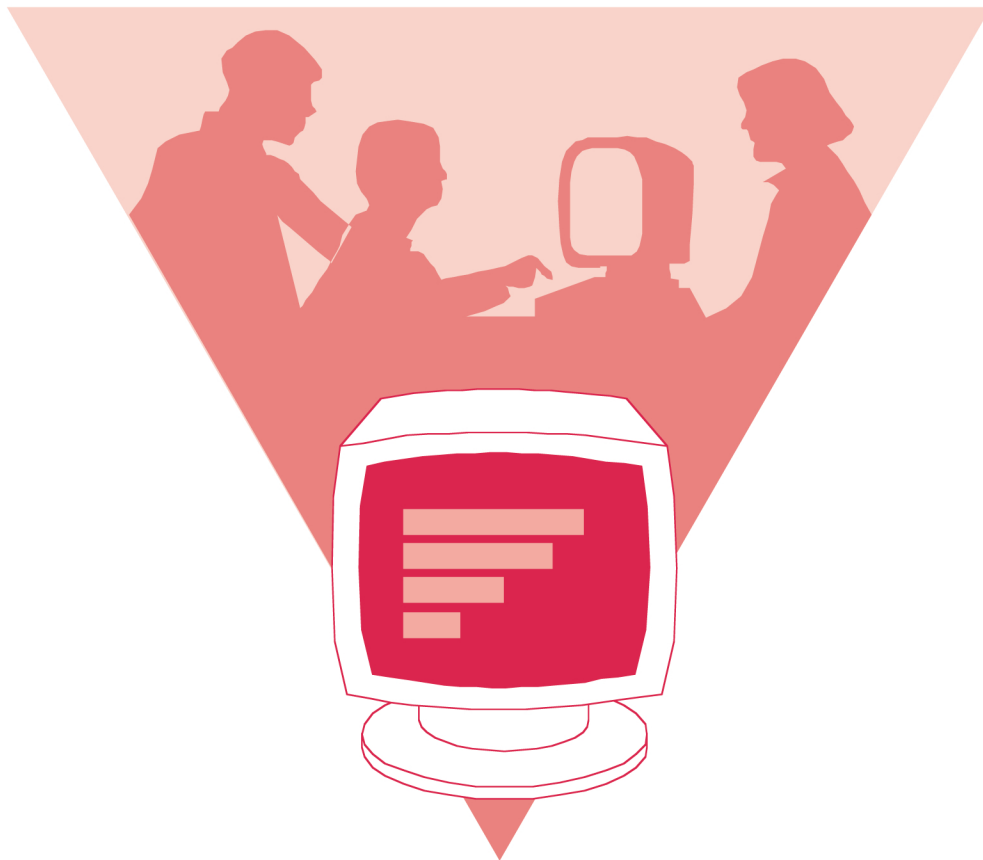


COMPUTER TESTING SUPPLEMENT FOR INSTRUMENT RATING



DO NOT MARK IN THIS BOOK



**COMPUTER TESTING SUPPLEMENT
FOR
INSTRUMENT RATING**

2005

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Flight Standards Service

PREFACE

This computer testing supplement is designed by the Flight Standards Service of the Federal Aviation Administration (FAA) for use by computer testing designees (CTDs) and testing centers in the administration of airman knowledge tests in the following knowledge areas:

- Instrument Rating—Airplane (IRA)
- Instrument Rating—Rotorcraft/Helicopter (IRH)
- Instrument Rating—Powered Lift (IPL)
- Instrument Flight Instructor—Powered Lift (IPI)
- Instrument Rating—Foreign Pilot (IFP)
- Instrument Flight Instructor—Airplane (FII)
- Instrument Flight Instructor—Rotorcraft/Helicopter - (FIH)
- Instrument Flight Instructor—Airplane (added rating) (AIF)
- Instrument Flight Instructor—Rotorcraft/Helicopter (added rating) (HIF)
- Ground Instructor—Instrument (IGI)

FAA-CT-8080-3E supercedes FAA-CT-8080-3D, Computer Testing Supplement for Instrument Rating, dated 2000.

Comments regarding this supplement should be sent to:

- U.S. Department of Transportation
- Federal Aviation Administration
- Flight Standards Service
- Airman Testing Standards Branch, AFS-630
- P.O. Box 25082
- Oklahoma City, OK 73125

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APPENDIX 1

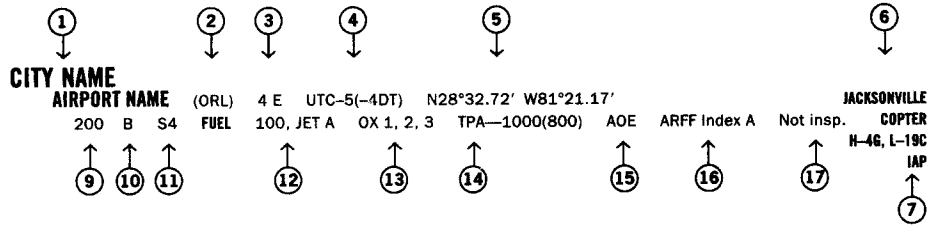
ABBREVIATIONS

The following abbreviations are those commonly used within this Directory. Other abbreviations may be found in the Legend and are not duplicated below. The abbreviations presented are intended to represent grammatical variations of the basic form. (Example—"req" may mean "request," "requesting," "requested," or "requests").

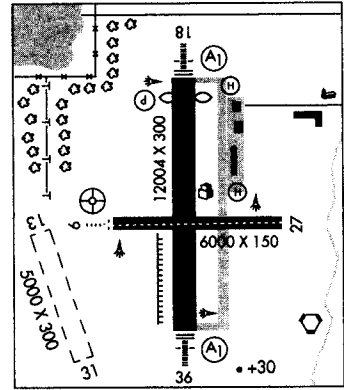
abv	above	MSAW	minimum safe altitude
acft	aircraft		warning
AER	approach end rwy	NFCT	non-federal control
AFSS	Automated Flight Service Station		tower
		ngt	night
AGL	above ground level	npi	non precision
apch	approach		instrument
arpt	airport	NSTD	nonstandard
avbl	available	ntc	notice
bcn	beacon	opr	operate, operator,
blo	below		operational
byd	beyond	ops	operations
clsd	closed	OTS	out of service
ctc	contact	ovrn	overrun
dalgt	daylight	PAEW	personnel and
dsplcd	displaced		equipment working
durn	duration	p-line	power line
eff	effective	PPR	prior permission
emerg	emergency		required
extd	extend, extended	req	request
FBO	fixed-based operator	rgt tfc	right traffic
FCT	FAA Contract Tower	rqr	request
fld	field	rwy	runway
FSS	Flight Service Station	SPB	Seaplane Base
hr	hour	SR	sunrise
indef	indefinite	SS	sunset
ints	intensity	svc	service
invof	in the vicinity of	tfc	traffic
LAA	Local Airport Advisory	thld	threshold
ldg	landing	tkf	take-off
lgtd	lighted	tmpry	temporary
lgts	lights	twr	tower
med	medium	twy	taxiway
MSL	mean sea level		

LEGEND 1.—Abbreviations.

**DIRECTORY LEGEND
SAMPLE**



- ⑱ → RWY 18-36: H12004X300 (CONC-GRVD) HIRL
RWY 18: LDIN. ALSF1. TDZL. REIL. PAPI(P2R)—GA 3.0° TCH 36'.
Thrd dsplcd 300'. Trees. Rgt tfc. Arresting device. 0.3% up.
RWY 36: ALSF1. 0.4% down.
RWY 09-27: H6000X150 (ASPH-PFC) S-90, D-160, DT-300-PCN
80 R/B/W/T HIRL CL 0.4% up E
RWY 09: ALSF1. Trees. RWY 27: REIL. Rgt tfc.
RUNWAY DECLARED DISTANCE INFORMATION
RWY 09: TORA-6000 TODA-6700 ASDA-5700 LDA-5500
RWY 27: TORA-6000 TODA-6000 ASDA-6000 LDA-5700



- ⑲ → **AIRPORT REMARKS:** Special Air Traffic Rules—Part 93, see Regulatory Notices. Attended 1200-0300Z. Parachute Jumping. CAUTION: Cattle and deer on arpt. Acft 100,000 lbs or over ctc Director of Aviation for approval 305-894-9831. Fee for all airline charters, travel clubs and certain revenue producing acft. Flight Notification Service (ADCUS) available.
- ⑳ → **WEATHER DATA SOURCES:** AWOS-1 120.3 (202) 426-8000. LLWAS.
- ㉑ → **COMMUNICATIONS:** CTAF 118.7 ATIS ARR 127.25 DEP 134.025 (303) 342-0820 UNICOM 122.95
NAME FSS (ORL) on arpt. 123.65 122.65 122.2.
TF 1-800-WX-BRIEF. NOTAM FILE ORL. ← ㉒
NAME RCD 112.2T 112.1R (NAME FSS)
⑳ NAME APP/DEP CON 128.35 (1200-0400Z)
TOWER 118.7 NFCT (1200-0400Z) GND CON 121.7 GCO 135.075 (ORLANDO CLNC) CLNC DEL 125.55
PRE TAXI CLNC 125.5
- ㉓ → **AIRSPACE:** CLASS B See VFR Terminal Area Chart.
- ㉔ → **RADIO AIDS TO NAVIGATION:** NOTAM FILE MCO. VHF/DF etc FSS.
(H) ABVORTAC 112.2 MCO Chan 59 N28°32.55' W81°20.12' at fld. 1110/8E.
TWEB avbl 1300-0100Z. VOR unusable 050°-060° bwd 15 NM bld 5000'.
HERNY NDB (LOM) 221 OR N28°37.40' W81°21.05' 177° 5.4 NM to fld.
ILS 109.9 I-ORL Rwy 18. LOM HERNY NDB.
ASR/PAR (1200-0400Z)
- ㉕ → **COMM/NAVAID REMARKS:** Emerg frequency 121.5 not avbl at twr.
.....
HELIPAD H1: H100X75 (ASPH)
HELIPAD H2: H60X60 (ASPH)
HELIPORT REMARKS: Helipad H1 lctd on general aviation side and H2 lctd on air carrier side of arpt.
.....
187 TPA 1000(813)
WATERWAY 13-31: 5000X300 (WATER)
SEAPLANE REMARKS: Birds roosting and feeding areas along river banks. Seaplanes operating adjacent to NE side of arpt not visible from twr and are required to ctc twr.

All Bearings and Radials are Magnetic unless otherwise specified.
All mileages are nautical unless otherwise noted.
All times are UTC except as noted.
The horizontal reference datum of this publication is North American Datum of 1983 (NAD83), which for charting purposes is considered equivalent to World Geodetic System 1984 (WGS 84).

LEGEND 2.—Airport/Facility Directory.

DIRECTORY LEGEND

⑧ SKETCH LEGEND

RUNWAYS/LANDING AREAS		RADIO AIDS TO NAVIGATION	
Hard Surfaced		VORTAC	
Metal Surface		VOR/DME	
Sod, Gravel, etc.		TACAN	
Light Plane,		VOR	
Ski Landing Area or Water		NDB	
Under Construction		NDB/DME	
Closed		MISCELLANEOUS AERONAUTICAL FEATURES	
Helicopter Landings Area		Airport Beacon	
Displaced Threshold		Wind Cone	
Taxiway, Apron and Stopways		Landing Tee	
		Tetrahedron	
		Control Tower	
MISCELLANEOUS BASE AND CULTURAL FEATURES		APPROACH LIGHTING SYSTEMS	
Buildings		A dot "e" portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g. (A1) Negative symbology, e.g., (A1) indicates Pilot Controlled Lighting (PCL).	
Power Lines		Runway Centerline Lighting	
Fence		(A) Approach Lighting System ALSF-2	
Towers		(A1) Approach Lighting System ALSF-1	
Tanks		Short Approach Lighting System SALS/SALSF	
Oil Well		Simplified Short Approach Lighting System (SSALR) with RAIL	
Smoke Stack		(A4) Medium Intensity Approach Lighting System (MALS and MALSF)/(SSALS and SSALF)	
Obstruction		(A5) Medium Intensity Approach Lighting System (MALS) and RAIL	
Controlling Obstruction		(A6) Omnidirectional Approach Lighting System (ODALS)	
Trees		(D) Navy Parallel Row and Cross Bar	
Populated Places		(I) Air Force Overrun	
Cuts and Fills		(V) Visual Approach Slope Indicator with Standard Threshold Clearance provided	
Cliffs and Depressions		(V2) Pulsating Visual Approach Slope Indicator (PVASI)	
Ditch		(V3) Visual Approach Slope Indicator with a threshold crossing height to accommodate long bodied or jumbo aircraft	
Hill		(V4) Tri-color Visual Approach Slope Indicator (TRCV)	
		(V5) Approach Path Alignment Panel (APAP)	
		(P) Precision Approach Path Indicator (PAPI)	

LEGEND 3.—Airport/Facility Directory.

DIRECTORY LEGEND

LEGEND

This Directory is an alphabetical listing of data on record with the FAA on all airports that are open to the public, associated terminal control facilities, air route traffic control centers and radio aids to navigation within the conterminous United States, Puerto Rico and the Virgin Islands. Airports are listed alphabetically by associated city name and cross referenced by airport name. Facilities associated with an airport, but with a different name, are listed individually under their own name, as well as under the airport with which they are associated.

The listing of an airport in this directory merely indicates the airport operator's willingness to accommodate transient aircraft, and does not represent that the facility conforms with any Federal or local standards, or that it has been approved for use on the part of the general public.

The information on obstructions is taken from reports submitted to the FAA. It has not been verified in all cases. Pilots are cautioned that objects not indicated in this tabulation (or on charts) may exist which can create a hazard to flight operation.

Detailed specifics concerning services and facilities tabulated within this directory are contained in Aeronautical Information Manual, Basic Flight Information and ATC Procedures.

The legend items that follow explain in detail the contents of this Directory and are keyed to the circled numbers on the sample on the preceding pages.

① CITY/AIRPORT NAME

Airports and facilities in this directory are listed alphabetically by associated city and state. Where the city name is different from the airport name the city name will appear on the line above the airport name. Airports with the same associated city name will be listed alphabetically by airport name and will be separated by a dashed rule line. All others will be separated by a solid rule line. (Designated Heliports and Seaplane Landing Areas (Water) associated with a land airport will be separated by a dotted line.)

② LOCATION IDENTIFIER

A three or four character code assigned to airports. These identifiers are used by ATC in lieu of the airport name in flight plans, flight strips and other written records and computer operations.

③ AIRPORT LOCATION

Airport location is expressed as distance and direction from the center of the associated city in nautical miles and cardinal points, i.e., 4 NE.

④ TIME CONVERSION

Hours of operation of all facilities are expressed in Coordinated Universal Time (UTC) and shown as "Z" time. The directory indicates the number of hours to be subtracted from UTC to obtain local standard time and local daylight saving time UTC-5(-4DT). The symbol ‡ indicates that during periods of Daylight Saving Time effective hours will be one hour earlier than shown. In those areas where daylight saving time is not observed that (-4DT) and ‡ will not be shown. All states observe daylight savings time except Arizona, Hawaii and that portion of Indiana in the Eastern Time Zone and Puerto Rico and the Virgin Islands.

⑤ GEOGRAPHIC POSITION OF AIRPORT

Positions are shown in degrees, minutes and hundredths of a minute and represent the approximate center of mass of all usable runways.

⑥ CHARTS

The Sectional Chart and Low and High Altitude Enroute Chart and panel on which the airport or facility is located. Helicopter Chart locations will be indicated as, i.e., COPTER.

⑦ INSTRUMENT APPROACH PROCEDURES

IAP indicates an airport for which a prescribed (Public Use) FAA Instrument Approach Procedure has been published.

⑧ AIRPORT SKETCH

The airport sketch, when provided, depicts the airport and related topographical information as seen from the air and should be used in conjunction with the text. It is intended as a guide for pilots in VFR conditions. Symbology that is not self-explanatory will be reflected in the sketch legend. The airport sketch will be oriented with True North at the top. Airport sketches will be added incrementally.

⑨ ELEVATION

The highest point of an airport's usable runways measured in feet from mean sea level. When elevation is sea level it will be indicated as (00). When elevation is below sea level a minus (-) sign will precede the figure.

⑩ ROTATING LIGHT BEACON

B indicates rotating beacon is available. Rotating beacons operate dusk to dawn unless otherwise indicated in AIRPORT REMARKS.

⑪ SERVICING

S1: Minor airframe repairs.

S2: Minor airframe and minor powerplant repairs.

S3: Major airframe and minor powerplant repairs.

S4: Major airframe and major powerplant repairs.

LEGEND 4.—Airport/Facility Directory.

DIRECTORY LEGEND

12 FUEL

CODE	FUEL	CODE	FUEL
80	Grade 80 gasoline (Red)	B+	Jet B—Wide-cut turbine fuel with icing inhibitor, freeze point—50° C.
100	Grade 100 gasoline (Green)	J8	(JP-8 Military specification) Jet A-1, kerosene with icing inhibitor, freeze point—47° C.
100LL	100LL gasoline (low lead) (Blue)	J8+100	(JP-8 Mil spec) Jet A-1, Kerosene with FS-II*, FP** minus 47° C, with fuel additive package that improves thermo stability characteristics of JP-8.
115	Grade 115 gasoline		
A	Jet A—Kerosene freeze point—40° C.		
A1	Jet A-1—Kerosene freeze point—47° C.		
A1+	Jet A-1—Kerosene with icing inhibitor, freeze point—47° C.		
B	Jet B—Wide-cut turbine fuel, freeze point—50° C.	MOGAS	Automobile gasoline which is to be used as aircraft fuel.

NOTE: **Automobile Gasoline.** Certain automobile gasoline may be used in specific aircraft engines if a FAA supplemental type certificate has been obtained. Automobile gasoline which is to be used in aircraft engines will be identified as "MOGAS", however, the grade/type and other octane rating will not be published.

Data shown on fuel availability represents the most recent information the publisher has been able to acquire. Because of a variety of factors, the fuel listed may not always be obtainable by transient civil pilots. Confirmation of availability of fuel should be made directly with fuel dispensers at locations where refueling is planned.

13 OXYGEN

OX 1	High Pressure	OX 3	High Pressure—Replacement Bottles
OX 2	Low Pressure	OX 4	Low Pressure—Replacement Bottles

14 TRAFFIC PATTERN ALTITUDE

Traffic Pattern Altitude (TPA)—The first figure shown is TPA above mean sea level. The second figure in parentheses is TPA above airport elevation.

15 AIRPORT OF ENTRY, LANDING RIGHTS, AND CUSTOMS USER FEE AIRPORTS

U.S. CUSTOMS USER FEE AIRPORT—Private Aircraft operators are frequently required to pay the costs associated with customs processing.

AOE—Airport of Entry—A customs Airport of Entry where permission from U.S. Customs is not required, however, at least one hour advance notice of arrival must be furnished.

LRA—Landing Rights Airport—Application for permission to land must be submitted in advance to U.S. Customs. At least one hour advance notice of arrival must be furnished.

NOTE: Advance notice of arrival at both an AOE and LRA airport may be included in the flight plan when filed in Canada or Mexico, where Flight Notification Service (ADCUS) is available the airport remark will indicate this service. This notice will also be treated as an application for permission to land in the case of an LRA. Although advance notice of arrival may be relayed to Customs through Mexico, Canadian, and U.S. Communications facilities by flight plan, the aircraft operator is solely responsible for insuring that Customs receives the notification. (See Customs, Immigration and Naturalization, Public Health and Agriculture Department requirements in the International Flight Information Manual for further details.)

16 CERTIFICATED AIRPORT (FAR 139)

Airports serving Department of Transportation certified carriers and certified under FAR, Part 139, are indicated by the ARFF index; i.e., ARFF Index A, which relates to the availability of crash, fire, rescue equipment.

FAR—PART 139 CERTIFICATED AIRPORTS
INDICES AND AIRCRAFT RESCUE AND FIRE FIGHTING EQUIPMENT REQUIREMENTS

Airport Index	Required No. Vehicles	Aircraft Length	Scheduled Departures	Agent + Water for Foam
A	1	<90'	≧ 1	500#DC or HALON 1211 or 450#DC + 100 gal H ₂ O
B	1 or 2	≧90', <126'	≧5	Index A + 1500 gal H ₂ O
		----- ≧126', <159'	≧5	
C	2 or 3	≧126', <159'	≧5	Index A + 3000 gal H ₂ O
		----- ≧159', <200'	≧5	
D	3	≧159', <200'	≧5	Index A + 4000 gal H ₂ O
		>200'	≧5	
E	3	≧200'	≧5	Index A + 6000 gal H ₂ O

> Greater Than; < Less Than; ≧ Equal or Greater Than; ≦ Equal or Less Than; H₂O—Water; DC—Dry Chemical.

NOTE: The listing of ARFF index does not necessarily assure coverage for non-air carrier operations or at other than prescribed times for air carrier. ARFF Index Ltd.—indicates ARFF coverage may or may not be available, for information contact airport manager prior to flight.

LEGEND 5.—Airport/Facility Directory.

DIRECTORY LEGEND

⑰ FAA INSPECTION

All airports not inspected by FAA will be identified by the note: Not insp. This indicates that the airport information has been provided by the owner or operator of the field.

⑱ RUNWAY DATA

Runway information is shown on two lines. That information common to the entire runway is shown on the first line while information concerning the runway ends are shown on the second or following line. Lengthy information will be placed in the Airport Remarks.

Runway direction, surface, length, width, weight bearing capacity, lighting, slope and appropriate remarks are shown for each runway. Direction, length, width, lighting and remarks are shown for sealanes. The full dimensions of helipads are shown, i.e., 50X150.

RUNWAY SURFACE AND LENGTH

Runway lengths prefixed by the letter "H" indicate that the runways are hard surfaced (concrete, asphalt). If the runway length is not prefixed, the surface is sod, clay, etc. The runway surface composition is indicated in parentheses after runway length as follows:

(AFSC)—Aggregate friction seal coat	(GRVD)—Grooved	(RFSC)—Rubberized friction seal coat
(ASPH)—Asphalt	(GRVL)—Gravel, or cinders	(TURF)—Turf
(CONC)—Concrete	(PFC)—Porous friction courses	(TRTD)—Treated
(DIRT)—Dirt	(PSP)—Pierced steel plank	(WC)—Wire combed

RUNWAY WEIGHT BEARING CAPACITY

Runway strength data shown in this publication is derived from available information and is a realistic estimate of capability at an average level of activity. It is not intended as a maximum allowable weight or as an operating limitation. Many airport pavements are capable of supporting limited operations with gross weights of 25-50% in excess of the published figures. Permissible operating weights, insofar as runway strengths are concerned, are a matter of agreement between the owner and user. When desiring to operate into any airport at weights in excess of those published in the publication, users should contact the airport management for permission. Add 000 to figure following S, D, DT, DDT, AUW, etc., for gross weight capacity:

- S—Single-wheel type landing gear. (DC-3), (C-47), (F-15), etc.
- D—Dual-wheel type landing gear. (DC-6), etc.
- T—Twin-wheel type landing gear. (DC-6), (C-9A), etc.
- ST—Single-tandem type landing gear. (C-130).
- SBTT—Single-belly twin tandem landing gear (KC-10).
- DT—Dual-tandem type landing gear. (707), etc.
- TT—Twin-tandem type (includes quadricycle) landing gear (707), (B-52), (C-135), etc.
- TRT—Triple-tandem landing gear, (C-17)
- DDT—Double dual-tandem landing gear. (E4A/747).
- TDT—Twin delta-tandem landing gear. (C-5, Concorde).
- AUW—All up weight. Maximum weight bearing capacity for any aircraft irrespective of landing gear configuration.
- SWL—Single Wheel Loading. (This includes information submitted in terms of Equivalent Single Wheel Loading (ESWL) and Single Isolated Wheel Loading). SWL figures are shown in thousands of pounds with the last three figures being omitted.
- PSI—Pounds per square inch. PSI is the actual figure expressing maximum pounds per square inch runway will support, e.g., (SWL 000/PSI 535).

Quadricycle and dual-tandem are considered virtually equal for runway weight bearing consideration, as are single-tandem and dual-wheel. Omission of weight bearing capacity indicates information unknown.

The ACN/PCN System is the ICAO method of reporting pavement strength for pavements with bearing strengths greater than 12,500 pounds. The Pavement Classification Number (PCN) is established by an engineering assessment of the runway. The PCN is for use in conjunction with an Aircraft Classification Number (ACN). Consult the Aircraft Flight Manual or other appropriate source for ACN tables or charts. Currently, ACN data may not be available for all aircraft. If an ACN table or chart is available, the ACN can be calculated by taking into account the aircraft weight, the pavement type, and the subgrade category. For runways that have been evaluated under the ACN/PCN system, the PCN will be shown as a five part code (e.g. PCN 80 R/B/W/T). Details of the coded format are as follows:

- (1) The PCN NUMBER—The reported PCN indicates that an aircraft with an ACN equal or less than the reported PCN can operate on the pavement subject to any limitation on the tire pressure.
- (2) The type of pavement:
 - R — Rigid
 - F — Flexible
- (3) The pavement subgrade category:
 - A — High
 - B — Medium
 - C — Low
 - D — Ultra-low
- (4) The maximum tire pressure authorized for the pavement:
 - W — High, no limit
 - X — Medium, limited to 217 psi
 - Y — Low, limited to 145 psi
 - Z — Very low, limited to 73 psi
- (5) Pavement evaluation method:
 - T — Technical evaluation
 - U — By experience of aircraft using the pavement

NOTE: Prior permission from the airport controlling authority is required when the ACN of the aircraft exceeds the published PCN or aircraft tire pressure exceeds the published limits.

LEGEND 6.—Airport/Facility Directory.

8

DIRECTORY LEGEND

RUNWAY DECLARED DISTANCE INFORMATION

TORA—Take-off Run Available
 TODA—Take-off Distance Available
 ASDA—Accelerate-Stop Distance Available
 LDA—Landing Distance Available

19 AIRPORT REMARKS

Landing Fee indicates landing charges for private or non-revenue producing aircraft, in addition, fees may be charged for planes that remain over a couple of hours and buy no services, or at major airline terminals for all aircraft.

Remarks—Data is confined to operational items affecting the status and usability of the airport.

Parachute Jumping.—See "PARACHUTE" tabulation for details.

Unless otherwise stated, remarks including runway ends refer to the runway's approach end.

20 WEATHER DATA SOURCES

ASOS—Automated Surface Observing System. Reports the same as an AWOS-3 plus precipitation identification and intensity, and freezing rain occurrence (future enhancement).

AWOS—Automated Weather Observing System

AWOS-A—reports altimeter setting.

AWOS-1—reports altimeter setting, wind data and usually temperature, dewpoint and density altitude.

AWOS-2—reports the same as AWOS-1 plus visibility.

AWOS-3—reports the same as AWOS-1 plus visibility and cloud/ceiling data.

See AIM, Basic Flight Information and ATC Procedures for detailed description of AWOS.

HIWAS—See RADIO AIDS TO NAVIGATION

LAWRS—Limited Aviation Weather Reporting Station where observers report cloud height, weather, obstructions to vision, temperature and dewpoint (in most cases), surface wind, altimeter and pertinent remarks.

LLWAS—indicates a Low Level Wind Shear Alert System consisting of a center field and several field perimeter anemometers.

SAWRS—identifies airports that have a Supplemental Aviation Weather Reporting Station available to pilots for current weather information.

SWSL—Supplemental Weather Service Location providing current local weather information via radio and telephone.

TDWR—indicates airports that have Terminal Doppler Weather Radar.

21 COMMUNICATIONS

Communications will be listed in sequence in the order shown below:

Common Traffic Advisory Frequency (CTAF), Automatic Terminal Information Service (ATIS) and Aeronautical Advisory Stations (UNICOM) along with their frequency is shown, where available, on the line following the heading "COMMUNICATIONS." When the CTAF and UNICOM is the same frequency, the frequency will be shown as CTAF/UNICOM freq.

Flight Service Station (FSS) information. The associated FSS will be shown followed by the identifier and information concerning availability of telephone service, e.g., Direct Line (DL), Local Call (LC-384-2341), Toll free call, dial (TF 800-852-7036 or TF 1-800-227-7160), Long Distance (LD 202-426-8800 or LD 1-202-555-1212) etc. The airport NOTAM file identifier will be shown as "NOTAM FILE IAD." Where the FSS is located on the field it will be indicated as "on arpt" following the identifier. Frequencies available will follow. The FSS telephone number will follow along with any significant operational information. FSS's whose name is not the same as the airport on which located will also be listed in the normal alphabetical name listing for the state in which located. Remote Communications Outlet (RCO) providing service to the airport followed by the frequency and name of the Controlling FSS.

FSS's provide information on airport conditions, radio aids and other facilities, and process flight plans. Local Airport Advisory Service is provided on the CTAF by FSS's located at non-tower airports or airports where the tower is not in operation.

(See AIM, Par. 157/158 Traffic Advisory Practices at airports where a tower is not in operation or AC 90 - 42C.)

Aviation weather briefing service is provided by FSS specialists. Flight and weather briefing services are also available by calling the telephone numbers listed.

Remote Communications Outlet (RCO)—An unmanned air/ground communications facility, remotely controlled and providing UHF or VHF communications capability to extend the service range of an FSS.

Civil Communications Frequencies—Civil communications frequencies used in the FSS air/ground system are now operated simplex on 122.0, 122.2, 122.3, 122.4, 122.6, 123.6; emergency 121.5; plus receive-only on 122.05, 122.1, 122.15, and 123.6.

- a. 122.0 is assigned as the Enroute Flight Advisory Service channel at selected FSS's,
- b. 122.2 is assigned to most FSS's as a common enroute simplex service.
- c. 123.6 is assigned as the airport advisory channel at non-tower FSS locations, however, it is still in commission at some FSS's collocated with towers to provide part time Local Airport Advisory Service.
- d. 122.1 is the primary receive-only frequency at VOR's. 122.05, 122.15 and 123.6 are assigned at selected VOR's meeting certain criteria.
- e. Some FSS's are assigned 50 kHz channels for simplex operation in the 122-123 MHz band (e.g. 122.35). Pilots using the FSS A/G system should refer to this directory or appropriate charts to determine frequencies available at the FSS or remoted facility through which they wish to communicate.

Part time FSS hours of operation are shown in remarks under facility name.

Emergency frequency 121.5 is available at all Flight Service Stations, Towers, Approach Control and RADAR facilities, unless indicated as not available.

Frequencies published followed by the letter "T" or "R", indicate that the facility will only transmit or receive respectively on that frequency. All radio aids to navigation frequencies are transmit only.

LEGEND 7.—Airport/Facility Directory.

DIRECTORY LEGEND

TERMINAL SERVICES

CTAF—A program designed to get all vehicles and aircraft at uncontrolled airports on a common frequency.
 ATIS—A continuous broadcast of recorded non-control information in selected areas of high activity.
 UNICOM—A non-government air/ground radio communications facility utilized to provide general airport advisory service.
 APP CON —Approach Control. The symbol \textcircled{R} indicates radar approach control.
 TOWER—Control tower.
 GND CON—Ground Control.
 GCO—GROUND COMMUNICATION OUTLET—An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to takeoff. Pilots will use four "key clicks" on the VHF radio to contact the appropriate ATC facility or six "key clicks" to contact the FSS. The GCO system is intended to be used only on the ground.
 DEP CON—Departure Control. The symbol \textcircled{R} indicates radar departure control.
 CLNC DEL—Clearance Delivery.
 PRE TAXI CLNC—Pre taxi clearance.
 VFR ADVSY SVC—VFR Advisory Service. Service provided by Non-Radar Approach Control.
 Advisory Service for VFR aircraft (upon a workload basis) ctc APP CON.
 TOWER, APP CON and DEP CON RADIO CALL will be the same as the airport name unless indicated otherwise.

22 NOTAM SERVICE

All public use landing areas are provided NOTAM "D" (distant dissemination) and NOTAM "L" (local dissemination) service. Airport NOTAM file identifier is shown following the associated FSS data for individual airports, e.g. "NOTAM FILE IAD". See AIM, Basic Flight Information and ATC Procedures for detailed description of NOTAM's.

23 AIRSPACE

CLASS B—Radar Sequencing and Separation Service for all aircraft in CLASS B airspace
 TRSA—Radar Sequencing and Separation Service for participating VFR Aircraft within a Terminal Radar Service Area
 Class C, D, and E airspace described in this publication is that airspace usually consisting of a 5 NM radius core surface area that begins at the surface and extends upward to an altitude above the airport elevation (charted in MSL for Class C and Class D).

When CLASS C airspace defaults to CLASS E, the core surface area becomes CLASS E. This will be formatted as: **AIRSPACE: CLASS C** svc "times" ctc **APP CON** other times CLASS E.

When Class C airspace defaults to Class G, the core surface area becomes Class G up to but not including the overlying controlled airspace. There are Class E airspace areas beginning at either 700' or 1200' AGL used to transition to/from the terminal or enroute environment. This will be formatted as: **AIRSPACE: CLASS C** svc "times" ctc **APP CON** other times CLASS G, CLASS E 700' (or 1200') AGL & abv.

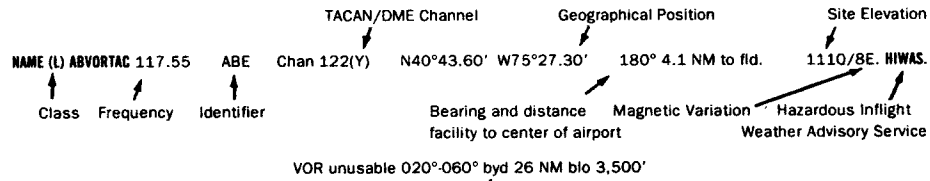
NOTE: AIRSPACE SVC "TIMES" INCLUDE ALL ASSOCIATED EXTENSIONS. Arrival extensions for instrument approach procedures become part of the primary core surface area. These extensions may be either Class D or Class E airspace and are effective concurrent with the times of the primary core surface area.

(See CLASS AIRSPACE in the Aeronautical Information Manual for further details)

24 RADIO AIDS TO NAVIGATION

The Airport Facility Directory lists by facility name all Radio Aids to Navigation, except Military TACANS, that appear on National Ocean Service Visual or IFR Aeronautical Charts and those upon which the FAA has approved an Instrument Approach Procedure. All VOR, VORTAC ILS and MLS equipment in the National Airspace System has an automatic monitoring and shutdown feature in the event of malfunction. Unmonitored, as used in this publication for any navigational aid, means that FSS or tower personnel cannot observe the malfunction or shutdown signal. The NAVAID NOTAM file identifier will be shown as "NOTAM FILE IAD" and will be listed on the Radio Aids to Navigation line. When two or more NAVAIDS are listed and the NOTAM file identifier is different than shown on the Radio Aids to Navigation line, then it will be shown with the NAVAID listing. NOTAM file identifiers for ILS's and their components (e.g., NDB (LOM) are the same as the identifiers for the associated airports and are not repeated. Hazardous Inflight Weather Advisory Service (HIWAS) will be shown where this service is broadcast over selected VOR's.

NAVAID information is tabulated as indicated in the following sample:



Restriction within the normal altitude/range of the navigational aid (See primary alphabetical listing for restrictions on VORTAC and VOR/DME).

Note: Those DME channel numbers with a (Y) suffix require TACAN to be placed in the "Y" mode to receive distance information.

LEGEND 8.—Airport/Facility Directory.

DIRECTORY LEGEND

HIWAS—Hazardous Inflight Weather Advisory Service is a continuous broadcast of inflight weather advisories including summarized SIGMETs, convective SIGMETs, AIRMETs and urgent PIREPs. HIWAS is presently broadcast over selected VOR's and will be implemented throughout the conterminous U.S.

ASR/PAR—Indicates that Surveillance (ASR) or Precision (PAR) radar instrument approach minimums are published in the U.S. Terminal Procedures. Only part-time hours of operation will be shown.

RADIO CLASS DESIGNATIONS

VOR/DME/TACAN Standard Service Volume (SSV) Classifications

SSV Class	Altitudes	Distance (NM)
(T) Terminal	1000' to 12,000'	25
(L) Low Altitude	1000' to 18,000'	40
(H) High Altitude	1000' to 14,500'	40
	14,500' to 18,000'	100
	18,000' to 45,000'	130
	45,000' to 60,000'	100

NOTE: Additionally, (H) facilities provide (L) and (T) service volume and (L) facilities provide (T) service. Altitudes are with respect to the station's site elevation. Coverage is not available in a cone of airspace directly above the facility.

The term VOR is, operationally, a general term covering the VHF omnidirectional bearing type of facility without regard to the fact that the power, the frequency protected service volume, the equipment configuration, and operational requirements may vary between facilities at different locations.

- AB _____ Automatic Weather Broadcast.
- DF _____ Direction Finding Service.
- DME _____ UHF standard (TACAN compatible) distance measuring equipment.
- DME(Y) _____ UHF standard (TACAN compatible) distance measuring equipment that require TACAN to be placed in the "Y" mode to receive DME.
- GS _____ Glide slope.
- H _____ Non-directional radio beacon (homing), power 50 watts to less than 2,000 watts (50 NM at all altitudes).
- HH _____ Non-directional radio beacon (homing), power 2,000 watts or more (75 NM at all altitudes).
- H-SAB _____ Non-directional radio beacons providing automatic transcribed weather service.
- ILS _____ Instrument Landing System (voice, where available, on localizer channel).
- IM _____ Inner marker.
- ISMLS _____ Interim Standard Microwave Landing System.
- LDA _____ Localizer Directional Aid.
- LMM _____ Compass locator station when installed at middle marker site (15 NM at all altitudes).
- LOM _____ Compass locator station when installed at outer marker site (15 NM at all altitudes).
- MH _____ Non-directional radio beacon (homing) power less than 50 watts (25 NM at all altitudes).
- MLS _____ Microwave Landing System.
- MM _____ Middle marker.
- OM _____ Outer marker.
- S _____ Simultaneous range homing signal and/or voice.
- SABH _____ Non-directional radio beacon not authorized for IFR or ATC. Provides automatic weather broadcasts.
- SDF _____ Simplified Direction Facility.
- TACAN _____ UHF navigational facility-omnidirectional course and distance information.
- VOR _____ VHF navigational facility-omnidirectional course only.
- VOR/DME _____ Collocated VOR navigational facility and UHF standard distance measuring equipment.
- VORTAC _____ Collocated VOR and TACAN navigational facilities.
- W _____ Without voice on radio facility frequency.
- Z _____ VHF station location marker at a LF radio facility.

LEGEND 9.—Airport/Facility Directory.

TERMS LANDING MINIMA DATA

IFR LANDING MINIMA

The United States Standard for Terminal Instrument Procedures (TERPS) is the approved criteria for formulating instrument approach procedures. Landing minima are established for six aircraft approach categories (ABCDE and COPTER). In the absence of COPTER MINIMA, helicopters may use the CAT A minimums of other procedures. The standard format for RNAV minima and landing minima portrayal follows:

RNAV MINIMA

CATEGORY	A	B	C	D
GLS PA DA	1382/24 200 (200-½)			
LNAV/ DA VNAV	1500/24	318 (400-½)		1500/40 318 (400-¾)
LNAV MDA	1700/24	518 (600-½)	1700/50 518 (600-1)	1700/60 518 (600-1¼)
CIRCLING	1760-1	578 (600-1)	1760-1½ 578 (600-1½)	1760-2 578 (600-2)

RNAV minimums are dependent on navigation equipment capability, as stated in the applicable AFM or AFMS and as outlined below.

