NOTE: Text that should be deleted from the outline is displayed with a line through the text. New text is shown with a blue background.

If you should see any additional content on your knowledge test not represented in this update, please share that information with Gleim so that we can continue to provide the most complete knowledge test preparation experience possible. You can contact our aviation team at aviation@gleim.com. Thank you in advance for your help!

Study Unit 2 – FAR Part 91, Civil Aviation Security, Hazardous Materials

Page 42, Subunit 2.1, 91.180: The following material has been added to cover the addition of RVSM minimums to FAR Part 91.

91.180 Operations within Airspace Designated as Reduced Vertical Separation Minimum (RVSM) Airspace

1. FAR 91.180 and FAR 91 appendix G regulate RVSM minimums.
2. RVSM airspace begins at flight level (FL) 290 and extends up to and includes FL 410.
3. ATC separates aircraft by 1,000 feet vertically in RVSM airspace.
4. Operators must be authorized by the administrator prior to operating in RVSM airspace.
   a. Each operator must submit a data packet to the administrator establishing compliance with the applicable RVSM aircraft requirements.
5. The administrator grants authority to operate in RVSM airspace either in the operator’s operations specifications or by the issuance of a Letter of Authorization.
6. Each person requesting a clearance to operate within RVSM airspace shall correctly annotate the flight plan filed with air traffic control with the status of the operator and aircraft with regard to RVSM approval.

Page 54, Subunit 2.1, 91.180, new question: A new question regarding RVSM operations was added by the FAA and all subsequent questions were renumbered.

Before requesting RVSM clearance, each person
A. shall correctly annotate the flight plan.
B. must file an ICAO RVSM flight plan.
C. should file for odd altitudes only.

Answer (A) is correct. (FAR Part 91, App G)

DISCUSSION: Each person requesting a clearance to operate within RVSM airspace shall correctly annotate the flight plan filed with air traffic control with the status of the operation and aircraft with regard to RVSM approval.

Answer (B) is incorrect. There is no separate flight plan required for RVSM operations; rather, operators must note that the aircraft and flight crew are both authorized to use RVSM airspace. Answer (C) is incorrect. RVSM operations may be conducted at both even- and odd-thousand-foot increments.
64. Which publication includes information on operations in the North Atlantic (NAT) Minimum Navigation Performance Specifications Airspace?

A. **FAR 14 CFR** Part 121.
B. ICAO Annex 1, Chapter 2.
C. **FAR 14 CFR** Part 91.

Answer (C) is correct. *(FAR 91.705)*

**DISCUSSION:** Operations within the North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace is the title of both FAR 14 CFR Part 91.705 and Appendix C of Part 91. Answer (A) is incorrect. FAR 14 CFR Part 121 provides rules in the United States regarding operating requirements of domestic, flag, and supplemental air carriers. Answer (B) is incorrect. ICAO Annex 1, Chapter 2, concerns pilot certificates and ratings.

---

99. Assuming the required ceiling exists, an alternate for the destination airport is not required under 14 CFR Part 135 if, for at least 1 hour before and after the ETA, the forecast visibility is at least:

A. 5 statute miles, or 3 nautical miles more than the lowest applicable visibility minimums for the instrument approach procedure to be used, whichever is greater.
B. 3 statute miles, or 2 statute miles more than the lowest applicable visibility minimums for the instrument approach procedure to be used, whichever is greater.
C. 3 nautical miles, or 2 nautical miles more than the lowest applicable visibility minimums for the approach procedure to be used, whichever is greater.

Answer (B) is correct. *(FAR 135.223)*

**DISCUSSION:** No alternate is required if the destination airport has at least one standard approach procedure and, for at least 1 hr. before and after the estimated time of arrival, the appropriate weather reports or forecasts or any combination of them indicate that visibility for that airport is forecast to be at least 3 SM, or 2 SM more than the lowest applicable visibility minimums, whichever is the greater, for the instrument approach procedure to be used at the destination airport.

