

Forced Landing is a Part of Emergency Landing



Terlihat sebuah pesawat jet jenis A321 melakukan forced landing di ladang jagung yang terletak 5 km dari ujung landasan, akibat birdstrikes. Dilaporkan semua isi pesawat yang berjumlah 233 orang terdiri dari 226 penumpang dan 7 awak pesawat selamat. Ada 74 penumpang terluka. Pesawat dinyatakan rusak berat tidak memiliki nilai keekonomian lagi (total loss) dan akan dipotong-potong ditempat untuk di "scrapped". Semua penumpang memperoleh kompensasi masing-masing, sebesar US\$ 1.545.

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Description

Emergency landing is a landing of an aircraft in a state of emergency. This does not necessarily happen on a runway. Emergency landings can be made in fields, on water surfaces, on trees, etc.

From an ATM perspective, a landing is considered an emergency one if the pilot has declared an emergency situation (e.g. via [voice](#), [CPDLC](#)* (message DM56), [SSR** code](#), etc.) and has not cancelled it by the time the aircraft touches down. If the emergency landing happens at an aerodrome, the standard procedure is to activate the "full emergency" routine which results in sending RFFS*** equipment and personnel to their designated positions so that dealing with the expected accident may commence without

delay. Also, an aircraft that has declared an emergency and the intention to land on a particular aerodrome will be given priority over other traffic, including stopping departures and delaying (or diverting) other arriving aircraft.

Terms Used

Emergency landing is the most general term to describe situations where an aircraft makes an abnormal touchdown. Various other terms are used to point out a specific aspect of the event. Examples of related terms are listed below. Note that sometimes more than one term can be used while in other cases an alternative term will apply but the situation will not be considered as an emergency landing.

- **Forced landing** is a situation where an aircraft unavoidably needs to land, usually regardless of terrain. A typical example of this is an airplane forced down by engine failure. Normally, a forced landing is also an emergency landing because the underlying cause of the event is often a good reason for declaring an emergency (e.g. fire on board, engine failure of a single-engine aircraft, extensive structural damage, etc.). There are situations, however, where a forced landing is not an emergency, e.g. when an aircraft is forced to use a particular aerodrome following a military interception. Also, there are many situations where an emergency is declared but the crew decides to continue the flight to a more suitable aerodrome. An example of this is the [1989 event involving a DC10](#) where the aircraft continued flight for about 45 minutes after experiencing an engine failure that caused a loss of all hydraulic systems. If made at an aerodrome, the forced landing would normally coincide with a "*full emergency*" procedure, meaning that the RFFS equipment and personnel will be at their designated positions (near the runway).
- **Precautionary landing** is a situation where further flight is possible but inadvisable, i.e. in the judgement of flight crew, a hazard exists with continued flight. A common situation requiring a precautionary landing is a technical problem that is not serious enough to declare "Mayday" (e.g. navigation system degradation) but the company SOPs suggest that landing at the nearest suitable aerodrome should be made. Other examples of conditions that may call for a precautionary landing, particularly on small general aviation aircraft, include deteriorating weather, being lost, fuel shortage, and gradually developing engine degradation. The difference between a precautionary and a forced landing is that in the former case the crew may choose to continue the flight (at least for a time) while in the latter case there is no such option. Precautionary landings are often made at an aerodrome although this is not always the case. Sometimes landing in a field (and accepting there will be damage to the aircraft) is preferable to trying to reach an aerodrome (and risk to be forced to land on worse terrain). Depending on the hazard, a "*full emergency*" or a "*local standby*" procedure may be activated. The difference is that in the latter case the RFFS will remain at their normal positions but their state will be set to "ready" so that they may leave for the accident site immediately if necessary. It should be noted that some precautionary

landings are not preceded by a declaration of an emergency and therefore not treated as emergency landings.

- **Ditching** is an emergency (forced or precautionary) landing on water. It includes occurrences by landplanes only. Events involving landings on water by seaplanes or amphibious aircraft are normally reported as precautionary/forced landings.
- **Belly landing** is an emergency landing with the gear in the "up" position. This is usually caused by equipment malfunction (the gear cannot be extended or cannot reach locked position). Sometimes the pilots would choose to perform a forced landing with the landing gear intentionally up if they consider this would lead to a safer outcome, especially when landing outside an aerodrome. A situation where the aircraft lands with the gear up due to human error (i.e. the crew forgetting to extend it) is normally referred to as "gear up landing". While this would usually be followed by a rapid RFFS response it is not considered an emergency or belly landing because the crew would not anticipate anything abnormal until the moment the aircraft touches down.
- **Crash landing** is a landing where the aircraft receives significant structural damage. Not all emergency landings are classified as crash landings - if the aircraft has remained intact (or has received minor damage) using the term would be inappropriate.

