



**SYSTEM/COMPONENT FAILURE OR  
MALFUNCTION (POWERPLANT)**

**(SCF-PP)**

**SUB-CATEGORY DEFINITIONS AND USAGE  
NOTES**

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**Record of Revisions**

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**UNCONTAINED**  
**(SCF-PP-UNC)**

The uncontained release of debris from a rotating component malfunction (blade, disk, spacer, impeller, drum/spool)..

Usage Notes:

- In order to be categorized as uncontained, the debris must pass completely through the nacelle envelope. Parts that puncture the nacelle skin but do not escape or pass completely through are considered contained.
- Fragments that pass out of the inlet or exhaust opening without passing through any structure are not judged to be uncontained.
- Starter and gearbox uncontainments are excluded and documented under “Gearbox/starter uncontainment”.

NOTE:

**ENGINE OVERSPEED**  
**(SCF-PP-EOS)**

Acceleration of engine rotating components to a speed above that sanctioned in the type-certificate datasheet.

Usage Notes:

- None at this time.

NOTE:

**CASE RUPTURE**  
**(SCF-PP-CR)**

The sudden rupture of a high-pressure vessel or case with the resultant release of high-pressure gases into the under-cowl cavity.

Usage Notes:

- Case ruptures resulting from uncontained release of debris from a rotating component malfunction are excluded
- Case ruptures include those events that propagate from fatigue-type cracks as well as ruptures related to secondary malfunctions (e.g., flame impingement).

NOTE:

**CASE BURNTHROUGH**  
*(SCF-PP-CB)*

A local case penetration that initiates from local overtemperature of the case external wall due to an internal engine malfunction (e.g., fuel nozzle leakage, internal bearing compartment fires, titanium fires).

Usage Notes:

- Burnthroughs are distinguished from ruptures by their lack of an explosive release of high pressure gas.
- Events involving accessory component cases also contribute to this category; for example, sump fires that propagate internally and result in burnthrough of piping or that initiate gearbox fires.
- The key aspect, whether in the primary gas path or accessories, is that fire initiates from an internal malfunction and proceeds to burn through a case, tube or gearbox to reach external regions.

NOTE: A common cause of case burnthrough is localized penetration due to fuel nozzle malfunction.

**PROPULSION SYSTEM FIRE**  
*(SCF-PP-PSF)*

A fire involving combustion external to the engine casings.

Usage Notes:

- This includes internal pylon fires, including events where fuel leaks from the pylon and initiates a fire elsewhere.
- Propulsion system fires may be within fire zones or flammable fluid zones.
- Tailpipe fires, and hot air leaks resulting in fire warnings, without combustion, are excluded from the definition and documented under "Tailpipe fire" or "Compartment overheat/air leak", respectively
- Fires that remain internal to the engine casing are excluded
- Grass, brush or pooled fuel fires are also excluded.

NOTE:

**FLAMMABLE FLUID LEAK**  
*(SCF-PP-FFL)*

**Leak of fuel, oil or hydraulic fluid into the pylon or dry bay, or under the engine cowls, which could credibly lead to a fire**

Usage Notes:

- Leaks collected from shrouds and components and drained directly overboard by a dedicated drain are excluded, as are drips and seeps.

NOTE:

**COMPARTMENT OVERHEAT/AIR LEAK**  
*(SCF-PP-COAL)*

**High-pressure or temperature air leaks due to casing or high-pressure /temperature air duct system malfunctions within the nacelle or in the pylon.**

Usage Notes:

- None at this time

NOTE:

**ENGINE SEPARATION**  
*(SCF-PP-ES)*

**Separation of the engine, with or without the strut/pylon or attaching structure.**

Usage Notes:

- Events resulting from ground contact are excluded.

NOTE:

**COWL SEPARATION**  
*(SCF-PP-CS)*

**Separation of nacelle components such as inlets, cowls, thrust reversers, exhaust nozzles, tail plugs, etc.**

Usage Notes:

- Events resulting from ground contact are excluded.

NOTE:

**ENGINE FAILURE RECOGNITION AND RESPONSE**  
*(SCF-PP-EFRR)*

An event initiating from a single propulsion system (including propeller system) malfunction, which, by itself, does not hazard the aircraft, but is compounded by sub-optimal response (i.e., crew did not execute checklist/normal flying duties).

Usage Notes:

- Not counted are cases of gross error or negligence (such as deciding to take off with an engine known to be inoperative).

NOTE: An example is an IFSD followed by crew failure to maintain airspeed that leads to stall and loss of control.

