



**Federal Aviation
Administration**

Initial En Route Qualification Training

**Lesson 09
General Control**

Course 50148001

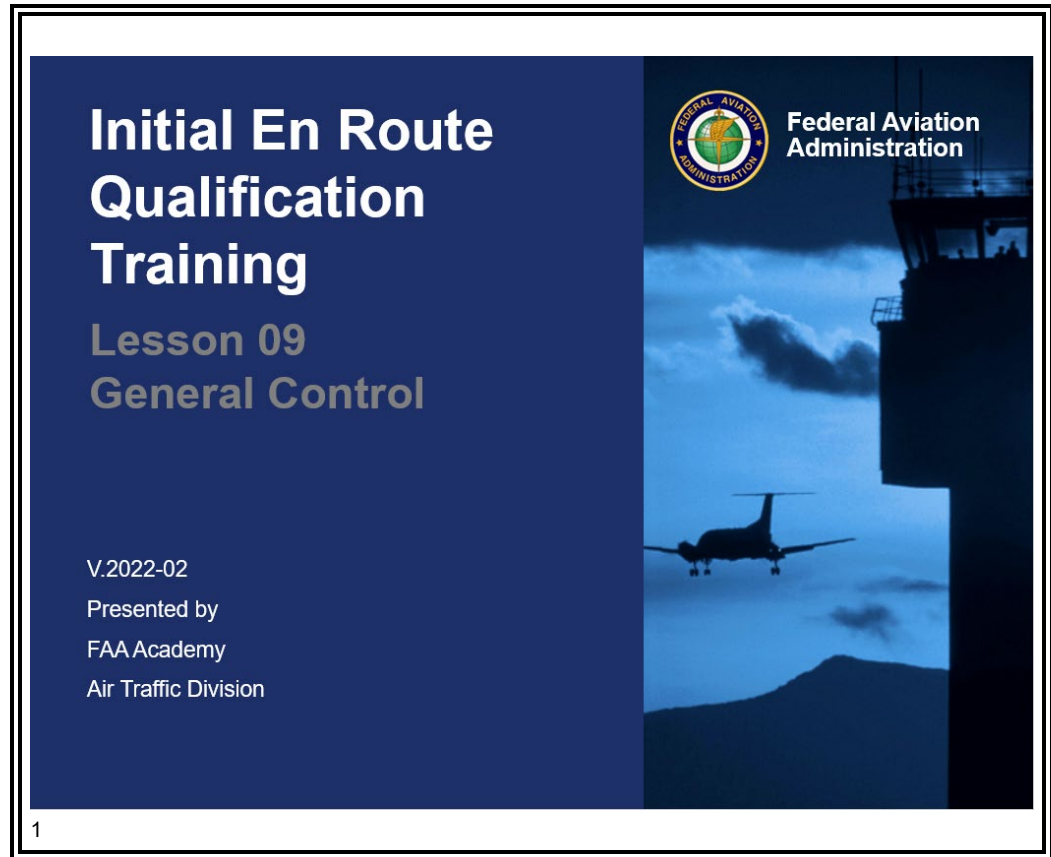
LESSON PLAN DATA SHEET

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LESSON TITLE:	GENERAL CONTROL
DURATION:	3+00 HOURS
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HANDOUT(S):	NONE
EXERCISE(S)/ ACTIVITY(S):	NONE
END-OF-LESSON TEST:	YES
PERFORMANCE TEST:	NONE
MATERIALS:	NONE
OTHER PERTINENT INFORMATION:	NONE

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INTRODUCTION



In previous lessons, you have learned some of the mechanics involved in becoming an air traffic controller. Operational priorities, procedural preference, operational requests, and procedures for the safe movement of air traffic are also functions you will be required to perform. By using the knowledge you have learned in recording and forwarding control information, along with other previous lessons, you continue to build on the skills required to be successful in your air traffic controller training.

INTRODUCTION *(Continued)*

GENERAL CONTROL



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Purpose

General control encompasses rules that provide for ATC services determine duty and operational priorities, procedural preferences, safety advisories, and other topics.

INTRODUCTION *(Continued)*

Lesson Objectives

LESSON OBJECTIVES

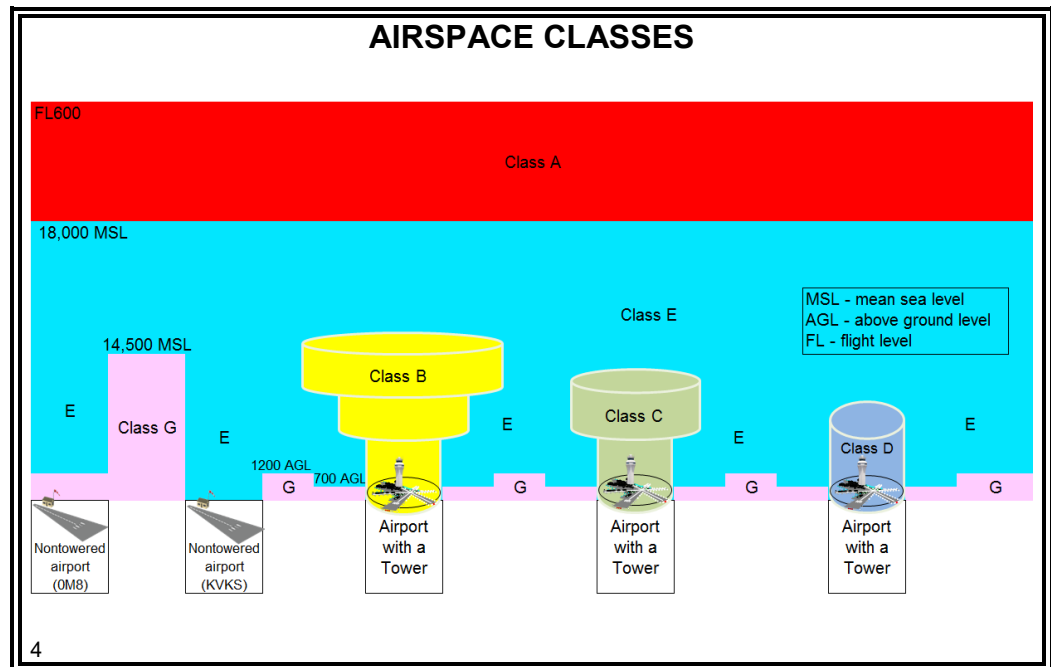
- On an End-of-Lesson Test and in accordance with FAA Order JO 7110.65, you will identify:
 - Procedures for requiring expeditious compliance with a clearance
 - General control procedures for safety, traffic, equipment malfunctions, operational requests, and selected military operations
 - Duty, procedural preference, and operational priorities
 - Procedures for transferring control, radio communications, reporting essential flight information, and transferring position responsibilities

