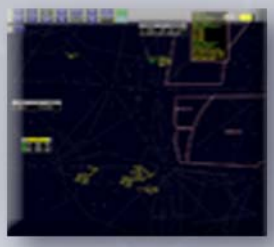
FAA Lesson Plan



En Route Stage 4
Radar Controller Training

Instructor

Additional Services
Lesson 13

55055
V.1.07

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LESSON PLAN DATA SHEET

COURSE NAME:	RADAR CONTROLLER TRAINING
COURSE NUMBER:	55055
LESSON TITLE:	ADDITIONAL SERVICES
DATE REVISED:	2014-04
VERSION:	V.1.07
REFERENCES:	JO 7110.65V, Air Traffic Control; JO 7110.311B, Procedural Guidance for FAA Order JO 7110.65 following En Route Automation Modernization (ERAM) Implementation; TI 6110.100, En Route Automation Modernization (ERAM) Air Traffic Manual (ATM): R-Position User Manual
HANDOUTS:	NONE
EXERCISES:	NONE
END-OF-LESSON TEST:	YES *(REFER TO 55055-ELT13.PDF)*
PERFORMANCE TEST:	NONE
MATERIALS:	NONE
OTHER PERTINENT INFORMATION:	THIS LESSON IS BASED ON ERAM BUILD EAC1500. THE LESSON HAS BEEN REVIEWED AND REFLECTS CURRENT ORDERS AND MANUALS AS OF APRIL 2014.

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INTRODUCTION

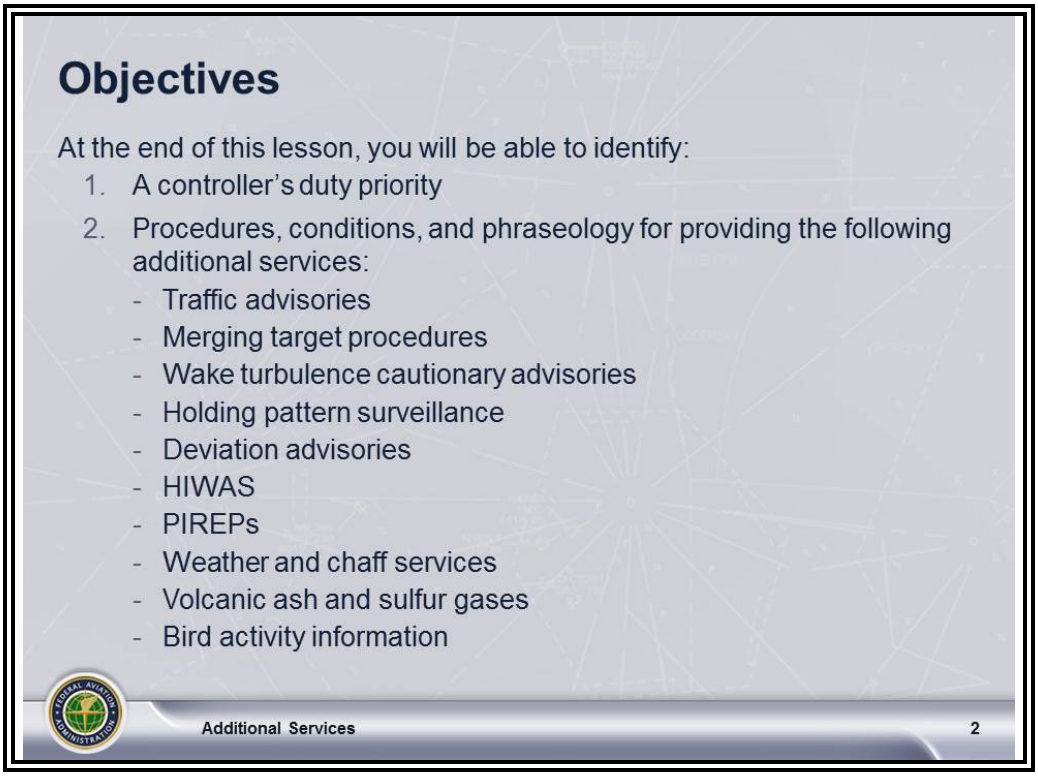
The primary purpose of the Air Traffic Control System is to prevent a collision between aircraft operating in the system and to provide a safe, orderly and expeditious flow of traffic, and to provide support for national security and homeland defense. In addition to this function, the system has the capability of providing additional services. You need to know what these additional services are and how to provide them to the flying public.

Purpose

This lesson will cover additional services such as traffic advisories, merging target procedures, holding pattern surveillance, deviation advisories, Hazardous Inflight Weather Advisory Service (HIWAS), Pilot Reports (PIREPs), weather and chaff services, and bird activity information.

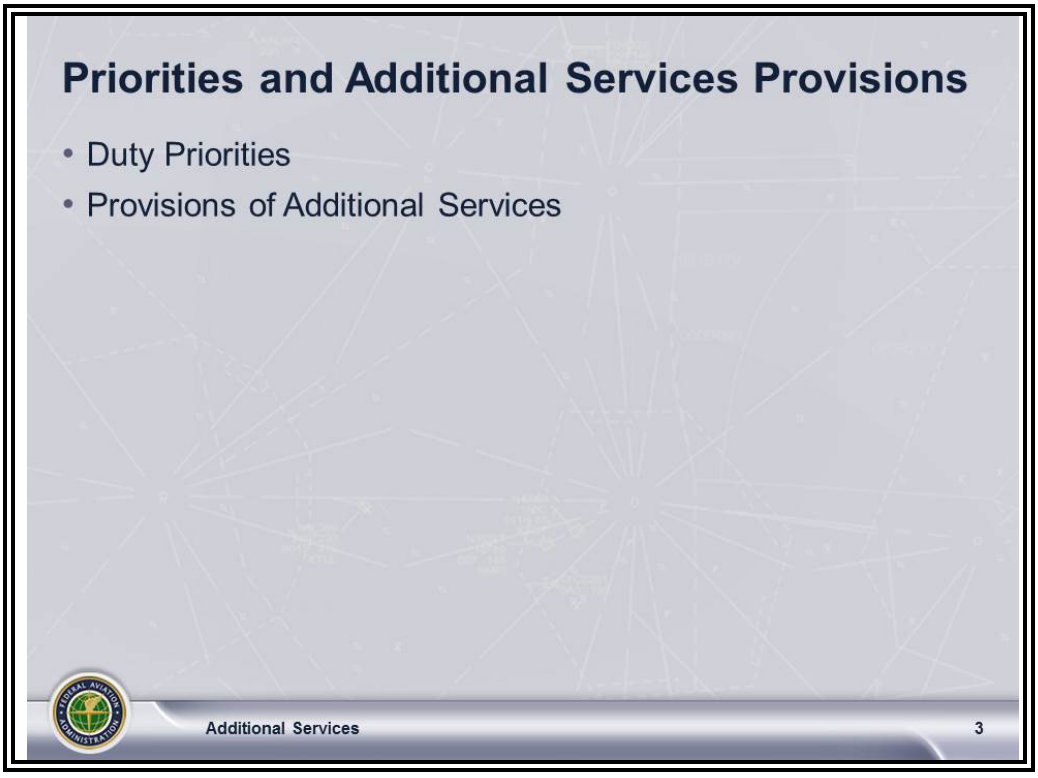
INTRODUCTION *(Continued)*

Objectives



☞ ***NOTE:*** *Review the lesson objectives.*

DUTY PRIORITY



Priority
JO 7110.65,
par. 2-1-2

- Give first priority to:
  - Separating aircraft
  - Issuing safety alerts
- Use good judgment to prioritize all other provisions of FAA Order JO 7110.65 based on requirements of the situation at hand.
  - Perform the action which is most critical from a safety standpoint first.
- Provide support to national security and homeland defense activities to include, but not be limited to, reporting of suspicious and/or unusual aircraft/pilot activities.

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DUTY PRIORITY *(Continued)*

Provision of Additional Services
JO 7110.65, pars. 2-1-1, 2-1-2

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

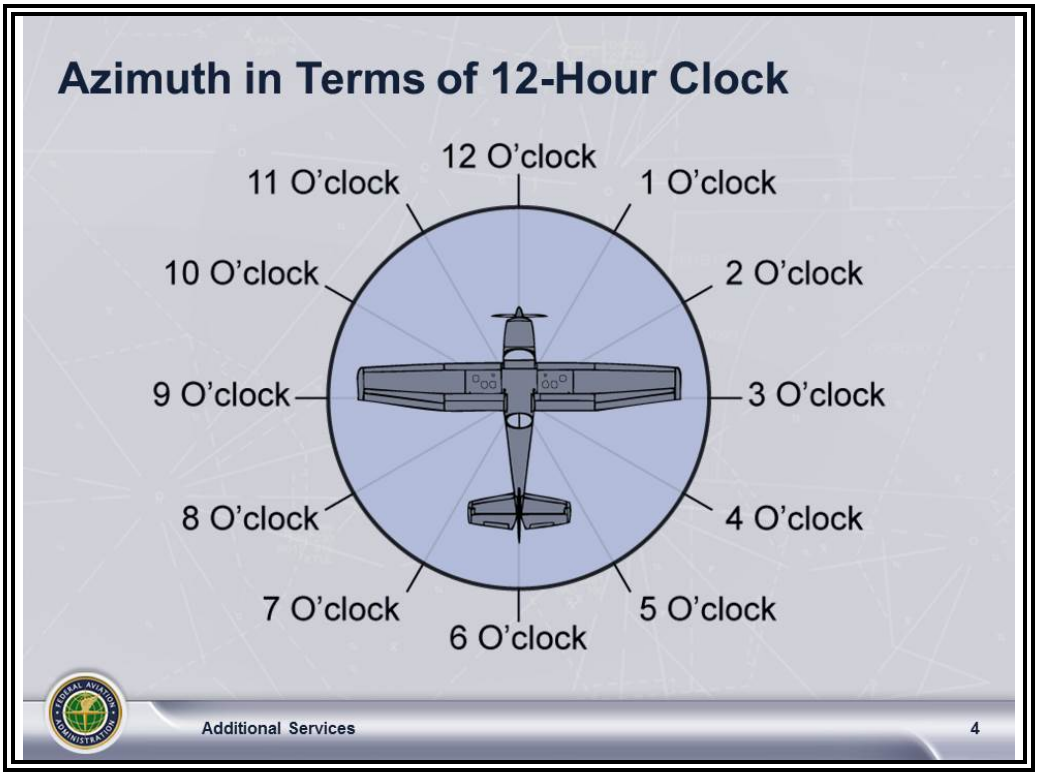
- Higher priority duties
- Other factors, including:
  - Limitations of radar
  - Volume of traffic
  - Frequency congestion
  - Controller workload

NOTE: Workload limitations will be different for each controller. Each controller should exercise good judgment when determining his/her limits.

⊙ Additional services are **NOT** optional, but required when workload permits.

TYPES OF ADDITIONAL SERVICES

Traffic Advisories
JO 7110.65, par. 2-1-21



- ⊙ Issue traffic advisories to all IFR or VFR aircraft on your frequency when, in your judgment:
  - Proximity may diminish to less than applicable separation minima
  - Their proximity warrants it if no separation minima apply, such as for:
    - VFR aircraft outside of Class B/Class C airspace, or
    - TRSA
  - Exception:
    - Aircraft is operating within Class A airspace.
    - Pilot requests omission.
- ⊙ Issue the following traffic items to radar-identified aircraft:
  - Position of traffic in terms of the following:
    - Azimuth in terms of 12-hour clock

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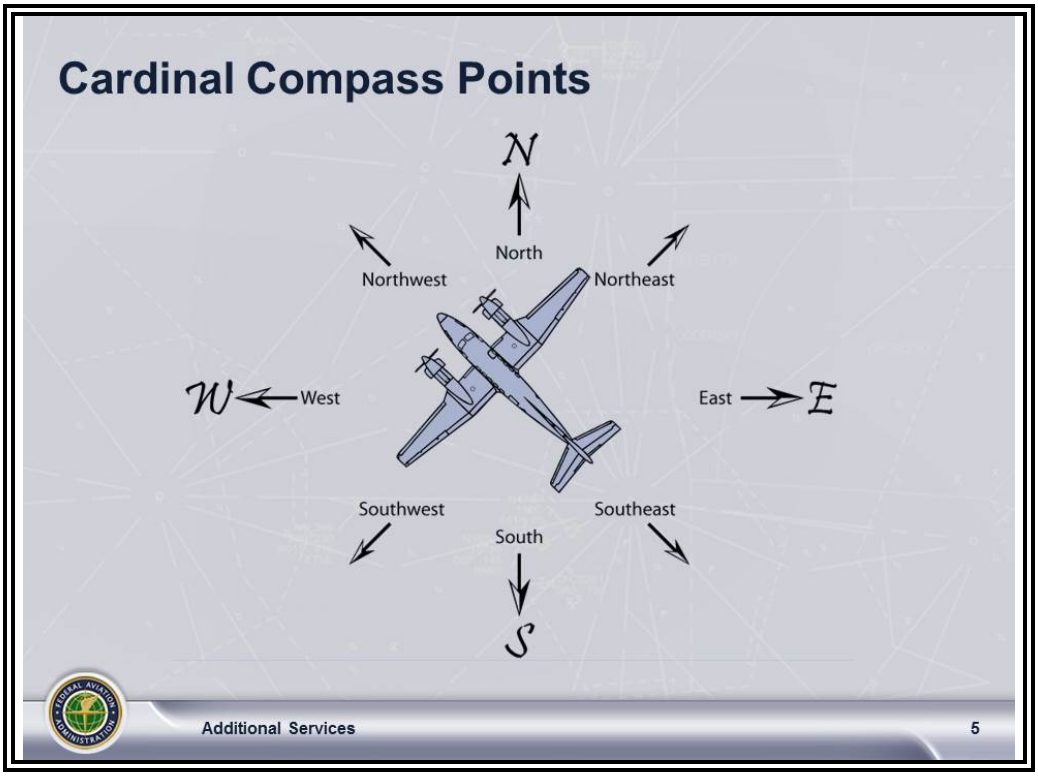
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



