PART 4

CHAPTER 1 — ENGINE EMERGENCY PROCEDURES

Contents

1 General

(a) The following engine emergency procedures are given in the Flight Reference Cards:

(i) Engine Fire.
(ii) Engine Flame-Out and Relighting
(iii) Emergency Relighting.
(iv) Failure to Relight.
(v) Mechanical Failures.
(vi) Oil Pressure Failure.
(vii) Top Temperature Control Malfunction.
(viii) HP Pumps Servo System Failure.
(ix) Surge.

(b) Additional information on flame-out and relighting procedures and emergency relighting is given below.

2 Engine Flame-Out

(a) If the engine flames out, a relight can be attempted immediately, while the RPM are decreasing, by pressing and holding the relight button with the throttle at its set position. A successful relight is indicated by the RPM stabilising and then starting to rise.

(b) If the engine fails to relight within 10 seconds, release the relight button and complete the **Normal Relight** drill.

(c) If the aircraft is above 35,000 feet (the maximum for relighting), the following considerations should be taken into account before deciding whether to make a rapid descent or to glide at 210 knots for range:

(i) The weather conditions and the distance to travel should the relighting be unsuccessful.

(ii) At 210 knots, the aircraft can achieve 2 NM per 1000 feet in still air with an average rate of descent of 2300 feet per minute with the engine windmilling.

(iii) Descending rapidly gives a higher windmilling RPM providing increased hydraulic power and possibly bringing the generators on line.

(iv) With the generators off line and with normal electrical services operating, the main batteries cannot be relied on for more than about 10 minutes. To conserve the batteries, all non-essential services (including the booster pumps) should be switched off.

(v) Relighting places an additional load on the batteries; if the relight is unsuccessful, there may then be insufficient electrical power to select Manual or to jettison stores. Consideration should be given to selecting Manual and jettisoning stores before relighting.

(vi) If it is necessary to descend more rapidly than at normal gliding speed, 15° of flap can be selected (provided that electrical and hydraulic power are available) but 0·90M should not be exceeded. The pull force needed to reduce speed to 210 knots is considerable if in Manual.

(vii) The likelihood of achieving a successful relight is increased if the altitude and airspeed are below the recommended maxima for relighting.

3 Emergency Relighting

If the engine fails to relight using the normal relighting drill, the cause may be a fault in the relight button circuit. In this case it should be possible to relight by re-indexing

the spent cartridge which was used for the initial start and then using the starter button to activate the igniters. The spent cartridge is re-indexed by switching off the engine master switch and pressing the starter button fully in twice, pausing between each operation to allow the button to spring fully out; the complete actions are given in the **Emergency Relighting** drill. If the relight is unsuccessful, the re-indexing procedure must be repeated before a further attempt is made to start using the starter button.

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