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AIRSPACE REVIEW

Airspace Classes

AIM, par. 3-2-1



ARTCC is a facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance service may be provided to VFR aircraft.



Controlled Airspace is an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

AIRSPACE REVIEW *(Continued)*

Controlled Airspace

AIM, par. 3-2-1

- ⦿ Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace and defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.
- ⦿ IFR operations in any class of controlled airspace requires that a pilot **must** file an IFR flight plan and receive an appropriate ATC clearance.
- ⦿ Standard IFR separation is provided to all aircraft operating under IFR in controlled airspace.



Air Traffic Clearance is an authorization by ATC for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.

Uncontrolled Airspace

AIM, par. 3-3-1,
JO 7110.65,
par. 4-4-5



Uncontrolled Airspace (Class G) is that airspace **not** designated as Class A, B, C, D or E. Include routes through Class G airspace only when requested by the pilot.

DUTY PRIORITIES

ATC Service

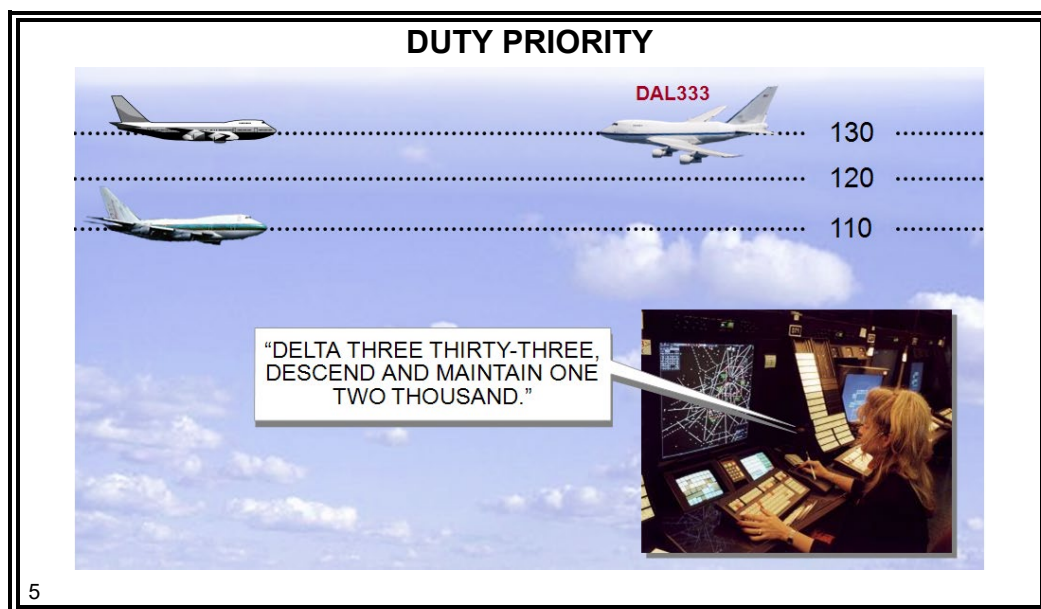
JO 7110.65,
par. 2-1-1

- ⦿ Provide service in accordance with FAA Order JO 7110.65 except when:
 - Other procedures/minima are prescribed in:
 - Letters of Agreement (LOAs)
 - FAA or military documents
 - Deviation is necessary to assist aircraft when an emergency has been declared

NOTE: Pilots are required to abide by Code of Federal Regulations (CFRs) or other applicable regulations regardless of the application of any procedure or minima in FAA Order JO 7110.65.

Duty Priority

JO 7110.65,
par. 2-1-2,
Pilot/Controller
Glossary



- ⦿ Give first priority to:
 - Separating aircraft
 - Issuing safety alerts
 - Providing support to national security and homeland defense activities
 - Activities include, but are **not** limited to, reporting of suspicious and/or unusual aircraft/pilot activities.

NOTE: Good judgment **must** be used in prioritizing other situations based on the requirements of the situation at hand.

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DUTY PRIORITIES *(Continued)*

Duty Priority (Cont'd)

JO 7110.65,
par. 2-1-2
Pilot/controller
glossary



A **safety alert** is an alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft.

NOTE: The issuance of a safety alert is a first priority once the controller observes and recognizes a situation of unsafe aircraft proximity to terrain, obstacles, or other aircraft. Conditions, such as workload, traffic volume, the quality/limitations of the radar system, and the available lead time to react are factors in determining whether it is reasonable for the controller to observe and recognize such situations. While a controller **cannot** see immediately the development of every situation where a safety alert **must** be issued, the controller **must** remain vigilant for such situations and issue a safety alert when the situation is recognized.

