

**ENROUTE AND ARRIVAL**

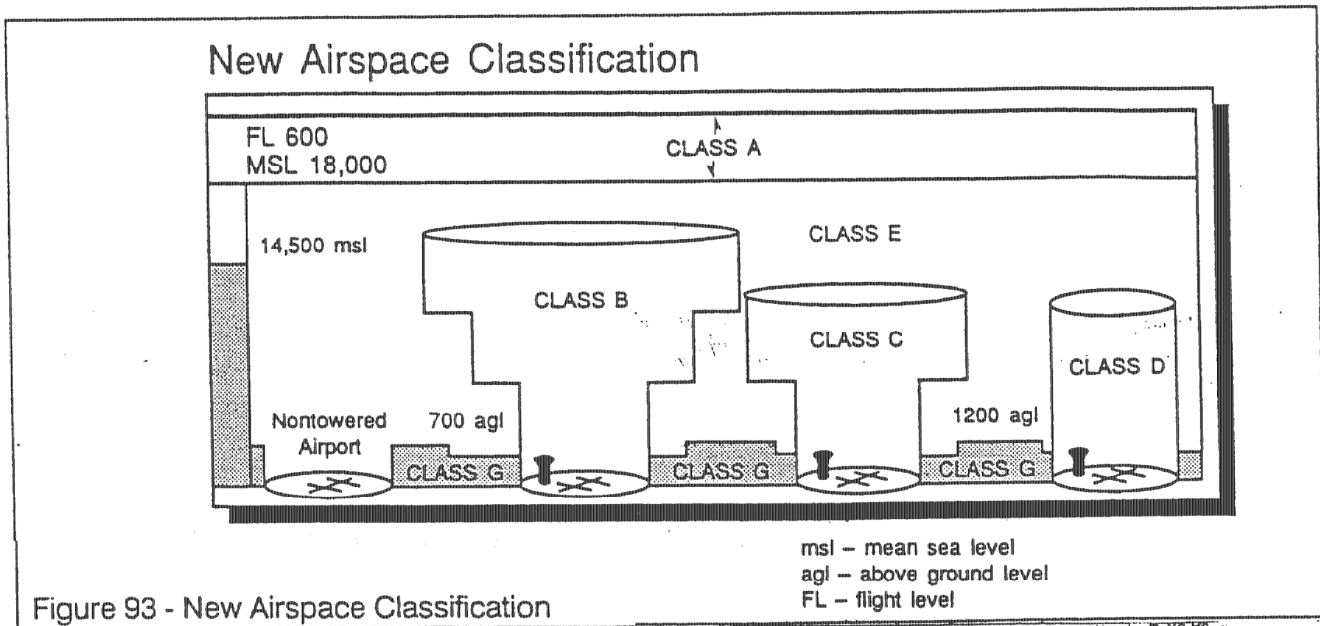
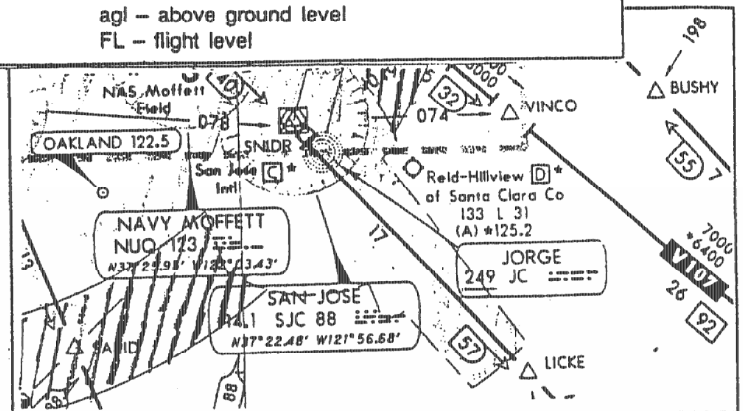


Figure 93 - New Airspace Classification

msl – mean sea level  
agl – above ground level  
FL – flight level



**The Airspace**

**CLASS A:** Positive controlled airspace existing from 18,000 MSL up to FL 600. All traffic at or above 18,000 feet MSL must be IFR. The maximum altitude for operation on a Victor Airway is 17,000 feet MSL

**CLASS B:** Formerly the TCA. Must have permission to enter, and a transponder with altitude encoder when within 30 NM of primary airport within Class B airspace. Transponder with altitude encoder is also required at and above 10,000 MSL ATC may authorize a deviation from the Class B transponder requirement if a request to ATC is made at least 1 hour before the flight.

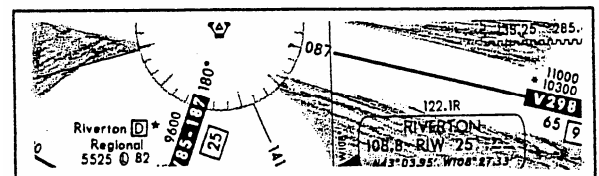
**CLASS C:** Formerly the ARSA. A pilot must maintain two-way communication with ATC while in and above Class C airspace. A Mode C transponder is required. ATC provides separation from all IFR aircraft and all participating VFR aircraft.

**CLASS D:** Formerly the Airport Traffic Area that was located within a Control Zone. When the control tower is not in operation, this becomes Class E airspace. Class D airspace normally exists from the surface up to 2,500 feet above the airport elevation. The top is shown in MSL

**CLASS E:** Any controlled airspace that is not Class A, B, C, or D. Class E airspace starting at the surface is shown by a segmented circle, as the control zone was shown.

The floor of Class E airspace when designated in conjunction with an airway is 1200 feet AGL. When designated in conjunction with an airport which has an approved instrument approach procedure (IAP), the airspace is designated as a transition area, and the floor is 700 feet AGL.

Open (white) area on IFR chart indicates Class E airspace existing below 14,500 feet MSL. Shaded (brown) area shows Class G (uncontrolled) airspace up to 14,500 feet MSL.

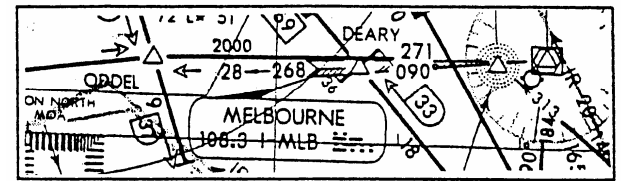
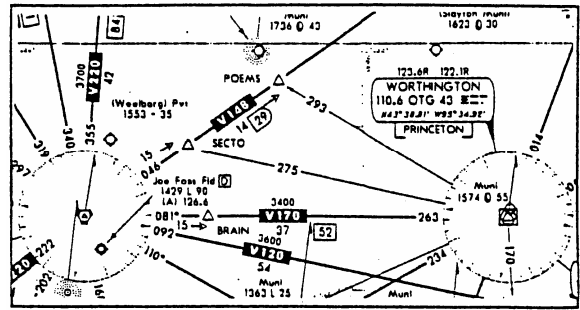


**The Airspace (Continued)**

CLASS G: Any uncontrolled airspace, where ATC does not control air traffic. The maximum altitude for Class G airspace is 14,500 feet MSL

**The IFR Route**

VHF/UHF aids are depicted in blue on the chart, and LF/MF aids are shown in brown. All courses listed are magnetic, and all distances are nautical, except visibility. Airports that have instrument approaches are

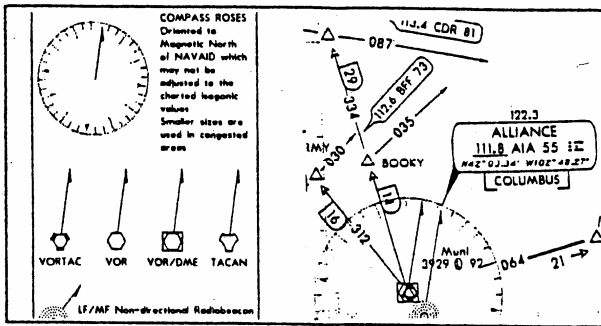
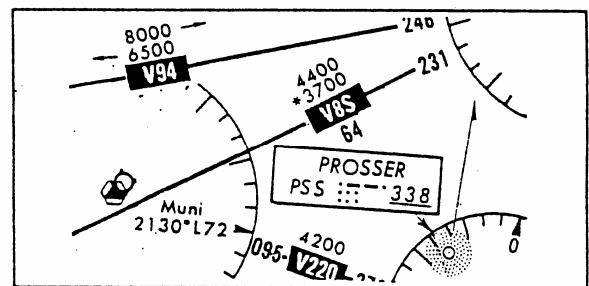


