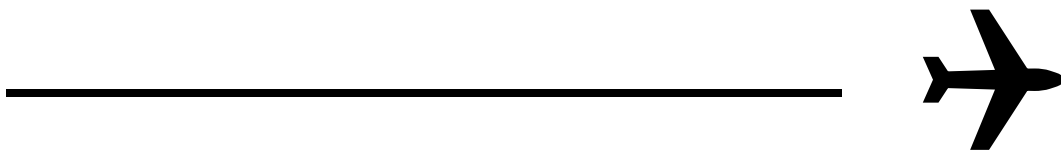


CDC X2T35X

Mission Generation Vehicular Equipment Maintenance Journeyman

Volume 1. Air Force Vehicle Management Flight Operations



Air Force Career Development Academy

Air University

Air Education and Training Command

X2T35X 01 1907, Edit Code 01

AFSC 2T351

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NOW THAT YOU HAVE SUCCESSFULLY COMPLETED TECHNICAL TRAINING and reported to your duty station, CDC X2T35X, *Mission Generation Vehicular Equipment Maintenance Journeyman*, is your next step in becoming a proficient journeyman in your new career field. In the first volume, you will learn how your flight conducts vehicle management operations, supporting missions throughout your wing and the Air Force. The second volume will discuss vehicle electrical, electronic, and computer systems. In the third volume, you will learn about internal combustion engines and fuels, followed by the fourth volume, where you will learn more about systems related to engines.

After Volume 1, you will be introduced to a companion textbook, *Modern Automotive Technology, 9th Edition*. Volumes 2, 3, and 4 of this career development course (CDC), along with the Y2T35X CDC, will rely primarily on assignments from the textbook, but will include traditional CDC material as well.

In this first volume, you will learn about how an Air Force vehicle management flight operates. You will look at the typical squadron we fall under—the logistics readiness squadron (LRS). Specifically, you will study the sections of an LRS, and some of vehicle management's common responsibilities, processes, programs, and policies.

Unit 1 will cover LRS functions and vehicle management responsibilities.

Unit 2 will cover vehicle inspections, environmental programs, special maintenance policies, and maintenance management programs

Unit 3 will cover supply functions and technical orders.

A glossary is included for your use.

Code numbers on figures are for preparing agency identification only.

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To get a response to your questions concerning subject matter in this course, or to point out technical errors in the text, unit review exercises, or course examination, call or write the author using the contact information provided in this volume.

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For Guard and Reserve personnel, this volume is valued at 16 hours and 4 points.

NOTE:

In this volume, the subject matter is divided into self-contained units. A unit menu begins each unit, identifying the lesson headings and numbers. After reading the unit menu page and unit introduction, study the section, answer the self-test questions, and compare your answers with those given at the end of the unit. Then complete the unit review exercises.

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Unit 1. Logistics Readiness Squadron Functions and Vehicle Management Responsibilities

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SINCE ITS BEGINNING the Air Force (AF) has shaped itself to meet current challenges from global warfare to our current air and space expeditionary force (AEF) concept. The Air Force has transformed its philosophy from a heavy-go-and-slow concept of taking mountains of materiel via slow transportation channels, with virtually no transit accountability, to our current go-light-and-fast concept of agile combat support. With this new concept, essential materiel is moved at a high speed with near real time visibility. No longer does the war fighter take all materiel just in case— now the concept is to take minimal materiel forward and rely on regionalized behind-the-lines operations to supply sustainment materiel when needed. These concepts and real life operations have given birth to what we now know as the logistics readiness squadron (LRS). The Air Force has a large investment in its maintenance shops and vehicles. To provide the required service and maintenance, we must have adequate facilities, tools, equipment, money, and personnel. The internal organizational structure and your responsibility within that structure are critical to day-to-day vehicle management operations. Acquiring the fundamental knowledge of the processes involved will make you a valuable member to your unit.

1-1. Logistics Readiness Squadron Functions

The LRS provides overall direction for base logistics processes related to vehicle, cargo movement, passenger movement, personal property, supplies, equipment, deployment planning and operations, fuels, and when appropriate, logistics plans. At the time of this publication, LRS had just completed the reorganization and consolidation of the flights from six to four. Some will still remember the old flights, but most of you taking this career development course (CDC) will have grown up in the current LRS environment. Figure 1-1 illustrates the LRS organizational structure. In this section, you will study the functions of each section and elements within the squadron.

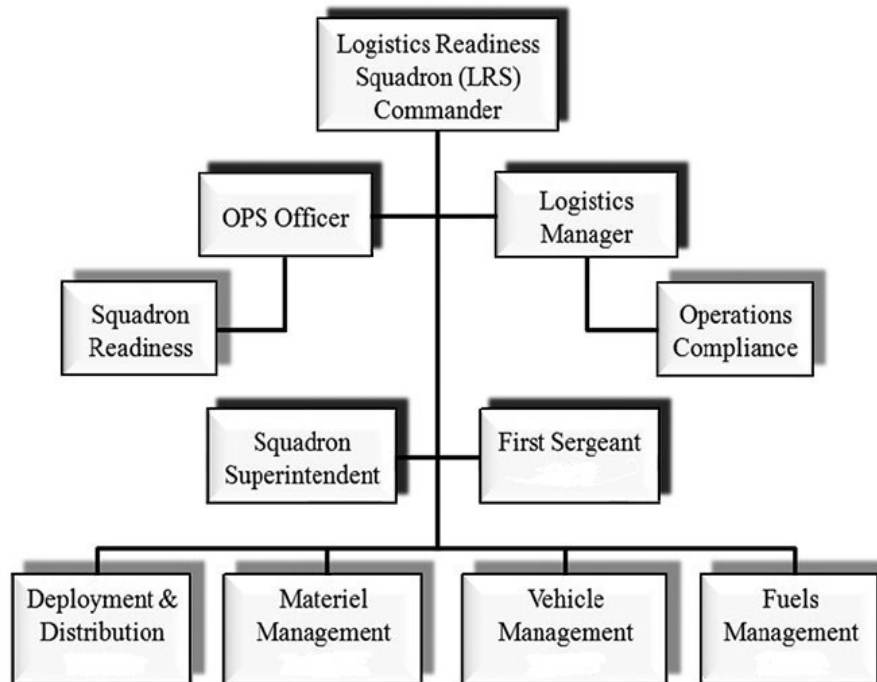


Figure 1-1. LRS organizational structure.

001. Logistics readiness squadron commander's staff

The commander's staff provides overall direction for base logistics processes related to vehicles, cargo movement, passenger movement, personal property, supplies, equipment, deployment planning and operations, fuels, and when appropriate, logistics planning. The commander's staff is comprised of the following members:

1. LRS commander.
2. Operations officer.
3. Logistics manager.
4. First sergeant.
5. Squadron superintendent.

Logistics readiness squadron commander

The LRS commander is responsible for directing the materiel management, deployment and distribution, vehicle management, and fuels management flights. The commander develops broad plans and policies to ensure the adequate health, welfare, and morale of assigned personnel. He or she ensures mission readiness, provides strategic planning, and acts as the focal point for squadron interaction within the base, major command (MAJCOM), and Air Force leadership. Commanders also determine and pursue funding, facilities, and equipment needed to perform the mission.

Operations officer

The operations officer assists the commander in overseeing the daily operations of the squadron. He or she also becomes the acting commander in the absence of the squadron commander.

The operations officer is responsible for the following:

- Directly supervises the LRS unit deployment manager (UDM) and squadron readiness.
- Recommends, in coordination with the UDM and squadron leadership, assignment of squadron personnel to deployment positions for commander approval and coordinates all AEF taskings.
- Carries out all logistics manager duties when no logistics manager is assigned.

The operations officer also oversees the squadron readiness section. This section directs and controls squadron wartime and deployment programs. They review and maintain installation deployment and contingency plans and related publication and policy letters, as well as, review inspection reports, maintain checklists and conducts self-inspections of squadron wartime readiness programs.

Logistics manager

The logistics manager is responsible for the oversight of squadron programs and processes, resource management (facilities, budget, stock control, and infrastructure), squadron analysis, systems management, strategic planning, metrics and squadron training. The logistics manager is the director of operations compliance (OC).

OC is the commander's single point of contact for "health of the squadron" issues. The OC provides oversight of squadron compliance, training, resources, accountability, and analysis. The table gives an overview of the OC processes:

Section	Process Description
Compliance and Analysis	Measures LRS processes through inventory analysis, surveillance, trends, and standards (including oversight of document control), develops and writes local policy/procedures, and performs "over the shoulder" inspections augmented by all LRS career fields. This section's focus is on centralized oversight of critical squadron programs, many of which are executed at the flight level.
Squadron Training	This section manages the training program for all Air Force specialty codes (AFSC) assigned to the squadron. They administer the on-the-job training (OJT) program and ensure qualification training is accomplished.
Resource Management	Responsible for all funds management functions. Serves as unit resource advisor, facilities manager, and financial planning.
Functional Systems Management	Maintains the squadron's automated data processing equipment (ADPE) account records, and manages the local area network (LAN) operating system and computer system integrity.

First sergeant

The first sergeant is the liaison between the squadron commander and the enlisted personnel. He or she assists the squadron commander and squadron section commanders with health, morale, welfare, and discipline of assigned personnel. The first sergeant also administers the unit award program.

Squadron superintendent

The squadron superintendent is usually the senior ranking chief master sergeant (CMSgt) or other senior noncommissioned officer (SNCO) in the squadron. He or she is aligned under the squadron commander and functions as a key advisor on a broad range of operational, readiness, and enlisted human resource concerns. The squadron superintendent's duties will not interfere with the duties of the first sergeant or flight commanders/chiefs. The position of squadron superintendent is optional and not all LRS squadrons will have one.

002. Deployment and distribution flight

The deployment and distribution flight is responsible for the centralized command and control, planning, and execution of all wing deployment operations and the distribution of cargo, passengers, and personal property. This flight is composed of the plans and integration, small air terminal and passenger movement, distribution, and personal property section.

Plans and integration section

The plans and integration section provides wing-level management of AEF, unit type codes (UTC), expeditionary site plans, installation deployment plan (IDP), deployment training, deployment control center (DCC), reception control center (RCC), and core elements of an installation deployment readiness cell (IDRC). This section also provides management oversight of the wing's war reserve materiel (WRM) and support agreement programs.

Where applicable, the small air terminal & passenger movement section manages wing passenger movement functions and provides core transportation expertise to the installation deployment officer (IDO). This enables a viable, robust training program to ensure fully qualified augmentees are available during contingencies and exercises. This section conducts wing training programs that include, but are not limited to, cargo deployment function (CDF)/personnel deployment function (PDF) augmentee training and unit cargo preparation training.

Passenger movement element

The passenger movement element is responsible for providing official travel services for the movement of Department of Defense (DOD) passengers. They determine official travel entitlements, and provide official travel reservations and ticketing services.

Small air terminal operations element

Where applicable, this section manages the day-to-day terminal operations and is responsible for passenger and cargo processing and aircraft handling.

Distribution section

The distribution section is responsible for transportation of cargo and personnel in support of daily and contingency operations. This section is also responsible for the receipt and shipment of DOD supplies and equipment and consists of vehicle operations and cargo movement elements.

Vehicle operations element

Vehicle operations is the single source for safe and efficient organic ground transportation of personnel and cargo within and between installations in support of daily and contingency operations. Operations include transportation of home station, transient aircrews, and cargo. The following table covers the sections of vehicle operations.

Vehicle Operations Element	
Section	Description
Dispatch Operations	Responsible for the effective use of military taxi, you-drive-it (UDI), pickup and delivery, and dispatch support vehicles. Receives and validates requests for dispatch support vehicles (i.e., wreckers, buses, tractor/trailers, forklifts, etc.) and ensures log of events are maintained. Reviews and approves all requests that exceed the permissible operating distance (POD).
Dispatch Support	Responsible for developing dispatch support personnel work schedules. Ensures assigned personnel are properly trained and qualified to meet home station, contingency, deployment, and combat service support mission requirements. Maintains the installation vehicle wash rack.
Training/Validation	Responsible for the development and administration of written and over-the-road evaluations of trainees for general-purpose vehicles designed to carry 16 or more passengers and all tractor/trailer combinations.

Vehicle Operations Element	
Section	Description
Operator Records and Licensing	Manages operator licensing and maintains motor vehicle operator records. Coordinates and maintains vehicle master lesson plans. Initiates vehicle trainer background investigations. Initiates and monitors suspected vehicle misuse cases.

Cargo movement element

The cargo movement element is responsible for planning, packaging, managing, shipping, and receipt of all DOD cargo. The following table gives information on the two sections that make up the cargo movement element.

Cargo Movement Element	
Section	Description
Cargo Inbound	Receives incoming shipments and on-base turn-ins, inspects property, and prepares transportation/supply discrepancy reports. Maintains contracts and purchase orders for locally purchased items, processes due-out releases to delivery area, moves items to storage area, unloads trucks, maintains container inventory control, and performs customs/agriculture duties as required.
Cargo Outbound	Preserves and packages items for shipment, processes outbound freight to carriers, approves and reconciles billing statements, performs customs/agriculture duties, plans shipments, and inspects and certifies hazardous materials for shipment.

Personal property section

This section is responsible for administering the DOD personal property movement programs within its respective area of responsibility and consists of elements discussed in the following table.

Personal Property Section	
Element	Description
Inbound	Clears and arranges delivery of inbound personal property shipments or authorizes their placement into storage. Performs cost estimates for personally procured transportation and assists members with the processing of inconvenience claims. Tracks late shipments and counsels personnel on inbound claim and delivery procedures. Establishes and maintains case files and prepares and updates suspense records to include required delivery dates, storage in-transit authorizations, reweigh suspenses, and direct procurement method control information. Certifies accessorial service payments and reweighs requirements.
Outbound	Determines members' personal property shipment entitlements authorized in conjunction with permanent change of station (PCS), temporary duty (TDY), and local moves, and counsel military and DOD civilians on their entitlements.
Non-temporary Storage Element	Selects low-cost storage and processes handling in/out shipment requests. Corresponds with service members and DOD civilians and contractors for extensions of storage entitlements.
Quality Control Element	Responsible for quality control and inspection duties to include establishing and maintaining carrier/agent performance files. Inspects "all types" of personal property shipments, processes carrier appeals, evaluates agent/contractor facilities, and manages the government-owned container program.

003. Materiel management flight

The materiel management flight is responsible for stocking, storing, issuing, managing, inventorying, and inspecting DOD supplies and equipment. It consists of the following sections: asset management, maintenance support, and customer support.

Asset management section

The asset management section is responsible for stocking, storing, issuing, decentralized inventory, and inspection management of DOD supplies and equipment. The following table gives more information on this section and the elements that compose it.

Asset Management Section	
Element	Description
Aircraft Parts Store (APS)	A decentralized center that stores and issues weapon system spares and all in-warehouse aircraft supply and equipment items. Selects items to be issued, shipped, or transferred. Conducts warehouse validations and inventories (where decentralized), and inspections (i.e., shelf life, functional checks) while maintaining central locator functions. Oversees readiness spares packages (RSP) and manages the staging area for delivery of items.
Central Storage	Responsible for storing all in-warehouse supply and equipment items, (except RSPs), classified and sensitive items, war consumables and distribution objective (WCDO) items, and selecting items to be issued, shipped or transferred. Conducts warehouse validations and inventories (where decentralized) and inspections (i.e., shelf life, functional checks).
Individual Protective Equipment	Responsible for the receipt, storage, and issue of mobility bags and base defense/mobility small arms weapons. Maintains chemical warfare defense equipment back-up stocks, and stores, issues, and ships gas masks/weapon support kits. Operates a small arms storage/issue facility.
Hazardous Material (HAZMAT)	Manages the receipt, storage, issue, inspection, distribution, and tracking of hazardous materials.
Individual Equipment Element (IEE)	Here, one can “shop” for needed individual equipment, such as personal and organizational clothing (i.e., flight suits, work gloves, cold-weather gear, etc.). Falls under the materiel management section unless it has been out-sourced.

Maintenance support section

The following table gives information on the elements in the maintenance support section.

Maintenance Support Section	
Elements	Description
Maintenance Support Liaison	Responsibilities include periodic visits to maintenance work centers; providing guidance for maintaining bench, operating, and shop stocks; and assisting users in resolving any materiel management related problems.
Flightline Service Center	A decentralized center that <i>solely supports</i> flightline activities. Establishes and manages supply points, time-change, and due-in-from-maintenance (DIFM) programs to include awaiting parts (AWP) management and turn-around (TRN) transactions. Manages the local manufacture program, command intensive management items, and quality deficiency report (QDR) program.

Customer support section

Customer support section is the materiel management liaison and equipment accountability authority for wing customers. The following table gives a description of the two elements in this section.

Element	Description
Equipment Accountability	Manages all equipment items with the exception of vehicles in the Air Force Equipment Management System (AFEMS) and Expeditionary Combat Support System (ECSS).
Customer Support Liaison	Serves as customer liaison with the regional supply squadron (RSS). Inter-action with the RSS includes research/records maintenance, equipment, stock control, bench stock, and customer feedback. Also manages the zero overpricing program.

004. Vehicle management flight

The vehicle management flight (fig. 1-2) is the single authority and source for overall maintenance and management of a wing's entire motor vehicle fleet. It also assigns, accounts for, and maintains vehicle assets to stay safe, efficient, environmentally sound, and reliable condition to meet the wing's needs. This flight has a manager/superintendent (when applicable) and consists of the following sections:

1. Administration.
2. Materiel control.
3. Fleet management and analysis (FM&A).
4. Customer service center (CSC).
5. Vehicle specific maintenance and repair sections.

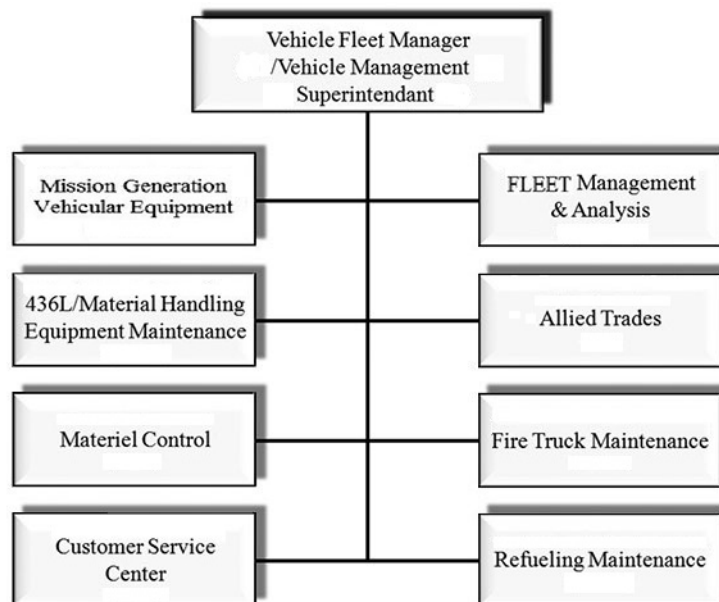


Figure 1-2. Vehicle management flight.

Specific duties and responsibilities are located in Air Force Instruction (AFI) 24-302, *Vehicle Management*; Technical Order (TO) 36-1-191, *Technical and Managerial Reference for Motor Vehicle Maintenance*; and applicable Air Force Occupational Safety and Health (AFOSH) standards.

005. Fuels management flight

The fuels management flight is responsible for ensuring quality petroleum products, cryogenics fluids, and missile propellants are acquired or produced, and issued safely and efficiently to using organizations. The following table describes the sections that are part of the fuels management flight.

Fuels Management Flight	
Section	Description
Fuels Operations	Responsible for fuels distribution, storage, and cryogenic and propellant storage functions.
Fuels Information Service Center	Responsible for the daily management of fuels resources and provides support, accounting, and laboratory analysis of fuel and cryogenic products.
Compliance and Environmental	Manages the inspection function by performing internal and external evaluations. The squadron point of contact for spill prevention and containment. Performs waste fuel management and leak detection measures for the flight.
Cryogenic Production	Manages product loss, maintains cryogenic support equipment and storage tanks, and performs on-line quality control tests at locations with cryogenic production capability.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

001. Logistics readiness squadron commander's staff

1. What does the commander's staff provide within the LRS?
2. Who assists the commander in overseeing the daily operations of the LRS?
3. Which section reviews and maintains installation deployment and contingency plans?
4. The logistics manager is responsible for what?
5. Which section provides oversight of the squadron compliance, training, resources, accountability, and analysis?
6. Which section has the key duty of unit resource advisor?

7. What section maintains the ADPE account records for the squadron?
8. Who administers the unit award program?

002. Deployment and distribution flight

1. Which element of the deployment and distribution flight has the key duty of determining official travel entitlements?
2. What sections fall under the vehicle operations element?
3. What is the responsibility of dispatch operations?
4. What elements fall under the personal property section?

003. Materiel management flight

1. Which flight is responsible for stocking, storing, issuing, managing, inventorying, and inspecting DOD supplies and equipment?
2. What are the three sections that fall under the materiel management flight?
3. Which element supervises the storage and tracking of HAZMAT?
4. Which element solely supports flightline activities?

004. Vehicle management flight

1. The vehicle management flight has the overall responsibility for what?
2. What sections fall under the vehicle management flight?

005. Fuels management flight

1. What is the responsibility of the fuels management flight?
2. Who performs internal and external evaluations of the fuels management flight?

1-2. Vehicle Management Responsibilities

The success of the mission depends in large measure on vehicle management's ability to maintain and provide safe and serviceable vehicles when needed and use the most economical and up-to-date procedures available. Aircraft would not fly without vehicles transporting aircrews and supplies would not be delivered without trucks and materiel-handling equipment. For this reason, every person assigned to vehicle management has an obligation to use resources wisely and identify, prevent, and eliminate fraud, waste, and abuse. Everyone associated with vehicle management must understand his or her role, how that role fits into the "big picture," and most of all, how to do the job well. This section will help you understand base level vehicle management and give you a better understanding of how you fit into this very important organization.

006. Organizational structure and associated responsibilities

Although organizational structures may vary between commands and bases, in general, shop activities and responsibilities are essentially the same throughout the Air Force. Practically all Air Force organizations rely on the availability of safe and serviceable vehicles to do their mission. There are many types of vehicles needed to support each organization in the Air Force. Vehicle management plays a vital role in the success or failure of the mission. Specific duties and responsibilities are in AFI 24-302 and TO 36-1-191.

Vehicle management flight structure

All functions of a vehicle management flight fall under the vehicle fleet manager (VFM) and the vehicle management superintendent (VMS). This is true except in mobile units with an organic maintenance capability (i.e., the ability to repair their vehicles independent of the host base vehicle management flight). The following are common positions and elements found within the vehicle management flight structure.

Vehicle Fleet Manager/Vehicle Management Superintendent

The VFM/VMS is responsible for the day-to-day management of the vehicle management flight.

Administration element

The administration element performs administrative functions as directed by the VFM or VMS. They provide overall flight administration support. This element may be located at the flight level or within each element (i.e., information manager may work in FM&A).

Training leader

The training leader sets up and administers a training program to provide needed guidance for OJT, upgrade, and qualification training within the vehicle management flight.

Fleet management and analysis element

FM&A is the focal point for all registered vehicle matters on an installation. The FM&A ensures the efficient and economical operation of the base vehicle fleet. For efficiency of operations, FM&A must be centrally located to all work centers, if possible, and must be easily accessible and recognizable to customers.

Materiel control element

This element provides oversight and acquires materiel to support the vehicle management mission. It acts as the liaison between vehicle management, the supply system, and other de-centralized purchasing programs such as blanket purchase agreements (BPA) and the government purchase card (GPC).

Customer service element

The CSC is the interface between the vehicle user and the maintenance works centers. CSC technicians debrief vehicle operators, perform incoming vehicle inspections to determine maintenance requirements, and perform other duties as prescribed by the VFM/VMS.

Maintenance workcenter elements

The work centers perform maintenance and repairs on specific types of vehicles and equipment. The total number of work centers required depends on facilities, staffing, types of vehicles, and mission requirements.

Listed are specific work centers that may be in a vehicle management flight:

- Vehicle and equipment.
- Fire truck.
- 463L/materiel-handling equipment.
- Allied trades.
- Refueling maintenance.

Workcenter supervisor responsibility

The workcenter supervisor is accountable for all work being accomplished in the work center. His or her responsibilities are as follows:

1. Coordinates with FM&A to ensure priorities are met and maintenance tasks are completed on time.
2. Assigns work to personnel and ensures that work is commensurate with skills.
3. Ensures technicians comply with safety procedures and technical data. This does not mean an open book reference for each repair task. You are required to be familiar with the procedures for each job. However, complex tasks, specifications, torque ratings, special tolerance adjustments, and so forth, do require reference to technical data (refer to AFI 24-302).
4. Inspects incoming vehicles and equipment not processed through CSC. He or she coordinates with FM&A if additional repairs not listed on the work order, and revises the estimated time in commission (ETIC), as needed.
5. Inspects repaired vehicles and equipment to ensure all vehicles are in safe and serviceable condition.
6. Briefs newly assigned personnel.
7. Assigns personnel to duty positions to ensure full use and progression opportunities.
8. Determines the most efficient and economical means of returning vehicles to service. The supervisor carefully considers the repair or replacement of individual assemblies or subassemblies and components to make effective use of resources while at the same time, adhering to all safety and serviceability standards, avoiding over-maintenance of the vehicles.

9. Informs FM&A of the requirement for more work so that the maximum productivity may be obtained from assigned personnel.
10. Checks with materiel control on parts requirements and availability.
11. Accounts for labor hours for work center.
12. Sets up training needs, sends training requirements to the VFM/VMS, and assists personnel in OJT.

Vehicle management responsibilities

The *primary* responsibility of vehicle management is to maintain all vehicles and equipment bearing a valid United States Air Force (USAF)/AFEMS registration number and miscellaneous non-registered vehicles and equipment that have a replacement cost of over \$10,000 and do not directly support a weapon system. This may include engine-driven agricultural, nursery, miscellaneous base support equipment, and permanently or seasonally mounted attachments. The exception would be those on the civil engineering (CE) equipment authorization inventory data (EAID) and tenant equipment assigned to CE according to agreements.

Vehicle management maintains or replaces attachments that come with a vehicle or piece of equipment. If the using activity purchases additional attachments for this same vehicle or piece of equipment, it is the using organization's responsibility to maintain or replace them unless the VFM or VMS agrees to do so.

Maintenance on major specialized systems mounted on a standard vehicle chassis is the responsibility of the using organization. Specialized systems include, but are not limited to, communications equipment, munitions maintenance systems, environmental systems, special hoists, and sensitive test equipment. Using organizations arrange for in-house or contract repair of this equipment. Vehicle management is only responsible for maintaining the basic vehicle chassis and power train.

The VFM or VMS sets local procedures ensuring all organizations requesting locally purchased equipment that vehicle management have primary or assistance maintenance responsibility are coordinated through vehicle management. This ensures that technicians can perform maintenance and parts are obtainable. The VFM and VMS will not accept maintenance responsibility for equipment if the request to purchase the equipment was not coordinated with vehicle management *before purchase*. Do not assume maintenance responsibility for locally purchased equipment without the necessary technical data, if inspection, servicing, adjustment, or repair work cannot be performed properly.

Organizations procuring non-registered equipment (i.e., other government motor vehicle conveyance and all-terrain vehicles, mowers, etc.) coordinate with the VFM or VMS to make sure parts, facilities, manpower, funds, and so forth are available to support the equipment before it is acquired.

Organizations will first consider purchasing a maintenance agreement to support the equipment. Follow these procedures when vehicle management is responsible for the non-registered asset:

1. Load master records into Defense Property Accountability System (DPAS).
2. Schedule all required preventive maintenance inspections, to include lubrication, oil changes, and other special inspections.

Management codes

Management codes (codes assigned to a vehicle for identification purposes) for registered vehicles and equipment items are found in the *Vehicle Management Index File*. Management codes for nonregistered vehicles and equipment are found in Logistics Installation and Mission Support Enterprise View online. You may be granted access to this site at your shop.

007. Maintenance levels

Base level maintenance falls into two different sub-levels: organizational or operator care, and intermediate maintenance.

Vehicle operators are required to perform certain inspections and maintain and upkeep unit vehicles at the organizational maintenance level. Intermediate maintenance is vehicle repairs performed by vehicle management in a fixed shop. This lesson identifies each level of responsibility in taking care of the vehicle fleet.

Organizational maintenance and vehicle operator care

All individuals who use vehicles or equipment have an inherent responsibility for its safeguard and proper use. Vehicle operators also have certain maintenance responsibilities. The tasks the user and operators are expected to do are referred to as organizational maintenance or more appropriately, *operator care*.

An effective operator's care program extends vehicle life, reduces maintenance costs, and ensures vehicles are available to meet mission requirements. We must enforce operator care in order to achieve these goals.

You can think of it this way. If you own a vehicle, you have a great deal of money invested towards that asset. Don't you want that vehicle to last as long as possible? For the vehicle to last, you need to keep it clean, do inspections such as checking the oil, tires, and so forth, and take it to the repair shop when it is not working properly or is unsafe. Using organizations must do their part before they can expect you to do yours.

The following is a brief list of operator responsibilities (AFI 24-302, paragraph 10.7, gives in-depth organizational responsibilities):

1. Keep vehicles clean inside and out at all times.
2. Check fluid levels according to applicable publications and local directives.
3. Service the fuel, engine oil, and windshield washer reservoirs. Service the hydraulic reservoirs on special units or attachments for special purpose and base maintenance equipment. Vehicle management shall do all other servicing.
4. Keep tires properly inflated.
5. Change flat tires or tires suspected of leaks on other than oversized vehicles with split rim wheel assemblies in their possession. Operators will assist tire shop personnel in the removal and installation of tires on vehicles when taken to maintenance for repair.
6. Tighten loose screws, nuts, and bolts; replace light bulbs and windshield wiper blades.
7. Adjust mechanisms on special purpose and base maintenance vehicles that affect the operating characteristics of the unit. These include crane and dozer clutches and brakes, power control units, shoes, deflectors, etc. Inspect and lubricate vehicles as required in technical order or manual, and report problems to vehicle management.
8. Maintain AF Form 1800, Operator's Inspection Guide and Trouble Report.

NOTE: The AF Form 1800 is used by vehicle operators as guides in their regular inspections and documenting vehicle discrepancies.

Intermediate maintenance

Intermediate maintenance is maintenance directly above the organization level maintenance and accomplished by the base level vehicle management flight in direct support of using organizational maintenance. It includes preventive maintenance and inspections (PM&I) such as lubrication, oil, and filter changes, battery replacement, breakdown repairs, structural repair, machine shop work and parts fabrication, and modifications such as installation of specialized organizational equipment. When repair exceeds the base capability, maintenance may be performed by a local off-base contract, at a nearby Air Force base, or through an interservice support agreement at nearby military, or government shop. Intermediate maintenance can be broken down into major, minor, and mobile maintenance. Other areas that support intermediate maintenance include contract and depot-level maintenance.

Major maintenance

Major maintenance repairs normally take over two hours to fix or require high-cost parts. This includes repairs and replacement of assemblies, parts and components, parts fabrication, structural repairs, scheduled inspection services, modification (as directed by technical orders), accessory, and auxiliary equipment repair, and so forth. Document all major repairs in DPAS.

