Federal Aviation Administration

EN ROUTE RADAR FLIGHT DATA CONTROLLER TRAINING

Lesson 5: Computer Field Format

Version: 2019-12.1

FAA Course Number: 55053

INSTRUCTOR LESSON PLAN

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LESSON PLAN ICONS

Course Name	Radar Flight Data Position
Course Number	
Lesson Title	Computer Field Format
Duration	2 hours plus TTL times **TTL exercises are estimated to take an additional 30 minutes per exercise and per student/instructor team.** Total duration will vary based on class size.
Version	2019-12.1
Reference(s)	JO 7110.65, Air Traffic Control; TI 6110.101, En Route Automation Modernization (ERAM) Air Traffic Manual (ATM): RA-Position User Manual; TI 6110.100, En Route Automation Modernization (ERAM) Air Traffic Manual (ATM): R-Position User Manual; ERAM EDSM SRS 210.04 V1B1, En Route Automation Modernization (ERAM) En Route Display Management (EDSM) R-Position and General EDSM Requirements Volume 1, Book 1; ERAM EDSM SRS 210.04 V1B2, En Route Automation Modernization (ERAM) En Route Display Management (EDSM) Appendices for R-Position and General EDSM Requirements Volume 1, Book 2;14 CFR 47.15, Registration number.
Prerequisite(s)	
Handout(s)	Electronic delivery requires printing of handout HO01_L05, which contains Practice Exercises 1 and 2.
Exercise / Activity	Practice Exercise 1: Computer Field Format Practice Exercise 2: Computer ID
Assessments	End-of Lesson Test – ELT_V1_L05 **or** ELT_V2_L05 There will be a graded end-of-lesson test upon completion of this lesson. The score required for passing will be in accordance with current FAA directives.
Materials and Equipment	
Other Pertinent Information	⊙ Practice Exercise 2 will be conducted in the Test and Training Lab. It is defined in the instructor lesson plan on page 63. ⊙ This lesson is based on ERAM EAE130. The lesson has been reviewed and reflects current orders and manuals as of December 2018.

NOTE: *As you prep for this lesson, recall and be prepared to talk about examples and personal experiences that illustrate or explain the teaching points in the lesson.*

LESSON PLAN ICONS

	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 QA icon indicates a question to be asked to the entire class by the instructor.
	Warning icon indicates a safety critical note.
	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.

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LESSON INTRODUCTION

Introduction

In previous lessons we covered forwarding flight information manually and computer operational equipment used in air traffic control.

The purpose of this lesson is to teach specific formats for information that you are required to enter into the computer so that it will be available to you and automatically forward flight plan information to the proper sectors.

LESSON INTRODUCTION *(Cont'd)*

Overview

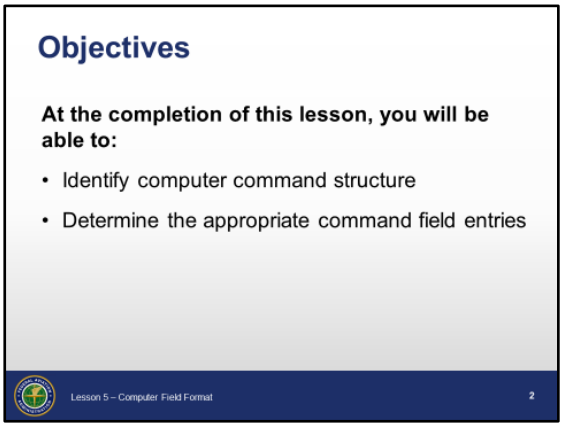
Ask students to read the words in the triangles above to emphasize how easy it is to make errors. Remind them that the computer reads every word.

In order to use the computer, you must input and request data in the proper format and sequence. But first, you must learn the command fields, elements, and characters that make up the command, as well as the order in which they must be used.

These skills are necessary for you to function effectively as an air traffic controller.

LESSON INTRODUCTION

Lesson Objectives



NOTE: *Review the objectives on the slide.*

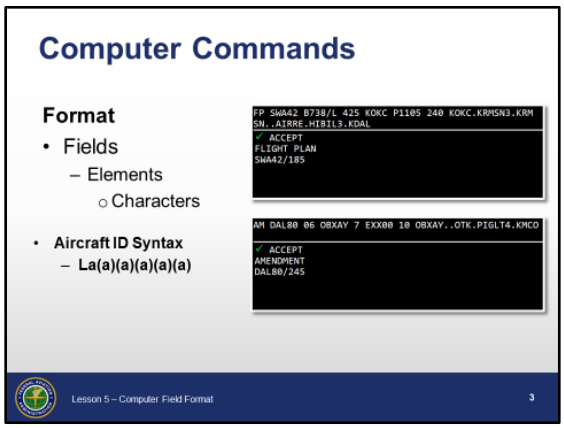
At the completion of this lesson, you will be able to:

- Identify computer command structure
- Determine the appropriate command field entries

COMPUTER COMMAND COMPOSITION

Computer Commands

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1



A command consists of a series of fields in a specified order.

- Fields
  - A field is part of a command entry. Each command is comprised of a number of fields, which may be referred to by a field reference number. A given field may appear in many different commands.
  - The computer performs format checks to determine that the appropriate required and optional fields are entered and in the required sequence.
- Elements
  - Elements are smaller units of information within a field.
- Characters
  - The formats acceptable for each input command are sequences of letters, digits, and/or special characters. Each letter, digit, or special character is referred to as a character.
  - Characters in syntax example are:
    - **L** = Letter
    - **d** = Number/digit
    - **a** = Alphanumeric (letter or number)
    - Symbol (such as Clear WX: ◯)

    Example: Aircraft ID syntax characters - La(a)(a)(a)(a)(a)

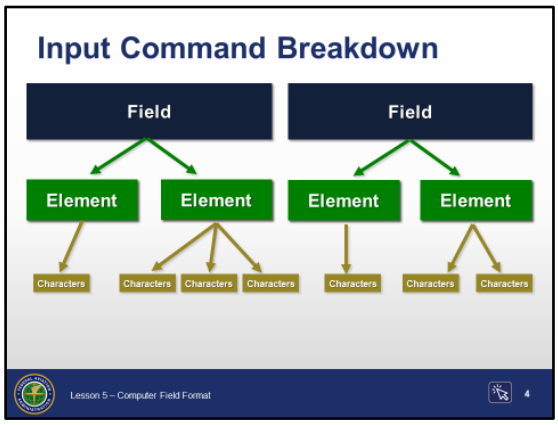
    NOTE: This format is used in the En Route Automation Modernization (ERAM) Quick Reference Controller Card, TI 6110.108

    NOTE: When bounded within parenthesis, a character, element or field is optional.

COMPUTER COMMAND COMPOSITION *(cont'd)*

Input Command Breakdown

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1



This slide is animated (2 clicks).

Fields are comprised of elements. A Field is separated from another Field by at least one space or a slash "/" depending on command type.

Click to show Elements

Elements are parts of a field and are comprised of characters

Click to show Characters

Characters are letters, numbers, and symbols.

Certain fields are optional. Whether they are optional or not depends on the type of command being entered.

For most commands, if the input fields are not in the required order, the command will fail.

- There are a few commands in which the field order may vary.
- The fields within these commands have unique formats that the computer uses to identify the contents.

NOTE: *Remind the participants more information about these commands will be presented in the later training stages.*

COMPUTER COMMAND COMPOSITION *(cont'd)*

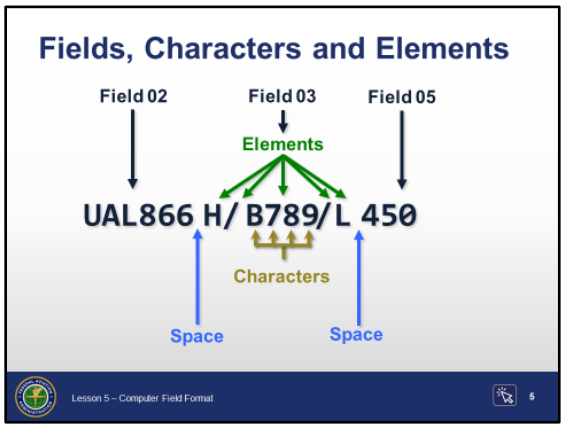
Fields, Characters and Elements

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM EDSM SRS 210.04 V1B2, Appendix F, Section F.1

ERAM Quick Reference Controller Card, TI 6110.108

JO 7360.1, Aircraft Type Designators



This slide is animated (2 clicks).

Shown here are examples of three Flight Plan Fields. Each field is separated by a space. This is how the automation system determines when one field ends and another begins.

Click for Field 03 Elements

In this example, Field 03 (TYP) is comprised of five Elements:

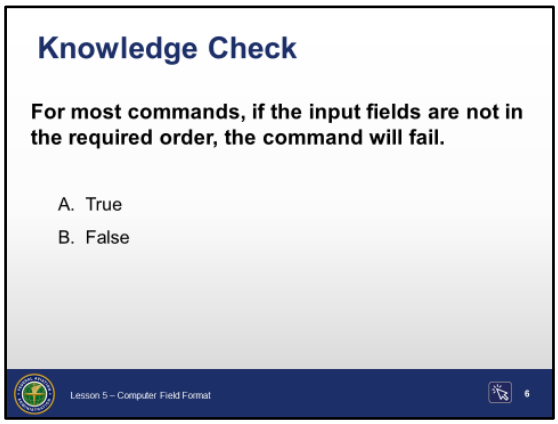
- Heavy Jet Indicator
- Separator Element
- Aircraft Type Designator
- Separator Element
- Equipment Suffix

Click for Aircraft Type characters

Individual characters makeup each element. In this example, the characters **B789** comprise the Aircraft Type designator.

