NAVAL AIR TRAINING COMMAND

NAS CORPUS CHRISTI, TEXAS **CNATRA P-771 (Rev. 01-22)**

INSTRUMENT FLIGHT PLANNING

WORKBOOK T-6B

2022

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
250 LEXINGTON BLVD SUITE 179
CORPUS CHRISTI TX 78419-5041

CNATRA P-771
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CNATRA P-771 (Rev. 01-22)

Subj: INSTRUMENT FLIGHT PLANNING WORKBOOK, T-6B

1. CNATRA P-771 (Rev. 01-22),"Instrument Flight Planning Workbook, T-6B" is issued for information, standardization of instruction and guidance for all flight instructors and student aviators within the Naval Air Training Command.

2. This publication shall be used as an explanatory aid to the T-6B IFR Flight Planning Curriculum. It will be the authority for the execution of all flight procedures and maneuvers therein contained.

3. Recommendations for changes shall be submitted via the electronic Training Change Request (TCR) form located on the Chief of Naval Air Training (CNATRA) website.

4. CNATRA P-771 (New 12-17) PAT is hereby cancelled and superseded.

T. P. ATHERTON
By direction

Releasability and distribution:
This instruction is cleared for public release and is available electronically only via Chief of Naval Air Training Issuances Website, https://www.cnatra.navy.mil/pubs-pat-pubs.asp.

INSTRUMENT FLIGHT PLANNING

WORKBOOK

T-6B

LIST OF EFFECTIVE PAGES

Dates of issue for original and changed pages are:
Original…18 Dec 17
Change Transmittal…1…13 Feb 20
Revision…1…4 Jan 22

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 378 CONSISTING OF THE FOLLOWING:

Page No.	Change No.	Page No.	Change No.
COVER	0	11-1 – 11-5	0
PROMU LETTER	0	11-6 (blank)	0
iii – xv	0	12-1 – 12-27	0
xvi (blank)	0	12-28 (blank)	0
1-1 – 1-7	0	13-1 – 13-70	0
1-8 (blank)	0	14-1 – 14-34	0
2-1 – 2-12	0	15-1 – 15-67	0
3-1 – 3-8	0	15-68 (blank)	0
4-1 – 4-14	0	A-1 – A-23	0
5-1 – 5-12	0	A-24 (blank)	0
6-1 – 6-2	0	B-1 – B-3	0
7-1 – 7-10	0	B-4 (blank)	0
8-1 – 8-7	0		
8-8 (blank)	0		
9-1 – 9-49	0		
9-50 (blank)	0		
10-1 – 10-4	0		

INTERIM CHANGE SUMMARY

The following Changes have been previously incorporated in this manual:

CHANGE NUMBER	REMARKS/PURPOSE

The following interim Changes have been incorporated in this Change/Revision:

INTERIM CHANGE NUMBER	REMARKS/PURPOSE	ENTERED BY	DATE

INTRODUCTION

This workbook contains general information on:

- Flight Information Publications (FLIPs)
- Notices to Airmen (NOTAMs)
- Weather
- Flight log preparation
- Flight plan preparation
- Practice flight planning problems

It is intended to reinforce knowledge gained from the IN1300 block of primary flight training. While a sound knowledge of this material is required for the IN1390 exam, it is the foundation upon which every IFR flight is built.

TABLE OF CONTENTS

TABLE OF FIGURES

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CHAPTER ONE
FLIP GENERAL PLANNING (GP)

100. INTRODUCTION

General Planning (GP) is published every 32 weeks with Planning Change Notices (PCNs) issued at the 16-week mid-point of the GP book cycle, and Urgent Change Notices (UCNs) issued as required. Effective dates are listed on the front cover. (See Figure 1-1)

This publication contains general information on all Flight Information Publications (FLIPs), terms, explanation of the divisions of the United States Airspace, Flight Plans and Codes, common worldwide procedures, ICAO (International Civil Aviation Organization) Procedures, Operations and Firings over the High Seas and aviation codes. Currently this information is divided into 11 Chapters.

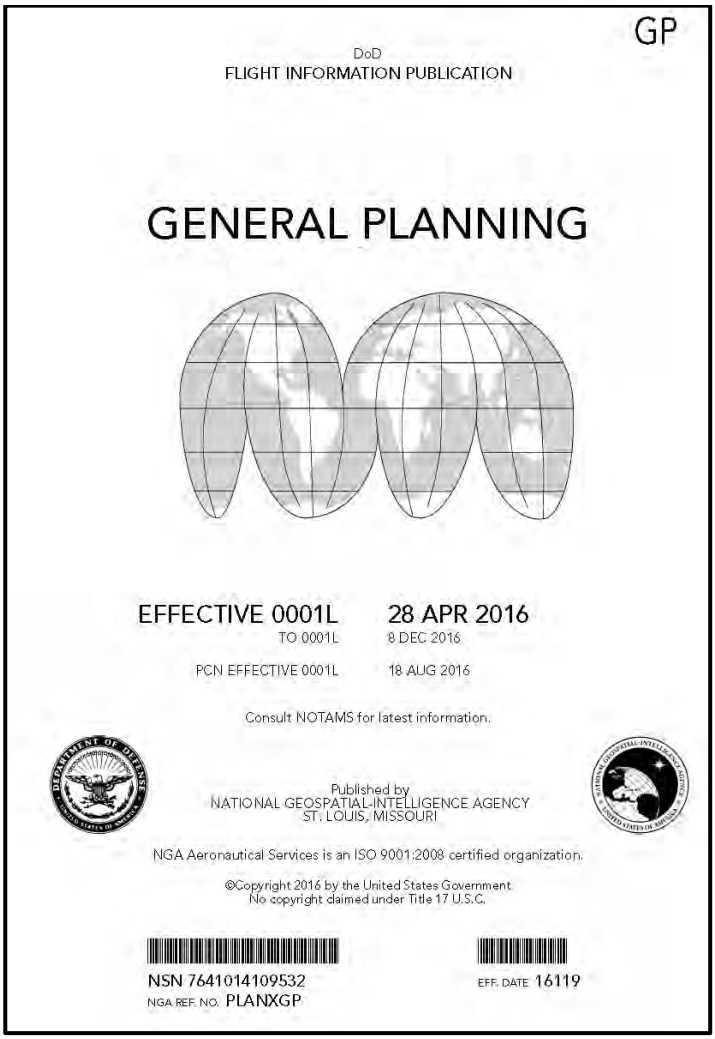

Figure 1-1 FLIP GP (Front Cover)

101. INDEX FOR AERONAUTICAL INFORMATION

This index lists the sections and chapters of the FLIP GENERAL PLANNING document in which information may be found. It also lists other primary publications to which reference may be made.

102. EXPLANATION OF TERMS

This chapter provides a complete list of terms and definitions published in the FAA Pilot/Controller Glossary, plus some selected ICAO and Military terms. As a professional aviator and to avoid confusion during communications with Controllers, these terms should be known and employed.

103. FLIP PROGRAM

This chapter describes the DoD FLIP program, individual FLIP products and related publications.

104. FLIGHT PLANS

This chapter contains detailed block by block instructions for completing the military flight plan (DD Form 1801).

1. DD Form 1801 (DoD FLIGHT PLAN) is primarily used for all flights departing installations having a Military Base Operations.

2. FAA Form 7233-4 (INTERNATIONAL FLIGHT PLAN) may be used lieu of DD Form 1801 when departing US installations not having a military airfield management/base operations facility.

3. Type of Aircraft

The aircraft designation for the T-6B is listed under Beech Aircraft Company (USA). The aircraft model is combined with the T-6A Texan II. The Aircraft Designation for both aircraft is **TEX2*** (the asterisk denotes single-piloted military turbojet or aircraft to receive the same procedural handling as a single piloted military turbojet aircraft). Do not use the asterisk on the DD 1801 as the form will accept only 4 characters. (See Figure 1-2)

Fixed-Wing Aircraft

* Denotes single-piloted military turbojet aircraft or aircraft to receive the same procedural handling as a single-piloted military turbojet aircraft.

Model	Type Designator	Description	Performance Information
		Number & Type Engines/Weight Class	SRS Cat.
BEECH AIRCRAFT COMPANY (USA) (Also CCF, COLEMILL, DINFIA, EXCALIBUR, FUJI, HAMILTON, JETCRAFTERS, RAYTHEON, SWEARINGEN, VOLPAR)			
1900 (C-12J)	B190	2T/S+	III
200 Super King Air, 1300 Commuter (C-12A to F, C-12L/R, UC-12, RC-12, Huron)	BE20	2T/S+	III
400 Beechjet, Hawker 400 (T-1 Jayhawk T-400)	BE40	2J/S+	III
T34A/B, Beech 45 Mentor	T34P	1P/S	I
AT-6, T-6 Texan 2	TEX2*	1T/S	I

Figure 1-2 GP Aircraft Designations

105. AIRCRAFT CODES

This chapter provides guidance for the aircraft identification code (call sign) based on the type or function of flight. Our aircraft falls under "Navy Fleet and training command aircraft." Therefore, the call sign prefix is "NAVY" (written as "VV"). For the suffix to this code there are a few options. ***Example: TW5*** may use a digit, followed by a letter, followed by the last three digits of the aircraft side number. ***Refer to Local SOPs for details.*** (See Figure 1-3)

Example:

VV3E123

CODES FOR AIRCRAFT IDENTIFICATIONS 5-3			
TYPE OR FUNCTION OF FLIGHT	**CALL SIGN PREFIX**	**WRITTEN PREFIX**	**IDENT SUFFIX**
UNITED STATES NAVY			
Aircraft carrying the President or Vice President of the United States.	**NAVY**	**VV**	**Digits 1 or 2 Respectively**
First Family aboard any aircraft-used when determined by US Secret Service or by White House Staff.	**EXECUTIVE**	**EXEC 1F**	**EXEC 1F**
Navy Fleet and training command aircraft	**NAVY**	**VV**	**Either 2 letters followed by 2 or 3 digits or, *a digit and a letter followed by 2 or 3 digits***

Figure 1-3 GP Aircraft Identification (Call Sign)

106. PILOT PROCEDURES

1. This chapter outlines standard Pilot Procedures while operating under both Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO) control.

2. Deviations to these procedure brought about by theater or individual country requirements can be found in the applicable DoD FLIP, Area Planning (AP1, 2, 3, and 4).

3. Those items requiring a ready reference while in-flight will be found in the IFR Enroute Supplement or the Flight Information handbook.

4. The chapter is divided into sections all of which are applicable to your primary training.

   a. GENERAL INFORMATION

   b. AIRSPACE STRUCTURE

   c. MINIMUM NAVIGATION & COMMUNICATIONS EQUIPMENT

   d. AIR TRAFFIC AT CONTROLLED AERODROME

   e. MAXIMUM AIRSPEEDS

   f. RVSM RULES

   g. PERFORMANCE-BASED NAVIGATION (PBN) REQUIREMENTS (RNAV AND RNP Performance Requirements)

   h. GENERAL AIR TRAFFIC

   i. FILING FLIGHT PLANS (DAY/NIGHT)

   j. CLEARANCE INFORMATION

   k. SUPPLEMENTARY AIRPORT INFORMATION

   l. AIRWAYS/ROUTE INCLUDING CONDITIONAL ROUTE INFORMATION

   m. TERMINAL AREA PROCEDURES

   n. RADAR ASSISTED FLIGHT INFORMATION SERVICES

107. INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

Although ICAO rules and procedures are binding upon International Civil Aviation only; Military Aircraft are expected to avoid conflicting with National regulations. While knowledge of this information will not be required in primary training it will be a factor for many fleet operations.

108. MILITARY FLIGHT OPERATIONS IN INTERNATIONAL AIRSPACE AND AIR ROUTES OVER INTERNATIONAL STRAIGHTS AND ARCHIPELAGIC SEA LANES

This chapter draws upon United States Government recognized international law and DoD policy to provide information relevant to military flight operations in international airspace. While knowledge of this information will not be required in primary training it will be a factor for many fleet operations.

109. RESERVED SECTIONS

(Chapter 9 and 10 reserved for future use)

110. FLIP CHANGES / SPECIAL MILITARY REQUEST / QUALITY REPORTS / REQUISITIONING / DISTRIBUTION / DISPOSAL / SCHEDULES

This chapter contains information regarding overall management of the FLIP program.

111. CHAPTER ONE REVIEW QUESTIONS

Refer to the GP when answering the following questions. (Look it up even if you know the answer)

1. ES indicates that the required information can be found in _____.

2. Information concerning ICAO Class D Airspace procedures can be located in _____.

3. Information concerning US Preferred Routes can be located in _____.

4. The term "Airport Surveillance Radar" is defined as _____.

5. The term "Circling Approach" signifies _____
_____

6. What VIP code would you use if a VADM was onboard, and he wanted full honors accorded him? _____.

7. Operations below 10,000 feet MSL at an indicated airspeed in excess of _____ KIAS, are authorized for military aircraft only under certain conditions (defined in the GP).

8. When landing at U.S. Military bases, the pilot should verbally confirm the flight plan has been closed with Tower or Base OPS personnel. (TRUE/FALSE)

9. Pilots should file an IFR flight plan at least _____ minutes (1 hour in some areas) prior to ETD (Estimated Time of Departure).

10. At airports where a Control Tower is in operation, ATC IFR clearances normally are relayed to pilots of departing aircraft by the Tower's "_____" position. At many busy airports, by the Control Tower's "_____" position, if one has been established.

11. When given taxi instructions, pilots will acknowledge by all read-back_____ and _____instructions.

12. When a flight has been cleared to a fix short of a filed destination, additional clearance to proceed beyond or instructions to hold at such fix will be issued at least _____minutes before the aircraft is estimated to reach the fix.

13. The use of a Standard Instrument Departures (SID) by Navy pilots is mandatory if they are available. (TRUE/FALSE)

14. After receiving a revised altitude clearance, include the _____ when reporting vacating the previously assigned altitude/Flight Level.

15. It is the pilot's responsibility to request a High Altitude approach if _____.

16. Without specific exceptions, the maximum holding airspeed at 10, 000 feet MSL is "_____" KIAS.

17. When an aircraft is "_____" from a clearance limit, and a clearance beyond the fix has not been received, the pilot is expected to start a speed reduction in order to cross the fix at or below the maximum holding airspeed.

18. Pilots should report to Air Traffic Control the _____ at which the aircraft reaches the clearance limit and report leaving the clearance limit.

19. During holding, in the event of two-way communications failure, comply with procedures in the FLIP _____.

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CHAPTER TWO
FLIP AREA PLANNING (AP)

200. INTRODUCTION

Area Planning documents contain planning and procedure information for specific geographical regions. (See Figure 2-1) The number following the AP designation denotes the region covered in that publication. The regions are divided as follows:

AP/1 North and South America

AP/2 Europe, Africa, and Middle East

AP/3 Pacific, Australia, and Antarctica

AP/4 Eastern Europe and Asia

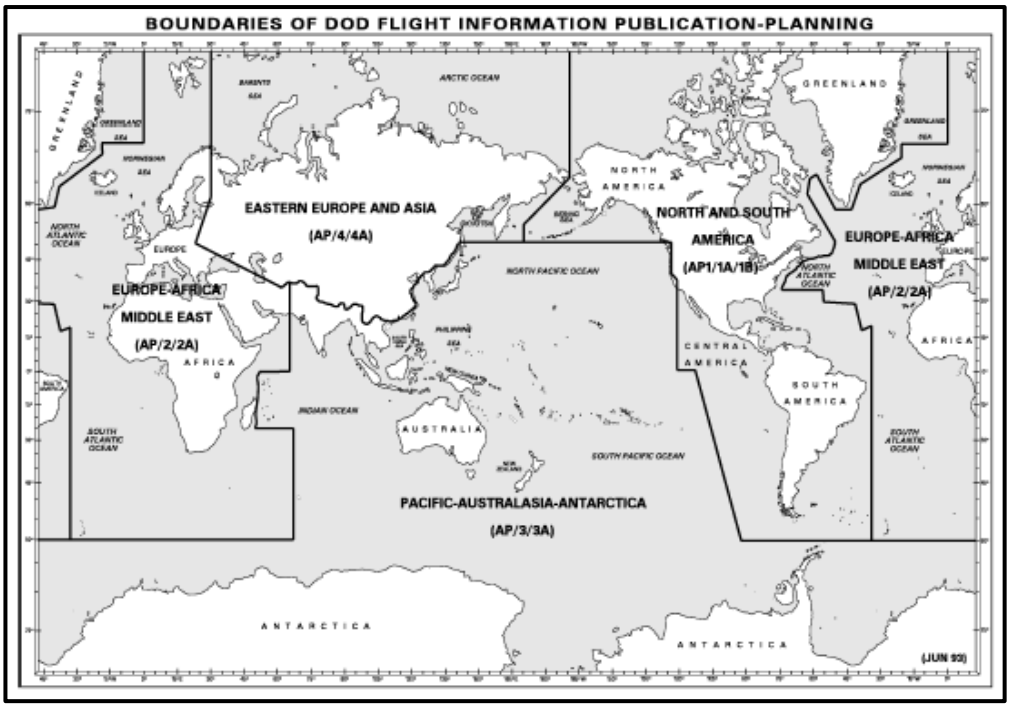


Figure 2-1 Area Planning (Back Cover)

Our focus will be on ***North and South America***. The information for this region is divided into three publications:

1. AP/1 – Area Planning: Published every 24 weeks and contains aeronautical data for North and South America and ***supplements the data*** in General Planning (GP) and select data in the Enroute Supplements (E-S) and Flight Information Handbook (FIH). ***Chapter 3 contains information on the United States and will be the focus of our discussion.*** (See Figure 2-2)

2. AP/1A – Area Planning Special Use Airspace: Published every 8 weeks and contains all Prohibited, Restricted, Warning, Danger, and Alert Areas listed by country. Military Operations and known Parachute Jumping Areas are also listed. (See Figure 2-3)

3. AP/1B – Area Planning Military Training Routes: Published every 8 weeks and contains information relative to Military Training Routes.

a. IFR Military Training Routes (IR)

b. VFR Military Training Routes (VR)

c. Slow Speed Low Altitude Training Routes (SR)

d. Refueling Tracks/Anchors/VFR Helicopter Refueling Tracks (AR)

e. Effective dates and Planning Change Notice (PCN) dates are listed on the front covers of each publication. (See Figure 2-4)

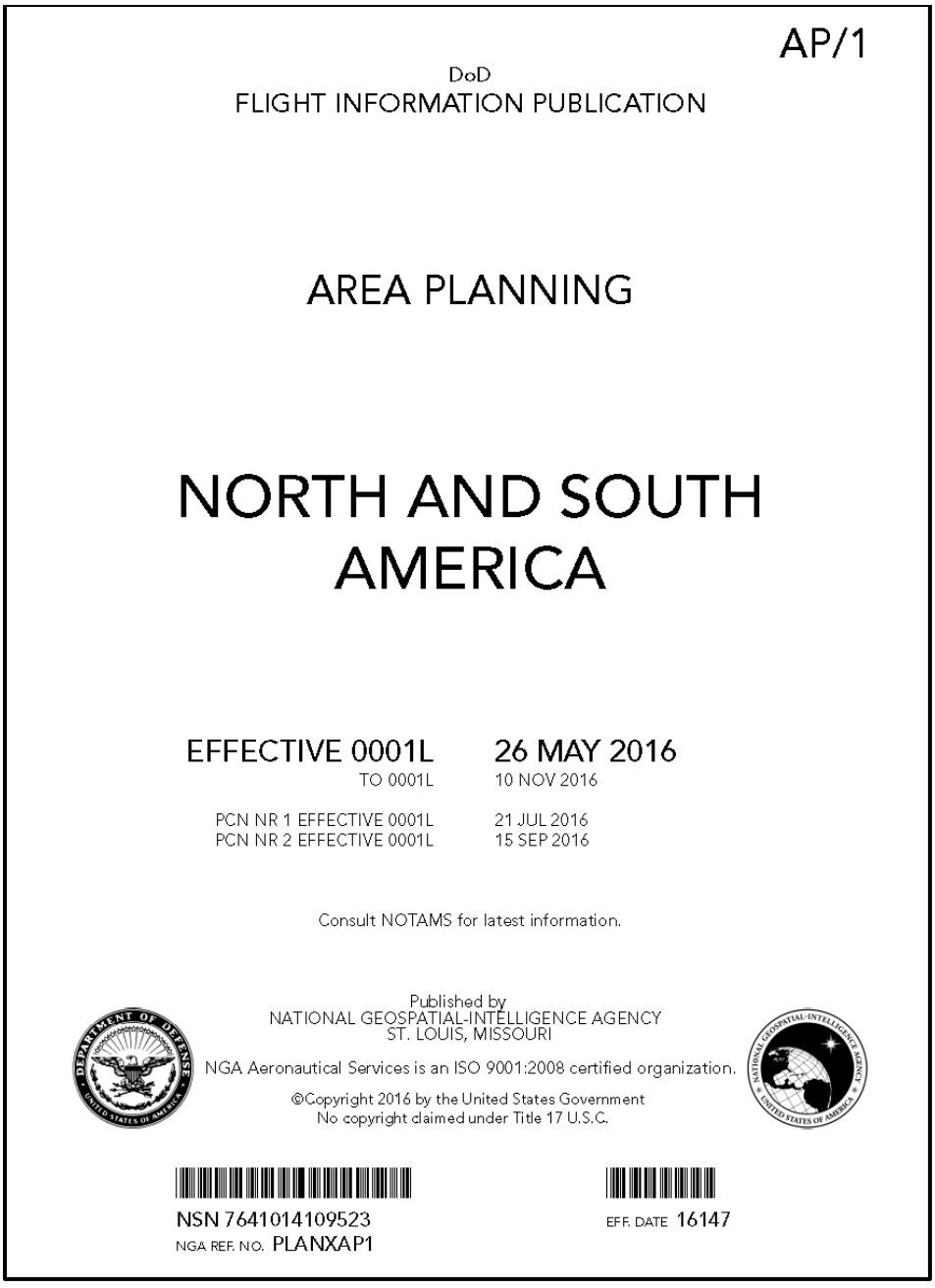
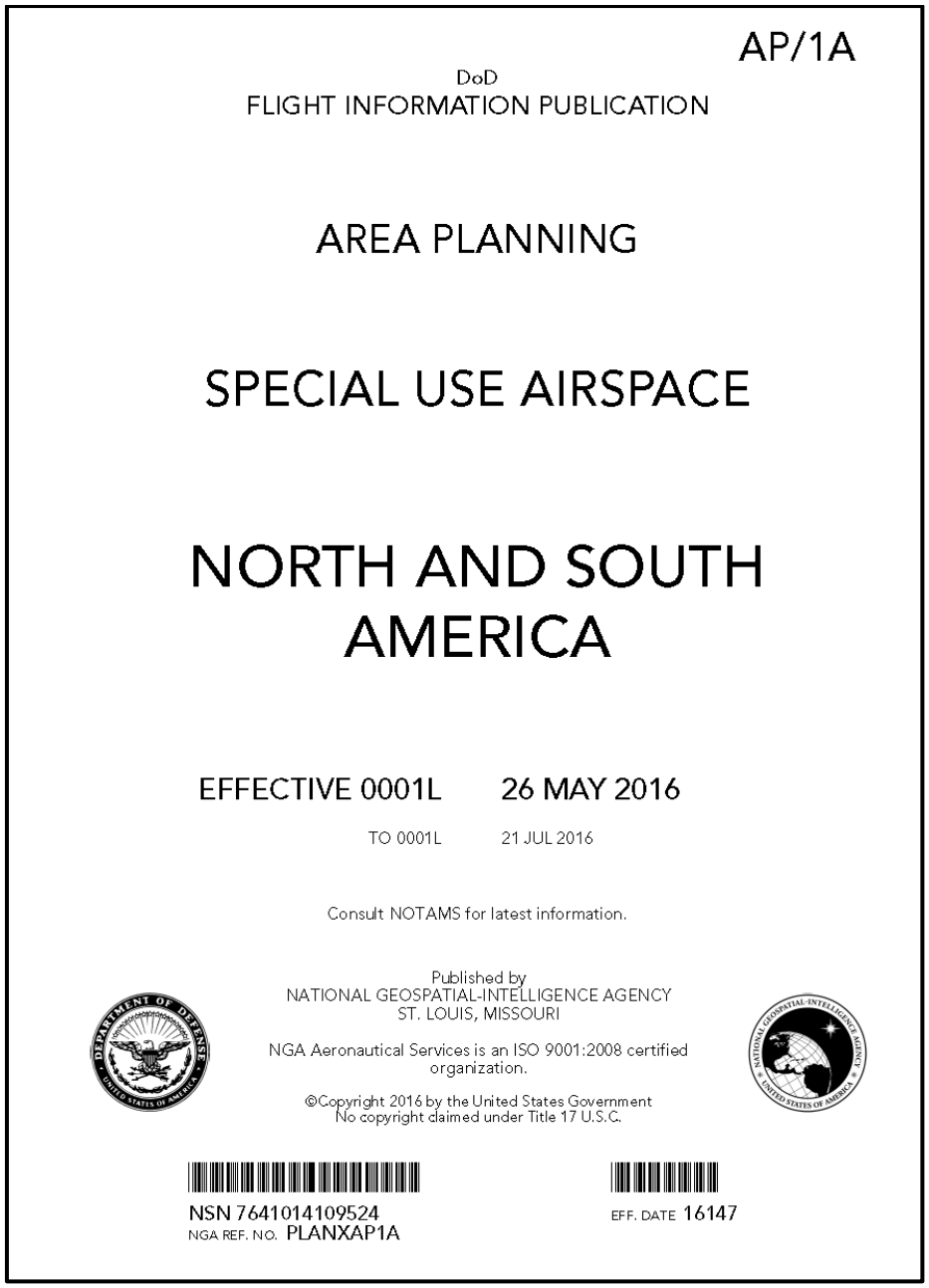


Figure 2-2 AP/1 (Front Cover)



AP/1A

DoD
FLIGHT INFORMATION PUBLICATION

AREA PLANNING

SPECIAL USE AIRSPACE

NORTH AND SOUTH AMERICA

EFFECTIVE 0001L 26 MAY 2016

TO 0001L 21 JUL 2016

Consult NOTAMS for latest information.

Published by
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
ST. LOUIS, MISSOURI

NGA Aeronautical Services is an ISO 9001:2008 certified organization.

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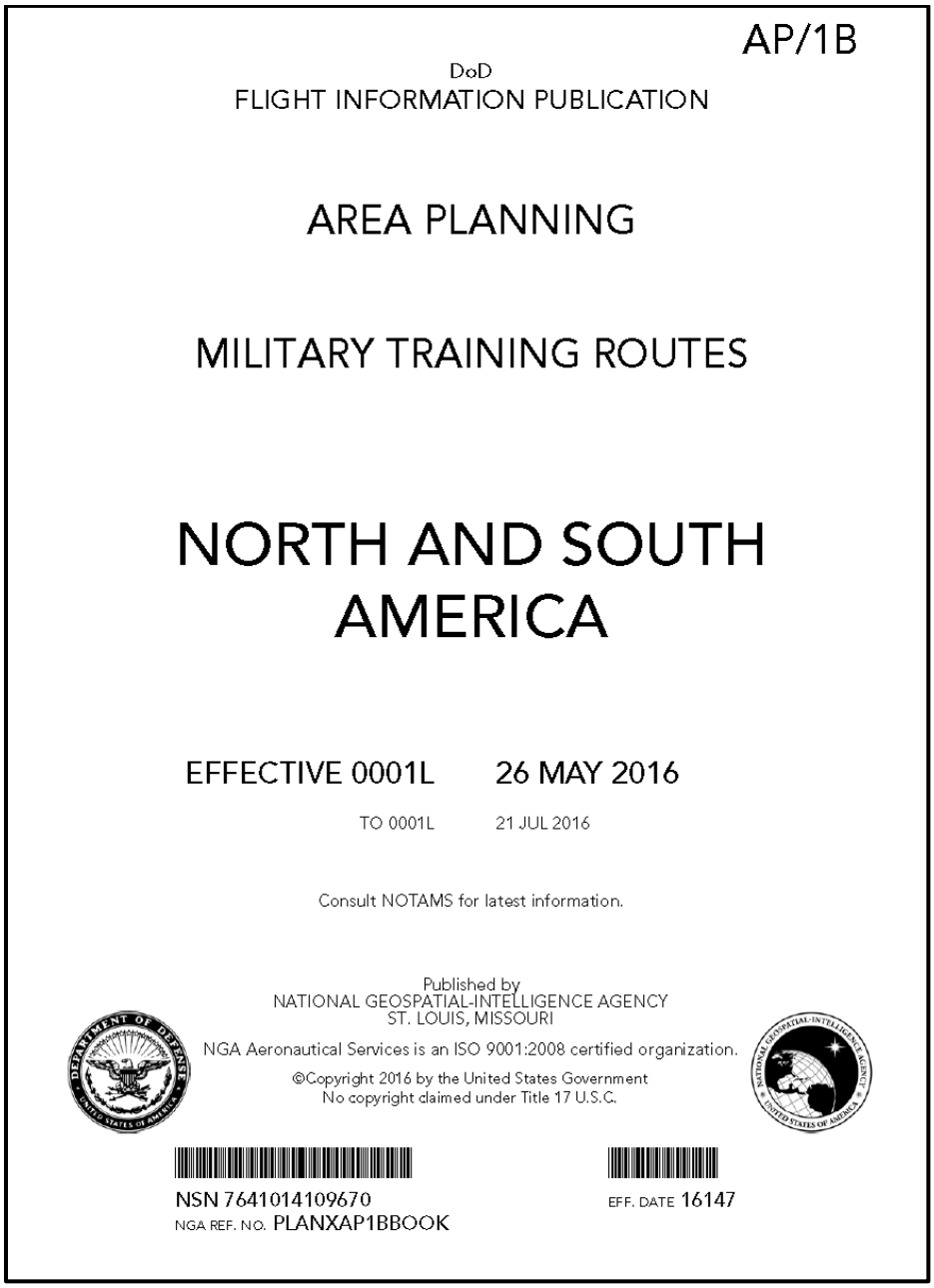
NGA REF. NO. PLANXAP1A

EFF. DATE 16147

Figure 2-3 AP/1A (Front Cover)


AP/1B

DoD
FLIGHT INFORMATION PUBLICATION

AREA PLANNING

MILITARY TRAINING ROUTES

NORTH AND SOUTH AMERICA

EFFECTIVE 0001L 26 MAY 2016

TO 0001L 21 JUL 2016

Consult NOTAMS for latest information.

Published by
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
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NGA REF. NO. PLANXAP1BBOOK

EFF. DATE 16147

Figure 2-4 AP/1B (Front Cover)

201. AP/1 CHAPTER THREE (NATIONAL SUPPLEMENTARY PROCEDURES)

Chapter Three of this publication is divided alphabetically by country. Procedures listed as "***Standard***" comply with the ICAO procedures unless additional noted exceptions apply. Information for the United States is divided into the following areas:

- National Procedures
- Visual Flight Rules
- Instrument Flight Rules
- Flight Planning
- Supplementary Airport Information
- Route and Area Restrictions
- Flight Hazards
- Enroute
- Bird/Wildlife Hazard Data
- Terminal
- Additional Information

1. National Procedures: This section covers the following information:

   a. Dimensional Units: Listed here are the units of measure used in the country such as distances, time, visibility, weights, and altimeter settings.

   b. Altimeter Setting Procedures: How altimeters are managed in the national airspace.

   c. Vertical Separation: Rules for altitudes based on direction of travel (Semi-circular rules in the US).

   d. Position Reporting: Rules for compulsory reports

2. Visual Flight Rules: Standard except as prescribed by Federal Aviation Regulations (FAR).

3. Instrument Flight Rules: Standard except as prescribed FAR.

Reduced Vertical Separation Minimum (RVSM)-rules that govern operations between FL290 and 410 are covered. The T-6B has No RVSM equipment and operations in this area require specific coordination.

2-6 FLIP AREA PLANNING (AP)

4. Flight Planning

   a. Quota Flow Control - Explains the concepts and procedures used for balancing ATC system demand with ATC system capacity.

   b. Airport Reservation Operations and Special Traffic Management Programs (STMP) - This section describes procedures for obtaining required airport reservations at certain airports designated by the FAA and for airports operating under STMP.

   c. United States Controlled Airspace - This section covers the different classifications of airspace (class A, B, C, D, and E)**.** It defines dimensions within which ATC service is provides to IFR and VFR flights in accordance with the airspace classification**.** ***The various divisions offer different types of ATC service and have specific operating procedures and list minimum equipment required to operate in that airspace.*** This section is divided into the following topics:

      i. Class A Airspace

      ii. High Altitude Area - airspace above FL450

      iii. Jet Route System - "J" Routes in airspace from 18,000' MSL to FL450 inclusive.

      iv. Area Navigation (RNAV) Routes - "Q" and "T" Routes.

      v. VOR and L/MF AIRWAYS - "V" Routes that use VOR NAVAIDS from 1200' AGL up to but not including 18,000' MSL (L/MF airways are predicated solely on L/MF NAVAIDS are depicted in brown).

      vi. Class B Airspace

      vii. Class C Airspace

      viii. Class D Airspace

      ix. Class E Airspace

      x. Class G Airspace

      xi. ICAO Class F Airspace

      xii. FAA Airspaces - additional information on the FAA airspace structure listed by Class.

      xiii. ALASKA - specific info regarding that state.

xiv. Restricted Area Procedures-rules regarding ATC IFR routing and clearances around restricted areas.

xv. Special Use Frequency - information concerning special UHF frequencies available for certain military operations in the high altitude structure which eliminates the need for pilots to change frequencies from sector to sector with the same ARTCC.

xvi. Altimeter Settings

(a). Surface to 18,000' MSL

(b). At and Above 18,000' MSL

(c). Low Temperature Error

(d). Altimeter Read Back Requirements

5. Supplementary Airport Information: This is an alphabetical listing for airports in the United States that have amplifying information concerning their operations. ***This section should be reviewed for flights utilizing any of the listed airports as a point of departure, a destination or as an alternate. (This information may or may not be included in the IFR Enroute Supplement)***

6. Route and Area Restrictions: This section defines route pair restrictions and flight planning requirements required under the National Route Program (NRP). This system is expanding and already affects many routes, airports, Department of Energy (DOE) Nuclear Facilities, U.S. Wildlife Refuges, Parks, and Forest Service Areas.

7. Flight Hazards: This section contains procedures for reporting Laser Illumination of Aircraft and a list of general hazards broken down by each state.

8. Enroute: Preferred IFR Routes-Information for current U.S. Preferred Routes is available at FAA website: http://www.fly.faa.gov/rmt/nfdc_preferred_routes_database.jsp. Checking this site prior to filing could prevent unnecessary delays or changes to your flight plan.

9. Bird/Wildlife Hazard Data: Information on Bird/Wildlife Concentrations/Areas is provided in a listing by state.

10. Terminal: Contains Nosie Abatement Procedures for certain airports listed by each affected state.

11. Additional Information: This section provides an alphabetical listing of VOR Receiver Checkpoints. These facilities are available for operational checks of airborne VOR equipment.

202. AP/1A SPECIAL USE AIRSPACE

This publication contains information on three categories of airspace; Special Use Airspace, Parachute Jumping Areas and Military Operations Areas (MOAs)

1. Special Use Airspace

This airspace is listed by country and type:

- **P** - Prohibited Area. Flights in this area are prohibited except by special permission.
- **R -** Restricted Area. Flights are prohibited during published periods of use unless permission is obtained from controlling authority.
- **W** - Warning Area. Flights are not restricted but avoidance is advised during time of use.
- **D -** Danger Area. Flights are not restricted but avoidance is advised during time of use.
- **A -** Alert Area. Flights are not restricted. An area where there is concentrated student training or other unusual area activity of operator significance
- **MOA -** Military Operations Area. (While included in this section, additional information concerning this type of airspace is found in a later section as well)

The following information for each area is provided in table format:

- Number: The ICAO Location Identifier for the country, Airspace prefix, and Airspace number. ***(Countries under FAA jurisdiction do not use ICAO Location Identifiers***). Examples: Restricted Area 2919A in Valparaiso, FL is listed as number "R2919A." The Pensacola North MOA is numbered as "MOA US01866"
- Area Name
- Effective Altitude
- Effective Times
- Weather
- Controlling Agency/Using Agency

Under this information the boundaries of the airspace is defined with latitude/longitude along with any other information deemed pertinent.

2. Parachute Jumping Areas

Information concerning this type of airspace is listed by country. The United States is further divide by State.

3. Military Operations Areas (MOAs)

The FAA established MOAs in which certain military flight training may be conducted on a scheduled basis. MOAs are charted so non-participating aircraft may be aware of these operations.

General procedures are provided for scheduling and coordination along with general flight procedures. Specific scheduling information for each MOA is provided in table format.

The table provides the following information:

- MOA Name (charted name/state)
- Scheduling Point (department/command)
- Location (city or base/state)
- DSN (DSN and/or Commercial Phone numbers)

203. AP/1B MILITARY TRAINING ROUTES

This publication provides textual and graphic descriptions and operating instructions for all military training routes. It is divided into six chapters:

- General Guidance
- IFR Military Training Routes (IR)
- VFR Military Training Routes (VR)
- Slow Speed Low Altitude Training Routes (SR)
- Refueling Tracks/Anchors/VFR Helicopter Refueling Tracks (AR)
- Avoidance Locations

This information will be covered during advanced training.

204. CHAPTER TWO REVIEW QUESTIONS

Refer to the AP publications when answering the following questions. **(**Look it up even if you know the answer)

1. RVSM is implemented between what altitudes in the lower 48 states? _____.

2. Class A airspace over the 48 contiguous states exists from _____ to and including _____.

3. Operations in Class A airspace must be conducted under IFR and ATC clearance must be received prior to entering the airspace. (TRUE or FALSE)

4. What aircraft equipment is required for operations in Class A airspace? _____ and _____.

5. Jet routes are identified by the letter ___ followed by the airway number. They are predicated solely on _____ or _____ NAVAIDS (except in Alaska). They are established in airspace from _____ to _____.

6. RNAV routes are depicted in _____ (color) on aeronautical charts and are identified by the letter _____ or _____ followed by the airway number.

7. Q-routes are available for RNAV equipped aircraft between _____ and _____ they are depicted on Enroute _____ Altitude Charts.

8. T-routes are available for RNAV equipped aircraft between _____ and _____ they are depicted on Enroute _____ Altitude Charts.

9. Victor airways are identified by the letter "V" followed by the airway number. They are depicted in _____ (color) on aeronautical charts.

10. Class B airspace generally from the surface to _____ surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements.

11. What aircraft equipment is required for operations in Class B airspace? _____.

12. There are 32 areas designated as Class B airspace. In Florida they are located in _____, _____, and _____.

13. The Class C Airspace has a basic design with minor site-specific variations. The design consists of two concentric circles both centered on the primary airport. The inner circle has a radius of ___ NM and the outer circle has a radius of ___ NM.

14. What aircraft equipment is required for operations in Class C airspace?
_____ and _____.

15. Class C Airspace is located at _____ airports in Texas.

16. Class D Airspace generally is that airspace from the surface to _____ AGL surrounding those airports with _____.

17. Only IFR traffic is allowed inside Class B Airspace. (TRUE/FALSE)

18. From the surface to 18,000' MSL the current reported altimeter setting of a station along the route and within _____ NM of the aircraft shall be used.

19. At and above _____ feet MSL the standard QNE altimeter setting _____ will be used at all times during flight. When using the standard altimeter setting, all reference to altitudes shall be made in Flight Levels.

20. Pilots shall read back all altimeter settings received from Approach agencies. (TRUE/FALSE)

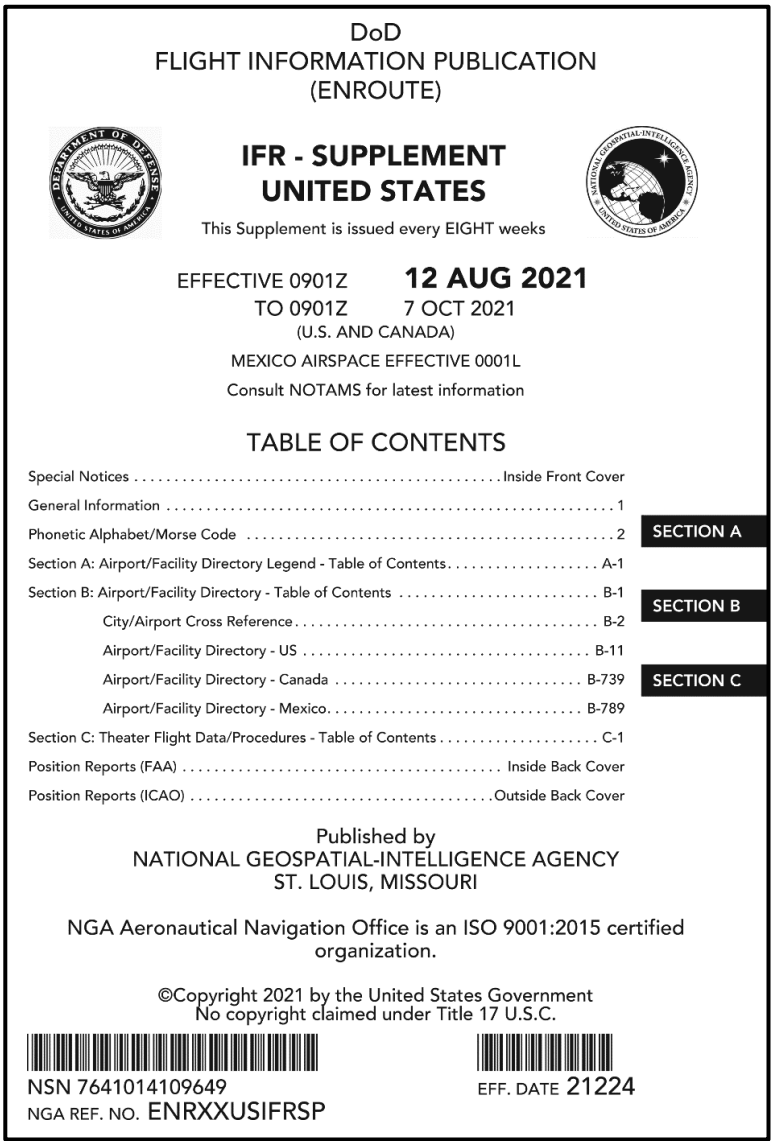
21. Key West NAS (KNQX, FL requires all aircraft other than base-assigned aircraft or scheduled detachment aircraft to obtain a _____. The commercial phone number for this purpose is _____. This may be scheduled _____ prior to arrival, but no further in advance.

22. In Texas, what Flight Hazard is noted for the area around the McDonald Observatory?
_____

CHAPTER THREE
FLIP IFR ENROUTE SUPPLEMENT (ES)

300. INTRODUCTION

The IFR Enroute Supplement is used extensively during flight planning and is an essential "In-Flight" reference publication. ***Don't leave home without it!*** The effective dates are listed on the cover page (See Figure 3-1). While much of the information concerning airports and facilities is readily available in this document, NOTAMs and the AP/1 should be consulted during planning for the latest changes or supplementary information that may be available.



DoD
FLIGHT INFORMATION PUBLICATION
(ENROUTE)

IFR - SUPPLEMENT
UNITED STATES

This Supplement is issued every EIGHT weeks

EFFECTIVE 0901Z **12 AUG 2021**
TO 0901Z 7 OCT 2021
(U.S. AND CANADA)
MEXICO AIRSPACE EFFECTIVE 0001L
Consult NOTAMS for latest information

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NGA Aeronautical Navigation Office is an ISO 9001:2015 certified organization.

NSN 7641014109649
NGA REF. NO. ENRXXUSIFRSP
EFF. DATE 21224

Figure 3-1 IFR (Enroute) Supplement

The inside front cover has a Special Notices section concerning new FLIP features and contains notices of new requirements or major modifications of existing FLIPs.

The first pages have general information about the publication along with a handy table showing the ICAO INTERNATIONAL PHONETIC ALPHABET/MORSE CODE.

ICAO INTERNATIONAL PHONETIC ALPHABET MORSE CODE			
CHARACTER	**MORSE CODE**	**TELEPHONY**	**PHONIC (PRONUNCIATION)**
A	• —	**Alfa**	**(AL–FAH)**
B	— • • •	**Bravo**	**(BRAH–VOH)**
C	— • — •	**Charlie**	**(CHAR–LEE) or (SHAR–LEE)**
D	— • •	**Delta**	**(DELL–TAH)**
E	•	**Echo**	**(ECK–OH)**
F	• • — •	**Foxtrot**	**(FOKS–TROT)**
G	— — •	**Golf**	**(GOLF)**
H	• • • •	**Hotel**	**(HOH–TELL)**
I	• •	**India**	**(IN–DEE–AH)**
J	• — — —	**Juliette**	**(JEW–LEE–ETT)**
K	— • —	**Kilo**	**(KEY–LOH)**
L	• — • •	**Lima**	**(LEE–MAH)**
M	— —	**Mike**	**(MIKE)**
N	— •	**November**	**(NO–VEM–BER)**
O	— — —	**Oscar**	**(OSS–CAH)**
P	• — — •	**Papa**	**(PAH–PAH)**
Q	— — • —	**Quebec**	**(KEH–BECK)**
R	• — •	**Romeo**	**(ROW–ME–OH)**
S	• • •	**Sierra**	**(SEE–AIR–RAH)**
T	—	**Tango**	**(TANG–GO)**
U	• • —	**Uniform**	**(YOU–NEE–FORM) or (OO–NEE–FORM)**
V	• • • —	**Victor**	**(VIK–TAH)**
W	• — —	**Whiskey**	**(WISS–KEY)**
X	— • • —	**Xray**	**(ECKS–RAY)**
Y	— • — —	**Yankee**	**(YANG–KEY)**
Z	— — • •	**Zulu**	**(ZOO–LOO)**
1	• — — — —	**One**	**(WUN)**
2	• • — — —	**Two**	**(TOO)**
3	• • • — —	**Three**	**(TREE)**
4	• • • • —	**Four**	**(FOW–ER)**
5	• • • • •	**Five**	**(FIFE)**
6	— • • • •	**Six**	**(SIX)**
7	— — • • •	**Seven**	**(SEV–EN)**
8	— — — • •	**Eight**	**(AIT)**
9	— — — — •	**Nine**	**(NIN–ER)**
0	— — — — —	**Zero**	**(ZE–RO)**

Figure 3-2 International Phonetic Alphabet/Morse Code

3-2 FLIP IFR ENROUTE SUPPLEMENT (ES)

After General Information, the publication is divided into three major sections:

Section A: Airport/Facility Directory Legend

Section B: Airport/Facility Directory

Section C: Theater Flight Data /Procedures

The inside back cover of the publication has FAA formats to be used for position reports, change of flight plan and filing flight plans in flight. (See Figure 3-3)

The outside of the back cover has ICAO formats for position reports and change of flight plan.

It is essential that you be well versed in the use of this publication, especially Sections A and B.

I. POSITION REPORTS: (FAA)

A. INSTRUMENT FLIGHT RULES (IFR) POSITION REPORT

1. Identification
2. Position
3. Time
4. Altitude/FL (include actual altitude/FL when operating on a "VFR Conditions on Top" clearance.)
5. Type of Flight Plan (not required in IFR position reports made direct to ARTCC). State "VFR Conditions on Top" if so cleared.
6. Next reporting point and ETA.
7. Name only of the next succeeding reporting point along the route of flight.
8. Remarks

NOTE: If entering ADIZ give appropriate ADIZ position reports listed under ADIZ Procedures.

B. VISUAL FLIGHT RULES (VFR) POSITION REPORT

1. Identification
2. Position
3. Time
4. Altitude
5. VFR flight plan
6. Destination

NOTE: If entering ADIZ give appropriate ADIZ position reports listed under ADIZ Procedures.

II. CHANGE OF FLIGHT PLAN

A. CHANGE OF ROUTE OR DESTINATION

1. Type of flight plan
2. Aircraft identification
3. Type of aircraft/TD code
4. Estimated true airspeed
5. Original destination (if applicable)
6. Departure point
7. Position and time
8. New route and altitude/FL
9. New destination (if applicable)
10. ETE or ETA
11. Fuel endurance
12. Alternate (if required)
13. Station where original flight plan filed

B. CHANGE FROM VFR TO IFR ONLY

1. Aircraft identification and type
2. Position and time
3. Route, altitude, and destination
4. True airspeed in knots
5. ETE from point of change to destination and hours of fuel remaining
6. Alternate airport
7. Name, rank, and honors code of VIP if aboard (only if destination is being changed)

C. CHANGE OF ETA BY MORE THAN 30 MINUTES

1. Aircraft identification
2. Position and time
3. "IFR (or VFR) to (destination)"
4. "New ETA and hours of fuel remaining"

III. FILING FLIGHT PLANS IN FLIGHT

1. Type of flight plan
2. Aircraft identification
3. Type of aircraft/TD code
4. Estimated true airspeed
5. Point of departure
6. Proposed departure time
7. Cruising altitude
8. Route of flight
9. Destination
10. ETE
11. Remarks
12. Fuel endurance
13. Alternate
14. Aircraft unit of assignment
15. Number of persons on board
16. Color of aircraft
17. Destination contact/telephone number (Optional)

NOTE: Request available NOTAM and weather information for new route and destination.

Figure 3-3 IFR Supplement (Inside Back Cover)

301. SECTION A: AIRPORT / FACILITIES DIRECTORY LEGEND

This section is the "codebook" used to decipher all the information contained in Section B.

The legend has three areas of information:

1. Sample Entry: A sample entry is provided for each type of Airport or facility used in the Supplement. Each group of information in the sample is identified by a number.

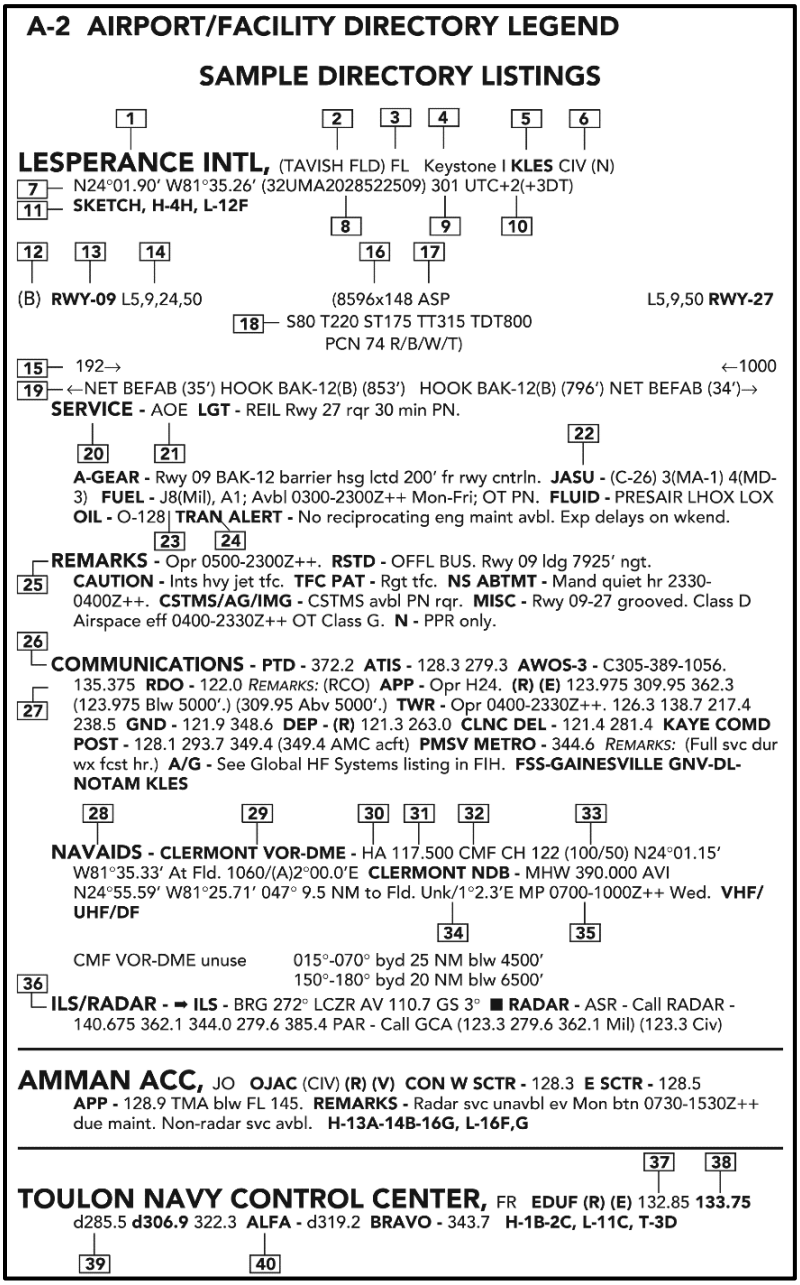


Figure 3-4 IFR Supplement (Sample Entry)

2. Legend: This area starts with some general information concerning overall content. It then explains in detail the contents of the directory. The descriptions are keyed to the boxed numbers on the sample listing.

3. Abbreviations: All abbreviations and or acronyms used in the IFR Supplement are listed here alphabetically. Additional abbreviations and or acronyms used for other FLIP products and NOTAMs can be found in the Flight Information Handbook (FIH).

302. SECTION B: AIRPORT AND FACILITY DIRECTORY

This section contains an alphabetical listing of all Airports, Air Traffic Control Centers, Flight Information Centers, Communications Stations, and Radio Aids to Navigation.

For an airport to be included in this publication it must meet certain requirements defined in the legend.

The directory is subdivided in four parts:

1. City/Airport Cross Reference

Listings of airports in the directory are by the airport name. In some instances, the city name and airport name differ or the name of the city is not the first part of the airport name. This reference provides an alphabetical listing by city for those airports.

2. Airport/Facilities Directory-US

3. Airport/Facilities Directory-Canada

4. Airport/Facilities Directory-Mexico

303. SECTION C: THEATER FLIGHT DATA / PROCEDURES

This section provides information/procedures for the following topics:

1. ADIZ Procedures

2. Cruising Altitudes

3. No-NOTAM Preventive Maintenance Procedures

4. Fleet Area Control and Surveillance Facility (FACSFAC)

5. Laser Light Hazards

6. Canadian Airspace Mandatory Frequency (MF)

7. Common Traffic Advisory Frequency (CTAF)

304. CHAPTER THREE REVIEW QUESTIONS

Refer to the IFR Supplement when answering the following questions. **(**Look it up even if you know the answer)

1. All elevations listed in the IFR Supplement are in _____ unless otherwise noted.

2. All airports in the U.S. that have a published DoD Instrument Approach Procedure and/or ASR Radar approach minima will be included in the Airport/Facility directory of the IFR Supplement. (TRUE/FALSE)

3. NOTAM information for DoD aircrews is obtained using the DoD Aeronautical Information Portal (DAIP) which interfaces with the Federal NOTAM System (FNS). The web page is _____.

4. PATUXENT RIVER NAS is also called (alternate name) _____.

5. The Location Identifier for NAS PATUXENT RIVER is _____.

6. Is there a permit that covers FRENANDINA BEACH MUNI airport for use by Transient Military Aircraft? (YES/NO)

7. In the U.S., daylight saving time is in effect from 0200 local time on _____ to 0200 local time the _____.

8. What is the time conversion required for STURGIS MUNI, KY during daylight saving time? _____.

9. What are the hours of operation that DONALDSONVILLE MUNI is attended during periods of daylight-saving time? _____.

10. The forecasted winds for arrival at EASTERWOOD FLD are 090/15. This would favor runway _____ which is _____ feet long and _____ feet wide.

11. PENSACOLA NAS RWY 7L has a _____ arresting gear located _____ from the approach end of the runway. If it is in battery (rigged in-place), plan to land beyond it.

12. What is required for transient A/C to park on the military ramp at YUMA MCAS? _____. How do you obtain that? _____.

13. Can I get the airport weather for ZANESVILLE MUNI by phone? (YES/NO) If so, what type of weather is available and what is the number. _____.

14. What is the frequency for Pilot to Metro Service (PMSV) at NEW ORLEANS NAS JRB? _____.

15. How far from GOLIAD NOLF is the THREE RIVERS VORTAC? _____.

16. Does KNOX CO RGNL have ILS an approach? _____.

17. The VHF frequency for the PICAYUNE NAVAID is _____. Its three-letter identifier is _____.

18. MIRL stands for _____.

19. The primary VHF frequency for HOUSTON CENTER when near Hattiesburg is _____ for high altitudes and _____ for low altitudes. These are discrete frequencies.

CHAPTER FOUR
FLIP IFR ENROUTE LOW ALTITUDE CHARTS - U.S. (E LA)

400. INTRODUCTION

These charts portray the airway system for the 48 contiguous States and related data required for IFR Operations at altitudes below 18,000 feet Mean Sea Level (MSL).

Enroute Charts are needed for both flight planning and enroute operations. Understanding the material presented on these charts is crucial for successful navigation in the National Airspace System (NAS).

Currently there are 36 variable scale charts printed on 18 sheets. Two charts for each sheet. One chart is on the front sheet and another on the back. The panels for each chart are assigned a letter (A, B, C…) to aid in locating charted information. The charts are labeled L-1 through L-36.

We will examine the following key areas regarding these charts.

1. Front and Back Cover

2. Unlettered Panel Data

3. Legend

4. Margin Data

401. FRONT AND BACK COVER

1. Front Cover (See Figure 4-1)

A graphic on the front cover depicts the geographical area covered by each chart in the Low Altitude system. ***Heavy BOLD lines*** are used to denote the area covered on the specific charts to which this graphic is attached.

Cities appearing in ***black*** indicate major traffic hubs for which Area Charts are provided. Area charts are scaled to provide greater detail. An alphabetical list (by city) of available Area charts and the chart number they appear on is noted in a table on the front cover.

Cities in ***green*** are to assist you in orientation and selection of the appropriate Low Altitude Chart.

The ***effective date*** and ***chart number for the odd sheet*** is listed at the top (just below the fold). This aids organization when filing the charts in an upright orientation. Note that the chart numbers begin with *"**L**"* this is to differentiate them from High Altitude Charts which begin with *"**H**."*

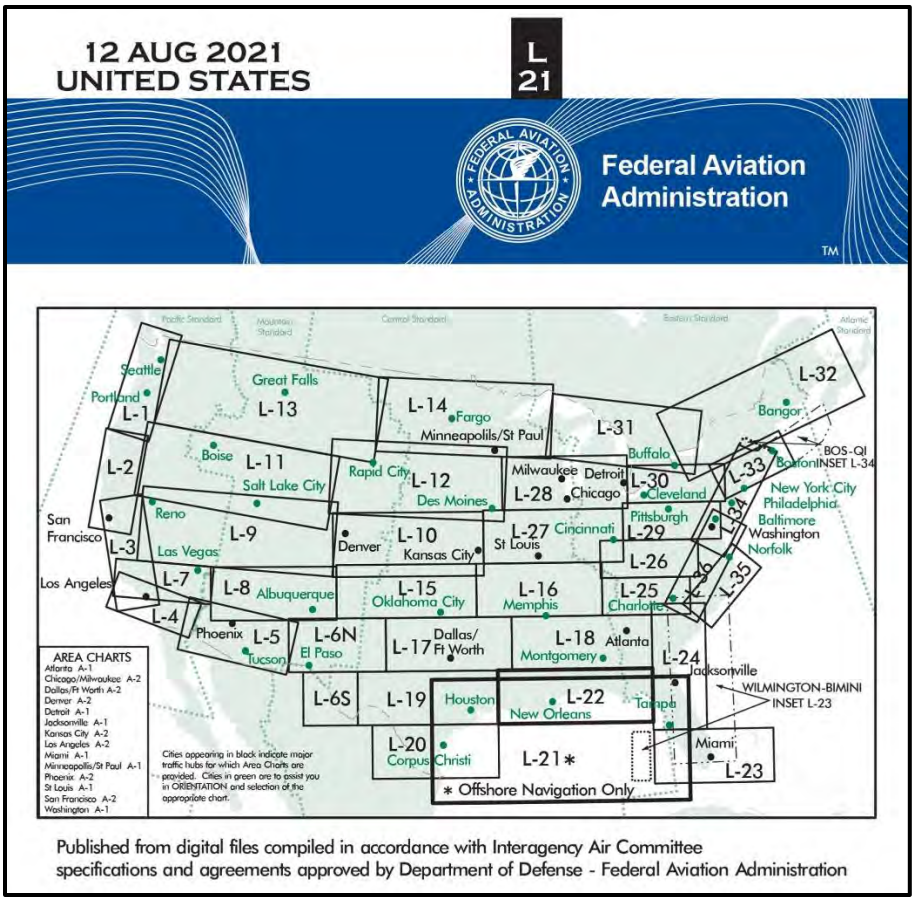


Figure 4-1 IFR Enroute Low Altitude – U.S. (Front Cover)

2. Back Cover (See Figure 4-2)

Effective dates/times are the key feature of this cover. ***Always ensure that you have current charts for the period covering your planned flight***.

The charts numbers are shown along with arrows directing which side of the sheet each chart is on. Below the chart number, the scale for the "lettered" panel sections for each sheet is listed.

Altitudes permitted for use are clearly noted. This is the same for all IFR Enroute Low Altitude-U.S. charts. (For use up to but not including 18,000' MSL)

Note the important reminder "Consult NOTAMs for latest Information."
General information concerning Corrections, Comments, and/or Procurement is provided.

A special box labeled "***ATTENTION***" contains important amplifying information. Here noted is a detailed description of "Off Route Obstruction Clearance Altitudes (OROCA). This crucial information is needed when flying off published airways.

Warning: Refer to current foreign charts and flight information publications for information within foreign airspace.

L-22
PANELS
EFGHIJ
1"=10 NM

L-21
PANELS
ABCD
1"=23 NM

UNITED STATES GOVERNMENT
FLIGHT INFORMATION PUBLICATION

IFR ENROUTE LOW ALTITUDE - U.S.

For use up to but not including 18,000' MSL

EFFECTIVE 0901Z 12 AUG 2021
TO 0901Z 7 OCT 2021

Consult NOTAMs for latest Information

Consult/Subscribe to FAA Safety Alerts and Charting Notices at:
http://www.faa.gov/air_traffic/flight_info/aeronav/safety_alerts

CORRECTIONS, COMMENTS, AND/OR PROCUREMENT

FOR CHARTING ERRORS, OR FOR CHANGES, ADDITIONS, RECOMMENDATIONS ON PROCEDURAL ASPECTS CONTACT:

FAA, Aeronautical Information Services
1305 East-West Highway
SSMC 4, Suite 4400
Silver Spring, MD 20910-3281
Telephone 1-800-638-8972
https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/

FOR PROCUREMENT:

For digital products, visit our website at:
http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/

For a list of approved FAA Print Providers, visit our website at:
http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/

MILITARY

For Corrections Information, See Chapter 11 of General Planning (GP). For Procurement refer to DOD Catalog of Aeronautical Charts and Flight Information Publications.

Frequently asked questions (FAQ) are answered on our web site at http://www.faa.gov/go/ais
See the FAQs prior to contact via toll free number or email.

L-21 is intended for offshore navigation only.
Detailed onshore information has been intentionally omitted.
Refer to charts L-19/20, L-22, L-23/24 for detailed onshore information

ATTENTION

THIS CHART CONTAINS OFF ROUTE OBSTRUCTION CLEARANCE ALTITUDES (OROCA).
The OROCA is shown in THOUSANDS and HUNDREDS of feet above mean sea level for a quadrangle bounded by ticked lines of latitude and longitude. OROCA is based on the highest known terrain feature or obstruction in each quadrangle, and provides a 1,000 foot buffer over the feature in designated non-mountainous areas (or a 2,000 foot buffer in designated mountainous areas) within the United States. For areas in Mexico and the Caribbean which are outside the U.S. ADIZ, OROCA provides obstruction clearance with a 3,000 foot buffer. These OROCA altitudes are not assessed for NAVAID signal coverage, air traffic control surveillance, or communications coverage, and are published for general situational awareness, flight planning, and in-flight contingency use.

Example: 12,500 feet ..... 12^{5}

Figure 4-2 IFR Enroute Low Altitude – U.S. (Back Cover)

402. UNLETTERED PANEL DATA

This data is located on the unlettered panel sections at the sides of each sheet. This data includes information pertaining to the following items:

1. Military Training Route (MTRs) (See Figure 4-3)

The "NUMBER" defines the type of MTR and its number ID. The altitude range denotes the routes altitude coverage.

MILITARY TRAINING ROUTES					
NUMBER	ALTITUDE RANGE	NUMBER	ALTITUDE RANGE	NUMBER	ALTITUDE RANGE
IR-016	300 AGL TO 6000	IR-031	500 AGL TO 6000	IR-040	5000 TO 5000
IR-017	500 AGL TO 3000	IR-032	500 AGL TO 6000	IR-057	200 AGL TO 3000
IR-019	4000 TO 7000	IR-033	500 AGL TO 6000	IR-059	200 AGL TO 3000
IR-021	5000 TO 11000	IR-037	6000 TO 6000	VR-060	100 AGL TO 10000
IR-030	500 AGL TO 6000	IR-038	8000 TO 10000	VR-179	100 AGL TO 10000

Figure 4-3 Low Chart Military Training Route (MTR) Data

2. Military Operations Areas (MOAs) (See Figure 4-4)

This table contains information on; the name and number of the MOA, its effective altitudes, the time it is used (in UTC), the controlling agency, and lists the panel(s) that the MOA appears on.

MILITARY OPERATIONS AREAS				
NUMBER	EFFECTIVE ALTITUDE	TIMES USED, UTC	CONTROLLING AGENCY A/G CALL	PANEL
BULLSEYE 1	10000 *2	1430 - 2330Z‡ MON - FRI; *1	ZHU	C,G
BULLSEYE 2	5000 *2	1430 - 2330Z‡ MON - FRI; *1	ZHU	C,G
BULLSEYE 3	11000 *2	1430 - 2330Z‡ MON - FRI; *1	ZHU	C,G
CAMDEN RIDGE	500 AGL TO BUT NOT INCL 10000	NML 1300 - 0500Z‡ DAILY	ZTL	G,H
CLAIBORNE A	100 AGL TO BUT NOT INCL 10000	1330 - 0400Z‡ MON - FRI; *1	US ARMY FORT POLK APP CON	B,E
CLAIBORNE B	10000 *2	1330 - 0400Z‡ MON - FRI; *1	US ARMY FORT POLK APP CON	B,E
CORSAIR N	8000 *2	1200 - 0700Z‡ MON - FRI; *1	ZJX	I,J
CORSAIR S	8000 *2	1200 - 0700Z‡ MON - FRI; *1	ZJX	D,J
DE SOTO 1	500 AGL TO 10000	1430 - 2330Z‡ MON - FRI; *1	ZHU	C,G
DE SOTO 2	100 AGL TO 5000	1430 - 2330Z‡ MON - FRI; *1	ZHU	C,G

Figure 4-4 Low Chart Military Operations Area (MOA) Data

3. Special Use Airspace (SUA) Data (See Figure 4-5)

This table contains its own legend to aid in understanding information it contains. Basically, it provides; type of airspace and specific number, effective altitudes of use, times of operation, controlling agency and panel(s) that the SUA appears on.

ARTCC three letter idents: Albuquerque ZAB, Atlanta ZTL, Boston ZBW, Chicago ZAU, Cleveland ZOB, Denver ZDV, Fort Worth ZFW, Houston ZHU, Indianapolis ZID, Jacksonville ZJX, Kansas City ZKC, Los Angeles ZLA, Memphis ZME, Miami ZMA, Minneapolis ZMP, New York ZNY, Oakland ZOA, Salt Lake City ZLC, Seattle ZSE, Washington ZDC

P - PROHIBITED, R - RESTRICTED, W - WARNING, A - ALERT AREAS

All altitudes are MSL unless otherwise indicated
FL - Flight Level
Time - Hours shown are UTC unless otherwise indicated
Cont - Continuous: 24 hours a day, 7 days a week
‡ - During periods of Daylight Saving Time (DT) effective hours will be one hour earlier than shown.
NOTAM - Use of this term in Restricted Areas indicates FAA And DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

SPECIAL USE AIRSPACE

NUMBER	EFFECTIVE ALTITUDE	TIMES USED, UTC	CONTROLLING AGENCY A/G CALL	PANEL
R-2103A	SFC TO BUT NOT INCL 10000	CONT	US ARMY CAIRNS APP CON	H,I
R-2103B	10000 TO 15000	BY NOTAM	ZJX	H,I
R-2901A,C	SFC TO BUT NOT INCL 14000	INTMT 1100 - 0500Z‡ MON - FRI; 1300 - 2300Z‡ SAT - SUN; ∗1	ZMA	D
R-2901B	14000 ∗2	INTMT 1100 - 0500Z‡ MON - FRI; 1300 - 2300Z‡ SAT - SUN; ∗1	ZMA	D
R-2901D	1000 AGL TO BUT NOT INCL 4000 500 TO BUT NOT INCL 4000	INTMT 1100 - 0500Z‡ MON - FRI; 1300 - 2300Z‡ SAT - SUN; ∗1	ZMA	D
R-2901N	5000 TO BUT NOT INCL 14000	INTMT 1100 - 0500Z‡ MON - FRI; 1300 - 2300Z‡ SAT - SUN; ∗1	ZMA	D
R-2903A	SFC TO BUT NOT INCL 23000	INTMT 1200 - 2400Z‡ TUE - SUN; ∗1	ZJX	D
R-2903C	SFC TO 7000	INTMT 1200 - 2400Z‡ TUE - SUN; ∗1	JACKSONVILLE TRACON	D
R-2903D	SFC TO 5000	INTMT 1200 - 2400Z‡ TUE - SUN; ∗1	JACKSONVILLE TRACON	D
R-2904A	SFC TO BUT NOT INCL 1800	APR - AUG 1300 - 2200Z‡ DAILY; SEP - MAR 1300 - 2200Z‡ SAT - SUN; ∗1	JACKSONVILLE TRACON	D

Figure 4-5 Low Chart Special Use Airspace (SUA) Data

4. Airport Locations (See Figure 4-6)

This table list all charted airports by name, airport identifier (three letter ID), and the panel(s) the airport appears on.

AIRPORT LOCATIONS

NAME	ID	PANEL	NAME	ID	PANEL	NAME	ID	PANEL
Abbeville Chris Crusta	IYA	B,E	George Bush Intcntl	IAH	A	Ocean Springs	5R2	C,G
Acadiana Rgnl	ARA	B,E	George R Carr Meml Air	BXA	B,F	Old Hoppe Place	67T	A
Albert Whitted	SPG	D	Georgetown Muni	GTU	A	Orange County	ORG	B
Alexandria Intl	AEX	B,E	Giddings-Lee County	GYB	A	Orlando Apopka	X04	D
Alfred C 'Bubba' Thomas	T69	A	Goliad NOLF	NGT	A	Orlando Intl	MCO	D
Allen Parish	ACP	B,E	Grass Patch	00FA	D	Orlando North Airpark	FA83	D

Figure 4-6 Low Chart Airport Locations

403. LEGEND

This material is crucial for interpreting chart symbology and information. Simply stated: "***Know it!***" The time you spend here is a professional investment that cannot be overstated!

The General Planning (GP) Chapter Two (TERMS) has definitions for some of the items used in the legend.

The FAA publishes the "Aeronautical Chart User's Guide." It is a must for your professional library. It provides an expanded view with detailed information on each type of information covered on the charts. It is available on-line at www.faa.gov under Air Traffic/Flight Information/Aeronautical Information Services/Digital Products/Chart Users Guide.

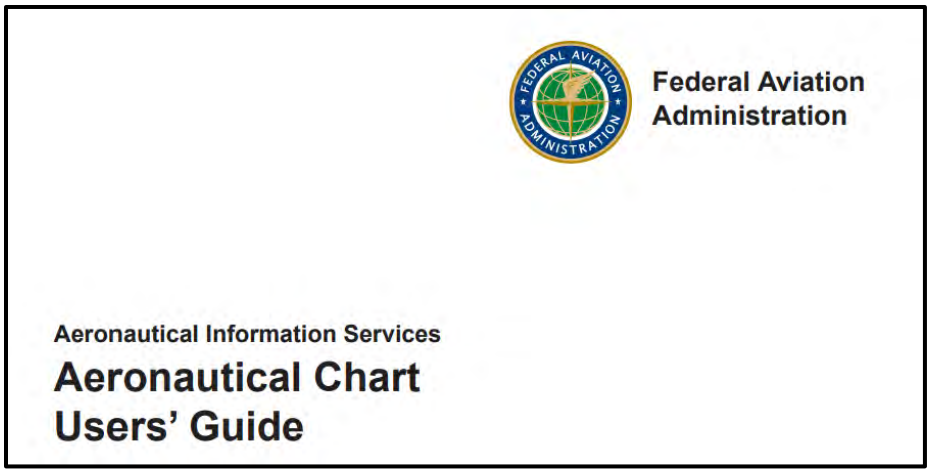


Figure 4-7 FAA Aeronautical Chart User's Guide

The top half of the IFR Enroute Low Altitude Legend is divided into three groups.

AIRPORTS:

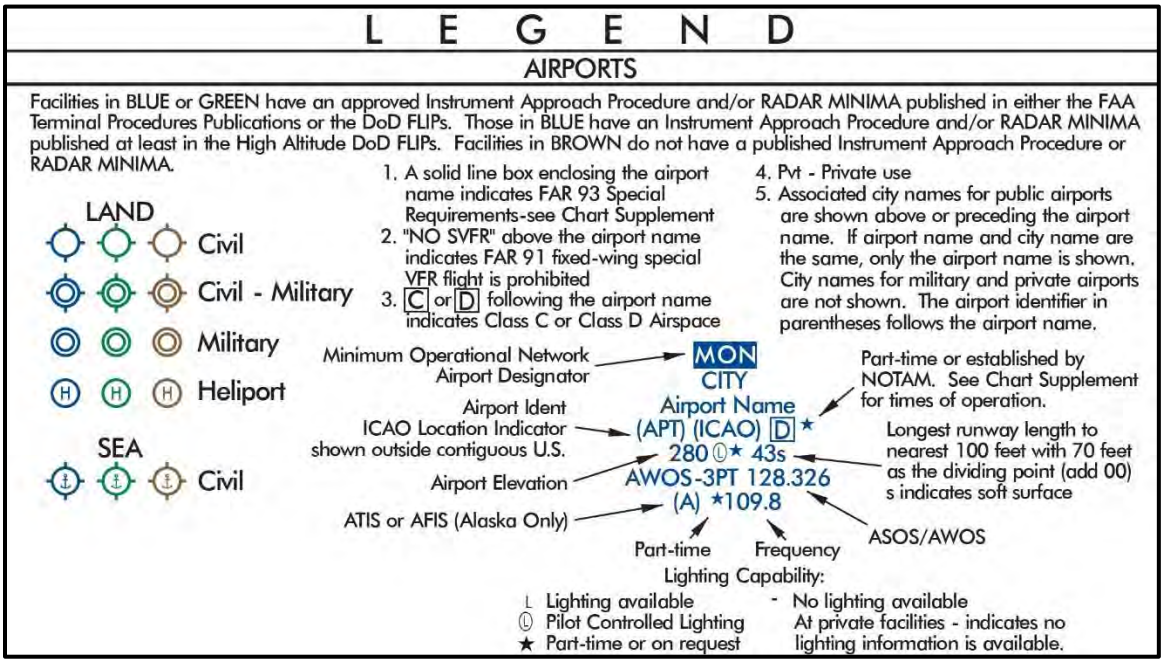


Figure 4-8 Low Chart Airports Legend

NAVAIDS:

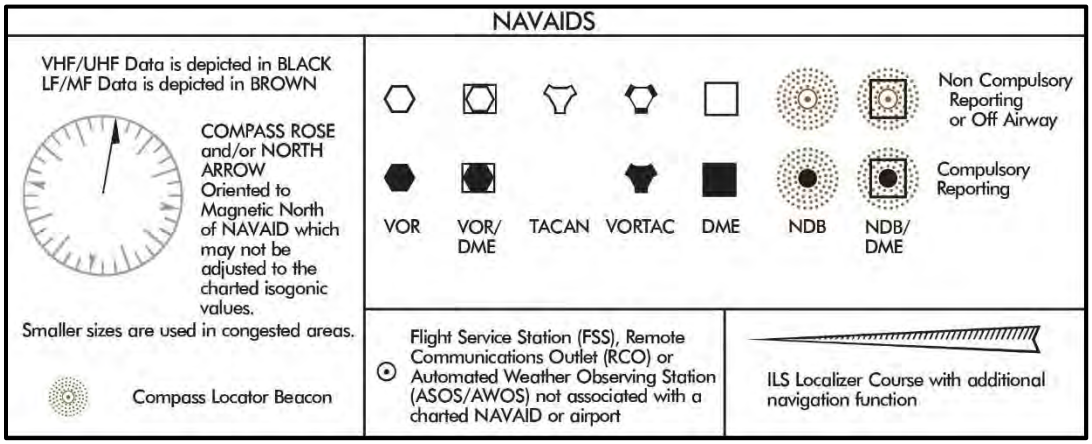


Figure 4-9 Low Chart NAVAIDs Legend

COMMUNICATION BOXES:

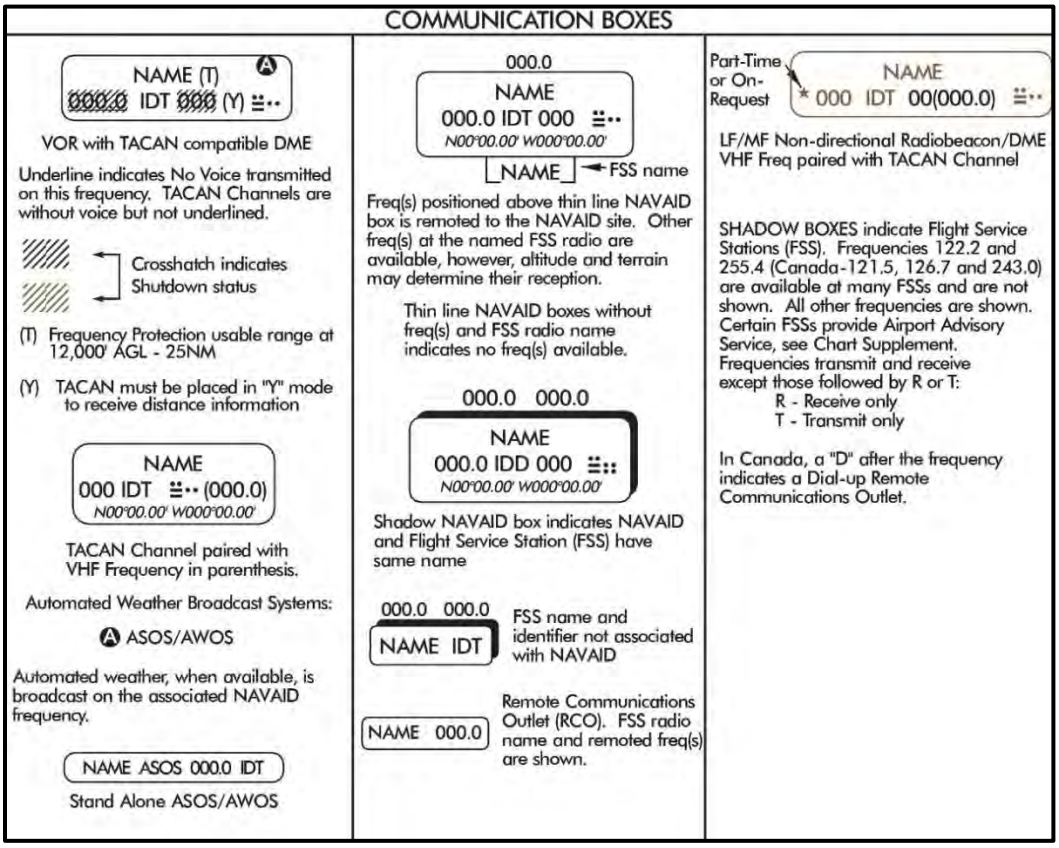


Figure 4-10 Low Chart Communication Boxes Legend

The bottom half of the Legend, starting at the fold in the chart, is labeled:

AIR TRAFFIC SERVICES AND AIRSPACE INFORMATION

This half of the Legend is divided into the following nine groups of information:

ROUTE DATA:

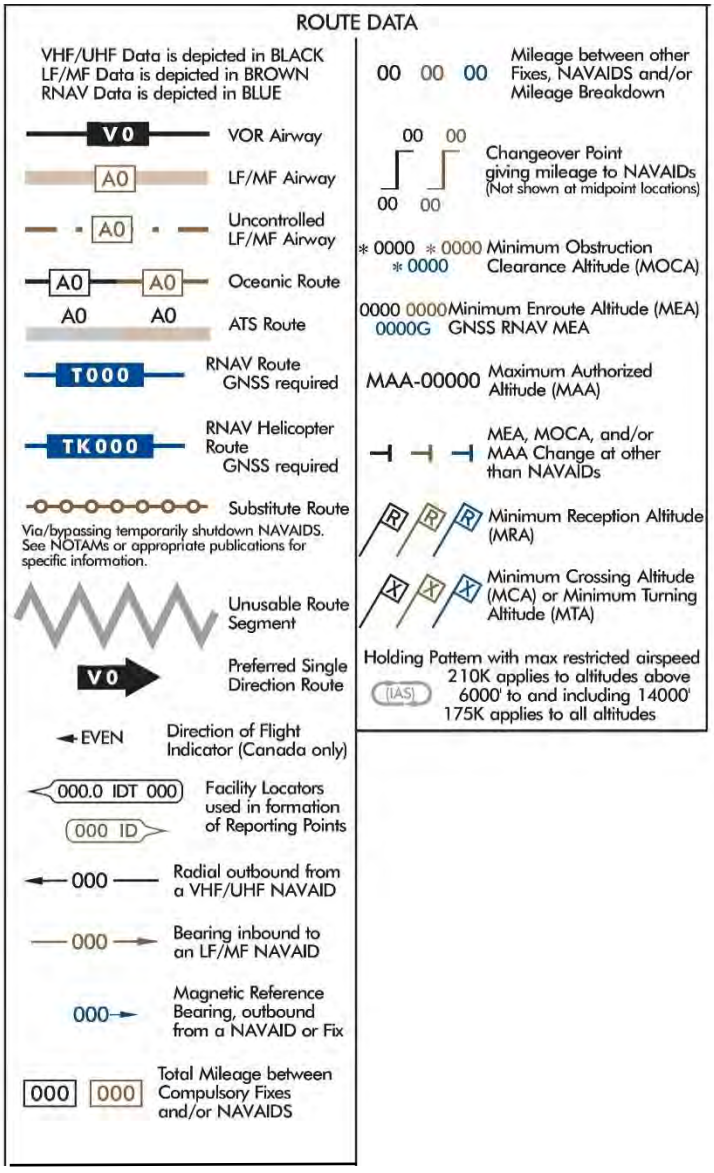


Figure 4-11 Low Chart Route Data Legend

FIXES/ATC REPORTING REQUIREMENTS:

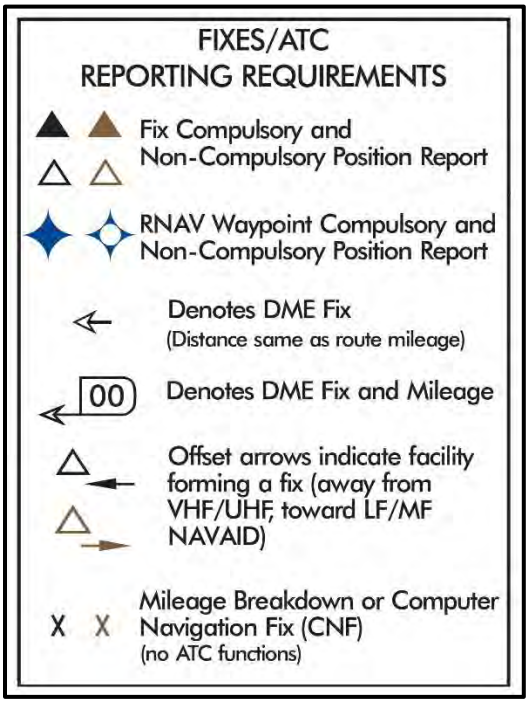


Figure 4-12 Low Chart Fixes/ATC Reporting Legend

EXAMPLE OF GROUPING:

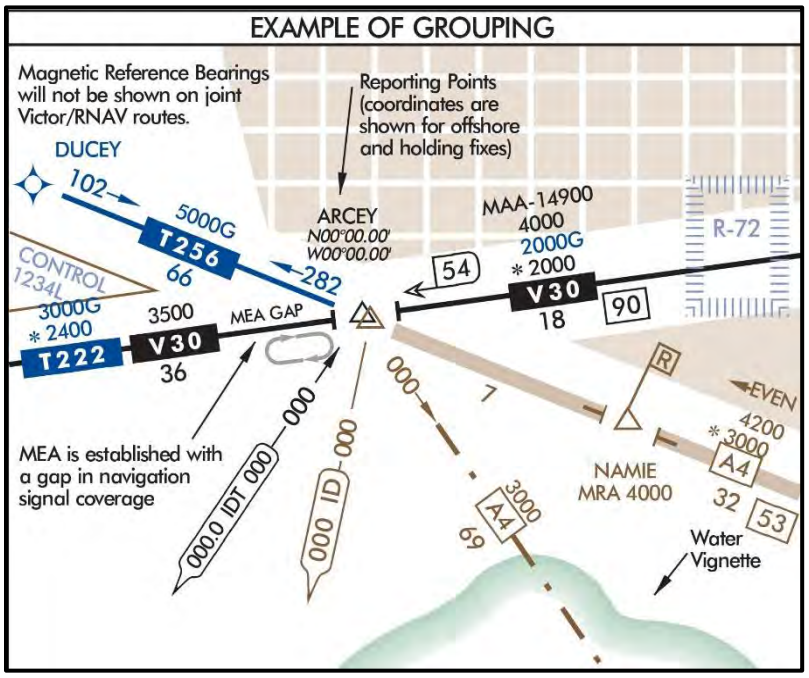


Figure 4-13 Low Chart Example of Groupings Legend

BOUNDARIES

AIRSPACE INFORMATION

SPECIAL USE AIRSPACE:

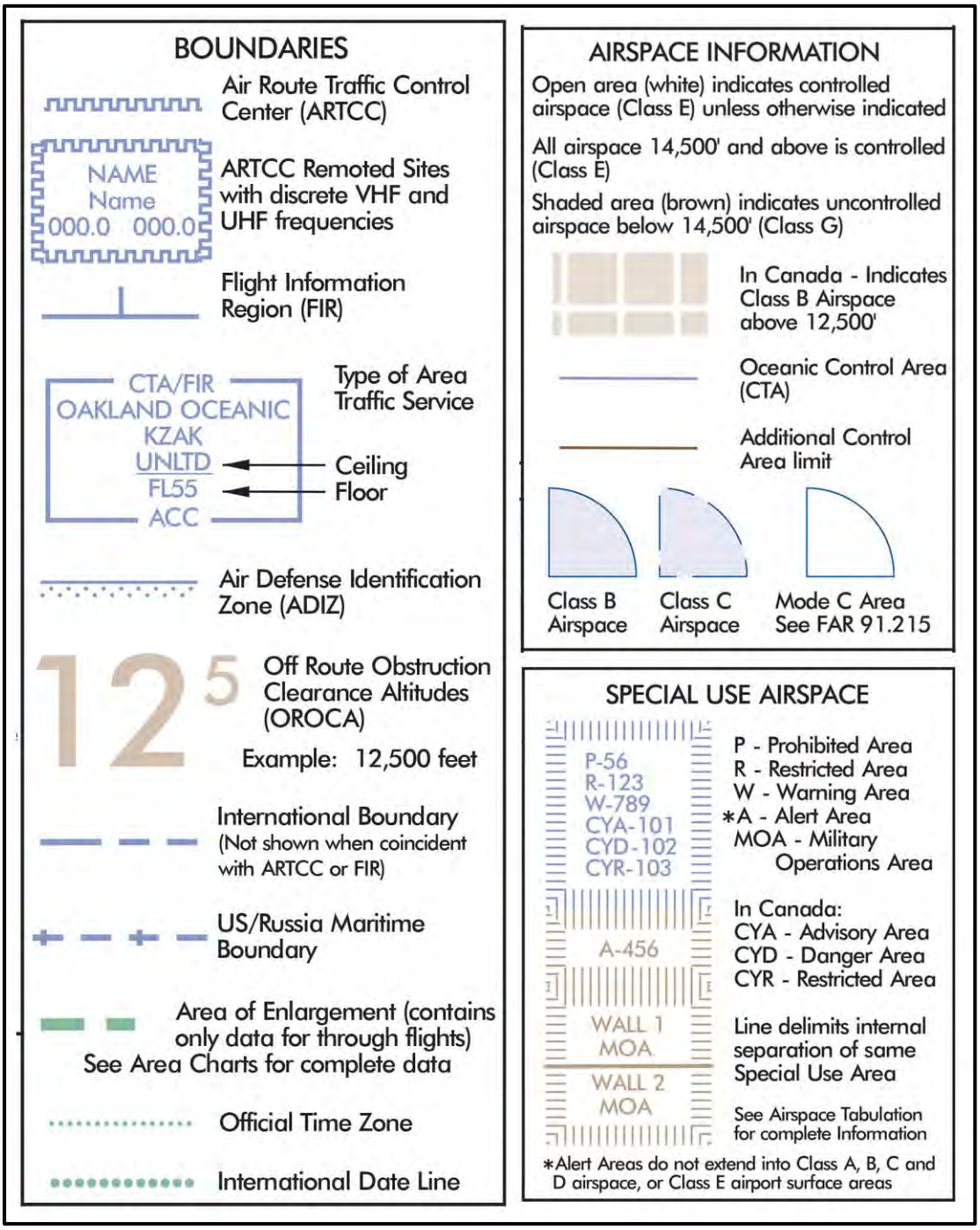


Figure 4-14 Low Chart Boundaries, Airspace, and SUA Legends

MILITARY TRAINING ROUTES (MTRs)

CRUISING ALTITUDES-US

MISCELLANEOUS:

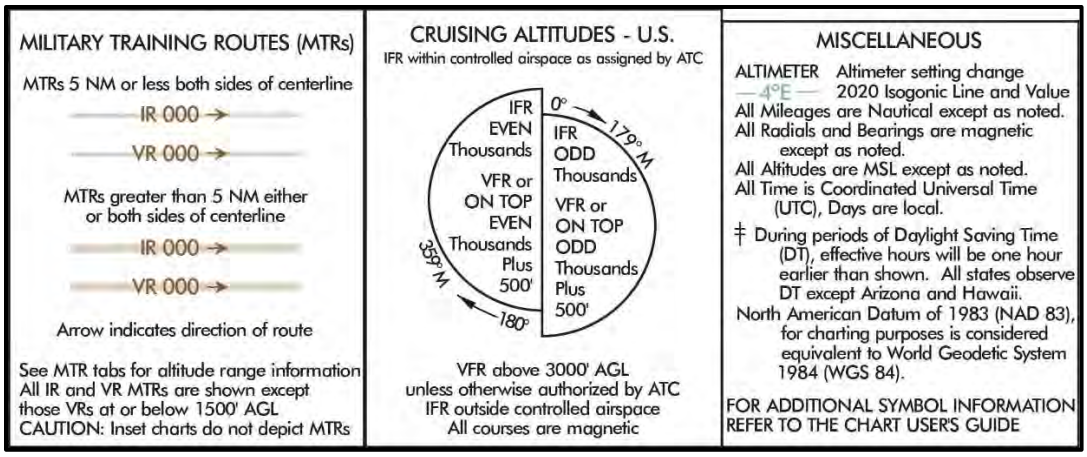


Figure 4-15 Low Chart MTR, Cruising Altitudes, and Miscellaneous Legends

404. MARGIN DATA

Along the margins at the top and bottom of each "lettered" panel of the chart, the following information can be found:

1. The Panel "letter"
2. A scale line (for that panel) in nautical miles
3. Indication of which Low altitude chart adjoins/overlaps that panel
4. The city name of the most prominent airport on that panel
5. The next intersection found along the airway on the adjoining chart
6. The identifier and frequency for NAVAID defining the airway on the adjoining chart

Figure 4-16 Low Chart Margin Data

405. CHAPTER FOUR REVIEW QUESTIONS

Refer to the GP, IFR Enroute Low Altitude - U.S. Legends and Figure 4-17 as required to answer the following questions.

1. List the following information concerning Gulfport Biloxi Intl airport:

   a. Type of facility _____

   b. Airport Ident _____

   c. Field elevation _____

   d. Longest runway _____

   e. Class of airspace _____

   f. ATIS frequency _____

2. Is an Instrument Approach Procedure (IAP) available at GPT? If so which publication can it be found in? _____

3. Is an Instrument Approach Procedure (IAP) available at 4R9? If so which publication can it be found in? _____

4. Traveling southwest from BROOKLEY VORTAC on V198 to ROMMY, what does "2000" refer to and what does it ensure? _____

5. Between ROMMY and ELSIE on V198, what does "*1300" refer to and what does it ensure? _____

6. Below V198 just west of Jeremiah Denton airport (4R9) is the number; 2^9, what is it and what does it ensure? _____

7. On V198 at ROMMY, what is "MRA 4000" and what does it indicate? _____

8. What does a flag symbol with and X in the middle (⚑) indicate? _____

9. Traveling southwest from BROOKLEY VORTAC on V198, how far is it to the next compulsory Fix and /or NAVAID? _____

10. Traveling southwest from BROOKLEY VORTAC on V198, at what DME from BFM is the NAVAID changeover point? _____

11. The Air Route Traffic Control Center for this area is _____. What Ultra High Frequency should be used to contact them? _____

12. Can ATC contact you over the BROOKLEY VOR frequency of 112.8? _____

13. In the KEESLER communication box, (111.8) indicates what? How would this be used in the T-6B? _____

14. What is the name of the Flight Service Station serving the area around BFM? _____

15. What frequencies are available at many Flight Service Stations even when not annotated on the chart? _____

16. When flying IFR on V198 from BROOKLEY towards ROMMY you would expect what type of cruising altitude? _____

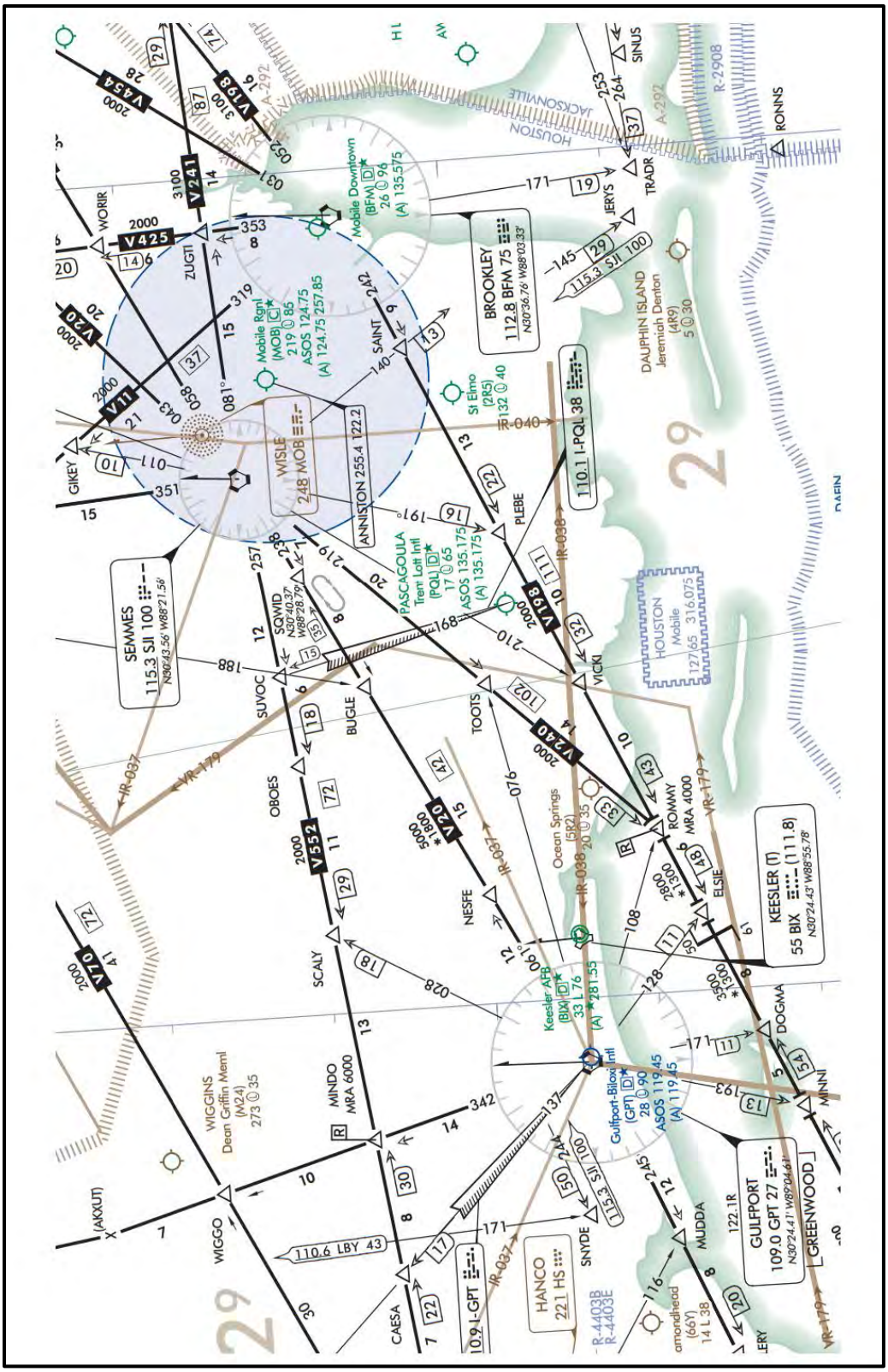


Figure 4-17 Sample IFR Enroute Low Altitude Chart Segment

CHAPTER FIVE
FLIP IFR ENROUTE HIGH ALTITUDE CHARTS - U.S. (E HA)

500. INTRODUCTION

These charts portray the airway system and related data required for IFR Operations at altitudes at and above 18,000 feet Mean Sea Level (MSL).

Enroute Charts are needed for both flight planning and enroute operations. Understanding the material presented on these charts is crucial for successful navigation in the National Airspace System (NAS).

Currently there are twelve charts printed on six sheets. Two charts for each sheet. One chart is on the front sheet and another on the back. The panels for each chart are assigned a letter (A, B, C…) to aid in locating charted information. ***The charts are labeled H-1 through H-12***. Charts H-1 through H-11 cover the 48 contiguous States, with chart H-12 duplicating data shown on charts H-9, H-10 and H-11 for those who frequently plan flights north and south along the East coast within the area of coverage.

We will examine the following key areas regarding these charts.

1. Front and Back Covers

2. Unlettered Panel Data

3. Legend

4. Margin Data

501. FRONT AND BACK COVER

1. Front Cover (See Figure 5-1)

A graphic on the front cover depicts the geographical area covered by each chart in the High Altitude system. ***Heavy bold lines*** are used to denote the area covered on the specific charts to which this graphic is attached.

Cities appearing in ***black*** are to assist you in orientation and selection of the appropriate High Altitude Chart.

The ***effective date*** and the two ***chart numbers*** are listed at the top (just below the fold). This aids organization when filing the charts in an upright orientation. Note that the chart numbers begin with "***H***" to differentiate them from Low Altitude Charts which begin with "***L***."

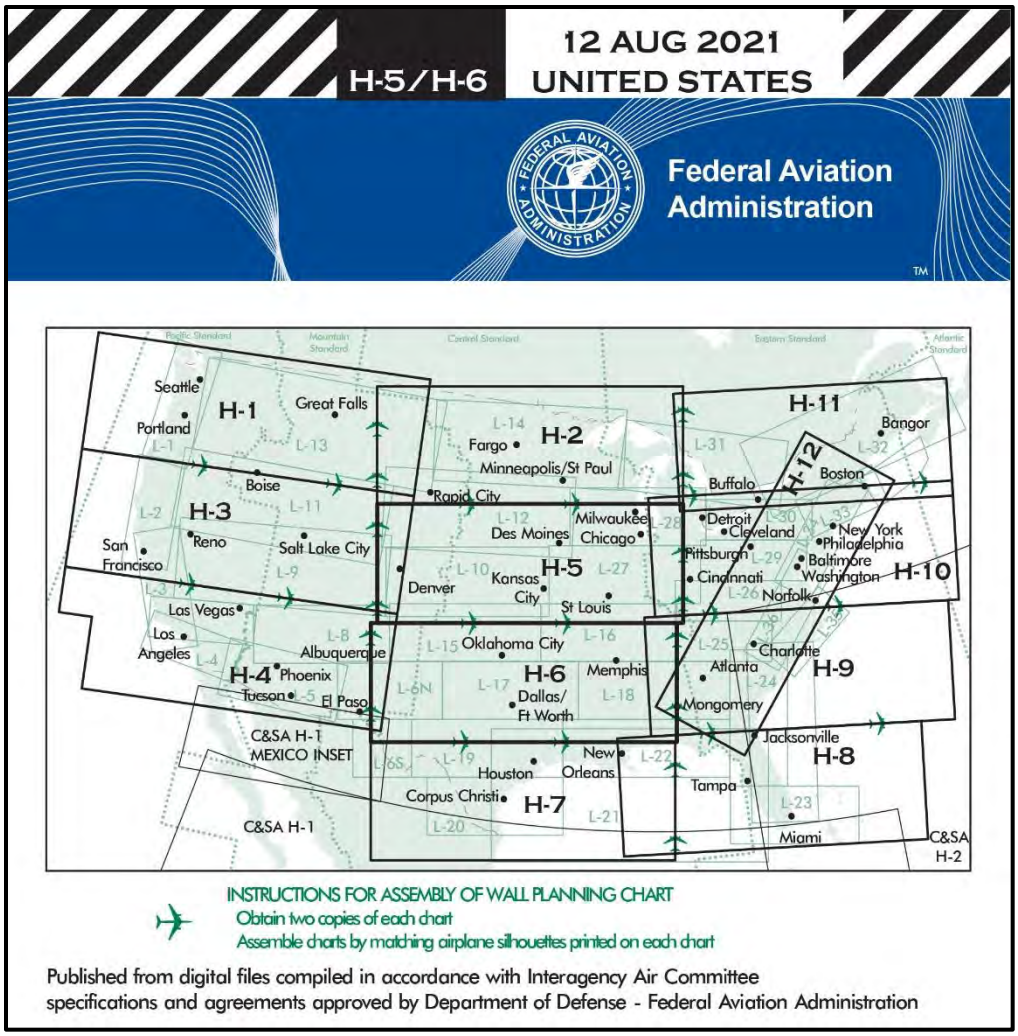


Figure 5-1 IFR Enroute High Altitude – U.S. (Front Cover)

2. Back Cover (See Figure 5-2)

Effective dates/times are the key feature of this cover. ***Always ensure that you have current charts for the period covering your planned flight.***

The charts numbers are show along with arrows directing which side of the sheet each chart is on. Below the chart number, the scale for the "lettered" panel sections for each sheet is listed.

The altitudes permitted for use is clearly noted. This is the same for all IFR Enroute High Altitude- U.S. charts. (For use at and above 18,000' MSL) *Note the important reminder "*Consult NOTAMs for latest Information."

General information concerning ***corrections***, ***comments***, and/or ***procurement*** is provided.

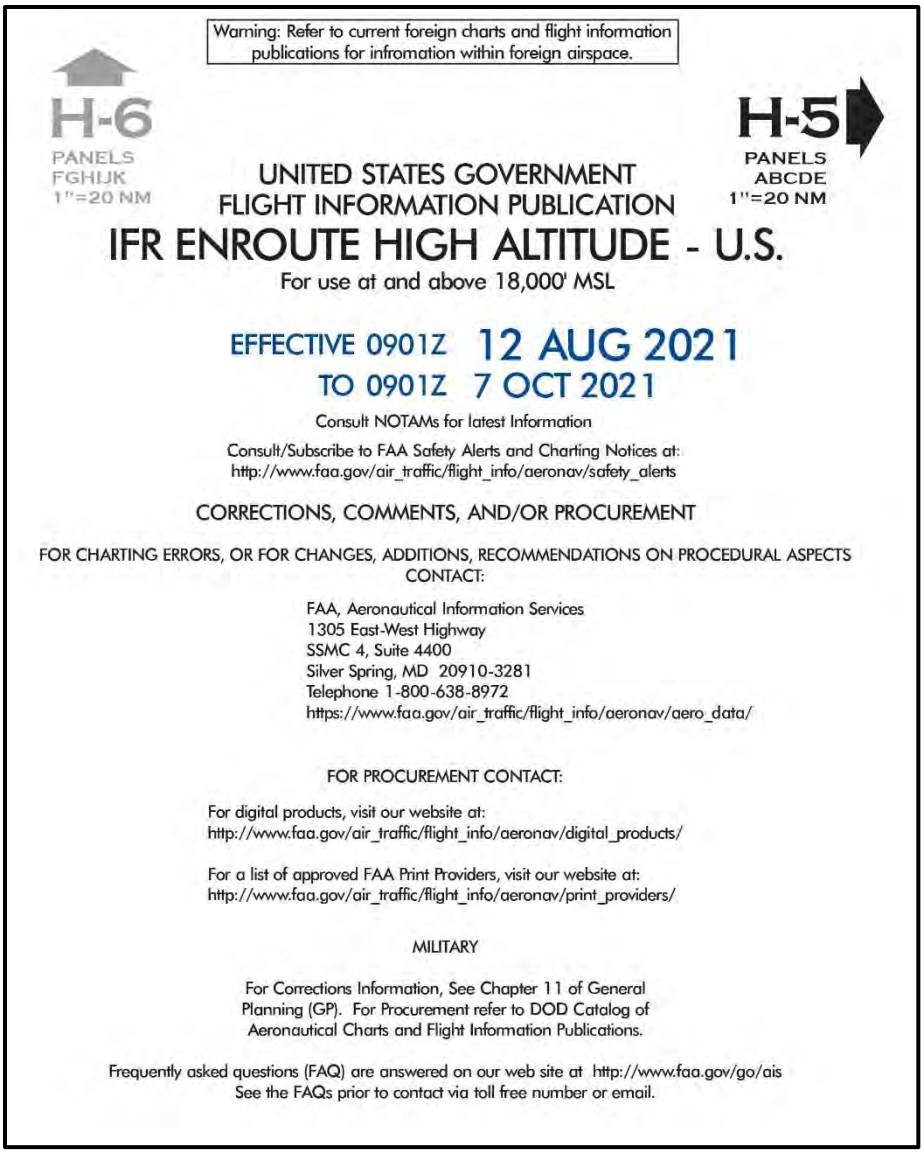


Figure 5-2 IFR Enroute High Altitude – U.S. (Back Cover)

502. UNLETTERED PANEL DATA

This data is located on unlettered panel sections at the sides of one sheet. This data includes information pertaining to the following items:

– Special Use Airspace (See Figure 5-3)

This table has its own legend for the data it contains. It provides the following information:

a. A letter denoting the type of airspace and the airspace "Number"

b. Effective altitudes

c. Times that the airspace is normally used

d. The controlling agency Air-Ground (A/G) call

e. The letter of the panel(s) affected by the airspace

SPECIAL USE AIRSPACE

U.S.: P - Prohibited, R - Restricted, W - Warning Areas

All altitudes are MSL unless otherwise indicated
FL - Flight Level
Time - Hours shown are UTC unless otherwise indicated
Cont - Continuous: 24 hours a day, 7 days a week

‡ - During periods of Daylight Saving Time (DT) effective hours will be one hour earlier than shown.
NOTAM - Use of this term in Restricted Areas indicates FAA And DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

NUMBER	EFFECTIVE ALTITUDE	TIMES USED, UTC	CONTROLLING AGENCY A/G CALL	PANEL
R-2104D,E	12000 TO FL 300	BY NOTAM	ZME	K
R-2401A,B	SFC TO 30000	SR - SS MON - SUN; *1	ZME	I
R-2402A	SFC TO 30000	SR - SS DAILY; *1	ZME	I
R-2402B	10000 TO BUT NOT INCL FL 220	SR - SS DAILY; *1	ZME	I
R-2402C	13000 TO BUT NOT INCL FL 220	SR - SS DAILY; *1	ZME	I
R-2601B	12500 TO BUT NOT INCL 22500	BY NOTAM 1 HR IN ADVANCE	ZDV	A
R-2601C	22500 TO BUT NOT INCL 35000	BY NOTAM	ZDV	A
R-2601D	35000 TO BUT NOT INCL 60000	BY NOTAM	ZDV	A
R-2915A	SFC TO UNLTD	CONT	ZJX	K
R-3401A	SFC TO 40000	MAY 1 - SEP 30 CONT ; OCT 1 - APR 30 1300 - 0400Z‡ TUE - SAT; *1	ZID	E

Figure 5-3 High Altitude Special Use Airspace Data

503. LEGEND

While very similar to the legend used for the Low Altitude Charts there are some variations important to high altitude operations. Consult the FLIP GP and the FAA Aeronautical Chart User's Guide for specific definitions and symbol details. Note the differences from the Low Altitude Charts. The legend is divided into the following basic sections:

- AIRPORTS
- NAVAIDS
- COMMUNICATIONS BOXES
- AIR TRAFFIC SERVICES AND AIRSPACE INFORMATION
- MISCELLANEOUS
- EXAMPLE OF GROUPING
- MORSE CODE
- CRUISING ALTITUDES

5-4 FLIP IFR ENROUTE HIGH ALTITUDE CHARTS - U.S. (E HA)

1. Airports (See Figure 5-4)

Only airports that have hard surfaced runway(s) with a minimum of 5000 feet are shown. The data available for each airport is ***limited*** to the city name, airport name and airport identifier.

Figure 5-4 High Chart Airports Legend

2. NAVAIDs (See Figure 5-5)

ILS Localizer course are not depicted on the High Altitude Charts.

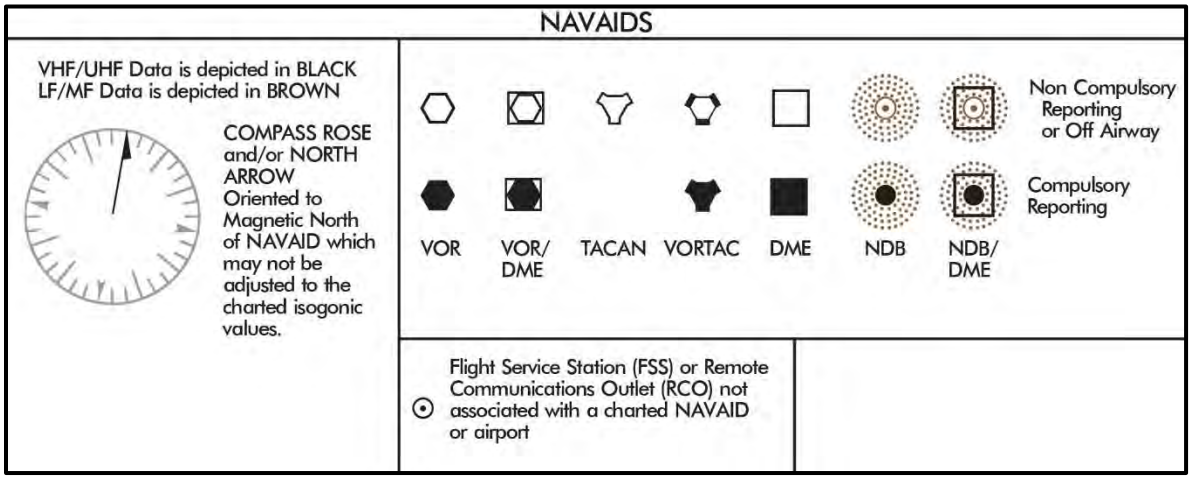


Figure 5-5 High Chart NAVAIDS Legend

3. Communications Boxes (See Figure 5-7)

Similar to the low altitude chart legend. One difference is NAVAID Standard Service Volume (SSV) Class Designators are annotated as Low Altitude (L) or Terminal (T) if other than High Altitude.

Figure 5-6 shows the SSV details from the Aeronautical Information Manual (AIM). These are referred to as Radio Class Codes in the IFR Enroute Supplement.

SSV Designator	Altitude and Range Boundaries
T (Terminal)	From 1,000 feet ATH up to and including 12,000 feet ATH at radial distances out to 25 NM.
L (Low Altitude)	From 1,000 feet ATH up to and including 18,000 feet ATH at radial distances out to 40 NM.
H (High Altitude)	From 1,000 feet ATH up to and including 14,500 feet ATH at radial distances out to 40 NM. From 14,500 ATH up to and including 60,000 feet at radial distances out to 100 NM. From 18,000 feet ATH up to and including 45,000 feet ATH at radial distances out to 130 NM.
VL (VOR Low)	From 1,000 feet ATH up to but not including 5,000 feet ATH at radial distances out to 40 NM. From 5,000 feet ATH up to but not including 18,000 feet ATH at radial distances out to 70 NM.
VH (VOR High)	From 1,000 feet ATH up to but not including 5,000 feet ATH at radial distances out to 40 NM. From 5,000 feet ATH up to but not including 14,500 feet ATH at radial distances out to 70 NM. From 14,500 ATH up to and including 60,000 feet at radial distances out to 100 NM. From 18,000 feet ATH up to and including 45,000 feet ATH at radial distances out to 130 NM.
DL (DME Low)	For altitudes up to 12,900 feet ATH at a radial distance corresponding to the LOS to the NAVAID. From 12,900 feet ATH up to but not including 18,000 feet ATH at radial distances out to 130 NM
DH (DME High)	For altitudes up to 12,900 feet ATH at a radial distance corresponding to the LOS to the NAVAID. From 12,900 ATH up to and including 60,000 feet at radial distances out to 100 NM. From 12,900 feet ATH up to and including 45,000 feet ATH at radial distances out to 130 NM.

Figure 5-6 VOR/DME/TACAN Standard Service Volumes

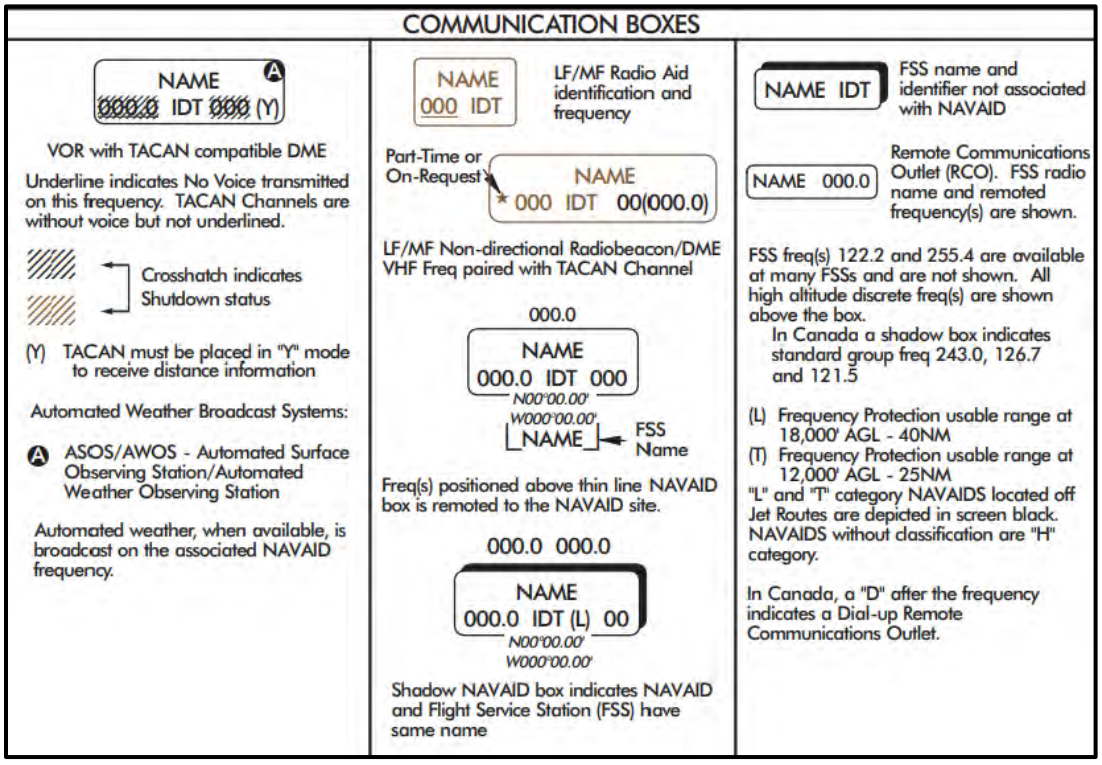


Figure 5-7 High Chart Communications Boxes Legend

5-6 FLIP IFR ENROUTE HIGH ALTITUDE CHARTS - U.S. (E HA)

4. Air Traffic Services and Airspace Information (See Figure 5-8)

This section is divided into the same areas as the low chart. While much of the data presented is the same there are differences specific to the high altitude structure. Noteworthy are the designations used for the different types of airways.

