

Aircrew Technician, GS-2185 in the Army and Air National Guard, and Air Force Reserve

INSTRUCTIONS FOR APPLICATION

This guide provides illustrations of aircrew technician work in the Army and Air National Guard (ARNG and ANG) and Air Force Reserve (AFRES). It must be used in conjunction with the Office of Personnel Management (OPM), GS-2185, Aircrew Technician Standard when classifying Flight Engineer, Aerial Refueling Technician, and Aircraft Loadmaster positions. It provides the Department of Defense rationale for interpreting the criteria in the OPM standard. The illustrations provided below reflect duties and responsibilities commonly assigned to covered positions at the time the guide was developed; however, there may be other examples not listed which may be comparable in terms of knowledge and skill, level of responsibility, and hazard. As a rule, the examples can be viewed as the threshold for a grade level. Consequently, work situations not described must be deemed to meet or exceed the examples at a specific grade level to be awarded that grade. Weakening factors would cause a position that may otherwise meet an example at a particular grade level to be assigned a lower grade level. Strengthening factors may offset weakening factors, but the strengthening factors may not be the sole basis for meeting the threshold of the next higher grade.

FACTORS, PART 1

KNOWLEDGE AND SKILLS:

At the **GS-07** level, aircrew technicians apply knowledge and skills that relate primarily to one or a narrow range of aircraft functions necessary to accomplish a particular mission. At this level, technicians are assigned to heavy, multi-engine transport aircraft and they regularly perform airlift missions such as cargo, personnel, and medical evacuation. They regularly apply a knowledge of cargo characteristics, cargo compatibility, loading and restraint factors, etc., to load/unload cargo, to properly restrain palletized and unpalletized items, to compute weight and balance, and to independently reject incompatible or improperly prepared cargo. Assignments **regularly** include problems created by the following conditions: 1) airlift requiring "special handling" such as explosives, inflammable liquids and solids, corrosive liquids and acids, gases, poisons, etc. or cargo that is contaminatable or perishable, and/or 2) complex and highly technical training to carry out military combat and combat related missions such as those involving multi-destinations, multi-purpose, or joint service missions. Also at this level are assignments that **regularly** require the technician to perform test certification on new cargo.

Examples:

Oversees and directs loading and unloading crews to ensure adherence to load plans. Accomplishes preplanning and prepares complex load plans which involve aircraft with a multitude of different configurations and sizes with respect to weight, cube, and trim considerations. The complex plans also involve mixed cargo destined to multiple locations for a

single mission, and they include the application of weight, balance, restraint, and airlift factors.

Develops and performs procedures relating to aircraft support systems and specialized operations to meet airlift mission requirements. Completes all necessary coordination and problem solving to ensure effective and timely support. Operates the control panel which governs the necessary electrical and pneumatic systems (auxiliary power units) and hydraulic systems (air turbine motors) that provide power to aircraft kneeling systems, the forward visor/ramp complex, and aft pressure door ramp loading complex, troop compartment, flight deck, and crew entrance door ladders. Operates switches and controls to regulate various aircraft systems. Mathematically computes the volume of cargo and converts to cubic feet for the fire suppression system.

Accomplishes a wide variety of pre-flight, inflight, and post-flight duties required by the nature of the assigned aircraft and its mission. Is the aircrew expert on all flight safety matters involving aircraft weight and balance data and limitations, shipment and compatibility of hazardous materials, such as Class "A" explosives and poisons, radioactive cargo up to and including nuclear devices and components, biological agents and specimens, and special handling security cargo.*

Briefs passengers on the use of survival equipment and the location and operation of emergency exits. Responsible for the safe and orderly evacuation of passengers in an aircraft emergency. Responsible for supervising life saving measures of passengers in the event of airborne emergency.

*While some special mission cargoes such as nuclear devices and biological agents are not typically handled in the civilian peacetime environment the criticality of the cargo requires extensive practice and training in the civilian capacity.

