Federal Aviation Administration

EN ROUTE - STAGE IV

Refresher Unit 01
Radar Identification

Course 55055

OK-09-5106

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
P.O. Box 25082
Oklahoma City, OK 73125

PREFACE

This refresher unit replaces all previous versions of ER-11-1, Radar Identification, 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.

RADAR IDENTIFICATION
Question Section

DIRECTIONS: ITEMS 1 THROUGH 11 REQUIRE A SHORT ANSWER OF ONE OR TWO SENTENCES. REFER TO THE SIMULATED RADAR SCOPE ON PAGE 3 TO ANSWER ITEMS 1 THROUGH 6.

1. N36G, a King Air, departed MIO airport and has just reported over MIO VORTAC on initial contact climbing to 3,000. Write the phraseology to inform N36G that radar identification has been established.

2. UAL45 is 40 miles east of MLC VORTAC descending to 11,000. Write the phraseology to inform UAL45 that radar identification has been lost.

3. A12345 is in radar contact and is proceeding from airspace over which you have control jurisdiction into the adjacent sector's airspace. The adjacent sector's radar is out of service. What must you advise A12345 before communications are transferred?

4. DAL35 is inbound to MLC airport and is conducting an approach. Write the two conditions that would automatically terminate DAL35's radar service.

5. Using only position correlation, write the conditions that would enable you to establish radar identification of an aircraft that just reported over the Miami water tower.

6. N66RP is westbound and has an inoperative transponder. You observe a primary target 50 miles east of TUL VORTAC. N66RP advises that it is presently on a heading of 270 degrees. What heading could you use to establish radar identification of N66RP?

7. Write the three methods you could use to confirm the identification of beacon-equipped aircraft in a nonautomated environment.

8. When the flight progress recording components of the EAS FDP are **NOT** operational, what is the minimum requirement for posting the observed position of each aircraft in radar contact?

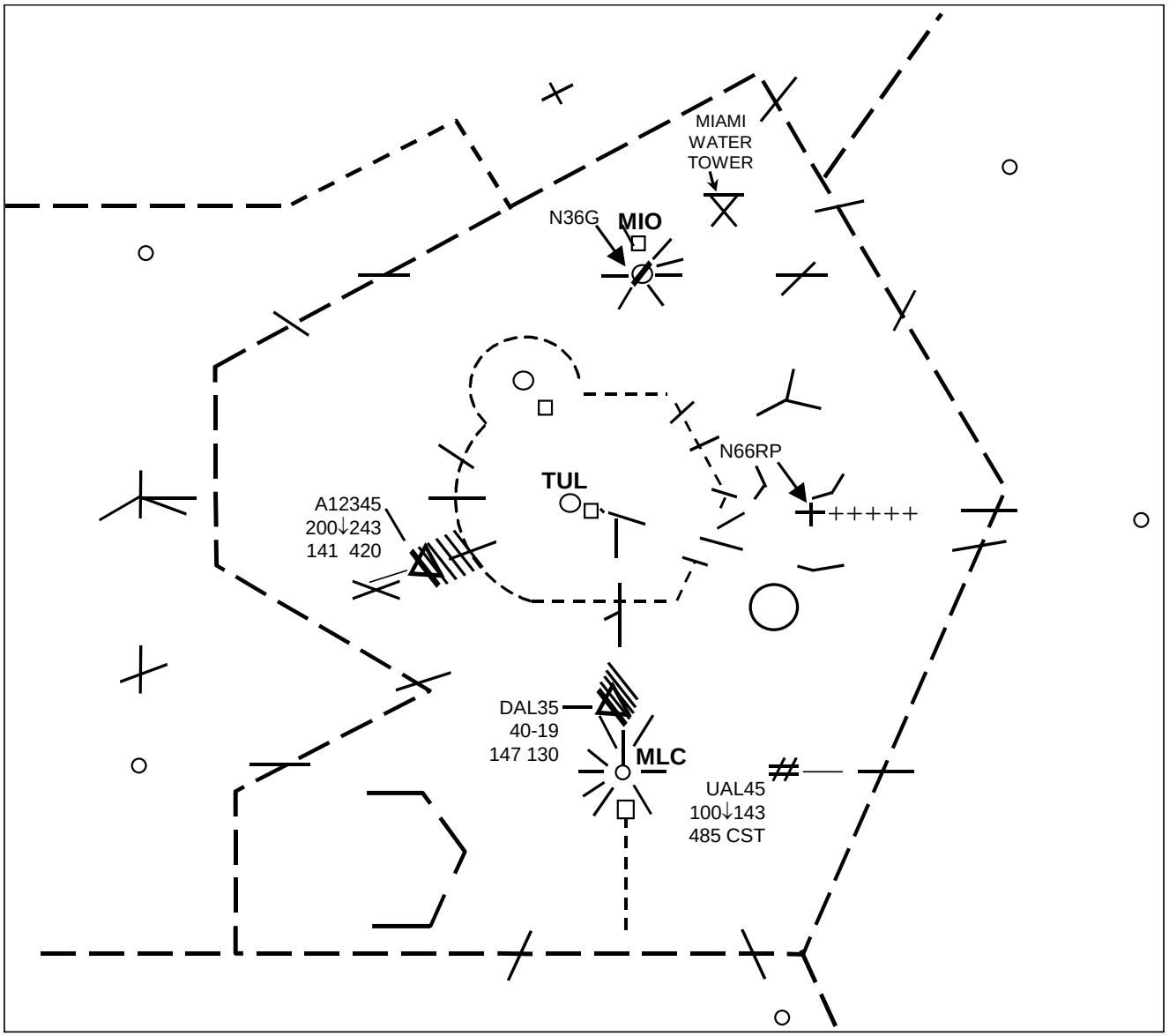
9. Within how many miles of the takeoff runway end must you observe a departing aircraft's primary or radar beacon target for the purpose of establishing radar identification?