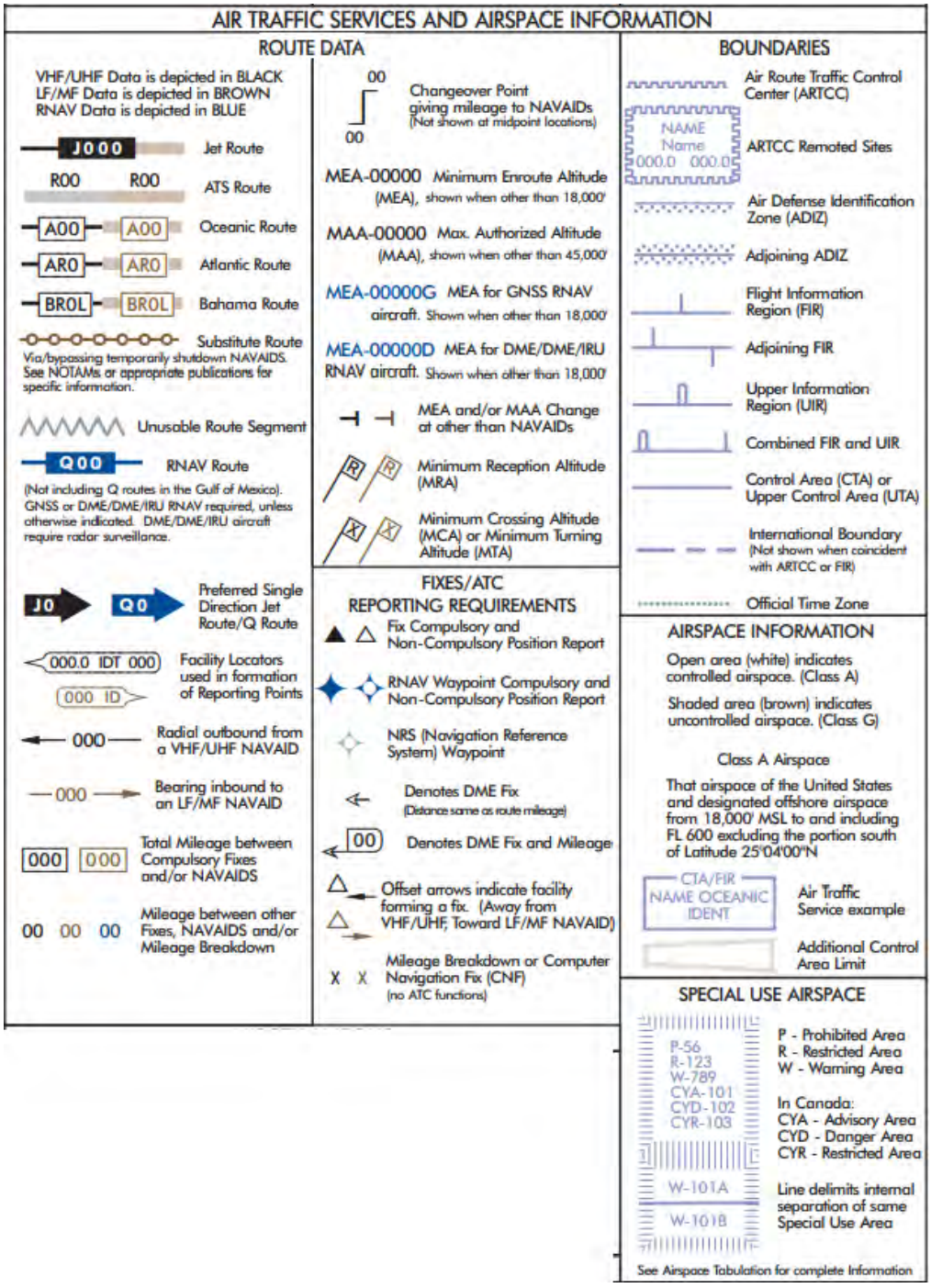


Figure 5-8 High Chart Air Traffic Services and Airspace Information Legend

5. Miscellaneous (See Figure 5-9)

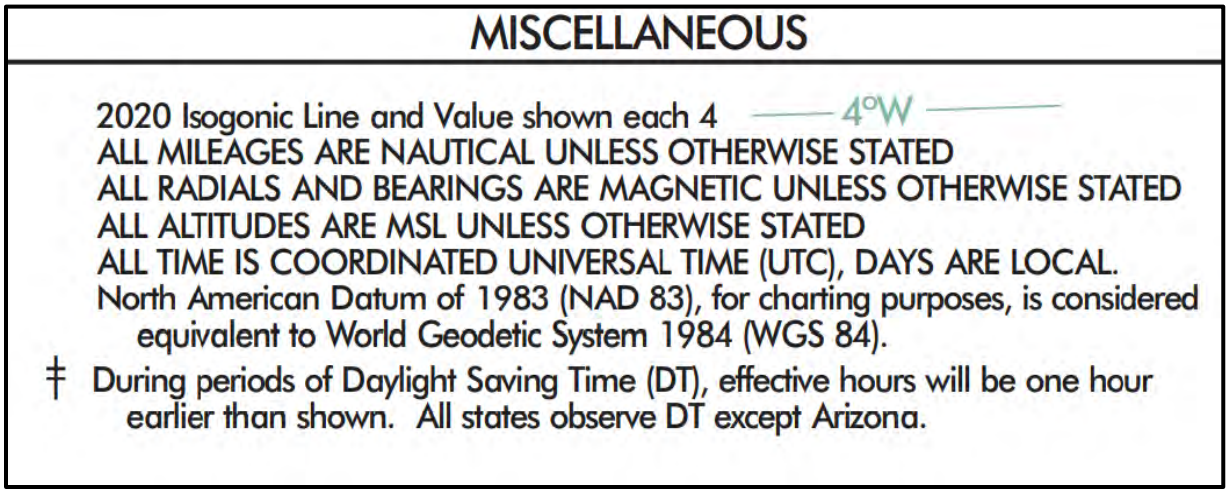


Figure 5-9 High Chart Miscellaneous Legend

6. Example of Grouping (See Figure 5-10)

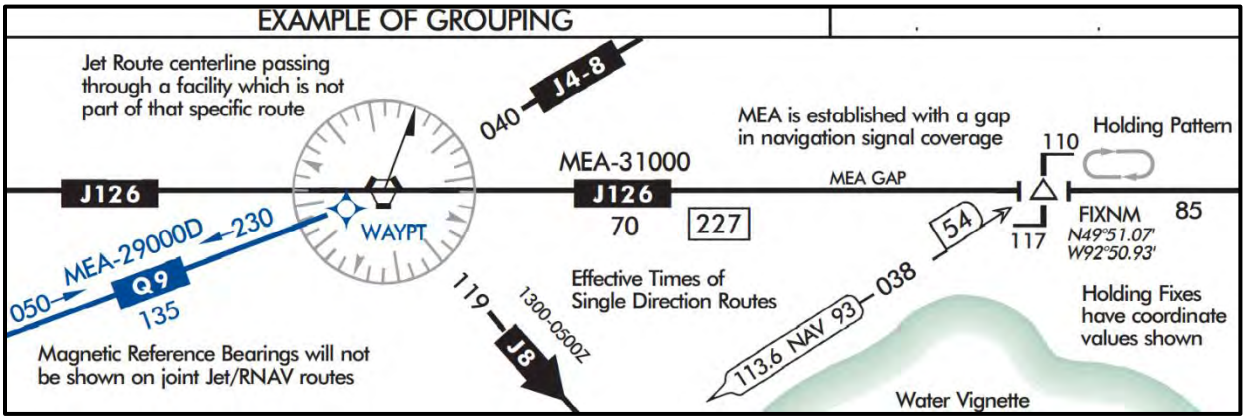


Figure 5-10 High Chart Example of Groupings Legend

7. **Morse Code** (See Figure 5-11)

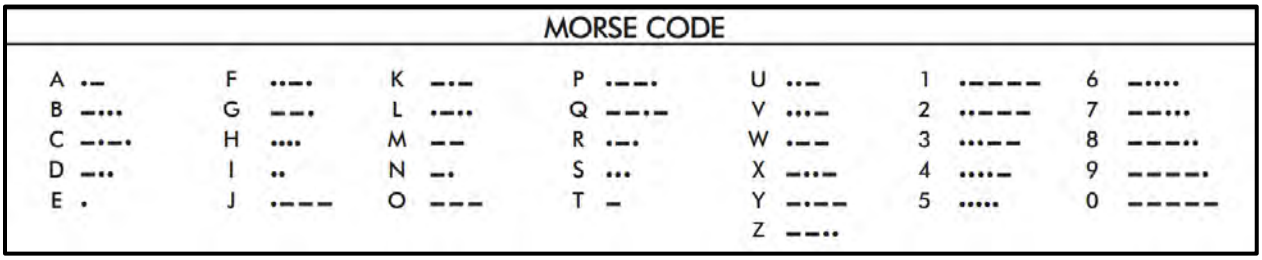


Figure 5-11 High Chart Morse Code Legend

8. Cruising Altitudes (See Figure 5-12)

Note that the rules vary depending on the altitude being flown. While the T-6B is capable of flights up to FL310, without RVSM equipment clearance above FL 280 depends on ATC traffic/workload and requires prior coordination.

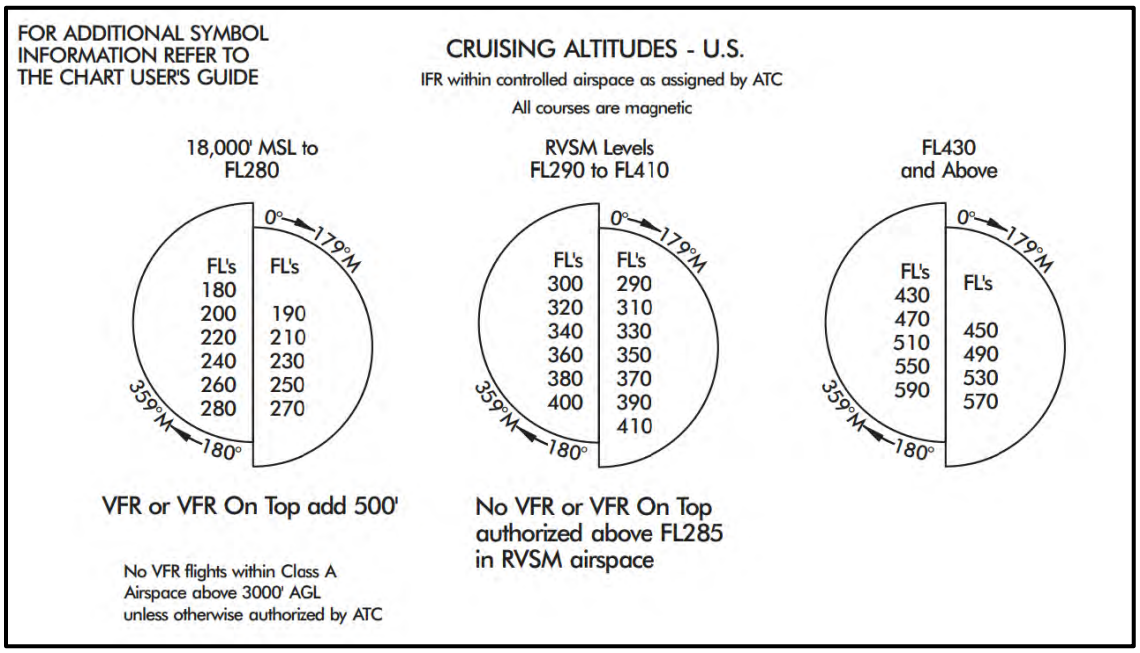


Figure 5-12 High Chart Cruising Altitudes Legend

504. MARGIN DATA

Along the margins (top, bottom and sides) of each chart the following information is found: (See Figure 5-13)

- Indication of which High Altitude Chart that adjoins/overlaps that panel
- The next intersection found along the airway on the adjoining chart
- The identifier and frequency for NAVAID defining the airway on the adjoining chart

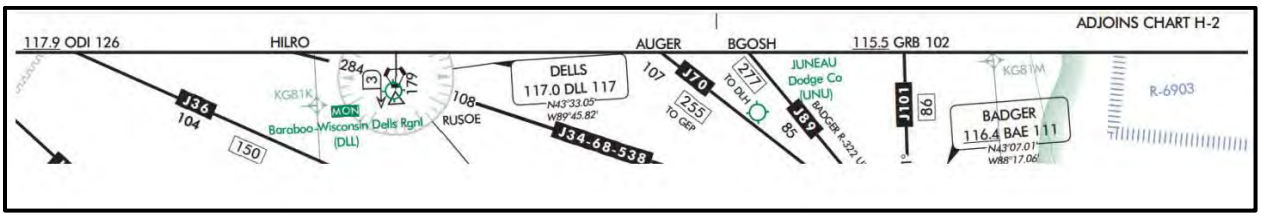


Figure 5-13 High Chart Margin Data (All Sides)

Along the bottom margin the following additional information is provided: (See Figure 5-14)

- The Panel letter for each section
- The chart number
- The most prominent city name located on that panel
- A scale in nautical miles used for that panel

Figure 5-14 High Chart Margin Data (Bottom)

505. CHAPTER FIVE REVIEW QUESTIONS:

Consult other FLIP documents as required for terms, definitions, or explanations as required. Refer to Figure 5-15 for the following questions:

1. What is the NAVAID changeover point when southbound on J19-71 from NORTHBROOK to ROBERTS? _____

2. What type of NAVAID is NORTHBROOK? _____

3. What is the three-letter identifier for the NORTHBROOK NAVAID? _____

4. Write out the Morse code for the NORHTBROOK NAVAID. _____, _____, _____.

5. What is the NAVAID changeover point on J35-101 between JOLIET and PONTIAC? _____

6. What type of airway is Q42? _____

7. In addition to its Morse code identifier, what other information is broadcast on the KOKOMO VORTAC? _____

8. What does MAA-35000 indicate? (Located on J84 between the changeover point and WORDY intersection) _____

9. What does the box with 117 inside of it mean? (Located on J84 between the changeover point and WORDY intersection) _____

10. What is the significance of route data printed in blue? _____

11. What is the green dotted line just west of the GIPPER VORTAC? _____

12. FABIO intersection is located just east of the NORTHBROOK NAVAID. How is it defined (fixed)? Is it a part of J584? _____

13. What type of airport is Grissom ARB? _____

14. Is an Instrument Approach procedure (IAP) and /or RADAR MINIMA published for Grissom ARB? _____

15. What is the Minimum Enroute Altitude (MEA) for J146 between JOLIET and GIPPER? _____

16. Traveling east from JOLIET to GIPPER on J146, what is the new course after the changeover point? _____

17. Traveling from ROBERTS to NORTHBROOK on J19-71, due to forecasted winds aloft you expect to fly a wind corrected heading of 355° to track along that airway. For this leg of your flight, you should plan for what type of altitude between FL180 and FL280? _____

18. IFR Enroute High Altitude charts are not to be used above FL280. (TRUE/FALSE)

19. Can voice be transmitted on the NORTHBROOK VOR? _____

20. What category of NAVAID is the GIPPER VORTAC? _____

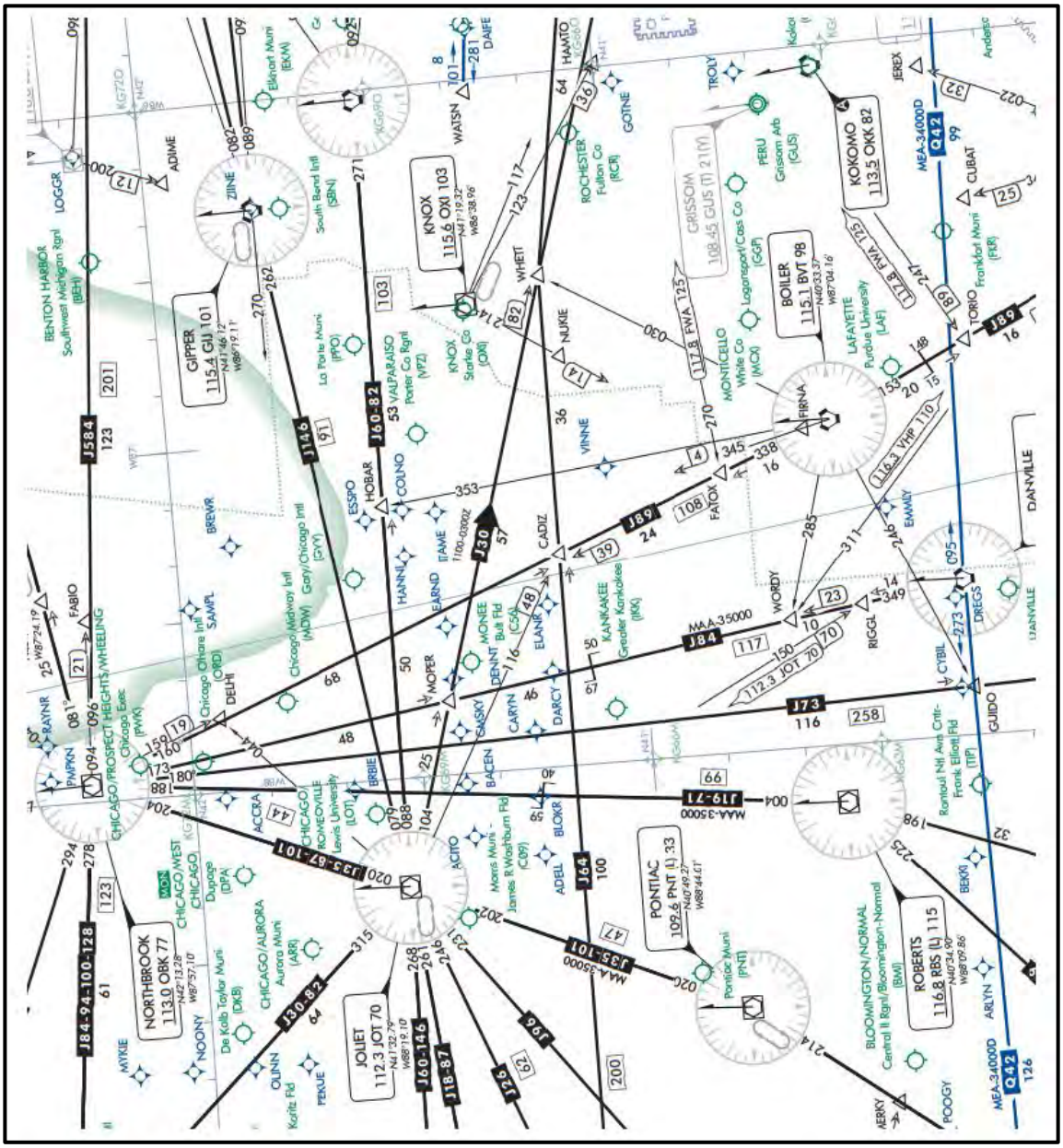


Figure 5-15 Sample High Altitude Chart

CHAPTER SIX
FLIP AREA CHARTS - U.S. (AC)

600. INTRODUCTION

These charts portray the airway system and related data required for IFR operations in selected terminal areas at altitudes below 18,000 feet Mean Sea Level. Currently fourteen variable scale charts are printed on one sheet.

The Area Charts provide greater detail for congested areas around major airports. Chart layout and symbology are the same as the IFR ENROUTE LOW ALTITUDE – U.S. charts. As such they have no legends attached to them.

601. FRONT COVER

The front cover depicts effective date and cities at which Area Charts available.

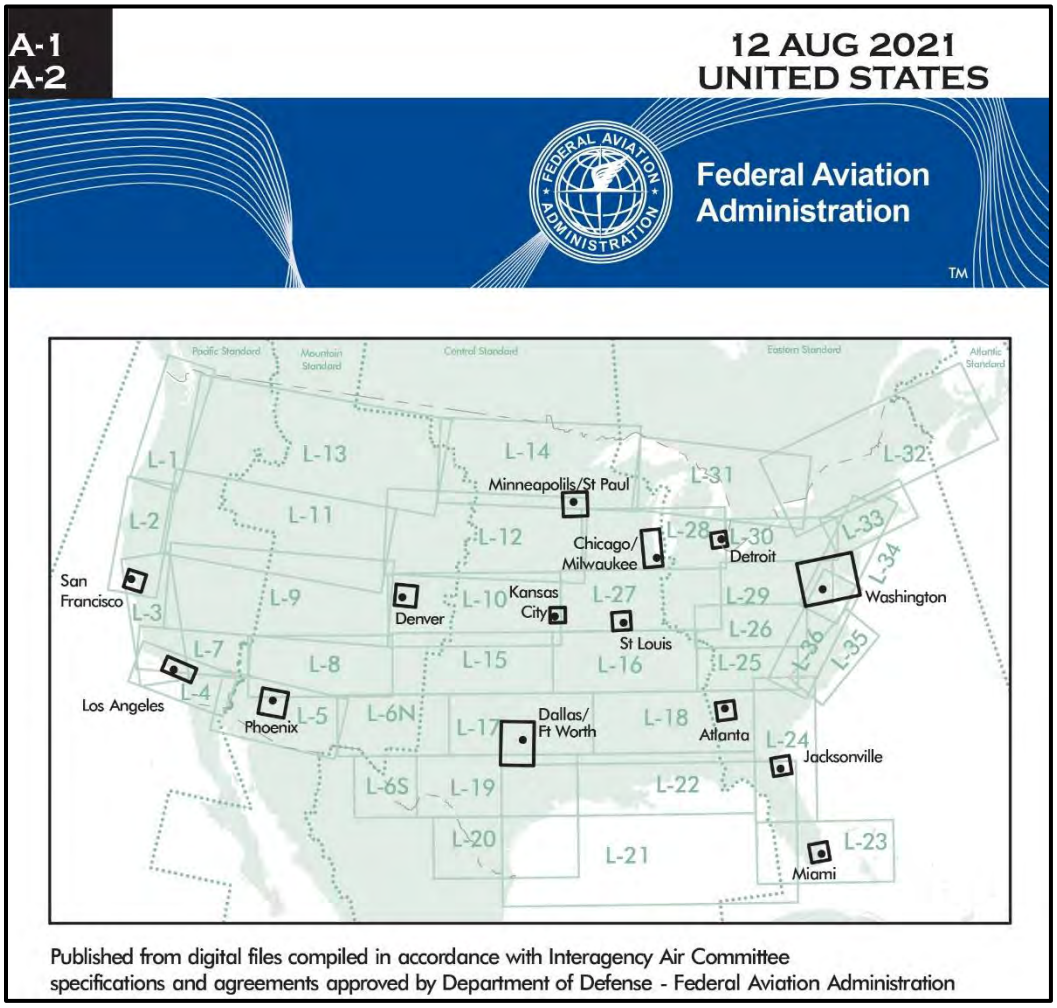
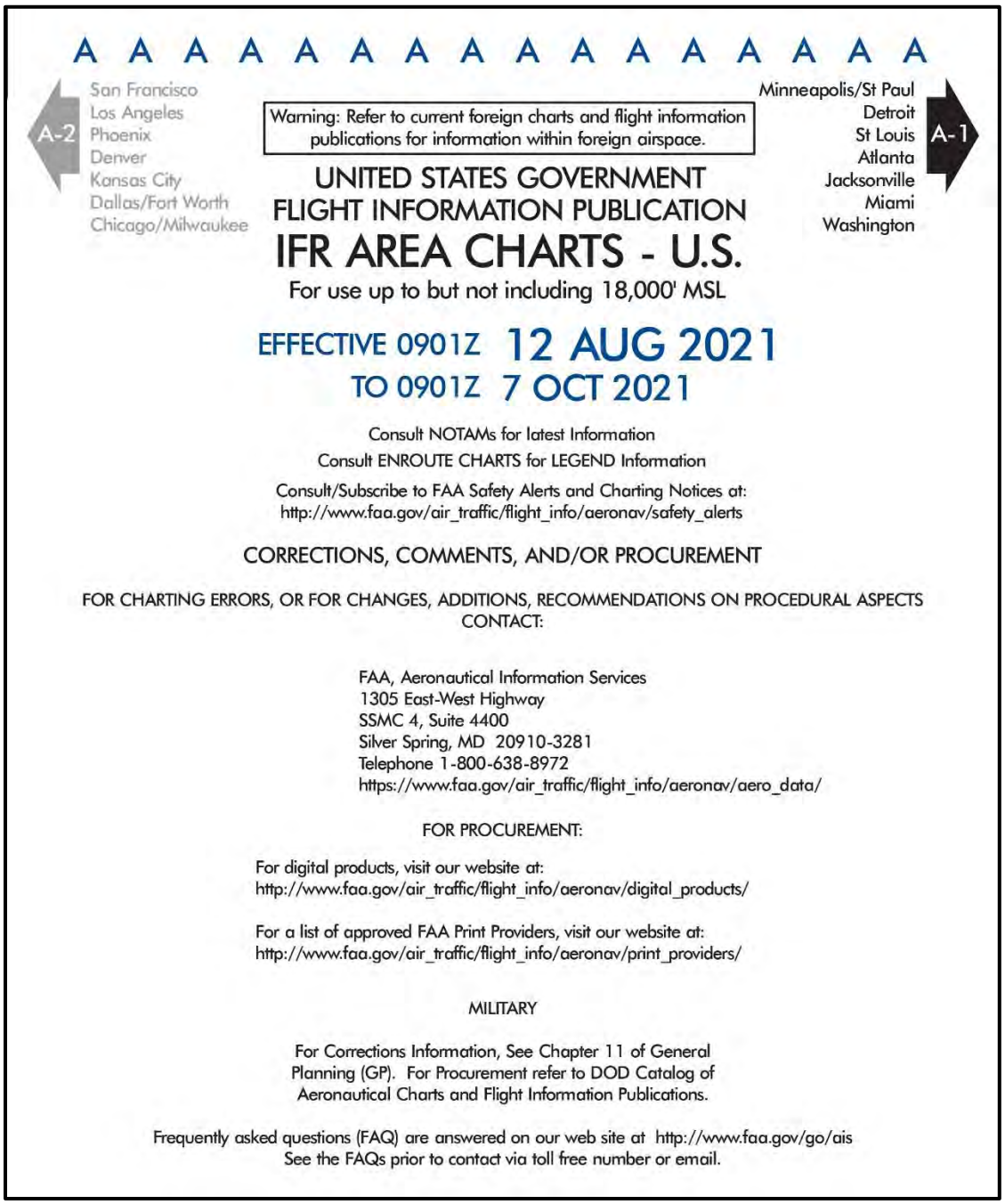


Figure 6-1 Area Chart (Front Cover)

602. BACK COVER

The back cover list the effective dates and depicts which chart contains which cities. Because Area Charts have no legend there is a statement directing the user to "Consult Enroute Charts for Legend Information."



A A A A A A A A A A A A A A A A

A-2
San Francisco
Los Angeles
Phoenix
Denver
Kansas City
Dallas/Fort Worth
Chicago/Milwaukee

Warning: Refer to current foreign charts and flight information publications for information within foreign airspace.

Minneapolis/St Paul
Detroit
St Louis
Atlanta
Jacksonville
Miami
Washington
A-1

UNITED STATES GOVERNMENT
FLIGHT INFORMATION PUBLICATION

IFR AREA CHARTS - U.S.

For use up to but not including 18,000' MSL

EFFECTIVE 0901Z 12 AUG 2021
TO 0901Z 7 OCT 2021

Consult NOTAMs for latest Information

Consult ENROUTE CHARTS for LEGEND Information

Consult/Subscribe to FAA Safety Alerts and Charting Notices at:
http://www.faa.gov/air_traffic/flight_info/aeronav/safety_alerts

CORRECTIONS, COMMENTS, AND/OR PROCUREMENT

FOR CHARTING ERRORS, OR FOR CHANGES, ADDITIONS, RECOMMENDATIONS ON PROCEDURAL ASPECTS CONTACT:

FAA, Aeronautical Information Services
1305 East-West Highway
SSMC 4, Suite 4400
Silver Spring, MD 20910-3281
Telephone 1-800-638-8972
https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/

FOR PROCUREMENT:

For digital products, visit our website at:
http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/

For a list of approved FAA Print Providers, visit our website at:
http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/

MILITARY

For Corrections Information, See Chapter 11 of General Planning (GP). For Procurement refer to DOD Catalog of Aeronautical Charts and Flight Information Publications.

Frequently asked questions (FAQ) are answered on our web site at http://www.faa.gov/go/ais
See the FAQs prior to contact via toll free number or email.

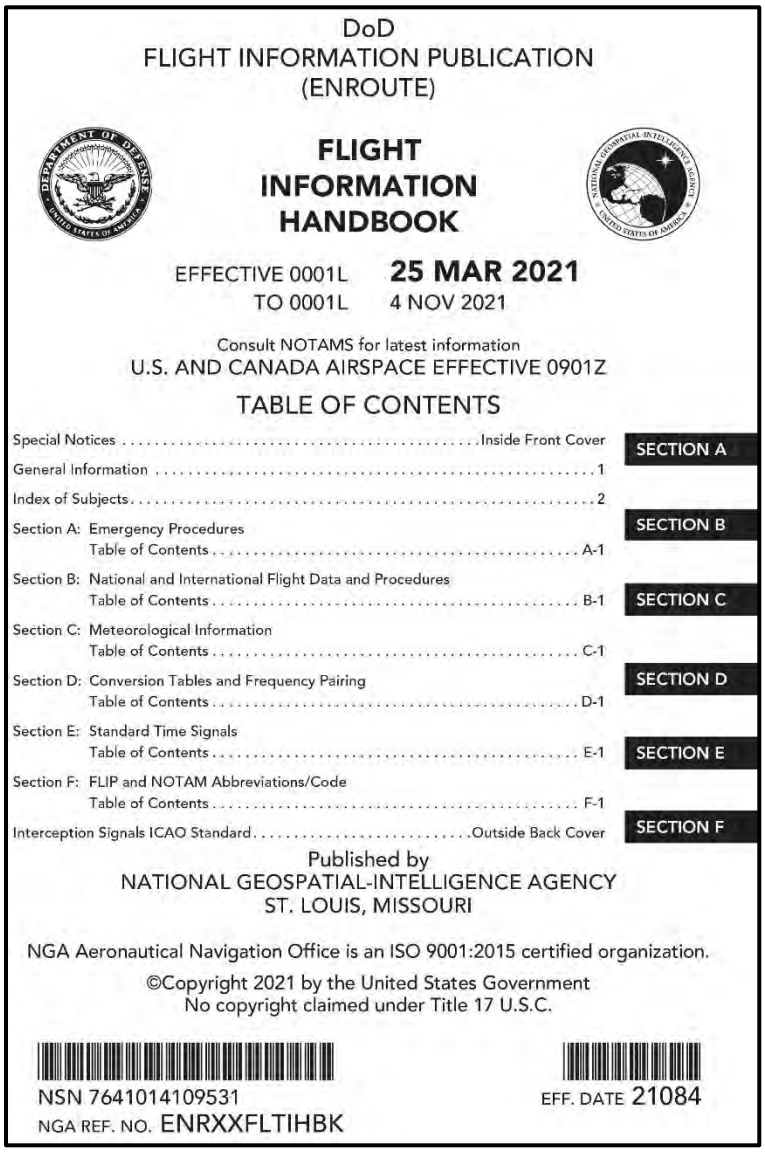
Figure 6-2 Area Chart (Back Cover)

CHAPTER SEVEN
FLIP FLIGHT INFORMATION HANDBOOK (FIH)

700. INTRODUCTION

This handbook contains aeronautical information required by DoD aircrews in flight, but which is not subject to frequent change. Due to the vast amount of material contained in this publication, it is not practical to be memorized. However, familiarity and ready access to the content is essential.

The front cover displays effective dates and a table of contents for the publication (a more detailed table of contents precedes each individual section). (See Figure 7-1)



DoD
FLIGHT INFORMATION PUBLICATION
(ENROUTE)

FLIGHT INFORMATION HANDBOOK

EFFECTIVE 0001L **25 MAR 2021**
TO 0001L 4 NOV 2021

Consult NOTAMS for latest information
U.S. AND CANADA AIRSPACE EFFECTIVE 0901Z

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SECTION B
SECTION C
SECTION D
SECTION E
SECTION F

Published by
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
ST. LOUIS, MISSOURI

NGA Aeronautical Navigation Office is an ISO 9001:2015 certified organization.

NSN 7641014109531
NGA REF. NO. ENRXXFLTIHBK
EFF. DATE 21084

Figure 7-1 FIH (Front Cover)

The inside front cover list any Special Notices concerning new flip features.

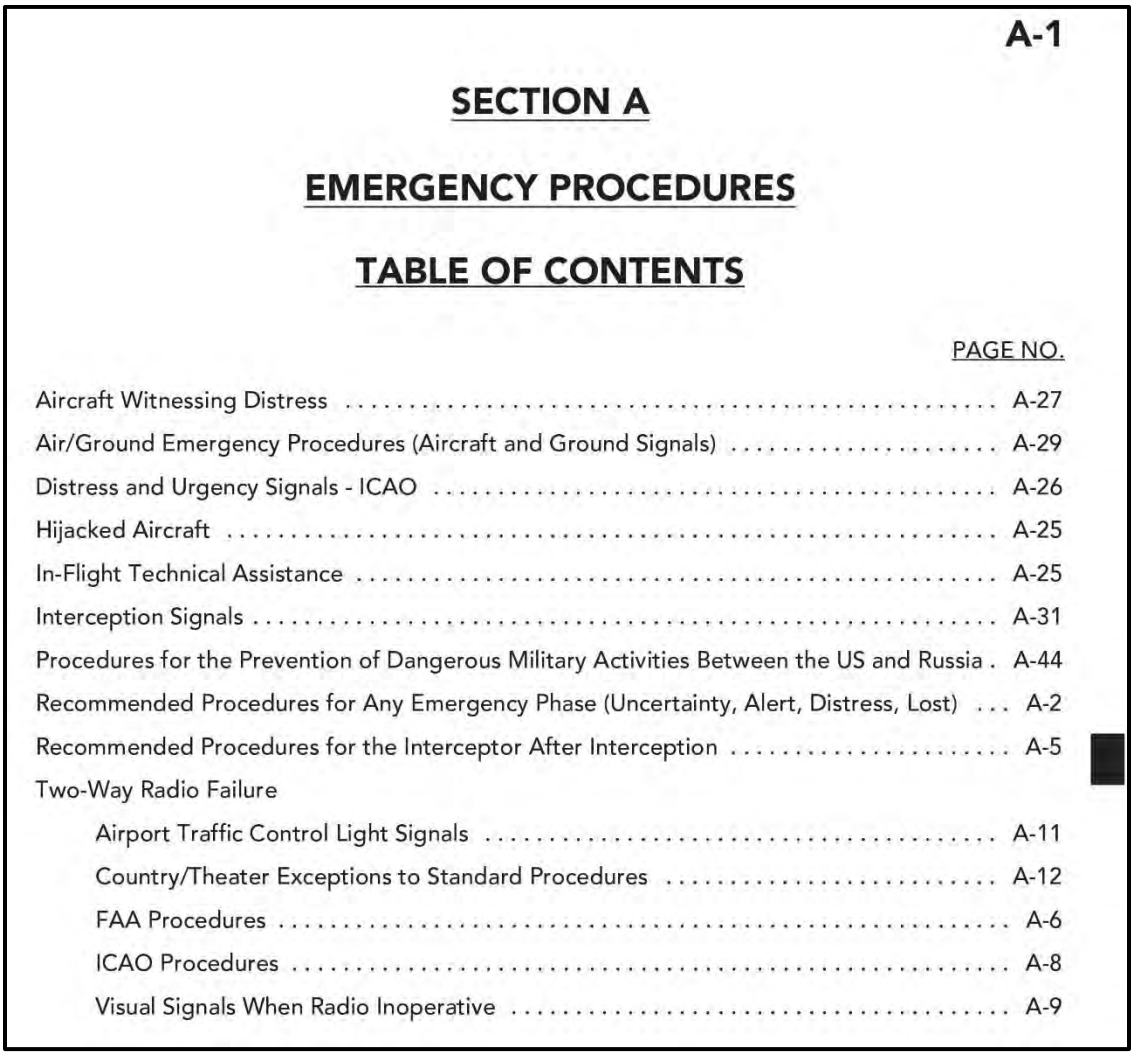
Page one contains general information concerning management of the FIH publication.

Page two is an alphabetical index of subjects. It lists which section a particular topic may be found in.

The Back cover provides a ready reference for ICAO aircraft Interception procedures (the inside back cover is for the FAA rules). For countries that have different rules they are covered in section A. Hopefully you will be the one doing the intercepting.

The main content of information is divided into the six sections.

701. SECTION A: EMERGENCY PROCEDURES



A-1

SECTION A

EMERGENCY PROCEDURES

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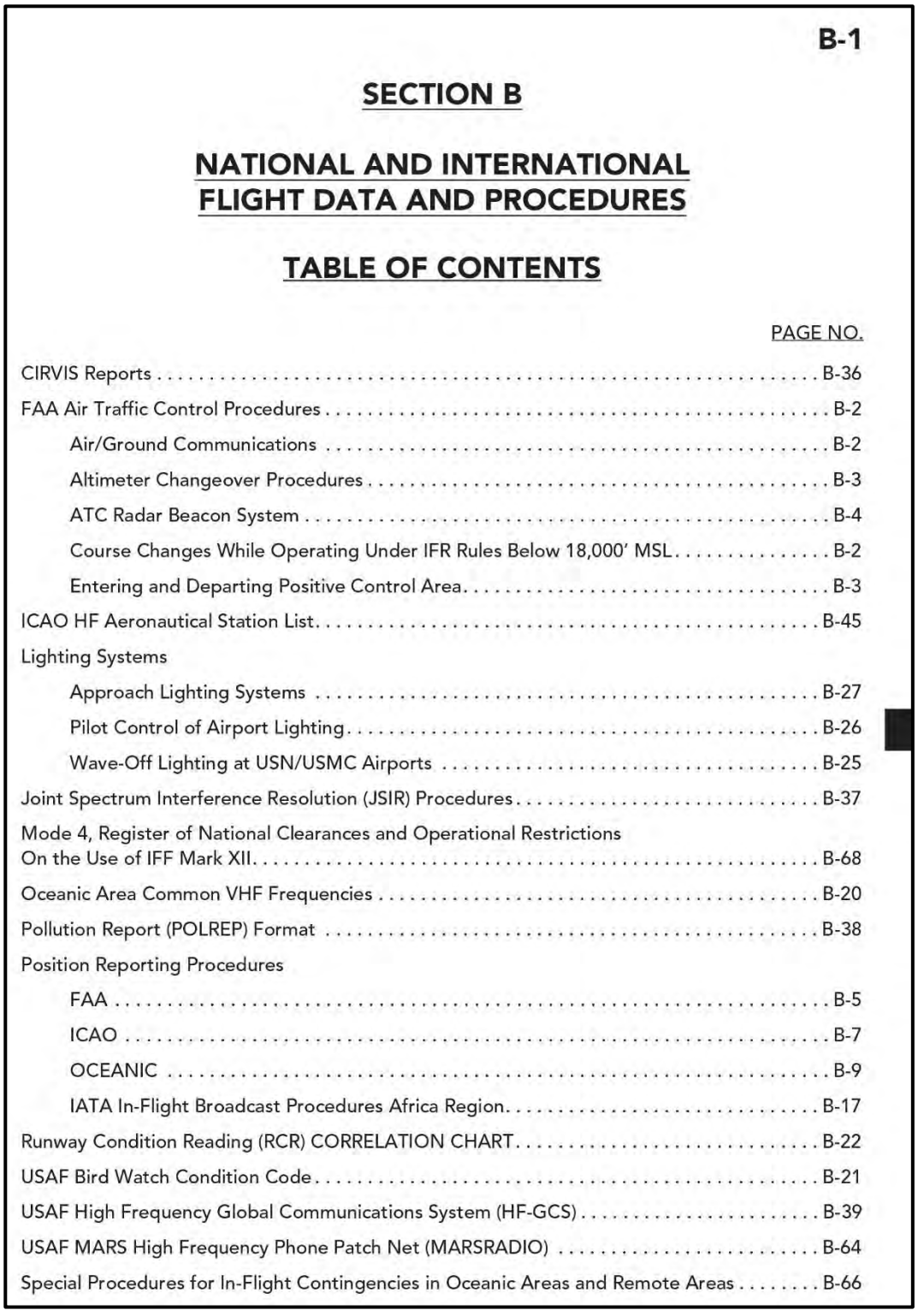
Figure 7-2 FIH Section A: Emergency Procedures

702. SECTION B: NATIONAL AND INTERNATIONAL FLIGHT DATA AND PROCEDURES



B-1

SECTION B

NATIONAL AND INTERNATIONAL FLIGHT DATA AND PROCEDURES

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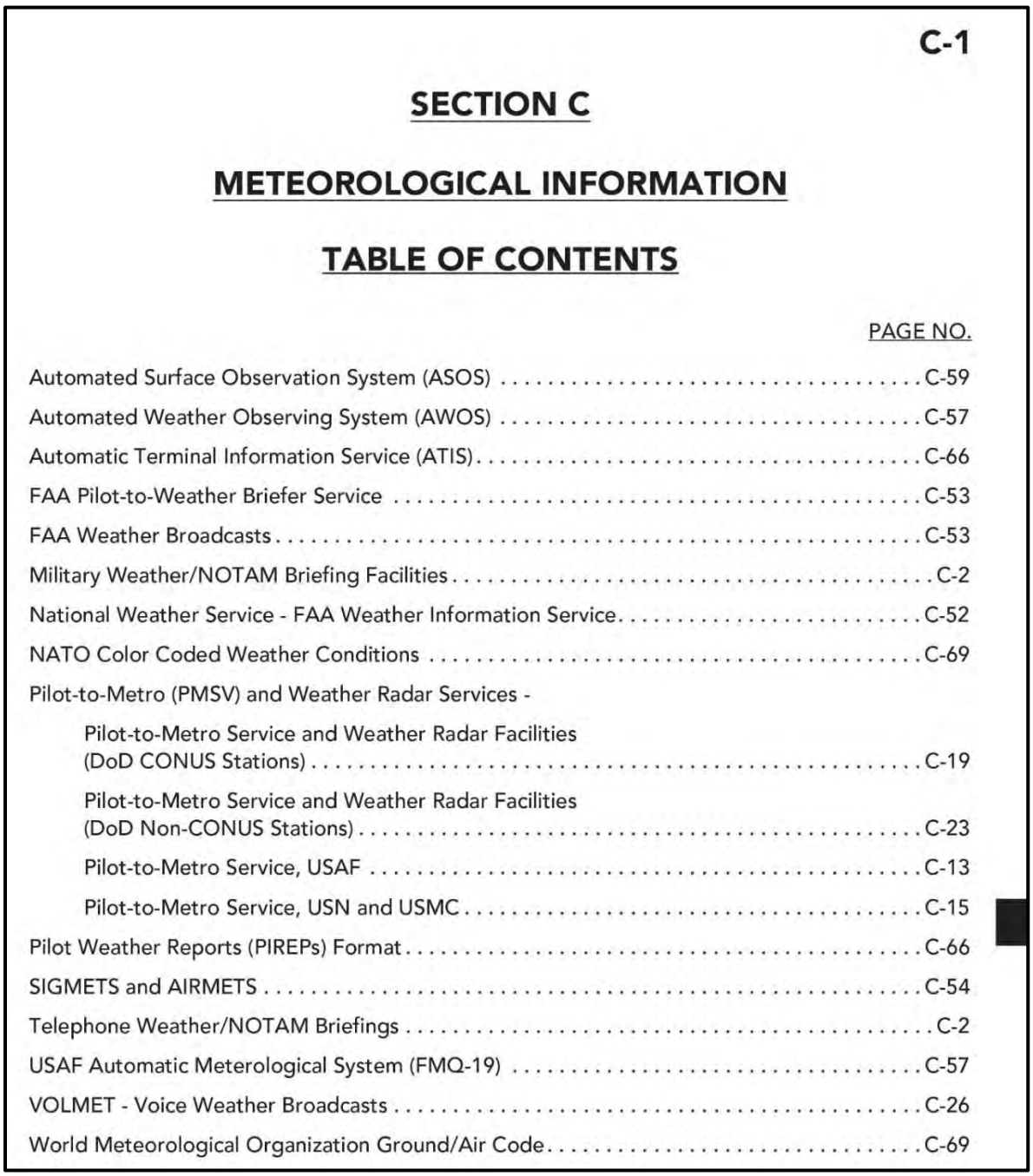
Figure 7-3 FIH Section B: National and International Flight Data and Procedures

703. SECTION C: METEOROLOGICAL INFORMATION



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SECTION C

METEOROLOGICAL INFORMATION

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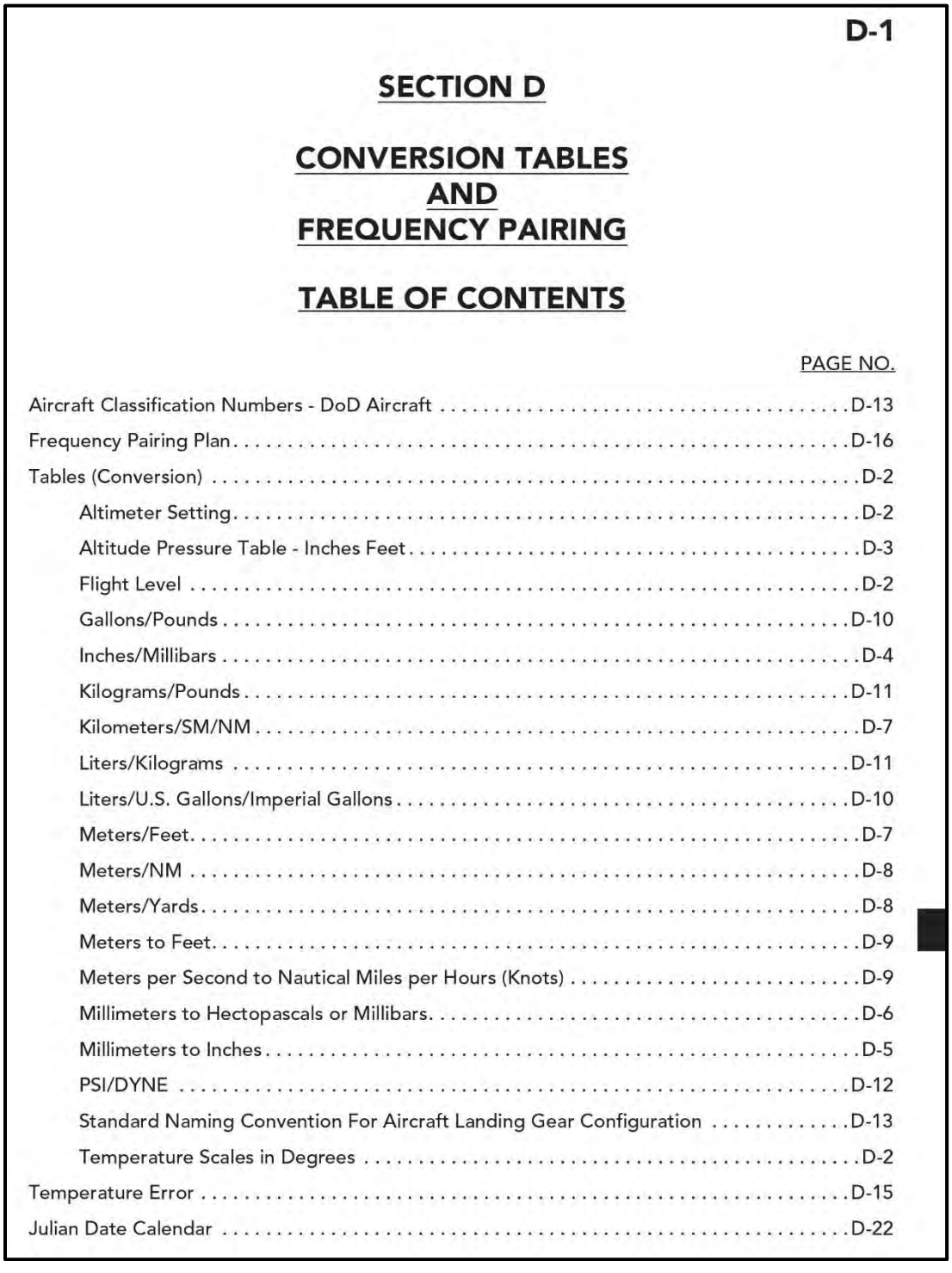
Figure 7-4 FIH Section C: Meteorological Information

704. SECTION D: CONVERSION TABLES



D-1

SECTION D

CONVERSION TABLES
AND
FREQUENCY PAIRING

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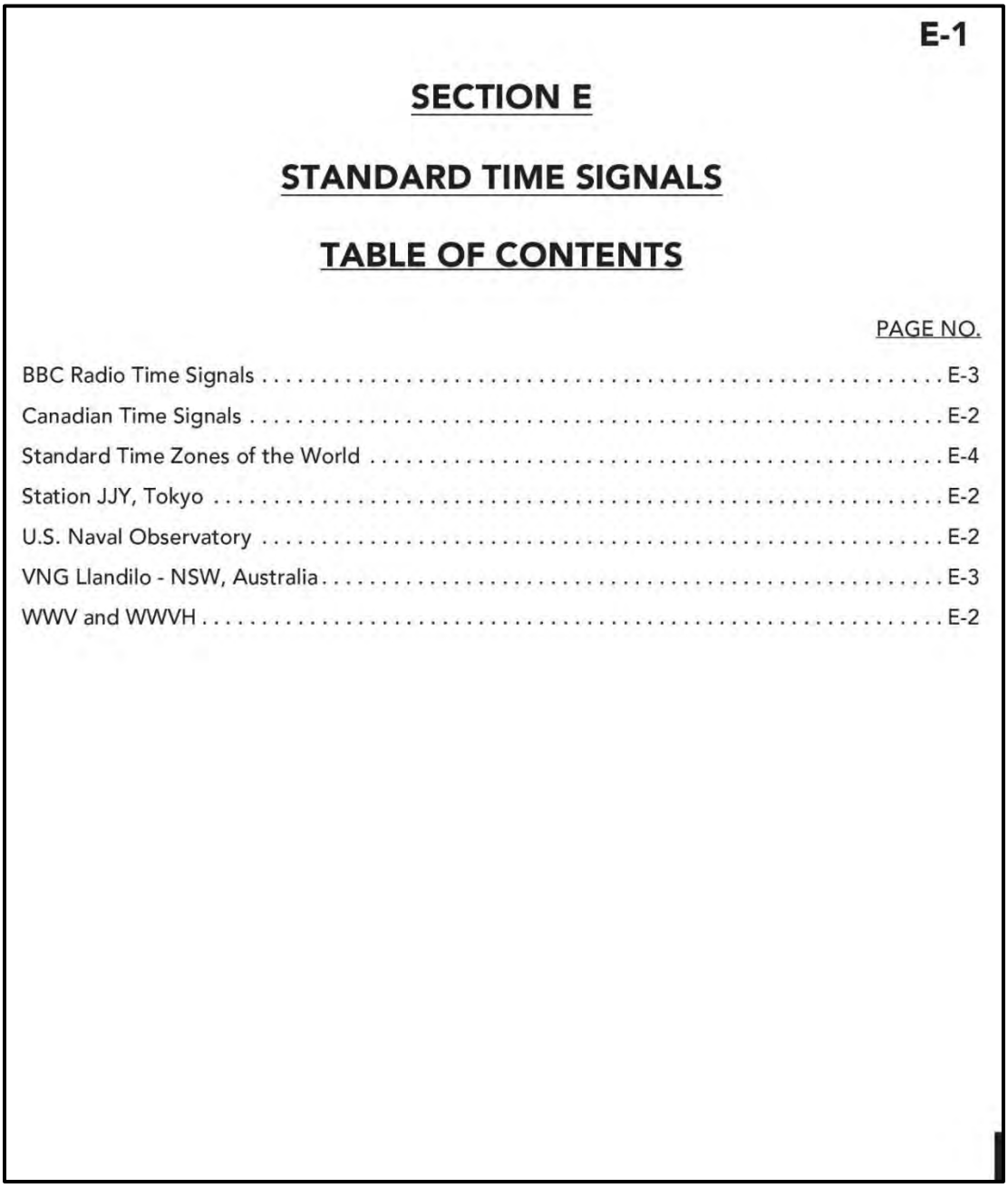
Figure 7-5 FIH Section D: Conversion Tables

705. SECTION E: STANDARD TIME SIGNALS



E-1

SECTION E

STANDARD TIME SIGNALS

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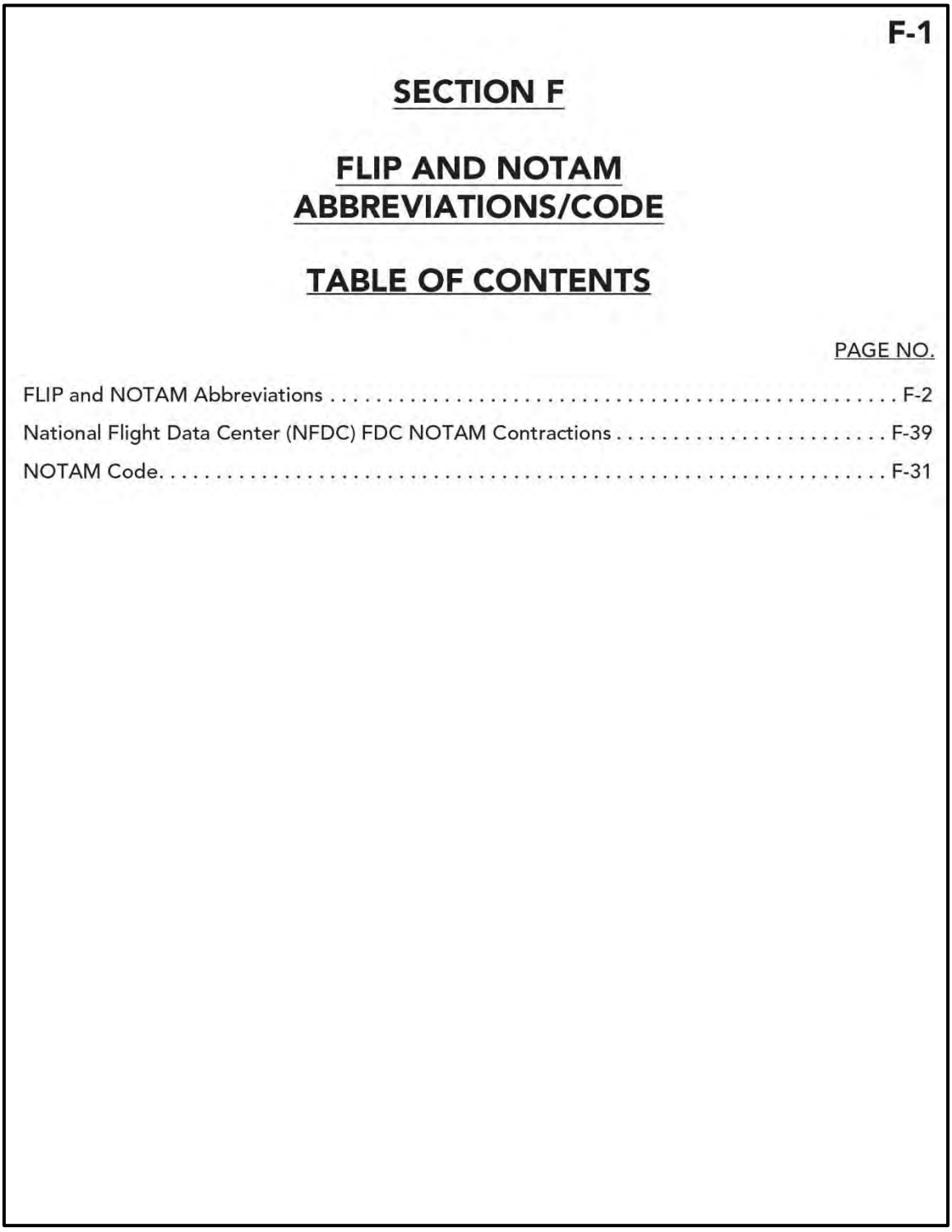
Figure 7-6 FIH Section E: Standard Time Signals

706. SECTION F: FLIP AND NOTAM ABBREVIATIONS/CODE



F-1

SECTION F

FLIP AND NOTAM ABBREVIATIONS/CODE

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Figure 7-7 FIH Section F: FLIP and NOTAM Abbreviations/Code

707. CHAPTER SEVEN REVIEW QUESTIONS

Refer to the Flight Information Handbook to answer the following questions.

1. Information concerning lighting systems can be found in section ____ of the FIH.

2. If communications are lost during an IFR flight, aircraft equipped with a coded radar beacon transponder should set _____ in their transponder.

3. During two-way radio communications failure pilots can expect ATC to attempt contact with them on _____ and _____.

4. Acknowledge Airport Traffic Control Light Signals at night by _____.

5. The normal NAVAID spacing below 18,000 feet MSL is _____ NM.

6. The protected airspace along and airway when with 51 NM of the facility has a total width of ____ NM, _____ NM each side of centerline.

7. In a climb, Altimeter Changeover Procedures require you to set _____ in the altimeter upon reaching _____ feet MSL.

8. In a radar environment, list the "Additional Reports" that should be made without a specific ATC request.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

9. The symbol (A5) is used to denote the _____ approach lighting system. A dot "•" portrayed with the approach lighting letter indicates _____.

10. The primary purpose for PILOT-TO-METRO SERVICE (PMSV), USN AND USMC is for communicating various types of weather information to pilots. It is also used to; _____ and _____.

11. PMSV at NAS Pensacola can be contacted on _____. Their radio call is _____.

12. The FAA Weather Service is available 24 hours a day in person, by radio or phone. They provide three types of preflight weather briefings. If using this service for flight planning the night before your departure you should request a _____ briefing. This brief is for _____.

13. A convective SIGMET would be issued by the NWS for a severe thunderstorm with winds greater than or equal to_____ or hail at the surface greater than or equal to _____.

14. Automated Surface Observation System (ASOS) is found at many airports in the U.S. It provides minute-by-minute weather observations. It can be transmitted over a VHF radio frequency or the voice portion of a local NAVAID. It is engineered to be receivable to a maximum of _____ NM from the ASOS site and a maximum altitude of _____ AGL.

15. The Aviation Routine Weather Report (METAR) intensity symbol of **(+)** means _____ and the precipitation designation of "GR" means _____.

16. Pilot Reports (PIREPs) will be made _____, _____, _____, _____, and _____.

17. According to the Frequency Pairing Plan, the TACAN DME channel 119x at NAS Pensacola is paired with a VOR frequency of _____. This is useful information when using the DME hold function in the T-6B!

18. Decode the following FLIP and NOTAM abbreviations:

19. ALS _____

20. AWY _____

21. CNF _____

22. FBO _____

23. HIRL _____

24. O/S _____

25. UFN _____

26. unuse _____

27. The ICAO NOTAM code contains a total of 5 letters. The first letter is always a Q. The second and third letters identify _____. The fourth and fifth letters denote _____. A code of QICAC indicates _____.

CHAPTER EIGHT
FLIP STANDARD TERMINAL ARRIVALS (STAR)

800. INTRODUCTION

A STAR is an ATC coded IFR arrival route designed to expedite air traffic control arrival procedures and facilitate transition between the enroute phase of flight and terminal instrument approach operations.

Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location. All STARs for the 48 contiguous States are published in one volume. (See Figure 8-1)

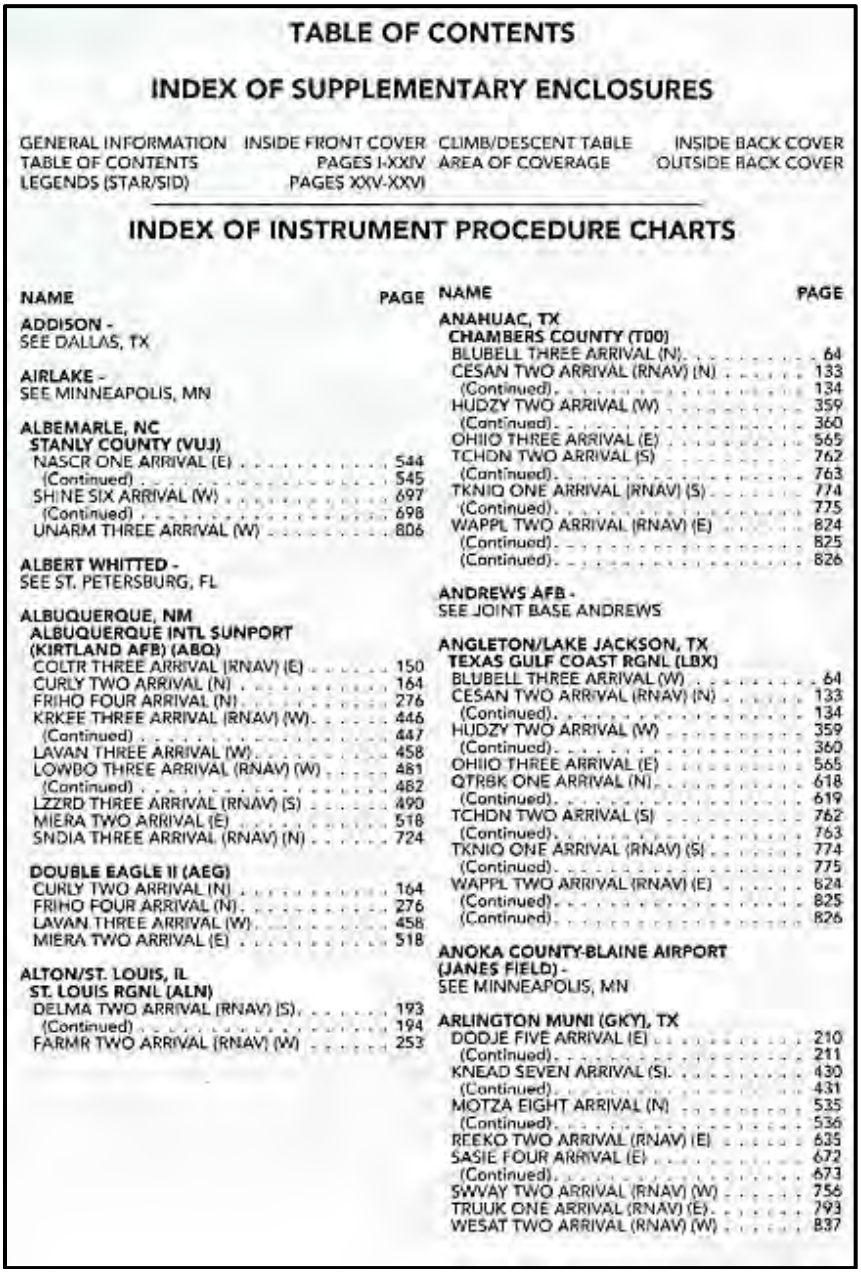
These procedures may be required when your destination or alternate is located at or near high traffic terminals. Always check to see if there is a STAR associated with your destination/alternate. Expect to use them or be prepared for delays and/or re-routing.

Figure 8-1 FLIP STAR (Front Cover)

801. FILING AND CLEARANCE FOR A STAR

1. Selecting A Star

An "Index of Instrument Procedure Charts" is located in the front of the STAR publication. (See Figure 8-2) This index is an alphabetical list by city/state and airport name. Under each airport the STAR names and page numbers can be found. The STAR charts are published in alphabetical order by the STAR name.



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INDEX OF SUPPLEMENTARY ENCLOSURES

INDEX OF INSTRUMENT PROCEDURE CHARTS

Figure 8-2 STAR Index of Instrument Procedure Charts

2. Filing a Star

The top and bottom margins of each chart contains the plain language name and number of the STAR, the city and state it is designed for, and in parenthesis an ATC code for that chart. For example, in Figure 8-3a the plain language name for the star covering the New Orleans, Louisiana area is the RHYTHM FOUR ARRIVAL. The ATC code for the chart is RYTHM.RYTHM4.

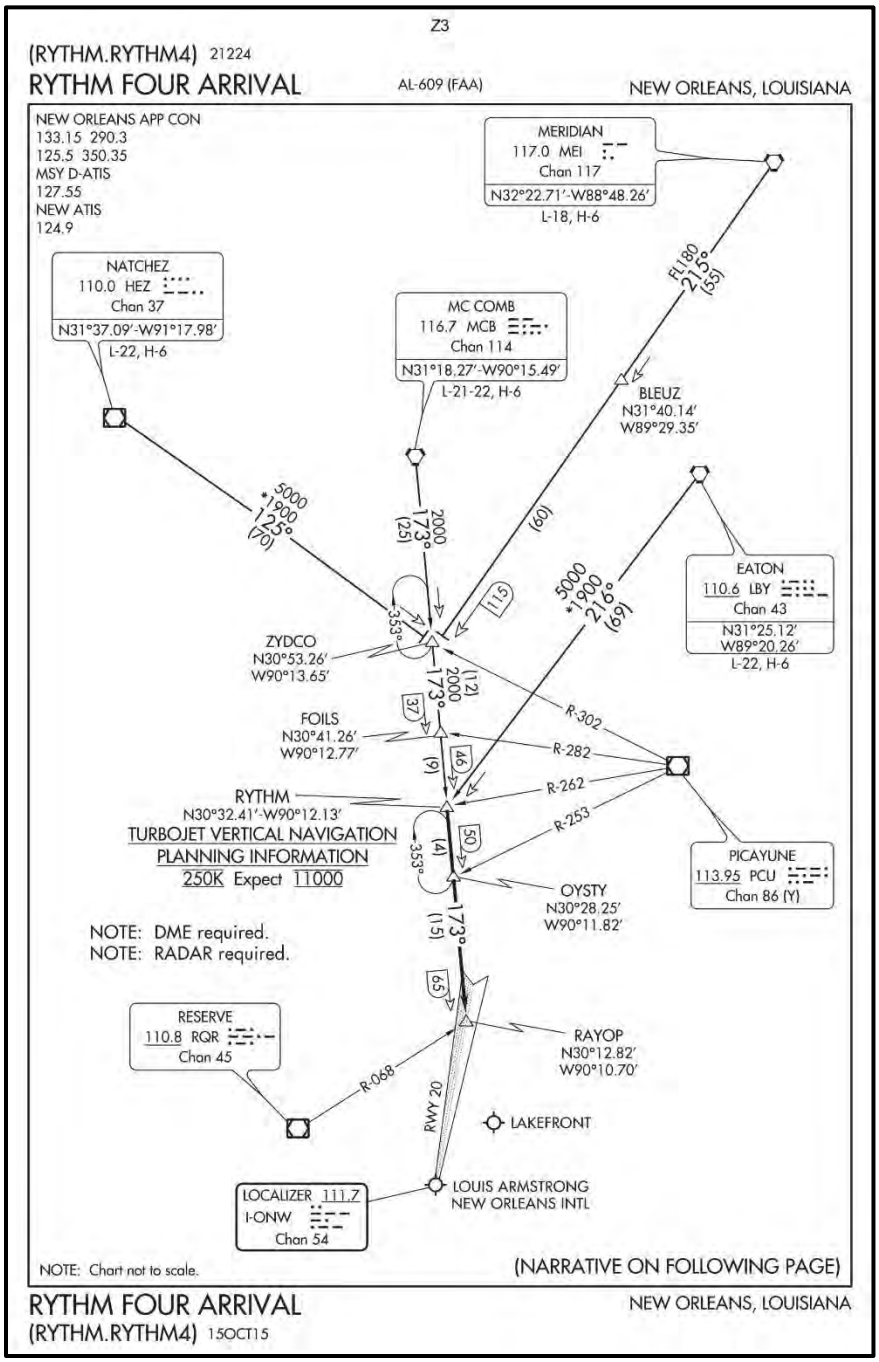


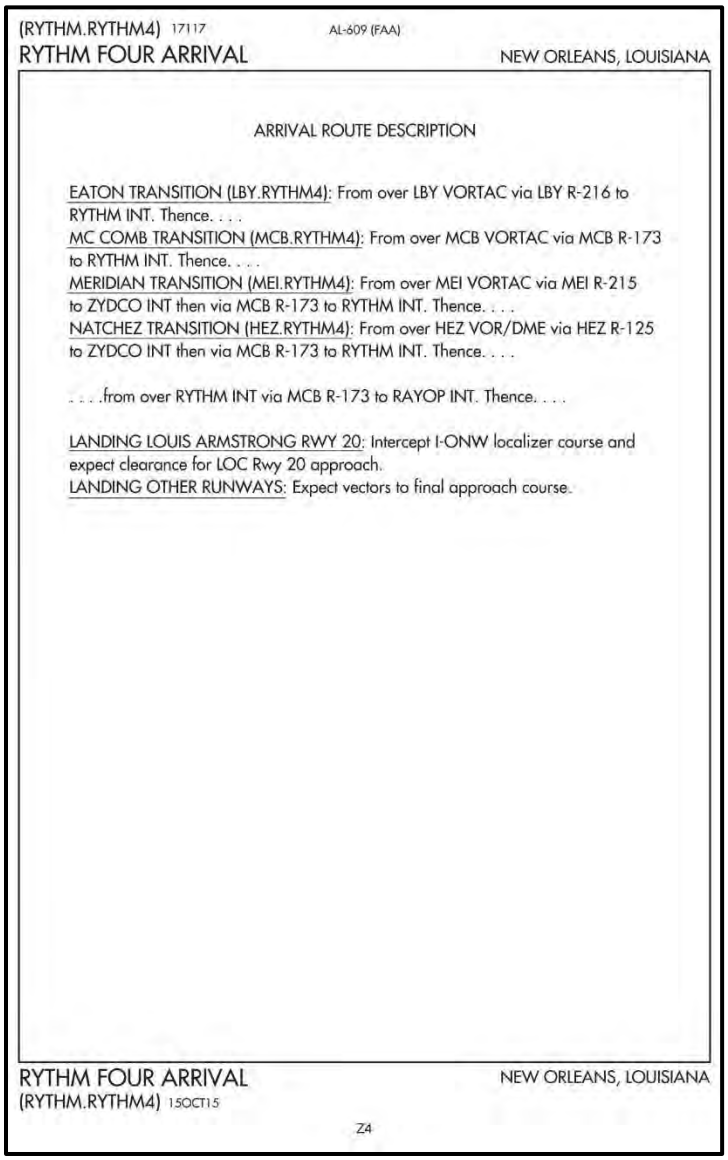
Figure 8-3a STAR Example

Each chart may have multiple Arrival/Transition Routes. These transitions also have individual plain language names followed by their specific ATC codes in parenthesis.

To continue our previous example, if you plan to enter the STAR from the EATON VORTAC (See Figure 8-3a), you should look for transition information.

This transition information may be on the first page of the chart or may be found on following pages. On page two of our example (See Figure 8-3b), the plain language name for the transition we would need is the EATON TRANSITION. The ATC code of LBY.RYTHM4 for that transition is what should be entered in the route of flight on our flight plan.

Selecting the appropriate ATC code for filing will avoid confusion and unnecessary delays.



(RYTHM.RYTHM4) 17117 AL-609 (FAA)

RYTHM FOUR ARRIVAL NEW ORLEANS, LOUISIANA

ARRIVAL ROUTE DESCRIPTION

EATON TRANSITION (LBY.RYTHM4): From over LBY VORTAC via LBY R-216 to RYTHM INT. Thence. . . .
MC COMB TRANSITION (MCB.RYTHM4): From over MCB VORTAC via MCB R-173 to RYTHM INT. Thence. . . .
MERIDIAN TRANSITION (MEI.RYTHM4): From over MEI VORTAC via MEI R-215 to ZYDCO INT then via MCB R-173 to RYTHM INT. Thence. . . .
NATCHEZ TRANSITION (HEZ.RYTHM4): From over HEZ VOR/DME via HEZ R-125 to ZYDCO INT then via MCB R-173 to RYTHM INT. Thence. . . .

. . . .from over RYTHM INT via MCB R-173 to RAYOP INT. Thence. . . .

LANDING LOUIS ARMSTRONG RWY 20: Intercept I-ONW localizer course and expect clearance for LOC Rwy 20 approach.
LANDING OTHER RUNWAYS: Expect vectors to final approach course.

RYTHM FOUR ARRIVAL NEW ORLEANS, LOUISIANA
(RYTHM.RYTHM4) 15OCT15

Z4

Figure 8-3b STAR Example (cont.)

8-4 FLIP STANDARD TERMINAL ARRIVALS (STAR)

3. Clearance for a Star

Legends for symbology on the STAR Charts are located in the front of the publication after the Index of Instrument Procedure Charts. (See Figures 8-4a and 8-4b). These charts have features used on both the IFR Enroute Low/High Charts and the FLIP Terminal Low/High Approach Plates.

STAR procedures may have mandatory speeds and/or crossing altitudes published. Other STARs may have planning information depicted to inform pilots what clearances or restrictions to "***expect***." "***Expect***" altitudes/speeds are not considered STAR procedures crossing restrictions unless verbally issued by ATC.

Published speed restrictions are independent of altitude restrictions and are mandatory unless modified by ATC. Pilots should plan to cross waypoints with a published speed restriction, at the published speed, and should not exceed this speed past the associated waypoint unless authorized by ATC or a published note to do so.

Pilots cleared for STAR procedures are expected to laterally navigate as depicted, comply with published speed restrictions, and ***must maintain last assigned altitude*** unless otherwise instructed by ATC. If the clearance for the STAR contains the phraseology "***descend via***" the pilot is authorized and expected to ***descend*** so as to comply with all published/issued restrictions.

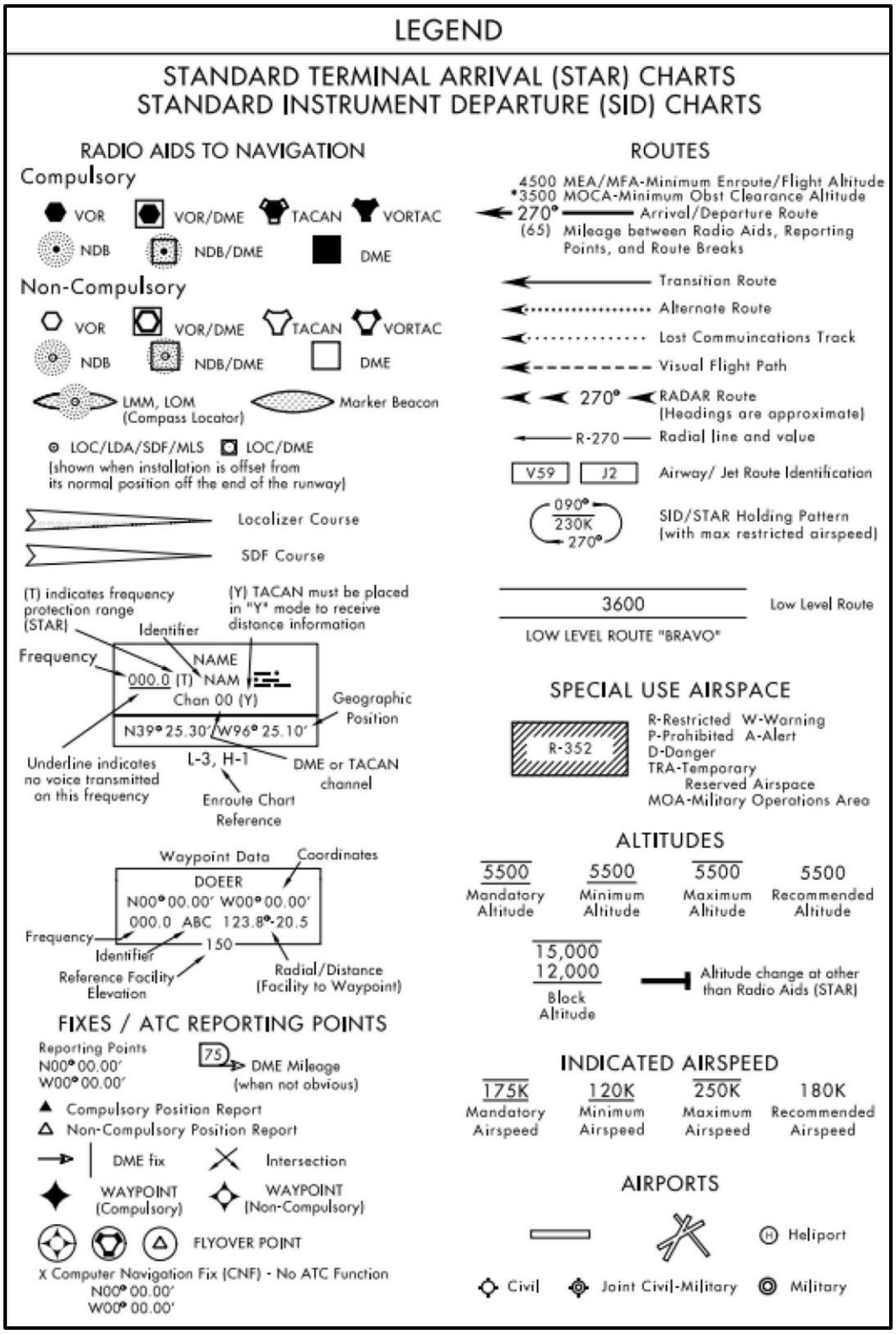


Figure 8-4a STAR Legend

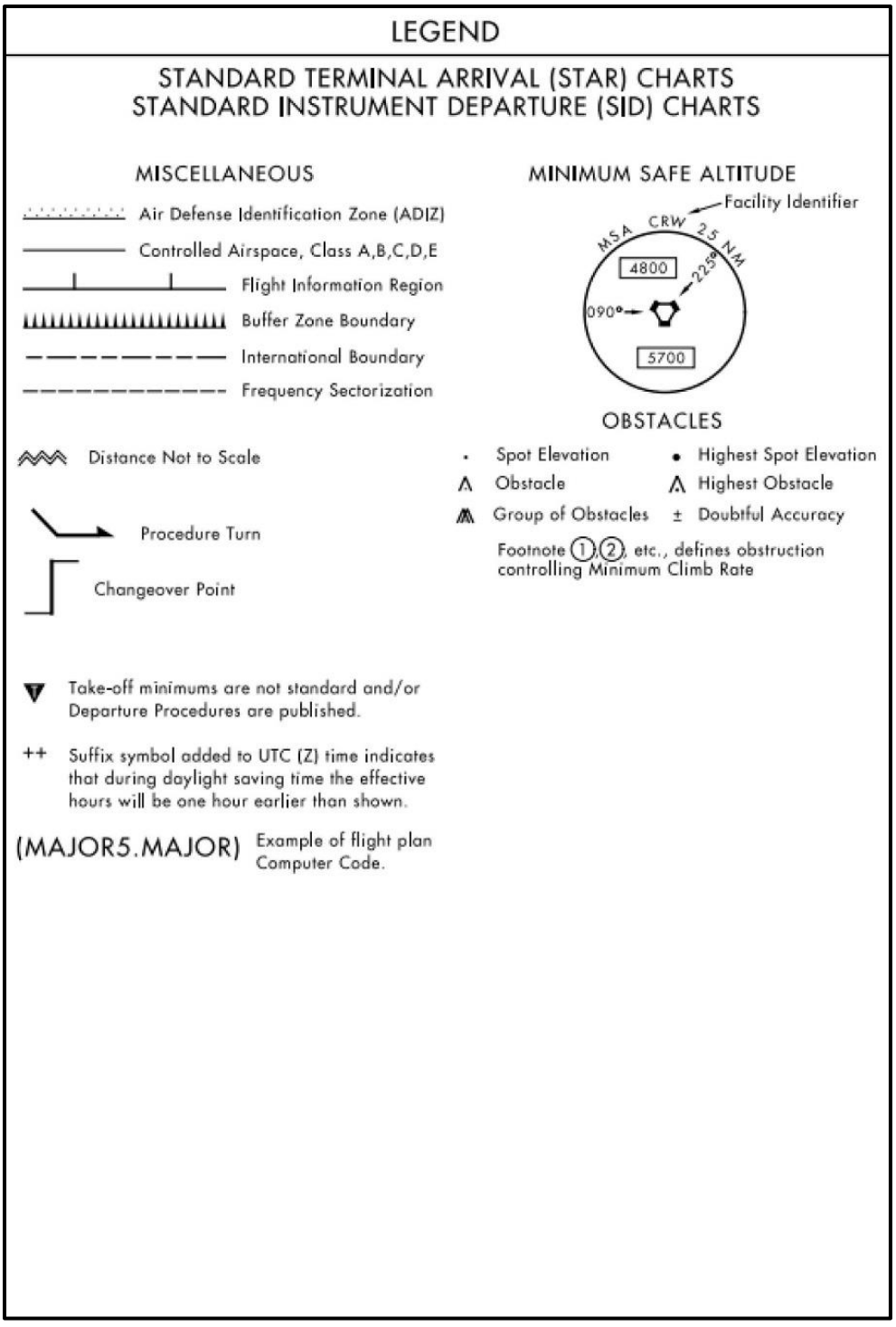


Figure 8-4b STAR Legend (cont.)

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CHAPTER NINE
FLIP TERMINAL LOW ALTITUDE (T LA)

900. INTRODUCTION

The FLIP Terminal Low Altitude publications for the United States currently consist of twenty-two bound booklets. They contain Instrument Approach Procedures (IAPs), Airport Diagrams, Standard Instrument Departures (SIDs) and Radar Instrument Approach Minimums along with other useful information. These volumes contain ***all DoD*** (Low Altitude) terminal instrument procedures and ***selected civil*** terminal instrument procedures requested by the military for the 48 contiguous States.

901. FRONT AND BACK COVER

1. The Front Cover (See Figure 9-1) shows the publication volume number, a graphic portrayal of the states contained, and the effective dates. Note it covers an eight-week cycle. Midway through the cycle (at the four-week point) revisions are published in a separate TCN (Terminal Change Notice). (See Figure 9-2)

If your flight will occur on or after the TCN effective date, you must check the TCN. All airports which have revised, added, or deleted terminal procedures (IAPs, Radar Minima, Airport Diagrams, or SIDs) are listed alphabetically in the TCN table of contents. If the airport of intended landing/departure is not listed in the table of contents of the TCN, then the airport information in the basic volume has not changed. TCNs cover all revisions to both the FLIP Terminal HIGH and LOW Publications.

DOD VOL-19
FLIGHT INFORMATION PUBLICATION
(TERMINAL)

LOW ALTITUDE UNITED STATES

RADAR INSTRUMENT APPROACH MINIMUMS
INSTRUMENT APPROACH PROCEDURES
STANDARD INSTRUMENT DEPARTURES
AIRPORT DIAGRAMS

EFFECTIVE 0901Z 10 DEC 2015
TO 0901Z 4 FEB 2016
TCN EFFECTIVE 0901Z 7 JAN 2016

Consult NOTAMS for latest information

VOL 19
FL

PUBLISHED IN ACCORDANCE WITH INTER-AGENCY AIR CARTOGRAPHIC COMMITTEE SPECIFICATIONS AND AGREEMENTS APPROVED BY

DEPARTMENT OF DEFENSE
FEDERAL AVIATION ADMINISTRATION

Published by
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NSN 7641015135620
NGA PFF NO

EFF DATE 15344

TERMXUSLIAPV1

Figure 9-1 FLIP Terminal Low Altitude (Front Cover)

Figure 9-2 FLIP TCN (Front Cover)

2. The Back Cover (See Figure 9-3) of the FLIP Terminal Low publication depicts how states are divided into volume numbers.

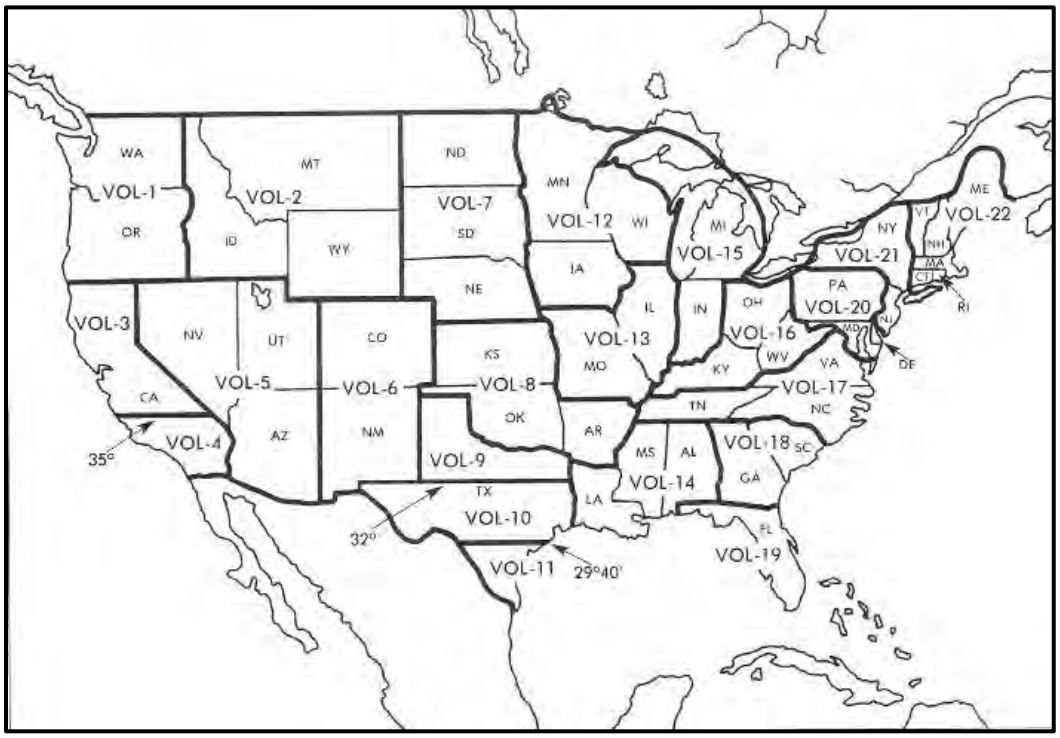
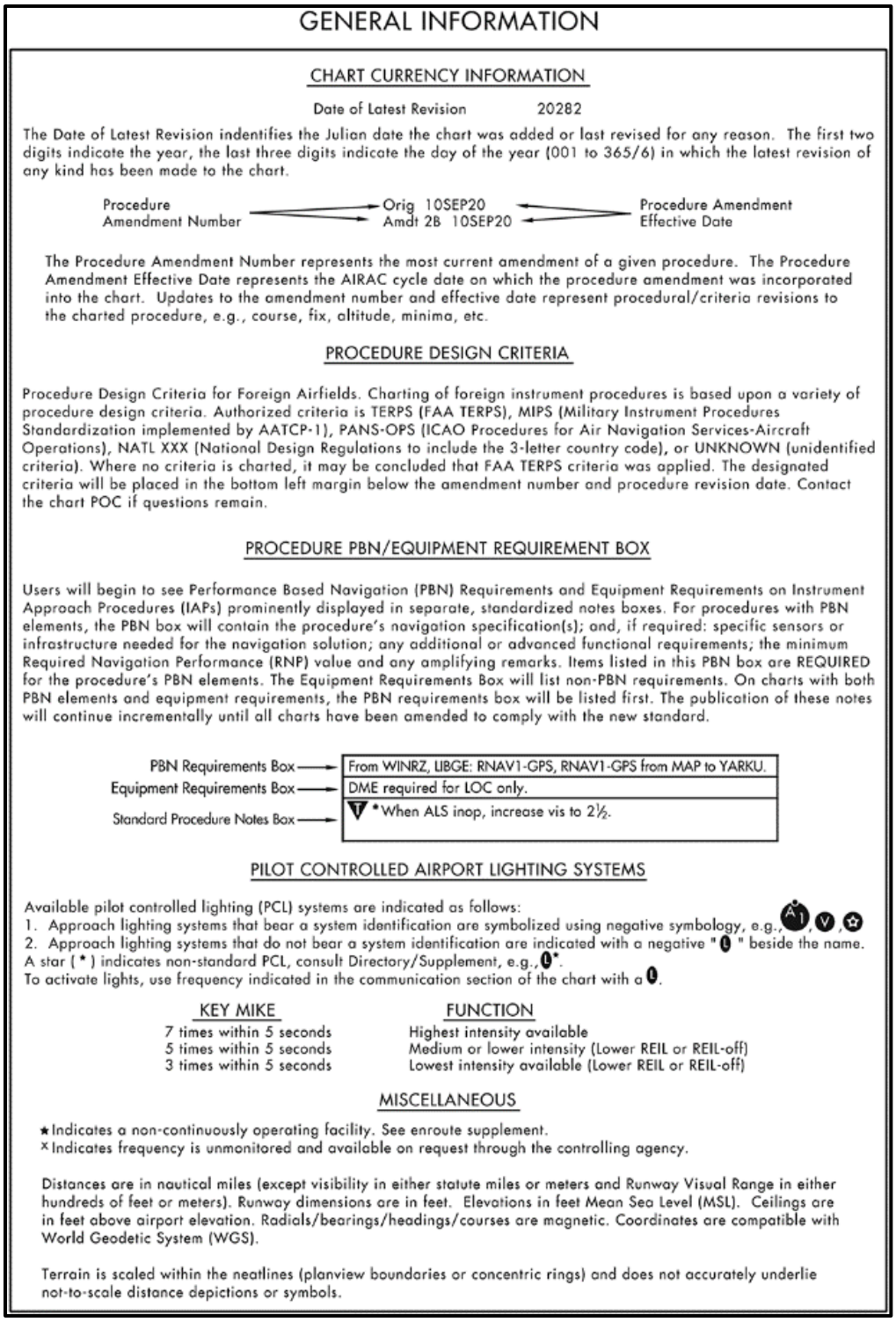


Figure 9-3 FLIP Terminal Low Altitude (Back Cover)

902. GENERAL INFORMATION

This section provides general information not specifically covered in other portions of the publication (see Figure 9-4a and 9-4b). Noteworthy are the Pilot Controlled airport lighting systems information and the list of common abbreviations used throughout the publication.



GENERAL INFORMATION

CHART CURRENCY INFORMATION

Date of Latest Revision 20282

The Date of Latest Revision indentifies the Julian date the chart was added or last revised for any reason. The first two digits indicate the year, the last three digits indicate the day of the year (001 to 365/6) in which the latest revision of any kind has been made to the chart.

Procedure Amendment Number → Orig 10SEP20 / Amdt 2B 10SEP20 → Procedure Amendment Effective Date

The Procedure Amendment Number represents the most current amendment of a given procedure. The Procedure Amendment Effective Date represents the AIRAC cycle date on which the procedure amendment was incorporated into the chart. Updates to the amendment number and effective date represent procedural/criteria revisions to the charted procedure, e.g., course, fix, altitude, minima, etc.

PROCEDURE DESIGN CRITERIA

Procedure Design Criteria for Foreign Airfields. Charting of foreign instrument procedures is based upon a variety of procedure design criteria. Authorized criteria is TERPS (FAA TERPS), MIPS (Military Instrument Procedures Standardization implemented by AATCP-1), PANS-OPS (ICAO Procedures for Air Navigation Services-Aircraft Operations), NATL XXX (National Design Regulations to include the 3-letter country code), or UNKNOWN (unidentified criteria). Where no criteria is charted, it may be concluded that FAA TERPS criteria was applied. The designated criteria will be placed in the bottom left margin below the amendment number and procedure revision date. Contact the chart POC if questions remain.

PROCEDURE PBN/EQUIPMENT REQUIREMENT BOX

Users will begin to see Performance Based Navigation (PBN) Requirements and Equipment Requirements on Instrument Approach Procedures (IAPs) prominently displayed in separate, standardized notes boxes. For procedures with PBN elements, the PBN box will contain the procedure's navigation specification(s); and, if required: specific sensors or infrastructure needed for the navigation solution; any additional or advanced functional requirements; the minimum Required Navigation Performance (RNP) value and any amplifying remarks. Items listed in this PBN box are REQUIRED for the procedure's PBN elements. The Equipment Requirements Box will list non-PBN requirements. On charts with both PBN elements and equipment requirements, the PBN requirements box will be listed first. The publication of these notes will continue incrementally until all charts have been amended to comply with the new standard.

PBN Requirements Box →	From WINRZ, LIBGE: RNAV1-GPS, RNAV1-GPS from MAP to YARKU.
Equipment Requirements Box →	DME required for LOC only.
Standard Procedure Notes Box →	*When ALS inop, increase vis to 2½.

PILOT CONTROLLED AIRPORT LIGHTING SYSTEMS

Available pilot controlled lighting (PCL) systems are indicated as follows:
1. Approach lighting systems that bear a system identification are symbolized using negative symbology, e.g., A1, V, ✿
2. Approach lighting systems that do not bear a system identification are indicated with a negative " " beside the name.

A star (*) indicates non-standard PCL, consult Directory/Supplement, e.g., *.
To activate lights, use frequency indicated in the communication section of the chart with a .

KEY MIKE	FUNCTION
7 times within 5 seconds	Highest intensity available
5 times within 5 seconds	Medium or lower intensity (Lower REIL or REIL-off)
3 times within 5 seconds	Lowest intensity available (Lower REIL or REIL-off)

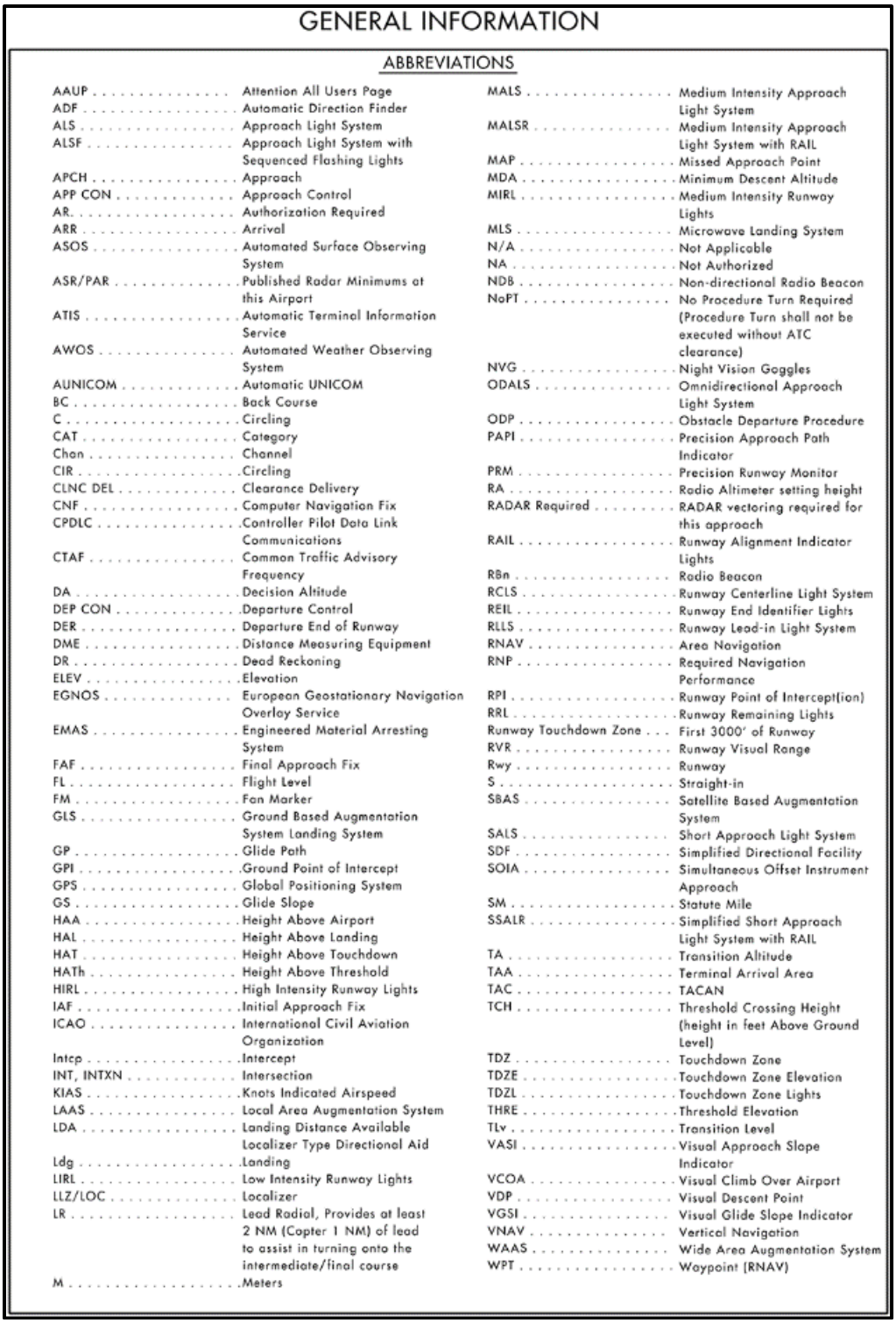
MISCELLANEOUS

★ Indicates a non-continuously operating facility. See enroute supplement.
× Indicates frequency is unmonitored and available on request through the controlling agency.

Distances are in nautical miles (except visibility in either statute miles or meters and Runway Visual Range in either hundreds of feet or meters). Runway dimensions are in feet. Elevations in feet Mean Sea Level (MSL). Ceilings are in feet above airport elevation. Radials/bearings/headings/courses are magnetic. Coordinates are compatible with World Geodetic System (WGS).

Terrain is scaled within the neatlines (planview boundaries or concentric rings) and does not accurately underlie not-to-scale distance depictions or symbols.

Figure 9-4a FLIP Terminal Low Altitude General Information



GENERAL INFORMATION

ABBREVIATIONS

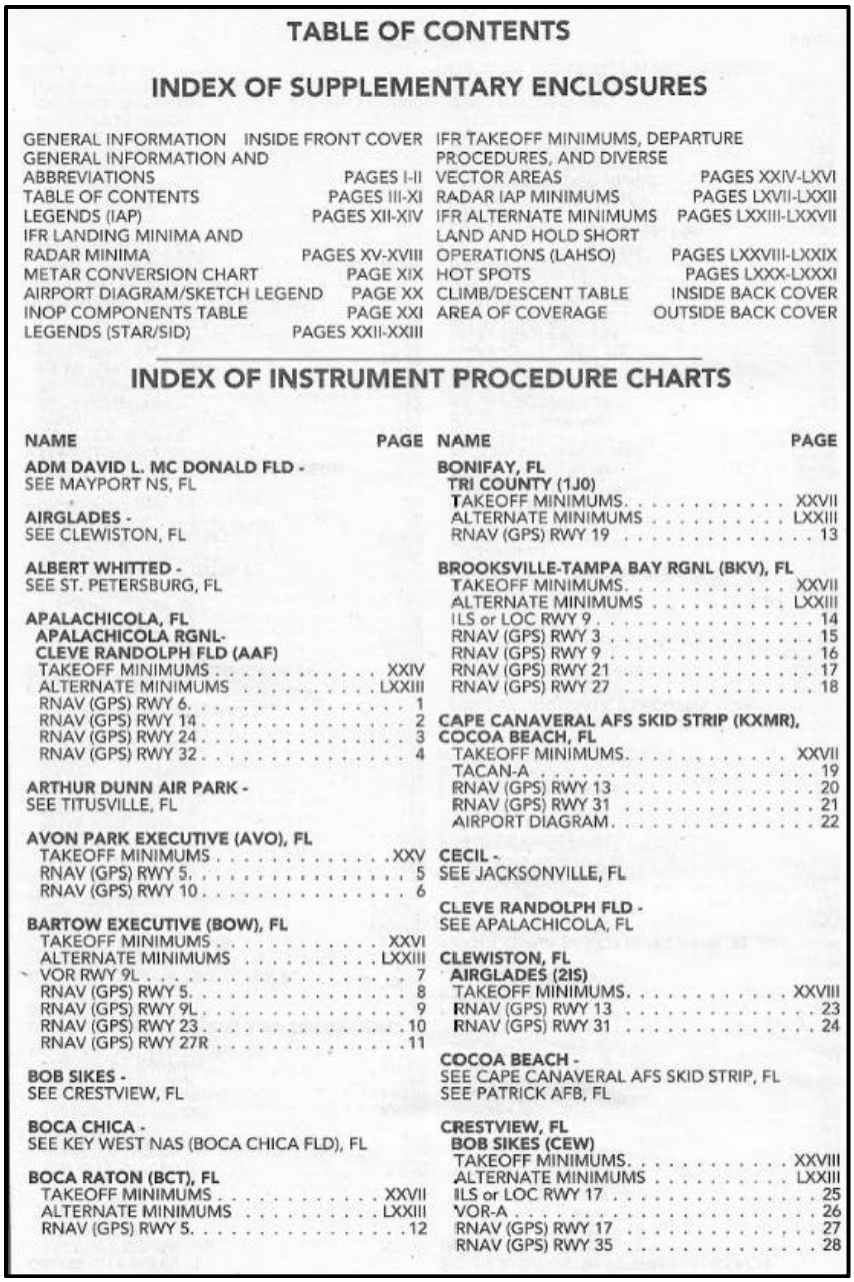
AAUP	Attention All Users Page
ADF	Automatic Direction Finder
ALS	Approach Light System
ALSF	Approach Light System with Sequenced Flashing Lights
APCH	Approach
APP CON	Approach Control
AR	Authorization Required
ARR	Arrival
ASOS	Automated Surface Observing System
ASR/PAR	Published Radar Minimums at this Airport
ATIS	Automatic Terminal Information Service
AWOS	Automated Weather Observing System
AUNICOM	Automatic UNICOM
BC	Back Course
C	Circling
CAT	Category
Chan	Channel
CIR	Circling
CLNC DEL	Clearance Delivery
CNF	Computer Navigation Fix
CPDLC	Controller Pilot Data Link Communications
CTAF	Common Traffic Advisory Frequency
DA	Decision Altitude
DEP CON	Departure Control
DER	Departure End of Runway
DME	Distance Measuring Equipment
DR	Dead Reckoning
ELEV	Elevation
EGNOS	European Geostationary Navigation Overlay Service
EMAS	Engineered Material Arresting System
FAF	Final Approach Fix
FL	Flight Level
FM	Fan Marker
GLS	Ground Based Augmentation System Landing System
GP	Glide Path
GPI	Ground Point of Intercept
GPS	Global Positioning System
GS	Glide Slope
HAA	Height Above Airport
HAL	Height Above Landing
HAT	Height Above Touchdown
HATh	Height Above Threshold
HIRL	High Intensity Runway Lights
IAF	Initial Approach Fix
ICAO	International Civil Aviation Organization
Intcp	Intercept
INT, INTXN	Intersection
KIAS	Knots Indicated Airspeed
LAAS	Local Area Augmentation System
LDA	Landing Distance Available Localizer Type Directional Aid
Ldg	Landing
LIRL	Low Intensity Runway Lights
LLZ/LOC	Localizer
LR	Lead Radial, Provides at least 2 NM (Copter 1 NM) of lead to assist in turning onto the intermediate/final course
M	Meters
MALS	Medium Intensity Approach Light System
MALSR	Medium Intensity Approach Light System with RAIL
MAP	Missed Approach Point
MDA	Minimum Descent Altitude
MIRL	Medium Intensity Runway Lights
MLS	Microwave Landing System
N/A	Not Applicable
NA	Not Authorized
NDB	Non-directional Radio Beacon
NoPT	No Procedure Turn Required (Procedure Turn shall not be executed without ATC clearance)
NVG	Night Vision Goggles
ODALS	Omnidirectional Approach Light System
ODP	Obstacle Departure Procedure
PAPI	Precision Approach Path Indicator
PRM	Precision Runway Monitor
RA	Radio Altimeter setting height
RADAR Required	RADAR vectoring required for this approach
RAIL	Runway Alignment Indicator Lights
RBn	Radio Beacon
RCLS	Runway Centerline Light System
REIL	Runway End Identifier Lights
RLLS	Runway Lead-in Light System
RNAV	Area Navigation
RNP	Required Navigation Performance
RPI	Runway Point of Intercept(ion)
RRL	Runway Remaining Lights
Runway Touchdown Zone	First 3000' of Runway
RVR	Runway Visual Range
Rwy	Runway
S	Straight-in
SBAS	Satellite Based Augmentation System
SALS	Short Approach Light System
SDF	Simplified Directional Facility
SOIA	Simultaneous Offset Instrument Approach
SM	Statute Mile
SSALR	Simplified Short Approach Light System with RAIL
TA	Transition Altitude
TAA	Terminal Arrival Area
TAC	TACAN
TCH	Threshold Crossing Height (height in feet Above Ground Level)
TDZ	Touchdown Zone
TDZE	Touchdown Zone Elevation
TDZL	Touchdown Zone Lights
THRE	Threshold Elevation
TLv	Transition Level
VASI	Visual Approach Slope Indicator
VCOA	Visual Climb Over Airport
VDP	Visual Descent Point
VGSI	Visual Glide Slope Indicator
VNAV	Vertical Navigation
WAAS	Wide Area Augmentation System
WPT	Waypoint (RNAV)

Figure 9-4b FLIP Terminal Low Altitude General Information (cont.)

903. INDEX OF INSTRUMENT PROCEDURES

The table of contents and an "Index of Instrument Procedure Charts" is located in the front of the FLIP Terminal Low Altitude publication (see Figure 9-5). This index is an alphabetical list by city/state and airport name. Under each airport the procedure names and page numbers can be found.

Procedures are published alphabetically by the city name. This index is helpful when the airport name and airport city are different.



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INDEX OF INSTRUMENT PROCEDURE CHARTS

Figure 9-5 FLIP Terminal Low Altitude Index

904. LEGENDS

Legends and tables of information needed for interpreting each section of the instrument procedures can be found in the front of the publication immediately following the Index. Much of this information is also available in the Aeronautical Chart User's Guide.

1. Planview Symbols (See Figures 9-6a and 9-6b)

This legend contains symbols and information found in the overhead (360°) view of an IAP.

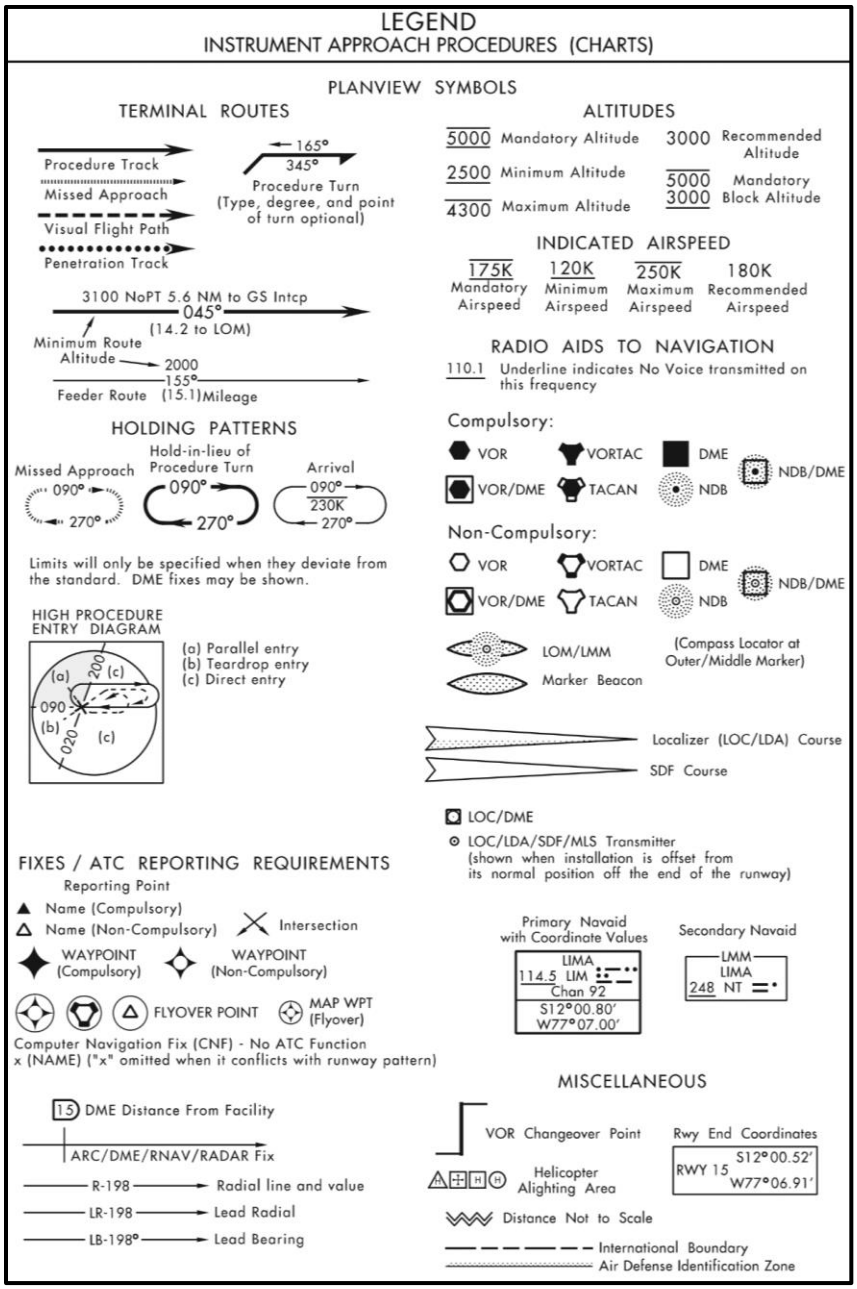


Figure 9-6a FLIP Terminal Low Altitude Planview Legend

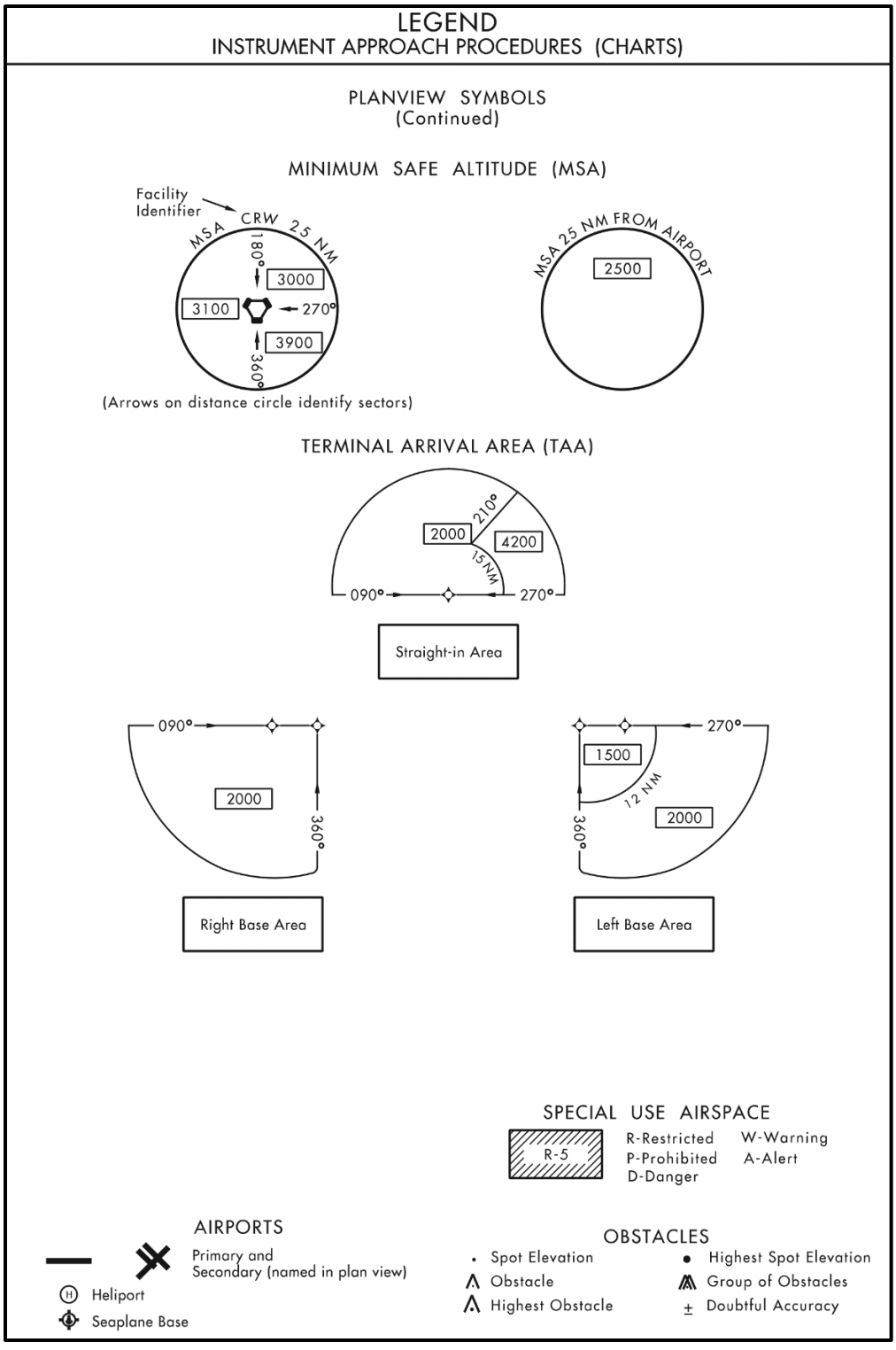


Figure 9-6b FLIP Terminal Low Altitude Planview Legend (cont.)

