Federal Aviation Administration

Initial En Route Qualification Training

Lesson 03
Aero Center Airspace

Course 50148001

LESSON PLAN DATA SHEET

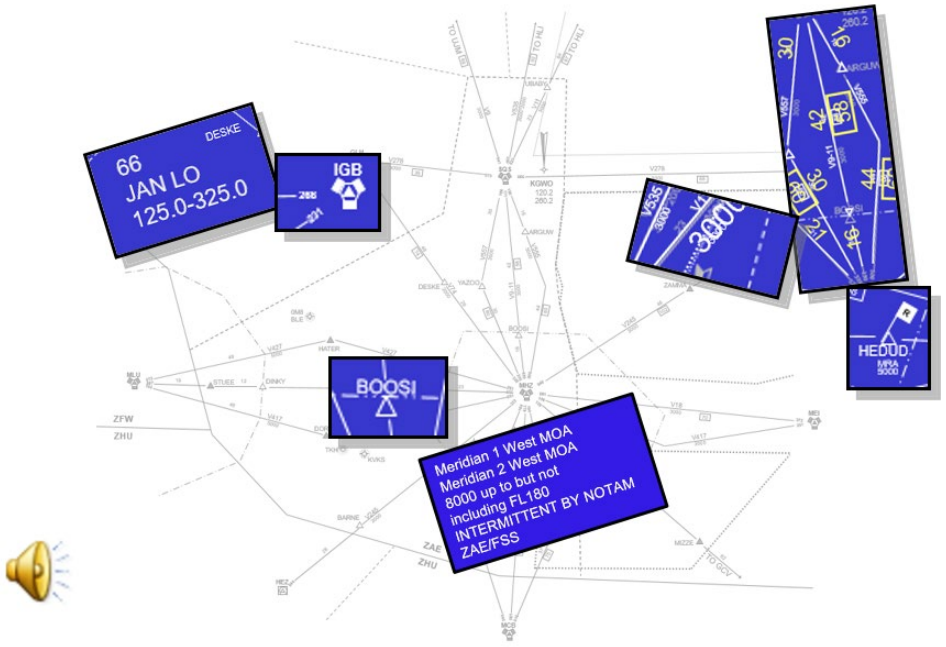
COURSE NAME:	INITIAL EN ROUTE QUALIFICATION TRAINING
COURSE NUMBER:	50148001
LESSON TITLE:	AERO CENTER AIRSPACE
DURATION:	3+45 HOURS
DATE REVISED:	2022-02
VERSION:	V.2022-02
REFERENCE(S):	FAA ORDER JO 7110.65, AIR TRAFFIC CONTROL, FAA NOTICE N JO 7110.592
HANDOUT(S):	AERO CENTER MAP
EXERCISE(S)/ ACTIVITY(S):	ACTIVITY 1: MAP COMPONENTS ACTIVITY 2: MAP COMPONENTS KNOWLEDGE CHECK ACTIVITY 3: MAP COMPONENTS QUIZ
END-OF-LESSON TEST:	NONE
PERFORMANCE TEST:	NONE
MATERIALS:	NONE
OTHER PERTINENT INFORMATION:	

INTRODUCTION

Mastery of your airspace is **not only** essential here at the Academy, it is imperative to have complete mastery of your assigned airspace when you get to your respective facilities. Whether you just finished Air Traffic Basics here at the Academy; or you were hired from the CTI program; or you have previous military controller experience, you have basic knowledge of the National Airspace System. There are many steps required to become proficient in the Air Traffic Control business, and having a complete knowledge of the airspace in which you have responsibility is crucial. Using your previous knowledge/experience, and the information contained in this lesson, you need to be able to recall any information concerning Aero Center Airspace that is required to safely and efficiently complete your job as a radar associate controller.

INTRODUCTION *(Continued)*

AERO CENTER MAPS



2

QUESTION: How many of the items mentioned in this recording do you think were from the map?

QUESTION: Do you think that the controller had time to read these from the map when he issued these instructions?

Purpose

In this lesson, you will identify the components of Aero Center airspace and where they are located on the map.

INTRODUCTION *(Continued)*

Lesson Objectives

LESSON OBJECTIVES

- Given an Aero Center Airspace test, you will identify and label the following features of the Aero Center Airspace:
  - Boundaries and frequencies
  - NAVAIDs
  - Airways and radials
  - Intersections/DME Fixes
  - Mileages
  - Minimum altitudes
  - Special Use Airspace
  - Airports and approach controls

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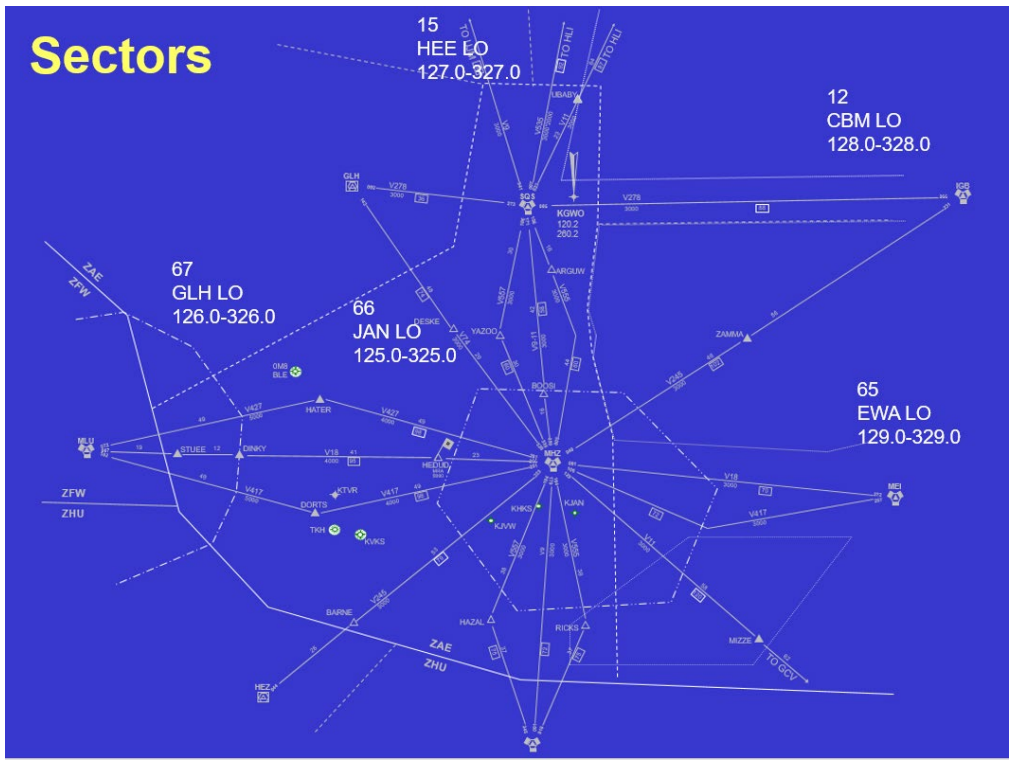
NOTE: This lesson plan contains screen shots of the maps used in the slides to orient you to the sector under discussion. You will **not** necessarily be able to read all of the text on these screen shots. Refer to your map handout for specifics.

BOUNDARIES

Sectors and Frequencies

SECTORS



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⊙ ZAE sectors - FL230 and below

- Sector 66 - JAN Low
  - 125.0 325.0
- Sector 67 - GLH Low
  - 126.0 326.0
- Sector 15 - HEE Low
  - 127.0 327.0
- Sector 12 - CBM Low
  - 128.0 328.0
- Sector 65 - EWA Low
  - 129.0 329.0

