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DOCUMENT TITLE
PRE-SOLO SELF STUDY 1

CHAPTER 15 – HAZARDS

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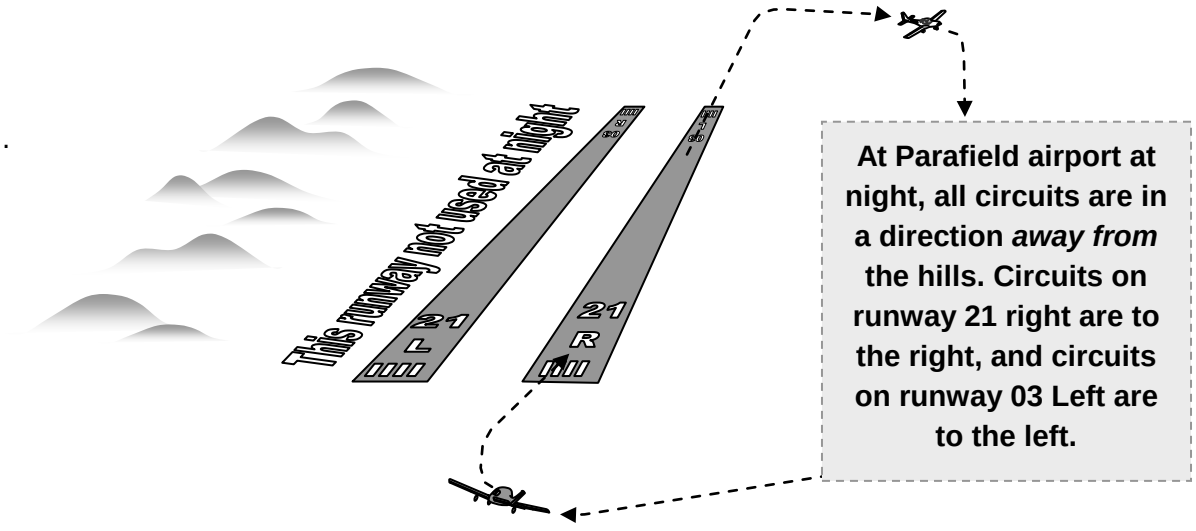
HAZARDS IN THE CIRCUIT

A ‘hazard’ is something dangerous.

The circuit can be a very dangerous place. Eighty percent of mid-air collisions happen in the circuit area. Let’s look at some of the dangers.