2. Profile

This legend contains symbols and information found in the profile (side) view of an IAP. (See Figure 9-7)

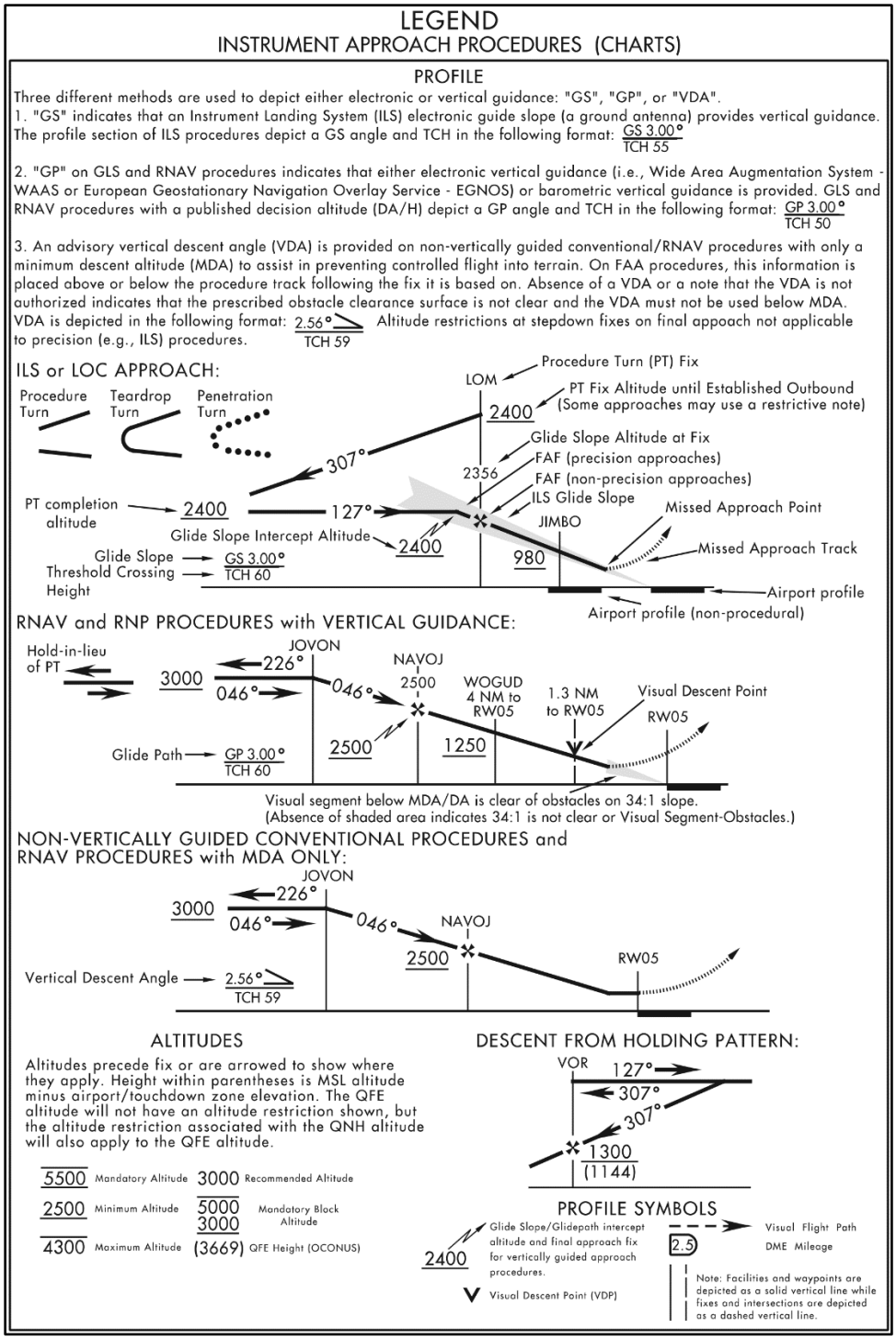


Figure 9-7 FLIP Terminal Low Altitude Profile Legend

3. IFR Landing Minima

This legend contains three pages of symbols and information needed to interpret critical information in the final approach, and landing areas. (See Figures 9-8a, 9-8b, 9-8c, and 9-8d)

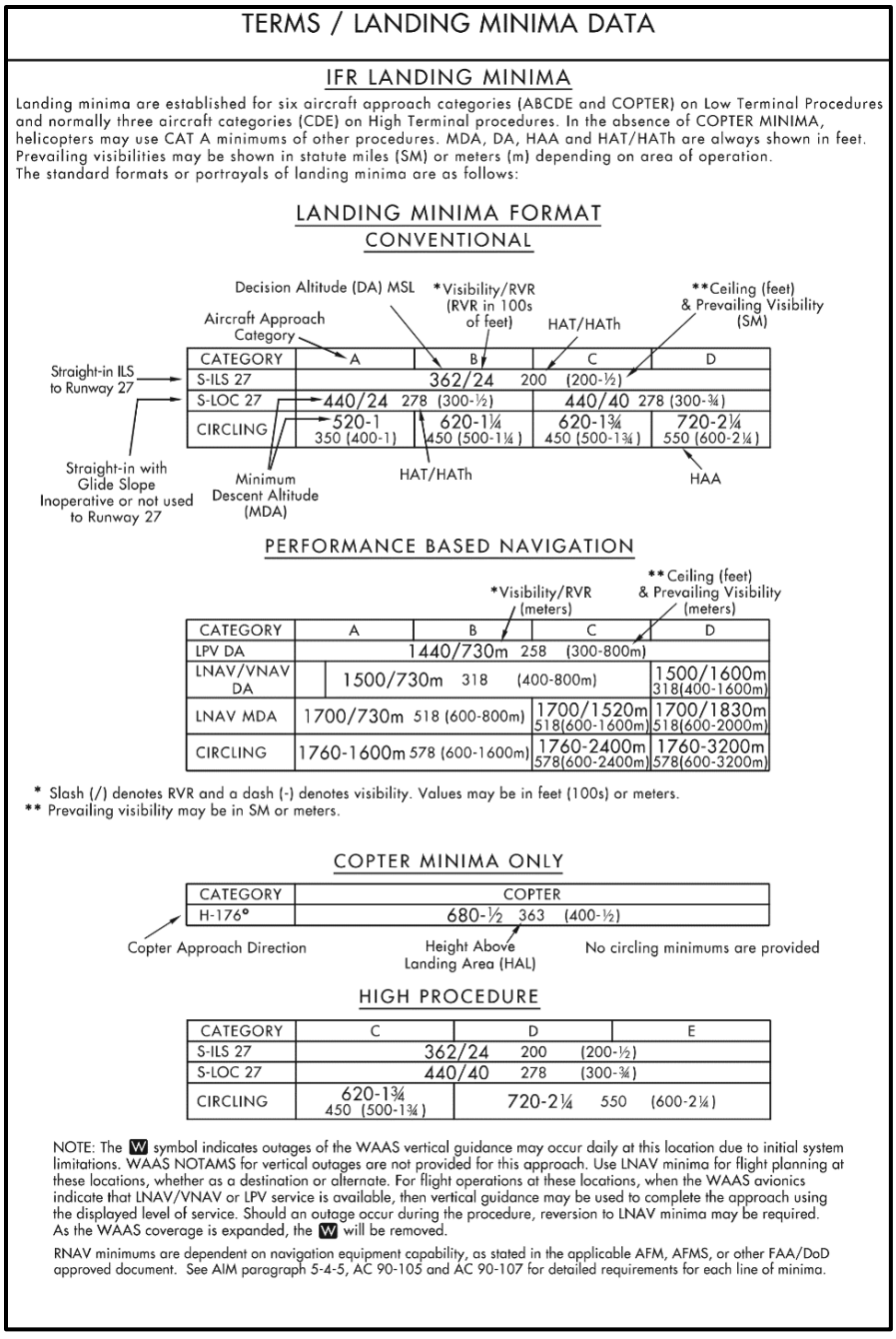


Figure 9-8a FLIP Terminal Low Altitude Landing Minima Legend

TERMS / LANDING MINIMA DATA

COLD TEMPERATURE AIRPORTS

NOTE: A ❄ -12°C symbol indicates a cold temperature altitude correction is required at this airport when reported temperature is at or below the published temperature. See the following Cold Temperature Error Table to make manual corrections. Advise ATC with altitude correction. Advising ATC with altitude corrections is not required in the final segment. See Aeronautical Information Manual (AIM), Chapter 7, for guidance and additional information. For a complete list, see the "Cold Temperature Airports" link under the Additional Resources heading at the bottom of the following page: http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/search/

COLD TEMPERATURE ERROR TABLE

HEIGHT ABOVE AIRPORT IN FEET

REPORTED TEMP °C	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
+10	10	10	10	10	20	20	20	20	20	30	40	60	80	90
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

AIRCRAFT APPROACH CATEGORIES

Aircraft approach category indicates a grouping of aircraft based on a speed of VREF, if specified, or if VREF not specified, 1.3 VSO at the maximum certificated landing weight. VREF, VSO, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. Helicopters are Category A aircraft. An aircraft shall fit in only one category. When necessary to operate the aircraft at an airspeed in excess of the maximum airspeed of its certified aircraft approach category, pilots should use the applicable higher category minima. For additional options and to ensure the aircraft remains within protected airspace, consult the AIM. See following category limits:

MANEUVERING TABLE

Approach Category	A	B	C	D	E
Speed (Knots)	0-90	91-120	121-140	141-165	Abv 165

CIRCLING APPROACH OBSTACLE PROTECTED AIRSPACE

The circling MDA provides vertical clearance from obstacles when conducting a circle-to-land maneuver within the obstacle protected area. Circling approach obstacle protected areas extend laterally and longitudinally from the centerlines and ends of all runways at an airport by the distances shown in the following tables. The areas are technically defined by the tangential connection of arcs drawn at the radius distance shown from each runway end.

STANDARD CIRCLING APPROACH MANEUVERING RADIUS

Circling approach protected areas developed prior to late 2012 used the radius distances shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category. The approaches using standard circling approach areas can be identified by the absence of the C symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
All Altitudes	1.3	1.5	1.7	2.3	4.5

C EXPANDED CIRCLING APPROACH MANEUVERING AIRSPACE RADIUS

Circling approach protected areas developed after late 2012 use the radius distance shown in the following table, expressed in nautical miles (NM), dependent on aircraft approach category, and the altitude of the circling MDA, which accounts for true airspeed increase with altitude. The approaches using expanded circling approach areas can be identified by the presence of the C symbol on the circling line of minima.

Circling MDA in feet MSL	Approach Category and Circling Radius (NM)				
	CAT A	CAT B	CAT C	CAT D	CAT E
1000 or less	1.3	1.7	2.7	3.6	4.5
1001 - 3000	1.3	1.8	2.8	3.7	4.6
3001 - 5000	1.3	1.8	2.9	3.8	4.8
5001 - 7000	1.3	1.9	3.0	4.0	5.0
7001 - 9000	1.4	2.0	3.2	4.2	5.3
9001 and above	1.4	2.1	3.3	4.4	5.5

Figure 9-8b FLIP Terminal Low Altitude Landing Minima Legend (cont.)

TERMS / LANDING MINIMA DATA

RADAR MINIMA

	RWY	GS/TCH/RPI	CAT	DA/ MDA-VIS	HAT/HATh HAA	CEIL-VIS
PAR	10	2.5°/42/1000	ABCDE	**195/**16	100	(100-¼)
	28	2.5 /48/1068	ABCDE	**187/**16	100	(100-¼)
ASR	10		ABC	**560/**40	463	(500-¾)
			DE	**560/**50	463	(500-1)
	28		AB	**600/**50	513	(600-1)
			CDE	**600/**60	513	(600-1¼)
CIR	10		AB	**560-**1¼	463	(500-1¼)
			CDE	**560-**1½	463	(500-1½)
	28		AB	**600-**1¼	503	(600-1¼)
			CDE	**600-**1½	503	(600-1½)
				*RVR/ Visibility		**Ceiling - Prevailing Visibility

*Slash (/) denotes RVR and a dash (-) denotes Prevailing Visibility. RVR values may be in feet (100s) or meters. Visibility may be in SM or meters.

**Ceiling is in feet. Visibility is in SM or meters. At some locations, both may be published in meters, e.g., (60m-800m).

NOTE:

1. Minima shown are the lowest permitted by established criteria. Pilots should consult applicable service directives for aircraft model / command restrictions.
2. The circling MDA and weather minima to be used are those for the runway to which the final approach is flown - not the landing runway. In the above RADAR MINIMA example, a category C aircraft flying a radar approach to runway 10, circling to land on runway 28, has an MDA of 560 feet and weather minimum of (500-1½).
3. IFF/SIF SERVICE: This service is considered to be an integral part of the radar system. Where this capability does not exist at an individual installation, the remarks "IFF/SIF svc not avail" are included as footnotes.
4. Within countries that observe daylight savings time, a suffix symbol (++) will be added to the UTC(z) time to indicate that during daylight saving time the effective hours will be one hour earlier than shown.
5. Military RADAR MINIMA may be shown with communications symbology that indicates emergency frequency monitoring capability by radar facility as follows: (E) VHF and UHF emergency frequencies monitored
(V) VHF emergency frequency (121.5) monitored
(U) UHF emergency frequency (243.0) monitored

Additionally, unmonitored frequencies which are available on request from the controlling agency may be annotated with an "x".

MINIMA SYMBOLS

A — Alternate Minimums not standard. Civil users refer to tabulation. USA/USN/USAF pilots refer to appropriate regulations.

ANA — Alternate Minimums are Not Authorized due to unmonitored facility or absence of weather reporting service.

T — Airport is published in the Take-off Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (RADAR vectors) tabulation.

NON-STANDARD MISSED APPROACH CLIMB GRADIENT

The US (TERPS) standard missed approach climb gradient is 200 ft/NM (3.3%). The ICAO (PANS-OPS) standard missed approach climb gradient is 152 ft/NM (2.5%). For minima based on non-standard climbs greater than 2.5%, the minimum required climb is indicated by the climb percentage in the applicable line of mimina. A table in the planview provides climb rates for corresponding climb gradients and reference groundspeeds. When a procedure includes a climb gradient for ATC purposes, the applicable climb percentage applies to all lines of minima but is only indicated in the table.

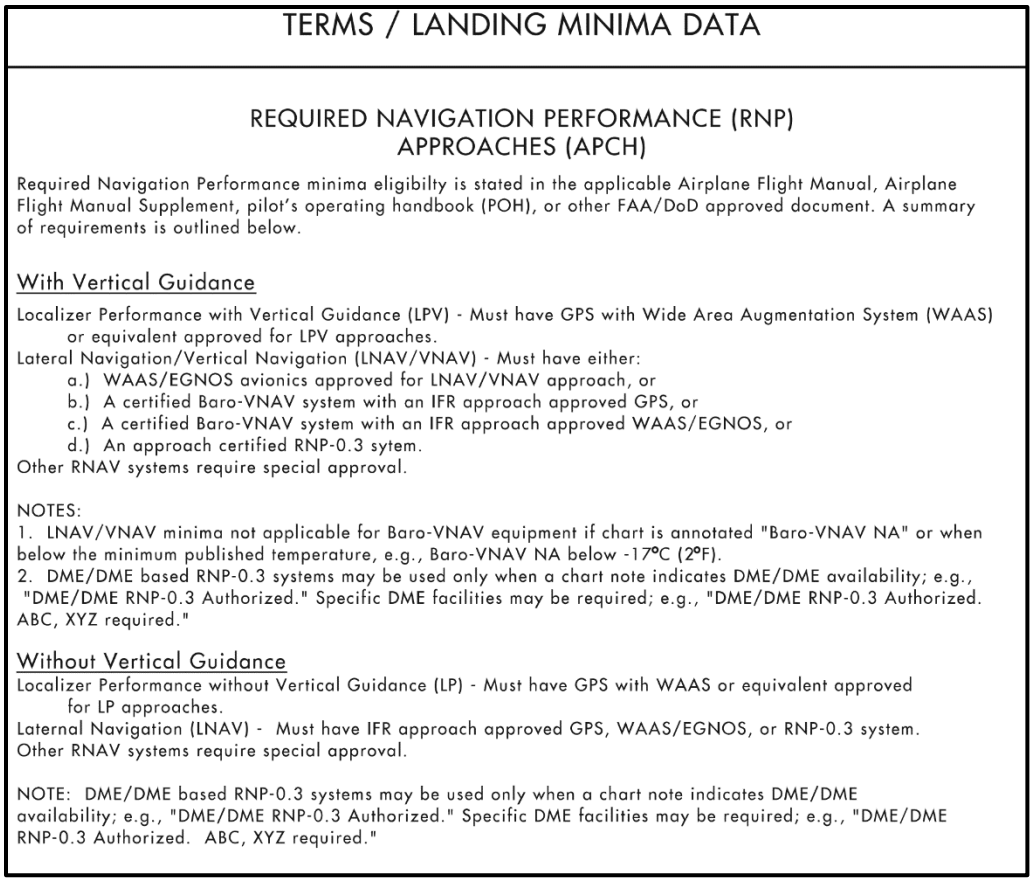
CATEGORY	A	B	C	D
S-ILS (4.4%)	244/1200m		200 (200-1200m)	

Minimum climb requirement

%	Knots	60	120	180	240	300	360
4.6	V/V(fpm)	280	560	840	1120	1400	1680
4.4	V/V(fpm)	270	540	810	1080	1350	1620

ATC climb of 4.6% (280 ft/NM) to 5000
Min climb of 4.4% (270 ft/NM) to 5000 - Controlling Obstacle 3472

Figure 9-8c FLIP Terminal Low Altitude Landing Minima Legend (cont.)



TERMS / LANDING MINIMA DATA

REQUIRED NAVIGATION PERFORMANCE (RNP)
APPROACHES (APCH)

Required Navigation Performance minima eligibilty is stated in the applicable Airplane Flight Manual, Airplane Flight Manual Supplement, pilot's operating handbook (POH), or other FAA/DoD approved document. A summary of requirements is outlined below.

With Vertical Guidance

Localizer Performance with Vertical Guidance (LPV) - Must have GPS with Wide Area Augmentation System (WAAS) or equivalent approved for LPV approaches.
Lateral Navigation/Vertical Navigation (LNAV/VNAV) - Must have either:
a.) WAAS/EGNOS avionics approved for LNAV/VNAV approach, or
b.) A certified Baro-VNAV system with an IFR approach approved GPS, or
c.) A certified Baro-VNAV system with an IFR approach approved WAAS/EGNOS, or
d.) An approach certified RNP-0.3 sytem.
Other RNAV systems require special approval.

NOTES:
1. LNAV/VNAV minima not applicable for Baro-VNAV equipment if chart is annotated "Baro-VNAV NA" or when below the minimum published temperature, e.g., Baro-VNAV NA below -17°C (2°F).
2. DME/DME based RNP-0.3 systems may be used only when a chart note indicates DME/DME availability; e.g., "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required; e.g., "DME/DME RNP-0.3 Authorized. ABC, XYZ required."

Without Vertical Guidance

Localizer Performance without Vertical Guidance (LP) - Must have GPS with WAAS or equivalent approved for LP approaches.
Laternal Navigation (LNAV) - Must have IFR approach approved GPS, WAAS/EGNOS, or RNP-0.3 system.
Other RNAV systems require special approval.

NOTE: DME/DME based RNP-0.3 systems may be used only when a chart note indicates DME/DME availability; e.g., "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required; e.g., "DME/DME RNP-0.3 Authorized. ABC, XYZ required."

Figure 9-8d FLIP Terminal Low Altitude Landing Minima Legend (cont.)

4. METAR Conversion Chart

This chart provides conversions needed to interpret ceiling, runway visibility, and prevailing visibility information. (See Figure 9-9)

TERMS / LANDING MINIMA DATA

METAR CONVERSION CHART

CEILING

PUBLISHED MINIMA FEET	REQUIRED EQUIVALENT METERS
100	30
200	60
300	90
400	120
500	150
600	180
700	210
800	240
900	270
1000	300
1100	330
1200	360
1300	390
1400	420
1500	450

RUNWAY VISIBILITY

RVR VALUES PUBLISHED IN HUNDREDS OF FEET	STATUTE MILE EQUIVALENT	NAUTICAL MILE EQUIVALENT	METERS EQUIVALENT	KILOMETERS EQUIVALENT
12	1/4 (Helicopter Only)	2/10	370	.4
16	1/4	3/10	490	.5
18	1/2	3/10	550	.6
20	1/2	3/10	610	.6
22	1/2	4/10	670	.7
24	1/2	4/10	730	.7
26	1/2	4/10	790	.8
30	5/8	5/10	910	.9
32	5/8	5/10	980	1.0
35	5/8	6/10	1070	1.1
40	3/4	7/10	1220	1.2
45	7/8	7/10	1370	1.4
50	1	8/10	1520	1.5
55	1	9/10	1680	1.7
60	1-1/4	1	1830	1.8

PREVAILING VISIBILITY

STATUTE MILES	NAUTICAL MILES	METERS	KILOMETERS
1/8	1/10	200	.2
1/4	2/10	400	.4
3/8	3/10	600	.6
	4/10	700	.7
1/2		800	.8
	5/10	900	.9
5/8		1000	1.0
	6/10	1100	1.1
3/4		1200	1.2
	7/10	1300	1.3
7/8		1400	1.4
	8/10	1500	1.5
1		1600	1.6
	9/10	1700	1.7
1-1/8	1	1800	1.8
1-1/4	1-1/10	2000	2.0
1-3/8	1-2/10	2200	2.2
1-1/2	1-3/10	2400	2.4
1-5/8	1-4/10	2600	2.6
1-3/4	1-5/10	2800	2.8
1-7/8	1-6/10	3000	3.0
2	1-7/10	3200	3.2
	1-8/10	3400	3.4
2-1/4	1-9/10	3600	3.6
	2	3700	3.7
	2-1/10	3900	3.9
2-1/2	2-2/10	4000	4.0
2-5/8		4200	4.2
	2-3/10	4300	4.3
2-3/4		4400	4.4
	2-4/10	4500	4.5
2-7/8		4600	4.6
	2-5/10	4700	4.7
3	2-6/10	4800	4.8
	2-7/10	5000	5.0
	2-8/10	5200	5.2
	2-9/10	5400	5.4
	3	6000	6.0

Figure 9-9 FLIP Low Altitude METAR Conversion Chart

5. Airport Diagram/Airport Sketch

This legend provides airport information and symbols for runways, approach lighting systems, obstacles, surface reference features, and other data contained in the small Airport Sketch located on the IAP and the larger Airport Diagram when they are available. (See Figure 9-10)

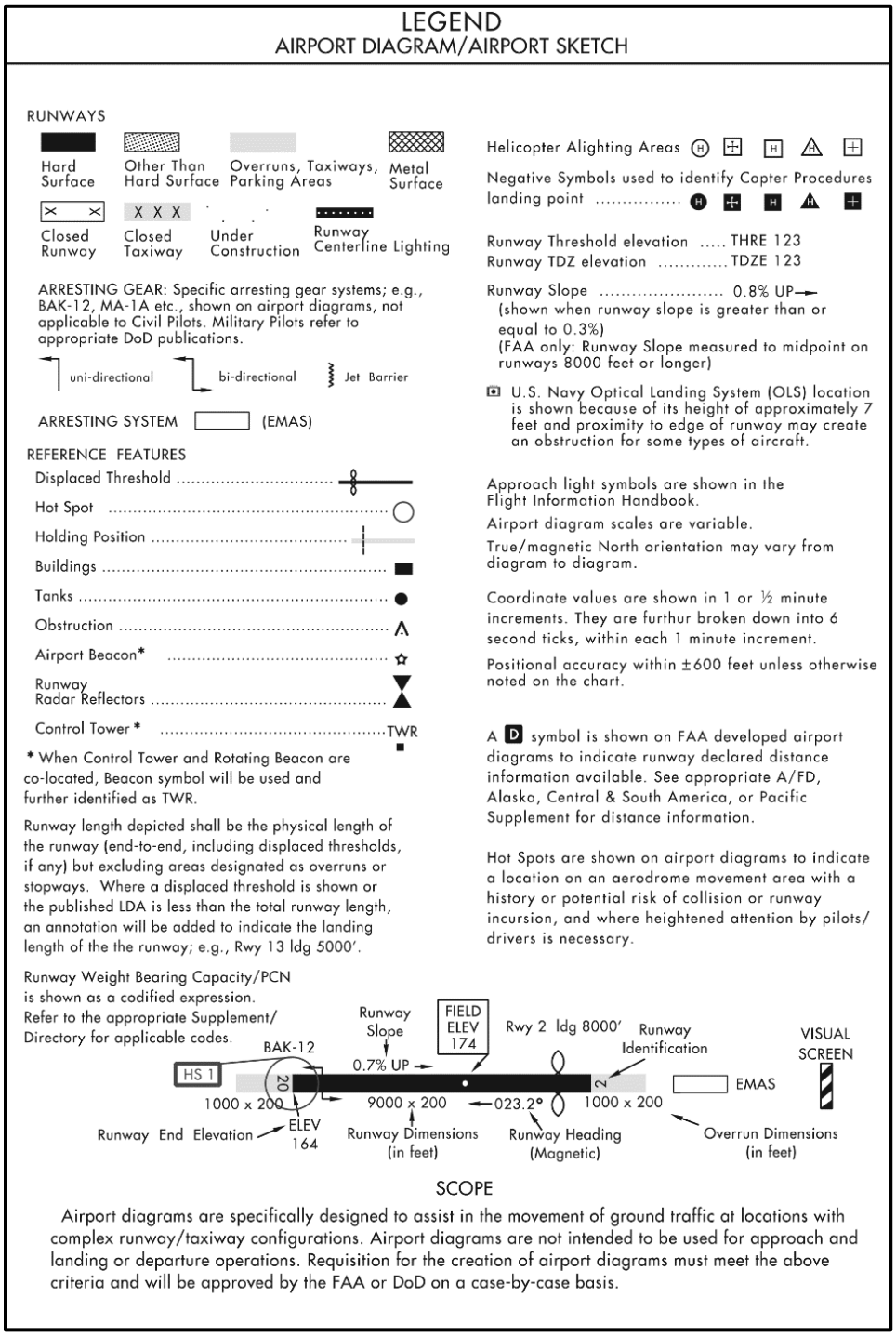


Figure 9-10 FLIP Terminal Low Altitude Airport Diagram/Sketch Legend

6. STAR/SID

This legend covers symbology found in both the FLIP STAR publication and the Standard Instrument Departure (SID) procedures located in this publication. (See Figures 9-11a and 9-11b)

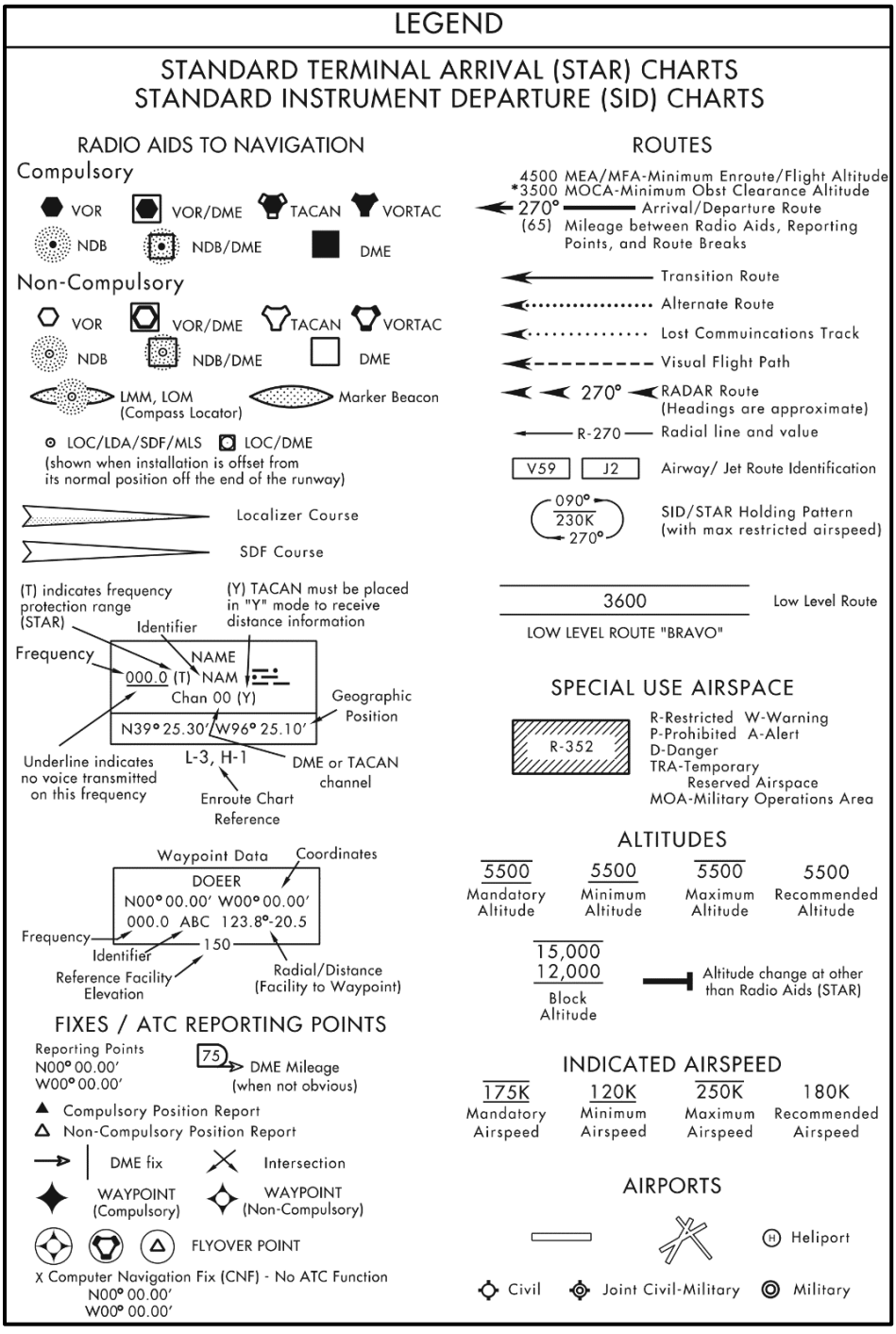


Figure 9-11a FLIP Terminal Low Altitude STAR/SID Legend

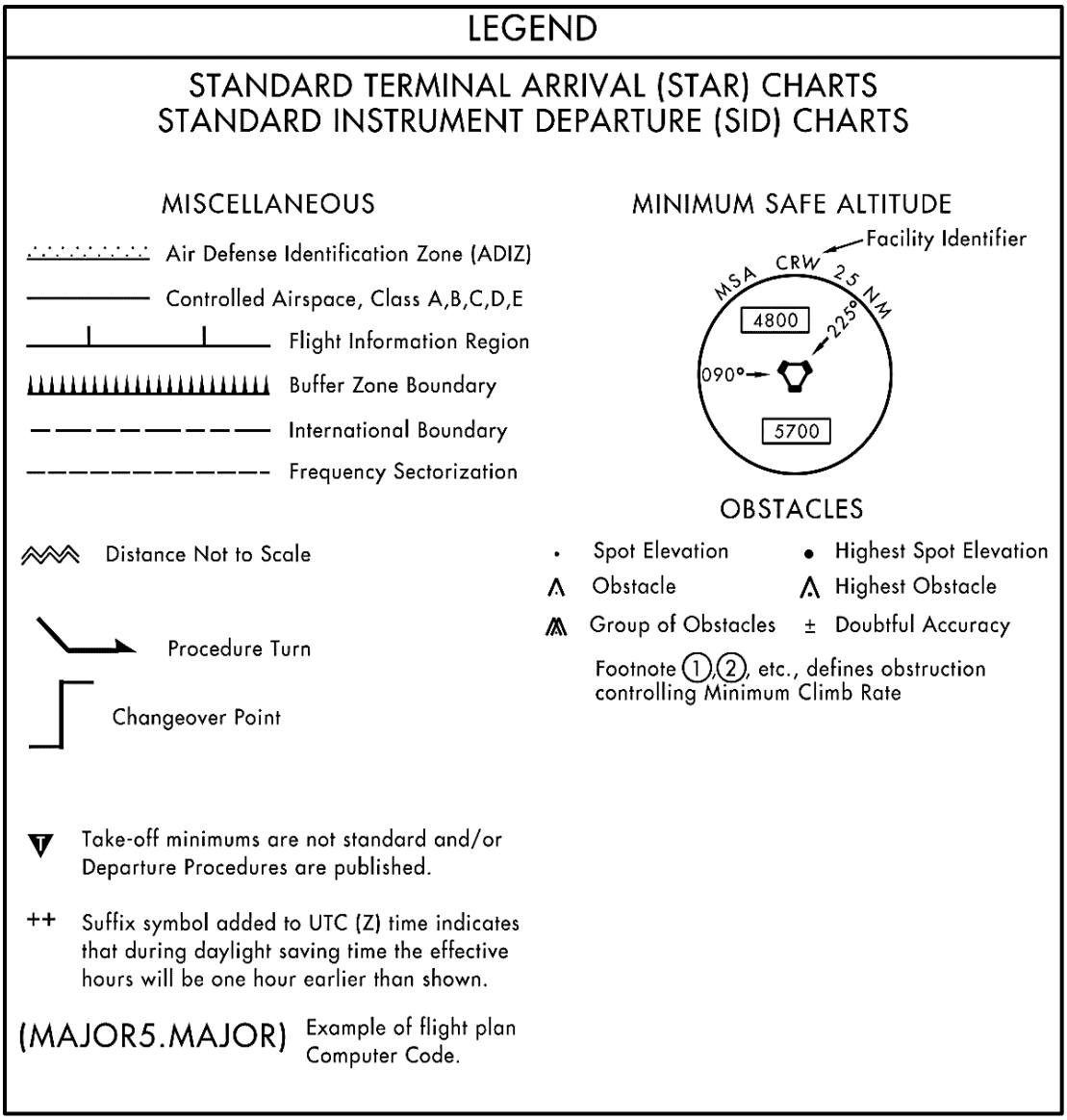


Figure 9-11b FLIP Terminal Low Altitude STAR/SID Legend (cont.)

7. INOP Components or Visual Aids Table (See Figure 9-12)

Landing minimums published on instrument approach procedures charts are based upon full operation of all components and visual aids associated with the particular instrument approach chart being used.

If ground instrument components or visual aids are ***Inoperative*** this table list the required adjustment needed for the visibility minimums. This table may be amended by notes on the approach chart.

Always check NOTAMs and listen to ATIS for information concerning inoperative components or visual aids at your destination or alternate.

INOP COMPONENTS

INOPERATIVE COMPONENTS OR VISUAL AIDS TABLE
(For FAA Charts Only)

Straight-in and Sidestep landing minimums published on instrument approach procedure charts are based on full operation of all components and visual aids (see exception below for ALSF 1 & 2) associated with the particular approach chart being used. Higher minimums are required with inoperative components or visual aids as indicated below. If more than one component is inoperative, each minimum is raised to the highest minimum required by any single component that is inoperative. ILS glideslope inoperative minimums are published on the instrument approach charts as localizer minimums. This table applies to approach categories A thru D and is to be used unless amended by notes on the approach chart. Such notes apply only to the particular approach category(ies) as stated. Category E inoperative notes will be specified when published on civil charts. The inoperative table does not apply to Circling minimums. See Flight Information Handbook for description of components indicated below.

Full Operation Exception: For ALSF 1 & 2 operated as SSALR, or when the sequenced flashing lights are inoperative, there is no effect on visibility for ILS lines of minima.

(1) ILS, PAR, LPV, GLS minima

Inoperative Component or Visual Aid	Increase Visibility
All ALS types (except ODALS)	¼ mile

(2) ILS, LPV, GLS with visibility minima of RVR 1800†/2000*/2200*

Inoperative Component or Visual Aid	Increase Visibility
ALSF 1 & 2, MALSR, SSALR	To RVR 4000† To RVR 4500*
TDZL or RCLS	To RVR 2400#
RVR	To ½ mile

#For ILS, LPV, GLS procedures with a 200 foot HAT, RVR 1800 authorized with use of FD or AP or HUD to DA.

(3) All Approach Types and all lines of minima other than (1) & (2) above

Inoperative Component or Visual Aid	Increase Visibility
ALSF 1 & 2, MALSR, SSALR	½ mile
MALSF, MALS, SSALF, SSALS, SALSF, SALS	¼ mile

(4) Sidestep minima (CAT C-D)

Inoperative Component or Visual Aid to Sidestep Runway	Increase Visibility
ALSF 1 & 2, MALSR, SSALR	½ mile

(5) All Approach Types, All lines of minima

Inoperative Component or Visual Aid	Increase Visibility
ODALS (CAT A-B)	¼ mile
ODALS (CAT C-D)	⅛ mile

Figure 9-12 INOP Components or Visual Aids Table

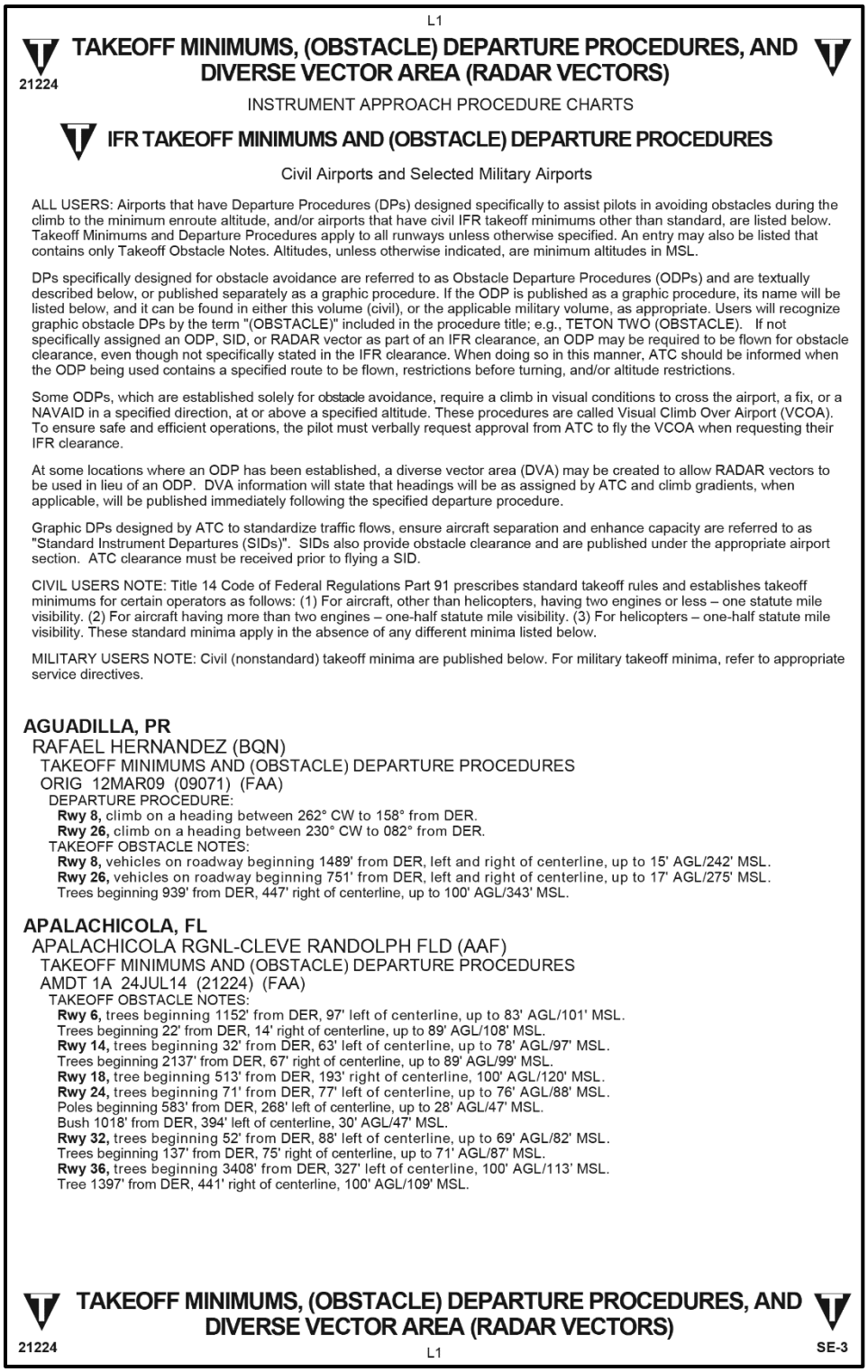
905. IFR TAKE-OFF MINIMUMS (OBSTACLE) DEPARTURE PROCEDURES

This section is located in the front of the publication prior to the Radar Instrument Approach Minimums and IAPs. (See Figure 9-13)

Departure Procedures (DPs) specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described in this section or published separately as a graphic procedure.

ODPs published as graphic procedures are found in the IAP section. Graphic ODPs can be recognized by the term "(OBSTACLE)" included in the procedure title.

Airports that have ODPs will display the TROUBLE "T" symbol T on the IAP as a reminder to check this section for details.



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21224 **TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)**

INSTRUMENT APPROACH PROCEDURE CHARTS

IFR TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude, and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. An entry may also be listed that contains only Takeoff Obstacle Notes. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are textually described below, or published separately as a graphic procedure. If the ODP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned an ODP, SID, or RADAR vector as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

At some locations where an ODP has been established, a diverse vector area (DVA) may be created to allow RADAR vectors to be used in lieu of an ODP. DVA information will state that headings will be as assigned by ATC and climb gradients, when applicable, will be published immediately following the specified departure procedure.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as "Standard Instrument Departures (SIDs)". SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) For aircraft, other than helicopters, having two engines or less – one statute mile visibility. (2) For aircraft having more than two engines – one-half statute mile visibility. (3) For helicopters – one-half statute mile visibility. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) takeoff minima are published below. For military takeoff minima, refer to appropriate service directives.

AGUADILLA, PR
RAFAEL HERNANDEZ (BQN)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
ORIG 12MAR09 (09071) (FAA)
DEPARTURE PROCEDURE:
Rwy 8, climb on a heading between 262° CW to 158° from DER.
Rwy 26, climb on a heading between 230° CW to 082° from DER.
TAKEOFF OBSTACLE NOTES:
Rwy 8, vehicles on roadway beginning 1489' from DER, left and right of centerline, up to 15' AGL/242' MSL.
Rwy 26, vehicles on roadway beginning 751' from DER, left and right of centerline, up to 17' AGL/275' MSL.
Trees beginning 939' from DER, 447' right of centerline, up to 100' AGL/343' MSL.

APALACHICOLA, FL
APALACHICOLA RGNL-CLEVE RANDOLPH FLD (AAF)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 1A 24JUL14 (21224) (FAA)
TAKEOFF OBSTACLE NOTES:
Rwy 6, trees beginning 1152' from DER, 97' left of centerline, up to 83' AGL/101' MSL.
Trees beginning 22' from DER, 14' right of centerline, up to 89' AGL/108' MSL.
Rwy 14, trees beginning 32' from DER, 63' left of centerline, up to 78' AGL/97' MSL.
Trees beginning 2137' from DER, 67' right of centerline, up to 89' AGL/99' MSL.
Rwy 18, tree beginning 513' from DER, 193' right of centerline, 100' AGL/120' MSL.
Rwy 24, trees beginning 71' from DER, 77' left of centerline, up to 76' AGL/88' MSL.
Poles beginning 583' from DER, 268' left of centerline, up to 28' AGL/47' MSL.
Bush 1018' from DER, 394' left of centerline, 30' AGL/47' MSL.
Rwy 32, trees beginning 52' from DER, 88' left of centerline, up to 69' AGL/82' MSL.
Trees beginning 137' from DER, 75' right of centerline, up to 71' AGL/87' MSL.
Rwy 36, trees beginning 3408' from DER, 327' left of centerline, 100' AGL/113' MSL.
Tree 1397' from DER, 441' right of centerline, 100' AGL/109' MSL.

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Figure 9-13 IFR Takeoff Minimums and (Obstacle) Departure Procedures

906. RADAR INSTRUMENT APPROACH MINIMUMS

See Figure 9-14.

This section is found in the front portion of the publication following the Takeoff Minimums Section. Airports that have published radar minimums are listed alphabetically.

There are three types of radar approaches: Airport Surveillance Radar (ASR), Precision Approach Radar (PAR) and the Precision Approach Radar With/Out Glideslope (PAR W/O GS). Circling and Sidestep minimums for these approaches may also be listed.

The PAR is Precision Approach because both course and glideslope information is provided by the controller.

The ASR and PAR W/O GS are non-precision approaches because only course information is provided by the controller.

Communication frequencies commonly used by the controlling agency are listed at the top after the airport name.

Approach data provided includes; Runway, Approach Category, Decision Height (DH)/Minimum Descent Altitude (MDA)-Visibility, Height Above Touchdown (HAT)/Height Above Airport (HAA) and Ceiling-Visibility requirements.

PAR approach data also includes glideslope angle (GS), Threshold Crossing Height (TCH), and Runway Point of Intercept (RPI).

General information concerning approaches for the airfield is listed following the minimums data.

RADAR INSTRUMENT APPROACH MINIMUMS

CORPUS CHRISTI NAS (TRUAX FLD) (KNGP), Corpus Christi, TX
Amdt 1 16JUL20 (20310) (USN) ELEV **19**

RADAR - (E) 6835 124.65 270.8 284.6 337.2 354.8

	RWY	GS/TCH/RPI	CAT	DH/ MDA-VIS	HAT/ HATh/ HAA	CEIL-VIS
PAR[1]	13R[2 7]	3.0°/42/777	ABCDE	**113**-¼	100	(100-¼)
	18[7]	3.0°/39/703	ABCDE	**119**-½	100	(100-½)
	31L[9]	3.0°/43/820	ABCDE	**118**-½	100	(100-½)
	36[8]	3.0°/45/831	ABCDE	**119**-½	100	(100-½)
PAR W/O GS[1]	13R[3]		ABCDE	**360**-¾	347	(400-¾)
	18		ABCDE	**340**-1⅛	321	(400-1⅛)
	31L		AB	**420**-1	402	(500-1)
			CDE	**420**-1⅛	402	(500-1⅛)
	36		AB	**420**-1	401	(500-1)
			CDE	**420**-1⅛	401	(500-1⅛)
PAR W/O GS SIDESTEP[1 5]	13L		AB	**360**-1	341	(400-1)
			C	**360**-1½	341	(400-1½)
			DE	**360**-2	341	(400-2)
	31R		AB	**420**-1	401	(500-1)
			C	**420**-1½	401	(500-1½)
			DE	**420**-2	401	(500-2)
ASR	18		AB	**400**-1	381	(400-1)
			CDE	**400**-1⅛	381	(400-1⅛)
	13R[4 10]		AB	**420**-¾	407	(500-¾)
			CDE	**420**-1	407	(500-1)
	13L		AB	**420**-1	401	(500-1)
			CDE	**420**-1⅛	401	(500-1⅛)
	4[11]		AB	**500**-1	483	(500-1)
			CDE	**500**-1⅜	483	(500-1⅜)
	31L		AB	**500**-1	482	(500-1)
			CDE	**500**-1⅜	482	(500-1⅜)
	31R		AB	**500**-1	481	(500-1)
			CDE	**500**-1⅜	481	(500-1⅜)
	36		AB	**500**-1	481	(500-1)
			CDE	**500**-1⅜	481	(500-1⅜)
CIR[6]	All Rwys		AB	**500**-1	481	(500-1)
			C	**540**-1½	521	(600-1½)
			D	**620**-2	601	(700-2)
			E	**620**-2¼	601	(700-2¼)

(CONTINUED ON NEXT PAGE)

SC-3

RADAR INSTRUMENT APPROACH MINIMUMS

Figure 9-14 Radar Instrument Approach Minimums

907. IFR ALTERNATE MINIMUMS

See Figure 9-15.

The FAA considers standard alternate weather minimums of 800-2 for non-precision approaches and 600-2 for precision approaches. Airports listed in this section require other than standard minimums or have alternate minimums with restrictions.

Ceiling and Visibility minimums are not applicable to USA/USN/USAF. CNAF M-3710.7 sets required alternate weather minimums for Navy/Marine Corps operations. However, restrictions other than ceiling and visibility still apply. Pilots must review the IFR Alternate Minimums notes to determine alternate airfield suitability.

Example: The symbol A NA on the IAP indicates alternate minimums are ***not authorized*** due to an unmonitored facility or absence of weather reporting service. This includes CNAF minimums!

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ALTERNATE MINS

21224

INSTRUMENT APPROACH PROCEDURE CHARTS

IFR ALTERNATE AIRPORT MINIMUMS

Standard alternate minimums for non-precision approaches and approaches with vertical guidance [NDB, VOR, LOC, TACAN, LDA, SDF, VOR/DME, ASR, RNAV (GPS) or RNAV (RNP)] are 800-2. Standard alternate minimums for precision approaches (ILS, PAR, or GLS) are 600-2. Airports within this geographical area that require alternate minimums other than standard or alternate minimums with restrictions are listed below. NA - means alternate minimums are not authorized due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Civil pilots see FAR 91. IFR Alternate Minimums: Ceiling and Visibility Minimums not applicable to USA/USN/USAF. Pilots must review the IFR Alternate Minimums Notes for alternate airfield suitability.

NAME	ALTERNATE MINIMUMS
APALACHICOLA, FL	
APALACHICOLA RGNL-CLEVE RANDOLPH FLD (AAF)	**RNAV (GPS) Rwy 6** **RNAV (GPS) Rwy 14** **RNAV (GPS) Rwy 24** **RNAV (GPS) Rwy 32**
NA when local weather not available.	
BARTOW, FL	
BARTOW EXEC (BOW)	**RNAV (GPS) Rwy 5** **RNAV (GPS) Rwy 9L** **RNAV (GPS) Rwy 23** **RNAV (GPS) Rwy 27R**
NA when local weather not available.	
BOCA RATON, FL	
BOCA RATON (BCT)	**RNAV (GPS) Rwy 5** **RNAV (GPS) Y Rwy 23**[1]
NA when local weather not available. [1]Category D, 900-2¾.	
BONIFAY, FL	
TRI-COUNTY (1J0)	**RNAV (GPS) Rwy 19**
NA when local weather not available.	
BROOKSVILLE, FL	
BROOKSVILLE-TAMPA BAY RGNL (BKV)	**RNAV (GPS) Rwy 3** **RNAV (GPS) Rwy 9** **RNAV (GPS) Rwy 21** **RNAV (GPS) Rwy 27**
NA when local weather not available.	
CHARLOTTE AMALIE, VI	
CYRIL E KING (STT)	**ILS or LOC Rwy 10**[1] **RNAV (GPS) Rwy 10**[23] **VOR-A**[4]
[1]LOC, Category C, 900-2½; Category D, 1500-3. [2]NA when control tower closed. [3]Categories A, B, 1000-2¼, Category C, 1000-2¾, Category D, 1000-3. [4]Categories A, B, C, 1200-3; Category D, 1500-3.	
CHRISTIANSTED, ST. CROIX, VI	
HENRY E ROHLSEN (STX)	**ILS or LOC Rwy 10**[1] **NDB Rwy 10**[12] **RNAV (GPS) Rwy 10**[3] **VOR Rwy 28**[14]
[1]NA when control tower closed. [2]Category A, B, 1200-2; Category C, D, 1200-3. [3]Category A, B, 1000-2; Category C, D, 1000-3. [4]Category A, B, 900-2; Category C, D, 900-3.	
CRESTVIEW, FL	
BOB SIKES (CEW)	**RNAV (GPS) Rwy 17** **RNAV (GPS) Rwy 35** **VOR-A**[1]
NA when local weather not available. [1]Category D, 800-2¼.	
CRYSTAL RIVER, FL	
CRYSTAL RIVER-CAPTAIN TOM DAVIS FIELD (CGC)	**RNAV (GPS) Rwy 9** **RNAV (GPS) Rwy 27**
NA when local weather not available. Category C, 800-2¼; Category D, 900-2¾.	
DAYTONA BEACH, FL	
DAYTONA BEACH INTL (DAB)	**ILS or LOC Rwy 7L**[1] **ILS or LOC Rwy 25R**[2]
NA when control tower closed. [1]ILS, Categories A, B, C, D, 700-2. [2]ILS, LOC, Categories A, B, 1100-2; Category C, D, 1100-3.	
DEFUNIAK SPRINGS, FL	
DEFUNIAK SPRINGS (54J)	**RNAV (GPS) Rwy 9** **RNAV (GPS) Rwy 27**
NA when local weather not available.	

ALTERNATE MINS SE-3

21224 M1

Figure 9-15 IFR Alternate Minimums

908. LAND AND HOLD SHORT OPERATIONS (LAHSO)

See Figure 9-16.

These operations include landing and holding short of an intersection runway, an intersection taxiway, or other predetermined points on the runway other than a runway or taxiway.

This is an alphabetical list of city/airports that have LAHSO requirements. The information provided includes the landing runway, the hold short point, and the measured distance available for landing.

The Aeronautical Information Manual (AIM) contains specific details regarding this type of operation. LAHSO points are also depicted on the corresponding Airport Diagram in the IAP section.

LAND AND HOLD-SHORT OPERATIONS (LAHSO)

LAHSO is an acronym for "Land and Hold-Short Operations." These operations include landing and holding short of an intersection runway, an intersecting taxiway, or other predetermined points on the runway other than a runway or taxiway. Measured distance represents the available landing distance on the landing runway, in feet.

Specific questions regarding these distances should be referred to the air traffic manager of the facility concerned. The Aeronautical Information Manual contains specific details on hold-short operations and markings.

CITY/AIRPORT	LDG RWY	HOLD-SHORT POINT	AVBL LDG DIST
DAYTONA BEACH, FL			
DAYTONA BEACH INTL (DAB)	07L	TWY W	7,500 feet
	16	07L-25R	2,900 feet
	34	07L-25R	2,564 feet
FORT LAUDERDALE, FL			
FORT LAUDERDALE EXEC (FXE)	26	13-31	3,000 feet
	31	09-27	3,250 feet
JACKSONVILLE, FL			
JACKSONVILLE EXEC AT CRAIG (CRG)	05	14-32	3,600 feet
	14	05-23	3,650 feet
LAKELAND, FL			
LAKELAND LINDER RGNL (LAL)	05	09-27	2,500 feet
MIAMI, FL			
MIAMI INTL (MIA)	09	12-30	9,749 feet
	12	09-27	8,100 feet
ORLANDO, FL			
EXEC (ORL)	25	13-31	3,825 feet
ORLANDO SANFORD INTL (SFB)	09C	18-36	3,150 feet
	09L	18-36	5,500 feet
	18	09R-27L	4,600 feet
	27R	18-36	3,952 feet
	36	09L-27R	5,170 feet
ST PETERSBURG-CLEARWATER, FL			
ST PETE-CLEARWATER INTL (PIE)	18	04-22	7,557 feet
	22	18-36	4,514 feet
SARASOTA (BRADENTON), FL			
SARASOTA/BRADENTON INTL (SRQ)	14	04-22	3,800 feet
TAMPA, FL			
TAMPA INTL (TPA)	19L	10-28	5,650 feet
	28	01R-19L	4,350 feet
TITUSVILLE, FL			
SPACE COAST RGNL (TIX)	09	18-36	4,225 feet
	36	09-27	3,750 feet
VERO BEACH, FL			
VERO BEACH RGNL (VRB)	30L	04-22	4,700 feet
WEST PALM BEACH,			
PALM BEACH INTL (PBI)	10L	14-32	3,117 feet
	14	10L-28R	4,295 feet
	28R	14-32	3,725 feet

Figure 9-16 Land and Hold Short Operations (LAHSO)

909. HOT SPOTS

See Figure 9-17.

Hot Spots are areas on the aerodrome movement area with a history or potential risk of collision or runway incursion. Heightened attention by pilots is necessary for safe operation.

Listed alphabetically by city/airport name, the information for each airport includes the hot spot number, and a description of the area concerned.

The Hot Spot numbers and a circle around the affected area are also depicted on the corresponding Airport Diagram in the IAP section.

HOT SPOTS

An "airport surface hot spot" is a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

A "hot spot" is a runway safety related problem area on an airport that presents increased risk during surface operations. Typically it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. The area of increased risk has either a history of or potential for runway incursions or surface incidents, due to a variety of causes, such as but not limited to: airport layout, traffic flow, airport marking, signage and lighting, situational awareness, and training. Hot spots are depicted on airport diagrams as open circles or polygons designated as "HS 1", "HS 2", etc. and tabulated in the list below with a brief description of each hot spot. Hot spots will remain charted on airport diagrams until such time the increased risk has been reduced or eliminated.

CITY/AIRPORT	HOT SPOT	DESCRIPTION*
DAYTONA BEACH, FL		
DAYTONA BEACH INTL (DAB)	HS 1	Int of Twy W and Twy S.
FORT LAUDERDALE, FL		
FORT LAUDERDALE	HS 1	Int of Twy B and Rwy 09-27.
EXEC (FXE)	HS 2	Int of Twy A and Rwy 13-31.
	HS 3	Int of Twy C, Twy B and Rwy 13-31.
FORT LAUDERDALE, FL		
FORT LAUDERDALE-	HS 1	Twy Q at Rwy 10L-28R.
HOLLYWOOD INTL (FLL)		
FORT MYERS, FL		
PAGE FLD (FMY)	HS 1	Multiple twy ints.
FORT MYERS, FL		
SOUTHWEST FLORIDA	HS 1	Twy G1 is directly aligned with Twy F2.
INTL (RSW)	HS 2	When ldg Rwy 06, Twy F6 high speed exit sign is immediately before the Twy F5 reverse high speed.
FORT PIERCE,FL		
TREASURE COAST INTL (FPR)	HS 1	Maintain vigilance confusing int.
	HS 2	Maintain vigilance pilots confuse Rwy 14 as Twy B.
	HS 3	Confusing int; pilots have used Twy A as a rwy.
GAINESVILLE, FL		
GAINESVILLE RGNL (GNV)	HS 1	Rwy 11 Apch Hold Position.
	HS 2	Rwy 07 and Rwy 11 apch ends.
	HS 3	Twy D and Twy B lead to Rwy 25 and Rwy 29.
HOLLYWOOD, FL		
NORTH PERRY (HWO)	HS 1	Southbound on Twy D for Rwy 28R departures.
	HS 2	The hold line for Rwy 01L is also the hold line for Rwy 10R.
	HS 3	Aircraft taxiing on Twy L westbound to depart on Rwy 01L-19R.
JACKSONVILLE, FL		
JACKSONVILLE EXEC AT	HS 1	Twy C, Twy E, and Twy F.
CRAIG (CRG)	HS 2	Twy G, Twy D, and Twy R.
MIAMI, FL		
MIAMI EXEC (TMB)	HS 1	Twy H and Twy E hold lines are in close proximity to Rwy 13-31.
MIAMI, FL		
MIAMI INTL (MIA)	HS 1	Short twy risk.
	HS 2	Rwy 27 and Rwy 30 wrong rwy departure risk.
	HS 3	Short twy between rwys.
	HS 4	Multiple rwy ends close together. Some hold lines dependent upon rwy in use.
MIAMI, FL		
MIAMI-OPA LOCKA		
EXEC (OPF)	HS 1	Surface painted LOCATION and DIRECTION signs ONLY.
NAPLES, FL		
NAPLES MUNI (APF)	HS 1	Maint vigilance confusing twy int.

(SEE CONTINUATION PAGE FOR MORE LISTINGS)

Figure 9-17 Hot Spots

910. INSTRUMENT ARROACH PROCEDURES (IAPs)

These are a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually or the missed approach procedure is initiated.

IAPs contained in the FLIP DoD Terminal Low and High publications are issued by the FAA, USN, USAF, and USA.

All information required to execute these maneuvers can be found on the appropriate IAPs (commonly referred to as "Approach Plates"). Each IAP can be broken down into basic areas of information. (See Figure 9-18)

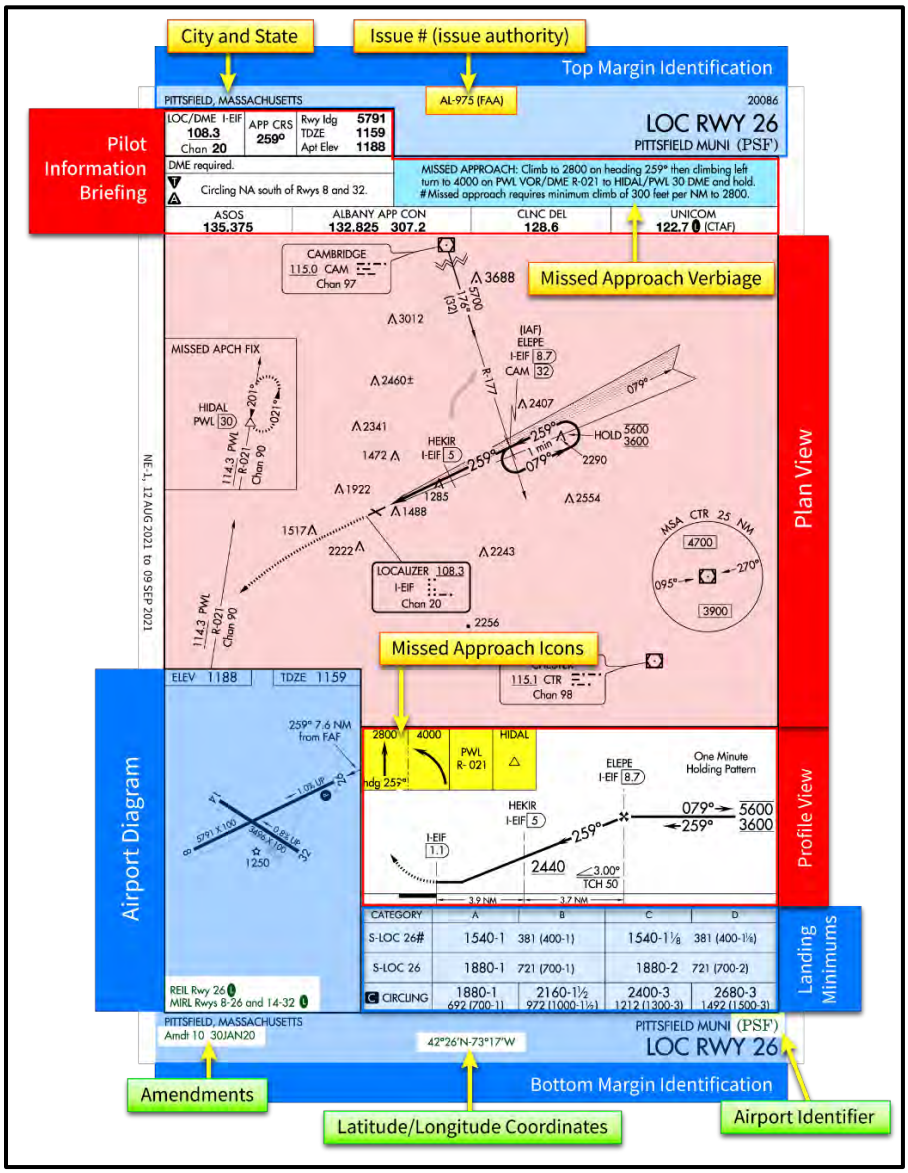


Figure 9-18 Basic IAP Sections

1. Top And Bottom Margin Information (See Figure 9-19)

Individual IAPs are identified on the top and bottom margins of the page by their procedure name ***(based on the NAVAIDs required for the final approach***), runway served, and airport location. The identifier for the airport is also listed immediately after the airport name.

NOTE

Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border denote that the procedure appears in both the Terminal High and Terminal Low publications.

Straight–in IAPs are identified by the navigational system providing the final approach guidance ***and the runway*** to which the approach is aligned (e.g., VOR RWY 13).

Circling only approaches are identified by the navigational system providing final approach guidance ***and a letter*** from the beginning of the alphabet (e.g., VOR A). Multiple circling procedure using the same navigational system it will use follow on letters from the beginning of the alphabet (e.g., VOR A, VOR B, VOR C, etc.)

Multiple approaches to the same ***runway*** (not circling) using the same navigational guidance will be annotated with an alphabetical suffix beginning at the end of the alphabet and working backwards for subsequent procedures (e.g., ILS Z RWY 28, ILS Y RWY 28, etc.).

More than one navigational system separated by a slash indicates that more than one type of equipment must be used to execute the final approach (e.g., VOR/DME RWY 31).

More than one navigational system separated by the word “or” indicates either type of equipment may be used to execute the final approach (e.g., VOR or GPS RWY 15).

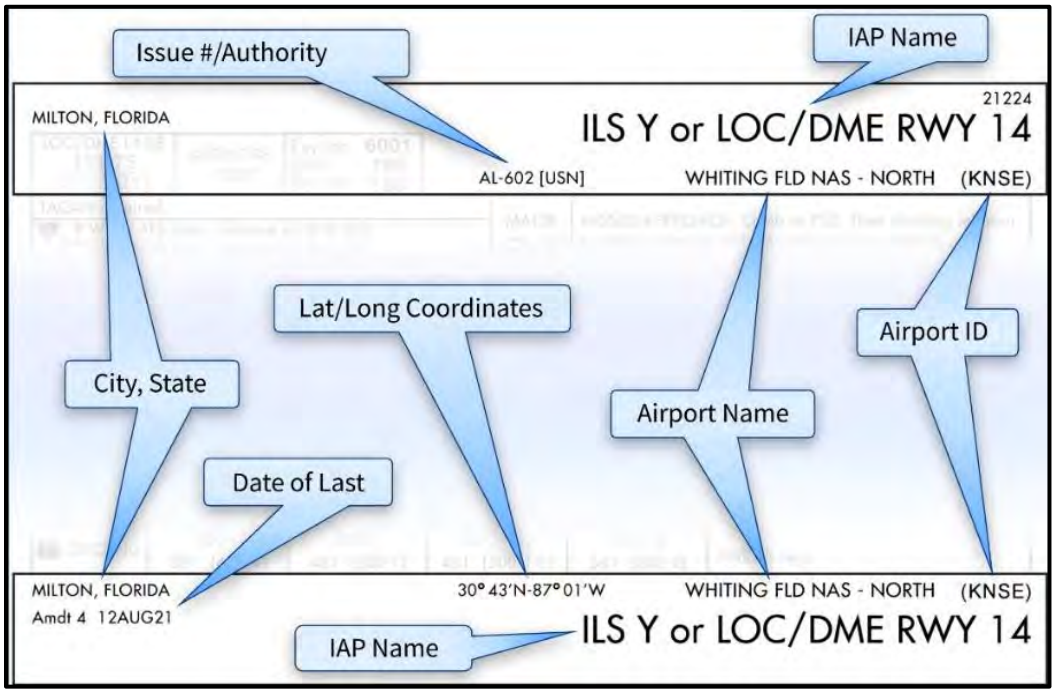
In some cases, other types of navigation systems including radar may be required to execute other portions of the approach or to navigate to the IAF. When radar or other equipment is required for procedure entry from the enroute environment, a note will be charted in the planview of the approach procedure chart (e.g., Radar Required). When radar or other equipment is required on portions of the procedure outside the final approach segment, including the missed approach, a note will be charted in the notes box of the pilot briefing portion of the approach chart for IAPs issued by the FAA

NOTE

Some military (e.g., U.S. Air Force and U.S. Navy) IAPs have these “additional equipment required” notes charted only in the planview of the approach procedure and do not conform to the same application standards used by the FAA.

Notes are not charted when VOR is required outside the final approach segment. Pilots should ensure that the aircraft is equipped with the required NAVAID(s) in order to execute the approach, ***including the missed approach***.

Top Margin



Bottom Margin

Figure 9-19 IAP Top and Bottom Margins

2. Pilot Briefing Information (See Figure 9-20)

This section aids the pilot as they set up and prepare for the approach. This information includes:

a. NAVAID frequencies/identifiers required for the final approach segment

b. The Final Approach Course (FAC)

c. Runway Length

d. Runway Threshold Elevation (THRE)

e. Airport Elevation

f. Notes: concerning the approach and/or details about airport operations.

g. Type of Approach lighting (when installed for the approach runway)

9-30 FLIP TERMINAL LOW ALTITUDE (T LA)

h. Missed Approach Procedures: (This is the complete list of instructions unlike the abbreviated information/symbols found in the profile view.)

i. Communications frequencies that flight crews will need/expect to be assigned during the approach are listed in the logical order of use from arrival to touchdown. Having this information immediately available during the approach reduces the chances of a loss of contact between ATC and flight crews during this critical phase of flight.

j. Radar Approach Availability (by type e.g., ASR, PAR or ASR/PAR)

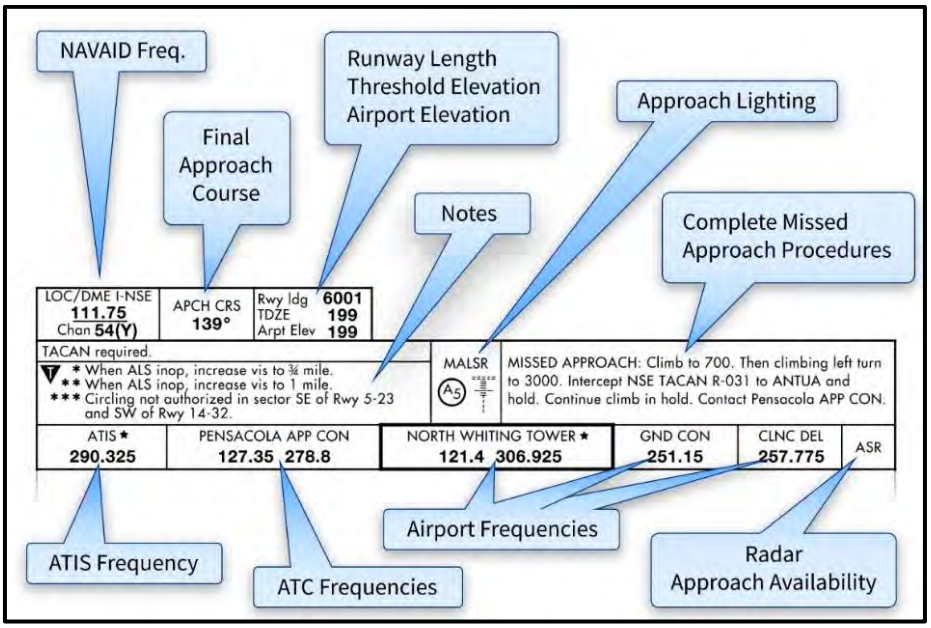


Figure 9-20 IAP Pilot Briefing Information

3. Planview (See Figure 9-21)

This section provides aircrew with a 360° "Birds eye" view for the area around the approach and airport environment. While an excellent tool for overall situational awareness, it also provides key elements necessary for navigation and safe operations.

A thorough understanding of the planview symbology (See Figures 9-6a and 9-6b) along with knowledge of the terms and definitions they represent is crucial. The GP and AIM are key sources for explanation of many terms. Another important source document is the NATOPS Instrument Flight Manual (NIFM).

The following is a sample of some general terms used to describe symbology in this section of an IAP:

a. Feeder Route. A route depicted on Instrument Approach Procedure Charts to designate routes for aircraft to proceed from the enroute structure to the Initial Approach Fix (IAF).

b. Initial Approach Fix (IAF). The fix(s) depicted on the Instrument Approach Procedure charts that identify the beginning of the initial approach segments(s).

c. Initial Approach. The segments between the Initial Approach Fix and the intermediate fix or point where the aircraft is established on the intermediate or final approach course.

d. Intermediate Fix (IF). The fix that identifies the beginning of the intermediate approach segment. (Not depicted for every approach)

e. Intermediate Approach. The segment between the intermediate fix or point and the Final Approach Fix (FAF).

f. Final Approach Fix (FAF). The fix from which the final approach (IFR) to the airport is executed and which identifies the beginning of the final approach segment.

g. Final Approach Segment. The segment between the Final Approach Fix or point and the runway, airport or missed approach point.

h. Final Approach Course. A bearing/radial/track of an instrument approach leading to a runway or extended runway centerline all without regard to distance.

i. Missed Approach Point (MAP). A point prescribed in each instrument approach procedure at which a missed approach procedure shall be executed if the required visual reference does not exist.

j. Minimum Safe Altitude (MSA). Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which the procedure is predicated. These altitudes will be identified as Minimum Sector Altitude (MSA) or Emergency Safe Altitude and are established as follows:

   i. Minimum Sector Altitude. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigational facility upon which the procedure is predicated. Sectors depicted on the approach charts must be at least 90° in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

   ii. Emergency Safe Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in non-mountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a ***100-mile radius*** of the navigational facility upon which the procedure is predicated and normally used only in military procedures.

k. Terminal Arrival Area (TAA). The objective of the TAA is to provide a seamless transition from the enroute structure to the terminal environment for arriving aircraft equipped with FMS and/or GPS navigational equipment. The TAA provides the pilot

and controller with a very efficient method for routing traffic into the terminal environment with little required air traffic control interface. Once cleared for the approach the pilot may use the published altitudes in their sector as they provide standard obstacle clearance compatible with the instrument procedure associated with it. When the TAA is published, it replaces the MSA for that instrument procedure.

Where IAPs that have a solid circle displayed, all distances within the circle are to the scale depicted on the circle. A circle with dashed lines indicates an area that is NOT to scale. These "dashed" circles are used to aid orientation from Enroute and/or Feeder facilities to the Initial Approach Fix(s) (IAFs).

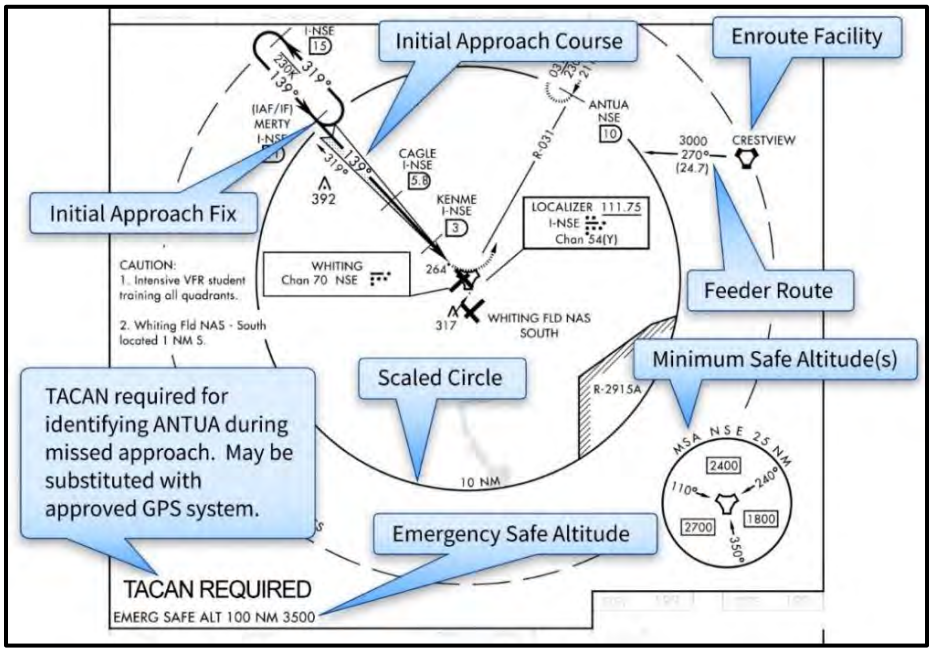


Figure 9-21 IAP Planview

4. Profile View (See Figure 9-22)

This is a cross section view of the approach procedure. A thorough understanding of the profile view symbology (See Figure 9-7) along with knowledge of the terms and definitions they represent is crucial. The GP and AIM are key sources for explanation of many terms. Another important source document is the NATOPS Instrument Flight Manual (NIFM).

The following is a sample of some general terms used to describe symbology in this section of an IAP:

a. Mandatory Altitude**.** An altitude depicted on an Instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

b. Minimum Altitude. An altitude depicted on an Instrument Approach Procedure Chart requiring the aircraft to maintain altitude at or above the depicted value.

c. Maximum Altitude. An altitude depicted on an Instrument Approach Procedure Chart requiring the aircraft to maintain altitude at or below the depicted value.

d. Stepdown Fix. A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

e. Visual Descent Point **(**VDP**).** A defined point on the final approach course of a non-precision straight-in approach procedure from which normal descent from the Minimum Descent Altitude to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot.

Altitude restrictions precede the fix to which they apply.

Where a VDP is published, pilots should not descend below the Minimum Decent Altitude (MDA) prior to reaching the VDP and acquiring the necessary visual reference. Pilots not equipped to receive the VDP should fly the approach as though no VDP had been provided.

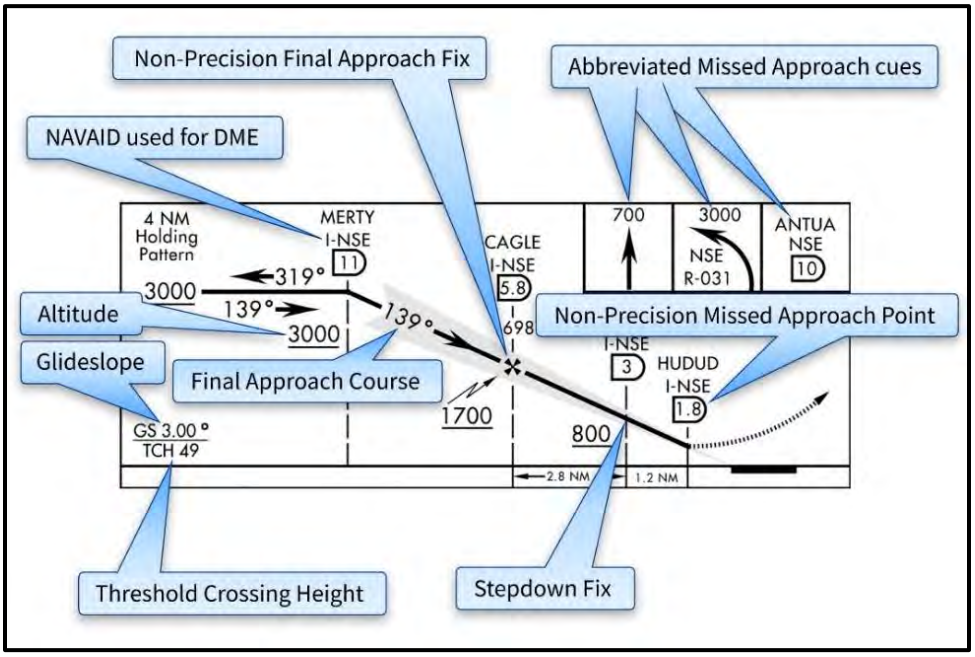


Figure 9-22 IAP Profile View

5. Landing Minimums (See Figures 9-23a and 9-23b)

The minimums in this section are depicted by type of approach being executed and aircraft approach category. *Minimums are expressed in terms of altitude and visibility.* The two key sets of minimums are:

Weather minimums. Ceilings, Prevailing Visibility (PV) and/or Runway Visual Range (RVR) constitute weather minima. These are used for flight planning purposes and are the requirements for commencing approaches for single-piloted aircraft. Minimum ceiling and visibility required for the procedure are separated by a - or a / and enclosed in parenthesis. The - is used when depicting PV, and the / is used to denote RVR values. If RVR is available, it takes precedence over PV as a requirement for commencing an approach.

Single-piloted aircraft cannot commence an approach at a filed destination or alternate airport unless the ceiling and RVR/PV is at or above published minima.

In addition to these published minimums**,** ***CNAF M-3710.7*** provides the following guidance concerning absolute minimums:

5.3.5.3 Approach Criteria for Single-Piloted Aircraft

An instrument approach shall not be commenced if the reported weather is below published minimums for the type approach being conducted. When a turbojet enroute descent is to be executed, the approach is considered to commence when the aircraft descends below the highest initial penetration altitude established in high altitude instrument approach procedures for the destination airport. Once an approach has been commenced, pilots may, at their discretion, continue the approach to the approved published landing minimums as shown in the appropriate FLIP for the type approach being conducted. ***Absolute minimums for a single-piloted fixed-wing aircraft executing an approach are 200-foot ceiling/height above touchdown and visibility of 1/2 statute-mile/2,400 feet RVR***.

Altitude minimums. The minimum altitude a pilot is allowed to descend on the final segment of a ***precision approach*** is referred to as the Decision Altitude (DA). The minimum altitude for a ***non-precision approach*** is expressed as a Minimum Decent Altitude (MDA). The visibility required for the final approach are published following the MDA/DA separated by a / or a – but are ***not enclosed in parenthesis***. The CNAF restrictions noted above apply to altitude minimums as well.

A thorough understanding of the profile view symbology (See Figures 9-8a, 9-8b, and 9-8c) along with knowledge of the terms and definitions they represent is crucial. The GP and AIM are key sources for explanation of many terms. Another important source document is the NATOPS Instrument Flight Manual (NIFM).

The following are samples of general terms used to describe symbology in this section of an IAP:

a. Precision Approach. A standard instrument approach procedure in which an electronic glideslope/glidepath (and lateral course guidance) is provided.

   – The types of precision approaches listed in the minimums section are:

      (a). ***LPV*** (Localizer Performance with Vertical Guidance)

      (b). ***LNAV/VNAV*** (Lateral Navigation/Vertical Navigation)

      (c). ***S-ILS*** (Instrument Landing System),

NOTES

1. S - Denotes a Straight-in approach.

2. For precision approaches, the T-6B may only use the S-ILS minima in this section. The T-6B is also capable of Precision Radar Approaches; however, PAR Minima are listed in the Radar Instrument Approach Minimums section in the front of the publication.

b. Non-Precision Approach. A standard instrument approach procedure in which no electronic glideslope is provided (only lateral course guidance).

– Types of Non- Precision approaches listed in the minimums section are:

(a). ***S-LOC*** (Localizer)

(b). ***LNAV*** (Lateral Navigation)

(c). ***S*** - (runway number)

(d). ***CIRCLING***

NOTES

1. **S -** Denotes a Straight-in approach.

2. Minima types listed as **S -** (followed by the runway number) and ***CIRCLING*** may be based upon VOR, VOR/DME, TACAN, or NBD.

3. The T-6B may use Non-Precision minima for S-LOC, LNAV. Minima labeled as S - (runway number) and CIRCLING may also be used provided they are based upon VOR or VOR/DME NAVAIDS.

4. The T-6B is capable of non-precision radar approaches. However, the ASR and PAR W/O GS minima are listed in the Radar Instrument Approach Minimums section in the front of the publication.

c. Approach Category. A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight.

d. Minima may be presented for up to six approach categories:

i. Category A **-** Speeds less than 91 Knots

ii. Category B - Speeds 91 knots or more but less than 121 knots

iii. Category C - Speeds 121 knots or more but less than 141 knots

iv. Category D - Speeds 141 knots or more but less than 166 knots

v. Category E - Speeds 166 knots or more

vi. Copter - Minima for all helicopters

NOTES

1. ***The T-6B is a Category B aircraft***

2. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the next higher category should be used.

e. Ceiling. The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration". Ceiling heights are expressed in AGL.

f. Decision Altitude (DA). A specified altitude ***referenced to Mean Sea Level (MSL)*** in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

NOTE

ILS CATEGORY I approaches use Decision Altitude (DA). ***The T-6B is certified for ILS CAT I*** operations.

g. Decision Height (DH). A specified altitude ***referenced Above Ground Level (AGL)*** in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

NOTES

1. ILS CATEGORY II and III approaches use Decision Height (DH). These types of approaches are specified in the approach name. ***The T-6B is not certified for CAT II or CAT III*** operations.

2. Decision Altitude (DA) replaces the familiar term Decision Height (DH). DA conforms to the international convention where ***Altitudes relate to MSL*** and ***Heights relate to AGL. An exception to this statement is found in the Radar Instrument Approach Minimums section and the IFR Landing Minima Legend where the DoD use of DH still refers to an MSL altitude.***

h. Height Above Airport (HAA). The height of the minimum descent altitude (MDA) above the published airport elevation. This is published in conjunction with circling minimums. ***It is expressed in feet Above Ground Level (AGL).***

i. Height Above Touchdown (HAT). The height of the Decision Height (DH***),*** Decision Altitude (DA), or Minimum Descent Altitude (MDA) above the highest runway elevation in the Touchdown Zone (first 3000 feet of the runway). ***HAT*** is published on instrument approach charts when utilized to determine straight-in minimums. ***It is expressed in feet Above Ground Level (AGL).***

j. Minimum Descent Altitude (MDA). The lowest altitude, ***expressed in feet above mean sea level (MSL),*** to which a descent is authorized on final approach or during a circle-to-land maneuver in execution of a standard instrument approach procedure where no electronic glideslope is provided.

k. Prevailing Visibility. The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous. Prevailing visibility is ***stated in terms of statue miles (SM).***

l. Runway Visibility Value (RVV). The visibility determined for a particular runway by a transmissometer. A meter provides a continuous indication of the visibility ***(reported in statute miles or fractions of statue mile)*** for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.

m. Runway Visual Range (RVR). An instrumentally derived value, based on standard calibrations that represent the horizontal distance a pilot will see down the runway from the approach end; it is based on the sighting of either high intensity runway lights (HIRL) or on the visual contrast of other targets whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is ***reported in hundreds of feet***. RVR is used in lieu of Runway Visibility Value and /or prevailing visibility in determining minimums for a particular runway.

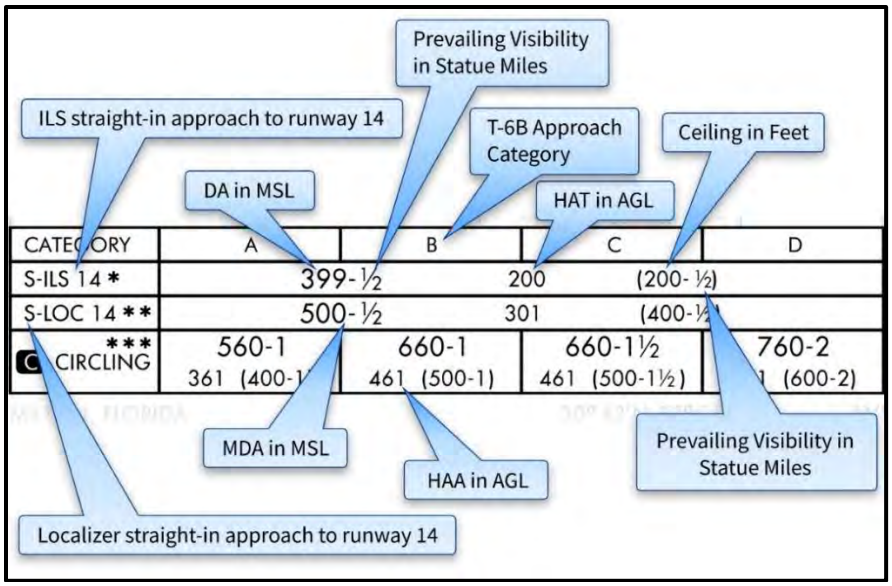


Figure 9-23a IAP Landing Minimums

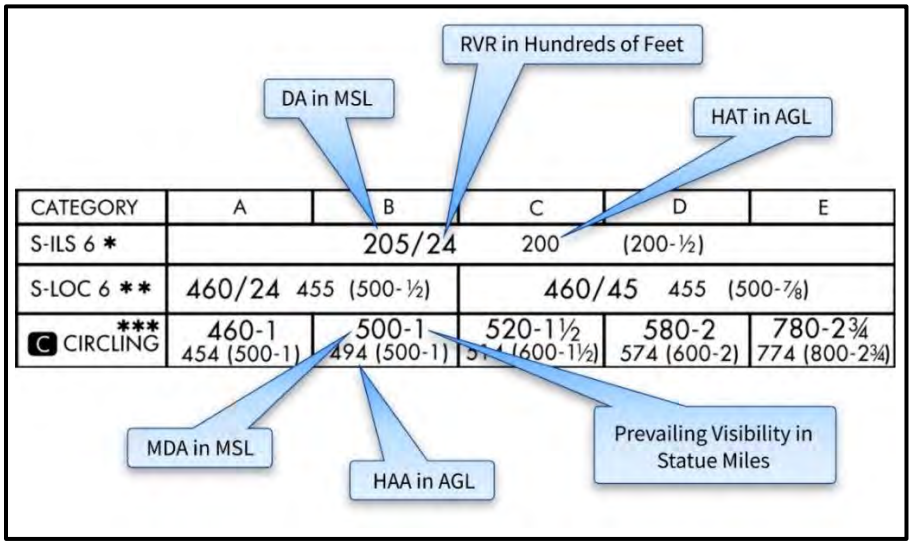


Figure 9-23b IAP Landing Minimums (cont.)

6. Airport Sketch (See Figures 9-24, 9-25)

The Airport Sketch is found in the bottom of the Procedure Chart. It may appear on the left or right side of the chart beside the profile view and landing minimums. It depicts the field layout and includes the following information where applicable:

a. Airport elevation

b. Runways: Numbers, length, width, slope, Touchdown Zone elevation (TDZE), Threshold elevation (THRE), displaced thresholds, lighting, and arresting gear locations

c. NAVAID Location (when located on the airfield)

d. Approach visual aids available: Approach lighting type, VASI, PAPI, OLS (See the FIH for more information on Approach Lighting.)

e. Taxi surfaces

f. Tower/Beacon location

g. Final Approach Track

h. Missed Approach Timing Table (located below the airport sketch where applicable)

A thorough understanding of the Airport Sketch symbology (See Figure 9-10) along with knowledge of the terms and definitions they represent is crucial. The GP and AIM are key sources for explanation of many terms. Another important source document is the NATOPS Instrument Flight Manual (NIFM).

The following is a sample of some general terms used to describe symbology in this section of an IAP:

a. Approach Light System **(**ALS**)**. An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach to landing.

b. U.S. Navy Optical Landing System **(**OLS**)**. A visual slope indicating system. It consists of a horizontal row of green lights with a yellow "ball" in the center. When the yellow ball is aligned with the green lights the aircraft is on slope, when the yellow ball is above the green lights the aircraft is above slope, if the ball is below the green lights the aircraft is below glideslope and the ball color will change from yellow to red if excessively low. The OLS is depicted on the Airport Sketch and Airport diagram because its height of approximately 7 feet and proximity to the edge of the runway may create an obstruction for some types of aircraft.

c. Precision Approach Path Indicator **(**PAPI**)**. A visual glideslope indicator consisting of four light boxes similar to the standard VASI light boxes, installed in a horizontal row on one side of the runway, usually on the left side. When on glidepath, the pilot will see two red lights and two white lights. When the aircraft deviates from the normal glidepath, the combination of red and white lights change. At some locations, light boxes may be installed on both sides of the runway. This does not affect operation.

d. Runway End Identifier Lights **(**REIL**)**. Two synchronized white flashing lights one on each side of the runway threshold, which provide rapid and positive indication of the approach end of a particular runway.

e. Touchdown Zone (TDZ). The first 3,000 feet of runway beginning at the threshold. The area used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

f. Touchdown Zone Elevation (TDZE). The highest elevation in the first 3,000 feet of the usable landing surface. The usable surface begins at the threshold/displaced threshold.

g. Visual Approach Slope Indicator (VASI). This visual glideslope system provides vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is "on path" if he sees red/white, "above path" if he sees white/white and "below path" if he sees red/red. Some airports have a three-bar VASI which provide two visual paths to the same runway.

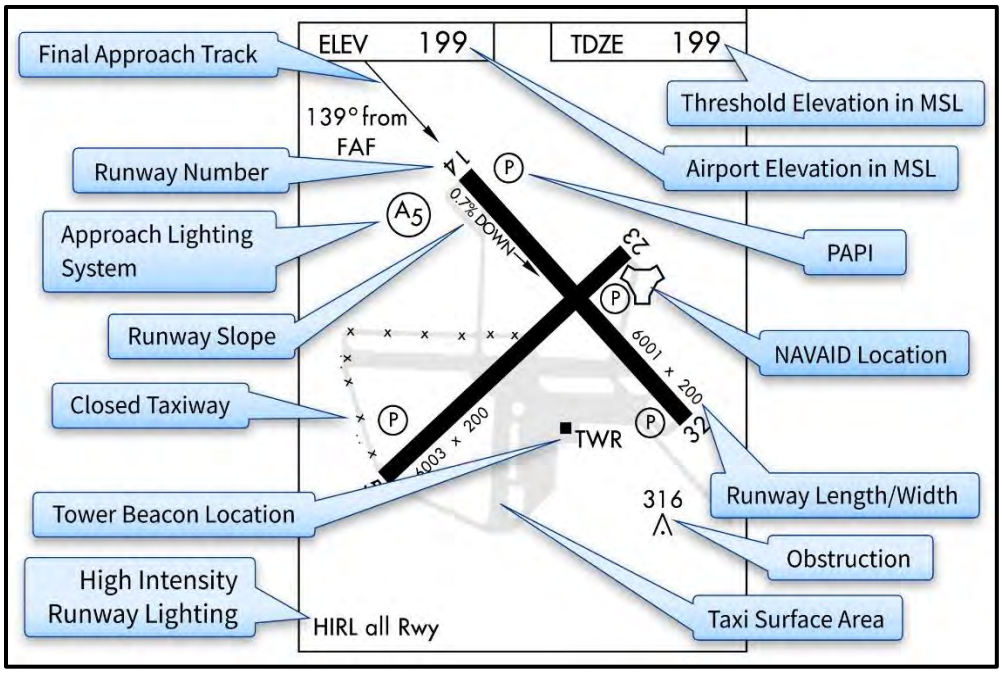


Figure 9-24 IAP Airport Sketch

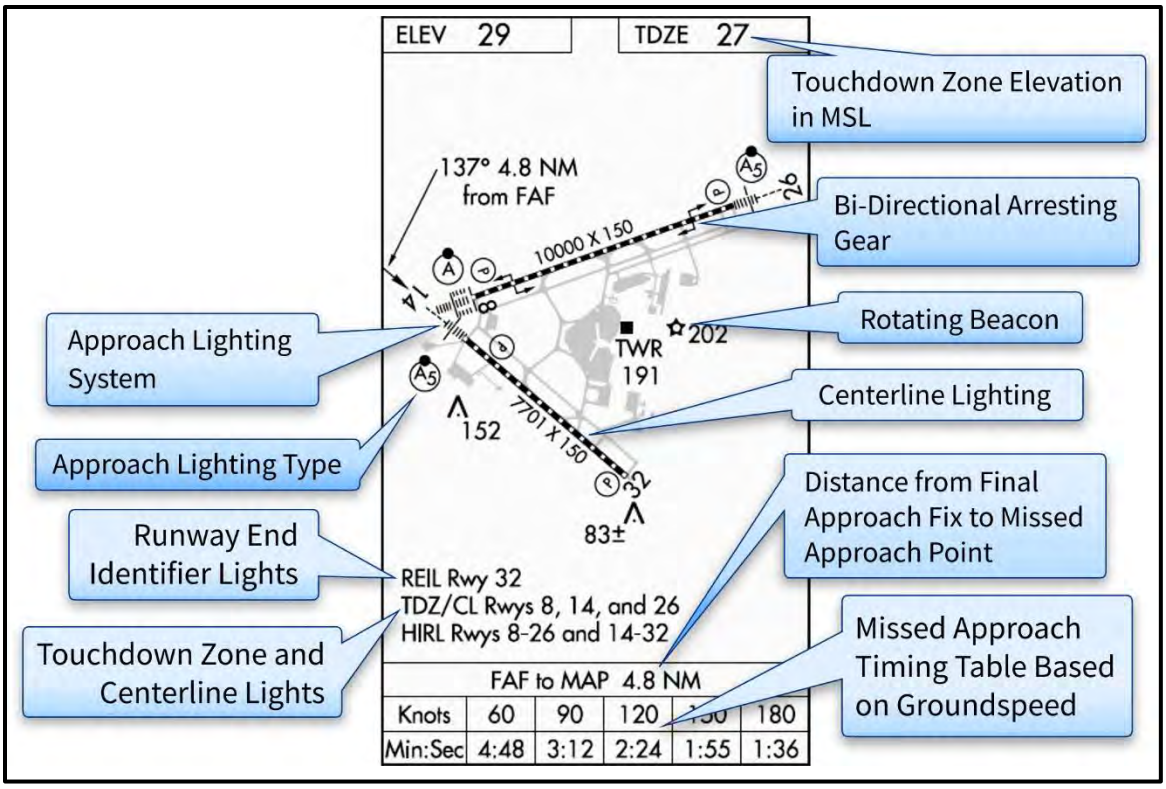


Figure 9-25 IAP Airport Sketch with Timing Table

911. STANDARD INSTRUMENT DEPARTURES (SIDs)

See Figure 9-26.

A SID provides transition from the terminal area to the appropriate enroute structure during the departure phase of flight. When available, they are depicted graphically following the IAP section for each airport in both the FLIP Terminal Low/High Altitude publications.

Graphic depictions of Obstacle Departure Procedures (ODPs) are also found in this section where available. Graphic ODPs are noted by (OBSTACLE) in the title. (See Figure 9-27)

Advantages of the SID and Graphical ODP include:

- The graphic depiction aids in general orientation.
- They reduce the frequency and complexities of the communications required to issue and receive such instructions.
- They provide safe tracks/altitudes in the event of lost communications during the departure phase.

1. Filing a SID

The top and bottom margins of each chart contains the plain language name and number of the SID, the city and state it is designed for, and in parenthesis an ATC code for that chart. For example, in Figure 9-26 the plain language name for the SID covering the Cairns AAF in Fort Rucker, Alabama is the POPER-ONE DEPARTURE. The ATC code for the SID is POPER1.POPER.

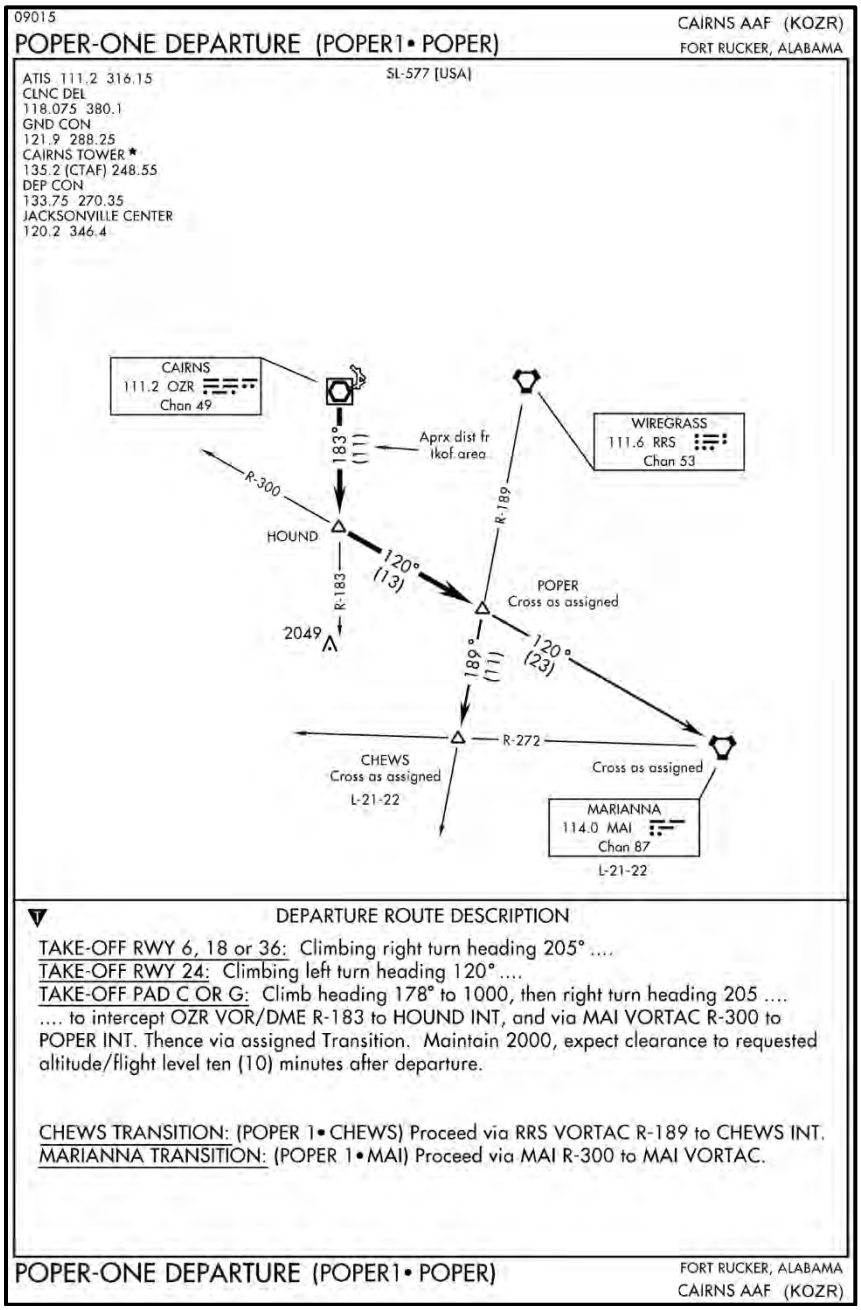


Figure 9-26 SID

Each chart may have multiple Transition Routes. These transitions also have individual plain language names followed by their specific ATC codes in parenthesis. For example, in Figure 9-26, if you intend to use the MARIANNA TRANSITION you would file POPER1.MAI instead of "POPER1.POPER."

Selecting the appropriate ATC code for filing will avoid confusion and unnecessary delays.

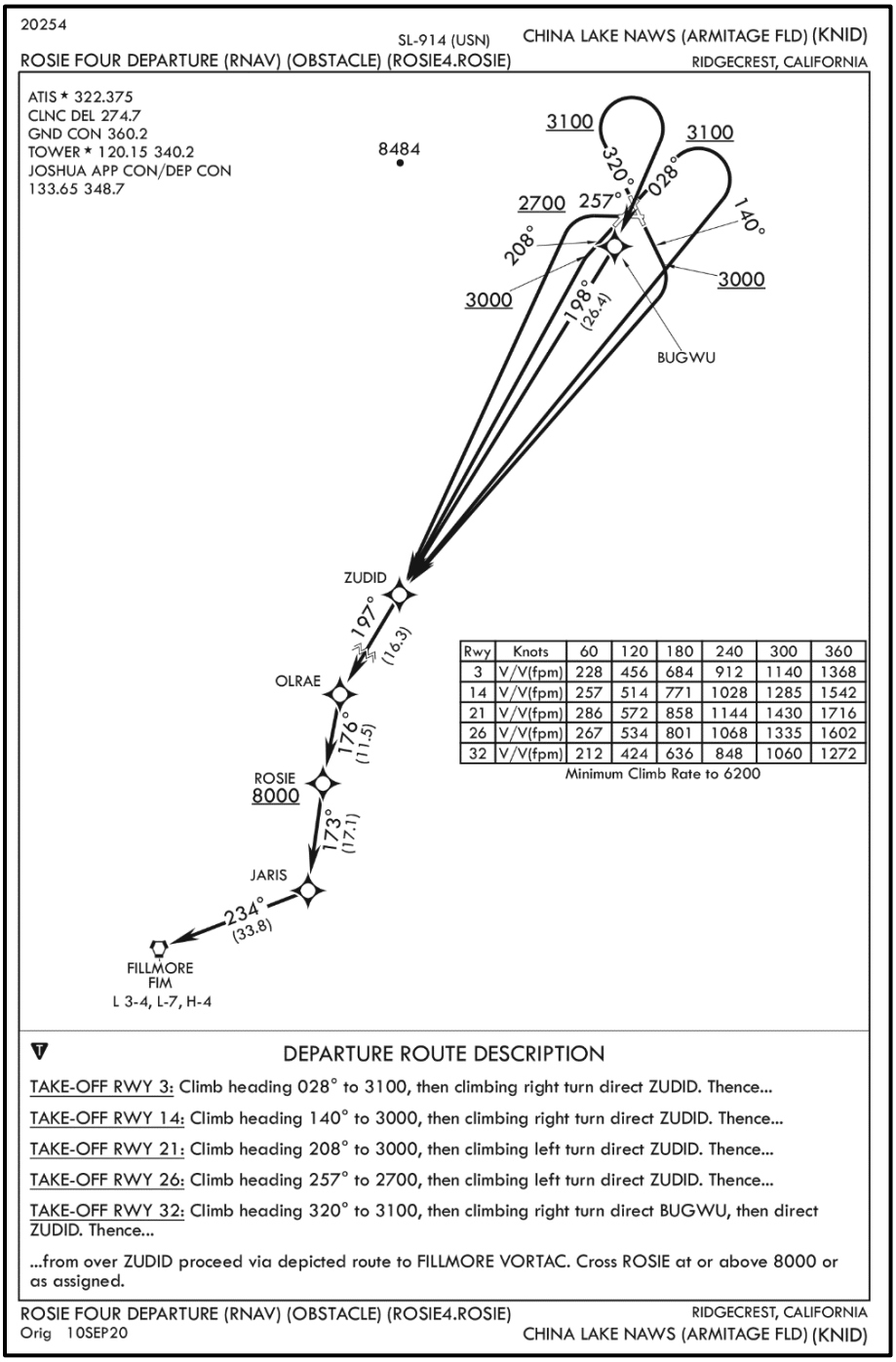


Figure 9-27 Graphic ODP

2. Clearance for a SID

Legends for symbology for the SIDs are located in the front of the publication after the Index of Instrument Procedure Charts. (See Figures 9-11a and 9-11b). These charts have features used on both the IFR Enroute Low/High Charts and the FLIP Terminal Low/High Approach Plates.

SIDs may have mandatory speeds and/or crossing altitudes published. Published speed restrictions are independent of altitude restrictions and are mandatory unless modified by ATC. Pilots should plan to cross waypoints with a published speed restriction, at the published speed, and should not exceed this speed past the associated waypoint unless authorized by ATC or a published note to do so.

Pilots cleared for STAR procedures are expected to laterally navigate as depicted, comply with published speed restrictions, and ***must maintain last assigned altitude unless*** otherwise instructed by ATC. If the clearance for the SID contains the phraseology "***climb via***" the pilot is authorized and expected to ***climb*** so as to comply with all published/issued restrictions.

912. AIRPORT DIAGRAMS

See Figure 9-28.

Airport Diagrams are provided for ***some*** airports. Where available they will be the last chart in the IAP section for a given airport. The legends used for this chart are the same ones used in conjunction with the Airport Sketch on the IAPs.

Airport Diagrams are basically an expanded version of the Airport Sketch. The Airport Diagram provides greater detail especially with regard to ground operations. They are vital when operating at unfamiliar airports especially those with complex taxiway systems.

When contacting Ground Control, this diagram will aid the pilot in reporting their position on the airfield. It is also needed to understand and navigate the taxi instructions received from the controller.

Hot Spots (HS) and Land and Hold Short Operations (LAHSO) are also depicted on this diagram and aid in arrivals as well as departures. (See Figures 9-16, 9-17 for HS and LAHSO legends/information)

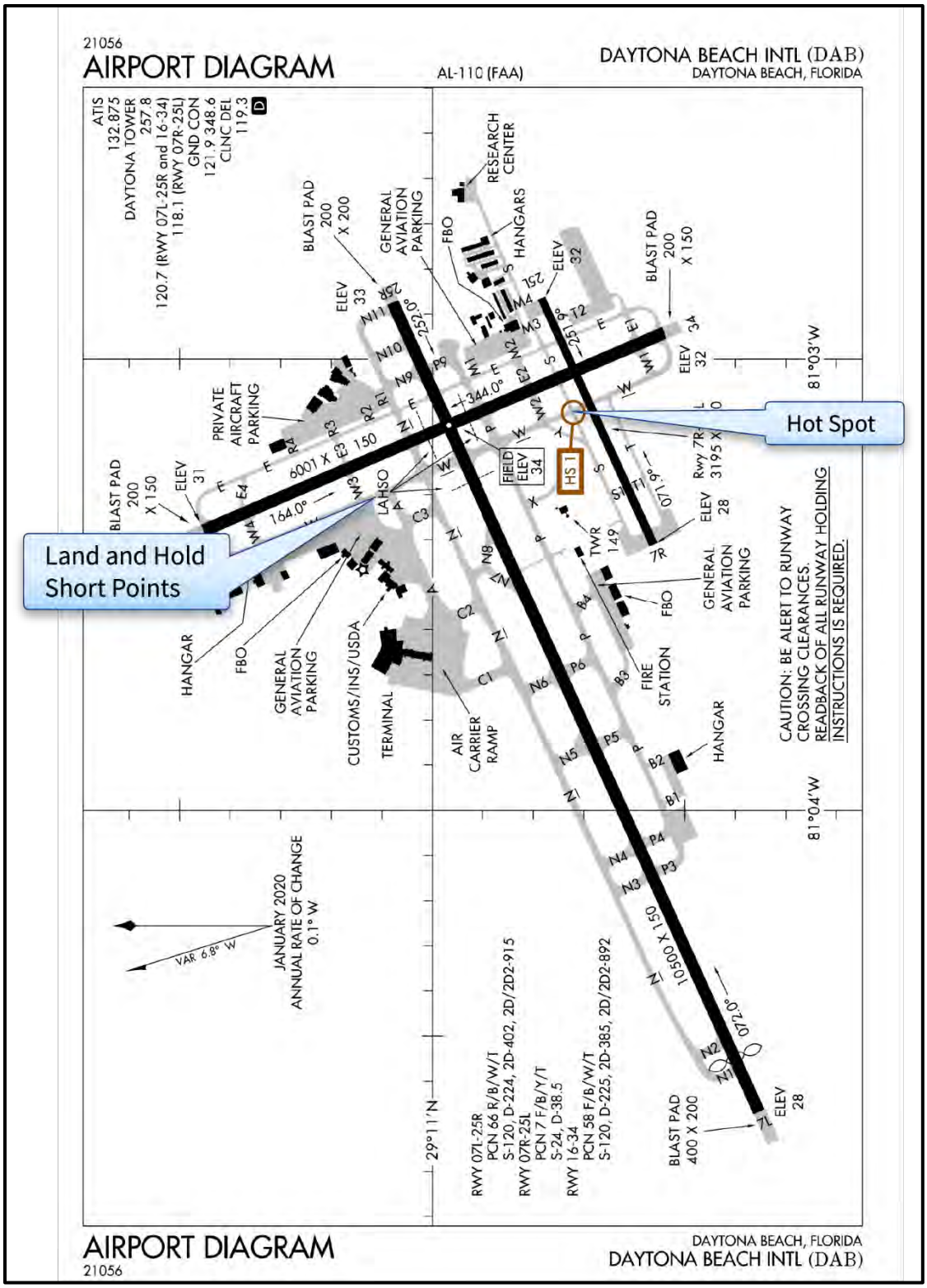


Figure 9-28 Airport Diagram

913. RATE OF CLIMB/DESCENT TABLE

See Figure 9-29.

The inside back cover of every STAR, Terminal Low/High publication has an Instrument Takeoff or Approach Procedure Charts Rate of Climb/Descent Table. This table is used for planning and executing climbs or descents under known or approximate ground speed conditions.

INSTRUMENT TAKEOFF OR APPROACH PROCEDURE CHARTS
RATE OF CLIMB/DESCENT TABLE
(ft per min)

A rate of climb/descent table is provided for use in planning and executing climbs or descents under known or approximate ground speed conditions. It will be especially useful for approaches when the localizer only is used for course guidance. A best speed, power, altitude combination can be programmed which will result in a stable glide rate and altitude favorable for executing a landing if minimums exist upon breakout. Care should always be exercised so that minimum descent altitude and missed approach point are not exceeded.

ft/NM	%	GROUND SPEED (knots)											ANGLE
		60	90	120	150	180	210	240	270	300	330	360	
152	2.50	150	230	300	380	460	530	610	680	760	840	910	1.43
200	3.29	200	300	400	500	600	700	800	900	1000	1100	1200	1.89
210	3.46	210	320	420	530	630	740	840	950	1050	1160	1260	1.98
220	3.62	220	330	440	550	660	770	880	990	1100	1210	1320	2.07
230	3.79	230	350	460	580	690	810	920	1040	1150	1270	1380	2.17
240	3.95	240	360	480	600	720	840	960	1080	1200	1320	1440	2.26
250	4.11	250	380	500	630	750	880	1000	1130	1250	1380	1500	2.36
260	4.28	260	390	520	650	780	910	1040	1170	1300	1430	1560	2.45
270	4.44	270	410	540	680	810	950	1080	1220	1350	1490	1620	2.54
280	4.61	280	420	560	700	840	980	1120	1260	1400	1540	1680	2.64
290	4.77	290	440	580	730	870	1020	1160	1310	1450	1600	1740	2.73
300	4.94	300	450	600	750	900	1050	1200	1350	1500	1650	1800	2.83
310	5.10	310	470	620	780	930	1090	1240	1400	1550	1710	1860	2.92
320	5.27	320	480	640	800	960	1120	1280	1440	1600	1760	1920	3.01
330	5.43	330	500	660	830	990	1160	1320	1490	1650	1820	1980	3.11
340	5.60	340	510	680	850	1020	1190	1360	1530	1700	1870	2040	3.20
350	5.76	350	530	700	880	1050	1230	1400	1580	1750	1930	2100	3.30
360	5.92	360	540	720	900	1080	1260	1440	1620	1800	1980	2160	3.39
370	6.09	370	560	740	930	1110	1300	1480	1670	1850	2040	2220	3.48
380	6.25	380	570	760	950	1140	1330	1520	1710	1900	2090	2280	3.58
390	6.42	390	590	780	980	1170	1370	1560	1760	1950	2150	2340	3.67
400	6.58	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	3.77
450	7.41	450	680	900	1130	1350	1580	1800	2030	2250	2480	2700	4.24
500	8.23	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	4.70
550	9.05	550	830	1100	1380	1650	1930	2200	2480	2750	3030	3300	5.17

Figure 9-29 Climb/Descent Table

914. CHAPTER NINE REVIEW QUESTIONS

The following questions refer to Figure 9-30. Consult appropriate FLIP publications as needed for additional references.

1. What is the three-letter ID for this airport? _____

2. What type of navigation equipment is required to navigate the final approach segment of this approach? _____

3. What is the name of the airport? _____

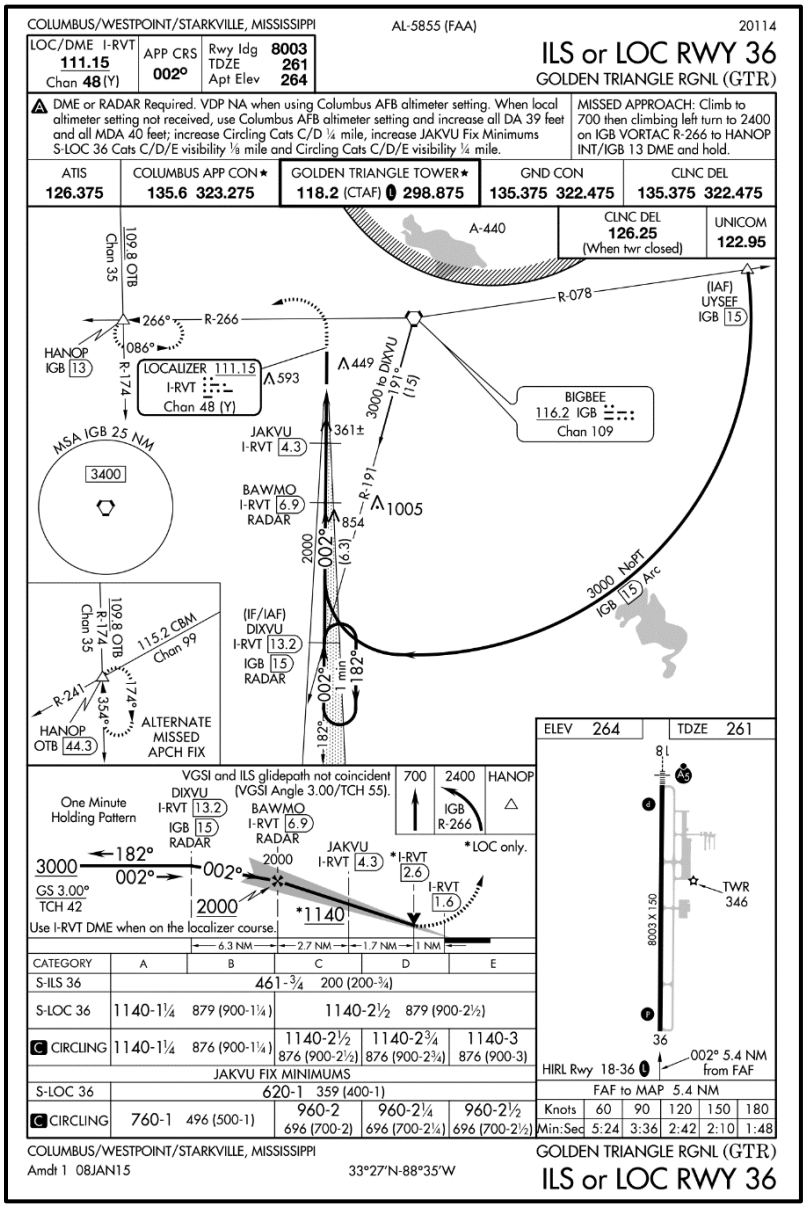


Figure 9-30 IAP for Review Questions

4. What is the frequency of the NAVAID required for the Final Approach Segment? _____

5. What is the Final Approach Course? _____

6. What is the length of runway 36? _____

7. What is the airport elevation? _____

8. What is the significance of the ⚠ symbol? _____

9. In the event of a missed approach, where will you go to hold if waiting for additional clearance? _____

10. You would expect to be cleared for this approach by _____ on a VHF frequency of _____.

11. List the published Initial Approach Fixes for this approach. _____

12. What NAVAID is needed to navigate between UYSEF and DIXVU? _____

13. What is the course and distance from IGB to HANOP? _____

14. The Minimum Safe Altitude is _____ MSL within _____ NM of _____.

15. What is the altitude restriction between the FAF and JAKVU? _____

16. The glideslope for the ILS is ____° and the Threshold Crossing Height will be _____ feet AGL if on glideslope.

17. _____ is the name of the Final Approach Fix.

18. The T-6B Decision Altitude for the ILS approach is _____. Is this an MSL or AGL altitude? _____

19. The weather required for the ILS approach is _____ feet and _____ sm.

20. The aircraft ***H***eight ***A***bove ***T***ouchdown when at the Decision Altitude for this approach is _____ feet. Is that MSL or AGL? _____

21. The distance between the Final Approach Fix and the Missed Approach Point is __ NM.

22. This field has a SSALR type approach lighting system. (TRUE/FALSE)

23. Runway End Identifier Lights are available for runway 18. (TRUE/FALSE)

24. If you are required to maintain a minimum climb gradient of 600 feet per nautical mile, you need to maintain a minimum VSI of _____ for a T-6B normal climb speed.
(Refer to Figure 9-29)

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CHAPTER TEN
FLIP TERMINAL HIGH ALTITUDE (T HA)

1000. INTRODUCTION

The FLIP Terminal High Altitude publications for the United States currently consist of three bound booklets. They are tiled by the geographic area they cover, e.g., Northwest, Southwest, and East. The format and information provided in the Terminal High Altitude books are nearly identical to those found in the FLIP Terminal Low Altitude books. This chapter will focus on the few differences.

1001. FRONT AND BACK COVER

See Figures 10-1 and 10-2.

The front and Back covers have crosshatching around all the borders to differentiate them from the Terminal Low Altitude booklets.

The Front cover depicts the geographical area of coverage, the effective dates and when the TCN will be effective. Recall that the TCN (Terminal Change Notice) contains changes for both the Terminal High and Low publications.

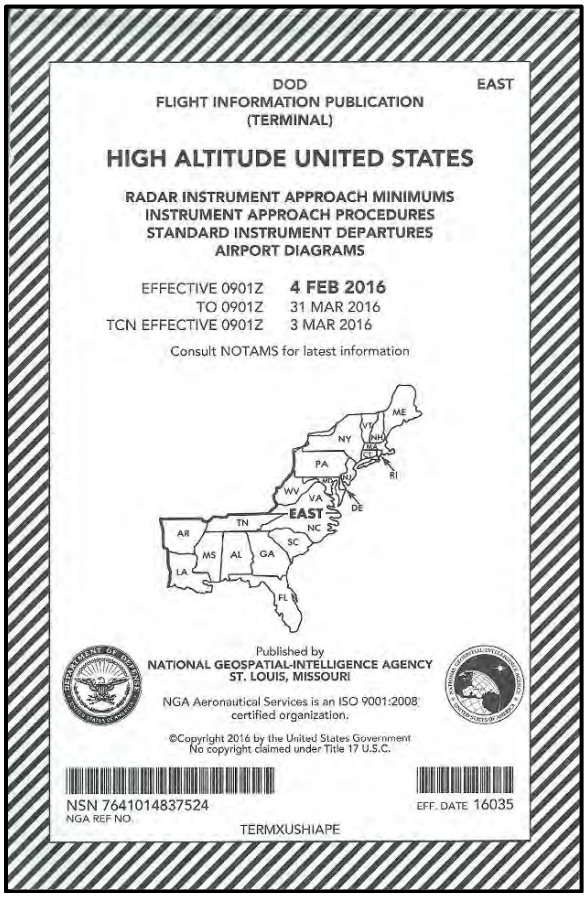

Figure 10-1 FLIP Terminal High Altitude (Front Cover)

The Back cover depicts the 48 contiguous states broken into the three geographical areas. This depiction aids in determining which booklet(s) will be needed for your mission.

