BASICS FOR AIR TRAFFIC CONTROL – BASIC COMMUNICATIONS

MODULE OVERVIEW

Purpose: This module discusses radio and interphone communications, standardization of Air Traffic Control (ATC) terminology, coordination procedures between intrafacility and interfacility, and procedures conducted during position relief.

MODULE OUTLINE

Lesson: Radio and Interphone Communications

Purpose: This lesson identifies the radio and interphone communications to ensure the best communication is achieved in an Air Traffic Control environment.

Objective:

- Identify frequency use for authorized radio and interphone communications

Topics:

- Typical Air/Ground Panel
- Radio Frequency Use
  - Monitoring
  - Authorized Transmissions
  - Authorized Interruptions
- Knowledge Check
- Review/Summary

Lesson: Standardization

Purpose: This lesson identifies how international civil aviation phonetics are used to standardize communication in the Air Traffic Control environment.

Objective:

- Identify International Civil Aviation Organization (ICAO) phonetics

Topics:

- ICAO Phonetics
  - Numbers
  - Alphabet
- Words and Phrases
- Word Meanings
- Annotations
- Knowledge Check
- Review/Summary

Exercise – ICAO Phonetics

Lesson: Number Group Usage

Purpose: This lesson identifies how number groups are standardized in the Air Traffic Control environment.

Objective:

- Identify number group usage during communication

Topics:

- Serial Numbers
- Altitudes
- Flight Levels
- Minimum Descent Altitude (MDA)/ Decision Altitude (DA)
- Time
- Knowledge Check
- Review/Summary

Lesson: Number Usage

Purpose: This lesson identifies how numbers are standardized in the Air Traffic Control environment.

Objective:

- Identify proper number usage during communication

Topics:

- Field Elevation
- The Number Zero
- Altimeter Setting
- Surface Wind
- Heading
- Radar Beacon Code
- Runways
- Frequencies
  - Local Channels
  - TACAN
- Speed
- Miles
- Numbers Clarification
  - Single-Digit Form
  - Group Form
- Knowledge Check
- Review/Summary

Activity – Numbers and Number Group Usage

Question and Answer Session – *Parking Lot*

Lesson: Facility Identification

Purpose: The purpose of this lesson is to identify how facility identification is standardized in the Air Traffic Control environment.

Objective:

- Identify proper facility identification during communication

Topics:

- Facility Identification
  - Air Traffic Control Tower (ATCT) Identification
  - Approach Control Identification
  - Terminal Facility Position Identification
  - Flight Service Station (FSS) Identification
  - Air Route Traffic Control Center (ARTCC) Identification
- Knowledge Check
- Review/Summary

Lesson: Aircraft Identification

Purpose: The purpose of this lesson is to identify how aircraft identification is standardized in the Air Traffic Control environment.

Objective:

- Identify proper aircraft identification during communication

Topics:

- Aircraft Identification
- Radio Message Format
- Knowledge Check
- Aircraft Identification
  - Civil Aircraft
  - Special Flights
  - Air Carrier
  - Foreign Registry
  - Air Carrier/Air Taxi Ambulance
  - Air Taxi
  - Civilian Air Ambulance
  - Special Operations
  - U.S. Military
  - Presidential Aircraft
  - Department of Transportation (DOT) and FAA Flights
- Knowledge Check
- Use of the Words "Super" and "Heavy"
- Review/Summary

Lesson: Route and NAVAID Description

Purpose: The purpose of this lesson is to explain how proper route and navigational aid (NAVAID) descriptions are communicated between the air traffic control tower and pilots.

Objectives:

- Identify proper route descriptions during communication
- Identify NAVAID descriptions during communication

Topics:

- Airways and Routes
  - VOR/VORTAC/TACAN
  - Military Training Routes (MTRs)
  - Area Navigation (RNAV) Routes
- Describing NAVAID Radials, Arcs, and Fixes
  - Describing Radials of VOR/VORTAC/TACAN NAVAIDs
  - Describing Arcs about VOR-DME/VORTAC/TACAN NAVAIDs
  - Describing NAVAID Fixes

- ■ Knowledge Check
- ■ Review/Summary

Question and Answer Session – *Parking Lot*

Lesson: Coordination

Purpose: The purpose of this lesson is to identify how facilities relay instructions and essential information between control positions and facilities.

Objective:

- ■ Identify intra- and interfacility coordination

Topics:

- ■ Coordination
- ■ Intrafacility and Interfacility Coordination
  - • Intrafacility
  - • Interfacility
- ■ Methods of Coordination
  - • Automated
  - • Facility Directive
  - • Interphone
  - • Verbal/Physical
- ■ Interphone Coordination
  - • Interphone Message Priority
  - • Interphone Message Format
- ■ Coordination Actions
  - • Transfer of Radar Identification
  - • Transfer of Radar Identification via Interphone
    - ○ Example 1
    - ○ Example 2
- ■ Knowledge Check
- ■ Coordinated Actions (continued)
  - • Transfer of Radio Communication
  - • Transfer of Control
- ■ Runway Crossings
- ■ Forwarding Control Information
- ■ Arrival Information
- ■ Clearances and Instructions
- ■ Knowledge Check
- ■ Review/Summary

Question and Answer Session – *Parking Lot*

Lesson: Position Relief Briefing

Purpose: This lesson identifies procedures necessary to ensure effective communication is conducted during a Position Relief Briefing.

Objective:

- ■ Identify procedures for conducting a Position Relief Briefing

Topics:

- Coordination
- Step-by-Step Process
  - Preview the Position
  - Verbal Briefing
  - Assumption of Position Responsibility
  - Review the Position
- Knowledge Check
- Review/Summary

Activity – Traffic Advisories

Activity – Communication Situation

Study Aid – Basic Communications Review Sheet

Question and Answer Session *– Parking Lot*

Basic Communications Quiz

End-of-Module (EOM) Test

INTRODUCTION

LESSONS	■ Radio and Interphone Communications ■ Standardization ■ Number Group Usage ■ Number Usage ■ Facility Identification ■ Aircraft Identification ■ Route and NAVAID Description ■ Coordination ■ Position Relief Briefing
TOTAL ESTIMATED RUN TIME	8hr. 05 mins.
MODULE CONTENT	■ Module Overview ■ Lesson: Radio and Interphone Communications ■ Lesson: Standardization ■ Exercise – ICAO Phonetics ■ Lesson: Number Group Usage ■ Lesson: Number Usage ■ Activity – Number and Number Group Usage ■ Q&A Session – Parking Lot ■ Lesson: Facility Identification ■ Lesson: Aircraft Identification ■ Lesson: Route and NAVAID Description ■ Q&A Session – Parking Lot ■ Lesson: Coordination ■ Q&A Session – Parking Lot ■ Lesson: Position Relief Briefing ■ Activity – Traffic Advisories ■ Activity – Communication Situation ■ Study Aid – Basic Communications Review Sheet ■ Q&A Session – Parking Lot ■ Basic Communications Quiz ■ End-of-Module Test

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ *Note:* Approximate 2 mins. video included ■ Instruct students to select *Basic Communications* module link within Blackboard ■ Inform the students to read the introduction and then view the video ■ Instruct students to wait quietly for additional instructions after viewing the video	Blackboard
	EST. RUN TIME
	5 mins.

Air Traffic Control (ATC) human factors research has shown that improper communication or lack of communications is the leading cause of operational errors and aircraft accidents. The use of standard phraseology and specific meanings for commonly used words and phrases has minimized the misunderstandings that occur in ATC communications. The controller must have a good knowledge of basic phraseology to communicate with pilots and other facilities. Confusion and/or misunderstandings could lead to serious situations.

What would happen if all of the above communications were given without following prescribed procedures and phraseology? Confusion!

This module discusses radio and interphone communications, standardization of ATC terminology, coordination procedures between intrafacility and interfacility, and procedures conducted during position relief.

Select the play button below to view the video that will demonstrate how important standard phraseology and good communication are to a controller.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Radio and Interphone Communications* and *Standardization* lessons in Blackboard	Blackboard
■ Instruct students to navigate to the *Radio and Interphone Communications* lesson in Blackboard	**EST. RUN TIME**
■ Instruct students to work individually through the lesson content	10 mins.
■ Upon completion of *Radio and Interphone Communications* instruct students to navigate to the *Standardization* lesson in Blackboard	
■ Instruct students to work individually through the lesson content	
■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	

RADIO AND INTERPHONE COMMUNICATIONS

Purpose: This lesson identifies the radio and interphone communications to ensure the best communication is achieved in an Air Traffic Control environment.
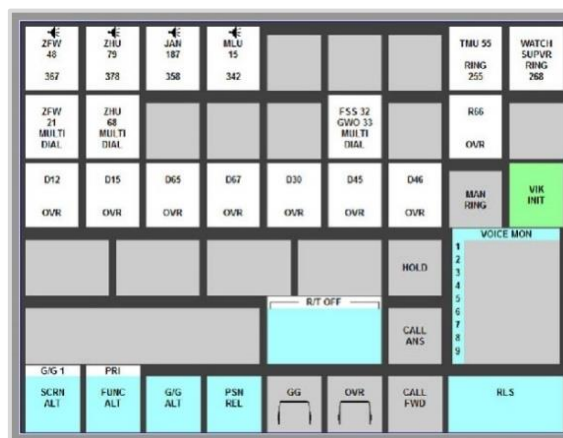
Objective:

■ Identify frequency use for authorized radio and interphone communications

Reference for this lesson are as follows:

■ FAA Order JO 7110.65, Air Traffic Control

Typical Air / Ground Panel

This is an example of a Voice Switching and Control System (VSCS) screen. It is used in ARTCCs and TRACONs.

Radio Frequency Use

Radio frequencies are used only for the specific purpose intended.

■ A frequency may be used for more than one function, except:
  • Do not use ground control frequency for airborne communication
■ A minimum number of frequencies are used to conduct communications

Monitoring

Interphones and assigned radio frequencies are to be monitored continuously.

■ Speaker volumes are kept at a level to enable the controller to hear all transmissions

Authorized Transmissions

Authorized transmissions are only those messages necessary for:

■ ATC or otherwise contributing to air safety
  • Relay operational information to aircraft or aircraft operators as necessary when time and work load permit
■ Official Federal Aviation Administration (FAA) messages as required
■ General information
  • Do not agree to handle such messages on a regular basis
  • Give the source of any such message you relay

Authorized Interruptions

As necessary, authorize pilot to interrupt their communications guard when:

■ Requested
■ A mutually agreeable time off frequency is established

✅ *Knowledge Check A*

REVIEW what you have learned so far about radio and interphone communications. ANSWER the questions listed below.

1. When is an air traffic controller authorized to use radio frequencies? *(Select the correct answer.)*
   ❑ Whenever they deem communication is required
   ❑ **Only for specific purpose intended**
   ❑ Anytime as long as an aircraft is not present

2. How often must a controller monitor assigned interphones and radio frequencies? *(Select the correct answer.)*
   ❑ Every hour
   ❑ Only when aircraft are visible
   ❑ **Continuously**
   ❑ Only when communication is indicated

3. In which of the following conditions are radio frequency transmissions authorized? *(Select all correct answers that apply.)*
   - ❑ **ATC or otherwise contributing to air safety**
   - ❑ **Official FAA messages as required**
   - ❑ Relay non-operational information to aircraft as necessary
   - ❑ General information on a regular basis

Radio and Interphone Communications Summary

Basic communications knowledge is vital for the success of a controller. Equally important is knowing how to correctly use and monitor radio frequencies, what transmissions are authorized and when necessary, when to authorize a pilot to interrupt their communications guard.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **Note:** *Standardization* lesson should have already been enabled in Blackboard, if not ensure it is enabled	Blackboard
■ Instruct students to navigate to the *Standardization* lesson in Blackboard	**EST. RUN TIME**
■ Instruct students to work individually through the lesson content	20 mins.
■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	

STANDARDIZATION

Purpose: This lesson identifies how international civil aviation phonetics are used to standardize communication in the Air Traffic Control environment.

Objective:

■ Identify International Civil Aviation Organization (ICAO) phonetics

Reference for this lesson are as follows:

■ FAA Order JO 7110.65, Air Traffic Control

ICAO Phonetics

ICAO phonetics is used for the pronunciation of numbers and letters.

■ Clarifies individual letters
■ Prevents misunderstandings

Numbers

Pronunciation of numbers may vary with each individual speaker.

■ To eliminate these variations and promote standardization, pronunciation tables have been established
■ Pronounce numbers as shown in the table

Character	Word	Pronunciation
0	Zero	ZE-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER

Alphabet

When it is necessary to state individual letters in radiotelephony, use the ICAO pronunciation of the alphabet listed below to prevent confusion. For clarity of communications, the syllables in **bold print** are to be emphasized when pronounced.

Character	Word	Pronunciation
A	Alfa	**AL**FAH
B	Bravo	**BRAH**VOH
C	Charlie	**CHAR**LEE
D	Delta	**DELL**TAH
E	Echo	**ECK**OH
F	Foxtrot	**FOKS**TROT
G	Golf	GOLF
H	Hotel	HOH**TELL**
I	India	**IN**DEE AH
J	Juliett	**JEW**LEE ETT
K	Kilo	**KEY**LOH
L	Lima	**LEE**MAH
M	Mike	MIKE
N	November	NO**VEM**BER
O	Oscar	**OSS**CAH
P	Papa	PAH**PAH**
Q	Quebec	KEH**BECK**
R	Romeo	**ROW**ME OH
S	Sierra	SEE**AIR**AH
T	Tango	**TANG**GO
U	Uniform	**YOU**NEE FORM
V	Victor	**VIK**TAH
W	Whiskey	**WISS**KEY
X	X-ray	**ECK**SRAY
Y	Yankee	**YANG**KEY
Z	Zulu	**ZOO**LOO

Words and Phrases

Words and phrases frequently used in pilot/controller communications are printed in **bold italics** in the FAA Order JO 7110.65.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

ORDER
JO 7110.65X

Effective Date:
October 12, 2017

SUBJ: Air Traffic Control

This order prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

Original Signed By: Elizabeth L. Ray

Elizabeth L. Ray
Vice President, Mission Support Services
Air Traffic Organization

Date: August 17, 2017

Word Meanings

When using FAA Order JO 7110.65 for reference, these words will have the following meanings:

Shall or Must	A procedure is mandatory
Shall Not or Must Not	A procedure is prohibited
Should	A procedure is recommended
May or Need Not	A procedure is optional
Will	Futurity, not a requirement for the application of a procedure

Note: *Generally, these word meanings are consistent in all FAA orders.*

Annotations

When using FAA Order JO 7110.65, the annotations listed below will have the following meanings:

DEFINITION	EXAMPLES
Phraseology – denotes the prescribed words and/or phrases to be used in communications. Controllers may, after first using the prescribed phraseology for a specific procedure, rephrase the message to ensure the content is understood. Good judgment must be exercised when using nonstandard phraseology.	**"**CLEARED TO (NAVAID name and type)" "DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, PROCEED DIRECT (name of NAVAID/WAYPOINT/FIX)" "DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, FLY HEADING (degrees), VECTOR TO JOIN (airway) AND ADVISE."
Example – provides a sample of the way the prescribed phraseology associated with the preceding paragraph(s) will be used. If the preceding paragraph(s) does (do) not include specific prescribed phraseology, the **Example** merely denotes suggested words and/or phrases that may be used in communications. The use of the exact text contained in an example not preceded with specific prescribed phraseology is not mandatory. However, the words and/or phrases are expected, to the extent practical, to approximate those used in the example.	*"*Cleared to Grand Rapids VOR" "Deviation 20 Degrees Right Approved, When Able Proceed Direct O'Neill VORTAC and Advise." "Runway One Four RVR Two Thousand Four Hundred." "Runway Three Two RVV Three Quarters."