**The IFR Route (Cont)**

**The Altitude Minimums**

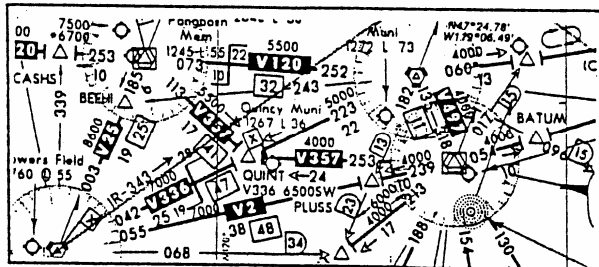
All minimum altitudes provide for, in non-mountainous areas, a clearance of 1,000 feet above the highest obstacle within 5 miles, and in mountainous areas, a clearance of 2,000 feet above the highest obstacle within 5 miles.

**MEA (Minimum Enroute Altitude)** is a listed altitude, which assures, acceptable navigational signal coverage and obstruction clearance requirements for that portion of an airway. The MEA along a jet route is 18,000 feet MSL



printed in blue.

VOR changeover point is the midpoint between radio aids, unless shown otherwise by a mileage breakdown



"X" or a VOR changeover symbol.

Offset arrows indicate a radio facility forming a reporting point (intersection). Arrows point toward an LF/MF radio aid, and point away from a VHF/UHF radio aid.

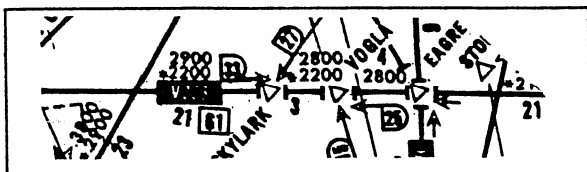
An open arrow indicates a DME fix and shows encircled mileage when not otherwise obvious..

An ILS localizer course that also has an ATC function (used to identify an intersection) is shown with the ILS localizer frequency.



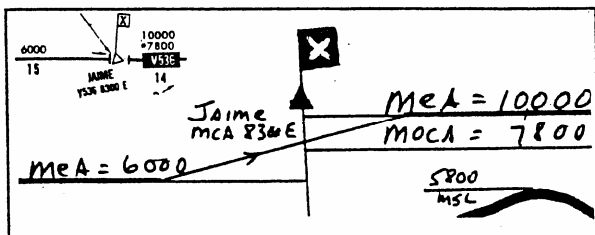
### The Altitude Limitations (Cont)

**MOCA (Minimum Obstructions Clearance Altitude)**, when listed, is a lower altitude than the MEA and

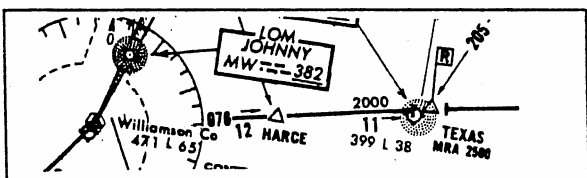


meets obstruction clearance requirements, but only assures acceptable radio signals for accurate navigation within 22 NM of the radio aid.

**MCA (Minimum Crossing Altitude)** is the lowest altitude at certain fixes at which an aircraft must cross



when proceeding in the direction of a higher minimum MEA.



**MRA (Minimum Reception Altitude)** is the lowest altitude an intersection can be determined using signals from an off-airway VOR. (Not needed if DME is used.)

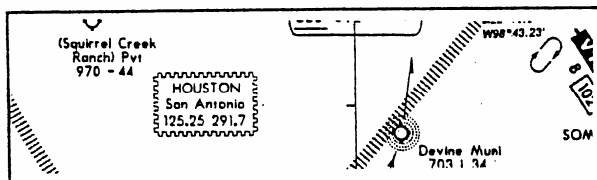
The highest altitude you may use on a Victor Airway is 17,000 MSL eastbound, and 16,000 MSL westbound.

The lowest altitude an IFR flight may cross an intersection or a radio aid is:

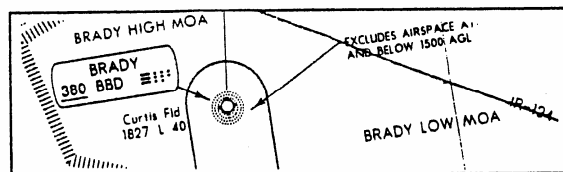
- MOCA, if published and within 22 NM of the radio aid;
- MEA for your direction of flight;
- MCA, if published and applicable for your direction of flight.

### En Route Communications

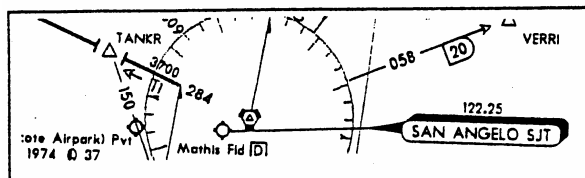
As you proceed IFR, ATC will assign frequency changes when appropriate and will tell you the new frequency. The ATC facility/center that controls your flight and the discrete frequency are depicted at ARTCC remote sites.



Military Operation Areas (MOA) are established to separate certain military training activities from IFR traffic. ATC automatically clears your flight through an MOA when the clearance routes you on the airway.

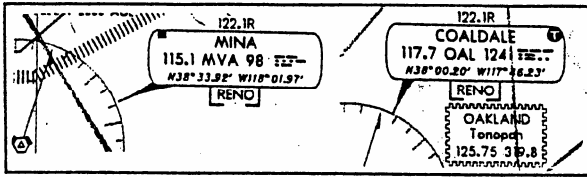


Flight Service Stations (FSS) are shown by shadow boxes. Standard Flight Service Station frequencies (shown on the legend at the back of the test booklet) are 122.2 and 121.5 MHz, plus any frequencies listed outside the facility box. The FSS can only receive on frequencies marked with R (122.2R) and can only transmit on frequencies marked with a T (122.3T), and on VOR frequencies.



En Route Flight Advisory Service is obtained on the standard frequency of 122.0 MHz. A solid circle indicates TWEB availability, and HIWAS is shown by a solid block. Remote communications outlet (RCO) provides communication capability with FSS.

**Enroute Communications (Cont)**

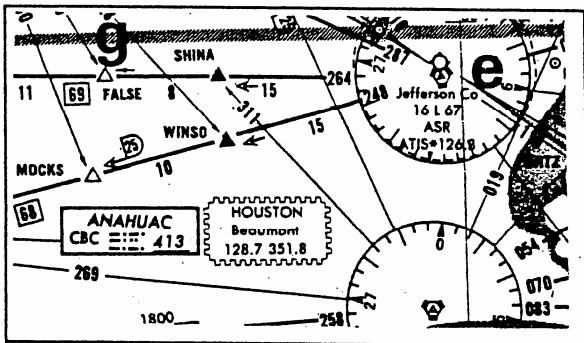


“Radar contact” means your aircraft has been identified on the radar display and radar flight following will be provided until identification is lost or radar service is terminated.

“Radar service terminated” means you should resume normal position reporting. ‘Resume own navigation’ means you should maintain the airway by use of your navigation equipment.

A cruise clearance (“...cruise six thousand...”) allows the pilot to fly at any altitude from the MEA up to and including the specified altitude. Climb and descent within the block is at the pilot’s discretion.