Figure 10-2 FLIP Terminal High Altitude (Back Cover)

1002. TERMINAL HIGH ALTITUDE BOOK DIFFERENCES

Crosshatching Displayed across the entire top and bottom boarders of the Approach or Departure Charts denotes High Altitude Procedures (these procedures will not be found in the Terminal Low publications). (See Figure 10-3)

Like the Low Altitude booklets, where crosshatching is displayed along the upper left half of the top border and the lower right half of the bottom border of the Approach or Departure chart the procedure appears in both the Terminal High and Terminal Low publications. (See Figure 10-4)

Instrument Approach Procedure names in the top and bottom margins begin with HI- followed by the standard approach naming criterion e.g., HI-ILS or LOC/DME RWY 23.

The Legends have additional symbology and information particular to high altitude procedures.

There are only three Aircraft Approach Categories for landing minima: C, D, and E.

NOTE

The T-6B will use Category C minima.

IFR Alternate Minimums that are non-standard ▲ and Alternate Minimums Not Authorized, ▲NA with the associated tabulation data are ***not included in the High Altitude procedures***.

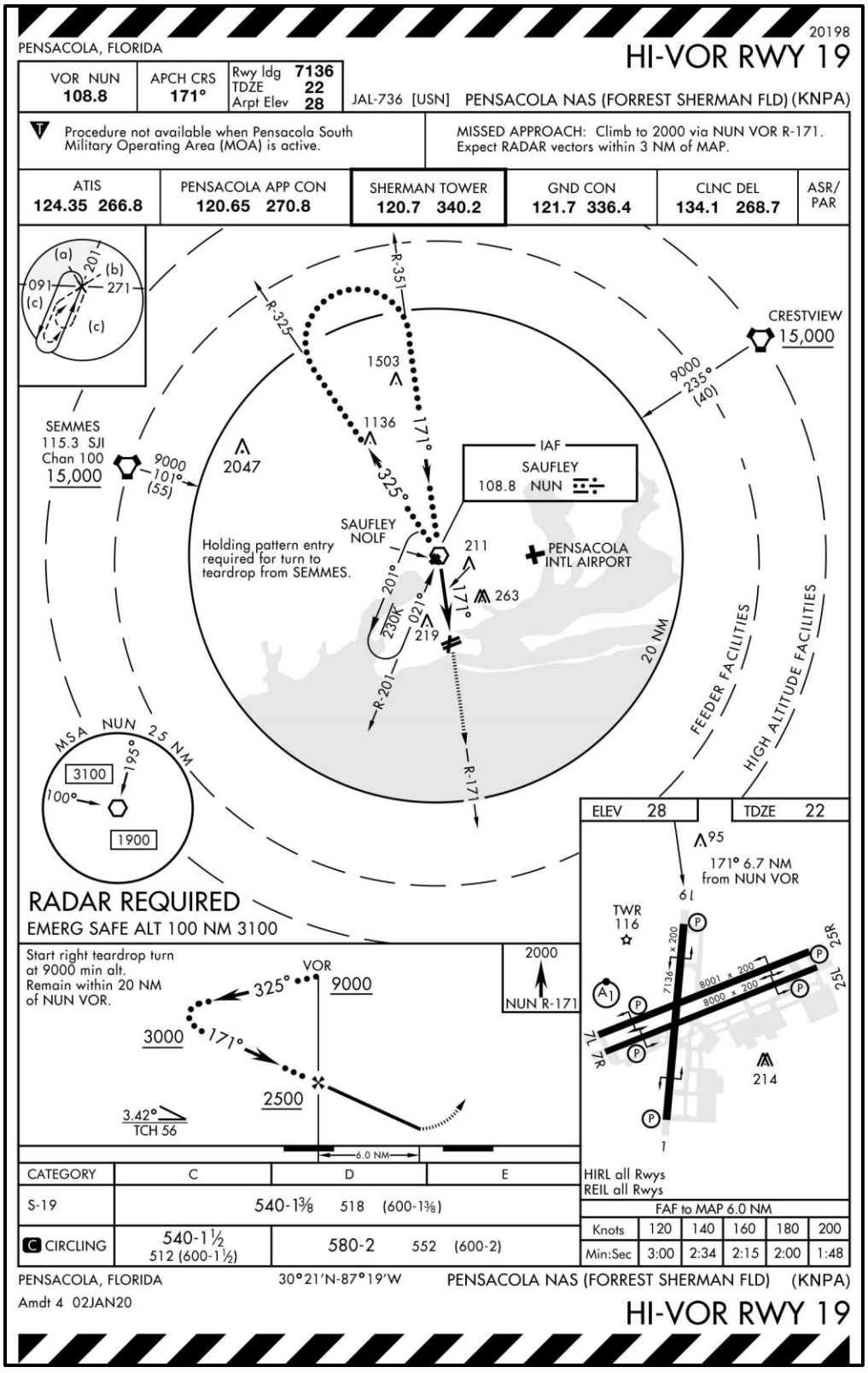

Figure 10-3 High Altitude Only Procedure

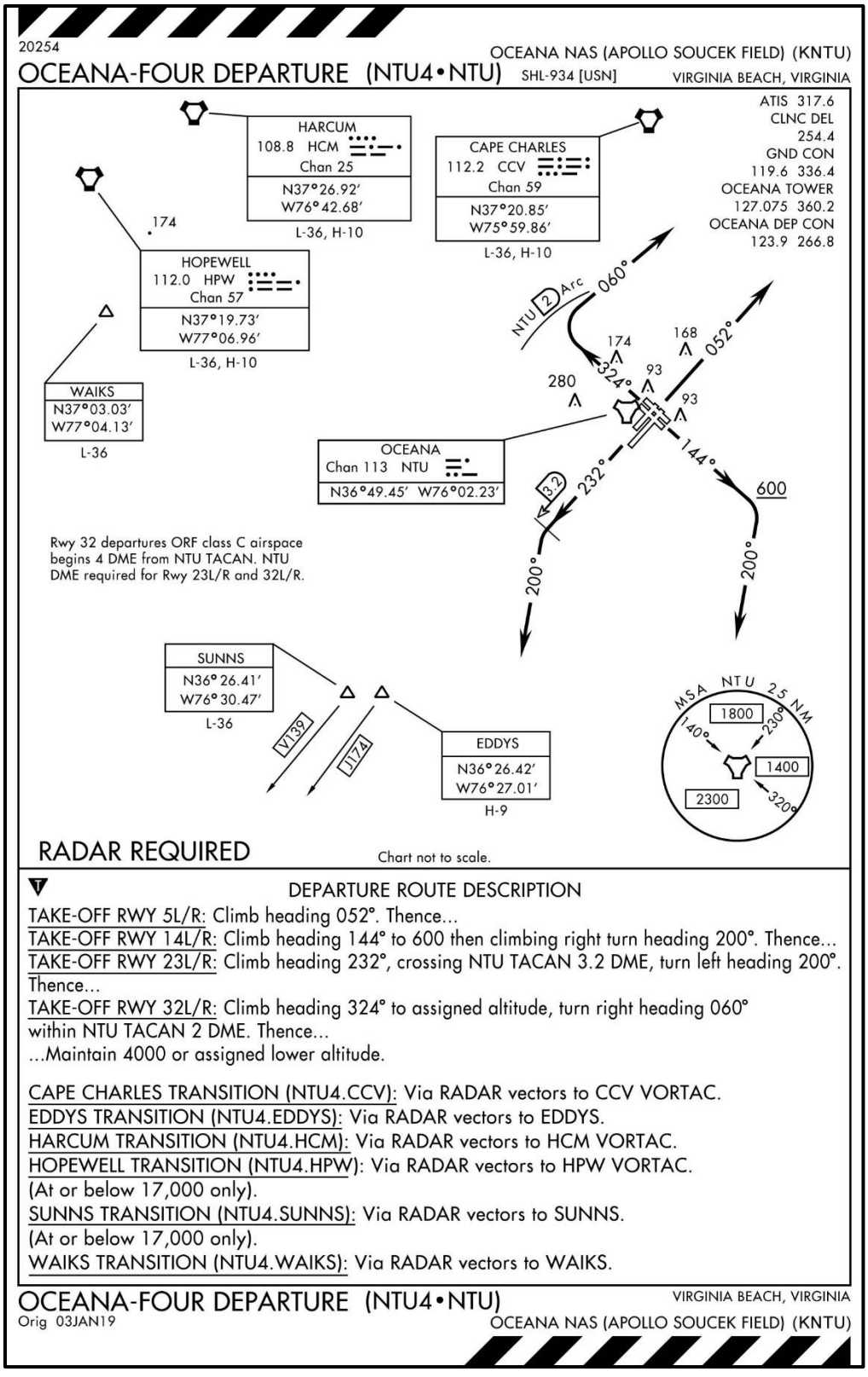

Figure 10-4 High/Low Altitude Procedure

10-4 FLIP TERMINAL HIGH ALTITUDE (T HA)

CHAPTER ELEVEN
US NOTICE TO AIRMEN SYSTEM (NOTAMs)

1100. INTRODUCTION

Time-critical aeronautical information which is of either a temporary nature or not sufficiently known in advance to permit publication on aeronautical charts or in other operational publications receives immediate dissemination via the National NOTAM System. ***As this information may significantly impact the flight it is imperative that it be check during flight planning***. The NATOPS Instrument Flight Manual states; "every pilot is required to obtain a preflight weather briefing, ***review all applicable Notices to Airmen (NOTAMs)***, and file a flight plan."

1101. NOTAM CODES

NOTAM information is transmitted using standard contractions. A complete listing is contained in Chapter Two of FAA JO Order 7340.2 "CONTRACTIONS." (See Figure 11-1) This document is available online at www.faa.gov under Regulations & Policies/Orders & Notices. A link to FAA Orders is also available on the Defense Internet NOTAM Service website. The Flight Information Handbook (FIH) also contains ***some*** commonly used codes. (Unofficially, there are some APPS available that can convert codes to plain language or, the NOTAM code could be found on-line using a search engine.)

Chapter 2. United States of America Aeronautical Contractions

Section 1. Decode

EXPLANATION OF CODES

GEN – Indicates general aeronautical usage.

NWS – Indicates National Weather Service and aeronautical weather usage.

ATC – Indicates Air Traffic Control usage.

ICAO – Indicates International Civil Aviation Organization usage. International messages should use these.

METAR/TAF – Indicates ICAO weather usage.

A

Contraction	Definition	Usage
+FC	tornado/water spout	METAR
A	absolute (temperature)	NWS
A	Alaskan Standard Time (time groups only)	NWS
A	Amber	GEN
A	arctic (air mass)	NWS
A/A	air to air	ATC
A/C	approach control	ATC
A/G	air to ground	ICAO
A/H	already had	ATC
AAC	Alaskan Air Command	GEN
AAD	Assigned altitude deviation	ICAO
AADC	approach and departure control	ATC
AAF	Army Air Field	GEN
AAITVL	arrival aircraft interval	ATC
AAL	Above aerodrome level	ICAO
AAL	Alaskan Region, FAA	GEN
AAP	Advise if able to proceed	ATC
AAR	airport arrival rate	ATC
AARTE	airport acceptance rate	ATC
AATM	at all times	GEN
AAWF	Auxiliary Aviation Weather Facility	NWS
AAWTA	Advise at what time able	ICAO
AB	Airborne	ATC
ABBR	Abbreviate	GEN
ABCST	automatic broadcast	GEN
ABD	Aboard	GEN
ABI	Advance boundary information	ICAO
ABLCHG	airborne launching	ATC
ABM	abeam	ICAO
ABN	aerodrome beacon	ICAO
ABND	abandon	GEN
ABNDT	abundant	GEN
ABNML	abnormal	GEN
ABT	about	GEN
ABV	above	ICAO
AC	Advisory Circular	GEN
AC	altocumulus	NWS
AC	assistant chief	GEN
ACA	artic control area	ATC
ACARS	Aircraft communication addressing and reporting system	ICAO
ACAS	airborne collision avoidance system	ICAO
ACC	area control center	ATC
ACC	altocumulus castellanus	NWS
ACCID	notification of aircraft accident	ATC
ACCT	account	GEN
ACCUM	accumulate	GEN
ACDNT	accident	GEN
ACDO	Air Carrier District Office	GEN
ACE	Central Region, FAA	GEN
ACES	access	GEN
ACFT	aircraft	ICAO
ACID	aircraft identification	ATC
ACK	acknowledge	GEN
ACL	altimeter check location	ATC
ACLD	above clouds	GEN
ACLS	automatic carrier landing system	GEN
ACLT	accelerate	GEN
ACM	air combat maneuvers	ATC
ACN	aircraft classification number	ICAO
ACN	all concerned notified	GEN
ACNOT	accident notice	GEN
ACP	acceptance (message type designator)	ICAO
ACP	area command post	GEN
ACPT	accept	GEN
ACPY	accompany	GEN
ACR	air carrier	GEN
ACRBT	acrobatic	ATC
ACRS	across	GEN
ACSL	standing lenticular altocumulus	NWS
ACT	active or activated or activity	ICAO
ACT	air combat training	ATC
ACT	Technical Center, FAA	GEN
ACTG	acting	GEN
ACTV	active	GEN
ACTVT	activate	GEN
ACW	aircraft control and warning	GEN
ACYC	Anticyclonic	NWS
AD	Aerodrome	ICAO
ADA	advisory area	ATC
ADAP	Airport Development Aid Program	GEN
ADC	Aerodrome chart	ICAO
ADCF	Air Defense Control Facility	GEN
ADCON	advise or issue instructions to all concerned	GEN
ADCUS	advise customs	GEN
ADDN	addition	GEN
ADE	Air Defense Emergency	GEN
ADF	automatic direction finder	GEN
ADFAP	automatic direction finder approach	ATC
ADIZ	air defense identification zone	GEN
ADJ	adjacent	ICAO

Figure 11-1 FAA ORDER JO 7340.2

1102. DEPARTMENT OF DEFENSE AERONAUTICAL INFORMATION PORTAL (DAIP)

1. NOTAM information for DoD aircrews is obtained using the DAIP which interfaces with the Federal NOTAM System (FNS). The DAIP webpage is listed in the Enroute Supplement Legend section under NOTAMS. Currently the address is: https://www.daip.jcs.mil/daip/mobile/index.

2. NOTAMs should be checked for all applicable areas concerning your proposed flight. This includes but is not limited to (depending on the flight):

   a. Departure Airport

   b. Destination Airport

   c. Alternate Airport

   d. Route of flight

   e. Air Traffic Control Centers (ARTCCs) along the route of flight.

   f. Temporary Flight Restrictions (TFRs)

3. If the Airport identifier is not covered by the NOTAM system you will get an error message "Location **not covered by the US NOTAM System**." In this case NOTAMs may be available via phone from the FSS or possibly call the airport directly.

1103. FAA NOTAM SYSTEM

When access to DAIP is not possible, FAA Flight Service Stations (FSS) may be used to obtain a NOTAM briefing. This can be conducted in person at airports with a FSS on site (rare) or may be obtained by phone (1-800-WX-BRIEF).

1104. TYPES OF FAA NOTAMS

FAA NOTAM information is classified into five categories.

1. NOTAM (D)

   – Information includes such data as taxiway closures, personnel and equipment near or crossing runways, and airport lighting aids that do not affect instrument approach criteria, such as VASI.

2. FDC NOTAMs

   a. These NOTAMs are regulatory in nature.

b. They contain such things as amendments to published Instrument Approach Procedures (IAPs) and other aeronautical charts.

c. They are also used to advertise Temporary Flight Restrictions (TFRs) caused by such things as natural disasters or large scale public events that may generate a congestion of air traffic over a site.

3. Pointer NOTAMs

a. NOTAMS issued to highlight or point out another NOTAM, such as an FDC or NOTAM (D).

b. This type of NOTAM will assist users in cross-referencing important information that may not be found under an airport or NAVAID identifier.

c. Keywords in pointer NOTAMs must match the keywords in the NOTAM that is being pointed out.

d. The keyword in pointer NOTAMs related to TFRs must be AIRSPACE.

4. SAA NOTAMs

– These NOTAMS are issued when Special Activity Airspace will be active outside the published schedule times and when required by the published schedule.

5. Military NOTAMs

– NOTAMs pertaining to U.S. Air force, Army, Marine, and Navy navigational aids/airports that are part of the National Airspace System (NAS).

1105. FAA DOMESTIC AND INTERNATIONAL NOTICES

Domestic Notices and International Notices are not provided during a standard FSS briefing unless specifically requested by the pilot since the FSS specialist has no way of knowing whether the pilot has already checked the Federal NOTAM System (FNS) NOTAM Search System External links prior to calling. Airway NOTAMs, procedural NOTAMs, and NOTAMs that are general in nature and not tied to a specific airport/facility (for example, flight advisories and restrictions, open duration special security instructions, and special flight rules areas) are briefed solely by pilot request. Remember to ask for these Notices if you have not already reviewed this information, and to request all pertinent NOTAMs specific to your flight. FAA Domestic and International Notices can be obtained via the FAA Web page https://www.faa.gov/air_traffic/publications/notices. There is also a link from the DAIP webpage.

1106. CHAPTER ELEVEN REVIEW QUESTIONS

1. Time-critical aeronautical information which is of either a temporary nature or not sufficiently known in advance to permit publication on aeronautical charts or in other operational publications receives immediate dissemination via _____.

2. NOTAM information is transmitted using standard contractions. A complete listing of these codes is contained in Chapter Two of FAA Order JO 7340.2 "CONTRACTIONS." This document is available online at www.faa.gov. Another publication that contains some commonly used codes is the _____.

3. NOTAM information for DoD operations should be obtained via the Department of Defense Aeronautical Information Portal (DAIP). The URL for the webpage can be found in the _____ FLIP and is currently _____.

4. NOTAMs should be checked for all applicable areas concerning your proposed flight. This includes but is not limited to (depending on the flight):

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

5. If access to the DAIP is not possible, FAA Flight Service Stations (FSS) may be used to obtain a NOTAM briefing. This can be conducted in person at airports with a FSS on site (rare) or may be obtained by phone at _____.

6. FDC NOTAMS are _____ in nature. They contain such things as amendments to _____ and other aeronautical charts. They are also used to advertise _____ caused by such things as natural disasters or large scale public events that may generate a congestion of air traffic over a site.

7. When receiving a NOTAM brief from the FSS, they will not include _____ unless specifically requested by the pilot.

8. A link to obtain FAA Domestic and International Notices can be found on the _____ webpage.

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CHAPTER TWELVE
WEATHER

1200. INTRODUCTION

CNAF: Naval aviators shall be thoroughly familiar with weather conditions for the area in which flight is contemplated. Many sources of weather information, both governmental and commercial, are readily available to assist pilots in flight planning and operations. For flights where any portion of the intended route is forecast to be under IMC, naval aviators shall obtain a flight route weather brief from a DoD-qualified forecaster or approved forecasting service.

NIFM: Pilots are responsible for reviewing and being familiar with weather conditions for the area in which flight is contemplated. Before obtaining a flight clearance, a pilot must receive a weather briefing where services are available; the briefing shall be conducted by a qualified meteorological forecaster. These briefings may be conducted in person, or when available, via weather-vision, telephone, or by autographic means. Additionally, a DD Form 175-1 (Flight Weather Briefing) shall be completed for all flights in accordance with CNAF M-3710.7 series.

Due to the perishable nature of meteorological data, and in an effort to ensure aviators have the most up-to-date information, all weather briefings will be assigned a briefing void time. The briefing void time shall not exceed the "weather briefed" time by more than 3 hours, and it shall never exceed the planned departure time by more than 30 minutes. This time may be extended when, in the opinion of the meteorologist, conditions are such that a review of the initial form and the deletion/addition of pertinent data is such that a formal re-briefing is not required. When extending void times, the rule stated above applies with the exception that the "weather re-briefed at" time is used as the base time.

1201. AUTHORIZED WEATHER SOURCES FOR FILING

CNAF: The primary method for requesting and obtaining flight route weather briefings ashore is online through the Web-enabled Flight Weather Briefer (FWB) system https://fwb.metoc.navy.mil (account and CAC access required) operated by DoD-qualified meteorological forecasters at the Naval Aviation Forecast Center (***NAFC***), its satellite components, or within the Marine Corps Weather Services. Alternate methods of delivery are available upon request.

CNAF: If operating from locations without access to FWB, naval aviators may obtain route weather forecast support from ***NAFC*** via ***1-888-PILOTWX***. Additionally, an approved flight route weather briefing may be obtained via an FSS or through Air Force Weather and Marine Corps Services, where available. (A listing of military weather/NOTAM briefing facilities can be found in SECTION C of the FIH)

FSS Weather Briefings can be obtained by calling ***1-800-WX-BRIEF***. Flight Service Specialist are qualified and certified by the National Weather Service (NWS) as Pilot Weather Briefers. They are not authorized to make original forecast, but are authorized to translate and interpret available forecast and reports directly into terms describing the weather conditions which you can expect along your route of flight and at your destination.

The FSS provides three basic types of preflight briefings:

1. Standard Briefing: This briefing includes Adverse Conditions, VFR Flight Not recommended (if appropriate), Synopsis, Current Conditions, Enroute Forecast, Destination Forecast, Winds Aloft, NOTAMS, ATC Delays. ***Additional items available at the pilots request include;*** Special Use Airspace, Review of NTAP, Density Altitude, Air Traffic Services/Rules, GPS RAIM Availability, and other assistance as required.

2. Abbreviated Briefing: Request an Abbreviated Briefing when you need information to supplement mass disseminated data, update a previous briefing, or when you need only one or two specific items. Provide the briefer with appropriate background information, the time you received the previous information, and/or the specific items needed. You should indicate the source of the information already received so that the briefer can limit the briefing to the information that you have not received, and/or appreciable changes in meteorological/aeronautical conditions since your previous briefing. To the extent possible, the briefer will provide the information in the sequence shown for a Standard Briefing. If you request only one or two specific items, the briefer will advise you if adverse conditions are present or forecast. (Adverse conditions contain both meteorological and/or aeronautical information.) Details on these conditions will be provided at your request.

3. Outlook Briefing: ***You should request an Outlook Briefing whenever your proposed time of departure is six or more hours from the time of the briefing***. The briefer will provide available forecast data applicable to the proposed flight. This type of briefing is provided for planning purposes only. You should obtain a Standard or Abbreviated Briefing prior to departure in order to obtain such items as adverse conditions, current conditions, updated forecasts, winds aloft and NOTAMs, etc.

4. Inflight Briefing: You are encouraged to obtain your preflight briefing by telephone or in person before departure. In those cases where you need to obtain a preflight briefing or an update to a previous briefing by radio, you should contact the nearest FSS to obtain this information. After communications have been established, advise the specialist of the type briefing you require and provide appropriate background information. You will be provided information as specified in the above paragraphs, depending on the type of briefing requested.

Commercial Flight Forecasting Services

When neither FWB or FSS briefing services are available, commercial weather forecasting services may be used providing they meet the following requirements:

- Utilize National Weather Services and International Civil Aviation Organization (ICAO) approved aviation weather information.

- Comply with all ICAO, FAA, FAR and Joint Aviation Requirement on Commercial Air Transportation (JAROPS) requirements.

- Be an approved FAA Qualified Internet Communication Provider (QICP).

In addition, the final approving authority authorizing specific commercial flight forecasting services rests with the TYCOM. Reporting custodians are not responsible to fund commercial flight forecasting services.

1202. INFLIGHT AVIATION WEATHER ADVISORIES

Inflight Aviation Weather Advisories are forecasts to advise enroute aircraft of development of potentially hazardous weather. Inflight aviation weather advisories in the conterminous U.S. are issued by the Aviation Weather Center (AWC) in Kansas City, MO, as well as 20 Center Weather Service Units (CWSU) associated with ARTCCs.

There are four types of inflight aviation weather advisories: The ***SIGMET***, the ***Convective SIGMET***, the ***AIRMET*** (text or graphical product), and the ***Center Weather Advisory (CWA).*** All of these advisories use the same location identifiers (Either VORs, airports, or well−known geographic areas) to describe the hazardous weather areas.

The Severe Weather Watch Bulletins (WWs), (with associated Alert Messages) (AWW) supplements these Inflight Aviation Weather Advisories.

1. SIGMET: Significant Meteorological Information

A SIGMET advises of weather that is potentially hazardous to all aircraft. In the CONUS, SIGMETs are issued when the following phenomena occur or are expected to occur:

a. Severe icing not associated with thunderstorms.

b. Severe or extreme turbulence or clear air turbulence (CAT) not associated with thunderstorms.

c. Widespread dust storms or sandstorms lowering surface visibilities to below 3 miles.

d. Volcanic ash.

2. Convective SIGMET (WST)

Any convective SIGMET implies severe or greater turbulence, severe icing, and low−level wind shear. A convective SIGMET may be issued for any convective situation that the forecaster feels is hazardous to all categories of aircraft.

Convective SIGMETs are issued in the conterminous U.S. for any of the following:

a. Severe thunderstorm due to:

i. Surface winds greater than or equal to 50 knots.

ii. Hail at the surface greater than or equal to 3/4 inches in diameter.

iii. Tornadoes.

b. Embedded thunderstorms.

c. A line of thunderstorms.

d. Thunderstorms producing precipitation greater than or equal to heavy precipitation affecting 40 percent or more of an area at least 3,000 square miles.

3. AIRMETs (WA)

a. AIRMETs (WA) are advisories of significant weather phenomena but describe conditions at intensities lower than those which require the issuance of SIGMETs. AIRMETs are intended for dissemination to all pilots in the preflight and enroute phase of flight to enhance safety.

b. AIRMETs contain details about IFR, extensive mountain obscuration, turbulence, strong surface winds, icing, and freezing levels. There are three AIRMETs: Sierra, Tango, and Zulu.

i. AIRMET Sierra describes IFR conditions and/or extensive mountain obscurations.

ii. AIRMET Tango describes moderate turbulence, sustained surface winds of 30 knots or greater, and/or non-convective low−level wind shear.

iii. AIRMET Zulu describes moderate icing and provides freezing level heights.

Watch Notification Messages

The Storm Prediction Center (SPC) in Norman, OK, issues Watch Notification Messages to provide an area threat alert for forecast organized severe thunderstorms that may produce tornadoes, large hail, and/or convective damaging winds within the CONUS.

SPC issues three types of watch notification messages: Aviation Watch Notification Messages, Public Severe Thunderstorm Watch Notification Messages, and Public Tornado Watch Notification Messages.

It is important to note the difference between a Severe Thunderstorm (or Tornado) ***Watch*** and a Severe Thunderstorm (or Tornado) ***Warning***. A watch means severe weather is possible during the next few hours, while a warning means that severe weather has been observed, or is expected within the hour. Only the SPC issues Severe Thunderstorm and Tornado ***Watches***, while only NWS Weather Forecasts Offices issue Severe Thunderstorm and Tornado ***Warnings***.

The ***Aviation Watch Notification Message*** product is an approximation of the area of the Public Severe Thunderstorm Watch or Public Tornado Watch. The area may be defined as a rectangle or parallelogram using VOR navigational aids as coordinates.

The Aviation Watch Notification Message was formerly known as the Alert Severe Weather Watch Bulletin (AWW). The NWS no longer uses that title or acronym for this product. The NWS uses the acronym ***SAW*** for the Aviation Watch Notification Message, but retains ***AWW*** in the product header for processing by weather data systems.

Public severe thunderstorm and tornado watch notification messages were formerly known as the Severe Weather Watch Bulletins (WW). The NWS no longer uses that title or acronym for this product but retains **WW** in the product header for processing by weather data systems.

Severe thunderstorm criteria are:

- 1-inch hail or larger
- and/or wind gusts of 50 knots or greater)

4. Center Weather Advisories (CWA)

CWAs are unscheduled inflight, flow control, air traffic, and air crew advisory. By nature of its short lead time, the CWA is not a flight planning product. It is generally a now-cast for conditions beginning within the next two hours. CWAs will be issued:

- As a supplement to an existing SIGMET, Convective SIGMET or AIRMET.
- When an Inflight Advisory has not been issued but observed or expected weather conditions meet SIGMET/AIRMET criteria based on current pilot reports and reinforced by other sources of information about existing meteorological conditions.
- When observed or developing weather conditions do not meet SIGMET, Convective SIGMET, or AIRMET criteria, e.g., in terms of intensity or area coverage, but current pilot reports or other weather information sources indicate that existing or anticipated meteorological phenomena will adversely affect the safe flow of air traffic within the ARTCC area of responsibility.

CNAF**:** Except for ***operational necessity***, emergencies, and flights involving all-weather research projects or weather reconnaissance, ***pilots shall not file into or through areas for which the SPC has issued a WW unless one of the following exceptions apply***:

- Storm development has not progressed as forecast. For air operations Originating/terminating at naval installations, local installation commanding officers and/or wing commanders may continue operations in areas under a WW based on a determination that storm development has not progressed as forecast for the planned route of flight. Normally, such determination should include verification by a DoD forecaster or an FSS. ***For naval aviators contemplating flight operations from other DoD or commercial airfields, flight operations through WW are authorized only if storm development has not progressed as forecast for the planned route as verified by DoD forecasters or an FSS***. In either situation:

i. VFR filing is permitted if existing and forecast weather for the planned route permits such flights.

ii. IFR flight may be permitted if aircraft radar is installed and operative, thus permitting detection and avoidance of isolated thunderstorms.

iii. IFR flight is permissible in controlled airspace if VMC can be maintained, thus enabling aircraft to detect and avoid isolated thunderstorms.

- Performance characteristics of the aircraft permit an enroute flight altitude above existing or developing severe storms.

NOTES

It is not the intent to restrict flights within areas encompassed by or adjacent to a WW area unless storms have actually developed as forecast.

CNAF: Operational Necessity. A mission associated with war or peacetime operations in which the consequences of an action justify accepting the risk of loss of aircraft and crew.

CNATRAINST 3710.2: ***Flights shall not be filed into areas covered by Aviation Severe Weather Watch Bulletins (WW), or Convective SIGMETs unless the exempting conditions listed in CNAF M-3710.7 exist.***

Check local SOPs for additional restrictions that may apply.

1203. IFR WEATHER REQUIREMENTS

The following weather restrictions apply to both IFR pre-flight planning and IFR inflight operations:

1. Takeoff Minimums

Standard instrument rating: CNAF requires that weather for departure allow for an emergency return for the landing runway in use.

Non-Precision Approach (NPA): Published minimums for the available approach but not less than 300-foot ceiling and 1-statute mile visibility.

Precision Approach: Published minimums for the available approach but not less than 200-foot ceiling and 1/2-statute-mile visibility/2,400-foot runway visual range (RVR).

2. Instrument Approaches and Landing Minimums

CNAF: For straight-in approaches, pilots shall use RVR, ***if available***, to determine if visibility meets the weather criteria for approaches, which are published in DoD FLIP Terminal Approach Procedures. Prevailing visibility shall be used for circling approach criteria.

CNAF: Absolute minimums for a single-piloted fixed-wing aircraft ***executing*** an approach are ***200-foot ceiling/height above touchdown and visibility of 1/2 statute-mile/2,400 feet RVR***.

CNAF: Approach Criteria for Single-Piloted Aircraft: An instrument approach shall not be commenced if the reported weather is below published minimums for the type approach being conducted. When a turbojet enroute descent is to be executed, the approach is considered to commence when the aircraft descends below the highest initial penetration altitude established in high altitude instrument approach procedures for the destination airport. Once an approach has been commenced, pilots may, at their discretion, continue the approach to the approved published landing minimums as shown in the appropriate FLIP for the type approach being conducted.

3. Alternate Airfield Requirements

CNAF: An alternate airfield is required when the weather at the destination is forecast to be less than 3,000-foot ceiling and 3-statute-mile visibility during the period; 1 hour before ETA, until 1 hour after ETA.

To ensure an adequate margin of safety the following table shall be used to determine the weather requirements for selection of an alternate. See Figure 12-1.

CNATRAINST 3710.2: All fixed wing flights and any helicopter with a Student Naval aviator in a crew position shall have sufficient fuel to proceed to a suitable alternate regardless of destination weather.

<table>
<tr><th>DESTINATION WEATHER
ETA plus and minus 1 hour</th><th colspan="2">ALTERNATE WEATHER
ETA plus and minus 1 hour</th></tr>
<tr><td>0 – 0 up to but not including Published minimums</td><td colspan="2">3,000 – 3 or better</td></tr>
<tr><td rowspan="2">Published minimums up to but not including 3,000 – 3
(single-piloted absolute minimums 200 –1/2)
(single-piloted helicopter/tilt-rotor absolute minimums 200-1/4)</td><td>NON-PRECISION</td><td>PRECISION</td></tr>
<tr><td>* Published minimums plus 300-1</td><td>* Published minimums plus 200-1/2</td></tr>
<tr><td>3,000 – 3 or better</td><td colspan="2">No alternate required</td></tr>
<tr><td colspan="3">* In the case of single-piloted or other aircraft with only one operable UHF/VHF transceiver, radar approach (PAR/ASR) minimums shall not be used as the basis for selection of an alternate airfield.
* For aircraft equipped with non-WAAS GPS receivers (TSO-C129/C196), aircrew may plan on the use of GPS-based approaches at either the destination or alternate, but not both.
* For aircraft equipped with WAAS GPS receivers (TSO-C145/C146), aircrew may plan on the use of GPS based approaches at both the destination and alternate.</td></tr>
</table>

Figure 12-1 IFR Filing Criteria

4. CNAF Filing Requirements

Flight plans shall be filed based on all the following:

a. The actual weather at the point of departure at the time of clearance.

b. The existing and forecast weather for the entire route of flight.

c. Destination and alternate forecasts for a period 1 hour before ETA until 1 hour after ETA.

5. CNATRAINST 3710.2

a. Flights shall not be filed into airfields with present or forecast snow or ice covered runways.

b. Ground operations on snow or ice covered surfaces are prohibited**.**

6. Icing and Thunderstorm Conditions

CNAF: Flights shall be planned to circumvent areas of forecast atmospheric icing and thunderstorm conditions whenever practicable.

AIM: A pilot can expect icing when flying in visible precipitation, such as rain or cloud droplets, and the temperature is between +02 and −10 degrees Celsius. When icing is detected, a pilot should do one of two things, particularly if the aircraft is not equipped with deicing equipment; get out of the area of precipitation; or go to an altitude where the temperature is above freezing. This "warmer" altitude may not always be a lower altitude. ***Proper preflight action includes obtaining information on the freezing level and the above freezing levels in precipitation areas.***

NATOPS: Sustained operation in icing conditions is prohibited. The aircraft has been approved only for transit through a 5000-foot band of light rime ice.

AIM: RIME ICE - A rough, milky, opaque ice formed by the rapid freezing of super-cooled drops/droplets after they strike the aircraft. The rapid freezing results in air being trapped giving the ice its opaque appearance and making it porous and brittle. Rime ice typically accretes along the stagnation line of an airfoil and is more regular in shape and conformal to the airfoil than glaze ice. It is the ice shape, rather than the clarity or color of the ice, which is most likely to be accurately assessed from the cockpit.

1204. PREFLIGHT WEATHER SOURCES

The DD-175-1 weather briefs are only valid for 3.0 hours past briefing/FWB delivery time or ETD plus one-half hour. Briefings received more than 3.0 hours prior to takeoff will be void and require re-briefing prior to departure.

Weather for preflight planning may be obtained from the FSS by requesting an "Outlook Briefing" as previously discussed. However, another asset that may be used to obtain weather data needed to prepare a Flight Log the night before is the Aviation Weather Center (AWC) website http://www.aviationweather.gov (See Figure 12-2). This site provides access to the ***Aviation Digital Data Service (ADDS)***. This site can provide all the data needed to complete your preliminary planning/flight log.

ADDS; makes available to the aviation community text, digital and graphical forecasts, analyses, and observations of aviation-related weather variables. ADDS; is a joint effort of NCAR Research Applications Program (RAP), Global Systems Division (GSD) of NOAA's Earth System Research Laboratory (ESRL), and the National Centers for Environmental Prediction (NCEP) Aviation Weather Center (AWC).

The AWC Homepage "Standard Briefing" is intended to help pilots better visualize weather and weather-related hazards. It is not intended as a substitute for a weather briefing obtained from the FWB or a Flight Service Station (1-800-WXBRIEF). ***Currently, the information contained here does not meet the FAA requirements for a route weather brief***. Therefore, it's important that pilots still obtain an official weather briefing prior to filing the flight plan.

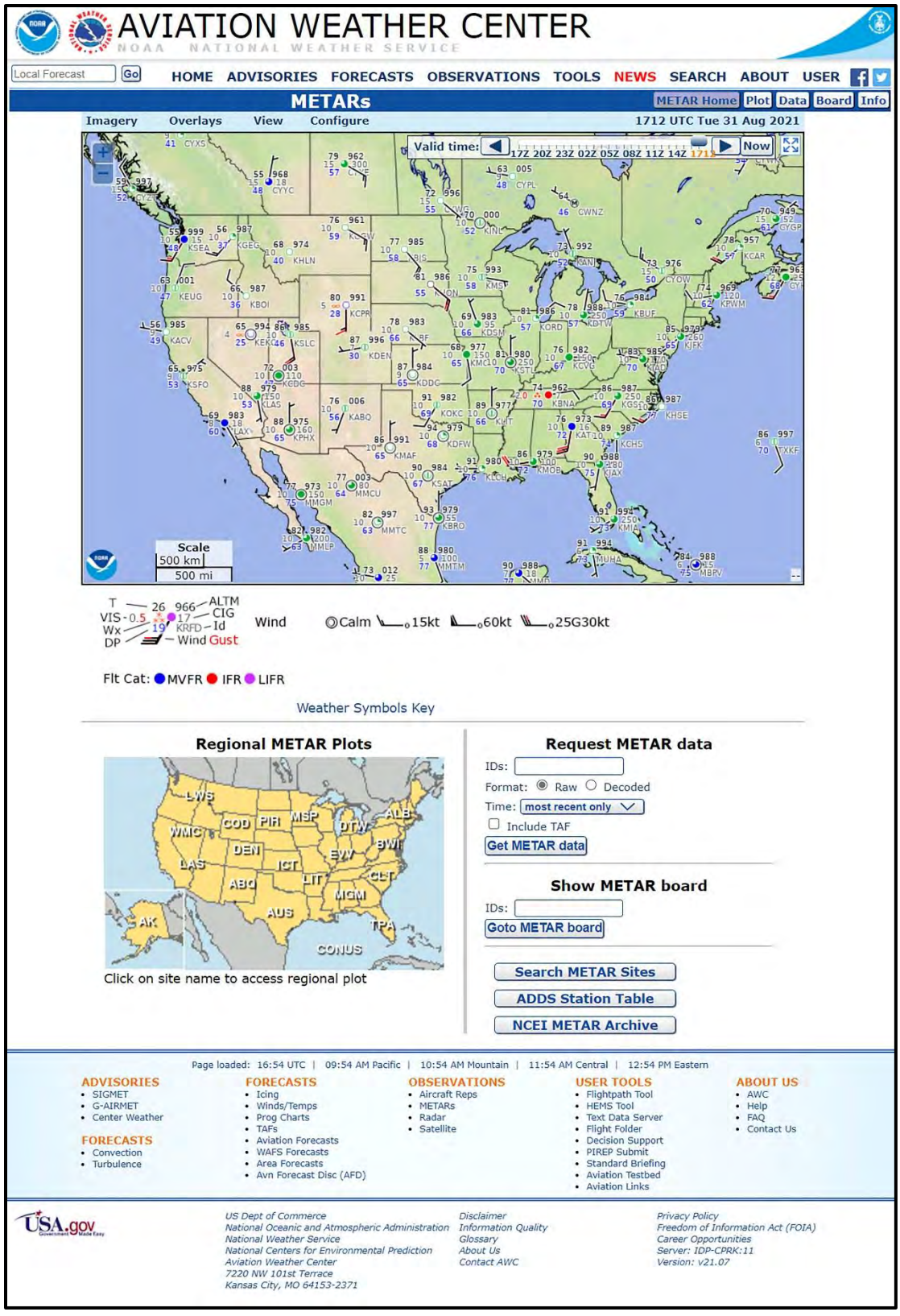

Figure 12-2 Aviation Weather Center

METARs: Aviation Routine Weather Reports

METARs are taken manually by NWS, FAA, contractors, or supplemental observers. METAR reports are also provided by Automated Weather Observing System (AWOS), Automated Surface Observing System (ASOS), and Automated Weather Sensor System (AWSS).

TAFs: Aerodrome Forecast

TAFs are a concise statement of the ***expected*** meteorological conditions at an airport during a specified period. TAFs use the same codes as METAR weather reports.

NOTE

Figures 12-3 and 12-4 provide a good review of TAF and METAR codes, how they are presented, and the data they contain.

Key to Aerodrome Forecast (TAF) and Aviation Routine Weather Report (METAR) (Front)

TAF KPIT 091730Z 0918/1024 15005KT 5SM HZ FEW020 WS010/31022KT
FM091930 30015G25KT 3SM SHRA OVC015
TEMPO 0920/0922 1/2SM +TSRA OVC008CB
FM100100 27008KT 5SM SHRA BKN020 OVC040
PROB30 1004/1007 1SM -RA BR
FM101015 18005KT 6SM -SHRA OVC020
BECMG 1013/1015 P6SM NSW SKC

NOTE: Users are cautioned to confirm ***DATE*** and ***TIME*** of the TAF. For example FM**10**0000 is 0000Z on the **10th**. Do not confuse with ***1000Z!***

METAR KPIT 091955Z COR 22015G25KT 3/4SM R28L/2600FT TSRA OVC010CB 18/16 A2992 RMK SLP045 T01820159

Forecast	Explanation	Report
TAF	Message type: TAF-routine or TAF AMD-amended forecast, METAR-hourly, SPECI-special or TESTM-non-commissioned ASOS report	**METAR**
KPIT	ICAO location indicator	**KPIT**
091730Z	Issuance time: ALL times in UTC "Z", 2-digit date, 4-digit time	**091955Z**
0918/1024	Valid period, either 24 hours or 30 hours. The first two digits of EACH four digit number indicate the date of the valid period, the final two digits indicate the time (valid from 18Z on the 9th to 24Z on the 10th).	
	In U.S. METAR: CORrected of; or AUTOmated ob for automated report with no human intervention; omitted when observer logs on.	**COR**
15005KT	Wind: 3 digit true-north direction , nearest 10 degrees (or VaRiaBle); next 2-3 digits for speed and unit, KT (KMH or MPS); as needed, Gust and maximum speed; 00000KT for calm; for METAR, if direction varies 60 degrees or more, Variability appended, e.g., 180V260	**22015G25KT**
5SM	Prevailing visibility; in U.S., Statute Miles & fractions; above 6 miles in TAF Plus6SM. (Or, 4-digit minimum visibility in meters and as required, lowest value with direction)	**3/4SM**
	Runway Visual Range: R; 2-digit runway designator Left, Center, or Right as needed; "/", Minus or Plus in U.S., 4-digit value, FeeT in U.S., (usually meters elsewhere); 4-digit value Variability 4-digit value (and tendency Down, Up or No change)	**R28L/2600FT**
HZ	Significant present, forecast and recent weather: see table (on back)	**TSRA**
FEW020	Cloud amount, height and type: SKy Clear 0/8, FEW >0/8-2/8, SCaTtered 3/8-4/8, BroKeN 5/8-7/8, OVerCast 8/8; 3-digit height in hundreds of ft; Towering CUmulus or CumulonimBus in **METAR**; in **TAF**, only CB. Vertical Visibility for obscured sky and height "VV004". More than 1 layer may be reported or forecast. In automated **METAR** reports only, CLeaR for "clear below 12,000 feet"	**OVC 010CB**
	Temperature: degrees Celsius; first 2 digits, temperature "/" last 2 digits, dew-point temperature; Minus for below zero, e.g., M06	**18/16**
	Altimeter setting: indicator and 4 digits; in U.S., A-inches and hundredths; (Q-hectoPascals, e.g., Q1013)	**A2992**
WS010/31022KT	In U.S. **TAF**, non-convective low-level (≤2,000 ft) Wind Shear; 3-digit height (hundreds of ft); "/"; 3-digit wind direction and 2-3 digit wind speed above the indicated height, and unit, KT	

Figure 12-3 TAF/METAR Key (Front)

Key to Aerodrome Forecast (TAF) and Aviation Routine Weather Report (METAR) (Back)

	In **METAR**, ReMarK indicator & remarks. For example: Sea- Level Pressure in hectoPascals & tenths, as shown: 1004.5 hPa; Temp/dew-point in tenths _C, as shown: temp. 18.2_C, dew-point 15.9_C	**RMK SLP045 T01820159**
FM091930	FroM: changes are expected at: 2-digit date, 2-digit hour, and 2-digit minute beginning time: indicates significant change. Each FM starts on a new line, indented 5 spaces	
TEMPO 0920/0922	TEMPOrary: changes expected for <1 hour and in total, < half of the period between the 2-digit date and 2-digit hour beginning, and 2-digit date and 2-digit hour ending time	
PROB30 1004/1007	PROBability and 2-digit percent (30 or 40): probable condition in the period between the 2-digit date & 2-digit hour beginning time, and the 2-digit date and 2-digit hour ending time	
BECMG 1013/1015	BECoMinG: change expected in the period between the 2-digit date and 2-digit hour beginning time, and the 2-digit date and 2-digit hour ending time	

Table of Significant Present, Forecast and Recent Weather - Grouped in categories and used in the order listed below; or as needed in TAF, No Significant Weather.

Qualifiers
Intensity or Proximity

"-" = Light	**No sign** = Moderate	**"+"** = Heavy

"VC" = Vicinity, but not at aerodrome. In the US METAR, 5 to 10 SM from the point of observation. In the US TAF, 5 to 10 SM from the center of the runway complex. Elsewhere, within 8000m.

Descriptor

BC – Patches	**BL** – Blowing	**DR** – Drifting	**FZ** – Freezing
MI – Shallow	**PR** – Partial	**SH** – Showers	**TS** – Thunderstorm

Weather Phenomena
Precipitation

DZ – Drizzle	**GR** – Hail	**GS** – Small Hail/Snow Pellets	
IC – Ice Crystals	**PL** – Ice Pellets	**RA** – Rain	**SG** – Snow Grains
SN – Snow	**UP** – Unknown Precipitation in automated observations		

Obscuration

BR – Mist (≥5/8SM)	**DU** – Widespread Dust	**FG** – Fog (<5/8SM)	**FU** – Smoke
HZ – Haze	**PY** – Spray	**SA** – Sand	**VA** – Volcanic Ash

Other

DS – Dust Storm	**FC** – Funnel Cloud	**+FC** – Tornado or Waterspout	
PO – Well developed dust or sand whirls		**SQ** – Squall	**SS** – Sandstorm

- Explanations in parentheses "()" indicate different worldwide practices.
- Ceiling is not specified; defined as the lowest broken or overcast layer, or the vertical visibility.
- NWS TAFs exclude BECMG groups and temperature forecasts, NWS TAFS do not use PROB in the first 9 hours of a TAF; NWS METARs exclude trend forecasts. US Military TAFs include Turbulence and Icing groups.

Figure 12-4 TAF/METAR Key (Back)

1205. INFLIGHT WEATHER RESOURCES

1. Inflight Weather Broadcast

Weather Advisory Broadcasts

ARTCCs broadcast a Severe Weather Forecast Alert (AWW), Convective SIGMET, SIGMET, AIRMET, Urgent Pilot Report or CWA alert once on all frequencies, except emergency, when any part of the area described is within 150 miles of the airspace under their jurisdiction. These broadcasts advise pilots of the availability of hazardous weather advisories and to contact the nearest Flight Service facility for additional details.

2. FSS (Flight Service Station)

Flight Service Specialist are qualified and certified as Pilot Weather Briefers by the FAA but ***are not authorized to make original forecast, but are authorized to translate and interpret available forecast and reports*** directly into terms describing the weather conditions which you can expect along your route of flight and at your destination.

Inflight weather information is available from any FSS within radio range. ***Common frequencies of 122.2 VHF and 255.4 UHF are available at many FSSs***. Discrete frequencies for individual stations are shown on the IFR Enroute Charts and can also be found in the FAA Chart Supplement U.S. (Formerly called the "Airport/Facility Directory").

Enroute advisories tailored to the phase of flight that begins after climb-out and ends with descent to land are provided upon pilot request. Pilots are encouraged to provide a continuous exchange of information on weather, winds, turbulence, flight visibility, icing, etc., between pilots and inflight specialists. Pilots should report good weather as well as bad, and confirm expected conditions as well as unexpected. ***Remember that weather conditions can change rapidly and that a "go or no go" decision should be assessed at all phases of flight.***

3. PMSV (Pilot-To- Metro Service)

The primary purpose of PMSV (radio call "METRO") is for communicating various types of weather information to pilots. ***PMSV is also used to update the Flight Weather Briefing Form (DD-175-1) and to receive pilot weather reports (PIREPS)*** of significant or hazardous weather phenomena, which are entered into weather telecommunications networks.

PMSV for USN and USMC stations utilize the NAVMETOCCOM Sub-Regional Forecast Center (SRFC) concept of operations in which forecasting has been centralized to support outlying satellite detachments during off-peak hours, when a forecaster is not on duty.

Most NAVMETOCCOM and USMC stations are manned 24 hours with observers maintaining a basic weather watch. Observers are authorized to provide basic weather information via PMSV, such as providing the latest field conditions or nearby observation data, or reading a Terminal Aerodrome Forecast (TAF) report. For any requests for forecast services, DD-175-1 updates, or

extensions, the observer acts as an intermediary between the pilot and SRFC forecaster. Some delay will be experienced in these instances as the SRFC Forecaster receives and processes information for the observer to pass along to the pilot over PMSV.

Locations, frequencies, and hours of operation can be found in the FIH Section "C."

4. ATIS (Automated Terminal Information Service)

Arrival ATIS transmissions on a discrete VHF and/or UHF radio frequency are engineered according to the individual facility requirements, which would normally be a protected service volume of 20 NM to 60 NM from the ATIS site and a maximum altitude of 25,000 feet AGL.

ATIS information includes:

- Airport/Facility name
- Phonetic letter code
- Time of the latest weather sequence (UTC)
- Wind direction and velocity
- Visibility
- Obstructions to vision
- Present weather consisting of; sky condition, temperature, dew point, altimeter, a density altitude advisory when appropriate and other pertinent remarks included in the official weather observation
- Instrument approach and runway in use

The ceiling/sky condition, visibility, and obstructions to vision may be omitted from the ATIS broadcast if the ceiling is above 5,000 feet and the visibility is more than 5 miles.

The departure runway will only be given if different from the landing runway except at locations having a separate ATIS for departure.

Frequencies for ATIS broadcast are available on IFR Enroute Charts, Terminal Low/High Altitude Approach Plates, in the IFR Enroute Supplement and FAA Chart Supplement U.S.

5. ASOS (Automated Surface Observing System, AWSS (Automated Weather Sensor System).

ASOS/AWOS is the primary surface weather observing system of the U.S. The program to install and operate these systems throughout the U.S. is a joint effort of the NWS, the FAA, and the Department of Defense.

ASOS/AWOS provides continuous minute-by-minute observations and performs the basic observing functions necessary to generate an aviation routine weather report (METAR) and other aviation weather information. The information may be transmitted over a discrete VHF radio frequency or the voice portion of a local NAVAID.

Most ASOS/AWOS sites also have a dial-up capability so that the minute-by-minute weather messages can be accessed via telephone.

ASOS/AWOS transmissions on a discrete VHF radio frequency are engineered to be receivable to a maximum of 25 NM from the ASOS/AWOS site and a maximum altitude of 10,000 feet AGL. Signals may be received on the surface of the airport, but local conditions may limit the maximum reception distance and/or altitude.

Every ASOS/AWSS will contain the following basic set of sensors:

- Cloud height indicator (one or possibly three).
- Visibility sensor (one or possibly three).
- Precipitation identification sensor.
- Freezing rain sensor (at select sites).
- Pressure sensors (two sensors at small airports; three sensors at large airports).
- Ambient temperature/Dew point temperature sensor.
- Anemometer (wind direction and speed sensor).
- Rainfall accumulation sensor.
- Automated Lightning Detection and Reporting System (ALDARS) (excluding Alaska and the Pacific Island Sites)

Frequencies for ASOS/AWSS broadcast are available in the Terminal Low/High Altitude Approach Plates, IFR Enroute Supplement, and FAA Chart Supplement U.S.

6. AWOS (Automated Weather Observing System)

Automated weather reporting systems are increasingly being installed at airports. These systems consist of various sensors, a processor, a computer-generated voice subsystem, and a transmitter to broadcast local, minute-by-minute weather data directly to the pilot.

The AWOS observations will include the prefix "AUTO" to indicate that the data are derived from an automated system.

Some AWOS locations will be augmented by certified observers who will provide weather and obstruction to vision information in the remarks of the report when the reported visibility is less than 7 miles. These sites, along with the hours of augmentation, are to be published in the FAA Chart Supplement U.S. Augmentation is identified in the observation as "OBSERVER WEATHER." The AWOS wind speed, direction and gusts, temperature, dew point, and altimeter setting, are exactly the same as for manual observations. The AWOS will also report density altitude when it exceeds the field elevation by more than 1,000 feet.

The reported visibility is derived from a sensor near the touchdown of the primary instrument runway.

The reported sky condition/ceiling is derived from the ceilometer located next to the visibility sensor.

The AWOS algorithm integrates the last 30 minutes of ceilometer data to derive cloud layers and heights. This output may also differ from the observer sky condition in that the AWOS is totally dependent upon the cloud advection over the sensor site.

These real-time systems are operationally classified into nine basic levels:

- AWOS − A only reports altimeter setting
- AWOS − AV reports altimeter and visibility

NOTE

Any other information provided on AWOS-A or AWOS-AV is advisory only.

- AWOS − l usually reports altimeter setting, wind data, temperature, dew point, and density altitude.
- AWOS − 2 provides the information provided by AWOS−l plus visibility.
- AWOS − 3 provides the information provided by AWOS−2 plus cloud/ceiling data.
- AWOS − 3P provides reports the same as the AWOS 3 system, plus a precipitation identification sensor.
- AWOS − 3PT reports the same as the AWOS 3P System, plus thunderstorm/lightning reporting capability.
- AWOS − 3T reports the same as AWOS 3 system and includes a thunderstorm/lightning reporting capability.

- AWOS − 4 reports the same as the AWOS 3 system, plus precipitation occurrence, type and accumulation, freezing rain, thunderstorm, and runway surface sensors.

Frequencies for AWOS broadcast are available in the Terminal Low/High Altitude approach plates, IFR Enroute Supplement and FAA Chart Supplement U.S. (Formerly called the "Airport/Facility Directory").

7. UNICOM (Aeronautical Advisory Stations aka; Universal Communications)

UNICOM is a nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS.

UNICOM service may be used for ATC purposes, only under the following circumstances:

- Revision to proposed departure time.
- Takeoff, arrival, or flight plan cancellation time.
- ATC clearance, provided arrangements are made between the ATC facility and the UNICOM licensee to handle such messages.

On pilot request, UNICOM stations may provide pilots with weather information, wind direction, the recommended runway, or other necessary information.

UNICOM frequencies are available in the Terminal Low/High Altitude approach plates, IFR Enroute Supplement and FAA Chart Supplement U.S. (Formerly called the "Airport/Facility Directory").

AUNICOM (Automated Unicom) Provides completely automated weather, radio check capability, and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. **(**3 clicks for ARPT advisory & weather, 4 clicks for radio check)

Availability of the automated UNICOM will be published in the FAA Chart Supplement U.S. (Formerly called the "Airport/Facility Directory"), IFR Enroute Supplement, and Instrument Approach Plates.

8. ATC Inflight Weather Avoidance Assistance

ATC radars are able to display areas of precipitation. All ATC facilities using radar weather processors with the ability to determine precipitation intensity, will describe the intensity to pilots as:

- "Light"
- "Moderate"

- "Heavy"
- "Extreme"

ATC facilities that, due to equipment limitations, cannot display the intensity levels of precipitation, will describe the location of the precipitation area by geographic position, or position relative to the aircraft. Since the intensity level is not available, the controller will state "Intensity Unknown."

ARTCC facilities normally use the Weather and Radar Processor (WARP) to display a mosaic of data obtained from multiple NEXRAD sites. There is a time delay between actual conditions and those displayed to the controller. For example, the precipitation data on the ARTCC controller's display could be up to 6 minutes old. When the WARP is not available, a second system, the narrowband Air Route Surveillance Radar (ARSR) can display two distinct levels of precipitation intensity that will be described to pilots as "Moderate" and "Heavy to Extreme." The WARP processor is only used in ARTCC facilities.

To the extent possible, controllers will issue pertinent information on weather or chaff areas and assist pilots in avoiding such areas when requested. Pilots should respond to a weather advisory by either acknowledging the advisory or by acknowledging the advisory and requesting an alternative course of action. ***Be specific!***

ATC radar is not able to detect turbulence. Generally, turbulence can be expected to occur as the rate of rainfall or intensity of precipitation increases. Turbulence associated with greater rates of rainfall/precipitation will normally be more severe than any associated with lesser rates of rainfall/precipitation. Turbulence should be expected to occur near convective activity, even in clear air. Thunderstorms are a form of convective activity that imply severe or greater turbulence. Operation within 20 miles of thunderstorms should be approached with great caution, as the severity of turbulence can be markedly greater than the precipitation intensity might indicate.

NOTE

It should be remembered that the controller's primary function is to provide safe separation between aircraft. Any additional service, such as weather avoidance assistance, can only be provided to the extent that it does not derogate the primary function.

9. PIREPs (Pilot Weather Reports)

Observed weather conditions reported by other pilots is one of the most valuable weather assets available.

Pilots will immediately report hazardous weather conditions, thunderstorms/lightning, turbulence, icing, and wind shear to ARTCC, terminal ATC, or FSS.

Pilots are also urged to promptly volunteer reports of cloud bases, tops, and layers, flight visibility, precipitation, strong winds, and any other significant flight condition information.

A follow-on report should be passed to the nearest METRO (PMSV) to ensure rapid dissemination to other using agencies. If flight conditions delay reporting to METRO while airborne, ensure the PIREP is reported to METRO immediately after landing.

The PIREP format, PMSV frequencies and information on descriptors that should be used, is found in the FIH SECTION C.

1206. DD FORM 175-1

The DD Form 175-1, Flight Weather Briefing (also known as the Dash-One) is the military standard briefing form. Whether you receive a verbal or written briefing, your briefing will contain the elements contained on this form. Some blocks on the form may not be completed and additional information may be included. The following section discusses the DD 175-1 format. All time entries are in Zulu (Z). All heights are in hundreds of feet AGL/MSL. All winds are entered in tens of degrees and speed in knots. All temperatures are in ° C, unless otherwise noted or requested.

While this information is crucial for ensuring compliance with all weather requirements, it is also needed in the preparation of a mission Flight Log and in computing TOLD data. (See Figure 12-5)

PART I: TAKEOFF DATA

a. Date (Date brief was generated)

b. ACFT Type/No. (Specific aircraft type and identification)

c. DEP PT/ETD (departure ICAO and estimated time of departure)

d. RWY Temp (Runway temperature)

e. Dewpoint (good predictor of fog/precipitation when 4° or less from the temperature)

f. TEMP DEV (Temperature deviation, needed for the climb problem on the flight log)

g. PRESS ALT (Pressure altitude)

h. Density ALT (Density altitude)

i. SFC Wind (Surface wind, magnetic for local and true for remote locations)

j. Climb Winds (True).

k. Local Weather Watch/Warning/Advisory. (e.g., WWs, SIGMETS warnings, or advisories valid for ETD +/- 1 hour).

l. RSC/RCR (Latest reported Runway Surface Conditions/Runway Conditions Reading for departure).

m. Remarks/Takeoff ALTN FCST. (Any remarks on weather that will affect take-off and climb (i.e., inversions, icing, and turbulence)).

PART II: ENROUTE & MISSION DATA (within 25 NM and 5000 Ft of flight level/route)

a. FLT Level Winds/TEMP (Flight Level winds in True, and outside air temperature. This data will be needed for the cruise problem on the flight log and for avoiding potential icing conditions).

b. Space Weather (Conditions such as sun spots or solar flares and the potential effect on communication frequencies/GPS signals/and radio navigation aids)

c. Solar/Lunar (sunrise/sunset, moon rise, moon set and percent of moon illuminated …BMNT (Begin Morning Nautical Twilight) and EENT (End Evening Nautical Twilight) occur just before sunrise and just after sunset and are used for taking reliable star sightings and bringing them to a still visible horizon during celestial navigation).

d. Clouds at Flight Level (Appropriate block will be checked. A check in the "YES" box represents a forecast for greater than 45% of the time spent in clouds at the flight level in Block. A check in the "NO" box indicates less than 1% of the time will be spent in clouds, while a check in the "IN AND OUT" box indicates between 1% and 45% of the flight will be through clouds).

e. Obscurations at Flt Level Restricting Visibility (Appropriate box will be checked and include type of phenomenon restricting the visibility).

f. Minimum Ceiling-Location (Lowest ceiling in hundreds of feet and geographical location)

g. Maximum Cloud Tops-Location (Highest cloud tops and the geographical location)

h. Minimum Freezing LVL-Location (Lowest level in hundreds of feet with freezing temperatures)

i. Thunderstorms (If a thunderstorm warning is in effect for the route of flight it will be listed here (in addition to Block 11 in Part I, which is for warnings applicable to the local airfield). Any warnings listed here should also have comments made in the remarks section (Part IV) to elaborate on the warning. The boxes can be checked to indicate the type and amount of coverage, in addition to providing the maximum cloud tops of the thunderstorms when that information is available, along with the geographic location where the aircrew can expect to encounter the indicated thunderstorm).

j. Turbulence (Advisories of turbulence will be noted here, any of which should also have further remarks made in Part IV. Since turbulence will be experienced in all thunderstorms, this section is only for turbulence not associated with thunderstorms. The boxes can be checked to indicate the type and intensity of turbulence. Flight levels and geographic location will be given for areas turbulence may be encountered).

k. Icing (Icing advisory may be noted here. Boxes can be checked to indicate type and intensity of icing. Geographic location will be given for areas icing may be encountered).

l. Precipitation (Boxes can be checked to indicate type and intensity of precipitation. Geographic location will be given for areas precipitation may be encountered).

PART III: AERODROME FORECAST

a. Aerodrome ID (ICAO identifier will be listed and Destination or Alternate circled as appropriate).

b. Valid Time (Forecast times noted here will be valid through +/- 1 hour of the ETA you provided).

c. SFC Wind (Forecasted winds will aid in selecting suitable a runway for use especially if lost communications occur).

d. VSBY/WEA (Visibility stated in RVR or PV along with any weather condition affecting the visibility. Visibility is a key element for determining if you are able to meet destination approach minimums and alternate airfield selection requirements).

e. Cloud Layers (Type and levels of clouds will be noted here. Clouds that constitute ceilings are a key element for determining if you are able to meet destination approach minimums and alternate airfield selection requirements).

f. Altimeter/RWY TEMP/Press ALT (The lowest altimeter setting expected during the valid period will be entered. This may be needed in the event of lost communications. Runway temperature and pressure altitude will be needed to compute TOLD data. Forecast will be valid through +/- 1 hour of ETA).

PART IV: COMMENTS/REMARKS

a. Briefed RSC/RCR (If Runway Surface Condition and/or Runway Condition Reading for Destination and/or Alternate was provided or unavailable it is annotated here).

b. PMSV (A Pilot-to-Metro-Service frequency may be annotated here, especially if they wish you to provide a PIREP concerning information they need along your route).

c. Attachments (the appropriate box will be checked to indicate if additional sheets of information was provided to the pilot).

d. Remarks (Amplifying remarks on any WWs, SIGMETs, AIRMETs, or similarly issued warnings or advisories are required in this block. The latest hourly surface observation for the destination may also be included here. If space is a problem, an additional DD 175-1 will be used as a continuation sheet).

PART V: BRIEFING RECORD

a. WX Briefed Time (Time the weather briefing was completed…***the clock is ticking from this point!)***

b. Flimsy Briefing Number (Briefing package, flimsy number, or Certified Forecaster identification)

c. Forecaster's Initials

d. Name of Person Receiving Briefing (This will be the person who filed/received the brief electronically or the person who received the brief verbally in person/via phone.)

e. Void Time (This time shall not exceed the Weather Briefed Time in block 36 by more than 3 hours and will not exceed ETD by more than 30 minutes.)

f. Extended To/Initials (If it appears that ***takeoff*** will occur outside the VOID time in block 40, the weather brief needs to be updated. This must be accomplished before takeoff. If the weather brief as first given is still applicable, then it may be extended by a forecaster. The updated VOID time and forecaster's initials will be entered here by the aircrew.)

g. Weather Rebrief Time/Initials (If it appears that ***takeoff*** will occur outside the VOID time and the weather brief as given is no longer applicable, then a complete re-brief must be obtained. The VOID TIME in block 40 will be updated by the aircrew (same CNAF rules apply). The time of the re-brief and forecaster's initials will be entered here by the aircrew.)

h. WX/Debrief Time/Initials (While it is not mandatory, upon completion of your mission, weather facilities are looking for feedback on actual vs forecasted conditions encountered. This feedback aids in improving forecast accuracy. If providing this valuable data, record the time and initials for the person receiving the information.)

FLIGHT WEATHER BRIEFING

PART I - TAKEOFF DATA

1. DATE	2. ACFT TYPE/NO.	3. DEP PT/ETD Z	4. RWY TEMP °F/C	5. DEWPOINT °F/C	6. TEMP DEV	7. PRES ALT FT	8. DENSITY ALT FT

9. SFC WIND M T	10. CLIMB WINDS	11. LOCAL WEATHER WATCH/WARNING/ADVISORY	12. RSC/RCR

13. REMARKS/TAKEOFF ALTN FCST

PART II - ENROUTE & MISSION DATA

14. FLT LEVEL/WINDS/TEMP ☐ SEE ATTACHED	15. SPACE WEATHER				16. SOLAR/ LUNAR		LOCATION	
		NO IMPACT	MARGINAL	SEVERE	BMNT	Z		
	FREQ				SR	Z	MR	Z
	GPS				SS	Z	MS	Z
	RAD				EENT	Z	ILLUM	%

17. CLOUDS AT FLT LEVEL	18. OBSCURATIONS AT FLT LEVEL RESTRICTING VISIBILITY
☐ YES ☐ NO ☐ IN AND OUT	☐ YES ☐ NO TYPE

19. MINIMUM CEILING - LOCATION FT AGL	20. MAXIMUM CLOUD TOPS - LOCATION FT MSL	21. MINIMUM FREEZING LVL - LOCATION FT MSL

22. THUNDERSTORMS			23. TURBULENCE			24. ICING					25. PRECIPITATION					
CHART			CHART			CHART					CHART					
☐ NONE	☐ AREA	☐ LINE	☐ NONE	IN CLEAR	IN CLOUD	☐ NONE	RIME	MIXED	CLEAR		☐ NONE	DRIZZLE	RAIN	SNOW	PELLET	
☐	ISOLATED 1 - 2%		LIGHT			TRACE					LIGHT					
☐	FEW 3 - 15%		MODERATE			LIGHT					MODERATE					
☐	SCATTERED 16 - 45%		SEVERE			MODERATE					HEAVY					
☐	NUMEROUS - MORE THAN 45%		EXTREME			SEVERE					SHOWERS					
HAIL, SEVERE TURBULENCE & ICING, HEAVY PRECIPITATION, LIGHTNING & WIND SHEAR EXPECTED IN AND NEAR THUNDERSTORMS.			LEVELS			LEVELS					FREEZING					
											LOCATION					
LOCATION			LOCATION			LOCATION										

PART III - AERODROME FORECASTS

26.	27. VALID TIME	28. SFC WIND	29. VSBY/WEA	30. CLOUD LAYERS	31. ALTIMETER	RWY TEMP	PRES ALT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	INS

PART IV - COMMENTS/REMARKS

32. BRIEFED RSC/RCR	☐ YES	☐ NOT AVAILABLE	33. PMSV	34. ATTACHMENTS	☐ YES	☐ NO

35. REMARKS

PART V - BRIEFING RECORD

36. WX BRIEFED TIME Z	37. FLIMSY BRIEFING NO.	38. FORECASTER'S INITIALS	39. NAME OF PERSON RECEIVING BRIEFING

40. VOID TIME Z	41. EXTENDED TO/INITIALS Z	42. WX REBRIEF TIME/INITIALS Z	43. WX DEBRIEF TIME/INITIALS Z

DD FORM 175-1, OCT 2002 PREVIOUS EDITION MAY BE USED. Reset Adobe Professional 7.0

Figure 12-5 DD-175-1

1207. CHAPTER TWELVE REVIEW QUESTIONS

1. Before obtaining a flight clearance, a pilot must receive a weather briefing from a qualified meteorological forecaster. (TRUE/FALSE)

2. The primary method for requesting and obtaining a flight route weather briefing is _____.

3. The phone number for the Naval Aviation Forecast Center (NAFC) is _____.

4. The phone number for FSS is _____.

5. IFR flights through an area covered by a WW, CAWW, or Convective SIGMET are authorized only under what conditions?

_____
_____
_____

Questions 6-10 refer to the following TAF:

KNSE 091730Z 0918/1024 14010KT 2SM FU BKN040

6. This forecast applies to _____ airport.

7. The valid time for the forecast is _____.

8. The winds are forecasted to be from _____° at _____knots.

9. Visibility is forecasted to be _____ due to _____

10. Sky conditions are forecasted to be _____.

Questions 11-13 refer to the following METAR:

KNGP 141256Z 35009KT 10SM OVC007 19/19 A2996 RMK A02 SLP150 T01940194

11. The altimeter for this airport is _____.

12. The Temperature is _____.

13. The Dew point is _____.

Questions 14-18 refer to the following minimums section of the only IAP for the airport in question. Assume only CORPUS CHRISTI ALTIMETER SETTING is available.

CATEGORY	A	B	C	D
S-ILS 13R	210-¾ 200 (200-¾)			
S-LOC/DME 13R*	360-¾ 350 (400-¾)			
C CIRCLING	500-1 481 (500-1)		540-1½ 521 (600-1½)	620-2 601 (700-2)
CORPUS CHRISTI ALTIMETER SETTING				
S-ILS 13R	242-¾ 232 (300-¾)			
S-LOC/DME 13R **	400-¾ 390 (400-¾)		400-⅞ 390 (400-⅞)	
C CIRCLING	540-1 521 (600-1)		580-1½ 561 (600-1½)	660-2 641 (700-2)

14. If the ILS is available CNAF requires a minimum ceiling and visibility of _____ in order to takeoff from runway 13R. If only the LOC is available then the takeoff minimums become _____.

15. In order to commence the non-precision instrument approach to runway 13R at this airport CNAF requires weather to be at least _____.

16. In order to commence the precision instrument approach to runway 13R at this airport CNAF requires weather to be at least _____.

17. If the precision instrument approach to runway 13R at this airport is available, CNAF requires forecasted weather to be at least _____ to use this airport as an alternate for flight planning purposes.

18. If a NOTAM reports the ILS glideslope out of service for runway 13R, CNAF requires forecasted weather to be at least _____ to use this airport as an alternate for flight planning purposes.

19. CNAF requires flight plans shall be filed based what weather requirements?

_____

_____

_____

20. The AIM states that a pilot can expect icing when flying in visible precipitation, such as rain, or cloud droplets, and the temperature is between _____ and _____ degrees Celsius.

21. For preflight planning (more than 3 hours prior to planned takeoff), an excellent source for weather data is the Aviation Weather Centers website. The web address for the AWC is _____.

22. In flight, common radio frequencies for FSS are _____ on VHF and _____ on UHF.

23. Information concerning PMSV and PIREPS can be found the _____ publication.

24. On your destination approach plate, in the communications section you note that AWOS-3 is available. What information will be available to you on that frequency?
_____.

25. On the DD-175-1 the VOID TIME (block 40) shall never exceed the WX BRIEFED TIME (block 36) by more than _____ ***and*** will not exceed the Estimated Time of Departure by more than _____.

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CHAPTER THIRTEEN
FLIGHT LOGS

1300. INTRODUCTION

CNAF 4.3.1 Preflight Planning

Before commencing a flight, the PIC shall be familiar with all available information appropriate to the intended operation. Such information should include, but is not limited to, available weather reports and forecasts, NOTAMs, fuel requirements, terminal instrument procedures (to include proper use of non-DoD approaches), alternatives available if the flight cannot be completed as planned, and any anticipated traffic delays. In addition, the PIC and mission commander (when there is one designated) shall conduct a risk assessment prior to the flight.

CNAF 4.8.4.2 IFR Flight Plans

Regardless of weather, IFR flight plans shall be filed and flown whenever practicable as a means of reducing midair collision potential. In any case, forecast meteorological conditions must meet the weather minimum criteria (See Figure 13-1) for filing IFR flight plans and shall be based on the pilot's best judgment as to the runway that will be in use upon arrival.

<table>
<tr><th>DESTINATION WEATHER
ETA plus and minus 1 hour</th><th colspan="2">ALTERNATE WEATHER
ETA plus and minus 1 hour</th></tr>
<tr><td>0 – 0 up to but not including Published minimums</td><td colspan="2">3,000 – 3 or better</td></tr>
<tr><td rowspan="2">Published minimums up to but not including 3,000 – 3
(single-piloted absolute minimums 200 –1/2)
(single-piloted helicopter/tilt-rotor absolute minimums 200-1/4)</td><td>NON-PRECISION</td><td>PRECISION</td></tr>
<tr><td>* Published minimums plus 300-1</td><td>* Published minimums plus 200-1/2</td></tr>
<tr><td>3,000 – 3 or better</td><td colspan="2">No alternate required</td></tr>
<tr><td colspan="3">* In the case of single-piloted or other aircraft with only one operable UHF/VHF transceiver, radar approach (PAR/ASR) minimums shall not be used as the basis for selection of an alternate airfield.
* For aircraft equipped with non-WAAS GPS receivers (TSO-C129/C196), aircrew may plan on the use of GPS-based approaches at either the destination or alternate, but not both.
* For aircraft equipped with WAAS GPS receivers (TSO-C145/C146), aircrew may plan on the use of GPS based approaches at both the destination and alternate.</td></tr>
</table>

Figure 13-1 IFR Filing Criteria

General Planning Considerations:

- For T-6B training, a 300 NM leg provides adequate fuel to fly the route and allow for multiple practice approaches.
- Altitude Planning approximately 10% of distance = thousands of feet of altitude (up to FL280, considering weather/fuel/mission needs).

- GP: Flights should be planned and flown via, preferred IFR routes, SIDs or published airways (if available) for the ***first*** 200 NM of flight from the departure point.

- GP: Arrival should be planned via STARs, published preferred IFR routes or published airways (if available) for the final 200 NM of the route flown.

- GP: Aircrews should ensure that their route of flight will avoid active restricted areas by at least 3 NM, unless permission has been obtained from the using agency to operate in that airspace, and the appropriate ATC facility has been notified.

The following 14 step checklist is recommended to ensure compliance with CNAF M-3710.7 requirements during preparation of a Flight Log. A properly completed Flight log will aid in filing the flight plan and provide essential data while inflight.

1. Examine Origin

   a. Check TAFs/METARs-http://aviationweather.gov (> 3 hours prior to departure).

   b. Request DD-175-1-https://fwb.metoc.navy.mil (within 3 hours of ETD).

   c. Check airfield NOTAMS https://www.daip.jcs.mil/daip/mobile/index

   d. Check Airfield operating hours.

   e. Check Airfield Services (ensure contract fuel is available if not DoD) using AIR Card FBO locator. Webpage and phone number for Air Card can be found in the ES legend data under FUEL.

   f. Check Airfield Remarks (hazards) (ES/AP1).

   g. Check Runway Length and location of barriers (arresting gear) (ES/T LA-HA).

   h. Check for departure considerations/requirements (DPs and trouble "Ts" ▼).

   i. Select type of departure to be used.

   j. Select Approach for emergency return.

   k. Check for ***CNAF Takeoff minimums***: (verify again once clearance is received).

      – Standard Instrument Rated Pilot

         (a). Precision Approach - published mins but not less than 200-½ or 200/24

         (b). Nonprecision Approach - published mins but not less than 300-1

2. Examine Destination

   a. Ensure airfield is authorized for use.

   b. Check destination NOTAMS

   c. Check hours of operation

   d. Check Airfield services (ensure contract fuel is available if not DoD) (ES).

   e. Check for Airfield Hazards/Restrictions (PPR, RON criteria, training availability, hazards) (ES/AP1)

   f. Check for applicable STAR

   g. Check NOTAMS and weather for Instrument Approach Availability (ES/T LA-HA/NOTAMS) Compare with ***CNAF Approach minimums***:

   h. CNAF "Absolute minimums for a single-piloted fixed-wing aircraft ***executing an approach*** are 200-foot ceiling/height above touchdown and a visibility of ½ statute-mile/2,400 feet RVR."

   i. Record all data on Flight Planning Matrix.

3. Examine Alternate

   a. Determine if alternate is required

   b. Check airfield NOTAMS

   c. Check airfield weather (TAF, DD-175-1)

   d. Verify NAVAID/Approach availability/compatibility (T HA-LA)

   e. Approach Plate Remarks (i.e., ANA issues)

   f. Ensure available approach/weather meets ***CNAF Alternate requirements*** (See Figure 13-1)

   g. Record all data on the Flight Planning Matrix

4. Record Airfield Data

   – Record airport elevation and available communication frequency data for:

      i. Departure airport

ii. Destination airport

iii. Alternate airport

5. Determine Climb Data

a. Record climb winds and ΔT (From DD-175-1 or ADDS website) on flight log.

i. Climb Winds

ii. Cruise Winds

iii. ΔT (for the Climb)

iv. OAT (for cruise altitude)

b. Determine raw Time/Fuel and Distance to Climb

i. Use PCL "Time, Fuel, and Distance to Climb" for Time to Climb (TTC), Climb Fuel and Distance covered during the Climb.

ii. Enter data on Flight Log

c. Compute the average Climb TAS and Fuel Flow using the CR-3

i. Climb TAS (climb distance/time x 60)

ii. Climb fuel flow (climb fuel/climb time x 60)

iii. Record data on Flight Log

6. Determine Cruise Data

a. Use NATOPS PCL "Long Range Cruise" table to extract IAS, TAS and Fuel flow for the planned Cruise altitude. (interpolate between closest altitudes/temperatures)

b. Enter cruise TAS and cruise fuel flow on flight log

7. Enter Route Leg Data

a. First leg entry is always STTO, (1 minute and 50# Fuel unless you expect more)

b. Enter the "Route To" for each subsequent leg.

i. Define each leg entry as:

(a). Direct to a NAVAID/Waypoint or Intersection or:

(b). Via an Airway to a NAVAID/Waypoint or Intersection

ii. Create a new leg:

(a). At each NAVAID

(b). For course changes of greater than six degrees

(c). At each compulsory reporting point

c. Enter the NAVAID and Frequency data as required for each leg.

d. Enter the course/distance for each leg.

i. Round distances off to the nearest whole number for each calculation (.5 or greater rounds up).

ii. Magnetic course and distance from the departure airfield to the first fix (Intersection or NAVAID) on an airway may be determined from the Enroute Supplement airports NAVAID section, on the Approach Plates (as Enroute/Feeder Fixes), or may be determined using Enroute charts.

8. Identify Compulsory Reporting Points

a. Identify/annotate compulsory reporting points for non-radar environment.

i. Compulsory reporting points:

ii. Are identified on Enroute charts by a filled in triangle at a NAVAID, intersection, or waypoint.

iii. Exist at both ends of a direct leg.

b. A common technique for annotating compulsory reporting points on the Flight Log is to place a mark in the “Route To" column for any leg that would constitute a mandatory reporting point in the event a non-radar environment is encountered.

9. Compute Ground Speed (GS) (using wind side of CR-2, 3, 4, or 5)

a. Computed Climb Groundspeed(s)

i. Plot Climb Winds (True)

ii. Enter Leg course (magnetic) under appropriate magnetic variation.

iii. Add tailwind components (subtract headwind components) to Climb TAS.

iv. Record the resultant climb groundspeed(s) on the Flight log.

v. Repeat for each leg where a climb may occur.

b. Compute Cruise Groundspeeds.

i. Plot Cruise Winds (True).

ii. Enter Leg course (magnetic) under appropriate magnetic variation.

iii. Add tailwind components (subtract headwind components) to Cruise TAS.

iv. Record the resultant Cruise Groundspeeds on the Flight Log.

v. Three possibilities exist for the level-off at cruise altitude:

(a). Reaching Cruising Altitude prior to a fix

(b). Reaching Cruise Altitude at fix

(c). Reaching Cruise Altitude after crossing a fix

c. For instances where part of a leg is climb and part is cruising (split-leg) record both groundspeeds (climb first followed by cruise).

10. Calculate Leg ETE/Fuel

a. Rounding procedures:

i. Distances/Times: to the nearest whole number for each calculation (.5 or greater rounds up).

ii. Fuel: any fraction over a 5 pound increment, round up to the next 5 pound increment. Example: 42 lbs rounds up to 45 pounds.

b. Determine Leg ETEs

i. Leg 1 Climb Dist/ETE

(a). Climb Groundspeed for Leg 1on indexer

(b). Note Leg 1 Dist on outer scale

(c). Note time (on inner scale) below Leg 1 DIST. If less than PCL TTC enter time as Leg 1 ETE.

(d). If PCL TTC (on inner scale) is less than Leg 1 distance, enter PCL TTC as split entry for Leg 1 ETE. Read Distance for climb (on outer scale) above PCL TTC. Enter Climb Dist as split entry for Leg 1 Dist (the remaining Leg 1 Dist is Cruise Dist)

(e). Repeat (as required) for subsequent Legs using remaining TTC until level-off Dist/ETE is determined.

ii. Determine Cruise ETEs:

(a). Set Leg Cruise Ground speed on Indexer

(b). Locate remaining Leg Cruise Dist on outer scale.

(c). Read remaining Leg ETE on inner scale

(d). Enter Leg Cruise ETE on Flight Log (use spilt entry for Leg with Climb/Cruise Dist).

(e). Repeat for each Leg.

c. Determine Leg Fuel

i. Determine Climb Fuel.

(a). Climb Fuel Flow on indexer.

(b). Note Leg Climb ETE on inner scale.

(c). Read Climb Fuel on outer scale above Leg Climb ETE.

(d). Enter Leg Climb Fuel on Flight Log (Use split entry for Leg with Climb/Cruise ETEs).

ii. Determine Cruise Fuel

(a). Cruise Fuel Flow on indexer

(b). Note Leg Cruise ETE on inner scale

(c). Read Cruise Fuel on outer scale above Leg Cruise ETE.

(d). Enter Leg Cruise Fuel on Flight Log (Use split entry for Leg with Climb/Cruise ETEs)

11. Calculate Leg EFR

a. Verify Actual Fuel Load

b. Subtract STTO fuel and enter difference in the EFR bock of the STTO line

c. Subtract estimated fuel for Leg 1 from the EFR in the line above it and enter difference in EFR block for Leg 1.

d. Repeat for all remaining Legs.

12. Calculate Fuel Remaining Hrs + Min at Dest

a. Cruise Fuel Flow on the Indexer

b. Locate EFR at destination on outer scale.

c. Read Fuel Remaining in Hrs + Min on inner scale below EFR

d. Record result in Fuel Block of Alternate line on the Flight Log.

13. Complete Draft Report Data

a. Add ETE from last Fix at the Destination (prior to the approach) to the time required to complete an approach at the Alternate airport (typically 10 minutes).

b. Record sum in the TIME block on the Alternate line of the Flight Log.

14. Complete Fuel Plan

a. Climb/Route to Dest (fuel used after takeoff to the last fix at the destination prior to the approach…***does not include STTO fuel***)

b. Route to Alternate (fuel required from last fix at the destination prior to the approach to the last fix at the Alternate prior to the approach)

c. Approaches (Plan 50 lbs for each approach unless more is known to be required.)

d. Total 1, 2, 3 (Add first three blocks together.)

e. Reserve (For T-6B operations this will be 115 lbs to meet the CNAF requirement for minimum of 20 mins. @ Max endurance 10,000 feet. ***More may be required for local sop.***)

f. Start/Taxi (50 lbs for default unless excessive ground delays are expected)

g. Total Required (add lines 4, 5 and 6)

h. Total Fuel Aboard (1100 for normal fuel load… may get more with over the wing refueling…or less if the refueling operator is in a hurry. ***Check the gauges before flight****!*

i. Spare Fuel (Line 8 Total Fuel Aboard minus Line 7 Total Fuel Required.

THE REMAINING PORTION OF THIS CHAPTER WILL USE A SAMPLE MISSION TO COVER EACH STEP IN DETAIL.

1301. SAMPLE PLANNING PROBLEM

You have been tasked to research and plan a mission for an IFR flight from the Hattiesburg Bobby L Chain Municipal Airport (KHBG) in Hattiesburg, Mississippi to Naval Air Station New Orleans (KNBG) in New Orleans, Louisiana.

Aircraft: TW-5/T-6B, bureau number 166095

Departing: Hattiesburg at 0700 local on Tuesday 02 JUNE 2016. (*Daylight Saving Time is in effect*).

Fuel load: 1100 lbs.

Takeoff weight: 6900 lbs.

Our sample problem will use the following FLIP documents:

- IFR Enroute Supplement (ES)
- Flight Information Handbook (FIH)
- Area Planning 1 (AP/1)
- Terminal Low Altitude (approach plates) Volume 14 (T LA)
- IFR Enroute Low Altitude Charts L- 21/22
- Terminal High Altitude Southeast (T HA)
- Standard Terminal Arrival (STAR)

AIRCRAFT WING/STA:	AIRCRAFT BUNO:	AIRCRAFT CALLSIGN:
TAKEOFF WEIGHT:	IAS CLIMB:	CRUISE ALTITUDE:
FUEL ONBOARD:	START/TAXI/TAKEOFF FUEL:	FUEL PER APPROACH:
MAX ENDURANCE FF: 333 LBS/HR		

ROUTE TO DESTINATION:	
ROUTE TO ALTERNATE:	

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN										
DESTINATION										
ALTERNATE 1										
ALTERNATE 2										
ALTERNATE 3										

Figure 13-2 Flight Planning Matrix

1302. GETTING ORGANIZED

Ideally you will start your flight planning process 24 hours prior to your departure. During our research we will use the Flight Planning Matrix to organize the data. (See Figure 13-2) The more detailed your notes, the more flexible you can be should weather, or mission changes require re-examination your route.

1. The IFR enroute supplement can be used to determine which enroute charts will be required for your route. Airport information in the ES includes which Enroute chart and panel airfields are located on. (See Figure 13-3) Once you have the charts gathered decide on a logical route for your particular flight. From your departure airport, you normally enter the route structure at an intersection or a NAVAID. From there you can fly airways, or direct to a particular NAVAID. Some airfields may have specific departure procedures (DPs) listed in the airport's FLIP Terminal publications (a.k.a. approach plates).

HATTIESBURG BOBBY L CHAIN MUNI, MS **KHBG** P
N31°15.90' W89°15.17' 151 UTC-6(-5DT) **H-6J, L-21C-22G**
(B) **RWY-13** L1,5,9,50 (6094x150 ASP L1,5,50 **RWY-31**
996→ S48 D68 2S114 2D145)

NEW ORLEANS NAS JRB, (ALVIN CALLENDER FLD) LA **KNBG** NAS (ANG
CG) N29°49.63' W90°01.60' 2 UTC-6(-5DT) **H-7E-8F, L-21B-22F**
(B) **RWY-04** L1,2,5,9,11,50 (10001x200 PEM PCN 44 R/B/W/T) L1,2,5,9,11,50 **RWY-22**
HOOK E28(B) (1500') HOOK E28(B) (1502')
RWY-14 L1,5,9,50 (6000x200 PEM PCN 60 R/B/W/T) L1,5,9,12,50 **RWY-32**
HOOK E28(B) (1025') HOOK E28(B) (1025')

Figure 13-3 ES Origin and Destination Chart Information

2. Locating our Origin, Destination and then factoring in any required training along the way, choose a basic route. Depart KHBG proceed to LBY V543 to RAYOP intersection then direct to HARVEY VORTAC (NBG). (See Figure 13-4)

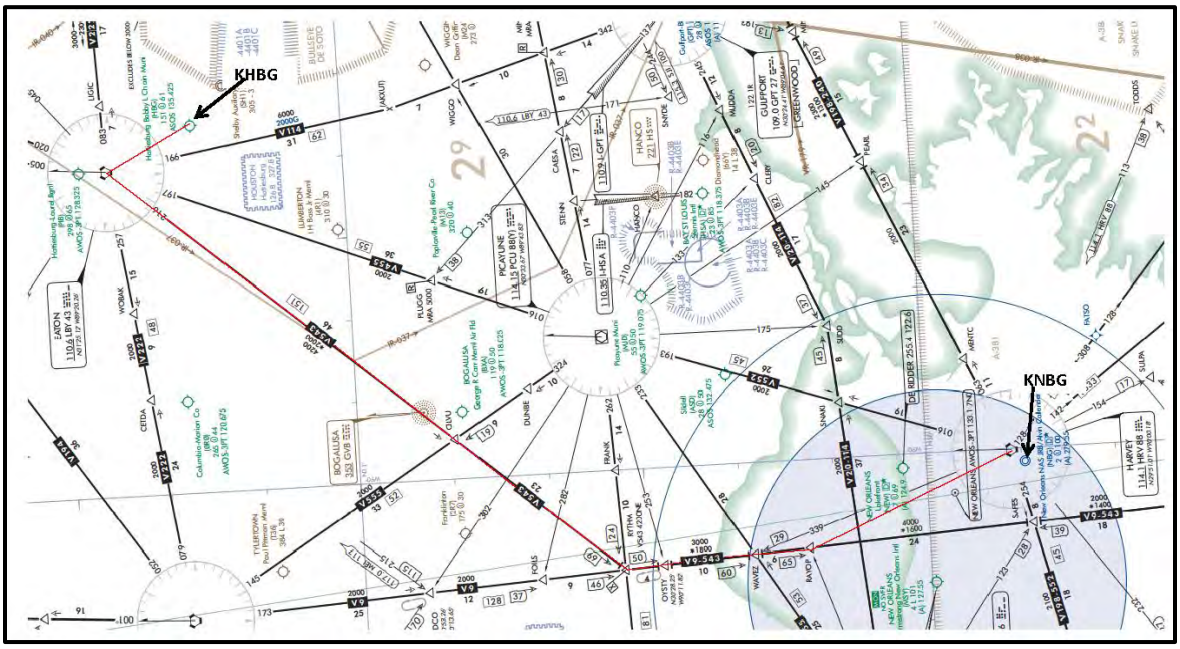


Figure 13-4 KHBG to KNBG Route

3. While looking at your destination airfield, select possible alternates to research for your flight. For this particular problem we will research New Orleans International (KMSY), Bay St Louis, Stennis INTL (KHSA), and Houma-Terrebonne (KHUM) as possible alternates.

4. Based on your ETD and approximate ETAs, obtain TAFs for the origin, destination, and alternate airfields. You can do your initial flight planning based on weather obtained from the FAA ADDS website. (See Figure 13-5) On the day or your flight you are required to get an Official Weather brief (preferably a DD-175-1). (See Figure 13-6) This information will be used to finalize your Flight log specifics such as time in route and fuel burns.

Aviation Digital Data Service (ADDS)
URL: http://www.aviationweather.gov/adds/metars

Data at: 1000 UTC 02 Jun 2016

KHBG 020956Z AUTO 31010KT 1SM BR OVC005 21/19 A2994 RMK AO2 SLP139 T02130192
KHBG 020522Z 0206/0306 31010KT 1SM BR BKN005 QNH2994INS
FM 021500 30010G21KT 2SM HZ BKN010 QNH2995INS
FM 022300 27011KT P6SM SCT 050 QNH2999INS
FM 030200 00000KT 3SM OVC007 QNH2994

KNBG 020957Z 31010KT 1 SM HZBR BKN007 20/18 A2993 RMK AO2 SLP 135 T02040183
KNBG 020530Z 0206/0306 31010KT 1600 HZBR BKN007 QNH2992INS
BECMG 0215/0218 30010KT 9999 SCT 015
FM 0302/0306 00000KT 0800 FG VV004 QNH2992
KMSY 020955Z 30010KT 1SM HZBR BKN008 21/20 A2993 RMK AO2 SLP 135 T02150204
FM 0212/0312 31010KT 4800 BR BKN010 OVC040 QNH2995INS
BECMG 0215/0217 29015KT 6000 HZ OVC050
KHSA 020958Z 300100KT 2 SM HZBR BKN008 OVC020 20/18 A2995INS AO2 SLP 135 T02040173
FM 0212/0312 30010KT 2 SM HZBR BKN008 OVC015 20/18 QNH2995
KHUM 020955Z 31020KT 2 1/2SM HZ BKN008 OVC015 20/18 A2993INS AO2 SLP 135 T02040183
020530Z 0206/0306 31020KT 1 SM HZBR BKN008 QNH2992IN
BECMG 0210/0212 31020KT 2 1/2 SM HZ BKN 008 OVC 015 QNH2993
BECMG 0215/0218 30010KT P6SM SCT 015
FM 0302/0306 00000KT 0800 FG VV004 QNH2992

Figure 13-5 ADDS TAF/METAR Origin Destination and Alternates

FLIGHT WEATHER BRIEFING

PART I - TAKEOFF DATA

1. DATE	2. ACFT TYPE/NO.	3. DEP PT/ETD	4. RWY TEMP	5. DEWPOINT	6. TEMP DEV	7. PRES ALT	8. DENSITY ALT
02 JUN 2016	T6B/166095	HBG/1200 Z	21 C °F/C	18 C °F/C	+20	41 FT	FT

9. SFC WIND	10. CLIMB WINDS	11. LOCAL WEATHER WATCH/WARNING/ADVISORY	12. RSC/RCR
M 320/10 M T	300/20	NONE	DRY

13. REMARKS/TAKEOFF ALTN FCST
HBG: 05 OVC 1 BR 310/10 A:2994

PART II - ENROUTE & MISSION DATA

14. FLT LEVEL/WINDS/TEMP	SEE ATTACHED	15. SPACE WEATHER	NO IMPACT	MARGINAL	SEVERE	16. SOLAR/ LUNAR		LOCATION
160						BMNT Z		
320/35 -15		FREQ				SR 1058 Z	MR Z	
		GPS				SS 0100 Z	MS Z	
		RAD				EENT Z	ILLUM %	

17. CLOUDS AT FLT LEVEL	18. OBSCURATIONS AT FLT LEVEL RESTRICTING VISIBILITY
YES [X] NO [ ] IN AND OUT	[X] YES [ ] NO TYPE

19. MINIMUM CEILING - LOCATION	20. MAXIMUM CLOUD TOPS - LOCATION	21. MINIMUM FREEZING LVL - LOCATION
05 FT AGL HBG FT AGL	140 FT MSL	150 FT MSL MCB FT MSL

22. THUNDERSTORMS		23. TURBULENCE			24. ICING				25. PRECIPITATION				
CHART		CHART			CHART				CHART				
	NONE		NONE	IN CLEAR	IN CLOUD		NONE	RIME	MIXED	CLEAR		NONE	DRIZZLE	RAIN	SNOW	PELLET
	ISOLATED 1 - 2%	LIGHT				TRACE					LIGHT				
X	FEW 3 - 15%	MODERATE		X		LIGHT	X				MODERATE		X		
	SCATTERED 16 - 45%	SEVERE				MODERATE					HEAVY				
	NUMEROUS - MORE THAN 45%	EXTREME				SEVERE	X				SHOWERS				
											FREEZING				

HAIL, SEVERE TURBULENCE & ICING, HEAVY PRECIPITATION, LIGHTNING & WIND SHEAR EXPECTED IN AND NEAR THUNDERSTORMS.	LEVELS	LEVELS	
	100-130	100-130	
LOCATION	LOCATION	LOCATION	LOCATION
MCB	MCB	MCB	MCB

PART III - AERODROME FORECASTS

26.	27. VALID TIME	28. SFC WIND	29. VSBY/WEA	30. CLOUD LAYERS	31. ALTIMETER	RWY TEMP	PRES ALT
DEST/ALTN	Z TO Z	M			INS	°F/C	FT
NBG	1134-1334	310/10 M T	2 HZBR	07 BKN 15 OVC	2992		
DEST/ALTN	Z TO Z	M			INS	°F/C	FT
MSY	1154-1354	300/10 M T	1 HZBR	12 BKN 20 OVC	2995		
DEST/ALTN	Z TO Z	M			INS	°F/C	FT
HSA	1154-1354	300/10 M T	2 HZBR	08 BKN 20 OVC	2995		
DEST/ALTN	Z TO Z	M			INS	°F/C	FT
HUM	1154-1354	310/20 M T	2 1/2 HZ	08 BKN 15 OVC	2993		
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	FT
DEST/ALTN	Z TO Z	M T			INS	°F/C	INS

PART IV - COMMENTS/REMARKS

32. BRIEFED RSC/RCR	YES	NOT AVAILABLE	33. PMSV	34. ATTACHMENTS	YES	NO
	[ ]	[X]	NBG 265.8		[ ]	[X]

35. REMARKS

PART V - BRIEFING RECORD

36. WX BRIEFED TIME	37. FLIMSY BRIEFING NO.	38. FORECASTER'S INITIALS	39. NAME OF PERSON RECEIVING BRIEFING
0930 Z	KHBG 2-1233	T.O.C	READY, I.M.
40. VOID TIME	**41. EXTENDED TO/INITIALS**	**42. WX REBRIEF TIME/INITIALS**	**43. WX DEBRIEF TIME/INITIALS**
1230 Z	Z	Z	Z

DD FORM 175-1, OCT 2002 PREVIOUS EDITION MAY BE USED. Reset Adobe Professional 7.0

Figure 13-6 DD Form 175-1 (Sample Problem)

5. Select an altitude for your route. Considerations for selecting a cruising altitude should include; winds aloft, weather, freezing levels, IFR cruising altitudes, MEA's along the proposed route and mission needs. ***Generally***, 10 percent of the total distance will equal and altitude in thousands of feet that will provide a fuel efficient profile. Our total distance today is approximately 125 NM therefore an altitude in the vicinity 12,500 feet MSL would be efficient. ***For this exercise we will use 16,000 feet.***

NOW WE ARE READY FOR THE 14 STEPS!

1303. STEP 1: EXAMINE ORIGIN

The Airport Data Matrix located on the back of the Flight Log (Figure 13-7) is used to record data that may be needed while inflight. While the Flight Planning Matrix, (Figure 13-2) contains much of the same information it is useful during the planning phase.

Begin with an examination of the departure airfield KHBG.

AIRPORT DATA MATRIX						
CHECKLIST	ORIGIN		DESTINATION		ALTERNATE	
	WX	MINS	WX	MINS	WX	MINS
AIRFIELD NOTAMS						
ENROUTE NOTAMS						
GPS NOTAMS						
HOURS						
SERVICE/FUEL						
HAZARDS						
RWY/ARR GEAR/ BARRIER						
V A NA						
SUA/TFR						
SID/STAR						
LOCAL OPS						

Figure 13-7 Flight Log Airport Data Matrix

1. Examine Origin airfield NOTAMS (this is a good time to pull NOTAMS for the destination, proposed alternates, enroute and GPS as applicable).

2. Check Airfield operating hours. Use the IFR Enroute Supplement to determine airfield hours of operation. All times are listed in ZULU. To convert ZULU to local time use the appropriate correction listed in the Enroute Supplement. The correction will depend on whether Day Light Saving Time is being observed. Watch for ++ symbols following times which indicate that effective hours will be one hour earlier during periods of daylight saving time (See Figure 13-9).

For 02 JUNE 2016: ***Daylight saving time is in effect***.

KHBG is a non-towered airport (no Class D airspace noted on the L-22 Chart) and they are in operation during daylight hours (See Figure 13-8).

3. Check Airfield Services. Research enroute supplement for services and fuel available at the airfield (See Figures 13-8, 13-9). Note availability of fuel ***compatible*** with the T-6. For civilian fields, check to see if they have a government contract authorizing them to sell fuel. All military airfields are authorized to sell fuel to transient military aircraft.

KHBG has Jet A with additive available 0700-1700 Monday through Friday, 0800-1700 Saturday and Sunday.

Terminal ID: 10050004687	
Contract Number: SPE60719D0017 **Contract Fuel Products:** Jet A With Additive **Contract Details:** Federal Excise Tax, Overtime Fee	**Expires:** 03/31/2023
Refueling Operator Name: Southeast Aviation Service	**Business Hours Phone:** 601-544-8661
	Fuel Delivery Special Conditions/Comments: Hours of Operation: 0700-1700 Monday-Friday, 0800-1700 Saturday and Sunday. Excludes New Year, Easter, Independence Day, Thanksgiving and Christmas. 1 hour advanced notice for after hour deliveries.
Merchant Name: SOUTHEAST AVIATION SERVICES **Phone:** (601) 544-8661 **Fax:** (601) 544-3207	**Address:** 29 Academy Drive **City:** Hattiesburg **State / Province:** Mississippi **Zip Code:** 39401 **Country:** United States
QAR Contact: DESC Americas East	**Phone:** 713-718-3883

Figure 13-8 AIR Card Airport Hrs/Fuel Services KHBG

AIRPORT/FACILITY DIRECTORY LEGEND A-23

quantity, and other information is correct. If the AIR Card® is electronically swiped, the data transmitted must be certified to be accurate by the appropriate crewmember. Contractors with Into-Plane contracts are authorized to use commercial delivery receipts or the DD 1898 AVFUEL sales slip. The responsible crewmember will certify on the ticket that the product type, quality, quantity, and price is correct.

A list of current Into-Plane contract locations is available by calling (866) 308-3811 (US) or (913) 217-9303 (Int'l), via email to Customer-Support@aircardsys.com, or online at:

https://aircardsys.com/cgi-bin/usage_acceptance (Select "I Agree" on the Usage Alert page, then "FBO Locator" in the upper right corner of the home page.)

The AIR Card® Program Manager can be contacted at (703) 767-9738 or DSN 427-9738. Additional information on the AIR Card® program and Customer Support Group is available online at:

https://www.dla.mil/Energy/Offers/Products/GovernmentFuel/AIRCard.aspx

The DLA Energy Customer Interaction Center (Fort Belvoir, VA) is staffed 24 hours a day, 7 days a week, including government holidays, and be contacted at (877) 352-2255, DSN 661-7766, or dlacontactcenter@dla.mil.

Figure 13-9 ES Legend

4. Check Airfield Remarks (hazards). Sources for hazards include; NOTAMs, AP/1, and the Enroute Supplement remarks/caution section. Additionally, FAA Chart Supplements (formerly

known as the Airport/Facilities Directory) has information on civil airports similar to that found in the FLIP ES. An FAA Chart Supplement Search (by State/Airport) is available online at the FAA website: http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/search/

KHBG Airport has no specific hazards published.

5. Check Runway Length and location of barriers (arresting gear). Review the ES for pertinent information concerning the departure runway.

Forecasted winds favor runway 31. The IFR enroute supplement shows KHBG runway 13/31 to be 6,094 feet long, 150 feet wide with an asphalt surface. There is no arresting gear or barriers listed.

6. Check for departure considerations/requirements (DPs and trouble "Ts" ▼). This information can be found in the approach plate for the particular airfield. We will be using the Terminal Low altitude (T LA) instrument approach procedures located in VOL 14.

7. Select type of departure to be used. KHBG has a Standard Instrument Departure (SID) labeled the EATON ONE DEPARTURE (LBY1.LBY). (See Figure 13-10) As recommended in the GP, we will employ this DP leaving KHBG. Trouble T ▼ information applicable to the EATON ONE is conveniently located on the SID. Textual information/instructions when departing other than via the SID is available in the front of the approach plates.
(See Figure 13-11)

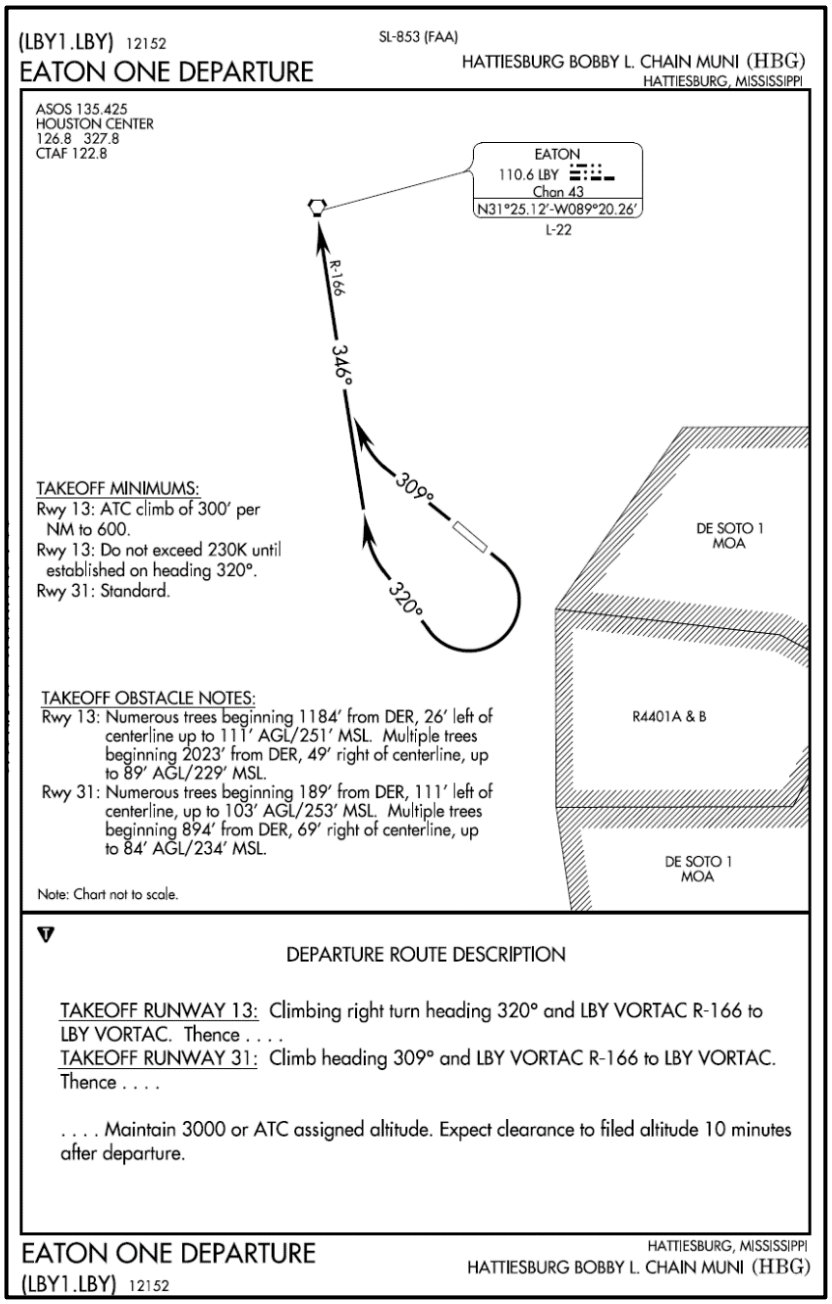


Figure 13-10 Eaton One Departure

8. Select approach for emergency return.

Winds favor a runway 31 departure. CNAF Takeoff Weather requirements are based on returning to the runway in use in the event of an emergency during departure. The only instrument approaches available to KHBG are to runway 13. Therefore, our departure weather requirements will be based on an approach to runway 13 and circle to land runway 31. We will examine the departure procedures for this runway and comply with all climb restrictions. Required weather for all instrument departures will be derived using CNAF criteria.

6147

TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

L6

SC-4

HATTIESBURG, MS

HATTIESBURG BOBBY L. CHAIN MUNI (HBG)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

AMDT 1 09015 (FAA)

DEPARTURE PROCEDURE: **Rwy 31,** climb heading 309° to 900 before turning west.

NOTE: **Rwy 13,** numerous trees beginning 1184' from DER, 26' left of centerline, up to 111' AGL/251' MSL. Multiple trees beginning 2023' from DER, 49' right of centerline, up to 89' AGL/229'. **Rwy 31,** numerous trees beginning 189' from DER, 111' left of centerline, up to 103' AGL/253' MSL. Multiple trees beginning 894' from DER, 69' right of centerline, up to 84' AGL/234' MSL.

Figure 13-11 KHBG Trouble T Information

9. Check for CNAF take-off minimums**.** Standard instrument rating: ***CNAF requires that weather for departure allow for an emergency return for the landing runway in use.*** Non-Precision Approach (NPA): Published minimums for the available approach but not less than 300-foot ceiling and 1-statute mile visibility.

Precision Approach: Published minimums for the available approach but not less than 200-foot ceiling and 1/2-statute-mile visibility/2,400-foot runway visual range (RVR).

Winds favor a runway 31 departure. The only options available for return to that runway are non-precision approaches to runway 13, circle to land on runway 31.

Check circling minimums for a runway 13 approach (See Figure 13-12). The weather on our DD Form 175-1 for our ETD (See Figure 13-6) meets the minimum 500-1 required to safely takeoff and return to runway 31 should and emergency arise during departure.

(Check weather again prior to departure. Weather must meet minimums when clearance is received.)

CATEGORY	A	B	C	D
LPV DA	349-¾ 200 (200-¾)			
LNAV/ VNAV DA	456-1 307 (400-1)			
LNAV MDA	580-1 431 (500-1)		580-1¼ 431 (500-1¼)	
CIRCLING	620-1 469 (500-1)		620-1½ 469 (500-1½)	720-2 569 (600-2)

Figure 13-12 KHBG Minimums Data

As origin information is gathered, record all notes and findings on the Flight Data and the Airport data matrixes. (See Figures 13-3 and 13-4)

AIRPORT DATA MATRIX		
CHECKLIST	ORIGIN	
	WX	MINS
	500-1 310/10	500-1
AIRFIELD NOTAMS		
ENROUTE NOTAMS		
GPS NOTAMS		
HOURS	DAYLIGHT HOURS	
SERVICE/FUEL	Southeast Aviation	
HAZARDS		
RWY/ARR.GEAR/ BARRIER	13/31 6,049 X 150	
▼ NA	TROUBLE T COVERED BY SID	
APPROACH		
SID/STAR	EATON ONE DEP VOL. 14 PG 182	
LOCAL OPS		

Figure 13-13 Airport Data Matrix/ORIGIN

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ NA	NAVAIDS	OTHER
ORIGIN	HBG	B-290	VOL 14	RNAV 13 (500-1)	NP (500-1)	500-1 310/10	√	LBY1.LBY	√	Must Cir to Land RWY 31

Figure 13-14 Flight Planning Matrix/ORIGIN

1304. STEP 2: EXAMINE DESTINATION

See Figures 13-15a, b, c

1. Ensure airfield is authorized for use. CNAF M-3710.7 section 4.4 sets the requirements for authorized airfields. Look at the operating agency for the airport in the ES. Typically, military, joint use military/civil airports are good. In the ES, operating agencies listed with a "P" are US civil airports wherein permit covers use by transient military aircraft.

Check ES for any noted restrictions. Under remarks, a PPR (Prior Permission Required) is listed.

2. Check destination NOTAMS. Ensure it is not closed or otherwise unavailable.

3. Check airfield hours of operation. Using the appropriate conversion from ZULU and accounting for the ++ symbol we find KNBG operating hours to be 0700-2300 local MON-SAT.

4. Check Airfield Services. Look for T-6B compatible fuel, servicing times, restrictions, and contract fuel availability (for civil fields). KNBG has Military supplied J-8 fuel (which is compatible with the T-6). Service is available 0730-2230.

5. Check for Airfield Hazards/Restrictions**.** (ES and the AP1)

In the ES under ***SERVICE***, note that the Arresting gear is maintained in the raised position is in battery at all times, do not land directly on the cable (for the T-6B plan to land beyond the cable).

In the ES under ***RESTRICTIONS***, note that a PPR (Prior Permission Required) number will be required for all aircraft. Your arrival must be approved and base operations. They require a 48 hour Prior Notice that you are coming. The DSN (Defense Switching Network) and commercial phone numbers needed to obtain the PPR number are listed in the remarks section. This PPR number will be needed for your IFR flight plan.

Note the information under ***CAUTIONS*** in the ES as well. Example: Overhead break is at 1500' and pattern altitude is 1000'.

AP1 has supplemental information concerning selected airports. KNBG is listed in the AP1. Be aware of all information here such as noise abatement procedures for departures but especially note the ***CAUTION*** section. Example: The intersection of Taxiway A and F, the Air Sovereignty Alert Facility and the CALA Pad are not visible from the tower.

NEW ORLEANS NAS JRB, (ALVIN CALLENDER FLD) LA **KNBG** NAS (ANG CG) N29°49.63' W90°01.60' 2 UTC-6(-5DT) **H-7E-8F, L-21B-22F**

(B) **RWY-04** L1,2,5,9,11,50 (10001x200 PEM PCN 44 R/B/W/T) L1,2,5,9,11,50 **RWY-22**
HOOK E28(B) (1500') HOOK E28(B) (1502')
RWY-14 L1,5,9,50 (6000x200 PEM PCN 60 R/B/W/T) L1,5,9,12,50 **RWY-32**
HOOK E28(B) (1025') HOOK E28(B) (1025')

SERVICE - L-AOE **LGT** - Pilot controlled rwy lgt are nstd. All rwy lgt are set to med ints, 3 clicks-Rwy 4 apch, edge and twy lgt, 5 clicks-Rwy 22 apch, edge and twy lgt, 7 clicks-Rwy 14-32 edge lgt and twy lgt. PCL freq 123.8 or 284.6. Carrier deck lgt Rwy 04 for FCLPs avbl upon req one hr prior. **A-GEAR** - Maint in raised posn and in battery at all times, do not land drct on A-GEAR cable. **JASU** - 4(NC-10C) 4(A/M47A-4) Ltd DC pwr. **FUEL** - Opr 1330-0430Z++. Fuel delays Fri-Sun. Tran acft exp some delay for svc outside nml working hr. J8 **FLUID** - PRESAIR LHOX LOX **OIL** - O-128-156

AIRPORT/FACILITY DIRECTORY B-473

REMARKS - Opr 1300-0500Z++ Mon-Fri, 1600-2400Z++ Sat-Sun, clsd hol exc by NOTAM. Base OPS opr 1300-2100Z++ Mon-Fri, clsd Sat-Sun. Wx svc avbl 1300-0500Z++ Mon-Sat, 1600-2300Z++ Sun. **RSTD** - PPR all acft 48 hr PN DSN 678-3602/3, C504-678-3602/3. **CAUTION** - Numerous civ acft opr to/fr canals vcnty afld. Bird haz. **TFC PAT** - Overhead break alt 1500'. Pat alt 1000'. Rwy 22 rgt tfc. **CSTMS/AG/IMG** - Avbl to mil acft/pers only, coord with Afld Svc DSN 678-3602, C504-678-3602. Other CSTMS rqr ctc C504-623-6600 for appointment. **MISC** - Ltd classified material stor. Ctc Base OPS DSN 678-3101, C504-678-3101 or fax DSN 678-9575, C504-678-9575. Class D Airspace eff 1300-0500Z++ Mon-Sat, 1600-2300Z++ Sun, OT civ acft trns Class D, ctc ATC on 123.8 for clnc. No lavatory svc avbl. Wx svc avbl 1300-0400Z++ Mon-Sat, 1500-2200Z++ Sun. Fire department status Cat II. **CG** - Opr rstd 0500-1300Z++ to CG. C504-393-6032.

COMMUNICATIONS - **CTAF** - Opr when twr clsd. 340.2 **ATIS** - 279.55
APP/DEP - **(R) (E)** 123.85 256.9 **NAVY NEW ORLEANS TWR** - **(E)** 123.8 284.6 340.2
NAVY NEW ORLEANS GND - 121.6 270.35 **CLNC DEL** - 128.35 263.0
PMSV METRO - Opr 1300-0400Z++ Mon-Sat, 1500-2200Z++ Sun. 265.8
BASE OPS - 289.6 **CG** - **(U)** 345.0X 5696X 8984 *REMARKS:* Ctc NEW ORLEANS AIR.
FSS-FORT WORTH FTW-NOTAM MSY

NAVAIDS - **HARVEY VORTACW** - L 114.100 HRV CH 88 N29°51.01' W90°00.18' 220° 1.8 NM to Fld. 2/(A)2°00.0'E
HRV VORTAC unuse
004°-125° byd 30 NM blw 2000'
126°-136° byd 25 NM blw 3000'
137°-174° byd 30 NM blw 2000'
175°-190° byd 30 NM blw 3000'
191°-239° byd 30 NM blw 2000'
240°-255° byd 25 NM blw 6000'
256°-279° byd 30 NM blw 2000'
280°-290° byd 30 NM
291°-352° byd 30 NM blw 2000'
353°-003° byd 30 NM blw 3000'

ILS/RADAR - **ILS** - No-NOTAM MP: 1300-1800Z++ Mon. **RADAR** - SEE TERMINAL FLIP FOR RADAR MINIMA.

Figure 13-15a IFR Supplement KNBG

j. No transient arrival or departure service after transient alert published operating hours. All aircraft requesting servicing must arrive no later than 0600Z++.