GLS (Global Navigation System (GNSS) Landing System)

Must have WAAS (Wide Area Augmentation System) equipment approved for precise approach. Note: "PA" indicates that the runway environment, i.e., runway markings, runway lights, parallel taxiway, etc., meets precision approach requirements. If the GLS minimums line does not contain "PA", then the runway environment does not support precision requirements.

LNAV/VNAV (Lateral Navigation/Vertical Navigation)

Must have WAAS equipment approved for precision approach, or RNP-0.3 system based on GPS or DME/DME, with an IFR approach approved Baro-VNAV system. Other RNAV approach systems require special approval. Use of Baro-VNAV systems is limited by temperature, i.e., "Baro-VNAV NA below -20 C(-4 F)". (Not applicable if chart is annotated "Baro-VNAV NA".) NOTE: DME/DME based RNP-0.3 systems may be used only when a chart note indicates DME/DME availability, for example, "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required, for example: "DME/DME RNP-0.3 Authorized. ABC, XYZ required."

LNAV (Lateral Navigation)

Must have IFR approach approved WAAS, GPS, GPS based FMS systems, or RNP-0.3 systems based on GPS or DME/DME. Other RNAV approach systems require special approval. NOTE: DME/DME based RNP-0.3 systems may be used only when a chart note indicates DME/DME availability, for example, "DME/DME RNP-0.3 Authorized." Specific DME facilities may be required, for example: "DME/DME RNP-0.3 Authorized. ABC, XYZ required."

LANDING MINIMA FORMAT

In this example airport elevation is 1179, and runway touchdown zone elevation is 1152.

	DH	Visibility (RVR 100's of feet)	Aircraft Approach Category	HAT	
CATEGORY	A	B	C	D	
S-ILS 27	1352/24		200	(200-½)	
S-LOC 27	1440/24	288	(300-½)	1440/50	288 (300-1)
CIRCLING	1540-1 361 (400-1)	1640-1 461 (500-1)	1640-1½ 461 (500-1½)	1740-2	561 (600-2)
	MDA	HAA	Visibility in Statute Miles		

Labels in diagram:
 - Straight-in ILS to Runway 27 (points to S-ILS 27)
 - Straight-in with Glide Slope Inoperative or not used to Runway 27 (points to S-LOC 27)
 - All minimums in parentheses not applicable to Civil Pilots. Military Pilots refer to appropriate regulations. (points to values in parentheses)

TERMS/LANDING MINIMA DATA

A1

LEGEND 10.—Instrument Approach Procedures Explanation of Terms.

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A2

00055

TERMS/LANDING MINIMA DATA

COPTER MINIMA ONLY

CATEGORY	COPTER		
H-176°	680-½	363	{400-½}

Copter Approach Direction

Height of MDA/DH Above Landing Area (HAL)

No circling minima are provided

RADAR MINIMA

PAR (c)	10	2.5°/42/1000	ABCDE	195/16	100	(100-¼)					
	(d)	28	2.5°/48/1068	ABCDE	187/16	100	(100-¼)				
ASR	10		ABC	560/40	463	(500-¾)	D	560/50	463	(500-1)	
			E	580/60	463	(500-1¼)					
	28		AB	600/50	513	(600-1)	C	600/60	513	(600-1¼)	
			DE	600-1½	513	(600-1½)					
CIR (b)	10		AB	560-1¼	463	(500-1¼)	C	560-1½	463	(500-1½)	
	28		AB	600-1¼	503	(600-1¼)	C	600-1½	503	(600-1½)	
	10, 28		DE	660-2	563	(600-2)					

Visibility (RVR 100's of feet)

Visibility in Statute Miles

All minima in parentheses not applicable to Civil Pilots. Military Pilots refer to appropriate regulations.

Radar Minima:

1. Minima shown are the lowest permitted by established criteria. Pilots should consult applicable directives for their category of aircraft.
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, must use an MDA of 560 feet with weather minima of 500-1½.

- ▲ Alternate Minima not standard. Civil users refer to tabulation. USA/USN/USAF pilots refer to appropriate regulations.
- ▲ NA Alternate minima are Not Authorized due to unmonitored facility or absence of weather reporting service.
- ▼ Take-off Minima not standard and/or Departure Procedures are published. Refer to tabulation.

AIRCRAFT APPROACH CATEGORIES

Speeds are based on 1.3 times the stall speed in the landing configuration of maximum gross landing weight. An aircraft shall fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minima for the next higher category should be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, should use the approach Category B minima when circling to land. 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

RVR/ Meteorological Visibility Comparable Values

The following table shall be used for converting RVR to meteorological visibility when RVR is not reported for the runway of intended operation. Adjustments of landing minima may be required - see Inoperative Components Table.

RVR (feet)	Visibility (statute miles)	RVR (feet)	Visibility (statute miles)
1600.....	¼	4000.....	¾
2000.....	⅓	4500.....	⅞
2400.....	½	5000.....	1
3200.....	⅔	6000.....	1¼

TERMS/LANDING MINIMA DATA

LEGEND 11.—Instrument Approach Procedures Explanation of Terms.

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GENERAL INFO

GENERAL INFORMATION









This publication includes Instrument Approach Procedures (IAPs), Departure Procedures (DPs), and Standard Terminal Arrivals (STARs) for use by both civil and military aviation and is issued every 56 days.

STANDARD TERMINAL ARRIVALS AND DEPARTURE PROCEDURES

The use of the associated codified STAR/DP and transition identifiers are requested of users when filing flight plans via teletype and are required for users filing flight plans via computer interface. It must be noted that when filing a STAR/DP with a transition, the first three coded characters of the STAR and the last three coded characters of the DP are replaced by the transition code. Examples: ACTON SIX ARRIVAL, file (AQN.AQN6); ACTON SIX ARRIVAL, EDNAS TRANSITION, file (EDNAS.AQN6). FREEHOLD THREE DEPARTURE, file (FREH3.RBV), FREEHOLD THREE DEPARTURE, ELWOOD CITY TRANSITION, file (FREH3.EWC).

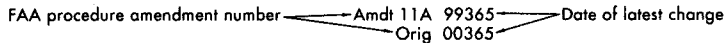
PILOT CONTROLLED AIRPORT LIGHTING SYSTEMS

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.,   
 2. Approach lighting systems that do not bear a system identification are indicated with a negative "0" besides 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  or the appropriate lighting system identification e.g., UNICOM 122.8   

<u>KEY MIKE</u>	<u>FUNCTION</u>
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)

CHART CURRENCY INFORMATION



The Chart Date identifies the Julian date the chart was added to the volume 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 addition or change was first published.

The Procedure Amendment Number precedes the Chart Date, and changes any time instrument information (e.g., DH, MDA, approach routing, etc.) changes. Procedure changes also cause the Chart Date to change.

MISCELLANEOUS

- * Indicates a non-continuously operating facility, see A/FD or flight supplement.
 - # Indicates control tower temporarily closed UFN.
- "Radar required" on the chart indicates that radar vectoring is required for the approach.
- Distances in nautical miles (except visibility in statute miles and Runway Visual Range in hundreds of feet). Runway Dimensions in feet. Elevations in feet. Mean Sea Level (MSL). Ceilings in feet above airport elevation. Radials/bearings/headings/courses are magnetic. Horizontal Datum: Unless otherwise noted on the chart, all coordinates are referenced to North American Datum 1983 (NAD 83), which for charting purposes is considered equivalent to World Geodetic System 1984 (WGS 84).

LEGEND 12.—General Information.

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GENERAL INFO

ABBREVIATIONS

ADF.....	Automatic Direction Finder	MALS.....	Medium Intensity Approach Light System with RAIL
ALS.....	Approach Light System	MAP.....	Missed Approach Point
ALSF.....	Approach Light System with Sequenced Flashing Lights	MDA.....	Minimum Descent Altitude
APP CON.....	Approach Control	MIRL.....	Medium Intensity Runway Lights
ARR.....	Arrival	MLS.....	Microwave Landing System
ASOS.....	Automated Surface Observing System	MM.....	Middle Marker
ASR/PAR.....	Published Radar Minimums at this Airport	NA.....	Not Authorized
ATIS.....	Automatic Terminal Information Service	NDB.....	Non-directional Radio Beacon
AWOS.....	Automated Weather Observing System	NM.....	Nautical Mile
AZ.....	Azimuth	NoPT.....	No Procedure Turn Required (Procedure Turn shall not be executed without ATC clearance)
BC.....	Back Course	ODALS.....	Omnidirectional Approach Light System
C.....	Circling	OM.....	Outer Marker
CAT.....	Category	R.....	Radial
CCW.....	Counter Clockwise	RA.....	Radio Altimeter setting height
Chan.....	Channel	RAIL.....	Runway Alignment Indicator Lights
CLNC DEL.....	Clearance Delivery	RBn.....	Radio Beacon
CNF.....	Computer Navigation Fix	RCLS.....	Runway Centerline Light System
CTAF.....	Common Traffic Advisory Frequency	REIL.....	Runway End Identifier Lights
CW.....	Clockwise	RNAV.....	Area Navigation
DH.....	Decision Height	RNP.....	Required Navigation Performance
DME.....	Distance Measuring Equipment	RPI.....	Runway Point of Intercept(ion)
DR.....	Dead Reckoning	RRL.....	Runway Remaining Lights
ELEV.....	Elevation	Rwy.....	Runway
FAF.....	Final Approach Fix	RVR.....	Runway Visual Range
FM.....	Fan Marker	S.....	Straight-in
FMS.....	Flight Management System	SALS.....	Short Approach Light System
GCO.....	Ground Communications Outlet	SSALR.....	Simplified Short Approach Light System with RAIL
GPI.....	Ground Point of Interception	SDF.....	Simplified Directional Facility
GPS.....	Global Positioning System	TA.....	Transition Altitude
GS.....	Glide Slope	TAC.....	TACAN
HAA.....	Height above Airport	TCH.....	Threshold Crossing Height (height in feet Above Ground level)
HAL.....	Height above Landing	TDZ.....	Touchdown Zone
HAT.....	Height above Touchdown	TDZE.....	Touchdown Zone Elevation
HIRL.....	High Intensity Runway Lights	TDZ/CL.....	Touchdown Zone and Runway Centerline Lighting
IAF.....	Initial Approach Fix	TDZL.....	Touchdown Zone Lights
ICAO.....	International Civil Aviation Organization	Tlv.....	Transition Level
IM.....	Inner Marker	VASI.....	Visual Approach Slope Indicator
Intcp.....	Intercept	VDP.....	Visual Descent Point
INT.....	Intersection	VGSI.....	Visual Glide Slope Indicator
LDA.....	Localizer Type Directional Aid	WP/WPT.....	Waypoint (RNAV)
Ldg.....	Landing	X.....	Radar Only Frequency
LDIN.....	Lead in Light System		
LIRL.....	Low Intensity Runway Lights		
LOC.....	Localizer		
LR.....	Lead Radial. Provides at least 2 NM (Copter 1 NM) of lead to assist in turning onto the intermediate/final course.		
MALS.....	Medium Intensity Approach Light System		

GENERAL INFO

99140

F2

SW-1, 4 NOV 1999

LEGEND 13.—Abbreviations.

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G1

99308

LEGEND

INSTRUMENT APPROACH PROCEDURES (CHARTS)

PLANVIEW SYMBOLS

TERMINAL ROUTES

Procedure Track
Missed Approach
Visual Flight Path
Procedure Turn (Type degree and point of turn optional)
Feeder Route
Minimum Altitude
Penetrates Special Use Airspace

SPECIAL USE AIRSPACE

R-352 R-Restricted W-Warning
P-Prohibited A-Alert

RADIO AIDS TO NAVIGATION

110.1 Underline indicates No Voice transmitted on this frequency

VOR VOR/DME TACAN VORTAC
NDB NDB/DME WAYPOINT
MAP WP FLYOVER WAYPOINT WAYPOINT COLLOCATED WITH NAVAID
LOM/LMM (Compass locator at Outer Marker/Middle Marker)
Marker Beacon
Localizer (LOC/LDA) Course
SDF Course
MLS Approach Azimuth

HOLDING PATTERNS

In lieu of Procedure Turn Missed Approach Arrival

Holding pattern with max. restricted airspeed:
"175K" applies to all altitudes.
"210K" applies to altitudes above 6000' to and including 14000'.
Limits will only be specified when they deviate from the standard. DME fixes may be shown.

REPORTING POINT/FIXES

Reporting Point
▲ Name (Compulsory) X Fix or intersection
△ Name (Non-Compulsory)

COMPUTER NAVIGATION FIX (CNF)

x (NAME) ("x" omitted when it conflicts with runway pattern)

MINIMUM SAFE ALTITUDE (MSA)

(arrows on distance circle identify sectors)

OBSTACLES

• Spot Elevation • Highest Spot Elevation
△ Obstacle ▲ Group of Obstacles
△ Highest Obstacle ± Doubtful accuracy

MISCELLANEOUS

VOR Changeover Point
RWY 15 S12°00.52' W77°06.91' End of Rwy Coordinates (DOD only)
Distance not to scale
International Boundary

MICROWAVE

Chan 514 (Y) TACAN must be in "Y" mode to receive distance information.
M-VDZ
Glidepath 6.20°
DME 111.5 Chan 48(Y)

Waypoint Data

Coordinates: PRAYS N38°58.30' W89°51.50'
Frequency: 112.7 CAP 187.1°-56.2
Identifier: 590
Reference Facility Elevation
Waypoint Name
Radial-Distance (Facility to Waypoint)

Primary Navaid with Coordinate Values

LIMA 114.5 LIM 114.5 Chan 92 S12°00.80' W77°07.00'

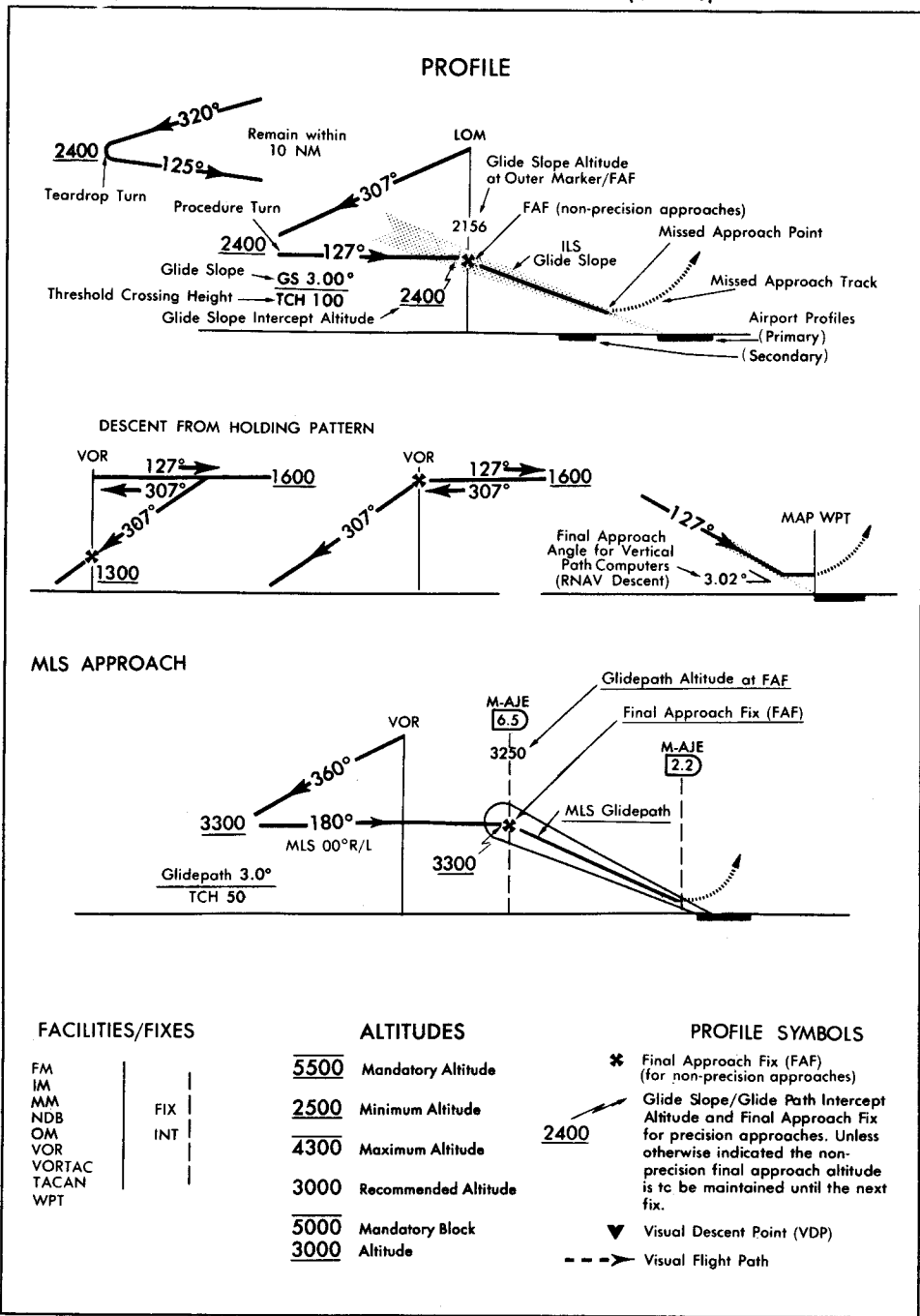
Secondary Navaid

LIMA 248 NT 248

LEGEND 14.—Instrument Approach Procedures (Symbols).

95145
LEGEND

INSTRUMENT APPROACH PROCEDURES (CHARTS)



LEGEND
95145

H1

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LEGEND 15.—Instrument Approach Procedures (Profile).

INSTRUMENT TAKEOFF PROCEDURE CHARTS
RATE-OF-CLIMB TABLE
(ft. per min.)

A rate-of-climb table is provided for use in planning and executing
takeoff procedures under known or approximate ground speed conditions.

REQUIRED CLIMB RATE (ft. per NM)	GROUND SPEED (KNOTS)						
	30	60	80	90	100	120	140
200	100	200	267	300	333	400	467
250	125	250	333	375	417	500	583
300	150	300	400	450	500	600	700
350	175	350	467	525	583	700	816
400	200	400	533	600	667	800	933
450	225	450	600	675	750	900	1050
500	250	500	667	750	833	1000	1167
550	275	550	733	825	917	1100	1283
600	300	600	800	900	1000	1200	1400
650	325	650	867	975	1083	1300	1516
700	350	700	933	1050	1167	1400	1633

REQUIRED CLIMB RATE (ft. per NM)	GROUND SPEED (KNOTS)					
	150	180	210	240	270	300
200	500	600	700	800	900	1000
250	625	750	875	1000	1125	1250
300	750	900	1050	1200	1350	1500
350	875	1050	1225	1400	1575	1750
400	1000	1200	1400	1600	1700	2000
450	1125	1350	1575	1800	2025	2250
500	1250	1500	1750	2000	2250	2500
550	1375	1650	1925	2200	2475	2750
600	1500	1800	2100	2400	2700	3000
650	1625	1950	2275	2600	2925	3250
700	1750	2100	2450	2800	3150	3500

LEGEND 16.—Instrument Takeoff Procedure Charts, Rate-of-Climb Table.

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99252

LEGEND

LEGEND

STANDARD TERMINAL ARRIVAL (STAR) CHARTS DEPARTURE PROCEDURE (DP) CHARTS

RADIO AIDS TO NAVIGATION

VOR TACAN
 VOR/DME NDB/DME
 VORTAC LOC/DME
 WAYPOINT LOC
 FLYOVER WAYPOINT
 NDB (Non-directional Radio Beacon)
 LMM, LOM (Compass locator)
 Marker Beacon
 Localizer Course
 SDF Course

(T) indicates frequency protection range (Y) TACAN must be placed in "Y" mode to receive distance information

Frequency: 112.25 (T) ORL Identifier: ORL Geographic Position: N28°32.56' W81°20.10'
 Chan 59 (Y) L-19, H-5 DME or TACAN Channel
 Underline indicates no voice transmitted on this frequency Enroute Chart Reference

Coordinates: N38°58.30' W89°51.50' Waypoint Name: PRAYS
 Frequency: 112.7 CAP Radial-Distance (Facility to Waypoint): 590
 Identifier: CAP Reference Facility Elevation: 590

Reporting Points
 N00° 00.00'
 W00° 00.00'

▲ Name (Compulsory)
 △ Name (Non-Compulsory)

DME fix
 x Mileage Breakdown/Computer Navigation Fix (CNF)
 N00° 00.00'
 W00° 00.00'

DME Mileage (when not obvious)
 Distance not to scale

ROUTES

4500 MEA-Minimum Enroute Altitude
 *3500 MOCA-Minimum Obstruction Clearance Altitude
 270° Departure Route - Arrival Route
 (65) Mileage between Radio Aids, Reporting Points, and Route Breaks
 Transition Route
 R-275 Radial line and value
 Lost Communications Track
 [V12] [J80] Airway/Jet Route Identification
 Holding Pattern Changeover Point
 Holding pattern with max. restricted airspeed 175K applies to all altitudes
 210K applies to altitudes above 6000' to and including 14000'

SPECIAL USE AIRSPACE

R-352 R-Restricted W-Warning
 P-Prohibited A-Alert

ALTITUDES

5500	2300	4800	2200
Mandatory Altitude	Minimum Altitude	Maximum Altitude	Recommended Altitude

MCA (Minimum Crossing Altitude)
 Altitude change at other than Radio Aids

AIRPORTS

Civil Military Joint Civil-Military

NOTES

All mileages are nautical.
 # Indicates central tower temporarily closed UFN.
 * Indicates a non-continuously operating facility, see A/FD or flight supplement.
 All radials, bearings are magnetic.
 All altitudes/elevations are in feet-MSL.
 MRA- Minimum Reception Altitude.
 MAA- Maximum Authorized Altitude.
 (NAME2.NAME) - Example of DP flight plan Computer Code.
 (NAME.NAME2) - Example of STAR flight plan Computer Code.
 SL-0000 (FAA) - Example of a chart reference number.
 ▼ Take-Off Minimums not standard and/or Departure Procedures are published.

LEGEND

99252

LEGEND 17.—Standard Arrival/Departure Charts.

95201

K1

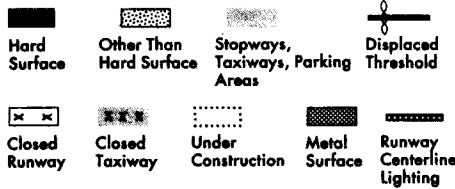
SW-1, 4 NOV 1999

LEGEND

INSTRUMENT APPROACH PROCEDURES (CHARTS)

AIRPORT DIAGRAM/AIRPORT SKETCH

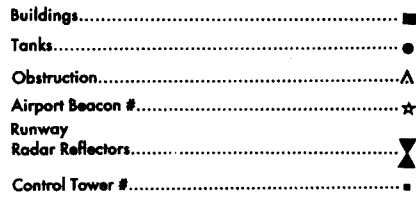
Runways



ARRESTING GEAR: Specific arresting gear systems; e.g., BAK-12, MA-1A etc., shown on airport diagrams, not applicable to Civil Pilots. Military Pilots Refer to Appropriate DOD Publications.



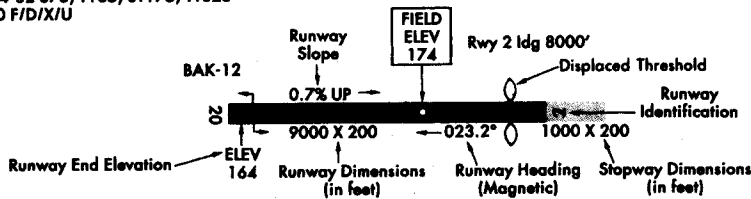
REFERENCE FEATURES



When Control Tower and Rotating Beacon are co-located, Beacon symbol will be used and further identified as TWR.

Runway length depicted is the physical length of the runway (end-to-end, including displaced thresholds if any) but excluding areas designated as stopways. Where a displaced threshold is shown and/or part of the runway is otherwise not available for landing, an annotation is added to indicate the landing length of the runway; e.g., RWY 13 ldg 5000'.

Runway Weight Bearing Capacity/or PCN Pavement Classification Number is shown as a codified expression. Refer to the appropriate Supplement/Directory for applicable codes, e.g., RWY 14-32 S75, T185, ST175, TT325 PCN 80 F/D/X/U



SCOPE

Airport diagrams are specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations and provide information for updating Computer Based Navigation Systems (i.e., INS, GPS) aboard aircraft. Airport diagrams are not intended to be used for approach and landing or departure operations. For revisions to Airport Diagrams: Consult FAA Order 7910.4B.

Helicopter Alighting Areas (H, H+, H-, H) and Negative Symbols used to identify Copter Procedures landing point.

Runway TDZ elevation.....TDZE 123
Runway Slope.....-0.3% DOWN
(shown when runway slope exceeds 0.3%)

NOTE: Runway Slope measured to midpoint on runways 8000 feet or longer.
U.S. Navy Optical Landing System (OLS) *OLS* location is shown because of its height of approximately 7 feet and proximity to edge of runway may create an obstruction for some types of aircraft.

Approach light symbols are shown in the Flight Information Handbook.

Airport diagram scales are variable. True/magnetic North orientation may vary from diagram to diagram.

Coordinate values are shown in 1 or 1/2 minute increments. They are further broken down into 6 second ticks, within each 1 minute increment.

Positional accuracy within ±600 feet unless otherwise noted on the chart.

NOTE: All new and revised airport diagrams are shown referenced to the World Geodetic System (WGS) (noted on appropriate diagram), and may not be compatible with local coordinates published in FLIP. (Foreign Only)

LEGE 95201

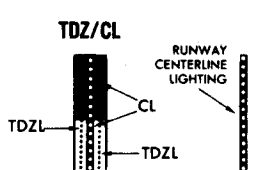
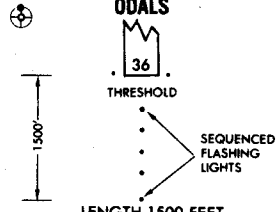
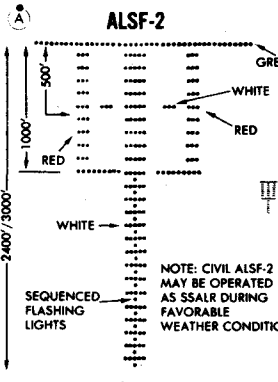
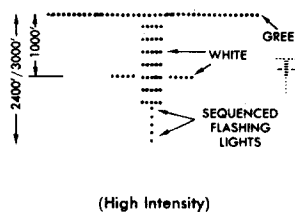
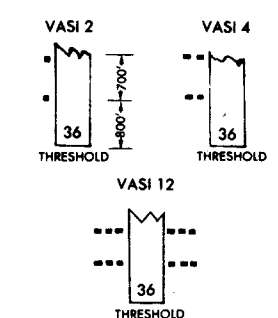
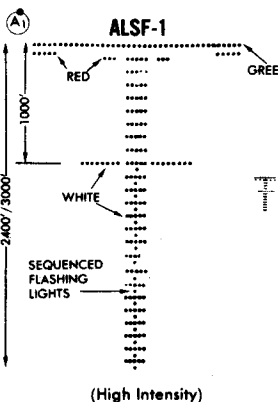
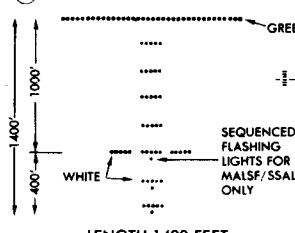
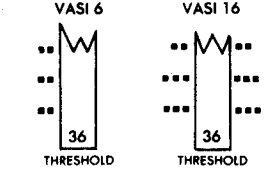
LEGEND 18.—Airport Diagram.

LEGEND

INSTRUMENT APPROACH LIGHTING SYSTEMS — (CHARTS) FEDERAL STATES

Each approach lighting system indicated on Airport Diagrams will bear a system identification indicated in legend.

A dot "•" portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g., (A)•. Negative symbology, e.g., (A)• indicates Pilot Controlled Lighting (PCL).

<p>RUNWAY TOUCHDOWN ZONE AND CENTERLINE LIGHTING SYSTEMS</p>  <p>TDZL, CL, TDZL, RUNWAY CENTERLINE LIGHTING</p> <p>AVAILABILITY of TDZ/CL will be shown by NOTE in SKETCH e.g. "TDZ/CL Rwy 15"</p>	<p>SHORT APPROACH LIGHTING SYSTEM</p> <p>(A)•</p> <p>SALS/SALSF (High Intensity)</p> <p>SAME AS INNER 1500' OF ALSF-1</p>	<p>OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM ODALS</p>  <p>THRESHOLD, SEQUENCED FLASHING LIGHTS, LENGTH 1500 FEET</p>
<p>APPROACH LIGHTING SYSTEM ALSF-2</p>  <p>GREEN, WHITE, RED, SEQUENCED FLASHING LIGHTS, LENGTH 2400/3000 FEET</p> <p>NOTE: CIVIL ALSF-2 MAY BE OPERATED AS SSALR DURING FAVORABLE WEATHER CONDITIONS</p>	<p>SIMPLIFIED SHORT APPROACH LIGHTING SYSTEM with Runway Alignment Indicator Lights</p> <p>(A)•</p> <p>SSALR</p>  <p>GREEN, WHITE, RED, SEQUENCED FLASHING LIGHTS, LENGTH 2400/3000 FEET</p>	<p>VISUAL APPROACH SLOPE INDICATOR VASI</p> <p>VISUAL APPROACH SLOPE INDICATOR WITH STANDARD THRESHOLD CLEARANCE PROVIDED.</p> <p>ALL LIGHTS RED — TOO HIGH FAR LIGHTS RED — ON GLIDE SLOPE NEAR LIGHTS WHITE ALL LIGHTS RED — TOO LOW</p>  <p>VASI 2, VASI 4, VASI 12, VASI 16</p>
<p>APPROACH LIGHTING SYSTEM ALSF-1</p>  <p>RED, WHITE, GREEN, SEQUENCED FLASHING LIGHTS, LENGTH 2400/3000 FEET</p>	<p>MEDIUM INTENSITY (MALS and MALSF) OR SIMPLIFIED SHORT (SSALS and SSALF) APPROACH LIGHTING SYSTEMS</p> <p>(A)•</p>  <p>GREEN, WHITE, RED, SEQUENCED FLASHING LIGHTS FOR MALSF/SSALF ONLY, LENGTH 1400 FEET</p>	<p>VISUAL APPROACH SLOPE INDICATOR VASI</p> <p>VISUAL APPROACH SLOPE INDICATOR WITH A THRESHOLD CROSSING HEIGHT TO ACCOMMODATE LONG BODIED OR JUMBO AIRCRAFT.</p>  <p>VASI 6, VASI 16</p>
<p>MEDIUM INTENSITY APPROACH LIGHTING SYSTEM with Runway Alignment Indicator Lights</p> <p>(A)•</p> <p>MALS</p> <p>SAME LIGHT CONFIGURATION AS SSALR.</p>		

LEGEND
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L1

SW-1, 4 NOV 1999

LEGEND 19.—Approach Lighting Systems.

SC-1, 24 FEB 2000

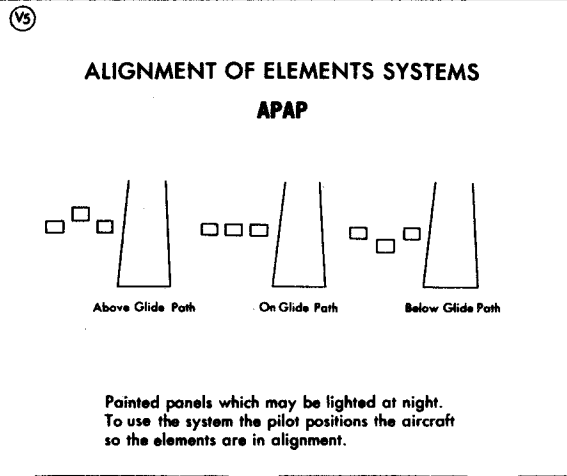
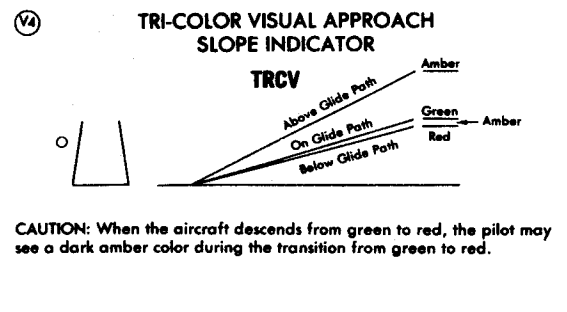
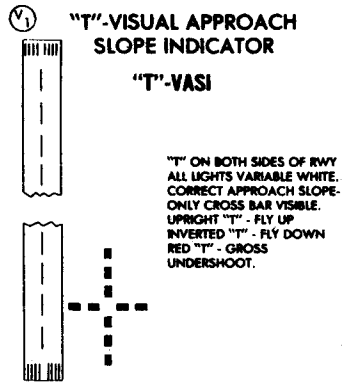
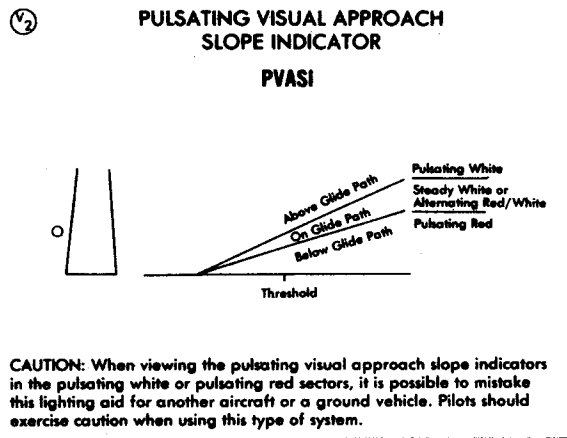
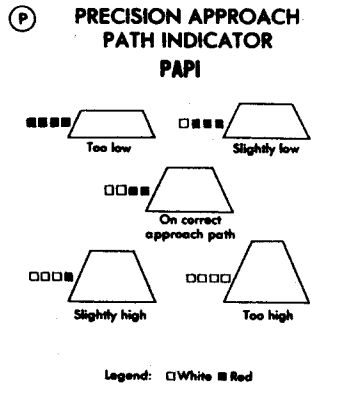
L2

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LEGEND

INSTRUMENT APPROACH PROCEDURES (CHARTS)
APPROACH LIGHTING SYSTEM — UNITED STATES

Each approach lighting system indicated on Airport Diagrams will bear a system identification indicated in legend.

A dot "•" portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g., (A) Negative symbology, e.g., (•) indicates Pilot Controlled Lighting (PCL).



LEGEND
95033

LEGEND 20.—Approach Lighting System.

RATE OF DESCENT TABLE

A rate of descent table is provided for use in planning and executing precision 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.

ANGLE OF DESCENT (degrees and tenths)	FEET /NM	GROUND SPEED (knots)										
		30	45	60	75	90	105	120	135	150	165	180
2.0	210	105	160	210	265	320	370	425	475	530	585	635
2.5	265	130	200	265	330	395	465	530	595	665	730	795
2.7	287	143	215	287	358	430	501	573	645	716	788	860
2.8	297	149	223	297	371	446	520	594	669	743	817	891
2.9	308	154	231	308	385	462	539	616	693	769	846	923
3.0	318	159	239	318	398	478	557	637	716	796	876	955
3.1	329	165	247	329	411	494	576	658	740	823	905	987
3.2	340	170	255	340	425	510	594	679	764	849	934	1019
3.3	350	175	263	350	438	526	613	701	788	876	963	1051
3.4	361	180	271	361	451	541	632	722	812	902	993	1083
3.5	370	185	280	370	465	555	650	740	835	925	1020	1110
4.0	425	210	315	425	530	635	740	845	955	1060	1165	1270
4.5	475	240	355	475	595	715	835	955	1075	1190	1310	1430
5.0	530	265	395	530	660	795	925	1060	1190	1325	1455	1590
5.5	580	290	435	580	730	875	1020	1165	1310	1455	1600	1745
6.0	635	315	475	635	795	955	1110	1270	1430	1590	1745	1950
6.5	690	345	515	690	860	1030	1205	1375	1550	1720	1890	2065
7.0	740	370	555	740	925	1110	1295	1480	1665	1850	2035	2220
7.5	795	395	595	795	990	1190	1390	1585	1785	1985	2180	2380
8.0	845	425	635	845	1055	1270	1480	1690	1905	2115	2325	2540
8.5	900	450	675	900	1120	1345	1570	1795	2020	2245	2470	2695
9.0	950	475	715	950	1190	1425	1665	1900	2140	2375	2615	2855
9.5	1005	500	750	1005	1255	1505	1755	2005	2255	2510	2760	3010
10.0	1055	530	790	1055	1320	1585	1845	2110	2375	2640	2900	3165
10.5	1105	555	830	1105	1385	1660	1940	2215	2490	2770	3045	3320
11.0	1160	580	870	1160	1450	1740	2030	2320	2610	2900	3190	3480
11.5	1210	605	910	1210	1515	1820	2120	2425	2725	3030	3335	3635
12.0	1260	630	945	1260	1575	1890	2205	2520	2835	3150	3465	3780

DESCENT TABLE 99028

LEGEND 21.—Instrument Approach Procedure Charts, Rate-of-Descent Table.

INOP COMPONENTS

99084

INOPERATIVE COMPONENTS OR VISUAL AIDS TABLE

Landing minimums published on instrument approach procedure charts are based upon full operation of all components and visual aids associated with the particular instrument 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 glide slope inoperative minimums are published on the instrument approach charts as localizer minimums. This table may be amended by notes on the approach chart. Such notes apply only to the particular approach category(ies) as stated. See legend page for description of components indicated below.

(1) ILS, MLS, and PAR

Inoperative Component or Aid	Approach Category	Increase Visibility
ALSF 1 & 2, MALSR, & SSALR	ABCD	1/4 mile

(2) ILS with visibility minimum Of 1,800 RVR

ALSF 1 & 2, MALSR, & SSALR	ABCD	To 4000 RVR
TDZL RCLS RVR	ABCD ABCD	To 2400 RVR To 1/2 mile

(3) VOR, VOR/DME, VORTAC, VOR (TAC), VOR/DME (TAC), LOC, LOC/DME, LDA, LDA/DME, SDF, SDF/DME, GPS, RNAV, and ASR

Inoperative Visual Aid	Approach Category	Increase Visibility
ALSF 1 & 2, MALSR, & SSALR	ABCD	1/2 mile
SSALS, MALS, & ODALS	ABC	1/4 mile

(4) NDB

ALSF 1 & 2, MALSR, & SSALR	C	1/2 mile
MALS, SSALS, ODALS	ABD ABC	1/4 mile 1/4 mile

CORRECTIONS, COMMENTS AND/OR PROCUREMENT

**FOR CHARTING
ERRORS CONTACT:**
National Ocean Service/NOAA
N/ACC1, SSMC-4, Sta. #2335
1305 East-West Highway
Silver Spring, MD 20910-3281
Telephone Toll-Free (800) 626-3677
Internet/E-Mail: Aerochart@NOAA.GOV

**FOR CHANGES, ADDITIONS, OR
RECOMMENDATIONS ON
PROCEDURAL ASPECTS:**
Contact Federal Aviation Administration, ATA 110
800 Independence Avenue, SW
Washington, DC 20591
Telephone Toll Free (800) 457-6656

**TO PURCHASE
CHARTS CONTACT:**
National Ocean Service
NOAA, N/ACC3
Distribution Division
Riverdale, MD 20737
Telephone Toll Free (800) 638-8972

Requests for the creation or revisions to Airport Diagrams should be in accordance with FAA Order 7910.4B.