**IFR Compulsory Reporting Points**

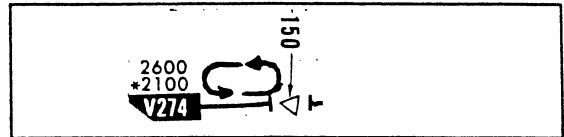


You must report to ATC:

- when vacating any previously assigned altitude;
- VFR conditions on-top altitude change;
- each fix used to define an off-airway direct route;
- change in TAS of more than 10 knots or 5%, whichever is greater (maintain within 10 knots IAS of directed speed);
- when unable to maintain a 500 FPM climb or descent;
- time and altitude when reaching a holding fix;
- when leaving any assigned holding fix or point when not in radar contact.

**THE ARRIVAL - Holding Patterns**

Patterns at most fixes are depicted on charts. Make right turns unless left turns are specified.



**MAXIMUM HOLDING SPEEDS**

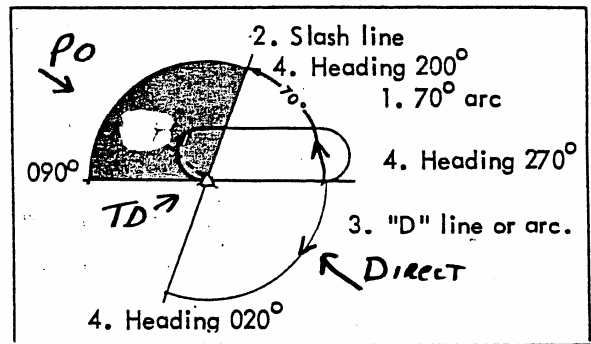
- Up to and including 6,000 ft.....200 knots.
- 6,001 ft. up to & including 14,000 ft.....230 knots.
- 14,001 and above.....265 knots.

Timing for the outbound leg begins over or abeam the fix, whichever is later. If the abeam position cannot be determined, start timing on the completion of the turn to the outbound leg.

A DME holding fix is defined using distances in lieu of time values.

Determine entry turn from aircraft heading upon arrival at the holding fix. Plus or minus 5 degrees in heading is within limits for determining type of entry. More than one type of entry may be allowable.

Establish inbound holding pattern entry heading by drawing a 70 degree arc through the holding pattern (1), draw the slash line through the fix (2), complete the "D" line (3), write the inbound headings at each extended line (4)



**Parallel procedure** - proceed direct toward the fix, cross the fix, then parallel the holding course outbound on the nonholding side, then turn into the holding pattern and intercept the inbound leg of the holding pattern.

**Teardrop procedure** - proceed direct to the fix, turn outbound 30 degrees from the holding course, then turn toward the inbound leg of the holding pattern.

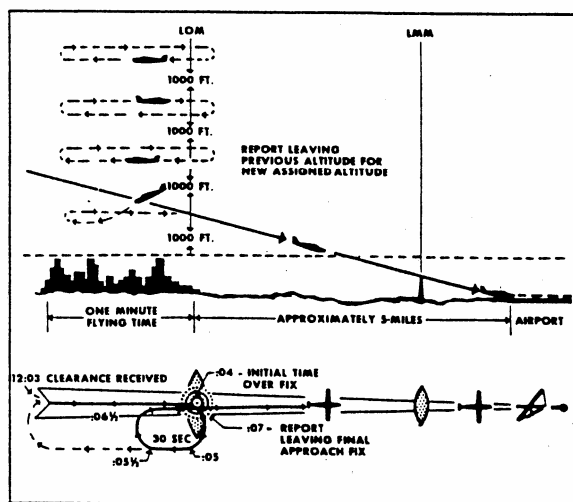
**Direct entry** - proceed directly to the fix, turn to the outbound heading and fly the pattern.



## Additional Procedures

### Timed Approaches From A Holding Fix

Timed approaches from a holding fix require a control tower in operation. Ceiling and visibility must be at least circling minimums. If more than one missed approach is available, none may require a course reversal. Adjust the holding pattern to leave the final approach fix at the assigned time. No procedure turn is executed.



### Visual Approach

ATC may authorize a visual approach in lieu of a standard instrument approach procedure without request when:

- you are in radar contact, and
- the weather is VFR, and
- you have the airport in sight, or the identified preceding aircraft in sight.

On a visual approach, radar service is terminated when ATC instructs the pilot to contact the tower.

### Contact Approach

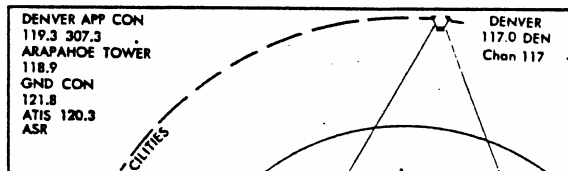
ATC may authorize a contact approach in lieu of a standard instrument approach procedure when:

- there exists a published instrument approach procedure for that airport, and
- the pilot specifically requests it, and
- the reported visibility is at least 1 mile, and
- the pilot is clear of clouds, and expects to remain that way until landing.

## Surveillance Radar Approach (ASR)

ATC radar may be used for ASR approaches, weather surveillance, and course guidance by approach control.

An ASR approach may be used at airports for which radar instrument approach minimums have been established.



The controller advises headings, when to commence descent to MDA, the aircraft's position each mile on final from the runway, and arrival at the MAP.

A 'no-gyro' approach is available if a pilot has an inoperative directional gyro. The controller will tell you when to start and stop each turn. All turns should be made at standard rate until the pilot is turned on final approach, then at half-standard rate.

4006.

Except when necessary for takeoff or landing or unless otherwise authorized by the Administrator, the minimum altitude for IFR flight is

- A) 3,000 feet over all terrain.
- B) 3,000 feet over designated mountainous terrain; 2,000 feet over terrain elsewhere.
- C) 2,000 feet above the highest obstacle over designated mountainous terrain; 1,000 feet above the highest obstacle over terrain elsewhere.**

4071.

For which speed variation should you notify ATC?

- A) When the groundspeed changes more than 5 knots.
- B) When the average true airspeed changes 5 percent or 10 knots, whichever is greater.**
- C) Any time the groundspeed changes 10 MPH.

4077.

Which airspaces are depicted on the En Route Low Altitude Chart?

- A) Limits of controlled airspace, military training Routes and special use airspace.
- B) Class A, special use airspace, Class D and Class E.
- C) Special use airspace, Class E, Class D, Class A, Class B and Class C.

4078. J15 IRA

What are the compulsory reporting points when using VOR/DME or VORTAC fixes to define a direct route not on established airways?

- A) Fixes selected to define the route.
- B) There are no compulsory reporting points unless advised by ATC.
- C) At the changeover points.

4261. J17 IRA

(Refer to figure 24.) Proceeding southbound on V187, (vicinity of Cortez VOR) contact is lost with Denver Center. What frequency should be used to contact Denver Center?

- A) 133.425.
- B) 108.4.
- C) 122.2.

4262. J35 IRA

(Refer to figures 22 and 24.) For planning purposes, what would the highest MEA be on the flight planned between Grand Junction, Walker Airport, and Durango, La Plata Co. Airport?

- A) 12,000 feet.
- B) 15,000 feet.
- C) 16,000 feet.

4263. J35 IRA

(Refer to figure 24.) At what point should a VOR changeover be made from JNC VOR to MANCA intersection southbound on V187?

- A) 36 NM south of JNC.
- B) 52 NM south of JNC.
- C) 74 NM south of JNC.

4264. J35 IRA

(Refer to figure 24.) What is the MOCA between JNC and MANCA intersection on V187?

- A) 10,900 feet MSL.
- B) 12,000 feet MSL.
- C) 13,700 feet MSL.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4287. J35 IRA

(Refer to figure 34.) For planning purposes, what is the highest useable altitude for an IFR flight on V573 from the HOT VORTAC to the TXK VORTAC?

- A) 16,000 feet MSL.
- B) 14,500 feet MSL.
- C) 13,999 feet MSL.

4291. J35 IRA

(Refer to figure 40.) For planning purposes, what is the highest useable altitude for an IFR flight on V16 between the BGS and ABI VORTACs?

- A) 17,000 feet MSL.
- B) 18,000 feet MSL.
- C) 6,500 feet MSL.

4317. (Refer to figure 53.) Where is the VOR COP on V27 between the GVO and MQO VORTACs?

