Federal Aviation Administration

55054001 EN ROUTE RADAR ASSOCIATE CONTROLLER TRAINING PART A: BASIC CONCEPTS

Lesson 1: Recording Clearances and Control Information

Version: 1.0 2022.08

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LESSON PLAN DATA SHEET

Course Name	En Route Radar Associate Controller Training Part A: Basic Concepts
Course Number	55054001
Lesson Title	Recording Clearances and Control Information
Duration	3 hours, 30 minutes (includes lesson, practice exercises, and ELT)
Version	1.0 2022.08
Reference(s)	JO 7110.65, Air Traffic Control; JO 7210.3 Facility Operation and Administration; JO 7340.2, Contractions
Prerequisites	NONE
Handout(s)	⊙ Practice Exercise 1-4
Exercise / Activity	Refer to handout for: ⊙ Practice Exercise 1: Flight Strip Data Locations ⊙ Practice Exercise 2: Strip Marking Symbols ⊙ Practice Exercise 3: Recording Clearances and Control Information ⊙ Practice Exercise 4: Flight Strip Marking
Scenario	NONE
Assessments	⊙ YES - Written
Materials and Equipment	⊙ Local Strip Marking material as appropriate ⊙ Pencil and/or pen in black and red
Other Pertinent Information	⊙ **Ensure lesson materials are downloaded to the classroom computer** ⊙ Appendix: Location Identifiers ⊙ Course 57826, RECORDING CLEARANCES and CONTROL INFORMATION, or current course, is available as supplemental training for this lesson ⊙ This lesson is based on ERAM EAE410 ⊙ The lesson has been reviewed and reflects current orders and manuals as of April 2022

LESSON ICON LEGEND

	Description
	The Activity icon indicates an exercise, lab, or hands-on activity.
	The Discussion Question icon signals a discussion question to be asked to the students.
	The Handout icon indicates a handout is to be distributed to the students.
	The Instructor Note icon is in hidden text and indicates text that is for the instructor only.
	The Multimedia icon indicates a video or audio clip is in the presentation.
	The Phraseology icon indicates that phraseology is in the content.
	The WBT icon indicates a component of web-based training.
	The Click icon indicates a PPT slide with click-based functionality to present additional information.
	The Definition icon indicates a published definition.

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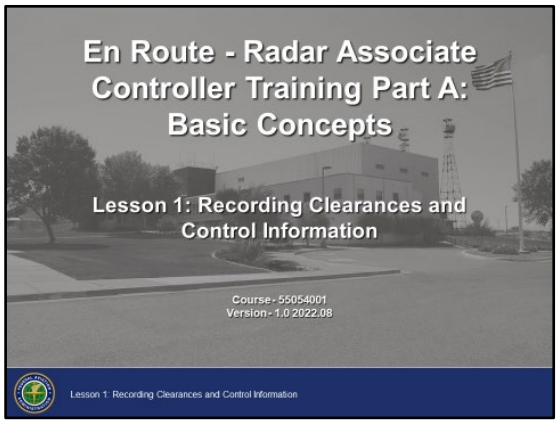
LESSON INTRODUCTION

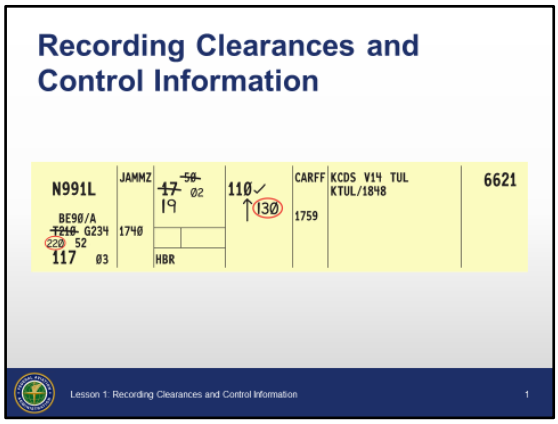
Lesson Overview



Recording Clearances and Control Information

LESSON INTRODUCTION *(CONT'D)*

Lesson Overview (Cont'd)

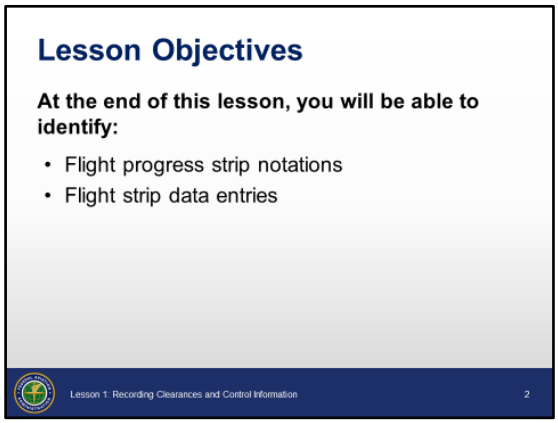


Overview

Flight progress strips are the official record of control data used to reconstruct flight activities in the event of a systems error, deviation, or accident. One of the requirements to become a radar associate controller is the ability to record clearance and control information on flight progress strips in a clear and concise manner. Forming good strip marking habits will help you become a successful controller.

LESSON INTRODUCTION *(CONT'D)*

Lesson Objectives



Objectives

⊙ At the end of this lesson, you will be able to identify:

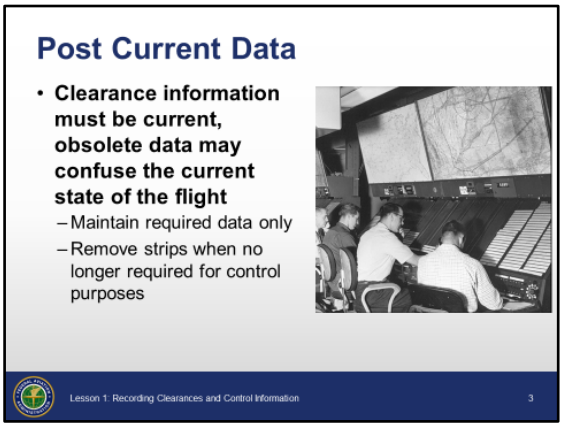
- Flight progress strip notations
- Flight strip data entries

NOTE: There will be a graded end-of-lesson test upon completion of the lesson. The passing score is 70%. If you do not achieve a score of 70%, you will be provided study time and one retake of an alternate end-of-lesson test.

PURPOSE OF STRIP MARKING

Post Current Data

JO 7110.65, par. 2-3-1



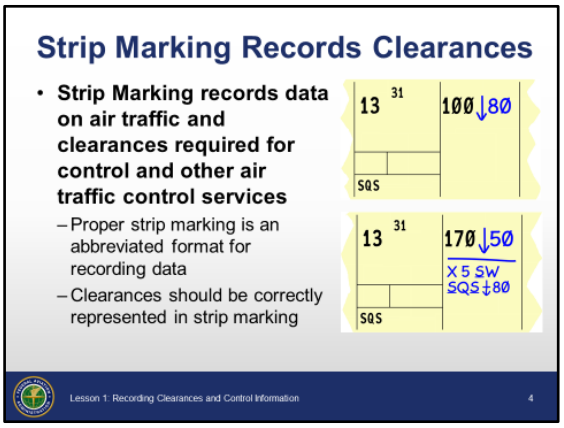
Post Current Data

- Clearance information on flight strips must be current to be useful; obsolete data may confuse the current state of the flight
  - Maintain required data only
  - Remove strips from flight progress boards when no longer required for control purposes

PURPOSE OF STRIP MARKING *(CONT'D)*

Records Clearances

JO 7110.65, par. 2-3-1

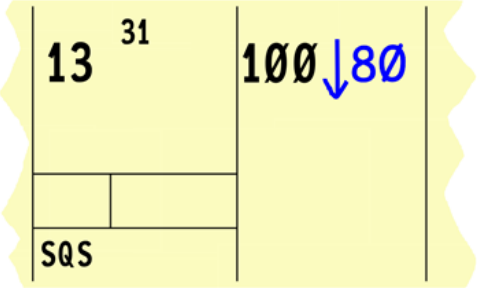


Strip Marking Records Clearances

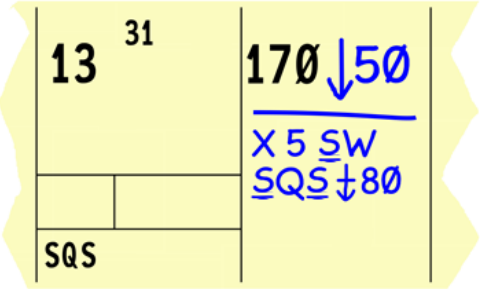
⊙ Strip marking is used to record data on air traffic, clearances required for control, and other air traffic control services

- Proper strip marking is an abbreviated format for recording data
- Clearances should be correctly represented in strip marking

"…DESCEND AND MAINTAIN EIGHT THOUSAND"



"…CROSS FIVE MILES SOUTHWEST OF SIDON AT OR BELOW EIGHT THOUSAND, MAINTAIN FIVE THOUSAND"

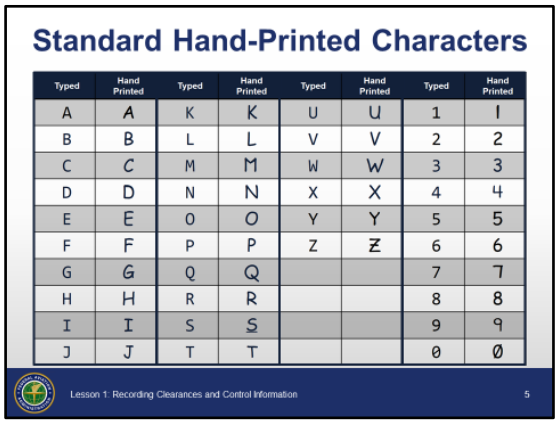


NOTE: This lesson uses machine-generated flight strips, but the strip marking is the same for manual flight strips. The blue text in this lesson is used for emphasis on block numbers and specific strip marking examples.

PURPOSE OF STRIP MARKING *(CONT'D)*

Standard Hand-Printed Characters

JO 7110.65, FIG 2-3-1



Standard Hand-Printed Characters

- If strip marking is to be effective, it must be legible and easily interpreted
- Use standard characters in the proper data locations as directed by JO 7110.65
- Manually prepared strips shall conform to the same format as machine-generated strips
- Altitude information may be written in thousands of feet provided the procedure is authorized by the facility manager, and is defined in a facility directive, i.e. 5,000' as 5 and 2,800' as 2.8

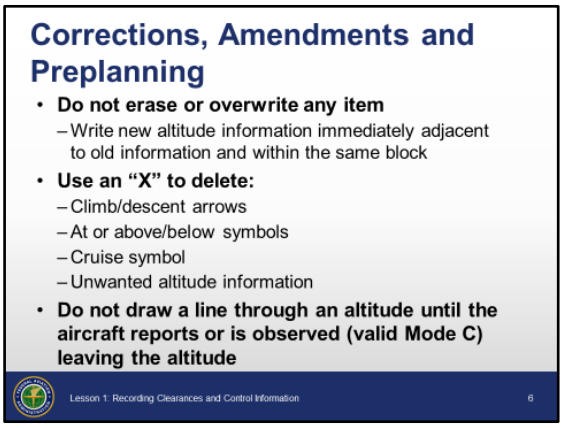
  NOTE: A slant line crossing through the number zero and underline of the letter "s" on handwritten portions of flight progress strips are required only when there is reason to believe the lack of these markings could lead to misunderstanding. A slant line crossing through the number zero is required on all weather data.

  Examples: Ø, S, Z

PURPOSE OF STRIP MARKING *(CONT'D)*

Corrections, Amendments and Preplanning

JO 7110.65, par. 2-3-1



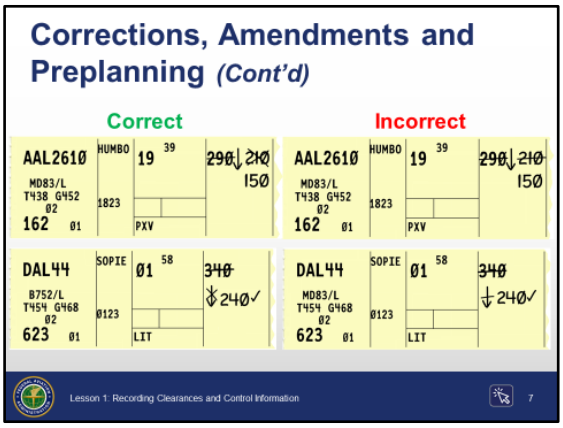
Corrections and Amendments

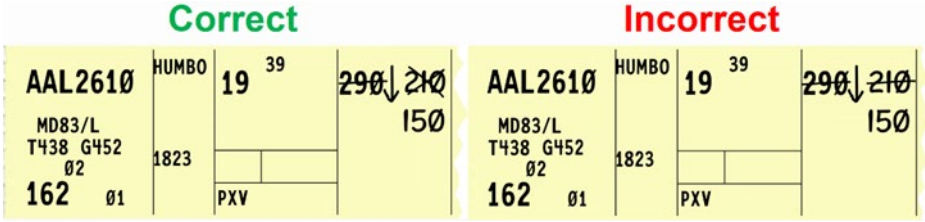
- Do not erase or overwrite any item
  - Write new altitude information immediately adjacent to old information and within the same block
  - Use an "X" to delete:
    - Climb/descend and maintain arrow
    - At or above/below symbol
    - Cruise symbol
    - Unwanted altitude information
- Do not draw a line through an altitude until the aircraft reports or is observed (valid Mode C) leaving the altitude
- Preplanning may be written in red
  - Must be distinguished from the current ATC clearance

PURPOSE OF STRIP MARKING *(CONT'D)*

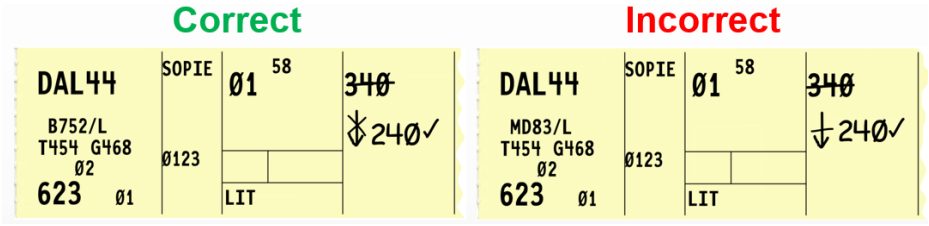
Corrections, Amendments and Preplanning (Cont'd)

JO 7110.65, par. 2-3-1, FIG 2-3-7





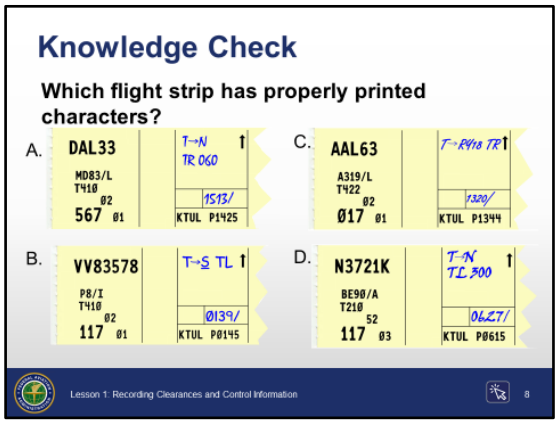
Example: AAL2610 was cleared to FL210 and reported out of FL290. Prior to reaching FL210 the flight was cleared lower to 15,000'. The incorrect example shows a report leaving FL210.



Example: DAL44 reports level at FL240. The down arrow is crossed out with an "X" to avoid looking like an "at or below" arrow.

PURPOSE OF STRIP MARKING *(CONT'D)*

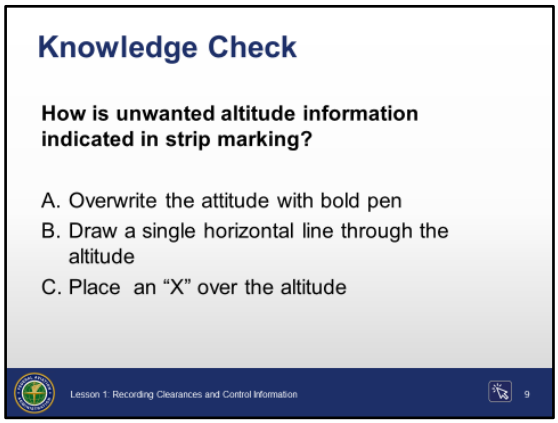
Knowledge Check



Question: Which flight strip has properly printed characters?

PURPOSE OF STRIP MARKING *(CONT'D)*

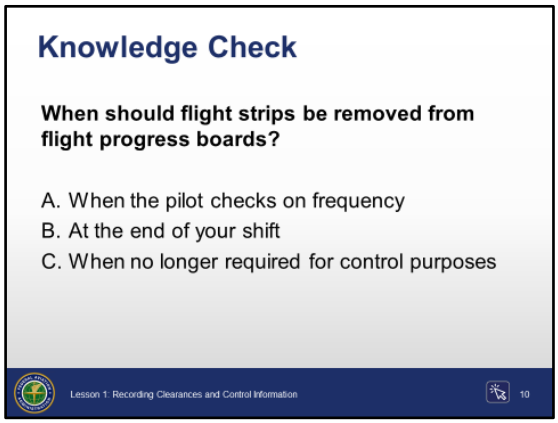
Knowledge Check



Question: How is unwanted altitude information indicated in strip marking?

PURPOSE OF STRIP MARKING *(CONT'D)*

Knowledge Check

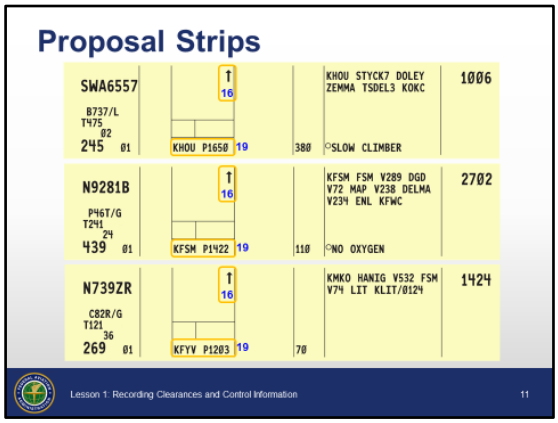


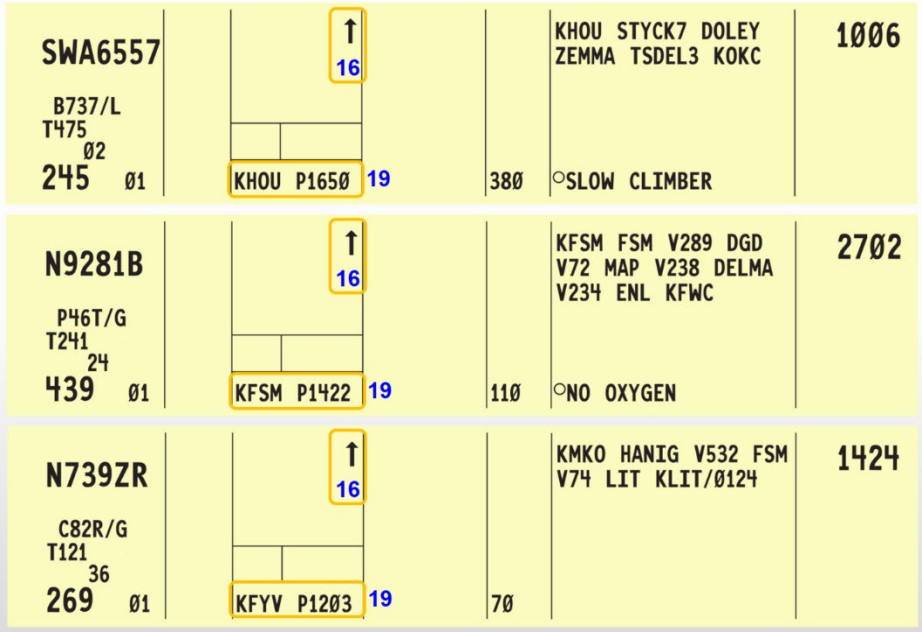
Question: When should flight strips be removed from flight progress boards?

TYPES OF FLIGHT STRIPS

Proposal Strips

JO 7110.65, FIG 2-3-2





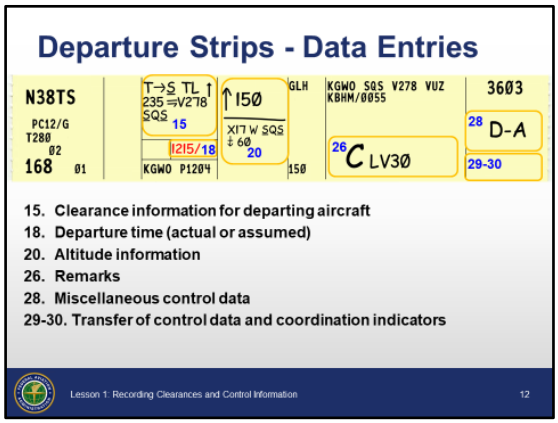
Proposal Strips

- Proposal strips represent the initial departure airport
  - Block 16 - Up arrow indicates a departing flight
  - Block 19 - Proposed departure time
  - Ground speed and sector times are not computed

TYPES OF FLIGHT STRIPS *(CONT'D)*

Departure Strips - Data Entries

JO 7110.65, FIG 2-3-2



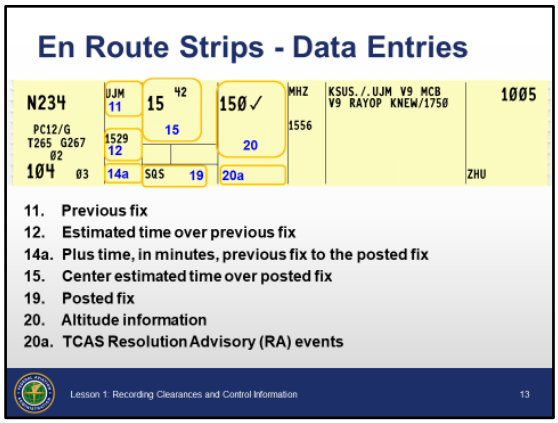
Departure Strips

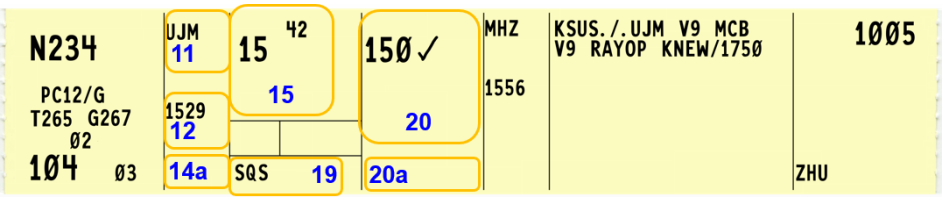
- Block 15 - Clearance information for departing aircraft
- Block 18 - Departure time (actual or assumed)
- Block 20 - Altitude information
  - Including restrictions
  - In hundreds of feet or as per facility directive
- Block 26 - Pertinent remarks
- Block 28 - Miscellaneous control data
  - Clearance limit
  - Expected further clearance time
  - Time cleared for approach, etc.
- Blocks 29 and 30 - Transfer-of-control data and coordination indicator, if required

TYPES OF FLIGHT STRIPS *(CONT'D)*

En Route Strips - Data Entries

JO 7110.65, FIG 2-3-2





En Route Strips

NOTE: Flight strips for en route flights contain fix and time data which aid in determining the aircraft position. Altitude information is always present.