LEGEND 22.—Inoperative Components or Visual Aids Table.

L-13
PANELS
ABCD
1"=12 NM

L-14
PANELS
EFGH
1"=12 NM

UNITED STATES GOVERNMENT
FLIGHT INFORMATION PUBLICATION
IFR ENROUTE LOW ALTITUDE - U.S.
For use up to but not including 18,000' MSL
HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983

L E G E N D

AIRPORTS

Airports/Seaplane bases shown in BLUE and GREEN have an approved Low Altitude Instrument Approach Procedure published. Those in BLUE have an approved DOD Low Altitude Instrument Approach Procedure and/or DOD RADAR MINIMA published in DOD FLIPS or Alaska Terminal. Airports/Seaplane bases shown in BROWN do not have a published Instrument Approach Procedure.

<p>LAND</p> <ul style="list-style-type: none"> ◊ ◊ ◊ Civil ◊ ◊ ◊ Civil - Military ● ● ● Military ⊙ ⊙ ⊙ Heliport <p>SEA</p> <ul style="list-style-type: none"> ◊ ◊ ◊ Civil ◊ ◊ ◊ Civil - Military ● ● ● Military 	<ol style="list-style-type: none"> 1. Parentheses around airport name indicates no military landing rights available (U.S. only) 2. A solid line box enclosing the airport name indicates FAR 93 Special Requirements - see Directory/Supplement 3. "NO SVFR" above the airport name indicates FAR 91 fixed-wing special VFR flight is prohibited 4. Pvt - Private use 5. or following the airport name indicates Class C or Class D Airspace
--	---

<p>1. Part-time or established by NOTAM. See A/G tabulation for times of operation. In Alaska see Supplement Alaska</p>	<p>2. Longest runway length to nearest 100 feet with 70 feet as the dividing point (add 00) s indicates soft surface</p>
---	--

<p>Lighting available - No lighting available</p>	<p> Pilot Controlled Lighting Part-time or on request</p>
---	---

Airport Example: **(Airport Name) ***

Airport Elevation: 280 * 43s
Frequency: (A) *109.8

Automatic Terminal Information Service: Part-time
Lighting Capability: s

NAVAIDS AND COMMUNICATION BOXES

NAVAIDS

VHF/UHF Data is depicted in BLACK
LF/MF Data is depicted in BROWN

COMPASS ROSES Oriented to Magnetic North of NAVAID which may not be adjusted to the charted isogonic values. Smaller sizes are used in congested areas.

VORTAC VOR VOR/DME TACAN

LF/MF Non-directional Radiobeacon or Marine Radiobeacon with magnetic north indicator

UHF Non-directional Radiobeacon

NOB/DME

Compass Locator Beacon

Flight Service Station (FSS)
Remote Communications Outlet (RCO)

ILS Localizer Course with additional navigation function

COMMUNICATION BOXES

CHECK NOTAMS

PINE BLUFF (T)

116.0 PBF 80(Y)

N34°14.81' W91°55.57'

VOR with TACAN compatible DME
Underline indicates No Voice Transmitted on this frequency

TACAN channels are without voice but not underlined

 Overprint of affected data indicates Abnormal Status, i.e. CHECK NOTAMS/DIRECTORY

(T) Frequency protection usable range at 12,000' AGL - 25NM

(Y) TACAN must be placed in 'Y' mode to receive distance information

(A) ASOS/AWOS - Automated Surface Observing Stations; Automated Weather Observing Station

(H) HIWAS - Hazardous Inflight Weather Advisory Service

(T) TWEB - Transcribed Weather Broadcast

Automated weather, when available, is broadcast on the associated NAVAID frequency.

Part-time or On-Request

MALVERN

*215 MVQ 48 (11.1)

NDB with DME
DME channel and paired VHF frequency are shown

123.6 122.1R

HARRISON

112.5 HRO 72

N36°19.10' W93°12.80'

FSS associated with a NAVAID

123.6 122.65

EL DORADO ELD

Name and identifier of FSS not associated with NAVAID

122.55

JONESBORO 122.55

Remote Communications Outlet (RCO)
FSS name and remoted frequency are shown

SHADOW BOXES indicate Flight Service Stations (FSS). Frequencies 122.2, 255.4 and emergency 121.5 and 243.0 are normally available at all FSS's and are not shown. All other frequencies are shown. Certain FSSs provide Local Airport Advisory (LAA) on 123.6. Frequencies transmit and receive except those followed by R or T: R - Receive only T - Transmit only

122.6

PINE BLUFF

116.0 PBF 107

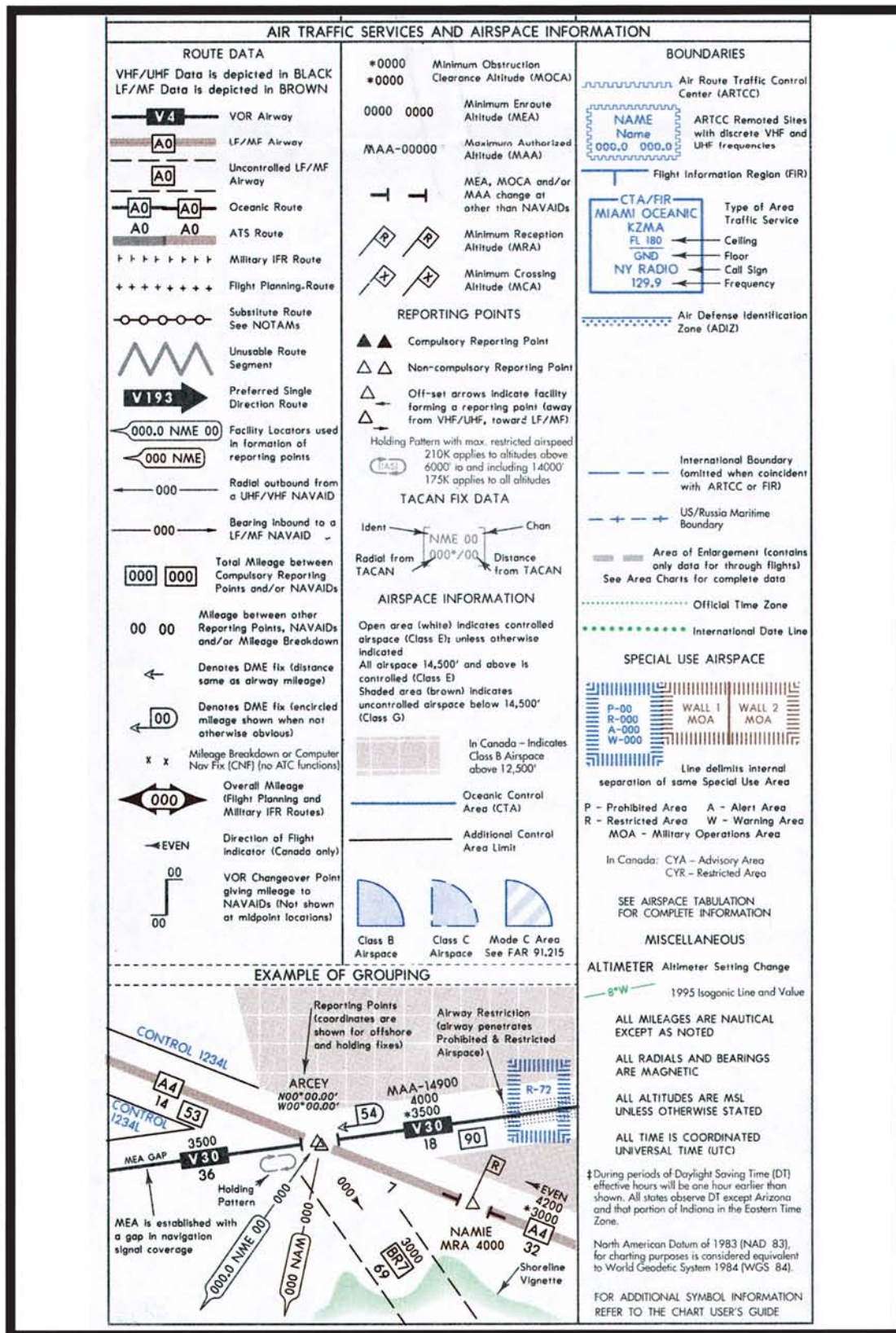
N34°14.81' W91°55.57'

Controlling FSS Name: **JONESBORO**

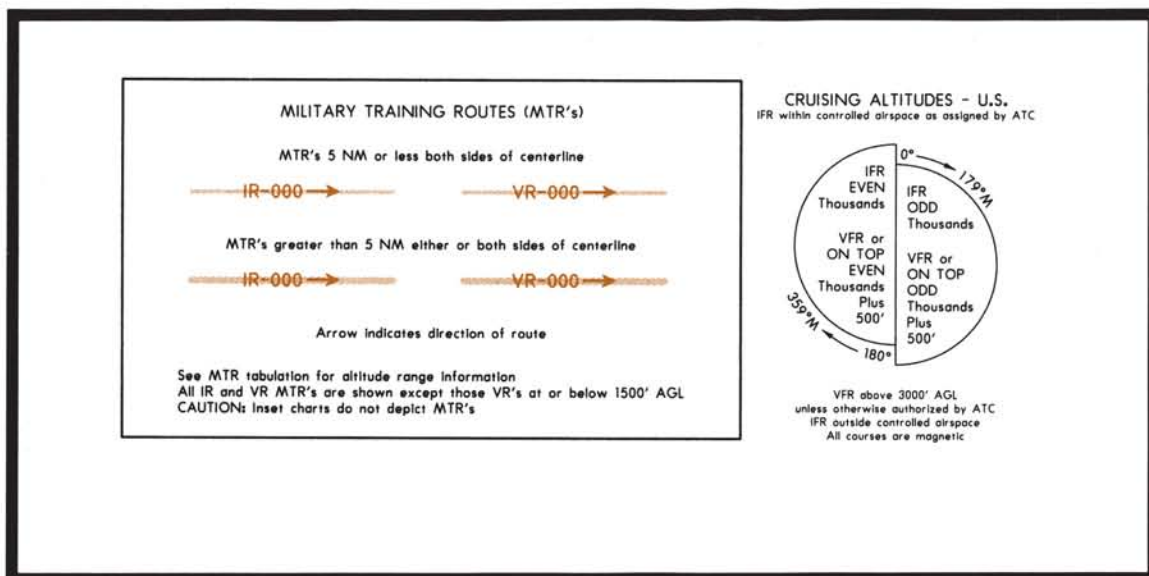
Frequencies positioned above thin line NAVAID boxes are remoted to the NAVAID site. Other frequencies at the controlling FSS named are available, however, altitude and terrain may determine their reception.

Thin line NAVAID boxes without frequencies and controlling FSS name indicates no FSS frequencies available

LEGEND 23.—IFR En Route Low Altitude (U.S.).



LEGEND 24.—IFR En Route Low Altitude (U.S.).



LEGEND 25.—IFR En Route Low Altitude (U.S.).

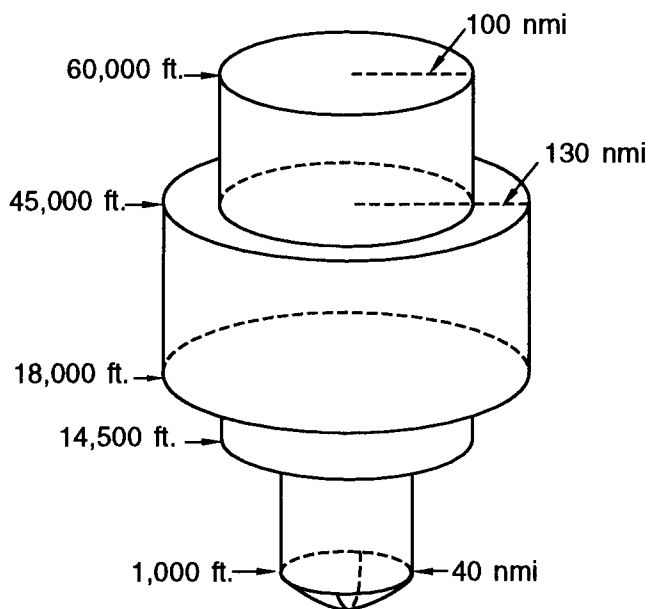
AIRCRAFT EQUIPMENT SUFFIXES

Suffix	Aircraft Equipment Suffixes
	NO DME
/X	No transponder
/T	Transponder with no Mode C
/U	Transponder with Mode C
	DME
/D	No transponder
/B	Transponder with no Mode C
/A	Transponder with Mode C
	TACAN ONLY
/M	No transponder
/N	Transponder with no Mode C
/P	Transponder with Mode C
	AREA NAVIGATION (RNAV)
/Y	LORAN, VOR/DME, or INS with no transponder
/C	LORAN, VOR/DME, or INS, transponder with no Mode C
/I	LORAN, VOR/DME, or INS, transponder with Mode C
	ADVANCED RNAV WITH TRANSPONDER AND MODE C (If an aircraft is unable to operate with a transponder and/or Mode C, it will revert to the appropriate code listed above under Area Navigation.)
/E	Flight Management System (FMS) with en route, terminal, and approach capability. Equipment requirements are: (a) Dual FMS which meets the specifications of AC 25-15, Approval of Flight Management Systems in Transport Category Airplanes; AC 20-129, Airworthiness Approval of Vertical Navigation (VNAV) Systems for use in the U.S. NAS and Alaska; AC 20-130A, Airworthiness Approval of Navigation or Flight Management Systems Integrating Multiple Navigation Sensors; or equivalent criteria as approved by Flight Standards. (b) A flight director and autopilot control system capable of following the lateral and vertical FMS flight path. (c) At least dual inertial reference units (IRU's). (d) A database containing the waypoints and speed/altitude constraints for the route and/or procedure to be flown that is automatically loaded into the FMS flight plan. (e) An electronic map. (U.S. and U.S. territories only unless otherwise authorized.)
/F	A single FMS with en route, terminal, and approach capability that meets the equipment requirements of /E, (a) through (d), above. (U.S. and U.S. territories only unless otherwise authorized.)
/G	Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) equipped aircraft with en route and terminal capability
/R	Required Navigational Performance (Denotes capability to operate in RNP designated airspace and routes)
/W	Reduced Vertical Separation Minima (RVSM)

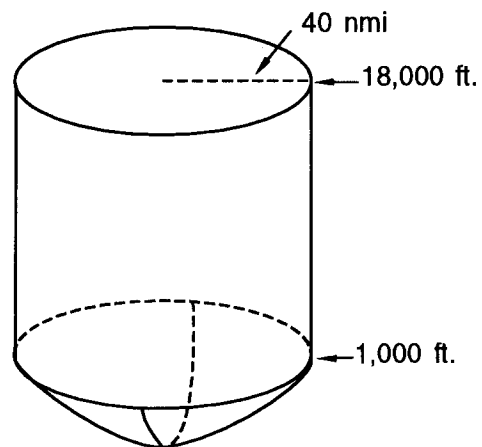
LEGEND 26.—Aircraft Equipment Suffixes.

AIR NAVIGATION RADIO AIDS

STANDARD HIGH ALTITUDE SERVICE VOLUME

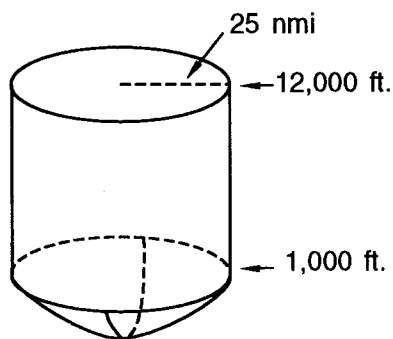


STANDARD LOW ALTITUDE SERVICE VOLUME

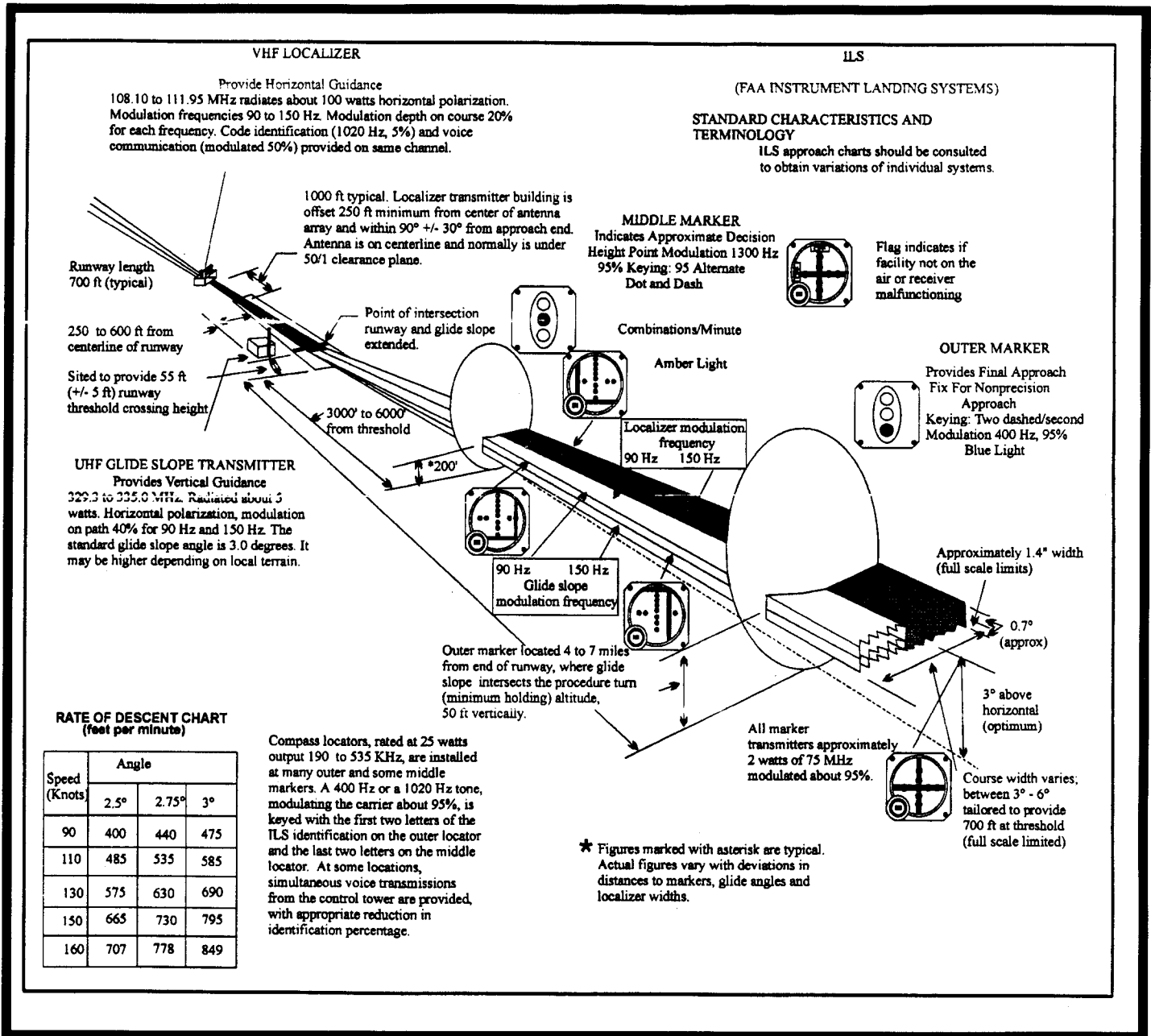


NOTE: All elevations shown are with respect to the station's site elevation (AGL). Coverage is not available in a cone of airspace directly above the facility.

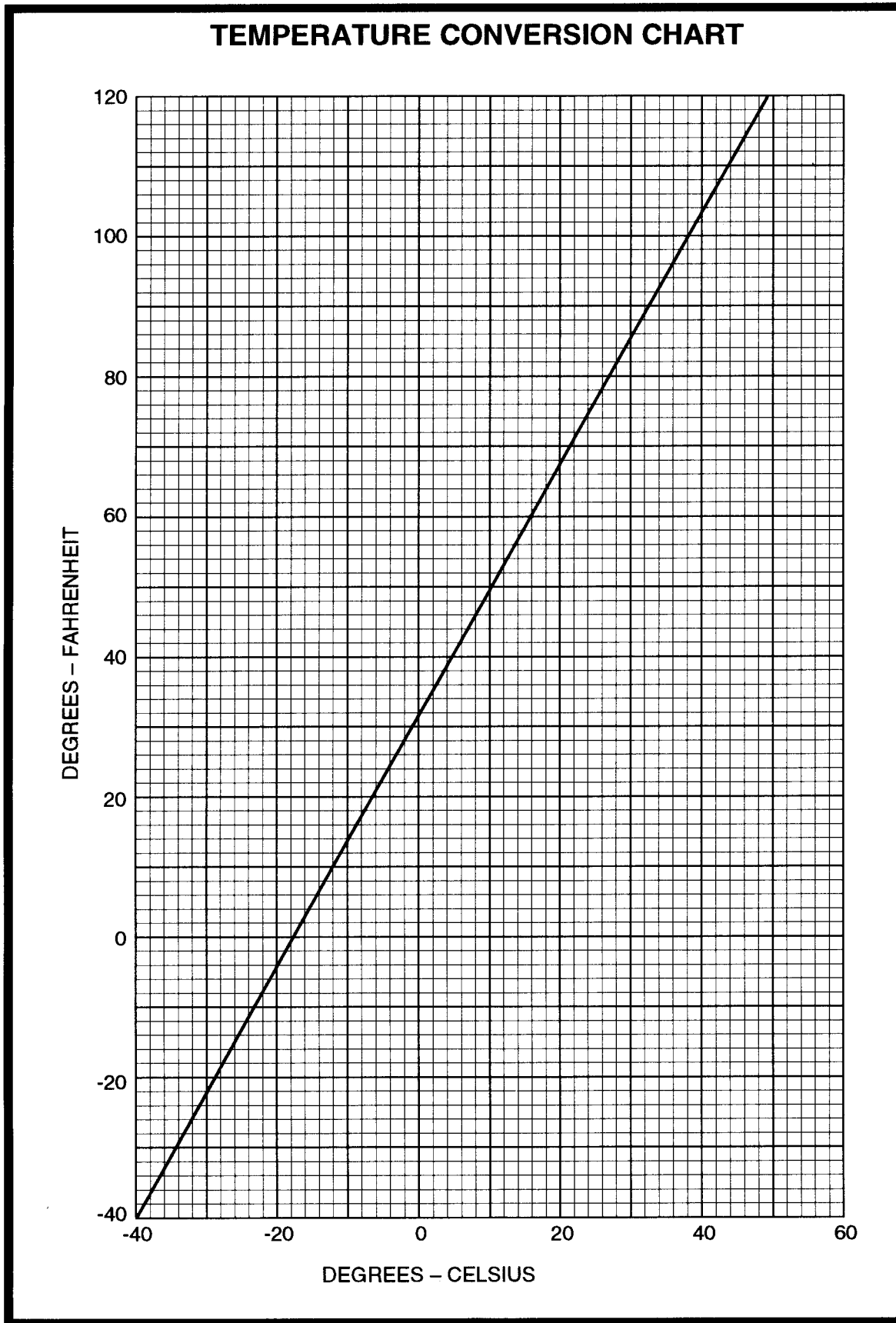
STANDARD TERMINAL SERVICE VOLUME



LEGEND 27.—Air Navigation Radio Aids.



LEGEND 28.—ILS Standard Characteristics and Terminology.



LEGEND 29.—Temperature Conversion Chart.

APPENDIX 2

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY)		<input type="checkbox"/> PILOT BRIEFING	<input type="checkbox"/> VNR	TIME STARTED	SPECIALIST INITIALS	
				<input type="checkbox"/> STOPOVER				
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED KTS	5. DEPARTURE POINT		6. DEPARTURE TIME		7. CRUISING ALTITUDE
VFR						PROPOSED (Z)	ACTUAL (Z)	
IFR								
DVFR								
8. ROUTE OF FLIGHT								
9. DESTINATION (Name of airport and city)			10. EST. TIME ENROUTE		11. REMARKS			
			HOURS	MINUTES				
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE			15. NUMBER ABOARD	
HOURS	MINUTES							
				17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)				
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.						
FAA Form 7233-1 (8-82)		CLOSE VFR FLIGHT PLAN WITH _____					FSS ON ARRIVAL	

FIGURE 1.—Flight Plan.

VALID 141200Z FOR USE 0900-1500Z. TEMPS NEG ABV 24000									
FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
EMI	2807	2715-07	2728-10	2842-13	2867-21	2891-30	751041	771150	780855
ALB	0210	9900-07	2714-09	2728-12	2656-19	2777-28	781842	760150	269658
PSB		1509+04	2119+01	2233-04	2262-14	2368-26	781939	760850	780456
STL	2308	2613+02	2422-03	2431-08	2446-19	2461-30	760142	782650	760559

FIGURE 2.—Winds and Temperatures Aloft Forecast.

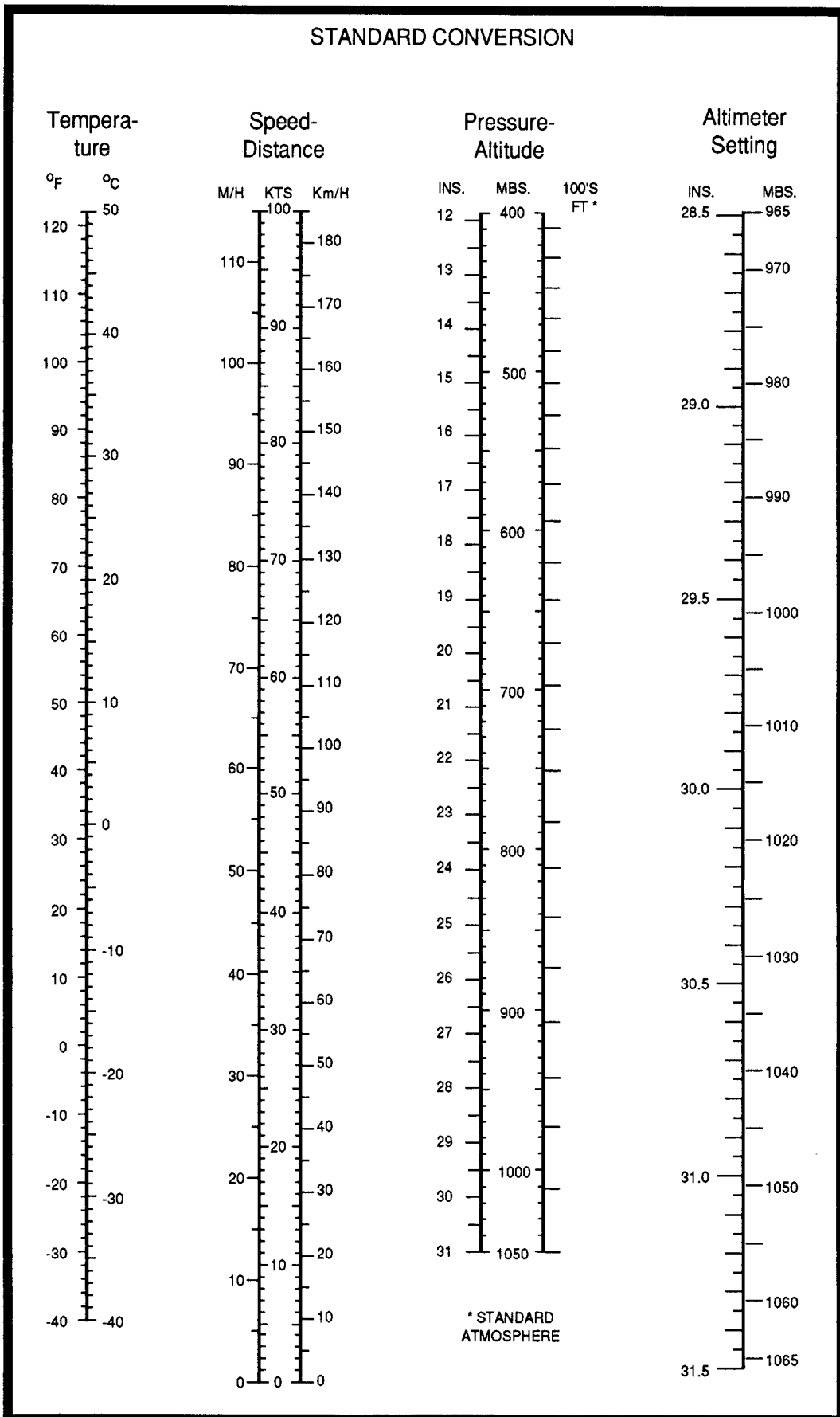


FIGURE 3.—Standard Conversion Chart.

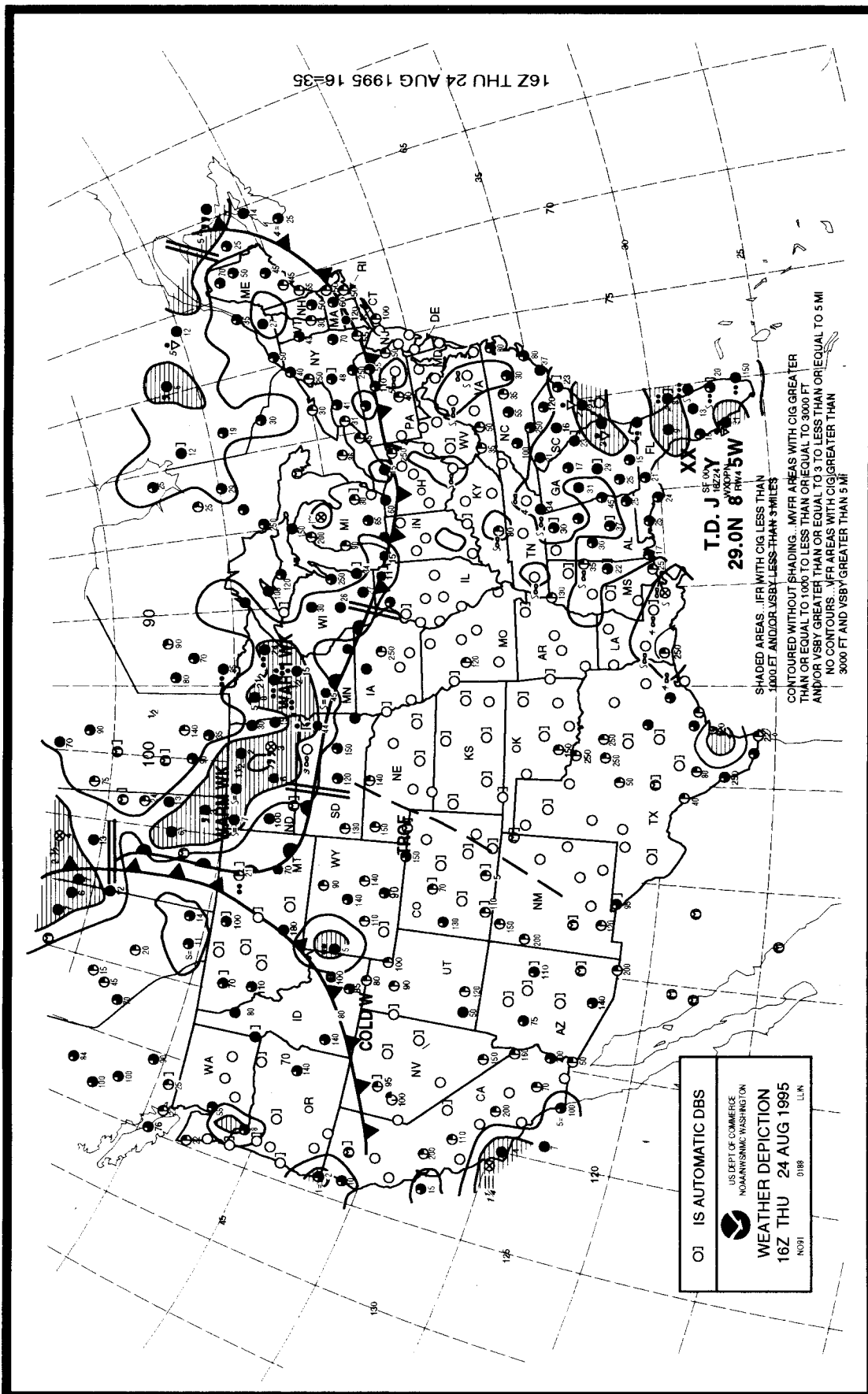


FIGURE 4.—Weather Depiction Chart.

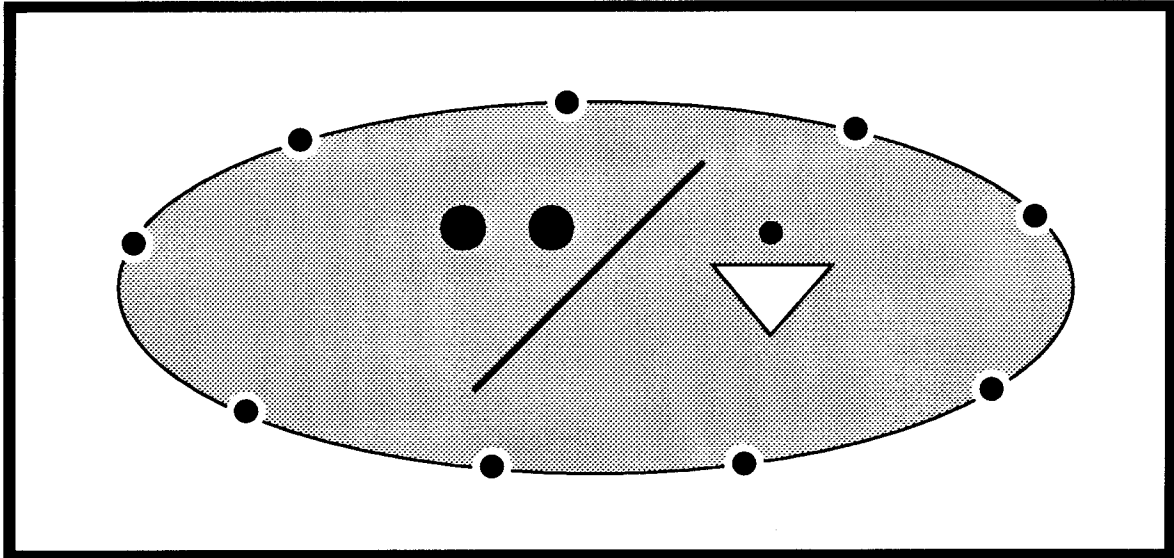


FIGURE 5.—Symbol Used on Low-Level Significant Weather Prognostic Chart.

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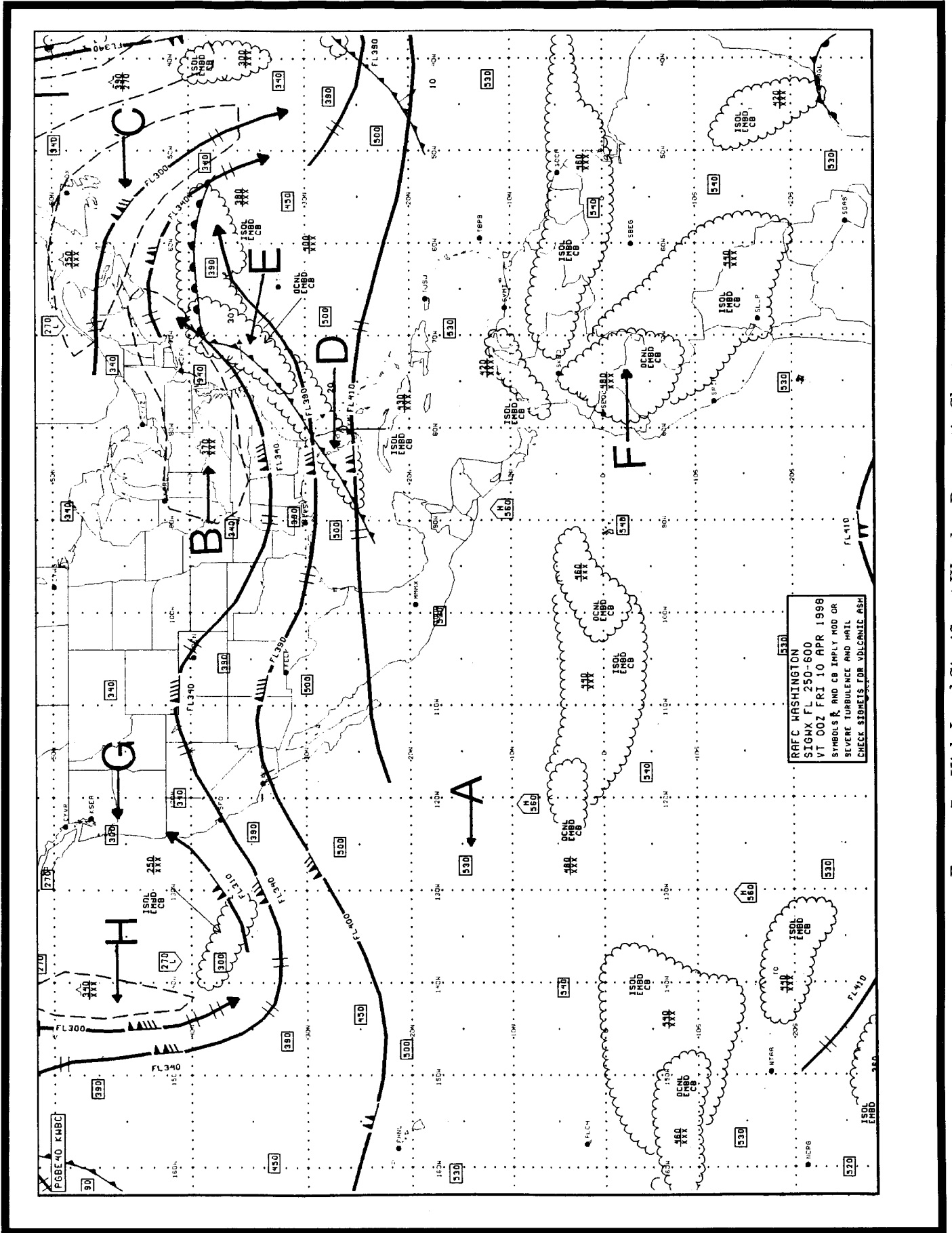


FIGURE 7.—High-Level Significant Weather Prognostic Chart.

