

CDC 2T251

Air Transportation Journeyman

Volume 1. Air Transportation Fundamentals



**Air Force Career Development Academy
The Air University
Air Education and Training Command**

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THE PURPOSE OF this course is to provide the job knowledge you need to become a fully qualified Air Transportation Journeyman (2T251). There are three volumes in this course.

Volume 1 provides information about the air transportation specialty, safety considerations, and also covers aerial delivery and air transportation vehicles. Volume 2 provides information on air freight services, from the moment cargo is shipped from the supplier to the moment it arrives in the customer's hands. Volume 3 covers passenger services procedures, fleet services, load planning, the air terminal operations center, and records and reports.

Keep in mind as you progress through the career development course (CDC) that the air transportation specialty is rapidly evolving and transforming to become even more efficient. Some of the various sections we talk about may or may not match up with how your unit is currently organized, but the duties and tasks are more or less the same.

This first volume deals with information that pertains to the entire specialty, spanning from career field hierarchy to vehicles and material handling equipment. Unit 1 covers the career field and specialty, organization and mission, types of aircraft you may encounter, and safety and supervision. Unit 2 discusses deployment and readiness operations; to include war reserve material, deployment work centers, joint inspection, and aerial delivery. Finally, Unit 3 takes an in-depth look at vehicles and material handling equipment most commonly associated with the air transportation career field.

A glossary is included for your use.

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This volume is valued at 15 hours and 5 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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B EING A MEMBER of the 2T2X1 air transportation specialty will be an exciting experience. You will have many opportunities to be a proficient and valuable member of not only the Air Force, but also the transportation career field. Throughout your career, you will be exposed to many different agencies. This exposure will show the effect your career has on the overall mission of the Air Force and its place within the Department of Defense (DOD). Ultimately, the effort you put into your job will directly impact operations and communities around the world. This unit talks about the 2T2X1 specialty, the transportation career field, and joint logistic operations. We will also cover types and descriptions of the various transport aircraft you will see throughout your career. Next we will discuss safety and supervision, and lastly, we will talk about how to locate information in transportation publications and technical orders (TO). First, let's see how you fit in to the big picture.

1–1. Organization, Mission, and Systems

Passengers and cargo moving quickly are a direct reflection of you knowing and understanding your importance in the process. As you read through this CDC, keep in mind your role is not only significant to the DOD and Air Force, but also to your commander, your supervisor, your peers, and your subordinates. It truly is a team effort to move passengers and cargo.

001. Duties of the 2T2X1 specialty

As you progress, you will be responsible for performing a variety of duties but not all at the same time. The concept of being both specialized and broadly experienced is called *practical specialization*. It means that you are not likely to perform all the functions of your specialty at one time, but you can be developed to perform all the duties and responsibilities at different times throughout your career.

Keep in mind as we discuss the various functions and duties, the air transportation specialty has been transforming rapidly in the past decade, and some work-centers have been eliminated. At many locations, duties are dispersed to other work centers (i.e., staircase trucks and lavatory service may be part of ramp services). So when we talk about the functions, do not think of them in terms of work-centers. Think of them in terms of duties and functions.

Fleet service

Fleet service includes picking up, loading, unloading, inventorying, and cleaning fleet service equipment and supplies, including the air transportable galley/lavatory (ATGL) and portable lavatory (porta lav). Fleet service duties also include delivering meals, servicing aircraft latrines and fresh water systems, and cleaning the aircraft interior. Fleet service duties include preparing the necessary documents to accomplish and track all of these duties as well. Fleet service personnel operate a variety of vehicles and equipment including the latrine service truck/cart, the potable water truck, and other vehicles.

Air freight

Air freight duties encompass processing originating, in-transit, and terminating cargo for movement. Personnel inspect this cargo to ensure it is air-worthy and in-check it into one of two automated systems for movement. Air freight duties also include building pallets and computing the center of balance for rolling stock, multi-pallet trains, and other large shipments. Sometimes cargo being moved will necessitate special handling, which requires special training. Some examples of this type of cargo include the following:

- Hazardous and explosive materials.
- Nuclear weapons-related material (NWRM).
- Classified shipments.
- Human remains.
- Expedited shipments such as Air Mobility Command (AMC) mission capability (MICAP).
- Green-sheet cargo.
- Very, very important parts (VVIP).
- Registered mail.
- Shipments requiring refrigeration and/or re-icing.

Personnel handling these types of cargo must be trained in how to handle, transport, store, load, and placard such cargo as well as how to determine if two or more items are compatible with each other. Air freight personnel will use a variety of vehicles and materials handling equipment (MHE) to transport and handle cargo.

Ramp operations

If you perform duties in this area, you will perform tasks related to loading and off-loading cargo such as setting up cargo and mail for loading, transporting loads to and from the aircraft, preparing the aircraft for loading, inventorying tie-down, and using it to restrain cargo. Ramp operations personnel can often simultaneously perform their duties while aircraft engines are running or while the aircraft is being fueled. These special procedures call for more safety precautions because they are riskier to perform. If you perform ramp operation duties, you will become intimately familiar with a variety of forklifts, aircraft loaders (also known as K-loaders), and other vehicles and equipment used to load and offload aircraft.

Passenger service

If you perform duties in this area, you will perform tasks related to moving passengers and their bags or equipment. You will determine passenger eligibility for travel and ensure they have the required documents to travel. You will accept or reject and handle their baggage, assist them with ordering meals, handle funds related to passenger travel, make flight announcements, and brief passengers; sometimes about difficult matters. Each of the aforementioned duties requires impeccable customer service skills. You will prepare a variety of documents for travel, including standby listings, boarding passes, manifests, meal requests, cash collection forms, baggage-related documents and reports. You will make sure your passenger terminal remains secure by performing anti-hijack inspections on passengers using equipment like x-ray machines and handheld devices. You will interact with a variety of special category and unique passengers that require extra attention. You will operate a variety of buses, staircase trucks, and baggage conveyors to transport your passengers and their baggage.

Air terminal operations center

The air terminal operations center (ATOC) is the focal point for aerial port mission execution. It is the central point through which all information relating to airlift traffic flow and aerial port operations is received, processed, and dispatched to each functional area as well as the chain of command. If you

perform ATOC duties, you must have an in-depth working knowledge of all directives, policies, and procedures pertaining to passengers, cargo, and mail handling. ATOC controls all space allocated on each aircraft. It is responsible for making sure each aircraft's space is utilized as much as possible—otherwise known as *maximum utilization*—and coordinates movement of special category cargo and passengers. ATOC has the authority to prioritize aerial port workload and provide oversight to all aerial port work-centers. ATOC is normally comprised of the following five functions:

- A duty officer/senior controller.
- Information control.
- Ramp control.
- Load planning.
- Capability forecasting.

If you perform duties as an information controller, you will be responsible for passing information to all other aerial port work-centers as well as previous and down-line stations in addition to the chain of command. Ramp controllers are the “eyes and ears” of the flight line. You will monitor aircraft loading and offloading operations, brief loadmasters and boom operators on outbound cargo and passenger loads, meet and inventory all inbound and in-transit aircraft, and coordinate with the other work-centers to ensure the loading and unloading process runs smoothly and on time.

If you perform duties as a load planner, you will calculate the weight and balance for all types of commercial and military aircraft. You will inspect all outbound cargo to determine if it is air-worthy for the particular aircraft you are working. You will inventory all outbound cargo, identify deficiencies, and coordinate correction prior to its upload onto any aircraft. You must know aircraft limitations and which cargo will fit on which aircraft. You must know how to prioritize and select which cargo must move first. You will also prepare documents such as cargo manifests and load brief sheets that will accompany the cargo on the aircraft and ensure all other required paperwork is included.

If you perform duties as a capability forecaster, you will be responsible for clearing explosives in and out of your station (country). You will also be responsible for monitoring airlift space assignments, opportune airlift, and explosive cargo. Cape forecasters also extract flight information from various sources and prepare flight schedules for the other aerial port work-centers and keep them informed with any changes. Cape forecasters must work closely with special mission users, air terminal work centers, and higher headquarters.

Quality assurance air transportation standardization evaluation

Air transportation quality and reliability is the responsibility of all air transportation personnel. The combined efforts of quality assurance (QA) personnel, air transportation leaders, and specialists are necessary to ensure high-quality process performance and reliability. Air transportation leaders are responsible for excellence, safety, and quality process performance. The air transportation standardization evaluation (ATSEV) staff evaluates the quality of air transportation processes and tasks performed within the air transportation organization and conduct necessary functions to manage the organization's ATSEV/QA program. The ATSEV program provides an objective sampling of both the quality of processes and the qualifications of air transportation personnel. A unit's ATSEV staff serves as the primary technical advisory agency in the air transportation organization, helping supervisors and commanders resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of QA. This activity identifies underlying causes of poor quality and non-standardization in air transportation processes. By finding causes of problems and recommending corrective actions to supervisors, ATSEV personnel can significantly affect the quality of air transportation processes within the air transportation organization. The qualities of air transportation processes and personnel proficiency are validated through the ATSEV program and shall be recorded using the ATSEV quality assurance database managed by Headquarters Air

Mobility Command (HQ AMC/A4TR), Standards, Resources, and Equipment Policy Branch at Scott Air Force Base (AFB), IL.

Transportation and vehicle management career field

The air transportation specialty is part of a larger group called the transportation and vehicle management career field. In addition to air transportation personnel, this career field includes traffic management, vehicle management, and vehicle operations. Let's briefly go over a summary of the major duties for each specialty.

Traffic Management personnel—2T0X1—use military and commercial transportation to move personnel, eligible dependents, material, and property. They also package, classify, and arrange personal property and cargo for shipment and storage.

Vehicle Operations personnel—2T1X1—operate light- and heavy-duty vehicles, support personal security details, and perform preventative maintenance checks and services on government vehicles. They also plan, organize, and direct vehicle transportation to support operational missions.

Vehicle Management personnel—2T3X1—manage vehicle authorization listings (VAL) and vehicle purchase and control programs. They also manage maintenance requirements, such as inspections, diagnostics, repairs, modifications, and refinishing. 2T3X1 also collect data for the vehicle and equipment fleet.

As you can see, these specialties all involve similar knowledge and skills relating to transporting cargo, passengers, and vehicle support functions. They are all a part of the “2T” career field.

002. Organization and mission

Although 2T2X1 personnel are scattered all over the world, many are dispersed throughout AMC; however, AMC is part of a larger picture, and comprises only one—but a very critical—piece of the Defense Transportation System (DTS). Before we take a look at the components of DTS, let's go over some terms you will need to know to thoroughly understand this lesson.

Deployment is the movement of personnel, units, supplies, and equipment *into, between, or within* a foreign area of responsibility (AOR).

Employment is the movement of personnel, units, supplies, and equipment *during* combat operations.

Sustainment is the movement of personnel, units, supplies, and equipment to *reinforce* or *resupply* already deployed or employed forces.

Redeployment is the movement of personnel, units, supplies, and equipment *from* deployed positions within or between AORs.

United States Transportation Command

The United States Transportation Command (USTRANSCOM) is a global unified command located at Scott AFB, IL. It provides common-user and commercial air, land and sea transportation, terminal management, and air refueling to support the global deployment, employment, sustainment, and redeployment of the DOD in times of peace and war. Common-user means that all of the equipment and assets assigned to USTRANSCOM will be shared among its subordinate components. For example, if the Army needs airlift, they are allowed to use an Air Force aircraft.

USTRANSCOM's mission is to develop and direct the joint deployment and distribution enterprise (JDDE). The JDDE is all of the equipment, supplies, personnel, procedures, and support functions under its command necessary to conduct joint distribution operations and conducts the following:

- *Globally project strategic national security capabilities.* This means deploying personnel, equipment, and so forth, from the continental US (CONUS) or other areas to prepare for a mission or action.

- *Accurately sense the operating environment.* Commanders must know exactly who needs what, where they need it, and what takes priority.
- *Provide end-to-end distribution process visibility.* End-to-end visibility means that those that need to know can find out where their cargo is from the moment it leaves the shelf at the supply warehouse to the time it is in the customer's hands.
- *Provide responsive support of joint, US government and secretary of defense (SECDEF)-approved, multinational and non-governmental logistical requirements.* Providing responsive support means providing what the customer needs when they need it. If a war fighter needed more tanks at its location, but USTRANSCOM had no aircraft capable of carrying tanks, or it sent them somewhere else a month later, the war fighter could not complete its mission. This responsive support also must be approved and includes supporting other nations and missions that are not government related.

United States Transportation Command component commands

USTRANSCOM consists of three component commands that correspond to our military sea, land, and air transportation capabilities: the Military Sealift Command (MSC), Surface Deployment and Distribution Command (SDDC) and AMC.

Military Sealift Command

The MSC provides sealift transportation to deploy, sustain, and redeploy forces around the world. These government-owned sealift ships and contracted vessels primarily move unit equipment from CONUS to the world's theaters of operation. The MSC also operates a fleet of prepositioned ships strategically placed and loaded with supplies to sustain all military forces worldwide. These ships remain at sea ready to deploy on short notice, which reduces the time it takes to deliver urgently needed equipment and supplies to a theater of operations.

Surface Deployment and Distribution Command

The SDDC provides ocean terminal, commercial ocean liner service, and traffic management services to deploy, sustain, and redeploy forces globally. This command is responsible for surface transportation and is the link between DOD shippers and the commercial transportation carrier industry. This includes movement of items like household goods and privately owned vehicles. This command also provides transportation for personnel, equipment, and supplies to ports of departure both in the CONUS and overseas.

Air Mobility Command

As the air component to USTRANSCOM, AMC is the single DOD command responsible for airlift and rapid global mobility. AMC's mission is to provide airlift, air refueling, special air mission, and aeromedical evacuation services for US forces. AMC also supplies forces of its own to theater commands to support wartime taskings. Many special duty and operational support aircraft (OSA) are also assigned to AMC, including Air Force One. AMC also contracts with commercial air carriers through the Civil Reserve Air Fleet (CRAF) and other programs for movement of DOD passengers and cargo.

The Eighteenth Air Force is AMC's war-fighting component. Units reporting to Eighteenth Air Force include all AMC wings and groups based in the CONUS as well as two expeditionary mobility task forces (EMTF)—the 15th EMTF at Travis AFB, California, and the 21st EMTF at Joint Base McGuire-Dix-Lakehurst (JBMDL), New Jersey. These EMTFs serve as lead agencies for conducting mobility operations worldwide. The 618th Air Operations Center (AOC)/Tanker Airlift Control Center (TACC) serves as AMC's strategic air operations hub for planning, directing, scheduling, and tracking tanker and transport aircraft operations worldwide. Air Force and DOD support taskings are also channeled through this agency. AMC, Eighteenth Air Force, and the 618th AOC/TACC are all also located at Scott AFB, Illinois.

The USAF Expeditionary Center (USAFEC), located at JBMDL, New Jersey, is an AMC direct reporting unit (DRU). The USAFEC is the Air Force's center of excellence (COE) for advanced expeditionary combat support training and education. Figure 1-1 illustrates the components of USTRANSCOM as well as some of the organizations that fall under AMC.

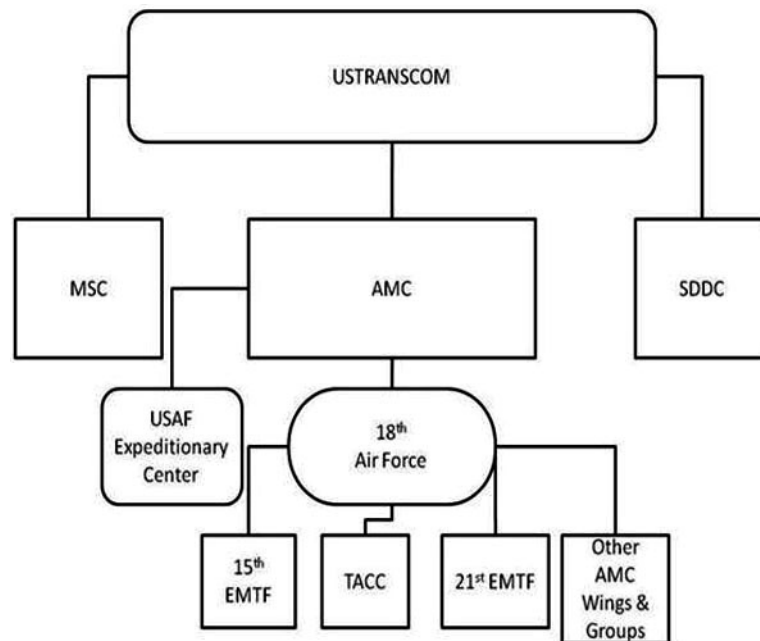


Figure 1-1. Organizational structure.

Unit level organization

You will have many opportunities as a productive and motivated air transporter to work in different organizations and perform different duties. Some of these organizations fall under AMC and some do not. Remember, no matter where you are assigned, your primary job is to use airlift to move cargo and passengers.

Aerial port squadrons (APS) are located in the CONUS and consist mostly of air transportation and traffic management personnel. Air mobility squadrons (AMS) are located outside the CONUS at various locations throughout the world. AMS serves as *en route* stations, or in transit hubs for cargo and passenger movement between specified regions. AMS has a cadre of air transportation, aircraft maintenance, and command and control personnel that provide critical en-route support to get in-transit forces into the fight or back home.

Contingency response wings (CRW) are comprised of contingency response groups (CRG) and a global support squadron (GSS), which consist of air transportation, maintenance, command and control, security forces, and other personnel. The CRW's mission is to deploy its personnel within 12 hours to open air bases or augment existing air bases worldwide.

Logistic readiness squadrons (LRS) are made up of supply, traffic and vehicle management, fuels, air transportation and other personnel. If you are assigned to an LRS, you will support the mobility and readiness needs of the base's operational units, such as a fighter or special operation wings. Aerial delivery (AD) sections are also dispersed throughout the world. These work centers prepare, rig, and recover cargo during airdrop operations. We will discuss air-drop more in detail later in this volume.

Air transportation personnel also have access to two major training facilities: USAFEC at JBMDL, New Jersey; and the Sustainment Center of Excellence (SCoE) at Fort Lee, Virginia. Each provides training to air transportation and other personnel. The instructors at each develop, design, teach, and manage in-residence and web-based training courses. In addition, the USAFEC instructors design and

develop qualification training packages (QTP) while SCoE personnel write and maintain the career development courses (CDC).

We all share a common goal and mission to move passengers and cargo. Several positions exist that offer exciting opportunities for motivated air transportation personnel around the globe. Let's talk about how an airlift is organized.

Organizing airlift

The Air Force, through the National Air Mobility System (NAMS), provides rapid global mobility to the DTS. *Rapid global mobility* is defined as the timely movement, positioning, and sustainment of military forces and capabilities across the range of military operations. Rapid global mobility provides an enormous amount of leverage to the US at all levels of both combat and noncombat operations. Your job, as mentioned before, impacts war fighters in a big way. By doing your job correctly, safely, and quickly, you enhance other military forces' combat power and flexibility.

The NAMS is organized into three elements: intertheater (strategic), intratheater (tactical), and organic. A theater is a geographical area outside the CONUS for which a commander has been assigned responsibility for military operations.

Intertheater airlift involves moving cargo and passengers over long distances, usually linking distant theaters to the CONUS or linking two different regional theaters. 618 AOC (TACC) controls most intertheater airlift coordination.

Intratheater airlift involves moving passengers and cargo within one geographical theater. Usually an Air Mobility Division (AMD) within a Combined or Joint Air Operations Center (CAOC/JAOC), under the direction of the director of Mobility Forces (DIRMOBFOR) controls intratheater airlift.

Organic airlift involves specialized airlift and is normally used specifically by the unit that owns the aircraft. Organic airlift may be used to augment intratheater airlift requirements. For each of these elements, TACC, CAOC/JAOC, and organic units work closely and skillfully together to meet all airlift requirements. Figure 1-2 illustrates the concept of strategic and theater airlift.

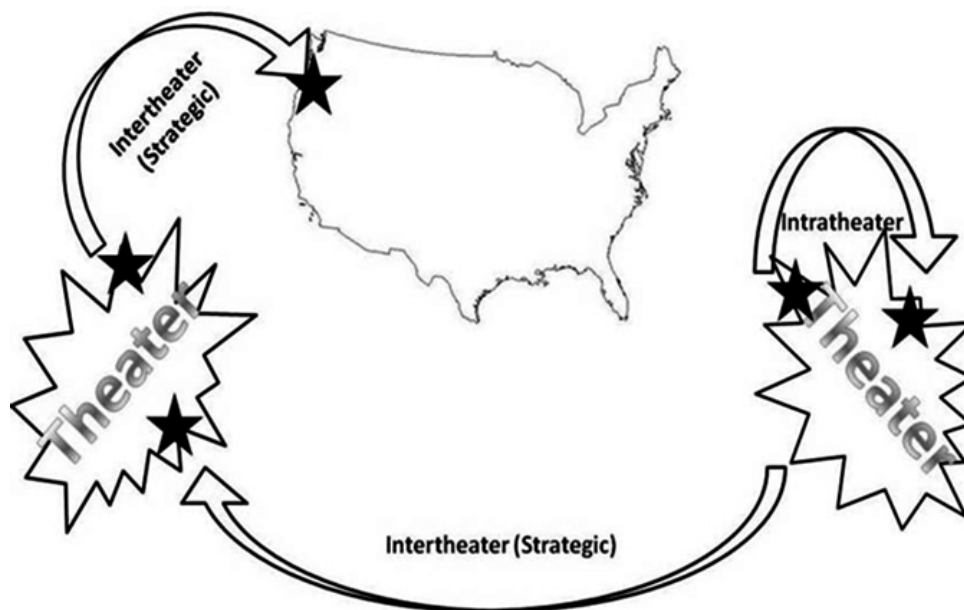


Figure 1-2. Strategic and theater airlift.

Airfields and zones

An airfield is an area prepared to accommodate the landing and takeoff of aircraft. This includes any buildings, installations, and equipment. An air terminal is a facility on an airfield that functions as an air transportation hub and accommodates the loading and unloading of aircraft and the in transit processing of traffic. All types of airfields dot the map around the world, some of which have been officially designated as “aerial ports.”

An *aerial port* is an air terminal located on a prepared airfield that has been designated by the USAF Chief of Staff for the sustained air movement of cargo and passengers. An aerial port serves as an authorized port for entrance or departure to and from the country in which it’s located. For example, Dover AFB, Delaware; Andersen AFB, Guam; and Naval Air Station Sigonella, Sicily, are designated aerial ports. A complete list of designated aerial ports is located in USTRANSCOM’s *Defense Transportation Regulation*, Part III, Appendix M. Not all airfields or air terminals are designated as aerial ports.

An aerial port of debarkation (APOD) is a station that serves as an authorized port to process and clear aircraft and traffic for entrance into the country in which it is located. An aerial port of embarkation (APOE) is a station that serves as an authorized port to process and clear aircraft and traffic for departure from the country in which it’s located. An aerial port can be both an APOE and an APOD.

A landing zone (LZ) is any specified zone used for landing aircraft. LZs are usually less sophisticated than airfields. LZs can be isolated dirt strips with no areas off the runway to conduct ground operations, or they can be hard surface airfields with limited abilities to provide support. LZs are useful because they can be found or built closer to the forces that need the supplies, which offers fewer delays in getting those supplies to personnel in need. A drop zone (DZ) is a specific area upon which airborne troops, equipment, and supplies are air-dropped. DZs are normally open, flat terrain; however, they can be situated on almost any site, including water. DZs are useful because like LZs, they are closer to the forces that need the supplies. Also, many times an LZ or airfield cannot be constructed due to cost, time, security concerns, political concerns, or terrain limitations. DZs lessen those concerns.

Airlift delivery methods

There are two basic modes of airlift: airland and airdrop. The mode used depends on user requirements; the availability, adequacy and security of airfields, LZs and DZs near the forces; and aircraft capability.

Airland is the most frequently used airlift delivery method. Airland requires the aircraft to land on the ground to onload or offload its cargo and passengers. It allows delivery of larger loads with much less risk than the airdrop mode. Airland operations include onload and offload from either a stationary aircraft or a moving aircraft. Onload and offload is normally done with a stationary aircraft; however, when it is necessary to reduce ground time or when the right materials are not available, crews can combat offload from a moving aircraft when they have authorization. Airdrop includes all methods of delivering personnel, equipment, and supplies from an airborne aircraft. When areas do not have suitable or secure airfields, this method allows forces to enter those areas anyway and supply/resupply them throughout their mission. One disadvantage to the airdrop method is that the parachute rigging and cushioning material takes up weight and space on the aircraft and reduces the amount of personnel and supplies the aircraft can deliver.

Joint logistics and organizing the joint force

Chances are you will have the opportunity to work with other US military services and branches of service from other nations. It can be a challenging but very exciting and rewarding experience. Because each campaign and operation is unique, there is no single way to organize a joint or

multinational force. Let's define joint logistics and take a look at the options joint force commanders have when organizing forces as well as how joint logistic operations can be organized.

Joint logistics is the coordinated use, synchronization, and sharing of two or more military departments' logistics resources to support joint forces. In a nutshell, the ability to project and sustain a joint force through sharing of DOD, multinational partners, intergovernmental organizations (IGO), and nongovernmental organizations (NGO). Joint force commanders (JFC) must organize their forces to accomplish the mission based upon their vision and concept of operations (CONOPS). Joint forces can be organized on a geographic or functional basis. JFCs should allow individual services and organizations to function as they were designed. Their unique contributions and capabilities to the joint mission are critical; however, they must be able to work together and depend on one another to be effective.

Combatant commands

A combatant command, or CCMD, is a unified or specified command established and designated by the president and SECDEF with a broad continuing mission under a single commander. A *specified command* is normally comprised of forces from one military department, but it may include units and staff representatives from other military departments. A *unified command* is established when a broad, continuing mission exists that requires a single common goal or direction. A unified command requires the capabilities of two or more military departments. USTRANSCOM is a unified command. Commanders may also establish subordinate unified commands to carry out operations. Other CCMDs are authorized to perform specific functional responsibilities such as transportation, special operations, training, or strategic operations.

Joint task forces

A joint task force (JTF) is a joint force that is created to accomplish missions with specific limited objectives and do not require overall centralized control of logistics. They are designated by the SECDEF, unified commander, or existing JTF commander; they may be organized on a geographical or functional basis; and are dissolved when the need for one is no longer required.

Component options

Regardless of how a joint force is organized, individual services retain responsibility for service-specific functions and other matters that affect them. This includes administration, personnel support, training, logistics, and intelligence operations; however, they do not conduct independent operations; they must work together in supportive and subordinate operations.

Service component

A service component organizational structure is when the joint force is organized by military departments. Each service retains its own organizational structure. Conducting joint operations using service components is advantageous because it clarifies and simplifies command lines. It is also useful when stability, continuity, economy, ease of long-range planning, and scope of operations require individual service operations in their pure form.

Functional component

A functional component organizational structure is when members of more than one service with similar or related skills and duties combine to accomplish one goal. Army transporters often work side by side Air Force transporters to move personnel and cargo. Using functional components is useful when forces from two or more services must operate in the same domain towards a common goal or there is a need to accomplish a distinct aspect of an assigned mission.

Leading the joint logistics force

As you can see, commanders have several options when organizing joint forces, but what about when two different nations conduct operations within the same theater? Who is in charge? You should

always be prepared to conduct operations with forces from other nations under US or other-than-US leadership under unified action. *Unified action* is the synchronization, coordination, and/or integration of the activities of governmental and nongovernmental agencies with military operations to achieve unity of effort. Unified action applies to joint operations, multinational operations, and other types, as illustrated in figure 1-3. Although US forces will often be the predominant and most capable force within any alliances and probably play a major leadership role, US forces must be able to serve in following, contributing, and supporting roles as well.

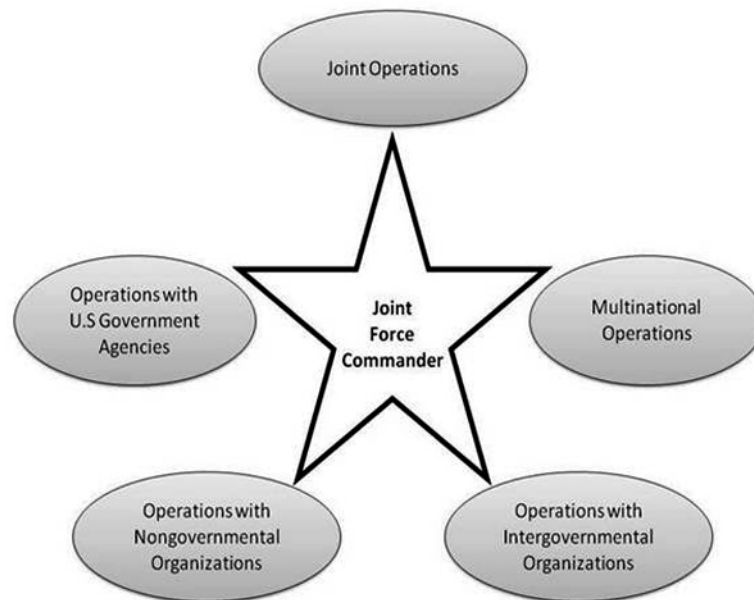


Figure 1-3. Unified action concept.

Even when operating under a foreign commander, US commanders must maintain the capability to report separately to higher US military authorities in addition to foreign commanders. Commanders have the following options for organizing a multinational force:

- Parallel command.
- Lead nation command.
- Combination command.

Parallel command

This is when the participating nations all retain command of their own forces and operate side-by-side. Operation Joint Endeavor was a parallel command. The primary forces remained under allied command, while UN protection forces remained under UN control. This command is the simplest to establish and is usually the command of choice.

Lead nation command

This is when the nation providing the most forces and resources provides the commander. Other nations take subordinate roles. Operation Enduring Freedom is a lead nation command. The formation of combined JTF 76 provided a single joint command with a lead nation construct.

A combination command

This is a mixture of parallel and lead nation command and occurs when two or more nations serve as controlling elements for a mix of international forces. Operation Desert Storm was a combination command, with Western national forces aligned under US leadership and Arabic national forces aligned under Saudi Arabian leadership.

At your level, you may work with joint or multi-national forces daily performing your logistics duties. Both types of operations are a challenge. Individual nations and militaries have different ways of doing things. You can minimize confusion by fostering communication and professional relationships with any multinational or joint forces you may be working with. You can significantly impact how other services and nations view the Air Force and our operations by working and communicating with them professionally on a daily basis. You must also understand where your unit falls within the chain of command and the role you play within that command.

Civil reserve air fleet program

The Civil Reserve Air Fleet (CRAF) program is one where selected aircraft from US airlines agree to support the DOD's airlift requirements when military organic aircraft cannot support them all. The CRAF program is designed to augment DOD's airlift capability in time of war *or* during a president-declared emergency. CRAF is made up of three segments: international, national, and aeromedical.

The *international segment* consists of long-and short-range sections. The long-range aircraft must be capable of over-water flight and provide the largest capability with passenger and cargo aircraft. The short-range aircraft supports near-offshore operations with both passenger and cargo aircraft.

The *national segment*, consisting of domestic and Alaskan sections, provides passenger and cargo aircraft using regional air carriers with at least 75 seats and a cargo-carrying capability of at least 32,000 pounds.

The *aeromedical segment* is used to evacuate critical casualties from an operational area. This segment is also used to move medical supplies and crews to the theater of operations, which allows organic and other aircraft to maximize cargo airlift.

The USTRANSCOM commander, through the SECDEF, has the authority to activate CRAF aircraft in three stages:

1. Stage I, "Committed expansion," supports minor regional crises or small-scale contingencies and supports DOD's peacetime military airlift requirements.
2. Stage II, "Defense airlift emergency," supports major regional conflicts or a major theater war.
3. Stage III, "National emergency," supports multiple theaters of war and national mobilization.

Commercially contracted aircraft

Commercial aircraft historically have not been used to carry much oversized and outsized cargo, but more frequently, air transportation personnel are maxing out aircraft capabilities to meet increasing airlift requirements. These aircraft usually have their own representative to help plan the cargo loads and also may require special handling and loading equipment. Many commercial aircraft exist, but these are just some you may see: the Boeing 707, 747 and 767 (B-707, B-747, B-767), the Douglas DC-8 and DC-10, the Russian Antonov (AN-124), and the McDonnell-Douglas MD-11. You will learn more about these aircraft as you progress in your career, but for now, let's briefly go over three of the more important ones.

The B-747 is the staple of AMC commercial-contracted aircraft and is used primarily for strategic airlift. It can carry up to 42 463L aircraft pallets—33 on the main cargo floor and nine combined in the forward and aft "bellies." It can carry up to 180,000 pounds of cargo and can occasionally, with proper authorization, carry a small number of passengers. Similar to the KC-10, everything loaded on the B-747 must be placed on a subfloor and pallets only have one inch of spacing between them so the 1-inch couplers (KC-10 couplers) must be used when building multi-pallet trains or subfloors. Palletized cargo in the main cargo floor cannot exceed 96 inches high when loaded through the side door. Occasionally, depending on the type of B-747, cargo will be loaded through the nose; in this case, palletized cargo cannot exceed 94 inches high. Pallets that are planned for transport in the belly compartments cannot exceed 60 inches high.

The DC-8, in both the short and stretch version, is also a commonly used commercial aircraft used for strategic airlift. Depending on which aircraft, they can carry anywhere between 10–18 pallets and accommodate passengers as well.

The AN-124 is a unique, Russian-built aircraft, much like the USAF C-5 Galaxy. It can be loaded from both the aft and front end, has the capacity to carry up to 88 passengers in the upper compartment, and is usually used to carry outsized and oversized cargo on the main cargo deck. This aircraft also has airdrop capability and an onboard crane that allows for loading and unloading with minimal ground crew assistance.

Self-Test Questions

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

001. Duties of the 2T2X1 specialty

1. If you are transporting cargo loads to and from an aircraft, which air transportation function/duties are you performing?
2. If you are preparing a standby listing, which air transportation function/duties are you performing?
3. If you are the “eyes and ears” of the flight line, which air transportation function/duties are you performing?
4. If you are calculating the weight and balance for aircraft, which air transportation function/duties are you performing?
5. What is the responsibility of all air transportation personnel?
6. Who serves as the primary technical advisory agency in the air transportation organization?
7. What are the key functions of QA?
8. Who manages the ATSEV quality assurance database?

9. Mark with an “X” the duties/functions the transportation and vehicle management career field perform.

- ___1. Support personal security details.
- ___2. Operate the latrine service truck/cart.
- ___3. Arrange personal property for storage.
- ___4. Clear explosives into and out of your station.
- ___5. Prepare cargo manifests and load brief sheets.
- ___6. Prepare cash collection forms and meal requests.
- ___7. Handle, store, and move human remains shipments.
- ___8. Manage vehicle maintenance requirements including inspection and modification.
- ___9. Brief loadmasters and boom operators on their outbound passenger and cargo loads.

10. How many specialties make up the transportation career field and what are they?

11. If you are packaging and classifying cargo for shipment or storage, to which specialty in the transportation career field are you assigned?

12. If you are planning vehicle transportation to support an operational mission, to which specialty in the transportation career field are you assigned?

13. If you are managing vehicle purchase and control programs, to which specialty in the transportation career field are you assigned?

002. Organization and mission

1. To what does the term *sustainment* refer?

2. Name the three component commands of USTRANSCOM.

3. Match each command in column B with its function in column A. Items in column B may be used once, more than once, or not at all.

Column A

Column B

- | | |
|---|----------------|
| _____ (1) Provides ocean terminal, commercial ocean liner service, and traffic management services to deploy, sustain, and redeploy forces globally. | a. USTRANSCOM. |
| _____ (2) Contracts with commercial air carriers through the CRAF and other programs for movement of DOD passengers and cargo. | b. MSC. |
| _____ (3) Provides airlift, air refueling, special air mission, and aeromedical evacuation services for US forces. | c. SDDC. |
| _____ (4) Provides common-user and commercial air, land, and sea transportation, terminal management, and air refueling to support the global deployment, employment, sustainment, and redeployment of the DOD in times of peace and war. | d. AMC. |
| _____ (5) Supplies forces of its own to theater commands to support wartime taskings. | |
| _____ (6) Provides sealift transportation to deploy, sustain, and redeploy forces around the world. | |

4. What are the responsibilities of the TACC?

5. An AMS serves as what?

6. What system helps the Air Force provide rapid global mobility?

7. What is rapid global mobility?

8. Name the three elements of NAMS.

9. What is a theater?

10. What is the difference between intertheater and intratheater airlift?

11. What is an aerial port?

12. What is an APOD?

13. What is an APOE?

14. Why are LZs and DZs useful?
15. What are the two basic modes of airlift?
16. Which mode of airlift allows delivery of larger loads with less risk?
17. Which mode of airlift can on/offloading be done with a stationary or moving aircraft?
18. Which method of airlift delivers personnel and supplies from an airborne aircraft?
19. What is one disadvantage of airdrop?
20. On which basis can joint forces can be organized?
21. Which type of command is normally comprised of forces from one military department?
22. Which type of command requires the capabilities of two or more military departments? Name an example of this command.
23. What is created to accomplish missions with specific limited objectives and are dissolved when no longer needed?
24. What is the benefit of using a service component organizational structure?
25. Which component organizational structure is made of members of more than one service with similar or related skills and accomplishes one goal?
26. Which types of operations does unified action apply?

27. Name the three different types of command options for organizing a multinational force.

28. What can you do to *minimize* the confusion of working with joint or multinational forces?

29. What is the CRAF program designed to do?

31. Match each segment of the CRAF program in column B with its description in column A. Items in column B can be used more than once.

<i>Column A</i>	<i>Column B</i>
___ (1) Consists of domestic and Alaskan sections.	a. International.
___ (2) Consists of long-range aircraft capable of over-water flights, providing the largest passenger and cargo capability.	b. National.
___ (3) Used to move medical supplies and crews to the theater of operations.	c. Aeromedical.
___ (4) Used to evacuate critical casualties from an operational area.	
___ (5) Consists of a short-range section that supports passenger and cargo operations near offshore.	
___ (6) Provides passenger and cargo aircraft using regional air carriers with at least 75 seats and a cargo-carrying capability of at least 32,000 pounds.	

32. Who has the authority to activate CRAF aircraft?

33. Match each stage of the CRAF program in column B with its description in column A. Items in column B can be used more than once.

<i>Column A</i>	<i>Column B</i>
___ (1) Supports minor regional crises or small-scale contingencies.	a. Stage I.
___ (2) Supports major regional conflicts or a major theater war.	b. Stage II.
___ (3) Supports multiple theaters of war and national mobilization.	c. Stage III.
___ (4) Supports the DOD's peacetime military airlift requirements.	

34. Which type of couplers must be used to build multi-pallet trains and subfloors for the B-747?

35. What is the *maximum* height a pallet can be if it is loaded through the nose of a B-747?

36. Which commercially contracted aircraft is similar to the C-5 in that you can load it from both the rear and the front?

1-2. Safety and Supervision

Everyone deserves to work in a safe and healthful environment; therefore, safety is integrated into everything we do, including Air Force publications, TOs, and even this CDC. The agencies responsible for developing and revising these publications ensure the information contained within them comply with Air Force occupational and environmental safety, fire protection, and health (Air Force Consolidated Occupational Safety Program guidance).

003. Hazards and general safety practices of the 2T2 specialty

The purpose of the Air Force Consolidated Occupational Safety Program program is to minimize loss of Air Force resources and to protect Air Force members from occupational deaths, injuries, or illnesses by managing risks. Air Force Instruction (AFI) 91-203, *Air Force Consolidated Occupational Safety Program*, governs the program and establishes the minimum standards to provide a safe and healthful work environment for all Air Force personnel and other DOD employees.

General responsibilities

Everyone is responsible for complying with the Air Force Consolidated Occupational Safety Program program including your commander, supervisors, and coworkers. Each has a responsibility to maintain safe and healthful environments in your area and enforce compliance with all Air Force Consolidated Occupational Safety Program guidance. Most importantly, you have responsibilities to provide a safe and healthy work environment for everyone around you. Your responsibilities are as follows:

- Comply with Air Force Consolidated Occupational Safety Program guidance.
- Promptly report safety, fire, health hazards, and deficiencies.
- Promptly report any injuries and illnesses to your supervisor.
- Comply with personal protective equipment (PPE) requirements that apply to your work situation, including using, inspecting, and caring for the equipment properly.
- Give due consideration to your personal safety and the safety of fellow workers while doing your assigned tasks.

