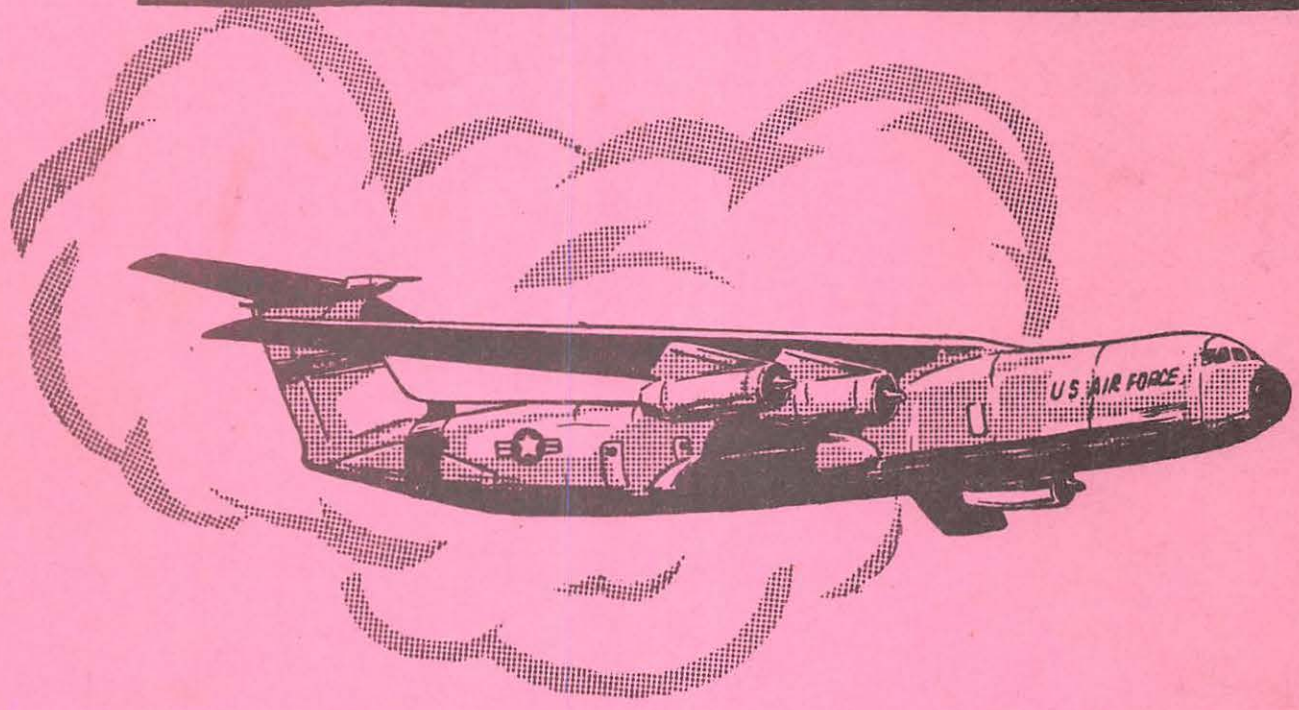
SEEGER

MILITARY AIRLIFT COMMAND

C-141

PILOT

Study Guide



57th MILITARY AIRLIFT SQUADRON, TNG

443d MILITARY AIRLIFT WING TNG (MAC)

ALTUS AIR FORCE BASE, OKLAHOMA

57th MILITARY AIRLIFT SQUADRON, TNG
443d MILITARY AIRLIFT WING, TNG (MAC)
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C-141 PILOT STUDY GUIDE

FOREWORD

Welcome to the "University of MAC". In the few short weeks ahead you have the opportunity to learn more about the C-141 "Starlifter" than you will ever have in a similar interval again.

The C-141 is the first jet transport designed specifically to fulfill military airlift requirements. It was built for safety, reliability, and mission capability incorporating the latest "State of the Art" equipment and instrumentation. Learning to fly the C-141 will be the easiest part of your training. However, learning systems operation, crew coordination, and standardized normal and emergency procedures will require concentration and application.

Standardization itself promotes safety. It will be our aim here at the TTU to train you in standardized procedures - - thus, by this training, we can insure that you will continue to help MAC maintain its outstanding flying safety record.

The instructors at the TTU have been carefully selected and thoroughly trained. The curriculum has been planned for maximum learning effectiveness, but only you can do the learning. Success depends on YOU.

Good luck and safe flying!

Barney J. Milner

BARNEY J. MILNER, Lt Colonel, USAF
Commander 57MAS

15 September 1971

C-141 PILOT STUDY GUIDE

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CHAPTER 5 FLIGHT MANEUVERS AND INSTRUMENT FLYING PROCEDURES

CHAPTER 1

GENERAL INFORMATION

OBJECTIVE

The objective of this study guide is to provide student pilots a step-by-step sequence of simulator and aircraft flight training, and to assist you in preparing yourself for each mission.

TRAINING

The flying phase of the C-141 TTU training is divided into two parts and requires approximately 30 days. Pilots and flight engineers receive most of their training concurrently. Normally your flying instructor will conduct both the simulator and flying phase of your training.

1. Flight Simulator

Flight simulator training will consist of nine missions. Mission Nr. 9 will be a copilot duties evaluation, administered by a flight examiner. During each mission, pilots will receive 2 hours pilot time and 2 hours copilot time. A total of 15 days is allocated in the curriculum for the Flight Simulator.

2. Flying Training

Flying training requires approximately 15 days. Pilots will fly a minimum of six missions plus an evaluation flight. No minimum times are established; you may be recommended for a flight evaluation when the objectives listed in the first six flight missions have been satisfactorily accomplished. One cross country mission will be devoted to right seat training. Your last mission will be allotted for the Flight Evaluation. Additional ground training will be accomplished by your instructor. A checklist of the items to be covered during ground training is in Chapter 4.

EMERGENCY CHECKLISTS

The emergency checklists contain boldface type items which are called CRITICAL ACTION items, and constitute the minimum required steps to be taken by a crew member to insure survival. CRITICAL ACTION items must be committed to memory. During the academic phase of training you should begin memorizing these items.

STUDY REFERENCES

The following study references will be issued to each pilot.

1. T.O. 1C-141A-1; T.O. 1C-141A-1-1; T.O. 1C-141A-1CL-1
2. Study Guide C-141 Pilot, 57 MASq (Flying Training)
3. AFM 51-37, Instrument Flying
4. MM 55-1

Self study in the following areas prior to beginning the flight simulator phase of training will accelerate your initial performance immeasurably.

1. CRITICAL ACTION checklist items
2. Normal checklist responses (By crew position, i.e., P, CP)
3. Panel Familiarization Trainer
   a. Equipment location
   b. Switch positions

The Panel Familiarization Trainers are located in Bldg 444 and are available for your use most of the time.

Upon completion of the TTU, you will turn in the T.O.s. The study guides become your property when issued. All study references will be current when issued. If changes or supplements are received, you will post and file changes as directed.

END-OF-COURSE OBJECTIVES

Upon completion of the simulator and flying phase you should be able to satisfactorily accomplish the following objectives:

1. Graduates will be able to accomplish normal and emergency checklists during all phases of operation.

2. Graduates will know what actions are required and be able to direct crew coordination during non-critical emergency procedures/malfunctions (i.e., situation that permit reference to the Dash-1).

3. Graduates will acquire and demonstrate the ability to take the proper corrective action during critical emergencies (i.e., situations which require immediate corrective action, precluding reference to the Dash-1).

4. Graduates will be able to meet the minimum standards for all flight maneuvers as established by MM 60-1, Table I. (See page 1-3)

5. Graduates will understand the aircraft systems and performance capabilities sufficiently to explain pilot actions as they relate to systems operation, associated systems and subsequent mission accomplishment.

6. Graduates will be able to accomplish all Dash-1 and MM 55-1 directed duties for the pilot not flying the aircraft (right seat duties) as these duties relate to CONUS operations.

TABLE I

STANDARDS TO BE APPLIED WHEN EVALUATING APPLICABLE MANEUVERS

1. Bold Print Items. Each item sequentially and accurately acknowledged.
2. ARTC Instructions. Acknowledged, understood and complied with.
3. Unusual Attitudes. Readily recognized attitude of the aircraft and positive recovery accomplished using prescribed procedures
4. Missed Approach. Missed approach must be initiated at the designated missed approach point as outlined in the approach plate or acknowledged instructions.
5. Decision Height. Appropriate action must be initiated to comply with the intent of decision height.
6. Touchdown. For a normal landing, touchdown should occur within 1500 feet of the computed touchdown point.
7. Aircraft Control. Altitude, airspeed and azimuth will be as follows:

NOTE: The flight examiner may accept deviations from the following flight tolerances if the pilot is applying proper corrections to attain the desired flight profile.

MANEUVER	ALTITUDE	TARGET AIRSPEED	AZIMUTH
a. Cruise at Altitude	± 150'	± 10 kts	a-g. Proper correction to maintain prescribed flight profile or controller instructions.
b. Holding Pattern	± 150' 10,000' and above ± 100' below 10,000'		
c. VFR Traffic Pattern	+ 100' NOTE: Minimum alts depicted in flt manuals will be lower tolerances		
d. Instrument Approach Pattern Prior to Final	± 100'		
e. Nonprecision Final Approach	MDA ± 50' until runway in sight or starting missed approach	+ 10 kts - 5 kts	
f. Circling	MDA ± 50' until runway in sight & in position to descend for final approach	+ 10 kts - 5 kts	
g. GCA Final	Compliance with instructions	- 10 kts - 5 kts	
h. ILS Final	Glide slope indicator between inner dots	+ 10 kts - 5 kts	h. Course deviation indicator between inner dots
i. Threshold	50' minimum altitude. NOTE 1: ILS & GCA - Comply with glide slope. NOTE 2: Short runway criteria as depicted in 55-1 manuals.	± 5 kts	i. Aligned with runway

Figure 3-1

CHAPTER 2

C-141 FLIGHT SIMULATOR TRAINING

GENERAL

This phase of training will be initiated at the end of the ground school phase and will terminate during flying training. The major portion of emergency procedure training will be accomplished in the simulator. Pilots will split the pilot and copilot time. A breakdown of training time for each mission follows:

Briefing . . . . . 1+45*
Flight time. . . . . 2+00

(Pilots change seats)

Flight time. . . . . 2+00
Post flight critique . . . . As required

* This time may be adjusted as deemed necessary by the instructor.

Pilots will bring the following equipment for all simulator flights:

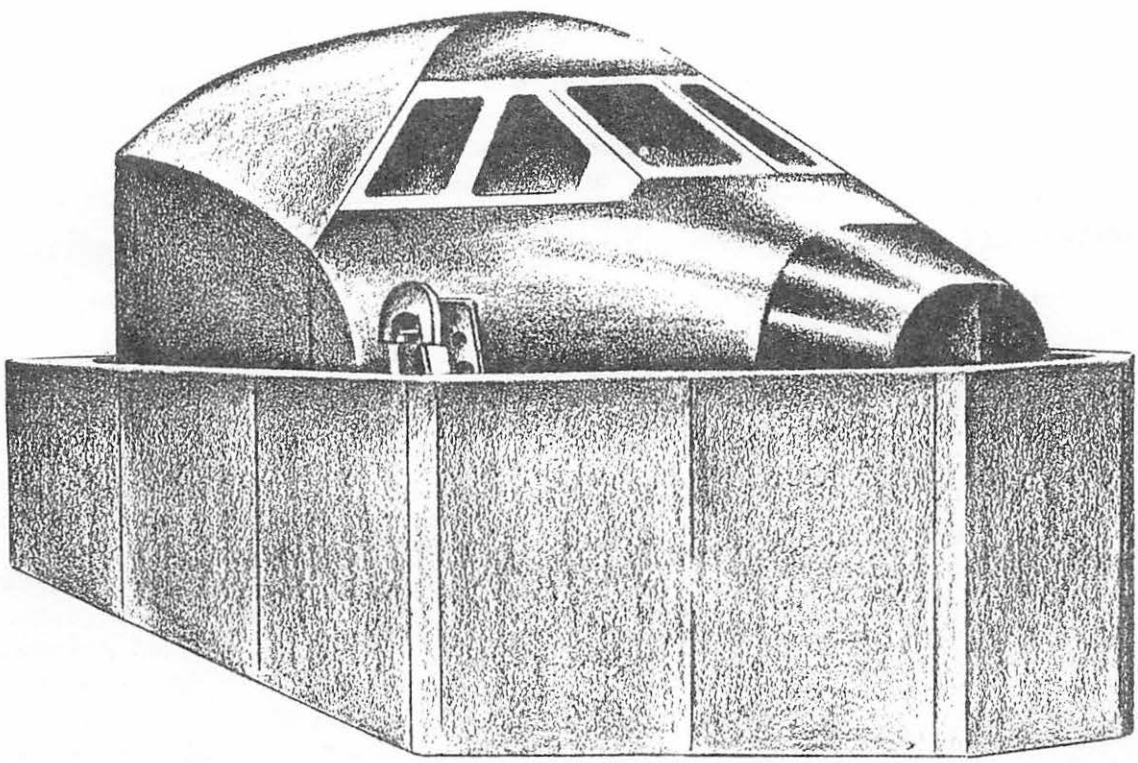
1. Flashlight
2. Oxygen mask (Quick donning, compatible with headset)
3. Current T.O.s and Checklists
4. C-141 Study Guide Pilot (57MASq)
5. Headset

The simulator course is designed to begin with familiarization and proceed step-by-step through the normal, instrument, and emergency procedures. The main purpose of the simulator is to teach normal, instrument, and emergency procedures and develop crew coordination. Copilot duties will be stressed during this phase. This will allow the flying phase to be devoted primarily to normal procedures.

You must become familiar with the referenced study material before each mission. The appropriate quiz and performance problem will be completed prior to reporting for the mission. Use the TOLD card provided to complete and record the performance data. Takeoff and landing data will be computed from T.O. 1C-141A-1-1 during the simulator phase.

A DD 175 (Military Flight Plan) is provided to indicate departure and route of flight for each mission. A DD 175-1 (Flight Weather Brief) is also available for TOLD Card computations, current departure weather and forecast arrival weather. These pages should be removed from your Study Guide and taken into the Simulator for convenience in recording clearances.

In addition to the above forms you will be provided a copy of the SID and the first Instrument Approach to be flown. These forms need not be removed from your Study Guide but are included for study prior to reporting for each mission.



C-141 AIRCRAFT SIMULATOR

INCIDENT - PHYSIOLOGICAL INCAPACITATION OF AIRCRAFT COMMANDER

The aircraft was enroute to a CONUS base at cruise altitude on autopilot, when the aircraft commander suddenly underwent convulsions and became unconscious. The flight engineer, with the help of a passenger, removed him from his seat and treated him the rear of the aircraft. The copilot took command of the aircraft in the left seat and directed one of the pilot passengers to occupy the copilot's seat. Although a qualified pilot, the acting copilot had very little experience in this particular type aircraft. An emergency was declared and an approach attempted at the nearest field (a civilian field) just 10 miles off course. Because of marginal WX conditions, a missed approach was made after a back course ILS approach. A front course ILS approach was abandoned when the glide slope receiver failed. The pilot now elected to fly to a nearby Air Force Base where better WX and a hospital were available. A GCA approach and uneventful landing were then made in WX of 500 foot ceiling and 1 7/8 mi. visibility.

Although the copilot had minimum time in the aircraft, he effectively assumed control of the aircraft and the emergency situation. He safely landed the aircraft under marginal WX conditions with minimum assistance from the other pilot. He was subsequently recommended for the Command Outstanding Individual Award and a Well Done Award.

INCIDENT - PHYSIOLOGICAL INCAPACITATION OF AIRCRAFT COMMANDER

The pilot suffered a "seizure disorder" while on normal descent into an overseas base.

The MAC aircraft was on a normal descent when the aircraft commander emitted a long sustained yell. He then began showing marked erratic movements, frothing at the mouth, with some blood present (from biting his tongue). He began to stiffen up and was taken from the seat with great difficulty.

The copilot took control of the aircraft when he realized that the pilot had become incapacitated. He advised approach control of the circumstances and requested that an ambulance and a flight surgeon meet the aircraft. A courier, with previous experience in the aircraft, occupied the left seat and handled subsequent radio calls. The copilot completed the required checklists, performed the items called for, and flew the aircraft from the right seat. During the descent, course deviations were necessary due to numerous CB build-ups in the area. A standard ILS approach was completed, breaking out at approximately 2500 ft. through a broken to overcast cloud layer. A safe, successful landing was accomlished.

The copilot was highly praised by the aircraft crew members for his performance during this unusual situation. He is being submitted for the MAC Outstanding Individual Safety Award.

Extracted from 1969 MAC Incident Reports

C-141 FLIGHT SIMULATOR - MISSION 1

MISSION

This mission will be devoted primarily to normal procedures. Special emphasis will be placed on the proper radio selection and tuning. Use of the ADI, HSI and VSFI during departures and approaches will be stressed. Airspeeds and configuration during ILS patterns will be emphasized. Flights No. 1 and No. 2 will be training missions in the Altus AFB local area.

AIRDROME INFORMATION

Altus AFB active runway 35, RCR 23, NOTAMS: None
Runway length 13,440'.

AIRCRAFT INFORMATION

Operating weight 135,664 lbs, ramp fuel 75,000 lbs, no cargo, CG 30.4%.

OBJECTIVE

At the completion of this mission you should be able to:

1. Use correct terminology and locate applicable switches, controls and indicators while accomplishing all normal checklists.

2. Complete a thorough oxygen mask/system check.

3. State the normal cockpit procedures which may be accomplished prior to checklist initiation.

4. Turn on, test, and set the radar altimeter.

5. Recognize fire/overheat audible and visual warning signals.

6. Turn on and tune COM/NAV radios, and setup pilot/copilot interphone panel and nav-select panels.

7. With verbal IP assistance:
   a. Start the engines
   b. Perform a takeoff
   c. Fly an ILS approach
   d. Perform copilot duties during the above maneuvers

8. Fly course intercepts in accordance with AFM 51-37 using the
   a. HSI
   b. BDHI

9. State the maximum and desired bank angle during
   a. Flap retraction
   b. IFR climb, cruise and descent
   c. ILS approaches

MILITARY FLIGHT PLAN	AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB OK	AIRCRAFT SERIAL NO.

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
☒ IFR ☐ DVFR ☐ VFR ☐ PVFR		HC-141A	400		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	STANDARD INSTRUMENT DEPARTURE TO
VFR/OT	KLTS	RADAR VECTORS	VFR/OT

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		200 NM RADIUS LTS	ALTUS AFB	4+00

REMARKS

FULL STOP FOR SEAT CHANGE AFTER 2+00

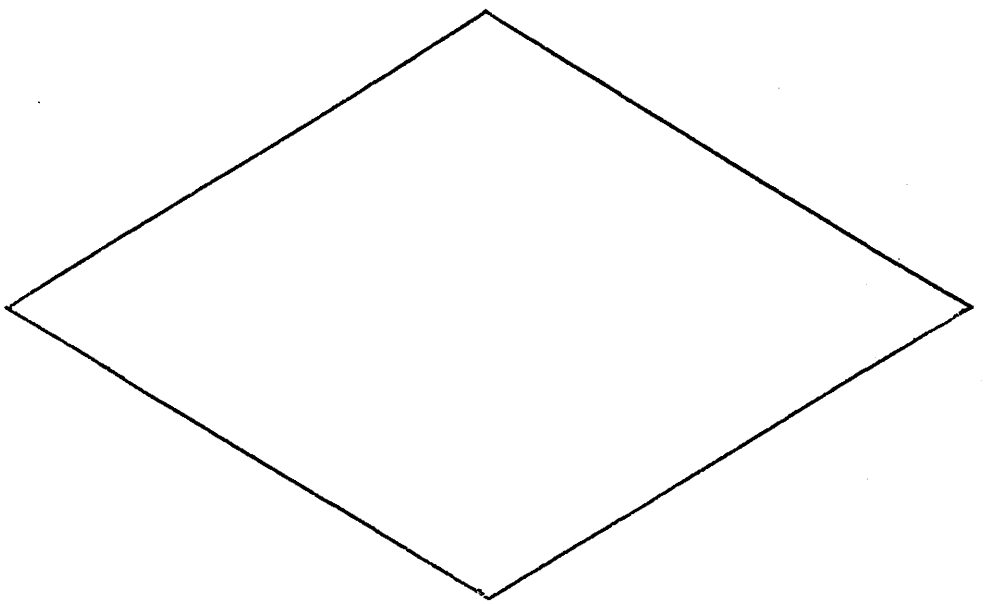
RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+25	—	—	—	X	X	X	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE
—	—		

CREW/PASSENGER LIST — ☐ *Attached* ☐ *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				



FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1300 Z	1700 Z	Z		20 APR 1971	C-141 0173

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+17 °C	°C	3210	°C	+1468 FT	FT	DRY

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
3215	NONE

REMARKS/TAKEOFF ALTN FCST

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
200	KLTS-KLTS 3430 -15

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS ___ MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
10000 FT AGL	CNTRL OK.	120 FT MSL	CNTRL OK.	120 FT MSL	CNTRL OK.

THUNDERSTORMS (within fifty miles of route)

MWWA NO. 15

☒ NONE ☐ AREA ☐ LINE

- ☐ ISOLATED 1–2%
- ☐ FEW 3–15%
- ☐ SCATTERED 16–45%
- ☐ NUMEROUS–MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION

TURBULENCE (within ten miles of route not associated with TSTMS)

CAT ADVISORY Z

☒ NONE	IN CLEAR	IN CLOUD
LIGHT		
MOD		
SVR		
EXTREME		

LEVELS

LOCATION

ICING (within ten miles of route not associated with TSTMS)

NONE ☒

	RIME	MIXED	CLEAR
TRACE			
LIGHT			
MOD			
SVR			

LEVELS

LOCATION

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE ☒

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS				
FRZG				

LOCATION

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	CLR	10	3210	30.00 INS	1600 Z TO 1800 Z
ALTERNATE				INS	Z TO Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT KLTS

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	Z
	1200 Z	Mgt D. M. Cuidy	EXTENDED TO	Z
			WEA REBRIEFED AT	Z
			FORECASTER'S INITIALS	

WEA FCLTY	TAPE NO	START	STOP	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING
		Z	Z		

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 209264 CG 30.4 OAT +12 °C PA 1468

WIND-DIR 320 VEL 10 OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 13040 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT 1.912 EPR-GO AR 1.907 REV LIM 9.6

X-WIND 5 COMP 8½ CALC 4½ GUST 0

TF 18.45 TOF 47.7 CFL 3050

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 106 V_R ✓ V_{ROT} 111 $V_{B(MAX)}$ 177

STAB. ST 2.1 V_{MCO} 125 V_{MRF} 150

EMERGENCY RETURN

THRESH. 119 LDG DIST 3450

FUEL DUMP

GW 209,264 -257500 = _____ FUEL _____ -75000 = _____

_____ _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT	1.91
V_{GO}	111
V_{ROT}	111
V_{MCO}	125
V_{MFR}	150
STAB. SET 2.1	REV LIM 9.6

EMER RET

THRESH.	119
EPR-GO AR	1.90
LDG DIST 3450	DUMPTIME 0

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	REV LIM

STUDY REFERENCES - SIMULATOR MISSION 1

T.O. 1C-141A-1

SECTION II	Preparation for Flight	2-1,2
	Review BEFORE STARTING ENGINES thru BEFORE LEAVING AIRCRAFT	2-24 thru 66
	Study takeoff text	2-43 thru 45
	Study After Takeoff Climb text	2-47
	Study Go-Around pattern	2-61
SECTION IV	Low altitude radar altimeter system	4-48,50
SECTION V	Operating Limitations	5-2,6,8,10,13
SECTION VII	Engine starting	7-5
SECTION IX	ILS approach	9-9 thru 11
	Missed approach	9-9,14B

T.O. 1C-141A-1-1

PART 9	Told Card	A9-1 thru A9-6

AFM 51-37

CHAPTER 13	Course intercepts (except RDF proc.)	13-6 thru 9
CHAPTER 15	ILS approaches	16-4,8
CHAPTER 17	Course intercepts on HSI	17-4,5

C-141 FLIGHT SIMULATOR - MISSION 1

PREMISSION QUIZ

1. Prior to flight the flight engineer shall compute a Told Card based on current conditions. 2-2

2. The aircraft commander shall cross check the Told Card for accuracy prior to takeoff by using tabulated data. True - (False) 2-2

3. List the following engine operating limitations: 5-2 thru 5-6

   a. Maximum EGT for TRT: 555 for 5 minutes.

   b. Maximum EGT for MRT: 510 for 30 minutes.

   c. Maximum EGT for NRT: 488 for continuous

   d. Maximum EGT for starting 455

   e. Maximum N_1 RPM: 101.1

   f. Maximum N_2 RPM: 104.5

4. List the following aircraft operating limitations: 5-8

   a. Maximum Ramp Weight: 325,000

   b. Maximum Zero Fuel Weight: 204,620

   c. Normal Landing Weight: 257,500

   d. Maximum Landing Weight: 323,100

   e. Maximum Fuel Weight: 153,352

   f. Normal Landing Fuel Weight: 75,000

5. The maximum speed for: 5-13

   a. Landing gear operation is 200 KCAS or M .48.

   b. Landing gear extended 235 KCAS or M .55.

   c. Flaps approach is 200 KCAS or M .48.

   d. Flaps landing is 185 KCAS or M .45.

6. Complete the following statements pertaining to the engine starting procedure: 2-29,30

   a. During a normal engine start, the Fuel and Start Ignition Switch is placed to Run at 15% N_2.

   b. If there is no indication of oil pressure and N_1 RPM within 20 seconds after initiation of the start, the engine must be shut down.

   c. If there is no indication of ignition within 20 seconds after the Fuel and Start Ignition Switch is moved to RUN, move the Fuel and Ignition Switch to STOP and allow the engine to motor for 10 to 15 seconds, then pull the starter button out to shut down the engine.

   d. The engine should accelerate to idle rpm within 2 minutes after light-off.

   e. The starter button should be pulled out if it has not automatically popped out at 45% N_2 rpm during the engine start.

   f. Steady idle rpm should be between 54-58% rpm.

   g. During cold weather starting the low oil pressure light may remain illuminated for 2 minutes after the oil temperature reaches +40°C.

7. What are the engine starter duty cycles? 2-33

   1 min ON 30 sec OFF
   1 min ON 30 sec OFF
   1 min ON 30 minutes OFF

   OR

   1.5 min ON 5 min OFF

8. The test feature of the low altitude radar altimeter is only operable when the aircraft is on the ground. True - (False) 4-50

9. On takeoff roll the pilot advances the throttles toward the takeoff thrust EPR and the copilot makes final power adjustment. The copilot will maintain wings level and a slightly forward pressure on the yoke until the pilot takes control. 2-45

10. When initially setting climb power during climbout, 92% N_1 RPM may be used until an NRT setting is obtained from the Engineer. 2-47

11. When using the BDHI to intercept course immediately after station passage turn to parallel the outbound course. Maintain heading and allow bearing pointer to stabilize. 51-37,11-7

12. Airspeeds flown during typical ILS pattern will be: entry approach speed + 30 kts, downwind approach speed + 20 kts, base leg approach speed + 10 kts, after turn to final, approach speed, final approach threshold speed. 9-10,11

13. In the event a go-around is necessary advance the throttles to go-around EPR, retract flaps to take-off/approach, retract gear when a positive rate of climb has been established. Accelerate to flap retract speed and continue as in a normal climb after takeoff. 2-61

14. Complete the following statements pertaining to interphone procedures: 8-1

    a. The occupant of the left seat in the cockpit, regardless of his position on the crew, will always be called pilot and the occupant of the right seat will be called copilot.

    b. The crew member who is being called will be identified first, followed by the identification of the crew member making the call.

    c. Crew members will always state the unit to be actuated first, and then state action to be taken second.

15. Complete the following statements pertaining to checklist procedures: 2-1

    a. When a checklist item is followed by a crew position designation, that crew member takes the action and if the action is in quotes he reports that action to the person reading the checklist. If the action is not in quotes he completes the action and remains silent.

    b. During accomplishment of the checklist "AS REQUIRED" or "STATE SETTING" will not be used as a response; instead the actual position or setting of the unit and/or item will be stated.

C-141 FLIGHT SIMULATOR - MISSION 2

MISSION

This mission was designed to familiarize pilots with C-141 instrument departures, precision approach and landing procedures. The first flight will be a local training flight from Tinker AFB to Altus AFB. Second flight Altus local area.

AIRDROME INFORMATION

Tinker AFB active runway 35, RCR 23, Runway length 11,100', slope .7 down.
Altus AFB active runway 35, RCR 23, Runway length 13,400', ILS Out.

AIRCRAFT INFORMATION

Operating weight 135,664 lbs, Ramp fuel 80,000 lbs, no cargo, CG 30.5%.

NOTE: TOLD card must be accomplished for Altus departure and Tinker departure. You should complete one for the flight on which you will be the pilot.

OBJECTIVE

At the completion of this mission you should be able to:

1. Properly set up the cockpit for departure.
2. Properly tune and operate the COM/NAV radios.
3. Start the engines, state starting limitations, and observe these limitations during start.
4. With IP assistance interpret SID and approach charts.
5. State the requirements for operation of the takeoff light and trouble shoot the required systems if the light is inoperative.
6. Describe the function of the stall prevention system.
7. Interpret flight director steering information and with minor deviations apply this information during all phases of flight.
8. Engage the autopilot, describe the basic modes and make heading and altitude changes with the autopilot engaged.
9. Describe the procedures and configurations and state the speeds for the following maneuvers:
   a. SID
   b. Holding
   c. Jet penetration
   d. PAR and ILS
   e. Missed approach/go-around
10. Determine landing minimums in normal configurations using approach charts and MM 55-1.

MILITARY FLIGHT PLAN	AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB OK	AIRCRAFT SERIAL NO.

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
☒ IFR ☐ DVFR ☐ VFR ☐ FVFR		HC-141A	400		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	STANDARD INSTRUMENT DEPARTURE TO
16000	TIK	KINGFISHER 4	KINGFISHER

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		DIR LTS	ALTUS AFB	0+30

REMARKS

1+30 APPROACHES AND LANDINGS AT ALTUS

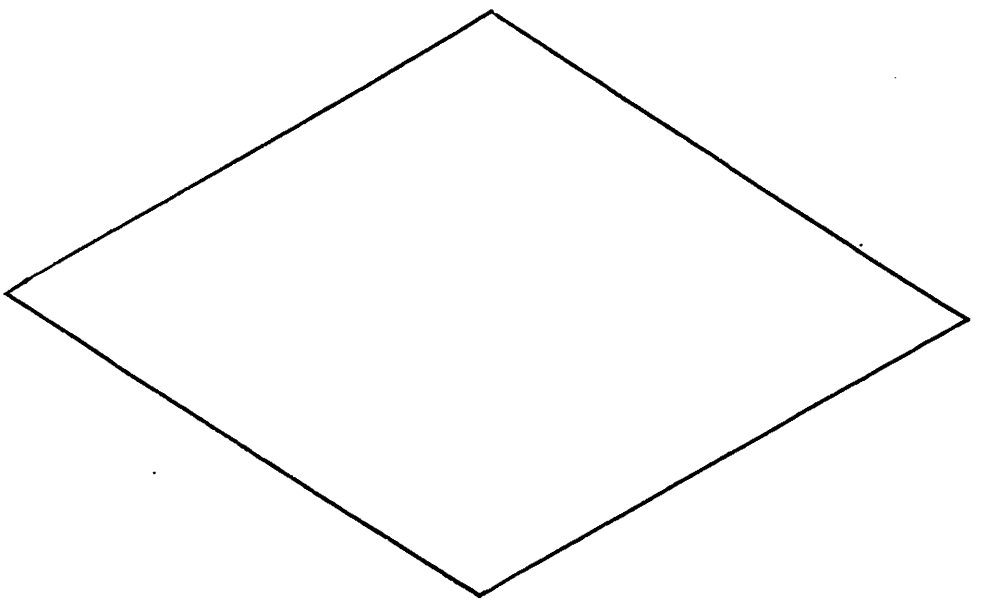
RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+50	100	TIK	0+30	X	X	X	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE
—	—		

CREW/PASSENGER LIST — ☐ *Attached* ☐ *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				



FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1400 Z	1425 Z	1450 Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+25 °C	°C	CALM	°C	+1535 FT	FT	23

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
3215	NONE

REMARKS/TAKEOFF ALTN FCST

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
160	KTIK - KLTS 3425 -5

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 2 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
1000 FT AGL	CNTRL OK	050 FT MSL	CNTRL OK	120 FT MSL	KTIK-KLTS

THUNDERSTORMS (within fifty miles of route): ☒ NONE ☐ AREA ☐ LINE

- ☐ ISOLATED 1-2%
- ☐ FEW 3-15%
- ☐ SCATTERED 16-45%
- ☐ NUMEROUS-MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION

TURBULENCE (within ten miles of route not associated with TSTMS)

MWWA NO. 15

CAT ADVISORY Z

☒ NONE	IN CLEAR	IN CLOUD
LIGHT		
MOD		
SVR		
EXTREME		

LEVELS

LOCATION

ICING (within ten miles of route not associated with TSTMS)

NONE ☒

	RIME	MIXED	CLEAR
TRACE			
LIGHT			
MOD			
SVR			

LEVELS

LOCATION

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE ☒

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS				
FRZG				

LOCATION

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	15 Ø	5F	CALM	29.72 INS	1408 Z TO 1525 Z
ALTERNATE KTIK	10 Ø	5F	CALM	29.64 INS	1400 Z TO 1550 Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

KLTS TEMP +27°C P.A. +1565

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT KHBR

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	Z
	1300 Z	Capt J. A. Fink	EXTENDED TO	Z
			WEA REBRIEFED AT	Z
			FORECASTER'S INITIALS	

WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

FLIGHT 1

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 214264 CG 30.5 OAT +25 °C PA +1555

WIND-DIR ✓ VEL ✓ OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 10200 SLOPE ↓.7 RCR 23 RSC 0

COMPUTATIONS

TRT 1.876 EPR-GO AR 1.854 REV LIM 10.4

X-WIND ✓ COMP ✓ CALC ✓ GUST ✓

TF 17.9 TOF 46.6 CFL 3250

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 98 V_R 170 V_{ROT} 112 $V_{B(MAX)}$ 166

STAB. ST 2.1 V_{MCO} 125 V_{MRF} 150

EMERGENCY RETURN

THRESH. 121 LDG DIST 3770

FUEL DUMP

GW 214,264 -257500 = ✓ FUEL 78,100 -75000 = 3,100

− 3,100 FUEL −3,100

END GW 211,164 END FUEL 75,000 TIME 0.7

DESTINATION

CONDITIONS

OAT ____ °C PA ____ RWY-HDG ____ LGTH ____

RCR ____ SLOPE ____ WIND-DIR ____ VEL ____

COMPUTATIONS

GW ____ EPR-GO AR ____ REV LIM ____

TF ____ X-WIND ____ COMP ____ CALC ____ GUST ____

THRESH. ____ LDG DIST ____ V_{MCO} ____ V_{MFR} ____

TAKE-OFF

TRT	1.87
V_{GO}	112
V_{ROT}	112
V_{MCO}	125
V_{MFR}	150
STAB. SET 2.1	REV LIM 10.4

EMER RET

THRESH.	121
EPR-GO AR	1.85
LDG DIST 3770	DUMPTIME 0.7

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	REV LIM

FLIGHT 2

MILITARY FLIGHT PLAN	AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS OK	AIRCRAFT SERIAL NO.

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
[X] IFR [ ] DVFR [ ] VFR [ ] FVFR		HC-141A	400		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	TO
15000	LTS	MANGUM FOUR	COS

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		LTS	LTS	0+30

REMARKS

1+30 FOR APPROACHES AND LANDINGS AT ALTUS AFB

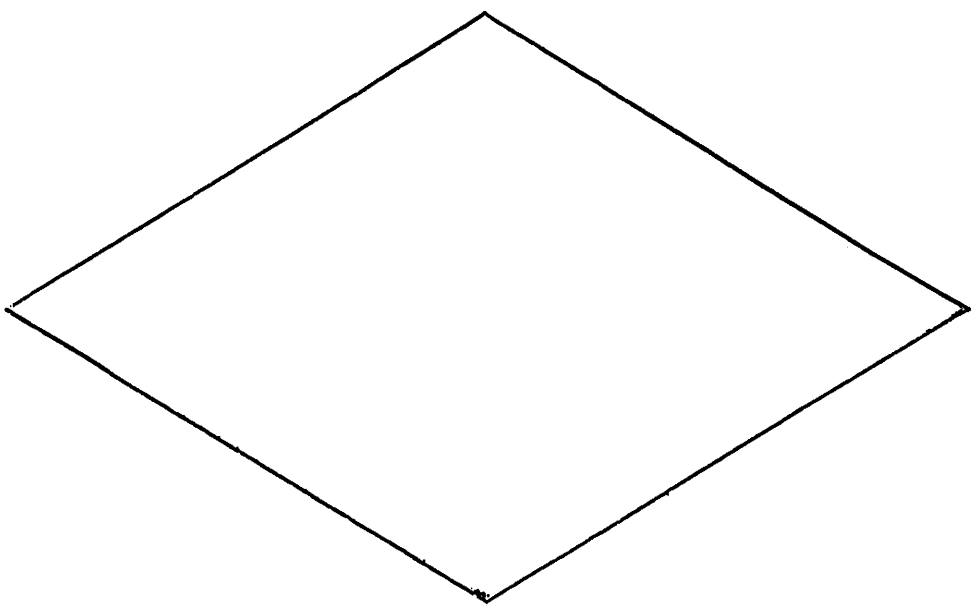
RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+50	—	LTS	0+30	X	X	X	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE
—	—		

CREW/PASSENGER LIST — [ ] Attached [ ] See Passenger Manifest

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				



FLIGHT 2

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1300 Z	1323 Z	1346 Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+27 °C	°C	CALM	°C	+1565 FT	FT	DRY

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
3215	NONE

REMARKS/TAKEOFF ALTN FCST

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
150	KLTS - KLTS 3425 -3

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 7 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
1000 FT AGL	CNTRL OK	050 FT MSL	CNTRL OK	120 FT MSL	KLTS - KLTS

THUNDERSTORMS (within fifty miles of route)		TURBULENCE (within ten miles of route not associated with TSTMS)			ICING (within ten miles of route not associated with TSTMS)				PRECIPITATION (within ten miles of route not associated with TSTMS)				
MWWA NO. 15		CAT ADVISORY Z			NONE X				NONE X				
☒ NONE	☐ AREA ☐ LINE	☒ NONE	IN CLEAR	IN CLOUD		RIME	MIXED	CLEAR		DRIZ	RAIN	SNOW	SLEET
☐ ISOLATED 1-2%		LIGHT			TRACE				LIGHT				
☐ FEW 3-15%		MOD			LIGHT				MOD				
☐ SCATTERED 16-45%		SVR			MOD				HEAVY				
☐ NUMEROUS-MORE THAN 45%		EXTREME			SVR				SHWRS				
HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS		LEVELS			LEVELS				FRZG				
									LOCATION				
LOCATION		LOCATION			LOCATION								

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	100	5F	CALM	29.64 INS	1300 Z TO 1423 Z
ALTERNATE KTIK	150	5F	CALM	29.72 INS	1300 Z TO 1446 Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

KTIK TEMP +25°C P.A. +1555 FT

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE				VOID TIME	Z
REQUEST PIREP AT KHBR				EXTENDED TO	Z
SEE FLIMSY NO	WEA BRIEFED 1200 Z	FORECASTER'S SIGNATURE H. D. Stirk		WEA REBRIEFED AT	Z
				FORECASTER'S INITIALS	
WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

FLIGHT 2

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 214,264 CG 30.5 OAT +22 °C PA +1565

WIND-DIR ✓ VEL ✓ OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 13040 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT _____ EPR-GO AR _____ REV LIM _____

X-WIND _____ COMP _____ CALC _____ GUST _____

TF _____ TOF _____ CFL _____

$GW_{(CFL)}$ _____ $GW_{(3\ ENG)}$ _____ $GW_{(OBST)}$ _____

V_{MCG} _____ V_R _____ V_{ROT} _____ $V_{B(MAX)}$ _____

STAB. ST _____ V_{MCO} _____ V_{MRF} _____

EMERGENCY RETURN

THRESH. _____ LDG DIST _____

FUEL DUMP

GW _____ -257500 = _____ FUEL _____ -75000 = _____

_____ _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT

V_{GO}

V_{ROT}

V_{MCO}

V_{MFR}

STAB. SET | REV LIM

EMER RET

THRESH.

EPR-GO AR

LDG DIST | DUMPTIME

LANDING

THRESH.