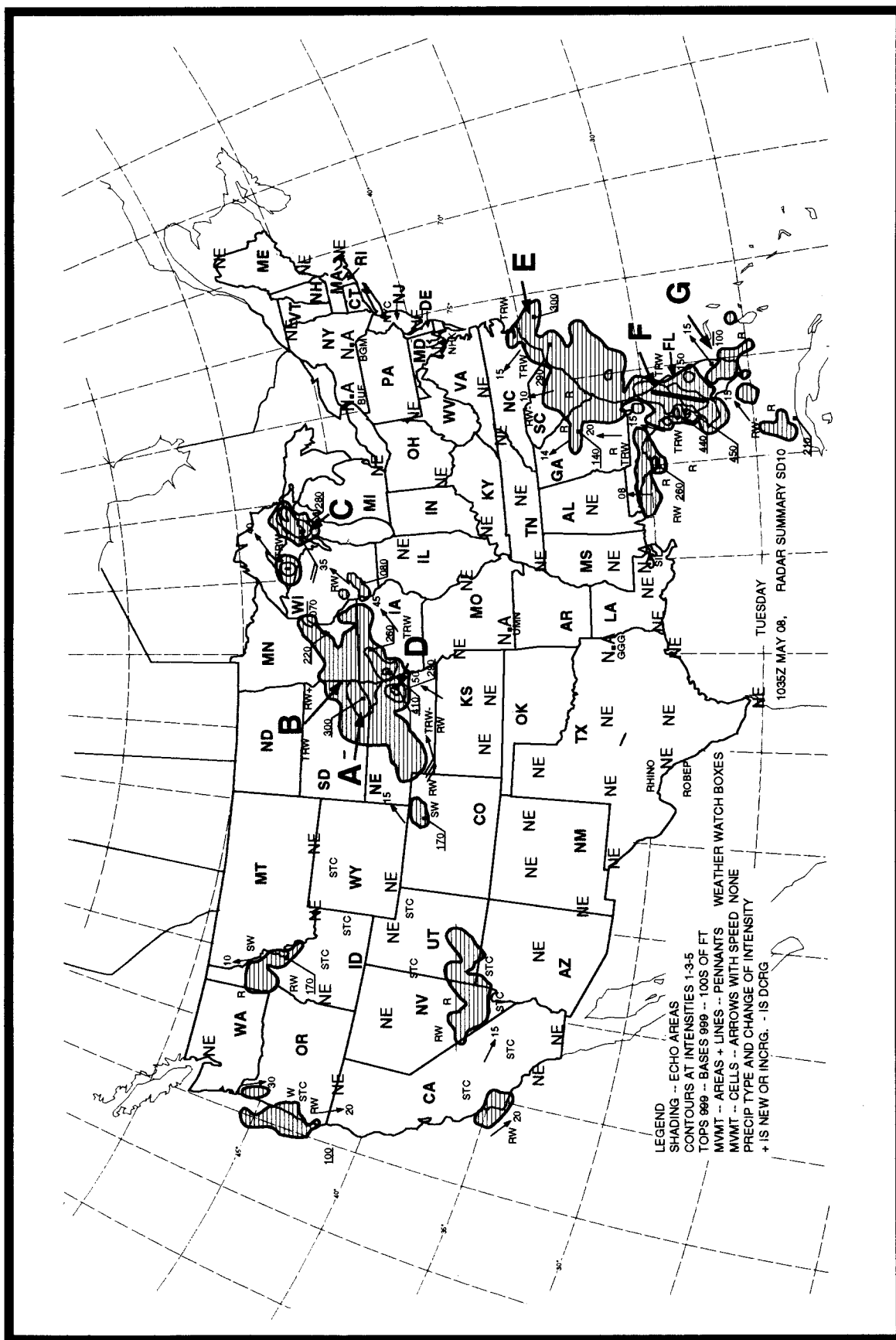


FIGURE 8.—Radar Summary Chart.

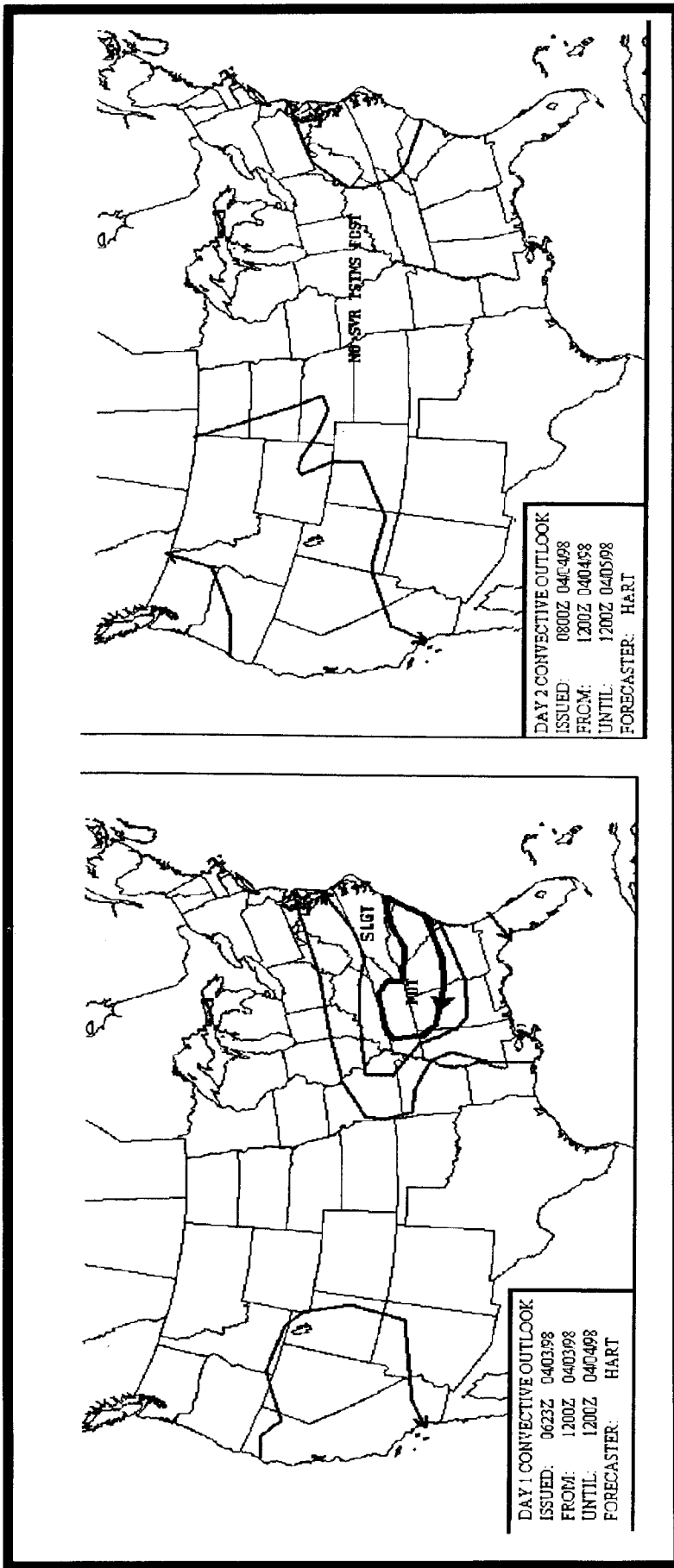


FIGURE 9.—Severe Weather Outlook Charts.

FIGURE 10.—Deleted.

FIGURE 11.—Deleted.

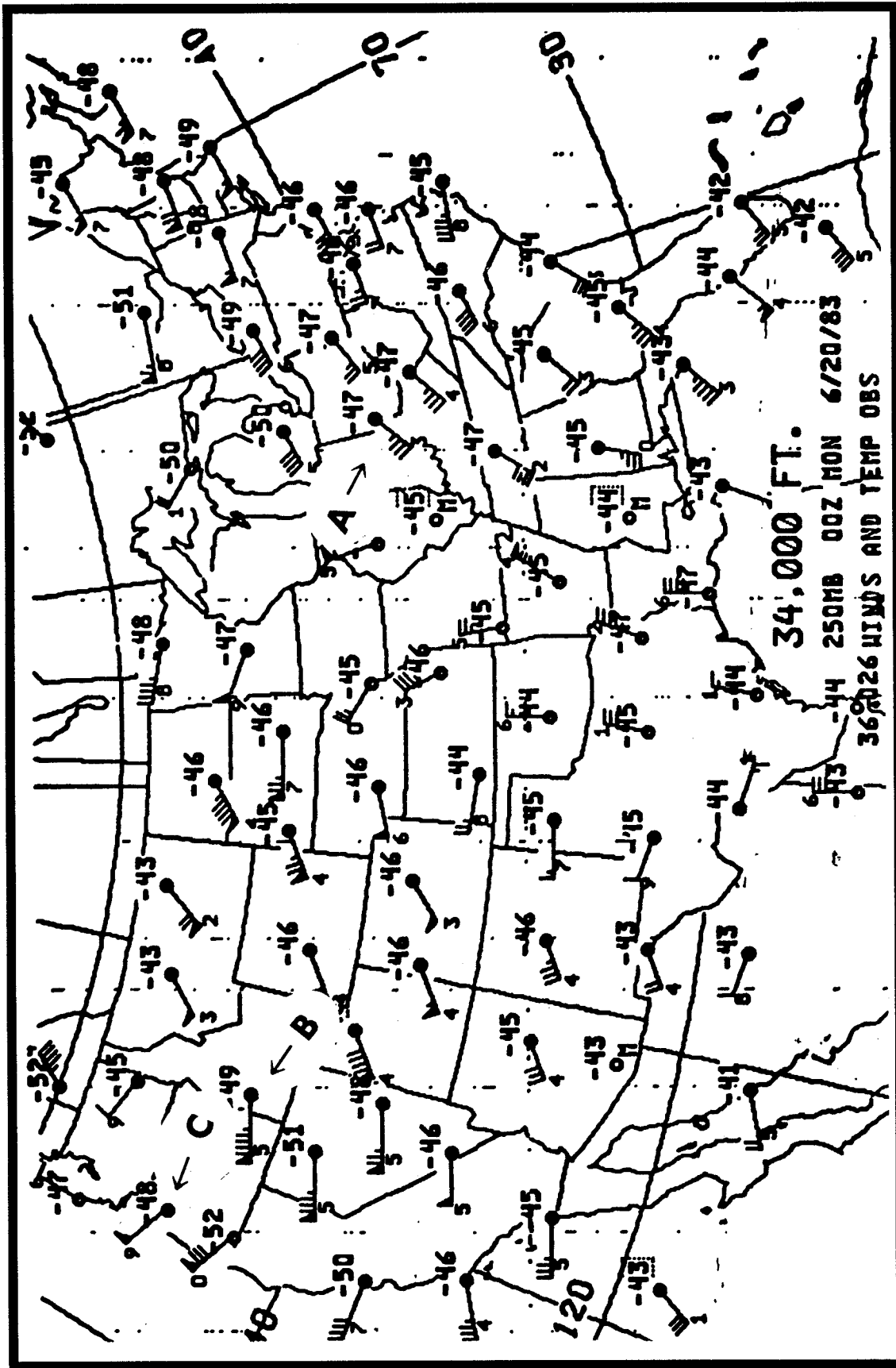


FIGURE 12.—Observed Winds Aloft for 34,000 Feet.

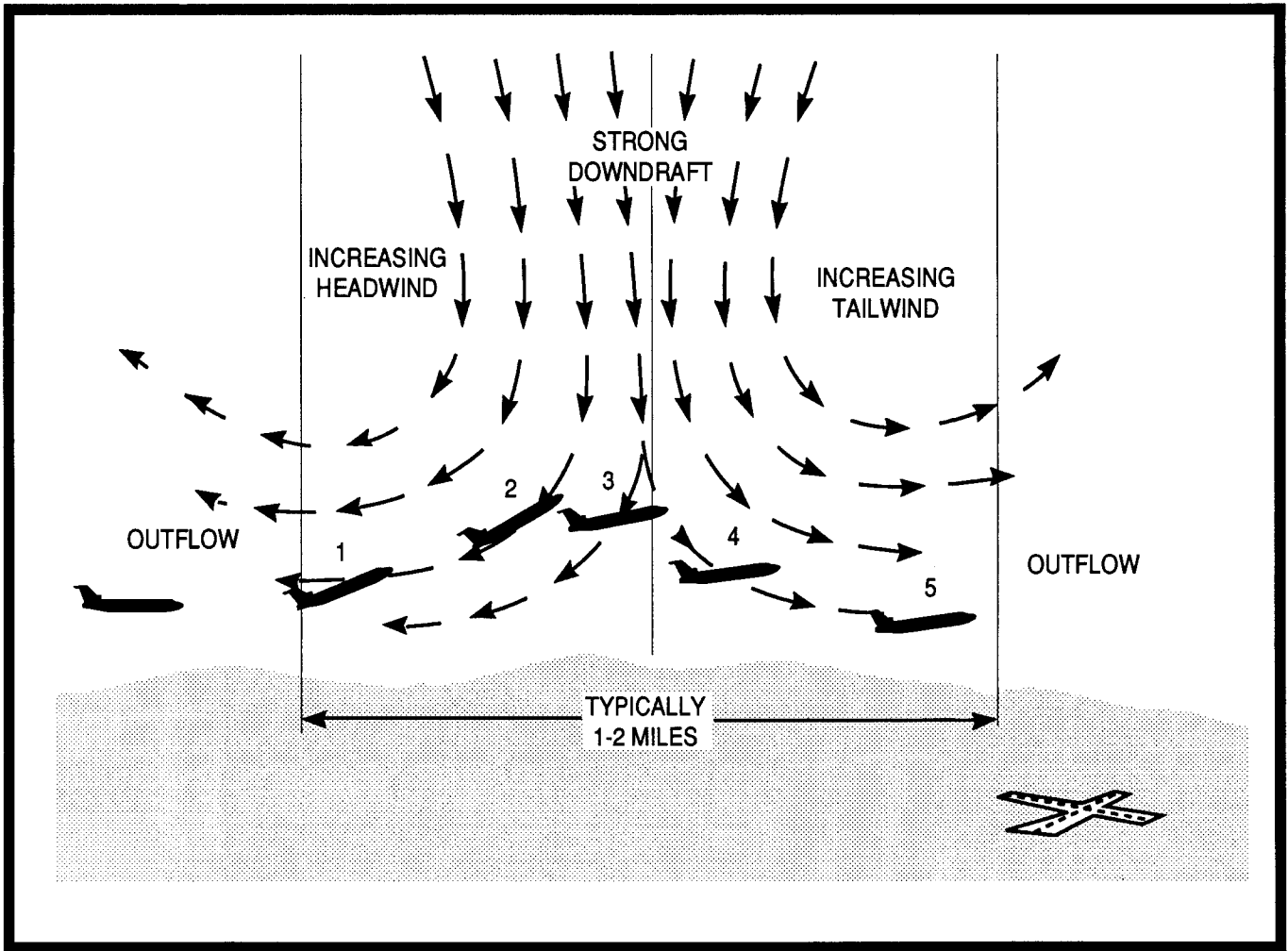


FIGURE 13.—Microburst Section Chart.

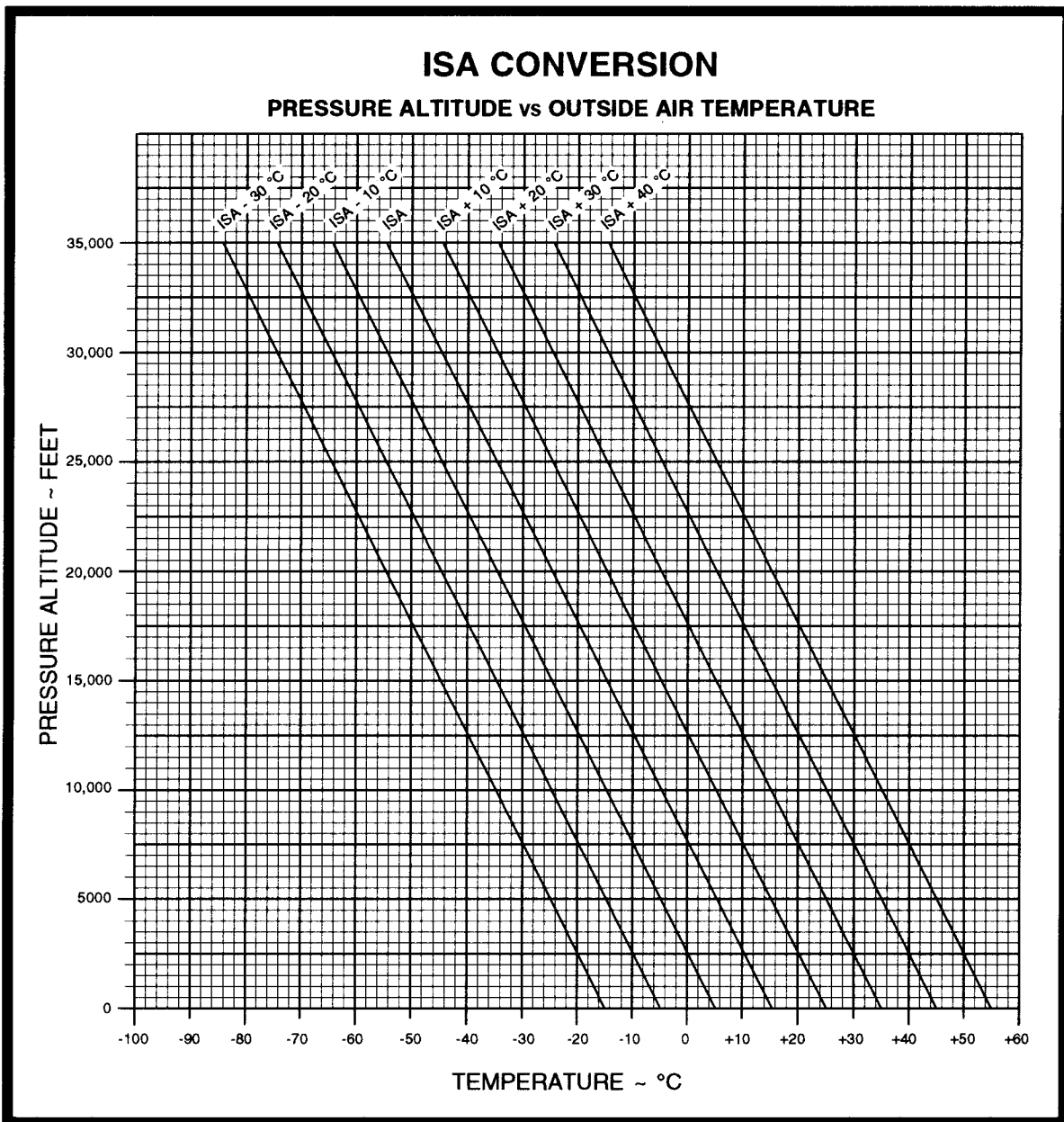


FIGURE 14.—ISA Conversion Chart.

FIGURE 15.—Deleted.

FIGURE 16.—Deleted.

FIGURE 17.—Deleted.

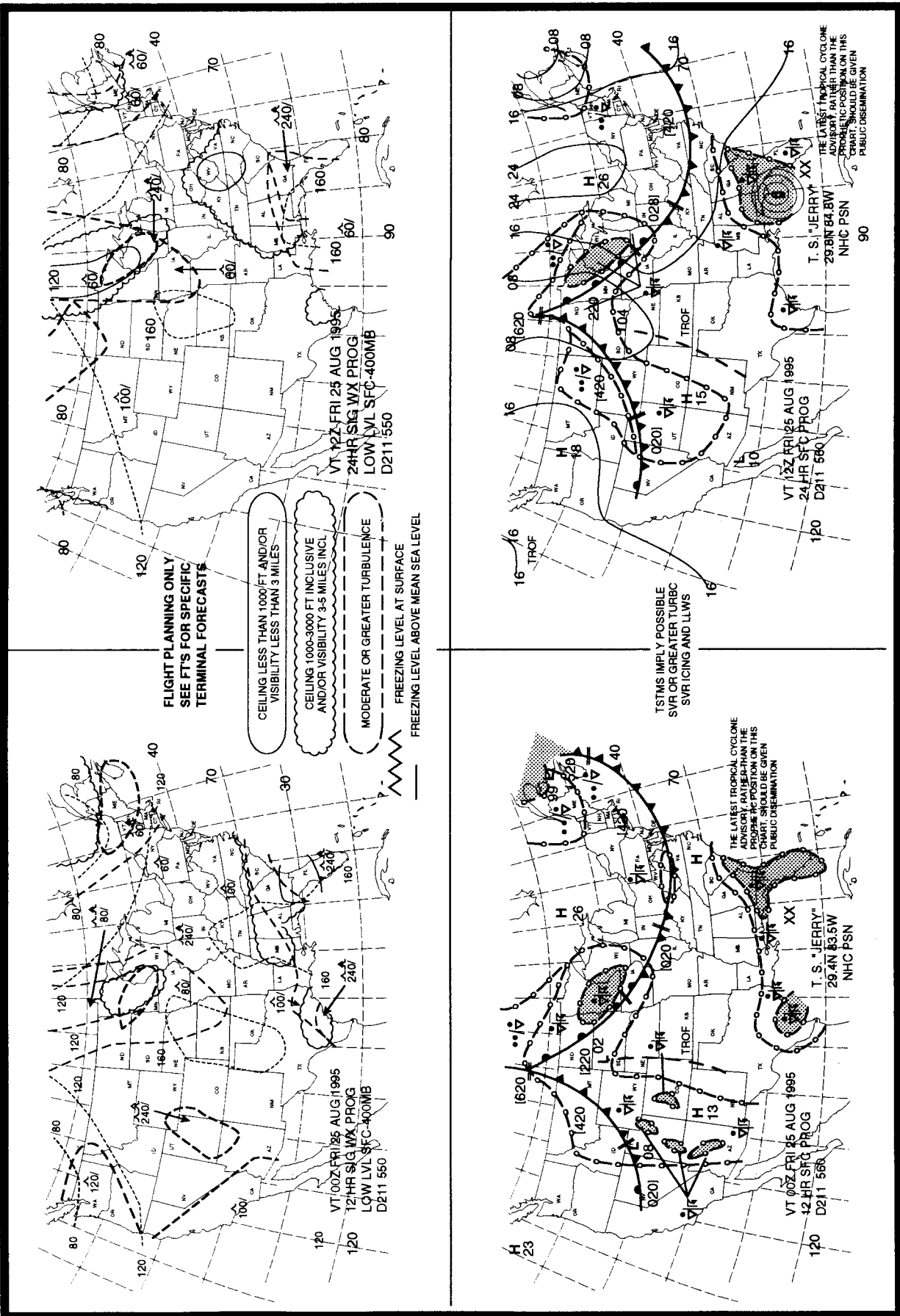


FIGURE 18.—U.S. Low-Level Significant Weather Prognostic Charts.

FIGURE 19.—Deleted.

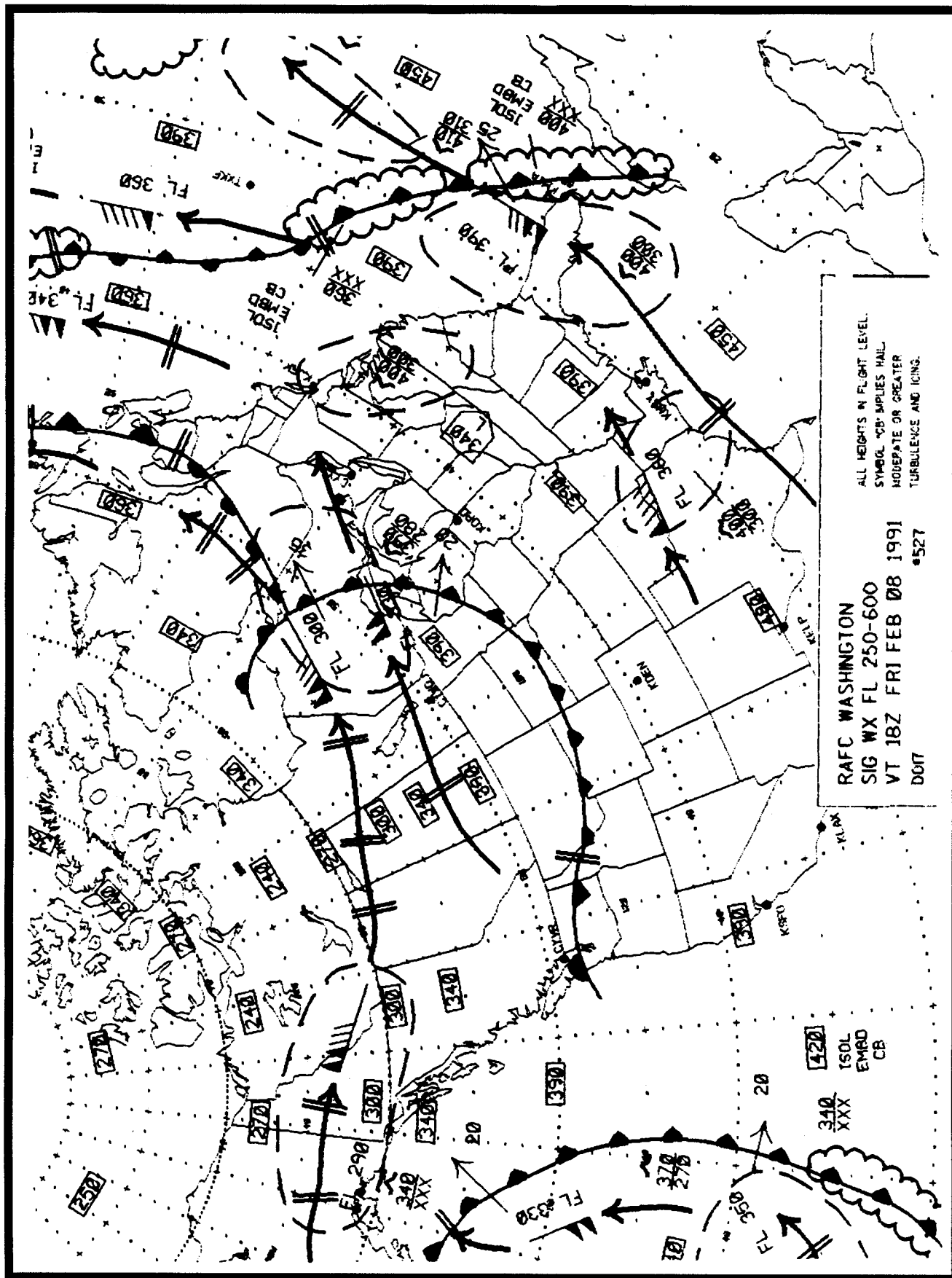


FIGURE 20.—High-Level Significant Weather Prognostic Chart.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY)		<input type="checkbox"/> PILOT BRIEFING	<input type="checkbox"/> VNR	TIME STARTED	SPECIALIST INITIALS
				<input type="checkbox"/> STOPOVER			
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
<input type="checkbox"/> VFR	N 123RC	T210N/	175 KTS	GJT	PROPOSED (Z)	ACTUAL (Z)	15,000
X IFR							
DVFR							
8. ROUTE OF FLIGHT JNC9, JNC, V187, MANCA, V211							
9. DESTINATION (Name of airport and city) DRO		10. EST. TIME ENROUTE		11. REMARKS			
		HOURS	MINUTES				
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD	
HOURS	MINUTES	GJT				2	
4	30			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			
16. COLOR OF AIRCRAFT RED/WHITE/BLUE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Cessna MODEL T210N
N 123RC Vso 58

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NØ. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 21.—Flight Plan and Aircraft Information.

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER			TIME STARTED	SPECIALIST INITIALS
1. TYPE <input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR	2. AIRCRAFT IDENTIFICATION N 123RC	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT T210N/	4. TRUE AIRSPEED 175 KTS	5. DEPARTURE POINT DRO	6. DEPARTURE TIME PROPOSED (Z) ACTUAL (Z)	7. CRUISING ALTITUDE 16,000
8. ROUTE OF FLIGHT V211, MANCA, V187, HERRM, V187, JNC						
9. DESTINATION (Name of airport and city) GJT		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		15. NUMBER ABOARD 2
18. COLOR OF AIRCRAFT RED/WHITE/BLUE		CIVIL AIRCRAFT PILOTS: FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Cessna MODEL T210N
 N 123RC Vso 58_____

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 21A.—Flight Plan and Aircraft Information.

FLIGHT LOG													
GRAND JUNCTION (GJT) TO DURANGO (DRO)													
CHECK POINTS		ROUTE		COURSE	WIND		SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE			TEMP	TAS	GS	LEG		TOT	LEG	TOT	
GJT	JNC	JNC9JNC			230 08								
		CLIMB											
		V187											
	HERRM	15,000	151°			175				:24:0			
		V187											
	MANCA		151°										
	APPROACH & LANDING	V211											
		DESENT	092°							:18:30			
	DRO												

<p>OTHER DATA: NOTE: TAKEOFF RUNWAY 29. MAG VAR, 14° E.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">FLIGHT SUMMARY</th> </tr> <tr> <th style="width: 30%;">TIME</th> <th style="width: 30%;">FUEL (LB)</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 22.—Flight Planning Log.

FLIGHT LOG																										
DURANGO (DRO) TO GRAND JUNCTION, WALKER FIELD (GJT)																										
CHECK POINTS		ROUTE	COURSE	WIND	SPEED-KTS		DIST NM	TIME		FUEL																
FROM	TO	ALTITUDE		TEMP	TAS	GS		LEG	TOT	LEG	TOT															
DRO	MANCA	V211	272°	230 08				:14:30																		
		CLIMB																								
		HERRM	V187 16,000	333°		174																				
	JNC	V187	331°																							
APPROACH & LANDING		DESCENT						:12:00																		
	GJT																									
OTHER DATA: NOTE: MAG. VAR. 14° E.						FLIGHT SUMMARY																				
						<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TIME</th> <th>FUEL (LB)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>						TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
TIME	FUEL (LB)																									
		EN ROUTE																								
		RESERVE																								
		MISSED APPR.																								
		TOTAL																								

FIGURE 22A.—Flight Planning Log.

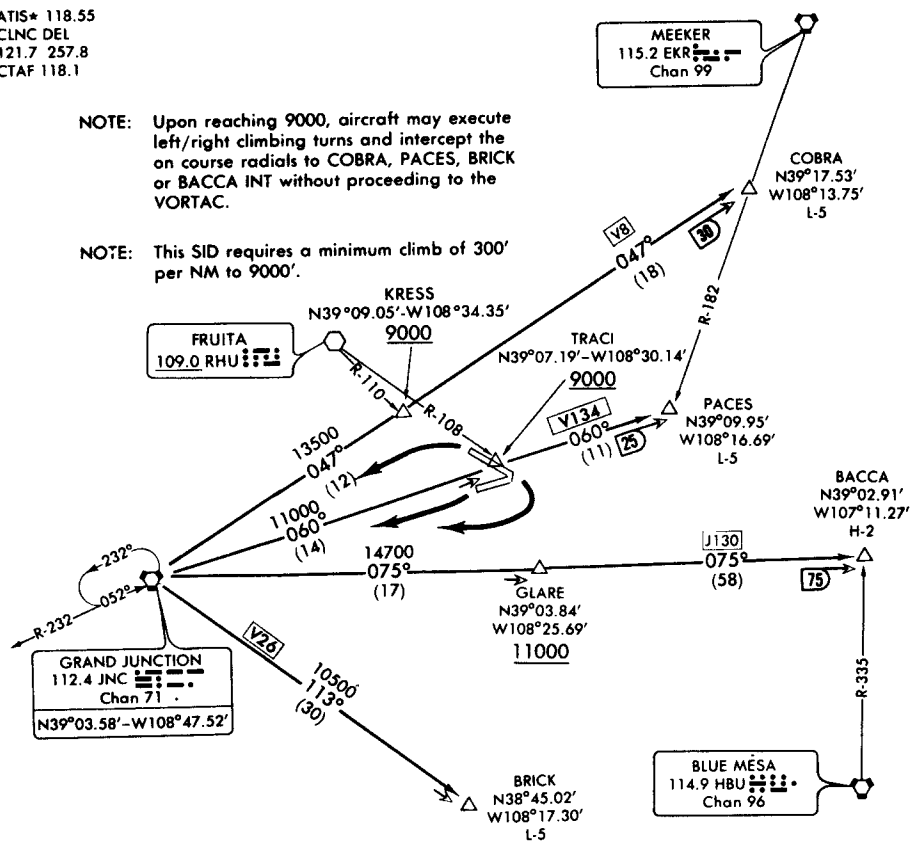
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(PILOT NAV) (JNC9.JNC)⁹⁰³⁴⁷ GRAND JUNCTION/WALKER FIELD
 GRAND JUNCTION NINE DEPARTURE SL-634 (FAA) GRAND JUNCTION, COLORADO

ATIS* 118.55
 CLNC DEL
 121.7 257.8
 CTAF 118.1

NOTE: Upon reaching 9000, aircraft may execute left/right climbing turns and intercept the on course radials to COBRA, PACES, BRICK or BACCA INT without proceeding to the VORTAC.

NOTE: This SID requires a minimum climb of 300' per NM to 9000'.



NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAYS 11 and 22: Right turn direct to JNC VORTAC. Then via (transition) or (assigned route).

TAKE-OFF RUNWAY 29: Left turn direct to JNC VORTAC. Then via (transition) or (assigned route).

BACCA TRANSITION (JNC9.BACCA): From over JNC VORTAC via JNC R-075 to BACCA INT.

BRICK TRANSITION (JNC9.BRICK): From over JNC VORTAC via JNC R-113 to BRICK DME Fix.

COBRA TRANSITION (JNC9.COBRA): From over JNC VORTAC via JNC R-047 to COBRA INT.

PACES TRANSITION (JNC9.PACES): From over JNC VORTAC via JNC R-060 to PACES INT.

GRAND JUNCTION NINE DEPARTURE (PILOT NAV) (JNC9.JNC) GRAND JUNCTION, COLORADO
 GRAND JUNCTION/WALKER FIELD

FIGURE 23.—Grand Junction Nine Departure (JNC9.JNC).

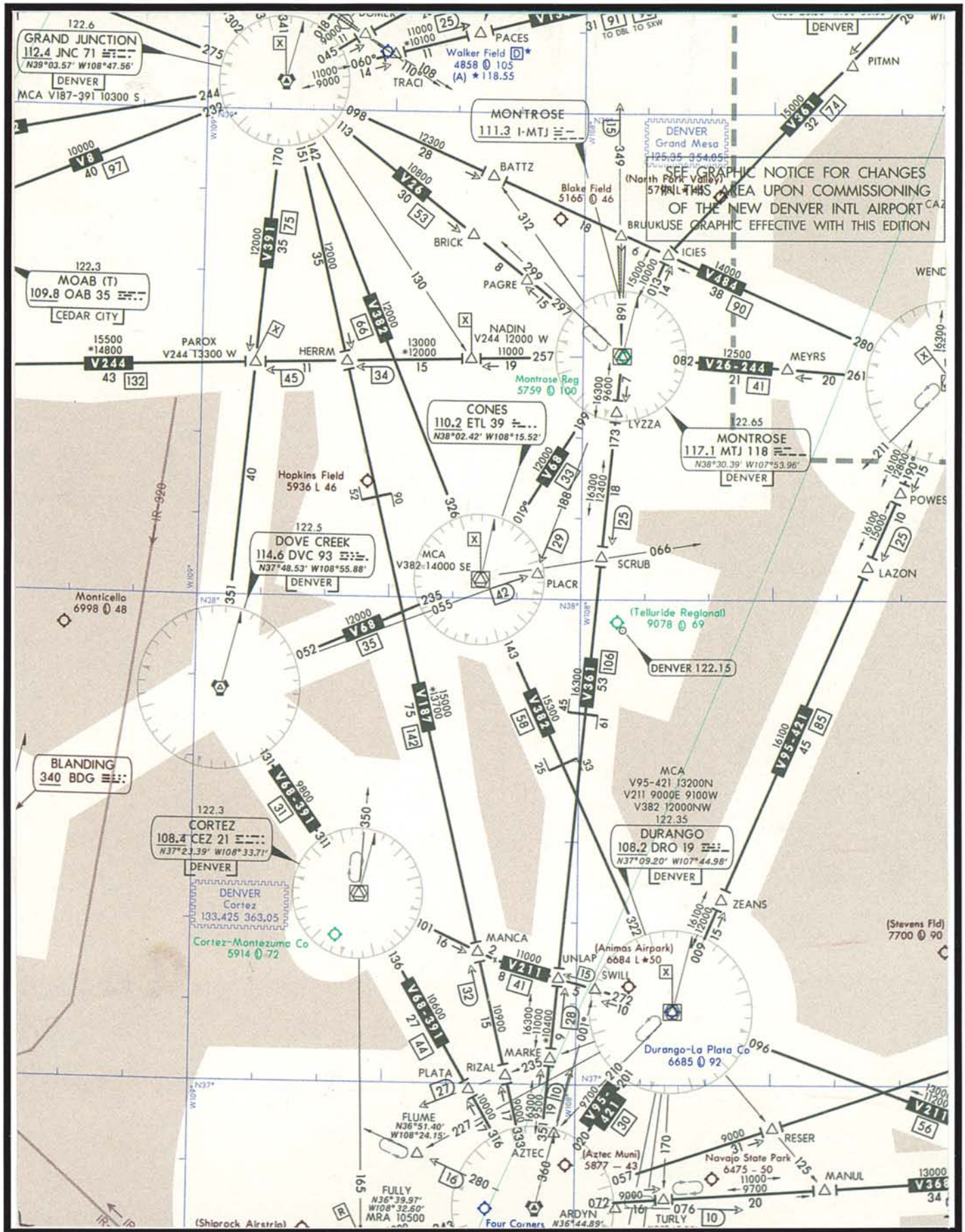


FIGURE 24.—En Route Low-Altitude Chart Segment.