You also have several rights when it comes to safety. They include:

- The right to work in safe and healthful conditions.
- The right to request safety and health inspections.
- The right to have access to safety information.
- The right to access and view your own medical records.

Let's go over a few important safety considerations as they apply to the air transportation specialty.

Personal protective equipment and dress standards

One of the most important things you can do is wear required PPE and dress appropriately for the job you are doing. Air transportation PPE normally includes gloves, steel-toed boots, hearing protection, reflective gear, goggles, safety glasses, or face shields required and appropriate for the situation.

Additionally, working around moving parts, belts, and machinery presents extra hazards. Almost anything if not properly secured can get caught in these moving parts and cause damage to equipment, injury to personnel, or even death. To minimize the hazard, secure loose or long hair and clothing when you or others are working around moving parts, belts, or machinery. Secure your eyeglasses with a band or cord to prevent them from falling. Be mindful of and safely secure bulky uniform items with cords and strings, such as cold weather gear, web belts, load-bearing equipment, and chemical/biological protection suits and masks. Additionally, if you are carrying sharp-edged tools, carry them in their protective holders. Remove all of your jewelry before entering industrial

work and flight line areas. This includes any rings, watches, bracelets, and necklaces that could potentially catch any net hooks or device latches.

Lifting and carrying procedures

Not knowing how to properly lift and carry objects can cause strains, sprains, hernias, fractures, bruises, or cuts. If you have another way—such as a pallet jack, forklift, or conveyor belt—to move a heavy item, use it. If you have to move an item manually to prevent injury, know your capabilities, know the characteristics of what you are lifting, and pay attention to what you are doing.

Your capabilities include how strong, mobile, tired, and able you are. Consider any pre-existing injuries and the characteristics of what you are lifting. This includes the size, shape and weight of the object, whether or not you are in a confined space, and how far you have to move it, as well as, how the weight is distributed, if the load will shift when it's moved, and where the center of gravity is located.

Lifting properly gives you more stability and reduces the load on your back muscles and disks. Use the kinetic method to lift properly:

1. Before lifting, put on your gloves and inspect the object for slivers, sharp edges, pinch points, and rough or slippery surfaces. Avoid those areas when gripping the object.
2. Place your feet far enough apart for balance with one foot to the object's rear and the other foot slightly ahead and to the side of the object.
3. Crouch bending at the knees (instead of squat) close to the load. Stay close to the load the entire time to minimize strain on your back muscles.
4. Always keep your back as straight as possible. You may not be able to keep your back vertical but avoid arching or slouching. Bend from your hips if need be but not from the middle of your back.
5. Firmly grip the object with your whole hand. Do *not* attempt to pick up items using only your fingertips. With your arms, slide the object towards your body and lift it using your legs. Bring your back to a vertical position. Using your back to lift objects could lead to back injuries.

To set an object down, use the lifting procedures in reverse order. Lower the load by bending your legs and crouching with your back straight. Release your item carefully to prevent injury to your fingers, hands, or feet.

Never carry an item that obstructs your view. Always make sure your path of travel is clear, and do not twist your body to change direction, lift, or put an object down. Your upper body should be facing the same direction as your lower body throughout the process. Most importantly, get help when you need it.

Emergency shower and eyewash units

Protecting your eyes and skin in an industrial environment is important. Injuries to your eyes and skin may be caused by exposure to chemicals or materials from equipment, machinery, or cargo. Since we cannot eliminate these hazards, the best protection is to wear your PPE; however, accidents happen and if hazardous materials get to your eyes and skin, you will need a way to rinse or flush them out. Eyewash units (fig. 1-4), eye and face units, deluge showers, and similar devices are considered emergency equipment to serve this purpose, but they are not a substitute or alternative for wearing PPE. Permanently installed shower and eyewash units provide the best emergency option, while self-contained units and eyewash bottles, at best, offer minimum protection.

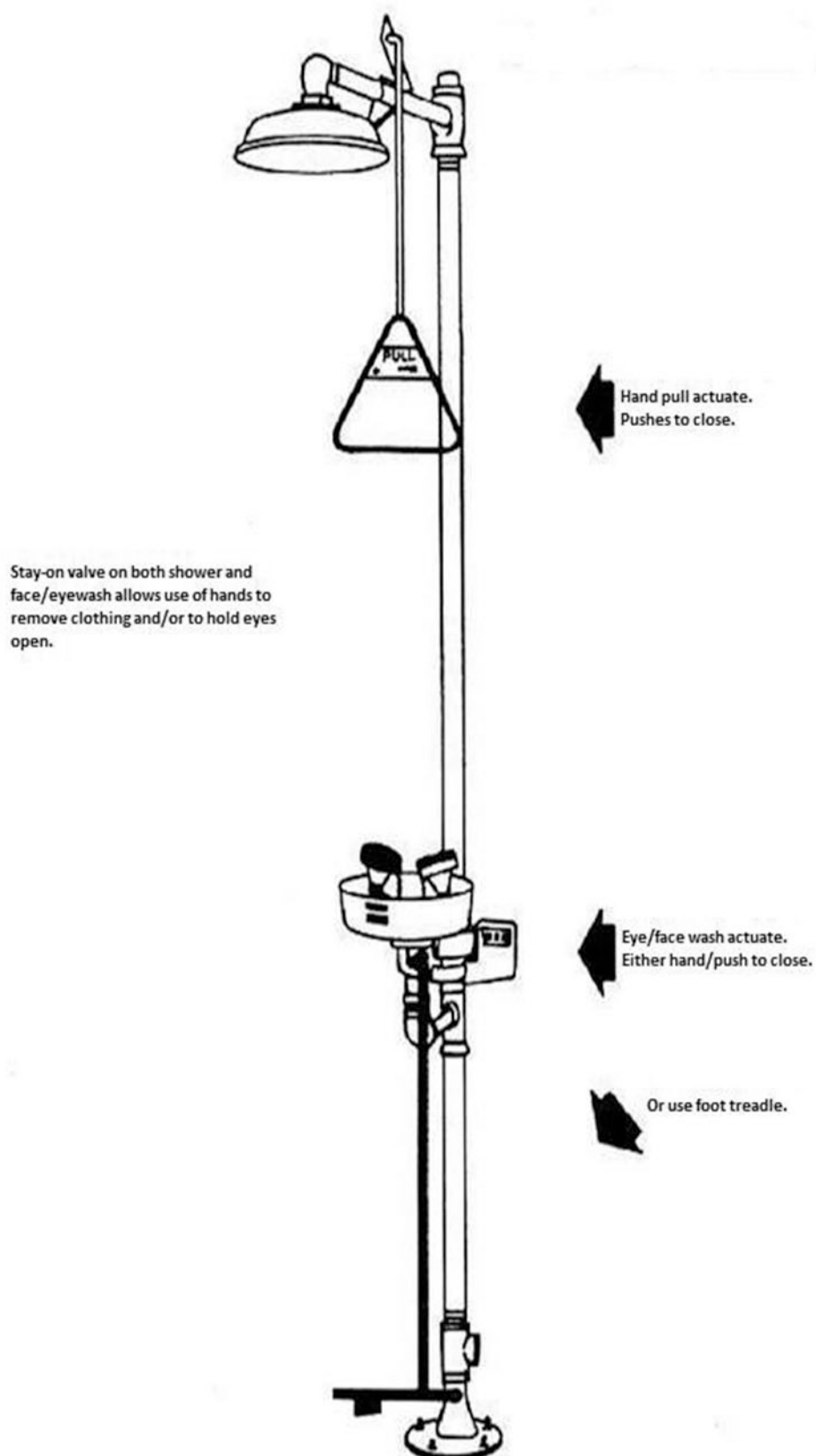


Figure 1-4. Emergency shower eyewash station.

Self-contained eyewash units (fig. 1-5) must be used only when approved by the installation ground safety manager and the bioenvironmental engineer (BEE) section. Eyewash bottles are portable but not a replacement for fixed-type units. If you are working with hazardous materials in an area without a fixed eyewash station, you can keep an eyewash bottle with you to immediately flush your eyes until you can get to a permanently installed or self-contained unit to flush your eyes more thoroughly. Since you are a military member and are guaranteed to move from unit to unit where the layout is different at each location, it is imperative that you know exactly where these items are located within the warehouse environments you will work. Additionally, ensure any inexperienced coworkers know as well.

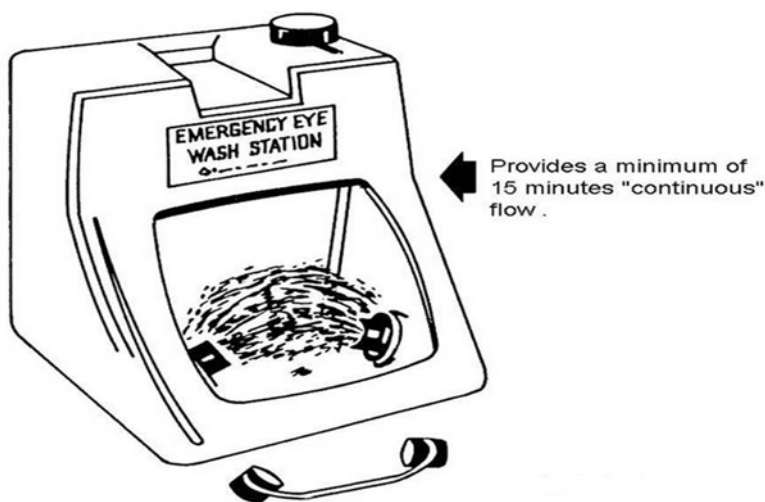


Figure 1-5. Self-contained eyewash unit.

Handheld drench hoses working in conjunction with shower and eyewash units are most beneficial when you are in an awkward position to reach parts of your face or body that are inaccessible to the fixed stream of the shower or eyewash. If flushing your eyes, do so in the stream where the pressure is lowest.

Loading and highline docks

Although you probably were not involved in the design of your loading docks, you can help prevent mishaps by being aware of some design hazards. Make sure vehicles parked at the docks do not block general vehicular traffic. If this is not possible, place cones, barricades, or warning signs out to redirect traffic. Additionally, the edges of all loading docks should be marked with four-inch-wide yellow lines. If your facility has extremely high docks, ensure all removable railings are in place before use to prevent falls. When walking on or near a loading dock, watch the gap between the dock and truck so you do not fall through. When driving, be mindful of where you are in relation to the edge of the dock. Forklift drivers have accidentally driven off loading docks and severely injured themselves because they were not paying attention. Our use of spotters in all of these situations to include driving in the warehouse, on the flight line, and on the aircraft cannot be stressed enough.

When walking on highline docks with rollers, watch your footing and do not step on the rollers. Many docks do not have railings and are located high off the ground. Also, beware of water, snow, ice, grease, oils, or any other substance that could make them slippery. If you are controlling the rollers—especially from the ground level where it is harder to see—make sure no one is on the docks before rolling pallets or other items. People can get crushed or rolled over if you are not careful. Lastly, do not jump off the docks. Always use the ladder, stairs, or another safe way to exit the dock area.

Other safety hazards

Working as an aerial porter you will encounter many potential falling hazards in your environments. You can fall from an aircraft ramp, ladders, K-loaders, hi-lifts, and staircase trucks, or even something more common like stairs, desks, and chairs. That's why it is important to always use equipment appropriately and for their intended purpose. Always use harnesses as required, and be aware of the surroundings for you and your team.

Many mishaps result from workers hurrying, not paying attention, not using the proper equipment for the job at hand, or not reporting unsafe conditions. Don't assume an experienced worker is always the safest worker. Some studies suggest that familiar surroundings and length of service increase the chances of accidents and injuries due to complacency. Additionally, new people learn work habits by observing you; therefore, you must eliminate your own poor and unsafe work practices and set a good example.

If you work at a desk or counter most of the day, office ergonomics can be a big concern. To sit at a fixed posture for a long period of time can cause muscle fatigue and eventually lead to muscle pain and injury. Computer operators may also develop disorders such as carpal tunnel syndrome and tendonitis from muscle overuse, bad posture, and repetitive motion. To help prevent these problems, use proper posture when working at computer stations—sit up straight and adjust the chair to a comfortable height. Take breaks to stretch the muscles that are being used.

Also, here are some general safety concerns to keep in mind:

- *Never* horseplay. When you “fool around,” severe injuries and fatalities can occur.
- Keep your work center clean and well maintained. Even the smallest spill or item out of place can cause serious injuries. Clean up spills or dirty areas immediately. Repair or report cracks, holes, protruding nails, broken surface materials, slippery finishes, or uneven surfaces. Replace light bulbs as needed to keep areas safely lit. Keep stairways clear at all times; do not store or throw anything on steps or in stairways.
- Use items for their intended purpose. Furniture, cardboard boxes, trash bins, and office chairs are not acceptable ladder substitutes. Locate a screwdriver rather than attempt to turn a screw with a pair of scissors or a knife.
- Return paper cutter blades to the fully down and locked position when *not* in use. When using a paper cutter, keep your fingers away from the knife. Repair loose guards or springs.
- Store heavy material in the bottom drawers of file cabinets and bookcases. Load cabinets and shelves from bottom to top. Close drawers when they are not in use. Never open more than one drawer at a time to avoid tripping.
- Report or repair frayed electrical cords, loose or broken electrical wires, broken outlet covers, receptacles, and worn or broken electrical plugs. To avoid electric shock, make sure electrical equipment is properly grounded.
- Lastly, always ensure you leave a clean work area. Scattered tools, hoses, cargo, bags, and other items create obstacles that may not need to be there. As a responsible supervisor you can ensure your work environment is clear of debris and prepared for others to work safely.

Accident prevention

In an ideal world, all hazardous situations would be eliminated so we could avoid accidents; however, most things in life worth doing involve at least some amount of risk. The air transportation specialty is no different. Your contribution to the mission is an honorable and worthwhile endeavor and inherently involves risk. If we cannot eliminate the hazard, then we must try to minimize the risk and do what we can to prevent accidents.

You, your chain of command, and your coworkers are responsible for mishap prevention. You, with the help of safety officials, identify the rules, criteria, procedures, and safety standards that could help eliminate unsafe acts or conditions that cause mishaps. In other words, if you have an idea that could make a process or job safer, notify your supervisor.

Under the mishap prevention program, your responsibilities are as follows:

- Comply with standards, instructions, job guides, TOs, and operating procedures.
- Identify and report hazards or situations that place you, your coworkers, your equipment, or your facility at risk using the risk management (RM) process.
- Use protective clothing or equipment when required.
- Use RM to identify, reduce, or eliminate risk in activities on or off duty.
- Notify your supervisor about any job-related injury or illness affecting your job performance as well as any suspected or actual exposure to chemicals or hazardous materials.

By now you should be very familiar with RM. It is one of the most important programs in the Air Force to prevent mishaps. RM is a continuous process designed to detect, assess, and make decisions based on controlled risk while enhancing performance and maximizing combat capabilities. You will identify and control hazards—and ultimately prevent accidents—using the RM process. Because you learned about it in technical training and through recurring ancillary training, we won't go through the details of each step, but here is a general reminder.

- Step 1. Identify hazards.
- Step 2. Assess hazards.
- Step 3. Develop controls and make decisions.
- Step 4. Implement controls.
- Step 5. Supervise and evaluate.

Reporting potential hazards

Preventing accidents depends on you identifying, reporting, and correcting hazards promptly and efficiently. You can submit a hazard report on any event or condition that affects flight, ground, or weapons safety. Reportable hazards include unsafe procedures, practices, or conditions.

Report hazards to the supervisor that is responsible or local agency. If the hazard is eliminated on the spot, no further action is required unless it applies to other similar operations, units, or agencies. If the hazard presents imminent danger, the supervisor or individual responsible for that area must take immediate action to correct the situation or apply interim control measures. Report hazards that cannot be eliminated immediately to the safety office by using an AF IMT 457, USAF Hazard Report (HR), by telephone or in person. Reports can be submitted anonymously. The AF IMT 457 is available throughout your unit and can also be found on the AF e-publishing website through the AF Portal.

The safety staff will investigate the HR. If known, the investigator will discuss the report findings with the member that submitted the report, the responsible supervisor or manager, and other parties involved to validate the hazard and determine the best corrective action. The safety office must respond to the reporting member within 10 working days with their findings, the status of the AF IMT 457, and any recommendations.

Another way to prevent mishaps is through safety inspections. Safety inspections help identify hazards and measure compliance with safety program requirements. These can be scheduled inspections or “on-the-spot.” Both are important to assess the health and safety of an area. Many times, the longer you work in an area, the more familiar and routine things become. Safety inspections can put “fresh eyes” on those types of things and bring to light unsafe conditions.

Human factors

Human factors are the biggest cause of safety incidents and fall into two major categories: mental and physical. Your mental and physical health can affect you in two ways: by your commission (what you do) or by your omission (what you fail to do). The things you choose to do or choose not to do because of your mental and physical state can have severe consequences. Sometimes, you may make choices you don't know you're making because you're simply not paying attention. A few examples of these include the following:

- Ignoring directions from supervisors.
- Improperly operating equipment while angry or distracted by professional or personal issues.
- Not following proper procedures or taking shortcuts because you feel hurried.
- Becoming drowsy or hyperactive on the job because of insufficient sleep, prescription medications, alcohol, or illegal drugs.
- Using equipment you are not qualified to use.

To minimize these hazards, keep your personal affairs in order. It is imperative that you keep yourself mentally and physically healthy, and ask for help before things get out of hand. This is an important part of your job, not only for the safety of you and others, but for the readiness and health of you and your peers as well.

When accidents happen

Sometimes, despite your efforts, accidents happen. When they do, you should know you can be held liable—financially or otherwise—for the loss, damage, or destruction of Air Force property caused directly or indirectly by your negligence, willful misconduct, or deliberate unauthorized use. You are responsible for the proper care and safekeeping of Air Force property. For example, if you neglect to properly inspect your vehicle, you could be held liable. If you run your fork tines into or drop a piece of cargo, you could be held liable. If you damage any part of an aircraft, you could be held liable. Wouldn't it be a lot easier to follow the rules, keep yourself healthy, and comply with all safety requirements than to pay thousands of dollars for part of a damaged 60K Tunner loader because you failed to do a proper inspection?

It is also important to report any damage or mishap to your supervisor immediately, regardless of who caused it. Identifying damage as soon as it is discovered can help investigators narrow down when it occurred to relieve you of responsibility if you were not at fault. If you were at fault, promptly reporting the damage or mishap demonstrates your integrity, good will, and cooperation. Not reporting a mishap or covering it up only results in worse consequences for you and anyone else involved.

004. Flight line safety

The flight line can be both an exciting and dangerous place. Many people work together performing their unique duties to launch an aircraft. This creates high traffic, noise, and numerous other hazards. Motor vehicles operating on the flight line are necessary for normal aircraft operations; however, vehicles present a clear danger to aircraft and ground personnel. Carelessness, haste, and disregard of existing safety standards are the primary sources of aircraft damage and personal injury. Let's look at some of the hazards when working on the flight line.

Responsibilities

Billions of dollars worth of critical Air Force aircraft, equipment, and systems are positioned on the flight line at any given time. For this reason, the flight line is a secure area in which you need authorization to enter. The AF Form 1199C, USAF Restricted Area Badge, commonly called a "line badge" gives you this authorization. The line badge contains your picture, and identifies the areas of the flight line to which you have authorized access, and whether you are authorized to escort other

people. When on the flight line, whether on foot or in a vehicle, you must display your line badge at all times.

Your commander has the ultimate responsibility to ensure you comply with local flight line safety procedures, but in order to comply with the procedures, you must be trained. Anytime you are required to operate vehicles on the flight line, your unit's vehicle control officer (VCO) will ensure you receive the proper training before you are authorized to enter the flight line area. In addition to any local requirements and written tests, designated flight line driving instructors will give you both day and night orientation and qualification rides before you are allowed to operate any vehicle on the flight line. These rides include driving routes, area limitations, steps for runway and taxiway crossing, and any other local procedures for driving safely on the flight line.

In addition to your line badge, to operate any vehicle on the flight line, you must possess and carry a valid state driver's license; your AF Form 2293, USAF Motor Vehicle Operator Identification Card, and an AF IMT 483, Certificate of Competency, endorsed for flight line driving.

When you are working on the flight line, you will want to make sure you are prepared for anything. Many times, you will not have time to run back to your work center to obtain a forgotten item of PPE; therefore, be sure to wear and/or bring all possible PPE with you (e.g., gloves, steel-toed boots, reflective belt, dual hearing protection, weather gear, light wands, and goggles).

NOTE: If you are assigned to AMC, you must follow additional requirements. Your unit will issue you PPE and other tools to help you do your job (e.g., flashlights and multipurpose tools). You are not authorized to bring any items not issued to you on the flight line, including personal cell phones or tools. For those items you are authorized to bring on the flight line, mark or stencil them with information such as your name, unit, and rank. Your unit will determine which information will be marked. Your supervisor or team chief will ensure you have 100 percent control of all of your equipment while on the flight line to avoid losing anything and minimize the risk of foreign object damage (FOD) to aircraft, which we will go over later.

General risks

When working around aircraft, always stay alert and watch for hazards from protruding controls, surfaces, antennas, open access hatches, and other projections. Many tripping hazards exist around the aircraft and on the ramp as well (e.g., auxiliary power cables, grounding cables, straps, chains, devices, fuel hoses, ladders, and air conditioning ducts). In addition, oil, deicing fluid, hydraulic fluid, grease spills, and weather conditions, can all be the cause of slipping hazards. The potential for serious burns also exists while working around aircraft. Watch out for exhaust areas from aircraft and aerospace ground equipment (AGE), hot brakes, and lights.

Because you work on or near operating jet aircraft, you can potentially be exposed to the most intense and sustained noises experienced in the Air Force. Being exposed to this noise can result in hearing loss, interference with speech communications, and disruption of job performance. Besides hearing loss, noise also can cause other physical and psychological disturbances.

You are also subject to potential injury from environmental temperature extremes. Injuries resulting from cold weather exposures in northern climates can be serious. Heat exhaustion, sunburns, and strokes are potential concerns in hot and humid climates, especially when combined with physical activities. Fatigue, disorientation, and other physical and mental factors may contribute to mishaps if proper PPE, adequate rest periods, and other considerations are not regulated in locally developed guidelines.

Driving on the flight line

Driving on the flight line requires more effort than driving on the city streets. You must know and obey speed limits, traffic lanes, tower signals, and several other restrictions to operate safely.

Always stop your vehicle prior to entering or leaving the flight line or ramp area. This is also a perfect time to do a FOD check on and around your vehicle, especially in the tire treads. FOD is damage created by rocks, gravel, small cargo, parts left behind, tools, dirt, or trash—any item that could get suctioned into or hurled by an aircraft engine and cause damage. FOD is everyone's responsibility. You must minimize the risk of FOD by doing FOD checks each time you enter and leave the flight line area.

When performing a FOD check on your vehicle, stop your vehicle and shut the engine off. Exit the vehicle, and check all tires for embedded foreign objects in the treads. Remove any debris that you see. Get back into your vehicle and pull forward slightly—just enough to do a proper FOD check on the part of the tires you could not see the first time. Remove any embedded objects and place them in a proper FOD container.

Likewise, while you are driving or working on the flight line, if you see any FOD that could damage an aircraft, pick it up. Vehicles that frequently operate on the flight line will be equipped with “lidded” containers marked “FOD” with 2-inch or larger letters. Empty the container daily or when it's full, whichever comes first.

Before departing the flight line area, you are also responsible for properly stowing and securing any tools and equipment used for loading operations. When not properly stowed or secured, these items can easily fall off or out of a vehicle and cause damage to your vehicle or an aircraft.

Circle of safety

Anytime you operate vehicles around aircraft, you must use extreme caution. Both vehicles and aircraft are extremely valuable to the Air Force. Damaged resources only hinder the DOD mission; therefore, the aviation industry has defined the space around the aircraft into an area called the “circle of safety.” This area encompasses 25-feet surrounding the aircraft from wing tip to wing tip.

Speed limits

You must observe speed limits at all times when you are operating vehicles on the flight line. Doing so will help prevent accidental damage to aircraft and injury to yourself and others.

In general, the speed limit for general-purpose vehicles is 15-miles per hour (mph) on the flight line; the speed limit for special purpose vehicles is 10 mph; however, that doesn't mean you can always drive at those speeds everywhere on the flight line. Several areas of the flight line require extra caution and require slower speeds.

Flight line Area or Activity	Maximum Speed Limit
Vehicle parking areas	5 mph
Circle of safety (25-feet all around)	5 mph
Aircraft parking ramp	15 mph
Flight line access or bypass road	15 mph or as designated by installation commander
Taxiways and inactive runways	As designated by installation commander based upon local conditions
Designated traffic lanes on the ramp or taxiway in congested areas or within 200-feet of aircraft parking areas	15 mph

This means if you are driving a special or general-purpose vehicle and you are within the circle of safety, you will only drive your vehicle 5 mph. Additionally, other factors may require you to reduce your speeds. Consider existing traffic, road, and weather conditions in addition to the given speed limit. If you are towing equipment to or from an aircraft as part of an aircraft load, the maximum speed limit depends on what and how many times you are towing. Regardless of what you are towing, you must use the safety/cotter pins to secure the pintle hooks and trailer hitches.

Flight line traffic flow

The normal traffic flow on the flight line is at 90-degree angles to the driving lanes. Normally, traffic flow on the aircraft parking ramp is parallel and to the right of the noses of parked aircraft. This enforces that everyone drive with the driver's side of the vehicle toward the aircraft. Never drive diagonally across the flight line and know the red restriction lines that relate to your airfield.

In addition, the way you approach every aircraft is important. Unless loading authorized cargo, never drive vehicles under any part of the aircraft to include the engine, wings, or tail. Never back or drive vehicles forward directly toward any aircraft, unless you are performing loading, unloading, or servicing operations unless a trained spotter is in place. Always watch for and never come within 50-feet of any aircraft being towed.

If an aircraft is taxiing, never stand in front of it, drive into its path, or come between the aircraft and its "follow-me" guide. You must always give an aircraft and its follow-me guide the right of way. If you are on a taxiway with an aircraft approaching, take the shortest route off the taxiway. Do not drive off the paved or prepared surface to make way for the aircraft unless it is your last resort. When you re-enter the taxiway, do a proper FOD check to remove any debris lodged in your tires.

You must stay at least 25-feet in front of or 200-feet behind aircraft with engines running, about to be started, parked or taxiing. We will discuss more specific engine running on/offload operation procedures in volume 2, but these distances are for overall driving on the flight line.

Parking

Do not park vehicles in the immediate vicinity of any aircraft, unless you are loading, unloading, or servicing it and ensure the driver's side of the vehicle is always facing the aircraft. Never park vehicles pointing directly toward the aircraft. It's mandatory to always use a "spotter" anytime you are backing a vehicle toward an aircraft and you must have a prepositioned wheel chock to prevent vehicles from striking an aircraft. Place chocks in front of and behind one rear wheel of all vehicles parked and left unattended. Place one chock between the tandem wheels of dual-tandem axle vehicles.

Park all unattended vehicles so they will not interfere with aircraft being towed or taxied. Leaving the keys in the ignition and the vehicle unlocked, turn off the vehicle and place it in reverse if it has a manual transmission and in park if it has an automatic transmission. Set the brakes on all parked vehicles and place your chocks.

Vehicles parked at the side of an aircraft with its engines running or about to start must be clear of the wing tips and clearly visible to personnel in the cockpit.

If you are prepositioning powered vehicles or wheeled equipment near the aircraft before loading operations, engage the brake on each one or chock it if it does not have a brake.

Passengers in vehicles

To be clear, when we describe passengers in this paragraph, we are referring to anyone riding in the vehicle with you. This includes your coworkers or actual aircraft passengers. You, as the driver, are responsible for enforcing these rules. No one will ride on any part of a vehicle not intended for carrying passengers. Passengers must use seat belts at all times and remain seated with their arms and legs within the vehicle while it is in motion.

Restricted visibility and nighttime operations

Nighttime and inclement weather pose greater challenges to flight line operations. Use flashing hazard lights or parking lights at night when vehicles are temporarily parked on any part of the aircraft parking ramp. This doesn't apply if vehicles are parked in a designated parking area for long periods of time. Do not operate any vehicle carrying explosives when visibility is less than 300-feet unless you have the wing or installation commander's permission. Do not operate any vehicle on the flight line when visibility is less than 100-feet.

When driving with your headlights on, do not point them toward taxiing aircraft or anyone towing an aircraft. Pointing your headlights in this way can blind pilots and tow operators and affect their night vision. If your vehicle is stopped with its headlights on, turn them off. Instead, turn on your parking lights or emergency flashers so you can be seen. Leave your headlights off until the aircraft is out of range; however, if you start driving, don't forget to turn them back on. If you're driving a vehicle with daytime running lights, park in a safe location, turn the ignition off, set the parking brake, and turn on your emergency flashers.

Control tower signals

Control tower personnel control all movement of vehicles operating on the flight line, especially the runways. You will find you need to cross a runway quite often, but you must be particularly cautious and get permission from the control tower to do so. The control tower must be able to communicate with you at all times while you are crossing the runway. They accomplish this through two-way radio communications and color light signals. You must know the appropriate radio protocol and ensure you always have a back-up radio should your battery or primary radio have any problems. Radio guidance from the control tower is the primary form of communication for relaying information, especially for color-blind personnel. Additionally, you must know how to decipher light signal notifications quickly. As a vehicle operator, you must have a tower signal decal explaining the tower signals with you at all times while operating any vehicle on the flight line. Display it in plain view so you can quickly reference it when needed. The reason for this is the control tower can see aircraft, personnel, and operations from their elevated perspective that you cannot see. Radio directions or light warnings they may give you can be time-sensitive and ensure your safety at a moment's notice. You must know and comply with these tower signals:

Tower Signal	Action to Take
Steady green light	"Clear to cross."
Steady red light	"STOP WHERE YOU ARE! Vehicle cannot move."
Flashing red light	"Clear active runway immediately."
Flashing white light	"Return to starting point."
Red and green light	"General warning. Exercise extreme caution."

Vehicle malfunctions

If your vehicle has a malfunction on the flight line that prevents operation under its own power, radio your work center dispatch or ATOC for assistance. If necessary, they can pass the information through to the air traffic control tower to inform nearby aircraft until a mobile maintenance unit can arrive to assist. If it occurs during hours of darkness or inclement weather, leave the vehicle parking lights or emergency flashers on to alert nearby aircraft and ground vehicles of your position. If you do not have a radio with you or it is not working, have personnel within the vicinity to call for you no matter their Air Force specialty code (AFSC).

Make sure you stay with the vehicle and continue to alert taxiing aircraft and ground vehicles of your position until assistance arrives.

Videos and picture taking on the flight line

You will be a part of or witness some extraordinary on/offloading operations in your career. As exciting as some of them may be, taking pictures is not authorized on the flight line unless you receive special permission in writing from the airfield manager. Also, if you receive permission to take or obtain pictures from another source, remember that terrorists and other adversaries use every means available to obtain information—including the internet and various social networking sites. By placing your authorized or unauthorized photos on these sites, you can inadvertently provide sensitive information about your home station, deployed location, flight line area, or other facilities. Even if the subject of your picture seems harmless, adversaries will acquire useful information from what may be in the background (e.g., aircraft, cargo, facilities, guard stations, gates, number of personnel, equipment, scenery, and many other pieces of potentially useful information). Don't risk your safety and others by placing pictures or video (authorized or unauthorized) anywhere on the Internet.

005. Supervision

As an Airman, you're probably thinking more about learning your job than about being a supervisor, but you already learned how to be a good wingman. In many ways, being a supervisor is like being a wingman, not just for a few people—but many. If you've heard the expression, "It's not about you," it is nowhere more accurate than in your duties as an air transportation supervisor. It definitely is not about you. For a work center to run efficiently and effectively, you must think of others before yourself. You must know what's going on within all parts of your organization and how your duties and decisions affect what happens daily and in the future. Let's take a look at what will be expected once you get some experience under your belt.

Work assignments and priorities

As a supervisor, you will be the voice of those that work for you. You will be expected to plan, prioritize, and schedule their work assignments; however, in order to do this, you must know what your work assignments and priorities are. In our business, schedules and priorities change often; therefore, just because something was a priority last week, does not mean it is still a priority this week. You must also know and be involved in the daily operations of your work center. Know what you are required to do on a daily basis.

One of your responsibilities is to direct and brief your shift or personnel on what they will be doing for the day, so be prepared when they arrive. You don't want to have people come in at 0600 only to sit around and wait for you to get organized if operations require them to be out on the flight line immediately. The longer your shift takes to get out on the flight line, the longer the outgoing shift has to work. Put yourself in their shoes—you would never want to end your day waiting on a disorganized supervisor and his or her aimless shift. When possible, prepare yourself the day prior. Keep in mind things change very frequently; therefore, schedules may not be the same even as little as 12- hours later. Collectively, work with other supervisors in your work center to ensure changes are communicated to each other appropriately. Keeping everyone within your section informed and establishing shift changeover processes will inherently improve the overall effectiveness of the operation.

Here are some actions you will need perform to prepare yourself in planning and scheduling work assignments and priorities. How well you are prepared will depend on how much effort you put into these activities.

- *Review the day's aircraft and truck schedules along with any mission remarks* to see what the day's requirements are. Most aircraft and trucks operate on a schedule. Occasionally, you will have aircraft and trucks that seem to appear "out of the blue," but most of the time, you will know when they are coming or going. You have to know your workload and your shift's capabilities to plan and ensure you have everything you need to do it, and the only way to do that is to pull up the schedule(s). It's also a good idea to pull up the next day's or week's schedule to be aware of anything that may require some extra time, effort, or coordination.

This could be anything from a distinguished visitor's (DV) arrival to a piece of cargo that requires special loading equipment. Write down questions you may have about any of the missions or requirements and ask the appropriate agency(ies) for the answer.

- *Check your email, phone messages, and work center mailbox.* Do they contain anything else you may need to work on that day or week? Do they shed light on a situation you will have to deal with that day? In a late night email, did your supervisor assign you to give a briefing to a group of Civil Air Patrol cadets? Did Airman Kelly get her dental appointment moved up at the last minute and leave you a message on your phone? Pay attention and plan for anything that could affect your daily activities.
- *Review the shift logs from your work center's previous shift(s),* as there may be important information from overnight or the weekend if it's your first day back. These could give you some insight on the day's activities or prepare you for any questions your leadership may have on anything that happened overnight or on a particular mission.
- *Get a good shift briefing from the outgoing shift.* You should already have a good idea of what's on your agenda and ask your fellow shift supervisors any questions you may have to help prepare yourself. Asking targeted questions to the last shift will help you refine or eliminate certain tasks off your list. That's the important part—asking questions. For example, let's say you reviewed the shift logs and noticed your work center will be loading a large piece of equipment that needs specific pieces of shoring, but the log doesn't say if you have the shoring. You can make a note of that when you review the shift log and ask the outgoing shift if you have it and where it is located. That way, you don't miss anything.
- *Survey your equipment resources.* Which equipment is available? Which vehicles may be out of commission? How will this affect your daily mission? Can you use anything else in its place? Find out what is wrong with the equipment, when it will be fixed, and notify your chain of command if it will affect your ability to perform the mission. You are informed about the things that affect your own car, aren't you? Be sure to stay informed of all information that may affect your work vehicles and equipment. Making sure you and your personnel properly inspect your equipment and vehicles should always be a top priority. Knowing what you have available ensures the equipment, you, and your team are ready to accomplish the mission.
- *Survey your personnel resources.* Before you can prioritize work assignments, you must know who you have available to perform duties. This requires you to look at your shift schedule. If you don't have one, create one, especially if you have a large work center. How else will you know who is working today? Verify all your personnel's appointments, leave, temporary duties (TDY), deployments, compensatory time off, physical profiles, or other events and limitations. Identify those appointments that could be rescheduled for mission accomplishment. Also, note any additional manpower such as augmentees, Reserve, and Air National Guard (ANG) members you may have. Lastly, identify any training your shift will have to provide in-house or to others.

Knowing your workload, the people, and equipment you have available to perform the mission, and the details about each mission or activity, will help you prioritize what needs to be done by whom and when. The key is to be involved, keep safety in mind at all times, and be well prepared. It's the same concept you practice at home, but in this instance with your aerial port family at work. You can also determine anything that may need to be postponed or rescheduled. If nothing can be rescheduled, you may need to ask for help from other work centers. Before you do though, make sure you're doing everything you can within your work center to accomplish the mission. Imagine if another supervisor sent people to help and discovered your team took extended lunches and played basketball in the pallet yard while they did all the work. Clean your own house first before asking for help from others.

Often times you will find yourself in a reactive environment where you complete activities that get cargo and passengers moving now; however, when you can, figure out what you can do to set up the

next shift for a smooth operation. For example, if you know it will snow overnight, prepare or accomplish those tasks that are difficult to perform during inclement weather. This will help the night shift reduce safety risks and establish a good working relationship between shifts. One day when they are able, they might return the favor.

Whether you have extra time or not, do not forget about house cleaning. Work areas, terminals, counters, dispatch areas, desks, and cargo yards get dirty and cluttered. Take the time to clean up your work area(s) regularly. All facilities and outdoor areas need to be clean to maintain safety, order, efficiency, show pride, and foster good morale.

Go into your shift or crew briefing with a good plan and schedule already in place; however, before taking any action, take roll and verify appointments with your people just in case anything has changed. Verify everyone has all the required safety equipment (e.g., steel-toed boots, gloves, hearing protection, goggles, reflective belt, and cold/hot/rain weather gear) and documents (e.g., flight line access badge, competency card, civilian driver's license, government driver's license or AF Form 171, Request for Driver's Training and Addition to Government Driver's License.)—especially if there are any new or chronically forgetful individuals. Always prepare and give everyone a relevant safety briefing stressing anything that may apply to the day's activities. Allow people to ask questions about the day's activities just in case you missed anything. Identify daily or weekly goals to accomplish and stress teamwork and flexibility.

Be open and honest with your people. If there is time, explain why things are done a certain way and give everyone an opportunity for feedback or suggestions. By knowing they have a voice and how their work impacts the overall mission, they are more likely to be motivated. One day, they will be supervisors themselves and most likely conduct themselves based off of your supervisory example. Being open also helps everyone work more as a team. For example, if you and SSgt Smith are working on the DV lounge project, but you are unaware of each other's efforts, you could be wasting time accomplishing the same tasks. Combining your efforts would save a lot of time. Many times, supervisors explain only what that one individual needs to know about his or her duties. While this can be beneficial in some circumstances, offering more information about other activities can provide everyone a better perspective, situational awareness, and spike interest in other work center activities. Just be careful not to overwhelm them with too much information. As with anything, there must be balance.

Work crew assignments

You have prepared yourself well for the activities of the day and must assign people to work crews. Again, you have to know what's on the schedule; you must know which equipment is available as well as who is available to perform certain duties required for your mission or shift. Here are some other things you need to keep in mind when assigning your people to work crews.

Know your people

When you assign people to work crews, you have to know your people. What are their strengths and weaknesses? What are their capabilities, abilities, attitudes, and aptitudes? What qualifications and proficiencies do they already possess? What qualifications and proficiencies will they need to possess in the future? How much supervision do they need? Do they work well with others inside and outside the organization?

One of your duties as a supervisor, leader, and mentor will be to develop your subordinates. This means you must assign duties that challenge their skills, knowledge, and performance; however, there must be balance. Do not overwhelm them or place them in unsafe situations—challenge them do not crush them. Assigning them to the same duties each and every day because they are good at them is not challenging and does not develop your work crew. It also does not enhance the flexibility of your work center because the same people are stuck in the same duties, not learning anything new. Knowing your people allows you to train, challenge, and develop them, and it allows your work center more flexibility to operate effectively and efficiently.

Consider safety and security—Always!