  - Direction from aircraft in terms of eight cardinal compass points
    - → Use with rapidly maneuvering traffic.
    - → Discontinue at pilot's request.
- Distance from traffic in miles
- Direction in which traffic is proceeding and/or relative movement
  - Closing or converging
  - Parallel same direction
  - Opposite direction or overtaking
  - Diverging
  - Crossing left to right or right to left
- Type of aircraft and altitude, if known

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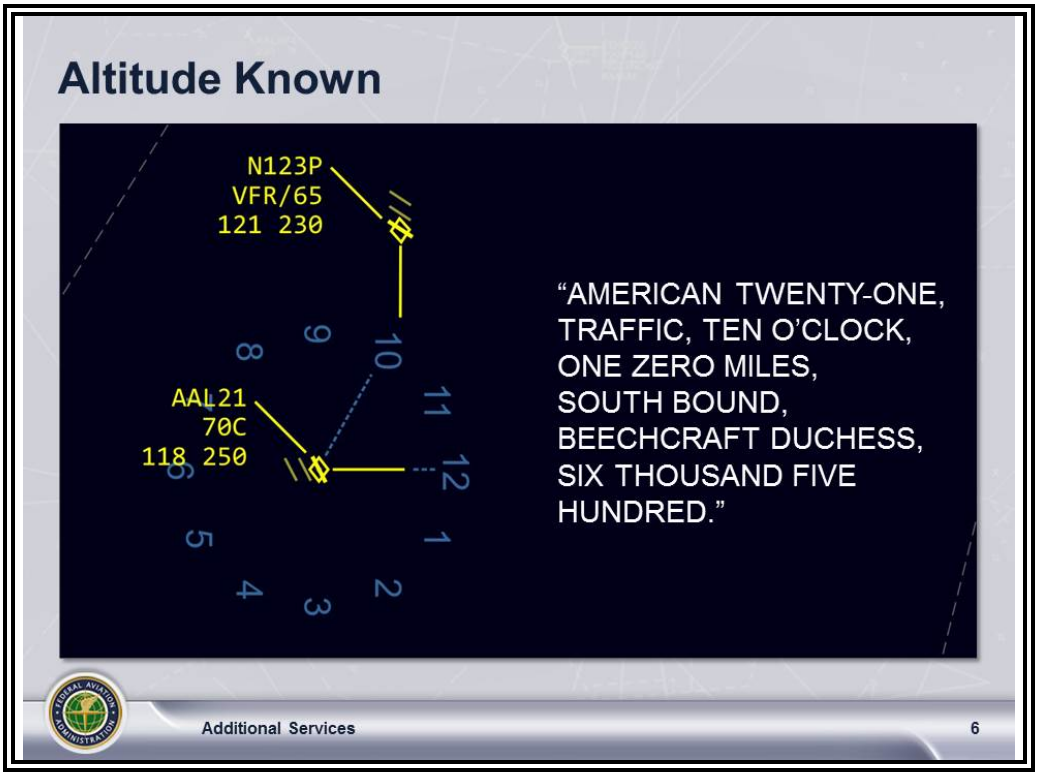
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



✈ **Phraseology**

"TRAFFIC, (number) O'CLOCK,"

or when appropriate,

"(direction) (number) MILES, (direction)-BOUND,"

and/or

(relative movement),

and if known,

(type of aircraft and altitude).

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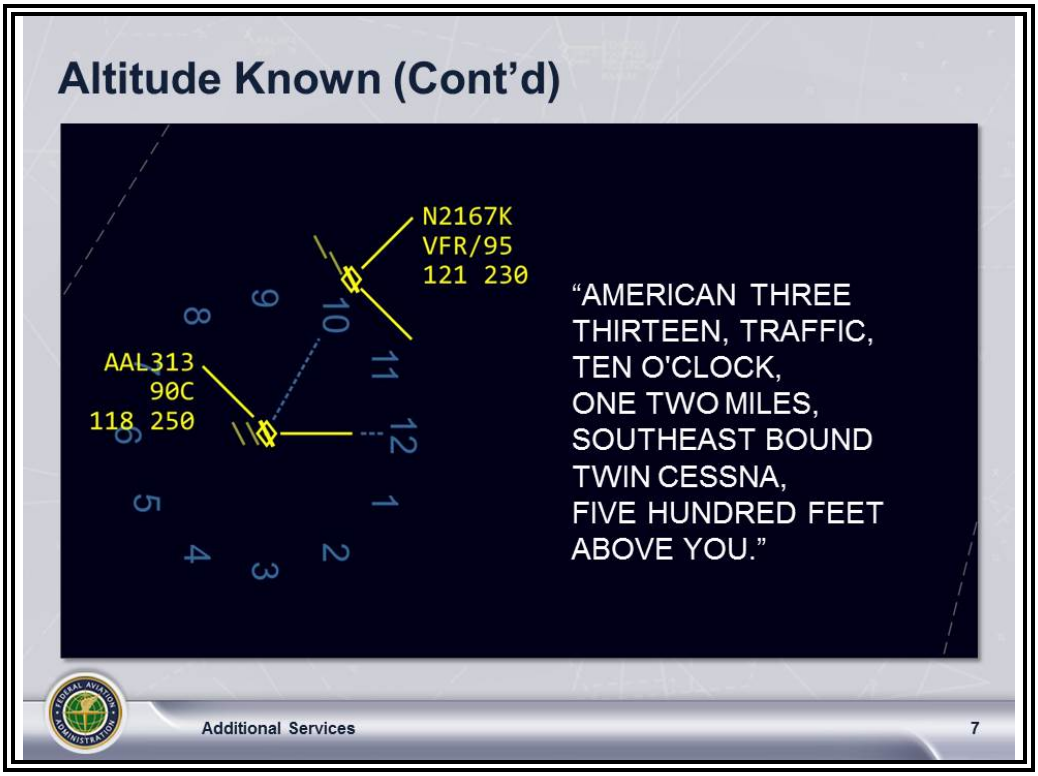
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



✈ **Phraseology**

When appropriate:

"(type of aircraft and relative position), (number of feet) FEET ABOVE/BELOW YOU."

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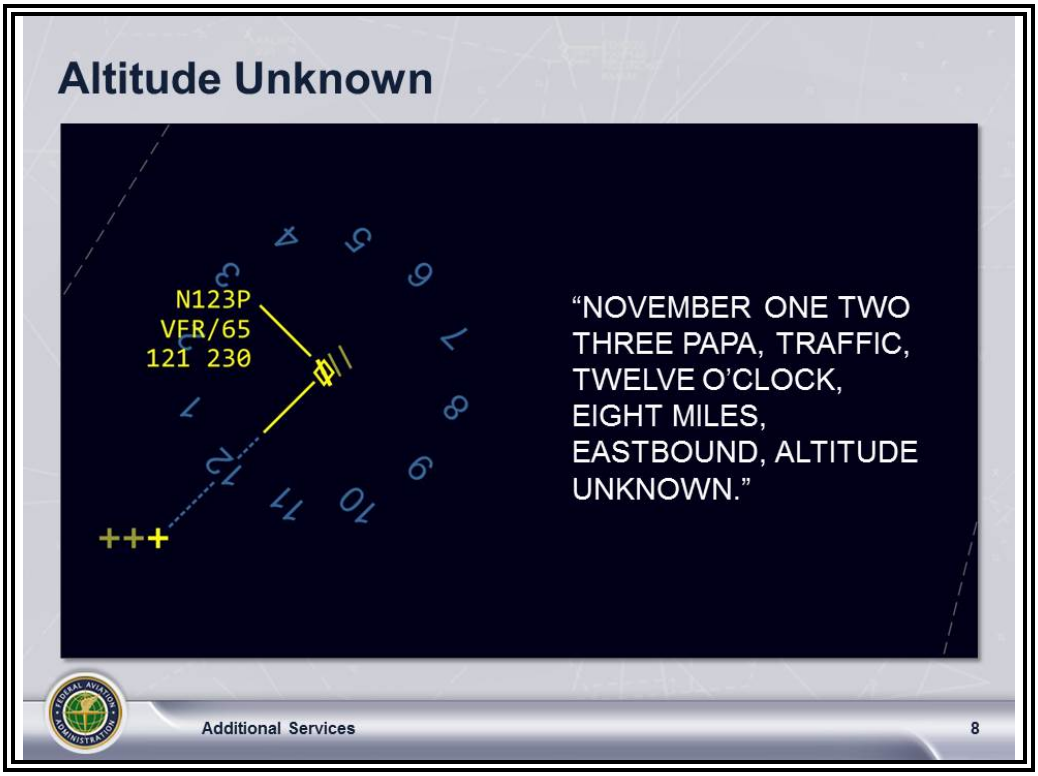
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



✈ **Phraseology**

If altitude is unknown:

"ALTITUDE UNKNOWN."

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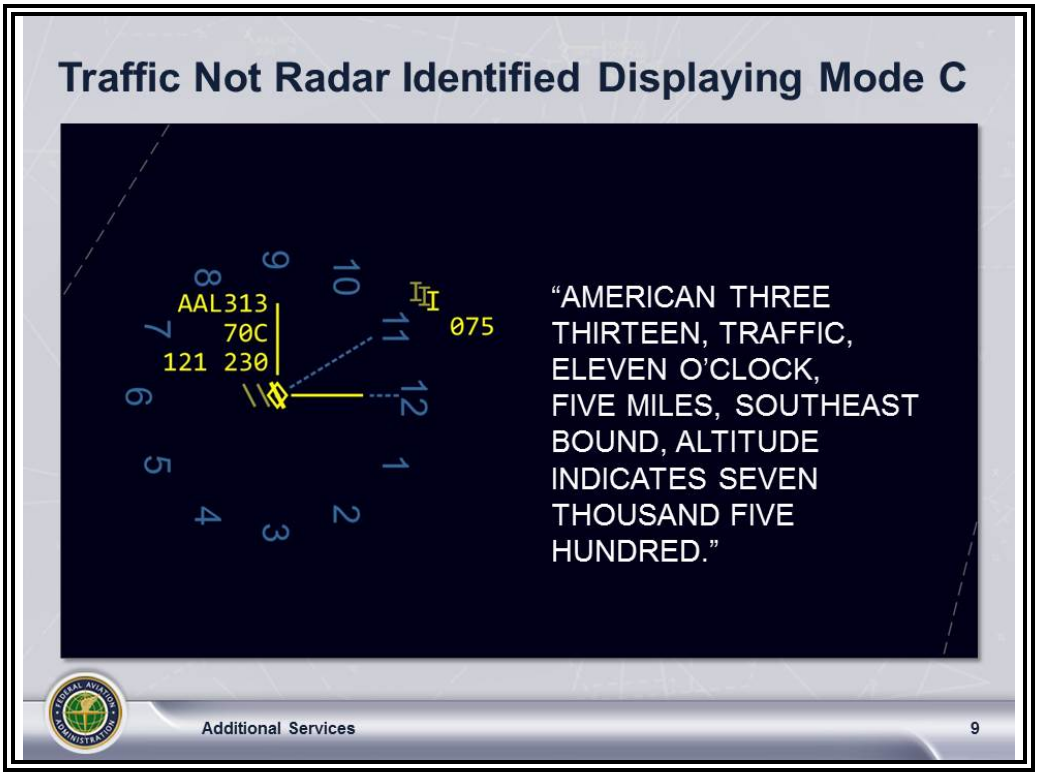
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



✈ **Phraseology**

For aircraft displaying Mode C, not radar-identified:

"ALTITUDE INDICATES (altitude)."