EPR-GO AR

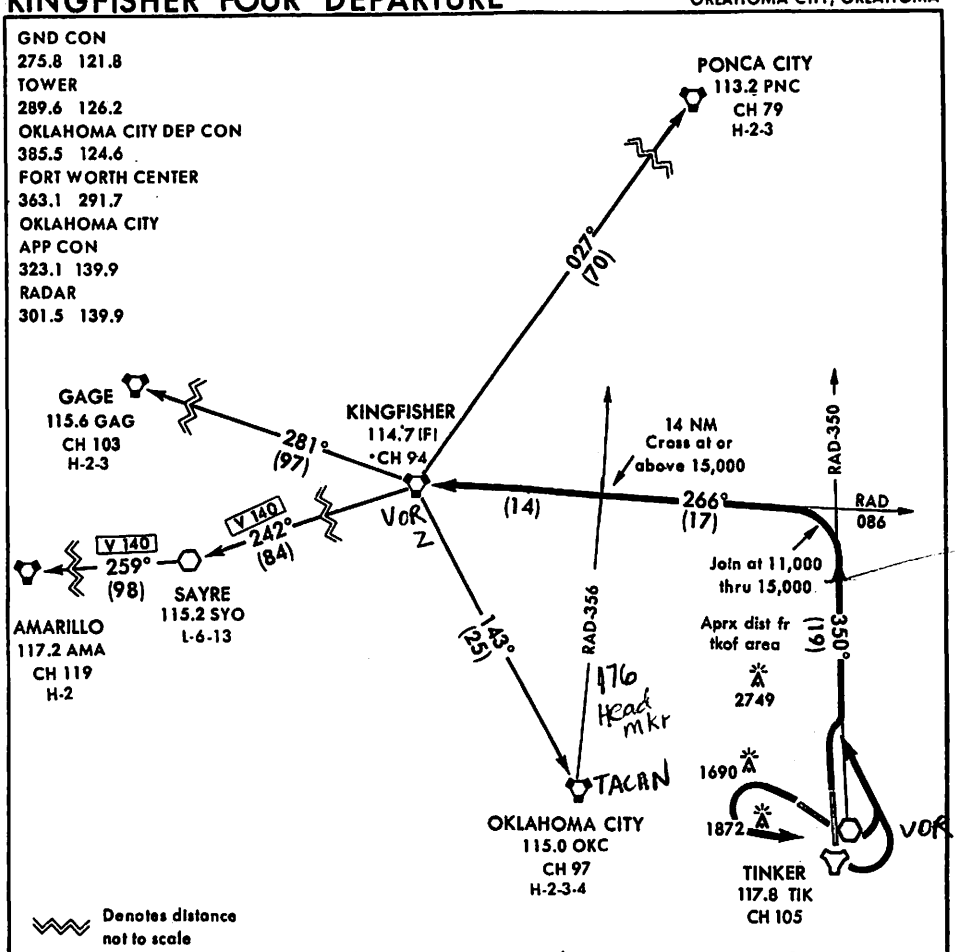
V_{MCO}

V_{MFR}

LDG DIST | REV LIM

KINGFISHER FOUR DEPARTURE

TINKER AFB
OKLAHOMA CITY, OKLAHOMA



DEPARTURE ROUTE DESCRIPTION

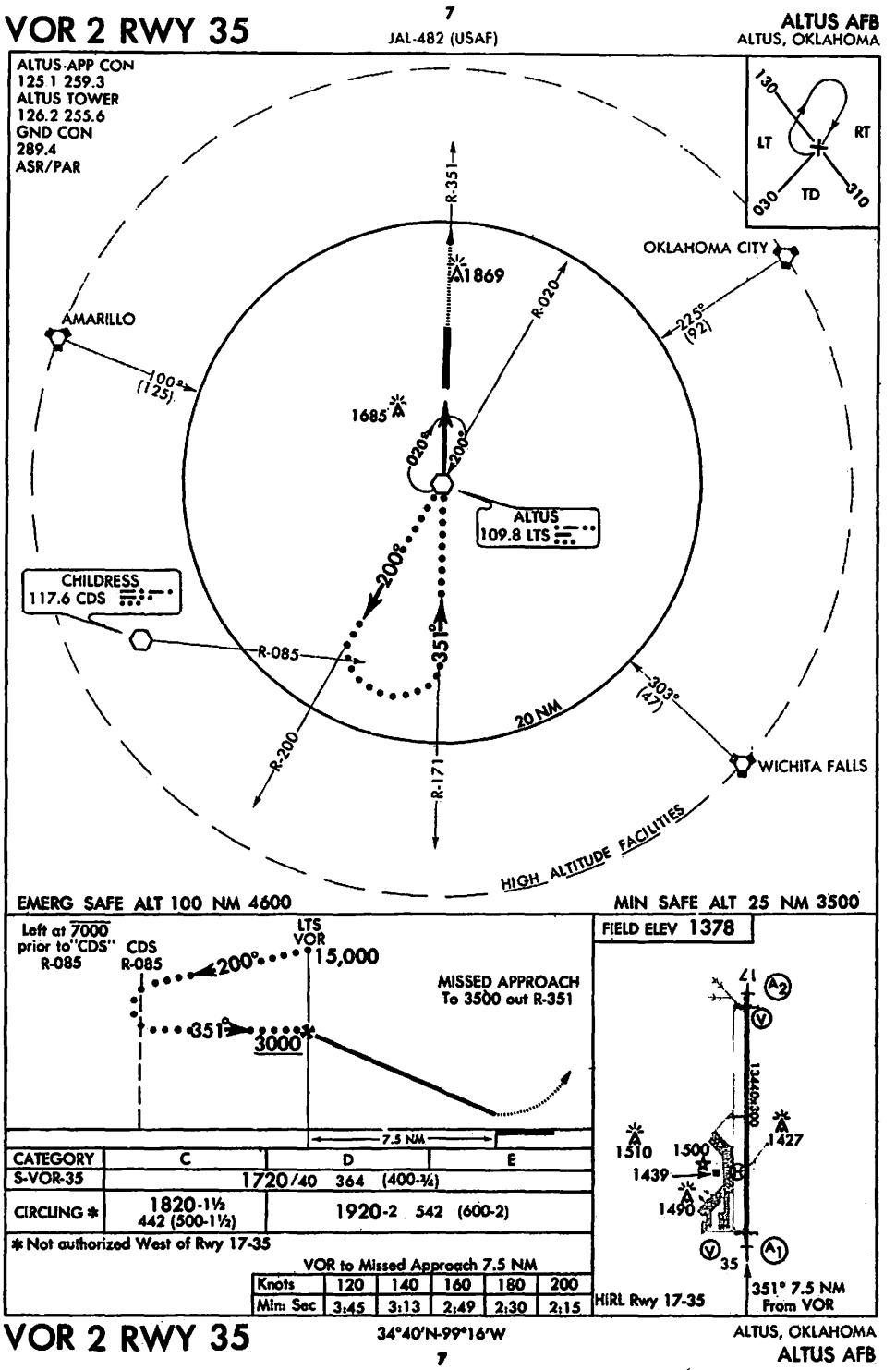
Take-off Runways 12, 17. After take-off turn left to intercept TINKER TACAN or VOR 350 radial.

Take-off Runway 30. After take-off maintain 300° until reaching 1900' MSL, then turn left proceed direct to TINKER TACAN or VOR.

Take-off Runway 35. After take-off intercept TINKER TACAN or VOR 350 radial.

Via TINKER TACAN or VOR 350 radial and KINGFISHER VORTAC 086 radial to KINGFISHER VORTAC. Join the KINGFISHER VORTAC 086 radial at 11,000 through 15,000, cross the OKLAHOMA CITY VORTAC 356 radial (KINGFISHER VORTAC 086 radial/14 NM DME Fix) at or above 15,000.

KINGFISHER FOUR DEPARTURE


VOR 2 RWY 35
7
JAL-482 (USAF)
ALTUS AFB
ALTUS, OKLAHOMA
ALTUS APP CON
125 1 259.3
ALTUS TOWER
126.2 255.6
GND CON
289.4
ASR/PAR
130
LT
RT
030
TD
310
R-351
A1869
OKLAHOMA CITY
AMARILLO
100°
(125)
R-020
225°
(92)
1685
020°
200°
ALTUS
109.8 LTS
CHILDRESS
117.6 CDS
200°
R-085
351°
303°
(47)
20 NM
R-200
R-171
WICHITA FALLS
HIGH ALTITUDE FACILITIES
EMERG SAFE ALT 100 NM 4600
MIN SAFE ALT 25 NM 3500
Left at 7000
prior to "CDS"
R-085
CDS
R-085
LTS
VOR
200°
15,000
351°
3000
MISSED APPROACH
To 3500 out R-351
7.5 NM
FIELD ELEV 1378
A2
V
13440-300
1510
1500
1427
1439
1490
V
35
A1
HIRL Rwy 17-35
351° 7.5 NM
From VOR
CATEGORY | C | D | E
S-VOR-35 | 1720/40 364 (400-¾)
CIRCLING * | 1820-1½ 442 (500-1½) | 1920-2 542 (600-2)
* Not authorized West of Rwy 17-35
VOR to Missed Approach 7.5 NM
Knots | 120 | 140 | 160 | 180 | 200
Min: Sec | 3:45 | 3:13 | 2:49 | 2:30 | 2:15
VOR 2 RWY 35
34°40'N-99°16'W
7
ALTUS, OKLAHOMA
ALTUS AFB

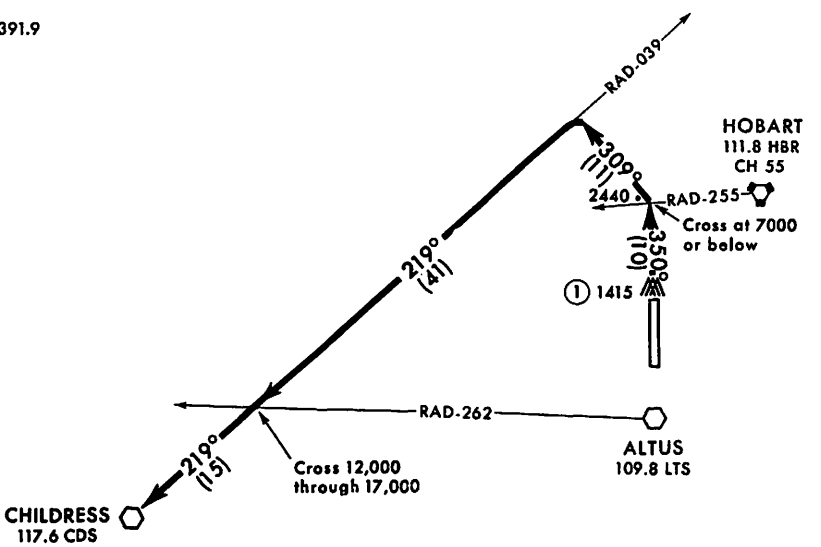
MANGUM FOUR DEPARTURE

ALTUS AFB
ALTUS, OKLAHOMA

Knots	120	180	240	300	360
V/V (fpm)	388	582	776	970	1164

Minimum Climb Rate

GND CON
289.4
CLNC DEL
289.4
TOWER
255.6 126.2
DEP CON
290.9
FT. WORTH CENTER
290.2 128.4
APP CON
259.3 125.1
RADAR
395.9 391.9

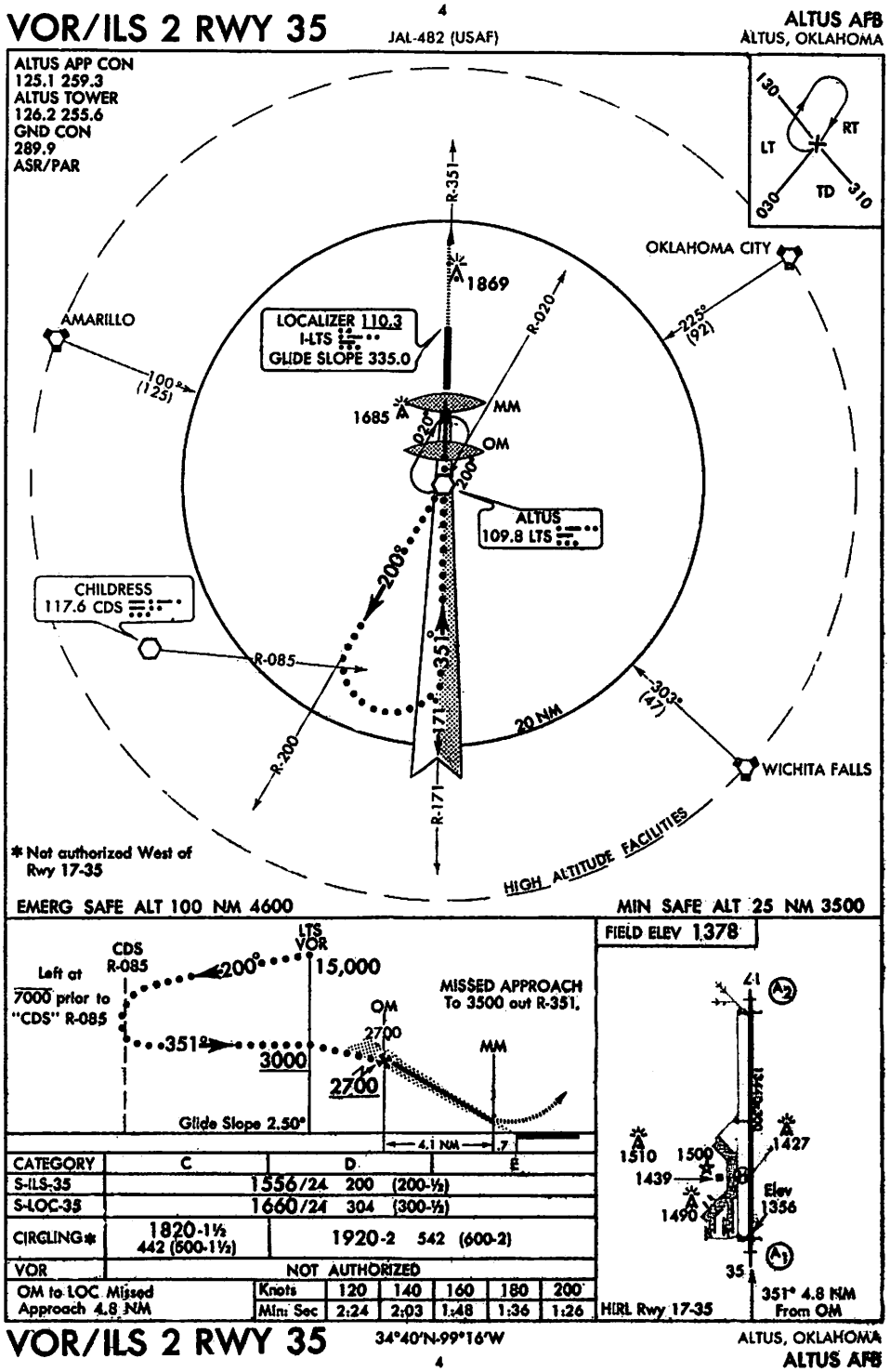


① 2360 ft. from Rwy 35

DEPARTURE ROUTE DESCRIPTION

Take-off Rwy 35: Maintain runway heading to the HOBART VORTAC 255 radial, then turn left to 309° heading to intercept CHILDRESS VOR 039 radial, then climb Southwest on CHILDRESS VOR 039 radial to CHILDRESS VOR. Maintain 7000 or below until HOBART VORTAC 255 radial. Cross INTXN of the ALTUS VOR 262 radial and the CHILDRESS VOR 039 radial at 12,000 through 17,000.

MANGUM FOUR DEPARTURE


VOR/ILS 2 RWY 35
JAL-482 (USAF)
ALTUS AFB
ALTUS, OKLAHOMA
ALTUS APP CON
125.1 259.3
ALTUS TOWER
126.2 255.6
GND CON
289.9
ASR/PAR
LT
RT
TD
130
030
310
R-351
1869
OKLAHOMA CITY
AMARILLO
LOCALIZER 110.3
I-LTS
GLIDE SLOPE 335.0
R-020
225°
(92)
100°
(125)
1685
MM
OM
020°
200°
ALTUS
109.8 LTS
CHILDRESS
117.6 CDS
200°
R-085
351°
171°
20 NM
303°
(47)
R-200
R-171
WICHITA FALLS
* Not authorized West of
Rwy 17-35
HIGH ALTITUDE FACILITIES
EMERG SAFE ALT 100 NM 4600
MIN SAFE ALT 25 NM 3500
FIELD ELEV 1,378
LTS
VOR
CDS
R-085
Left at
7000 prior to
"CDS" R-085
200°
15,000
MISSED APPROACH
To 3500 out R-351.
OM
2700
351°
3000
MM
2700
Glide Slope 2.50°
4.1 NM
.7
CATEGORY
C
D
E
S-ILS-35
1556/24 200 (200-½)
S-LOC-35
1660/24 304 (300-½)
CIRCLING*
1820-1½
442 (500-1½)
1920-2 542 (600-2)
VOR
NOT AUTHORIZED
OM to LOC Missed
Approach 4.8 NM
Knots 120 140 160 180 200
Min Sec 2:24 2:03 1:48 1:36 1:26
HIRL Rwy 17-35
1510
1500
1427
1439
1490
Elev
1356
35
351° 4.8 NM
From OM
VOR/ILS 2 RWY 35
34°40'N-99°16'W
ALTUS, OKLAHOMA
ALTUS AFB

STUDY REFERENCES - SIMULATOR MISSION 2

T.O. 1C-141A-1

SECTION I	Warning systems	1-109, 125 thru 133
	Stall prevention system	1-112 thru 1-114
SECTION IV	Low Altitude Radar Altimeter System	4-48,50
	C-12 compass system	4-94 thru 4-97
	Integrated flight instruments & FDS	4-106E thru 118
	AFCS	4-118A thru 123
SECTION VI	Stalls	6-1 thru 6
SECTION IX	Instrument flight procedures	9-1 thru 9-12

T.O. 1C-141A-1-1

PART 4	Engine thrust setting during climb	A4-2

AFM 51-37

CHAPTER 11	Holding	11-12 thru 14
	High altitude approach procedures	11-16 thru 19
	SID	11-22,23
CHAPTER 15	PAR	15-3 thru 6
CHAPTER 17	Integrated Flight Instrument System	17-1 thru 12

MM 55-1

Takeoff minimum	3-9
Use of autopilot	4-2d
Maintaining terrain clearance	4-3b(5)
Approach briefing	4-5d
Altitude calls	4-5e
LORAN restrictions	4-5g
Landing	4-6
Use of Command Radios	4-7c

C-141 FLIGHT SIMULATOR - MISSION 2

PREMISSION QUIZ

1. During takeoff the Heading Select/Nav Switch and the HSI Heading Marker should be positioned to the most logical position. 9-1

2. When the HDG SELECT/NAV switch is in the NAV position, the FDS will provide steering commands to intercept and track a desired course if the aircraft position is within the course capture zone for the navigation mode selected. 4-116

3. In the event of a severe overshoot of a selected course the flight director switches to the heading mode. 4-118

4. When using the HSI on the back course of an ILS, the front course must be set in the course window for the CDI to be directional. 4-118

5. Flight director steering is ambiguous when flying inbound on a back course ILS approach. 4-118

6. Slaving of the copilot's heading and course selection to the pilot's HSI is accomplished when SLAVE is selected or when both VHF navigation sets are tuned to a localizer frequency and both VOR/ILS Modes are selected on the navigation selector Panel. 4-113

7. Failure of an ILS signal will result in appearance of course warning flags and glideslope warning flag and retraction of the steering bars. 4-117

8. Use of the autopilot is encouraged to complete ILS coupler and permit outside surveillance by the pilot and copilot.
MM 55-1 4-2d

9. With the Spoiler Select Switch in the FLT position, lifting the spoiler handle when an appropriate angle of attack signal is present in the stall prevention system will illuminate the UNDER SPLR SPEED warning light and operate an audible warning horn. 1-109

10. After completing the first circuit of the holding pattern, adjust the time outbound as necessary to provide inbound times of not more than one minute(s) at or below 14,000 ft, or 1½ minute(s) above 14,000 ft. AFM 51-37,11-14

11. Low altitude holding in the C-141 is normally conducted in a clean configuration at 200 knots below 257,500 lbs; however, when fuel is of no consequence, holding may be conducted with the gear down, flaps at TAKEOFF/APPROACH, at an airspeed of approach speed + 30 kts. 9-5

12. During a penetration, deploy the spoilers as required to maintain a rate of descent of 4000 to 6000 fpm and an airspeed of 230 to 250 KCAS. 9-7

13. During precision radar final approach, angle of bank for turns should approximate the number of degrees to be turned and not exceed one-half standard rate turn. AFM 51-37 15-5

NOTE TO STUDENTS

If you are not familiar with the area of operation, route of flight, etc., you can pick up an enroute kit from the simulator operator prior to your premission briefing.

C-141 FLIGHT SIMULATOR - MISSION 3

MISSION

This mission is designed to familiarize pilots with non-precision approaches and continue training in basic instrument procedures.

AIRDROME INFORMATION

Altus AFB active runway 35, runway length 13,440'.
Clinton Sherman AFB active runway 17 or 35 (optional).

AIRCRAFT INFORMATION

Operating weight 135,664 lbs, ramp fuel 80,000, no cargo, C.G. 30.5%.

OBJECTIVE

At the completion of this mission you should be able to:

1. Define VGo, VMCG, VMCA, VCEF, Critical Field length.

2. Explain the hydraulic power source of all basic systems and the cockpit indications for proper operation of the following equipment:

   (a) Flight controls, (b) Landing gear, (c) Brakes.

3. State the function and limitations of the engine vibration indicators.

4. Describe the procedures and configurations and state the desired speeds during low altitude, non-precision approaches.

5. With verbal IP assistance fly:
   a. ADF approaches
   b. VOR approaches
   c. TACAN approaches
   d. Touch-and-go landing

6. Properly execute a missed approach.

7. With minor deviations perform all normal copilot duties to include mandatory warning calls.

8. Recognize and with verbal IP assistance take the proper corrective action for starting malfunctions.

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB, OK

AIRCRAFT SERIAL NO.:

TYPE OF FLIGHT PLAN: [X] IFR [ ] DVFR [ ] VFR [ ] FVFR

RADIO CALL:

AIRCRAFT DESIGNATION/ TD CODE: HC-141/A

ESTIMATED TRUE AIRSPEED: 400

DEPARTURE TIME (Z): PROPOSED / ACTUAL

INITIAL CRUISING ALTITUDE: VFR/OT

POINT OF DEPARTURE: KLTS

STANDARD INSTRUMENT DEPARTURE — NAME AND NUMBER: RADAR VECTORS — TO: Hess IAF

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		200 NM RADIUS LTS VOR	KLTS	4+00

REMARKS: 2+00 Approaches and Landings at CSM

RANK/HONOR CODE: —

PSGR/CARGO CODE: —

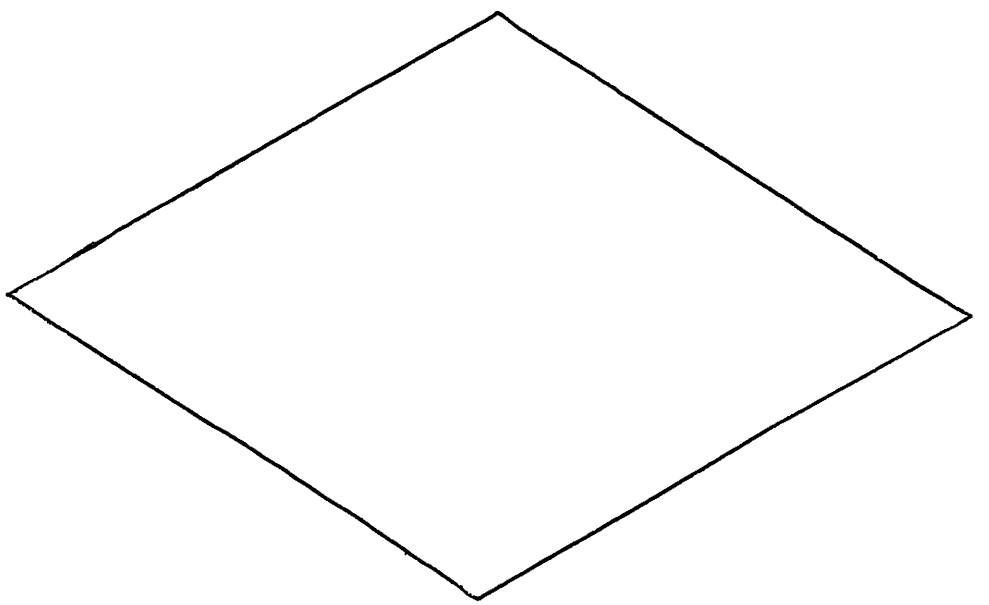
HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+45	—	KTIK	+20	✓	TODAY	✓	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — [ ] Attached [ ] See Passenger Manifest

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 — PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. — D-38305



FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1350 Z	1700 Z	Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+32 °C	°C	2815	°C	+1250 FT	FT	DRY

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
3215	NONE

REMARKS/TAKEOFF ALTN FCST

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
035	KLTS-KLTS 3215 +25

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 2 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
500 FT AGL	SW OK	030 FT MSL	SW OK	120 FT MSL	SW OK

THUNDERSTORMS (within fifty miles of route)		TURBULENCE (within ten miles of route not associated with TSTMS)		ICING (within ten miles of route not associated with TSTMS)				PRECIPITATION (within ten miles of route not associated with TSTMS)				
MWWA NO. 19		CAT ADVISORY Z		NONE X				NONE X				
☒ NONE ☐ AREA ☐ LINE		☒ NONE	IN CLEAR / IN CLOUD		RIME	MIXED	CLEAR		DRIZ	RAIN	SNOW	SLEET
ISOLATED 1–2%		LIGHT		TRACE				LIGHT				
FEW 3–15%		MOD		LIGHT				MOD				
SCATTERED 16–45%		SVR		MOD				HEAVY				
NUMEROUS–MORE THAN 45%		EXTREME		SVR				SHWRS				
HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS		LEVELS		LEVELS				FRZG				
								LOCATION				
LOCATION		LOCATION		LOCATION								

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	6 @	2F	2815	30.06 INS	1600 Z TO 1800 Z
ALTERNATE KTIK	10 @	5F	CALM	29.64 INS	1625 Z TO 1825 Z
INTMED STOP KCSM	7 @	3F	2810	30.60 INS	1300 Z TO 1700 Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE	VOID TIME Z
REQUEST PIREP AT KHBR	EXTENDED TO Z
SEE FLIMSY NO / WEA BRIEFED 1200 Z / FORECASTER'S SIGNATURE May Plan Stupid	WEA REBRIEFED AT Z / FORECASTER'S INITIALS
WEA FCLTY / TAPE NO / START Z / STOP Z / PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 214,264 CG 30.5 OAT +32 °C PA +1250

WIND-DIR 280 VEL 15 OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 13040 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT 1.841 EPR-GO AR 1.807 REV LIM 10.85

X-WIND 14 COMP 5 CALC 2½ GUST ✓

TF 17.6 TOF 46.1 CFL 3450

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 119 V_R 180 V_{ROT} 112 $V_{B(MAX)}$ 171

STAB. ST 2.1 V_{MCO} 125 V_{MRF} 150

EMERGENCY RETURN

THRESH. 121 LDG DIST 3650

FUEL DUMP

GW 214,264 -257500 = ✓ FUEL 78,100 -75000 = 3,100

− 3,100 FUEL −3,100

END GW 211,164 END FUEL 75,000 TIME 0.7

DESTINATION

CONDITIONS

OAT ____ °C PA ____ RWY-HDG ____ LGTH ____

RCR ____ SLOPE ____ WIND-DIR ____ VEL ____

COMPUTATIONS

GW ____ EPR-GO AR ____ REV LIM ____

TF ____ X-WIND ____ COMP ____ CALC ____ GUST ____

THRESH. ____ LDG DIST ____ V_{MCO} ____ V_{MFR} ____

TAKE-OFF

TRT 1.84

V_{GO} 112

V_{ROT} 112

V_{MCO} 125

V_{MFR} 150

STAB. SET	REV LIM
2.1	10.8

EMER RET

THRESH. 121

EPR-GO AR 1.80

LDG DIST	DUMPTIME
3650	0.7

LANDING

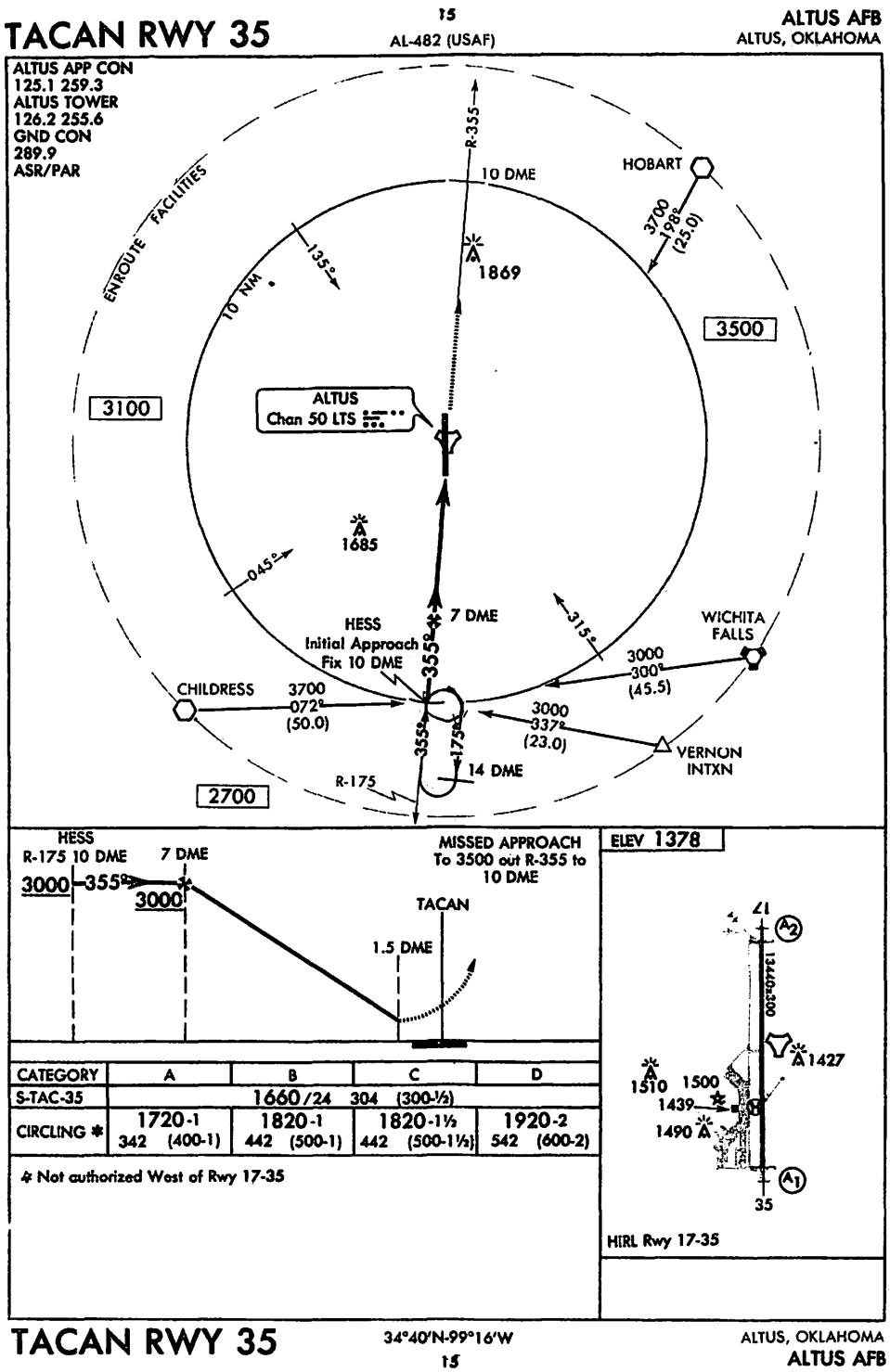
THRESH.

EPR-GO AR

V_{MCO}

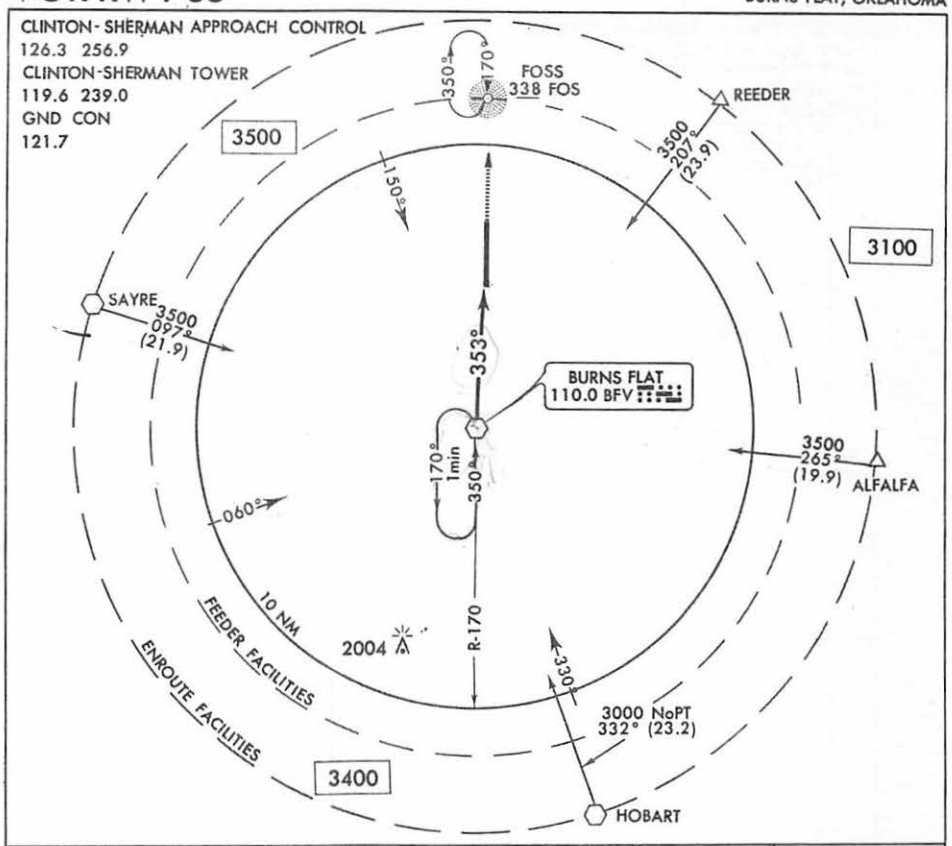
V_{MFR}

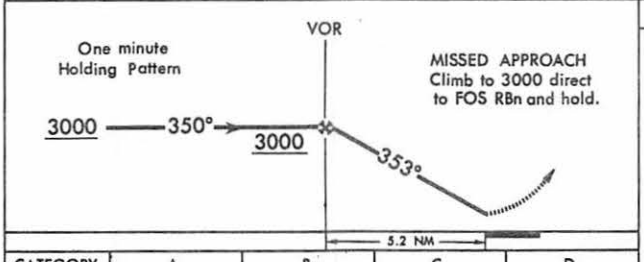
LDG DIST	REV LIM


TACAN RWY 35
15
AL-482 (USAF)
ALTUS AFB
ALTUS, OKLAHOMA
ALTUS APP CON
125.1 259.3
ALTUS TOWER
126.2 255.6
GND CON
289.9
ASR/PAR
ENROUTE FACILITIES
R-355
10 DME
HOBART
3700
198°
(25.0)
1869
10 NM
135°
3500
3100
ALTUS
Chan 50 LTS
1685
045°
HESS
Initial Approach
Fix 10 DME
7 DME
315°
WICHITA
FALLS
3000
300°
(45.5)
CHILDRESS
3700
072°
(50.0)
355°
175°
3000
337°
(23.0)
VERNON
INTXN
14 DME
R-175
2700
HESS
R-175 10 DME
7 DME
3000
355°
3000
MISSED APPROACH
To 3500 out R-355 to
10 DME
TACAN
1.5 DME
ELEV 1378
17
13,440 x 300
1427
1510
1500
1439
1490
35
HIRL Rwy 17-35
CATEGORY
A
B
C
D
S-TAC-35
1660/24 304 (300-½)
CIRCLING *
1720-1
342 (400-1)
1820-1
442 (500-1)
1820-1½
442 (500-1½)
1920-2
542 (600-2)
* Not authorized West of Rwy 17-35
TACAN RWY 35
34°40'N-99°16'W
15
ALTUS, OKLAHOMA
ALTUS AFB

VOR RWY 35

CLINTON-SHERMAN
BURNS FLAT, OKLAHOMA

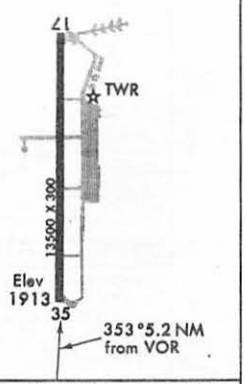




CATEGORY	A	B	C	D
S-35	2240/40 327(400-¾)			2240/50 327 (400-1)
CIRCLING*	2340-1 417 (500-1)	2380-1 457 (500-1)	2380-1½ 457 (500-1½)	2480-2 557 (600-2)

*Circling East of Rwy 17-35 not authorized.
Approach not authorized when control zone not in effect.
RVR 2400 feet authorized take-off Rwy 35.
This procedure for use of FAA Academy and those USAF units as designated by the Academy.

ELEV 1923 | HIRL Rwy 17-35



VOR to Missed Approach 5.2 NM					
Knots	70	100	125	150	165
Min:Sec	4:27	3:07	2:30	2:05	1:53

VOR RWY 35

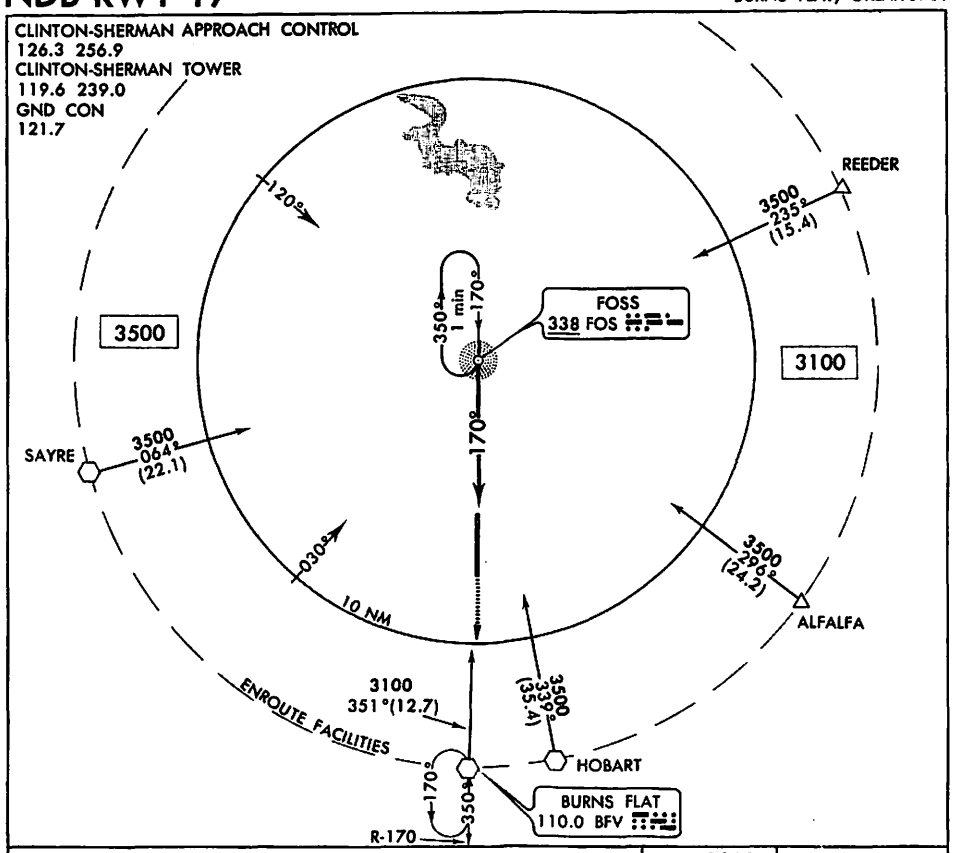
1 OCT. 1970

35°20'N – 99°12'W
NATIONAL OCEAN SURVEY

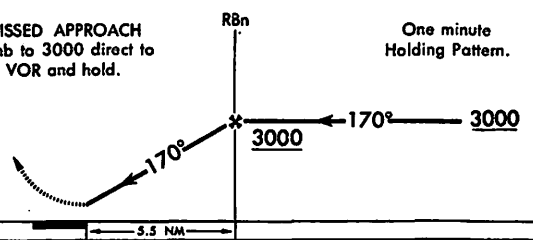
BURNS FLAT, OKLAHOMA
CLINTON-SHERMAN

NDB RWY 17

CLINTON-SHERMAN
BURNS FLAT, OKLAHOMA



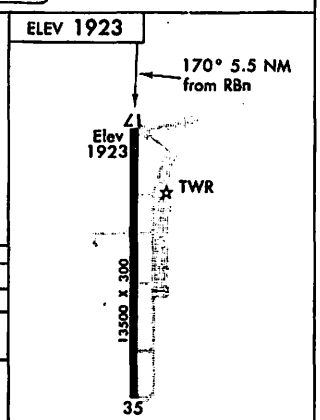
MISSED APPROACH
Climb to 3000 direct to BFV VOR and hold.



One minute Holding Pattern.

CATEGORY	A	B	C	D
S-17	2340-1 417(500-1)			
CIRCLING*	2340-1 417(500-1)	2380-1 457(500-1)	2380-1½ 457(500-1½)	2480-2 557(600-2)

*Circling East of Rwy 17-35 not authorized.
Approach not authorized when control zone not in effect.
RVR 2400 feet authorized take-off Rwy 35.
This procedure for use of FAA Academy and those USAF units as designated by the Academy.