Answer (A) is incorrect. The visibility requirement is for only 3 SM, not 5 SM, or 2 SM, not 3 SM, more than the lowest landing visibility minimums. Answer (C) is incorrect. The visibility is measured in statute miles (SM), not nautical miles (NM).
Study Unit 5 – Aerodynamics and Airplanes

Page 221, Subunit 5.14, new question: A new question on excessive takeoff speed was released by the FAA, and all subsequent questions were renumbered.

Excessive takeoff speeds may result in approximately a

A. 4% takeoff distance increase for each 1% of additional takeoff speed.
B. 1% takeoff distance increase for each 2% of additional takeoff speed.
C. 2% takeoff distance increase for each 1% of additional takeoff speed.

Answer (C) is correct. (PHAK Chap 10)

DISCUSSION: Takeoff distance varies with the square of takeoff velocity if one assumes acceleration is constant. Rudimentary physics uses the following equation to determine the relationship between velocity, acceleration, and distance for uniformly accelerated objects.

\[ S = \frac{V^2}{2a} \]

\( S = \) Acceleration distance in feet
\( V = \) Velocity in feet per second, after uniformly accelerating from a velocity of zero
\( a = \) Acceleration in feet per second

Assume the aircraft has a takeoff velocity of 150 kt. (253.5 feet per second) with an acceleration of .2 g (6.434 feet per second).

\[ S = \frac{253.5^2}{2(6.434)} = \frac{64,262.35}{12.868} = 4,994 \text{ feet} \]

A 1% increase in takeoff velocity is computed by multiplying the takeoff velocity by 0.01.

\[ \frac{253.5 \times 0.01}{253.5 + 2.53} = 2.53 \]

Now compute the new takeoff distance.

\[ S = \frac{256.03^2}{2(6.434)} = \frac{65,551.36}{12.868} = 5,094 \text{ feet} \]

Takeoff distance increased by 100 feet (2%).

\[ \frac{100}{4,994} = 0.02 \]

Answer (A) is incorrect. A 4% increase in takeoff speed would result in a 4% increase in takeoff distance. Answer (B) is incorrect. A 1% increase in takeoff speed would result in a 2% increase in takeoff distance.

Study Unit 8 – IFR Navigation Equipment, Holding, and Approaches

Page 338, Subunit 8.8, new question: A new question and image regarding IFR charts were released by the FAA, and subsequent questions were renumbered.

(Refer to Figure 259.) Which approach light is available for RWY 33R?

A. MIRL
B. TDZ and CL
C. MALSR with RAIL

Answer (C) is correct. (IAP)

DISCUSSION: The second box on the second line of the heading section of Figure 259 indicates RWY 33R is serviced by a medium-intensity approach lighting system with runway alignment indicator lights.

Answer (A) is incorrect. Medium-intensity runway lights (MIRL) are runway edge, not approach, light systems. Answer (B) is incorrect. Touchdown zone (TDZ) and centerline lights (CL) are in-runway lights, not approach lights.
Figure 259.

<table>
<thead>
<tr>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-ILS 33R</td>
<td>289/24</td>
<td>200 (200-1½)</td>
<td>289/24</td>
<td>200 (200-1½)</td>
<td>289/24</td>
</tr>
<tr>
<td>S-Loc 33R</td>
<td>540/24</td>
<td>451 (500-1)</td>
<td>540/24</td>
<td>451 (500-1)</td>
<td>540/24</td>
</tr>
<tr>
<td>SIDSTRY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rwy 33L</td>
<td>449 (300-1)</td>
<td>449 (300-1)</td>
<td>449 (300-1)</td>
<td>449 (300-1)</td>
<td>449 (300-1)</td>
</tr>
<tr>
<td>CIRCLNG</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Maximum holding airspeed 230 KIAS.
Page 373, Subunit 8.13, question 160: The following question has been revised by the FAA to accommodate TSO-129 GPS receivers.

160. To conduct a localizer performance with vertical guidance (LPV) RNAV (GPS) approach, the aircraft must be furnished with

A. a GPS/WAAS receiver approved for LPV approach by the AFM supplement.
B. a GPS (TSO-C146A-129) receiver certified for IFR operations.
C. an IFR approach certified system with required navigation performance (RNP) of 0.5.