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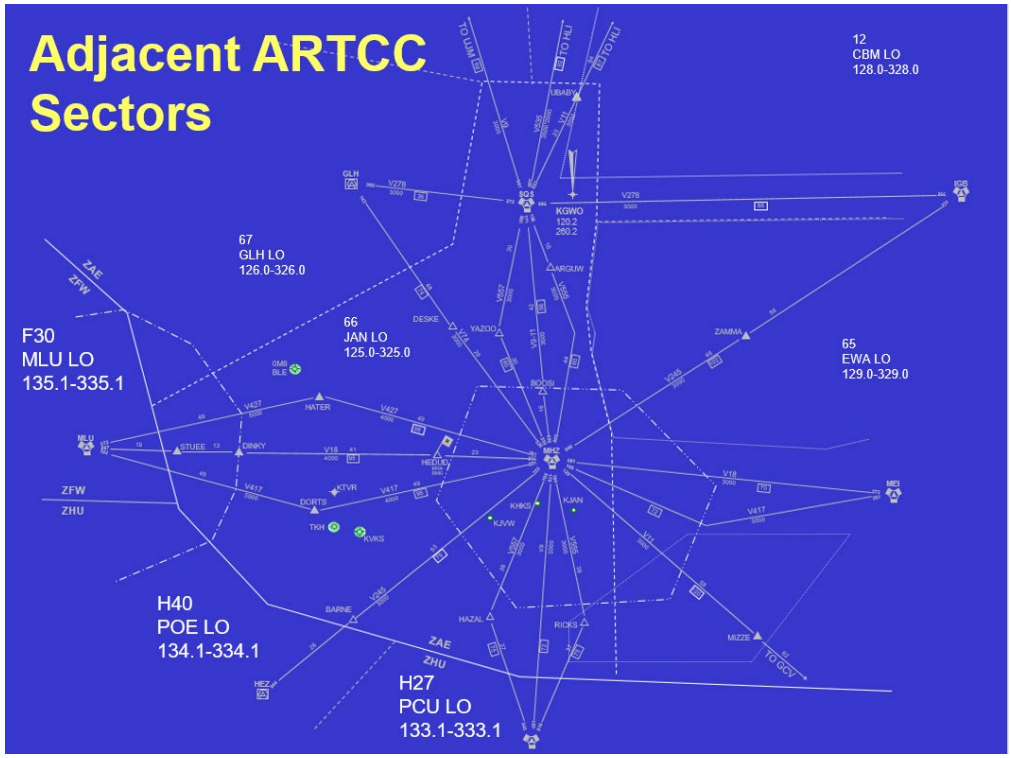
BOUNDARIES *(Continued)*

Adjacent ARTCC Sectors

ADJACENT ARTCC SECTORS



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- ⊙ Adjacent ARTCC sectors
  - Houston (ZHU)
    - – Sector 27 - PCU Low
      - → 133.1 333.1
    - – Sector 40 - POE Low
      - → 134.1 334.1
  - Fort Worth (ZFW)
    - – Sector 30 - MLU Low
      - → 135.1 335.1

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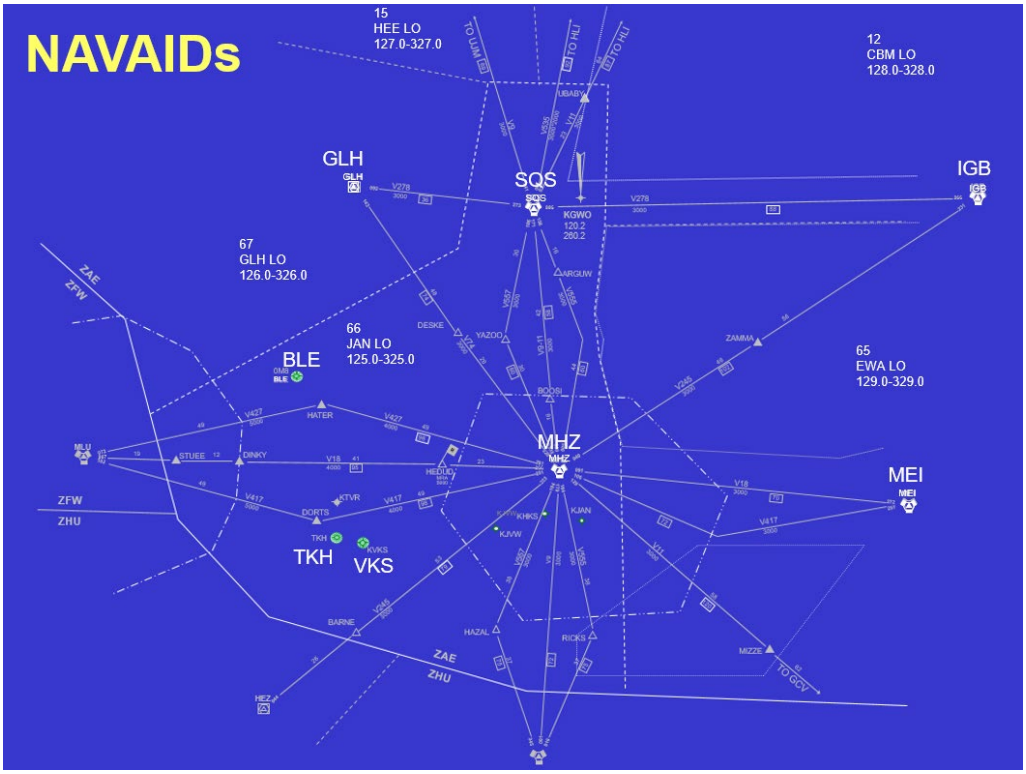
BOUNDARIES *(Continued)*

ZAE NAVAIDs
JO 7110.65,
Pilot/Controller
Glossary

NAVAIDS



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Compulsory Reporting Points are reporting points, which **must** be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations, which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in “radar contact.”

NOTE: For training purposes and ease of understanding, the VORTAC symbol for compulsory and non-compulsory reporting points at Aero Center (ZAE) will resemble the following:

- Compulsory Reporting
- Non-Compulsory Reporting

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BOUNDARIES *(Continued)*

ZAE NAVAIDs (Cont'd)
JO 7110.65, Pilot/Controller Glossary

- VORTACs in ZAE
- Magnolia (MHZ) – 66
- Sidon (SQS) – 66
- Bigbee (IGB) – 12
- Meridian (MEI) – 65
- VOR/DMEs in ZAE
    - Greenville (GLH) – 67
- Nondirectional Radio Beacons (NDBs) in JAN Low/66
    - Lake Providence (BLE)
    - Tallulah (TKH)
    - Vicksburg (VKS)

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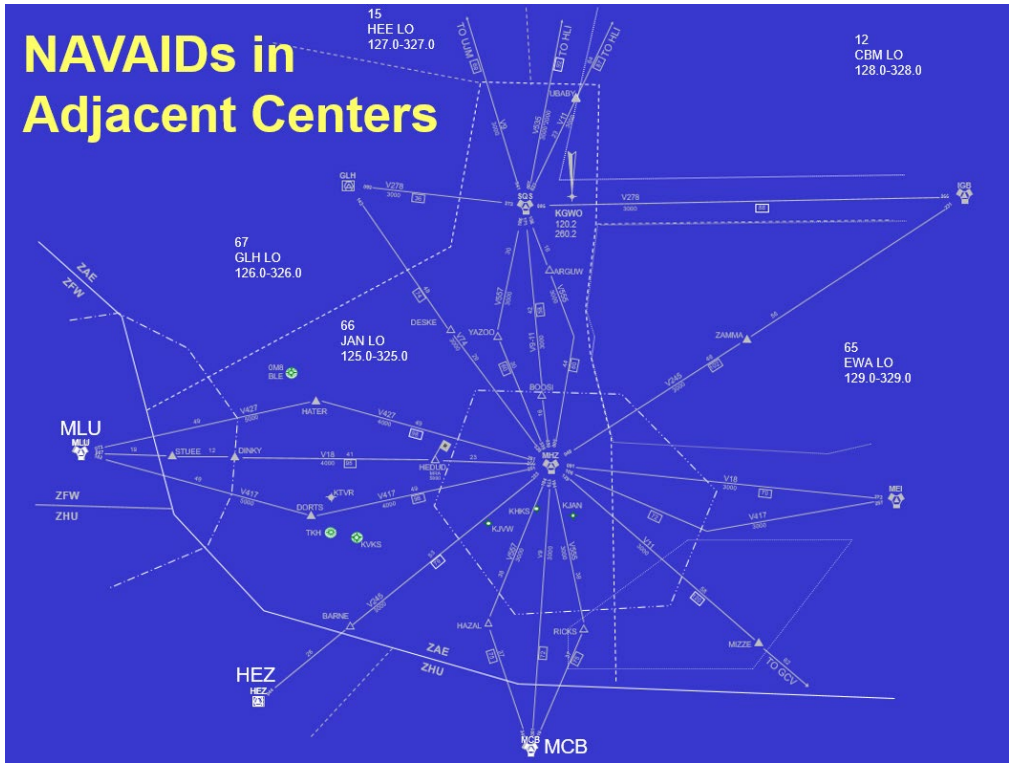
BOUNDARIES *(Continued)*