KNOWLEDGE CHECK

Knowledge Check

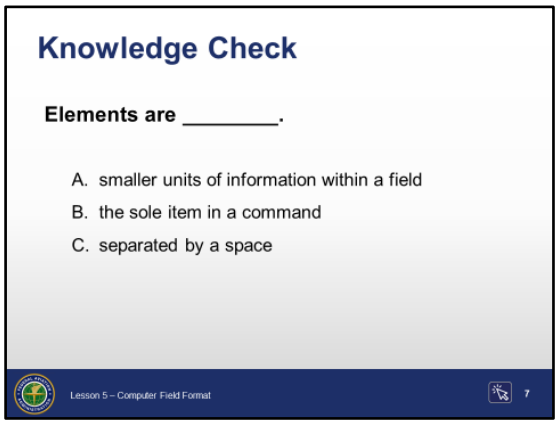


Q&A **True or False:** For most commands, if the input fields are not in the required order, the command will fail.

***Answer**: A. True*

KNOWLEDGE CHECK

Knowledge Check

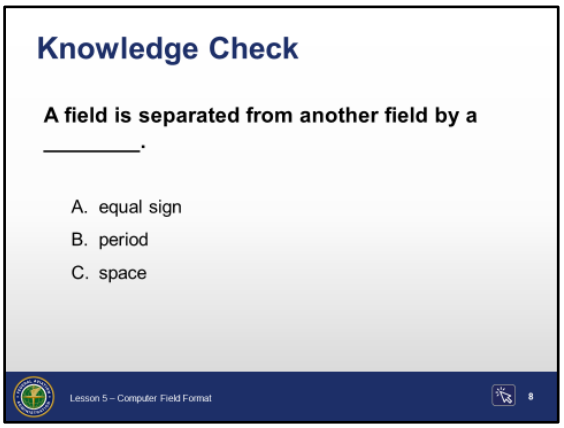


Q&A **Question:** Elements are _____.

Answer: *A. Smaller units of information within a field.*

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** A field is separated from another field by a _____.

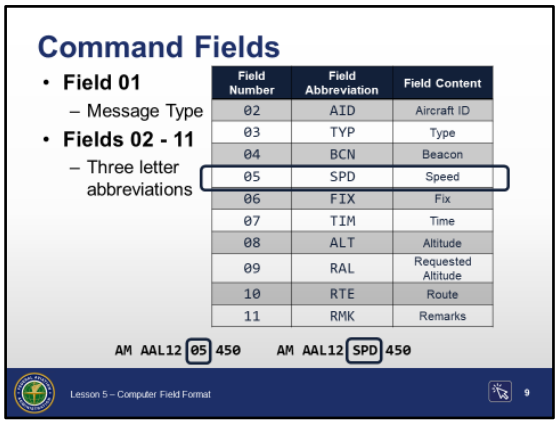
Answer: *C. space*

COMPUTER COMMAND COMPOSITION *(cont'd)*

Command Fields

ERAM EDSM SRS 210.04 V1B2, Appendix C, Table 24

ERAM Quick Reference Controller Card, TI 6110.108



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Command Fields

- Field 01
  - Must precede each command entered via the Command Line
    - Type the two-letter command ID (e.g., AM) followed by a space and the remainder of the command, OR
    - Press one of the 30 hard-labeled Function keys on the RA Position keyboard, which will automatically insert the command ID and a space.

    NOTE: Function key labels may not match the actual command ID inserted, you will have an opportunity to try this in Exercise #1 later in the lesson.
- Fields 02 through 11 have a three-letter abbreviation
  - When composing commands, the field number or the three-letter abbreviation may be used.

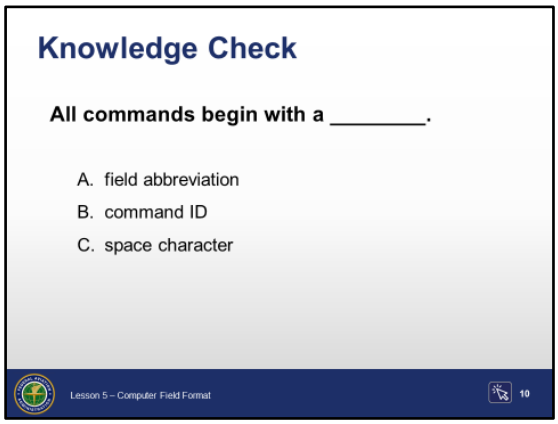
  NOTE: Certain ICAO fields also have three-letter abbreviations; for example, Alternate Airport is ALA. These ICAO abbreviations will be discussed in more detail later in training.

The example at the bottom shows two speed AM Commands; one with the Field Number (05) and one using the Field Abbreviation (SPD).

***NOTE:** Briefly discuss the fields, elements and characters comprising both commands.*

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** All commands begin with a _____.

Answer: *B. Command ID*

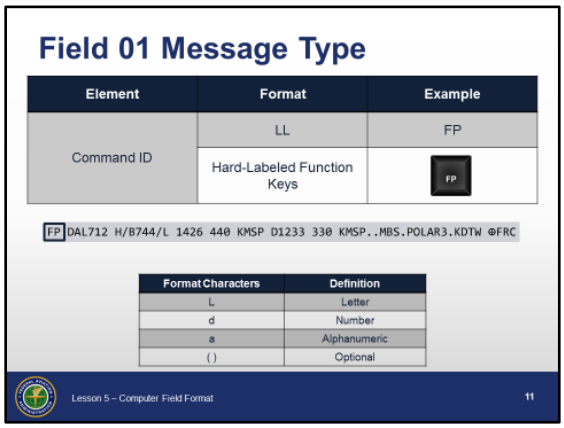
COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 01 Message Type

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.2

ERAM Quick Reference Controller Card, TI 6110.108



NOTE: *Discuss the proper format of the command example; spaces between Fields and Fields in correct order.*

Field 01 Message Type: Defines the kind of command to be entered into the computer.

- Contains one element
- Format: LL
- Examples:
  - FP
  - AM

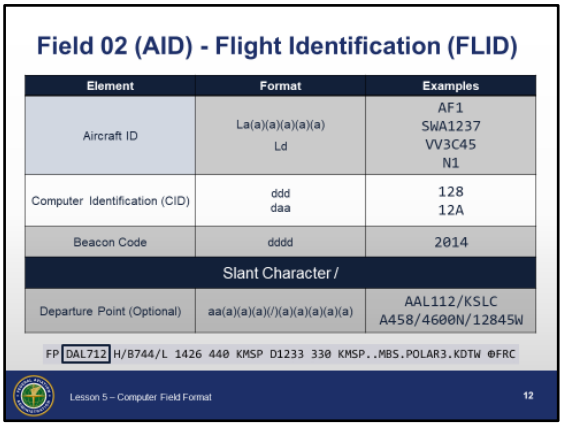
NOTE: When using a hard-labeled function key to insert the two letter Command ID into a command, the system automatically inserts a space after the Command ID.

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 02 (AID) - Flight Identification (FLID)

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



Field 02 (AID) - Flight Identification (FLID): Identifies an aircraft or a specific flight plan. Aircraft Identification (AID) is the call sign. Flight ID (FLID) may be Aircraft Identification, Computer Identification Number (CID), or Beacon Code (BCN).

- ⊙ Contains 1 or 3 elements
- ⊙ Valid formats:
  - Aircraft ID 2 to 7 characters
    - La(a)(a)(a)(a)(a)
    - Ld
  - Computer Identification 3 characters
    - ddd
    - daa
  - Beacon Code 4 characters
    - dddd
    - 0 - 7 are the only numbers allowed
  - Aircraft Identification missing
    - M

Cont'd on next page

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 02 (AID) – Flight Identification (FLID) ***(cont'd)***

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

⊙ Valid formats (cont'd):

- Aircraft ID and Departure Point
  - Departure point follows the slant (/) character and may help locating a specific flight when there are multiple flight plans for the same aircraft identification (AID).
  - Any 2 to 12 character fix can be used
  - Fix only: aa(a)(a)(a)
  - Fix Radial Distance: aa(a)(a)(a)ddd_1ddd_2

    NOTE:

    - Radial ddd_1 (in degrees) must be between 001–360
    - Distance ddd_2 (in miles) must be between 001–999.
  - Lat./Long.: dddd(L_1)/(d)dddd(L_2)

    NOTE:
    - L_1 may be N or S.
    - L_2 may be E or W.
    - N latitude and W longitude, when omitted are implied.
    - S latitude and E longitude must be entered if applicable.
    - If either the optional L_1 or L_2 is used, both must be used.
    - Controller Pilot Data Link Communications (CPDLC) Lat./Long. coordinates always require N, S, E, W designations.
    - If the degrees of latitude are 90, the minutes must be 0.
    - If the degrees of longitude are 180, the minutes must be 0.