Minor maintenance

We refer to minor maintenance as repairs that use only low cost parts and normally take two hours or less from the time the vehicle is reported to maintenance until the vehicle is released. The CSC normally accomplishes this type of work; however, each work center may perform minor maintenance. Minor maintenance includes minor repairs such as replacing mirrors, radiator and gas caps, windshield wiper arms and blades, fuses, light bulbs, minor adjustments, and so forth.

Mobile maintenance

Mobile maintenance provides service and repair to vehicles that, because of design or immobility, cannot be driven to a vehicle management shop. Mobile maintenance trucks may carry necessary tools and a bench stock of parts to accomplish both scheduled and unscheduled work at the vehicles location.

NOTE: The VFM/VMS will determine shop capabilities and decide which source of repair to use. Mission requirements, non-mission capable (NMC) time, shop tools, total cost, manpower, and technical capability influence their decision.

Contract maintenance

Although the base vehicle management flight is manned and equipped for full in-house repair capability, no shop is 100 percent self-sufficient. What do you do when needed repairs exceed your shop's capability? Contract the repairs. However, contract maintenance is *not* meant as a permanent solution to problems resulting from a lack of training, tools or equipment, sufficient manning, facilities, and so forth. Infrequently done jobs, such as machine shop work, may be more cost effective to contract than purchasing the equipment and training. Use good judgment when using contract maintenance, since its excessive and unjustified use can negatively affect manning, as well as waste scarce resources.

Remember, you are the steward of the taxpayer's money; use your resources well. When pursuing contract repairs, be sure to make a concerted effort to find the best available price for quality maintenance and parts.

Depot-level maintenance

Depot-level maintenance supports intermediate maintenance shops by providing technical aid and overhaul of specific vehicles that are beyond base level capabilities. This support may be done by providing depot overhauled parts and assemblies, depot funded local contract, or by shipping the vehicle to a repair site. The 441st Vehicle Support Chain Operations Squadron (VSCOS) manages depot-level maintenance for Air Force vehicle needs. The following table lists current vehicle eligible for depot-level maintenance:

Nomenclature	Type
Truck, Refueler	A/S32R-9 (1980 model and later) and A/S32R-11 A/S32R-9 (1980 model and later) and A/S32R-11
Truck, Hydrant Hose	R-12 (BETA) R-12 Tri-state hydrant servicing vehicle (HSV)
25K Truck, A/C Cargo Loading/Unloading 463L	A/S32H-5 and A/S32H-5A
60K Loader, A/C Cargo Loading/Unloading 463L	Tunner

Robins Air Force Base special equipment and vehicles evaluates and approves, or disapproves, all requests for vehicle depot overhaul. A complete listing of vehicles eligible for depot overhaul is in TO 36-1-191.

008. Parts management

In order to accomplish repairs on vehicles, there is one critical item you will need—vehicle parts. As a vehicle technician, you play an important role in ensuring government funds are spent appropriately and items purchased are safeguarded and maintained. The following section explains how maintaining a stock of fast-moving parts can facilitate the completion of a vehicle repair. We are only going to touch the surface of parts management to help you gain a better understanding of the on-going functions you see day-to-day in your work environment.

Establishing bench stock

The establishment of bench stock provides expendable supplies to support vehicle management and make them available to all work centers. Failing to establish bench stock can disrupt the overall maintenance mission. “Low-cost” bench stock items have a list price of less than \$60. “High-cost” bench stock items have a list price of \$60 or more. Establishing bench stock is a coordinated effort between vehicle management and base supply. It is the responsibility of all shop supervisors to coordinate with your materiel control personnel and the VFM/VMS for bench stock item requirements.

Bench stocks are reviewed semiannually (every six months) for the purpose of adding, changing, or deleting bench stock items. The workcenter supervisor, materiel control, and the base supply bench stock monitor conduct a semiannual review using the current bench stock review list. If you notice you frequently use a certain vehicle part during a repair, it very well may be a candidate for addition to bench stock.

Working stock

Working stock is essential to ensure fast-moving items are available to the vehicle management work centers to reduce vehicle repair downtime. Small quantities of fast moving items, seasonal items, and certain bulk items (such as heater hose, etc.) can be stocked in materiel control, customer service, outlying work centers and mobile maintenance units when approved by the VFM/VMS.

When establishing working stock, send a written request to the VFM/VMS for approval with the following minimum data:

- Part/item description.
- Part number.
- Unit of issue.
- Unit price.
- Quantity authorized.
- Bin location.
- Low or high cost item.

File a copy of the approved working stock listing in materiel control and the work centers. Limit these items to minimum quantities of low-cost and fast moving expendables items (e.g., fan belts, light bulbs, tune-up parts, etc.). Working stock is limited to a four-week level (based on experience or consumption) for all work centers. Exceeding the 30-day level is at the discretion of the VFM/VMS.

Work order residue

Work order residue is serviceable items (parts) left over from maintenance repairs, which is normally not a complete set of components (e.g., gaskets from a gasket set, etc.). Residue parts are placed in an area adjacent to materiel control near the normal bench stock location where there is controlled access.

Materiel control and the workcenter supervisor will develop a quick reference inventory system for all work order residue acceptable to both local supply and vehicle management. If a part in the work order residue is not used within a 12-month period and no foreseeable need exists, materiel control coordinates with all workcenter supervisors to have them take a “last look.” If there is no existing requirement, materiel control sends the part to the Defense Reutilization and Marketing Service (DRMS) or base supply.

You may very likely be involved in the “last look” process. The experience you are gaining in vehicle repair will be very important in helping make a decision to keep a part or send it to DRMS.

NOTE: Only the VFM/VMS can approve longer storage periods for certain “hard to get” parts that are on work order residue.

Adjusted stock levels

Adjusted stock levels provide a means to change base stock levels when parts usage is not a good indicator of future needs. Adjusted stock levels, when used wisely, are valuable tools supporting the mission because Air Force resources are limited. Consider each item carefully before placing it on an adjusted stock level. The approval of an adjusted stock level means fewer dollars are available to buy parts with established consumption rates.

The overriding criterion for placing an item on adjusted stock level must be its criticality toward the mission. Only parts critical to the operation of emergency vehicles and mission critical vehicles (e.g., fire trucks, deicers, K-loaders, etc.) should be considered. For example, you may put a power takeoff (PTO) for a fire truck on adjusted stock level, but not the air filter.

Procedures for requesting adjusted stock level can be found in Air Force Manual (AFMAN) 23-122, *Materiel Management Procedures*, Section 2B, Stockage Procedure.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit

006. Organizational structure and associated responsibilities

1. Where can you find the specific duties and responsibilities of vehicle management?
2. Which element provides oversight and acquires materiel to support the vehicle management flight?
3. The total number of work centers depends on what?
4. Who is responsible to coordinate with FM&A to ensure priorities are met and maintenance tasks are completed on time?
5. State the primary responsibility of vehicle management.

6. Who is responsible for maintenance on major specialized systems mounted on standard vehicle chassis?
7. When will the VFM/VMS *not* accept maintenance responsibilities for equipment?

007. Maintenance levels

1. What two sub-levels fall under base level maintenance?
2. What is the goal of an effective operator care program?
3. Who is responsible for checking all fluid levels according to applicable publications and local directives?
4. What is the main purpose of the operator's inspection guide and trouble report form?
5. What is intermediate maintenance?
6. How do you document major maintenance repairs?
7. What does mobile maintenance provide?
8. What type of maintenance can be secured if vehicle repairs exceed the shop's capability?
9. How does depot-level maintenance support intermediate maintenance shops?
10. What technical order contains a complete list of vehicle eligible for depot overhaul?

008. Parts management

1. How do bench stocks support the mission?

2. What is low-cost bench stock?
3. What is high-cost bench stock?
4. What is the purpose of working stock?
5. How many days are working stock levels maintained?
6. What is work order residue?
7. Who can approve longer storage time for “hard to get” work order residue?
8. What is the purpose of adjusted stock-levels?
9. What is the overriding criterion for placing an item on adjusted stock level?

Answers to Self-Test Questions

001

1. Overall direction for base logistics processes related to vehicles, cargo movement, passenger movement, personal property, supplies, equipment, deployment planning and operations, fuels, and when appropriate logistics planning.
2. Operations officer.
3. Squadron readiness section.
4. The oversight of squadron programs and processes, resources management (facilities, budget, stock control, and infrastructure), squadron analysis, systems management, strategic planning, metrics and squadron training.
5. OC section.
6. Resource management section.
7. Functional systems management section.
8. First sergeant.

002

1. Passenger movement element.
2. Dispatch operations; dispatch support; training/validation; and operator records and licensing.
3. They are responsible for the effective use of military taxis, UDI, pickup and delivery, and support vehicles.
4. Inbound; outbound; non-temporary storage; and quality control.

003

1. Materiel management flight.
2. Asset management, maintenance support, and customer support.
3. HAZMAT section.
4. Flightline service center.

004

1. Wing's vehicle fleet.
2. Administration, materiel control, FM&A, CSC, and vehicle specific maintenance and repair sections.

005

1. Ensures quality petroleum products, cryogenics fluids, and missile propellants are acquired or produced, and issued safely and efficiently to using organizations.
2. Compliance and environmental.

006

1. AFI 24-302 and TO 36-1-191.
2. Materiel control.
3. Facilities, staffing, types of vehicles, and mission requirements.
4. Workcenter supervisor.
5. Maintain all vehicles bearing a valid USAF registration number and miscellaneous non-registered vehicles and equipment that have a new replacement cost of over \$10,000 and do not directly support a weapon system.
6. Using organization.
7. If the request to purchase the equipment was not coordinated with vehicle management before purchase.

007

1. Organizational or operator care and intermediate maintenance.
2. To extend vehicle life, reduce maintenance cost, and ensure vehicles are available to meet mission requirements.
3. Vehicle operator.
4. The form is used by vehicle operators as guides in their regular inspections and to document vehicle discrepancies.
5. Maintenance directly above the organizational level and accomplished by the base vehicle management flight in direct support of using organizations. It includes PM&I such as lubrication, oil, and filter changes, battery replacement, breakdown repairs, structural and bodywork, machine shop work and parts fabrication, and modifications such as installation of specialized organizational equipment.
6. In DPAS.
7. Service and repair to vehicles that, because of their design or immobility, cannot be driven to the vehicle management shop.
8. Contract maintenance.
9. By providing technical aid and overhaul of specific vehicles, which are beyond base level capabilities.
10. TO 36-1-191.

008

1. By providing expendable supplies needed to support vehicle management and make them available to all work centers.
2. Items that cost less than \$60.
3. Items that cost more than \$60.
4. To ensure fast-moving items are available to the vehicle management work centers to reduce vehicle repair downtime.
5. 30 days.
6. Serviceable items left over from maintenance repairs.

7. VFM/VMS.
8. To provide a means to change base stock levels when parts usage is not a good indicator of future needs.
9. Its criticality toward the mission.

Do the unit review exercises before going to the next unit.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

Do not return your answer sheet to the Air Force Career Development Academy (AFCDA).

1. (001) Which section of the logistics readiness squadron (LRS) provides oversight of squadron compliance, training, resources, accountability, and analysis?
 - a. Readiness.
 - b. Distribution.
 - c. Contingency planning.
 - d. Operations compliance.
2. (001) In the logistics readiness squadron (LRS), what section serves as unit facilities manager?
 - a. Customer service.
 - b. Systems management.
 - c. Resource management.
 - d. Procedures and accountability.
3. (001) Who administers the unit award program in the logistics readiness squadron (LRS)?
 - a. First sergeant.
 - b. LRS commander.
 - c. Operations officer.
 - d. Commander's support staff.
4. (001) Which person, aligned under the squadron commander of the logistics readiness squadron (LRS), functions as a key advisor on a broad range of operational, readiness, and enlisted human resource concerns?
 - a. First sergeant.
 - b. Operations officer.
 - c. Logistics manager.
 - d. Squadron superintendent.
5. (002) Which section of the deployment and distribution flight provides management oversight of the wing's war reserve materiel (WRM) and support agreement programs?
 - a. Distribution.
 - b. Personal property.
 - c. Plans and integration.
 - d. Small air terminal and passenger movement.
6. (002) Which section in the vehicle operations element coordinates and maintains vehicle master lesson plans?
 - a. Dispatch support.
 - b. Training/validation.
 - c. Dispatch operations.
 - d. Operator records and licensing.

7. (002) Which two sections make up the cargo movement element of the deployment and distribution flight?
 - a. Inbound and storage.
 - b. Outbound and storage.
 - c. Storage and aircraft parts store.
 - d. Cargo inbound and cargo outbound.
8. (002) What personal property section element is responsible for extensions of personal property storage entitlements?
 - a. Inbound.
 - b. Outbound.
 - c. Quality control.
 - d. Non-temporary storage.
9. (003) What element of the materiel management flight stores and issues weapon system spares?
 - a. Storage.
 - b. Hazmat.
 - c. Aircraft parts store.
 - d. Flightline Service Center.
10. (004) Which flight is responsible for the overall management and maintenance of the wing's vehicle fleet?
 - a. Vehicle management flight.
 - b. Fuels management flight.
 - c. Materiel management flight.
 - d. Deployment and distribution flight.
11. (005) Who in the logistics readiness squadron (LRS) is responsible for laboratory analysis of fuel and cryogenic products?
 - a. Fuels operations.
 - b. Cryogenic production.
 - c. Compliance and environmental.
 - d. Fuels information service center.
12. (006) Major specialized systems mounted on a standard vehicle chassis are maintained by
 - a. the using organization.
 - b. vehicle operations.
 - c. vehicle management.
 - d. the maintenance work center.
13. (007) Which action is done by the operator of the vehicle operator's care program?
 - a. Install delayed parts.
 - b. Change the oil and filter.
 - c. Perform roadside repairs.
 - d. Tighten loose screws, nuts, and bolts.
14. (007) The type of maintenance performed by vehicle management is
 - a. intermediate.
 - b. operator.
 - c. contract.
 - d. depot.

15. (007) Which type of vehicle maintenance repairs normally takes over two hours to fix or requires high-cost parts?
- a. Depot.
 - b. Major.
 - c. Minor.
 - d. Operator.
16. (007) Which vehicle repair would be considered minor maintenance?
- a. A vehicle fixed and returned to the customer in 2.5 hours.
 - b. Replaced \$30 head light and returned vehicle to customer in 1.9 hours.
 - c. Installation of a previously delayed hydraulic hose that takes 1.0 hour to install.
 - d. Testing and replacing a \$200 battery in 1.5 hours.
17. (007) Which is justification for mobile maintenance?
- a. Vehicle's priority.
 - b. Vehicle's immobility.
 - c. Users have no time to turn in.
 - d. User's distance to the repair shop.
18. (008) The purpose of maintaining bench stocks within vehicle management is to
- a. provide service to the using organizations.
 - b. provide service to the transportation organization.
 - c. support vehicle operations and outlying sections.
 - d. support vehicle management and all work centers.
19. (008) Vehicle management working stock is limited to a
- a. 120-day level.
 - b. 90-day level.
 - c. 60-day level.
 - d. 30-day level.
20. (008) Vehicle management work order residue parts are defined as
- a. serviceable low-cost bench stock items only.
 - b. unserviceable low and high-cost bench stock items.
 - c. serviceable items left over from maintenance repairs.
 - d. unserviceable items left over from maintenance repairs.
21. (008) Within vehicle management, you *normally* keep work order residue parts for
- a. 3 months.
 - b. 6 months.
 - c. 12 months.
 - d. 18 months.
22. (008) In the vehicle management flight, who can approve longer storage periods for "hard to get" work order residue?
- a. Vehicle fleet manager/vehicle management superintendent.
 - b. Fleet management and analysis.
 - c. Work center supervisor.
 - d. Materiel control.

Please read the unit menu for Unit 2 and continue ➔

Student Notes

Unit 2. Vehicle Management Procedures, Programs, and Environmental Compliance

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AS A FLIGHT, vehicle management is responsible for more than just the repair of vehicles. In order to operate efficiently and economically, all personnel must be aware of the procedures and programs that govern vehicle management. The material in this unit will help you understand these special areas of interest by explaining vehicle inspection programs, environmental compliance program, special maintenance policies and procedures, and maintenance programs.

2-1. Performing Maintenance Inspections

As of this writing, Air Force vehicle management is currently undergoing a shift from one vehicle accounting system in Online Vehicle Interactive Management System (OLVIMS) to DPAS. DPAS is frequently experiencing rapid changes as it is evolving to meet Air Force vehicle management needs, and, currently, processes may differ from base to base.

Conducting vehicle/equipment inspections is the backbone of any good preventive maintenance program and will be one of the most important jobs you will perform as a vehicle and vehicular equipment maintenance journeyman. As a technician, you will make many decisions about serviceability standards based on inspection results. The use of applicable technical orders and service manuals, coupled with assistance from experienced mechanics, will aid you invaluablely in making these decisions.

009. Interpreting serviceability standards

Your main objective in vehicle management is to keep as many vehicles as possible in a serviceable condition. What is serviceable? This question has quite often plagued vehicle technicians. What you believe to be serviceable can be significantly different from what your co-worker believes is serviceable.

General guidance

Certain standards must be met before a vehicle or piece of equipment can be declared serviceable. The Air Force provides guidance for these serviceability standards in TO 36-1-191. Sometimes a manufacturer's service manual/technical order for that specific vehicle/equipment may state different serviceability standards than those found in TO 36-1-191. In all cases, the manufacturer's service manual takes precedence. During inspections, serviceability standards eliminate personal interpretation of the condition of units, assemblies, or sub-assemblies between you and your co-workers. Applying serviceability standards ensures all vehicle technicians allow for the same tolerances by stressing serviceability rather than like-new condition. If you are too meticulous about assuring the serviceability of vehicles, you might find yourself condemning more parts and assemblies than necessary. However, if you determine a vehicle component does not meet the standards, you must repair/replace the item. In either case, apply the serviceability standards as the situation dictates.

Applying serviceability standards

Visually inspect and functionally test all components on a vehicle in accordance with TO 36-1-191 for a complete inspection for serviceability standards. This requirement does not apply to internal mechanisms of engines, transmissions, and gear cases of vehicles, because it is impractical to perform such tests.

The Air Force accepts the idea that as a vehicle ages, it wears and will not be maintained in like-new condition. A vehicle in its sixth year of use is not comparable with a new vehicle. To be serviceable, a vehicle must first be safe, and then must be able to perform its job. Deficiencies affecting safety are not tolerated regardless of whether the vehicle is old or new. Serviceability standards must be flexible and, in applying serviceability standards, you must consider these factors:

- Age and mileage of the vehicle.
- Purpose of the vehicle, and the job it performs.
- Remaining service life.
- Relative value of services the vehicle returns in comparison with the cost of renovation, replacement, or parts.
- One-time repair limit.

As you have learned, serviceability standards are subjective to personal interpretations. The use of the above-mentioned guidelines will help take the guesswork out of the equation and, if applied consistently, it can save hours in vehicle down time and thousands of dollars in unnecessary parts replacement.

010. Conducting vehicle and equipment inspections

TO 36-1-191 prescribes intervals for the preventive maintenance and inspection/tests and services for USAF-owned vehicles, vehicular base support equipment, and power support equipment maintained by vehicle management shops. This lesson will cover procedures for the operator inspection, performing scheduled maintenance, the PM&I, and the vehicle condition inspection.

Operator inspection

As discussed earlier, organizational maintenance and operator care is performed by the using organization, and if any discrepancy is discovered, the vehicle needs to be taken to vehicle management for repair.

The operator inspection also fits in with the serviceability standards, making the operator a major player in regards to a safe vehicle fleet. Operators are required to perform daily and weekly inspections, based on MAJCOM directives, using applicable operator's inspection form (e.g., AF Form 1800). If not used regularly, the vehicle must be inspected at least once a week.

The AF Form 1800 (figs. 2-1 and 2-2) is used by the vehicle operator as a guide in their regular inspections and recording of vehicle discrepancies. Its main purpose is to serve as a checklist for the daily or weekly inspection and to record discrepancies in the Vehicle/Equipment Discrepancy and Maintenance Report section of the form.

NOTE: Use this form for all registered vehicles and vehicular equipment, except for refueling vehicles/equipment, which use AF Form 1807, Operator's Inspection Guide and Trouble Report (Fuel Servicing Vehicles).

Vehicle control officer/noncommissioned officer

Each base organization with vehicles assigned, on a permanent basis, will have a vehicle control program. Unit commanders needing a vehicle control program must appoint a vehicle control officer (VCO) and a vehicle control noncommissioned officer (VCNCO). Both VCO and VCNCO are the unit's point of contact for any organizational vehicle matters and at the same time, they are the liaison between their unit and the vehicle management flight. They ensure all organizational maintenance is performed and that annotations are documented correctly on each vehicle's corresponding AF Form 1800. They also ensure that vehicle malfunctions are reported, and that vehicles are delivered for repairs and scheduled services to vehicle management. Operators must report discrepancies on systems or devices adversely affecting the safety of personnel or the operation of vehicles/equipment. In no case will discrepancies that compromise safety, or will lead to further damage, be delayed. Do *not* delay reporting vehicles with any of the following safety discrepancies:

- Tires or brakes.
- Steering mechanisms.
- Operating levers (controlling power transmission, hoisting, dumping, and tripping devices).
- Warning lights (e.g., turn signals, brake lights, emergency, and rotating flashers).
- Headlights, reflectors, and clearance lights.
- Windshield wipers and defrosters.
- Other similar and warning equipment and devices unique to special purpose equipment.
- Any other condition reasonably considered a safety hazard.

NOTE: If any of the above deficiencies are found, the operator must report the vehicle to maintenance within one duty day.

Performing scheduled maintenance

FM&A develops a long-range scheduled maintenance plan to balance the workload in the workshops. This is based on seasonal needs, labor-hour availability (e.g., leaves, TDYs, etc.), organizational needs, or local exercises, to name a few.

There may be instances where adjusting PM&I intervals may significantly benefit the fleet, but consider the negatives. Shortening the intervals increases workload, bench stock expenses, and complicates scheduling. After considering these factors, the VFM/VMS may recommend shortened intervals for PM&I for MAJCOM approval. The following factors may justify adjusting preventive maintenance intervals:

- Operational environment (e.g., dust, high humidity, cold weather, corrosion).
- Operational utilization (e.g., flight line, multi-shift, poor terrain).
- Operational speed (e.g., highway use, normal base, extensive idling).
- Intervals that enhance safety and continued operation of the vehicle.

ITEMS TO BE CHECKED	
(Place "X" in block adjacent to items requiring Operator's inspection for the vehicle type only)	
1	<input type="checkbox"/> CLEANLINESS/DAMAGE/MISSING ITEMS (Interior/Exterior)/UNUSUAL NOISE OR OCCURRENCE (During Operation)
2	<input type="checkbox"/> LEAKS/FLUID LEVELS (Visually check for any leaks/check oil/coolant/hydraulic/transmission/brake fluid)
3	<input type="checkbox"/> SAFETY DEVICES (Wiring/lights/horn/warning devices/sirens/reflectors/mirrors/seat belts)
4	<input type="checkbox"/> BATTERIES (Fluid/damage/cleanliness/security)/INSTRUMENTS/GAUGES (Operation & readings)
5	<input type="checkbox"/> DRIVE BELTS (Fraying/cracking/tension)/PULLY/MOTOR (Air/hydraulic/electrical)
6	<input type="checkbox"/> STEERING/SPRINGS/SHACKLES (Free play/excessive wear)
7	<input type="checkbox"/> EXHAUST SYSTEM/SPARK ARRESTORS (Damage/leaks)
8	<input type="checkbox"/> TIRES/ WHEELS (Lug nuts/cracks) TRACKS
9	<input type="checkbox"/> HEATER/DEFROSTER/AIR CONDITIONER/AUXILIARY GENERATORS/AUXILIARY HEATERS
10	<input type="checkbox"/> BRAKES (Servicing/Parking)/CLUTCHES (Operate)/ACCELERATOR PEDAL (Damage/worn)
11	<input type="checkbox"/> WINDSHIELD (Wipers/washer fluid/cracks)
12	<input type="checkbox"/> HYDRAULIC HOSES (Damage/frayed)/CYLINDERS/VALVES (Damage/leaks)
13	<input type="checkbox"/> COLD WEATHER AIDS (Ether/alcohol injector/battery heater/oil-engine heater/coolant heater, etc.)
14	<input type="checkbox"/> POWER TAKE-OFF (PTO)
15	<input type="checkbox"/> WINCH/TOW CONNECTIONS
16	<input type="checkbox"/> AIR TANKS (Drain daily or after operation)
17	<input type="checkbox"/> MAST TINES/ROLLERIZED TINES
18	<input type="checkbox"/> ROLLERS/POWER CONVEYORS/RAILS/LADDERS/CAT WALKS/CARGO BED
19	<input type="checkbox"/> BED (K-LOAD) TOP/HALF/LOWEST/ROLL/SHIFT/YAW (check position)
20	<input type="checkbox"/> LOWER LOBE CAB SHIFT (Operation)
21	<input type="checkbox"/> EMERGENCY STAND-BY SYSTEM
22	<input type="checkbox"/> MARKINGS-CHECK LEGIBILITY ("WATCH STEP" stencil AW36-1-191)
23	<input type="checkbox"/> CHUTES/AUGERS/FAN BLADES/WEAR SHOES
24	<input type="checkbox"/> DRUMS/CROWNS/FAIR LEADS
25	<input type="checkbox"/> BOOMS/OUTRIGGERS/BASKET/PLATFORM/TURNABLE (Check for cracks and damage)
26	<input type="checkbox"/> BROOMS/SPROCKETS/CHAINS
27	<input type="checkbox"/> BLADES/REELS/SICKLE BARS/FLAILS
28	<input type="checkbox"/> KETTLE/HOISTING MECHANISM/MAGITATORS
29	<input type="checkbox"/> SHEAVES/BLOCKS/CABLES
30	<input type="checkbox"/> MOULD/BOARDS/BOWLS/CUTTING EDGES/SKIDS
31	<input type="checkbox"/> PUMPS/PIPING/DISCHARGE VALVES FOR LEAKS, CORROSION/SPARE BARS
32	<input type="checkbox"/> FIREFIGHTING SPECIALIZED EQUIPMENT/SAFETY DEVICES (Axe, spanner wrench, power saw, ladder, pike trouble light, mega phone, generator, resuscitator, rescue tools, winch/buzzers, fire extinguishers, ropes, breathing apparatus, personal alert safety system, etc.)
33	<input type="checkbox"/> FIREFIGHTING SYSTEM OPERATION AND FOAM/WATER LEVELS
34	<input type="checkbox"/> AUXILIARY FIREFIGHTING SYSTEM (Nitrogen tank pressure, agent levels, etc)
35	<input type="checkbox"/> HOSE/REELS/HANDLINES/TURRETS (Operation/all functions)
36	<input type="checkbox"/> OTHER (Specify)
37	<input type="checkbox"/> OTHER (Specify)
38	<input type="checkbox"/> OTHER (Specify)
39	<input type="checkbox"/> OTHER (Specify)

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OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT				DATE (MONTH/YEAR)	
(For use with all Registered Vehicle Equipment except Refueling Vehicles and Equipment)					
VEHICLE TYPE		REGISTRATION NO.			
ORGANIZATION		LOCATION/BASE		PHONE NO.	
VEHICLE CONTROL OFFICER NAME				PHONE NO.	
OPERATOR'S SIGNATURE SIGNIFIES ACCOMPLISHMENT OF CHECKS (First Initial, Last Name)					
DAY	SHIFT/SIGNATURE	DAY	SHIFT/SIGNATURE	DAY	SHIFT/SIGNATURE
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
				31	

AF FORM 1800, 20100401

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Figure 2-1. Sample, AF Form 1800 (Page 1).

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Review figure 2–3 for PM&I intervals.

NOTE: Refer to TO 36-1-191 for explicit details on prescribed inspections and services required for Air Force vehicles and vehicular equipment.

Type Equipment/Inspection/Test	Type Inspection/Interval			
	Operator Inspection (Reference Paragraph 3.12)	Daily/Weekly (See Note 5)	Preventative Maintenance & Inspection - PM&I (Reference Paragraph 3.13 through Paragraph 3.15) (See Notes 1 and 6)	Vehicle Condition Inspection (Reference Paragraph 3.16)
1. Vehicles & Vehicular Equipment to include Alternative Fuel Vehicles	Operator Inspection: Monthly, use AF Form 1800	Visual Tire Inspection (Chapter 4) Ambulance Stretcher Hangar Inspection	500 hours/7,500 miles/12,000 kilometers	Every time a vehicle enters the shop or 12 months, whichever comes first. Use AF Form 4355, Vehicle Incoming Inspection, to document.
2. Firefighting Vehicles/ Fuel Servicing Vehicles including hose carts/ Materials Handling (MHE) and 463L Equipment	Daily when used and weekly when not used, use Operator Inspection Guide (See Note 2)	Visual Tire Inspection (Chapter 4)	500 hours/7,500 miles/12,000 kilometers, 18 months for assets without odometer/hour meter. (See Notes 4 and 7)	Every time a vehicle enters the shop or 12 months, whichever comes first. Use AF Form 4355, Vehicle Incoming Inspection, to document.
3. Trailers, semi-trailers and other non-powered equipment for which vehicle management has primary responsibility. (See AFI 24-302)	Operator Inspection: Monthly, use AF Form 1800	Visual Tire Inspection (Chapter 4)	18 months (Reference Paragraph 3.20.1)	Every time a vehicle enters the shop or 12 months, whichever comes first. Use AF Form 4355, Vehicle Incoming Inspection, to document.
4. WRM Stored Vehicles & Vehicular Equipment (Level A Storage)	N/A	N/A	500 hours/7,500 miles/12,000 kilometers or 60 months (Chapter 8)	Every time a vehicle enters the shop or 12 months, whichever comes first. Use AF Form 4355, Vehicle Incoming Inspection, to document.

Figure 2-3. Vehicle/equipment inspection and service intervals.

Preventive maintenance inspection

The PM&I is defined as periodic prescribed inspection or servicing of equipment, accomplished on a calendar-date, mile, or hours-of-operation basis. The 18-month PM&I must be documented on a vehicle and equipment work order and recorded in the vehicle historical record. TO 36-1-191 is your detailed guide for completing the PM&I. Technicians must use AF Form 4354, Vehicle Preventive Maintenance and Inspection (PM&I) (fig. 2-4 and fig. 2-5), in conjunction with applicable manufacturer maintenance requirements when performing PM&I. If a vehicle is under warranty, and the manufacturer establishes a *mandatory* interval more stringent than TO 36-1-191, or specifies a specific product to use and deviations would cause damage and void the warranty, follow the manufacturer's recommendations until the warranty expires.

