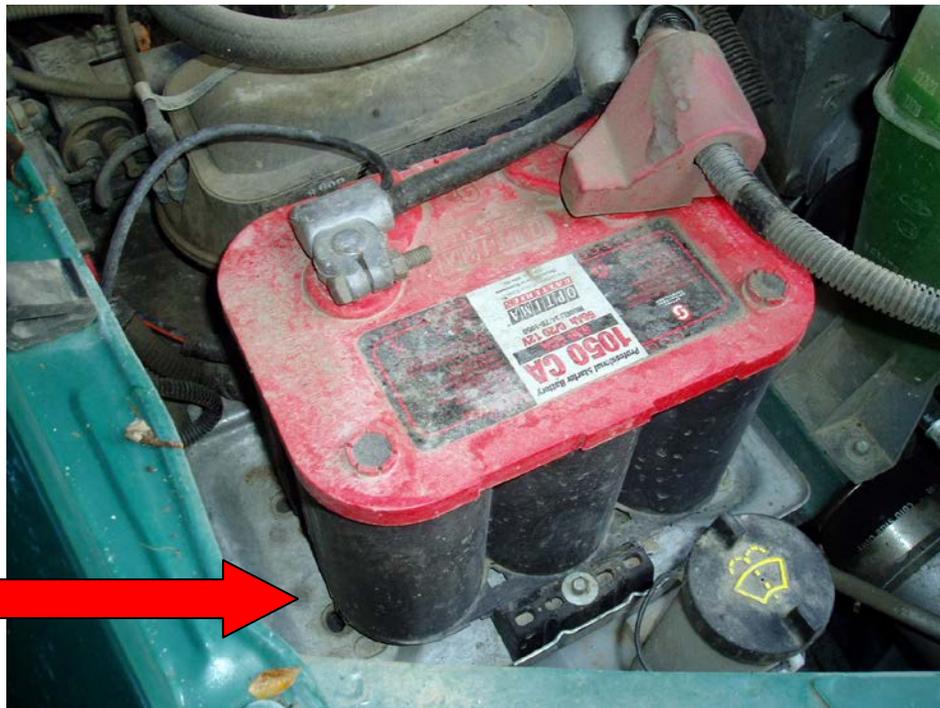


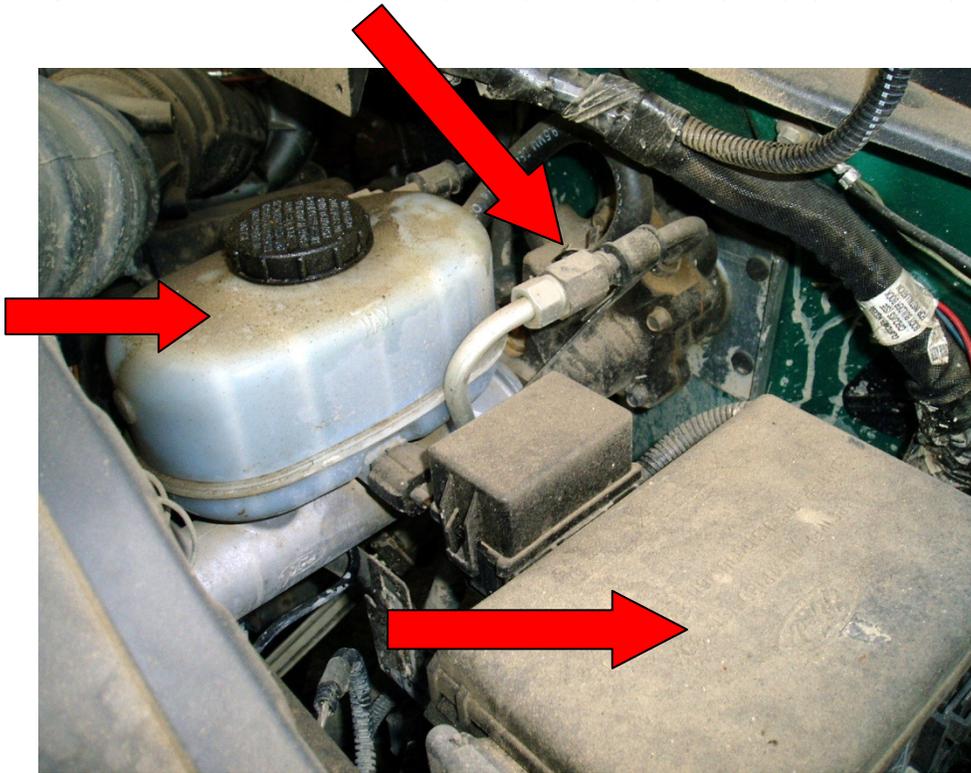


Vents at top of hood of pick-up



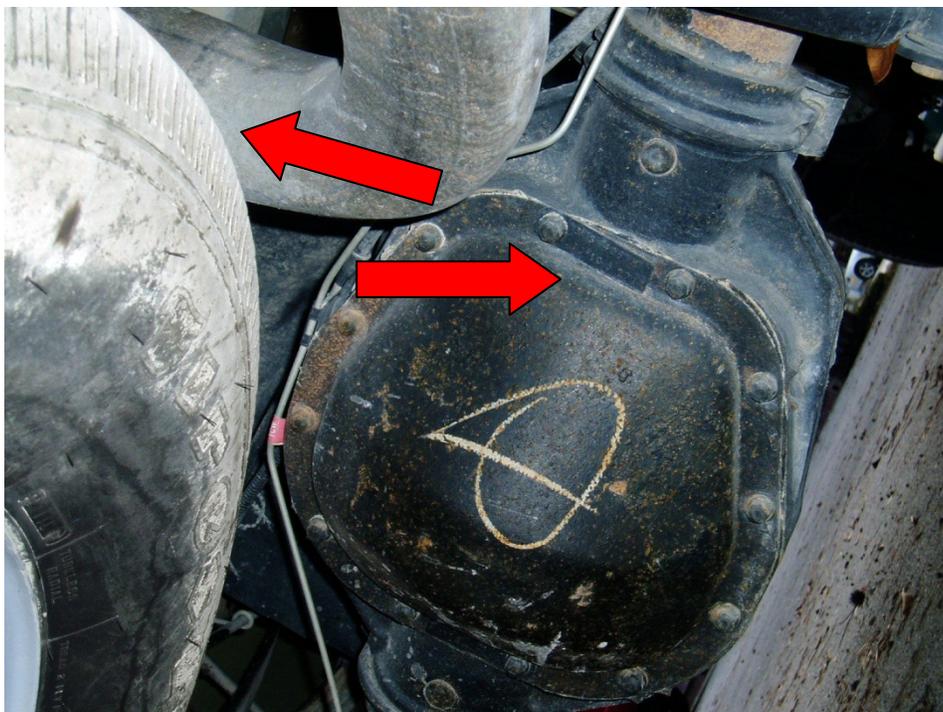
Wheel well/under carriage of pick-up





Engine compartment of pick-up





Transmission box (under carriage) and spare tire



Bed of truck



Area between cab and bed

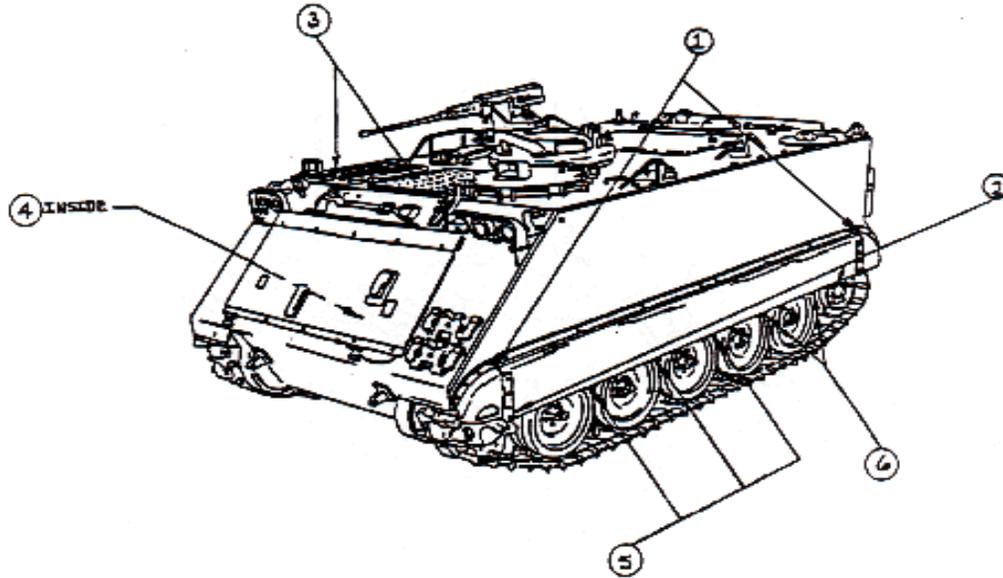


Area between tail gate and bed



Grill areas of pickup

Tracked Vehicles



PROBLEM AREAS

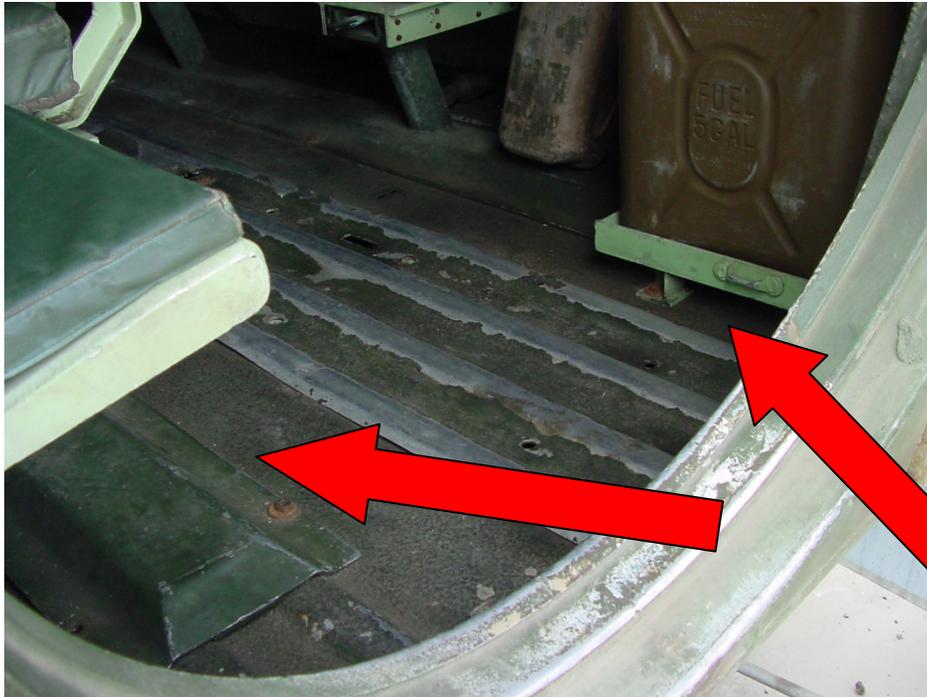
1. Inside the front and rear fenders, remove fenders for inspection.
2. On top of the track tensioners.
3. Remove twigs and debris from grills and surrounding areas.
4. Underneath all floor plates inside; remove and leave loose for inspection.
5. The inside edges of all road wheels; from underneath and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