- A) 20 DME from GVO VORTAC.
- B) 20 DME from MQO VORTAC.
- C) 30 DME from SBA VORTAC.

4318. J35 IRA

(Refer to figure 53.) What service is indicated by the inverse "H" symbol in the radio aids to navigation box for PRB Vortac?

- A) VOR with TACAN compatible DME.
- B) Availability of HIWAS.
- C) En Route Flight Advisory Service available.

4325. (Refer to Figure 58.) On which frequencies could you communicate with the Montgomery County FSS while on the ground at College Station?

- A) 122.65, 122.2, 122.1, 113.3
- B) 122.65, 122.2
- C) 118.5, 122.65, 122.2

4336.

(Refer to figure 65.) Which point would be the appropriate VOR COP on V552 from the LFT to the TBD VORTACs?

- A) CLYNT intersection.
- B) HATCH intersection.
- C) 34 DME from the LFT VORTAC.

4339.

(Refer to figures 65 and 67.) What is the Significance of the symbol at GRICE intersection?

- A) It signifies a localizer-only approach is available at Harry P. Williams Memorial.
- B) The localizer has an additional navigation function.
- C) GRICE intersection also serves as the FAF for the ILS approach procedure to Harry P. Williams Memorial.

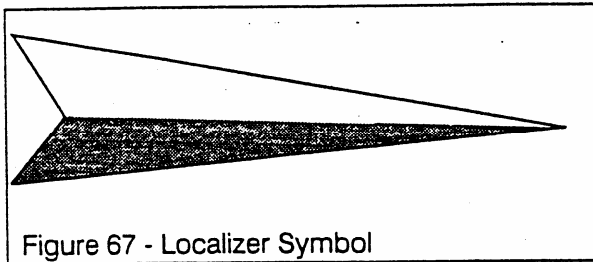


Figure 67 - Localizer Symbol

4348.

(Refer to Figures 70 and 71.) Which VORTAC along the proposed route of flight could provide HIWAS information?

- A) SPARTA VORTAC.
- B) HUGUENOT VORTAC.
- C) KINGSTON VORTAC.**

4363. J40 IRA

(Refer to figure 77.) At which minimum altitude should you cross the STAKK intersection?

- A) 6,500 feet MSL.
- B) 1,400 feet MSL.
- C) 10,200 feet MSL.**

4366. J06 IRA

(Refer to figure 78.) What is the maximum altitude that you may flight plan an IFR flight on V-86 EASTBOUND between BOZEMAN and BILLINGS VORTACs?

- A) 14,500 feet MSL.
- B) 17,000 feet MSL.**
- C) 18,000 feet MSL.

4370. J35 IRA

(Refer to figure 78.) What is the minimum crossing altitude over the BOZEMAN VORTAC for a flight southeast bound on V86?

- A) 8,500 feet MSL.
- B) 9,300 feet MSL.**
- C) 9,700 feet MSL.

4392 J14 IRA

What is the significance of an ATC clearance which reads "... CRUISE SIX THOUSAND"?

- A) The pilot must maintain 6,000 feet until reaching the IAF serving the destination airport, then execute the published approach procedure.
- B) Climbs may be made to, or descents made from, 6,000 feet at the pilot's discretion.**
- C) The pilot may utilize any altitude from the MEA/MOCA to 6,000 feet, but each change in altitude must be reported to ATC.

4400. J01 IRA

For operations off established airways at 17,000 feet MSL in the contiguous U.S., (H) Class VORTAC facilities used to define a direct route of flight should be no farther apart than

- A) 75 NM.
- B) 100 NM.
- C) 200 NM.**

4409. J08 IRA

What service is provided by departure control to an IFR flight when operating from within the outer area of Class C airspace?

- A) Separation from all aircraft operating in Class C airspace.
- B) Position and altitude of all traffic within 2 miles of the IFR pilot's line of flight and altitude.
- C) Separation from all IFR aircraft and participating VFR aircraft.**

4415. J11 IRA

If a control tower and an FSS are located on the same airport, which tower function is assumed by the FSS during those periods when the tower is closed?

- A) Automatic closing of the IFR flight plan.
- B) Approach control clearance.
- C) Airport Advisory Service.**

4416.

Which service is provided for IFR arrivals by a FSS located on an airport without a control tower?

- A) Automatic closing of the IFR flight plan.
- B) Airport advisories.**
- C) All functions of approach control.

4422. J33 IRA

What is meant when departure control instructs you to "resume own navigation" after you have been vectored to a Victor airway?

- A) You should maintain the airway by use of your navigation equipment.**
- B) Radar service is terminated.
- C) You are still in radar contact, but must make position reports.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4423.

What does the ATC term “Radar Contact” signify?

A) Your aircraft has been identified and you will receive separation from all aircraft while in contact with this radar facility.

**B)** Your aircraft has been identified on the radar display and radar flight-following will be provided until radar identification is terminated.

C) You will be given traffic advisories until advised the service has been terminated or that radar contact has been lost.

4424.

Upon intercepting the assigned radial, the controller advises you that you are on the airway and to “RESUME OWN NAVIGATION.” This phrase meant that

A) you are still in radar contact, but must make position reports.

B) radar services are terminated and you will be responsible for position reports.

**C)** you are to assume responsibility for your own navigation.

4429. J33 IRA

What is the definition of MEA?

**A)** The lowest published altitude, which meets obstacle clearance requirement and assures acceptable navigational signal coverage.

B) The lowest published altitude, which meets obstacle requirements, assures acceptable navigational signal coverage, two-way radio communications, and provides adequate radar coverage.

C) An altitude, which meets obstacle clearance requirements, assures acceptable navigation signal coverage, two-way radio communications, adequate radar coverage, and accurate DME mileage.

4430. J19 IRA

What altitude may a pilot select upon receiving a VFR on Top clearance?

A) Any altitude at least 1,000 feet above the meteorological condition.

**B)** Any appropriate VFR altitude at or above the MEA in VFR weather conditions.

C) Any VFR altitude appropriate for the direction of flight at least 1,000 feet above the meteorological condition.

4431.

When must a pilot fly at a cardinal altitude plus 500 feet on an IFR flight plan?

A) When flying above 18,000 feet in VFR conditions.

B) When flying in VFR conditions above clouds.

**C)** When assigned a VFR-on-Top clearance.

4432.

The MEA assures acceptable navigational signal coverage and

A) DME response.

B) radar coverage.

**C)** meets obstacle clearance requirements.

4433. J06 IRA

You have filed an IFR flight plan with a VFR on Top clearance in lieu of an assigned altitude. If you receive this clearance and fly a course of 180°, at what altitude should you fly? (Assume VFR conditions.)

A) Any IFR altitude which will enable you to remain in VFR conditions.

B) An odd thousand foot MSL altitude plus 500 feet.

**C)** An even thousand foot MSL altitude plus 500 feet.

4434. J09 IRA

MOAs are established to

A) prohibit all civil aircraft because of hazardous or secret activities.

**B)** separate certain military activities from IFR traffic.

C) restrict civil aircraft during periods of high density training activities.

4435. J33 IRA

Reception of signals from an off airway radio facility may be inadequate to identify the fix at the designated MEA. In this case, which altitude is designated for the fix?

**A)** MRA.

B) MCA.

C) MOCA.

4436.

Which condition is guaranteed for all of the following altitude limits: MAA, MCA, MRA, MOCA. And MEA? (Non-mountainous area.)

A) Adequate navigation signals.

B) Adequate communications.

**C)** 1,000-foot obstacle clearance.

4437. J33 IRA

If no MCA is specified, what is the lowest altitude for crossing a radio fix, beyond which a higher minimum applies?

**A)** The MEA at which the fix is approached.

B) The MRA at which the fix is approached.

C) The MOCA for the route segment beyond the fix.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**





4438. J08 IRA

When an aircraft is not equipped with a transponder, what requirement must be met before ATC will authorize a flight within class B airspace?