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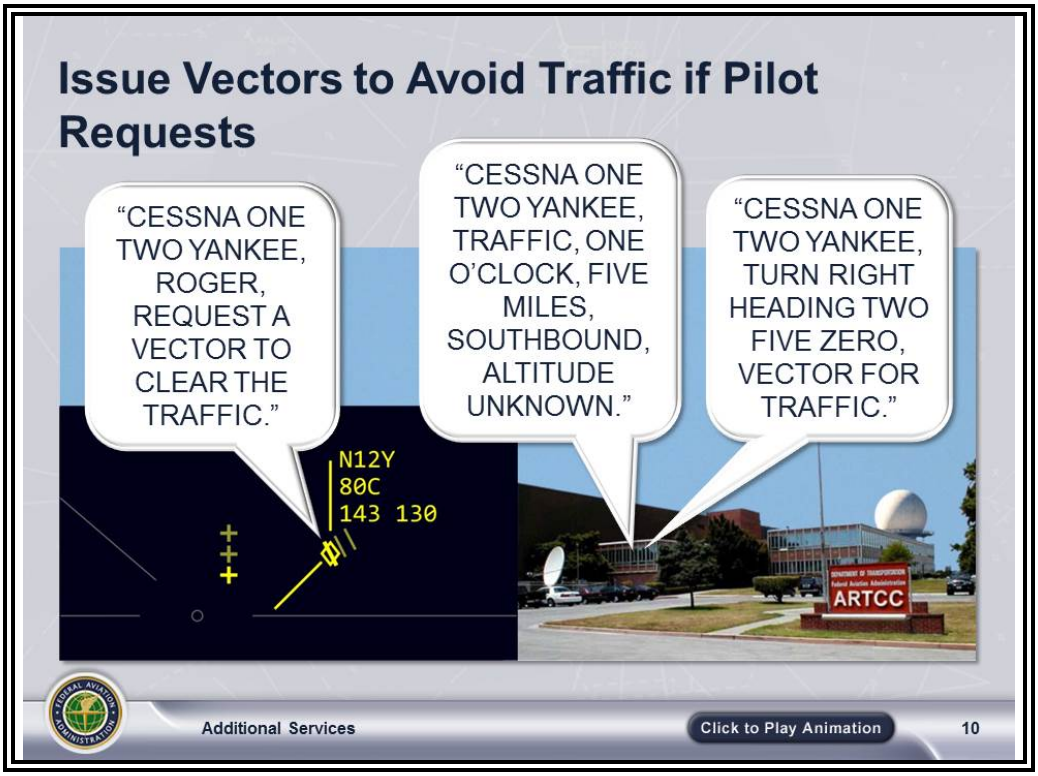
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



Click 3 times to display phraseology.

- Vector to avoid traffic:
  - If pilot requests them and the aircraft is within your control jurisdiction (unless coordinated).

    → Inform the pilot if you are unable to provide vector.

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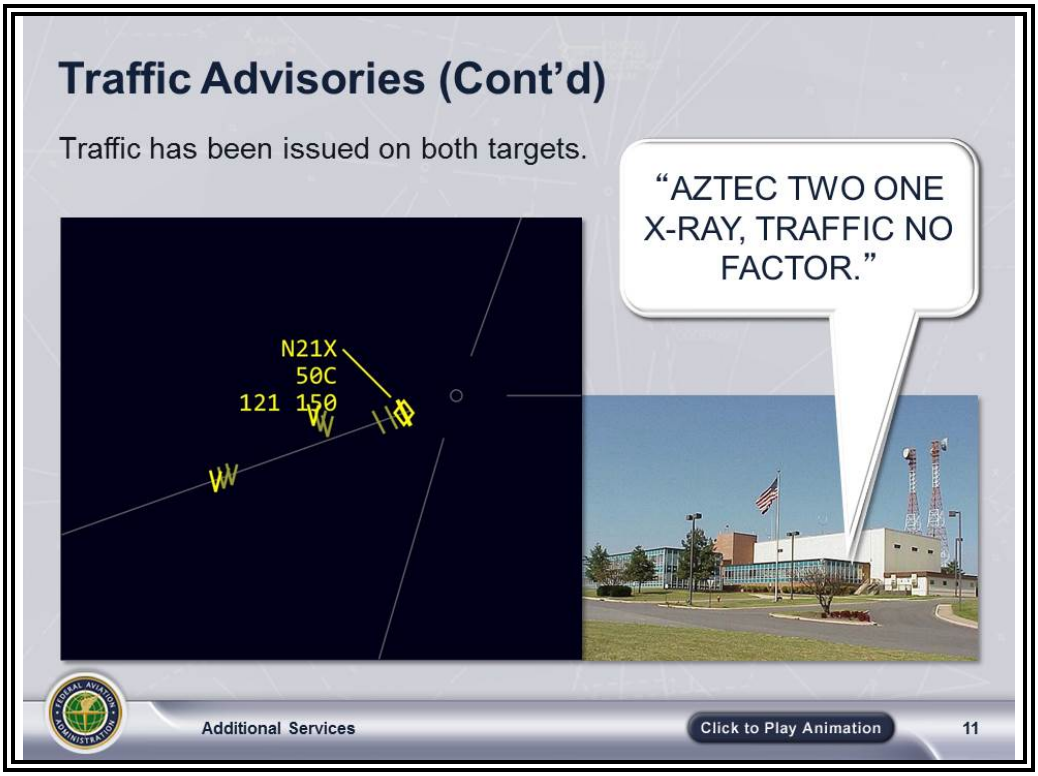
TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21



Click twice to animate.

⊙ Inform pilot of the following when traffic you have issued is not reported in sight:

- Traffic is no factor.
- Traffic is no longer depicted on radar.

✈ **Phraseology**

"TRAFFIC NO FACTOR/NO LONGER OBSERVED."

Or

"(number) O'CLOCK TRAFFIC NO FACTOR/NO LONGER OBSERVED."

Or

"(direction) TRAFFIC NO FACTOR/NO LONGER OBSERVED."

Continued on next page

TYPES OF ADDITIONAL SERVICES *(Continued)*

Traffic Advisories (Cont'd)
JO 7110.65, par. 2-1-21

⊙ Issue these traffic items to aircraft **NOT** radar-identified:

- Distance and direction from fix
- Direction traffic is proceeding
- Type of aircraft and altitude, if known
- ETA over fix the aircraft is approaching, if appropriate

✈ **Phraseology**

"TRAFFIC (number) MILES/MINUTES (direction) OF (airport or fix), (direction)-BOUND,

and if known,

(type of aircraft and altitude),

ESTIMATED (fix) (time)."

Or

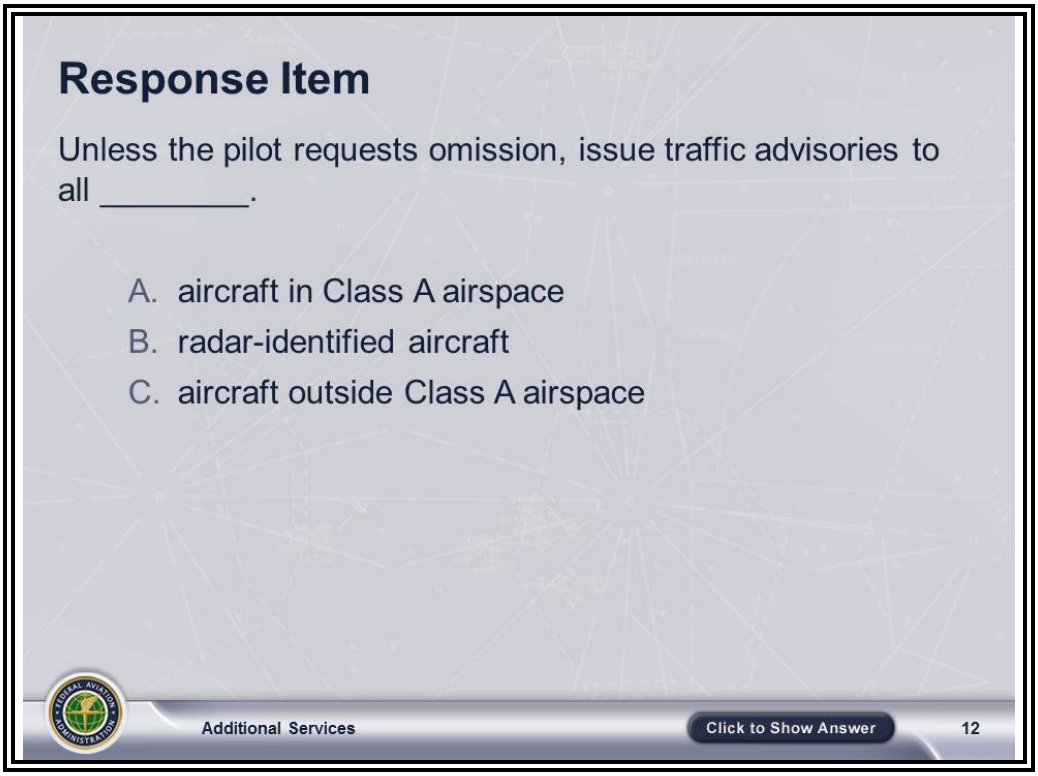
"TRAFFIC, NUMEROUS AIRCRAFT VICINITY (location)."

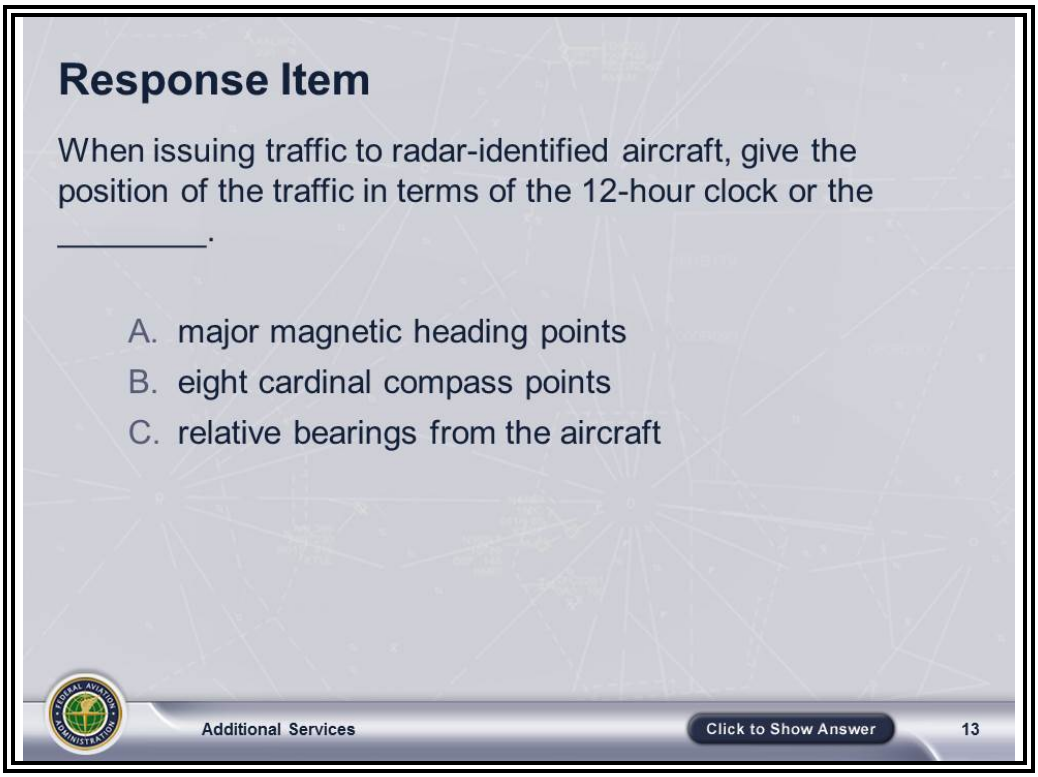
If altitude is unknown,

"ALTITUDE UNKNOWN."