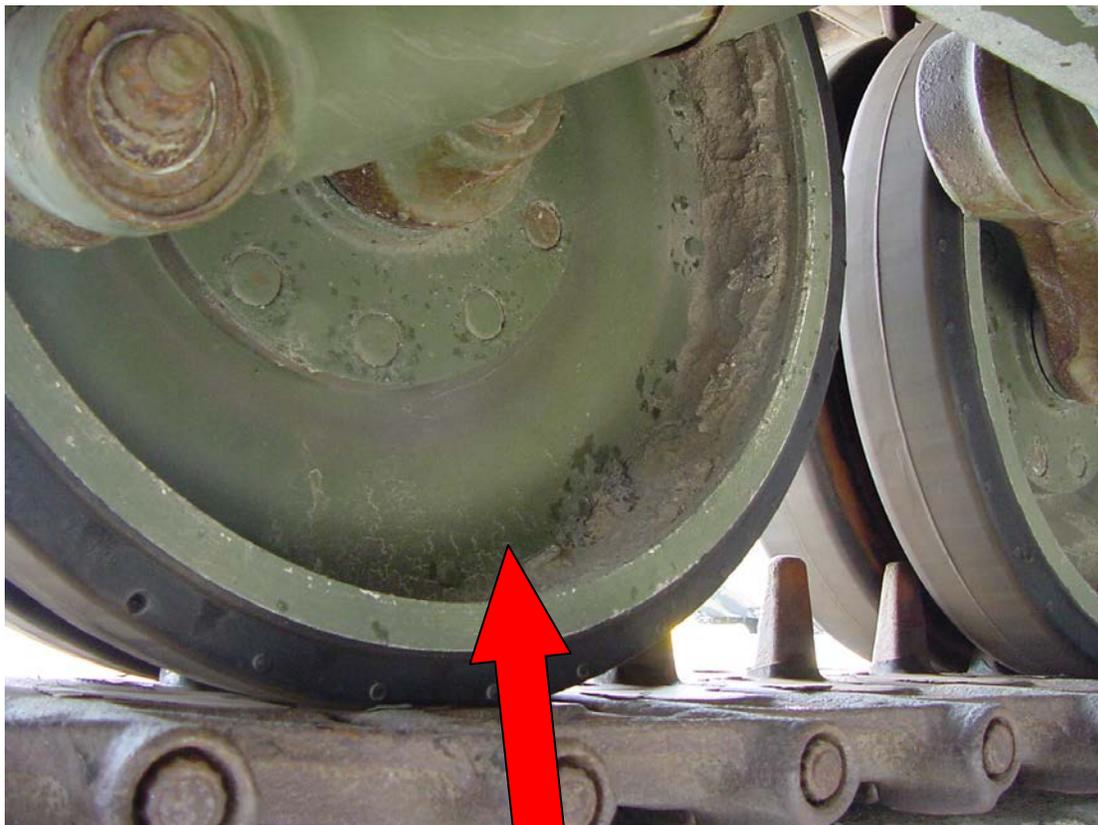
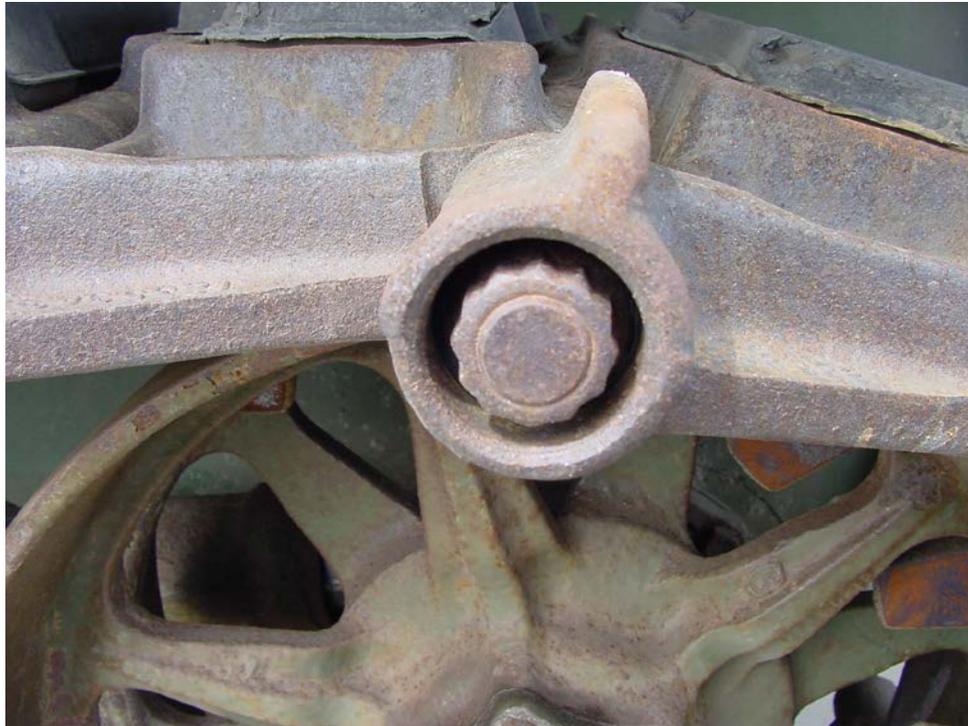
Amphibious Assault Vehicle (AAV) on wash rack