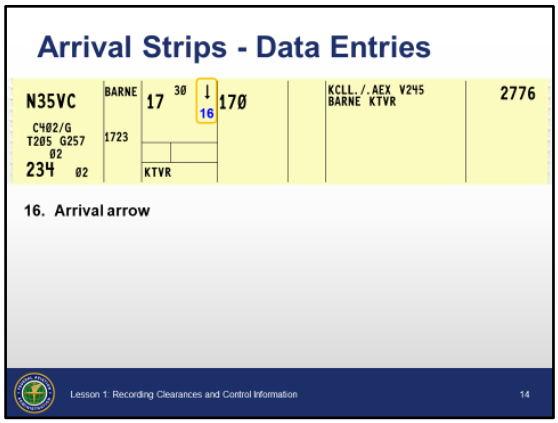
Further information found on the flight strips, include:

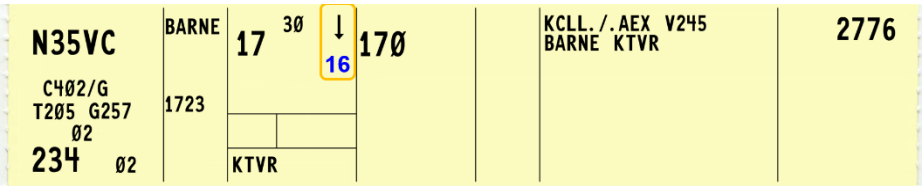
- Block 11 - Previous fix
- Block 12 - Estimated time over previous fix
- Block 14a - Plus time expressed in minutes from the previous fix to the posted fix
- Block 15 - Center estimated time over posted fix
- Block 19 - Posted fix
- Block 20 - Altitude information
- Block 20a - TCAS Resolution Advisory (RA) events
  - Optional when voice recorders are operational
  - Required when voice recorders are not operating and strips are used
    - Record RA's climb or descend arrow and time event is reported

TYPES OF FLIGHT STRIPS *(CONT'D)*

Arrival Strips - Data Entries

JO 7110.65, FIG 2-3-2





Arrival Strips

⊙ Block 16 - Arrival arrow

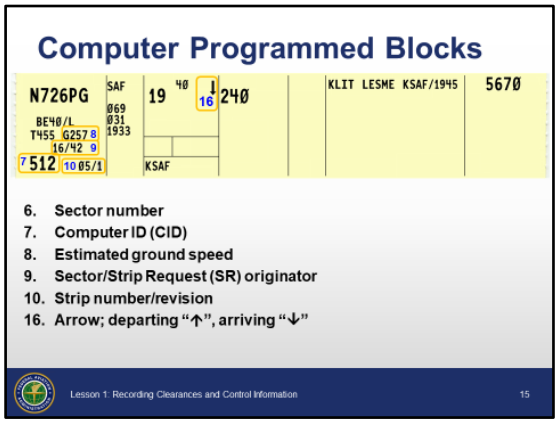
- Generated by the automation based on local adaptation

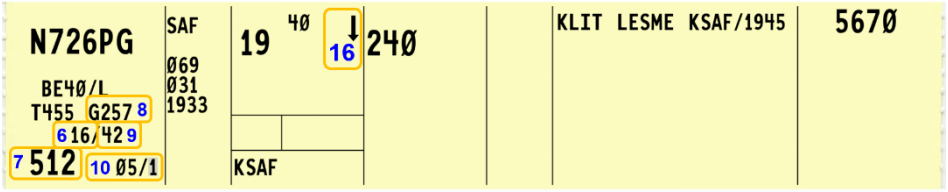
NOTE: Arrival strips will contain a down arrow in block 16 to indicate an approach clearance may be needed for this flight.

FLIGHT STRIP DATA ENTRIES

Computer Programmed Blocks

JO 7110.65, FIG 2-3-2





Computer Programmed Blocks

⊙ Some flight strip block fields are generated by the automation and include:

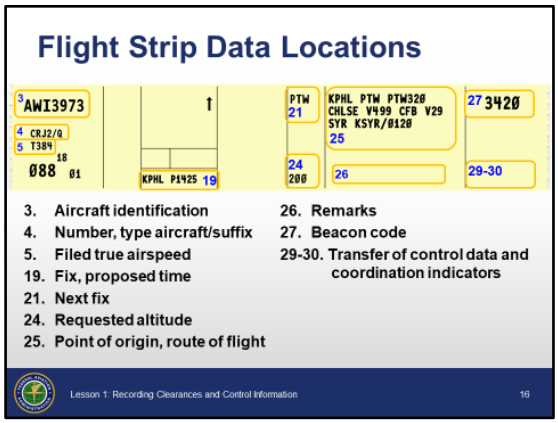
- Block 6 - Sector number
- Block 7 - Computer identification number (CID)
- Block 8 - Estimated ground speed
  - Not displayed on proposal strips
- Block 9 - Sector/Strip Request (SR) originator
- Block 10 - Strip number (strip number/revision number)
- Block 16 - Arrow; departing "↑", arriving "↓"

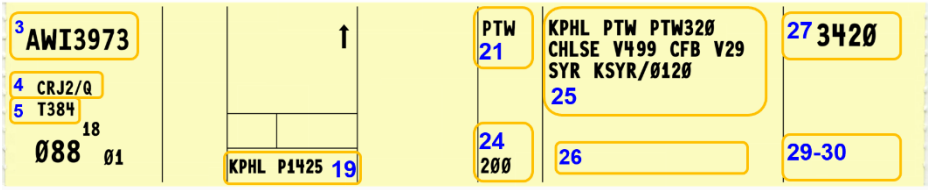
NOTE: For a complete list of the blocks in which data is entered on a flight progress strip, see FAA Order JO 7110.65, par. 2-3-2.

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

Flight Strip Data Locations

JO 7110.65, FIG 2-3-2





Flight Strip Data Locations

- Block 3 - Aircraft identification
  - Appropriate prefix followed by a combination of letters and/or numbers
  - Seven maximum allowable characters
- Block 4 - Aircraft data
  - Number of aircraft, if more than one
  - Heavy indicator, if appropriate
  - Type aircraft
  - Equipment suffix
- Block 5 - Filed true airspeed
  - "T" followed by two, three, or four digits
  - SC - Speed classified
- Block 19 - Fix and proposed departure time
  - Location identifier
  - For departing aircraft, add proposed departure time
    - "P" followed by four-digit proposal time
- Block 21 - Next posted fix or coordination fix

Continued on next page

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

Flight Strip Data Locations (Cont'd)

JO 7110.65, FIG 2-3-2

⊙ Block 24 - Requested altitude

- Two or three digits representing altitude in hundreds of feet or as per facility directive
- OTP or OTP/(altitude)
  - VFR conditions on top
- Altitude block
  - (altitude)B(altitude)
  - Lowest altitude first

⊙ Block 25 - Point of origin, route, destination, and Estimated Time of Arrival (ETA), Estimated Time En route (ETE)

- Location identifier
- Victor airways, jet routes, or direct routes
- ETA
  - Follows destination on general aviation arrival aircraft
- ETE
  - Follows destination on general aviation departure aircraft

  NOTE: To convert ETE to ETA, add ETE to departure time to determine ETA. General aviation pilots are required to file ETE.

⊙ Block 26 - Pertinent remarks

- Use plain language or words, phrases, or symbols contained in JO 7110.65, Table. 1-2-1

  Examples: Minimum fuel, point out, radar vector, speed adjustment information, sector/position number (in accordance with JO 7110.65, par. 2-2-1), or NRP

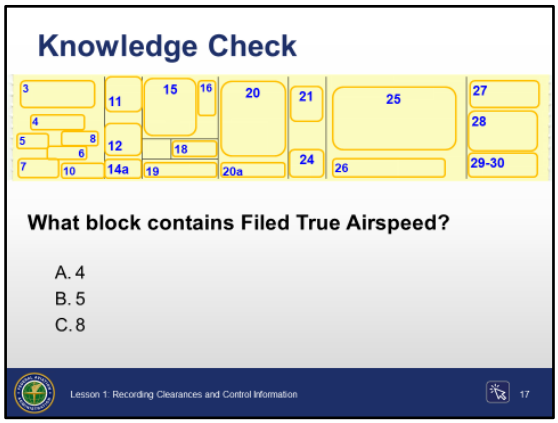
⊙ Block 27 - Beacon code

- Normally assigned by the computer

⊙ Blocks 29 and 30 - Transfer-of-control data and coordination indicator

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

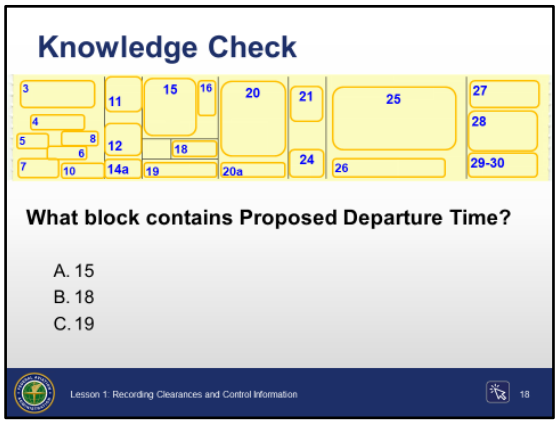
Knowledge Check



Question: What block contains Filed True Airspeed?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

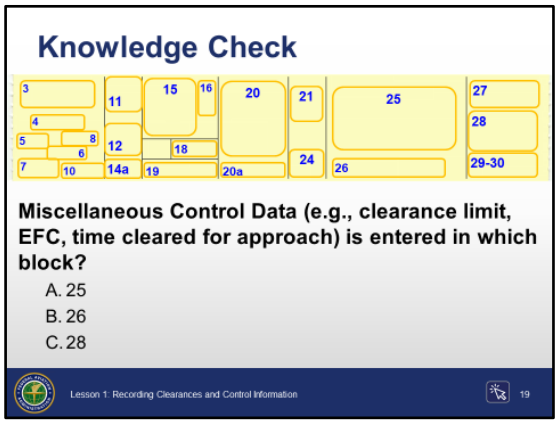
Knowledge Check



Question: What block contains Proposed Departure Time?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

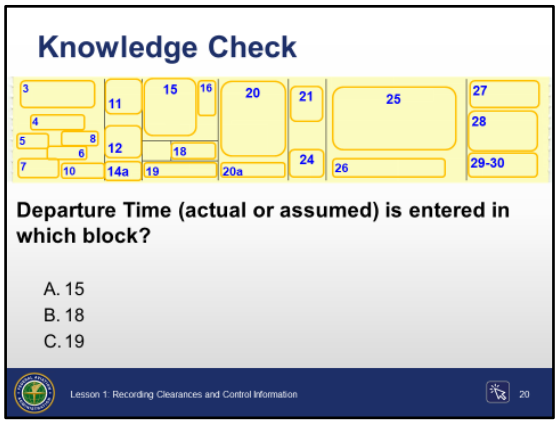
Knowledge Check



Question: Miscellaneous Control Data (e.g., clearance limit, EFC, time cleared for approach) is entered in which block?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

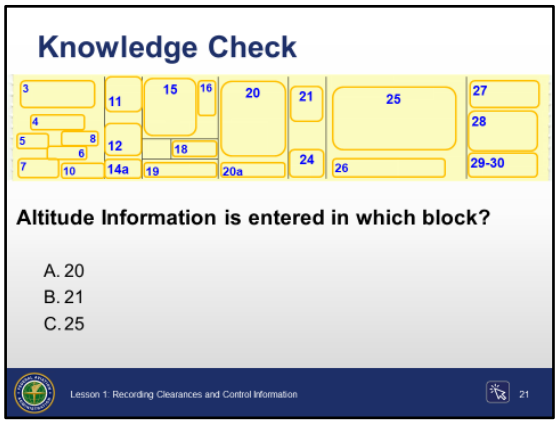
Knowledge Check



Question: Departure Time (actual or assumed) is entered in which block?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

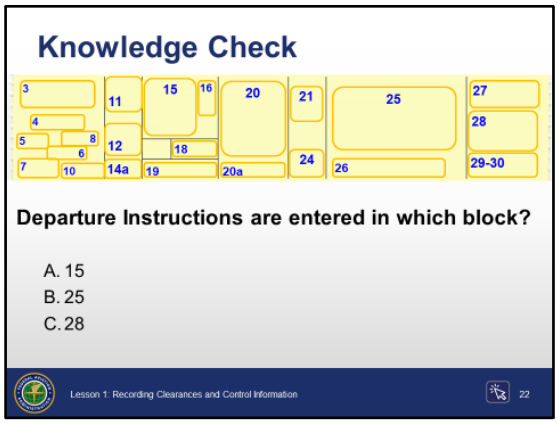
Knowledge Check



Question: Altitude Information is entered in which block?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

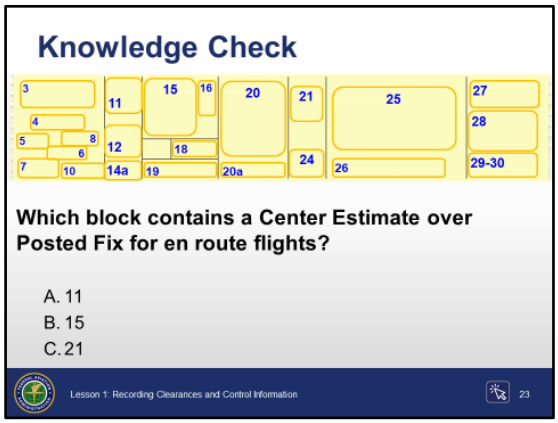
Knowledge Check



Question: Departure Instructions are entered in which block?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

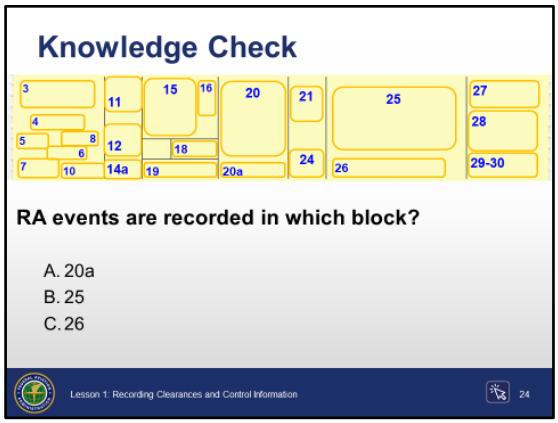
Knowledge Check



Question: Which block contains a Center Estimate over Posted Fix for en route flights?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

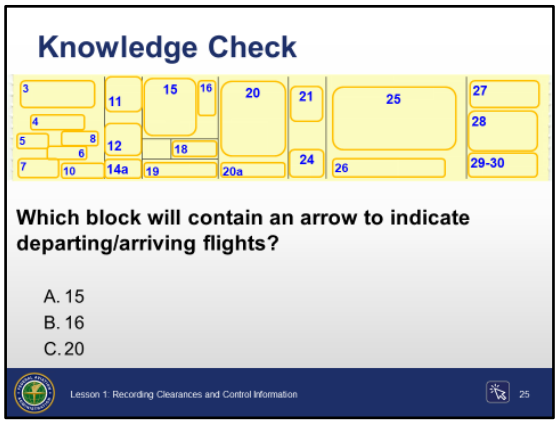
Knowledge Check



Question: RA events are recorded in which block?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

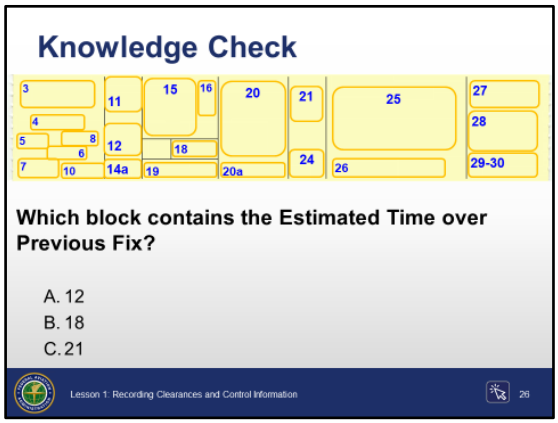
Knowledge Check



Question: Which block will contain an arrow to indicate departing/arriving flights?

FLIGHT STRIP DATA ENTRIES *(CONT'D)*

Knowledge Check



Question: Which block contains the Estimated Time over Previous Fix?

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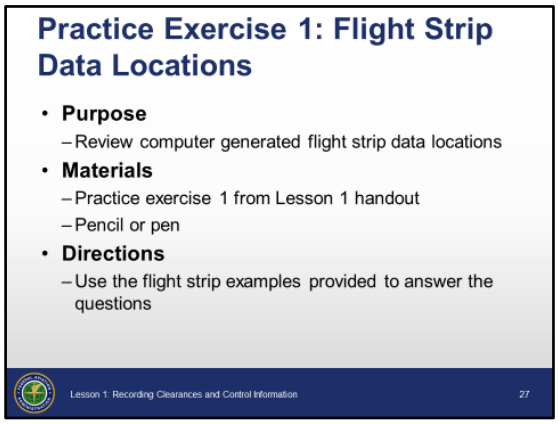
PRACTICE EXERCISE 1: FLIGHT STRIP DATA LOCATIONS



Purpose

Review computer generated flight strip data locations

Materials

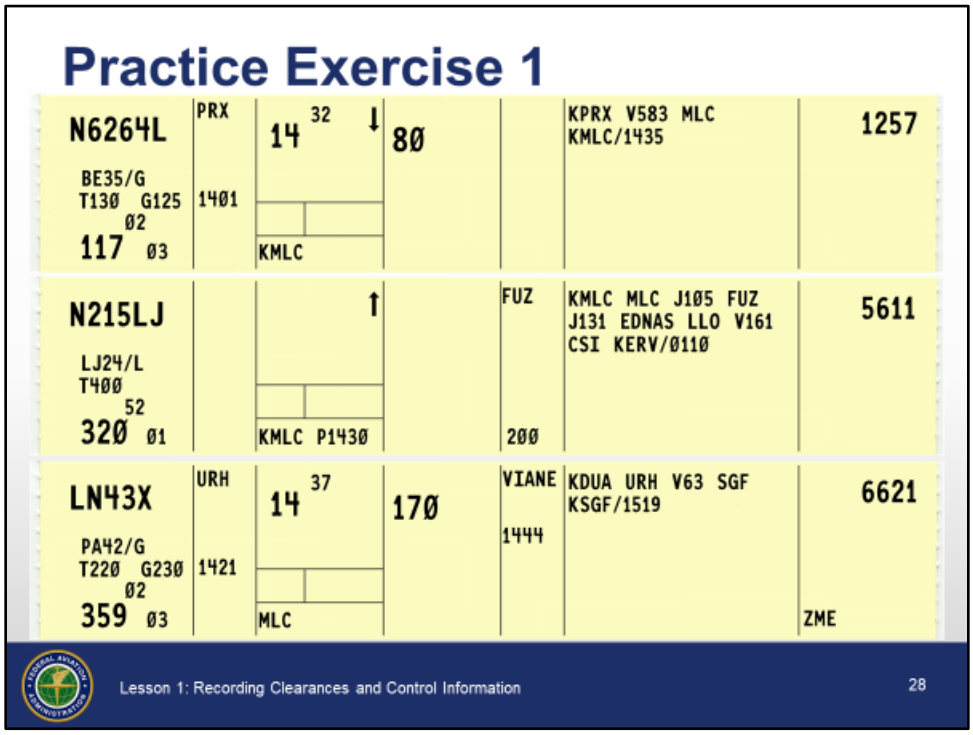
Handout:

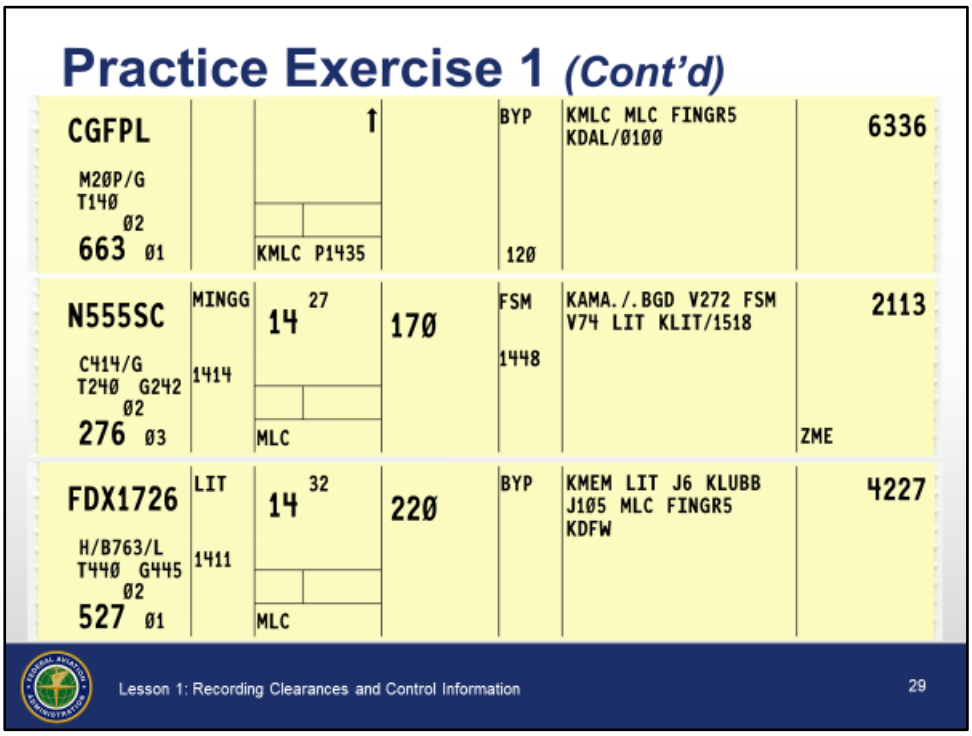
- Practice exercise 1 from Lesson 1 handout
- Pen or pencil

Directions

This exercise takes approximately 30 minutes to complete. Use the flight strip examples provided to answer the questions.

PRACTICE EXERCISE 1: FLIGHT STRIP DATA LOCATIONS *(CONT'D)*





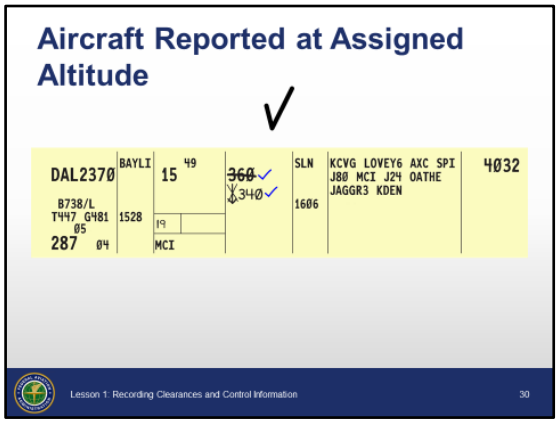
PRACTICE EXERCISE 1 FLIGHT STRIP DATA LOCATIONS *(CONT'D)*

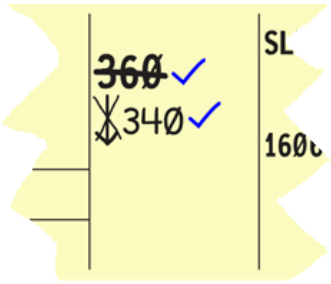
1. What is N6264L's filed true airspeed?
2. What is the previous fix for N555SC?
3. What is the previous fix estimate for N555SC?
4. What is the ground speed for LN43X?
5. What is the next fix for N215LJ?
6. Which are proposal strips?
7. Which are arrival strips?
8. Which are en route strips?
9. What is the assigned altitude for N6264L?
10. What is the posted fix for FDX1726?
11. What is the center-estimated time over posted fix for LN43X?
12. Which aircraft is expected over MLC first?
13. If the time is 1400, how many minutes from now is FDX1726 expected to be over the posted fix?
14. Which departure(s) are filed with a lower requested altitude than FDX1726?
15. Which aircraft are filed with jet routes?
16. If CGFPL is ready to depart at the proposed time, will it depart before N6264L arrives at MLC?