Another duty you will have is to protect your resources; including people, aircraft, facilities, and equipment. Safety and security must be your most important concerns when assigning personnel to work crews. Placing Airmen into situations they are unprepared for without any guidance could result in unsafe situations. For example, aircraft load teams usually require at least three people, but if the cargo load requires special loading operations or if one of the load team members is new, place additional team members on the load crew and make sure the load team chief is experienced and able to handle that type of loading operation. “Throwing them to the wolves” or “letting them figure it out on their own” is not an option. Your subordinates need your guidance—it is your job as a supervisor and mentor to create good future aerial porters that can adapt to difficult situations at home station and abroad.

Always use your people efficiently. Too many people on a load team can cause problems as well. For example, the rule for explosive loading operations is to “expose the minimum amount of people to the minimum amount of explosives for the minimum amount of time,” and this principle holds true for almost every aerial port operation. Supervisors should assign only those personnel needed to get the job done and use others efficiently elsewhere. Each situation will be different, and it is up to you to use your people effectively.

Know your work center’s current and future needs

Another important consideration is the needs of the work center. This includes short-term daily needs as well as long-term needs. Do you have a busy training mission schedule the next morning that will require more latrine service truck (LST) drivers? Will you need more people qualified to drive the 60K Tunner loader or the flat bed when your Airmen deploy on the next air and space expeditionary force (AEF) tempo-band cycle? If so, start thinking about training more people now.

Also, ensure your Airmen understand that just because you assign them to a certain work crew in the morning does not mean they cannot be used elsewhere when they complete their duties, or another load team needs help. All Airmen in the work center are expected to help others if they are able and available to do so.

Communicate your expectations to work crews

When assigning people to work crews, communicate to them what you expect and who is filling which role. For example, ensure the members of a load team know who the load team chief is and what is expected of each member of the team. If one member is to receive training on a particular task, ensure the trainer and the trainee both are aware of this expectation. If a member has an appointment in the afternoon and you want a briefing from him or her before leaving, ensure the member is aware of this requirement. No matter what the task or crew you assign them to, you must make them aware of who is filling which role and what you expect from each member. Never assume your personnel automatically know. Likewise, the people under your supervision should feel comfortable enough to communicate their concerns with you. Be sure to encourage open and respectful communication. Open communication is critical in our business. Communicating your expectations will minimize work center confusion and potential safety risks and help create a more effective team.

The number of things to consider when managing your people is as varied as the number of people in your work center. Thinking about and doing these activities will help you lead an efficient and flexible work center.

006. Locate information in transportation publications

To be able to manage, supervise, and perform your job safely and successfully, you must know what you are allowed to do and what you are not allowed to do when working with expensive military aircraft and equipment. This requires knowing which publications govern military airlift and transportation as well as how to find information in them. In the next two lessons, the term *publication* refers to instructions, pamphlets, guides, technical orders (TO), and written documents that govern military airlift and transportation. We will take a look at DOD, Air Force, and AMC transportation publications in this lesson and look at TOs in the next.

It's important to note here that all publications contain a table of contents that help you locate the particular piece of information you are looking for. You should know which publication contains which information and their major parts or volumes, but you can rely on the table of contents to find exactly what you are looking for. You should look there first. Another way to locate information is to open the publication (electronic) and search for your subject using key words. Your supervisor or another knowledgeable person should be able to point you in the right direction if you don't know which publication to look in; however, the more familiar you are with the contents of each publication, the quicker you will be able to locate information contained within them.

Locating information DOD transportation publications

Defense publications govern everyone in the DOD. We will go over three DOD publications: Defense Transportation Regulation (DTR) 4500.9-R, *Defense Transportation Regulation*; Foreign Clearance Guide (FCG); and DOD 4515.13R, *Air Transportation Eligibility*.

DTR 4500.9-R, Defense Transportation Regulation

This DTR 4500.9-R, *Defense Transportation Regulation* is an extensive publication that addresses all aspects of defense transportation for the entire DOD. There are many different ways to get to this publication on the Internet; the way explained here is just one.

1. Step 1: Log into the AF Portal and click "Air Force forms & pubs."
2. Step 2: Under "items of interest" on the right-hand side of the screen, click on "forms, publications, and other publishing sites."
3. Step 3: Under "Department of Defense sites," click on "defense transportation regulations."

From the DTR menu screen, choose which part of the DTR you want and scroll down. The table of contents, the chapters, and the appendices within each part are listed at the bottom of the screen in two versions: PDF and zip format. Chapters in the DTR are numbered according to the part in which they are contained. For example, chapter 103 is in part I and chapter 203 is in part II, and so on.

Part I, Passenger movement

Part I of the DTR includes all things related to military passenger travel. Although we cannot go over each chapter, you should take special note of chapter 103, air movement. Also note that several of the appendices contain important passenger-related codes used in our global air transportation execution system (GATES) and important procedures related to passenger movement. Part I also contains several mandatory forms used in passenger movement.

Part II, Cargo movement

Part II of the DTR includes all things cargo-related, from surface, airlift and water movement, to transportation account codes (TAC) and discrepancy reports. This part also contains numerous appendices that explain the various cargo-related GATES and manual codes used in shipping cargo. Some of the appendices simply reference a website where the codes are updated periodically. This part also contains several forms used in cargo movement.

Part III, Mobility

Part III of the DTR includes all things mobility, including responsibilities of the major players of mobility operations, humanitarian assistance supplies, and how to prepare cargo for rapid mobility movements and joint inspection (JI) procedures. Various forms are illustrated in part III as well.

Part IV, Personal property

Part IV of the DTR includes all things related to personal property. This includes household goods, unaccompanied baggage, privately owned vehicles, and firearms. It also contains various forms and special procedures that apply to personal property.

Part V, DOD customs and border clearance policies and procedures

Part V of the DTR includes everything from US entry requirements, to agricultural cleaning, and inspection requirements. It includes several chapters describing the requirements for each geographical area of the world, from US Pacific Command to US Central Command.

Part VI, Management and control of intermodal containers and system 463L equipment

Part VI of the DTR includes instructions for accounting for, recovering, and using and handling military shipping containers and 463L pallets and nets. It also discusses contingency management of 463L pallets and nets as well as the reporting instructions for those items.

Part VII, Human remains movement

Part VII of the DTR is relatively short compared to the others but no less important. It outlines higher HQ and overall management and responsibilities in shipping human remains.

Foreign clearance guide

This publication can be found at the following website: <https://www.fcg.pentagon.mil>. The FCG establishes standards for requesting and approving DOD foreign clearance requests for aircraft diplomatic clearances and personnel traveling to and from the countries of the world. For example, if a passenger wants to travel to Australia, the FCG will tell you what that person needs to enter the country, including passports, visas, identification, immunizations, and other requirements. It also tells you if the country has any existing travel warnings and any precautions travelers should take. It also provides information concerning coordinating foreign operating rights requests for approval.

The FCG is organized into four chapters, four geographical appendices, and a classified supplement. Chapter 1 describes the purpose of the document and who it applies to. Chapter 2 describes policy and procedures for obtaining DOD aircraft diplomatic clearances, airports of entry (AOE) permission, and operations in international and host nation airspace. Chapter 3 describes policy and procedures for obtaining DOD personnel travel clearances and other requirements for foreign travel. Chapter 4 identifies US government policy and implementing procedures for obtaining foreign operating rights to accomplish DOD actions in foreign countries. The four appendices are listed by geographical area:

- Africa and Southwest Asia,
- Europe,
- North and South America, and
- Pacific, South Asia and Indian Ocean.

The classified supplement is not contained on the public website and must be accessed on an authorized computer system designed for that type of information.

If you are searching for travel requirements, you would choose the particular region you or your passengers are traveling. Once you have selected which region, choose from a list of countries listed on the left side of the screen. Then, you will see the entrance and clearance requirements are divided into four sections:

- General entry requirements.
- Aircraft entrance requirements.
- Personnel entrance requirements for official travel.
- Travel information.

When processing passengers and requesting aircraft clearances, it is important to always check the FCG frequently because political, social, and many other circumstances can change entrance requirements instantly. Allowing people to travel to areas without the proper clearances can result in serious consequences for both you and the passenger.

DOD 4515.13-R, Air Transportation Eligibility

This publication outlines how DOD-owned and-controlled aircraft can be used and who is and is not eligible for DOD air travel. Chapter 1 discusses general requirements such as baggage, animals, and appropriate dress and attire for DOD travel. Chapter 2 discusses eligibility and requirements for space required travelers. Chapters 3–5 discuss public affairs travel, orientation flights, and aeromedical evacuation flights, respectively. Chapter 6 outlines space available travel, including categories and movement priority. Chapters 7–10 discuss cargo movement, funding, special support, and procedures respectively.

To access this publication through the AF Portal, follow the same first two steps listed in the beginning of this lesson. To access DOD 4515.13-R, click on “DOD instructions and directives” and then “DOD publications.” The publications are listed in numerical sequence; scroll down until you see DOD 4515.13-R.

Air Force publications

In addition to DOD publications, you must become familiar with numerous Air Force-level publications as well. There are too many to mention all of them within the context of this CDC, but we will go over some of the more important titles.

To access AF publications through the AF Portal, select the same link illustrated in step one in the beginning of this lesson. Next, under “product index,” you will see two major tabs: “publications” and “forms.” If you wanted to find a form, you would select the “forms” tab, but since we are discussing Air Force publications, you will select that tab. This tab will give you three options: departmental, HQ Air Force, and Air National Guard. Select “departmental.” This will lead you to a menu with the publications functionally grouped. For this lesson, we will first use the Air Force manual (AFMAN) 24-series publications (transportation), then the AFI 11-series publications (flying operations).

Within the 24-series link, find the publication you are looking for by scrolling down and using the forward and back options to navigate between pages.

NOTE: Publications are in alphabetical and then numerical order. AF handbooks (AFH) come before AFIs and AFIs come before AFMANs.

AFMAN 24-204 (Interservice), Preparing Hazardous Materials For Military Air Shipment

This very important publication is an Air Force manual, but it also goes by many other names, which are listed on its front cover. No matter which one you call it, this manual is used by all services (interservice) and applies to all services that ship their hazardous cargo via military air. It provides strict guidance and procedures for preparing all hazardous materials for shipment by military aircraft to ensure that they are packaged, marked, labeled, and prepared properly for transportation.

It includes labeling requirements, instructions for transporting passengers with hazardous materials, and instructions for notifying the aircraft commander regarding hazardous materials on the aircraft.

It contains three basic chapters: (1) General guidance; (2) Deviations, waivers, and special requirements; and (3) Tactical, contingency, or emergency airlift. Chapter 1 discusses, among other things, training requirements, general packaging requirements, damaged and improper shipments, nuclear weapons material, mail shipments, emergency response information, and using commercial airlift. Chapter 2 discusses passenger movement deviations, packaging and compatibility waivers, special permits, approvals, equivalencies, and limited and excepted quantities of hazardous materials. Chapter 3 discusses the special rules we follow when airlifting hazardous materials on contingency or emergency airlift. Due to the nature of the airlift, the shipper or user of the aircraft can break certain and very specific rules under this chapter; however, to do so, they must receive authorization and we, as the air transportation experts, must verify they have the proper authorization to use this chapter.

AFMAN 24-204 (I) also contains 29 critical attachments that outline packaging requirements for each individual hazard class. It also contains step-by-step procedures for preparing hazardous materials for shipment including placarding, marking, labeling, documentation, certification, and inspection—among others. The following table outlines what types of information you can find in the attachments of this manual.

Critical Attachment	Information Found Within
Attachment 1	Glossary of references and supporting information.
Attachment 2	Steps for preparing hazardous material.
Attachment 3	General and hazard class specific air transportation requirements.
Attachment 4	Items listing.
Attachment 5	Class 1—Explosives and ammunition.
Attachment 6	Class 2—Compressed gases.
Attachment 7	Class 3—Flammable liquids.
Attachment 8	Class 4—Flammable solids, spontaneously combustible material, and dangerous when wet material.
Attachment 9	Class 5—Oxidizing materials and organic peroxides.
Attachment 10	Class 6—Toxic (poisonous) materials and infectious substances.
Attachment 11	Class 7—Radioactive materials.
Attachment 12	Class 8—Corrosive materials.
Attachment 13	Class 9—Miscellaneous hazardous materials.
Attachment 14	Marking hazardous materials.
Attachment 15	Labeling hazardous materials.
Attachment 16	Area placarding.
Attachment 17	Certifying hazardous materials.
Attachment 18	Compatibility.
Attachment 19	Excepted and limited quantities.
Attachment 20	Absorbent cushioning requirements.
Attachment 21	Briefing agency requirements.
Attachment 22	Passenger movement on aircraft transporting hazardous materials.
Attachment 23	Use of contract air carriers.
Attachment 24	Special cargo requirements.
Attachment 25	Hazardous materials initial and refresher training.
Attachment 26	Table of equivalents and net quantity of gas conversion formula.
Attachment 27	Preparing explosives packaged prior to January 1990.
Attachment 28	Inspection procedures.

Critical Attachment	Information Found Within
Attachment 29	Subject index.

When using this manual for a specific piece of cargo, be sure to check each chapter and any applicable attachments for complete information concerning that hazard since they frequently reference requirements between each other.

AFI 11-2C-XXX, Operations Configuration/Mission Planning, series publications

The XXX in these publications represents the aircraft number. For example, the AFI for the C-130 Hercules is AFI-11-2C-130; the C-17 Globemaster is AFI-11-2C-17, and so on. These publications establish basic cargo compartment configurations and characteristics, standard equipment, and the location of that equipment on the aircraft. It is important to have an exact idea of each configuration to prevent delays in downloading or uploading the aircraft. Some configurations are time consuming to de-or re-configure, so knowing in advance what type of configuration an aircraft is in and planning any necessary reconfigurations ahead of time will prevent problems and/or delays. These publications also help load planning personnel prepare load plans, calculate the weight and balance of each aircraft, and label their load plans with proper configurations accordingly to let the other aerial port work centers know what will happen with the aircraft. The following table is an excerpt from AFI 11-2C-17, showing some parts of basic configuration codes.

Code	Definition
ADC	Airdrop cargo.
ADP	Airdrop passengers.
AE	Aeromedical evacuation.
C	Cargo.
CDS	Container delivery system.
DV	VIP support flights.
P	Passengers.
SD	Static display.

To illustrate this even further, figure 1-6 is an excerpt from Chapter 3 of AFI-11-2C-130, showing the CP-1 configuration of a C-130 Hercules aircraft.

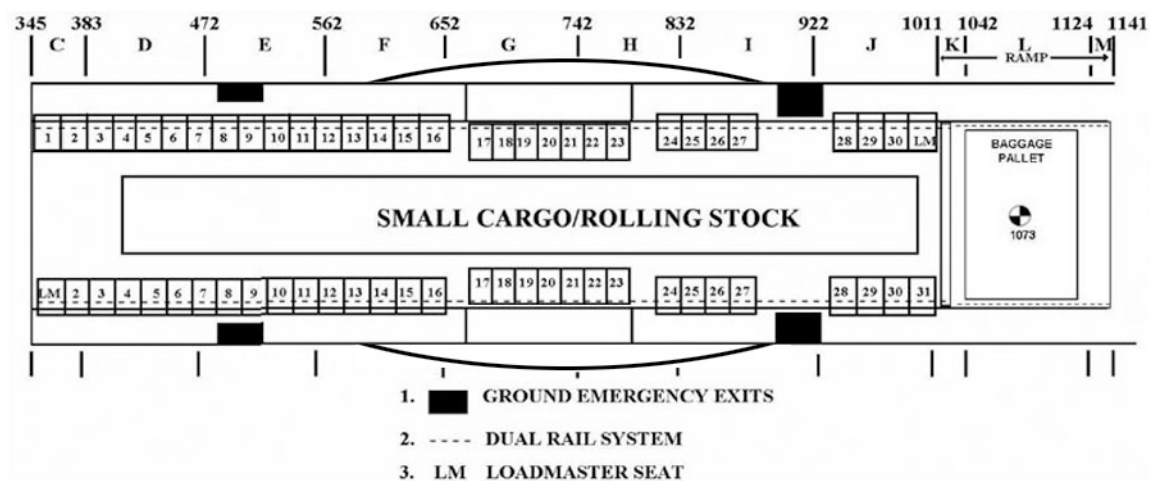


Figure 1-6. C130 CP-1 configuration.

AMC publications

If you are in a unit outside of AMC, you may or may not use the AMC publications discussed in this lesson; however, it is a crucial to have general knowledge of them and where they are located. Some AFIs will refer you to these AMC publications anyway. If you are in a unit within AMC, get to know these publications very well. There are many publications you will be required to know, but we will discuss only a few of them here.

AMCI 24-101, Military Airlift and Fleet Service

AMC instruction (AMCI) 24-101 is an extensive publication with volumes that cover all aspects of AMC air transportation. Let's go over how to find the volumes and what each volume contains.

To access the AMCIs, log on to the AF Portal and select "Air Force forms and publications." From there, instead of choosing "Air Force" and "departmental" from the list, you will want to look under the "Major Commands" (MAJCOM) section for AMC and select that. Again, AMCI 24-101 is a 24-series (transportation) publication, so locate and select that series on the next screen.

Each volume in AMCI 24-101 is listed separately and is not necessarily in order of the volume number, so be mindful when searching for a publication on the AF publishing website. For example, volumes that begin with "1" and "2" such as "10" and "22" will be listed before volumes 4 and 5.

The following table is a list of volumes this AMCI series contains. It is important for you to know which volume to use if you need to find guidance on a particular subject. Some volumes numbers are skipped or not currently in use and, therefore, not listed in this table.

Volume Number	Title/Area Covered/Brief Description
1	Military airlift transportation (an overview of the entire regulation and procedures for requesting waivers and changes).
4	Air transportation systems management (responsibilities of using and managing GATES and other transportation systems and technologies).
5	Air transportation readiness and resources.
6	Transportation documentation, data, records, and reports.
7	AMC aerial port expeditor (APEX) aircraft loading program.
9	Air terminal operations center.
10	Fleet services.
11	Cargo and mail policy and engine running on/offload (ERO) and load team chief checklists.
14	Passenger services.
16	Border clearance.
18	AMC mobilized aerial port forces and aerial delivery flights.
20	Air transportation standardization evaluation (ATSEV) quality assurance.
22	Training requirements for aerial port operations.

AMCPAM 24-2, Civil reserve air fleet load planning guide

This AMC pamphlet (AMCPAM) is numbered up to volume 18 and contains very detailed information on how to load plan cargo for various commercial aircraft. It is similar to the 11-series AFIs we talked about in the last lesson and similar to the aircraft-specific TOs we will discuss in the next lesson; they describe precise aircraft specifications and provide information necessary to safely plan and prepare loads for these aircraft.

007. Locate information in technical orders

So far, we have covered numerous types of publications you must become familiar with to accomplish your job; from DOD, to Air Force, to AMC publications, but that is not all. There is a whole host of technical equipment we use that has its own set of instructions. Failure to adhere to those instructions can result in loss of that equipment, or worse—loss of life. These instructions are called TOs. Let's take a look at these publications.

Technical order general information

A TO is a technical manual or document that contains operational or maintenance instructions, parts lists, and other related technical information. A TO also contains procedures for a weapon system or component, support equipment, or other DOD-procured items. A TO is a military order in which anyone with technical responsibility for a piece of equipment must follow or be subject to Uniformed Code of Military Justice (UCMJ) action. This means if you drive a 60K Tunner loader, you must follow the instructions provided in the TO. For example, before operating a K-loader, you must review the TO to make sure you are operating it within the latest prescribed specifications. It is critical that you use the most up-to-date TO for your equipment. Think of TOs as the military version of installation or assembly instructions.

Since TOs contain technical and/or scientific data about a particular piece of equipment, system, or aircraft, they cannot be posted freely on the AF Portal like other publications. Instead, your unit should have a representative called a TO distribution office (TODO) manager that manages your unit's TO library, receives necessary updates, and controls distribution of the materials. You should contact your TODO manager first to obtain TOs you need and their updates.

Types of technical orders

There are several different types and versions of TOs, but we will only talk about three in this CDC: index TOs; general, methods, and procedures TOs; and operations and maintenance TOs.

Index technical orders

An index TO shows the status of all TOs, provides a way to identify TOs that you need, and organizes TOs by equipment type. These types of TOs start with the number "0" (zero). The Air Force TO Catalog is an example of an index TO with which you should become familiar. It is located at the following website: <https://www.my.af.mil/gcss-af61/ETIMS/ETIMS/menu/index.jsp>. The AF TO catalog is actually a web-based database that contains a numerical listing of all TOs *except* nuclear weapon and explosives ordnance disposal (EOD) TOs. It also contains data about the TO, such as current revision, active updates, and TO manager information. It is used to identify TO requirements and to help units maintain currency of the TOs in their libraries. The catalog includes a separate function to identify new, updated, and rescinded TOs, and a function to cross-reference to equipment by part number or nomenclature; however, you cannot access most of the TOs through this website.

You may ask what the value of this catalog is if you cannot fully access the TO you need. You can access some methods and procedures TOs and index TOs from this site with full access. The real benefit of this site is being able to search for a TO and verify you have the most current version or if there have been any changes or supplements. That way you know you are working with the most up-to-date information.

General methods and procedures technical orders

General TOs apply to more than one aircraft, missile, engine, or equipment system within a category. Methods and procedures TOs (MPTO), which start with the numbers "00," don't apply to any specific system but apply to generalized methods and procedures for various activities. Any TO that involves instructions, methods, and procedures for the ground handling of air and space vehicles is considered this type of TO. Also, general maintenance practices, management of precision measurement equipment, and the safe use of Air Force equipment also fall into this category.

Operations and maintenance technical orders

Operations and maintenance TOs are mostly what you will be working with, especially concerning equipment and aircraft TOs. They cover installation, operation, troubleshooting, repairing, removing, calibration, servicing, or handling of Air Force military systems, including aircraft systems and equipment systems. These TOs are numbered according to which category they fall under. Figure 1-7 shows the listing of major categories of TOs and how they are numbered.

1.6.2 TO Categories. TOs are grouped numerically by type of equipment covered by the TO Category.

0	TO Catalog, Indexes and Cross-Reference Table
00	Methods & Procedures Technical Orders
1	Aircraft
2	Airborne Engines and Associated Equipment
3	Aircraft Propellers and Rotors
4	Aircraft Landing Gear
5	Airborne Instruments
6	Aircraft and Missile Fuel Systems
7	Airborne Engine Lubricating Systems
8	Airborne Electrical Systems
9	Aircraft and Missile Hydraulic, Pneumatic and Vacuum Systems
10	Photographic Equipment
11	Armament Equipment
12	Airborne Electronic Equipment
13	Aircraft Furnishings and In-Flight Feeding Equipment, Cargo Loading, Aerial Delivery and Recovery Equipment, Aircraft Fire Detection and Extinguishing Equipment
14	Deceleration Devices, Personal and Survival Equipment
15	Aircraft and Missile Temperature Control, Pressurizing, Air Conditioning, Heating, Ice Eliminating and Oxygen Equipment
16	Airborne Mechanical Equipment
21	Guided Missiles
22	Aerospace Vehicles
31	Ground Electronic Equipment
32	Standard and Special Tools
33	Test Equipment
34	Shop Machinery and Shop Support Equipment
35	Ground Handling, Support, Air and Missile Base Operating Equipment
36	Vehicles, Construction and Material-Handling Equipment
37	Fuel-, Oil- and Propellant-Handling Equipment
38	Non-aeronautical Engines
39	Watercraft Equipment
40	Commercial Air-Conditioning, Heating, Plumbing, Refrigerating, Ventilating and Water Treating Equipment
41	Subsistence and Food Service Equipment
42	Coating, Cleaning and Sealing Compounds and Fuels, Gases, Lubricants, Chemicals and Materials
43	Simulator and Training Devices
44	Common Hardware Equipment
45	Railroad Equipment
46	Office, Duplicating, Printing and Binding Equipment
47	Agriculture Equipment
49	Optical Instruments, Timekeeping and Navigational Equipment
50	Special Services Equipment
51	Automatic Test Systems
60	Explosive Ordnance Disposal Procedures

Figure 1-7. Major TO categories.

Numbering technical orders

As you can see, aircraft TOs start with the number one (1); cargo loading, aerial delivery and recovery equipment start with number 13; ground handling, support, air and missile base operating equipment start with the number 35; and vehicles, construction, and material-handling equipment start with the number 36. These series of TOs are the most common you will be working with. So far, the numbering system seems pretty easy, but it's a little more complicated after that. Each series has its own way of numbering; therefore, the aircraft TOs will not be numbered the same way as vehicle TOs.

Aircraft technical orders

Aircraft TO numbers are relatively simple compared to equipment TO numbers. We will use the following TO number to illustrate aircraft TOs. The same basic type of construction is used for all aircraft.

Aircraft TO Reference: "1C-17A-9"	
Number	Meaning
1	Aircraft TO.
C	Cargo transport aircraft.
17	Model number of aircraft.
A	Production series of aircraft (this is the first C-17 version ever produced; if they produce more versions, the production series will be "B," "C," and so on).
9	Type of TO; -9 signifies the cargo loading TO; we also use the -5, which is the basic weight checklist and loading data TO.

Other technical orders

There are thousands of pieces of equipment in the Air Force inventory, each with its own TO. It would be extremely time-consuming to break the TO numbers down within the context of this CDC. Instead, we will discuss some of the most common categories of TOs you will use and give an initial breakdown of just a few of the numbers.

The 13-series TOs cover aircraft furnishings and in-flight feeding equipment, cargo loading, aerial delivery and recovery equipment, aircraft fire detection, and extinguishing equipment. Here are just a few of the TO series numbers you may use that are covered under that category.

TO Category	What It Covers
13C3	Aerial delivery systems -2 monorail -3 center guide rail -4 dual rail
13C4	Aerial delivery containers.
13C5	Aerial delivery parachutes.
13C6	Parachute and cargo dischargers.
13C7	Aerial delivery kits -1 rigging -2 truck

The 35-series TO numbers cover ground handling, support, and air and missile base operating equipment. The following table is a sample outline of some of the most applicable equipment to your specialty.

TO Category and Subcategories			What it Covers
35A			Aircraft, missile maintenance and inspection equipment.
	35A3		Ladders and staircases.
35B			Aircraft, missile handling and weighing equipment (such as scales and pry bars).
35D			Aircraft and missile loading and service equipment.
	35D2		Conveyors.
	35D3	-17	Trucks, dollies and trailers (-17 signifies lavatory service trucks).
	35D33	-2	Pallets (-2 signifies air cargo pallets).

The 36-series TO numbers cover vehicles, construction and MHE. The following table is a sample outline of some of the most applicable equipment to your specialty.

TO Category and Subcategories			What it Covers
36M			MHE.
	36M2		Lifts.
		-2	Fork lifts.
		-3	Platform lifts (such as the 25K Halvorsen or the 60K Tunner loaders).

Take note of how the numbers are broken down into logical categories for all the TOs. With each breakdown, the equipment becomes more and more specific. The TO numbers would then be broken down further, depending on the type or model of the piece of equipment.

Take the following TO as an example: 36M2-3-45. We have already established that 36M2 is some type of MHE lift. We then established that it is a type of platform lift. The number “45” signifies that this TO number is for the 25K Halvorsen Loader. If it were a “35,” that would be the TO for the 60K Tunner Loader.

Now that we know a little bit about TOs, let’s go over how to find information inside of them.

Within technical orders

Aircraft TOs contain the same sections of information. Of course, the information they contain are specific to one particular aircraft so the wording and details may be slightly different. The following table explains how the aircraft -9 TOs are generally organized.

Section Number	Section Title	Contents
I	Introduction	This section presents the purpose, scope, use, arrangement, references, and identification of the manual.
II	Description of aircraft features	This section presents a general description of the cargo compartment, including profile and cross sections, its loading capabilities, entrances and exits, cargo floor and ramp, ramp toes, tie-down fittings, seat and litter provisions, cargo loading aids, and stowage provisions for all cargo loading aids and tie down equipment.
III	Aircraft configuration	This section presents aircraft preparation instructions with respect to aircraft cargo loading, airdrop provisions, and personnel equipment.
IV	General procedures	This section is divided into subsections, which usually include specific information and procedures for load planning, loading methods and restraint, winching procedures, charts and graphs, and on/offloading procedures.
V	Emergency procedures	This section describes all ground preparations required for cargo emergency procedures.

Section Number	Section Title	Contents
VI	Specific procedures	This section is usually divided into subsections, which usually consist of specific and detailed instructions for loading aircraft, heavy equipment, helicopters, materials handling equipment, missiles, and miscellaneous equipment. Each of the subsections gives the on/offloading procedures for cargo items, which cannot be classified as general cargo due to physical characteristics. Procedures in this section have <i>precedence</i> over instructions in section IV.
VII	Airdrop procedures	This section, if the particular aircraft is capable of airdrop, is divided into subsections usually consisting of airdrop procedures, airdrop of personnel, heavy equipment airdrop systems, container delivery systems, dual row airdrop systems, and miscellaneous airdrop systems. It presents the instructions that relate to the ground procedures required for airdrop of personnel and equipment and includes step-by-step requirements and procedures for rigging items and personnel for airdrop.

Equipment and vehicle TOs vary in how they are organized. Each individual piece of equipment has unique characteristics that cannot be generalized easily in the context of this CDC; however, you can expect to find a general description and detailed specifications along with capabilities of each piece of equipment, operating instructions, and maintenance and care instructions. It may include assembly and disassembly procedures, handling and storage procedures, cleaning, inspection, and disposition instructions; overhaul procedures; and an illustrated parts list. Everything you need to inspect, operate, handle, and store that piece of equipment is contained within a TO.

Self-Test Questions

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

003. Hazards and general safety practices of the 2T2 specialty

1. What is the purpose of the Air Force Consolidated Occupational Safety Program?
2. Mark with an "X" your responsibilities to provide a safe and healthy work environment for everyone.
 - ___1. Comply with Air Force Consolidated Occupational Safety Program guidance.
 - ___2. Promptly report any injuries and illnesses to your supervisor.
 - ___3. Promptly report safety, fire, and health hazards and deficiencies.
 - ___4. Comply with PPE requirements that apply to your work situation.
 - ___5. Request safety and health inspections directly from the wing safety office.
 - ___6. Promptly loan your PPE to your coworkers when they lost or forgot theirs.
 - ___7. Update Air Force Consolidated Occupational Safety Program guidance each quarter or when a category 1 mishap occurs.
 - ___8. Give due consideration to your personal safety and to fellow workers' safety.
3. What are some of your rights concerning the Air Force Consolidated Occupational Safety Program?
4. What things should you be mindful of when working around conveyor belts or other moving parts and machinery?

5. What type of jewelry is acceptable to wear in an industrial work area?
6. If you do not use your legs to lift an item manually, what type of injuries can occur?
7. Which PPE should you be wearing when lifting an item manually, to protect yourself from slivers, sharp edges, pinch point, and rough or slippery surfaces?
8. Which type of shower and eyewash units provide the best emergency protection?
9. When are handheld drench hoses most beneficial to use?
10. What should you be mindful of when driving on or near the loading docks?
11. When operating the highline dock rollers, what should you do before rolling pallets or other cargo?
12. What is one reason why you *must* eliminate your own poor and unsafe work practices?
13. What can you do to prevent ergonomic-related problems?
14. List three ways to keep your work center clean and well maintained.
15. Which office items are not acceptable ladder substitutes?

16. Mark with an "X" your responsibilities under the mishap prevention program.
- ☐ 1. Use protective clothing or equipment when required.
 - ☐ 2. Eliminate the hazard completely before you have to deal with it.
 - ☐ 3. Report any job-related injury or illness affecting your performance.
 - ☐ 4. Brief ORM guidance to your chain of command when a mishap occurs.
 - ☐ 5. Use ORM to identify, reduce, or eliminate risk in on-duty activities *only*.
 - ☐ 6. Report any suspected or actual exposure to chemicals or hazardous materials.
 - ☐ 7. Comply with standards, instructions, job guides, TOs, and operating procedures.
17. RM is a continuous process designed to do what?
18. List the steps of RM in order.
19. During which type of event or condition can you submit a hazard report?
20. When a hazard *cannot* be eliminated immediately, how can you report it?
21. Within how many days *must* the safety office respond to a hazard report?
22. Safety inspections help do what?
23. What are the two ways your mental and physical health can affect you?
24. What can you do to eliminate or minimize hazards caused by your mental and physical health?
25. You can be held financially or otherwise responsible for the loss, damage, or destruction of Air Force property caused directly or indirectly by what?
26. Reporting a mishap as soon as possible demonstrates what?

004. Flight line safety

1. What three things are the *primary* sources of aircraft damage and personal injury?

2. Which form gives you authorization to enter the flight line?

3. What type of documentation will flight line vehicle operators possess?

4. Why is FOD a concern?

5. Match the speed limit in B with the flight line area or vehicle type in column A. Answers in column B may be used once, more than once, or not at all.

<i>Column A</i>	<i>Column B</i>
____ (1) Taxiways and inactive runways.	a. 5 mph.
____ (2) Aircraft parking ramp.	b. 10 mph.
____ (3) General purpose vehicles.	c. 15 mph.
____ (4) Circle of safety.	d. 25 mph.
____ (5) Special purpose vehicles.	e. As designated by installation commander.
____ (6) Vehicle parking areas.	

6. When driving a vehicle, which side *must* always be toward the aircraft?

7. When you are driving on the aircraft ramp and spot an approaching taxiing aircraft and follow-me guide, who has the right of way?

8. Describe how to leave a vehicle parked unattended on the flight line.

9. Do *not* operate any vehicle on the flight line if visibility is *less* than how many feet?

10. Match the action in column B with the control tower signals in column A.

<i>Column A</i>	<i>Column B</i>
___ (1) Steady green light.	a. Clear active runway.
___ (2) Steady red light.	b. Return to starting point.
___ (3) Flashing red light.	c. Clear to cross.
___ (4) Flashing white light.	d. STOP! Vehicle will not be moved.
___ (5) Red and green light.	e. General warning. Exercise extreme caution.

11. If your vehicle malfunctions on the flight line during hours of darkness or inclement weather, why must you leave your parking lights or emergency flashers on?

12. When is the *only* time you are authorized to take pictures or videos on the flight line?

005. Supervision

1. Mark with an “X” actions you should accomplish that will help you plan and schedule work assignments and priorities.

- ___1. Survey your equipment and personnel resources.
- ___2. Get a good shift briefing from the outgoing shift.
- ___3. Check your email, phone messages, and work center mailbox.
- ___4. Get a shift briefing from the Air Terminal Operations Center (ATOC) personnel.
- ___5. Review aircraft and truck schedules, mission remarks, and work center shift logs.
- ___6. No actions are required; the outgoing shift will assign and prioritize as necessary.

2. Why should facilities and outdoor areas be kept clean?

3. During the shift or crew briefing, what should you verify before taking any action?

4. Which specific briefing should you give your people within your shift or crew briefing?

5. List four things to keep in mind when assigning people to work crews.

6. If you know your people, what types of questions should you know the answers to when assigning them to work crews?

7. What are your *most* important concerns when assigning personnel to work crews?

8. Communicating your expectations to your work crews or subordinates will do what?

006. Locate information in transportation publications

1. Match each part of the DTR in column B with its description in column A. Items in column B may be used once, more than once, or not at all.

<i>Column A</i>	<i>Column B</i>
___ (1) Mobility.	a. Part I.
___ (2) Human remains.	b. Part II.
___ (3) Cargo movement.	c. Part III.
___ (4) Personal property.	d. Part IV.
___ (5) Passenger movement.	e. Part V.
___ (6) Contains joint inspection procedures.	f. Part VI.
___ (7) DOD Customs and Border Clearance Policies and Procedures.	g. Part VII.
___ (8) Contains appendices that explain the codes used in GATES to ship cargo.	
___ (9) Contains appendices of important passenger-related codes used in GATES.	
___ (10) Management and control of intermodal containers and system 463L equipment.	

2. In which part of the DTR would you find Chapter 302?
3. In which DOD publication would you look if you wanted to find the requirements for personnel travel clearances?
4. In which chapter of the FCG would you look to find out how to obtain aircraft diplomatic clearances?
5. In which chapter of the FCG would you look to find out how to obtain DOD personnel travel clearances?
6. How are the four appendices of the FCG organized? Name each appendix.
7. Once you have selected the region and country you are looking for in the FCG, into what four sections is it divided?
8. What does DOD 4515.13-R outline?

9. If you had 10 space required passengers and two space-available passengers on a flight, in what chapter(s) of DOD 4515.13-R would you look to find out if they are eligible for DOD air travel?
10. In which chapter of DOD 4515.13-R would you look to find information about appropriate dress and attire for DOD travel?
11. If you wanted to locate an Air Force 24-series publication, once you clicked on the "Publications" tab within AF Forms and Pubs, what do you click on next?
12. Which Air Force publication provides guidance and procedures for preparing hazardous materials for shipment by military aircraft to ensure they are packaged, marked, labeled, and prepared properly for transportation?
13. AFMAN 24-204(I) contains how many chapters and what are they?
14. Your supervisor has asked you to locate information in AFMAN 24-204(I) about passenger movement deviations? In which chapter would you look?
15. You are in-checking hazardous materials and want to find out if they are compatible. In which publication would you look? Name the publication and chapter/attachment within it.
16. Another Airman in your work center is looking for the attachment in AFMAN 24-204 for area placarding. To what attachment would you refer her?
17. What do the AFI 11-series publications establish?
18. Under which regulation series number would you look to find Air Force or AMC transportation information?
19. In which volume of AMCI 24-101 would you look to find information about cargo and mail policy?

20. You are working in the passenger terminal and want information about how to make terminal announcements. In which volume of the AMCI should you look?
21. Which AMC publication contains information on how to load plan various commercial aircraft?

007. Locate information in technical orders

1. What is a TO?
2. Why can't TOs be posted freely on the AF Portal like other publications?
3. If you want to distribute a particular TO to your work center, who should you contact?
4. Which type of TO applies to more than one aircraft or equipment system within a category?
5. Using TO number 1C-5B-5, what aircraft does it cover and what type of TO is it?
6. If you wanted to find cargo loading information for the C-17 Globemaster, in which TO would you look?
7. What type of equipment is covered by the 35-series TO?
8. If you wanted to locate a TO for a piece of MHE, to which TO series would you refer?
9. If you wanted to find winching procedures on a C-5 Galaxy, in which section of the -9 would you look?
10. Your supervisor wants you to research how to load a specific type of helicopter on a C-17 Globemaster. In which section of the -9 would you look?

11. In the -9, which section has precedence over the general loading procedures in section IV?
12. Which section of 1C-130J-9 would you look in to find airdrop procedures?
13. Which type of information can you expect to find in an equipment and vehicle TO?

Answers to Self-Test Questions

001

1. Ramp operations duties.
2. Passenger service duties.
3. Ramp controller duties.
4. Load planning duties.
5. Air transportation quality and reliability.
6. ATSEV staff.
7. Evaluation and analysis of deficiencies and problem areas.
8. HQ AMC/A4TR.
9. 1, 2, 4, 5, 6, 7, 8, 9.
10. Four specialties: Air Transportation, Traffic Management, Vehicle Operations, and Vehicle Management.
11. Traffic Management.
12. Vehicle Operations.
13. Vehicle Management.

002

1. The movement of personnel, units, supplies, and equipment to reinforce or resupply already deployed or employed forces.
2. MSC, SDDC, and AMC.
3. (1) c.
(2) d.
(3) d.
(4) a.
(5) d.
(6) b.
4. AMC's strategic air operations hub for planning, directing, scheduling, and tracking tanker and transport aircraft operations worldwide.
5. Serves as an en route station or in-transit hub for cargo and passenger movement to specified regions.
6. The NAMS.
7. The timely movement, positioning, and sustainment of military forces and capabilities across the range of military operations.
8. Intertheater (strategic), intratheater (tactical), and organic.
9. A geographical area outside the CONUS for which a commander has been assigned military responsibility.
10. Intertheater links theaters to the CONUS or links two different regional theaters; intratheater airlift occurs within one geographical theater.

