CHAPTER 9

GLOSSARY

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Above Ground Level (AGL). The altitude expressed in feet measured above the ground's surface.

Aerial Refueling (AR). The act of receiving fuel efficiently and safely while in flight. Refueling operations are performed in designated aerial refueling tracks or FAA approved airspace.

Aerospace Power. The projection of military force by or from aircraft operating above the earth's surface.

Air Combat Command (ACC). The Air Force Command that operates combat aircraft assigned to bases within the contiguous 48 states, except those assigned to the Air National Guard and the Air Force Reserve Command.

Aircrew. The military personnel whose primary duty is to fly the unit's aircraft. Aircrews must work as an integrated team, with each person performing his or her particular skill as part of a combat team. B-1 aircrews consist of four individuals: the pilot (aircraft commander), copilot, offensive systems officer, and defensive systems officer. B-52 aircrews consist of five individuals: the pilot (aircraft commander), copilot, radar navigator, navigator, and electronic warfare officer.

> *Pilot.* The aircraft commander is responsible for the aircraft and crew. The pilot is primarily responsible for maneuvering the aircraft, avoiding terrain, responding to calls by the defensive system officer and electronic warfare officer, and visual acquisition of threats. The successful accomplishment of the mission is of major importance.
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> *Copilot.* Assists the pilot in proper flight of the aircraft and shares the responsibilities for the safe, successful completion of the mission. During all critical phases of flight, the copilot monitors aircraft configuration, flight and engine instruments, and terrain clearance to ensure immediate recognition of potentially dangerous conditions. The copilot visually searches for threats as well as supporting the defensive systems officer or electronic warfare officer. More importantly, the copilot is the person integrating offensive and defensive inputs as well as aircraft systems and visual cues. The copilot maintains the situational awareness for the aircrew.
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> *Offensive Systems Officer (OSO).* Operates and manages the B-1's Offensive Avionics Systems and is directly responsible for all navigation and ordnance delivery. The offensive systems officer also coordinates routing for optimum terrain masking and concentrates on safely accomplishing defensive maneuvers.
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> *Defensive Systems Officer (DSO).* Operates and manages the defensive avionics to provide electronic and physical defense against ground-based or airborne radar and missile systems that pose a threat to the B-1. The defensive systems officer's primary role is defending the aircraft. The defensive systems officer is responsible for not only management of the defensive systems, but integration of defensive aspects of other aircrew members' duties.

Radar Navigator (RN). This navigator is directly responsible for B-52 ordnance delivery and shares navigational responsibilities with the navigator.

Navigator. Primarily responsible for B-52 navigation from take-off to landing; the navigator shares ordnance delivery responsibilities with the radar navigator. The navigator coordinates routing for optimum terrain masking and avoidance. In case of avionics failures, the navigator is responsible for alternate forms of navigation.

Electronic Warfare Officer (EWO). Operates and manages the B-52 defensive avionics to provide threat detection and countermeasures against all ground and airborne threats.

Air Intercept Training. Air intercept training generally consists of multiple aircraft engaged in air-to-air training. The "friendly" aircraft use visual and electronic techniques to locate and intercept "enemy" aircraft.

Air-to-Air Defensive Maneuvering. These maneuvers are designed to counter attacks by enemy fighter aircraft and consist of air combat maneuvers, basic fighter maneuvers, defensive maneuvers, and dissimilar air combat training.

Air-to-Air Training. Air-to-air training prepares aircrews to achieve and maintain air superiority over the battlefield and defeat enemy aircraft. Air-to-air training often includes some aircraft playing the role of adversaries, or enemy forces. Air-to-air training activities include advanced handling characteristics, air combat training, low-altitude air-to-air training, and air intercept training. This training also requires the use of defensive countermeasures.

Air-to-Ground Training. Air-to-ground training employs all the techniques and maneuvers associated with weapons use and includes low- and high-altitude tactics, navigation, formation flying, target acquisition, and defensive reaction. Training activities include surface attack tactics, different modes of weapons delivery, electronic combat training, and the use of defensive countermeasures.