- A)** A request for the proposed flight must be made to ATC at least 1 hour before the flight.
- B) The proposed flight must be conducted when operating under instrument flight rules.
- C) The proposed flight must be conducted in visual meteorological conditions (VMC).

4443. J14 IRA

What is the significance of an ATC clearance which reads '... CRUISE SIX THOUSAND ...'?

- A) The pilot must maintain 6,000 feet until reaching the IAF serving the destination airport, then execute the published approach procedure.
- B)** It authorizes a pilot to conduct flight at any altitude from minimum IFR altitude up to and including 6,000.
- C) The pilot is authorized to conduct flight at any altitude from minimum IFR altitude up to and including 6,000, but each change in altitude must be reported to ATC.

4456. J17 IRA

Which report should be made to ATC without a specific request when not in radar contact?

- A) Entering instrument meteorological conditions.
- B)** When leaving final approach fix in bound on final approach.
- C) Correcting an E.T.A. any time a previous E.T.A. is in error in excess of 2 minutes.

4458.

A "CRUISE FOUR THOUSAND FEET" clearance would mean that the pilot is authorized to

- A)** Vacate 4,000 feet without further ATC clearance.
- B) Climb to, but not descend from 4,000 feet, without further ATC clearance.
- C) Use any altitude from minimum IFR to 4,000 feet, but must report leaving each altitude.

4473. J08 IRA

Which airspace is defined as a transition area when designated in conjunction with an airport which has a prescribed IAP?

- A)** The Class E airspace extending upward from 700 feet or more above the surface and terminating at the base of the overlying controlled airspace.
- B) That Class D airspace extending from the surface and terminating at the base of the continental control area.
- C) The Class C airspace extending from the surface to 700 or 1,200 feet AGL, where designated.

4474. J08 IRA

The vertical extent of the Class A airspace throughout the conterminous U.S. extends from

- A) 18,000 feet to and including FL 450.
- B)** 18,000 feet to and including FL 600.
- C) 12,500 feet to and including FL 600.

4475. J07 IRA

Class G airspace is that airspace where

- A)** ATC does not control air traffic.
- B) ATC controls only IFR flights.
- C) the minimum visibility for VFR flight is 3 miles.

4476. J08 IRA

What are the vertical limits of a transition area that is designated in conjunction with an airport having a prescribed IAP?

- A) Surface to 700 feet AGL.
- B) 1,200 feet AGL to the base of the overlying controlled airspace.
- C)** 700 feet AGL or more to the base of the overlying controlled airspace.

4485. J17 IRA

Unless otherwise specified on the chart, the minimum en route altitude along a jet route is

- A)** 18,000 feet MSL.
- B) 24,000 feet MSL.
- C) 10,000 feet MSL.

4486. J16 IRA

An abbreviated departure clearance '...CLEARED AS FILED...' will always contain the name

- A) and number of the STAR to be flown when filed in the flight plan.
- B)** of the destination airport filed in the flight plan.
- C) of the first compulsory reporting point if not in a radar environment.

4493. (Refer to figure 87.) Where is the VOR COP when flying east on V306 from Daisetta to Lake Charles?

- A) 50 NM east of DAS.
- B) 40 NM east of DAS.
- C)** 30 NM east of DAS.

4494. J17 IRA

(Refer to figure 87.) At STRUT intersection headed eastbound, ATC instructs you to hold west on the 10 DME fix west of LCH on V306, standard turns, what entry procedure is recommended?

- A)** Direct.
- B) Teardrop.
- C) Parallel.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4496. J35 IRA  
(Refer to figure 87.) What is indicated by the localizer course symbol at Jefferson County Airport?  
A) A published LDA localizer course.  
B) A published SDF localizer course.  
**C) A published ILS localizer course, which has an additional navigation function.**

4497. J35 IRA  
(Refer to figure 87.) Which VHF frequencies, other than 121.5, can be used to receive De Ridder FSS in the Lake Charles area?  
A) 122.1, 126.4.  
B) 123.6, 122.65.  
**C) 122.2, 122.3.**

4498. J35 IRA  
(Refer to figure 87.) Why is the localizer back course at Jefferson County airport depicted?  
A) The back course is not aligned with a runway.  
B) The back course has a glide slope.  
**C) The back course has an additional navigation function.**

4499.  
(Refer to figure 87.) Where is the VOR changeover point on V20 between Beaumont and Hobby?  
**A) Halfway point.**  
B) MOCKS intersection  
C) Anahuac Beacon.

4501. J35 IRA  
(Refer to figure 89.) When flying from Milford Municipal to Bryce Canyon via V235 and V293, what minimum altitude should you be at when crossing Cedar City VOR?  
A) 11,400 feet.  
**B) 12,000 feet.**  
C) 13,000 feet.

4502.  
(Refer to figure 89.) What VHF frequencies are available for communications with Cedar City FSS (a)?  
A) 123.6, 121.5, 108.6, and 112.8.  
**B) 122.2, 121.5, 122.6, and 112.1.**  
C) 122.2, 121.5, 122.0, and 123.6.

4504. J35 IRA  
On what frequency should you obtain En Route Flight Advisory Service below FL 180?  
A) 122.1T/112.8R.  
B) 123.6.  
**C) 122.0.**

4506. J35 IRA  
(Refer to figure 89.) What is the ARTCC discrete frequency at the COP on V208 southwest bound from HVE to PGA VOR/DME?  
A) 122.1.  
B) 122.4.  
**C) 133.6.**

4508. J35 IRA  
(Refer to figure 89.) What type airspace exists above Bryce Canyon Airport from the surface to 1,200 feet AGL?  
A) Class D.  
B) Class E.  
**C) Class G.**

4509. J35 IRA  
(Refer to figure 91.) What is the minimum crossing altitude at DBS VORTAC for a northbound IFR flight on V257?  
A) 7,500 feet.  
**B) 8,600 feet.**  
C) 11,100 feet.

4512. J03 IRA  
(Refer to figure 91.) What lighting is indicated on the chart for Jackson Hole Airport?  
A) Lights on prior request.  
B) No lighting available.  
**C) Pilot controlled lighting.**

4515. J35 IRA  
(Refer to figure 91.) What is the function of the Great Falls RCO (Yellowstone vicinity)?  
A) Long range communications outlet for Great Falls Center.  
**B) Remote communications outlet for Great Falls FSS.**  
C) Satellite remote controlled by Salt Lake Center with limited service.

4516. J35 IRA  
(Refer to figure 91.) Where should you change VOR frequencies when en route from DBS VORTAC to JAC VOR/DME on V520?  
A) 35 NM from DBS VORTAC.  
**B) 60 NM from DBS VORTAC.**  
C) 60 NM from JAC VOR/DME.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**



4517. J35 IRA  
(Refer to figure 91.) What is the minimum crossing altitude at SABAT intersection when eastbound from DBS VORTAC on V298?  
A) 8,300 feet.  
**B) 11,100 feet.**  
C) 13,000 feet.
4526. J08 IRA  
(Refer to figure 93.) What is the floor of Class E airspace when designated in conjunction with an airway?  
A) 700 feet AGL.  
**B) 1,200 feet AGL.**  
C) 1,500 feet AGL.
4527. J08 IRA  
(Refer to figure 93.) Which altitude is the normal upper limit for Class D airspace?  
A) 1,000 feet AGL.  
**B) 2,500 feet AGL.**  
C) 4,000 feet AGL.
4528. J08 IRA  
(Refer to figure 93.) What is the floor of Class E airspace when designated in conjunction with an airport which has an approved IAP?  
A) 500 feet AGL.  
**B) 700 feet AGL.**  
C) 1,200 feet AGL.
4529. J08 IRA  
(Refer to figure 93.) Which altitude is the upper limit for Class A airspace?  
A) 14,500 feet MSL.  
B) 18,000 feet MSL.  
**C) 60,000 feet MSL.**
4530.  
(Refer to figure 93.) What is the maximum altitude that Class G airspace will exist? Does not include airspace less than 1,500 feet AGL.)  
A) 18,000 feet MSL.  
**B) 14,500 feet MSL.**  
C) 14,000 feet MSL.
4531.  
(Refer to Figure 93.) What is generally the maximum altitude for Class B airspace?  
A) 4,000 feet MSL.  
**B) 10,000 feet MSL.**  
C) 14,500 feet MSL.