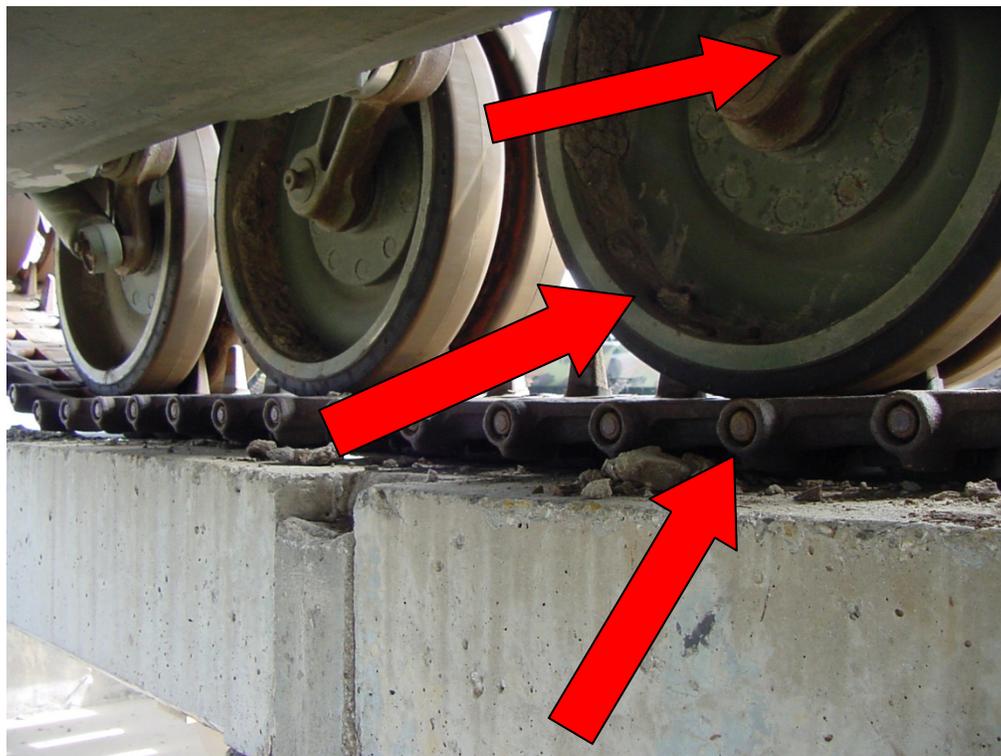


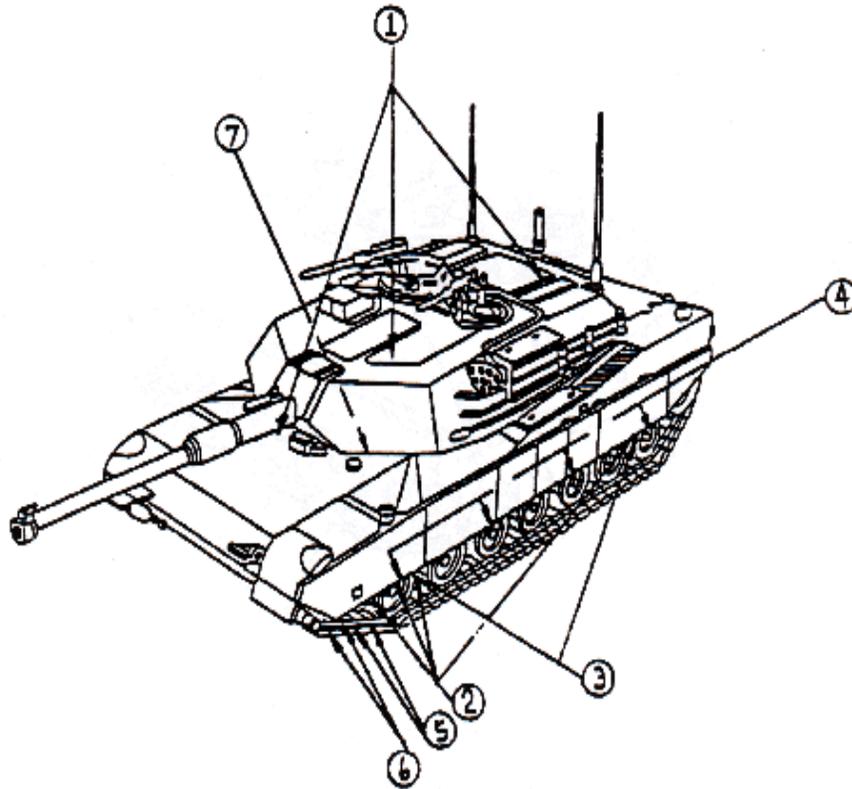


Inside AAV. Soil collecting on floor, under benches and support structures





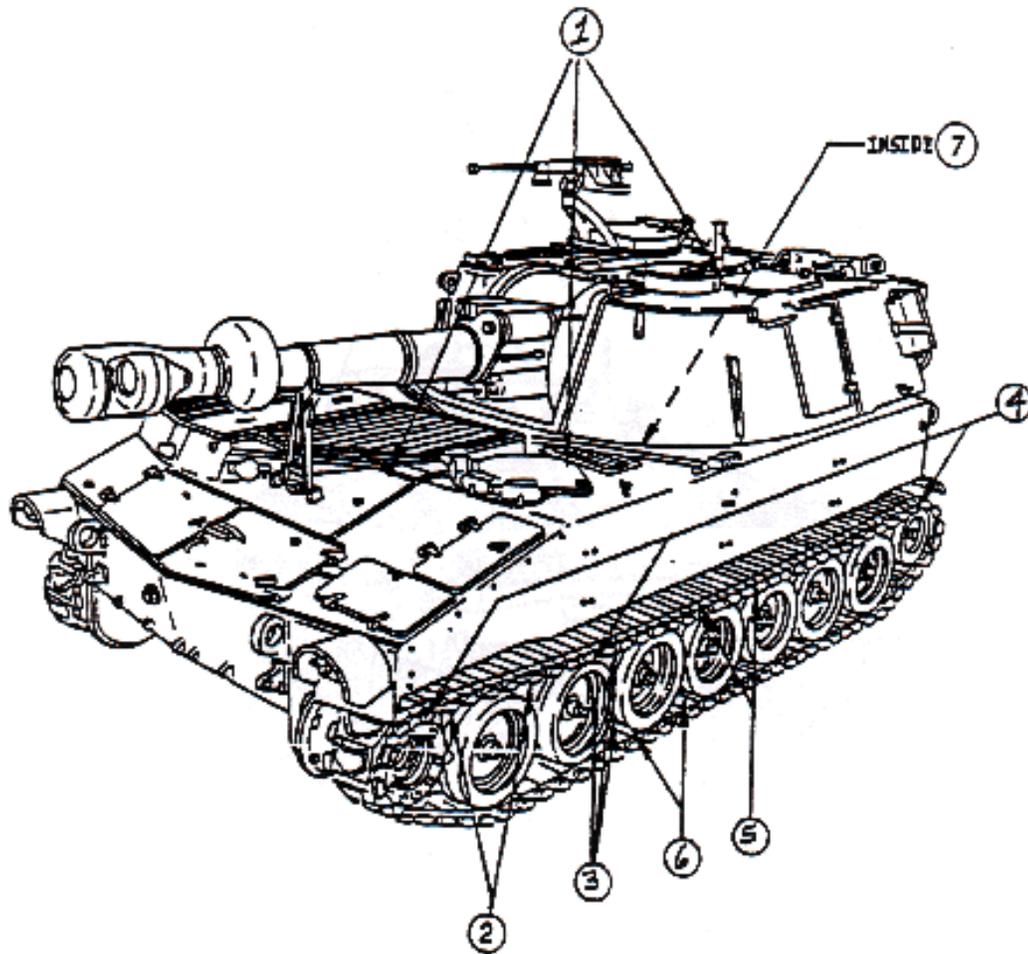




PROBLEM AREAS

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.

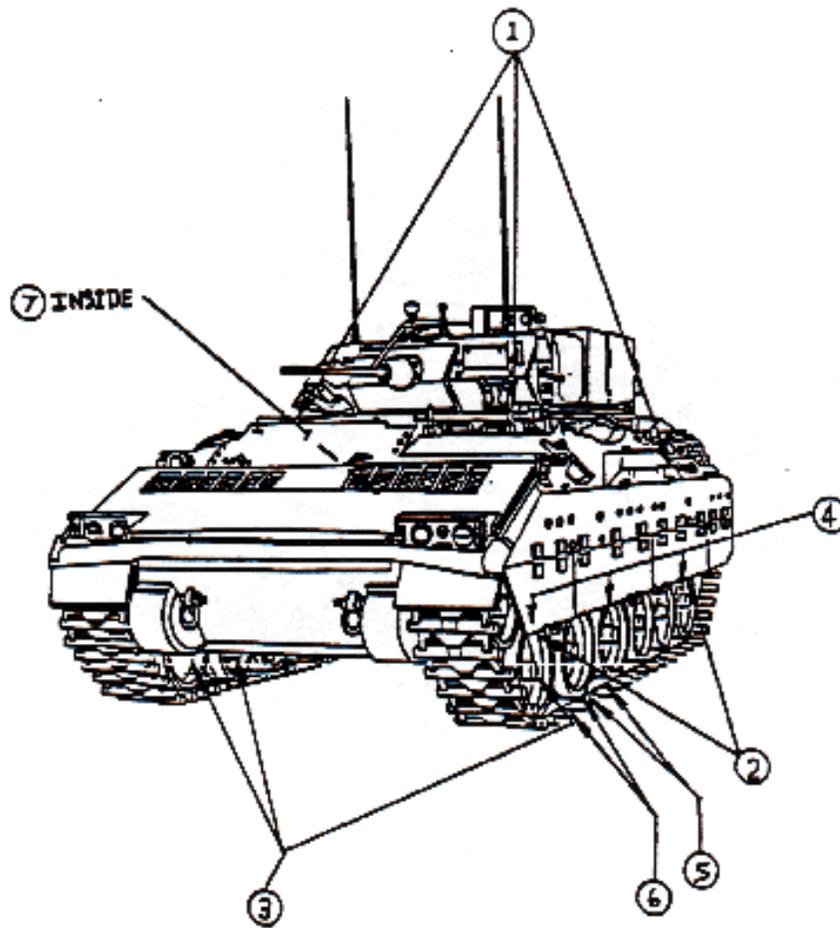
NOTE: Tracks are a MAJOR PROBLEM, clean thoroughly.



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.



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.

Appendix F: Flow Chart of a Typical Operational Washdown

The order of tasks to be accomplished during a washdown should follow the pattern described below:

— Remove detachable parts and mobile loads

- Clean all surfaces
- Clean interiors and compartments

— Vacuum or compressed-air clean interior of vehicle and remove trash

— Top wash

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

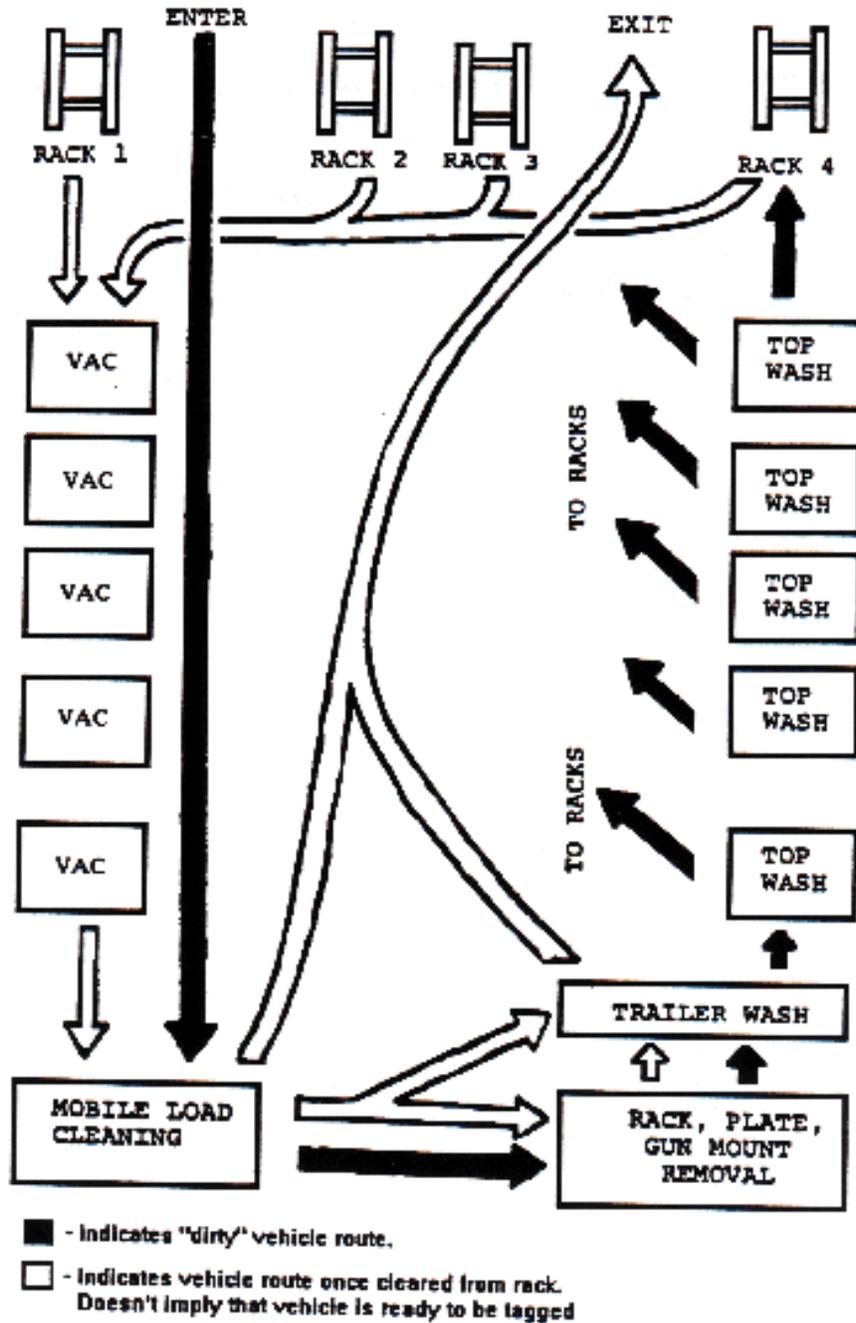
— Wash rack

- Clean all surfaces
- Clean all wheel wells
- Clean all ledges
- Clean engine compartment
- Universal joints
- Support beams