Air Support of Ground Forces. Air operations supporting ground forces.

Air Traffic Control (ATC). The system used to safely direct aircraft in flight, using controllers from both the FAA and the military.

Air Traffic Control Assigned Airspace (ATCAA). Airspace of defined vertical and lateral limits, assigned by ATC, for the purpose of providing air traffic separation between the specified activities being conducted within the assigned airspace and other instrument flight rules air traffic.

Alternate Exit. Segment of a military training route that permits aircrews to exit without flying to the primary exit point. This procedure optimizes training by allowing aircraft to leave the military training route at a point that best fits the desired training profile.

Anti-Aircraft-Artillery (AAA). Guns used by air defense forces against aircraft.

Average Sortie Duration (ASD). A Bomb Wing's total number of flying hours divided by the number of sorties that must be flown.

Combat Maneuvering. Training designed to achieve proficiency in formation maneuvering and the coordinated application of skills to achieve desired mission results or effectively defend against one or more aircraft or threat systems.

Contingency Operations. An emergency involving military forces caused by natural disasters, terrorists, subversives, or by other military operations.

Conventional Weapons Delivery Training. Training that involves practice ordnance deliveries in a structured, repetitive learning environment. Aircrews fly predetermined flight tracks against visible targets and receive feedback from an on-site range control officer.

Council on Environmental Quality (CEQ). An Executive Office of the President composed of three members appointed by the President, subject to approval by the Senate. Members are to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the nation; and to formulate and recommend national policies to promote the improvement of the quality of the environment.

Defensive Countermeasures. Coordination of maneuvers and use of aircraft defensive systems designed to negate enemy threats. Those maneuvers (which include climbing, descending, and turning) requiring sufficient airspace to avoid being targeted by threat systems. Aircraft use sophisticated electronic equipment to jam air and ground radar-tracking systems.

Defensive Maneuvers. Maneuvers designed to negate the attack or ordnance of an adversary, either surface-based or airborne.

Electronic Combat. Electronic combat training requires aircrews to interpret radar warning receiver displays, activate electronic countermeasure equipment, and perform evasive maneuvering. This training also includes recognition of the effects of jamming in aircraft systems as well as operating and employing effective electronic counter-countermeasures. Electronic emitters provide the signals that aircrews require for electronic combat training. Electronic combat training is conducted on military training routes, military operation areas, and restricted airspace at a variety of altitudes.

Electronic Countermeasures (ECM). The electronic response to enemy threat radar and associated weapons. Most military aircraft are equipped with sophisticated equipment that can jam or otherwise negate the enemy's equipment that is designed to destroy friendly aircraft.

Electronic Combat Range (ECR). An ECR is a training range that provides capabilities for simulating enemy radar signals. The type of equipment, the ability to simulate a variety of electronic threats, and the flexibility provided varies depending upon the mission of the host unit.

Electronic Scoring Site. The real estate, equipment, and personnel that provide simulation of enemy threat radar and scoring capability for training bomber aircrews. The equipment is specifically designed to provide the realism and flexibility required for integrated aircrew training when the equipment is located in conjunction with other training assets.

Electronic Scoring Site (ESS) System. Electronic emitters that simulate threats, when combined with an Electronic Scoring Site, provide an opportunity for aircrews to conduct realistic training. Arrays of emitters linked with Electronic Scoring Sites and appropriate airspace assets and ground conditions form an ESS system.

Emitter. An electronic device that simulates enemy radar threats used to train aircrews to defend themselves and their aircraft from destruction by enemy air defense forces.

Emitter Site. The piece of land (for RBTI, 15 acres) where an emitter is located.

Environmental Justice. As defined in Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, review must be made as to whether an action disproportionately impacts minority and/or low-income populations.

Formation Training. Two or more aircraft which operate as a single aircraft with regard to navigation and position reporting.

Geographic Information System (GIS). A geographic information system is a computer system that compiles, analyzes, and models information relevant to proposals that require environmental analysis. It is also a tool that assists decision-making by providing a visual depiction of complex data, customized for the situation and circumstances associated with the decision.