At the **GS-08** level, aircrew technicians apply a thorough knowledge of a wider range of primary aircraft systems or functions applicable to the specific mission of their aircraft. This includes applying a knowledge of special equipment, systems or controls, to coordinate critical in-flight activities, or perform a wide variety of pre-flight and in-flight duties on heavy, multi-engine aircraft used for difficult and specialized missions. It includes applying a knowledge of proper loading and restraining procedures for outsized/unique cargo and security sensitive equipment, such as satellites and skylab components, marine craft components, and other similar cargo. It also includes an ability to test and develop new criteria for loading/restraining such cargo; **or** knowledge of specialized handling procedures and palletizing requirements for off-loading the cargo. In addition, an ability to assess the impact on aircraft stability of jettisoning cargo during low-level tactical airdrops and the ability to respond immediately and accurately during unexpected or sudden shifts in weight and balance of aircraft due to airdrops is required. For example, technicians apply a knowledge of hydraulic, electrical, and pneumatic systems to monitor and operate a variety of equipment necessary to complete their assigned responsibilities, such as in-flight refueling, modular airborne firefighting, aerial spraying, tactical airdrop of personnel and equipment, launching pyrotechnic devices, etc.

Examples:

Operates Modular Airborne Fire Fighting System (MAFFS). Responsible for rapid loading, assembling and securing of MAFFS unit on large multi-engine aircraft. Installs and connects MAFFS electrical system into the aircraft electrical power system. Operates high pressure

gasoline/diesel engine driven air compressors used for charging the MAFFS unit. Arms system, selects tanks for discharge, manually sets pneumatic pressure settings and extends or retracts dissemination tubes. In the event of malfunction in the system or the aircraft, institutes emergency procedures, initiating immediate jettison of retarding fluid if necessary. Analyzes malfunctions and systems deficiencies and implements modifications for system improvements. Coordinates directly with the U.S. Forest Service and applicable State agencies for the onload and disbursement of fire fighting retardants.

Conducts Aerial Spray operations which entail programming the aerial spray computer system, opening electro-pneumatic valves, setting flow and recirculating rates. Requires knowledge and skill to ensure that spray and or spray settings are within exact tolerance of calculated flow; and ability to operate system manually in case of computer failure. Makes recommendations concerning experimental testing of new chemicals, pest targets, and new procedures for attacking pests and consequent changes in Mobile Aerial Spray System (MASS). Works in close proximity to extremely poisonous chemicals and solvents under pressure during loading, calibration, and airborne spraying. Operates and oversees operation of the complex electronically controlled spray system during ground and flight operations.

Conducts Air Rescue and Recovery missions. Loads, rigs, and launches pyrotechnic devices and parachute flares to mark sightings at sea, sea lanes, and wind and sea drift determination prior to deploying personnel and/or rescue equipment. Illuminates areas for emergency crash landings, ditching, hovering of helicopters, or airdropping of supplies. Operates the overhead delivery system for the search and rescue kit (MA- 1/2). Operates the counter measure dispersion system to simulate the dissension of flare and chaff for self-protection against radar controlled and infrared guided missiles. Requires skill in using night vision goggles (NVGs) to perform night mission crew duties and skill to perform inflight observer duties while using the rear vision device (RVD, "Bubble").

Conducts inflight aerial refueling for a variety of types or receiver aircraft (e.g., fighters, bombers, and helicopters) during extended range missions. Directs receiver pilot into the air refueling position using verbal or appropriate visual commands. Operates the aerodynamic control surfaces of the flying boom to effect a precision physical connection between the tanker and receiver airplane and ensures that the boom does not strike the receiver outside the fueling receptacle area. While in contact, continues to make control surface input to maintain boom alignment regardless of the receiver aircraft's movement within the designated air refueling parameters. Prevents inadvertent disconnects, nozzle binding or breakage, and receiver damage by cross-checking boom instruments and giving receiver pilot continuous verbal or visual instructions necessary to remain within the air refueling envelope. Actuates switches and controls in coordination with the receiver pilot to effect safe separation at the completion of fuel transfer. Retracts and maneuvers the boom until it is completely clear of the receiver airplane. Recognizes and directs the separation of tanker and receiver aircraft when an emergency situation exists and ensures their physical disconnect prior to movement by either craft. Performs appropriate emergency procedures and operations for offloading and unloading fuel.

Inspects airdrop cargo for proper rigging procedures and equipment for parachute types against load weights for all airdrop platforms, container bundles, and door bundles. Connects extraction systems and static lines from equipment to aircraft systems. Installs aerial unloading kits, buffer stop assemblies, center vertical restraint rails, winches, pulleys, and cable assemblies. Checks

restraint devices, parachutes, containers, and suspension and extraction systems to ensure proper release of cargo. Manually releases airdrop cargo over the drop zone when the aircraft is not equipped with pilot controlled release system or during system failure.