Examples: `JBU427`, `C2303`, `N734ZQ`, `HEAT22`, `M`, `DAL126/KMSP`, `VVPJ692/4600N/12845W`

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COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 02 (AID) – Flight Identification (FLID) ***(cont'd)***

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

14 CFR 47.15

- ⊙ Departure Point, when present, can be any valid fix.
  - Must be used in conjunction with AID or BCN
  - Optional departure point is only valid for the following commands:
    - AM (Amendment)
    - HM (Hold)
    - PR (Progress Report)
    - RF (Request Flight Plan Transfer)
    - RM (Request Route Conversion)
    - RX (STARS/ARTS to NAS Cancellation)
    - SR (Strip Request)

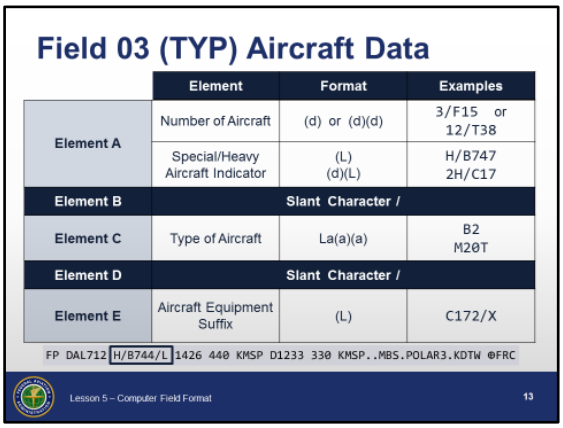
COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 03 (TYP) Aircraft Data

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

JO 7110.65, 2-3-2



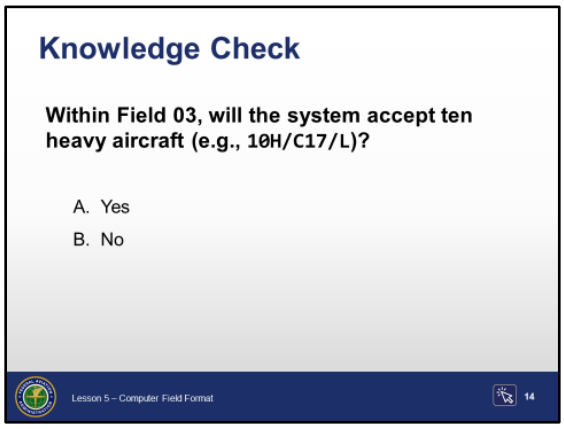
Field 03 (TYP) Aircraft Data: Indicates the type of aircraft. Optional elements are Special Aircraft Indicator (SAI), number if more than one and equipment suffix.

- Contains one to five elements
  - Element A is the number of aircraft in flight (d)(d) or (d)(L) and/or SAI where L, if present, must be "H".
    - "H" is used for heavy and super aircraft
  - Element B is "/".
  - Element C is the authorized aircraft type La(a)(a).
  - Element D is "/".
  - Element E is the Airborne Equipment Qualifier (L).
- Format:
  - La(a)
  - ((d)(d)L/)La(a)(a)(/L)
  - ((d)d/)La(a)(a)(/L)

Examples: `B1`, `AA5`, `C182`, `B738/L`, `H/B762/L`, `2H/B52/I`, `12/F16/I`

KNOWLEDGE CHECK

Knowledge Check

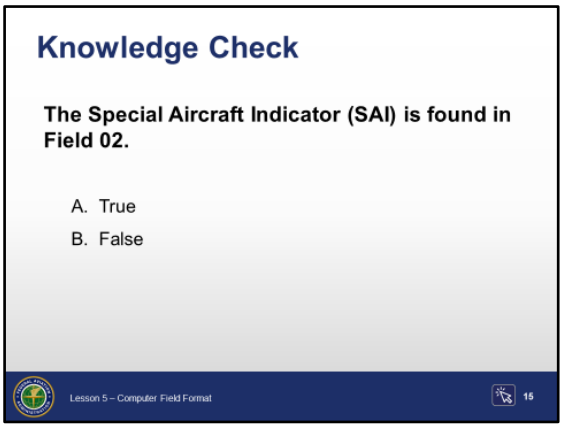


Q&A **Question:** Within Field 03, will the system accept ten heavy aircraft (e.g., 10H/C17/L)?

Answer: *B. No*

KNOWLEDGE CHECK

Knowledge Check



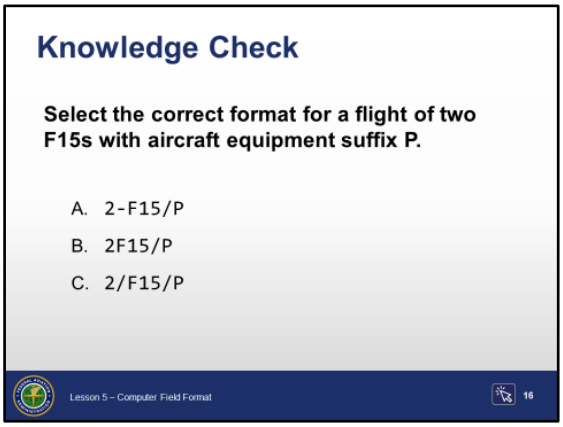
Q&A True or False: The Special Aircraft Indicator (SAI) is found in Field 02.

***Answer**: B. False*

***NOTE:** The Special Aircraft Indicator is the first element in Field 03 (TYP).*

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** Select the correct format for a flight of two F15 aircraft with aircraft equipment suffix P.

***Answer**: C. 2/F15/P*

Field 04 (BCN) Beacon Code

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

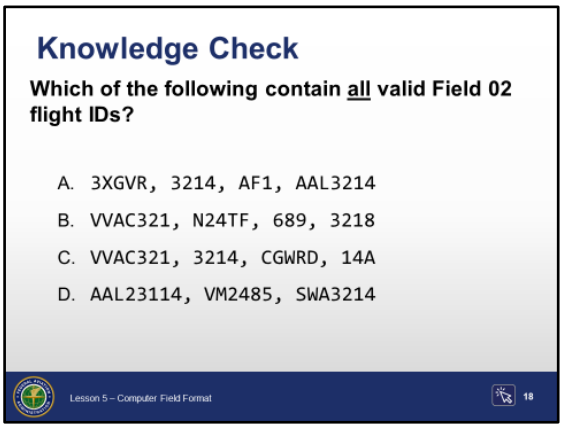
Field 04 (BCN) Beacon Code: Mode 3/A transponder code assigned to a specific flight plan.

- Contains one element
- Format is: dddd
  - Only numerals 0-7 are allowed, 8 and 9 are not used (octal format).
- Field 04 is optional in flight plan commands.

Examples: `1200`, `3415`, `0100`, `7400`, `7500`, `7600`, `7700`

NOTE: Upon initial entry of flight plans without a specific beacon code, the system will assign a code. However, if a flight has an assigned beacon code it may be entered in a flight plan command.

Knowledge Check



Q&A **Question:** Which of the following contain all valid Field 02 flight IDs?

***Answer**: C. All correct VVAC321, 3214, CGWRD, 14A*

***NOTE:** Explain why the others are incorrect.*

A. *3XGVR, invalid, leading character must be a letter. 3X--- registration from Guinea.*

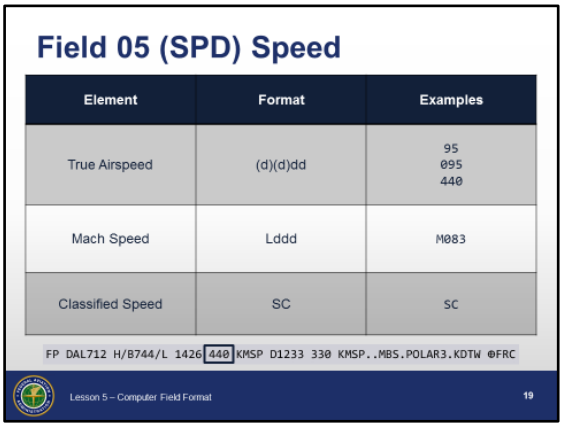
B. 3218 invalid BCN Field numbers 0–7 allowed.

D. AAL23114, invalid too many characters, 2–7 allowed.

Field 05 (SPD) Speed

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



Field 05 (SPD) Speed: The filed true airspeed in knots

- Contains one element
- Valid formats are:
  - True Airspeed, leading zeros optional
    - (d)(d)dd
  - Mach Speed
    - Lddd
    - M as first character

    Note: There are three digits but no decimal point.
  - Classified Speed, locally adapted value
    - Two letters, SC

Examples: `95`, `080`, `120`, `480`, `3700`, `M079`, `M120`, `SC`

COMPUTER COMMAND COMPOSITION *(cont'd)*

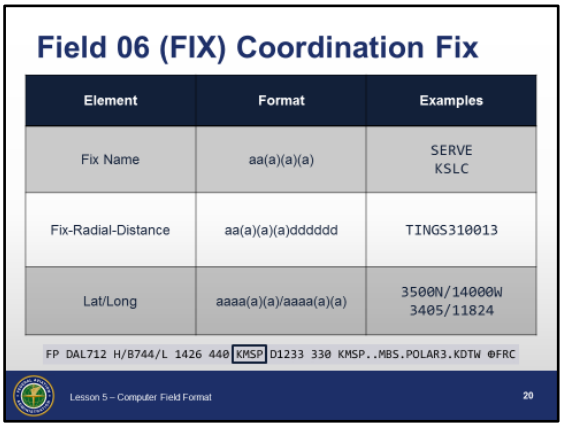
Field 06 (FIX) Coordination Fix

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

NAS−MD−311, 2.1.3.2.4, f,2

NAS-MD-312, 5.1, 7.0, 10.3,



NOTE: *Remind students that Field 06 fix relates to Field 10, which will be discussed in a future lesson.*

Field 06 (FIX) Coordination Fix: The initial departure airport, the point from where the flight plan enters your facility or the point where a new route amendment begins.