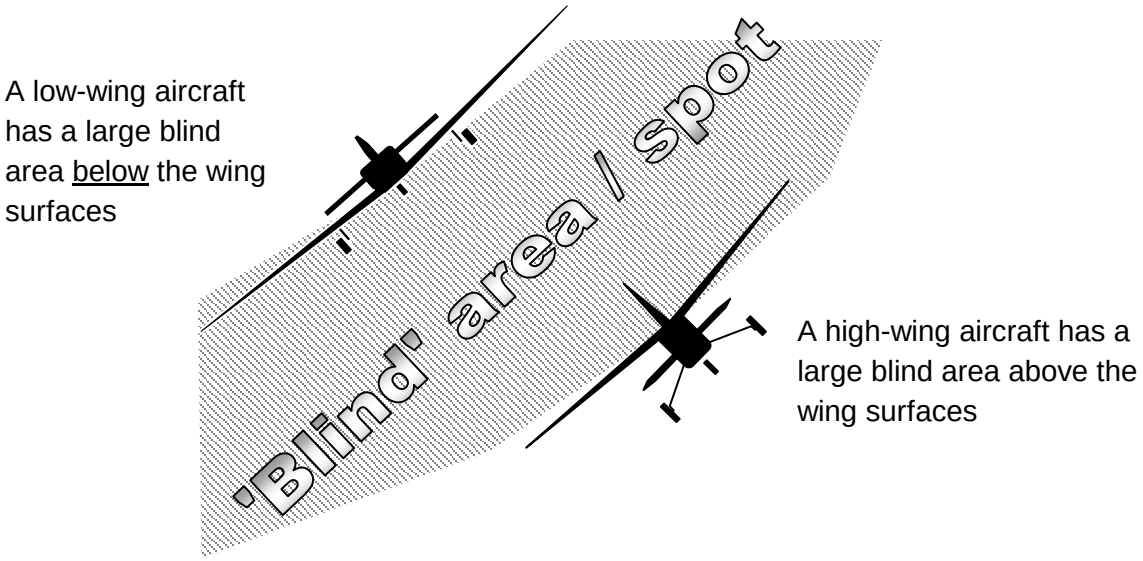
OTHER AIRCRAFT

The Parafield circuit often contains many different aircraft types. During the day, the Controller will allow up to six aircraft in the left circuit (e.g.21L), and another three on 21 right. At night they allow a maximum of five aircraft which operate only on runway 21 right, or 03 left. At night the circuit is always to the west of the airfield, so aircraft always turn away from the hills. These numbers obviously depend on the traffic situation at the time. For example in the morning when it’s quieter they may accept more in the left circuit.



Aircraft in the circuit fly at many different speeds. The maximum permissible operating speed in the Parafield circuit is 250 knots. The difference in speed between the fastest and the slowest types of aircraft makes it difficult for the controllers, and for the pilots of the faster aircraft types.

In the circuit there are both high and low wing aircraft. Each type has different 'Blind spots', created by the fuselage, and particularly by the wings when aircraft are turning.



Once aircraft start to turn, pilots may not be able to see each other because of these 'Blind spots.' If a low-wing aircraft turns inside a high-wing aircraft, this can create a very dangerous situation indeed.
The fuselage also makes 'Blind spots.' The high nose attitude of the TB 10 in a climb may hide another slower aircraft climbing ahead. The nose and low wing of some aircraft may hide an aircraft below.

METEOROLOGICAL HAZARDS

Dust Devils are columns of spiralling wind which, in dry conditions, give rise to columns of dust.

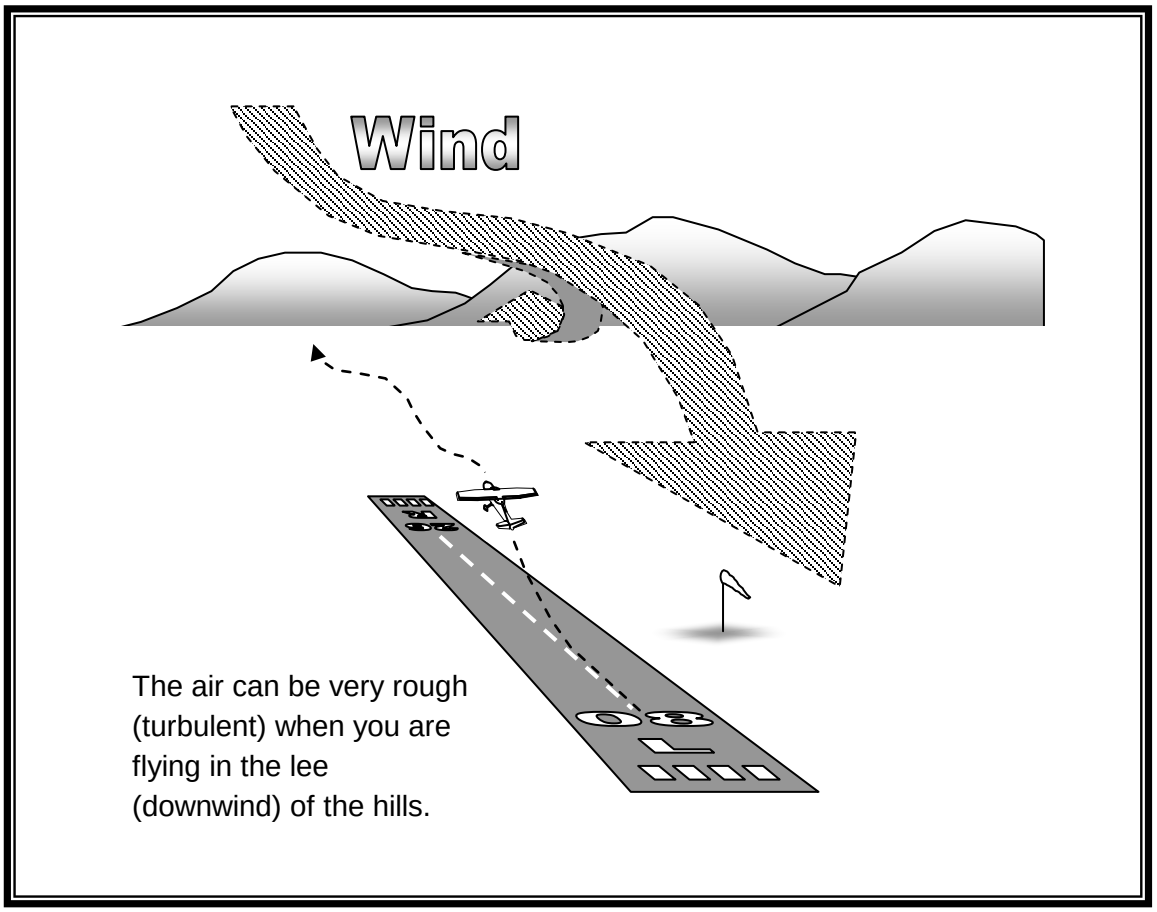
Crosswind, gusts or squalls with the passing of a cold front or rain-showers.