HIRL Rwy 17-35

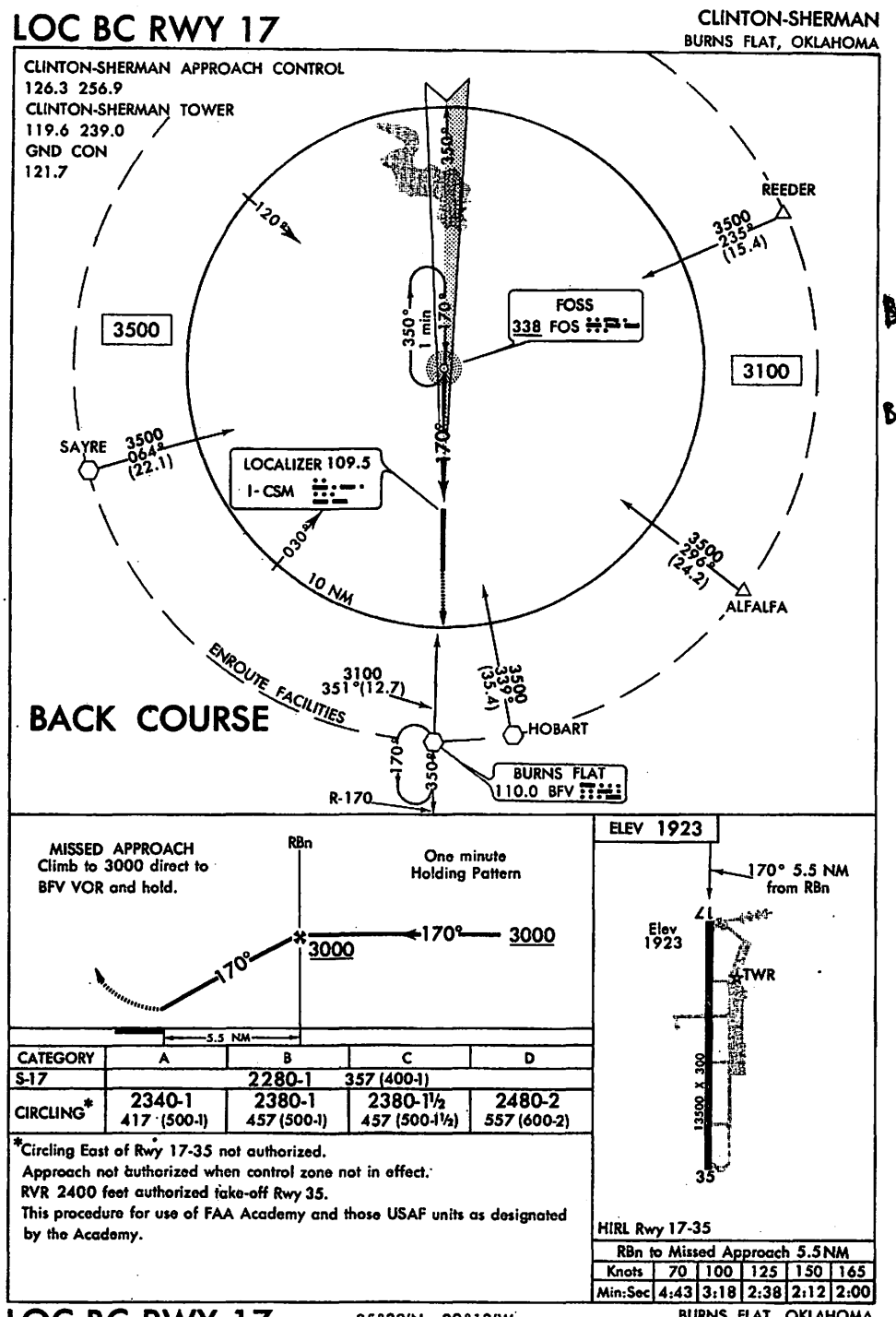
RBn to Missed Approach 5.5 NM					
Knots	70	100	125	150	165
Min:Sec	4:43	3:18	2:38	2:12	2:00

NDB RWY 17

1 OCT. 1970

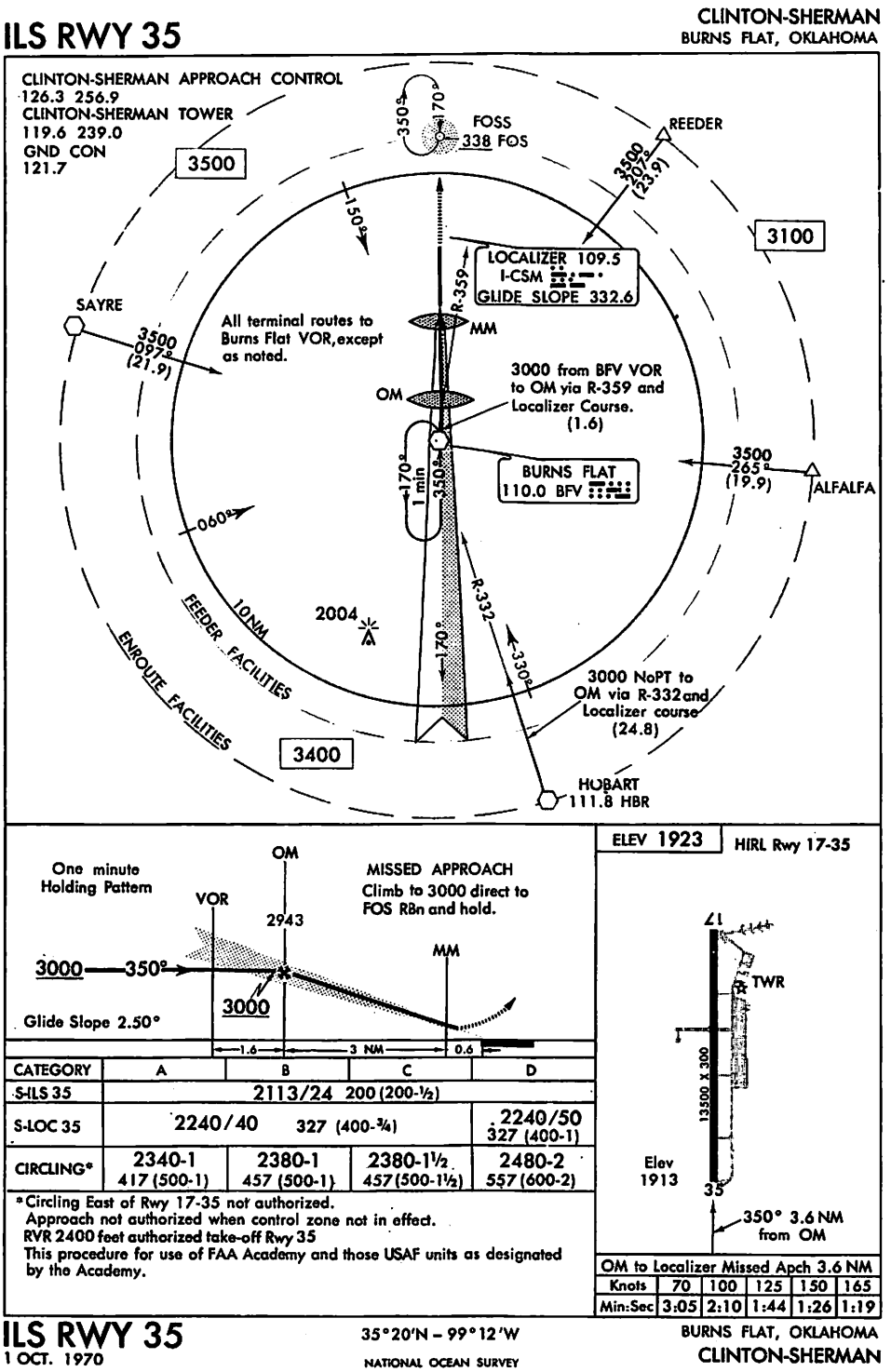
35°20'N – 99°12'W
NATIONAL OCEAN SURVEY

BURNS FLAT, OKLAHOMA
CLINTON-SHERMAN

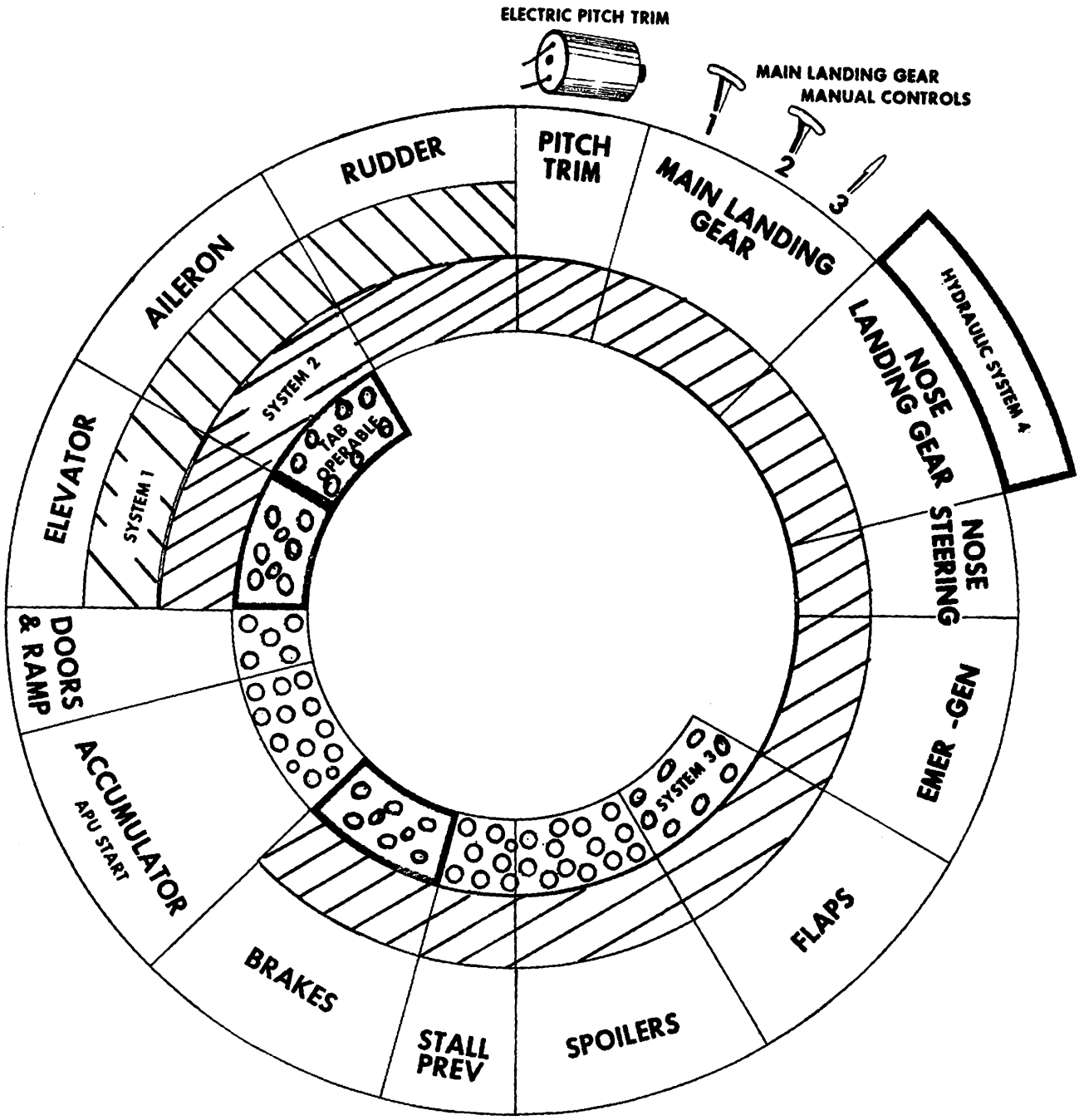


Both ADF: FOSS 338

Both VHF NAV 109.5


ILS RWY 35
CLINTON-SHERMAN
BURNS FLAT, OKLAHOMA
CLINTON-SHERMAN APPROACH CONTROL
126.3 256.9
CLINTON-SHERMAN TOWER
119.6 239.0
GND CON
121.7
3500
3100
3400
FOSS
338 FOS
REEDER
SAYRE
ALFALFA
HOBART
111.8 HBR
LOCALIZER 109.5
I-CSM
GLIDE SLOPE 332.6
BURNS FLAT
110.0 BFV
MM
OM
All terminal routes to Burns Flat VOR, except as noted.
3000 from BFV VOR to OM via R-359 and Localizer Course. (1.6)
3000 NoPT to OM via R-332 and Localizer course (24.8)
3500 097° (21.9)
3500 265° (19.9)
3500 302° (23.9)
350°
170°
150°
060°
R-359
R-332
330°
1 min
10 NM
FEEDER FACILITIES
ENROUTE FACILITIES
2004
One minute Holding Pattern
VOR
OM
2943
MM
3000
350°
3000
Glide Slope 2.50°
MISSED APPROACH
Climb to 3000 direct to FOS R8n and hold.
1.6
3 NM
0.6
ELEV 1923
HIRL Rwy 17-35
TWR
13500 X 300
Elev 1913
17
35
350° 3.6 NM from OM
OM to Localizer Missed Apch 3.6 NM
Knots 70 100 125 150 165
Min:Sec 3:05 2:10 1:44 1:26 1:19
CATEGORY A B C D
S-ILS 35 2113/24 200 (200-½)
S-LOC 35 2240/40 327 (400-¾) 2240/50 327 (400-1)
CIRCLING* 2340-1 417 (500-1) 2380-1 457 (500-1) 2380-1½ 457 (500-1½) 2480-2 557 (600-2)
*Circling East of Rwy 17-35 not authorized.
Approach not authorized when control zone not in effect.
RVR 2400 feet authorized take-off Rwy 35
This procedure for use of FAA Academy and those USAF units as designated by the Academy.
ILS RWY 35
1 OCT. 1970
35°20'N - 99°12'W
NATIONAL OCEAN SURVEY
BURNS FLAT, OKLAHOMA
CLINTON-SHERMAN

C - 141 HYDRAULIC INTERFACE



STUDY REFERENCES - SIMULATOR MISSION 3

T.O. 1C-141A-1

SECTION I	Hydraulic systems	1-79 thru 87
	Flight control system	1-88 thru 100
	Landing gear system	1-114 thru 120
	Brake system	1-120 thru 122
SECTION II	Takeoff	2-43 thru 2-45
	Touch-and-Go landing	2-57 thru 2-61
SECTION V	Brake limitations	5-22 thru 26
SECTION VII	Engine operation	7-6,7
	Starting malfunction/compressor stalls	7-8
	Engine vibration indicating system	7-9
	Use of wheel brakes	7-10
	Rudder pedal steering system operation	7-10
T.O. 1C-141A-1-1	TOLD Definitions	A3-5 thru A3-9

AFM 51-37

CHAPTER 11	VOR	11-19 thru 11-22
CHAPTER 12	TACAN procedures	12-5 thru 15
CHAPTER 13	ADF (Omit RDF procedures)	13-1 thru 13

STUDENT STUDY GUIDE

CHAPTER 5	TACAN point to point navigation.

C-141 FLIGHT SIMULATOR MISSION 3

PREMISSION QUIZ

1. Define refusal (Vr) speed. the maximum speed to which the aircraft can accelerate and then stop in the remaining runway. A3-7

2. Define GO speed (V_{GO}) - the speed at which the pilot becomes committed to continue the takeoff, being the lowest of V_{ROT}, V_R, and $V_{B(MAX)}$ A3-7

3. With the CF length and RA equal, "GO" speed is Vr. In this case Vr must be equal to or greater than V_{MCG}. A3-7

4. In the event of complete loss of Nr 2 hydraulic system alternate provisions are made for operation of all equipment except for the emergency generator, nose gear steering and landing gear retraction. 3-62

5. In the event of complete hydraulic system failure, approximately ten brake applications can be made with both accumulators in #3 system fully charged. 3-44F

6. If one main gear cannot be extended, the recommended procedure is to retract the other main gear and land with the nose gear down, or as an alternate procedure, to land with all landing gear retracted. 3-36

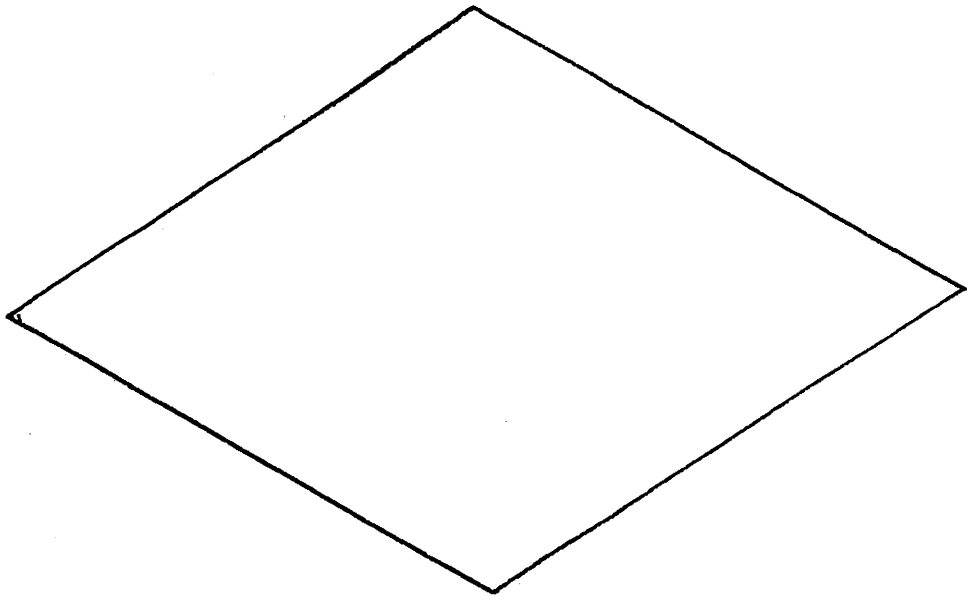
7. If the Anti-Skid OFF light illuminates what action should be taken by the pilot and why? turn OFF anti-skid switch to prevent possible erratic operation of normal brakes. 3-44F

8. It is recommended that an engine be shut down, conditions permitting, when a progressively increasing vibration indicator reading reaches 2.5 mils relative amplitude during stable state cruise conditions if engine failure is confirmed by other indications. 7-9

9. Continuous searching of the TACAN equipment, as evidenced by continuous rotation of either the bearing pointers or distance counters, will damage the equipment and the set should be turned off. (True) False 4-54

10. The ADF's do not require a heading reference to the BDHI bearing pointers, consequently, when selected they will always point to the station. 9-5

11. Define a procedure turn. AFM 51-37, 11-21
a maneuver designed to align an aircraft on an inbound course to the FAF, at FAF altitude in the final approach configuration.



C-141 FLIGHT SIMULATOR MISSION 3

PREMISSION QUIZ

1. Define refusal (Vr) speed. the maximum speed to which the aircraft can accelerate and then stop in the remaining runway. A3-7

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8. It is recommended that an engine be shut down, conditions permitting, when a progressively increasing vibration indicator reading reaches 2.5 mils relative amplitude during stable state cruise conditions if engine failure is confirmed by other indications. 7-9

9. Continuous searching of the TACAN equipment, as evidenced by continuous rotation of either the bearing pointers or distance counters, will damage the equipment and the set should be turned off. (True) False 4-54

10. The ADF's do not require a heading reference to the BDHI bearing pointers, consequently, when selected they will always point to the station. 9-5

11. Define a procedure turn. AFM 51-37, 11-21
a maneuver designed to align an aircraft on an inbound course to the FAF, at FAF altitude in the final approach configuration.

C-141 FLIGHT SIMULATOR - MISSION 4

MISSION

This will be a MAC transport mission from Dover AFB, Delaware to Seymour Johnson AFB, North Carolina, and then to Charleston AFB, South Carolina. Numerous emergencies will be presented in a discussion/demonstration manner. Special emphasis will be placed on planning, normal checklists, emergency checklists, and crew coordination.

AIRDROME INFORMATION

Dover AFB - Active runway 13, length 7000'
Seymour Johnson AFB - Active runway 08, length 11,758'.
Charleston AFB - Active runway 15, length 9000', NOTAMS: VOR and ILS out for Mx.

AIRCRAFT INFORMATION

Flight # 1 - Ramp fuel 90,000, Operating weight 138,200, Cargo 66,000, C.G. 31.5%

Flight # 2 - Ramp fuel 95,000, Operating weight 138,200, Cargo 60,000, C.G. 31.6%

OBJECTIVE

At the completion of this mission you should be able to:

1. State all bold print action items from memory.

2. State oxygen requirements.

3. Recognize takeoff abort situations and state the procedures to follow during and after an aborted takeoff.

4. Recognize and, with verbal IP assistance, take corrective action for:
   a. Engine fire/failure/overheat
   b. APU fire
   c. Electrical fire
   d. Electrical failure
   e. Bleed duct overheat

5. Recognize conditions requiring an engine shutdown and use proper procedures to accomplish shutdown.

6. State how an engine shutdown affects subsequent operations.

7. Accomplish an airstart using proper procedures

8. With verbal IP assistance, perform:
   a. Three engine approaches and landing
   b. Three engine go-around/missed approach

9. Properly perform copilot duties during normal configurations.

10. With verbal IP assistance, perform copilot duties during malfunctions, emergencies and three engine operations.

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION	AIRCRAFT SERIAL NO.
443 MAWg ALTUS AFB, OK	

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
☒ IFR ☐ DVFR ☐ VFR ☐ FVFR		HC-141/A	445		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	STANDARD INSTRUMENT DEPARTURE TO
FL 260	KDOV	PRIME HOOK ONE	NORFOLK

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		ORF, GSB	KGSB	+50

REMARKS

RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
7+45	240	KCHS	+48	✓	TODAY	✓	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — ☐ *Attached* ☐ *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. D-38305

88,100
138,200
66,000
292,300

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 292 800 CG 31.5 OAT T 32 °C PA - 91

WIND-DIR 120 VEL 10+20 OBST-HT ✓ DIST ✓

RWY-HDG 130 AVAIL 6600 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT 1.841 EPR-GO AR 1.807 REV LIM 10.3

X-WIND 3½ COMP 10 CALC 5 GUST 10

TF 18.5 TOF 47.7 CFL 5800

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 104 V_R 121 V_{ROT} 132 $V_{B(MAX)}$ 179

STAB. ST 1.9 V_{MCO} 143 V_{MRF} 168

292 800
257,500
35,300

EMERGENCY RETURN

THRESH. 141 LDG DIST 4500

FUEL DUMP

GW 292,800 -257500 = 35,300 FUEL 88,100 -75000 = 13,100

- 35,300 - 35,300

END GW 257,500 END FUEL 52,800 TIME 8.1

DESTINATION

CONDITIONS

OAT ____ °C PA ____ RWY-HDG ____ LGTH ____

RCR ____ SLOPE ____ WIND-DIR ____ VEL ____

COMPUTATIONS

GW ____ EPR-GO AR ____ REV LIM ____

TF ____ X-WIND ____ COMP ____ CALC ____ GUST ____

THRESH. ____ LDG DIST ____ V_{MCO} ____ V_{MFR} ____

TAKE-OFF

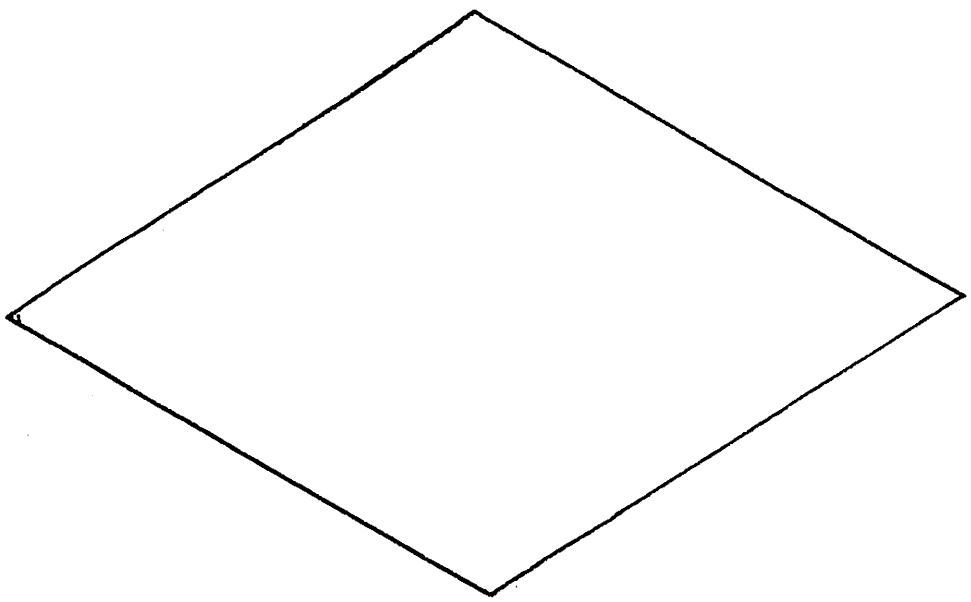
TRT	1.84
V_{GO}	121
V_{ROT}	132
V_{MCO}	143
V_{MFR}	168
STAB. SET	1.9
REV LIM	10.3

EMER RET

THRESH.	141
EPR-GO AR	1.80
LDG DIST	4500
DUMPTIME	8.1

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	
REV LIM	



MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB, OK

AIRCRAFT SERIAL NO.:

TYPE OF FLIGHT PLAN: [X] IFR [ ] DVFR [ ] VFR [ ] FVFR

RADIO CALL:

AIRCRAFT DESIGNATION/TD CODE: HC-141/A

ESTIMATED TRUE AIRSPEED: 445

DEPARTURE TIME (Z): PROPOSED / ACTUAL

INITIAL CRUISING ALTITUDE: FL260

POINT OF DEPARTURE: KGSB

STANDARD INSTRUMENT DEPARTURE — NAME AND NUMBER: RADAR VECTORS — TO: ILM

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		J-40 CHS	KCHS	0+48

REMARKS

RANK/HONOR CODE: —

PSGR/CARGO CODE: —

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
8+05	218	KWRB	+25	✓	TODAY	✓	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — [ ] Attached [ ] See Passenger Manifest

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 — PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. — D-38305

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1600 Z	1650 Z	1705 Z		21 APR 1971	C-141 0173

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+30 °C	°C	0905	°C	+115 FT	FT	DRY

CLIMB WINDS: 3230

LOCAL WEA WARNING OR MET WATCH ADVISORY: NONE

REMARKS/TAKEOFF ALTN FCST:

III. ENROUTE DATA

FLT LEVEL: 260

FLT LEVEL WINDS/TEMP: KGSB-KCHS 3030-24

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS ____ MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
500 FT AGL	S.C.-GA	060 FT MSL	S.C.-GA	100 FT MSL	S.C.-GA

THUNDERSTORMS (within fifty miles of route)			TURBULENCE (within ten miles of route not associated with TSTMS)			ICING (within ten miles of route not associated with TSTMS)				PRECIPITATION (within ten miles of route not associated with TSTMS)				
MWWA NO. 18			CAT ADVISORY 20/0600Z			NONE X				NONE X				
NONE	AREA	LINE	NONE	IN CLEAR	IN CLOUD		RIME	MIXED	CLEAR		DRIZ	RAIN	SNOW	SLEET
ISOLATED 1-2%			LIGHT			TRACE				LIGHT				
FEW 3-15%			MOD	X		LIGHT				MOD				
SCATTERED 16-45%			SVR			MOD				HEAVY				
NUMEROUS-MORE THAN 45%			EXTREME			SVR				SHWRS				
HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS			LEVELS 220-300			LEVELS				FRZG				
LOCATION			LOCATION			LOCATION				LOCATION				

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KCHS	10 @	3 H	1530	30.10 INS	1600 Z TO 1750 Z
ALTERNATE KWRB	30 @	7	140/10	30.08 INS	1615 Z TO 1815 Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

VOID TIME Z

REQUEST PIREP AT

EXTENDED TO Z

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	WEA REBRIEFED AT Z
	1500 Z	1Lt D. A. Great	FORECASTER'S INITIALS

WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 291,800 CG 31.6 OAT +30 °C PA +115

WIND-DIR 090 VEL 05 OBST-HT ✓ DIST ✓

RWY-HDG 080 AVAIL 11,358 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT _____ EPR-GO AR _____ REV LIM _____

X-WIND _____ COMP _____ CALC _____ GUST _____

TF _____ TOF _____ CFL _____

$GW_{(CFL)}$ _____ $GW_{(3\ ENG)}$ _____ $GW_{(OBST)}$ _____

V_{MCG} _____ V_R _____ V_{ROT} _____ $V_{B(MAX)}$ _____

STAB. ST _____ V_{MCO} _____ V_{MFR} _____

EMERGENCY RETURN

THRESH. _____ LDG DIST _____

FUEL DUMP

GW _____ -257500 = _____ FUEL _____ -75000 = _____

_____ _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT

V_{GO}

V_{ROT}

V_{MCO}

V_{MFR}

STAB. SET | REV LIM

EMER RET

THRESH.

EPR-GO AR

LDG DIST | DUMPTIME

LANDING

THRESH.

EPR-GO AR

V_{MCO}

V_{MFR}

LDG DIST | REV LIM

TAC - 50 and VOR will stay

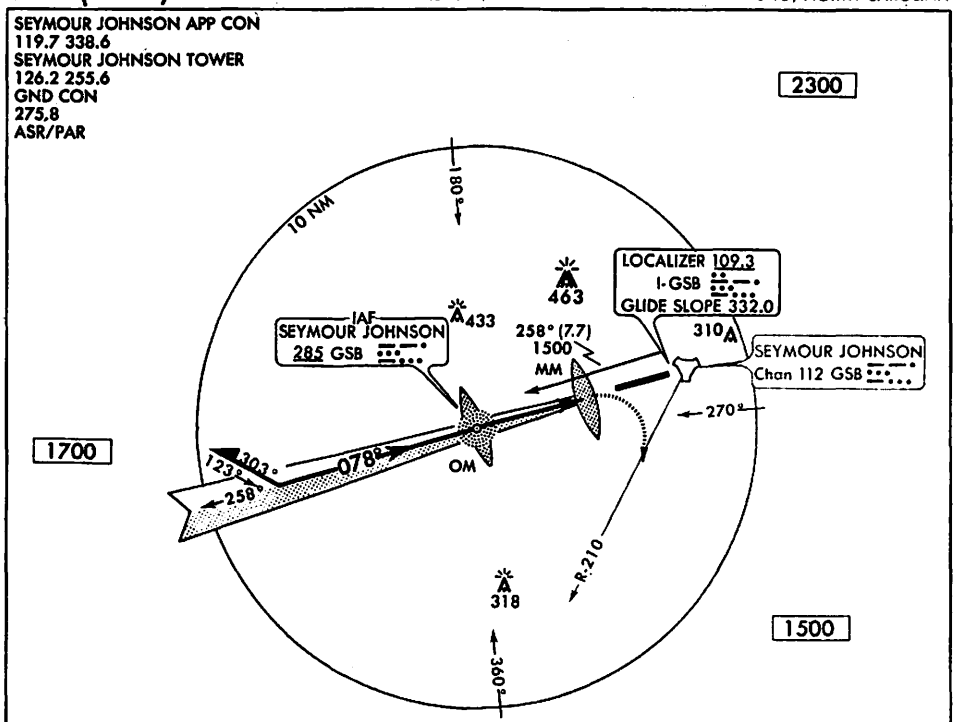
ADF - 10°

NDB(ADF)/ILS 1 RWY 8

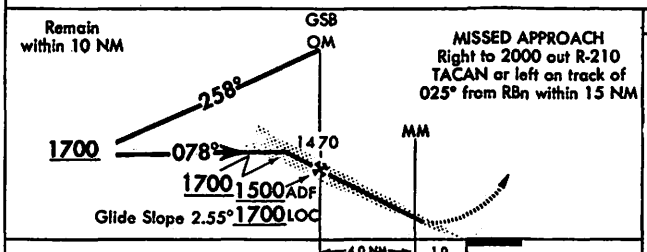
218
AL-169 (USAF)

SEYMOUR JOHNSON AFB
GOLDSBORO, NORTH CAROLINA

SEYMOUR JOHNSON APP CON
119.7 338.6
SEYMOUR JOHNSON TOWER
126.2 255.6
GND CON
275.8
ASR/PAR



ADF, 285 } BDH
ADF$_2$ 285 }
TAC, 112
TAC$_2$ 112
VHF, 109.3 } HSI
VHF$_2$ 109.3 }

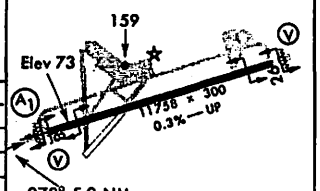


MISSED APPROACH
Right to 2000 out R-210
TACAN or left on track of
025° from RBn within 15 NM

CATEGORY	A	B	C	D
S-ILS-8	273/24 200 (200-½)			
S-LOC-8	460/24 387 (400-½)		460/40 387 (400-¾)	
S-NDB-8	500/24 427 (400-½)		500/40 427 (400-¾)	
*CIRCLING	500-1 391 (400-1)	560-1 451 (500-1)	560-1½ 451 (500-1½)	660-2 551 (600-2)

*Circling not authorized North of Runway 8-26

ELEV 109



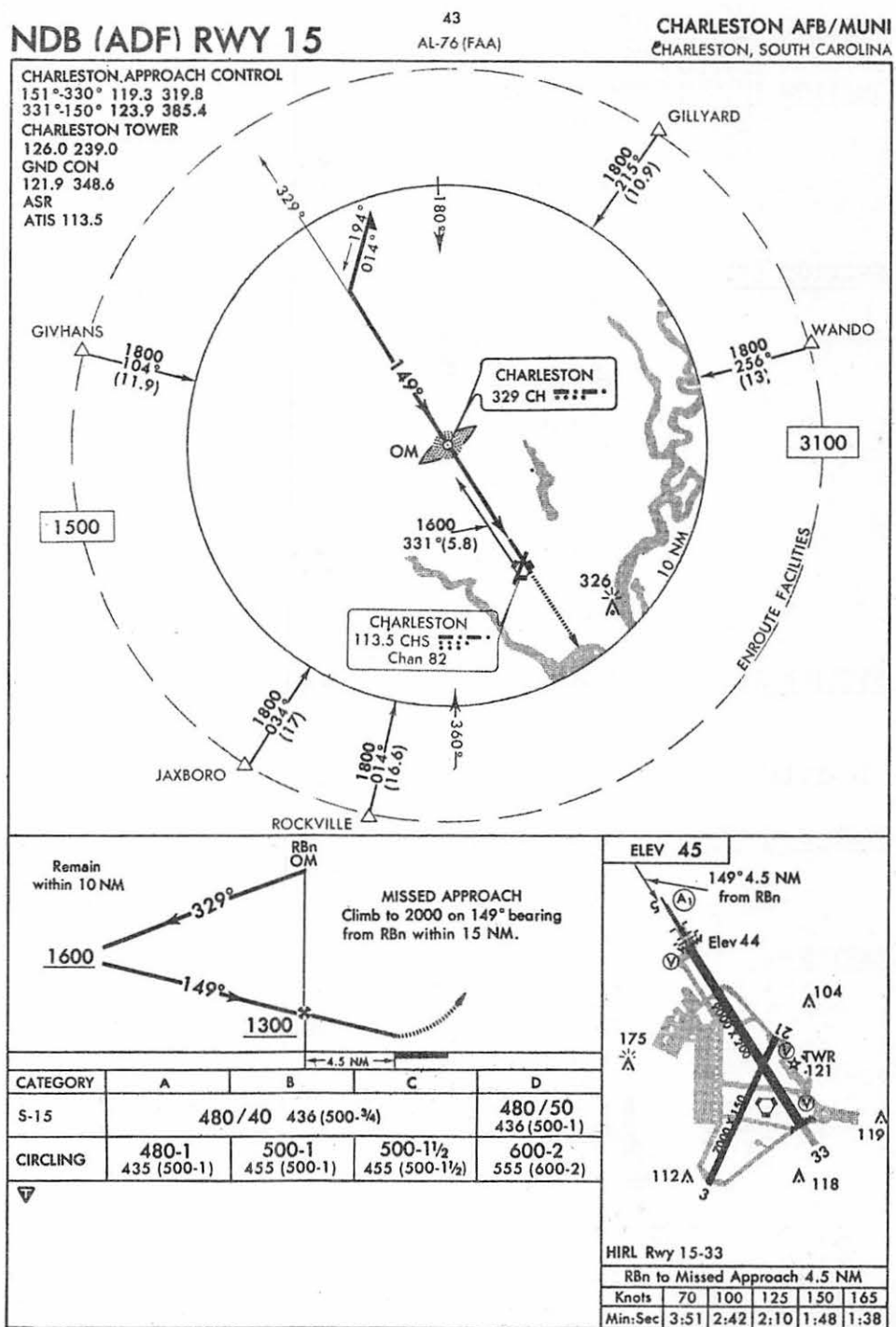
REIL Rwy 26
HIRL Rwy 8-26

RBn/OM to Missed Approach 5.0 NM					
Knots	70	100	125	150	165
Min:Sec	4:17	3:00	2:24	2:00	1:49

NDB(ADF)/ILS 1 RWY 8

35°20'N-77°58'W
218

GOLDSBORO, NORTH CAROLINA
SEYMOUR JOHNSON AFB



CATEGORY	A	B	C	D
S-15	480/40 436 (500-¾)			480/50 436 (500-1)
CIRCLING	480-1 435 (500-1)	500-1 455 (500-1)	500-1½ 455 (500-1½)	600-2 555 (600-2)

STUDY REFERENCES - SIMULATOR MISSION 4

T.O. 1C-141A-1

SECTION I	Oil System	1-36
	Electrical System	1-44,45
	AC electrical system	1-45 thru 60
	DC electrical system	1-60,61
	Emergency power circuit breaker panel	1-78A
SECTION III	Crew coordination	3-2
	Emergency signals	3-2
	Fire on ground	3-7 thru 9
	Abort procedures	3-12A
	Engine failure/overheat/fire during takeoff, climb and cruise	3-12B thru 19
	Wing pylon AC compartment overheat	3-21 thru 3-23
	Electrical fire	3-23 thru 3-26
	Landing with one or more engines out	3-35
	Go-around with one or more engines out	3-36
	Engine oil system failures	3-56
	Electrical power system failures	3-62, 64, 65
SECTION IV	Engine bleed air system	4-1 thru 5

T.O. 1C-141A-1-1

PART 3	Ground minimum control speed	A3-7
	Air minimum control speed	A3-7
	Climbout flight path - three engines	A3-11
PART 8	Air minimum control speed	A8-2
	Go-around	A8-2
	Minimum flap retraction speed schedule	A8-3

AFM 60-16

Oxygen requirements (C-141 Pilot Study Guide, Chapter 5)

C-141 FLIGHT SIMULATOR - MISSION 4

PREMISSION QUIZ

1. State oxygen requirements (pilots) for the following altitudes: Chapter 5 This Guide

	ONE PILOT	SECOND PILOT
a. Sea level thru FL 250 --	R	R
b. Above FL 250 thru FL 350 --	I	R
c. Above FL 350 thru FL 400 --	I or O	I or R
d. Above FL 400 thru FL 500 --	O	I

2. List BOLD PRINT/memory items for an APU fire on the ground. 3-8
APU fire handle - pulled, agent - discharged, brake selector switch - EMER, parking brake - set, ground/flight crew and tower - notified, engines - stop, troops/crew - evacuate

3. List the visual and aural indications of an APU fire warning. 1-132
audible alarm - pilots', flight engineer's, and observer's headsets
pilot's master caution and annunciator APU FIRE
engineer's APU fire handle illuminates
illumination of fire handle on crew entrance APU fire control panel
bailout alarm if door open

4. List the BOLD PRINT/memory items for a persistant engine fire on the ground. engine fire handle - pulled, agent - discharged, brake selector 3-7,8
switch - EMER, parking brake - set, ground/flight crew and tower - notified, engines/APU - STOP, troops/crew - evacuate

5. Following an aborted takeoff the brake limits will be checked if the brakes were applied above 60 KCAS. 3-12A

6. Illumination of the LOW OIL PRESSURE warning light on the pilot's center instrument panel, with the flight engineer's oil pressure indicator showing 47 psi, would probably indicate a clogged oil filter. 3-56

7. List the BOLD PRINT/memory items for an engine fire in flight. 3-14
fire handle - pulled
agent - discharged

8. During Air Start, a start should be obtained within 30 seconds and will be evidenced by an increase in RPM and EGT. 3-18

9. When all four BUS Disconnect Switches are OFF, the equipment which remains operable is: pilot - engineer interphone, CADC #1, pilots turn & slip 3-25
and instrument floodlights, pressurization system (no temp control), standby compass, IFF, yaw damper, pilot ADI

10. If normal DC power fails without a loss of AC power, opening the EMER POWER CONTROL circuit breaker will cause the emergency generator to come ON and supply all the DC buses. 3-65

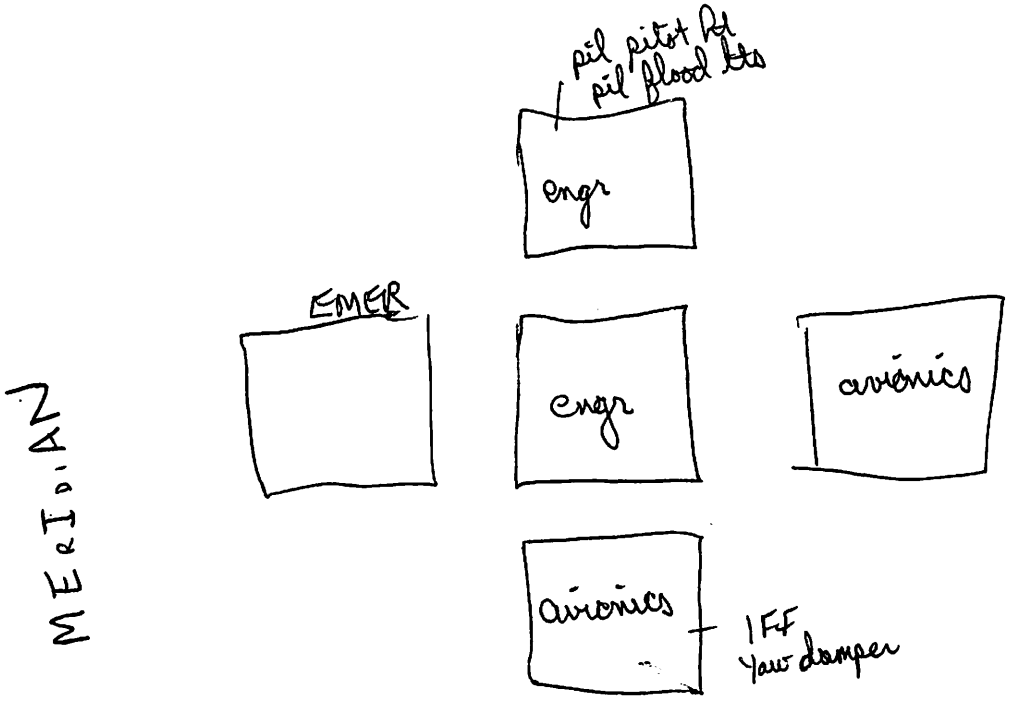
a. True

(b.) False

11. With loss of DC electrical power the spoilers are inoperative. 3-60

NOTE

Don't forget you can show early, pick up your enroute kit and review the route of flight and area of operation.



C-141 FLIGHT SIMULATOR - MISSION 5

MISSION This will be a local training flight at Altus AFB. Numerous emergencies and an introduction to AWLS procedures will be presented. Normal checklists, emergency checklists, and crew coordination will be emphasized.

AIRDROME INFORMATION Altus AFB - Active runway 35, length 13,440'.

AIRCRAFT INFORMATION Ramp fuel 132,000 lbs, operating weight 134,240 lbs, no cargo, C.G. 31.2%, 2nd flight fuel load, 70,000 lbs, ramp, C.G. 30.3%

OBJECTIVE At the completion of this mission you should be able to:

1. Recognize and take the proper corrective action for:
   a. Starting malfunctions
   b. Fire on the ground
   c. Engine fire/failure/overheat in flight

2. Accomplish a three engine approach and landing.

3. Recognize and, with verbal IP assistance, take corrective action for:
   a. Fuselage/wing fire
   b. Smoke and fumes
   c. Thrust reverser failure/inflight extention
   d. Spoiler failure

4. Accomplish all AWLS checklists and state aircraft attitude limits for an enroute check.

5. During an AWLS approach:
   a. State the proper procedures
   b. Recognize proper progress display panel presentation
   c. State the correct pilot actions for fault identification panel lights
   d. Perform all required copilot duties

6. Properly use the auto throttle system

7. State the reasons for jettisoning fuel and the precautions to observe during fuel jettisoning.

8. State which navigation radios are reliable and which heading indicators should be used with a C-12 compass malfunction.

