Section 8. Radar Departures

5-8-1. PROCEDURES

Use standard departure routes and channelized altitudes whenever practical to reduce coordination. Do not, however, assign these routes solely to provide for possible radar or communication failure.

5-8-2. INITIAL HEADING

Before departure, assign the initial heading to be flown if a departing aircraft is to be vectored immediately after takeoff.

PHRASEOLOGY-
FLY RUNWAY HEADING.
TURN LEFT/RIGHT, HEADING (degrees).

NOTE-
TERMINAL. A purpose for the heading is not necessary, since pilots operating in a radar environment associate assigned headings with vectors to their planned route of flight.

REFERENCE-
FAAO 7110.65, Departure Clearances, Para 4-3-2.
FAAO 7110.65, Vectors Below Minimum Altitude, Para 5-6-3.

5-8-3. SUCCESSIVE OR SIMULTANEOUS DEPARTURES

TERMINAL

Separate aircraft departing from the same airport/heliport or adjacent airports/heliports in accordance with the following minima provided radar identification with the aircraft will be established within 1 mile of the takeoff runway end/helipad and courses will diverge by 15 degrees or more.

NOTE-
1. *FAAO 8260.19, Flight Procedures and Airspace, establishes guidelines for IFR departure turning procedures which assumes a climb to 400 feet above the airport elevation before a turn is commenced. FAAO 8260.3, United States Standard for Terminal Instrument Procedures (TERPS), the ILS missed approach criteria, requires a straight climb of 400 feet be specified where turns greater than 15 degrees are required.*

2. *Consider known aircraft performance characteristics when applying initial separation to successive departing aircraft.*

3. *When one or both of the departure surfaces is a helipad, use the takeoff course of the helicopter as a reference, comparable to the centerline of a runway and the helipad center as the threshold.*

a. Between aircraft departing the same runway/helipad or parallel runways/helicopter takeoff courses separated by less than 2,500 feet- *1 mile* if courses diverge immediately after departure.
(See FIG 5-8-1, FIG 5-8-2, and FIG 5-8-3.)

Successive Departures

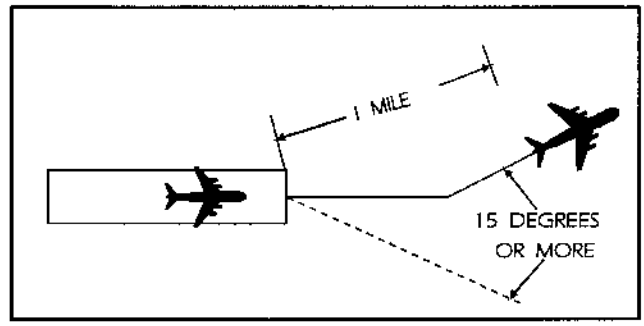

FIG 5-8-1

Simultaneous Departures

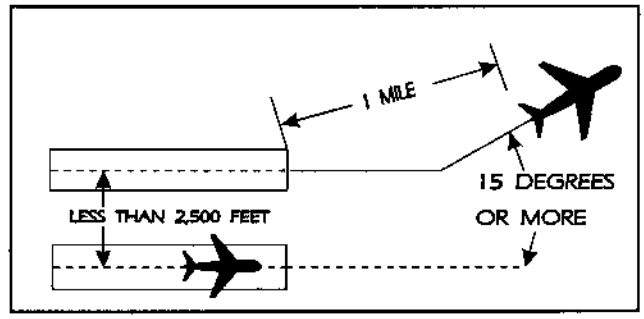

FIG 5-8-2

Simultaneous Departures

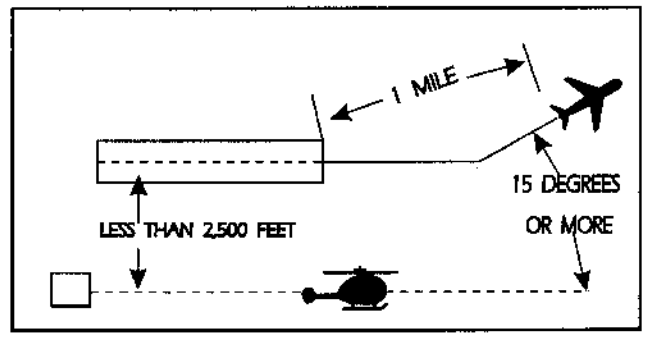

FIG 5-8-3

NOTE-
This procedure does not apply when a small aircraft is taking off from an intersection on the same runway behind a large aircraft or when an aircraft is departing behind a heavy jet/B757.