Wind shear. Wind shear can occur when the wind is very strong. The wind-speed can vary on the approach causing a dangerous reduction in airspeed. Low level turbulence will also be present.

Low cloud or Lower patches of cloud can make circuit operations difficult or stop them altogether.

Sometimes the western circuits can be used when the cloud on the ranges makes circuits to the east impossible.

Turbulence in the circuit. When the wind is from the East, and it comes over the hills, (very common on a summer morning), the circuit can become very turbulent. This is called mechanical turbulence, and is usually present when Runway 08 is the Duty runway. Turbulence may also be present due to other weather conditions.



REDUCED VISIBILITY

Visibility can be reduced due to low cloud, fog, rain or dust, and if conditions get very bad, the airport will be closed.

Sun-glare can also be a serious problem. Taking off or landing on Runway 08 in the early morning can be very difficult, looking directly into the sun as it rises over the hills. Using Runway 26 at sunset can be equally difficult. Landing an aircraft when looking directly into the setting sun can make it nearly impossible to accurately judge your height above the runway. It can also be impossible to sight other traffic when you are looking directly into the sun.

WAKE TURBULENCE

Wake turbulence is caused by the wing-tip vortices of aircraft. Although you are usually only warned of wake turbulence behind airline traffic, it can occur even behind light twin engined aircraft. Do not takeoff or land too close behind other aircraft, particularly in very light wind conditions.

Inexperienced or non-current pilots.

Remember that the Parafield circuit is a crowded learning environment. At any one time there may be several students flying who are still very inexperienced. Someone else's mistake can kill you ! Be alert and watch for other pilots who may turn inside you, fly past their runway centre-line when turning onto final, or who turn right when they have been instructed to turn left.
Be prepared for anything! YOUR LOOKOUT IN THE CIRCUIT MUST BE EXCELLENT!

Many hazards will be notified by 'All stations' calls or General Broadcasts.

When a ground station wishes to broadcast information to all aircraft likely to receive it, the message should be prefaced by the words **'All stations'. No reply is expected to such general calls**, unless individual stations are subsequently called to acknowledge receipt.

Examples:

(a) A very fast aircraft such as a jet, entering the circuit.
(b) A non-radio aircraft entering the circuit.
(c) A large flock of birds is near the runways.
(d) There is a disabled aircraft on a runway.
(e) There is crosswind greater than 8 knots on the duty runway.
(f) Crosswind circuit practice is starting on another runway.

Examples of 'General Broadcasts' which warn of hazards

1. All stations, all aircraft in the circuit area. We're changing the duty Runway from 21 Left to 03 Right.
2. All stations, the Lear jet is inbound from the Velodrome for Runway 03 Left.
3. All stations, a squall line is expected to pass through the circuit in the next 10 minutes. Wind Gusts up to 45 knots and moderate turbulence are expected.
4. All stations, there is a crane operating up to 75 metres, just north of Gepps Cross.
5. All stations, be advised, Adelaide Approach has Parafield circuit traffic extending into their airspace.
6. All traffic be advised, the wind's is now to 240° / 20 knots.... there's now 10 -20 knots of crosswind on the runway.

Hazards of longer duration may be notified on the ATIS.