7. HOT CARGO PAD NET EXPLOSIVE WEIGHT (NEW) LIMITS:

a. PRIMARY PAD - Class/Division (C/D) 1.1 26,000 pounds NEW, C/D 1.2.1 2,500 pounds NEW, C/D 1.2.2 30,000 pounds C/D (08)1.2.3 30,000 pounds NEW, C/D 1.3 30,000 pounds NEW, C/D 1.4 Capacity.

b. BOMBER PAD - C/D (12) 1.1 3,626 pounds NEW, C/D 1.2 1,000 pounds NEW, C/D 1.2.2 1000 pounds (07)1.2.3 1,000 pounds C/D 1.3 1,000 pounds NEW, C/D 1.4 Capacity.
(57 OSS-OSAA/57 OSS-OSAA FIL 12-473)

8. MISCELLANEOUS:

a. TDY/deployed units must plan to receive FLIPs from home station accounts. No support available at AMOPS.

b. Non-mission related VFR transitions over the city of Las Vegas for fixed-wing aircraft below 7,500' MSL require prior approval from the 57 WG/CC and the Las Vegas TRACON operation desk C702-652-5926.
(57 OSS-OSAA/57 OSS-OSAA FIL 12-423)

9. BACKSHOP MAINTENANCE SUPPORT:

a. Backshop Maintenance at Nellis AFB (KLSV) is a contracted operation that primarily supports aircraft assigned to Nellis AFB (KLSV). Transient Aircraft support is limited to Space and Equipment with the following exceptions:

(1) Egress (F16, F-22 only)

(2) Fuels (F15, F-16, A-10, F-22 only)

(3) Armament (Respond to hung munitions for F-15, F-16, A-10, F-22 only)

(4) NDI (Limited to JOAP, SEM/EDX)

(5) Test Cell (Monitor installed engine runs)

(6) Repair/Reclamation (A-10, F-15A/B/C/D/E only)

(7) Wheel and Tire (F-16, A-10, F-15, F-22, HH-60 only)
(57 OSS-OSAA/57 OSS-OSAA FIL 12-488)

10. WINGTIP CLEARANCE RESTRICTIONS:

a. Peripheral taxilane east of revetments restricted to wingspan 57' and smaller.

b. When aircraft are present on the adjacent aprons, Taxiway Delta between Runway 21R/03L and Taxiway Foxtrot is restricted to wingspans 132' and smaller. Wing walkers must be used as required.

c. When aircraft are present on the adjacent apron, Taxiway Echo between Runway 21R/03L and Runway 21L/03R is restricted to fighter type aircraft and smaller (**NO HEAVY AIRCRAFT**).

d. When aircraft are present on the adjacent apron, Taxiway Alpha between Runway 21R/03L and Runway 21L/03R is restricted to wingspans 185' and smaller without us of wing walkers. White wingtip clearance line provides minimum of 25' clearance wingspans 185' and smaller.

e. When aircraft are present on the adjacent apron, Taxiway Alpha between Runway 21L/03R and Taxiway Golf is restricted to wingspans 185' and smaller without use of wing walkers. White wingtip clearance line provides minimum of 25' clearance for wingspans 185' and smaller.

f. When aircraft are present on the adjacent apron, Taxiway Echo between Runway 21L/03R and Taxiway Golf is restricted to wingspans 132' and smaller without use of wing walkers. White wingtip clearance line provides minimum of 25' clearance for wingspans 132' and smaller.

g. When aircraft are present for adjacent to Taxiway Echo between Runway 21R/03L and Taxiway Foxtrot, White wingtip clearance line provides minimum of 25' for wingspans 222' and smaller.

h. Intermediate hold position markings installed on the North Peripheral taxilane of Transient West Apron, East of Taxiway Hotel and transient helipad. All aircraft entering Transient West at this location **must hold short and contact Nellis ground control for permission to proceed.**
(57 OSS-OSAA/57 OSS-OSAA FIL 15-972)

New Orleans NAS JRB (KNBG), LA

1. TRANSIENT AIRCRAFT - PPR for all aircraft not assigned, DSN 678-3602/3603, C504-678-3602/3603. Expect official business only restrictions during the Mardi Gras season (usually February).
(USN/NAVFIG FIL 04-66)

2. ARRESTING GEAR REMOVAL - Available, one hour advance notice required.

3. TRANSPORTATION - Commercial rental vehicles with delivery to Base Operations is available by calling Enterprise Rental Cars at C504-433-2325.
(USN/NAVFIG FIL F0019-11)

4. BILLETING ACCOMODATIONS - Transient billeting arrangements can be made by calling DSN 678-3419 or C504-678-3419. Space may be limited.
(USN/NAVFIG FIL 04-66)

5. CUSTOMS - Available 24 hours prior notice, contact customs C504-623-6600. Agriculture waste disposal available.

6. CATEGORY III TACTICAL REDUCED RUNWAY SEPARATION - Reduced runway separation in effect for local based aircraft.
(USN/NAVFIG FIL F0019-11)

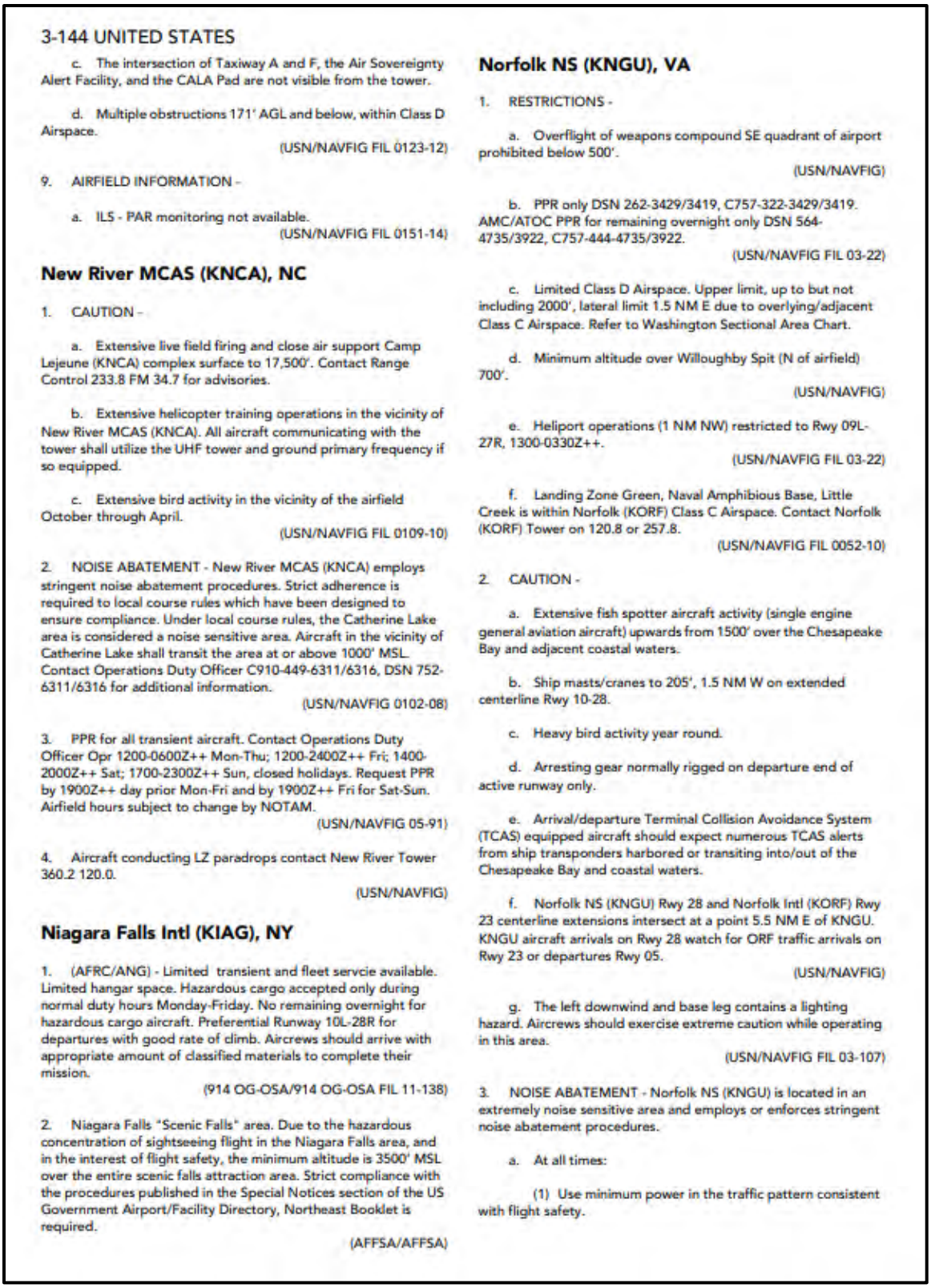
7. NOISE ABATEMENT - All departures fly runway heading and maintain 1000' MSL or below until crossing the departure end of the runway. Afterburners will be secured at the airfield boundary. For Rwy 04-22 departures, turn shall not be commenced below 2000' MSL including flight join up maneuvers. Rwy 32 departures expect an immediate left turn on departure.
(USN/NAVFIG FIL 04-66)

8. CAUTION

a. High volume of civil fixed wing aircraft and helicopters operating in the Class D Airspace N of the airfield.

b. Numerous birds on and in the vicinity of airfield throughout the year. Increased activity 1 March through 30 September.

Figure 13-15b AP1 KNBG Supplemental Information



3-144 UNITED STATES

c. The intersection of Taxiway A and F, the Air Sovereignty Alert Facility, and the CALA Pad are not visible from the tower.

d. Multiple obstructions 171' AGL and below, within Class D Airspace.

(USN/NAVFIG FIL 0123-12)

9. AIRFIELD INFORMATION -

a. ILS - PAR monitoring not available.

(USN/NAVFIG FIL 0151-14)

New River MCAS (KNCA), NC

1. CAUTION -

a. Extensive live field firing and close air support Camp Lejeune (KNCA) complex surface to 17,500'. Contact Range Control 233.8 FM 34.7 for advisories.

b. Extensive helicopter training operations in the vicinity of New River MCAS (KNCA). All aircraft communicating with the tower shall utilize the UHF tower and ground primary frequency if so equipped.

c. Extensive bird activity in the vicinity of the airfield October through April.

(USN/NAVFIG FIL 0109-10)

2. NOISE ABATEMENT - New River MCAS (KNCA) employs stringent noise abatement procedures. Strict adherence is required to local course rules which have been designed to ensure compliance. Under local course rules, the Catherine Lake area is considered a noise sensitive area. Aircraft in the vicinity of Catherine Lake shall transit the area at or above 1000' MSL. Contact Operations Duty Officer C910-449-6311/6316, DSN 752-6311/6316 for additional information.

(USN/NAVFIG 0102-08)

3. PPR for all transient aircraft. Contact Operations Duty Officer Opr 1200-0600Z++ Mon-Thu; 1200-2400Z++ Fri; 1400-2000Z++ Sat; 1700-2300Z++ Sun, closed holidays. Request PPR by 1900Z++ day prior Mon-Fri and by 1900Z++ Fri for Sat-Sun. Airfield hours subject to change by NOTAM.

(USN/NAVFIG 05-91)

4. Aircraft conducting LZ paradrops contact New River Tower 360.2 120.0.

(USN/NAVFIG)

Niagara Falls Intl (KIAG), NY

1. (AFRC/ANG) - Limited transient and fleet servcie available. Limited hangar space. Hazardous cargo accepted only during normal duty hours Monday-Friday. No remaining overnight for hazardous cargo aircraft. Preferential Runway 10L-28R for departures with good rate of climb. Aircrews should arrive with appropriate amount of classified materials to complete their mission.

(914 OG-OSA/914 OG-OSA FIL 11-138)

2. Niagara Falls "Scenic Falls" area. Due to the hazardous concentration of sightseeing flight in the Niagara Falls area, and in the interest of flight safety, the minimum altitude is 3500' MSL over the entire scenic falls attraction area. Strict compliance with the procedures published in the Special Notices section of the US Government Airport/Facility Directory, Northeast Booklet is required.

(AFFSA/AFFSA)

Norfolk NS (KNGU), VA

1. RESTRICTIONS -

a. Overflight of weapons compound SE quadrant of airport prohibited below 500'.

(USN/NAVFIG)

b. PPR only DSN 262-3429/3419, C757-322-3429/3419. AMC/ATOC PPR for remaining overnight only DSN 564-4735/3922, C757-444-4735/3922.

(USN/NAVFIG FIL 03-22)

c. Limited Class D Airspace. Upper limit, up to but not including 2000', lateral limit 1.5 NM E due to overlying/adjacent Class C Airspace. Refer to Washington Sectional Area Chart.

d. Minimum altitude over Willoughby Spit (N of airfield) 700'.

(USN/NAVFIG)

e. Heliport operations (1 NM NW) restricted to Rwy 09L-27R, 1300-0330Z++.

(USN/NAVFIG FIL 03-22)

f. Landing Zone Green, Naval Amphibious Base, Little Creek is within Norfolk (KORF) Class C Airspace. Contact Norfolk (KORF) Tower on 120.8 or 257.8.

(USN/NAVFIG FIL 0052-10)

2. CAUTION -

a. Extensive fish spotter aircraft activity (single engine general aviation aircraft) upwards from 1500' over the Chesapeake Bay and adjacent coastal waters.

b. Ship masts/cranes to 205', 1.5 NM W on extended centerline Rwy 10-28.

c. Heavy bird activity year round.

d. Arresting gear normally rigged on departure end of active runway only.

e. Arrival/departure Terminal Collision Avoidance System (TCAS) equipped aircraft should expect numerous TCAS alerts from ship transponders harbored or transiting into/out of the Chesapeake Bay and coastal waters.

f. Norfolk NS (KNGU) Rwy 28 and Norfolk Intl (KORF) Rwy 23 centerline extensions intersect at a point 5.5 NM E of KNGU. KNGU aircraft arrivals on Rwy 28 watch for ORF traffic arrivals on Rwy 23 or departures Rwy 05.

(USN/NAVFIG)

g. The left downwind and base leg contains a lighting hazard. Aircrews should exercise extreme caution while operating in this area.

(USN/NAVFIG FIL 03-107)

3. NOISE ABATEMENT - Norfolk NS (KNGU) is located in an extremely noise sensitive area and employs or enforces stringent noise abatement procedures.

a. At all times:

(1) Use minimum power in the traffic pattern consistent with flight safety.

Figure 13-15c AP1 KNBG Supplemental Information (cont.)

6. Check for applicable STAR. Around major airports (Such as New Orleans International KMSY), and airports in or near Class B airspace check for possible Standard Terminal Arrival Routing for the arrival area. The legend in the front of the STAR book lists affected cities alphabetically. Under the city, each airport affected has the individual STARs arranged alphabetically by the name of the STAR. While KNBG is not listed under the airports for New Orleans. However, to avoid possible delays it would be prudent to use the conventional route that mirrors the STAR if possible. (See Figures 13-16 and 13-17)

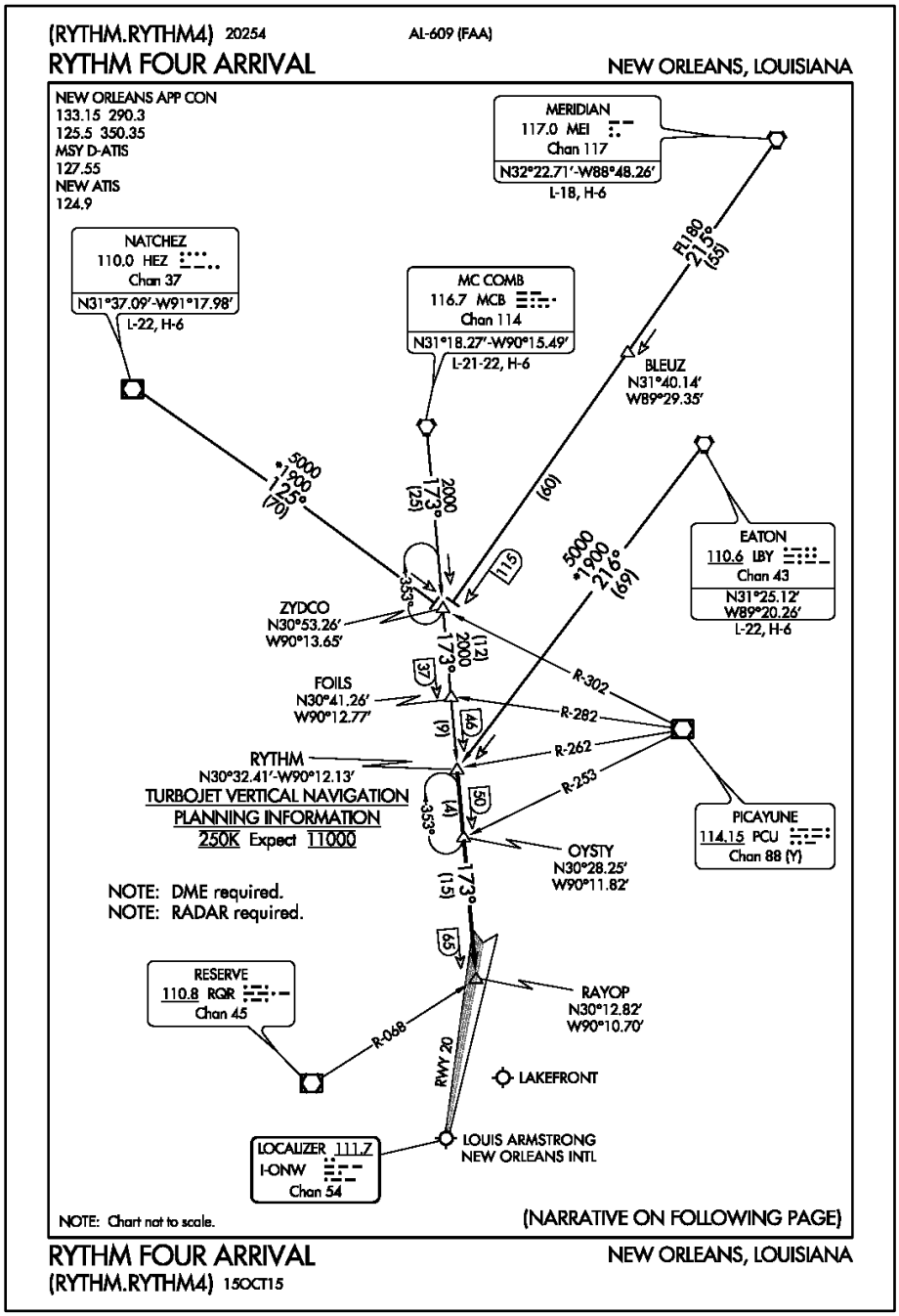


Figure 13-16 RYTHM FOUR ARRIVAL (Front)

(RYTHM.RYTHM4) 17117 AL-609 (FAA)

RYTHM FOUR ARRIVAL NEW ORLEANS, LOUISIANA

ARRIVAL ROUTE DESCRIPTION

EATON TRANSITION (LBY.RYTHM4): From over LBY VORTAC via LBY R-216 to RYTHM INT. Thence. . . .
MC COMB TRANSITION (MCB.RYTHM4): From over MCB VORTAC via MCB R-173 to RYTHM INT. Thence. . . .
MERIDIAN TRANSITION (MEI.RYTHM4): From over MEI VORTAC via MEI R-215 to ZYDCO INT then via MCB R-173 to RYTHM INT. Thence. . . .
NATCHEZ TRANSITION (HEZ.RYTHM4): From over HEZ VOR/DME via HEZ R-125 to ZYDCO INT then via MCB R-173 to RYTHM INT. Thence. . . .

. . . .from over RYTHM INT via MCB R-173 to RAYOP INT. Thence. . . .

LANDING LOUIS ARMSTRONG RWY 20: Intercept I-ONW localizer course and expect clearance for LOC Rwy 20 approach.
LANDING OTHER RUNWAYS: Expect vectors to final approach course.

RYTHM FOUR ARRIVAL NEW ORLEANS, LOUISIANA

(RYTHM.RYTHM4) 15OCT15

Figure 13-17 RYTHM FOUR ARRIVAL (Back)

7. Check NOTAMS and weather for Instrument Approach availability.

The forecasted weather for KNBG is 700 Broken, 2 NM in haze and mist, and winds 310 at 10 knots which favors runway 32.

NOTAMs at KNBG for our estimated time of arrival indicate that; RAIM insufficient for RNAV approaches, Localizer is out of service Until Further Notice and KNBG is not accepting radar approaches.

Check Volume 14 of the Terminal Low Altitude approach plates to see what approaches are available. Landing on runway 32 will require a circling approach that is compatible with our aircraft. A VOR/DME approach is available to both runways 04 and 22. Circling minimums are 600-1 for both approaches. This meets the CNAF actual instrument approach minimums of 200-1/2 for single piloted aircraft. We will use the VOR/DME RWY 04 circle to land runway 32. (See Figure 13-19)

8. Record all data on the Flight Planning Matrix. As Destination information is gathered, record all notes and findings on the Planning/Flight Log Matrixes. (See Figure 13-18)

AIRPORT DATA MATRIX				
CHECKLIST	ORIGIN		DESTINATION	
	WX	MINS	WX	MINS
	500-1 310/10	500-1	700-2 310/10	600-1
AIRFIELD NOTAMS			LOC OTS UFN GPS UNRELIABLE NO RADAR APP.	
ENROUTE NOTAMS				
GPS NOTAMS				
HOURS	DAYLIGHT HOURS		0700L – 2300L MON-SAT	
SERVICE/FUEL	Southeast Aviation		J-8 0730L – 2230L	
HAZARDS			ARR GEAR IN BATT 1500' FROM THRE	
RWY/ARR.GEAR/ BARRIER	13/31 6,049 X 150		4/22 10,001 X 200 BI-DIR GEAR	
▼ NA	TROUBLE T COVERED BY SID			
APPROACH			VOR/DME RWY 4 VOL 14 PG 337	
SID/STAR	EATON ONE DEP VOL. 14 PG 182		RYTHM FOUR ARRIVAL PG. 660	
LOCAL OPS			PPR, RWY 4/22 DEP NO TURN TIL 2000', 1500' BK, 1000' PAT	

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ NA	NAVAIDS	OTHER
ORIGIN	HBG	B-290	VOL 14	RNAV 13 (500-1)	NP (500-1)	500-1 310/10	√	LBY1.LBY	√	Must Cir to Land RWY 31
DESTINATION	NBG	B-474	VOL 14	~~ILS RWY 4~~ VOR/DME 4 (600-1)	(600-1)	700-2 310/10	LOC OTS UFN RNAV NA	LBY. RYTHM4	√	TINEE HRV 226/15

Figure 13-18 Planning/Flight Log Matrixes ORIG/DEST

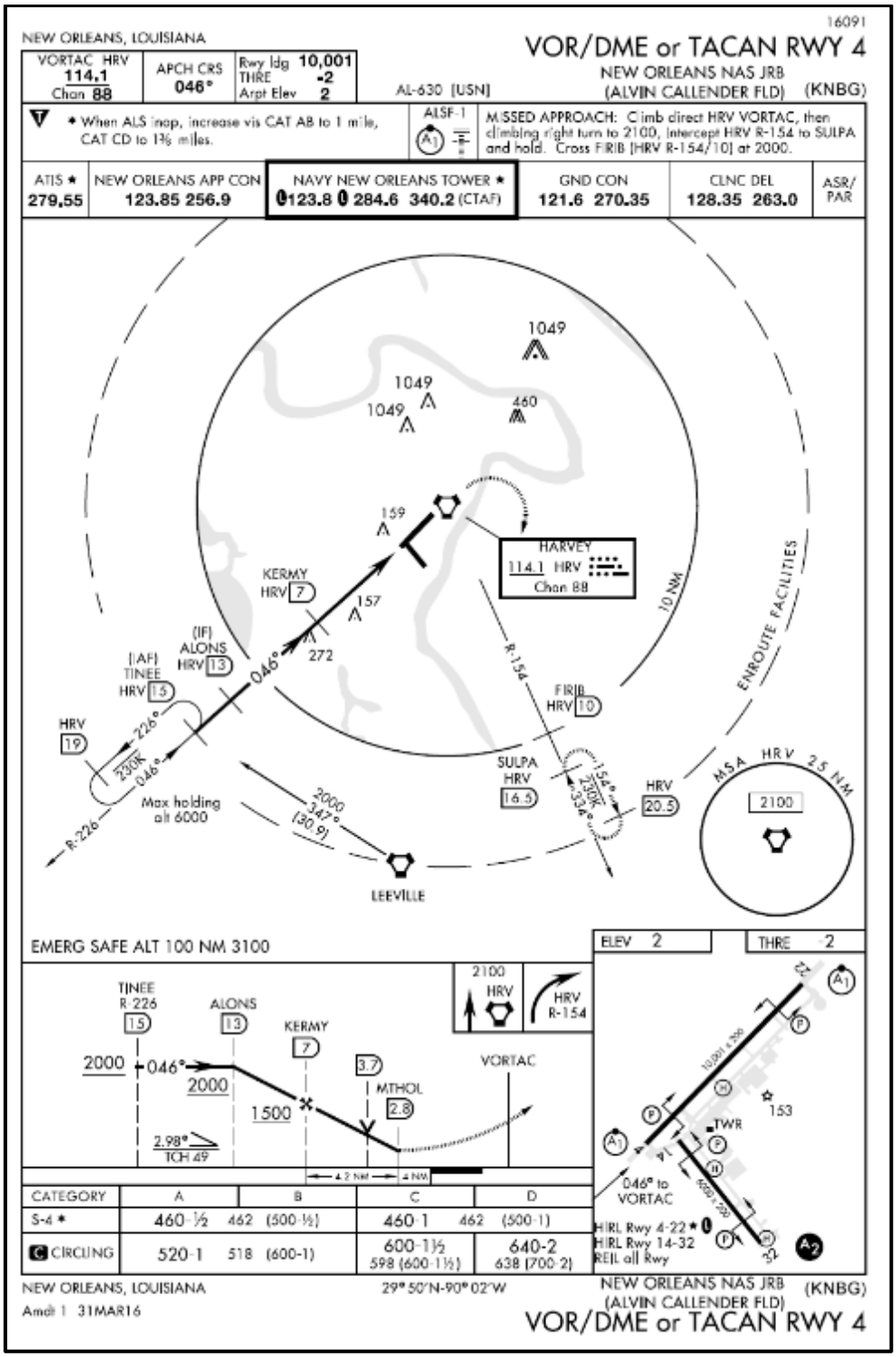


Figure 13-19 KNBG VOR/DME or TACAN RWY 4

1305. STEP 3: EXAMINE ALTERNATE

Understand Alternate general requirements and restrictions contained in CNAF, NATOPS INSTRUMENT FLIGHT MANUAL (NIFM) and the AIM publications.

CNAF: Destination weather for our ETA plus and minus 1 hour is above published minimums but is less than 3000-3. This (CNAF case 2) will require us to file an alternate. In this situation, the weather requirements for an approach at the alternate will have to meet CNAF Alternate requirements ***of Published minimums plus 300-1 for a non-precision approach and Published minimums plus 200-1/2 for a precision approach.*** (See Figure 13-1)

CNAF: 4.4.1.1 DoD Airfield Facilities

Naval aircraft are authorized to operate at and land at all U.S. military and joint civil-military airfields. When planning to operate at other than home airfields, local training airfields, or outlying landing fields (OLFs), pilots in command shall ensure that they are aware of and meet airfield operating requirements and, when necessary, have satisfied prior permission required (PPR) requirements. ***PPRs need not be obtained for planned alternate fields or emergency divert airfields.***

CNAF 4.8.4.3 Alternate Airfield

In the case of single piloted aircraft, radar/airport surveillance approach (PAR/ASR) minimums may not be used as the basis for selection on an alternate airfield (See Figure 13-1)

CNAF 9.3 Aircraft Fuel Purchase

Because the cost of fuel from non-contract commercial sources is considerably higher than that from military or contract sources, unit commanders and PICs shall make every effort to purchase fuel from military or government contract sources. ***Navy and Marine Corps flight personnel are not authorized to purchase aircraft fuel/oil from other than military or government contract sources except when one of the following apply:***

- Mission requirements dictated stopping at a facility without military or contract fuel sources.
- The flight terminated as the result of an emergency.
- ***The flight terminated at an alternate airport in lieu of filed destination***.

While CNAF may not require contract fuel to be available at an alternate, it may be worth checking the ES and selecting one that does.

Determine if Alternate is required. Because weather at our destination is above published minimums but is less than 3,000-3, an alternate is required by CNAF (See Figure 13-1).

ALTERNATE AIRPORTS MUST BE CHECKED FOR THE FOLLOWING ITEMS TO ENSURE IT IS SUITABLE:

1. Check airfield NOTAMS.

2. Check airfield weather (TAF, DD-175-1).

3. Verify NAVAID/Approach availability/compatibility (T HA-LA).

4. Approach Plate Remarks (i.e., ⚠NA issues)

5. Ensure available approach/weather meets CNAF Alternate Requirements. (See Figure 13-1)

6. Record all data on the Flight Planning Matrix.

ALTERNATE 1 KMSY:

Our route will be flown at 16,000 feet. A search of the Terminal High (East) approach plates reveals no high altitude approaches for KMSY.

The Terminal Low Altitude VOL 14 approach plates have several Non-GPS/Radar approaches at KMSY that are compatible with the T-6B.

Forecasted winds favor runway 2 at KMSY (RWY 29 is closed). The approach with the lowest weather requirements to runway 2 is the precision approach portion of the ILS or LOC RWY 2 approach. Published weather mins for ILS (precision approach) are 400-1 ¼. (See Figure 13-21)

To satisfy the CNAF alternate requirements we must increase the published minimums by 200- ½ for ***alternate planning*** when considering a precision approach. Therefore, KMSY must be forecasted to have 600 -1 ¾ plus or minus one hour from our estimated time of arrival to serve as an alternate. Our DD Form 175- shows KMSY forecast to be 2000-1. While the ceiling is much greater than required, the ***visibility is below the required alternate minimums.*** We are unable to file KMSY as an alternate airfield.

Remember to keep track of your research on the flight data matrix. (See Figure 13-20)

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN	HBG	B-290	VOL 14	RNAV 13 (500-1)	NP (500-1)	500-1 310/10	√	LBY1.LBY	√	Must Cir to Land RWY 31
DESTINATION	NBG	B-474	VOL 14	~~ILS RWY 4~~ VOR/DME 4 (600-1)	(600-1)	700-2 310/10	LOC OTS UFN RNAV NA	LBY. RYTHM4	√	TINEE HRV 226/15
ALTERNATE 1	~~MSY~~	~~B-385~~	~~VOL-14~~	~~ILS RWY 2~~ (400-1 ¼)	Precision ~~+200-1/2~~ (600-1 ¾)	~~1200-1~~ 300/10	RWY ~~11/29~~ CLSD	NA FOR	WX (VIS)	

Figure 13-20 Flight Planning Matrix ORIG/DEST/ALT1

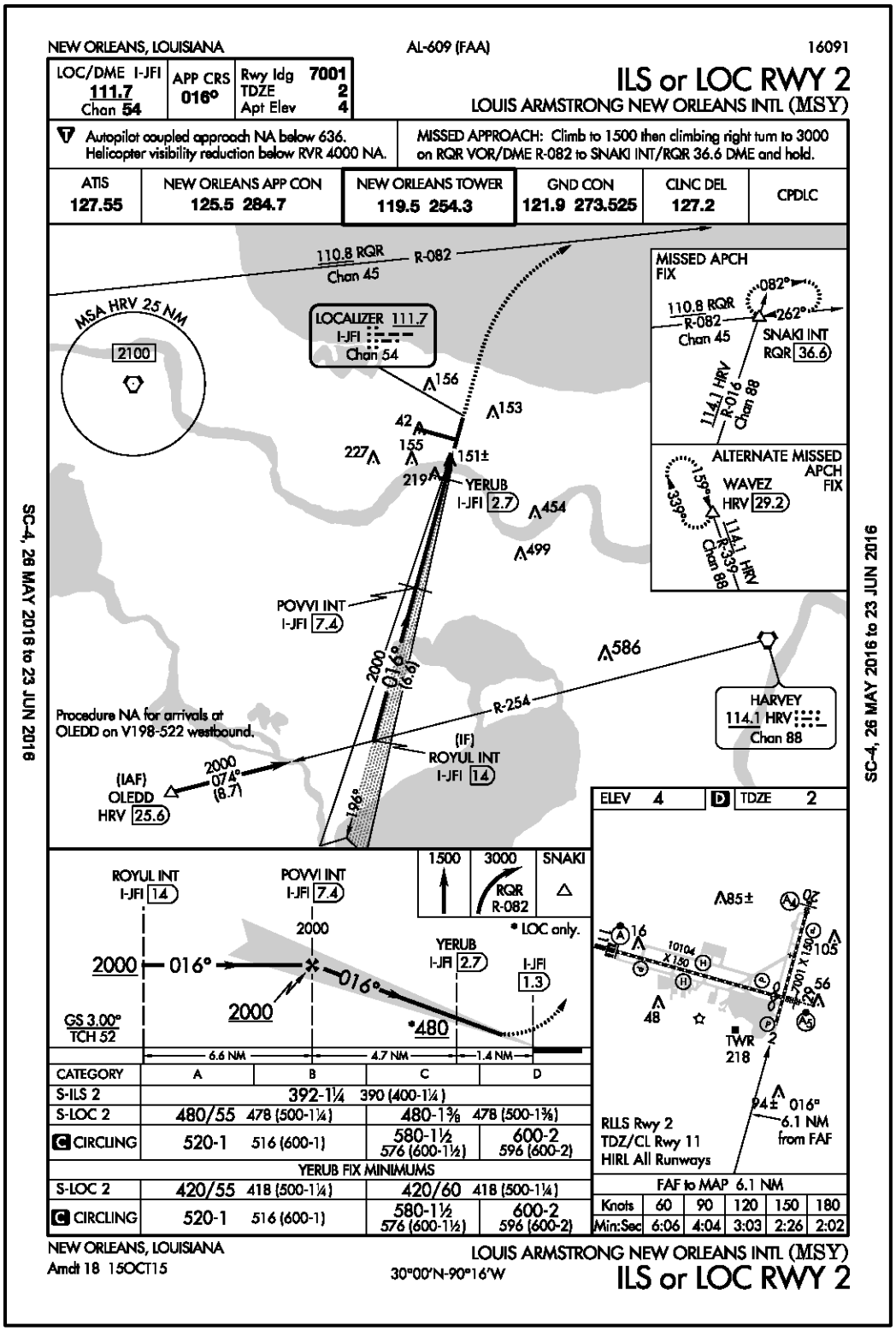


Figure 13-21 KMSY ILS or LOC RWY 2

ALTERNATE 2 KHSA:

A search of the Terminal High (East) approach plates reveals no high altitude approaches for KHSA.

The Terminal Low Altitude VOL 14 approach plates have 2 NON-GPS/RADAR approaches at KHSA compatible with the T-6B. Both are to runway 18.

Forecasted winds favor runway 36 at KHSA. This will require an approach to runway 18 circling to land on runway 36.

The allowable/compatible approach with the lowest circling minimums is the VOR-A. Published weather minimums for this circling approach are 500-1. (See Figure 13-22)

To satisfy the CNAF alternate requirements we must increase the published minimums by 300-1 for alternate planning when considering a non-precision approach. Therefore, KHSA must be forecasted to have 800-2 plus or minus one hour from our estimated time of arrival to serve as an alternate. Our DD Form 175- shows KHSA forecast to be 800-2. We have weather requirements to use KHSA as an alternate airfield however, the Ⓐ must be checked. (See Figure 13-23)

NOTAM for KHSA shows tower closed. KHSA is NA as an alternate.

Remember to keep track of your research on the flight data matrix. (See Figure 13-24)

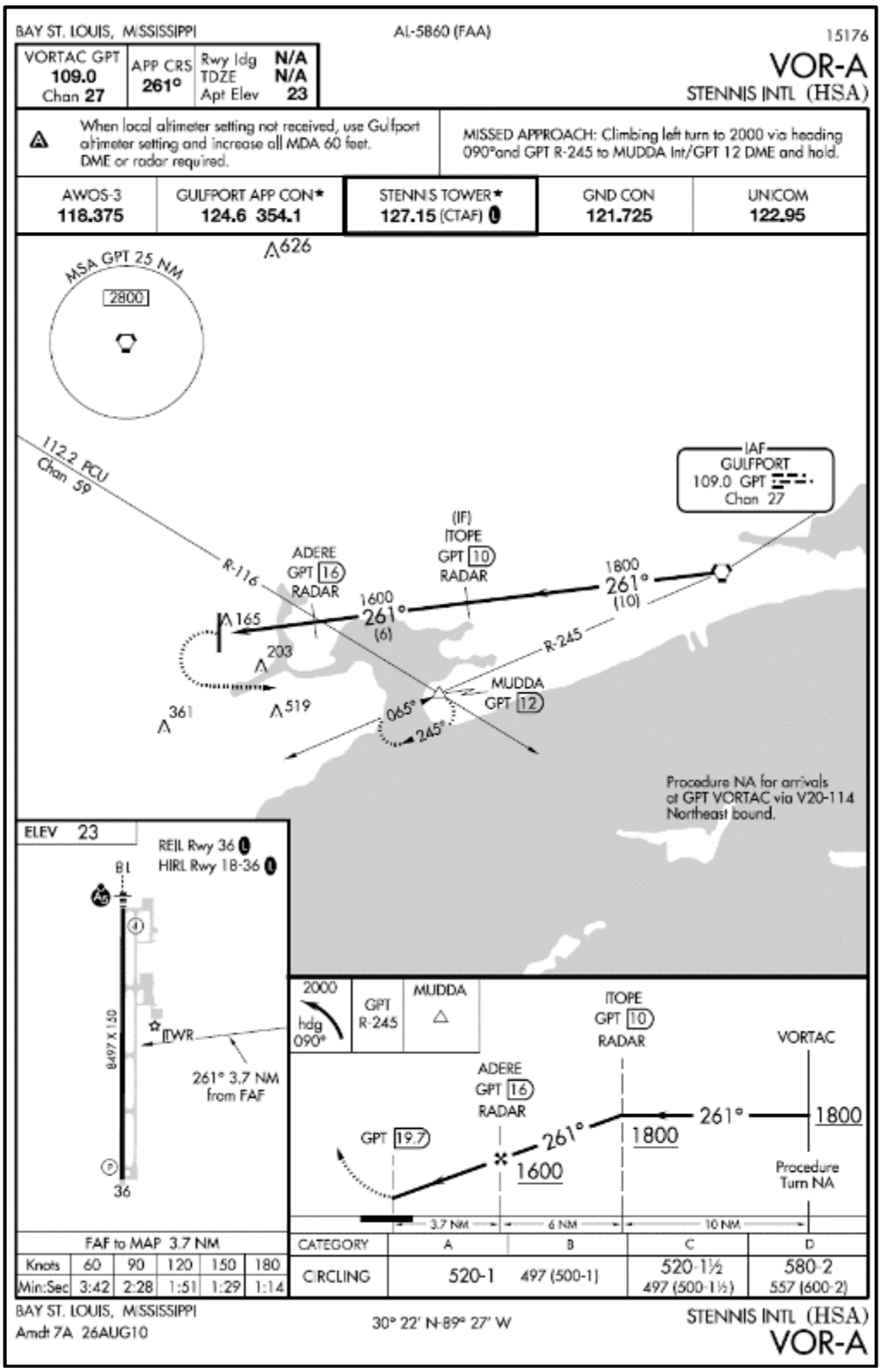


Figure 13-22 KHSA VOR-A

INSTRUMENT APPROACH PROCEDURE CHARTS

IFR ALTERNATE AIRPORT MINIMUMS

Standard alternate minimums for non-precision approaches and approaches with vertical guidance [NDB, VOR, LOC, TACAN, LDA, SDF, VOR/DME, ASR, RNAV (GPS) or RNAV (RNP)] are 800-2. Standard alternate minimums for precision approaches (ILS, PAR, or GLS) are 600-2. Airports within this geographical area that require alternate minimums other than standard or alternate minimums with restrictions are listed below. NA - means alternate minimums are not authorized due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Civil pilots see FAR 91. IFR Alternate Minimums: Ceiling and Visibility Minimums not applicable to USA/USN/USAF. Pilots must review the IFR Alternate Minimums Notes for alternate airfield suitability.

NAME	ALTERNATE MINIMUMS
ABBEVILLE, LA	
ABBEVILLE CHRIS CRUSTA MEMORIAL (IYA)	**RNAV (GPS) Rwy 16** **RNAV (GPS) Rwy 34**
NA when local weather not available.	
ALEXANDRIA, LA	
ALEXANDRIA INTL (AEX)	**ILS or LOC Rwy 14[1]** **RNAV (GPS) Rwy 14[2]** **RNAV (GPS) Rwy 18[2]** **RNAV (GPS) Rwy 32[2]** **RNAV (GPS) Rwy 36[2]** **VOR Rwy 14[2]** **VOR/DME Rwy 32[2]**
[1]LOC, Category D, 800-2½. [2]Category D, 800-2½.	
ESLER RGNL (ESF)	**RNAV (GPS) Rwy 9** **RNAV (GPS) Rwy 27**
NA when local weather not available.	

NAME	ALTERNATE MINIMUMS
BAY ST LOUIS, MS	
STENNIS INTL (HSA)	**LS Y or LOC Y Rwy 18[1]** **ILS Z or LOC Z Rwy 18[1]** **NDB Rwy 18** **RNAV (GPS) Rwy 18** **RNAV (GPS) Rwy 36**
NA when local weather not available. Category D, 800-2½; Category E, 800-2¾. [1]NA when control tower closed.	

Figure 13-23 KHSA IFR Alternate Airport Minimums

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN	HBG	B-290	VOL 14	RNAV 13 (500-1)	NP (500-1)	500-1 310/10	√	LBY1.LBY	√	Must Cir to Land RWY 31
DESTINATION	NBG	B-474	VOL 14	~~ILS RWY 4~~ VOR/DME 4 (600-1)	(600-1)	700-2 310/10	LOC OTS UFN RNAV NA	LBY. RYTHM4	√	TINEE HRV 226/15
ALTERNATE 1	~~MSY~~	~~B-385~~	~~VOL-14~~	~~ILS RWY 2~~ (400-1 ¼)	Precision ~~+200-1/2~~ (600-1 ¾)	~~1200-1~~ 300/10	RWY 11/29 CLSD	NA FOR	WX (VIS)	
ALTERNATE 2	~~HSA~~	~~B-637~~	~~VOL-14~~	~~VOR-A~~ (500-1)	Non Prec. ~~+300-1~~ (800-2)	~~800-2~~ 300/10	√	Trouble A Note 2 NA TWR CLSD	ALT NA	TWR CSD

Figure 13-24 Flight Planning Matrix ORIG/DEST/ALT1/ALT2

Alternate 3 KHUM:

A search of the Terminal High (East) approach plates reveals no high altitude approaches for KHUM.

The Terminal Low Altitude VOL 14 approach plates have 2 NON-GPS/RADAR approaches at KHSA compatible with the T-6B.

Forecasted winds favor runway 30 at KHUM. The VOR/DME RWY 30 has non-precision straight-in minimums of 400-1 (See Figure 13-25).

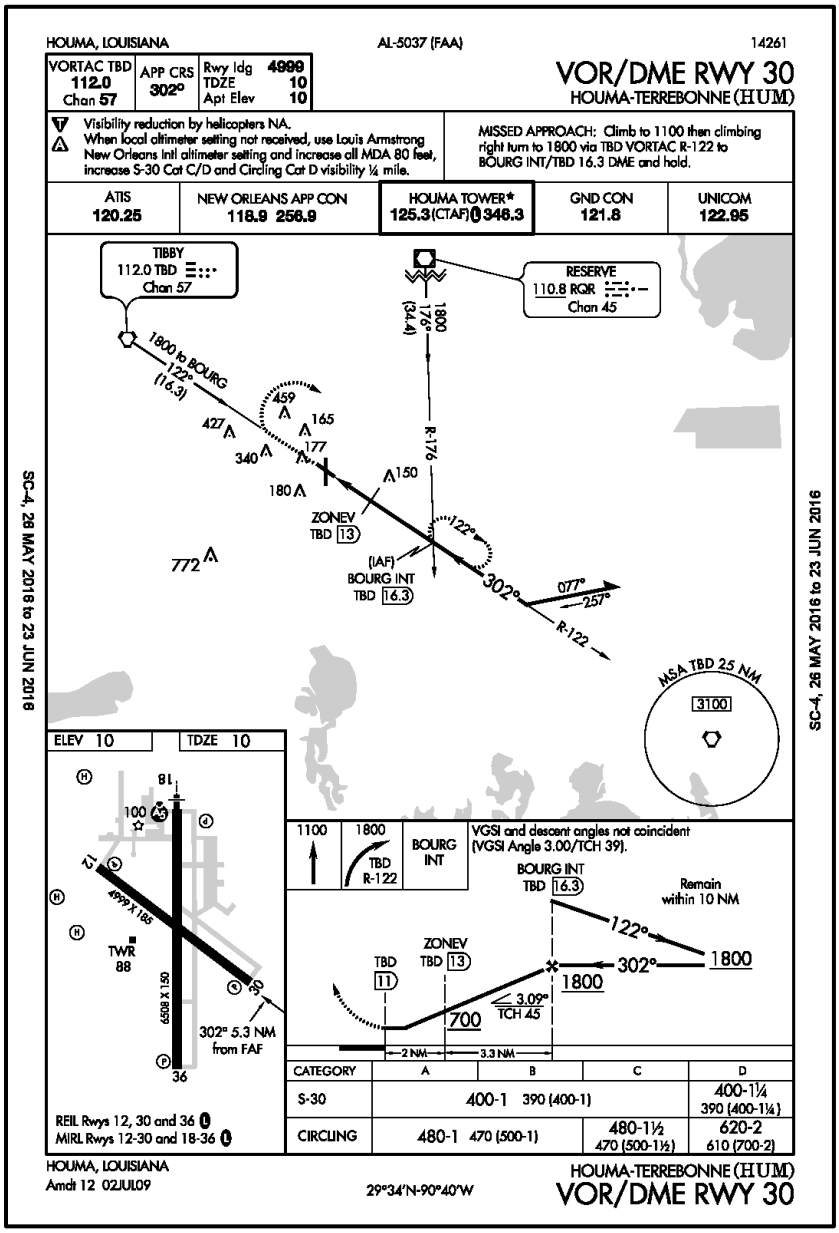
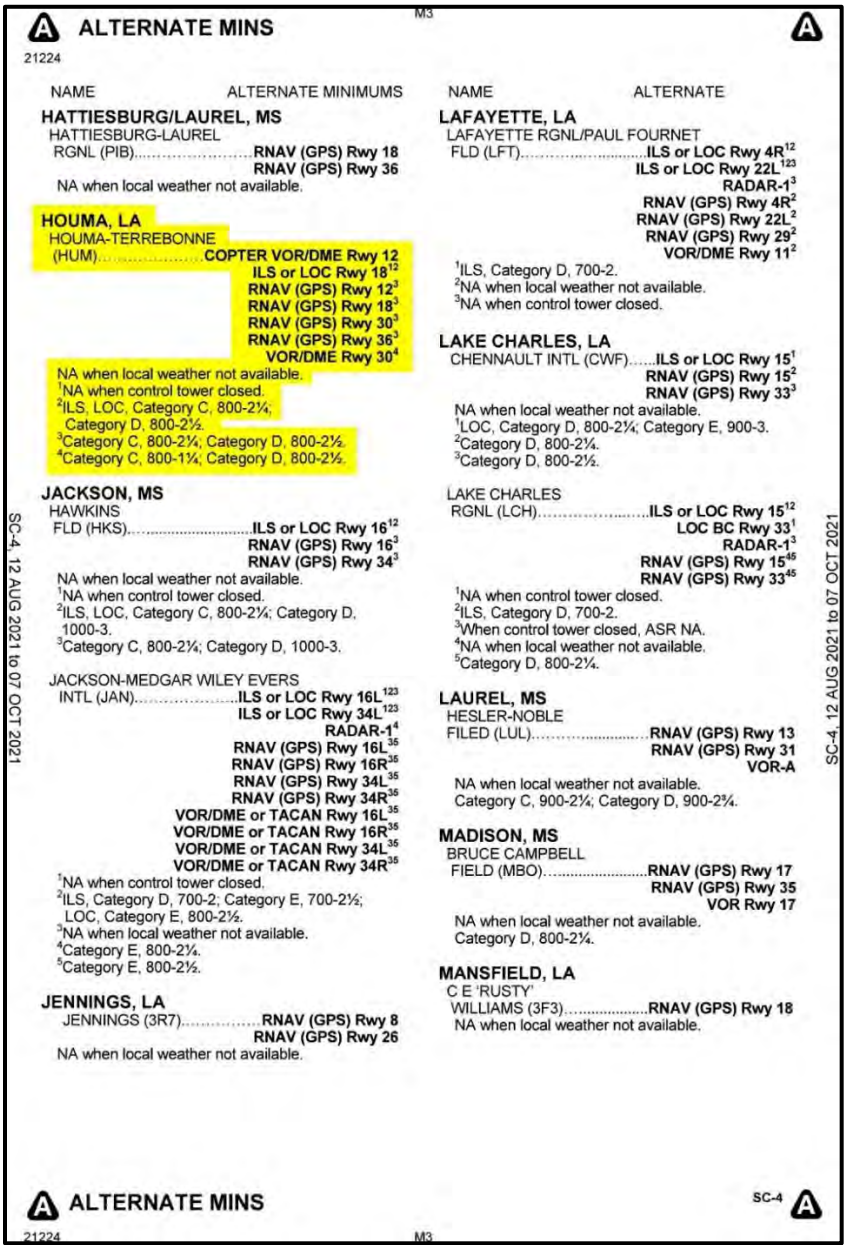


Figure 13-25 KHUM VOR/DME RWY 30

To satisfy the CNAF alternate requirements we must increase the published minimums by 300-1 for alternate planning when considering a non-precision approach. Therefore, KHUM must be forecasted to have 700-2 plus or minus one hour from our estimated time of arrival to serve as an alternate. Our DD Form 175- shows KHUM forecast to be 800-2 1/2. ***We have weather requirements to use KHSA as an alternate.***

A check of NOTAMS and the ⚠ reveal no problems using KHUM as an alternate. (See Figure 13-26)

Keep track of your research on the Planning/Flight Log Matrixes. (See Figure 13-27)



⚠ ALTERNATE MINS

21224

M3

NAME	ALTERNATE MINIMUMS
HATTIESBURG/LAUREL, MS	
HATTIESBURG-LAUREL RGNL (PIB)	**RNAV (GPS) Rwy 18** **RNAV (GPS) Rwy 36**
NA when local weather not available.	
HOUMA, LA	
HOUMA-TERREBONNE (HUM)	**COPTER VOR/DME Rwy 12** **ILS or LOC Rwy 18[12]** **RNAV (GPS) Rwy 12[3]** **RNAV (GPS) Rwy 18[3]** **RNAV (GPS) Rwy 30[3]** **RNAV (GPS) Rwy 36[3]** **VOR/DME Rwy 30[4]**
NA when local weather not available. [1]NA when control tower closed. [2]ILS, LOC, Category C, 800-2¼; Category D, 800-2½. [3]Category C, 800-2¼; Category D, 800-2½. [4]Category C, 800-1¼; Category D, 800-2½.	
JACKSON, MS	
HAWKINS FLD (HKS)	**ILS or LOC Rwy 16[12]** **RNAV (GPS) Rwy 16[3]** **RNAV (GPS) Rwy 34[3]**
NA when local weather not available. [1]NA when control tower closed. [2]ILS, LOC, Category C, 800-2¼; Category D, 1000-3. [3]Category C, 800-2¼; Category D, 1000-3.	
JACKSON-MEDGAR WILEY EVERS INTL (JAN)	**ILS or LOC Rwy 16L[123]** **ILS or LOC Rwy 34L[123]** **RADAR-1[4]** **RNAV (GPS) Rwy 16L[35]** **RNAV (GPS) Rwy 16R[35]** **RNAV (GPS) Rwy 34L[35]** **RNAV (GPS) Rwy 34R[35]** **VOR/DME or TACAN Rwy 16L[35]** **VOR/DME or TACAN Rwy 16R[35]** **VOR/DME or TACAN Rwy 34L[35]** **VOR/DME or TACAN Rwy 34R[35]**
[1]NA when control tower closed. [2]ILS, Category D, 700-2; Category E, 700-2½; LOC, Category E, 800-2½. [3]NA when local weather not available. [4]Category E, 800-2¼. [5]Category E, 800-2½.	
JENNINGS, LA	
JENNINGS (3R7)	**RNAV (GPS) Rwy 8** **RNAV (GPS) Rwy 26**
NA when local weather not available.	

NAME	ALTERNATE
LAFAYETTE, LA	
LAFAYETTE RGNL/PAUL FOURNET FLD (LFT)	**ILS or LOC Rwy 4R[12]** **ILS or LOC Rwy 22L[123]** **RADAR-1[3]** **RNAV (GPS) Rwy 4R[2]** **RNAV (GPS) Rwy 22L[2]** **RNAV (GPS) Rwy 29[2]** **VOR/DME Rwy 11[2]**
[1]ILS, Category D, 700-2. [2]NA when local weather not available. [3]NA when control tower closed.	
LAKE CHARLES, LA	
CHENNAULT INTL (CWF)	**ILS or LOC Rwy 15[1]** **RNAV (GPS) Rwy 15[2]** **RNAV (GPS) Rwy 33[3]**
NA when local weather not available. [1]LOC, Category D, 800-2¼; Category E, 900-3. [2]Category D, 800-2¼. [3]Category D, 800-2½.	
LAKE CHARLES RGNL (LCH)	**ILS or LOC Rwy 15[12]** **LOC BC Rwy 33[1]** **RADAR-1[3]** **RNAV (GPS) Rwy 15[45]** **RNAV (GPS) Rwy 33[45]**
[1]NA when control tower closed. [2]ILS, Category D, 700-2. [3]When control tower closed, ASR NA. [4]NA when local weather not available. [5]Category D, 800-2¼.	
LAUREL, MS	
HESLER-NOBLE FILED (LUL)	**RNAV (GPS) Rwy 13** **RNAV (GPS) Rwy 31** **VOR-A**
NA when local weather not available. Category C, 900-2¼; Category D, 900-2¼.	
MADISON, MS	
BRUCE CAMPBELL FIELD (MBO)	**RNAV (GPS) Rwy 17** **RNAV (GPS) Rwy 35** **VOR Rwy 17**
NA when local weather not available. Category D, 800-2¼.	
MANSFIELD, LA	
C E 'RUSTY' WILLIAMS (3F3)	**RNAV (GPS) Rwy 18**
NA when local weather not available.	

SC-4, 12 AUG 2021 to 07 OCT 2021

SC-4, 12 AUG 2021 to 07 OCT 2021

⚠ ALTERNATE MINS

21224

M3

SC-4

Figure 13-26 KHUM IFR Alternate Airport Minimums

AIRPORT DATA MATRIX						
CHECKLIST	ORIGIN		DESTINATION		ALTERNATE	
	WX	MINS	WX	MINS	WX	MINS
	500-1 310/10	500-1	700-2 310/10	600-1	800-2 ½ 310/20	700-2
AIRFIELD NOTAMS			LOC OTS UFN GPS UNRELIABLE NO RADAR APP.			
ENROUTE NOTAMS						
GPS NOTAMS						
HOURS	DAYLIGHT HOURS		0700L – 2300L MON-SAT		0600L – 1900L	
SERVICE/FUEL	Southeast Aviation		J-8 0730L – 2230L		A (No Contract)	
HAZARDS			ARR GEAR IN BATT 1500' FROM THRE		Bird hazard	
RWY/ARR.GEAR/ BARRIER	13/31 6,049 X 150		4/22 10,001 X 200 BI-DIR GEAR		12/30 4,999 X 185	
▼ ⚠NA	TROUBLE T COVERED BY SID					
APPROACH			VOR/DME RWY 4 VOL 14 PG 337		VOR/DME RWY 30 VOL 14 PG	
SID/STAR	EATON ONE DEP VOL. 14 PG 182		RYTHM FOUR ARRIVAL PG. 660			
LOCAL OPS			PPR, RWY 4/22 DEP NO TURN TIL 2000', 1500' BK 1000' PAT			

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ⚠NA	NAVAIDS	OTHER
ORIGIN	HBG	B-290	VOL 14	RNAV 13 (500-1)	NP (500-1)	500-1 310/10	√	LBY1.LBY	√	Must Cir to Land RWY 31
DESTINATION	NBG	B-474	VOL 14	~~ILS RWY 4~~ VOR/DME 4 (600-1)	(600-1)	700-2 310/10	LOC OTS UFN RNAV NA	LBY. RYTHM4	√	TINEE HRV 226/15
ALTERNATE 1	~~MSY~~	~~B-385~~	~~VOL-14~~	~~ILS RWY 2~~ (400-1 ¼)	Precision ~~+200-1/2~~ (600-1 ¾)	~~1200-1~~ 300/10	RWY ~~11/29~~ CLSD	NA FOR	WX (VIS)	
ALTERNATE 2	~~HSA~~	~~B-637~~	~~VOL-14~~	~~VOR-A~~ (500-1)	Non Prec. ~~+300-1~~ (800-2)	~~800-2~~ 300/10	√	Trouble A Note 2 NA TWR CLSD	ALT NA	TWR CSD
ALTERNATE 3	HUM	B-308	VOL-14	VOR/DME RWY 30 400-1	Non Prec. +300-1 (700-2 1/2)	800-2 1/2 310/20	Increase vis mins by ½ mile	√	√	GOOD ALT!

Figure 13-27 Planning/Flight Log Matrixes ORIG/DEST/Viable ALT

1306. STEP 4: RECORD AIRFIELD DATA

Using the IFR Enroute Supplement or Approach Plates record the airfield elevation and available communication frequencies for the Origin, Destination and Alternate airports on the Flight Log. (See Figure 13-28)

KHBG – KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV	CLNC DEL	GND CONT	TOWER
KHBG 151			UNICOM 122.8
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
135.425			

CLEARANCE

DEST KNBG	APCCONT	TOWER	GND
ELEV 2	256.9	340.2	CONT 270.35

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES

ALTERNATE			FUEL	TIME
KHUM				
ALT ELEV	**APC CONT**	**TOWER**	**GND CONT**	
10	256.9	346.3	121.8	

Figure 13-28 Flight Log Elevation/Frequency Entries

1307. STEP 5: DETERMINE CLIMB DATA

1. Record Wind and Temperature data for Climb and Cruise on the Flight Log.

Using the DD-175-1 obtain and record the following data onto the Flight Log:
(See Figure 13-29)

a. Climb Winds

b. Cruise Winds

c. ΔT (for the Climb)

d. OAT (for cruise altitude)

KHBG - KNBG	FLIGHT LOG		16,000 MSL
DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS	LBS PH
CLEARANCE			
			CLIMB 300/20
			CRUISE 320/35
			ΔT +20 -15

Figure 13-29 Flight Log Climb/Cruise Winds/Temps

2. Determine raw Time/Fuel and Distance to Climb

Using the TIME, FUEL, AND DISTANCE TO CLIMB table from the NATOPS PCL determine the Time to Climb (TTC), Fuel needed for the climb and Distance covered during the Climb.

This table is calculated based on; no drag (clean configuration), no wind, Climb IAS 140 KTS, 6,900 LBS, and Max Climb Power. On the table, find the intended cruise altitude on the left. Then under the appropriate Temperature Deviation from Standard (ΔT), extract the Time, Fuel and Distance raw data. (See Figure 13-30)

At 16,000 feet, with a ΔT of +20°C the TTC will be 8 minutes, require 78 LBS of fuel and cover a no wind distance of 23 NM.

Record this data on the Flight Log. (See Figure 13-31)

TO 1T-6B-1CL-1
NAVAIR A1-T6BAA-FCL-100

TIME, FUEL AND DISTANCE TO CLIMB

GEAR AND FLAPS RETRACTED
NO WIND
NDICATED CLIMB SPEED - 140 KNOTS
START CLIMB WEIGHT - 6900 LB
MAX CLIMB POWER
FOR OPERATION WITH DEFOG ON, FACTOR FUEL BY 1.6, TIME BY 1.85, AND DISTANCE BY 1.88

DRAG INDEX = 0

ALTITUDE (FT)	TIME - MIN OAT - °C				FUEL - LBS OAT - °C				DIST - NM OAT - °C			
	STD -20	STD	STD +10	STD +20	STD -20	STD	STD +10	STD +20	STD -20	STD	STD +10	STD +20
31,000	15	19	24		133	152	179		44	60	81	
30,000	14	17	21		127	142	164		41	54	70	
29,000	13	16	20		122	136	155		38	50	64	
28,000	12	15	18		116	129	146		36	46	59	
27,000	12	14	17		111	122	137		33	42	53	
26,000	11	13	15		106	116	128		31	38	47	
25,000	10	12	14	18	101	109	119	150	28	34	41	57
24,000	10	11	13	17	97	104	113	135	27	32	38	52
23,000	9	10	12	15	93	99	107	126	25	30	36	47
22,000	9	10	11	14	89	94	101	118	24	28	33	43
21,000	8	9	10	13	84	89	95	110	22	25	30	38
20,000	8	8	9	12	80	84	89	102	20	23	27	34
19,000	7	8	9	11	76	79	84	96	19	22	25	31
18,000	7	7	8	10	72	75	79	90	18	20	23	29
17,000	7	7	8	9	69	71	75	84	17	18	21	26
16,000	6	6	7	8	65	66	70	78	16	17	19	23
15,000	6	6	6	7	61	62	65	71	14	15	17	21
14,000	5	5	6	7	57	58	60	66	13	14	15	19
13,000	5	5	5	6	53	54	56	61	12	13	14	17
12,000	5	5	5	6	49	50	51	56	11	12	13	15
11,000	4	4	4	5	45	46	47	51	10	11	11	13
10,000	4	4	4	4	41	42	42	46	9	10	10	12
9,000	3	3	3	4	37	38	38	41	8	9	9	10
8,000	3	3	3	3	33	34	34	36	7	8	8	9
7,000	3	3	3	3	29	29	30	32	6	7	7	8
6,000	2	2	2	3	25	25	26	27	5	6	6	6
5,000	2	2	2	2	21	21	21	22	4	5	5	5
4000	1	1	1	2	17	17	17	18	3	4	4	4
3000	1	1	1	1	13	13	13	13	3	3	3	3
2000	1	1	1	1	8	8	9	9	2	2	2	2

NOTES:
. For Drag Index = 20 (Gear Down, Flaps UP), factor time by 2.14, fuel by 2 and
istance by 2.23; Climb to altitudes above 15,000 feet may not be possible.
. For Drag Index = 80 (Gear Down, Flaps LDG), factor time by 2.66, fuel by 1.95
nd distance by 2.17; Climb to altitudes above 15,000 feet may not be possible.
. Defog On operation not recommended for configurations other then Drag Index = 0.

Figure 13-30 Time, Fuel, and Distance to Climb Table

KHBG - KNBG	FLIGHT LOG		16,000 MSL
DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS	LBS PH
CLEARANCE			
TTC 8 MIN			CLIMB 300/20
FUEL 78 LBS			CRUISE 320/35
DISTANCE 23			ΔT +20 -15

Figure 13-31 Flight Log Raw Climb Data

3. Compute the average Climb TAS and CLIMB Fuel Flow using the CR-3

   a. Determine average Climb TAS. A no-wind distance of 23 NM will be covered in 8 minutes. On the CR-3:

      i. Set the 8 minute TTC on the inner scale under the no-wind CLIMB distance of 23 NM on the outer scale.

      ii. Above the Indexer read the average Climb TAS of 173 KTS (See Figure 13-32)

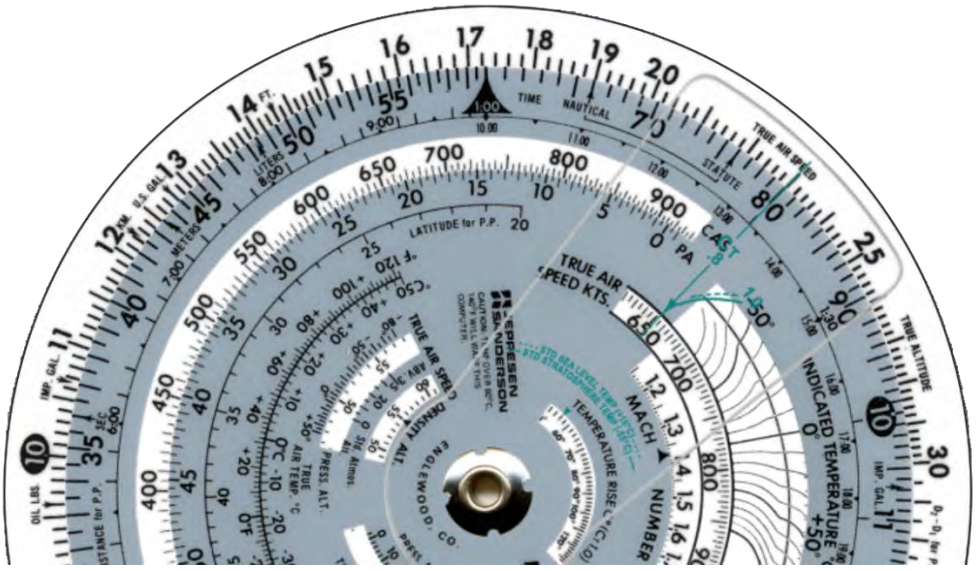


Figure 13-32 CR-3 Climb TAS

b. Determine average Climb Fuel Flow. 78 pounds of fuel will be expended during the 8 minute climb. On the CR-3:

i. Set the 8 minute TTC on the inner scale under the 78 LBS of fuel used on the outer scale

ii. Above the Indexer read the average Climb Fuel Flow of 585 pounds per hour (See Figure 13-33)

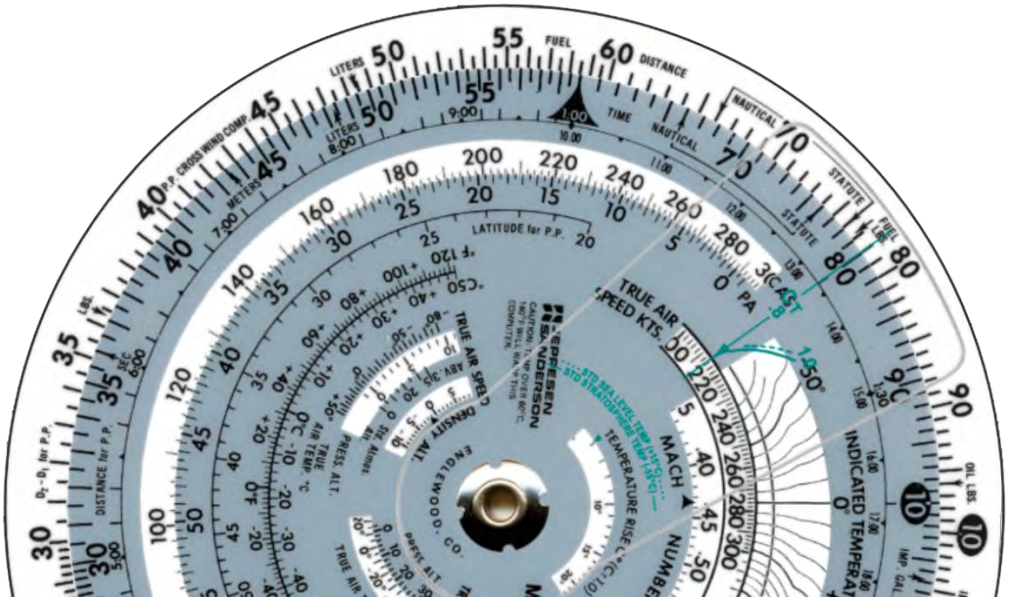


Figure 13-33 CR-3 Climb Fuel Flow

c. Record CLIMB TAS and Fuel Flow on the Flight Log. (See Figure 13-34)

KHBG - KNBG	FLIGHT LOG		16,000 MSL
DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173	LBS PH CLIMB 585
CLEARANCE			
TTC 8 MIN			CLIMB 300/20
FUEL 78 LBS			CRUISE 320/35
DISTANCE 23			ΔT +20 -15
DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

Figure 13-34 Flight Log Climb TAS/Fuel Flow

1308. STEP 6: DETERMINE CRUISE DATA

1. ***Use the NATOPS PCL Long Range Cruise Table to extract IAS, TAS and Fuel flow for the planned Cruise altitude.*** (See Figure 13-35)

While this table does not provide data for every possible altitude and temperature combination, interpolating between the 15,000 feet and 20,000 feet data at -15°C OAT we can estimate a ***Cruise TAS of 245 KTS***, ***Cruise Fuel Flow of 387 PPH*** and a Cruise IAS of 189 KTS at 16,000 feet.

LONG RANGE CRUISE

DRAG INDEX = 0

GEAR AND FLAPS RETRACTED

ZERO WIND
AVERAGE WEIGHT - 6500 LB

Altitude FEET	OAT °C	IAS KNOTS	TAS KNOTS	FUEL FLOW PPH
SL	35 (STD+20)	239	251	644
	25 (STD+10)	245	252	652
	15 (STD)	246	250	650
	5 (STD-10)	249	248	643
	-5 (STD-20)	246	241	621
5000	25	228	257	571
	15	231	256	572
	5	223	243	534
	-5	227	243	535
	-15	231	242	532
10000	15	204	249	471
	5	202	242	458
	-5	208	244	462
	-15	208	239	448
	-25	206	233	435

WEIGHT EFFECTS:
1. DATA ARE GIVEN FOR 6500 LBS. TO REPRESENT AN AVERAGE CRUISE WEIGHT.
2. MAINTAIN THE IAS FOR ANY OPERATING WEIGHT UNLESS LIMITED BY MAXIMUM CRUISE POWER.
3. VARIATION IN FUEL FLOW DUE TO WEIGHT WILL BE WITHIN ± 5 LB/HR.
4. THE SPECIFIC RANGE WILL DECREASE UP TO 1.5% ABOVE 6500 LBS.; AND INCREASE UP TO 1.5% BELOW 6500 LBS.

DEFOG ON EFFECTS:
FOR OPERATIONS WITH DEFOG ON, SPECIFIC RANGE WILL DECREASE BY 2% AND FUEL FLOW WILL INCREASE UP TO 20 LB/HR.

ZERO WIND
AVERAGE WEIGHT - 6500 LB

Altitude FEET	OAT °C	IAS KNOTS	TAS KNOTS	FUEL FLOW PPH
15000	5	191	252	414
	-5	188	244	398
	-15	189	240	388
	-25	191	238	384
	-35	189	231	371
20000	-5	187	267	391
	-15	188	263	382
	-25	188	258	374
	-35	187	252	363
	-45	190	250	362
25000	-15	170	264	340
	-25	178	272	351
	-35	179	267	345
	-45	176	257	332
	-55	175	251	323
29000	-22	152	251	302
	-32	170	274	327
	-42	171	270	324
	-52	173	266	319
	-62	172	259	311
31000	-26	140	240	281
	-36	160	267	306
	-46	171	279	322
	-56	165	263	302
	-66	170	265	306

PN01D
121255AA.AI_cl

Figure 13-35 PCL Long Range Cruise Table

2. Record CRUISE data on the Flight Log. (See Figure 13-36)

KHBG - KNBG	FLIGHT LOG		16,000 MSL
DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173 CRUISE 245	LBS PH CLIMB 585 CRUISE 387
CLEARANCE			
TTC 8 MIN			CLIMB 300/20
FUEL 78 LBS			CRUISE 320/35
DISTANCE 23			ΔT +20 -15
DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

Figure 13-36 Flight Log Cruise TAS/Fuel Flow

1309. STEP 7: ENTER ROUTE LEG DATA

1. The first Leg entry in the "ROUTE" section of the Flight Log will be for Start, Taxi, and Takeoff (STTO).

This will line is used to account for fuel burned on the ground and time for the initial takeoff roll.

50 pounds of fuel and one minute of timing for this Leg is used as a default for normal operations. Adjust as required for known or expected delays. (See Figure 13-37)

KHBG - KNBG	FLIGHT LOG		16,000 MSL
DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173 CRUISE 245	LBS PH CLIMB 585 CRUISE 387
CLEARANCE			
TTC 8 MIN			CLIMB 300/20
FUEL 78 LBS			CRUISE 320/35
DISTANCE 23			ΔT +20 -15
DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50			

Figure 13-37 Flight Log STTO

2. Enter the "ROUTE TO" for each subsequent leg.

    a. Define each Leg entry as:

        i. Direct to a NAVAID/Waypoint or Intersection or:

        ii. Via an Airway to a NAVAID/Waypoint or Intersection

    b. Create a new leg:

        i. At each NAVAID

        ii. For course changes of greater than six degrees

        iii. At each compulsory reporting point

    c. The SID EATON ONE DEPARTURE, takes us to the EATON VORTAC, from there we intercept V543 RAYOP intersection (mirroring the route depicted in the RHYTHM FOUR ARRIVAL). We expect to do the VOR RWY 4 approach utilizing the TINEE as the IAF.

3. Enter the NAVAID and Frequency data as required for each leg.

Under the IDENT/CHAN, list the NAVAID three letter identifiers and frequencies needed to navigate each leg.

Even when navigating with GPS waypoints, list back up NAVAIDS where possible.

4. Enter the course/distance for each leg.

Round distances off to the nearest whole number for each calculation (.5 or greater rounds up).

Changeover points can be annotated with split courses (optional)

The first course/distance from the departure airfield may be found on an approach plate for that airfield, the IFR enroute supplement or measured directly off the appropriate Enroute Chart.

A course/distance from EATON VORTAC to KHBG can be found in the NAVAID SECTION OF THE IFR Enroute Supplement (150°/10.2 NM). The reciprocal of this course will be a course direct from KHBG to LBY (330°/10.2 NM). (See Figure 13-38)

The courses and distances for the next few legs can be read from the low altitude chart since we are flying along airways. They can also be taken from the STAR "RHYTHM 4 ARRIVAL." (See Figure 13-16)

The last Leg is Direct from RAYOP to TINEE (IAF). TINEE is not located on the Enroute chart. It will need to be plotted onto the Enroute chart using data from the approach plate. Then course and distance can be measured using the Enroute Chart. The KNBG VOR/DME or TACAN RWY 4 approach shows TINEE located on the HRV 226° R at 15 NM (See Figure 13-19).

Route to the alternate will be planned from the last fix at the destination prior to the approach (usually an IAF) then via a planned route to the alternate airport (IAF, NAVAID, first point of intended landing, or published fix which most clearly establishes the route of flight to the alternate airport). For our example from TINEE we will use direct to the TIBBY VORTAC (TBD) then direct to BOURG (IAF for KHUM VOR/DME RWY 10).

HATTIESBURG BOBBY L CHAIN MUNI, MS **KHBG** P
N31°15.90' W89°15.17' 151 UTC-6(-5DT) **H-6J, L-21C-22G**
(B) **RWY-13** L1,5,9,50 (6094x150 ASP L1,5,50 **RWY-31**
996→ S48 D68 2S114 2D145)

SERVICE - LGT - ACTIVATE-HIRL Rwy 13-31 and REIL Rwy 13-CTAF. PAPI Rwy 13 - 31 opr cont. **FUEL -** 100LL A; Avbl H24 with credit card.

REMARKS - Opr daylt hr. **RSTD -** Run-on ldg by skid copter not allowed. **RWY -** Rwy grooved.

COMMUNICATIONS - CTAF/UNICOM - 122.8 **ASOS -** 135.425 *REMARKS:* C601-544-2185. **HOUSTON CENTER - (R)** 126.8 327.8 *REMARKS:* (APP/DEP svc)
CLNC DEL - *REMARKS:* Ctc HOUSTON CENTER at C281-230-5622.
FSS-GREENWOOD GWO-NOTAM HBG

NAVAIDS - EATON VORTACW - L 110.600 LBY CH 43 N31°25.12' W89°20.26' 150° 10.2 NM to Fld. 290/(A)5°00.0'E

LBY TACAN unuse	025°-035° byd 10 NM blw 3000' 268°-274° byd 30 NM blw 5000'
LBY VOR unuse	111°-164° byd 10 NM blw 2000' 241°-251°
LBY VORTAC unuse	300°-360° byd 30 NM

Figure 13-38 KHBG NAVAID Data

KHBG - KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173 CRUISE 245	LBS PH CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20
FUEL 78 LBS — CRUISE 320/35
DISTANCE 23 — ΔT +20 -15

DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES
STTO				1		50			
LBY1. LBY	LBY 110.6	346	10						
V543 RYTHM	LBY 110.6	216	69						
V543 RAYOP	MCB 116.7	173	19						
D ➡ TINEE	HRV 114.1	184	32						HRV 226/15

ALTERNATE KHUM	ROUTE TBD BOURG	ALTITUDE 160	FUEL	TIME
ALT ELEV 10	APC CONT 256.9	TOWER 346.3	GND CONT 121.8	

D ➡ TDB	TBD 112.0	268	32						
D ➡ BOURG	TBD 112.0	122	16						

Figure 13-39 Flight Log Completed Through Step 7

1310. STEP 8: IDENTIFY COMPULSORY REPORTING POINTS

Identify/annotate compulsory reporting points for non-radar environment.

While uncommon, loss or radar contact may occur at any time during your flight.

The Flight Information Handbook Section B reiterates that Federal Aviation Regulations require pilots to furnish position reports passing certain reporting points when operating in a non-radar environment. The FIH details procedures for those reports should they become necessary.

Compulsory reporting points:

- are identified on Enroute charts by a filled in triangle at a NAVAID, intersection or waypoint.
- exist at both ends of a direct leg.

A common technique for annotating compulsory reporting points on the Flight Log is to place a mark in the “ROUTE TO" column for any Leg that would constitute a mandatory reporting point in the event a non-radar environment is encountered.

Along our selected route the Enroute chart has no NAVAIDS, intersections, or waypoints depicted as compulsory reporting points; however, the legs from RAYOP to TINEEE and TBD to BOURG are direct. Therefore, all four intersections would become compulsory reporting points should a non-radar environment exist.

1311. STEP 9: COMPUTE GROUNDSPEED (GS)

1. Determine CLIMB Groundspeed**(s)** (no-wind average TAS adjusted for climb winds). On the CR-3 plot the ***Climb Winds*** of 300/20 ***True*** from the DD-175-1. (See Figure 13-40)

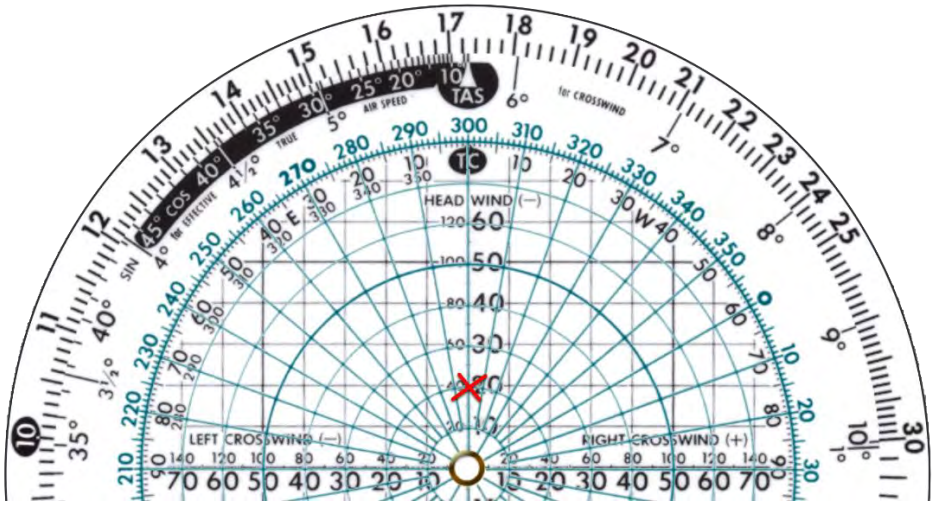


Figure 13-40 CR-3 Plot Climb Winds

When using True Winds to calculate groundspeed based on magnetic courses, local magnetic variation must be applied.

Magnetic variation is annotated on the Enroute Charts by a solid green line. This can be used to obtain an average variation along North-South routes. East-West routes may require that different variations be applied for each leg. Exact magnetic variation is depicted on Airport Diagrams for selected airports in the approach plates.

On the Enroute Chart our selected route lies very near the 1°W line of magnetic variation. The Airport Diagram for our destination depicts magnetic variation at the airport to be 0.7°W (See Figure 13-41). We will use 1°W variation for our calculations.

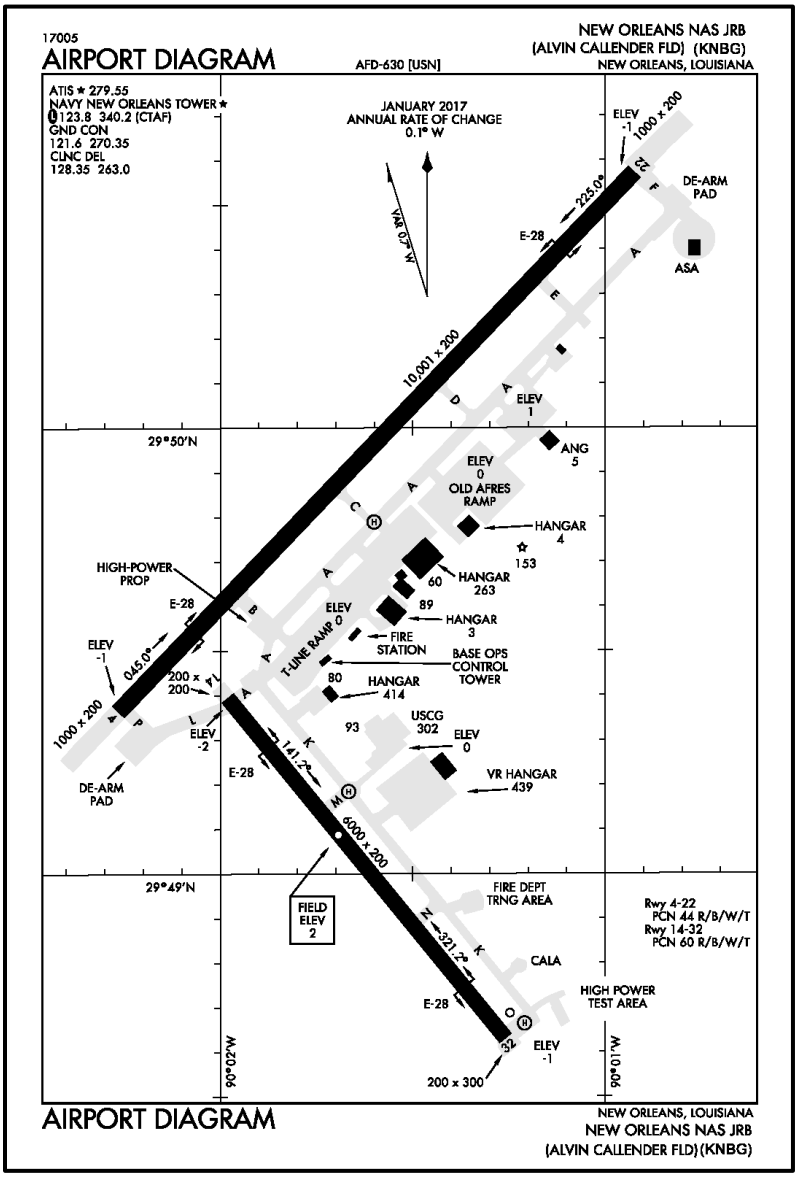


Figure 13-41 KNBG Airport Diagram

– On the CR-3:

i. Place the first (magnetic) Leg course used for the climb (346°) under the 1°W variation mark just right of the TC indexer (See Figure 13-42).

ii. Interpreting the wind plot we read a 14 knot headwind.

iii. Our no-wind average climb TAS of 173 knots less the 14 knot headwind results in a ***Climb groundspeed of 158 knots for the first leg.***

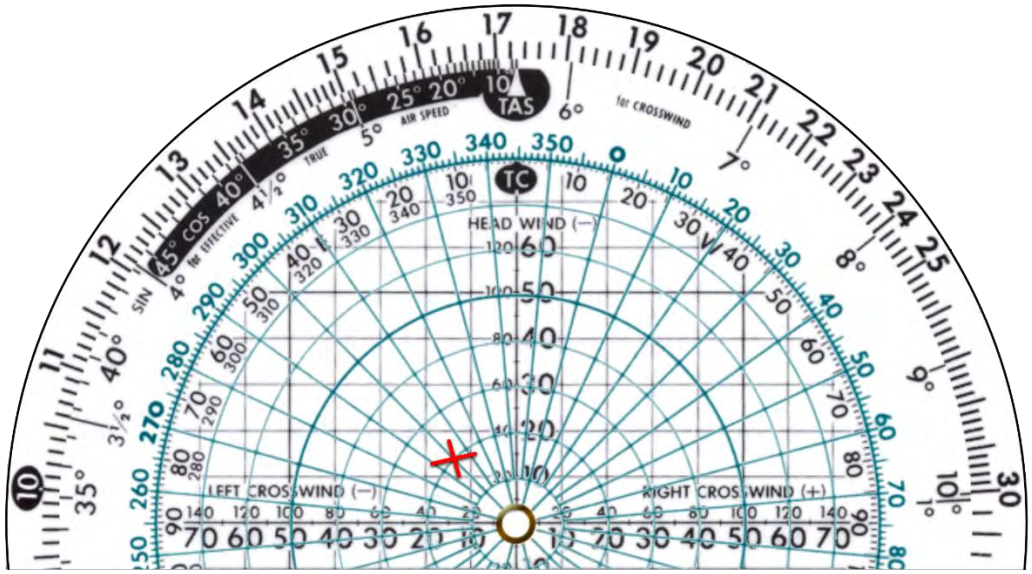


Figure 13-42 CR-3 Climb Groundspeed Calculation

Due to the length of the next Leg we will need to have a double entry. For the first portion of this Leg we will be continuing our climb up to 16,000 feet.

Repeating the procedure noted above using a magnetic course of 216° with a 1°W variation with the same winds results in a 2 knot *headwind* ***and 170 groundspeed for the remainder of the climb on the second leg.***

2. Determine Cruise Groundspeed

– On the CR-3:

i. Plot the ***Cruise Winds*** 320/35 True from the DD-175-1.

ii. Place the Leg 2 course of 216° under the 1°W variation.

iii. Interpret the wind plot and note a 9 knot tailwind **a**dded to our CRUISE TAS of 245 knots results in a ***Cruise groundspeed of 254 knots for the remainder of the second Leg to RYTHM.*** (See Figure 13-43)

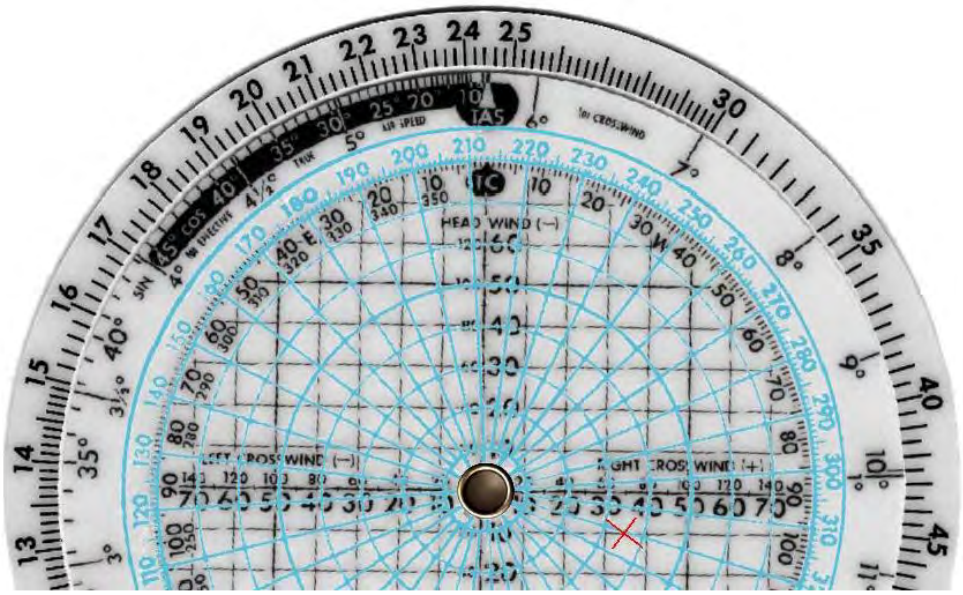


Figure 13-43 CR-3 Cruise Groundspeed

3. Repeat this process for the remainder of the cruise legs (including those to the Alternate). Record the groundspeeds for each Leg on the Flight log in the GS column. (See Figure 13-44)

KHBG - KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV	CLNC DEL	GND CONT	TOWER
KHBG 151			UNICOM 122.8
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
135.425		CLIMB 173 CRUISE 245	CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV	APC CONT	TOWER	GND CONT
KNBG 2	256.9	340.2	270.35

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50			
LBY1. LBY	LBY 110.6	346	10					158	
V543 RYTHM	LBY 110.6	216	11/58 69					170 254	
V543 RAYOP	MCB 116.7	173	19					275	
D ➡ TINEE	HRV 114.1	184	32					271	HRV 226/15

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
KHUM	TBD BOURG	160		
ALT ELEV	**APC CONT**	**TOWER**	**GND CONT**	
10	256.9	346.3	121.8	

D ➡ TDB	TBD 112.0	268	32					224	
D ➡ BOURG	TBD 112.0	122	16					274	

Figure 13-44 Flight Log Groundspeeds

1312. STEP 10: CALCULATE LEG ETE/FUEL

Rounding guidelines:

- Distances/Times: to the nearest whole number for each calculation (.5 or greater rounds up).
- Fuel: Any fraction over a 5 pound increment, rounds up to the next 5 pound increment. Example: 42 lbs rounds up to 45 pounds.

1. Determine Leg ETEs**.**

The Total Time to Climb (TTC) of 8 minutes is taken directly from the PCL. The PCL climb distance is based on no-wind and should be corrected for actual groundspeed. Determining the corrected Climb DIST will fix the point where calculations stop using Climb groundspeed/fuel flow data and begin using Cruise groundspeed/fuel flow data.

Leg 1 Climb DIST/ETE

TTC to 16,000 feet is given as 8 minutes. Leg 1 DIST to EATON VORTAC is 10 NM. Place Leg 1 Climb groundspeed of ***158 knots*** on the CR-3 indexer.

Under the Leg 1 DIST of ***10 NM*** read approximately 3.8 minutes. ***Rounded to the nearest minute*** we will use ***4 minutes*** for Leg 1 ETE. EATON VORTAC will be reached in 4 minutes. The remaining 4 minutes of TTC will be completed on Leg 2. (See Figure 13-45)

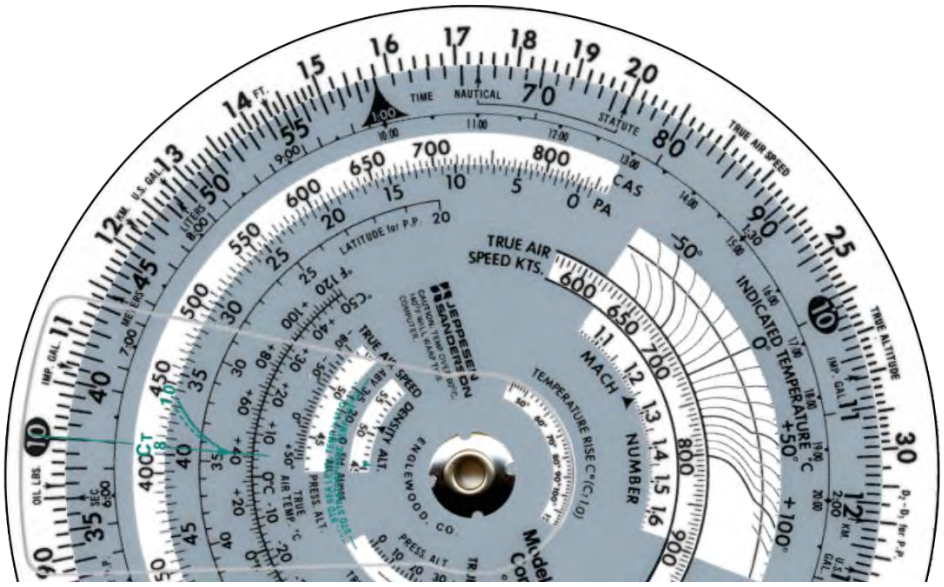


Figure 13-45 CR-3 Climb Time Leg 1

Leg 2 Climb DIST/ETE

- Place Leg 2 Climb groundspeed of ***170 knots*** on the indexer.
- Locate ***4 minutes*** (remaining TTC) on the inner scale.
- Read remaining Leg 2 Climb distance of approximately 11.3 NM on the outer scale (rounded to the nearest mile, we will use ***11 NM***). (See Figure 13-46)

With 11 NM of Leg 2 is used for Climb, the remaining 58 NM of Leg 2 will be accomplished at Cruise. ***The Leg 2 DIST*** *entry will show this split as* ***11/58*** *along with the combined sum of* ***69****.*

Leg 2 ETE will also be a split entry with the Climb ETE of 4 minutes and the remaining Leg 2 Cruise ETE which will be computed using cruise groundspeed.

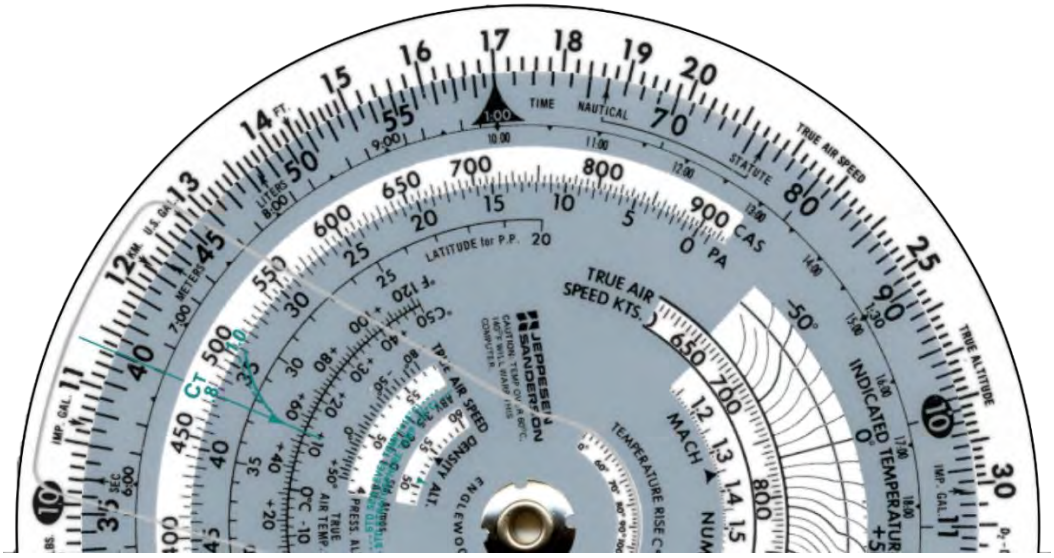


Figure 13-46 CR-3 Climb Distance Leg 2

Leg 2 Cruise ETE

- Place the Leg 2 Cruise groundspeed of ***254 knots*** on the indexer
- Find the remaining Leg 2 DIST of ***58 NM*** on the outer scale
- Read the time it will take to complete Leg 2 on the inner scale. For 13.7 minutes rounded to the nearest minute, we will use ***14 minutes*** as the time to complete the remaining portion of Leg 2. (See Figure 13-47)

Total Leg 2 ETE can now be determined by adding the Leg 2 Climb ETE of 4 minutes with the Leg 2 Cruise ETE of 14 minutes for a total Leg 2 ETE of 18 minutes.

The ***Leg 2 ETE*** entry will show this split as ***4/14*** along with the combined sum of ***18***.

Remaining Leg ETEs

Compute the remaining Leg ETEs (including the alternate Legs) using the corresponding Leg DIST and Leg Cruise groundspeeds.

Total the DISTs from takeoff through the last entry for the destination and enter the sum below the last DIST entry in the top portion of the Flight Log.

Total the ETEs from takeoff through the last entry for the destination and enter the sum in an hrs + min format below the last ETE entry in the top portion of the Flight Log.

Total the DISTs for the Alternate route (from the last fix at the destination to the last fix at the alternate prior to the approach). Enter the sum below the last DIST entry in the bottom portion of the Flight Log.

Total the ETEs for the Alternate route (from the last fix at the destination to the last fix at the Alternate prior to the approach). Enter the sum in an hrs + min format below the last ETE entry in the bottom portion of the Flight Log.

Figure 13-48 shows the Flight log completed through Step 10.

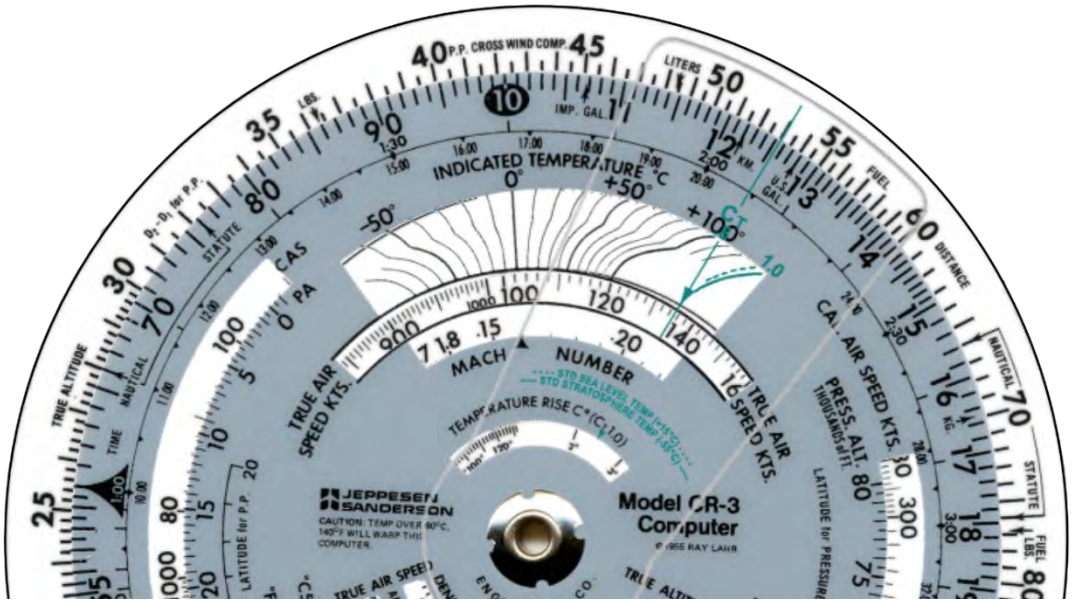


Figure 13-47 CR-3 Cruise Time Leg 2

KHBG - KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV	CLNC DEL	GND CONT	TOWER
KHBG 151			UNICOM 122.8
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
135.425		CLIMB 173 CRUISE 245	CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV	APC CONT	TOWER	GND CONT
KNBG 2	256.9	340.2	270.35

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50			
LBY1. LBY	LBY 110.6	346	10	4				158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18				170 254	
V543 RAYOP	MCB 116.7	173	19	4				275	
D ➡ TINEE	HRV 114.1	184	32	7				271	HRV 226/15
			130	0+34					

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
KHUM	TBD BOURG	160		
ALT ELEV	**APC CONT**	**TOWER**	**GND CONT**	
10	256.9	346.3	121.8	

D ➡ TDB	TBD 112.0	268	32	9				224	
D ➡ BOURG	TBD 112.0	122	16	4				274	
			48	0+13					

Figure 13-48 Flight Log ETE entries

2. Determine Leg Fuel

With known fuel flow and Leg ETEs fuel usage can now be computed. The first entry for STTO is given at 50 lbs. Keep in mind if you expect delays on the ground you may need to adjust this value (busy/large airports).

Leg 1 Climb Fuel:

- Place the ***Climb*** fuel flow of ***585 PPH*** on the CR-3 indexer.
- Find the Leg 1 ETE of ***4 minutes*** on the inner scale.
- Read the fuel used of 39 pounds on the outer scale (See Figure 13-49).
- Rounding any fraction over a 5 pound increment up to the next 5 pound increment use ***40 pounds as Leg 1 Fuel***. (Because Leg 1 is completed entirely while climbing this will be the total LEG 1 fuel entry.)

Leg 2 Climb Fuel:

- Place the ***Climb*** fuel flow of **585 PPH** on the CR-3 indexer.
- Find the LEG 2 ***Climb*** ETE of **4 minutes** on the inner scale
- Read Climb fuel used of 39 pounds on the outer scale (See Figure 13-49)
- Rounding any fraction over a 5 pound increment up to the next 5 pound increment use ***40 pounds as Leg 2 Climb Fuel***. (Leg 2 Fuel will be split between Climb and Cruise. Enter 40/ for Leg 2 Climb Fuel)

Leg 2 Cruise Fuel:

- Place the ***cruise*** fuel flow of ***387 PPH*** on the CR-3 Indexer
- Find the remaining Leg 2 Cruise ETE of ***14 minutes*** on the inner scale
- Read ***Cruise*** fuel used of 90 pounds on the outer scale (See Figure 13-50)
- No rounding is needed in this case. Enter ***90 pounds as the split Cruise Fuel*** for Leg2.
- Leg 2 Fuel will show 40 pounds used for Climb Fuel and 90 lbs for Cruise Fuel. ***This split fuel 40/90 and the combined total of 130, is entered on the Flight Log as Leg2 Fuel.***

For remaining Leg Fuels:

Repeat the computations for ***all*** remaining Legs (including legs to the Alternate) using ***Cruise*** Fuel Low of 387 PPH and the Leg ETEs.

Total all fuel estimated from STTO to the last destination Fix. Annotate it the Leg Fuel column in the upper portion of the Flight Log.

Total all Alternate Leg fuels. Annotate it the Leg Fuel column in the lower portion of the Flight Log.

Make entries on the Flight Log. (See Figure 13-51)

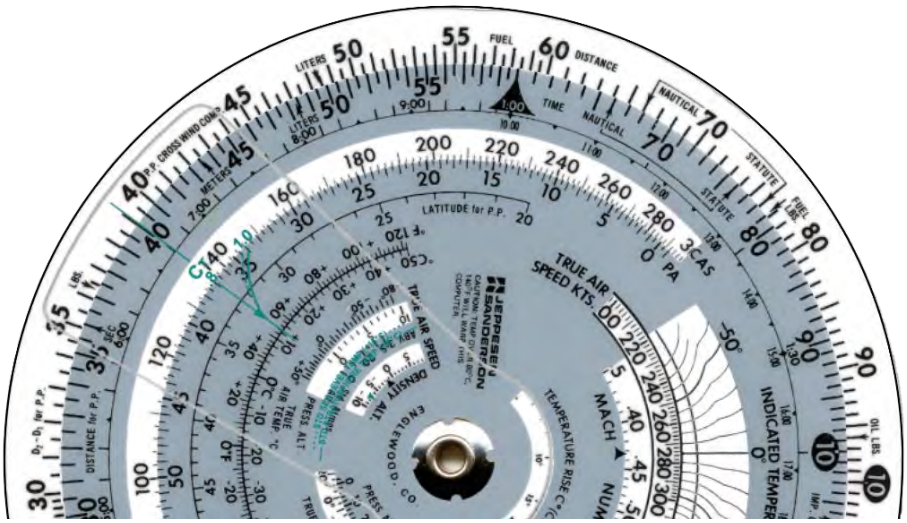


Figure 13-49 Climb Fuel Computation

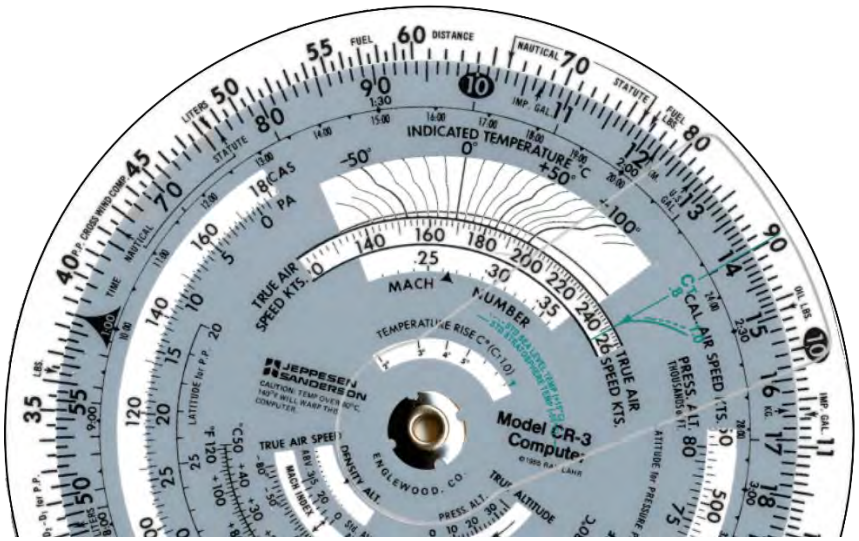


Figure 13-50 Leg 2 Cruise Fuel Computation

KHBG - KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173 CRUISE 245	LBS PH CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES
STTO				1		50	1050		
LBY1. LBY	LBY 110.6	346	10	4		40	1010	158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18		40/90 130	880	170 254	
V543 RAYOP	MCB 116.7	173	19	4		30	850	275	
D ➡ TINEE	HRV 114.1	184	32	7		45	805	271	HRV 226/15
			130	0+34		295			

ALTERNATE KHUM	ROUTE TBD BOURG	ALTITUDE 160	FUEL	TIME
ALT ELEV 10	APC CONT 256.9	TOWER 346.3	GND CONT 121.8	

D ➡ TDB	TBD 112.0	268	32	9		60			
D ➡ BOURG	TBD 112.0	122	16	4		30			
			48	0+13		90			

Figure 13-51 Flight Log Leg Fuel Step 10 Complete

1313. STEP 11: CALCULATE LEG EFR

Keeping track of fuel usage is vital to ensure a successful mission. Calculating EFR (Estimated Fuel Remaining) for each leg of the flight will serve as an important benchmark to evaluate fuel usage.

During the flight, having AFR (Actual Fuel Remaining) exceed EFR for each Leg would be a welcome situation; however, if AFR is less than EFR the end of a Leg the aircrew should begin an immediate investigation for the cause.

When AFR comes up short of EFR possible causes are:

- Less fuel onboard at takeoff than planned
- Higher Fuel Flow in Climb and/or Cruise than planned
- Slower Groundspeed than planned
- Bad math on the plan
- Fuel leak

The sooner a reason for increased fuel usage is determined, the more options the aircrew will have. Waiting until the low fuel lights come on is not the time to start considering fuel options. Monitoring fuel usage is a key part of the OPS Check. The EFR column on a properly completed Flight Log is a tremendous aid for situational awareness.

1. Verify aircraft fuel load

A normal fuel load for the T-6B is 1100 lbs when using single point refueling. An additional 100 lbs can be added using over the wing refueling. Never assume the ground crew took care of it for you. Check the fuel gauges! For our problem we will use 1100 lbs as our initial fuel load.

2. Subtract the 50 lbs fuel for STTO from the total fuel onboard and enter the result in the EFR block for the STTO line.

3. Subtract fuel for Leg 1 from the EFR from the line above it and enter the difference in the EFR block for Leg 1.

4. Repeat this process for all remaining Legs (including the alternate Legs).

Figure 13-52 shows the Flight Log completed through Step 11.

KHBG - KNBG **FLIGHT LOG** 16,000 MSL

DEP ELEV	CLNC DEL	GND CONT	TOWER
KHBG 151			UNICOM 122.8
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
135.425		CLIMB 173 CRUISE 245	CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV	APC CONT	TOWER	GND CONT
KNBG 2	256.9	340.2	270.35

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES
STTO				1		50	1050		
LBY1. LBY	LBY 110.6	346	10	4		40	1010	158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18		40/90 130	880	170 254	
V543 RAYOP	MCB 116.7	173	19	4		30	850	275	
D ➡ TINEE	HRV 114.1	184	32	7		45	805	271	HRV 226/15
			130	0+34		295			

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
KHUM	TBD BOURG	160		
ALT ELEV	**APC CONT**	**TOWER**	**GND CONT**	
10	256.9	346.3	121.8	

D ➡ TDB	TBD 112.0	268	32	9		60	745		
D ➡ BOURG	TBD 112.0	122	16	4		30	715		
			48	0+13		90			

Figure 13-52 Flight Log EFR Step 11 Complete

1314. STEP 12: CALCULATE FUEL REMAINING HRS + MIN AT DEST

This step will estimate the amount of flight time available in Hours + Minutes after reaching the last fix prior to the approach at the intended destination.

This computation will be made using the EFR at the last fix prior to the approach at the destination and the planned Cruise Fuel Flow.

– On the CR-3: (See Figure 13-53)

a. Set Cruise Fuel Flow of ***387 PPH*** on the indexer

b. Locate EFR at destination (***805***) in pounds on the outer scale

c. Read remaining flight time available of ***125 minutes*** on the inner scale below 805 lbs

d. Record fuel remaining in Hrs + Min format (***2+05***) in the FUEL column of the Alternate line on the Flight Log (See Figure 13-54)

On the DD Form 1801 Flight Plan, item 19 Endurance Fuel will represent the total flight time possible (in Hrs + Min) based on your flight profile.

It is the sum of the ETEs used from takeoff to the last fix at the destination prior to the approach plus the Fuel remaining at that point.

For our profile, that would be 0+34 plus 2+05 for a total fuel onboard of 2+39.

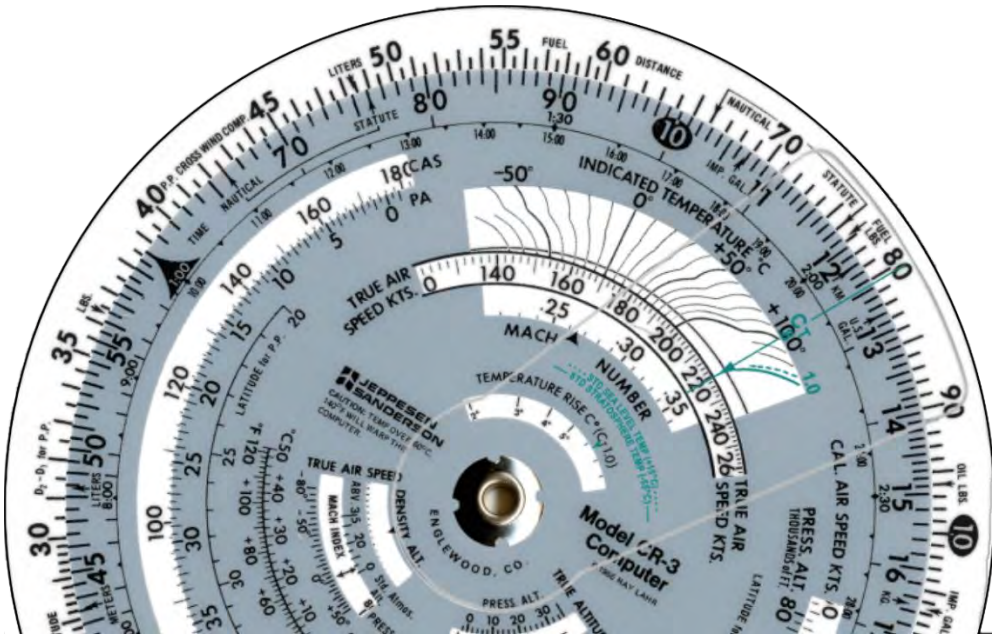


Figure 13-53 CR-3 Fuel Remaining (Hrs + Min) at Destination

KHBG - KNBG FLIGHT LOG 16,000 MSL

DEP ELEV	CLNC DEL	GND CONT	TOWER
KHBG 151			UNICOM 122.8
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
135.425		CLIMB 173 CRUISE 245	CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV	APC CONT	TOWER	GND CONT
KNBG 2	256.9	340.2	270.35

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50	1050		
LBY1. LBY	LBY 110.6	346	10	4		40	1010	158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18		40/90 130	880	170 254	
V543 RAYOP	MCB 116.7	173	19	4		30	850	275	
D ➡ TINEE	HRV 114.1	184	32	7		45	805	271	HRV 226/15
			130	0+34		295			

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
KHUM	TBD BOURG	160	2+05	
ALT ELEV	**APC CONT**	**TOWER**	**GND CONT**	
10	256.9	346.3	121.8	

D ➡ TDB	TBD 112.0	268	32	9		60	745		
D ➡ BOURG	TBD 112.0	122	16	4		30	715		
			48	0+13		90			

Figure 13-54 Flight Log Fuel Remaining Step 12 Complete

1315. STEP 13: COMPLETE DRAFT REPORT DATA

DRAFT is a mnemonic that can be used for the report made to Air Traffic Control when requesting clearance to an alternate airport.

D – Destination (Name of the Alternate Airport)

R – Route of Flight (to the Alternate Airport)

A – Altitude (to be used enroute to the Alternate)

F – Fuel (Total Fuel Remaining onboard in Hrs + Min)

T – Time (ETE to the Alternate)

Once we complete the Time block on the Alternate line, we will have all data needed should such a report be required.

1. Compute the Time required from the Destination to the Alternate Airport.

Total the ETEs from the last fix at the Destination to the last fix at the Alternate. We have already totaled these numbers and annotated it in the bottom portion of the Flight Log. In our example it is 0+13.

2. Enter the ETE in the Time block on the Alternate line of the Flight Log. In our example the Time entry will be 0+13. (See Figure 13-55)

Upon arrival at our destination, if weather or circumstances will not permit an approach, we could request clearance to our alternate by reading the information from the Alternate Line on the Flight Log:

“Navy 2E095 request clearance to my Alternate; HOUMA TERREBONNE, via direct TIBBY direct BOURG at 16 thousand, Fuel 2+05, Time 0+13”

KHBG - KNBG **FLIGHT LOG** **16,000 MSL**

DEP ELEV KHBG 151	CLNC DEL	GND CONT	TOWER UNICOM 122.8
ALT CORR 135.425	TIME OFF	TAS CLIMB 173 CRUISE 245	LBS PH CLIMB 585 CRUISE 387

CLEARANCE

TTC 8 MIN — CLIMB 300/20

FUEL 78 LBS — CRUISE 320/35

DISTANCE 23 — ΔT +20 -15

DEST ELEV KNBG 2	APC CONT 256.9	TOWER 340.2	GND CONT 270.35

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50	1050		
LBY1. LBY	LBY 110.6	346	10	4		40	1010	158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18		40/90 130	880	170 254	
V543 RAYOP	MCB 116.7	173	19	4		30	850	275	
D ➡ TINEE	HRV 114.1	184	32	7		45	805	271	HRV 226/15
			130	0+34		295			

ALTERNATE KHUM	ROUTE TBD BOURG	ALTITUDE 160	FUEL 2+05	TIME 0+13
ALT ELEV 10	APC CONT 256.9	TOWER 346.3	GND CONT 121.8	

D ➡ TDB	TBD 112.0	268	32	9		60	745	224	
D ➡ BOURG	TBD 112.0	122	16	4		30	715	274	
			48	0+13		90			

Figure 13-55 Flight Log Time to Alternate Step 13 Complete

1316. STEP 14: COMPLETE FUEL PLAN

CNAF requires that all fuel needed for the mission be accounted for along with an adequate reserve. The Fuel Plan on the Flight Log is used to accomplish this requirement. (See Figure 13-56)

T-6B FUEL PLAN (Pounds of Fuel)				
1. CLIMB/ROUTE TO DEST			6. START/TAXI	
2. ROUTE TO ALTERNATE			7. TOTAL REQUIRED (4,5,6)	
3. APPROACHES			8. TOTAL FUEL ABOARD	
4. TOTAL 1,,2,3			9. SPARE FUEL	
5. RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)				

Figure 13-56 Flight Log Fuel Plan

The majority of this data has already been computed and recorded on the Flight Log. This section is used to compile fuel requirements.

1. Climb/Route To DEST

This entry reflects total fuel used ***after*** STTO to the last Fix at the destination prior to the approach. ***245 lbs*** for our example (we will add the fuel for STTO in block 6).

2. Route To Alternate

This entry will be the total fuel used from the last Fix at our destination to the last fix at our Alternate prior to the approach. ***90 lbs*** for our example

3. Approaches

The total amount of fuel for planned approaches. **50 *lbs*** per approach is the normal. We are only planning for one approach in our example. Additional planned practice approaches should be included here.

4. Total 1,2,3

Add the planned fuel from items 1, 2, and 3. For our example; 245+90+50=***385***

5. Reserve 10% of 4 (minimum 20 minutes @ max endurance 10,000 feet)

   a. This entry represents fuel that should set aside for safety. This fuel should not "Planned to be used."

   b. CNAF requires that this should be 10% for the total fuel on line 4. This would be 38.5 lbs in our case. Rounded up the value would be 40 lbs; however, CNAF further states that this value ***shall*** never be less than enough fuel to fly for 20 minutes at 10,000 feet computed using the aircrafts Maximum Endurance fuel flow.

   c. The NATOPS PCL "Maximum Endurance Cruise" table (See Figure 13-57) shows fuel flow at 10,000 feet on a standard day to be 333 PPH. Divided by three, the 20 minute value would be 111 lbs. Using our fuel rounding rule this will be ***115 lbs***.

   d. This number may be further increased if required to comply with Local SOP requirements.