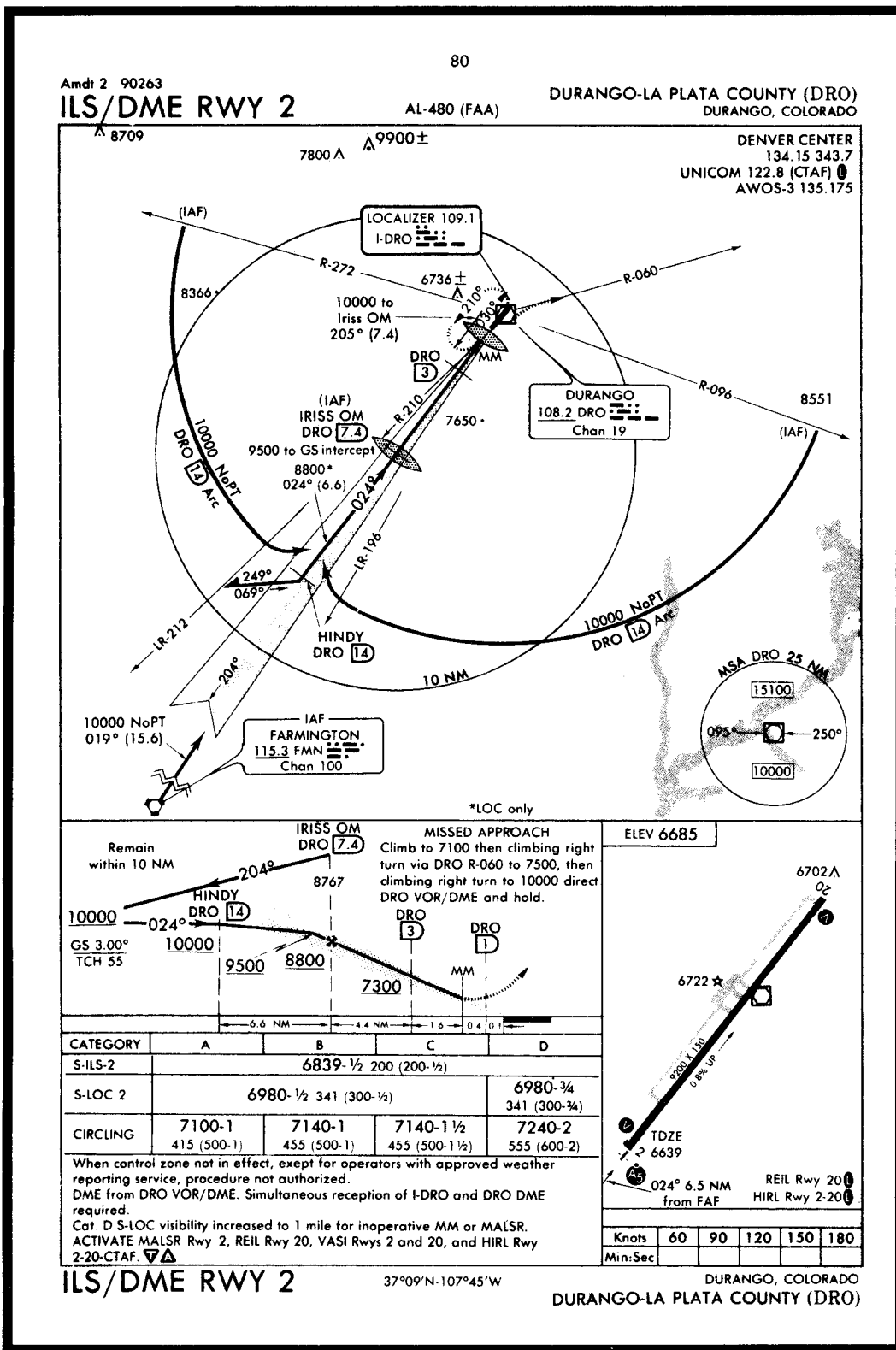


FIGURE 25.—ILS/DME RWY 2.

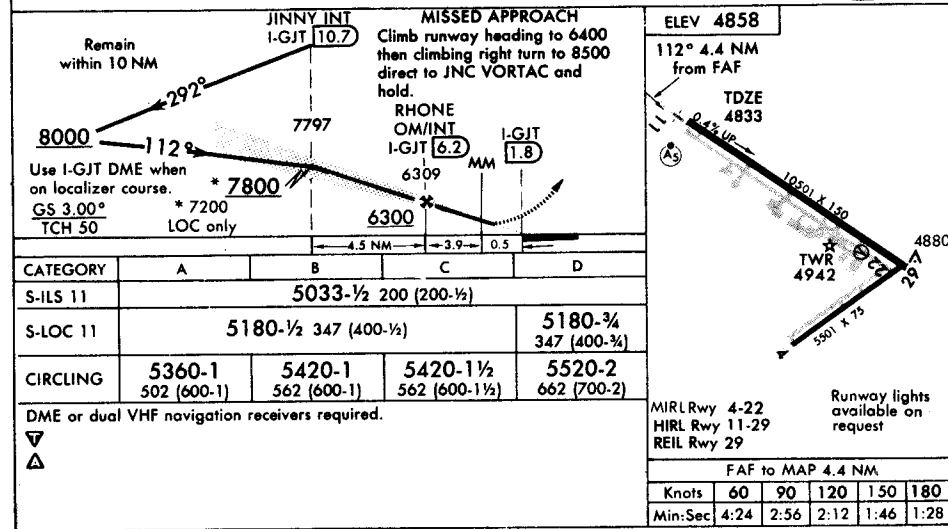
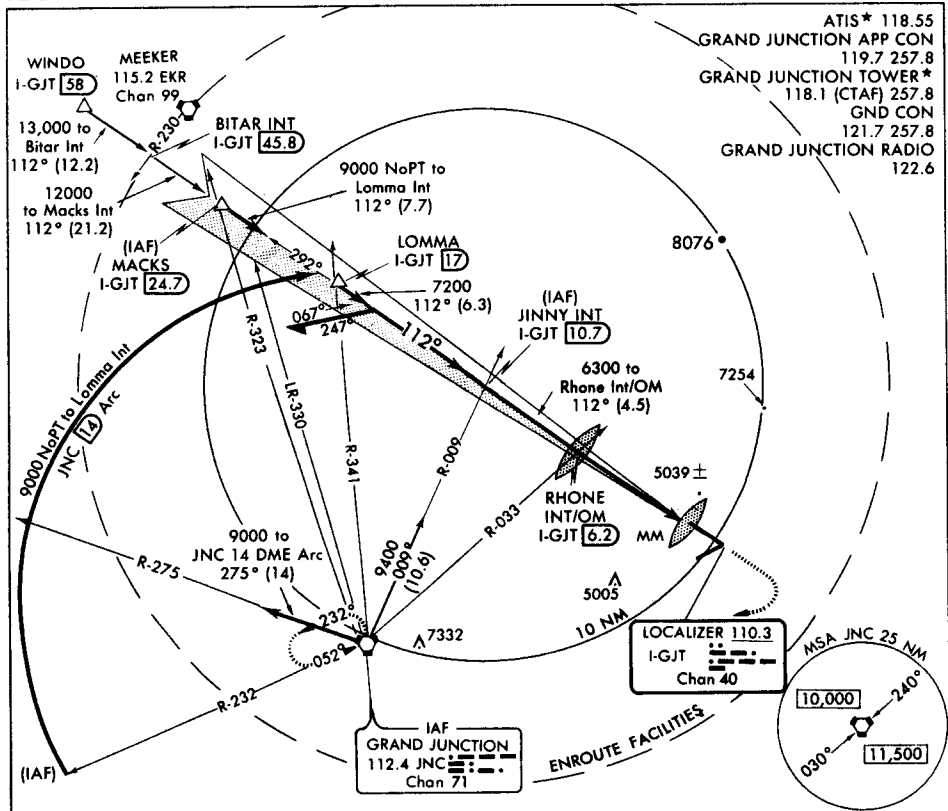
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110

Amdt 13 90347
ILS RWY 11

AL-634 (FAA)

GRAND JUNCTION/WALKER FIELD (GJT)
GRAND JUNCTION, COLORADO



ILS RWY 11

39°07'N-108°32'W

GRAND JUNCTION, COLORADO
GRAND JUNCTION/WALKER FIELD (GJT)

FIGURE 26.—ILS RWY 11.

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Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER		TIME STARTED	SPECIALIST INITIALS	
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z) ACTUAL (Z)	7. CRUISING ALTITUDE
<input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR	N132SM	C 182/	155 KTS	MFR		8,000
8. ROUTE OF FLIGHT GNATS 1, MOURN, V121 EUG						
9. DESTINATION (Name of airport and city) MAHLON/SWEET FIELD, EUGENE, OR.		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS INSTRUMENT TRAINING FLIGHT		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/R		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		15. NUMBER ABOARD
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS: FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE CESSNA MODEL 182

N 132SM Vso 57

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) N/A
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: N/A
 VERTICAL PATH COMPUTER: NA DME: X
 MARKER BEACON: (AUDIO) INOP (VISUAL) Inop.

FIGURE 27.—Flight Plan and Aircraft Information.

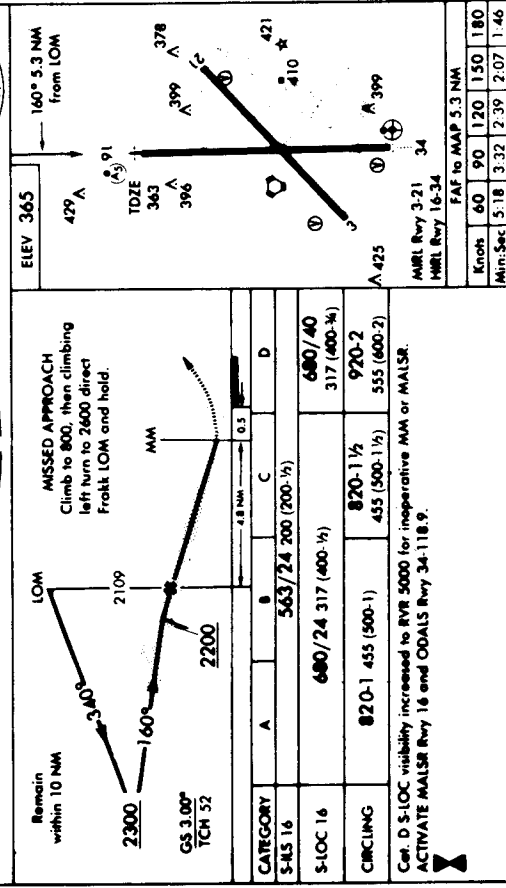
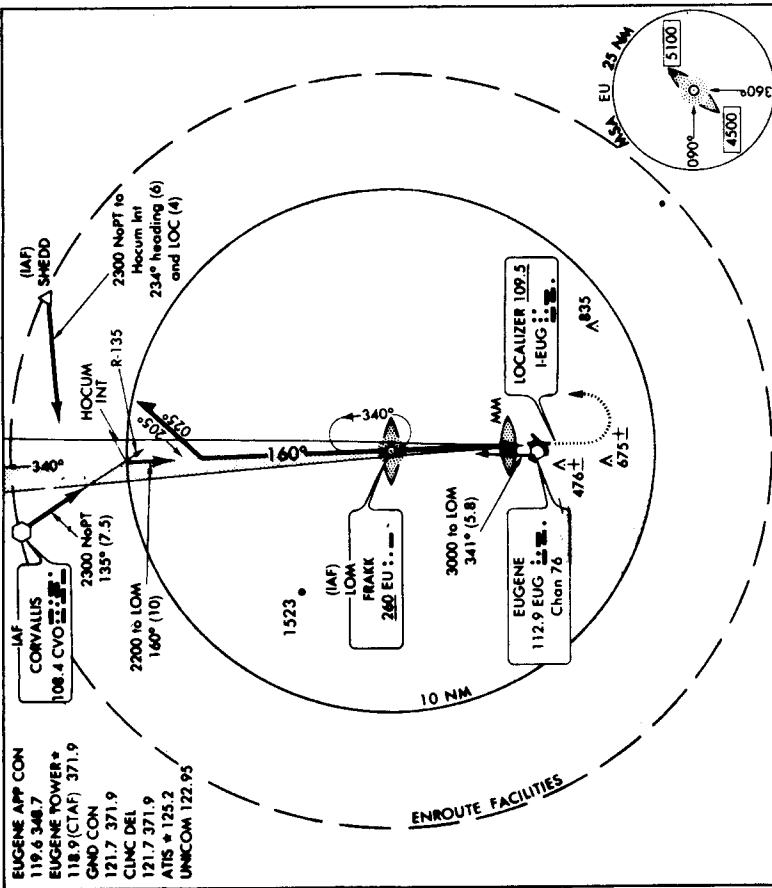
FLIGHT LOG											
MEDFORD - JACKSON CO. AIRPORT TO HAHN/SWEET FIELD, EUGENE, OR.											
CHECK POINTS		ROUTE	COURSE	WIND	SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE		TEMP	TAS	GS		LEG	TOT	LEG	TOT
MFR	MERLI	GNATS 1 CLIMB	270°		155			:11:0			
	MOURN	V121 8000	333°			AVER. 135					
	RBG	V121 8000	287°								
	OTH	V121 8000	272°								
	EUG	APPROACH	026°								
APPROACH & LANDING		DESCENT						:10:0			
	SWEET FIELD										

<p>OTHER DATA: NOTE:</p> <p>MAG. VAR. 20° E. AVERAGE G.S. 135 KTS. FOR GNATS 1 DEPARTURE CLIMB.</p>	<p style="text-align: center;">FLIGHT SUMMARY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TIME</th> <th>FUEL (LB)</th> </tr> </thead> <tbody> <tr> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	TIME	FUEL (LB)		EN ROUTE		RESERVE		MISSED APPR.		TOTAL
TIME	FUEL (LB)										
	EN ROUTE										
	RESERVE										
	MISSED APPR.										
	TOTAL										

FIGURE 28.—Flight Planning Log.

EUGENE

§ MAHLON SWEET FLD (EUG) 7 NW GMT-8(-7DT) 44°07'19"N 123°13'03"W
 365 B 54 FUEL 100LL, JETA OX 1, 2, 3, 4 TPA-1165(800) CFR Index B
 RWY 16-34: H6202X150 (ASPH-PFC) S-155, D-190, DT-300 HIRL
 RWY 16: MALSR. RWY 34: ODALS, VASI(V4L)—GA 3.0" TCH 54'
 RWY 03-21: H5221X150 (ASPH) S-60, D-68, DT-105 MIRL RWY 21: VASI(V4L)—GA 3.0" TCH 53.2' Trees
 RWY 03: VASI(V4L)—GA 3.0" TCH 50.4'. Trees. RWY 21: VASI(V4L)—GA 3.0" TCH 53.2' Trees
 AIRPORT REMARKS: Attended continuously, phone 503-687-5431 between 0100-1600Z; CAUTION—migratory
 waterfowl and other birds in vicinity. ACTIVATE MALSR Rwy 16 and ODALS Rwy 34—118.9, MIRL Rwy 03-21
 unavailable when twr dtd. CLOSED to unscheduled air carrier operations with more than 30 passenger seats during
 twr closure except PPR call airt manager 503-687-5430. Taxiways F and G closed to Part 121 ops. Terminal apron
 available to scheduled air carriers and flights with prior permission. Control Zone effective continuously.
 COMMUNICATIONS: CTAF 118.9 ATIS 125.2 (1400-0800Z) UNICOM 122.95
 PORTLAND FSS (PDX) LC 688-8411, NOTAM FILE EUG
 EUGENE FCO 122.3 122.1R 112.9T (PORTLAND FSS)
 EUGENE APP/DEP COM 119.6 (280°-090°) 120.2 (091°-279°) (1400-0800Z)
 SEATTLE CENTER APP/DEP COM 125.8 (0800-1400Z)
 EUGENE TOWER 118.9 (1400-0800Z) GND COM/CLNC DEL 121.7
 STAGE II SVC ctc APP COM within 25 NM
 RADIO AIDS TO NAVIGATION: NOTAM FILE EUG
 EUGENE (M) AVORTAC: 112.9 EUG Chan 76 44°07'16"N 123°13'18"W at fld. 360/20E
 General outlook on TWEEB 0600-1300Z.
 FRANK 108 (LOM) 260 EU 44°12'47"N 123°13'10"W 179°5.5 NM to fld.
 NDB unusable 190°-270° beyond 11 NM
 ILS 109.5 I-EUG RWY 16 LOM FRANK NDB
 ILS unmonitored when tower closed.



ILS RWY 16
 44°07'N 123°13'W
 EUGENE/MAHLON SWEET FIELD (EUG)

FIGURE 29.—ILS RWY 16 (EUG) and Excerpt from Airport /Facility Directory.

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MEDFORD-JACKSON CO
MEDFORD, OREGON

GNATS ONE DEPARTURE (GNATS1.GNATS)

DEPARTURE ROUTE DESCRIPTION
(Continued)

MOURN TRANSITION (GNATS1.MOURN): Continue via 270° magnetic bearing from the LMM to MERLU INT, turn right via MEDFORD 15 DME ARC to intercept V23-121 to MOURN INT.

DREWS TRANSITION (GNATS1.DREWS): Continue via 270° magnetic bearing from the LMM to MERLU INT, turn right via MEDFORD 15 DME ARC to DREWS INT. **TALEM TRANSITION (GNATS1.TALEM):** Turn left via MEDFORD R-216 to 15 DME Fix thence turn left via MEDFORD 15 DME ARC to intercept V23 to TALEM INT. **HANDY TRANSITION (GNATS1.HANDY):** Turn left via MEDFORD R-216 to 15 DME Fix, thence turn left via MEDFORD 15 DME Arc to HANDY DME Fix.

MEDFORD, OREGON
MEDFORD-JACKSON CO

GNATS ONE DEPARTURE (GNATS1.GNATS)

§ MEDFORD-JACKSON CO (MFR) 3 N GNT-R-70D 42°22'21"N 122°52'17"W KLUMATH FALLS
1331 B S4 FUEL 80, 100, 100LL, JET A1 + OX 1.3 CFR Index B H-1A, L-1A
RWY 14-32: H6700X150 (ASPH-PC) S-200, D-200, DT-400 HIRL 5% up S
RWY 14: MALSR, Trees RWY 32: REIL VASK(VAU)—GA 3.0° TCH 49', Road.
RWY 09-27: H3145X150 (ASPH) S-50, D-70, DT-108 MIRL
RWY 27: Road.

AIRPORT REMARKS: Attended continuously. CLOSED to unscheduled Part 121 air carriers operation, without prior approval, call 503-776-7222. Night refueling delay sunset:1500Z±, ctc TOWER. Rwy 09-27 clsd to acft over 12,500 lbs GWT. Rwy 09/27 CLOSED when tower clsd. Rwy lgt 14/32 operate med lnts when tower closed. ACTIVATE MALSR 14—119.4. Flocks of large waterfowl in vicinity Nov-May
COMMUNICATIONS: CTAF 119.4 ATIS 125.75 UNCOM 122.95
NORTH BEND FSS (OTH) LC 773-3256, NOTAM FILE MFR.
RCO 122.65 122.1R 113.6T (NORTH BEND FSS)
APP COM 124.3 (1400-0800Z±) DEP COM 124.3 (1400-0800Z±)
SEATTLE CENTER APP/DEP COM 125.3 (0800-1400Z±)
TOWER 119.4 (1400-0800Z±) GND COM 121.7
VFR ADVST SVC ctc TOWER

RADIO AIDS TO NAVIGATION: NOTAM FILE OTH. VHF/DF ctc Medford Tower
(M) AHWRTAC 113.6 OED Chan 83 42°28'47"N 122°54'43"W 146° 6.1 NM to fld. 2080/19E
VORTAC unusable:

160° -165° beyond 35 NM below 8900'
198° -205° beyond 35 NM below 8500'
250° -280° beyond 25 NM below 6100'

PUMIE NDB (LOM) 373 MF 42°27'04"N 122°54'44"W 140° 4.5 NM to fld. NOTAM FILE MFR

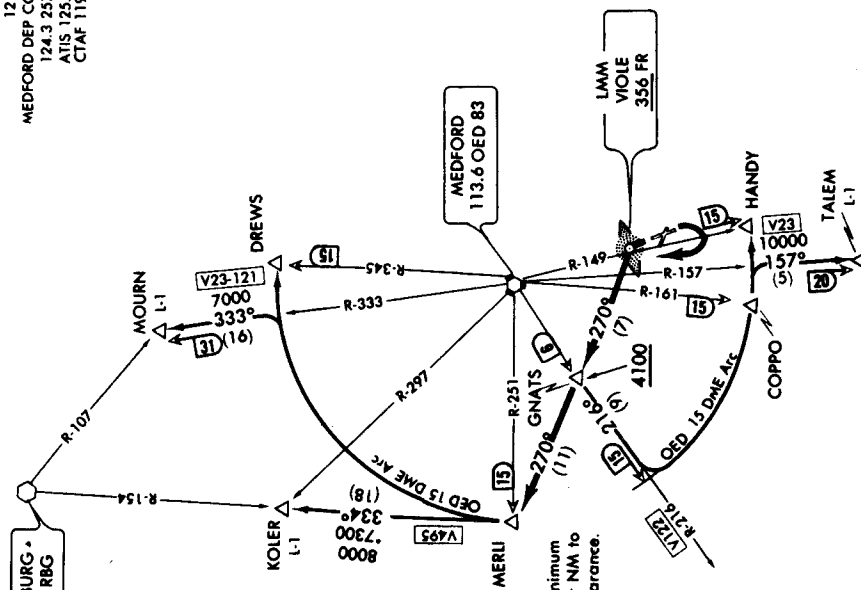
LOM unusable 150° -165° and 260° -265° beyond 5 miles.

WOLF NDB (LMM) 356 FR 42°23'22"N 122°52'47"W 140° 0.5 NM to fld. NOTAM FILE MFR

LMM unusable 305° -335° beyond 10 NM, all altitudes

ILS/DME 110.3 I-MFR Chan 40 Rwy 14 LOM PUMIE NDB. LMM VIOLE NDB. ILS unmonitored when tower closed.
Localizer unusable inside threshold.

MEDFORD GND CON
121.7
MEDFORD DEP CON
124.3 257.8
ATIS 125.75
CTAF 119.4



NOTE: This SID requires a minimum climb rate of 400' per NM to 4100' for obstacle clearance.

NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

Climb direct to the VIOLE ILS Middle Compass Locator (south take-off turn right), then climb on the 270° magnetic bearing from the LMM to GNATS INT, cross GNATS INT at or above 4100; thence via (transition) or (route).

COPPO TRANSITION (GNATS1.COPPO): Turn left via R-216 to 15 DME Fix, thence turn left via MEDFORD 15 DME Arc to COPPO DME Fix.

KOLER TRANSITION (GNATS1.KOLER): Continue via 270° magnetic bearing from the LMM to MERLU INT, turn right via ROSEBURG R-154 to KOLER INT.

(Continued on next page)

GNATS ONE DEPARTURE (GNATS1.GNATS)

MEDFORD, OREGON
MEDFORD-JACKSON CO

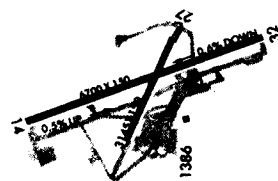


Figure 30.—GNATS One Departure and Excerpt from Airport/Facility Directory.

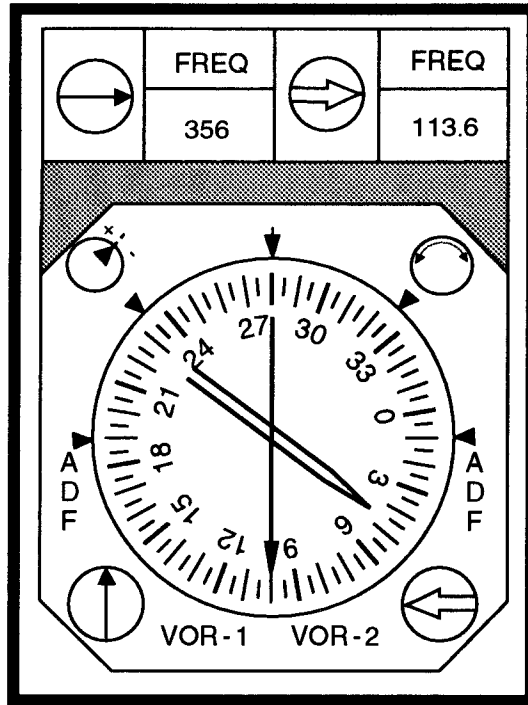


FIGURE 30A.—RMI Indicator.

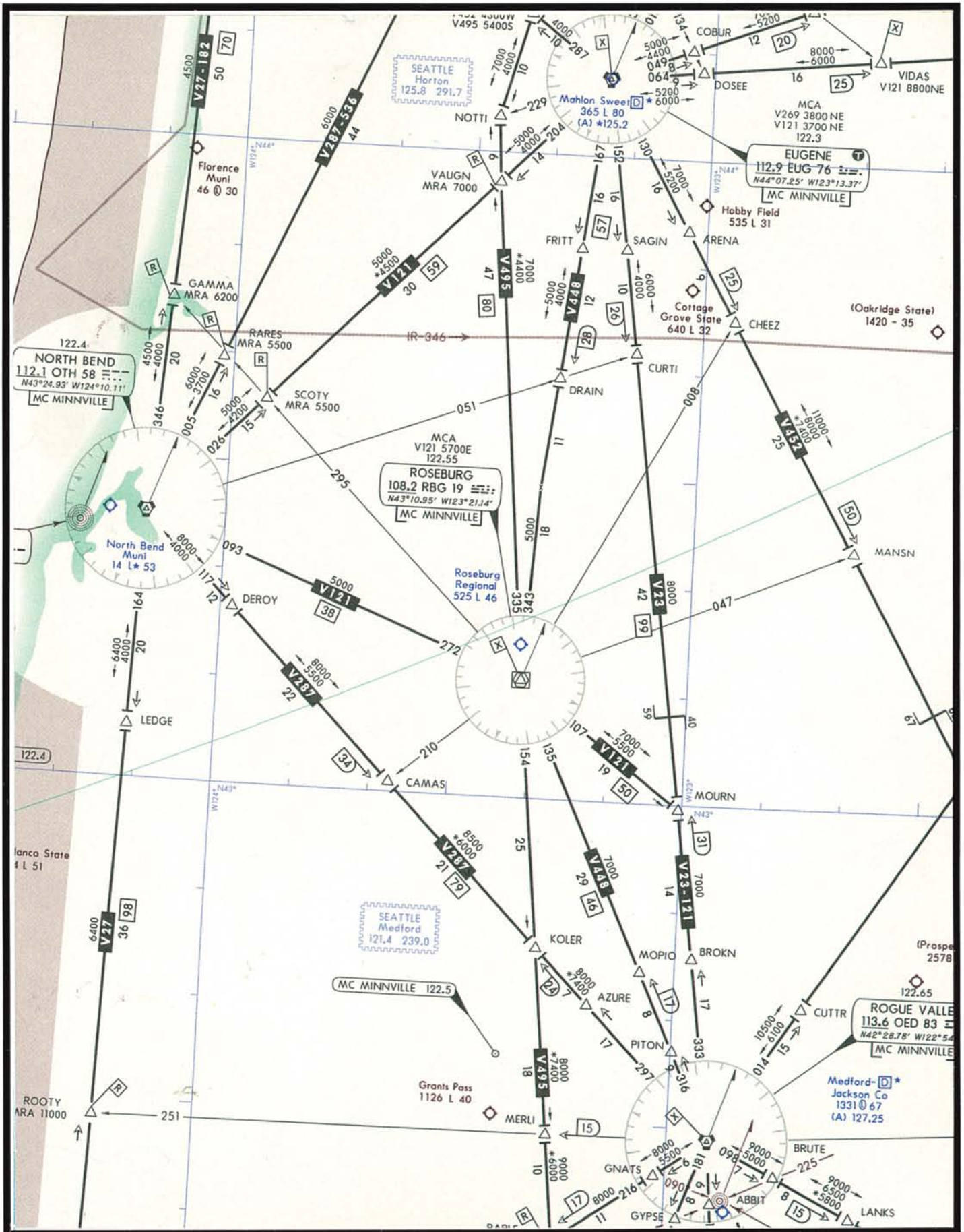


FIGURE 31.—En Route Low-Altitude Chart Segment.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER		TIME STARTED	SPECIALIST INITIALS	
1. TYPE <input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR	2. AIRCRAFT IDENTIFICATION N4078A	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT PA 31/	4. TRUE AIRSPEED 180 KTS	5. DEPARTURE POINT HOT	6. DEPARTURE TIME PROPOSED (Z) ACTUAL (Z)	7. CRUISING ALTITUDE 8,000
8. ROUTE OF FLIGHT HOT V573, TXK, TXK.BUJ3						
9. DESTINATION (Name of airport and city) DALLAS ADDISON AIRPORT DALLAS, TX		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		15. NUMBER ABOARD 2
16. COLOR OF AIRCRAFT TAN/WHITE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Piper MODEL PA-31
N 4078A Vso 74

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 32.—Flight Plan and Aircraft Information.

FLIGHT LOG											
HOT SPRINGS, MEMORIAL FIELD TO DALLAS, ADDISON, TX.											
CHECK POINTS		ROUTE	COURSE	WIND	SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE		TEMP	TAS	GS		LEG	TOT	LEG	TOT
HOT	MARKI	V573 CLIMB	221°					:12:00			
	TXK	V573									
	TXK	8000	210°		180						
	BUJ3	BUJ3									
	BUJ3	8000	272°								
	BUJ3	BUJ3									
	BUJ3	DESCENT	239°								
APPROACH & LANDING								:10:00			
	DALLAS										
	ADDISON										

OTHER DATA: NOTE: MAG. VAR. 4° E.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">FLIGHT SUMMARY</th> </tr> <tr> <th style="width: 20%;">TIME</th> <th style="width: 30%;">FUEL (LB)</th> <th style="width: 50%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td style="text-align: center;">EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">RESERVE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 33.—Flight Planning Log.

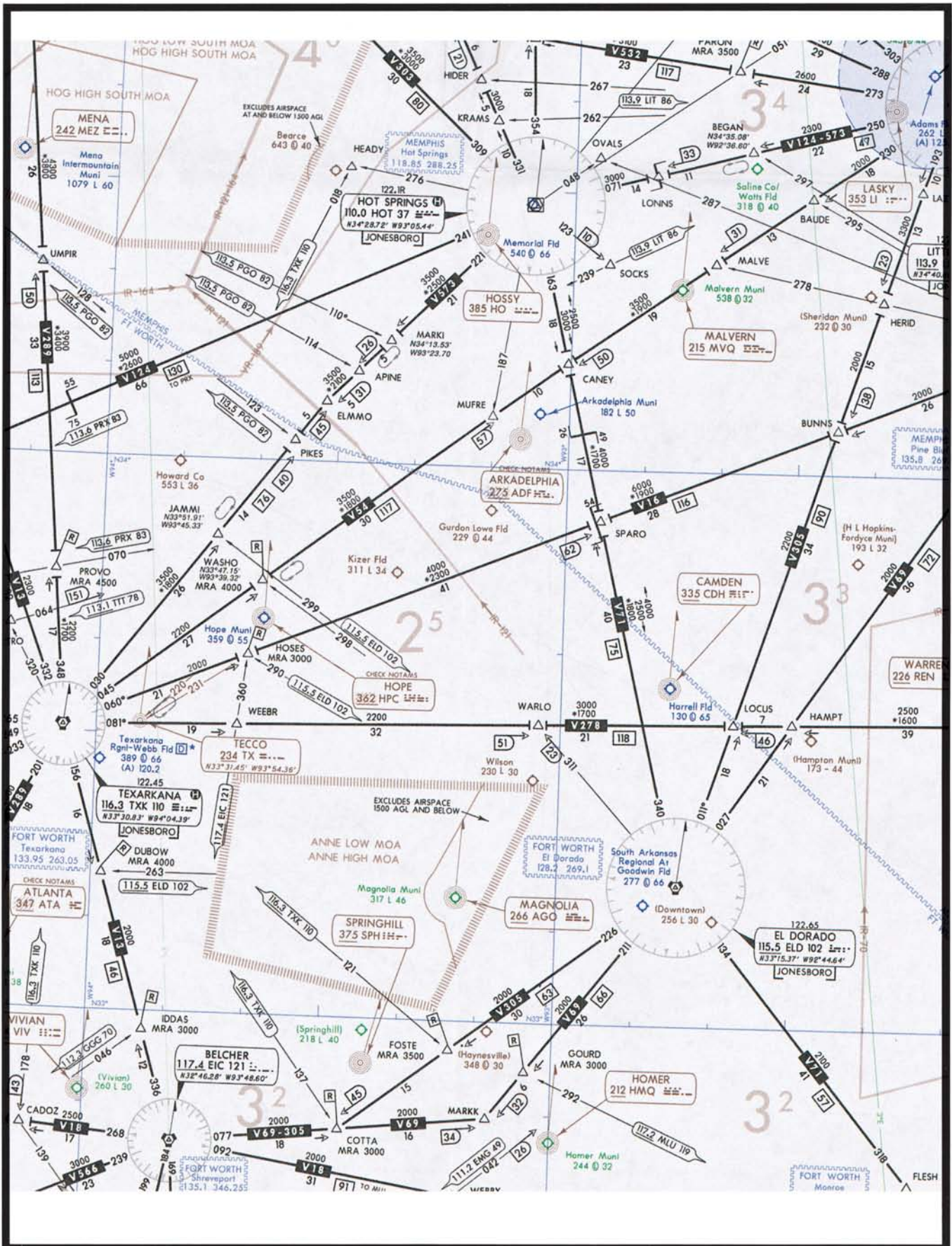


FIGURE 34.—En Route Chart.

ARKANSAS

HOT SPRINGS

MEMORIAL FLD (HOT) 3 SW UTC-6(-5DT) 34°28'41"N 93°05'46"W **MEMPHIS**
 540 B S4 FUEL 100LL, JET A ARFF Index Ltd. H-4G, L-14E
RWY 05-23: H6595X150 (ASPH-GRVD) S-75, D-125, DT-210, DDT-400. HIRL 0.6% up NE IAP
RWY 05: MALSR. Tree. **RWY 23:** REIL. Thld dsplcd 490'. Tree.
RWY 13-31: H4099X150 (ASPH) S-28, D-36, DT-63 MIRL
RWY 13: REIL. Road/Trees. **RWY 31:** Pole.
AIRPORT REMARKS: Attended 1130-0400Z†. CLOSED to unscheduled air carrier ops with more than 30 passenger seats except PPR, call arpt manager 501-624-3306. Last 500' Rwy 05 CLOSED to takeoffs. Rwy 13-31 fair with extensive loose grvl-pavement debris. ACTIVATE HIRL Rwy 05-23 and MALSR Rwy 05—CTAF. Rwy 23 REIL out of svc indefinitely. Control Zone effective 1200-0400Z†.
COMMUNICATIONS: CTAF/UNICOM 123.0
JONESBORO FSS (JBR) TF 1-800-WX-BRIEF. NOTAM FILE HOT.
HOT SPRINGS RCO 122.1R 110.0T (LITTLE ROCK FSS)
MEMPHIS CENTER APP/DEP CON: 118.85
RADIO AIDS TO NAVIGATION: NOTAM FILE HOT.
HOT SPRINGS (L) VOR/DME 110.0 HOT Chan 37 34°28'43"N 93°05'26"W at fld. 530/4E.
HUSSY NDB (HW/LOM) 385 HO 34°25'21"N 93°11'22"W 050° 5.7 NM to fld.
ILS/DME 111.5 I-HOT Chan 52 Rwy 05 LOM HOSSY NDB. Unmonitored.

FIGURE 34A.—Airport/Facility Directory (HOT).

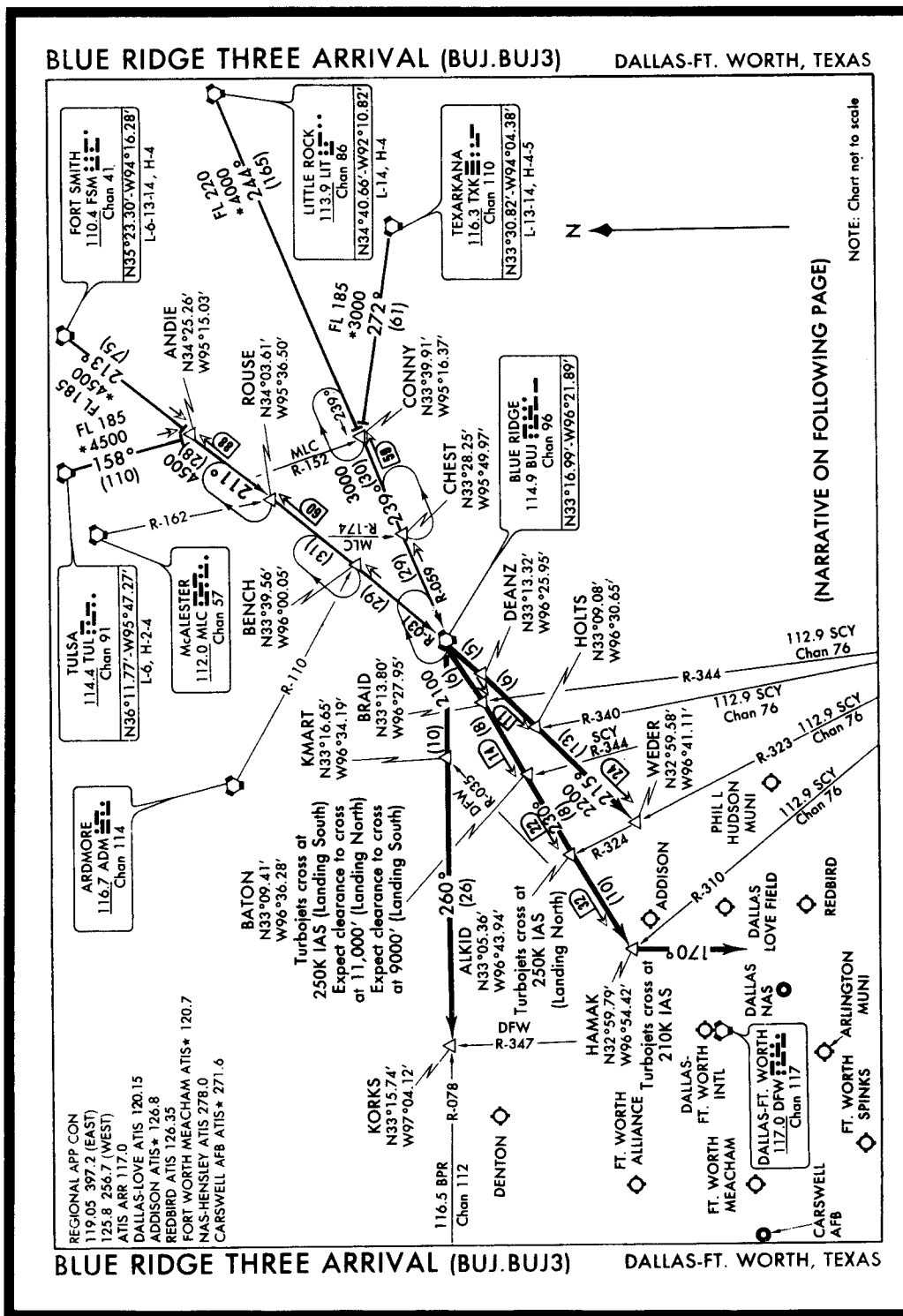


FIGURE 35.—En Route Chart Segment and Blue Ridge Three Arrival.

91094

SL-6039 (FAA)

BLUE RIDGE THREE ARRIVAL (BUJ.BUJ3)

DALLAS-FT. WORTH, TEXAS

ARRIVAL DESCRIPTION

FORT SMITH TRANSITION (FSM.BUJ3): From over FSM VORTAC via FSM R-213 and BUJ R-031 to BUJ VORTAC. Thence

LITTLE ROCK TRANSITION (LIT.BUJ3): From over LIT VORTAC via LIT R-244 and BUJ R-059 to BUJ VORTAC. Thence

TEXARKANA TRANSITION (TXK.BUJ3): From over TXK VORTAC via TXK R-272 and BUJ R-059 to BUJ VORTAC. Thence

TULSA TRANSITION (TUL.BUJ3): From over TUL VORTAC via TUL R-158 and BUJ R-031 to BUJ VORTAC. Thence

TURBOJETS LANDING DALLAS-FT WORTH INTL: (Landing South): From over BUJ VORTAC via BUJ R-230 to HAMAK INT. Expect vectors at BATON INT. (Landing North): From over BUJ VORTAC via BUJ R-230 to HAMAK INT, thence heading 170° for vector to final approach course.