4532. J08 IRA  
(Refer to figure 93.) What are the normal lateral limits for Class D airspace?  
A) 8NM.  
B) 5NM.  
**C) 4NM.**
4533. J08 IRA  
(Refer to figure 93.) What is the floor of Class A airspace?  
A) 10,000 feet MSL.  
B) 14,500 feet MSL.  
**C) 18,000 feet MSL.**
4534. J05 IRA  
(Refer to figure 94.) Mandatory airport instruction signs are designated by having.  
A) Yellow lettering with a black background.  
**B) White lettering with a red background.**  
C) Black lettering with a yellow background.
4535. J05 IRA  
(Refer to figure 94.) What sign is designated by illustration 7?  
A) Location sign.  
**B) Mandatory instruction sign.**  
C) Direction sign.
4536.  
(Refer to figure 94.) What color are runway holding position signs?  
**A) White with a red background.**  
B) Red with a white background.  
C) Yellow with a black background.
4537. J05 IRA  
(Refer to figure 94.) Hold line markings at the intersection of taxiways and runways consist of four lines that extend across the width of the taxiway. These lines are  
A) white and dashed lines are nearest the runway.  
**B) yellow and dashed lines are nearest the runway.**  
C) yellow and solid lines are nearest the runway.
4538. J13 IRA  
When should pilots state their position on the airport when calling the tower for takeoff?  
A) When visibility is less than 1 mile.  
B) When parallel runways are in use.  
**C) When departing from a runway intersection.**

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

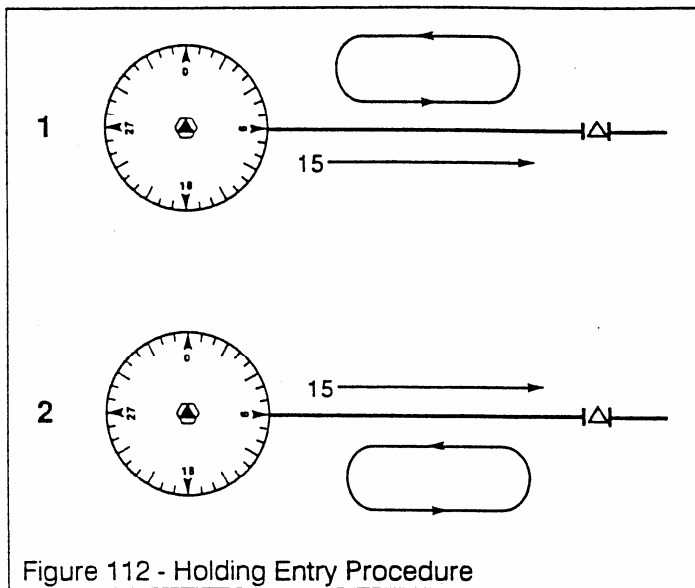


Figure 112 - Holding Entry Procedure

4539. J08 IRA  
What minimum aircraft equipment is required for operation within Class C airspace?

- A) Two-way communications and Mode C transponder.
- B) Two-way communications.
- C) Transponder and DME.

4541. B10 IRA  
In the case of operations over an area designated as a mountainous area where no other minimum altitude is prescribed, no person may operate an aircraft under IFR below an altitude of

- A) 500 feet above the highest obstacle.
- B) 1,000 feet above the highest obstacle.
- C) 2,000 feet above the highest obstacle.

4542. J33 IRA  
MEA is an altitude which assures

- A) obstacle clearance, accurate navigational signals from more than one VORTAC, and accurate DME mileage.
- B) a 1,000-foot obstacle clearance within 2 miles of an airway and assures accurate DME mileage.
- C) acceptable navigational signal coverage and meets obstruction clearance requirements.

4544. J33 IRA  
Reception of signals from a radio facility, located off the airway being flown, may be inadequate at the designated MEA to identify the fix. In this case, which altitude is designated for the fix?

- A) MOCA.
- B) MRA.
- C) MCA.

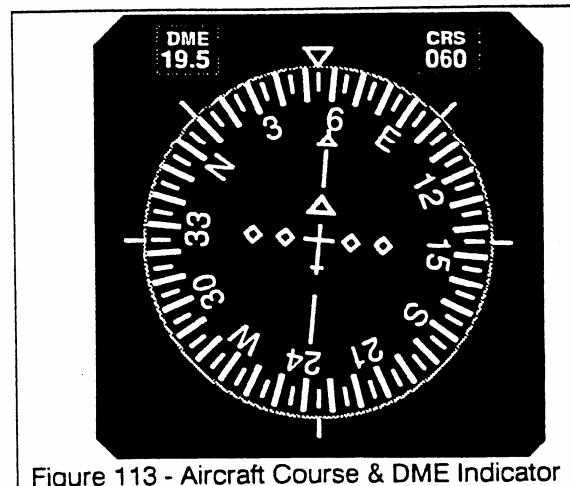


Figure 113 - Aircraft Course & DME Indicator

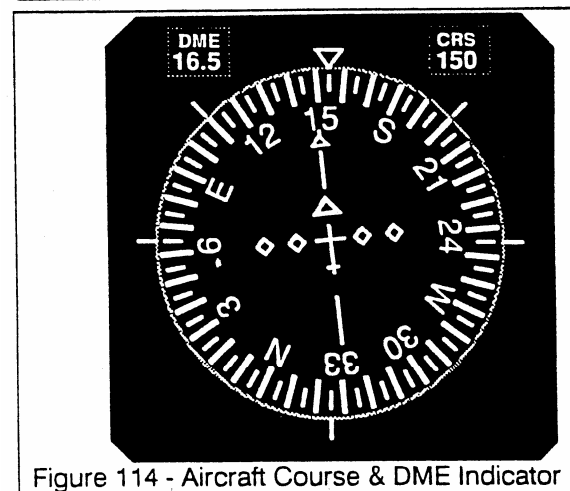


Figure 114 - Aircraft Course & DME Indicator

4545. J33 IRA  
ATC may assign the MOCA when certain special conditions exist, and when within

- A) 22NM of a VOR.
- B) 25 NM of a VOR.
- C) 30 NM of a VOR.

4546. J10 IRA  
Which aeronautical chart depicts Military Training Routes (MTR) above 1500 feet?

- A) IFR Planning Chart.
- B) IFR Low Altitude En Route Chart.
- C) IFR High Altitude En Route Chart.

4547. J33 IRA  
Acceptable navigational signal coverage at the MOCA is assured for a distance from the VOR of only

- A) 12 NM.
- B) 22 NM.
- C) 25 NM.



4605. J17 IRA

During the en route phase of an IFR flight, the pilot is advised “Radar service terminated.” What action is appropriate?

- A) Set transponder to code 1200.
- B) Resume normal position reporting.**
- C) Activate the IDENT feature of the transponder to re-establish radar contact.

4609. J17 IRA

(Refer to figure 112.) You arrive at the 15 DME fix on a heading of 350°. Which holding pattern correctly complies with the ATC clearance below, and what is the recommended entry procedure?

“...HOLD WEST OF THE ONE FIVE DME FIX ON THE ZERO EIGHT SIX RADIAL OF THE ABC VORTAC, FIVE MILE LEGS, LEFT TURNS...”

- A) 1; teardrop entry.
- B) 1; direct entry.**
- C) 2; direct entry.

4610. J17 IRA

(Refer to figure 113.) You receive this ATC clearance:

“HOLD EAST OF THE ABC VORTAC ON THE ZERO NINER ZERO RADIAL, LEFT TURNS...”

What is the recommended procedure to enter the holding pattern?

- A) Parallel only.**
- B) Direct only.
- C) Teardrop only.

4611. J17 IRA

(Refer to figure 113.) You receive this ATC clearance:

“...CLEARED TO THE ABC VORTAC. HOLD SOUTH ON THE ONE EIGHT ZERO RADIAL...”

