Terminal Checklist 1/19

Answers on page 24

Refer to the 10-3C NOEND 4 RNAV DEPARTURE for PANC/ANC (Anchorage AK) when necessary to answer the following questions:

1. Select the item(s) required for all aircraft to fly this SID.
- **a** GPS.
- **b** Radar.
- **c** Autopilot.
- **d** Special authorization.
- **e** Navigation map display.
- **f** Cross-track error/deviation limited to 0.5 nm.

2. Which are features of the Grid MORAs on this chart?
- **a** All based on an obstacle clearance of 2000 ft.
- **b** All based on an obstacle clearance of 1000 ft.
- **c** Charted for the To-Scale areas of the procedure graphic.
- **d** Apply within grids formed by 30 minutes of latitude and longitude.

3. Select the true statement(s) regarding the minimum safe/sector altitudes.
- **a** The MSAs apply within 25 nm of Anchorage VOR.
- **b** The MSA of 8900 ft MSL would apply to an aircraft located east of TED VOR.
- **c** An MSA of 5600 ft MSL would apply to an aircraft after takeoff from Runway 33.
- **d** In emergency situations, MSAs provide 1000 ft of clearance over all obstructions and assure acceptable navigation signal coverage.

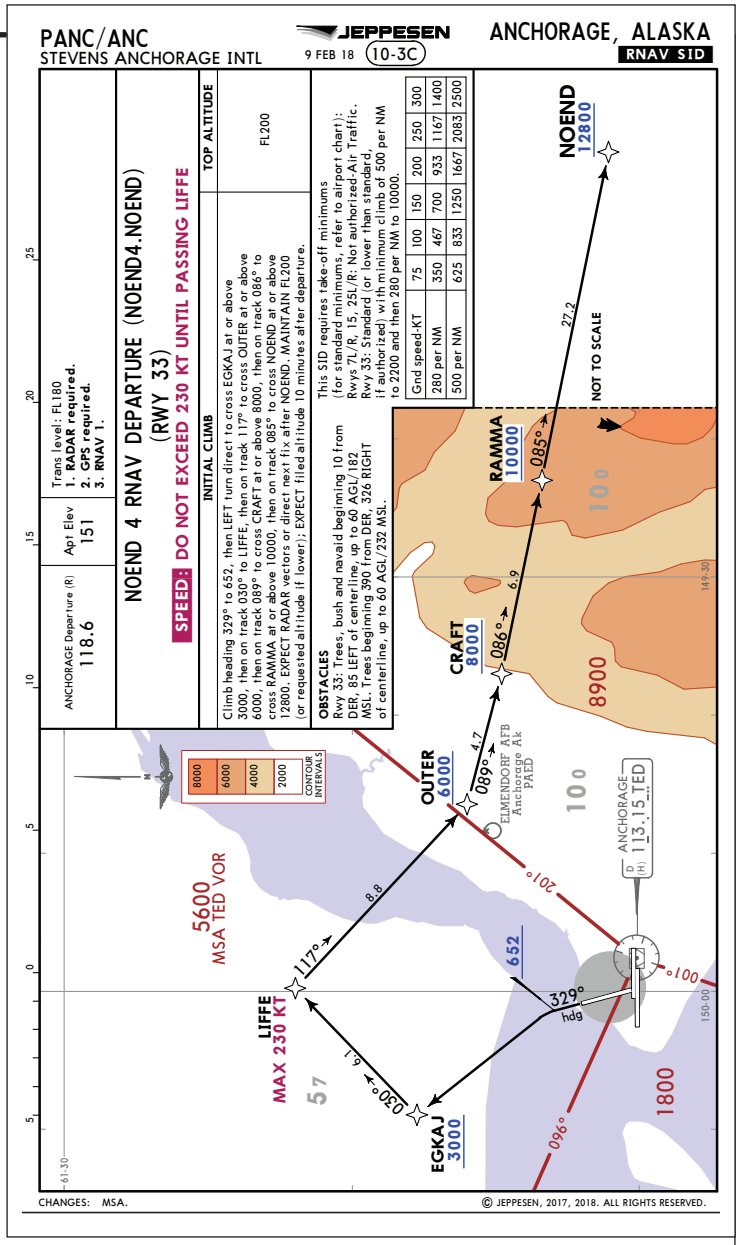
4. If a flight is "cleared NOEND Four Departure, climb and maintain 15,000" the aircraft is expected to comply with the lateral path of the SID and with all published altitude restrictions.
- **a** True
- **b** False

5. Select the true statement(s) regarding a "climb via" clearance for this SID.
- **a** The clearance limit altitude is FL200.
- **b** ATC will assign a top altitude of FL200.
- **c** The flight must comply with all published altitude restrictions.
- **d** Upon initial contact with Seattle Departure, the pilot should state that the flight is "on the NOEND Four RNAV Departure."

6. To fly the departure procedure, the RNAV equipment must be engaged to follow flight guidance for lateral RNAV no later than how many feet above the airport elevation?
- **a** 300.
- **b** 500.
- **c** 700.
- **d** 1000.

7. Which minimum climb requirements apply to this SID at a groundspeed of 200 kts?
- **a** 500 ft/nm to 2200 ft MSL.
- **b** 500 ft/nm to 10,000 ft MSL.
- **c** 1667 ft/min to 2200 ft MSL.
- **d** 933 ft/min from 2200 to 10,000 ft MSL.
- **e** 280 ft/nm from 2200 ft MSL to 10,000 ft MSL.