MAXIMUM ENDURANCE CRUISE

NO WIND
AVEREAGE WEIGHT: 6200 LB

		DRAG INDEX = 0 FLAPS UP GEAR UP		DRAG INDEX = 20 FLAPS UP GEAR DOWN		DRAG INDEX = 80 FLAPS LDG GEAR DOWN	
		125 KIAS		125 KIAS		125 KIAS	
ALTITUDE (FT)	AIR TEMP °C	TAS KNOTS	FUEL FLOW (PPH)	TAS KNOTS	FUEL FLOW (PPH)	TAS KNOTS	FUEL FLOW (PPH)
SL	-5 (STD-20)	122	414	122	450	122	532
	5 (STD-10)	125	413	125	453	125	542
	15 (STD)	127	412	127	458	127	553
	25 (STD+10)	129	413	129	466	129	564
	35 (STD+20)	131	423	131	478	131	575
5,000	-15	131	363	131	398	131	478
	-5	134	369	134	407	134	491
	5 (STD)	136	370	136	416	136	504
	15	139	374	139	425	139	516
	25	141	382	141	434	141	529
10,000	-25	142	322	142	355	142	454
	-15	144	325	144	363	144	465
	-5 (STD)	147	333	147	375	147	480
	5	150	339	150	383		
	15	153	347	153	390		
15,000	-35	153	284	153	325		
	-25	156	286	156	331		
	-15 (STD)	159	292	159	338		
	-5	162	306	162	345		
	5	165	313	165	351		
20,000	-45	166	263	Altitudes above 15,000 feet may not be possible in configurations other than clean.			
	-35	169	268				
	-25 (STD)	173	274				
	-15	176	280				
	-5	179	290				
25,000	-55	180	248				
	-45	184	253				
	-35 (STD)	188	259				
	-25	192	265				
	-15	195	271				
31,000	-66	200	237				
	-56	204	243				
	-46 (STD)	209	249				
	-36	214	255				
	-26	218	261				

NOTES:
1. FUEL FLOW IS GIVEN FOR AN AVERAGE WEIGHT OF 6200 LB. INCREASE FUEL FLOW BY 1.8% FOR EACH 200 LB. OF WEIGHT ABOVE 6200 LB. DECREASE FUEL FLOW BY 1.8% FOR EACH 200 LB WEIGHT BELOW 6200 LB.
2. TAS IS VALID FOR ALL WEIGHTS.
3. FOR OPERATION WITH DEFOG ON, FACTOR FUEL FLOW BY 1.2.

Figure 13-57 NATOPS PCL Max Endurance Cruise

6. Start/Taxi

Here we enter the fuel estimated for start, taxi, and initial takeoff roll. Remember that while we use a default of ***50 lbs*** for the T-6B more may be needed where extended ground time is expected.

7. Total Required (4,5,6)

This line represents all fuel expected to be expended for the mission profile. Adding lines 4, 5 and 6 together we have ***550 lbs*** for our example.

8. Total Fuel Aboard

Maximum with SPR (Single Point Refueling) is 1100 Lbs. This may be increased to 1200 Lbs if over the wing refueling is employed. For our example we are using ***1100 lbs***.

9. Spare Fuel

This is the Line 8 Total Fuel Aboard minus Line 7 Total Fuel Required, ***550 lbs*** in our example.

Knowing how much spare fuel is available will aid the decision making process during mission execution should un-forecasted weather or other circumstances occur.

Record all results on the T-6B Fuel Plan portion of the Flight Log. (See Figure 13-58)

T-6B FUEL PLAN (Pounds of Fuel)					
1.	CLIMB/ROUTE TO DEST	245	6.	START/TAXI	50
2.	ROUTE TO ALTERNATE	90	7.	TOTAL REQUIRED (4,5,6)	550
3.	APPROACHES	50	8.	TOTAL FUEL ABOARD	1100
4.	TOTAL 1,,2,3	385	9.	SPARE FUEL	550
5.	RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)	115			

Figure 13-58 Flight Log Fuel Plan (Completed)

1317. CHAPTER THIRTEEN REVIEW QUESTIONS

1. For a pilot holding a Standard Instrument rating, CNAF requires the weather for departure airfield allow for an emergency return to the landing runway in use. ***Takeoff*** weather must meet published minimums for the approach in use but never less than _____ for a precision approach or less than _____ for a non-precision approach.

2. CNAF Absolute minimums for a single piloted fixed-wing aircraft when actually ***executing*** an Instrument Approach Procedure _____.

3. In the case of a single-piloted aircraft, _____ approach minimums may not be used as the basis for selection of an alternate airfield.

4. The NIFM (NATOPS Instrument Flight Manual) allows the use of GPS approaches for the bases of alternate airport selection. (TRUE or FALSE)

5. In the US, daylight saving time (DT) is in effect from _____ to _____.

6. Commercial airports where into-plane fuel contracts are in place, (DOD approved) the name of the refueling agent are found at _____.

7. NATOPS Climb Performance Data is based on a climb at _____ KIAS.

8. When rounding for fuel calculations any fraction over a ____ pound increment, rounds _____.

9. STTO fuel of 50 lbs is used for normal situation but should be adjusted if extended ground delays are expected. (TRUE/FALSE)

10. Distance and time calculations should be rounded to the _____.

11. The PCL climb distance is based on no-wind and should be corrected for actual groundspeed. Determining the corrected Climb DIST will fix the point where calculations stop using _____ groundspeed/fuel flow data and begin using _____ groundspeed/fuel flow data.

12. An EFR calculated for each leg on the Flight Log allows the pilot to check fuel usage during the flight. Should AFR be lower than EFR at a given checkpoint, possible cause include; _____,
_____,
_____, _____or
_____.

13. CNAF fuel RESERVE requirements are _____% of the fuel required for Climb/Route To Destination plus Route To Alternate plus Approaches, but will never be less than enough for _____ minutes of flight time computed at _____ fuel flow at _____ feet. This reserve does not include addition reserves that may be required to meet local SOP requirements.

CHAPTER FOURTEEN
FLIGHT PLANS

1400. INTRODUCTION

The purpose of an IFR flight plan is to communicate the pilot's desires to Air Traffic Control. A VFR flight plan enables search and rescue agencies to identify overdue aircraft and to know where to look for it. (This information, while required for IFR clearances may also aid IFR aircraft when outside of radar control and/or in lost communication situations.)

CNAF 4.6 SUBMISSION OF THE FLIGHT PLAN

"Except when a daily flight schedule is used in lieu of a flight plan form, the pilots in command/formation leaders *shall* submit a flight plan for their flight (including remote filing via the FWB system)."

AIM "Pilots should ***file IFR flight plans at least 30 minutes prior to estimated time of departure*** to preclude possible delay in receiving a departure clearance from ATC."

In order to provide FAA traffic management units strategic route planning capabilities, nonscheduled operators conducting ***IFR operations above FL 230 are requested to voluntarily file IFR flight plans at least 4 hours prior to estimated time of departure (ETD).*** To minimize your delay in entering Class B, Class C, Class D, and Class E surface areas at destination when IFR weather conditions exist or are forecast at that airport, an IFR flight plan should be filed before departure. Otherwise, a 30 minute delay is not unusual in receiving an ATC clearance because of time spent in processing flight plan data.

Chapter Four of the FLIP General Planning (GP) has block by block instructions for completion of the DD Form 1801 (DoD Flight Plan).

The Aeronautical Information Manual (AIM) has block by block instructions for the FAA FORM 7233-4 (International Flight Plan). This form may be used in lieu of DD Form 1801 when departing installations not having a military airfield management/base operations facility.

1401. DD FORM 1801 (DoD FLIGHT PLAN)

DD Form 1801 is used for both domestic and international flights.

FLIP GP Chapter Four describes all items required to be completed by the pilot.
(See Figure 14-1)

Using the sample problem from Chapter Thirteen, the following example will cover each of the items that require pilot action.

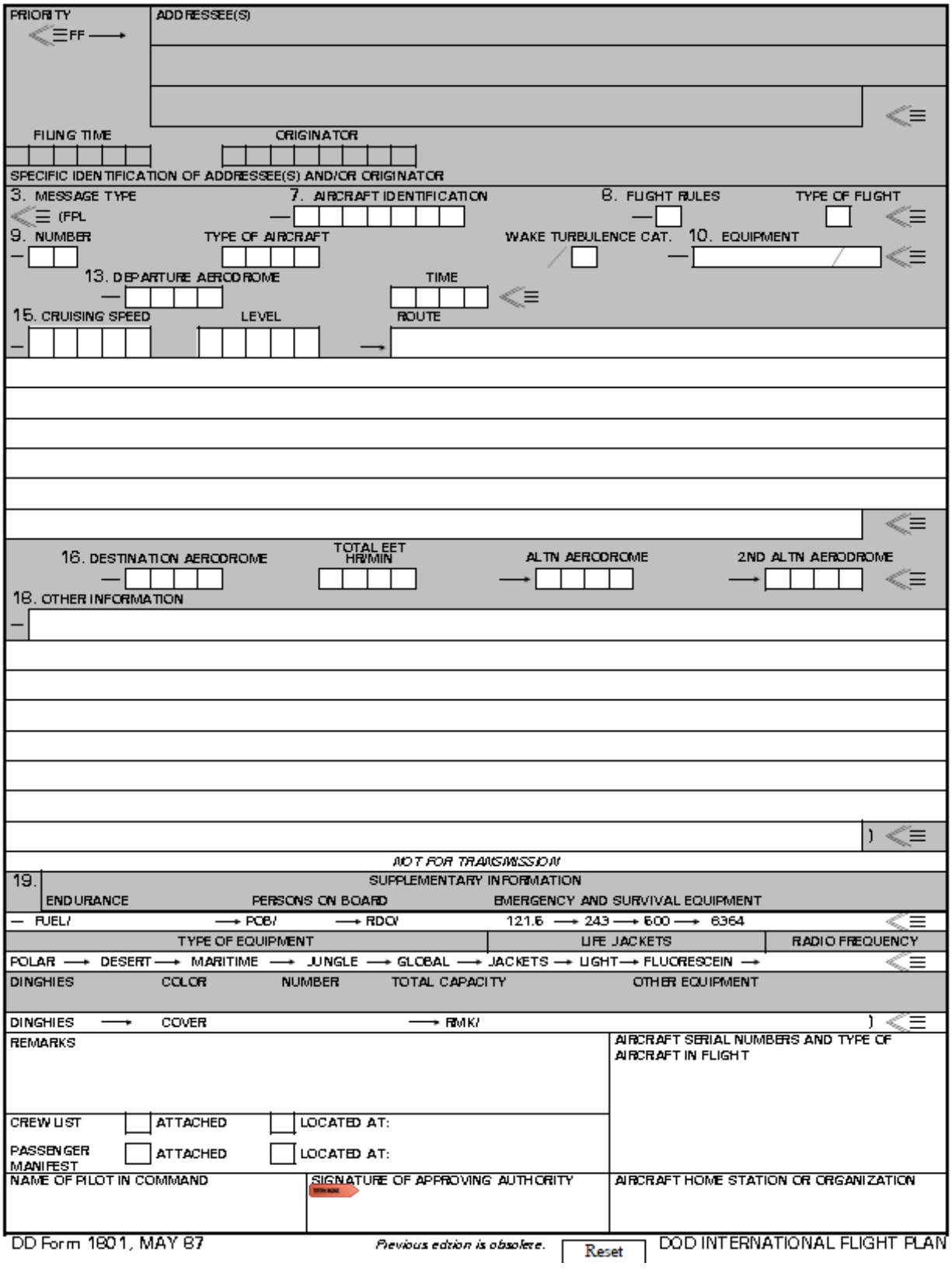


Figure 14-1 DD Form 1801

14-2 FLIGHT PLANS

1. **Item (7)**

AIRCRAFT IDENTIFICATION:

Use the approved tactical call sign or the applicable code.

TW5 FWOP: Approved Tactical call signs Inside local Area (180 NM from KNSE) and when using stereo routes:

BB###
RN###
SH###
TEXN###

TW5 FWOP: Outside Local area (other than Stereo Routes) IAW guidance for Navy Training Command Aircraft from GP Chapter 5:

VV followed by a digit and a letter followed by 2-3 digits
VV2E###
VV3E###
VV5E###
VV6E###

GP Chapter Five provides some specific details concerning ***non-tactical*** codes to be used for aircraft identification. Navy Fleet and Training command aircraft call signs will be:

Prefaced by the spoken word "**NAVY**" (written as **VV**) followed by a suffix of:

2 letters followed by 2 or 3 digits, ***or***; a digit and a letter followed by 2 or 3 digits

	(Service)	SQD	WING	(side number)
SPOKEN:	NAVY	Six	ECHO	zero, niner, fife
WRITTEN:	**VV**	**6**	**E**	**095**

TW4 SOP: Following call signs SHALL be used for all VFR and IFR flights:
BOMR###
RNGR###

It is imperative that the call sign entered in the flight plan (Item 7) match exactly to what is entered in the Mode S Aircraft Identification (MFD ROUTE menu under "Flight ID"). If it does not, then the aircraft will not be correlated with its stored flight plan and delays will ensue.

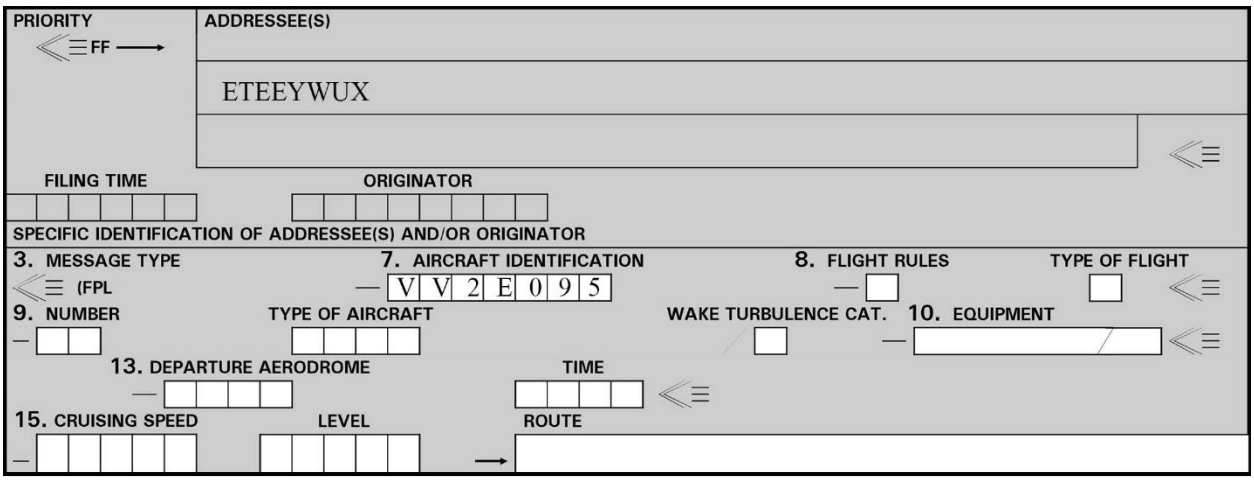


Figure 14-2 DD 1801 Item 7 Aircraft Identification

2. **Item (8)**

FLIGHT RULES:

Identify the type of Flight Plan by one of the following letters:

I – If it is intended that the entire flight will be operated under IFR

Y – If the flight initially will be operated under IFR followed by one or more subsequent changes of flight rules

V – If it is intended that the entire flight will be operated under VFR

Z – If the flight initially will be operated under VFR followed by one or more subsequent changes of flight rules If Y or Z is entered, specify in Item 15 where the Change of Flight Rules is planned.

NOTE: US Domestic ATC systems cannot accept a flight plan that begins under VFR and subsequently changes to one or more flight rules (that is, "Z"). For this purpose, file separate flight plans for the portions of the route that the pilot intends to conduct under IFR for flights solely in US Domestic Airspace. (FAA 7110.10AA Appendix A-4)

Assign Type of Flight:

TYPE OF FLIGHT:

Enter one of the following letters to denote the type of flight when so required by the appropriate Air Traffic Service authority.

S – Scheduled Air Transport

G – General Aviation

N – Nonscheduled Air Transport

M – Military

X – Other than any of the defined categories above

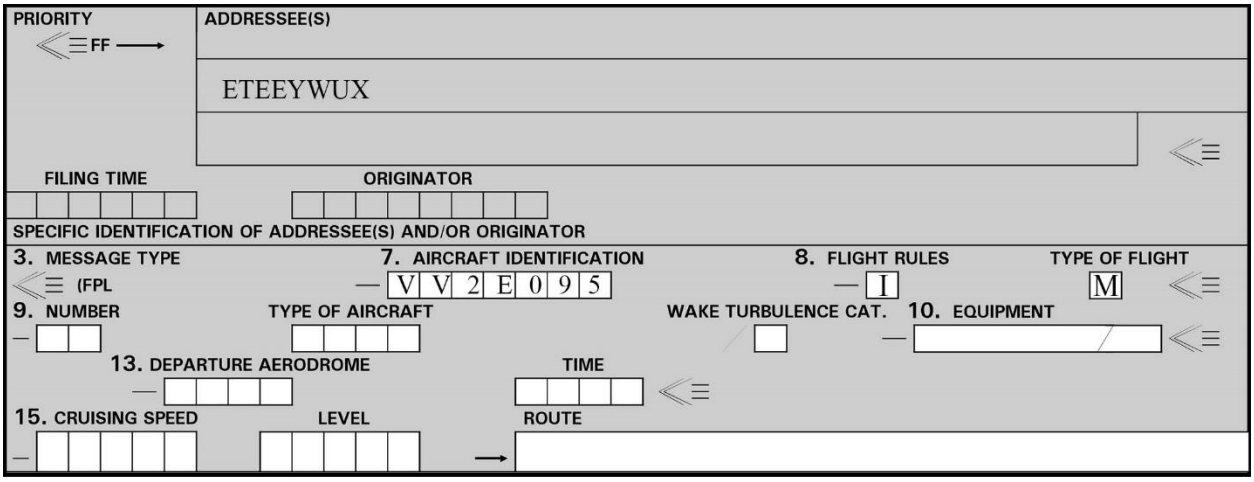


Figure 14-3 DD 1801 Item 8 Flight Rules / Type of Flight

3. **Item (9)**

NUMBER and TYPE of AIRCRAFT: If one aircraft, indicate type only. If more than one, insert number of aircraft.

TYPE OF AIRCRAFT: Enter military designator of aircraft **omitting prefixes and suffixes pertaining to aircraft mission or model.**

If the flight consists of different types of aircraft in formation, use the 4 letter group "ZZZZ." If "ZZZZ" is used, the number and type of aircraft will be indicated in Item 18 preceded by the abbreviation "TYP/" (e.g., TYP/2KC125-4F16).

The FIXED WING AIRCRAFT table in the GP, list the BEECH AIRCRAFT COMPANY (USA) AT6, T-6 Texan 2 as having the type designation of TEX2.

WAKE TURBULENCE CATEGORY: Insert the letter code indicating the Wake Turbulence Category (maximum certificated aircraft take-off weight) as follows:

H - HEAVY.....300,000 lbs or more
M - MEDIUM.....15,501 to 299,999 lbs
L - LIGHT.....15,500 lbs or less

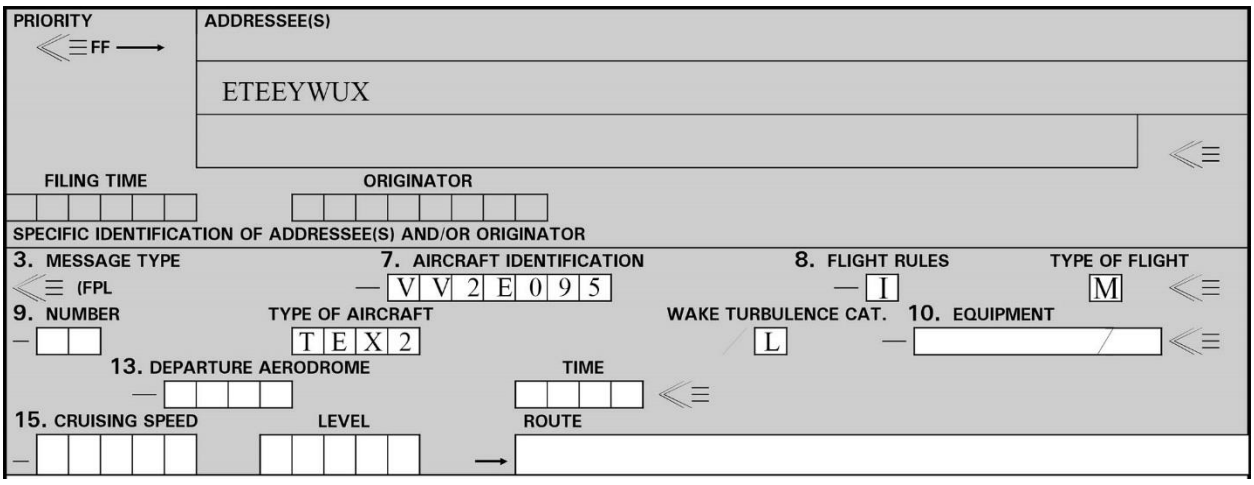


Figure 14-4 DD 1801 Item 9 Number / Type of Aircraft / Wake Turbulence

4. **Item (10)**

EQUIPMENT AND CAPABILITIES: Enter the letter "S" if standard COM/NAV/Approach Aid equipment for the route to be flown is carried and serviceable. (See NOTE 1) or,

Enter the letter "N" if no COM/NAV/Approach Aid equipment for the route to be flown is carried, or the equipment is unserviceable and/or

Insert one or more of the following letters to indicate the COM/NAV/approach aid equipment available, serviceable, will be used, and commensurate with flight crew qualifications:

A - GBAS landing system	J1 - CPDLC ATN VDL Mode 2 (See Note 4)	P1 - CPDLC RCP 400 (Note 8)
B - LPV (APV with SBAS)	J2 - CPDLC FANS 1/A HFDL	P2 - CPDLC RCP 240 (Note 8)
C - LORAN C	J3 - CPDLC FANS 1/A VDL Mode A	P3 - SATVOICE RCP 400 (Note 8)
D - DME	J4 - CPDLC FANS 1/A VDL Mode 2	P4-P9 - Reserved for RCP
E1 - FMC WPR ACARS	J5 - CPDLC FANS 1/A SATCOM (INMARSAT)	R - PBN Approved (Note 5)
E2 - D-FIS ACARS	J6 - CPDLC FANS 1/A SATCOM (MTSAT)	T - TACAN
E3 - PDC ACARS	J7 - CPDLC FANS 1/A SATCOM (Iridium)	U - UHF RTF
F - ADF	L - ILS	V - VHF RTF
G - (GNSS) (See Note 3)	M1 - ATC RTF SATCOM (INMARSAT)	W - RVSM Approved
H - HF RTF	M2 - ATC RTF (MTSAT)	X - MNPS Approved
I - Inertial Navigation	M3 - ATC RTF (Iridium)	Y - VHF with 8.33 kHz CH spacing
	O - VOR	Z - Other equipment carried or other capabilities (See Note 6)

EXAMPLE: T-6B Equipment arranged in an easy to remember mnemonic is DIYRUGS.

If the aircraft is not FM immune, mark the DD1801, Block 10 with a Z and in Block 18 write NAV/NON-FM IMMUNE VOR/ILS. Do not mark DD1801, Block 10, with S. (An S indicates the aircraft VHF VOR/ILS nav receiver is FM immune compliant.) WARNING: This information cannot be guaranteed to reach the destination approach controller. (See Note 2)

NOTE 1 - ATC issues clearances based on equipment qualifiers filed in item 10 and aircraft capabilities filed in Item 18 (NAV/) of DD 1801.

NOTE 2 - If the letter “S” is used, standard equipment is considered to be VHF RTF, VOR, and ILS unless another combination is prescribed by the appropriate ATS authority.

NOTE 3 - If the letter “G” is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space.

NOTE 4 - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED- 110B) for data link services, air traffic control clearances and information/air traffic control communications management/air traffic control microphone check.

NOTE 5 - If the letter “R” is used, the performance based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance based navigation to a specific route segment; route or area is contained in the Performance Based Navigation Manual (Doc 9613).

NOTE 6 - If the letter "Z" is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/and/or DAT/as appropriate. If aircraft is not FM immune, include: NAV/NON-FM IMMUNE VOR/ILS.

NOTE 7 - Information on navigation capability is provided to ATC for clearance and routing purposes.

NOTE 8 - Guidance on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-Based Communication and Surveillance (PBCS) Manual (Doc 9869).

SURVELLANCE EQUIPMENT AND CAPABILITIES:

Enter the letter “N” if no surveillance equipment for the route to be flown is carried or the equipment is unserviceable and/or

ENTER one or more of the following descriptors, up to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board. Enter no more than one transponder code (Modes A, C, or S)

SSR Modes A and C:

A - Transponder - Mode A (4 digits - 4096 Codes)

C - Transponder - Mode A (4 digits - 4096 Codes) and Mode C

SSR Mode S:

E - Transponder - Mode S including aircraft identification, pressure altitude and extended squitter (ADS-B) capability

H - Transponder - Mode S including aircraft identification, pressure altitude and enhanced surveillance capability

I - Transponder - Mode S including aircraft identification transmission, but no pressure-altitude transmission

L - Transponder - Mode S including aircraft identification, pressure altitude, extended squitter (ADS-B) and enhanced surveillance capability

P - Transponder - Mode S including pressure-altitude, but no aircraft identification

S - Transponder - Mode S including both pressure-altitude and aircraft identification capability

X - Transponder - Mode S with neither aircraft identification nor pressure-altitude capability

Note - Enhanced surveillance capability is the ability of the aircraft to downlink aircraft derived data via a Mode S transponder.

The T-6B is MODE S capable at level L

ADS-B

B1 - ADS-B with dedicated 1090 MHz ADS-B “out” capability

B2 - ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability

U1 - ADS-B “out” capability using UAT

U2 - ADS-B “out” and “in” capability using UAT

V1 - ADS-B “OUT” capability using VDL Mode 4

V2 - ADS-B “out” and “in” capability using VDL Mode 4

ADS-C

D1 - ADS-C with FANS 1/A capabilities

G1 - ADS-C with ATN capabilities

The T-6B ADS-B broadcast out only on 1090 MHz

T-6B /SURVEILLANCE EXAMPLE:
/LB1

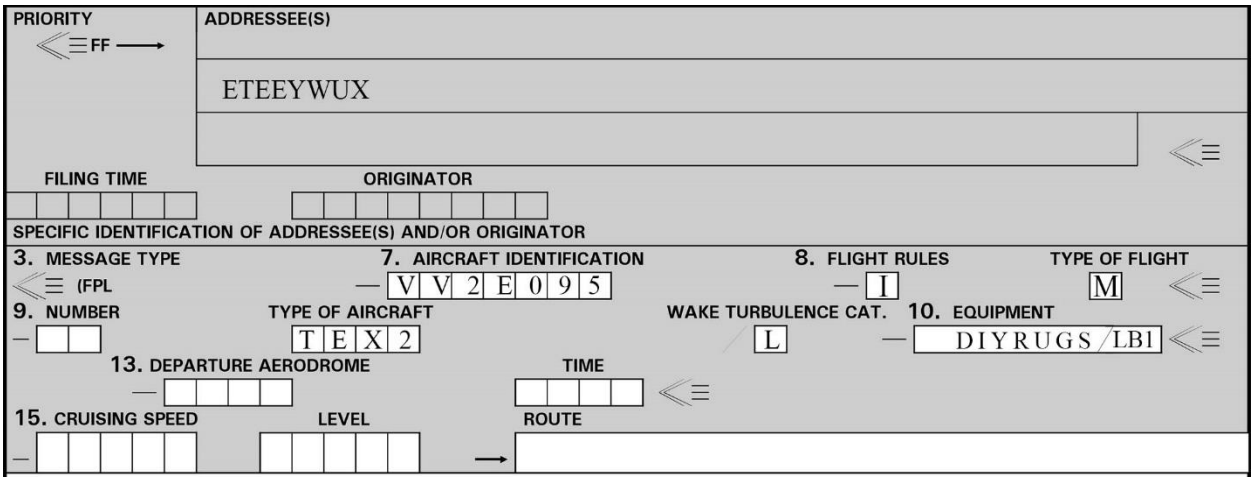


Figure 14-5 DD 1801 Item 10 Equipment

5. **Item (13)**

DEPARTURE AIRPORT:

Enter the 4 letter ICAO ID of the departure aerodrome. If the LOCID contains a number, if no LOCID is assigned, or if the LOCID is not known:

- Insert "ZZZZ" in ITEM 13 and
- Provide departure airport information in ITEM 18 by inserting "DEP/" followed by data described below (in ITEM 18 explanation)

If the flight plan has been submitted during flight, enter "AFIL" in this item and enter "DEP" in Item 18 followed by the 4 letter ICAO identifier or the name of the Air Traffic Service Unit from which the supplementary data can be obtained.

TIME:

Enter the 4 digit estimated off-block time (EOBT), i.e., the estimated time at which the aircraft will commence movement associated with departure.

For a Flight Plan received from an aircraft in flight, enter the actual or estimated time over the first point of the route to which the Flight Plan applies.

*Date/Time groups will always be entered as UTC.

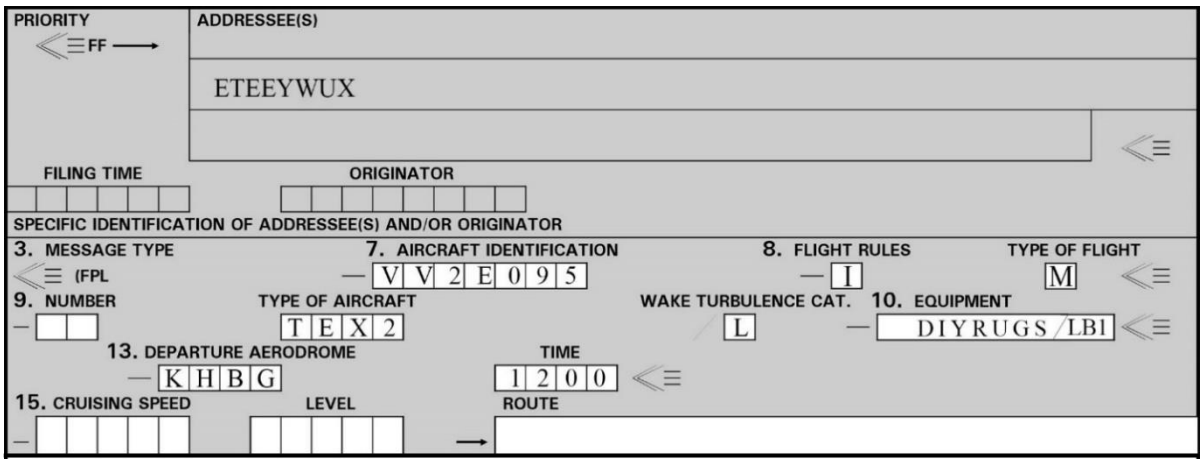


Figure 14-6 DD 1801 Item 13 Departure Airport / Time

6. **Item (15)**

CRUISING SPEED

INSERT the True Airspeed for the first or the whole cruising portion of the flight, in items of:

Kilometers per hour, (ICAO only) expressed as:

"K" followed by figures (e.g., K0830), or

Knots expressed as:

"N" followed by 4 figures (e.g., N0485), or

Mach number, when so prescribed by the appropriate ATS authority, to the nearest hundredth of unit Mach, expressed as:

"M" followed by 3 figures (e.g., M082).

CRUISING LEVEL: (maximum 5 characters)

INSERT the planned cruising level for the first or the whole portion of the route to be flown, in items of:

Flight Level, expressed as:
"F" followed by 3 figures (e.g., F085; F330), or

Standard Metric Level in tens of meters, (ICAO only) expressed as "S" followed by 4 figures (e.g., S1130), or,

Altitude in hundreds of feet, expressed as:

"A" followed by 3 figures (e.g., A045; A100), or

Altitude in terms of tens of meters, (ICAO only) expressed as:

"M" followed by 4 figures (e.g., M0840), or,

for uncontrolled VFR flights, the letters "VFR".

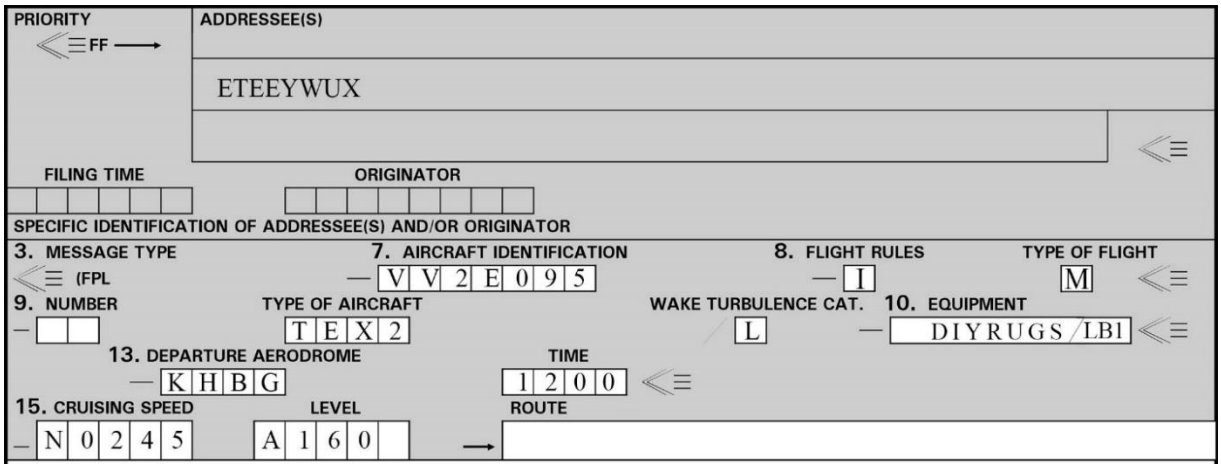


Figure 14-7 DD 1801 Item 13 Cruising Speed and Level

ROUTE:

FLIGHTS ALONG AIRWAYS/ROUTES

a. Identification of SID if used

b. If the airport of departure is located on the airway/route, enter the designation of the first airway/route. If the airport is not on the airway/route, enter the code "DCT," the point where the airway/route is joined and the airway/route designator.

c. Enter each point at which a Change of Speed or Level, a Change of Route and/or a Change of Flight is planned to be initiated. Each of these points must be followed by the designator of the next airway/route segment (even if the same as the previous one) or by the code "DCT" if the flight to the next point will be off airways/route unless both points are defined by geographical coordinates.

d. Identification of STAR if used.

NOTE: When a transition is planned between a lower and upper Air Traffic Control route, and the routes are oriented in the same direction, the point of transition need not be inserted.

FLIGHTS OFF AIRWAYS/ROUTES:

a. Enter points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a Change of Speed or Level, a Change of Track, or a Change of Flight Rules is planned to be initiated.
When required by the appropriate ATC authorities, define the track of flights operating predominantly in an east-west direction between N70° and S70° by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude. For flights operating in areas outside those latitudes the tracks shall be defined by significant points formed by the intersection of parallels of latitude with meridians normally spaced at 20 degrees longitude. The distance between significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points shall be established as deemed necessary. For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5 degrees.

b. Enter "DCT" between successive points unless both points are defined by geographical coordinates or by bearing and distance.

AIRWAY/ROUTE DESIGNATORS:

Use the coded designator (2 to 7 characters) assigned to the airway/route, e.g., B1, R14, UB10.

NOTE: ATC may assign routes that have not been named to aircraft in flight. These routes begin with numbers, e.g., 2E11, 3E60, 5T20, etc. However, these routes should not be filed in the initial flight plan as the center computers will not recognize routes beginning with numbers and will reject flight plans filed with such routes.

The route/airway entered must begin with a LETTER, e.g., J174, V270, UP20, TL9, etc.

SIGNIFICANT POINT(S) ALONG AIRWAY/ROUTE:

Identify points in the Route Section in the following order of priority:

a. The coded designator (2 to 5 characters) assigned to the point, e.g., VH, GEO, and WHITE.

b. Coordinate values in degrees and minutes - use 11 characters. Describe: latitude in 4 figures followed by an "N" or "S" longitude in 5 figures followed by an "E" or "W."

For even degrees of latitude and longitude use 7 characters. Describe: latitude in 2 figures followed by an "N" or "S" longitude in 3 figures followed by an "E" or "W."

Use zeros when necessary to make up the 7 characters (55N060W) or 11 characters (4620N07805W).

c. Bearing and Distance - Enter the:

Identification of the Navigational Aid (2 or 3 characters)
Bearings in 3 figures
Distance in 3 figures
Use zeros when necessary to make up 3 figures for bearing and distance, e.g., DUB090040.

CHANGE OF SPEED OR LEVEL: (maximum 21 characters)

An entry must be made under the route of flight whenever a change to the cruising speed (5% TAS or 0.01 MACH or more) or the cruising level is planned, the entry will consist of:

The point described (from Significant Points entry) followed by a "/" then, the cruising speed planned from that point (from Cruising Speed entry), followed without a space by the cruising level (4 characters) planned to be initiated from the point described (from Cruising Level entry).

VH/N0284A045 GEO/N0305F180 WHITE/N0420F330

4602N07805W/N0500F350 46N078W/M082F330 DUB180040/N0350F330

CHANGE OF FLIGHT RULES:

An entry must be made for each point where a change of flight rules is planned to be initiated. The entry consists of the description of the point (described from the Significant Points and Change of Speed or level entries) followed with a space by:

"VFR" if the flight changes from IFR to VFR, e.g., VH VFR, or

"IFR" if the flight changes from VFR to IFR, e.g., VH/N0284A050 IFR.

NOTE: US Domestic ATC systems cannot accept a flight plan that begins under VFR and subsequently changes to one or more flight rules. For this purpose, file a separate flight plan for the IFR portion of the flight.

CRUISE CLIMB:

Enter the letter "C" followed by a "/"; then the point at which the cruise climb is planned to start (described from Significant Points entry), followed by a "/"; then the speed to be maintained during cruising climb (described from Cruising Speed entry), followed by the two levels defining the layer to be occupied during cruise climb, each level (described from Cruising Level entry), or the level above which cruise climb is planned, followed by the word "PLUS" without a space between them, e.g.,

C/48N050W/M082F290F350 C/48N050W/M082F290PLUS

C/52N050W/M220F580F620

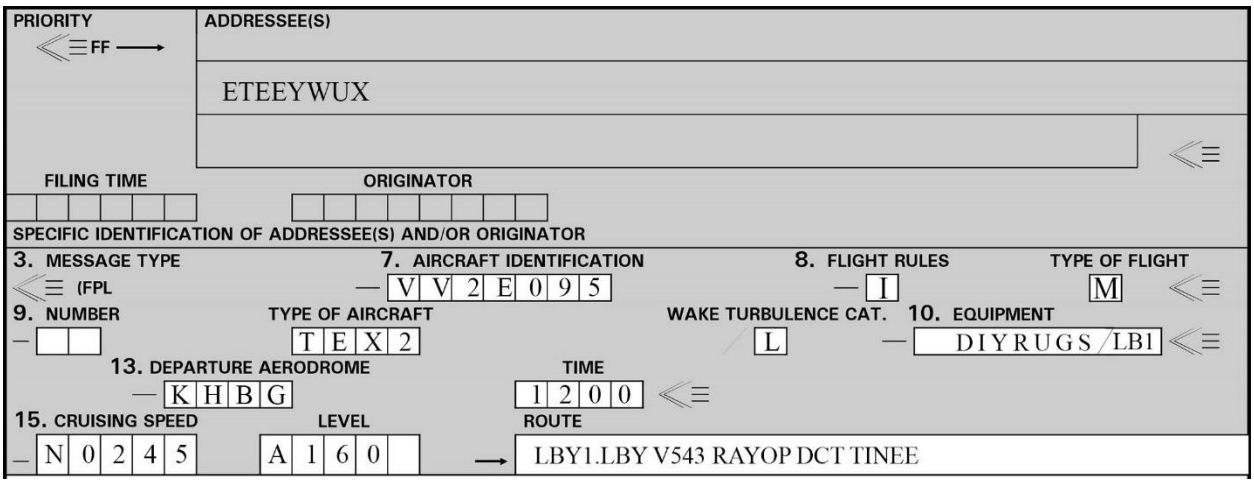


Figure 14-8 DD 1801 Item 15 Route

7. **Item (16)**

DESTINATION AIRPORT, TOTAL ESTIMATED ELAPSED TIME, AND ALTERNATE AIRPORT(S):

Enter the 4 letter ICAO identifier of the destination airport followed or,

If the LOCID contains a number, no LOCID is assigned, or the LOCID is not known:
Insert "ZZZZ" in ITEM 16 and Provide destination airport information in ITEM 18 by inserting "DEST/" followed by information below (in ITEM 18)

For all flights, insert the total estimated time (EET) to the destination.

For IFR flights, it is the estimated time required from takeoff to the initial approach fix (or other defined point of interest, i.e. FIR boundary), or if there is no navigation aid associated with the destination aerodrome, time to arrive over the destination aerodrome.

ALTERNATE AIRPORT(S) - Enter the 4 letter ICAO location identifier-(s) of not more than two alternate airports, separated by a space.

If there is no assigned location identifier, enter "ZZZZ" and specify in Item 18 the name and location of the aerodrome preceded by "ALTN/".

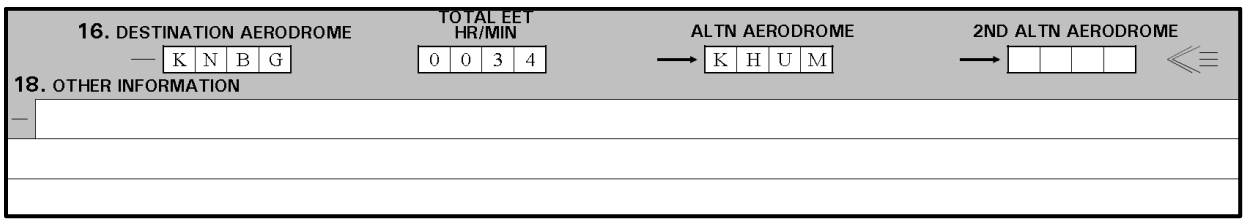


Figure 14-9 DD 1801 Item 16 Dest Airport / Total EET / ALTN Airport(s)

8. **Item (18)**

OTHER INFORMATION:

Enter "0" (zero) if no other information is entered. Precede all information by one of the following abbreviations and a "/" (abbreviations are listed in the required sequence):

STS/ Reason for special handling by ATS, e.g., a search and rescue mission, as follows:

ALTRV: for a flight operated in accordance with an altitude reservation;

ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority;

FFR: fire-fighting;

FLTCK: flight check for calibration of navaids;

HAZMAT: for a flight carrying hazardous material;

HEAD: a flight with Head of State status;

HOSP: for a medical flight declared by medical authorities;

HUM: for a flight operating on a humanitarian mission;

MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft;

MEDEVAC: for a life critical medical emergency evacuation;

NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;

SAR: for a flight engaged in a search and rescue mission; and

STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/.

OTHER INFORMATION: PBN/ (Performance Based Navigation)

PBN/ Indication of RNAV and/or RNP capabilities; This code Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e., a total of not more than 16 characters.

RNAV SPECIFICATIONS

A1 RNAV 10 (RNP 10)
B1 RNAV 5 all permitted sensors
B2 RNAV 5 GNSS ← Oceanic/Remote
B3 RNAV 5 DME/DME
B4 RNAV 5 VOR/DME
B5 RNAV 5 INS or IRS
B6 RNAV 5 LORANC
C1 RNAV 2 all permitted sensors
C2 RNAV 2 GNSS ← US En Route Area
C3 RNAV 2 DME/DME
C4 RNAV 2 DME/DME/IRU
D1 RNAV 1 all permitted sensors
D2 RNAV 1 GNSS ← US Terminal
D3 RNAV 1 DME/DME
D4 RNAV 1 DME/DME/IRU

NATOPS

<6>FLIGHT MANAGEMENT SYSTEM (FMS) OPERATIONAL CAPABILITIES

<6>The Flight Management System (FMS) is capable of RNP/RNAV operations of RNAV 1 and RNAV 2 in accordance with FAA Advisory Circular (AC) 90-100A; RNAV 5, Primary Means of Navigation in Oceanic and Remote Airspace in accordance with AC 90-96A; and RNP APCH (approach) in accordance with AC 90-105, provided the following criteria are met:

- <6>Pilot maintains lateral deviation on HSI no greater than 1/2 full scale
- <6>FMS amber CHECK ANP message is not displayed, and/or
- <6>No FMS or GPS position disagree caution messages

RNP SPECIFICATIONS

L1 RNP 4
O1 Basic RNP 1 all permitted sensors
O2 Basic RNP 1 GNSS
O3 Basic RNP 1 DME/DME
O4 Basic RNP 1 DME/DME/IRU
S1 RNP APCH ← RNAV (GPS) Approach
S2 RNP APCH with BARO-VNAV
T1 RNP AR APCH with RF (special authorization required)
T2 RNP AR APCH without RF (special authorization required

Total T-6B PBN (Performance Based Navigation) capability:

PBN/B2C2D2S1

OTHER INFORMATION: NAV/ (Significant Navigation Equipment)

NAV/ Significant data related to navigation equipment, other than as specified in PBN/, as required by the appropriate ATS authority.

Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g., NAV/GBAS SBAS.

While the T-6B does have WAAS (Wide Area Augmentation System) installed, it is for use with ADS-B transmissions only and affords no additional aircraft navigation capabilities.

When Performance Based Navigation Capability has been filed in PBN/, if PBN routing is desired for only some segment(s) of the flight then that information can be conveyed by inserting the character "Z" in Item 10 and "NAV/RNV" in field 18 followed by the appropriate RNAV accuracy value(s) per the following:

a. To be assigned an RNAV 1 SID, insert the characters "D1."

b. To be assigned an RNAV 1 STAR, insert the characters "A1."

c. To be assigned enroute extensions and/or RNAV PTP, insert the characters "E2."

d. To prevent assignment of an RNAV route or procedure, insert a numeric value of "0" for the segment of the flight. Alternatively, you may simply remove the segment of the flight indicator and numeric value from the character string.

OTHER INFORMATION: Communications/Data/Surveillance

COM/ Indicate communications applications or capabilities not specified in Item 10a, when requested by an air navigation service provider.

DAT/ Indicate data applications or capabilities not specified in 10a, when requested by an air navigation service provider.

SUR/ Include surveillance applications or capabilities not specified in Item 10b, when requested by an air navigation service provider.

1. If ADS-B capability filed in Item 10 is compliant with RTCA DO-260B, include the item "260B" in SUR/. If ADS-B capability filed in Item 10 is compliant with RTCA DO-282B, include the item "282B" in SUR/.

2. When Required Surveillance Performance (RSP) Capability has been filed in SUR/, this can be conveyed by inserting the character "Z" in Item 10 and "SUR/" in field 18 followed by the appropriate RSP performance per the following:

a. For RSP 180 – flight plan RSP180

b. For RSP 400 – flight plan RSP400

OTHER INFORMATION: DEP/ (Departure location Clarification)

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g., 4620N07805W (11 characters). OR,

Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g., a point of 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040. OR,

The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

OTHER INFORMATION: DEST/ (Destination Location Clarification)

DEST/ Name and location of destination aerodrome if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described under DEP/ above.

OTHER INFORMATION: DOF/ (Date of Flight)

DOF/ The date of flight departure in a six figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

OTHER INFORMATION: REG/ (Registration Mark)

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

Use the aircraft bureau number for the T-6B

OTHER INFORMATION: EET/ (Estimated Elapsed Times)

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples:

EET/CAP0745 XYZ0830 EET/EINN0204

OTHER INFORMATION: SEL/ (SELCAL)

SEL/ SELCAL Code, for aircraft so equipped.

SELCAL is a signaling method which can alert an individual aircraft that a ground station wishes to communicate with it. SECAL codes are assigned to aircraft operators and not to individual aircraft.

OTHER INFORMATION: TYP/ (Clarification of Item 9)

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9. Example: TYP/2F15 5F5 3B2

OTHER INFORMATION: CODE/

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters) when required by the appropriate ATS authority.
Example:

"F00001" is the lowest aircraft address contained in the specific block administered by ICAO.

OTHER INFORMATION: DLE/ (Enroute Delay or Holding)

DLE/ Enroute delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four figure time in hours and minutes (hhmm).

Example:

DLE/MDG0030

OTHER INFORMATION: OPR/ (Operating Agency)

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.
Example:

For a Department of Defense aircraft:

OPR/DOD

OTHER INFORMATION: ORGN/ (Originator's coded address)

ORGN/ The originator's 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified, as required by the appropriate ATS authority.

Note - In some areas, flight plan reception centers may insert the ORGN/ identifier and originator's AFTN address automatically.

OTHER INFORMATION: PER/ (Aircraft Performance Data)

PER/ Aircraft performance data, indicated by a single letter as specified in the Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume I — Flight Procedures, if so prescribed by the appropriate ATS authority.

OTHER INFORMATION: ALTN/ (Destination alternate(s) clarification)

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

OTHER INFORMATION: RALT/ (Enroute alternate(s) clarification)

RALT/ ICAO four letter indicator(s) for enroute alternate(s), as specified in Doc 7910, Location Indicators, or name(s) of enroute alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

OTHER INFORMATION: TALT/ (Revised Route Details)

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, Location Indicators, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication, indicate location in LAT/LONG or bearing and distance from the nearest significant point, as described in DEP/ above.

OTHER INFORMATION: RIF/ (Takeoff alternate)

RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to re-clearance in flight.

Examples:

RIF/DTA HEC KLAX
RIF/ESP G94 CLA YPPH

OTHER INFORMATION: RMK/ (Plain language remarks)

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

NOTE: When applicable, the following entries should also be used.

a. Diplomatic Clearances should be filed as "MDCN" followed by the list of diplomatic clearance numbers. These numbers should be formatted as the first two letters of the ICAO Location Identifier of the FIR/UIR being entered, followed by a space, followed by the diplomatic clearance number. (Note-For filing purposes omit any dashes (-), colons (:), semi-colons (;), and slashes (/) within the diplomatic clearance number). EXAMPLE: MDCN LG XXXX LI XXXX LS XXXX would list diplomatic clearances for Greece, Italy, and Switzerland.

b. For required call sign changes file - EXAMPLE: RMK/ Change call-sign to XXX at position XXXX MDCN LG XXXX XXX LI XXXX LS X XXX XXX).

c. Pass DEP ARR to XXXXZPZX. (Replace "XXXX" with ICAO Identifier of aircraft home station).

d. Hazardous Cargo Enter "Hazardous Cargo," "Inert Devices" or both (as appropriate).

e. Include approved altitude reservations (ALTRV) in this item by stating "Approved ALTRV along route from (start point ALTRV) until (end point ALTRV)."

f. Flight Plan VIP codes for military bases only. See GP (FLIGHT PLAN VIP CODES).

RMK/ Any other plain language remarks when required by the appropriate ATS authority or as deemed necessary.

Some possible examples:

RMK/Request radar departure KHBG
RMK/Request practice approaches at KNEW
RMK/KNBG PPR 00214
RMK/KNBG S

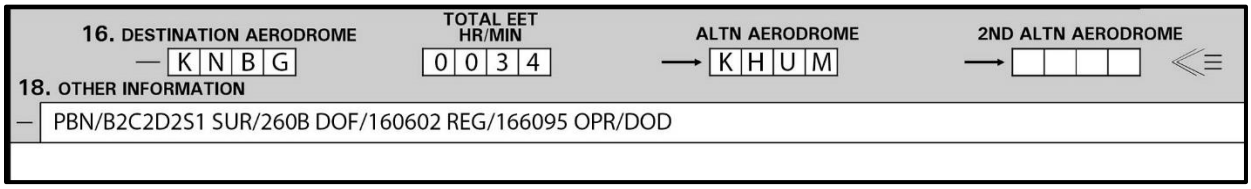


Figure 14-10 DD 1801 Item 18 Other Information

9. **Item (19)**

SUPPLEMENTARY INFORMATION:

Enter or strike out as follows:

FUEL/ - Enter "Total Fuel Endurance" in 4 figures expressed in hours and minutes.

POB/ - Enter "Total Number" of passengers and crew.

RADIO - Cross out any "Portable Radio Frequencies" not carried as survival equipment.

TYPE OF EQUIPMENT - Cross out "Any Equipment" not carried.

LIFE JACKETS - Cross out "Jackets, Light Fluorescein" (sea marker dye), if life jackets are not carried. Cross out "Light" or "Fluorescein" if jackets are not so equipped.

RADIO FREQUENCY - Enter "Transmitting/Receiving Frequencies" of any life jacket/Raft carried.

DINGHIES - Cross out if not carried. Cross out "Cover" if dinghies not covered. Identify "Color and Number" if dinghies carried and indicate total "Capacity," in persons carried, of all dinghies.

OTHER EQUIPMENT- Indicate after "REM/" any other "Survival Equipment" carried and any other remarks regarding Emergency and Survival Equipment.

SUPPLEMENTARY INFORMATION: FUEL/

Enter total fuel endurance based on planned flight profile.

DEP ELEV KHBG 151		CLNC DEL		GND CONT		TOWER UNICOM 122.8			
ALT CORR 135.425		TIME OFF		TAS CLIMB 173 CRUISE 245		LBS PH CLIMB 585 CRUISE 387			
CLEARANCE									
TTC 8 MIN						CLIMB 300/20			
FUEL 78 LBS						CRUISE 320/35			
DISTANCE 23						ΔT +20 -15			
DEST KNBG ELEV 2		APCCONT 256.9		TOWER 340.2		GND CONT 270.35			
ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFF AFR	GS	NOTES
STTO				1		50	1050		
LBY1. LBY	LBY 110.6	346	10	4		40	1010	158	
V543 RYTHM	LBY 110.6	216	11/58 69	4/14 18		40/90 130	880	170 254	
V543 RAYOP	MCB 116.7	173	19	4		80	850	275	
D ➡ TINEE	HRV 114.1	184	32	7		45	805	271	HRV 226/15
			130	0+34		295			
ALTERNATE KHUM		ROUTE TBD BOURG				ALTITUDE 160		FUEL 2+05	TIME 0+13
ALT ELEV 10		APC CONT 256.9				TOWER 346.3		GND CONT 121.8	
D ➡ TBD	TBD 112.0	268	32	9		60	745		
D ➡ BOURG	TBD 112.0	122	16	4		30	715		

0034 Fuel from takeoff to destination **PLUS** 0205 Fuel remaining (805 lbs) onboard upon arrival at destination Fix computed using cruise fuel flow (387 LBS PH)

0239 Total Fuel ENDURANCE

Total amount of fuel ENDURANCE for our planned profile would be:

FUEL/0239

Figure 14-11 Flight Log

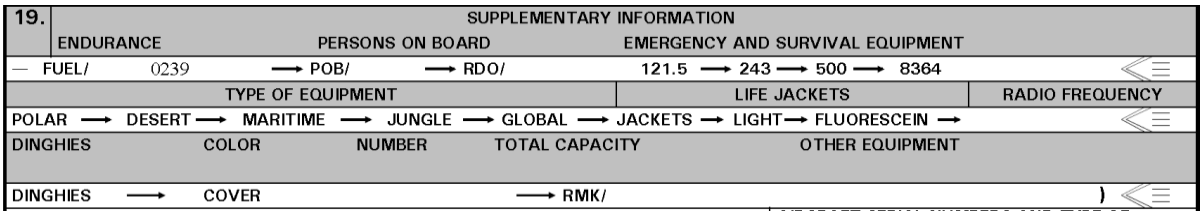


Figure 14-12 DD 1801 Item 19 FUEL

SUPPLEMENTARY INFORMATION: POB/

POB/ - Enter "Total Number" of passengers and crew.

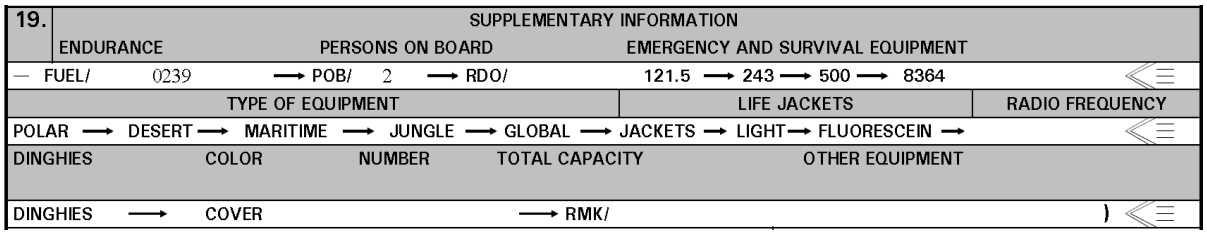


Figure 14-13 DD 1801 Item 19 POB

SUPPLEMENTARY INFORMATION: RDO/

RADIO - Cross out any "Portable Radio Frequencies" not carried as survival equipment.

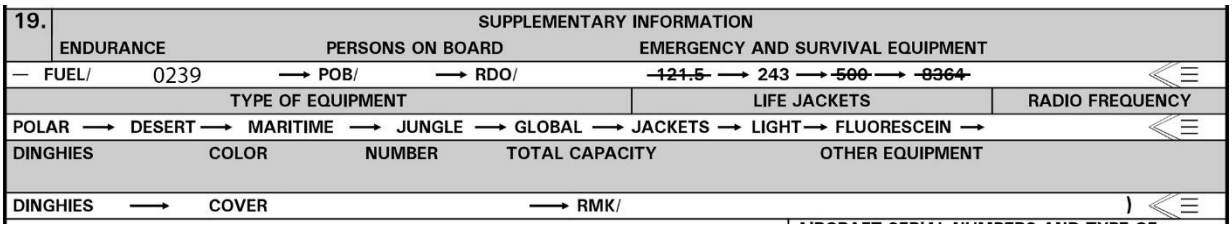


Figure 14-14 DD 1801 Item 19 RDO

SUPPLEMENTARY INFORMATION: TYPE OF EQUIPMENT

TYPE OF EQUIPMENT - Cross out "Any Equipment" not carried.

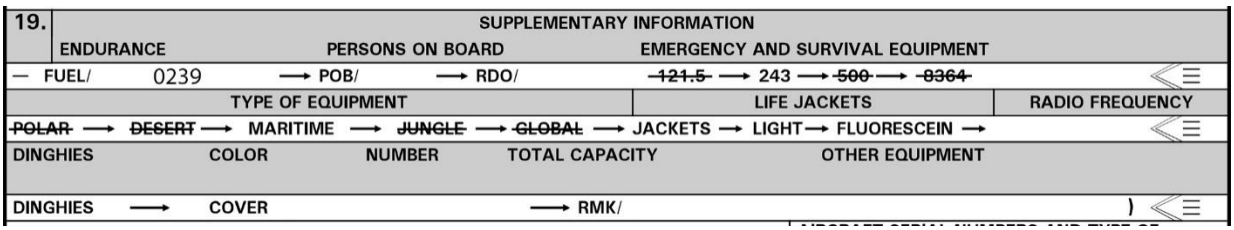


Figure 14-15 DD 1801 Item 19 Type of Equipment

SUPPLEMENTARY INFORMATION: LIFE JACKETS

LIFE JACKETS - Cross out "Jackets, Light Fluorescein" (sea marker dye), if life jackets are not carried. Cross out "Light" or "Fluorescein" if jackets are not so equipped.

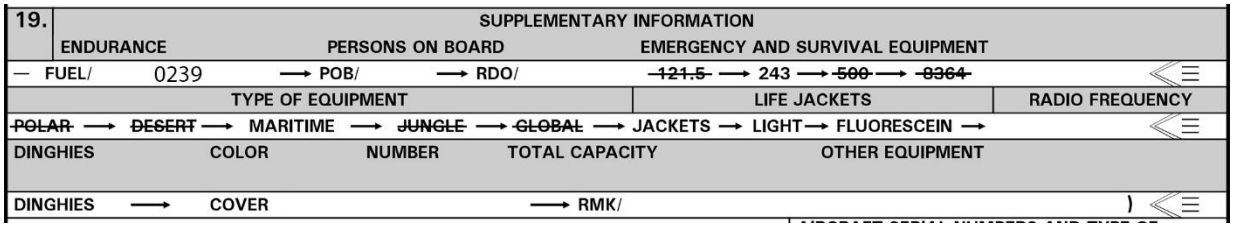


Figure 14-16 DD 1801 Item 19 Life Jackets

SUPPLEMENTARY INFORMATION: RADIO FREQUENCY

RADIO FREQUENCY - Enter "Transmitting/Receiving Frequencies" of any life jacket/Raft carried.

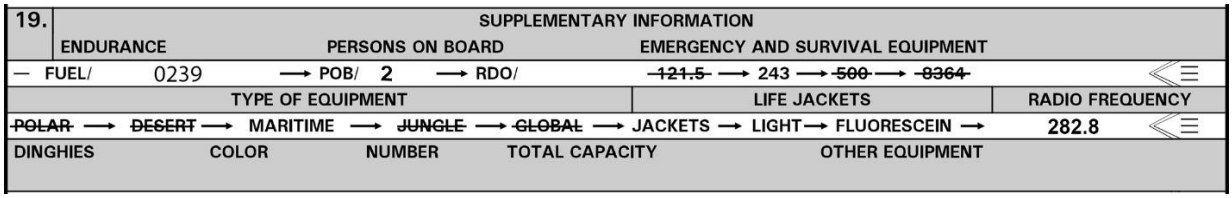


Figure 14-17 DD 1801 Item 19 Radio Frequency

SUPPLEMENTARY INFORMATION: DINGHIES

DINGHIES - Cross out if not carried. Cross out "Cover" if dinghies not covered. Identify "Color and Number" if dinghies carried and indicate total "Capacity," in persons carried, of all dinghies.

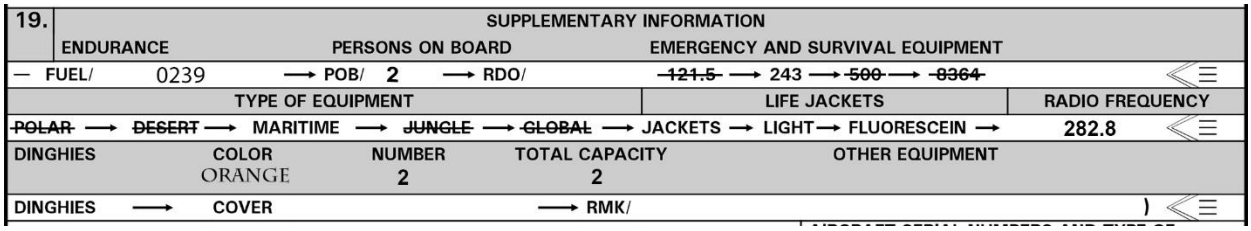


Figure 14-18 DD 1801 Item 19 Dinghies

SUPPLEMENTARY INFORMATION: OTHER EQUIPMENT REM/

OTHER EQUIPMENT - Indicate after "REM/" any other "Survival Equipment" carried and any other remarks regarding Emergency and Survival Equipment.

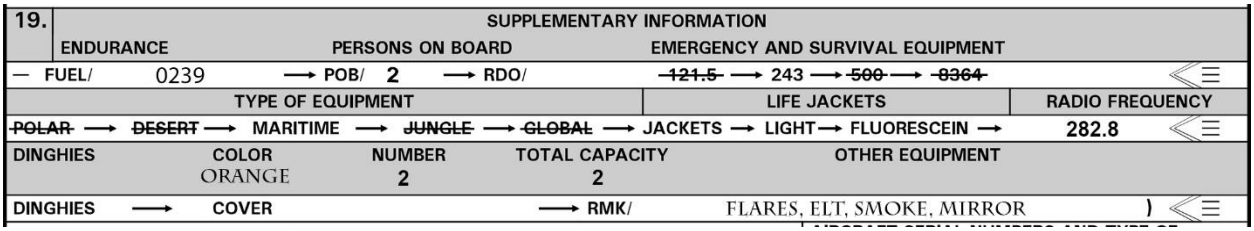


Figure 14-19 DD 1801 Item 19 Other Equipment RMK

10. **BOTTOM SECTION:**

BOTTOM SECTION: REMARKS

REMARKS - This space will be used only for information for, or requests from, the departure Base Operations.

USAF - Enter "Wx briefed by" (weather briefer's initials).

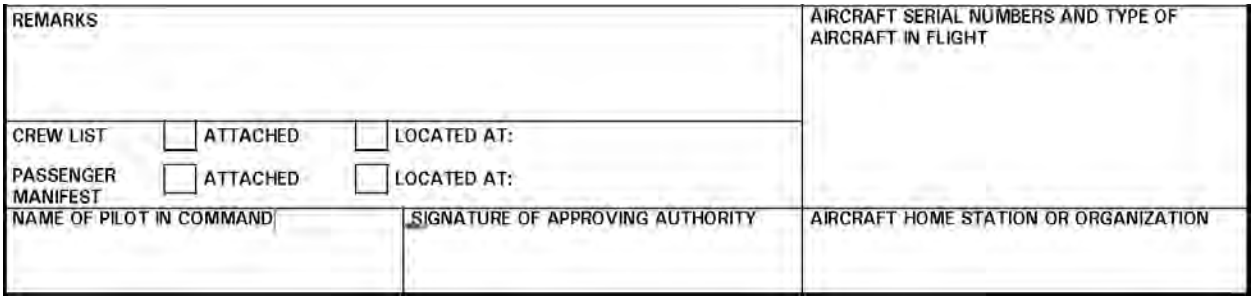


Figure 14-20 DD 1801 Bottom Section Remarks

BOTTOM SECTION: CREW LIST

CREW LIST - Self explanatory

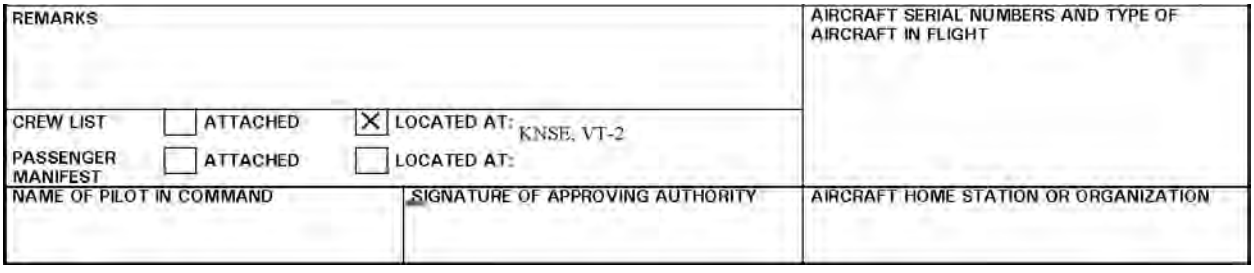


Figure 14-21 DD 1801 Bottom Section Crew List

BOTTOM SECTION: AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT

For formation flights, enter Bureau Number/Serial Number and type of each aircraft.

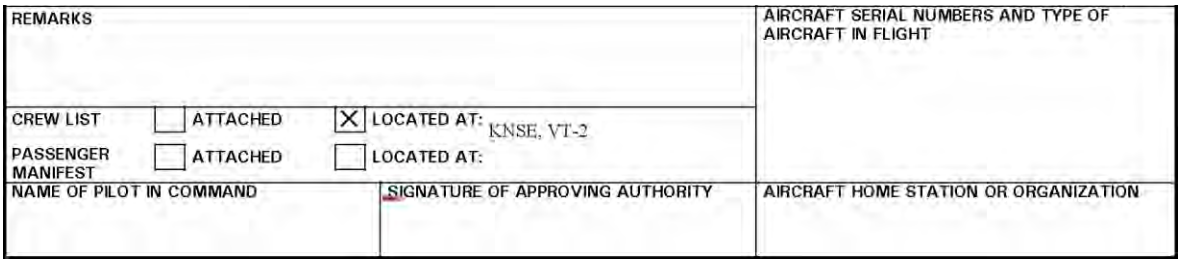


Figure 14-22 DD 1801 Bottom Section Aircraft Serial Number and Type Of Aircraft In Flight

BOTTOM SECTION: AIRCRAFT HOME STATION OR ORGANIZATION

AIRCRAFT HOME STATION OR ORGANIZATION - Enter ICAO Location Identifier of aircraft home station or enter organization.

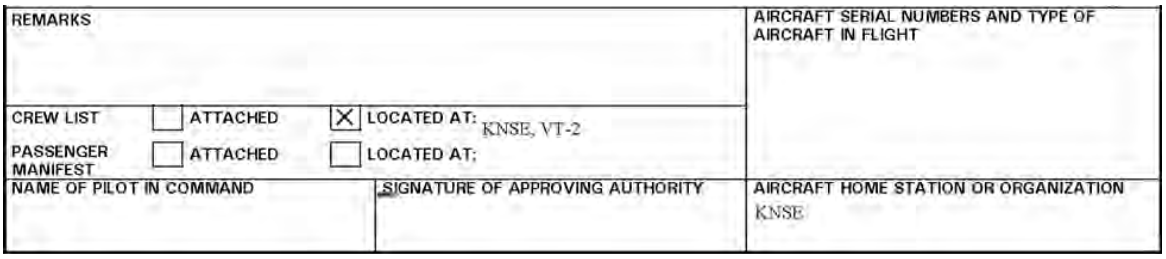


Figure 14-23 DD 1801 Bottom Section Aircraft Home Station or Organization

BOTTOM SECTION: NAME OF PILOT IN COMMAND-INSTRUMENT RATING

Enter last name of pilot in command.

United States Army, United States Air Force and CIVIL - No other entry is required.

United States Navy - Enter Standard or Special.

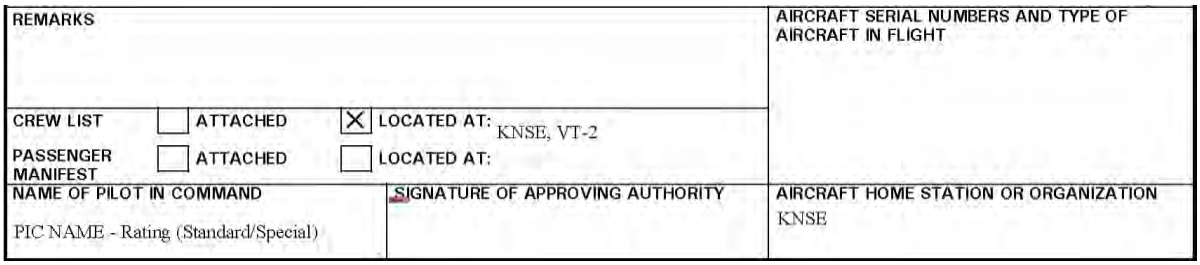


Figure 14-24 DD 1801 Bottom Section Name Of Pilot In Command-Instrument Rating

BOTTOM SECTION: APPROVING AUTHORITY

APPROVING AUTHORITY - To be signed by the pilot in command or approving authority as appropriate. Signature not required for electronically generated/transmitted flight plans.

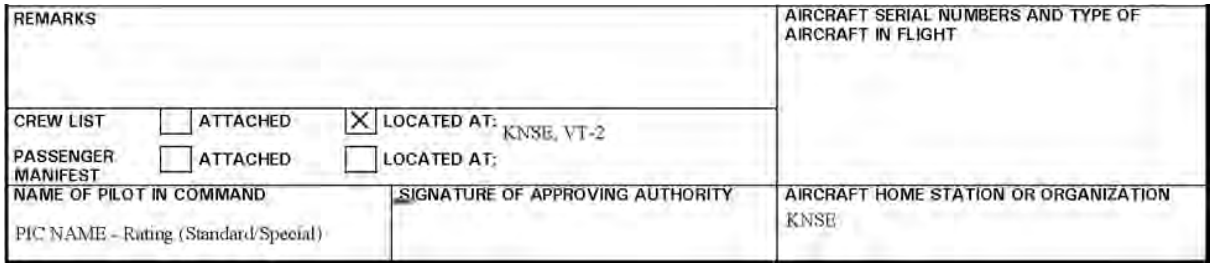


Figure 14-25 DD 1801 Bottom Section Approving Authority

11. **ENROUTE/TERMINAL DELAYS**:

ENROUTE DELAY: (For Holding)

In this example, the aircrew wishes to practice holding at OYSTY for 20 minutes prior continuing on to TINEE.

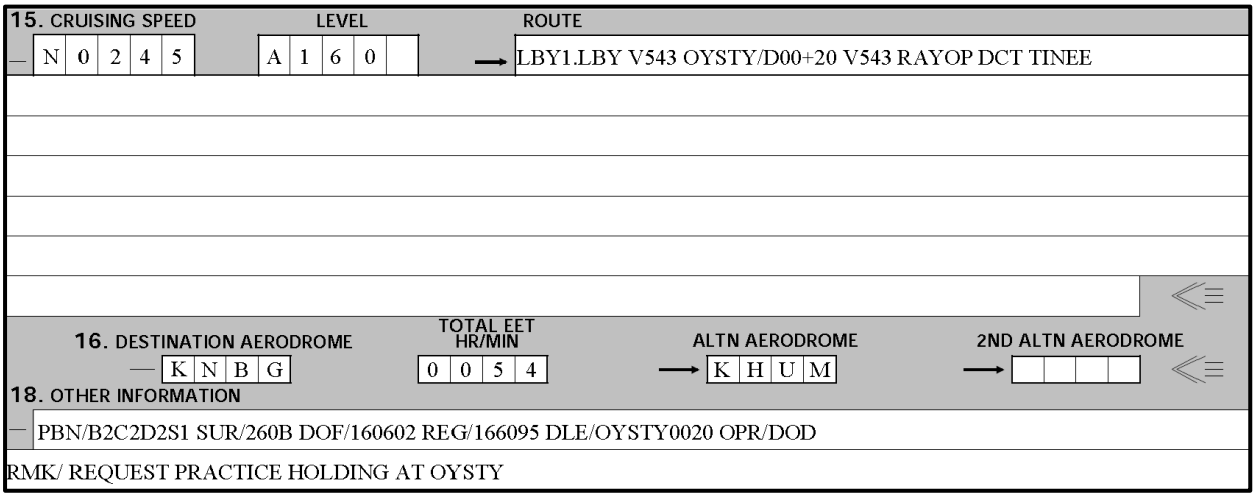


Figure 14-26 DD 1801 Enroute Delay: (For Holding)

TERMINAL DELAY: (For Practice IAP)

In this example, upon reaching RAYOP the aircrew desires a practice IAP at KNEW prior to continuing on to TINEE.

15. CRUISING SPEED	LEVEL	ROUTE
N0245	A1600	LBY1.LBY V543 RAYOP KNEW/D00+10 DCT TINEE

16. DESTINATION AERODROME	TOTAL EET HR/MIN	ALTN AERODROME	2ND ALTN AERODROME
KNBG	0044	KHUM	

18. OTHER INFORMATION

PBN/B2C2D2S1 SUR/260B DOF/160602 REG/166095 DLE/KNEW0010 OPR/DOD

RMK/ REQUEST PRACTICE APPROACH AT KNEW

Figure 14-27 DD 1801 Terminal Delay: (For Practice IAP)

PRIORITY FF | ADDRESSEE(S)

FILING TIME | ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3. MESSAGE TYPE	7. AIRCRAFT IDENTIFICATION	8. FLIGHT RULES	TYPE OF FLIGHT
(FPL	VV2E095	I	M

9. NUMBER	TYPE OF AIRCRAFT	WAKE TURBULENCE CAT.	10. EQUIPMENT
	TEX2	L	DIYRUGS / LB1

13. DEPARTURE AERODROME	TIME
KHBG	1200

15. CRUISING SPEED	LEVEL	ROUTE
N0245	A1600	LBY1.LBY V543 RAYOP DCT TINEE

16. DESTINATION AERODROME	TOTAL EET HR/MIN	ALTN AERODROME	2ND ALTN AERODROME
KNBG	0034	KHUM	

18. OTHER INFORMATION

PBN/B2C2D2S1 SUR/260B DOF/160602 REG/166095 OPR/DOD

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION

ENDURANCE	PERSONS ON BOARD	EMERGENCY AND SURVIVAL EQUIPMENT
FUEL/ 0239	POB/ 2	RDO/ ~~406~~ 243 ~~CSE~~ ~~CSS~~

TYPE OF EQUIPMENT	LIFE JACKETS	RADIO FREQUENCY
~~POLAR~~ ~~DESERT~~ MARITIME ~~JUNGLE~~ ~~GLOBAL~~	JACKETS LIGHT FLUORESCEIN	282.8

DINGHIES	COLOR	NUMBER	TOTAL CAPACITY	OTHER EQUIPMENT
	ORANGE	2	2	

DINGHIES COVER RMK/ FLARES, ELT, SMOKE, MIRROR)

REMARKS	AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT
CREW LIST [ ] ATTACHED [X] LOCATED AT: KNSE, VT-2	
PASSENGER MANIFEST [ ] ATTACHED [ ] LOCATED AT:	

NAME OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	AIRCRAFT HOME STATION OR ORGANIZATION
PIC NAME - Rating (Standard/Special)		KNSE

Figure 14-28 DD 1801 Completed Example

1402. DD FORM 1801-C (STOPOVER FLIGHT PLAN)

DoD INTERNATIONAL FLIGHT PLAN (CONTINUATION)

Use the DD Form 1801-C to file each leg after the initial leg of a stopover flight plan.

a. File the DD Form 1801-C for subsequent legs in conjunction with the DD Form 1801 used for the initial leg.

b. The DD Form 1801-C is designed to accommodate three (3) additional legs/stopovers.

c. Complete DD Form 1801-C using the same guidance used to complete DD Form 1801.

d. Only use Block 18. OTHER INFORMATION when there are changes from the information entered on the DD Form 1801 filed for the initial leg.

e. Block 19 Supplemental Information: Include new fuel endurance for this leg and number of souls onboard.

f. This example shows a continuing flight on to KGPT after our mission to KNBG.

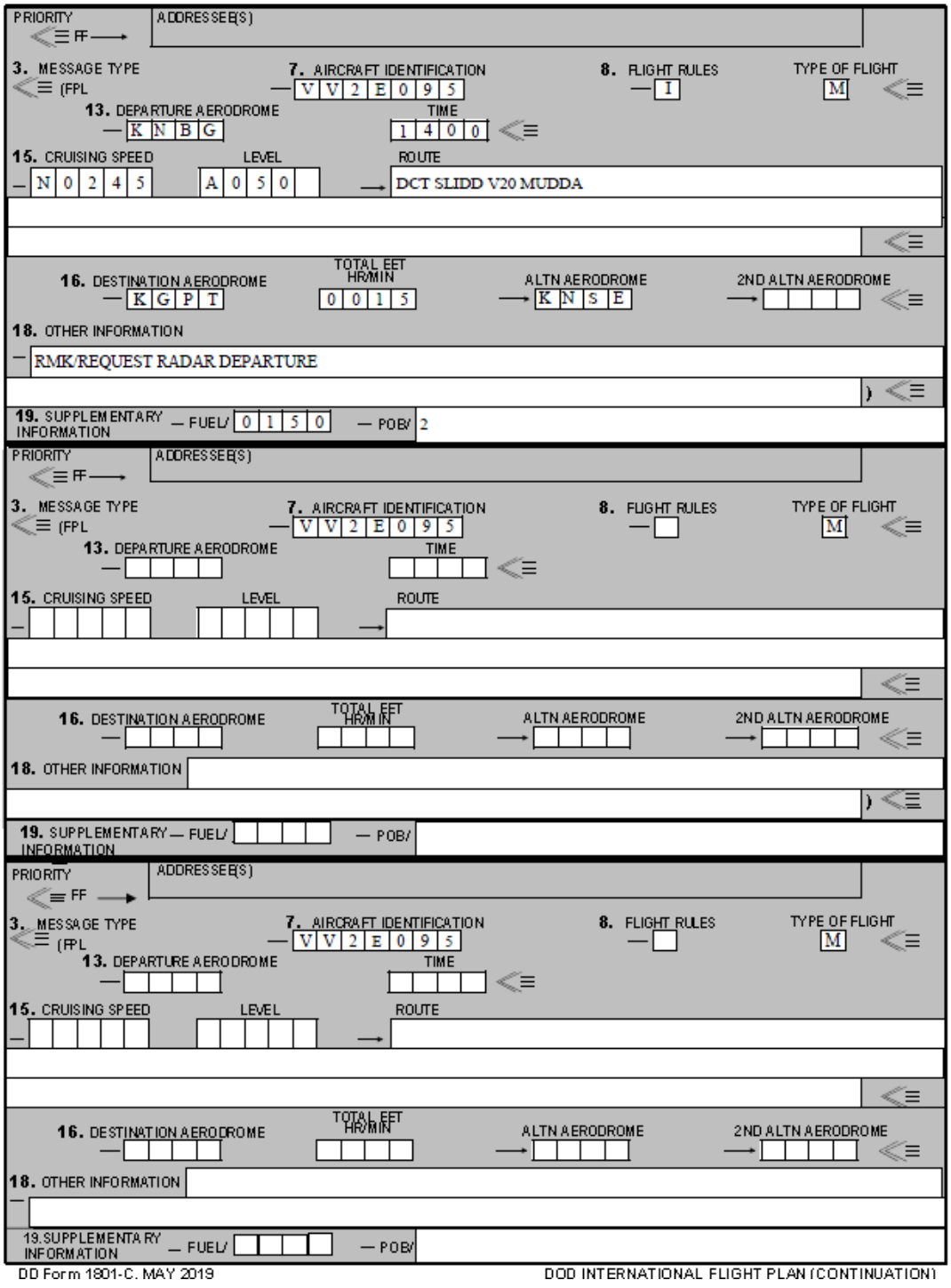


Figure 14-29 DD 1801-C Stopover Flight Plan

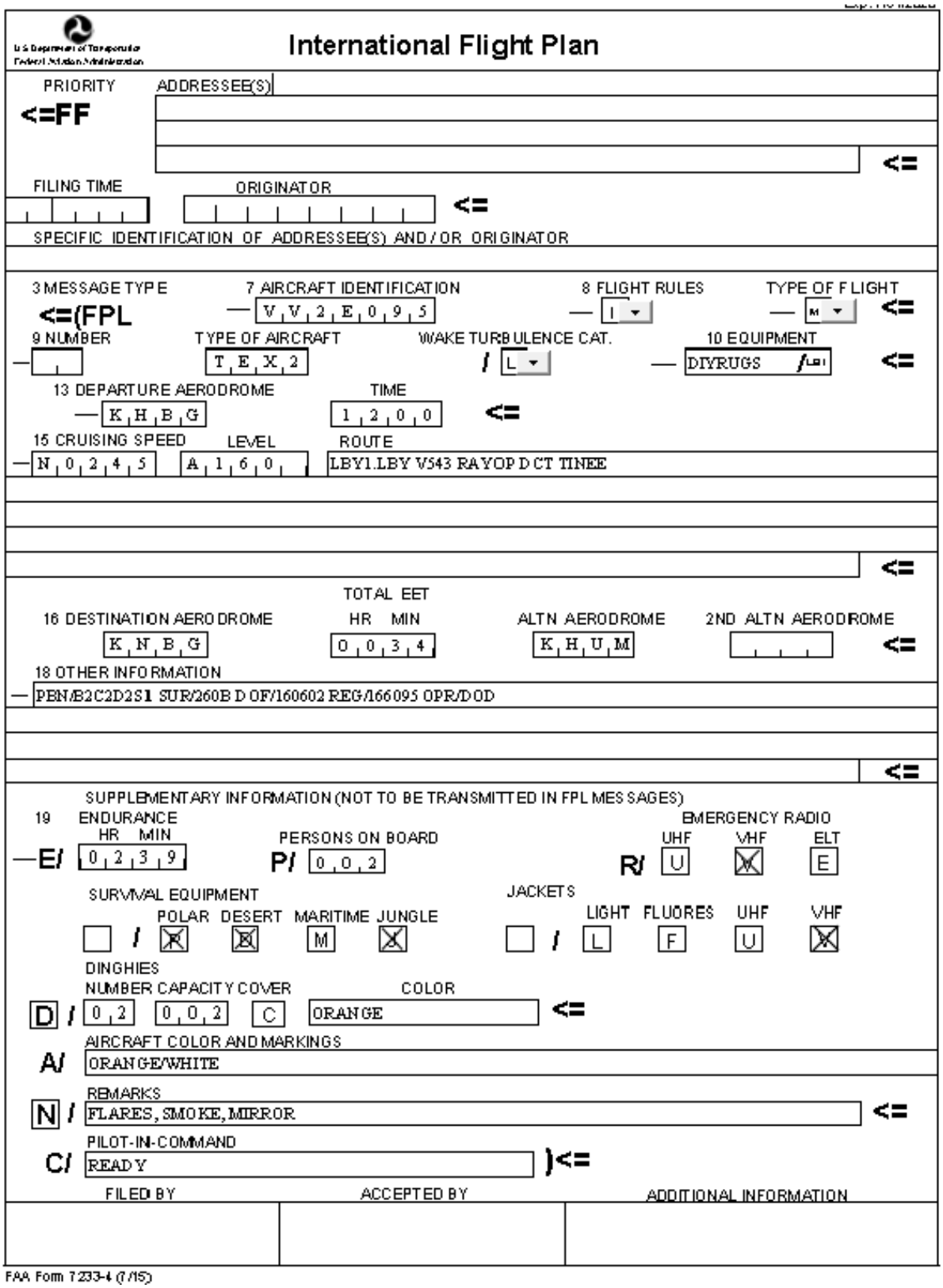
1403. FAA FORM 7233-4 (INTERNATIONAL FLIGHT PLAN)

FAA Form 7233-4 may be used in lieu of DD Form 1801 when departing United States Installations not having a Military Base Operations.

Abbreviated Instructions are found within the AIM 5-1-9

Detailed instructions on the FAA website at:
http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/flight_plan_filing/

File via web preferred at:
www.1800wxbrief.com or via phone 1-800-WXBRIEF



U.S. Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY
<=FF

ADDRESSEE(S)

FILING TIME

ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR

3 MESSAGE TYPE
<=(FPL

7 AIRCRAFT IDENTIFICATION
VV2E095

8 FLIGHT RULES
I

TYPE OF FLIGHT
M

9 NUMBER
1

TYPE OF AIRCRAFT
TEX2

WAKE TURBULENCE CAT.
L

10 EQUIPMENT
DIYRUGS /LB1

13 DEPARTURE AERODROME
KHBG

TIME
1200

15 CRUISING SPEED
N0245

LEVEL
A160

ROUTE
LBY1.LBY V543 RAYOP D CT TINEE

16 DESTINATION AERODROME
KNBG

TOTAL EET
HR MIN
0034

ALTN AERODROME
KHUM

2ND ALTN AERODROME

18 OTHER INFORMATION
PBN/B2C2D2S1 SUR/260B DOF/160602 REG/166095 OPR/DOD

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19 ENDURANCE
HR MIN
E/ 0239

PERSONS ON BOARD
P/ 002

EMERGENCY RADIO
UHF VHF ELT
R/ U X E

SURVIVAL EQUIPMENT
POLAR DESERT MARITIME JUNGLE
/ X X M X

JACKETS
LIGHT FLUORES UHF VHF
/ L F U X

DINGHIES
NUMBER CAPACITY COVER COLOR
D / 02 002 C ORANGE <=

AIRCRAFT COLOR AND MARKINGS
A/ ORANGE/WHITE

REMARKS
N / FLARES, SMOKE, MIRROR <=

PILOT-IN-COMMAND
C/ READY)<=

FILED BY | ACCEPTED BY | ADDITIONAL INFORMATION

FAA Form 7233-4 (7/15)

Figure 14-30 FAA Form 7233-4 International Flight Plan

1404. CHAPTER FOURTEEN REVIEW QUESTIONS

1. IFR flight plans should be filed at least _____ minutes prior to the estimated time of departure to preclude possible delays in receiving a departure clearance for ATC.

2. Detailed instructions for completing a military flight plan are found in chapter ____ of the publication.

3. The Item 10 Equipment code for the T-6B with ADS-B is _____.

4. If you intend to cruise at 17,000 feet MSL you would enter _____ in Item 15 for LEVEL. For an altitude of 22,000 feet MSL you would enter _____.

5. The first entry for Item 15: Route will always be DCT. (TRUE/FALSE)

6. The time entered in Item 16 TOTAL EET includes all planned holding and terminal delays along the way to your destination. (TRUE/FALSE)

7. Based on the flight log provided below, your entry for Item 19 ENDURANCE FUEL/ would be _____.

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO	HRV 114.1			01		50	1050		
B▶SAFES	HRV 114.1	265	6	3		30	1020	131 253	-1 +20
V-552 TBD	TBD 112.0	254	9+28 37	2+7 9		20+50 70	950	128 252	-4 +19
V-552 LFT	LFT 109.8	296 294	34 68	16		110	840	251	+18
B▶LAFFS	ILFT 109.5	035	7	2		15	825	222	-11
			118	0+31		275			

ALTERNATE	ROUTE	ALTTITUDE	FUEL	TIME
BTR	ROSEY V70 LSU	3000	2+02	0+19

ALT ELEV	APC CONT	TOWER	GND	FSS	ATIS/METRO
70	120.3/278.3	118.45/257.8	121.9	122.95 UNI	125.2

B▶ ROSEY	LFT 109.8	080	10	3		25	855	214	-19
V70 LSU	LSU 116.5	059	23	6		45	810	215	-18
			33	0+09		70			

8. Based on the flight log above, your entry for Item 15 ROUTE should read:

_____

9. Based on the flight log above, if you desire to hold enroute at TBD for 20 minutes and then continue on, your Item 15 ROUTE should read:

_____

10. What supporting entry(s) for Item 18 OTHER INFORMATION would be used to clarify your intentions based on question 10 above? _____

11. You require the following types of information to be listed for Item 18 OTHER INFORMATION. List them in the correct sequence in which they should appear: OPR/ RMK/ PBN/ DLE/ DOF/ DEST/ REG/.

_____

12. The Performance Based Navigation code (PBN/) for the T-6B is _____.

CHAPTER FIFTEEN
PRACTICE PROBLEMS

1500. INTRODUCTION

This chapter provides practice problems to reinforce flight planning skills.

Due to the constant changes that occur in flight planning publications key information has been provided for each problem. Use of current publications may not match the intended outcomes for this exercise.

Directions:

- Read each problem in its entirety.
- Date of flight is a Tuesday during Daylight Saving Time.
- Enroute weather is adequate for each flight.
- Complete the Flight Planning Matrix.
- Complete the Flight Log.
- Complete the DD Form 1801.
- NOTAMS are noted where applicable.
- Answer the questions concerning each practice problem.
- Answers for practice problems are contained in Appendix A.

Direct distances on Enroute High and Low Charts provided can be obtained using https://skyvector.com.

Use Courses and distances when depicted on provided Charts (sky vector web site will be slightly different for these values).

1501. PRACTICE PROBLEM NUMBER ONE

1. The following information is given:

Unit of Assignment: TW5/KNSE

Aircraft/Bureau Number /Call Sign: T-6B/162145/NAVY 2 ECHO 145

AIRPORT	FORECAST WEATHER +/- 1 hour
ORIGIN: Orlando Intl, FL	36020KT 4800 FU BKN010 QNH 29.89
DEST: NAS Key West, FL	07010KT 9999 SHRA BKN025 QNH 30.09
ALTN 1: Miami Intl, FL	12005KT 3200 RA OVC009 QNH 29.92
ALTN 2: Ft. Myers/Page Field, FL	13015KT 3200 RA OVC008 QNH 29.91
ALTN 3: Miami Exec, FL	09005KT 4800 HZ OVC015 QNH 29.98

Route: Depart Orlando Intl, RWY 35L at 1000 local time via CITRUS SEVEN DEPARTURE to Orlando VORTAC, direct Lakeland VORTAC, direct LEE CO, J41 to KEY WEST direct SKIPP for the VOR/DME or TACAN Z RWY 8 APPROACH.

Route to ALTN 1: Direct KEY WEST then the DVALL TWO ARRIVAL KEY WEST Transition direct DOLPHIN, direct GLRIA for the ILS or LOC RWY 12

NOTAMs: KMIA: PPR for RON

Route to ALTN 2: Direct KEY WEST J41 LEE CO direct to FIVER for the VOR RWY 13
NOTAMs: KFMY: QNDAC

Route to ALTN 3: Direct KEY WEST then the DVALL TWO ARRIVAL KEY WEST Transition. Direct DOLPHIN direct LAYDN for the ILS or LOC RWY 9R

NOTAMs: KTMB: QFALC

Climb Data:

- Climb Speed: 140 KIAS
- Climb Winds/Temperature: 130/10, ΔT -5°C

Cruise Data:

- Cruise Altitude: 27,000’ MSL
- Cruise Winds/Temperature: 300/65, -30°C

Fuel Data:

- 1100 lbs fuel load
- STTO 50 lbs
- Approach 50 lbs
- MAX Endurance Fuel Flow 333 PPH

Additional Data:

– Instrument Rating: STANDARD

Magnetic Variation: 5°W

2. IFR Supplement ORLANDO INTL

ORLANDO INTL, FL **KMCO** P (AF) N28°25.76' W81°18.54' 96 UTC-5(-4DT)
H-8H, L-21D-24F

(B) **RWY-17L** L2,3,4,5,10,50	(9001x150 ASP PCN 116 R/B/W/T)	L2,3,4,5,10,50 **RWY-35R**
RWY-17R L2,3,4,5,10,50	(10000x150 CON PCN 106 R/B/W/T)	L2,3,4,5,10,50 **RWY-35L**
RWY-18L L4,5,43	(12005x200 PEM PCN 97 R/B/W/T)	L2,3,4,5,10,50 **RWY-36R**
RWY-18R L2,3,4,5,8,15,50	(12004x200 PEM PCN 104 R/B/W/T)	L3,4,5,9,50 **RWY-36L**

SERVICE - LRA **LGT** - Rwy 17L-35R unlgtd 0400-1100Z++. **FUEL** - A, A+ (Atlantic Avn Orlando LLC, C407-851-8304.) (NC-100LL)

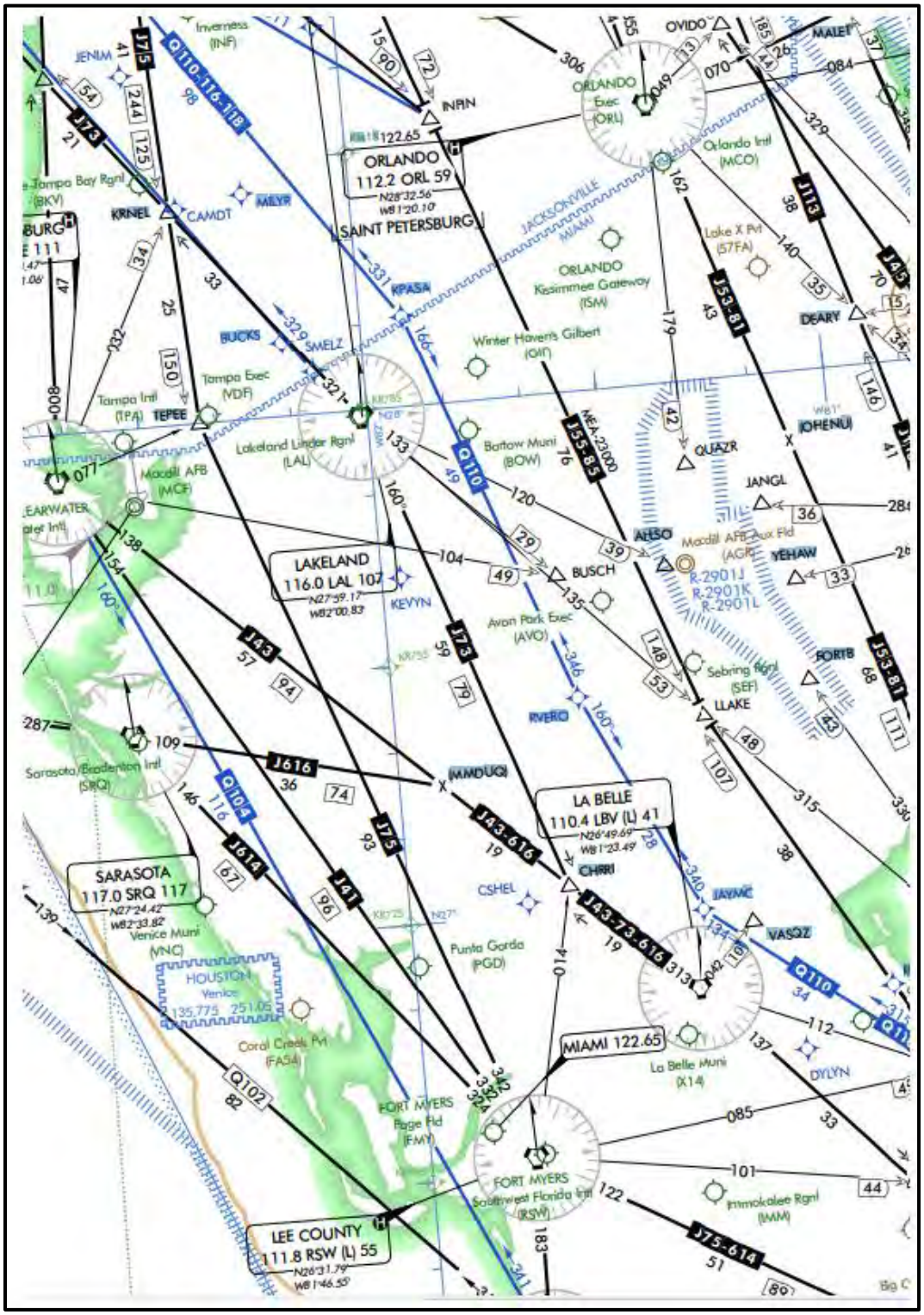
REMARKS - **RSTD** - RWY 18R: TORA 12005, TODA 12005, ASDA 12005, LDA 12005. RWY 36L: TORA 12005, TODA 12005, ASDA 11621, LDA 11621. RWY 18L: TORA 12004, TODA 12004, ASDA 12004, LDA 12004. RWY 36R: TORA 12004, TODA 12004, ASDA 11601, LDA 11601. RWY 17L: TORA 9000, TODA 9000, ASDA 9000, LDA 9000. RWY 35R: TORA 9000, TODA 9000, ASDA 9000, LDA 9000. Acft with wingspan greater than 214' must adhere to specific rwy and twy rte, ctc afld OPS C407-825-2036 for details. Twy A, S of Twy A3 rstd to wingspan less than 118'. PPR for wingspan 118' or greater. Twy J3 and J4 rstd to wingspan less than 118'. **CAUTION** - Wildlife haz. Avoid ctc with twy edge lgt. All acft determined to be FAA design Gp IV and abv must perform judgemental oversteering instead of cockpit cntrln steering when taxiing. Bright lgt on road btn Rwy 17L-35R and Rwy 17R-35L may be mistaken for rwy lgt. Use caution vcnty of Twy A along W ramp. **CSTMS/AG/IMG** - 1330-2200Z++, fone prior 2200Z++ preceding wkd, wkend arr fone prior 2200Z++ preceding Fri - C407-240-4462 or C407-825-4360. **MISC** - ASDE-X in use. Opr transponder with alt rpt mode and ADS-B enabled on all twy and rwy. Flt Notification Svc, ADCUS, avbl. 24 hr PPR for helipad ldg, C407-825-2036. Coml opr only, no pvt opr. Unless advs by ATIS, dep flt on initial ctc with GND: acft on W ramp, airside 1 and 3 (gates 1-59) use GND 121.8. Acft at airside 2 and 4 (gates 60 and higher) use GND 126.4. **AF** - Ctc USAR fac. **RWY** - All rwy grooved. Rwy 17L-35R T/D, Mid, R/O RVR.

COMMUNICATIONS - **UNICOM** - 122.95 **D ATIS** - 121.25 120.525 (121.25 Arr) (120.525 Dep) **ASOS** - *REMARKS:* C407-855-5235. LLWAS, TDWR.
ST PETERSBURG RDO - 122.2 122.65 123.65 255.4 112.2T 122.1R **APP/DEP** - **(R) (E)** 119.4 120.15 121.1 124.8 *REMARKS:* Class B Airspace (119.4 4500' and blw 061°-180°) (119.4 5500' and blw 181°-310°) (120.15 abv 5500' 181°-359°) (121.1 5500' and blw 311°-060°) (124.8 abv 5500' 000°-180°) **TWR** - **(E)** 118.45 124.3 253.5 *REMARKS:* (Rwy 17L/R-35L/R 118.45 253.5) (Rwy 18L/R-36L/R 124.3 253.5) **GND** - 121.8 126.4 275.8 *REMARKS:* (East 126.4 275.8) (West 121.8 275.8) **CLNC DEL** - 134.7 341.7
AR OPS - 41.5 148.8 **FSS-ST. PETERSBURG PIE-NOTAM MCO**

NAVAIDS - **ORLANDO VORTAC** - HA 112.200 ORL CH 59 N28°32.56' W81°20.10' 169° 6.9 NM to Fld. 102/(A)0°00.0'E HIWAS.
ORL TACAN az unusc 066° 084°
246°-289° byd 17 NM blw 2000'
246°-289° byd 28 NM blw 2500'

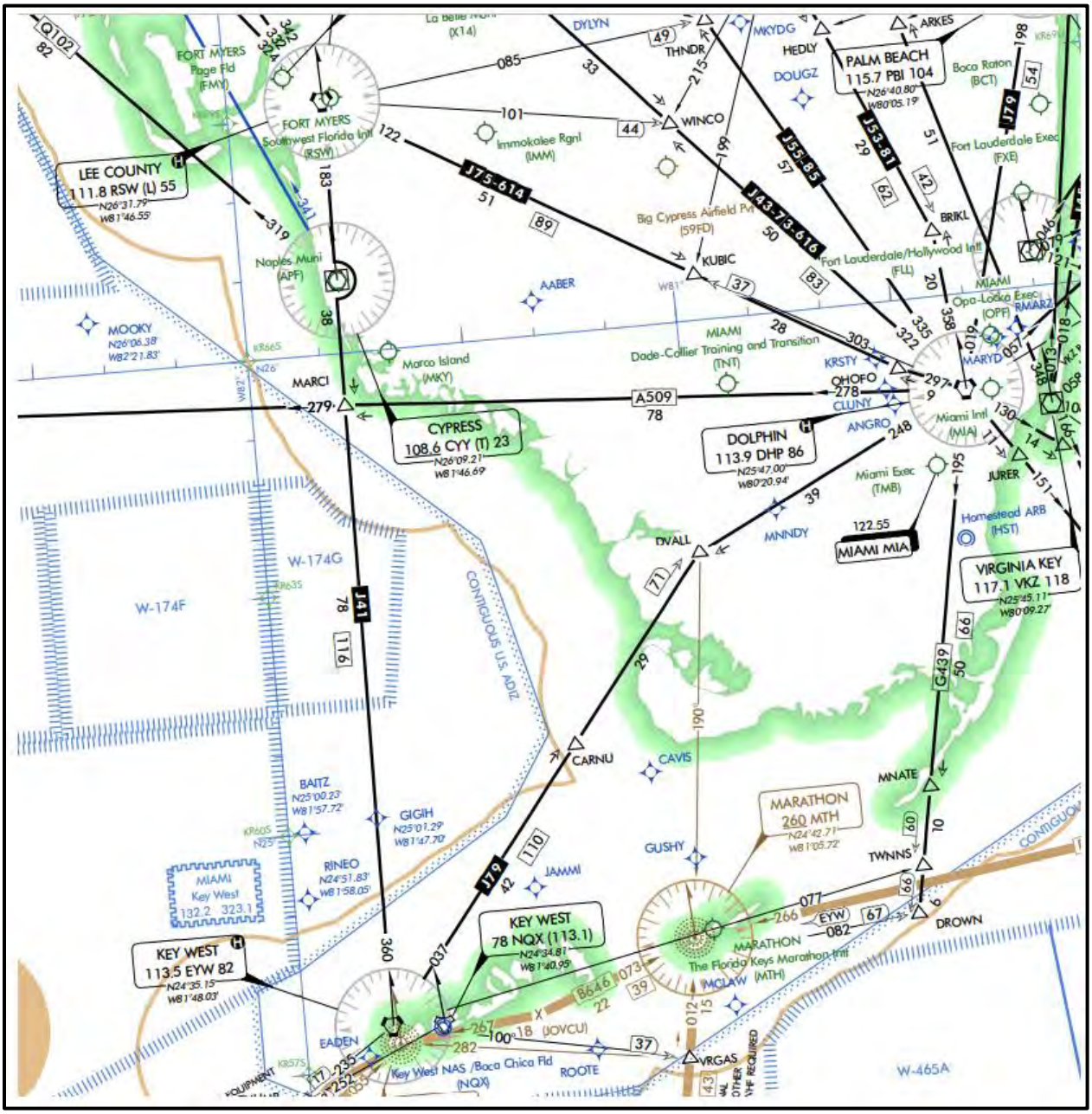
ILS/RADAR - **ILS** - 17R, 18R, 35L, 36R.

3. H-8 ORLANDO to LEE COUNTY

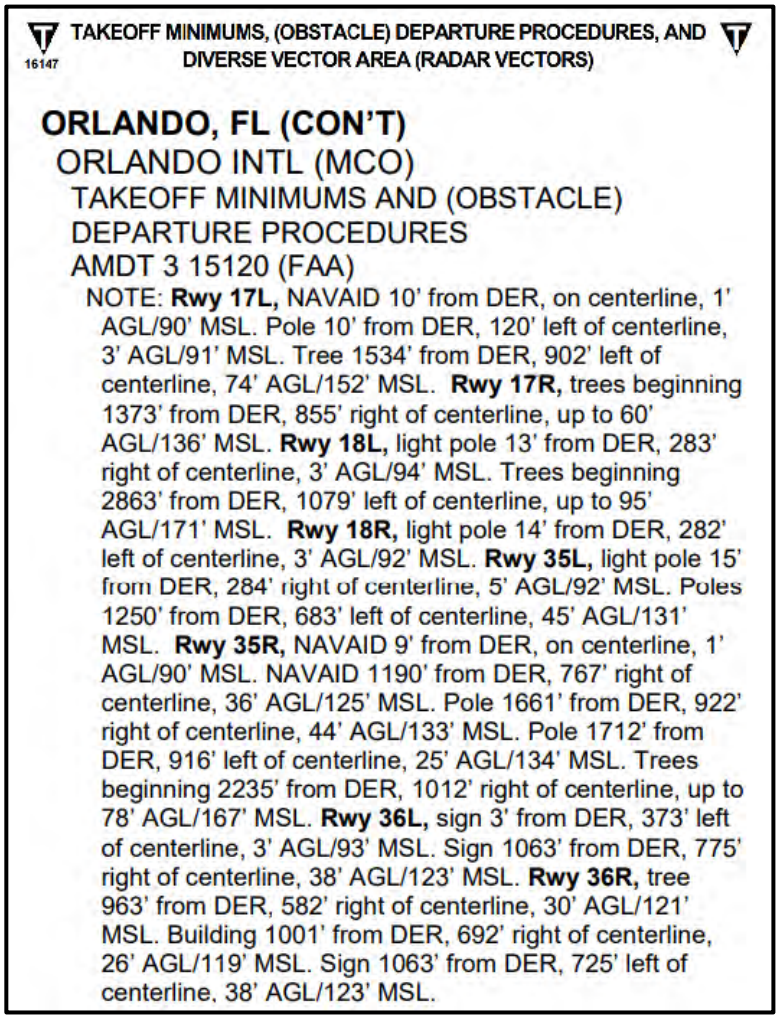


15-4 PRACTICE PROBLEMS

4. H-8 LEE COUNTY to KEY WEST



5. ORLANDO INTL Takeoff Minimums



TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

16147

ORLANDO, FL (CON'T)

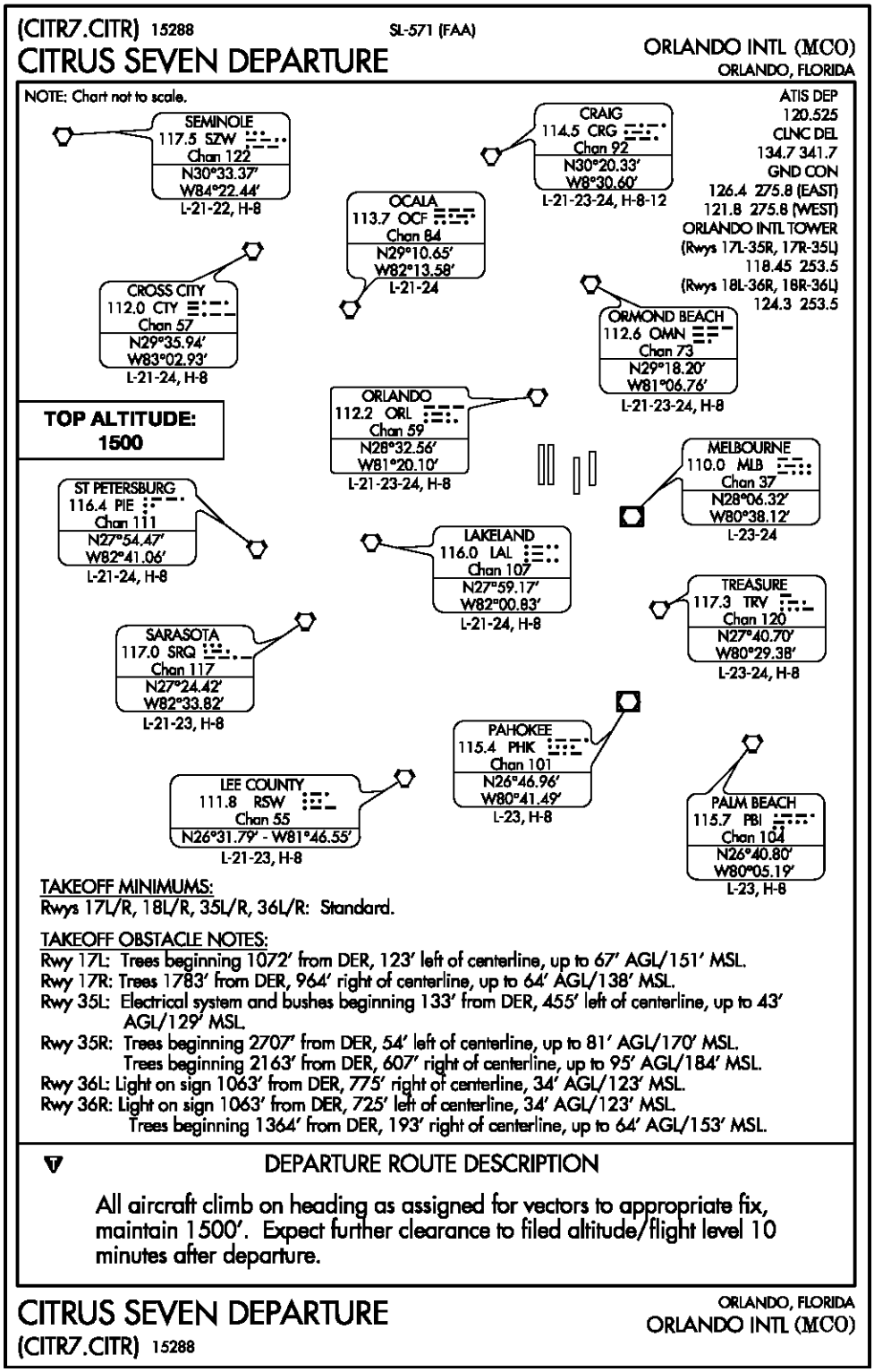
ORLANDO INTL (MCO)

TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

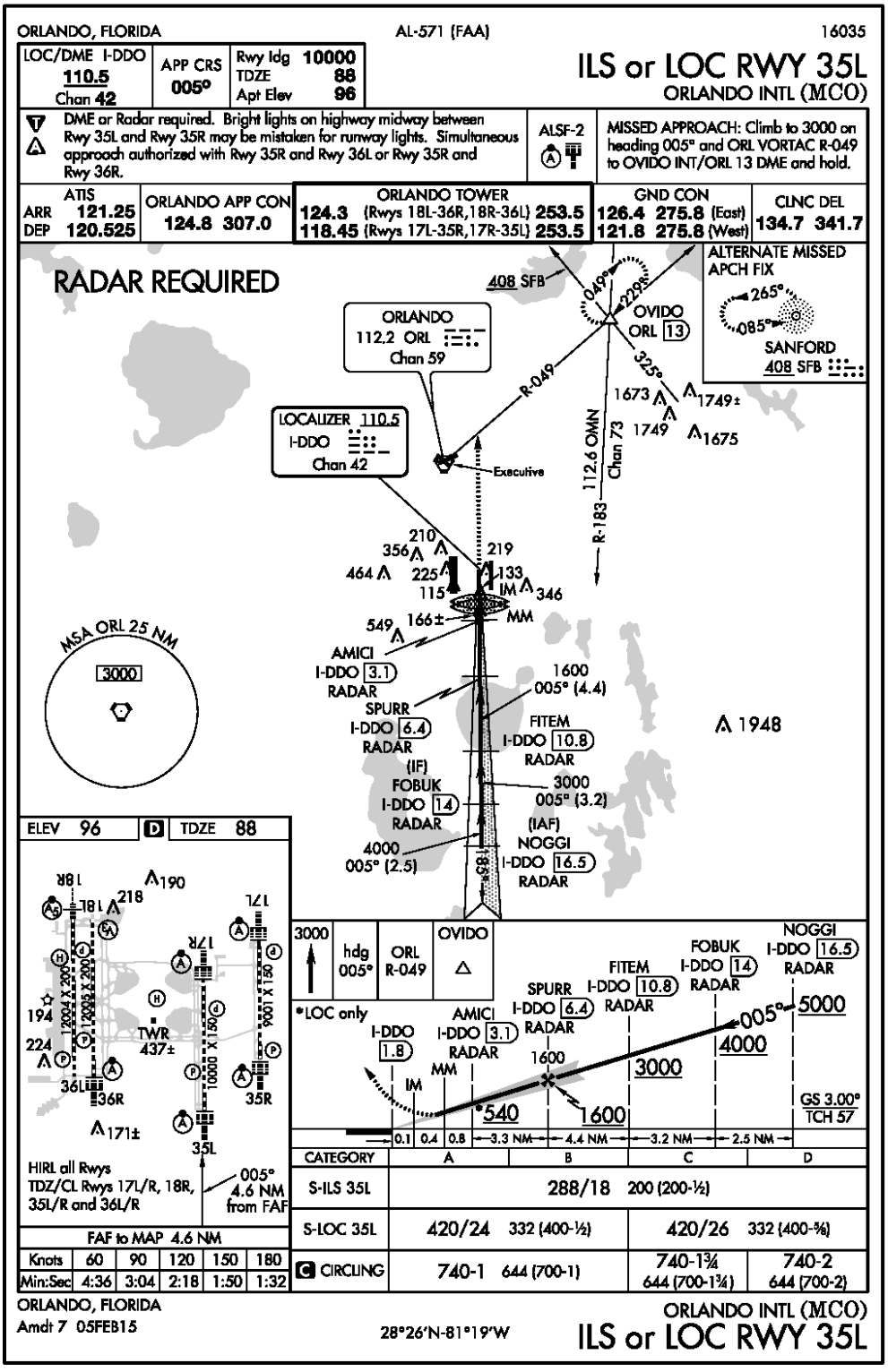
AMDT 3 15120 (FAA)

NOTE: **Rwy 17L,** NAVAID 10' from DER, on centerline, 1' AGL/90' MSL. Pole 10' from DER, 120' left of centerline, 3' AGL/91' MSL. Tree 1534' from DER, 902' left of centerline, 74' AGL/152' MSL. **Rwy 17R,** trees beginning 1373' from DER, 855' right of centerline, up to 60' AGL/136' MSL. **Rwy 18L,** light pole 13' from DER, 283' right of centerline, 3' AGL/94' MSL. Trees beginning 2863' from DER, 1079' left of centerline, up to 95' AGL/171' MSL. **Rwy 18R,** light pole 14' from DER, 282' left of centerline, 3' AGL/92' MSL. **Rwy 35L,** light pole 15' from DER, 284' right of centerline, 5' AGL/92' MSL. Poles 1250' from DER, 683' left of centerline, 45' AGL/131' MSL. **Rwy 35R,** NAVAID 9' from DER, on centerline, 1' AGL/90' MSL. NAVAID 1190' from DER, 767' right of centerline, 36' AGL/125' MSL. Pole 1661' from DER, 922' right of centerline, 44' AGL/133' MSL. Pole 1712' from DER, 916' left of centerline, 25' AGL/134' MSL. Trees beginning 2235' from DER, 1012' right of centerline, up to 78' AGL/167' MSL. **Rwy 36L,** sign 3' from DER, 373' left of centerline, 3' AGL/93' MSL. Sign 1063' from DER, 775' right of centerline, 38' AGL/123' MSL. **Rwy 36R,** tree 963' from DER, 582' right of centerline, 30' AGL/121' MSL. Building 1001' from DER, 692' right of centerline, 26' AGL/119' MSL. Sign 1063' from DER, 725' left of centerline, 38' AGL/123' MSL.