Answer (B) is correct. *(IFH Chap 7)*

**DISCUSSION:** Stand-alone GPS equipment augmented by WAAS and used in IFR operations must meet the standards set forth in TSO-C146A-129.

Answer (A) is incorrect. Approval of equipment is not granted by the AFM supplement, even though approved equipment can be included in that document. The wording of the answer foil invalidates this answer choice. Answer (C) is incorrect. An approach certified system must provide required navigation performance (RNP) of 0.3, not 0.5.

Study Unit 9 – IFR Flights

Page 423, Subunit 9.3, Question 29: A new figure has been added by the FAA to reflect the change in runway upslope at KTUS.

29. (Refer to Figure 404 348.) What effect on the takeoff run can be expected on RWY 11R at Tucson Intl?

A. Takeoff length shortened to 6,986 feet by displaced threshold.
B. Takeoff run shortened by 0.67 percent runway slope to the SE.
C. Takeoff run will be lengthened by the 0.67 percent upslope of the runway.

Answer (C) is correct. *(A/FD)*

**DISCUSSION:** The first line of runway information provides information common to the entire runway. At the end of RWY 11R-29L on Fig. 404 348, the information states, “0.67% up SE.” That indicates there is a 0.67% upslope grade on the runway, heading SE (an upslope for RWY 11R).

An upslope runway which will increase the distance required for the takeoff run.

Answer (A) is incorrect. A displaced threshold will shorten the usable runway for landing, not for takeoff. Answer (B) is incorrect. The takeoff run is lengthened, not shortened, due to the 0.67% upslope to the SE.
ARIZONA

TUCSON INTL (TUS) 6 S UTC 7 N32°56.97' W110°55.46'

2643 - B S4 FUEL 100LL JET A OK 1, 2, 3, 4 TPA—See Remarks AOE Class I, ARFF Index C

ARFF INDEX 1

NOTAM FILE TUS

RWY11L-29R 11095X180 (ASPH) CRVD S 160, D 200, 2S 175, 20 350, 20 223 885 HIRL

RWY11L 01L 1108 (ASPH) 300 LARL

RWY11R 11095X180 (ASPH) CRVD S 160, D 200, 2S 175, 20 350, 20 223 885 HIRL

RWY32L H700X150 (ASPH) GRVD S 105, B 137, 25 174, 20 230, 20 232 500 MRL

RWY32R 01R 11095X180 (ASPH) CRVD S 160, D 200, 2S 175, 20 350, 20 223 885 HIRL

RUNWAY DECLARED DISTANCE INFORMATION

RWY11L 1000 TOA 1000 ASDA 1000 LDA 1600

RWY32L 1000 TOA 1000 ASDA 1000 LDA 1000

ARRIVING GEAR SYSTEM

RNY 11L HOOK BAK 12B (1220' DVRN) BAK 14 BAK 12B (1300')

AIRPORT REMARKS: Attended continuously. Air carriers use Rwys 11L, 29R, 11R, 29L rtd to act with wing span less than 73' and bgl speed less than 120 kt. Aftld dep Rwys 11L, 29L required to attain at least 400' AGL prior to starting turn. No B 747 training except PPR; no flight training 0000-1300Z except PPR; call Flightline Services 520 573 8128. Rwys 11L, 29R gross weight limit DC 10 13 515,000 lbs DC 10 30 340,000 lbs, L 101 3 25,000 lbs.

Rwy 11L: 09-23 340,000 lbs, Rwy 03-21: 340,000 lbs. Rwy 32L: gross weight limit DC 10 10 305,000 lbs DC 10 30 340,000 lbs, L 101 3 25,000 lbs.

Portions of runway 29L visible from hver due to hangars. TWR 155000 lbs or less. Portions of runway D not visible from hver due to hangars. TWR 30,000 lbs or less. REL Rwy 29L and Rwy 29R do not have a limit. Leg fee. Flight Notification Service (ADCO) and NOTE: See Special Notices—Glider Operations Northwest of Tucson, Arizona. U.S. Special Customs Requirement.