VEHICLE PREVENTIVE MAINTENANCE AND INSPECTION (PM&I)									
1. VEHICLE REGISTRATION NO					2. WORK ORDER NUMBER			3. DATE	
4. EMPLOYEE NAME (printed) & NUMBER					5. SUPERVISOR NAME (printed) & SIGNATURE				
ITEM	PASS	FAIL	N/A	INSPECTION CRITERIA	ITEM	PASS	FAIL	N/A	INSPECTION CRITERIA
6. FRAME	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DENTS, CRACKS, RUST, WELDS, BROKEN RIVETS	31. TRANSFER CASE(S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, LINKAGE, MOUNTS, FLUID
7. BODY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DENTS, RUST	32. POWER TAKE-OFF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, OPERATION, MOUNTING
8. GLASS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CONDITION AND MOUNTING SECURITY STARS, CHIPS, CRACKS	33. STEERING MANUAL/POWER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, BINDING, WEAR, LOOSENESS
9. PAINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CORROSION, SCRATCHES, CHIPS	34. SUSPENSION SPRINGS/SHOCKS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, MOUNTING, WEAR
10. UPHOLSTERY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SEATBELTS OPERATION, CLEAN, FRAYED, TORN	35. DRIVE LINE U-JOINT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHAFTS, U-JOINTS, CVU JOINTS, BOOTS, CENTER BEARING
11. WIPER MOTOR, ARMS, BLADES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CONDITION OF BLADES, ARMS, WASHER OPERATION	36. AXLES AND HOUSING ASSY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MOUNTING, LEAKS, SERVICE FLUID
12. MIRRORS, HORN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CONDITION, MOUNT, OPERATION	37. DIFFERENTIAL, FINAL DRIVE(S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, MOUNTING, FLUID, VENT
13. LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, CRACKS, MOUNTING	38. TIRES, RIMS, TRACKS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DAMAGE, WEAR, AIR PRESSURES, LOAD RANGE, TREAD PATTERN
14. SIREN BEACON RAY, FLOOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING	39. BOGIES, TRUNIONS TORQUE ARMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, BINDING
15. GAGES, INDICATORS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, ACCURACY	40. SPROCKETS, ROLLERS, IDLERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, WEAR
16. ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, CLEAN, MOUNTING	41. AUX ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, CLEAN, MOUNTING
17. SPEEDOMETER, TACHOMETER, HOURMETER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, ACCURACY	42. FIFTH WHEEL, TOWING DEVICES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LOCKING, WEAR, CORRECT BOLTS, DECAL, JAWS HAVE NO MORE THAN 1/8" WEAR
18. HEATER/AIR CONDITIONING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, HOSES, LEAKS	43. HYDRAULIC SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, FLUID, FILTER LINES, CYLINDERS
19. BATTERY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PROPER SOLUTION LEVEL, CLEAN AND SERVICE TERMINALS AND BATTERY BOX	44. HYDRAULIC CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LEAKS
20. CHARGING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, BELT CONDITION	45. TANK AND PIPING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DENTS, CRACKS, LEAKS, PAD WEAR
21. STARTING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING	46. LIQUID PUMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, PRESSURE SETTING, LEAKS, MOUNTING
22. IGNITION SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING	47. HOSE REELS, HOSE NOZZLES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKING, MOUNTING, RUBBING
23. FUEL SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, LINES, HOSES, FILTERS	48. AUX GENERATOR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, MOUNTING
24. COOLING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, HOSES, CLEAN RADIATOR FINS, SPECIFIC GRAVITY READING	49. BOOM ASSY, SHEAVES, CABLES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, WEAR, SERVICE
25. EXHAUST SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LOOSE, LEAKS, CLAMPS, HANGERS	50. SAFETY LIMIT DEVICES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
26. EXHAUST EMISSION, DEVICES, HOSES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INSPECT, COMPARE TO MANUFACTURER'S EMISSION SPECS	51. LANDING GEAR ASSY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, WEAR, SERVICE
27. SERVICE BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, LINES, PADS, SHOES, OPERATION, SLACK ADJUSTERS	52.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28. PARK/EMERG BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION	53.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29. CLUTCH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FREE TRAVEL, SHIFTING, LEAKING	54.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30. TRANSMISSION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, SHIFTING, LEAKING, FLUID SERVICE	55.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Figure 2-4. AF Form 4354 (Page 1).

VEHICLE PREVENTIVE MAINTENANCE INSPECTION (PM&I)									
ITEM	PASS	FAIL	N/A	INSPECTION CRITERIA	ITEM	PASS	FAIL	N/A	INSPECTION CRITERIA
CRASH FIRE TRUCKS					BASE MAINTENANCE EQUIPMENT				
56. TURRET SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, DISCHARGE PATTERN, DISTANCE	79. AGITATOR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, WEAR, MOUNTING
57. COMPUTER/CTI SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, CLEAN CTI WHEEL VALVES	80. BITS AND AUGERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, WEAR, MOUNTING
58. BATTERY CHARGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING	81. BOILER, BURNER, AND BLOWERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, COIL CONDITION
59. TANKS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DENTS, CRACKS, LEAKS, PAD WEAR	82. CANTILEVER, YOKE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
60. FOAM CB SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, SERVICE PUMPS	83. CONTROLS AND SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LEAKS
61. WINTERIZATION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION OF HEAT EXCHANGERS, BOOSTER HEATERS, HOSE LEAKS CONDITION, FILTER SERVICE	84. CONVEYORS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
FUEL SERVICING UNIT					85. DIPPER, CLAM, BACKHOE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
62. DRAINS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INSPECT CLEAN	86. DRUMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, ADJUSTMENTS
63. FILTERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SERVICE IAW TO 37A-1-101	87. FAIRLEADS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MOUNTING, CRACKS, WEAR
64. STATIC GROUND SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INSPECT IAW TO 00-25-172	88. GANTRY A-FRAME	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MOUNTING, CRACKS
65. METERS/PUMPING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION	89. HEATERS, FLUE AND STACKS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
66. SEGREGATORS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CLEAN AND INSPECT	90. INTERCOOLERS, AFTERCOOLERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, MOUNTING
67. HOSE REEL ASSEMBLY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HYDROSTATIC TEST HOSES AS REQUIRED	91. MOLDBOARD CIRCLE SCARIFIER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, WEAR
68. AIR CYLINDER CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, MOUNTING	92. SICKLE GUARDS AND PITMAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING
69. MANHOLE COVER AND VENTS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, MOUNTING	93. ROTOS AND PADDLES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, WEAR, MOUNTING
70. VALES, AUTOMATIC MANUAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, CALIBRATE IAW TO 33K-1-100	94. SPRAY BAR, PIPING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, LEAKS, MOUNTING
71. SENSING LINES, TUBING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEAKS, CRACKED, WEATHERED	95. TOGGLE PLATES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION
MATERIALS HANDLING EQUIPMENT					96. PRESSURE REGULATORS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, ADJUSTMENT, LEAKS
72. CABLES, CHAINS, HOSES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CONDITION, TENSION	97. APRON, BOWL, TAILGATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION
73. MOTORS, ELECTRIC, AIR, HYDRAULIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LEAKS	NUCLEAR CERTIFIED VEHICLES/EQUIPMENT				
74. CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LEAKS	98. DATA PLATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AFFIXED, LEGIBLE (record available data plate info below) MODEL#: _____ NSN: _____ PART#: _____ REGISTRATION#: _____
75. CARRIAGE, FORKS, MAST, CYLINDERS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OPERATION, MOUNTING, LEAKS, BINDING	99. USAF MNCL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MATCHES DATA PLATE, CERTIFICATION STATUS VERIFIED
76. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	100. OLVIMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PROPERLY CODED
77. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	101. RECORDS DOCUMENTATION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CERT STATUS, MODIFICATION, MDR ON FILE
78. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____					

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PAGE 2 OF 2 PAGES

Figure 2-5. AF Form 4354 (Page 2).

Preventive maintenance and inspection checklist

The PM&I checklist helps ensure all inspection items are completed and determines if any additional repairs are necessary. As you go through the inspection checklist, annotate any additional discrepancies to the work order. If the discrepancies are minor in nature, correct them and complete the remaining preventive maintenance requirements.

A preventive maintenance inspection includes an extensive inspection of all operating devices by looking, feeling, smelling, or listening for abnormalities. Examples of abnormalities include burnt automatic transmission fluid, inoperative instrument panel gauges, and bearing noise.

These checks do not include any disassembly of components unless necessary to determine the source of obvious deficiencies. For example, while inspecting a vehicle's undercarriage, you notice a fluid leak near the wheel backing plate. This situation indicates a problem inside the wheel assembly. It is obvious you should disassemble the wheel assembly to determine the problem.

Some of the specific preventative services you need to accomplish include the following items:

- Battery electrolyte level, cleanliness, and terminal condition.
- Operator compartment, including instrument panel gauges, accessories, park brake, seat belts.
- Hydraulic systems, including brake and power steering systems for fluid levels and leaks.
- Front and rear suspension systems, including steering mechanisms, wheels, and tires.
- Engine, transmissions, transfer cases, driving axles, and mounted components for excessive wear, unusual noises, and leaks.
- Cooling and fuel system components for proper operation and leaks.
- Vehicle lighting for proper operation.
- Exhaust system, include catalytic converters, tail pipes, and spark arrestors (if equipped).
- Pintle hook and towing attachments.

As part of the PM&I, one task you will become proficient at is lubricating a vehicle. The most important knowledge you can gain from this task is *the need to be thorough*. Countless trainees have felt they put 100 percent into a job only to have their work returned to them by their supervisor or the CSC. You can be thorough if you use a *lube chart*. A lube chart is like a map, and its function is to show you (the technician) all the specific lubrication points on a vehicle. Now, it is possible to miss a lubrication point with a lube chart; however, the likelihood is significantly decreased with one.

Figures 2-6 and 2-7 are examples of a lube chart for a Hyster 10K forklift. You can usually find a lube chart in the applicable vehicle technical order or commercial manual. Vehicle management is responsible for assembling and maintaining a reference library of these charts in its lubrication area or technical order library. The library, often just a labeled binder, should contain one lube chart per *model* of vehicle, and sequenced by the third (alpha) character of the vehicle registration number.

When using the lube chart, you will want to approach the job in a logical order, and systematic manner. Whether you begin at the front bumper and work your way back, or start at the back and work your way forward, the point is to be thorough. As you gain experience, you will become more knowledgeable about the best way to perform PM&Is.

Hyster 10K

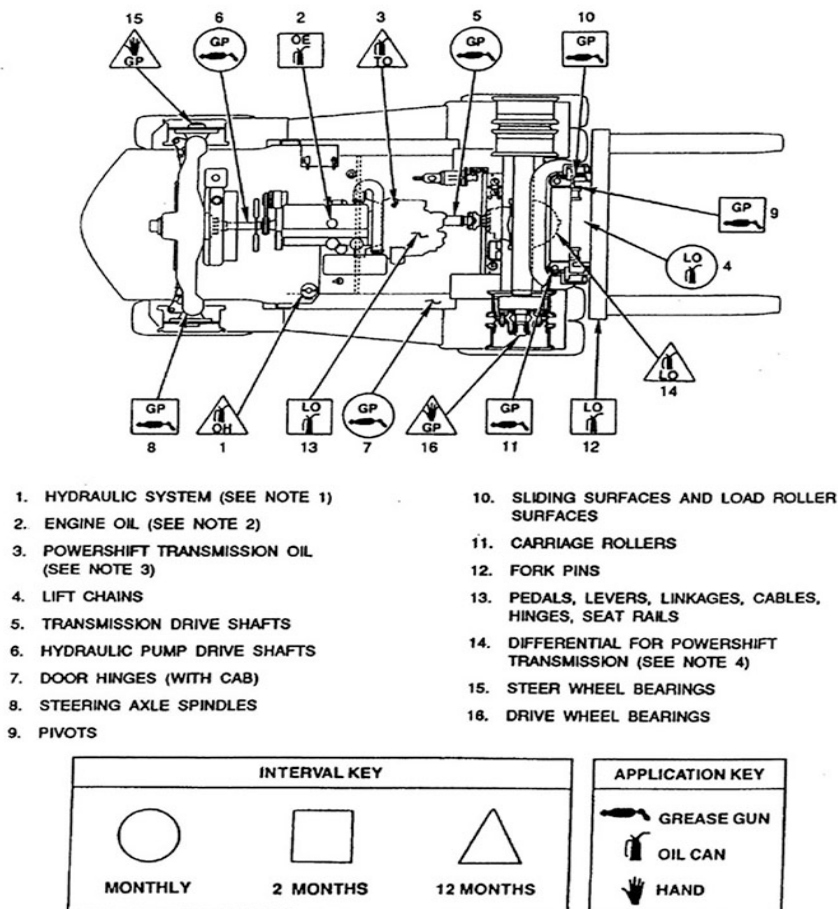


Figure 2-6. Lube chart (Page 1).

Hyster 10K

LUBRICANT KEY	
SYMBOLS AND TYPES OF LUBRICANTS	
OH LUBRICATING OIL, HYDRAULIC SYSTEM	MIL-H-83282
OE LUBRICATING OIL, ENGINE	SAE 10W-30
TO LUBRICATING OIL, TRANSMISSION	HYSTER PART NO. 336831
LO LUBRICATING OIL, LIFT CHAINS	SAE 30 OR HYSTER PART NO. 171550
GP GREASE, GENERAL PURPOSE	MIL-G-10924

LUBRICATION NOTES

- CHECK OIL LEVEL DAILY. DRAIN AND REFILL WITH NEW OIL ANNUALLY OR 2000 HOURS.
- CHECK OIL LEVEL DAILY AND ADD OIL AS REQUIRED. DRAIN CRANKCASE BI-MONTHLY OR EVERY 350 HOURS. REFILL WITH NEW OIL. REPLACE FILTER.
- CHECK OIL LEVEL DAILY. DRAIN AND REFILL WITH NEW OIL ANNUALLY OR 2000 HOURS.
- CHECK OIL LEVEL BI-ANNUALLY. DRAIN AND REFILL WITH NEW OIL ANNUALLY OR 2000 HOURS.
- CLEAN LUBRICATION FITTINGS WITH CLEANING SOLVENT, FEDERAL SPECIFICATION P-D-680 TYPE II. DRY BEFORE APPLYING LUBRICANT.
- INTERVALS SPECIFIED ARE FOR NORMAL OPERATION. INTERVALS MAY BE ADJUSTED TO COMPENSATE FOR UNUSUAL CLIMATIC OR OPERATION CONDITIONS.
- LIFT TRUCK HAS A TOTAL OF 17 GREASE FITTING LOCATIONS.

Figure 2-7. Lube chart (Page 2).

Vehicle condition inspection

Vehicle management performs the vehicle condition inspection every time a vehicle enters the shop or every 12 months, whichever comes first. Technicians must use the AF Form 4355, Vehicle Incoming Inspection (fig. 2-8 and fig. 2-9), to verify a vehicle's condition when accepting the vehicle into the maintenance shop. The use of AF Form 4355 will satisfy the United States Air Force's obligation to inspect a vehicle's ability to operate in safe and serviceable condition at least within a 12-month period.

NOTE: Vehicle condition inspection intervals are specified in TO 36-1-191. Refer to Air Force Instruction (AFI) 24-302 for guidance on use of the AF Form 4355.

VEHICLE INCOMING INSPECTION											
Section I--General Information											
1. Registration Number:			2. M/H/K:		3. Inspector's Name/Numbers:						
4. Accident Work Order <input type="checkbox"/> Abuse Work Order <input type="checkbox"/> (Check One) (Need VFM or VMS to sign for either):			5. Vehicle Location			6. NMC Start Date/Time					
Section II--Inspection Items											
ITEMS TO BE CHECKED			PASS	FAIL	N/A	ITEMS TO BE CHECKED			PASS	FAIL	N/A
7. VEHICLE MARKINGS: Condition, IAW TO 36-1-191			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. LIGHTS: Headlights, Brake Lights, Turn Signals, Clearance, Parking, Hazards, Reverse, Beacon, Work, Compartment, Lenses, Reflectors			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. TIRE/RIM: Damage, Wear, Pressure, Rotation, Size, Load Range, Tread, Valve Stem/Caps			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. GLASS/MIRRORS: Condition, Mounting			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. FLUID LEVELS: Engine Oil, Coolant, Brake, Power Steering, Transmission, Alcohol/Bottle, Hydraulic Assist System			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. BATTERY: Hold Down, Box (Tray), Cables and Terminal Ends, Electrolyte Level (as applicable if battery is equipped with removable cell caps)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. ENGINE: Leaks, Belts, Mounting			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. EXHAUST: Leaks, Condition			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. BODY: Condition			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. STEERING: Wear, Looseness, Operation			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. WARNING DEVICES: Horn, Siren, Backup, PA			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. WASHER/WIPER: Operation, Blades, Arms, Hoses, Fluid			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. HEADLINER/VISORS/SEATS: Operation			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. SEAT BELTS: Operation, Clean, Frayed			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. DOORS/WINDOWS: Operation, Locks, Seals			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. DASH, MATS, INTERIOR PANELS, Etc.			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. BRAKES: Check operation of service, park and emergency system(s) (as applicable)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. HEATER/AIR CONDITIONER: Operation, Blower Fan, Vents			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. WOOD PLANKS: Cracks, Security			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. CORROSION CONTROL: Rust, Paint			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. EMISSION (As Applicable)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Section III--Required Repairs Codes: P is for pass (serviceable) and F is for fail (unserviceable).											
JOB #	DESCRIPTION OF WORK					ACTION TAKEN CODE	SYS CODE	EST HRS			
1											
2											
3											
4											
5											
COMMENTS:											

AF 4355, 20100501

Figure 2-8. AF Form 4355 (Page 1).

CONTINUATION SHEET				
6				
7				
8				
9				
10				
11				
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15				
16				
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25				
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27				
28				
COMMENTS:				

AF 4355 (Reverse)

Figure 2-9. AF Form 4355 (Page 2).

011. Conducting special and technical inspections

In addition to regularly scheduled inspections and services, you will need to perform other inspections. These other inspections are important part of maintaining a safe and serviceable fleet. We will discuss the special and technical inspections.

Special inspection

Increasing safety and operational reliability is the primary reason for special inspections. Every effort should be made to perform the inspections/tests concurrently with the PM&I. When not accomplished as part of the regularly scheduled PM&I, these inspections/tests will be separately tracked and accomplished at intervals specified by the prescribing directive or technical order. Consult applicable directives for detailed procedures when accomplishing these inspections. TO 36-1-191 outlines the special inspections/tests you perform and the intervals for dissimilar vehicles. Typically, requirements include the following:

- Repack wheel bearings.
- Hydraulic system (special purpose assemblies).
- Mobile crane load testing.
- High-reach truck hoist and leveling cable replacement.
- Emission system testing.

Figure 2–10 shows a breakdown of all special inspections by inspection type, intervals, and special instruction references. It can be found in TO 36-1-191.

Type Inspection/Test		Intervals-Special Instructions-Reference
1.	Quinquennial Testing of Cryogenics Fuel Trailers/Tube Bank Trailers.	Every 5 years (reference Paragraph 3.17.2.3). Perform hydrostatic tests (reference TO 42B5-1-2).
2.	Fuel Servicing Vehicle Requirements. a. Water Segregators b. Replace filter/separator elements. c. Perform tank inspection.	Clean and service every 3 years or when filter elements are changed. (Reference Paragraph 3.17.2.2) Change in accordance with TO 37A-1-101. External inspections will be performed annually and Internal Inspections will be performed every 3 years in accordance with end item technical manual. NOTE: The preferred method of actually completing this inspection is to use a Bore Scope to eliminate personnel from entering the tank.
3.	Clean, inspect (replace as required), and Repack Wheel Bearings. NOTE: If Special Inspection is not completed concurrently with Scheduled PMI, technician will inspect the condition of brake components (pads/shoes, wheel cylinders/calipers, rotors/drums) and replace as needed.	Every 3 years, 36,000 miles, 57,900 kilometers, or 2400 hours on all vehicles or more frequently if local law or operator conditions so warrant. Trailers/semi-trailers with packed wheel bearings will be repacked every 3 years.
4.	Weight testing requirements for truck and crawler-mounted cranes.	Test loads (reference Paragraph 3.17.5.1 of this TO and AFI 91-203). NOTE: Notify user that weight tests are required when major maintenance is performed on lifting devices.
5.	Dielectric test on cranes and high reach vehicles equipped with insulated booms, lift platforms, etc.	Annual or when insulated booms or aerial platforms are serviced or repaired (reference Paragraph 3.17.5.2.1 of this TO and TO 36C-1-4).
6.	Crane/High reach boom, hook and all associated equipment.	Boom, hooks, and associated equipment will receive complete inspections at intervals in accordance with AFI 91-203.
7.	Hydraulic Systems (Special Purpose Assemblies).	Every 3 years or 3,600 hours (whichever occurs first) hydraulic fluid shall be changed.
8.	Spark arrestors.	In conjunction with PM&I.
9.	5th wheel wedges and bolt checks.	In conjunction with PM&I.
10.	Bulk fuel cargo tank vapor recovery systems.	Comply with local, state, and host country.
11.	Repack wheel bearings, Oshkosh R-11 (NOTE: Use of oil instead of grease is optional).	In conjunction with PM&I.
12.	Forklift Tines/Carriage Mounting	- Perform visual inspection of forklift tines at least annually. Remove forklifts from service and replace tines when cracked, bent, or significantly damaged. - Inspect carriage lock plate mounting bolts for tightness. - Inspect tilt cylinders for proper mast alignment. Adjust rod end as required, torque rod end clamping bolt to manufacturer's specifications.
13.	Emission Systems	In conjunction with PM&I, unless required more frequently by host nation or local laws (reference Paragraph 3.17.8).
14.	On-Board Cabin Filter Inspection	In conjunction with PM&I.
15.	Automatic Transmission Service	Transmissions with manufacturer recommended inspection/ fluid/filter change intervals of less than 3 years, 25,000 miles, or 2,500 hours shall be inspected and the fluid/filter will be replaced every three years after the warranty period is expired. When the manufacturer recommends a longer inspection/fluid/filter change interval (greater than 3 years, or 25,000 miles, or 2,500 hours) in their technical data, the manufacturer's recommendation will be followed. If back flushing the transmission is recommended by the manufacturer, and no filter change is required, follow the manufacturer's recommendations and procedures.
16.	Semi-Trailer Structural Inspection	- Every 18 Months (reference Paragraph 3.20.2).
17.	Storage (Status of Preservation and Processing) inspections for vehicles preserved for Level A.	- Visual Inspection will be conducted at least every 90 days. - Functional Inspection will be conducted every 180 days, or more frequently as determined by the VFM (reference Paragraph 8.12.2).

Figure 2–10. Special preventive inspection/tests.

Technical inspection

The technical inspection determines the serviceability of a vehicle or equipment item (with a standard price of \$10,000 or higher) from an operational standpoint as specified in TO 36-1-191. Simply stated, a technical inspection determines if the vehicle or equipment item you are checking is accomplishing the task it was designed to do, in accordance with applicable standards outlined in TO 36-1-191.

All technical inspections are documented using Air Force Technical Order (AFTO) Form 91, Limited Technical Inspection – Motor Vehicle (fig. 2-11 and fig. 2-12). The AFTO Form 91 acts as a checklist in determining the overall condition of a vehicle or equipment item. If you remember our discussion of the lube charts, you should remember how they were used as maps or checklist. The AFTO Form 91 is used in the same manner.

LIMITED TECHNICAL INSPECTION - MOTOR VEHICLE (Bold type entries indicate major assemblies)										1. MANAGEMENT CODE							
2. NSN					3. VEHICLE REGISTRATION NO.					4. MILEAGE/KILOMETER/HOURS							
5. NOMENCLATURE					6. MANUFACTURER												
7. MODEL			8. SERIAL NUMBER			9. ACCEPTANCE DATE			10. STANDARD PRICE		11. REPLACEMENT CODE						
12. TYPE INSPECTION					<input type="checkbox"/> ACCEPTANCE <input type="checkbox"/> DISPOSITION		<input type="checkbox"/> ONE TIME REPAIR <input type="checkbox"/> DEPOT REBUILD		<input type="checkbox"/> RECEIVING <input type="checkbox"/> SHIPPING								
ITEM	✓ ON REPAIR	✓ ON REPAIR	NO. MAN- HOURS LABOR	COST OF PARTS	REMARKS (Indicate item(s) requiring service. If part is replaced because original is missing, show as: Alternator (missing))				ITEM	✓ ON REPAIR	✓ ON REPAIR	NO. MAN- HOURS LABOR	COST OF PARTS	REMARKS (Indicate item(s) requiring service. If part is replaced because original is missing, show as: Alternator (missing))			
13. FRAME	<input type="checkbox"/>	<input type="checkbox"/>							39. TRANSFER CASE (s)	<input type="checkbox"/>	<input type="checkbox"/>						
14. BODY	<input type="checkbox"/>	<input type="checkbox"/>							40. POWER TAKE-OFF	<input type="checkbox"/>	<input type="checkbox"/>						
15. GLASS	<input type="checkbox"/>	<input type="checkbox"/>							41. STEERING MANUAL/POWER	<input type="checkbox"/>	<input type="checkbox"/>						
16. PAINT	<input type="checkbox"/>	<input type="checkbox"/>							42. SUSPENSION SPRINGS/SHOCKS	<input type="checkbox"/>	<input type="checkbox"/>						
17. UPHOLSTERY	<input type="checkbox"/>	<input type="checkbox"/>							43. DRIVE LINE U-JOINT	<input type="checkbox"/>	<input type="checkbox"/>						
18. WIPER MOTOR ARMS, BLADES	<input type="checkbox"/>	<input type="checkbox"/>							44. AXLES AND HOUSING ASSY	<input type="checkbox"/>	<input type="checkbox"/>						
19. MIRRORS, HORN	<input type="checkbox"/>	<input type="checkbox"/>							45. DIFFERENTIAL(s) FINAL DRIVE (s)	<input type="checkbox"/>	<input type="checkbox"/>						
20. LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>							46. TIRES, RIMS, TRACKS	<input type="checkbox"/>	<input type="checkbox"/>						
21. SIREN BEACON RAY, FLOOD	<input type="checkbox"/>	<input type="checkbox"/>							47. BOGIES, TRUNIONS TORQUE ARMS	<input type="checkbox"/>	<input type="checkbox"/>						
22. GAGES, INDICATORS,	<input type="checkbox"/>	<input type="checkbox"/>							48. SPROCKETS, ROLLERS, IDLERS	<input type="checkbox"/>	<input type="checkbox"/>						
23. ENGINE	<input type="checkbox"/>	<input type="checkbox"/>							49. AUX ENGINE	<input type="checkbox"/>	<input type="checkbox"/>						
COMPRESSION TEST								COMPRESSION TEST									
CYLINDERS	1	2	3	4	5	6	7	8	CYLINDERS	1	2	3	4	5	6	7	8
DRY									DRY								
WET									WET								
24. SPEEDOMETER, TACHOMETER, HOURMETER	<input type="checkbox"/>	<input type="checkbox"/>							50. FIFTH WHEEL	<input type="checkbox"/>	<input type="checkbox"/>						
25. HEATER, AIR COND	<input type="checkbox"/>	<input type="checkbox"/>							51. HYDRAULIC SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>						
26. BATTERY	<input type="checkbox"/>	<input type="checkbox"/>							52. HYDRAULIC CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>						
27. CHARGING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							53. TANK AND PIPING	<input type="checkbox"/>	<input type="checkbox"/>						
28. STARTING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							54. LIQUID PUMP	<input type="checkbox"/>	<input type="checkbox"/>						
29. IGNITION SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							55. HOSE REELS, HOSE NOZZLES	<input type="checkbox"/>	<input type="checkbox"/>						
30. FUEL SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							56. AUX GENERATOR	<input type="checkbox"/>	<input type="checkbox"/>						
31. COOLING SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							57. BOOM ASSY, SHEAVES, CABLES	<input type="checkbox"/>	<input type="checkbox"/>						
32. EXHAUST SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>							58. SAFETY LIMIT DEVICES	<input type="checkbox"/>	<input type="checkbox"/>						
33. EXHAUST EMISSION HOSES,	<input type="checkbox"/>	<input type="checkbox"/>							59. LANDING GEAR ASSY	<input type="checkbox"/>	<input type="checkbox"/>						
34. SERVICE BRAKES	<input type="checkbox"/>	<input type="checkbox"/>							60.	<input type="checkbox"/>	<input type="checkbox"/>						
35. PARK/EMERG BRAKES	<input type="checkbox"/>	<input type="checkbox"/>							61.	<input type="checkbox"/>	<input type="checkbox"/>						
36. CLUTCH	<input type="checkbox"/>	<input type="checkbox"/>							62.	<input type="checkbox"/>	<input type="checkbox"/>						
37. TRANSMISSION	<input type="checkbox"/>	<input type="checkbox"/>							63.	<input type="checkbox"/>	<input type="checkbox"/>						
38. SUBTOTAL	<input type="checkbox"/>	<input type="checkbox"/>							64. SUBTOTAL	<input type="checkbox"/>	<input type="checkbox"/>						

AFTO FORM 91, 19960201 (MT-V1)

PREVIOUS EDITION WILL BE USED

Figure 2-11. AFTO Form 91, Limited Technical Inspection – Motor Vehicle (front).

AFTO FORM 91, 19960201 (EF-V5) (Reverse)

The completeness of an AFTO Form 91 is critical. The information determines the serviceability of the inspected asset. Make sure you fill in all blocks with the required information. Blocks 1 – 12 pertain to the identifying information of the vehicle or equipment item being inspected. While you are conducting the inspection, make the appropriate entries on the form's item list as you inspect them. For example, blocks 13 through 63 in figure 2–11 apply to all vehicles generally.

As you check each item, annotate the discrepancy, if any, on the form and move on to the next item. As you can see in figure 2-12, blocks 65 through 110 apply to crash fire trucks, fuel-servicing vehicles, MHE, and base maintenance equipment, and the same inspection process applies. Although it is not required, if no discrepancies are found, it is good practice to place your initials or “OK” in the remarks block corresponding to items checked. This serves three purposes:

1. You can keep track of the items already inspected if you cannot complete the inspection on the same day.
2. If someone else needs to complete the inspection, he or she will know where you left off.
3. Most importantly, this will visually indicate to the reviewing authority you did inspect all items required to be checked on that vehicle or equipment item.

Once you have completed the inspection, you will need to estimate what will be required to repair the vehicle discrepancies found. The items you must consider in your estimate include the following:

- Repair or replace.
- Labor-hours required for maintenance actions.
- Parts cost.

Use all resources available to get the most accurate estimate as you possibly can. Upon completion of these items, you must sign and date the form on the back in the inspector block. Then turn it in to FM&A, and they tally the information you have given them and annotate it in the repair summary block of the form. It is forwarded to your VFM/VMS for review. The VFM/VMS reviews and certifies all limited technical inspections (LTI) that you process to ensure accuracy and completeness of maintenance actions. Keep in mind, the type of technical inspection you are conducting will dictate the level of review that will be needed. For example, technical inspections accomplished for vehicle/equipment disposition (salvage) reasons will be reviewed as high as the MAJCOM level. So now you see why it is so important to provide complete and accurate information.

You perform technical inspections for the following purposes:

- Accepting new vehicles.
- Accepting used vehicles (use the LTI prepared by the transferring organization).
- Disposition.
- Transferring vehicles to another base.
- One-time repair decision.
- Depot overhaul.
- Vehicles you program for the depot repair facility.
- Processing vehicles for storage or when the storage inspection reveals damage.

This is a complete operational inspection and only technically qualified vehicle management personnel perform it. This means, at least, a qualified 5-level journeyman. In general, this inspection reveals the serviceability condition, completeness of tools and records, estimates of repair costs, and condition classification.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

009. Interpreting serviceability standards

1. What technical order do you use to determine serviceability for a vehicle or piece of equipment?

2. If a manufacturer's service manual has a different serviceability standard than the TO 36-1-191, which one will have precedence?
3. What is involved in a complete serviceability inspection?
4. What are some of the factors to consider when applying serviceability standards?
5. If consistently applied, what is the advantage of serviceability standards?