NOTE: This applies to VFR as well as IFR aircraft.

⊙ Provide additional services to the extent possible, contingent upon:

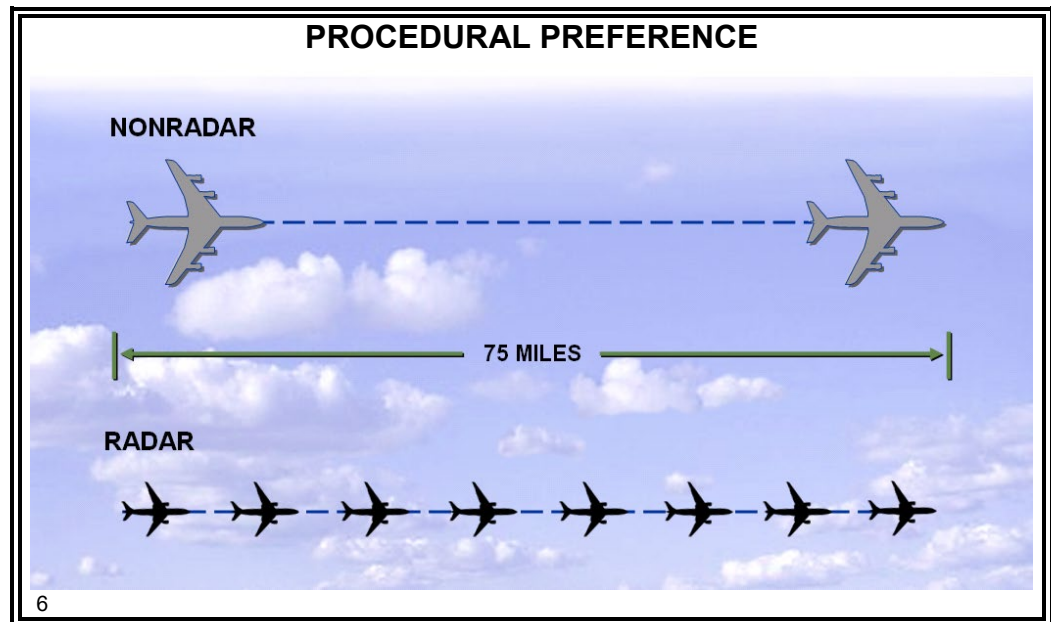
- Higher priority duties
- Limitations of radar
- Volume of traffic
- Frequency congestion
- Workload

NOTE: Additional services are **not** optional but required as workload permits and include such items as merging target procedures, traffic advisories, and weather advisories, which are covered in later stages of training.

DUTY PRIORITIES *(Continued)*

Procedural Preference

JO 7110.65,
par. 2-1-3



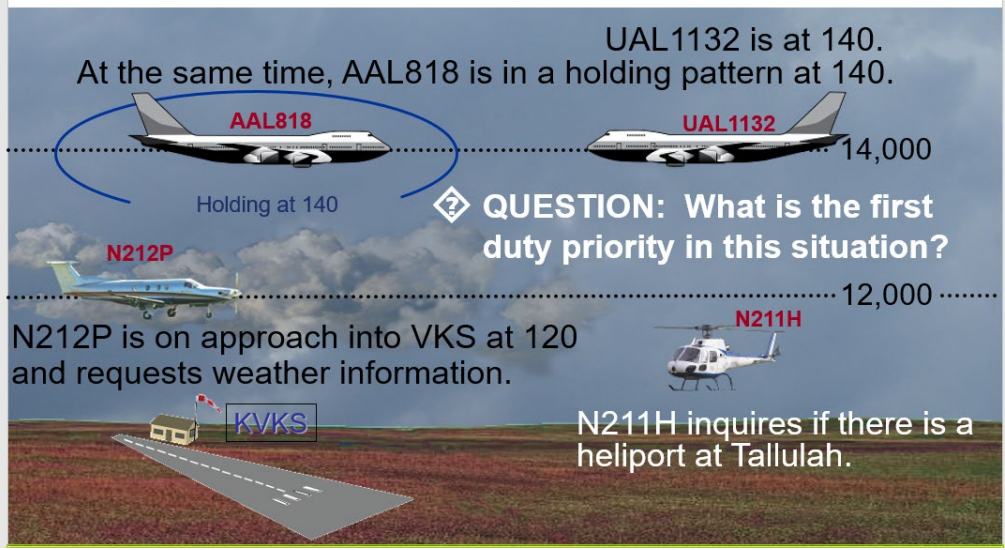
- ⦿ Use automation procedures in preference to nonautomation procedures when permitted by:
 - Workload
 - Communications
 - Equipment capabilities
- ⦿ Use radar separation in preference to nonradar separation when it will be an operational advantage and when permitted by:
 - Workload
 - Communications
 - Equipment
- ⦿ Use nonradar separation in preference to radar separation when an operational advantage will be gained.

NOTE: One example of this would be using vertical separation in lieu of excessive vectoring.

DUTY PRIORITIES *(Continued)*

Knowledge Check

KNOWLEDGE CHECK



At the same time, AAL818 is in a holding pattern at 140.

UAL1132 is at 140.

14,000

AAL818

Holding at 140

QUESTION: What is the first duty priority in this situation?

N212P

12,000

N212P is on approach into VKS at 120 and requests weather information.

N211H

N211H inquires if there is a heliport at Tallulah.

KVKS

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NOTE: Ask students to prioritize remaining situations.

KNOWLEDGE CHECK

❖ **QUESTION:** What are the first duty priorities of an air traffic controller?

