

PART IV EMERGENCIES

57. Engine failure on take-off

- (i) The safety speed is 140 knots.
- (ii) At weights below 33,000 lb., if corrective action is taken quickly, control may be maintained at speeds as low as 125 knots and the aircraft will accelerate and climb away comfortably from this speed.
- (iii) Raise the undercarriage, apply rudder trim as necessary and increase speed to 150 knots.
- (iv) Close the throttle and H.P. cock of the failed engine.
- (v) Switch off the L.P. cocks and pumps to the failed engine.

58. Engine failure in flight

In the event of failure due to an obvious mechanical defect the immediate action for the failed engine should be:—

- (i) Throttle and H.P. cock Close
- (ii) L.P. cocks and pumps OFF
- (iii) Generator control switch OFF
- (iv) All non-essential electrical load should be shed. See paragraph 11 (ii) (b).

59. Action in the event of fire in an engine

- (i) When a fire warning light comes on or a fire is suspected the H.P. cock and L.P. cocks must be closed immediately and no attempt made to relight the engine.
- (ii) Reduce speed as much as possible.
- (iii) Press the fire-extinguisher pushbutton.

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60. Single-engine landing

- (i) Maintain a speed of 140 knots whilst manœuvring with the flaps up.
- (ii) Lower the undercarriage in the normal position on the circuit but delay lowering the flaps until on the final approach.
- (iii) After lowering flaps reduce speed and cross the airfield boundary at the speed recommended for a normal landing 90-95 knots.

61. Going round again on one engine

- (i) Going round again on one engine after flap has been lowered will only be possible if speed has not been reduced below 125 knots and if sufficient height remains so that the flaps and undercarriage can be raised immediately. Approximately 200 feet may be lost while the flaps and undercarriage are retracting.
- (ii) Select undercarriage and flaps up together; there is a strong nose down change of trim as the flaps approach the up position.
- (iii) Increase r.p.m. carefully on the live engine to 7,600 r.p.m. and adjust the rudder trim as necessary.
- (iv) Allow the speed to build up to 150 knots before commencing to climb away.

62. Emergency operation of the undercarriage and flaps

- (i) If the undercarriage fails to lower normally the hydraulic selector valve can be operated mechanically by pulling the red toggle handle (30) fitted above the selector push-buttons. If the defect is an electrical one the undercarriage should then lower; if it does not, a hydraulic defect is the probable cause and an attempt may be made by using the handpump but this takes a considerable time.
- (ii) After the emergency toggle handle has been pulled it is not possible to retract or unlock the undercarriage.
- (iii) If the flaps fail to lower normally an attempt may be made to lower them by means of the handpump after lowering the undercarriage.

63. Flapless landing

- (i) An increase in drag and thus an increased angle of approach may be obtained by carrying out the final approach and landing with the bomb doors open. The weight should be reduced as much as possible by consuming excess fuel before landing.
- (ii) (a) Maintain a speed of 130 knots until on the final approach.
- (b) Open the bomb doors.
- (c) Throttle back early and cross the airfield boundary at a speed of 100-105 knots. As soon as possible after touch down close the H.P. cocks.
- (d) Lower the nose wheel early in the landing run and use the brakes with care.

64. Landing with a defective hydraulic system or wheel brakes

- (i) If the wheel brake accumulator pressure is low and does not build up after lowering the undercarriage during the approach to land, particularly if the handpump has been used, an attempt may be made to build up the pressure with the handpump. If this is unsuccessful, however, the landing should be made as follows:—
- (ii) Reduce the weight as much as possible by using up excess fuel.
- (iii) Cross the boundary at as low a speed as practicable and after touch-down close the H.P. cocks.
- (iv) If some brake pressure is available lower the nose wheel early in the landing run and apply the brakes up to the maximum without locking the wheels. After applying the brakes do not release them until the aircraft has come to rest, otherwise pressure may be lost from the brake system. If practicable a crew member should operate the handpump until the brakes are released.

- (v) If no brake pressure is available, the touch-down should be made as slowly as possible and the H.P. cocks closed immediately after touch-down. The nose-wheel should then be held off as long as possible to obtain maximum aerodynamic braking. In these circumstances it is an advantage to have No. 1 tank empty as far as practicable, so that the landing is carried out at an aft C.G. Better deceleration will be obtained on a grass surface rather than on a runway.

65. Abandoning the aircraft in flight

- (i) The Navigator's roof hatch should, when possible, be jettisoned before the canopy. This should be done at a speed of not less than 150 knots.
- (ii) After speed has been reduced as much as is practicable, the navigator's ejection seat should be operated independently.
- (iii) The canopy jettison and control column snatch unit lever should then be pulled and the pilot's seat ejected.