010. Conducting vehicle and equipment inspections

1. What type of inspection is required on a daily and weekly basis?
2. What form is used by vehicle operators as guides in their inspection and recording of vehicle discrepancies?
3. What is the role of the VCO and VCNCO?
4. List the types of safety deficiencies that must be reported to vehicle management.
5. Who develops a long-range plan to balance shop workloads?
6. What factor may justify adjusting preventive maintenance intervals?
7. What is the definition of a PM&I?
8. What checklist do technicians use when performing PM&I?
9. List examples of abnormalities that may be found during a PM&I.

10. What is the function of a lube chart?
11. Where should lube charts be maintained in vehicle management?
12. How often is the vehicle condition inspection conducted?
13. What form is used to document the vehicle condition inspection?

011. Conducting special and technical inspections

1. What is the primary purpose of the special inspection?
2. How often are wheel bearing packed?
3. What is used to document the technical inspection?
4. While performing a technical inspection on a crash fire truck, you complete blocks 1 through 63 of the AFTO Form 91. What additional blocks, if any, need to be completed?

2-2. Environmental Compliance Program

The environmental compliance program is a DOD-wide program to ensure our present way of operating our shops complies with all federal, state, and local environmental standards. The Code of Federal Regulations (CFR) covering hazardous waste management is complex and highly technical. This CDC cannot cover all the regulations that surround environmental compliance. However, there are very basic things everybody should know about hazardous waste. The intent of this subject is to create an awareness of what hazardous waste is and what to do about it. Another source to assist you in this area is local policies and directives in your area of responsibility.

012. Program objectives

The objective of the hazardous waste management program is to ensure hazardous waste is handled in a manner that protects human health and the environment. The program, established under Subtitle C of the Resource Conservation and Recovery Act of 1976, provided a framework for the hazardous waste management program from “cradle-to-grave” (e.g., from waste generation to final disposal). To manage the program, a system of record keeping, reporting, and permitting was established. Hazardous waste generators, such as vehicle management, have a basic duty to comply with the management system that is in place. In doing so, we must ensure the waste we produce is collected, fully documented, identified, and transported to an approved treatment, storage, or disposal facility.

For better understanding of the program, we need to understand the two categories of waste and how to deal with them at our level.

Solid waste

Solid wastes are trash, rubbish, garbage, liquids, or sludges that are normally discarded and are (or could be) taken to a sanitary landfill. Solid waste generated from Air Force operations is subject to the same regulations as those generated by commercial and private sources. Our goal is to reduce the amount of solid waste produced. Reducing consumption (conservation) and recycling are the best solutions. We can also reduce waste volume by using returnable or reusable containers and purchasing products with minimum packaging. We can recycle paper, glass, aluminum, and plastics. Recycling centers are available throughout the local area. On base, we have various areas to place recyclable materials. Use them! We can have a safe and clean environment. All that is required is a change in attitudes and wasteful habits.

Hazardous waste

Federal regulations state, "A person who generates a solid waste, as defined in the regulations, must determine if that waste is hazardous." It also states solid waste is hazardous if it is listed in the regulations as hazardous and has certain specified hazardous characteristics. Generally, if such wastes are ignitable, corrosive, or exceed specific toxicity limits, they are classified as hazardous.

The federal regulations list hazardous waste into four alpha categories. These regulations are further designated by a numerical code:

Federal Regulations List of Hazardous Waste	
Categories	Definition and Numerical Codes
F-List	Wastes from <i>non-specific</i> sources. They are designated by an F-number (e.g., F005). Examples are degreasing materials, parts cleaning solvents, and paint sludge.
K-List	Wastes from <i>specific</i> sources. They are specific to a particular process and designated by a K-number (e.g., K035 is a wastewater treatment sludge resulting from the production of creosote).
P- and U-Lists	These two categories are somewhat different. Numbers with a P prefix (e.g., P066) are <i>acutely</i> hazardous wastes, such as cyanide, beryllium, and carbon disulfide. U-numbers with a U prefix (e.g., U105) are toxic hazardous wastes, such as arsenic acids, chloroform, formaldehyde, and mercury. P and U wastes are defined as discarded commercial chemical products and off-specification manufacturing intermediates (a derivate of the initial material formed before the desired product of a chemical process).

In vehicle management, most of the generated hazardous wastes (e.g., parts cleaning solvents, oils, paint thinners, paint sludges, antifreeze, degreasers, etc.) would fall in the "F" category. As a generator of hazardous waste, you must be familiar with the following:

- Generally, any combination of a solid waste containing one or more of the listed hazardous waste (F, K, P, or U) is treated as hazardous waste regardless of the concentration level.
- Empty containers of HAZMAT are considered hazardous waste and must not be thrown away. These items must be turned in to the hazardous accumulation point or satellite accumulation point for disposal.

013. Hazardous material management

The key to environmental compliance is managing HAZMAT. The key item in managing HAZMAT is the safety data sheet (SDS).

This is the best way to learn about the materials you deal with on a daily basis. If you know what is in a product, how to handle it, and how to dispose of it properly, this makes for easier management.

Safety data sheet

The SDS is the primary link in a communication process between manufacturer and the handler, or user of the material. The SDS contains important information that helps you handle and use this product in a safe manner. SDSs should accompany the material on delivery to your workplace.

Occupational Safety and Health Administration (OSHA) requires businesses to maintain files of SDSs for all HAZMAT. These sheets contain the manufacturer's information regarding the following:

- The identity of the chemical and chemical abstracts service (CAS) number – a number assigned to identify that chemical.
- The physical and chemical characteristics.
- Name of the manufacturer or importer.
- Emergency and first aid procedures.
- Physical and health hazards.
- Primary routes of entry.
- Precautions.
- Controls.

If the SDS is missing, you can get a copy from the CE environmental flight. Figure 2-13 shows a partial example of the SDS for a substance commonly used in vehicle management. This lesson does not go into detail of the individual areas on the form, but you should study it closely.

The following situations indicate when you should refer to the SDS: Before you handle the material for the first time.

- If you have questions about the material's physical characteristics.
- If you have any questions about how and where to store the material.
- When you have to clean up a spill or leak and dispose of the material.
- If you have questions about the potential health hazards of the material.
- If you want to know the recommended first aid measures to follow contact with the material.
- If you have questions about the material's reactivity, combustibility, flammability, or exposure limits.
- If you have forgotten or are unsure of the recommended personal protective equipment (PPE) to wear when handling the material.
- When there is an unusual circumstance involving potential exposure to the material, such as maintenance or confined space entry.

The SDS is a valuable reference tool. Refer to it whenever you are unsure about any of the precautions and protective measures to take when handling, using, or disposing of a product.

SAFETY DATA SHEET

Airgas

Ammonia

Section 1. Identification

GHS product identifier	: Ammonia
Chemical name	: ammonia, anhydrous
Other means of identification	: ammonia; anhydrous ammonia; Aqueous ammonia; Aqua ammonia
Product use	: Synthetic/Analytical chemistry.
Synonym	: ammonia; anhydrous ammonia; Aqueous ammonia; Aqua ammonia
SDS #	: 001003
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 2 GASES UNDER PRESSURE - Liquefied gas ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION/IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

 : Flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May form explosive mixtures in Air.
Harmful if inhaled.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing gas. Wash hands thoroughly after handling.

Date of issue/Date of revision	: 9/18/2015	Date of previous issue	: No previous validation	Version	: 0.01	1/13
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Figure 2-13. Safety data sheet sample.

Safety data sheet hazard information

The information provided by an SDS includes hazard-specific information and other important information useful in managing HAZMAT. The SDS lists the following information for the substance it was developed for, and will help you deciding what management practices are needed in your work area.

Information	Explanation
Toxicity	Provides known short- and long-term health hazard information, as well as toxicity and environmental data.
Reactivity	Provides safe-handling information for use and anticipated misuse of a product.
Flammability	Provides information indicating potential fire hazard of a product.
First Aid	Gives emergency procedures to be used in the event of breathing, swallowing, or coming in contact with a poisonous or irritating (corrosive) product.
Personnel Protection	Indicates the type of PPE (e.g., gloves, aprons, respirator, etc.) and ventilation to be used, in addition to other precautions to be taken when using the product for its intended purpose.
Spill or Leak Procedures	Indicated the applicable precautions and action necessary if a spill or leak occurs.
Physical Identification	Provides the physical/chemical properties of the product for accurate identification.
Product Identification	Line items on the SDS state the product name and manufacturer's address, emergency telephone numbers for both medical and environmental emergencies, and the product's chemical identification.

Boiling point

An important piece of information is the substance's boiling point. The boiling point temperature given on the SDS can determine the evaporation of solvents, such as paint thinners and degreasers. When a solvent evaporates, its vapors are lost into the air and costs just as much using the solvent. You can often tell if a solvent is evaporating from the odor of the vapors. The SDS describes these odors. These vapors often pose a fire hazard and expose personnel directly to the chemical. Solvents with low boiling points will evaporate more easily than solvent with high boiling points. Therefore, keep these solvents in a cool storage area, away from open flames, sunlight or artificial light, and with a tightly-closed lid.

Flash point

The flash point temperature is another useful piece of information. To recap, the flash point is the temperature at which a substance's vapors will burst into flame, or "flash" when exposed to an open flame. By knowing a given substance's flash point, proper storage facilities can be provided. In addition, it can designate places where the substance is used (e.g., NO SMOKING areas).

Specific gravity

In the case of fires, knowing the specific gravity of a substance can help you in choosing the proper fire extinguisher. The specific gravity is the measure of a material's density relative to water. The specific gravity of water is one. Thus, if a liquid substance has a specific gravity less than one, that substance is "lighter than water." Therefore, if such a liquid were burning, any water applied to the fire would sink below the flames, allowing the fire to continue to burning. In fact, water can even spread fires in this way, as in the case of burning hydrocarbons (e.g., gasoline).

014. Hazardous waste management

A hazardous waste generator is defined as a facility owner, operator, or person who first produced the hazardous waste. On USAF or other DOD installations, the Environmental Protection Agency (EPA) considers the installation commander as the “generator.” The installation commander, who signs permit applications and reports, is liable for mismanagement of hazardous waste. However, this interpretation does not relieve individuals from the responsibility of proper management.

Any activity that treats, stores, or disposes hazardous waste must have a permit from the EPA or an authorized state agency. Generators of hazardous waste are required to register their activity with EPA and file an application to receive a permit.

The EPA assigns an identification number to the activity, which tracks hazardous waste from the generator’s address or location. All hazardous waste manifests originating from that address must include the assigned identification number.

Record keeping

For a successful waste management program, you must keep accurate records. Government inspectors often focus their initial attention to the paperwork aspect. If you are keeping accurate records, inspectors often view this as a sign of attention to details and a genuine concern to do the job correctly. Maintain and retain your records for three years’ minimum from the date of initial shipment, or due date of reports, or from date of inspection as applicable. Due to ever changing requirements, these are subject to change.

NOTE: Remember, one of the keys to avoiding or reducing liability is a good and accurate record.

Hazard prevention and training

In keeping with the objective of protecting human health and the environment, you must exercise precautionary measures to prevent hazardous waste release and to clean up a release if it happens. When required, accumulation points must have portable fire extinguishers, spill control equipment, decontamination equipment, automatic sprinklers, water spray system, and so forth. Personnel handling hazardous wastes must wear appropriate PPE to protect them from potential hazards. Hazardous waste training is required for all personnel whose duties may require them to handle HAZMAT and waste, or whose official activities involve work in or around areas where hazardous waste is present. Information for requiring training can be obtained from the base environmental manager.

Accumulation procedures and container use

Accumulate generated hazardous waste in EPA approved containers. Ensure containers are in good condition and compatible with the waste. Do not mix different hazardous wastes. Mixing can cause violent and dangerous chemical reactions. It is also very expensive to dispose of and may carry penalties. Always close the containers, except when adding or removing waste. Do *not* overfill containers; fill to no more than 90 percent of the rated capacity of the container. Inspect containers at least weekly and handle containers in a manner that will not cause them to rupture or leak. Place containers on pallets to reduce corrosion caused by contact with the ground. Arrange flammable and combustible materials in rows so there is aisle space with two to four feet of separation. Mark or label containers with the words “Hazardous Waste” and clearly state accumulation start date.

Turning-in hazardous waste

Normally, each base has a designated accumulation point, or satellite accumulation point, that may collect up to 55 gallons of hazardous waste, or one quart of acutely hazardous waste at or near the point of generation. The generating activity must transfer the hazardous waste to the 90-day accumulation site (temporary storage area) within three days of reaching the 55 gallon or one quart limit.

Consequences for violation of environmental laws

Violating environmental laws can carry stiff penalties. Prison terms can range from six months to 15 years, one-time fines can range from \$10,000 to \$150,000, with cumulative fines as high as \$50,000 per day for violations. *Commander and supervisors can be held liable for the acts of their subordinates.* Individuals can be punished under the Uniform Code of Military Justice (UCMJ) for violations of environmental regulations and gross negligence. The success of our environmental and pollution prevention programs rests with all of us individually and collectively. Use common sense, follow the rules, conserve, and always be environmentally conscious. Set the example for all to follow.

015. Waste minimization

Anyone who generates hazardous waste has a legal and moral responsibility to reduce the production as much as possible. Minimization includes any source reduction or recycling action that reduces the total volume or quantity of hazardous waste. Additionally, the reduction of toxicity levels minimizes present and future threats to humans and the environment.

Why waste minimization?

- It is the law.
- It is Air Force policy
- It reduces liability. The current cradle-to-grave management system carries stiff penalties for mismanagement ranging from fines to imprisonment.
- It saves money. Handling, transporting, and disposing of hazardous waste is very expensive. The less hazardous waste generated, the greater the savings.
- It saves our environment.

The following are suggestions to help minimize hazardous waste generation:

- Shop operating procedures should address waste minimization. Policies and procedures that address minimization opportunities can reduce or eliminate accidental or inadvertent waste generation.
- Employee training and awareness program.
- Proper inventory control involves proper material handling and storage. It is an easy and economical way to reduce waste generation.
- Segregation prevents mixing of hazardous waste with nonhazardous wastes. Isolate hazardous waste by contaminant. Isolate liquid waste from solid waste. Secure waste containers to prevent inadvertent contamination. Doing so will save money since segregated wastes are much cheaper to dispose of than mixtures.
- Look for opportunities to minimize parts cleaning and degreasing operations. This is typically one of the largest generators of hazardous waste on any base.

016. Pollution prevention program

The pollution prevention program was established to minimize or prevent pollution by reducing the use of hazardous and toxic materials, and the generation of wastes by means of source reduction, recycling, and environmentally sound treatment. As the name implies, this program deals in the ways in which we, as a society, need to make our environment safer, cleaner, and a better place to live in.

Air pollution

Air pollution is produced from waste products or emissions that foul the air in the form of suspended particles or toxic gases. Major air pollutants include carbon monoxide, mostly generated from vehicle exhaust, and sulfur dioxide from coal-burning plants or industries. You can help reduce air pollution by carpooling or using public transportation when practical.

If you must drive, maintain proper care of your vehicle's engine, emission system, and air conditioning system. If you do maintenance on your vehicle, adhere to current standards and recycle waste materials.

Water pollution

Water pollution is a major concern and high priority in environmental programs. Water pollution occurs when toxic materials such as antifreeze, used oil, cleaning solvents, paint thinners, and so forth, are released into water supplies, rivers, lakes, and oceans. Major water pollutants include untreated sewage or any chemical that is used on, disposed of, or leaked onto or into the ground. The overuse of pesticides and fertilizers has also caused contamination.

As a consumer, you can help prevent and reduce water pollution by doing the following:

- Recycle used oil from your vehicles.
- Prevent dumping of household cleaning products or any toxic materials down the drain or on the ground.
- Minimize the use of pesticides and fertilizers on your lawns.
- Report illegal dumping of hazardous waste.

Energy conservation

Energy conservation is the organized effort to reduce energy use. Pollution is a common by-product of most energy producing processes. The production of steam or electricity requires the combustion of coal, fuel oil, or gas, which produces various waste products. Energy conservation is the key to reducing energy dependency and air pollution.

As a consumer, you can help save energy by practicing these simple rules:

- Turn off lights and appliances when not in use.
- Ensure your home has adequate insulation.
- Buy energy efficient appliances when old ones need replacement.
- Maintain proper care of your vehicle and car pool when feasible to conserve fuel.

Remember, conservation not only makes sense, it can also put "a lot of cents" into your pocket.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

012. Program objectives

1. What is the objective of the hazardous waste management program?
2. What is the meaning of "cradle-to-grave" in regards to hazardous waste?
3. What is our basic duty in complying with the hazardous waste management program?
4. What can we do to reduce the strain on landfills?

5. What category does the majority of automotive hazardous wastes fall?
6. What should vehicle management do with empty containers of HAZMAT?

013. Hazardous material management

1. What is an SDS?
2. List four situations when you should refer to the SDS.
3. What factors listed in the SDS help when deciding what management practices are needed in the work area?
4. What is specific gravity?

014. Hazardous waste management

1. Who is considered a hazardous waste generator?
2. What is one of the keys to avoiding liability?
3. State two reasons why you should not mix different hazardous wastes.
4. Why should hazardous waste containers be placed on pallets?
5. What is defined as a satellite accumulation point?
6. What punishment is rendered for violating environmental laws?

015. Waste minimization

1. What is waste minimization?

2. State three reasons to minimize the generation of hazardous waste.
3. State three ways that may help to minimize waste generation.

016. Pollution prevention program

1. Match each of the pollutant in column A with the impacted area of pollution in column B. Each item may be used more than once.

<i>Column A</i>	<i>Column B</i>
____ (1) Sulfur dioxide.	a. Air pollution.
____ (2) Antifreeze.	b. Water pollution.
____ (3) Used oil.	
____ (4) Carbon monoxide.	
____ (5) Cleaning solvents.	
____ (6) Vehicle exhaust.	
____ (7) Fertilizers.	

2. State ways that you can help reduce water pollution.
3. What is the key to reducing energy and air pollution?

2-3. Special Maintenance Policies and Procedures

This section discusses special maintenance policies and procedures performed on Air Force vehicles and vehicular equipment. Unless specified, vehicular equipment will be referred to as vehicles. Some of these policies and procedures include corrosion control protection, winterization, and storage and shipment of vehicles. Additionally, we will cover preparing vehicles/equipment deficiency reports and warranty policies.

017. Controlling corrosion and protecting Air Force vehicles

Corrosion can cause entire units to become inoperative and unserviceable regardless of their size or complexity. Furthermore, corrosion can make vehicles and equipment unsafe, shorten service life, lower reliability, and increase the cost of maintenance.

Air Force policy

The objective of vehicle rust proofing under the Air Force corrosion prevention and control program is to enhance safety and extend service life. Concurrent with that aim, reduced costs, labor-hour repairs, and vehicle downtime must be of paramount concern in preventive measures that you take. All newly procured commercial vehicles are furnished with the manufacturer's standard factory Type A rust proofing. The only exceptions are those vehicles procured for foreign military sale (FMS) and tactical applications.

No additional treatment is imposed unless documented vehicle historical records dictate the need to revise this policy. Vehicle management has the overall responsibility for the corrosion control program at the base level.

Levels of corrosion prevention

Air Force vehicles have four levels of corrosion prevention. Information on these levels is found in TO 36-1-191.

Corrosion Prevention Specifications		
Type A	Factory rust proofing	The manufacturer applies this standard protective coating to all commercial vehicles.
Type B	Mild rust proofing	This treatment is applied only to visually exposed portions of the vehicles undercarriage.
Type C	Design corrosion control	You can find the details about this type of protective coating and methods of application in TO 36-1-131, <i>Technical Bulletin-Corrosion Prevention and Control (CPC) for Tactical Vehicles</i> , and the manufacturer's technical order. Do not apply coatings above wheel wells. Type C corrosion control is authorized for vehicles designated as tactical, WRM, M-series, Southwest Asia, and Foreign Military Sales.
Type D	Tropical corrosion control	You treat all exposed body surfaces, to include the interior/exterior (e.g., cowl, roof, doors, floors, trunk, fender area, and boxed-in internal structures, etc.). You use this level in areas where corrosion is severe or very severe.

To determine the corrosion susceptibility rating of your installation, refer to TO 36-1-191, Chapter 6. In addition, this technical order will also specify equipment and materials needed to perform follow-on corrosion control and the procedures for treating different types of vehicles.

Inspection

Corrosion inspections are conducted during the entire life cycle of a vehicle or equipment item. An initial corrosion inspection is accomplished on all vehicles and equipment during the acceptance inspection. The results of this inspection will determine if the type of corrosion control that has been applied is adequate or if the level of corrosion control needs to be increased due to vehicle type and local conditions. This will be determined by the VFM/VMS based on corrosion control standards set by the local installation commander and information found in TO 36-1-191, TO 36-1-131, and the manufacturer's standards as applicable. Once the required level of corrosion control is established, vehicle management will conduct corrosion control inspections in conjunction with the annual vehicle condition inspection. The purpose of these corrosion control program inspections is to ensure vehicles and equipment items are maintained in a condition that prevents significant vehicle deterioration. The AF Form 1823, Vehicle and Equipment Work Order, will be used to document actions needed to correct deficiencies and the date the inspection was performed.

018. Preparing vehicles for storage and shipment

The following are the most important things you need to know when preparing vehicles and equipment items for storage or shipment:

- Length of time the vehicle/equipment will be in storage.
- Length of time the vehicle/equipment will be stored during shipment.
- Where the vehicle will be stored or shipped.

These factors will determine the level of storage preparation and preservation.

Levels of preservation

The degree of preservation depends upon the length of the storage period, conduct of shipment, or the requirement for immediate operational readiness.

Level A	Provides adequate protection during shipment, handling, and varying periods of storage <i>in excess of 90 days</i> from the date of preservation.
Level B	Provides adequate protection for domestic or overseas shipment (excluding open deck loading) which may involve outside storage for a <i>combined total of approximately 90 days</i> .
Level C	Provides adequate protection during domestic shipments to immediate use locations and for vehicles non-mission capable supply (NMCS) for <i>less than 90 days</i> .
Live storage	Applies to WRM and air shipments of vehicles where the requirement for immediate operational readiness does not permit the delays incident to standard processing and deprocessing for storage and shipment.

Vehicles on NMCS, awaiting repair, or disposition, and so forth, must be afforded proper protection. TO 36-1-191 provides the specific procedures and materials needed to place the vehicle in the proper level of protection.

One very important consideration when storing vehicles is the storage site. The site area must have adequate security to prevent pilferage and theft. Inside storage must be utilized whenever available. If outside storage is necessary and a natural surface is selected, it must have good drainage, and maintain its texture under normal climatic conditions. The storage area should be level; if not, securely chock wheels or tracks to prevent movement. To eliminate fire hazards during dry weather, you must prevent grass and weeds from accumulating in and around the storage site. Vehicles must be adequately spaced to permit ready access for inspection and servicing, with fire lanes at appropriate intervals. Before placing a vehicle in storage, it must be cleaned both inside and outside to prevent corrosion.

Inspection requirements

Level “C” has no detailed requirements since the intent is to provide protection at a minimum cost for intermediate use domestic shipment. However, vehicles temporarily removed from service due to NMCS, awaiting repair or disposition, and so forth, have a “general condition” inspection every 90 days to ensure security and preservation. Level “B” also has no detailed inspection requirements.

Inspections for Vehicles Stored in Level A		
Inspection Type	When	Explanation
Visual	Every 90 days	A “look and see” inspection to detect corrosion, leaks of lubricants, condition of protective coverings, completeness of accessories, accumulation of water in body areas, proper tire pressure, etc. Report any indication of defect or deterioration to the responsible storage officer.
Functional	Every 180 days	An “exercise in-place” designed to effect distribution of lubricants and preservatives using vehicles own power or an external power source.
Complete	Annual	A complete storage inspection specifically designed to determine if the preservation and processing measures applied are effectively preventing corrosion. During this inspection, assemblies are taken off preservation and disassembled sufficiently to ensure that no corrosion or deterioration has occurred. Inspect at least one percent of total stored and at least one unit from each group every 180 days.

Maintenance requirements

When storage inspection reveals damage through failure of preservation or any other cause, perform a serviceability inspection using AFTO Form 91 to document all discrepancies. Schedule vehicles found to be unserviceable into the shop for repairs and ensure all historical records are current and complete. Put these records in a “manila envelope” and place it in the dash compartment or in a conspicuous location near the identification or data plate.

War reserve materiel

WRM vehicles are authorized to bridge the gap between peacetime and wartime requirements. These vehicles are authorized and maintained separately from the active peacetime fleet and are normally preserved in storage. They must be ready for immediate use with minimum deprocessing during periods of indefinite storage. For this reason, they are considered as “live storage.” Since operationally ready vehicles are especially subject to pilferage, you must pay special attention to their security. You must have the WRM vehicles (except the ones stored in plastic bags) exercised every 30 days.

MAJCOM prescribes the use of WRM vehicles in storage. When used, usage must be sufficient to meet periodic exercise requirements. Defects detected during the exercise period must be reported to ensure proper condition tagging. You should immediately report vehicles requiring repair to vehicle management for corrective action. Accomplishment of a time compliance technical order (TCTO) is required on WRM vehicles in storage. Accomplish TCTOs on vehicles in deep storage during the next major inspection. TCTOs and the WRM program will be covered later in this unit.

Vehicle shipment

Occasionally, you may have to ship a vehicle from your organization to another base. Your *first step* in determining the condition of a vehicle for shipment is to perform an LTI. Performing this inspection requires using the look and feel method with minimum disassembly of the vehicle. As we discussed earlier, the vehicle does not have to be in like-new condition. However, the standards set forth in TO 36-1-191 require the vehicle to be in a safe and serviceable condition. You must correct all deficiencies before shipping the vehicle. After all repairs are complete, re-accomplish the inspection by filling out a new LTI form. This new LTI form indicates the vehicle is in a serviceable condition and no further repairs are necessary. The VFM/VMS must certify on the form that all entries are correct. If for some reason the repairs cannot be made, but you must ship the vehicle, FM&A takes the following actions:

- Encloses a letter with the shipping documents stating why the repairs are not made.
- If the repairs are not made because of the lack of parts, encloses copies of the parts requisitions.

Sometimes you may receive instructions to ship a vehicle in an “as-is” condition. In this case, no repairs are made, but you must annotate any discrepancies found on the AFTO Form 91. FM&A files the form in the vehicles historical file, which is shipped with the vehicle.

Overseas shipping requirements

A vehicle or equipment shipped to Air Force installations overseas must be in a safe and serviceable condition and have at least 75 percent of its anticipated life remaining. Do not consider shipping a vehicle overseas if it requires repair that would exceed the one-time repair allowance in accordance with TO 36-1-191.

NOTE: The one-time repair allowance is the “maximum amount of money which can be spent for repair of a vehicle at any one time.”

If you ship vehicles under the military assistance program (MAP), the maximum one-time repair allowance *does not apply*. MAP vehicles must have a minimum of 50 percent of the original life expectancy remaining, and be in a safe and serviceable condition.

This applies to vehicles the Air Force ships from continental United States (CONUS) or from overseas locations. A MAP vehicle must also meet the following requirements:

- It must have above-average vehicle appearance with spot painting held to a minimum; if 15 percent of the vehicle needs painting, you must paint the entire vehicle.
- The vehicle must have all components, assemblies, and parts considered complete.
- Complete all required TCTOs.
- Vehicle components must have anticipated life expectancy of at least 50 percent (e.g., brake linings must have 50 percent of original thickness remaining).

019. Winterizing vehicles

You must take certain precautions to protect vehicles in areas that have cold weather. Cold weather areas are those where the lowest daily temperature is minus (-) 10 degrees Fahrenheit (° F) or colder for 30 days or more, or where the average temperature for the month of January is 20° F or colder. The Air Force requires vehicle management to take certain steps to ensure vehicles operate safely in these areas. Winterization of Air Force vehicles is essential for safe and satisfactory performance in extremely cold weather. Winterization involves more than having antifreeze in the radiator. Other vehicle components you must take into consideration are the battery/batteries, engine oil, and lubricants you use for gear cases and bearings.

If these items are not maintained, it can adversely affect the operation of a vehicle in a cold weather climate. You need to refer to the applicable lubrication charts or maintenance manuals for the correct type of lubricant to use for the specific climate condition.

Two critical factors in deciding the type of winterization necessary (i.e., antifreeze, type of lubricant, etc.) are temperature extremes and the availability of electrical outlets. Instructions for protecting vehicles to each type of winterization are in TO 36-1-7, *General Instruction and Preparation Checklist – for AF Vehicle and Liquid-Cooled Powered Ground Equipment Operation in Cold Weather Areas*. The Air Force winterization is divided into three types.

Types of Winterization	
Type A	<i>Complete normal</i> winterization (for vehicle operation from -20 to -40° F where 110-volt electrical outlets are <i>available</i> for preheat requirements).
Type B	<i>Abnormal</i> winterization (for vehicle operation from -20 to -40° F where 110-volt electrical current is <i>not available</i> for preheat requirements).
Type C	<i>Partial</i> winterization (for vehicle operation from -20 to 32° F).

Type A winterization procedures

Type A winterization requires installations of several special equipment items and services. Type A winterization is based on access to outside sources of electricity. The first item that must be installed is an electrically operated power plant heater. These are individual heating units to warm the coolant, engine oil, and battery/batteries. Other heaters may be installed by vehicle manufacturers on certain types of vehicles, such as fuel and transmission fluid heaters. The following items must be installed if the vehicle is not equipped with them:

- An engine coolant heater—the heater must possess a 1500-watt minimum rating and can be installed in the engine block or in the lower radiator hose.
- An engine oil pan heater—the heater must be rated at least 300-watts minimum rating and can be located at any convenient opening or location.

- A thermostatically controlled battery heater—this helps regulate the temperature of the battery electrolyte.
- An alcohol evaporator kit for vehicles equipped with air systems—this will help keep water vapor in compressed air tanks from freezing, which will disable air brake systems.
- Arctic-type lubricants and fluids—these include arctic fuel, coolant, engine oil, gear lubricants, and even brake fluid.
- Personnel heater with defroster—this operates off the engine coolant.
- An engine coolant thermostat—rated for 170 to 180° F.
- Hard-topped cab.

Last but not least, make sure all the operation, maintenance, and parts books for the special winterization equipment you have just installed are placed with the vehicle if it is being shipped. This will help the maintenance personnel assigned to the cold weather area troubleshoot any subsequent problems.

Type B winterization procedures

Type B winterization is almost the same as Type A. The main difference becomes clear when you remember that Type B winterization assumes no outside sources of electricity is available. Without electric power plant heaters, the job of keeping the vehicle in a usable condition falls on gasoline-burning equipment, such as the gasoline-burning coolant heater.

In addition to the equipment that needs to be installed (if needed) for Type A conditions, we must install all the following equipment that applies to the vehicle being serviced for Type B conditions:

- A slave receptacle kit for faster and more efficient jump-starts.
- A heavy-duty alternator and battery.
- An engine compartment enclosure.
- An oil pan shroud assembly.
- Hood and side covers.
- A radiator cover.

