



**Federal Aviation
Administration**

EN ROUTE - STAGE IV

**Refresher Unit 08
Traffic Advisories and Safety
Alerts**

Course 55055



FOREWORD

Purpose. This Air Traffic Refresher Unit provides for the systematic review of current Air Traffic Control operational procedures.

This publication is for use in the technical training of FAA Air Traffic Control Specialists. It does not replace, substitute for, or supersede official regulations, procedures, or directives.

Review. Training programs established under the Government Employees Training Act are based on actual needs, and a review of these training needs is conducted at least once every three years.

Recommended Changes. Suggested changes and corrections to this training material should be forwarded to:

DOT, FAA, Mike Monroney Aeronautical Center
En Route Training Section, AMA-511
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PREFACE

This refresher unit replaces all previous versions of ER-11-8, Traffic Advisories and Safety Alerts, and reflects the latest technical changes found in the referenced source documents through February 2010, including FAA Order JO 7110.65. See “Stage IV Changes 02/11/10” on the lesson materials download page. The contents of this unit are current as of the date shown on the cover. The material herein will be kept current through unit replacement. This unit is not to be used as a Standard Operating Procedure (SOP). In all cases, a controller’s good judgment is uppermost in applying the procedures advocated.

INSTRUCTIONS

1. Write your answers to the questions in the Question Section on a separate piece of paper. This will allow the unit to be reused.
2. Compare your answers with those in the Answer and Discussion Section.
3. If you answer any questions incorrectly, study the discussion paragraph(s).
4. Review the references given in the Answer and Discussion Section.
5. An informal discussion of this unit with other specialists may help clarify any ambiguities.

TRAFFIC ADVISORIES AND SAFETY ALERTS

Question Section

DIRECTIONS: ITEMS 1 THROUGH 10 ARE MULTIPLE CHOICE. INDICATE YOUR SELECTION BY WRITING THE APPROPRIATE LETTER FOR EACH ITEM. ITEMS 11 THROUGH 16 ARE COMPLETION. WRITE YOUR ANSWERS USING THE APPROPRIATE WORD(S) OR PHRASE(S). ITEMS 17 THROUGH 22 REQUIRE A SHORT ANSWER OF ONE OR TWO SENTENCES.

1. When determining duty priority, a controller shall first perform the action that is most critical _____.
 - A. from a safety standpoint
 - B. to presidential aircraft
 - C. to air carrier aircraft
 - D. for issuing weather advisories

2. The provision of additional services is optional on the part of the controller.
 - A. True
 - B. False

3. When someone else has responsibility for an aircraft, you may assume that any unsafe situation will be recognized and a safety alert issued.
 - A. True
 - B. False

4. The controller who issues a safety alert will determine what course of action, if any, will be taken.
 - A. True
 - B. False

TRAFFIC ADVISORIES AND SAFETY ALERTS

Question Section *(Continued)*

5. A phenomenon resulting from the passage of an aircraft through the atmosphere, including vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air, is termed _____.
- A. downburst
 - B. wind shear
 - C. clear air turbulence
 - D. wake turbulence
6. When issuing wake turbulence advisories, issue the _____, _____, and _____ of the heavy jets or B757s.
- A. company; name; color of aircraft
 - B. position; altitude (if known); direction of flight
 - C. color; type; manufacturer (if known)
 - D. speed; heading; airspeed (if known)
7. Traffic advisories are **NOT** required when aircraft are operating within Class _____ airspace.
- A. A
 - B. B
 - C. C
 - D. D
8. Traffic advisories are provided only to aircraft operating on an IFR flight plan.
- A. True
 - B. False