GENERAL INFORMATION

Aircraft Reported at Assigned Altitude

JO 7110.65, FIG 2-3-2, FIG 2-3-7





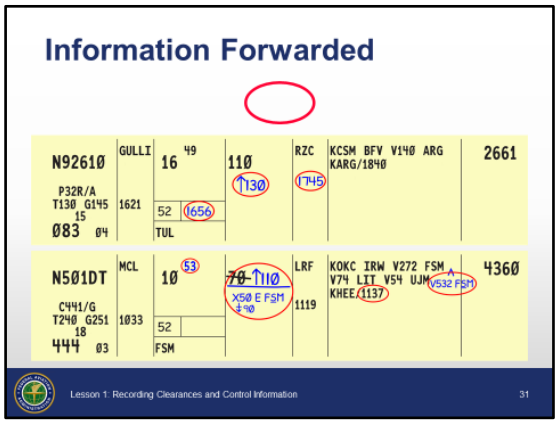
✓

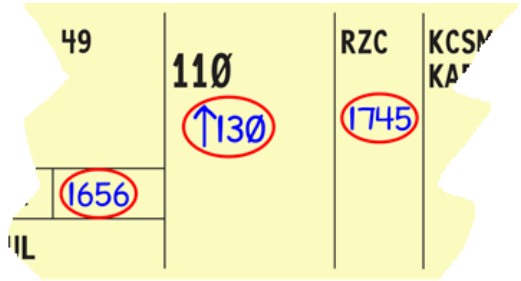
⊙ Aircraft reported at assigned altitude

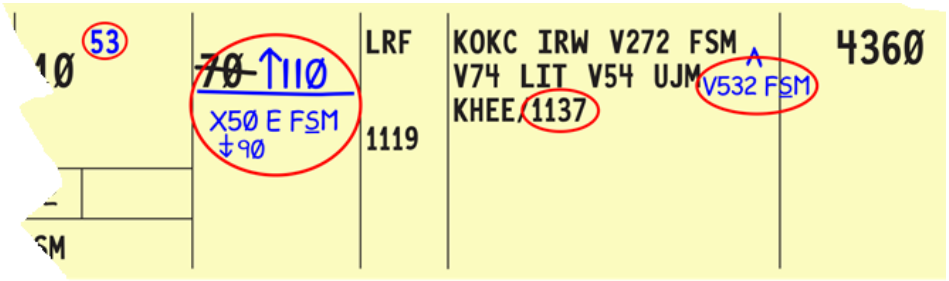
- Used in block 20
- Pilot reported or observed Mode C

Information Forwarded

JO 7110.65, FIG 2-3-2, FIG 2-3-8





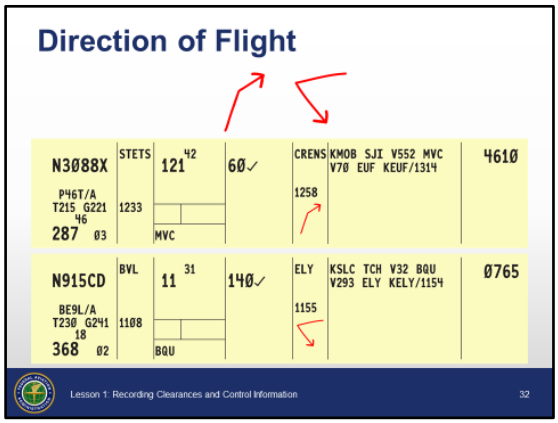


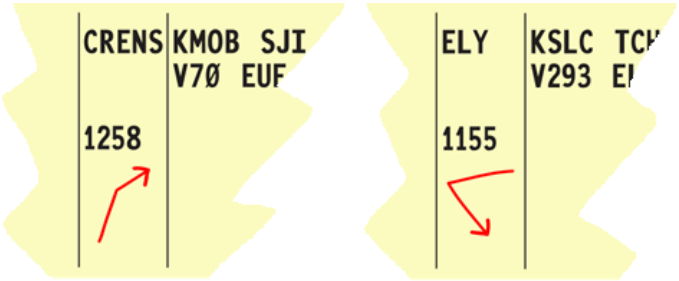
⊙ Information forwarded

- Used in any block
- Circle control information in red when forwarded

Direction of Flight

JO 7110.65, FIG 2-3-2

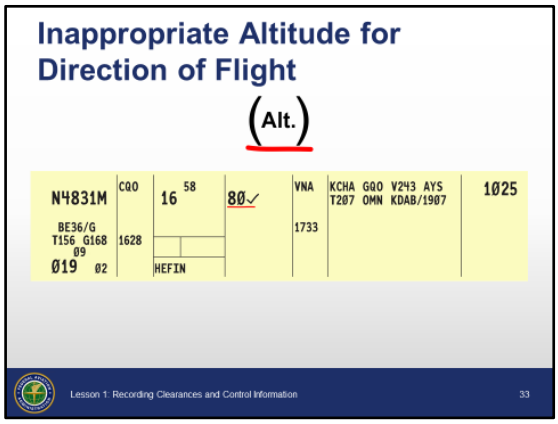


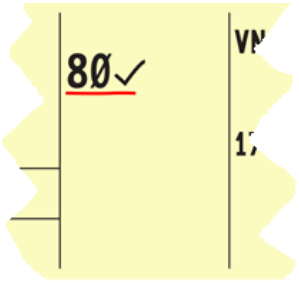


- Direction of flight
  - Used in block 23
  - Represents a generalized flight path

IAFDOF

JO 7110.65, FIG 2-3-2, FIG 2-3-7



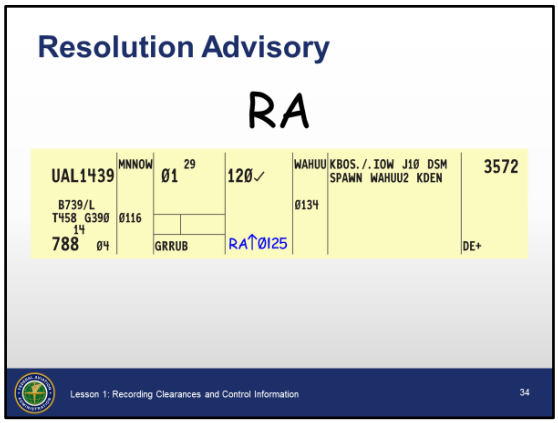


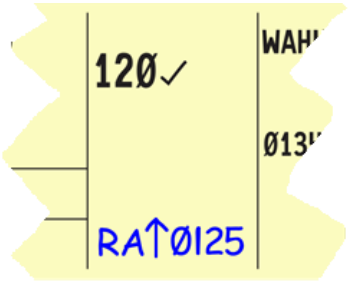
(Alt.)

- ⊙ Inappropriate Altitude for Direction of Flight (IAFDOF)
  - Used in blocks 20 or 24
    - Altitude underlined in red

Resolution Advisory

JO 7110.65, FIG 2-3-2



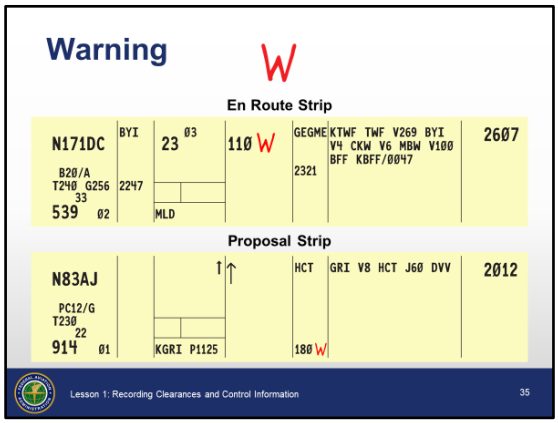


RA(Pilot Reported Maneuver and Time)

- Resolution Advisory to Traffic Alert and Collision Avoidance System (TCAS) event
  - Used in block 20a
  - RA followed by:
    - Climb or descent arrow and
    - Time event is reported

Warning

JO 7110.65, FIG 2-3-2, FIG 2-3-8

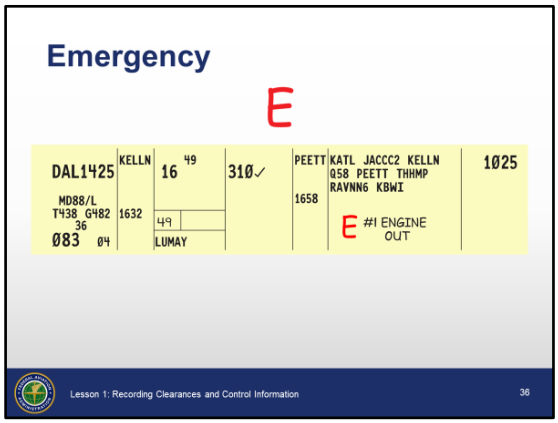


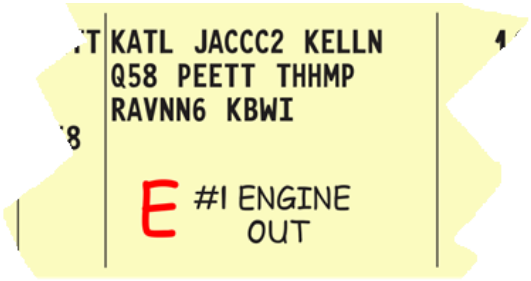
W

- Warning
  - Used in block 20 or 24 to alert controller that action must be taken
  - Usually adjacent to altitude
  - Written in red
  - If due to terrain, indicate the minimum altitude necessary for safe flight

Emergency

JO 7110.65, FIG 2-3-2, FIG 2-3-8



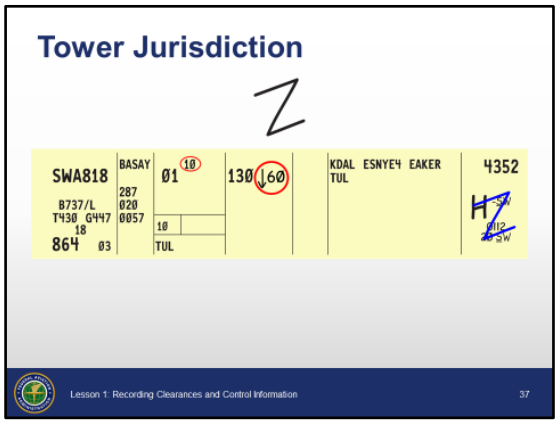


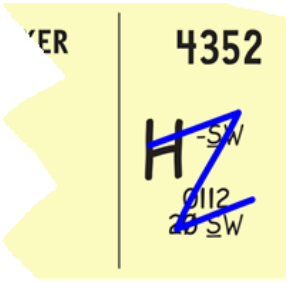
E

- Emergency
  - Used in block 26, pertinent remarks
  - Written in red
  - Note the nature of emergency

Tower Jurisdiction

JO 7110.65, FIG 2-3-2, Table 2-3-11

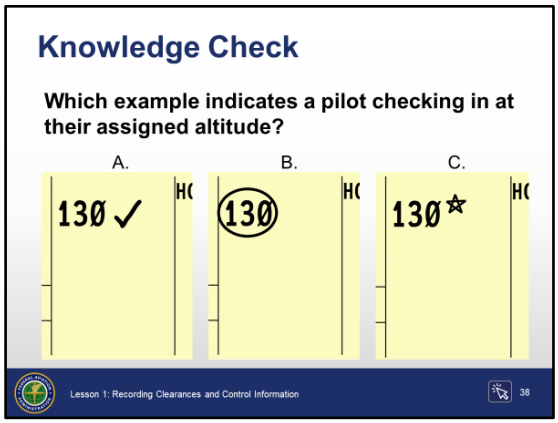




Z

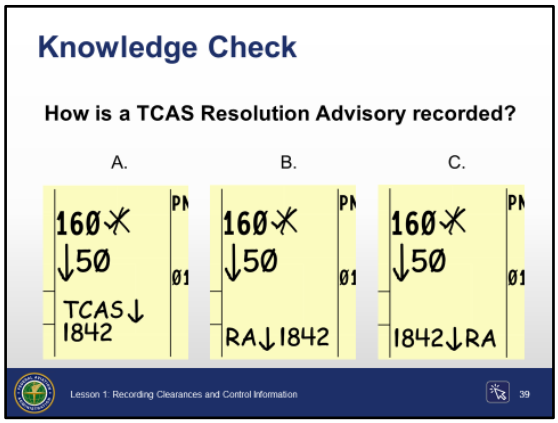
- Tower Jurisdiction
  - Used in block 28

Knowledge Check



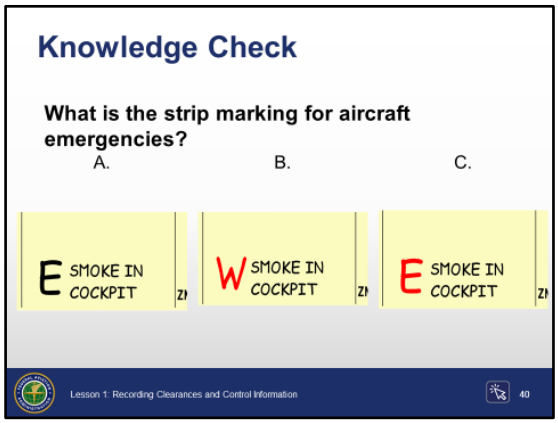
Question: Which example indicates a pilot checking in at their assigned altitude?

Knowledge Check



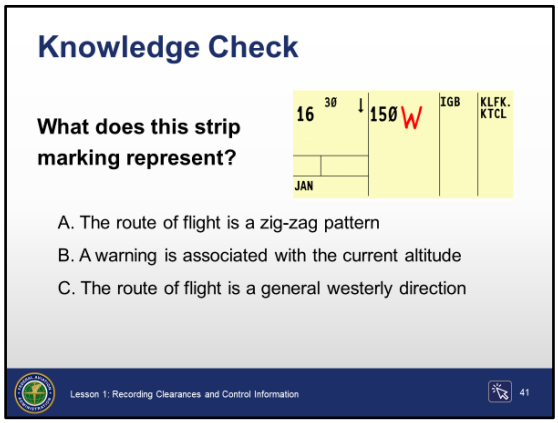
Question: How is a TCAS Resolution Advisory recorded?

Knowledge Check



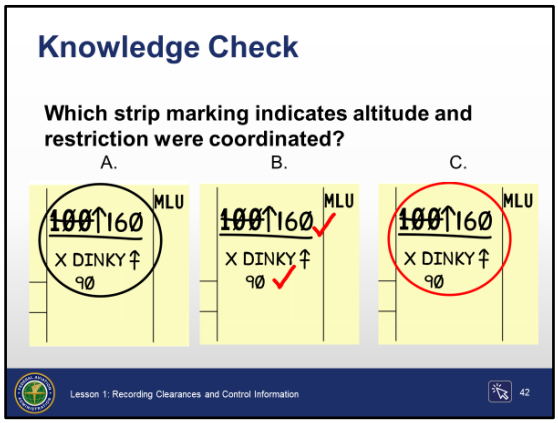
Question: What is the strip marking for aircraft emergencies?

Knowledge Check



Question: What does this strip marking represent?

Knowledge Check

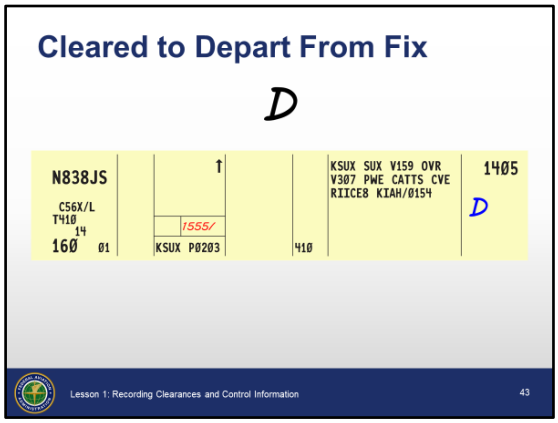


Question: Which strip marking indicates altitude and restriction were coordinated?

CLEARANCE ABBREVIATIONS

Cleared to Depart From Fix

JO 7110.65, FIG 2-3-2, par. 2-3-10, Table. 2-3-11



D

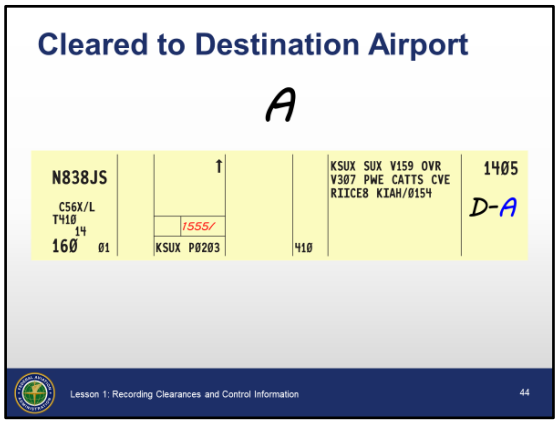
⊙ Cleared to depart from the fix

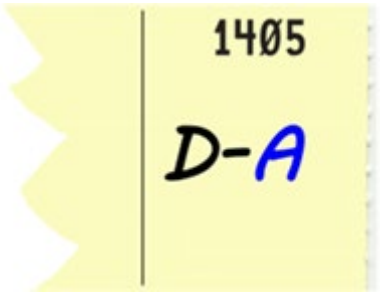
- Used in block 28 on originating IFR clearance strip only
- Departing from airport
- Airfile - Depart from fix

CLEARANCE ABBREVIATIONS *(CONT'D)*

Cleared to Destination Airport

JO 7110.65, FIG 2-3-2, Table 2-3-11





A

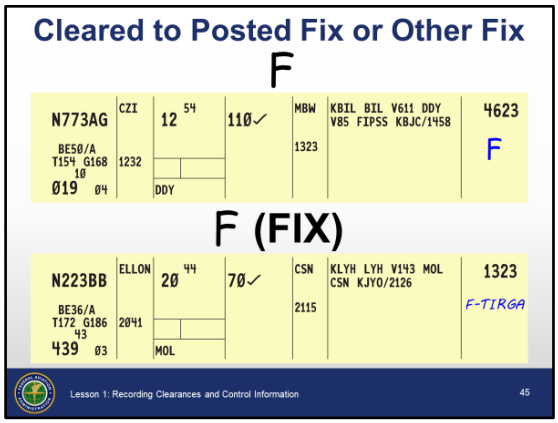
⊙ Cleared to destination airport

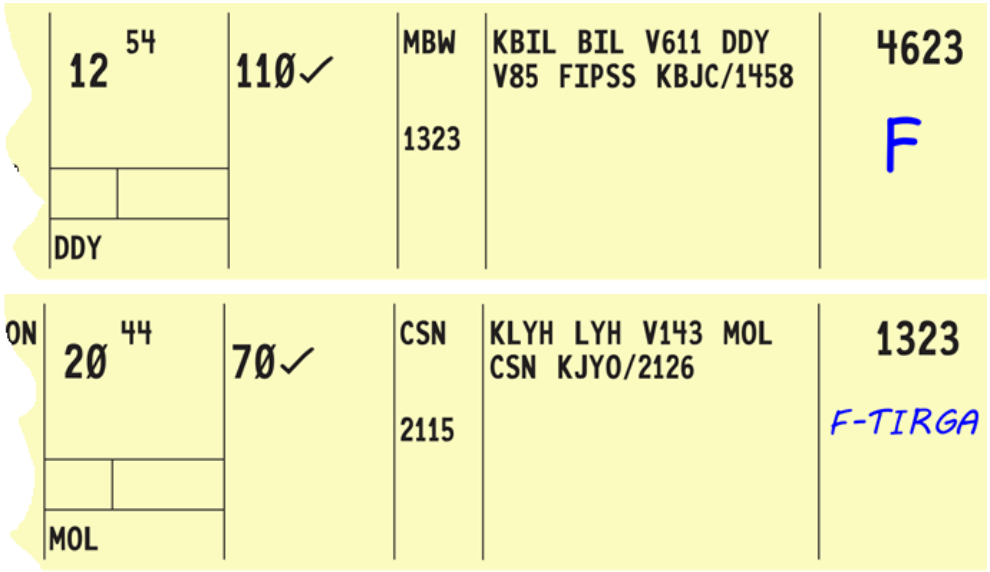
- Follows "D" in block 28

CLEARANCE ABBREVIATIONS *(CONT'D)*

Cleared to the Fix

JO 7110.65, FIG 2-3-2, Table 2-3-11





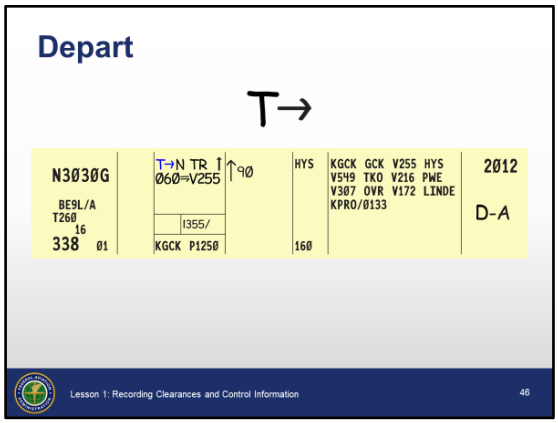
F or F (Fix)

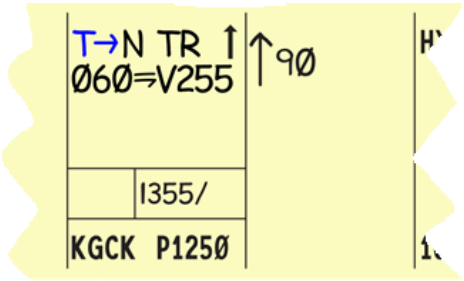
- Cleared to the fix
  - Used in block 28
  - Fix need not be recorded if:
    - The aircraft is cleared to the posted fix
  - "F" followed by a fix/waypoint when clearance limit is other than the posted fix

CLEARANCE ABBREVIATIONS *(CONT'D)*

Depart

JO 7110.65, FIG 2-3-2, FIG 2-3-7





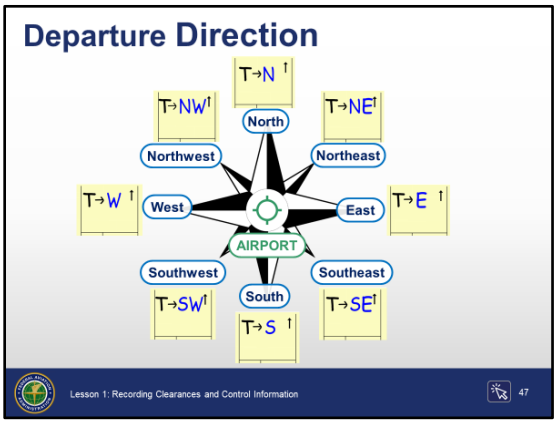
T→

- Depart
  - Used only at airports within Class D or E surface areas
  - Used in block 15 on departure strip only

CLEARANCE ABBREVIATIONS *(CONT'D)*

Departure Direction

JO 7110.65, FIG 2-3-2, FIG 2-3-7



Departure Direction

T→(Compass Point)

⊙ Departure direction

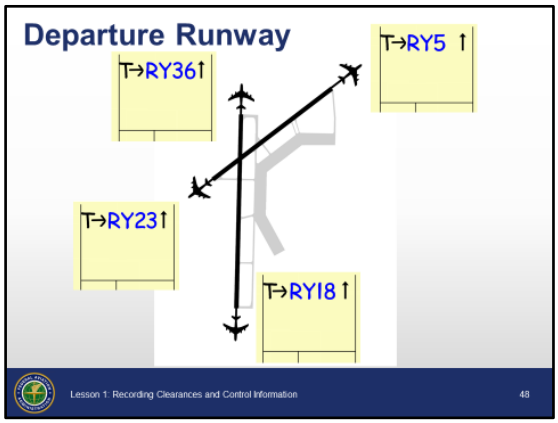
- Specify direction of departure
- Direction of departure follows **T→**
- To provide separation
- Use eight compass points