- ⊙ Contains one element, 2 to 12 characters
- ⊙ Valid formats are:
  - NAVAID, Named Fix/Intersection/Waypoint
    - aa(a)(a)(a)
  - Fix-Radial-Distance
    - aa(a)(a)(a)ddd_1ddd_2
  - Latitude/Longitude
    - dddd(L_1)/(d)dddd(L_2)

Examples: TX, EHK, KU60K, BOI102035, 3944/07210, 4425N/11730W

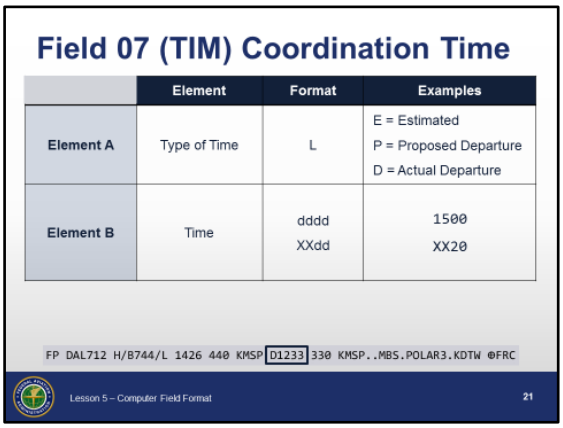
NOTE: Latitude/Longitude and Fix-radial-distance may be used for points that are not stored in the computer.

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 07 (TIM) Coordination Time

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



Field 07 (TIM) Coordination Time: The proposed departure time, actual/estimated departure time, or en route estimated time over a fix.

⊙ Contains two elements

- Element A is the type of time
  - Estimated - **E**
  - Proposed departure - **P**
  - Actual departure - **D**

NOTE: Element A is required except in a DM command, where it must be omitted and is presumed to be **D**.

- Element B is time
  - Four digits
  - Coordinated Universal Time (UTC)

⊙ Valid formats are:

- Time
  - `Ldddd`
  - First 2 digits are hours, last 2 digits are minutes.

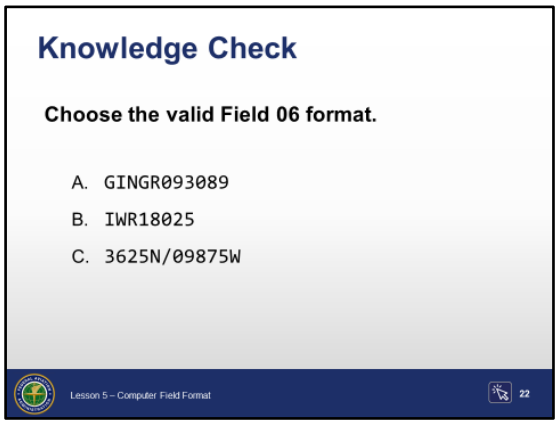
  Examples: `P1452`, `E0422`, `D2305`
- Time relative to the current clock time
  - `LXXdd`
  - "XX" is followed by two digits representing minutes, `dd` cannot exceed 99.

Relative Time example

- **`1800`** UTC
- Command entered **`AM N45YY TIM PXX20`**
- Result: N45YY new proposed departure time will be **`P1820`** (i.e., 1800 + 20 = 1820).

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** Which of the items shown is the valid Field 06 format?

***Answer**: A. GINGR093089*

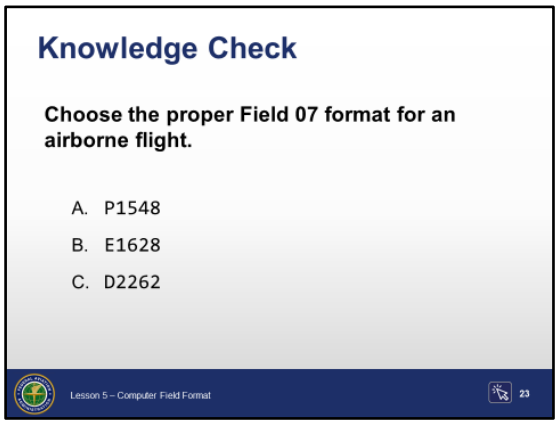
NOTE:

Answer B has 5 digits, 6 are required for a Fix-Radial-Distance.

Answer C, Latitude/Longitude minutes may not exceed 59.

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** Which of the items shown is the proper Field 07 format for an airborne flight?

Answer: *B. E1628*

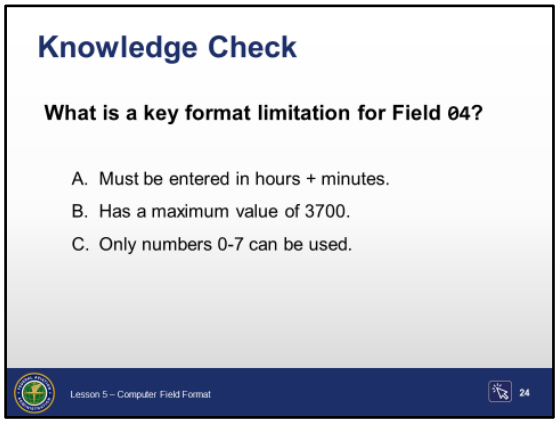
NOTE:

Answer A, P-Time will not activate a flight plan.

Answer C - The “D” element is valid for active flight plans. However, time minutes may not exceed 59.

KNOWLEDGE CHECK

Knowledge Check

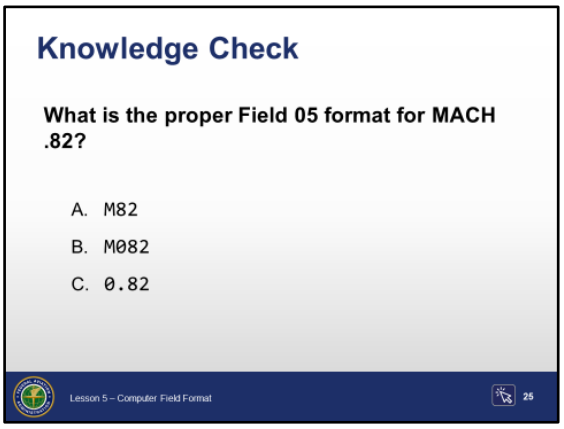


Q&A **Question:** What is a key format limitation for Field 04?

Answer: *C. Only numbers 0-7 can be used.*

KNOWLEDGE CHECK

Knowledge Check

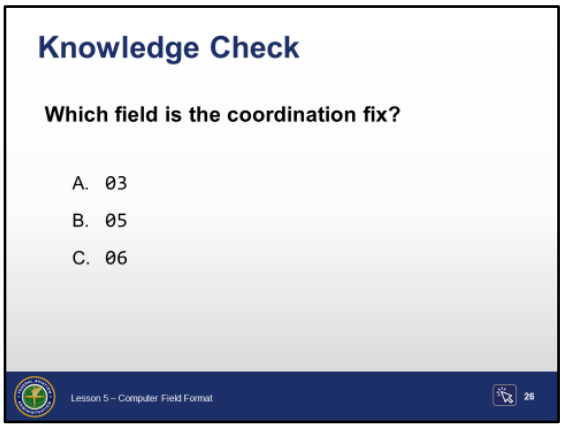


Q&A **Question:** What is the proper Field 05 format for MACH .82?

Answer: *B. M082*

KNOWLEDGE CHECK

Knowledge Check

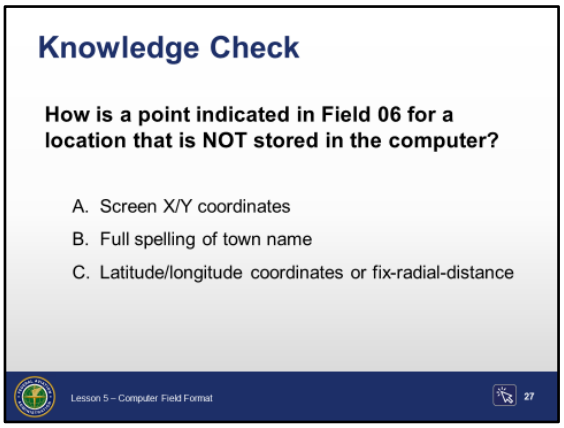


Q&A **Question:** Which field is the coordination fix?

Answer: *C. 06*

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** How is a point indicated in Field 06 for a location that is NOT stored in the computer?

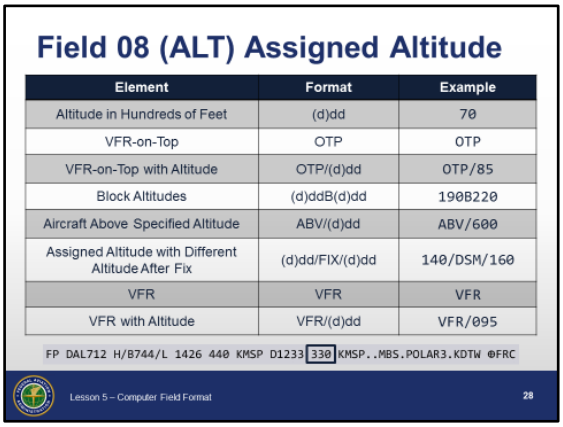
Answer: *C. Latitude/longitude coordinates or fix-radial-distance*

Field 08 (ALT) Assigned Altitude

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

ERAM_ADAPT_AD_220.04



Field 08 (ALT) Assigned Altitude: The altitude assigned to an aircraft to be maintained during the flight.

- Contains one element, 2 to 20 characters
- Expressed in hundreds of feet
- Valid formats are:
  - Altitude or flight level
    - (d)dd
  - VFR-On-Top
    - OTP
  - VFR-On-Top plus an altitude
    - OTP/(d)dd
  - VFR
    - VFR
  - VFR plus altitude
    - VFR/(d)dd
  - Aircraft operating above the specified altitude
    - ABV/(d)dd

NOTE: *Discuss difference between OTP and OTP with altitude; also discuss VFR and VFR with altitude. Identify the local adaptation for your facility when an altitude is not specified.*

NOTE: "VFR" or "OTP" without a specific altitude added, such as "VFR/85", will process at a locally adapted altitude. To ensure flight plans properly process to the correct sectors/facilities, specify the altitude to be flown.