11. An air terminal located on a prepared airfield that has been designated for the sustained movement of cargo and passengers.
12. A station that serves as an authorized port to process and clear aircraft and traffic for entrance into the country in which it's located.
13. A station that serves as an authorized port to process and clear aircraft and traffic for departure from the country in which it's located.
14. Because they can be found or built closer to the forces that need the supplies.
15. Airland and airdrop.
16. Airland.
17. Airland.
18. Airdrop.
19. Parachute rigging and cushioning material takes up weight and space on the aircraft and reduces the amount of personnel and supplies the aircraft can deliver.
20. Geographical or functional.
21. Specified command.
22. Unified command. USTRANSCOM.
23. Joint task force (JTF).
24. Because it clarifies and simplifies command lines.
25. Functional component.
26. Joint operations, multinational, and other types of operations.
27. Parallel command, lead-nation command, and combination command.
28. Foster communication and professional relationships, know where your unit falls within the multinational command, and know the role you play.
30. To augment DOD's airlift capability in time of war or during a President-declared emergency.
31. (1) b.
(2) a.
(3) c.
(4) c.
(5) a.
(6) b.
32. The USTRANSCOM commander, through the SECDEF.
33. (1) a.
(2) b.
(3) c.
(4) a.
34. 1-inch couplers.
35. 94 inches.
36. AN-124.

003

1. To minimize loss of Air Force resources and to protect Air Force members from occupational deaths, injuries, or illnesses by managing risks.
2. 1, 2, 3, 4, 8.
3. To work in safe and healthful conditions; to request safety and health inspections; and the right to have access to safety information and your own medical records.
4. Bulky uniform items with cords and strings, such as cold weather gear, web belts and load-bearing equipment, and even your chemical and/or biological protection suit and mask.
5. No jewelry is acceptable.
6. Back injuries.

7. Gloves.
8. Permanently installed.
9. When you are in an awkward position to reach parts of your face or body that are inaccessible to the fixed stream of the shower or eyewash.
10. Where you are in relation to the edge of the dock.
11. Make sure no one is on the docks.
12. Because new people learn work habits by observing you and you should set a good example.
13. Use proper posture when working at computer stations—sit up straight and adjust the chair to a comfortable height. Take breaks to stretch the muscles that are being used.
14. Choose from three of the following: (1) clean up spills or dirty areas immediately; (2) repair or report cracks or holes, protruding nails, broken surface materials, slippery finishes, or uneven surfaces; (3) replace light bulbs as needed to keep areas safely lit; (4) keep stairways clear at all times; do not store or throw anything on steps or in stairways.
15. Furniture, cardboard boxes, upturned trash bins, and office chairs.
16. 1, 3, 6, 7.
17. Detect, assess, and control risk while enhancing performance and maximizing combat capabilities.
18.
 - (1) Identify hazard.
 - (2) Assess hazards.
 - (3) Develop controls and make decisions.
 - (4) Implement controls.
 - (5) Supervise and evaluate.
19. Any event or condition that affects flight, ground, or weapons safety.
20. By using an AF IMT 457, USAF Hazard Report (HR), by telephone, or in person.
21. 10 working days.
22. Identify hazards and measure compliance with safety program requirements.
23. By your commission (what you do) or by your omission (what you fail to do).
24. Keep your personal affairs in order, keep yourself mentally and physically healthy, and ask for help before things get out of hand.
25. Your negligence, willful misconduct, or deliberate unauthorized use.
26. Your integrity, good will, and cooperation.

004

1. Carelessness, haste, and disregard of existing safety standards.
2. AF Form 1199, USAF Restricted Area Badge.
3. Carry a valid state driver's license; your AF Form 2293, USAF Motor Vehicle Operator Identification Card; and an AF IMT 483, Certificate of Competency, endorsed for flight line driving.
4. Could get sucked into an aircraft engine and cause damage.
5.
 - (1) e.
 - (2) c.
 - (3) c.
 - (4) a.
 - (5) b.
 - (6) a.
6. Driver's side.
7. The aircraft and its follow-me guide.
8. So they will not interfere with aircraft being towed or taxied. Leaving the keys in the ignition and the vehicle unlocked, turn off the vehicle and place it in reverse if it has a manual transmission and in park if it has an automatic transmission. Set the brakes on all parked vehicles and place your chocks.
9. 100 feet.

10. (1) c.
(2) d.
(3) a.
(4) b.
(5) e.
11. To alert nearby aircraft and ground vehicles of your position.
12. When you receive special permission, in writing, from the airfield manager.

005

1. 1, 2, 3, 5.
2. To maintain safety, order, and efficiency; show pride; and foster good morale.
3. Take roll and verify appointments; verify everyone has all required safety equipment and driving and flight line documents.
4. Safety briefing, stressing anything that may apply to the day's activities.
5. (1) Know your people.
(2) Consider safety and security.
(3) Know what the work center needs.
(4) Communicate your expectations to your work crews.
6. What are their existing strengths, weaknesses, capabilities, abilities, attitudes, aptitudes, qualifications, and proficiencies? What qualifications and proficiencies will they need to possess in the future? How much supervision do they need? Do they work well with others?
7. Safety and security.
8. Minimize work center confusion and potential safety risks, and help create a more effective team.

006

1. (1) c.
(2) g.
(3) b.
(4) d.
(5) a.
(6) c.
(7) e.
(8) b.
(9) a.
(10) f.
2. Part III.
3. DOD 4500.54-M, *Foreign Clearance Manual*.
4. Chapter 2.
5. Chapter 3.
6. By geographical area: (1) Africa and Southwest Asia, (2) Europe, (3) North and South America, and (4) Pacific, South Asia and Indian Ocean.
7. (1) General Entry Requirements.
(2) Aircraft Entrance Requirements.
(3) Personnel Entrance Requirements for Official Travel.
(4) Travel Information.
8. How DOD-owned and -controlled aircraft can be used and who is and who is not eligible for DOD air travel.
9. Chapters 2 and 6.
10. Chapter 1.
11. "Departmental."

12. AFMAN 24-204(I), Preparing Hazardous Materials for Military Air Shipment.
13. Three: (1) General Guidance; (2) Deviations, Waivers, and Special Requirements; and (3) Tactical, Contingency, or Emergency Airlift.
14. Chapter 2.
15. AFMAN 24-204(I); attachment 18.
16. Attachment 16.
17. Basic cargo compartment configurations, standard equipment, and the location of that equipment on the aircraft.
18. 24-series.
19. Volume 11.
20. Volume 14.
21. AMCPAM 24-2, *Civil Reserve Air Fleet Load Planning Guide*.

007

1. A technical manual or document that contains operational or maintenance instructions, parts lists, and other related technical information.
2. Because they contain technical and/or scientific data about a particular piece of equipment, system, or aircraft.
3. The unit TODO.
4. General TO.
5. Basic weight and checklist TO for the C-5B.
6. 1C-17A-9.
7. Ground handling, support, and air and missile base operating equipment.
8. 36-series.
9. Section IV.
10. Section VI.
11. Section VI.
12. Section VII.
13. General description and detailed specifications; capabilities of each piece of equipment; operating instructions; maintenance and care instructions, which may include assembly and disassembly procedures, handling and storage procedures, cleaning, inspection, and disposition instructions; overhaul procedures; and an illustrated parts list.

Complete 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) If you are setting up cargo and mail for loading, which function are you performing?
 - a. Air Freight.
 - b. Fleet Service.
 - c. Ramp Operations.
 - d. Passenger Service.
2. (001) If you are a part of the traffic management specialty in the transportation career field, which duties would you perform?
 - a. Ensuring maximum utilization and providing oversight to all other work centers.
 - b. Packaging, classifying, and arranging personal property for shipment or storage.
 - c. Managing the inspection and repair of the vehicle and equipment fleet.
 - d. Organizing vehicle transportation to support operational missions.
3. (001) If you are a part of the vehicle management specialty within the transportation career field, which duties would you perform?
 - a. Managing airlift space assignments, opportune airlift, and explosive cargo requirements.
 - b. Managing inspection, diagnostics, repair, modification, and refinishing requirements.
 - c. Managing space allocations for all aircraft, vehicles, and equipment in the inventory.
 - d. Managing personal security details and operating light- and heavy-duty vehicles.
4. (002) Which term refers to the movement of personnel, units, supplies, and equipment to reinforce or resupply already deployed or employed forces?
 - a. Deployment.
 - b. Sustainment.
 - c. Employment.
 - d. Redeployment.
5. (002) Which term refers to the movement of personnel, units, supplies, and equipment from deployed positions within or between areas of responsibility?
 - a. Deployment.
 - b. Sustainment.
 - c. Employment.
 - d. Redeployment.
6. (002) Which command provides common-user and commercial air, land, and sea transportation?
 - a. Air Mobility Command (AMC).
 - b. Military Sealift Command (MSC).
 - c. US Transportation Command (USTRANSCOM).
 - d. Surface Deployment and Distribution Command (SDDC).
7. (002) Which command is *not* a component of the US Transportation Command (USTRANSCOM)?
 - a. Air Mobility Command (AMC).
 - b. Military Sealift Command (MSC).
 - c. Military Traffic and Airlift Command (MTAC).
 - d. Surface Deployment and Distribution Command (SDDC).

8. (002) Which agency serves as Air Mobility Command's (AMC) strategic air operations hub and plans, directs, schedules, and tracks aircraft operations worldwide?
 - a. Wing Operations Center (WOC).
 - b. Wing Airlift Control Center (WACC).
 - c. Tanker Airlift Control Center (TACC).
 - d. Aerial Port Operations Center (APOC).
9. (002) Through which system does the Air Force provide rapid global mobility to the Defense Transportation System (DTS)?
 - a. Sustainment Mobility System (SMS).
 - b. National Air Mobility System (NAMS).
 - c. Mobility Traffic Management System (MTMS).
 - d. Global Deployment and Mobility System (GDMS).
10. (002) Which method of airlift permits delivery of larger loads with less risk?
 - a. Airland.
 - b. Airdrop.
 - c. Rapid reload.
 - d. Combat offload.
11. (002) The coordinated use, synchronization, and sharing of two or more military departments' logistics forces is called joint
 - a. forces.
 - b. mission.
 - c. logistics.
 - d. command.
12. (002) Joint forces can be organized on which basis?
 - a. Symmetrical or logical.
 - b. Geographical or logical.
 - c. Symmetrical or functional.
 - d. Geographical or functional.
13. (002) Which type of command requires the capabilities of two or more military departments?
 - a. Unified.
 - b. Service.
 - c. Mobility.
 - d. Specified.
14. (002) Which type of organization is created to accomplish missions with specific, limited objectives and is dissolved when no longer needed?
 - a. Unified force.
 - b. Joint task force.
 - c. Specified force.
 - d. Lead nation force.
15. (002) What is the Civil Reserve Air Fleet (CRAF) designed to do?
 - a. Enable DOD to bypass Federal Aviation Administration rules during a president-declared emergency.
 - b. Augment DOD's airlift capability in times of war or during a president-declared emergency.
 - c. Reduce the costs of air transportation for personnel in temporary duty status.
 - d. Support commercial air carriers during times of economic crisis.

16. (003) If you are wearing eyeglasses and bulky uniform items with cords and strings, what must you do before working around moving parts and machinery?
 - a. Secure them to minimize the hazard.
 - b. Take them off to eliminate the hazard.
 - c. Report them to make your supervisor aware of the hazard.
 - d. Wear your personal protective equipment to reduce the hazard.
17. (003) If you are controlling the rollers on the loading docks, what should you do before operating them?
 - a. Check to make sure no one is on the docks.
 - b. Verify the pallets are contacting each of the rollers.
 - c. Pre-position yourself near the ladder at the end of the dock.
 - d. Ask the K-loader driver to help gravity feed the pallets onto the docks.
18. (003) If you accidentally damaged the Halvorsen loader by running into the concrete barriers on your way to load an aircraft, to whom should you report the damage and when?
 - a. Your supervisor immediately.
 - b. Your supervisor at the end of your shift.
 - c. Your supervisor after you finish loading the aircraft.
 - d. The aircraft loadmaster immediately upon your arrival at the aircraft.
19. (004) If you are entering the flight-line area in a vehicle, what must you do before entering?
 - a. Stop and show the gate guard your line badge.
 - b. Stop and do a foreign object damage (FOD) check.
 - c. Slow down and look right and left only for oncoming aircraft.
 - d. Slow down and display your sign/countersign to the gate guard.
20. (004) If you are driving a special purpose vehicle within 25 feet of an aircraft, what is the maximum miles per hour you can drive?
 - a. 5.
 - b. 10.
 - c. 15.
 - d. 20.
21. (004) If you need to leave your vehicle unattended on the flight line, other than leaving the keys in the ignition with the vehicle unlocked, which actions are required?
 - a. Turn off the ignition; place it in reverse or park, set the parking brake, and chock the front and back of one rear wheel.
 - b. Turn off the ignition; place it in neutral with the parking brake set, and chock the front and back of both rear wheels.
 - c. Leave the vehicle running; place it in neutral with the parking brake set, and chock one front and one rear wheel.
 - d. Leave the vehicle running; place it in reverse or park and chock the front and back of one front wheel.
22. (004) If you are stopped on the flight line at night and your headlights are on, what should you do if an aircraft is taxiing towards your area?
 - a. Get out of the way.
 - b. Turn your vehicle around to face the opposite direction.
 - c. Turn your headlights off and your emergency flashers on instead.
 - d. Maintain a minimum distance of at least 25 feet in all directions of the aircraft.

23. (004) If you are crossing the active runway and see a steady red light signal, what action should you take?
- Clear the active runway.
 - Return to the starting point.
 - Stop! Your vehicle will not be moved.
 - General warning. Exercise extreme caution.
24. (004) If you are crossing the active runway and see a red and green light signal, what action should you take?
- Clear the active runway.
 - Return to the starting point.
 - Stop! Your vehicle will not be moved.
 - General warning. Exercise extreme caution.
25. (005) When planning and scheduling work assignments and priorities, what must you do when you discover a piece of equipment is out of commission and it will affect your ability to perform the mission?
- Find out what is wrong with it, when it will be fixed, and notify your chain of command.
 - Annotate the discrepancy on the shift log and verify when the equipment will be fixed.
 - Check your e-mail and phone messages to see if it was fixed ahead of schedule.
 - Annotate the discrepancy in the shift log and verify the date it was turned in.
26. (005) Before you can prioritize work assignments, you must review the shift
- logs to determine who is available to perform duties.
 - schedule to determine who is available to perform duties.
 - logs to determine when the aircraft and trucks will arrive.
 - schedule to determine when the aircraft and trucks will arrive.
27. (005) When assigning personnel to work crews, which is *not* a consideration?
- Knowing your people and the work center's current and future needs.
 - Communicating your expectations to the work crews.
 - Assigning them to the same duties every day.
 - Considering their safety and security.
28. (005) Once you have assigned people to various work crews, ensure they
- do not take too much time on any one task.
 - report to you every 30 minutes on their progress.
 - know exactly who is filling which role and what you expect from each member.
 - keep a running log of their activities so they can report back to you every detail.
29. (006) Your supervisor referred you to the *Defense Transportation Regulation* (DTR) to look up information about joint inspection procedures. After locating the DTR through the AF Portal, in which part of the DTR do you look?
- Part I.
 - Part II.
 - Part III.
 - Part IV.
30. (006) A coworker wants help determining if two pieces of hazardous cargo are compatible with each other. In which publication would you look?
- Air Force Instruction (AFI) 24-101.
 - Air Force Manual (AFMAN) 24-204(I).
 - Air Mobility Command Instruction (AMCI) 24-101.
 - Air Mobility Command Pamphlet (AMCPAM) 24-204.

31. (006) A cargo user has received verified approval to ship equipment via contingency airlift and you need to look up the hazardous cargo restrictions and requirements for this type of airlift. In which chapter of Air Force Manual 24-204(I), *Preparing Hazardous Materials for Military Air Shipment*, would you first look to find this information?
- 1.
 - 2.
 - 3.
 - 4.
32. (007) What important activity must you do before you operate a K-loader?
- Lower the pallet stops.
 - Review the technical order (TO).
 - Ask your supervisor for permission.
 - Have vehicle maintenance personnel inspect it.
33. (007) You want to find out if the 36M2-3-45 technical order (TO) is still current. In which TO would you look?
- General TO.
 - Air Force TO catalog.
 - Methods and procedures TO.
 - Operations and maintenance TO.
34. (007) You are loading helicopters on a C-5B aircraft and want to look up specific loading procedures for those items. In which technical order (TO) would you look?
- 1C-5B-9.
 - 1C-5B-5.
 - 1C-17B-5.
 - 1C-17B-9.
35. (007) You are loading tanks on a C-17 aircraft and want to find specific loading procedures for these items. Which section of the 1C-17A-9 technical order (TO) would you refer to first?
- Section II.
 - Section IV.
 - Section V.
 - Section VI.
36. (007) In the aircraft -9 series technical orders, the loading procedures in which section have precedence over instructions in section IV?
- Section II.
 - Section III.
 - Section V.
 - Section VI.

Please read the unit menu for unit 2 and continue ➔

Student Notes

Unit 2. Deployment and Readiness

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B EING A 2T2 will most likely mean that at some point you will deploy, whether it is a real-world contingency or some type of exercise. In either situation, having an understanding of how a deployment works from operational plan to execution will benefit you tremendously. In this unit, we will discuss some of the basics of deployment and readiness. We will start with war reserve material (WRM) and how it and people are tasked for deployment. Next, we will go over the deployment mission and installation work centers. A huge part of the deployment is the joint inspection, and we will go over this process in depth. Finally, we will discuss how airdrops fit into this arena.

2–1. Deployment Operations

Let’s take a look at the deployment machine. In this section, we will go over WRM, deployment work centers, and joint inspection. To understand how all of these tie together better, we *must* first understand the planning involved in the deployment process. This is where we will begin.

008. Plans and war reserve material

It takes a coordinated effort to move people and equipment where they are needed. The 2T2X1 specialty is a huge part of that effort. You may not realize it, but doing your job to the best of your ability can help save lives and win wars. If an A–10 squadron in the fight needs a targeting pod that’s sitting in your warehouse, you can get it to them so they can do their job. If medical personnel or a C–130 mechanic is in your terminal waiting to deploy, you can get them there, help them save lives, or fix a desperately needed aircraft. You are a critical piece of the deployment machine.

Planning

Deploying anyone or anything requires extensive planning, coordination, communication, and flexibility, long before any forces or equipment deploy. The focus of planning is to develop plans that contain a variety of options for commanders to consider as a crisis or contingency develops. A *contingency* is a situation that involves military forces in response to natural and man-made disasters, terrorists, and foreign military operations, or as directed by the president or secretary of defense. A *crisis* is an incident or situation involving a significant threat to the US, its territories, citizens, military forces, possessions, or vital interests. A crisis typically develops rapidly with little or no warning.

The joint planning and execution community (JPEC) includes the chairman of the Joint Chiefs of Staff (CJCS); the Joint Staff and service components; supported and unsupported commands; their components, defense agencies, agencies from non-DOD departments, and allied commands. The JPEC logically uses two general planning processes to address these situations: crisis action planning and contingency planning.

The Joint Staff prepares the Joint Strategic Capabilities Plan (JSCP), which the CJCS approves. The JSCP provides DOD and service leadership guidance to accomplish their tasks and missions based on military capabilities. Plans are carried out through a series of orders.

- *Operation order (OPORD)*: OPORDS are prepared under joint procedures during crisis action planning. Commanders issue them in the form of a directive to the service HQ to execute an operation.
- *Operational plan (OPLAN)*: This is a well-defined written description of how combatant commanders will deal with a perceived threat in their areas of responsibility. An OPLAN is usually specific to a geographical area and identifies specific forces, functional support, and resources necessary to conduct joint operations of any type, from a single battle, or noncombatant operation to a campaign that spans multiple operations and phases. The extensive information in an OPLAN can be quickly developed into an OPORD.
- *Concept plan (CONPLAN)*: This is an abbreviated format that may require considerable expansion or alteration to convert it into an OPLAN. The objective of concept planning is to develop sound operational and support concepts to potential situations that can be rapidly expanded into an OPORD if necessary.
- *Functional plan (FUNCPLAN)*: Functional plans involve military operations in a peacetime environment, such as humanitarian assistance, disaster relief, peacekeeping, or counter-drug operations.

USAF war and mobilization plan

The Air Force also produces the USAF War and Mobilization Plan (WMP), which supports the Joint Strategic Capabilities Plan. The five volumes in the WMP provide Air Force planners and leadership with all the functions necessary to match the facilities, personnel, and equipment with planned wartime activity.

- Volume 1 (WMP-1), *Basic plan and supporting supplements*, is a central reference source that helps Air Force planners develop and standardize war and contingency plans. Volume 1 also contains a logistics supplement analysis (LSA), that identifies potential support challenges concerning material, infrastructure, logistics support forces, and airlift in detail. The LSA anticipates combat support challenges and resolves them before they become showstoppers.
- Volume 2 (WMP-2), *Plans listing and summary*, is the single-source document that provides the listing of all active plans with TPFDDs and contains two parts. Part 1 consists of a listing of combatant commander plans required by the JSCP and part 2 consists of all the plans that support the plans listed in part 1.
- Volume 3 (WMP-3), *Combat and support forces*, contains four parts. Part 1 lists all available combat forces. Part 2, *Air Force unit type code (UTC) availability*, contains all available UTC capability in the Air Force. Part 3, *Readiness spares package (RSP) authorization*, lists the wartime spares authorized for aviation units and wartime contingencies. Part 4 contains the capability annexes to the AEF presence policy and describes how the Air Force assigns, allocates, and distributes its forces to combatant commanders.
- Volume 4 (WMP-4), *Wartime aircraft activity*, documents the aircraft activity for each geographical location in support of all regional OPLANs and certain CONPLANs. Any location that has aircraft pass through it or operate from it for deployment, positioning, and employment purposes is documented in this volume. It provides the basis for planning and pre-positioning of WRM and contains four parts. Part 1 contains the current year's activity and part 2 contains the out year's activity. Part 3 identifies missile pre-position requirements and part 4 identifies meals ready-to-eat (MRE) requirements at deployment and employment locations along with personnel assigned to or being deployed to missile sites.

- Volume 5 (WMP-5), *Basic planning factors and data*, helps planners establish worldwide support for set force levels and is used to develop the WMP-4.

Joint operation planning and execution system

So how do commanders develop these plans to make sure they have everything they need when and where they need it? They use the Joint Operation Planning and Execution System (JOPES). JOPES supports the JSCP and the USAF WMP. All services use JOPES for efficient and integrated deployment planning in a standardized format. JOPES is both a process and a collection of automated computer systems used to develop OPLANS and time-phased force and deployment data (TPFDD). The OPLAN details the mission that needs to be accomplished and the TPFDD prioritizes which people and equipment need to deploy in support of that OPLAN.

Time-phased force deployment data

A detailed TPFDD outlines where those personnel and equipment will come from, where and when they will go, how they get there, and other specific information such as cargo dimensions and the number of people. The TPFDD is the electronic data within JOPES to carry out deployments in phases. The TPFDD prevents overusing one single mode of transportation and provides a time-table schedule to transport people and equipment to their destination in a timely and sequential manner so they can contribute to the fight. The individual military services have the crucial responsibility to ensure the TPFDD is accurate.

For example, if a combatant commander needs to repair a runway to start an operation, he or she needs the people and equipment to repair that runway by a certain time; however, the commander also needs air transportation personnel to ship and receive the people and equipment. Maybe the runway the repair team will be working on is not in a condition to receive any cargo planes safely. In that case, the commander needs to know if there is a team nearby that can be transported via surface mode or if there is another base near his location to receive cargo. Does that base already have air transportation personnel and equipment in place? If not, where can the commander pull them? Is there an organization that can deploy the people quickly enough to get them ready to receive cargo? These are details commanders must consider using JOPES while the TPFDD helps them make and execute those decisions.

Unit type codes

UTCs are an important part of the TPFDD. A UTC is simply a capability package and is identified by a 5-digit alphanumeric code. The UTC or capability can be people, equipment, or both. Using our scenario, the commander needs the capabilities of both a load team, a forklift to download the runway repair team, and support pallets. Those capabilities are defined by UTCs. The following table outlines some common capabilities you as an air transporter will possess or see—in UTC form.

UTC (Personnel)	Capability	UTC (Equip.)	Capability
UFBBR	3-person load team.	UFBAD	Aerial port operations support pallet.
UFBBS	15-person aerial port team.	UFBLJ	6 portable scales.
UFBJA	2-person joint inspection team.	UFBVE	In transit visibility (ITV) equipment.
UFBVP	2-person ITV team.	UFMPL	25K Halvorsen loader.
		UFMPN	60K Tunner loader.
		UFMPR	10K standard forklift.
		UFMPS	10K all terrain (A/T) forklift.
		UFBNV	Night vision goggles (NVG).

In keeping with our scenario, this commander (using JOPES and the TPFFD to make his or her decision) will need a UFBBR and UFMPS. JOPES and the TPFFD will also help the services determine where the people and equipment will come from as well as the options they have on getting them where the commander needs them. JOPES, the TPFFD, and UTCs are used to plan AEF deployments as well as Global Air Mobility Support System (GAMSS) taskings. AEF deployments provide sustained rotational support for a combatant commander. GAMSS taskings provide rapid response support to existing support during surges, large-scale contingencies, or to establish support at en route locations where it doesn't already exist.

The tasking process

In the Air Force, during a crisis or contingency, deployment information in the form of taskings flow from JOPES to the Deliberate Crisis Action Planning and Execution Segment (DCAPES) system, down to the base and unit levels. DCAPES is the Air Force's automated war planning system designed for AF unique procedures and formats. Once an installation receives a deployment tasking, the planners implement the installation's deployment process in accordance with (IAW) the installation deployment plan (IDP). The planners also translate those taskings into a system called logistics module (LOGMOD). LOGMOD schedules, controls, and monitors passenger and cargo movement via air or surface transportation using the tasking information it receives. LOGMOD has the capability to print cargo placards and interfaces with other transportation systems such as GATES, Cargo Movement Operations System (CMOS), and the Integrated Computerized Deployment System (ICODES).

War reserve material

WRM is material required in addition to primary operating stocks and deploying equipment to support wartime activities reflected in the USAF WMP. It is equipment and other resources authorized for wartime that are positioned where they are needed as starter stock, swing stock, or a combination of both, to maximize worldwide war-fighting capability. *Starter stock* is the equipment required to support aircraft activity until air and sea lines are capable of sustaining operations and is usually positioned at or near the location it is needed. *Swing stock* is the extra equipment assigned to support forward operating locations. Swing stock can be positioned anywhere for flexibility to support multiple theaters. Swing stock is assigned in addition to starter stock but may not be located in the same location. Pre-positioning WRM in strategic locations is important for agile combat support and reduces the amount of time, resources, and effort it takes to transport equipment to the necessary locations during combat operations.

As an example, let's say Kadena AB, Japan has five 60K loaders assigned for use as daily operating stock. In addition, they also have three 60K loaders assigned as WRM starter stock. In addition to those assets, Kadena has two other 60K loaders assigned to them, but they are not located at Kadena. These swing stock assets are instead located at Osan AB, Korea, but will be used to support any contingencies that require that type of support into, through, or out of Kadena. During a contingency, Kadena could decide to leave those loaders in place at Osan or deploy them somewhere else they may be needed—all in support of Kadena's mission or applicable OPLAN.

The MAJCOMs using the WRM will determine the pre-positioning requirements at a particular location based on the approved planning scenarios documented in the WMP-4. How much WRM is authorized at one location is based on how much support that location provides for major combat operations. Based on the existing USAF WMP, OPLANs, and the JSCP, WRM are tasked through the procedures outlined previously using JOPES and the TPFFD.

Specific equipment

463L pallets and nets are no longer designated as WRM; however, pallets and nets required for the movement of other WRM assets are designated as WRM and managed according to part VI of the DTR. The unit storing the WRM will also store the pallets and nets that support them unless the WRM program manager approves centralized storage.

Just because your unit has a certain type of vehicle doesn't mean it is designated as WRM. WRM vehicles are generally limited to those functional and critical vehicles required to perform AF missions. The MAJCOM vehicle functional manager approves all WRM authorizations. MHE such as K-loaders, LSTs, staircase trucks, and forklifts can be designated as WRM, as well as mobility readiness spares packages (MRSP) or mission support kits (MSK). These kits are air transportable packages of spares, repair parts, and related maintenance supplies required to sustain vehicles or MHE.

WRM use

WRM use is authorized for wartime only; however, with proper approval, authorization, and funding it may be used for other purposes. The use of the WRM assets while in its assigned location is restricted to make sure we are able to support combatant commander requirements when they are needed. There are two categories of use for WRM: direct and indirect mission support.

Direct support

Direct support is used to support military combat operations, small scale contingencies, noncombatant evacuation operations, and Joint Chiefs of Staff (JCS) taskings. Direct support WRM is sourced using JOPES procedures.

Indirect support

Indirect support is used to support AEF taskings; joint, AF, and unit exercises; training events; and competitions such as the Air Mobility Rodeo.

Indirect support use of WRM should be limited. If a WRM asset is required frequently to support indirect mission needs, the unit should review the authorizations for that item and increase the daily operating stock authorizations to meet those requirements.

It is important to properly use and care for your WRM assets so that when they are tasked, they will be ready to support their assigned mission. WRM managers will make sure assets are inventoried and maintained as required and ensure WRM assets are rotated and integrated into the daily operating stock to keep them operational. As a result, it becomes even more important for you to operate your equipment safely and inspect your equipment as required. This way your WRM, just like you, will be ready to deploy when tasked.

009. Deployment mission and work centers

When equipment or people are tasked in support of an OPLAN, you are the one who gets them where they need to go and a process exists for doing so. Many people work together to deploy people and equipment. In this lesson, we will go over some of the people and work centers required to successfully execute the deployment mission.

The installation deployment plan

We mentioned the IDP in the last lesson as part of the deployment process. The IDP contains detailed deployment guidance that explains the installation's current deployment processes and mission including contingencies, exercises, and other deployments. The IDP describes who, what, when, where, and how the installation will meet each basic deployment requirement. As a minimum, the IDP addresses roles and responsibilities; pre-processing, pre-execution, and execution procedures; work center organization and facilities; unit personnel and equipment assembly areas; cargo marshalling yards; weapons and ground safety concerns; training requirements; and process flow charts. It also addresses timeline procedures for passenger and cargo receipt and processing, ICODES files for load planning, LOGMOD and CMOS/GATES interfacing for ITV, and radio frequency identification (RFID) tag requirements.

In terms of AEF tempo band rotations, the IDP also addresses how taskings are received—who receives them, how taskings are validated, the sourcing of those taskings, and shortfall procedures.

A *shortfall* is when a unit lacks the people, equipment, or capability to fill its planned tasking. The IDP also defines the process for substituting personnel in differing skill levels, grades, and AFSCs.

Deployment work centers

The installation deployment officer (IDO) reports directly to the installation commander and is responsible for managing and controlling the deployment process for the entire installation. The IDO also creates and reviews the IDP and monitors the activities of all deployment work centers.

Installation deployment readiness cell/deployment control center

The installation deployment readiness cell/deployment control center (IDRC/DCC) is a centralized function aligned under the LRS and is the focal point for all deployment and execution operations for the base. IDRC/DCC personnel are responsible for identifying, validating, and distributing taskings and information so installation or wing leadership can make informed decisions. The IDRC/DCC also coordinates transportation actions required to deploy passengers and cargo.

Many functions make up the IDRC, including the IDO and other personnel from the logistics readiness and manpower and organization flights, logistics planning, personnel readiness, traffic management, air transportation, and others. These personnel can be assigned on a permanent basis or as support staff when required.

During deployment planning and execution, the IDO can choose to activate a DCC or perform the duties of the DCC within the IDRC—this is beneficial for smaller taskings that don't require full-scale support. When the DCC is activated, the IDRC functions will fall under the control of the DCC.

Unit deployment control center

Manned by at least two trained and qualified unit deployment managers (UDM), the unit deployment control center (UDCC) coordinates all unit level deployment activities. This includes receiving taskings and preparing cargo and personnel for deployment. Once the IDO activates the UDCC, it will not deactivate without prior coordination with the IDO and the DCC. The UDCC must be able to operate 24 hours a day, when required.

Personnel deployment function

The personnel deployment function (PDF) is designed to ensure deploying personnel are properly accounted for and prepared for deployment. It serves as the installation's focal point for all personnel processing activities to include eligibility screening, predeployment briefing, preparing and producing orders, passenger manifesting, passenger baggage handling, and passenger loading.

Although each unit is responsible for making sure their personnel are ready and fit to deploy, the PDF serves as the installation/wing's last set of eyes to make sure all personnel are eligible for deployment, waived according to the applicable regulations, or replaced when found ineligible.

Depending on the scope of the deployment, the PDF will include finance, legal, chaplain, services, an amnesty box, baggage handling, American Red Cross, and Airman and Family Readiness stations. Other stations include an emergency data station for deploying members to make changes to their virtual record of emergency data (vRED) and Servicemen's Group Life Insurance (SGLI). There is also an identification (ID) station for verifying or updating dog tags, ID cards, Geneva Convention cards, passports, and visas.

In addition, security forces and the office of special investigation (OSI) ensure deploying members are briefed on FCG requirements, DOD travel security advisories, and country threats and have all the force protection information and other required training necessary to deploy.

The PDF will also provide LOGMOD updates or requirement changes and provide transportation representatives a CMOS file for electronic manifesting once all processing of the chalk is complete. Other PDF duties include selecting and appointing a troop commander for each deploying chalk and briefing each troop commander on his or her responsibilities to account for and control the troops

until arrival at final destination. At times, many passengers will be departing from their own home station, and at other times, the installation may be designated as an “aggregation APOE” in which people from several other installations come together to deploy out of one installation. When this happens, the PDF will also establish an air passenger terminal (APT) to manifest passengers; build baggage pallets or coordinate belly loads; and brief, hold, secure, transport, and load passengers. You may find yourself working as an APT representative in the PDF at some point in your career.

Arrival/departure airfield control group

An arrival/departure airfield control group (A/DACG) is an organization set up to assist AMC personnel and the deploying unit in moving passengers and cargo. An A/DACG can consist of members from any service or a combination of services. The MAJCOM involved in the air movement provides the terminal units. When personnel and equipment needed to accomplish the arrival function are not available at the arrival airfield, the terminal units will be airlifted with the lead elements of the deploying unit. Determination of who provides the terminal units will be made at the earliest time by the joint force or commander (CDR) responsible for the deployment and/or redeployment mission. The A/DACG is responsible for the following:

- Coordinating and controlling the reception and/or loading of units for deployment or redeployment.
- Coordinating with the installation CDR and the CDR of each service-deploying unit.
- Providing a liaison to the mobility force (normally the ATOC).
- Performing those functions when no mobility force is available.

NOTE: For training and certification see Defense Transportation Regulation, part III.

Cargo deployment function

Cargo deployment function (CDF) personnel receive, in-check, inspect, marshal, load plan, manifest, and supervise cargo loading aboard deploying aircraft or vehicles and consist of the following subfunctions and duties. Training is provided by the host LRS or APS/AMS. The training will include local deployment management documents, functional expertise, and AFI 10-403, *Deployment Planning and Execution*.

Subfunction	Duties
Final load planner	Completes final load plans to ensure safety of flight standards, maximum utilization of aircraft allowable cabin load (ACL), and ease of cargo on- and offload.
Quality control (QC)	Ensures all documentation is correct, adequate, posted, protected, and processed properly and that equipment is properly configured for transport. Documentation includes cargo and passenger manifests, load plans, hazardous material certification, and special handling documentation.
Controllers	Manages the status of cargo and updates completion times in LOGMOD. Also identifies potential bottlenecks with cargo processing and works with CDF personnel and DCC to avoid those bottlenecks.
Cargo in-check	Verifies equipment has been received for processing, is properly marked, packaged, and meets safety and ITV requirements.
Cargo joint inspection	Inspects cargo with the owning unit representatives, the cargo terminal representative, and the load plan-qualified CDF representative (or loadmaster, if necessary) before the load is accepted.
Cargo marshalling	In preparation for the JI, positions cargo in load planned sequence by chalk, normally according to chalk departure times.
Cargo manifesting and documenting	Verifies cargo documentation is correct and passes information to load planners. Produces updated and accurate manual or computer-generated shipping labels and placards to attach to cargo prior to loading. Ensures ITV by creating, updating, and affixing RFID tags to cargo.
Load team	Transports, loads, and secures cargo on aircraft and other vehicles.

Subfunction	Duties
Ramp coordinator	Coordinates aircraft and vehicle loading operations, passes aircraft package to aircraft commander/loadmaster, and briefs them on special cargo handling requirements.

It is the deploying unit's responsibility to prepare the cargo and its documentation for the JI and aircraft upload, and in many cases, with proper supervision, upload the cargo. Most of the duties listed here are accomplished by the deploying unit before the cargo terminal representative/joint inspector ever sees the cargo. Then, air transportation representatives make sure the deploying unit has accomplished these duties correctly by performing a joint inspection. In fact, for efficiency and control, the CDF may be divided into four areas of activity. They are the marshalling area, the alert holding area, the call forward area, and the ready line and loading ramp area.

Marshalling area

In this area, the deploying unit assembles its vehicles, equipment, and supplies into individual mission loads or chawks. The deploying unit is responsible for preparing its own cargo to include marking, weighing, palletizing, and documenting prior to inspection and aircraft loading. Unit personnel will move the cargo to the alert holding area only when CDF or A/DACG personnel direct it.

Alert holding area

The A/DACG is responsible for activities conducted within the alert hold area (AHA). In this area, deploying units complete final preparation, assembly of cargo and equipment, and check in with the AHA team chief. Once the unit completes these activities and the A/DACG accepts the complete chalk, the A/DACG assumes control of the cargo. Normally, people assigned to the AHA do not deploy. The A/DACG calls for the cargo to move from the AHA to the call forward area.

Call forward area

In this area, CDF (mobility force) and deploying unit personnel conduct a JI on the cargo. The JI is the final check to ensure all cargo and equipment is properly prepared and documented for safe and efficient air shipment. CDF personnel will reject improperly prepared cargo and equipment until the deploying unit corrects all discrepancies. If the deploying unit's representative can fix the errors right away, CDF personnel will accept the cargo for airlift once it's fixed, and the cargo will move forward to the ready line. If the deploying unit cannot fix the cargo right away, it is placed in the frustrated cargo area until the representative corrects it. The JI is not considered complete until every piece of cargo assigned to the chalk is corrected, inspected, and accepted for airlift.

Ready line/loading ramp area

This is the area where the airlift-ready cargo is positioned and loaded. CDF personnel in this area receive airworthy cargo from the call forward area, and control all movement in and out. CDF personnel also direct aircraft loading in conjunction with loadmasters, supervise all load team members (including those from other services), and conduct required safety and other briefings. Once CDF personnel direct cargo to this area, the unit cannot make any changes to it; therefore, strict control is required.

Air Force Emergency Management Program

The primary mission of the Air Force Emergency Management (EM) Program is to save lives; minimize the loss or degradation of resources; and continue, sustain, and restore operational capability in an all-hazards physical threat environment at Air Force installations worldwide. The ancillary mission of the Air Force EM Program is to support homeland defense and civil support operations as well as provide support to civil and host nation authorities. This is done IAW DOD directives and through the appropriate combatant command (COCOM). The Air Force EM Program addresses the physical threats occurring either individually or in combination.

Chemical, biological, radiological, nuclear and high-yield explosive

The armed forces of the United States must be prepared to conduct prompt, sustained, and decisive combat operations in, chemical, biological, radiological, nuclear and high-yield explosive (CBRNE) environments. The CBRNE attack threat may come from traditional CBRNE weapons (e.g., rockets and missiles) or may be new compounds and organisms (i.e., toxic and hazardous chemicals/materials, chemical and biological warfare agents, toxic radiological materials). An adversary's CBRNE capabilities can have a profound impact on US and multinational objectives, campaign plans, and supporting actions, and therefore, must be taken into account in planning. Commanders must include the unique CBRNE aspects in the intelligence preparation of the operational environment (OE), take action to reduce force vulnerability to CBRNE attack, and provide for protection of the force commensurate with mission accomplishment. Commanders are responsible for maintenance of the health of their commands to assure mission accomplishment in the event of CBRNE attacks. Protective actions can be taken in stages depending on the immediacy and nature of the threat. Use local policies and/or installation notification and warning systems to assume the proper protective posture. If the warning is increased, forces will increase their defense readiness IAW declared theater alert states and stages.