— Wet-Vac

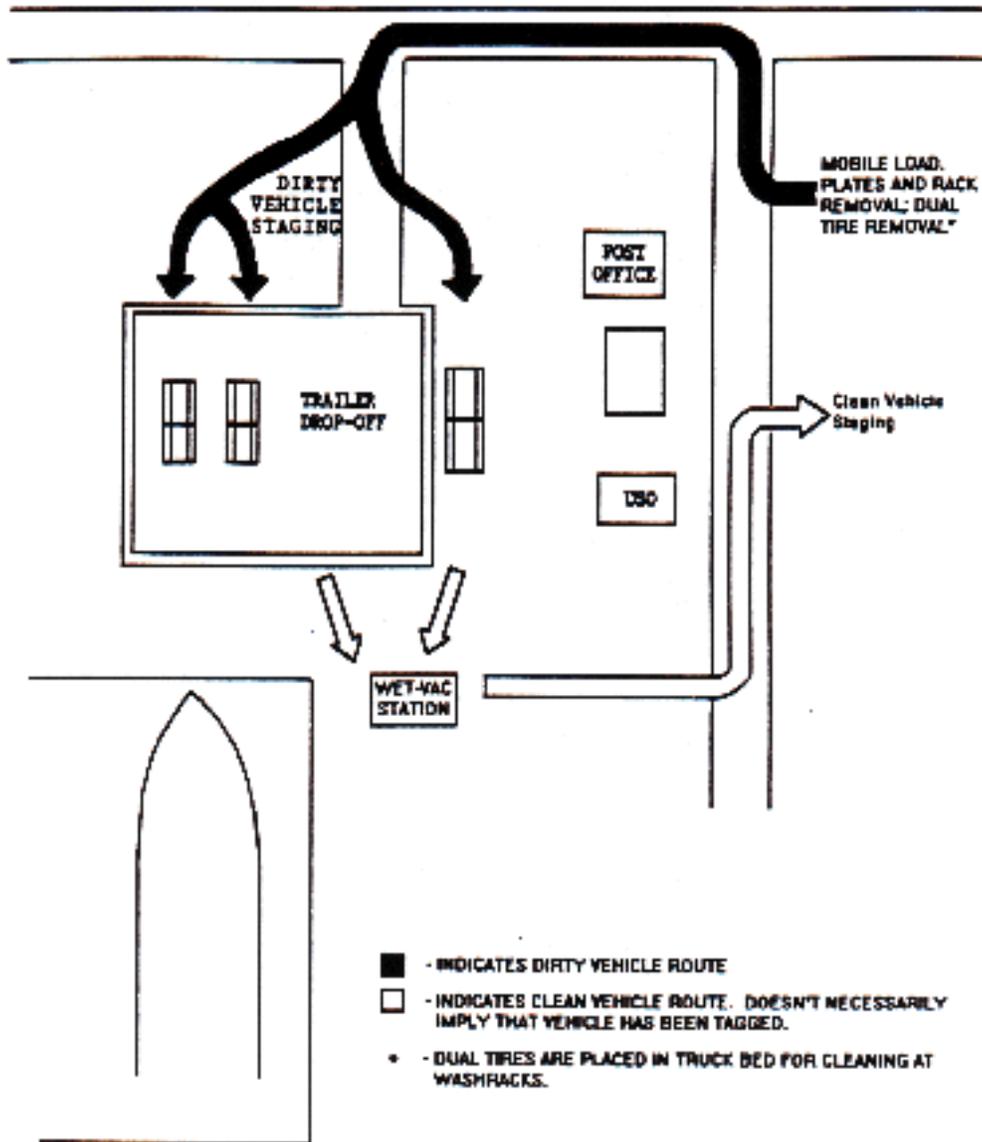
- Vacuum all passenger compartments
- Vacuum all tool and cargo compartments
- **Inspect**
- **Reassemble**
- **Stage in Cleaning Area**
- **Helpful tips from experience:**
 - Thoroughly brief personnel
 - Use "assembly line" methods
 - Do most cleaning before wash racks
 - Use several crews
 - Use experienced personnel
 - Have spare equipment
 - Protect hoses
 - Use PPE