What is the recommended procedure to enter the holding pattern?

- A) Teardrop only.
- B) Direct only.**
- C) Parallel only.

4612. J17 IRA

(Refer to figure 113.) You receive this ATC clearance:

“...CLEARED TO THE XYZ VORTAC. HOLD NORTH ON THE THREE SIX ZERO RADIAL, LEFT TURNS...”

What is the recommended procedure to enter the holding pattern?

- A) Parallel only.
- B) Direct only.
- C) Teardrop only**

4613. J17 IRA

(Refer to figure 113.) You receive this ATC clearance:

“...CLEARED TO THE ABC VORTAC. HOLD WEST ON THE TWO SEVEN ZERO RADIAL...”

What is the recommended procedure to enter the holding pattern?

- A) Parallel only.
- B) Direct only.**
- C) Teardrop only.

4614. J17 IRA

(Refer to figure 114.) A pilot receives this ATC clearance:

“...CLEARED TO THE ABC VORTAC. HOLD WEST ON THE TWO SEVEN ZERO RADIAL...”

What is the recommended procedure to enter the holding pattern?

- A) Parallel or teardrop.
- B) Parallel only.
- C) Direct only.**

4615. J17 IRA

(Refer to figure 114.) A pilot receives this ATC clearance:

“...CLEARED TO THE XYZ VORTAC. HOLD NORTH ON THE THREE SIX ZERO RADIAL, LEFT TURNS...”

What is the recommended procedure to enter the holding pattern?

- A) Teardrop only.
- B) Parallel only.
- C) Direct only.**

4616. J17 IRA

(Refer to figure 114.) A pilot receives this ATC clearance:

“...CLEARED TO THE ABC VORTAC. HOLD SOUTH ON THE ONE EIGHT ZERO RADIAL...”

What is the recommended procedure to enter the holding pattern?

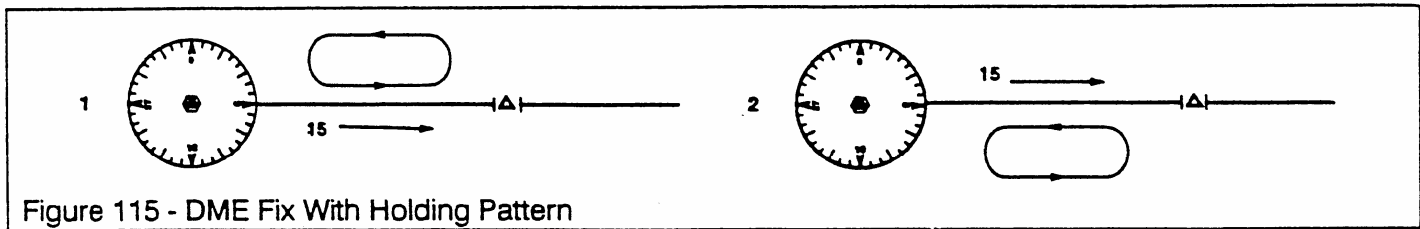
- A) Teardrop only.**
- B) Parallel only.
- C) Direct only.

4617. J17 IRA

To ensure proper airspace protection while in a holding pattern, what is the recommended maximum airspeed above 14,000 feet?

- A) 220 knots.
- B) 265 knots.**
- C) 200 knots.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**



4618. J17 IRA  
(Refer to figure 115.) You receive this ATC clearance:  
“...HOLD WEST OF THE ONE FIVE DME FIX ON THE ZERO EIGHT SIX RADIAL OF ABC VORTAC, FIVE MILE LEGS, LEFT TURNS...”

You arrive at the 15 DME fix on a heading of 350°. Which holding pattern correctly complies with these instructions, and what is the recommended entry procedure?

- A) 1; teardrop.
- B) 2; direct.
- C) 1; direct.**

4619. J17 IRA  
(Refer to figure 116.) You arrive over the 15 DME fix on a heading of 350°. Which holding pattern correctly complies with the ATC clearance below, and what is the recommended entry procedure?

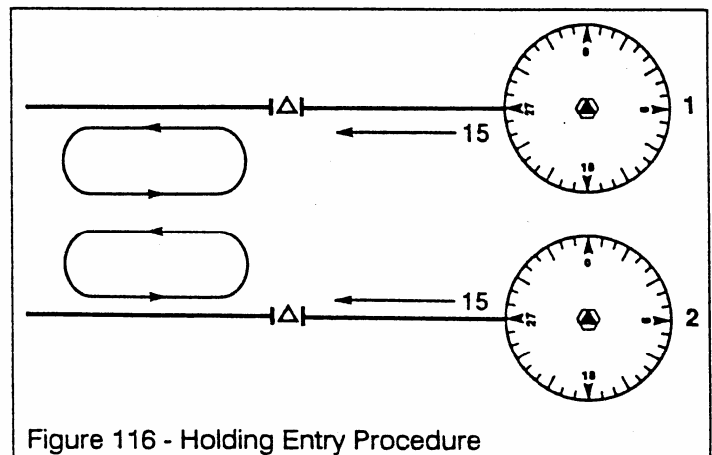
“...HOLD WEST OF THE ONE FIVE DME FIX ON THE TWO SIX EIGHT RADIAL OF THE ABC VORTAC, FIVE MILE LEGS, LEFT TURNS...”

- A) 1; teardrop entry.
- B) 2; direct entry.**
- C) 1; direct entry.

4620. J17 IRA  
At what point should the timing begin for the first leg outbound in a nonstandard holding pattern?

- A) When over or abeam the holding fix, whichever occurs later.**
- B) When the wings are level at the completion of a 180 turn outbound.
- C) Abeam the holding fix, or wings level, whichever occurs last.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**



4621. J17 IRA  
(Refer to figure 117.) You receive this ATC clearance:

“...CLEARED TO THE ABC NDB. HOLD SOUTHEAST ON THE ONE FOUR ZERO DEGREE BEARING FROM THE NDB. LEFT TURNS...”

At station passage you note the indications in figure 117. What is the recommended procedure to enter the holding pattern?

- A) Direct only.
- B) Teardrop only.
- C) Parallel only**

4622. J17 IRA  
(Refer to figure 117.) You receive this ATC clearance:

“...CLEARED TO THE XYZ NDB. HOLD NORTHEAST ON THE ZERO FOUR ZERO DEGREE BEARING FROM THE NDB. LEFT TURNS...”

At station passage you note the indications in figure 117. What is the recommended procedure to enter the holding pattern?

- A) Direct only.
- B) Teardrop only.**
- C) Parallel only.



4623. J17 IRA  
(Refer to figure 117.) You receive this ATC clearance:

“...CLEARED TO THE ABC NDB. HOLD  
SOUTHWEST ON THE TWO THREE ZERO DEGREE  
BEARING FROM THE NDB...”

At station passage you note the indications in figure  
117. What is the recommended procedure to enter the  
holding pattern?

- A) Direct only.
- B) Teardrop only.
- C) Parallel only.

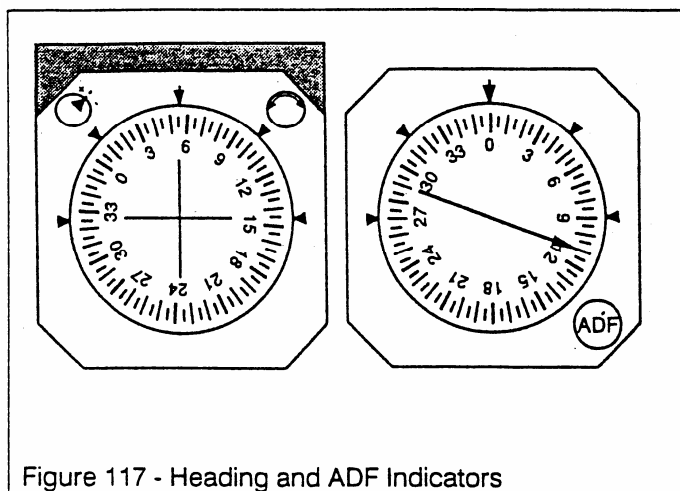


Figure 117 - Heading and ADF Indicators

4624. J17 IRA  
What timing procedure should be used when  
performing a holding pattern at a VOR?  
A) Timing for the outbound leg begins over or  
abeam the VOR, whichever occurs later.  
B) Timing for the inbound leg begins when initiating  
the turn inbound.  
C) Adjustments in timing of each pattern should be  
made on the inbound leg.