010. Accomplishing a joint inspection

CDF personnel document joint inspections on a DD Form 2133, Joint Airlift Inspection Record. The deploying unit is responsible for preparing the cargo, including weighting, marking, and palletizing prior to inspection and aircraft loading. The deploying unit is also responsible for documentation, to include hazardous materials certifications. Jointly, a deploying unit representative and a qualified mobility force inspector (CDF, aerial port, or A/DACG representative) will conduct an inspection of all cargo and equipment. Deploying units must update load plans and post JI with final/accurate weights no later than (NLT) six hours prior to aircraft departure. Cargo loads must be available for JI based on local policy at departing airfields. CDF personnel will not accept incomplete chalks for inspection, which means they will not begin a JI until all the cargo for the chalk is present and available.

The DD Form 2133 is completed in three copies for each aircraft load, and the deploying unit representative and joint inspector must sign each copy. The aircraft loadmaster receives one signed copy with the cargo manifest and other documentation; the deploying unit representative receives another signed copy; and mobility force personnel retain the last signed copy for inclusion in the station file.

Occasionally, the deploying unit representative will tell the inspector that some cargo is sight-sensitive and therefore exempt for some reason from inspection. If this is the case, the deploying unit representative must get prior approval from the AMC Director of Operations or the service or MAJCOM having operational control of the aircraft. If the deploying unit is unable to present this approval, all cargo presented for JI is subject to inspection by both the mobility force inspector and the aircrew. Let's take a look at how you as a joint inspector/mobility force inspector accomplish a JI and complete this critical DD Form 2133.

Heading information

This portion of the form describes general information about the mission and records JI start and stop times. Let's go over each block.

Block No.	Block Title	Responsibility
1	DEPLOYING FORCE	Enter the numerical designation and geographic location of the unit being airlifted (e.g., 1st Fighter Wing, Langley AFB, VA).
2	DEPARTURE AIRFIELD	Enter the name of the facility the airlifted unit is departing (e.g., Langley AFB, VA).

Block No.	Block Title	Responsibility
3	DATE	Enter the year, month, and day the JI is accomplished.
4	AIRCRAFT TYPE AND MISSION NUMBER	Enter the aircraft type and mission number of the aircraft on which the equipment will be loaded.
5	LOAD/CHALK NUMBER	For large deployments requiring more than one aircraft, loads are divided into chalk numbers. For this block, enter the scheduled/assigned chalk number for the designated aircraft load.
6	START TIME	Enter the local time the JI actually started.
7	COMPLETE TIME	Enter the local time the load was inspected and ready for movement.
8	MOBILITY FORCE	Enter the numerical designation of the mobility force or unit responsible for inspecting the load (e.g., 60 APS or 18 LRS).
9	CHAPTER 3 MOVEMENT	Place an "X" in the appropriate block to indicate whether or not movement is authorized under AFMAN 24-204_IP, chapter 3. To determine whether or not a specific mission is authorized chapter 3 movement, review mission remarks in global decision support system 2 (GDSS2) or single mobility system (SMS).

Increment, serial number, bumper number, and type (block 10)

Below the header information, a small space exists that runs across the top. Write the increment number, serial number, bumper number, and the type of vehicle or piece of equipment being inspected in this block (Block 10). This helps to distinguish like items on the chalk. Underneath each item, the qualified mobility force inspector will place a check mark in the appropriate block if the item is satisfactory or an "X" if the item is unsatisfactory and needs to be corrected. Once the item is corrected, place a circle around the "X." If a block is not applicable to a piece of cargo, leave it blank. N/A may also be used.

Documentation (block 11)

This portion of the form lists the various types of documents that may be required for each item in the chalk.

Block No.	Block Title	Responsibility
11a	PRE-LOAD PLAN	Deploying force will provide a pre-load plan. The mobility force inspector will ensure the entire load is accounted for utilizing the pre-load plan.
11b	MANIFEST/LOAD LIST/PACKING LIST	Deploying force will provide these documents to the mobility force inspector. The mobility force inspector will utilize these documents to assist in verifying/locating any undeclared hazardous shipments.
11c	SHIPPERS DECLARATION FOR DANGEROUS GOODS (SDDG)	The deploying force will submit SDDGs for all hazardous cargo presented for movement. The mobility force inspector will inspect the SDDG for proper preparation and certification IAW AFMAN 24-204_IP.
11d	DD FORM 1387-2	The deploying force will submit this document for all items requiring signature service, transportation protective service, or any other kind of special services. See the DTR part II, chapter 205 for guidance on proper completion.
11e	MILITARY SHIPPING LABEL (2D Bar Code)	All items presented for movement will have a military shipping label attached. See the DTR part III, appendix H for additional information.
11f	AIR TRANSPORTABILITY LOADING AGENCY (ATTLA) CERTIFICATION	An ATTLA letter is required for vehicles and equipment that are not listed in applicable aircraft Dash 9 TO. Follow link in paragraph A.1 of this appendix to determine ATTLA requirements.

General requirements (block 12)

Inspection items listed in this area may be applicable to vehicles, non-powered equipment, pallets, pallet trains, internal slingable units (ISU), and helicopters.

Block No.	Block Title	Responsibility
12a	CLEAN	Clean each item of all grime, oil, dirt, and pests. Pressure wash or steam clean items if necessary. Ensure all vehicle tires are free of debris (e.g., rocks, pebbles, sand) embedded in the treads.
12b	FLUID LEAKS	A loss of fluid at a rate which is readily detected or seen is a leak. Five drops or more per minute from a cooling system, crank case, or gear case is a leak. Fuel or brake system leaks, no matter how minor, will prevent air shipment until corrective action has been accomplished. Do not consider a damp or discolored seal a leak unless any of the above conditions exist.
12c	SCALE WEIGHT	Ensure gross weight/axle weights are accurate and properly marked on both sides for vehicles, non-powered equipment, and helicopters. Pallets will be placarded on two adjacent sides with scale weight.
12d	DIMENSIONS	Ensure item fits aircraft profile/contour. Items must negotiate the aircraft ramps and interior dimensions and will not come in contact with aircraft floor, sidewalls, or ceiling at any time. Consult applicable aircraft Dash 9 TO to ensure pallet position restrictions are met (i.e., aisle ways, pallet heights on aircraft ramps).
12e	CENTER OF BALANCE	If applicable, ensure item is clearly/properly marked on both sides. Indicate the center of balance (CB) to the nearest whole inch. Consult the DTR part III, appendix P, for CB calculation/determination.
12f	KEYS/COMBINATIONS (All locks)	If an item is secured with a lock, the keys or combination will be made available to the mobility force inspector. The keys/combination will be attached to the item during transport or provided to the aircrew in the aircraft manifest package. NOTE: Locks without keys/combos will be removed from the item or the item will be removed from chalk.
12g	SHORING	Check that all shoring is serviceable and immediately available. Check floor/roller limitations to ensure neither is exceeded. Consult applicable aircraft Dash 9 TO or ATTLA certification for shoring calculation and requirements.
12h	HAZARDOUS MATERIALS PREPARATION/PACKAGING (HAZMAT)	Check that all HAZMAT submitted for movement are properly prepared, positioned, and compatible with other HAZMAT on same aircraft IAW AFMAN 24-204_IP. Check that all HAZMAT are properly secured.

Vehicles/non-powered equipment (block13)

This section applies to vehicles/non-powered equipment palletized or loaded as rolling stock on aircraft.

Block No.	Block Title	Responsibility
13a	MECHANICAL CONDITION	Unless a vehicle is shipped as retrograde cargo, it must be in good condition. Ensure self-propelled vehicles are operational (i.e., engine runs).
13b	BRAKES OPERATIONAL	Check service and emergency brakes for operation. Check brakes by having operator demonstrate braking capability while vehicle is moving.
13c	BATTERY	Ensure battery terminals are properly protected to prevent damage or short circuits (i.e., rubber covers, taped). Ensure battery is secured to prevent damage or short circuit.

Block No.	Block Title	Responsibility
13d	FUEL TANKS, LEVEL, CAPS	<p>Vehicles and self-propelled units will not exceed one-half (1/2) a tank of fuel unless "chapter 3" has been approved (see the DTR part III, appendix J). If "chapter 3" is approved, tank fuel levels will not exceed three-quarters (3/4). Wheeled engine-powered support equipment (SE) will be drained to the greatest extent unless "chapter 3" has been approved. If "chapter 3" is approved, fuel levels will not exceed one-half (1/2) regardless of the unit's position in the aircraft. Ensure fuel caps are installed. On closed fuel system equipment, loosen caps to allow pressure equalization.</p> <p>(a) In no case will a vehicle with more than 1/2 tank of fuel be loaded on the aircraft cargo ramp.</p> <p>(b) Vehicles and SE loaded on the aircraft cargo ramp must be positioned with fuel tank filler openings on the high side of the ramp.</p> <p>(c) SE mounted on a single axle disconnected from its prime mover and loaded with its tongue resting on the aircraft floor must be drained, but need not be purged.</p> <p>(d) Regardless of "chapter 3" approval, do not exceed 1/2 tank of fuel for units loaded aboard aircraft with a steep angle of ascent (e.g., KC-10, KC-135).</p>
13e	JERRICANS	<p>Dot 5L Jerricans:</p> <p>(a) Must be in approved racks, secured to the vehicle or support equipment and completely drained.</p> <p>(b) United Nations (UN) performance specification jerricans are authorized for transporting flammable liquid fuel stocks. Ensure all racks attached to vehicles or support equipment are designed to accommodate and secure jerricans to prevent movement or leakage during airlift. Jerricans must have a serviceable gasket in place on the screw cap closure. Jerrican(s) can be utilized to ship bulk fuel.</p>
13f	TIE-DOWN POINTS	Ensure all clevises and tie-down points are serviceable. Include interior and exterior cargo restraint tie-downs in the inspection.
13g	PINTLE HOOK(S)	If a pintle hook is to be utilized for loading/unloading or in-flight for trailers, ensure all devices are serviceable. Check to make sure all required pins or cotter keys are properly installed and serviceable. Pins or cotter keys must be attached to the pintle hook using a chain or other similar device.
13h	VEHICLE EQUIPMENT SECURED (e.g., tools, tires)	Ensure all vehicle accessory items are secure. This includes fire extinguishers, seats/brackets and any other loose equipment that could become a projectile during flight.
13i	TIRE PRESSURE	<p>Check to ensure tire pressure is within the manufacturer's specifications on the sidewall of the tire. Tires must be sufficiently inflated to prevent wheel-rim contact with aircraft floor.</p> <p>NOTE: Maximum tire pressure is 100-pounds per square inch (psi). When a tire pressure exceeds 100 psi it is considered a steel wheel or hard rubber wheel. Reference the applicable aircraft Dash 9 TO or ATTLA certification for guidance on required shoring.</p>

Block No.	Block Title	Responsibility
13j	ACCOMPANYING LOAD	<p>All items must be within vehicle/equipment-rated capacity and secured to vehicle/equipment. Normally, this information is located on the vehicle data plate or manufacturer's technical publication. Do not exceed the sidewall height (e.g., truck bed or trailer walls) unless the cargo can be properly restrained. Equipment permanently installed in a vehicle will be transported as a vehicle load regardless of height. This provision does not include signal shelters or other easily removed equipment. Check that all secondary cargo (consider all locally manufactured modifications as secondary cargo) is properly secured to the vehicle and/or accompanying trailers. The cargo must meet the same restraint criteria required for the vehicle. Use a minimum of 1/2-inch diameter rope (not nylon) or approved cargo restraint systems to secure the cargo. Ensure rope actually touches the cargo, not just holds the side racks down. See the DTR part III, appendix H, paragraph D.3 restriction if HAZMAT is not secured in approved holders or as authorized in technical directives (e.g., TO, field manual, and training manual).</p> <p>NOTE: Check to ensure shelters and generators mounted on vehicles and/or trailers have all bolts/nuts installed as applicable.</p>
13k	LOX/NITROGEN CART (vent kit required)	Ensure all vent kit materials are with the cargo. Technicians will be required at load time to install vent kit.

Pallets/pallet trains/internal slingable units (block 14)

This section identifies everything that needs to be checked when inspecting palletized or containerized cargo.

Block No.	Block Title	Responsibility
14a	SERVICEABLE (pallet, tie-down rings, nets)	<p>Pallets must be thoroughly cleaned and inspected (top and bottom) for missing and/or cracked D rings, warping, exposed core and/or delamination.</p> <p>(a) Inspect tie-down equipment used to restrain cargo to the pallets for damage. Do not use damaged tie-down equipment.</p> <p>(b) Inspect nets for damage (e.g., cuts, frays, missing components). Do not use damaged nets.</p>
14b	CORRECTLY BUILT/ITEMS SECURED	<p>(a) Check to ensure cargo nets are properly installed.</p> <p>(b) When nets are not used or additional restraint is required, ensure chains, tie-down devices, or straps are properly installed. Ensure adequate restraint is provided to safely transport cargo to aircraft. Attach tie-down equipment in pairs (i.e., if devices, chain or straps are used on one side of the pallet, use an equal number of devices, chains or straps on the opposite side).</p> <p>(c) All cargo within ISUs and other freight containers must also be secured/restrained to prevent movement and damage during flight.</p> <p>NOTE: All hazardous material (HAZMAT) must be accessible and secured/restrained to prevent movement and damage during flight.</p>

Block No.	Block Title	Responsibility
14c	DUNNAGE (3 pieces per pallet or ISU)	<p>Ensure proper dunnage, three pieces, 4" X 4" X 88", accompanies the pallet during shipment. Shippers providing wood packaging material (WPM) will ensure that any packing material that consists/made of wood (to include, but not limited to, dunnage, pallets, boxes, cleats, crates, and frames) meet the phytosanitary (e.g., rules governing plants, seeds) requirements set forth in the Department of Defense Manual (DODM) 4140.0, <i>Supply Chain Material Management Procedures: Delivery of Material</i>.</p> <p>NOTE: Plywood does not require treatment or marking due to the nature of how the material is produced.</p> <p>(a) All WPM is required to meet the requirements of International Standards for Phytosanitary Measures Publication (ISPM 15), Guidelines for Regulating WPM in International Trade, Food and Agriculture Organization of the United Nations (FOA), Rome (2002) with modifications to Annex I (2006). These requirements are detailed in 7 CFR 319.40, <i>Foreign Quarantine Notices</i>. This standard requires WPM used in international trade to be treated. The approved treatments are:</p> <ol style="list-style-type: none"> 1. Heat treatment to a minimum wood core temperature of 56° C for a minimum of 30-minutes 2. The compliant WPM also must be marked with the International Plant Protection Convention (IPPC) logo. 3. Additional information on WPM requirements can be found at: http://www.aphis.usda.gov/newsroom/hot_issues/wood_packing.shtml (*) and the American Lumber Standard Committee, Inc. Web page, http://www.alsc.org/ (*).

Helicopters (fly-away) (block 15)

This section identifies what you must check when inspecting helicopters.

Block No.	Block Title	Responsibility
15a	FUEL QUANTITY (Gallons)	Fuel quantities cannot exceed 3/4 full or 150-gallons per tank, whichever is less.
15b	CONFIGURATION (Applicable TO or ATTLA Certification)	Check applicable directives to ensure helicopter is properly configured to fit aircraft contour without making contact with sidewalls, ceiling, or floor.
15c	BATTERY	Must be disconnected and taped. Ensure user disconnects and tapes battery terminals and secures the battery to prevent damage and/or short circuits.
15d	SPECIAL LOADING EQUIPMENT	Ensure special equipment necessary to load this cargo is available (i.e., tow bars, tools, jacks, pintle hooks, pumps, ramps).
15e	ACCOMPANYING LOAD	Ensure all secondary cargo (consider all locally manufactured modifications as secondary cargo) is properly secured within the helicopter. Cargo must meet the same restraint criteria required for the helicopter. Use a minimum of 1/2-inch diameter rope (not nylon) or approved cargo restraint systems to secure cargo.

Deploying force representative and mobility force inspector

This portion of the form is where the deploying force representative and the mobility force inspector sign and verify the information on the DD Form 2133.

Block No.	Block Title	Responsibility
16	DEPLOYING FORCE REPRESENTATIVE	Legibly printed name, rank and signature are required. To be signed by the deploying force representative accompanying mobility force inspector. The deploying force representative certifies that all items, including all hazardous materials, have been declared, properly prepared and presented for airlift IAW all applicable directives. WARNING: Shipping organizations failing to declare and identify hazardous cargo may be subject to disciplinary action under the UCMJ and/or civil penalties outlined in CFR 49 part 107 subpart D.
17	MOBILITY FORCE INSPECTOR	Printed name, rank, and signature are required. To be completed by the mobility force inspector accomplishing the JI. The mobility force inspector certifies that all declared items have been inspected and are properly prepared for airlift IAW all applicable directives.

Additional information (on back) (block 18)

List and explain, in detail, any discrepancies found during the inspection and actions taken to correct the problem. Pertinent information regarding the specific item will be listed in this block (figs. 2-1 and 2-2).

JOINT AIRLIFT INSPECTION RECORD/CHECKLIST (Reference DTR Part III Appendix O For Form Completion)								Page 1 of 1 Pages	
1. DEPLOYING FORCE: 82 Airborne				2. DEPARTURE AIRFIELD: Pope Army Airfield				3. DATE: 12122016	
4. AIRCRAFT TYPE AND MISSION NUMBER: C17/ AAM6249Z1206				5. LOAD/CHALK NO. 3		6. START TIME: 0230		7. COMPLETE TIME: 0413	
8. MOBILITY FORCE: 3 APS									
9. CHAPTER 3 MOVEMENT Yes No				10. INCREMENT/SERIAL/BUMPER NUMBER AND TYPE/TCN					
LEGEND (Mark blocks after each item as follows) ✓ = Satisfactory X = Unsatisfactory Circle the "X" for items that have been corrected If not applicable, Enter - - - (Dash)									
11. DOCUMENTATION									
a. Pre-Load Plan				✓					
b. Manifest/ Load List/Packing List				✓					
c. Shippers Declaration for Dangerous Goods (SDDG)				✓					
d. DD Form 1387-2				✓					
e. Military Shipping Label (2D Bar Code)				✓					
f. ATTLA Certification (Reference DTR Part III, App O)				✓					
12. GENERAL REQUIREMENTS (Applicable to Blocks 13, 14, 15)									
a. Clean				✓					
b. Fluid Leaks (Reference DTR Part III, App O)				✓					
c. Scale Weight (GW, Axle Weight, Marked on Both Sides)				✓					
d. Dimensions (Fits Aircraft Contour)				✓					
e. Center of Balance (Marked on Both Sides)				✓					
f. Keys/Combinations (All Locks)				✓					
g. Shoring (Floor/Roller Limitations)				✓					
h. Hazardous Materials Preparation/Packaging				✓					
13. VEHICLES/NON-POWERED EQUIPMENT									
a. Mechanical Condition (Engine Runs)				✓					
b. Brakes Operational (Service/Emergency)				✓					
c. Battery (Secured, Terminals Protected, No Leaks)				✓					
d. Fuel Tank(s), Level, Caps				✓					
e. Jerricans (Secure, Fuel Level, Seal)				✓					
(1) DOT 5L (Metal) MUST BE EMPTY				✓					
(2) UN Specification (Plastic)				✓					
f. Tie-down Points/Clevises (Serviceable)				✓					
g. Pintle Hooks (If Used)				✓					
h. Vehicle Equipment Secured				✓					
i. Tire Pressure				✓					
j. Accompanying Load (within Rated Capacity and Secured)				✓					
k. Lox/Nitrogen Cart (Vent Kit)				✓					
14. PALLET/PALLET TRAINS/ISU'S									
a. Serviceable (Pallet and Tie-down Rings)				✓					
b. Correctly Built/Items Secured				✓					
c. Dunnage (3 Pieces Per Pallet or ISU)				✓					
15. HELICOPTERS (Flyaway)									
a. Fuel Quantity (As Required)				✓					
b. Configuration (T.O./Cert Letter)				✓					
c. Battery (Disconnected, Covered/Taped)				✓					
d. Special Loading Equipment (Tow bars, etc.)				✓					
e. Accompanying Load (within Rated Capacity and Secured)				✓					
I certify that all items, including hazards, have been declared, properly prepared, and presented for airlift in accordance with all applicable directives.				I certify the above declared items have been inspected and properly prepared for airlift in accordance with all applicable directives.					
16. DEPLOYING FORCE REPRESENTATIVE (Print Name/Rank/Signature) Johnny Smith, E6				17. MOBILITY FORCE INSPECTOR (Print Name/Rank/Signature) Robert Marks, E7					

DD FORM 2133, JUN 2013

PREVIOUS EDITION IS OBSOLETE.

Adobe Professional X

Figure 2-1. DD Form 2133 (Front).

DD FORM 2133 (BACK), JUN 2013

Figure 2–2. DD Form 2133 (Back).

2. What is a contingency?
3. What is a crisis and how fast does one develop?
4. How are OPORDs prepared?
5. What is an OPLAN?
6. An OPLAN is usually specific to what?
7. What is identified in an OPLAN?
8. What is the purpose of a CONPLAN?
9. What do FUNCPLANS involve?
10. How many volumes does the USAF WMP contain and what do they provide?
11. Match the WMP volume in column B with its description in column A. Item in Column B may be used once, more than once, or not at all.

<i>Column A</i>	<i>Column B</i>
____ (1) Contains all available UTC capability in the Air Force.	a. Vol. 1.
____ (2) A central reference source that helps planners develop and standardize war and contingency plans.	b. Vol. 2.
____ (3) Used to develop the WMP-4.	c. Vol. 3.
____ (4) Documents aircraft activity for each geographical location in support of all regional OPLANs and CONPLANs.	d. Vol. 4.
____ (5) Helps planners establish worldwide support for set force levels.	e. Vol. 5.
____ (6) Provides the basis for planning and pre-positioning of WRM.	

12. What does JOPES support?

13. What is JOPES?

14. Mark with an "X" each item that describes the TPFDD.

- ___ (1) Identifies MRE requirements.
- ___ (2) Identifies missile pre-position requirements.
- ___ (3) Prevents overusing one single mode of transportation.
- ___ (4) Contains the current year's and one out year's activity.
- ___ (5) Exists within JOPES as electronic data to carry out deployments in phases.
- ___ (6) Outlines where personnel and equipment will come from and how they get there.
- ___ (7) Provides a schedule to transport people and equipment to their destination in a timely and sequential manner.
- ___ (8) Outlines where and when people and equipment are going as well as cargo dimensions and the number of people.

15. What is a UTC and how is it identified?

16. If you were tasked as part of a 3-person load team, under which UTC would you be deployed?

17. During a crisis or contingency, how does deployment information flow?

18. What is DCAPEs?

19. Once an installation receives a deployment tasking, what two things are planners required to do?

20. What is LOGMOD?

21. Which transportation systems interface with LOGMOD?

22. What is WRM?

23. What is starter stock?
24. What is swing stock?
25. Why is pre-positioning WRM in strategic locations important?
26. Who determines WRM pre-positioning requirements at a particular location?
27. Which volume of the USAF WMP is WRM pre-positioning requirements based?
28. How much WRM that is authorized at one location is based on what?
29. Which pallets and nets are designated as WRM?
30. According to which part of the DTR are WRM pallets and nets managed?
31. Who approves all WRM authorizations?
32. What is direct support WRM?
33. Which type of WRM is sourced using JOPES procedures?
34. Which type of WRM should be limited and is used to support AEF taskings, exercises, training events, and competitions?

009. Deployment mission and work centers

1. What does the IDP contain?

2. What is a shortfall?
3. Match the deployment work center in column B with its description in column A. Items in column B may be used once, more than once, or not at all. Some items in column A can have more than one answer.

*Column A**Column B*

- | | |
|---|--------------|
| ____ (1) Ensures deploying personnel are properly accounted for and prepared for deployment. | a. IDO. |
| ____ (2) Receives, in-checks, inspects, marshals, load plans, manifests, and supervises cargo loading. | b. IDRC/DCC. |
| ____ (3) Manages and controls the installation deployment process and reports directly to the installation commander. | c. UDCC. |
| ____ (4) Inspects cargo with the owning unit representatives. | d. PDF. |
| ____ (5) Coordinates all unit level deployment activities, including receiving taskings and preparing cargo and personnel for deployment | e. A/DAGG. |
| ____ (6) Serves as installation's focal point for all personnel processing activities including eligibility screening, pre-deployment briefing, passenger manifesting, baggage handling, and loading. | f. EDF. |
| ____ (7) Identifies, validates, and distributes taskings and information so installation or wing leadership can make informed decisions. | |
| ____ (8) Contains a marshalling area, alert holding area, call forward area, and ready line/loading ramp area. | |

4. Which deployment work center is responsible for creating and reviewing the IDP and monitors the activities of the other deployment work centers?
5. Which functions make up the IDRC?
6. When is it beneficial to perform the duties of a DCC within the IDRC?
7. When the DCC is activated, which functions will fall under DCC control?
8. When required, which deployment work center must be able to operate 24 hours a day and will be manned by at least two trained and qualified UDMs?
9. What role does the PDF serve when ensuring all personnel are eligible, waived, or replaced for deployment?

10. List five areas the PDF will include, depending on the scope of the deployment.

11. When will a PDF establish an APT, and what are an APT's duties?

12. What is an A/DACG? Who makes up the A/DACG?

13. Mark with an "X" each subfunction of the CDF.

- ___ 1. In-check.
- ___ 2. Chaplain.
- ___ 3. ID station.
- ___ 4. Load team.
- ___ 5. Controllers.
- ___ 6. Marshalling.
- ___ 7. Quality control.
- ___ 8. Joint inspection.
- ___ 9. Ramp coordinator.
- ___ 10. Final load planner.
- ___ 11. Air passenger terminal.
- ___ 12. Deployment control center.
- ___ 13. Manifesting and documenting.
- ___ 14. Airman and Family Readiness Center.

14. Match each area of the CDF in column B with its description in column A. Items in column B can be used once, more than once, or not at all.

Column A

- ___ (1) CDF and deploying unit personnel conduct a joint inspection.
- ___ (2) Airlift ready cargo is positioned and loaded.
- ___ (3) Deploying unit assembles its vehicles, equipment, and supplies into chocks.
- ___ (4) Cargo that cannot be fixed right away is frustrated.
- ___ (5) Deploying unit is solely responsible for activities in this area.
- ___ (6) CDF personnel direct aircraft loading in this area.
- ___ (7) No changes to cargo are allowed in this area.
- ___ (8) Deploying unit completes final preparation and assembly of cargo and equipment and checks in with the area team chief.

Column B

- a. Marshalling area.
- b. Alert holding area.
- c. Call forward area.
- d. Ready line/loading ramp area.

010. Accomplishing a joint inspection

1. CDF personnel document JI's on which form?
2. Who is responsible for preparing the cargo, including weighing, marking, documenting, and palletizing, prior to inspection and loading?
3. At least how many hours *must* all cargo be available for a JI?
4. CDF personnel will *not* begin a JI until what?
5. The DD Form 2133 is completed in how many copies and how are they distributed?
6. Who *must* the deploying unit receive prior approval from before they can claim exemption from the JI due to sight-sensitivity?
7. What do CDF personnel enter in block 6 of the DD Form 2133?
8. What will CDF personnel place in the appropriate block if an item is satisfactory? Unsatisfactory?
9. Once the deploying unit corrects an item previously found to be unsatisfactory, how will CDF personnel annotate that on the DD Form 2133?
10. If an item is *not* applicable to the piece you are inspecting, how is that annotated on the DD Form 2133?
11. Which block of DD Form 2133 will the deploying force present to the mobility force inspector?
12. If an item is found to be too dirty to ship, what *must* the deploying unit do before the item can be accepted for airlift?

13. During a joint inspection, which types of leaks will prevent air shipment, no matter how minor?
14. When determining shoring requirements, what are two items you consult?
15. How much fuel can a vehicle being loaded on a C-5 have in its tank if the deploying unit has chapter 3 approval? How much if chapter 3 is *not* approved?
16. How much fuel can a vehicle being loaded on a KC-10 have in its tank if the deploying unit has chapter 3 approval?
17. Where must DOT 5L Jerricans be stored and how much fuel can they have in them?
18. What happens when a tire pressure exceeds 100 psi?
19. What *must* you check on lox/nitrogen carts, before you accept them for airlift?
20. How many pieces of dunnage and what size should accompany each pallet offered for airlift?
21. How much fuel can a helicopter have in it before being accepted for airlift?
22. How *must* items be secured inside a helicopter when transporting it?
23. What could happen if shipping organizations fail to declare or identify hazardous cargo?
24. What types of things should you annotate in the additional information section on the back of the DD Form 2133?

2-2. Airdrop

The fastest way to deliver supplies and equipment to most areas is by air. Many times, we face the problem of finding a suitable area to land an aircraft near a destination. This is where airdrop comes in handy. Using parachutes to drop supplies, equipment, and personnel into an area without landing is referred to as aerial delivery, or airdrop. Airdrop involves various types of air-to-ground deliveries of equipment from aircraft. In this lesson, we will cover the types and methods of airdrop, as well as the various containers, platforms, and parachutes used in an airdrop.

011. Types and methods of airdrop

When we use the terms *types* and *methods* of airdrops, keep in mind that *types* of airdrop refers to the rate of descent of the loads. *Methods* of airdrop refers to the way the loads exit the aircraft.

Airdrop types

There are three types of airdrop: free-drop, high-velocity drop, and low-velocity drop.

Free-drop

Free-drop loads are used for non-fragile items and require no parachute but normally require a large amount of padding or reinforced bailing to help sustain the load upon ground impact. Liquids that are free-dropped require a flexible and durable container. When the aircraft is over the drop point, the load is released from the aircraft and it free-falls to the ground. One example is free-dropping hay to stranded animals during severe winter conditions.

High-velocity

High-velocity drops require stabilization parachutes to hold the loads upright. This helps the energy dissipater or padding attached to the underside of the load absorb the landing shock.

Low-velocity

Low-velocity drops require one or more cargo or recovery parachutes. The number of parachutes used depends on the weight of the item being dropped. Cargo parachutes are used to slow the load's rate of descent and minimize landing shock. The load is rigged on an airdrop platform or packed in an air container. This type of drop requires large and clear drop zones because they usually consist of large complex loads.

Airdrop methods

There are also three airdrop methods: door-load, gravity, and extraction.

Door-load method

The door-load method of airdrop is when the load is manually pushed or skidded out of a door on an aircraft. The door-load method is suitable for all three types of airdrop.

Gravity method

The gravity method of airdrop is used when dropping containers. A release gate made of type VIII nylon straps and part of the container delivery system (CDS) restrains the load inside the aircraft which loadmasters can manually release or cut, depending on the aircraft. When the aircraft approaches the drop or release point, the aircrew flies the aircraft so the nose is higher than the tail, allowing the cargo when released to slide out of the aircraft using gravity. This method of airdrop is suitable for all three types of airdrop.

Extraction method

The extraction method of airdrop is used when the load is rigged on an airdrop platform (e.g., vehicles). Air unloading kit detents hold the rigged loads in place on the aircraft loading kit. When the aircraft approaches the drop point, a 15-foot drogue (stabilization) parachute will deploy first which, in turn, pulls out a 15-foot extraction parachute. Once the extraction parachute creates sufficient force

to overcome the restraint rails, the platform is extracted from the aircraft. As the platform descends toward the ground, the extraction parachute deploys the main cargo parachute(s). The extraction method is suitable for both high- and low-velocity types of airdrop.

012. Types of containers and platforms

The Air Force is required to airdrop a mixture of items that can contrast greatly in both size and weight. Due to this demand, a mix of containers and platforms are used to package/compartmentalize the items during airdrop delivery.

Airdrop containers

Airdrop containers can be packed with supplies, disassembled equipment, and small, ready-to-use equipment prepared for airdrop. The containerized load requires cushioning material such as honeycomb, felt, or cellulose wadding. The amount of cushioning material depends on the load requirements of the airdrop. The number and type(s) of parachutes required to stabilize and slow the descent of loads depend on the type of container used, the weight of the load, and the type of airdrop. The three types of airdrop containers are the A-7A cargo sling, the A-21 cargo bag, and the A-22 cargo bag.

A-7A cargo sling

The A-7A cargo sling is an adjustable container with four identical 188-inch sling straps fitted with a parachute harness adapter or friction adapter and a floating D-ring. As few as two straps can be used. To operate, place the required number of sling straps on a flat surface and then position the load so that it is centered on the intersecting straps. Bring the sling strap up and over the load, threading the sling strap through the D-rings. Secure and tighten the sling straps with the friction adapters. The capacity of the sling is 500 pounds when four straps are used, 400 pounds when three straps are used, and 300 pounds when two straps are used.

A-21 cargo bag

The A-21 cargo bag is an adjustable container with a sling assembly, a quick-release assembly, two-ring straps, and a 97 × 115-inch canvas cover. To pack the A-21 cargo bag, spread the sling on the ground (or flat surface) with the cover on top, wrap the cargo in the cover, and then secure it with the sling. Thread the sling through the ring straps to the quick-release assembly and attach the parachute to the ring straps. This container has a 500-pound capacity and can be used to drop fragile and non-fragile supplies.

A-22 cargo bag

The A-22 cargo bag is an adjustable, cotton-duck cloth and webbing container consisting of a sling assembly, a cover, four suspension webs, and a skid. To pack the container, spread the sling out on a flat surface with the cover on top. Wrap the items of cargo in the cover and secure them with the sling. Attach the sling to the suspension webs and parachute. Attach the skid to the bottom of the sling using 1/2-inch tubular nylon webbing. Loads can be rigged in the A-22 cargo bag without the cover if the equipment does not slip through the sling assembly webbing. The A-22 cargo bag has a 2,200-pound capacity and can be used to drop fragile and non-fragile supplies. The maximum height of any A-22 is 83 inches including the parachute.

Airdrop platforms

As you can see, cargo slings and bags are limited by weight and the type of item being airdropped. At times you'll receive large lots, large single items, or equipment that exceeds the limitations of cargo containers. These items can be rigged for airdrop on platform loads. The type V platform is currently in use today. Cargo parachutes are rigged to the type V to slow its descent.

The type V airdrop platform is an all-aluminum platform and can be assembled in 8-, 12-, 16-, 24-, 28-, and 32-foot lengths. The maximum drop weight of the platform is 42,000 pounds and the

minimum weight is 2,500 pounds. Each main 24" x 101" panel has two panel tie-down rings, while the rear main panel has four tie-down rings. Each ring can restrain up to 5,000 pounds. All panels are held together by four roller pads bolted to the bottom of the platform. The type V platform is used for low-velocity airdrops.

013. Types of parachutes and extraction systems

The G-11B parachute weighs 250 pounds and has a diameter of 100 feet when the canopy is fully deployed (fig. 2-3). It is the largest of the parachutes we will discuss here. The canopy is flat and circular and is deployed by an extraction parachute. There are 120 suspension lines on the G-11B, each is 35-feet long. By using a 97-100-foot centerline (depending on configuration), the parachute will support a 5,000-pound maximum drop weight. The minimum drop weight is 2,270-pounds.

The G-12E parachute is flat and circular with a packed weight of 128-pounds. It has a canopy diameter of 64-feet when fully deployed. Like the G-11B, it is deployed by an extraction parachute or pilot chute. The G-12E has 64 suspension lines, all of which are 51-feet in length. The parachute can support up to 2,200-pounds when a 57-foot centerline is used. The minimum drop weight is 501-pounds.

The G-14 cargo parachute is 34-feet in diameter, with a drop capacity of 200-500 pounds (fig. 2-4). It provides the capability to deliver supplies and equipment using the low-velocity airdrop method. It weighs 37-pounds and has 32 suspension lines all of which are 27.5-feet long.

The 26-foot diameter, high-velocity cargo parachute also known as the *ringslot parachute*. This parachute provides high velocity air delivery of non-fragile items. The complete assembly weighs 22 lbs and can support up to a 2,200 pounds of vertical delivery. It is 20 in. long, 17 in. wide, and 10 in. high.

The extraction parachute is capable of extracting airdrop platforms from aircraft or stabilizing high-velocity airdrops (fig. 2-5). The extraction parachute with a flat, circular, ring-slot canopy, comes in three diameters—15, 22, and 28-feet. Depending on the diameter, the extraction parachute can produce a drag range of up to 28,000-pounds and is used to help deploying cargo parachutes.

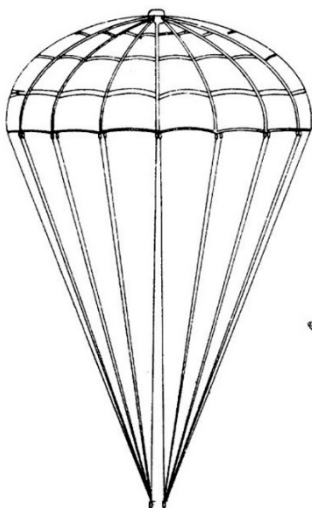


Figure 2-3. G-12E.

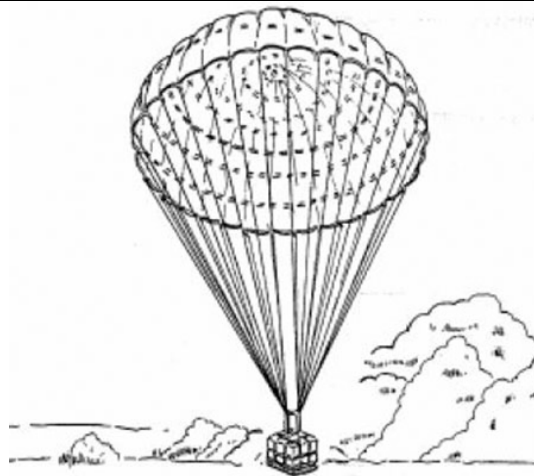


Figure 2-4. 26-foot high velocity cargo parachute.

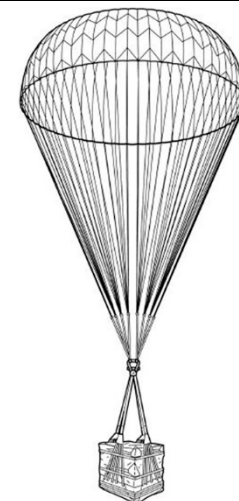


Figure 2-5. 15-foot extraction parachute.

Self-Test Questions

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

011. Types and methods of airdrop

1. To what do the terms *types* and *methods* of airdrop refer?
2. Match each type of airdrop in column B with its description in column A. Items in column B can be used once or more than once.

Column A

- ____ (1) Used for non-fragile items.
- ____ (2) The load is released from the aircraft and it free falls to the ground.
- ____ (3) Requires large, clear drop zones due to their large and complex loads.
- ____ (4) Requires stabilization parachutes to hold the loads upright.
- ____ (5) Requires no parachute.

Column B

- a. Free-drop.
- b. High-velocity.
- c. Low-velocity.

3. Match each method of airdrop in column B with its description in column A. Items in column B can be used once or more than once.

Column A

- ____ (1) Aircrew flies the aircraft so the nose is higher than the tail, allowing the cargo to slide out.
- ____ (2) The load is manually pushed or skidded out.
- ____ (3) A 15-foot stabilization parachute deploys first, followed by a 15-foot extraction parachute until force pulls the cargo out of the aircraft.
- ____ (4) Suitable for high- and low-velocity airdrops only.

Column B

- a. Door-load.
- b. Gravity.
- c. Extraction.

012. Types of containers and platforms

1. What is the capacity of the A-7A cargo sling when four straps are used? Three straps? Two straps?
2. What types of items can the A-21 cargo bag drop and what is the weight capacity?
3. When can you rig a load in the A-22 cargo bag without the cover?
4. What is the capacity of the A-22 cargo bag?
5. In what lengths can the type V airdrop platform be assembled?

6. What are the maximum and minimum drop weights of the type V airdrop platform?
7. On the type V airdrop platform, each ring can restrain how many pounds?
8. For which type(s) of airdrops are type V platforms used?