Washdown Flow Chart - Haifa, Israel



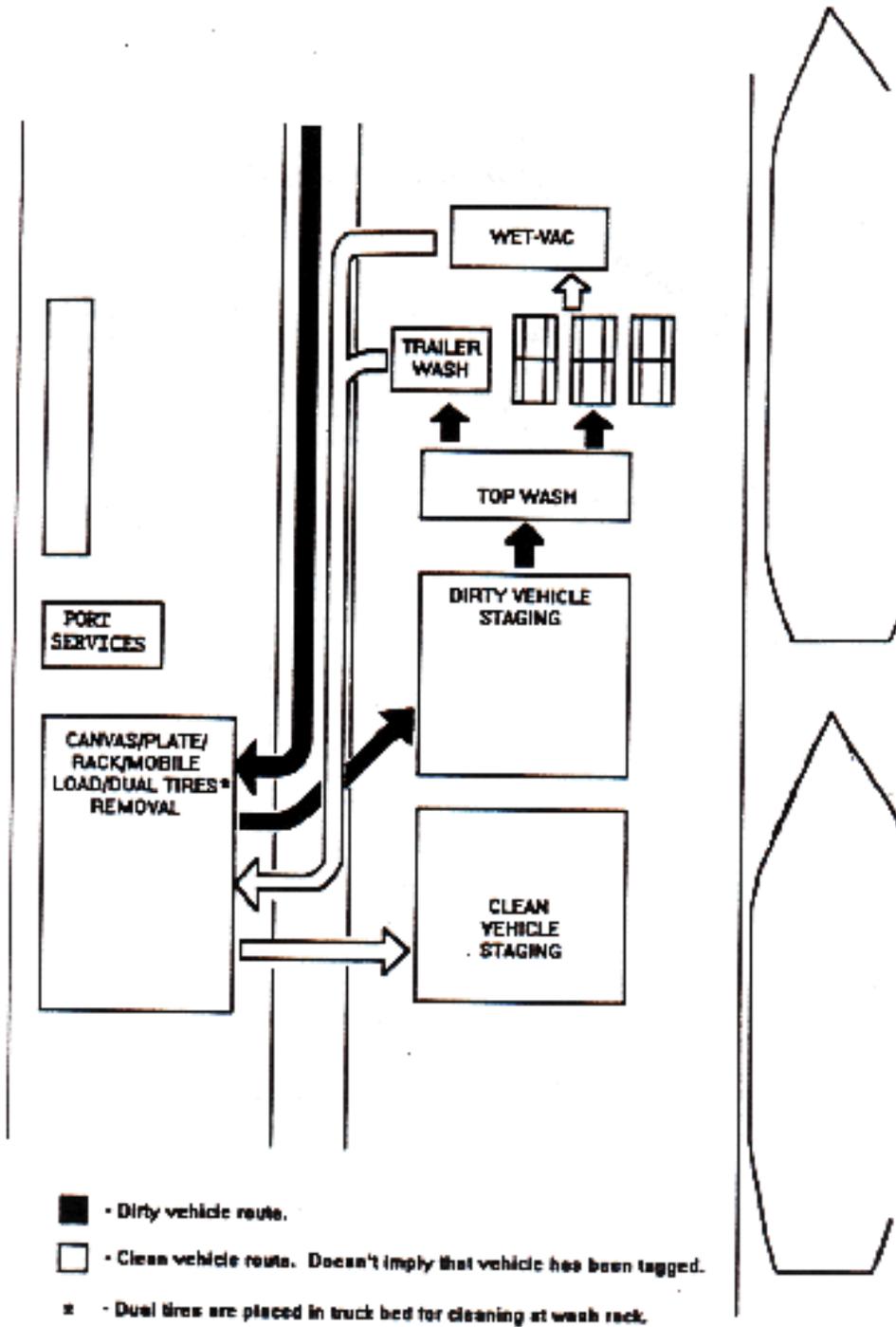
Washdown Flow Chart Example 1

Washdown Site - Roosevelt Roads, Puerto Rico

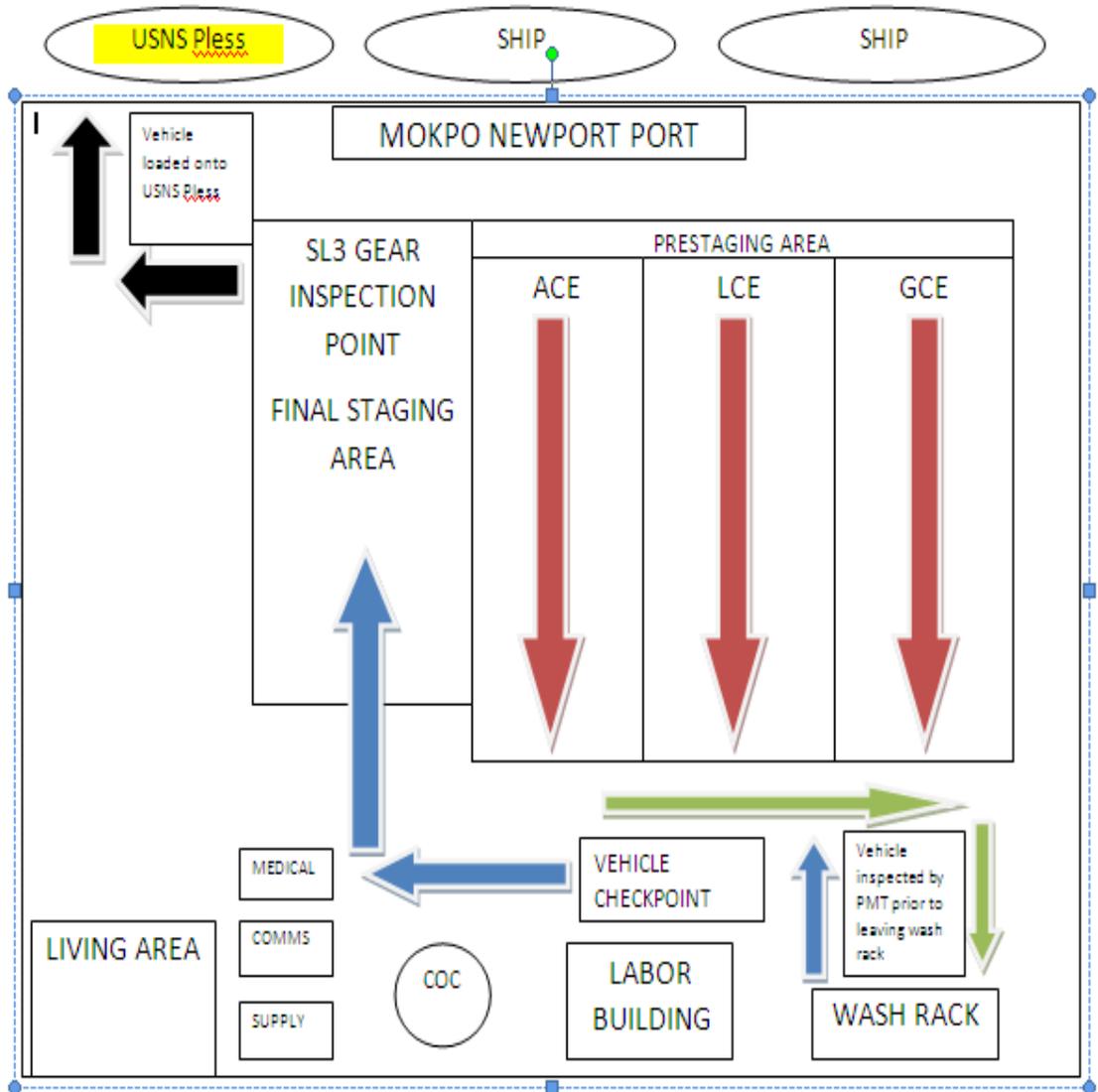


Washdown Flow Chart Example 2

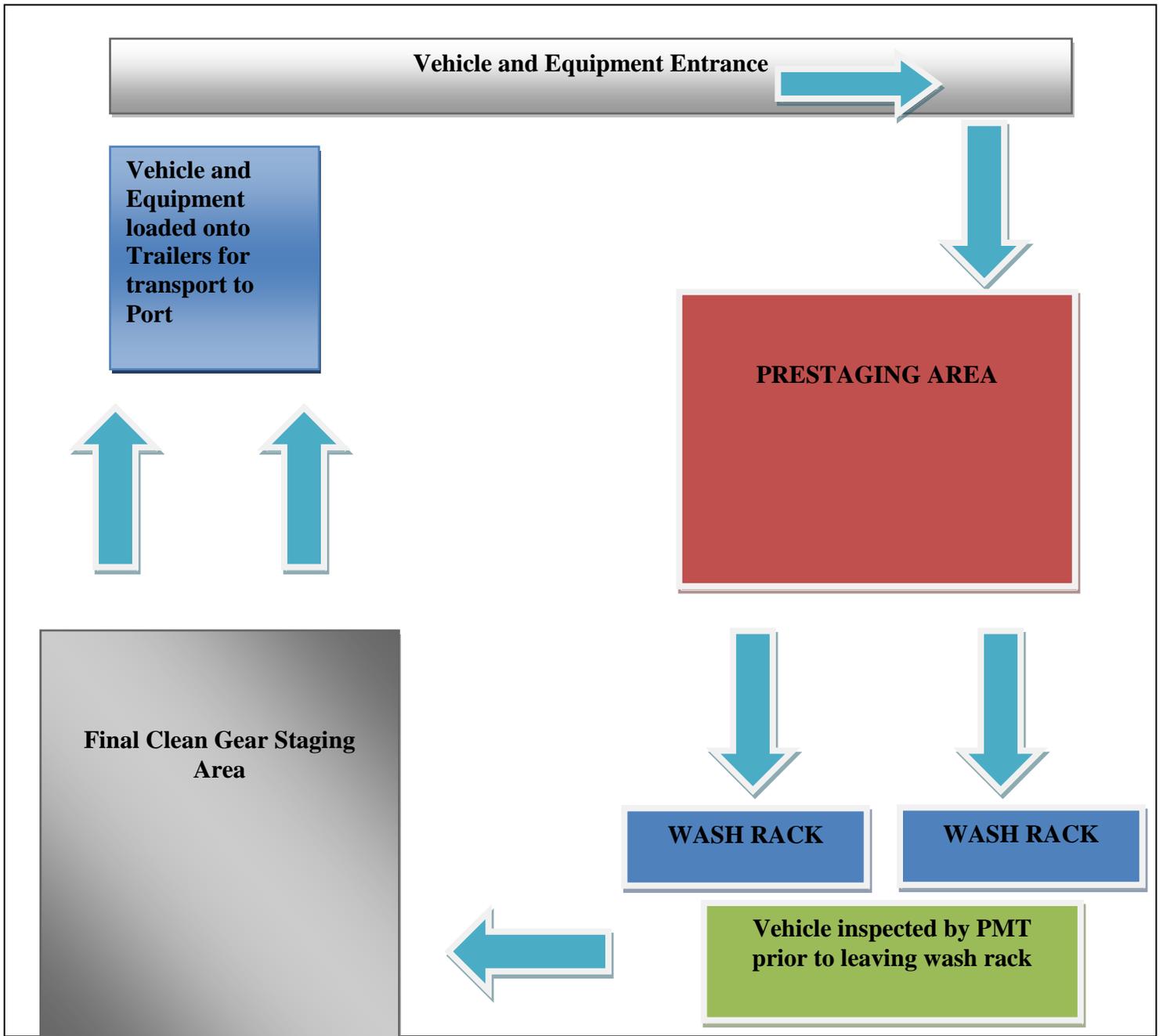
Washdown Site - Rota, Spain



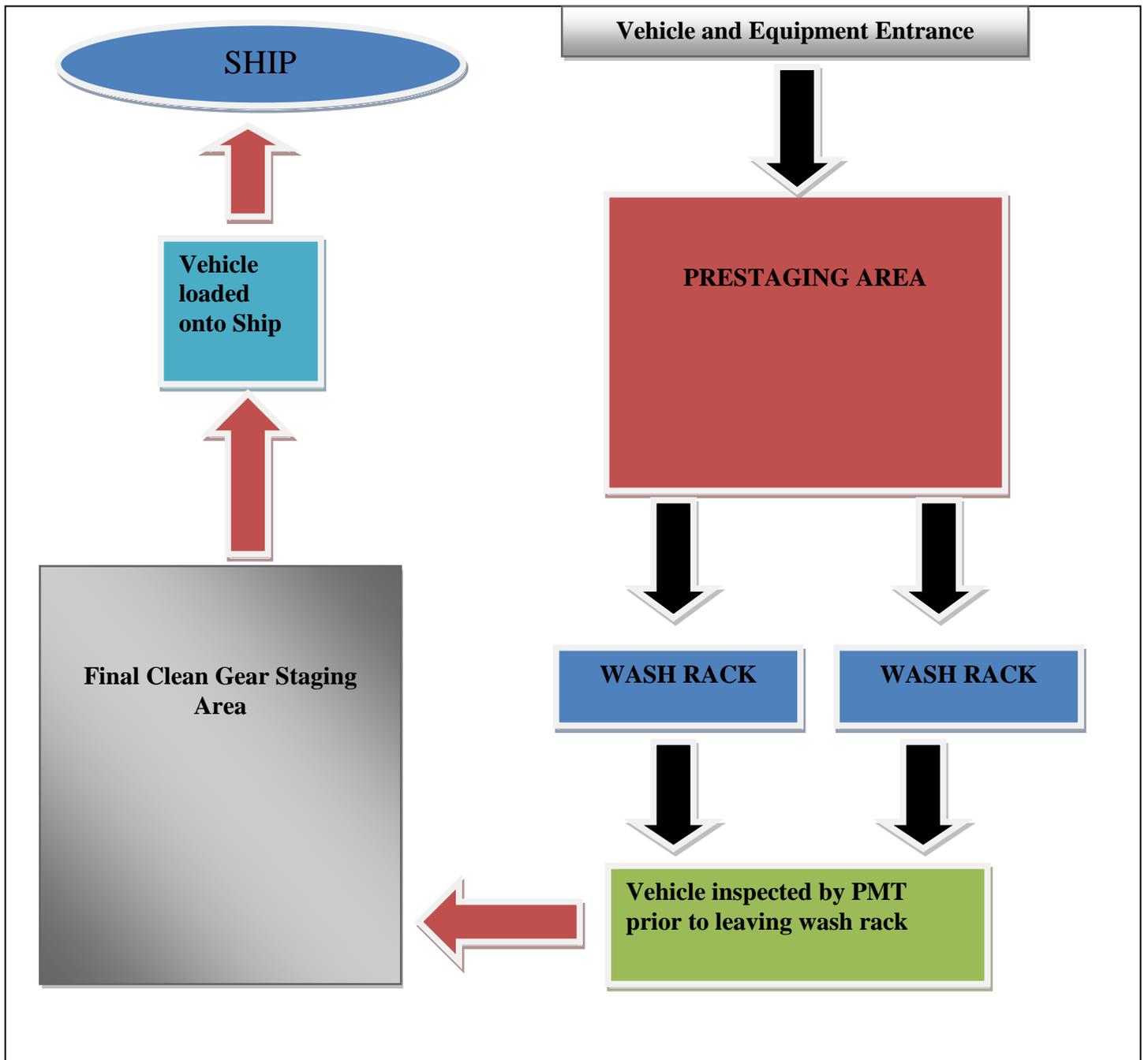
Washdown Flow Chart Example 3



Washdown Flow Chart Example 4



Washdown Flow Chart Example 5



Washdown Flow Chart Example 6



Wash Rack example



Wash Rack example



Wash Rack example



Wash Rack example

Appendix G: Sample Vehicle Tags

WASHDOWN CLEARANCE	
<input type="radio"/>	VEHICLE #: X215792 TYPE: M998
DATE: 8 DEC 93	INITIALS: SG

Vehicle tag for passed inspection (White (or Manila) Tag)

WASHDOWN CLEARANCE	
<input type="radio"/>	VEHICLE #: X215792 TYPE: M998
DATE: 8 DEC 93	INITIALS: SG
DIRT IN WHEEL WELLS	

Vehicle tag for failed inspection (Red Tag)

- Computer generated labels can be used if technology is available.
- Tie these tags where they will be readily seen; on rearview mirror is a standard.

U.S. MILITARY PRECLEARANCE PROGRAM	
The U.S. Government property to which this label has been affixed meets the entry Requirements of the U.S. Department of Agriculture	
Unit of Origin	U.S. Port of Entry
Inspector's rank and name (<i>Last, First M.I.</i>)	Date
Remarks	U.S. Department of Agriculture

USEUCOM Label 30-3-1, Oct 03

Appendix H: Sample Inspection Log Book Entry

#	Vehicle Type	Serial #	Date Inspected	Initials
105	HUMVEE	550370	20 Oct	OF
106	5-Ton	571269	20 Oct	OF
107	Jeep	632848	20 Oct	OF
108	Jeep	620968	20 Oct	OF
109	Jeep	604321	21 Oct	OF
110	P/K Truck	591681	21 Oct	OF
111	5-Ton	563002	21 Oct	OF
112	Jeep - ^{NOT} PASSED	551360	Remained on tip	Inspector at COMS
113	LAST ENTRY			
114				
115				

Entries include number of vehicle processed, vehicle type, serial no. or VIN, date inspected, inspector's initials.

Appendix I: Sample Format for Letter to USDA Officials

NAVY ENTOMOLOGY CENTER OF EXCELLENCE
NAVAL AIR STATION, BOX 43
JACKSONVILLE, FL 32212

4 December 92
USDA APHIS/PPQ
NC Maritime Bldg., Room 216
113 Arendell Street, P.O. Box 53
Morehead City, NC 28557

Dear Sir or Ma'am:

The following ships were inspected along with their amphibious craft, vehicles, tanks, and equipment:

USS Wasp
USS _____
USS _____

All ships and their cargo are ready for CONUS arrival. The inspection was satisfactorily completed and we recommend approval for acceptance. I can be contacted at (904) 772-2424 should you desire any additional information.