Cont'd on next page

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 08 (ALT) Assigned Altitude *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

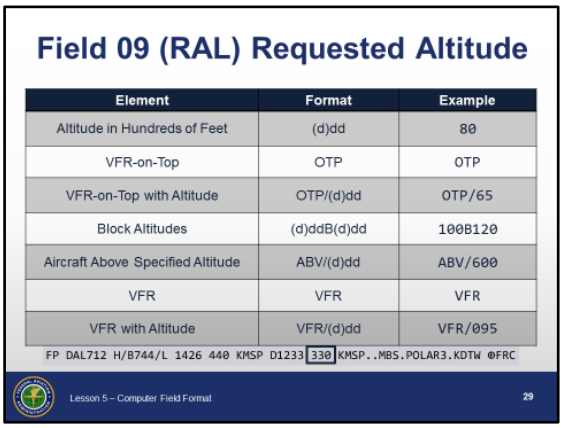
- Block of altitude or flight levels
  - (d)ddB(d)dd
  - Lower altitude must be first
- Altitude plus another altitude assigned after the specified fix
  - (d)dd/Fix/(d)dd
  - A fix must be in the format; aa(a)(a)(a) or aa(a)(a)(a)ddd_1ddd_2 or dddd(L_1)/(d)dddd(L_2)

Examples: `80`, `120`, `350`, `VFR`, `VFR/85`, `VFR/125`, `ABV/600`, `240B260`, `150/FTZ/120`, `240/ABQ293050/100`

Field 09 (RAL) Requested Altitude

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



Field 09 (RAL) Requested Altitude: Altitude requested for the flight plan. Format for Field 09 is similar to Field 08, except there is no assigned altitude with a different altitude after a fix.

- Contains one element, 2 to 7 characters
- Expressed in hundreds of feet
- Valid formats are similar to Field 08 except for "altitude plus another altitude assigned after the specified fix" is not allowed.
  - Altitude or flight level
    - (d)dd
  - VFR-On-Top
    - OTP
  - VFR-On-Top plus an altitude
    - OTP/(d)dd
  - VFR
    - VFR
  - VFR plus altitude
    - VFR/(d)dd
  - Aircraft operating above the specified altitude
    - ABV/(d)dd

Cont'd on next page

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 09 Requested Altitude (RAL) Valid Formats *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

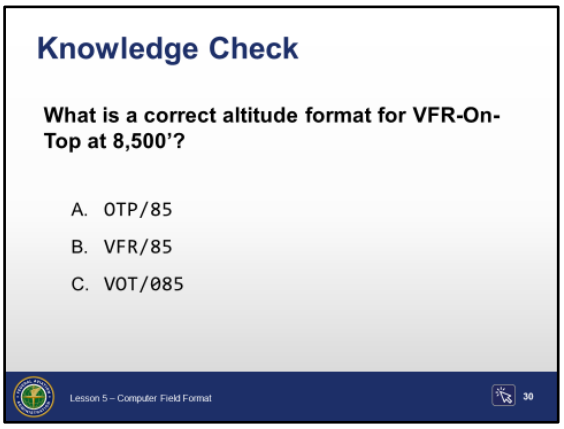
ERAM Quick Reference Controller Card, TI 6110.108

- ⊙ Valid formats cont'd:
  - Block of altitude or flight levels
    - (d)ddB(d)dd

Examples: `80`, `120`, `350`, `VFR`, `VFR/85`, `VFR/125`, `ABV/600`, `240B260`

KNOWLEDGE CHECK

Knowledge Check

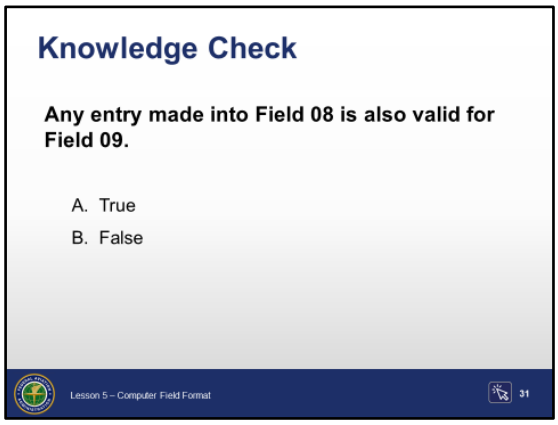


Q&A **Question:** What is the correct altitude format for VFR-On-Top at 8,500'?

Answer: *A. OTP/85*

KNOWLEDGE CHECK

Knowledge Check



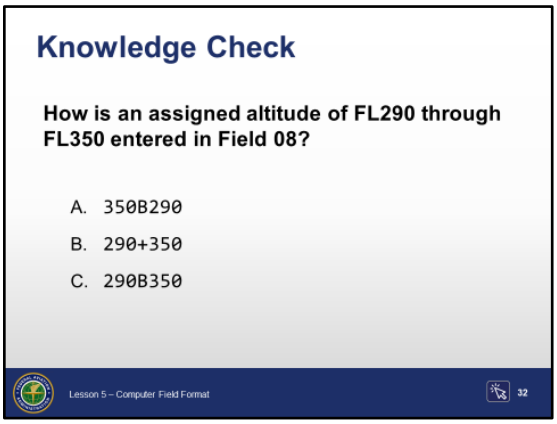
Q&A **True or False:** Any entry made into Field 08 is also valid for Field 09.

Answer: *B. False*

NOTE: *ALT/FIX/ALT entries are not valid within Field 09.*

KNOWLEDGE CHECK

Knowledge Check

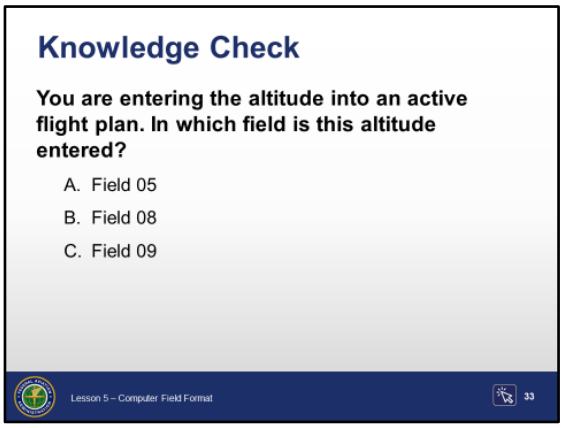


Q&A **Question:** How is an assigned altitude of FL290 through FL350 entered in Field 08?

Answer: *C. 290B350*

KNOWLEDGE CHECK

Knowledge Check



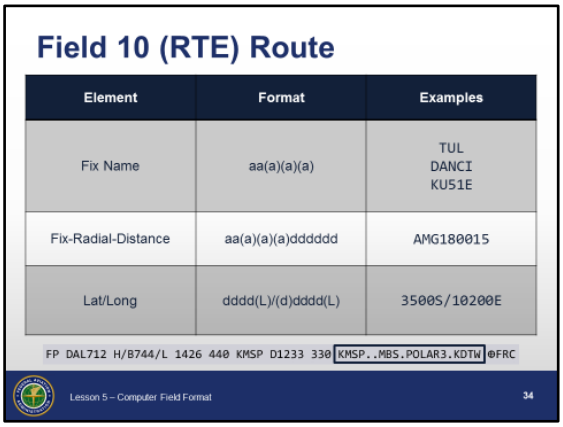
Q&A **Question:** You are entering the altitude into an active flight plan. In which field is this altitude entered?

Answer: *B. Field 08*

Field 10 (RTE) Route

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



Field 10 (RTE) Route: The requested, cleared, or ATC preferred route of flight.

- Contains one or more elements.
- Route elements may be a fix, which is defined by a specific point, or a route, which is defined by a line. First element must be a fix, last element may be a fix or one of the route elements VFR, DVFR, or XXX.
- Elements of field 10 can alternate between fix and route.
  - Unlike field 10 elements are separated by one period.

  Example: `SPA.J85.HVQ`

  Example: `BAF..MOBBS..SAGES.V489.COATE..KTEB`
- Elements of Field 10 can include consecutive fix elements and/or consecutive route elements.
  - Like Field 10 elements are separated by two periods.