TYPES OF ADDITIONAL SERVICES *(Continued)*

Review

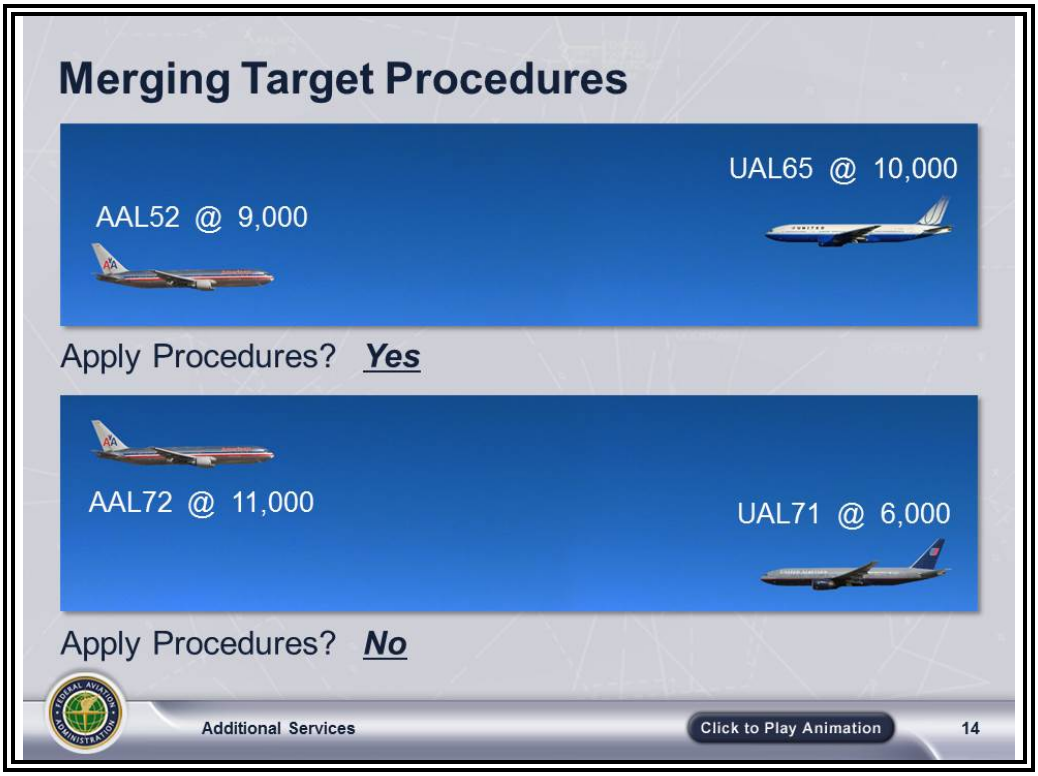




SLIDE ANSWERS: Slide 12 = C, Slide 13 = B

TYPES OF ADDITIONAL SERVICES *(Continued)*

Merging Target Procedures
JO 7110.65, par. 5-1-8

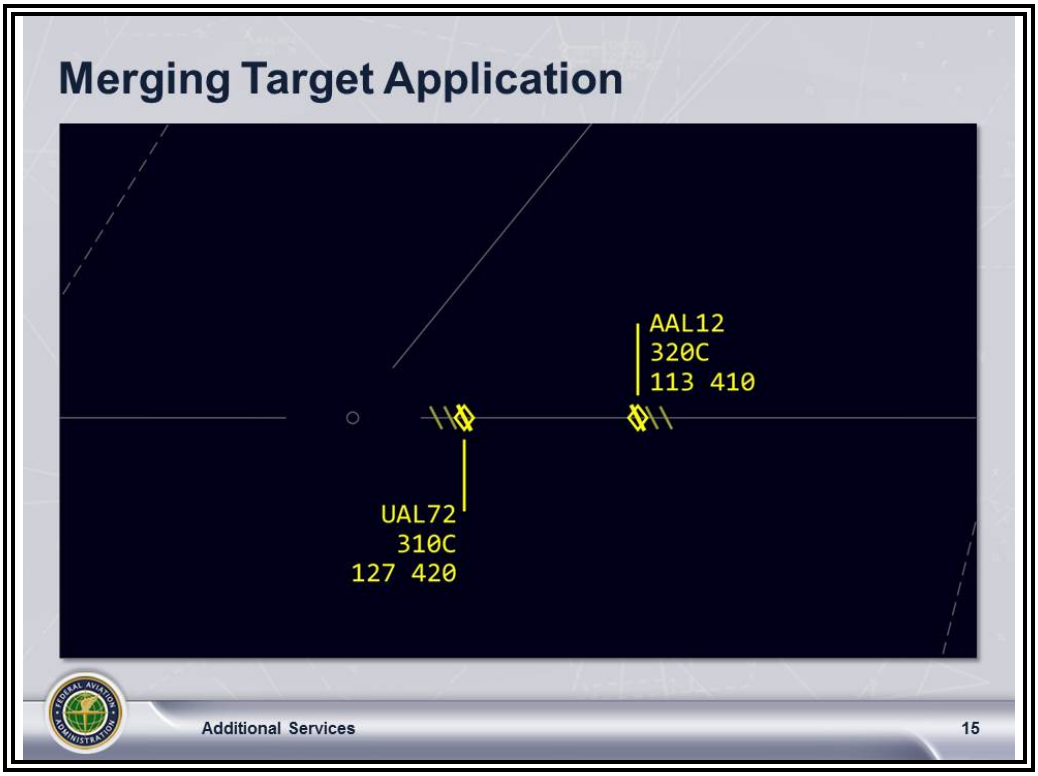


Click twice to display answers.

- Apply merging target procedures to:
  - All radar-identified:
    - Aircraft at or above 10,000 feet
    - Turbojet aircraft, regardless of altitude
    - Presidential aircraft, regardless of altitude
  - Exception:
    - Aircraft established in a holding pattern
- Issue traffic if targets are likely to merge, unless aircraft are separated by more than the appropriate vertical minimum.

TYPES OF ADDITIONAL SERVICES *(Continued)*

Merging Target Application
JO 7110.65, par. 5-1-8

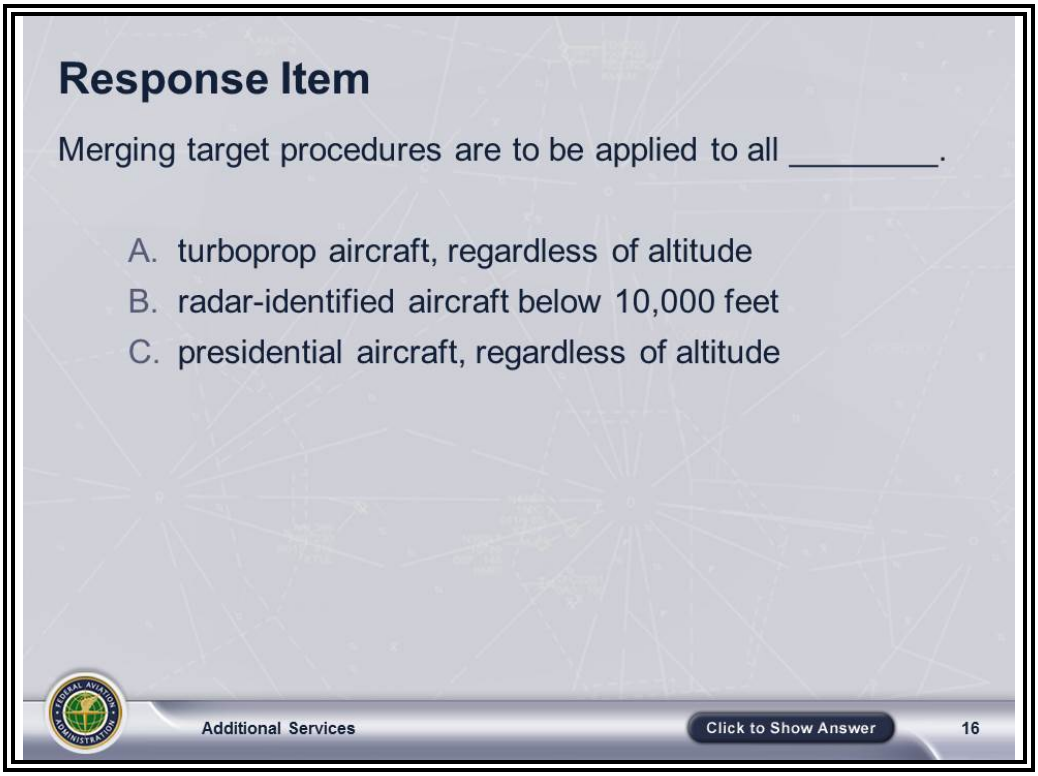


- In RVSM airspace between two aircraft that are vertically separated by 1,000 feet:
  - If either aircraft is unable to maintain RVSM due to turbulence or mountain wave, vector either aircraft to avoid merging with the target of the other aircraft.
- Vector aircraft to avoid merging with target of previously issued traffic, if requested by the pilot.
  - If unable to provide vector, inform pilot.

NOTE: Aircraft closure rates are so rapid that merging target procedures must be issued in ample time for pilot to decide if a vector is necessary.

TYPES OF ADDITIONAL SERVICES *(Continued)*

Review



SLIDE ANSWERS: Slide 16 = C, Slide 17 = C

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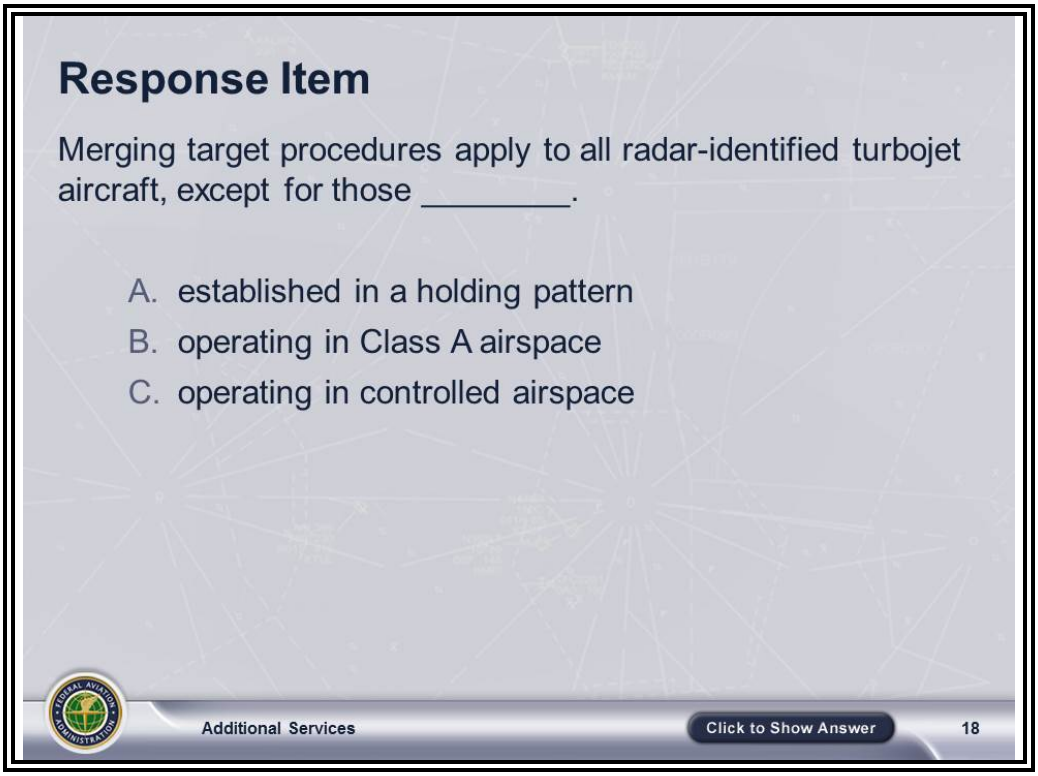
TYPES OF ADDITIONAL SERVICES *(Continued)*

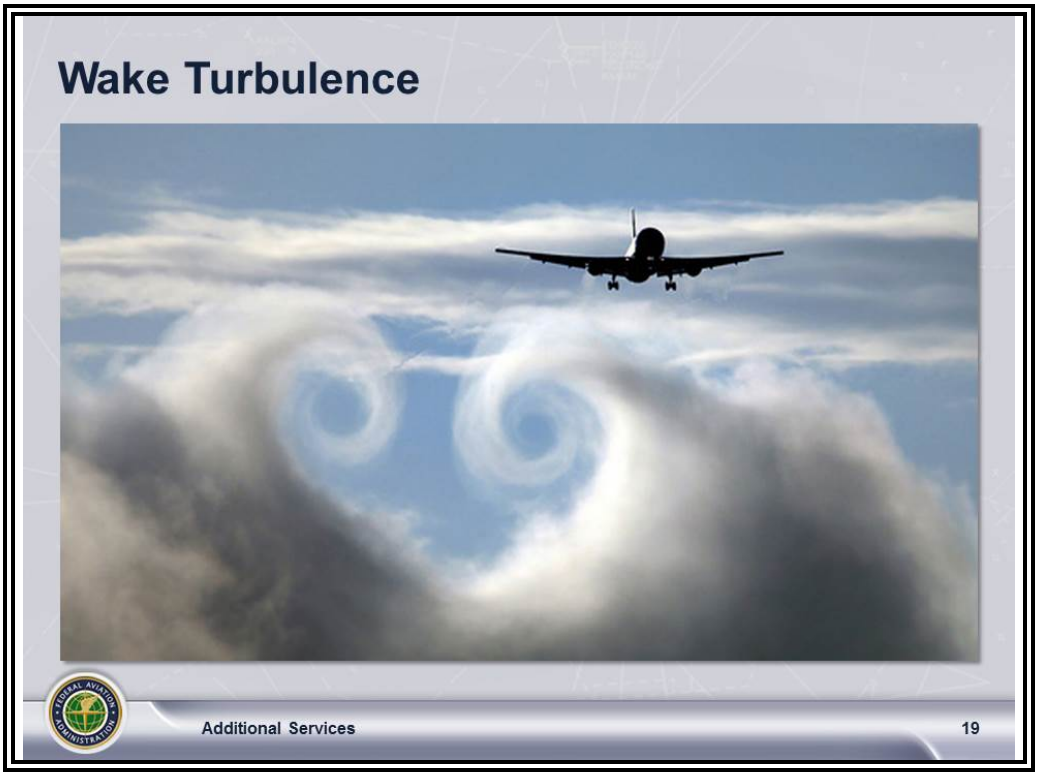
Review (Cont'd)



SLIDE ANSWER: A

TYPES OF ADDITIONAL SERVICES *(Continued)*

Wake Turbulence Cautionary Advisories
JO 7110.65, par. 2-1-20; NJO 7110.677, par. 5