Manually operates aircraft ramp and door during system failure to ensure mission completion. Maintains a thorough knowledge of inflight airdrop emergency procedures, including emergency airdrop load restraint and emergency tactical release procedures. Conducts briefing between jumpmasters and other crew members to ensure strict adherence to emergency procedures. Adapts airdrop systems to meet the needs of the military services, other governmental agencies, or contractors. Determines the appropriate rigging, palletization, etc., for various missions based upon the type(s) of specialized cargo to be airdropped. Relates this load information to the military service, other governmental agencies, or contract users to ensure customer mission requirements are met.

Develops detailed procedures for transporting outsized and/or unique cargo and equipment such as: satellites, skylab components, missiles, marine craft, marine craft components, and specialized rotary wing aircraft. Meets with manufacturers in the conceptual stages of development of this equipment. Devises and installs special winches and tie-downs to load and secure the equipment due to extremely heavy weights. Recomputes weight and balance factors and revises loading and unloading procedures using lasers and cameras due to critical clearances encountered.

As sole aircrew technician, performs preflight inspection to determine the capability of aircraft to meet specific mission requirements. Functionally checks/operates aircraft electrical, hydraulic, pneumatic, oxygen systems, computer systems, and ground support equipment, such as ground/auxiliary power units. Verifies proper functioning of Loadmaster station controls for cargo rail system, communication and environmental systems, fire protection/detection systems, and cargo door systems as they relate to loading and transport of cargo. Reviews aircraft maintenance documentation. Ensures aircraft configuration complies with applicable flight manual operating restrictions while meeting the requirements of the mission directive and planned cargo load. Inspects and operates unique aircraft systems, such as Flotation Equipment Deployment System, the Onboard Inert Gas Generating System, and Ramp Blowdown System. During flight, performs periodic engine scans and system inspection (e.g., hydraulic fluid quantity check).

At the **GS-09** level, technicians apply knowledge and skills concerned with most or all primary systems critical to the performance of the aircraft and involve the complete range of flight operations and procedures. The knowledge and skills relate to the overall performance of the aircraft systems and components. For example, the technician serves as the flight engineer with responsibility for assisting the pilot in the operation of primary aircraft systems (propulsion, airframe, electrical, hydraulic, environmental, aerial delivery, and air defense systems). At the GS-09 level, technicians also apply knowledge and skill to accomplish simultaneous, multiple aerial refueling operations including the knowledge and skill to operate aerial refueling boom and hose drogue assembly/ controls to safely effect refueling contact between the tanker and multiple receiver aircraft. The technician at this level serves as the sole aerial refueler responsible for the simultaneous refueling of multiple receiver aircraft.

Examples:

Performs duties as Flight Engineer with responsibility for monitoring, operating, and controlling all primary aircraft systems. Inspects aircraft interior and exterior to include engines, fuselage, and control surfaces for mechanical and structural soundness and proper operation to determine aircraft airworthiness. Functionally checks all aircraft systems, flight instruments, and onboard computers. As applicable, loads flight data into computers. Reviews aircraft maintenance documentation and ensures aircraft maintenance status complies with Command operating restrictions and the applicable flight manual. Coordinates with aircraft maintenance personnel to ensure availability of aircraft. Determines takeoff, inflight, and landing data, based on terrain, runways, weather conditions, and aircraft weight/configuration. Assists pilot with engine starting and ground operations; advises on engine performance, and computes critical speeds and time/distance checks. Monitors departure procedures, routing, and altitude clearances. Adjusts aircraft engine controls inflight to ensure proper aircraft performance. During all aircraft operations, monitors engine and aircraft system performance, analyzes instrument readings, and identifies abnormal indications or system malfunctions. Observes warning indicators and lights for fire, overheat, depressurization, or other emergency actions. Operates and regulates environmental, hydraulic, fuel, electrical, pressurization, radar, and other systems as required by the applicable flight manual. Operates built-in test and trouble shooting systems. Records fuel consumption, range, and inflight performance data. Maintains records and forms covering flights, repairs, maintenance, inspections and service. Identifies and documents discrepancies to ensure that requested repairs have actually been accomplished.