FLIGHT 1

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 264840 CG 31.2 OAT +32 °C PA +1250

WIND-DIR ✓ VEL ✓ OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 13040 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT 1.841 EPR-GO AR 1.807 REV LIM 10.8

X-WIND 0 COMP 0 CALC 0 GUST 0

TF 17.6 TOF 46.1 CFL 5175

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 97 V_R 179 V_{ROT} 125 $V_{B(MAX)}$ 165

STAB. ST 2.0 V_{MCO} 137 V_{MFR} 162

EMERGENCY RETURN

264840
257500
7340

THRESH. _____ LDG DIST _____

FUEL DUMP

GW 264,840 -257500 = 7,340 FUEL 130,100 -75000 = 55,100

− 55,100 − 55,100

END GW 209,740 END FUEL 75,000 TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT 1.84

V_{GO} 125

V_{ROT} 125

V_{MCO} 137

V_{MFR} 162

STAB. SET	REV LIM
2.0	10.8

EMER RET

THRESH.

EPR-GO AR

LDG DIST	DUMPTIME

LANDING

THRESH.

EPR-GO AR

V_{MCO}

V_{MFR}

LDG DIST	REV LIM

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION	AIRCRAFT SERIAL NO.
443 MAW ALTUS AFB, OK	

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
[X] IFR [ ] DVFR [ ] VFR [ ] PVFR		HC-141A	400		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	STANDARD INSTRUMENT DEPARTURE TO
VFR/OT		HOBART TWO	HBR

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		20 NM RADIUS LTS	ALTUS AFB	4+00

REMARKS

FULL STOP FOR SEAT CHANGE AFTER 2+00

REQUEST DUKE THREE DEPARTURE +0 CDS ON SECOND DEPARTURE

RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+25	-	———	-	X	X	X	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE
—	—		

CREW/PASSENGER LIST — [ ] *Attached* [ ] *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. D-38305

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
2100 Z	0100 Z	0200 Z		20 APR 1971	C-141 6165

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
32 °C	31 °C	CALM	°C	+1250 FT	FT	DRY

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
3225	NONE

REMARKS/TAKEOFF ALTN FCST

TRW VCNTY
LGT KING 120-200

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
200	KLTS-KLTS 3035 -15

CLOUDS AT FLT LEVEL: ☐ YES ☒ NO ☐ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS ___ Z MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
100 FT AGL	TEX PNHDL	400 FT MSL	TEX PNHDL	120 FT MSL	KLTS-KLTS

THUNDERSTORMS (within fifty miles of route)

MWWA NO.

☐ NONE ☒ AREA ☐ LINE

- ☐ ISOLATED 1-2%
- ☐ FEW 3-15%
- ☒ SCATTERED 16-45%
- ☐ NUMEROUS-MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION: KLTS-KLTS

TURBULENCE (within ten miles of route not associated with TSTMS)

CAT ADVISORY Z

	IN CLEAR	IN CLOUD
☒ NONE		
LIGHT		
MOD		
SVR		
EXTREME		

LEVELS:

LOCATION:

ICING (within ten miles of route not associated with TSTMS)

NONE

	RIME	MIXED	CLEAR
TRACE		X	
LIGHT	X		
MOD			
SVR			

LEVELS: 120 - 200

LOCATION: VCNTY RW

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS		X		
FRZG				

LOCATION: KLTS - KLTS

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	20	½ RW+	CALM	30.17 INS	0000 Z TO 0200 Z
ALTERNATE KSKF	25 ⊕ 50 ⊕	5 RW-	1620G30	29.80 INS	0100 Z TO 0300 Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT

VOID TIME Z

EXTENDED TO Z

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	WEA REBRIEFED AT Z
	2000 Z	Lt P. M. Bust	FORECASTER'S INITIALS

WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 202840 CG 30.3 OAT +32 °C PA +1250

WIND-DIR ✓ VEL ✓ OBST-HT ✓ DIST ✓

RWY-HDG 350 AVAIL 13040 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT 1.841 EPR-GO AR 1.807 REV LIM 10.8

X-WIND 0 COMP 0 CALC 0 GUST 0

TF 17.6 TOF 46.1 CFL 3100

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 97 V_R 180 V_{ROT} 109 $V_{B(MAX)}$ 165

STAB. ST 2.1 V_{MCO} 122 V_{MFR} 147

EMERGENCY RETURN

THRESH. 118 LDG DIST 3450

FUEL DUMP

GW 202,840 -257500 = ✓ FUEL 68,100 -75000 = ✓

—

END GW 202,840 END FUEL TIME ✓

DESTINATION

CONDITIONS

OAT °C PA RWY-HDG LGTH

RCR SLOPE WIND-DIR VEL

COMPUTATIONS

GW EPR-GO AR REV LIM

TF X-WIND COMP CALC GUST

THRESH. LDG DIST V_{MCO} V_{MFR}

TAKE-OFF

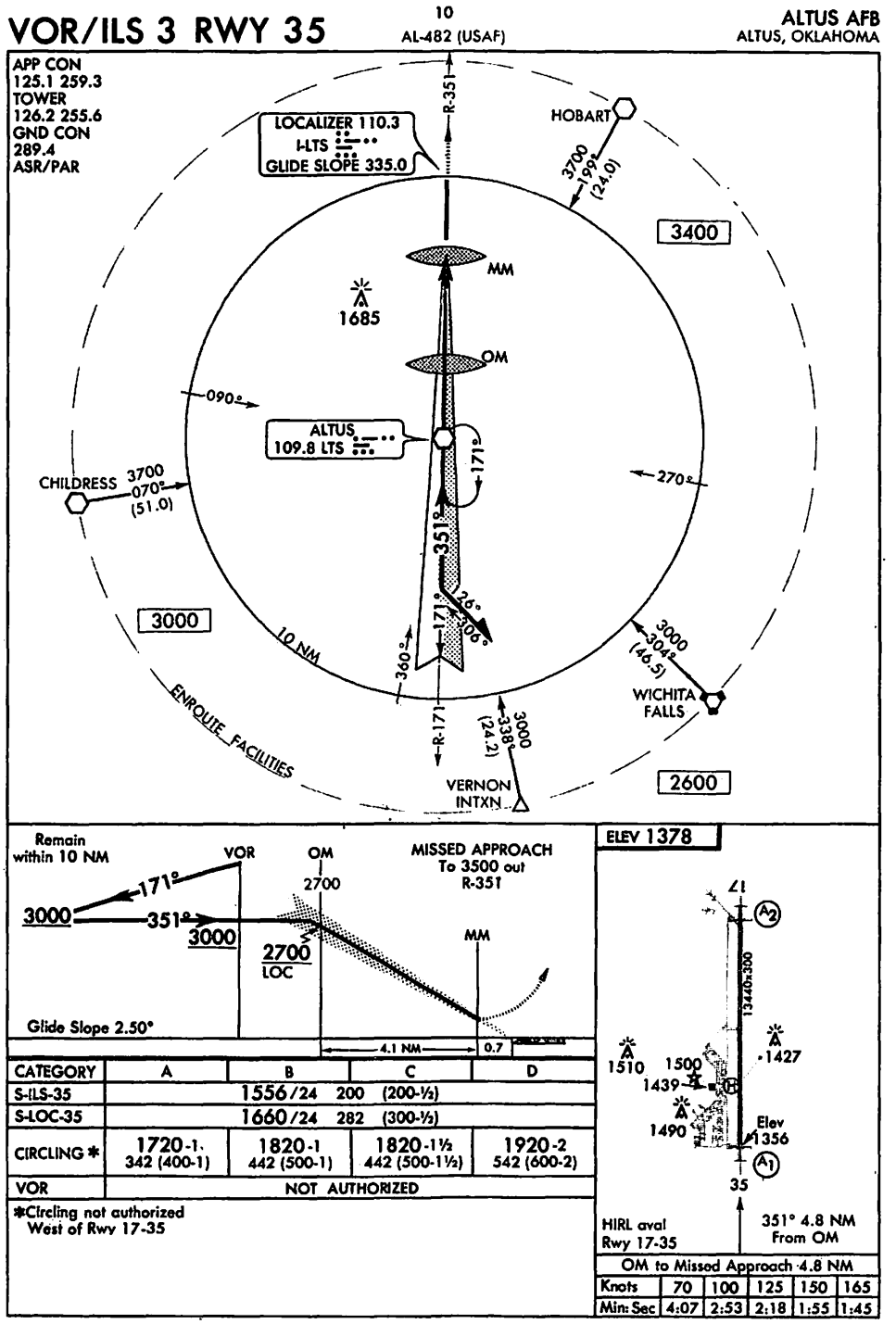
TRT	1.84
V_{GO}	109
V_{ROT}	109
V_{MCO}	122
V_{MFR}	147
STAB. SET 2.1	REV LIM 10.8

EMER RET

THRESH.	118
EPR-GO AR	1.80
LDG DIST 3450	DUMPTIME 0

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	REV LIM


VOR/ILS 3 RWY 35
10
AL-482 (USAF)
ALTUS AFB
ALTUS, OKLAHOMA
APP CON
125.1 259.3
TOWER
126.2 255.6
GND CON
289.4
ASR/PAR
LOCALIZER 110.3
I-LTS
GLIDE SLOPE 335.0
R-351
HOBART
3700
199°
(24.0)
3400
MM
1685
OM
090°
ALTUS
109.8 LTS
171°
270°
CHILDRESS
3700
070°
(51.0)
351°
171°
26°
206°
3000
10 NM
360°
3000
304°
(46.5)
WICHITA
FALLS
ENROUTE FACILITIES
R-171
3000
338°
(24.2)
VERNON
INTXN
2600
Remain
within 10 NM
VOR
OM
2700
MISSED APPROACH
To 3500 out
R-351
171°
3000
351°
3000
2700
LOC
MM
Glide Slope 2.50°
4.1 NM
0.7
ELEV 1378
17
13440x300
1510
1500
1439
1490
1427
Elev
1356
35
HIRL avai
Rwy 17-35
351° 4.8 NM
From OM
OM to Missed Approach 4.8 NM
Knots 70 100 125 150 165
Min:Sec 4:07 2:53 2:18 1:55 1:45
CATEGORY A B C D
S-ILS-35 1556/24 200 (200-½)
S-LOC-35 1660/24 282 (300-½)
CIRCLING * 1720-1 342 (400-1) 1820-1 442 (500-1) 1820-1½ 442 (500-1½) 1920-2 542 (600-2)
VOR NOT AUTHORIZED
*Circling not authorized
West of Rwy 17-35
VOR/ILS 3 RWY 35
34°40'N-99°16'W
10
ALTUS, OKLAHOMA
ALTUS AFB

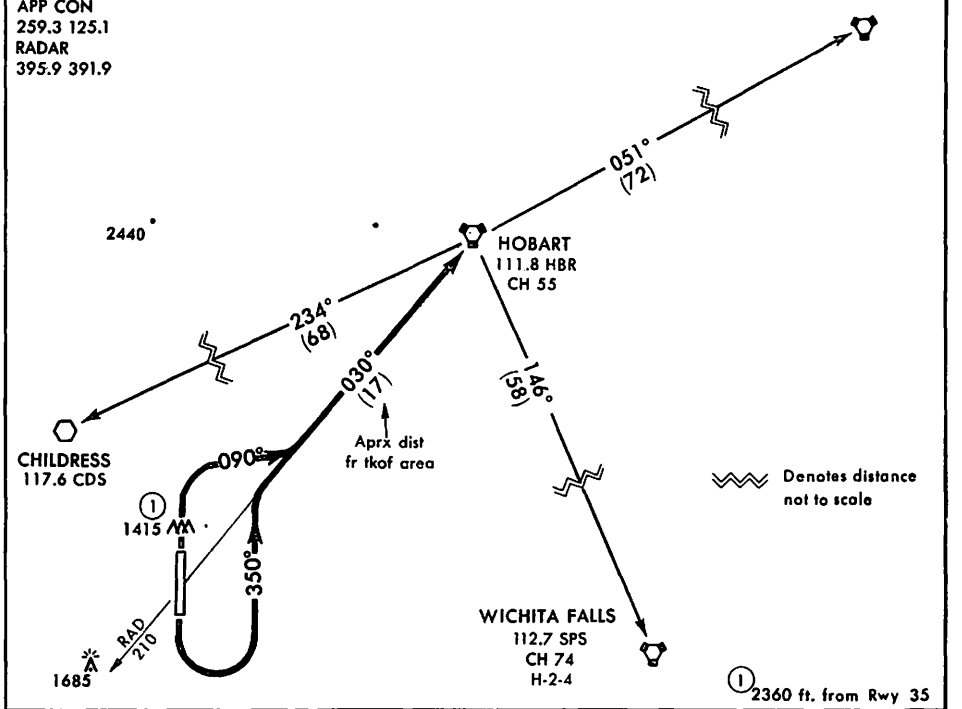
HOBART TWO DEPARTURE

ALTUS AFB
ALTUS, OKLAHOMA

Rwy	Knots	60	120	180	240	300	360
35	V/V (fpm)	194	388	582	776	970	1164

Minimum Climb Rate

GND CON
289.4
CLNC DEL
289.4
TOWER
255.6 126.2
DEP CON
290.9
FT. WORTH CENTER
290.2 128.4
APP CON
259.3 125.1
RADAR
395.9 391.9



DEPARTURE ROUTE DESCRIPTION

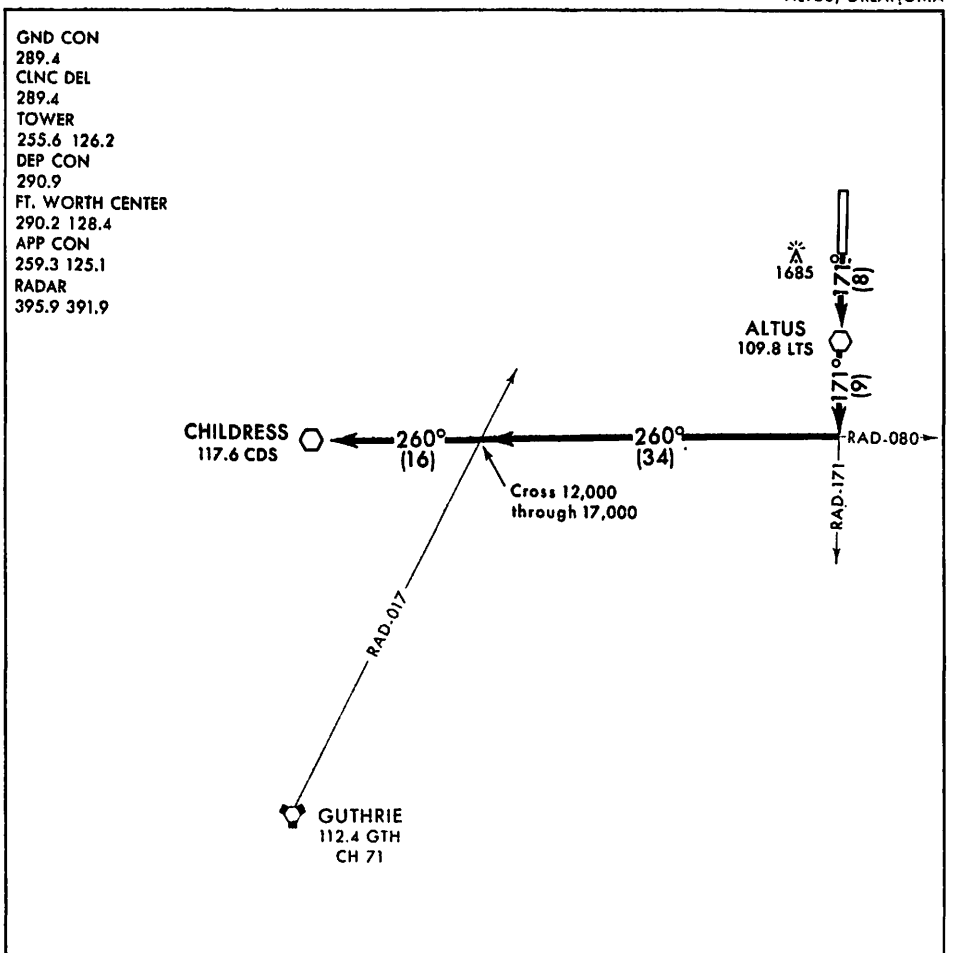
Take-off Rwy 17: Turn left to heading 350° to intercept the HOBART VORTAC 210 radial, then via the HOBART VORTAC 210 radial to the HOBART VORTAC.

Take-off Rwy 35: Turn right to heading 090° to intercept the HOBART VORTAC 210 radial, then via the HOBART VORTAC 210 radial to the HOBART VORTAC.

HOBART TWO DEPARTURE

DUKE THREE DEPARTURE

ALTUS AFB
ALTUS, OKLAHOMA



DEPARTURE ROUTE DESCRIPTION

Take-off Rwy 17: Proceed direct to ALTUS VOR, South on ALTUS VOR 171 radial, West on CHILDRESS VOR 080 radial to CHILDRESS VOR. Cross the INTXN of CHILDRESS VOR 080 radial and GUTHRIE VORTAC 017 radial 12,000 through 17,000.

DUKE THREE DEPARTURE

STUDY REFERENCES - SIMULATOR MISSION 5

T.O. 1C-141A-1

SECTION I	Engine thrust reverser system	1-34,35
	Wing spoiler system	1-102 thru 109
	Takeoff warning system	1-126
SECTION III	Fuselage fire	3-19,20
	Wing fire	3-20,21
	Smoke and fume elimination	3-26,27,28
	Fuel jettison	3-31,32
	Thrust reverser failure	3-44F
	Spoiler system failure	3-60,60A,61
	Fuel system failure	3-65,66
SECTION IV	C-12 compass system	4-94 thru 97
	AWLS progress display	4-126
	R/GA	4-129,130
	ATS	4-130,131
	Flare/land computer	4-132
SECTION VII	Thrust reverser system operation	7-1
SECTION IX	AWLS	9-14B thru 14F

MM 55-1	CAT II Precision Approaches	4-5e(3)
	CAT II ILS	4-6a(4)

C-141 FLIGHT SIMULATOR - MISSION 5

PREMISSION QUIZ

1. Describe the proper corrective action for a fuel-filter by-pass light in flight. turn ON that fuel heater until 30 sec after the light extinguishes, not to exceed one minute. If light stays on, shut down engine if not needed for flight. 3-66

2. During engine start, if EGT starts rising at an abnormal rate or approaches within 50 degrees of starting temperature limit, stop start. 7-8

3. If starter button does not pop out by 45% N_2, pull it out. If starter valve light does not extinguish, what further steps must be accomplished?
shut down the engine by pulling the fire handle 2-29

4. If an engine overheat occurs in flight, retard the throttle and observe whether the overheat condition is corrected. If overheat condition recurs when the throttle is advanced, shutdown the engine using the engine failure checklist. 3-19

5. The SMOKE AND FUME ELIMINATION Checklist will be used to eliminate smoke and fumes emanating from engine bleed systems or air conditioning packs. 3-26

6. To avoid flying through jettisoned fuel, do not jettison in a circular descending pattern. 3-31

7. If a THRUST REV NOT LOCKED light illuminates in flight and/or scanner reports one gapping open, the proper corrective action is: 3-44F
reduce airspeed to get it retracted
land at nearest suitable airfield

8. An asymmetry control circuit monitors the first two and one-half inches of travel of the outboard spoiler drive tubes. 1-103

9. On landing if spoilers have been armed and do not deploy, the copilot will: 3-60A
manually move spoiler lever to the ground position

10. List the conditions that must be satisfied to illuminate the TAKE OFF warning light: 1-126
buses powered: isol AC avionics
isol AC
main DC #1 and #2
spoilers closed & locked
thrust reversers closed & locked
flaps in takeoff/approach
autopilot off
doors in door warning circuit closed & locked
hydraulic pitch trim lever button depressed & released

11. With a C-12 compass system Nr 1 malfunction, and C-12 compass system Nr 2 correctly operating, what will the Nr 1 bearing pointer on the copilot's BDHI indicate with TACAN-2 selected? relative bearing only With TACAN-1 selected? magnetic bearing 4-98

12. The R/GA (shall/~~shall not~~) be used for takeoff. 9-14B

13. Vertical velocity failure may be caused by failure of the R/GA computer. What is the corrective action for this failure? 4-129
open phase "B" R/GA circuit breaker on avionics CB panel

14. Engaging the R/GA mode, by depressing one of the go-around buttons, disengages the autopilot, ATS, and AWLS slewed. 4-130

15. Be prepared to discuss proper use of auto throttles on an auto-auto AWLS approach. 9-14B,14C

16. An AWLS enroute check should be accomplished on preflight and enroute prior to commencing a CAT. II approach 9-14D

17. If the AWLS enroute check is performed in flight, the bank angle should be limited to ±10 degrees and the pitch altitude change to ±5 degrees. 9-14D

18. The final AWLS check will be accomplished after localizer intercept intercept and prior to glide slope intercept for each AWLS approach. 9-14E

C-141 FLIGHT SIMULATOR - MISSION 6

MISSION

This will be a MAC transport mission from Peterson Field, Colorado to Altus AFB, Oklahoma with an intermediate stop at Amarillo Air Terminal. Numerous emergencies will be presented in a discussion/demonstration type manner. As in missions Nr. 4 and 5 emphasis will be placed on checklist procedures with special attention to emergency checklists and crew coordination.

AIRDROME INFORMATION

Peterson Field active runway 35, runway length 11,020', RCR 23, Slope 1.2 up. Obstacle located 2200 feet from the departure end of runway 35 that is 6352 feet MSL. The field elevation is 6172 feet MSL.

Amarillo active runway 21, runway length 13,500', RCR 23, NOTAMS: No JP-4 or JP-5 available this station.

Altus AFB active runway 17, runway length 13,440'.

AIRCRAFT INFORMATION

Ramp fuel 70,000 lbs, operating weight 138,400 lbs, cargo - on load to max allowable gross weight, C.G. 30.7%. Amarillo ramp fuel 40,000 operating weight 138,400, C.G. 30.3%. Use same cargo weight as departure from Peterson Field.

OBJECTIVE

At the completion of this mission you should be able to:

1. Compute obstacle clearance performance data.
2. State the differences between a normal and obstacle clearance takeoff.
3. Maintain proper oxygen discipline.
4. Describe the procedures to follow during bailout and cargo jettisoning.
5. Take the proper corrective action for a rapid decompression.
6. Recognize and take the proper corrective actions for the following malfunctions:
   - (a) Number 1,2 or 3 hydraulic system failure.
   - (b) Inflight door warning.
   - (c) Landing gear fail to retract or extend.
   - (d) Brake system failure.
   - (e) Flap Asymmetry.
   - (f) Flight control failure.
   - (g) Runaway or failed pitch trim.
   - (h) C-12 compass system failures.
   - (i) Anti-skid failure
7. Perform the required copilot duties during the above malfunctions.

OBSTACLE CLEARANCE

INSTRUCTIONS FOR COMPLETING TOLD CARD

1. To find obstacle height, subtract the field elevation 6,172 ft (MSL) from obstacle height 6,352 ft (MSL) = 180 ft. To find distance add 2200 ft to runway available (runway length = 11,020 minus line up distance of 200 ft obstacle clearance takeoff = 10,820 + 2200 = 13,020 ft distance to obstacle.

2. Compute TRT from figure A2-2, air conditioning, pressurization OFF.

3. Using TRT and pressure altitude, compute thrust factor of 15.0 from figure A3-6. Compute takeoff factor from figure A3-7 TOF = 41.7.

4. To find GW(CFL), go to figure A3-8, sheet 2 of 2, using runway available 10,820 proceed backwards using calculated wind and slope to find 10,700 ft. Proceed to sheet 1 and find weight of 312,000 lbs.

5. From figure A3-9, compute GW(3 eng), using climb gradient of 2.50 (MM 55-1) equals 321,500 lbs. Do not use temp dev. See note 3 on top of chart.

6. Using figure A3-12, enter with distance to obstacle 13,020 proceed to height of obstacle (180) find climbout factor. (COF 78.3).

7. Proceed with COF 78.3 to figure A3-10, find uncorrected gross weight of 277,000 lbs.

8. Proceed to figure A3-8 using TOF 41.7 and weight of 277,000 lbs, find uncorrected CFL of 8,100 ft (do not add 200 ft TRT takeoff) proceed to sheet 2 and correct for slope (1.2 up). This gives you a corrected CFL of 8,950 ft. Subtract from uncorrected CFL = 850 ft. Subtract this from distance to obstacle, 13,020 - 850 = 12,170 ft. This is the corrected distance to obstacle. Using the corrected CFL (8,950 ft) use the following formula to find obstacle height correction $\frac{RA - CFL \times \% \text{ slope}}{100}$ = correction.

9. Add correction (224.4 ft) to obstacle height 180 = ~~405~~ 202 ft.

10. Proceed back to figure A3-12, using corrected distance to obstacle, 12,170 and corrected obstacle height 202 find corrected COF = 77.5.

11. Proceed back to figure A3-10 with corrected COF of 77.5 and TF 15.0 find corrected gross weight of 266,000.

12. Proceed back to figure A3-8 and using TOF 41.7 and corrected GW 266,000 lbs find corrected CFL of 8,050 ft (don't forget slope correction).

13. The remainder of the card is completed normally.

NOTE

Both students will complete the TOLD Card for the Peterson Field departure.

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB OK

AIRCRAFT SERIAL NO.:

TYPE OF FLIGHT PLAN: [X] IFR [ ] DVFR [ ] VFR [ ] FVFR

RADIO CALL:

AIRCRAFT DESIGNATION/TD CODE: HC-141A

ESTIMATED TRUE AIRSPEED: 450

DEPARTURE TIME (Z): PROPOSED / ACTUAL

INITIAL CRUISING ALTITUDE: FL 330

POINT OF DEPARTURE: COS

STANDARD INSTRUMENT DEPARTURE — NAME AND NUMBER: RADAR VECTORS — TO: Pueblo

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		J-17 AMA	AMARILLO AFB	1+23
X		450 270 SAVAGE 4 COS (TIK 0+29)	ALTUS AFB	0+50

REMARKS: 30 MINUTE DELAY AT AMARILLO TO UNLOAD CARGO

RANK/HONOR CODE: —

PSGR/CARGO CODE: VOID TIME 2+43

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+00	305	LTS	0+48	X	X	X	

INST RATING: —

SIGNATURE OF PILOT IN COMMAND: —

SIGNATURE OF APPROVING AUTHORITY:

DATE:

CREW/PASSENGER LIST — [ ] Attached [ ] See Passenger Manifest

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. D-38305

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
2100 Z	2330 Z	0000 Z		20 APR 1991	C-141 6165

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
30 °C	-05 °C	3520G25	°C	+6170 FT	FT	23

CLIMB WINDS: 2535

LOCAL WEA WARNING OR MET WATCH ADVISORY: NONE

REMARKS/TAKEOFF ALTN FCST: LGT TURBC SFC-100

III. ENROUTE DATA

FLT LEVEL: 330

FLT LEVEL WINDS/TEMP: KCOS-KLTS 2345

CLOUDS AT FLT LEVEL: ☐ YES ☐ NO ☒ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 7 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
1000 FT AGL	KPUB-KLTS	450 FT MSL	VCNTY TSTMS	120 FT MSL	KCOS

MWWA NO. 58

CAT ADVISORY 191/0600 Z

THUNDERSTORMS (within fifty miles of route)

NONE ☒ AREA ☐ LINE

- ☐ ISOLATED 1-2%
- ☐ FEW 3-15%
- ☒ SCATTERED 16-45%
- ☐ NUMEROUS-MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION: KAMA-KLTS

TURBULENCE (within ten miles of route not associated with TSTMS)

	NONE	IN CLEAR	IN CLOUD
LIGHT			
MOD	X		
SVR			
EXTREME			

LEVELS: 200-400

LOCATION: KCOS-KAMA

ICING (within ten miles of route not associated with TSTMS)

NONE

	RIME	MIXED	CLEAR
TRACE			
LIGHT		X	
MOD			
SVR			

LEVELS: 120-330

LOCATION: VCNTY RW

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS		X		
FRZG				

LOCATION: KAMA-KLTS

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KLTS	10 ⊕	5 RW	0310	29.92 INS	2230 Z TO 0030 Z
ALTERNATE KAMA	10 ⊕	5 RW	2515G20	29.92 INS	2130 Z TO 2330 Z
INTMED STOP KAMA	10 ⊕	5 RW	2515G20	29.92 INS	2300 Z TO 0100 Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

KAMA TEMP -37°C PA - +3600

KLTS TEMP -38°C PA - +1380

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT KLTS

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	EXTENDED TO	WEA REBRIEFED AT	FORECASTER'S INITIALS
	2000 Z	Lt J. M. Stormy	Z	Z	Z	

WEA FCLTY	TAPE NO	START	STOP	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING
		Z	Z		

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 266,000 CG 30.7 OAT +30 °C PA +6170

WIND-DIR 350 VEL 20-25 OBST-HT _____ DIST _____

RWY-HDG 350 AVAIL 10,820 SLOPE 1.2↑ RCR 23 RSC 0

COMPUTATIONS

TRT 1.874 EPR-GO AR 1.820 REV LIM 10.8

X-WIND 0 COMP 20 CALC 10 GUST 5

TF 15.0 TOF 41.7 CFL 8,050

$GW_{(CFL)}$ 312,000 $GW_{(3\ ENG)}$ 321,500 $GW_{(OBST)}$ 266,000

V_{MCG} 90 V_R 138 V_{ROT} 128 $V_{B(MAX)}$ 168

STAB. ST 2.2 V_{MCO} 137 V_{MFR} 162

EMERGENCY RETURN

THRESH. 135 LDG DIST 5250

FUEL DUMP

GW 266,000 -257500 = 8,500 FUEL 78,600 -75000 = 0

− 8,500 FUEL −8,500

END GW 257,500 END FUEL 70,100 TIME 1.7

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT	1.87
V_{GO}	128
V_{ROT}	128
V_{MCO}	137
V_{MFR}	162
STAB. SET 2.2	REV LIM 10.8

EMER RET

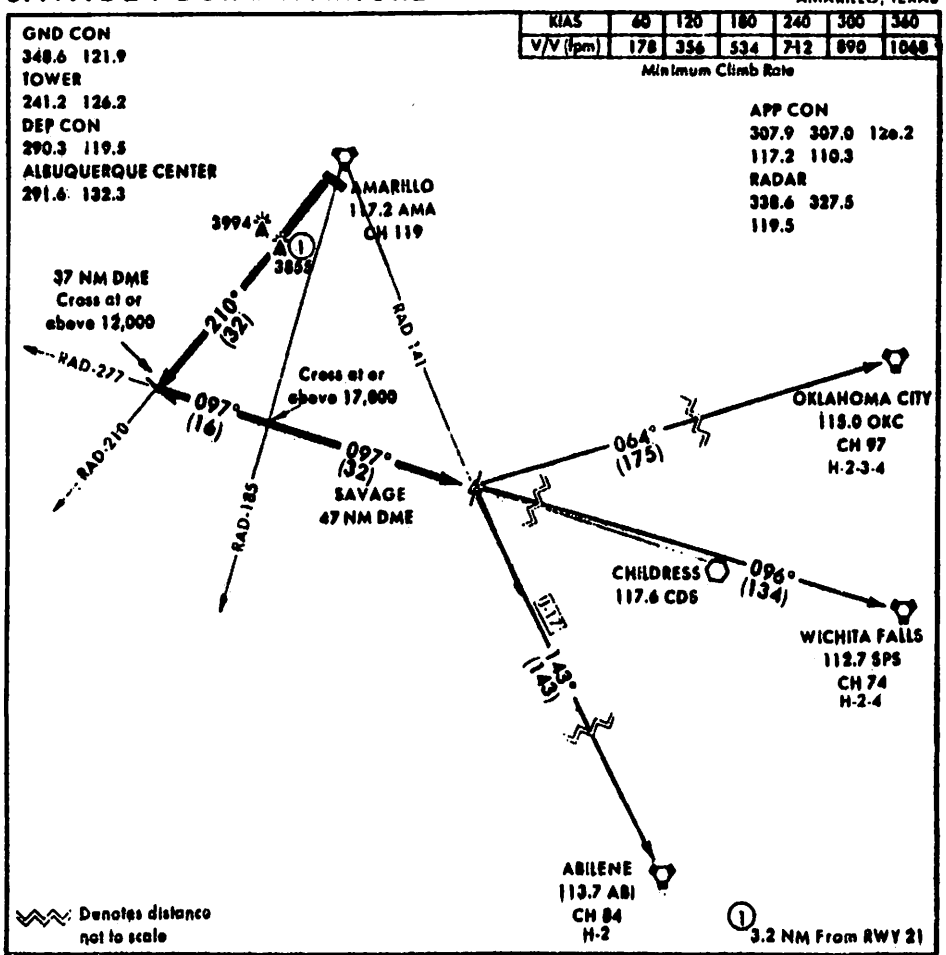
THRESH.	135
EPR-GO AR	1.82
LDG DIST 5250	DUMPTIME 1.7

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	REV LIM

SAVAGE FOUR DEPARTURE

AMARILLO AFB/MUNI
AMARILLO, TEXAS



DEPARTURE ROUTE DESCRIPTION

Intercept and climb via AMARILLO VORTAC 210 radial to intercept and proceed via CHILDRESS 277 radial to SAVAGE INTXN (CHILDRESS 277 radial/AMARILLO 141 radial) (47 Mile DME Fix on the AMARILLO 141 radial). Cross AMARILLO VORTAC 37 Mile DME Fix/intercept CHILDRESS 277 radial at or above 12,000; cross AMARILLO VORTAC 185 radial at or above 17,000; cross SAVAGE INTXN at _____.

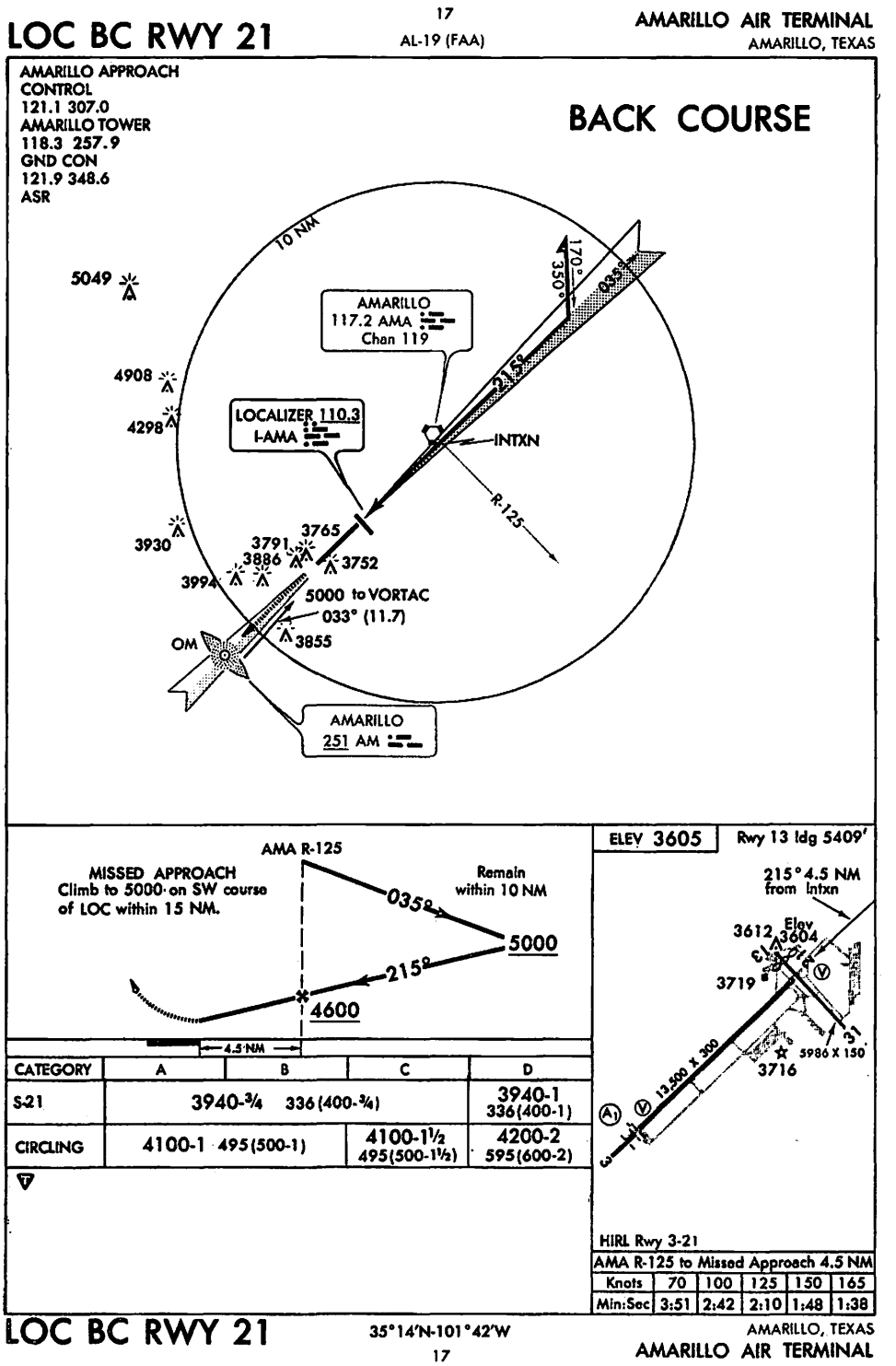
OKLAHOMA CITY TRANSITION–Via OKLAHOMA CITY VORTAC 244 radial to OKLAHOMA CITY.

WICHITA FALLS TRANSITION: Via WICHITA FALLS VORTAC 276 radial to WICHITA FALLS.

ABILENE TRANSITION: Via AMARILLO VORTAC 141 radial and ABILENE VORTAC 323 radial to ABILENE.

SAVAGE FOUR DEPARTURE

BACK COURSE ILS

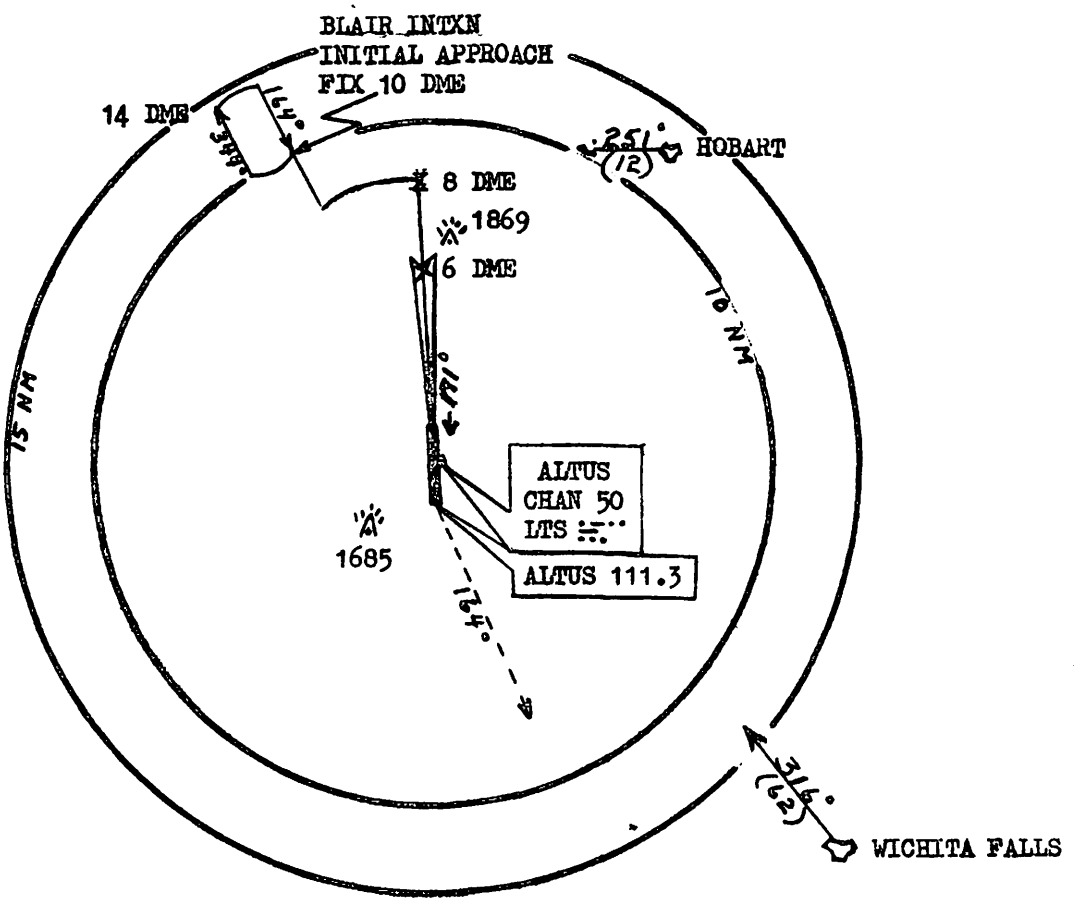


CATEGORY	A	B	C	D
S-21	3940-¾ 336 (400-¾)			3940-1 336 (400-1)
CIRCLING	4100-1 495 (500-1)		4100-1½ 495 (500-1½)	4200-2 595 (600-2)

AMA R-125 to Missed Approach 4.5 NM					
Knots	70	100	125	150	165
Min:Sec	3:51	2:42	2:10	1:48	1:38

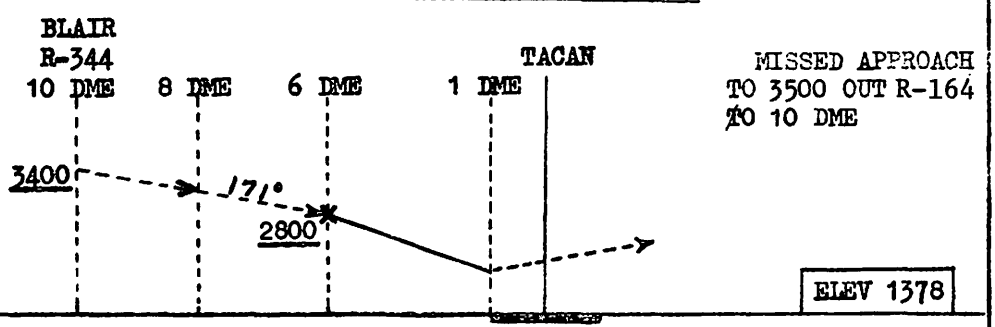
LO ILS/DME RWY 17 ALTUS AFB

APP CON
125.1 259.3 363.8
TOWER
126.2 236.6 255.6
GND CON
289.4
ASR/PAR



FOR VFR TRAINING USE
WHILE OPERATING UNDER
VFR CONDITIONS ONLY

* NOT AUTHORIZED WEST OF RWY 17/35 MIN SAFE ALT 25NM 3400



CATEGORY	A	B	C	D	E	
S - ILS - 17	1578	1578	1578	1578	1578	
S - LOC - 17	1740	1740	1740	1740	1740	
* CIRCLING	1740	1820	1820	1920	1920	

STUDY REFERENCES - SIMULATOR MISSION 6

T.O. 1C-141A-1

SECTION I	Wing flap system	1-100 thru 102
SECTION II	Obstacle clearance takeoff	2-45
	Rapid descent	2-50
	No flap landing	2-57
SECTION III	Bailout procedure	3-28
	Inflight door warning	3-29,30
	Rapid decompression	3-30A
	Windshield impairment	3-31
	Cargo jettison	3-32 thru 34
	Landing gear system malfunction	3-36 thru 44F
	Brake system failure	3-44F
	Flight control system failure	3-56 thru 58
	Pitch trim malfunctions	3-58 thru 58B
	Asymmetrical flap positioning	3-60
	Hydraulic system failure	3-61,62

T.O. 1C-141A-1-1

PART III	Climbout - with obstacle	A3-10,11

MM 55-1

	Obstacle clearance	4-3a Attach 10
CHAPTER 8	Unlawful seizure (Hijacking)	

C-141 Pilot Study Guide

CHAPTER 5	Rapid Descent

C-141 FLIGHT SIMULATOR - MISSION 6

PREMISSION QUIZ

1. When an obstacle exists in the initial climb segment, the takeoff gross weight will not exceed a weight which will allow clearing the obstacle with 3 engines operating, gear up, flaps at takeoff/approach and airspeed at _____. MM 55-1 Attach 10, A3-11

2. Illumination of the DOOR OPEN light on the pilot's annunciator panel indicates that the crew door, petal door, pressure door, stabilizer access door, ramp, or one of troop doors is not completely locked/closed. 3-29

3. Describe the entry technique, aircraft configuration, and airspeeds to be flown in the event a rapid descent becomes necessary. Student Guide, Chap 5, 2-50
throttles - IDLE START; simultaneously roll to 45° bank, lower nose 15°, nose low, deploy spoilers to flight position - airspeed .75 Mach or 300 kts, whichever is lower, to 20,000 ft, then 325 kts to 10,000, then 350 kts

4. Window glass that is cracked so badly that vision is impaired is still sound enough to meet the requirements of pressurized flight. 3-31

   (a.) True

   b. False

5. Bailout should not be attempted from the crew entrance door at airspeeds above 200 kts. 3-28

6. Complete the following statements referring to cargo jettison: 3-32 thru 3-34

   a. Recommended airspeed is 160 kts or 1.3 V stall, whichever is greater

   b. Maximum altitude is 20,000 ft.

   c. Configuration is pressure & petal doors open, ramp at airdrop position

7. In the event of complete loss of Nr 2 hydraulic system alternate provisions are made for operation of all equipment except for the emergency generator, nose gear steering and landing gear retraction 3-62

8. The manually operated interconnect between Nr 2 and Nr 3 hydraulic systems is used to: 1-80
permit use of #3 system hydraulic pressure to ground-check the operation of components in system #2.