NAVAIDs in Adjacent Centers



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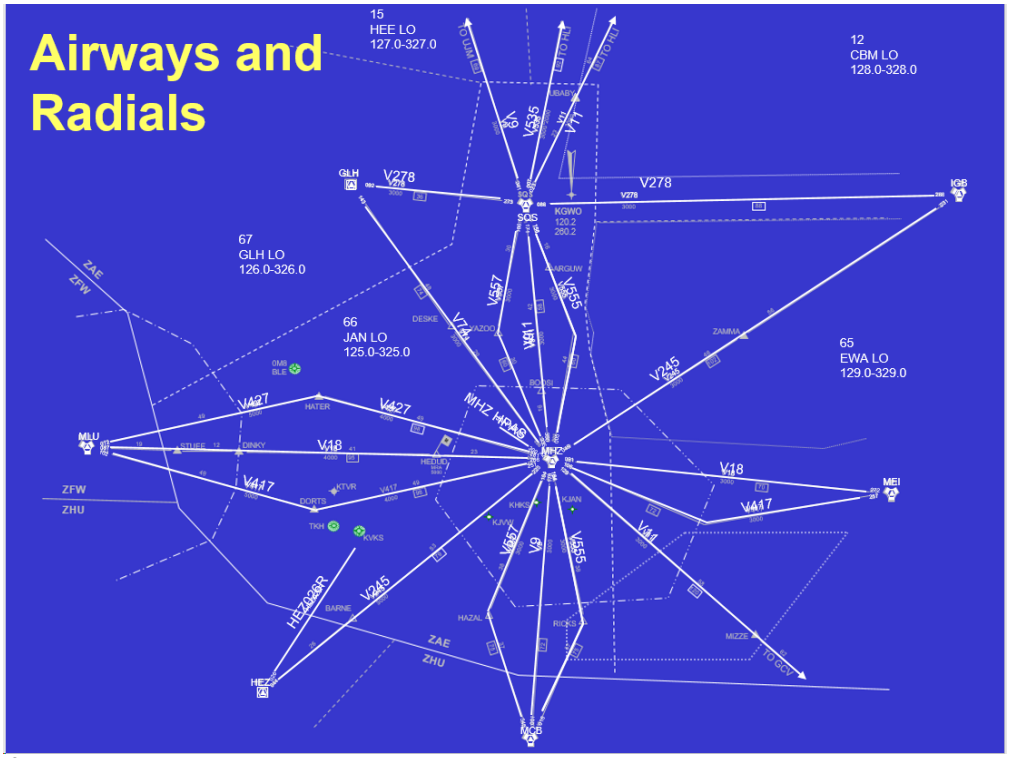
- ZFW
  - Monroe (MLU) - VORTAC
- ZHU
  - McComb (MCB) - VORTAC
  - Natchez (HEZ) - VOR/DME

JAN LOW AIRWAYS

Airways and Radials

AIRWAYS AND RADIALS



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- V9
  - MCB001/MHZ179
  - MHZ350/SQS171
  - SQS341 to UJM (Marvell VOR/DME in Sector 15)
- V11
  - GCV to MHZ129 (Greene County VORTAC in ZHU)
  - MHZ350/SQS171
  - SQS023 to HLI (Holly Springs VORTAC in Sector 12)
- V18
  - MLU087/MHZ266
  - MHZ091 to MEI

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JAN LOW AIRWAYS *(Continued)*

Airways and Radials (Cont'd)

- V74
  - GLH143/MHZ320
- V245
  - HEZ044/MHZ223
  - MHZ049 to IGB
- V278
  - GLH092/SQS273
  - SQS086 to IGB
- V417
  - MLU102/MHZ251
  - MHZ106 to MEI
- V427
  - MLU072/MHZ281
- V535
  - SQS007 to HLI
- V555
  - MCB016/MHZ164
  - MHZ005/SQS156
- V557
  - MCB345/MHZ194
  - MHZ335/SQS186
- HEZ026
  - HEZ026 to VKS
- MHZ HOLDING PATTERN
  - MHZ300R

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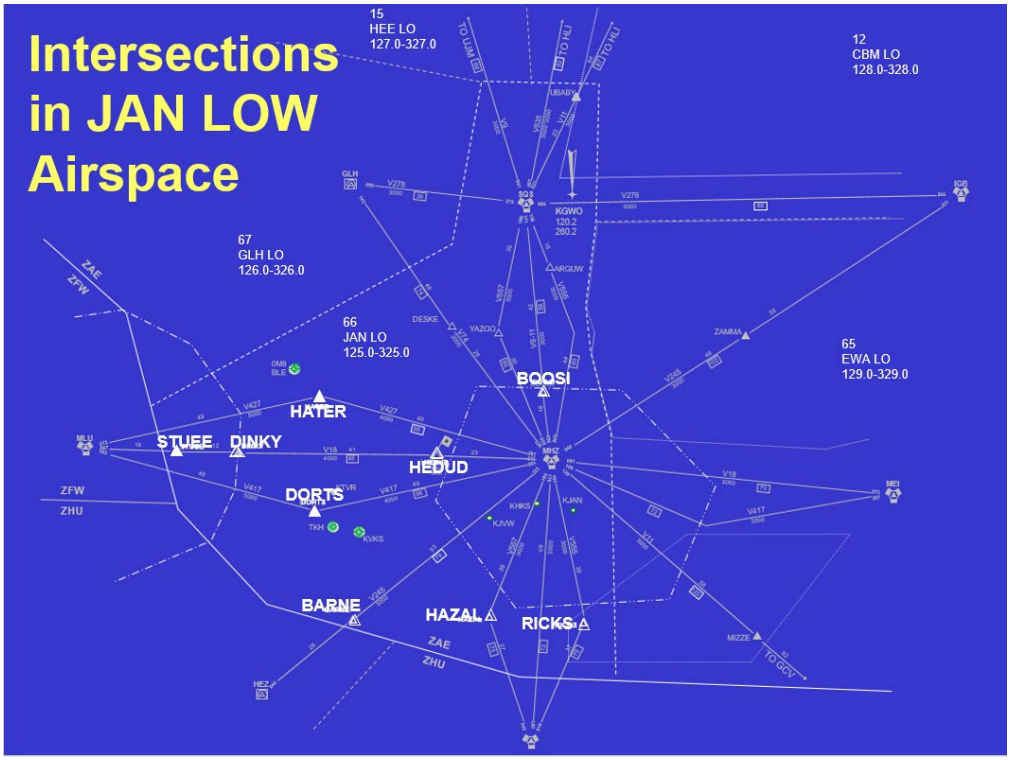
JAN LOW AIRWAYS *(Continued)*

Intersections in JAN Low Airspace

INTERSECTIONS IN JAN LOW AIRSPACE



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- Intersections
  - V9
    - BOOSI (MHZ350/MEI284)
  - V11
    - MIZZE (MHZ129/MEI216)
    - BOOSI (MHZ350/MEI284)
  - V18
    - HEDUD (MHZ266/SQS194)
    - DINKY (MLU087/HEZ353)
      - → Used in nonradar **only**
    - STUEE (MLU087/HEZ338)

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JAN LOW AIRWAYS *(Continued)*

Intersections in JAN Low Airspace (Cont'd)

- V245
  - BARNE (HEZ044/TKH135)
  - ZAMMA (MHZ049/OSX322)
- V417
  - DORTS (MLU102/MHZ251/HEZ011)
- V427
  - HATER (MLU072/MHZ281)
- V555
  - RICKS (MHZ164/MCB016/LBY308)
- V557
  - HAZAL (MHZ194/MCB345/VKS126)

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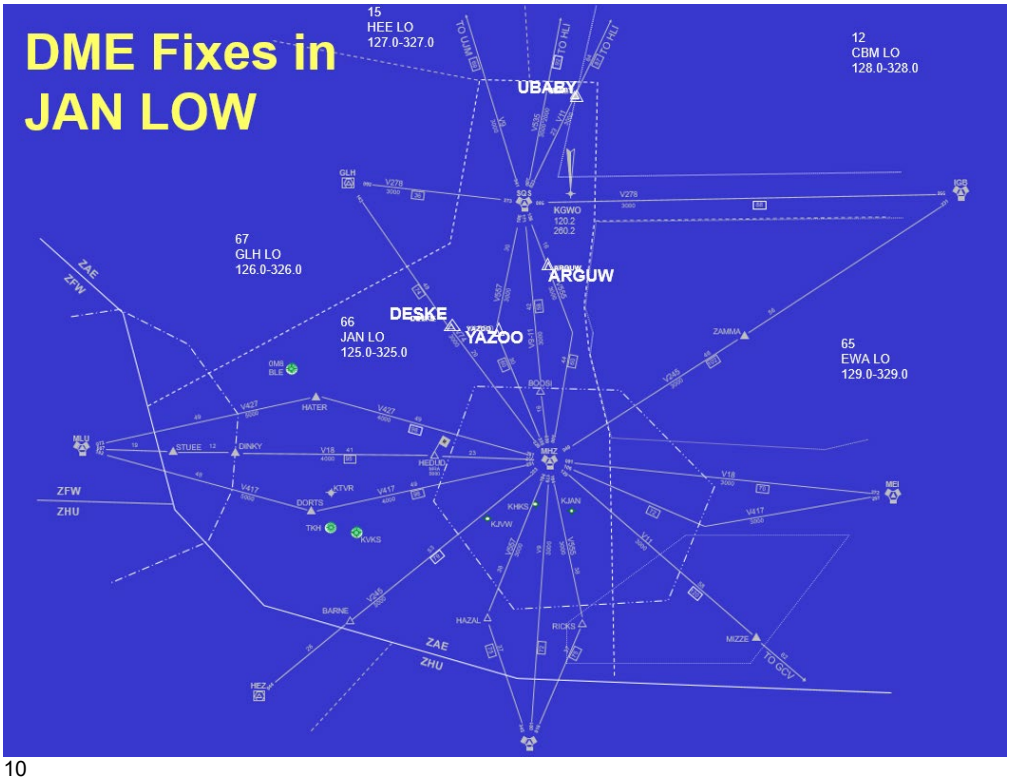
JAN LOW AIRWAYS *(Continued)*

