

Initial En Route Qualification Training

Instructor
Lesson 19
Initial Separation of
Departures and Visual
Separation

Course 50148001

LESSON PLAN DATA SHEET

COURSE NAME: INITIAL EN ROUTE QUALIFICATION TRAINING

COURSE NUMBER: 50148001

LESSON TITLE: INITIAL SEPARATION OF DEPARTURES AND VISUAL

SEPARATION

DURATION: 10+30 HOURS

DATE REVISED: 2022-02 **VERSION:** V.2022-02

REFERENCE(S): FAA ORDER JO 7110.65, AIR TRAFFIC CONTROL

HANDOUT(S): InitSep-parttask.f2k - INITIAL SEPARATION PART-TASK STRIPS

EXERCISE(S)/ ACTIVITY(S): EXERCISE: APPLYING INITIAL SEPARATION, PART 1 AND PART 2

END-OF-LESSON

TEST:

YES (REFER TO ELT19.PDF)

PERFORMANCE

TEST:

NONE

NONE

MATERIALS: NONE

OTHER PERTINENT

INFORMATION:

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

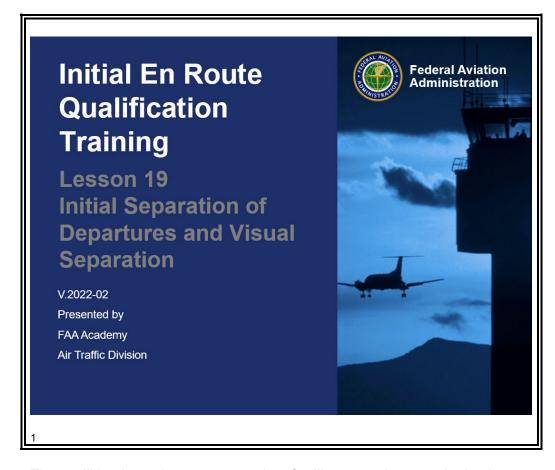
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INTRODUCTION

Gain Attention





There will be times that numerous aircraft will want to depart a single airport at the same time. In this lesson, you will learn separation rules that will allow you to separate departing aircraft from other departures and arrivals. After applying initial separation, you will then safely and efficiently transition these aircraft into the en route environment using previously learned separation procedures.

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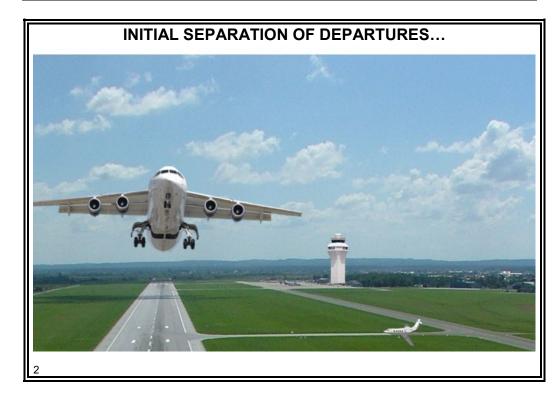
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INTRODUCTION (Continued)

Opening Scenario





Learning to use nonradar separation minima between successive departing aircraft and/or visual separation between arriving and departing aircraft will help you to expedite traffic into and out of airports.

Purpose

This lesson covers the rules and procedures for providing initial separation between departures. It also covers application of visual separation between arrivals and departures.

INTRODUCTION (Continued)

Lesson **Objectives**



LESSON OBJECTIVES

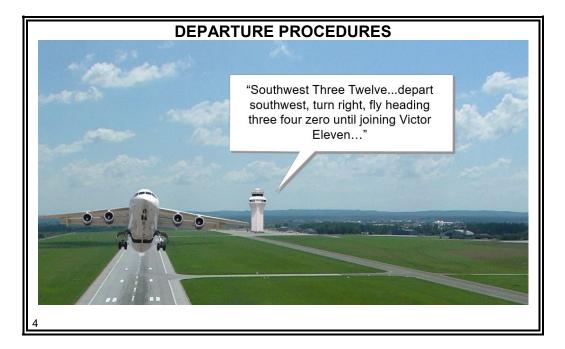
- On an End-of-Lesson Test and in accordance with FAA Order JO 7110.65, you will identify procedures and phraseology for:
 - Initial separation between successive departing aircraft
 - Authorizing a nonapproach control tower to provide separation between arriving and departing aircraft

F NOTE: Teach from graphic.