9. After manual gear extension, the brake selector switch should be in the EMER position prior to landing. 3-42

10. If one main gear cannot be extended, the recommended procedure is to retract the other main gear and land with nose gear down, or as an alternate procedure, to land with all landing gear retracted. 3-36

11. If a runaway pitch trim is detected, what actions must the pilot take immediately. 3-58A

disconnect electric & electrohydraulic systems by using trim disconnect button on yoke.

if trim movement continues - direct engineer to turn off Hydraulic system #2, and tell copilot to select EMER on "elevator sys 2" power control switch

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 277844 CG 30.8 OAT 0 °C PA -89

WIND-DIR 360 VEL 15-20 OBST-HT ✓ DIST ✓

RWY-HDG 330 AVAIL 8850 SLOPE 0 RCR 12 RSC 0

COMPUTATIONS

TRT _____ EPR-GO AR _____ REV LIM _____

X-WIND _____ COMP _____ CALC _____ GUST _____

TF _____ TOF _____ CFL _____

$GW_{(CFL)}$ _____ $GW_{(3\ ENG)}$ _____ $GW_{(OBST)}$ _____

V_{MCG} _____ V_R _____ V_{ROT} _____ $V_{B(MAX)}$ _____

STAB. ST _____ V_{MCO} _____ V_{MFR} _____

EMERGENCY RETURN

THRESH. _____ LDG DIST _____

FUEL DUMP

GW _____ -257500 = _____ FUEL _____ -75000 = _____

_____ _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT

V_{GO}

V_{ROT}

V_{MCO}

V_{MFR}

STAB. SET | REV LIM

EMER RET

THRESH.

EPR-GO AR

LDG DIST | DUMPTIME

LANDING

THRESH.

EPR-GO AR

V_{MCO}

V_{MFR}

LDG DIST | REV LIM

103 MCG
156 VR

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 257840 CG 30.8 OAT -6 °C PA -17

WIND-DIR 160 VEL 15 OBST-HT ✓ DIST ✓

RWY-HDG 090 AVAIL 8600 SLOPE 0 RCR 8 RSC 0

COMPUTATIONS

TRT 1.908 ~~1.827~~ EPR-GO AR ~~1.889~~ 1.844 REV LIM 5.8

X-WIND 14 COMP 5 CALC 2½ GUST 0

TF ~~19.4~~ 19.4 TOF ~~51.7~~ 51.7 CFL ~~3950~~ 3950

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 124 V_R 144 V_{ROT} 122 $V_{B(MAX)}$ 183

STAB. ST 2.1 V_{MCO} 135 V_{MFR} 165

EMERGENCY RETURN

THRESH. 132 LDG DIST 5000

FUEL DUMP

GW 257,840 -257500 = 340 FUEL 60,000 -75000 = ____

— 340 — 340

END GW 257,500 END FUEL 59,660 TIME ____

DESTINATION

CONDITIONS

OAT ____ °C PA ____ RWY-HDG ____ LGTH ____

RCR ____ SLOPE ____ WIND-DIR ____ VEL ____

COMPUTATIONS

GW ____ EPR-GO AR ____ REV LIM ____

TF ____ X-WIND ____ COMP ____ CALC ____ GUST ____

THRESH. ____ LDG DIST ____ V_{MCO} ____ V_{MFR} ____

TAKE-OFF

TRT 1.90

V_{GO} 122

V_{ROT} 122

V_{MCO} 135

V_{MFR} 160

STAB. SET	REV LIM
2.1	5.8

EMER RET

THRESH. 132

EPR-GO AR 1.84

LDG DIST	DUMPTIME

LANDING

THRESH.

EPR-GO AR

V_{MCO}

V_{MFR}

LDG DIST	REV LIM

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1100 Z	1930 Z	2000 Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
-6 °C	°C	16015	°C	-17 FT	FT	1R08

CLIMB WINDS: 23035

LOCAL WEA WARNING OR MET WATCH ADVISORY: NONE

REMARKS/TAKEOFF ALTN FCST: MDT MXD ICG IN SNSH ON CLB

III. ENROUTE DATA

FLT LEVEL: 290

FLT LEVEL WINDS/TEMP: RKSO-RJTY 27265-33

CLOUDS AT FLT LEVEL: ☐ YES ☐ NO ☒ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 2 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
800 FT AGL	VNCTY RKSO	350 FT MSL	RKSO-RJTY	SFC FT MSL	OVR LAND

THUNDERSTORMS (within fifty miles of route)		TURBULENCE (within ten miles of route not associated with TSTMS)			ICING (within ten miles of route not associated with TSTMS)				PRECIPITATION (within ten miles of route not associated with TSTMS)				
MWWA NO. 7		CAT ADVISORY 20/1200 Z			NONE X				NONE X				
X NONE	AREA / LINE	NONE	IN CLEAR	IN CLOUD		RIME	MIXED	CLEAR		DRIZ	RAIN	SNOW	SLEET
ISOLATED 1-2%		LIGHT			TRACE				LIGHT				
FEW 3-15%		MOD	X		LIGHT				MOD				
SCATTERED 16-45%		SVR			MOD				HEAVY				
NUMEROUS-MORE THAN 45%		EXTREME			SVR				SHWRS				
HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS		LEVELS 240-370			LEVELS				FRZG				
LOCATION		LOCATION ALG JET STREAM			LOCATION				LOCATION				

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
RJTY	9X10 (CIG)	1/8 SNSH	36015/20	29.74 INS	1830 Z TO 2030 Z
ALTERNATE RJSM	85C20 (CIG)	3 SNSH	35015/25	29.76 INS	1900 Z TO 2100 Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

MDT MXD ICG IN SNSH ON DESCENT TO RJTY AND RJSM

RJTY TEMP -4°C PA + 625 FT

RJSM TEMP -2°C PA + 600 FT

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT RJTY Prior to PENETRATION

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	Z
	1500 Z	Sgt J.M. Prettiest	EXTENDED TO	Z
			WEA REBRIEFED AT	Z
			FORECASTER'S INITIALS	

WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

ICAO METAR WEATHER CODES

TABLE 1

w'w' – Significant present and forecast weather

Code		Decode
04	FU	Smoke
06	HZ	Dust, haze
08	PO	Dust devils
11	MIFG	Shallow fog
12	MIFG	Shallow fog
17	TS	Thunderstorm
18	SQ	Squall
19	FL	Funnel cloud
20	REDZ	Recent drizzle
21	RERA	Recent rain
22	RESN	Recent snow
23	RESN	Recent rain and snow
24	RERA	Recent freezing rain
25	RESH	Recent showers
26	RESH	Recent snow showers
27	REGR	Recent hail
29	RETS	Recent thunderstorms
30	SA	Duststorm or sandstorm
31	SA	Duststorm or sandstorm
32	SA	Duststorm or sandstorm
33	XXSA	Heavy duststorm or sandstorm
34	XXSA	Heavy duststorm or sandstorm
35	XXSA	Heavy duststorm or sandstorm
38	BLSN	Blowing snow
39	BLSN	Blowing snow
40	BCFG	Fog patches
41	BCFG	Fog patches
42	FG	Fog
43	FG	Fog
44	FG	Fog
45	FG	Fog
46	FG	Fog
47	FG	Fog
48	FZFG	Freezing fog
49	FZFG	Freezing fog
50	DZ	Drizzle
51	DZ	Drizzle
52	DZ	Drizzle
53	DZ	Drizzle
54	XXDZ	Heavy drizzle
55	XXDZ	Heavy drizzle
56	FZDZ	Freezing drizzle
57	FZDZ	Freezing drizzle

Code		Decode
58	RA	Rain
59	RA	Rain
60	RA	Rain
61	RA	Rain
62	RA	Rain
63	RA	Rain
64	XXRA	Heavy rain
65	XXRA	Heavy rain
66	FZRA	Freezing rain
67	FZRA	Heavy freezing rain
68	RASN	Rain and snow
69	RASN	Heavy rain and snow
70	SN	Snow
71	SN	Snow
72	SN	Snow
73	SN	Snow
74	XXSN	Heavy snow
75	XXSN	Heavy snow
77	SN	Snow grains
79	PE	Ice pellets
80	RASH	Showers
81	XXSH	Heavy showers
82	XXSH	Heavy showers
83	RASN	Showers of rain and snow
84	RASN	Heavy showers of rain and snow
85	SNSH	Snow showers
86	XXSN	Heavy snow showers
87	GR	Soft hail
88	GR	Soft hail
89	GR	Hail
90	XXGR	Heavy hail
91	RA	Rain
92	XXRA	Heavy rain
93	GR	Hail
94	XXGR	Heavy hail
95	TS	Thunderstorm
96	TSGR	Thunderstorm with hail
97	XXTS	Heavy thunderstorm
98	TSSA	Thunderstorm with dust-storm or sandstorm
99	XXTS	Heavy thunderstorm with hail

TABLE 5

Ic – Icing

Code	Decode
*0	None or trace
1	Light icing
2	Light icing in cloud
3	Light icing in precipitation
4	Moderate icing
5	Moderate icing in cloud
6	Moderate icing in precipitation
*7	Severe icing
*8	Severe icing in cloud
*9	Severe icing in precipitation

*WMO code figure 0 is no icing. AWS units will use 0 to indicate a trace of icing.

TABLE 2

CC – Cloud Type

Code	Decode	Code	Decode
CI	Cirrus	NS	Nimbostratus
CC	Cirrocumulus	SC	Stratocumulus
CS	Cirrostratus	ST	Stratus
AC	Altocumulus	CU	Cumulus
AS	Altostratus	CB	Cumulonimbus

TABLE 4

B – Turbulence

Code	Decode
0	None
1	Light turbulence
2	Moderate turbulence in clear air, infrequent
3	Moderate turbulence in clear air, frequent
4	Moderate turbulence in cloud, infrequent
5	Moderate turbulence in cloud, frequent
6	Severe turbulence in clear air, infrequent
7	Severe turbulence in clear air, frequent
8	Severe turbulence in cloud, infrequent
9	Severe turbulence in cloud, frequent

(NOTE: AWS units will encode extreme turbulence by use of code figure 6, 7, 8, or 9 and adding "EXTRM TURB h_Bh_B–h_Bh_B" in REMARKS.)

TABLE 6

FORECAST CHANGE GROUPS

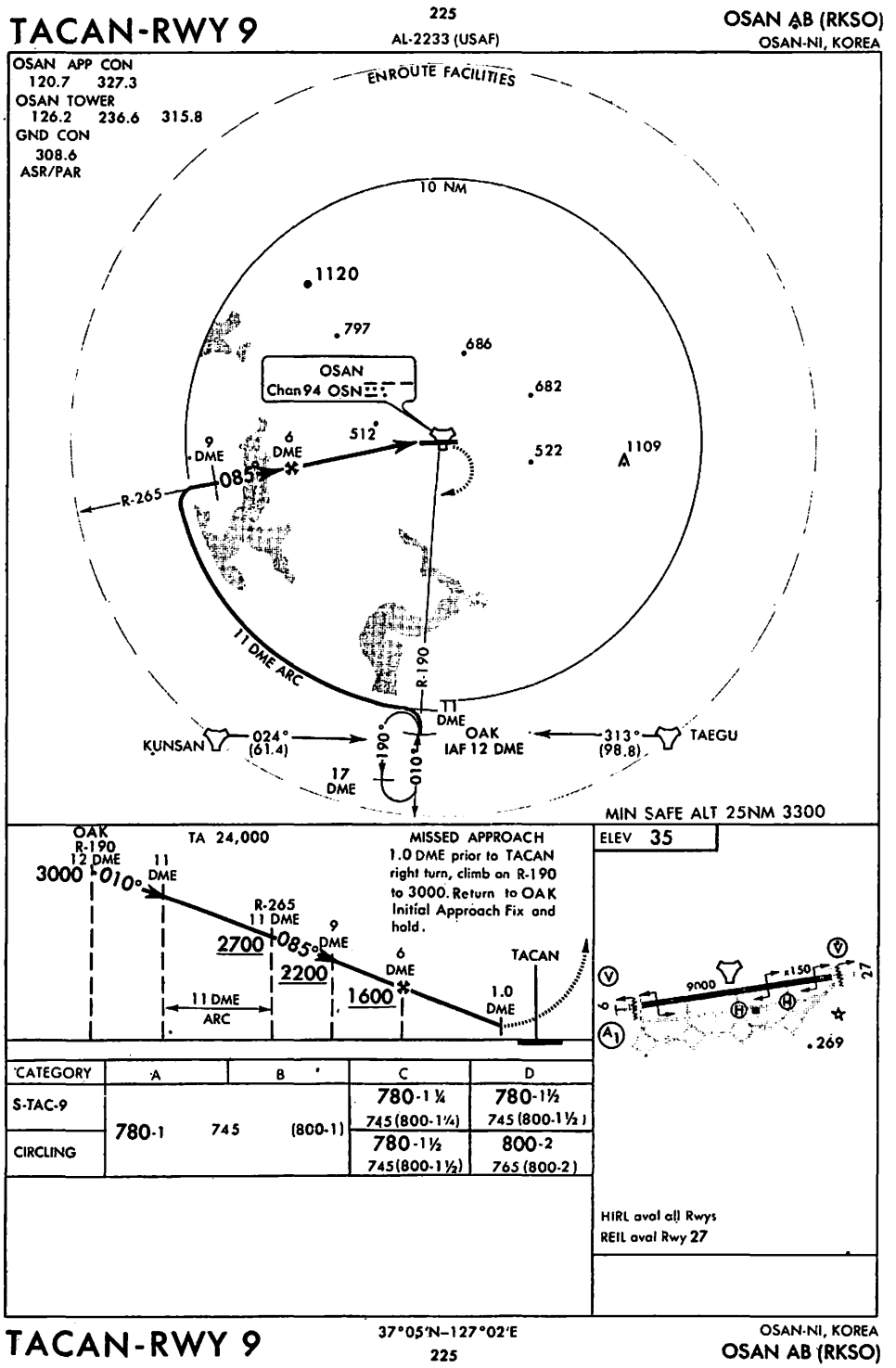
The form GRADU GGG_eG_e should be used if the change(s) is (are) expected to take place at an approximately constant rate throughout the period which begins at GG and ends at G G , e.g., "GRADU 0204" indicates a gradual change between 0200 and 0400 GMT. RAPID should be used instead of GRADU when the change(s) is (are) expected to take place during a period lasting less than half an hour.

The form INTER GGG_eG_e should be used if the change(s) is (are) expected to occur frequently for short periods of time, the condition fluctuating almost constantly, throughout the period which begins at GG and ends at G_eG_e, between those specified in the part of the forecast preceding the change group and those specified after this group, e.g., "INTER 0913" indicates intermittent changes between 0900 and 1300 GMT. The intermittent condition will not cover in the aggregate more than one-half of the forecast period, or more than 30 minutes of any hour.

TABLE 3

h_Bh_B–h_fh_f–h_th_t–h_sh_s–h_yh_y–h_xh_x

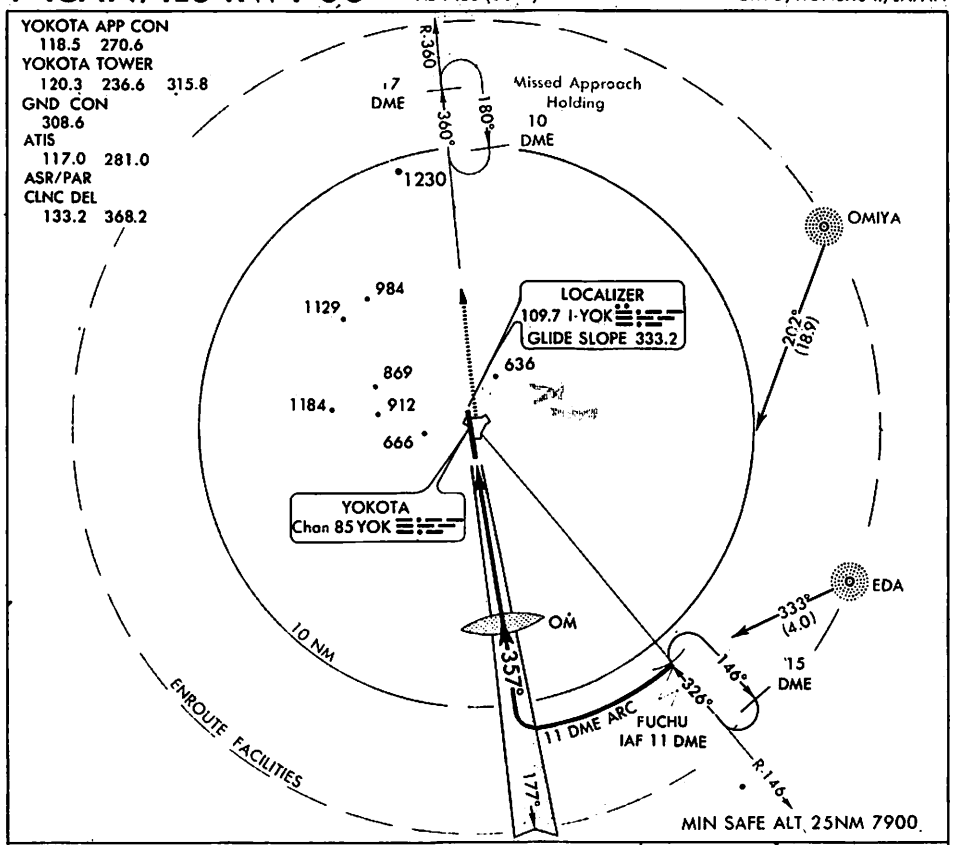
Code Figure	Meters	Feet	Code Figure	Meters	Feet
00	< 30	< 100	45	1350	4500
01	30	100	46	1380	4600
02	60	200	47	1410	4700
03	90	300	48	1440	4800
94	120	400	49	1470	4900
05	150	500	50	1500	5000
06	180	600	51		
07	210	700	52		
08	240	800	53	Not Used	
09	270	900	54		
10	300	1000	55		
11	330	1100	56	1800	6000
12	360	1200	57	2100	7000
13	390	1300	58	2400	8000
14	420	1400	59	2700	9000
15	450	1500	60	3000	10000
16	480	1600	61	3300	11000
17	510	1700	62	3600	12000
18	540	1800	63	3900	13000
19	570	1900	64	4200	14000
20	600	2000	65	4500	15000
21	630	2100	66	4800	16000
22	660	2200	67	5100	17000
23	690	2300	68	5400	18000
24	720	2400	69	5700	19000
25	750	2500	70	6000	20000
26	780	2600	71	6300	21000
27	810	2700	72	6600	22000
28	840	2800	73	6900	23000
29	870	2900	74	7200	24000
30	900	3000	75	7500	25000
31	930	3100	76	7800	26000
32	960	3200	77	8100	27000
33	990	3300	78	8400	28000
34	1020	3400	79	8700	29000
35	1050	3500	80	9000	30000
36	1080	3600	81	10500	35000
37	1110	3700	82	12000	40000
38	1140	3800	83	13500	45000
39	1170	3900	84	15000	50000
40	1200	4000	85	16500	55000
41	1230	4100	86	18000	60000
42	1260	4200	87	19500	65000
43	1290	4300	88	21000	70000
44	1320	4400	89	> 21000	> 70000

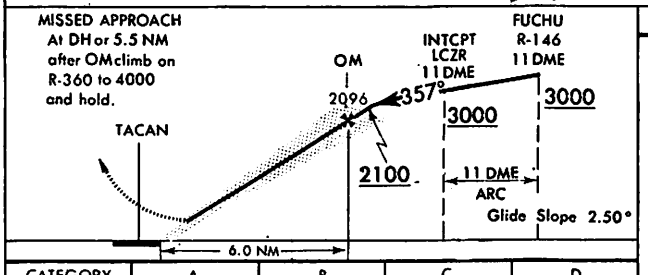

TACAN-RWY 9
225
AL-2233 (USAF)
OSAN AB (RKSO)
OSAN-NI, KOREA
OSAN APP CON
120.7 327.3
OSAN TOWER
126.2 236.6 315.8
GND CON
308.6
ASR/PAR
ENROUTE FACILITIES
10 NM
1120
797
686
682
522
1109
OSAN
Chan94 OSN
512
9 DME
6 DME
085°
R-265
11 DME ARC
R-190
T1 DME
OAK
IAF 12 DME
KUNSAN
024°
(61.4)
313°
(98.8)
TAEGU
190°
010°
17 DME
MIN SAFE ALT 25NM 3300
OAK
R-190
12 DME
3000
010°
11 DME
TA 24,000
MISSED APPROACH
1.0 DME prior to TACAN
right turn, climb on R-190
to 3000. Return to OAK
Initial Approach Fix and
hold.
R-265
11 DME
2700
085°
9 DME
2200
6 DME
1600
TACAN
1.0 DME
11 DME ARC
ELEV 35
9000
x150
27
269
HIRL avol all Rwys
REIL avol Rwy 27
CATEGORY
A
B
C
D
S-TAC-9
780-1
745
(800-1)
780-1¼
745 (800-1¼)
780-1½
745 (800-1½)
CIRCLING
780-1½
745 (800-1½)
800-2
765 (800-2)
TACAN-RWY 9
37°05'N-127°02'E
225
OSAN-NI, KOREA
OSAN AB (RKSO)

TACAN/ILS RWY 36

338
AL-1458 (USAF)

YOKOTA AB (RJTY)
TOKYO, HONSHU I., JAPAN

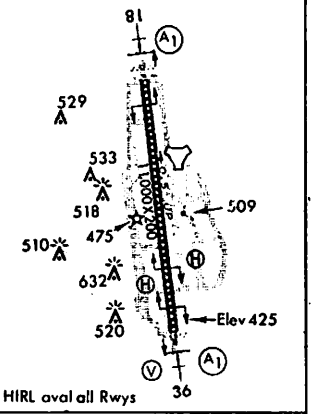




CATEGORY	A	B	C	D
S-ILS-36	625/24		200	(200-½)
S-LOC-36	780/50		355	(400-1)
CIRCLING*	940-1	483 (500-1)	940-1½ 483(500-1½)	1020-2 563(600-2)
TAC	NOT AUTHORIZED			

*Circling not authorized West of Rwy 18-36, terrain rises rapidly.

ELEV 457



HIRL aval all Rwys

OM to LOC Missed approach 5.5 NM					
Knots	70	100	125	150	165
Min:Sec	4:43	3:18	2:38	2:12	2:00

TACAN/ILS RWY 36

35°45'N-139°21'E
338

TOKYO, HONSHU I., JAPAN
YOKOTA AB (RJTY)

STUDY REFERENCES - SIMULATOR MISSION 7

T.O. 1C-141A-1

SECTION I	Fuel Supply system	1-36 thru 43
SECTION III	Wing, pylon, and air conditioning compartment overheat	3-21,22
	Emergency operation of wing anti-icing system	3-23
	Ditching	3-45,47
	Yaw damper fault/failure	3-58B,59
	Stall prevention system failure	3-59
	CADC system failure	3-61
SECTION IV	Windshield rain removal system	4-17,18
	Anti-icing and de-icing systems	4-20 thru 28
	Windshield heat	4-28,29
	CADC system	4-107,108
SECTION V	Response in turbulence	5-21
SECTION VII	Fuel heater operation	7-1,2
SECTION IX	Ice and rain	9-14F thru 18
	Turbulence and thunderstorms	9-18,19
	Cold weather procedures	9-20 thru 23

T.O. 1C-141A-1-1

PART III	Conditions affecting takeoff performance	A3-2,3

MM 55-1	Crosswind Limitation	Attach 1 A1-1 thru A1-4

C-141 FLIGHT SIMULATOR - MISSION 7

PREMISSION QUIZ

1. The pilot's pitot heat circuit protection is located on the emergency C/B panel. 4-22

2. If CADC failure occurs due to pitot system icing, turn the related stall prevention system off. 9-15

3. For ground test the engine anti-ice system may be activated above 10°C degrees centigrade for a maximum time period of 10 seconds. What is the reason for this time restriction? 9-16
to prevent deterioration of foam rubber vibration dampers inside inlet guide vanes.

4. When icing is encountered during descent, turn on anti-ice and de-icing equipment and maintain at least 71% N_2 on one or more throttles on each wing. to maintain adequate bleed air. 9-17

5. When visible moisture is present, engine anti-icing will be used at temperature of 8°C or below. Engine anti-ice will be turned ON immediately after engine start to prevent ice build-up during ground operations. 2-32

6. If icing conditions are anticipated at any time from engine start to the time climb power is set, the engine anti-icing will be turned ON prior to taxi. 9-16

7. If the wing anti-ice OVHT light on the annunciator panel illuminates and continued use of the system is necessary, place the appropriate wing anti-ice switch to OFF position. If the OVHT light extinguishes within 30 seconds, periodically cycle from OFF to ON for approximately 15 seconds. 3-23

8. Why should wing anti-icing not be used for takeoff during icing conditions? 4-24
with no airflow over the wing surfaces, temperatures within the leading edges rise quickly and may damage fuel tank sealants, paint, or other wing members

9. Fuel heat should be used for 1 minute(s) prior to takeoff if the fuel temperature is 0 degrees Centigrade or below. This procedure is performed at idle thrust, normally just prior to takeoff. 9-22

10. The fuel enrichment system is used to supply additional fuel to the engines during starting, when operating with JP-5 fuel only. During ground starts, the fuel enrichment switch should be turned ON prior to starting if the fuel temperature is below -18°C; during air starts, the switch should be turned ON prior to starting if above 15,000 ft using JP-5. 1-14

11. The maximum altitude for penetrating moderate to severe turbulence should be one flight level (4,000 ft) below the 400 fpm performance ceiling. 9-18

12. What is the recommended procedure for use of pitch trim during turbulent air penetration? 9-18

trim for zero stick forces before entering turbulence.
if impossible, reset penetration trim from cruise trim based on one degree per 100-kt airspeed change.

13. Care must be exercised in the use of thrust reversers during loose snow or ice fog conditions to avoid obscurement of visibility due to redirected airflow. 9-22

14. Takeoffs will not be attempted with over ½ inch of wet snow, slush and/or water, or 3 inches of dry snow on the runway. A3-3

15. Flight operations are prohibited in moderate or severe turbulence if the Yaw damper is inoperative.

Give the altitude, airspeed and autopilot restrictions for operation with an inoperative yaw damper. 3-58B

a. At or below FL _____
   (1) Below 350 KCAS
   (2) Autopilot _____

b. Above FL 310
   (1) Autopilot operative and aileron axis must be engaged.

16. When the pilot's or copilot's pitch trim disconnect button is actuated, stabilizer pitch trim is available by use of the hydraulic pitch trim lever. 3-58A

17. If you question the need to know turbulent air penetration procedures, read the following article.

Wild Ride in a Big Bird

The MAC Flyer June 1970

by Major Charles L. Pocock
62 MAWg

THE WHEELS folded into the belly of the giant C-141 as we started turning to 090 degrees, heading out over the long white beaches and away from DaNang. As the blue-green South China Sea fell away, the hurrying ships, airplanes and men of busy DaNang once again seemed far away.

The 30,000 pounds of filthy and broken retrograde cargo in this giant silver bird seemed strangely out of place. The ten, perpetually tired, sweat-soaked marines in their green utilities basked in the air-conditioned comfort and started to look for a place to sleep. These men who had come to this green hell a year ago as boys now started to think 24 hours ahead to when they would be home.

An hour later, we received clearance to climb from flight level 270 to 370. As the pulsating engines started to grasp for altitude again, we entered solid cirrus clouds at FL 290. At level off, the cirrus was so dense that the radar was giving returns from only about six miles ahead. The navigator assured me that the radar was functioning, but dense ice crystals were preventing returns.

The VHF radio was now totally unusable and the HF radio was little better. Other aircraft, on UHF, company frequency, advised that the cirrus extended from below 20,000 feet to above 41,000 feet. As we pressed on, I knew that the typhoon moving north from the Philippines was going to cause problems until we were well north of Okinawa.

Kilo Whiskey (KW) beacon was the next fix. World 397 had just advised Taipei Control that he would be deviating 30 miles south of track for thunderstorm avoidance, but I didn't have any idea where he was. I hoped our radar would give us some warning if the storm was on our track.

Ten minutes south of KW, we encountered moderate turbulence. I turned on the continuous ignition, retarded the throttles three hundred pounds fuel flow per engine, disconnected altitude hold on the autopilot, and announced on the PA system that everyone should fasten their seat belts.

"What do you see on your radar, Navi"

"Nothing."

Immediately the airplane was in a 60-degree bank. The attitude indicator showed 30 degrees nose up pitch. The vertical velocity indicator and altimeter were climbing and the airspeed was falling rapidly. I disconnected the autopilot, pushed forward on the yoke, and when the dot on the attitude indicator was approaching the horizon line, rolled the aircraft level. The throttles were at takeoff rated thrust and even though I had 10 degrees nose down pitch, the vertical velocity was still indicating an 8,000 foot-per-minute rate of climb with 200 knots airspeed.

Milky rime ice was building up rapidly on the airplane and the hail sounded like skeletons on a tin roof. Lightning and Saint Elmo's fire made the whole airplane sparkle and everyone's hair was standing on end.

The turbulence was so bad, I thought the instrument panel was going to shake off. I locked the shoulder harness and pulled the straps tight. That helped a lot. Holding the airplane with my left hand, I started swatting at anti-ice switches with the right, hoping I could get enough on before we fell out of the sky.

As the altimeter went through 43,000 feet, I realized we had been in the storm for about 20 seconds and the way out was behind us. I started a left 15-degree bank. As this 125-ton monster grudgingly responded, the noise from the hail was deafening.

The navigator called out, "Slow the airplane down before we peel the radome off."

And the engineer announced, "You're overboosting the engines and we are almost at stall speed."

I knew that more than 15 degrees of bank would probably stall the airplane. But I didn't want to use more than 10 degrees nose down pitch because we would probably be in the down cell momentarily. The windshields now had iced over except for about nine-inch squares in the center of each.

As we passed 48,000 feet, we started to descend, more suddenly than we had started to climb. Everyone was hanging by his seat

belt. Briefcases, tech orders, oxygen masks, pencils and anything else that wasn't tied down was on the ceiling and floating through the cockpit. I knew we had changed cells from the updraft to the downdraft and immediately pulled back on the yoke.

As we went from 10 degrees nose down pitch to 15 degrees nose up, the overspeed warning sounded. I had the throttles retarded and the spoilers deployed to the flight position, but we still had 8,000 feet per minute rate of descent with 15 degrees nose up pitch! We were now on a reciprocal heading from which we entered this storm. I rolled the wings level and hoped we would soon be out.

The navigator said, "Why are we in a 45-degree bank?"

Again I felt the adrenaline surge and replied, "We're not."

"Look at the copilot's attitude indicator and HSI," he said.

As I glanced across the cockpit, the realization that one set of instruments had failed almost made me sick. (For some reason, the thought passed through my mind: I wonder if the Marine Corps taught these kids to swim?)

I made up my mind to follow my instruments come what may. I checked my BDHI and saw that it was indicating a turn from west to north (if that were true, we were going right back in the storm). But I thought the copilot's attitude indicator said left bank. Quickly I glanced across the cockpit. Left bank and right turn – his instruments have failed and mine are OK. I felt better now and went back to other immediate problems.

Still high airspeed, but slowing, still 4,000 feet per minute with nose high attitude, but not nearly so rough. Heading pretty close to south—we should be out soon. We better be—now 22,000 feet. Then as rapidly as it began, it stopped. We were in smooth air once again, now at 19,000 feet and below the cirrus.

As the ice started to sublimate and peel off, I slowed to about 220 knots and began a slow VFR orbit. We began to make a damage assessment. Luckily, our passengers had their seat belts on and the cargo had been well secured. The copilot had been in the lower bunk. He had his seat belt fastened and remained there throughout the encounter with the thunderstorm. That was a good thing, he might have been injured.

The navigator checked the tail surfaces with his sextant and they appeared to be undamaged. We found no damage to the leading edge of the wings or to the engine nacelles and the radar seemed to be working normally now, so I knew the radome was intact. The copilot's attitude indicator was still locked in a 45-degree bank, but seemed to be slowly correcting. The Nr 2 C-12 compass had failed, but by placing the mag/DG switch to DG and slaving it to the correct heading, we were able to re-engage the autopilot.

I requested and received clearance from present position, somewhat south of KW, to Kadena at FL 190. As we started northeast toward Kadena, we could see the bottom half of this fearsome adversary. It was about 70 miles in diameter. This time we passed well clear.

As we approached Kadena, they reported thunderstorms with heavy rain, so I elected to proceed straight on to Yokota, our original destination. Although the crew and passengers were obviously shaken, that big, beautiful airplane had come through unscathed. The flight recorder indicated that design limit loads had been exceeded twice but examination proved that no elastic limits had been exceeded. At least nothing broke!

I have always respected thunderstorms and given them a wide path, but after this experience, whenever the weatherman mentions thunderstorms, he has my attention—*right now!*

The MAC Flyer

C-141 FLIGHT SIMULATOR - MISSION 8

MISSION

Flight Nr 1 will be a troop transport mission from March AFB, California to McGuire AFB, New Jersey. Flight Nr 2 will be a cargo transport mission from Norton AFB, California to Dover AFB, Delaware. Problems encountered on this mission may include any of those previously discussed as well as engine and system malfunctions during takeoff.

AIRDROME INFORMATION

March AFB active runway 31, 13,500' long, first 4,000' closed to heavy aircraft (above 150,000 lbs). 9,500' usable for takeoff, no slope, RCR 18. Ungrooved runway.

Norton AFB active runway 05, 10,000' long, 0.7 up slope. Tower will approve downwind takeoff for aircraft unable to perform East Big Bear Five departure. Performance will require a downwind takeoff. Emergency return landing distance should be computed for an upwind landing.

George AFB is the best departure alternate in the event March or Norton go below landing minimums.

AIRCRAFT INFORMATION

Both flights, operating weight 133,240 lbs, ramp fuel 130,000 lbs, cargo/troop weight 61,000 lbs, C.G. 32.8%.

OBJECTIVE

At the completion of this mission you should be able to:

1. Execute a SID with an obstacle.

2. Safely execute a three engine emergency return and three engine go-around.

3. Take the proper corrective action for any emergency or malfunction covered on previous missions.

4. State the configuration, speeds, and procedures to follow during a two engine approach and landing.

5. With IP assistance, execute a two engine approach and landing.

6. Satisfactorily perform all duties required of the pilot not flying the aircraft.

NOTE: You should complete only the TOLD card for the flight on which you will be the pilot. Refer to Obstacle Clearance Information for this mission.

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION	AIRCRAFT SERIAL NO.
443 MAWg ALTUS AFB OK	

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
[X] IFR [ ] DVFR [ ] VFR [ ] PVFR		HC-141A	450		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	STANDARD INSTRUMENT DEPARTURE TO
FL 290	MARCH AFB	BIG BEAR FIVE	HECTOR

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		J-60 DEN J-80 CYN WRI	MCGUIRE AFB	5+32

REMARKS

RANK/HONOR CODE	PSGR/CARGO CODE

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
10+20	2146	DOVER AFB	+10	X	X	X	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — [ ] *Attached* [ ] *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

MILITARY FLIGHT PLAN	AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION	AIRCRAFT SERIAL NO.
	443 MAWg ALTUS AFB OK	

TYPE OF FLIGHT PLAN	RADIO CALL	AIRCRAFT DESIGNATION/ TD CODE	ESTIMATED TRUE AIRSPEED	DEPARTURE TIME (Z) PROPOSED	DEPARTURE TIME (Z) ACTUAL
☒ IFR ☐ DVFR ☐ VFR ☐ FVFR		HC-141A	450		

INITIAL CRUISING ALTITUDE	POINT OF DEPARTURE	STANDARD INSTRUMENT DEPARTURE NAME AND NUMBER	TO
FL 290	NORTON AFB	NORCO ONE	ONTARIO

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		J-60 DEN J-80 CYN DOV	DOVER AFB	5+22

REMARKS

RANK/HONOR CODE	PSGR/CARGO CODE
—	—

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
10+00	2080	MCGUIRE AFB	+10	X	X	X	X

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — ☐ *Attached* ☐ *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
0000 Z	0400 Z	—— Z		20 APR 1971	C-141 6165

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
36 °C	25 °C	3612G17	°C	+1710 FT	FT	18

CLIMB WINDS	LOCAL WEA WARNING OR MET WATCH ADVISORY
2835	NONE

REMARKS/TAKEOFF ALTN FCST

NONE

III. ENROUTE DATA

FLT LEVEL	FLT LEVEL WINDS/TEMP
290	KRIV - KWRI 2640

CLOUDS AT FLT LEVEL: ☐ YES ☐ NO ☒ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 7 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
500 FT AGL	KRIV	500 FT MSL	KAMA-KLRF	100 FT MSL	KRIV

THUNDERSTORMS (within fifty miles of route)			TURBULENCE (within ten miles of route not associated with TSTMS)			ICING (within ten miles of route not associated with TSTMS)				PRECIPITATION (within ten miles of route not associated with TSTMS)				
MWWA NO.			CAT ADVISORY 1800 Z			NONE X				NONE X				
☐ NONE	☐ AREA	☒ LINE	☐ NONE	IN CLEAR	IN CLOUD		RIME	MIXED	CLEAR		DRIZ	RAIN	SNOW	SLEET
☐ ISOLATED 1–2%			LIGHT			TRACE				LIGHT				
☐ FEW 3–15%			MOD	X		LIGHT				MOD				
☐ SCATTERED 16–45%			SVR			MOD				HEAVY				
☐ NUMEROUS–MORE THAN 45%			EXTREME			SVR				SHWRS				
HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS			LEVELS 200-400			LEVELS				FRZG				
										LOCATION				
LOCATION KTOP-KLBB			LOCATION KABQ-KAMA			LOCATION								

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KWRI	CLR	7	0812GZ0	29.92 INS	0300Z TO 0500Z
ALTERNATE ——				INS	Z TO Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

KVCV 6@2H CALM QNH 29.92 INS 00-02Z
PSBL SVR TSTMS IN TSTM LINE

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE				VOID TIME Z
REQUEST PIREP AT KWRI				EXTENDED TO Z
SEE FLIMSY NO	WEA BRIEFED 2300 Z	FORECASTER'S SIGNATURE SSgt J. M. Training		WEA REBRIEFED AT Z
				FORECASTER'S INITIALS
WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

133,240
130,000
61,000
324,240

9,300
13,975
23,275 = 3.84 NM

RAIN REMOVAL - OFF

TRT - TAKEOFF

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW 324,240 CG 32.8 OAT +36 °C PA +1210

WIND-DIR 360 VEL 12+17 OBST-HT 340 DIST 23,275 ft

RWY-HDG 31 AVAIL 9,300 SLOPE ✓ RCR 12 (ISC) RSC ✓

COMPUTATIONS

TRT ~~1.847~~ 1.819 EPR-GO AR 1.779 REV LIM 10.9

X-WIND 13 COMP 7½ CALC 3½ GUST 5

TF 17.0 TOF 45.2 CFL 8900

GW(CFL) ✓ GW(3 ENG) ✓ GW(OBST) ✓

V_{MCG} 124 V_R 127 V_{ROT} 143 $V_{B(MAX)}$ 157

STAB. ST 1.4 V_{MCO} 150 V_{MRF}^{FR} 175

CLIMBOUT FACTOR= 78.7

EMERGENCY RETURN

THRESH. 148 LDG DIST 6300

FUEL DUMP

GW 324,240 -257500 = 66,740 FUEL 128,600 -75000 = 53,600

324,240
257,500
66,740

128,600
75,000
53,600

- 66,740 - 66,740

END GW 257,500 END FUEL 61,860 TIME 12.1

DESTINATION

CONDITIONS

OAT ____ °C PA ____ RWY-HDG ____ LGTH ____

RCR ____ SLOPE ____ WIND-DIR ____ VEL ____

COMPUTATIONS

GW ____ EPR-GO AR ____ REV LIM ____

TF ____ X-WIND ____ COMP ____ CALC ____ GUST ____

THRESH. ____ LDG DIST ____ V_{MCO} ____ V_{MFR} ____

TAKE-OFF

TRT	1.81
V_{GO}	127
V_{ROT}	143
V_{MCO}	150
V_{MFR}	175
STAB. SET 1.4	REV LIM 10.9

EMER RET

THRESH.	148
EPR-GO AR	1.77
LDG DIST 6300	DUMPTIME 12.1

LANDING

THRESH.	
EPR-GO AR	
V_{MCO}	
V_{MFR}	
LDG DIST	REV LIM

NOTE: FIND OBST-HT AND DIST

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
0000 Z	0400 Z	—— Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
36 °C	25 °C	36106 15	°C	+1237 FT	FT	18

CLIMB WINDS: 2835

LOCAL WEA WARNING OR MET WATCH ADVISORY: NONE

REMARKS/TAKEOFF ALTN FCST:

III. ENROUTE DATA

FLT LEVEL: 290

FLT LEVEL WINDS/TEMP: KSBD - KDOV 2460

CLOUDS AT FLT LEVEL: ☐ YES ☐ NO ☒ IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 2 MILES, DUE TO: ☐ SMOKE ☐ DUST ☐ HAZE ☐ FOG ☐ PRECIPITATION ☒ NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
500 FT AGL	KSBD	500 FT MSL	KAMA - KLRF	100 FT MSL	KSBD

THUNDERSTORMS (within fifty miles of route)

MWWA NO.