NON-TURBOJETS LANDING DALLAS-FT WORTH INTL: (Landing South): From over BUJ VORTAC via BUJ R-230 to HAMAK INT. Expect vectors at BATON INT. (Landing North): From over BUJ VORTAC via BUJ R-215 to WEDER INT. Expect vectors to final approach course.

ALL AIRCRAFT LANDING DALLAS-LOVE FIELD, ADDISON, REDBIRD, NAS DALLAS, and PHIL L. HUDSON: (Landing South/North): From over BUJ VORTAC via BUJ R-215 to WEDER INT. Expect vectors to final approach course.

ALL AIRCRAFT LANDING MEACHAM, CARSWELL AFB, ALLIANCE, ARLINGTON, DENTON and FT. WORTH SPINKS: (Landing South/North): From over BUJ VORTAC via BUJ R-260 to KORCS INT. Expect vectors to final approach course.

FIGURE 35A.—Blue Ridge Three Arrival Description.

TEXAS

1-15

DALLAS**ADDISON** (ADS) 9 N UTC-6(-5DT) 32°58'06"N 96°50'10"W**DALLAS-FT. WORTH**

643 B S4 FUEL 100LL, JET A

H-2K, 4F, 5B, L-13C, A

RWY 15-33: H7201X100 (ASPH) S-80, D-100, DT-160 MIRL IAP

RWY 15: MALSR. VASI(V4R)—GA 3.0'TCH 51'. Thld dspcd 980'. Ground.

RWY 33: REIL. Thld dspcd 468'. Road.

AIRPORT REMARKS: Attended continuously. Numerous flocks of birds on and in vicinity of arpt. Use extreme care: numerous 200' AGL buildings within 1 mile East, and South of arpt, transmission towers and water tanks West of arpt. Rwy 33 REIL out of svc indefinitely. ACTIVATE MALSR Rwy 15—CTAF. Rwy limited to maximum gross weight 120,000 pounds. Control Zone effective 1200-0400Zt.

WEATHER DATA SOURCES: LAWRS**COMMUNICATIONS:** CTAF 121.1 ATIS 126.8 (1200-0400Zt) UNICOM 122.95

FORT WORTH FSS (FTW) TF 1-800-WX-BRIEF. NOTAM FILE ADS.

Ⓡ REGIONAL APP CON 123.9

Ⓡ REGIONAL DEP CON 124.3

TOWER 121.1 (1200-0400Zt) GND CON 121.6 CLNC DEL 119.55

RADIO AIDS TO NAVIGATION: NOTAM FILE DAL.

LOVE (L) VORW/DME 114.3 LUE Chan 90 32°50'51"N 96°51'42"W 002° 7.4 NM to fld. 490/08E.

BRONS NDB (LOM) 407 AD 33°02'40"N 96°52'13"W 153° 4.9 NM to fld.

ILS/DME 110.1 I-ADS Chan 38 Rwy 15. LOM BRONS NDB. Unmonitored when tower closed.

ILS 110.1 I-TBQ Rwy 33 LOC only. Unmonitored when twr clsd.

FIGURE 36.—Excerpt from Airport/Facility Directory.

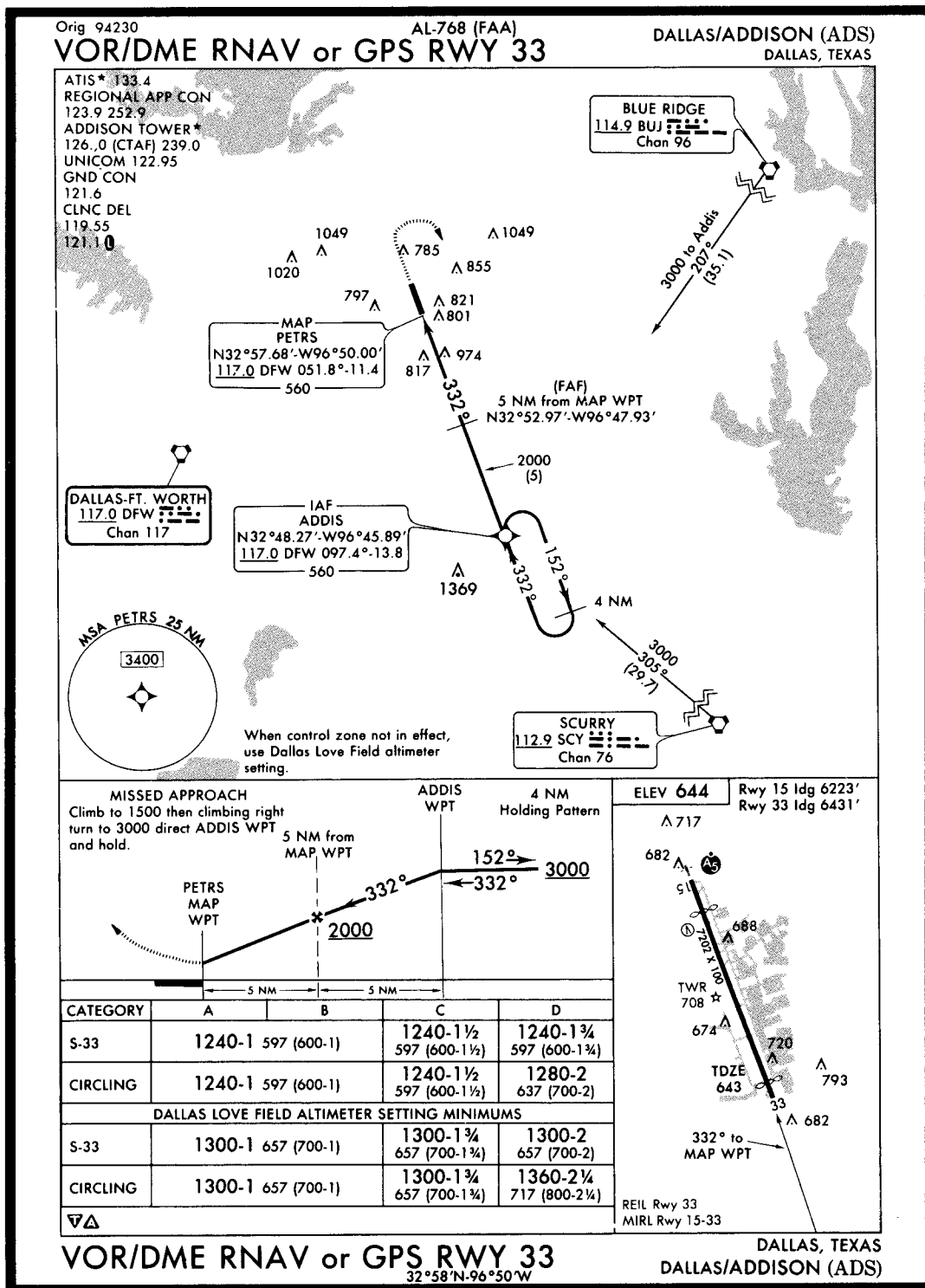


FIGURE 36A.—RNAV RWY 33 (ADS).

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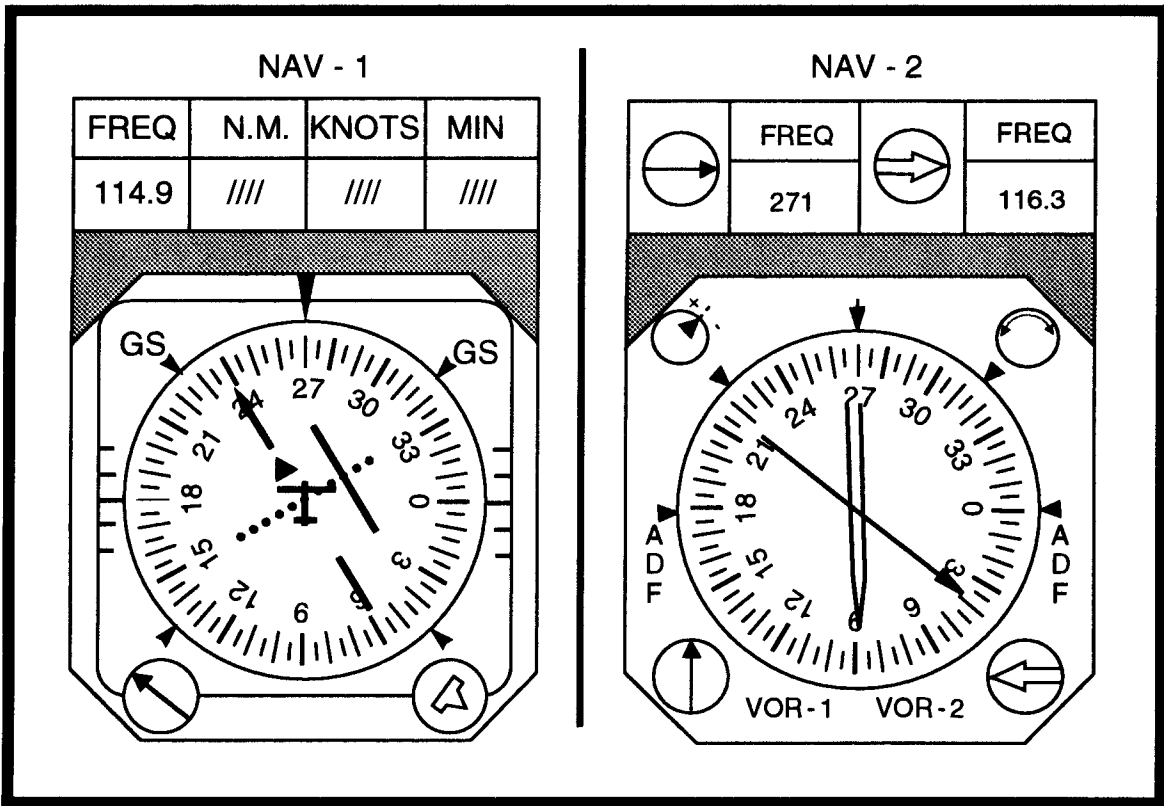


FIGURE 37.—CDI and RMI — NAV 1 and NAV 2.

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR		TIME STARTED		SPECIALIST INITIALS	
		<input type="checkbox"/> STOPOVER					
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
VFR	N4321P	C402/	156 KTS	BGS	PROPOSED (Z)	ACTUAL (Z)	11000
X IFR							
DVFR							
8. ROUTE OF FLIGHT DIRECT BGS, V16 ABI, ABI. AQN2							
9. DESTINATION (Name of airport and city)			10. EST. TIME ENROUTE		11. REMARKS		
DALLAS FT. WORTH DFW			HOURS	MINUTES			
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE			15. NUMBER ABOARD
HOURS	MINUTES	N/A		17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			
							2
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					
RED/BLUE/WHITE							

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Cessna MODEL 402C
N 4321P Vso 71

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 38.—Flight Plan and Aircraft Information.

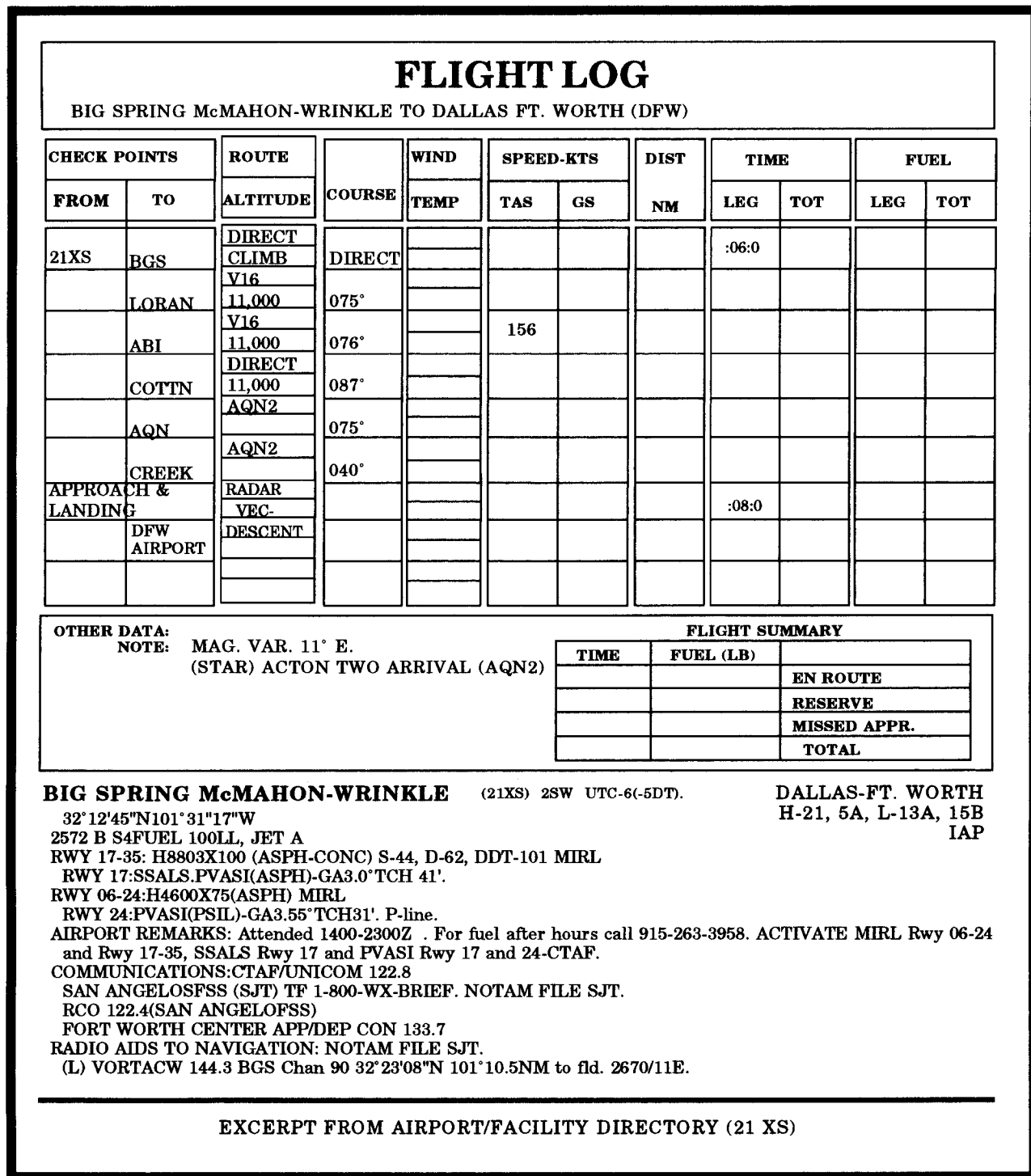


FIGURE 39.—Flight Log and Excerpt from Airport/Facility Directory (21 XS).

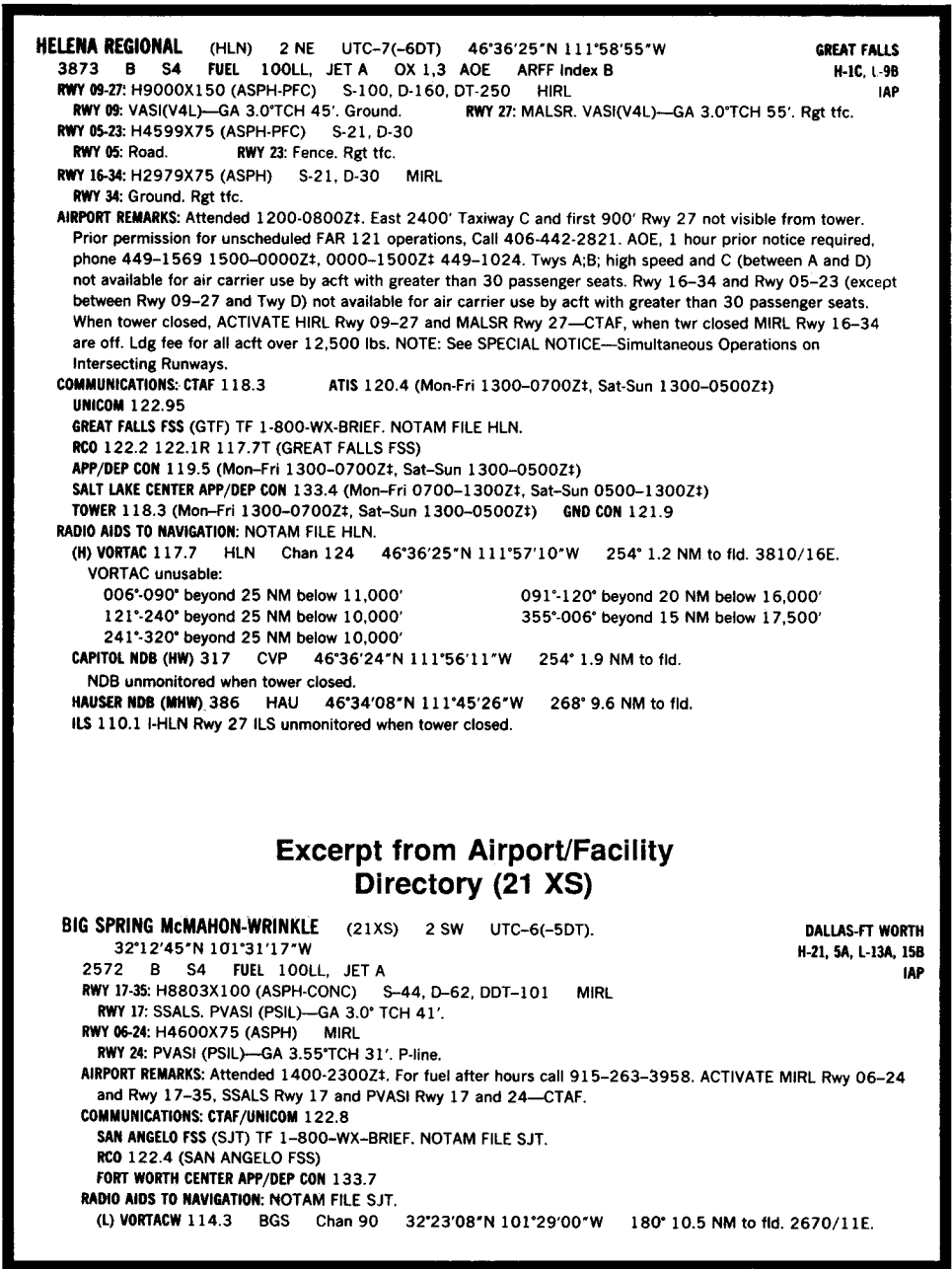


FIGURE 39A.—Excerpt from Airport/Facility Directory (21 XS).

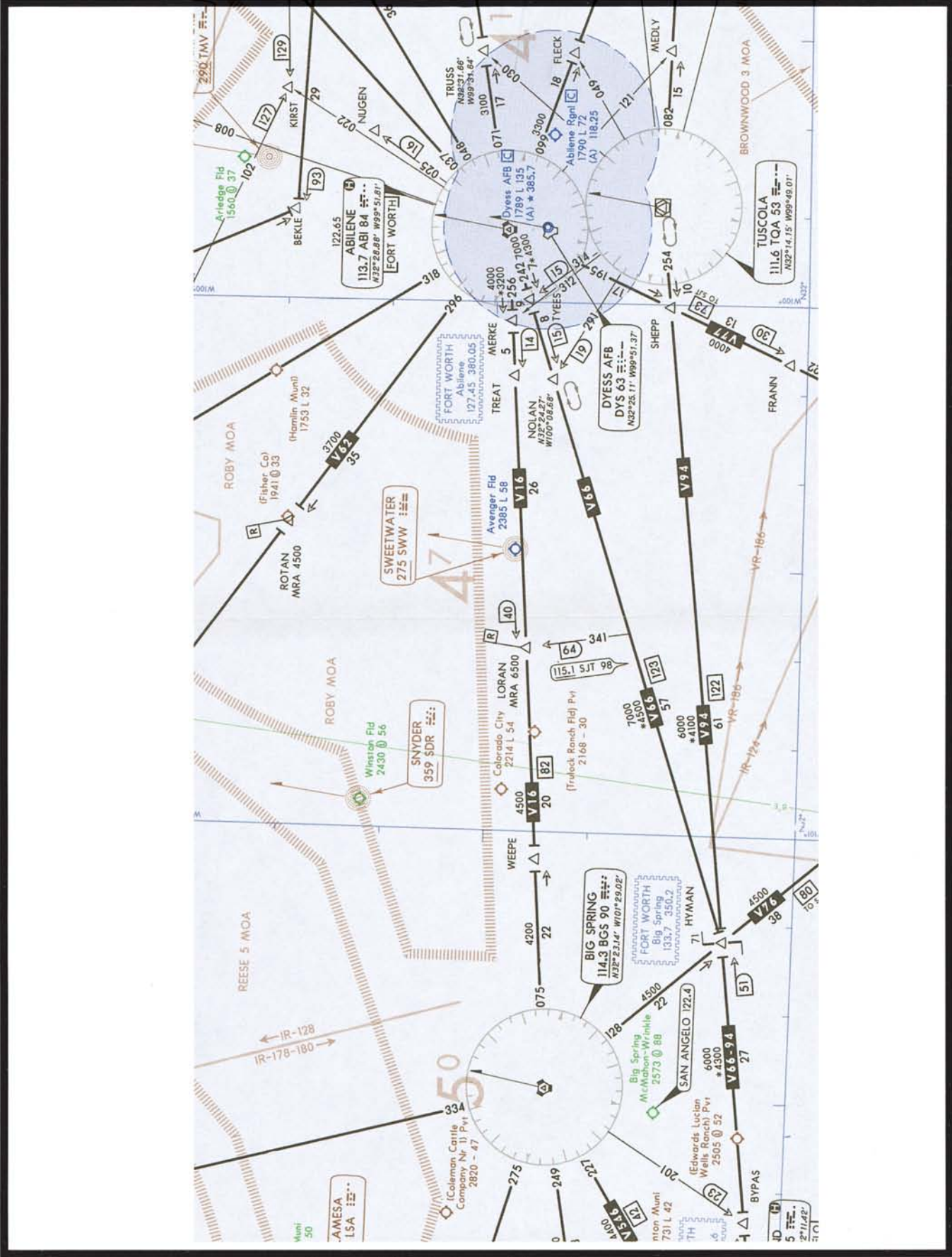


FIGURE 40.—En Route Chart Segment.

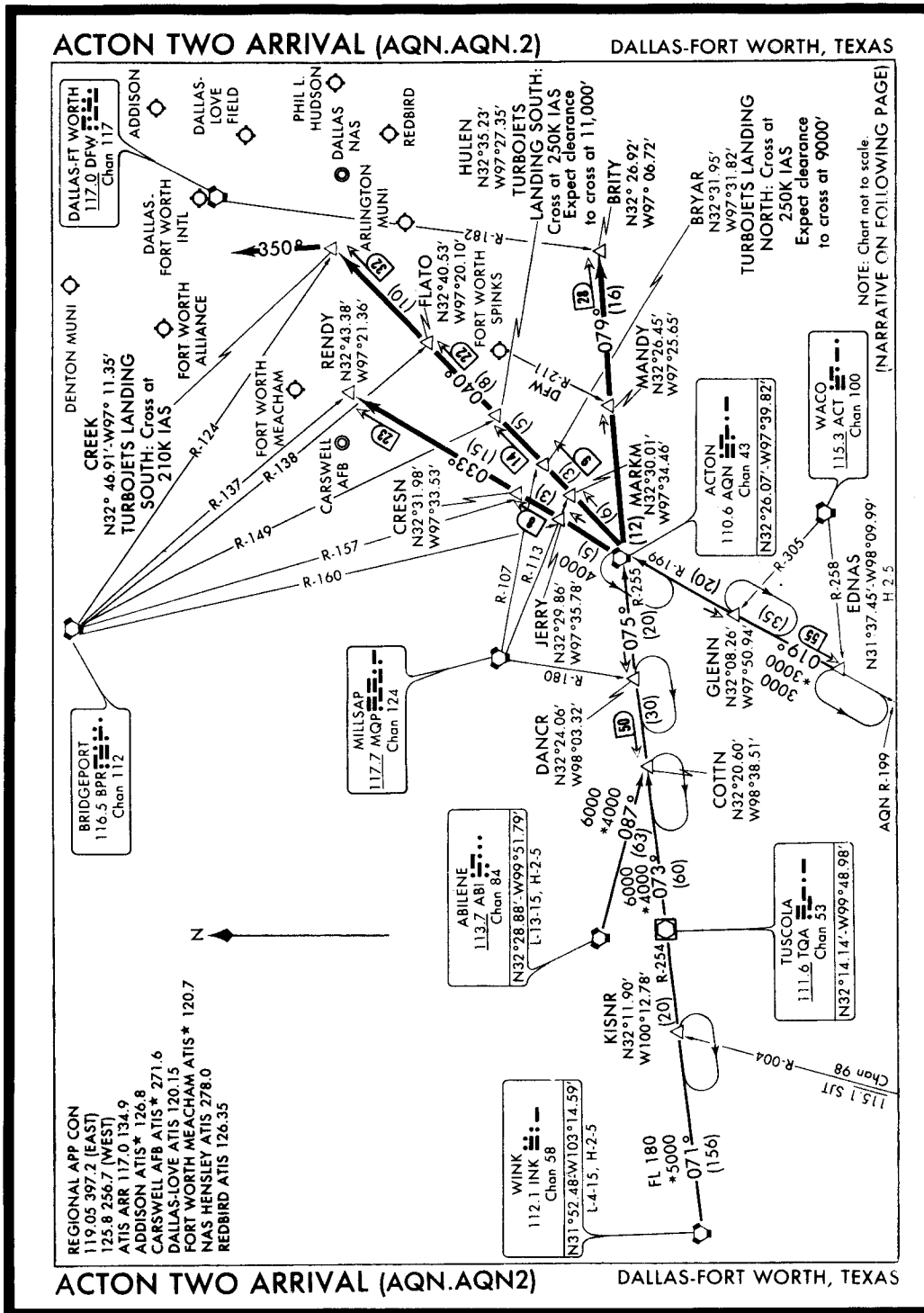


FIGURE 41.—ACTON Two Arrival.

ACTON TWO ARRIVAL (AQN.AQN2)

DALLAS-FORT WORTH, TEXAS

ARRIVAL DESCRIPTION

ABILENE TRANSITION (ABI.AQN2): From over ABI VORTAC via ABI R-087 and AQN R-255 to AQN VORTAC. Thence

EDNAS TRANSITION (EDNAS.AQN2): From over EDNAS INT via AQN R-199 to AQN VORTAC. Thence

WINK TRANSITION (INK.AQN2): From over INK VORTAC via INK R-071, TQA R-254, TQA R-073 and AQN R-255 to AQN VORTAC. Thence

TURBOJETS LANDING DALLAS-FT. WORTH INTL, MEACHAM, CARSWELL AFB, DENTON, ALLIANCE: (Landing South): From over AQN VORTAC via AQN R-040 to CREEK INT, thence heading 350° for vector to final approach course. (Landing North): From over AQN VORTAC via AQN R-040 to CREEK INT. Expect vectors at BRYAR INT.

NON-TURBOJETS LANDING DALLAS-FT. WORTH INTL, MEACHAM, CARSWELL AFB, DENTON, ALLIANCE: (Landing South): From over AQN VORTAC via AQN R-033 to RENDY INT. Expect vectors to final approach course. (Landing North): From over AQN VORTAC via AQN R-040 to CREEK INT. Expect vector at BRYAR INT.

TURBOJETS LANDING DALLAS-LOVE FIELD and ADDISON: (Landing South): From over AQN VORTAC via AQN R-040 to CREEK INT, thence heading 350° for vector to final approach course. (Landing North): From over AQN VORTAC via AQN R-079 to BRITY INT. Expect vector to final approach course.

NON-TURBOJETS LANDING DALLAS-LOVE FIELD and ADDISON: (Landing South/North): From over AQN VORTAC via AQN R-079 to BRITY INT. Expect vector to final approach course.

ALL AIRCRAFT LANDING FORT WORTH SPINKS, ARLINGTON, NAS DALLAS, REDBIRD, and PHIL L. HUDSON: (Landing South/North): From over AQN VORTAC via AQN R-079 to BRITY INT. Expect vectors to final approach course.

FIGURE 41A.—ACTON Two Arrival Description.

TEXAS	
DALLAS-FORT WORTH INTL (DFW) 12 NW UTC-6(-5DT)32°53'47"N 97°02'28"W	DALLAS-FT. WORTH
603 B FUEL 100LL, JET A OX 1, 3 LRA ARFF Index E	H-2K, 4F, 5B, L-13C, A
RWY 17L-35R: H11,388X150 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL CL	IAP
RWY 17L: ALSF2. TDZ. RWY 35R: MALSR. TDZ.	
RWY 17R-35L: H11,388X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL CL	
RWY 17R: MALSR. TDZ. RWY 35L: TDZ. VASI(V6L).	
RWY 18R-36L: H11,388X150(CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL CL	
RWY 18R: ALSF2. TDZ RWY 36L: MALSR. TDZ	
RWY 18L-36R: H11,387X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL CL	
RWY 18L: MALSR. TDZ. RWY 36R: TDZ. VASI(V6L).	
RWY 13R-31L: H9300X150(CONC-GRVD) S-120, D-220, DT-600, DDT-850 HIRL CL	
RWY 13R: MALSR. TDZ. RWY 31L: TDZ.	
RWY 13L-31R: H9000X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL CL 0,5% up NW	
RWY 13L: TDZ. VASI(V6L)—Upper GA 3.25° TCH 93'. Lower GA 3.0° TCH 47'. RWY 31R: MALSR. TDZ.	
RWY 18S-36S: H4000X100 (CONC)	
AIRPORT REMARKS: Attended continuously. Rwy 18S-36S CLOSED indefinitely. Arprt under construction, men and equipment in movement areas. Partial outages of arprt lgt circuits will occur daily. Prior Permission Required from arprt ops for General Aviation acft to proceed to airline terminal gate except to General Aviation Facility. Rwy 18S-36S located on taxiway G, 4000' long 100' wide restricted to prop acft 12,500 lbs. & below and stol acft daylight VFR plus IFR departures. Prior permission required from the primary tenant airlines to operate within central terminal area, CAUTION: proper minimum clearance may not be maintained within the central terminal area. Landing fee. Helipad H1 on apt 104X104 (CONC) Heliport located at Twy G and Twy 24 intersection, daylight VFR. Clearways 500X1000 each end Rwy 17L-35R, Rwy 17R-35L, Rwy 18L-36R and Rwy 18R-36L. Flight Notification Service (ADCUS) available.	
WEATHER DATA SOURCES: LLWAS.	
COMMUNICATIONS: ATIS 117.0 134.9 (ARR) 135.5 (DEP) UNICOM 122.95	
FORT WORTH FSS (FTW) LC 429-6434, TF 1-800-WX-BRIEF. NOTAM FILE DFW	
Ⓜ REGIONAL APP CON 119.05(E) 119.4(E) 125.8(W) 132.1(W)	
REGIONAL TOWER 126.55 (E) 124.15 (W) GND CON 121.65 133.15(E) 121.8 (W) CLNC DEL 128.25 127.5	
Ⓜ REGIONAL DEP CON 118.55 (E) 124.25 (WEST) 127.75 (NORTH-SOUTH)	
TCA: See VFR Terminal Area chart.	
RADIO AIDS TO NAVIGATION: NOTAM FILE DFW.	
(H) VORTACW 117.0 DFW Chan 117 32°51'57"N 97°01'40"W at fld. 560/08E.	
VOR Portion unusable 045°050° all altitudes and distances, 350-100' beyond 30 NM below 2100'.	
ISSUE NDB (LOM) 233 PK 32°47'35"N 97°01'49"W 348° 6.2 NM to fld.	
JIFFY NDB (LOM) 219 FL 32°59'44"N 97°01'46"W 179° 6.0 NM to fld.	
ILS/DME 109.5 I-LWN Chan 32 Rwy 13R.	
ILS/DME 109.1 I-FLQ Chan 28 Rwy 17L. LOM JIFFY NDB.	
ILS 111.5 I-JHZ Rwy 17R. LOM JIFFY NDB.	
ILS 111.3 I-CIX Rwy 18L.	
ILS/DME 111.9 I-VYN Chan 56 Rwy 18R.	
ILS 110.9 I-RRR Rwy 31R.	
ILS/DME 109.1 I-PKQ Chan 28 Rwy 35R. LOM ISSUE NDB.	
ILS/DME 111.9 I-BXN Chan 56 Rwy 36L.	

FIGURE 42.—ILS-1 RWY 36L, Dallas-Fort Worth Intl.

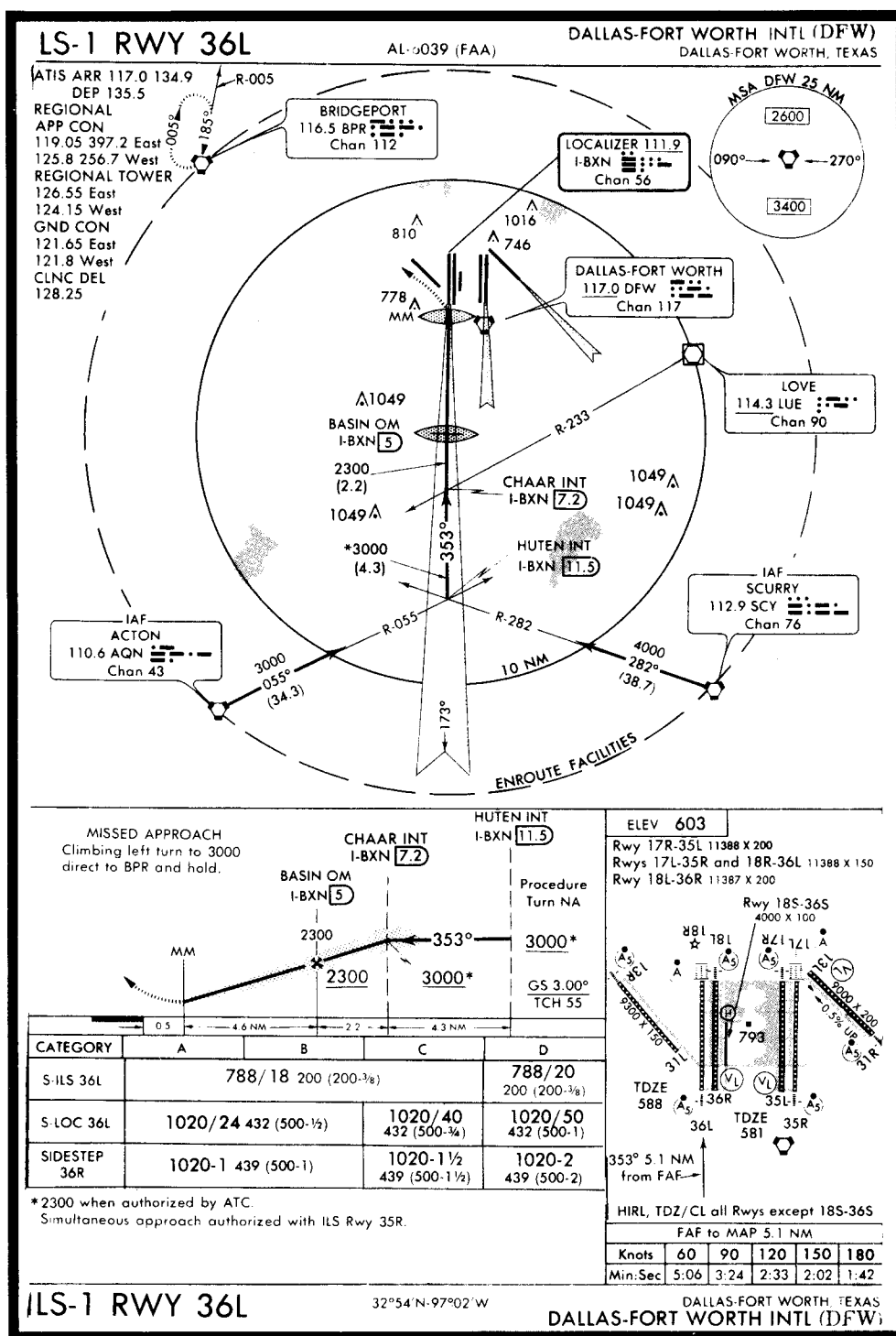


FIGURE 42A.—ILS RWY 36L.

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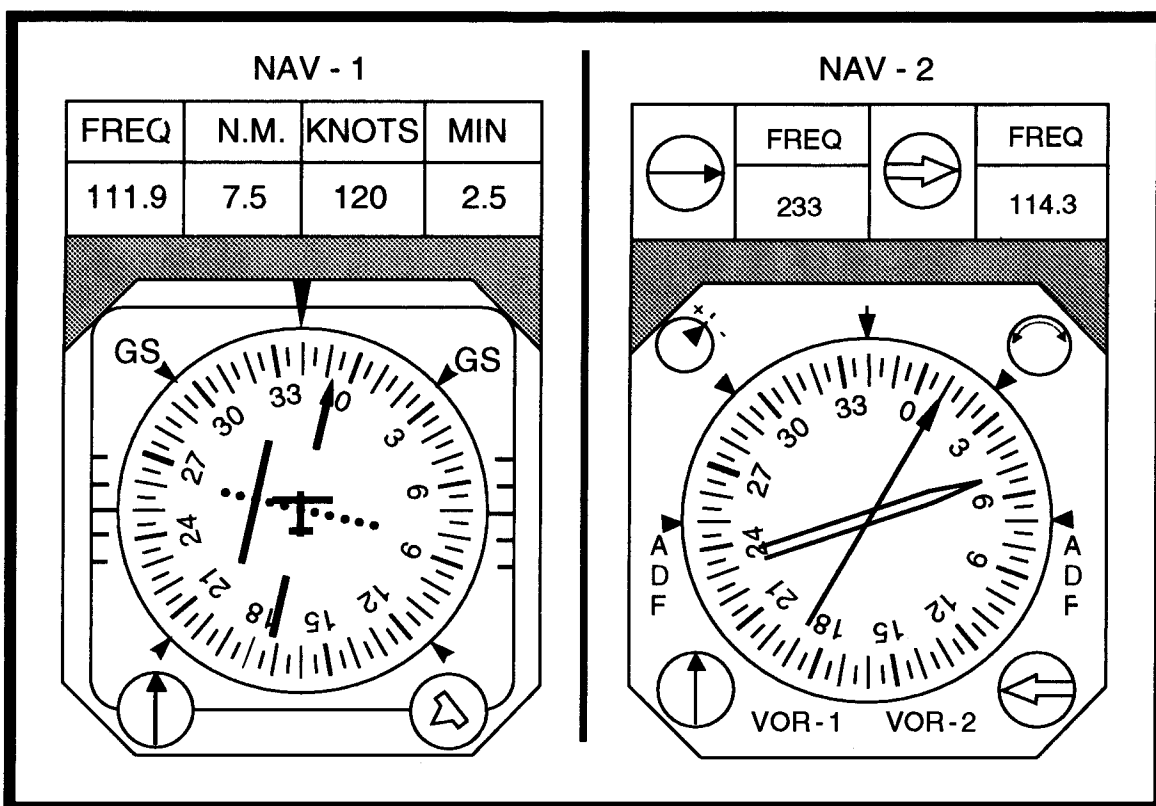


FIGURE 43.—CDI and RMI – NAV 1 and NAV 2.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR		TIME STARTED		SPECIALIST INITIALS	
		<input type="checkbox"/> STOPOVER					
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
<input type="checkbox"/> VFR	N3678A	PA31/	180 KTS	YKM	PROPOSED (Z)	ACTUAL (Z)	12000
<input checked="" type="checkbox"/> IFR							
<input type="checkbox"/> DVFR							
8. ROUTE OF FLIGHT GROMO 2, HITCH, V468 BTG, DIRECT							
9. DESTINATION (Name of airport and city) PORTLAND INTL. AIRPORT PDX			10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS INSTRUMENT TRAINING FLIGHT		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD 2	
				17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			
16. COLOR OF AIRCRAFT GOLD/WHITE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Piper MODEL PA-31
N 3678A Vso 77

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) INOP (VISUAL) X

FIGURE 44.—Flight Plan and Aircraft Information.