  Example: `PIE..HEVVN..ATL`

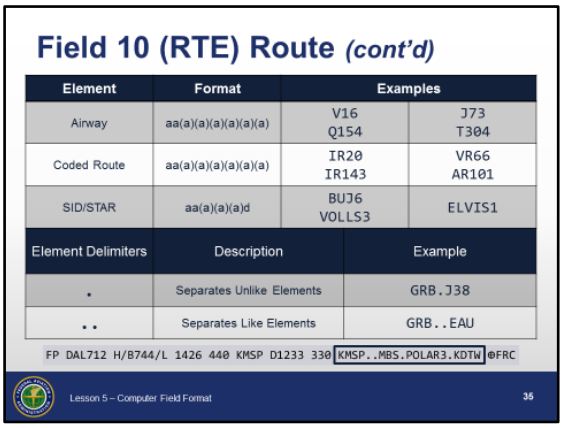
  Example: `J53..J51`
- Valid elements:
  - Adapted Fix/Airport: KSTL, BIL, FARMR, KG72I, 1B1
  - Fix-Radial-Distance: INW189019, DAVES299140
  - Lat/Long: 4047N/11655W

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 10 (RTE) Route (cont'd)

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

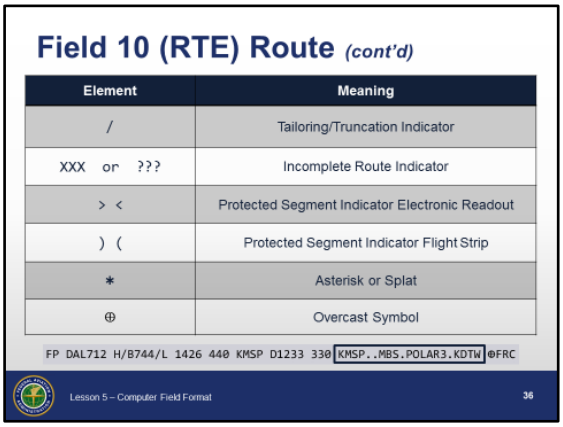


- Airway/Jet Route/Coded Route
  - aa(a)(a)(a)(a)(a)(a)
  - Examples: `V253`, `T331`, `J32`, `Q73`, `IR112`, `AR631`
- Standard Instrument Departure (SID)
  - aa(a)(a)(a)d
  - Must be the second element in Field 10
  - Examples: `BALDY2`, `CIITY3`
- Standard Terminal Arrival Route (STAR)
  - aa(a)(a)(a)d
  - Must be the next-to-last element in Field 10
  - Examples: `COLTR3`, `SUNST4`
- Element Delimiters between Fix and Route elements
  - "`.`" One period separates unlike elements
  - Example: `KPHX.V105.DRK.V562.KLAS`
- Element Delimiters Fix–Fix or Route–Route
  - "`..`" Two periods separate like elements
  - Examples:
    - `ISO..WEAVR..ORF..SAWED..SWL..EMJAY..ACK`
    - `LAAYK.V149..V162..V36.ULW`
    - `RONIC..BAE..4500N/09000W..5300N/10000W`

Field 10 (RTE) Route *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



- Tailoring Indicator "**/**"
  - Appears as the second element in the route
  - Indicates expired route has been omitted
  - Full route KHOU.STYCK6.DOLEY..HALEN.BOSSS2.KDEN
  - Tailored route KHOU./.DOLEY..HALEN.BOSSS2.KDEN

  NOTE: Tailoring indicator is inserted automatically or may be manually entered.

- Truncation Indicator "**/**"
  - Appears before the destination fix
  - Indicates elements that are not pertinent to the fix/sector have been suppressed on flight strips

  NOTE: Truncation indicator is inserted automatically based on facility adaptation.

  Example Full:
  KDFW.ZACHH3.BSKAT..LIT.J131..PXV.SARGO3.KCVGK
  Example Truncated:
  KDFW.ZACHH3.BSKAT..LIT./.KCVG

NOTE: Truncated route may be viewed using the FR command but tailored route is lost.

- Incomplete Route Indicator "**XXX**"
  - Permits flight plan processing only to fix prior to indicator
  - If route conversion terminates in local Area of Responsibility (AOR) system will display, print, and coordinate XXX in the flight plan route.

  Example: KNTD.DOYLE6.DOYLE.**XXX**.KNSI

Cont'd on next page

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 10 (RTE) Route *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108

- Incomplete Route Indicator "**???**"
  - Permits flight plan processing only to fix prior to indicator
  - When route conversion terminates prematurely at a point outside the local AOR:
    - System will display **???** in all views and lists
    - **???** will not print on strips
    - **???** will not be coordinated in flight plans to neighboring ATC facilities

  Example:
  - MCB.J50.???.CEW..OTK.PIGLT5.KMCO

- Protected Segment Indicator Electronic Readout "> <"
  - Route bounded by the protected indicators must not be amended without coordination

  Example:
  - KORD..ACITO..ADELL..>ARLYN..STL..FSM..KOMMA<..RRNET.BRDJE3.KDFW

- Protected Segment Indicator Flight Strip ") ("
  - Route bounded by the protected indicators must not be amended without coordination

  Example:
  - KLAX.DOTSS2.CNERY..)BLH.J169.TFD.J50.ELP(..FST..JCT..GUTZZ.BOOVE4.KDFW

- Asterisk "✱" suppresses an adapted ADR, AAR, or ADAR.

  Examples:
  - KHOU.STYCK6.DOLEY..HALEN.+HALEN.BOSSS2+.KDEN
  - KHOU.STYCK6.DOLEY..FUZ..SPS..HALEN..KDEN✱

- Overcast symbol (⊕) inhibits the use of ICAO Equipment Restricted Routes (IERRs).

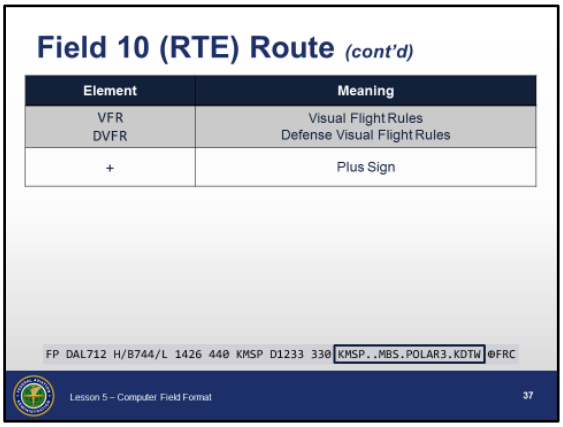
  Examples:
  - KMCO⊕..CRG.J53.AGS..KPTK
  - KDFW./.ELP.J50.SSO..KPHX⊕

Cont'd on next page

Field 10 (RTE) Route *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



- Visual Flight Rules "VFR"
  - If not the last element, "VFR" must be between 2 fixes.

  Example: KCEF.**VFR**.R5201..ART..ART166019..ALB..KCEF

- Defense Visual Flight Rules Indicator "DVFR"
  - If not the last element, "DVFR" must be between 2 fixes.

  Example: KFMH..FMH180035..W105.**DVFR**.FMH180036..KFMH

- Plus sign "**+**"
  - Indicates printing with highlighting (a preferred or adapted route must be applied)
    - Adapted Departure Route (ADR)
    - Adapted Arrival Route (AAR)
    - Adapted Departure Arrival Route (ADAR)

  Example: DFW.**+KAJIN2+.**STNGA..MLU..YUYUN.BEREE1.KATL

  - When suffixed to a Military Training Route indicates re-entry by the letter "R" and a number from 0 to 15

  Example: **KPNS..SJI169022.**IR040**+**R1.GPT027033..KGPT

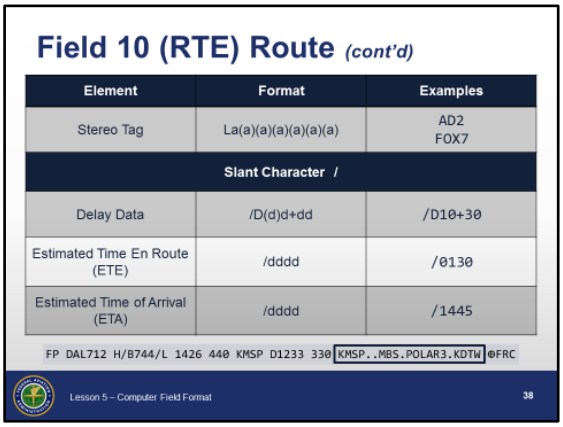
Cont'd on next page

COMPUTER COMMAND COMPOSITION *(cont'd)*

Field 10 (RTE) Route *(cont'd)*

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



NOTE: *Emphasize that with regard to delay data on the graphic, the first D is the LETTER "D" and the others represent digits.*

- Stereo Tag
  - La(a)(a)(a)(a)(a)(a)
  - Must be adapted to a stored route in the computer
  - Stored routing is subject to format checking
  - Must be the only element in Field 10

  Example: `GM12, FOX7, ADG`

- Delay data
  - /D(d)d+dd NOTE: D is the letter "D"
  - Suffixed to delay point
  - Slant character (**/**) separates fix and delay time
  - Plus sign (**+**) separates hours and minutes
  - CANNOT be suffixed to last element in Field 10

  Example: `KCEF..EEN..YANKE`**`/D0+45..`**`KCEF`

- Estimated Time En Route (ETE)/Estimated Time of Arrival (ETA)
  - **/dddd**
  - Suffixed to last element in Field 10
  - ETE is flight time in hours and minutes e.g. 1 hour and 30 minutes is **/0130**

  NOTE: A proposal will always be an ETE; an active flight will always be an ETA.

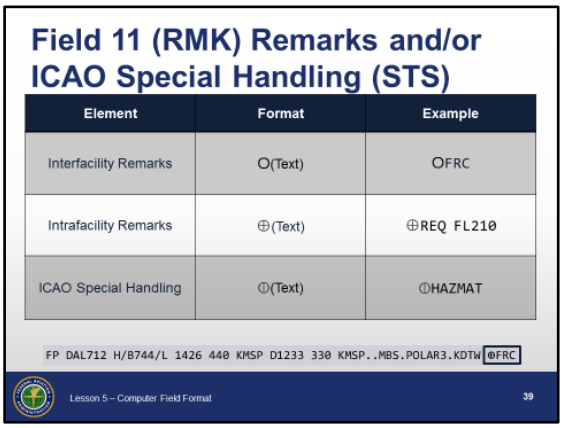
  Example:
  `SWA42 B734/L 421 KDEN P1315 340`
  `KDEN.SPAZZ3.ZAPAA.DATME.SNDIA3.KABQ`**`/0130`**

  NOTE: On departure, the computer adds the ETE to the current time, calculates and displays the resulting ETA on the flight strip of KABQ/1445

Field 11 (RMK) Remarks and/or ICAO Special Handling (STS)

ERAM EDSM SRS 210.04 V1B2, Appendix C, Section C.1

ERAM Quick Reference Controller Card, TI 6110.108



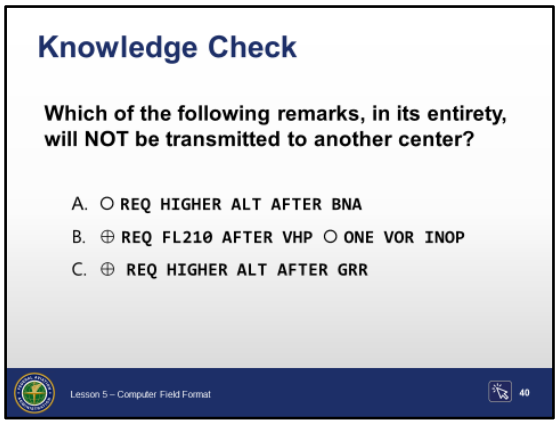
Field 11 (RMK) Remarks and/or ICAO Special Handling (STS): Remarks may contain plain text, and/or special handling, and/or other information.