10. When would you consider an aircraft that has been assigned a discrete beacon code during narrowband radar operations to be radar identified?

RADAR IDENTIFICATION

Question Section *(Continued)*

11. What two methods of establishing radar identification would require you to inform an aircraft of its position?



SIMULATED RADAR DISPLAY

RADAR IDENTIFICATION
Answer and Discussion Section

1. N36G, a King Air, departed MIO airport and has just reported over MIO VORTAC on initial contact climbing to 3,000. Write the phraseology to inform N36G that radar identification has been established.

   ANSWER: "King Air Three Six Golf, Aero Center, radar contact."

   REFERENCE: JO 7110.65, pars. 5-3-6, 5-3-7

   DISCUSSION: Position information need not be given when identification is established by position correlation. If turns or Beacon Identification Methods had been used to establish radar identification, the aircraft's position would have to be stated.

2. UAL45 is 40 miles east of MLC VORTAC descending to 11,000. Write the phraseology to inform UAL45 that radar identification has been lost.

   ANSWER: "United Forty-Five, radar contact lost."

   REFERENCE: JO 7110.65, par. 5-3-7

   DISCUSSION: Informing the pilot that radar contact has been lost requires that he/she begin making compulsory position reports. You do not have to inform the aircraft of its position.

3. A12345 is in radar contact and is proceeding from airspace over which you have control jurisdiction into the adjacent sector's airspace. The adjacent sector's radar is out of service. What must you advise A12345 before communications are transferred?

   ANSWER: A12345 must be informed when radar service is terminated.

   REFERENCE: JO 7110.65, pars. 5-1-12, 5-1-13

   DISCUSSION: Informing the pilot that radar service is terminated requires the pilot to begin making compulsory position reports.

RADAR IDENTIFICATION

Answer and Discussion Section *(Continued)*

4. DAL35 is inbound to MLC airport and is conducting an approach. Write the two conditions that would automatically terminate DAL35's radar service.

ANSWER: ***A. An aircraft cancels its IFR flight plan, except within a Class B airspace, Class C airspace, TRSA, or where basic radar service is provided.***

B. An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

REFERENCE: JO 7110.65, par. 5-1-13

DISCUSSION: At tower-controlled airports where radar coverage does not exist to within one half mile of the end of the runway, arriving aircraft shall be informed when radar service is terminated.

5. Using only position correlation, write the conditions that would enable you to establish radar identification of an aircraft that just reported over the Miami water tower.

ANSWER: ***A. The Miami water tower is displayed on the video map.***

B. The Miami water tower is scribed on the map overlay.

C. The Miami water tower is displayed as a permanent echo.

D. The Miami water tower is a visual reporting point whose range and azimuth from the radar antenna have been accurately determined and made available to the controller.