Type C winterization procedures

Type C is only a partial winterization of the equipment. The specific components of a Type C winterization are as follows:

- An alcohol evaporator kit on those vehicles equipped with air brakes.
- Personnel heater with defroster that operates off the engine coolant.
- Install a 170 to 180° F engine coolant thermostat.
- Hard-topped cab, if not already installed.

020. Reporting vehicle and equipment deficiencies

There is probably no product made by human hands that is perfect. Many finished products exhibit deficiencies in design, materials used, maintainability, or errors in production, and so forth; all of which are a reflection of the quality (or lack of it) of the product. The purpose of the deficiency reporting system is to identify, report, and resolve deficiencies on vehicles and equipment that do not meet Air Force standards. Reporting of unsatisfactory conditions for vehicles and equipment is mandatory.

Definitions

The following table includes the most common terms that you will encounter with deficiency reports involving vehicles:

Terms	Explanations
Deficiency Report (DR)	A generic term for all deficiency reports: <ul style="list-style-type: none"> • Materiel deficiency report (MDR). • Vehicle unsatisfactory report (VUR). • Action warranty report (AWR). • Information only: warranty report (IWR).
Materiel Improvement Project (MIP)	A planned effort to investigate and resolve deficiencies, adverse trends, or to evaluate proposed enhancements. An MIP number is assigned whenever a deficiency, improvement, or enhancement to warrant further investigation or consideration and control actions related to it.
MDR exhibit	A failed, deficient, or nonconforming item(s) that you are holding and preserving as evidence.
Certifying official	The VFM/VMS or designee who certifies the accuracy of and release reports for transmission.
Originator	An individual or section within the vehicle management activity that identifies a deficiency and prepares the draft report. The section supervisor is normally the Originating Point.
Originating Point	An individual within FM&A, who performs all administration actions, tracking and necessary follow-up and finalizes the report. Uses the Joint Deficiency Reporting System (JDRS) to perform these functions.
Screening Point	The focal point for the receipt and processing of DRs. They assign MIPs, and monitor the appropriate action.
AF Action Point	This office is responsible for the resolution of the deficiency.
Equipment Policy Working Group (EPWG)	A working group consisting of MAJCOM vehicle representatives who meet annually or as required to review reported vehicle discrepancies and establish priorities for their resolution.

Deficiency types

There are four deficiency types:

1. *Design deficiency* is a condition that limits or prevents the use of a vehicle for the purpose intended. These conditions cannot be corrected except through a design change.
2. *Maintenance deficiency* is a condition, which results in excessive maintenance man-hour expenditures.
3. *Materiel deficiency* is a failure of a major assembly, subassembly, or component that if uncorrected, may cause death, injury, or occupational illness; or would cause loss or damage to a vehicle.
4. *Quality deficiency* is an error in workmanship, non-conformance to specifications, or technical requirements. Failures or malfunctions, which cannot be attributed to errors in workmanship, will not be reported as quality defects.

Report categories

There are four report categories:

1. An MDR is required when conditions occur which may cause death, severe injury or occupational illness; would cause loss or damage to a vehicle; or directly restrict the combat readiness capability of the using organization. MDRs will be transmitted within 72 hours of

identification to Warner Robins Air Logistics Complex (WR-ALC) with an informational copy to MAJCOM.

2. A VUR is required when a vehicle does not meet users' needs; a vehicle design, depot repair or remanufacture is unsatisfactory, or premature failure or equipment malfunction occurs that does not meet the criteria for an MDR.
3. An AWR is required on all vehicles/equipment when the contractor refuses to make corrections under warranty.
4. An IWR is required for all vehicles/equipment when the contractor satisfactorily corrects the deficiency in a timely manner and value of the repairs exceeds \$1000, or when three or more vehicles have the same deficiency satisfactorily corrected regardless of cost.

NOTE: VURs, AWRs, and IWRs are all transmitted within 15 days of identification to WR-ALC with an informational copy to MAJCOM.

Exhibits

An exhibit is a failed, deficient, or nonconforming item held as evidence. It must be carefully handled and packaged to preserve as evidence, which is crucial in identifying the proper corrective action and speedy resolution. FM&A ensures DR exhibits are marked or tagged with DD Form 2332, Product Quality Deficiency Report Exhibit (fig. 2-14). Initially, the DD Form 2332 must have all blocks 1 through 11 filled; see the following table for instructions. If size allows, the exhibit shall be moved from the vehicle management area to a secure minimum access area or a designated as a DR holding area. When directed, the exhibit will be shipped to the action point. If instructions to ship, hold, or process have not been received within 30 calendar days of the report date, the exhibit holding activity shall process the exhibit for repair or disposition according to its condition.

How to Complete a DD Form 2332	
IN BLOCK	ENTER
1. Report Control Number & Deficiency Report Unique Identifier (DRUI)	The number in item 3 of the associated DR.
2. Date	The date from the DR submission date. The date of the message established the DR.
3. Originating Activity	The name and address of the originating point (owning organization for test, measurement, & diagnostic equipment (TMDE).
4. National Stock Number (NSN)	The NSN from item 5 of the DR.
5. Part Number	The manufacturer's part number of the failed item from item 8 of the DR.
6. Serial/Lot/Batch Number	The serial number of the failed item from item 9 of the DR.
7. Contract Number	Contract number under which the part was procured.
8. Quantity Received	Self-explanatory.
9. Quantity Deficient	Self-explanatory.
10. Item Description	The nomenclature of the failed item from item 6 of the DR.
11. Complaint Narrative-What Is Wrong	Information, such as the MIP number, that was not included in the other blocks and that will assist in identifying the exhibits. Indicate whether the DR is a CATEGORY I or II by entering "CATEGORY I" or "CATEGORY II," as appropriate. If the item is a mishap exhibit, enter the word "MISHAP" and the mishap control number in this block. Exhibits subject to warranty correction will include the word "WARRANTY" in this block. When exhibit is requested by the technical coordination program (TCP)/intentional engine management program (IEMP) screening point, action or support activity, include "ship to instruction."

How to Complete a DD Form 2332	
IN BLOCK	ENTER
12. Name (Last, First, Middle Initial)	Name of the originating point representative.
13. Telephone Number (Include Area Code)	The defense switched network (DSN) and commercial (including area code) telephone numbers of the screening point.
14. Screening Point/Depot	Screening point/depot DOD activity address code (DODACC).
15. Date Exhibit Released	The date the exhibit was released to the TCP/IEMP screening point, action point, or support point.
16. Exhibit Released To	The name, address, and telephone number of the TCP/IEMP screening point, action point, or support point to whom the exhibit was released.

PRODUCT QUALITY DEFICIENCY REPORT EXHIBIT

1. REPORT CONTROL NUMBER 2. DATE (YYYYMMDD) 3. ORIGINATING ACTIVITY

4. RSN 5. PART NO 6. SERIAL/LOT/BATCH NO

7. CONTRACT NO 8. QTY RECEIVED 9. QTY DEFICIENT 10. ITEM DESCRIPTION

11. COMPLAINT NARRATIVE WHAT IS WRONG (Continue on back if necessary)

SAMPLE- FRONT

12. NAME (Last, First, Middle Initial) 13. TELEPHONE (Include Area Code)

DD FORM 2332, JAN 1999 PREVIOUS EDITION MAY BE USED WHS/DCR, Jan 99

PRODUCT QUALITY DEFICIENCY REPORT EXHIBIT

14. SCREENING POINT/DEPOT

15. DATE EXHIBIT RELEASED (YYYYMMDD) 16. EXHIBIT RELEASED TO

11. COMPLAINT NARRATIVE (Continue) AND REMARKS

SAMPLE- BACK

DD FORM 2332 (BACK), JAN 1999

Figure 2-14. DD Form 2332, Product Deficiency Report Exhibit (front & back).

021. Vehicle warranty policies

Pursuing warranties is a potential “money maker” for vehicle management. When you buy a replacement alternator or starter from a commercial vendor, it probably has a warranty.

If a vehicle is repaired via contract maintenance, the contractor probably has some type of guarantee for the work done. When you buy a rebuilt transmission or an engine, more than likely it will have a warranty. So really, there is usually a part or component under warranty in a vehicle.

Terms explained

The following terminology can help you better understand vehicle warranties.

Term	Explanation
Warranty	A written guarantee that says the product is as good as the manufacturer says it is. When it is not as good as represented, the warranty is a fair and equitable way of compensating an owner for a defect in product design or workmanship.
Policy adjustment	Sometimes malfunctions or failures are discovered at some point in time beyond the warranty period, which may have happened or started during the warranty period. If they are attributed to a manufacturing defect, the manufacturer at no cost or on a cost-sharing basis may correct them. This represents an adjustment to the manufacturer's normal warranty policy. The key to a successful policy adjustment claim is you must be able to substantiate your claim. For example, a "hydraulic valve," when subjected to certain pressure, may have developed a small leak while the vehicle is still under warranty. The leak may not have been noticeable and the part finally failed after the warranty expired. The vehicle records may show the hydraulic reservoir had been serviced "several times" while the vehicle was still under warranty. In this instance, it is safe to assume the valve may have started to fail while the vehicle was under warranty. In this scenario, the manufacturer should provide a "policy adjustment." The key to a successful policy adjustment claim is good documentation.
AWR	This report is submitted when a manufacturer or contractor refuses to make corrections under warranty. The report format is the same as a DR.
IWR	This is not new to you, it is a report submitted when a manufacturer or contractor satisfactorily corrects a warranty repair valued in excess of \$1000, or when three or more vehicles of the same type have the same discrepancies satisfactorily corrected. The report is the same format as a DR.
Parts exhibit	These are the defective parts, which you must keep for at least 30 days <i>as proof of failure</i> unless otherwise advised by WR-ALC.

Responsibilities

The VFM/VMS initiates the corrections of warranted items, submits the required warranty reports, and documents warranty actions. FM&A personnel identify and monitor warranted items, make sure the warranty program is used, initiate required reports, and document warranty actions in the vehicle historical records. As a technician, you help detect and identify possible warranty situations, and help prepare warranty reports.

As mentioned earlier, pursuing warranties can be a "money maker" for vehicle management. Manufacturers normally set aside a certain amount of their sales revenues to cover warranty claims. In this sense, when you buy a vehicle, you have paid for the warranty as well. You must become familiar with all warranties applicable to the various types of vehicles at your base and take advantage of warranties when practical.

Delivery condition

All new vehicles receive an acceptance inspection. When government vehicles are procured, they should be in a "ready-to-run" condition. All necessary pre-delivery inspections are made at the manufacturer's plant prior to shipment.

In transporting or delivery of the vehicle, some systems may not be filled to capacity. “Topping-off” fluid levels or some minor adjustments are accomplished by vehicle management when necessary during acceptance inspections. If the acceptance inspection reveals more serious discrepancies, such as safety or mechanical defects, missing components, incorrect tire size, body leaks, etc., then the vehicle is *not* in a “ready-to-run” condition. In this case, report it to WR-ALC and promptly pursue warranty repairs.

Warranty coverage

Vehicles are produced from various manufacturers under contracts, which may include different warranty clauses, and are subject to change from year to year. Written warranties are provided with each vehicle, in either a booklet form or decal displayed on the vehicle. If warranty provisions are unclear, contact the responsible air logistics complex (ALC).

Basic

New vehicles have a basic warranty of 12 months or 12,000 miles, whichever comes first, within CONUS. Warranties for new vehicles outside the CONUS areas are 15 months or 12,000 miles, whichever comes first. Air Force vehicle warranties cover parts failures or malfunctions due to design, construction, or installation; defective workmanship; and missing or incorrect components.

Warranty begins when the government representative accepts the vehicle from the contractor at the point of origin, or destination. This is when the government assumes ownership from the contractor. A DD Form 250, Material Inspection and Receiving Report, or the vehicle data plate shows the acceptance date. In rare instances where the vehicle is shipped directly to you from the “assembly line,” you could act as the government representative and acceptance will be effective the date you received the vehicle. As a rule, when vehicles are used outside the 50 states, the manufacturer/contractor is obligated to provide replacement of warranted parts or assemblies returned by the government.

Extended

In addition to the basic warranty, the contractor shall provide chassis manufacturer’s commercial power train/component warranty. This coverage is for at least three years or 50,000 miles, whichever comes first, from the acceptance date. This coverage applies only to domestic use. However, General Motors (GM), Ford, and Chrysler have agreed to this extended coverage “*for parts only*” for those vehicles, used outside the United States, procured by WR-ALC. “Parts only” means the manufacturer does not perform the labor in warranty repairs.

Corrosion

The contractor shall provide the chassis manufacturer’s commercial corrosion coverage. Corrosion coverage is for at least five years or 100,000 miles, whichever comes first, from the date of acceptance. Again General Motors, Ford, and Chrysler have agreed to this extended coverage “*for parts only*” for those vehicles, used outside the United States, procured by WR-ALC.

Emission control systems

According to applicable federal regulations and the California Air Resources Board, the contractor or manufacturer provides warranties on components of the emission control systems. Presently, this coverage is for five years or 50,000 miles, whichever occurs first from the acceptance date. Some components—such as distributors, spark plugs, ignition wirings, and manifolds whose primary purpose is not to reduce emissions—are only covered for 24 months or 24,000 miles, or up to the first replacement; whichever occurs first. Items that require scheduled replacement are only warranted up to the first replacement interval. These coverages apply only to domestic use.

Air Force special purpose vehicles

Special purpose vehicles procured under Air Force specifications by the Air Force/or Defense Construction Supply Center are warranted for 12 months from the date of acceptance. Defective parts or assemblies determined to be covered by warranty will be replaced at no cost to the government.

Shipping costs for replacement items will be the responsibility of the contractor, except to bases outside the CONUS, in which case the contractor will pay shipping costs to the port of embarkation designated by the government. In the event it is necessary to return defective parts/components to the contractor for inspection, the activity requesting warranty pays for the shipping costs.

Commercial chassis on which special purpose equipment is mounted will have the same warranty as previously outlined for commercial vehicles.

Warranty for trailers

Normally, basic trailers are covered by a one-year warranty against faulty material or workmanship. Components such as landing gears, suspension systems, and brake systems are normally covered for 90 days and are reported directly to the individual component manufacturer or local dealer.

Tactical vehicles

Military-designed tactical vehicles (M-series) do not have a normal commercial warranty. This does not mean you cannot submit claims for corrections of deficiencies or faulty workmanship. When premature failure can be attributed to a manufacturing defect, submit a VUR in accordance with TO 36-1-191.

Exceptions

The basic vehicle warranty does not cover tires and batteries. These items are warranted by the tire or battery manufacturer. The normal commercial warranty applies to the original tires and batteries provided with new vehicles as long as they remain with the original vehicle. Tires and batteries procured from base supply do not have a warranty. In addition to tires and batteries, the following maintenance is not covered by warranty regardless of age or mileage.

1. Repairs resulting from not using a manufacturer-approved part.
2. Abuse, negligence, or alteration of original parts or adjustments.
3. Engine tune-up, or related cleaning or adjusting.
4. Service and parking brake adjustments/lining replacements.
5. General tightening, headlight adjustments, wheel aligning, and tire balancing.
6. Materials required in servicing, such as oil, grease, brake fluids, antifreeze, and filter elements.
7. Labor for installation of accessories not ordered on vehicle.
8. Miscellaneous expenses such as gas, towing, telephone, rental vehicle, lodging, loss of personal property, and sales tax.

To avoid billing by the dealer for non-warranty, get a clear understanding (documented in the repair order if necessary) before starting the repair.

Problems

If a manufacturer's dealer refuses to honor a warranty, contact the zone, district, or regional representative, and explain the situation. The vehicle's maintenance manual should list this information. If the zone, district, or regional representative is not responsive to your shop's needs, submit an AWR to the ALC, with an information copy to the MAJCOM.

For additional information on warranties, refer to TO 36-1-191.

022. Monitoring time compliance technical orders and service bulletins

It is almost impossible to design and produce new vehicles or equipment without experiencing some unforeseen problems. Sometimes, these problems can cause personal injury or damage to the vehicle, equipment, or Air Force property. When problems are discovered, the Air Force issues orders for inspecting or modification to the vehicle or equipment with a TCTO, and manufacturers accomplish the same by issuing service bulletins. Although they serve the same purpose, they are administered in different ways.

Time compliance technical orders

A TCTO is an authorization directive issued to provide instructions to all Air Force activities. They provide the technical instructions necessary to accomplish one-time changes, modifications, and inspections of equipment, or installation of new equipment. The change or modification is accomplished, the inspection is performed, or the equipment is installed to ensure the vehicle is safe and serviceable. Accomplishments must be within a specified amount of time. Since the Air Force has large numbers of similar vehicles, a defect spotted at a base in Alaska, for example, must be reported so the Air Force activities can be made aware of the condition and take appropriate action. If appropriate, these other agencies are informed of the condition through the TCTO system.

There are three categories of TCTOs:

1. Immediate action.
2. Urgent action.
3. Routine action.

As a vehicle technician, you will not become too involved with the TCTO system process. You will, however, perform the actions necessary to comply with TCTO directives. FM&A will usually receive an electronic message, prior to the TCTO issuance, directing the when, what, why, and how. They then ensure repairs for TCTOs are scheduled, tracked, accomplished, and recorded. They will advise shop supervisors of the TCTO type and will generate a work order (AF Form 1823) and assign it an alpha prefix of "T." Upon completion of the TCTO, they will advise the appropriate ALC via message, letter, or electronic means, with an informational copy to the MAJCOM.

Immediate action TCTOs

These are issued for unsafe conditions which, if uncorrected, could result in fatal or serious injury to personnel, or extensive damage to or destruction of property. The immediate action TCTO cover page contains the title "Immediate Action" at the top of the TCTO and has a border of red Xs (fig. 2-15). These TCTOs require immediate action to be taken to either inspect or modify the vehicle or equipment. When possible, they include the methods for correcting the condition identified in the TCTO. Immediate grounding of the vehicle or the immediate discontinued use of the equipment is required. All publications and distribution of immediate action TCTOs are placed on a high-priority basis; and commanders must ensure circulation of these TCTOs to all affected personnel.

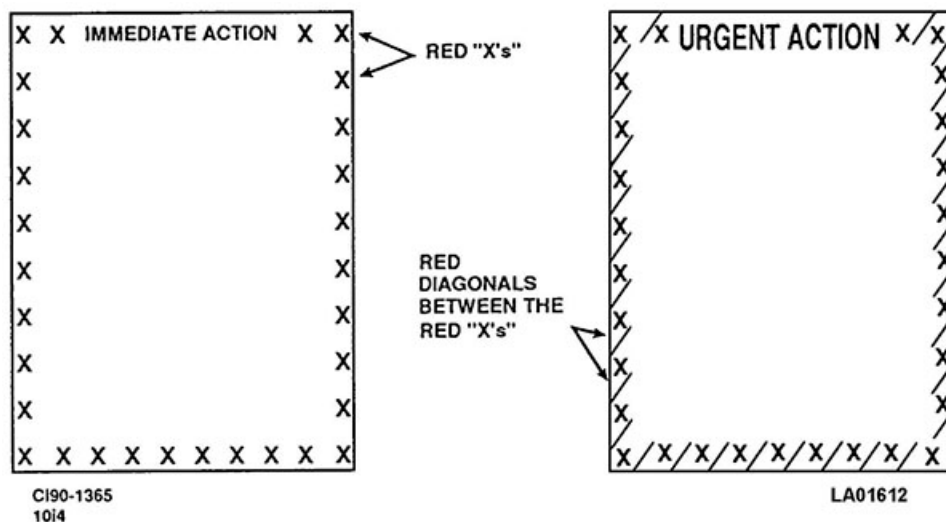


Figure 2-15. Immediate and urgent TCTO title pages.

Urgent action TCTOs

Urgent action TCTOs are issued because of potentially hazardous conditions that could result in injury to personnel or damage to valuable property. Such conditions comprise safety and include risks calculated to be tolerable only within specific time limits. The urgent action TCTO cover page contains the title “Urgent Action” on the top of the page and has a border of red Xs and a diagonal red mark between each red X (fig. 2-16). These TCTOs require action within 1–10 days of receipt. They are issued just as immediate action TCTOs; but, with the provisions, you can use the affected equipment in emergencies. However, if compliance is *not* accomplished within the specified time, action must be taken to discontinue using the defective equipment identified in the TCTO.

Routine action TCTOs

Routine action TCTOs *do not* require the vehicle or equipment be removed from service. However, they do require accomplishment of the TCTO at the earliest possible convenience. These TCTOs are issued when material, mechanical, operational, or tactical deficiencies occur that would do any of the following:

- Constitute a hazard through prolonged continual use.
- Cause negative effect on operational efficiency.
- Reduce tactical or tactical-support utility.
- Reduce the operational life of equipment.

Routine action TCTOs have a plain border and no symbols or red Xs on the cover page to distinguish them from other TCTOs. For more information pertaining to the TCTO system refer to TO 00-5-15, *Air Force Time Compliance Technical Order Process*.

Service bulletins

Manufacturers provide information to the owners of their product. They want to ensure problems found on their production lines and throughout the vehicle life cycle are corrected, and that proper repairs are made. The instrument used by manufacturers to accomplish this is a service bulletin.

A service bulletin is very much like a TCTO in many aspects. It may contain technical, inspection, or installation instructions. Air Force personnel can use service bulletins prepared by the contractors or manufacturers on vehicles to correct deficiencies they discover during the warranty period or later during the life of the vehicle. Your role, as with TCTOs, is to make proper repairs per the manufacturer’s instructions, should repairs need to be made. After you complete an incoming inspection, FM&A forwards the 441 VSCOS a completed copy of the TCTO. The 441 VSCOS ensures your unit receives service bulletins for vehicles in the Air Force inventory. The 441 VSCOS also directs manufacturers’ recalls to the using activities and informs the using activities of compliance procedures for a manufacturer’s recall.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

017. Controlling corrosion and protecting Air Force vehicles

1. What organization has overall responsibility for the corrosion program?
2. What are the four levels of corrosion control protection?
3. Which level is used in areas where corrosion is severe or very severe?

4. What technical order provides procedures for corrosion control?
5. When is an initial corrosion inspection accomplished?
6. What is the purpose of the corrosion control program?

018. Preparing vehicles for storage and shipment

1. What are the levels of vehicle preservation? Briefly describe each.
2. What technical order provides instructions for storage of Air Force vehicles?
3. What is a very important consideration when storing vehicles?
4. How often should vehicles in Level A storage receive a visual inspection?
5. What form do you use to perform a serviceability inspection when the vehicle is in storage?
6. How often are WRM vehicles exercised?
7. What is your first step in preparing a vehicle for shipment?
8. Who certifies the LTI form to ensure all entries are corrected and the vehicle meets all serviceability standards for shipment?
9. How much of the vehicle's anticipated life must remain before shipment overseas?
10. What requirements must vehicles shipped under the MAP meet?

019. Winterizing vehicles

1. How do you determine cold weather area?
2. What are the two *critical* factors you use in determining what type of winterization to use?
3. Which type of winterization would you use at each of the following locations?
 - a. Grand Forks AFB, ND (average temperature for January is 5° F).
 - b. Offutt AFB, NE (average temperature for January is 20° F).
 - c. A remote radar site in North Dakota with 110-volt electrical current available for vehicle (average temperature for January is -23° F).
4. What type of lubricants must be installed in a Type A and B winterization?

020. Reporting vehicle and equipment deficiencies

1. What is the purpose of DR?
2. What are the four deficiency types?
3. Match the deficiency report with the categories in column B with the corresponding requirement in Column A. Each item in column B may be used more than once.

Column A

- ___(1) Required on all vehicles/equipment when the contractor refuses to make corrections under warranty.
- ___(2) Required when conditions occur which may cause death, severe injury, or occupational illness.
- ___(3) Required for all vehicles/equipment when the manufacturer satisfactorily corrects the deficiency in a timely manner and value of the repairs exceeds \$1000.
- ___(4) Required when depot overhaul is unsatisfactory, or premature materiel failure or equipment malfunction occurs that does not meet the criteria for an MDR.
- ___(5) Required when a vehicle does not meet the user needs.
- ___(6) Required when three or more vehicles have the same deficiency satisfactorily corrected regardless of cost.
- ___(7) Required when conditions would cause loss or damage to a vehicle, or directly restricts the combat readiness capability of the using organization.

Column B

- a. Materiel Deficiency Report.
- b. Vehicle Unsatisfactory Report.
- c. Action Warranty Report.
- d. Information Only: Warranty Satisfactory Report.

4. What is used to mark DR exhibits?

021. Vehicle warranty policies

1. What is a warranty?
2. What report is submitted when a contractor refuses to honor a warranty?
3. What is a warranty parts exhibit?
4. Who initiates action warranty coverage?
5. Who makes sure to use the warranty program, initiates the required reports, and documents warranty actions?
6. In what condition should a vehicle received from a contractor be?
7. Match the warranty periods in column A with the corresponding type of coverage in column B. Each item in column B may be used more than once.

Column A

- ___(1) At least five years/100,000 miles.
- ___(2) Five years/50,000 miles per federal law.
- ___(3) 12 months/12,000 miles.
- ___(4) At least three years/50,000 miles.

Column B

- a. Basic coverage.
- b. Corrosion coverage.
- c. Extended coverage.
- d. Emission control system coverage.

8. How long is the warranty coverage for Air Force special purpose vehicles?
9. What type of vehicle does not have a normal commercial warranty?
10. What vehicle components are not covered by the basic vehicle warranty?

11. Under what conditions is it necessary to contact the district regional service office concerning a vehicle warranty?
12. What technical order addresses warranty provisions of a vehicle?

022. Monitoring time compliance technical orders and service bulletins

1. What is a TCTO?
2. What is the vehicle technician's part in the TCTO process?
3. Match the action in column B with the correct description in column A. Items in column B are used only once.

Column A

- ___ (1) Do *not* require vehicle/equipment to be removed from service.
- ___ (2) Issued for unsafe conditions, which if uncorrected, could result in fatal or serious injury to personnel, or extensive damage to or destruction of property.
- ___ (3) Issued because of a potentially hazardous condition that could result in injury to personnel or damage to valuable property.

Column B

- a. Immediate action.
- b. Urgent action.
- c. Routine action.

4. When an "Urgent Action" TCTO is issued, how soon must the action be accomplished?
5. What information may a service bulletin contain?

2-4. Maintenance Management Programs

In this section, we will discuss various maintenance management programs, which are very important to the overall performance of the maintenance shop. Throughout the text, we use "you" many times for instructional efficiency. "You" may not do the specific things talked about now, but as the section title indicates, these are programs "you" need to be aware of as you progress through the vehicle management career field.

023. Prioritizing vehicle work orders

Vehicle management assigns a "routine" priority to all vehicles, regardless of type or use, unless one of the following conditions exists:

- A unit is below the minimum essential level (MEL), further loss of vehicles will degrade mission support, and other base assets cannot fulfill the need of a particular vehicle.
- A special project requires a certain type of vehicle in service.
- Severe weather, or other natural circumstances, creates a need for certain types of vehicles.

If any of the above conditions apply, FM&A will assign a *red priority* to the vehicle. The system vehicle management uses to prioritize work is dependent on several outside factors.

Each vehicle management shop, or activity, applies priorities to support the mission and customer needs. The mission support group commander approves these present priorities as follows:

- MELs for vehicles are developed each year between the using organization and the LRS. The MEL shows the number of vehicles, by authorized type, that can be in the shop at one time and not seriously affect the user's mission.
- The VFM/VMS reviews the vehicle MEL for maintenance priorities and for backfilling primary vehicles, when vehicles are in the shop for maintenance. Questions on the vehicle MEL and any problems in maintaining the levels are resolved with the using organization before the final publication of the list. Normally, it is not possible to have 100 percent of any vehicle type in an organization listed as MEL. Allowances must be made for scheduled maintenance, normal breakdowns, and so forth. The vehicle MEL is presented to the mission support group commander and this list serves as the maintenance priority repair list.

Vehicle management ensures that MELs and mission needs are met. This may require withdrawing vehicles from organizations currently above their MEL, or with lower priorities. Within vehicle management, it may be necessary to consolidate the work force, work overtime, cannibalize parts, delay work, or make temporary repairs to return priority vehicles to service.

024. Processing vehicle accidents and abuse

As you are aware, the Air Force has a large amount of money invested into its vehicle and equipment assets. All of us have a responsibility to safeguard these resources. The number of accidents and abuse to government property ultimately wastes money, time, and effort; all of which the Air Force cannot afford. The LRS commander establishes local reporting procedures and these procedures must be fully supported by all commanders to be totally effective.

Accidents

Webster defines accident as "an unintentional or unexpected happening that is undesirable or unfortunate; especially one resulting in injury, damage, harm, or loss." Statistics show that most accidents are caused by unsafe acts and, therefore, are preventable. All accidents involving vehicles that require repairs should be investigated thoroughly. When a vehicle is involved in an accident, the following procedures apply:

1. Before the vehicle is turned in to vehicle management, the accident must be reported to proper authorities (e.g., security forces, supervisor, or commander). Do *not* accept a vehicle involved in an accident unless it has been reported to proper authorities.
2. Vehicle management notifies the commander and VCO of that unit involved, along with base legal, finance, and safety offices (usually by form letter or as applicable).
3. The unit commander of the vehicle involved appoints an individual to complete the investigation (e.g., photographs, statements from witnesses, accident report, etc.). Vehicle management repairs the accident damage after a predetermined period, unless otherwise notified by the using organization. The appointed investigating official usually releases the vehicle for repairs once the investigation is complete.

NOTE: Open an accident repair work order using the same data and time used in closing the estimate work order.

Abuse

Webster defines abuse as "to treat in a harmful, injurious, or offensive manner." Vehicle management defines it as a deliberate act or omission that caused or may cause damage to a vehicle.

Examples of vehicle abuse include the following:

1. Poked holes in the dashboard.
2. Kicked interior or exterior panels.
3. Cigarette burn holes in the upholstery.
4. Servicing with the wrong fuel (e.g., diesel for gas or vice-versa).
5. Unjustified failure to turn in vehicles for scheduled maintenance.
6. Failure to perform operator care (e.g., washing the vehicle when needed, operating the vehicle with insufficient oil or coolant, etc.).
7. Unreported accidents or any damage that you cannot attribute to fair wear and tear. Failure to distribute or tie-down the load over cargo area properly.
9. Operating the vehicle with tires excessively worn beyond serviceable limits.

NOTE: Using organizations fund repairs resulting from vehicle accidents and abuse. All vehicle management operation and maintenance funds expended for vehicle accident and abuse repair costs, including contract cost, will be reimbursed to vehicle management by the owning organization, or the organization responsible for the damage if not the owner.

Incidents

Vehicle incidents are any damage to a vehicle or equipment not attributed to accident or abuse. It is classified as damages caused by acts of nature, natural disasters, mechanical failures, or other phenomenon that cannot be avoided by safe operation or adequate vehicle care while not in use. In some instances, it may include damages resulting from normal use for the vehicle's intended purpose (e.g., snow removal or heavy construction work). It is recommended that using organizations furnish a written statement fully explaining the incident to vehicle management before starting repairs. However, using organizations are not required to reimburse for damages caused by incidents.

025. Procuring parts

The Air Force has seen many changes in recent years. How vehicle management order parts and support items has also evolved. You can go to any given Air Force base and find the vehicle management shop could be using any one of the following parts procurement programs. With this in mind, it is necessary to touch on the various parts purchasing programs available to vehicle management.

