

Part IV

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 ILS as required. When level at the circuit or pattern height, select nose flaps OUT at 220 kts. and lower the main flaps to the TAKE-OFF position at 185 kts. Carry out the pre-landing checks and reduce to the recommended speed, which is 20 knots above the threshold speed for the weight. The recommended pattern (or circuit) speeds, final approach speeds and runway threshold speeds for various aircraft weights are shown on the accompanying graph.

2 Visual circuit

When carrying out a visual circuit, maintain the recommended pattern speed until suitably positioned at approximately 90° to the runway. Select main flaps DOWN and reduce power as required, aiming, whenever possible, to be approximately lined up with the runway at about 600 ft. 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, maintain the recommended pattern speed until $\frac{1}{2}$ mile before interception with the glidepath. Select main flaps DOWN and reduce power as necessary to maintain speed on the glidepath 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 during the approach. ▶

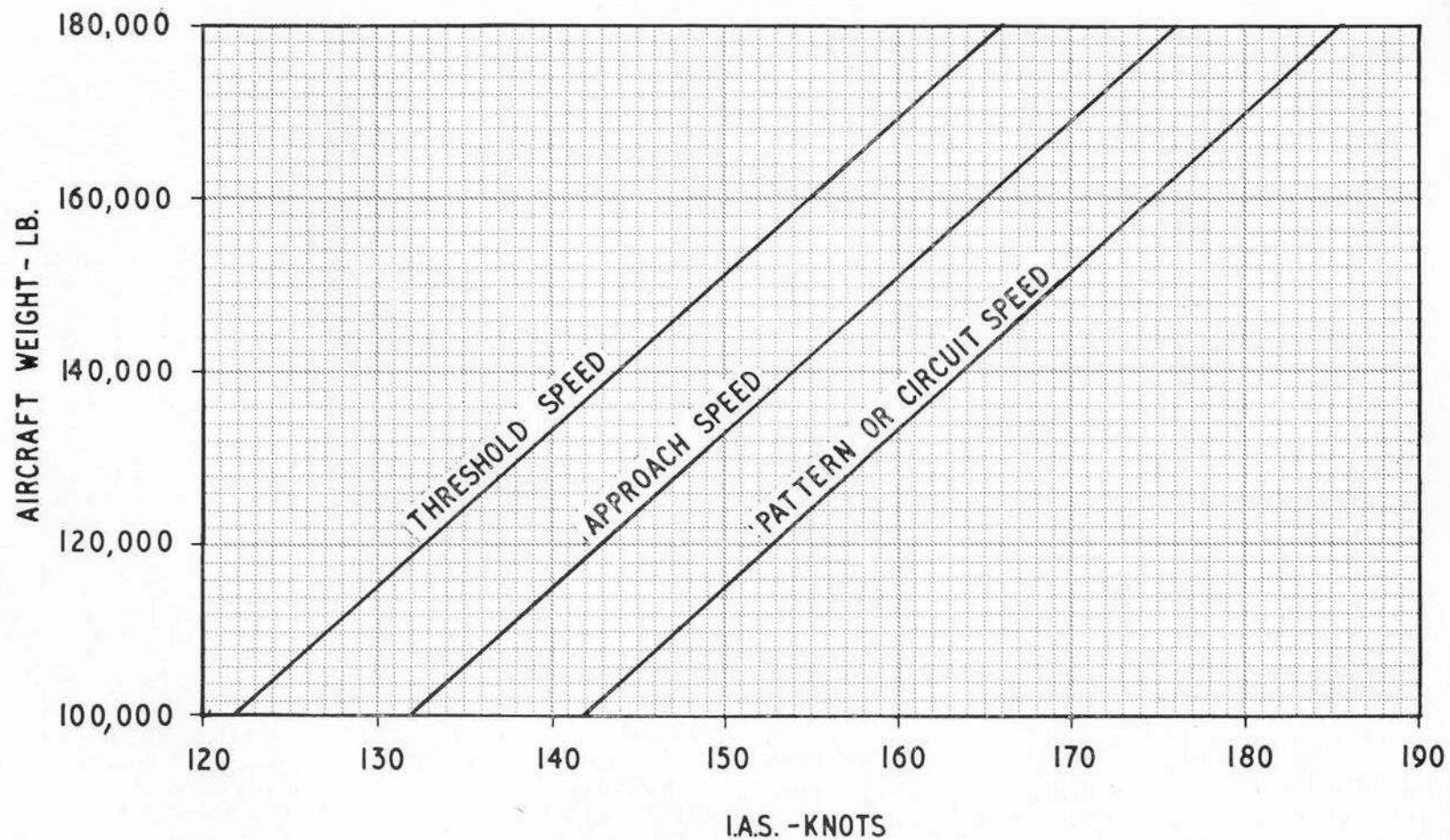


Fig. 1 Circuit, approach and threshold speeds

4 Landing

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 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, this should be selected to STREAM when the main wheels are on the runway and the nosewheel lowered whilst the parachute is deploying. Wheel braking action may be commenced when the nosewheel is firmly on the runway, provided that the speed is below the maximum braking speed for the conditions prevailing.

5 Use of the brake-parachute

(a) The maximum permissible speed for streaming the brake-parachute is 140 knots. Under normal conditions, use of the brake-parachute to reduce the landing run is recommended. When the mainwheels are firmly on the runway, and when the speed is below 140 knots, select the brake-parachute to STREAM and lower the nosewheel onto the runway whilst the parachute is deploying. Full deployment usually occurs 4-5 seconds after selection. If the airbrakes have been extended during the approach they should be closed before the brake-parachute is streamed. 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 knots but very little advantage is gained from using it below that speed.

(b) The maximum permissible crosswind component for streaming the brake-parachute is 20 knots. When the parachute deploys in

crosswind conditions, a marked nose-into-wind yawing effect occurs, the degree of yaw increasing with increase in cross-wind component. The yawing effect must be anticipated and the aircraft 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 taxi speed. When it is certain that the aircraft can be stopped comfortably with normal use of wheel-brakes, 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) is obtained by lowering the nose onto the runway and applying heavy brake pressure continuously. On dry surfaces the maxaret units 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 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) On wet surfaces, retardation may be considerably reduced according to the degree of wetness of the runway surface. Generally, under wet runway conditions it is recommended that light intermittent braking action be commenced as soon as the nosewheel is firmly on the runway. The brake pressure may be progressively increased and may be held continuously as speed reduces. If slip or skid is felt the pressure should be released momentarily and then re-applied gradually.

(d) On flooded or icy runways 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 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 knots. 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 normal pattern speed for the weight should be flown and when commencing the descent for landing this speed should be maintained and decreased by 10 knots at the threshold.

The 2 degrees glide path technique should be employed giving a flat approach and care should be taken on the round out since heavy elevator movements may result in the rear fuselage striking the ground. Practice flapless roller landings are not recommended.

9 Overshooting

Overshooting from any height presents no problems. Select airbrakes in and open the throttles to the required power setting. More than adequate power should normally be 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.

10 Roller landings

(a) When carrying out roller landings it is not necessary to lower the nosewheel on the runway. However, if it is intended to reduce speed during the roll to below 90 knots, or in strong cross-wind conditions, the nosewheel may be lowered to assist maintenance of directional control.

(b) When opening the throttles, pilots should be prepared for some difference in response from each engine. Care must be taken to avoid adopting an exaggerated nose-up attitude as the aircraft accelerates, and to avoid lifting off the ground at too low a speed. The aircraft may be flown off comfortably at the threshold speed for the AUV.

◀(c) After an asymmetric approach and landing, all throttles are to be closed to the idling position before power is re-applied to all four engines ▶



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