DME Fixes in JAN Low Airspace

DME FIXES IN JAN LOW



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- ⊙ DME Fixes
  - V9
    - BOOSI (MHZ350016)
  - V11
    - UBABY (SQS023023) (**Not** an intersection)
    - BOOSI (MHZ350016)
    - MIZZE (MHZ129058)

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JAN LOW AIRWAYS *(Continued)*

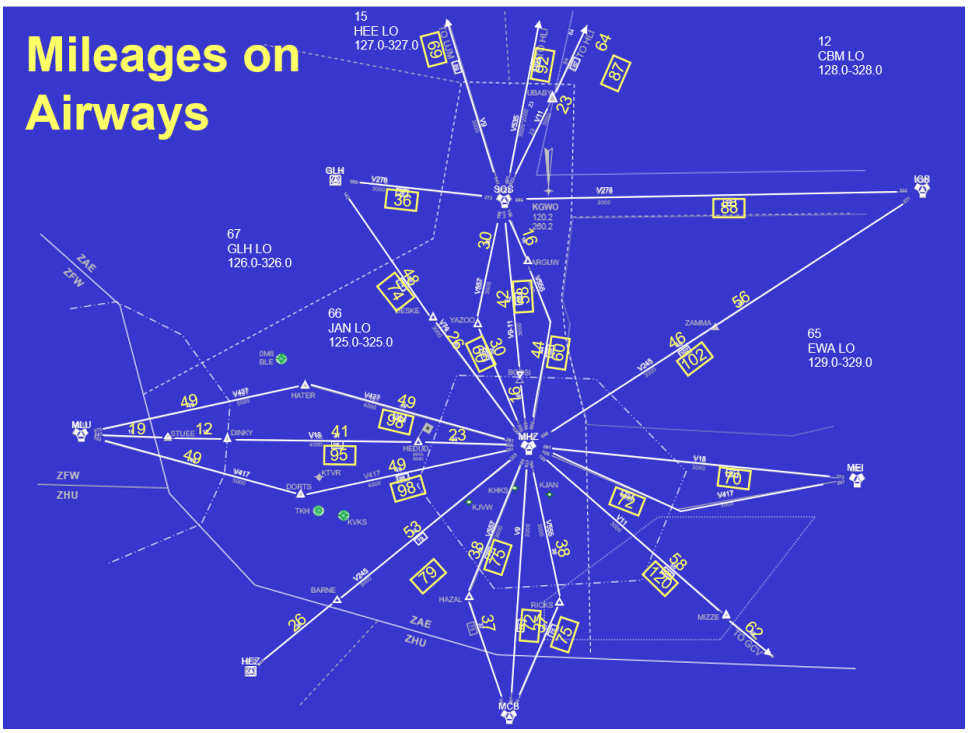
DME Fixes in JAN Low Airspace (Cont'd)

- V18
  - HEDUD (MHZ266023)
  - DINKY (MLU087031)
    - → Used in nonradar **only**
  - STUEE (MLU087019)
- V74
  - DESKE (GLH143048) (**Not** an intersection)
- V245
  - BARNE (HEZ044025)
  - ZAMMA (MHZ049046)
- V417
  - DORTS (MLU102049/MHZ251049)
- V427
  - HATER (MLU072049/MHZ281049)
- V555
  - ARGUW (SQS156016) (**Not** an intersection)
  - RICKS (MHZ164038)
- V557
  - YAZOO (MHZ335030) (**Not** an intersection)
  - HAZAL (MHZ194038)

JAN LOW AIRWAYS *(Continued)*

Mileages on Airways

MILEAGE ON AIRWAYS



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- V9
  - MCB to MHZ - 72
  - MHZ to SQS - 58
    - MHZ to BOOSI - 16
    - BOOSI to SQS - 42
  - SQS to UJM - 69

Continued on next page

JAN LOW AIRWAYS *(Continued)*

Mileages on Airways (Cont'd)

- V11
  - SQS to HLI - 87
    - SQS to UBABY - 23
    - UBABY to HLI - 64
  - SQS to MHZ - 58
    - SQS to BOOSI - 42
    - BOOSI to MHZ - 16
  - MHZ to GCV 120
    - MHZ to MIZZE - 58
    - MIZZE to GCV - 62
- V18
  - MLU to MHZ - 95
    - MLU to STUEE - 19
    - STUEE to DINKY - 12
    - DINKY to HEDUD - 41
    - HEDUD to MHZ - 23
  - MHZ to MEI - 70
- V74
  - GLH to MHZ - 74
    - GLH to DESKE - 48
    - DESKE to MHZ - 26

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JAN LOW AIRWAYS *(Continued)*

Mileages on Airways (Cont'd)

- V245
  - HEZ to MHZ - 79
    - HEZ to BARNE - 26
    - BARNE to MHZ - 53
  - MHZ to IGB - 102
    - MHZ to ZAMMA - 46
    - ZAMMA to IGB – 56
- V278
  - GLH to SQS - 36
  - SQS to IGB - 88
- V417
  - MLU to MHZ - 98
    - MLU to DORTS - 49
    - DORTS to MHZ - 49
  - MHZ to MEI - 72
- V427
  - MLU to MHZ - 98
    - MLU to HATER - 49
    - HATER to MHZ - 49
- V535
  - SQS to HLI - 92

Continued on next page

JAN LOW AIRWAYS *(Continued)*

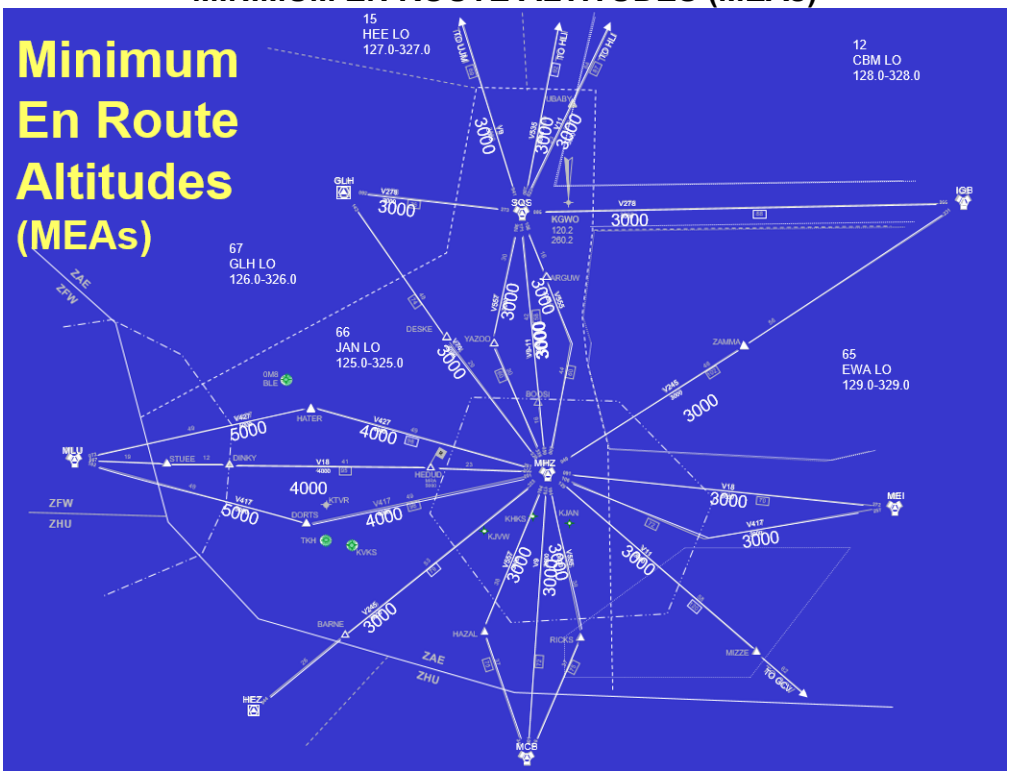
Mileages on Airways (Cont'd)

- V555
  - MCB to MHZ - 75
    - MCB to RICKS - 37
    - RICKS to MHZ - 38
  - MHZ to SQS - 60
    - MHZ to ARGUW - 44
    - ARGUW to SQS - 16
- V557
  - MCB to MHZ - 75
    - MCB to HAZAL - 37
    - HAZAL to MHZ - 38
  - MHZ to SQS - 60
    - MHZ to YAZOO - 30
    - YAZOO to SQS - 30

MINIMUM ALTITUDES

Minimum En Route Altitude (MEA)
JO 7110.65, Pilot/Controller Glossary

MINIMUM EN ROUTE ALTITUDES (MEAs)



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A **Minimum En Route Altitude (MEA)** is the lowest published altitude between radio fixes, which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

Global Navigation Satellite System (GNSS) [ICAO] - GNSS refers collectively to the worldwide positioning, navigation, and timing determination capability available from one or more satellite constellations in conjunction with a network of ground stations.