CLEARANCE ABBREVIATIONS *(CONT'D)*

Departure Runway

JO 7110.65, FIG 2-3-2, FIG 2-3-7

JO 7340.2



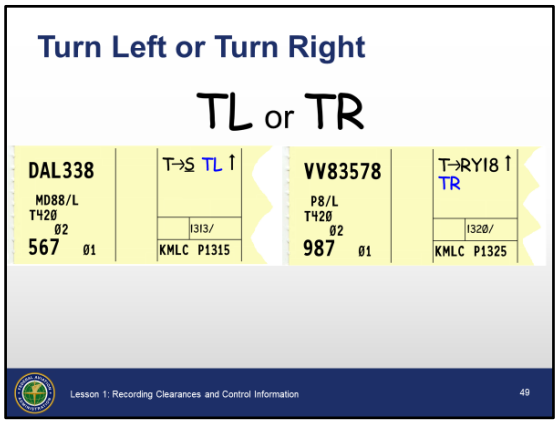
RY(Departure Runway)

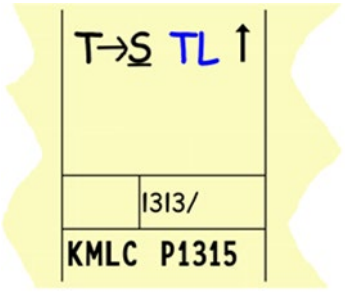
- Departure runway
  - Direction of departure follows **T→**
  - Specify the runway number

CLEARANCE ABBREVIATIONS *(CONT'D)*

Turn Left or Turn Right

JO 7110.65, FIG 2-3-2, Table 2-3-12





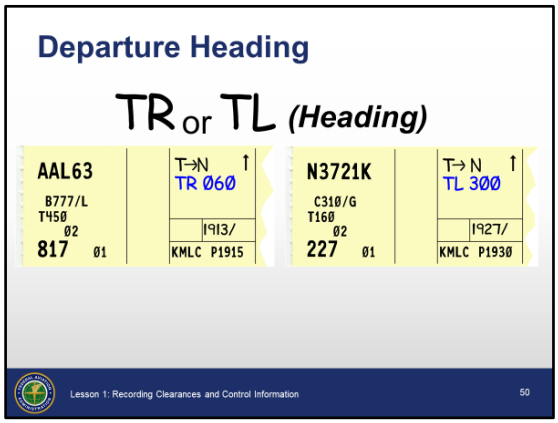
TL or TR

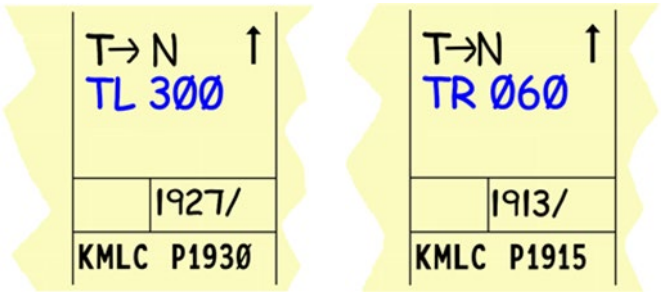
- Turn Left or Turn Right
  - Used in block 15
  - This clearance element must be followed by instructions to join a route or proceed to a NAVAID/fix/waypoint
  - Left or Right turn follows direction or runway instructions

CLEARANCE ABBREVIATIONS *(CONT'D)*

Departure Heading

JO 7110.65, FIG 2-3-2, Table 2-3-12





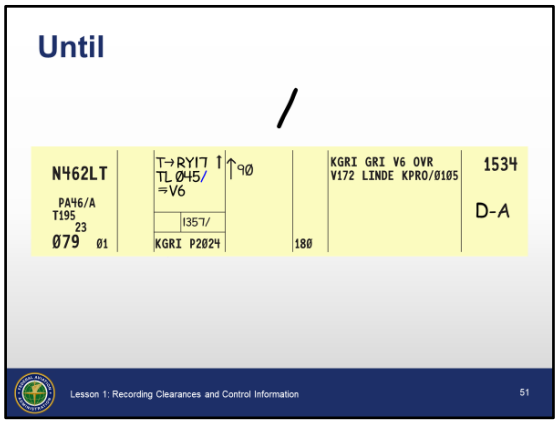
TL or TR (Heading)

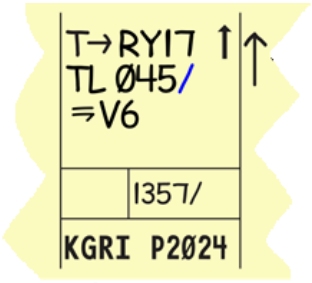
- Turn Left or Turn Right (heading)
  - Used in block 15
  - Magnetic heading to be flown:
    - 001 through 360
  - This clearance element must be followed by instructions to join a route

CLEARANCE ABBREVIATIONS *(CONT'D)*

Until

JO 7110.65, FIG 2-3-2, FIG 2-3-7





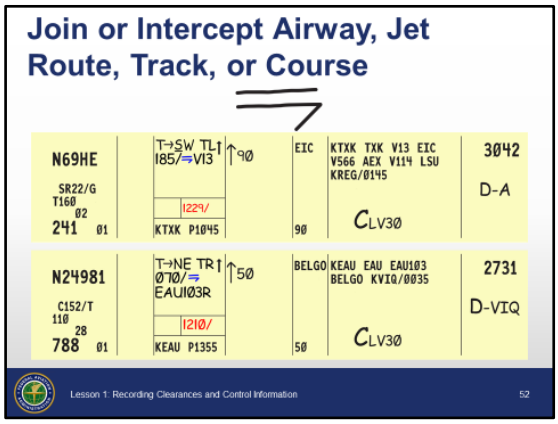
/

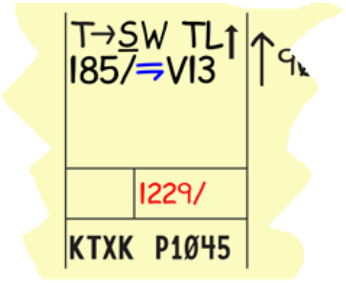
- Until
  - Used in any block
  - Follows departure instructions if a heading is specified
  - May also be used with altitude restrictions associated with (time)/(fix)

CLEARANCE ABBREVIATIONS *(CONT'D)*

Join or Intercept Airway, Jet Route, Track, or Course

JO 7110.65, FIG 2-3-2, FIG 2-3-7



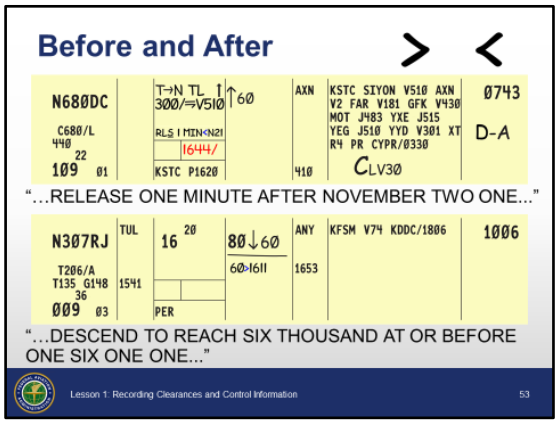


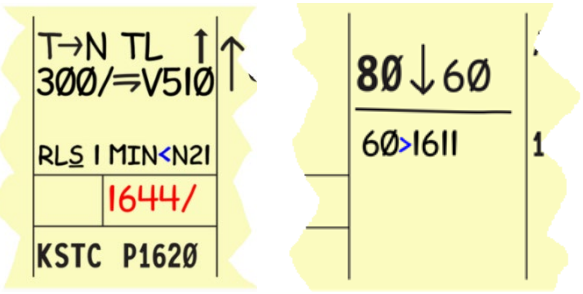
- Join or intercept airway, jet route, track, or course
  - Used in block 15 or 25
  - Typically follows "/" (until)

CLEARANCE ABBREVIATIONS *(CONT'D)*

Before and After

JO 7110.65, FIG 2-3-2, FIG 2-3-7





> <

- Before and after
  - Used in any block
  - May be used with:
    - Successive departures
    - Altitude restrictions related to time/fix

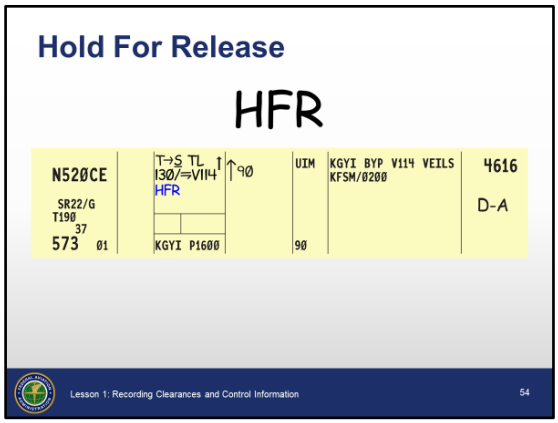
Examples: "…RELEASE ONE MINUTE AFTER NOVEMBER TWO ONE..."

"…DESCEND TO REACH SIX THOUSAND AT OR BEFORE ONE SIX ONE ONE..."

CLEARANCE ABBREVIATIONS *(CONT'D)*

Hold for Release

JO 7110.65, par. 4-3-4.b, FIG 2-3-2



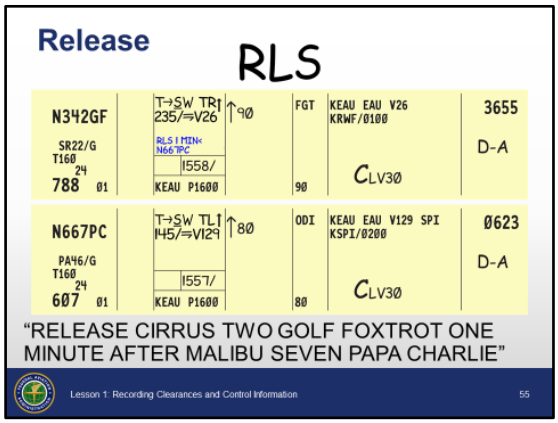
HFR

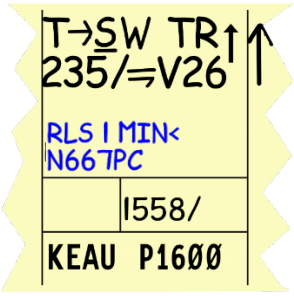
- Hold for Release
  - Used in block 15 in conjunction with departure clearances
  - HFR instructions are used to inform a pilot or a controller that a departure clearance is not valid until additional instructions are received

CLEARANCE ABBREVIATIONS *(CONT'D)*

Release

JO 7110.65, FIG 2-3-2, Table 13-1-3





RLS

- Release
  - Used in block 15 in conjunction with departure clearance
  - Issued when aircraft can be released for departure if Hold For Release was previously issued
  - May be used for successive departures with additional instructions
  - Issued to tower

Example: "RELEASE CIRRUS TWO GOLF FOXTROT ONE MINUTE AFTER MALIBU SEVEN PAPA CHARLIE"

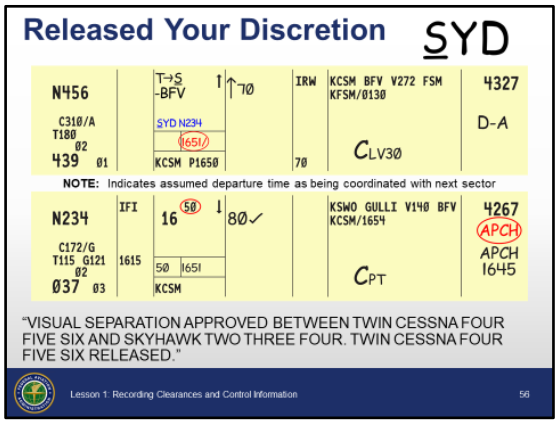
NOTE: The flight strips examples represent a traffic situation where 2 aircraft are released with a restriction for 1 minute separation for the second departure, N342GF.

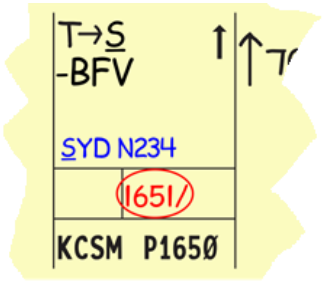
CLEARANCE ABBREVIATIONS *(CONT'D)*

Released Your Discretion

JO 7110.65, FIG 2-3-2

JO 7340.2





SYD

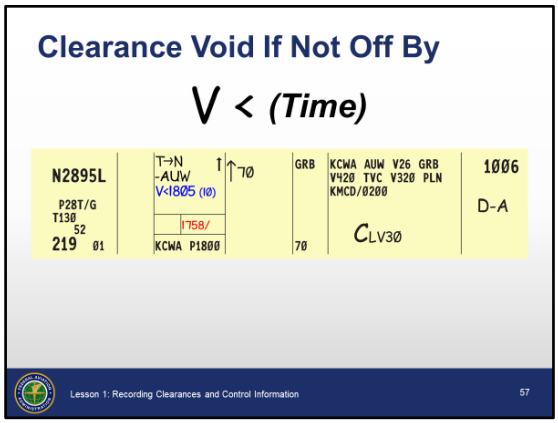
- Released Subject Your Discretion
  - Used in block 15
  - Issued to tower when using visual separation

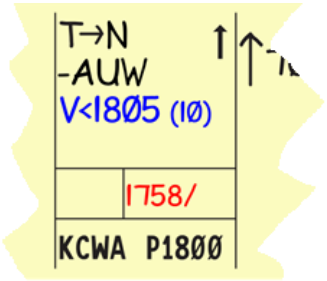
Example: "VISUAL SEPARATION APPROVED BETWEEN TWIN CESSNA FOUR FIVE SIX AND SKYHAWK TWO THREE FOUR. TWIN CESSNA FOUR FIVE SIX RELEASED."**NOTE:** The flight strip examples represent visual separation being applied by a tower with approval granted for the tower controller to release N456 when, in their judgement, they can provide separation by observing both aircraft.

CLEARANCE ABBREVIATIONS *(CONT'D)*

Clearance Void Time

JO 7110.65, FIG 2-3-2, FIG 2-3-7





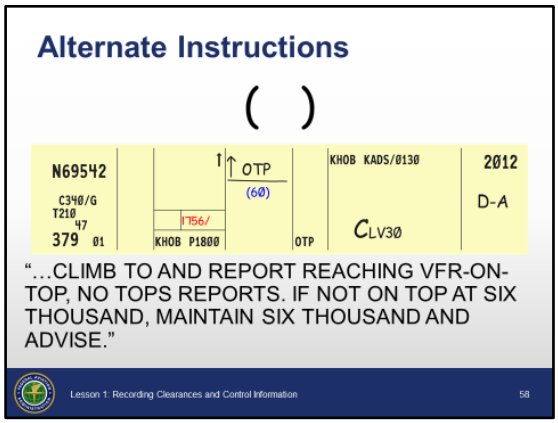
V<(Time)

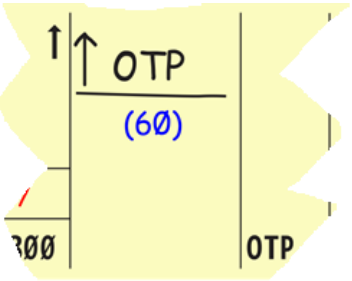
- Clearance void if aircraft not off by (time)
  - Used in block 15 followed by a time
  - Used to avoid delay for other traffic at airports:
    - Where communications with aircraft are difficult until airborne
  - Provide alternate instructions requiring pilots to advise ATC of intentions

CLEARANCE ABBREVIATIONS *(CONT'D)*

Alternate Instructions

JO 7110.65, FIG 2-3-2, FIG 2-3-7





(Alternate Instructions)

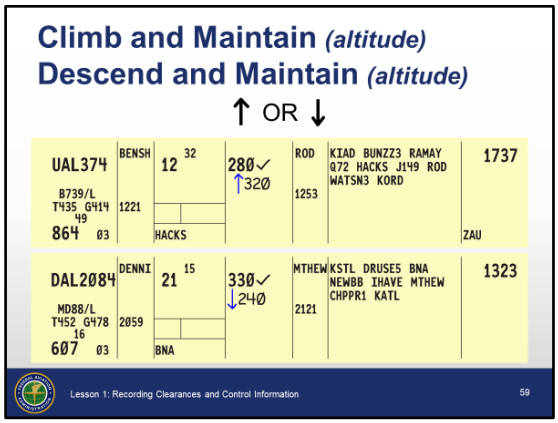
- ⊙ Alternate instructions
  - Used in any block
  - Can accompany any clearance where additional instructions may be necessary such as:
    - VFR-on-top
    - Clearance Void Time with advise ATC if not off by (time)

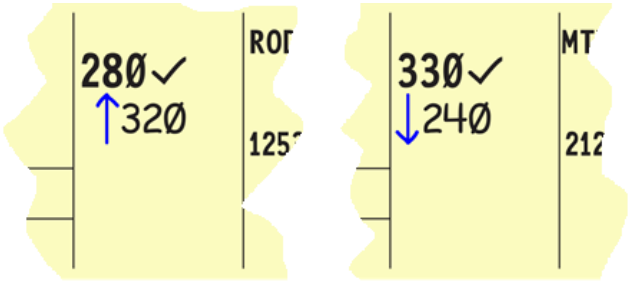
Example: "…CLIMB TO AND REPORT REACHING VFR-ON-TOP, NO TOPS REPORTS. IF NOT ON TOP AT SIX THOUSAND, MAINTAIN SIX THOUSAND AND ADVISE."

CLEARANCE ABBREVIATIONS *(CONT'D)*

Altitude Instructions Climb/ Descend

JO 7110.65, FIG 2-3-2, FIG 2-3-7





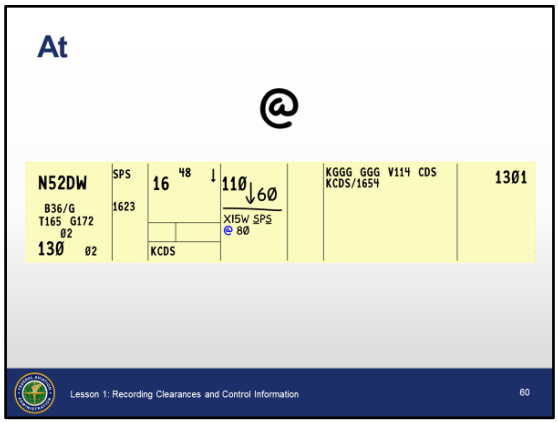
↑ ↓

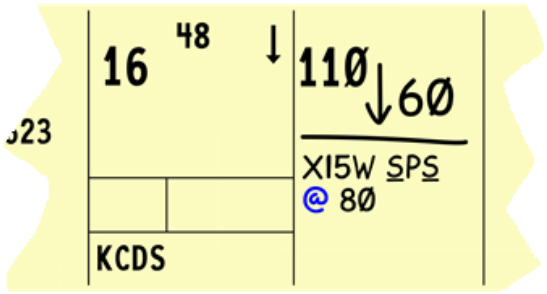
- Altitude Instructions
  - Used in block 20
    - Climb/descend and maintain arrow (altitude)

CLEARANCE ABBREVIATIONS *(CONT'D)*

At

JO 7110.65, FIG 2-3-2, FIG 2-3-7





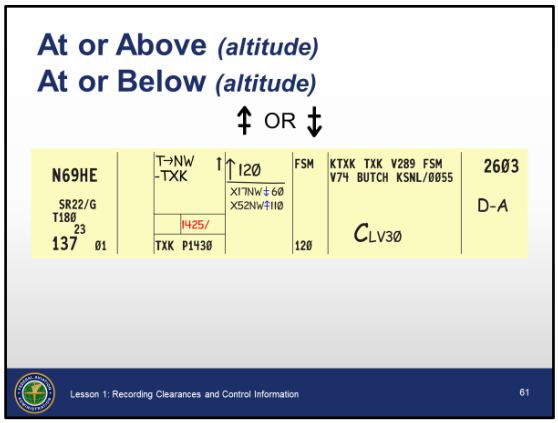
@

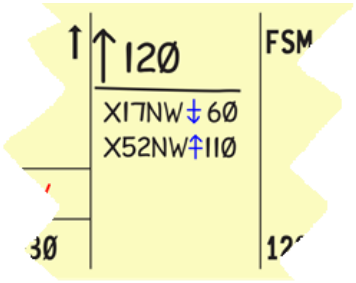
- At
  - Used in block 20
  - When a restriction occurs at a specific point
  - Usually precedes altitude/speed

CLEARANCE ABBREVIATIONS *(CONT'D)*

At or Above/Below

JO 7110.65, FIG 2-3-2, FIG 2-3-7





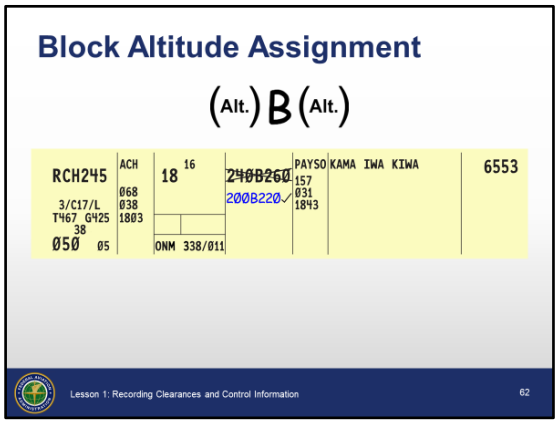
↕

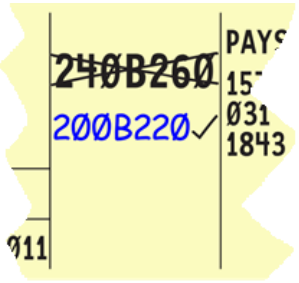
- At or above/below arrows
  - Used in block 20
  - Includes a fix/radial/airway, followed by an altitude

CLEARANCE ABBREVIATIONS *(CONT'D)*

Block Altitude Assignment

JO 7110.65, FIG 2-3-2, FIG 2-3-7





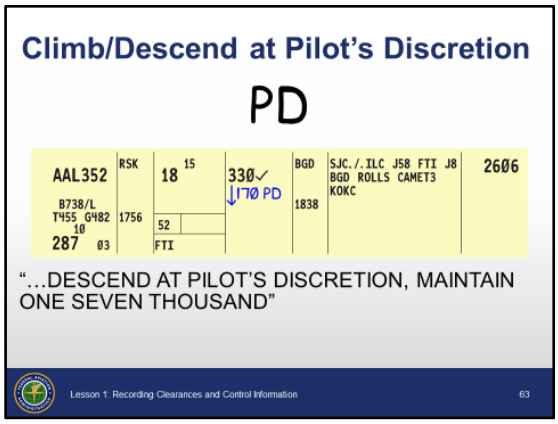
(Alt.) B (Alt.)

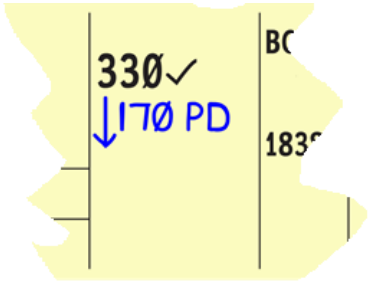
- Block altitude assignment
  - Used in block 20
  - Altitudes are inclusive
  - First altitude must be lower than the second

CLEARANCE ABBREVIATIONS *(CONT'D)*

Climb/ Descend at Pilot's Discretion

JO 7110.65, FIG 2-3-2, Table 2-3-11





PD

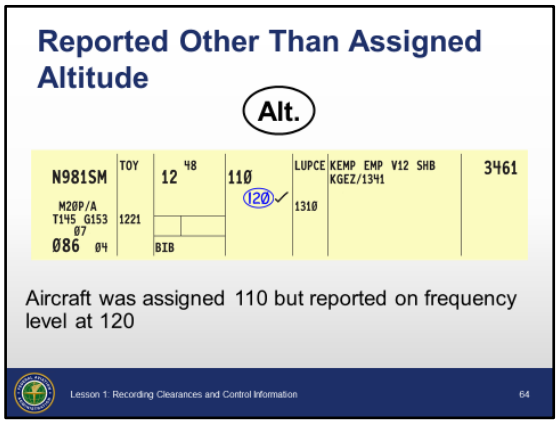
- Climb/descend at pilot's discretion
  - Used in block 20

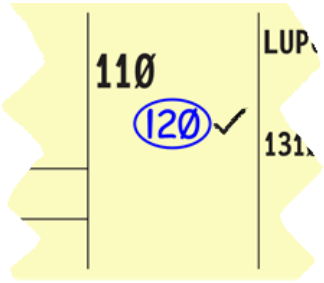
  Example: "…DESCEND AT PILOT'S DISCRETION, MAINTAIN ONE SEVEN THOUSAND"

CLEARANCE ABBREVIATIONS *(CONT'D)*

Reported Other Than Assigned Altitude

JO 7110.65, FIG 2-3-2, FIG 2-3-8





Alt.