- ⊙ Clear weather symbol "O"
  - Denotes interfacility remarks
    - Limited only by the space available in the MCA Preview Area
- ⊙ Overcast weather symbol "⊕"
  - Denotes intrafacility remarks
    - Limited to 20 characters
- ⊙ Scattered weather symbol "Ⓘ"
  - ICAO Reason for Special Handling (STS) remarks
- ⊙ Intrafacility remarks must precede interfacility remarks when both are entered in Field 11.
- ⊙ Both intrafacility and interfacility remarks are printed in the originating center.
  - Intrafacility remarks are not transmitted beyond the originating center.

  NOTE: Any TRACON served by your facility will receive all intrafacility remarks.
  - Interfacility remarks are transmitted beyond the originating center.

KNOWLEDGE CHECK

Knowledge Check

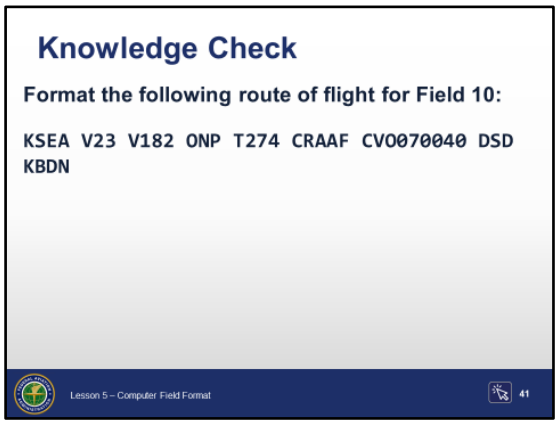


Q&A **Question:** Which of the following remarks, in its entirety, will NOT be transmitted to another center?

Answer: *C. ⊕ REQ HIGHER ALT AFTER GRR*

KNOWLEDGE CHECK

Knowledge Check



Q&A **Question:** Format the following route of flight for Field 10:

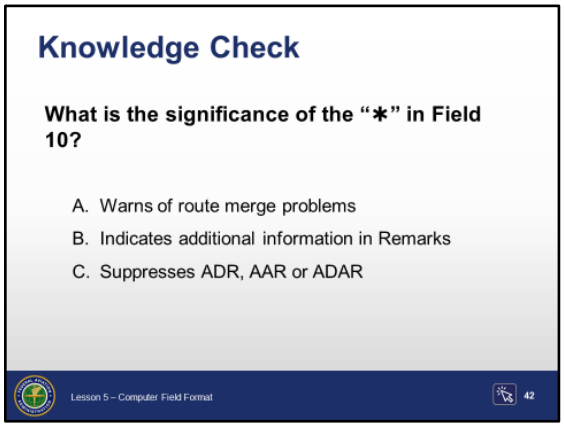
Route: KSEA V23 V182 ONP T274 CRAAF CVO070040 DSD KBDN

Answer:

KSEA.V23..V182.ONP.T274.CRAAF..CVO070040..DSD..KBDN

KNOWLEDGE CHECK

Knowledge Check

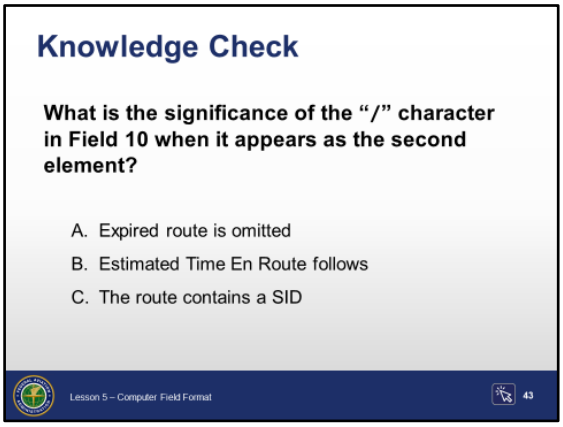


Q&A **Question:** What is the significance of the "*" in Field 10?

***Answer**: C. Suppresses ADR, AAR or ADAR*

KNOWLEDGE CHECK

Knowledge Check

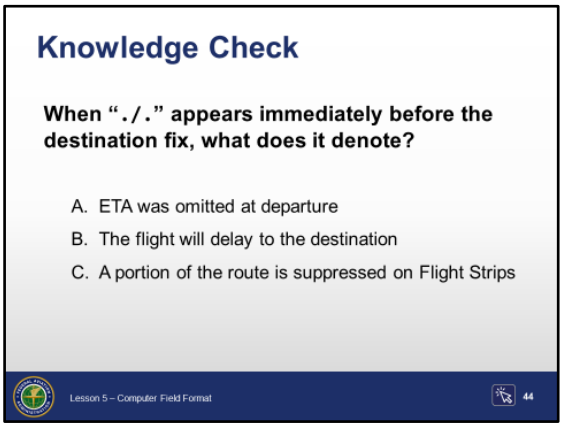


Q&A **Question:** What is the significance of the "/" character in Field 10 when it appears as the second element?

***Answer**: A. Expired route is omitted*

KNOWLEDGE CHECK

Knowledge Check

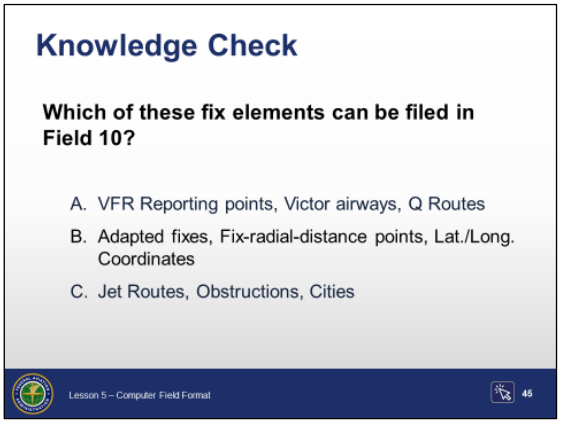


Q&A **Question:** When "./." appears before the destination fix, what does it denote?

***Answer**: C. A portion of the route is suppressed on flight strips*

KNOWLEDGE CHECK

Knowledge Check

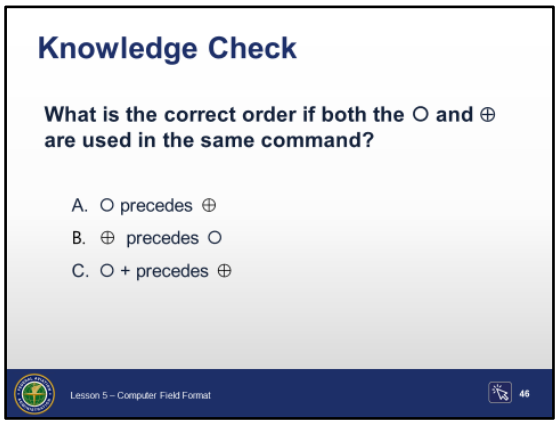


Q&A **Question:** Which of these fix elements can be filed in Field 10?

***Answer**: B. Adapted fixes, Fix-radial-distance points, Lat/Long Coordinates*

KNOWLEDGE CHECK

Knowledge Check

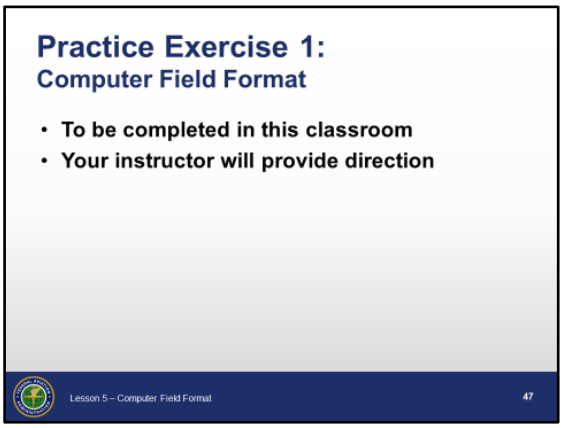


Q&A **Question:** What is the correct order if both the ○ and ⊕ are used in the same command?

Answer: *B. ⊕ precedes ○*

INTRODUCTION: PRACTICE EXERCISE 1

Introduction - Practice Exercise 1: Computer Field Format



- This exercise will be completed individually in the classroom. Your instructor will provide direction.

Directions for this exercise are on the following page.

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT

Purpose

To practice inputting and requesting data in the proper format and sequence.

Materials

You will need the following materials for this exercise:

 Handout Lesson 5 – Practice Exercise 1: Computer Field Format

Directions

This exercise will be completed in the classroom and will take approximately 30 minutes. You may refer to your notes, user manuals and course materials.

1. Refer the students to Practice Exercise 1: Computer Field Format.
2. Have the students complete the exercise.
3. Assist students as necessary.