Airworthiness Aspects

A number of airworthiness measures have been developed to make emergency landings more survivable. These address the landing itself as well as the risks that arise after the aircraft has come to a stop, most notably the [post-crash fire](#) and aircraft sinking after a ditching.

- Occupant protection from deceleration forces, including protection from injuries caused by these forces on the aeroplane's interior equipment.
- Occupant protection from fire (e.g. use of non-combustible materials).
- Facilities for rapid evacuation (e.g. emergency exits, evacuation slides, etc.), appropriate to the occupant capacity.
- Ensuring safe evacuation in case of ditching (e.g. life vests and using evacuation slides as rafts).

*) CPDLC: Controller–pilot data link communications, is a two-way data-link system by which controllers can transmit non urgent 'strategic messages to an aircraft as an alternative to voice communications. Sistem hubungan timbal balik antara petugas lalu lintas udara dan pilot pesawat dengan menggunakan link data sebagai alternatif dari hubungan dengan suara.

***) SSR Code in Emergency: Secondary Surveillance Radar Code in Emergency. Kode untuk menyatakan pesawat dalam keadaan emergency (darurat), sehingga bisa teridentifikasi manuvernya melalui layar monitor radar SSR.

***) Rescue and Fire Fighting Services (RFFS): Pelayanan pemadam kebakaran dan pertolongan pada kecelakaan pesawat udara di Airport.

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Catatan tentang Forced Landing

Pendaratan yang dipaksakan (forced landing) adalah situasi di mana sebuah pesawat tak terhindarkan harus mendarat, biasanya dilakukan bukan di tempat yang seharusnya. Contoh tipikalnya adalah ketika ada pesawat yang harus melakukan forced landing karena kegagalan mesin (bukan single engine), namun selamat tanpa melakukan emergency atau forced landing, atau sebaliknya sebagaimana contoh di paragraf di bawah ini. Sebagian besar kegagalan 1 mesin dari mesin ganda memang tidak berakibat pesawat akan mengalami kecelakaan. Namun kondisi ini pun dapat teratasi dengan melakukan emergency landing di bandar udara, walaupun bukan di bandar udara tujuan atau alternatif. Biasanya, pendaratan yang dipaksakan ini juga merupakan bentuk pendaratan darurat karena penyebab yang mendasari kejadian tersebut, seringkali merupakan alasan yang paling tepat untuk menyatakan keadaan darurat (misal kebakaran di pesawat, kegagalan mesin pesawat bermesin tunggal, kerusakan struktural, dll.).

Namun, ada situasi di mana pendaratan yang dipaksakan itu bukanlah keadaan darurat, misal ketika pesawat terbang terpaksa harus mendarat di sebuah bandar udara tertentu untuk mengikuti instruksi pihak militer (interception). Juga, ada banyak situasi di mana keadaan darurat dinyatakan tetapi kru memutuskan untuk melanjutkan penerbangan ke bandar udara yang lebih cocok. Contoh dari kasus ini adalah peristiwa pada tahun 1989 yang dialami sebuah pesawat DC10 dari maskapai United Airlines di mana pilot pesawat melanjutkan penerbangan selama sekitar 45 menit setelah mengalami kegagalan mesin yang menyebabkan tidak berfungsinya semua sistem hidrolis. Keputusan pilot yang melanjutkan mengakibatkan kecelakaan di saat pendaratan darurat di bandar udara yang dipilih oleh pilot. 111 orang dari 296 PoB meninggal dengan kondisi pesawat terbakar.

Sebaik-baiknya pendaratan darurat adalah yang dilakukan di bandar udara terdekat atau tempat-tempat yang memenuhi syarat untuk melakukan pendaratan dengan tingkat keselamatan semaksimal mungkin. Forced landing terbaik harus memenuhi "kriteria dan prosedur darurat" demi keselamatan, yang berarti bahwa peralatan pendukung dan personil RFFS tersedia dan berada di posisi yang dipilih (di atau dekat dengan landasan pacu). Kapten pilot merupakan penentu keputusan terakhir di mana forced landing itu dilakukan, sebagaimana terlihat di gambar atas.

Sumber: Dikutip seutuhnya dari SKYbrary