TRAFFIC ADVISORIES AND SAFETY ALERTS

Question Section *(Continued)*

9. When the issuance of individual traffic advisories is **NOT** practical because of the excessive number of observed radar targets, what phraseology is used?
- A. "...TRAFFIC, NUMEROUS RADAR OBSERVED TARGETS, VICINITY (location), ALTITUDE UNKNOWN."
 - B. "...TRAFFIC, NUMEROUS TARGETS, VICINITY (location), ALTITUDE UNKNOWN."
 - C. "...TRAFFIC, NUMEROUS AIRCRAFT, VICINITY (location), ALTITUDE UNKNOWN."
 - D. "...UNABLE TO PROVIDE TRAFFIC ADVISORIES, NUMEROUS AIRCRAFT, VICINITY (location), ALTITUDE UNKNOWN."
10. Deviation advisories are given to inform an aircraft when it is observed in a position and on a track that will obviously cause the aircraft to deviate from its protected airspace area.
- A. True
 - B. False
11. The first priority of a controller is to _____ and issue _____.
12. The two types of safety alerts are _____ and _____.
13. When the need for a safety alert is recognized, it is to be issued/initiated _____.
14. When referring to an aircraft capable of takeoff weights of more than 255,000 pounds, include the word "_____" in its description to other aircraft.
15. When giving traffic advisories to an aircraft, radar vectors to avoid the traffic may be issued when _____.
16. When issuing traffic advisories to an aircraft under your control that is **NOT** radar identified, include _____, _____, _____, and _____.
17. What is the phraseology to issue a Terrain/Obstruction Alert clearance?
18. When may you discontinue issuing a safety alert?
19. What is the phraseology to issue cautionary advisories for wake turbulence from a DC-10?

TRAFFIC ADVISORIES AND SAFETY ALERTS

Question Section *(Continued)*

20. What is the phraseology to issue traffic to UAL426 on a southbound C421, 30 degrees to the right of UAL426's track, 10 miles, flying on a converging course 500 feet below UAL426?
21. What is the phraseology to advise an aircraft when previously issued traffic, never sighted by the pilot, is no longer relevant?
22. When a deviation advisory is required, what additional responsibility do you have after you inform the pilot?

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section

1. When determining duty priority, a controller shall first perform the action that is most critical _____.

ANSWER: A. from a safety standpoint

REFERENCE: JO 7110.65, par. 2-1-2

DISCUSSION: Each set of circumstances must be evaluated on its own merit, and when more than one action is required, you shall exercise your best judgment based on facts and circumstances known to you. That action which is most critical from a safety standpoint is performed first.

2. The provision of additional services is optional on the part of the controller.

ANSWER: B. False

REFERENCE: JO 7110.65, par. 2-1-2

DISCUSSION: Controllers shall provide additional services to the extent permitted by higher priority duties and other circumstances.

*The ability to provide additional services is limited by many factors, such as volume of traffic, frequency congestion, quality of radar, controller workload, higher priority duties, and the pure physical inability to scan and detect those situations that fall into this category. **The provision of additional services is NOT optional on the part of the controller.***

3. When someone else has responsibility for an aircraft, you may assume that any unsafe situation will be recognized and a safety alert issued.

ANSWER: B. False

REFERENCE: JO 7110.65, par. 2-1-6

DISCUSSION: When you observe an unsafe situation and you do not have the responsibility for that aircraft, inform the appropriate controller. Conditions such as workload, traffic volume, the quality/limitations of the radar system, and available lead time to react are factors in determining whether it is reasonable for a controller to observe and recognize all such situations.

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section *(Continued)*

4. The controller who issues a safety alert will determine what course of action, if any, will be taken.

ANSWER: B. False

REFERENCE: JO 7110.65, par. 2-1-6

DISCUSSION: Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, will be taken. This procedure is intended for use in time-critical situations where aircraft safety is in question. Noncritical situations should be handled via the normal traffic advisory procedures.

5. A phenomenon resulting from the passage of an aircraft through the atmosphere, including vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air, is termed _____.

ANSWER: D. wake turbulence

REFERENCE: JO 7110.65, Pilot/Controller Glossary

DISCUSSION: Every aircraft generates a wake while in flight. Initially when pilots encountered this wake in flight, the disturbance was attributed to "prop wash." It is now known, however, that this disturbance is caused by a pair of counter-rotating vortices trailing from the wing tips. The vortices from large aircraft pose problems to encountering aircraft. For instance, the wake of these aircraft can impose rolling movements exceeding the roll control capability of some aircraft. Further, turbulence generated within the vortices can damage aircraft components and equipment if encountered at close range. The pilot must learn to envision the location of the vortex wake generated by large aircraft and adjust the flight path accordingly.

6. When issuing wake turbulence advisories, issue the _____, _____, and _____ of the heavy jets or B757s.

ANSWER: B. position; altitude (if known); direction of flight

REFERENCE: JO 7110.65, par. 2-1-20

DISCUSSION: Wake turbulence may be encountered by aircraft in flight as well as when operating on the airport movement area.