R. J. Officer
CDR MSC USN
USDA ID NUMBER _____

Appendix J: Contact Information for Customs & Border Protection, USDA-APHIS, and DoD Offices Responsible for Clearance Authorization

DoD Executive Agent for the DoD Customs and Border Clearance Program

US Transportation Command
USTRANSCOM/J5-PT
Scott AFB, IL 62225
PH: (618) 229-1985
DSN: 779-1985
FAX: xxx-8574
DMS ADDRESS: DOD/USTRANSCOM/ORGANIZATIONS/USTRANSCOM IL/TCJ5

EUCOM Executive Agent

Office of the Provost Marshal
HQ, USAREUR and Seventh Army
ATTN: AEAPM-PO-EA
FPO AE 09086-0107
PH: (0621) 730-8381
FAX: (0621) 730-6006 or 7324
MSG ADDRESS: CINCUSAREUR MANNHEIM GE//AEAPM-PO-EA//

US Navy Fleet Customs Information

Navy Environmental Health center, ATTN: 02E or 037
2610 Walmer Avenue, Suite A
Norfolk, VA 23513-2617
PH: (804) 444-7575, ext 261
FAX: (804) 444-3672
MSG ADDRESS: NAVENVIRHLTHCEN NORFOLK VA//02E// or //037//

US Department of Agriculture

Animal and Plant Health Inspection Service
National Center for Animal Health Emergency Management
4700 River Road, Unit 41
Riverdale, MD 20737
Telephone: (301) 851-3595
Fax: (301) 734-7817

**US Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Quarantine Policy, Analysis and Support**

4700 River Road, Unit 60
Riverdale, Maryland 20737
Telephone: (301) 851-2312
Fax: (301) 734-5269/8318

Foot and Mouth Disease/Foreign Animal Disease Related Questions/Issues

USDA APHIS PPQ VRS
Telephone: (301) 851-2295
FAX: (301) 734-8538

Preclearance Requests

Stanley Cornelius
Email: Stanley.Cornelius@usda.gov

APHIS Preclearance Program Questions

Keith G. Miller
Email: Keith.G.Miller@aphis.usda.gov

US Port Arrival Policy Questions

Keith Miller
Email: keith.g.miller@aphis.usda.gov

Department of Homeland Security: US Customs and Border Protection

CBP Headquarters

Director, Preclearance Operations
1300 Pennsylvania Ave, Northwest
Room 5.5B
Washington, DC 20229
Phone: 202-927-1439

**Department of Homeland Security: US Customs and Border Protection CONUS Field
Operations Offices**

Atlanta

Field Operations Office Information
1699 Phoenix Parkway
Suite 400
College Park, GA 30349
Mailing Address: Same As Above
Phone: (678) 284-5900
FAX: (678) 284-5932
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

Baltimore

Field Operations Office Information
103 South Gay Street
Suite 715
Baltimore, MD 21202
Mailing Address: Same As Above
Phone: (410) 962-6200
FAX: (410) 962-2423
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

Boston

Field Operations Office Information
10 Causeway St
Room 801
Boston, MA 02222
Mailing Address: Same As Above
Phone: (617) 565-6208
FAX: (617) 565-6277
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

Buffalo

Field Operations Office Information
4455 Genesee Street
Buffalo, NY 14225
Mailing Address: Same As Above
Phone: (716) 626-0400
FAX: (716) 626-1164
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

Chicago

Field Operations Office Information
610 S. Canal Street
Room 900
Chicago, IL 60607
Mailing Address: Same As Above
Phone: (312) 983-9100
FAX: (312) 886-4921
Operational Hours: 8:00 AM-5:00 PM (Central)
Weekdays (Monday-Friday)

Detroit

Field Operations Office Information
211 West Fort Street, Suite 1200
Detroit, MI 48226
Mailing Address: Same As Above
Phone: (313) 496-2155
FAX: (313) 226-6066
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

El Paso

Field Operations Office Information
9400 Viscount Suite 104
El Paso, TX 79925
Mailing Address: Same As Above
Phone: (915) 633-7300
FAX: (915) 633-7345
Operational Hours: 8:30 AM-5:00 PM (Mountain)
Weekdays (Monday-Friday)

Houston

Field Operations Office Information
2323 S. Shepherd #1200
Houston, TX 77019
Mailing Address: Same As Above
Phone: (713) 387-7200
FAX: (713) 387-7212
Operational Hours: 8:30 AM-5:00 PM (Central)
Weekdays (Monday-Friday)

Laredo

Field Operations Office Information
109 Shiloh Dr., Suite 300
Laredo, TX 78045
Mailing Address : Same As Above
Phone: (956) 753-1700
FAX: (956) 753-1754
Operational Hours: 8:00 AM-5:00 PM (Central)
Weekdays (Monday-Friday)

Los Angeles

Field Operations Office Information
1 World Trade Center
Suite 705
Long Beach, CA 90831
Mailing Address: Same As Above
Phone: (562) 980-3100
FAX: (562) 980-3107
Operational Hours: 8:00 AM-4:30 PM (Pacific)
Weekdays (Monday-Friday)

Miami

Field Operations Office Information
909 S.E. 1st Avenue
Suite 980
Miami, FL 33131
Mailing Address: Same As Above
Phone: (305) 810-5120
FAX: (305) 810-5143
Operational Hours: 8:00 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

New Orleans

Field Operations Office Information
1515 Poydras Street
Room 880
New Orleans, LA 70112
Mailing Address: Same
Phone: (504) 670-2404
FAX: (504) 670-2286
Operational Hours : 8:00 AM-5:00 PM (Central)
Weekdays (Monday-Friday)

New York

Field Operations Office Information
One Penn Plaza
11th Floor
New York, NY 10119
Mailing Address: Same As Above
Phone: (646) 733-3100
FAX: (646) 733-3245
Operational Hours: 8:00 AM-4:30 PM (Eastern)
Weekdays (Monday-Friday)

Portland

*Field Operations Office Information
33 New Montgomery Street, Suite 1601
Suite 1601
San Francisco, CA 94105
Mailing Address: Same As Above
General Phone: (415) 744-1530
General Fax: (415) 744-7005
Operational Hours: 8:00 AM-4:30 PM (Pacific)
Weekdays (Monday-Friday)
*Portland office is managed out of the San Francisco Field Office

San Diego

Field Operations Office Information
610 W. Ash St
Suite 1200
San Diego, CA 92101
Mailing Address: Same As Above
Phone: (619) 652-9966
FAX: (619) 645-6644
Operational Hours: 8:00 AM-4:30 PM (Pacific)
Weekdays (Monday-Friday)

San Francisco

Field Operations Office Information
33 New Montgomery St., Suite 1601
San Francisco, CA 94105
Mailing Address: Same As Above
Phone: (415) 744-1530 Ext: 225
FAX: (415) 744-7005
Operational Hours: 8:00 AM-4:30 PM (Pacific)
Weekdays (Monday-Friday)

San Juan

Field Operations Office Information
#1 La Puntilla Street
Office Room 203
San Juan, PR 00901
Mailing Address: Same As Above
Phone: (787) 729-6950
FAX: (787) 729-6978
Operational Hours: 8:00 AM-4:30 PM (Eastern)
Weekdays (Monday-Friday)

Seattle

Field Operations Office Information
1000 – 2nd Ave
Suite 2200
Seattle, WA 98104-1049
Mailing Address: Same As Above
Phone: (206) 553-8761
FAX: (206) 553-1401
Operational Hours: 8:00 AM-4:30 PM (Pacific)
Weekdays (Monday-Friday)

Tampa

Field Operations Office Information
1624 East Seventh Avenue
Suite 301
Tampa, FL 33605
Mailing Address: Same As Above
Phone: (813) 228-2381
FAX: (813) 225-7110
Operational Hours: 8:30 AM-5:00 PM (Eastern)
Weekdays (Monday-Friday)

Tucson

Field Operations Office Information
4740 N. Oracle Road
Suite 310
Tucson, AZ 85705
Mailing Address: Same As Above
Phone: (520) 407-2300
FAX: (520) 407-2350
Operational Hours: 8:00 AM-5:00 PM (Pacific)
Weekdays (Monday-Friday)

**Department of Homeland Security: US Customs and Border Protection
OCONUS Pre-Clearance Offices**

Canada

Calgary Preclearance
Calgary International Airport
P.O. Box 155
2000 Airport Road, Northeast
Calgary, Alberta, Canada T2E 6W5
Officer in Charge
Phone: 403-221-1730 x 2248
FAX: 403-221-1732

Edmonton Preclearance

Edmonton International Airport
P.O. Box 9830
Edmonton, Alberta, Canada T5J 2T2
Officer in Charge
Phone: 780-890-4558
FAX: 780-890-7151

Halifax Preclearance

Halifax International Airport
1 Bell Blvd., Compartment #1666
Enfield, NS, Canada B2T 1K2
Officer in Charge
Phone: 902-873-7787

Montreal Preclearance

Montreal Trudeau International Airport
975 Romeo Vachon Boulevard, North
Room 194
Dorval, Quebec, Canada H4Y 1H1
Officer in Charge
Phone: 514-636-3875 x 2234
FAX: 514-636-0983

Ottawa Preclearance

100 Airport Parkway Private, 2nd Level
Ottawa, Ontario, Canada K1V 9B4
Officer in Charge
Phone: 613-523-7495
Fax: 613-523-1356

Toronto Preclearance

Lester B. Pearson International Airport
P.O. Box 6011
Toronto AMF
Toronto, Ontario, Canada L5P 1A2
Officer in Charge
Phone: 905-676-2606 x 196
Fax: 905-676-8498

Vancouver Preclearance

Vancouver International Airport
International Terminal – Level 3
Room C3742.0
Richmond, British Columbia V7B 1Y7
Officer in Charge
Phone: 604-278-7422 x 203
Fax: 604-278-4203

Victoria Preclearance

430 Belleville Street
Victoria, B.C., Canada V8V 1W9
Officer in Charge
Phone: 250-382-5131
Fax: 250-382-9972

Winnipeg Preclearance

Winnipeg International Airport
2000 Wellington Avenue
Winnipeg, Manitoba, Canada R3H 1C1
Officer in Charge
Phone: 204-783-6189
Fax: 204-786-3365

Caribbean

Bahamas – Freeport Preclearance
US Customs & Border Protection
P.O. Box 22400
Ft. Lauderdale, Florida 33335
Officer in Charge
Phone: 242-352-7256