⊙ Aircraft reported at other than assigned altitude

- Used in block 20
- Write reported altitude and circle it in black

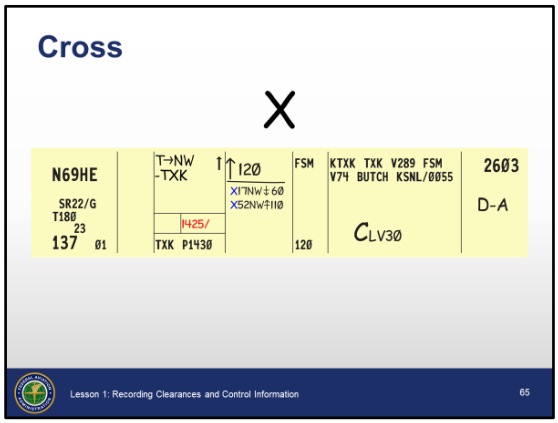
Example: Aircraft was assigned 110 but reported on frequency level at 120

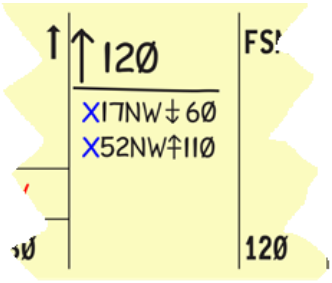
NOTE: In some cases, an aircraft may have been assigned an altitude by another controller without proper coordination.

CLEARANCE ABBREVIATIONS *(CONT'D)*

Cross

JO 7110.65, FIG 2-3-2, FIG 2-3-7, Table 2-3-11





X

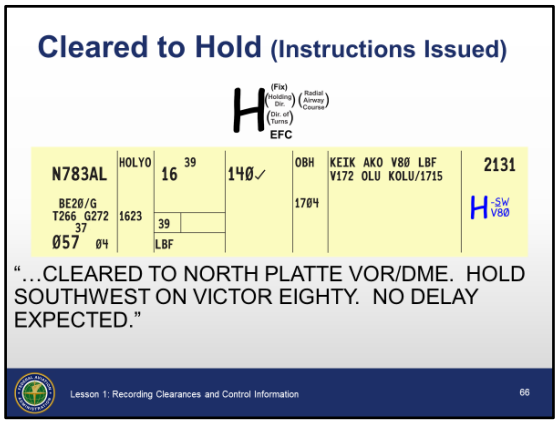
- Cross
  - Used in block 20
  - Cross a fix/radial/airway
  - Followed by a restriction

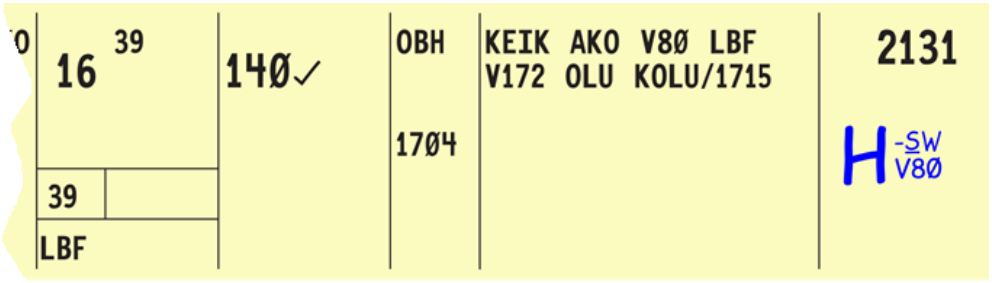
NOTE: "X" to delete unwanted altitude information appears above the restriction bar and "X" as control symbology appears below.

CLEARANCE ABBREVIATIONS *(CONT'D)*

Cleared to Hold

JO 7110.65, FIG 2-3-2, Table 2-3-11





H

⊙ Cleared to hold and instructions issued

- Used in block 28
- Followed by a dash and detailed holding instructions, including:
  - Direction from fix
  - Holding fix, if not posted fix
  - Radial, course, azimuth, or route on which aircraft will hold
  - Leg length in minutes or miles if other than standard

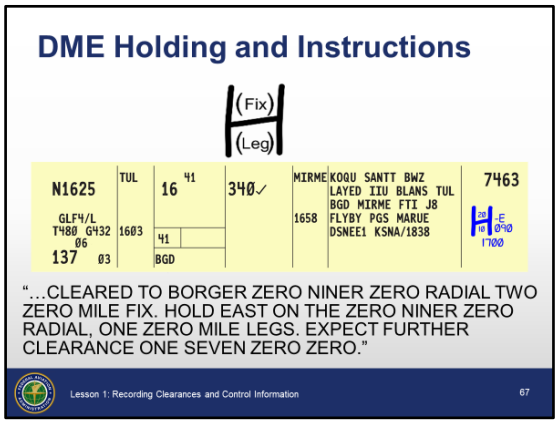
Example: "…CLEARED TO NORTH PLATTE VOR/DME. HOLD SOUTHWEST ON VICTOR EIGHTY. NO DELAY EXPECTED."

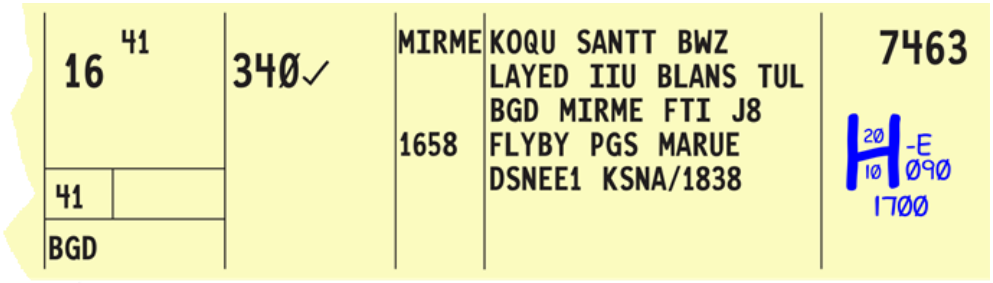
NOTE: The holding fix may be omitted if it matches the point indicated in block 19.

CLEARANCE ABBREVIATIONS *(CONT'D)*

Hold - DME Fix

JO 7110.65, FIG 2-3-2, FIG 2-3-8





⊙ DME Holding

- Used in block 28
- Upper portion of "H" indicates distance from the station to the fix
- Lower portion of "H" indicates length of holding pattern
  - Remember: legs are on the bottom, like your body
- Also, include radial, course, azimuth, or route on which aircraft will hold
- Expect Further Clearance (EFC) follows instructions

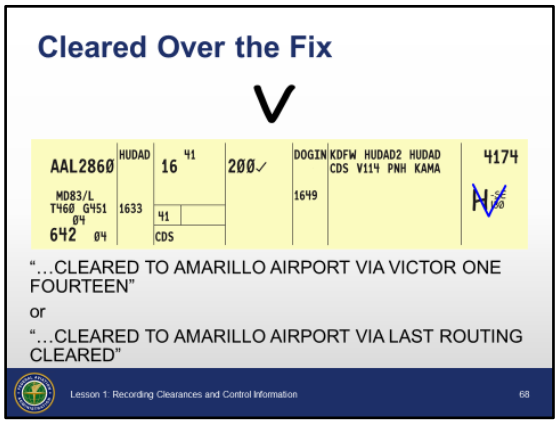
Example: "…CLEARED TO BORGER ZERO NINER ZERO RADIAL TWO ZERO MILE FIX. HOLD EAST ON THE ZERO NINER ZERO RADIAL, ONE ZERO MILE LEGS. EXPECT FURTHER CLEARANCE ONE SEVEN ZERO ZERO."

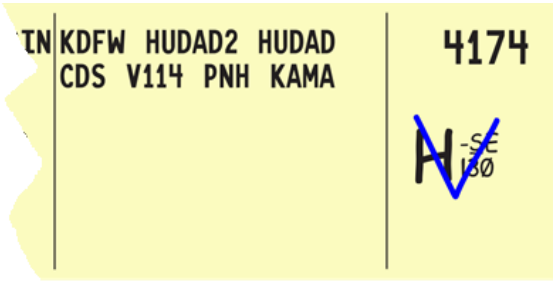
NOTE: The holding fix may be omitted if it matches the point indicated in block 19.

CLEARANCE ABBREVIATIONS *(CONT'D)*

Cleared Over the Fix

JO 7110.65, FIG 2-3-2, Table 2-3-11





V

⊙ Cleared over the fix

- Used in block 28 to mark over:
  - F - Clearance limit, or
  - H - Holding instructions
- Cancels previously issued clearance limit and holding instructions

Examples: "…CLEARED TO AMARILLO AIRPORT VIA VICTOR ONE FOURTEEN"

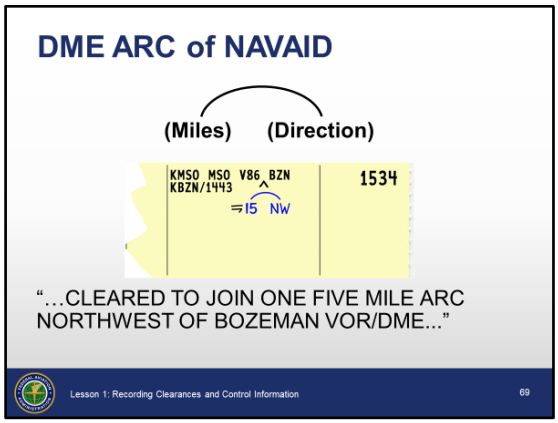
or

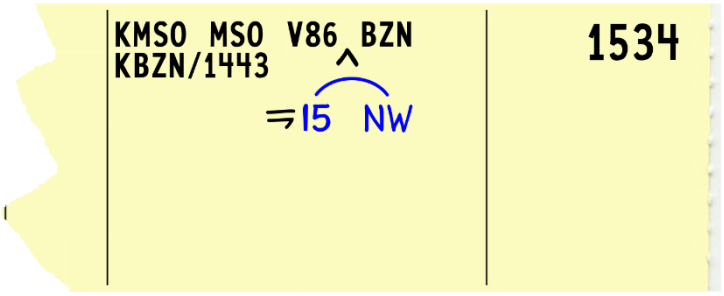
"…CLEARED TO AMARILLO AIRPORT VIA LAST ROUTING CLEARED"

CLEARANCE ABBREVIATIONS *(CONT'D)*

DME Arc of NAVAID

JO 7110.65, FIG 2-3-2, FIG 2-3-8





(Miles) (Direction)

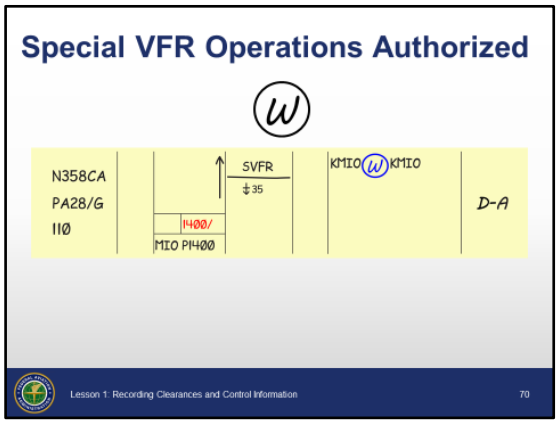
- ⊙ DME Arc
  - Used in block 25
    - Miles on left
    - Direction on right

Example: "…CLEARED TO JOIN ONE FIVE MILE ARC NORTHWEST OF BOZEMAN VOR/DME..."

CLEARANCE ABBREVIATIONS *(CONT'D)*

Special VFR Operations Authorized

JO 7110.65, FIG 2-3-2, FIG 2-3-7



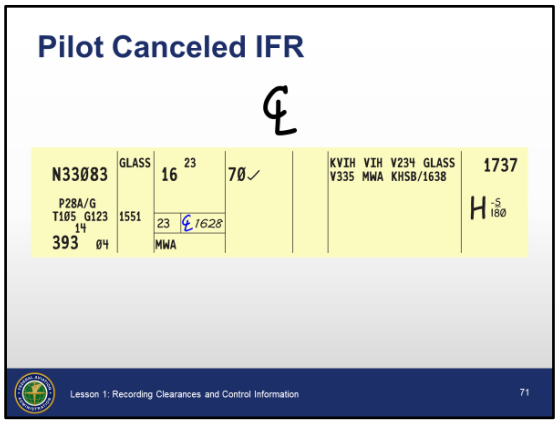
W

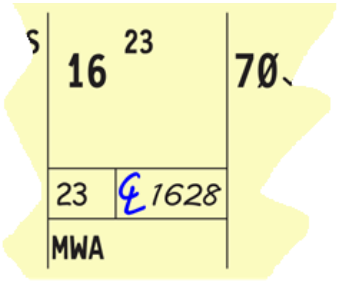
- Special VFR operations
  - Used in block 25
    - Block used may be locally adapted for each facility
  - Used to authorize local Special VFR operations in the vicinity of an airport until a specified time
    - Instruct aircraft to maintain Special VFR conditions (altitude, if appropriate)

CLEARANCE ABBREVIATIONS *(CONT'D)*

Pilot Canceled Flight Plan

JO 7110.65, FIG 2-3-2, FIG 2-3-8



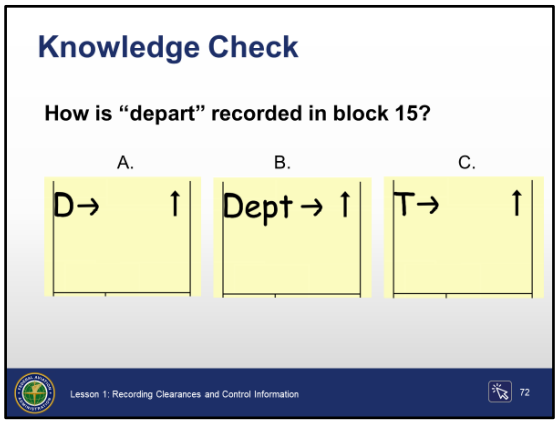


CL

- Pilot canceled flight plan
  - Used in block 18
  - Include a four-digit time

CLEARANCE ABBREVIATIONS *(CONT'D)*

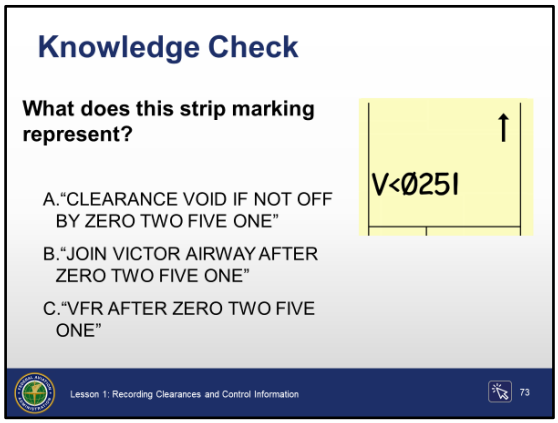
Knowledge Check



Question: How is "depart" recorded in block 15?

CLEARANCE ABBREVIATIONS *(CONT'D)*

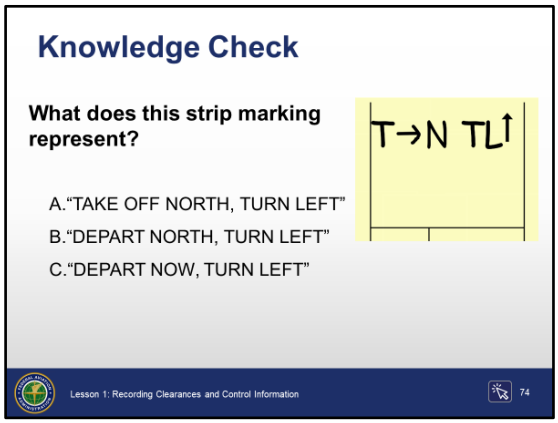
Knowledge Check



Question: What does this strip marking represent?

CLEARANCE ABBREVIATIONS *(CONT'D)*

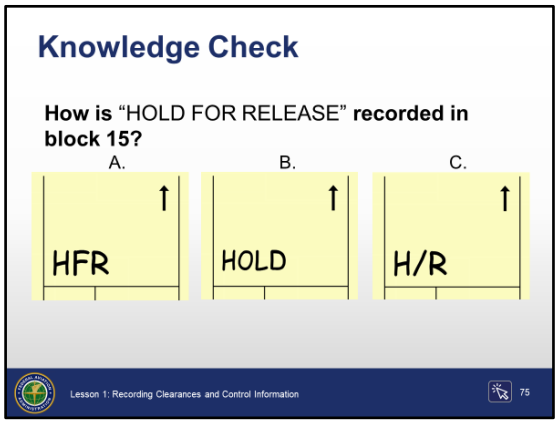
Knowledge Check



Question: What does this strip marking represent?

CLEARANCE ABBREVIATIONS *(CONT'D)*

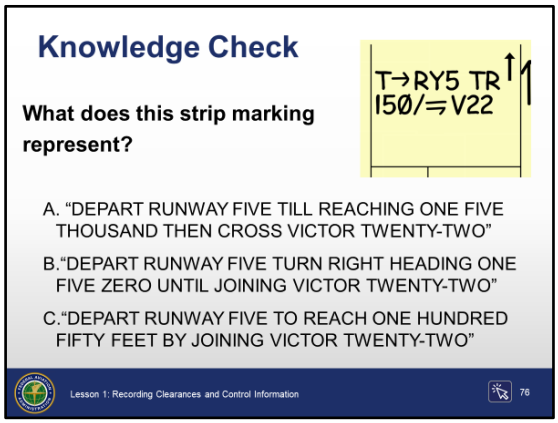
Knowledge Check



Question: How is "HOLD FOR RELEASE" recorded in block 15?

CLEARANCE ABBREVIATIONS *(CONT'D)*

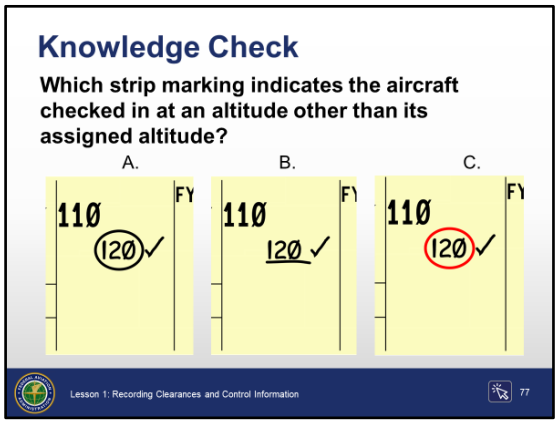
Knowledge Check



Question: What does this strip marking represent?

CLEARANCE ABBREVIATIONS *(CONT'D)*

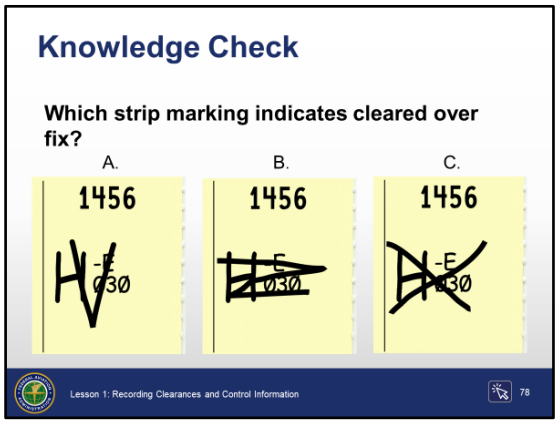
Knowledge Check



Question: Which strip marking indicates the aircraft checked in at an altitude other than its assigned altitude?

CLEARANCE ABBREVIATIONS *(CONT'D)*

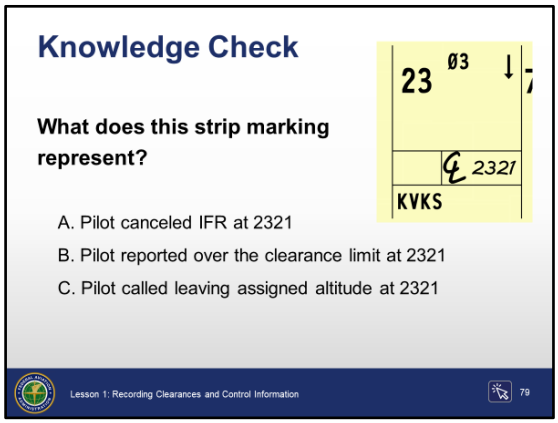
Knowledge Check



Question: Which strip marking indicates cleared over fix?

CLEARANCE ABBREVIATIONS *(CONT'D)*

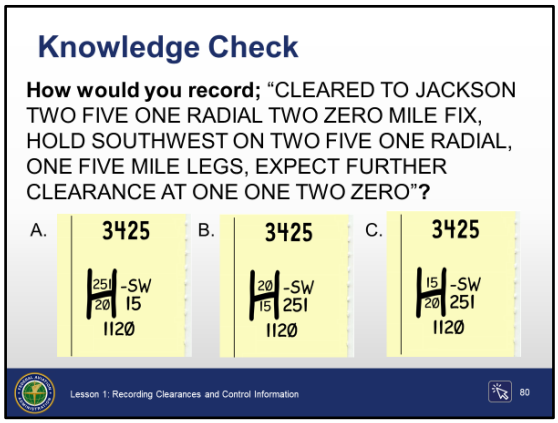
Knowledge Check



Question: What does this strip marking represent?

CLEARANCE ABBREVIATIONS *(CONT'D)*

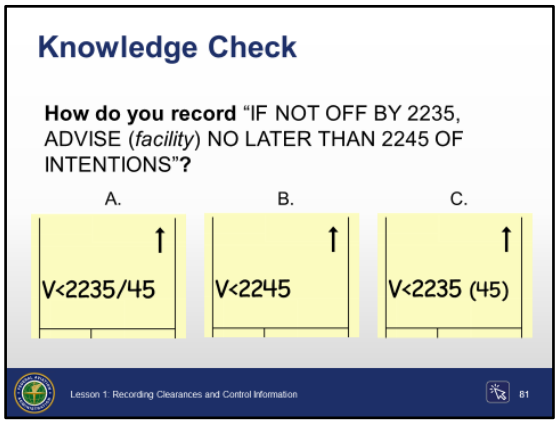
Knowledge Check



Question: How would you record: "CLEARED TO JACKSON TWO FIVE ONE RADIAL TWO ZERO MILE FIX, HOLD SOUTHWEST ON TWO FIVE ONE RADIAL, ONE FIVE MILE LEGS, EXPECT FURTHER CLEARANCE AT ONE ONE TWO ZERO"?

CLEARANCE ABBREVIATIONS *(CONT'D)*

Knowledge Check



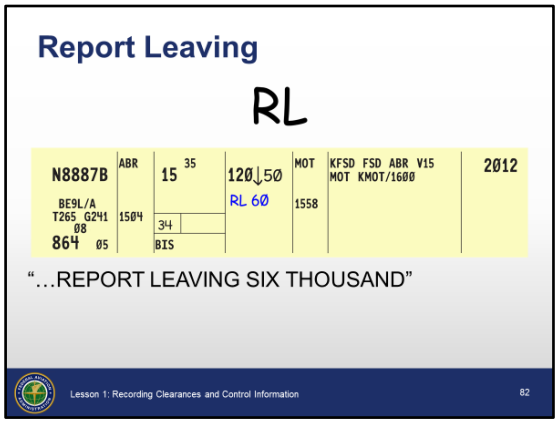
Question: How do you record: "IF NOT OFF BY 2235, ADVISE (facility) NO LATER THAN 2245 OF INTENTIONS"?