✅ *Knowledge Check B*

REVIEW what you have learned so far about standardizing communications. ANSWER the questions listed below.

1. What is the purpose for using ICAO phonetic pronunciations of numbers and letters? *(Select all correct answers that apply.)*
   - ❑ Provides an example
   - ❑ Prescribes phraseology
   - ❑ **Prevents misunderstandings**
   - ❑ **Clarifies individual letters**

2. How are words and phrases that are frequently used by pilot/controllers printed in FAA Order JO 7110.65? *(Select the correct answer.)*
   - ❑ Bold text
   - ❑ **Bold italics**
   - ❑ Italics text

3. Match the words referenced in FAA Order JO 7110.65 to the correct word meaning.

  __b__ A procedure is optional

  __d__ A procedure is mandatory

  __a__ Futurity, not a requirement for the application of a procedure

  __c__ A procedure is recommended

  __e__ A procedure is prohibited

a. Will

b. May or Need Not

c. Should

d. Shall or Must

e. Shall Not or Must Not

4. If a controller determines it necessary to state individual letters in radiotelephony, what should they do to the following letter pronunciations when using ICAO pronunciation? *(Select the correct answer.)*

"**BRAH**VOH, SEE**AIR**AH, **JEW**LEE ETT"

- ❑ Clarify individual letters
- ❑ **Emphasize the syllables in bold print**
- ❑ Provide an example for the associated phrase
- ❑ Pronounce the letters in alphabetical order

Standardization Summary

Air traffic controllers must be able to communicate effectively at all times without hesitation. In order for this to occur, they use international civil aviation phonetics to standardize communication in their environment. Standardized communication is one way to ensure the controller and pilot or aircraft receive and provide critical information in the same manner every time they communicate.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
▪ Instruct students to locate student exercise *ICAO Phonetics* in the printed *Student Guide*	Exercise
▪ The exercise will be performed in groups of two	
▪ Instruct each group of students to select either Group A or Group B word list	**EST. RUN TIME**
▪ The person who selects Group A will call out the words in the list	
▪ The other student orally gives the phonetic spelling for the word	25 mins.
▪ Continue to call out all of the words in the list	
▪ Reverse roles and repeat the exercise using Group B word list	
▪ The exercise will be evaluated by the partner who has the answers provided within the list of words	
▪ If time permits, randomly select students to spell any of the words included with this exercise	

14

EXERCISE: ICAO PHONETICS

Purpose

This exercise reinforces your ability to use the correct ICAO phonetic spelling of words.

Detailed Facilitator Instructions: Direct students to reference the phonetic alphabet table in student workbook for assistance, if needed, to answer the following questions. Monitor students as they work through the exercise and provide guidance or feedback. After completion, (if time permits) select students randomly to spell any of the words included in either group list. Encourage student discussion with this exercise.

Directions

Working in groups of two, determine and select either Group A or Group B word list. One person will call out the words in Group A, while the other person spells each word phonetically. Reverse roles and repeat the exercise using of the words in the Group B.

GROUP A: ICAO PHONETICS	
WORD	**PHONETIC SPELLING**
Zebra	**ZOOLOO, ECKOH, BRAHVOH, ROWME-OH, ALFAH**
Field	**FOKSTROT, INDEE AH, ECKOH, LEEMAH, DELLTAH**
Word	**WISSKEY, OSSCAH, ROWME OH, DELLTAH**
Very	**VIKTAH, ECKOH, ROWME OH, YANGKEY**
Code	**CHARLEE, OSSCAH, DELLTAH, ECKOH**
Fly	**FOKSTROT, LEEMAH, YANGKEY**
Oval	**OSSCAH, VIKTAH, ALFAH, LEEMAH**
King	**KEYLOH, INDEE AH, NOVEMBER, GOLF**
Quip	**KEHBECK, YOUNEE FORM, INDEE AH, PAHPAH**
Wind	**WISSKEY, INDEE AH, NOVEMBER, DELLTAH**

GROUP B: ICAO PHONETICS	
WORD	**PHONETIC SPELLING**
Knots	**KEYLOH, NOVEMBER, OSSCAH, TANGGO, SEEAIRAH**
Mike	**MIKE, INDEE AH, KEYLOH, ECKOH**
Arch	**ALFAH, ROWME OH, CHARLEE, HOHTELL**
Item	**INDEE AH, TANGGO, ECKOH, MIKE**
Unit	**YOUNEE FORM, NOVEMBER, INDEE AH, TANGGO**
Lost	**LEEMAH, OSSCAH, SEEAIRAH, TANGGO**
Page	**PAHPAH, ALFAH, GOLF, ECKOH**
Box	**BRAHVOH, OSSCAH, ECKSRAY**
Jack	**JEWLEE ETT, ALFAH, CHARLEE, KEYLOH**
Vest	**VIKTAH, ECKOH, SEEAIRAH, TANGGO**

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Number Group Usage* lesson in Blackboard ■ Instruct students to navigate to the *Number Group Usage* lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard
	EST. RUN TIME
	25 mins.

NUMBER GROUP USAGE

Purpose: This lesson identifies how number groups are standardized in the Air Traffic Control environment.

Objective:

■ Identify number group usage during communication

Reference for this lesson are as follows:

■ FAA Order JO 7110.65, Air Traffic Control

Serial Numbers

When communicating a number:

■ State each digit separately
■ Omit any commas

Serial #	Stated
11,495	One One Four Niner Five
20,069	Two Zero Zero Six Niner

Altitudes

Follow each digit in the hundreds or thousands by the word:

■ Hundred
■ Thousand

Altitudes may be restated in group form for added clarity if the controller chooses.

Altitude	Stated
10,000	One Zero *Thousand*
1,100	One Thousand One *Hundred*
17,900	One Seven Thousand Niner *Hundred*

Altitude	Restated (Group Form)
10,000	*Ten* Thousand
1,100	*Eleven* Hundred
17,900	*Seventeen* Thousand Niner Hundred

Flight Levels

When stating flight levels:

- Speak the words "Flight Level"
- Followed by the separate digits

Flight Level	Stated
180	*Flight Level One Eight Zero*
275	*Flight Level Two Seven Five*

Minimum Descent Altitude (MDA)/Decision Altitude (DA)

State the separate digits of:

- Minimum Descent Altitude (MDA)
- Decision Altitude (DA)

MDA	Stated
1,320	*Minimum Descent Altitude, One Three Two Zero*

DA	Stated
486	*Decision Altitude, Four Eight Six*

Time

The 24-hour clock is used in ATC and is expressed in terms of Coordinated Universal Time (UTC).

To clarify between UTC and local time:

- UTC: The word "ZULU" may be spoken after stating the time
- Local: When using local time, the word "LOCAL," or the time zone equivalent, shall be spoken after stating the time

When stating time, use the four separate digits of the hour and minutes based on the 24-hour clock.

- When the hour is a single digit, precede the time with a zero
- Local time may be stated using "A.M." or "P.M."

Time		Stated
12 hr.	24 hr.	
1:15 a.m.	0115	*Zero One One Five Local*
1:15 p.m.	1315	*One Three One Five Local*

Time	Stated
2230 (UTC)	*Two Two Three Zero Zulu*
2:30 p.m.	*One Four Three Zero Local/Pacific or Two Thirty p.m.*

✔ *Knowledge Check C*

REVIEW what you have learned so far about number group usage. ANSWER the questions listed below.

1. Convert the 12-hour time into the 24-hour time. Enter your final answers in the spaces below.

Time (12-hour)	*Time (24-hour)*
__h__ 2:30 a.m.	a. 0742
__d__ 8:48 p.m.	b. 2211
__c__ 6:25 a.m.	c. 0625
__g__ 11:30 p.m.	d. 2048
__e__ 4:59 a.m.	e. 0459
__b__ 10:11 p.m.	f. 2136
__a__ 7:42 a.m.	g. 2330
__f__ 9:36 p.m.	h. 0230

2. Convert the 12-hour time into the pronunciation of the time. Enter your final answers in the spaces below.

Time (12-hour)	*Stated*
__f__ 2:30 a.m.	a. Two Three Three Zero
__b__ 8:48 p.m.	b. Two Zero Four Eight
__c__ 6:25 a.m.	c. Zero Six Two Five
__a__ 11:30 p.m.	d. Two One Three Six
__g__ 4:59 a.m.	e. Zero Seven Four Two
__h__ 10:11 p.m.	f. Zero Two Three Zero
__e__ 7:42 a.m.	g. Zero Four Five Niner
__d__ 9:36 p.m.	h. Two Two One One

3. How do you state the following: FL 180? *(Select the correct answer.)*
   - ❑ FL One Eight Zero
   - ❑ Foxtrot Lima One Eight Zero
   - ❑ **Flight Level One Eight Zero**
   - ❑ Flight Level One Eight Thousand

4. What is the altitude in the following? *(Select the correct answer.)*

   "UNITED FOUR SEVENTEEN, CLIMB AND MAINTAIN ONE TWO THOUSAND NINER HUNDRED"
   - ❑ 1290
   - ❑ 129
   - ❑ 12,990
   - ❑ **12,900**

5. The 24-hour clock is used in ATC and is expressed in terms of _____. *(Select the correct answer.)*
   - ❑ **<u>UTC</u>**
   - ❑ UDT
   - ❑ PCT
   - ❑ CST

6. How do you state the following: MDA 1,280 ft? *(Select the correct answer.)*
   - ❑ **<u>Minimum Descent Altitude, One Two Eight Zero</u>**
   - ❑ Minimum Descent Altitude, One Thousand Two Hundred Eighty
   - ❑ Mike Delta Alpha, One Two Eight Zero
   - ❑ Mike Delta Alpha, Twelve Eighty

Number Group Usage Summary

Numbers and number groups are used to identify, provide guidance, and issue information in the ATC environment. FAA requires all controllers apply standardization when communicating numbers and number groups. As an air traffic controller, you must be able to make real-time communication decisions while adhering to the standards set for this fast-paced environment.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Number Usage* lesson in Blackboard	Blackboard
■ Instruct students to navigate to the ***Number Usage*** lesson in Blackboard	
■ Instruct students to work individually through the lesson content	**EST. RUN TIME**
■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	25 mins.

NUMBER USAGE

Purpose: This lesson identifies how numbers are standardized in the Air Traffic Control environment.

Objective:

- Identify proper number usage during communication

References for this lesson are as follows:

- FAA Order JO 7110.65, Air Traffic Control

Field Elevation

Field elevation (also known as airport elevation) is the highest point of an airport's usable runways measured in feet from Mean Sea Level (MSL).

When stating field elevation, speak the words "FIELD ELEVATION" followed by the separate digits of the elevation.
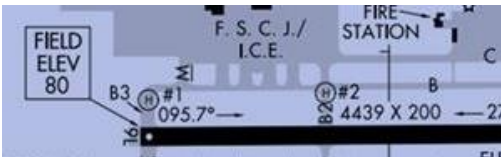
Elevation	Stated
17 feet	Field Elevation, One Seven
817 feet	Field Elevation, Eight One Seven
2,817 feet	Field Elevation, Two Eight One Seven

The Number Zero

State the number "0" as "zero" except where it is used in approved "group form" for authorized aircraft call signs and in stating altitudes.

As Zero	As Group
Field Elevation One Six Zero	Western Five Thirty
Heading Three Zero Zero	EMAIR One Ten
One Zero Thousand Five Hundred	Ten Thousand Five Hundred

Altimeter Setting

State the word "ALTIMETER" followed by the separate digits of the altimeter setting. The word "POINT" is omitted.

Setting	Stated
29.92	Altimeter, Two Niner Niner Two
30.01	Altimeter, Three Zero Zero One

Surface Wind

Wind direction is based on 360 degrees and given to the nearest 10 degrees.

State the word "WIND" followed by the separate digits of the indicated wind direction, the word "AT," and the separate digits of the indicated velocity in knots (include gusts when necessary).

Encoded as	Stated
03025	Wind Zero Three Zero At Two Five
27015G35	Wind Two Seven Zero At One Five Gusts Three Five

Heading

Headings are based on 360 degrees and are stated by speaking the word "HEADING" followed by the three separate digits of the number of degrees.

- Omit the word "degrees"
- When the heading is a double digit, precede with "ZERO"
- When the heading is a single digit, precede with "ZERO ZERO"

Use heading 360 degrees to indicate a north heading.

Heading	Stated
5 degrees	Heading Zero Zero Five
30 degrees	Heading Zero Three Zero
360 degrees	Heading Three Six Zero

Radar Beacon Code

Assign codes by stating the word "SQUAWK", followed by the separate digits of the 4-digit code.

Code	Stated
1000	Squawk One Zero Zero Zero
2100	Squawk Two One Zero Zero
0452	Squawk Zero Four Five Two
3617	Squawk Three Six One Seven

Runways

State the word "RUNWAY" followed by the separate digits of the runway.

For a parallel runway, the letter "L," "R," or "C" may be included in the runway designation. State the words:

- "LEFT" for L
- "RIGHT" for R
- "CENTER" for C
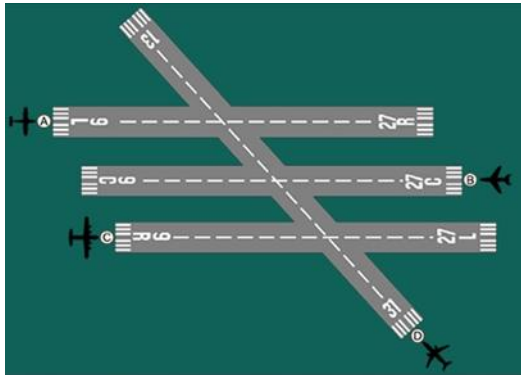
Code	Stated
A	Runway Niner Left
B	Runway Two Seven Center
C	Runway Niner Right
D	Runway Three One

Frequencies

Identify frequencies by inserting the word "POINT" where the decimal point occurs.
- Omit the third digit to the right of the decimal point
  - e.g., for 118.675, omit the "5"
- When the frequency is in the L/MF band, include the word "kilohertz"

Local Channels

United States Air Force/United States Navy (USAF/USN) aircraft may use local channel numbers in lieu of frequencies for locally based aircraft when the local aircraft and ATC use the same channel.

TACAN

Issue TACAN frequencies by stating the assigned two- or three-digit channel number.