COMMUNICATIONS: ATS 123.8 520-741-1177 UNICOM 122.95

TUSCO RCD 122.2 (PREScott RADIO)

MUHRT LEWIS RCD 122.4 (PREScott RADIO)

AIRSPACE: CLASS B svc cfr APPCON

RADIO AIDS TO NAVIGATION: NOTAM FILE TUS

HVAS

VORTAC usable

B 747 unusable

DME usable

IIL/DME unusable

Figure 348.
Page 425, Subunit 9.3, new question: A new question and images were released by the FAA, and subsequent questions were renumbered.

(Refer to Figure 255a, Figure 255b, Figure 256, Figure 257, and Figure 257a.) If the glide slope indication is lost upon passing LIMMA INT on the ILS RWY 25L approach at LAX, what action should the pilot take?

A. Continue to the MAP, and execute the missed approach as indicated.

B. Continue the approach as an LOC, and add 100 feet to the DH.

C. Immediately start the missed approach left turn to CATLY INT.

Answer (A) is correct. (IAP)

**DISCUSSION:** When the glide slope indication is lost during the ILS approach, the pilot can continue on the LOC approach. The pilot will execute the missed approach at the missed approach point for the LOC approach. Answer (B) is incorrect. The pilot will continue on the LOC approach, but the missed approach point is not determined by adding 100 feet to the DH. Answer (C) is incorrect. The pilot will not begin the missed approach left turn to CATLY INT until the MAP is reached and the climb to 800 feet is completed.
ARRIVAL DESCRIPTION

HECTOR TRANSITION (HEC DOWNe4): From over HEC VORTAC via HEC R-211 and PDZ R-030 to CIVET INT, then LAX R-068 to DOWNe INT. Thence...

PEACH SPRINGS TRANSITION (PGS DOWNe4): From over PGS VORTAC via PGS R-229 and PDZ R-046 to RUSTT INT, then LAX R-068 to DOWNe INT. Thence...

TWENTYNINE PALMS TRANSITION (TPN DOWNe4): From over TNP VORTAC via TNP R-254 to POINE DME, then LAX R-068 to DOWNe INT. Thence...

...From DOWNe INT via SMO R-085 to SMO VOR/DME, then via SMO R-259 to WAKER INT, expect vector to final approach course for runways 6 and 7.
Figure 256.
CALIFORNIA

CONTINUED FROM PRECEDING PAGE

ILS/OME 108.5 I-UWU Chan 22 Rwy 06L. Class IE. DME also serves Rwy 24R.
ILS/OME 111.7 I-GPE Chan 54 Rwy 36R. Class IE. MM OTS indef. DME also serves Rwy 24L.
ILS/OME 111.1 I-AS Chan 48 Rwy 07L. Class ID. MM OTS indef. Glsdesop unusable bbyd 9° right of localizer course. DME also serves Rwy 25R.
ILS/OME 109.9 I-MK2 Chan 36 Rwy 07R. Class IT. GS unusable 9° left and 4° right of course. Coupled approaches not applicable below 264 MSL. DME also serves Rwy 25L.
ILS/OME 111.7 I-HQB Chan 54 Rwy 24L. Class IE. DME also serves Rwy 06R.
ILS/OME 108.5 I-OSP Chan 22 Rwy 24R. Class III. DME also serves Rwy 06L.
ILS/OME 109.9 I-LAX Chan 36 Rwy 25L. Class IIIE.
ILS/OME 111.1 I-CFN Chan 48 Rwy 25R. Class IE. DME also serves Rwy 07L.

WHITMAN (WHP) E UTC—8(—7DT) N34°15.56' W118°24.81'

1003 B S4 FUEL 100LL. JET A 0K 1.3 TPA—2003(1000) NOTAM FILE WHP

COPTER

RWY 12–30: H4120X75 (ASPH) S–12.5 MRL 1.0% up NW

RWY 12: REIL, PAPI(P2R)—GA 3.8' TCH 40', Thld displcd 729', P-line.