Bahamas – Nassau Preclearance

American Embassy – Nassau
P.O. Box 9009
Miami, Florida 33159
Officer in Charge
Phone: 242-377-8461

Bermuda Preclearance

US Customs & Border Protection
5300 Hamilton Place, Dept. of State
Washington, D.C. 20521-5300
Officer in Charge
Phone: 441-293-0353
Fax: 441-293-1059

Aruba

Aruba Preclearance
P.O. Box 592338
Miami, Florida 33159-2338
Officer in Charge
Phone: 011-297-588-7240
FAX: 011-297-588-7720

Ireland

US Customs & Border Protection
c/o Aer-Rianta
Shannon Airport
Shannon, County Clare, Ireland
Officer in Charge
Phone: 011-353-6147-2297

US Customs & Border Protection

Dublin International Airport

Pier B
Dubland, Ireland
Officer in Charge
Phone: 011-353-1814-4821
FAX: 011-353-1814-4817

USDA State Plant Health Directors

For a current listing of USDA State Plant Health Directors go to:

http://www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml

Alaska

State Plant Health Director-WA State
33400 9th Avenue S, Suite 200
Federal Way, WA 98003
Phone: (253) 944-2040
FAX: (253) 874-1109

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Appendix K: Land Snails and Their Control

K1. Taxonomy, Biology and Ecology of Terrestrial Snails

Members of the class Gastropoda, the largest and most varied group of the phylum Mollusca, includes snails, slugs, and limpets. They are found in marine, fresh-water, and terrestrial habitats. Gastropods have retained the primitive, flat, ventral foot for crawling, but in many other ways have evolved significantly from the ancestral stock. They have all undergone torsion in the general body plan so that the digestive tract is no longer a straight tube, but the anus has coiled to lie on the side and usually near the head. Most gastropods have a coiled shell which corresponds to the coiled visceral mass.

The terrestrial, pulmonate snail *Helix pomatia* Linne typifies the biology and habits of this group. The pulmonate snail is hermaphroditic, and each gravid snail deposits batches of gelatinous-covered eggs in damp places or shallow burrows. Development is direct, the young emerging as minute snails. Movement is by waves of muscular action on the ventral side of the "foot" over a slime trail of mucus secreted by a gland below the mouth. The type of food varies, but snails prefer tender, young green plants. Food is held in the "law" and rasped off in small bits by the feeding apparatus or radula. Snails tend to hide during the day, though they often feed on cloudy days. Terrestrial snails are mainly nocturnal, but following a rain may come out of hiding during the day. Temperature and moisture, rather than light, are the main factors to account for their nocturnal habits. Native snails may be found everywhere but prefer habitats offering shelter, adequate moisture, an abundant food supply and an available source of lime. Forested river valleys generally provide such habitats, and those with outcrops of limestone usually show the most abundant and varied mollusk faunas. Snails are very adaptable to times of drought and adverse climatic conditions. During these periods, the snail closes the shell aperture with a mucus flap (epiphragm) which hardens and prevents desiccation. Snails can remain in this dormant state (aestivation) for years, breaking dormancy when climatic conditions are favorable again.

K1.1. Families of terrestrial snails of agriculture and quarantine significance intercepted in military cargo

K1.1.1. Family Achatinidae: The giant African snail, *Achatina fulica*, Bowdich is the largest (shell length of 5 inches (125 mm) or more), most voracious and reproductively prolific snail to have been introduced into this country. Its origin is south of the Sahara in East Africa, and it is established in Asia and the Indo-Pacific Islands, including Hawaii. The giant African snail was inadvertently released in California after World War II and in North Miami in the 1970s. In each instance, eradication efforts were successful, but very expensive.



K1.1.2. Family Bradybaenidae: The most well-known member of this family, *Bradybaena similaris*, is a snail of medium size (approximately 12-16 mm in diameter). The shell is wider than high, thin, narrow with a rather depressed spire. The shell is white to greenish yellow, often with a single, spiral, chestnut band. It probably originated somewhere in China but is now widely distributed over the world. *B. similaris* is a severe pest of coffee trees and is found wherever this crop is grown.



K1.1.3. Family Helicidae: This family is the most prevalent and contains the largest European snails, including *Theba pisana* (the white garden snail). Distribution of this group is from the countries bordering the Mediterranean Sea. The shells of the Helicidae are usually medium to very large in size, thick, and often brightly colored, but there is an immense range of size, shape and coloring between and sometimes within species. Members of the family are found in a very wide range of habitats, but there are, within the family, groups of species which share similar features of habitat, size, and way of life. Recently, the white garden snail, *T. pisana*, has become established in San Diego County, California.



K1.1.4. Family Succineidae: *Succinea horticola* Reinhart is the most important species of this family and is found mainly in the Orient, i.e., China, Japan and Okinawa. *S. horticola* is also found in Greece and Italy. This snail is a very severe pest of greenhouse plants and grasses.



K2. Prevention of snail entry and establishment

Following are methods and procedures to be used by Department of Defense personnel located in overseas areas to prevent contamination of materials with land snails, and guidelines for decontamination of cargo both prior to shipment and after arrival.

K2.1. Supplies and retrograde cargo which have not received adequate inspection and are subsequently shipped to CONUS ports of entry may be the source of serious problems, if applicable quarantine procedures are not rigidly observed. Some examples are given below:

K2.1.1. A few contaminated items, intermixed with snail-free cargo loaded on a vessel, may require fumigation of the vessel and entire cargo even if some portions were fumigated prior to landing. This intermixing has been particularly troublesome when shipments originate at different locations, and it may be impossible to establish responsibility for the contamination and to prorate decontamination costs among the shippers on an equitable basis.

K2.1.2. Initial cargo inspection prior to loading aboard ships or aircraft may not always reveal the presence of snails. If contamination is discovered after cargo is unloaded, it may have to be reloaded aboard ship for fumigation if adequate facilities

are not available ashore, or if adverse weather conditions preclude an effective treatment on an exposed dock area.

K2.1.3. The risk of pest introduction is elevated when contaminated cargo is discharged on docks or at military installations CONUS. Many installations are not generally staffed or equipped to decontaminate snail-infested cargo, and the risk of introduction is magnified with delays in arranging for fumigation by commercial pest control operators. Snails, which became established in Florida and California, have presented a very serious threat to the agricultural industry in those states in addition to the expense of the control/eradication measures taken.

K2.1.4. Decontamination at ports of entry, particularly of surface-borne cargo, has been expensive. Fumigation charges may exceed \$40,000 per ship. In addition, there has been considerable delay in the movement of high priority cargo resulting from fumigation.

K2.1.5. Current directives prohibit the fumigation of ammunition aboard ship at CONUS– ports. Therefore, special precautions must be taken through arrangements between the originators and the carrier of the shipment to assure that all ammunition shipments are snail-free.

K2.1.6. The shipment of contaminated cargo to locations in friendly countries where the destructive snails are not known to occur could have serious consequences if the US were held responsible for introducing the pests and for the costs of their eradication. The spread of these snails to other areas would compound the present problems which for the most part have been confined to cargo from the Mediterranean area.

K3. General military operational considerations

K3.1. The problem of agricultural pests associated with retrograde military cargo is not entirely new in the history of Department of Defense overseas support operations. There will be no relief from the risks of pest introduction, and the expense and delay of decontamination, as long as this country has military forces in these areas, unless proper attention is devoted to implementing preventive control procedures at the source.

K3.2. In order to prevent the dissemination of pest snails it is necessary to use three control phases simultaneously as follows:

K3.2.1. Prevention Phase – To protect supplies from becoming infested while in storage or awaiting shipment. This protection should include thorough and complete surveillance by appropriate personnel prior to loading.

K3.2.2. Correction Phase – Designed and implemented by engineer-entomologist services to reduce and/or eliminate local snail populations by chemical and physical means.

K3.2.3. Decontamination Phase – To decontaminate infested materials that are to be returned CONUS or shipped to other military bases and locations in overseas areas.

K3.3. As preventive and corrective control programs are implemented, and their effectiveness increases, the need for decontamination should be reduced.

K3.4. The snail control and decontamination procedures presented here are based upon experience and research, in both field and laboratory studies. Therefore, the methods and procedures outlined should not be modified unless prior approval has been obtained from the area, district, theater, or command entomologist and appropriate U. S Department of Agriculture APHIS representative.

K4. Supply storage

K4.1. The most important phase in the movement of snail-free cargo is that of utilizing good storage practices and techniques to prevent infestation. The following procedures should be incorporated into a preventive control program:

K4.1.1. Store supplies awaiting shipment in warehouses. Land snails do not normally enter buildings to aestivate, therefore, enclosed structures provide the greatest protection against infestation.

K4.1.2. If warehouses are unavailable, use paved open storage and an aggressive snail control program. Areas covered with asphalt or concrete provide the most suitable and lasting types of ground cover for storage areas, and less maintenance will be required.

K4.1.3. If neither warehousing nor paved areas are available for supply storage, suitable storage must be constructed. A layer of well-compacted, crushed stone about 6 inches deep should be laid on the soil, the depth depending on the soil conditions. Placing such an impermeable barrier over the soil will eliminate food sources and break an important link in the reproductive cycle of the snail. Remove the vegetation and top soil from a strip, 20 to 25 feet wide, around the perimeter of this area and apply a soil sterilant (if possible) to prevent growth of vegetation. This type of site can also be used for decontamination prior to shipment CONUS or other snail-free military locations.

K4.1.4. Permit only snail-free supplies in warehouses or snail-free storage areas. Do not mix infested cargo with snail-free cargo in storage or in transit.

K4.1.5. Store transport containers when not in use, in snail-free areas to prevent infestation. CONEX containers have been a major source of snail interceptions at the ports of entry in the past. Shipping containers, including those for household goods, must not be stored or allowed to remain on the open ground. Cargoes or household effects infested with snails should never be packed in containers for shipment.

K5. Cargo movement and transportation of supplies

K5.1. Snail-free retrograde cargo and household effects can be satisfactorily moved from snail-infested areas to CONUS and to other overseas locations, provided good judgment is followed in selection of storage, meticulous pre-inspections are performed and when necessary, effective snail control and fumigation are conducted. These factors must be strictly observed and enforced at the points of origin and embarkation.