Base supply

Materiel control is the liaison between base supply and vehicle management. They are the initial point of contact and provide support to vehicle management using base supply, contractor-operated parts store (COPARS), the Alternate Parts Procurement Program System (ADPS), or other decentralized purchasing methods. Although there are many purchasing programs available to vehicle management, they are only to supplement the base supply function, not replace it. If you require a part, you should go through base supply first. We will talk later about the additional base supply functions.

Contractor-operated parts store

COPARS is a DOD-approved method of supplementing base supply and getting commercially available automotive parts fast and economically. It greatly reduces research/item identification times and costs for parts not stock-listed or cataloged. The base contracting activity is responsible for soliciting proposals, and executing and administering the COPARS contract.

Materiel control plays a key in the coordination between vehicle management and the COPARS contractor. Ideally located next to COPARS, materiel control personnel have many contacts with the contractor each day. This relationship makes it most important all materiel control personnel read and know the terms of the contract, particularly the obligations of the contractor.

Blanket purchase agreement

A BPA is a simplified way of filling repetitive requirements for supplies and services. It is designed to reduce administrative costs for small purchases. It does this by eliminating the need for issuing individual purchase documents. It is an internal decision so you do not need a purchase requisition or accounting and appropriation data. The question is: under what circumstances can vehicle management establish a BPA? The following circumstances may justify the establishment of a BPA:

1. If there is a wide variety of items in a broad class of goods (e.g., hardware like automotive parts) that are routinely purchased but the exact items, quantities, and delivery requirements are not known in advance and may vary considerably.
2. If there is a need for commercial sources of supply for one or more offices or projects in a given area that do not have or need authority to purchase otherwise.
3. In any other case in which the writing of numerous purchase orders can be avoided.

To eliminate the need for issuing individual purchase documents, the BPA method establishes, in essence, “charge accounts” with qualified sources of supply and/or services to cover anticipated small purchases. Once a “charge account” is established, an authorized individual can place a call for covered items as needs arise. To be more efficient and cost effective, establish a BPA for the same types of items from more than one supplier. For example, if you need to purchase a muffler locally, set up a BPA for several local suppliers and stores (e.g., Bumper-to-Bumper, Checkers, Big A, Carquest, etc.) from which to buy mufflers. This way you are more efficient and cost effective because a supplier may carry a certain type of muffler cheaper than others may carry and vice versa. In addition, this increases your chances of having the item available at all times; thereby enhancing vehicle mission capable rates.

Government purchase card

The GPC enables vehicle management to purchase needed parts (if not available through base supply) and services (if not covered by another base contract) with a credit card. Its objective is to simplify small purchasing, minimize paperwork, and improve internal controls. This function is controlled by base contracting, in accordance with AFI 64-117, *Government Purchase Card Program*. The materiel control section runs the parts procurement side of the program, and FM&A handles requested services (e.g., overhaul work that cannot be accomplished in the shop, etc.).

The following items can be purchased using the GPC program:

- Office supplies, tools, equipment, and furniture.
- Vehicle management services, parts, and cleaning supplies.
- Shop safety equipment.
- Contract services.

All cardholders must comply with the following procedures:

- Obtain cost quotes from vendors.
- Ensure vendors will accept credit card payment and inquire about government discounts.
- Ensure vendor is aware the GPC is *tax exempt*.
- Log all card transactions into established tracking programs.
- Always secure documents that display the cardholder’s GPC card number.

NOTE: When local purchase support is required and does not meet criteria for the BPA or GPC (e.g., parts or services exceeds a specified amount), submit an AF Form 9, Request for Purchase. Route this form in accordance with local procedures, and be prepared to provide justification for the purchase.

026. Procuring tires and batteries

Tires and batteries require special management procedures because of their potential for fraud, waste, and abuse. Each vehicle management shop must establish local procedures for ensuring that all tires and batteries are accounted for on an “as-received” basis and charged directly to a vehicle work order. This lesson will provide a broad overview of tire and battery management.

Tires

Each tire must be purchased and accounted for according to Air Force and local policies. Air Force policy requires the use of retread tires to the maximum extent possible. To comply with this policy, vehicle management should contract for recapping tire carcasses or purchase recap tires when prices are cheaper than, or equal to, the cost of a new tire. You should only buy new tires when original tire carcasses cannot be retread, if retreads are not available, or if retreads will not meet the minimum performance or quality standard for their intended function. TO 36-1-191 specifies certain vehicles that will *not* use retread tires for any reason. You can also contact your state Department of Transportation to see what limitations they have set for using retread tires for over the road/highway usage.

New tires will be obtained in base supply as a mandatory source using the Michelin North American fixed-price tire contract via the Defense Supply Center-Columbus through the Defense Logistics Agency. Delivery times for tires procured in base supply will not exceed three duty days in the CONUS, or nine duty days for outside CONUS from the date the requisition was established in base supply. If tires cannot be obtained through base supply in the time line mentioned, tires can be procured using alternative sources (e.g., GPC, COPARS, etc.) as determined by the VFM/VMS. The VFM/VMS will initiate actions to purchase tires locally if delivery times do not meet the criticality of the mission, such as an organization below their approved MEL. Follow the guidance in AFI 24-302.

Some vehicle management shops may serve as a supply point in order to provide a stock of tires. The supply point may contain all or a portion of the warehouse tire stock. A portion of the operating stock may build up wheel/tire assemblies as determined by experience, need, and availability of wheels. Management establishes local procedures to ensure all tires in a supply point are maintained and accounted for on an “as-received” or “issued” basis using AFTO Form 70, Tire Inventory Control Record, or other local form that can reflect similar data.

Batteries

It would be very easy for an individual to remove a serviceable vehicle battery, put an unserviceable one in its place, and call mobile maintenance—who will probably replace it. As you can see in this scenario, batteries will *not* be put in low-cost bench stock regardless of price because batteries are issued directly to a specific vehicle work order. This means vehicle batteries stocked by the battery shop must be loaded in the high-cost bench stock. This allows for the direct issuance and charging of cost to a specific vehicle work order. **NOTE:** Batteries must be accounted for on an “as-received” or “issued” basis for audit purposes.

027. War reserve materiel vehicle program

The WRM vehicle program includes materials that are, in addition to mobility equipment and primary operating stocks, needed to support wartime activities within the USAF war and mobilization plan. On the other hand, WRM vehicles are those vehicles required, in addition to peacetime vehicles, to provide support for forces, missions, and activities listed in the USAF war plans.

The designated host unit at Air Force installations (active, guard, or reserve) manages the installation WRM program. The host unit’s oversight responsibility includes budgeting, maintenance, storage, accountability, and processing monthly WRM reports. The installation commander has overall responsibility to ensure the readiness of assigned WRM, while the LRS commander manages the installation WRM program to include appropriate planning, programming, budgeting acquisition, distribution storage, and maintenance.

Vehicle management's responsibility

Vehicle management's responsibility is to make sure the storage and maintenance of WRM vehicles is followed according to guidelines in AFI 24-302, AFI 25-101, *Air Force War Reserve Materiel (WRM) Policies and Guidance*, and TO 36-1-191. General responsibilities are outlined as follows:

1. Ensure WRM assets are maintained and ready for any authorized contingency, complying with the provisions of TO 36-1-191, and other shipping instructions as provided by WR-ALC or MAJCOM.
2. Make sure organizations storing WRM vehicles are also responsible for the readiness of assign WRM.
3. Store WRM vehicles in a serviceable, ready-to-use condition. Ensure joint-use WRM vehicles assigned to other units are included in the WRM vehicle management program.
4. Identify WRM maintenance requirements through inspections or scheduling in accordance with technical orders, AFIs, AFMANs, and command supplements.
5. Maintain WRM vehicle status to reflect vehicle registration number, unit, location, status, and specific non-mission capable maintenance (NMCM), NMCS, and estimated completion date to MAJCOM.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

023. Prioritizing vehicle work orders

1. If a using organization falls below its assigned MEL, what action will be taken by FM&A to expedite the vehicle repairs?
2. How often are MELs developed and who is involved in the process?

024. Processing vehicle accidents and abuse

1. What should a vehicle operator do when involved in an accident, before reporting to vehicle management?
2. Who releases a vehicle for accident repairs once the investigation is complete?
3. How does vehicle management define vehicle abuse?
4. What is a vehicle incident?

025. Procuring parts

1. What section is the initial point of contact for all items purchased by your shop?

2. How does COPARS help the vehicle management shop when acquiring parts?
3. What is meant by a BPA?
4. Which base function controls the GPC program?
5. What must the GPC cardholder ensure the vendor is aware of prior to purchase?

026. Procuring tires and batteries

1. What is the USAF policy regarding tires?
2. How should vehicle management comply with USAF tire policy?
3. Who initiates actions to purchase tires locally if base supply delivery times do not meet the criteria of the mission?
4. Why are batteries *not* put in low-cost bench stock?

027. War reserve materiel vehicle program

1. Who has overall responsibility to ensure the readiness of assigned WRM?
2. What is vehicle management's responsibility concerning WRM vehicles?
3. What references can be used if you have question concerning WRM fleet and equipment storage procedures?

Answers to Self-Test Questions**009**

1. TO 36-1-191.
2. The manufacturer's service manual.
3. Visually inspecting and functionally testing all of the components on a vehicle in accordance with TO 36-1-191.
4. Age and mileage of the vehicle; purpose of the vehicle and the job it performs; remaining service life; relative value of services the vehicle returns in comparison with the cost of renovation, replacement, or parts; and one-time repair limit.
5. Can save hours in vehicle down time and thousands of dollars in unnecessary parts replacement.

010

1. Operator inspection.
2. AF Form 1800.
3. They act as liaison between their unit and the vehicle management flight.
4. Tires and brakes, steering mechanisms, operating levers (controlling power transmissions, hoisting, dumping, and tripping devices), warning lights (turn signals, brake lights, emergency flashers or rotating flashers), headlights, reflectors, and clearance lights, windshield wipers, and defrosters, other similar and warning equipment and devices on unique to special purpose units.
5. FM&A.
6. Operational environment, operational utilization, operational speed, and intervals that enhance safety and continued operation of the vehicle.
7. Periodic prescribed inspection or servicing of equipment, accomplished on a calendar date, mileage, or hours-of-operation basis.
8. AF Form 4354.
9. Burnt transmission fluid, inoperative instrument panel gauges, and bearing noises.
10. To show the technician all the specific lubrication points on a vehicle.
11. In the lubrication area or technical order library.
12. Every time a vehicle enters the shop or every 12 months, whichever comes first.
13. AF Form 4355.

011

1. To increase safety and operational reliability.
2. Every three years, 36,000 miles, 57,900 kilometers, or 2400 hours.
3. AFTO Form 91.
4. Blocks 65 through 110 also need to be completed.

012

1. To ensure hazardous waste is handled in a manner that protects human health and the environment.
2. From waste generation to final disposal.
3. Ensure the waste we produce is collected, fully documented, identified, and transported to an approved treatment, storage, or disposal facility.
4. Reduce consumption and recycle.
5. "F"-nonspecific sources.
6. They must be turned in to the hazardous waste accumulation point or the satellite accumulation point for disposal.

013

1. It is a safety data sheet and is the primary link between the chemical and manufacturer and the handler, and the user of the materiel.
2. Any four of the following:
 - Before you handle the material for the first time.
 - If you have questions about the material's physical characteristics.
 - If you have any questions about how and where to store the material.
 - When you have to clean up a spill or leak and dispose of the material.
 - If you have questions about the potential health hazards of the material.
 - If you want to know the recommended first aid measures to follow after contact with the material.
 - If you have questions about the material's reactivity, combustibility, flammability, or exposure limits.
 - If you have forgotten or are unsure of the recommended PPE to wear when handling the material.
 - When there is an unusual circumstance involving potential exposure to the material, such as maintenance or confined space entry.

3. Toxicity, reactivity, flammability, first aid, personnel protection, spill or leak procedures, physical identification, and product identification.
4. The measure of a material's density relative to water.

014

1. A facility owner, operator, or a person who first creates hazardous waste.
2. Keep good and accurate records.
3. Mixing can cause violent and dangerous chemical reactions and mixed contaminants are very expensive to dispose of.
4. To reduce corrosion caused by contact with the ground.
5. A place that allows the collection of small amounts of hazardous waste at or near the point of generation.
6. Prison terms of six month to 15 years, and one-time fines anywhere from \$10,000 to \$150,000, with cumulative fines as high as \$50,000 per day for violation.

015

1. Source reduction or recycling action reducing the total volume or quantity of hazardous waste.
2. Any three of the following: it's the law, it is Air Force policy, it reduces liabilities, it saves money; and it saves our environment.
3. Any three of the following: Ensure shop operating procedures address waste minimization; conduct an employee training and awareness program; conduct proper inventory control; segregate and isolate hazardous waste by contaminant; and look for opportunities to minimize part cleaning and degreasing operations.

016

1.
 - (1) a.
 - (2) b.
 - (3) b.
 - (4) a.
 - (5) b.
 - (6) a.
 - (7) b.
2. Recycle used vehicle oil; do not dump household cleaning products or any toxic materials down the drain or on the ground; minimize the use of pesticides and fertilizers on your lawn, and report illegal dumping of hazardous waste.
3. Energy conservation.

017

1. Vehicle management.
2.
 - (1) Type A—factory rust proofing.
 - (2) Type B—mild rust proofing.
 - (3) Type C—design corrosion control.
 - (4) Type D—tropical corrosion control.
3. Type D.
4. 36-1-191.
5. During the acceptance inspection.
6. To ensure vehicles and equipment items are maintained in a condition that prevents significant vehicle deterioration.

018

1.
 - (1) Level A provides protection during shipment, handling, and various periods of storage of 90 days.
 - (2) Level B provides protection during domestic or overseas shipment, which may involve outside storage for a combined total of approximately 90 days.

- (3) Level C provides adequate protection during domestic shipment for immediate use locations and for vehicles NMCS for less than 90 days.
 - (4) Live storage applies to WRM and air shipments of vehicles where the requirement for immediate operational readiness does not permit delays for storage and shipment.
2. 36-1-191.
3. Storage site.
4. Every 90 days.
5. AFTO Form 91.
6. Every 30 days for vehicles not stored in plastic bags.
7. Perform an LTI to determine vehicle condition.
8. VFM/VMS.
9. 75 percent.
10. (1) Vehicle appearance should be above average.
 - (2) Vehicle must have all components, assemblies, and parts considered complete.
 - (3) All TCTOs are completed.
 - (4) Vehicle components must have at least 50 percent of anticipated life remaining.

019

1. Those areas where the lowest daily temperature of -10°F or colder are encountered for 30 days or more per year, or where the average temperature for the month of January is 20°F or colder.
2. Temperature extremes and available electrical outlets.
3. (a) Type C. (b) Type C. (c) Type A.
4. Arctic-type lubricants and fluids.

020

1. They seek to identify, report, and resolve deficiencies on vehicles and equipment that fail to meet Air Force standards.
2. (1) Design.
 - (2) Maintenance.
 - (3) Materiel.
 - (4) Quality.
3. (1) c.
 - (2) a.
 - (3) d.
 - (4) b.
 - (5) b.
 - (6) d.
 - (7) a.
4. DD Form 2332.

021

1. A written guarantee that says the product is as good as the manufacturer says it is.
2. AWR.
3. Defective parts being held as proof of failure.
4. VFM/VMS.
5. FM&A.
6. Ready-to-run.

7. (1) b.
(2) d.
(3) a.
(4) c.
8. 12 months from acceptance date.
9. Military-designed tactical vehicles.
10. Tires and batteries.
11. If the manufacturer's dealer refuses to honor a warranty.
12. 36-1-191.

022

1. An authorized directive issued to provide instructions to all Air Force activities.
2. To perform the actions necessary to comply with TCTO directives.
3. (1) c.
(2) a.
(3) b.
4. 1-10 days of receipt.
5. Technical, inspection, or installation instructions.

023

1. FM&A will assign that using organization's vehicle a "red priority."
2. Each year between using organization and LRS.

024

1. Report the accident to the proper authorities (e.g., security forces, supervisor, or commander).
2. The appointed investigating official.
3. A deliberate act or omission that caused or may cause damage to a vehicle.
4. Damage to a vehicle or equipment not attributed to accident or abuse.

025

1. Materiel control.
2. They reduce research and item identification times and costs for parts not stock-listed or cataloged.
3. A simplified way of filling repetitive requirements for supplies and services.
4. Base contracting.
5. The GPC is tax exempt.

026

1. Requires the use of retread tires to the maximum extent possible.
2. Contract for recapping tire carcasses or purchase recaps when prices are cheaper than, or equal to, the cost of a new tire.
3. VFM/VMS.
4. Batteries are issued directly to a specific vehicle work order.

027

1. Installation commander.
2. To make certain storage and maintenance of WRM vehicles are according to guidelines in AFI 24-302, AFI 25-101, and TO 36-1-191.
3. AFI 25-101, AFI 24-302, and TO 36-1-191.

Do the unit review exercises before going to the next unit.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

Do not return your answer sheet to AFCDA.

23. (009) In vehicle management, serviceability standards are important when performing vehicle inspections
 - a. to ensure vehicles are in like new condition.
 - b. to ensure all shops perform the same operation at the same time.
 - c. to ensure personnel make similar interpretations of assembly condition.
 - d. because it is the Air Force policy to have all new vehicles inspected in the same manner.
24. (010) What is the responsibility of the vehicle control officer (VCO) and vehicle noncommissioned officer (VCNCO)?
 - a. Conduct monthly vehicle inspections.
 - b. Perform vehicle purchase transactions.
 - c. Administer the vehicle control program.
 - d. Ensure vehicles are repaired under warranty.
25. (010) Which discrepancy must you report to vehicle management *without delay*?
 - a. Left turn signal light is inoperative.
 - b. Broken spare tire carrier.
 - c. Glove box door will not close.
 - d. Truck lid lock stuck.
26. (010) Which form must the technician use during a vehicle condition inspection?
 - a. AF Form 1823, Vehicle and Equipment Work Order.
 - b. AF Form 1827, Minor Maintenance Work Order.
 - c. AF Form 4354, Vehicle Preventive Maintenance and Inspection.
 - d. AF Form 4355, Vehicle Incoming Inspection.
27. (011) Technical inspections are performed on all vehicles and equipment, *except* those having a standard price of
 - a. less than \$10,000.
 - b. more than \$10,000.
 - c. less than \$5,000 only.
 - d. more than \$5,000 only.
28. (011) When you perform a limited technical inspection (LTI), what form do you use as a checklist to determine overall condition of an Air Force vehicle?
 - a. AFTO Form 90, Motor Vehicle.
 - b. AFTO Form 91, Limited Technical Inspection - Motor Vehicle.
 - c. AF Form 1823, Vehicle and Equipment Work Order.
 - d. AF Form 1827, Minor Maintenance Work Order.
29. (011) Who reviews and certifies all limited technical inspections (LTI) for accuracy and completeness of maintenance actions?
 - a. Workcenter supervisor.
 - b. Customer service center.
 - c. Vehicle fleet manager/vehicle management superintendent.
 - d. Noncommissioned officer in charge of maintenance control.

30. (012) According to federal regulation, determining if a solid waste is hazardous, as defined in the regulations, is the responsibility of the
- a. person who generated the solid waste.
 - b. state agency charged to conduct tests.
 - c. trash collection agency that picks it up.
 - d. environmental protection agency.
31. (012) Which is a normal hazardous waste generated by vehicle maintenance?
- a. Cyanide.
 - b. Mercury.
 - c. Creosote.
 - d. Degreasers.
32. (013) What is a key item in managing hazardous material (HAZMAT) in the vehicle management shop?
- a. Chemical abstracts service.
 - b. Bioenvironmental section.
 - c. Code of Federal Regulations.
 - d. Safety data sheet.
33. (013) The correct fire extinguisher to use is determined by knowing a substance's
- a. specific gravity.
 - b. boiling point.
 - c. flash point.
 - d. reactivity.
34. (014) What precautionary measures *must* you take when handling hazardous waste?
- a. Wear the appropriate personal protective equipment.
 - b. Have somebody stand by to operate the fire extinguisher.
 - c. Continually check the level of toxicity of the hazardous material.
 - d. Check the data safety sheet after handling the material.
35. (014) Reducing corrosion buildup on hazardous waste containers is accomplished by
- a. placing the containers on pallets.
 - b. placing the containers on cinder blocks.
 - c. stacking the containers inside the shop.
 - d. stacking the containers outside in direct sunlight.
36. (014) The success of the environmental and pollution program depends on
- a. the vehicle fleet manager.
 - b. the command policy.
 - c. the squadron policy.
 - d. all personnel.
37. (015) Which program reduces toxicity levels to prevent present and future threats to humans and the environment?
- a. Waste minimization.
 - b. Waste management.
 - c. Flex fuel vehicles.
 - d. Landfill burning.

38. (015) Which action can vehicle management practice to help reduce hazardous waste generated in the shop?
- a. Buy less hazardous materials.
 - b. Minimize parts cleaning and degreasing operations.
 - c. Extend scheduled maintenance intervals.
 - d. Institute stiff punishment for law violations.
39. (016) The action you can do to help reduce air pollution is to
- a. perform maintenance on your own vehicle.
 - b. drive early to work to avoid traffic jams.
 - c. use public transportation where practical.
 - d. use nuclear energy for home heating.
40. (017) The objective of vehicle rust proofing under the Air Force corrosion prevention and control program is to
- a. protect and enhance the Air Force image.
 - b. enhance safety and extend service life.
 - c. attain established standards of excellence.
 - d. support the "top wheels" beautification program.
41. (017) To ensure that corrosion preventive measures are being met, how often should you inspect vehicles?
- a. Annually.
 - b. Every 6,000 miles.
 - c. Every 12,000 miles.
 - d. At least semi-annually.
42. (018) What level of storage protection should be afforded to vehicles on non-mission capable supply (NMCS) status less than 90 days?
- a. A.
 - b. B.
 - c. C.
 - d. D.
43. (018) Time compliance technical orders (TCTO) are accomplished on deep storage vehicles during the
- a. visual inspection.
 - b. functional inspection.
 - c. next major inspection.
 - d. operational inspection.
44. (018) Your *first* step in preparing a vehicle for shipment is to perform
- a. an annual inspection.
 - b. a scheduled inspection.
 - c. a tune-up/emission inspection.
 - d. a limited technical inspection.
45. (018) Vehicles or equipment shipped to an Air Force installation overseas must have *at least* what percentage of their anticipated life remaining?
- a. 10.
 - b. 25.
 - c. 50.
 - d. 75.

46. (019) Vehicle winterization requirements are essential in cold weather areas to allow for
- safe antifreeze protection and thermostat operation.
 - safe antifreeze protection and rust protection.
 - safe operation and satisfactory performance.
 - rust protection and satisfactory performance.
47. (019) The winterization category in which a vehicle operating in a temperature of minus (-) 20 to -40 degrees Fahrenheit, *without* the availability of 110 electrical outlets for preheating, would be classified is
- abnormal.
 - complete.
 - limited.
 - partial.
48. (019) The type of winterization that requires the installation of an oil pan shroud assembly and a radiator cover is
- D.
 - C.
 - B.
 - A.
49. (020) The purpose of the deficiency reporting system is to
- report on vehicles and equipment that fail to meet Air Force standards.
 - report on vehicles and equipment that are still under warranty.
 - provide vehicle management with personnel injury notification.
 - provide vehicle management with inspections revealing a material defect.
50. (020) Who certifies the accuracy and release of most deficiency reports for transmission?
- Wing safety.
 - Installation commander.
 - Fleet management and analysis.
 - Vehicle fleet manager/vehicle management superintendent.
51. (020) Any individual or section within the vehicle management activity or unit who discovers and identifies a product deficiency and prepares the draft report is considered the
- originator.
 - action point.
 - support point.
 - screening point.
52. (020) Which deficiency type is a failure that could cause severe occupational illness?
- Design.
 - Quality.
 - Materiel.
 - Maintenance.
53. (020) Failed exhibit items must be carefully handled and packaged to
- avoid corrosion.
 - prevent breakage.
 - preserve as evidence.
 - preserve for use in 30 days.

54. (021) The key to a successful policy adjustment claim is
- good documentation.
 - an action warranty report.
 - a vehicle unsatisfactory report.
 - a timely product quality deficiency report.
55. (021) What should the delivery condition status of a newly procured government vehicle be?
- Ready-to-run.
 - Combat mobility.
 - Air transportation.
 - Combat contingency.
56. (021) Special purpose vehicles procured under Air Force specifications have
- a 6-month warranty.
 - a 12-month warranty.
 - a 15-month warranty.
 - no normal commercial warranty.
57. (021) Military-designed tactical vehicles (M-series) have
- a 6-month warranty.
 - a 12-month warranty.
 - a 15-month warranty.
 - no normal commercial warranty.
58. (022) To ensure proper repairs are made throughout the vehicle's life cycle, vehicle manufacturers use instruments called
- time compliance technical orders (TCTO).
 - technical bulletins.
 - service bulletins.
 - technical orders.
59. (022) Ensuring you receive service bulletins for Air Force inventory vehicles is the responsibility of
- Air Staff.
 - Headquarters United States Air Force.
 - the major command.
 - the 441st Vehicle Support Chain Operations Squadron.
60. (023) Fleet management and analysis (FM&A) is required to assign a red priority to a vehicle when
- a unit on base is above mission essential vehicle levels.
 - a unit on base is tasked to support a mission requiring 10 vehicles.
 - the civil engineering vehicle control officer needs more dump trucks.
 - civil engineering needs more vehicles to support severe weather damage cleanup on the base.
61. (023) The mission essential level (MEL) listing is developed
- quarterly.
 - annually.
 - semi-annually.
 - only when a change occurs.

62. (024) A vehicle involved in an accident should be turned in to the shop after
- a. the safety officer is briefed.
 - b. it has been thoroughly cleaned.
 - c. it has been reported to the proper authorities.
 - d. a surveying officer is done with the investigation.
63. (024) Who *usually* releases a vehicle for repairs once the accident investigation is complete?
- a. Unit commander.
 - b. Investigating official.
 - c. Fleet management and analysis.
 - d. Vehicle fleet manager/vehicle management superintendent.
64. (025) Who plays a key role in the coordination between vehicle management and the contractor-operated parts stores (COPARS) contractor?
- a. Base supply.
 - b. Materiel control.
 - c. Workcenter supervisor.
 - d. Fleet management and analysis.
65. (026) Why do tires and batteries require special management procedures?
- a. Due to their environmental impact.
 - b. Because tires and batteries are recoverable items.
 - c. Due to their potential for fraud, waste and abuse.
 - d. Because they represent a large amount of capital investment.
66. (026) What is the United States Air Force's policy concerning tires?
- a. Use retread tires on every Air Force vehicle.
 - b. Use retread tires to the maximum extent possible.
 - c. Use retread tires because they are always cheaper than new.
 - d. Vehicle management determines if they want to use retread tires.
67. (026) Who initiates actions to purchase tires locally if delivery times do not meet the criticality of the mission?
- a. Vehicle fleet manager/vehicle management superintendent.
 - b. Fleet management and analysis.
 - c. Regional supply squadron.
 - d. Materiel control.
68. (027) Which person has the overall responsibility to ensure the readiness of assigned war reserve materiel (WRM)?
- a. Logistics readiness squadron commander.
 - b. Vehicle fleet manager.
 - c. Installation commander.
 - d. Group commander.

Please read the unit menu for Unit 3 and continue ➔

Unit 3. Materiel Control (Supply), Technical Orders, Standard Publications, and Air Force Occupational Safety and Health

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AS A VEHICLE TECHNICIAN, you will be required to research and order the correct vehicle parts, equipment, and supplies for your work center. In doing so, you will be responsible for complete accountability of items you may request. This unit will aid you in understanding how materiel control plays a major role in this process. We will discuss how to use the Air Force technical order system to locate specific vehicle/equipment or procedural information. We will cover how to identify standard Air Force standard publications, to include AFOSH related publications, which provide guidance on shop safety, fire prevention, and health precautions in the specific areas where we work.

3-1. Materiel Control (Supply)

Your exposure to the supply system, up to this point, is probably very limited. As you gain experience and responsibility, this exposure will increase. This section covers the Air Force supply system and how materiel control plays liaison between vehicle management and base supply. It is because of this liaison role that any reference made to supply can automatically be associated to the materiel control section. We will cover information on government property responsibility and accountability, cross-referencing part numbers and stock numbers, and some supply forms with which you need to be familiar. In addition, we will cover your responsibility for proper accountability of property with the use of condition tags, temporary issue receipts, and special supply forms.

028. Property responsibility and accountability

Property management is the process of providing for the proper allocation, control, care, use, and safeguarding of government resources and assets under control of the Air Force. As an individual, you have an obligation to care and protect all properties under Air Force control whether or not issued to you for custody or use. Effective management of property starts with you, regardless of assignment. Every individual, military, or civilian, regardless of duty assignment, is required to understand and practice supply discipline.

Principles of supply discipline

Supply discipline is essential to good materiel management. Ongoing fiscal problems make it more important than ever to adhere to supply discipline. This is why you must utilize equipment and supplies to the maximum economical use possible. You also know that one must safeguard and preserve public property under his or her use and control. The following is a list of contributions you can make towards supply discipline:

1. Avoid requesting more than what is necessary to perform the job.
2. Continually screen your stocks and promptly report, redistribute, and dispose of excesses.

3. Promptly send reparable assets through repair channels. A reparable item is as important as a serviceable item, since the reparable one may be the only source of supply.
4. Do not double order parts from more than one source. This wastes funds, reduces credibility, and does not serve the shop well in the end. Do not use such practices.

Remember, the primary objective of the Air Force's fraud, waste, and abuse program is prevention rather than just reporting its occurrence.

Responsibilities for management of public property

When it comes to the management of public property, there are three levels of responsibility: command, custodial, and accountable.

Command

To ensure accomplishment of the mission, our equipment, supplies, and facilities must be operated and maintained in proper condition. *Commanders are not exempt from pecuniary liability* for properties within their command. Pecuniary liability is the financial obligation to pay for the loss, damage, or destruction of property resulting from negligence, unauthorized issue or use, or misconduct. Every commander is responsible for prudent management of government properties under their control.

Custodial

A property custodian is an individual designated by the commander to have custodial (watchful) responsibility for government property. If you have custodial responsibility for a piece of property, you are entrusted with the duty for its safeguard and proper use. A property custodian may be held liable for any damage or loss arising from his/her negligence.

Accountable

An "accountable" individual is anyone commanded by law, lawful order, regulation, or contract with the duty to safeguard and/or maintain public property to include keeping accurate records of documents. As you can see, this is a broad statement. Anyone who uses government property is imposed, by law, with the duty to take care of that property to include the maintenance of accurate records. Each of you that use public property is an "accountable" individual. As such, you may be held liable for the loss, damage, or destruction resulting from your negligence, willful misconduct, or unauthorized use.

Property accountability

There are two categories of property in the supply system: equipment and supplies. These two categories are grouped into (1) reparable/recoverable and (2) consumables.