RWY 30: REIL. PAPI(P2L)—GA 3.8' TCH 40', Thld displcd 478', P-line. Rgt tcf.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 12: TORA—3442 TORA—4120 ASDA—3910 LDA—3181

RWY 30: TORA—3191 TORA—4120 ASDA—3940 LDA—3462

AIRPORT REMARKS: Attended continuously. Birds on and inofv arpt.

Helicopter ops 2500' MSL (1500' AGL) and below. Arpt CLOSED to helicopter training/pattern opr 0400—1600ZT. Dirt infield areas.

Helicopters advised to use care to prevent blasting dirt and debris onto movement areas.

WEATHER DATA SOURCES: AWOS–3 PT 132.1 (818) 899-9820.

COMMUNICATIONS: STAF 135.0 ATIS 132.1 618-899-9820

UNICOM 122.95

SOCIAL APP/DEP CON 120.4 134.2 (VNY 230°·BUR 050°) 134.2 (VNY 160°·VNY 280°)

TOWER 135.0 (1600–0400Z) GND CON 125.0

GLC DEX For cnc flown when ATCT cld social Socia App 800-448-3724.

AIRSPACE: CLASS D svc 1600–0400Z J other times CLASS G

RADIO AIDS TO NAVIGATION: NOTAM FILE VNY

VAN MUYS (L) VOR/DME 113.1 VNY Chan 78 N34°13.41' W118°29.50' 046° 4.4 NM to fld. 812/15E.

VOR/DME unusable:

010°·030° byd 20 NM bly 6,700'
030°·050° byd 25 NM bly 8,600'
330°·350° byd 25 NM bly 5,500'
350°·010° byd 15 NM bly 6,100'

DME unusable

094°·096° byd 35 NM bly 5,000'

PACOMA NDB (RNW) 370 PAI N34°15.58' W118°24.80' at fld. NOTAM FILE HHR. VFR only.

COMM/NAV/WEATHER REMARKS: Whiteman arpt altimeter setting not avbl.

LOS BANOS MUNI (LSN) W UTC—8(—7DT) N37°03.83' W120°52.19'

121 B S2 FUEL 100LL. JET A TPA—921(800) NOTAM FILE RIU

RWY 14–32: H3801X75 (ASPH) S–23 MRL

RWY 14: REIL. PAPI(P2L)—GA 3.0' TCH 30'. Tree. Rgt tcf.

RWY 32: REIL. PAPI(P2L)—GA 3.0' TCH 38'. Tree.

AIRPORT REMARKS: Unattended. For cash fuel after hours call 209—827-7070. 24 hour automated fuel avbl with major credit card. Avoid overflight of houses south of arpt. No departures over housing areas to east of arpt. MRL Rwy 14–32 presnt low intensity until 0800ZT. To increase intensity and ACTIVATE MRL Rwy 14–32, REIL Rwy 14 and Rwy 32, and PAPI Rwy 14 and Rwy 32—CTAF.

WEATHER DATA SOURCES: AWOS–3 118.675 (209) 827-7084.

COMMUNICATIONS: CTAF/UNICOM 122.8

PACOMA RADIO 122.1 R 122.6 T (FRESNO RADIO)

RGLC APP/DEP CON 120.95

RADIO AIDS TO NAVIGATION: NOTAM FILE RIU.

PACOMA (L) VORTAC 112.6 PXN Chan 73 N36°42.93' W120°46.72' 332° 21.3 NM to fld. 2060/16E.

VOR unusable:

230°·280° byd 7NM bly 9,000'

Figure 257.
Page 437, Subunit 9.4, Question 48: The following question was altered to specify 135 minimums, and a new image was released by the FAA.

48. (Refer to Figure 473 168 and Figure 473A 301.) The PIC (single pilot 135 with A/P) of PTZ 70 has less than 100 hours of PIC time in the BE 1900. Due to BUF weather being 100 feet, ¼ mile in blowing snow, which is below landing minimums, the PIC requested and received clearance to SYR, the filed alternate. Under Part 135, what are the PIC's minimums at SYR for the ILS RWY 10?