6. KMCO SID


(CITR7.CITR) 15288
SL-571 (FAA)
CITRUS SEVEN DEPARTURE
ORLANDO INTL (MCO)
ORLANDO, FLORIDA
NOTE: Chart not to scale.
ATIS DEP 120.525
CLNC DEL 134.7 341.7
GND CON 126.4 275.8 (EAST) 121.8 275.8 (WEST)
ORLANDO INTL TOWER (Rwys 17L-35R, 17R-35L) 118.45 253.5 (Rwys 18L-36R, 18R-36L) 124.3 253.5
SEMINOLE 117.5 SZW Chan 122 N30°33.37' W84°22.44' L-21-22, H-8
CRAIG 114.5 CRG Chan 92 N30°20.33' W8°30.60' L-21-23-24, H-8-12
OCALA 113.7 OCF Chan 84 N29°10.65' W82°13.58' L-21-24
CROSS CITY 112.0 CTY Chan 57 N29°35.94' W83°02.93' L-21-24, H-8
ORMOND BEACH 112.6 OMN Chan 73 N29°18.20' W81°06.76' L-21-23-24, H-8
TOP ALTITUDE: 1500
ORLANDO 112.2 ORL Chan 59 N28°32.56' W81°20.10' L-21-23-24, H-8
MELBOURNE 110.0 MLB Chan 37 N28°06.32' W80°38.12' L-23-24
ST PETERSBURG 116.4 PIE Chan 111 N27°54.47' W82°41.06' L-21-24, H-8
LAKELAND 116.0 LAL Chan 107 N27°59.17' W82°00.83' L-21-24, H-8
TREASURE 117.3 TRV Chan 120 N27°40.70' W80°29.38' L-23-24, H-8
SARASOTA 117.0 SRQ Chan 117 N27°24.42' W82°33.82' L-21-23, H-8
PAHOKEE 115.4 PHK Chan 101 N26°46.96' W80°41.49' L-23, H-8
LEE COUNTY 111.8 RSW Chan 55 N26°31.79' - W81°46.55' L-21-23, H-8
PALM BEACH 115.7 PBI Chan 104 N26°40.80' W80°05.19' L-23, H-8
TAKEOFF MINIMUMS:
Rwys 17L/R, 18L/R, 35L/R, 36L/R: Standard.
TAKEOFF OBSTACLE NOTES:
Rwy 17L: Trees beginning 1072' from DER, 123' left of centerline, up to 67' AGL/151' MSL.
Rwy 17R: Trees 1783' from DER, 964' right of centerline, up to 64' AGL/138' MSL.
Rwy 35L: Electrical system and bushes beginning 133' from DER, 455' left of centerline, up to 43' AGL/129' MSL.
Rwy 35R: Trees beginning 2707' from DER, 54' left of centerline, up to 81' AGL/170' MSL.
Trees beginning 2163' from DER, 607' right of centerline, up to 95' AGL/184' MSL.
Rwy 36L: Light on sign 1063' from DER, 775' right of centerline, 34' AGL/123' MSL.
Rwy 36R: Light on sign 1063' from DER, 725' left of centerline, 34' AGL/123' MSL.
Trees beginning 1364' from DER, 193' right of centerline, up to 64' AGL/153' MSL.
DEPARTURE ROUTE DESCRIPTION
All aircraft climb on heading as assigned for vectors to appropriate fix, maintain 1500'. Expect further clearance to filed altitude/flight level 10 minutes after departure.
CITRUS SEVEN DEPARTURE
(CITR7.CITR) 15288
ORLANDO, FLORIDA
ORLANDO INTL (MCO)

7. KMCO APPROACH



8. IFR Enroute Supplement KEY WEST NAS

KEY WEST NAS, (BOCA CHICA FLD) FL **KNQX** N N24°34.48' W81°41.20' 6
UTC-5(-4DT) **H-8H, L-23C**

(B) **RWY-04** L5,50,51	(7002x150 PEM PCN 40 F/C/W/T)	L5,50,51 **RWY-22**
HOOK E28(B) (1500')		HOOK E28(B) (1202')
RWY-08 L2,5,11,50,51	(10001x200 PEM PCN 53 R/A/W/T)	L5,50,51 **RWY-26**
HOOK E28(B) (1500')		HOOK E28(B) (1501')
RWY-14 L5,50,51	(7001x150 PEM PCN 47 R/B/W/T)	L5,50,51 **RWY-32**
HOOK E28(B) (1135')		HOOK E28(B) (1501')

SERVICE - L-AOE **A-GEAR** - All E-28(B) short fld A-G in raised posn. Exc short fld A-G duty rwy derigged. **JASU** - (NC-8A) (NCPP-105) **FUEL** - Avbl 1100-0300Z++. J5 **FLUID** - SP **OIL** - O-128-156 **TRAN ALERT** - Extv delay tran svcg. Ltd tran maint avbl 1200-2100Z++ Mon-Fri.

REMARKS - Opr 1200-0300Z++, OT by NOTAM; ctc Base OPS DSN 483-2770, C305-293-2770, fax DSN 483-2771, C305-293-2771. Base OPS not staffed outside fld hr. **RSTD** - PPR ctc Air Trml DSN 483-2769/2779, C305-293-2769/2779, fax DSN 483-2355, C305-293-2355. PPR is valid for +/- 1 hr of proposed ETA. If outside ETA slot, ctc Air Trml to update PPR. **CAUTION** - Wildlife haz. Unlgt ramp parl to Twy L. R2916, Tethered Aerostat Radar System, opr cont up to 14,000'. Key West NAS (KNQX) and Key West Intl (KEYW) have adj Class D, ints civ tfc SW and NW sctr Key West NAS (NQX) Class D. Various unmrk/unlgtd twy obst. Hot cargo pad is unlgtd, day use only. **TFC PAT** - Reduced rwy separation std in eff USN/USMC acft. **CSTMS/AG/IMG** - Avbl 1300-0100Z++ Mon-Sat, exc Sun and hol. Acft req inspections ctc Base OPS 90 min prior arr. **MISC** - Class D Airspace reverts to Class E when twr clsd.

COMMUNICATIONS - **SFA** *REMARKS:* as asgn. **ATIS** - 1200-0300Z++. 307.025 **APP/DEP** - Opr 1200-0300Z++, OT ctc MIAMI CENTER 133.5 306.9. **(R) (E)** 124.025 126.575 313.7 289.85 **TWR** - **(E)** 118.575 305.95 340.25 361.25 *REMARKS:* (305.95 FCLP) **GND** - 121.7 336.45 **CLNC DEL** - 121.2 357.4 **PMSV METRO** - PMSV avbl 1030-2230Z++. 343.5 **BASE OPS** - 338.15 **FSS-MIAMI MIA-NOTAM MIA**

NAVAIDS - **KEY WEST VORTAC** - HA 113.500 EYW CH 82 N24°35.15' W81°48.03' 095° 6.3 NM to Fld. 10/(A)1°00.0'E **KEY WEST TACAN** - HA NQX CH 78 N24°34.81' W81°40.95' At Fld. 3/(A)6°00.0'W Ident removed 0300-1200Z++.

EYW TACAN unuse	123°-133° byd 20 NM
EYW VOR unuse	025°-059° blw 3000'
	060°-093° byd 20 NM blw 5000'
	085°-095° byd 12 NM blw 1600'
	094°-140° byd 20 NM
	190°-255°
	270°-280° byd 20 NM
	337°-352° byd 20 NM

ILS/RADAR - **RADAR** - SEE TERMINAL FLIP FOR RADAR MINIMA.

9. AP1 KEY WEST NAS

Key West NAS (KNQX), FL

1. PRIOR PERMISSION REQUIRED (PPR) – All aircraft, other than base-assigned aircraft or scheduled detachment aircraft, shall obtain a PPR number at Air Terminal DSN 483-2769/2779, C305-293-2769/2779. Strict adherence to published field operating hours is required. PPR is valid for +/- 1 hour of proposed ETA. If outside of ETA slot, contact Air Terminal to update PPR. Transient parking and services limited. PPR can be scheduled 2 weeks prior to arrival, but no further in advance.

2. ATC Course Rules Brief, in accordance with NASKWINST 3120.1 Key West NAS (KNQX) Deployment Manual, is required prior to conducting flight operations in the Key West (KNQX) Local Flying Area. Detachments contact Fleet Liaison at DSN 483-2773, C305-293-2773 to schedule. Transient Aircraft contact ATC at DSN 483-2770, C305-293-2770 to schedule.

3. CAUTION – Key West NAS (KNQX) is a unique and overlapping Class D Airspace with Key West Intl (KEYW) Class D Airspace, as defined in FAA Order 7400.9 and FAR Part 71. Due care and extreme caution must be utilized so as not to encroach upon KEYW Class D airspace, as well as increased vigilance for civilian traffic.

4. NOISE ABATEMENT PROCEDURES – Strict compliance with the following noise abatement procedures will be followed by all aircraft unless controller instructions or safe procedures consistent with the aircraft flight manual for your aircraft dictate otherwise. Compliance is mandatory and extremely important in maintaining goodwill between the military and the surrounding community of Key West.

a. Aircraft shall avoid flying over the following locations:

(1) Key Haven; 2.5 NM WNW west of KNQX; 24° 34' 53" N, 081° 44' 06" W

(2) Stock Island; 3.0 NM WSW of KNQX; 24° 33' 52" N, 081° 43' 37" W

(3) East Rockland Key; 1.4 NM NE of KNQX; 24° 35' 10" N, 081° 40' 21" W

(4) Geiger Key; 1.9 NM E of KNQX; 24° 34' 42" N, 081° 39' 24" W

b. Aircraft shall not fly over the city of Key West below 3K unless under radar control or executing an approved instrument approach.

c. Use minimum power in the traffic pattern consistent with flight safety.

d. Climb as rapidly as practicable after takeoff to pattern/assigned altitude.

e. Runway 08 – Departures shall turn left heading 065°, directly over bridge to split East Rockland Key and Geiger Key. Passing 3 DME, turn right heading 090°. All traffic pattern base legs shall be over the Boca Chica Channel.

f. Runway 22/26 – Departures shall turn left heading 180° at the upwind numbers.

g. Runway 04/32 – Departures shall fly heading 360° at the upwind numbers.

5. Trumbo Point Helicopter Landing Zone – This is an unlit helicopter landing area adjacent to the former seaplane hangar and FLY NAVY Building at Trumbo Point. It is located inside KEYW Class D Airspace and is not under the positive control of KNQX Tower. However, the following procedures apply:

a. KNQX Fleet Liaison shall be utilized as the main coordinating agency for Trumbo Point LZ operations. Overnight detachment operations are authorized after thorough coordination with the Fleet Liaison Officer and the NASKW OPSO.

b. PRIOR PERMISSION REQUIRED (PPR) – All aircraft, other than base-assigned aircraft or scheduled detachment aircraft, shall obtain a PPR number at DSN 483-2769/2779, C305-293-2769/2779.

c. Contact KNQX Base Operations 15 minutes prior to arrival on 338.15. Forward the following information – callsign, type aircraft, persons on board, and time on station.

d. All arrivals and departures at the Trumbo Point LZ will be To and From the North, respectfully. All aircraft will coordinate with KEYW Tower for clearance into their Class D airspace.

6. CAUTION – R2916, Cudjoe Key Tethered Aerostat Radar System (TARS), as defined in FAA Order 7400.8 and AP/1A. A large helium filled balloon type device operating continuously, up to 14,000'. Strobe lights are located on balloons, however the tether is unmarked and nearly impossible to see/locate. Located approximately at NQX TAC R-050/12. Aircraft will be vectored to remain outside the lateral boundary of R-2916 unless overflying the area at or above 15,000'.

7. TAXIWAY OBSTRUCTION – C-130 and larger aircraft utilize caution when taxiing due to unmarked/unlit fences, located 88' from Taxiway D, 115' from Taxiway F, and 68' from Taxiway G centerlines. Caution – Standing water after periods of rain at hold short of Taxiway A and Runway 14, possible hazard to taxiing aircraft.

8. CUSTOMS, AGRICULTURE, AND IMMIGRATION – Customs office is located at Key West Intl (KEYW). Agents available 0800L-2000L Mon-Sat, excluding Sun and holidays. Aircraft will contact ATC 1 hour prior to arrival and Base Ops (338.15) 30 minutes prior to landing. Arrival delays may cause offsite Customs Office delays in response time.

9. COMSEC – Airfield services has limited storage facilities available for classified material for transient aircraft. Storage requests for classified material must be made in advance and when making a PPR by contacting the Air Terminal at DSN 483-2769/2779, C305-293-2769/2779. For large vault items or for other security questions, contact NASKW Security Manager at DSN 483-2662, C305-293-2662 or C305-797-4407. Upon arrival, aircrews SHALL notify transient services of classified storage requirement and estimated departure information for coordination.

10. Weather observations are performed by a certified weather observer during published field hours 1000-0200Z++. Automated Surface Observation System (ASOS) is available during all other hours.

11. CAUTION – Bird activities abound at KNQX due to its unique location on the Florida Keys and its natural stop for the fall and spring migrations.

15-10 PRACTICE PROBLEMS

10. AP1 KEY WEST NAS (cont.)

a. Bird/Animal Aircraft Strike Hazard (BASH) Reduction Program point of contact is the KNQX Aviation Safety Officer DSN 483-2350.

b. Bird Watch Conditions (BWC) shall be disseminated via ATIS 307.025 during published field hours. Key West NAS (KNQX) BWC are defined as follows:

(1) BWC Severe – Heavy (15 or more large or 30 or more small) bird activity observed on or immediately above the active runway, or other specific locations which may represent probable hazard to safe flying conditions.

(2) BWC Moderate – Moderate (5-15 large or 15-30 small) bird activity in the local flying vicinity that constitutes a probable hazard to safe flying operations.

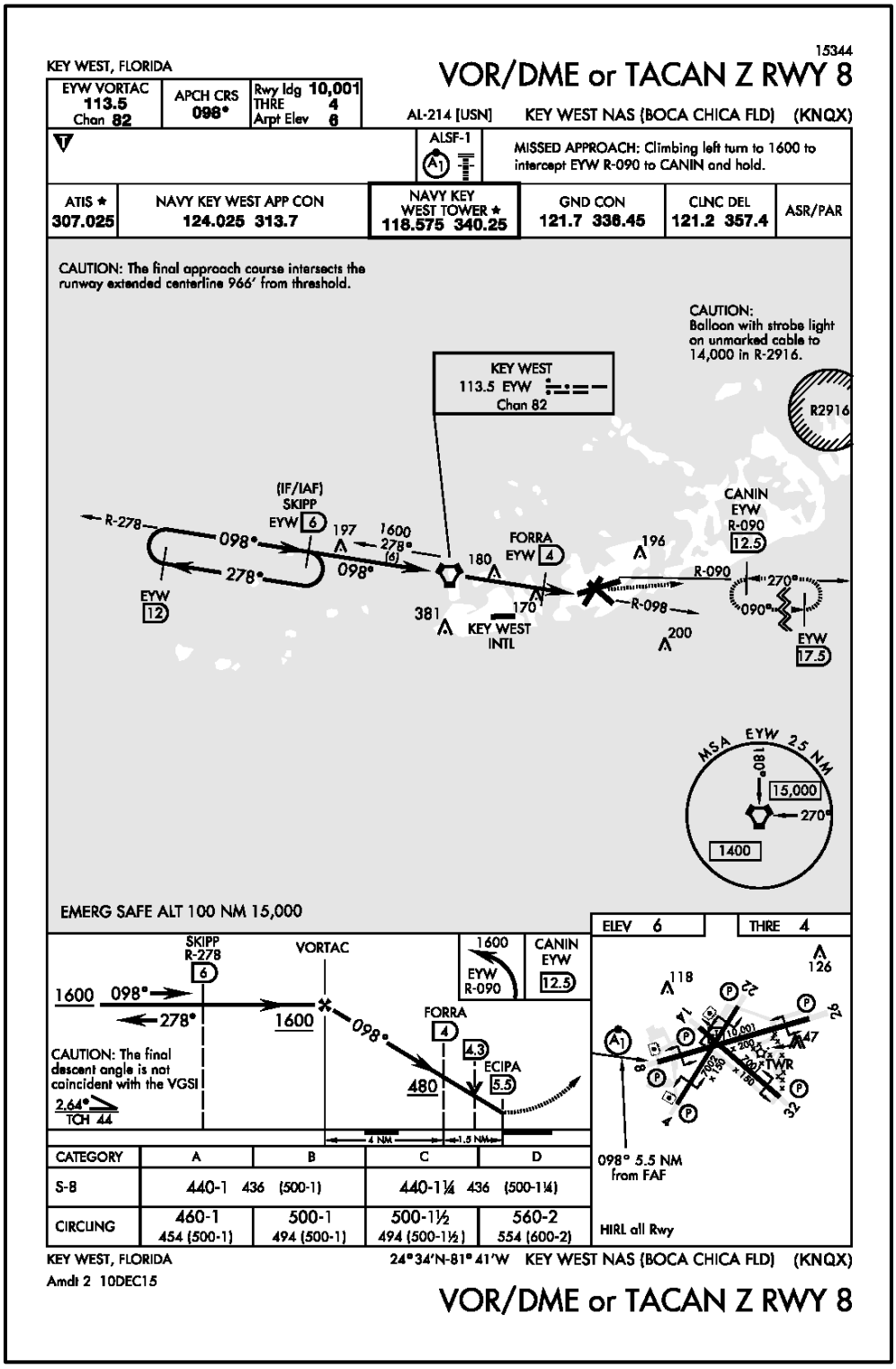
(3) BWC Low – Normal (sparse birds) activity on or around the airfield.

c. Aircrew shall advise ATC of bird observations and encounters. Bird/Animal strikes shall be reported to the KNQX Aviation Safety Officer as per paragraph 6.a., the KNQX Base Ops DSN 483-2770, and the USDA representative at DSN 483-3132, C305-293-3132. Additionally, a Bird/Animal Strike Report shall be completed and forwarded to the KNQX USDA Representative.

12. When weather anticipated greater the 5000/5, Precision Approach Radar (PAR) released every Monday 1200-1600Z++ for maintenance requirements. PAR can be placed back in service within 15 minutes if required or in the event of an emergency.

(USN/NAVFIG FIL 153250)

11. KNQX APPROACH



12. IFR Enroute Supplement MIAMI INTL

MIAMI INTL, FL **KMIA** P N25°47.72' W80°17.41' 9 UTC-5(-4DT) **H-8I, L-23C, A-1C**

(B) **RWY-08L** L4,5,9,50	(8600x150 ASP PCN 70 F/A/X/T)	L4,5,9,50 **RWY-26R**
RWY-08R L2,3,4,5,8,15,50	(10506x200 ASP PCN 70 F/A/X/T)	L2,4,5,14,50 **RWY-26L**
RWY-09 L2,4,5,8,15,50	(13016x150 ASP PCN 70 F/A/X/T)	L2,4,5,8,15,50 **RWY-27**
1358→		←261
RWY-12 L2,4,5,8,15,50	(9355x150 ASP PCN 70 F/A/X/T)	L4,5,14,50 **RWY-30**
		←940

SERVICE - FUEL - A, A+ (Landmark Avn Miami, C305-874-1477) (NC-100)

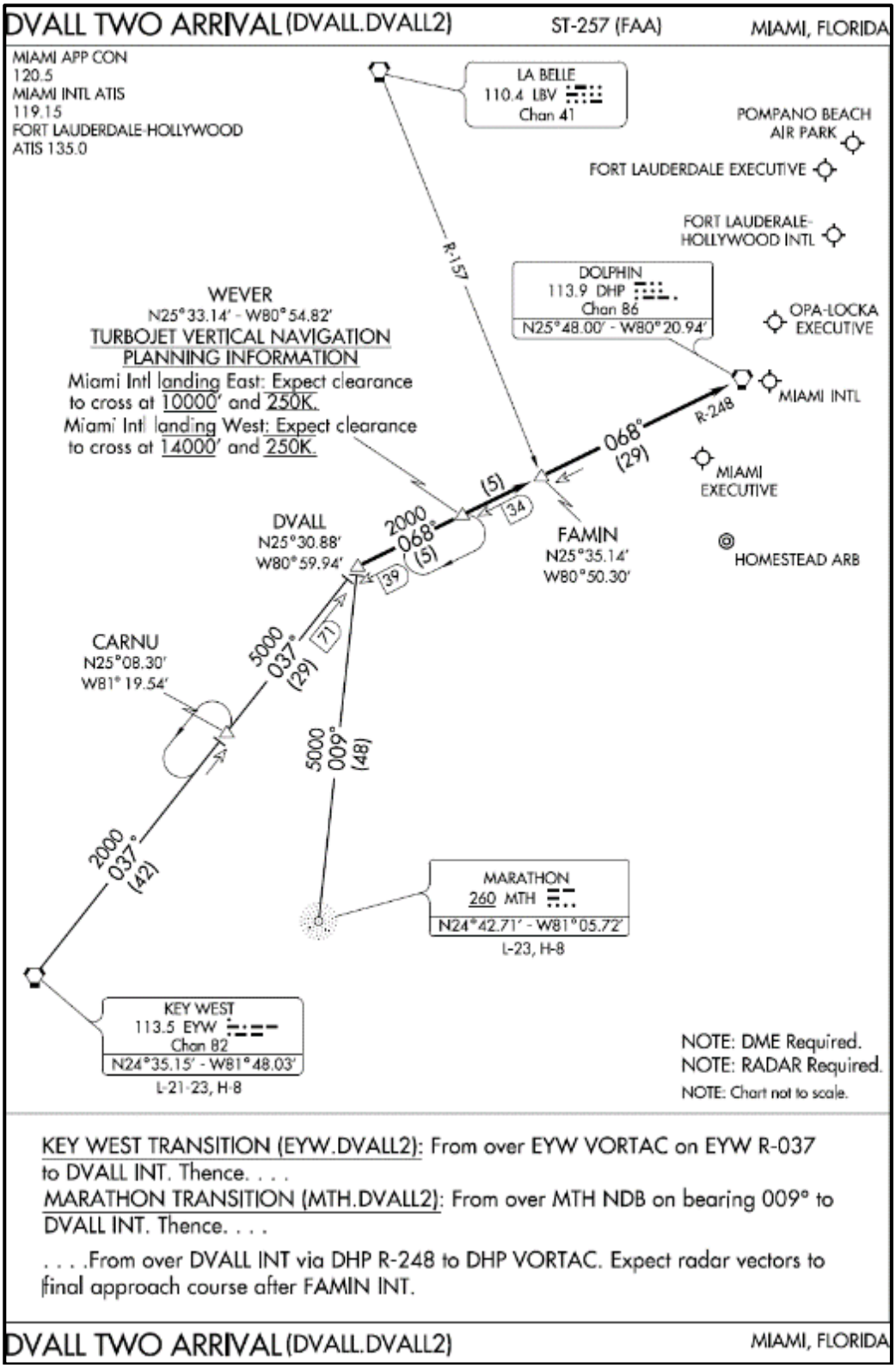
REMARKS - RSTD - RWY 09: TORA 13016, TODA 13016, ASDA 12755, LDA 11397. RWY 27: TORA 13016, TODA 13016, ASDA 13016, LDA 12755. RWY 12: TORA 9355, TODA 9355, ASDA 8579, LDA 8579. RWY 30: TORA 9355, TODA 9355, ASDA 8853, LDA 7913. Arpt clsd to non-eng acft. Rwy 08L-26R and Rwy 12-30 clsd 0200-1100Z++ when Rwy 08R-26L and Rwy 09-27 are in use. Acft with wingspan greater than 171' proh fr using Twy P (E of Twy U). Acft with wingspan greater than 143' proh fr using Twy AA. Clsd to non-eng acft. PPR 3 hr for all arr on General Avn Cntr (GAC) Ramp, ctc Ramp Control C305-876-7550 and upon arr on 131.600. Acft with wingspan greater than 78' proh fr entering the GAC ramp. PPR for inbd mil flt, notify when 100 NM out on 130.5. All medical emerg arr exc air ambulance flt must secure doors until arpt rescue fire fighting is on scene. All diversion acft, ctc arpt on 130.5 upon arr. B757, hvy, and super acft are NA int dep for any rwy unless a portion of the rwy is clsd or unuse. **CAUTION** - Bird haz. **TFC PAT** - Rgt tfc Rwy 09 and 26L. **NS ABTMT** - All turbojet acft use distant NS ABTMT dep pro fr all rwy exc A320, B727, B737-800, B767-400, and DC-9 use close-in NS ABTMT pro. **CSTMS/AG/IMG** - ADCUS avbl. CSTMS Border Protection designated intl arpt, ctc C305-526-7155. Special entry pt for MX and other countries in Western Hemisphere S of 30° N lat. **MISC** - Ldg fee. ASDE-X in use. Opr transponder with alt rpt mode and ADS-B enabled on all twy and rwy. Rwy 08L/R TD RVR, Rwy 09 TD and Mid RVR, Rwy 26L TD RVR, Rwy 27 TD RVR avail. **RWY** - All rwy grooved.

COMMUNICATIONS - SFA *REMARKS:* as asgn. **UNICOM** - 123.0 **D ATIS** - 119.15 133.675 *REMARKS:* C305-869-5445/46. **ASOS** - *REMARKS:* C305-870-0235. TDWR. **APP - (R) (E)** 120.5 124.85 125.75 322.3 379.9 (120.5 379.9 090°-269°) (124.85 322.3 270°-089°) (125.75 270°-089°) *REMARKS:* Class B Airspace **TWR - (E)** 118.3 123.9 256.9 (118.3 270°-089°) (123.9 090°-269°) **GND** - 121.8 127.5 348.6 (121.8 Rwy 08L-26R, 08R-26L, 12) (127.5 Rwy 09-27, 30) **DEP - (R) (E)** 119.45 125.5 290.325 354.1 (119.45 290.325 270°-089°) (125.5 354.1 090°-269°) **CLNC DEL** - 120.35 135.35 319.9 **FSS-MIAMI MIA-NOTAM MIA**

NAVAIDS - VOT - 112.0 **DOLPHIN VORTAC** - HA 113.900 DHP CH 86 N25°48.00' W80°20.94' 099° 3.2 NM to Fld. 7/(A)4°00.0'W HIWAS.

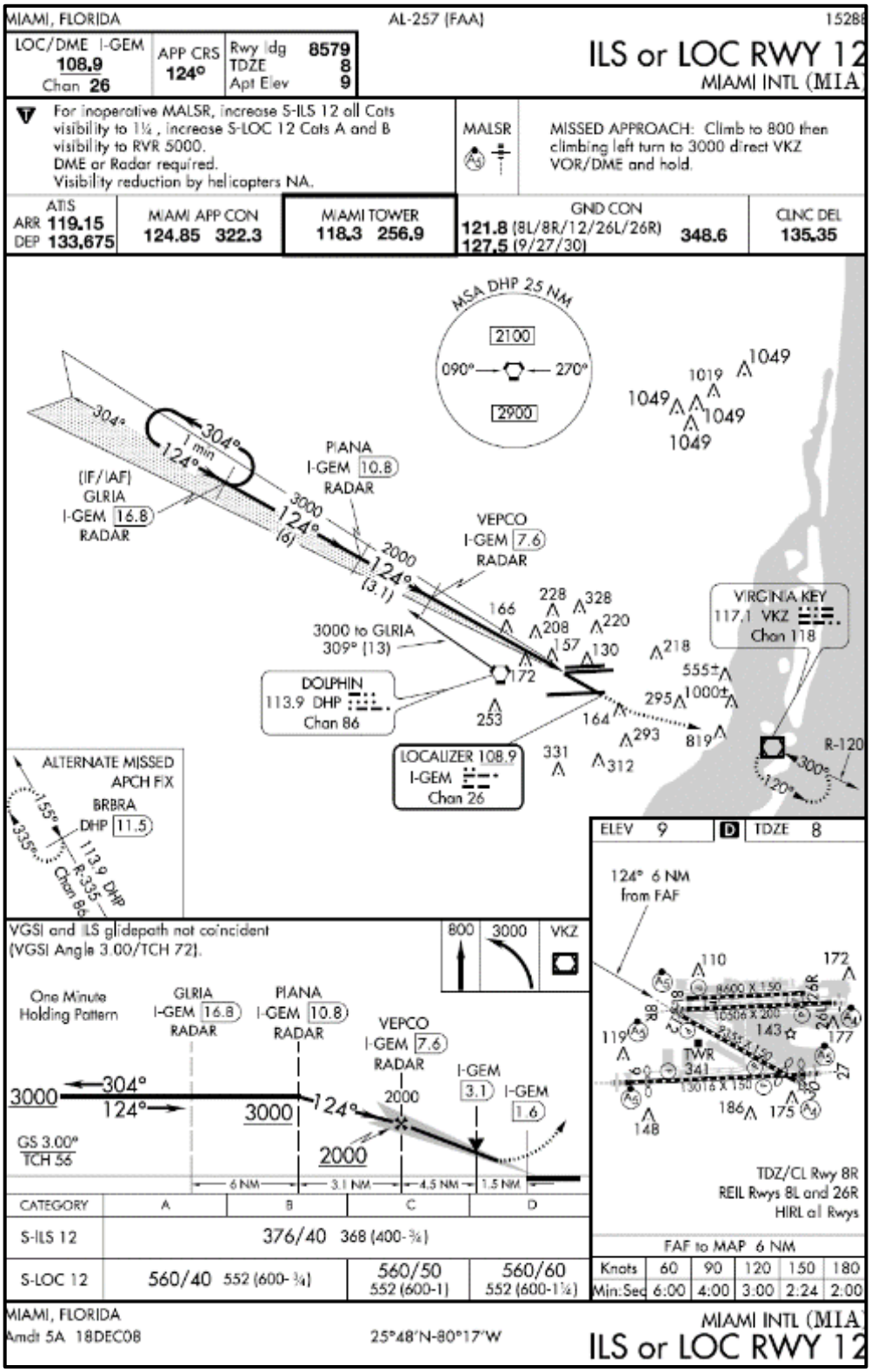
ILS/RADAR - ILS, LOC-DME- Rwy 08L LOC unuse byd 30° left and 25° rgt of crs, DME unuse byd 22° left of crs. Rwy 08R DME unuse byd 20° rgt of crs, LOC unuse byd 20° left and rgt of crs, LOC unuse fr 1.2 NM (3.1 DME) to thld. Rwy 26L GS unuse for coupled apch blw 480'. Rwy 12 LOC unuse byd 15° left and rgt of crs. Rwy 30 LOC unuse within 0.5 NM thld.

13. DVALL TWO ARRIVAL



15-14 PRACTICE PROBLEMS

14. KMIA APPROACH



15. IFR Enroute Supplement Page FLD

PAGE FLD, FL **KFMY** P N26°35.20' W81°51.79' 17 UTC-5(-4DT) **H-8H, L-21D-23B**

(B) **RWY-05** L6,43 (6406x150 ASP L6,43 **RWY-23**
459→ S125 D155 2S175 2D350) ←399
RWY-13 L6,43 (4912x150 ASP S30 D35) L6,43 **RWY-31**
614→

SERVICE - FUEL - (NC-100LL, A) **FLUID** - LHOX

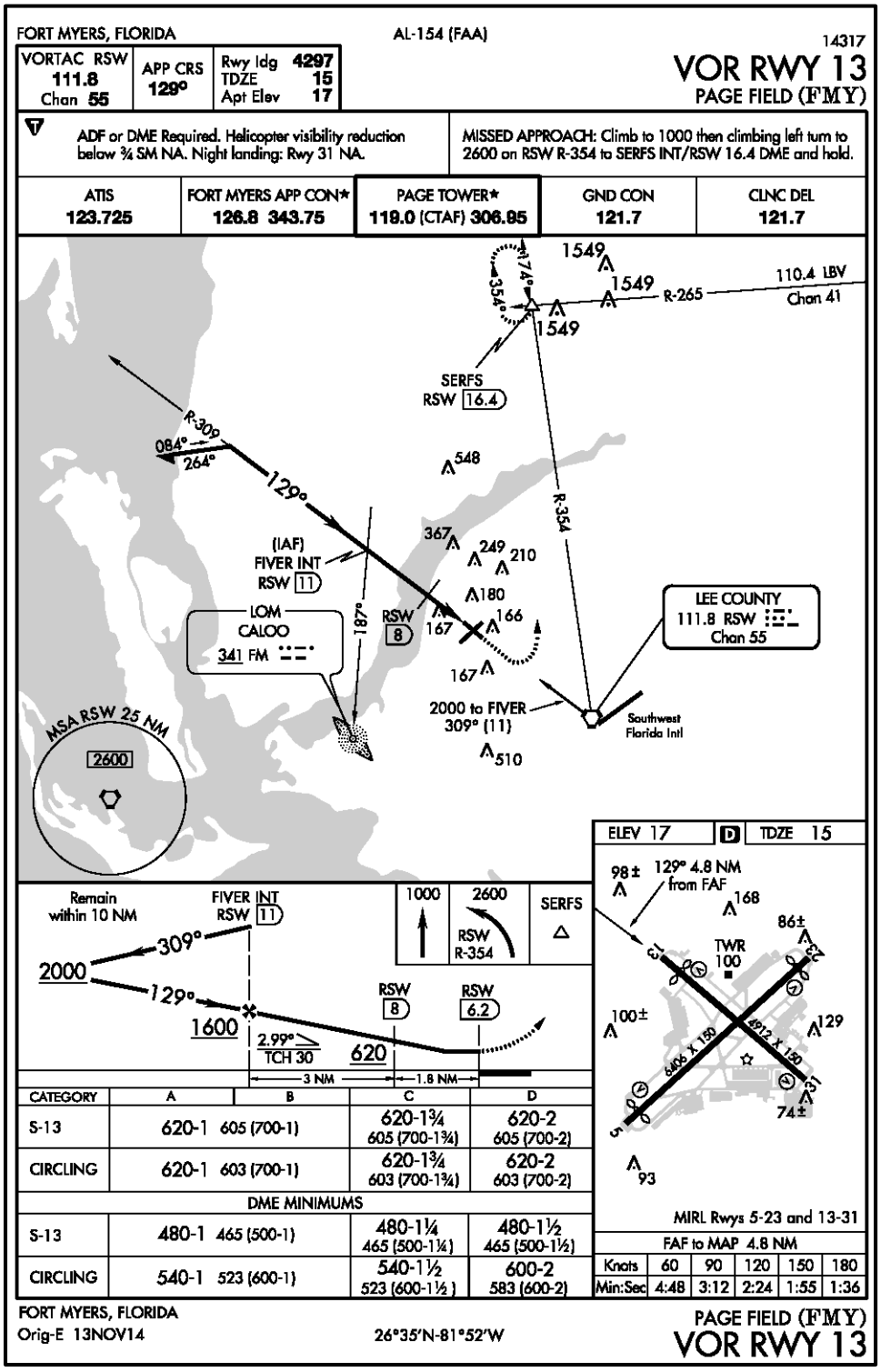
REMARKS - Opr 1200-0400Z++. **RSTD** - RWY 05: TORA 6401, TODA 6401, ASDA 6401, LDA 5947. RWY 23: TORA 6401, TODA 6401, ASDA 6401, LDA 6001. RWY 13: TORA 4909, TODA 4909, ASDA 4909, LDA 4297. RWY 31: TORA 4667, TODA 4909, ASDA 4667, LDA 4667. No sched coml PAX OPS. For info fone afld mgr C239-590-6600. **CAUTION** - Bird haz. Twy B SE of is a non-movement areas not vis fr twr. Twy D fr D-3 to Twy A is a non-movement area. Men and eqpt vcnty rwy and twy dur daylt hr. Acft on W ramp, ctc GND prior to taxi. **NS ABTMT** - Voluntary rstd for large acft and jet acft conducting multiple apch and/or clsd tfc. **MISC** - Brightly lgtd ball fld 1500' SE apch end Rwy 05. Class D Airspace reverts to Class G when twr clsd. **RWY** - Rwy 05-23 grooved.

COMMUNICATIONS - CTAF - 119.0 **UNICOM** - 130.55 *REMARKS:* Air to FBO com avbl
ATIS - Opr H24. 123.725 **ASOS** - *REMARKS:* C239-936-2318. LAWRS.
MIAMI RDO - (E) 122.2 122.65 122.1R *REMARKS:* (RCO)
FORT MYERS APP/DEP - Opr 1100-0500Z++, OT ctc MIAMI CENTER 134.75 322.5.- **(R)** 126.8 343.75 **TWR** - Opr 1200-0300Z++. 119.0 306.95 **GND** - 121.7
CLNC DEL - 121.7 **FSS-MIAMI MIA-NOTAM FMY**

NAVAIDS - LEE CO VORTAC - L 111.800 RSW CH 55 N26°31.79' W81°46.55' 308° 5.8 NM to Fld. 25/(A)2°00.0'W HIWAS. **CALOO NDB/LOM** - MHW 341.000 FM N26°30.97' W81°57.01' 053° 6.3 NM to Fld. Unk/5°30.6'W
FM NDB unuse 270°-300° byd 15 NM

ILS/RADAR - ILS - 05. Unmto.

16. KFMY APPROACH



17. IFR Enroute Supplement Miami Executive

MIAMI EXECUTIVE, FL **KTMB** P N25°38.85' W80°25.99' 10 UTC-5(-4DT)
H-8I, L-23C, A-1C

(B)	**RWY-09L** L6,50	(5003x150 ASP PCN 32 F/A/Y/T)	L6,50 **RWY-27R**
	RWY-09R L1,2,5,8,15,50	(5999x150 ASP PCN 32 F/A/Y/T)	L1,5,50 **RWY-27L**
	RWY-13 L6,9,50	(4001x150 ASP PCN 32 F/A/Y/T)	L6 **RWY-31**

SERVICE - LRA **LGT -** When twr clsd ACTIVATE-HIRL Rwy 09R-27L, MALSR Rwy 09R and twy lgt-CTAF. **FUEL -** (NC-100LL, A)

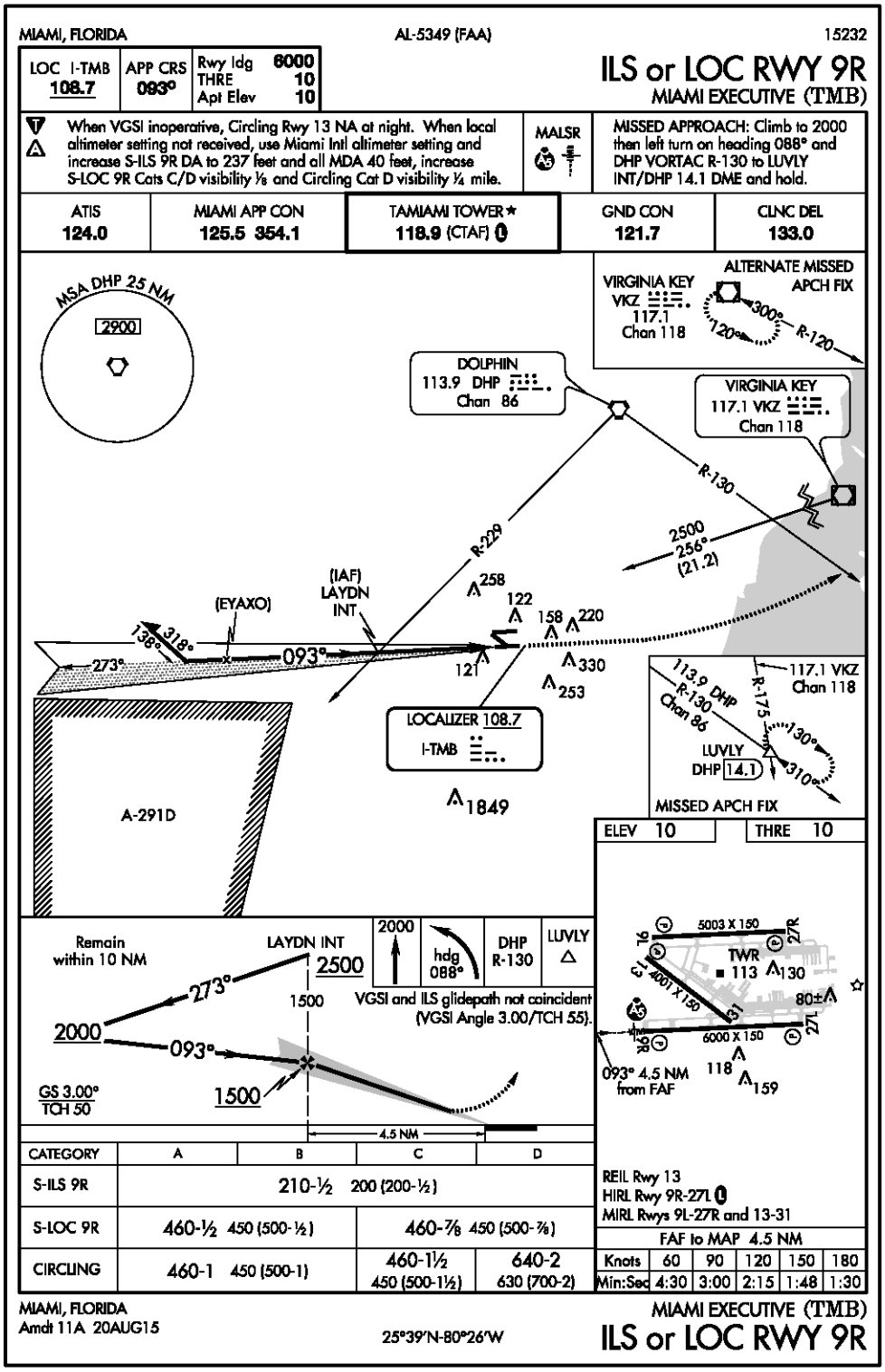
REMARKS - RSTD - Clsd to non-eng acft. **CAUTION -** Bird haz. Pers and eqpt adj to rwy and twy. Portions of Twy A btn spots 1 and 2, portions of Twy E btn spots 14 and 17, and portions of Twy H btn spots 13 and 14 not vis fr twr. AG acft opr in immed vcnty of arpt blw 200' AGL fr SR-SS. 72' crane .44 NM W Rwy 09L end and .44 NM NW Rwy 31 flagged dur daylgt hr; 90' crane .66 NM W Rwy 09R end 1600-0100Z++ Mon-Fri; 120' crane .6 NM E Rwy 27L end 1700-0300Z++ Mon-Fri. **TFC PAT** - Rwy 9L-27R rgt tfc. Alt 1008'; hi performance 1508'. Copter tfc pat Rwy 09R within F/W pat at or blw 508'. **NS ABTMT -** In eff, fone afld mgr C305-869-1700. **CSTMS/AG/IMG -** 1600-0000Z. Fone prior 2300Z++ preceding wkd C305-969-1576. Special entry pt for MX and other countries in Western Hemisphere S of 30° N lat. Flt Notification Svc (ADCUS) avbl 1500-2300Z++. See Special Notices U.S. Special CSTMS Rqr. **MISC -** Flt Notification Svc, ADCUS, avbl. Class D Airspace reverts to Class E when twr clsd. **RWY -** All rwy grooved.

COMMUNICATIONS - CTAF - 118.9 **ATIS -** 124.0 **ASOS -** *REMARKS:* C305-235-1332.
MIAMI RDO - 122.2 122.3 122.55 122.65 122.1R **MIAMI APP/DEP - (R) (E)** 125.5 354.1
TWR - Opr 1200-0400Z++. 118.9 134.6 **GND -** 121.7 **CLNC DEL -** 133.0
FSS-MIAMI MIA-DL-NOTAM TMB

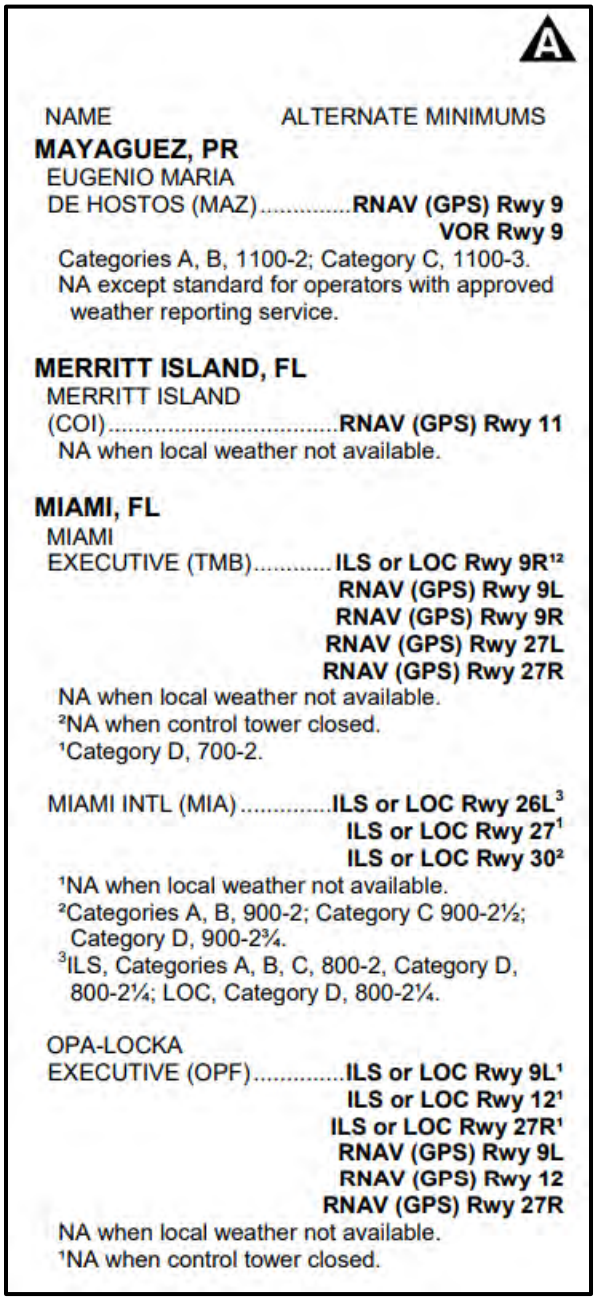
NAVAIDS - QEEZY NDB/LOM - MHW 266.000 TM N25°38.49' W80°30.29' 091° 3.9 NM to Fld. 7/6°17.1'W Unmto.

ILS/RADAR - ILS- Rwy 09R LOM unmto.

18. KTMB APPROACH



19. MIAMI, FL Trouble A Data



A

NAME ALTERNATE MINIMUMS

MAYAGUEZ, PR

EUGENIO MARIA
DE HOSTOS (MAZ)..... **RNAV (GPS) Rwy 9**
VOR Rwy 9

Categories A, B, 1100-2; Category C, 1100-3.
NA except standard for operators with approved weather reporting service.

MERRITT ISLAND, FL

MERRITT ISLAND
(COI)..... **RNAV (GPS) Rwy 11**

NA when local weather not available.

MIAMI, FL

MIAMI
EXECUTIVE (TMB)..... **ILS or LOC Rwy 9R[12]**
RNAV (GPS) Rwy 9L
RNAV (GPS) Rwy 9R
RNAV (GPS) Rwy 27L
RNAV (GPS) Rwy 27R

NA when local weather not available.
[2]NA when control tower closed.
[1]Category D, 700-2.

MIAMI INTL (MIA)..... **ILS or LOC Rwy 26L[3]**
ILS or LOC Rwy 27[1]
ILS or LOC Rwy 30[2]

[1]NA when local weather not available.
[2]Categories A, B, 900-2; Category C 900-2½; Category D, 900-2¾.
[3]ILS, Categories A, B, C, 800-2, Category D, 800-2¼; LOC, Category D, 800-2¼.

OPA-LOCKA
EXECUTIVE (OPF)..... **ILS or LOC Rwy 9L[1]**
ILS or LOC Rwy 12[1]
ILS or LOC Rwy 27R[1]
RNAV (GPS) Rwy 9L
RNAV (GPS) Rwy 12
RNAV (GPS) Rwy 27R

NA when local weather not available.
[1]NA when control tower closed.

20. Blank Planning Matrix

PLANNING MATRIX

AIRCRAFT WING/STA:	AIRCRAFT BUNO:	AIRCRAFT CALLSIGN:	
TAKEOFF WEIGHT:	IAS CLIMB:	CRUISE ALTITUDE:	
FUEL ONBOARD:	START/TAXI/TAKEOFF FUEL:	FUEL PER APPROACH:	
MAX ENDURANCE FF: 333 LBS/HR			

ROUTE TO DESTINATION:	
ROUTE TO ALTERNATE:	

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN										
DESTINATION										
ALTERNATE 1										
ALTERNATE 2										
ALTERNATE 3										

21. Blank Flight Log

T-6B FUEL PLAN (Pounds of Fuel)

1. CLIMB/ROUTE TO DEST			6. START/TAXI	
2. ROUTE TO ALTERNATE			7. TOTAL REQUIRED (4,5,6)	
3. APPROACHES			8. TOTAL FUEL ABOARD	
4. TOTAL 1,,2,3			9. SPARE FUEL	
5. RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)				

AIRPORT DATA MATRIX

CHECKLIST	ORIGIN		DESTINATION		ALTERNATE	
	WX	MINS	WX	MINS	WX	MINS
AIRFIELD NOTAMS						
ENROUTE NOTAMS						
GPS NOTAMS						
HOURS						
SERVICE/FUEL						
HAZARDS						
RWY/ARR.GEAR/ BARRIER						
T / A NA						
APPROACH						
SID/STAR						
LOCAL OPS						

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL.	TYPE APPROACH

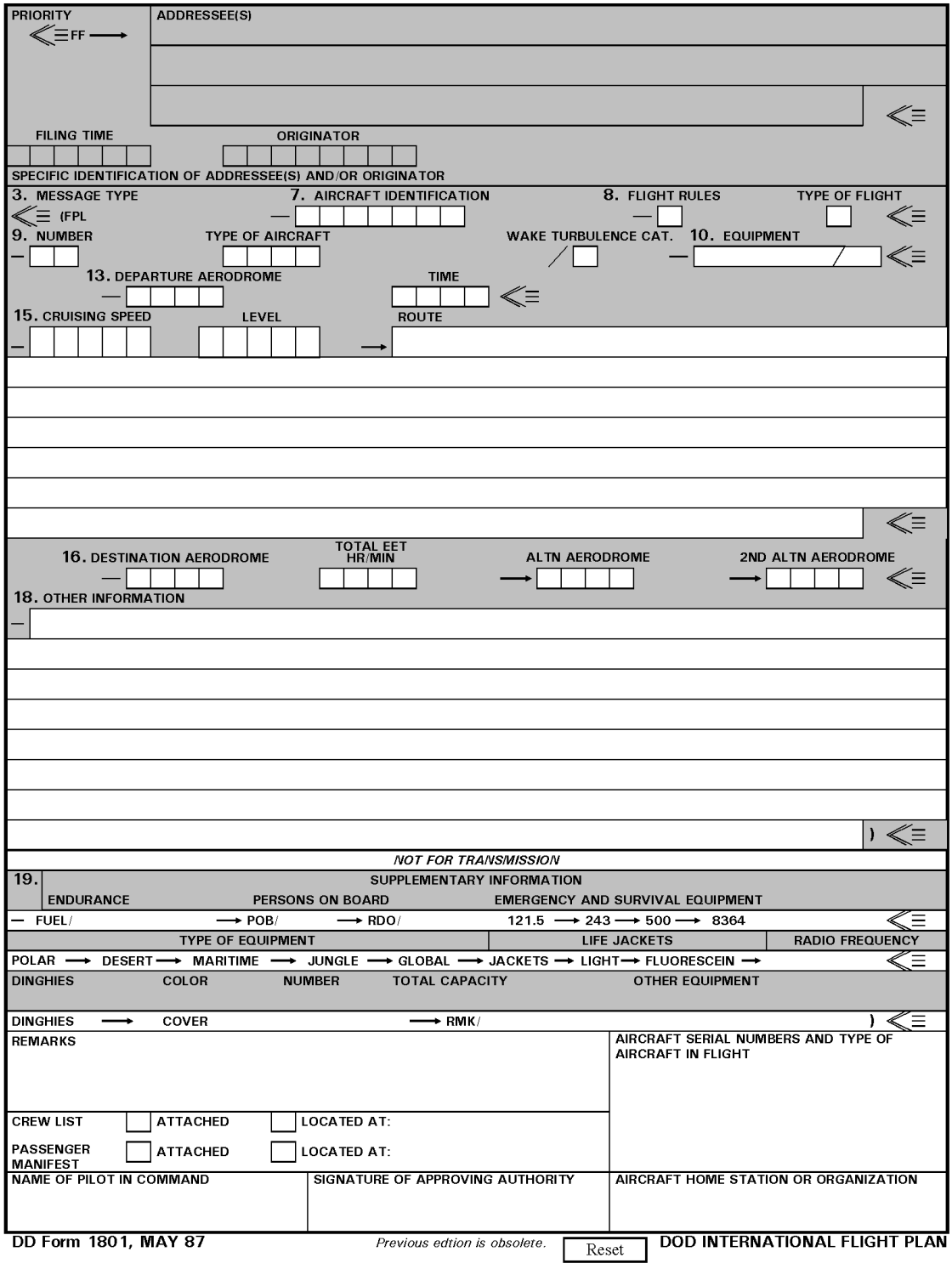
FLIGHT LOG

DEP ELEV	CLNC DEL	GND CONT	TOWER
ALT CORR	TIME OFF	TAS	LBS PH
CLEARANCE			
DEST ELEV	APCCONT	TOWER	GND CONT

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
ALT ELEV	APC CONT	TOWER	GND CONT	

22. Blank Flight Plan



1502. PRACTICE PROBLEM NUMBER ONE QUESTIONS

1. Only one of the Alternate airport options was viable. List the airports that were not acceptable and the reason(s) why they could not be used as an alternate.

_____

_____

_____

2. If you require fuel at KMCO you can call _____ via phone on _____.

3. On departure from KMCO via the CITRUS SEVEN DEPARTURE you will maintain _____ feet and expect further clearance to _____ 10 minutes after departure.

4. The CNAF minimum RVR needed for takeoff on runway 35L at KMCO is_____.

5. Describe the hazard associated with R2916 near Key West.

_____

6. How long is the PPR at KNQX good for? _____

7. Bird Watch Conditions at KNQX are broadcast on what frequency? _____

8. Aircraft shall not fly over the city of Key West below _____ feet unless under radar control or executing an approved instrument approach.

9. Noise Abatement is in effect at KTMB. Details can be obtained from _____ via phone number _____.

10. The traffic pattern for high performance aircraft on runway 9R/27L at KTMB is _____feet.

1503. PRACTICE PROBLEM NUMBER TWO

1. The following information is given:

Unit of Assignment: TW5/KNSE

Aircraft/Bureau Number/Call Sign: T-6B/162650/NAVY 2 ECHO 650

AIRPORT	FORECAST WEATHER +/- 1 hour
ORIGIN: CAIRNS AAF	05010KT 2400 HZ OVC005 QNH 30.00
DEST: WHITING FLD-NAS NORTH	16020KT 3200 BR OVC007 QNH 29.96
ALTN 1: BOB SIKES	28015KT 1600 HZ BKN008 QNH 29.97
ALTN 2: PENSACOLA NAS	09005KT 3200 RA OVC009 QNH 29.98
ALTN 3: BREWTON MUNI	28010KT 9999 BR OVC015 QNH 29.99

Route to DEST: Depart CAIRNS AAF at 0800L via the OPPTO TWO DEPARTURE CRESTVIEW Transition V198 INBRD direct to MERTY for an ILS approach to RWY 14

Route to ALTN 1: Direct to INBRD V198 to CEW for the ILS approach to RWY 17

Route to ALTN 2: Direct SAUFLEY VOR for the VOR RWY 19 circle to land RWY 7L

ALTN 2 NOTAMs: QICAC, QILAC

Route to ALTN 3: Direct to INBRD V198 to ITNEW for the VOR/DME RWY 30

Climb Data:

- Climb Speed: 140 KIAS
- Climb Winds/Temperature: 270/07, ΔT +10°C

Cruise Data:

- Cruise Altitude: 8,000’ MSL
- Cruise Winds/Temperature: 153/06, +8°C

Fuel Data:

- 1100 lbs fuel load
- STTO 50 lbs
- Approach 50 lbs
- Max Endurance Fuel Flow 333 PPH

Additional data:

- Instrument Rating: STANDARD
- Magnetic Variation: 5°W

2. IFR Supplement CAIRNS AAF

CAIRNS AAF, (FORT RUCKER) AL **KOZR** A N31°16.55' W85°42.80' 301 UTC-6(-5DT)
H-9A, L-22I

(B) **RWY-06** L2,5,8,15	(4546x150 ASP PCN 44 F/A/W/T)	L5 **RWY-24**
RWY-14	(CLSD 4500x150 ASP)	**RWY-32**
RWY-18 L6	(5025x150 ASP PCN 35 F/A/W/T)	L6 **RWY-36**

SERVICE - JASU - (MD-3) **FUEL** - J8+100, AVCARDS and AIRCARDS not accepted. IDENTAPLATES for acft are accepted. The following are req and should be on these cards: DODAAC, APC. **OIL** - O-156 **TRAN ALERT** - Tran alert svc avbl 1300-2400Z++ Mon-Sat; 1400-2200Z++ Sun. A tran acft crew member must remain with acft dur refuel opr. Tran acft rqr DD Form 1898. Form avbl at Base OPS svc counter.

REMARKS - RSTD - All tran acft 1 hr PPR. All RON acft, and arr/dep acft with code aboard ctc Base OPS DSN 558-8361/8433 C334-255-8361 1100Z++ Mon-1100Z++ Sat. **CAUTION** - Possible hydroplaning due to standing water on int of Rwy 06-24 and 18-36 flw rain. Ints stu trng. **MISC** - Class D Airspace reverts to Class E when twr clsd. Acft inbd with codes ctc Base OPS 45 NM out. Wx obsn automated and augmented as rqr H24. Fcst avbl 0700Z++ Mon-0700Z++ Sat, exc hol. Wx obsn vis rstd SW-NW due to bldg. Remote briefing svc avbl 26 OWS, Barksdale AFB, DSN 331-2651, C318-529-2651/2652/2653 or https://26ows.us.af.mil.

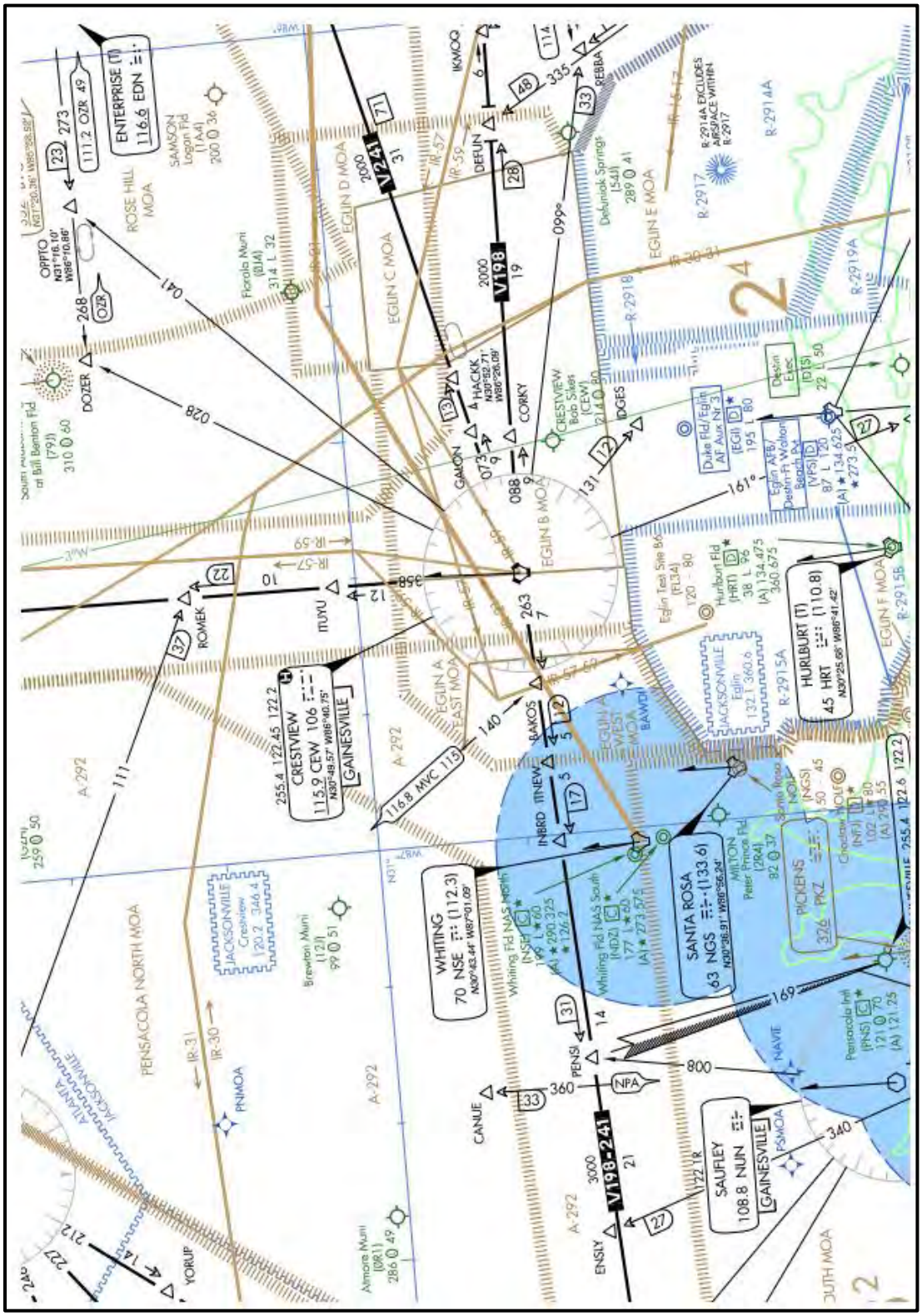
COMMUNICATIONS - CTAF - 135.2 **PTD/BASE OPS** - 126.2 371.35 **ATIS** - 111.2 316.15 **APP/DEP** - Opr H24 Tue-Sat; 1200-0500Z++ Sun-Mon; OT ctc JACKSONVILLE CENTER 134.3 353.5.- **(R) (E)** 121.1 125.4 133.45 133.75 239.275 270.35 319.25 327.125 *REMARKS:* 111.2T (133.45 239.275 220°-340°) (121.1 319.25 341°-020°) (125.4 327.125 021°-120°) (133.75 270.35 121°-219°) **TWR** - Opr 1200-0700Z++ Mon-Fri. When twr clsd ctc APP/DEP 125.4 327.125.- **(E)** 111.2 135.2 248.55 **GND** - 121.9 288.25 **CLNC DEL** - 118.075 380.1 **PMSV METRO** - 134.1 *REMARKS:* Backup-PTD 126.2 371.35.
FSS-ANNISTON ANB-NOTAM OZR, MILITARY NOTAM (KOZR)

NAVAIDS - CAIRNS VOR-DME - L 111.200 OZR CH 49 N31°16.14' W85°43.58' At Fld. 334/(A)3°00.0'W Unmto 0500-1200Z++ Sun and Mon. **RUCKR NDB** - MHW 212.000 OZ N31°13.54' W85°48.96' 064° 6.1 NM to Fld. 333/3°38.0'W Unmto 0500-1200Z++ Sun-Mon.

OZR DME unuse	001°-019°
OZR VOR unuse	016°-049° byd 20 NM
	221°-234° byd 20 NM
	307°-315° byd 17 NM

ILS/RADAR - ILS - 06. Unmto 0500-1200Z++ Sun and Mon. **RADAR** - SEE TERMINAL FLIP FOR RADAR MINIMA.

3. L-22 NAS Whiting Field Area



4. CAIRNS AAF Trouble T Information

CAIRNS AAF (KOZR)

V IFR TAKE-OFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)

AIRPORT NAME	TAKE-OFF MINIMUMS

CAIRNS AAF (KOZR), AL . . . . . Orig, 09127
Rwy 6, 24, 18, 36, and Helipads C, G, A, D1, D2: Standard. All other helipads, NA.
DEPARTURE PROCEDURE: Helipad C: Climb heading 178° to 1000 before proceeding on course. **Helipad G:** Climb heading 178° to 1000 before proceeding on course.
TAKE-OFF OBSTACLES: Rwy 6: Trees 483' from DER, 616' left of centerline 75' AGL/344' MSL. Trees 738' from DER, 641' right of centerline, 75'AGL/344' MSL. Trees 1,777' from DER, 825' left of centerline, 75' AGL/354' MSL. **Rwy 24:** Trees 266' from DER, 538' right of centerline, 75' AGL/354' MSL. Trees 2,501' from DER, 914' right of centerline, 75' AGL/375' MSL. Reflector 149' from DER, 149' right of centerline, 13' AGL/309' MSL. Reflector 149' from DER, 150' left of centerline, 13' AGL/309' MSL. Telephone poles beginning 1,068' from DER, 303' left of centerline, up to 23' AGL/332' MSL. **Rwy 18:** Trees 525' from DER, 578' left of centerline, 75' AGL/364' MSL. **Rwy 36:** Trees 1,199' from DER, 783' right of centerline, 75' AGL/384' MSL. Trees 3,149' from DER, 1,104' right of centerline, 75' AGL/394' MSL.

5. CAIRNS AAF Radar Mins

RADAR INSTRUMENT APPROACH MINIMUMS

CAIRNS AAF (KOZR)

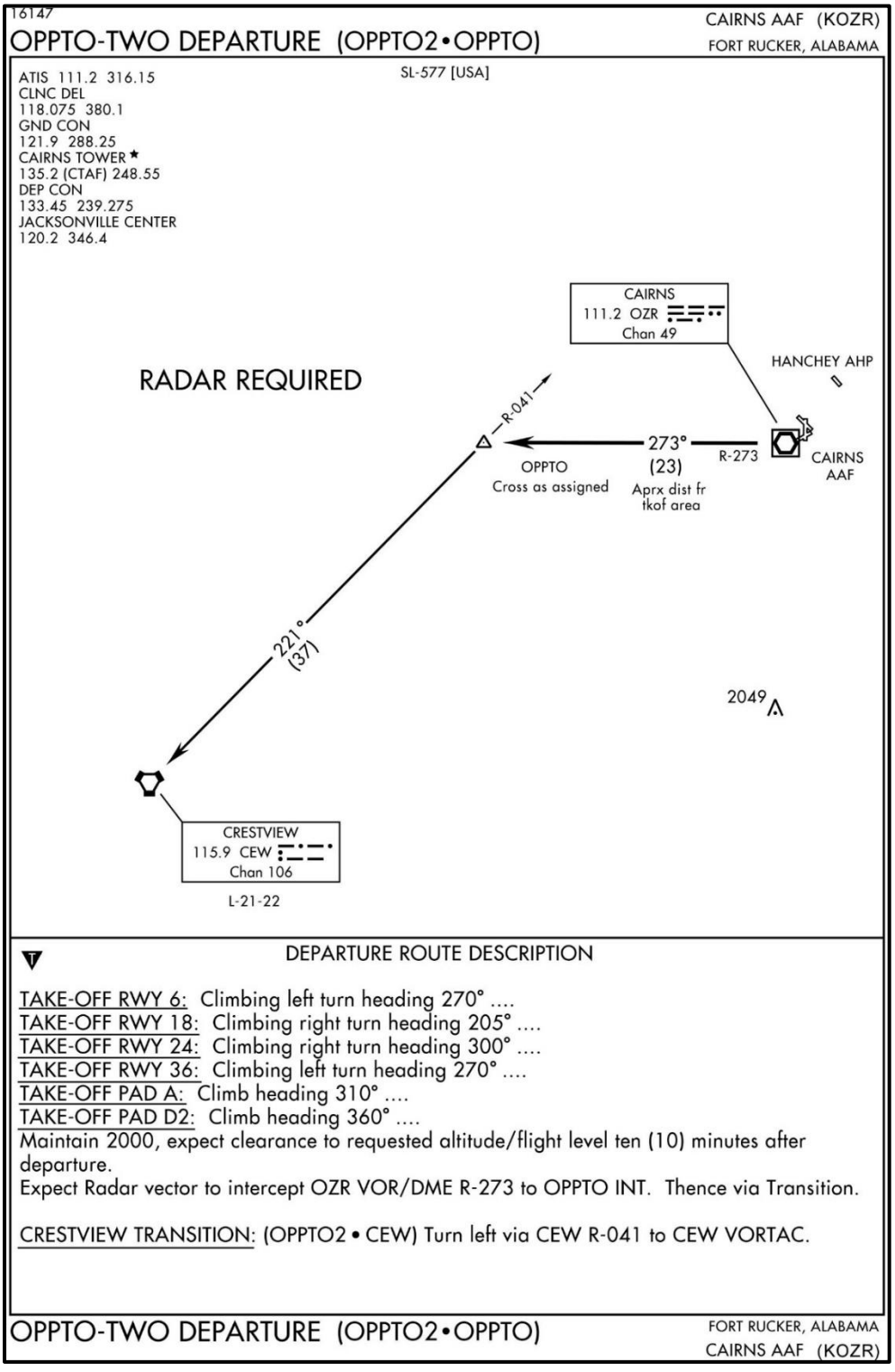
RADMINS

CAIRNS AAF (KOZR), AL (Fort Rucker) (Amdt 1 15232 USA) **ELEV 301**
RADAR ① **- (E)** (125.4 327.125 021°-120°) (133.75 270.35 121°-219°) (133.45 239.275 220°-340°) (121.1 319.25 341°-020°) V A NA

	RWY	GS/TCH/RPI	CAT	DH/ MDA-VIS	HAT/HATh HAA	CEIL-VIS
PAR	6 ②	2.7°/57/1158	ABCD	**498**/24	200	(200-½)
PAR W/O GS	6 ②		AB	**760**/24	462	(500-½)
			C	**760**/40	462	(500-¾)
			D	**760**/50	462	(500-1)
CIR	All Rwy		A	**760**-1	459	(500-1)
			B	**780**-1	479	(500-1)
			C	**800**-1½	499	(500-1½)
			D	**860**-2	559	(600-2)

① Vis reduction by copters NA. ② When ALS inop, increase RVR CAT ABCD to 50 and vis to 1 mile.

6. CAIRNS AAF OPPTO-TWO DEPARTURE



7. IFR Supplement NAS WHITING FIELD

WHITING FLD NAS NORTH, FL **KNSE** N N30°43.45' W87°01.32' 199
UTC-6(-5DT) **H-6K-8G, L-21C-22H**

(B) **RWY-05** L5,50 (6002x200 ASP PCN 31 F/A/W/T) L5,50 **RWY-23**
RWY-14 L5,15,50 (6002x200 ASP PCN 23 F/A/W/T) L5,50 **RWY-32**

SERVICE - JASU - 1(NC-8) **FUEL** - F24 **TRAN ALERT** - Ltd tran line svc avbl 1400-2200Z++ Mon-Fri only.

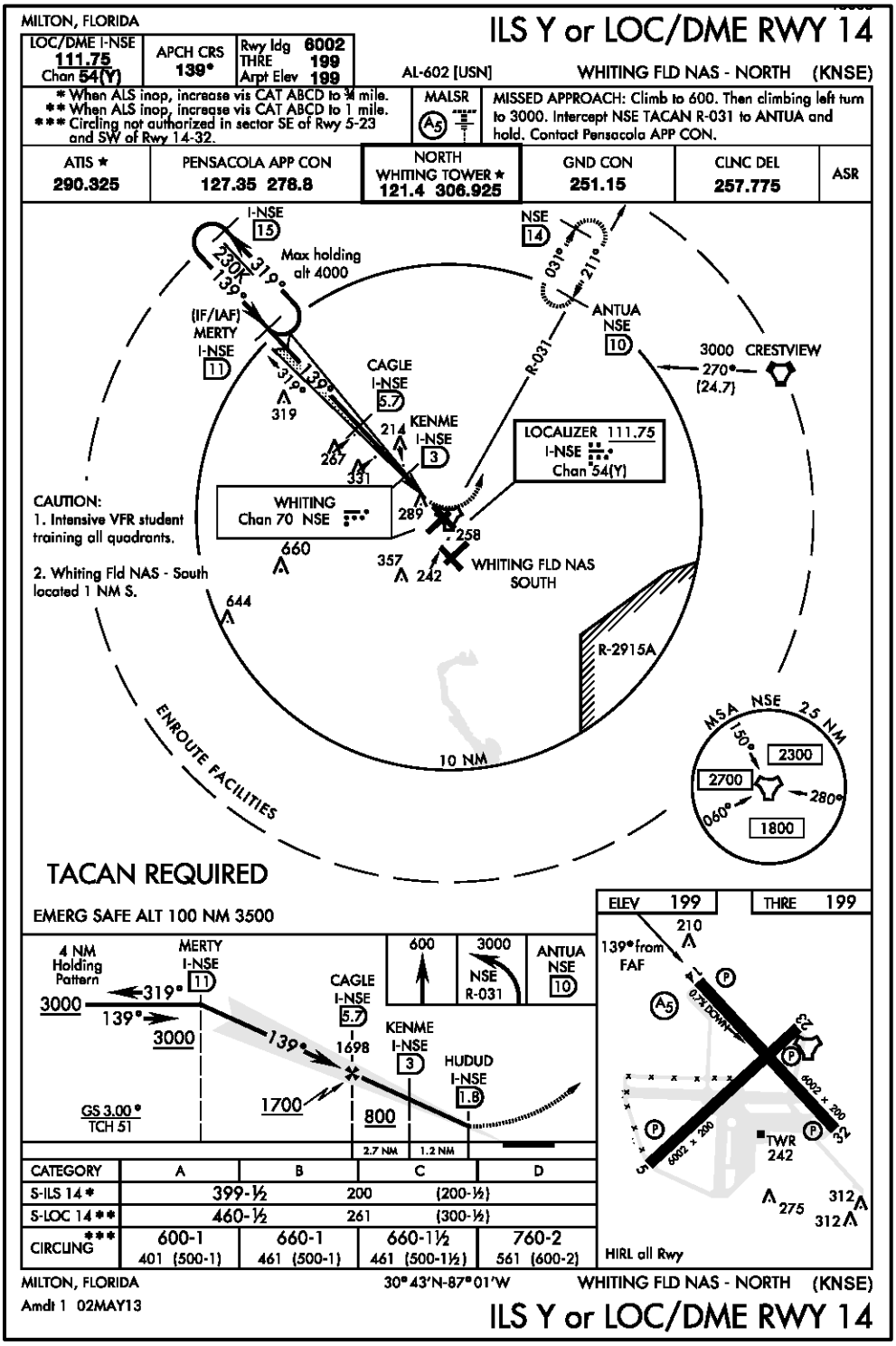
REMARKS - Opr 1245-0445Z++ Mon-Fri, 0000-0400Z++ Sun, clsd Sat and hol, OT by NOTAM. **RSTD** - Ltd tran prk and svc avbl. PPR for practice inst apch and ldg tran acft. Ctc ODO DSN 868-7598 for info and PPR. 24 hr PN for PPR. **CAUTION** - Extremely hvy prim trng opr all times. Ponding occurs after moderate to hvy rain - BA poor. **MISC** - Class C Airspace reverts to Class E when twr clsd.

COMMUNICATIONS - ATIS - 126.2 290.325 *REMARKS:* (1245-0445Z++ Mon-Fri, 0000-0400Z++ Sun, clsd Sat and hol) **PENSACOLA APP/DEP - (R) (E)** 127.35 128.25 278.8 291.625 **TWR - (E)** 121.4 306.925 **GND** - 251.15 **CLNC DEL** - 257.775 **PMSV METRO** - 316.95 *REMARKS:* (Avbl 1145-0500Z++ Mon-Fri, clsd Sat-Sun and hol) **BASE OPS** - 233.7 **FSS-GAINESVILLE GNV-DL-NOTAM PNS**

NAVAIDS - WHITING TACAN - L NSE CH 70 N30°43.44' W87°01.09' At Fld. 178/(A)2°00.0'W
NSE TACAN DME unuse 256°-055° byd 25 NM
NSE TACAN unuse 256°-055° byd 25 NM blw 3000'

ILS/RADAR - RADAR - SEE TERMINAL FLIP FOR RADAR MINIMA.

8. NAS WHITING FIELD ILS Approach



9. IFR Supplement BOB SIKES

BOB SIKES, FL **KCEW** P N30°46.73' W86°31.33' 214 UTC-6(-5DT) **H-6K-8G, L-21C-22H**
(B) **RWY-17** L1,6,43 (8004x150 ASP L1,6,43 **RWY-35**
S60 D120 2S152 2D170)

SERVICE - LGT - ACTIVATE-MIRL Rwy 17-35-CTAF. VASI Rwy 17-35 opr cont. **FUEL** - (NC-100LL, A, A1+ - After 0100Z++ fone C850-951-3616.)

REMARKS - CAUTION - Wildlife haz. Pers and eqpt adj to twy indef. **NS ABTMT** - Dep acft maint rwy hdg to 700' before turning. **MISC** - P-twy lgt O/S UFN. Arpt used by mil for flt test and trng. Extv VFR mil stu inst trng conducted in all quad of CEW. Arr VFR acft mnt 122.95. Touch and go ldg not recommended; expedite turn off ASAP. Class E Airspace eff 1200-0400Z++, OT Class G.

COMMUNICATIONS - CTAF/UNICOM - 122.95 **ASOS** - 119.275 *REMARKS:* C850-682-1237. **GAINESVILLE RDO** - 122.0 122.2 122.45 255.4 *REMARKS:* (RCO) **EGLIN APP/DEP - (R) (E)** 124.05 284.65 **FSS-GAINESVILLE GNV-NOTAM CEW**

NAVAIDS - CRESTVIEW VORTACW - HA 115.900 CEW CH 106 N30°49.57' W86°40.75' 106° 8.6 NM to Fld. 255/(A)3°00.0'E HIWAS. **KOBRA NDB/LOM** - MHW 201.000 CE N30°51.17' W86°32.20' 174° 4.5 NM to Fld. 261/3°05.7'W
CEW VOR unuse 306°-329°

ILS/RADAR - ILS - 17.

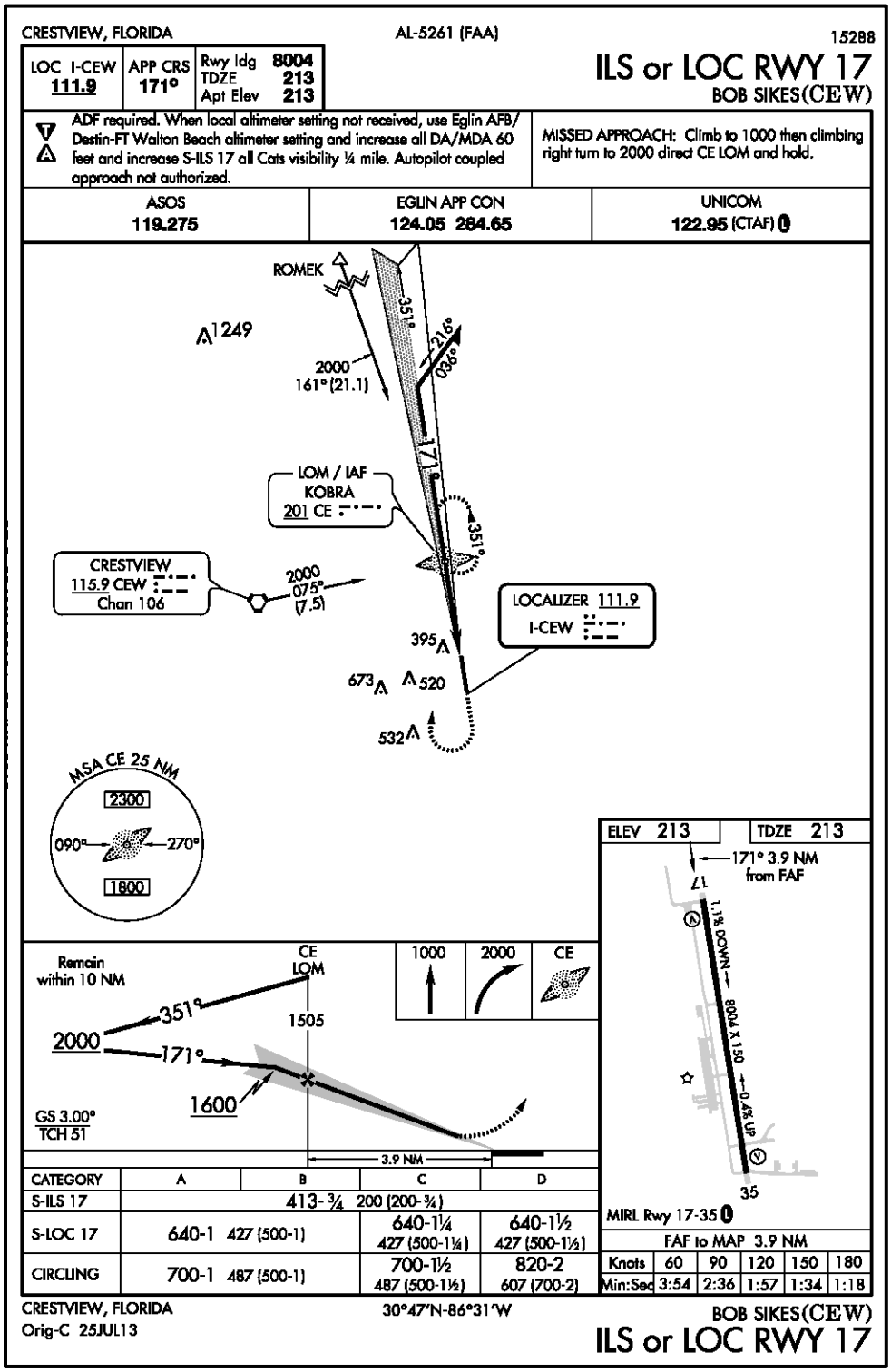
10. Alternate MINS BOB SIKES

IFR ALTERNATE AIRPORT MINIMUMS

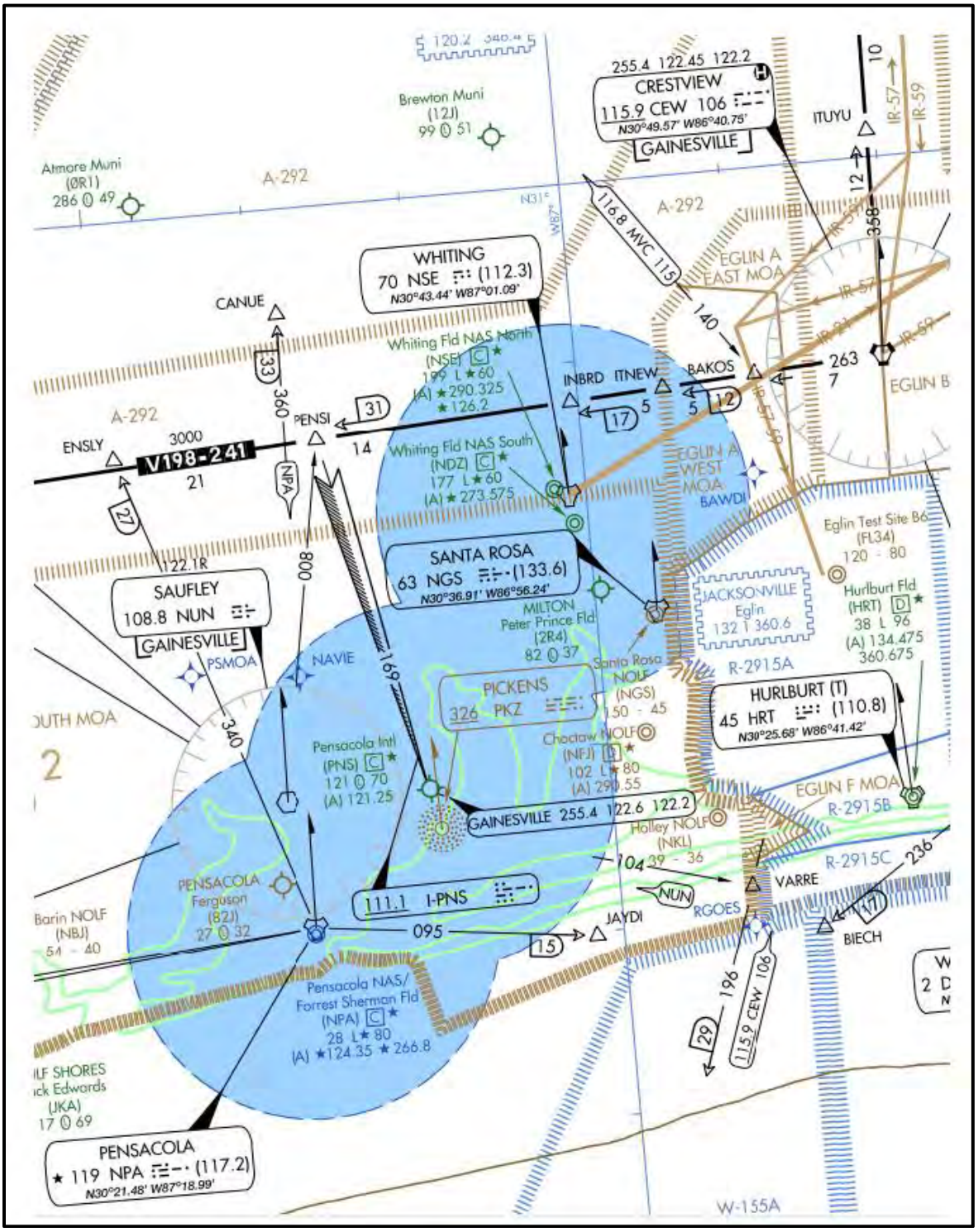
CRESTVIEW, FL
BOB SIKES (CEW) .....**ILS Rwy 17[12]**
RNAV (GPS) Rwy 17[1]
RNAV (GPS) Rwy 35[1]
VOR-A[3]

[1]NA when local weather not available.
[2]Category D, 700-2.
[3]Category D, 800-2¼.

11. BOB SIKES ILS RWY 17



12. L-22 NAS PENSACOLA AREA



15-34 PRACTICE PROBLEMS

13. IFR Supplement PENSACOLA NAS

PENSACOLA NAS, (FORREST SHERMAN FLD) FL **KNPA** N N30°21.20' W87°19.08'
28 UTC-6(-5DT) **H-7E-8G, L-21C-22H**

(B) **RWY-01** L5,51	(7137x200 ASP PCN 43 R/B/W/T)	L5,51 **RWY-19**
HOOK E28(B) (1544')		HOOK E28(B) (1100')
RWY-07L L2,5,11,51	(8002x200 ASP PCN 39 R/B/W/T)	L5,51 **RWY-25R**
HOOK E28(B) (1200')		HOOK E28(B) (1300')
RWY-07R L5,51	(8001x200 ASP PCN 40 R/B/W/T)	L5,51 **RWY-25L**
HOOK E28(B) (1300')		HOOK E28(B) (1450')

SERVICE - L-AOE **LGT -** Mobile OLS 3.25° avbl all rwy. **A-GEAR -** 15 min ntc for short fld arrestment. **JASU -** 5(NC-8) 6(GTC-85 Navy F4 emerg start only) 3(NCPP-105) **FUEL -** A++ **FLUID -** SP LHOX LOX OXRB Acft nitrogen and oxygen svcg avbl 1400-2200Z++ wkend and hol. **OIL -** O-128-148-156 **TRAN ALERT -** Tran svc avbl 1300-0500Z++ Mon-Fri; 1600-2330Z++ Sat; 1900-0230Z++ Sun; Hol by NOTAM; OT no tran acft auth.

REMARKS - Opr 1300-0500Z++ Mon-Fri; 1600-2330Z++ Sat; 1900-0230Z++ Sun; Hol by NOTAM. **RSTD -** PPR all acft, Ctc Base OPS DSN 459-2431/32, C850-452-2431/32. Acft exp to conduct opr fr Sherman Fld ctc Fleet Liaison Office DSN 459-4482, C850-452-4482 for scheduling. **CAUTION -** Expect simultaneous opr dur dual rwy operations. Ponding occurs after moderate to hvy rain at all rwy int and hold short areas. **TFC PAT -** Wheels Watch not on stn. Reduced rwy separation std in eff CNATRA acft only. Multiple apch severely ltd dur single rwy opr. **NS ABTMT -** Req all acft remain at or abv 500' and 0.5 NM off-shore fr Navarre Beach to W of Johnson Beach due to nesting of protected species Apr-Oct. **CSTMS/AG/IMG -** CSTMS, AG avbl if prior arng made with min 48 hr advance ntc. **MISC -** SECTOR CONTROL PENSACOLA, FL NPA (Call sign SEABREEZE) DSN 459-2735, C850-452-2735. (R) Ctl svc and sked provided in W155 to all mil and designated civ air opr. All acft opr in W155 shall be sked, check in/out on prim freq and remain in continuous rdo com with SEABREEZE or with the mil RADAR unit/fac specifically auth by SEABREEZE to provide ctl/containment svc. Acft opr blw 3500' may not rcv radar svc due to limited radar/radio coverage. For detailed wng OPAREA sked/use pro, ctc SECTOR CONTROL Pensacola. SEABREEZE-(prim)-(E) (127.45 353.775) 348.0 3102.4 6835.4 H-5D, L18E, F. **RWY -** Rwy 07L-25R, 07R-25L grooved. Rwy 01-19 not grooved.

COMMUNICATIONS - SFA *REMARKS:* as asgn. **ATIS -** 124.35 266.8 **APP - (R) (E)** 120.05 120.65 270.8 **SHERMAN TWR - (E)** 120.7 340.2 **SHERMAN GND -** 121.7 336.4 **DEP - (R)** 120.65 270.8 **SHERMAN CLNC DEL -** 134.1 268.7 *REMARKS:* Dep acft ctc prior taxi. **PMSV METRO -** 359.6 **SHERMAN BASE OPS -** 312.1 **FSS-GAINESVILLE GNV-NOTAM PNS**

NAVAIDS - SAUFLEY VOR - L 108.800 NUN N30°28.33' W87°20.15' 172° 7.2 NM to Fld. 77/(A)1°00.0'E **PENSACOLA TACAN -** L NPA CH 119 N30°21.48' W87°18.99' At Fld. 17/(A)1°00.0'E Opr only dur fld opr hr.

NPA TACAN unuse
030°-050° blw 2500'
051°-230° byd 30 NM blw 1500'
231°-029° byd 30 NM blw 2500'

ILS/RADAR - ILS - 07L. **RADAR -** SEE TERMINAL FLIP FOR RADAR MINIMA.

14. AP1 PENSACOLA NAS

Pensacola NAS (KNPA), FL

1. All KNPA operations are under positive control. Transient pilots operating locally shall obtain a Course Rules Briefing prior to commencing operations. High mid-air potential 8500' and below within Alert Area A292 due to T-6 aircraft acrobatic maneuvers.

(USN/NAVFIG FIL 0055-13)

2. MANDATORY ARRIVAL PROCEDURES -

a. HIGH TACAN PENETRATION. If an enroute descent is required, pilots shall request J2 to CEW R-263 31 DME direct NPA.

b. LOW ALTITUDE: Pilots returning from the E shall file via V198 - 241 - PENSI direct NPA. Pilots returning from the W shall file via TRADR direct NPA. Mandatory routing is required to avoid intensive jet/prop student training in A292.

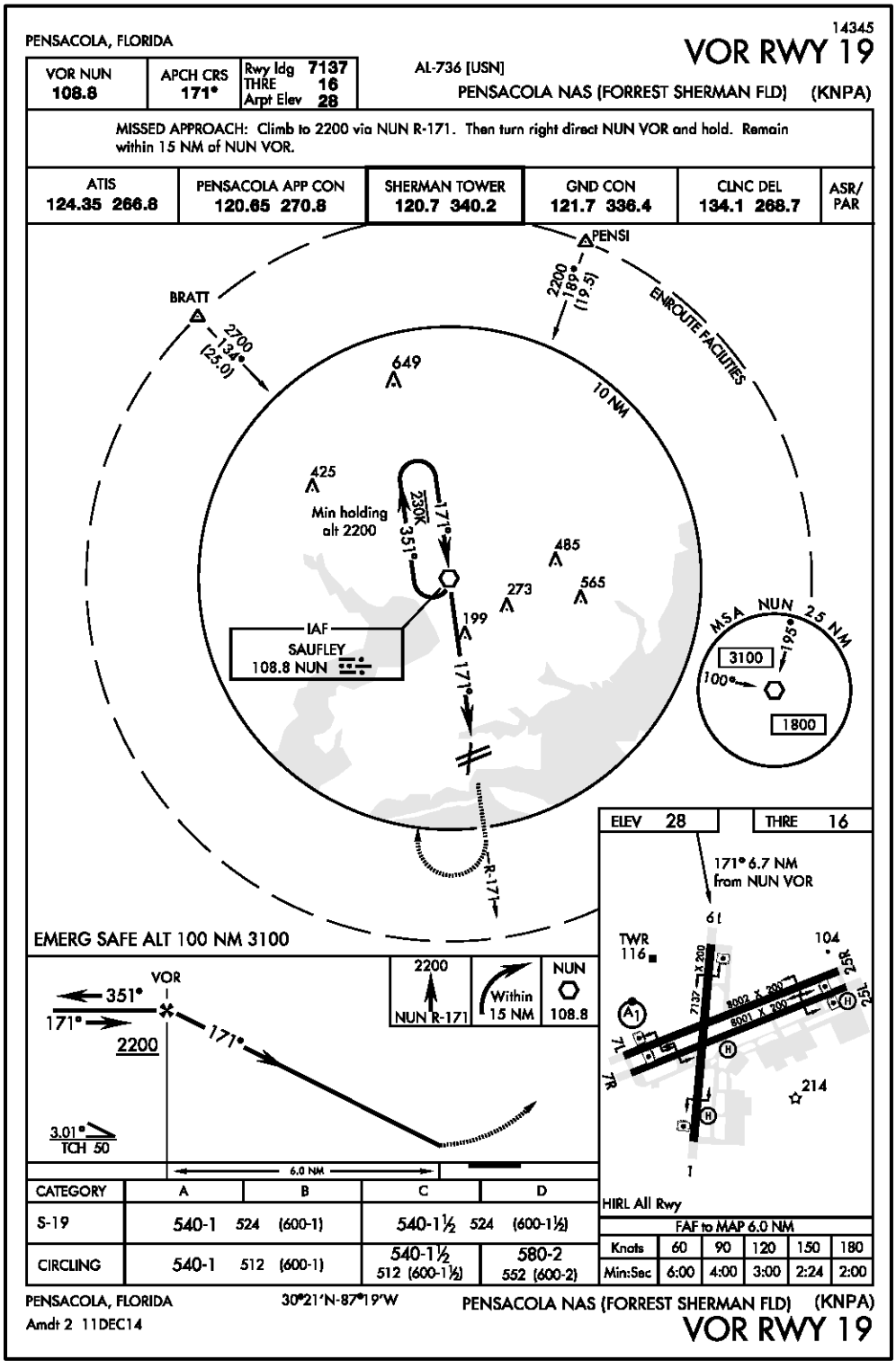
(USN/NAVFIG)

3. Runway 07L-R/25L-R grooved. Runway 01-19 not grooved, may be slippery when wet.

4. Transient accommodations limited. DSN 459-2755, C850-452- 2755. Group reservations DSN 459-3625, C850-452-3625.

(USN/NAVFIG FIL 0055-13)

15. NAS PENSACOLA VOR Approach



16. IFR Supplement BREWTON MUNI

BREWTON MUNI, AL **K12J** P (N) N31°03.05' W87°03.96' 99 UTC-6(-5DT)
H-6K-9A, L-21C-22H

(B) **RWY-06**	(5136x150 ASP PCN 15 F/B/W/U)	**RWY-24**
RWY-12 L1,6,50	(5001x150 ASP PCN 20 F/B/W/U)	L1,6,50 **RWY-30**
RWY-18	(3998x150 ASP)	**RWY-36**

SERVICE - LGT - ACTIVATE-MIRL and PAPI Rwy 12-30-CTAF. **FUEL -** (NC-100LL, A+)

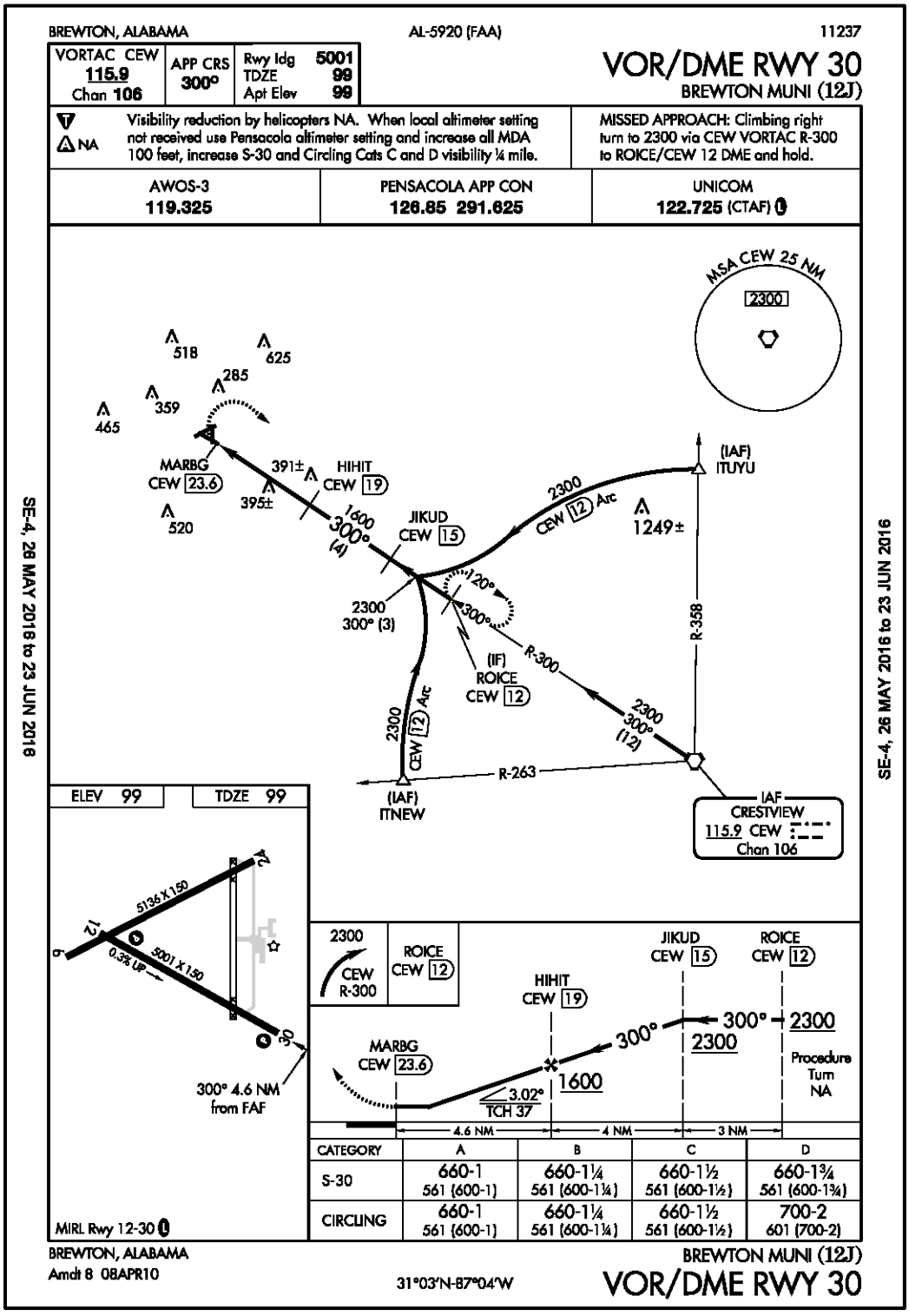
REMARKS - Opr 1330-2300Z++ Mon-Fri; 1430-2300Z++ Sat. After hr fone C251-867-9997. **CAUTION -** Ints mil propeller trng dawn-dusk, Mon-Fri. **TFC PAT -** Mil trng use rgt tfc all rwy. **MISC -** Mil trng acft mnt UNICOM and yield to all civ acft. VFR tfc rqr to stay at or blw 1000' AGL on apch to arpt. Mil acft req prior coord with NAS Whiting Fld, DSN 868-7654, C850-623-7645.

COMMUNICATIONS - CTAF/UNICOM - 122.725 **AWOS-3 -** 119.325 *REMARKS:* C251-809-2987. **PENSACOLA APP/DEP - (R) (E)** 126.85 291.625
FSS-ANNISTON ANB-NOTAM ANB

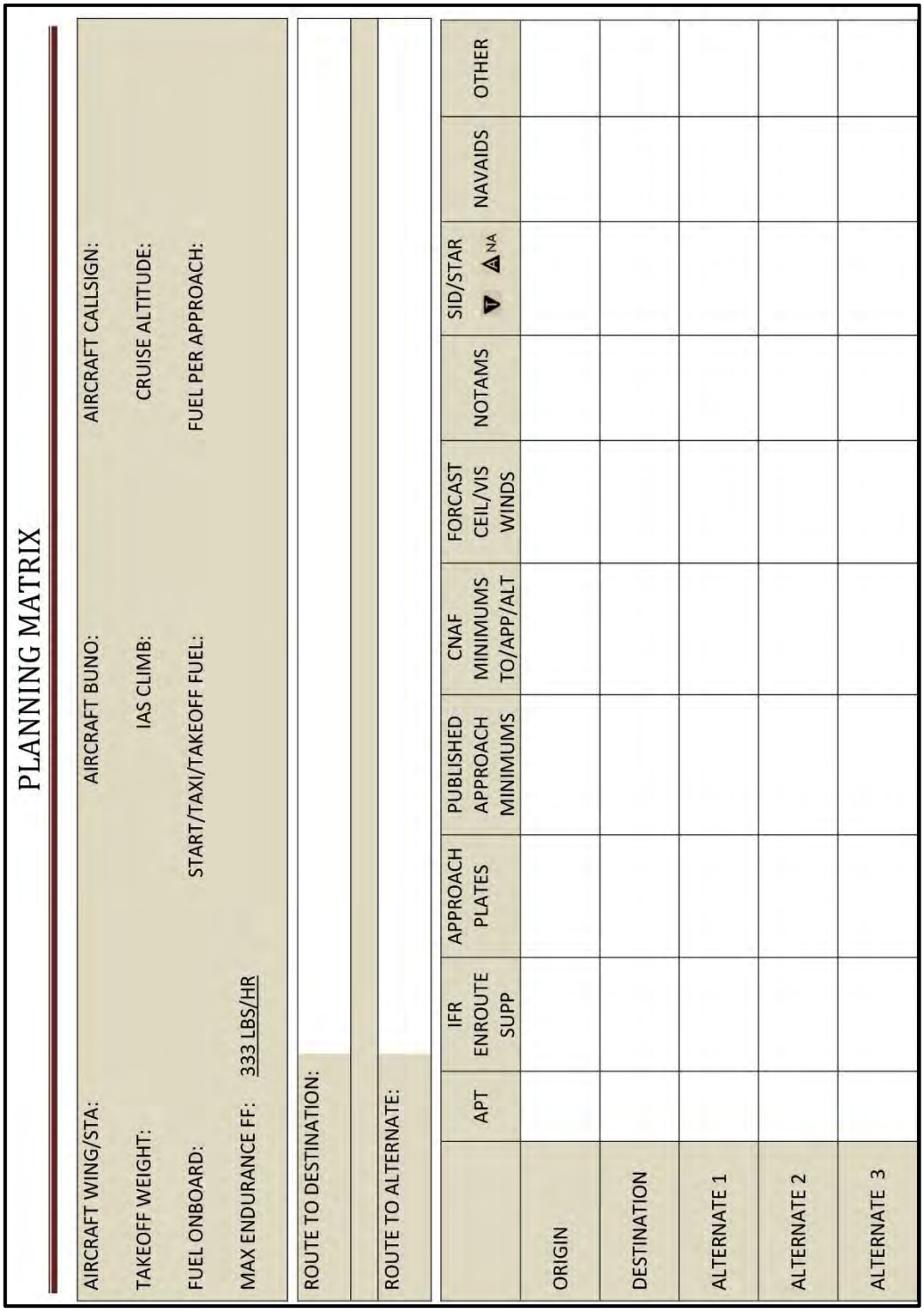
NAVAIDS - WHITING TACAN - L NSE CH 70 N30°43.44' W87°01.09' 355° 19.7 NM to Fld. 178/(A)2°00.0'W

NSE TACAN DME unuse	256°-055° byd 25 NM
NSE TACAN unuse	256°-055° byd 25 NM blw 3000'

17. BREWTON VOR Approach



18. Blank Planning Matrix



PLANNING MATRIX

AIRCRAFT WING/STA: AIRCRAFT BUNO: AIRCRAFT CALLSIGN:

TAKEOFF WEIGHT: IAS CLIMB: CRUISE ALTITUDE:

FUEL ONBOARD: START/TAXI/TAKEOFF FUEL: FUEL PER APPROACH:

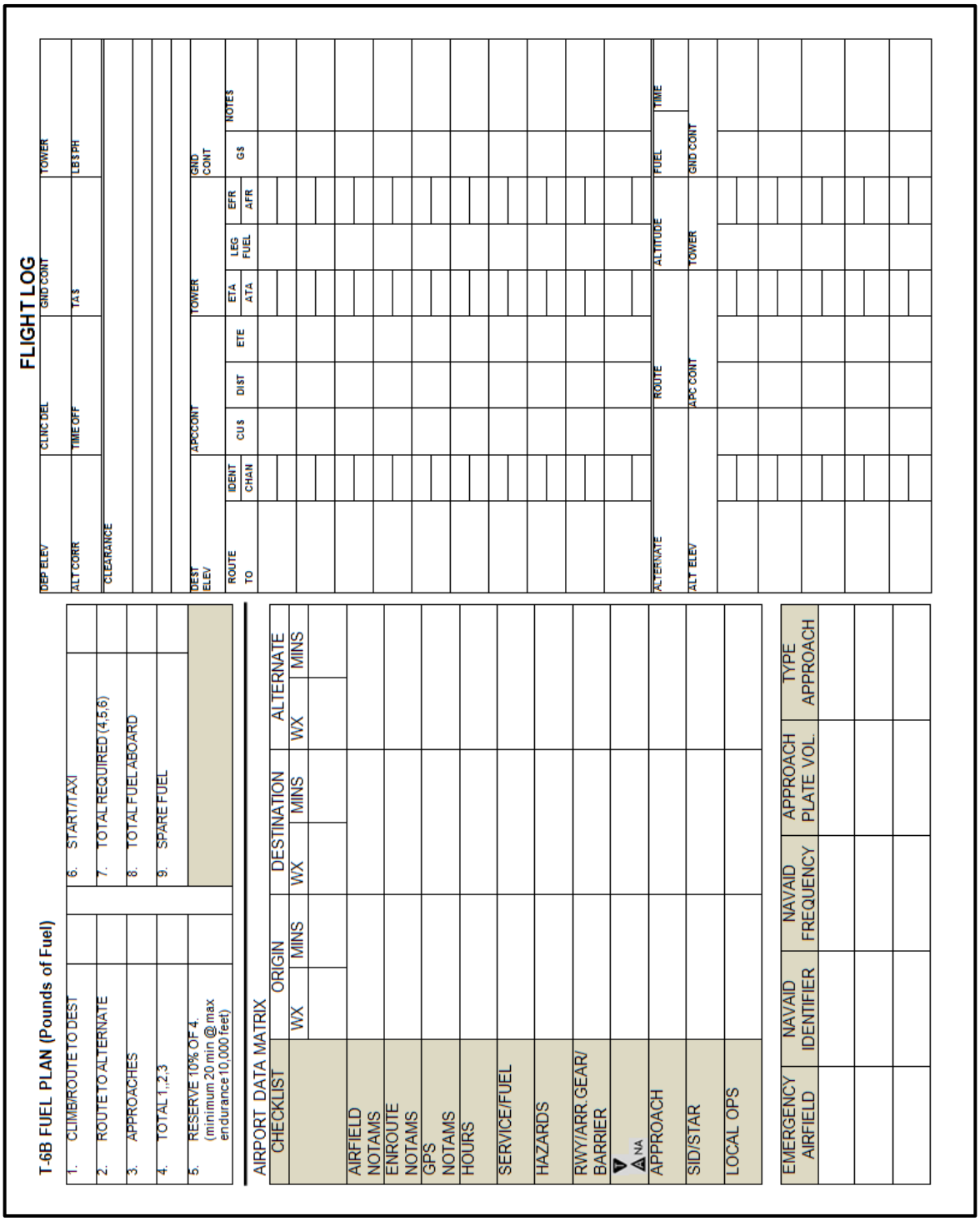
MAX ENDURANCE FF: 333 LBS/HR

ROUTE TO DESTINATION:

ROUTE TO ALTERNATE:

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN										
DESTINATION										
ALTERNATE 1										
ALTERNATE 2										
ALTERNATE 3										

19. Blank Flight Log



20. Blank DD Form 1801

PRIORITY
FF →
ADDRESSEE(S)
FILING TIME
ORIGINATOR
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR
3. MESSAGE TYPE
(FPL
7. AIRCRAFT IDENTIFICATION
8. FLIGHT RULES
TYPE OF FLIGHT
9. NUMBER
TYPE OF AIRCRAFT
WAKE TURBULENCE CAT.
10. EQUIPMENT
13. DEPARTURE AERODROME
TIME
15. CRUISING SPEED
LEVEL
ROUTE
16. DESTINATION AERODROME
TOTAL EET HR/MIN
ALTN AERODROME
2ND ALTN AERODROME
18. OTHER INFORMATION
)
NOT FOR TRANSMISSION
19. SUPPLEMENTARY INFORMATION
ENDURANCE
PERSONS ON BOARD
EMERGENCY AND SURVIVAL EQUIPMENT
FUEL/ → POB/ → RDO/ 121.5 → 243 → 500 → 8364
TYPE OF EQUIPMENT
LIFE JACKETS
RADIO FREQUENCY
POLAR → DESERT → MARITIME → JUNGLE → GLOBAL → JACKETS → LIGHT → FLUORESCEIN →
DINGHIES
COLOR
NUMBER
TOTAL CAPACITY
OTHER EQUIPMENT
DINGHIES → COVER → RMK/)
REMARKS
AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT
CREW LIST ATTACHED LOCATED AT:
PASSENGER MANIFEST ATTACHED LOCATED AT:
NAME OF PILOT IN COMMAND
SIGNATURE OF APPROVING AUTHORITY
AIRCRAFT HOME STATION OR ORGANIZATION
DD Form 1801, MAY 87 *Previous edtion is obsolete.* Reset DOD INTERNATIONAL FLIGHT PLAN

1504. PRACTICE PROBLEM NUMBER TWO QUESTIONS

1. Only one of the Alternate airports options was viable. List the airports that were not acceptable and the reason(s) why they could not be used as an alternate.

_____

_____

_____

2. What aircrew requirement is there during refueling at KOZR? _____.

3. Where is the CAIRNS VOR/DME located? _____.

4. What is the obstacle associated with departure from runway 6 at KOZR?

_____

_____

_____

5. If the approach lighting for runway 6 at KOZR was inoperative, how would it affect the takeoff minimums? _____.

6. On departure from KOZR via the OPPTO-TWO DEPARTURE you are expected to maintain _____ feet and expect clearance to requested altitude/Flight Level ____ minutes after departure.

7. KOZR can be found on the IFR Low Altitude Chart ____ on Panel ___.

8. CRESTVIEW VORTAC is located ___ NM from KCEW.

9. At KNPA your cautioned to expect

_____

_____

10. Contract fuel is available at K12J. (TRUE/FALSE)

1505. PRACTICE PROBLEM NUMBER THREE

1. The following information is given:

Unit of Assignment: TW4/KNGP

Aircraft/Bureau Number/Call Sign: T-6B/162165/NAVY 7 GOLF 165

AIRPORT	FORECAST WEATHER +/- 1 hour
ORIGIN: CORPUS CHRISTI NAS	03012KT 3200 FU BKN090 QNH 29.89
DEST: HOUSTON/ELLINGTON	01010KT 1 SHRA BKN080 QNH 29.90
ALTN 1: LONE STAR EXECUTIVE	12005KT 1 ½ RA OVC009 QNH 29.92
ALTN 2: BRENHAN MUNI	13015KT 3200 RA OVC009 QNH 29.91
ALTN 3: JACK BROOKS RGNL	10005KT 3200 HZ OVC090 QNH 29.92

Route to DEST: Depart CORPUS CHRISTI NAS RWY 31L AT 1000L VIA RADAR DEPARTURE TO the CORPUS CHRISTI then via the TCHDN TWO ARRIVAL CORPUS CHRISTI TRANSITION for radar vector to final for the HI ILS or LOC/DME RWY 35L

Route to ALTN 1: Direct to HOBBY direct ALIBI for a LOC RWY 14 APPROACH

Route to ALTN 2: Direct to HOBBY direct KILSE for the RNAC (GPS) RWY 34

Route to ALTN 3: Direct to HOBBY then J37 to HEIGH direct BPT for the ILS or LOC RWY 12

Climb Data:

- Climb Speed: 140 KIAS
- Climb Winds/Temperature: 280/06, ΔT +9°C

Cruise Data:

- Cruise Altitude: 21,000’ MSL
- Cruise Winds/Temperature: 200/23, -21°C

Fuel Data:

- 1100 lbs fuel load
- STTO 50 lbs
- Approach 50 lbs
- Max Endurance Fuel Flow 333 PPH

Additional Data:

- Instrument Rating: STANDARD
- Magnetic Variation: 3°E

2. IFR Supplement Corpus Christi NAS

CORPUS CHRISTI NAS, (TRUAX FLD) TX **KNGP** NAS (A CG)
N27°41.56' W97°17.42' 19 UTC-6(-5DT) **H-7C, L-20H-21A**

(B) **RWY-04** L1,5	(5001x196 ASP PCN 33 F/B/W/T)	L1,5 **RWY-22**
RWY-13L L5	(5000x196 ASP PCN 47 F/B/W/T)	L5 **RWY-31R**
RWY-13R L1,2,5,12,50	(8002x200 PEM PCN 55 R/C/W/T)	L1,5,50 **RWY-31L**
RWY-17 L5	(CLSD 5002x196 ASP PCN 41 F/B/W/T)	L5,50 **RWY-35**

SERVICE - LGT - When twr clsd ACTIVATE-3 step apch lgt Rwy 13R, HIRL Rwy 13R-31L and Rwy 04-22-134.85. **JASU** - 2(GTC-85) 1(MSU-200) 2(NC-8) 1(A/U47A-5) 1(NC-10C) 1(AM32A-108) **FUEL** - JP-8 **FLUID** - SP PRESAIR LOX LHOXRB **OIL** - O-128-156 **TRAN ALERT** - Tran acft exp delays fm 0900-1400L due ltd refuel/svc. Maint extremely ltd before 0900L, after 1400L and dur non-work hr.

REMARKS - Opr 1300-0500Z++ Mon-Thu; 1300-0100Z++ Fri; clsd Sat, Sun and hol. (DT 1200-0400Z Mon-Thu, 1200-2400Z Fri, clsd Sat, Sun and hol), OT ck NOTAM. Base OPS hr 1230-2300Z++ Mon-Fri, clsd Sat, Sun and hol. **RSTD** - Refuel/tran alert arng strongly recommended for all acft to avoid extv svcg/turnaround delays or prk in hi FOD risk areas. PPR 48 HR all tran acft, DSN 861-2506/2507, C361-961-2506/2507, FPL DSN 861-2505/2513, C316-961-2505/2513. Clsd twr Ops proh within one hr prior to afld opening due to preparations, exc for USCG, SAR, and USCS Law Enforcement. Mission critical or other events req ctc Base OPS DSN 861-2505/2506/2507, C361-961-2505/2506/2507.Twy D clsd fm Twy C to CSTMS ramp SS-SR. Twy C lane rstd to acft with wingspan less than 91'. **CAUTION** - Hi mid-air potential, extreme vigilance rqr. Exer extreme caution vcnty Waldron Fld NALF lctd 3 NM S. Extv R/W test opr conducted Mon-Fri fr 5 NM S of the Port of Aransas to 2 NM N of Truax NDB to 1200'. Numerous birds vcnty afld. If eqpt, all acft utilize UHF ATC freq unless asgn VHF. **TFC PAT** - Rgt tfc pat Rwy 13R, 17, 22 and 31R. All acft use ldg or taxi lgt while in arpt tfc area. Tran acft exp apch to full stop ldg only when single rwy opr are being conducted, practice apch not auth. Non-CNATRA tran acft exp one apch to full stop ldg or dep when parl rwy opr. **CSTMS/AG/IMG** - CSTMS, IMG avbl for acft arr fr overseas, plan arr btn 1400-2100Z++, C361-888-2505/2506. Pilots rqr to provide Identa-Plate Nr to Inspector for billing. **MISC** - Clsd twr OPS: Dep IFR acft shall obtain IFR clnc and release fr San Angelo FSS prior to tkof when fld is IFR via gnd link or landline 1-800-WXBRIEF. If the fld is VFR, a VFR dep is auth. Key mike quickly 2 times for San Angelo FSS on gnd link sys. Rwy 13L-31R clsd 1400-1800Z++ Sun, Rwy 13R-31L clsd 1300-1600Z++ Mon for sweeper OPS. UAS gnd opr in vcnty Hgr 46, 0100-2100Z++ Mon-Fri. Acft opr to the sea wall use caution. Inbd copters ctc Corpus Christi Army Depot (CCAD) X-ray Charlie at 139.0, 339.7 or DSN 861-1234/1235. **A** - Avoid flt over populated areas blw 1000' AGL prior to Gulf shore line. R/W acft destined for Corpus Christi Army Depot turn in will remain at least 1/4 NM off shore and 500' prior to ctc Navy Corpus TWR. PPR all CCAD tran acft. Turn in will only be accepted dur nml duty hr, 1300-2300Z++ Mon-Fri. All R/W and F/W acft ldg/taxiing to seawall PPR DSN 861-2006/2007 C361-961-2006/2007. R/W acft make apch to helipad adj Hgr 46, ctc Army OPS, X-ray Charlie prior to taxi on CCAD ramp. POC Avn Div, Hgr 44. Avoid ovft of bldg S of ramp area and ammo dump E of containment area. Tran and parts pickup acft prk/fuel at Navy tran ramp (Separate PPR), DSN 861-2505, C361-961-2505. All acft with weapons arr CCAD after nml duty hr notify CCAD Security DSN 861-3314, C361-961-3314. Maj maint avbl. Loading/unloading of air cargo - mil/civ designated for CCAD will be sched for daylgt hr only. Dur times of natl emerg exceptions apvd by Drct, Supply CCAD DSN 861-2557, C361-961-2557. **CG** - Min 24 hr PPR exc CG msn. Ctc Sector Corpus Christi Command Ctr, C361-939-6393. **RWY** - Rwy 17-35 clsd for const.