**LOSS OF ENGINE FUNCTIONALITY/ENGINE MALFUNCTION- PROCEDURAL TRIGGER  
(SCF-PP-LOE)**

**An event caused by a propulsion system (including propeller system) malfunction or improper operation that was initiated by crew action.**

Usage Notes:

- Excludes sabotage, gross negligence and suicide.
- Not counted are events from very indirect means such as engine malfunction resulting from flying the airplane into the ground or running the airplane into equipment on the taxiway/runway.

NOTE:

**REVERSER/BETA MALFUNCTION – INFLIGHT DEPLOY  
(SCF-PP-RMID)**

**The in-flight deployment of a thrust reverser, or in-flight beta mode for the propeller (exclusive of design intent).**

Usage Notes:

- None at this time.

NOTE:

**REVERSER/BETA MALFUNCTION – FAILURE TO DEPLOY  
(SCF-PP-RFD)**

**The failure of a thrust reverser to deploy or a propeller to enter beta mode when commanded.**

Usage Notes:

- None at this time.

NOTE:

**TAILPIPE FIRE  
(SCF-PP-TPF)**

**Fire within the tailpipe, where visible sustained flames exit the tailpipe.**

Usage Notes:

- None at this time.

NOTE:

**FALSE/MISLEADING INDICATION**  
*(SCF-PP-FMI)*

**Powerplant or propeller indication that was appreciably different from reality, to the point where an indication difference was noticed by the pilot or subsequent investigation.**

Usage Notes:

- Includes parameters that were higher than actuality, lower than actuality or completely absent, and also discrete warnings or alerts that were falsely present or absent.

NOTE:

**MULTIPLE-ENGINE POWER LOSS**  
*(SCF-PP-MEPL)*

**No definition at this time.**

Usage Notes:

- There are different types (categories) of multiple engine power loss:
  - **Environmental** - An event initiating from essentially simultaneous power loss from multiple propulsion systems for an environmental cause (e.g., bird, ice, rain, hail, or volcanic ash ingestion).
  - **Maintenance** - An event initiating from multiple propulsion system power loss from clearly improper maintenance (e.g., failure to restore oil system integrity after inspection).
  - **Other/unknown** - An event initiating from multiple propulsion system powerloss for reasons other than those characterized elsewhere, or where the initiating event(s) are unknown. This includes unrelated events of engine powerloss within the same flight.

NOTE:

**PROPELLER SEPARATION/DEBRIS RELEASE**  
*(SCF-PP-PS)*

Separation of single or multiple blades, large piece(s) thereof, or entire propeller.

Usage Notes:

- Note at this time.

NOTE:

**PROPELLER AUTOFEATHER/PITCH LOCK**  
*(SCF-PP-PAPL)*

**Propeller system malfunction leading to inability to control the propeller.**

Usage Notes:

- Control hunting is excluded as a normal product behavior.

NOTE:

**PROPULSION SYSTEM FUME EVENT**  
*(SCF-PP-PSFE)*

**Significant smoke and/or fumes on the flight deck or cabin that are generated by the propulsion system.**

Usage Notes:

- None at this time.

NOTE:

**IN-FLIGHT SHUTDOWN (IFSD)**  
*(SCF-PP-IFSD)*

**Engine ceases to function between aircraft rotation and touch-down and slows down to sub-idle whether self induced, flight crew initiated or caused by an external influence.**

Usage Notes:

- Excludes:
  - The airborne cessation of the functioning of an engine when immediately followed by automatic engine relights.
  - When desired thrust or power is not achieved and engine is not shutdown.
- Includes IFSD for all causes: for example, flameout, internal failure, flight crew initiated shutdown, foreign object ingestion, and icing.
- Multiple shutdowns of an engine for the same cause, followed by restarts, should be considered as one event.

NOTE

**MAINTENANCE FINDING**  
*(SCF-PP-MF)*

**A finding resulting in an engine removed from service due to potential result of an engine event.**

Usage Notes:

- None at this time.

NOTE:

**GEARBOX/STARTER UNCONTAINMENT**  
*(SCF-PP-GBXU)*

**The release of debris originating in the gearbox and/or starter outside of the engine nacelle.**

Usage Notes:

- Other gearbox/starter malfunctions are documented as “Other engine malfunction.”

NOTE:

**OTHER ENGINE MALFUNCTION**  
*(SCF-PP-OTHEM)*

**An engine malfunction or abnormal behavior not specified elsewhere.**

Usage Notes:

- None at this time.

NOTE:

**RECIPROCATING ENGINE UNCONTAINMENT**  
*(SCF-PP-REU)*

**Engine debris that completely exits the engine compartment.**

Usage Notes:

- None at this time

NOTE: