PART 3

CHAPTER 3 — CIRCUIT PROCEDURE AND LANDING

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1 Joining Circuit

(a) A minimum of 620 lb of fuel should be allowed for a circuit, landing and possible overshoot. With the landing gear down, 6900 RPM and 23° flap (two notches) or 38° (four notches) give a speed of about 180 knots. To reduce speed for joining the circuit, flap can be used within the limitations to augment the airbrake. Do not select more than one hydraulic service at a time and allow the cycle of each hydraulic operation to be completed before the next service is operated.

(b) Complete the **Pre-Landing Checks.** When checking the brakes, the lever should be held on for 2 to 3 seconds. If the system is serviceable, both brake pressure pointers remain at maximum pressure (1500 to 1650 PSI). If a hydraulic pipe is fractured, a lower than normal pressure is indicated initially and this decreases at a rate proportional to the size of the fracture. The check should not be repeated because at each operation hydraulic fluid is lost.

2 Final Approach

(a) Turn across wind at 160 knots (minimum), aiming

to lower full flap on the final stages. Steep approaches are not recommended.

(b) To ensure rapid engine response, maintain at least 4500 RPM until finally committed to a landing. Under conditions of high wind or gustiness it is more comfortable if the speeds below are increased by 5 knots.

(c) The recommended speeds at the runway threshold are:

At maximum normal landing weight (18,500 lb)	145 knots
At 17,000 lb	140 knots
At 16,000 lb	135 knots
At 15,000 lb	130 knots

(d) It is recommended that the brake parachute is streamed when landing at AUW above 17,000 lb.

3 Landing

As the touchdown point is approached, check the rate of descent and fly the aircraft gently on to the ground at about 5 to 10 knots less than the runway threshold speed. Holding off may result in an excessive nose-up attitude (particularly in the case of a flapless landing or when carrying outboard stores) with the likelihood of scraping the tail cone and/or dropping a wing; if the latter occurs, corective aileron may be effective in raising the wing, but it is recommended that the rudder is used as the primary lateral control during the touchdown phase. Lower the nosewheel on to the runway immediately after touchdown and apply gentle braking.

4 Braking

Note: The shortest landing run is achieved by lowering the nosewheel firmly on to the runway immediately after touchdown, streaming the brake parachute, applying maximum wheel braking and simultaneously pulling the control column fully back and trimming nose-up.

(a) General. The maxaret units do not operate until the wheels are turning, therefore, if the aircraft is allowed to touch down with brakes on, the wheels will lock and

the tyres may burst. The aircraft must be firmly on the runway before the brakes are applied.

(b) Dry Surface. The maxaret units normally prevent wheels locking when excessive brake pressure is applied. The landing run can be considerably reduced by applying full brake pressure continuously but, since this causes rapid tyre wear, gentler use of the brakes is recommended. If skidding or wheel slipping is felt, or if difficulty in keeping straight is encountered release the brakes momentarily. Heavy braking will markedly reduce brake effectiveness as the heat absorption limit of the brakes is approached; even moderate braking at light weight and slow speed can have the same effect if prolonged, eg lengthy taxying using brakes against power. After any heavy or prolonged braking, sufficient time should be allowed for the brakes to cool before continuing with taxying or another take-off.

(c) Wet Surface. The retardation may be considerably reduced, depending on the degree of wetness of the runway surface. On a wet surface, it is recommended that light braking application should be commenced as soon as the aircraft is firmly on the ground and the wheels are turning. The brake application can be increased progressively as the speed is reduced. If skidding or wheel-slipping is felt, the pressure should be momentarily released and gradually re-applied.

(d) Flooded or Icy Surfaces. Because of the drastic reduction in braking effectiveness, flooded or icy surfaces should be avoided if possible. When landing, an accurate touchdown at the correct speed is essential and the brakes should be applied carefully. If the wheels lock, the brakes should be released and time allowed for the wheels to rotate before re-applying the brakes.

(e) Use of the Brake Parachute. The brake parachute can be used for full stop landings to assist deceleration. Once the aircraft is firmly on the ground, stream the parachute and apply the wheelbrakes. Correct streaming is indicated by a marked increase in deceleration and the red STREAM caption illuminating. If the parachute fails to stream (ie no STREAM caption), the switch should be

returned to OFF-JETTISON (or off in the case of the starboard switch) within 30 seconds. After clearing the runway and before jettisoning the parachute, set 4000 RPM to provide a pull force to the parachute and also to ensure full voltage to the release unit. When the parachute is jettisoned, or if it fails to jettison, return the switch to STREAM immediately. The caption remains illuminated after the parachute is jettisoned. Prolonged taxying with a streamed parachute is not recommended.

5 Rolling

Make a normal approach and touchdown. To avoid RPM stagnation, smoothly and slowly apply full power as soon as the mainwheels touch the ground. If the throttle backstop is encountered when reducing power prior to touchdown, advance the throttle by about 1 inch. Keep the nosewheel clear of the runway and check that the engine responds correctly to throttle movement; aim to unstick at the normal speed. At a safe height, raise the landing gear and flaps; retrim as necessary.

Note: It is important that the throttle is opened smoothly and that the engine acceleration is closely monitored. If engine malfunction is suspected, the take-off should be abandoned.

6 Overshooting

(a) Open the throttle smoothly to the power required, raise the landing gear and, at a safe height, raise the flaps and retrim as necessary. If it is necessary to overshoot from the runway after the brake parachute has been streamed, open the throttle fully and select OFF — JETTISON. If the parachute fails to jettison, use the starboard switch.

(b) Provided that a minimum fuel state of 200/200 lb is indicated, a further circuit may safely be attempted. Below this fuel state, care must be taken to avoid an excessive nose-up attitude or acceleration on overshoot, which may cause fuel in the tanks to move away from the booster pumps resulting in possible fuel starvation.

7 Instrument Approach

The following are the recommended airspeed, power and

flap settings for an instrument approach with the landing gear down. The power setting is approximate and may require adjustment to meet configuration and wind variations:

	RPM	*Flaps*	*Airspeed*
Downwind	6900	23° or 38°	180 knots
Base leg	6900	23° or 38°	180 knots
Glidepath	6900	Full	150/160 knots

When practising GCA with a high fuel state or carrying out a GCA prior to landing overweight, maintain the higher recommended airspeed on the glidepath.

8 Flapless Landing

The circuit should be adjusted to give a long shallow approach and the threshold crossed at 150 knots. With a clean aircraft, speed decreases very slowly when the throttle is closed. When external stores are carried, speed decreases more quickly. Take care to avoid an excessive nose-up attitude, especially when outboard stores are carried and with low fuel states. Place the aircraft firmly on the runway as soon as possible, lower the nosewheel on to the ground, stream the brake parachute, apply the brakes and, if necessary, close the HP cock. The landing run is very much increased. Use the arrester hook if necessary.

9 Crosswind Landing

The 'crab' technique is recommended when landing crosswind. In light crosswinds, no difficulty should be encountered but in strong crosswinds, full rudder may be necessary to yaw the nose into line with the runway before touchdown. At low speeds, the effect of rudder is delayed and this must be anticipated: the use of full rudder produces a marked roll which must be countered by judicious use of aileron. When drift has been checked, fly the aircraft on to the ground and place the nosewheel on to the runway without delay. If the crosswind is strong or gusting, increase the approach and threshold speeds by 5 knots.

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