.

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT
(cont'd)

1. Check the correct box to indicate whether each of the Flight IDs listed is VALID or NOT VALID.

FLID	VALID	NOT VALID
01Z	**X**	
224	**X**	
123D		**X**
5234	**X**	
AAL2342	**X**	
172NP		**X**
5234/KIAD	**X**	
1184		**X**
SWA1544KDAL		**X**
VVPJ692/4600N/12845W	**X**	

2. Using the information provided, enter proper formats for Field 03.

A flight of 6 F22 aircraft with equipment suffix I — ***6/F22/I***

A super A388 with equipment suffix L — ***H/A388/L***

A C172 with no equipment suffix — ***C172***

A flight of 2 heavy C17s with equipment suffix Z — ***2H/C17/Z***

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT
(cont'd)

3. Check the correct box to indicate whether each of the BEACON CODES listed is VALID or NOT VALID.

CODE	VALID	NOT VALID
AAL1		**X**
2768		**X**
4102	**X**	
1660	**X**	
4000	**X**	

4. Using the information provided, enter proper formats for Field 05.

The aircraft's true airspeed is 340 knots. ***340***

The aircraft is traveling at a speed of Mach .78. ***M078***

The aircraft is traveling at a classified speed. ***SC***

5. Using the information provided, enter proper formats for Field 06.

The departure airport is Phoenix, AZ. ***KPHX***

The fix is located at latitude 0210 North and longitude 10215 West. ***0210/10215 or 0210N/10215W***

The fix is on the Memphis VORTAC 060 radial at 35 DME. ***MEM060035***

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT
(cont'd)

6. Using the information provided, enter proper formats for the TIME field.

The estimated time over the fix is 1400Z.	***E1400***
The proposed departure time is 1843Z.	***P1843***
The actual departure time is 2223Z.	***D2223***

7. Check the format of the following examples and indicate whether each of the ALTITUDES listed can be used in Field 08 (ALT) or Field 09 (RAL).

ALTITUDE	ALT	RAL
070	**X**	**X**
OTP	**X**	**X**
VFR75		
070/SNY/080	**X**	
230B210		
OTP/165	**X**	**X**
ABV/600	**X**	**X**
140B170	**X**	**X**
50	**X**	**X**

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT
(cont'd)

8. Using the information provided, enter proper formats for Field 10 special route indicators and suffixes.

   A. The aircraft is flying KDAL RAMBL5 ELLVR NNEAL KIDDZ3 KHOU. After ELLVR, the aircraft will fly VFR to its destination KHOU.

   KDAL.RAMBL5.ELLVR.VFR.KHOU

   B. The aircraft is traveling from KCOS to KOFF via BRK V108 GLD. The destination is KOFF but the route is not known between GLD and KOFF.

   KCOS..BRK.V108.GLD.XXX.KOFF

   C. The aircraft full route is KDAL CURLO4 ACT SJT FST J86 PGS TYSSN5 KLAS. The route is tailored prior to FST. Show the properly formatted Field 10.

   KDAL./.FST.J86.PGS.TYSSN5.KLAS

   D. The aircraft is flying KBTV LAGGS TUPER KBTV. Include a delay of 1 hour at TUPER.

   KBTV..LAGGS..TUPER/D1+00..KBTV

   E. An aircraft requesting the route KDFW TRYTN3 LOOSE MEM J42 GVE PHLBO3 KEWR with an ETE of 2 hours and 15 minutes.

   KDFW.TRYTN3.LOOSE..MEM.J42.GVE.PHLBO3.KEWR/0215

PRACTICE EXERCISE 1: COMPUTER FIELD FORMAT
(cont'd)

9. Using the information provided, enter proper formats for REMARKS.

Intrafacility remarks:

TRAINING FLIGHT ⊕**TRAINING FLIGHT**

Interfacility remarks:

TCAS INOPERATIVE **O**TCAS INOPERATIVE

Interfacility remarks:

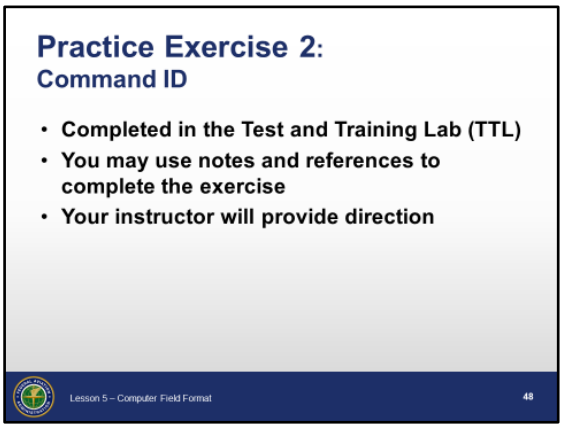
FIRST FLIGHT and

Intrafacility remarks:

TMU REROUTE ⊕**TMU REROUTE O**FIRST FLIGHT

PRACTICE EXERCISE 2 INTRODUCTION

Introduction - Practice Exercise 2: Command ID



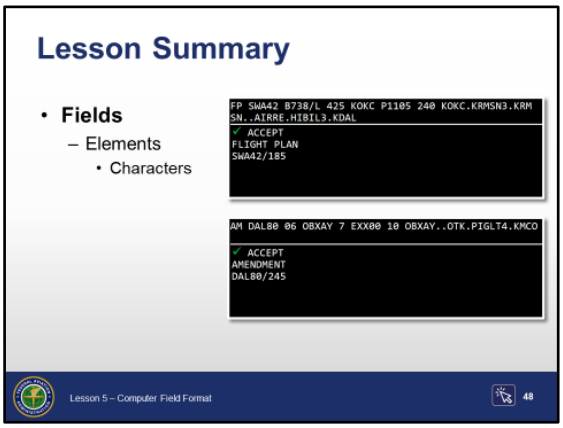
Practice Exercise 2

- Completed in the Test and Training Lab (TTL) at the conclusion of classroom instruction
- Exercise to practice the steps for:
  - Inputting and requesting data in the proper format and sequence
- You may use notes and references to complete the exercise.
- The instructions for this exercise are located after the lesson summary.
- Your instructor will provide direction.

NOTE: *Each student will complete exercise 2 in the Test and Training Lab (TTL) and then complete the end-of-lesson test.*

SUMMARY

Lesson Summary



NOTE: This slide is animated (2 clicks). Review and elaborate briefly on the following:

Format

- ⊙ Fields; parts of a command. Fields may contain groups of data called Elements. Some fields have specific format limitations, such as BCN-04, which only uses numerals 0-7.
  - Elements; smaller units of information within a field. Elements are comprised of Characters.
    - – Characters; letters, numbers and/or symbols

Click to highlight the FP command, review Fields, Elements and Characters.

- ⊙ The FP command requires Fields to be in a specific order.
- ⊙ Field 10 route: unlike elements have one period, like elements have two periods.

Click to highlight the AM command, review Fields, Elements and Characters.

- ⊙ The AM command specifies FLID as the second field, which does not need a field designator, but the other fields must be designated.

NOTE: Each student will complete Exercise 2 in the Test and Training Lab (TTL) and then complete the end-of-lesson test.

Cont'd on next page

SUMMARY *(cont'd)*

Lesson Summary *(Cont'd)*

End-of-Lesson Test

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

- Your instructor will now administer the end-of-lesson test.
- *Administer end of lesson test (ELT01_L05), explain test passing score requirements, time allowed for completing the test, and other procedures for administering test.*

  NOTE: The score required for passing the end-of-lesson test will be in accordance with current FAA directives.

- *Provide feedback on missed questions, including a discussion to explain why particular answers are correct or incorrect.*

PRACTICE EXERCISE 2: COMMAND ID

Purpose

To practice inputting and requesting data in the proper format and sequence.

Materials

You will need the following materials for this exercise:

 Handout Lesson 5 – Practice Exercise 2: Command ID

Directions

This exercise will be conducted in the Test and Training Lab (TTL) at the conclusion of classroom instruction and before the end-of-lesson test. It takes approximately 30 minutes. You may refer to your notes, user manuals and course materials.

 ***NOTE:*** *This exercise must be completed in the TTL at the RA-position.*

1. Create a scenario, 55053_L05_PE02, with the following content:

STEP	REQUIREMENT
1	Create a new scenario for the TTL and label it “55053_L05_PE02”
2	Set scenario run length to 1 hour
3	No targets are required.
4	Do not mark training sector as “Live”
5	Import weather reconstitution message

2. *Refer the students to the handout in their Student Guide*
   - *A copy of the handout is located on the next page of this Instructor Guide.*
3. *Have the students complete the exercise.*
   - *The exercise must be completed in the TTL at the RA Position.*
4. *Assist students as necessary.*

This is a class exercise. Your instructor will provide direction.

PRACTICE EXERCISE 2: COMMAND ID *(cont'd)*

DIRECTIONS

WRITE YOUR ANSWERS IN THE SPACES PROVIDED. YOU MAY REFER TO YOUR NOTES, USER MANUALS AND COURSE MATERIALS.

1. Press each of the following function keys on the keyboard. Observe the Command IDs (Field 01) which are echoed in the MCA View and record them in the chart.

RS	***RS***	SR	***SR***	CRD	***QD***
DROP TRK	***QX***	CODE	***QB***	DM	***DM***
FP	***FP***	HOLD	***QH***	RF	***RF***
RPT	***QR***	TRK	***QT***	HALO	***QP J***
AM	***AM***	RTE	***QU***	FR	***FR***
INT	***QQ***	PVD	***QP***	ALT	***QZ***
WR	***WR***	GI	***GI***	SISO	***SI***