K5.1.1. Inspection for Snails: It is vital to prohibit the movement of snail containing cargo into any area unless that species of snail is already established in that area. This is particularly applicable in movement of cargo from country-to-country, between non-contiguous land masses, and from off-shore island(s) to mainland port cities. A thorough inspection should be made of all military materials and personal household effects of military and civilian personnel prior to movement from a known snail area to any snail-free destination. Because of the tendency of snails to hide in crevices or to crawl into holes or other openings, it will be necessary to inspect the interior, as well as the exterior of containers, when potential snail entry holes are noted. The smaller snails resemble ordinary pebbles in color and markings as well as size; therefore, a significant infestation could be overlooked during a superficial inspection of contaminated articles. Occasionally, the presence of snails may be indicated by a faint slime trail. Shipping containers boxes, particularly when they have been in contact with the soil, offer a number of havens for snails — the bottom runners (some of which are hollow), the lift hook slots, and the occasional rust holes in the more weathered boxes. All sides of each likely item must be closely examined, noting in particular any cracks, crevices, or other areas not readily observable. Fork lifts will frequently be required for inspection of bottoms of boxes, crates, and the heavier articles. Steel cylinders present good hiding places – under the screw cap and adhering to the pallets to which cylinders are often fastened. Pipes of all types are especially attractive to snails since caps or plugs are seldom feasible. In the case of tracked vehicles, cranes, and other heavy equipment, with so many crevices in which snails can hide, steam or water-jet cleaning is recommended in lieu of or in addition to examination. To prevent the contamination of military or commercial cargo carriers during the movement of supplies from one location to another, only snail-free cargo should be shipped. In the examination of ships before loading, attention should be given to the bottoms of holds and ledges around the sides. Hold bulkheads near the engine room, being warmer, are favored snail sites.

Note: Snail-free cargo should never be loaded until holds have been thoroughly inspected and found or made snail free.

K5.1.2. US port of entry inspection by Plant Protection and Quarantine: At the US Port of Entry, items which could harbor snails will be subject to inspection by Customs and Border Protection (CBP) Agricultural Inspectors. Standard documents such as vessel or aircraft manifests, general declarations or cargo load plans should be presented to CBP upon arrival at the first US Port of Arrival and/or discharge. These documents will be used by CBP to determine if inspection is required for military cargo or containers transporting military cargo. Generally, CBP examines containers and military cargo originating from certain high risk snail areas of the world such as the Mediterranean and Pacific basin. If quarantine significant snails are found, CBP may refuse entry to the cargo or require the item be fumigated by USDA APHIS to kill the snail pests.

K5.1.3. Other factors involving cargo movement:

K5.1.3.1. Equipment (forklifts, tractor-trailers, trucks, and railcars) and materials (pallets, dunnage, and tarpaulins) utilized in the storage and transportation of non-infested supplies must be snail-free. This equipment, when not in use, should be returned to snail-free areas. Equipment that is utilized to handle or transport snail-infested supplies should not be reused unless the equipment has been decontaminated

K5.1.3.2. It is important that adequate procedures be established to prevent snail "stowaways" in personal household effects of military personnel. Shipment boxes used for household goods should not be placed on the ground. Lawn furniture, garden hoses and tools, sporting goods (boats, motors, etc.) bicycles, motor scooters, utility trailers, tires, and other items that are allowed to remain outdoors must be decontaminated before packing for shipment from snail-infested areas.

K5.1.3.3. Household furniture and packing materials should never be placed on the ground or lawn while being prepared or packed for shipment.

K6. Snail control

K6.1. Military installations and deployments in the Mediterranean region and other high risk areas should establish snail control programs to reduce snail populations on the installations, to control the snails in the vicinity of transportation terminals and to eliminate snails from storage areas. The control of land snails can be accomplished prior to infestation of materials by establishing sound and aggressive physical and chemical control programs. In most instances, both programs should be utilized when practical.

K6.2. Physical control: Physical control measures are of definite value in reducing snail populations where chemical control is too hazardous or expensive. During the summer months when the Mediterranean snails are aestivating, their metabolism is greatly reduced, therefore, chemical control is not effective, and physical control is the only method that can be satisfactorily used. Physical control has been found to be of value in reducing populations of *Theba pisana* in open fields bordering open storage areas in North Africa. Specific physical control measures which would routinely apply as preventive measures in countries with highly endemic snail populations are described as follows:

K6.2.1. Burning-over – Burning vegetation on which aestivating snails attach will reduce snail populations. Burning is most effective during the dry season when the vegetation is dry and the majority of snails are aestivating on the vegetation above ground. The systematic use of flame throwers or commercial weed-burners is effective in reducing snail populations along fence rows, and in areas where other measures may not be practical.

K6.2.2. Plowing – In open fields, adjacent to outside storage and on-base housing areas, plowing the soil twice a year has been found to reduce both *Theba* and *Cochicella* populations. Cultivating the soil in late autumn destroys many of the immature and adult snails, as well as the eggs that have been deposited in the soil.

K6.2.3. Disking and culti-packing – This is helpful in reducing land snail populations in areas where plowing may not be practical because of thin top soil or where erosion may be a serious problem. The mechanical action of the disc and culti-packer will eliminate many adult snails, while stirring the soil will destroy many eggs.

K6.2.4. Equipment utilized in grounds maintenance work should not be parked, stored, or allowed to remain in snail-infested areas. This equipment should be cleaned and returned to the equipment storage area at the end of each work day. The care of equipment prevents infestation and spread into storage areas.

K6.3. Chemical control: Chemical control of exotic snails typically employs metaldehyde, methiocarb (Mesurol), salt, or combinations of these chemicals with other molluscicides in a myriad of bait formulations or foliar sprays.

K6.3.1. Metaldehyde treatments applied during dry climatic conditions are usually more successful than the degree of control achieved during damp, high humidity conditions at which time snails are likely to be more active. The principal toxic effect of metaldehyde is through stimulation of the mucous glands which cause excessive sliming, leading to death by dehydration. Metaldehyde is toxic to slugs and snails both by ingestion and absorption by the "foot" of the mollusc.

K6.3.2. The pesticidal properties of methiocarb are similar to the toxic action of other carbamates which prevent effective nerve transmission by inhibiting the enzyme acetylcholinesterase.

K6.3.3. In addition to these molluscicides, sodium chloride, common table salt, is an effective dehydrating agent. It may be applied as a 12-inch barrier application on the perimeter of known/suspected snail-infested areas. During periods of rain or high relative humidity, salt barriers should be renewed frequently. Molluscicides are ineffective during periods when snails are aestivating.

K7. Decontamination Procedures for Snail-Infested Cargo

K7.1. Freshwater wash down (high pressure) is the most accepted, effective and inexpensive method if infestation is obvious and snails are superficially attached. Prior to high pressure wash down, all soil plant material and any other debris should be removed by scraping, brushing or any suitable and appropriate method that will remove gross contamination prior to the actual wash down. The military inspector, after contacting APHIS should be aware of the ultimate disposition of all live and dead snails and any plant material/soil which has been removed during the wash down procedures. If this material does not enter a sanitary sewer system where chemical treatment would be routine, other steps should be taken. A suitable option would be to conduct the cleaning procedure(s) on a concrete or asphalt hardstand which would permit collection and proper disposal of material removed during wash down.

K7.2. Live steam wash down is an effective method, providing equipment and facilities are available. Live steam is highly lethal to molluscs, but extreme safety precautions must be followed both for the safety of the operator and the vehicles or equipment to be cleaned. These would include the use of protective rubberized outer clothing, rubber boots, rubber gloves and protective face and head gear. The peripheral area of the live steam decontamination area should be well marked, and protective barriers should be in place before beginning the cleaning procedures. Extreme care should be exercised when steam is used-to clean metal surfaces because of the burn hazard of the heated metal.

K7.3. Chemical Methods: With the use of devices for measuring gas concentrations, fumigation under temporary enclosures has become generally accepted as a reliable method of snail eradication. Its adaptability for use under a variety of circumstances makes it an irreplaceable method in many instances. The use of a temporary enclosure for the fumigation of snail-infested cargo certainly contains elements of risk beyond those of an approved fumigation chamber. However, it can be used effectively against many plant pests and when properly managed should not present any serious safety hazard. Fumigation must be performed only by properly trained and certified applicators. APHIS is certified to oversee fumigations.

K7.3.1. Fumigation Procedures:

K7.3.1.1. Methyl bromide (MB) is one of the principal fumigants used under tarpaulins for shipboard, and/or warehouse fumigations. It is a colorless gas, and usually supplied as a heavy, volatile liquid under pressure. The gas volatilizes when released from containers at ambient temperatures of 400 F(4.4 Co) or above. In the actual fumigation procedure, vaporizers and circulatory fans are used to increase diffusion and penetration of this fumigant.

K7.3.1.2. Like all effective fumigants, MB is very dangerous to humans and when improperly handled may produce serious consequences. Fumigations should always be under the supervision of a responsible person who is properly certified and thoroughly familiar with the fumigant and the hazards that may prevail. Exposure of personnel to all concentrations is to be avoided. The threshold limit value has been established at 5 ppm in air for repeated exposures, 8 hr per day, 5 days per week. A concentration of 2,000 ppm is considered to be immediately dangerous to life and health. There is also a chronic toxicity hazard from continuous exposures to low concentrations in air. However, MB poisoning, both acute and chronic, can be avoided with appropriate training. Reasonable care good Judgment, and proper safety equipment.

K7.3.1.3. Although the commercial fumigator is responsible for producing the desired results, the military entomologist/inspector must assume a functional role during the operation. He must confer with the fumigator and decide upon the best possible method to follow. Only thorough familiarity with the materials and procedures involved can this be best accomplished.

K7.3.1.4. Before any large fumigations are started, the commercial fumigator should make sure that local ordinances are understood and followed. Police and fire departments should be notified if required by law. Public safety must be the utmost consideration; and although the military inspector cannot assume the responsibility of providing complete protection, he should be able to recognize unsafe procedures and offer advice concerning dangerous situations which may arise.

K7.3.2. USDA-APHIS PPQ treatment schedules for snails are accessible online at http://www.aphis.usda.gov/import_export/ -- see Treatment Manual 5-5-1, Treatment Schedules, T400 - Schedules for Miscellaneous Products, http://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment_pdf/05_05_t400schedules.pdf, 05/2011-61.

K8. Post-Exposure Procedures for Retrograde Military Equipment

K8.1. Notification of Infestation – The nearest representative of APHIS should be notified of a known or suspected snail infestation on any vehicles, weapons, or any

other type of military equipment or gear which is being returned to CONUS from a foreign country in which snails declared to be under quarantine by APHIS exist.

K8.2. A list of assigned APHIS inspectors, location of work sites and their telephone numbers should be maintained at every port-of-entry where military equipment would be received. This list should be reviewed and updated at least annually.

K8.3. Contaminated military cargo, equipment, and/or household effects under USDA quarantine should never be moved any further from the point of disembarkation than is essential to affect the necessary decontamination procedures.