Equipment

Equipment items are things other than supplies needed to outfit an individual or organization. Organizational equipment items are required by units to get their job done (e.g., hydraulic jacks, vehicle lifts, etc.). The other types of equipment items are those required for individual use. For example, when stationed at a cold weather area, you will receive cold weather gear like a parka, mukluks, thermal underwear, and so forth. The tools and mobility bags issued to you are also individual equipment. When you leave your duty station, you have to turn in most of these items. For this reason, you need to take care of them because they are expensive and you may be held liable for loss or damages not caused by fair wear and tear.

Air Force equipment allowance standards prescribe items and quantities of equipment authorized to outfit a vehicle management shop so it can perform assigned peacetime and wartime missions, functions, and duties. Each vehicle management shop can request changes to equipment allowance standards by submitting an AF Form 601, Equipment Action Request, when it is determined that allowances are inadequate, excessive, or equipment is unsuitable for the peacetime or wartime mission.

Supplies

There are four sources for the items you need in your daily operations: Air Force Materiel Command, Defense Logistics Agency, General Services Administration, and local sources. Regardless of where supplies come from, you have the same responsibility for accountability and use.

Air Force Materiel Command

Items from the Air Force Materiel Command include those that are vital to the accomplishment of the Air Force mission. These items may be issued at discount, or at no cost to the base. Examples of these items are the repair cycle assets, which you normally call DIFM, such as tires, some alternators, starters, and so forth. These items are issued on a one-for-one basis, similar to a “core charge” at a downtown automotive parts store. The Air Force tracks and keeps an adequate inventory of DIFMs because these items are vital to the success of the mission. Additionally, these items normally cost more and thus require substantial capital investment.

Defense Logistics Agency

Items from the Defense Logistics Agency are common to the DOD but not necessarily common to other government agencies (i.e., your uniforms, M16s, ammunitions, etc.).

General Services Administration

Items from the General Service Administration are those common to all government agencies (i.e., pens, papers, pencils, mops, brooms, trashcans, etc.).

Local purchase

Items that cannot be procured through supply or other government agencies mentioned above may be bought locally. Normally, this is done through the base contracting office according to the MAJCOM or base procedures. All requests for items of supply to be procured locally will be routed through the accountable officer.

Repair cycle and consumables

Equipment and supplies are grouped into two categories: repair cycle assets and consumables.

Repair cycle assets

Repair cycle assets are repairable and reused repeatedly and are commonly known as recoverable items. They have an expendability, reparability, and recoverability code (ERRC) of either XD or XF (e.g., tires, some engines, etc.). These items are a large cost investment for the Air Force and are stringently controlled and cycled back into the supply system. All repair cycle assets are managed and controlled by materiel control according to the DIFM concept.

Consumables

The other category is commonly referred to as consumables. They are expendable, not repairable, and coded as XB items. These are repair parts or items that when no longer serviceable, you dispose of them, or they lose identity when attached to another assembly (e.g., nuts, bolts, etc.). Disposable items (e.g., gaskets, seals, broken plastic items, etc.) have no potential value and due to their present condition, cannot be sold through DRMS. Serviceable XB items may still have a potential use or resale value and must be accounted for. Improper disposition may constitute fraud, waste, and abuse, or may violate environmental laws.

029. Supply tags and forms

The proper accountability of supply items does not end here. You have probably heard or seen the saying, “The job is never finished until the paperwork is done.” If you are not familiar with it, you will be before your Air Force career is completed. It is especially applicable when ordering or turning in vehicle parts. Records must be kept, and the status of each item of Air Force property must be indicated.

To achieve these objectives in a more-or-less standard manner, all branches of the armed services use forms. Some forms are developed by the services to meet unique requirements. They may be in the form of a sheet of paper, a cardboard tag, or a stick-on label; each has its purpose. In this lesson, we cover some standard DOD forms called condition tags and how to identify them. We also introduce you to the temporary issue receipt and the chit system.

Condition tags

The overall condition of a supply item determines its usefulness. However, if its condition is not indicated in some manner, how does anyone know whether it is usable? For this reason, supply items are labeled to indicate their “condition” or “status.” This is done using cardboard tags or stick-on labels called condition tags, which are standard DOD forms.

That is well and good, but reading labels takes some time. When you need a part in a hurry, pausing to read all of the details on a label can take valuable time. Fortunately, condition tags are designed to help you locate usable items. The condition tags are color-coded to represent the status of a part or piece of equipment:

1. Yellow for serviceable items.
2. Green for unserviceable and reparable items.
3. Red for unserviceable condemned items.

Labels are used on flat surfaces or boxes, but you attach status tags to parts or equipment. The form numbers, status designator, and color of the condition tags are listed in the following table.

Form Number	Type of Form	Status Designator and Color
DD Form 1574	Tag	Serviceable Tag - Materiel (yellow).
DD Form 1574-1	Label	Serviceable Label - Materiel (yellow).
DD Form 1577	Tag	Unserviceable (Condemned) Tag - Materiel (red).
DD Form 1577-1	Label	Unserviceable (Condemned) Label - Materiel (red).
DD Form 1577-2	Tag	Unserviceable (Reparable) Tag - Materiel (green).
DD Form 1577-3	Label	Unserviceable (Reparable) Label - Materiel (green).

You need to be able to identify these tags at a glance. Figure 3-1 shows the *yellow* DD Form 1574 tag. Use this tag for a part or component in serviceable condition and ready to use for repairing a vehicle.

FSN, PART NO AND ITEM DESCRIPTION 2920-01-152-5831 P/N 1109496 STARTER ASSEMBLY		SERVICEABLE TAG - MATERIEL	
		NEXT INSPECTION DUE / OVERAGE DATE ANNUAL	CONDITION CODE A
		INSPECTION ACTIVITY DET 1, 345 TRS/TTAS	
SERIAL NUMBER / LOT NUMBER	UNIT OF ISSUE EA	INSPECTORS NAME GR STAMP AND DATE	
CONTRACT OR PURCHASE ORDER NO.	QUANTITY 1	SSGT CHANNON MALKIN / 30 APR 08	
REMARKS CHEVOLET 12-VOLT STARTER, 6.2L ENGINE			

WARNING: Unauthorized persons removing, defacing, or destroying this tag may be subject to a fine of not more than \$1,000 or imprisonment for not more than one year or both (48 USC 1381)

DD Form 1574 OCT '88

Previous editions may be used.

Figure 3-1. DD Form 1574.

You need to be aware of two additional tags. The *green* DD Form 1577-2 tag is used for a part or component that is unserviceable, but reparable for future use. The *red* DD Form 1577 tag is used for any unserviceable and nonreparable part or component. These items must be turned in to materiel control for disposition. Figure 3-2 shows the green DD Form 1577-2 and red DD Form 1577.

FSN, PART NO. AND ITEM DESCRIPTION		UNSERVICEABLE (REPARABLE) TAG-MATERIEL	
		INSPECTION ACTIVITY	CONDITION CODE
		REASON OR REPARABLE CONDITION	
SERIAL NO. / LOT NO.	UNIT OF ISSUE	REMOVED FROM	
CONTRACT OR PURCHASE ORDER NO.	QUANTITY	INSPECTOR'S NAME OR STAMP AND DATE	
REMARKS			

DD FORM 1577-2, 1 OCT. 66

FSN, PART NO. AND ITEM DESCRIPTION		UNSERVICEABLE (CONDEMNED) TAG-MATERIEL	
		INSPECTION ACTIVITY	CONDITION CODE H
		REASON OR AUTHORITY	
SERIAL NUMBER/LOT NUMBER		INSPECTOR'S NAME OR STAMP AND DATE	
UNIT OF ISSUE	QUANTITY		
REMARKS			

DD FORM 1577, 1 OCT. 66

Figure 3-2. DD Form 1577-2 and DD Form 1577.

AF Form 1297, Temporary Issue Receipt

All personnel are accountable for Air Force property in their personal possession. Checking out equipment or tools from the tool crib makes you accountable for them. The AF Form 1297 transfers custodial responsibility, on a temporary basis, of the tools or equipment checked out from the tool crib custodian to you. Once the tools or equipment are returned to the tool crib and your AF Form 1297 is returned, you are no longer held accountable. Tools issued from the tool crib on an AF Form 1297 are issued generally for a period not longer than the user's shift period. If the tools remain outside of the tool crib overnight, you are still accountable for the tools until returning them to the tool crib the next day. Local guidelines normally specify policies and procedures for checking out tool crib tools and equipment. Tools purchased for vehicle management are *not* purchased for personal use.

Sometimes you may have to check out items from the tool crib for an extended period. An example of this is a special tool needed when performing TDY. Even though you are performing maintenance duties at another duty location, by signing the AF Form 1297, you are accountable for the special tool until you return from TDY and turn the special tool in to the tool crib. An AF Form 1297 remains in effect for a period of one year, and at the end of this one-year period, the AF Form 1297 is re-accomplished.

Chit system

In addition to the AF Form 1297, most vehicle management organizations utilize a chit system. A chit is normally a metal or plastic tag with a number stamped on it. This number is normally your employee identification number you annotate on a work order after repairing vehicle discrepancies. You are issued several of these chits with your employee identification number stamped on it. These are accountable items, so do not misplace or lose them. As you check out a tool or other items from the tool crib, you provide one chit for one tool or item to the tool crib custodian. The tool crib custodian retains your chit until you return the tool crib equipment. Upon return of the tools or items you checked out, the custodian gives back your chits.

030. Cross-referencing part numbers and stock numbers

The Air Force Supply System is based on the federal classification cataloging system. The Air Force develops its own policies, procedures, and manuals for using the federal supply system. In this review of the supply system, we discuss AFI 23-101, *Air Force Materiel Management*, NSN, federal supply classification (FSC) codes, national item identification numbers (NIIN), reference numbers, and manufacturer's codes. We will conclude with a discussion on the use of Web Federal Logistics Information Service (WebFLIS)—a federal supply system tool used in vehicle management shops to cross-reference items in the supply system.

AFI 23-101, *Air Force Materiel Management*

This manual establishes a uniform system of supply control throughout the Air Force. It prescribes standardized procedures for the shipment, disposition, identification, and accounting of Air Force supplies. From a review of AFI 23-101, you see how supplies are purchased, controlled, and distributed by a complex supply system. There must be a need for everything procured through supply and, in most cases, a justification must exist to support that need.

Present needs and the projection of future needs have an effect on the distribution of supplies. An operational fighter base has a greater need than a training base. This distinction is known as *priority*, which is one of the most important factors in the supply system. Supply uses a priority system to distribute supplies throughout the Air Force. A similar priority system at base level determines the actual issuing of items. This system of priorities ensures supplies are used for their intended purpose, and those with the greatest need for these supplies have priority and receives them first.

National stock number

A 13-digit NSN identifies each individual supply item. The NSN consists of two distinct parts (fig. 3-3). The first part consists of the first four digits, which are the FSC code (discussed below). The remaining nine digits of the NSN comprise the NIIN.

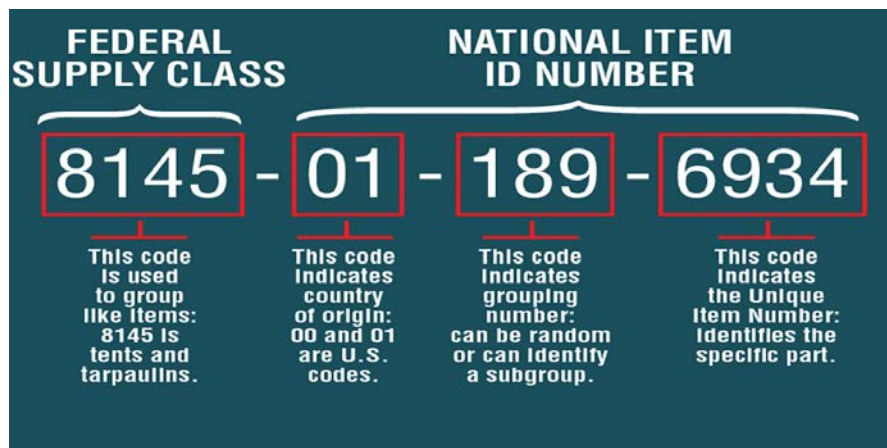


Figure 3-3. National stock numbers.

FSC code

This code, corresponding to groups, permits the classification of all items in the supply system. Each group is assigned a number and descriptive word or group of words indicating the major category of items covered by the group within the supply system. Figure 3-4 lists some of the groups by their two-digit number, and gives a description of the supply items represented by that group. Notice, there is a break in numbering between 20 and 22.

The number 21 is omitted intentionally to provide for future implementation of another group thereby preventing the need to renumber all groups if a new group is added. Each group can also be broken down into classes for easier and more precise classification of items in the supply system.

10	Weapons.....
11	Nuclear Ordnance.....
12	Fire Control Equipment
13	Ammunition and Explosives.....
14	Guided Missiles
15	Aircraft and Airframe Structural Components
16	Aircraft Components and Accessories.....
17	Aircraft Launching, Landing, and Ground Handling Equipment.....
18	Space Vehicles
19	Ships, Small Craft, Pontoons, and Floating Docks
20	Ship and Marine Equipment
22	Railway Equipment
23	Ground Effect Vehicles, Motor Vehicles, Trailers, and Cycles
24	Tractors.....
25	Vehicular Equipment Components
26	Tires and Tubes
28	Engines, Turbines, and Components
29	Engine Accessories
30	Mechanical Power Transmission Equipment.....
31	Bearings
32	Woodworking Machinery and Equipment.....
34	Metalworking Machinery.....
35	Service and Trade Equipment
36	Special Industry Machinery
37	Agricultural Machinery and Equipment
38	Construction, Mining, Excavating, and Highway Maintenance Equipment
39	Materials Handling Equipment
40	Rope, Cable, Chain, and Fittings.....
41	Refrigeration, Air Conditioning, and Air Circulating Equipment
42	Fire Fighting, Rescue, and Safety Equipment; and Environmental Protection Equipment and Materials
43	Pumps and Compressors
44	Furnace, Steam Plant, and Drying Equipment; and Nuclear Reactors
45	Plumbing, Heating, and Waste Disposal Equipment
46	Water Purification and Sewage Treatment Equipment.....
47	Pipe, Tubing, Hose, and Fittings.....
48	Valves.....
49	Maintenance and Repair Shop Equipment.....
51	Hand Tools
52	Measuring Tools
53	Hardware and Abrasives
54	Prefabricated Structures and Scaffolding.....
55	Lumber, Millwork, Plywood, and Veneer
56	Construction and Building Materials
58	Communication, Detection, and Coherent Radiation Equipment.....

Figure 3-4. Groups of FSC.

We mentioned earlier that the FSC code is a four-digit number at the beginning of an NSN. The first two digits of the FSC represent the group to which this supply item is assigned. The third and fourth digits of the FSC represent the class (closely related items) within the specified group.

National item identification number

The NIIN comprises the remaining nine-digit number following the FSC and identifies an item more specifically within the FSC of the supply system.

The NIIN serves to symbolize and fix the identity of the item by numerical means and to identify it exactly and permanently—differentiating it from all other items.

The first two digits of the NIIN (fifth and sixth digit of an NSN) identify the country that originally catalogs the item into the supply system. These two digits make up the National Codification Bureau (NCB) code. If the NSN contains 00 or 01 as the NCB code, the United States catalogs the item in the supply system. If the NCB code is between 11 and 99, North Atlantic Treaty Organization (NATO) or an individual foreign country catalogs the item into the supply system. Figure 3-5 shows a sample list of NCB codes.

National Codification Bureau Codes

00	United States_r	23	Greece
01	United States_c	24	Iceland
11	NATO	25	Norway
12	Germany	26	Portugal
13	Belgium	27	Turkey
14	France	28	Luxembourg
15	Italy	29	Argentina
17	Netherlands	30	Japan 30
18	South Africa	66	Australia
21	Canada	98	New Zealand
22	Denmark	99	United Kingdom

Figure 3-5. National Codification Bureau codes.

Reference number

Reference number is a term used in the federal supply system to identify the numbers a commercial manufacturer assigns to parts, drawings, models, types, and manufacturer's source controlling numbers. In vehicle management, we can associate reference numbers to part numbers in commercial parts books or the technical order. You can normally cross-reference these numbers to NSNs by using the WebFLIS databases, which we will cover later.

Commercial and government entity code

The shorthand name for this code is the "manufacturer's code." The commercial and government entity (CAGE) code is a five-digit numerical or alphanumeric code assigned by the federal government to identify the following:

- Manufacturer.
- Vendor (supplies an item but is not necessarily the manufacturer of the item).
- Government agency that manufactures an item.
- Government agency that controls the design of an item.
- Government agency that controls the development of government specifications or standards.

- Government specifications/standards by themselves if no government agency can be identified.
- NATO manufacturers (identifiable by an alpha character in the first digit position, (e.g., K3718).

In vehicle management, a manufacturer's code normally identifies the part number of a specific manufacturer.

What is WebFLIS?

From time to time, you may find parts in the shop and have no idea where they came from. It is your job to ensure these parts are identified properly, then turned in to supply. Normally, your supervisor assists you in this task.

However, in certain instances, these parts cannot be identified easily because no one knows what vehicle the parts came from or the part's manufacturer. Most parts have a part number stamped on them or have a label with the part number attached to the component. When you have a part number, you can cross-reference and identify the part using the system described in this lesson. If you cannot identify the part by checking this computerized supply publication, you may have to go to base supply for assistance.

What can WebFLIS do?

WebFLIS is an innovative product; refined, and updated on a recurring basis. WebFLIS is several databases of federal logistical information. WebFLIS allows you to get the data you need to identify that unknown part we mentioned, or to identify and order replacement parts for vehicles from base supply. The WebFLIS system can do a number of things. Specifically, you can do the following:

- Cross-reference part numbers and stock numbers.
- Determine the supplier(s) of an item.
- Find a supplier's name and address.
- Obtain management data for procurement, requisition, storing, and issuing for logistical purposes.
- Determine proper freight standards for an item.
- Obtain service specific logistics information (e.g., Air Force, Army, Marine Corps, and Navy).

As a vehicle technician, you will use the first three features frequently. Of the three, cross-referencing part numbers and stock numbers is the number one reason for using the system.

Performing searches

You should note that WebFLIS, like any computer program, is dynamic. It is constantly changing. The producers of this program regularly update it to suit the needs of the DOD. It may change as you are reading this. We should keep in mind, however, that understanding this text you can grasp some of the core principles. Since the interactive search is the most widely used, let us examine it a bit closer.

National item identification number/National stock number search

To view data for a specific NIIN or NSN, enter the following query:

- Select the NIIN/NSN field and type in a nine-character NIIN, or 13-character NSN.
- Enter only numbers for NIINs and NSNs.
- Dashes are not necessary (they are ignored in the search).
- Do not enter a wildcard character (*).

Parts number search

To find all records with a specific manufacturer's part number, enter a part number query as follows:

1. Select the part number field
2. Type in the part number (enter only letters and/or numbers).

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

028. Property responsibility and accountability

1. State two ways you can contribute to supply discipline.
2. What is the Air Force policy on commanders regarding the management of public property?
3. What is custodial responsibility?
4. Who is an "accountable" individual?
5. What are Air Force equipment allowance standards?
6. When would you request changes to equipment allowance standards? What form would you use to make the request?
7. Supplies are grouped into what two categories?
8. Who manages and controls all repair cycle assets?

029. Supply tags and forms

1. What color tag indicates that a supply item or component is in *serviceable* condition?
2. What form number do you attach to a supply or component to indicate it is unserviceable but repairable, and can be used again?

3. If an item of supply or component is unserviceable and nonreparable for future use, what color tag do you use?
4. What does an AF Form 1297 achieve when you check out tools or equipment from the tool crib?
5. An AF Form 1297 is good for how long?
6. In addition to the AF Form 1297, what do most vehicle management organizations utilize for checking out tools or equipment from the tool crib?

030. Cross-referencing part numbers and stock numbers

1. What publication prescribes standardized procedures for the shipment, disposition, identification, and accounting of Air Force supplies?
2. What type of system does supply use in distributing supplies throughout the Air Force?
3. What identifies each supply item in the Air Force?
4. The first four digits of an NSN represent what?
5. In the NSN, what do the last nine digits represent?
6. To make it easier to classify items in the supply system, groups within the FSC code are subdivided into what?
7. What do the first two digits of the NIIN represent? What is the name of this code?

8. What code is assigned by the federal government to identify the manufacturer of a supply item or piece of equipment?

9. What feature of WebFLIS will you deal with most often?

3-2. Technical Order System

The purpose of the technical order system is to provide instructions for safe and effective operation and maintenance of centrally acquired and managed Air Force systems and commodities. They focus on prescribing procedures, directing actions. In this section, we will discuss how to locate and use the available information in the performance of your duties.

031. Fundamentals of the technical order system

The AFTO system can be very difficult to understand and maintain. In the past few years, there have been many changes. The reorganization of this antiquated and cumbersome system has resulted in basing the technical order system on digital medium or electronic files. As we progress through this lesson, we will discuss several types of technical orders.

Types of technical orders

There are five types of technical orders used by the Air Force:

1. Technical order index.
2. Operations and maintenance (O&M) technical order (often referred to as a technical manual).
3. Methods and procedures technical order (MPTO).
4. TCTO.
5. Abbreviated technical order.

As we review each technical order type used by the Air Force, pay particular attention to the types applicable to the vehicle management career field.

Index technical order

The index technical order, as it was called in the past, has been rescinded. This does not mean you will not see index technical orders or you may already be familiar with them in your work section. As stated in the opening paragraph, the technical order system has been reorganized to utilize digital medium or electronic files. The technical order index available now is either a computer disc in your section or a simple click away on the computer. Besides your shop's technical order library, the main area used to access technical orders is the Enhanced Technical Information Management System (ETIMS).

The official on-line catalog for Air Force technical orders can be reached by going to ETIMS via the Air Force Portal at <https://www.my.af.mil>. The catalog is useful in identifying or locating needed technical orders. The technical order catalog allows you to search for existing and rescinded technical orders, as well as view new supplements or changes.

Practice helps you become proficient in locating technical orders. It is important you coordinate your efforts with the squadron or flight technical order distribution office (TODO), who is knowledgeable on the use of the database application programs. They are also responsible for maintaining the technical order library for your flight and need to be aware of any new technical orders required.

Operations and maintenance technical order

O&M technical orders are sometimes referred to as *technical manuals*. They contain information on operating, servicing, maintaining, inspecting, overhauling, and locating parts for vehicles.

The complexity of the vehicle often determines the size of the technical order. The more complex the vehicle is, the more data that is required. Some technical orders are broken down into separate binders, with each binder covering a single subject area for the vehicle (fig. 3-6). Less complex vehicles require less complex technical orders (fig. 3-7); notice how the material has been consolidated into two binders.

Often you will see maintenance technical orders are broken down to cover the separate vehicle operating systems. When this occurs, the individual technical orders for each system are in individual binders (fig. 3-8). When these maintenance technical orders are broken down according to each vehicle system, the process is known as *sectionalizing* the technical orders.

Many of the technical orders are written specifically for Air Force equipment. However, you should be aware some of these are commercial or off-the-shelf manuals purchased under contract. When these manuals are used as technical orders, they are assigned a technical order number and are filed in sequence with other technical orders. Information about commercial manuals used as technical orders is provided in TO 00-5-1, *AF Technical Order System*.

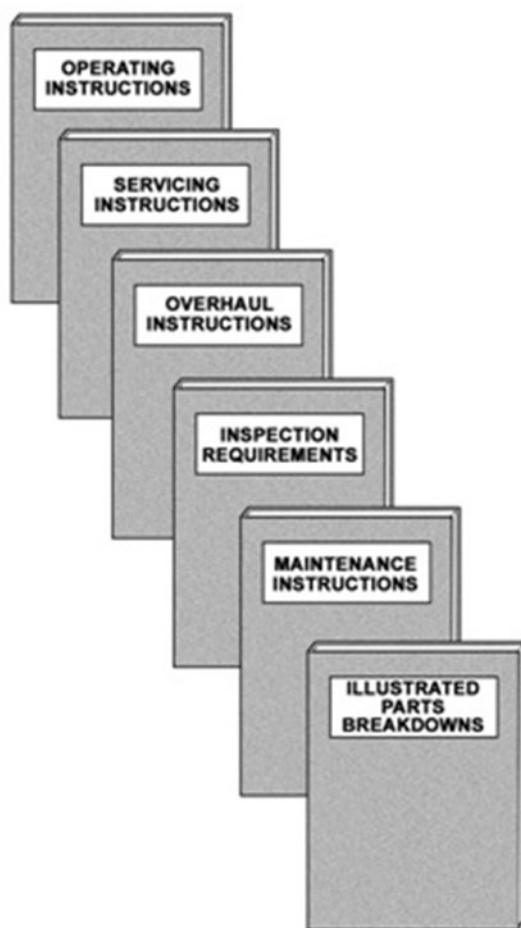


Figure 3-6. Technical order binders.

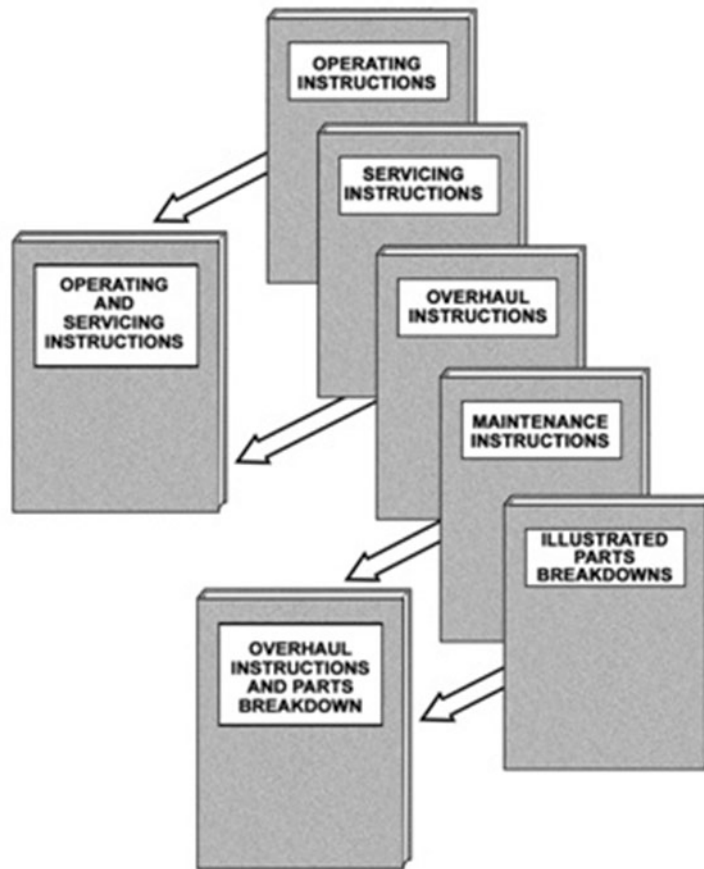


Figure 3-7. Consolidating technical orders.

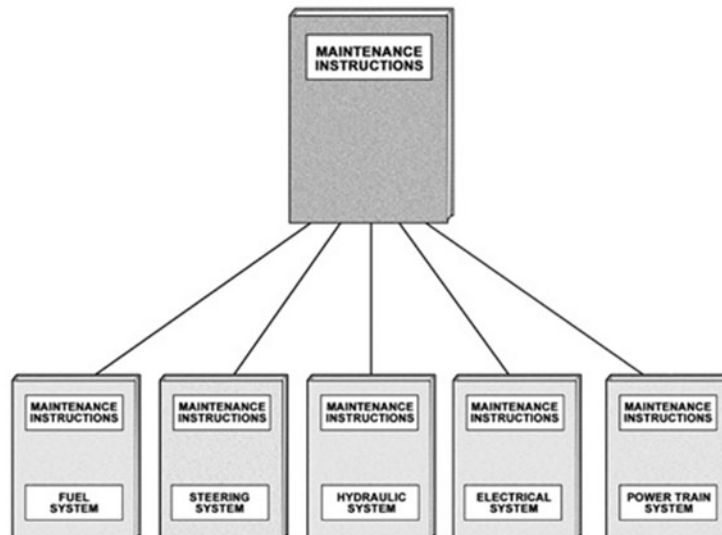


Figure 3-8. Sectionalizing technical orders.

Methods and procedures technical order

MPTOs begin with 00- and are written to establish policies and prescribe procedures for various subject areas. They provide general information and instructions. Examples of the topics addressed by the 00-series technical orders are shown in figure 3-9.

00	GENERAL TECHNICAL ORDERS
00-5	TECHNICAL ORDERS SYSTEM-GENERAL
00-20	MAINTENANCE MANAGEMENT SYSTEM-GENERAL
00-25	MISCELLANEOUS TECHNICAL ORDERS-GENERAL
00-35	ADMINISTRATION TECHNICAL ORDERS
00-60	ARCTIC, DESERT, AND TROPIC TECHNICAL ORDERS (AERONAUTICAL AND GROUND EQUIPMENT) - GENERAL
00-75	AIR EVACUATION-GENERAL
00-80	SPECIAL TECHNICAL ORDERS
00-85	PROTECTIVE PACKING AND PRESERVATION PACKAGING-GENERAL
00-105	AIR INSTALLATION TECHNICAL ORDERS-GENERAL
00-110	SPECIAL WEAPONS DEFENSE AND NUCLEAR APPLICATIONS, MONITORING, HANDLING, DISPOSAL AND DECONTAMINATION-GENERAL

Figure 3-9. Methods and procedures technical orders.

Time compliance technical order

It is almost impossible to design and produce new vehicles or equipment that has no problems. Sometimes these problems can cause personal injury or damage to the vehicle, equipment, or Air Force property. When problems arise, the Air Force issues an order for inspection or modification to the vehicle or equipment. These orders come to you in the form of TCTOs. Normally, an electronic message notifies you prior to the issuance of the TCTO, directing the when, what, why, and how. You can identify any TCTO by the last part of the technical order number (501 through 999). The three types of TCTOs (immediate action, urgent action, and routine action) have already been discussed, so we will not go into detail here.

However, one specific *routine action* TCTO we did not cover but you should be aware of is a safety TCTO. It identifies a TCTO that affects safety and requires accomplishment by the appropriate level of maintenance within the compliance period specified by the TCTO. The words SAFETY TIME COMPLIANCE TECHNICAL ORDER is placed above the title on the first page and is printed in red. Electronically transmitted TCTOs include the word SAFETY immediately following the technical order number.

Abbreviated technical order

Abbreviated technical orders are used primarily as work simplification devices to aid people in carrying out instructions contained in regular technical orders. This type of technical order normally comes in the form of checklists, work cards, and sequence charts. In other words, it consolidates a technical order into a quick reference that makes handling much easier in comparison to using a bulky, complete technical order. A good example of an abbreviated technical order in the vehicle management career field is the lubrication chart. The lubrication chart shows specific lubrication points on a vehicle, the lubricant to use, method of application, and the frequency of lubrication.

032. Working with technical orders

From previous discussions and your experience, you know vehicle management uses technical orders on a daily basis. However, just knowing vehicle management uses technical orders is not enough. Often you have to find specific technical orders. How can you find them if you have no idea where to start? As stated earlier, if you know the technical order number you can access the technical order catalog on ETIMS via the Air Force Portal. If you know only the vehicle type or function, you can use TO 00-5-18, *AF Technical Order Numbering System*.

Finding technical orders

How can I find this technical order? If your shop does not maintain a hard copy, you can go to the on-line catalog and find it there. If the technical order has not been added to your shop's digital library, ask your flight TODO to request access.