Inert Ordnance. Ordnance without the explosive or incendiary material that is found in live ordnance. This inert (non-explosive) ordnance is used by training aircrews authorized to verify that aircraft systems are functioning properly, without the use of live ordnance. Inert ordnance is only used at authorized air-to-ground training ranges.

Instrument Flight Rules (IFR). A standard set of rules that all pilots, both civilian and military, must follow when operating under flight conditions that are more stringent than visual flight rules. These conditions include operating an aircraft in clouds, operating above certain altitudes prescribed by FAA regulations, and operating in some locations like major civilian airports. Air traffic control agencies ensure separation of all aircraft operating under IFR. See Visual Flight Rules.

Instrument Routes (IR). Routes used by military aircraft for conducting low-altitude, high-speed navigation, and tactical training under both Instrument and Visual Flight Rules.

Integrated Aircrew Training. Integrated aircrew training is achieved when all members of an aircrew conduct combat training including the simultaneous accomplishment of weapons employment and defensive actions in reaction to realistic air-to-air or surface-to-air threats.

Interdiction. Interdiction missions are conducted to destroy, disrupt, or delay enemy military potential before this potential can be used against friendly forces. Interdiction is intended to affect the enemy's ability to sustain combat operations by attacking targets like: mass transportation systems, troop staging/concentration points, communications systems, industrial facilities, and material stockpiles. These targets are generally located inside enemy territory, beyond the range of most fighter-bomber assets.

Jet Routes. A route designed to serve aircraft operations from 18,000 feet MSL up to 45,000 feet MSL.

Low-Altitude Navigation. This type of navigation is an activity that aircrews use to find their way to and from a target while flying at low altitudes. Aircrews develop these skills on military training routes and in military operations areas.

Low-Altitude Operations. These operations ensure proficiency in low-altitude navigation, electronic combat training, and low-altitude maneuvering. Low-altitude operations include navigation, formation flying, development of situational awareness of aircrews, and aircraft handling performance characteristics. Low-altitude operations are conducted on military training routes and in military operations areas at or below 5,000 feet AGL.

Maritime Operations. Maritime operations are conducted against enemy naval forces, primarily in international and enemy territorial waters. The primary objective is to hinder or destroy enemy naval forces before they can be employed against friendly forces.

Mean Sea Level (MSL). Altitude expressed in feet measured above average sea level.

Military Operations Area (MOA). Airspace below 18,000 feet MSL established to separate military activities from Instrument Flight Rule traffic and to identify to the pilots of Visual Flight Rule traffic where these activities are conducted.

Military Training Route (MTR). A military training route is a corridor of airspace with defined vertical and lateral dimensions established for conducting military flight training at airspeeds in excess of 250 nm per hour.

Multiple Threat Emitter System (MUTES). Equipment used to mimic over 100 enemy signals located at the electronic scoring sites.

Nautical Mile (nm). Equal to 1.14 statute miles.

No-Drop Ordnance Delivery. This type of delivery allows aircrews to simulate the normal operations of all weapons delivery operations without actually dropping any ordnance. This includes all normal display indications and functions associated with a release.

Nuclear Strategic Attack. Strategic attacks carried out using nuclear weapons as directed by the National Command Authority.

Offensive Counter Air (OCA). Offensive counter air is conducted in the enemy's airspace to attain and maintain air superiority by destroying, neutralizing, or disrupting enemy air power capabilities. The objective is to destroy targets such as aircraft on the ground; air defense facilities; command, control, and communication facilities; airfields and supporting facilities; munitions storage sites; and petroleum, oil, and lubricant storage sites. These targets can significantly impact the enemy's ability to influence the air war.

Offensive Maneuvering. Maneuvers performed by an aircraft to negate the enemy threat.

Ordnance. Any item carried by an aircraft for dropping or firing, including but not limited to, live or inert bombs, ammunition, air-to-air missiles, chaff, and flares. All ordnance delivery associated with RBTI would be electronically simulated.