☐ NONE ☐ AREA ☒ LINE

- ISOLATED 1–2%
- FEW 3–15%
- SCATTERED 16–45%
- NUMEROUS–MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION: KTOP - KLBB

TURBULENCE (within ten miles of route not associated with TSTMS)

CAT ADVISORY 1800 Z

	NONE	IN CLEAR	IN CLOUD
LIGHT			
MOD		X	
SVR			
EXTREME			

LEVELS: 200 - 400

LOCATION: KABQ - KAMA

ICING (within ten miles of route not associated with TSTMS)

NONE X

	RIME	MIXED	CLEAR
TRACE			
LIGHT			
MOD			
SVR			

LEVELS:

LOCATION:

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE X

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS				
FRZG				

LOCATION:

IV. TERMINAL FORECASTS

DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
KDOV	300 OVC	10	0910	29.92 INS	0300Z TO 0500 Z
ALTERNATE				INS	Z TO Z
INTMED STOP				INS	Z TO Z
INTMED STOP				INS	Z TO Z

V. COMMENTS/REMARKS

KVCV 6 ⊕ 2H CALM QNH 29.92 INS 00 - 02Z
PSBL SVR TSTMS IN TSTM LINE

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN ☒ YES ☐ NOT AVAILABLE

REQUEST PIREP AT KDOV

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	EXTENDED TO	WEA REBRIEFED AT	FORECASTER'S INITIALS
	2300 Z	2Lt J. M. Coldpocket	Z	Z	Z	

WEA FCLTY	TAPE NO	START	STOP	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING
		Z	Z		

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

RAIN REMOVAL - OFF

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW _____ CG 32.8 OAT +36 °C PA +1237

WIND-DIR 360 VEL 10+15 OBST-HT ✓ DIST ✓

RWY-HDG 23 AVAIL _____ SLOPE .7↓ RCR ✓ RSC ✓

COMPUTATIONS

TRT _____ EPR-GO AR _____ REV LIM _____

X-WIND _____ COMP _____ CALC _____ GUST _____

TF _____ TOF _____ CFL _____

$GW_{(CFL)}$ _____ $GW_{(3\ ENG)}$ _____ $GW_{(OBST)}$ _____

V_{MCG} _____ V_R _____ V_{ROT} _____ $V_{B(MAX)}$ _____

STAB. ST _____ V_{MCO} _____ V_{MRF} _____

EMERGENCY RETURN

THRESH. _____ LDG DIST _____

FUEL DUMP

GW _____ -257500 = _____ FUEL _____ -75000 = _____

— _____ — _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT

V_{GO}

V_{ROT}

V_{MCO}

V_{MFR}

STAB. SET | REV LIM

EMER RET

THRESH.

EPR-GO AR

LDG DIST | DUMPTIME

LANDING

THRESH.

EPR-GO AR

V_{MCO}

V_{MFR}

LDG DIST | REV LIM

NOTE: FOR EMERGENCY RETURN YOU WOULD LAND UPWIND, SLOPE WOULD BE UP.

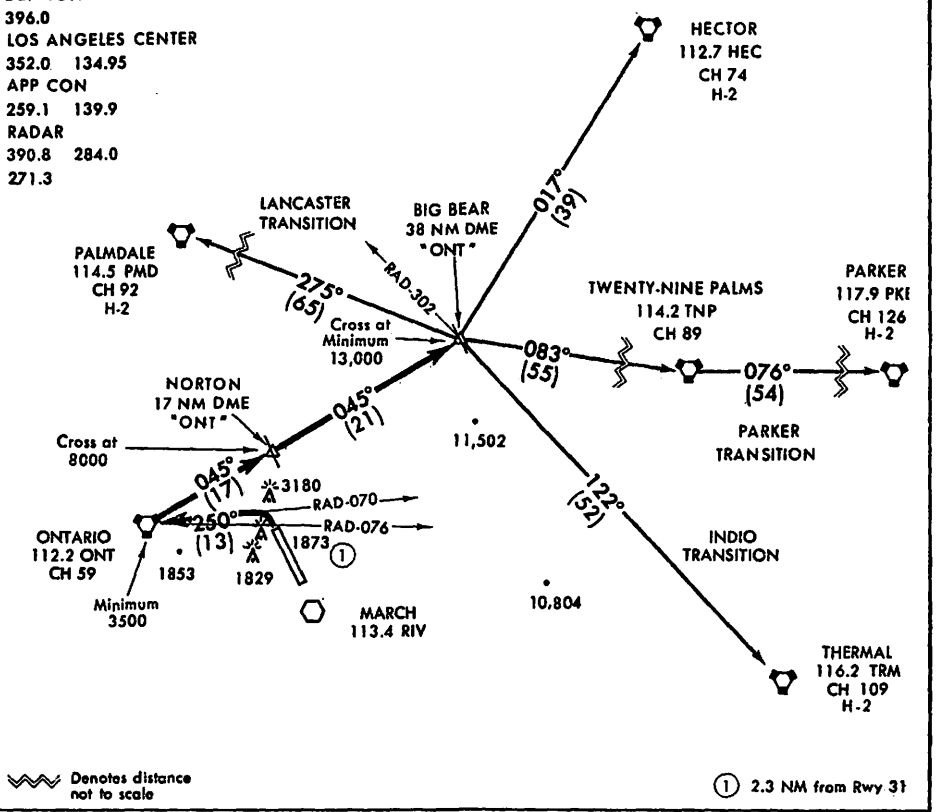
BIG BEAR FIVE DEPARTURE

MARCH AFB
RIVERSIDE, CALIFORNIA

KIAS	60	120	180	240	300	360
V/V (fpm)	248	496	744	992	1240	1488

Minimum Climb Rate

GND CON
335.8
TOWER
253.5 126.2
DEP CON
396.0
LOS ANGELES CENTER
352.0 134.95
APP CON
259.1 139.9
RADAR
390.8 284.0
271.3



DEPARTURE ROUTE DESCRIPTION

Maintain runway heading to ONTARIO VORTAC 076 radial; turn left, intercept and proceed via ONTARIO VORTAC 070 radial to ONTARIO, then via ONTARIO VORTAC 045 radial to BIG BEAR INTXN. Then via _____ (transition) or _____ (assigned route). Cross ONTARIO at _____ (minimum 3,500). Cross NORTON INTXN at 8,000. Cross BIG BEAR INTXN at _____ (minimum 13,000).

HECTOR TRANSITION: Via HECTOR VORTAC 197 radial to HECTOR.

LANCASTER TRANSITION: Via PALMDALE VORTAC 095 radial to PALMDALE.

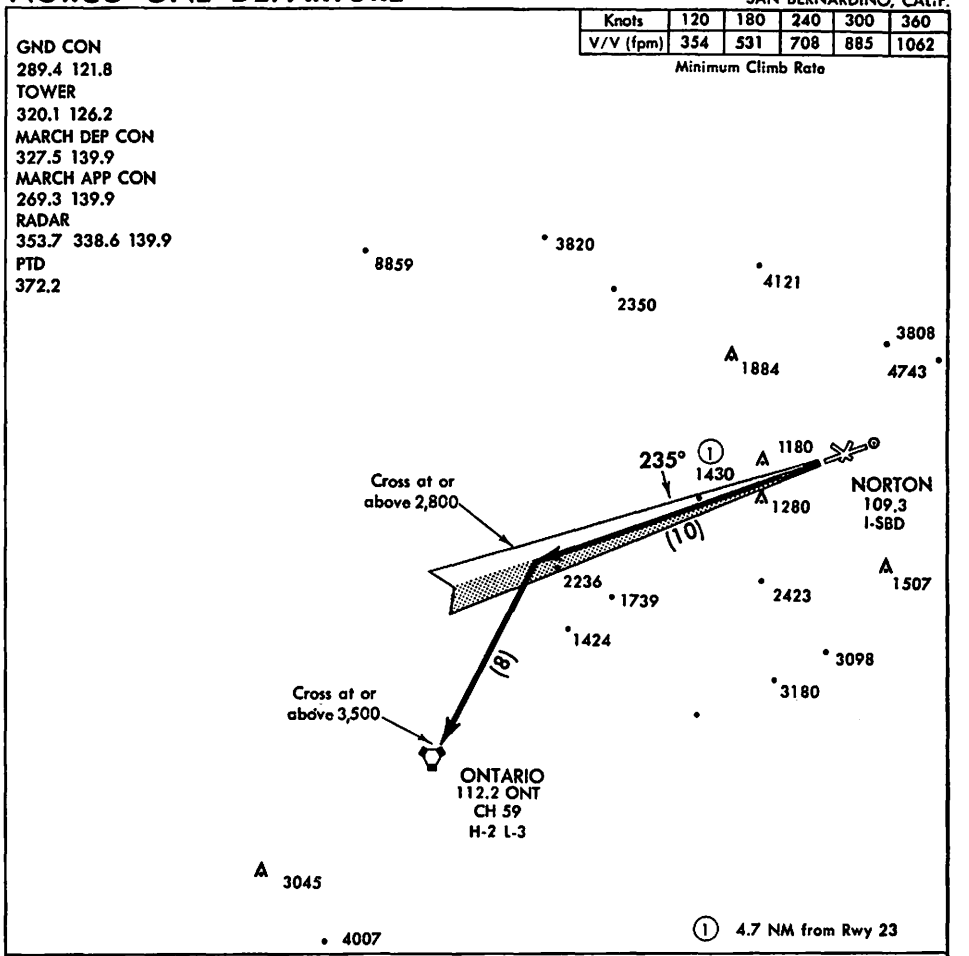
INDIO TRANSITION: Via THERMAL VORTAC 302 radial to THERMAL.

PARKER TRANSITION: Via TWENTY-NINE PALMS VORTAC 263, 076, and PARKER VORTAC 256 radials to PARKER.

BIG BEAR FIVE DEPARTURE

NORCO ONE DEPARTURE

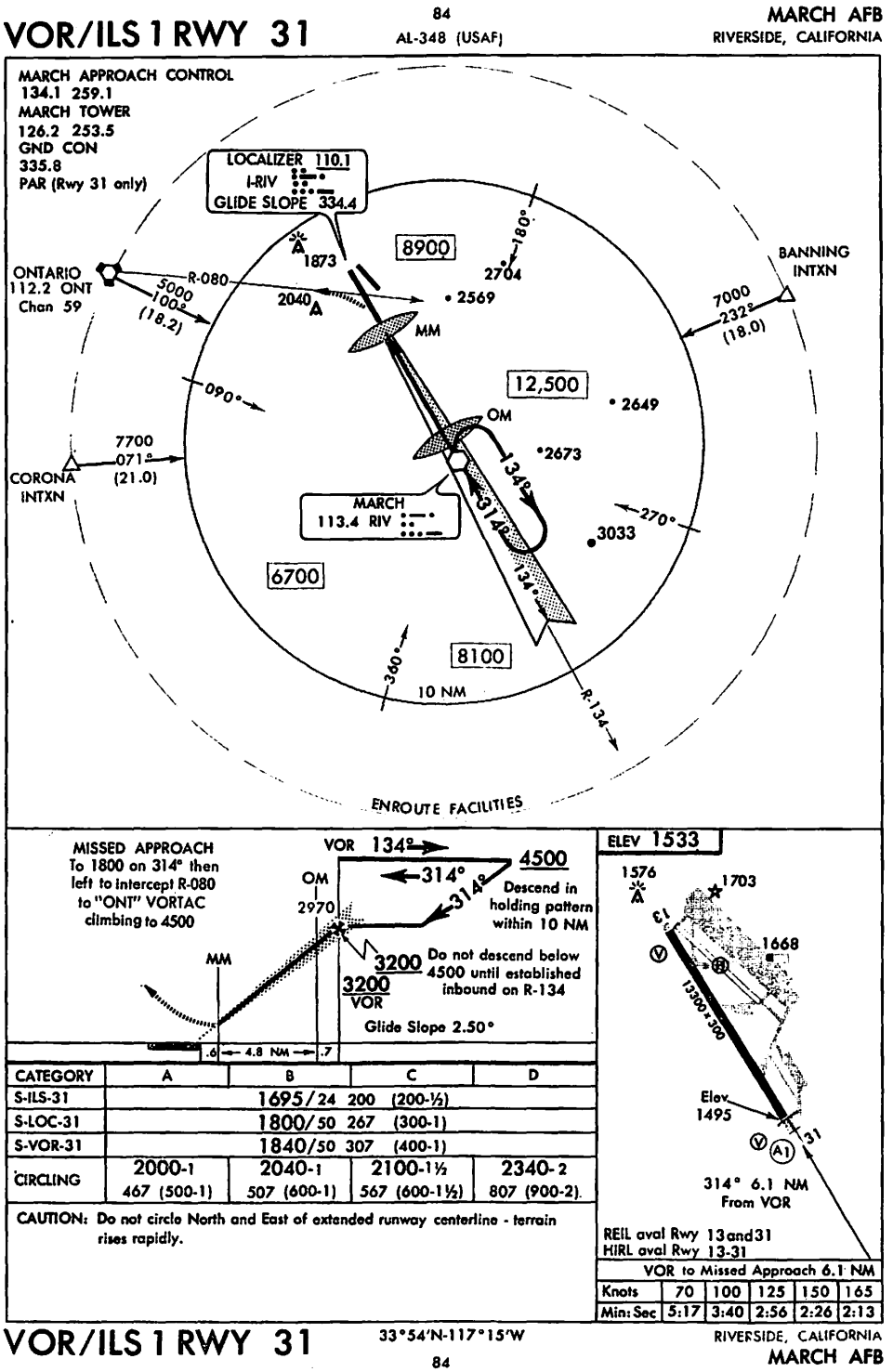
NORTON AFB
SAN BERNARDINO, CAL.F.

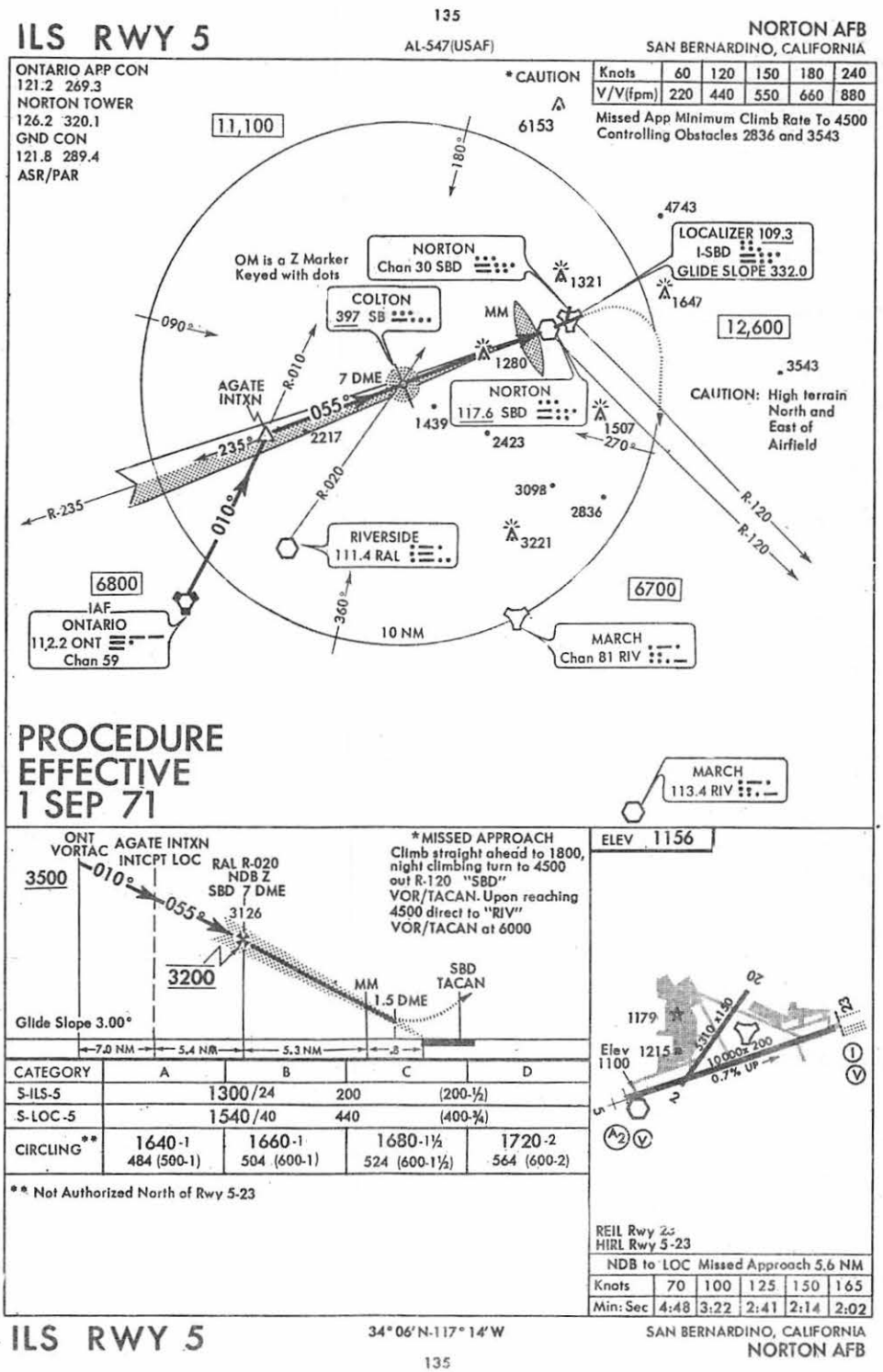


DEPARTURE ROUTE DESCRIPTION

Climb via NORTON ILS Localizer course, after reaching 2,800 MSL turn left, proceed direct to ONTARIO VORTAC. Cross ONT (minimum 3,500). Then via (assigned route).

NORCO ONE DEPARTURE


VOR/ILS 1 RWY 31
84
AL-348 (USAF)
MARCH AFB
RIVERSIDE, CALIFORNIA
MARCH APPROACH CONTROL
134.1 259.1
MARCH TOWER
126.2 253.5
GND CON
335.8
PAR (Rwy 31 only)
LOCALIZER 110.1
I-RIV
GLIDE SLOPE 334.4
ONTARIO
112.2 ONT
Chan 59
R-080
5000
100°
(18.2)
CORONA
INTXN
7700
071°
(21.0)
BANNING
INTXN
7000
232°
(18.0)
8900
12,500
6700
8100
1873
2040
2704
2569
2649
2673
3033
MM
OM
MARCH
113.4 RIV
090°
180°
270°
360°
134°
314°
10 NM
R-134
ENROUTE FACILITIES
MISSED APPROACH
To 1800 on 314° then
left to intercept R-080
to "ONT" VORTAC
climbing to 4500
VOR 134°
4500
314°
Descend in
holding pattern
within 10 NM
OM
2970
MM
3200
Do not descend below
4500 until established
inbound on R-134
3200
VOR
Glide Slope 2.50°
.6
4.8 NM
.7
ELEV 1533
1576
1703
1668
13300 x 300
Elev.
1495
31
314° 6.1 NM
From VOR
REIL aval Rwy 13and31
HIRL aval Rwy 13-31
VOR to Missed Approach 6.1 NM
Knots 70 100 125 150 165
Min:Sec 5:17 3:40 2:56 2:26 2:13
CATEGORY A B C D
S-ILS-31 1695/24 200 (200-½)
S-LOC-31 1800/50 267 (300-1)
S-VOR-31 1840/50 307 (400-1)
CIRCLING 2000-1 467 (500-1) 2040-1 507 (600-1) 2100-1½ 567 (600-1½) 2340-2 807 (900-2)
CAUTION: Do not circle North and East of extended runway centerline - terrain rises rapidly.
VOR/ILS 1 RWY 31
33°54'N-117°15'W
84
RIVERSIDE, CALIFORNIA
MARCH AFB


135
ILS RWY 5
AL-547(USAF)
NORTON AFB
SAN BERNARDINO, CALIFORNIA
ONTARIO APP CON
121.2 269.3
NORTON TOWER
126.2 320.1
GND CON
121.8 289.4
ASR/PAR
* CAUTION
6153
Knots 60 120 150 180 240
V/V(fpm) 220 440 550 660 880
Missed App Minimum Climb Rate To 4500
Controlling Obstacles 2836 and 3543
11,100
180°
4743
LOCALIZER 109.3
I-SBD
GLIDE SLOPE 332.0
OM is a Z Marker
Keyed with dots
NORTON
Chan 30 SBD
1321
1647
COLTON
397 SB
MM
090°
12,600
3543
CAUTION: High terrain North and East of Airfield
AGATE INTXN
R-010
7 DME
1280
055°
2217
NORTON
117.6 SBD
1439
2423
1507
270°
235°
R-235
R-020
3098
2836
R-120
R-120
010°
RIVERSIDE
111.4 RAL
3221
6800
6700
IAF
ONTARIO
112.2 ONT
Chan 59
360°
10 NM
MARCH
Chan 81 RIV
PROCEDURE
EFFECTIVE
1 SEP 71
MARCH
113.4 RIV
ONT VORTAC
AGATE INTXN
INTCPT LOC
RAL R-020
NDB Z
SBD 7 DME
3500
010°
055°
3126
3200
MM
1.5 DME
SBD
TACAN
Glide Slope 3.00°
7.0 NM
5.4 NM
5.3 NM
.8
*MISSED APPROACH
Climb straight ahead to 1800, night climbing turn to 4500 out R-120 "SBD" VOR/TACAN. Upon reaching 4500 direct to "RIV" VOR/TACAN at 6000
ELEV 1156
1179
Elev 1215
1100
3510
41.50
10,000x 200
0.7% UP
20
23
CATEGORY A B C D
S-ILS-5 1300/24 200 (200-½)
S-LOC-5 1540/40 440 (400-¾)
CIRCLING** 1640-1 484 (500-1) 1660-1 504 (600-1) 1680-1½ 524 (600-1½) 1720-2 564 (600-2)
** Not Authorized North of Rwy 5-23
REIL Rwy 23
HIRL Rwy 5-23
NDB to LOC Missed Approach 5.6 NM
Knots 70 100 125 150 165
Min: Sec 4:48 3:22 2:41 2:14 2:02
ILS RWY 5
34°06'N-117°14'W
SAN BERNARDINO, CALIFORNIA
NORTON AFB
135

MISSED APPROACH OBSTACLE CLEARANCE PERFORMANCE DATA

1. When the approach charts depict a minimum climb rate, we must determine if we can meet that climb rate prior to making an approach. In planning for an emergency return these computations must be completed prior to departure.

2. There is a minimum climb rate on the Norton AFB approach charts.

3. If we must make a missed approach, we should climb at minimum climb speed, with gear up and flaps at 75 percent.

4. To compute the minimum climb rate per nautical mile for Missed Approach, use the first block of the minimum climb scale on the Approach Plate and convert vertical velocity into feet per nautical mile. At 60 knots, we travel one nautical mile in one minute; therefore, the V/V listed under the 60 knot block can be read as feet per nautical mile. (EXAMPLE: The ILS 1 Runway 5 Missed Approach requires 220 feet per nautical mile).

5. Compute thrust factor (Figure A3-6) using go-around EPR and pressure altitude plus 1,000 feet. (15.8)

6. Compute three engine climb factor (Figure A3-10) for:

   Brake Release Gross Weight (Answer: 80.3)
   Gross Weight of 257,500 lbs. (Answer: 76.0)

7. Compute three engine climb rate per nautical mile.

   Enter Figure A3-11 with the brake release gross weight climb factor of 80.3. Compare the height above the runway at 3 miles (215 feet) and at 4 miles (390 feet). Our climb rate is 175 feet per nautical mile.

   Enter Figure A3-11 with the climb factor for a gross weight of 257,500 lbs. (76.0). Compare height above the runway at 3 miles (730 feet) and at 4 miles (1110 feet). We have a climb rate of 380 feet per nautical mile.

8. We must dump fuel to safely make an approach at Norton AFB.

NOTE: You should complete only the TOLD card for the flight on which you will be the pilot. Refer to Obstacle Clearance Information for this mission.

STUDY REFERENCE - SIMULATOR MISSION 8

T.O. 1C-141A-1

SECTION III	Engine failure at cruise/driftdown	3-12B
	Engine failure/fire, takeoff continued	3-12B thru 14
	Hydraulic system failures	3-61,62
	Manual landing gear extension	3-39
	Two engine landings	3-35,36
SECTION IV	Cargo door system	4-170 thru 4-174
SECTION IX	Two engine approaches	9-6, 9-8, 9-13

T.O. 1C-141A-1-1

PART 3	Basis for charts	A3-4
	Takeoff planning	A3-4 thru 8
PART 5	Driftdown	A5-5
PART 7	Descent (text)	A7-1,2
PART 8	Air minimum control speed chart	A8-27
PART 9	Inflight data	A9-7,8
MM 55-1	Inflight emergency procedures	4-4
	Obstacle clearance	Attach 10

C-141 FLIGHT SIMULATOR - MISSION 8

PREMISSION QUIZ

1. Pulling the engine fire control handle accomplishes the following: 1-130

stops engine by electrically closing the engine fuel control shutoff valve
turns off both ignition systems
opens generator line contactor
de-energizes generator by interrupting power to voltage regulator
shuts off fuel flow to nacelle using shutoff valve
shuts off supply and pressure valves of hydraulic fluid
shuts off bleed airflow using bleed air shutoff valve
electrically closes zone II cooling ducts
exposes fire extinguisher button

2. When both wing flap hydraulic motors are operating the flaps are normally fully extended or retracted in 15 seconds; with only one motor operative 30 seconds. 1-100

3. List the BOLD PRINT/memory items for an engine fire, takeoff continued.

fire handle - pulled
agent - discharged

3-12B

4. normal brakes and nosewheel steering may not be available if the landing gear is extended manually because of loss of hydraulic pressure to the landing gear. emergency brakes should be used. 3-42,43

5. With a complete loss of hydraulic system Nr. 1, the power control switches for system Nr. 1 should be positioned as follows: 3-53

   a. Ailerons - POWER OFF

   b. Rudder - POWER OFF

   c. Elevator - EMER

6. List the components operated by the following hydraulic systems: 1-79,80,81

System Nr 1	System Nr 2	System Nr 3
½ aileron	½ aileron	pressure door
½ rudder	½ elevator	petal doors
½ elevator	½ rudder	loading ramp
	main & nose landing gear	½ flaps
	nose gear steering	½ spoilers
	pitch trim	pilot stall prevention
	emergency generator	½ spoiler cable servo
	normal brakes	emergency brakes
	½ flaps	aileron tab operable
	½ spoilers	emergency elevator
	½ spoiler cable servo	accumulators (APU start)
	copilot stall prevention	

7. When operating with two engines inoperative, final approach speed will be 2 engine approach plus 20 knots, but not below 2 engine MCA speed. The airspeed command marker will be set on 2 engine approach speed or 2 engine MCA, whichever is greater. 3-35

8. During a two engine approach, the flaps should be positioned to approach when on final approach and approaching the descent point. landing flaps may be selected when the landing is assured. 3-35

9. When landing with two engines inoperative on one side, the rudder high-pressure override switch should be placed to OVERRIDE at a speed below 200 kts. Exercise caution in rate of rudder application at speeds above 160 kts. 3-35

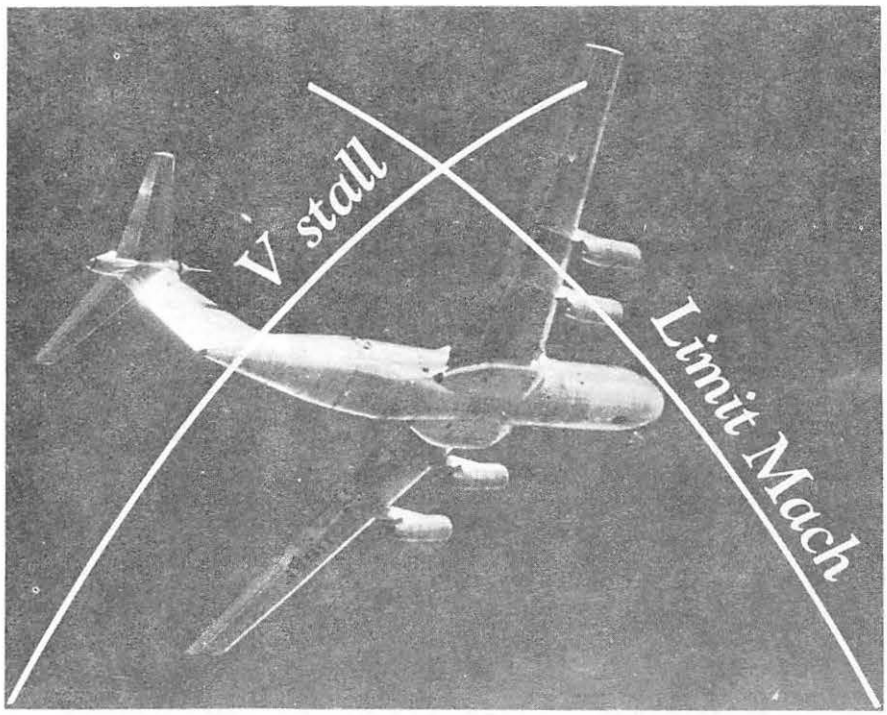
10. Base leg airspeed for a two-engine pattern is Approach Speed plus 20 knots. 9-13

11. 3 engine driftdown is accomplished with NRT power applied at .70 Mach. 2 engine driftdown is .55 Mach. A5-5

12. Do you need to understand cruise performance data? The engineer makes the computations but if you don't understand the data, read the article on the next pages to see what problems you can get into.

There is a term which was intimately familiar to old B-47 crewmembers. It's not as common today in MAC, but the phenomenon still exists. It can be found near the top of the performance charts. Let's take a look at . . .

C-141 Operations in Coffin Corner



by Major Charles L. Pocock
62 MAWg

A C-141 SAT ON THE TAXIWAY just off the approach end of runway 18 at Yokota. All four engines were turning while the crew impatiently waited for their clearance to come through.

"MAC 170," the tower called. ARTC wants to know if you can accept flight level 370."

"Ah, stand-by one," the pilot replied. The navigator and engineer worked together swiftly, cross-checking each other's work. Brake release gross weight would be 309,000 pounds. Temperature was standard. Their gross weight, reaching flight level 370, would be 300,000 pounds and the 300-foot per minute climb ceiling would be 37,100 feet. They could do it. They quickly relayed the information to the pilots. The aircraft commander nodded and the copilot passed it to the tower. Their clearance came through minutes later.

"MAC 60170 is cleared as filed. Maintain flight level 370. Departure instructions: Climb on runway heading to 10,000, reverse course and proceed direct to Niigata. Climb so as to cross Niigata at flight level 370. Read back." The copilot quickly read back the clearance and minutes later the Starlifter thundered down the runway and lifted off.

The departure worked perfectly. They crossed Niigata right at flight level 370, with a gross weight of 300,000 pounds, and the recommended climb Mach of .70. As the needle swung, showing station passage, the copilot began his position report and the aircraft commander engaged the altitude hold on the autopilot and rolled into a 30 degree banked turn toward Sendai. A routine mission so far but this crew is only seconds from possible disaster. Unless they do something quickly, they will soon learn firsthand why this portion of their aircraft's performance envelope is called — "Coffin Corner."

To fully understand the problems they face, let's leave our crew up over Niigata and take a quick look at some fundamentals.

An aerodynamic stall is a condi-

tion in which the angle of attack becomes so large the flow of air over the top of the wing breaks down and the wing can no longer produce enough lift to support the aircraft. The *ONLY* thing that can cause a stall is excessive angle of attack. The wing angle of attack is a function of airspeed, load factor, gross weight, and altitude. It can also be affected by wind conditions, but we'll discuss that later. An aircraft can be stalled at any airspeed, altitude, or power setting.

Chart number one illustrates the effect of bank angle on load factor in level flight at a constant airspeed. An increased load factor effectively increases gross weight so more thrust is required to maintain altitude and airspeed. At the 300-foot per minute climb ceiling, there is very little excess thrust available. At sustained bank angles of much over 10 to 15 degrees, either altitude or airspeed will probably be lost.

An increase in altitude will cause the stalling speed to increase. There are several reasons for this effect. In the C-141 and other aircraft which have CADC systems, the airspeed indicators show calibrated airspeed. But, stall speed is dependent upon equivalent airspeed. For the same equivalent airspeed at higher altitudes, the calibrated airspeed will be greater. An increase in altitude will also alter the viscosity effects of the air and, generally speaking, cause the indicated stall speed to increase. This is usually significant only above 20,000 feet. The Dash One applies these corrections and figure A8-3 on page A8-8 of T.O. 1C-141A-1-1 shows, very clearly, that calibrated stalling speed increases with altitude. Chart number two shows various bank angle stall speeds at different altitudes and includes the reduced calibrated airspeed values at different Mach numbers. This is the "Coffin Corner Chart." Let's use it to analyze the problems facing our hypothetical crew over Niigata.

They are at 37,000 feet, Mach .70, in a 30 degree bank. Notice that their calibrated airspeed is 220 knots and their stalling speed is 210! They have only 10 knots to play with, and with the addition of any one of a number of other factors, they might lose that.

If a flight control or an auto-pilot malfunction increased the bank to 35 degrees, the aircraft would stall.

Or, consider the load factor. In a 30 degree bank their load factor is 1.15. Their 300,000 pound aircraft effectively weighs 345,000 pounds and is several thousand feet above its absolute ceiling! The autopilot altitude hold, trying to maintain altitude, rolls in nose-up trim. As the turn progresses, the angle of attack increases, the airspeed decreases, and when the Mach falls to .66, the aircraft stalls at 30 degrees of bank.

The C-141 has a stick shaker designed to provide the pilots with extra warning of an approaching stall. However, if you'll check the shaker onset speed chart in the 1-1, you'll find that in the conditions we've described, the shaker probably wouldn't activate until after the aircraft had stalled. The crews only warning would be natural buffet. If they were experiencing light turbulence at the time, they might not recognize the buffet until a deep stall had developed. At night or in weather, recovery could become a very sporty course indeed. The stick shaker was designed primarily to warn of approaching stalls in the low altitude, low airspeed region of flight. In the upper extremities of the performance envelope, it may or may not give adequate warning.

Turbulence is another important consideration to the wary pilot operating near coffin corner. "Descend to 4,000 feet below the 400-foot per minute climb ceiling. Does that sound familiar?

Remember we said earlier that a stall is the result of excessive angle of attack? And angle of attack is the angle between the relative wind and

Constant Altitude and Airspeed

Bank Angle Degrees	Load Factor	Effective Weight Pounds
00	1.0000	300,000
5	1.0038	301,140
10	1.0154	304,620
15	1.0353	310,590
20	1.0642	319,260
25	1.1034	331,020
30	1.1547	346,410
35	1.2208	366,240
40	1.3054	390,162
45	1.4142	424,260
60	2.0000	600,000

Chart 1

the chord line of the airfoil. Since one side of this angle is wind, and turbulence may be considered as wind gusts, turbulence can and does change angle of attack. These changes are produced mainly by vertical gusts rather than horizontal.

Consider a heavy aircraft and a light aircraft encountering the same gust. The angle of attack increase is the same, but will cause greater acceleration on the light aircraft. The moderate turbulence reported by the light weight inbound aircraft may seem like light turbulence to the heavier outbound aircraft. But the changes in angle of attack are the same, and the heavier aircraft is operating at a much more critical angle of attack and is more subject to stall.

So far we have been discussing the effects of up-gusts. Now let's take a look at the opposite situation — a down gust. A down gust will decrease angle of attack. To maintain altitude, the aircraft must, in effect, climb. In order to climb, the aircraft must have excess thrust available. At or near the 300-foot per minute climb ceiling, there is very little excess thrust remaining. An aircraft cruising this high will probably not be able to tolerate even "light chop" and maintain altitude.

It should be apparent by now that operations in the upper corner of the cruise envelope are maximum performance maneuvers as much as a 6 G pitchout. If you have not yet modified some of your ideas about coffin corner flying, consider this: at Mach .767, wings level: at the 300-foot per minute climb ceiling, your airspeed is just about 1.3 V stall — the same relative speed we use on final approach! How much angle of bank would you use on final, and how much airspeed would you be willing to give up during that bank before you did something about it?

The next time someone asks you how the C-141 flies above 30,000 feet, answer him, "Fine, but very carefully with shallow banks and lots of airspeed!"

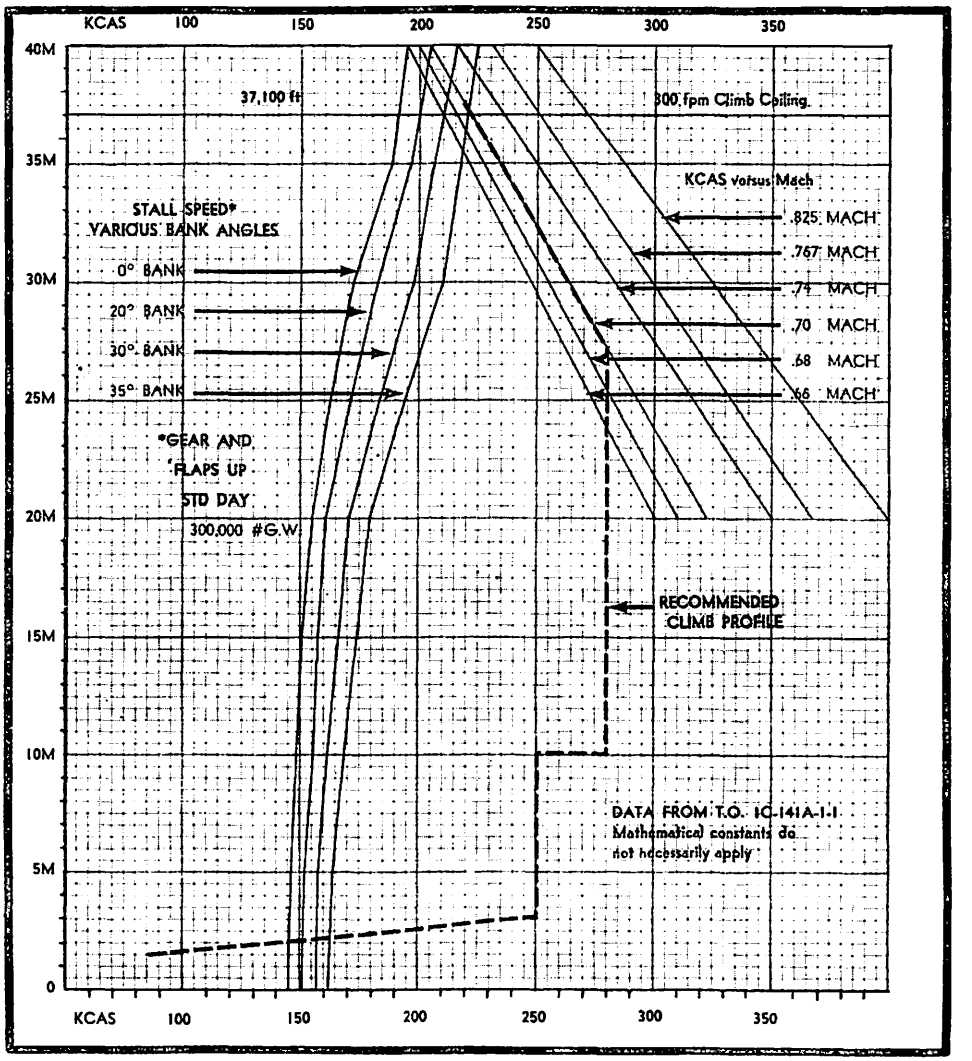


CHART NUMBER TWO

C-141 FLIGHT SIMULATOR - MISSION 9

MISSION

The primary purpose of this mission is to evaluate copilot duties. The first flight will be a CONUS airlift mission from Kingsley Field, Oregon to McClellan AFB, California; the second flight will be from Langley AFB, Virginia to Dover AFB, Delaware. The weather at both destination bases is marginal. You should be prepared to divert to your alternate. You must simulate the following: You are CAT II AWLS qualified and the alternate base has a CAT II approved approach. For the left seat pilot this mission will be continued emergency and instrument procedure training in an enroute environment.

AIRDROME INFORMATION

Kingsley Field - Active runway 14, runway length 10,300 feet.

McClellan AFB - Active runway 34, runway length 10,600, RCR 12.

Travis AFB - Active runway 21L, length 10,990 feet, RCR 12.

Langley AFB - Active runway 25, length 10,000'.

Dover AFB - Active runway 01, length 9600', RCR 12, wet runway.

McGuire AFB - Active runway 06, length 10,000, RCR 10, slush on runway.

AIRCRAFT INFORMATION

For both flights plan 80,000 lbs fuel, operating weight 134,240 lbs. Cargo for first flight 18,760 lbs of high priority SR-71 parts. Cargo for second flight flight 3,240 lbs of vaccine for an epidemic in Atlantic City, N.J.