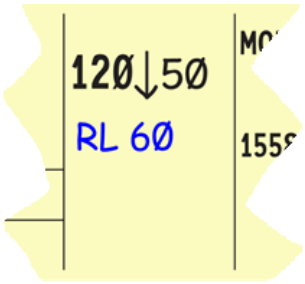
MISCELLANEOUS ABBREVIATIONS

Report Leaving

JO 7110.65, FIG 2-3-2

JO 7340.2





RL

- Report Leaving
  - Used in block 20
  - With altitude reports

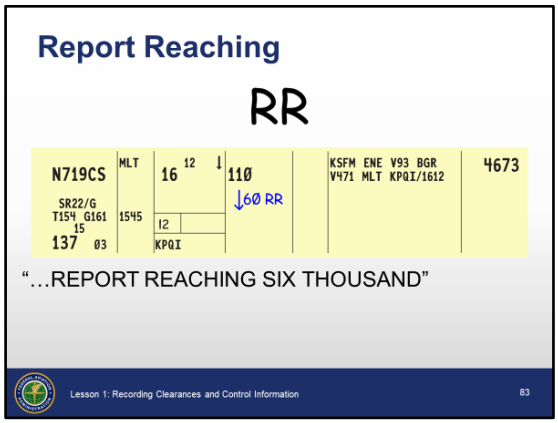
  Example: "…REPORT LEAVING SIX THOUSAND"

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

Report Reaching

JO 7110.65, FIG 2-3-2

JO 7340.2



RR

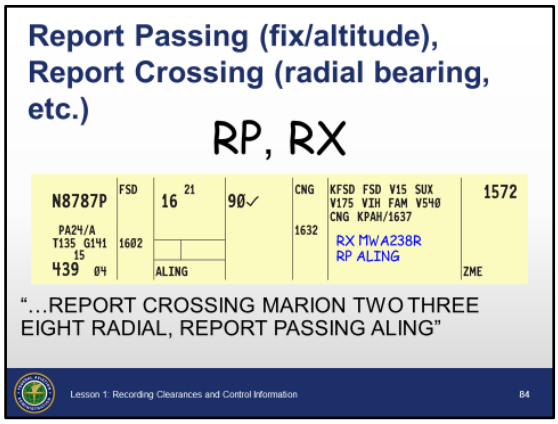
- Report Reaching
  - Used in block 20
  - With altitude reports

  Example: "…REPORT REACHING SIX THOUSAND"

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

Report Passing, Report Crossing

JO 7110.65, FIG 2-3-2, Table 2-3-12



RP, RX

- Report Passing, Report Crossing
  - Used in block 26
  - With fix, radial, or DME reports

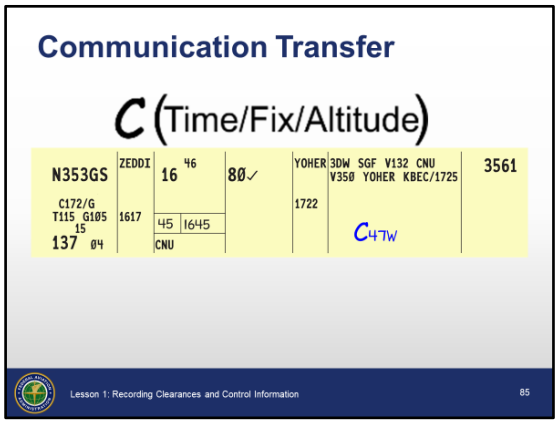
  Example: "…REPORT CROSSING MARION TWO THREE EIGHT RADIAL, REPORT PASSING ALING"

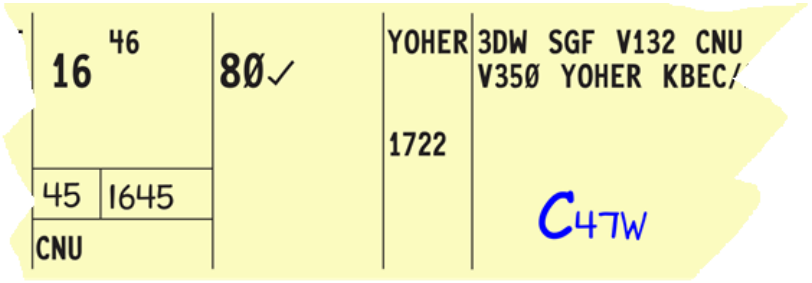
  NOTE: When the report is received, record the time.

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

Communications Transfer

JO 7110.65, FIG 2-3-2, FIG 2-3-8





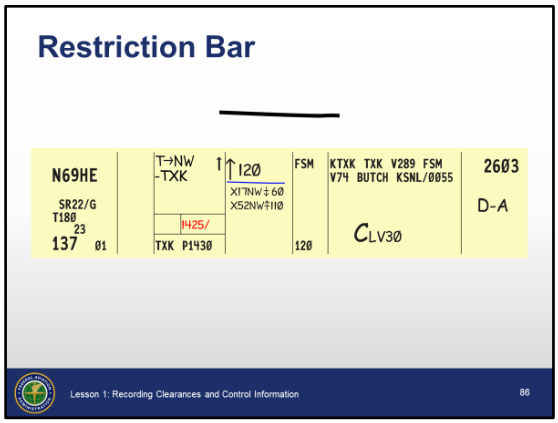
C (Time/Fix/Altitude)

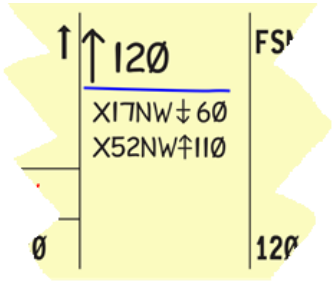
- Communications transfer
  - Used in block 26
    - Include time, fix, or altitude, unless compliance is expected upon receipt
  - Insert frequency when other than standard
    - Unless covered in an LOA, frequency is assigned when clearance is issued through:
      - FSS
      - Tower

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

Restriction Bar

JO 7110.65, FIG 2-3-2, FIG 2-3-7

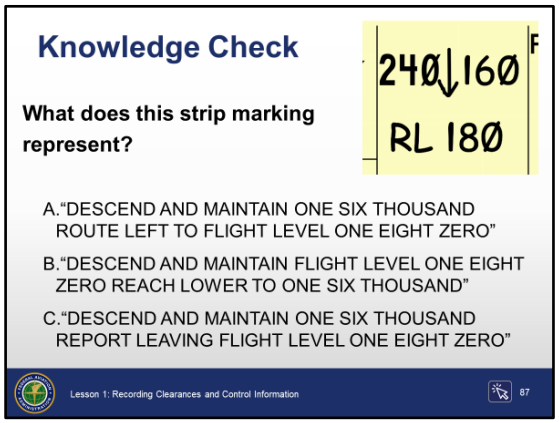




- Restriction bar
  - Used in block 20
  - Separates altitude assignments from altitude restrictions
  - Restrictions modify how to get to assigned altitude

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

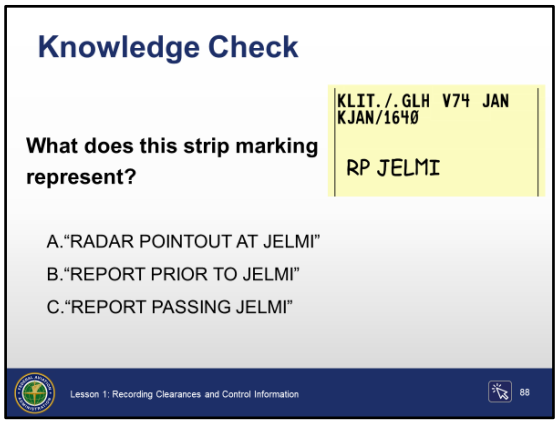
Knowledge Check



Question: What does this strip marking represent?

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

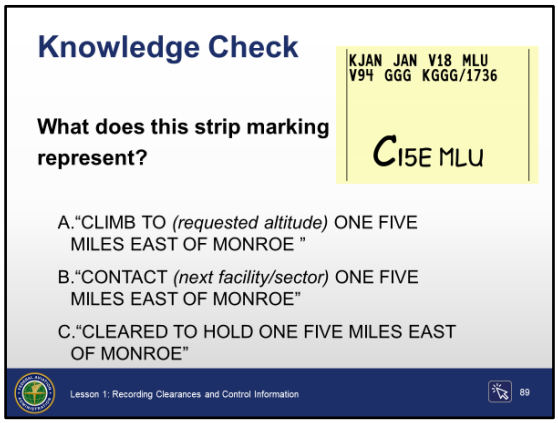
Knowledge Check



Question: What does this strip marking represent?

MISCELLANEOUS ABBREVIATIONS *(CONT'D)*

Knowledge Check



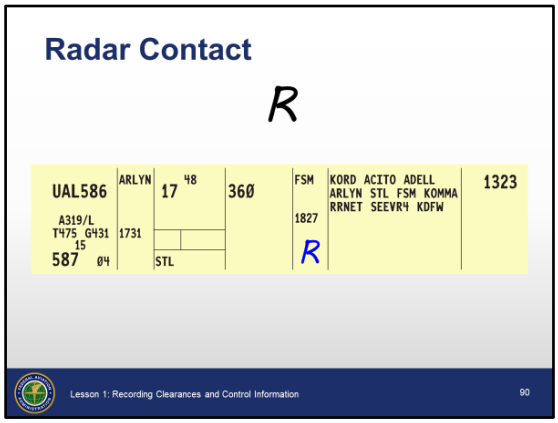
Question: What does this strip marking represent?

CONTROL INFORMATION SYMBOLS

Radar Contact

JO 7110.65, FIG 2-3-2, FIG 2-3-8

JO 7210.3, par. 6-1-6



R

⊙ Radar contact

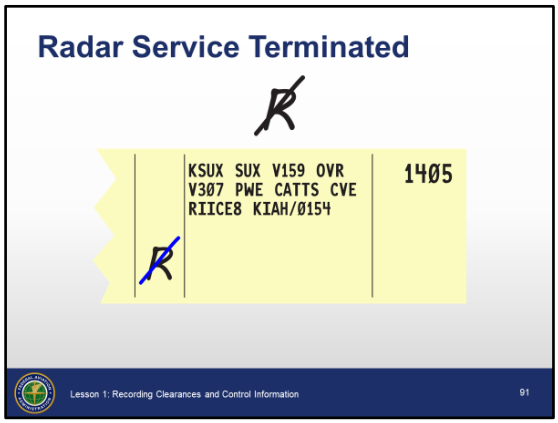
- Used in block 24
- Block may be locally adapted for each facility

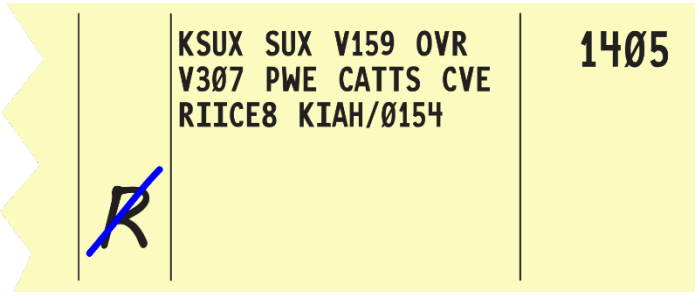
NOTE: Facility air traffic managers may authorize the optional use of block 13, 14, 14a, 22, 23, 24, or 28 for transfer of control data.

CONTROL INFORMATION SYMBOLS *(CONT'D)*

Radar Service Terminated

JO 7110.65, FIG 2-3-2, FIG 2-3-8





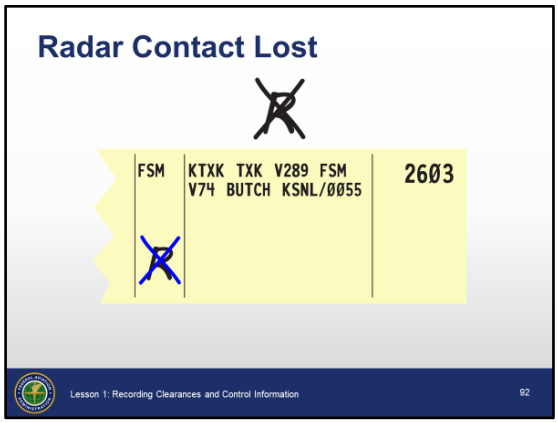
⊙ Radar service terminated

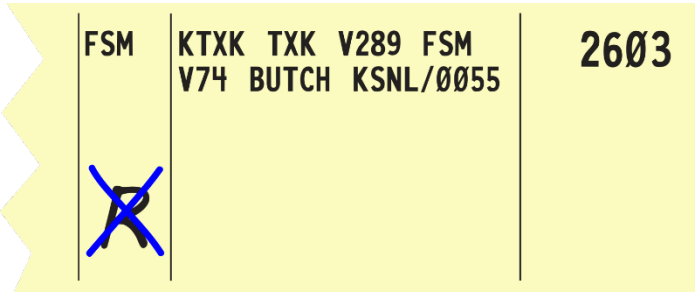
- Place a slash through the R

CONTROL INFORMATION SYMBOLS *(CONT'D)*

Radar Contact Lost

JO 7110.65, FIG 2-3-2, FIG 2-3-8





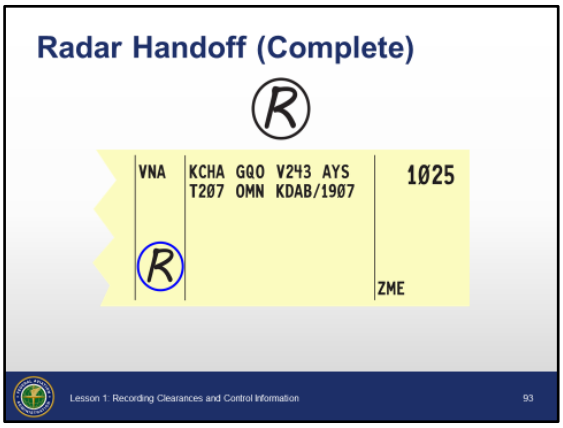
⊙ Radar contact lost

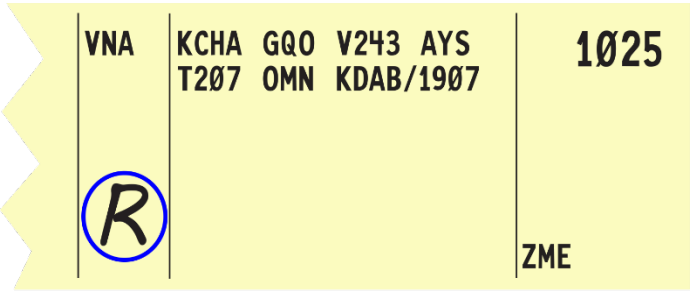
- Used in block 24
- Place an X over the R
- Possibly caused by:
  - Terrain
  - Radar outage
  - Transponder failure

CONTROL INFORMATION SYMBOLS *(CONT'D)*

Radar Handoff Complete

JO 7110.65, FIG 2-3-2, FIG 2-3-8





Ⓡ

⊙ Radar handoff complete

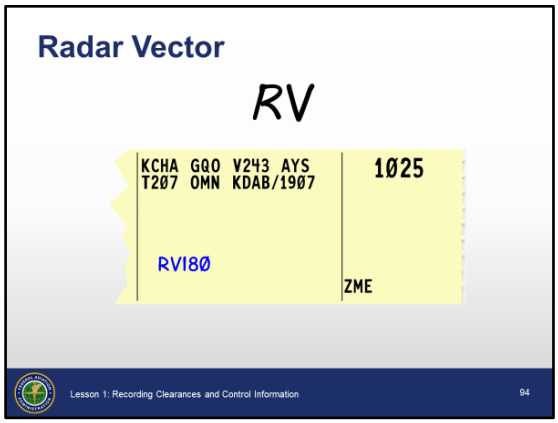
- Circle R in black when handoff is completed

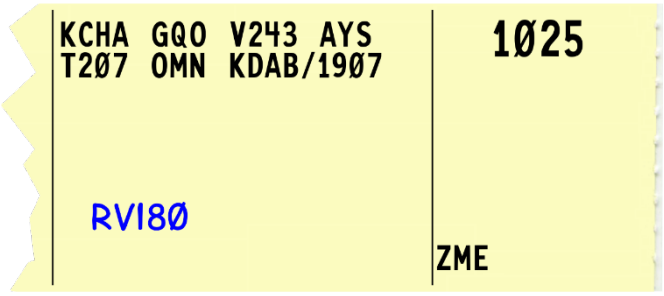
CONTROL INFORMATION SYMBOLS *(CONT'D)*

Radar Vector

JO 7110.65, Table 2-3-1, FIG 2-3-2, FIG 2-3-8

JO 7210.3, par. 6-1-6





RV

⊙ Radar vector

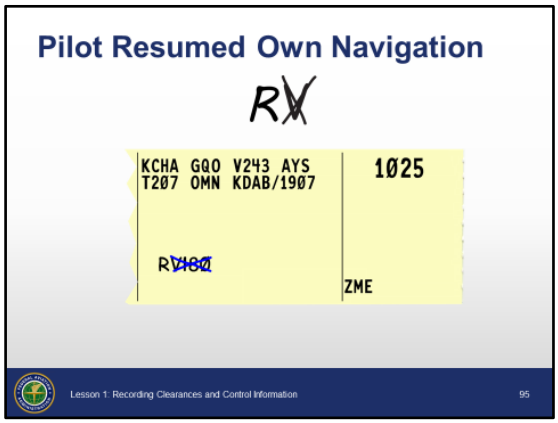
- Used when assigning a vector to an aircraft
- Assigned heading follows the V

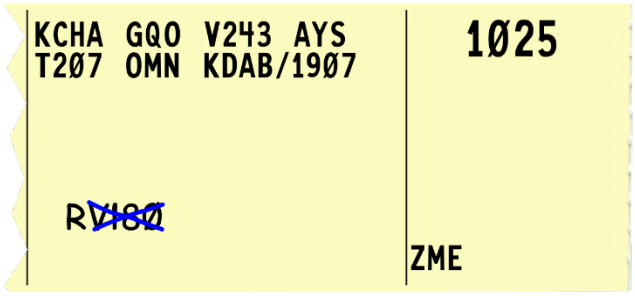
NOTE: Facility air traffic managers may authorize the optional use of block 13, 14, 14a, 22, 23, 24, or 28 for radar vector information.

CONTROL INFORMATION SYMBOLS *(CONT'D)*

Pilot Resumed Own Navigation

JO 7110.65, FIG 2-3-2, FIG 2-3-8





⊙ Pilot resumed own navigation

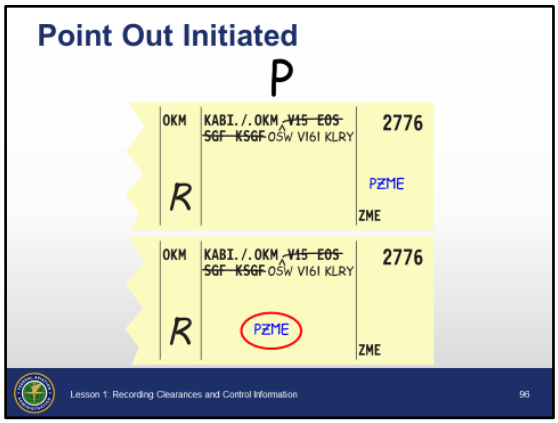
- Cross out "V" and heading when the aircraft has returned to its own navigation

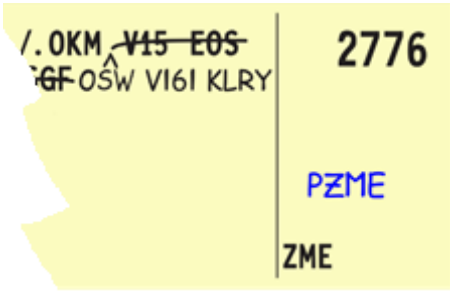
CONTROL INFORMATION SYMBOLS *(CONT'D)*

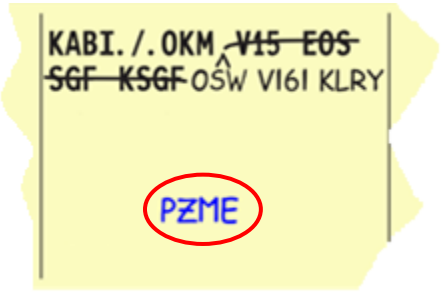
Point Out Initiated

JO 7110.65, FIG 2-3-2, FIG 2-3-8

JO 7210.3, par. 6-1-6







P(Facility/Sector)

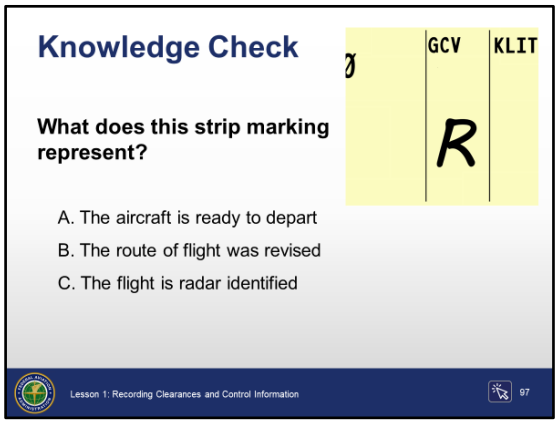
- Point out initiated
  - Used in block 26
    - May be locally adapted
    - Indicate facility, sector, or position to which aircraft is pointed out
    - Circle in red when point out is completed

NOTE: The caret symbol (**^**) indicates inserted route elements.

NOTE: Facility air traffic managers may authorize the optional use of block 13, 14, 14a, 22, 23, 24, or 28 for point out information.

CONTROL INFORMATION SYMBOLS *(CONT'D)*

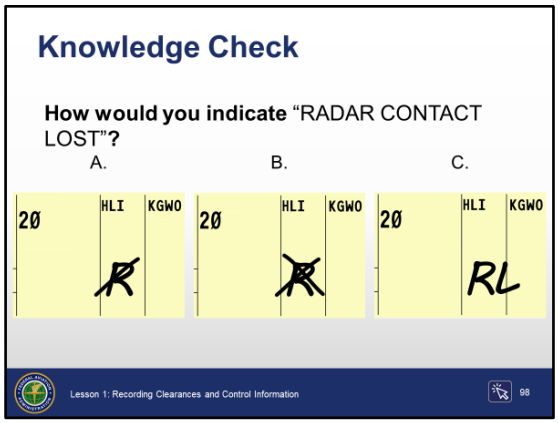
Knowledge Check



Question: What does this strip marking represent?

CONTROL INFORMATION SYMBOLS *(CONT'D)*

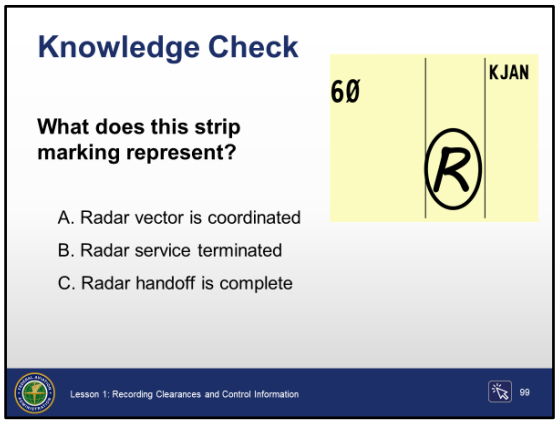
Knowledge Check



Question: How would you indicate "RADAR CONTACT LOST"?