Global Navigation Satellite System Minimum En Route IFR Altitude (GNSS MEA) - The minimum en route IFR altitude on a published ATS route or route segment which assures acceptable GNSS reception and meets obstacle clearance requirements.

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MINIMUM ALTITUDES *(Continued)*

MEAs (Cont'd)

- V9
  - 3,000 feet
- V11
  - 3,000 feet
- V18
  - MLU to MHZ - 4,000 feet
  - MHZ to MEI - 3,000 feet
- V74
  - 3,000 feet
- V245
  - 3,000 feet
- V278
  - 3,000 feet
- V417
  - MLU to DORTS - 5,000 feet
  - DORTS to MHZ - 4,000 feet
  - MHZ to MEI - 3,000 feet
- V427
  - MLU to HATER - 5,000 feet
  - HATER to MHZ - 4,000 feet
- V535
  - 3,000 feet
- V555
  - 3,000 feet
- V557
  - 3,000 feet

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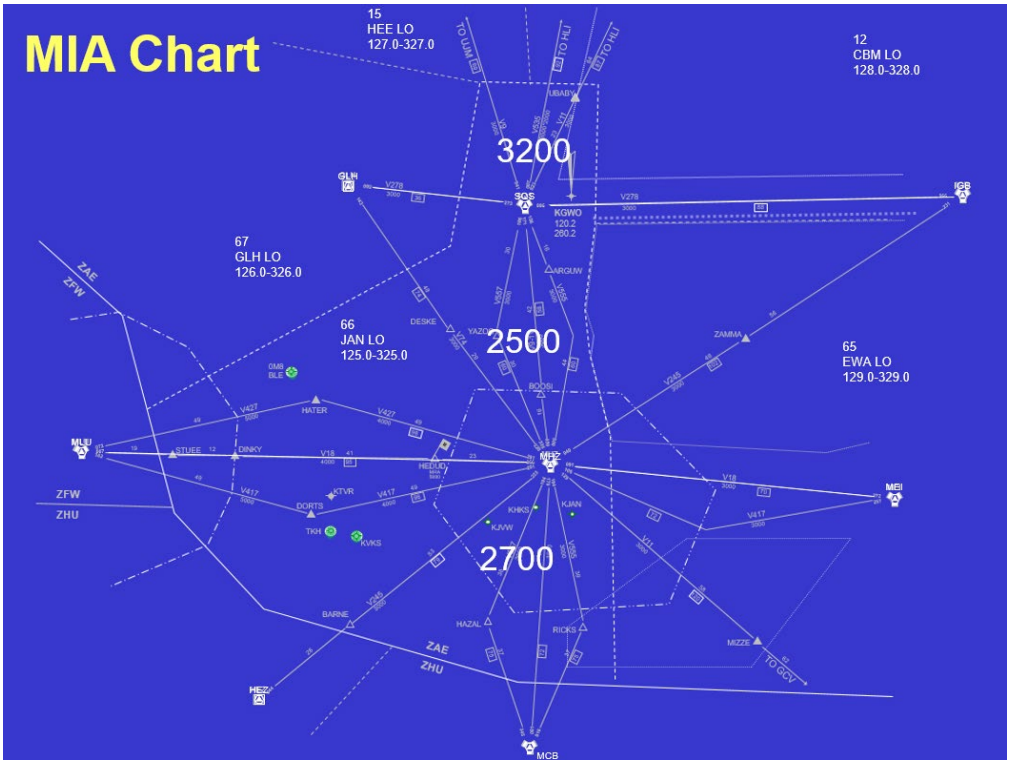
MINIMUM ALTITUDES *(Continued)*

MIAs
Minimum IFR Altitude (MIA)
JO 7110.65, Pilot/Controller Glossary

MIA CHART



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A **Minimum IFR Altitude (MIA)** is the lowest altitude an aircraft may descend to for off-airway operations where **no** MEAs are published. They provide for standard obstruction clearance and are depicted on maps at each sector.

- MIAs are used for off-airway vectors and direct routes.
- MIA north of V278
  - 3200 feet
- MIA north of V18 radial to the V278 radials
  - 2500 feet
- MIA V18 radial and south
  - 2700 feet

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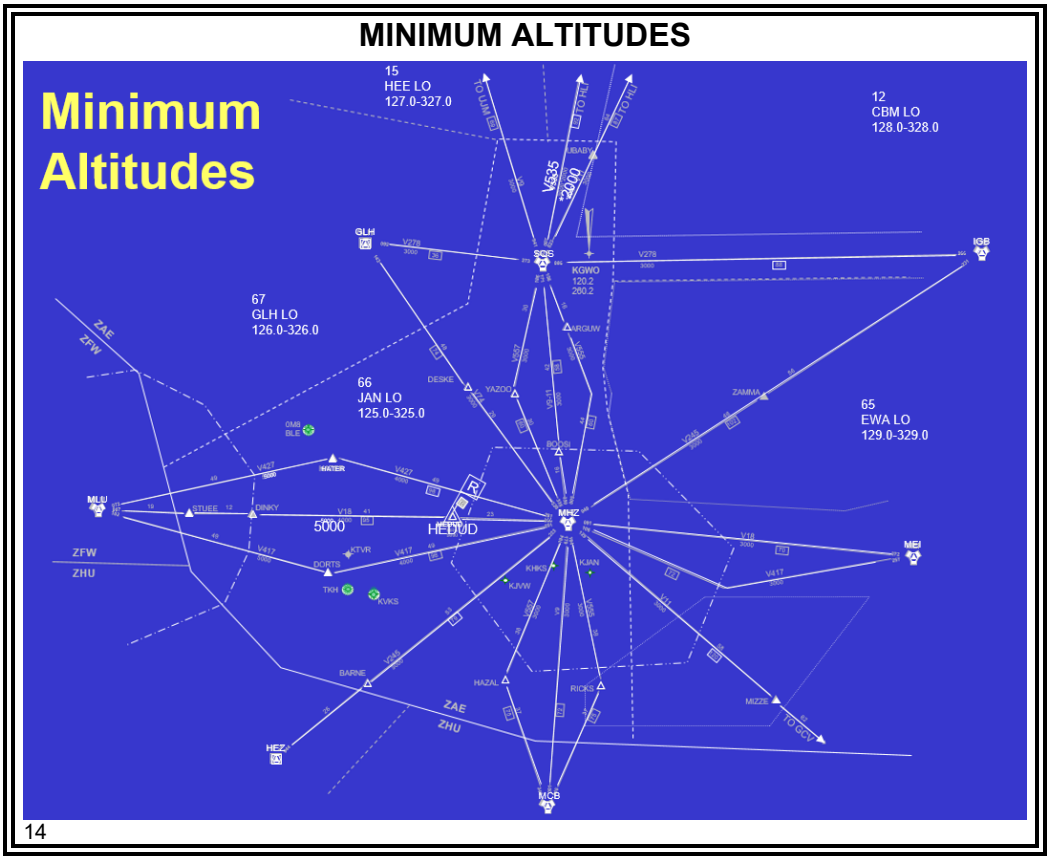
MINIMUM ALTITUDES *(Continued)*

Minimum Reception Altitudes (MRAs)
JO 7110.65, Pilot/Controller Glossary



Minimum Reception Altitudes (MRAs) are the lowest altitudes at which an intersection can be determined.

⊙ MRA at HEDUD is 5,000 feet.

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MINIMUM ALTITUDES *(Continued)*

Minimum Crossing Altitudes (MCAs)
JO 7110.65, Pilot/Controller Glossary

📖 **Minimum Crossing Altitudes (MCAs)** are the lowest altitudes at certain fixes at which an aircraft **must** cross when proceeding in the direction of a higher Minimum En Route IFR Altitude (MEA).