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Continued on next page

DUTY PRIORITIES *(Continued)*

Knowledge Check (Cont'd)

KNOWLEDGE CHECK

- ❖ **QUESTION:** Which of the following has the highest priority?
- A. Relaying control information
 - B. Clearing an aircraft to avoid an area of significant weather
 - C. Separating two converging aircraft

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Operational Priority JO 7110.65, par. 2-1-4

- ⊙ Provide air traffic control service to aircraft on a first-come, first-served basis.
- ⊙ Exceptions
 - Aircraft in distress have right of way over all other air traffic
 - Military Air Evacuation Flights, when requested
 - Scheduled air carrier/air taxi/civilian air ambulance flights using "MEDEVAC" call sign
 - Search and Rescue (SAR) aircraft while performing an SAR mission
 - Presidential or vice presidential aircraft and any escort aircraft
 - Expedite movement and related control messages when traffic and communication permit

NOTE: Students at Aero Center are responsible for notifying Frontline Managers of presidential, vice presidential, or Executive One Foxtrot aircraft movement for required monitoring.

- Flight Check aircraft
 - When required, provide special handling to expedite

DUTY PRIORITIES *(Continued)*

Knowledge Check

KNOWLEDGE CHECK

❖ **QUESTION:** The normal priority for providing air traffic control service is _____.

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KNOWLEDGE CHECK

❖ **QUESTION:** When is a Military Air Evacuation Flight provided priority handling?

- A. When carrying patients
- B. When requested
- C. Always

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DUTY PRIORITIES *(Continued)*

Knowledge
Check
(Cont'd)

KNOWLEDGE CHECK

❖ **QUESTION:** When should you use radar separation in preference to nonradar separation?

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KNOWLEDGE CHECK

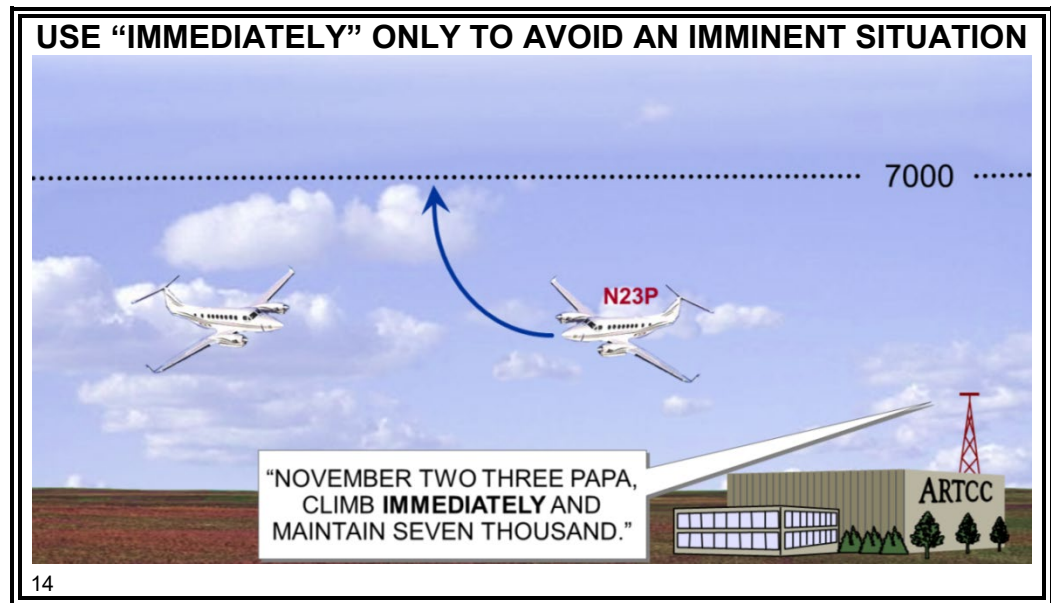
❖ **QUESTION:** When should you use nonradar separation in preference to radar separation?

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DUTY PRIORITIES *(Continued)*

Expeditious Compliance

JO 7110.65,
par. 2-1-5



Phraseology

- ⦿ Use the word "IMMEDIATELY" **only** when expeditious compliance is required to avoid an imminent situation.
 - Include reason, if time permits
- ⦿ Use the word "EXPEDITE" **only** when prompt compliance is required to avoid the development of an imminent situation.
 - Include reason, if time permits
 - If an "EXPEDITE" clearance is issued, and the clearance is subsequently reissued without an "EXPEDITE" instruction:
 - The "EXPEDITE" instruction is canceled

MALFUNCTIONS

Inflight Equipment Malfunction

JO 7110.65,
par. 2-1-7



☉ Determine the nature of the malfunction.

- Consider any special handling
- Provide needed assistance
- Coordinate with other:
 - Controllers
 - Concerned facilities

MALFUNCTIONS *(Continued)*

Minimum Fuel

JO 7110.65,
par. 2-1-8

- ☉ When a pilot declares “MINIMUM FUEL,” the controller should:
 - Inform any other controller or facility that will assume control of the aircraft
 - Provide necessary assistance
 - Avoid undue delays

NOTE: Use of the term “minimum fuel” indicates recognition by a pilot that his/her fuel supply has reached a state where, upon reaching destination, he/she **cannot** accept any undue delay. This is **not** an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does **not** imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

MALFUNCTIONS *(Continued)*

Reporting Essential Flight Information

JO 7110.65,
par. 2-1-9

- ⊙ Report, as soon as possible, any information concerning components of the National Airspace System (NAS) or flight conditions that may adversely affect air safety to the appropriate:

- FSS
 - FSS is responsible for Notice to Airmen (NOTAM) action, if necessary
- Airport manager's office
- ARTCC
- Approach control facility
- Operations office
- Military office

Examples: Conditions that might be reported include NAVAID outages, radar system failures, computer outages, turbulence, and weather conditions. These conditions should also be reported to your front line manager.