Re-Entry Route. A re-entry route is an MTR segment designed to re-establish aircraft on a specific route segment for repeating training events, (i.e., multiple passes at an electronic scoring site).

Scoring Site. See Electronic Scoring Site.

See and Avoid. When weather conditions permit, pilots operating under instrument and visual flight routes are required to observe and maneuver to avoid other aircraft.
Surface-to-Air Missile (SAM). A surface-to-air missile is launched from the ground and is designed to destroy aircraft. These missiles can be guided by ground-based radar, visual equipment, or heat-seeking sensors. Aircrews prevent their aircraft from being destroyed by performing defensive countermeasures.

Sortie. A sortie is a single flight, by one aircraft, from takeoff to landing.

Sortie-Operation. The use of one airspace unit (military operations area, military training route, aerial refueling, or restricted area) by one aircraft. The number of sortie-operations is used to quantify the number of uses by aircraft and to accurately measure potential impacts; e.g., noise, air quality, and safety impacts. A sortie-operation is not a measure of how long an aircraft uses an airspace unit, nor does it indicate the number of aircraft in an airspace unit during a given period; it is a measurement of the number of times a single aircraft uses a particular airspace unit.

Special Use Land Management Areas (SULMA). Land areas, designated by federal or state governments, requiring consideration for protection of the values associated with the land.

Strike Package. A strike package is a group of aircraft working together to accomplish an attack intended to inflict damage, seize, or destroy an objective. This package could involve differing types of aircraft.

Suppression of Enemy Air Defenses. This operation is conducted to neutralize, destroy, or temporarily degrade enemy air defensive systems in a specific area by physical attack, deception, and/or electronic warfare.

Tactics. Maneuvers and/or actions designed to effectively defeat enemy threats and deliver ordnance.

Tactical Ordnance Delivery. Tactical ordnance delivery involves using various patterns and techniques to minimize flight path predictability while allowing sufficient time for accurate ordnance delivery. Tactical ranges provide a greater array of targets, configured and spaced to simulate conditions like those expected in combat. Aircrews must acquire the target and accurately deliver ordnance while simultaneously avoiding detection and targeting by air defenses.

Terminal Airspace. A general term used to describe the airspace near a commercial airport, in which approach control service or airport traffic control service is provided.

Terrain Avoidance. The use of B-52 aircraft radar and visual cues to fly a consistent clearance above the terrain at very low altitudes. Successful terrain avoidance will utilize terrain masking and minimize aircraft exposure to enemy threats when flying over mountainous terrain.

Terrain Following. Aircrews use an electronic system to maintain the lowest possible altitude above the ground while following a straight flight path. The system maintains a relative constant altitude above the ground by climbing and descending over terrain features. Navigation is easier, but the aircraft may be exposed to threats when climbing over high terrain. Aircrews plan their flight route to minimize the degree and length of this exposure.

Terrain Masking. Terrain masking blocks visual and electronic detection of the aircraft. The best way is to fly with terrain, such as a mountain or ridgeline, between the aircraft and the threat. To destroy an aircraft with a surface-to-air weapon, a threat system operator must be able to see it, either visually or electronically.
Terrain Variability. Terrain variability is a combination of slope differences and elevation differences. The greater the slope and the higher the elevation, the more terrain variability is found. Or in other words variable terrain has peaks and troughs so that aircraft can fly up and down or around the terrain. Aircraft use this variability to practice terrain avoidance and terrain following maneuvers.

Transient Aircraft. For RBTI, all other military aircraft, other than B-1s stationed at Dyess AFB or B-52s stationed at Barksdale AFB.

Visual Flight Rules (VFR). A standard set of rules that all pilots, both civilian and military, must follow when not operating under Instrument Flight Rules. These rules require that pilots remain clear of clouds and avoid other aircraft. See Instrument Flight Rules.

Visual Routes (VR). Routes used by military aircraft for conducting low-altitude, high speed navigation, and tactical training. These routes are flown under Visual Flight Rules.

Weapons System Officer (WSO). A dual qualified aircrew member that is trained as both an offensive systems officer and defensive systems officer.