DEPARTURE PROCEDURES

Clearance Items JO 7110.65, par. 4-3-2



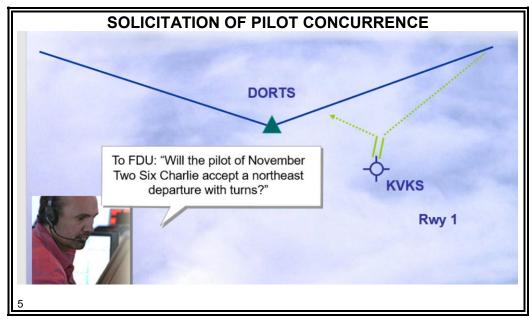


- At airports with airport traffic control service, specify as necessary:
 - · Direction of takeoff/turn
 - Initial heading/azimuth to be flown

DEPARTURE PROCEDURES (Continued)

Clearance Items (Cont'd) JO 7110.65, par. 4-3-2





- At airports within Class E surface areas, but without airport traffic control service, specify the following, if necessary, after soliciting/obtaining the pilot's concurrence:
 - Direction of takeoff/turn
 - Initial heading/azimuth to be flown

NOTE: These items can be obtained/solicited directly from the pilot or relayed by a Flight Data Communication Specialist.



"FLY RUNWAY HEADING."

"DEPART (direction or runway)."

"TURN LEFT/RIGHT."

DEPARTURE PROCEDURES (Continued)

Clearance Items (Cont'd)

JO 7110.65, par. 4-3-2

At all other airports

- Do not specify direction of takeoff/turn after takeoff
- If necessary to specify an initial heading/azimuth to be flown after takeoff:
 - Issue the initial heading/azimuth so as to apply only within controlled airspace

→ Phraseology

"WHEN ENTERING CONTROLLED AIRSPACE (instruction), FLY HEADING (degrees) UNTIL REACHING (altitude, point, or fix) BEFORE PROCEEDING ON COURSE,

or

FLY A (degree) BEARING/AZIMUTH FROM/TO (fix) UNTIL (time),

or

UNTIL REACHING (fix or altitude)."

Where only textually described instrument departure procedures are published and pilot compliance is necessary to ensure separation, include the procedure in the ATC clearance.

→ Phraseology

"DEPART VIA THE (airport name) (runway number) DEPARTURE PROCEDURE."

NOTE: Consider aircraft speed and climb characteristics.

 Compatibility with a procedure issued may be verified by asking the pilot if items obtained will allow compliance with local traffic pattern, terrain, or obstruction avoidance

Phraseology Example

"Verify this clearance will allow compliance with local traffic pattern and terrain or obstruction avoidance."

NOTE: Students need to use the above phraseology at 0M8 and VKS when a departure clearance (including initial departure instructions) is issued that differs from the pilot's filed route.

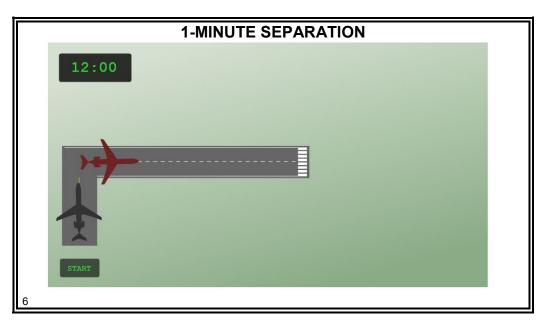
NOTE: If a published IFR departure procedure is **not** included in an ATC clearance, compliance with such a procedure is the pilot's prerogative.

Diverging CoursesJO 7110.65, par. 6-2-1

 Courses must diverge by 45 degrees or more after departure from adjacent or same airport.

NOTE: Controllers can make courses diverge by issuing turns and headings.





- **MOTE: Introduce topic and then click START to play animation.

 "Animation Complete" will display when the animation is finished. Click the REPLAY button to play animation again.
- **NOTE:** Click outside the animation to advance to the next slide.
- Separation minima

NOTE: Consider aircraft performance characteristics.