013. Types of parachutes and extraction systems

1. Match each airdrop parachute in column B with its description in column A. Items in column B can be used once or more than once.

<i>Column A</i>	<i>Column B</i>
___(1) Flat and circular with a packed weight of 128 pounds.	a. G-11B.
___(2) 34-feet in diameter with a drop capacity of 200–500 pounds.	b. G-12E.
___(3) Weighs 250 pounds with a diameter of 100 feet when the canopy is fully deployed.	c. G-14.
___(4) Comes in three diameters—15, 22, and 28 feet.	d. Extraction.
___(5) Weighs 37 pounds and has 32 suspension lines that are 27.5 feet long.	
___(6) Can support a 5,500 maximum and 2,270 minimum drop weights.	
___(7) Minimum drop weight is 501-pounds; maximum drop weight is 2,200-pounds when a 57-foot centerline is used.	
___(8) The largest parachute.	
___(9) Produces a drag of up to 2,800 pounds.	

Answers to Self-Test Questions

008

1. Contain a variety of options for commanders to consider as a crisis or contingency develops.
2. A situation that involves military forces in response to natural and man-made disasters, terrorists, foreign military operations, or as directed by the president or secretary of defense.
3. An incident or situation involving a significant threat to the US, its territories, citizens, military forces, possessions, or vital interests. A crisis typically develops rapidly with little or no warning.
4. Under joint procedures during crisis action planning.
5. A well-defined, written description of how combatant commanders will deal with a perceived threat in their areas of responsibility.
6. A geographical area.
7. Specific forces, functional support, and resources necessary to conduct joint operations of any type, from a single battle or noncombatant operation to a campaign that spans multiple operations and phases.
8. To develop sound concepts to potential situations.
9. Military operations in a peacetime environment, such as humanitarian assistance, disaster relief, peacekeeping, or counter-drug operations.
10. Five; they provide Air Force planners and leadership with all the functions necessary to match the facilities, personnel, and equipment with planned wartime activity.

11. (1) c.
(2) a.
(3) e.
(4) d.
(5) e.
(6) d.
12. The JSCP and the USAF WMP.
13. Both a process and a collection of automated computer systems used to develop OPLANS and TPFDDs.
14. 3, 5, 6, 7, & 8.
15. A capability package and is identified by a 5-digit alphanumeric code.
16. UFBRR.
17. From JOPES to DCAPES system, down to the base and unit levels.
18. The Air Force's automated war planning system designed for AF unique procedures and formats.
19. Implement the installation's deployment process IAW the IDP and translate those taskings into LOGMOD.
20. Schedules, controls, and monitors passenger and cargo movement via air or surface transportation using the tasking information it receives.
21. GATES, CMOS, and ICODES.
22. Material required, in addition to primary operating stocks and deploying equipment, to support wartime activities reflected in the USAF WMP. It is equipment and other resources, authorized for wartime, that are positioned where they are needed as starter stock or swing stock, or a combination of both, to maximize worldwide war-fighting capability.
23. Equipment required to support aircraft activity until air and sea lines are capable of sustaining operations and are usually positioned at or near the location it is needed.
24. Extra equipment assigned to support forward operating locations and can be positioned anywhere for flexibility to support multiple theaters.
25. For agile combat support and reduces the amount of time, resources, and effort it takes to transport equipment to the necessary locations during combat operations.
26. The MAJCOMs using the WRM.
27. WMP-4.
28. How much support that location provides for major combat operations.
29. Pallets and nets required for the movement of other WRM assets.
30. Part VI.
31. The MAJCOM vehicle functional manager.
32. WRM used to support military combat operations, small scale contingencies, noncombatant evacuation operations, and JCS taskings.
33. Direct support.
34. Indirect support.

009

1. Detailed deployment guidance that explains the installation's current deployment processes and mission, including contingencies, exercises, and other deployments.
2. When a unit lacks the people, equipment, or capability to fill its planned tasking.
3. (1) d.
(2) f.
(3) a.
(4) f & e.
(5) c.
(6) d.

- (7) b.
- (8) f.
- 4. IDO.
- 5. The IDO and other personnel from the logistics readiness and manpower and organization flights, logistics planning, personnel readiness, traffic management, air transportation, and others.
- 6. For smaller taskings that don't require full-scale support.
- 7. IDRC functions.
- 8. UDCC.
- 9. The installation's/wing's last set of eyes for all personnel processing activities.
- 10. Any five of the following: finance, legal, chaplain, services, amnesty box, baggage handling, American Red Cross, Airman and Family Readiness station, emergency data station, or ID station.
- 11. When passengers depart from their own home station or when the installation is designated as an "aggregation APOE."
- 12. An organization set up to assist AMC personnel and the deploying unit in moving passengers and cargo. It can consist of members from any service or any combination of them.
- 13. 1, 4, 5, 6, 7, 8, 9, 10, & 13.
- 14. (1) c.
 - (2) d.
 - (3) a.
 - (4) c.
 - (5) a.
 - (6) d.
 - (7) d.
 - (8) b.

010

- 1. DD Form 2133, Joint Airlift Inspection Record.
- 2. The deploying unit.
- 3. Six.
- 4. All the cargo for the chalk is present and available.
- 5. Three copies for each aircraft load. The aircraft loadmaster receives one signed copy with the cargo manifest and other documentation; the deploying unit representative receives another signed copy; and mobility force personnel retain the last signed copy for inclusion in the station file.
- 6. The AMC Director of Operations or the service or major command having operational control of the aircraft.
- 7. The local time the JI actually started.
- 8. A check mark; an "X."
- 9. Place a circle around the "X."
- 10. Leave it blank (N/A may also be used).
- 11. Block 11.
- 12. Steam clean or pressure wash the item.
- 13. Fuel or brake system leaks.
- 14. Consult applicable aircraft Dash 9 TO or ATTILA certification.
- 15. $\frac{3}{4}$ tank; $\frac{1}{2}$ tank.
- 16. $\frac{1}{2}$ tank.
- 17. In approved racks, secured to the vehicle or support equipment and completely drained.
- 18. It is considered a steel wheel or hard rubber wheel.

19. Ensure all vent kit materials are with the cargo.
20. Three pieces of dunnage each measuring 4" x 4" x 88".
21. $\frac{3}{4}$ tank or 150-gallons per tank, whichever is less.
22. Use a minimum of one-half ($\frac{1}{2}$)-inch diameter rope (not nylon) or approved cargo restraint systems.
23. Could be subject to disciplinary action under the UCMJ and/or civil penalties outlined in CFR 49 Part 107 Subpart D.
24. List and explain, in detail, any discrepancies found during the inspection and actions taken to correct the problem. Pertinent information regarding the specific item will be listed in this block.

011

1. Types refer to the rate of descent of the loads. Methods refer to the way the loads exit the aircraft.
2.
 - (1) a.
 - (2) a.
 - (3) c.
 - (4) b.
 - (5) a.
3.
 - (1) b.
 - (2) a.
 - (3) c.
 - (4) c.

012

1. 500 pounds; 400 pounds; 300 pounds.
2. Fragile and non-fragile; 500 pounds.
3. If the equipment does not slip through the sling assembly webbing.
4. 2,200 pounds.
5. 8-, 12-, 16-, 24-, 28- and 32-foot lengths.
6. 42,000 pounds and 2,500 pounds.
7. 5,000 pounds.
8. Low-velocity.

013

1.
 - (1) b.
 - (2) c.
 - (3) a.
 - (4) d.
 - (5) c.
 - (6) a.
 - (7) b.
 - (8) a.
 - (9) d.

Complete 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.

37. (008) Which important part of the time-phased force and deployment data (TPFDD) is identified by a five-digit alphanumeric code and is simply a capability?
 - a. Unit type code (UTC).
 - b. Document identifier (DOC ID).
 - c. Transportation account code (TAC).
 - d. Transportation control number (TCN).
38. (008) War reserve material (WRM) is equipment and other resources, authorized for wartime to maximize war-fighting capability, that are positioned as
 - a. daily operating stock and starter stock or a combination of both.
 - b. daily operating stock and swing stock or a combination of both.
 - c. swing stock and starter stock or a combination of both.
 - d. daily operating stock only.
39. (008) The benefit of pre-positioning war reserve material (WRM) is to
 - a. reduce the amount of time, resources, and effort it takes to transport equipment to the necessary locations during combat operations.
 - b. provide staging bases an opportunity to freely use their WRM stocks for authorized indirect support.
 - c. allow the installation deployment officer (IDO) to use it for installation deployment training.
 - d. facilitate installation-to-installation rotation to integrate into their daily operating stocks.
40. (008) War reserve material (WRM) is tasked through
 - a. Joint Operation Planning and Execution System (JOPES) and the time-phased force and deployment data (TPFDD) procedures.
 - b. Headquarters Air Force (HQ AF) official message procedures.
 - c. the Global Air Transportation Execution System (GATES).
 - d. Transportation Account Code (TAC) assignment.
41. (008) Which 463L pallets and nets are designated as war reserve material (WRM)?
 - a. Only 463L pallets and nets that belong to Air Mobility Command (AMC) units.
 - b. Only 463L pallets and nets required for the movement of other WRM assets.
 - c. All serviceable 463L pallets and nets in the Air Force's inventory.
 - d. No 463L pallets and nets are designated as WRM.
42. (008) Which war reserve material (WRM) support falls under *indirect support* and should be limited?
 - a. Non-combatant evacuation operations.
 - b. Joint and Air Force exercises.
 - c. Military combat operations.
 - d. Small-scale contingencies.
43. (009) If you, as a cargo deployment function (CDF) representative, have directed the deploying unit to move from the alert holding area, to which area will they move?
 - a. Marshalling area.
 - b. Call forward area.
 - c. Frustrated cargo area.
 - d. Ready line/loading ramp area.

-
-
44. (009) If you are performing a joint inspection (JI) in the cargo deployment function (CDF), in which area of activity are you working?
- a. Marshalling area.
 - b. Call forward area.
 - c. Alert holding area.
 - d. Ready line/loading ramp area.
45. (009) If you are directing aircraft loading and supervising load team members in the cargo deployment function (CDF), in which area of activity are you working?
- a. Marshalling area.
 - b. Call forward area.
 - c. Alert holding area.
 - d. Ready line/loading ramp area.
46. (009) If the deploying unit can no longer make changes to the cargo, in which cargo deployment function (CDF) area of activity is it located?
- a. Marshalling area.
 - b. Call forward area.
 - c. Alert holding area.
 - d. Ready line/loading ramp area.
47. (010) After a joint inspection (JI) is complete, copies of the DD Form 2133, Joint Airlift Inspection Record, are distributed to all of the following *except* the
- a. deploying unit representative.
 - b. mobility force inspector for inclusion in the station file.
 - c. installation deployment officer for review and approval.
 - d. aircraft loadmaster with the cargo manifest and other documentation.
48. (010) Before a deploying unit can claim their cargo is exempt from inspection due to sight-sensitivity, they must first receive approval from
- a. their group or higher level commander.
 - b. US Transportation Command (USTRANSCOM).
 - c. the service or major command having operational control of the aircraft.
 - d. the airfield management commander or the highest ranking member of the aircrew.
49. (010) When completing the heading information on the DD Form 2133, Joint Airlift Inspection Record, what information will you enter in Block 6, START TIME?
- a. Local time the joint inspection (JI) actually started.
 - b. Local time the JI is scheduled to start.
 - c. Greenwich Meantime (GMT) the JI actually started.
 - d. GMT the JI is scheduled to start.
50. (010) Before a vehicle is considered satisfactory during a joint inspection (JI), it *cannot* have any leaks coming from the
- a. cooling system.
 - b. brake system.
 - c. crank case.
 - d. gear case.
51. (010) Before a vehicle can be accepted for airlift on a C-17 with $\frac{3}{4}$ tank of fuel, the deploying unit must have
- a. Chapter 3 authorization.
 - b. Attachment 3 authorization.
 - c. their unit commander's authorization.
 - d. installation deployment officer (IDO) authorization.

52. (010) Before a vehicle can be accepted for airlift on a KC-10 with $\frac{3}{4}$ tank of fuel, what must the deploying unit have?
- Chapter 3 authorization.
 - Attachment 3 authorization.
 - Headquarters Air Mobility Command (AMC) authorization.
 - Vehicles on KC-10s are never allowed to carry $\frac{3}{4}$ tank of fuel.
53. (010) Before any Department of Transportation (DOT) 5L Jerricans can be accepted for airlift, they must be
- completely drained of fuel.
 - authorized under Chapter 3.
 - palletized using belly bands.
 - placed in performance-oriented fiberboard boxes and strapped securely inside a vehicle.
54. (010) Before a vehicle with an accompanying load can be accepted for airlift during a joint inspection (JI), its cargo must be restrained with a minimum of
- $\frac{1}{2}$ -inch diameter rope.
 - $\frac{1}{2}$ -inch diameter nylon rope.
 - $\frac{1}{2}$ -inch diameter bungee cords.
 - straps of any size from a commercial source.
55. (010) Before a lox cart can be accepted for airlift during a joint inspection (JI), you must ensure
- vent kit materials are present with the cargo only.
 - a qualified technician is available to vent the cart at loading time only.
 - vent kit materials are present with the cargo and a qualified technician is available to vent the cart at loading time only.
 - vent kit materials are present with the cargo, the vent gauge reads less than 10-pounds per square inch (psi), and a qualified technician is available to vent the cart at loading time only.
56. (010) During a joint inspection (JI), if a pallet is secured using straps or chains, before the pallet can be accepted for airlift, you must ensure
- all tie down is serviceable and properly installed only.
 - all tie down is properly installed and provides restraint in all directions only.
 - all tie down is serviceable, properly installed, and provides adequate restraint in all directions only.
 - each ring on the pallet has no more than three chains or straps installed and tie down provides restraint in all directions only.
57. (010) During a joint inspection (JI), before a pallet can be accepted for airlift, what must you ensure in terms of dunnage requirements?
- There are no dunnage requirements for pallets.
 - Three pieces of any size and made of the proper material accompanies each pallet.
 - Two pieces, each measuring 4" x 4" x 88" and made of the proper material, accompanies each pallet.
 - Three pieces, each measuring 4" x 4" x 88" and made of the proper material, accompanies each pallet.
58. (010) During a joint inspection (JI), before a helicopter with one 300-gallon-capacity fuel tank can be accepted for airlift, what is the *maximum* amount of fuel that tank can have in it?
- $\frac{3}{4}$ tank.
 - 150 gallons.
 - 225 gallons.
 - Drained and purged.

59. (011) Which type of airdrop requires no parachute?
- a. Freedrop.
 - b. Extraction.
 - c. Low-velocity.
 - d. High-velocity.
60. (011) Which method of airdrop is used when loads are manually pushed or skidded out of the aircraft?
- a. Gravity.
 - b. Freedrop.
 - c. Door-load.
 - d. Extraction.
61. (011) Which method of airdrop begins with a 15-foot drogue parachute deploying and ends with the main cargo parachute deploying after the platform *exits* the aircraft?
- a. Type V.
 - b. Gravity.
 - c. Door-load.
 - d. Extraction.
62. (012) Each ring on the Type V airdrop platform can restrain up to how many pounds?
- a. 5,000.
 - b. 7,500.
 - c. 10,000.
 - d. 25,000.
63. (013) Which parachute has a drop capacity of 200–500-pounds?
- a. G-11B.
 - b. G-12E.
 - c. G-14.
 - d. Extraction.

Please read the unit menu for unit 3 and continue ➔

Student Notes

Unit 3. Air Transportation Vehicles and Material Handling Equipment

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ASIDE FROM YOU, our vehicles are one of the most important assets in the Air Force. Think of how you would load a C–5 without a K-loader, build a pallet without a forklift, or service an aircraft latrine without an LST. Without these critical resources, your job would be more difficult and take longer at the very least. This is why we need to protect these important assets so we can continue to use them for years to come. To protect them, we must know how to operate and inspect them properly. That is where this unit will focus—on the proper care and operation of our vehicles and equipment. We will cover inspection—again a major part of operation—and then we will get into the operation of forklifts, K-loaders, passenger buses, staircase trucks, baggage conveyors, LSTs, potable water trucks (PWT), warehouse tugs, and pintle hooks. Let’s first take a look at inspection procedures.

3–1. Inspection and Materials Handling Equipment

A huge part of operating any vehicle is to know how to inspect it to ensure it is working properly. Inspecting your vehicle not only protects it and makes it last longer, but inspecting your vehicle ensures the vehicle, you, and those around you are safe. This cannot be stressed enough. Identifying and preventing minor hazards early can prevent major mishaps later on. It is critical for everyone to conduct thorough vehicle safety inspections prior to operating any government vehicle, but it doesn’t stop there. You must also inspect your vehicle after you’re through using it to make sure no damage occurred during use. In fact, in order to become qualified to operate a vehicle, you must know how to inspect and maintain it, unique to its particular features and capabilities.

014. Inspection procedures

Before you ever start the actual vehicle inspection, ask yourself (and comply with) the following questions:

- Have I removed all my jewelry and do I have the proper PPE?
- Are the vehicle chocks in place?
- Is the parking brake on?
- Are the gear shift levers in park or neutral? If you can answer yes to all four questions,

perform the inspection. If not, correct what you need and continue.

General vehicle inspections

A vehicle inspection can be divided into a three-part operation: before, during, and after. Throughout the inspection process, and IAW AFI 24–301, *Vehicle Operations*, you will use the AF Form 1800, Operator’s Inspection Guide and Trouble Report.

AF Form 1800, Operator's Inspection Guide and Trouble Report

The AF Form 1800 prints out in two full-size pages and is used as an easy-to-follow checklist to inspect all vehicles you will use as an air transporter. Print the two pages back to back and fold them in half to create a small booklet once folded. The "Operator's inspection guide and trouble report" should be on the front cover of the booklet. The "Operator's monthly requirement" will be on the inside portion, and the "Items to be checked" will be on the back cover of the booklet. You must print one of these forms for each vehicle once a month. You will use it to inspect the vehicle every day during each shift. Ensure these forms are kept dry and accessible within the driver's area of these vehicles.

The front cover contains the month and year; the vehicle type and registration number; your squadron, base, and phone number; and your vehicle control officer's (VCO) name and phone number. If the information is already present, verify it is accurate. It's easy to place these forms in the wrong vehicle. If it's not present, enter the information requested.

The next section on the page is divided into the days of the month, whereupon the days are further divided into three different shifts. The vehicle operator signs his or her last name in the designated shift/signature block when the vehicle inspection is complete.

Skipping to the back cover, there are 40 inspection items on the checklist, but you are only required to inspect the items that apply to your vehicle.

Back Cover of Form 1800 (Items to be Checked)		
1	Cleanliness/Damage/ Missing items/Unusual noise or occurrence	Walk around the vehicle and check inside to note the overall appearance and evidence of damage. Check for missing or damaged hardware, inside and out. During operation, listen for any unusual noises or occurrences.
2	Leaks/Fluid levels	Visually check for any leaks. Check the oil, coolant, hydraulic, transmission, and brake fluid levels.
3	Safety devices	Check for the presence and operation of all safety devices and wiring, including all the lights, horn, warning devices, reflectors, mirrors, and seat belts.
4	Batteries/Instruments/ Gauges	Check the battery fluid; ensure the battery is not damaged and that it is secure and clean. Function-check all the gauges and instruments, which should all be in good working order and within normal operating limits.
5	Drive belts/Pulley/Motor	Visually check for fraying, cracking, or tension.
6	Steering/Springs/ Shackles	Check for free play and excessive wear.
7	Exhaust system/Spark arrestors	Check for damage or leaks.
8	Tires/Wheels/Tracks	Ensure lug nuts are present and properly installed. Ensure tires/wheels/tracks are in good condition with no cracks, holes, or foreign objects in them. Ensure tires are properly inflated.
9	Heater/Defroster/Air conditioner/Auxiliary generators/Aux heaters	Function-check each item applicable to your vehicle.
10	Brakes/Clutches/ Accelerator pedal	Ensure brakes are operational, including the parking brake. Ensure the clutch and accelerator pedal operate properly and are not damaged or worn.
11	Windshield	Ensure the wipers function properly, there are no cracks in the windshield, and a proper level of washer fluid.
12	Hydraulic hoses/ Cylinders/Valves	Ensure all hoses, cylinders, and valves are not damaged, frayed, or leaking.

Back Cover of Form 1800 (Items to be Checked)		
13	Cold weather aids	If your equipment has cold weather aids such as ether, alcohol injector, battery heater, oil-engine heater, coolant heater, etc., make sure they are present and function properly.
14	Power take-off (PTO)	Ensure PTO shielding is in place and nothing can get caught in the machinery. Ensure the PTO has no damage and functions properly.
15	Winch/Tow connections	Ensure all connections have all required hardware and safety/cotter pins and they all function properly.
16	Air tanks	Ensure air tanks are drained as required after each operation or daily.
17	Mast tines/Rollerized tines	Ensure tines are installed/attached properly, all hardware is in place, and functioning properly.
18	Rollers/Power conveyors/ Rails/ Ladders/Catwalks/ Cargo bed	Ensure <i>all</i> required hardware is present, installed properly, and free of damaged and missing parts. Ensure all moveable parts operate as <i>required</i> in all required directions.
19	Bed (K-Load) Top/Half/ Lowest/Roll/Shift/Yaw	Ensure the K-loader platform/bed can raise, lower, and move in all directions it is supposed to move.
20	Lower lobe Cab shift	Ensure vehicles that have this feature can perform this function properly.
21	Emergency standby system	Function check all systems for proper operation.
22	Markings-check legibility	Check required markings (watch step, yellow lines on loader, etc.) to ensure they have not worn off and are still legible.
23	Chutes/Augers/Fan blades/Wear shoes	Check for damage and proper operation.
24	Drums/Crowns/Fair leads	Check for damage and proper operation.
25	Booms/Outriggers/ Basket/Platform/ Turntable	Check for cracks, damage, and proper operation.
26	Brooms/Sprockets/ Chains	Check for damage, cracks, missing hardware, and proper operation.
27	Blades/Reels/Sickle Bars/Flails	Check for damage, missing hardware, and proper operation.
28	Kettle/Hoisting Mechanism/Agitators	Check for damage and proper operation.
29	Sheaves/Blocks/Cables	Check for damage, fraying, wear, and proper operation.
30	Moldboards/Bowls/ Cutting Edges/Skids	Check for damage and proper operation.
31	Pumps/Piping/Discharge Valves/Spare Bars	Check for leaks, damage, corrosion, and proper operation.
32	Firefighting Specialized Equipment/Safety Devices	Ensure any firefighting tools, ladders, generators, rope, fire extinguishers, etc. are present (if required), free of damage, operational and/or within required levels.
33	Firefighting System Operation and Foam Water Levels	
34	Auxiliary firefighting system (nitrogen tank pressure, agent levels, etc.)	
35	Hoses/Reels/Handlines/ Turrets	Check for damage and proper operation.
36-40	Other (Specify)	Inspect and annotate anything else unique to your vehicle and not otherwise covered on the form.

The inside section consists of two parts: the operator's monthly requirement and the vehicle/equipment discrepancy and maintenance report.

At the beginning of every month, VCOs and/or vehicle operators must record the number of miles and hours each vehicle has been driven. They must also check and record the tire pressures for each vehicle along with checking the serviceability of each fire extinguisher and perform an Air Force Technical Order (AFTO) "AFTO packet check." This information is annotated in the top portion of the form along with the names of the operators and dates they checked the information.

You use the second portion of the form to annotate vehicle inspection discrepancies. As you inspect each item on the checklist, annotate in pencil, all the discrepancies you find on this portion of the form, to include the discrepancy item number on the back cover, details of the discrepancy no matter how trivial, the date you discovered the discrepancy, the date and time you reported it to maintenance, the number of miles and/or hours on the vehicle when you discovered the discrepancy, and your printed name.

After you have completed your inspection and you have annotated all the discrepancies on the form, turn the vehicle in to the vehicle maintenance shop for repair; try to obtain a good estimated time of in-commission (ETIC) when you may get the vehicle back for operational use. Letting a vehicle go without maintenance or repair—even minor issues—can damage it further. Worse yet, it can result in an unsafe situation for the operator and those around you. Vehicle maintenance personnel fill out the rest of the form, which outlines the vehicle's status.

The most important thing you can do is learn your vehicle's features, components, and safety concerns, inside and out. If you know that, all you have to do is use the AF Form 1800 as a guide to inspect it. Since forklifts and K-loaders have many unique features, let's talk a little more in depth about inspecting them.

Before-operation inspection

In the before-operation inspection, the vehicle remains off. Verify the correct vehicle registration number is on the AF Form 1800 so you don't inspect your vehicle using another vehicle's form. Review the waiver card (if applicable) to determine which existing discrepancies (e.g., scratches, dents, peeling paint) have already been identified and will not require you to re-identify them. Review the inside of the AF Form 1800 for any open discrepancies (engine lights on). Ensure the items that are supposed to be checked off at the beginning of each month are annotated (e.g., tire pressure, fire extinguisher, etc.). Make sure the vehicle has all of the following required forms:

- AF Form 1800, Operator's Inspection Guide and Trouble Report.
- Waiver card, if applicable.
- DD Form 518, Accident Identification Card.
- Standard Form 91, Motor Vehicle Accident Report.

The before-operation inspection also requires you to check all fluid levels and the operation of manually-operated equipment while the vehicle is not running. The purpose of this particular inspection is to make sure the vehicle is safe and in-commission before operating it. Make a complete walk-around check of the vehicle checking for any damage, FOD, tire tread wear, and so forth. You do not want to be responsible for the last driver's carelessness or lack of integrity.

During-operation inspection

Once you determine the vehicle is safe to operate, begin the during-operation inspection. Start the vehicle engine, check the operating lights and the instrument panel lights, and listen for any unusual noises. Operate all mechanical parts (i.e., raising and lowering forks, spreading and tilting forks, checking movement functions on the bed of K-loaders, deck rollers, brakes, etc.) to make sure they are operational. While the vehicle is running, you must also check the transmission fluid as well. Use the AF Form 1800 as a guide during this task. When you have completed a thorough inspection

and are sure the vehicle is safe to operate, make any annotations in the appropriate blocks of the AF Form 1800; however, the inspection doesn't stop here; you must continue to monitor the vehicle while you are using it throughout your duty day and/or shift. If you hear any unusual noises, or your gauges indicate trouble, shut down the vehicle, determine the source of the problem, and take appropriate measures. Imagine the steps and care you give to your personal vehicle and treat your work equipment and vehicles the same way.

After-operation inspection

Once you finish using the vehicle, place it in neutral or park and set the parking brake. Turn off the engine and place the chocks appropriately. Now you can start the after-operation inspection. Walk around the vehicle to check for leaks, tire pressure, and any damage that may have occurred during use.

As you can see, inspecting a vehicle is a continuous process. It is your responsibility to ensure these expensive systems are properly used, inspected, and maintained. Let's go over the AF Form 1800 in detail.

Specific inspection procedures for forklifts and K-loaders

In the before-operation inspection, the forklift or K-loader engine will be turned off and on the forklift, the engine compartment will be closed. Check the interior and exterior of the forklift or K-loader for the following:

- Cleanliness, damage, missing items.
- Leaks from the undercarriage.
- Properly mounted and charged fire extinguisher with a present and serviceable safety pin/seal.
- Legible, damage free markings, stencils, and warning labels.
- Operational fans, windows, and damaged windshields if equipped with a cab.
- Secure caps on the fuel tank(s)/bolt.
- Trash and FOD.
- Damaged, secure, FOD-free tires, lug nuts, and wheels, ensuring sufficient tread.
- Damage and leaks from the muffler and exhaust system.
- Cracks, frays, tears, and rips in the seats and seatbelt.
- Cracks, tears, slippery floor mats, and pedal covers (if applicable).

In addition, you'll also need to inspect the forklift for leaks or damage from the steering rods, cargo carriage, and cylinders. Also make sure the mast, tines, and other areas are properly lubricated as required.

On the K-loader, during the before-operation inspection, you'll need to look for these additional inspections items:

- Damaged, unsecure rails, and improperly installed or missing pins.
- Cracked, leaking, or damaged lift, suspension, and deck movement cylinders.
- Damaged and unsecure storage boxes.
- Damaged and unsecure clevises.
- Damage on the ladder.
- Operational and serviceable rails, rollers, locks, and tie-down rings.
- Heater fuel tank sight gauge level, if applicable.
- Air filter gauge reading.
- Cracked or torn mud flaps.
- Damaged lenses.

While still in the before-operation inspection for a forklift or K-loader, you'll need to check further for the following items.

Keep in mind, you'll need to open the hood of the forklift to check these items.

- Leaks under the hood (forklift).
- Hydraulic fluid levels.
- Frayed or exposed wires.
- Cracked or abnormal hoses.
- Cracks, frays, or tension on the belts.
- Damaged or corroded batteries.
- Secure batteries and battery terminals.
- Oil, coolant, and brake fluid levels.

In the during-operation inspection, start the forklift or K-loader, making sure you follow all the safety precautions mentioned previously, and check or look for the following:

- Unusual noises, vibrations, and odors.
- Working head, reverse, tail, brake, rear work or spot, hazard, and gauge lights.
- Operational and serviceable dome light, windshield wipers, blades, heaters, and defrost fans on vehicles with cabs.
- Free play and excessive wear in steering and on steering wheel.
- Operational inching pedal and parking brake.
- Movement in forward and reverse with a check for responsiveness of the service brake.
- Proper readings and operation of instruments and gauges.
- Operational horn and parking brake.
- Operational and serviceable mast, tines, hoses, reels, hydraulic cylinders, and chains.
- Proper low and high gear operation of transmission.
- Proper operation of the emergency pull lever or emergency shutdown switch.
- Operational deck function in all directions (lift, lower, roll, shift, pitch, yaw) as applicable to the loader.

Additionally, on the Halvorsen, check the hydraulic pressure gauge on top of the hydraulic tank. This requires two people to complete—one to safely check the gauge while the other is in the cab.

Before this part of the inspection is complete, in both the forklift and K-loader, check the transmission fluid with the engine running. Don't forget to chock your vehicle while doing so; in forklifts, lower the tines level to the ground.

In the after-operation inspection, the procedures are the same as mentioned previously—simply check for any leaks or damage that may have occurred during operation.

015. Forklifts

Forklifts operate with gasoline, diesel fuel, or electricity and have lifting heights of 5–17.5 feet. They are used to lift, transport, and stack cargo and equipment.

Lifting capacities for forklifts range from 1,000–15,000 pounds. The weight of the forklift itself acts as a counterbalance for the weight being lifted. The lifting capability is determined by the center of gravity of the load in relation to its position on the forks.

In this lesson, we will discuss how to operate forklifts. Most forklifts operate in the same general manner, so we will not repeat common information for each particular forklift.

4K-forklifts

4Ks operate with electricity, gas, or diesel and are used to handle items too heavy and bulky to be lifted by hand. The 4K's maximum load capacity is 4,000 pounds. These forklifts are used mostly in the warehouse and when building or breaking down pallets. This forklift is handy when working in tight spaces because its short wheelbase allows you to make tight turns. This feature can also make it fairly easy to tip over if you drive it too fast while you turn.

The tines on 4Ks can range anywhere from 36–48 inches, and they can be driven in forward or reverse when transporting loads. The forks can be tilted forward or backward, side shifted five inches to the right or left, and adjusted for load balance. They can lift up to 144 inches high.

10K-forklifts

The 10K-forklift is a self-propelled, air-transportable vehicle used primarily for moving and loading 463L pallets (empty or built). The 10K standard forklift is 95 inches high, can have fork lengths anywhere from 48–72 inches, and a maximum lifting capacity of 10,000 pounds. It can lift up to 150 inches high. Power is provided by a six-cylinder gasoline engine or a four-cylinder diesel engine coupled with a hydraulically power-shifted transmission.

The diesel 10K-forklift is the more common of the two and is powered by a four-cylinder diesel engine with a 35-gallon capacity fuel tank. The transmission has two forward-speed ranges and two reverse-speed ranges. They are usually driven backwards when transporting full-size pallets due to limited forward visibility when cargo is on the tines. Electrical systems are operated by a 12-volt battery. The vehicle is equipped with six pneumatic tires—four in the front (front duals) and two in the rear. The rear tires do the steering. Remember to keep the tire pressure between 90–100 psi.

Carriage and forks

The hydraulic system provides the power to control the carriage (or mast) and forks. The hydraulic system consists of a hydraulic pump, hydraulic tank, and levers that regulate control valves. The hydraulic pump is belt driven by the engine. It provides power to the cylinders that control the carriage and forks. The control levers you use to operate the carriage and forks regulate the amount of hydraulic fluid in each system.

These fork and carriage controls, located beside the driver's seat, allow you to tilt, shift, lift, and adjust the width of the forks without getting off the vehicle. To engage the directional adjustment, grasp the lever for the desired operation and either push it forward or pull it backwards. Arrows on the lever show the operating direction. Regardless of function, all levers work the same. For example, if you want to spread the forks, grasp the forks lever and push it forward. This controls the hydraulic system so that the forks spread apart. Any time you make fork adjustments, raise the engine speed slightly to prevent the engine from stalling.

Brakes

To brake, press the brake pedal which is connected to the hydraulic system. This forces fluids through the lines to the brake booster. The brake booster uses an engine vacuum for a balanced braking action. Besides the power brakes, the 10K is equipped with a parking brake. Engage the parking brake manually when the vehicle is not in use or when you are near an aircraft.

Inching pedal

The 10K-forklift has three pedals. The right pedal is the gas, the middle one is the brake, and the left is the inching pedal. The inching pedal controls the vehicle in confined areas. When you push the pedal in, the vehicle slows and the transmission disengages. This allows you to have smooth, positive control of the vehicle. It also allows you to move forward or backward in small increments. Anytime you load an aircraft, use the inching pedal to approach the ramp for final positioning.

Instruments

You have to monitor several instruments when operating the 10K-forklift. They are used as a warning system to alert you when the vehicle is not operating properly.

Instrument	Function
Low engine temperature light	Glows when you start the forklift. It stays on until the coolant reaches minimum operating temperature. Do not move any heavy loads when this light is on.

Instrument	Function
High engine temperature light	Stays off during normal operation. It only glows when the engine coolant overheats.
Low engine oil pressure light	Stays off under normal use. It glows to indicate that the oil pressure is below normal operating level and can be harmful to the engine.
High transmission oil temperature light	Also stays off under normal use. It glows to indicate that the transmission is being overworked.
Battery discharge indicator light	Stays off under normal use. It glows to indicate that the battery is not being charged.
Hour meter	Registers total engine running hours.
Fuel gauge	Shows the level of fuel remaining in the fuel tank.
Horn button	Located in the center (sometimes off to one side) of the steering wheel. Like other vehicles, it is used to sound the horn.

NOTE: Whenever one of these instruments lights up or stops working, stop the vehicle immediately because continued operation could cause major damage or place you and others in an unsafe situation.

10K adverse terrain forklift

This forklift, as the name states, is designed for operating on rough terrain as evidenced by its very large, balloon tires. Like the 10K-forklift, the 10K adverse terrain (AT) forklift (fig. 3-1) is used for loading, unloading, lifting, transporting, and stacking cargo or bulk articles on pallets. It is also used to load and unload pallets on K-loaders and aircraft. A diesel engine powers the 10K AT and also drives the two hydraulic pumps. The hydraulic pumps power the steering, brake, and fork hydraulic systems.

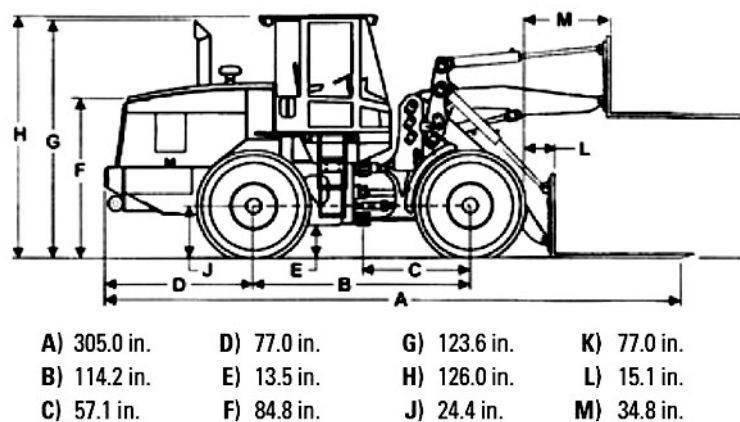


Figure 3-1. 10K AT forklift.

Steering system

The steering system is a full-power type. A gear-type pump provides a constant supply of hydraulic oil. Steering is accomplished by pivoting the front frame with respect to the rear frame. This is known as an *articulated* frame or steering. What this means is that when you turn the steering wheel, the wheels do not turn; instead, the front and rear frames pivot.

Carriage and forks

You can raise, lower, or tilt the fork attachment on the 10K AT. You can also adjust the space between the forks. These functions are hydraulically controlled. The fork attachment also provides a carriage backrest to help prevent parts of a load from tipping backwards over the carriage frame. The 10K AT can lift up to 10,000 pounds to a height of up to 75 inches. The rollerized tine attachment available for this forklift consists of two units that slide over the forks and pin into place.

These units allow you to roll pallets on and off the fork tines. If you use them, secure the pallet to the carriage before moving the forklift.

Safety considerations

No matter which forklift you are operating—the 4K, 10K, or 10K AT—you must operate it safely for yourself, for others, for the forklift, the aircraft, and the cargo you are moving. Here are some general operating procedures:

1. Stay within the vehicle's rated capacity.
2. Allow only the forklift operator on the forklift—no riders.
3. Operate in well-ventilated areas to avoid inhaling fumes.

Clearance

You must always consider clearances:

1. Drive slowly or use a spotter when approaching corners and confined spaces within warehouse or cargo yards.
2. Watch for low overhead clearances such as warehouse roll doors.
3. Drive with the forklift tines only high enough to clear obstacles, about 2–4 inches high.
4. Always have a spotter if you cannot see where you are going or are in the vicinity of an aircraft.
5. Never travel faster than 5 miles per hour in the vicinity of aircraft or in a warehouse.
6. Stay clear of loading dock edges.
7. When transporting bulky loads, drive backwards for better vision.

Load stability

Stability is also an issue:

1. Don't make any sudden stops. This could cause the load to jerk back and forth and possibly tip.
2. Keep the tines positioned as far apart as possible to get maximum stability for the load.
3. Keep the cargo as close as possible to the carriage and slightly tilted back to keep the load from falling forward.
4. Always bring the forklift to a complete stop before raising or lowering a load. Never raise or lower a load when moving.
5. Travel in reverse gear when traveling down an incline.
6. Travel in forward gear when traveling up an incline.
7. Do not transport empty pallets higher than eye level. This can cause an unsteady load and become a potential source of injury or property damage.

Parking

Parking forklifts also requires safety practices:

1. Tilt the mast/carriage so the tines are level with the ground and lower the forks flat to prevent injury to personnel working or walking in the area.
2. On parked/unattended forklifts, place the operating levers in neutral, turn off the ignition, and set the handbrake.

016. K-loaders

K-loaders load and unload aircraft more efficiently than forklifts. K-loaders are made to transport palletized cargo, vehicles, and skidded loads between storage areas and cargo aircraft. In this lesson, we will cover the Tunner and the Halvorsen loaders.

60K Tunner loader

The 60K-loader or Tunner is the most complex K-loader in the Air Force inventory. Named after General William H. Tunner, who directed the Burma Hump, Korean, and Berlin airlifts, it was engineered from the ground up as an entirely new system for loading and unloading aircraft and transporting loads. In itself it weighs 66,000 pounds and has a loading capacity of 60,000 pounds and can hold up to six 463L pallets. As a result of its additional features, it can load all aircraft typically used by the Air Force and AMC.

Deck functions

The deck of the Tunner is 171 inches wide and 592 inches long and has four rows of roller trays that run the length of the deck. Nine omni-directional rollers can be used with the power conveyor for turning pallets. Four tie troughs for forklifts aid in loading pallets.

26 pallet restraints or locks are along the two pallet rails and 40 tie-down rings, rated at 5,000 pounds each, run the length of the deck. It also features an operator-controlled right rail in the middle of the deck that can be removed for side loading.