A. 671/40 619/50
B. 771/64 719/42
C. 800/2.

Answer (B) is correct the best answer. (FAR 135.225)

DISCUSSION: FAR 135.225 requires that, if the PIC has less than 100 hr. of PIC time in that type of turbine-powered airplane (i.e., BE 1900), the MDA or DH is increased by 100 ft., and the visibility is increased 1/2 SM (or 2,400 ft. RVR). Thus, the PIC’s minimums at SYR for the straight-in ILS RWY 10 approach are 771/64 719/48. The visibility requirement in the answer foil is not accurate, but this is the best answer given the circumstances.

Answer (A) is incorrect. These are the straight-in minimums if the PIC has at least, not less than, 100 hr. of PIC time in the BE 1900. This answer provides the straight-in DH as published on the approach chart, not the appropriate DH for a PIC with less than 100 hr. of PIC time. Answer (C) is incorrect. These are the standard alternate weather minimums for selecting an airport as an alternate with a nonprecision approach, not the actual minimums when conducting the approach at the alternate airport.
Figure 301.
Page 474, Subunit 9.7, new question: A new question and image were released by the FAA, and subsequent questions were renumbered.

(Refer to Figure 273.) The touchdown zone elevation of the ILS RWY 25L approach at Phoenix Sky Harbor Intl is

A. 1,126 feet.
B. 1,135 feet.
C. 1,458 feet.

Answer (A) is correct. *(FAR 121.652)*

**DISCUSSION:** The third box on the first line of the heading section of Figure 273 indicates the touchdown zone elevation (TDZE) for RWY 25L is 1,126 feet.

Answer (B) is incorrect. The airport elevation, not the touchdown zone elevation, is 1,135 feet. Answer (C) is incorrect. The touchdown zone elevation for RWY 25L is 1,126 feet, not 1,458 feet.
**ILS or LOC RWY 25L**

**PHOENIX SKY HARBOR INTL (PHX)**

**LOC/DME**

- **110.75**
- **Chan 44**

**App Crs**

- **258°**

**Rwy Ldg**

- **7800**

**TDZE**

- **1126**

**Apt Elev**

- **1135**

**MAISR**

- **59°**

**Missed Approach:** Climb to 3000 then left turn to 5000 on heading 120° and PXR R 85 to POPKE/15 DME and hold.

**ATIS**

- **127.575**

**Phoenix App Con**

- **128.65**
- **353.8**

**Phoenix Tower**

- **118.7 278.8** (Rwy 8-26)
- **120.9 254.3** [Rwy 7L 25R, 7R 25L]

**GND Con**

- **119.75 269.2** (N) [Rwy 26]
- **132.65 269.2** (S)

**Clncl Del**

- **118.1 269.2**

---

**DME or Radar Required**

- **Locizer 110.75**
  - Chan 44

**Pophke Pkr**

- **1575**

**Haines Pkr**

- **1518**

**Phoenx**

- **115.6 Pkr**
  - Chan 103

**Wllwe**

- **113.3 Nva**
  - Chan 80

**Alternate Missed Approach Fix**

- **Wllwe Iwa**
  - 113.3 Chan 80

**Category**

- **A**
- **B**
- **C**
- **D**

**ILS 25L**

- **1326-120° (200-120°)**

**LOC 25L**

- **1520+3/4 394 (400-1/4)**

**Circling**

- **1740-1 605 (700)**
  - **1920-2 785 (800)**

---

**Figure 273.**
96. (Refer to Figure 422 and Legend 9 on page 488.) What is the approximate rate of descent required (for planning purposes) to maintain the electronic glide slope at 120 KIAS with a reported headwind component of 15 knots?