FLIGHT LOG													
YAKIMA AIR TERMINAL TO PORTLAND, INTL.													
CHECK POINTS		ROUTE		COURSE	WIND		SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE	TEMP		TAS	GS	LEG	TOT		LEG	TOT		
YKM	HITCH	GROMO 2											
		CLIMB	206°							:10.			
		V468											
		VOR	12,000	206°		180							
	C.O.P.	V468											
	BTG	12,000	234°										
	PDX	DIRECT	160°										
APPROACH & LANDING													
	PDX AIRPORT									:13.			

<p>OTHER DATA: NOTE: MAG. VAR. 20° E.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">FLIGHT SUMMARY</th> </tr> <tr> <th style="width: 20%;">TIME</th> <th style="width: 30%;">FUEL (LB)</th> <th style="width: 50%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 45.—Flight Planning Log.

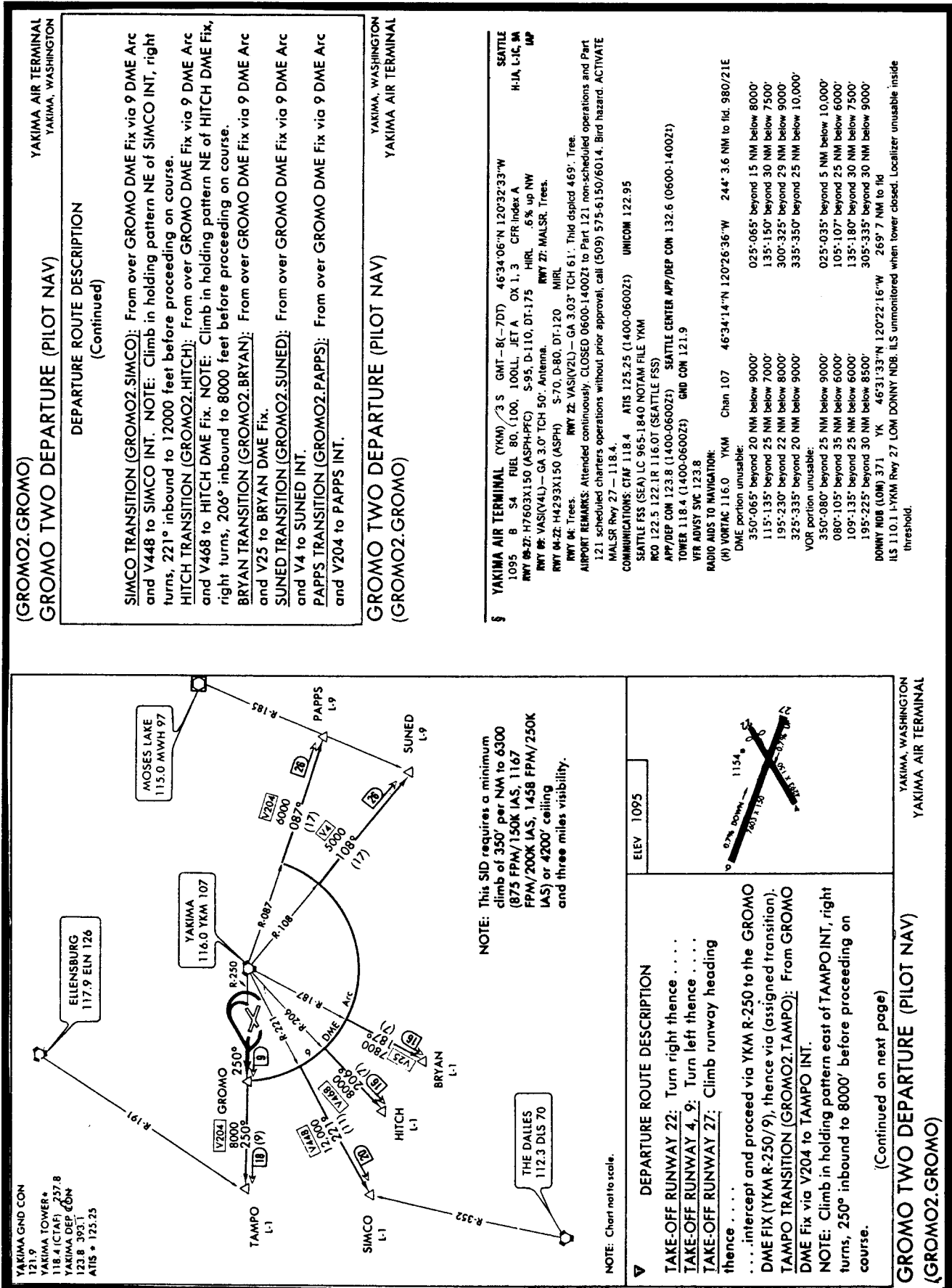


Figure 46.—GROMO Two Departure and Except from Airport/Facility Directory.

(GROMO2.GROMO)

GROMO TWO DEPARTURE (PILOT NAV)

DEPARTURE ROUTE DESCRIPTION
(Continued)

SIMCO TRANSITION (GROMO2.SIMCO): From over GROMO DME Fix via 9 DME Arc and V448 to SIMCO INT. **NOTE:** Climb in holding pattern NE of SIMCO INT, right turns, 221° inbound to 12000 feet before proceeding on course.

HITCH TRANSITION (GROMO2.HITCH): From over GROMO DME Fix via 9 DME Arc and V468 to HITCH DME Fix. **NOTE:** Climb in holding pattern NE of HITCH DME Fix, right turns, 206° inbound to 8000 feet before proceeding on course.

BRYAN TRANSITION (GROMO2.BRYAN): From over GROMO DME Fix via 9 DME Arc and V25 to BRYAN DME Fix.

SUNED TRANSITION (GROMO2.SUNED): From over GROMO DME Fix via 9 DME Arc and V4 to SUNED INT.

PAPPS TRANSITION (GROMO2.PAPPS): From over GROMO DME Fix via 9 DME Arc and V204 to PAPPS INT.

GROMO TWO DEPARTURE (PILOT NAV)

(GROMO2.GROMO)

YAKIMA AIR TERMINAL (YKM) / 3 S GMT -8(-7DT) 46°34'06"N 120°32'33"W SEATTLE 1095 B S4 FUEL 80. (100, 100LL, JET A OX 1, 3 CFR Index A H-IA, L-C, M IM RWY 09:Z: H7603X150 (ASPH-PPC) S-95, D-110, DT-175 HRL 6.8% up NW RWY 09: VAS(VAL)—GA 3.0° TCH 50'. Antenna. RWY Z: MALSR. Trees. RWY 04:Z: H4293X150 (ASPH) S-70, D-80, DT-120 MRL RWY 04: VAS(V2L)—GA 3.03° TCH 61'. Thid dsplcd 469'. Tree. AIRPORT REMARKS: Attended continuously. CLOSED 0600-1400Z to Part 121 non-scheduled operations and Part 121 scheduled charters operations without prior approval, call (509) 575-6150/6014. Bird hazard. ACTWATE MALSR Rwy 27 — 118.4.

COMMUNICATIONS: CTAF 118.4 ATIS 125.25 (1400-0600Z) UNICOM 122.95
SEATTLE FSS (SEA) LC 965-1840 NOTAM FILE YKM
RCO 122.5 122.1R 116.0T (SEATTLE FSS)
APP/DEP CON 123.8 (1400-0600Z) SEATTLE CENTER APP/DEP CON 132.6 (0600-1400Z)
TOWER 118.4 (1400-0600Z) GND CON 121.9
VFR ADVISY SVC 123.8
RADIO AIDS TO NAVIGATION:
(H) VORTAC 116.0 YKM Chan 107 46°34'14"N 120°26'36"W 244' 3.6 NM to fld. 980/21E
DME portion unusable:
350'-065' beyond 20 NM below 9000' 025'-065' beyond 15 NM below 8000'
115'-135' beyond 25 NM below 7000' 135'-150' beyond 30 NM below 7500'
195'-230' beyond 22 NM below 8000' 300'-325' beyond 29 NM below 9000'
325'-335' beyond 20 NM below 9000' 335'-350' beyond 25 NM below 10,000'
VOR portion unusable:
350'-080' beyond 25 NM below 9000' 025'-035' beyond 5 NM below 10,000'
080'-105' beyond 35 NM below 6000' 105'-107' beyond 25 NM below 6000'
109'-135' beyond 25 NM below 6000' 135'-180' beyond 30 NM below 7500'
195'-225' beyond 30 NM below 8500' 305'-335' beyond 30 NM below 9000'
DONNY NDB (LOW) 371 YK 46°31'33"N 120°22'16"W 269' 7 NM to fld
ILS 110.1 1-YKM Rwy 27 LOM DONNY NDB. ILS unmonitored when tower closed. Localizer unusable inside threshold.

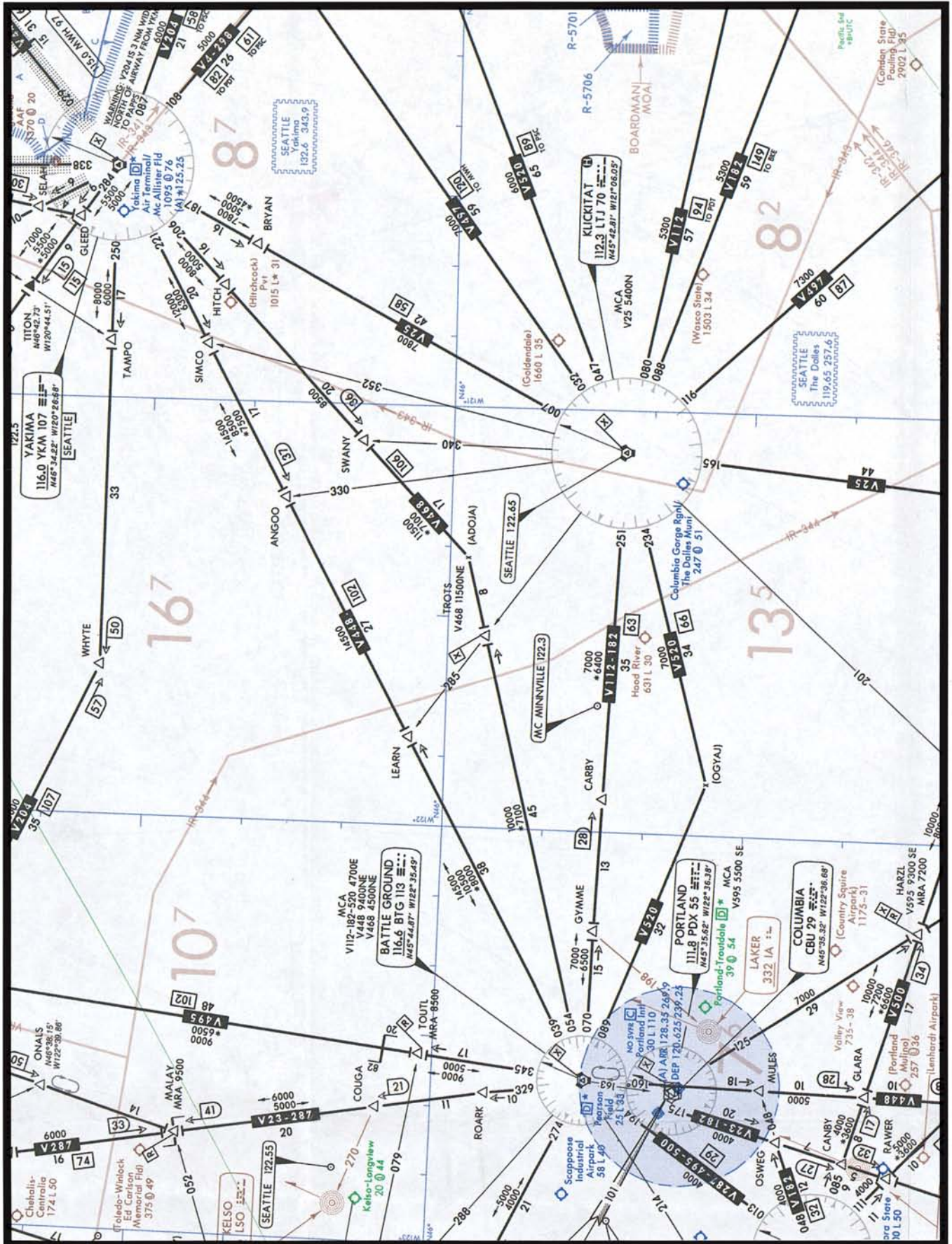


FIGURE 47.—En Route Chart Segment.

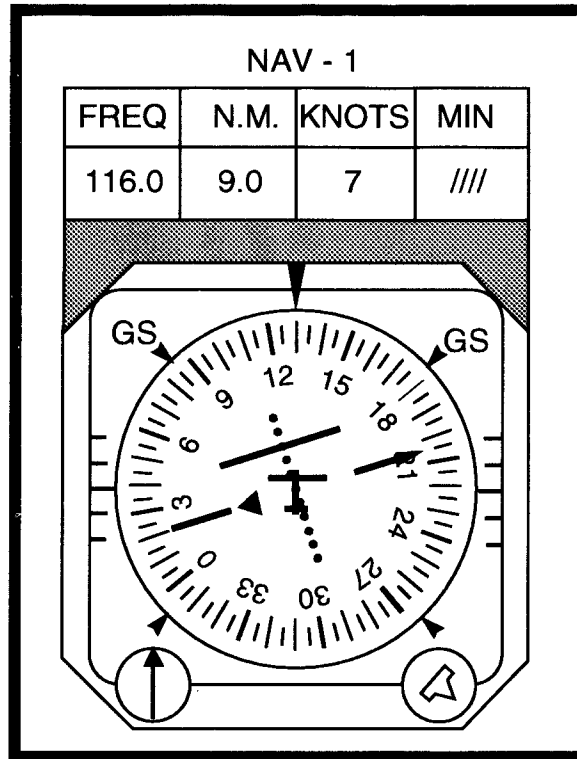


FIGURE 48.—CDI — NAV 1.

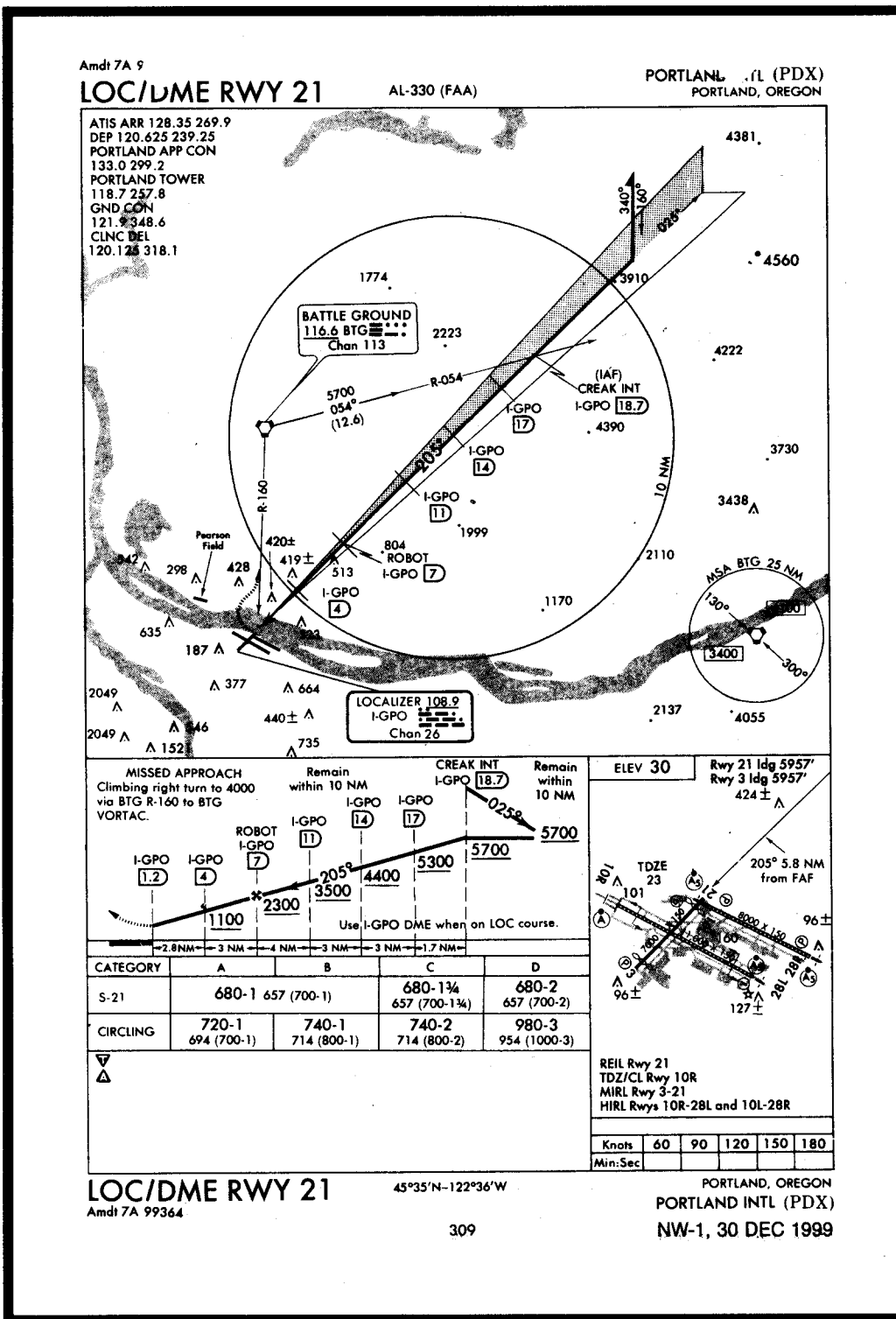


FIGURE 49.—LOC/DME RWY 21 (PDX).

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Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR		TIME STARTED		SPECIALIST INITIALS	
		<input type="checkbox"/> STOPOVER					
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
<input type="checkbox"/> VFR	N2468	A36/	158 kts	SBA	PROPOSED (Z)	ACTUAL (Z)	8000
<input checked="" type="checkbox"/> IFR							
<input type="checkbox"/> DVFR							
8. ROUTE OF FLIGHT HABUTI GVO, V27 MQO, V113 PRB							
9. DESTINATION (Name of airport and city) PASO ROBLES MUNI PRB		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS IFR TRAINING FLIGHT			
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD 2	
				17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)			
16. COLOR OF AIRCRAFT GOLD/WHITE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Beechcraft MODEL A-36
N 2468 Vso 52

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) INOP

FIGURE 50.—Flight Plan and Aircraft Information.

FLIGHT LOG											
SANTA BARBARA MUNI TO PASO ROBLES MUNI											
CHECK POINTS		ROUTE	COURSE	WIND	SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE		TEMP	TAS	GS		LEG	TOT	LEG	TOT
SBA	HABUT	HABUT 1	253°					:08:00			
		CLIMB									
	GVO	163° R	343°			158					
		8000									
	MQO	V27	306°								
		8000									
	PRB	V113	358°								
APPROACH & LANDING		DESCENT						:10:00			
	PRB AIRPORT										

OTHER DATA: NOTE: MAG. VAR. 16° E.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">FLIGHT SUMMARY</th> </tr> <tr> <th style="width: 30%;">TIME</th> <th style="width: 30%;">FUEL (LB)</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 51.—Flight Planning Log.

SANTA BARBARA MUNI
SANTA BARBARA, CALIFORNIA

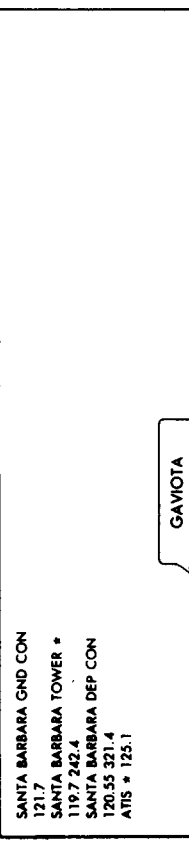
HABUT ONE DEPARTURE (HABUT1.GVO)

DEPARTURE ROUTE DESCRIPTION
(Continued)

TAKE-OFF RUNWAY 25: Climb westbound via I-SBA localizer west course to HABUT INT, thence via GVO R-163 to GVO VORTAC. Cross SBA R-249 at or above 6000'.

SANTA BARBARA MUNI
SANTA BARBARA, CALIFORNIA

HABUT ONE DEPARTURE (HABUT1.GVO)



SANTA BARBARA, CALIFORNIA
SANTA BARBARA MUNI

HABUT ONE DEPARTURE (HABUT1.GVO)

SANTA BARBARA MUNI (SBA) 7 W GMT-8(-7DT) 34°25'34"N 119°50'22"W LOS ANGELES
10 B S4 FUEL 80, 100, 100LL, JETA OX 1, 2, 3, 4 TPA—See Remains
CFR Index C
Rwy 07-25: H6049X150 (ASPH-GRVD) S-110, D-160, DT-245 HIRL
Rwy 07: MALSR, Tree, Rgt t/c Rwy 25: VASI(V4L)—GA 3.0° TCH 46', Thid disp'd 324', Road.
Rwy 15R-33L: H4183X100 (ASPH) S-48, D-53, DT-100 MIRL
Rwy 15R: REL. Pole. Rwy 33L: Road, Rgt t/c.
Rwy 15L-33R: H4179X75 (ASPH) S-35, D-41, DT-53
Rwy 15L: Thid disp'd 225', Tree. Rwy 33R: Pole, Rgt t/c.
AIRPORT REMARKS: Attended 1330-0600Z. Fee after hours. Numerous flocks of birds on and in vicinity of aprt.
TPA—1000(990) small act, 1500(1490) large act. Pure jet touch/go or low approaches prohibited.
COMMUNICATIONS: CTAF 119.7 ATIS 125.1 (1430-0600Z) UNICOM 122.95
SANTA BARBARA FSS (SBA) on aprt 123.65, 122.2, 122.1R, 116.5T LD (805) 967-2305, DL NOTAM FILE SBA.
① RPT COM 125.4 (1430-0600Z) ② DEP COM 120.55 (1430-0600Z)
③ LOS ANGELES CENTER RPT/DEP COM 128.05 (0600-1430Z)
TOWER 119.7 (1430-0600Z) GND COM 121.7
VFR ADVISY SVC ctc TOWER

SANTA BARBARA, CALIFORNIA
SANTA BARBARA MUNI

HABUT ONE DEPARTURE (HABUT1.GVO)

NOTE: IFR departure Rwy 33L/R not authorized.
NOTE: Chart not to scale

SANTA BARBARA, CALIFORNIA
SANTA BARBARA MUNI

HABUT ONE DEPARTURE (HABUT1.GVO)

DEPARTURE ROUTE DESCRIPTION
TAKE-OFF RUNWAY 7: Maintain runway heading to at least 650', then turn right, thence intercept and climb westbound via I-SBA localizer west course to HABUT INT, thence via GVO R-163 to GVO VORTAC. Cross SBA R-249 at or above 6000'.
TAKE-OFF RUNWAY 15: Maintain runway heading to at least 310', then turn right, thence intercept and climb westbound via I-SBA localizer west course to HABUT INT, thence via GVO R-163 to GVO VORTAC. Cross SBA R-249 at or above 6000'.

SANTA BARBARA, CALIFORNIA
SANTA BARBARA MUNI

HABUT ONE DEPARTURE (HABUT1.GVO)

(Continued on next page)

CALIFORNIA

VOR RECEIVER CHECK POINTS

Facility Name (Apt Name)	Freq/Ident	AB/ALT	Mag	Dist. from Fac.	N.M.	Check Point Description
Sacramento (Sacramento Executive)	115.2/SAC	A/1000	015			Over apch end rwy 02 0.4 NM on Compass rose.
Salinas (Salinas Muni)	117.3/SNS	G	247			
Santa Ana (John Wayne Airport/Orange County)	109.4/SNA	G	186			On runup pad rwy 01R. Over Lake Cachuma Dam spillway.
Santa Barbara	114.9/SBA	A/2000	277	11		
Santa Barbara (Santa Barbara Muni)	114.9/SBA	G	200	5.9		On runup area end rwy 15.

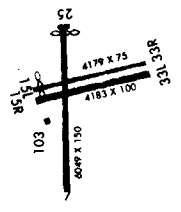


FIGURE 52.—HABUT One Departure and Excerpt from Airport/Facility Directory.

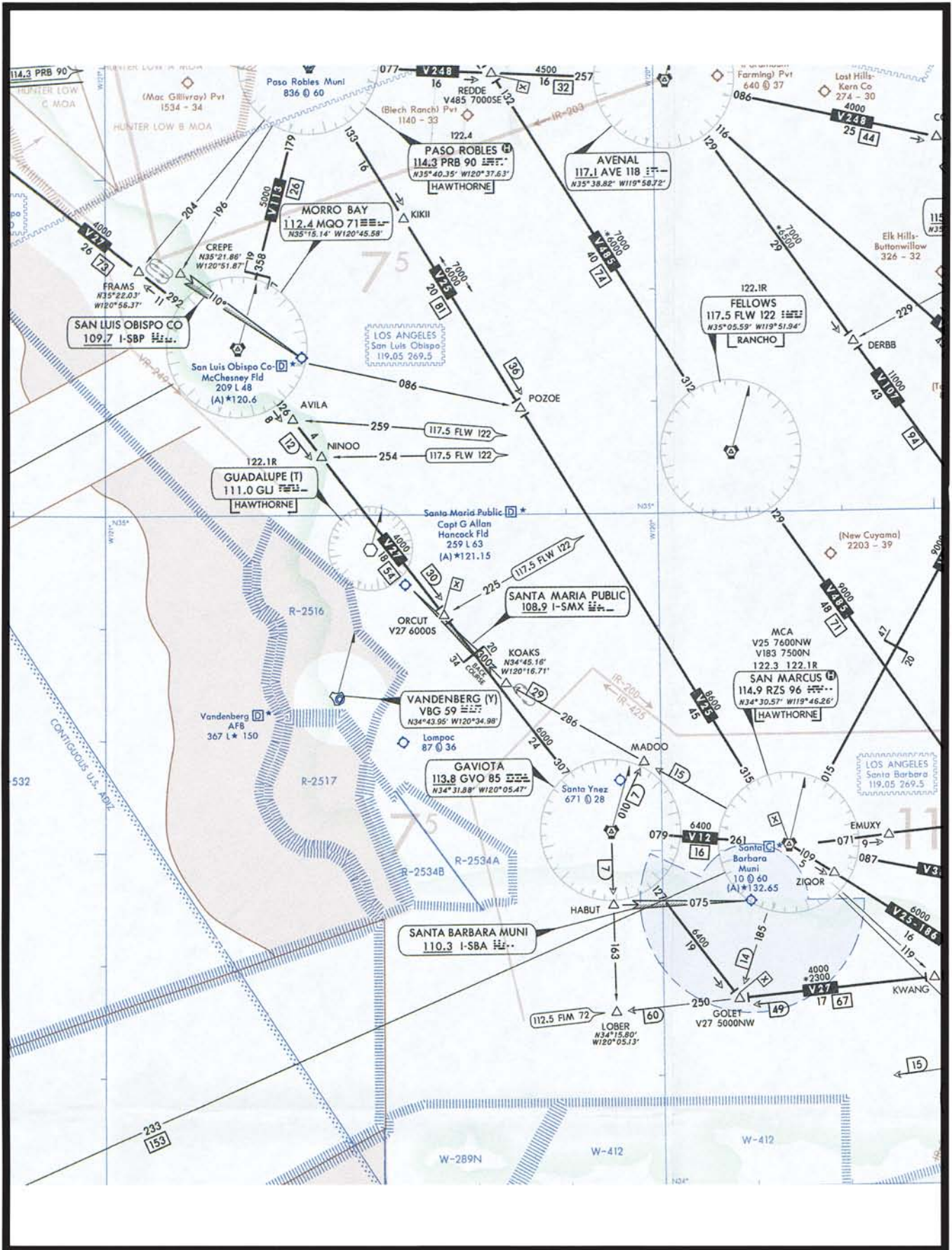


FIGURE 53.—En Route Chart Segment.

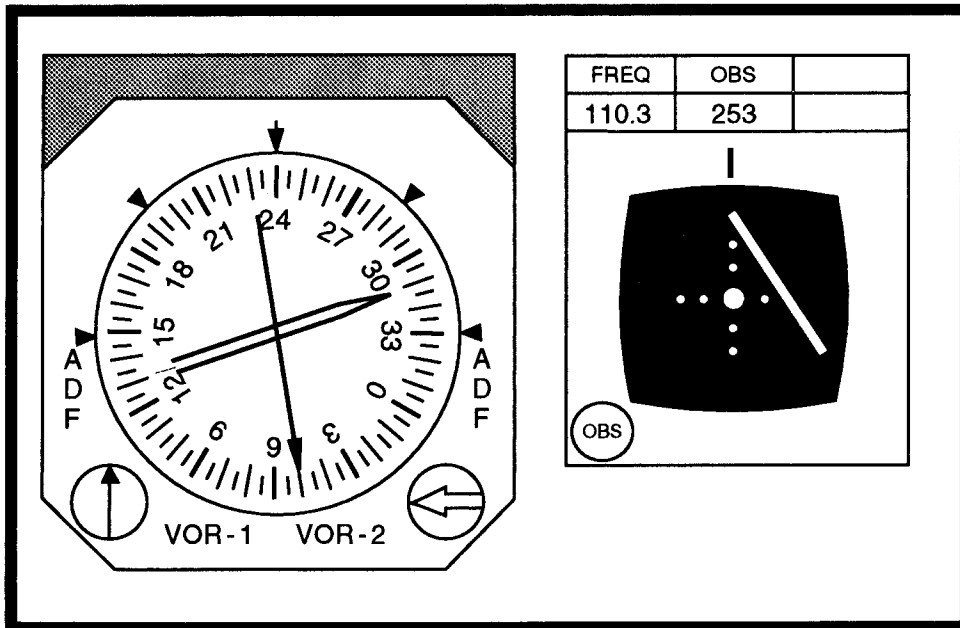


FIGURE 54.—RMI and CDI Indicators.

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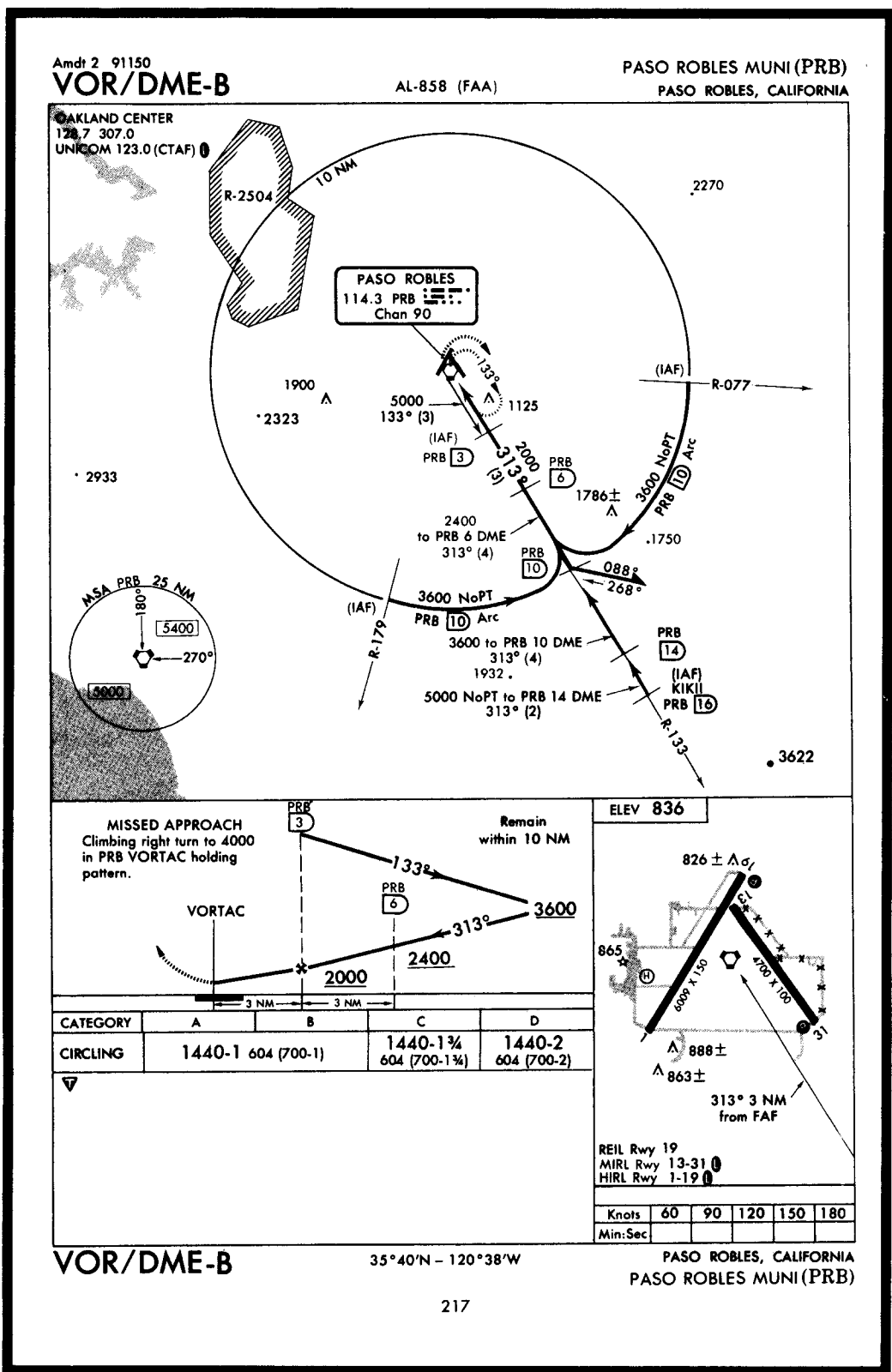


FIGURE 55.—VOR/DME-B (PRB).

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY)		<input type="checkbox"/> PILOT BRIEFING	<input type="checkbox"/> VNR	TIME STARTED	SPECIALIST INITIALS
				<input type="checkbox"/> STOPOVER			
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
<input type="checkbox"/> VFR	N12193	BH 206/	110 KTS	EASTERWOOD FIELD	PROPOSED (Z)	ACTUAL (Z)	7000
<input checked="" type="checkbox"/> IFR							
<input type="checkbox"/> DVFR							
8. ROUTE OF FLIGHT DIRECT CLL, V15 TNV, V571 IAH, DIRECT							
9. DESTINATION (Name of airport and city)		10. EST. TIME ENROUTE		11. REMARKS			
WILLIAM P HOBBY AIRPORT HOUSTON, TX		HOURS	MINUTES				
12. FUEL ON BOARD		13. ALTERNATE AIRPORT(S)		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD	
HOURS	MINUTES	N/A				2	
16. COLOR OF AIRCRAFT		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					
TAN/GOLD/WHITE							

FAA Form 7233-1 (6-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Bell

MODEL 206L

N 12193

Vso N/A

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 56.—IFR Flight Plan and Aircraft Information.

FLIGHT LOG											
EASTERWOOD FIELD TO WILLIAM P HOBBY AIRPORT											
CHECK POINTS		ROUTE	COURSE	WIND	SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE		TEMP	TAS	GS		LEG	TOT	LEG	TOT
EASTERWOOD	CLL	DIRECT CLIMB V15	DIRECT					:05:			
	TNV	7000 V571	127°		110		27				
	IAH	7000	110°				42				
	HUB	DIRECT 7000	161°				18				
APPROACH & LANDING								:15:			
	HOBBY AIRPORT										

<p>OTHER DATA: NOTE: MAG. VAR. 6° E.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">FLIGHT SUMMARY</th> </tr> <tr> <th>TIME</th> <th>FUEL (LB)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 57.—Flight Planning Log.

COLLEGE STATION

EASTERWOOD FLD (CLL) 3 SW UTC-6(-5DT) 30°35'18"N 96°21'49"W **HOUSTON**
 320 B S4 FUEL 100LL, JET A OX 2 ARFF Index A **H-2K, 5B, L-17A**
RWY 16-34: H7000X150 (ASPH-GRVD) S-70, D-90, DT-150 MIRL **IAP**
RWY 16: VASI(V4R)—GA 3.0'TCH 51'. Tree. **RWY 34:** MALSR.
RWY 10-28: H5160X150 (CONC) S-27, D-50, DT-87 MIRL
RWY 10: VASI(V4L)—GA 3.0'TCH 50'. Tree. **RWY 28:** REIL VASI(V4L)—GA 3.0' TCH 54'. Tree.
RWY 04-22: H5149X150 (CONC) S-27, D-50, DT-87
RWY 04: Tree. **RWY 22:** Tree.
AIRPORT REMARKS: Attended 1200-0500Z±. CAUTION: deer on rwys. CAUTION: Rwy 10-28 taxiway B and taxiway E have uneven surfaces. Birds on and in vicinity of arpt. MIRL Rwy 10-28 preset medium ints when twr clsd, to increase ints and ACTIVATE MIRL Rwy 16-34 and MALSR Rwy 34—CTAF. CLOSED to unscheduled air carrier ops with more than 30 passenger seats except 24 hours PPR call, arpt manager 409-845-4811. Rwy 04-22 day VFR ops only. Itinerant acft park North of twr, overnight parking fee. Ldg fee scheduled FAR 135 and all FAR 121 ops. For fuel after hours PPR call 409-845-4811/823 -0690 or ctc Texas A and M University police 409-845-2345; late ngt fee. Rwy 16-34 grvd except south 200'. Rwy 04-22 deteriorating and vegetation growing through cracks. NOTE: See SPECIAL NOTICE—Simultaneous Operations on Intersecting Runways.
COMMUNICATIONS: CTAF 118.5 ATIS 126.85 (1200-0400Z±) UNICOM 122.95
MONTGOMERY COUNTY FSS (CXO) TF 1-800-WX-BRIEF. NOTAM FILE CLL.
COLLEGE STATION RCO 122.65 122.2 (MONTGOMERY COUNTY FSS).
 (R) **HOUSTON CENTER APP/DEP CON: 120.4**
TOWER: 118.5 (1200-0400Z±) (VFR only) GND CON: 121.7
RADIO AIDS TO NAVIGATION: NOTAM FILE CLL. VHF/DF ctc FSS
COLLEGE STATION (L) VORTACW 113.3 CLL Chan 80 30°36'17"N 96°25'13"W 100° 3.1 NM to fld.
 370/08E. HIWAS.
ROWDY NDB (LOM) 260 CL 30°29'36"N 96°20'16"W 341° 5.9 NM to fld.
ILS 111.7 I-CLL Rwy 34 LOM ROWDY NDB. ILS unmonitored when twr closed.