The Tunner has a power conveyor system that eases loading and unloading palletized or containerized cargo. Hydraulically powered solid rubber rollers are recessed in the cargo deck. This system has 10 sets of rollers, nine of which are used for forward and aft movement of pallets or shipping containers, while the 10th set is used for side loading the Tunner between pallet positions three and four.

The Tunner's deck can be raised and lowered. Its maximum height is 222 inches, which allows it to reach large, low-wing aircraft like the KC-10 and B-747. Personnel who operate forward or behind the forward and aft yellow lines (last rear pallet lock) on the deck must be trained to wear an appropriate safety harness when the deck is raised 10 feet from the ground or higher. It can also be lowered to 41 inches for other aircraft. The Tunner also has a forward deck extension and catwalks that allow container loading on commercial aircraft. This extension has a rated capacity of 10,000 pounds and stows beneath the center front deck when not in use. The deck extension does not increase the Tunner's 60,000-pound lifting capacity but allows it to reach up to the underside of aircraft equipped with belly compartments for cargo and/or bags.

Its deck can move in many different directions: pitch, roll, shift, and yaw. *Pitching* is when the operator lowers either the front or rear of the deck to slant it. The Tunner is capable of pitching six degrees forward and aft to align with aircraft cargo floors. *Rolling* is when the entire deck rises up on only either the right or left side. The Tunner is capable of rolling four degrees right and left. *Shifting* is when the entire deck moves either to the left or right. The Tunner is capable of shifting three inches right and left from the center to align with aircraft. *Yawing* is unique to the Tunner and is basically either a front or rear swing to the right or left. It's like a shift, but the entire deck doesn't move—only the front or rear. The Tunner is capable of yawing three inches at either end in either direction. Yawing is useful when the loader is crooked and doesn't line up with the aircraft rails.

Steering, suspension, and drive systems

A turbo-charged, fuel-injected, electronically governed, 5.2 liter, V-6 engine powers the Tunner, which can run on diesel fuel and turbine engine (jet) fuel, if necessary.

The Tunner has five axles evenly spaced along the loader's chassis. Two axles (2 and 4) provide propulsion via hydrostatic drive motors. (There are no drive shafts on the Tunner.) Four axles provide steering (1, 2, 4, and 5) through a combination of hydraulics and mechanical linkage. The front two axles turn in the direction the operator turns the steering wheel, while the back two axles turn in the opposite direction and pivot around the third (middle) axle. This type of steering, known as *articulated*, provides the Tunner with a turning radius of 50 feet and increased load stability. At 49 feet long, the loader can turn almost within its own length. The loader requires 100 feet to make a 180-degree turn. Due to this small turning radius, the Tunner has a severe amount of tail swing. Tail swing is when vehicles with long aft overhang move in reverse or turn, the rear can swing out and

strike nearby objects. The tail swing distance for Tunnors can be up to 10 feet and is the number one cause of avoidable structural damage to the loader. For this reason, use caution when parking Tunnors. Spotters are required when the Tunner is operating within 15 feet of any other stationary vehicle or object. Park them only in specifically designated spaces and use required spotters.

The suspension system provides shock absorption and height adjustment. The front and rear can be adjusted independently of each other, and the whole system can be rotated inboard to reduce the overall width of the Tunner for air transport.

Never drive the Tunner over 20 mph and always travel at a height of 46 inches. Not following these rules can damage the drive system, place you and others in an unsafe situation, cause injury, or all of these.

Cab controls

Cab controls consist of the main instrument panel, which is located just in front of the steering wheel; the main deck control panel and conveyor function is located on the right front side of the cab assembly. The circuit breaker panel and the deck pitch control box are located to the right of the operator's seat. Most controls and indicators to operate the Tunner are located on the main instrument panel. The deck and conveyor control panel is used to operate the deck functions when loading and offloading cargo. The circuit breaker panel provides circuit protection for many functions of the loader. The deck pitch control box is used for testing and troubleshooting during maintenance.

Brake system

The Tunner's braking system consists of three parts; they are the primary, secondary, and emergency brake system. The primary brake system provides normal braking ability for the non-driving axle lines only (1, 3, and 5). The upper chamber of the brake pedal accomplishes control of the primary system. Three air tanks and several valves work together to apply or release brakes.

The secondary brake system for the loader provides normal braking ability for the driving axle lines only (2 and 4). The lower chamber of the brake pedal accomplishes control of the secondary system. Normal operating pressure is 60–105 psi. If pressure drops below 60 psi, alarms will sound and you must stop the loader to build the pressure back up to normal levels.

The emergency system provides parking brakes and an emergency brake for system failures. A parking brake valve and handle, located on the cab panel next to the main instrument panel assembly, controls the parking brakes. Pushing the handle inward releases the parking brakes and pulling the handle outward applies the parking brakes.

Emergency standby system

The Tunner is equipped with a standby hydraulic pump that can run the hydraulic system to include steering in the event of an engine failure. With four fully-charged batteries, the emergency standby system will function for about 30 minutes and provides normal steering, lift, and hydraulic functions on a limited basis.

Cold weather

A preheat system allows you to operate in cold weather areas. This system heats the engine both internally and externally. In addition, an ether system aids in starting the engine when it's cold. The fuel system is warmed by running the fuel lines through the engine coolant, which is warmed by plugging the engine block in to a 110-volt outlet. An indicator light in the cab will alert you when there is external power applied to the Tunner that needs to be disconnected prior to placing the Tunner in motion. Always disconnect the power source before moving the Tunner in cold weather.

Other safety considerations

Do not operate the starter continuously for longer than 30 seconds or it will overheat. After cranking for 30 seconds, allow the starter to cool for two minutes before trying to start the engine.

Training

Due to the complexity of the Tunner, licensing training requires a mandatory two-week course taught by an authorized instructor. Trainees must take a written test and successfully pass a confidence driving course. Operators must be recertified to drive the loader every year.

The Halvorsen

The Halvorsen loader is the newest and most versatile K-loader in the Air Force inventory. Named for Colonel Gail Halvorsen, the man known as the “Candy Bomber” during World War II, the Halvorsen is a self-propelled, hydraulically-operated, electrically-controlled vehicle. It was designed for two purposes: (1) to augment and eventually replace the old and outdated 25K-loader of the past and (2) to deploy within 30 minutes. It can be transported by several surface modes, as well as C-130, C-17, and C-5 aircraft, and can be used to load all DOD military and civilian-contracted aircraft typically used.

Deck functions

The Halvorsen’s deck range is from 39–225 inches high—five feet higher than older version 25Ks. It can roll four degrees right or left, side shift three inches right or left, and pitch six degrees forward or aft. You can invert its roller trays to create a flat deck for rolling stock. You can configure its folding wings on the left and right front of the deck to load and unload the bellies of commercial aircraft. Handrails run the length of the deck for the safety of load crew personnel. Both pallet guides on the left and right side are adjustable to accommodate the 88-inch logistics loading of pallets or the standard 108-inch sides of pallets.

Steering and suspension systems

A V-6 turbocharged diesel engine, coupled to a four-speed automatic transmission, provides the power for the vehicle and operates the hydraulic and electrical systems. The front axle is the loader’s drive/steer axle and is rigidly attached to the chassis frame. The rear axle assembly is underneath the chassis at the back end of the loader and is attached to the chassis with pivot pins.

The diesel engine provides power to drive and to the pump to operate the hydraulic system and the generator for electrical power, which keeps the batteries in a fully charged state.

To start the system, you must first turn on the battery disconnect switch on the battery box and ensure the emergency stop switch on the forward end of the main panel is pulled out. Ensure the parking brake is on, check the dash panel warning lights, and ensure the transmission is in neutral.

Move and hold the ignition switch to the start position until the engine starts, then release the switch and allow it to return to the on position. Observe all gauges and indicator lights for normal operations and allow the engine to warm up for several minutes before driving or operating. Remember your before-, during-, and after-operation inspection procedures.

To stop the power unit, ensure the parking brake is in the on position and place the transmission in neutral. Allow the engine to idle to let temperatures stabilize and then place the ignition switch in the off position. Don’t forget about the battery disconnect switch and be sure to place the loader on the maintenance stands.

Cab controls

The dash panel is located directly in front of the operator and contains all switches, gauges, and indicator lights for starting the engine, monitoring the engine and hydraulic system conditions and deck functions, and shutting down the engine.

The deck conveyor panel at the operator’s right contains the controls that activate the pallet stops and conveyor roller system for moving cargo on and off the deck.

The wiper panel is an overhead panel located in the upper-right corner of the cab. It contains the switches for headlights, parking lights, front wiper/washer, rear wiper/washer, and dome and cabin lights.

Brake system

The Halvorsen's hydraulic disk brake system is activated when you press on the brake pedal. The parking brake, located on the dash panel, is simply a switch activated when in the on position.

Emergency system

In case of engine failure or hydraulic pump failure when driving, the loader has an electrically-powered hydraulic pump incorporated in the hydraulic system that instantly and automatically operates for 30 seconds, which allows drivers to continue operating the power steering, service brakes, and parking brakes. The emergency pump switch located in the cab can be actuated by the operator to do all functions that are required to raise and lower the deck, transfer cargo off the deck, and release the parking brakes. A second emergency pump switch is located on the main panel on the right side of the loader. The loader may be pulled if it is required to be moved from an aircraft for clearance, safety, or maintenance.

Cold weather

The Halvorsen also features a preheat system much like the Tunner. Before you move the loader, make sure you disconnect the external 120 or 240 volts alternating current (VAC) power from the loader.

Safety considerations

We have looked at several types of K-loaders and how to operate the main features. Now let's look at some operational safety rules that apply to all of them.

1. Always wear your PPE when inspecting, operating, or handling cargo on a loader.
2. Stay within the loader's rated capacity.
3. Ensure proper tire pressure for the load to be carried.
4. Keep the loader in neutral with the parking brake set when not moving.
5. No raising or lowering the decks while driving.
6. Keep the path between the aircraft and the K-loader clear.
7. Don't make any sudden stops.
8. Never let the loader contact the aircraft.
9. Do all major adjustments of the K-loader (moving deck up or down, side shifting, etc.) at least 10 feet before the aircraft ramp or loading dock. Once you are in position to load or unload, only do minor adjustments.
10. You, the driver, are responsible for the vehicle. Ensure the cargo is properly secured to the deck with chains and devices before you move the vehicle.
11. K-loaders are designed to carry only the operator. When the vehicle is in motion, never let anyone else ride on the vehicle. The only time load crews are allowed to ride on K-loader decks is when they ride up to or down from aircraft cargo floor height, but they must stay clear of the ladder and far ends of the deck.
12. A fall restraint harness must be used when load crews operate on the deck at heights above 10 feet and when they are working past the last pallet lock on either end of the deck.
13. Always put the K-loaders on maintenance stands when parking them for long periods of time. The maintenance stands relieve the pressure on the hydraulic system and allow access for personnel doing maintenance on the vehicle.

14. Beware of the K-loader ladder. Keep your hands and feet clear when the deck is being raised or lowered. When the ladder telescopes, it could pinch your hands or feet and cause serious injury. Never allow personnel under the deck during operations or on the ladder while moving the loader.
15. Because of the K-loader's length and size, be extra careful when making turns. These vehicles are larger than a car and take a lot more space when turning. The steering systems in K-loaders are not self-centering like a car. Once turned, the wheels stay turned until you straighten them. If you are in tight areas, backing, or cannot see, make sure you use a spotter.
16. Be mindful of the gap between the K-loaders, the aircraft, and bridges.
17. High wind conditions may cause some loaders to sway.
18. Gravity feeding pallets on or off the loader is never authorized. Always maintain control of the pallets you are loading and unloading.

Bridging K-loaders

"Bridging" is when one K-loader remains in place at the aircraft (acting as somewhat of an elevator) while another loader does the shuttle work of transporting pallets to and from the elevator. This type of operation can help accelerate loading and unloading, but it also increases risks. Keep the following in mind when bridging:

- Spot loaders in a lowered position to minimize falling hazards. Pay special attention to wing and fuselage clearances.
- Load crew will remain in the operator's view at all times. Limit the load crew to the left side catwalk only.
- While the elevator loader travels up and down, engage at least one lock on the left side of all pallets.
- Avoid bridging K-loaders during rolling stock operations.
- When bridging requires a loader to pass under or near a wing tip, ensure refueling personnel are aware of the loader's position. Fuel tank vents emitting flammable vapors and wing control surfaces being moved during preflight require extra caution and awareness.

On the Tunner and Halvorsen, all pallets may be unlocked and moved together when transferring them to a second loader, but it must be done only in the lowered position. A spotter must be positioned on the left side of the loader to monitor the transfer and provide guidance to stop the operation in case of a jammed pallet or safety concern.

Self-Test Questions

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

014. Inspection procedures

1. Before you can inspect a vehicle, which four questions should you ask yourself and comply with?
2. Name the parts of a vehicle inspection.
3. What type of information should the front cover of the AF Form 1800 contain?

4. When you are inspecting item number 1 on the AF Form 1800, what are you checking?
5. When you are inspecting item number 3, safety devices, on the AF Form 1800, what items are you checking?
6. What types of things are you looking for when inspecting the batteries on a vehicle?
7. What are you looking for when inspecting the mast tines and rollerized tines?
8. What are you looking for when inspecting the emergency standby system?
9. What are you looking for when inspecting markings?
10. What do VCOs and/or vehicle operators check every month and record on the inside section of the AF Form 1800?
11. When annotating vehicle inspection discrepancies on the inside section of AF Form 1800, which information will you include and what will you use to annotate the information?
12. What must you do before you turn the vehicle in to the maintenance shop for repair?
13. In the before-operation inspection, what item must you verify on the AF Form 1800 and why?
14. In the before-operation inspection, what will you review the waiver card to determine?
15. Which forms must be in the vehicle in the before-operation inspection?
16. What is the purpose of the before-operation inspection?

17. In which phase of a vehicle inspection will you start the vehicle and check the lights and instrument panel, check for unusual noises, operate all mechanical functions, and check the transmission fluid?
18. What should you look for in the after-operation inspection?
19. On a forklift, during which part of the inspection will you check that the fire extinguisher is properly mounted, charged, and has a serviceable safety pin/seal?
20. On a K-loader, during which part of the inspection will you check for damaged or unsecure storage boxes?
21. When performing a before-operation inspection on a forklift, you'll need to open the hood to inspect which items?
22. During which part of a vehicle inspection will you check to make sure your Tunnier can shift, pitch, and yaw?
23. During which part of a vehicle inspection will you check the hydraulic pressure gauge on the Halvorsen?
24. Which part of a Halvorsen inspection requires two people to complete and why?
25. Once you complete a forklift inspection, you should always remember to position the fork tines how?

015. Forklifts

1. Forklifts can operate under what three power sources?
2. How is the lifting capability determined in a forklift?

3. When is a 4K forklift particularly handy and why?
4. How many inches can you shift the 4K tines right or left?
5. Up to how many inches can you raise the 4K tines?
6. How high can you raise the 10K forklift's tines?
7. How many forward and reverse speed ranges does the 10K transmission have?
8. In what range should the tire pressure be on the 10K?
9. Which system on the 10K provides power to control the carriage and forks?
10. What makes up the hydraulic system on the 10K?
11. Which feature of the 10K regulates the amount of hydraulic fluid in each system on the 10K?
12. The control levers located beside the driver's seat allow you to do what?
13. Any time you make fork adjustments, what should you do to prevent the engine from stalling?
14. What does the 10K's inching pedal allow?
15. For what are the 10K's instruments used, and what should you do if one of the instruments lights up or stops working?

16. Match each 10K instrument light in column B with its description in column A. Items in column B may be used once, more than once, or not at all.

<i>Column A</i>	<i>Column B</i>
____ (1) Glows to indicate oil pressure is below normal operating level.	a. Low engine temperature light.
____ (2) Stays on until the coolant reaches minimum operating temperature.	b. High engine temperature light
____ (3) Glows to indicate the battery is not being charged	c. Low engine oil pressure light.
____ (4) Glows when the engine coolant overheats	d. High transmission oil temperature light.
____ (5) Glows to indicate the transmission is being overworked	e. Battery discharge indicator light.
____ (6) Do not move any heavy loads when this light is on.	

17. What do the hydraulic pumps power on the 10K AT?
18. What type of steering system does the 10K AT have; and describe how it works.
19. What feature of the 10K AT prevents parts of a load from tipping backward over the carriage frame?
20. What must you do before moving a forklift with attached rollerized tines and carrying a pallet?
21. How many people can ride on the forklift besides the operator?
22. How high should your fork tines be when driving?
23. Before raising or lowering a load on a forklift, what should you do?
24. Which gear should you be in when travelling down an incline?
25. Describe how to position the tines when parking a forklift.

016. K-loaders

1. Who was the 60K named after, and what did he do?
2. How many pallets can the Tunner hold at one time?
3. How many tie-down rings does the Tunner have; and at how many pounds each are they rated?
4. How high and low can you raise and lower the Tunner's deck?
5. When you are operating on the deck of the Tunner, at what minimum height must you wear a safety harness?
6. At how many pounds is the forward deck extension rated; and where can you find it when it's not in use?
7. Match each K-loader deck function in column B with its description in column A. Items in column B may be used once, more than once, or not at all.

Column A

- ___(1) The entire deck moves either left or right.
- ___(2) The entire deck rises up on only either the left or right side.
- ___(3) Unique to the Tunner.
- ___(4) Lowering either the front or the rear to slant the deck.
- ___(5) Either a front or rear swing to the right or left.

Column B

- a. Raise/lower.
- b. Pitch.
- c. Roll.
- d. Shift.
- e. Yaw.

8. How many degrees can the 60K move in each of these operations: pitch, roll, shift, and yaw?
9. How many axles on the Tunner provide propulsion via hydrostatic drive motors?
10. Describe how the Tunner's articulated steering works.
11. What is the Tunner's turning radius?

12. Up to how many feet of tail swing does the Tunner project?
13. Within how many feet of any stationary vehicle or object must you use a spotter when operating the Tunner?
14. Which system on the Tunner can be rotated inboard for air transport?
15. At what height should you always travel in the Tunner to avoid doing damage to the drive system?
16. Which panels on the Tunner are used to operate the deck functions when loading and offloading cargo?
17. The primary brake system on the Tunner provides braking ability to which lines?
18. The secondary brake system on the Tunner provides braking ability to which lines?
19. What is the normal operating pressure for the brake system on the Tunner?
20. What should you do if the brake system pressure drops below 60 psi?
21. What can the emergency standby system provide in the event of an engine failure and for up to how long?
22. On the Tunner, how is the fuel system warmed?
23. How long should you allow the starter to cool before trying to start the engine on the Tunner and why?
24. What must you do to get the Tunner on your license?

25. For whom was the Halvorsen named; and who was he?
26. For what was the Halvorsen designed?
27. What are the Halvorsen's deck, roll, shift, and pitch ranges?
28. Which axle on the Halvorsen is the drive/steer axle?
29. To start the Halvorsen, what must you do before you turn the ignition switch?
30. What does the emergency system on the Halvorsen allow you to operate and for how long?
31. Mark with an "X" the correct ways to operate K-loaders safely. Mark all that apply.
- ☐ 1. Stay within the loader's rated capacity.
 - ☐ 2. Never put the loader on maintenance stands.
 - ☐ 3. No raising or lowering the deck while driving.
 - ☐ 4. Never let anyone ride on the loader when it is in motion.
 - ☐ 5. Do all major adjustments at least five feet from the aircraft.
 - ☐ 6. Gravity feed pallets only when authorized by airfield management.
 - ☐ 7. Only let the loader contact the aircraft when doing minor adjustments.
 - ☐ 8. Load crews must wear fall restraint harnesses at heights above 10 feet.
 - ☐ 9. Allow personnel under the deck during operations when troubleshooting.
32. Describe bridging.
33. When bridging, how should you spot in a loader?
34. While the elevator loader travels up and down, how many locks should you engage and on which side of the pallets?

35. Describe the requirements of transferring all the pallets on a Tunner or a Halvorsen to a second loader.

3-2. Other Vehicles and Equipment

Forklifts and K-loaders are a big part of our operations, but as you'll learn, they are not the only vehicles we use. In this section, we will talk about some of the other vehicles and equipment we use, like the passenger bus, staircase truck, baggage conveyor, LST, PWT, warehouse tug, and the pintle hook—which is not a vehicle at all, but a very critical piece of equipment you need to know how to use safely. Let's first take a look at the passenger bus.

017. Passenger service vehicles

Vehicles play a huge role in aerial port operations, and the passenger service vehicles are no exception. The passenger bus, staircase truck, and baggage conveyor make it easier for passengers to get on and off the aircraft and make it easier for you to load them and their bags. Let's discuss each one of these vehicles.

Passenger bus

A *bus* is a large, wheeled vehicle, intended to carry many people and the bus operator. The name is a shortened version of omnibus meaning "for everyone."

While the end objective is transporting passengers to their destination, each type of bus has its own characteristics you must learn in order to complete your mission. For this reason, you must review the operator's manual for the bus you will be operating. You'll operate two major types: the 28-passenger bus and the 44-passenger bus. Each bus has roughly the same characteristics, except the amount of seats available. Each bus has a passenger entrance at the front right-side and an emergency exit at the rear of the bus. There are three major systems of buses: the fuel, transmission, and brakes.

The fuel system can be either gasoline or diesel fuel. Make sure you know which type of fuel your particular bus uses before you operate it or refuel it. Using the wrong type of fuel could cause major problems.

Transmissions are available in manual (stick) or automatic. The manual usually has one reverse and five forward gears while the automatic transmission basically shifts itself. Most automatic transmissions have four forward gears and one reverse gear.

Just like the forklifts and K-loaders, two brake systems serve buses: the service brake and parking brake. Service brakes are for normal stopping while driving the bus and can be air or hydraulic, depending on the model. The parking brake can be mechanical or air operated with most newer models using an air brake system. When parking, loading, or offloading passengers, engage the parking brake.

Inspection

During the before-operation inspection, inspect the general condition of the bus and look for exterior damage and fluid leaks. In the engine compartment, check for leaks and check the engine oil, windshield washer, coolant, transmission, hydraulic, and power steering fluid levels, if applicable to your type of bus. Check the radiator and power steering hoses as well as the drive belts.

In the interior of the vehicle, make sure the fire extinguisher(s) is/are properly charged, have a current inspection date, and are properly secured. Make sure the steps are clean and are free of dirt, trash, snow, and ice. Make sure the handrail is tight and secure, and empty the trash container.

Make sure the door operates smoothly and the driver's seat belt locks properly and is not torn or frayed. Check the overhead mirror, sun visor, and exterior mirrors to make sure they are adjusted

properly and in good condition. Make sure the accelerator pedal is not damaged and returns after being pressed. If your bus has hydraulic brakes, with the key and engine off, check the brake motor by pressing the brake pedal until you hear the motor noise. If your bus comes equipped with a neutral safety switch, make sure the bus will not start in any gear but neutral. If it starts in any other gear, it needs to be turned in for maintenance.

- In the during-operation inspection, check the following:
- Properly working instruments and gauges, all in the normal range.
- Unusual noises.
- Excessive play in the steering and damage to the steering wheel.
- Operational horn, interior lights, defroster fans, heater motors, windshield wipers and fluid, and two-way radio (if equipped).
- Operational interior and exterior lights and switches.
- Secure and damage-free passenger seats and aisle floor mats.
- Operational and obstruction-free emergency door, including an operational warning buzzer. Make sure you re-secure the door when you are finished.
- Tight, rust- and dust-free lug nuts, secure hub bolts and grease-free hub.
- Present and functioning radio antenna.
- Intact lens covers on all lights.
- Damage-free windshield, wipers, arms, and mirrors.
- Loose, broken, hanging, or leaking shock absorbers.
- Batteries (either under the hood or in separate compartment): corrosion-free, secure cables and battery(ies). If the battery is in a separate compartment, ensure the door securely latches. If the battery has a slide-out tray, ensure the tray is securely locked in place.
- Hydraulic brakes for damage and leaks.
- Operational air brake low-pressure warning signal.
- Operational parking brake.
- Secure, damage-free, and operational windows and roof hatch(es).
- Clean interior (seats, floor).
- Operational and serviceable tires: even wear, sufficient tread, properly inflated, no cracks, splits, bulges, or cords showing.
- Cracked, split, dented or welded rims; no evidence of brake seal leaks.
- Damaged or leaking valve stems.
- Warped, damaged, or unsecure brake rotor.
- Grease- and fluid-free brake pads; no damage or excessive wear.
- Leaks from under the bus, secure hoses, hanging debris.
- Cracked, broken, or shifted leaf springs.
- Damaged, cracked, or missing U-bolts, spring hangers, and other axle positioning parts.
- In-place, intact reflectors.
- Intact, damage-free, and secure fuel door and fuel cap.

While you continue to operate the bus, do not forget to monitor all gauges and instruments and listen for unusual noises.

In the after-operation inspection, clean the bus after you and your passengers use it. If necessary, refuel it. When cleaning the interior, use a broom and a wet mop, if necessary—never hose down the interior. Conduct a walk-around inspection for leaks and drain the air tanks, if necessary. Ensure passengers did no damage to handrails, seats, emergency exits, or windows.

Operator's responsibilities

As the bus driver, you have many responsibilities to include properly inspecting it before use, keeping the passengers safe and comfortable, and maintaining passenger discipline. In addition, you should know what to do in case of an emergency. Depending on the type of emergency, this can include evacuating and taking accountability of your passengers, as well as, caring for any injured and reporting the emergency as soon as possible. For some longer trips, your passengers should also know what to do in an emergency, where the emergency equipment is located, where the emergency exits are, and how to evacuate safely, if necessary.

It is your job to make sure passengers use caution when entering and exiting the bus, especially when carrying bags. Never allow any exit to be blocked by baggage or passengers and make sure aiseways remain clear as well. Never move the bus until all passengers are seated, and never exceed the number of passengers authorized on the bus at any time.

If your bus comes equipped with seat belts, you and all your passengers will wear them before moving the bus. Also, make sure all doors are closed before moving the bus. No passenger will ever ride sitting in the aisleway or doorway areas; they must be in a seat. In inclement weather, make sure passengers enter and exit the bus using the handrails to prevent slips and falls. Passengers should never be onboard when you are refueling or when the bus is being towed or pushed.

As mentioned previously, the flight line can be full of hazards that you and your passengers need to watch out for. Blind spots exist around buses, especially with a full passenger load, so double check your blind spots while driving on or off the flight line. Also, pay attention to where you park the bus so passengers can load or offload safely with plenty of distance from other vehicles, aircraft, or other flight line equipment.

Common mishaps occurring with buses are jerky starts and stops, high speeds, and cutting corners too sharply. At 37 feet long, 8 feet wide, and 11 feet high, this is especially true with the 44-passenger bus. Ensure you have proper clearances, especially around corners and in tight areas. The 28-passenger bus—measuring 26 feet 6 inches long, 8 feet wide and 7 feet 11 inches high—still requires extra caution when operating even though it is not as long. When making turns, check traffic to the front, rear, and sides. Check all mirrors and blind spots. In the US, right turns are more difficult because of the limited space to make the turn, but left turns can sometimes be more dangerous due to oncoming traffic. In either case, watch your tail swing to ensure you have enough clearance. Due to the length of our buses, plan ahead, when possible, to minimize the need for backing. If you must back up, always use a spotter and stop immediately if the spotter moves out of your view.

Concerning height, be mindful that when your bus is fully loaded, the overall height of the bus decreases because of its weight, so just because you cleared an obstacle (tree limb, hangar door, overhang, etc.) with a full load of passengers, does not mean you will clear it with an empty bus. Be mindful of all clearances—including height. When in doubt, use spotters. Although you never want to have a mishap, you definitely don't want to have one with passengers onboard.

Because you must be able to see and hear what is going on around you, you must control the noise level on the bus. Keep passenger chatter at a reasonable level, keep the two-way and/or AM/FM radio volume to a reasonable level and never operate any vehicle wearing any headset receiver.

When passengers exit the bus, remind them to collect all their belongings before exiting and do a quick scan to ensure no items are left behind. If the aisle is on a lower level than the seats, before you stop, remind them of the step-down to the aisle as well as the step-down at the door.

Staircase trucks

The staircase truck is very useful when it comes to loading and unloading passengers. There are two types you'll use in your day-to-day work: the wide-body staircase truck and the C-5 staircase truck. The wide-body staircase truck is the smaller of the two trucks and resembles a pick-up truck and is relatively easy to operate. The C-5 staircase truck is more complicated, but they share common operating procedures (fig. 3-2).



Figure 3-2. C-5 staircase truck.

The purpose of the C-5 staircase truck is to provide a stable platform for tall aircraft with a boarding height between 184–312 inches (15–26 feet). These aircraft include the C-5, B-747, KC-10, DC-10, and L-1011. The extreme heights require you to stabilize the truck using the outriggers and hydraulic jacks hinged on the sides.

Let's take a look at some main features. The cab contains the drive and staircase operating controls. The window allows you to more easily view the aircraft doorsill and pawl latches when raising the stairs. Two support arms hinged beneath the lower stair swing out for connection to the outriggers. Lower and upper stair assemblies latch together with prongs and pawls. The upper assembly contains side panels and handrails for the stairs. The handrails lock in place. It also contains lights that can be turned on in the dark or gloomy weather for passenger, aircrew, and ground crew safety. Two hydraulic boom cylinders between the base and lower staircase provide initial positioning ability. The top platform assembly can be tilted for leveling with the aircraft doorsill and side-shifted for alignment. A 12-inch extension platform with a rubber bumper provides continuous contact with the aircraft to ensure no one falls through any gaps between the aircraft and staircase truck.

Positioning any staircase truck is most critical to ensure passengers' safety and eliminate damage to the aircraft. When positioning a staircase truck, stop at least 10 feet away from the aircraft and adjust the stairs to the desired height before proceeding. Always use a spotter and never move the vehicle if you cannot see your spotter. Once the stairs are in position, set the parking brake, place the gear selector in park, make sure the vehicle is properly chocked, and make sure the stabilizers and the flip step at the bottom of the steps are down. Finally, make sure the slide rails at the top of the steps are locked in the correct position against the aircraft.

High winds make operating any staircase truck more risky, so verify with the ATOC that the wind speeds are within safe limits. Even then, use extreme caution. For your safety and your passengers, adhere to the following at all times under all conditions:

- Extend and lock all four stabilizers.
- Keep the engine running and parking brake engaged when *not* moving.
- Do *not* raise or lower the stairs while moving or while the stabilizers are down.
- Do *not* allow anyone to ride on the stairs while moving.
- Do *not* allow anyone on the stairs without the stabilizers down.
- Before allowing passengers on the stairs, clean them of any debris or ice.

Once the staircase truck is no longer needed, pull it away from the aircraft using your spotter. Before lowering the stairs, make sure the vehicle is 200 feet from the aircraft. This puts the truck a safe distance from the aircraft (the truck could be blown over by the breakaway thrust when the aircraft blocks out) and allows the aircrew to continue their preflight checklists. In addition, if the aircraft should return to the parking area in an emergency, having the staircase truck ready will save valuable time.

Baggage conveyor

The main purpose of the mobile baggage conveyor is to load and unload passenger baggage on and off aircraft safely and quickly. The baggage conveyor has three major components—belt conveyor, elevating linkage, and chassis. Except for the belt conveyor and hydraulic lifting control, the baggage conveyor operates like a conventional truck.

The conveyor creates overhang both in the front (forward) and back (aft) of the vehicle. This overhang requires more space for the baggage conveyor to maneuver than is needed for a conventional vehicle, so you must be aware of your surroundings when operating it. The conveyor can be raised or lowered as needed depending on the type of aircraft. Lower the belt conveyor whenever you are driving it.

Push-button controls to start or stop the belt are located at each end of the conveyor. The control at the front is portable, allowing you to carry the control into the belly of the aircraft, if necessary, when loading and unloading. When operating the belt, use the guide (side) rails to minimize baggage from falling off. Even with the guides in place, bags still have a tendency to fall off the conveyor when it is in use. When operating the mobile baggage conveyor, use spotters and chocks when it is within 10 feet of the aircraft.

018. Fleet service vehicles

If you are performing fleet service activities, you will generally use two types of vehicles: the LST and the PWT. Let's go over them both.

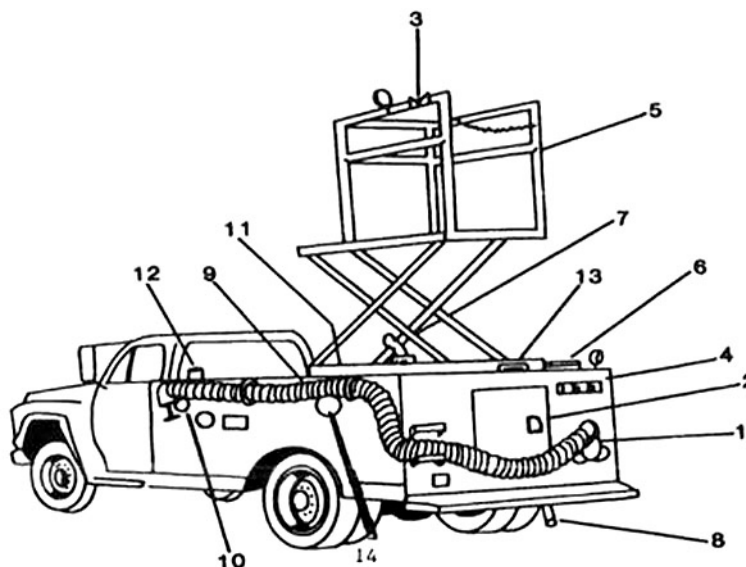
Latrine service truck

The main purpose of the LST (fig. 3-3) is to service the latrines on military and commercial aircraft. When we talk about service, we mean remove waste and flush and fill the aircraft latrines. A hose connected to the truck allows waste to drain from the aircraft lavatory tank into the LST's waste tank. A separate hose also connected to the truck allows the operator to pump a small amount of water into the lavatory tank to flush any remaining waste. The flush/recharge hose pumps chemicals into the lavatory tank, which neutralize the solids and help minimize the odor. Several LST models are currently in operation, and most are similar in form and function. Become familiar with your station's LST model(s).

The major components of the LST are the waste tank, fill tank, waste pump, dump valve, fill hose, and control panel. The following provides a brief description of each component:

Component	Description
Waste tank	Waste tanks are constructed of stainless steel and typically have a 400-gallon capacity. The tank usually displays a sight window so you can tell how full it is.
Rinse and fill tank(s)	In some trucks, there are two tanks. One tank holds clear water used for flushing aircraft systems after waste has been removed. The second tank holds the 50/50 solution of anti-icing fluid to water, as well as the proper amount of deodorizer. Sometimes there will not be a water tank, just solution.
Waste pump	Extracts waste from the aircraft using the waste pump.
Rinse pump and meter	Use the rinse pump to supply fresh water/solution for flushing/recharging aircraft lavatory systems. The flow meter measures the amount of rinse/fill solution being pumped inside the aircraft or ATGL. Zero out the rinse pump meter before each use. How much solution the lavatory can hold depends on the aircraft's particular system.
Waste and fill hose	Attach the "moose head" to the aircraft and the other end to the waste pump. The fill hose supplies fresh solution for flushing and recharging the aircraft lavatory. The quick-connect end is attached to the aircraft and the other to the fill pump.

Component	Description
Dump valve	This gate-type valve uses gravity to extract waste material from the waste tank. You are responsible for emptying the LST when the waste tank is full or after the last aircraft on your shift.
Control panel	A group of gauges, switches, and indicators located at the rear of the truck used to operate the unit.



1. Fill port, waste tank (suction)
2. Compartment door
3. Upper controls
4. Push button controls, pump
5. Hydraulic platform
6. Flow meter
7. Water hose
8. Waste tank drain handle
9. Waste hose
10. Water tank level gauge
11. Charge tank fill port
12. Water tank fill port
13. Fill port, Waste tank (gravity)
14. Waste sight window

Figure 3-3. Latrine service truck.

You will inspect the LST like any other vehicle using the AF Form 1800, paying careful attention to its special features. Among the special features to note, always check the sight window for the amount of waste in the tank and ensure you have enough water in the rinse tank and the proper ratio of fill solution in the fill tank. You never want to go out to an aircraft to start the service and realize there's either not enough room in the waste tank or not enough water/solution to service the aircraft. You will want to ensure the flow meter is operating properly so you do not overfill the aircraft or ATGL and make sure that the hoses, connections, and pumps are working properly and have no leaks. Finally, you will want to make sure the static discharge cable is present and serviceable.

The LST carries a high risk of disease transmission since you are working with human waste. At least weekly, wash the LST with hot soapy water and rinse it with clear water IAW TO 36-1-191, *Technical and Managerial Reference for Motor Vehicle Maintenance*, Table 6.3. Pay careful attention to exterior surfaces and storage compartments subject to rapid corrosion or deterioration.

It is critical to keep this vehicle clean and well-maintained to prevent damage and contamination to personnel and equipment. Also, for disease transmission prevention, never transport food, beverages, or food service items in any vehicle used to transport waste material or cleaning equipment.

Potable water truck

The purpose of the potable water truck is to deliver potable water to the aircraft's overhead water system. *Potable* simply means "suitable for drinking." The PWT delivers water into the aircraft water system through a series of pumps and hoses. It is capable of storing, transporting, and dispensing water to removable water containers, the potable water system on the ATGL, built-in passenger and crew galley on the C-5, and potable water systems on other military and commercial aircraft.

The major components of the potable water truck are the water tank, pump compartment, and engine heaters and controls. The following provides a brief description of each component.

Component	Description
Water tank	Can typically hold 250 gallons of potable water and dispense water at a rate of 20 gallons per minute. There will be times when you'll need to sanitize the water tank. You will use 64 ounces of 5-percent sodium hypochlorite solution for a 250-gallon tank.
Pump compartment	Contains the water pump, pump motor, control panel, valves, hose reel, meter, and storage box. The water pump pumps the water out of the holding tank. The pump motor drives the water pump. The control panel contains the pump, light, kill switch, and three sight gauges or meters. Four valves, labeled A, B, C, and D, pump water into the aircraft's system. They are normally the first thing that gets overlooked when water does not dispense. The 50-foot hose is attached to a spring-wind reel. The meter tracks the number of gallons pumped out of the tank. Always make sure it is zeroed out before use. The storage box contains disinfectant, a nozzle, and spout, several adapters, and a hose extension. Ensure these materials are in the storage box and remain sterile.
Engine heaters	The PWT requires precautions in cold weather to prevent its contents from freezing. The engine compartment and rear heaters run by 110 VAC power supply.
Controls	The controls and instrument compartment used to monitor operations are located on the driver's side of the vehicle. The water-level gauge allows you to monitor the number of gallons remaining in the water tank. The water pump switch is used to fill an aircraft's potable water containers and systems and recirculate water or disinfecting solution in the tank. Before operating the water pump, ensure that the tank contains at least 40 gallons. While the pump is operating, the pilot light is lit, which is a quick check to see that the pump is on. For night operation, the compartment contains a cabinet light to illuminate the controls and instruments. There is also an ENGINE EMERGENCY SWITCH. This switch de-energizes the engine ignition system for emergency shutdown of the truck.

You'll inspect the PWT like any other vehicle, using an AF Form 1800, paying close attention to its special features. Check the water gauge for the amount of water in the tank, make sure the pump indicator light is working, check the dispensing hose for leaks, and make sure the static discharge cable is present and serviceable.

019. Tow vehicles and equipment

During your career, you'll probably have to tow something to and from aircraft or within the pallet yard. Knowing how to tow items and operate the tow vehicle and its pintle hook assembly is critical. In this lesson, we'll cover the warehouse tug, the pintle hook assembly, and safe towing operations.

Warehouse tug

A warehouse tug is an industrial vehicle designed to tow one or more non-powered trailers. Several types exist, some with cabs and some without. When operating a tug, if it comes equipped with a seat belt, use it at all times and make sure you adjust the seat and mirrors to operate safely. Passengers will not ride on tugs or towing vehicles unless a suitable seat with a back and side guard is installed.