REFERENCE-
FAAO 7110.65, Wake Turbulence Separation for Intersection Departures, Para 3-9-7.
FAAO 7110.65, Intersecting Runway Separation, Para 3-9-8.
FAAO 7110.65, Minima, Para 5-5-4.

b. Between aircraft departing from diverging runways:

1. Nonintersecting runways. Authorize simultaneous takeoffs if runways diverge by 15 degrees or more. (See FIG 5-8-4.)

Nonintersecting Runway Departures

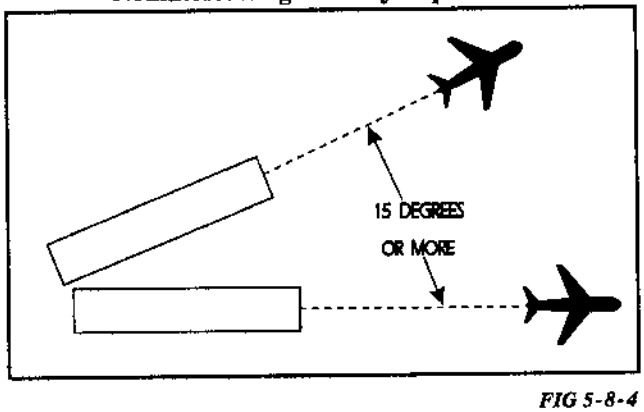

FIG 5-8-4

2. Intersecting runways and/or helicopter takeoff courses which diverge by 15 degrees or more. Authorize takeoff of a succeeding aircraft when the preceding aircraft has passed the point of runway and/or takeoff course intersection. When applicable, apply the procedure in para 3-9-5, Anticipating Separation. (See FIG 5-8-5 and FIG 5-8-6.)

Intersecting Runway Departures

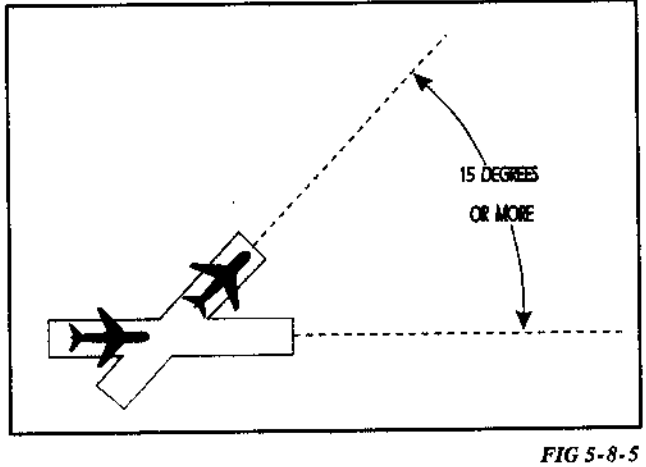

FIG 5-8-5

NOTE-
This procedure does not apply when aircraft are departing behind a heavy jet/B757.

c. Between aircraft departing in the same direction from parallel runways/helicopter takeoff courses. Authorize simultaneous takeoffs if the centerlines/takeoff courses are separated by at least 2,500 feet and courses diverge by 15 degrees or more immediately after departure. (See FIG 5-8-7 and FIG 5-8-8.)