A. 555 ft./min.
B. 635 ft./min.
C. 650 ft./min.

Answer (A) is correct. (IAP)

DISCUSSION: The left-hand chart in Fig. 122 provides the IAP chart for the ILS RWY 32L approach to ORD. In the lower right corner of the profile view is GS 3.00°, or a 3° glide slope. Refer to the Rate-of-Descent Table in Legend 9 to determine the rate of descent to maintain a 3° glide slope. With an airspeed of 120 KIAS and a 15-kt. headwind component, the groundspeed is 105 kt. (120 – 15). Find 3.0° in the angle-of-descent column and move right to a groundspeed of 105 kt. to determine a rate of descent of 555 ft./min.

Answer (B) is incorrect. A rate of descent of 635 ft./min. is appropriate for the indicated airspeed, not groundspeed, of 120 kt. Answer (C) is incorrect. A rate of descent of 650 ft./min. is appropriate for a 3.5°, not 3.0°, glide slope angle.
Study Unit 12 – Boeing 737 Operating/Performance Data

Page 666, Subunit 12.8, Question 56: The FAA altered the airspeed and EPR settings on the following question.

56. (Refer to Figure 68 on page 667 and Figure 69 on page 668.) What are the recommended IAS and EPR settings for holding under Operating Conditions O-1?

A. 224 **219** knots and 1.83 EPR.
B. 223 knots and 2.01 EPR.
C. **218** knots and **1.87** EPR.

Answer (C) is correct. *(FTW Chap 10)*

**DISCUSSION:** Refer to operating conditions O-1 in Fig. 68. Fig. 69 provides a holding performance chart to determine IAS, EPR, and fuel flow per engine. Since neither 31,000 ft. (FL 310) nor 102,000 lb. is on the performance chart, you must interpolate.

At FL 350, the EPR value for 102,000 lb. is 1.97. At FL 300, the EPR value for 102,000 lb. is 1.77. Interpolating for FL 310 yields an EPR value of **1.81**.

At FL 350, the IAS for 102,000 lb. is 219 kt. At FL 300, the IAS for 102,000 lb. is 217 kt. Interpolating for FL 310 yields an IAS value of **218 kt** closest to 217 knots.

Answer (A) is incorrect. These are the recommended settings for holding at 105,000, not 102,000, lb. Answer (B) is incorrect. These are the recommended settings for holding at FL 350, not FL 310, and at a weight of 105,000, not 102,000, lb.

Study Unit 14 – Aviation Weather

Page 737, Subunit 14.5, new question: A new question regarding temperature variations was added, and subsequent questions were renumbered.

**Large areas of land**

A. tend to increase temperature variations.
B. do not influence the troposphere.
C. minimize temperature variations.

Answer (A) is correct. *(AvW Chap 2)*

**DISCUSSION:** Large areas of land increase temperature variations. While a daily maximum and minimum temperature change may be only 10°C over water, a change of up to 50°C can occur over land.

Answer (B) is incorrect. The troposphere is dramatically affected by the terrestrial surface. Solar radiation warms the land by heating the surface. The warm surface increases the temperature of the air above by terrestrial radiation.

Answer (C) is incorrect. Large areas of land do not minimize temperature variations in the troposphere. Large land masses tend to increase the temperature variations in the troposphere.

Study Unit 15 – Weather Reports and Forecasts

Page 788, Subunit 15.11, Question 85: The following question was changed by the FAA to clarify the path of the jetstream.

85. (Refer to Figure 153 on page 789, Figure 154 on page 790, and Figure 155 on page 791.) Interpret the path of the jetstream.

A. Southern California, Nevada, Utah, Nebraska/Kansas, and then southeastward.
B. Oregon, Idaho, Wyoming, Nebraska, Iowa, and across the Great Lakes.
C. The Alaska area, across Canada to Montana, **North South** Dakota, then across the Great Lakes area.

Answer (C) is correct. *(AWS Sect 5)*

**DISCUSSION:** To interpret the path of the jet stream, compare the isotachs on the 300- and 200-mb charts. The jet stream has winds of 50 kt. or greater. These greater wind speeds are found in a band from the Alaska area across Canada to Montana and **North South** Dakota, then across the Great Lakes region.

Answer (A) is incorrect. The isotachs in the Southern California area are between 30 and 50 kt. Answer (B) is incorrect. Oregon has isotachs between 10 and 30 kt.