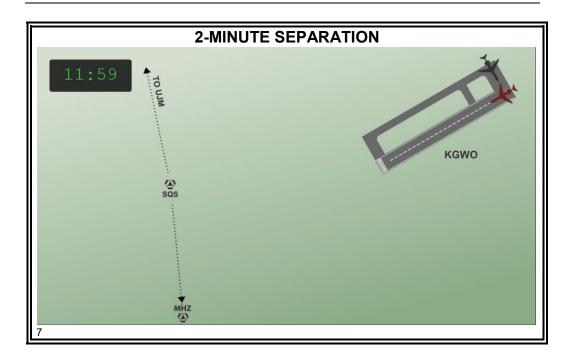
- For courses diverging immediately after takeoff:
 - 1 minute



"November One Two Three released one minute after November Four Five Six departs."

(Continued)

Diverging Courses (Cont'd) JO 7110.65, par. 6-2-1



- **NOTE: Introduce topic and then click START to play animation.

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- **NOTE:** Click outside the animation to advance to the next slide.
 - For courses diverging within 5 minutes after takeoff (same course initially):
 - 2 minutes



"November One Two Three released two minutes after November Four Five Six departs."

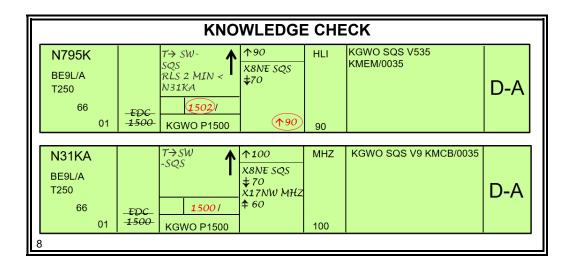
NOTE: Greenwood to Sidon is 10NM. Courses will diverge by 45 degrees by 5 minutes after takeoff as long as the first aircraft is 2 miles per minute or faster.

(Continued)

Knowledge Check







NOTE: Click once to show answer. Circles will be red.

NOTE: Restriction is for separation from Columbus MOA.

ANSWER: Check aircraft speeds and direction of takeoff; both aircraft must depart same direction

(Continued)

Knowledge Check (Cont'd)





KNOWLEDGE CHECK

QUESTION: What phraseology would you use to issue the necessary instructions to each of the aircraft in the previous question?

NOTE: Click once to show answer.

ANSWER: "November Three One Kilo Alpha, cleared to McComb Airport via depart southwest, direct Sidon, Victor Niner as filed. Cross eight miles northeast Sidon VORTAC at or below seven thousand, cross one seven miles northwest Magnolia VORTAC at or above six thousand. Climb and maintain one zero thousand."

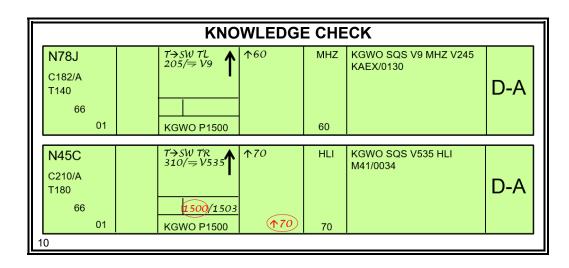
"November Seven Niner Five Kilo, cleared to Memphis Airport via depart southwest, direct Sidon, Victor Five Thirty-Five as filed. Cross eight miles northeast Sidon VORTAC at or below seven thousand, climb and maintain niner thousand. November Seven Niner Five Kilo released two minutes after November Three One Kilo Alpha departs."

(Continued)

Knowledge Check (Cont'd)







NOTE: Click once to show answer.

ANSWER: A

(Continued)

Knowledge Check (Cont'd)





KNOWLEDGE CHECK

QUESTION: Select the correct phraseology for:

T→SW TL 200/=>V555

- A. "Depart southwest heading two zero zero until joining Victor Five Fifty-Five."
- B. "Depart southwest, turn left two zero zero until joining Victor Five Fifty-Five."
- C. "Depart southwest, turn left fly heading two zero zero until joining Victor Five Fifty-Five."

