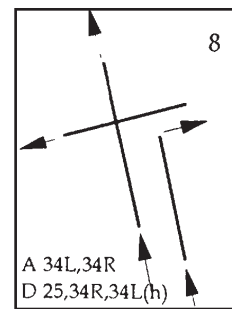


## Mode 8

### Method of operation

Departures to the west from Runway 25 and departures to the east and north-east from Runway 34R. Departures to the north from Runway 34L for aircraft requiring the long runway.



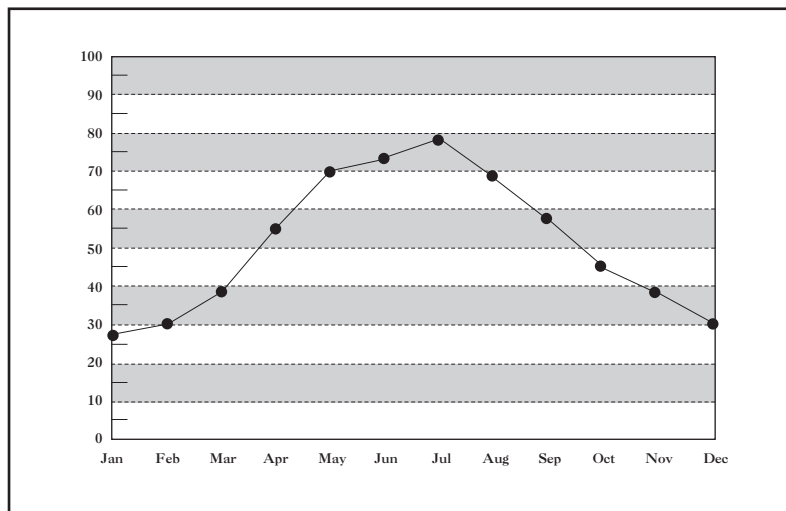
Arrivals from the south from Runways 34L and 34R.

### Availability of configuration

Operationally acceptable in wind conditions from the west southwest to north, typically occurring from autumn to spring.

The Bureau of Meteorology (BOM) wind data for the 55 years to December 1995 indicates that:

- the all months average availability would be 50 per cent.
- the average monthly availability ranges from 28 per cent in January to 78 per cent in July.



*The graph indicates the 55 year average availability from January to December.*

*Where nil downwind criteria is specified the average of all months availability is 38 per cent*

### Operational capacity

Sabre initially estimated a capacity of 70-72 movements per hour based on

- Mode 7 which uses the same arrival runways and one less departure runway (34R), has a capacity of 64
- Mode 9 which uses the same arrival and departure runways without crossing operations (25), has a capacity of 74 with a peak of 15 departures off 34R
- Mode 8 should produce capacity results between Mode 7 and Mode 9.

This Mode confines arrivals to over-water, and distributes departures to the east, west and to the north (long hauls). In addition, this mode may be very complex for the air traffic controllers.

Sabre considered this Mode may obtain 80 movements per hour. However, new runway exits for 34L and 34R would be required and LAHSO should be applied to 34L arrivals whenever possible.

Following further modelling of Mode 7 and Mode 9, Sabre revised estimate for Mode 8 is a sustained capacity of 78-80 movements per hours when the new runway exits, land and hold short operations, and a reduced buyout of 2 nautical miles are used.

This Sabre estimate was based on

- Mode 7 achieving a capacity of 73 movements per hour when using land and hold short operations and the new runway exits
- Mode 9 achieving a capacity of 82 operations per hour when using the new runway exits and the reduced buyout.

Sabre considered that the increase of 9 movements per hour for both Mode 7 and Mode 9 suggested that the same operational and airfield improvements would increase the initial capacity of 70-72 movements per hour for Mode 8 by the same magnitude.

#### *Operational complexity*

This Mode has the potential to place a very high workload on tower controllers, with a consequent deterioration in operating efficiency. There will be a heavy workload generated by the coordination requirements to facilitate runway crossing clearances and departures off three runways. The workload on the surface movement controller responsible for the Eastern sector of the aerodrome will be extremely high.