Code	Stated
126.55	One Two Six Point Five Five
243.0	Two Four Three Point Zero
135.275	One Three Five Point Two Seven
302 kHz	Three Zero Two Kilohertz
Local Channels	
Frequency	Stated
275.8 MHz	Local Channel One Two
TACAN	
Frequency	Stated
88	TACAN Channel Eight Eight

Speed

State the separate digits of the speed followed by the word "KNOTS."

When using Mach numbers, use the word "Mach" followed by the separate digits of the Mach number.
- Insert the word "Point" where the decimal appears

Note: Mach 1 is the speed of sound. A Mach number is the ratio of true airspeed to the speed of sound.

Speed	Stated
250	Two Five Zero Knots
190	One Niner Zero Knots

Mach Number	Stated
1.5	Mach One Point Five
0.64	Mach Point Six Four
0.7	Mach Point Seven

Miles

State the separate digits of the mileage, followed by the word "MILE" or "MILES."

Mileage	Stated
30	Three Zero Miles
45	Four Five Miles
01	One Mile

Numbers Clarification

If deemed necessary for clarity, and after stating numbers as required, controllers may restate numbers using either group or single-digit form.

Number	Single-Digit Form	Group Form
17,000 (Altitude)	One Seven Thousand	Seventeen Thousand
29.92 (Altimeter Setting)	Altimeter Two Niner Niner Two	Twenty Nine Ninety Two
126.55 (Frequency)	One Two Six Point Five Five	One Twenty Six Point Fifty Five

✅ *Knowledge Check D*

REVIEW what you have learned so far about number usage. ANSWER the questions listed below.

1. Select the correct pronunciation of the phonetic group of numbers.

   __d__ (Frequency) – 249.66   a. "WIND ZERO FOUR ZERO AT FIVE"

   __c__ (Heading) – 75º   b. "FIELD ELEVATION, SEVEN SIX FOUR"

   __a__ (Surface Wind) – 04005   c. "HEADING ZERO SEVEN FIVE"

   __b__ (Field Elevation) – 764   d. "TWO FOUR NINER POINT SIX SIX"

2. Which of the following statement(s) are correct when stating a heading? *(Select all correct answers that apply.)*
   - ❑ **Use heading 360 degrees to indicate a north heading**
   - ❑ **Omit the word degree**
   - ❑ **When the heading is a double digit, precede with "ZERO"**
   - ❑ **When the heading is a single digit, precede with "ZERO ZERO"**

3. What can a controller do if, after stating numbers as required, they deem it necessary to clarify a radio transmission? *(Select the correct answer.)*
   - ❑ Restate the digits adding zero in between each digit
   - ❑ Restate the numbers speeding up how they state the numbers
   - ❑ **Restate numbers using either group or single digit form**
   - ❑ Restate the digits using a dash between each digit

Number Usage Summary

Standardizing the way we say things makes communication streamlined and efficient. This lesson identified how numbers are standardized in the ATC environment. Articulating numbers clearly and accurately plays a huge role in successful Air Traffic Control communication.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Numbers and Number Group Usage* in the *Exercise and Activities* folder in Blackboard	Activity
■ Instruct students to navigate to the *Exercise and Activities* folder in Blackboard	**EST. RUN TIME**
■ Instruct students to locate student activity *Numbers and Number Group Usage*	15 mins.
■ The activity will be performed individually	
■ Students will be provided feedback during the activity after submitting their selections	
■ Suggest allowing opportunities to repeat the activity during periods of down time	

ACTIVITY: NUMBERS AND NUMBER GROUP USAGE (ANSWER KEY)

Note: *The questions in the key and their distractors may appear in a different order than displayed here due to activity question randomization.*

Question	Answer
1. (Altitude) – 14,000	**ONE FOUR THOUSAND**
2. (Flight Level) – FL 190	**FLIGHT LEVEL ONE NINER ZERO**
3. (Altimeter) – 29.92	**ALTIMETER, TWO NINER NINER TWO**
4. (Field Elevation) – 146	**FIELD ELEVATION, ONE FOUR SIX**
5. (Speed) – 250	**TWO FIVE ZERO KNOTS**
6. (Miles) – 30	**THREE ZERO MILES**
7. (Runway) – 15	**RUNWAY ONE FIVE**
8. (Heading) – 30 degrees	**HEADING ZERO THREE ZERO**
9. (Wind) – 50 degrees 20 knots	**WIND ZERO FIVE ZERO AT TWO ZERO**
10. (Beacon Code) – 1200	**SQUAWK ONE TWO ZERO ZERO**
11. (Mach) – 0.9	**MACH POINT NINER**
12. (Frequency) – 123.225	**ONE TWO THREE POINT TWO TWO**
13. (Runway) – 31C	**RUNWAY THREE ONE CENTER**
14. (Wind) – 200 degrees 10 knots	**WIND TWO ZERO ZERO AT ONE ZERO**

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Review content presented in ***Radio and Interphone Communications, Standardization, Number Group Usage*** and ***Number Usage*** lessons ■ Navigate to the ***Parking Lot*** link within Blackboard and review any student questions ■ Address ***Parking Lot*** questions and facilitate a brief discussion of the lesson content	Facilitated Discussion
	EST. RUN TIME
	10 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Facility Identification* and *Aircraft Identification* lessons in Blackboard ■ Instruct students to navigate to the *Facility Identification* lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of *Facility Identification* instruct students to navigate to the *Aircraft Identification* lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard
	EST. RUN TIME
	15 mins.

FACILITY IDENTIFICATION

Purpose: The purpose of this lesson is to identify how facility identification is standardized in the Air Traffic Control environment.

Objective:

■ Identify proper facility identification during communication

Reference for this lesson are as follows:

■ FAA Order JO 7110.65, Air Traffic Control

Facility Identification

There is specific phraseology used to identify each of the different ATC facilities.

Airport Traffic Control Tower (ATCT) Identification

To identify ATCTs, state the name of the facility followed by the word "tower."	

Approach Control Identification

|	
Approach controls are identified by stating the name of the facility followed by the word "approach."	"Chicago Approach"

Terminal Facility Position Identification

Identify functions within a terminal facility (Tower or Approach Control) by stating the name of the facility and function.	"Boston Departure" "La Guardia Clearance Delivery" "O'Hare Ground"

Flight Service Station (FSS) Identification

FSSs are identified by stating the name of the station followed by word "radio."	"Nome Radio" "Fort Worth Radio"
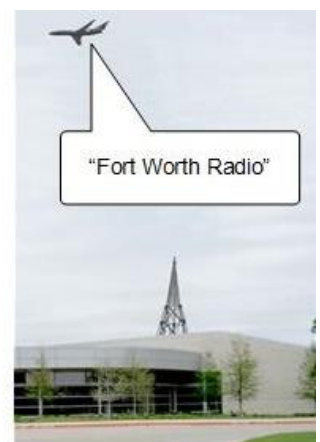
Air Route Traffic Control Center (ARTCC) Identification

Identify ARTCCs by stating the name of the facility followed by the word "Center."

"Oakland Center"
"Atlanta Center"

✅ *Knowledge Check E*

REVIEW what you have learned so far about facility identification. ANSWER the questions listed below.

1. How would you identify each type of air traffic control facility?

   c ATCT   a. Center

   b FSS   b. Radio

   a ARTCC   c. Tower

2. How is Oakland, California, ARTCC identified? *(Select the correct answer.)*
   - ❑ Oakland Tower
   - ❑ **Oakland Center**
   - ❑ Oakland, California Center

Facility Identification Summary

Identification is an important part of communication. This lesson identified how facility identification is standardized in the ATC environment. Once you have identified yourself and communication has been established, you won't need to identify yourself again.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
▪ **Note:** *Aircraft Identification* lesson should have already been enabled in Blackboard, if not ensure it is enabled	Blackboard
▪ Instruct students to navigate to the *Aircraft Identification* lesson in Blackboard	**EST. RUN TIME**
▪ Instruct students to work individually through the lesson content	30 mins.
▪ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	

29

AIRCRAFT IDENTIFICATION

Purpose: The purpose of this lesson is to identify how aircraft identification is standardized in the Air Traffic Control environment.

Objective:

- Identify proper aircraft identification during communication

Reference for this lesson are as follows:

- FAA Order JO 7110.65, Air Traffic Control

Aircraft Identification

There is specific phraseology used to identify aircraft.

Radio Message Format

Use the following format for radio communications with an aircraft on initial radio contact:

- Identification of aircraft
- Identification of ATC unit
- Message (if any)
- The word "over" if required

Subsequent radio transmissions from the same facility shall use the same format, except the identification of the ATC unit may be omitted.

Abbreviated transmissions are used to shorten aircraft identification after communications have been established.

Transmissions may be abbreviated by using the identification prefix and the last three digits or letters of the aircraft identification.

Example:
Communications have been established with "N12345."
Aircraft identification can now be abbreviated to "N345."

Do not abbreviate similar-sounding aircraft identifications or the identification of an air carrier or other civil aircraft having an FAA-authorized call sign.

When replying to aircraft with similar-sounding identifications, use full identification by using all numbers and/or letters in the aircraft identification.

Example:
N82852 and N62582 are both monitoring the same frequency. To avoid misunderstanding, use the full aircraft identification when communicating with either aircraft.
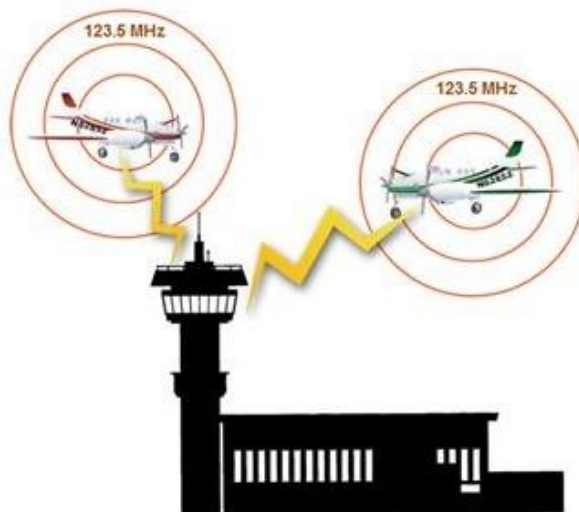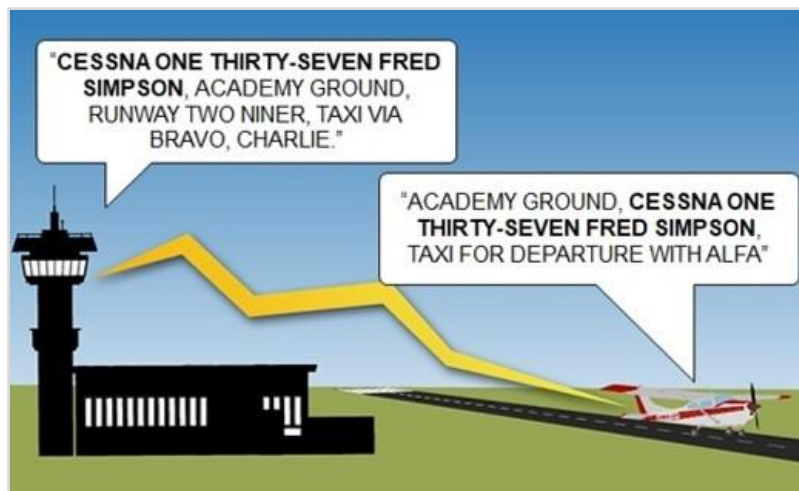
When replying to aircraft that have similar-sounding FAA-authorized call signs, do not abbreviate, and restate the call sign after the flight number.

Example:
AAL 56 and DAL 56 would be stated as "AMERICAN FIFTY-SIX AMERICAN" and "DELTA FIFTY-SIX DELTA."
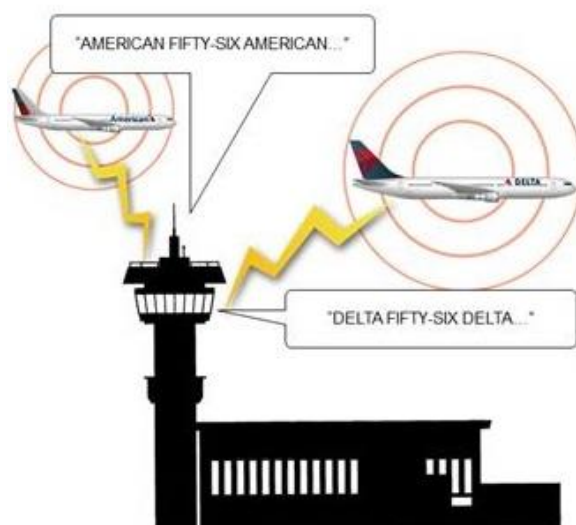
For other aircraft you may use the same identification that the pilot used in the initial call-up. After communication is established, use the correct identification.

"CESSNA ONE THIRTY-SEVEN FRED SIMPSON, ACADEMY GROUND, RUNWAY TWO NINER, TAXI VIA BRAVO, CHARLIE."

"ACADEMY GROUND, CESSNA ONE THIRTY-SEVEN FRED SIMPSON, TAXI FOR DEPARTURE WITH ALFA"

Knowledge Check F

REVIEW what you have learned so far about aircraft identification. ANSWER the questions listed below.

1. How is aircraft identification communicated after identification has been established? *(Select the correct answer.)*
   - ❑ Full
   - ❑ **Abbreviated**
   - ❑ Phonetic

2. When should an air traffic controller use the full identification of aircraft the entire time while communicating? *(Select all correct answers that apply.)*
   - ❑ **Aircraft have similar-sounding FAA-authorized call signs**
   - ❑ U.S.-registered civil aircraft
   - ❑ **Aircraft have similar-sounding identifications**

Aircraft Identification

Each aircraft has a unique call sign and identifier. These include:

Civil Aircraft

When a controller is establishing initial communications with U.S.-registered civil aircraft, state:

- Prefix "NOVEMBER"
- ICAO phonetic pronunciation of the numbers/letters of the aircraft registration

On subsequent calls, or if used by the pilot on initial call, the controller may state one of the following:

- Aircraft type
- Model name
- Manufacturer's name, or
- The prefix "NOVEMBER"
- ICAO pronunciation of the numbers/letters of the aircraft registration

Note: On subsequent calls, when the aircraft type, model name, and/or manufacturer's name are unknown, use "November" as the prefix.

Skyhawk One Two Three Four Golf
— Aircraft Model

Cessna One Two Three Four Golf
— Aircraft Manufacturer

November One Two Three Four Golf
— U.S. Aircraft Registry

Air Carrier

Air carrier and other civil aircraft with FAA-authorized call signs, state:

- Call sign
- Flight numbers in group form

AAL52: American Fifty-two

ASQ100: Acey One Hundred

DAL570: Delta Five Seventy

SWA101: Southwest One Zero One

UAL1725: United Seventeen Twenty-five

Air Taxi

Air taxi and commercial operators not having FAA-authorized call signs, state:

- Prefix "TANGO" on initial contact, if used by the pilot
- Registration number

The prefix may be dropped in subsequent communications.