** NOTE: Click once to show answer.

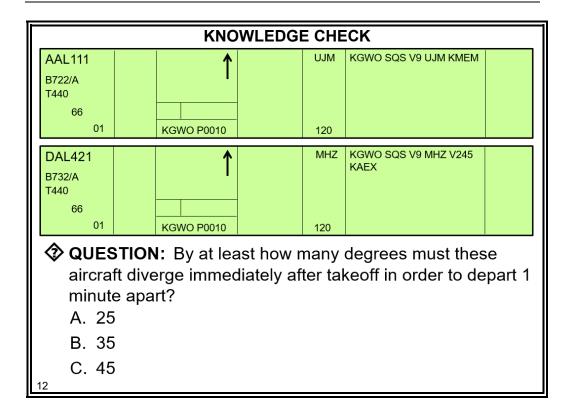
ANSWER: C

(Continued)

Knowledge Check (Cont'd)







S NOTE: Click once to show answer.

ANSWER: C

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Exercise





APPLYING INITIAL SEPARATION EXERCISE, PART 1



Purpose: to practice recording clearances and control information and writing phraseology

Directions: record the clearance and control information on the flight progress strips and write the appropriate phraseology

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Directions

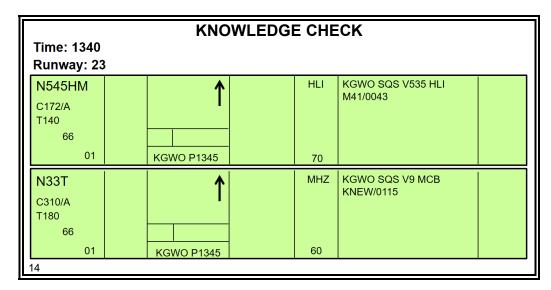
For questions 1 and 2, record the clearance and control information on the flight progress strips and write the appropriate phraseology in the space provided.

(Continued)

Questions

1. Using the 1-minute rule, record the clearance and control information on the flight progress strips and write the appropriate phraseology.

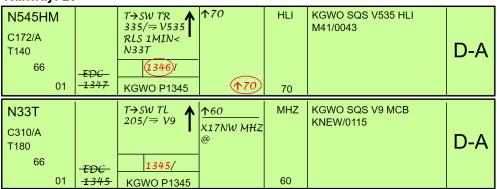




FNOTE: Click once to show answer.

ANSWER:

Time: 1340 Runway: 23



(Continued)

Questions
(Cont'd)

"November Three Three Tango, cleared to New Orleans Lakefront Airport via

Depart southwest, turn left, fly heading two zero five until joining Victor Niner,

Victor Niner, McComb, direct. Cross one seven miles northwest Magnolia

VORTAC established on Victor Niner at and maintain six thousand."

"November Five Four Five Hotel Mike, cleared to Holly Springs Airport via

depart southwest, turn right, fly heading three three five until joining Victor

Five Thirty-Five, Victor Five Thirty-Five as filed. Climb and maintain seven

thousand. November Five Four Five Hotel Mike released one minute after

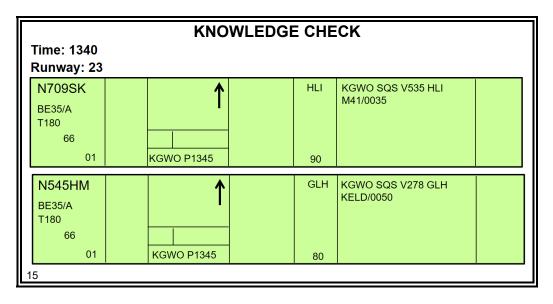
November Three Tango departs."

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Questions (Cont'd)

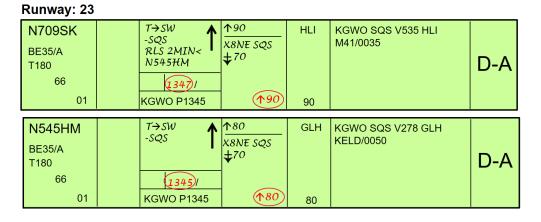
2. Using the 2-minute rule, record the clearance and control information on the flight progress strips and write the appropriate phraseology.





NOTE: Click once to show answer.