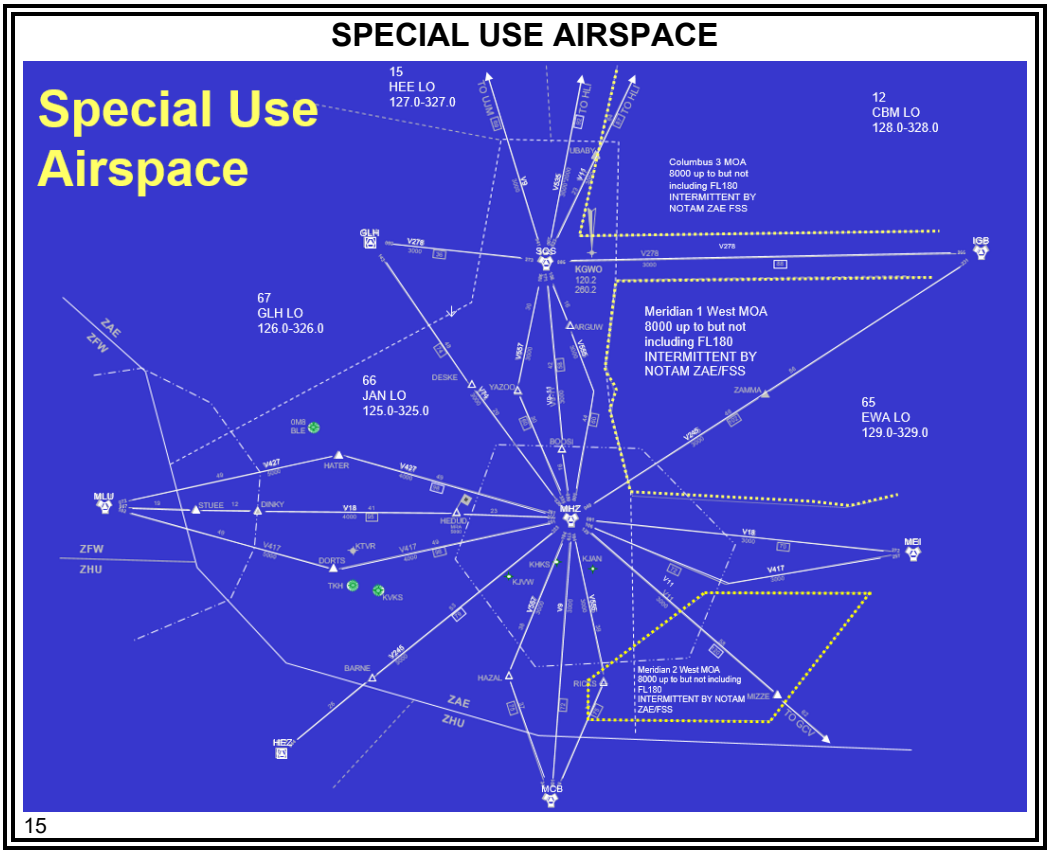
Minimum Obstruction Clearance Altitudes (MOCAs)
JO 7110.65, Pilot/Controller Glossary

📖 **Minimum Obstruction Clearance Altitudes (MOCAs)** are the **lowest** published altitudes in effect between radio fixes on VOR airways, off-airway routes, or route segments which meet obstacle clearance requirements for the entire route segment and which assure acceptable navigational signal coverage **only** within 22 miles of a VOR.

⊙ The MOCA is 2,000 feet on V535 NE of SQS.

SPECIAL USE AIRSPACE

Special Use Airspace



- ⊙ Meridian 1 West MOA
  - Vertical limits
    - 8000 feet MSL up to but not including FL180
  - Time operational
    - Intermittent by NOTAM
- ⊙ Meridian 2 West MOA
  - Vertical limits
    - 8000 feet MSL up to but **not** including FL180
  - Time operational
    - Intermittent by NOTAM

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SPECIAL USE AIRSPACE *(Continued)*

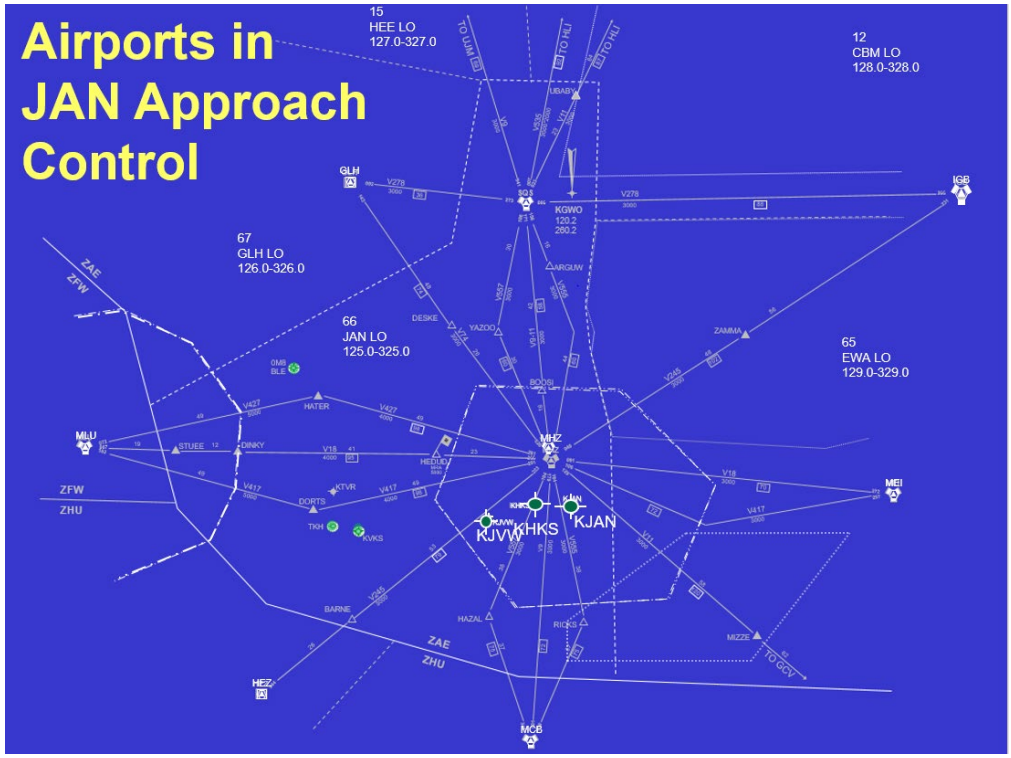
Special Use Airspace (Cont'd)

- ⊙ Columbus 3 MOA
  - Vertical limits
    - 8,000 feet MSL up to but **not** including FL180
  - Time operational
    - Intermittent by NOTAM

AIRPORTS AND APPROACH CONTROLS

Airports in JAN Approach Control

AIRPORTS IN JAN APPROACH CONTROL



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- Jackson International (KJAN)
  - Located at MHZ153010, in JAN Approach airspace
  - Runway configuration 16/34
- Hawkins Field (KHKS)
  - Located at MHZ190010, in JAN Approach airspace
  - Runway configuration 16/34
- John Bell Williams (KJVW)
  - Located at MHZ220017, in JAN Approach airspace
  - Runway configuration 12/30

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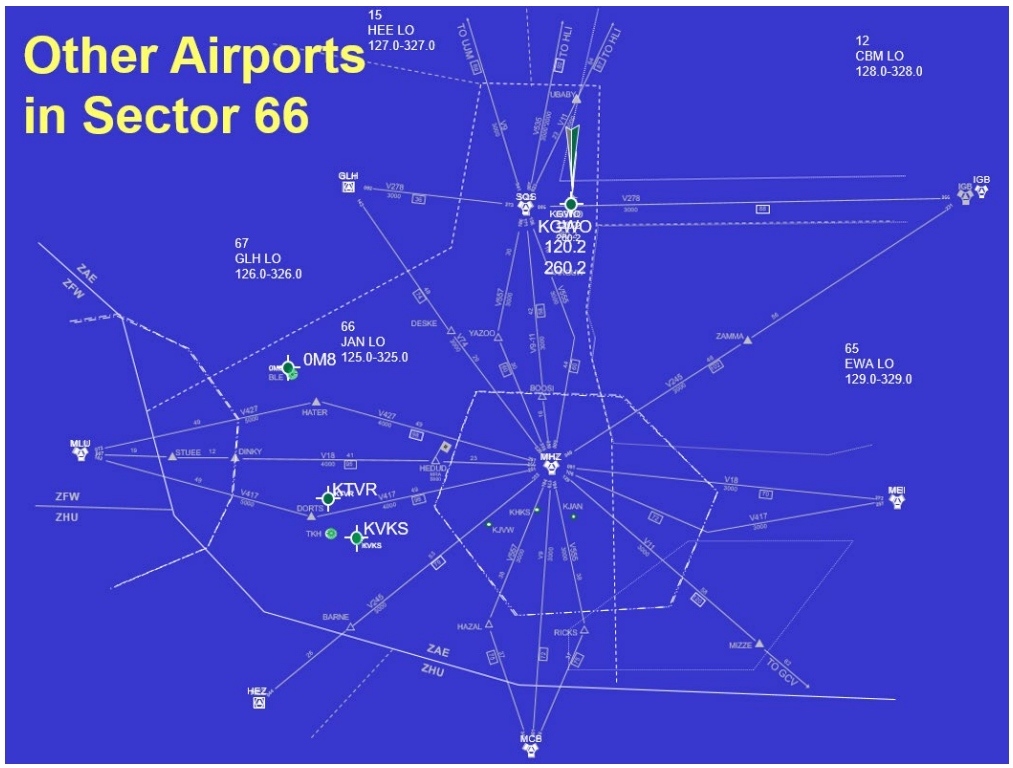
Other Airports in Sector 66