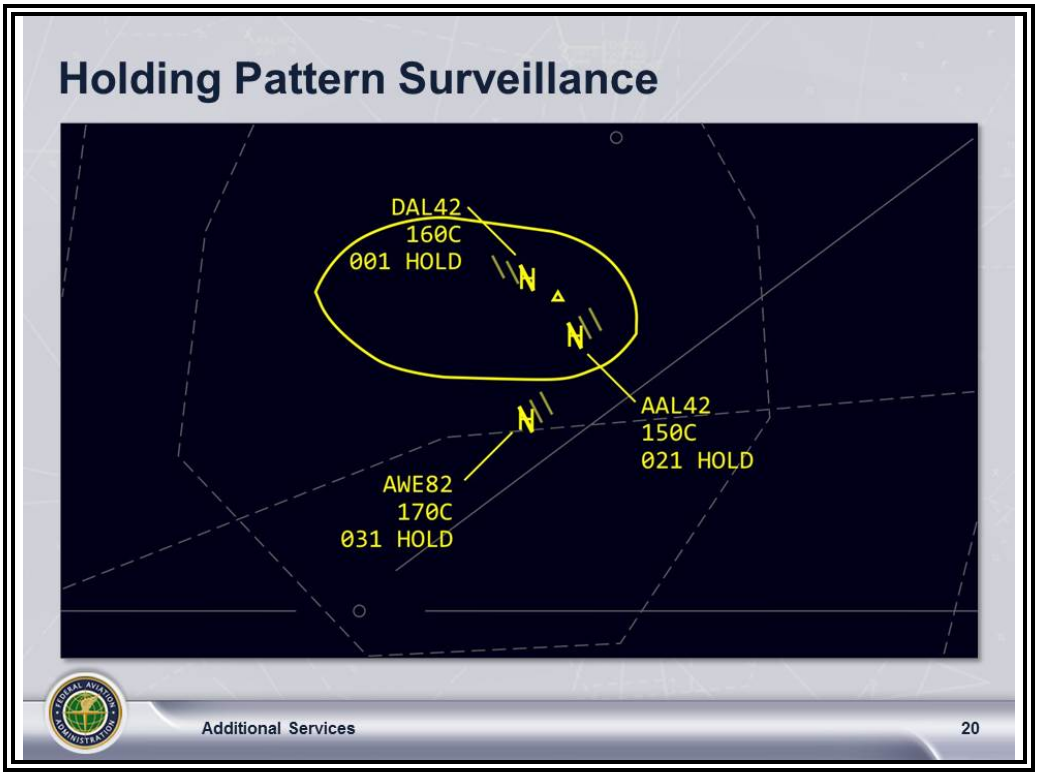
- Issue wake turbulence cautionary advisories (pertaining to a heavy/super jet or B757) to any aircraft that accepts a visual approach or visual separation.
  - Visual separation **must not** be applied when an A388 or An225 is the lead aircraft.
  - Include the position, altitude (if known), and direction of flight of the heavy/super jet or B757.
- Issue cautionary information to any other aircraft if, in your opinion, wake turbulence may have an adverse effect on it (for example, a small aircraft behind a large aircraft).
  - Include the word “heavy” or “super” in the description, when applicable.

Phraseology

“CAUTION WAKE TURBULENCE (traffic information).”

TYPES OF ADDITIONAL SERVICES *(Continued)*

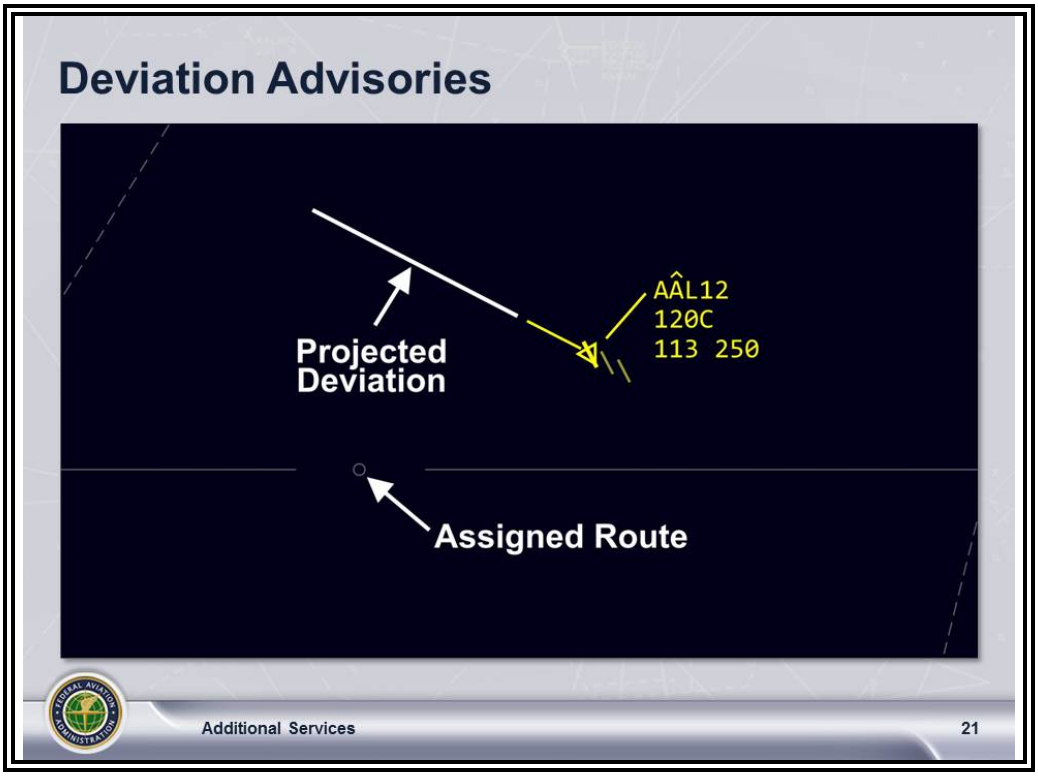
Holding Pattern Surveillance
JO 7110.65, par. 5-1-9;
TI 6110.100, pars. 4.5.2, 4.5.3



- Radar-monitor holding aircraft
- If deviation from protected airspace is detected:
  - Advise the pilot.
  - Assist the pilot in returning to assigned airspace.
- An adapted holding pattern airspace **may** be displayed on the Situation Display.
- Hold Data Blocks:
  - When in hold status, HOLD appears in Field E.
  - An aircraft in hold displays an H as the position symbol.
  - When the EFC time approaches, HOLD in Field E is replaced by EFC.

TYPES OF ADDITIONAL SERVICES *(Continued)*

Deviation Advisories
JO 7110.65, par. 5-1-10



- Inform an aircraft when it is observed in a position and on a track which will obviously cause the aircraft to deviate from its protected airspace area.

- Help the aircraft to return to the assigned protected airspace, if necessary.

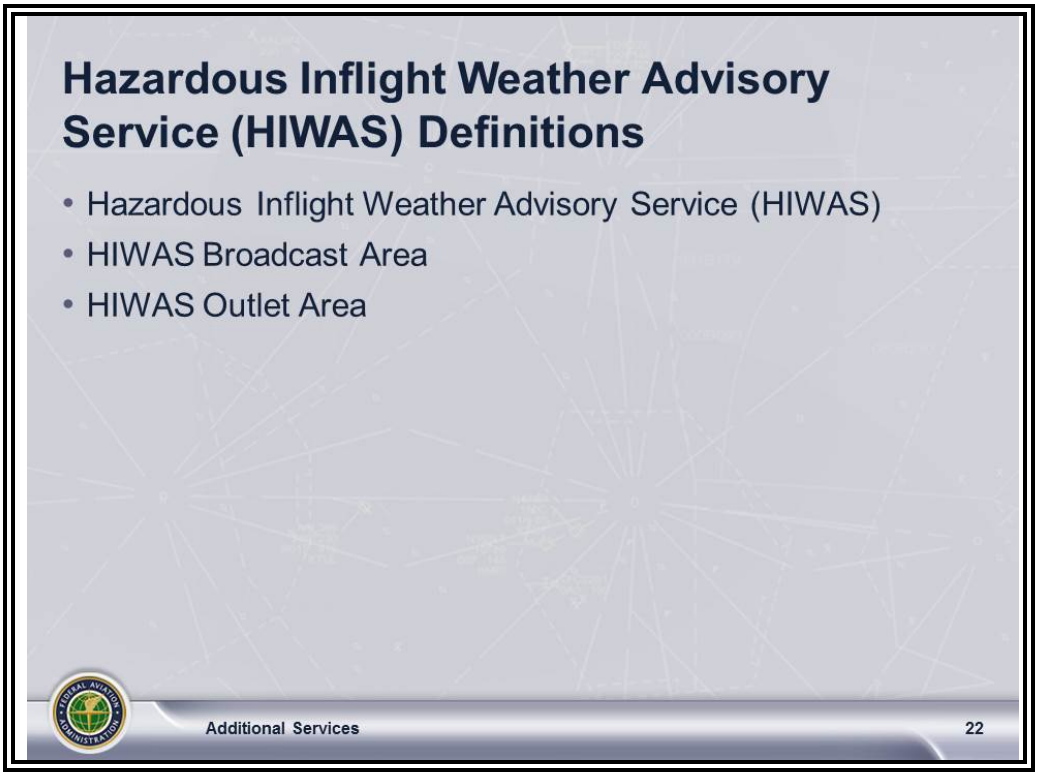
NOTE:

1. RNAV ATS routes have a width of 8 miles and laterally protected airspace of 4 miles on each side of the route centerline.

2. Navigation system performance requirements for operations on RNAV ATS routes require the aircraft system be capable of remaining within 2 miles of the route centerline. Aircraft approaching this limit may be experiencing a navigation system error or failure.

TYPES OF ADDITIONAL SERVICES *(Continued)*

Hazardous Inflight Weather Advisory Service (HIWAS) Definitions
JO 7110.65, Pilot/Controller Glossary



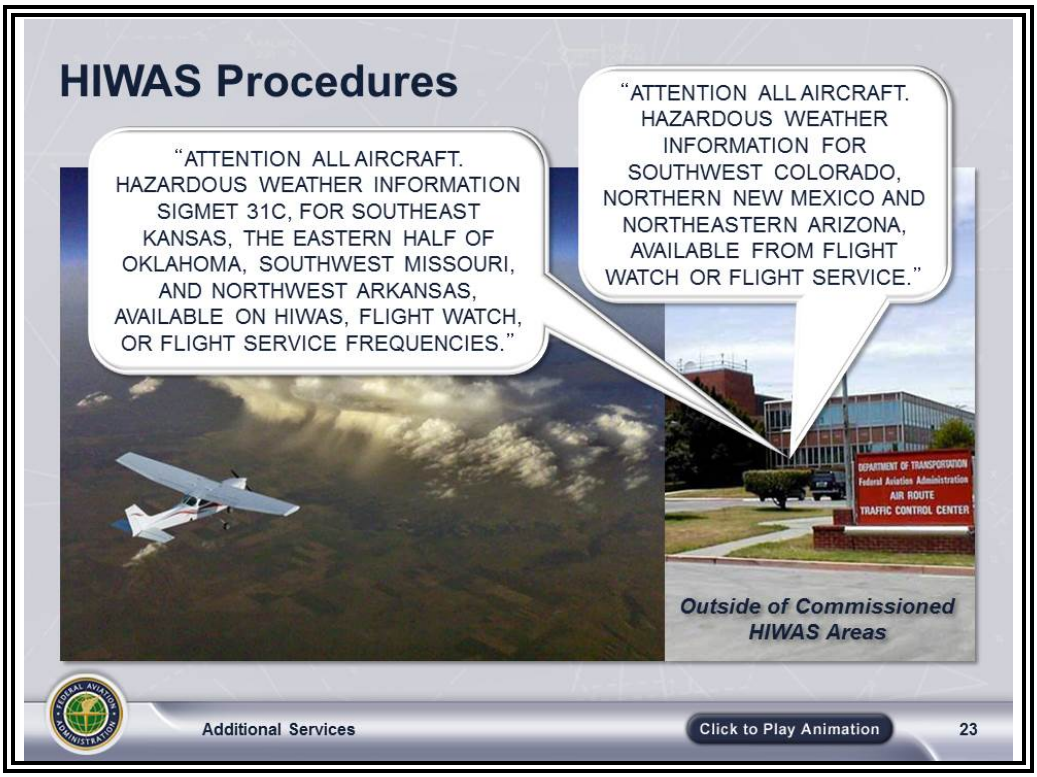
Hazardous Inflight Weather Advisory Service (HIWAS) is defined as continuous recorded hazardous inflight weather forecasts broadcast to airborne pilots over selected VOR outlets defined as a HIWAS Broadcast Area.

HIWAS Broadcast Area is a geographical area of responsibility including one or more HIWAS Outlet Areas assigned to an FSS for hazardous weather advisory broadcasting.

HIWAS Outlet Area is an area within a 150-NM radius of HIWAS outlet, expanded as necessary to provide coverage.

TYPES OF ADDITIONAL SERVICES *(Continued)*

HIWAS Procedures
JO 7110.65, par. 2-6-2;
JO 7110.311B, par. 2-6-2



- HIWAS broadcasts include:
  - Airmen's Meteorological Information (AIRMET)
  - Significant Meteorological Information (SIGMET)
  - Convective SIGMET (WST)
  - Urgent Pilot Weather Report (UUA)
  - Center Weather Advisory (CWA)

Click 1 to display 1st example.