MALFUNCTIONS *(Continued)*

NAVAID Malfunctions

JO 7110.65,
par. 2-1-10a; par.
2-1-10b; par. 2-1-
25

- ⊙ When an aircraft reports a ground-based NAVAID malfunction:
 - Request a report from another aircraft.
 - If second aircraft reports normal:
 - Continue use of NAVAID
 - Inform pilot making malfunction report
 - If second pilot confirms malfunction or if unable to get a second report:
 - Notify the Front Line Manager

- ⊙ When an aircraft reports a GPS anomaly, request the following information and/or take the following actions:
 - Record the following minimum information:
 - Aircraft make, model, and call sign.
 - Location or position, and altitude at the time where GPS anomaly was observed.
 - Date/time of occurrence.
 - Request a report from a second aircraft.
 - Record the incident on FAA Form 7230-4 or appropriate military form.
 - Inform other aircraft of the anomaly as specified in paragraph 4-8-1 j or k, as applicable.

NOTE: Most if not all of the above actions are done by your Frontline Manager upon notification.

MILITARY PROCEDURES

Formation Flights

JO 7110.65,
par. 2-1-13



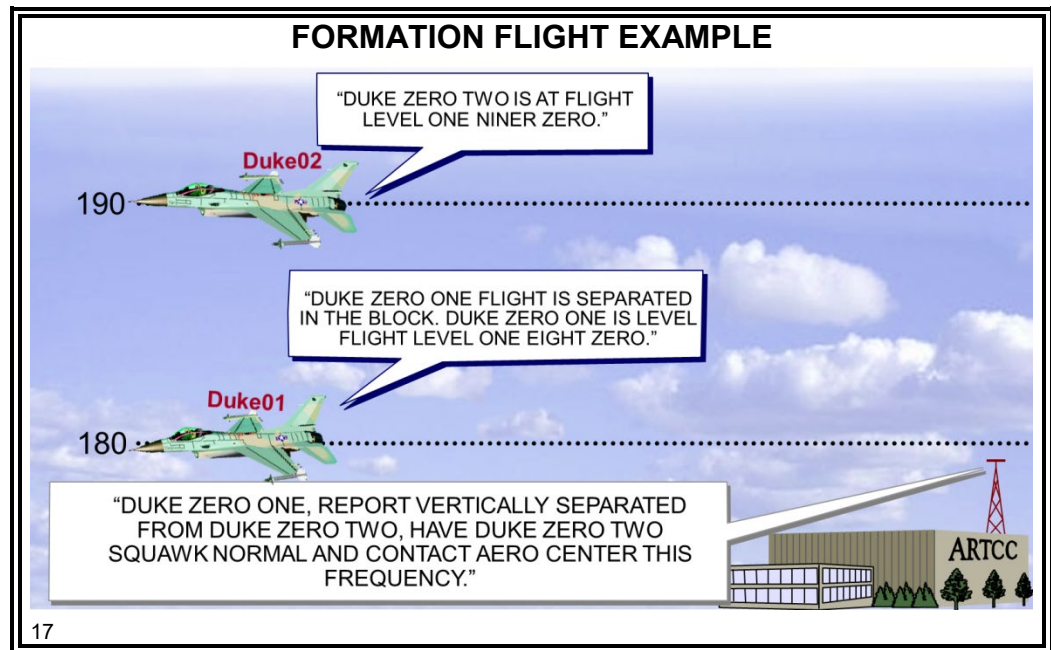
- ⦿ Control formation flights as a single aircraft unless:
 - Formation leader requests that ATC separate individual aircraft and aircraft have established separation

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MILITARY PROCEDURES *(Continued)*

Formation Flights (Cont'd)

JO 7110.65,
par. 2-1-13



- ⦿ Issue control instructions to the formation leader.
 - When individual control is requested, issue to the formation leader advisory information that will assist the pilots in attaining separation
- ⦿ Issue control instructions as required **only** when pilot indicates separation has been established.

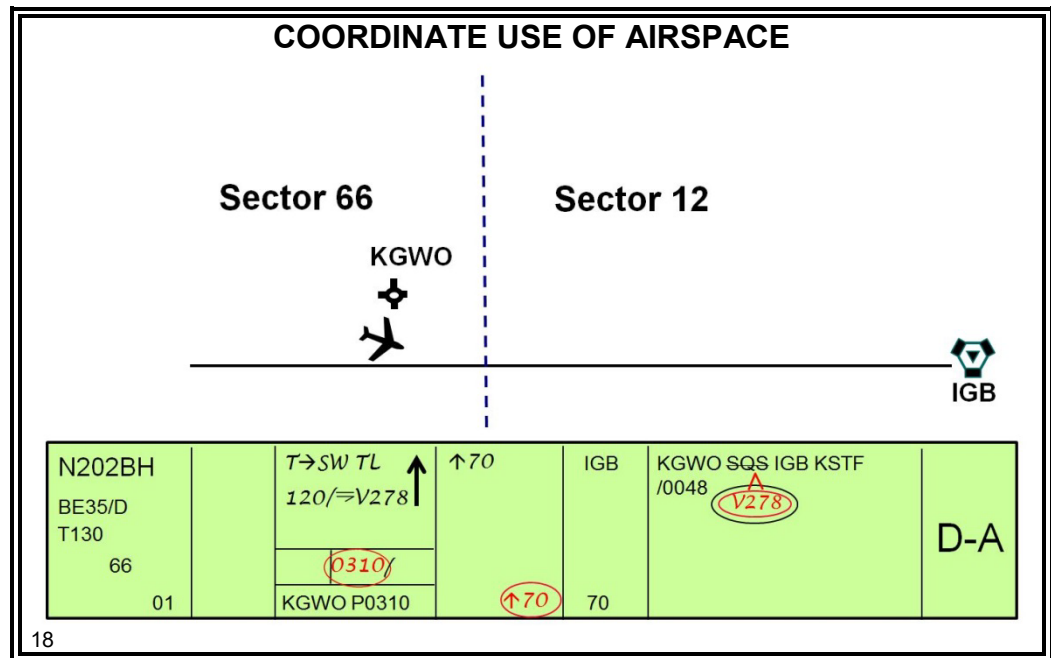
NOTE: Individual aircraft **must** have achieved separation.