Intersecting Helicopter Course Departures

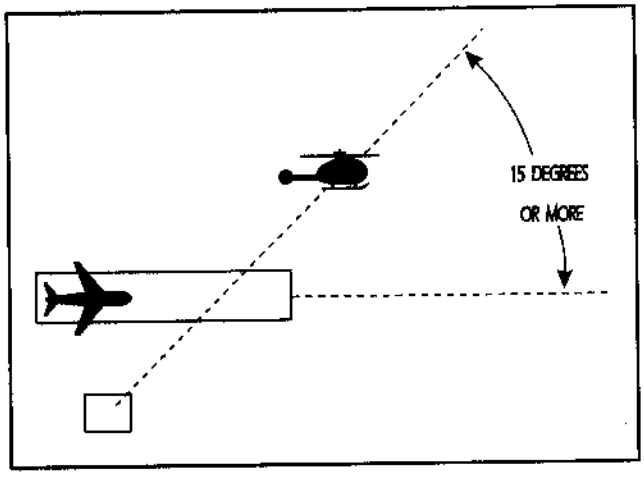

FIG 5-8-6

Parallel Runway Departures

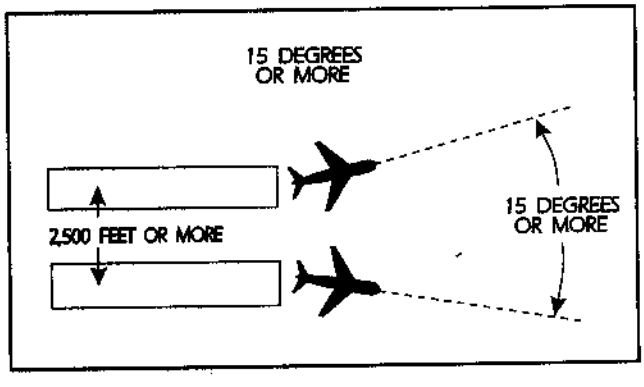

FIG 5-8-7

Parallel Helicopter Course Departures

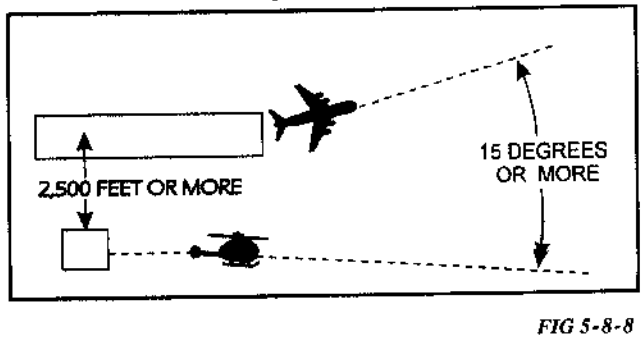

FIG 5-8-8

5-8-4. DEPARTURE AND ARRIVAL

TERMINAL. Except as provided in para 5-8-5, Departures and Arrivals on Parallel or Nonintersecting Diverging Runways, separate a departing aircraft from an arriving aircraft on final approach by a minimum of *2 miles* if separation will increase to a minimum of 3 miles (5 miles when 40 miles or more from the antenna) within 1 minute after takeoff.

NOTE-

1. *This procedure permits a departing aircraft to be released so long as an arriving aircraft is no closer than 2 miles from the runway at the time. This separation is determined at the time the departing aircraft commences takeoff roll.*

2. *Consider the effect surface conditions, such as ice, snow, and other precipitation, may have on known aircraft performance characteristics, and the influence these conditions may have on the pilot's ability to commence takeoff roll in a timely manner.*

5-8-5. DEPARTURES AND ARRIVALS ON PARALLEL OR NONINTERSECTING DIVERGING RUNWAYS

TERMINAL. Authorize simultaneous operations between an aircraft departing on a runway and an aircraft on final approach to another parallel or nonintersecting diverging runway if the departure course diverges immediately by at least 30 degrees from the missed approach course until separation is applied and provided one of the following conditions are met:

NOTE-

When one or both of the takeoff/landing surfaces is a helipad, consider the helicopter takeoff course as the runway centerline and the helipad center as the threshold.

a. When parallel runway thresholds are even, the runway centerlines are at least 2,500 feet apart. (See FIG 5-8-9 and FIG 5-8-10.)

Parallel Thresholds are Even

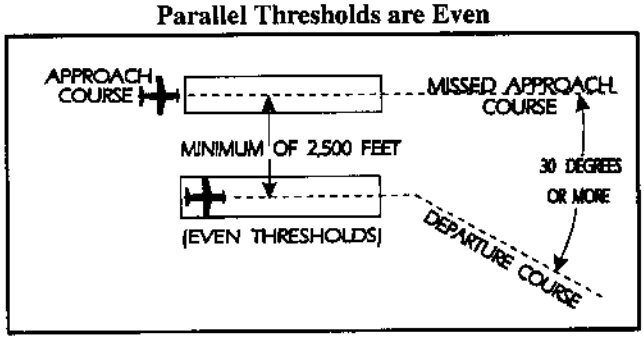

FIG 5-8-9

Parallel Thresholds are Even

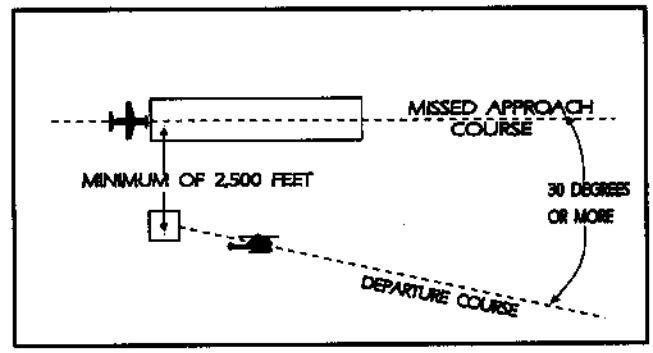

FIG 5-8-10

b. When parallel runway thresholds are staggered and:

1. The arriving aircraft is approaching the nearer runway: the centerlines are at least 1,000 feet apart and the landing thresholds are staggered at least 500 feet for each 100 feet less than 2,500 the centerlines are separated. (See FIG 5-8-11 and FIG 5-8-12.)