4625. J17 IRA  
When holding at an NDB, at what point should the  
timing begin for the second leg outbound?  
A) When the wings are level and the wind drift  
correction angle is established after completing the  
turn to the outbound heading.  
B) When the wings are level after completing the t  
turn to the outbound heading, or abeam the fix,  
whichever occurs first.  
C) When abeam the holding fix.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**

4626. J17 IRA  
To ensure proper airspace protection while  
holding at 5,000 feet in a civil airplane, what is the  
recommended maximum indicated airspeed a pilot  
should use?  
A) 230 knots.  
**B) 200 knots.**  
C) 210 knots.

4627. J17 IRA  
If only one missed approach procedure is available,  
which of the following conditions is required when  
conducting “timed approaches from a holding fix”?  
A) The pilot must contact the airport control tower  
prior to departing the holding fix inbound.  
**B) The reported ceiling and visibility minimums  
must be equal to or greater than the highest  
prescribed circling minimums for the IAP.**  
C) The reported ceiling and visibility minimums  
must be equal to or greater than the highest  
prescribed straight-in MDA minimums for the IAP.

4628. J18 IRA  
Prior to conducting “timed approaches from a holding  
fix,” which one of the following is required?  
A) The time required to fly from the primary facility  
to the field boundary must be determined by a  
reliable means.  
**B) The airport where the approach is to be  
conducted must have a control tower in operation.**  
C) The pilot must have established two-way  
communications with the tower before departing the  
holding fix.

4629. J18 IRA  
When making a “timed approach” from a holding fix at  
the outer marker, the pilot should adjust the  
A) holding pattern to start the procedure turn at  
the assigned time.  
B) airspeed at the final approach fix in order to arrive  
at the missed approach point at the assigned time.  
**C) holding pattern to leave the final approach fix  
inbound at the assigned time.**

4645. J35 IRA  
(Refer to figure 47.) En route on V112 from BTG  
VORTAC to DLS VORTAC, the minimum altitude  
crossing Gymme intersection is  
A) 6,400 feet.  
B) 6,500 feet.  
**C) 7,000 feet.**

4647. J35 IRA  
(Refer to figure 47.) En route on V468 from BTG VORTAC to YKM VORTAC, the minimum altitude at TROTS intersection is  
A) 7,100 feet.  
B) 10,000 feet.  
**C) 11,500 feet.**

4675. J17 IRA  
(Refer to figure 128) What type entry is recommended for the missed approach holding pattern depicted on the VOR RWY 36 approach chart for Price/Carbon County Airport?  
**A) Direct only.**  
B) Teardrop only.  
C) Parallel only.

4681. J17 IRA  
(Refer to figure 129) What type of entry is recommended to the missed approach holding pattern if the inbound heading is 050°?  
A) Direct.  
B) Parallel.  
**C) Teardrop.**

4698. J17 IRA  
(Refer to figure 133) What type of entry is recommended for the missed approach holding pattern at Riverside Municipal?  
**A) Direct.**  
B) Parallel.  
C) Teardrop.

4711. J18 IRA  
Where may you use a surveillance approach?  
A) At any airport that has an approach control.  
B) At any airport which has radar service.  
**C) At airports for which civil radar instrument approach minimums have been published.**

4718. J18 IRA  
What are the main differences between a visual approach and a contact approach?  
**A) The pilot must request a contact approach; the pilot may be assigned a visual approach and higher weather minimums must exist.**  
B) The pilot must request a visual approach and report having the field in sight; ATC may assign a contact approach if VFR conditions exist.  
C) Any time the pilot reports the field in sight, ATC may clear the pilot for a contact approach; for a visual approach, the pilot must advise that the approach can be made under VFR conditions.

4725.  
What is the pilot in command's responsibility when flying a propeller aircraft within 20 miles of the airport of intended landing and ATC requests the pilot to reduce speed to 160? (Pilot complies with speed adjustment.)  
A) Reduce TAS to 160 knots and maintain until advised by ATC.  
B) Reduce IAS to 160 MPH and maintain until advised by ATC.  
**C) Reduce IAS to 160 knots and maintain that speed within 10 knots.**

4735. J18 IRA  
What are the requirements for a contact approach to an airport that has an approved IAP, if the pilot is on an instrument flight plan and clear of clouds?  
A) The controller must determine that the pilot can see the airport at the altitude flown and can remain clear of clouds.  
B) The pilot must agree to the approach when given by ATC and the controller must have determined that the visibility was at least 1 mile and be reasonably sure the pilot can remain clear of clouds.  
**C) The pilot must request the approach, have at least 1 mile visibility, and be reasonably sure of remaining clear of clouds.**

4736. J19 IRA  
When is radar service terminated during a visual approach?  
**A) Automatically when ATC instructs the pilot to contact the tower.**  
B) Immediately upon acceptance of the approach by the pilot.  
C) When ATC advises, 'Radar service terminated; resume own navigation.'

4737. J18 IRA  
When may you obtain a contact approach?  
A) ATC may assign a contact approach if VFR conditions exist or you report the runway in sight and are clear of clouds.  
B) ATC may assign a contact approach if you are below the clouds and the visibility is at least 1 mile.  
**C) ATC will assign a contact approach only upon request if the reported visibility is at least 1 mile.**

**NOTE: CORRECT ANSWER IN BOLD ITALICS**





4741. J18 IRA

Which information, in addition to headings, does the radar controller provide without request during an ASR approach?

- A) The recommended altitude for each mile from the runway.
- B) When reaching the MDA.
- C) When to commence descent to MDA, the aircraft's position each mile on final from the runway, and arrival at the MAP.**

4743. J18 IRA

What conditions are necessary before ATC can authorize a visual approach?

- A) You must have the preceding aircraft in sight, and be able to remain in VFR weather conditions.
- B) You must have the airport in sight or the preceding aircraft in sight, and be able to proceed to, and land in IFR conditions.
- C) You must have the airport in sight or a preceding aircraft to be followed, and be able to proceed to the airport in VFR conditions.**

4750. J18 IRA

A contact approach is an approach procedure that may be used

- A) in lieu of conducting a SIAP.**
- B) if assigned by ATC and will facilitate the approach.
- C) in lieu of a visual approach.

4758. J11 IRA

If during a VFR practice instrument approach, Radar Approach Control assigns an altitude or heading that will cause you to enter the clouds, what action should be taken?

- A) Enter the clouds, since ATC authorization for practice approaches is considered an IFR clearance.
- B) Avoid the clouds and inform ATC that altitude/heading will not permit VFR.**
- C) Abandon the approach.

4765. B10 IRA

In the case of operations over an area designated as a mountainous area, no person may operate an aircraft under IFR below 2,000 feet above the highest obstacle within a horizontal distance of

- A) 3 SM from the course flown.
- B) 4 SM from the course flown.
- C) 4 NM from the course flown.**

4766. J17 IRA

To ensure proper airspace protection while in a holding pattern, what is the maximum indicated airspeed above 14,000 feet?

- A) 220 knots.
- B) 265 knots.**
- C) 200 knots.

4767. J17 IRA

Where a holding pattern is specified in lieu of a procedure turn, the holding maneuver must be executed within

- A) the 1-minute time limitation or DME distance as specified in the profile view.**
- B) a radius of 5 miles from the holding fix.
- C) 10 knots of the specified holding speed.

4768.

Which of the following conditions is required before "timed approaches from a holding fix" may be conducted?

- A) If more than one missed approach procedure is available, only one may require a course reversal.
- B) If more than one missed approach procedure is available, none may require a course reversal.**
- C) Direct communication between the pilot and the tower must be established prior to beginning the approach.

**NOTE: CORRECT ANSWER IN BOLD ITALICS**