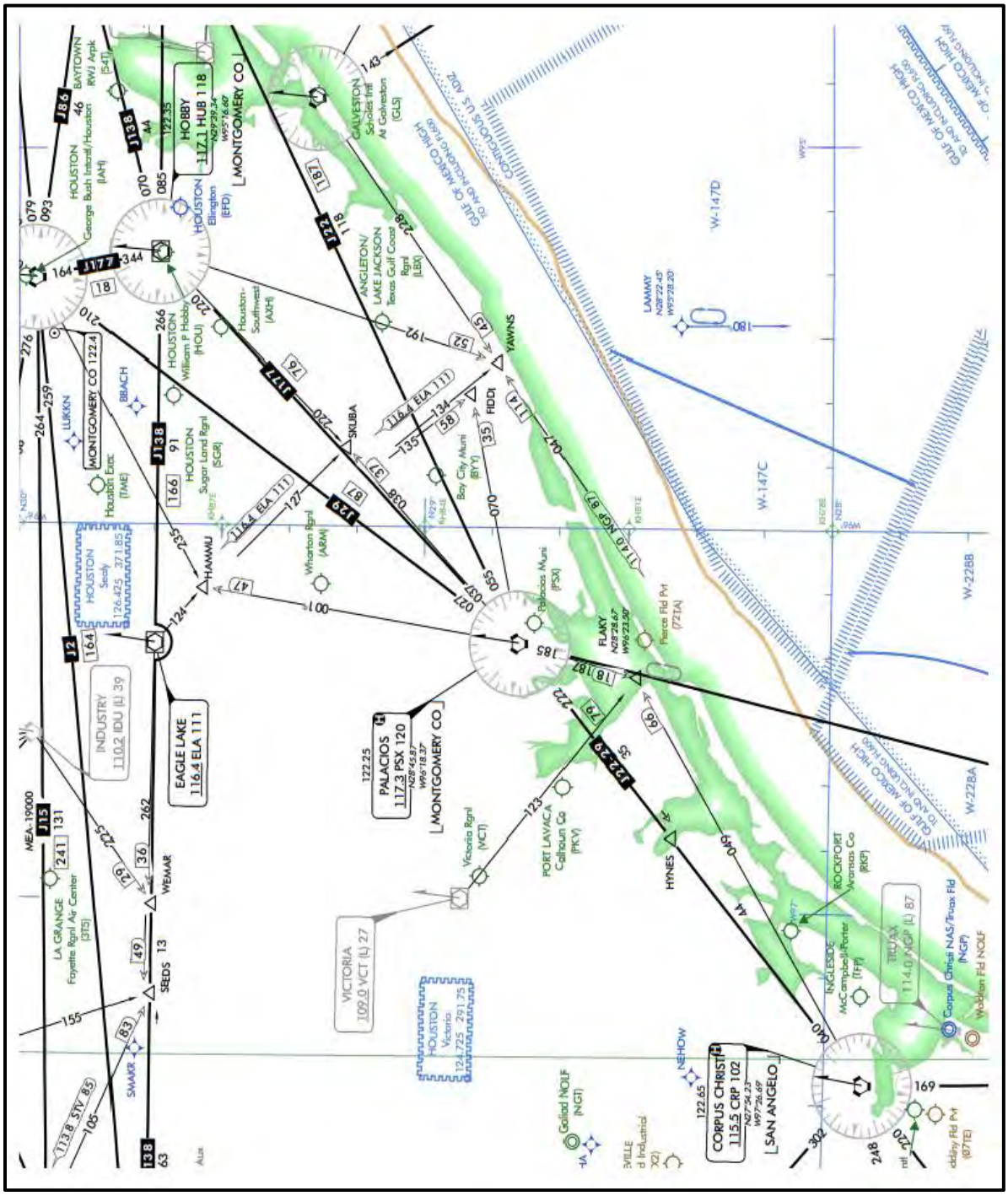
COMMUNICATIONS - ATIS - 114.0 127.9 290.9 **APP - (R) (E)** 120.9 127.5 128.675 259.3 343.75 348.725 *REMARKS:* (120.9 343.75 All rwy exc as noted; 120.9 348.725 HI-TACAN RWY 13R; 127.5 259.3 HI-TACAN RWY 31L). **NAVY CORPUS TWR - (E)** 125.525 134.85 340.2 360.2 (N Twr 134.85 340.2) (S Twr 125.525 360.2) **NAVY CORPUS GND** - 118.7 257.85 **DEP - (R) (E)** 128.675 343.75 **NAVY CORPUS CLNC DEL** - 314.3 **PMSV METRO** - Avbl 1000-0500Z++ Mon-Thu, 1000-0100Z++ Fri (clsd Sat-Sun and hol). 343.5 *REMARKS:* (RADAR wx advsy svc) **BASE OPS** - 346.65 7965 **ARMY OPS** - 49.7 139.0 339.7 *REMARKS:* X-ray Charlie **AIR** - 345.0 *REMARKS:* (5699 SSB. Ctc Corpus Air.) **FSS-SAN ANGELO SJT-DL-NOTAM SJT**

NAVAIDS - TRUAX VORTAC - L 114.000 NGP CH 87 N27°41.18' W97°17.68' At Fld. 17/(A)6°00.0'E No-NOTAM MP: 1500-1800Z++ 2nd Wed ea month.
CORPUS CHRISTI VORTACW - HA 115.500 CRP CH 102 N27°54.23' W97°26.69' 138° 15.1 NM to Fld. 60/(A)9°00.0'E HIWAS.

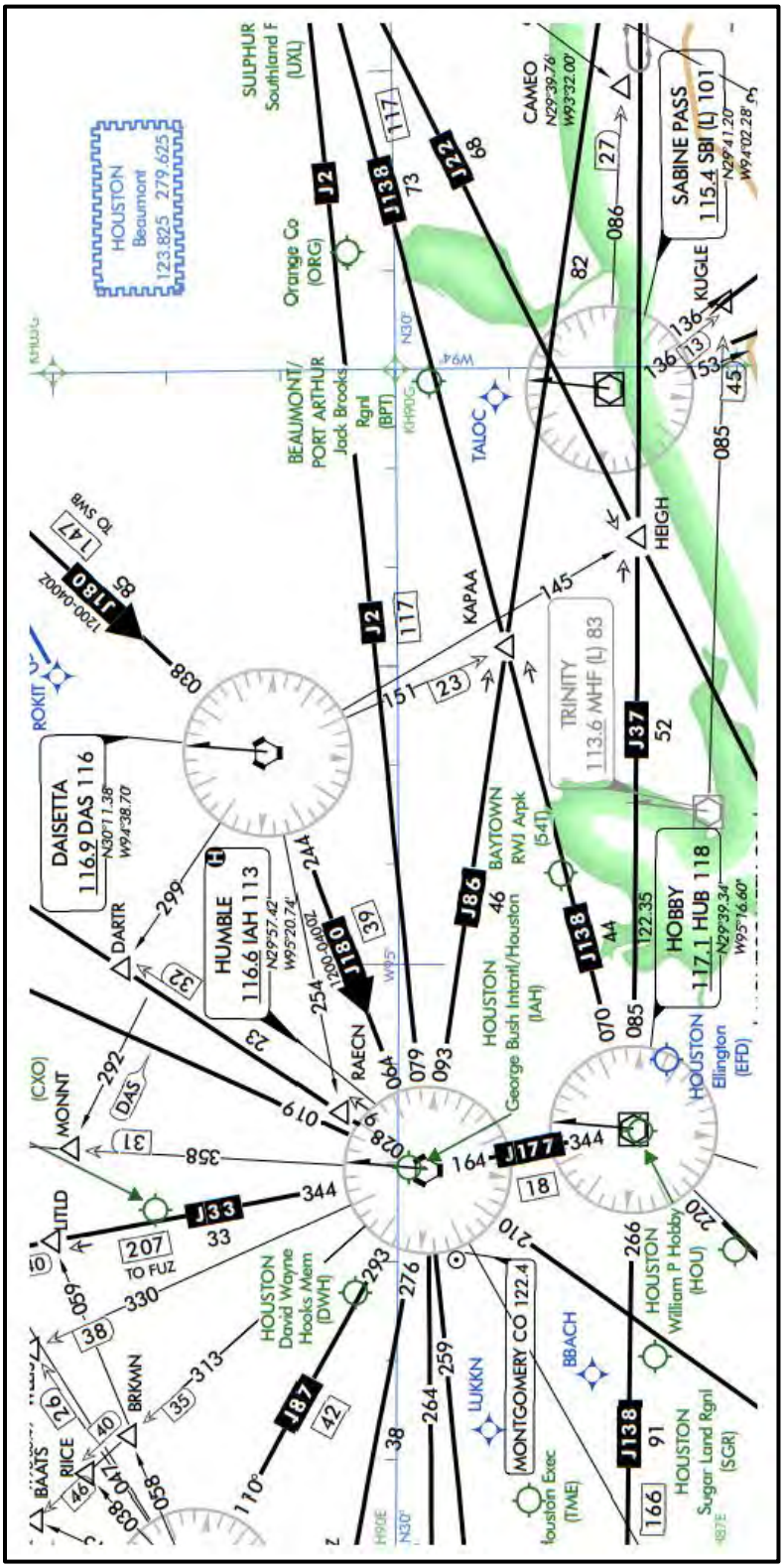
CRP TACAN az unuse	080°-085° byd 30 NM
CRP TACAN unuse	024°-036° byd 35 NM blw 1700'
	037°-023° byd 35 NM blw 2000'
	265°-275°
NGP DME unuse	190°-305° byd 20 NM blw 2000'
NGP VOR unuse	011°-039°
	093°-117° byd 32 NM
	155°-166° byd 32 NM

ILS/RADAR - ILS - 13R GS unuse byd 4° rgt and 6° left of cntrln. No-NOTAM MP: 1800-0000Z++ 3rd Thu ea month. **RADAR** - SEE TERMINAL FLIP FOR RADAR MINIMA.

3. H-7 Corpus Christi Area



4. H-7 Houston Area



5. NAS Corpus Christi Radar Mins

RADAR INSTRUMENT APPROACH MINIMUMS

CORPUS CHRISTI NAS (KNGP)

RADMINS

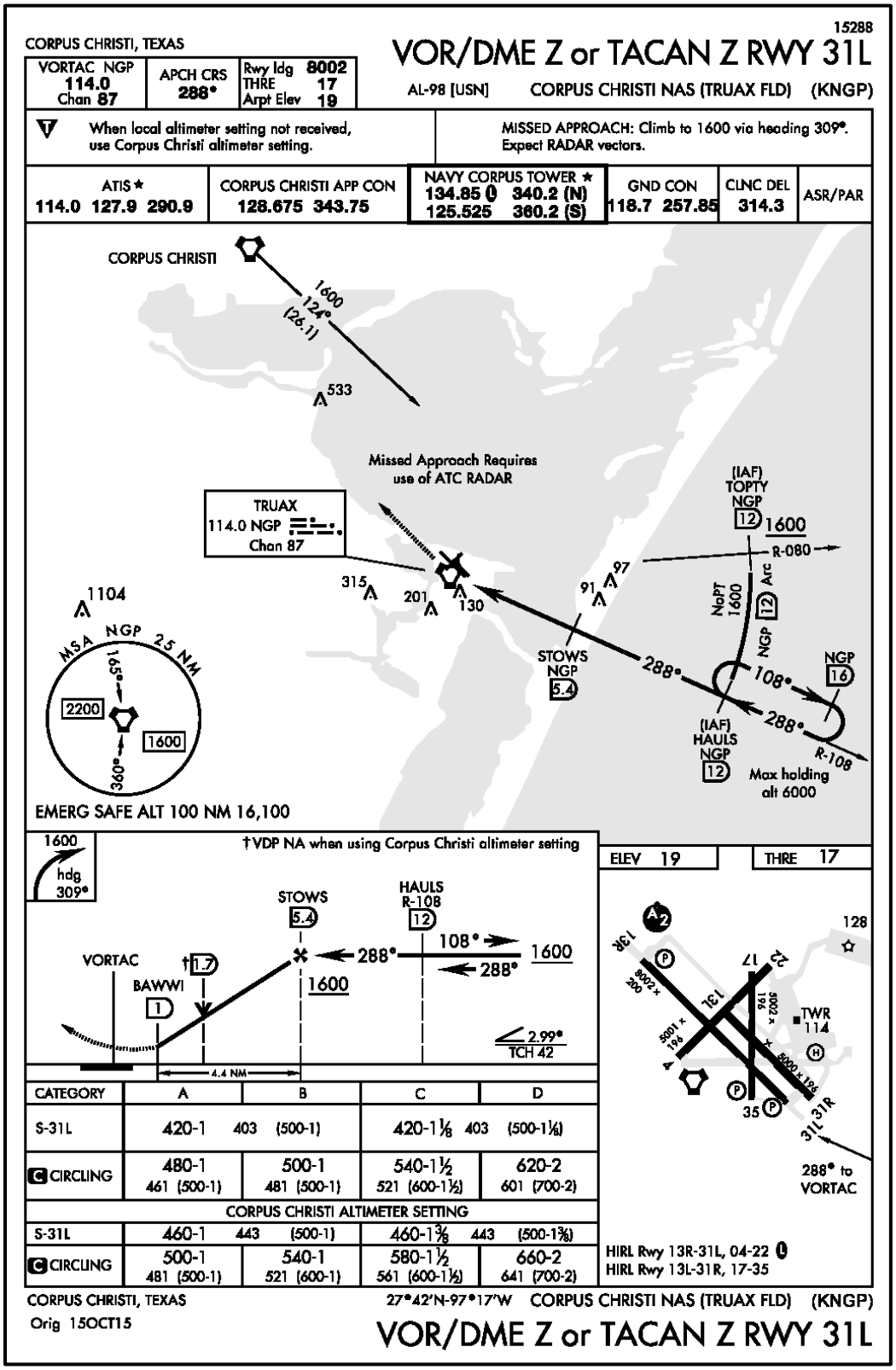
CORPUS CHRISTI NAS (KNGP), (TRUAX FLD) TX (15260 USN) **ELEV 19**

RADAR - (E) 6835 124.65 270.8 284.6 337.2 354.8

	RWY	GS/TCH/RPI	CAT	DH/ MDA-VIS	HAT/HATh HAA	CEIL-VIS
PAR ①	13R ②	3.0°/41/781	ABCDE	**110**-¼	100	(100-¼)
	31L	3.0°/43/820	ABCDE	**117**-½	100	(100-½)
	35	3.0°/45/835	ABCDE	**117**-½	100	(100-½)
	17	3.0°/39/700	ABCDE	**131**-½	118	(200-½)
PAR W/O GS ①	17		ABCDE	**300**-1¼	287	(300-1¼)
	13R ③		ABCDE	**360**-1	350	(400-1)
	31L		ABCDE	**420**-1¼	403	(500-1¼)
	35		ABCDE	**440**-1¼	423	(500-1¼)
PAR W/O GS	13L		ABCDE	**360**-1⅞	347	(400-1⅞)
SIDESTEP ①⑤	31R		ABCDE	**400**-1¼	382	(400-1¼)
ASR	13L		ABCDE	**380**-1	367	(400-1)
	13R ④		AB	**440**-¾	430	(500-¾)
			CDE	**440**-1	430	(500-1)
	17		ABCDE	**360**-1	347	(400-1)
	31R		AB	**500**-1	482	(500-1)
			CDE	**500**-1⅜	482	(500-1⅜)
	31L		AB	**500**-1	483	(500-1)
			CDE	**500**-1⅜	483	(500-1⅜)
	35		AB	**500**-1	483	(500-1)
			CDE	**500**-1⅜	483	(500-1⅜)
	4		AB	**500**-1	483	(500-1)
			CDE	**500**-1⅜	483	(500-1⅜)
CIR ⑥	All Rwys		A	**500**-1	481	(500-1)
			B	**500**-1¼	481	(500-1¼)
			C	**540**-1½	521	(600-1½)
			D	**620**-2	601	(700-2)
			E	**620**-2¼	601	(700-2¼)

① No-NOTAM MP: PAR Tue 1300-1700Z++. ② When ALS inop, increase vis CAT ABCDE to ½ mile. ③ When ALS inop, increase vis CAT ABCDE to 1¼ miles. ④ When ALS inop increase vis CAT AB to 1 mile, CAT CDE to 1¼ miles. ⑤ Circling fr Sidestep NA. Sidestep NA prior to 2 miles fr touchdown. ⑥ Circling authorized only from ASR and PAR W/O GS. When circling from PAR W/O GS increase CAT A vis to 1¼ miles.

6. NAS Corpus Christi Approach Runway 31L



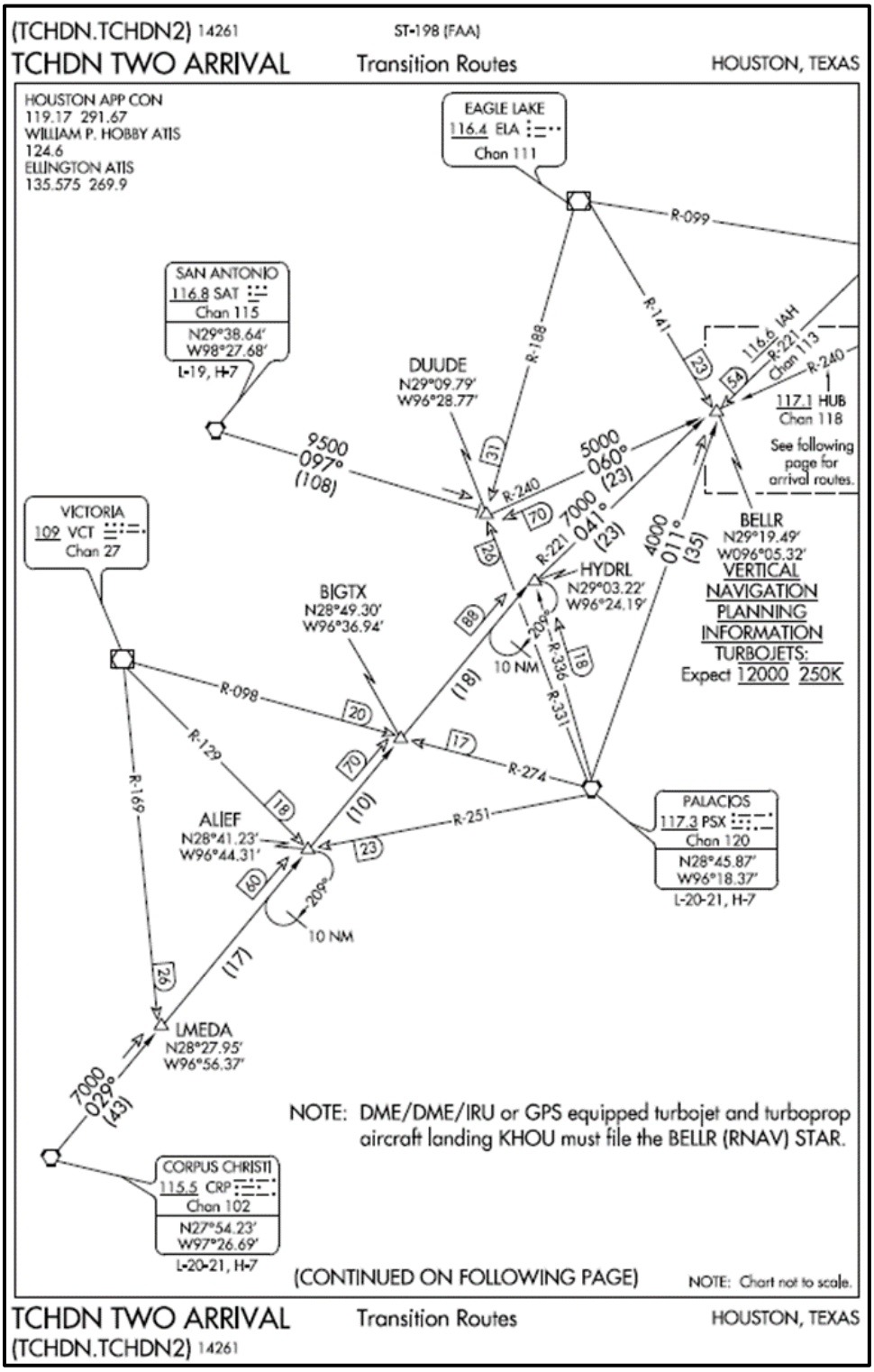
7. Takeoff Minimums KNGP

AIRPORT NAME	TAKE-OFF MINIMUMS

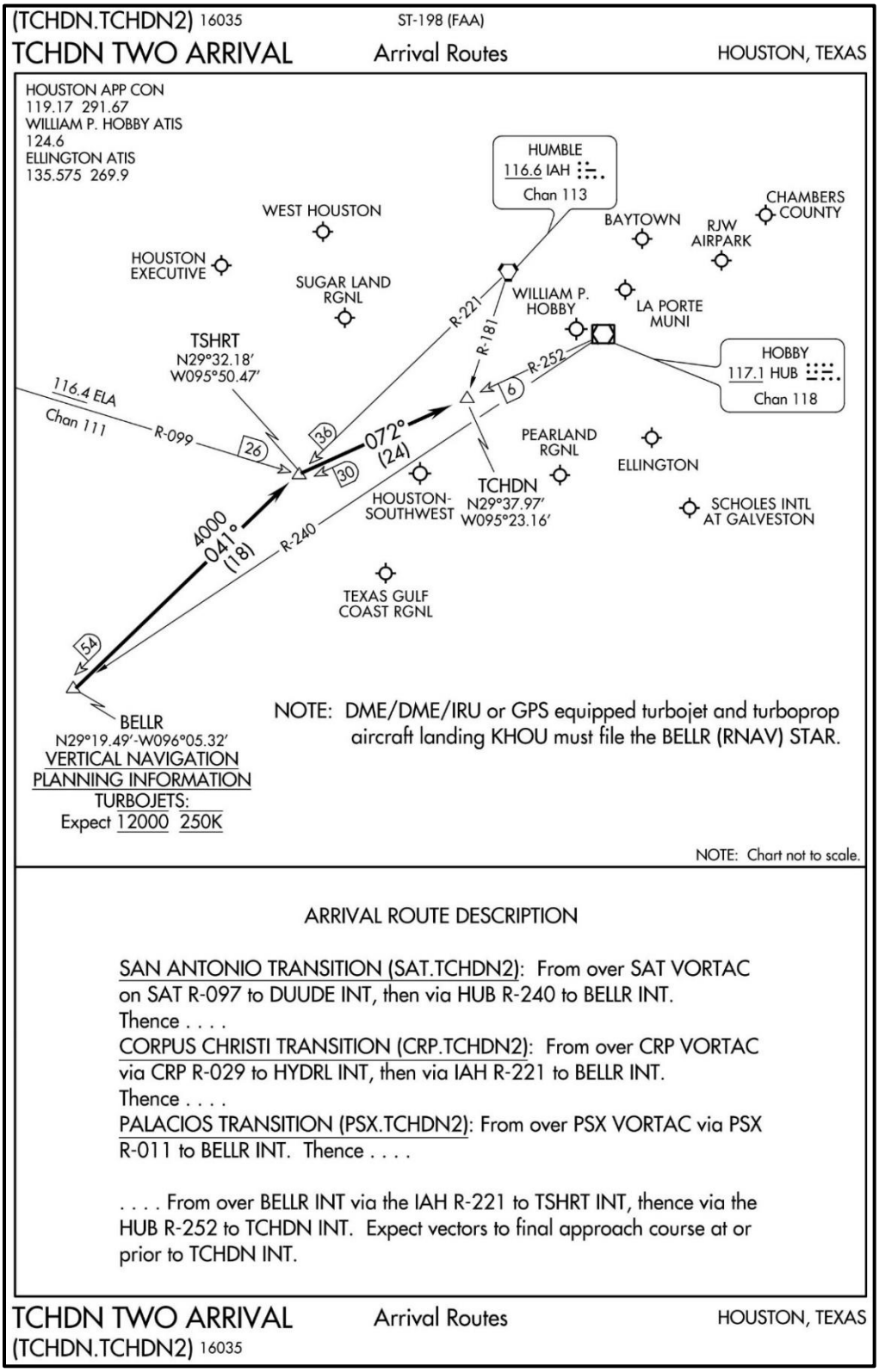
CORPUS CHRISTI, TX
CORPUS CHRISTI NAS
(TRUAX FLD) (KNGP) . . . . . Orig, 15232

TAKE-OFF OBSTACLES: **Rwy 13L,** pylon 3366′ from DER, 452′ left of centerline, 91′ AGL/102′ MSL. Pylon 4193′ from DER, 36′ left of centerline, 79′ AGL/104′ MSL. Pylon 3997′ from DER, 688′ left of centerline, 60′ AGL/87′ MSL. Terrain 570′ from DER, 653′ right of centerline, 33′ MSL. Terrain 551′ from DER, 644′ right of centerline, 33′ MSL. Terrain 413′ from DER, 547′ left of centerline, 33′ MSL. Terrain 47′ from DER, 500′ left of centerline, 35′ MSL. Terrain 46′ from DER, 512′ left of centerline, 35′ MSL. Pylon 4518′ from DER, 1117′ right of centerline, 79′ AGL/107′ MSL. Pylon 4675′ from DER, 1696′ right of centerline, 79′ AGL/103′ MSL. Pylon 4346′ from DER, 542′ right of centerline, 79′ AGL/101′ MSL. **Rwy 13R**, pylon 4743′ from DER, 786′ left of centerline, 79′ AGL/104′ MSL. Terrain 443′ from DER, 550′ right of centerline, 33′ MSL. Terrain 380′ from DER, 602′ right of centerline, 33′ MSL. Terrain 247′ from DER, 550′ right of centerline, 33′ MSL. Terrain 190′ from DER, 551′ right of centerline, 33′ MSL. Terrain 427′ from DER, 614′ left of centerline, 34′ MSL. Terrain 384′ from DER, 600′ left of centerline, 34′ MSL. Pylon 5067′ from DER, 368′ right of centerline, 79′ AGL/107′ MSL. Pylon 5224′ from DER, 946′ right of centerline, 79′ AGL/103′ MSL. **Rwy 17,** pylon 4925′ from DER, 381′ left of centerline, 124′ AGL/142′ MSL. Terrain 472′ from DER, 584′ left of centerline, 30′ MSL. Terrain 63′ from DER, 517′ right of centerline, 32′ MSL. Terrain 17′ from DER, 500′ right of centerline, 33′ MSL. **Rwy 31L,** terrain 47′ from DER, 512′ left of centerline, 29′ MSL. Terrain 50′ from DER, 500′ left of centerline, 30′ MSL. Terrain 173′ from DER, 546′ left of centerline, 30′ MSL. Terrain 181′ from DER, 500′ left of centerline, 31′ MSL. Terrain 684′ from DER, 652′ right of centerline, 30′ MSL. **Rwy 31R,** terrain 31′ from DER, 500′ right of centerline, 33′ MSL. Terrain 63′ from DER, 517′ right of centerline, 33′ MSL. Terrain 294′ from DER, 500′ right of centerline, 33′ MSL. Terrain 380′ from DER, 602′ right of centerline, 33′ MSL. **Rwy 35,** terrain 46′ from DER, 512′ left of centerline, 36′ MSL. Terrain 50′ from DER, 500′ left of centerline, 36′ MSL. Terrain 300′ from DER, 580′ left of centerline, 36′ MSL. Terrain 313′ from DER, 500′ left of centerline, 36′ MSL.

8. TCHDN TWO ARRIVAL PG 1



9. TCHDN TWO ARRIVAL PG 2



10. IFR Supplement HOUSTON/ELLINGTON

ELLINGTON, TX **KEFD** P (ANG CG NASA ARNG) N29°36.44' W95°09.52' 33
UTC-6(-5DT) **H-7C, L-19E-21A**

(B) **RWY-04** L4,5,50 (8001x150 CON S100 D164 2S175 2D300 2D/2D2-668) L2,3,4,5,8,15,50 **RWY-22**

BAK-14 BAK-12B(B) (1563') — BAK-14 BAK-12B(B) (1496')

RWY-17L (4609x80 CON S24 D63 2S80 2D145 2D/2D2-300) **RWY-35R**

RWY-17R L2,3,4,5,14,50 (9001x150 CON S100 D190 2S175 2D590 2D/2D2-800) L2,3,4,5,14,50 **RWY-35L**

BAK-14 BAK-12B(B) (1500') — BAK-14 BAK-12B(B) (1850')

SERVICE - A-GEAR - Potential for tail hook skip on Rwy 17R-35L and Rwy 04-22 due to cntrln lgt within 200' of Rwy A-G. A-G lgtd mrk placement exceeds 75' fr rwy edge. **JASU** - 2(-95) 1(-86) 1(JETEX5) **FUEL** - A++(Mil), A, A+, J8 (Southwest Arpt Svc, C281-484-6551.) (NC-100LL) **FLUID** - LHOX HPOX

REMARKS - RSTD - PPR H24 for acft with wingspan over 171', ctc C281-433-1612. Rwy 17L-35R and Twy B E of Rwy 17R-35L rstd to acft with less than 9 PAX seats. Acft with 9 PAX or more must have PPR 15 min prior to arr C281-433-1612. **CAUTION** - Bird haz. Numerous small arpt with extv trng in area of base. Some portions of ramp SW of twr not vis fr twr. Do not mistake street lgt 700' E of Rwy 17R thld for apch lgt. **TFC PAT** - VFR rectangular 1100'; overhead 1600'; lgt acft 600'. **NS ABTMT** - Noise sensitive areas S and E of fld. Jet acft rstd to str-in full stop ldg only btn 0400-1300Z++ dly, 0400-1900Z++ Sun. No multi practice VFR apch btn 0500-1300Z++ Sun. On dep jet acft min use of after burners and climb rwy hdg to 1000' prior to turns or rejoin. **MISC** - Prk ramp cap TDT710. **ANG** - ANG Ramp clsd to all acft exc OFFL BUS ONLY. PPR, ctc Base OPS, 1200-2130Z++ wkd, clsd wkend and hol. DSN 454-2142, C281-929-2142, 24 hr prior arr. Comd Post 24 hr, DSN 454-2716, C281-929-2716. All other tran acft ctc Southwest Svc 1-800-426-5237, C281-484-6551. **CG** - Min 24 hr PPR exc CG msn. C713-578-3000.

COMMUNICATIONS - UNICOM - 122.95 **ATIS** - 135.575 269.9 *REMARKS:* C281-464-4190. **HOUSTON APP/DEP - (R) (E)** 134.45 284.0 **TWR - (E)** 126.05 253.5 **GND** - 121.6 275.8 **COMD POST** - 142.2 288.5 *REMARKS:* Call Lone Star. **ARNG OPS** - Opr 1230-2200Z++ PPR Mon-Fri. 41.0 **ANG OPS** - 142.2 288.5 *REMARKS:* Call Texan OPS. **HOUSTON AIR** - 345.0
FSS-MONTGOMERY CO CXO-NOTAM EFD

NAVAIDS - ELLINGTON TACAN - L EFD CH 31 N29°36.36' W95°09.58' At Fld. 28/(A)5°00.0'E No-NOTAM MP: TACAN 1330-1530z++ Mon. **SANJAC NDB** - MHW 347.000 JPA N29°40.11' W95°04.19' 229° 5.9 NM to Fld. 23/2°32.5'E
EFD TACAN unuse
080°-095° byd 15 NM blw 5000'
150°-160° byd 25 NM blw 2500'

ILS/RADAR - ILS - 17R, 22, 35L. No-NOTAM MP: 1330-1530Z++ Tue-Wed.

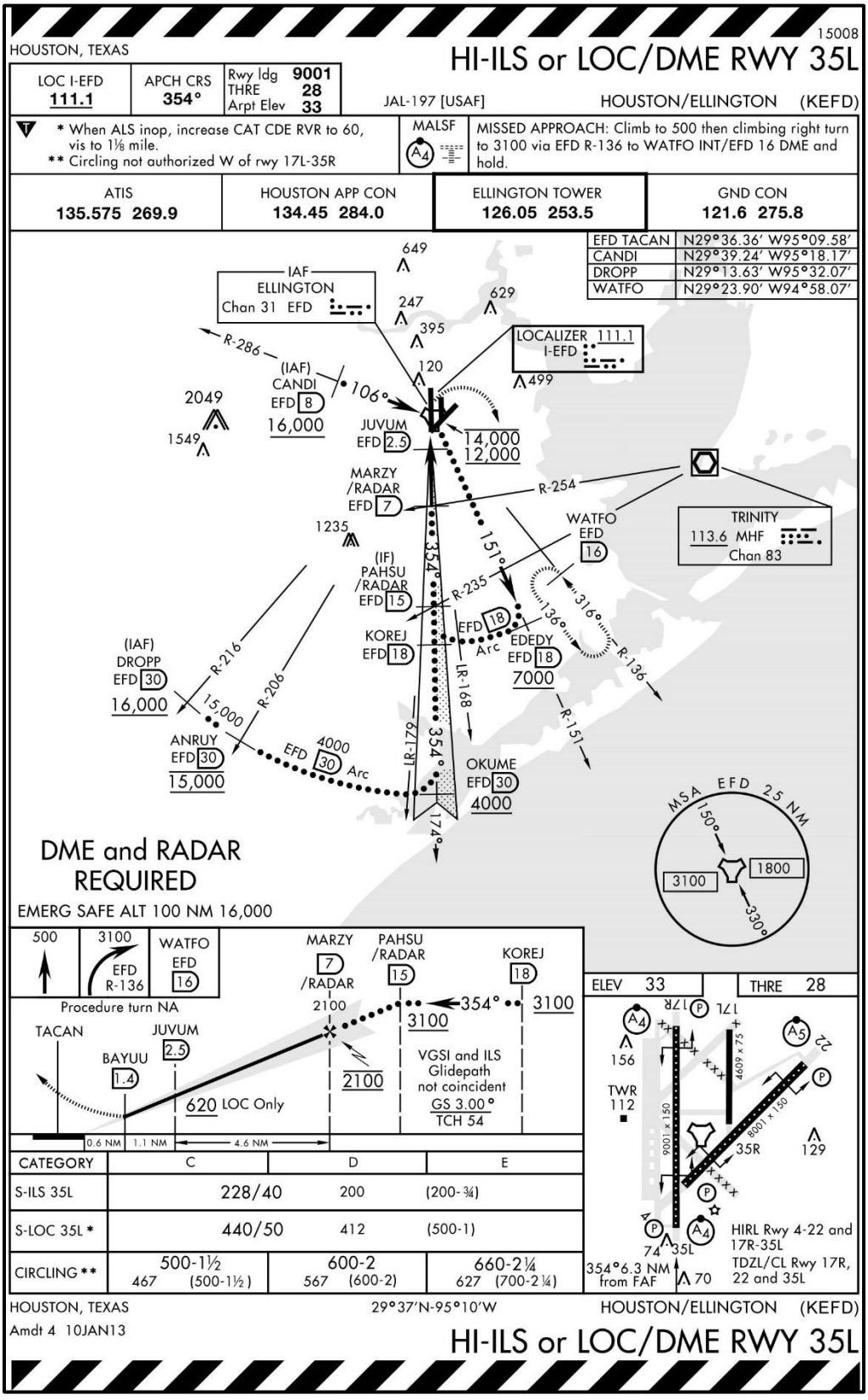
11. AP1 Ellington (KEFD), TX

Ellington (KEFD), TX

1. No USAF weather forecast available. CAUTION - High seagull bird strike potential during periods of rain and low visibility. Deer in vicinity of runway. Unlighted sod areas in parking ramp. Aircraft requiring maintenance will be recovered by home station. Some taxiway and portions of ramp not stressed for heavy weight aircraft. VFR traffic request Stage II Radar Service. Noise abatement procedures in effect. High altitude IFR aircraft request and expect published jet penetration. La Porte Municipal (T41), Rwy 22, 5 NM NE can be mistaken for Ellington (KEFD), Rwy 22.

(NFDD 223-18,2012)

12. HOUSTON/ELLINGTON APPROACH



13. IFR Supplement Lone Star Executive

LONE STAR EXECUTIVE, TX **KCXO** P (AR) N30°21.20' W95°24.90' 245
UTC-6(-5DT) **H-7C, L-19D-21A**

(B) **RWY-01** L6,50 (5000x100 CON S30 D75 2S95) L6,50 **RWY-19**
RWY-14 L1,2,5,8,15,50 (7501x150 CON S60 D100 2S127) L1,5,9,50 **RWY-32**

SERVICE - LGT - HIRL Rwy 14-32 preset lo ints. To INCR ints and ACTIVATE-REIL Rwy 32-CTAF. **FUEL -** A+ (Galaxy FBO Holdings LLC, 1300-0300Z++, OT 45 min PN C936-494-4252.) (NC-100LL)

REMARKS - Opr 1200-0300Z++. **RSTD -** Avoid noise sensitive area 10 NM SW quad of arpt. **CAUTION -** Extv mil copter act. Unmanned acft opr in immed area dur daylt hr. **TFC PAT -** Copter use rgt tfc. **MISC -** Class D airspace reverts to Class E when twr clsd. **AR -** Support fac opr 1330-2200Z++. No tran prk at AR ramp.

COMMUNICATIONS - CTAF - 124.125 **ATIS -** 118.325 **ASOS -** 118.325 *REMARKS:* C936-760-4237. **RDO -** 122.2 **HOUSTON APP/DEP - (R) (E)** 119.7 281.4 **TWR -** Opr 1300-0400Z++. 124.125 *REMARKS:* OT ctc Houston CLNC DEL 119.55. **GND/CLNC DEL -** 120.45 **FSS-MONTGOMERY CO CXO-NOTAM CXO**

NAVAIDS - ALIBI NDB/LOM - MHW 281.000 CX N30°25.92' W95°28.57' 143° 5.7 NM to Fld. 371/2°45.6'E

ILS/RADAR - ILS/LOC - 14

14. Alternate Minimums Houston Area

IFR ALTERNATE MINIMUMS

HOUSTON, TX

DAVID WAYNE HOOKS MEMORIAL (DWH) ..... **RNAV (GPS) Rwy 17R**
RNAV (GPS) Rwy 35L
NA when local weather not available.

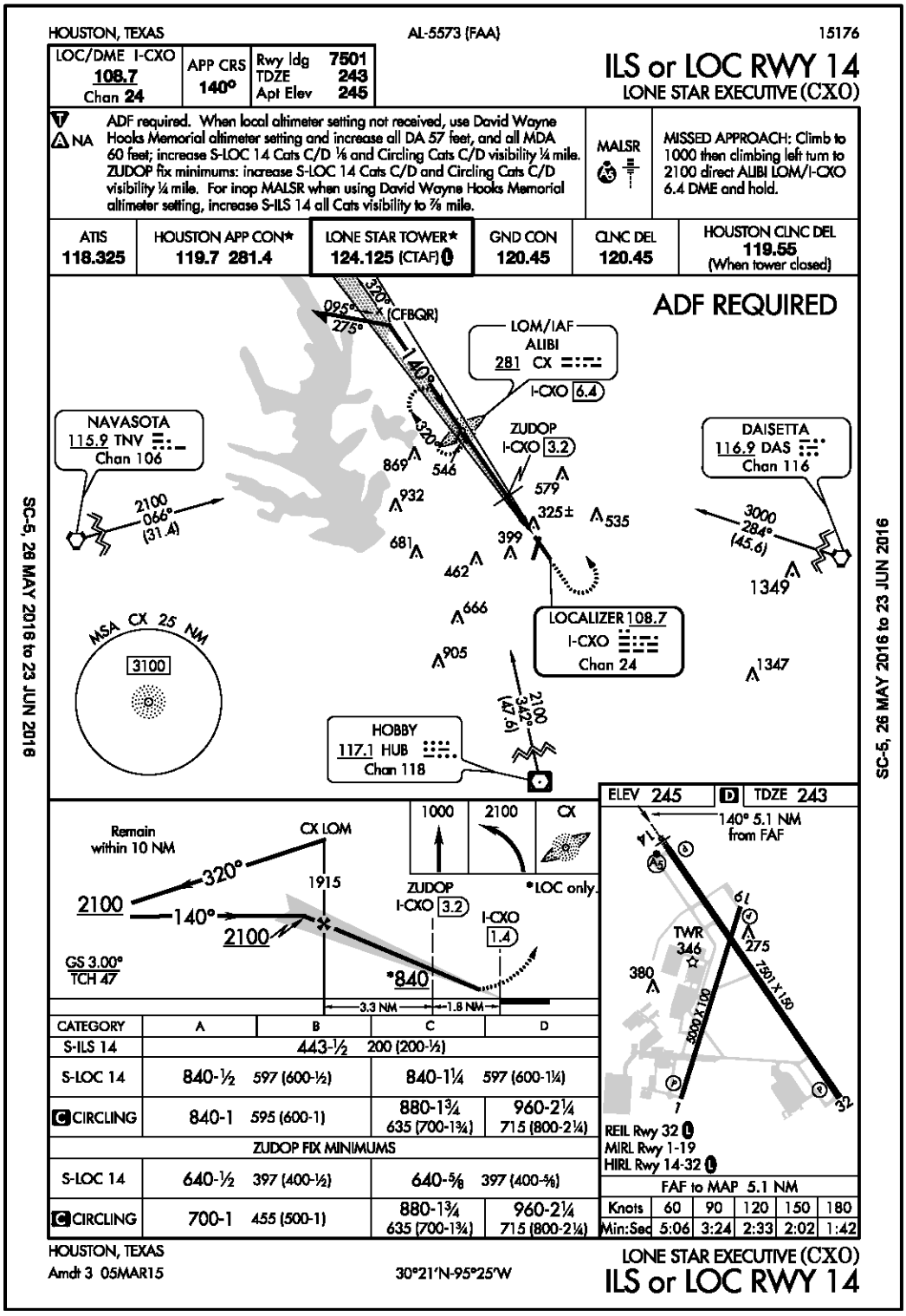
ELLINGTON (EFD)..... **ILS or LOC Rwy 17R**[1]
ILS or LOC Rwy 35L[2]
RNAV (GPS) Rwy 4[3]
RNAV (GPS) Rwy 17R[3]
RNAV (GPS) Rwy 22[3]
RNAV (GPS) Rwy 35L[3]
[1]Categories A, B, 1100-2, Categories C, D, E, 1100-3
[2]ILS, Category E, 700-2¼. LOC, Category E, 800-2¼.
[3]Category E, 800-2¼.

GEORGE BUSH INTERCONTINENTAL/ HOUSTON (IAH) ..... **ILS or LOC Rwy 8R**[1]
ILS or LOC Rwy 26L[2]
[1]ILS, LOC, Categories A, B, 900-2; Categories C, D, E, 900-2½.
[2]ILS, Categories A, B, 800-2; Categories C, D, E, 800-2½; LOC, Categories C, D, E, 800-2½.

LONE STAR EXECUTIVE (CXO)..... **NDB Rwy 14**[1]
RNAV (GPS) Rwy 1
RNAV (GPS) Rwy 14[1]
RNAV (GPS) Rwy 19
RNAV (GPS) Rwy 32[1]
NA when local weather not available.
[1]Category D, 800-2¼.

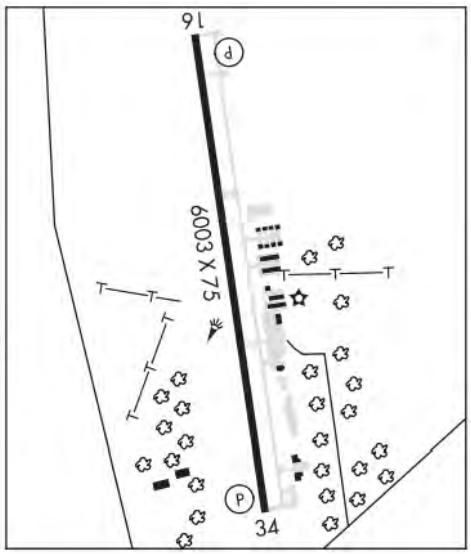
PEARLAND RGNL (LVJ).... **RNAV (GPS) Rwy 32**
VOR-B
NA when local weather not available.

15. LONE STAR EXECUTIVE APPROACH

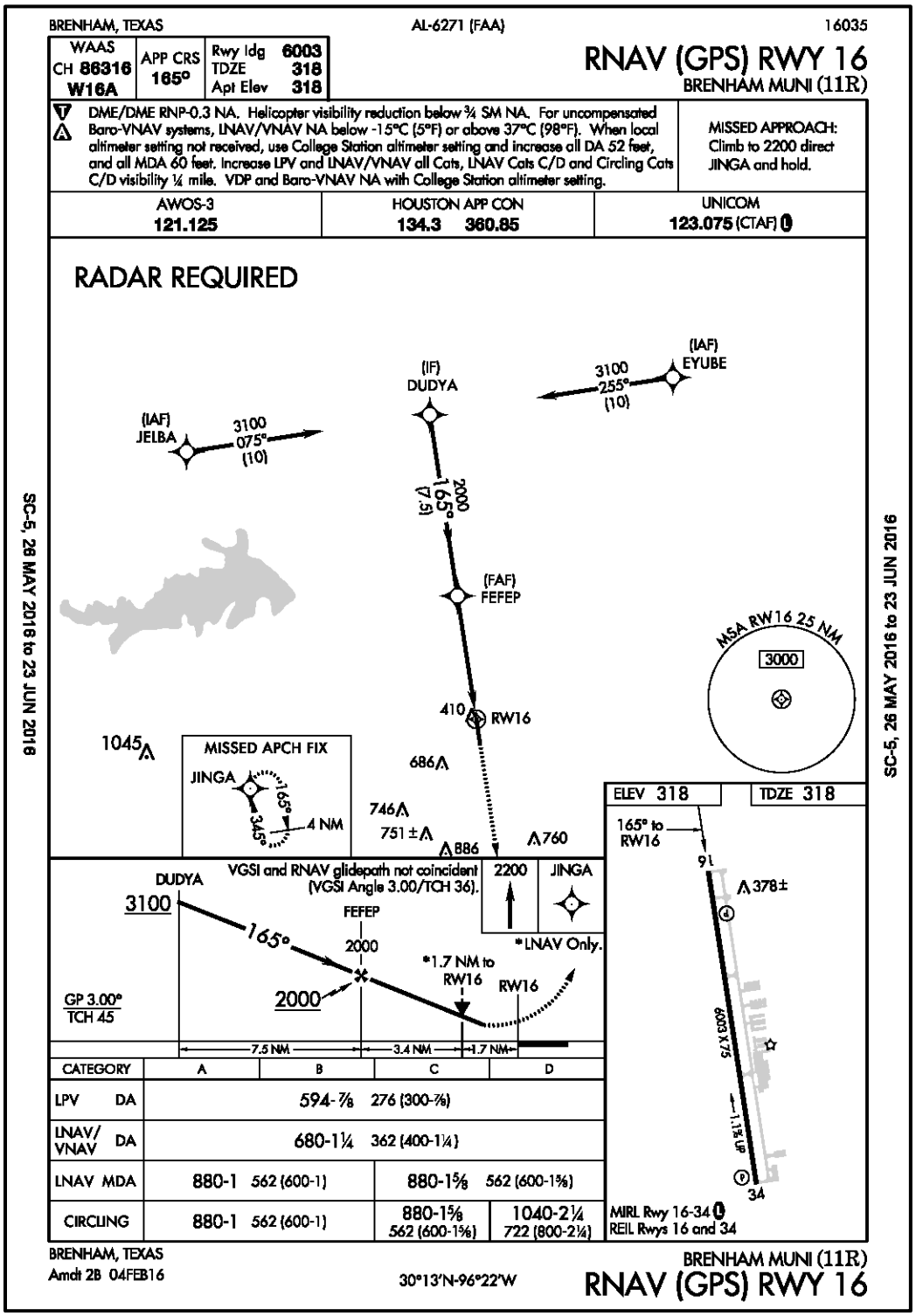


16. Brenham Muni FAA Chart Supplements Information (Airport not listed in IFR Supplement)

BRENHAM MUNI (11R) 3 NE UTC–6(–5DT) N30°13.18′ W96°22.46′ **HOUSTON**
318 B NOTAM FILE 11R **H–7C, L–19D, 21A, GOMW**
RWY 16–34: H6003X75 (ASPH) S–30 MIRL 1.1% up N **IAP**
RWY 16: REIL. PAPI(P2L)—GA 3.0° TCH 36′. Tree.
RWY 34: REIL. PAPI(P4L)—GA 3.5° TCH 48′. Trees.
SERVICE: S4 **FUEL** 100LL, JET A **OX** 4 **LGT** ACTIVATE MIRL Rwy 16–34—CTAF.
AIRPORT REMARKS: Attended 1300–0000Z‡. After hrs svc on request with fee, call 979–836–5462. NOTE: See Special Notices—Aerobatic Practice Area.
AIRPORT MANAGER: 979-337-7212
WEATHER DATA SOURCES: AWOS–3 121.125 (979) 836–2303.
COMMUNICATIONS: CTAF/UNICOM 123.075
Ⓡ **HOUSTON APP/DEP CON** 134.3
CLEARANCE DELIVERY PHONE: For CD ctc Houston Apch at 281-443-5844 to cnl IFR call 281-443-5888.
RADIO AIDS TO NAVIGATION: NOTAM FILE CLL.
COLLEGE STATION (L) VORTACW 113.3 CLL Chan 80 N30°36.30′ W96°25.24′ 166° 23.2 NM to fld. 264/8E.
TACAN unusable:
101°–130° byd 25 NM blo 2,500′
131°–148° byd 30 NM blo 2,500′
149°–160° byd 30 NM blo 2,000′
325°–349° byd 30 NM blo 2,500′
350°–100° byd 25 NM blo 3,500′
VOR unusable:
024°–034° blo 4,000′
024°–034° byd 20 NM
131°–142° blo 7,000′
142°–152° byd 30 NM
152°–189° blo 7,000′



17. BRENHAM MUNI APPROACH (Only two approaches available both RNAV (GPS) type)



18. BRENHAM MUNI ALTERNATE MINIMUMS

IFR ALTERNATE AIRPORT MINIMUMS

BRENHAM, TX

BRENHAM
MUNI (11R) ..... **RNAV (GPS) Rwy 16**
RNAV (GPS) Rwy 34
NA when local weather not available.
Category D, 800-2¼.

19. IFR Supplement Jack Brooks RGNL

JACK BROOKS RGNL, TX **KBPT** P N29°57.05' W94°01.24' 15 UTC-6(-5DT)
H-7D, L-19E-21A

(B) **RWY-12** L1,2,5,8,15 (6750x150 CON S90 D170 2S175 2D230) L5,9,43 **RWY-30**

RWY-16 L5,9,43 (5070x150 PEM S70 D90 2S114 2D145) L5,9,43 **RWY-34**

SERVICE - LRA **LGT -** When twr clsd, HIRL Rwy 12-30 and 16-34, and REIL Rwy 16-34 and 30 preset med ints. ACTIVATE-MALSR Rwy 12-CTAF. Twy hold short sign for Rwy 16-34 and Rwy 12-30 not lgted. Twy C twy lgt O/S. Twy C clsd, lgtd and barricaded. **FUEL -** A+ (Arpt Fuel Svc, C409-719-4950). (NC-100LL, A)

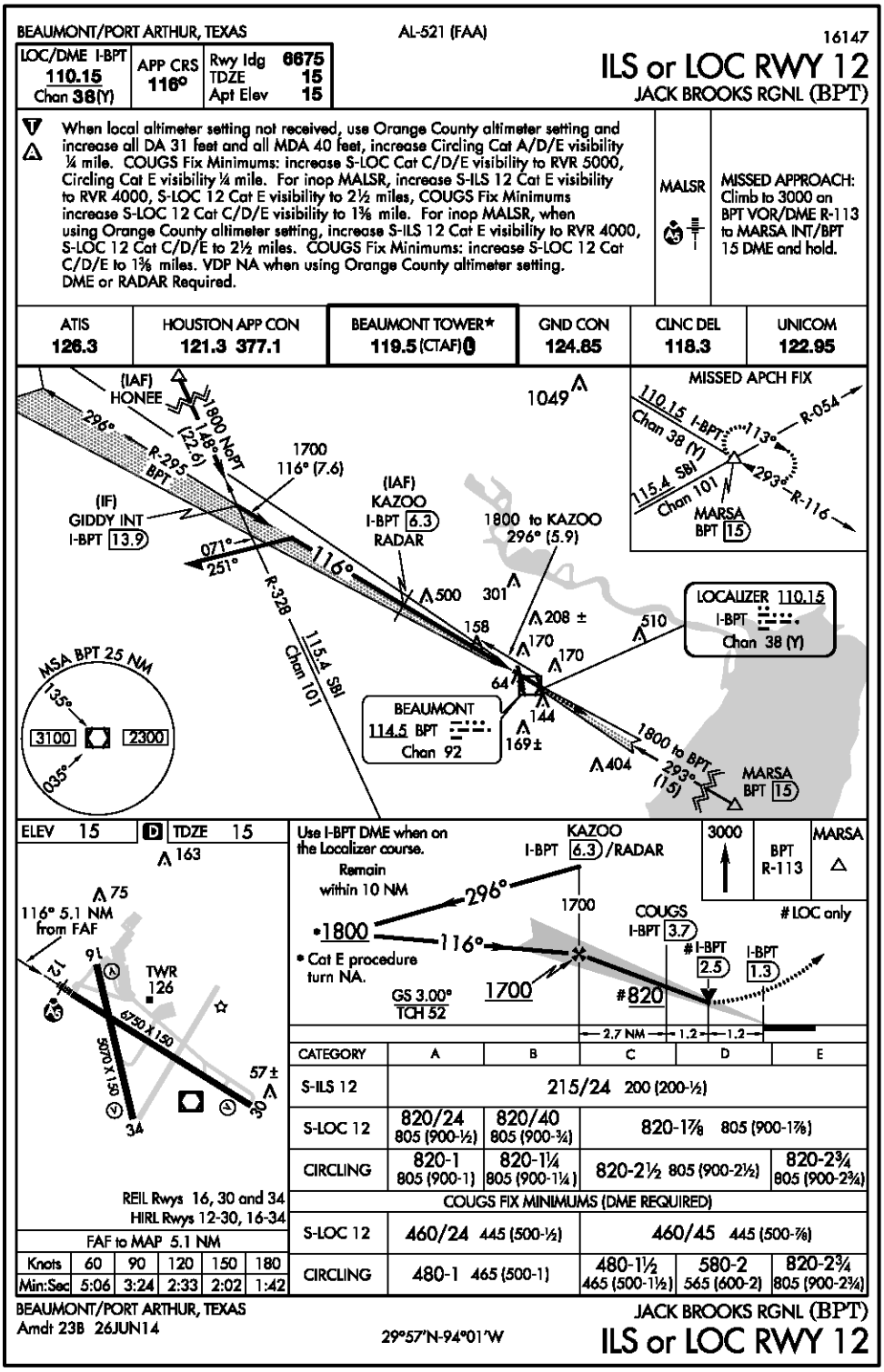
REMARKS - RSTD - RWY 12: TORA 6750, TODA 6750, ASDA 6675, LDA 6675. **CAUTION -** Bird haz. First 1000' Rwy 16 much darker than remainder. **CSTMS/AG/IMG -** 1400-2300Z++ Mon-Fri, fone prior 2300Z++ preceding wkd, fone prior 2300Z++ preceding Fri for wkend svc, C409-727-2895. **MISC -** Class D Airspace reverts to Class E when twr clsd. **RWY -** Rwy 12-30 and first 4271' Rwy 34 grooved.

COMMUNICATIONS - CTAF - 119.5 **UNICOM -** 122.95 **ATIS -** 126.3 **ASOS -** *REMARKS:* C409-722-3408. **MONTGOMERY CO RDO -** 122.2 *REMARKS:* (RCO)
HOUSTON APP/DEP - (R) (E) 121.3 377.1 **BEAUMONT TWR -** Opr 1200-0400Z++. **(E)** 119.5 251.1 **GND -** 124.85 **CLNC DEL -** 118.3
FSS-MONTGOMERY CO CXO-NOTAM BPT

NAVAIDS - BEAUMONT VORW-DME - L 114.500 BPT CH 92 N29°56.76' W94°00.97' At Fld. 10/(A)7°00.0'E HIWAS

ILS/RADAR - ILS-DME - 12. Unmto when twr clsd. DME unuse byd 15 NM blw 3000' on BC.

20. JACK BROOKS RGNL APPROACH



21. Jack Brooks RGNL Alternate Minimums

IFR ALTERNATE AIRPORT MINIMUMS

BEAUMONT/PORT ARTHUR, TX

JACK BROOKS
RGNL (BPT)..... **ILS or LOC Rwy 12[12]**
LOC BC Rwy 30[23]
RNAV (GPS) Rwy 12[4]
RNAV (GPS) Rwy 16[4]
RNAV (GPS) Rwy 30[4]
RNAV (GPS) Rwy 34[4]
VOR/DME Rwy 34[4]
VOR Rwy 12[4]

NA when local weather not available.
[1]ILS, LOC, Categories A, B, 900-2; Category C, D, 900-2½; Category E, 900-2¾.
[2]NA when control tower closed.
[3]Category D, 800-2¼; Category E, 900-2¾.
[4]Category E, 900-2¾.

22. Blank Planning Matrix

PLANNING MATRIX

AIRCRAFT WING/STA: AIRCRAFT BUNO: AIRCRAFT CALLSIGN:

TAKEOFF WEIGHT: IAS CLIMB: CRUISE ALTITUDE:

FUEL ONBOARD: START/TAXI/TAKEOFF FUEL: FUEL PER APPROACH:

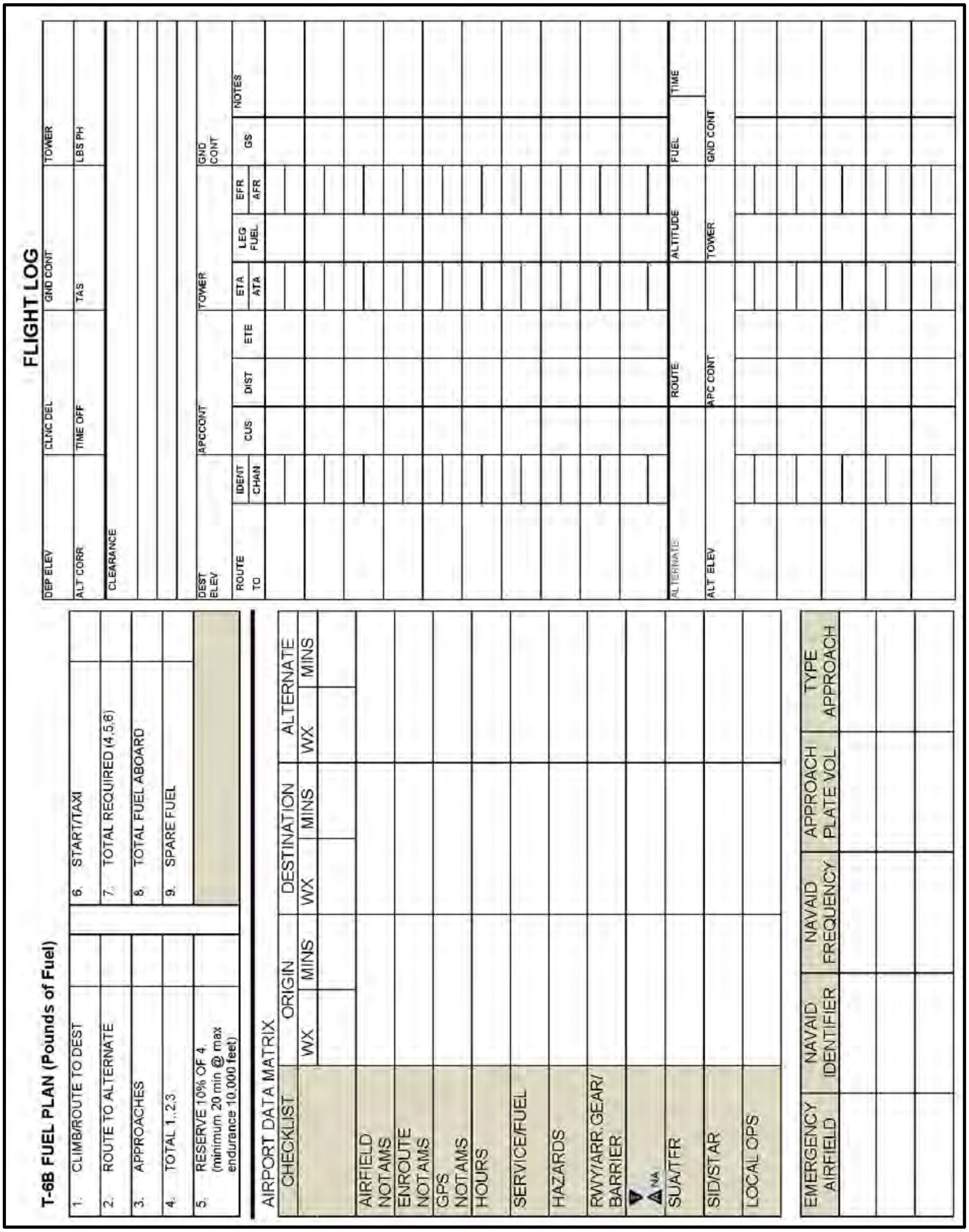
MAX ENDURANCE FF: 333 LBS/HR

ROUTE TO DESTINATION:

ROUTE TO ALTERNATE:

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER
ORIGIN										
DESTINATION										
ALTERNATE 1										
ALTERNATE 2										
ALTERNATE 3										

23. Blank Flight Log



T-6B FUEL PLAN (Pounds of Fuel)

1. CLIMB/ROUTE TO DEST		6. START/TAXI	
2. ROUTE TO ALTERNATE		7. TOTAL REQUIRED (4,5,6)	
3. APPROACHES		8. TOTAL FUEL ABOARD	
4. TOTAL 1,,2,3		9. SPARE FUEL	
5. RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)			

AIRPORT DATA MATRIX

CHECKLIST	ORIGIN		DESTINATION		ALTERNATE	
	WX	MINS	WX	MINS	WX	MINS
AIRFIELD NOTAMS						
ENROUTE NOTAMS						
GPS NOTAMS						
HOURS						
SERVICE/FUEL						
HAZARDS						
RWY/ARR.GEAR/ BARRIER						
NA SUA/TFR						
SID/STAR						
LOCAL OPS						

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL	TYPE APPROACH

FLIGHT LOG

DEP ELEV	CLNC DEL	GND CONT	TOWER
ALT CORR	TIME OFF	TAS	LBS PH
CLEARANCE			
DEST ELEV	APCCONT	TOWER	GND CONT

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
ALT ELEV	APC CONT	TOWER	GND CONT	

24. Blank DD Form 1801

PRIORITY
FF
ADDRESSEE(S)
FILING TIME
ORIGINATOR
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR
3. MESSAGE TYPE
(FPL
7. AIRCRAFT IDENTIFICATION
8. FLIGHT RULES
TYPE OF FLIGHT
9. NUMBER
TYPE OF AIRCRAFT
WAKE TURBULENCE CAT.
10. EQUIPMENT
13. DEPARTURE AERODROME
TIME
15. CRUISING SPEED
LEVEL
ROUTE
16. DESTINATION AERODROME
TOTAL EET HR/MIN
ALTN AERODROME
2ND ALTN AERODROME
18. OTHER INFORMATION
)
NOT FOR TRANSMISSION
19. SUPPLEMENTARY INFORMATION
ENDURANCE
PERSONS ON BOARD
EMERGENCY AND SURVIVAL EQUIPMENT
FUEL/ POB/ RDO/ 121.5 243 500 8364
TYPE OF EQUIPMENT
LIFE JACKETS
RADIO FREQUENCY
POLAR DESERT MARITIME JUNGLE GLOBAL JACKETS LIGHT FLUORESCEIN
DINGHIES COLOR NUMBER TOTAL CAPACITY OTHER EQUIPMENT
DINGHIES COVER RMK/)
REMARKS
AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT
CREW LIST ATTACHED LOCATED AT:
PASSENGER MANIFEST ATTACHED LOCATED AT:
NAME OF PILOT IN COMMAND
SIGNATURE OF APPROVING AUTHORITY
AIRCRAFT HOME STATION OR ORGANIZATION
DD Form 1801, MAY 87 *Previous edtion is obsolete.* Reset DOD INTERNATIONAL FLIGHT PLAN

1506. PRACTICE PROBLEM NUMBER THREE QUESTIONS

1. Only one of the Alternate airports options was viable. List the airports that were not acceptable and the reason(s) why they could not be used as an alternate.

_____

_____

_____

2. KNGP Runway 13R-31L is closed _____ z++ on _____ for _____.

3. Why was the PAR RWY 31L not used to determine CNAF Takeoff Minimums from KNGP? _____.

4. What US Government tenants are located at KEFD?

_____.

5. You may park on the ANG ramp without a PPR. (TRUE/FALSE)

6. Why can you not plan on using the KEFD ILS RWY 35L approach if you were to arrive earlier than 0930L? _____.

7. What is the emergency safe altitude for area within 100 NM of the ELLINGTON TACAN (EFD)? _____.

8. Is there and approach lighting system for KBPT runway 12. If so, what type is it?

_____.

9. What would be the implications if local weather was not available at KBPT?

_____.

10. What is the minimum safe altitude within 25 NM of runway 34 at K11R? _____.

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APPENDIX A
CHAPTER REVIEW ANSWERS

A100. CHAPTER ONE

All page numbers shown are approximate and may vary based on the publication date.

1. FLIP ENROUTE SUPPLEMENT (GP 1-1)

2. GP (7) (GP 1-1)

3. AP1 (GP 1-3)

4. Approach control radar used to detect and display an aircraft position in the terminal area. (GP 2-5)

5. A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or desirable. (GP 2-11)

6. V4 (GP 4-1/2)

7. 250 (GP 6-2)

8. TRUE (GP 6-10)

9. 30 min (1 hour in some areas) (GP 6-10)

10. Ground Control/Clearance Delivery (GP 6-12)

11. Runway assignment/hold short (GP 6-11)

12. 5 (GP 6-11)

13. False (GP 6-12)

14. Newly assigned alt/flight level (GP 6-13)

15. An enroute descent is not desired (GP 6-14)

16. 230 (GP 6-18)

17. 3 minutes or less (GP 6-18)

18. Time and Altitude/Flight Level (GP 6-18)

19. Flight Information Handbook (GP 6-19)

A101. CHAPTER TWO

All page numbers shown are approximate and may vary based on the publication date.

1. FL290-410 inclusive (AP/1 3-51)

2. 18,000’ MSL to and including FL600 (AP/1 3-58)

3. TRUE (AP/1 3-58)

4. Two way radio, Transponder (Mode 3/A or C with 4096 codes,) (AP/1 3-58)

5. “J”, VOR or VORTAC, 18,000’ MSL to FL450 inclusive (AP/1 3-58)

6. Blue, “Q” or “T” (AP/1 3-58)

7. 18,000’ MSL and FL450 inclusive, HIGH (AP/1 3-58)

8. 1200’above the surface, to but not including 18,000’ MSL, LOW (AP/1 3-58)

9. Black (AP/1 3-59)

10. 10,000’ MSL (AP/1 3-57)

11. Two way radio, VOR or TACAN or RNAV, Transponder (4096 codes, mode 3/A/C) (AP/1 3-59)

12. Miami, Tampa, and Orlando (AP/1 3-60)

13. 5, 10 (AP/1 3-60)

14. Two way radio, Transponder 4096 codes mode 3/A/C (AP/1 3-58)

15. 11 airports (AP/1 3-62)

16. 2500 feet, an operational control tower (AP/1 3-62)

17. FALSE (AP/1 3-63)

18. 100 NM (AP/1 3-64)

19. 18,000, 29.92 Hg (AP/1 3.64)

20. TRUE (AP// 3-67)

21. PPR number, 305-293-2769/2779, 2 weeks (AP/1 3-130)

22. Extensive Laser operations (AP/1 3-223)

A-2 CHAPTER REVIEW ANSWERS

A102. CHAPTER THREE

All page numbers shown are approximate and may vary based on the publication date.

1. Feet above/below Mean Sea Level (MSL) (IFR SUP A-3)
2. TRUE (IFR SUP A-3)
3. https://www.daip.jcs.mil/daip/mobile/index (IFR SUP A-4)
4. TRAPNELL FLD (IFR SUP B-510)
5. KNHK (IFR SUP B-510)
6. Yes (IFR SUP A-7 and B-224)
7. The second Sunday in March, the first Sunday in November (IFR SUP A-9)
8. UTC-5 hours (IFR SUP B-645)
9. 1200-2100Z (IFR SUP B-182)
10. RWY-11, 5158', 150' (IFR SUP B-195)
11. Bi-directional (Hook engaged type E28), 1200' (IFR SUP B-514)
12. PPR (this is like a reservation #), call 928-269-2445/2760/ (IFR SUP B-732)
13. YES, 740-453-8139, ASOS information (IFR SUP B-733)
14. 265.8 (IFR SUP B-470)
15. 29.1 NM (IFR SUP B-258)
16. YES (IFR SUP B-348)
17. 114.15, PCU (IFR SUP B-520)
18. Medium Intensity Runway Lights (IFR SUP A-36)
19. 119.725 (high Altitude), 126.8 (Low Altitude) (IFR SUP A-29 and B-305)

A103. CHAPTER FOUR

1. Type of facility: Land-Civil

   a. Airport Ident: GPT

   b. Field elevation: 28 feet

   c. Longest runway: 9000 feet

   d. Class of airspace: Delta

   e. ATIS frequency: 119.45

2. Yes, In either the DoD FLIP or FAA Terminal Procedure Publication (TPP).

3. No

4. ***Minimum Enroute Altitude (MEA)*** - The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route or other direct route applies to the entire width of the airway, segment or route between the radio fixes defining the airway, segment, or route.

5. ***Minimum Obstruction Clearance Altitude (MOCA)*** - The lowest published altitude in effect between radio fixes on VOR airways, off airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 22 NM of a VOR.

6. ***Off Route Obstruction Clearance Altitudes (OROCA)*** - An off-route altitude which provides obstruction clearance within each bounded latitude/longitude quadrant as shown on FAA IFR charts. This altitude provides obstruction clearance of 1,000 feet in designated non-mountainous areas and a 2,000 foot vertical buffer in designated mountainous areas within the United States. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar or communications coverage.

7. ***Minimum Reception Altitude (MRA)*** - (P/CG, Pilot to Controller Glossary): The lowest altitude at which an intersection can be determined. (JCS, Joint PUB 1-02, the DoD dictionary of Military and associated terms): The lowest altitude required to receive adequate signals to determine the specific VHF omnirange (VOR)/tactical air (TACAN) fixes.

8. ***Minimum Crossing Altitude (MCA)*** - The lowest altitude at certain radio fixes at which an aircraft must cross when proceeding in the direction of a higher MEA.

9. 111 NM

A-4 CHAPTER REVIEW ANSWERS

10. 50 NM

11. Houston Center, 316.075

12. No

13. It is the VHF frequency that is paired with KEESLERS TACAN Channel 55. If this frequency is tuned in the T-6B VHF NAV you will receive DME from the TACAN channel if within range.

14. ANNISTON

15. 122.2 or 255.4 (for normal communications) and emergency frequencies of 121.5 or 243.0

16. Even Thousands

A104. CHAPTER FIVE

1. 59 NM from NORTHBROOK

2. VOR/DME

3. OBK

4. "O" ---, "B" – •••, "K" - • -

5. 23.5 NM (Midpoint)

6. RNAV Route

7. ASOS/AWOS information (Automated Surface Observation Station/Automated Weather Observing Station)

8. The Maximum Authorized Altitude for that section (only shown when other than 45,0000)

9. The total distance between the DANVILLE and NORTHBROOK NAVAIDS.

10. RNAV Routes

11. Official Time Zone

12. OBK 094 radial at 21 NM, No

13. Joint Civil-Military Field

14. Yes

15. 18,000 feet

16. 082°

17. Odd Thousand foot interval

18. False

19. No

20. (H) High Altitude

A105. CHAPTER SEVEN

All page numbers shown are approximate and may vary based on the publication date.

1. Section B (FIH pg. 2)

2. 7600 (FIH pg. A-6)

3. GUARD frequencies, and available frequencies of NAVAIDS (FIH pg. A-6)

4. Flashing aircraft lights (FIH pg. A-11)

5. 80 (FIH pg. B-2)

6. 8, 4 (FIH pg. B2)

7. 29.92, 18,000 (FIH pg. B-3)

8. – When vacating any previously assigned altitude or flight level for a newly assigned altitude or flight level.

   – When an altitude change will be made if operating on a clearance specifying "VFR ON TOP."

   – When unable to climb/descend at a rate of at least 500 feet per minute.

   – When approach has been missed.

   – Change in average true airspeed (at cruising altitude) when it varies by 5 percent or 10 knots (whichever is greater) from that filed on the flight plan.

   – The time and altitude or flight level upon reaching a holding fix or point to which cleared.

A-6 CHAPTER REVIEW ANSWERS

- When leaving any assigned holding fix or point.
- Any loss, in controlled airspace, of VOR, TACAN, ADF, low frequency navigation receiver capability, complete or partial loss of ILS receiver capability or impairment of air/ground communications capability.
- Any information relating to the safety of flight
- Encountering weather conditions which have not been forecast, or hazardous conditions which have been forecast. (FIH pg. B-6, B-7)

9. Medium Intensity Approach Lighting System (MALSR), sequenced flashing lights (FIH pg. B-28, B-29)

10. Update the Flight Weather Briefing form DD-175-1, to receive pilot weather reports (PIREPS) of significant or hazardous weather phenomena. (FIH pg. C-15)

11. 359.6, "Pensacola METRO" (FIH pg. C-16, C-22)

12. Outlook Briefing, planning purposes only (FIH pg. C-51)

13. 50 knots, ¾ inches in diameter (FIH pg. C-55)

14. 25 NM, 10,000 feet AGL (FIH pg. C-59)

15. Heavy, Hail (FIH pg. C-62)

16. Inflight when requested, when unusual and un-forecast weather conditions are encountered, When weather conditions on an IFR approach differ from the latest observation, When a missed approach is executed due to weather, When wind shear is encountered on departure or arrival. (FIH pg. C-66)

17. 117.2 (FIH pg. D-21)

18. ALS-Approach Lighting System

19. AWY - airway

20. CNF - Computer Navigation Fix

21. FBO - Fixed Base Operator

22. HIRL - High Intensity Runway Lights

23. O/S - out of service

24. UFN - until further notice

25. Unused - unusable (FIH pg. F-3 to F-25)

26. The facility or service reported upon, its status of operation, Instrument Landing System (ILS) Withdrawn for maintenance (FIH pg. F-32,35,38)

A106. CHAPTER NINE

1. GTR

2. ILS (Instrument Landing System) or LOC (Localizer)

3. Golden Triangle Regional

4. 111.15

5. 002°

6. 8003 feet

7. 264 feet

8. Alternate Minimums are not standard

9. HANOP

10. Columbus Approach Control, 135.6

11. UYSEF, DIXVU

12. IGB (BIGBEE)

13. 266°, 13.0 DME

14. 3400 feet MSL, 25, IGB

15. 1140 feet MSL (for the localizer approach)

16. 3°, 42

17. BAWMO

18. 461 feet, MSL

19. 200, ¾

A-8 CHAPTER REVIEW ANSWERS

20. 200, AGL

21. 5.4 NM

22. FALSE (It is a ***M***edium Intensity ***A***pproach ***L***ighting ***S***ystem with ***R***unway alignment indicator lights)

23. FALSE

24. 1800 FT/MIN

A107. CHAPTER ELEVEN

1. National NOTAM System

2. FIH (Flight Information Handbook)

3. IFR ENROUTE SUPPLEMENT, https://www.daip.jcs.mil/daip/mobile/index

4. Departure airport, Destination airport, Alternate airport, Route of flight, ARTTCs along the route of flight, TFRs (Temporary Flight Restrictions)

5. 1-800-WX-BRIEF

6. Regulatory, Published IAPs (Instrument Approach Procedures), TFRs

7. FAA Domestic and International Notices

8. DAIP

A108. CHAPTER TWELVE

1. TRUE

2. Online via the FWB https://fwb.metoc.navy.mil

3. 1-888-PILOTWX

4. 1-800-WX-BRIEF

5. Storm development has not progressed as forecast for the planned route as verified by DoD forecasters or an FSS ***and*** VMC can be maintained, thus enabling the aircraft to detect and avoid isolated thunderstorms.

6. KNSE North Whiting Field

7. 1800Z on the ninth till 2400Z on the tenth

8. 140, 10

9. 2 statute miles, smoke

10. 4000 feet broken

11. 29.96

12. 19° C

13. 19° C

14. 300-3/4, 400-1

15. 400-3/4

16. 300-3/4

17. 500-1 ¼

18. 700-1 ¾

19. – The actual weather at the point of departure at the time of clearance.

    – The existing and forecasted weather for the entire route of flight.

    – Destination and alternate forecast for a period 1 hour before ETA until 1 hour after ETA

20. +02 and -10° C

21. http://www.aviationweather.gov

22. 122.2, 255.4

23. FIH (Flight Information Handbook)

24. Altimeter setting, wind data, temperature, dew point, density altitude, visibility, and cloud/ceiling data.

25. 3 hours, 30 minutes

A109. CHAPTER THIRTEEN

1. (200-1/2 or 200/24, 300-1)

2. (200-1/2 or 200/24)

3. (PAR/ASR)

4. (FALSE)

5. (0200 local time on the second Sunday in March, 0200 local time the first Sunday in November)

6. AIR Card webpage https://aircardsys.com/cgi/usage_acceptance

7. (140)

8. (5, up to the next 5 pound increment)

9. (TRUE)

10. (Nearest whole number .5 or greater rounds up)

11. (Climb, Cruise)

12. (Less fuel onboard at takeoff than planned, higher fuel flow in Climb/Cruise than planned, slower groundspeed than planned, bad math, a fuel leak)

13. (10, 20, Max Endurance Cruise 10,000)

A110. CHAPTER FOURTEEN

1. (30)

2. (4, General Planning)

3. (DIYRUGS/LB1)

4. (170, FL220)

5. (FALSE)

6. (TRUE)

7. (0233)

8. (DCT SAFES V552 LFT DCT LAFFS)

9. (DCT SAFES V552 TBD D/00+20 V552 LFT DCT LAFFS)

10. (DLE/TBD0020, RMK/REQUEST PRACTICE HOLDING AT TBD)

11. (PBN/ DEST/ DOF/ REG/ DLE/ OPR/ RMK/)

12. (PBN/B2C2D2S1)

A111. CHAPTER FIFTEEN PRACTICE PROBLEM ONE

1. KFMY, DME out of service and is required for the available approach. KTBM, ALTERNATE NA due to tower being closed (NOTAM)

2. Atlantic Aviation, C407-851-8304

3. 1500, Filed altitude/Flight Level

4. 2400

5. Tethered Aerostat Radar System (TARS), a large helium balloon type device operating continuously up to 14,000 feet. It has strobe lights on the balloon, but the tether is unmarked and nearly impossible to see.

6. PPR valid for +/- 1 hour of proposed ETA

7. ATIS 307.025

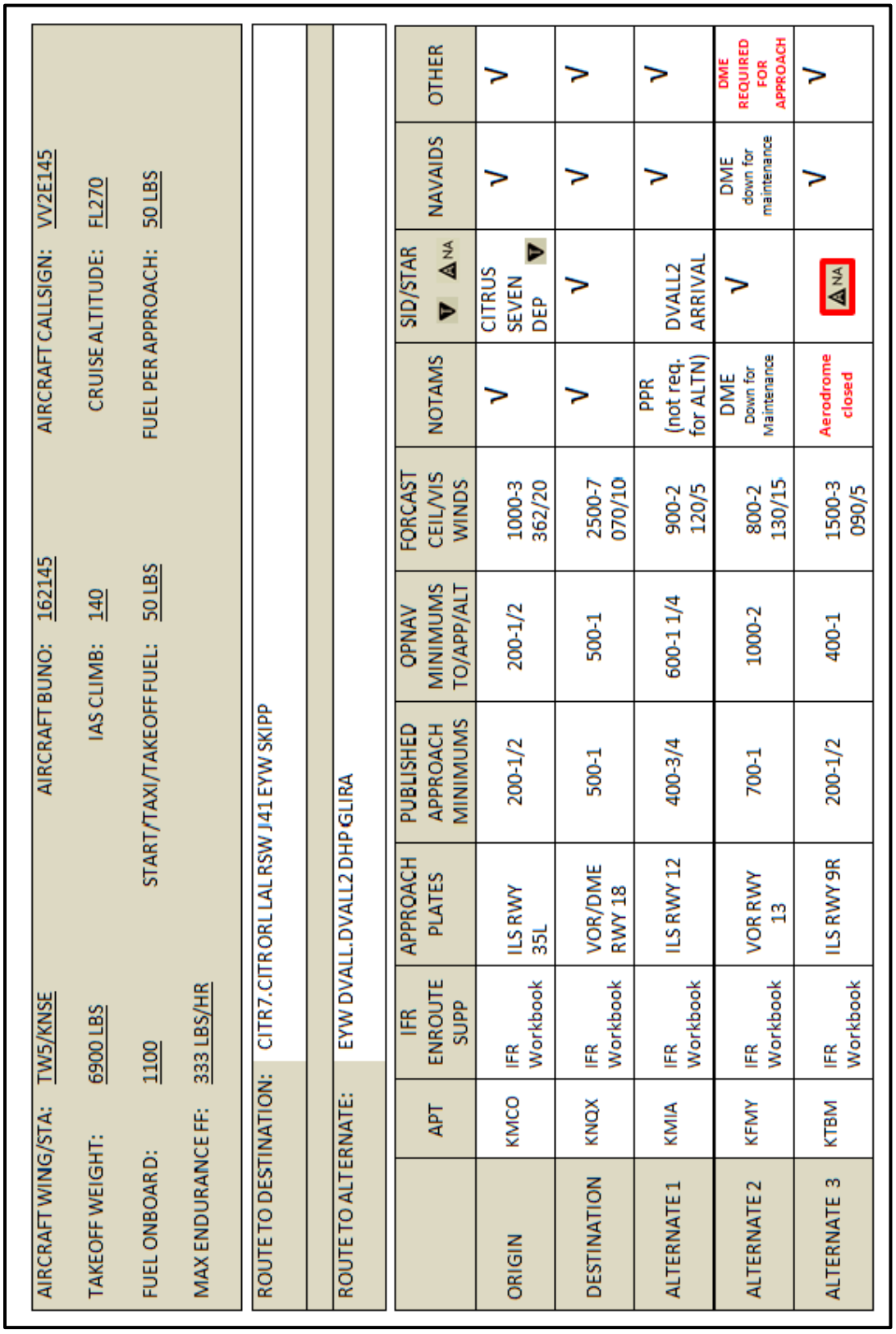
8. 3000 feet

9. Airfield Manager, C305-869-1700

10. 1508 feet

A-12 CHAPTER REVIEW ANSWERS

11. Flight Planning Matrix Practice Problem One



AIRCRAFT WING/STA:	TW5/KNSE
TAKEOFF WEIGHT:	6900 LBS
FUEL ONBOARD:	1100
MAX ENDURANCE FF:	333 LBS/HR
AIRCRAFT BUNO:	162145
IAS CLIMB:	140
START/TAXI/TAKEOFF FUEL:	50 LBS
AIRCRAFT CALLSIGN:	VV2E145
CRUISE ALTITUDE:	FL270
FUEL PER APPROACH:	50 LBS

ROUTE TO DESTINATION: CITR7.CITR ORL LAL RSW J41 EYW SKIPP

ROUTE TO ALTERNATE: EYW DVALL.DVALL2 DHP GLIRA

	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	OPNAV MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ⚠NA	NAVAIDS	OTHER
ORIGIN	KMCO	IFR Workbook	ILS RWY 35L	200-1/2	200-1/2	1000-3 362/20	√	CITRUS SEVEN DEP ▼	√	√
DESTINATION	KNQX	IFR Workbook	VOR/DME RWY 18	500-1	500-1	2500-7 070/10	√	√	√	√
ALTERNATE 1	KMIA	IFR Workbook	ILS RWY 12	400-3/4	600-1 1/4	900-2 120/5	PPR (not req. for ALTN)	DVALL2 ARRIVAL	√	√
ALTERNATE 2	KFMY	IFR Workbook	VOR RWY 13	700-1	1000-2	800-2 130/15	DME Down for Maintenance	√	DME down for maintenance	DME REQUIRED FOR APPROACH
ALTERNATE 3	KTBM	IFR Workbook	ILS RWY 9R	200-1/2	400-1	1500-3 090/5	Aerodrome closed	⚠NA	√	√

12. Flight Log Practice Problem One

T-6B FUEL PLAN (Pounds of Fuel)

1.	CLIMB/ROUTE TO DEST	377	6.	START/TAXI	50
2.	ROUTE TO ALTERNATE	170	7.	TOTAL REQUIRED (4,5,6)	762
3.	APPROACHES	50	8.	TOTAL FUEL ABOARD	1100
4.	TOTAL 1,2,3	597	9.	SPARE FUEL	338
5.	RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)	115			

AIRPORT DATA MATRIX

CHECKLIST	ORIGIN WX	ORIGIN MINS	DESTINATION WX	DESTINATION MINS	ALTERNATE WX	ALTERNATE MINS
	1000-3 360/20	200-1/2	2500-7 070/10	500-1	900-2 120/5	400-3/4
AIRFIELD NOTAMS	√		√		PPR (not required for alternate planning)	
ENROUTE NOTAMS	√		√		√	
GPS NOTAMS	√		√		√	
HOURS	24 HRS		0700-2200L		24 HRS	
SERVICE/FUEL	0700-1400L A+ Atlantic Avn.		0600-2200L MIL J5		24 HRS A+ Landmark Avn.	
HAZARDS	WILDLIFE, BRIGHT LTS VCNY 17/35		WILDLIFE, R2916 BALLOON 14,000'		BIRD HAZARD	
RWY/ARR GEAR/ BARRIER	NONE		BI-DIR RAISED 1500' FROM APP ENDS		√	
▼ △NA	▼ √		√		√	
APPROACH	ILS RWY 35L		VOR/DME RWY 8		ILS RWY 12	
SID/STAR	CITRUS SEVEN DEPARTURE		√		DVALL TWO ARRIVAL KEY WEST TRANSITION	
LOCAL OPS	√		PPR		√	

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL	TYPE APPROACH
KMCO	I-DDO	110.5	IFR Workbook	ILS RWY 35L

FLIGHT LOG

KMCO-KNQX FL210

DEP ELEV	CLNC DEL	GND CONT	TOWER
96	134.7 / 341.7	126.4 / 275.8	118.45 / 253.5
ALT CORR	TIME OFF	TAS CLIMB 180 CRUISE 270	LBS PH CLIMB 525 CRUISE 338

CLEARANCE TTC 14 MIN	CLIMB 130/10
CLIMB FUEL 122 LBS	CRUISE 300/65
DISTANCE 42 NM	ΔT -5 -30

DEST ELEV	APCCONT	TOWER	GND CONT
6	124.025 / 313.7	118.575 / 340.25	121.7 / 336.45

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50	1050		
CITR7 ORL	ORL 112.2	349	7	2		20	1030	189	
D→ LAL	LAL 116.0	225	36/13 49	12/3 15		102 20	908	180 256	
D→ RSW	RSW 111.8	169	82	16		90	818	315	
J41 EYW	EYW 113.5	183	116	23		130	688	302	
D→ SKIPP	EYW 113.5	278	6	2		15	673	211	
			260	0+43					

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
MIAMI INTL (MIA)	EYW DVALL DHP GLRIA	270	2+00	0+29

ALT ELEV	APC CONT	TOWER	GND CONT
9	124.85 / 322.3	118.3 / 256.9	121.8 / 348.6

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
D→ ETW	EYW 113.5	098	6	1			663	326	
D→ DVALL	EYW 113.5	037	71	16			573	271	
D→ DHP	DHP 113.9	068	39	8			528	304	
D→ GLRIA	DHP 113.9	309	13	4			503	205	
			129	0+29					

13. DD Form 1801 Practice Problem One

PRIORITY: FF
ADDRESSEE(S):
FILING TIME:
ORIGINATOR:
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR:
3. MESSAGE TYPE: (FPL
7. AIRCRAFT IDENTIFICATION: VV2E145
8. FLIGHT RULES: I
TYPE OF FLIGHT: M
9. NUMBER:
TYPE OF AIRCRAFT: TEX2
WAKE TURBULENCE CAT.: L
10. EQUIPMENT: DIYRUGS/LB1
13. DEPARTURE AERODROME: KMCO
TIME: 1400
15. CRUISING SPEED: N0270
LEVEL: F270
ROUTE: CITR7.CITR DCT ORL DCT LAL DCT RSW J41 EYW DCT SKIPP
16. DESTINATION AERODROME: KNQX
TOTAL EET HR/MIN: 0043
ALTN AERODROME: KMIA
2ND ALTN AERODROME:
18. OTHER INFORMATION: PBN/B2C2D2S1 SUR/260B DOF/DDMMYR REG/162145 OPR/DOD

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION
ENDURANCE: FUEL/ 0243
PERSONS ON BOARD: POB/ 2
EMERGENCY AND SURVIVAL EQUIPMENT: RDO/ ~~1215~~ 243 ~~000~~ ~~0004~~
TYPE OF EQUIPMENT: ~~POLAR~~ ~~DESERT~~ MARITIME ~~JUNGLE~~ ~~GLOBAL~~
LIFE JACKETS: JACKETS LIGHT FLUORESCEIN
RADIO FREQUENCY: 282.8
DINGHIES: COLOR: ORANGE; NUMBER: 2; TOTAL CAPACITY: 2; OTHER EQUIPMENT:
DINGHIES: COVER
RMK/ FLARES, ELT, SMOKE, MIRROR)
REMARKS:
AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT:
CREW LIST: ☐ ATTACHED ☒ LOCATED AT: KNSE, VT-2
PASSENGER MANIFEST: ☐ ATTACHED ☐ LOCATED AT:
NAME OF PILOT IN COMMAND: PIC NAME - Rating (Standard/Special)
SIGNATURE OF APPROVING AUTHORITY:
AIRCRAFT HOME STATION OR ORGANIZATION: KNSE

DD Form 1801, MAY 87 *Previous edtion is obsolete.* Reset DOD INTERNATIONAL FLIGHT PLAN

A112. CHAPTER FIFTEEN PRACTICE PROBLEM TWO

1. KCEW, Weather below CNAF requirements K12J, Airport listed as ALT NA

2. An aircrew member must remain with the aircraft during refueling operations.

3. At the field

4. 75’ trees left and right of centerline on the departure end of the runway

5. RVR increased to 50 and visibility increased to 1 mile.

6. 2000, 10

7. L-22 panel I

8. 8.6 NM

9. Simultaneous operations during dual runway operations, Ponding after moderate to heavy rain at all runway intersections and hold short areas.

10. FALSE

11. Practice Problem Two Planning Matrix

AIRCRAFT WING/STA: TW5 / KNSE			AIRCRAFT BUNO: 162650			AIRCRAFT CALLSIGN: VV2E650						
TAKEOFF WEIGHT: 6900			IAS CLIMB: 140			CRUISE ALTITUDE: 8,000						
FUEL ONBOARD: 1100			START/TAXI/TAKEOFF FUEL: 50			FUEL PER APPROACH: 50						
MAX ENDURANCE FF: 333 LBS/HR												
ROUTE TO DESTINATION: OPPTO2.CEW V198 INBRD MERTY												
ROUTE TO ALTERNATE: NUN												
	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	OPNAV MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER		
ORIGIN	KOZR	IFR WORKBOOK	PAR RWY 6	200-1/2	200-1/2	500-1 ½ 050/10	√	√	√	√		
DESTINATION	KNSE	IFR WORKBOOK	ILS RWY 14	200-1/2	200-1/2	700-2 160/20	√	√	√	√		
ALTERNATE 1	KCEW	IFR WORKBOOK	ILS RWY 17	200-3/4	400-1 ¼	800-1 280/15	√	√	√	WX BELOW OPNAV MINS		
ALTERNATE 2	KNPA	IFR WORKBOOK	VOR RWY 19	600-1	900-2	900-2 090/5	ILS/LOC Out for maintenance	√	ILS/LOC out for maintenance	√		
ALTERNATE 3	K12J	IFR WORKBOOK	VOR RWY 30	600-1 ¼	900-2 ¼	1500-7 280/10	√	▲NA	√	√		

12. Practice Problem Two Flight Log

T-6B FUEL PLAN (Pounds of Fuel)

1.	CLIMB/ROUTE TO DEST	195	6.	START/TAXI	50
2.	ROUTE TO ALTERNATE	50	7.	TOTAL REQUIRED (4,5,6)	460
3.	APPROACHES	50	8.	TOTAL FUEL ABOARD	1100
4.	TOTAL 1,,2,3	295	9.	SPARE FUEL	640
5.	RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)	115			

AIRPORT DATA MATRIX CHECKLIST	KOZR ORIGIN WX	MINS	KNSE DESTINATION WX	MINS	KNPA ALTERNATE WX	MINS
	500-1 ½ 050/10	200-1/2	700-2 160/20	200-1/2	900-2 095/5	600-1
AIRFIELD NOTAMS	√		√		ILS/LOC OTS	
ENROUTE NOTAMS	√		√		√	
GPS NOTAMS	√		√		√	
HOURS	TWR 0600-0100L		0645-2245L		0700-2300L	
SERVICE/FUEL	0700-1900L MIL J8		0800-1600L MIL F24		0700-2300L MILL A++	
HAZARDS	WET RWY6 HYDROPLANE		POOR BRAKE WET RWY, ponding		RWY 19 has no Grooving, ponding	
RWY/ARR.GEAR/ BARRIER	√		√		Bi-directional gear All RWY raised	
▼ / ▲NA	▼ √		√		√	
APPROACH	PAR RWY 6		ILS RWY 14		VOR RWY 19	
SID/STAR	OPPTO TWO CEW		√		√	
LOCAL OPS	√		PPR		√	

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL.	TYPE APPROACH
KOZR	OZR	111.2	VOL-14	PAR / ILS

FLIGHT LOG

KOZR - KNSE 8,000

DEP ELEV 301	CLNC DEL 118.075 / 380.1	GND CONT 121.9 / 288.25	TOWER 135.2 / 248.55
ALT CORR	TIME OFF	TAS CLIMB 160 CRUISE 245	LBS PH CLIMB 680 CRUISE 496

CLEARANCE

TTC 3	CLIMB 270 / 7
DISTANCE 8	CRUISE 153 / 6
FUEL 34	ΔT +10 +8

DEST ELEV 199	APCCONT 127.35 / 278.8	TOWER 121.4 / 306.925	GND CONT 251.15

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES
							1050		
STTO				1		50			
OPPTO2. / OPPTO	OZR / 111.2	273	8/15 / 23	3/4 / 7		34/35 / 69	981	153 / 248	
OPPTO2. / CEW	CEW / 115.9	221	31	8		70	911	243	
V198 / INBRD	CEW / 115.9	263	17	4		35	876	247	
D→ / MERTY	CEW / 115.9	291	8	2		20	856	250	
			79	0+22					

ALTERNATE KNPA Pensacola NAS	ROUTE NUN	ALTITUDE 80	FUEL 1+44	TIME 0+06
ALT ELEV 28	APC CONT 120.65 / 270.8	TOWER 120.7/340.2	GND CONT 121.7 / 336.4	

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG FUEL	EFR / AFR	GS	NOTES
D→ NUN	NUN / 108.8	205	24	6		50	806	241	
			24	0+06					

13. Practice Problem Two DD Form 1801

PRIORITY: FF
ADDRESSEE(S):
FILING TIME:
ORIGINATOR:
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR:

3. MESSAGE TYPE: (FPL
7. AIRCRAFT IDENTIFICATION: VV2E650
8. FLIGHT RULES: I
TYPE OF FLIGHT: M
9. NUMBER:
TYPE OF AIRCRAFT: TEX2
WAKE TURBULENCE CAT.: L
10. EQUIPMENT: DIYRUGS/LB1
13. DEPARTURE AERODROME: KOZR
TIME: 1300
15. CRUISING SPEED: N0245
LEVEL: A080
ROUTE: OPPTO2.CEW V198 INBRD DCT MERTY

16. DESTINATION AERODROME: KNSE
TOTAL EET HR/MIN: 0022
ALTN AERODROME: KNPA
2ND ALTN AERODROME:
18. OTHER INFORMATION: PBN/B2C2D2S1 SUR/260B DOF/DDMMYR REG/162650 OPR/DOD)

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION
ENDURANCE | PERSONS ON BOARD | EMERGENCY AND SURVIVAL EQUIPMENT
FUEL/ 0206 → POB/ 2 → RDO/ ~~1210~~ → 243 → ~~000~~ → ~~0001~~

TYPE OF EQUIPMENT | LIFE JACKETS | RADIO FREQUENCY
~~POLAR~~ → ~~DESERT~~ → MARITIME → ~~JUNGLE~~ → ~~GLOBAL~~ → JACKETS → LIGHT → FLUORESCEIN → 282.8

DINGHIES	COLOR	NUMBER	TOTAL CAPACITY	OTHER EQUIPMENT
	ORANGE	2	2	

DINGHIES → COVER → RMK/ FLARES, ELT, SMOKE, MIRROR)

REMARKS:
AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT:

CREW LIST: [ ] ATTACHED [X] LOCATED AT: KNSE, VT-2
PASSENGER MANIFEST: [ ] ATTACHED [ ] LOCATED AT:

NAME OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	AIRCRAFT HOME STATION OR ORGANIZATION
PIC NAME - Rating (Standard/Special)		KNSE

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A113. CHAPTER FIFTEEN PRACTICE PROBLEM THREE

1. KCXO, Alternate NA symbol on the approach plate. K11R, Only GPS approaches are available. GPS approaches not allowed for selection of alternate airports.

2. 1300-1600, Monday, for sweeper operations

3. No NOTAM maintenance Procedure for the PAR on Tuesday 1300-1700Z++ (0700-1100L)

4. Air National Guard, Coast Guard, NASA, and Army National Guard

5. FALSE

6. No-NOTAM Maintenance Procedure 1330-1530Z++ Tuesday-Wednesday (0730-0930L)

7. 16,000 feet

8. Pilot Controlled MALSR (Medium Intensity Approach Lighting System with Runway Alignment Indicator lights)

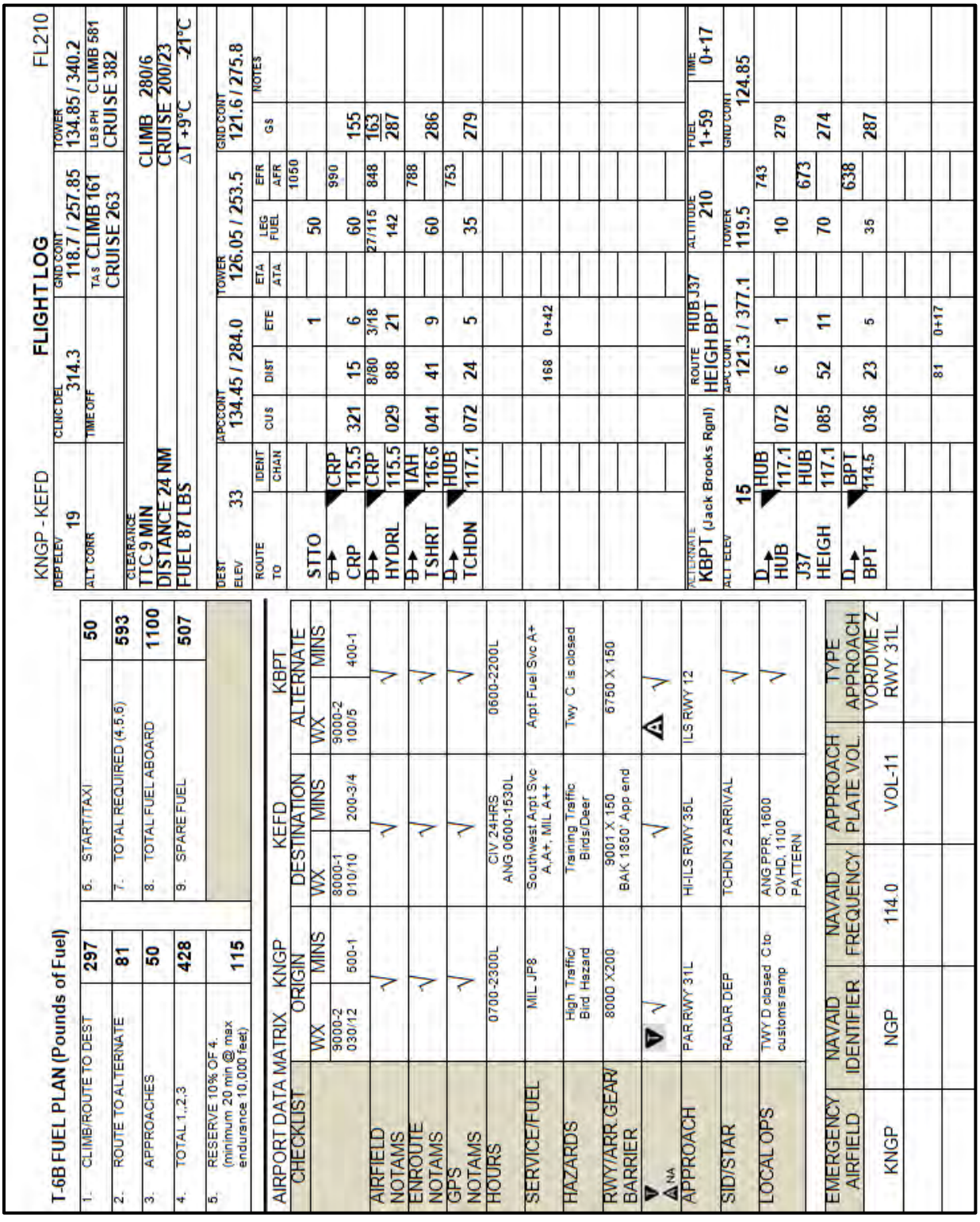
9. It would be ALTERNATE NA

10. 3000 feet

11. Practice Problem Three Planning Matrix

AIRCRAFT WING/STA: KNGP			162165		AIRCRAFT CALLSIGN: VV7G165						
TAKEOFF WEIGHT: 6900			IAS CLIMB: 140		CRUISE ALTITUDE: FL210						
FUEL ONBOARD: 1100			START/TAXI/TAKEOFF FUEL: 50		FUEL PER APPROACH: 50						
MAX ENDURANCE FF: 333 LBS/HR											
ROUTE TO DESTINATION: RADAR DEPARTURE CRP CRP.TCHGN2											
ROUTE TO ALTERNATE: HUB J37 HEIGH BPT											
	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	OPNAV MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ⚠NA	NAVAIDS	OTHER
ORIGIN	KNGP	IFR WORKBOOK	VOR/DME Z RWY 31L	500-1	500-1	9000-2 030/12	V	V	V	V
DESTINATION	KEFD	IFR WORKBOOK	HI-ILS RWY 35L	200-3/4	200-3/4	8000-1 010/10	V	V	V	V
ALTERNATE 1	KCXO	IFR WORKBOOK	ILS RWY 14	200-1/2	400-1	900-1 ½ 120/5	V	⚠NA		
ALTERNATE 2	K11R	IFR WORKBOOK	RNAV (GPS) RWY 16	600-1	900-2	900-2 130/15	V	V	V	Non-Radar Non-GPS approach not available
ALTERNATE 3	KBPT	IFR WORKBOOK	ILS RWY 12	200-1/2	400-1	9000-2 100/5	V	V	V	V

12. Practice Problem Three Flight Log



T-6B FUEL PLAN (Pounds of Fuel)

1. CLIMB/ROUTE TO DEST	297	6. START/TAXI	50
2. ROUTE TO ALTERNATE	81	7. TOTAL REQUIRED (4.5.6)	593
3. APPROACHES	50	8. TOTAL FUEL ABOARD	1100
4. TOTAL 1.,2.3	428	9. SPARE FUEL	507
5. RESERVE 10% OF 4. (minimum 20 min @ max endurance 10,000 feet)	115		

FLIGHT LOG — KNGP - KEFD — FL210

DEP ELEV 19 | CLNC DEL 314.3 | GND CONT 118.7 / 257.85 | TOWER 134.85 / 340.2
ALT CORR 19 | TIME OFF | TAS CLIMB 161 | LBS PH CLIMB 581
CRUISE 263 | CRUISE 382
CLEARANCE TTC 9 MIN | CLIMB 280/6
DISTANCE 24 NM | CRUISE 200/23
FUEL 87 LBS | ΔT +9°C -21°C

DEST ELEV 33 | APCCONT 134.45 / 284.0 | TOWER 126.05 / 253.5 | GND CONT 121.6 / 275.8

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES
STTO				1		50	1050		
D→ CRP	CRP 115.5	321	15	6		60	990	155	
D→ HYDRL	CRP 115.5	029	8/80 88	3/18 21		27/115 142	848	163 287	
D→ TSHRT	IAH 116.6	041	41	9		60	788	286	
D→ TCHDN	HUB 117.1	072	24	5		35	753	279	

AIRPORT DATA MATRIX KNGP ORIGIN | KEFD DESTINATION | KBPT ALTERNATE

CHECKLIST	ORIGIN WX	ORIGIN MINS	DESTINATION WX	DESTINATION MINS	ALTERNATE WX	ALTERNATE MINS
	9000-2 030/12	600-1	8000-1 010/10	200-3/4	9000-2 100/5	400-1
AIRFIELD NOTAMS	√		√		√	
ENROUTE NOTAMS	√		√		√	
GPS NOTAMS	√		√		√	
HOURS	0700-2300L		CIV 24HRS ANG 0600-1630L		0600-2200L	
SERVICE/FUEL	MIL JP8		Southwest Arpt Svc A,A+, MIL A++		Arpt Fuel Svc A+	
HAZARDS	High Traffic/ Bird Hazard		Training Traffic Birds/Deer		Twy C is closed	
RWY/ARR GEAR/ BARRIER	8000 X200		9001 X 150 BAK 1850' App end		6750 X 150	
▼ ▲NA	▼ √		√		▲ √	
APPROACH	PAR RWY 31L		HI-ILS RWY 35L		ILS RWY 12	
SID/STAR	RADAR DEP		TCHDN 2 ARRIVAL		√	
LOCAL OPS	TWY D closed C to customs ramp		ANG PPR, 1600 OVHD, 1100 PATTERN		√	

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL.	TYPE APPROACH
KNGP	NGP	114.0	VOL-11	VOR/DME Z RWY 31L

ALTERNATE KBPT (Jack Brooks Rgnl) | ROUTE HEIGH BPT HUB J37 | ALTITUDE 210 | FUEL 1+59 | TIME 0+17

ALT ELEV 15 | APC CONT 121.3 / 377.1 | TOWER 119.5 | GND CONT 124.85

D→ HUB	HUB 117.1	072	6	1		10	743	279	
J37 HEIGH	HUB 117.1	085	52	11		70	673	274	
D→ BPT	BPT 114.5	036	23	5		35	638	287	
			81	0+17					

13. Practice Problem Three DD Form 1801

PRIORITY ≪ FF →
ADDRESSEE(S)

FILING TIME
ORIGINATOR
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3. MESSAGE TYPE ≪ (FPL
7. AIRCRAFT IDENTIFICATION — VV7G165
8. FLIGHT RULES — I
TYPE OF FLIGHT M
9. NUMBER —
TYPE OF AIRCRAFT TEX2
WAKE TURBULENCE CAT. / L
10. EQUIPMENT — DIYRUGS/LB1
13. DEPARTURE AERODROME — KNGP
TIME 1500
15. CRUISING SPEED — N0263
LEVEL F210
ROUTE → DCT CRP CRP.TCHDN2

16. DESTINATION AERODROME — KEFD
TOTAL EET HR/MIN 0042
ALTN AERODROME → KBPT
2ND ALTN AERODROME →
18. OTHER INFORMATION — PBN/B2C2D2S1 SUR/260B DOF/DDMMYR REG/162165 OPR/DOD

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION
ENDURANCE — FUEL/ 0241
PERSONS ON BOARD → POB/ 2
EMERGENCY AND SURVIVAL EQUIPMENT → RDO/ ~~1243~~ → 243 → ~~888~~ → ~~8884~~

TYPE OF EQUIPMENT | LIFE JACKETS | RADIO FREQUENCY

~~POLAR~~ → ~~DESERT~~ → MARITIME → ~~JUNGLE~~ → ~~GLOBAL~~ → JACKETS → LIGHT → FLUORESCEIN → 282.8

DINGHIES	COLOR	NUMBER	TOTAL CAPACITY	OTHER EQUIPMENT
	ORANGE	2	2	

DINGHIES → COVER → RMK/ FLARES, ELT, SMOKE, MIRROR)

REMARKS

AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT

CREW LIST ☐ ATTACHED ☒ LOCATED AT: KNSE, VT-27
PASSENGER MANIFEST ☐ ATTACHED ☐ LOCATED AT:

NAME OF PILOT IN COMMAND — PIC NAME - Rating (Standard/Special)
SIGNATURE OF APPROVING AUTHORITY
AIRCRAFT HOME STATION OR ORGANIZATION — KNSE

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APPENDIX B
FORMS

B100. FORMS

FLIGHT LOG

T-6B FUEL PLAN (Pounds of Fuel)

1. CLIMB/ROUTE TO DEST		6. START/TAXI	
2. ROUTE TO ALTERNATE		7. TOTAL REQUIRED (4,5,6)	
3. APPROACHES		8. TOTAL FUEL ABOARD	
4. TOTAL 1,2,3		9. SPARE FUEL	
5. RESERVE 10% OF 4, (minimum 20 min @ max endurance 10,000 feet)			

AIRPORT DATA MATRIX

CHECKLIST	ORIGIN WX	ORIGIN MINS	DESTINATION WX	DESTINATION MINS	ALTERNATE WX	ALTERNATE MINS
AIRFIELD NOTAMS						
ENROUTE NOTAMS						
GPS NOTAMS						
HOURS						
SERVICE/FUEL						
HAZARDS						
RWY/ARR GEAR/ BARRIER ▼ △ NA						
SUA/TFR						
SID/STAR						
LOCAL OPS						

EMERGENCY AIRFIELD	NAVAID IDENTIFIER	NAVAID FREQUENCY	APPROACH PLATE VOL	TYPE APPROACH

DEP ELEV	CLNC DEL	GND CONT	TOWER
ALT CORR	TIME OFF	TAS	LBS PH
CLEARANCE			
DEST ELEV	APCCONT	TOWER	GND CONT

ROUTE TO	IDENT CHAN	CUS	DIST	ETE	ETA ATA	LEG FUEL	EFR AFR	GS	NOTES

ALTERNATE	ROUTE	ALTITUDE	FUEL	TIME
ALT ELEV	APC CONT	TOWER	GND CONT	

Figure B-1 Flight Log

AIRCRAFT WING/STA:		AIRCRAFT BUNO:		AIRCRAFT CALLSIGN:								
TAKEOFF WEIGHT:		IAS CLIMB:		CRUISE ALTITUDE:								
FUEL ONBOARD:		START/TAXI/TAKEOFF FUEL:		FUEL PER APPROACH:								
MAX ENDURANCE FF:	333 LBS/HR											
ROUTE TO DESTINATION:												
ROUTE TO ALTERNATE:												
	APT	IFR ENROUTE SUPP	APPROACH PLATES	PUBLISHED APPROACH MINIMUMS	CNAF MINIMUMS TO/APP/ALT	FORCAST CEIL/VIS WINDS	NOTAMS	SID/STAR ▼ ▲NA	NAVAIDS	OTHER		
ORIGIN												
DESTINATION												
ALTERNATE 1												
ALTERNATE 2												
ALTERNATE 3												

Figure B-2 Flight Planning Matrix

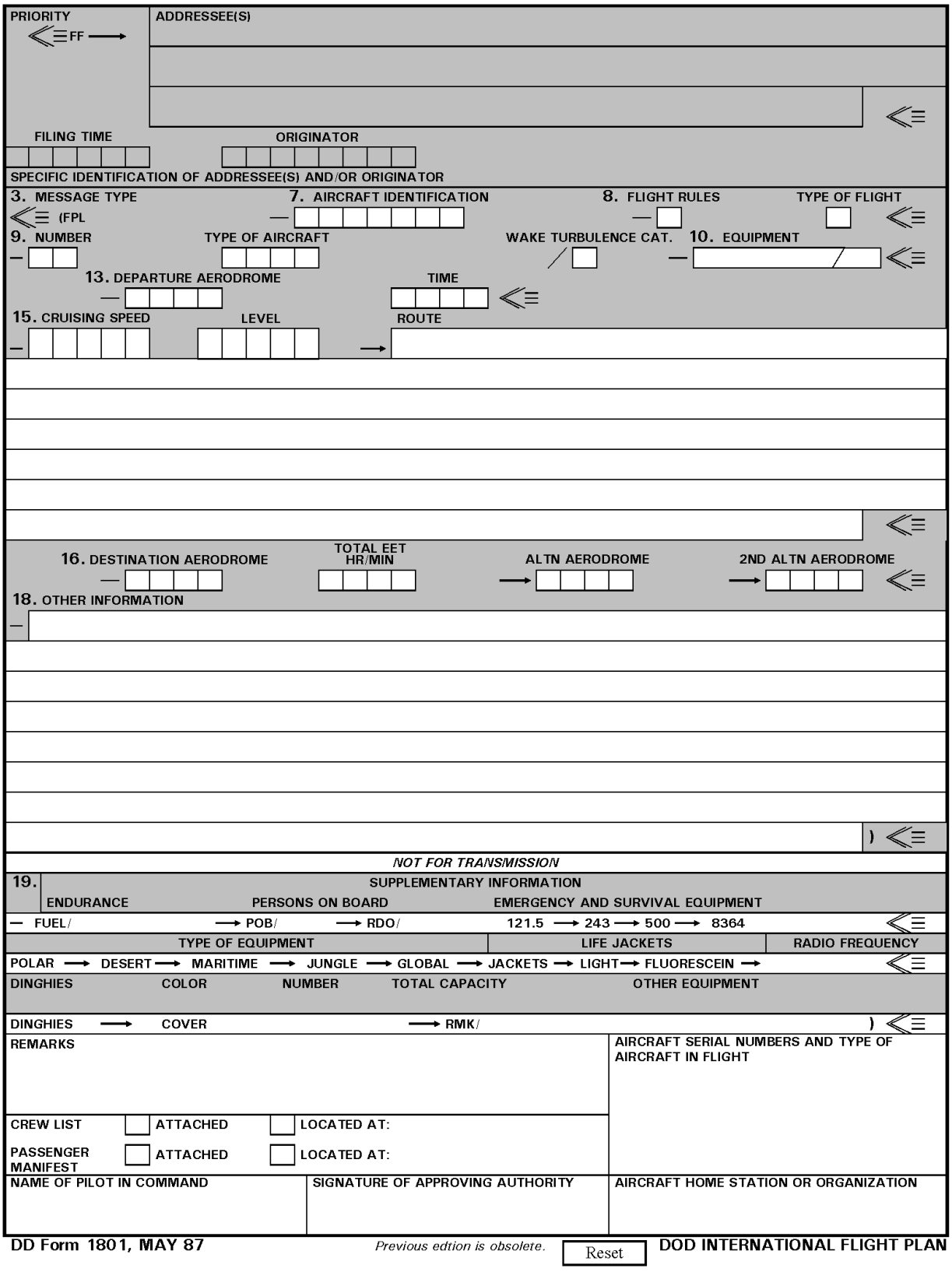

Figure B-3 DD Form 1801

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