Parallel Thresholds are Staggered

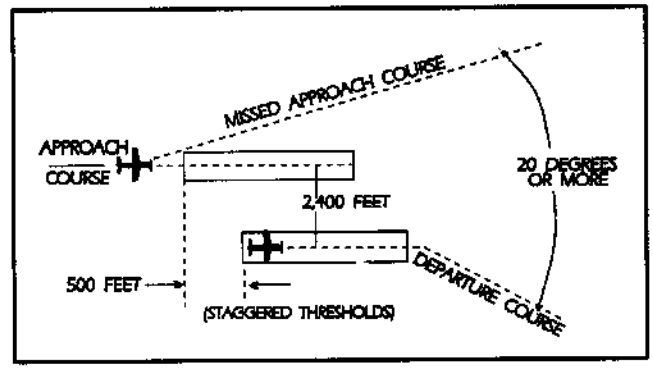

FIG 5-8-11

Parallel Thresholds are Staggered

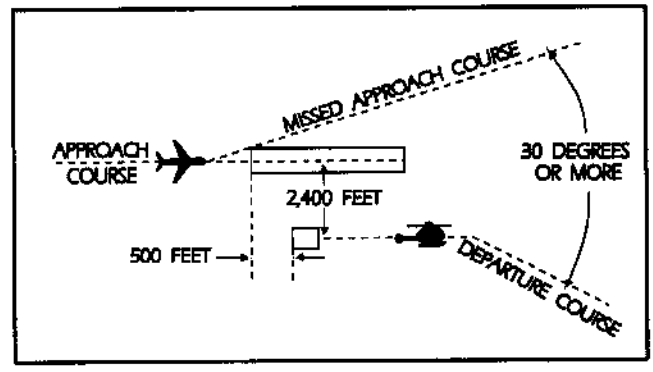

FIG 5-8-12

NOTE-
In the event of a missed approach by a heavy jet/B757, apply the procedures in para 3-9-6, Same Runway Separation, or para 3-9-8, Intersecting Runway Separation, ensure that the heavy jet does not overtake or cross in front of an aircraft departing from the adjacent parallel runway.

2. The arriving aircraft is approaching the farther runway: the runway centerlines separation exceeds 2,500 feet by at least 100 feet for each 500 feet the landing thresholds are staggered. (See FIG 5-8-13.)

Parallel Thresholds are Staggered

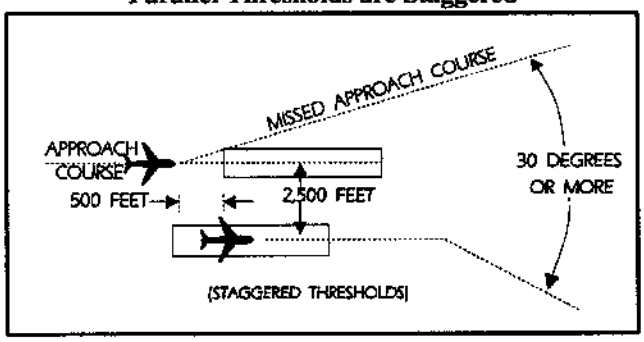

FIG 5-8-13

c. When nonintersecting runways diverge by 15 degrees or more and runway edges do not touch. (See FIG 5-8-14.)

Diverging Nonintersecting Runways

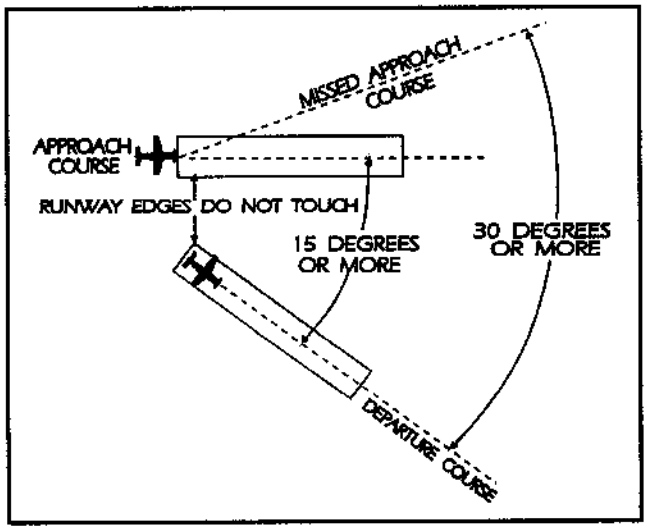

FIG 5-8-14

d. When the aircraft on takeoff is a helicopter, hold the helicopter until visual separation is possible or apply the separation criteria in subparas a, b, or c.

REFERENCE-
FAAO 7110.65, Departure and Arrival, Para 5-8-4.