

PHASE OF FLIGHT

DEFINITIONS AND USAGE NOTES

April 2013 (1.3)



Many aviation occurrence reporting systems capture the phase of operation or the phase of flight in which the event that is to be reported occurred. The list of phases provided here aims at providing guidance for this classification.



RECORD OF REVISIONS

Date	Version	Section	Revision
4/2013	1.3	Introduction	Modified definition of flight time to account for unmanned aircraft systems
4/2013	1.3	Takeoff	Modified bullet regarding unmanned aircraft systems
4/2013	1.3	Landing	Added usage note regarding unmanned aircraft systems
4/2013	1.3	Uncontrolled Descent	Added usage note regarding unmanned aircraft systems
10/2012	1.2	Document	Formatted document and made minor editorial changes
10/2011	1.1	Takeoff	Added final bullet regarding unmanned aircraft systems
5/2011	1.0.3	Document	Reformatted Document
4/2011	1.0.3	Introduction	Replaced the ICAO and CAST contacts with new CICTT email address
4/2011	1.0.3	Takeoff	Added Usage Notes for Helicopters-bullets 2 and 3
4/2011	1.0.3	Landing	Added Aborted Landing After Touchdown as a subphase
6/2010	1.0.2	Introduction	Replaces the ICAO co-chair with André de Kock and adds a “power back” subphase under the “taxi” phase
2/2006	1.0.1	Introduction	Replaces the ICAO co-chair with Yuri Fattah



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INTRODUCTION

The International Civil Aviation Organization (ICAO) and the Commercial Aviation Safety Team (CAST), which includes Government officials and aviation industry leaders, have jointly chartered the CAST/ICAO Common Taxonomy Team (CICCTT). The team was charged with developing common taxonomies and definitions for aviation accident and incident reporting systems. The common taxonomies and definitions are intended to improve the aviation community's capacity to focus on common safety issues. CICCTT includes experts from air carriers, aircraft manufacturers, engine manufacturers, pilot associations, regulatory authorities, transportation safety boards, and ICAO, and members from Canada, the European Union, France, Italy, Japan, the Netherlands, the United Kingdom, and the United States. CICCTT is co-chaired by a representative from ICAO and a representative from CAST.

To accomplish its objectives, CICCTT has developed the following:

- International Standard for Aircraft Make, Model and Series Groupings
- International Standard for Engine Make, Model and Submodel Groupings
- Human Factors
- Aviation Occurrence Categories
 - System/Component Failure or Malfunction (Powerplant) (SCF-PP) Subcategory
- Phase of Flight
- Positive Taxonomy

It is important to note that CICCTT does not expect governments, international organizations, and corporations to immediately change existing data systems or existing definitions. The intent is to provide “target” taxonomies and definitions for adoption by organizations planning for, and implementing new safety systems.

The Phase of Flight definitions below consist of broad operational phases, plus “Unknown.” Most of the phases have subphases. Organizations that use these definitions may use the broad phases, the more detailed subphases, or a combination. This version focuses on powered fixed-wing land and rotorcraft operations. Future updates will cover other aircraft.

For the purposes of this document, phase of flight refers to a period within a flight. In the case of a manned aircraft, a flight begins when any person boards the aircraft with the intention of flight and continues until such time as all such persons have disembarked. In the case of an unmanned aircraft, a flight begins at the time the aircraft is ready to move with the purpose of flight and continues until such time it comes to rest at the end of the flight and the primary propulsion system is shut down. [Annex 13 to the Convention on International Civil Aviation]

Contact point for all CICCTT work:

CICCTT@intlaviationstandards.org



STANDING (STD)

Prior to pushback or taxi, or after arrival, at the gate, ramp, or parking area, while the aircraft is stationary.

This phase of flight includes the following subphases:

- Engine(s) Not Operating.
- Engine(s) Start-up.
- Engine(s) Operating.
- Engine(s) Shut Down.

Usage Notes:

- Engine shutdown is from the start of the shutdown sequence until the engine(s) cease rotation.

PUSHBACK/TOWING (PBT)

Aircraft is moving in the gate, ramp, or parking area, assisted by a tow vehicle (tug).

This phase of flight includes the following subphases:

- Assisted, Engine(s) Not Operating.
- Assisted, Engine(s) Start-up.
- Assisted, Engine(s) Operating.
- Assisted, Engine(s) Shut Down.

Usage Notes:

- Unassisted movement in the gate or ramp area is included in the Taxi (TXI) phase.
- Engine shutdown is from the start of the shutdown sequence until the engine(s) cease rotation.



TAXI (TXI)

The aircraft is moving on the aerodrome surface under its own power prior to takeoff or after landing.

This phase of flight includes the following subphases:

- **Power Back:** Takes place when the aircraft, under its own power, reverses from the stand or parking position.
- **Taxi to Runway:** Commences when the aircraft begins to move under its own power leaving the gate, ramp, apron, or parking area, and terminates upon reaching the runway.
- **Taxi to Takeoff Position:** From entering the runway until reaching the takeoff position.
- **Taxi from Runway:** Begins upon exiting the landing runway and terminates upon arrival at the gate, ramp, apron, or parking area, when the aircraft ceases to move under its own power.

Usage Notes:

- Throughout this document the term runway or landing area is taken in its broadest sense and includes runways, landing strips, waterways, unimproved landing areas, and landing pads, (which may include offshore platforms, building roofs, roads, ships, and fields), or other intended landing areas.
- Taxiing includes air taxiing for rotorcraft.



TAKEOFF (TOF)

From the application of takeoff power, through rotation and to an altitude of 35 feet above runway elevation.