TN192B: Tango November One Niner Two Bravo

Air Carrier/Air Taxi Ambulance

Air carrier/air taxi ambulance, state:

- Prefix "MEDEVAC," if used by the pilot
- Call sign and flight numbers in group form
- There will be no indication in the written aircraft identification

DAL51: MEDEVAC Delta Fifty-one

Civilian Air Ambulance

Civilian air ambulance, state:

- Prefix "MEDEVAC"
- Registration numbers and letters

LN3010B: MEDEVAC Three Zero One Zero Bravo

34

U.S. Military

Military aircraft are identified with prefixes or abbreviations indicating branch of service and/or type of mission as follows:
- A = Air Force
- C = Coast Guard
- G = Air/Army National Guard
- R = Army
- VM = Marine
- VV = Navy

Military aircraft, state:

- Service name
- Last five digits of the serial number
- "COPTER" when the aircraft is a helicopter and is **NOT** a presidential or vice-presidential flight

A35542: Air Force Three Five Five Four Two

C12345: Coast Guard One Two Three Four Five

G54672: Air National Guard Five Four Six Seven Two

R36511: Army Copter Three Six Five One One

VM56734: Marine Five Six Seven Three Four

VV32756: Navy Three Two Seven Five Six

Special Operations

Special military operations are identified by the type of mission and/or special operations call sign as follows:
- E = AIR EVAC (Air Evacuation)
- L = LOGAIR (U.S Air Force Contract)
- S = SAM (Special Air Mission)

Special military operations, state:

- Mission/special operation
- Last five digits of the serial number

U.S. Military tactical and training flights, state:

- Any pronounceable word of three to six letters
- A one to five digit number

Tactical and Training Flights

SNOWMN 1: Snowman One
PAT157: Pat One Five Seven

Special Military Operations

E50213: AIR EVAC Five Zero Two One Three
L65324: LOGAIR Six Five Three Two Four
S44214: SAM Four Four Two One Four

35

Presidential Aircraft

When the president, the president's family, the vice president, or the vice-presidential family is on any aircraft, state the words shown in the table that are assigned to each specific entity.

When the president is aboard a military aircraft, state:

- Military service name
- The word "One"

Office	Military	Civil
President	"AIR FORCE ONE" "ARMY ONE"	"EXECUTIVE ONE"
President's Family	"EXECUTIVE ONE FOXTROT"	"EXECUTIVE ONE FOXTROT"
Vice President	"AIR FORCE TWO"	"EXECUTIVE TWO"
Vice President's Family	"EXECUTIVE TWO FOXTROT"	"EXECUTIVE TWO FOXTROT"

Department of Transportation (DOT) and FAA Flights

Use the identifiers and call signs for DOT and FAA officials shown in the table that are assigned to each specific entity.

Official	Identifier	Call Sign
Secretary of Transportation	DOT1	Transport 1
Deputy Secretary of Transportation	DOT2	Transport 2
Administrator Federal Aviation Administration	FAA1	Safeair 1
Deputy Administrator Federal Aviation Administration	FAA2	Safeair 2

Special Flights

Department of Energy (DOE) flights, state:

- Letters "R-A-C" (use phonetic alphabet)
- The last four separate digits of aircraft registration

For aircraft making flight inspections of navigational aids (NAVAIDs), state:

- "Flight Check"
- The digits of the registration number

Department of Energy

RAC1653: Romeo Alfa Charlie One Six Five Three

Flight Inspection

Flight Check 39654: Flight Check Three Niner Six Five Four

Foreign Registry

Foreign civil aircraft, state:

- Aircraft type or manufacturer's name
- The letters/numbers of aircraft registration, or
- The letters or digits of aircraft registration or call signs, spoken individually or phonetically

Foreign air carrier, state:

- Abbreviated name of operating company
- Letters or digits of registration or call sign
- The flight number in group form, or you may use separate digits if that is the format used by the pilot

Foreign Civil Aircraft

Pilatus C-F-L-R-B or Charlie Foxtrot Lima Romeo Bravo

Foreign Air Carrier

Air France 232: Air France Two Thirty Two
Scandinavian 68: Scandinavian Sixty-eight or Scandinavian Six Eight

✓ *Knowledge Check G*

REVIEW what you have learned so far about aircraft identification. ANSWER the questions listed below.

1. What is the prefix for a U.S.-registered civil aircraft when the aircraft type, model name, and/or manufacturer's name are unknown? *(Select the correct answer.)*
   - ❑ Nancy
   - ❑ **November**
   - ❑ Niner

2. What is the phraseology for AAL52? *(Select the correct answer.)*
   - ❑ "ARMY FIFTY-TWO"
   - ❑ "AIR FORCE FIFTY-TWO"
   - ❑ **"AMERICAN FIFTY-TWO"**

3. What is letter prefix for the Air Force? *(Select the correct answer.)*
   - ❑ **A**
   - ❑ R
   - ❑ AF

4. What is the call sign for a civilian air ambulance? *(Select the correct answer.)*
   - ❑ Ambulance
   - ❑ MEDICAL
   - ❑ **MEDEVAC**

5. What is the letter prefix for the Navy? *(Select the correct answer.)*
   - ❑ N
   - ❑ VM
   - ❑ **VV**

Use of the Words "Super" and "Heavy"

The words "super" or "heavy" shall be used as part of the identification of super or heavy aircraft as follows:

Terminal, use "super" or "heavy":

■ In all communications with or about super or heavy aircraft

En route, use "super" or "heavy" when:

■ Communicating with a terminal facility
■ Center is providing approach control service
■ Separation is less than 5 miles by approved procedure
■ Issuing traffic advisories

Note: Do not use the heavy designator with "Air Force One/Two" call signs.

United Fifty-Eight Heavy

Aircraft Identification Summary

Each aircraft has a unique designation. This lesson identified how aircraft identification is standardized in the ATC environment. Correctly identifying aircraft avoids confusion and is a crucial component to keeping our airways safe.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
ENABLE *Route and NAVAID Description* lesson in Blackboard - Instruct students to navigate to the *Route and NAVAID Description* lesson in Blackboard - Instruct students to work individually through the lesson content - Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard
	EST. RUN TIME
	20 mins.

ROUTE AND NAVAID DESCRIPTION

Purpose: The purpose of this lesson is to explain how proper route and navigational aid (NAVAID) descriptions are communicated between air traffic control and pilots.

Objectives:
- Identify proper route descriptions during communication
- Identify NAVAID descriptions during communication

Reference for this lesson are as follows:

- FAA Order JO 7110.65, Air Traffic Control

Airways and Routes

There are three primary airways and routes related to basic communication: VOR/VORTAC/TACAN airways, Military Training Routes (MTRs), and Area Navigation (RNAV) routes.

VOR/VORTAC/TACAN Airways

- For airways, state the word "VICTOR" followed by the airway number in group form
- For jet routes, state the letter "J" followed by the route number in group form

Airway/Route Type	Written	Stated
Victor Airway	V12	"VICTOR TWELVE"
Jet Route	J35	"J THIRTY-FIVE"

Military Training Routes (MTRs)

- State the letters "I-R" or "V-R" followed by the route number in group form

Airway/Route Type	Written	Stated
IR Route	IR531	"I-R FIVE THIRTY-ONE
VR Route	VR42	"V-R FORTY-TWO"

Area Navigation (RNAV) Routes

- For high altitude RNAV routes, state the letter "Q" followed by the route number in group form
- For low altitude RNAV routes, state the letter of the route phonetically, followed by the number of the route in group form

Airway/Route Type	Written	Stated
High-Altitude RNAV Routes	Q136	"Q ONE THIRTY-SIX"
Low-Altitude RNAV Routes	T212	"TANGO TWO TWELVE"

Describing NAVAID Radials, Arcs, and Fixes

Describing Radials of VOR/VORTAC/TACAN NAVAIDs 1. State name of NAVAID, followed by 2. Separate digits of the radial, followed by 3. Word "Radial"	**Example:** "TULSA THREE ONE ZERO RADIAL"
Describing Arcs about VOR-DME/VORTAC/TACAN NAVAIDs 1. State distance in miles from NAVAID 2. "Mile Arc" 3. Direction from NAVAID in terms of the eight principal points of the compass 4. "Of" 5. Name of NAVAID	**Example:** "TWO ZERO MILE ARC SOUTHEAST OF TULSA VORTAC"

Describing NAVAID Fixes

- When a fix is not named, state the name of the:
  1. NAVAID, followed by
  2. Radial and distance in miles from NAVAID, followed by
  3. Phrase "Mile Fix"
- If the fix is charted on a SID, STAR, en route chart, or approach plate, state the name of the fix
- If clarification is needed, use specific terms to describe a fix

Examples:

Fix	Written	Stated
Not Named	APE050037	"APPLETON ZERO FIVE ZERO RADIAL THREE SEVEN MILE FIX"
Charted	PRYOR CINDA	"PRYOR INTERSECTION" "CINDA D-M-E FIX"

✅ *Knowledge Check H*

REVIEW what you have learned so far about route and NAVAID descriptions. ANSWER the questions listed below.

1. What letter precedes the route number for a high altitude RNAV route? How is it pronounced? *(Select the correct answer.)*
   - ❑ **Q; "Q"**
   - ❑ Q; "QUEBEC"
   - ❑ T; "TANGO"

2. What is the phraseology to describe the position SEA286007? *(Select the correct answer.)*
   - ❑ "SEATTLE TWO EIGHT RADIAL, SIXTY-SEVEN MILE FIX"
   - ❑ "SIERRA TWO HUNDRED EIGHTY-SIXTH RADIAL, SEVEN MILE FIX"
   - ❑ **"SEATTLE TWO EIGHT SIX RADIAL, SEVEN MILE FIX"**

3. Describe this arc: *(Select the correct answer.)*
   - ❑ "Twenty Mile Arc Northeast of Tulsa VORTAC"
   - ❑ "Two Mile Arc Northwest of Tulsa VORTAC"
   - ❑ **"Two Zero Mile Arc Northeast of Tulsa VORTAC"**
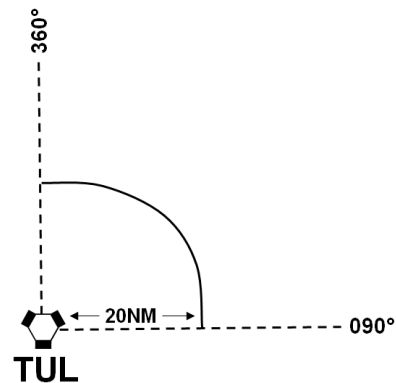
Route and NAVAID Description Summary

Airway, route, and NAVAID descriptions each require a specific format for written and spoken communications. Learning and following the required format for each type is crucial to basic communication.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Review content presented in *Facility Identification*, *Aircraft Identification*, and *Route and NAVAID Description* lessons	Facilitated Discussion
■ Navigate to the *Parking Lot* link within Blackboard and review any student questions	**EST. RUN TIME**
■ Address *Parking Lot* questions and facilitate a brief discussion of the lesson content	10 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Coordination* lesson in Blackboard	Blackboard
■ Instruct students to navigate to the *Coordination* lesson in Blackboard	
■ Instruct students to work individually through the lesson content	**EST. RUN TIME**
■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	30 mins.

COORDINATION

Purpose: The purpose of this lesson is to identify how facilities relay instructions and essential information between control positions and facilities.

Objective:

■ Identify intra- and interfacility coordination

Reference for this lesson are as follows:

■ FAA Order JO 7110.65, Air Traffic Control

Coordination

Coordination is the relay of instructions, unusual situations, and essential information between control positions and facilities.

Intrafacility and Interfacility Coordination

Intrafacility	**Interfacility**
Intrafacility coordination is the exchange of information between positions within a facility. ■ Occurs in all three options ■ Preferred method is via interphone ■ May be accomplished "in person" (e.g., physically pointing to a radar display)	Interfacility coordination is the exchange of information between different facilities.

Methods of Coordination

The most commonly used methods of coordination include:

- Automated (computer)
- Interphone
- Facility Directives/Letters of Agreements (SOPs/LOAs)
- Verbal/physical (includes conversation among radar team members or with nearby sector/supervisor)

Interphone Coordination

Interphones and landline communication systems connect controllers to all facilities/positions necessary to perform coordination.

Note: All interphone and air-ground communications are recorded.

Interphone Message Priority

There is a defined order of message priority during interphone coordination (the transfer of information).

First Priority: Emergency messages are first priority.	
Second Priority: Clearance and control instruction messages are second priority.	
Third Priority: Movement and control messages are third priority. They are further prioritized in the following order: ■ Progress reports ■ Departure and arrival reports ■ Flight plans	
Fourth Priority: Movement messages on VFR aircraft are fourth priority.	

Interphone Message Format

Use the following format for interphone intra/interfacility communications:

Receiver identifies his or her facility and/or position.

Caller identifies his or her facility and/or position.

Caller: "Aero Center, Academy Approach North, Point-out."

Receiver: "Aero Center."

Caller: "Point-out, five miles northeast of DRIVR, code 5535, six thousand two hundred descending, downwind into Bartles."

Caller states the type of coordination to be accomplished, for example, "Handoff," "APREQ," or "Point-out."
Caller states the message.
Note: "APREQ" is the abbreviation for "Approval Request." "Handoff" and "Point-out" are defined later in the lesson.

The receiver states the response to the caller's message, followed by the receiver's operating initials.

Receiver: "Code 5535 Point-out approved, M.M."

Caller: "T.B."

The caller states his or her operating initials.

Note: *To interrupt lower priority messages when you have a higher priority message to transmit, use the words "Emergency" or "Control."*

Coordination Actions

Coordinate anytime it is necessary to relay instructions, unusual situations, and essential information.

The following are examples of coordination actions:

- Transfer of radar identification
- Transfer of control
- Runway crossings
- Forwarding flight plan information
- Arrival information (i.e., inbounds)
- Clearances and instructions

Transfer of Radar Identification

Radar handoffs and radar point-outs are examples of required coordination actions taken to transfer radar identification of an aircraft from one controller to another.

Handoff

A handoff is an action taken to transfer radar identification of an aircraft from one controller to another when the aircraft will enter the receiving controller's airspace and radio communications **will** be transferred.