OBJECTIVE

At the completion of this mission you should be able to:

1. State from memory all BOLD PRINT items in correct sequence.

2. State the procedures to follow when:

   a. A runaway pitch trim is detected.

   b. A door open light illuminates without pressure loss.

   c. A door open light illuminates followed by a rapid decompression.

   d. Turbulence is encountered.

3. Properly complete the pre-takeoff and approach briefing with optional reference to the briefing guide.

4. Properly complete the TOLD card for this mission and explain the GO concept.

5. State the following limitations:

a. Airspeed.

b. Engine starting and operating.

c. Weight.

6. Continually monitor the aircraft position by a logical selection and presentation of primary and backup nav aids.

COPILOT EVALUATION STANDARDS

You will be evaluated on your ability to:

1. Use the checklists properly during normal and emergency situations.

2. Make all mandatory warning calls required by the Dash-1 and MM 55-1.

3. Copy and/or acknowledge all ARTC instructions

4. Perform all copilot duties required to execute a safe CAT II ILS.

5. Correctly identify and advise the pilot of other than normal indications/situations observable from the copilots position.

6. Readily assist the pilot flying the aircraft during all phases of flight (normal and emergency situations).

read emerg proc
" copilot alt calls
in dash-1 and 55-1
discuss cat II oper
operating limitations

NOTE TO STUDENT

This mission will be conducted by a flight examiner.

MILITARY FLIGHT PLAN

AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION: 443 MAWg ALTUS AFB, OK

AIRCRAFT SERIAL NO.:

TYPE OF FLIGHT PLAN: [X] IFR [ ] DVFR [ ] VFR [ ] FVFR

RADIO CALL: T

AIRCRAFT DESIGNATION/TD CODE: HC-141/A

ESTIMATED TRUE AIRSPEED: 460

DEPARTURE TIME (Z): PROPOSED / ACTUAL

INITIAL CRUISING ALTITUDE: FL 260

POINT OF DEPARTURE: LMT

STANDARD INSTRUMENT DEPARTURE

NAME AND NUMBER: RADAR VECTORS

TO: RBL

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
X		MCC	KMCC	+50

REMARKS

RANK/HONOR CODE: —

PSGR/CARGO CODE: —

HOURS FUEL ON BOARD	DIST TO DESTN	ALTERNATE AIR FIELD	ETE TO ALTN	NOTAMS	DD FORM 365F (Wt. and Bal.)	WEATHER	REQUEST CLEARANCE AFTER
6+05	220	KSWW	+10	✓	TODAY	✓	

INST RATING	SIGNATURE OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	DATE

CREW/PASSENGER LIST — [ ] *Attached* [ ] *See Passenger Manifest*

DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD FORM 1 JUL 65 175 — PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. — D-38305

FLIGHT WEATHER BRIEFING

I. MISSION

DEP/ETD	DEST/ETA	ALTN/ETA	BRIEFING NO.	DATE	ACFT/NUMBER
1300 Z	1450 Z	1510 Z		20 APR 1971	C-141 4516

II. TAKEOFF DATA

RUNWAY TEMP	DEWPOINT	SFC WIND	TEMP DEV	PRESSURE ALT	DENSITY ALT	RCR
+14 °C	°C	1920G30	°C	+4100 FT	FT	DRY

CLIMB WINDS

LOCAL WEA WARNING OR MET WATCH ADVISORY

REMARKS/TAKEOFF ALTN FCST

MOT TURBC SFC - 100 ON CLB

III. ENROUTE DATA

FLT LEVEL: 280

FLT LEVEL WINDS/TEMP: KLMT - KMCC 2265 - 30

CLOUDS AT FLT LEVEL: [X] YES [ ] NO [ ] IN AND OUT

MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS 7 MILES, DUE TO: [ ] SMOKE [ ] DUST [ ] HAZE [ ] FOG [ ] PRECIPITATION [X] NO OBSTRUCTION

MINIMUM CEILING	LOCATION	MAXIMUM CLOUDS TOPS	LOCATION	MINIMUM FREEZING LEVEL	LOCATION
100 FT AGL	CNTRL CALIF	320 FT MSL	KRBL - KMCC	002 FT MSL	CNTRL CALIF

THUNDERSTORMS (within fifty miles of route)

MWWA NO. 15

[X] NONE [ ] AREA [ ] LINE

- [ ] ISOLATED 1-2%
- [ ] FEW 3-15%
- [ ] SCATTERED 16-45%
- [ ] NUMEROUS-MORE THAN 45%

HAIL, SVR TURB, SEVERE ICING, AND PRECIPITATION EXPECTED IN AND NEAR TSTMS

LOCATION

TURBULENCE (within ten miles of route not associated with TSTMS)

CAT ADVISORY Z

	IN CLEAR	IN CLOUD
[X] NONE		
LIGHT		
MOD		
SVR		
EXTREME		

LEVELS

LOCATION

ICING (within ten miles of route not associated with TSTMS)

NONE [X]

	RIME	MIXED	CLEAR
TRACE			
LIGHT			
MOD			
SVR			

LEVELS

LOCATION

PRECIPITATION (within ten miles of route not associated with TSTMS)

NONE [X]

	DRIZ	RAIN	SNOW	SLEET
LIGHT				
MOD				
HEAVY				
SHWRS				
FRZG				

LOCATION

IV. TERMINAL FORECASTS

	DESTINATION	CLOUD LAYERS	VIS/WEA	SFC WIND	ALTIMETER	VALID TIME
	KMCC	2 ⊕	3/4 R-F	3607	29.84 INS	1350 Z TO 1550 Z
ALTERNATE	KSUU	8 ⊕	2R-F	2103	29.85 INS	1410 Z TO 1610 Z
INTMED STOP					INS	Z TO Z
INTMED STOP					INS	Z TO Z

V. COMMENTS/REMARKS

LGT MXD ICG IN CLDS 002 - 100 DESCENT TO KMCC AND KSUU

KMCC TEMP + 2°C PA + 150 FT

KSUU TEMP + 2°C PA + 130 FT

VI. BRIEFING RECORD

BRIEFED ON LATEST RCR FOR DEST AND ALTN [X] YES [ ] NOT AVAILABLE

REQUEST PIREP AT KRBL

SEE FLIMSY NO	WEA BRIEFED	FORECASTER'S SIGNATURE	VOID TIME	Z
	1100 Z	Lt J. M. Slow	EXTENDED TO	Z
			WEA REBRIEFED AT	Z
			FORECASTER'S INITIALS	

WEA FCLTY	TAPE NO	START Z	STOP Z	PHONE CHARGE	NAME OF PERSON RECEIVING BRIEFING

DD FORM 175-1 PREVIOUS EDITION WILL BE USED

C-141 TAKE-OFF AND LANDING DATA

CONDITIONS

GW _____ CG 31 OAT +14 °C PA +4100

WIND-DIR 190 VEL 20+30 OBST-HT ✓ DIST ✓

RWY-HDG 140 AVAIL 9,900 SLOPE 0 RCR 23 RSC 0

COMPUTATIONS

TRT _____ EPR-GO AR _____ REV LIM _____

X-WIND _____ COMP _____ CALC _____ GUST _____

TF _____ TOF _____ CFL _____

$GW_{(CFL)}$ _____ $GW_{(3\ ENG)}$ _____ $GW_{(OBST)}$ _____

V_{MCG} _____ V_R _____ V_{ROT} _____ $V_{B(MAX)}$ _____

STAB. ST _____ V_{MCO} _____ V_{MFR} _____

EMERGENCY RETURN

THRESH. _____ LDG DIST _____

FUEL DUMP

GW _____ -257500 = _____ FUEL _____ -75000 = _____

— _____ — _____

END GW _____ END FUEL _____ TIME _____

DESTINATION

CONDITIONS

OAT _____ °C PA _____ RWY-HDG _____ LGTH _____

RCR _____ SLOPE _____ WIND-DIR _____ VEL _____

COMPUTATIONS

GW _____ EPR-GO AR _____ REV LIM _____

TF _____ X-WIND _____ COMP _____ CALC _____ GUST _____

THRESH. _____ LDG DIST _____ V_{MCO} _____ V_{MFR} _____

TAKE-OFF

TRT

V_{GO}

V_{ROT}

V_{MCO}

V_{MFR}

STAB. SET | REV LIM

EMER RET

THRESH.

EPR-GO AR

LDG DIST | DUMPTIME

LANDING

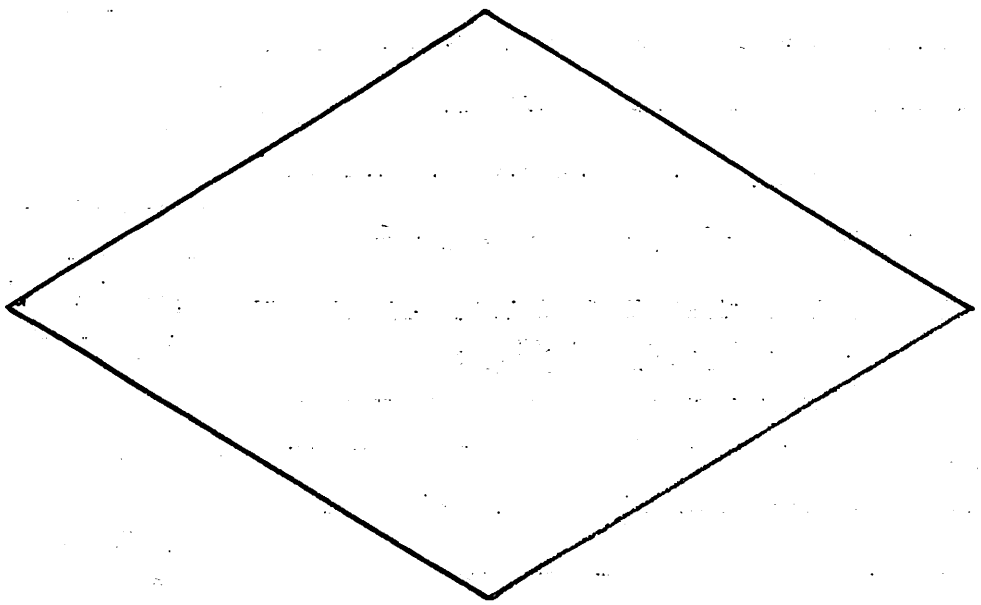
THRESH.

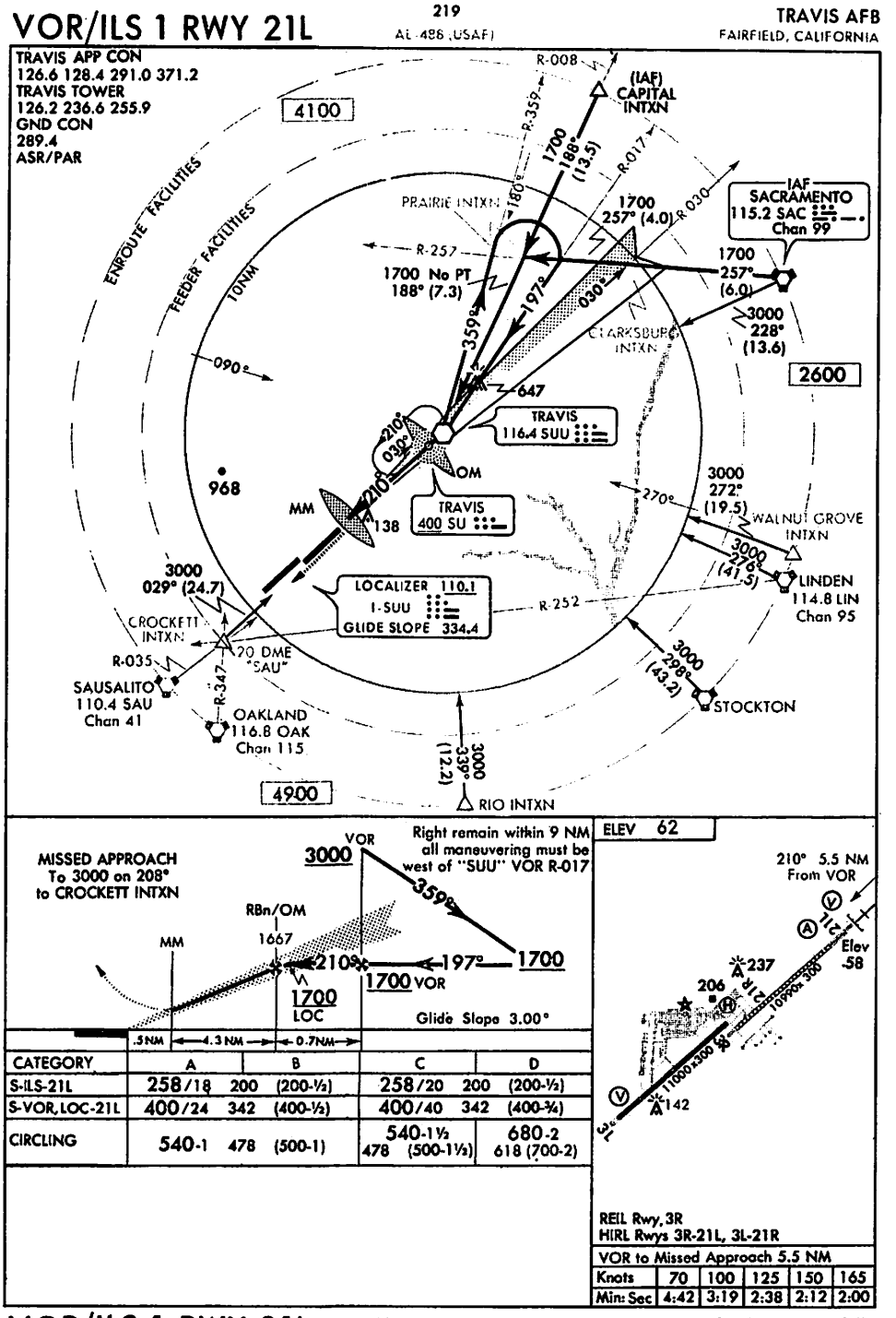
EPR-GO AR

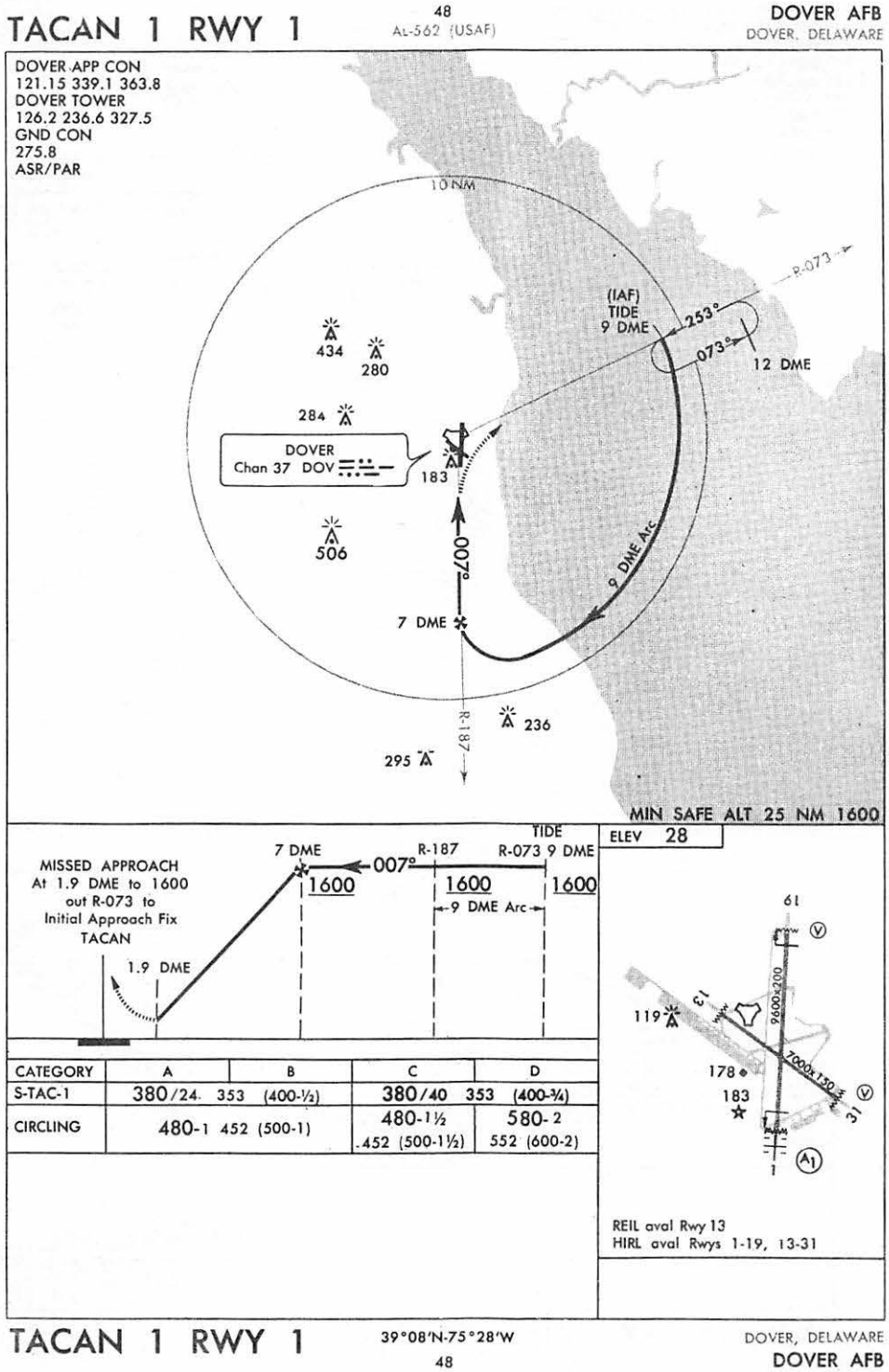
V_{MCO}

V_{MFR}

LDG DIST | REV LIM



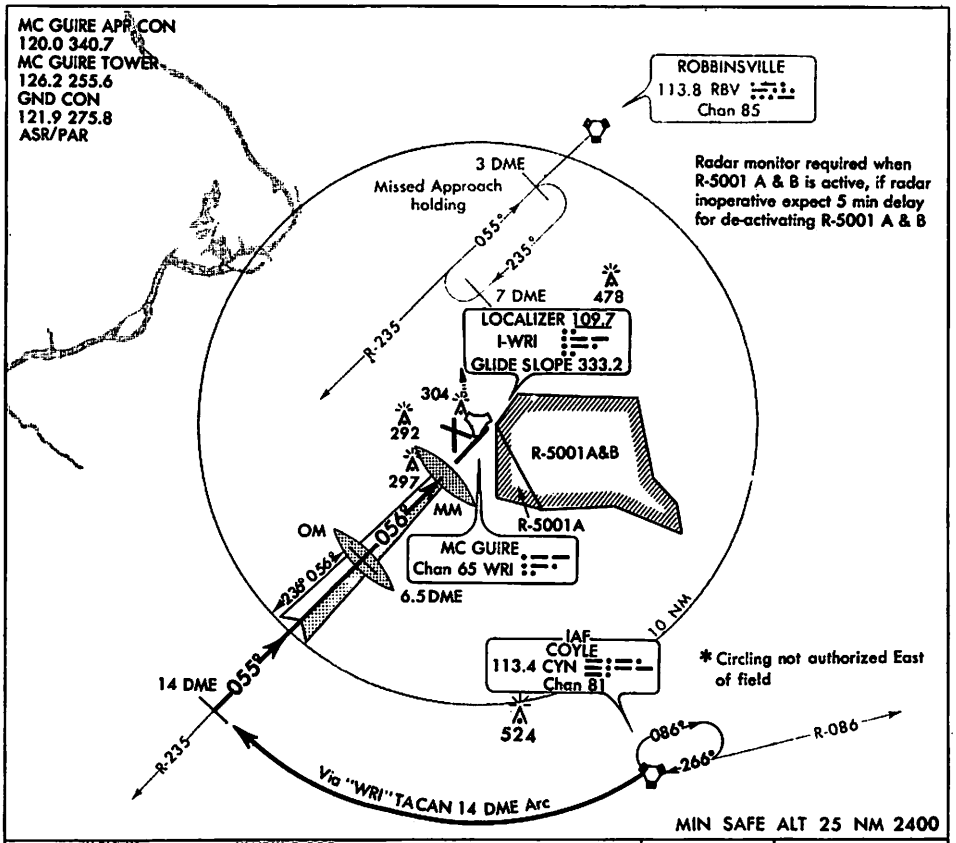

VOR/ILS 1 RWY 21L
219
AL-486 (USAF)
TRAVIS AFB
FAIRFIELD, CALIFORNIA
TRAVIS APP CON
126.6 128.4 291.0 371.2
TRAVIS TOWER
126.2 236.6 255.9
GND CON
289.4
ASR/PAR
4100
2600
4900
ENROUTE FACILITIES
FEEDER FACILITIES
10NM
(IAF) CAPITAL INTXN
PRAIRIE INTXN
IAF SACRAMENTO
115.2 SAC
Chan 99
CLARKSBURG INTXN
TRAVIS
116.4 SUU
TRAVIS
400 SU
OM
MM
968
647
WALNUT GROVE INTXN
LINDEN
114.8 LIN
Chan 95
LOCALIZER 110.1
I-SUU
GLIDE SLOPE 334.4
CROCKETT INTXN
20 DME
"SAU"
SAUSALITO
110.4 SAU
Chan 41
OAKLAND
116.8 OAK
Chan 115
STOCKTON
RIO INTXN
MISSED APPROACH
To 3000 on 208°
to CROCKETT INTXN
Right remain within 9 NM
all maneuvering must be
west of "SUU" VOR R-017
VOR
RBn/OM
1667
1700 VOR
1700 LOC
Glide Slope 3.00°
.5NM
4.3 NM
0.7NM
ELEV 62
210° 5.5 NM
From VOR
Elev
-58
REIL Rwy 3R
HIRL Rwys 3R-21L, 3L-21R
VOR to Missed Approach 5.5 NM
Knots 70 100 125 150 165
Min: Sec 4:42 3:19 2:38 2:12 2:00
CATEGORY A B C D
S-ILS-21L 258/18 200 (200-½) 258/20 200 (200-½)
S-VOR,LOC-21L 400/24 342 (400-½) 400/40 342 (400-¾)
CIRCLING 540-1 478 (500-1) 540-1½ 478 (500-1½) 680-2 618 (700-2)
VOR/ILS 1 RWY 21L
38° 16'N-121° 56'W
219
FAIRFIELD, CALIFORNIA
TRAVIS AFB

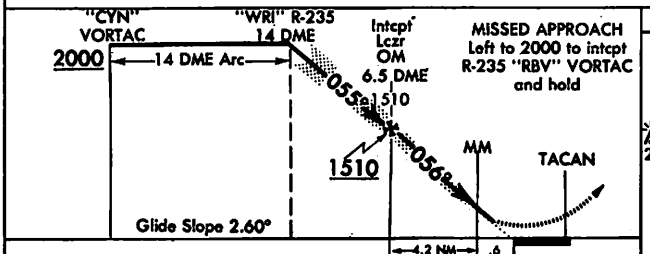

TACAN 1 RWY 1
48
AL-562 (USAF)
DOVER AFB
DOVER, DELAWARE
DOVER APP CON
121.15 339.1 363.8
DOVER TOWER
126.2 236.6 327.5
GND CON
275.8
ASR/PAR
10 NM
R-073
(IAF)
TIDE
9 DME
253°
073°
12 DME
434
280
284
DOVER
Chan 37 DOV
183
506
007°
9 DME Arc
7 DME
R-187
236
295
MIN SAFE ALT 25 NM 1600
MISSED APPROACH
At 1.9 DME to 1600
out R-073 to
Initial Approach Fix
TACAN
1.9 DME
7 DME
007°
R-187
TIDE
R-073 9 DME
1600
1600
1600
9 DME Arc
ELEV 28
61
119
13
9600x200
7000x150
178
183
31
REIL aval Rwy 13
HIRL aval Rwys 1-19, 13-31
CATEGORY
A
B
C
D
S-TAC-1
380/24 353 (400-½)
380/40 353 (400-¾)
CIRCLING
480-1 452 (500-1)
480-1½ 452 (500-1½)
580-2 552 (600-2)
TACAN 1 RWY 1
39°08'N-75°28'W
48
DOVER, DELAWARE
DOVER AFB

TACAN/ILS 1 RWY 6

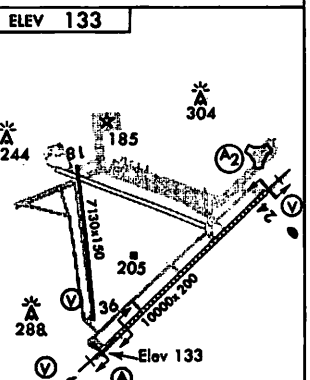
127
AL-150 (USAF)

MC GUIRE AFB
WRIGHTSTOWN, NEW JERSEY





CATEGORY	A	B	C	D-E
S-ILS-6	333/18 200 (200-½)		333/20 200 (200-½)	333/24 200 (200-½)
S-LOC-6	480/24 347 (400-½)		480/40 347 (400-¾)	
CIRCLING *	600-1 467 (500-1)		600-1½ 467 (500-1½)	680-2 547 (600-2)
TACAN	NOT AUTHORIZED			



OM to LOC Missed Approach 4.8 NM					
Knots	70	100	125	150	165
Min:Sec	4:07	2:53	2:18	1:55	1:45

TACAN/ILS 1 RWY6

40°01'N-74°36'W
127

WRIGHTSTOWN, NEW JERSEY
MC GUIRE AFB

STUDY REFERENCES - SIMULATOR MISSION 9

T.O. 1C-141A-1

SECTION II	Review Starting Engines thru Before Leaving Aircraft checklists	2-28 thru 66
SECTION III	Crew Coordination Review emergency checklists with emphasis on copilot duties.	3-2
SECTION VIII	Interphone procedures and phraseology	8-1,2
SECTION IX	Descent AWLS approach	9-5 9-14E

MM 55-1	Radar Departure	3-9d
	Maintaining terrain clearance	4-3b(5)
	Approach briefing	4-5d
	Altitude calls	4-5e
	Use of command radios	4-7c

CHAPTER 3

FLYING TRAINING

GENERAL

The flying phase is the final phase of training. It is designed to achieve proficiency, standardization, and safety in operating the C-141. Variation in training is dependent upon individual proficiency.

A breakdown of training time for each mission follows:

Briefing and clearing . . . . . .2+00 (P)
Flight time . . . . . .4.0 (Or as directed)
Critique. . . . . .As required

Pilots will bring the following equipment for each flying training mission:

1. T.O. 1C-141A-1
2. T.O. 1C-141A-1-1
3. C-141A Abbreviated Checklist
4. Dog Tags
5. Flashlight
6. Flying clothing
7. Oxygen equipment (Quick donning)
8. 57th MASq C-141 Study Guide - Pilot
9. MAC Manual 55-1
10. AFM 51-37
11. Headset

Pilots are expected to study the mission outline and know the referenced study material before each mission. The premission quiz will be completed prior to reporting for a mission. Pilots will use tabulated performance data when conditions permit.

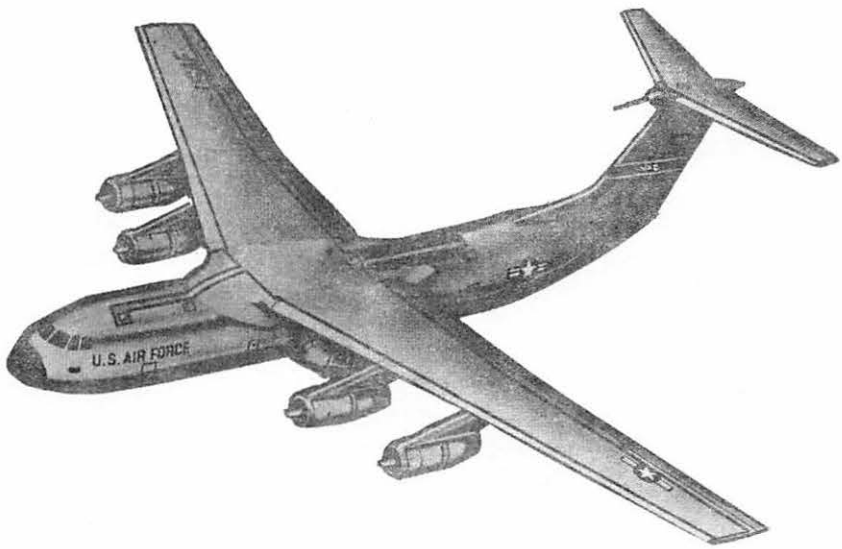
All simulated emergencies will be prefaced by the word "simulated". Pilots will treat simulated emergencies as actual, except applicable controls will not be actuated.

All normal checklists are challenge and response type as defined by T.O. 1C-141A-1. The instructor will not automatically accomplish a checklist. The pilot will initiate all checklists.

Your flight instructor will conduct additional ground instruction during the flying training phase. A ground training checklist is included in Chapter 4 of this study guide listing all the items to be explained. This training will be completed prior to your flight evaluation.

A formal exterior and interior inspection will be completed by the flight engineers; however, the pilot should quickly check safety items when approaching the aircraft (chocks, proximity of maintenance equipment, taxi lanes to exit the ramp, etc.). Time permitting, pilots will observe at least one engineer's Before-Electrical-Power-On, Electrical-Power-On, exterior and interior inspection during the course.

The FLIGHT PROFILE following each Premission Quiz is a general outline of the maneuvers to be accomplished. This guide is subject to deviations (i.e., weather, operational equipment, your proficiency level, etc.).



STUDY REFERENCES - CROSS COUNTRY

T.O. 1C-141A-1

SECTION II	Review amplified checklist (Devote particular attention to copilot action and responses)	2-24 thru 65
SECTION III	Engine failure, driftdown, precautionary shutdown	3-12B thru 16
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	Anti-ice/De-ice malfunctions	3-23
	Ditching	3-45 thru 52
	Yaw damper malfunctions	3-58B
	Elevator feel malfunctions	3-58
	Excessive yaw inflight	3-59
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	AN/APN-59B radar	4-60 thru 62
	AN/APN-147V doppler	4-70 thru 75
	AFCS	4-118A thru 123
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	Response in turbulence	5-21
SECTION IX	Ice and rain	9-14F thru 18
	Turbulence and thunderstorms	9-18,19
	Night flying	9-19
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T.O. 1C-141-1-1

PART IV	Enroute climb	A4-1 thru 3
PART V	Range	A5-2,3,5
PART IX	Inflight data	A9-7,8

MM 55-1

	Fuel planning	3-4
	Departure, Inflight and Landing Procedures	4-1 thru 4-6
	Command control	4-11

FLYING TRAINING CROSS COUNTRY MISSION

OBJECTIVE At the completion of this mission you should be able to:

1. Properly prepare the cockpit for departure.

2. Record and read back ATC clearances.

3. Perform all Dash-1 and 55-1 directed duties for the pilot not flying the aircraft, on a CONUS operational mission.

4. Maintain oxygen discipline.

5. Engage and properly use the autopilot from the copilots position.

6. Turn on and operate:
   a. APN-59 Radar
   b. APN-147 Doppler

7. Accomplish an HF radio check

8. State and, if necessary, abide by turbulent air penetration limitations.

PREMISSION QUIZ

1. List the flight times required to compute fuel requirements. MM 55-1 3-4

   a. departure to destination
   b. enroute reserve
   c. penetration/enroute descent
   d. approach & missed approach at original destination
   e. destination to alternate
   f. holding at alternate
   g. approach/landing at alternate

2. A single failure of a rate gyro, yaw damper servo, or amplifier will cause the YAW DAMPER FAULT light to come on, indicating that part of the yaw damper system is inoperative. A multiple failure of components in the system will be indicated by the YAW DAMPER INOPERATIVE light(s). 3-58B

3. With the yaw damper inoperative, flight operations may be conducted above 31,000 feet if the aileron axis of the autopilot is operative and engaged. 3-58B

4. The basic AFCS mode automatically controls the aircraft to maintain stabilized attitudes and desired headings. 4-118A

5. The AFCS pitch controller reference is disengaged when any one of the following switches is engaged: 4-120

   PITCH OFF VERNAV
   ALT HOLD
   G/S
   MACH HLD EL

FLYING TRAINING MISSION 5

OBJECTIVE At the completion of this mission you should be able to:

1. Properly accomplish normal and emergency checklists during all phases of operation.

2. State what actions are required and direct crew coordination during all noncritical emergency procedures/ malfunctions.

3. Demonstrate the ability to take the proper corrective action during all critical emergencies.

4. Fly the aircraft within the limits established in MM 60-1, Table I (see page 1-3).

5. State performance capabilities and explain pilot actions as they relate the systems operation/malfunctions, associated systems, and subsequent mission accomplishment.

PREMISSION QUIZ

1. When landing with an engine out, rudder trim should be neutralized after landing is assured. 3-35

2. During a three engine go-around the normal go-around procedures will be followed, except when gross weight exceeds 257,500. 3-36

3. Approach speed for a two engine approach is charted threshold plus 20 kts or two-engine V_{MCA}, whichever is greater. 3-35

4. In the event of a two-engine go-around, maintain V_{MCO} or V_{MCA} airspeed whichever is greater with flaps at APPROACH until a safe maneuvering altitude is reached. 3-36

5. What precautions should be observed when jettisoning fuel? 4 things 3-31

6. The pilot will advise the engineer when to commence jettisoning fuel. 3-31

7. What is the recommended airspeed and configuration for emergency jettison of cargo? 160 kts or 1.3 V_{stall}, whichever is greater flaps up 3-33

8. Cargo pallets weighing less than 2500 pounds should not be jettisoned. 3-34

9. Engine oil pressure below 35 PSI or above 60 PSI require an engine shutdown. 3-56

STUDY REFERENCES - FLYING MISSION 5

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SECTION I	Turbofan engines	1-11
	Oil system	1-36
	Fuel supply system	1-36 thru 37
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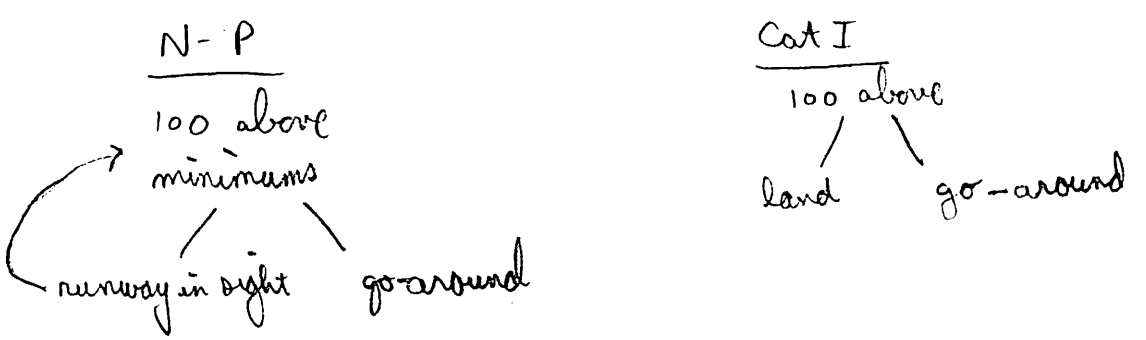
SECTION III	Inflight engine failures	3-12B thru 15
	Engine overheating	3-19
	Fuel jettison	3-31
	Cargo jettison	3-32 thru 34
	Landing with one or more engines inoperative	3-35
	Go-around with one or more engines inoperative	3-36
	Engine oil system failures	3-56
	Stall prevention system failure	3-59
	Fuel system failure	3-65 thru 66
SECTION IV	AWLS	4-124
	AWLS flight progress display and caution panel	4-126
SECTION IX	Two engine configurations	9-6,8,13
	AWLS	9-14B thru 14F
MM 55-1	CAT II Precision Approach	4-5e(3)



if runway in sight at 100 above MDA, what do you say

FLIGHT PROFILE - MISSION 4

A. Normal Procedures

1. Before starting engines
2. Starting
3. Taxi
4. Takeoff
   a. Simulated engine failure after takeoff
5. Emergency return
6. Three engine missed approach
7. Climb (4 engine)

B. Airwork

1. Simulated runaway pitch trim
2. Review as needed

C. Instrument Procedures/Approaches

1. Enroute Descent
2. Holding
3. Approaches (Precision and nonprecision)
4. Missed approaches (Normal/3 engine)

D. Landings

1. Touch-and-go
2. Three engine
3. Full stop
4. No flap (demonstration)
5. Partial flap

12. In the event both hydraulic systems Nr 1 and Nr 2 are lost the aileron power control assembly will be inoperative and the ailerons will float to an aerodynamically neutral position. 1-88

13. The rudder system provides control, trim, and yaw damping about the yaw axis. 1-89

14. The yaw damper must not be engaged without hydraulic pressure to the rudder power package. 1-95

15. It is recommended that transfer to tab operable be accomplished at airspeeds between 150 and ≥50 KCAS 3-57

16. In the event of an electrical fire, an attempt will be made to isolate the faulty circuit before performing the electrical fire checklist. 3-23

17. With a loss of DC power the brake selector switch will be placed in the _____ position. 3-65

18. Regardless of the manner in which the emergency generator is placed into operation, the NAV AC BUS #1 bus will be without power. 3-65

19. The smoke and fume elimination checklist will be used for smoke or fumes emanating from the engine bleed systems or the air conditioning packs. 3-26

20. If the stab access door not locked light illuminates during flight, the mission may be completed at an airspeed of ~~280~~ 280 KCAS or .75 MACH. 3-30

21. When landing with wheels-up, fuel should be jettisoned down to approximately 10,000 pounds. 3-37

22. The spoiler selector switch should be in MANUAL LAND position for a no flap landing. 3-35

PREMISSION QUIZ

1. List the items that will automatically turn on the Nr. 3 hydraulic system pumps: 1-86,88,97,107,113
   - both aileron power switches to TAB OPERABLE
   - spoiler handle out of closed position
   - EREO switch to emerg OFF
   - ~~emergency brakes selected~~
   - pilot stall prevention
   - ~~flap lever~~
   - emergency elevator

2. With complete loss of Nr 2 hydraulic system, the pilot should position the following switches. 3-61,62

   a. Left and right aileron power control switches for Sys 2 to POWER OFF 3-53
   b. Rudder power control switch for Sys 2 to POWER OFF 3-53
   c. Elevator power control 1 switch for Sys 2 to EMER. 3-53
   d. Brake selector switch to EMER. 3-44F

3. With the loss of Hydraulic Systems Nr 1 and Nr 2, the only flight control system that becomes completely inoperative is the rudder system. 3-57

4. When operating the rudder system in the OVERRIDE mode above ~~160~~ 160 KCAS, exercise extreme caution since full rudder deflection may result in structural damage. 3-58

5. An asymmetry detection system automatically stops movement of the flaps if either an inboard or outboard flap lags its counterpart on the opposite wing by more than 3 degrees. 1-100

6. If a hydraulic leak at or around the wing flap drive motor can be determined to be from hydraulic system Nr 3, the system may be isolated from the flap drive motor by using the manual shutoff valve. 3-60

7. The flaps will continue to operate after illumination of the FLAP ASYM DET light, but will not operate after illumination of the FLAP ASYM light. 3-59,60

8. Full inflight spoiler deflections are obtained up to 250 KCAS. 1-103

9. Spoilers are placarded against operation above 350 KCAS or 0.75 MACH. 1-103

10. If the spoilers do not deploy automatically on a rejected takeoff, or when armed on landing, the copilot will manually move the spoiler lever to the ground position. 3-60A

11. If both spoiler inop lights illuminate the spoilers will retract. However, the system may be returned to normal by moving the spoiler lever to the RESET position. 3-60A

FLYING TRAINING - MISSION 4

OBJECTIVE

At the completion of this mission you should be able to:

1. State the effect of malfunctions of the following systems on mission accomplishment:

   a. Hydraulic systems
   b. Wing flaps
   c. Wing spoilers
   d. Flight controls
   e. Pitch trim
   f. Electrical system
   g. Door system
   h. Landing gear

2. Take the proper corrective action for simulated malfunctions/failures of the above systems and for:

   a. Smoke/fumes
   b. Engine failures/fires
   c. Electrical failures/fires

3. Fly the aircraft, in normal configurations, within MM 60-1 limits for the following maneuvers:

   a. Holding pattern
   b. VFR traffic pattern
   c. PAR final
   d. ILS final
   e. Landings
   f. Instrument approach pattern

4. Fly the aircraft safely during the following maneuvers:

   a. Engine failure during takeoff.
   b. Three engine approach (VFR or instrument) and landing.
   c. Nonprecision approaches (normal) configurations.
   d. Partial flap landing

STUDY REFERENCES - FLYING MISSION 4

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SECTION I	Instrument power switch	~~1-55~~
	Hydraulic systems	~~1-74 thru 81~~
	Flight control system	~~1-88 thru 100~~
	Wing flap system	~~1-100 thru 102~~
	Wing spoiler system	~~1-102 thru 109~~
	Pitot static instruments	1-122,123
SECTION III	Electrical fire	3-23 thru 26
	Smoke and fume elimination	3-26 thru 28
	Inflight door warning	3-29,30
	No flap landing	3-34,35
	Landing with flat tire or gear retracted	3-37 thru 39
	Flight control system failure	3-56 thru 58
	Pitch trim malfunctions	3-58 thru 58B
	Flap system failure	3-59,60
	Spoiler system failure	3-60,60A,61
	Hydraulic system failure	3-61,62
	Electrical power system failure	3-62 thru 65
SECTION IV	Lighting systems, exterior	4-149,154,155

FLIGHT PROFILE - MISSION 3

A. Normal Procedures
   1. Starting procedures
   2. Taxi
   3. Before Takeoff
      a. ATC clearance
      b. Crew briefing
   4. Rolling takeoff
   5. Engine failure T.O. continued
   6. Emergency return (optional)
   7. SID
   8. Climb procedures

B. Airwork
   1. Review as necessary to include emergency descent
   2. TACAN point-to-point
   3. Manual gear lowering

C. Instrument Procedures/Approaches
   1. Enroute Descent
   2. Low altitude approach (ADF, VOR, TAC, ASR)
   3. Missed approach

D. Landings
   1. Touch-and-go
   2. Full stop
   3. Missed approach/go-around
   4. Three engine

E. After Landing/Engine Shutdown/Before Leaving Aircraft Checklists

5. Complete the following statements pertaining to the nose wheel steering system:

   a. The nose gear wheels can be steered 80 degrees left or right of center with the nose wheel steering. 1-119

   b. Maximum recommended nose wheel deflection using nose wheel steering is 60 degrees. 2-37

   c. Rudder pedal steering provides a maximum of 8 degrees nose gear movement left or right of center. 1-119

6. Emergency conditions, when referring to "backing the aircraft" are limited to combat, contingency situations, and necessary operations at isolated locations; and even then the gross weight must not exceed 240,000 pounds. 2-35

7. Refusal speed must be equal to or greater than rotation speed when making a rolling takeoff. 2-43

8. Throttles will be set to takeoff thrust EPR prior to brake release when making an obstacle clearance or critical field length takeoff or when gross weight exceeds 316,000. 2-43

9. The missed approach shall be initiated when the missed approach point or decision height (DH) is reached and the runway environment is not in sight, when the pilot is unable to make a safe landing, or when directed by the controlling agency. 51-37 18-10

10. When executing a TACAN penetration and approach, the flaps will be lowered to APPROACH, landing gear extended, and the Before Landing Checklist accomplished after reaching minimum penetration altitude, or after departing the initial approach fix on a low altitude approach. The pilot will configure the aircraft in sufficient time to complete the Before Landing Checklist prior to the gate. 9-9

11. A circling approach is made with gear down, flaps at approach, and airspeed at approach plus 10. 9-9

12. A circling approach is a visual flight maneuver. AFM 51-37 18-3

13. All crew members should be thoroughly familiar with their duties and with the pilot's intended actions in the event of an emergency during takeoff. 3-11

14. If an engine failure occurs after liftoff, climb at VMCO speed until reaching 1000 feet AGL. Then accelerate to flap retract speed and retract flaps. 3-12

FLYING TRAINING MISSION 3

OBJECTIVE At the completion of this mission you should be able to:

1. Fly normal four engine landings within MM 60-1 limits.
2. Fly the aircraft safely during the following maneuvers
   a. Takeoff (standing or rolling)
   b. SID
   c. Normal Climb
   d. Enroute descent
   e. Four engine missed approach
   f. Holding
3. With IP assistance, perform the following maneuvers:
   a. Circling approach
   b. VOR approach
   c. ADF approach
   d. TACAN approach
   e. Three engine landing
   f. Three engine go-arounds
4. Use TACAN, VOR and ADF for enroute navigation.
5. Safely and smoothly taxi the aircraft.