- ⦿ Civil aircraft may also conduct formation flights.

NOTE: Separation of formation flights will be covered in more detail later in the course.

COORDINATION

Coordinate Use of Airspace
JO 7110.65,
par. 2-1-14



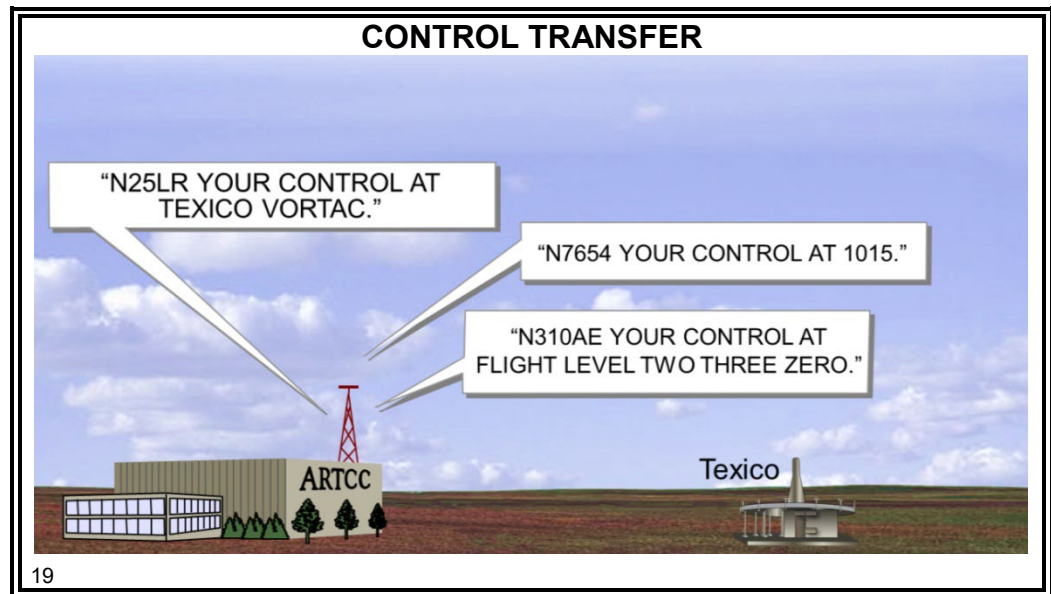
- ⊙ Ensure necessary coordination has been accomplished before you allow an aircraft under your control to enter another controller's area of jurisdiction.
- ⊙ Before issuing control instructions to an aircraft **not** in your airspace that will change that aircraft's heading, route, speed, or altitude, ensure:
 - Coordination has been accomplished with all controllers affected by those instructions, including:
 - The controller within whose area of jurisdiction the control instructions will be issued
 - The controller receiving the transfer of control
 - Any intervening controller(s) through whose airspace the aircraft will pass

NOTE: Unless specified in an LOA or facility directive.