In this example, AAL12 is being handed off to Sector 2.
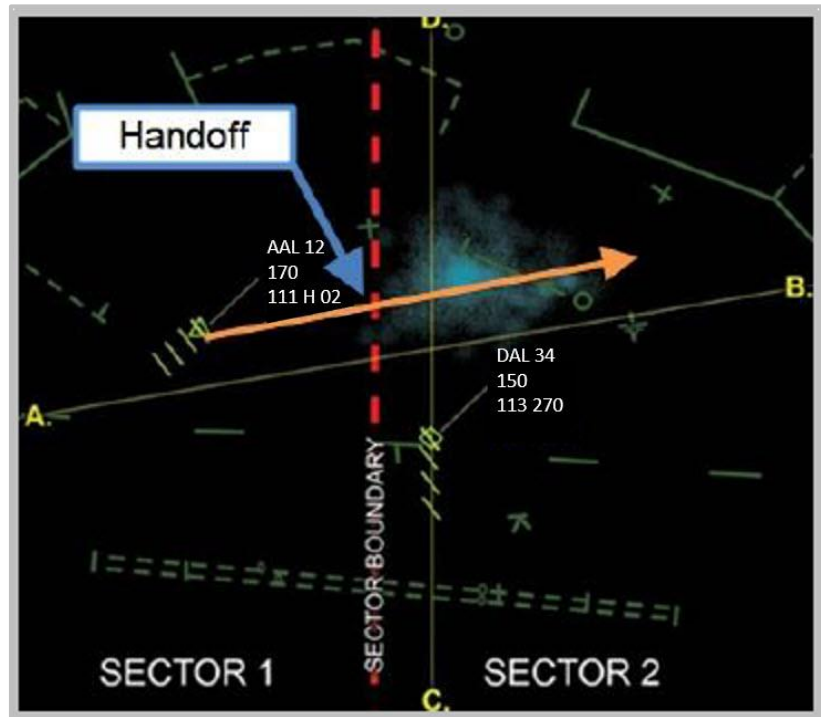
Point-Out

A radar point-out is an action taken by the controller to transfer the radar identification of an aircraft to another controller if the aircraft will or may enter the airspace or protected airspace of another controller and radio communications **will not** be transferred.

In this example, DAL34 (route of flight is C to D) requested deviation to the left of course around the weather and requires a point-out from Sector 2 to Sector 1.
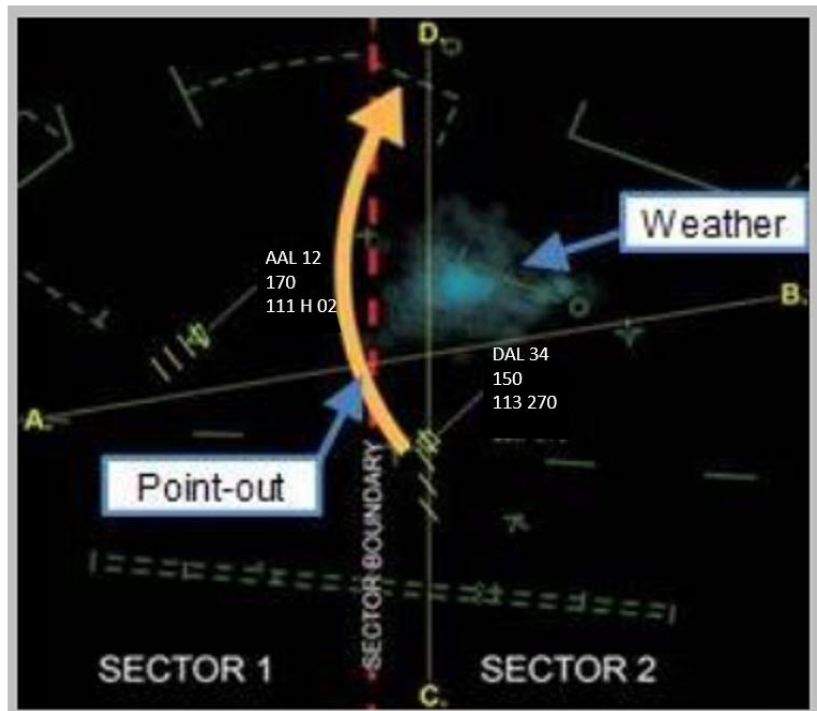
Transfer of Radar Identification via Interphone

When transferring radar identification via interphone, include the following information:

- The term "Handoff" or "Point-Out"
- The position of the target
- The aircraft identification or beacon code, as appropriate
- Assigned altitude, appropriate restrictions, information that the aircraft is climbing or descending
- Any other information necessary (e.g., deviating left around weather)

Example 1

Academy Approach is two sectors (North and South at and below 12,000) with at and below 3,000 shelf to the northwest. Aero Center completely surrounds them, except at and below 8,000 to the northeast is SGF Approach.

N123PA

Caller: "Aero Center, Academy Approach North, Point-out."

Receiver: "Aero Center."

Caller: "Point-out, five miles northeast of DRIVR, code 5535, six thousand two hundred descending, downwind into Bartles."

Receiver: "Code 5535 Point-out approved, M.M."
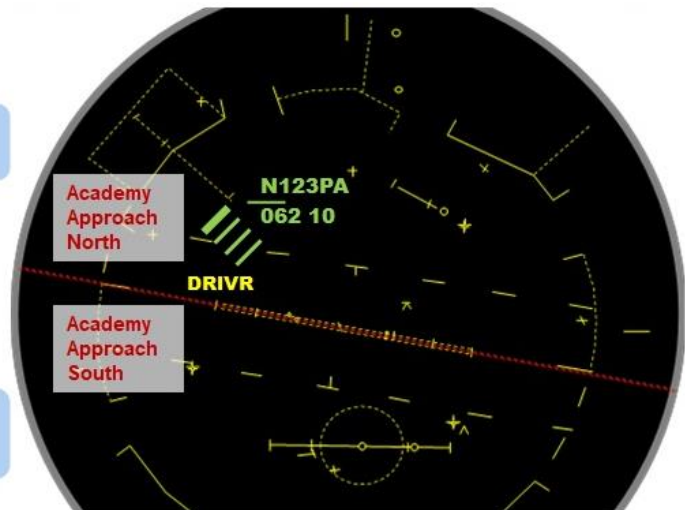
Caller: "T.B."

Note: The data block size has been exaggerated for this example.

N7UP

Caller: "Springfield Approach, Academy Approach North, Point-out"

Receiver: "Springfield Approach."

Caller: "Point-out eight miles northwest of JAMES, code 6362, three thousand eight hundred climbing to one five thousand direct STL."

Receiver: "Code 6362 point-out approved, D.N."

Caller: "T.B."
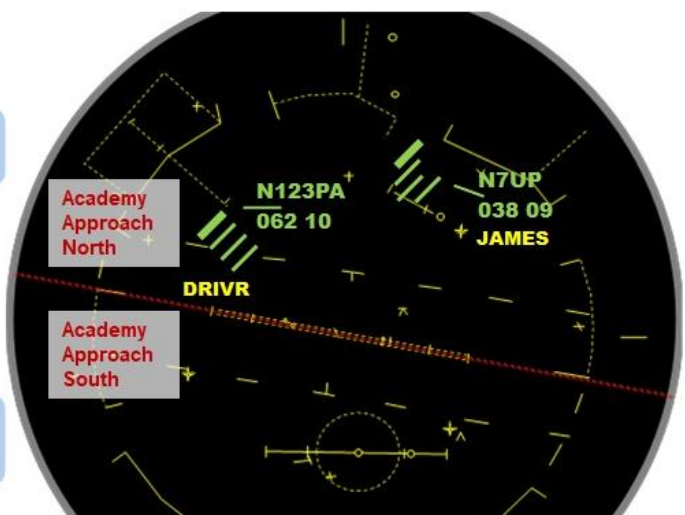
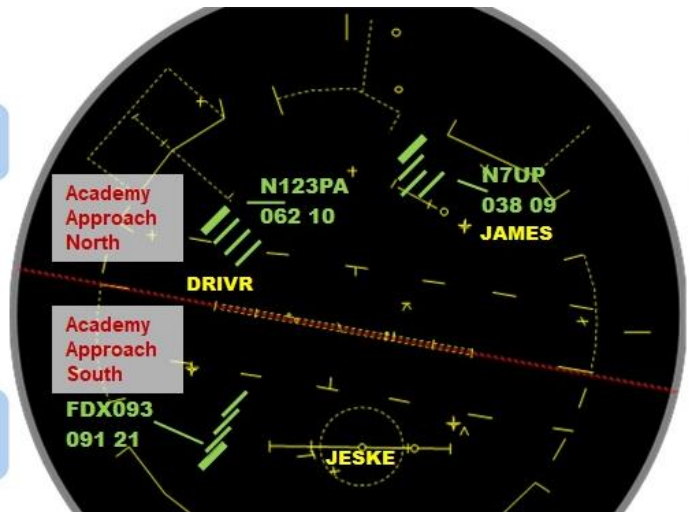Note: The data block size has been exaggerated for this example.

FDX093

Caller: "Aero Center, Academy Approach South, Handoff."

Receiver: "Aero Center."

Caller: "Handoff, one five miles west of JESKE, FDX093, niner thousand one hundred climbing to one two thousand."

Receiver: "FDX093 radar contact, G.W."

Caller: "T.S."

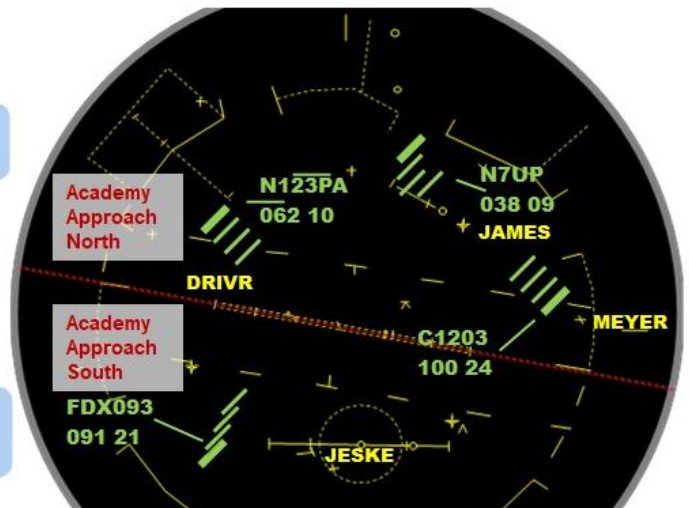Note: The data block size has been exaggerated for this example.

C1203

Caller: "South, North, point-out."

Receiver: "South."

Caller: "Point-out, five miles northwest of MEYER, Coast Guard one two zero three, one zero thousand, direct McAlester."

Receiver: "Coast Guard one two zero three point-out approved, T.S."

Caller: "T.B."

Note: The data block size has been exaggerated for this example.

Example 2

You are Aero Center Jackson Low Sector 66.

UAL2312

Caller: "D-Sixty seven, D-Sixty six, **X** Point-out."

Receiver: "D-Sixty seven."

Caller: "Point-out four zero south of Greenville, United twenty-three twelve, flight level two one zero direct Memphis."

Receiver: "United twenty-three twelve, point-out approved, RG."

Caller: "C.D."

Note: The data block size has been exaggerated for this example.

N39PY
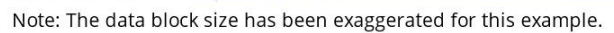
Caller: "Jackson approach, Jackson Low, handoff." **X**

Receiver: "Jackson approach."

Caller: "Handoff one zero miles northwest CLAYS, November three niner papa yankee, seven thousand."

Receiver: "November three niner papa yankee radar contact, J.A."

Caller: "C.D."

Note: The data block size has been exaggerated for this example.

R37245

Caller: "Polk Low, Jackson Low, point-out." ⊗

Receiver: "Polk Low."

Caller: "Point-out, two five miles northwest of CREEM, Army three seven two four five, six thousand, northwest bound."

Receiver: "Army three seven two four five, point-out approved, F.W."

Caller: "C.D."
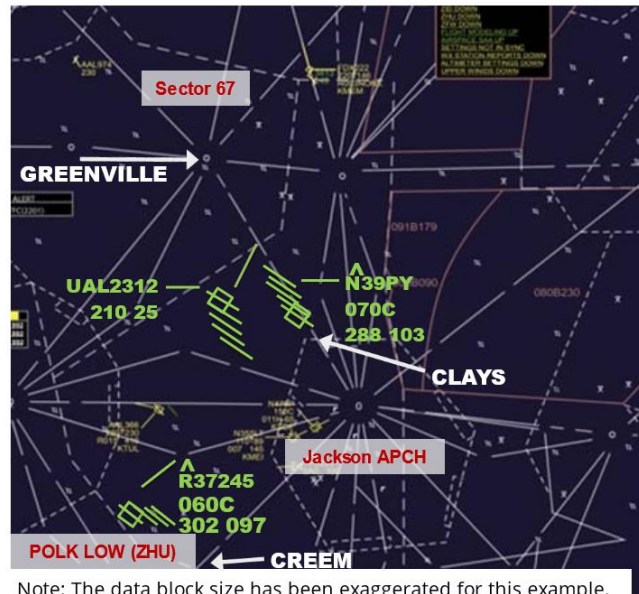
Note: The data block size has been exaggerated for this example.

✅ Knowledge Check I

REVIEW what you have learned so far about coordination. ANSWER the questions listed below.

1. When transferring radar identification via interphone, which of the following pieces of information is required? *(Select all correct answers that apply.)*
   - ❑ **The term "Handoff" or "Point-out"**
   - ❑ The names of the pilot and co-pilot
   - ❑ **The aircraft identification or beacon code, as appropriate**
   - ❑ **Assigned altitude, appropriate restrictions, information that the aircraft is climbing or descending**
   - ❑ **Any other information necessary (e.g., deviating left around weather)**

Transfer of Radio Communication

Unless otherwise coordinated or specified by letter of agreement or facility directive, transfer of radio communications occurs:

- **AFTER** completion of handoff (if in a radar environment), and
- **BEFORE** an aircraft enters the receiving controller's area of jurisdiction
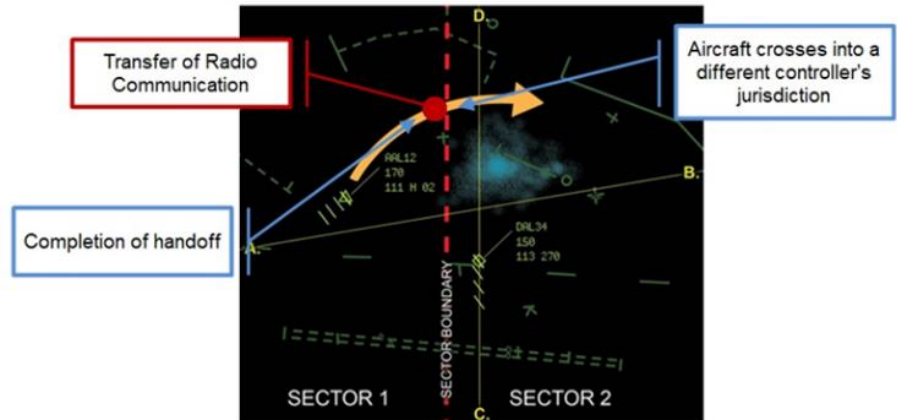
Transfer of Control

Transfer of control is the action whereby the responsibility for separation of an aircraft is transferred from one controller to another. Transfer of control is automatic upon entering the receiving controller's area of jurisdiction.

Transfer control of an aircraft in accordance with the following conditions:

- At a prescribed or coordinated location, time, fix, or altitude
- At the time a radar handoff and frequency change to the receiving controller have been completed and when authorized by a facility directive or letter of agreement that specifies the type and extent of control that is transferred
- May be restricted, i.e. turns not to exceed 30 degrees
- Transfer control of an aircraft only after eliminating any potential conflict with other aircraft for which you have separation responsibility

Runway Crossings

Ground Control shall coordinate and obtain approval from Local Control before authorizing an aircraft or a vehicle to cross or use any portion of an active runway. This coordination shall include the point/intersection at the runway where the operation will occur.