- Within a commissioned HIWAS area:
  - Broadcast a HIWAS alert on all frequencies (except emergency) when any part of the affected area is within 150 nautical miles of your airspace.
    - Broadcast is **NOT** required if aircraft on your frequency will not be affected.

✈ **Phraseology**

"ATTENTION ALL AIRCRAFT. HAZARDOUS WEATHER INFORMATION (SIGMET, Convective SIGMET, AIRMET, Urgent Pilot Weather Report (UUA), or Center Weather Advisory (CWA), Number or Numbers) FOR (geographical area) AVAILABLE ON HIWAS, FLIGHT WATCH OR FLIGHT SERVICE FREQUENCIES."

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TYPES OF ADDITIONAL SERVICES *(Continued)*

HIWAS Procedures (Cont'd)
JO 7110.65, par. 2-6-2

⊙ Controllers must electronically acknowledge hazardous weather information messages after appropriate action has been taken.

NOTE: While hazardous weather information is commonly distributed via the SIGMET View, it is possible to receive the information via the GI View.

Click 2 to display 2nd example.

⊙ Outside of commissioned HIWAS area:

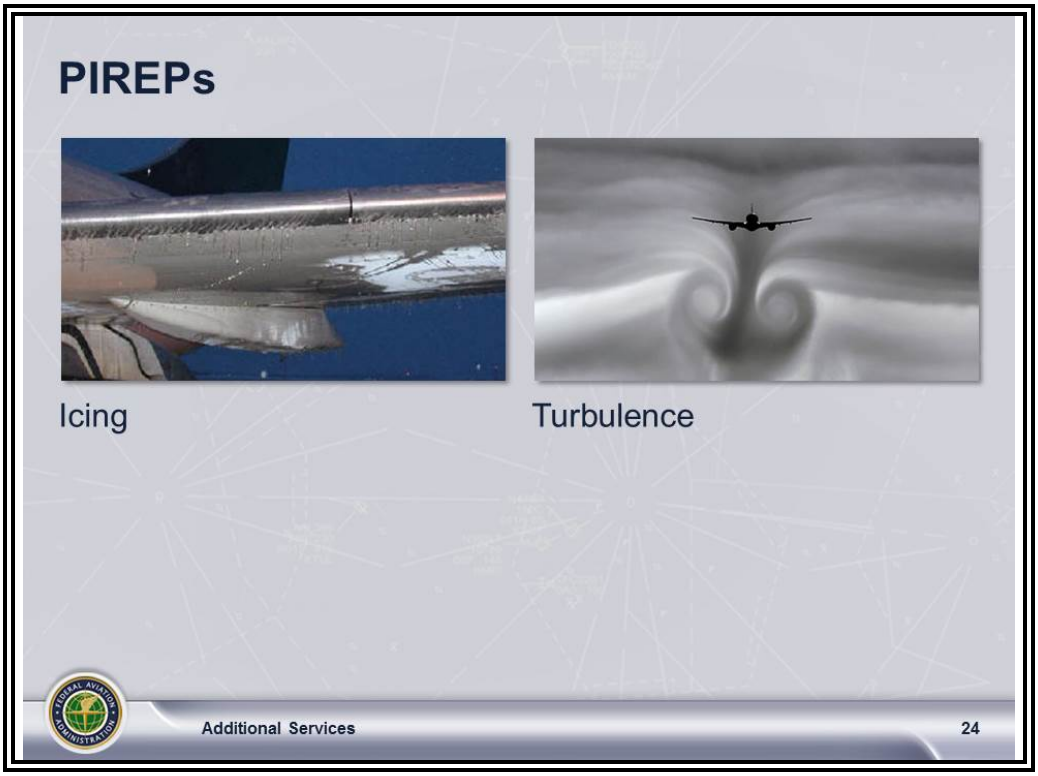
- Advise pilots of the availability of hazardous weather advisories.
  - Pilots requesting additional information should contact Flight Watch or Flight Service.
- Apply the same procedures when HIWAS outlets extending into your airspace are out of service.

✈ **Phraseology**

"ATTENTION ALL AIRCRAFT. HAZARDOUS WEATHER INFORMATION FOR (geographical area) AVAILABLE FROM FLIGHT WATCH OR FLIGHT SERVICE."

TYPES OF ADDITIONAL SERVICES *(Continued)*

Pilot Reports (PIREPs)
JO 7110.65, par. 2-6-3



- Significant PIREP information includes reports of:
  - Strong frontal activity
  - Squall lines
  - Thunderstorms
  - Light to severe icing
  - Wind shear
  - Turbulence (including Clear Air Turbulence (CAT))
    - Moderate or greater intensity
  - Volcanic eruptions
  - Volcanic ash clouds
  - Other conditions pertinent to flight safety
    - Detection of sulfur gases (SO2 or H2S) in the cabin

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TYPES OF ADDITIONAL SERVICES *(Continued)*

Pilot Reports (PIREPs) (Cont'd)
JO 7110.65, par. 2-6-3

⊙ Solicit PIREPs when requested or when one of the following conditions exists or is forecast for your area of jurisdiction:

- Ceilings at or below 5,000 feet (include cloud base/top reports)
- Visibility (surface and aloft) at or less than 5 miles
- Thunderstorms and related phenomena
- Turbulence (moderate or greater)
- Icing (light or greater)
- Wind shear
- Volcanic ash clouds
- Detection of sulfur gases (SO2 or H2S) in the cabin

NOTE: When providing approach control services, obtain at least one descent/climbout PIREP each hour to include cloud base(s), top(s), and any other related phenomena.

⊙ Record the following with PIREPs:

- Time
- Aircraft position
- Aircraft type
- Altitude
- Icing type/intensity and air temperature in which icing is occurring when PIREP involves icing

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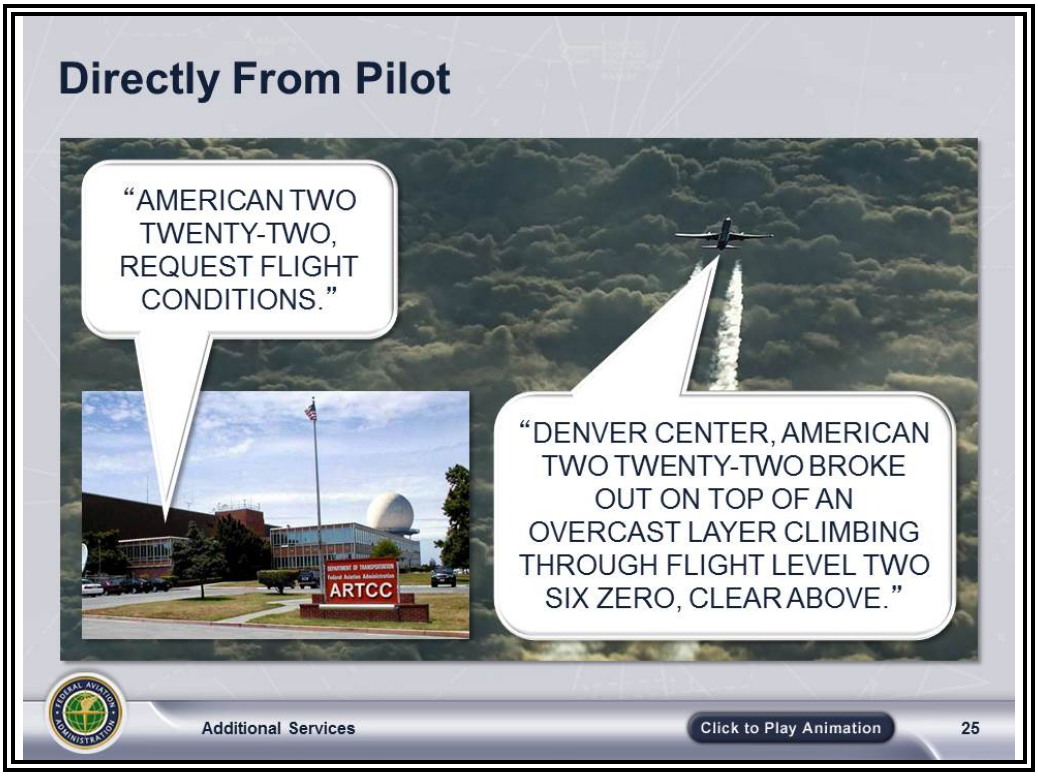
TYPES OF ADDITIONAL SERVICES *(Continued)*

Pilot Reports (PIREPs) (Cont'd)
JO 7110.65, par. 2-6-3



Click twice to animate.

⊙ Obtain PIREPs directly from pilot.

- If the PIREP is requested by another facility, you may instruct the pilot to deliver it directly to that facility.

✈ **Phraseology**

"REQUEST/SAY FLIGHT CONDITIONS."

Or if appropriate,

"REQUEST/SAY (specific conditions, i.e., ride, cloud, visibility, etc.) CONDITIONS

and if necessary,

OVER (fix)

or

ALONG PRESENT ROUTE,

or

BETWEEN (fix) AND (fix)."

Continued on next page

TYPES OF ADDITIONAL SERVICES *(Continued)*

Pilot Reports (PIREPs) (Cont'd)
JO 7110.65, par. 2-6-3

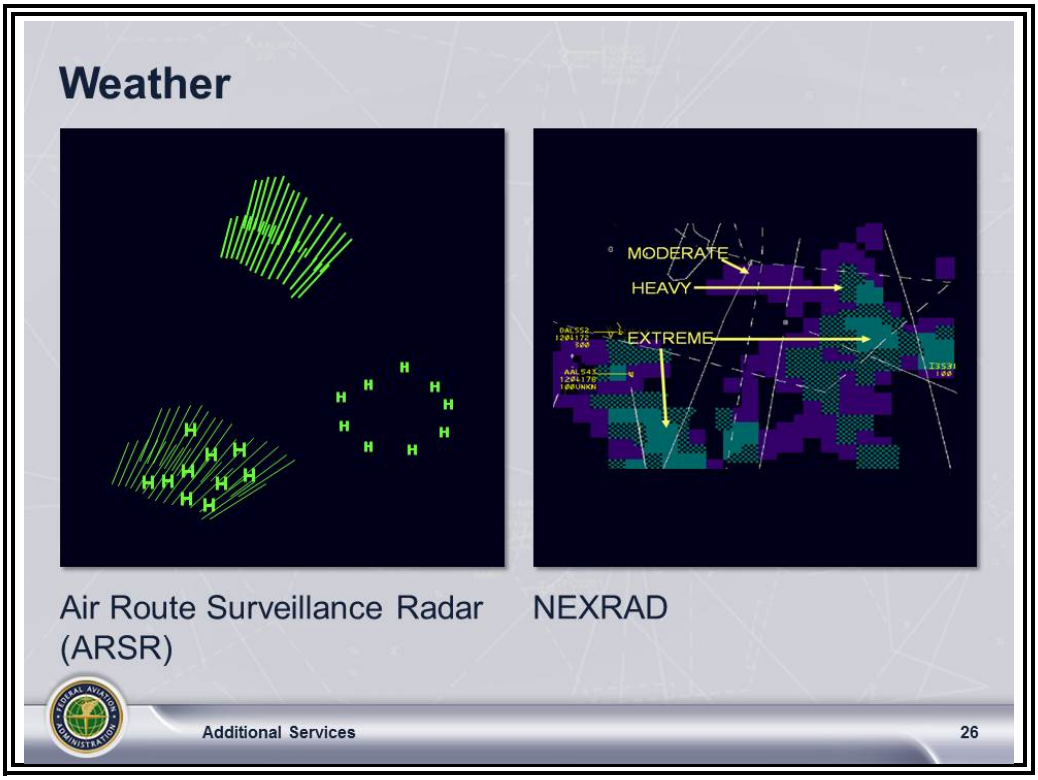
⊙ Relay PIREPs in a timely manner to:

- All concerned aircraft
- Facility weather coordinator

☞***NOTE:*** *Discuss your local procedures.*

TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services
JO 7110.65, par. 2-6-4
Pilot/Controller Glossary



- Issue pertinent information on observed and reported areas of:
  - Weather
  - Chaff

NOTE: Chaff is thin, narrow metallic reflectors dropped from aircraft to reflect radar energy and create large targets on the radar display.

- Issue weather and chaff information by defining areas of coverage.
  - In terms of azimuth (by referring to the 12-hour clock) and distance from the aircraft, or
  - General width of the area and the area of coverage in terms of fixes or distance and direction from fixes

Continued on next page

TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4

⊙ Conditions affecting air safety:

- Funnel cloud activity
- Lines of thunderstorms
- Embedded thunderstorms
- Large hail
- Wind shear
- Microbursts
- Turbulence
  - Moderate to extreme
  - Clear Air Turbulence (CAT)
- Light to severe icing

⊙ Inform towers for which you provide any kind of approach control service of observed precipitation on radar that might affect their operations.

✈ **Phraseology**

"WEATHER/CHAFF AREA BETWEEN (number) O'CLOCK AND (number) O'CLOCK (number) MILES."

Or

"(number) MILE BAND OF WEATHER/CHAFF FROM (fix or number of miles and direction from fix) TO (fix or number of miles and direction from fix)."