REFERENCE: JO 7110.65, par. 5-3-2

DISCUSSION: When attempting to identify an aircraft by position correlation, the aircraft's position report must correspond to a fix displayed on radar or to a visual reporting point whose range and azimuth from the radar antenna have been accurately determined and are available to the controller. The observed radar track must be consistent with the reported heading or route of flight. A TACAN/VORTAC that is within 6,000 feet of the radar antenna may be used as a reference fix for radar identification without being displayed on the video map or map overlay.

RADAR IDENTIFICATION

Answer and Discussion Section *(Continued)*

6. N66RP is westbound and has an inoperative transponder. You observe a primary target 50 miles east of TUL VORTAC. N66RP advises that it is presently on a heading of 270 degrees. What heading could you use to establish radar identification of N66RP?

ANSWER: Heading of 300 or 240 degrees (30-degree turn)

REFERENCE: JO 7110.65, pars. 5-3-2, 5-3-5

DISCUSSION: To identify an aircraft by a turn of 30 degrees or more, you must ascertain that the aircraft is within your radar coverage. This may not be possible with a lost aircraft. You should be alert to other aircraft within your radar coverage executing the same turns. The use of identifying turns or headings that would cause the aircraft to follow normal IFR routes or known VFR flight paths might result in misidentification. When these circumstances cannot be avoided, additional methods of identification may be necessary.

Terrain is another factor that must be considered when using turns for radar identification. For aircraft on an IFR clearance, either issue a heading away from an area that will require an increased minimum IFR altitude or have the aircraft climb to the highest minimum altitude in your area of jurisdiction before you issue a heading.

7. Write the three methods you could use to confirm the identification of beacon-equipped aircraft in a nonautomated environment.

ANSWER: By observing:

A. An "ident" reply

B. A code change

C. A "standby" squawk

REFERENCE: JO 7110.65, pars. 5-3-3, 5-3-5

DISCUSSION: Regardless of the method of confirmation used, if there is any doubt as to positive identification, take immediate action to identify the target by using more than one method of identification.

RADAR IDENTIFICATION

Answer and Discussion Section *(Continued)*

8. When the flight progress recording components of the EAS FDP are **NOT** operational, what is the minimum requirement for posting the observed position of each aircraft in radar contact?

ANSWER: The time of observed/reported position of each aircraft in their sector of responsibility must be posted at least once in each sector with respect to a fix on the radar display.

REFERENCE: JO 7110.65, par. 5-1-11

DISCUSSION: The recorded position of each aircraft may be helpful if search and rescue procedures have to be implemented.

9. Within how many miles of the takeoff runway end must you observe a departing aircraft's primary or radar beacon target for the purpose of establishing radar identification?

ANSWER: 1

REFERENCE: JO 7110.65, par. 5-3-2

DISCUSSION: Unless you observe the departing aircraft's target within 1 mile of the takeoff runway end (runway must be depicted on the map overlay), another method of identification must be used. Additionally, the airport must have an operating control tower, and proper coordination must be accomplished by either a verbal or nonverbal (rolling or boundary) notification for each departure.

10. When would you consider an aircraft that has been assigned a discrete beacon code during narrowband radar operations to be radar identified?

ANSWER: Consider an aircraft to be radar identified when automatic acquisition of the full data block to the appropriate beacon target symbol has occurred.

REFERENCE: JO 7110.65, par. 5-3-3

DISCUSSION: Target identity is maintained by use of the data block unless it goes into coast status or becomes displaced from the appropriate target. When there is any doubt about positive identification, have the aircraft ident, use other means to reidentify the aircraft, or terminate radar service.

RADAR IDENTIFICATION

Answer and Discussion Section *(Continued)*

11. What two methods of establishing radar identification would require you to inform an aircraft of its position?

ANSWER: A. Identifying turns

B. Radar beacon procedures

REFERENCE: JO 7110.65, par. 5-3-6

DISCUSSION: Stating the aircraft's position is a safeguard to eliminate the possibility of misidentification. The pilot is expected to inform ATC if he/she does not agree with the position stated.

*When identification is accomplished by position correlation or by observing a departing aircraft within 1 mile of the takeoff runway end, it is **NOT** necessary to state the aircraft's position.*

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