CONTROL INFORMATION SYMBOLS *(CONT'D)*

Knowledge Check



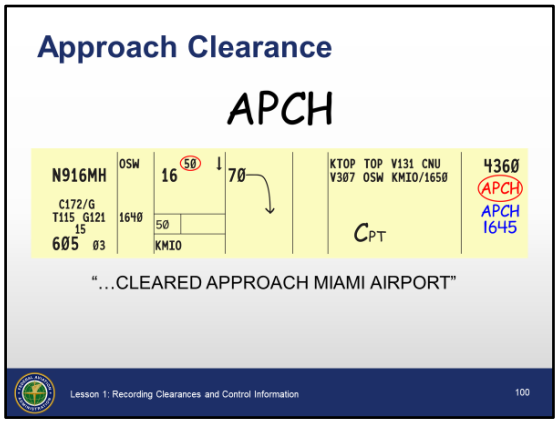
Question: What does this strip marking represent?

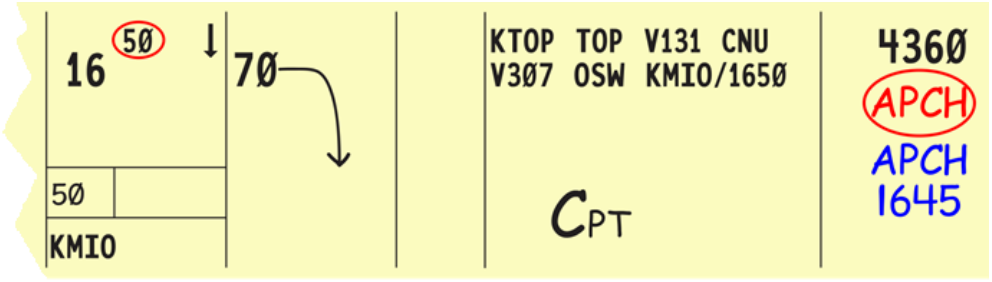
APPROACH ABBREVIATIONS

Approach Information

JO 7110.65, FIG 2-3-2

JO 7340.2





APCH

- Approach Clearance
  - Used in block 28
    - Write and circle in red when coordinated
    - Write in black when aircraft is cleared for approach
    - Include runway, if needed
    - Including four-digit time when aircraft was cleared for approach
  - Implies pilot may execute approach of his/her choice

Example: "…CLEARED APPROACH MIAMI AIRPORT"

Continued on next page

APPROACH ABBREVIATIONS *(CONT'D)*

Approach Information (Cont'd)

JO 7110.65, Table 2-3-12

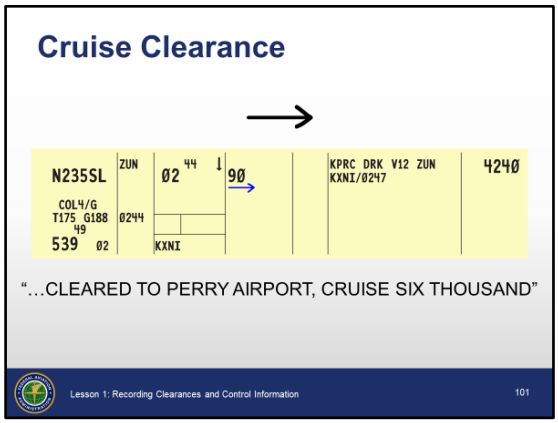
JO 7340.2

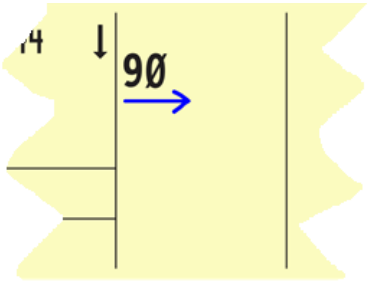
- The following specific approach procedure abbreviations are entered in block 28:
  - CT - Contact approach
  - TA - TACAN approach
  - GPS - GPS approach
  - RNAV - RNAV approach
  - VR - VOR approach
  - ILS - ILS approach
  - SI - Straight-in approach
  - NDB - Nondirectional radio beacon approach
  - VA - Visual approach
- The following approach segment abbreviations are entered where appropriate:
  - Used when the pilot reports position(s) during the approach
  - I - Initial approach
  - PT - Procedure turn
  - FAF - Final approach fix
  - FA - Final approach
  - MA - Missed approach
- You may need additional reports to provide separation
  - If requested, record in block 26
  - When pilot reports position, mark the time next to the request

APPROACH ABBREVIATIONS *(CONT'D)*

Cruise Clearance

JO 7110.65, FIG 2-3-2, FIG 2-3-7





→

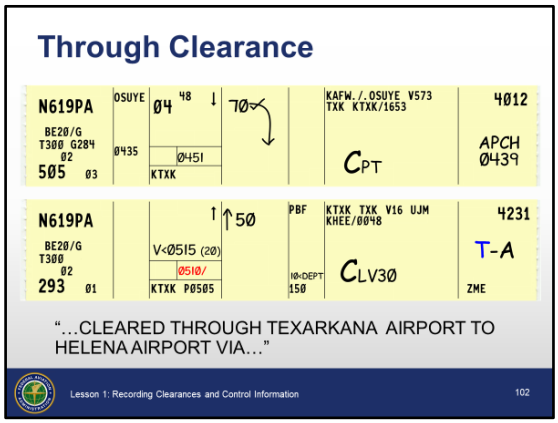
- ⊙ Cruise Clearance
  - Used in block 20
  - Also clears the aircraft for approach

  Example: "…CLEARED TO PERRY AIRPORT, CRUISE NINER THOUSAND"

APPROACH ABBREVIATIONS *(CONT'D)*

Through Clearance

JO 7110.65, pars. FIG 2-3-2, 4-2-6, Table 2-3-11



T

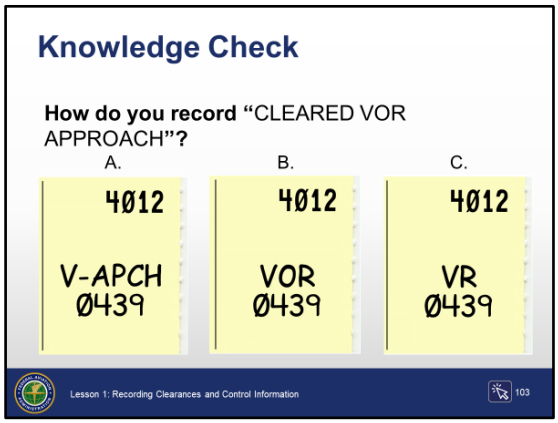
⊙ Through Clearance

- Used in block 28
- You may clear an aircraft through intermediate stops
- Typically follows an approach clearance

Example: "…CLEARED THROUGH TEXARKANA AIRPORT TO HELENA AIRPORT VIA…"

APPROACH ABBREVIATIONS *(CONT'D)*

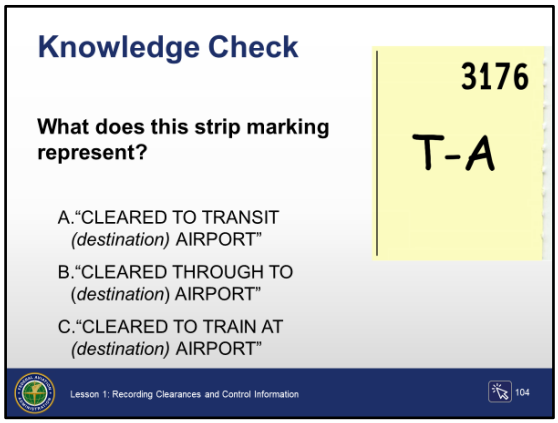
Knowledge Check



Question: How do you record "CLEARED VOR APPROACH"?

APPROACH ABBREVIATIONS *(CONT'D)*

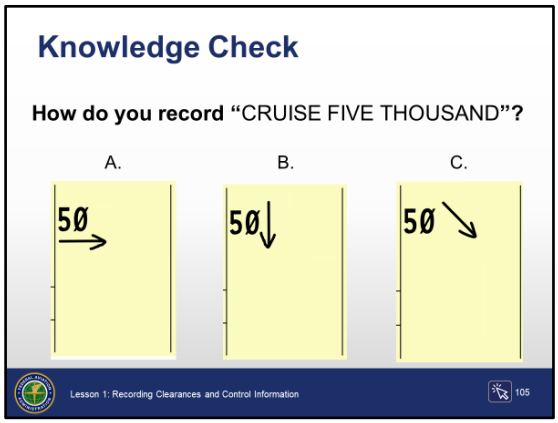
Knowledge Check



Question: What does this strip marking represent?

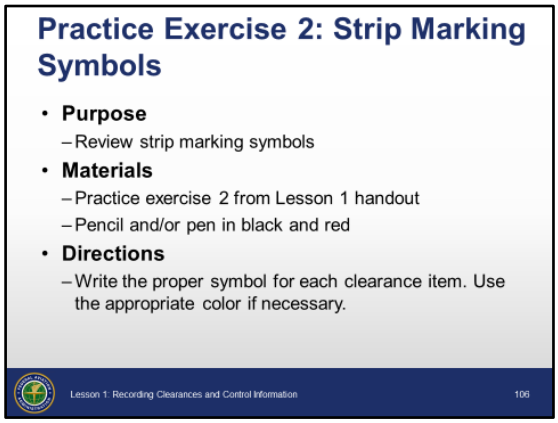
APPROACH ABBREVIATIONS *(CONT'D)*

Knowledge Check



Question: How do you record "CRUISE FIVE THOUSAND"?

PRACTICE EXERCISE 2: STRIP MARKING SYMBOLS



Purpose

Review strip marking symbols

Materials

Handout*:*

- Practice exercise 2 from Lesson 1 handout
- Pencil and/or pen in black and red

Directions

This exercise takes approximately 30 minutes to complete. Write the proper symbol for each clearance item. Use the appropriate color if necessary.

Continued on next page

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PRACTICE EXERCISE 2: STRIP MARKING SYMBOLS
(CONT'D)

1. At or above _____
2. Alternate instruction _____
3. IAFDOF altitude _____
4. Clearance void _____
5. Depart _____
6. Cruise _____
7. Aircraft reported at assigned altitude _____
8. Until _____
9. Direction of flight indicator _____
10. Communications transfer _____
11. Join/intercept _____
12. At or below _____
13. Emergency _____
14. Restriction bar _____
15. Information forwarded _____
16. Radar contact _____
17. Report at other than assigned altitude _____
18. Radar handoff completed _____
19. Pilot canceled flight plan _____
20. Cross _____

PRACTICE EXERCISE 2: STRIP MARKING SYMBOLS
(CONT'D)

21.	Radar Service Terminated	_____
22.	Local SVFR	_____
23.	Radar Vector	_____
24.	Before	_____
25.	Radar Contact Lost	_____
26.	Point Out Initiated	_____
27.	Pilot Resumed Own Navigation	_____
28.	Block Altitude Assignment	_____
29.	After	_____
30.	Arc	_____
31.	Warning	_____

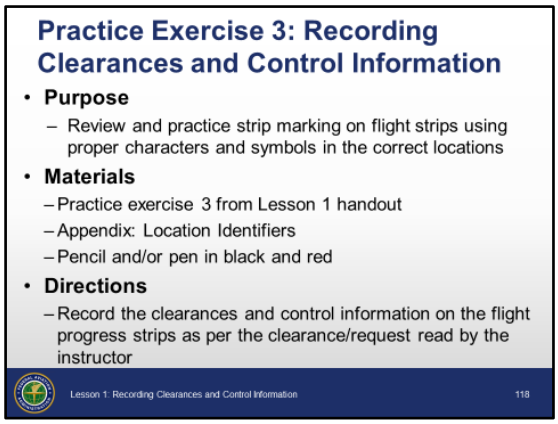
PRACTICE EXERCISE 2: STRIP MARKING SYMBOLS
(CONT'D)

Exercise Review	The instructor will review Exercise 2 answers.

PRACTICE EXERCISE 2: STRIP MARKING SYMBOLS
(CONT'D)

Exercise Review (Cont'd)	The instructor will continue review of Exercise 2 answers.

PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION



Purpose

Review and practice strip marking on flight strips using proper characters and symbols in the correct locations

Materials

Handout:

- Practice exercise 3 from Lesson 1 handout
- Appendix: Location Identifiers
- Pencil and/or pen in black and red

Directions

This exercise takes approximately 30 minutes to complete. Record the clearances and control information on the flight progress strips as per the clearance/request read by the instructor.

Continued on next page

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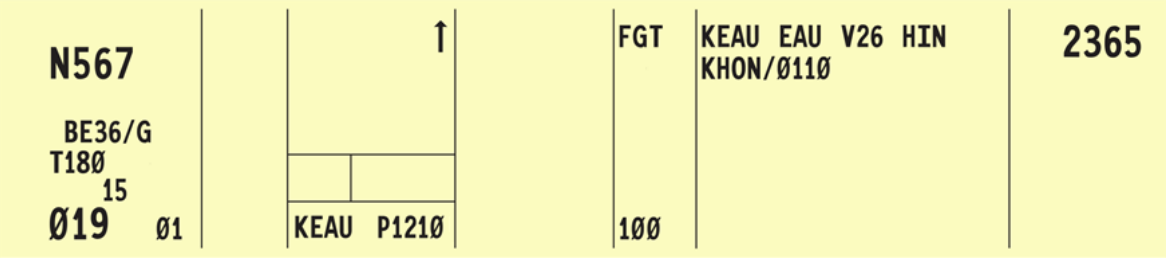
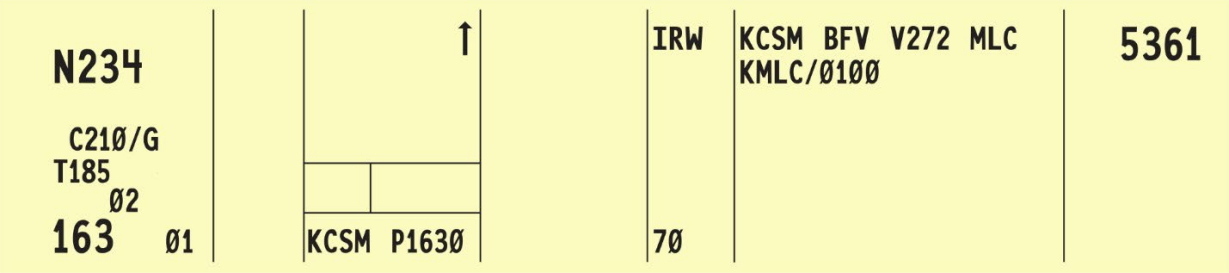
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

1.



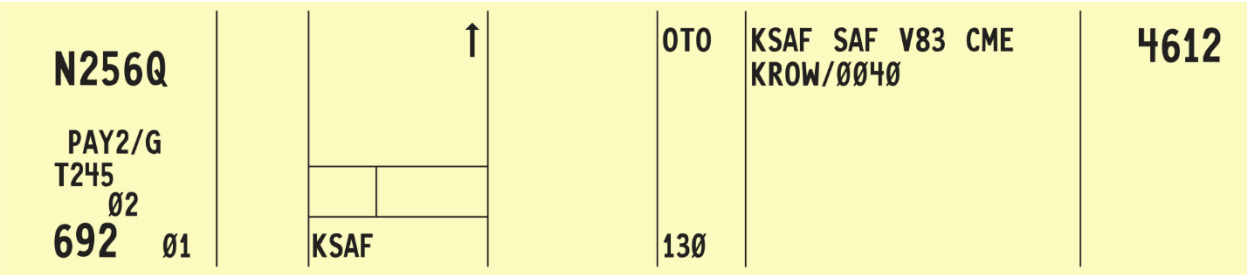
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

2.



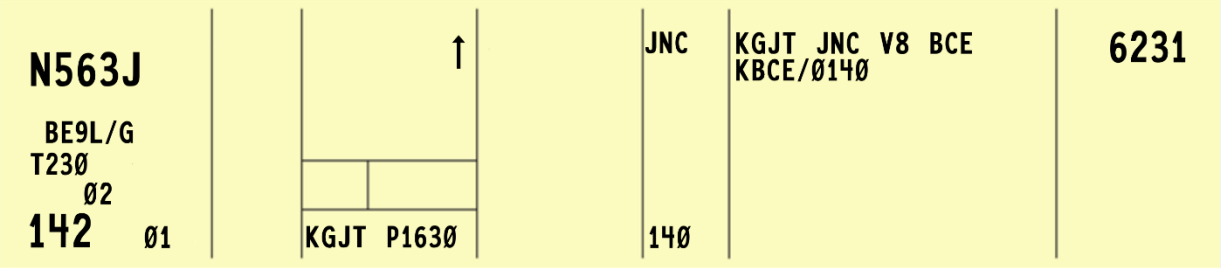
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

3.



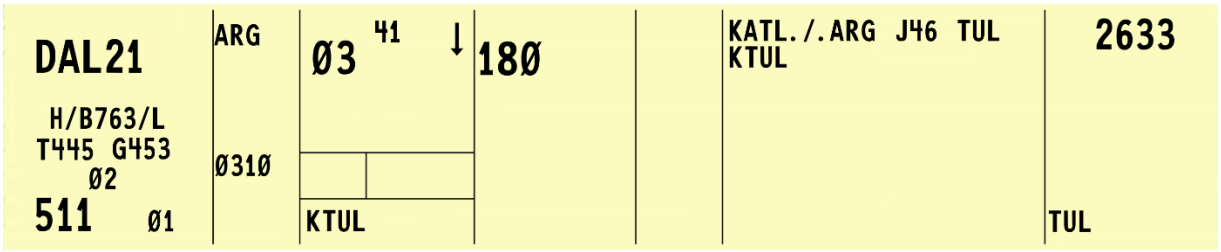
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

4.



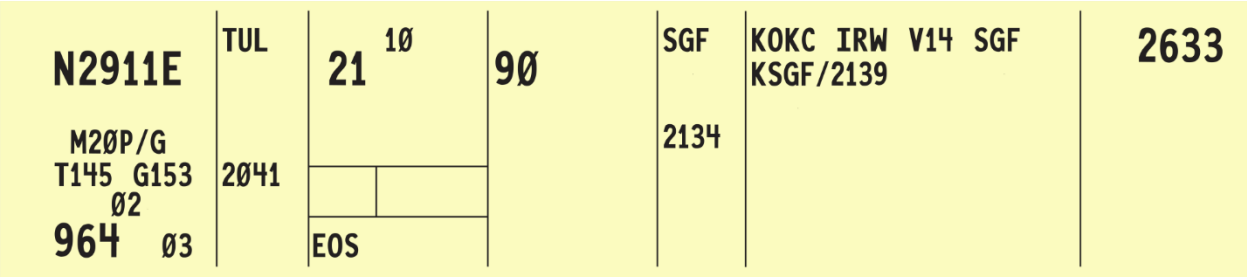
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

5.



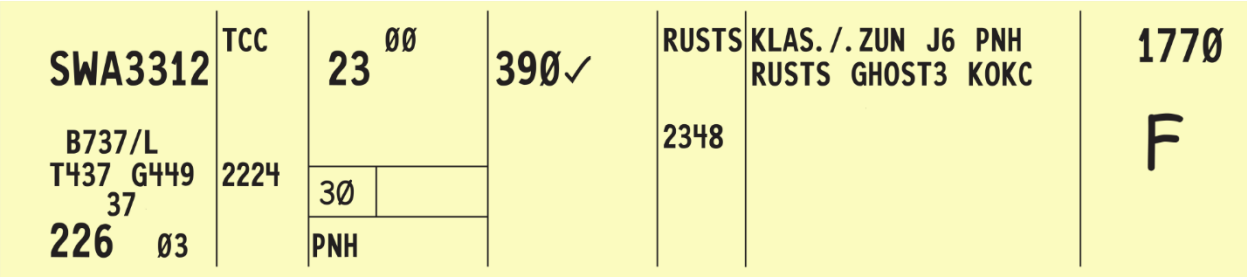
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

6.



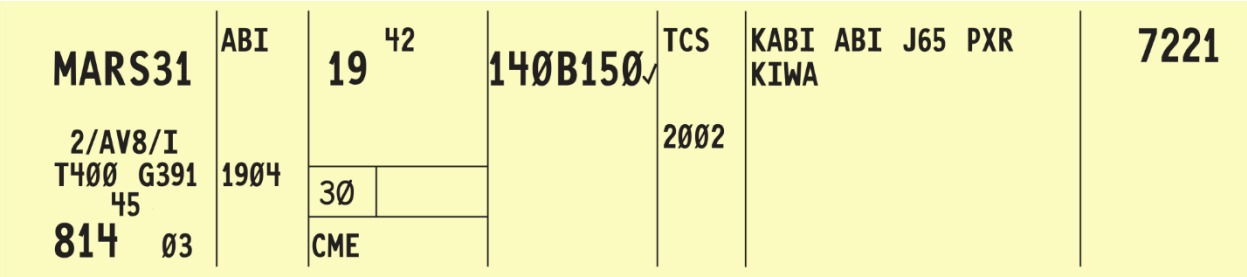
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

7.



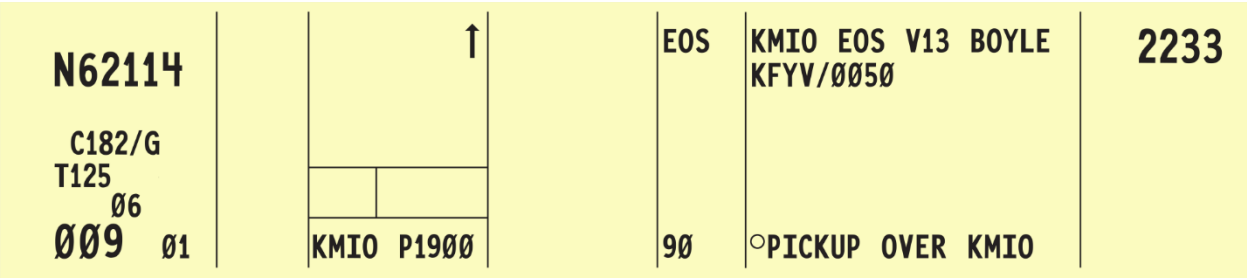
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

8.



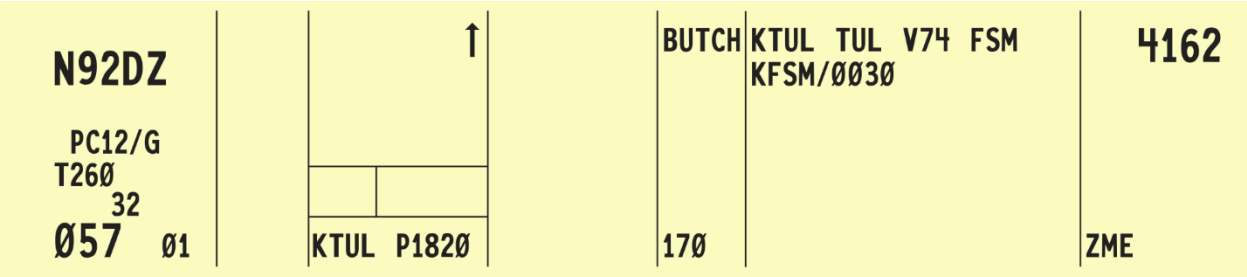
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

9.



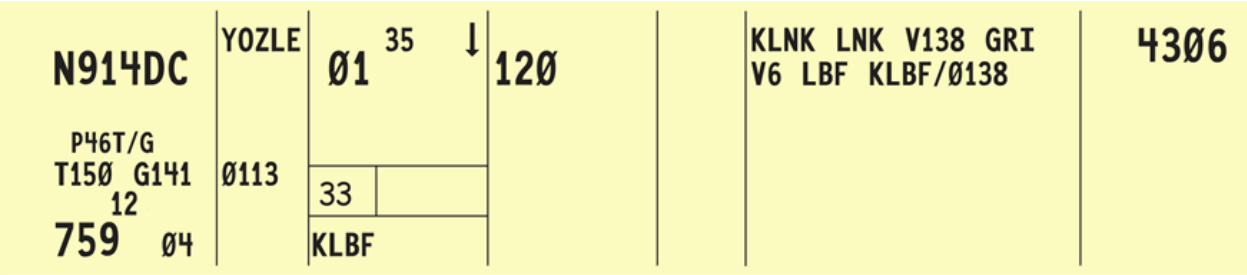
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

10.