This phase of flight includes the following subphases:

- Takeoff. From the application of takeoff power, through rotation and to an altitude of 35 feet above runway elevation or until gear-up selection, whichever comes first.
- Rejected Takeoff. During takeoff, from the point where the decision to abort has been taken until the aircraft begins to taxi from the runway.

Usage Notes:

- Landback during rotorcraft operations is considered a rejected takeoff.
- The takeoff phase for rotorcraft operations can include rearward flight of the helicopter.
- For rotorcraft operations, takeoff is also subject to the achievement of a positive climb gradient and of an appropriate takeoff safety speed determined with the Helicopter Flight Manual.
- For unmanned aircraft systems, includes launching from any system or by any method, including systems such as a catapult.

INITIAL CLIMB (ICL)

From the end of the Takeoff subphase to the first prescribed power reduction, or until reaching 1,000 feet above runway elevation or the VFR pattern, whichever comes first.



EN ROUTE (ENR)

Instrument Flight Rules (IFR): From completion of Initial Climb through cruise altitude and completion of controlled descent to the Initial Approach Fix (IAF).

Visual Flight Rules (VFR): From completion of Initial Climb through cruise and controlled descent to the VFR pattern altitude or 1,000 feet above runway elevation, whichever comes first.

This phase of flight includes the following subphases:

- **Climb to Cruise:** IFR: From completion of Initial Climb to arrival at initial assigned cruise altitude. VFR: From completion of Initial Climb to initial cruise altitude.
- **Cruise:** Any level flight segment after arrival at initial cruise altitude until the start of descent to the destination.
- **Change of Cruise Level:** Any climb or descent during cruise after the initial climb to cruise, but before descent to the destination.
- **Descent:** IFR: Descent from cruise to either Initial Approach Fix (IAF) or VFR pattern entry. VFR: Descent from cruise to the VFR pattern entry or 1,000 feet above the runway elevation, whichever comes first.
- **Holding:** Execution of a predetermined maneuver (usually an oval racetrack pattern) which keeps the aircraft within a specified airspace while awaiting further clearance. Descent during holding is also covered in this subphase.

MANEUVERING (MNV)

Low altitude/aerobatic flight operations.

This phase of flight includes the following subphases:

- **Aerobatics:** Any intentional maneuvering that exceeds 30 degrees of pitch attitude or 60 degrees of bank, or both, or abnormal acceleration (usually associated with air shows and military flight, or with related training flights).
- **Low Flying:** Intentional low-altitude flight not connected with a landing or takeoff, usually in preparation for or during observation work, demonstration, photography work, aerial application, training, sight seeing, ostentatious display, or other similar activity. For rotorcraft, this also includes hovering (not associated with landing or takeoff) and handling external loads.



APPROACH (APR)

Instrument Flight Rules (IFR): From the Initial Approach Fix (IAF) to the beginning of the landing flare. Visual Flight Rules (VFR): From the point of VFR pattern entry, or 1,000 feet above the runway elevation, to the beginning of the landing flare.

This phase of flight includes the following subphases:

- Initial Approach (IFR): From the IAF to the Final Approach Fix (FAF).
- Final Approach (IFR): From the FAF to the beginning of the landing flare.
- Circuit Pattern—Downwind (VFR): A flight path (normally 1,000 feet above the runway), which commences abeam the departure end of the runway and runs parallel to the runway in the direction opposite to landing, and terminates upon initiating the turn to base leg.
- Circuit Pattern—Base (VFR): From the start of the turn at end of downwind leg until the start of the turn for final.
- Circuit Pattern—Final (VFR): From the start of the turn to intercept the extended runway centerline, normally at the end of base leg, to the beginning of the landing flare. Includes VFR straight-in approaches.
- Circuit Pattern—Crosswind (VFR): A flight path of the VFR traffic pattern, which is perpendicular to the landing runway, crosses the departure end of the runway, and connects with the downwind leg.
- Missed Approach/Go-Around: From the first application of power after the crew elects to execute a missed approach or go-around until the aircraft re-enters the sequence for a VFR pattern (go-around) or until the aircraft reaches the IAF for another approach (IFR).

Usage Notes:

- A holding procedure executed at the IAF is included in the En Route (ENR) phase.



LANDING (LDG)

From the beginning of the landing flare until aircraft exits the landing runway, comes to a stop on the runway, or when power is applied for takeoff in the case of a touch-and-go landing.

This phase of flight includes the following subphases:

- Flare: Transition from nose-low to nose-up attitude just before landing until touchdown.
- Landing Roll: After touchdown until aircraft exits the landing runway or comes to a stop, whichever occurs first.
- Aborted Landing After Touchdown: When an attempt is made to get airborne after touchdown (successful or not). This does not include the takeoff portion of a touch-and-go.

Usage Notes:

- For Rotorcraft, includes both vertical and running landings.
- For unmanned aircraft, includes non-conventional landing or recovery methods, such as the use of a cable or parachute, inducing a deep stall, or other methods.

EMERGENCY DESCENT (EMG)

A controlled descent during any airborne phase in response to a perceived emergency situation.

UNCONTROLLED DESCENT (UND)

A descent during any airborne phase in which the aircraft does not sustain controlled flight.

Usage Notes:

- For unmanned aircraft, includes any portion of the flight after intentional or unintentional termination of flight, such as following system/component malfunction or failure or loss of control in flight.



POST-IMPACT (PIM)

Any of that portion of the flight which occurs after impact with a person, object, obstacle or terrain.

Usage Notes:

- While not a Phase of Flight per se, this phase is added to permit accurate sequence of event reconstruction for occurrences. For example, to capture post-impact fire.

UNKNOWN (UNK)

Phase of flight is not discernible from the information available.