66. Crash landing

- (i) If a crash landing is inevitable, the roof hatch over the navigator's compartment should be jettisoned at a speed of not less than 150 knots and while electrical power is still available.
- (ii) Where power is available: —
 - (a) Make a normal approach and landing but keep the undercarriage retracted.
 - (b) Close the H.P. cocks before touch-down.
- (iii) If power is not available.
 - (a) Glide at 165 knots which is the best gliding speed. When manœuvring to land maintain 130 knots until the selected area is within reach.
 - (b) Keep the undercarriage retracted but lower the flaps if possible and reduce speed to 95 to 105 knots.

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- (iv) Before touch-down set the battery isolating switch to OFF.

- (v) After landing, the canopy should be jettisoned.

67. Ditching

Pending further investigation of the ditching characteristics it is advisable to abandon the aircraft in flight.

68. Emergency operation of the entrance door

The entrance door can be jettisoned by turning the crank fitted centrally above it; this withdraws the hinge pins allowing the door to fall outwards. The crank is stiff to operate and four and a half full turns are required. No attempt should be made to open the door in flight using the normal handle.

69. Emergency operation of bomb doors and jettisoning of bombs

- (i) In emergency the bomb doors can be opened and all bombs jettisoned by the pilot by means of the shielded EMERGENCY BOMB JETTISON switch (22) on the pilot's electrical panel.
- (ii) Should the bomb doors fail to open when the emergency bomb jettison switch is operated, the bomb door selector valve can be operated mechanically by means of the lever (5) on the port side of the cockpit. The lever should be pulled down after releasing the gate. If the defect is electrical the doors should then open and the bombs automatically jettison as soon as the doors reach the fully open position. If the indicator light does not come on, however, indicating that the doors have not opened, an hydraulic fault is the probable cause and an attempt may be made to open them by means of the handpump.
- (iii) If the emergency lever is operated it is impossible to close the doors subsequently in flight. The doors should, therefore, not be opened by this means if it is of vital

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importance to reclose them after jettisoning the bombs, for example prior to ditching. If time permits an attempt should be made by selecting air brakes or flaps to ascertain whether the defect is electrical or hydraulic. If these fail to operate a hydraulic failure may be assumed and the handpump used to open the doors, and, after resetting the bomb door selector switch to CLOSED, to reclose them. Subsequent lowering of the flaps or undercarriage by the handpump may not prove possible.

70. Jettisoning of drop tanks

The wing drop tanks are jettisoned electrically by pressing the FUEL JETTISON pushbutton (7) on the port side of the cockpit.

71. Emergency oxygen

A Mk.4 set is provided for each member of the crew and emergency oxygen can be selected by pulling the cable with ball attached—pilot's at (61)—fitted on the starboard side of each seat.

72. Emergency axe

An axe (88) is stowed on the starboard side of the fuselage aft of the entrance door.

73. Fire-extinguishers

- (i) Automatic fire-extinguishing systems are fitted, one for each engine and one for the fuel tank bay in the fuselage. These are operated independently by flame switches in the event of fire and together by an inertia switch in a crash landing. Fire warning lights (44) and (45), and a push-button (46) for each engine system are fitted on the panel to the right of the engine instruments.
- (ii) A hand fire-extinguisher (89) is stowed on the starboard wall of the fuselage above the intercommunication amplifiers.

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74. First-aid kit

A first-aid kit is stowed low down on the starboard side aft of the entrance door.

PART V ILLUSTRATIONS

KEY TO Fig. 1

1. Pilot's electrical fuse box.
2. Canopy demisting, pressure head, D.V. panel, and vent valve heater switches.
3. Spare fuses.
4. Bomb doors control switch.
5. Bomb doors emergency control.
6. Oxygen regulator.
7. Drop tank jettison pushbutton.
8. Navigation and taxiing lamp switches.
9. No. 1 V.H.F. controller.
10. Canopy jettison and control column snatch unit master switch.
11. Intercom. control switches.
12. V.H.F. change-over switch and volume control.
13. Canopy jettison switch.
14. No. 2 V.H.F. controller.
15. Throttle levers.
16. H.P. cock levers.
17. Fuel pump isolating switches.
18. Throttle and H.P. fuel cock lever friction adjusters.
19. External lights master switch.
20. Rudder trimming and aileron bias control switches.
21. Control column snatch unit and canopy jettison lever (shielded).
22. Emergency bomb jettison switch (shielded).
23. Bomb door indicator light.