Performs duties as the sole aerial refueling technician aboard a tanker aircraft with the capability to refuel multiple receiver aircraft (e.g., fighters, bombers, and helicopters). During rendezvous, directs receiver aircraft into the aerial refueling contact position and operates the aerial refueling boom and hose drogue assembly controls to safely effect contact between the tanker and receiver aircraft. During contact, monitors instruments and observes multiple receiver aircraft for sudden or abnormal changes in position in relation to the tanker. Observes the tail boom connection and the wing drogue refueling connections via use of closed circuit TV. Advises receiver pilots of actions required to maintain a safe position. In the event of aerial refueling boom system or computer failures, directs receiver aircraft pilots and uses all available means to prevent aircraft collision.

At the **GS-10** level, technicians apply knowledge and skills concerned with all primary aircraft systems critical to the performance of the aircraft and, in addition, in those aircraft not having one or more of the primary crew positions, skill and knowledge sufficient to accomplish the mission of that position (i.e., in aircraft not having a navigator position, knowledge and skills to load information and operate the Inertial or Global Navigation Systems (INS/GNS).

Example:

In addition to conducting the preflight inspection of navigation units, entering present position, and aligning all inertial platforms on an aircraft without a navigator position, performs other navigational duties such as extracting course data from charts and maps. When in flight, monitors flight progress; calculates estimated time of arrival (ETA); and reloads way point information into the Inertial and Global Navigation Units (INU/GNU). During air refueling; computes holding, orbit, minimum air refueling and overrun speeds; extracts and loads air

refueling track information into the INU/GNU; and analyzes data to determine abort procedures and emergency landing sites.

RESPONSIBILITY:

At the **GS-07** level, procedures relate to one or a narrow range of functions necessary to accomplish a particular mission. For example, the responsibilities may encompass weight, balance, and load planning functions related to airlift missions. Recognizes deviations from standard procedures and applies judgment to problems that, generally speaking, are based on analysis of readily discernible facts. For example, uses mathematical calculations to compute weight, balance and restraint factors. Deviations from standard procedures are frequently required.

At the **GS-08** level, procedures relate to a wider range of pre-flight and in-flight functions and responsibility for monitoring, operating, and controlling a variety of special equipment; assignments which combine elements of the work of other crew positions (e.g., combined Loadmaster and air refueling responsibilities); "sole" aircrew technician positions; or cargo requiring special handling such as oversized/unique cargo or cargo being prepared for low-level tactical airdrops. Decisions require the application of a higher degree of judgment to determine whether systems are functioning properly, to assess the impact of the malfunction on flight safety, and whether to employ emergency procedures. For example, makes and maintains safe contact with receiver aircraft throughout refueling and taking appropriate "break away" action, as necessary; operating Modular Airborne Fire Fighting System (MAFFS) equipment while flying in close proximity to other aircraft under adverse weather conditions, and making on-the-spot decisions regarding cargo/passengers improperly deployed during airdrops.

At the **GS-09** level, technicians directly assist the pilot in the operation of the aircraft. The assignment involves responsibility for the interrelationship of all aircraft systems, greater variety of possible causes of malfunctions; and consideration of alternatives in taking corrective action. At the **GS-09** level, technicians also perform duties as the sole aerial refueler accomplishing simultaneous, multiple aerial refueling operations. This responsibility entails being able to safely effect refueling contact between tanker and multiple receiver aircraft.

At the **GS-10** level, technicians directly assist the pilot in the operation of the aircraft and also perform duties in support of navigation of the aircraft. The assignment involves responsibility for operating navigation systems and loading flight information into the INS/GNS. Additionally, the technician is required to analyze the data and to make appropriate navigation decisions.

HAZARDS INVOLVED:*

At the **GS-07** level, assignments involve hazards such as airlift of hazardous cargo to multi-destinations or participating in multi-purpose or joint service missions, normally on improved runways.

At the **GS-08** level, assignments involve hazards such as flying aircraft in low level flights, formation flights, maximum effort takeoffs and landings, close proximity to other aircraft while transferring fuel, retrieving improperly deployed cargo/ passengers during airdrop missions, and flying MAFFS missions in dense smoke over uneven terrain in close proximity to other air tankers and helicopters, performing rescue missions, and/or day and night operations in all

weather conditions.

At the **GS-09** level, assignments involve hazards such as operating primary systems critical to the performance of the aircraft in actual or simulated tactical environment, including training sorties, aggressive maneuvers, low level flights, formation flights, maximum effort takeoffs and landings, or frequent operations from short, unimproved airfields. They also involve flying in close proximity to multiple aircraft while transferring fuel.

At the **GS-10** level, hazards are comparable to those described at the GS-09 level.

*The examples provided under this element should be treated in terms of their affect on the total job.

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