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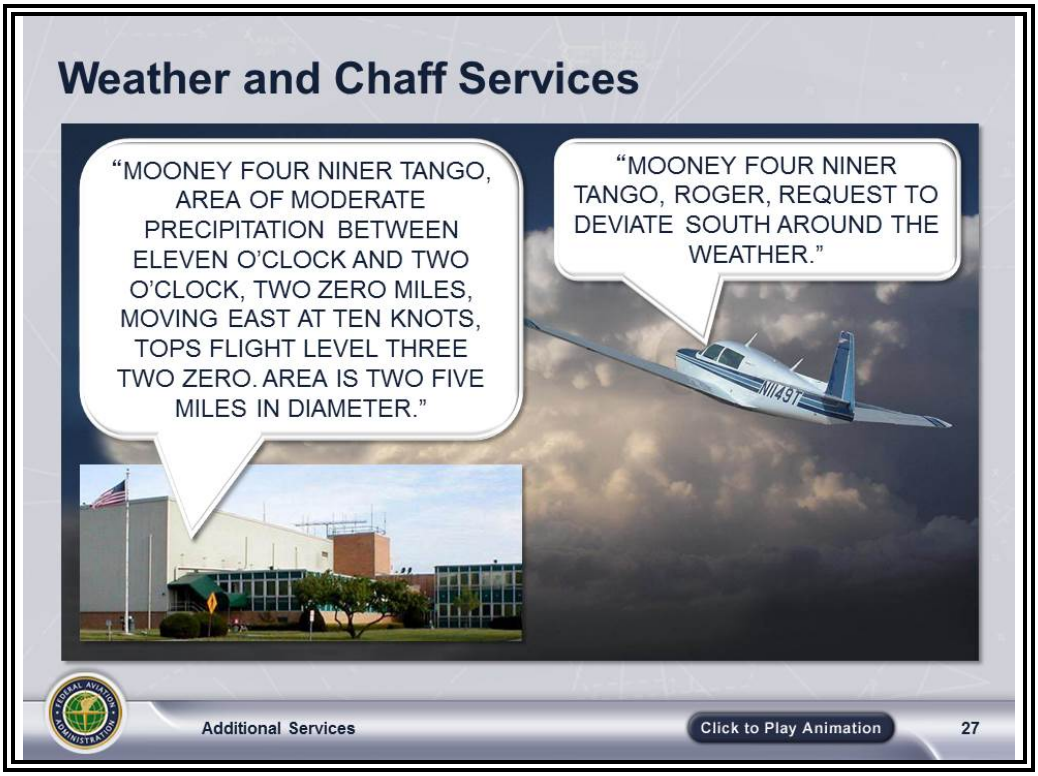
TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4



Click 3 times to animate.

⊙ Use the term "precipitation" when describing radar-derived weather.

- Issue the precipitation intensity from the lowest descriptor (Light) to the highest descriptor (Extreme) when that information is available.
  - Light
  - Moderate
  - Heavy
  - Extreme
- Do not use the word "turbulence" in describing radar-derived weather.
- If NEXRAD is down, use Air Route Surveillance Radar (ARSR)
  - Precipitation intensity descriptors for ARSR:
    - → Moderate – to describe lowest displayable intensity
    - → Heavy to extreme – to describe highest displayable intensity

NOTE: Weather and Radar Processor (WARP) does not display light intensity.

Continued on next page

TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4

✈ **Phraseology**

"AREA OF (Intensity) PRECIPITATION BETWEEN (number) O'CLOCK AND (number) O'CLOCK, (number) MILES MOVING (direction) AT (number) KNOTS, TOPS (altitude). AREA IS (number) MILES IN DIAMETER."

Examples: "AREA OF EXTREME PRECIPITATION BETWEEN ELEVEN O'CLOCK AND ONE O'CLOCK, ONE ZERO MILES MOVING EAST AT TWO ZERO KNOTS, TOPS FLIGHT LEVEL THREE NINER ZERO."

"AREA OF HEAVY PRECIPITATION BETWEEN TEN O'CLOCK AND TWO O'CLOCK, ONE FIVE MILES. AREA IS TWO FIVE MILES IN DIAMETER."

"AREA OF HEAVY TO EXTREME PRECIPITATION BETWEEN TEN O'CLOCK AND TWO O'CLOCK, ONE FIVE MILES. AREA IS TWO FIVE MILES IN DIAMETER."

⊙ When precipitation intensity information is not available

✈ **Phraseology**

"AREA OF PRECIPITATION BETWEEN (number) O'CLOCK AND (number) O'CLOCK, (number) MILES, MOVING (direction) AT (number) KNOTS, TOPS (altitude). AREA IS (number) MILES IN DIAMETER, INTENSITY UNKNOWN."

Example: "AREA OF PRECIPITATION BETWEEN ONE O'CLOCK AND THREE O'CLOCK THREE FIVE MILES. AREA IS THREE ZERO MILES IN DIAMETER, INTENSITY UNKNOWN."

NOTE: Phraseology using precipitation intensity descriptions is only applicable when the radar precipitation intensity information is determined by NWS radar equipment or NAS ground based digitized radar equipment with weather capabilities. This precipitation may not reach the surface.

⊙ When operational/equipment limitations exist, ensure the highest level of precipitation intensity within your area of jurisdiction is displayed.

⊙ The supervisory traffic management coordinator-in-charge/operations supervisor/controller-in-charge shall verify the radar weather information by the best means available if the weather data displayed by digitized radar is reported as questionable or erroneous.

NOTE: Anomalous Propagation (AP) is a natural occurrence affecting radar and does not in itself constitute a weather circuit failure.

TYPES OF ADDITIONAL SERVICES *(Continued)*

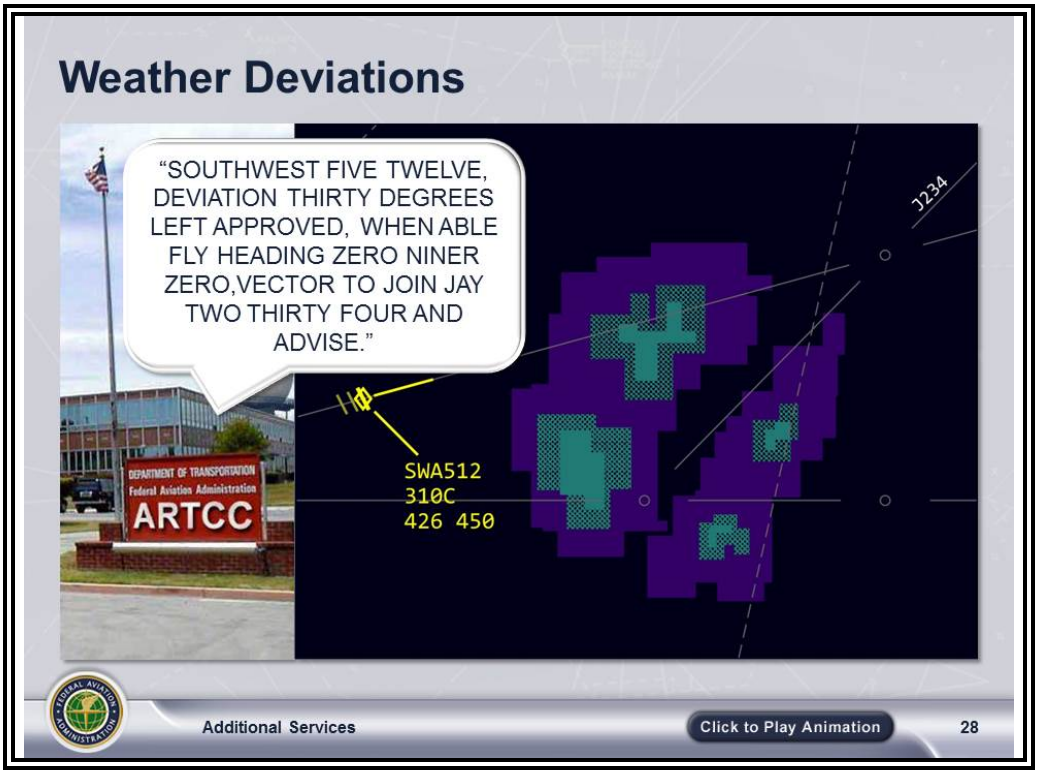
Review

QUESTION: What are some weather conditions that would affect air safety?

ANSWER: *Funnel cloud activity, lines of thunderstorms, embedded thunderstorms, large hail, wind shear, microbursts, turbulence, and light to severe icing*

TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4



Click to display phraseology.

- Approve deviations and/or provide radar navigational guidance to avoid areas of weather or chaff when requested by the pilot.
- In areas of significant weather:
  - Plan ahead.
  - Upon pilot request, suggest alternative routes/altitudes.
- An approval for lateral deviation authorizes the pilot to maneuver left or right within the limits of the lateral deviation area.
- If a pilot enters your area of jurisdiction already deviating for weather, advise the pilot of any additional pertinent weather that may affect his route.
- If traffic and airspace (i.e., special use airspace boundaries, LOA constraints) permit, combine the approval for weather deviation with a clearance on course.

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TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4

"DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, PROCEED DIRECT (name of NAVAID/WAYPOINT/FIX)."

Or

"DEVIATION (restrictions if necessary) APPROVED, WHEN ABLE, FLY HEADING (degrees), VECTOR TO JOIN (airway) AND ADVISE."

✈ **Phraseology**

Examples: "DEVIATION TWENTY DEGREES RIGHT APPROVED, WHEN ABLE PROCEED DIRECT O'NEILL VORTAC AND ADVISE."

(The corresponding fourth line entry is D20R/ONL or D20R/F.)

"DEVIATION 30 DEGREES LEFT APPROVED, WHEN ABLE FLY HEADING ZERO NINER ZERO, VECTOR TO JOIN J324 AND ADVISE."

(In this case the free text character limitation prevents use of fourth line coordination and verbal coordination is required.)

Continued on next page

TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4

⊙ When traffic or airspace prevent you from clearing the aircraft on course at the time of the approval for a weather deviation

- Instruct the pilot to advise when clear of weather.

⊙ When a deviation cannot be approved as requested because of traffic

- Take an alternate course of action that
  - Provides positive control for traffic resolution, and
  - Satisfies the pilot's need to avoid weather

✈ **Phraseology**

"DEVIATION (restrictions if necessary) APPROVED, ADVISE CLEAR OF WEATHER."

Example: ""DEVIATION NORTH OF COURSE APPROVED, ADVISE CLEAR OF WEATHER."

(In this case the corresponding fourth line entry is DN, and the receiving controller must provide a clearance to rejoin the route.)

"UNABLE DEVIATION, FLY HEADING (heading), ADVISE CLEAR OF WEATHER."

Or

"UNABLE DEVIATION, TURN (number of degrees) DEGREES (left or right) FOR TRAFFIC, ADVISE CLEAR OF WEATHER."

Example: "UNABLE DEVIATION, TURN THIRTY DEGREES RIGHT VECTOR FOR TRAFFIC, ADVISE CLEAR OF WEATHER."

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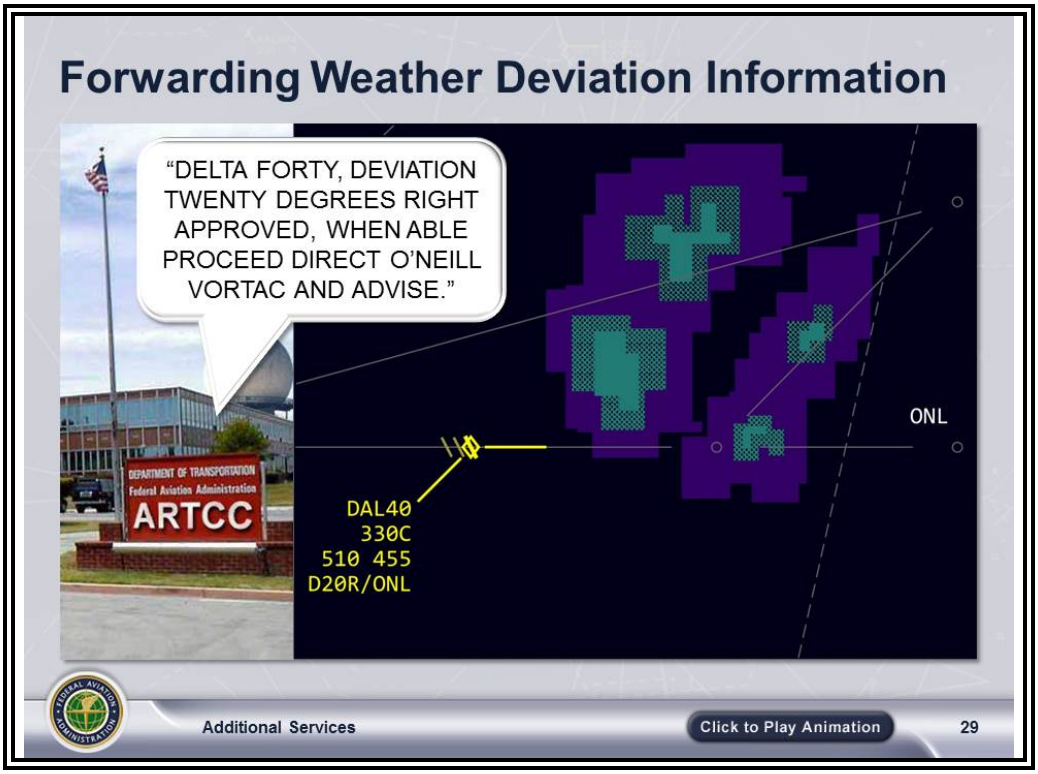
TYPES OF ADDITIONAL SERVICES *(Continued)*

Weather and Chaff Services (Cont'd)
JO 7110.65, par. 2-6-4



Click twice to display phraseology and fourth line data.