8. If cleared to "climb via SID except cross CRAFT at or below 6000" the aircraft should remain at 6000 ft MSL after passing OUTER and CRAFT until receiving further clearance.
- **a** True
- **b** False



9. After reaching LIFFE, ATC issues a clearance to fly a heading of 100°. The pilot should_____
- **a** consider the SID canceled.
- **b** rejoin the SID at OUTER.
- **c** modify the route in the RNAV system and maintain RNAV 1 accuracy requirements.
- **d** All of the above are correct.

10. Select all that apply. When flying the SID, the aircraft should _____.
- **a** proceed direct to EGKAJ after takeoff.
- **b** maintain a maximum speed of 230 kts until reaching NOEND.
- **c** expect clearance to the filed altitude 10 minutes after departure.
- **d** expect radar vectors or a clearance to the next fix after reaching NOEND.
- **e** maintain 12,800 ft MSL after passing NOEND until receiving further clearance from ATC.

Answers to TC 1/19 questions

1. a, b, f The procedural notes in the Briefing Strip indicate that radar, GPS, and RNAV 1 are required. No special authorization is required. AC 90-100A, *US Terminal and En Route Area Navigation (RNAV) Operations,* states that "pilots must use a lateral deviation indicator (or equivalent navigation map display), flight director and/or autopilot in lateral navigation mode on RNAV 1 routes." Aircraft operating on RNAV 1 STARs and SIDs must maintain a total system error of not more than 1 nm for 95% of the total flight time. Cross-track error/deviation must be limited to 0.5 nm.

2. c, d MORAs are represented in abbreviated form by indicating the thousands figures plus the first hundred figure in smaller character. On Jeppesen charts, all MORA altitudes that are 6000 ft or lower (in this case 5700) have an obstacle clearance of 1000 ft. If the MORA altitudes are 7000 ft or greater (in this case 10,000), the obstacle clearance is 2000 ft. Grid MORAs are only charted for the To-Scale portion of the chart. Areas that are not to scale are bordered by dashed lines and labeled "NOT TO SCALE." Grid MORAs on SID and STAR charts are based on grids formed by 30 minutes or 1 degree of latitude/longitude. In this case, 30 minutes applies as shown by the latitude/longitude indications.

3. a, b, c Minimum safe/sector altitudes are depicted in brown and apply to sectors shown by bearings to TED VOR. The MSA diameter is depicted if it differs from 25 nm. The MSA is published for emergency use and provides 1000 ft of clearance over all obstructions, but does not necessarily assure acceptable navigation signal coverage.

4. b "Cleared NOEND Four Departure, climb and maintain 15,000" indicates that the aircraft must comply with the SID lateral path, and any published speed restriction while climbing unrestricted to 15,000. The *AIM* 5-2-8 provides examples of the proper procedures to comply with a variety of ATC clearances for SIDs.

5. a, c A "climb via SID" clearance means that a flight must comply with the lateral path of the SID and comply with all published speed restrictions and altitude restrictions. When issuing the clearance, ATC does not assign the top altitude (FL200) published on the chart. If the flight has received a "climb via SID" clearance from the tower or in a Pre-Departure Clearance (PDC), upon initial contact, the pilot should report the flight number or aircraft identification, followed by the current altitude; then state "climbing via the (SID name) departure."

6. b According to the RNAV DP and STAR Specific Requirements of AC 90-100A, the pilot must be able to engage RNAV equipment to follow flight guidance for lateral RNAV departures no later than 500 ft above the airport elevation.

7. a, c, d, e According to the takeoff instructions, standard takeoff minimums (or lower than standard if authorized) are required with a minimum climb gradient of 500 ft/nm to 2200 ft MSL and then a minimum climb gradient of 280 ft/nm to 10,000 ft MSL. According to the table, at a ground speed of 200 kts, this translates to a minimum climb rate of 1667 ft/min and 933 ft/min, respectively.

8. b According to the procedures outlined in *AIM* 5-2-8, the aircraft must cross CRAFT at or below 6000 ft MSL and the remainder of the departure must be flown as published so no further clearance is needed to climb. After CRAFT, the aircraft should climb to cross RAMMA at a minimum altitude of 10,000 ft MSL.

9. a According to the *AIM* 5-2-8, if vectored or cleared to deviate off of a SID, pilots must consider the SID canceled, unless the controller adds "expect to resume SID." In that case, pilots should then be prepared to rejoin the SID at a subsequent fix or procedure leg. According to AC 90-100A, if ATC issues a heading assignment taking the aircraft off an RNAV procedure, the pilot should not modify the route in the RNAV system until a clearance is received to rejoin the procedure or the controller confirms a new route clearance. When the aircraft is not on the published procedure, the specified accuracy requirements (in this case RNAV 1) do not apply.

10. c, d The plan view and Initial Climb instructions indicate a climb to 652 ft MSL prior to turning direct to EGKAJ. A speed restriction of 230 kts until passing LIFFE is shown on the plan view and below the departure name. The Initial Climb instructions indicate that clearance to the filed altitude should be expected 10 minutes after departure and to "expect radar vectors or direct next fix after NOEND." The aircraft should cross NOEND at or above 12,800 and continue to climb to the top altitude of FL200.