

Part III

Chapter 3—Circuit and Landing Procedures

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1 Joining the landing pattern

Before descending to join the circuit or approach pattern, carry out the pre-descent checks and select the MFS as required (Part I, Chapter 8). When level at circuit height reduce speed to 225 knots and lower the flaps to the TAKE-OFF position. Carry out the pre-landing checks and reduce to the recommended speed, which is 20 knots above the threshold speed for the weight. A slight buffet or burble may be felt below 200 knots when underwing tanks are fitted. The relevant speeds in knots for various aircraft weights are given below:

<i>Weight lb.</i>	<i>Pattern</i>	<i>Approach</i>	<i>Threshold</i>
120,000	147	137	127
130,000	152	142	132
140,000	157	147	137
150,000	162	152	142
160,000	167	157	147
170,000	172	162	152
180,000	177	167	157
190,000	182	172	162
200,000	186	176	166

2 Visual circuit

When carrying out a visual circuit, maintain the recommended pattern speed until suitably positioned at approximately 90° to the runway. Select flaps DOWN and reduce power as required, aiming, whenever possible, to be approximately lined up with the runway at about 600 ft. on the glide path at the recommended approach speed. When the decision to land has been made reduce speed progressively, aiming to round-out over the runway threshold at the recommended threshold speed. If a steep approach is made and a large change of attitude is necessary to round-out, buffet and a tendency to sink may be experienced ; in this case the threshold speed should therefore be increased by approximately 5 knots.

3 Instrument approaches

When carrying out ILS or GCA approaches, select and control the MFS as required (see Part I, Chapter 8, paras. 15 and 16). Maintain the recommended pattern speed until interception with the glide path. Select flaps DOWN and reduce power as necessary to maintain speed on the glide path at the recommended approach speed. During the final stages of the approach and when in visual

contact with the runway, reduce speed progressively aiming to round-out over the runway threshold at the recommended threshold speed.

NOTE: Variable airbrake procedure is recommended for all approaches.

4 Landing

WARNING. When landing at or above the maximum normal weight the recommended threshold speed should be closely adhered to and tail wind conditions avoided. The rate of descent at touchdown should be kept to a minimum.

Provided that a good approach has been made, landing the aircraft presents no difficulties. Cross the threshold at the recommended speed, gradually closing the throttles. Round-out by steadily easing back on the control column, and allow the aircraft to sink gently but firmly onto the runway, a prolonged hold-off is not recommended. When the main wheels are firmly on the ground, lower the nosewheel onto the runway. A slight push-force may be required and throughout the landing run the 2nd pilot should maintain a moderate push-force on the control column to assist nosewheel steering effectiveness. If it is intended to use the brake-parachute, select STREAM when the nosewheel is firmly on the runway. Wheel braking may be commenced once the nosewheel is down, provided the speed is below the maximum braking for the conditions prevailing.

5 Use of the brake-parachute

(a) The normal maximum speed for streaming the brake-parachute is 140 knots at weights up to 160,000 lb. In emergency, at weights between 140,000 lb. and 200,000 lb., dependent on the past usage of the parachute, other speeds are permissible. (See Part II, Chap. 2, para. 2(g)). Whenever possible, use of the brake parachute is recommended to reduce the landing run. When the mainwheels are firmly on the runway, lower the nosewheel and when the speed is

below the required streaming speed, select the brake-parachute to STREAM. Full deployment usually occurs 4-5 seconds after selection. When the parachute deploys fully, retardation is marked. Maximum retardation is achieved by streaming the brake-parachute as early in the landing run as possible. The retarding effect is noticeable down to approximately 70 kts. but very little advantage is gained from using it below that speed.

(b) The maximum permissible crosswind component for streaming the brake parachute is 25 kts. When the parachute deploys in crosswind conditions, a marked nose-into-wind yawing effect occurs, the degree of yaw increasing with increase in crosswind component. The aircraft must be kept straight by using rudder, differential braking and nosewheel steering as required. If directional control cannot be maintained with full use of these controls, the brake-parachute must be released by selecting the switch to SAFE, and wheelbrakes used to stop the aircraft.

(c) To achieve a clean jettisoning of the brake-parachute it should normally be released at the end of the landing run before reducing to below 10 kts. When it is certain that the aircraft can be stopped comfortably with normal use of wheelbrakes, select the brake-parachute to SAFE. If the parachute should fail to jettison, no further selections should be made but the aircraft should be stopped when clear of the runway and the fault investigated.

6 Use of the wheelbrakes

(a) Before landing check that the brake pressure gauges indicate 4,000 PSI, that the parking brake is off and that the pilot's feet are clear of the brake pedals. Brake pressure must not be applied before the wheels have touched the runway and are rotating.

(b) The shortest landing run (with or without streaming the brake-parachute) will be obtained by lowering the nose onto the runway

and applying heavy brake pressure continuously. On dry surfaces the maxaret units will normally prevent the wheels from locking if excessive brake pressure is applied but, unless the shortest possible landing run is required, more gentle use of the brakes is recommended. As a safeguard against locking the wheels during a bounce the maxaret units will remain inoperative for several seconds. When the nosewheel is firmly on the runway, provided that the speed is below the maximum braking speed for the conditions prevailing, apply light pressure to both brake pedals. As speed decreases, gradually increase the pressure until, when the aircraft speed is very low, maximum pressure may be applied to stop the aircraft.

(c) Wet surfaces

Depending upon the degree of wetness and type of runway surface, retardation may be considerably reduced. Maximum braking efficiency is obtained by making a firm touchdown, then applying light brake pressure as soon as the aircraft is firmly on the runway and the wheels have had time to spin up. Brake pressure may be increased progressively as aircraft speed is reduced, in order to bring the aircraft to rest using the full length of the runway. Although the maxaret units are designed to prevent skidding, under the worst conditions even light braking may cause the wheels to spin down and, eventually, to lock. If this is suspected, the brakes must be released and the wheels given time to spin up before they are re-applied.

(d) Flooded or icy surfaces

A drastic reduction in brake effectiveness must be expected and, whenever possible, such conditions should be avoided. However, if a landing on a flooded or icy runway has to be made, it is essential to achieve the recommended threshold speed and make an accurate firm touchdown at the beginning of the runway. The brakes must be used carefully throughout the landing run. Because of the possible

decreased effectiveness of the wheelbrakes in assisting maintenance of directional control, careful consideration must be given to the desirability of streaming the brake-parachute in crosswind conditions.

7 Crosswind landings

A crosswind landing presents no special difficulty, and the crab technique is recommended. The maximum crosswind component for safe landing is 25 kts. See paragraph 5(b) for use of the brake-parachute after landing.

8 Flapless landing

If the flaps fail to lower when either normal or emergency selections are made, the approach should be flown at 10 kts. above the normal recommended speeds. A normal approach path should be flown, using airbrakes as required. Avoid a prolonged hold-off as this may result in the rear-fuselage striking the ground. Therefore practice flapless landings are not recommended.

9 Overshooting

The engines can be accelerated from approach idling (70% RPM) to full power within 5 secs. If all throttles are opened rapidly, power increases suddenly as the levers reach the fully open position. Slight varying engine acceleration times may cause asymmetric thrust components. More than adequate power is normally available and engine speed may be reduced as required when the overshoot has been initiated, in order to avoid climbing away at an excessively steep angle. At a safe height complete the overshoot checks.

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