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section (Continued)

7. Traffic advisories are **NOT** required when aircraft are operating within Class _____ airspace.

ANSWER: A. A

REFERENCE: JO 7110.65, par. 2-1-21

DISCUSSION: Unless an aircraft is operating within Class A airspace or omission is requested by the pilot, issue traffic advisories to all aircraft (IFR or VFR) on your frequency when, in your judgment, their proximity may diminish to less than the applicable separation minima. Where no separation minima applies, such as for VFR aircraft outside of Class B and C airspace or a Terminal Radar Service Area (TRSA), issue traffic advisories to those aircraft on your frequency when in your judgment their proximity warrants it.

8. Traffic advisories are provided only to aircraft operating on an IFR flight plan.

ANSWER: B. False

REFERENCE: JO 7110.65, par. 2-1-21

DISCUSSION: Unless omission is requested by the pilot, issue traffic advisories to all aircraft on your frequency, including those operating VFR, when in your judgment their proximity warrants it.

9. When the issuance of individual traffic advisories is **NOT** practical because of the excessive number of observed radar targets, what phraseology is used?

ANSWER: C. "...TRAFFIC, NUMEROUS AIRCRAFT, VICINITY (location), ALTITUDE UNKNOWN."

REFERENCE: JO 7110.65, par. 2-1-21

*DISCUSSION: Additional phraseology for issuing traffic advisories for aircraft that are **NOT** radar identified is:*

"...TRAFFIC (number) MILES/MINUTES (direction) OF (airport or fix), (direction)-BOUND, and if known (type of aircraft and altitude), ESTIMATED (fix) (time)."

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section *(Continued)*

10. Deviation advisories are given to inform an aircraft when it is observed in a position and on a track that will obviously cause the aircraft to deviate from its protected airspace area.

ANSWER: A. True

REFERENCE: JO 7110.65, par. 5-1-10

DISCUSSION: A clearance issued by ATC is predicated on known traffic. An ATC clearance is an authorization by ATC for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace. If an aircraft is observed deviating from its assigned protected airspace without ATC authorization, issue a deviation advisory to inform the aircraft.

11. The first priority of a controller is to _____ and issue _____.

ANSWER: separate aircraft; safety alerts

REFERENCE: JO 7110.65, par. 2-1-2

DISCUSSION: Separating aircraft and issuing safety alerts are equal in duty priority. Both are of primary importance. Good judgment shall be used in prioritizing all other provisions of FAA Order JO 7110.65 based on the requirements of the situation at hand.

12. The two types of safety alerts are _____ and _____.

ANSWER: Terrain/Obstruction Alert; Aircraft Conflict/Mode C Intruder Alert

REFERENCE: JO 7110.65, par. 2-1-6

DISCUSSION: A Terrain/Obstruction Alert is to be issued when an aircraft, in your judgment, is at an altitude that places it in unsafe proximity to terrain/obstructions. An Aircraft Conflict/Mode C Intruder Alert is to be issued when two or more aircraft, in your judgment, are at an altitude that you believe places them in unsafe proximity. In either case, issue/initiate a safety alert immediately.

13. When the need for a safety alert is recognized, it is to be issued/initiated _____.

ANSWER: immediately

REFERENCE: JO 7110.65, par. 2-1-6

DISCUSSION: When an unsafe situation is recognized, immediately issue a safety alert or inform the controller responsible for the aircraft.

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section (Continued)

14. When referring to an aircraft capable of takeoff weights of more than 255,000 pounds, include the word "_____ " in its description to other aircraft.

ANSWER: HEAVY

REFERENCE: JO 7110.65, par. 2-4-14, Pilot/Controller Glossary

DISCUSSION: All aircraft generate wake turbulence while in flight, but the effect may be minimal to other aircraft. A heavy aircraft will generate wake turbulence that affects all other types of aircraft including other heavy aircraft. When issuing wake turbulence cautionary advisories and the traffic is known to be a heavy aircraft, include the word "HEAVY" in the description. In any case, issue cautionary information to any aircraft if, in your opinion, wake turbulence may have an adverse effect on it.