The Ground Controller shall advise the Local Controller when the coordinated runway operation is completed.

Forwarding Control Information

- Forward control information from controller to controller within a facility, then to the receiving facility as the aircraft progresses along its route
- Where appropriate, use automation in lieu of manual coordination procedures
  - Manual coordination is required when the computer is not in service

Arrival Information

Forward the following information to non-approach control towers soon enough to permit adjustment of traffic flow. *Note that this only applies to IFR aircraft.*

IFR Arrival Information Forwarded to Control Towers:
- Aircraft identification
- Type of aircraft
- Estimated Time of Arrival
- Type of Instrument Approach
- For SVFR, the direction from which the aircraft will enter the surface area
- Position of the aircraft when executing a Contact or Visual approach

Clearances and Instructions

- Relay clearances verbatim
- Ensure pilots acknowledge all Air Traffic Clearances and ATC instructions. When a pilot reads back an Air Traffic Clearance or ATC instruction:
  - Ensure that items read back are correct
  - Ensure the read back of hold short instructions, whether a part of taxi instructions or a LAHSO clearance
  - Ensure pilots use call signs and/or registration numbers in any read back acknowledging an Air Traffic Clearance or ATC instruction

✅ *Knowledge Check J*

REVIEW what you have learned so far about coordination actions. ANSWER the questions listed below.

1. Which of the examples listed are coordination actions? *(Select all correct answers that apply.)*
   - ❑ **Transfer of radar identification**
   - ❑ **Transfer of control**
   - ❑ **Runway crossings**
   - ❑ **Forwarding flight plan information**
   - ❑ **Arrival information (i.e., inbounds)**
   - ❑ **Clearances and instructions**

2. Radar identification is transferred from one controller to another but communications will **NOT** be transferred. This describes a _____. *(Select the correct answer.)*
   - ❑ Control point
   - ❑ Handoff
   - ❑ **Point-out**

3. What are appropriate methods of coordination? *(Select all correct answers that apply.)*
   - ❑ **Automated**
   - ❑ **Verbal/Physical**
   - ❑ **Interphone**
   - ❑ **Facility Directives**

Coordination Summary

Coordination procedures can be intrafacility or interfacility. The most common coordination methods include automated, interphone, SOPs/LOAs, and verbal/physical communication.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Review content presented in *Coordination* lesson ■ Navigate to the *Parking Lot* link within Blackboard and review any student questions ■ Address *Parking Lot* questions and facilitate a brief discussion of the lesson content	Facilitated Discussion
	EST. RUN TIME
	10 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Position Relief Briefing* lesson in Blackboard ■ Instruct students to navigate to the *Position Relief Briefing* lesson in Blackboard ■ Instruct students to work individually through the lesson content ■ Upon completion of the lesson, students should review previously introduced content or wait quietly until other students have completed	Blackboard
	EST. RUN TIME
	15 mins.

53

POSITION RELIEF BRIEFING

Purpose: This lesson identifies procedures necessary to ensure effective communication is conducted during a Position Relief Briefing.

Objective:

- Identify procedures for conducting a Position Relief Briefing

Reference for this lesson are as follows:

- FAA Order JO 7110.65, Air Traffic Control

Coordination

An important aspect of teamwork is ensuring effective communication during position relief or change of shift. Position Relief Briefings are one of the most frequently cited areas that contributes to operational errors.

The purpose of the Position Relief Briefing is to ensure position information and control information are accurately transferred to the relieving controller. Transfer of position/team responsibility requires coordination between teams and is accomplished through a Position Relief Briefing.

Step-by-Step Process

The Position Relief Briefing is a four-step process consisting of the following:

- Step 1: Preview the position
- Step 2: Verbal briefing
- Step 3: Assumption of position responsibility
- Step 4: Review the position

Step 1: Preview the position

Relieving Specialist	Specialist Being Relieved
1. Follow the checklist and review the Status Information Areas (SIA).	
2. Observe position equipment, operational situation, and work environment.	
3. Listen to voice communications and observe other operational actions.	
4. Observe current and pending aircraft and vehicular traffic and correlate with flight and other movement information.	
5. Indicate to the specialist being relieved that the position has been previewed and that the verbal briefing may begin.	

54

Step 2 : Verbal briefing

Relieving Specialist	Specialist Being Relieved
	1. Brief the relieving specialist on the abnormal status of items not listed on the SIA(s) as well as on any items of special interest calling for verbal explanation or additional discussion.
	2. Brief on traffic if applicable.
	3. Brief communications status of all known aircraft.
4. Ask questions necessary to ensure a complete understanding of operational situation.	
	5. Completely answer any questions asked.

Step 3: Assumption of position responsibility

Relieving Specialist	Specialist Being Relieved
1. Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.	
	2. Release the position to the relieving specialist and mentally note the time.

Step 4: Review the position

Relieving Specialist	Specialist Being Relieved
1. Check, verify, and update the information obtained in steps one and two.	
2. Check position equipment in accordance with existing directives.	
	3. Review checklist, SIAs, written notes, and other prescribed sources of information, and advise the relieving specialist of known omissions, updates, or inaccuracies.
	4. Observe overall position operation to determine if assistance is needed.
	5. If assistance is needed, provide or summon it as appropriate.
	6. Advise the appropriate position regarding known SIA omissions, updates, or inaccuracies.
	7. Sign-on the relieving specialist, if appropriate, with the time as noted in Assumption of Position step two.
	8. Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.

✅ *Knowledge Check K*

REVIEW what you have learned so far about Position Relief Briefings. ANSWER the questions listed below.

1. After the relieving specialist has assumed responsibility for the sector, the relieved specialist_____.
   (Select the correct answer.)
   - ❑ Immediately leaves the area
   - ❑ **Reviews all information for omissions or inaccuracies**
   - ❑ Signs off the position and remains at the sector 10 minutes

2. If the specialist being relieved recognizes an inaccuracy immediately after relinquishing position responsibility, who should be notified? *(Select the correct answer.)*
   - ❑ Supervising specialist
   - ❑ Another specialist being relieved
   - ❑ **Relieving specialist**

3. Before receiving a verbal briefing from the specialist being relieved, the relieving specialist shall _____.
   (Select the correct answer.)
   - ❑ Sign into the position
   - ❑ **Preview the position**
   - ❑ Indicate that he/she has assumed position responsibility

4. Briefing on applicable traffic is accomplished during which step of the briefing process? *(Select the correct answer.)*
   - ❑ Preview the position
   - ❑ **Verbal briefing**
   - ❑ Visual briefing

Position Relief Briefing Summary

Position Relief Briefings are designed to ensure controllers smoothly transfer position responsibility and provide pertinent information with minimum amount of work.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **Note:** This activity is instructor-led and consists of a presentation and student worksheet ■ Facilitator should locate **Traffic Advisories** presentation in **Facilitator Folder** and **Activity: Traffic Advisories** in **Facilitator Guide** ■ Facilitator will need to determine how to display presentation for all students to view ■ Instruct students to locate student activity worksheet **Traffic Advisories** in the printed **Student Guide**	Activity
	EST. RUN TIME
■ The activity will be performed in a large group led by facilitator ■ Using the presentation, provide instruction for background information ■ Using the presentation, provide instruction and demonstrate how to formulate traffic advisory following the phraseology guidelines presented for example item ■ Instruct students to individually complete remaining examples and record responses on Student Response Sheet ■ Select students randomly to read answers aloud as students assess their own answers ■ Encourage student discussion with this exercise ■ Provide feedback and guidance to student responses ■ Conduct the **Additional Review** (included below) orally to whole group per the instructions provided	30 mins.

ACTIVITY: TRAFFIC ADVISORIES (ANSWER KEY)

*Detailed Facilitator Instructions: This activity is instructor-led and consists of a presentation and student worksheet. Before beginning the activity, the facilitator should locate the following: **Traffic Advisories** presentation in **Facilitator Folder and Activity: Traffic Advisories** in **Facilitator Guide.***

*Instruct students to locate worksheet: **Activity: Traffic Advisories** in **Student Guide***

The presentation will need to be displayed in a location to ensure all students can view.

The facilitator will open and control the presentation while conducting the activity. Students will view the presentation, follow along and record responses on student worksheets.

The presentation is divided into two sections; background information and discussion of example presented by the facilitator, and independent practice. Upon completion, the independent practice will be evaluated as a group. Encourage student discussion and resolve any questions students may have.

Traffic Advisories Introduction:

Detailed Facilitator Instructions: Instruct students to view worksheet and follow along with discussion. Provide an overview of introductory content included on the following slides.

Title page: Lauch presentation

Slide 1: Read and discuss content.

Traffic Advisories

Traffic Advisories are issued to alert pilots to other known or observed traffic which may be in proximity to the position or intended route of flight of their aircraft to warrant their attention.

These advisories may be based on:

- Visual observation
- Observation of identified or non-identified radar targets, or
- Verbal reports from pilots or other facilities

Slide 2: Read and discuss content.

Phraseology for radar-identified aircraft:

1. **Addressee**, the aircraft receiving the advisory
2. **Azimuth** from aircraft in terms of 12-hour clock, compass position, or in an easy-to-understand manner, such as "to your right" or "ahead of you"
3. **Distance** from aircraft in miles
4. **Direction** of and/or relative movement of traffic
5. **Type of aircraft** (if known)
6. **Altitude** of aircraft (if known)

Note: Twelve-hour clock is not utilized in Initial Tower Cab training.
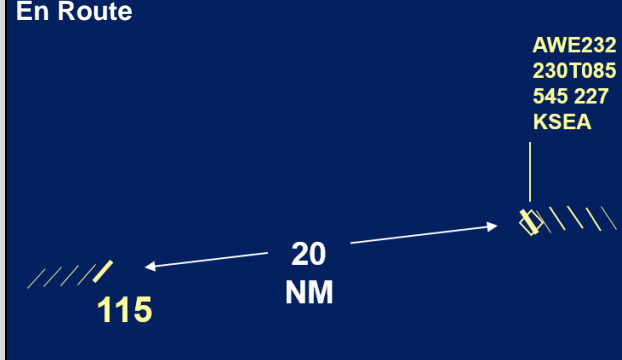
Traffic Advisory Example

Detailed Facilitator Instructions: Instruct students to view the example en route radar traffic advisory and formulate how to state each advisory following the guidelines presented for phraseology. As a group decode the first example displaying the correct answers.

Slide 3: Display example and generate discussion.

Slide 4: As a group brainstorm to determine the answer for each of the categories of phraseology. Once the group has determined answer, select each button and verify responses.

Slide 5: Display example of advisory as it would be issued.

En Route	
AWE232 230T085 545 227 KSEA 20 NM 115	**Addressee**: Cactus Two Thirty-Two
	Azimuth: Traffic Twelve O'clock
	Distance: Two Zero Miles
	Direction: Opposite Direction
	Type of Aircraft: *unknown*
	Altitude: Altitude Indicates One One Thousand Five Hundred

Traffic Advisory:	*"Cactus Two Thirty-two, Traffic Twelve O'clock, Two Zero Miles, Opposite Direction, Altitude Indicates One One Thousand Five Hundred"*

Independent Practice

En Route	
ASA891 050↓106 112 205 KSEA	**Addressee:** Alaska Eight Ninety-One
	Azimuth: Traffic One O'clock
	Distance: One Zero Miles
	Direction: Northwest Bound
	Altitude: Altitude Unknown

Traffic Advisory:	*"Alaska Eight Ninety-one, Traffic One O'clock, One Five Miles, Northwest Bound, Altitude Unknown."*

Terminal	
UPS807 093 21 045	**Addressee:** U-P-S Eight Zero Seven
	Azimuth: Traffic Nine O'clock
	Distance: Eight Miles
	Direction: Converging
	Altitude: Altitude Indicates Four Thousand Five Hundred

Traffic Advisory:	"U-P-S Eight Zero Seven, Traffic Nine O'clock, Eight Miles, Converging, Altitude Indicates Four Thousand Five Hundred."

Review

1.	What is an air traffic advisory?	**Advisories are issued to alert pilots to other known or observed traffic which may be in proximity to the position or intended route of flight of their aircraft to warrant their attention.**
2.	Which types of information are needed for traffic advisories on radar-identified aircraft?	■ **Azimuth from aircraft in terms of the 12-hour clock** ■ **Distance from aircraft in miles** ■ **Direction in which traffic is proceeding and/or relative movement of traffic** ■ **Type of aircraft (if known)** ■ **Altitude of aircraft (if known)**
3.	Which two types of information can be optional in an air traffic advisory?	■ **Type of aircraft** ■ **Altitude of aircraft**

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Communication Situation* in the *Exercises and Activities* folder In Blackboard ■ Instruct students to navigate to *Exercise and Activities* folder in Blackboard ■ Instruct students to locate student activity *Communication Situation* ■ The activity may be performed as small group or pairs of two students ■ Inform students the activity will prepare them for the communication quiz, which will be administered at the competition of this module ■ Instruct students to launch the activity and follow instructions ■ Instruct students to determine the order for responding to questions ■ Students will alternate reading the communication situation, and then orally provide the corresponding phraseology ■ Upon completion of providing the phraseology, student will select *Check Answer* button to view written and hear pronunciation of phraseology ■ Monitor students as they complete activity and provide feedback or guidance as needed ■ Suggest allowing opportunities to repeat the activity during periods of down time either individually or in small groups	Activity
	EST. RUN TIME
	35 mins.