#### *Constraints to optimisation of capacity*

Provision of PARM would be required to maintain arrival rates in non-visual conditions.

Interaction of arrivals on Runway 34L with departures.

All arriving aircraft must cross the active departure runway when taxiing after landing.

Risk associated with this mode is provided for in the procedures employed and in the development of the operating standard but increases with traffic levels and therefore complexity.

There may be taxiing conflicts in the southwest quadrant of the airport between arrivals and departures to Runway 34R. Operations could be enhanced by the provision of a taxiway between Runway 34R and Taxiway T to provide segregation between outbound and inbound traffic.

Helicopter operation to and from the heliport would be restricted and delays incurred during this operating mode.

*Environmental implications*

*Arrivals 34L&R*

The number of people exposed to noise of 70 dB(A) or more for B747-200 (34L) and B767 (34R) aircraft is a total of 700.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	3,400ft	at	Over Water
B747-400	3,100ft	at	Over Water
B767	2,900ft	at	Over Water
Saab 340	850ft	at	Kurnell Peninsula

*Departures 25*

The number of people exposed to noise of 70 dB(A) or more for B747-200 aircraft is a total of 787,200.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	10,000ft	at	Belrose (north), Heathcote/Royal National Park (south), over water/Middle Harbour (east), Horsley Park (west), Toongabbie (northwest) & Parklea (northwest-early turn)
B747-400	6,500ft	at	Lindfield (north), Royal National Park (south), North Sydney (east), Cabramatta (west), Merrylands (northwest) & Northmead (northwest-early turn)
B767	6,000ft	at	Tennyson (north), Sutherland (south), Gladesville (north), Bankstown Aerodrome (west), Yagoona (northwest) & Silverwater (northwest-early turn)
Saab 340	3,000ft	at	Arncliffe (north), Brighton le Sands (south), Arncliffe (east), Arncliffe (west) & Arncliffe (northwest)

*Departures 34L*

The number of people exposed to noise of 70 dB(A) or more for B747-200 aircraft is a total of 606,300.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B747-200	10,000ft	at	Kuring-gai Chase National Park (north), Cromer (east), Royal National Park (south), Horsley Park (west) and Kellyville (northwest)
B747-400	6,500ft	at	Davidson (north, east), Royal National Park (south), Wetherill Park (west), Baulkham Hills West (northwest)

*Departures 34R*

The number of people exposed to noise of 70 dB(A) or more for B767 aircraft is a total of 127,200.

At the outer tip of the contour for each particular type of aircraft the noise reaching the ground will be close to 70 dB(A) and the aircraft will be at the following heights.

B767	6,000ft	at	Over Water
Saab 340	3,000ft	at	Mascot

For further details refer to Appendix 9

*Conclusions*

This Mode has the potential to handle high movement rates, but traffic complexities will place a higher workload on controllers.

*Proposed use*

It is proposed that this Mode not be introduced in the initial stages of the airspace plan, but be retained for further development if required to achieve the effectiveness of the noise sharing objectives of the plan.

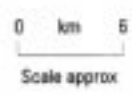


**SYDNEY MODE 8 DEPARTURES 25, 34R ARRIVALS 34L, 34R  
(LONG HAUL JET DEPARTURES 34L)**



MP 90/544 8.8  
November 1995

■ Built-up-area (1993)



**DEPARTURES**

- Jet track
- Non-Jet track
- Dual track

**ARRIVALS**

- Jet track
- Non-Jet track
- Dual track

Note: Tracks shown are indicative



# SYDNEY NOISE IMPRINT MODE 8 JET DEPARTURES 25, 34R ARRIVALS 34L, 34R



November 1996 MP 96/544.1.1 © Commonwealth of Australia

Scale approx



The diagram above indicates that a 767, 737 and similar aircraft leave a significantly smaller imprint than 747-200 series aircraft

- Noise imprint Arrivals (70dBa or above based on a single movement of a 747-200 series aircraft)
- Noise imprint Departures (70dBa or above based on a single movement of a 747-200 series aircraft)
- Built-up-area (1993)

Note: The noise imprints shown are based on a single aircraft movement on the centreline of the indicative flight track