COORDINATION *(Continued)*

Control Transfer

JO 7110.65,
par. 2-1-15

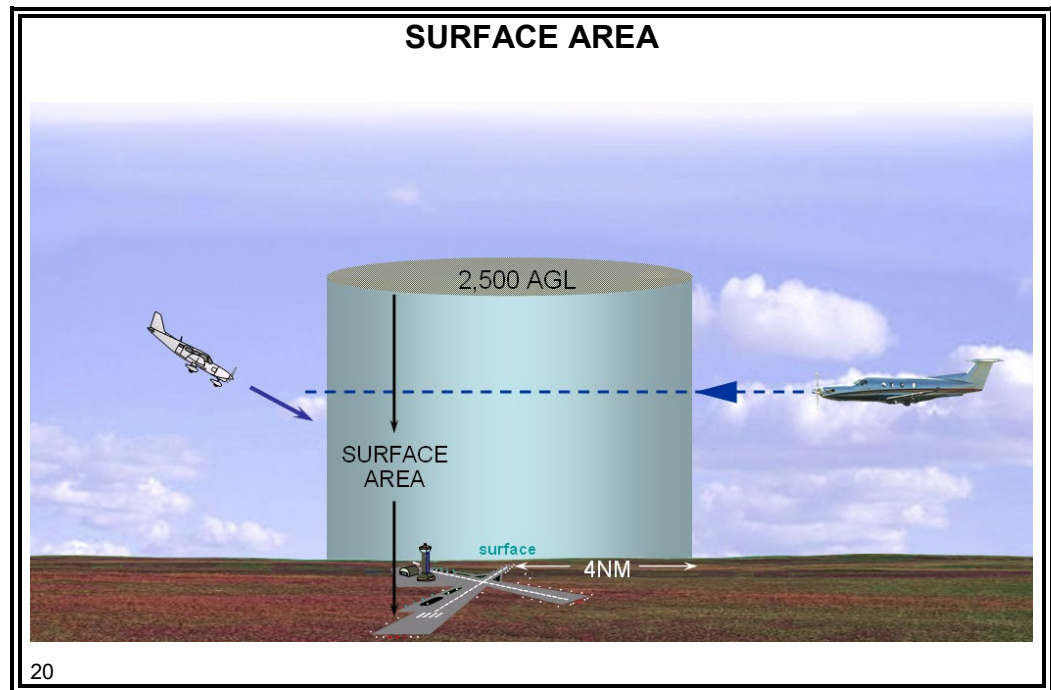


- ⦿ Transfer control responsibility:
 - At a prescribed or coordinated location, time, fix, or altitude, or
 - At the time a radar handoff and frequency change to the receiving controller have been completed, as specified in an LOA or facility directive
- ⦿ Transfer control **only** after eliminating any potential conflict with other aircraft for which you have separation responsibility.
- ⦿ Assume control:
 - **Only** after aircraft is in your area of jurisdiction or specifically coordinated, or
 - As specified in an LOA or facility directive

COORDINATION *(Continued)*

Surface Areas

JO 7110.65,
par. 2-1-16,
Pilot/Controller
Glossary



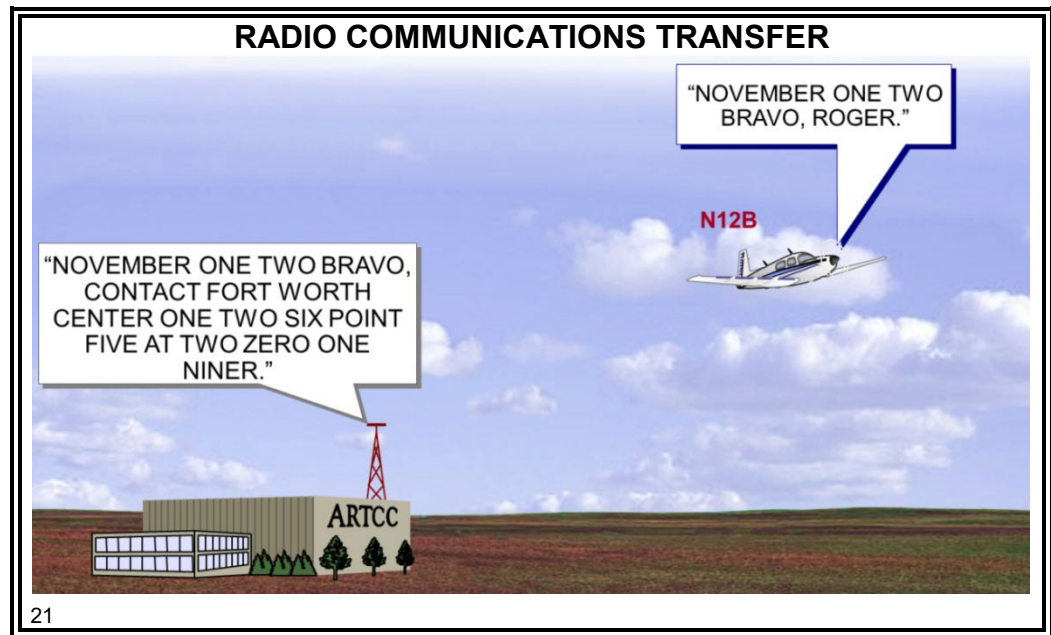
Surface area is the airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.

- ⦿ Prior to issuing a clearance that would require flight within a surface area for which a tower has responsibility, coordinate with the appropriate nonapproach control tower, unless covered by an LOA.
- ⦿ Coordinate with the appropriate control tower for transit authorization when providing radar traffic advisory service to aircraft that will enter another facility's airspace.
- ⦿ Transfer communications to the appropriate facility prior to operation within a surface area, if required.

COORDINATION *(Continued)*

Radio Communica- tions Transfer

JO 7110.65,
par. 2-1-17



- ⊙ Transfer communications before an aircraft enters the receiving controller's area, unless:
 - Coordinated
 - Specified by LOA or facility directive
- ⊙ Transfer communications by specifying the following:
 - Who to contact, specifying:
 - Facility name, or
 - Location name and terminal function

Examples: "Atlanta Center," "Greenwood Radio," "Saint Louis Approach," "Craig Tower"
 - Frequency
 - Optional for:
 - FSS
 - Departure, if previously given or published on a Standard Instrument Departure Procedure (SID) chart

Continued on next page

COORDINATION *(Continued)*

Radio Communica- tions Transfer (Cont'd)

JO 7110.65,
par. 2-1-17



Phraseology Example

- Time, fix, altitude, or specified condition when to change frequency
 - May be omitted if compliance is expected upon receipt

“Contact Memphis Center one three three point eight five at RENRO Intersection.”

- ⦿ Controllers must, within a reasonable amount of time, take appropriate action to establish/restore communications with all aircraft for which a communications transfer or initial contact to his/her sector is expected/required.

NOTE: A reasonable amount of time is considered to be 5 minutes from the time the aircraft enters the controller’s area of jurisdiction or comes within range of radio/communications coverage.

- ⦿ Intrasector communications transfer
 - When a sector has multiple frequencies or when sectors are combined using multiple frequencies and aircraft will remain under your jurisdiction:
 - Instruct the aircraft to change to your frequency



Phraseology

“(Identification) CHANGE TO MY FREQUENCY (frequency).”