OTHER AIRPORTS IN SECTOR 66



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⊙ Airports in Class E Airspace

- Vicksburg (KVKS)
- Collocated at VKS NDB
- Runway configuration 1/19
- Approach, NDB Rwy 1

  – Departure Procedure Runway 1

  → Take-off minimums: 600 ft. ceiling, 1 mile visibility, minimum climb of 250 feet per nautical mile to 700 ft

- Tallulah (KTVR)
- Located at MHZ257044
- Runway configuration 18/36

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AIRPORTS AND APPROACH CONTROLS *(Continued)*

Other Airports in Sector 66 (Cont'd)

⊙ Airport in Class D Airspace

- Greenwood (KGWO)
  - Located at SQS076010 (10 Miles from SQS VORTAC)
  - VFR Tower
    - → Tower frequency - 120.2 260.2
  - Runway configuration - 5/23, - 18/36
  - Approaches
    - → VOR Rwy 5
    - → ILS Rwy 18

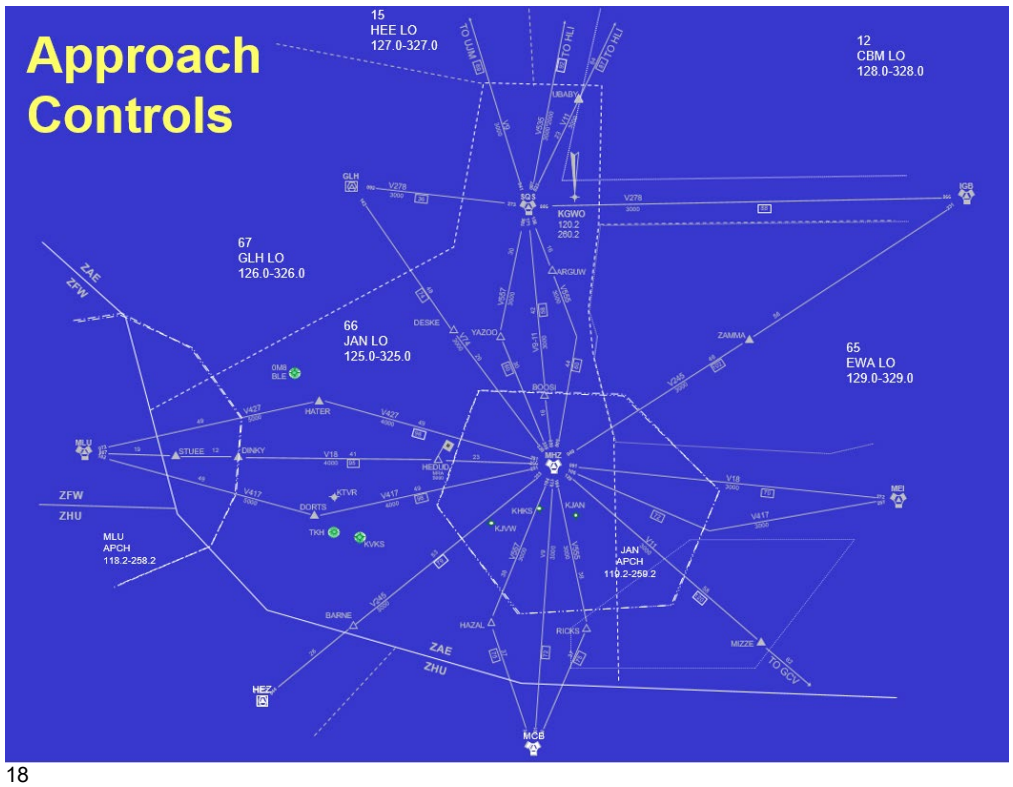
⊙ Airport in Class G Airspace (also known as uncontrolled airspace)

- Byerley (0M8)
  - Collocated at BLE NDB
  - Runway configuration - 17/35
  - Approach
    - → NDB Rwy 17

AIRPORTS AND APPROACH CONTROLS *(Continued)*

Approach Control

APPROACH CONTROLS



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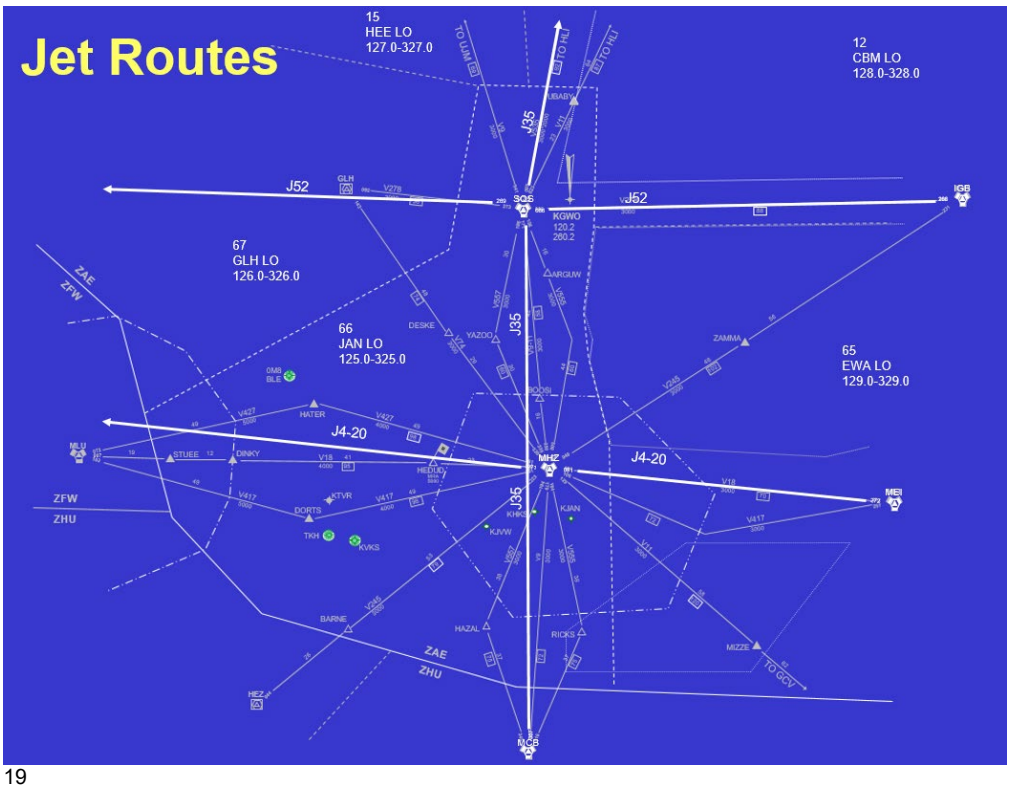
- JAN Approach
  - Frequency - 119.2 259.2
  - Radar vertical limits at and below 10,000 feet
  - Nonradar vertical limits at and below 5,000 feet
  - Published holding pattern MHZ VORTAC, NW on the 300 radial
- MLU Approach
  - Frequency - 118.2 258.2
  - Radar vertical at and below 12,000 feet
  - Nonradar vertical limits at and below 6,000 feet

HIGH ALTITUDE AIRSPACE

Mileages on Jet Routes

JET ROUTES



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- J4-20
  - EIC to MHZ – 185
  - MHZ to MEI – 70
- J35
  - MEM to SQS – 94
  - SQS to MCB – 129
- J52
  - TXK to SQS – 191
  - SQS to IGB – 88