ANSWER: Time: 1340



(Continued)

Questions
(Cont'd)

ANSWER:

"November Five Four Five Hotel Mike, cleared to El Dorado Airport via depart southwest, direct Sidon, Victor Two Seventy-Eight. Cross eight miles northeast Sidon VORTAC at or below seven thousand. Climb and maintain eight thousand."

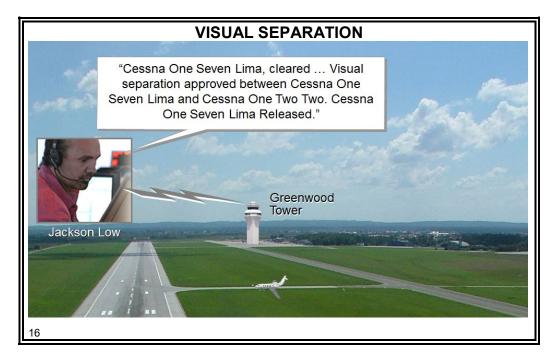
"November Seven Zero Niner Sierra Kilo, cleared to Holly Springs Airport via depart southwest, direct Sidon, Victor Five Thirty-Five Holly Springs direct.

Cross eight miles northeast Sidon VORTAC on V535 at or below seven thousand. Climb and maintain eight thousand. November Seven Zero Niner Sierra Kilo released two minutes after November Five Four Five Hotel Mike departs."

VISUAL SEPARATION

Application JO 7110.65, par. 7-2-1





Nonapproach control towers may be authorized to provide visual separation between aircraft within surface areas or designated areas provided other separation is assured before and after the application of visual separation.

→ Phraseology

"VISUAL SEPARATION APPROVED BETWEEN (identification) AND (identification).

And for departing aircraft,

(Departing/succeeding aircraft) (ACID), RELEASED."

NOTE: Give stripmarking examples.

NOTE: Both aircraft **must** be visually observed by the tower.

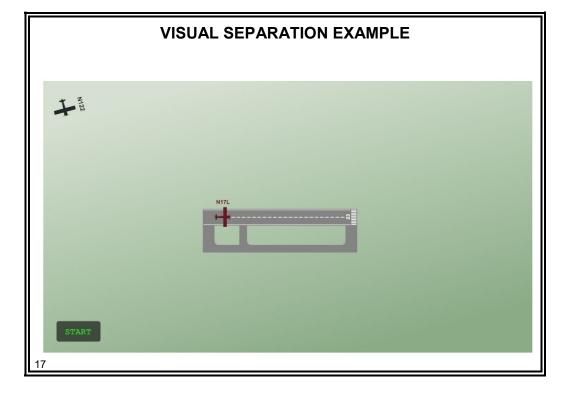
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VISUAL SEPARATION (Continued)

Application (Cont'd) JO 7110.65, par. 7-2-1



- **NOTE: Introduce topic and then click START to play animation.

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- **NOTE:** Click outside the animation to advance to the next slide.

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VISUAL SEPARATION (Continued)

Knowledge Check





KNOWLEDGE CHECK

- **QUESTION:** N316K is on approach to KGWO Airport. N13Y requests clearance to depart. What phraseology would the center controller use to authorize GWO Tower to provide visual separation?
 - A. "Visual separation approved between November One Three Yankee and November Three One Six Kilo. November One Three Yankee released."
 - B. "Release November One Three Yankee your discretion when November Three One Six Kilo is in sight."
 - C. "Apply VFR between November One Three Yankee and November Three One Six Kilo."

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NOTE: Click once to show answer.

ANSWER: A

Exercise





APPLYING INITIAL SEPARATION EXERCISE, PART 2



Purpose: to practice recording clearances and control information and writing phraseology

Directions: record the clearance and control information on the flight progress strips and write the appropriate phraseology

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Directions

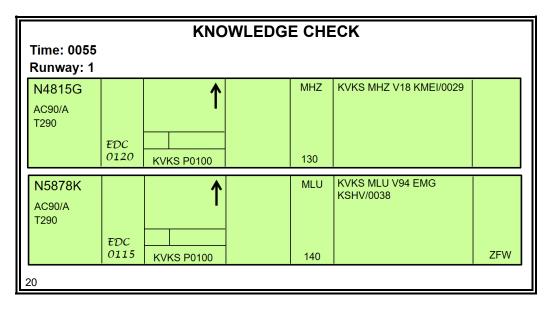
For questions 1 through 4, record the coordination, clearance, and control information on the flight progress strips and write the appropriate phraseology in the space provided.