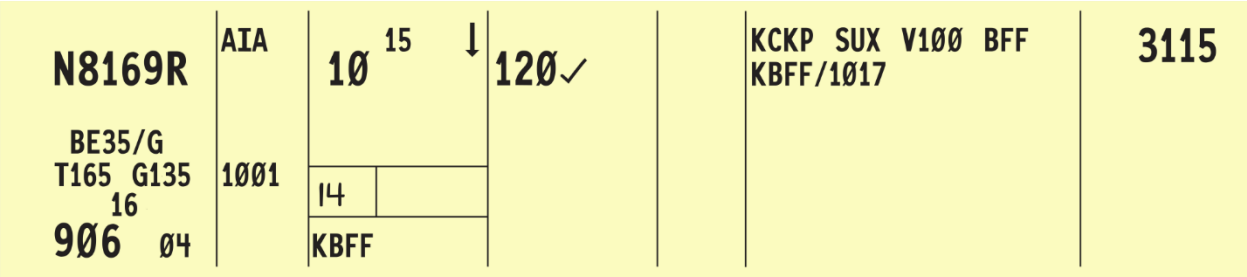
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

11.



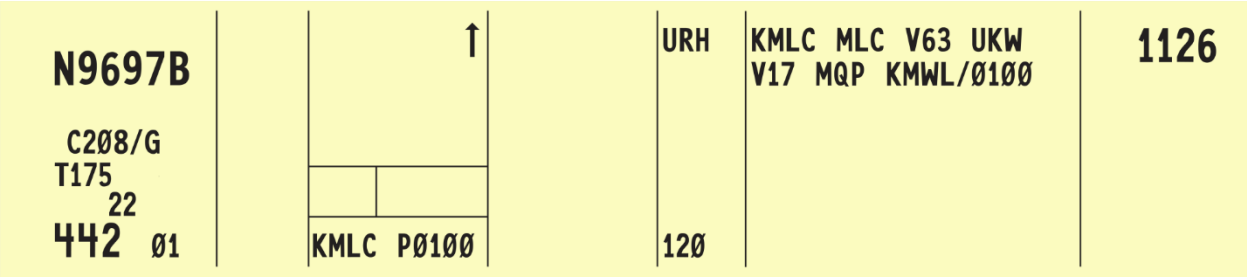
PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

12.

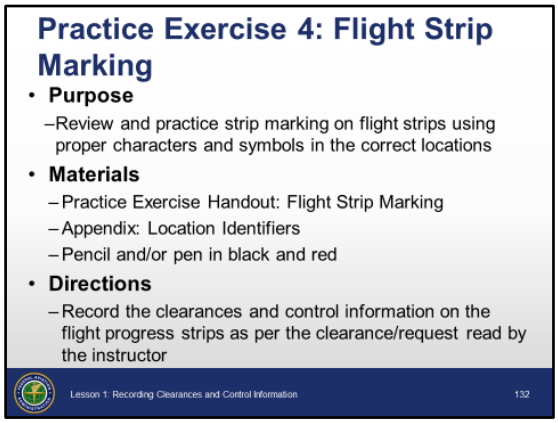


PRACTICE EXERCISE 3: RECORDING CLEARANCES AND CONTROL INFORMATION *(CONT'D)*

13.



PRACTICE EXERCISE 4: FLIGHT STRIP MARKING



Purpose

Review and practice strip marking on flight strips using proper characters and symbols in the correct locations

Materials

Handout:

- Practice exercise 4 from Lesson 1 handout
- Appendix: Location Identifiers
- Pencil and/or pen in black and red

Directions

This exercise takes approximately 30 minutes to complete. Record the clearances and control information on the flight progress strips as per the clearance/request read by the instructor.

Continued on next page

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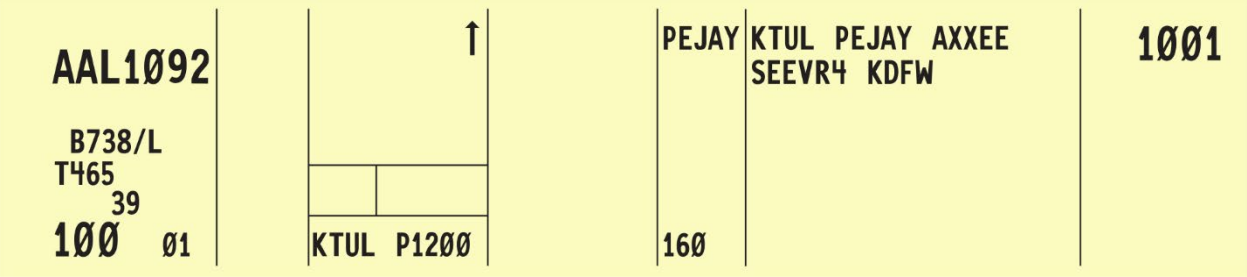
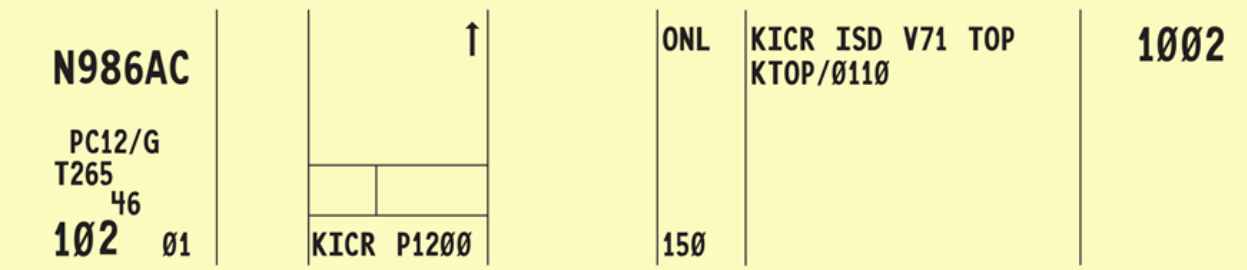
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

1.



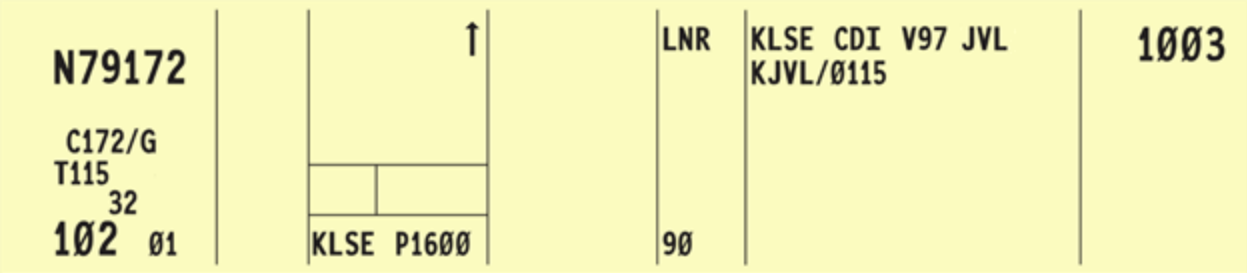
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

2.



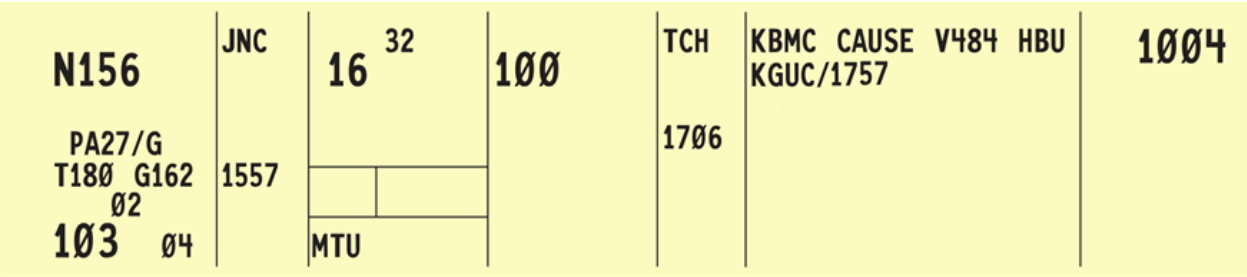
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

3.



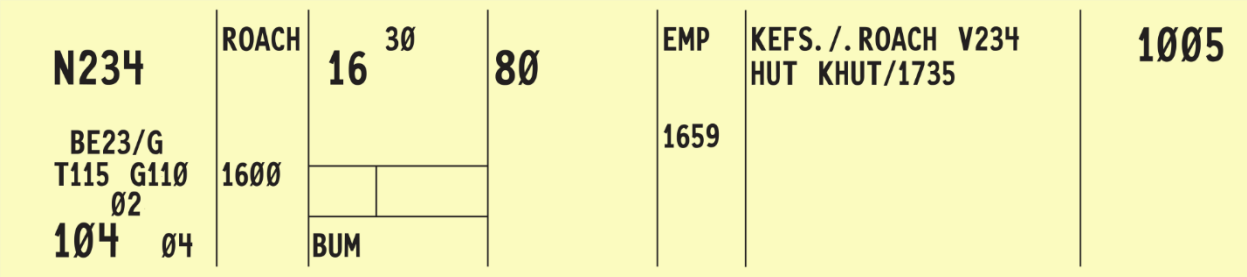
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

4.



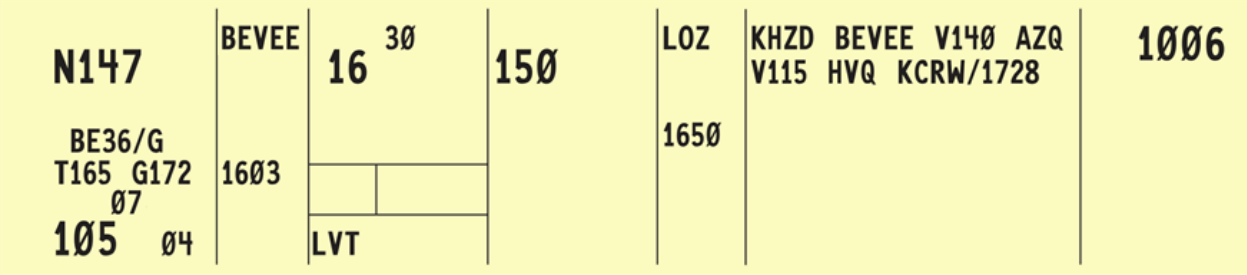
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

5.



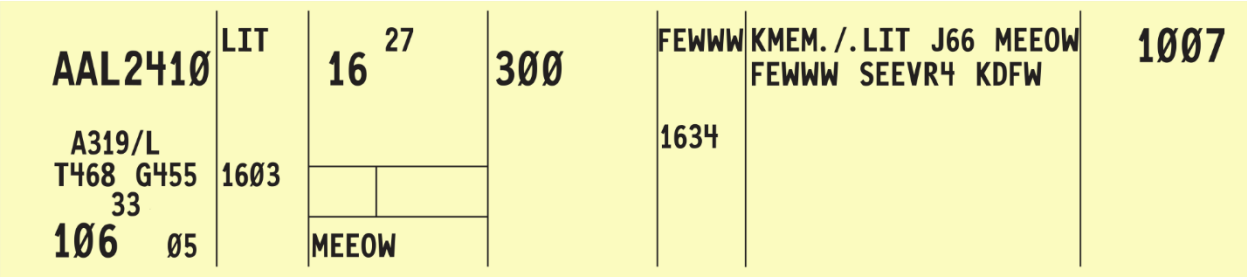
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

6.



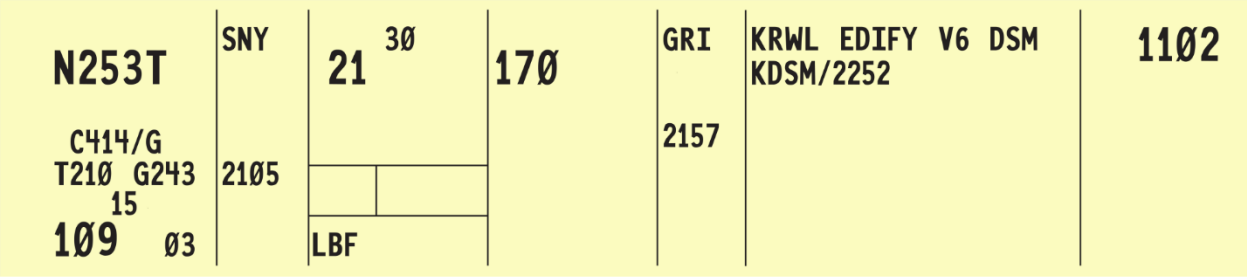
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

7.



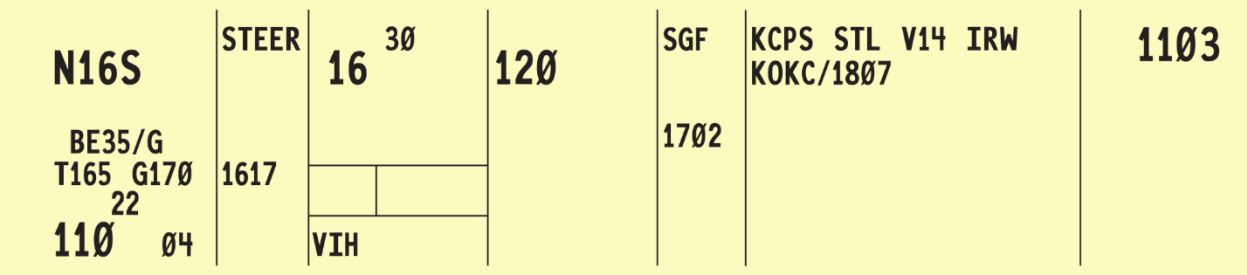
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

8.



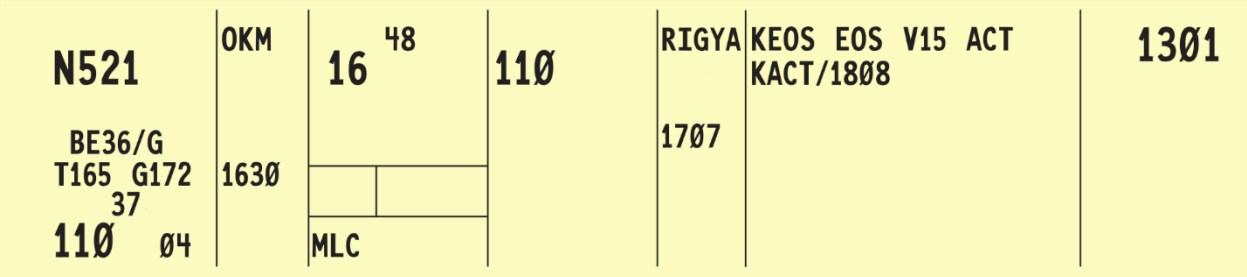
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

9.



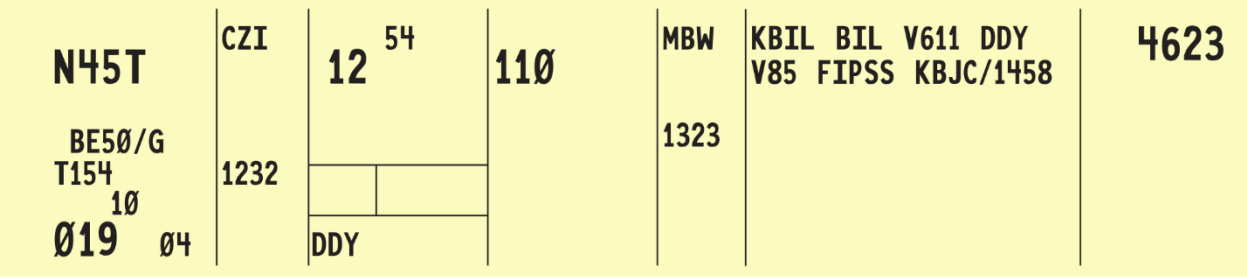
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

10.



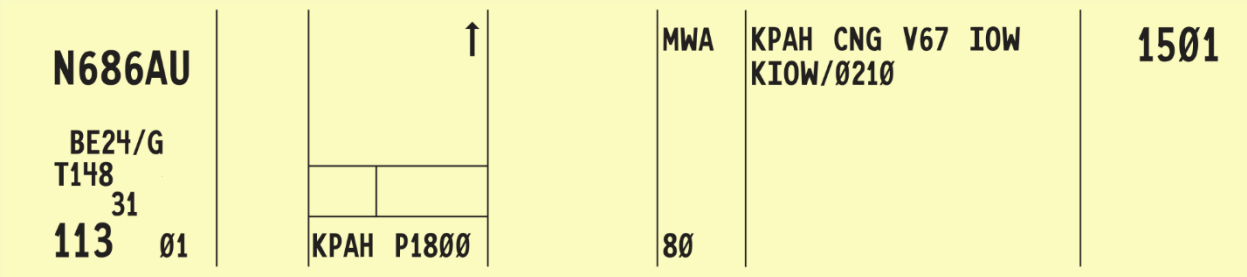
PRACTICE EXERCISE 4 FLIGHT STRIP MARKING
(CONT'D)

11.



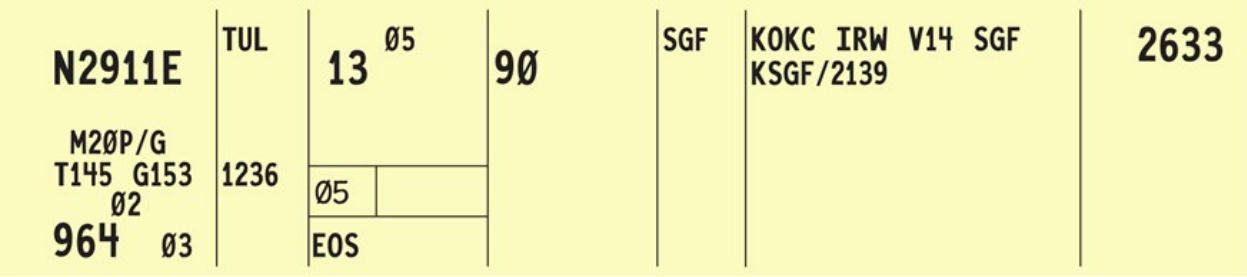
PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

12.



PRACTICE EXERCISE 4: FLIGHT STRIP MARKING
(CONT'D)

13.



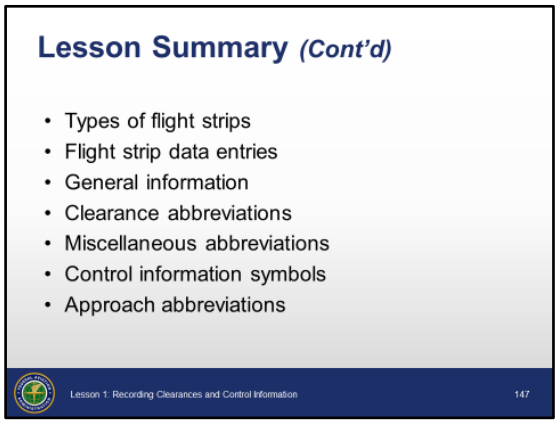
CONCLUSION

Lesson Summary

Summary

- Purpose of strip marking
  - Flight progress strips are official records of control data
- Post current data
- Record clearances
  - Ensure data placed in the proper location
  - Manually prepared strips shall conform to the same format as machine-generated strips
- Standard characters
  - Use characters and symbols that are properly formed and legible
- Corrections and amendments
  - Corrections, amendments and/or preplanning must be distinguished from the current ATC clearance
    - Do not erase or overwrite

Lesson Summary (Cont'd)



- Types of flight strips
  - Proposal strips
  - Departure strips
  - En Route strips
  - Arrival strips
- Flight strip data entries
  - Computer programmed blocks
  - Flight strip data locations
- General information
  - Report level
  - Coordinated
  - Direction arrow
  - IAFDOF
  - Resolution advisory (pilot reported TCAS event)
  - Warning
  - Emergency
  - Tower jurisdiction

Continued on next page

CONCLUSION *(CONT'D)*

Lesson Summary (Cont'd)

- Clearance abbreviations
  - Cleared to depart from the fix
  - Cleared to airport (point of intended landing)
  - Depart
  - Cleared to the fix
  - Turn left, turn right
  - Until
  - Join
  - After, before
  - Hold for release
  - Release
  - Released your discretion
  - Void after
  - Climb and maintain, Descend and maintain
  - At
  - At or above, at or below
  - Block altitude
  - Cleared to climb/descend at pilot's discretion
  - Report at other than assigned altitude
  - Cleared to cross: airway, fix, radial, airway
  - Hold
  - Cleared over the fix
  - DME arc
  - SVFR
  - Cancel IFR

Continued on next page

CONCLUSION *(CONT'D)*

Lesson Summary (Cont'd)

- Miscellaneous abbreviations
  - Report leaving
  - Report reaching
  - Report crossing
  - Report passing (fix/altitude)
  - Alternate instructions
  - Communications transfer
  - Restriction bar
- Control information symbols
  - Radar contact
  - Radar service terminated
  - Radar contact lost
  - Radar handoff complete
  - Radar vectors
  - Resume own navigation
  - Point out
- Approach abbreviations
  - Procedure abbreviation
  - Approach segment abbreviations
  - Cruise clearance
  - Through clearance

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APPENDIX: LOCATION IDENTIFIERS

Alphabetical By ID	
ID	**Name**
AIA	Alliance
BFF	Scottsbluff
BFV	Burns Flat
BUM	Butler
CME	Chisum
EAU	Eau Claire
EMP	Emporia
EOS	Neosho
FSM	Fort Smith
HON	Huron
HVE	Hanksville
IRW	Will Rogers
ISD	Winner
JNC	Grand Junction
KBCE	Bryce Canyon Airport
KDFW	Dallas-Fort Worth Airport
KFSM	Fort Smith Airport
KFYV	Drake Field Airport
KGJT	Grand Junction Airport
KIOW	Iowa City Airport
KJVL	Janesville Airport
KLBF	North Platte Airport
KMWL	Mineral Wells Airport
KOKC	Will Rogers World Airport
KROW	Roswell Airport
KTOP	Topeka Airport
LVT	Livingston
MLC	McAlester
MTU	Myton
OKM	Okmulgee
PGO	Rich Mountain
PRX	Paris
SAF	Santa Fe
SGF	Springfield
SNY	Sidney
TUL	Tulsa
VIH	Vichy

Alphabetical by Name	
Name	**ID**
Alliance	AIA
Bryce Canyon Airport	KBCE
Burns Flat	BFV
Butler	BUM
Chisum	CME
Dallas-Fort Worth Airport	KDFW
Drake Field Airport	KFYV
Eau Claire	EAU
Emporia	EMP
Fort Smith	FSM
Fort Smith Airport	KFSM
Grand Junction Airport	KGJT
Grand Junction	JNC
Hanksville	HVE
Huron	HON
Iowa City Airport	KIOW
Janesville Airport	KJVL
Livingston	LVT
McAlester	MLC
Mineral Wells Airport	KMWL
Myton	MTU
Neosho	EOS
North Platte Airport	KLBF
Okmulgee	OKM
Paris	PRX
Rich Mountain	PGO
Roswell	KROW
Santa Fe	SAF
Scottsbluff	BFF
Sidney	SNY
Springfield	SGF
Topeka Airport	KTOP
Tulsa	TUL
Vichy	VIH
Will Rogers	IRW
Will Rogers World Airport	KOKC
Winner	ISD