PREMISSION QUIZ

1. If the NORMAL BRAKE PRESSURE indicator shows a loss of system pressure, proceed as follows: 3-44F

   place brake pressure selector switch to EMER
   check that #3 Hydraulic system press on light is illuminated
   use brakes cautiously due to inoperative anti-skid with system #3.

2. If a leak exists below the shuttle valve in a brake assembly, use of the emergency brakes may deplete the Nr 3 hydraulic system. This is because the emergency brake system has no hydraulic fuse protection. 3-44F

3. When using the anti-skid system, if the DET OUT light comes ON while the ANTI-SKID OFF light remains OFF, only seven brakes will be available for braking. If two or more skid detectors fail, the anti-skid off lights will come ON. The anti-skid switch should be placed OFF if the ANTI-SKID OFF lights come ON to prevent possible erratic operation of the normal brakes. 3-44F

4. In the event of complete hydraulic system failure, approximately 10 brake applications can be made with both accumulators in #3 system fully charged. 3-44F

STUDY REFERENCES - FLYING MISSION 3

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SECTION I	Nose gear steering	1-119.120
	Brake system	1-120 thru 122
	Engine/APU fire detection/ extinguishing systems	1-126 thru 133
SECTION II	Engine ground operation	2-33
	Backing the aircraft	2-34,35
	Rolling and standing takeoff	2-43 thru 45
SECTION III	Review all bold print checklists	3-7 thru 27
	Engine failure during takeoff	3-11 thru 3-14
	Three engine go-around	3-36
	Brake system failures	3-44F
	Manual Gear Extention	3-39 thru 44C
SECTION V	Taxiing limitations	5-10
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SECTION IX	Holding	9-5
	Low altitude instrument approach procedures	9-4-7-8A-9
	Missed approach	9-9,14B
	Circling approach	9-9

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	Station passage	11-12
	Holding	11-12 thru 14
	Nonprecision approach procedures	11-14 thru 23
CHAPTER 12	TACAN procedures	12-5 thru 12
	TACAN approach procedures	12-12 thru 16
CHAPTER 13	Course intercepts (skip fixed card and RDF)	13-6 thru 8
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CHAPTER 18	The straight-in approach	18-2
	The circling approach	18-3
	Missed approach	18-10,11

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CHAPTER 5	TACAN point-to-point	5-3

FLIGHT PROFILE - MISSION 2

A. Normal Procedures
   1. Starting engines
   2. Taxi
   3. Before takeoff
      a. Crew briefing
      b. Setting command markers
   4. Takeoff
   5. Climb
   6. Level off and cruise
   7. Oxygen discipline

B. Airwork
   1. Normal/steep turns
   2. Unusual attitudes
   3. Autopilot
      a. Engage/disengage
      b. Pitch/turn controllers
      c. Altitude hold/Mach hold
   4. Rapid descent

C. Instrument Procedures
   1. Penetration (VOR)
   2. PAR or ILS
   3. Missed Approach

D. Landings
   1. Touch-and-go landings
   2. Full stop landings
   3. Reversing
   4. APU fire

E. After Landing/Engine Shutdown/Before Leaving Aircraft Checklists

4. What are the recommended airspeeds when making a rapid descent using spoilers? 2-50

   a. 300 or .75 MACH whichever is lower

   b. 300 to 20,000 feet

   c. 325 to 10,000 feet

   d. 350 to sea level

5. During departure and climb, if an intermediate level off and maneuvering are required, an airspeed of 200-230 may be used until climb is resumed. 9-2

6. On a high altitude penetration and approach, descent may be started when abeam or past the IAF. This statement assumes that no "flyoff" is depicted. 51-37, 12-13

7. Set landing flaps and reduce to approach speed just prior to reaching glideslope on an ILS approach. 9-9

8. During a touch-and-go landing the copilot will reset the flaps to TAKEOFF/APPROACH, reset the pitch trim, and state "Flaps and Trim Reset." 2-61

   a. True

   (b. False)

9. If an APU fire persists, the pilot will stop the engines by pulling the fire handles. 3-8

10. In the event of an engine/APU fire on the ground, the copilot will advise tower by relaying nature of emergency, aircraft number, and location. 3-8

FLYING TRAINING MISSION 2

OBJECTIVE At the completion of this mission you should be able to:

1. Compute performance data using the Tabulated Data.

2. Fly the aircraft safely during normal takeoffs and landings.

3. With IP assistance perform the following maneuvers:

   (a) Penetration
   (b) PAR
   (c) ILS
   (d) Missed approach
   (e) Instrument departure

4. Recover from unusual attitudes.

5. Properly brief the crew for takeoff, normal precision approaches and landings.

6. Use all modes of the autopilot.

7. Correctly state and/or observe the following limitations:

   (a) Starting engines
   (b) Engine operating
   (c) Weight
   (d) Airspeed
   (e) Brakes

8. Safely execute a rapid descent.

9. Satisfactorily perform all required copilot duties during two CAT II ILS approaches.

PREMISSION QUIZ

1. The clear engine procedure will be used anytime a start attempt is discontinued. During the clear engine procedure, the starter button will be left IN for 10 to 15 seconds with the fuel and start ignition switch in the STOP position. 2-33

2. On a rejected takeoff, what actions should be taken after rollout? 3-12A
   determine reason for abort
   take necessary corrective action in case of engine fire/failure, etc.
   accomplish the After Landing checklist

3. The FDS will switch to the ILS mode (enter capture zone) at slightly less than 2 dots CDI displacement and display ILS steering information. 4-116

STUDY REFERENCES - FLYING MISSION 2

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SECTION II	Review starting limitations	2-28 thru 30
SECTION III	Fire on ground	3-7,8
	APU fire	3-8,9
	Rapid decompression	3-30A
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	Flight director modes of operation	4-116,117
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CHAPTER 5	Unusual Attitudes ≥250 kts - str & level spoilers	5-2
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FLIGHT PROFILE - MISSION 1

A. Normal Procedures
   1. Emergency entrances and exits
   2. All normal checklists
   3. Starting procedures
   4. Taxi
   5. Takeoff
   6. Climb to altitude

B. Airwork
   1. Normal turns
   2. Effect of asymmetric power (Engine shutdown and airstart)
   3. Cruise procedures
   4. Speed control (Power/Pitch relationship)
   5. Electrical and hydraulic pitch trim
   6. Holding flight characteristics
   7. VFR descent (with and without spoilers)

C. Descent
   1. Normal descent
      a. Outside scan
      b. Required altitude calls

D. VFR Pattern/Landings
   1. Full stop landings
   2. Touch-and-go landing (Keep gear operation to a minimum)

E. After Landing/Engine Shutdown/Before Leaving Aircraft Checklists

5. Complete the following statements pertaining to the IFF/SIF (APX-64) system: 4-42

   a. The IFF will respond to mode 1, 2, or 3 interrogation only when the respective mode enable and test switch is positioned to ON.

   b. To place the IFF in emergency operation, pull up on the master switch and rotate to the EMER position. 4-42

6. The crew oxygen quantity indicator and push-to-test switch is located on copilots side console. 4-143

7. On a standing takeoff, TRT must be set by 5 seconds and 50 knots after brake release. 2-45

8. With rudder pedal steering operative, the pilot transitions from nose gear steering to control yoke when TRT is set. 2-45

9. After an abort, brake limits must be checked if brake were applied above 60 knots. 3-12A

10. If the engine failure or system emergency is experienced prior to GO speed, abort the takeoff. GO speed is the lowest of V_R, V_{ROT}, $V_{B(MAX}$. A3-7

11. Describe climbout technique from liftoff, climb profile to cruise. 2-47

12. Crosschecking the radar altimeter is a very positive means of determining actual altitude when below 2500 ft. This instrument can be especially useful during VFR traffic patterns and circling approaches. Describe a VFR traffic pattern from entry through touchdown. 2-58,59

13. The final approach should be flown, with LANDING flaps, at approach speed until landing is assured. Airspeed should then be reduced so as to cross the threshold at threshold speed and at an altitude of 50 feet. 2-56

14. During a touch-and-go landing, the copilot will reset the flaps to approach, reset the trim and state "flaps and trim set." The pilot will then advance the throttles toward 92% N_1 rpm, not to exceed go-around EPR, and will continue the normal takeoff procedure. 2-61

FLYING TRAINING MISSION 1

OBJECTIVE At the completion of this mission you should be able to:

1. State the emergency signals for ground and inflight evacuation.

2. Operate the emergency exits.

3. With IP assistance, fly the aircraft during the following maneuvers:

   (a) Takeoff
   (b) Climb
   (c) Descent
   (d) VFR pattern
   (e) Touch-and-go and normal landings
   (f) Go-arounds

4. Perform the required scanning duties as the pilot and from the observers seat.

5. Safely taxi the aircraft.

PREMISSION QUIZ

1. When using tabulated performance data, you should interpolate for intermediate gross weights and temperatures. True (False) P-2A

2. Give the warning horn signals for the following conditions: 3-2

   a. Prepare to bailout - 3 short blasts

   b. Bailout - one long blast

   c. Prepare for ditching or crash landing - 6 short blasts

   d. Brace for impact - one long blast

   e. Ditching or landing immediately after takeoff - one long blast

   f. For immediate bailout, the pilot will sound the warning horn and transmit, bailout, bailout, bailout over the PA system.

3. List the 14 exits that can be used for emergency evacuation on the ground. 3-3

   2 troop doors
   4 overhead hatches
   4 side emergency hatches
   2 pilots' windows
   crew entrance door
   loading ramp

4. The test feature of the low altitude radar altimeter is only operable when the aircraft is on the ground. TRUE (FALSE) 4-50

STUDY REFERENCES - FLYING MISSION 1

T.O. 1C-141A-1

SECTION I	Emergency Equipment	1-126 thru 134
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	Climbout technique	2-47
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	Before landing/traffic pattern	2-53
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	Emergency entrances and exits	3-2 thru 7
	Abort procedures	3-12A
	Engine shutdown and airstart	3-12B thru 18
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	Engine operation	7-6 thru 8
	Use of wheel brakes	7-10
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CHAPTER 5 Flight maneuvers: Normal and steep turns, holding and traffic pattern flight characteristics

Pilots Abbreviated Checklist

Performance Data: Pages P-2 thru P-2B

2. Enroute Descent

3. AWLS Approach (coupled to touchdown)

D. Landings

1. Low Approaches (if applicable)

2. Full Stop or Touch-and-go Landings (copilot duties)

3. Reversing (copilot duties)

E. Mission Profile

FLIGHT PROFILE - MISSION XC

A. Normal Procedures

1. Filing and Route Planning (Meet IP at Base Ops/Wg Command Post at scheduled show time)

2. Copilot Duties
   a. Checklists (Items accomplished prior to checklist)
   b. ARTC clearance
   c. Cockpit departure preparation
      (1) Approach plates
      (2) SID
      (3) Low and high altitude enroute charts
      (4) Arrival charts
      (5) Com/Nav radio setup

3. Starting Engines

4. Oxygen Discipline

B. Enroute Procedures

1. Auto Pilot
   a. Engage/disengage
   b. Pitch/turn controllers
   c. Altitude hold/Mach hold
   d. Capture zones/tracking/station clamp

2. Auto Throttles

3. Review Caution and Warning Lights

4. AWLS Enroute Check

5. HF Communications Check

6. Radar and Doppler Operation (Scanner will instruct student in observer seat)

C. Terminal Procedures

1. Cockpit arrival preparation
   a. TOLD Data
   b. Approach Plates
   c. Arrival Charts
   d. Descent Checklist
   e. Com/Nav Radio Setup

6. Only the pilot's control wheel has provision for control wheel steering. 4-120

7. The AWLS enroute test will be successfully completed in flight prior to commencing a CAT II approach when actual weather is reported below cat I minimums. 9-14D

8. The LOC (localizer) progress light illuminates after localizer is intercepted and the localizer antenna has switched to the nose antenna. 4-126

9. The LAND ARM progress light illuminates at a radar altitude of 100 feet as determined by the flare computer. 4-126

10. The automatic throttle system shall not be used for manual approaches to category II minimums. 9-14B

11. The recommended airspeed for attempting an airstart is between 178-350/.825 MACH 3-16

12. The fuel and start ignition switch must be held in the AIR START position during an airstart. An airstart will be discontinued if evidence of start is not indicated by RPM and EGT increase within 30 seconds. 3-18

13. Forecast data may be used to compute landing data for flights of 3 hours duration or less, however, prior to landing the data must be confirmed. 2-51

10. Illumination of the low oil pressure warning light indicates that oil pressure is below 33 PSI or that the oil filter is clogged and input pressure is 50 PSI higher than output pressure. 3-56

11. If an engine is shutdown due to oil starvation or severe vibration, consideration should be given to pulling the fire handle to isolate the fuel and hydraulic system 3-12B

12. If an engine overheat condition recurs, after advancing the throttle, the engine should be shutdown using the engine failure checklist. 3-19

13. Complete the following statements pertaining to the stall prevention systems: (shaker)

a. System Nr 1 acts on the pilot's control column, while system Nr 2 acts on the copilot's control column.

b. The first action that occurs during an approaching stall condition is activation of shaker.

c. When this occurs, power is removed from the pitch trim nose-up mode. 1-112

d. If a CADC failure occurs, turn the related stall prevention system OFF.

e. If a system malfunction is suspected, initially both switches on the master stall prevention panel, which is located on the pilots' overhead panel, should be positioned to OFF. 3-59

14. During an AWLS approach the copilot will monitor and announce the following: marker reception, ILS voice, fault identification panel, barometric vs. radar altimeter, 100 above DH, rising runway indicator, say "land" or "go-around" at DH 9-14E

15. List category minimums with the following fault identification light illuminated. (Consider each light individually) 9-14C,14D

a. G/S Man 2 --

b. LOC -- cat I only, non-AWLS

c. GYRO 1 -- cat I only

16. List the fault identification lights which preclude accomplishing a Cat II approach. These lights are red. 9-14C,14D

LOC
G/S MAN 1
RDR ALT
FLT DIR 1
GYRO 1
GYRO 2

FLIGHT PROFILE - MISSION 5

A. Normal Procedure
   1. Starting
   2. Taxi
   3. Takeoff (SID)
      a. Simulate engine failure prior to 100 knots
      b. Abort procedures
   4. Climb

B. Airwork
   1. Two engine traffic pattern above 5,000 feet AGL
   2. Autopilot operation (Review as necessary)
   3. Simulated engine fire
   4. Simulated fuselage fire
   5. Manual aileron tab operation (above 5,000 feet AGL and 150 KCAS to 250 KCAS)

C. Instrument Procedures/Approaches
   1. Enroute descent
   2. Low altitude holding
   3. Approaches/missed approach (VOR/ADF/TACAN/PAR)
   4. Demonstrate automatic AWLS approach and landing
   5. Automatic AWLS approach and R/GA missed approach
   6. Circling approach

D. Landing
   1. Touch-and-go
   2. Three engine/Go-around
   3. No flap (for students with immediate AC potential)

E. After Landing/Engine Shutdown/Before Leaving Aircraft Checklists
   1. Simulate engine fire

STUDY REFERENCES - FLYING MISSION 6

T.O. 1C-141A-1

SECTION II	Review amplified checklists from Before Starting Engines to Before Leaving Aircraft	2-24 thru 66
SECTION III	Review all boldface type/memory items	3-7 thru 26
	Emergency operation of wing anti-icing system	3-23
	Rapid Decompression	3-30A
	Thrust reverser failure	3-44D
	Pitch trim malfunctions	3-58 thru 58B
SECTION V	Airspeed limitations	5-13
	Engine operating limits	5-6
	Weight limitations	5-8
	Brake limitations	5-22,23
SECTION VII	Starting malfunctions	7-8
	Use of wheel brakes	7-10
SECTION IX	Operations under icing conditions	9-16 thru 9-18
	Turbulence and thunderstorms	9-18,19

FLYING TRAINING - MISSION 6

OBJECTIVE This is a review mission. At the completion of this mission, you must be able to satisfy all End-of-Course objectives.

PREMISSION QUIZ

1. Abnormal fuel flow on any one engine, illumination of one or more PRESS LOW lights, or unusually rapid decrease of fuel quantity in any one tank may be indicative of fuel leaks. 3-66

2. The FILTER BYPASS light on the flight engineer's panel indicates that fuel is bypassing the related engine fuel filter due to icing or solid contaminants from the fuel. 3-66

3. If, after the use of the fuel heater, the FILTER BYPASS light remains ON, the engine should be shut down if it is not needed for safe flight. 3-66

4. When should oxygen and mask be "immediately available?" AFM 60-16, para 6-5

	one pilot	second pilot
a. Above FL 250 --	I	R
b. Above FL 350 --	I O	I R
c. Above FL 450 --	O	I

5. Give the limiting airspeeds for the following: 5-13

   a. Landing lights 350 KCAS or 0.53 mach

   b. Flaps landing 185 KCAS or 0.45 mach

6. Give the following engine limitations: 5-3

   a. Max oil temp 121°C

   b. Max N_2 RPM 104.5%

7. The wheel assemblies incorporate thermal fuse plugs. The thermal fuse plugs are designed to release air pressure in the tires when the temperature of the wheel rim area adjacent to the brakes reaches design temperature. 5-22

8. What action is required of the copilot immediately after touchdown on a wheels-up landing? 3-39

   pull #1 and #4 fire handles

9. There is no danger in jettisoning light weight pallets. 3-34

   a. True

   (b.) False

10. Be prepared to discuss turbulent air penetration procedures in relation to airspeed, altitude, attitude, trim and autopilot. 9-18,19

11. Define the following: A3-5,6,7

   a. Critical field length: the total length of runway required to accelerate on all engines to critical engine failure speed, experience an engine failure, then continue the takeoff or stop.

   b. Go speed: the speed at which the pilot becomes committed to continue the takeoff, being the lowest of V_{ROT}, V_{R1} or $V_{B(MAX)}$.

12. Define Hot Start: occurs during starting when the engine lights off but the EGT exceeds the starting limit of 455°C. 7-8

13. During an airstart it is mandatory for the scanner to monitor the start from the cabin and be on interphone. 3-16

   (a.) True

   b. False

14. If one or more landing gear will not retract an effort should be made to get an "Up and Locked" condition by recycling the gear. 3-39

   a. True

   (b.) False

15. Anytime the gear is lowered other than with the normal means the landing gear safety pins will be installed. 3-43

   (a.) True

   b. False

16. Without asymmetrical protection the wing flaps should be moved in small increments. Why? 3-59

   to prevent an uncontrollable condition in the event of asymmetrical extension or retraction

17. If a rapid decompression should occur, the pilot will insure that the following actions have been taken: 3-30A

oxygen mask - on/100% - all
crew and troops - notified
seat belts - fastened
rapid dessent - as required
scanner's report - as required
air traffic control - notified

18. If all doors are secured and it can be positively determined that a DOOR OPEN light illuminated because of a limit switch, what actions should be taken? 3-30

place the door lock warning switch to BYPASS and continue the mission

19. Only on high priority (Defense Department Directed) missions can flights be planned through forecast or known heavy icing conditions. 9-14F

a. True

(b.) False

20. MM 55-1 requires a RCR of 12 or greater before takeoff in a 25 knot crosswind component is permitted. What additional factors are mandatory when executing a 25 knot crosswind takeoff? MM 55-1, Attach 1 A1-3, A3-16

rudder pedal steering operative
spoilers operative

FLYING TRAINING - MISSION 7

OBJECTIVE The objective of this mission is the satisfactory completion of a flight evaluation.

MISSION Your flight examiner will brief you on the maneuvers to be performed during the flight.

PREPARATION You will review all normal and emergency procedures with special emphasis on areas recommended by your instructor.

REPORTING You will report as directed and go through the following procedures:

1. Complete TOLD card
2. Briefing/evaluation

   During the briefing/evaluation the flight examiner will question you on systems and procedures. Refer to MAC Form 4 (Pages 3-M7-2 & 3-M7-3) for maneuvers and verbal knowledge areas.

PILOT FLIGHT EVALUATION

SUPERVISORY REVIEW AND CONCURRENCE	DATE OF EVALUATION	DATE TRAINING COMPLETE

TYPE EVALUATION

☐ AC	☐ PROFICIENCY	☐ NO NOTICE	☐
☐ IP/P	☐ INSTRUMENT	☐ INSTRUCTOR	☐
☐ CP	☐ LINE	☐ FLIGHT EXAMINER	☐
☐ INITIAL	☐ SIMULATOR	☐ REQUALIFICATION	☐

TYPE AIRCRAFT

FLYING TIME

OVERALL GRADE

- ☐ QUALIFIED
- ☐ QUALIFIED/TRAINING
- ☐ UNQUALIFIED

EXAMINEE'S NAME, GRADE AND ORGANIZATION	SIGNATURE OF EXAMINEE	DATE
EXAMINER'S NAME, GRADE AND ORGANIZATION	**SIGNATURE OF EXAMINER**	**DATE**

LEGEND: Proficiency – P Instrument – I Line – L All – A

AREA/SUB AREAS		Q	T	U
I. EMERGENCY PROCEDURES/SYSTEMS				
1. BOLD PRINT EMERG CHECKLIST ITEMS	P			
2. OTHER EMERGENCY PROCEDURES	P			
3. HYDRAULIC SYSTEM	P			
4. ELECTRIC SYSTEM	P			
5. PNEUMATIC SYSTEM	P			
6. POWER PLANT	P			
7. FLIGHT INSTRUMENT SYSTEM	P			
8. AIRCRAFT GENERAL	P			
9.				
10.				
II. PREPARATION FOR FLIGHT				
11. MISSION PLANNING	A			
12. VISUAL INSP (APPL ACFT)	P			
13. STARTING PROCEDURE	LP			
14. RUNUP PROC (APPL ACFT)	LP			
15. TUNING AND CHECKING RADIOS	A			
16. DEPARTURE/APPROACH DATA	A			
17.				
18.				
III. FLIGHT PHASE				
19. TAKEOFF PROCEDURES	A			
20. RIGHT/BACKSEAT TAKE OFF (AC-IP-FE)	P			
21. CROSSWIND TAKEOFF *(If available)*	A			
22. TRIM AND OR AUTOPILOT	A			
23. COMPLY ARTC INSTRUCTIONS	LI			
24. ACFT CONT *(Hdg/Alt/Airspeed)*	A			
25. CHK FLT PROGRESS/RANGE CNTL	L			
26. AUTHENTICATION PROCEDURES	P			
27. TURB AIR PENETRATION	A			
28. USE OF OXYGEN EQUIPMENT	A			
29. DESCENT PROCEDURES	A			
30. ALIGNMENT WITH RUNWAY	A			
31. THRESHOLD ALT AND AIRSPEED	A			
32. FLARE AND TOUCHDOWN	A			

AREA/SUB AREAS		Q	T	U
III. FLIGHT PHASE *(Continued)*				
33. FULL FLAP LANDING	P			
34. PARTIAL FLAP APP AND LDG	P			
35. NO FLAP APP AND LDG (IP/AC)	P			
36. CROSSWIND LANDING *(If available)*	P			
37. TOUCH AND GO LDG (IP/FE)	P			
38. RIGHT/BACKSEAT LANDING (AC/IP/FE)	P			
39. ENGINE(s) OUT LANDING	P			
40. VFR APPROACH AND LANDING	P			
41. VASI *(If available)*	P			
42. LANDING ROLL	A			
43. ENGINE(s) OUT GO AROUND	P			
44. INSTRUMENT DEPARTURE	LI			
45. PENETRATION (JET ACFT)	I			
46. RADAR APPROAC H (PAR)	I			
47. ILS APPROACH	I			
48. CATEGORY II ILS *(Appl Acft)*	I			
49. NON-PRECISION APPROACH	I			
50. HOLDING PROCEDURES	I			
51. CIRCLING APPROACH	I			
52. MISSED APPROACH	I			
53. USE OF ADDITIONAL NAV AIDS	I			
54. RECOVERY FROM UNUSUAL ATTITUDES	I			
55. STEEP TURNS	I			
56.				
57.				
IV. GENERAL				
58. USE OF CHECKLISTS	A			
59. CREW COORDINATION	A			
60. TAXIING	A			
61. CREW/PASSENGER BRIEFING	A			
62. RADIO/INTERPHONE PROCEDURES	A			
63. SAFETY CONSCIOUSNESS	A			
64. KNOWLEDGE & USE OF PERF DATA	A			
65. CURRENCY OF MANUALS	P			

MAC FORM 4 MAY 70 PREVIOUS EDITIONS ARE OBSOLETE.

AREA/SUB AREAS	Q		U	AREA/SUB AREAS	Q		U
IV. GENERAL *(Continued)*	Q	T		79.	Q	T	
66. JUDGEMENT A				80.			
67. ATTENTION TO PASSENGER COMFORT L				81.			
68. KNOWLEDGE/COMPLETION OF FORMS A				82.			
69. V. COPILOT DUTIES				83.			
70. USE OF CHECKLISTS				84.			
71. CREW COORDINATION				85.			
72. MANDATORY WARNING CALLS				86.			
73. COPY/ACK ARTC INSTRUCTIONS				87.			
74. CATEGORY II ILS				88.			
75.				89.			
76.				90.			
77.				91.			
78.				92.			
INSTRUCTOR/FLIGHT EXAMINER EVALUATION							
1. PREPARATION FOR FLIGHT				6. TIMELY/CONSTRUCTIVE CRITIQUE			
2. MISSION BRIEFING				7. TACT AND DIPLOMACY			
3. INSTRUCTION ABILITY (IP)				8. KNOWLEDGE OF MANUALS/REGS/PROCEDURES			
4. EVALUATION ABILITY (FE)				9. FORMS COMPLETION			
5. DEMONSTRATION OF MANEUVERS (IP)							

REMARKS

CHAPTER 5

FLIGHT MANEUVERS AND INSTRUMENT FLYING PROCEDURES

The following flight maneuvers and instrument flying procedures are described for standardization purposes only. The procedures listed here are not to be construed as the only method of accomplishing a maneuver; however, they are the recommended procedures.

1. Steep turns
2. Unusual Attitudes
3. Holding and Traffic Pattern Flight Characteristics
4. Methods of proceeding to a TACAN DME fix using the HSI
5. Engine Shutdown and Airstart
6. Rapid descent
7. Dutch Roll
8. Manual aileron tab operation
9. Engines running turn around
10. Outside scan

STEEP TURNS

1. This maneuver is practiced to improve proper cross check procedures. This maneuver should be practiced in a clean configuration at an airspeed of 250 knots. Insure that your are clear by stating, "CLEAR LEFT (RIGHT)" on interphone and receiving a reply prior to turning.

2. Establish straight and level flight at 250 knots.

3. Roll smoothly at a constant rate to 45° of bank.

4. Maintain 250 knots and altitude.

Common errors:

1. Enters turn prior to establishing a trimmed condition at 250 knots.

2. Enters turn with too high a rate of roll.

3. Allows nose to rise during initial roll-in and then allows the nose to drop after proper bank is established.

4. Pumps control column to change pitch attitude instead of using steady pressures.

5. Does not maintain proper bank or airspeed in turn.

6. Improper instrument cross check, i.e., does not use the attitude indicator to make proper pitch changes to maintain altitude.

7. Does not recognize precession.

8. Does not use attitude indicator properly during roll-out.

UNUSUAL ATTITUDES

1. This maneuver is accomplished to give the pilot practice in the use of proper recovery procedures.

2. Procedures.

   a. Use 250 knots in straight and level flight as the recovery point during practice.

   b. Recovery from nose-low attitude---airspeed increasing.

      (1) Reduce power to IDLE START.

      (2) Roll wings level while simultaneously raising the nose of the aircraft on the attitude indicator to a level flight attitude.

      (3) Extend the spoilers as required to reduce or prevent excessive speed. Spoiler deployment will give additional pitch-up attitude change and a corresponding increase in "G" forces.

   c. Recovery from nose-high attitude---airspeed decreasing.

      (1) Increase power as necessary not to exceed MRT (94% of N_1 rpm) and roll toward the nearest 90° index. DO NOT EXCEED 45° OF BANK FOR TRAINING. Allow the nose of the aircraft to fall below the horizon bar on the attitude indicator, while maintaining seat pressure.

      (2) As the nose of the aircraft passes through the horizon, level the wings.

      (3) Accelerate to desired airspeed and adjust power.

      (4) Stabilize the aircraft at 250 knots in a level flight attitude.

   d. When recovering from extreme positions, use the procedures recommended in AFM 51-37.

HOLDING FLIGHT CHARACTERISTICS

1. This maneuver is performed to provide training in aircraft control at low airspeeds.

   a. Have engineer compute endurance +10 airspeed and fuel flow.

b. Enter a simulated holding pattern maintaining endurance +10 and using 30° of bank for turns.

HOW TO PROCEED TO A TACAN DME FIX USING THE HSI

1. As you approach the terminal area, ATC will normally clear you to the holding fix or IAF via a specified route. This route of flight may be to the station and out the radial; to an arc thence via an orbit; or direct to the fix. You should comply with the clearance received and acknowledged.

2. If cleared to the station and out the radial, simply proceed to the station and out the radial.

3. If cleared to an arc thence via an orbit, proceed to the arc and orbit in the assigned direction to the fix.

4. If cleared direct to the fix, you may request radar vectors to it or use the following procedures:

   a. Tune and identify the TACAN station. Select the TACAN on the Navigation Selector Panel.

   b. Set the desired inbound course (reciprocal of the radial used for the IAF) in the course window.

   c. Visualize the center of the HSI as the TACAN station.

   d. The tail of the Bearing Pointer represents the radial for the aircraft position. A DME distance can be visualized along this radial to represent the aircraft distance from the station. (A in figures on page 5-4.)

   e. The tail of the Course Arrow represents the radial used for the IAF. The IAF DME distance can now be visualized along the tail of the Course Arrow. This distance must be a proportional distance from the center of the compass card relative to the distance represented by the aircraft from the center of the compass card. (B in figures.)

   f. Now visualize a line from your aircraft position to the IAF visualized in the above steps. (Line AB in figures.)

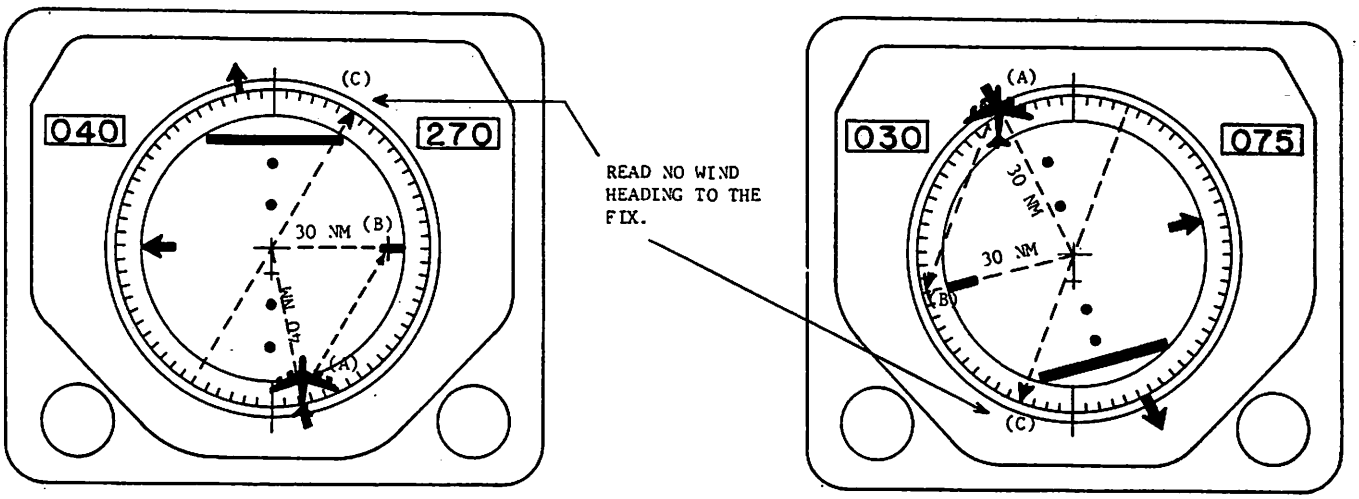
   g. Further visualize another line through the center of the HSI compass card parallel to the line visualized from the aircraft to the IAF. (Line C in figures.)

h. Where the second line intersects the compass card in the direction of the IAF, read an approximate no wind heading to fly to the IAF.

i. When the aircraft position and the DME fix are approximately equidistant from the station the outer edge of the compass card may be used for both positions.

j. Where the two distances are unequal, the greater distance may be represented on the outer edge of the compass card. For the shorter distance, visualize a proportional distance from the center of the card.

k. As the IAF is approached, small heading corrections may be necessary to assure exact arrival over the fix.



FIX ON 090° RADIAL/30 NM

FIX ON 255° RADIAL/30NM

ENGINE SHUTDOWN AND AIRSTART

1. This maneuver is performed to demonstrate inflight engine shutdown procedures, required crew coordination, and aircraft flight characteristics on three engines.

2. Engine shutdown

   a. Refer to Engine Failure During Flight Checklist.

   b. Scanner - In place to scan engine during shutdown.

   c. Throttle - IDLE START for one minute to allow engine to cool.

   d. Checklist - Engine Failure In Flight.

   e. Trim and power - Trim the aircraft and maintain airspeed.

3. Airstart

   a. Refer to the Airstart Checklist.

   b. Airspeed - Maintain airspeed within the airstart envelope.

   c. Scanner - In place to scan engine during start. Watch for fire or false start.

   d. Checklist - Airstart. Complete the Airstart Checklist as presented in Section III, T.O. 1C-141A-1.

4. Common errors

   a. Rushing into the procedure without a scanner being in place.

   b. Not allowing the engine to cool sufficiently.

   c. Not holding the Fuel and Start Ignition Switch in the AIRSTART position until an increase in EGT is noted.

RAPID DESCENT

1. This maneuver will be used to demonstrate the speed and rate of descent that can be obtained when the need arises. A sudden loss of pressurization with a load of troops, an uncontrollable fire, or other reasons may require a rapid descent to a lower altitude.

2. Procedures

   The T.O. 1C-141A-1, under DESCENT in Section II, lists four types of descent procedures: Enroute descent, penetrations, rapid descent with spoilers, and rapid descent - clean. For training purposes we will use the rapid descent with spoilers.

   CAUTION---Clear the area below prior to the manuever.

   a. Throttles - IDLE START

b. Spoilers - Roll to 45° of bank and simultaneously lower the nose of the aircraft and deploy the spoilers to the INFLIGHT position. Use initial pitch attitude of approximately 15 degrees nose-low. Level wings after descent has been established. Clearing turns may be made.

(1) A smooth and rapid entry is the most difficult portion of this maneuver. It is possible to practice several entries during descent from high altitude.

c. Speed - Maintain .75 Mach or 300 knots, whichever is lower, until reaching 20,000 feet. At 20,000 feet pick up 325 knots and maintain until 10,000 feet. At 10,000 feet allowable airspeed is 350 knots.

d. Approximately 1,500 feet above the desired level off altitude, begin decreasing the rate of descent and retract the spoilers as the speed decreases to 10 knots above the desired airspeed.

3. Common errors.

a. Rushing into maneuver and not maintaining sufficient positive G loads.

b. Hesitating too long prior to entering descent.

c. Overcontrolling pitch attitude during the descent.

d. Not accelerating to proper airspeed during descent.

DUTCH ROLL

1. Description

Dutch Roll is characteristic common to swept-wing aircraft. It is characterized by the aircraft yawing and banking from side to side. As the nose of the aircraft swings to the left, the left wing will be rising; the yaw will then reverse, the wings will tend to be level as the nose crosses the flight path, and the right wing will be rising as the nose continues to swing to the right. The sequence will then repeat itself and may increase in magnitude if corrective action is not taken. The Yaw Damper will prevent Dutch Roll in the C-141A. However, if the Yaw Damper fails in flight and Dutch Roll is experienced, it can be effectively dampened and stopped by using the proper control procedures.

2. Recovery

Recovery from Dutch Roll can be accomplished by stopping the bank, stopping the yaw, or a combination of both.

a. Stopping the bank: As the right wing reaches its lowest point in right bank, apply right aileron to prevent the wing from rising above the level position. As the wing rises to the level position ease out the aileron control to the neutral position. This procedure will be reversed if the recovery is initiated with the left wing down. If the magnitude of the Dutch Roll is great, several applications of aileron control may be required to completely dampen the Dutch Roll. The real horizon (VFR) or ADI horizon (IFR) may by used for reference.

b. Stopping the Yaw: As the nose of the aircraft reaches its extreme travel to the right, apply rudder to prevent the nose from swinging back through the line of flight. As the nose returns to the line of flight ease out the right rudder pressure. If the nose continues across the line of flight, allow the nose to reach its full travel to the left and then apply left rudder to prevent the nose from swinging through the line of flight. This procedure may have to be repeated two or three times depending on the magnitude of the Dutch Roll and your experience in knowing just how much rudder pressure to hold into the yaw. This procedure will be reversed if the recovery is initiated when the nose is in the full left position. A point on the horizon (VFR) or the turn needle (IFR) may be used for reference.

c. Combination Recovery: A combination of the above procedures may be used. This procedure will stop the Dutch Roll quicker than when using a single axis for control and dampening. However, the tendency to overcontrol or to get into phase with the Dutch Roll is greater.

MANUAL AILERON TAB OPERATION

1. The purpose of this maneuver is to demonstrate to the pilot the flight characteristics of the aircraft with the aileron tabs in the OPERABLE position and no hydraulic power assistance to the ailerons.

2. Procedure

a. Maintain airspeed between 150 knots and 250 knots

b. Left Aileron

(1) SYS 1 switch - TAB OPER

(2) SYS 2 switch - OFF (allow aileron to float up)

(3) SYS 2 switch - TAB OPER

NOTE: After the System Nr 2 switch is moved to the OFF position the aileron will float up and the aircraft will roll to the left. Maintain wings level by applying proper aileron control. When the aircraft has been returned to level flight, move the System Nr 2 switch to the TAB OPER position. This will unlock the aileron tab on the left aileron.

c. Right Aileron

(1) Repeat the above steps

d. You now have manual control of the aileron tabs. Note the position of the ailerons while in level flight. You may note a slight pitch-up as the tabs are unlocked due to the ailerons floating up. This is normal and very little pitch control is required to oppose the pitch-up. Make a few turns in both directions and attempt to reverse direction of bank with rapid movement of the aileron control wheel. Note the rate of roll at higher airspeeds versus lower airspeed.

3. Recovery

a. Left Aileron

(1) SYS 1 switch - OFF and then NORMAL

(2) SYS 2 switch - OFF and then NORMAL

NOTE: When System Nr 1 switch is moved to the OFF position, the aileron tab is locked out. When the switch is then moved to the NORMAL position the aileron will have hydraulic power applied to the aileron power control actuator and the aircraft will roll to the right.

b. Right Aileron

(1) Repeat the above steps

c. You now have normal operation of the ailerons

OUTSIDE SCAN DURING FLIGHT.

Prior to turns, the pilot flying the aircraft shall state, "Clear Left (Right)" on interphone and will receive a response. The student pilot occupying the flight check seat will assist in scanning prior to turns. It is recommended that Taxi lights be on during VFR conditions anytime the gear is extended.

ENGINE RUNNING CREW CHANGE.

Termination crew will place the brake selector to EMERGENCY, set the parking brake and clear the scanner to depart. Arriving aircrew will accomplish the Before Taxi Checklist prior to blocking out. Student personnel outside the aircraft are not allowed aft of the crew entrance door during engines running crew change. Instructors will insure that their students have ear protection prior to boarding or deplaning the aircraft.

OXYGEN REQUIREMENTS

MAC Supplement 1, AFM 60-16, 2 Mar 1970:

6-5c A crew member occupying crew station equipped with an oxygen outlet will have his oxygen mask connected and readily available for use prior to engine start until engine shutdown.

TABLE 1.—OXYGEN REQUIREMENTS FOR PRESSURIZED AIRCRAFT

Ambient Altitude in feet	*One Pilot*	*Second Pilot*	*Other Occupants*
10,000 ft through FL 250	R	R	N/A
Above FL 250 through FL 350	I	R	R
Above FL 350 through FL 400	I or O	I R	R R
Above FL 400 through FL 450	O	I	R
Above FL 450 through FL 500	O	I	I
Above FL 500	P	P	P

Legend:

R—Oxygen must be readily available. A functioning system and mask must be located within arm's reach and the regulator set to 100 percent and ON.

I—Oxygen must be immediately available. Helmets will be worn with an oxygen mask attached to one side or an approved quick-donning or sweep-on mask properly adjusted and positioned for immediate use. Set oxygen regulator to 100 percent and ON.

O—Oxygen must be used.

P—Pressure suit must be worn.