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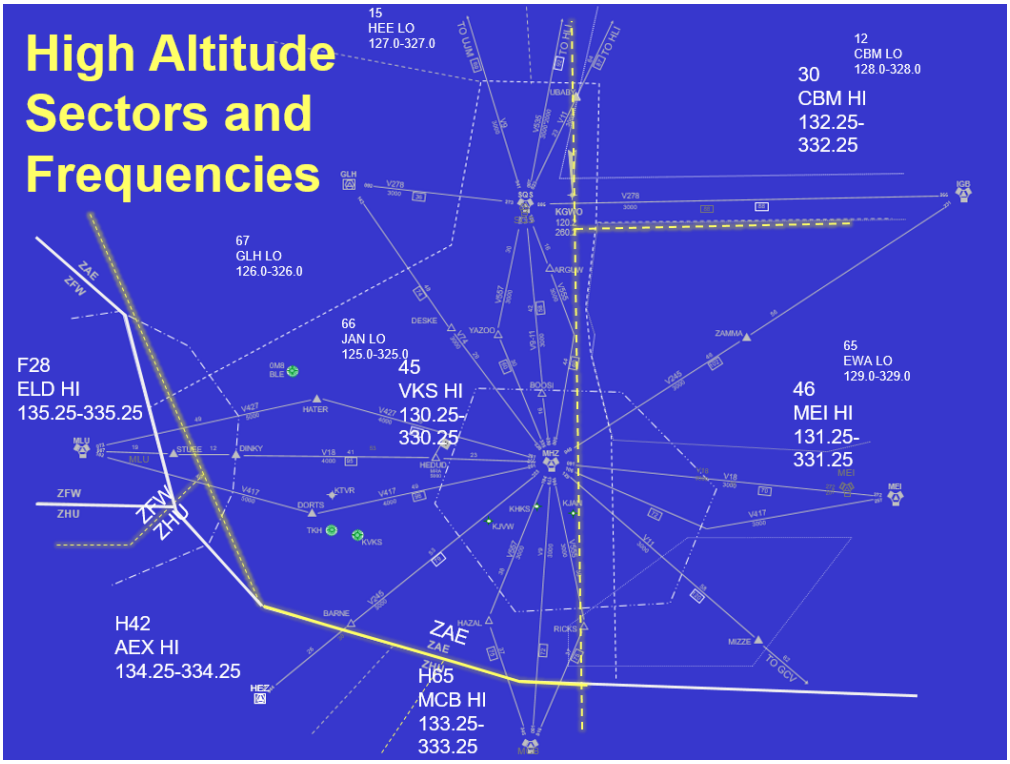
HIGH ALTITUDE AIRSPACE *(Continued)*

High Altitude Sectors and Frequencies

HIGH ALTITUDE SECTORS AND FREQUENCIES



- ZAE sectors
  - FL240 and above
    - Sector 46 - MEI High
      - → 131.25 331.25
    - Sector 30 - CBM High
      - → 132.25 332.25
    - Sector 45 - VKS High
      - → 130.25 330.25

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HIGH ALTITUDE AIRSPACE *(Continued)*

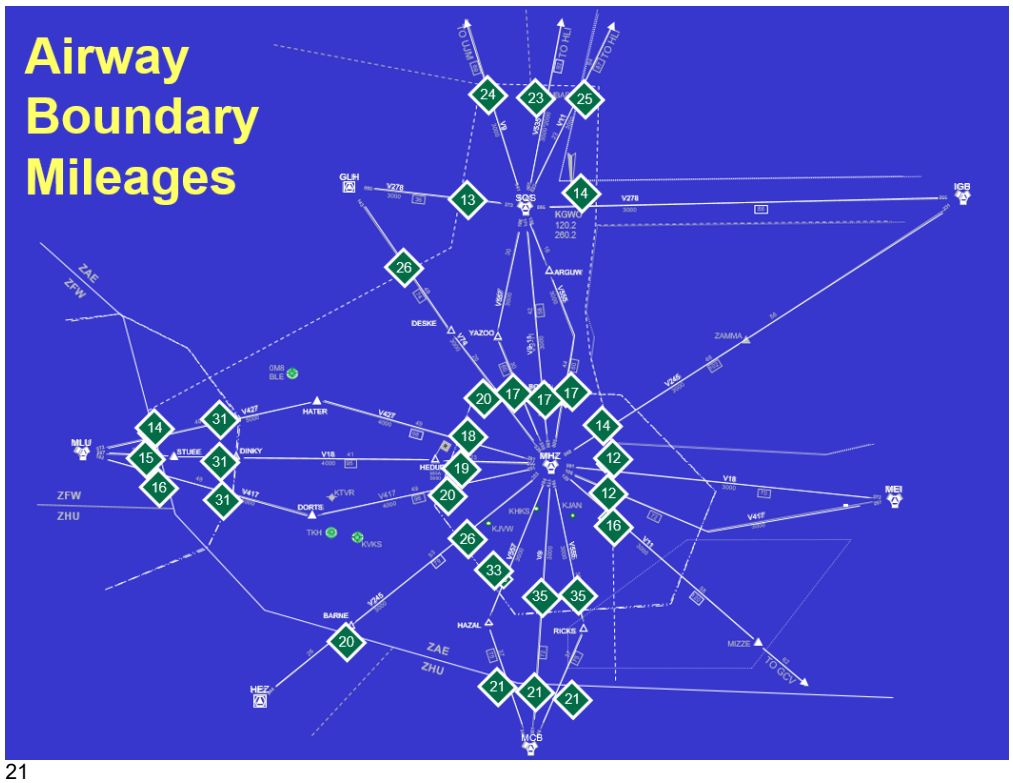
High Altitude Sectors and Frequencies (Cont'd)

- ⊙ Adjacent ARTCC sectors
  - Houston (ZHU)
    - – Sector 65 "H65" - MCB High
      - → 133.25 333.25
    - – Sector 42 "H42" - AEX High
      - → 134.25 334.25
  - Fort Worth (ZFW)
    - – Sector 28 "F28" - ELD High
      - → 135.25 335.25

BOUNDARY MILEAGES

Airway Boundary Mileages

AIRWAY BOUNDARY MILEAGES



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- Sector 67
  - V74 - 26 SE GLH
  - V278 - 13 NW SQS
- Sector 15
  - V9 - 24 NW SQS
- Sector 12
  - V535 - 23 NE SQS
  - V11 - 25 NE SQS
  - V278 - 14 NE SQS

Continued on next page

BOUNDARY MILEAGES *(Continued)*

Airway Boundary Mileages (Cont'd)

⊙ Sector 65

- V245 - 14 NE MHZ
- V18 - 12 SE MHZ
- V417 - 12 SE MHZ
- V11 - 16 SE MHZ

⊙ ZHU 27

- V555 - 21 NE MCB
- V9 - 21 NE MCB
- V557 - 21 NW MCB

⊙ ZHU 40

- V245 - 20 NE HEZ

⊙ ZFW 30

- V417 - 16 SE MLU
- V18 - 15 NE MLU
- V427 - 14 NE MLU

⊙ MLU APCH

- V417 - 31 SE MLU
- V18 - 31 NE MLU
- V427 - 31 NE MLU

Continued on next page

BOUNDARY MILEAGES *(Continued)*

Airway Boundary Mileages (Cont'd)

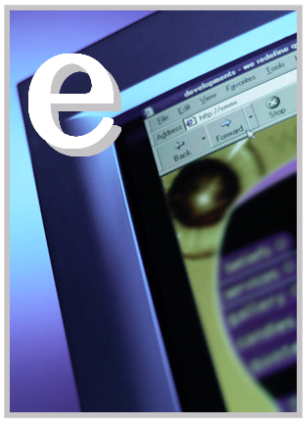
⊙ JAN APCH (Listed clockwise starting from V74 NW of Magnolia (MHZ))

- V74 - 20 NW MHZ
- V557 - 17 NW MHZ
- V9-11 - 17 NW MHZ
- V555 - 17 NE MHZ
- V555 - 35 SE MHZ
- V9 - 35 SE MHZ
- V557 - 33 SW MHZ
- V245 - 26 SW MHZ
- V417 - 20 SW MHZ
- V18 - 19 SW MHZ
- V427 - 18 NW MHZ

AERO CENTER MAP ACTIVITIES

Activities

MAPS ELEARNING ACTIVITIES



Purpose: to practice identifying and labeling the many components of the Aero Center map

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Description

Map Components - This learning activity allows you to further review the various components of the ZAE Aero Center Airspace. You can select the category and the components to be displayed on the map.

Map Components Knowledge Check - This activity allows you to check your knowledge of map components with a variety of “drag and drop” and “labeling” exercises.

Map Components Quiz - This activity allows you to apply the maps information to scenarios similar to those that you will use in your role as an Air Traffic Controller.

NOTE: All map quizzes are comprehensive.

Directions

Access the IET eLearning menu. Select **Lesson 3 – Maps**. Click on the title to launch the applicable activity.

Continued on next page

IN CONCLUSION

Lesson Review

LESSON REVIEW

The following topics were covered in this lesson:

- Boundaries
- JAN Low airways
- Minimum altitudes
- Special Use Airspace
- Airports and Approach Controls
- High altitude airspace
- Boundary mileages

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NOTE: We will constantly refer to the map as we proceed through subsequent lessons. Map knowledge will be required throughout your entire ATC career.