ACTIVITY: COMMUNICATION SITUATION (ANSWER KEY)

Note: *The questions in the key and their distractors may appear in a different order than displayed here due to activity question randomization.*

Note: *Some phraseology may be different based on Terminal or En Route.*

Question	Answer
1. How would you advise N12CT that the MDA is 652 feet?	**November One Two Charlie Tango, Minimum Descent Altitude Six Five Two**
2. Tell A34796 that the altimeter setting at Jackson is 29.94 inches of mercury.	**Air Force Three Four Seven Niner Six, Jackson Altimeter Two Niner Niner Four**
3. Speak this surface wind to N55SL: 30010G25.	**November Five Five Sierra Lima, Wind Three Zero Zero At One Zero Gusts Two Five**
4. Assign a beacon code of 2215 to E11722.	**Air Evac One One Seven Two Two, Squawk Two Two One Five**
5. Tell Delta Airlines flight 1010 to maintain a speed of two hundred and fifty knots.	**Delta Ten Ten, Maintain Two Five Zero Knots**
6. Ask N6MC to verify altitude is 17,500 feet.	**November Six Mike Charlie, Verify At One Seven Thousand Five Hundred**
7. Advise N95HP the DA for the ILS approach is 580 feet MSL.	**November Niner Five Hotel Papa, Decision Altitude Five Eight Zero**
8. Tell N125Z to contact the Denver Approach Control on 118.7.	**November One Two Five Zulu, Contact Denver Approach One One Eight Point Seven**
9. Clear TN3CD via V295.	**Tango November Three Charlie Delta, Cleared Via Victor Two Ninety-Five**
10. Clear JOKER6 via IFR Military Training Route 15.	**Joker Six, Cleared Via I-R Fifteen**
11. Tell an aircraft with identifier DOT2 to maintain an altitude of 16,000 feet.	**Transport Two, Maintain One Six Thousand**
12. Clear VM1 to the 12 mile fix on the 190 radial of the Tulsa VORTAC.	**Marine One, Cleared To Tulsa One Niner Zero Radial One Two Mile Fix**
13. Clear L12469 via Low Altitude RNAV Route T17.	**Logair One Two Four Six Niner, Cleared Via Tango Seventeen**
14. Clear Special Air Mission S21212 via the 35 DME ARC north of the Brunswick VORTAC.	**Sam Two One Two One Two, Cleared Via Three Five Mile Arc North Of Brunswick VORTAC**
15. How may you abbreviate the call sign of N261SY and when can you do so?	**"November One Sierra Yankee"; after comm established and no similar call signs**
16. What call sign would you use for a civilian ambulance N15CE?	**MEDEVAC One Five Charlie Echo**
17. Advise an aircraft with identifier DOT-1 to climb and maintain 7,000 feet.	**Transport One, Climb And Maintain Seven Thousand**

Question	Answer
18. N2169K is on a VOR Approach. Use the correct phraseology to tell the pilot that the lowest he can go without visual reference to the airport environment is 1,236 feet MSL.	**November Two One Six Niner Kilo, Minimum Descent Altitude One Two Three Six**
19. Pressure 30.01 at CVG (Cincinnati).	**Cincinnati Altimeter Three Zero Zero One**
20. Say this runway: 29C.	**Runway Two Niner Center**
21. Assign code 3353 to N889YW.	**November Eight Eight Niner Yankee Whiskey, Squawk Three Three Five Three**
22. Advise N727DK: 01007KT.	**November Seven Two Seven Delta Kilo, Wind Zero One Zero At Seven**
23. Instruct N969SH to contact OKC ATCT on 120.1.	**November Niner Six Niner Sierra Hotel, Contact OKE City Tower One Two Zero Point One**
24. Assign code 2454 to N134PG.	**November One Three Four Papa Golf, Squawk Two Four Five Four**
25. Assign 243.6 (IAH TRACON).	**Contact Houston Approach Two Four Three Point Six**
26. Assign 10,000 ft. to NWA17 (Northwest Orient Airlines).	**Northwest Seventeen, Maintain One Zero Thousand**
27. Advise VV63277: 12012KT.	**Navy Six Three Two Seven Seven, Wind One Two Zero at One Two**
28. Assign A13343 VOR airway 432.	**Air Force One Three Three Four Three, Cleared Via Victor Four Thirty-Two**
29. Assign 134.725 (ZAU ARTCC).	**Contact Chicago Center One Three Four Point Seven Two**
30. Clear HORNT12 to proceed on a heading of 155°.	**Hornet One Two Fly Heading One Five Five**

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
- This portion of the training is an will be conducted by the facilitator - Instruct students to locate the study aid *Basic Communications Review Sheet* in *Student Guide* - Facilitator will review content presented in the study aid - Inform students the study aid is an additional tool to prepare for the Communications Quiz	Study Aid
	EST. RUN TIME
	10 mins.

STUDY AID: BASIC COMMUNICATIONS REVIEW SHEET

Purpose: *This study aid serves as an additional review to reinforce your ability to practice air traffic control communication skills for the Communication Quiz.*

Note: *Some phraseology may be different based on Terminal or En Route.*

Communication Situation	*Answer*
1. Tell A34796 that the altimeter setting at Jackson is 29.94 inches of mercury.	"AIR FORCE THREE FOUR SEVEN NINER SIX, JACKSON ALTIMETER TWO NINER NINER FOUR"
2. Tell Air Mobility Command aircraft RCH1245 to contact Albuquerque Center on frequency 133.45.	"REACH ONE TWO FOUR FIVE, CONTACT ALBUQUERQUE CENTER ONE THREE THREE POINT FOUR FIVE"
3. Tell R2353 that the highest point on the airport's runways is 426 feet MSL.	"ARMY TWO THREE FIVE THREE, FIELD ELEVATION FOUR TWO SIX"
4. Instruct N969SH to contact OKC ATCT on 120.1.	"NOVEMBER NINER SIX NINER SIERRA HOTEL, CONTACT OKE CITY TOWER ONE TWO ZERO POINT ONE"
5. Tell N2KA to contact Oakland Center on frequency 132.225.	"NOVEMBER TWO KILO ALFA, CONTACT OAKLAND CENTER ONE THREE TWO POINT TWO TWO"
6. Assign FAA1 magnetic heading of 340 by executing a right turn.	"SAFEAIR ONE, TURN RIGHT HEADING THREE FOUR ZERO"
7. Advise an aircraft with identifier DOT-1 to climb and maintain 7,000 feet.	"TRANSPORT ONE, CLIMB AND MAINTAIN SEVEN THOUSAND"
8. Advise N4MX to contact the Gainesville FSS on 122.2.	"NOVEMBER FOUR MIKE XRAY, CONTACT GAINESVILLE RADIO ONE TWO TWO POINT TWO"
9. Clear American Airlines flight 695 via jet route 37.	"AMERICAN SIX NINETY-FIVE, CLEARED VIA JAY THIRTY-SEVEN"
10. Assign 133.6 (ZSE ARTCC) to R23656.	"ARMY TWO THREE SIX FIVE SIX, CONTACT SEATTLE CENTER ONE THREE THREE POINT SIX"
11. The pilot of United 715 has identified himself as a Lifeguard Flight. How would this call sign be spoken?	"MEDEVAC UNITED SEVEN FIFTEEN"
12. Pressure 28.91 at ATL.	"ATLANTA ALTIMETER TWO EIGHT NINER ONE"
13. Say this runway: 10L.	"RUNWAY ONE ZERO LEFT"
14. The vice president is aboard an army aircraft. State the call sign.	"ARMY TWO"
15. Assign LN888QS 140 KTS IAS.	"MEDEVAC EIGHT EIGHT EIGHT QUEBEC SIERRA, MAINTAIN ONE FOUR ZERO KNOTS"
16. Assign N550CW RNAV route T85.	"NOVEMBER FIVE FIVE ZERO CHARLIE WHISKEY, CLEARED VIA TANGO EIGHTY-FIVE"
17. Assign code 0102 to AF1.	"AIR FORCE ONE, SQUAWK ZERO ONE ZERO TWO"
18. Advise an aircraft with identifier FAA1 that the Vicksburg altimeter is 30.01.	"SAFEAIR ONE, VICKSBURG ALTIMETER THREE ZERO ZERO ONE"

Communication Situation	*Answer*
19. Advise RCH7743 airport elevation is 3,214 ft. MSL.	"REACH SEVEN SEVEN FOUR THREE, FIELD ELEVATION THREE TWO ONE FOUR"
20. Assign FL 290 to DAL261 (U S Airways).	"DELTA TWO SIXTY-ONE, MAINTAIN FLIGHT LEVEL TWO NINER ZERO"
21. Assign a Mach speed of .78 to United Flight 78.	"UNITED SEVENTY EIGHT, MAINTAIN MACH POINT SEVEN EIGHT"
22. Clear VV19214 via VFR Military Training Route 1019.	"NAVY ONE NINER TWO ONE FOUR, CLEARED VIA V-R TEN NINETEEN"
23. How can you call a BE35 with a foreign registry of CLFPU? (six answers)	"C-L-F-P-U" "CHARLIE LIMA FOXTROT PAPA UNIFORM" "BONANZA L-F-P-U" "BONANZA LIMA FOXTROT PAPA UNIFORM" "BEECH L-F-P-U" "BEECH LIMA FOXTROT PAPA UNIFORM"
24. Tell the pilot of N21LP that he/she is cleared to enter Class B Airspace.	"NOVEMBER TWO ONE LIMA PAPA, CLEARED TO ENTER BRAVO AIRSPACE"
25. Tell N21DG to expect Runway 19R.	"NOVEMBER TWO ONE DELTA GOLF, EXPECT RUNWAY ONE NINER RIGHT"
26. Assign 15,000 feet to N21K and, since COMM has been a problem, clarify.	"NOVEMBER TWO ONE KILO, MAINTAIN ONE FIVE THOUSAND, FIFTEEN THOUSAND"
27. What would be the call sign of FLC19, an FAA Flight Inspection Aircraft?	"FLIGHT CHECK ONE NINER"
28. Assign 123.8 (SCT TRACON).	"CONTACT SO CAL APPROACH ONE TWO THREE POINT EIGHT"
29. Clear C2236 to maintain an altitude of FL 290.	"COAST GUARD TWO TWO THREE SIX, MAINTAIN FLIGHT LEVEL TWO NINER ZERO"
30. 267.5 is Channel 9 at NAVY JAX. Tell VV123 to contact NAVY JAX Tower on that frequency.	"NAVY ONE TWO THREE, CONTACT NAVY JAX TOWER LOCAL CHANNEL NINER"
31. Clear a Department of Energy Flight Number 1751 via RNAV Route Q222.	"ROMEO ALFA CHARLIE ONE SEVEN FIVE ONE, CLEARED VIA Q TWO TWENTY-TWO"
32. Assign 16,000 ft. to VM28351.	"MARINE TWO EIGHT THREE FIVE ONE, MAINTAIN ONE SIX THOUSAND"
33. Assign SWA10 jet route 187.	"SOUTHWEST TEN, CLEARED VIA JAY ONE EIGHTY-SEVEN"
34. Assign 118.55 (MIA ATCT).	"CONTACT MIAMI TOWER ONE ONE EIGHT POINT FIVE FIVE"
35. Speak this surface wind to N55SL: 30010G25.	"NOVEMBER FIVE FIVE SIERRA LIMA, WIND THREE ZERO ZERO AT ONE ZERO GUSTS TWO FIVE"
36. Assign FL 190 to EGF3522 (American Eagle).	"EAGLE FLIGHT THIRTY-FIVE TWENTY-TWO, MAINTAIN FLIGHT LEVEL ONE NINER ZERO"
37. Clear N799HM to proceed on heading 255°.	"NOVEMBER SEVEN NINER NINER HOTEL MIKE, FLY HEADING TWO FIVE FIVE"
38. The president is riding in John Q. Public's Cherokee. What is the aircraft call sign?	"EXECUTIVE ONE"

Communication Situation	Answer
39. Tell N37MP to contact the Tallahassee Approach Control on 120.2.	"NOVEMBER THREE SEVEN MIKE PAPA, CONTACT TALLAHASSEE APPROACH ONE TWO ZERO POINT TWO"
40. Assign 8,000 feet to TN946TG (not initial contact).	"NOVEMBER SIX TANGO GOLF MAINTAIN EIGHT THOUSAND"

SUMMARY

The purpose of this module was to explain radio and interphone communications, standardization of ATC terminology, coordination procedures between intrafacility and interfacility, and procedures conducted during position relief.

In accordance with FAA Order JO 7110.65, Air Traffic Control, you should now be able to:

- Identify radio and interphone communications
- Identify International Civil Aviation Organization (ICAO) phonetics
- Identify number group usage during communication
- Identify proper number usage during communication
- Identify proper facility identification during communication
- Identify proper aircraft identification during communication
- Identify proper route descriptions during communication
- Identify NAVAID descriptions during communication
- Identify coordination procedures between intrafacility and interfacility
- Identify procedures for conducting a Position Relief Briefing

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ Navigate to the *Parking Lot* link within Blackboard and review any student questions ■ Address *Parking Lot* questions and facilitate a brief discussion of the lesson content ■ Instruct students to prepare for the End-of-Module test by putting away their Student Guides	Facilitated Discussion
	EST. RUN TIME
	15 mins.

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Communications Quiz* in the *Exercise and Activities* folder in Blackboard ■ Instruct students to navigate to the *Exercise and Activities* folder within Blackboard ■ Instruct students to locate the *Communications Quiz* link ■ Instruct students to select the link to begin the test ■ Instruct the students to complete the test ■ *Note: This test is scored but not graded* ■ Identify the most commonly missed questions by reviewing student statistics in Blackboard ■ Review commonly missed questions with students	Blackboard Assessment
	EST. RUN TIME
	30 mins.

BASIC COMMUNICATIONS QUIZ (ANSWER KEY)

1. The word/phrase used by controllers (usually in conjunction with a request for best rate of climb/descent) when prompt compliance is required to avoid the development of an imminent situation without requiring an exceptional change in aircraft handling characteristics is _____. *(Select the correct answer.)*
   - ❑ **Expedite**
   - ❑ Immediately
   - ❑ I say again
   - ❑ Read back

2. The phraseology to describe the fix ICT207010 is _____. *(Select the correct answer.)*
   - ❑ **"WICHITA TWO ZERO SEVEN RADIAL ONE ZERO MILE FIX"**
   - ❑ "WICHITA TWO SEVENTY RADIAL ONE ZERO MILE FIX"
   - ❑ "WICHITA TWO ZERO SEVEN RADIAL ZERO ONE ZERO MILE FIX"
   - ❑ "WICHITA VORTAC TWO ZERO SEVEN RADIAL ZERO ONE ZERO MILE FIX"

3. "Let me know that you have received and understood my message" defines what word/phrase? *(Select the correct answer.)*
   - ❑ **Acknowledge**
   - ❑ Over
   - ❑ I say again
   - ❑ How do you hear me

4. Spell "wind" using the ICAO phonetic alphabet. *(Select the correct answer.)*
   - ❑ **Whiskey-India-November-Delta**
   - ❑ Whiskey-India-Nan-Delta
   - ❑ Whiskey-India-November-Dog
   - ❑ Whiskey-India-Nora-Delta

5. When the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority, they use the word(s) _____. *(Select the correct answer.)*
   - ❑ **Stand by**
   - ❑ Hold on
   - ❑ Over
   - ❑ Advise intentions

6. Using the 24-hour clock, the time 2:53 P.M. is spoken _____. *(Select the correct answer.)*
   - ❑ **One Four Five Three Local**
   - ❑ Two Fifty Three Local
   - ❑ Fourteen Fifty Three Local
   - ❑ Zero Two Five Three Local

7. "Request confirmation of information" defines what word/phrase? *(Select the correct answer.)*
   - ❑ **Verify**
   - ❑ Read back
   - ❑ That is correct
   - ❑ How do you hear me

8. How is 19,000 spoken as an assigned altitude/flight level? *(Select the correct answer.)*
   - ❑ **"FLIGHT LEVEL ONE NINER ZERO"**
   - ❑ "FLIGHT LEVEL NINETEEN THOUSAND"
   - ❑ "ONE NINER THOUSAND"
   - ❑ "ONE NINER ZERO FEET"

9. Which of the following aircraft call signs is correct? *(Select the correct answer.)*
   - ❑ **United Fourteen Ninety Two**
   - ❑ Southwest One Oh One
   - ❑ Air Ambulance One Four Two Lima Golf
   - ❑ November Seven Twenty One Juliett Alfa