When you look at TO 00-5-18, you find a listing of subject matter categories (fig. 3-10). Notice, there is a one- or two-digit number preceding the subject matter categories listed. The Air Force assigns this number to group similar equipment-related information. If you know the subject matter but do not know the technical order number, you can find the basic technical order number in TO 00-5-18. Most vehicles and equipment you will work on in your career will fall in the 36 category, vehicles, construction, and materiel-handling equipment. This category is found in TO 00-5-18, chapter 27.

TO 00-5-18, chapter 27, thoroughly breaks down each subject matter category, making it easier to identify the technical order you need. The listing in this section contains the subcategorization listings for the 36-series technical orders. This section narrows your choice of technical orders to the area you need. The subcategories are listed by subject matter category number first. This is followed by an alpha character and a number that serves to break the subject matter down even further. Once you locate the specific subject subcategory of the 36-series technical orders in this section, you can go to the technical order catalog and look for the specific technical order you need. Once you find the right technical order you need, print the "technical order detail page" (fig. 3-11) and, if the technical order is not available in your section, give the technical order detail page to your flight TODO and have him or her acquire it.

01 TECHNICAL ORDER INDEXES, ALPHABETICAL INDEXES AND CROSS-REFERENCE TABLES	14 DECELERATION DEVICES, PERSONNEL AND SURVIVAL EQUIPMENT
02 GENERAL TECHNICAL ORDERS	15 AIRCRAFT AND MISSILE TEMPERATURE CONTROL, PRESSURIZING, AIR CONDITIONING, HEATING, ICE ELIMINATING AND OXYGEN EQUIPMENT
1 AIRCRAFT	16 AIRBORNE MECHANICAL EQUIPMENT
2 AIRBORNE ENGINES AND ASSOCIATED EQUIPMENT	21 GUIDED MISSILES
3 AIRCRAFT PROPELLERS AND ROTORS	22 AEROSPACE VEHICLES
4 AIRCRAFT LANDING GEAR	31 GROUND ELECTRONIC EQUIPMENT
5 AIRBORNE INSTRUMENTS	32 STANDARD AND SPECIAL TOOLS
6 AIRCRAFT AND MISSILE FUEL SYSTEMS	33 TEST EQUIPMENT
7 AIRBORNE ENGINE LUBRICATING SYSTEMS	34 SHOP MACHINERY AND SHOP SUPPORT EQUIPMENT
8 AIRBORNE ELECTRICAL SYSTEMS	35 GROUND HANDLING SUPPORT, AIR AND MISSILE BASE OPERATING EQUIPMENT
9 AIRCRAFT AND MISSILE HYDRAULIC, PNEUMATIC AND VACUUM SYSTEMS	36 VEHICLES, CONSTRUCTION AND MATERIAL-HANDLING EQUIPMENT
10 PHOTOGRAPHIC EQUIPMENT AND SUPPLIES	37 FUEL-, OIL-, AND PROPELLANT- HANDLING EQUIPMENT
11 ARMAMENT EQUIPMENT	38 NONAERONAUTICAL ENGINES
12 AIRBORNE ELECTRONIC EQUIPMENT	39 WATERCRAFT EQUIPMENT
13 AIRCRAFT FURNISHINGS AND IN-FLIGHT FEEDING EQUIPMENT, CARGO LOADING, AERIAL DELIVERY AND RECOVERY EQUIPMENT, AIRCRAFT FIRE DETECTION AND EXTINGUISHING EQUIPMENT	40 COMMERCIAL AIR-CONDITIONING HEATING, PLUMBING, REFRIGERATING, VENTILATING AND WATER TREATING EQUIPMENT
	41 SUBSISTENCE AND FOOD SERVICE EQUIPMENT

Figure 3-10. Technical order subject matter categories.

TO DETAILED INFORMATION



Digital TO Link:

<u>TO/Supplement No:</u>	36A2-3-152-2	<u>Revision Number:</u>	
<u>Change Number:</u>		<u>Previous TO Number:</u>	
<u>Classification:</u>	U	<u>Pub Stock Number:</u>	36T009109000006
<u>Publication Kind:</u>	B	<u>Pub Status:</u>	A
<u>Publication Date:</u>	20040901	<u>Avail for Distribution:</u>	Y
<u>Sponsor Approval:</u>	N	<u>Est. Distribution Date:</u>	20050504
<u>Max. Issue Quantity:</u>	5	<u>Managing Proponent:</u>	WR-LEET
<u>Interim Indicator:</u>	N	<u>ALC Code:</u>	WR
<u>Preliminary TO:</u>	N	<u>Commercial:</u>	Y
<u>TCTO:</u>		<u>TCTO Data Code:</u>	
<u>TCTO Est Rescind Date:</u>		<u>Lead Command:</u>	AFMC
<u>Distribution Code:</u>	B	<u>Distribution Reason:</u>	administrative or operational use
<u>Title:</u>	2005 FORD WORKSHOP MANUAL --VOL 1--FCS-12107-05-1. CONTRACT F096 02-C-0360 USED WITH STINAR TV-550 TOW TRACTOR 36A10-3-54-1 AND 36A 3-51-14 NSN 1740-01-468-5158YW 4X2 AND 1740-01-467-3131YW 4X4 (F-250, 3 450 and 550 Super Duty)		
<u>Weapon Sys/Equipment:</u>	N/A,		
<u>Catalog Notes:</u>			
<u>TO Manager Name:</u>	Joyce Carlton		
<u>TO Manager Phone:</u>	4782220932		
<u>TO Manager DSN:</u>	4720932		
<u>TO Manager E-Mail:</u>	joyce.carlton@robins.af.mil		
<u>Equip Specialist Name:</u>	Ronald Addison		
<u>Equip Specialist Phone:</u>	4789267851		
<u>Equip Specialist DSN:</u>	4687851		
<u>Equip Specialist E-Mail:</u>	ronald.addison@robins.af.mil		
<u>Stock Manager Name:</u>	Cari Bales		
<u>Stock Manager Phone:</u>	4782223013		
<u>Stock Manager DSN:</u>	4723013		
<u>Stock Manager E-Mail:</u>	cari.bales@robins.af.mil		



For comments and/or suggestions regarding the TO Catalog web application, contact the AFTOX Webmaster.
 Last modified: 7 April 2003
 Supported by: MSG/MMF - WPAFB

https://www.toindex-s.wpafb.af.mil/AFTOX_DOCUMENTS/toinfo_form.cfm?TONumber... 4/28/2008

Figure 3-11. Technical order detail page.

Once you use TO 00-5-18 a few times, you notice how it makes it so much easier to locate the specific technical order you need. You can also use 00-5-18 to help locate technical orders not affiliated with vehicle management. All you need is the subject; for example, “guided missiles,” and you can get the basic technical order numbers, which can be used in the catalog to locate the right technical order. The technical order number by itself may not mean anything to you, but there is a method to this madness, and it is helpful if you know the technical order numbering method.

Understanding technical order numbering

All Air Force technical orders are assigned numbers for identification purposes. Each technical order number is divided into three or more parts separated by dashes. The parts are divided too. The divisions of a part are called *designators*. To explain the composition of the technical order number, we selected TO 36A2-3-152-2, *2005 Ford F-250, 350, 450, 550 Super Duty Volume 1 Workshop Manual*. The number for TO 36A2-3-152-2 can be divided into three groups, each of which can be divided into parts.

Group one (36A2) has three *parts* identifying the category, system, and equipment series of a vehicle.

1. Part one of {36}A2 is the number 36. You already know the 36 represents vehicles, construction, and materiel-handling equipment.
2. Part two: 36{A}2 is the alpha character A. This character represents the category of vehicles or equipment. Other alpha characters used in technical order numbers (for the 36-series technical orders) as part two of group one are listed in the following table.

Character	Category
C	Construction equipment.
G	Gas-generating equipment.
M	Materiel-handling equipment.
R	Ordnance equipment.
Y	Vehicle, construction, and materiel-handling equipment.

3. Part three of group one-36A{2} is the number 2. Number 2 represents a specific type of equipment within a major group. In this particular case, 36A2 represents “commercial fleet.”

Group two of technical order number 36A2-3-152-2 is the 3-152 pair of numbers. This group represents the specific type of vehicle. In this case, the “3” represents the Ford Motor Company. Some other examples of single-digit numbers used in group two are shown in the following table.

Number	Commercial Firm
2	NAVISTAR (formerly International Harvester Company).
4	General Motors Corporation.
5	Chrysler Corporation.
7	White Motors.
8	Mack Motors.

The other part of group two, -152, represents the vehicle model; in this case, an F-250, 350, 450, or 550 Super Duty truck. Group two of technical order number 36A2-3-152-2 provides a more specific identification of the vehicle.

Group three of technical order number 36A2-3-152-2 is the -2. This identifies the type of technical order you have.

Examples of group three numbers are shown in the following table.

Number	Technical Order Type
1	Operating Instructions.
2	Service or Maintenance Manual.
3	Depot Maintenance or Overhaul Instructions.
4	Illustrated Parts Breakdown.
5	Technical Maintenance Standards.
6	Inspection Requirements.
7	Installation Instructions.

033. Standard publications

Every Air Force publication is categorized according to its content and use. The most widely used categories of publications are standard publications, specialized publications, and periodicals. As with technical orders, locating the right publication or form is important in providing you with the proper guidance for performing your duties accurately. To help locate the publications or forms you need, the Air Force has implemented an on-line publishing site at <http://www.e-publishing.af.mil/>. The e-publishing site is an invaluable tool to locate Air Force publications and forms, and, unlike the technical order catalog, you can download or print the selected publication or form.

Air Force publications

These publications are established for issuance by the Secretary of the Air Force, USAF Chief of Staff, commanders, and staff officials at all levels to announce policies, assign responsibilities, prescribe procedures, direct actions, and inform people. The following table explains the authorized types of publications.

Publication	Abbreviation	Description
Air Force Doctrine Document	AFDD	Contains broad, enduring guidance for preparing and employing Air Force resources to support national objectives.
Air Force Policy Directive	AFPD	Secretary of the Air Force's orders that contain directive policy statements. Initiate, govern, or regulate actions of conduct by units at any level. Contain explanations of key terms, responsibilities, and authority guidance. Generally, not over two pages, and may not contain procedures or detailed "how-to" instructions.
Air Force Instruction	AFI	Orders of the Secretary of the Air Force that contain essential procedural guidance necessary to implement Air Force policy in the field. Usually developed at MAJCOM or forward operating agency level and must have a parent AFPD.
Air Force Mission Directive	AFMD	Prescribes the mission, area of responsibility, organization, responsibilities, and command relationships of Air Force units.
Air Force Manual	AFMAN	Guidance documents consisting of procedures that usually contain examples for performing standard tasks, supporting education and training programs, or computer system operating instructions.
Operating Instruction	OI	Used to announce policies within a flight, squadron, and so forth.

So far, the standard publications we have mentioned are *directive-type publications*—meaning the directions given in them must be adhered to.

The remainder of the standard publications we will discuss are nondirective in nature. *Nondirective publications* suggest guidance, which can be modified to fit the circumstances.

Nondirective Publication	Description
Pamphlets	Informational publications, normally which are “how to” documents and include procedures for implementing Air Force policies. They are usually informal in style.
Indexes	Informational publications that serve to guide, point out, or otherwise reference.
Directories	Compilations serving to direct attention to certain items. They are arranged systematically, usually alphabetically or class order (such as a listing of addresses).
Handbooks	Concise reference books on technical subjects and instructional materiel not subject to frequent revision.
Catalogs	Detailed listings, which describe or list a collection of information in some systematic fashion.
Visual Aids	Posters, charts, warning signs, and so forth.
Bulletins	Contain temporary announcements, notices, and instructions (for example, the base bulletin).
Staff digests	Contain summaries of significant staff actions, important announcements, and special notices. Primarily used to keep the commanders advised of current matters that would not come to their attention through normal channels.

Other publications

In addition to standard publications, specialized publications and periodicals fill an important role in the Air Force publication arena.

Specialized publications

Specialized publications are, as labeled, special in nature, and they are developed or established for a specific reason, such as when an organization is assigned a mission or function requiring the issuance of highly specialized information that cannot be published in a standard publication. An example of a specialized publication is a technical order.

Periodicals

Periodicals are informally written publications, such as magazines and newsletters, used to publish nondirective material needed for effective accomplishment of an organization’s assigned mission. The main purpose of periodicals is to foster greater understanding and knowledge of the Air Force and its various missions and functions. You may have seen the *Airman Magazine* or the *Driver Magazine* in your office. Each of these periodicals serves a different purpose, but they are both informal and nondirective in nature.

034. Safety and related publications

Due to the nature of your operating environment and the kind of work you perform, *safety is first and foremost*. Recognizing these requirements, these publications provide guidance on shop safety, fire prevention, and health precautions in the specific areas we conduct work. Many of these guidelines were derived from national standards proven effective in preventing or minimizing injuries on the job. They provide minimum acceptable requirements for conducting the type of work we do safely. The following publications specifically relate to vehicle management.

AFI 90–821, Hazard Communication (HAZCOM) Program

AFI 90–821 contains the Air Force minimum requirements for an effective hazard communication (HAZCOM) program for those work areas/shops that handle or use HAZMAT. It contains the requirements for practices and procedures, assigns responsibilities, and provides guidance for managing the Air Force HAZCOM program.

This AFI is intended to minimize the incidence of chemically-induced occupational illnesses and injuries by establishing guidance for training employees on the health and physical hazards associated with, and proper preventive measures to be taken when, using or handling hazardous chemicals in the work area/shop(s). HAZMAT is substances that have chemicals, which by nature, are physical or health hazard, but may be necessary for accomplishing a job. You should not confuse the HAZCOM program from other separate and distinct entities such as hazardous waste operations and emergency response and the HAZMAT management programs. Hazardous waste is “waste” that is generated by HAZMAT or is the by-product of manufacturing processes. The environmental compliance program covers hazardous wastes.

AFI 48-137, Respiratory Protection Program

This standard regulates military and civilian personnel performing duties requiring the use of respiratory protection, such as paint shop personnel. This standard provides the necessary information to ensure a respiratory protection program consistent with OSHA standards. This standard includes the following:

1. Outlines the minimum acceptable requirements for a respiratory protection program.
2. Assigns responsibilities.
3. Provides selection criteria in determining respiratory protection needs.
4. Lists currently approved respiratory protective devices.

AFMAN 91-203, Air Force Occupational Safety, Fire, and Health Standards

This manual provides a collection of previous safety publications consolidated into one that applies to all Air Force members. Chapters that apply to Vehicle Management processes cover interior spray finishing, hydrocarbon fuels, welding, cutting, and brazing, and General Vehicle Maintenance shop guidance.

Emergency shower and eyewash units

AFMAN 91-203, Chapter 9, *Emergency Shower and Eyewash Units*, addresses selection, acquisition, location, installation, maintenance and testing of emergency shower and eyewash units. Included are performance specifications for both permanently installed and self-contained units. Types of equipment covered are emergency showers, eyewash units, eye and face units, combination units, hand-held drench hoses and eyewash bottles.

Machinery

AFMAN 91-203, Chapter 11, *Hand Tools, Portable Power Tools and Machinery*, contains general safety requirements for the most common tools and machinery in the Air Force inventory. It gives information on acquisition, installation, training, operator training, safe operation, and equipment inspection and maintenance. Other areas covered are woodworking, metalworking, and permanently installed abrasive wheel machinery. This chapter does not apply to portable power grinders, metal cutting wheels, masonry or pavement cutting wheels, lapidary (gem polishing) wheels or sanding discs, natural sandstone wheels, and metal, wooden, cloth, or paper discs having a layer of abrasives on the surface.

Personal protective equipment

AFMAN 91-203, Chapter 14, *Personal Protective Equipment (PPE)*, discusses the use of PPE and addresses the acquisition, issue, use, and care of PPE. It also covers those portions of PPE concerning clothing and equipment such as eye, face, head, foot, hand, and body protection.

NOTE: Safety goggles, face shield, safety glasses (glasses with shatterproof lenses and side protector shields), or a combination must be worn during operations requiring the use of power/hand tools where particles from the tool and/or work material may become airborne and projected at the eyes, face, or neck.

These operations include, but are not limited to drilling, grinding, chipping, cutting (with chisel), sandblasting, and scaling metals.

Approved eye protection is mandatory while using stone or wire wheel grinders regardless of whether or not eye shields are installed. Furthermore, management, ground safety and bioenvironmental engineering should be consulted to determine PPE requirements for tasks not covered.

Flammable and combustibles

AFMAN 91-203, Chapter 22, *Flammables and Combustibles*, applies to the storage (inside/outside), use, and handling of flammable and combustible liquids in containers of 60 gallons or less and in portable tanks up to 660 gallons in capacity. It also includes storage in fuel tanks of two gallons or less located on small gasoline-powered equipment such as lawn mowers and snow blowers. It does *not apply* to the following:

1. Petroleum products in the fuel tanks motor vehicles, aircraft, boat, or large portable or stationary engines.
2. Petroleum product in portable tanks larger than 660 gallons.
3. Alcoholic beverages when packed in individual glass, plastic, metal, or ceramic containers not exceeding 4 liters in volume.
4. Medicines, foodstuffs, and cosmetics.
5. Special purpose vehicles designed and maintained for the storage and transportation of flammable and/or combustible liquids, (e.g., refuelers).
6. Liquids having no flashpoint, but which may burn under certain conditions.

Battery maintenance, handling, and storage

AFMAN 91-203, Chapter 31, *Batteries – Maintenance, Handling and Storage Requirements*, provides basic background information for safe battery operations. While not intended to be all-inclusive, it covers many important topics that are relevant to vehicle management operations. Among the topics covered are safety including PPE, facility and equipment requirements for battery shops, fire prevention, ventilation systems, storage and handling, specific electrical requirements, and installation and care of vehicle batteries.

Motor vehicle maintenance

While each of the previous chapters from AFMAN 91-203 discuss specific hazards that may apply to other sections on base, Chapter 32, *Motor Vehicle – Operations and Maintenance*, is specifically geared toward vehicle management operations. This chapter should be your first stop when you have safety-related questions in your shop. Topics covered in Chapter 32 are the following:

1. Specific hazards.
2. General safety.
3. Occupational health.
4. Facility and equipment requirements for vehicle maintenance operations.
5. Fire prevention.
6. Ventilation.
7. Hazardous materials storage and handling.
8. Electrical.
9. Cleaning with solvents.
10. Paint shop.

11. Air compressors.
12. Compressed gas cylinders.
13. Lifting devices.
14. Wheel and tire maintenance.
15. Maintenance operations.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

031. Fundamentals of the technical order system

1. Besides your shop's technical order library, what is the main area used to access technical orders?
2. What determines the size of a technical order?
3. Sectionalizing technical orders means what?
4. Why are MPTOs written?
5. What are the three types of TCTOs?
6. What type of technical order is in the form of a checklist?

032. Working with technical orders

1. What technical order lists subject matter categories and the one-or two-digit number that the USAF assigns to each subject matter?
2. Which chapter of TO 00-5-18 has the subcategories listings for 36-series technical orders?
3. Which *part* of group one in TO 36A-3-152-2 represents a specific type of equipment within a major group?

4. What does group two of TO 36A-3-152-2 represent?
5. If group three of a technical order number is -4, what does this number indicate?

033. Standard publications

1. What are three most widely used categories of publications?
2. Match the description in column A to the type of standard publication in column B. Column B items can be used more than once or not at all.

Column A

- ____ (1) Announcements, notices, and temporary instructions.
- ____ (2) Contain essential procedural guidance.
- ____ (3) Summary of significant staff actions.
- ____ (4) Announce policies within the squadron.
- ____ (5) Normally are "how to" documents.
- ____ (6) Must have a parent policy directive.
- ____ (7) Guidance documents containing examples of standard tasks.
- ____ (8) Keep commanders advised of current matters.

Column B

- a. Manuals.
- b. Staff digest.
- c. Bulletins.
- d. Operating instructions.
- e. Air Force instructions.
- f. Pamphlets.
- g. Visual aids.

3. What type of publications are developed or established for specific reasons?
4. What types of publications are both informal and nondirective in nature?

034. Safety and related publications

1. What publication contains the Air Force minimum requirements for an effective HAZCOM program for those work areas/shop(s) that handle or use HAZMAT?
2. Which AFI regulates military and civilian personnel performing duties requiring the use of respiratory protection?
3. What manual provides a collection of previous safety publications consolidated into one that applies to all Air Force members?
4. What does AFMAN 91-203, Chapter 9 cover?

5. What chapter of AFMAN 91-203 covers PPE?
6. An Air Force vehicle has 20 gallons of gasoline in its fuel tank. Does AFMAN 91-203, Chapter 22 cover this situation? Explain.

Answers for Self-Test Questions

028

1. Any two of the following:
 - (1) Avoid requesting more than what is necessary to perform the job.
 - (2) Continually screen your stocks and promptly report, redistribute, and dispose of excesses.
 - (3) Promptly send reparable assets through repair channels.
 - (4) Do not double order parts from more than one source.
2. They are not exempt from pecuniary liability.
3. An entrusted duty for its safeguard and proper use of government property.
4. Anyone who is commanded by law, lawful order, regulation, or contract with the duty to safeguard and/or maintain public property to include keeping accurate records of documents.
5. Prescribed items and quantities of equipment required to perform assigned peacetime and wartime missions, functions, and duties.
6. When it is determined that allowances are inadequate, excessive, or equipment is unsuitable for peacetime or wartime. AF Form 601.
7. Repair cycle and consumable.
8. Materiel control.

029

1. Yellow.
2. DD Form 1577-2.
3. Red.
4. Transfers custodial responsibility, on a temporary basis, from the tool crib custodian to you when checking out tools or equipment.
5. One year.
6. Chit system.

030

1. AFI 23-101.
2. Priority.
3. 13-digit NSN.
4. FCS code.
5. NIIN.
6. Classes.
7. Identifies the country that originally catalogs the item into the supply system. NCB code.
8. CAGE code.
9. Cross-referencing part numbers and stock numbers.

031

1. ETIMS.
2. Complexity of the vehicle.

3. Breaking down one type of technical order into several binders, one covering each system of the vehicle.
4. To establish policies and prescribe procedures.
5. Immediate, urgent, and routine action.
6. Abbreviated technical order.

032

1. 00-5-18.
2. Chapter 27.
3. Three.
4. Specific type of vehicle.
5. Illustrated parts breakdown.

033

1. Standard, specialized, and periodical.
2. (1) c.
(2) e.
(3) b.
(4) d.
(5) f.
(6) e.
(7) a.
(8) b.
3. Specialized.
4. Periodical.

034

1. AFI 90-821.
2. AFI 48-137.
3. AFMAN 91-203.
4. Emergency eyewash and shower units.
5. Chapter 14.
6. No. This standard does not apply to petroleum products in the fuel tanks of motor vehicles.

Do the unit review exercises before going to the next unit.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

Do not return your answer sheet to AFCDA.

69. (028) The *primary* objective of the Air Force fraud, waste, and abuse program is to
- a. apprehend abusers.
 - b. recoup money from excesses.
 - c. prevent such situations from occurring.
 - d. report occurrences of fraud, waste and abuse.
70. (028) Air Force policy towards commanders regarding the management of public property is they
- a. cannot be held liable for loss.
 - b. cannot be a property custodian.
 - c. are not an accountable individual.
 - d. are not exempt from pecuniary liability.
71. (028) Items authorized to outfit a vehicle management shop is more likely found in
- a. technical orders.
 - b. allowance standards.
 - c. general service administration catalogs.
 - d. Online Vehicle Interactive Management System.
72. (029) When you check out tools or equipment from the tool crib, which form is used to transfer custodial responsibility from the custodian to you?
- a. Department of Defense (DD) Form 1297, Issue Receipt.
 - b. DD Form 1284, Checkout Receipt.
 - c. Air Force (AF) Form 1297, Temporary Issue Receipt.
 - d. AF Form 1284, Limited Receipt.
73. (030) The Air Force supply system is based upon the federal
- a. classification cataloging system.
 - b. supply code for manufacturers.
 - c. item identification numbers.
 - d. supply classification code.
74. (030) The term for the system that ensures supplies are used for their intended purpose and those having the greatest need for supplies receive them *first* is
- a. specifications.
 - b. distribution.
 - c. projections.
 - d. priority.
75. (030) The distinctive two-part, 13-digit number the Air Force Supply System identifies each individual supply item with is the
- a. national stock number (NSN).
 - b. federal supply classification (FSC) code.
 - c. national codification bureau (NCB) code.
 - d. national item identification number (NIIN).

76. (030) In the supply system, the name for the last nine digits of the national stock number (NSN) that specifically identifies an item of supply is the
- a. national item identification number (NIIN).
 - b. national codification bureau (NCB) code.
 - c. federal supply classification (FSC) code.
 - d. federal supply item identifier (FSII).
77. (030) The term used to identify a part number from a commercial parts book or technical order is
- a. master number.
 - b. source number.
 - c. control number.
 - d. reference number.
78. (030) To identify the manufacturer of a supply item, the federal government assigns a five-digit code called the
- a. commercial and government entity (CAGE) code.
 - b. national item identification number (NIIN).
 - c. national codification code (NCC) number.
 - d. manufacturer's number.
79. (031) Which technical order is often referred to as a technical manual?
- a. Cross-reference table.
 - b. Technical order index.
 - c. Vehicle maintenance index.
 - d. Operations and maintenance.
80. (031) In the vehicle maintenance field, the *size* of the technical order is determined by the
- a. complexity of the vehicle.
 - b. inclusion of step-by-step procedures.
 - c. process used to print the technical order.
 - d. complex organization of the vehicle management facility.
81. (031) When it becomes known that personal injury can be caused by problems from a vehicle or piece of equipment, the Air Force issues a
- a. methods and procedures technical order (MPTO).
 - b. time compliance technical order (TCTO).
 - c. safety compliance technical order (SCTO).
 - d. urgent action technical order (UATO).
82. (032) In the technical order numbering system, how many parts are there in group 1 of a technical order number?
- a. 3.
 - b. 4.
 - c. 5.
 - d. 6.
83. (032) Materiel-handling equipment is represented in *part 2* of *group 1* of a technical order by the alpha character
- a. C.
 - b. G.
 - c. M.
 - d. R.

84. (032) In the technical order numbering system, *group* 3 of the technical order number represents the
- a. model of the vehicle or equipment.
 - b. brand of the vehicle or equipment.
 - c. subject matter category.
 - d. type of technical order.
85. (033) Which Air Force publication initiates, governs, or regulates actions of units at any level?
- a. Doctrine document.
 - b. Mission directive.
 - c. Policy directive.
 - d. Staff digest.
86. (033) Which type of Air Force nondirective publication contains temporary announcements, notices, and instructions?
- a. Catalogs.
 - b. Bulletins.
 - c. Handbooks.
 - d. Supplements.
87. (033) The publication type used to publish nondirective material needed for effective accomplishment of an organization's assigned mission is
- a. a specialized publication.
 - b. an operating instruction.
 - c. a standard publication.
 - d. a periodical.
88. (034) Why did the Air Force develop the hazardous communication (HAZCOM) program for personnel who handle hazardous waste?
- a. Avoid direct intrusion of the environmental protection agency in the work area.
 - b. Reduce the incidence of chemically-induced occupational illnesses.
 - c. Provide guidance on shop safety to minimize injuries on the job.
 - d. Hold commanders accountable for managing hazardous waste.

Student Notes

Glossary

° F	degrees Fahrenheit
-	minus
ADPE	automated data processing equipment
ADPS	Alternate Parts Procurement Program System
AEF	air and space expeditionary force
AF	Air Force
AFDD	Air Force doctrine document
AFEMS	Air Force Equipment Management System
AFI	Air Force instruction
AFMAN	Air Force manual
AFMD	Air Force mission directive
AFOSH	Air Force Occupational Safety and Health
AFPD	Air Force policy directive
AFSC	Air Force specialty code
AFTO	Air Force technical order
ALC	air logistics complex
APS	aircraft parts store
AWP	awaiting parts
AWR	action warranty report
BPA	blanket purchase agreement
CAGE	commercial and government entity
CAS	chemical abstracts service
CDC	career development course
CDF	cargo deployment function
CE	civil engineering
CFR	Code of Federal Regulations
CMSgt	chief master sergeant
CPC	corrosion prevention and control
CONUS	continental United States
COPARS	contractor-operated parts store
CSC	customer service center
DCC	deployment control center

DIFM	due-in from maintenance
DOD	Department of Defense
DODACC	Department of Defense activity address code
DPAS	Defense Property Accountability System
DR	deficiency report
DRMS	Defense Reutilization and Marketing Service
DRUI	deficiency report unique identifier
DSN	defense switched network
EAID	equipment authorization inventory data
ECSS	Expeditionary Combat Support System
EPA	Environmental Protection Agency
EPWG	equipment policy working group
ERRC	expendability, reparability, and recoverability code
ETIC	estimated time in commission
ETIMS	Enhanced Technical Information Management System
FM&A	fleet management and analysis
FMS	foreign military sale
FSC	federal supply classification
GM	General Motors
GPC	government purchase card
HAZCOM	hazard communication
HAZMAT	hazardous material
HSV	hydrant servicing vehicle
IDO	installation deployment officer
IDP	installation deployment plan
IDRC	installation deployment readiness cell
IEE	individual equipment element
IEMP	intentional engine management program
IWR	information only: warranty report
JDRS	Joint Deficiency Reporting System
LAN	local area network
LRS	logistics readiness squadron
LTI	limited technical inspection
MAJCOM	major command
MAP	military assistance program
MDR	materiel deficiency report

MEL	mission essential level
MIP	materiel improvement project
MPTO	methods and procedures technical order
NATO	North Atlantic Treaty Organization
NCB	National Codification Bureau
NIIN	national item identification number
NMC	non-mission capable
NMCM	non-mission capable maintenance
NMCS	non-mission capable supply
NSN	national stock number
O&M	operations and maintenance
OC	operations compliance
OI	operating instruction
OJT	on-the-job training
OLVIMS	Online Vehicle Interactive Management System
OSHA	Occupational Safety and Health Administration
PCS	permanent change of station
PDF	personnel deployment function
PM&I	preventive maintenance and inspection
PPE	personal protective equipment
POD	permissible operating distance
PTO	power takeoff
QDR	quality deficiency report
RCC	reception control center
RSP	readiness spares package
RSS	regional supply squadron
SDS	safety data sheet
SNCO	senior noncommissioned officer
TCP	technical coordination program
TCTO	time compliance technical order
TDY	temporary duty
TO	technical order
TODO	technical order distribution office
TMDE	test, measurement, and diagnostic equipment
TRN	turn-around
UCMJ	Uniform Code of Military Justice

UDI	you-drive-it
UDM	unit deployment manager
USAF	United States Air Force
UTC	unit type code
VCO	vehicle control officer
VCNCO	vehicle control noncommissioned officer
VFM	vehicle fleet manager
VMS	vehicle management superintendent
VSCOS	vehicle support chain operations squadron
VUR	vehicle unsatisfactory report
WCDO	war consumables and distribution objective
WebFLIS	Web Federal Logistics Information Service
WR-ALC	Warner Robins Air Logistics Complex
WRM	war reserve materiel

Student Notes

AFSC 2T351
X2T35X 01 1907
Edit Code 01