- When forwarding weather deviation information, the transferring controller must clearly coordinate the nature of the route guidance service being provided. This coordination should include, but is not limited to:
  - Assigned headings
  - Suggested headings
  - Pilot-initiated deviations
- Coordination can be accomplished by either:
  - Verbal
  - Automated, or
  - Pre-arranged procedures
- Emphasis should be made between:
  - Controller assigned headings
  - Suggested headings
  - Pilot-initiated deviations

✈ **Phraseology**

Examples: "(CALL SIGN) ASSIGNED HEADING 330 FOR WEATHER AVOIDANCE."
Or
"(CALL SIGN) DEVIATING WEST, PILOT REQUESTED…"

TYPES OF ADDITIONAL SERVICES *(Continued)*

Fourth Line Data Transfer
JO 7110.65, par. 2-6-4

✈ **Phraseology**

⊙ The inclusion of a NAVAID, waypoint, or /F in the fourth line data indicates that the pilot has been authorized to deviate for weather and must rejoin the route at the next NAVAID or waypoint in the route of flight.

Example: “DEVIATION TWENTY DEGREES RIGHT APPROVED, WHEN ABLE PROCEED DIRECT O’NEILL VORTAC AND ADVISE.”

- In this case, the corresponding fourth line entry is D20R/ONL or D20R/F.

⊙ The absence of a NAVAID, waypoint, or /F in the fourth line indicates that:

- The pilot has been authorized to deviate for weather only, and the receiving controller must provide a clearance to rejoin the route in accordance with paragraph 2-1-15c.

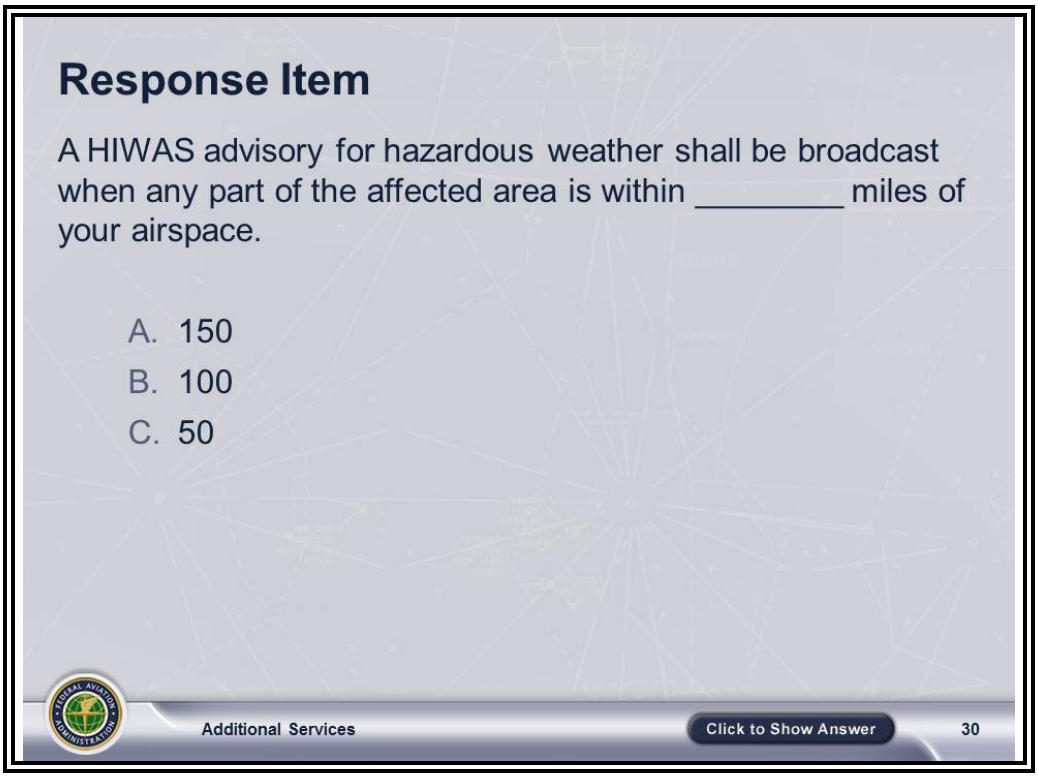
  Example: “DEVIATION TWENTY DEGREES RIGHT APPROVED, ADVISE CLEAR OF WEATHER.”

- The free text character limitation prevents the use of fourth line coordination. Verbal coordination is required.

  Example: “DEVIATION THIRTY DEGREES LEFT APPROVED, WHEN ABLE FLY HEADING ZERO NINER ZERO, VECTOR TO JOIN J324 AND ADVISE.”

TYPES OF ADDITIONAL SERVICES *(Continued)*

Review



SLIDE ANSWER: A

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TYPES OF ADDITIONAL SERVICES *(Continued)*

Review (Cont'd)

SLIDE ANSWER: B

TYPES OF ADDITIONAL SERVICES *(Continued)*

Volcanic Ash and Sulfur Gases
JO 7110.65, par. 10-2-18

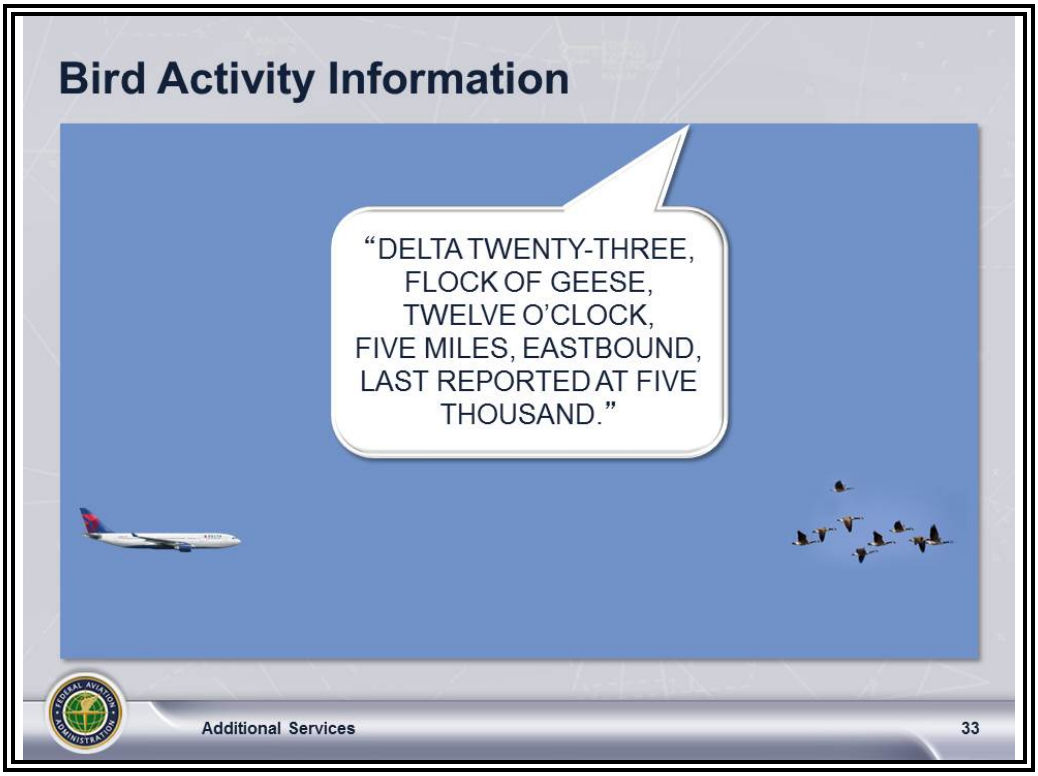
- Relay all information available to pilots if a volcanic ash cloud is known or forecast to be present.
  - Suggest appropriate reroutes to avoid the area.
  - Volcanic ash clouds are not normally detected by airborne or ATC radar.
- Consider the aircraft to be in an emergency situation when advised by the pilot that he or she has entered an ash cloud and indicates a distress situation exists.
  - Do **not** initiate any climb clearances to turbine powered aircraft until the aircraft has exited the ash cloud.
  - Do **not** attempt to provide escape vectors without pilot concurrence.

NOTE: It is the pilot's responsibility to determine the safest escape route from the ash cloud. Controllers should be aware of the possibility of complete loss of power to any turbine aircraft that encounters an ash cloud.

NOTE: The smell of sulfur gases in the flight deck might indicate volcanic activity that has not yet been detected or reported and/or possible entry into an ash-bearing cloud. SO_2 is identifiable as the sharp, acrid odor of a freshly struck match. H_2S has the odor of rotten eggs.

TYPES OF ADDITIONAL SERVICES *(Continued)*

Bird Activity Information
JO 7110.65, par. 2-1-22



- Issue advisory information that is either pilot reported, tower observed, or radar-observed and pilot verified.
- Include:
  - Position
  - Species or size, if known
  - Course of flight, if known
  - Altitude, if known
- Continue advisories for at least 15 minutes, or until subsequent reports indicate activity is no longer a factor.
- Relay information to other facilities if activity might affect them.

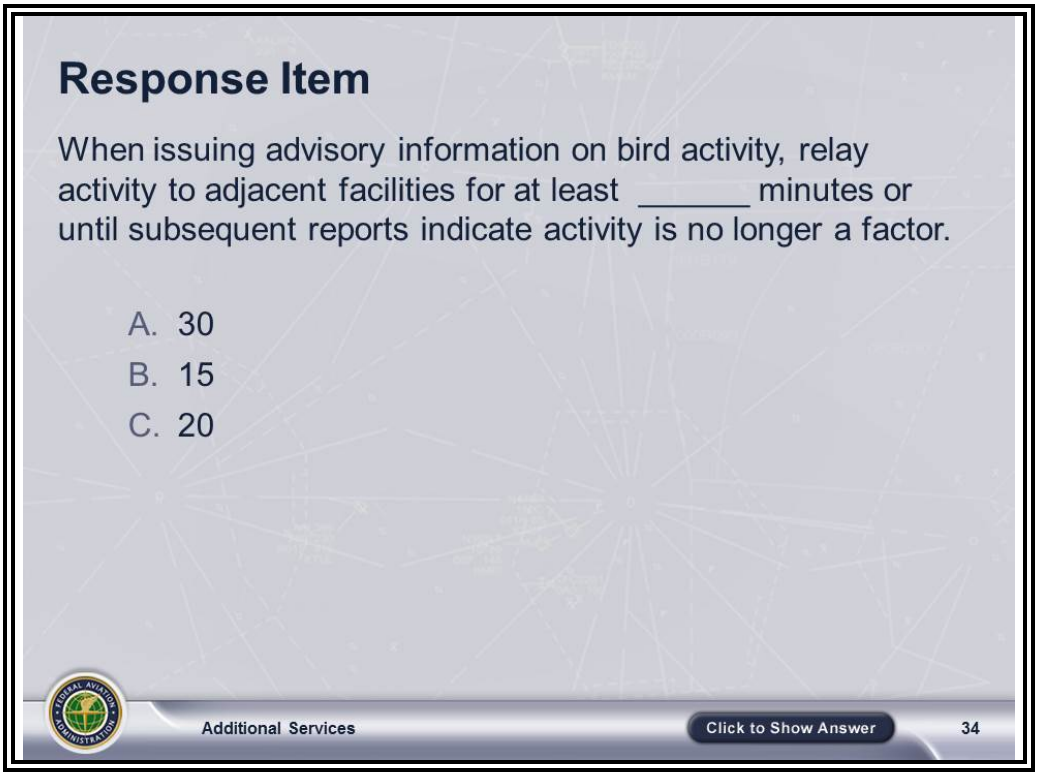
Phraseology Examples

"FLOCK OF GEESE, ONE O'CLOCK, SEVEN MILES, NORTHBOUND, LAST REPORTED AT FOUR THOUSAND."

"FLOCK OF SMALL BIRDS, SOUTHBOUND ALONG MOHAWK RIVER, LAST REPORTED AT THREE THOUSAND."

TYPES OF ADDITIONAL SERVICES *(Continued)*

Review



SLIDE ANSWER: B

CONCLUSION

Summary

☞ ***NOTE:*** *Review and elaborate briefly on the following:*

⊙ Duty Priority

⊙ Types of Additional Services

- Traffic advisories
- Merging target procedures
- Wake turbulence
- Holding pattern surveillance
- Deviation advisories
- HIWAS
- PIREPs
- Weather and chaff services
- Volcanic ash and sulfur gases
- Bird activity information

☞ ***NOTE:*** *Ask students if there are any questions.*

End-of-Lesson Test

⊙ Your instructor will now administer the End-of-Lesson Test.

☞ ***NOTE:*** *Distribute and administer the End-of-Lesson Test located in 55055-ELT13.*