15. When giving traffic advisories to an aircraft, radar vectors to avoid the traffic may be issued when _____.

ANSWER: requested by the pilot

REFERENCE: JO 7110.65, par. 2-1-21

DISCUSSION: When requested by the pilot, issue radar vectors to assist in avoiding the traffic, provided the aircraft to be vectored is within your area of jurisdiction or coordination has been effected with the sector/facility in whose area the aircraft is operating. If unable to provide vector service, inform the pilot.

16. When issuing traffic advisories to an aircraft under your control that is **NOT** radar identified, include _____, _____, _____, and _____.

ANSWER: distance and direction from fix; direction in which traffic is proceeding; type of aircraft and altitude, if known; ETA over the fix the aircraft is approaching, if appropriate

REFERENCE: JO 7110.65, par. 2-1-21

*DISCUSSION: Traffic advisories for aircraft that are **NOT** radar identified should contain enough information for the pilot to visualize the location of the issued traffic, as well as its direction of flight. If the altitude of the issued traffic is unknown, include the statement "ALTITUDE UNKNOWN."*

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section *(Continued)*

17. What is the phraseology to issue a Terrain/Obstruction Alert clearance?

ANSWER: *“LOW ALTITUDE ALERT (call sign), CHECK YOUR ALTITUDE IMMEDIATELY. THE (as appropriate) MEA/MVA/MOCA/MIA IN YOUR AREA IS (altitude).”*

REFERENCE: *JO 7110.65, par. 2-1-6*

DISCUSSION: *When issuing a Terrain/Obstruction Alert, give the type of alert (LOW ALTITUDE ALERT), aircraft identification, a warning (CHECK YOUR ALTITUDE IMMEDIATELY), and then the minimum altitude for that location.*

18. When may you discontinue issuing a safety alert?

ANSWER: *When the pilot informs you action is being taken to resolve the situation.*

REFERENCE: *JO 7110.65, par. 2-1-6*

DISCUSSION: *It is solely the pilot's prerogative to determine what course of action, if any, will be taken, and you must keep the pilot informed of the unsafe situation until you are informed action is being taken.*

19. What is the phraseology to issue cautionary advisories for wake turbulence from a DC-10?

ANSWER: *“CAUTION WAKE TURBULENCE A HEAVY DC TEN.”*

REFERENCE: *JO 7110.65, par. 2-1-20*

DISCUSSION: *Issue a wake turbulence advisory if, in your opinion, wake turbulence may have an adverse effect on an aircraft. When traffic is known to be a heavy aircraft, include the word “HEAVY.” Because wake turbulence is unpredictable, the controller is **NOT** responsible for anticipating its existence or effect. If you are in doubt, **issue the advisory.***

20. What is the phraseology to issue traffic to UAL426 on a southbound C421, 30 degrees to the right of UAL426's track, 10 miles, flying on a converging course 500 feet below UAL426?

ANSWER: *“United Four Twenty-Six, traffic one o'clock, one zero miles, southbound, converging, Cessna Four Twenty-One, five hundred feet below you.”*

REFERENCE: *JO 7110.65, par. 2-1-21*

DISCUSSION: *When issuing traffic advisories to radar identified aircraft, give azimuth from aircraft in terms of the 12-hour clock or specify the direction using the eight cardinal compass points. Also, include the distance from the aircraft in miles and direction and/or relative movement of the traffic (closing, converging, parallel same direction, opposite direction, diverging, overtaking, crossing left to right, crossing right to left). In addition, give type of aircraft and altitude, if known.*

TRAFFIC ADVISORIES AND SAFETY ALERTS

Answer and Discussion Section (Continued)

21. What is the phraseology to advise an aircraft when previously issued traffic, never sighted by the pilot, is no longer relevant?

ANSWER: "...TRAFFIC NO FACTOR."

REFERENCE: JO 7110.65, par. 2-1-21

DISCUSSION: If the pilot informs you that he/she does not see the traffic you have issued, inform the pilot when the traffic is no longer a factor.

22. When a deviation advisory is required, what additional responsibility do you have after you inform the pilot?

ANSWER: *Assist the aircraft to return to the assigned protected airspace, if necessary.*

REFERENCE: JO 7110.65, par. 5-1-10

DISCUSSION: When an aircraft deviates or is observed in a position and on a track that will obviously cause the aircraft to deviate from its protected airspace area, inform the pilot and assist the aircraft to return to the assigned protected airspace, if necessary.

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