10. How is the frequency 119.2 spoken? *(Select the correct answer.)*
    - ❑ **"ONE ONE NINER POINT TWO"**
    - ❑ "ONE ONE NINE POINT TWO"
    - ❑ "ONE NINETEEN POINT TWO"
    - ❑ "ONE ONE NINER TWO"

11. The word/phrase "Yes" is spoken as _____. *(Select the correct answer.)*
    - ❑ **Affirmative**
    - ❑ Roger
    - ❑ Go Ahead
    - ❑ Approved

12. An aircraft with the identification number "C63614" is operated by _____. *(Select the correct answer.)*
    - ❑ **Coast Guard**
    - ❑ Canadian Government
    - ❑ Continental Airlines
    - ❑ Commerce Department

13. "Proceed with your message" defines what word/phrase? *(Select the correct answer.)*
    - ❑ **Go ahead**
    - ❑ Over
    - ❑ Read back
    - ❑ Say again

14. An aircraft with the identification number "S3614" indicates what Mission/Special Operation? *(Select the correct answer.)*
    - ❑ **SAM**
    - ❑ Scout
    - ❑ SAMP
    - ❑ Search

15. "Tell me what you plan to do" describes what word/phrase? *(Select the correct answer.)*
    - ❑ **Advise intentions**
    - ❑ State intentions
    - ❑ Advise
    - ❑ Go ahead

16. A Marine helicopter with the president of the United States on board would be called _____. *(Select the correct answer.)*
    - ❑ **Marine One**
    - ❑ Executive One
    - ❑ Executive One Foxtrot
    - ❑ Marine Corps One

17. The word "unable" means _____. *(Select the correct answer.)*
    - ❑ **Inability to comply with a specific instruction**
    - ❑ The understanding you have is wrong
    - ❑ Negative
    - ❑ I do not want to comply

18. An aircraft with the call sign "SAFEAIR-1" would be _____. *(Select the correct answer.)*
    - ❑ **Carrying the FAA Administrator**
    - ❑ Carrying the Secretary of Transportation
    - ❑ A flight inspection aircraft
    - ❑ A designated air safety aircraft

19. "I have received your message, understand it, and will comply with it" describes what word/phrase? *(Select the correct answer.)*
    - ❑ **Wilco**
    - ❑ Affirmative
    - ❑ Roger
    - ❑ Acknowledge

20. The prescribed phraseology to initiate a manual handoff is _____. *(Select the correct answer.)*
    - ❑ **The term "Handoff," position relative to a fix, aircraft identification, assigned altitude**
    - ❑ Aircraft identification, the term "Handoff," position relative to a fix, assigned altitude
    - ❑ The term "Handoff," aircraft identification, position relative to a fix, assigned altitude
    - ❑ Aircraft identification, position relative to a fix, the term "Handoff," assigned altitude

21. The meaning that best describes the word/phrase "Roger" is _____. *(Select the correct answer.)*
    - ❑ **I have received all of your last transmission**
    - ❑ Let me know that you have received and understood my message
    - ❑ Yes
    - ❑ Affirmative

22. How would you say the aircraft call sign "CFSUR" using the ICAO phonetic alphabet? *(Select the correct answer.)*
- ❑ **"CHARLIE-FOXTROT-SIERRA-UNIFORM-ROMEO"**
- ❑ "CHARLIE-FOX-SIERRA-UNIFORM-ROMEO"
- ❑ "CHARLIE-FOXTROT-SUGAR-UNIFORM-ROMEO"
- ❑ "CHARLIE-FOX-SUGAR-UNIFORM-ROMEO"

23. "No" is indicated by what word/phrase? *(Select the correct answer.)*
- ❑ **Negative**
- ❑ Unable
- ❑ Incorrect
- ❑ Wrong

24. Using the 24-hour clock, the time 9:02 A.M. is spoken _____. *(Select the correct answer.)*
- ❑ **Zero Niner Zero Two Local**
- ❑ Niner Oh Two Local
- ❑ Niner Oh Two A.M. Local
- ❑ Zero Nine Zero Two Local

25. When communicating with or about heavy aircraft, the word "Heavy" shall be used in which instance? *(Select the correct answer.)*
- ❑ **An en route controller communicating with a terminal facility**
- ❑ A terminal controller only when issuing traffic advisories
- ❑ Any controller communicating with or about Air Force One
- ❑ En route controllers at all times

26. Mach 0.72 is spoken _____. *(Select the correct answer.)*
- ❑ **"MACH POINT SEVEN TWO"**
- ❑ "MACH ZERO POINT SEVEN TWO"
- ❑ "MACH ZERO SEVEN TWO"
- ❑ "MACH POINT SEVENTY TWO"

27. The correct phraseology for stating call sign E47329 is _____. *(Select the correct answer.)*
- ❑ **"AIR EVAC FOUR SEVEN THREE TWO NINER"**
- ❑ "EVAC FOUR SEVEN THREE TWO NINER"
- ❑ "ECHO FOUR SEVEN THREE TWO NINER"
- ❑ "AIR EVAC FORTY SEVEN THREE TWENTY NINE"

28. An aircraft with the identification number "VM63614" indicates that the aircraft is operated by the _____. *(Select the correct answer.)*
- ❑ **Marine Corps**
- ❑ Navy
- ❑ British Royal Navy
- ❑ Canadian Royal Marines

29. "Repeat my message back to me" describes what word/phrase? *(Select the correct answer.)*
- ❑ **Read back**
- ❑ Advise intentions
- ❑ Repeat
- ❑ Say again

30. An FAA aircraft with the vice president on board would be called _____. *(Select the correct answer.)*
- ❑ **Executive Two**
- ❑ Executive One
- ❑ FAA One
- ❑ FAA Two

31. The word/phrase "correction" is used _____. *(Select the correct answer.)*
    - ❑ **When an error has been made in a transmission**
    - ❑ When a phrase needs to be repeated
    - ❑ When a phrase is not understood
    - ❑ Never

32. An interphone conversation ends by _____. *(Select the correct answer.)*
    - ❑ **Both controllers stating their operating initials**
    - ❑ The receiving controller stating his/her operating initials
    - ❑ The receiving controller responding to the calling controller
    - ❑ The calling controller saying "goodbye"

33. The meaning of "How do you hear me?" is _____. *(Select the correct answer.)*
    - ❑ **To determine how well the transmission is being received**
    - ❑ Let me know that you have received and understood my message
    - ❑ Tell me what you plan to do
    - ❑ Proceed with your message

34. What is the prescribed phraseology to advise the pilot speed adjustment is no longer necessary? *(Select the correct answer.)*
    - ❑ **Resume normal speed**
    - ❑ Maintain normal speed
    - ❑ Speed at pilot's discretion
    - ❑ Maintain flight plan speed

35. How is the word/phrase "immediately" used? *(Select the correct answer.)*
    - ❑ **By ATC when compliance with an action is required to avoid an imminent situation**
    - ❑ By ATC when prompt compliance is required to avoid the development of an imminent situation
    - ❑ By ATC when compliance is required
    - ❑ To expedite a clearance

36. Using the 24-hour clock, the time 12:00 A.M. is spoken _____. *(Select the correct answer.)*
    - ❑ **Zero Zero Zero Zero**
    - ❑ Two Four Zero Zero
    - ❑ Twenty Four Hundred
    - ❑ One Two Zero Zero

37. "The message will be repeated" describes what word/phrase? *(Select the correct answer.)*
    - ❑ **I say again**
    - ❑ Go ahead
    - ❑ Read back
    - ❑ ATC requests

38. How would you spell the word "north" using the ICAO phonetic alphabet? *(Select the correct answer.)*
    - ❑ **November-Oscar-Romeo-Tango-Hotel**
    - ❑ Nan-Oscar-Romeo-Tango-Hotel
    - ❑ November-Oscar-Robert-Hotel
    - ❑ November-Oscar-Romeo-Hostel

39. The word/phrase that means the conversation is ended and **NO** response is expected is _____. *(Select the correct answer.)*
    - ❑ **Out**
    - ❑ Roger
    - ❑ Wilco
    - ❑ Over

40. How is the wind 320 degrees at 15 knots spoken? *(Select the correct answer.)*
    - ❏ **"WIND THREE TWO ZERO AT ONE FIVE"**
    - ❏ "WIND THREE TWENTY AT ONE FIVE"
    - ❏ "WIND THREE HUNDRED TWENTY DEGREES AT FIFTEEN KNOTS"
    - ❏ "WIND THREE TWO ZERO DEGREES AT ONE FIVE KNOTS"

41. What word/phrase is used when a transmission is finished and a reply is expected? *(Select the correct answer.)*
    - ❏ **Over**
    - ❏ Wilco
    - ❏ Roger
    - ❏ Out

42. How would you say the aircraft call sign "XBVZE" using the ICAO phonetic alphabet? *(Select the correct answer.)*
    - ❏ **"X-RAY BRAVO VICTOR ZULU ECHO"**
    - ❏ "X-RAY BAKER VICTOR ZULU ECHO"
    - ❏ "X-RAY BRAVO VICTOR ZULU EASY"
    - ❏ "X-RAY BAKER VICTOR ZULU EASY"

43. How do you say "Runway 28L?" *(Select the correct answer.)*
    - ❏ **"RUNWAY TWO EIGHT LEFT"**
    - ❏ "RUNWAY TWENTY EIGHT LEFT"
    - ❏ "RUNWAY TWENTY EIGHT, LEFT SIDE"
    - ❏ "LEFT SIDE RUNWAY TWO EIGHT"

44. How would you say an altimeter setting of 29.89? *(Select the correct answer.)*
    - ❏ **"ALTIMETER TWO NINER EIGHT NINER"**
    - ❏ "ALTIMETER TWENTY NINE POINT EIGHTY NINE"
    - ❏ "TWENTY NINE EIGHTY NINE ON THE ALTIMETER"
    - ❏ "ALTIMETER TWO NINER POINT EIGHT NINER"

45. How is a heading of 30 degrees spoken? *(Select the correct answer.)*
    - ❏ **"HEADING ZERO THREE ZERO"**
    - ❏ "HEAD NORTHEAST"
    - ❏ "HEADING THIRTY DEGREES"
    - ❏ "HEADING THREE ZERO"

FACILITATOR INSTRUCTIONS	DELIVERY METHOD
■ **ENABLE** *Basic Communications End-of-Module Test* link in Blackboard	Blackboard Assessment
■ Instruct students:	**EST. RUN TIME**
o Clear desks	20 mins.
o Do not write anything during or after the test	
o Navigate to the *Basic Communications End-of-Module Test* link in Blackboard	
o Once they are satisfied with their responses, click "Save and Submit;" do not click "OK" to review results until directed to do so	
o Choose "Cancel" if they receive a warning message that the test has unanswered questions; choosing OK will submit the test and not allow them to go back and answer the questions	
o Leave the room after submitting the test and return at the "Be Back" time	
■ *Note: This test is scored but not graded*	
■ During test, monitor students to ensure a secure testing environment	
■ Identify the most commonly missed questions by reviewing student statistics in Blackboard	
■ Instruct students to click "View Results" when ready to review commonly missed questions	
■ Review commonly missed questions with students	

END-OF-MODULE TEST (ANSWER KEY)

Note: Test questions in Blackboard are presented to the students in random order. Please be aware the test key question order will not match the student version.

1. Which of the following are considered authorized transmissions for radio and interphone communications? *(Select the correct answer.)*
   - ❑ **ATC or otherwise contributing to air safety and if official FAA messages are required**
   - ❑ ATC or otherwise contributing to air safety
   - ❑ As requested and if official FAA messages are required
   - ❑ Only when official ATC business is requested

   Reference(s): JO 7110.65, Chap. 2

2. Why do air traffic controllers use ICAO phonetics to pronounce numbers and letters? *(Select the correct answer.)*
   - ❑ **Clarifies and prevents misunderstandings**
   - ❑ Quicker to pronounce when using ICAO
   - ❑ Pronunciations are the same in Spanish and English
   - ❑ Options for pronouncing specific letters

   Reference(s): JO 7110.65, Chap. 2

3. When stating flight levels, an aircraft at 28,000 feet would be said to be at an altitude of _____. *(Select the correct answer.)*
   - ❑ **Flight Level Two Eight Zero**
   - ❑ Twenty-Eight Zero Flight Level
   - ❑ Flight Level Two Eighty
   - ❑ Two Eighty Flight Level

   Reference(s): JO 7110.65, Chap. 2

4. The terminology for stating an altimeter setting of 28.72 is _____. *(Select the correct answer.)*
   - ❑ **Altimeter Two Eight Seven Two**
   - ❑ Altimeter Two Eight Point Seven Two
   - ❑ Altimeter Two Eight Decimal Seven Two
   - ❑ Altimeter Twenty-Eight Seventy-Two

   Reference(s): JO 7110.65, Chap. 2

5. The phraseology for instructing an aircraft to contact Memphis Air Route Traffic Control Center is _____. *(Select the correct answer.)*
   - ❑ **"CONTACT MEMPHIS CENTER"**
   - ❑ "ATC MEMPHIS CENTER"
   - ❑ "MEMPHIS ATC CENTER"
   - ❑ "CENTER MEMPHIS"

   Reference(s): JO 7110.65, Chap. 2

6. When sending radio communications with an aircraft on initial radio contact, what format should be followed? *(Select the correct answer.)*
   - ❑ **Identification of aircraft, ATC facility, then message (if any)**
   - ❑ Identification of ATC unit, aircraft, and then message (if any)
   - ❑ Identification of aircraft and then message (if any)
   - ❑ Call sign and make of aircraft and ATC unit

   Reference(s): JO 7110.65, Chap. 2

7. What type of route is identified in the following description? "Q ONE THIRTY-SIX" *(Select the correct answer.)*
   - ❑ **High altitude RNAV route**
   - ❑ Military training route
   - ❑ Low altitude RNAV route
   - ❑ Jet route

   Reference(s): JO 7110.65, Chap. 2

8. How would a fix that is **NOT** named be described? *(Select the correct answer.)*
   - ❑ **NAVAID, radial and distance from NAVAID, followed by phrase Mile Fix**
   - ❑ Fix, distance from NAVAID, followed by phrase NAVAID
   - ❑ NAVAID Fix, radial and distance from NAVAID
   - ❑ Mile Fix, distance and radial from NAVAID, followed by phrase NAVAID

   Reference(s): JO 7110.65, Chap. 2

9. The exchange of information between positons via interphone or "in person" is known as _____.
   (Select the correct answer.)
   - ❑ **Intrafacility coordination**
   - ❑ Interfacility coordination
   - ❑ Transfer of communications
   - ❑ Communication relay

   Reference(s): JO 7110.65, Chap. 5

10. List, in order, the four steps in the position relief process. *(Select the correct answer.)*
    - ❑ **Preview position; verbal briefing; assumption of position responsibility; position review**
    - ❑ Verbal briefing; assumption of position responsibility; position review; preview position
    - ❑ Preview position; assumption of position responsibility; verbal briefing; position review
    - ❑ Assumption of position responsibility; preview position; verbal briefing; position review

    Reference(s): JO 7110.65, Appendix A