(Continued)

Questions

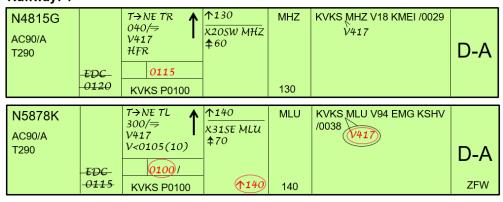
1. Using the 1-minute rule, record the coordination, clearance, and control information on the flight progress strips and write the appropriate phraseology.





NOTE: Click once to show answer. Point out that the pilots' concurrence should be solicited/obtained and coordination effected prior to issuance of clearances. Tell students that N4815G coordination is on the MHZ strip.

ANSWER: Time: 0055 Runway: 1



(Continued)

Questions (Cont'd)

ANSWER:

Coordinate with the next sector before issuing clearance. "November Five Eight Seven Eight Kilo, cleared from Vicksburg Airport to Shreveport Airport via depart northeast, turn left, fly heading three zero zero until joining Victor Four Seventeen, Victor Four Seventeen, Monroe, as filed. Cross three one miles southeast Monroe VORTAC established on Victor Four Seventeen at or above seven thousand. Climb and maintain one four thousand. Clearance void if not off by zero one zero five. If not off by zero one zero five, advise Aero Center not later than zero one one zero of intentions. Verify this clearance will allow compliance with local traffic pattern and terrain or obstruction avoidance. Advise (ACID) Released for Departure, Contact AERO Center One Two Five Point Zero." "November Four Eight One Five Golf, cleared from Vicksburg Airport to Meridian Airport via depart northeast, turn right, fly heading zero four zero until joining Victor Four Seventeen, Victor Four Seventeen, Magnolia, as filed. Cross two zero miles southwest Magnolia VORTAC established on Victor Four Seventeen at or above six thousand. Climb and maintain one three thousand. Verify this clearance will allow compliance with local traffic pattern and terrain or obstruction avoidance. Hold for release." Once N5878K is airborne and has reported on frequency, N4815G may be released one full minute later. Advise (ACID) Released for Departure,

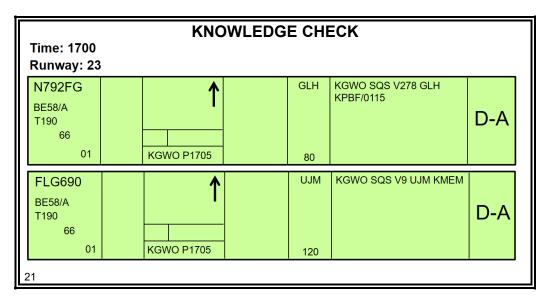
Contact AERO Center One Two Five Point Zero."

(Continued)

Questions (Cont'd)

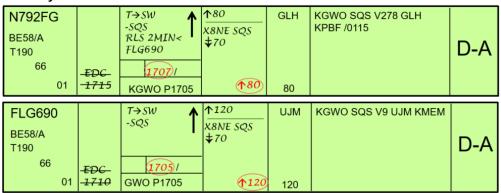
2. Using the 2-minute rule, record the coordination, clearance, and control information on the flight progress strips and write the appropriate phraseology.





NOTE: Click once to show answer.

ANSWER: Time: 1700 Runway: 23



(Continued)

Questions (Cont'd)

ANSWER:

Coordinate with the next sector before issuing clearance. "Flagship Six

Ninety, cleared to Memphis Airport via depart southwest, direct Sidon,

Victor Niner, Marvell, direct. Cross eight miles northeast Sidon VORTAC

at or below seven thousand. Climb and maintain one two thousand."