Examples:

(a) Large numbers of birds on the airfield.
(b) Showers (reduced visibility) in the vicinity of (near) the airport.
(c) A very low cloud base or lower patches of cloud.
(d) Dust Devils.
(e) Crosswind practice on another runway.
(f) Runway unserviceability. (Maintenance / Displaced threshold etc.)
(g) Cranes operating in the undershoot or overshoot areas of runways.

Other hazards may be advised by NOTAM
NOTAMS are available in Operations, read them carefully before you fly!

An example of a NOTAM warning of a hazard.

2019 UTC 13/06/00 AIRSERVICES AUSTRALIA

AREA BRIEFING

NOTAM INFORMATION

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ADELAIDE (YPAD)

C92/00 REVIEW C248/99

TEMPO OBSTR CRANES OPR UP TO MAX HT OF 305FT AMSL BRG 208 MAG 2.65NM FM START OF TKOF RWY 23. CRANE INFRINGES INNER HZS, IS PAINTED AND LIT BY HIGH INTENSITY WHITE FLG LGT

AT ALL OTHER TIMES CRANE LOWERED BLW INNER HZS TO 160FT AMSL

FROM 03 170946 TO 06 160730 EST

DAILY 1930/0730

PARAFIELD (YPPF)

C57/00 REVIEW C54/00

TRIAL AMENDMENT TO TAXY INFO –

WHEN TWR ACT AMD TAXY INFO PROVIDED AS FOLLOWS:

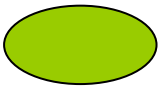
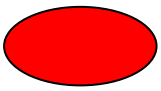
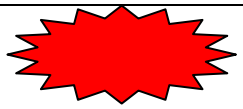
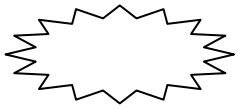
DEPARTING TAXY CALLS SHALL ONLY BE MADE BY:

1. IFR FLIGHTS
2. ACFT REQUIRING AIRWAYS CLEARANCE AND/OR SSR CODE
3. ACFT REQUIRING A NON-DUTY RWY
4. NON-STANDARD OPS (EG. COMPASS SWINGS ON HELIPAD)

FROM 03 150333 TO 06 150730 EST

LIGHT SIGNALS TO AIRCRAFT

If an aircraft has radio or electrical failure, or it is a non-radio aircraft, the pilot will have to depend on understanding light signals directed at his aircraft by the Tower Controller. You should learn the meaning of each signal.

ON THE GROUND		IN FLIGHT
Authorised to take off if pilot satisfied that no collision risk exists	 STEADY GREEN	**Authorised to LAND** if pilot satisfied that no collision risk exists
Authorised to TAXI if pilot satisfied that no collision risk exists	 GREEN FLASHING	Return For Landing
STOP	 STEADY RED	GIVE WAY to other aircraft CONTINUE CIRCLING
TAXI CLEAR OF LANDING AREA in use	 RED FLASHING	**DO NOT LAND** Aerodrome unsafe
Return to starting point on Aerodrome	 FLASHING WHITE	

LIGHT SIGNALS: CHECK YOUR KNOWLEDGE.

Which light signal would you expect to see in the following situations?

1. You have had an electrical failure. You are on final and the Controller is clearing you to land.

2. You open the throttle to take off, but the Controller wants you to abort.

3. You are taxiing, and the Tower Controller wants you to return to the College parking area.

4. You have landed, and you need to get permission to cross the undershoot of Runway 26.

5. The Tower Controller wants you to go around!

6. The Controller is clearing a non-radio aircraft for takeoff.

7. You are on final for an unserviceable runway.

LIGHT SIGNALS: CHECK YOUR KNOWLEDGE. ANSWERS

1. You have had an electrical failure. You are on final and the Controller is clearing you to land.
   STEADY GREEN

2. You open the throttle to take off, but the Controller wants you to abort.

   STEADY RED

3. You are taxiing, and the Tower Controller wants you to return to the College parking area.

   FLASHING WHITE

4. You have landed, and you need to get permission to cross the undershoot of Runway 26.

   FLASHING GREEN

5. The Tower Controller wants you to go around!

   STEADY RED

6. The Controller is clearing a non-radio aircraft for takeoff.

   STEADY GREEN

7. You are on final for an unserviceable runway.

   FLASHING RED