- ⦿ Avoid issuing frequency change to single-piloted helicopters during:
 - -taxiing
 - Air Hovering
 - Low-level flight
- ⦿ In situations where the controller does **not** want the pilot to leave the frequency, advise the pilot to remain on your frequency.



Phraseology

“REMAIN THIS FREQUENCY.”

COORDINATION *(Continued)*

Knowledge Check

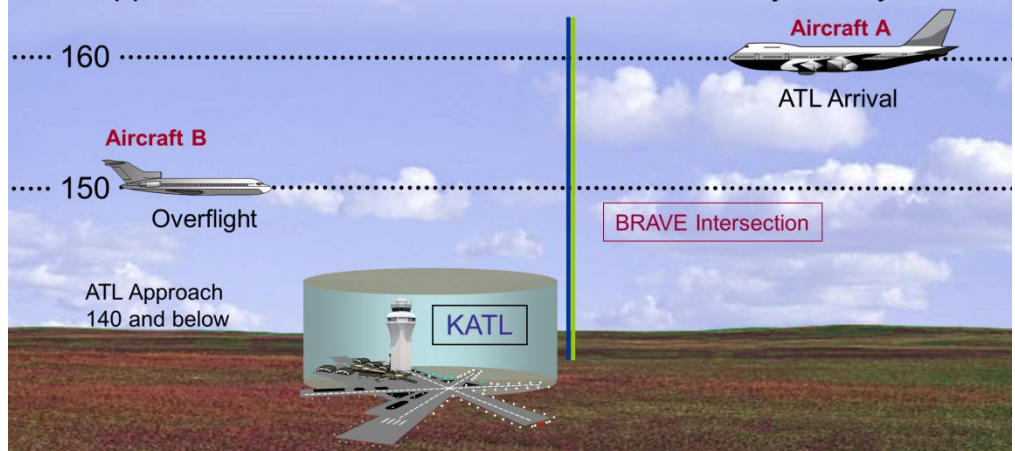
KNOWLEDGE CHECK

- ❖ When control responsibility is being transferred between facilities or between controllers within a facility, effect the transfer at a ____.
- A. convenient location
 - B. time, fix, or altitude
 - C. time, fix, or boundary

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KNOWLEDGE CHECK

- ❖ **QUESTION:** Can you release control of aircraft A to Atlanta Approach Control at BRAVE Intersection? Why or why not?



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COORDINATION *(Continued)*

Operational Request

JO 7110.65,
par. 2-1-18

OPERATIONAL REQUEST

Approve or deny a pilot request as circumstances permit.

The diagram shows two air traffic controllers, D66 and D67, in a control room. D66 is on the left, wearing a headset, and D67 is on the right, also wearing a headset. A speech bubble from D66 says "RR". A speech bubble from D67 says "BLOCK SEVEN THOUSAND AND BELOW FOR HOLDING AND APPROACH AT SQS." A speech bubble from D66 says "APPROVED AS REQUESTED KT." The background is a blue sky with clouds.

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⦿ Respond to a request from another controller or pilot by:

✈ Phraseology

- Restating the request in complete or abbreviated terms followed by "APPROVED"
 - "APPROVED AS REQUESTED" may be used in lieu of a lengthy readback
- Issuing the requested clearance
- Stating restrictions followed by "APPROVED"
- Stating "UNABLE"
 - Give reason, if time permits
- Stating "STAND BY"

Continued on next page

COORDINATION (Continued)

Operational Request (Cont'd)

JO 7110.65,
par. 2-1-18

OPERATIONAL REQUEST EXAMPLE 1

The diagram shows a white commercial jet flying at flight level 250. A speech bubble from the aircraft says: "AERO CENTER AMERICAN TWENTY-ONE, REQUEST FLIGHT LEVEL TWO NINER ZERO." Another speech bubble from the ARTCC tower says: "AMERICAN TWENTY-ONE, CLIMB AND MAINTAIN FLIGHT LEVEL TWO NINER ZERO." The background shows a landscape with a red field, a green hill, and a building labeled "ARTCC" with a red tower.

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OPERATIONAL REQUEST EXAMPLE 2

The diagram shows two aircraft. One is at flight level 150, and the other is at flight level 140. A speech bubble from the aircraft at 140 says: "AERO CENTER UNITED ONE FOURTEEN REQUESTING ONE SIX THOUSAND." Another speech bubble from the ARTCC tower says: "UNITED ONE FOURTEEN UNABLE DUE TO TRAFFIC, EXPECT HIGHER ALTITUDE IN ONE ZERO MILES." The background shows a landscape with a red field, a green hill, and a building labeled "ARTCC" with a red tower.

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COORDINATION *(Continued)*

Supervisory Notification

JO 7110.65,
par. 2-1-26

- ⊙ Ensure Front Line Manager/Controller-in-Charge (CIC) is aware of conditions affecting sector operations, including, but **not** limited to, the following:
 - Weather
 - Equipment status
 - Potential sector overload
 - Emergency situations
 - Special flights/operations
-

IN CONCLUSION

Lesson Review

LESSON REVIEW

The following topics were covered in this lesson:

- Expeditious compliance with a clearance
- Safety, traffic, equipment malfunctions, operational requests, and selected military operations
- Duty, procedural preference, and operational priorities
- Transferring control, radio communications, and reporting essential flight information

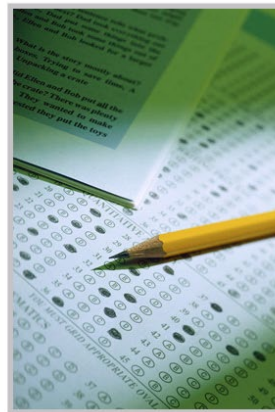


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End-of-Lesson Test

END-OF-LESSON TEST

General Control



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