"November Seven Niner Two Foxtrot Golf, cleared to Pine Bluff Airport via

depart southwest, direct Sidon, Victor Two Seventy-Eight,

Greenville, direct. Cross eight miles northeast Sidon VORTAC at or below

seven thousand. Climb and maintain eight thousand. November

Seven Niner Two Foxtrot Golf released two minutes after Flagship Six Ninety

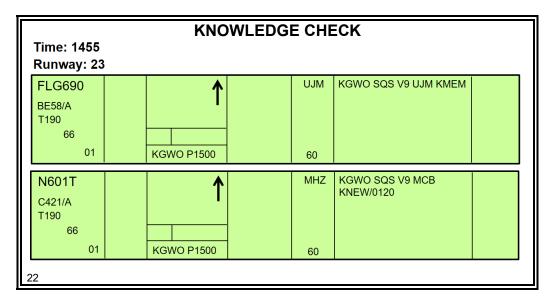
departs."

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Questions (Cont'd)

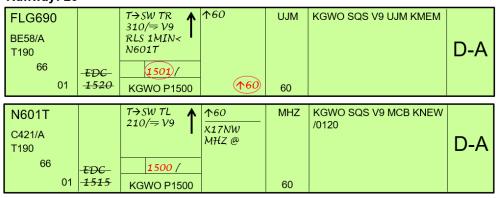
3. Using the 1-minute rule, record the coordination, clearance, and control information on the flight progress strips and write the appropriate phraseology.





S NOTE: Click once to show answer.

ANSWER: Time: 1455 Runway: 23



(Continued)

Questions (Cont'd)	ANSWER:
	"Golden Eagle Six Zero One Tango, cleared to New Orleans Lakefront
	Airport via depart southwest, turn left, fly heading two one zero until joining
	Victor Niner, Victor Niner, McComb, direct. Cross one seven miles northwest
	Magnolia VORTAC established on Victor Niner at and maintain six thousand."
	"Flagship Six Ninety, cleared to Memphis Airport via depart southwest turn
	right, fly heading three one zero until joining Victor Niner, Victor Niner,
	Marvell, direct. Climb and maintain six thousand. Flagship
	Six Ninety released one minute after Golden Eagle Six Zero One Tango
	departs."

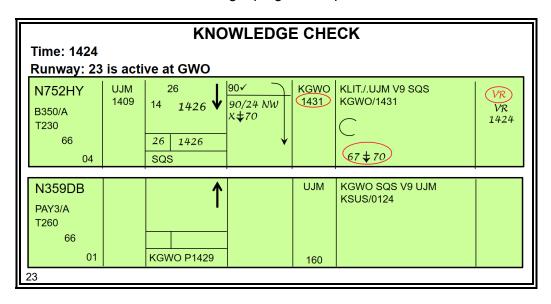
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(Continued)

Questions (Cont'd)

4. Write the phraseology to clear N359DB and authorize GWO ATCT to separate N752HY and N359DB. Record the coordination, clearance, and control information on the flight progress strips.

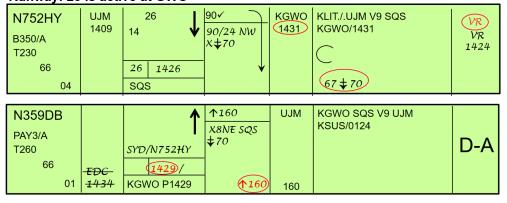




TO NOTE: Click once to show answer.

ANSWER: Time: 1424

Runway: 23 is active at GWO



(Continued)

Questions (Cont'd)

ANSWER:

Coordinate with the next sector before issuing clearance. "November Three

Five Niner Delta Bravo, cleared to Spirit of St. Louis Airport as filed via

Sidon. Cross eight miles northeast Sidon VORTAC at or below

seven thousand. Climb and maintain one six thousand. Visual separation

approved between November Three Five Niner Delta Bravo and November

Seven Five Two Hotel Yankee. November Three Five Niner Delta Bravo

released."

IN CONCLUSION

Lesson **Review**



LESSON REVIEW

The following topics were covered in this lesson:

- Departure procedures
- Initial separation of successive departures
- Visual separation





** NOTE: Teach from graphic. Review and elaborate briefly on the topics covered in this lesson.

End-of-**Lesson Test**



END-OF-LESSON TEST

Initial Separation of **Departures and** Visual **Separation**



Part-Task Lab



You will now complete the Initial Separation part-task lab using InitSepparttask.f2k strips.

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