Inspection

Inspecting the tug is a little simpler than inspecting some other vehicles but no less important. Since some tugs have cabs and some don't, some of these items won't need to be inspected unless your tug has a cab.

The before-operation inspection includes the following:

Exterior and Interior

1. Cleanliness/damage/missing items.
2. Leaks, damage, and missing/loose items (undercarriage).
3. Muffler/exhaust system (damage, leaks).
4. Remove trash and empty FOD container.
5. Markings/stencils/warning labels (legible).
6. Fuel cap/bolt.
7. Tires/wheels/lug nuts (damage, tread, FOD, snugness).
8. Pintle hooks (safety pin).
9. Lenses.
10. Dome light.
11. Rear/side view mirrors.
12. Heater fan.
13. Windshield wipers.
14. Windows (operation).
15. Fire extinguisher (mounting, charge, safety pin).
16. Seats/pedal covers (cracks, tears, rips, slick).
17. Windows (damage, operation).

Under the Hood

1. Leaks.
2. Belts (cracking, fraying, tension).
3. Wiring (fraying, exposed wires).
4. Oil level.
5. Brake fluid.
6. Coolant.
7. Battery.
8. Hoses.

The during-operation inspection includes the following:

1. Oil bypass switch.
2. Unusual noises/vibrations/odors.
3. Instruments/gauges (operational).
4. Horn (operational).
5. Lights (head, reverse, tail).
6. Transmission operation (forward, reverse).
7. Reverse alarm (operational).
8. Service brake (responsive).
9. Steering (free play, excessive wear).
10. Parking brake (operational).
11. Transmission fluid (vehicle chocked, parking brake set, engine running).

The after-operation inspection includes checking for leaks and damage.

Towing

Per AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, you are not authorized to use a forklift to tow trailers or push equipment unless the forklift manufacturer designates the forklift for that type of operation and publishes technical data that you must follow.

Some tugs can have up to three pintle hooks on the back of the vehicle for towing multiple items in a variety of configurations. Which pintle hooks you use will depend on what and how many items you are towing. When towing one unit of aerospace ground equipment (AGE), use the center pintle hook for stability. When towing two pieces of AGE, you can either use the two outside pintle hooks or use the center pintle hook to tow them in tandem (like a train). When towing in tandem, only use the center pintle hook. Regardless of your towing configuration, pintle hook safety or cotter pins will be used in all towing operations. Remember, when towing, do not exceed the rated load for the tug and place the heaviest piece in front.

When towing, you must be extra cautious and practice good safety. Because you are towing extra weight, you should keep at least three vehicle lengths between you and any drivers in front of you to allow for extra stopping distance. As always, be mindful of proper overhead clearances, not only for the tug, but also for the item you are towing as well.

Avoid driving close to the edge of elevated areas. If the item you are towing is slightly to your right or left (not lined up with you) or wider than your tug, driving too close to the edge can put your trailer over the edge. Avoid sudden stops as they will place unnecessary force and/or pressure on the item you are towing, your tug, and the pintle hook assembly, which could result in damage to any or all of those. The item you are towing could also push you forward into whatever you were trying to avoid hitting.

Many transporters throughout the years have learned the hard way not to jack-knife the tow vehicle and the item being towed. Doing so can easily bend or break the trailer tongues and render that cargo inoperable (INOP) until the trailer is replaced or repaired. This means war fighters don't get what they need when they need it, which places them in harm's way.

Gradually accelerate the vehicle to minimize jerking, always. Rapid acceleration can cause mechanical failure and is considered vehicle misuse. Keep both hands on the steering wheel while operating the vehicle and remember to turn slowly.

Do not back up unless you have physically ensured the area behind the towed object has ample room for maneuvering and that no unauthorized personnel are behind the towed object. Use spotters and make sure they position themselves so they won't need to walk backwards while spotting. Pre-position the wheel chocks for the item being towed and make sure both vehicles are in a straight line prior to backing, if possible.

Stop the vehicle as gradually as possible. The following factors affect your ability to bring your vehicle to a stop:

- Type and condition of the road surface, such as concrete, asphalt, or gravel.
- Foreign material on the road such as ice, snow, leaves, water, or mud.
- Road configuration (e.g., inclines, curves, high crowns); flight line traffic; and tire conditions, such as type, tire inflation, and condition of tread.
- Brakes, such as type and state of repair and adjustment.

How fast you can tow one or more pieces of equipment depends on the type of equipment you are towing and how many. If you are towing two or more maintenance stands, the maximum speed is 5 mph. If you are towing one maintenance stand, the maximum speed is 10 mph. If you are towing AGE, such as compressors, ground power units, oxygen carts, and similar equipment, the maximum speed is 15 mph. For all other towed vehicles and equipment, check the equipment's TO, operator's manual, or data plate to locate the maximum tow speed.

At any speed, the distance required to stop a vehicle towing equipment in an emergency depends on three things: driver perception time, driver reaction time, and vehicle stopping time. During driver perception time and driver reaction time, the vehicle slows down very little because the brakes have not yet been applied. Because you are towing an item, it will take longer for you to come to a complete stop because of the force of the towed vehicle upon the towing vehicle. If the towed item is not equipped with an integral braking system, the heavier the item is, the longer it takes to stop. The bottom line is to allow yourself more stopping distance when towing.

Pintle hook assembly

Although attaching something to a pintle hook (fig. 3-4) is fairly easy, if it's not done correctly, the risk of a safety incident will increase. You must ensure you have made a proper connection for your own safety, others' safety, and protection of the equipment you're using and towing.

Make sure you have all required PPE (e.g., steel-toed boots, gloves, and reflective belts during darkness and low visibility). Remove all jewelry and secure all ID badges or anything hanging from your uniform.



Figure 3-4. Pintle hook assembly.

Inspecting the pintle hook assembly

As with any other vehicle or MHE, you must inspect the pintle hook unit before you use it. During the before-operation inspection, look for any damage or missing items like safety or cotter pins. Inspect the latch for proper movement. If you can raise the jaw when the latch is down, the latch is not functioning properly. The jaw should move only when the latch is lifted. Inspect the jaw for any damage and make sure it moves smoothly in the directions (up and down) it is supposed to move and doesn't move in any direction it is not supposed to (side-to-side). Inspect the cotter pin for presence, cracks, and other damage and ensure it is attached securely to a chain or wire. Also inspect the chain or wire for cracks and damage. Pintle hook safety/cotter pins will be used in all pintle hook towing operations.

While towing, you should always perform a during-operation inspection at each work or rest location, especially when towing long distances. When your towing mission is complete, complete an after-operation inspection to ensure no damage occurred to the pintle hook assembly.

How to make a safe pintle hook connection

It is important to connect the trailer to the pintle hook correctly. Follow these steps:

1. Remove the cotter pin, raise the latch, and open the pintle hook jaw. Using a spotter, the driver will align and back the tow vehicle until the spotter stops him/her and lowers the trailer tow ring (also called a lunette) onto the pintle hook. When connecting a tow bar to any tow vehicle, all personnel will stand clear until the backing tow vehicle is in close proximity to the tow bar. When connecting a tow vehicle, you must be extremely vigilant for any sudden movement by the two vehicles.
2. Close the pintle hook jaw, close the latch, and replace the cotter pin. Before inserting the cotter pin, pry the end of the pin open enough so that when it goes into the locking device, there is enough tension to keep it from vibrating free. Once the connection is made, do not step over the tow bar.
3. After inserting the cotter pin, pull up on the latch to ensure the upper jaw will not open and the pintle assembly is locked. Beware of equipment with spring loaded tow bars; if the manual locking device is not properly secured, spring loaded tow bars or tow bars under pressure can come out of the pintle hook and cause injury and/or damage.

4. When towing a trailer, federal safety regulations require one or more safety devices to prevent the towed equipment from breaking loose of the tow vehicle. Using safety chains is mandatory.
5. Attach the safety chains to vehicle towing eyes. If towing eyes are not available, secure chains around the towing vehicle's frame. If the frame is inaccessible, wrapping the chains around the bumper is acceptable, but only as a last resort. Crossing the chains under the trailer lunette in an "X" figure decreases the distance the trailer pintle will travel if dropped and may prevent the trailer lunette from hitting and digging into the ground or an aircraft, causing an accident during movement; however, the chains must be long enough to be cross hooked. If the chains are too short, damage to equipment is possible while towing and turning the vehicle.
6. If electrical hook-ups are available, make appropriate connections and check for proper operation of electrical devices on the trailer. If trailer brake air lines are available, make appropriate connections and test the system before moving the vehicle.
7. Raise the landing (support) legs on the item being towed and secure them properly.
8. With your spotter, clear a line of travel. Pull the vehicle forward while your spotter ensures the equipment is properly attached.

When disconnecting the trailer from the pintle hook:

1. Ensure the towing vehicle is properly stopped.
2. Ensure the towed equipment's integral brake system, if equipped, is set.
3. Remove the cotter pin and unlock the pintle latch.
4. Open the pintle jaw and remove the tow ring, properly stowing and/or positioning the towing tow ring. If the trailer has support legs, remember to lower, position, and lock them properly.
5. Close and lock the pintle assembly and install the cotter pin.

For more information refer to Air Force Manual (AFMAN) 24-306, *Manual for the Wheeled Vehicle Driver*.

Self-Test Questions

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

017. Passenger service vehicles

1. On the passenger bus, describe what to check in the engine compartment in the before-operation inspection.
2. On the passenger bus, describe what to check in the interior of the bus in the before-operation inspection.
3. How do you check the hydraulic brakes in the passenger bus?
4. In the during-operation bus inspection, what will you check on the emergency door?

5. If the bus battery is located in a separate compartment, what must you check?
6. Describe what to check in the after-operation inspection.
7. What are your responsibilities as a bus driver?
8. What types of things should you do in an emergency, depending on its type?
9. For longer trips, what should your passengers know?
10. When is it permitted for aisleways and exits to be blocked?
11. What are the three things you must ensure before moving the bus?
12. During what operations should passengers *never* be onboard the bus?
13. What are some common mishaps that occur with buses?
14. When making turns in the bus, what should you check?
15. Why would you clear an obstacle with a full load of passengers but *not* when empty?
16. What are some things you need to do to control the noise level on the bus?
17. What should you remind passengers of before they exit the bus?
18. For which aircraft does the C-5 staircase truck provide a stable platform?

19. In the C-5 staircase truck, which two critical items can you view through the windows?
20. On the C-5 staircase truck, how do the lower and upper stairs assemblies latch together?
21. What does the upper assembly consist of?
22. The top platform assembly can move in which two directions and for what?
23. How far away from the aircraft should you stop to adjust the stairs to the desired height?
24. What should you do after the stairs are in position?
25. When can people ride on moving stairs?
26. When can you allow people on the stairs without the stabilizers down?
27. How far should you be away from the aircraft before lowering the stairs and why?
28. What are the three major components of the baggage conveyor system?
29. When driving the conveyor, in what position do you place the belt conveyor?
30. What does the front control on the baggage conveyor allow you to do?

018. Fleet service vehicles

1. What are the major components of the LST?
2. What is the capacity of the waste tank on the LST?

3. For what is the dump valve on the LST used?
4. When inspecting the LST, which special features should you check?
5. Explain how to wash the LST.
6. The PWT is capable of storing, transporting, and dispensing water to which types of systems?
7. What are the major components of the potable water truck?
8. How much water can a potable water truck typically hold and how much water can be dispensed?
9. For what is the engine emergency switch used?
10. What should you check for when inspecting the PWT?

019. Tow vehicles and equipment

1. What is a warehouse tug?
2. Passengers will never ride on tugs or towing vehicles unless what is installed?
3. During what part of an inspection of a warehouse tug will you check for cracking, fraying, and tension in the belts?
4. During which part of an inspection of a warehouse tug will you check the operation of the transmission and the transmission fluid level?
5. When can you use a forklift to tow trailers or push equipment?

6. How many vehicle lengths should you keep between you and the driver in front of you when towing?
7. Why is it important not to drive too close to the edge of an elevated surface when towing?
8. Why is it important to avoid sudden stops when towing?
9. What can happen if you jack knife while towing; and who will it ultimately affect?
10. What action can cause mechanical failure and is considered misuse?
11. What should you do before you back up while towing?
12. Mark with an "X" the factors that affect your ability to bring your vehicle to a stop.
 - ___1. Tire inflation levels.
 - ___2. The brand of tire you're using.
 - ___3. Type of tires and condition of the tread.
 - ___4. Type of brakes, state of repair and adjustment.
 - ___5. The incline, curve, high crown or other configuration of the road.
 - ___6. Ice, snow, leaves, water, mud or other foreign material on the road.
 - ___7. Type (concrete, asphalt, or gravel) and condition of the road surface.
13. What is the maximum speed you can tow AGE?
14. If the vehicle you are towing is not a maintenance stand or AGE, where should you look to find out how fast you can tow it?
15. At any speed, the distance required to stop a vehicle towing equipment in an emergency depends on what three things?
16. When inspecting a pintle hook assembly, if you can raise the pintle hook jaw when the latch is down, what does that mean?

17. Concerning safety or cotter pins, what should you look for when conducting a before-operation inspection on a pintle hook assembly?
18. In which operations will safety/cotter pins be used?
19. Describe the initial steps to connecting a trailer to a pintle hook before the driver aligns and backs the vehicle.
20. When connecting a tow vehicle, you must be extremely vigilant for what?
21. Before inserting the cotter pin, what should you do to prevent it from vibrating free?
22. Once the connection is made between the tow vehicle and the trailer, what will you *not* do?
23. After inserting the cotter pin, what should you do to make sure the upper jaw will *not* open and the pintle assembly is locked?
24. Why should you beware of equipment with spring-loaded tow bars?
25. In what ways can you attach the safety chains and which method should only be used as a last resort?
26. Why should safety chains be crossed under the trailer lunette?
27. What could happen if the safety chains are too short?
28. What other types of connections should be made between the tow vehicle and trailer, if available?
29. When disconnecting the trailer from the pintle hook assembly, before removing the cotter pin, what should you do?

30. After you have removed the tow ring from the towing vehicle, which two actions should you take on the trailer?

Answers to Self-Test Questions

014

1. (1) Have I removed all my jewelry and do I have the proper PPE?
(2) Are the vehicle chocks in place?
(3) Is the parking brake on?
(4) Are the gear shift levers in park or neutral?
2. Before, during, and after.
3. The month and year; the vehicle type and registration number; your squadron, base, and phone number; and your VCO's name and phone number.
4. You are checking for missing or damaged hardware, inside and out. Also, you are listening for any unusual noises.
5. You are checking for the presence and operation of all safety devices and wiring, including all the lights, horn, warning devices, reflectors, mirrors, and seat belts.
6. You are checking the battery fluid and that the battery is not damaged and that it is secure and clean. You are also function-checking all the gauges and instruments, which should all be in good working order and within normal operating limits.
7. You are ensuring tires are installed/attached properly, and all hardware is in place and functioning properly.
8. You are function checking all systems for proper operation.
9. You are checking to ensure they have not worn off and are still legible.
10. The number of miles and hours each vehicle has driven. They must also check and record the tire pressures for each vehicle along with checking the serviceability of each fire extinguisher and they perform an AFTO packet check.
11. All the discrepancies you find on this portion of the form, to include the discrepancy item number on the back cover, details of the discrepancy, the date you discovered the discrepancy, the date and time you reported it to maintenance, the number of miles and/or hours on the vehicle when you discovered the discrepancy, and your printed name—in pencil.
12. Complete your inspection and annotate all the discrepancies on the form.
13. Verify the correct vehicle registration number is on the AF Form 1800 so you don't inspect your vehicle using another vehicle's form.
14. Review the waiver card (if applicable) to determine which discrepancies have already been identified and will not require you to re-identify them.
15. DD Form 518, Standard Form 91, AF Form 1800, and waiver card, if applicable.
16. To make sure the vehicle is safe and in commission before operating it.
17. During-operation inspection.
18. Walk around the vehicle to check for leaks, tire pressure, and any damage that may have occurred during use.
19. Before-operation inspection.
20. Before-operation inspection.
21. Leaks under the hood; hydraulic fluid levels; frayed or exposed wires; cracked or abnormal hoses; cracks, frays, or tension on the belts; damaged or corroded batteries; secure batteries and battery terminals; oil, coolant, and brake fluid levels.
22. During-operation inspection.
23. During-operation inspection.

24. The hydraulic pressure gauge on top of the hydraulic tank; because you need one person in the cab and the other person checking the gauge.
25. Level to the ground.

015

1. Gasoline, diesel fuel, or electricity.
2. By the center of gravity of the load in relation to its position on the forks.
3. When working in tight spaces because the short wheelbase allows you to make tight turns.
4. Five.
5. 144.
6. 150.
7. Two forward and two reverse.
8. Between 90 and 100 psi.
9. The hydraulic system.
10. Hydraulic pump, hydraulic tank, and levers that regulate control valves.
11. The control levers you use to operate the carriage and forks.
12. Tilt, shift, lift, and adjust the width of the forks without getting off the vehicle.
13. Raise the engine speed slightly.
14. To have smooth, positive control of the vehicle and to move forward or backward in small increments.
15. As a warning system to alert you when the vehicle is not operating properly; stop the vehicle immediately.
16. (1) c.
(2) a.
(3) e.
(4) b.
(5) d.
(6) a.
17. The steering, brake, and forks hydraulic systems.
18. Articulated; when you turn the steering wheel, the wheels do not turn, instead, the front and rear frames pivot.
19. Carriage backrest.
20. Secure the pallet to the carriage.
21. None.
22. Two to four inches.
23. Bring the forklift to a complete stop.
24. Reverse.
25. Tilt the mast/carriage so the tines are level with the ground and lower the forks flat.

016

1. Gen William H. Tunner, who directed the Burma Hump, Korean, and Berlin airlifts.
2. Six.
3. 40; 5,000 pounds.
4. High = 222 inches; low = 41 inches.
5. 10 feet.
6. 10,000 pounds; stows beneath the center front deck.
7. (1) d.
(2) c.
(3) e.

- (4) b.
- (5) e.
- 8. Pitch = six; roll = four; shift = three; yaw = three.
- 9. Two.
- 10. The front two axles turn in the direction the operator turns the steering wheel, while the back two axles turn in the opposite direction and pivot around the third (middle) axle.
- 11. 50 feet.
- 12. 10 feet.
- 13. 15 feet.
- 14. The suspension system.
- 15. 46 inches.
- 16. Deck and conveyor control panel.
- 17. Non-driving axle lines only (1, 3, and 5).
- 18. Driving axle lines only (2 and 4).
- 19. 60–105 psi.
- 20. Stop the loader to build the pressure back up to normal levels.
- 21. Normal steering, lift, and hydraulic functions on a limited basis for about 30 minutes.
- 22. By running the fuel lines through the engine coolant, which is warmed by plugging the engine block in to a 110-volt outlet.
- 23. Two minutes because it will overheat.
- 24. Take a two-week course taught by an authorized instructor in which trainees take a written test and successfully pass a confidence course.
- 25. Col Gail Halvorsen; the man known as the “Candy Bomber” during World War II.
- 26. To augment and eventually replace the 25K-loader and to deploy within 30 minutes.
- 27. Deck = 39–225 inches high; roll = four degrees; shift = three inches; pitch = six degrees.
- 28. Front.
- 29. Ensure the parking brake is on, check the dash panel warning lights, and ensure the transmission is in neutral.
- 30. The power steering, service brakes, and parking brakes for 30 seconds.
- 31. 1, 3, 4, 8.
- 32. When one K-loader remains in place at the aircraft (the elevator), while another loader shuttles pallets to and from the elevator.
- 33. The lowered position.
- 34. At least one lock on the left side of all pallets.
- 35. Transferring must be done only in the lowered position. A spotter must be positioned on the left side of the loader to monitor the transfer and provide guidance to stop the operation in case of a jammed pallet or safety concern.

017

- 1. Inspect the general condition of the bus and look for exterior damage and fluid leaks. In the engine compartment, check for leaks; check the engine oil, windshield washer, coolant, transmission, hydraulic, and power steering fluid levels, if applicable to your type of bus. Check the radiator and power steering hoses as well as the drive belts.
- 2. Make sure the fire extinguisher(s) is/are properly charged, have a current inspection date, and are properly secured. Make sure the steps are clean, free of dirt, trash, snow, and ice. Make sure the handrail is tight and secure and empty the trash container.
- 3. With the key and engine off, check the brake motor by pressing the brake pedal until you hear the motor noise.

4. Operational and obstruction-free emergency door, including an operational warning buzzer. Make sure you re-secure the door when you're finished.
5. Check the battery is corrosion-free and cables are secure cables. Ensure the door securely latches. If the battery has a slide-out tray, ensure the tray is securely locked in place.
6. Clean and refuel the bus after you and your passengers use it, if necessary. When cleaning the interior, use a broom and a wet mop, if necessary—never hose down the interior. Conduct a walk-around inspection for leaks and drain the air tanks, if necessary. Ensure passengers did no damage to handrails, seats, emergency exits, or windows.
7. Inspect the bus properly before use, keep the passengers safe and comfortable, and maintain passenger discipline and know what to do in case of an emergency.
8. Evacuate and take accountability of your passengers, as well as care for any injured and report the emergency as soon as possible.
9. Make sure your passengers know what to do in an emergency, where the emergency equipment is located, where the emergency exits are, and how to evacuate safely, if necessary.
10. Never.
11. All passengers are seated and are wearing their seats belts (if equipped) and all the doors are closed.
12. Refueling, towing, or pushing.
13. Jerky starts and stops, high speeds, and cutting corners too sharply.
14. Check all mirrors and blind spots.
15. When your bus is fully loaded, the overall height of the bus decreases because of its weight.
16. Keep passenger chatter at a reasonable level, keep the two-way and/or AM/FM radio volume to a reasonable level, and never operate any vehicle wearing any headset receiver.
17. Remind them to collect all their belongings before exiting. If the aisle is on a lower level than the seats, before you stop, remind them of the step-down to the aisle as well as the step-down at the door.
18. Tall aircraft with a boarding height between 184–312 inches (15–26 feet). These aircraft include the C-5, B-747, KC-10, DC-10, and L-1011.
19. The aircraft doorsill and pawl latches when raising the stairs.
20. Prongs and pawls.
21. Side panels, handrails for the stairs, and lights that can be turned on in the dark or gloomy weather for passenger, aircrew, and ground crew safety.
22. Tilted, for leveling with the aircraft doorsill, and side-shifted, for alignment.
23. At least 10 feet.
24. Set the parking brake, place the gear selector in park, make sure the vehicle is properly chocked, make sure the stabilizers and the flip step at the bottom of the steps are down, and make sure the slide rails at the top of the steps are locked in the correct position against the aircraft.
25. Never.
26. Never.
27. 200 feet; this puts the truck a safe distance from the aircraft (the truck could be blown over by the breakaway thrust when the aircraft blocks out) and allows the aircrew to continue their preflight checklists.
28. Belt conveyor, elevating linkage, and chassis.
29. Lowered position.
30. To carry the control into the belly of the aircraft, if necessary, when loading and unloading.

018

1. The waste tank, fill tank, waste pump, dump valve, fill hose, and control panel.
2. 400 gallons.
3. To extract waste material from the waste tank.
4. The sight window for the amount of waste in the tank, and ensure you have enough water in the rinse tank and the proper ratio of fill solution in the fill tank. Ensure the flow meter is operating properly so you don't

overflow the aircraft or ATGL and make sure that the hoses, connections, and pumps are working properly and have no leaks. Make sure the static discharge cable is present and serviceable.

5. At least weekly, wash it with hot soapy water and rinse it with clear water IAW TO 36-1-191 table 6.3. Pay careful attention to exterior surfaces and storage compartments subject to rapid corrosion or deterioration.
6. Removable water containers, the potable water system on ATGL, built-in passenger and crew galley on the C-5, and potable water systems on other military and commercial aircraft.
7. The water tank, pump compartment, and engine heaters and controls.
8. Can typically hold 250 gallons of potable water and dispense water at a rate of 20 gallons per minute.
9. De-energizes the engine ignition system for emergency shutdown of the truck.
10. Check the water gauge for the amount of water in the tank, make sure the pump indicator light is working, check the dispensing hose for leaks, and make sure the static discharge cable is present and serviceable.

019

1. An industrial vehicle designed to tow one or more non-powered trailers.
2. A suitable seat with a back and side guard.
3. Before-operation inspection.
4. During-operation inspection.
5. Never; unless the forklift manufacturer designates the forklift for that type of operation and publishes technical data that you must follow.
6. At least three.
7. Driving too close to the edge can put your trailer over the edge.
8. They place unnecessary force and/or pressure on the item you are towing, your tug, and the pintle hook assembly, which could result in damage to any or all of those. The item you are towing could also push you forward into whatever you were trying to avoid hitting.
9. It can bend or break the trailer tongues and render the cargo inoperable until the trailer is replaced or repaired. This means war fighters don't get what they need when they need it, which could place them in harm's way.
10. Rapid acceleration.
11. Physically ensure the area behind the towed object has ample room for maneuvering and that no unauthorized personnel are behind the towed object. Use spotters and make sure they position themselves so they won't need to walk backwards while spotting. Preposition the wheel chocks for the item being towed and make sure both vehicles are in a straight line prior to backing, if possible.
12. 1, 3, 4, 5, 6, 7.
13. 15 mph.
14. The equipment's TO, operator's manual, or data plate.
15. Driver perception time, driver reaction time, and vehicle stopping time.
16. The latch is not functioning properly.
17. Make sure the cotter/safety pin is present and inspect it for cracks and other damage. Ensure it is attached securely to a chain or wire.
18. All.
19. Remove the cotter pin, raise the latch, and open the pintle hook jaw.
20. Sudden movement by the two vehicles.
21. Pry the end of the pin open enough to create enough tension when it goes into the locking device.
22. Do not step over the tow bar.
23. Pull up on the latch.
24. If the manual locking device is not properly secured, spring loaded tow bars or tow bars under pressure can come out of the pintle hook and cause injury and/or damage.

25. Attach the safety chains to vehicle towing eyes. If towing eyes are not available, secure chains around the towing vehicle's frame. If the frame is inaccessible, wrapping the chains around the bumper is acceptable, but only as a last resort.
26. It decreases the distance the trailer pintle will travel if dropped and may prevent the trailer lunette from hitting and digging into the ground or an aircraft, causing an accident during movement.
27. Damage to equipment is possible while towing and turning the vehicle.
28. Electrical hook-ups and brake air lines.
29. Ensure the towing vehicle is properly stopped and ensure the towed equipment's integral brake system, if equipped, is set.
30. Properly stow and/or position the towing tow ring. If the trailer has support legs, lower, position and lock them properly.

Complete the unit review exercises.

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).

64. (014) Which form will you use as a guide throughout the vehicle inspection process?
 - a. AF Form 1800, Operator's Inspection Guide and Trouble Report.
 - b. AF Form 1474, Agency Report of Motor Vehicle Data.
 - c. AF Form 1823, Vehicle and Equipment Work Order.
 - d. AF Form 2028, Vehicle Unit Inspection Record.
65. (014) Which action would you complete when conducting a before-operation inspection of a vehicle?
 - a. Listen for unusual noises.
 - b. Check all the lights and instrument panel.
 - c. Ensure the brakes and mechanical parts are operating properly.
 - d. Review the AF Form 1800, Operator's Inspection Guide and Trouble Report, for open discrepancies.
66. (014) The purpose of the before-operation vehicle inspection is to ensure
 - a. the vehicle control officer is adhering to regulations.
 - b. no one has driven the vehicle since you last inspected it.
 - c. the vehicle is safe and in commission before you operate it.
 - d. all damage and malfunctions are recorded before you report it.
67. (014) In which part of a vehicle inspection will you turn off the engine, place the chocks, and walk around the vehicle to check for leaks, tire pressure, and any damage that may have occurred during use?
 - a. Before operation.
 - b. During operation.
 - c. After operation.
 - d. This does not occur during any part of the inspection.
68. (014) Which information are you required to put in the designated shift/signature block of the AF Form 1800, Operator's Inspection Guide and Trouble Report, once you complete the inspection?
 - a. Full name only.
 - b. Last name only.
 - c. Laundry mark only.
 - d. Last name and rank only.
69. (014) When you are performing a before-operation inspection on a forklift, open the hood and check for
 - a. damage and leaking muffler and exhaust system.
 - b. serviceability of the fire extinguisher.
 - c. serviceability of the tow connections.
 - d. security of the battery terminals.

70. (014) Which fluid level would you check when performing a during-operation inspection on a 10K forklift?
- a. Oil.
 - b. Brake.
 - c. Hydraulic.
 - d. Transmission.
71. (015) Which forklift has a maximum lifting capacity of 10,000-pounds and can lift up to 150 inches high?
- a. 4K.
 - b. 10K.
 - c. 10K AT.
 - d. 50K.
72. (015) When approaching the ramp for final positioning, what feature of the 10K forklift should you use to have smooth, positive control?
- a. Inching pedal.
 - b. Rollerized tines.
 - c. Mast control lever.
 - d. Highest forward gear.
73. (015) Which forklift is designed for operating on rough terrain?
- a. 4K.
 - b. 6K.
 - c. 10K.
 - d. 10K AT.
74. (015) When is it safe to raise or lower a load on a forklift?
- a. Anytime.
 - b. Only after you've come to a complete stop.
 - c. Only after you've secured the pallet to the tines.
 - d. Only after you've ensured there is no one near the tines.
75. (016) Which K-loader can hold up to six 463L pallets and has a loading capacity of 60,000 pounds?
- a. 25K.
 - b. 40K.
 - c. Tunner loader.
 - d. Halvorsen loader.
76. (016) Which deck function is unique only to the Tunner loader?
- a. Pitch.
 - b. Shift.
 - c. Roll.
 - d. Yaw.
77. (016) Which cab controls on the Tunner are used to operate the deck functions when on/offloading cargo?
- a. Circuit breaker panel.
 - b. Deck pitch control box.
 - c. Deck and conveyor control panel.
 - d. Primary deck control indicator light.

78. (016) With four fully charged batteries, the emergency standby system on the Tunner will provide normal steering, lift, and hydraulic functions on a limited basis for about how many minutes?
- a. 30.
 - b. 40.
 - c. 50.
 - d. 60.
79. (016) Operating the starter continuously on the Tunner for longer than a minimum of how many seconds will cause it to overheat?
- a. 20.
 - b. 30.
 - c. 60.
 - d. 120.
80. (016) After cranking the starter on the Tunner for 30 seconds without a successful start, allow the starter to cool down for how many minutes before trying again?
- a. 1.
 - b. 2.
 - c. 3.
 - d. 4.
81. (016) The Halvorsen loader was designed to deploy within how many minutes?
- a. 20.
 - b. 30.
 - c. 45.
 - d. 60.
82. (016) Which K-loader has a deck range up to 225 inches and has adjustable pallet guides to accommodate pallets on the 88 or 108 inch side?
- a. 25K.
 - b. 40K.
 - c. Tunner loader.
 - d. Halvorsen loader.
83. (016) In case of an engine failure or hydraulic pump failure while driving, the Halvorsen has an electrically powered hydraulic pump within the hydraulic system that instantly and automatically operates for how many seconds?
- a. 20.
 - b. 30.
 - c. 45.
 - d. 60.
84. (016) If you were working as part of a loading crew, at which of these heights would you be required to wear a fall restraint harness?
- a. 4 feet.
 - b. 5 feet.
 - c. 8 feet.
 - d. 11 feet.
85. (016) When bridging K-loaders, in what position must the loaders be when transferring pallets between two loaders?
- a. Lowered.
 - b. Pitched.
 - c. Raised.
 - d. Rolled.

86. (017) In which part of a vehicle inspection will you clean and refuel the bus, if necessary, and ensure passengers did *not* damage any part of the bus interior?
- Before operation.
 - During operation.
 - After operation.
 - Accomplishing this task is not necessary.
87. (017) Which feature of the C-5 staircase truck provides initial positioning ability?
- Hydraulic boom cylinders.
 - Prongs and pawl latches.
 - Top platform assembly.
 - Extension platform.
88. (017) Which feature of the C-5 staircase truck allows you to more easily view the aircraft doorsill and pawl latches while raising the stairs?
- Hydraulic boom cylinders.
 - Prongs and pawl latches.
 - Top platform assembly.
 - Window.
89. (018) Which feature of the latrine service truck (LST) pumps chemicals into the lavatory tank to neutralize solids and eliminate odor?
- Flush/recharge hose.
 - Dump valve.
 - Sight gauge.
 - Waste tank.
90. (018) How do you know when the waste tank on the latrine service truck (LST) is full?
- Open the tank and look inside.
 - Look through the sight window.
 - Wait until the flow meter zeroes out.
 - Look at the gauge in the control panel.
91. (018) Which feature of the latrine service truck (LST) measures the amount of rinse-fill solution being pumped inside of an aircraft or Air Transportable Galley/Lavatory (ATGL)?
- Flow meter.
 - Dump meter.
 - Control panel.
 - Waste tank sight gauge.
92. (018) How many ounces of 5 percent sodium hypochlorite solution will you use on the potable water truck (PWT) for a 250-gallon tank?
- 24.
 - 44.
 - 64.
 - 84.
93. (018) Before operating the water pump on the potable water truck (PWT), ensure the tank contains at least how many gallons?
- 20.
 - 40.
 - 60.
 - 80.

94. (019) Passengers will *not* ride on the warehouse tug unless
- a. there are no other vehicles to transport them.
 - b. a suitable seat with a back and side guard is installed.
 - c. they are able to be sufficiently buckled on the vehicle.
 - d. you request a waiver through you vehicle control officer.
95. (019) Which vehicle can you *not* use to tow trailers or push equipment unless the manufacturer designates it for that operation?
- a. Forklift.
 - b. Lox cart.
 - c. Warehouse tug.
 - d. Maintenance stand.
96. (019) How many vehicle lengths should you keep between you and the vehicle in front of you when towing an item?
- a. One.
 - b. Two.
 - c. Three.
 - d. Four.
97. (019) What towing mistake can easily bend or break trailer tongues and render the equipment inoperable?
- a. Jack-knifing.
 - b. Stopping too gradually.
 - c. Accelerating gradually.
 - d. Driving too close to the edge of a dock.
98. (019) If you can raise the jaw of a pintle hook assembly when the latch is down, the latch
- a. is not functioning properly.
 - b. needs a cotter pin inserted.
 - c. is functioning as required.
 - d. needs to be pried open.
99. (019) Which part of a pintle hook assembly will be used in all pintle hook towing operations?
- a. Tow valve.
 - b. Support legs.
 - c. Safety/cotter pin.
 - d. Integral brake system.
100. (019) Once you have made the trailer connection to the pintle hook assembly, do *not*
- a. insert the cotter pin.
 - b. lower the upper jaw.
 - c. step over the tow bar.
 - d. ensure the upper jaw will not open.

Glossary of Abbreviations and Acronyms

ACL	allowable cabin load
AD	aerial delivery
A/DACG	Arrival/Departure Airfield Control Group
AEF	Air and Space Expeditionary Force
AETC	Air Education and Training Command
AFB	Air Force Base
AFH	Air Force handbooks
AFI	Air Force instruction
AFSC	Air Force specialty code
AFMAN	Air Force manual
AFTO	Air Force technical order
AGE	aerospace ground equipment
AHA	alert holding area
AMC	Air Mobility Command
AMD	Air Mobility Division
AMCI	Air Mobility Command instruction
AMC MICAP	Air Mobility Command Mission Capability
AMCPAM	Air Mobility Command pamphlet
AMS	Air Mobility Squadron
ANG	Air National Guard
AOC	Air Operations Center
AOE	airports of entry
AOR	area of responsibility
APEX	aerial port expeditor
APOD	aerial port of debarkation
APOE	aerial port of embarkation
APS	Aerial Port Squadron
APT	air passenger terminal
AT	adverse terrain
ATGL	air transportable galley/lavatory
ATOC	Air Terminal Operations Center
ATSEV	Air Transportation Standardization Evaluation
AU	Air University
BEE	bioenvironmental engineer

CAOC	Combined Air Operations Center
CBRNE	chemical, biological, radiological, nuclear and high-yield explosive
CBT	computer based training
CCDR	combatant commander
CCMD	combatant command
CDC	career development course
CDF	Cargo Deployment Function
CDR	commander
CDS	container delivery system
CE	course exam
CFETP	career field education and training plan
CJCS	chairman of the Joint Chiefs of Staff
CMOS	Cargo Movement Operations System
COCOM	Combatant Command
COE	Center of Excellence
CONPLAN	concept plan
CONOPS	concept of operations
CONUS	continental United States
CRAF	Civil Reserve Air Fleet
CRG	contingency response group
CRW	contingency response wing
DCAPES	Deliberate Crisis Action Planning and Execution Segment
DCC	Deployment Control Center
DIRMOBFOR	director Mobility Forces
DOD	Department of Defense
DODM	Department of Defense Manual
DRU	direct reporting unit
DTR	Defense Transportation Regulation
DTS	Defense Transportation System
DV	distinguished visitor
DZ	drop zone
EM	Emergency Management
EMTF	Expeditionary Mobility Task Forces
ERO	engine running on/offload

ETIC	estimated time of in-commission
FCG	Foreign Clearance Guide
FOD	foreign object damage
FUNCPLAN	functional plan
GAMSS	Global Air Mobility Support System
GATES	Global Air Transportation Execution System
GDSS2	Global Decision Support System 2
GSS	Global Support Squadron
HAZMAT	hazardous materials
HR	hazard report
HQ	headquarters
IAW	in accordance with
ICODES	Integrated Computerized Deployment System
ID	identification
IDO	installation deployment officer
IDP	Installation Deployment Plan
IDRC	Installation Deployment Readiness Cell
IGO	intergovernmental organization
INOP	inoperable
IPPC	International Plant Protection Convention
ISU	internal slingable units
ITV	In-transit visibility
JAOC	Joint Air Operations Center
JBMDL	Joint Base McGuire-Dix-Lakehurst
JCS	Joint Chiefs of Staff
JDDE	Joint Deployment and Distribution Enterprise
JFC	Joint Force commander
JI	joint inspection
JOPEs	Joint Operation Planning and Execution System
JPEC	Joint Planning and Execution Community
JSCP	Joint Strategic Capabilities Plan
JTF	Joint Task Force
LOGMOD	Logistics Module
LRS	Logistics Readiness Squadron

LSA	Logistics Supplement Analysis
LST	latrine service truck
LZ	landing zone
MAJCOM	major command
MHE	materials handling equipment
MICAP	mission capability
mph	miles per hour
MPTO	methods and procedures technical orders
MRE	meals ready-to-eat
MRSP	mobility readiness spares packages
MSC	Military Sealift Command
MSK	mission support kits
NAMS	National Air Mobility System
NGO	nongovernmental organization
NLT	no later than
NVG	night vision goggles
NWRM	nuclear weapons-related material
OE	operational environment
OPLAN	operational plan
OPORD	operations order
OSA	operational support aircraft
OSC	organizational structure code
OSI	Office of Special Investigation
PDF	Personnel Deployment Function
PPE	personal protective equipment
psi	pounds per square inch
PWT	potable water truck
QA	quality assurance
QTP	qualification training package
RFID	radio frequency identification
RM	risk management
RSP	readiness spares package
SCoE	Sustainment Center of Excellence
SDDC	Surface Deployment and Distribution Command

SE	support equipment
SECDEF	Secretary of Defense
SGLI	Servicemen's Group Life Insurance
SMS	Single Mobility System
TAC	transportation account code
TACC	Tanker Airlift Control Center
TDY	temporary duty
TO	technical order
TODO	Technical Order Distribution Office
TPFDD	time-phased force deployment data
UCMJ	Uniformed Code of Military Justice
UDCC	Unit Deployment Control Center
UDM	unit deployment manager
UN	United Nations
URE	unit review exercises
US	United States
USAF	United States Air Force
USAFEC	United States Air Force Expeditionary Center
USTRANSCOM	United States Transportation Command
UTC	unit type code
VAC	volts alternating current
VAL	vehicle authorization listing
VCO	vehicle control officer
vRED	virtual record of emergency data
VVIP	very, very important parts
WMP	war mobilization plan
WPM	wood packaging material
WRM	war reserve material

Student Notes

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