COLLEGE STATION 30°36'17"N 96°25'13"W NOTAM FILE CLL. HOUSTON
(L) VORTACW 113.3 CLL Chan 80 100° 3.1 NM to Easterwood Fld. 370/08E. HIWAS. H-2K, 5B, L-17A
RCO 122.65 122.2 (MONTGOMERY COUNTY FSS)

VOR RECEIVER CHECK

TEXAS

VOR RECEIVER CHECK POINTS

Facility Name (Arpt Name)	Freq/Ident	Type Check Pt. Gnd. AB/ALT	Azimuth from Fac. Mag	Dist. from Fac. N.M.	Check Point Description
Abilene (Abilene Regional)	113.7/ABI	A/2800	047	10.1	Over silos in center of Ft Phantom Lake.
Alice (Alice International)	114.5/ALI	G	270	0.5	On twy N of hangar.
Amarillo (Amarillo International)	117.2/AMA	G	210	4.5	On east runup pad Rwy 22
Austin (Robert Mueller Muni)	114.6/AUS	G	118	0.6	On runup area on twy to Rwy 31L.
Beaumont (Jefferson County).....	114.5/BPT	G	310	1.0	On runup area for Rwy 12
Big Spring (Big Spring McMahon-Wrinkle)	114.3/BGS	A/3500	107	10.5	Over red and white water tank.
Borger (Hutchinson Co).....	108.6/BGD	G	175	6.7	On intersecting twy in front of terminal.
Brownsville (Brownsville/South Padre Island Intl)	116.3/BRO	G	248	3.2	On NE corner of parking ramp.
Brownwood (Brownwood Muni).....	108.6/BWD	A/2600	169	6.2	Over rotating bcn.
Childress (Childress Muni).....	117.6/CDS	G	353	3.7	At intersection of edge of ramp at center twy.
College Station (Easterwood Field)	113.3/CLL	G	097	3.2	On W edge of parking ramp
Corpus Christi (Corpus Christi Intl).....	115.5/CRP	A/1100	187	7.5	Over grain elevator.
Corpus Christi (San Patricio County)....	115.5/CRP	A/1000	318	9.5	Over rotating beacon on arpt.
Daisetta (Liberty Muni).....	116.9/DAS	A/1200	195	7.5	Over hangar S of arpt.
Dalhart (Dalhart Muni).....	112.0/DHT	G	170	3.9	On SE corner of main ramp
Eagle Lake (Eagle Lake).....	116.4/ELA	A/1200	180	4.5	Over water tank 0.4 NM S of

FIGURE 58.—Excerpts from Airport/Facility Directory.

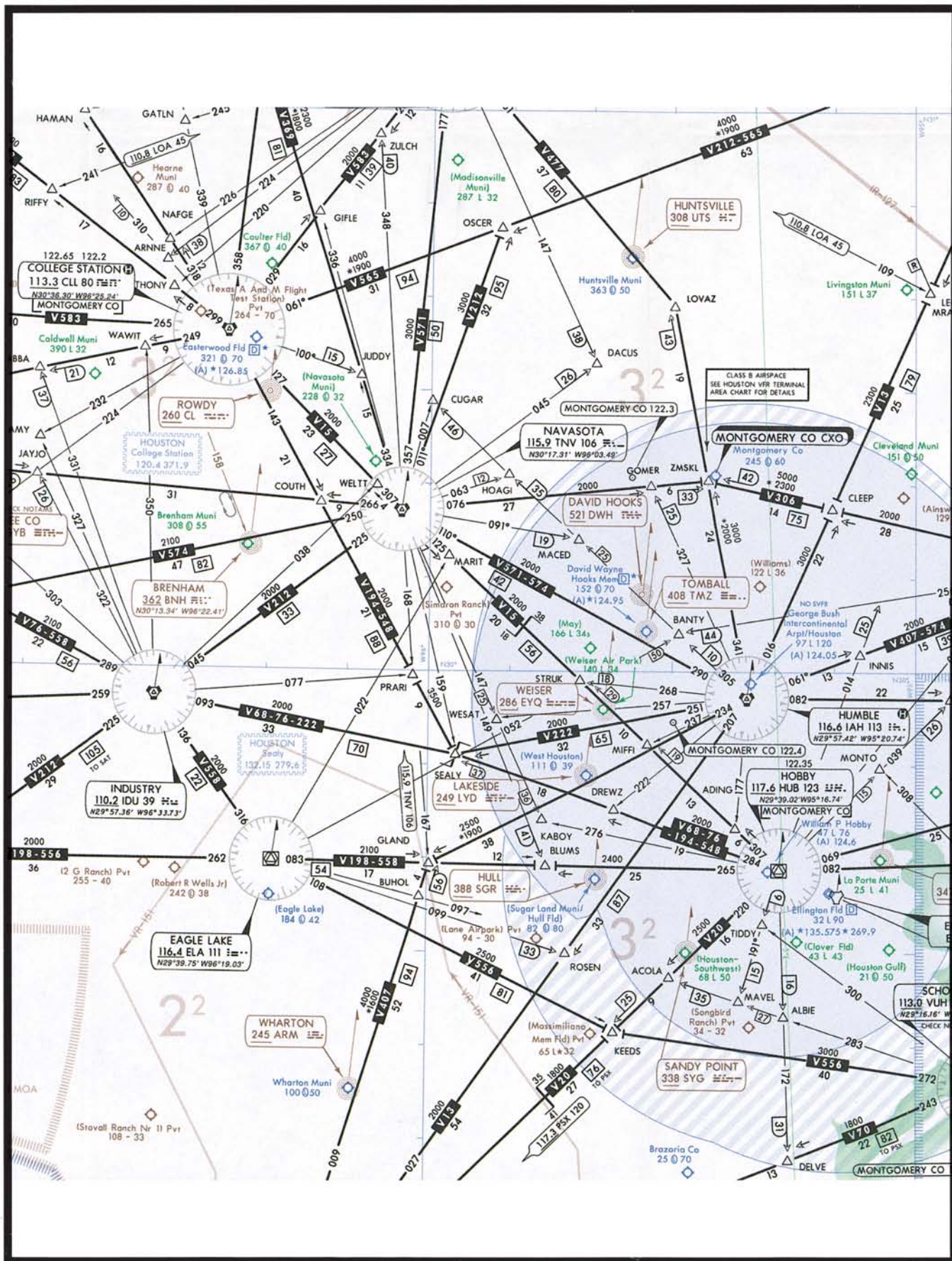


FIGURE 59.—En Route Chart Segment.

TEXAS

172 **HOUSTON**

WILLIAM P. HOBBY (HOU) 8 SE UTC-6(-5DT) 29°38'43"N 95°16'43"W **H-5B, L-17B**

47 B S4 FUEL 100, JET A OX 1, 2, 3, 4 LRA ARFF Index C **IAP**

RWY 04-22: H7602X150 (CONC-GRVD) S-75, D-200, DT-400 HIRL CL

RWY 04: MALSR. TDZ. RWY 22: MALS. VASI(V4L)—GA 3.0' TCH 52'. Pole.

RWY 12R-30L: H7601X150 (ASPH-GRVD) S-75, D-195, DT-220 HIRL CL

RWY 12R: MALSR. VASI(V4R)—GA 3.0'TCH 49'. Thld dsplcd 1032'. Pole.

RWY 30L: REIL. Thld dsplcd 200'. Road.

RWY 17-35: H6000X150 (CONC-ASPH-GRVD) S-75, D-121, DT-195 MIRL

RWY 17: VASI(V4L)—GA 3.0'TCH 38'. Antenna. RWY 35: VASI(V4R)—GA 3.0'TCH 41'. Building.

RWY 12L-30R: H5149X100 (CONC-GRVD) S-30, D-45, DT-80 MIRL

RWY 12L: VASI(V4L)—GA 3.0'TCH 52'. RWY 30R: Antenna.

AIRPORT REMARKS: Attended continuously. Arpt CLOSED to acft with wing span over 117' except 24 hours PPR, call arpt manager 713-643-4597. CAUTION: numerous birds on and in vicinity of arpt. CAUTION to larger acft: W ramp twy centerline to parked acft on W side only 68'. W ramp twy centerline to edge of adjacent svc vehicle road on W side only 48'. PPR to taxi to main terminal bldg, call 713-643-4597. Flight Notification Service (ADCUS) available. NOTE: See SPECIAL NOTICE—Simultaneous Operations on Intersecting Runways.

WEATHER DATA SOURCES: LLWAS.

COMMUNICATIONS: ATIS 124.6 UNICOM 122.95
 MONTGOMERY COUNTY FSS (CXO) TF 1-800-WX-BRIEF. NOTAM FILE HOU.
 HOBBY RCO 122.35 (MONTGOMERY COUNTY FSS)
 HOUSTON APP COM 120.8 (South) 124.35 (West) 120.05(North and East)
 HOBBY TOWER 118.7 HOUSTON GND CON 121.9 CLNC DEL 125.45 PRE-TAXI CLNC 125.45
 HOUSTON DEP CON 120.8 (South) 123.8 (West) 119.7 (North and East)
 ARSA ctc APP COM

RADIO AIDS TO NAVIGATION: NOTAM FILE HOU.
 HOBBY (H) VOR/W/DME 117.6 HUB Chan 123 29°39'00"N 95°16'44"W at fld. 50/06E.
 TUTTE NDB (LOM) 395 HU 29°35'20"N 95°20'25"W 038' 4.7 NM to fld.
 ILS/DME 111.3 I-PRQ Chan 50 Rwy 12R.
 ILS/DME 109.9 I-HUB Chan 36 Rwy 04 LOM TUTTE NDB. BC unusable beyond 25' SE of centerline.
 ILS/DME 111.3 I-UPU Chan 50 Rwy 30L.

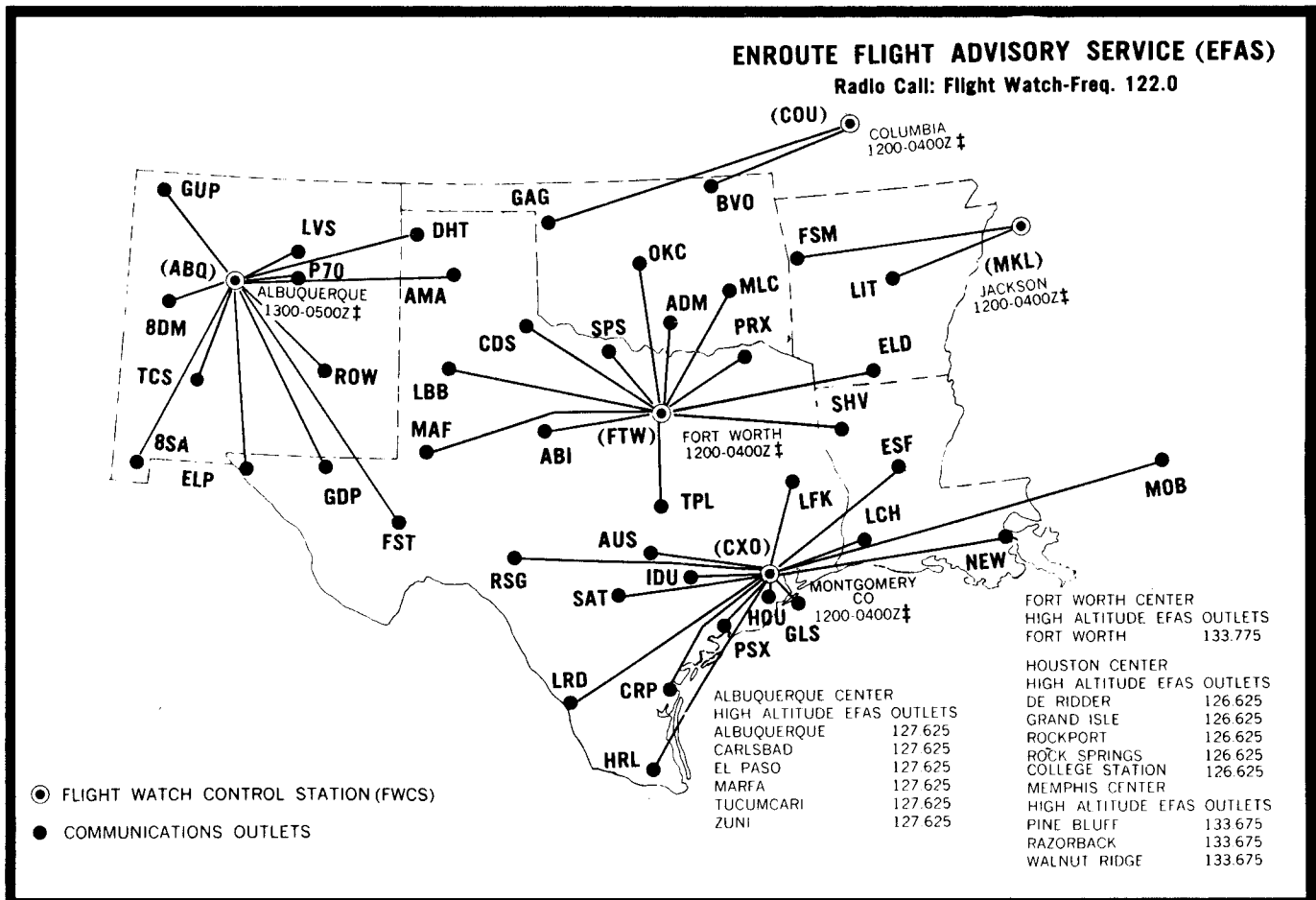


FIGURE 60.—Airport/Facility Directory and Enroute Flight Advisory Service (EFAS).

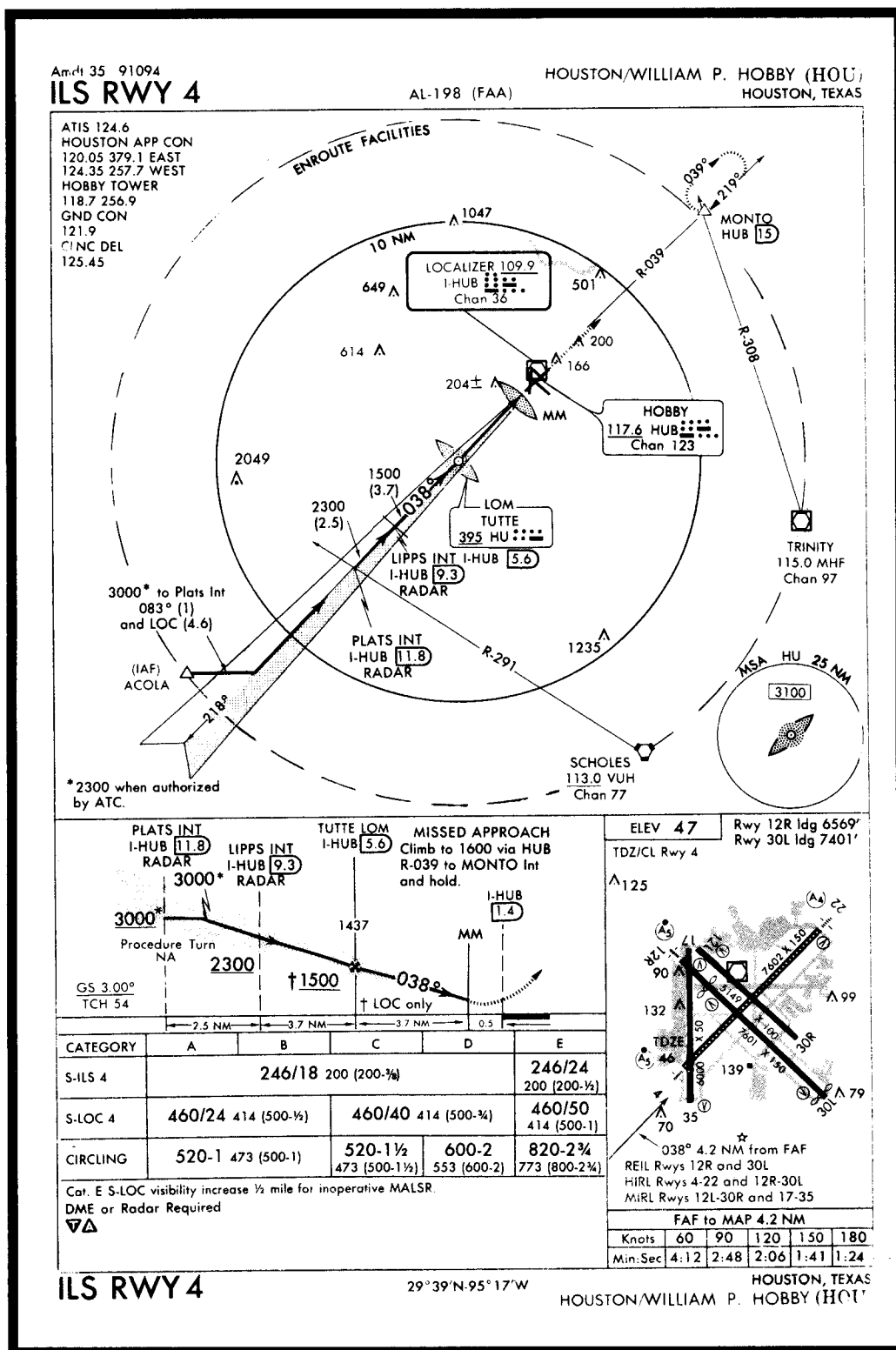


FIGURE 60A.—ILS RWY 4 (HOU).

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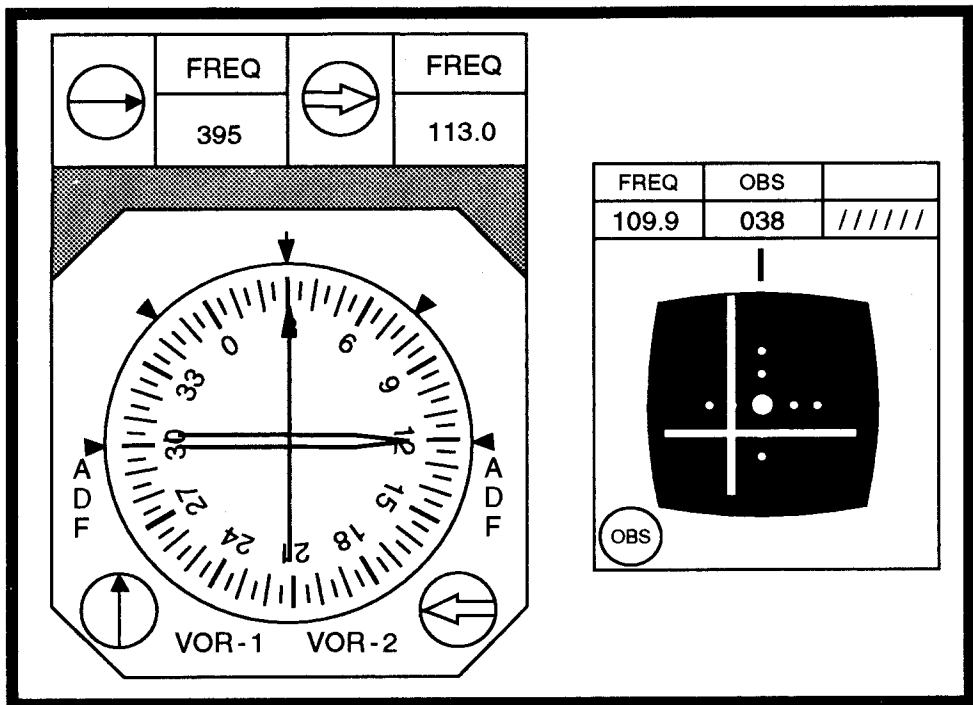


FIGURE 61.—RMI and CDI Indicators.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER		TIME STARTED	SPECIALIST INITIALS	
1. TYPE VFR <input checked="" type="checkbox"/> IFR DVFR	2. AIRCRAFT IDENTIFICATION N321JL	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT HU369/	4. TRUE AIRSPEED 105 KTS	5. DEPARTURE POINT LFT	6. DEPARTURE TIME PROPOSED (Z) ACTUAL (Z)	7. CRUISING ALTITUDE 5000
8. ROUTE OF FLIGHT DIRECT LFT, V552 TBD						
9. DESTINATION (Name of airport and city) HOUMA TERREBONNE LA (HUM)		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		15. NUMBER ABOARD 2
16. COLOR OF AIRCRAFT ORANGE/BLACK/WHITE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Hughes MODEL 369
N 321JL Vso N/A

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
VOR NO. 1 X (NO. 2) X ADF: X RNAV: X
VERTICAL PATH COMPUTER: N/A DME: X
MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 62.—Flight Plan and Aircraft Information.

FLIGHT LOG												
LAFAYETTE REGIONAL TO HOUMA TERREBONNE (HUM)												
CHECK POINTS		ROUTE		COURSE	WIND TEMP	SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE				TAS	GS		LEG	TOT	LEG	TOT
LFT AIRPORT	LFT VOR	DIRECT CLIMB							:05:0			
	HATCH	V552 5000	114°			105						
	GRICE	V552 5000	116°									
	TBD	V552 5000	116°									
APPROACH & LANDING	HUM AIRPORT	DESCENT	117°						:10:0			

<p>OTHER DATA: NOTE: MAG. VAR. 6° E.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">FLIGHT SUMMARY</th> </tr> <tr> <th>TIME</th> <th>FUEL (LB)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 63.—Flight Planning Log.

LOUISIANA					
VOR RECEIVER CHECK POINTS					
Facility Name (Arpt Name)	Freq/Ident	Type Check Pt. Gnd AB/ALT	Azimuth from Fac. Mag	Dist. from Fac. N.M.	Check Point Description
Baton Rouge (Baton Rouge Metro, Ryan)	116.5/BTR	A/1500	063	7.7	Over water tank W side of arpt.
Downtown	108.6/DTN	A/1500	290	10	Over white water tower.
Esler (Esler Regional)	108.8/ESF	G	151	3.5	On ramp in front of admin bldg
Hammond (Hammond Muni)	109.6/HMU	G	342	.6	On twy W side app end Rwy 18.
Lafayette (Lafayette Regional)	110.8/LFT	A/1000	340	25	Over rotating beacon.
Lake Charles (Lake Charles Muni)	113.4/LCH	A/1000	253	6.2	Over rotg bcn on atct.
Monroe (Monroe Muni)	117.2/MLU	G	209	0.9	On ramp SE of atct.
Natchez (Concordia Parish)	110.0/HEZ	A/1000	247	10.5	Over hangar NW end of field.
New Orleans (Lakefront)	113.2/MSY	A/1000	081	7.7	Over lakefront atct.
Ruston	112.8/RSN	A/2000	343	14	Over hwy & RR crossing at Dubash.
Shreveport (Shreveport Downtown)	108.6/DTN	G	307	.5	On runup area N side of rwy 14.
Shreveport (Shreveport Regional)	117.4/SHV	A/1200	175	19.3	Over old terminal building.
Tibby (Thibodaux Muni)	112.0/TBD	A/1000	006	5.0	Over railroad bridge off apch end rwy 26.
	112.0/TBD	A/1000	117	10.0	Over intersection of rwys 17-35 and 12-30

LAFAYETTE REGIONAL (LFT) 2 SE GMT-6(-5DT) 30°12'14"N 91°59'16"W **HOUSTON**
 42 B S4 FUEL 100LL, JET A OX 1 CFR Index B **H-4F, L-17C**
RWY 03-21: H7651X150 (ASPH-GRVD) S-75, D-170, DT-290 HIRL **IAP**
RWY 03: REIL VASI(V4L)—GA 3.0° TCH 35'. Tree.
RWY 21: MALSR VASI(V4L)—GA 3.0° TCH 44'. Tree.
RWY 10-28: H5401X150 (ASPH) S-85, D-110, DT-175 MIRL
RWY 10: REIL (out of svc indefinitely). VASI(V4L)—GA 3.0° TCH 35.33'. Tree.
RWY 28: REIL VASI(V4L)—GA 3.0° TCH 55'. Thld dsplcd 202'. Tree.
RWY 01-19: H5069X150 (ASPH) S-25, D-45
RWY 01: VASI(V4R)—GA 3.0° TCH 50'. Tree.
AIRPORT REMARKS: Attended continuously. Rwy 01-19 closed to air carriers. ACTIVATE MALSR Rwy 21—118.5.
COMMUNICATIONS: CTAF 118.5 ATIS 120.5 Opr 1200-0500Z† UNICOM 122.95
LAFAYETTE FSS (LFT) on arpt. 122.35, 122.2, 122.1R, 110.8T LD 318-233-4952 NOTAM FILE LFT.
APP/DEP CON 121.1 (011°-190°) 124.0 (191°-010°) (1200-0400Z†)
HOUSTON CENTER APP/DEP CON 133.65 (0400-1200Z†)
TOWER 118.5, 121.35 (Helicopter ops) (1200-0400Z†) GND CON 121.8 CLNC DEL 125.55
STAGE III ctc APP CON within 25 NM below 7000'
RADIO AIDS TO NAVIGATION: NOTAM FILE LFT. VHF/DF ctc LAFAYETTE FSS
(L) VORTAC 110.8 LFT Chan 45 30°08'45"N 91°59'00"W 344° 3.0 NM to fld. 40/06E
LAFFS NDB (LOM) 375 LF 30°17'21"N 91°54'29"W 215° 5.8 NM to fld
LAKE MARTIN NDB (MHW) 362 LKM 30°11'33"N 91°52'58"W 270° 5.2 NM to fld
ILS/DME 109.5 I-LFT Chan 32 Rwy 21 LOM LAFFS NDB. Unmonitored when twr clsd.
ASR

FIGURE 64.—Excerpt from Airport/Facility Directory (LFT).

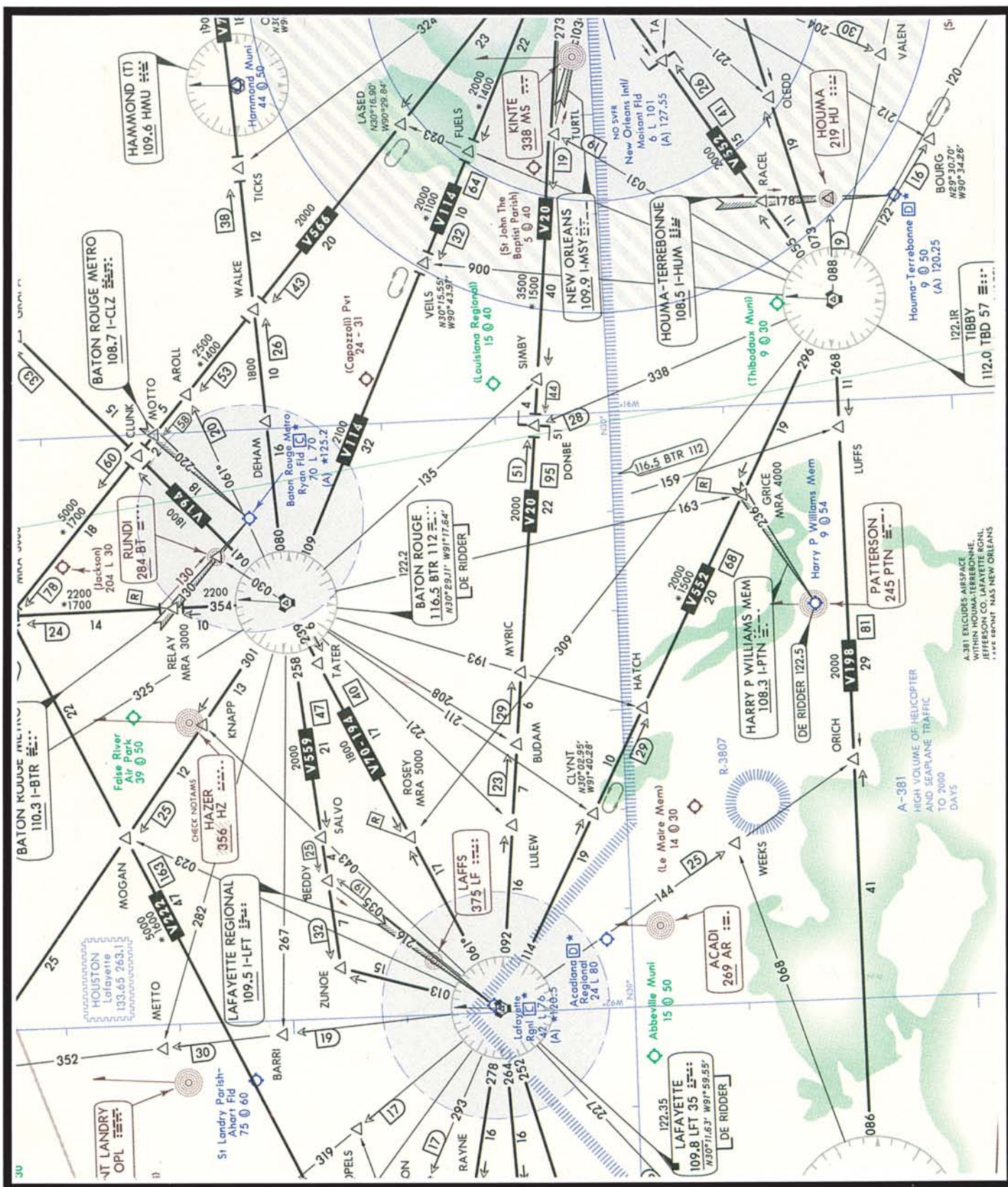


FIGURE 65.—En Route Chart Segment.

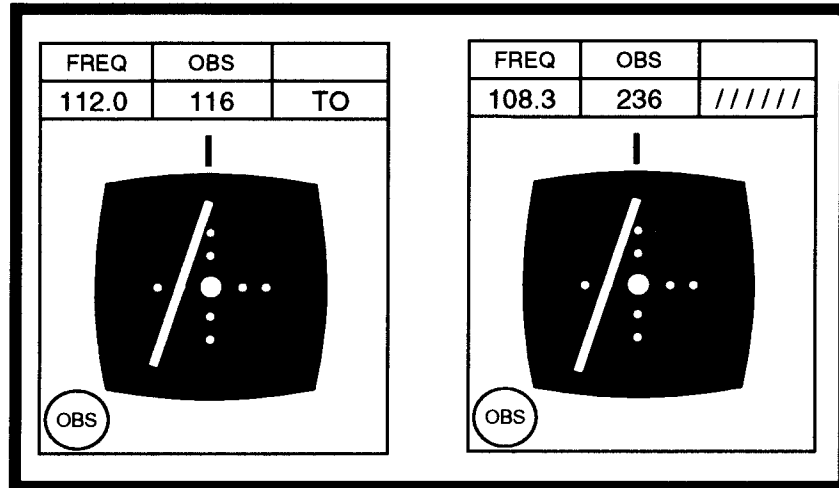


FIGURE 66.—CDI and OBS Indicators.

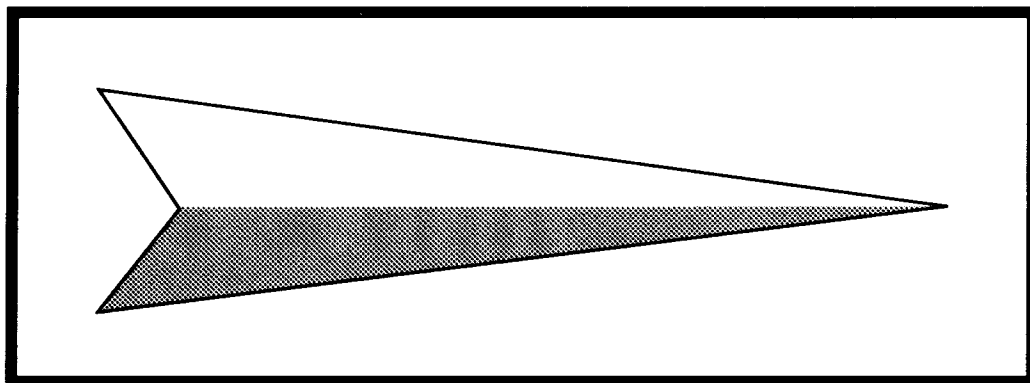
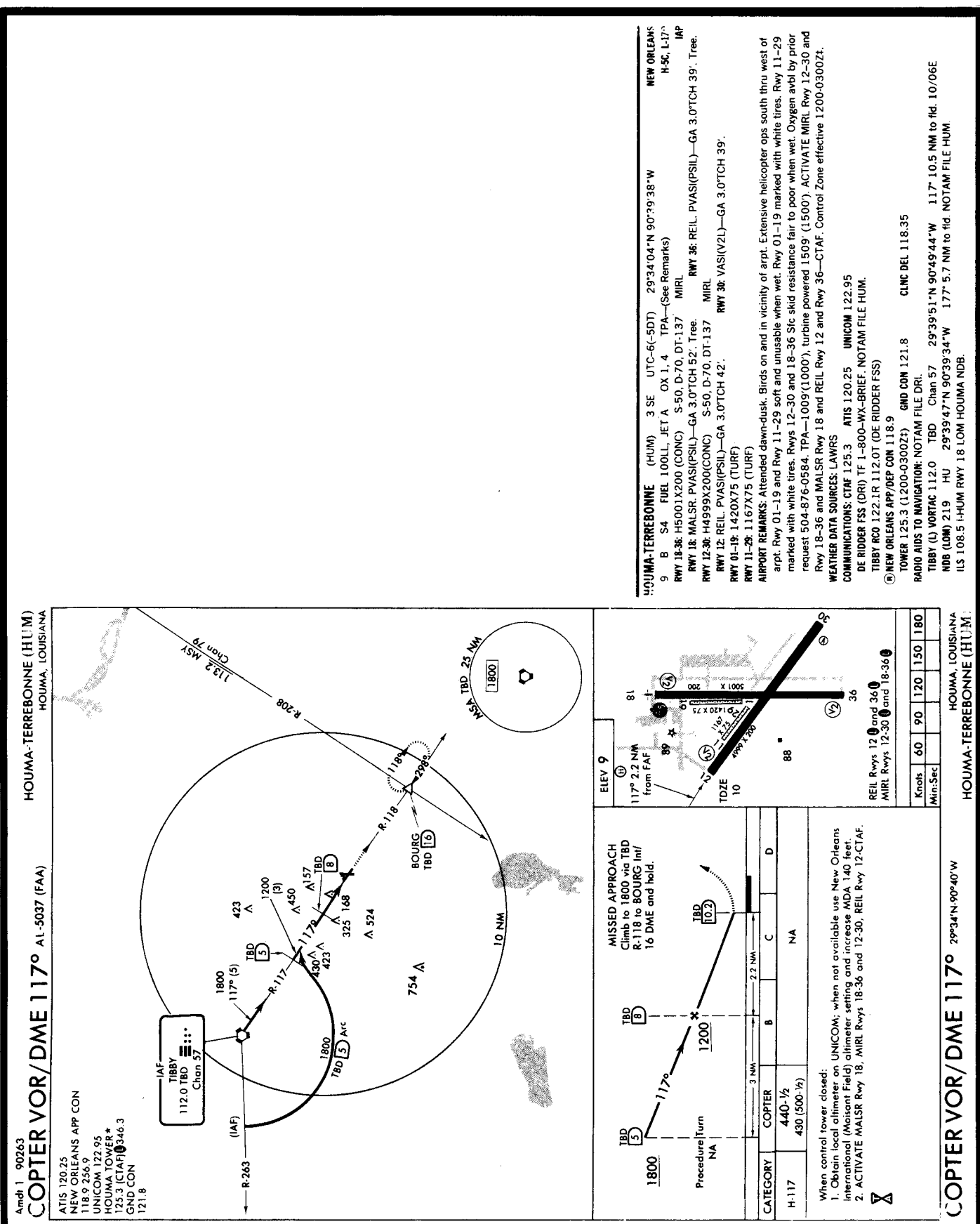
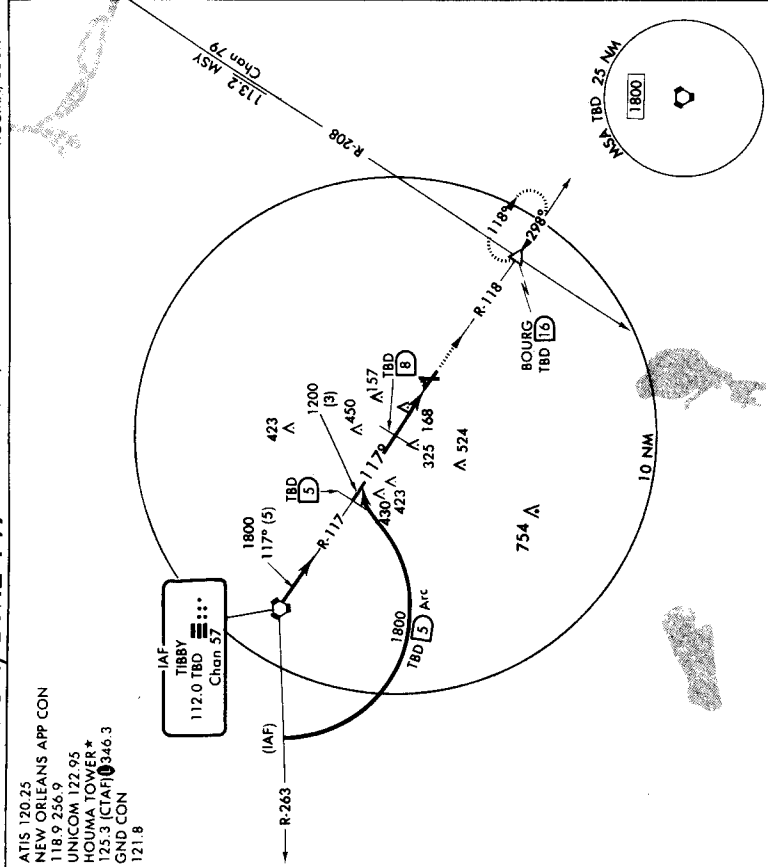


FIGURE 67.—Localizer Symbol.



HOUMA-TERRERBONNE (HUM)
HOUMA, LOUISIANA

Amdt 1 90263
COPTER VOR/DME 117° AL-5037 (FAA)
ATIS 120.25
NEW ORLEANS APP CON
118.9 256.9
UNICOM 122.95
HOUMA TOWER *
125.3 (CTAF) 346.3
GND CON
121.8



MISSED APPROACH
Climb to 1800 via TBD
R-118 to BOURG Intf
16 DME and hold.

Procedure Turn NA

CATEGORY	COPTER	B	C	D
H-117	440-1/2 430 (500-1/2)	NA	NA	NA

When control tower closed:
1. Obtain local altimeter on UNICOM; when not available use New Orleans International (Moisant Field) altimeter setting and increase MDA 140 feet.
2. ACTIVATE MALSR Rwy 18, MIRL Rvys 18-36 and 12-30, REIL Rwy 12-CTAF.

Knots	60	90	120	150	180
Min:Sec					

REIL Rvys 12 and 36
MIRL Rvys 12-30 and 18-36

HOUMA-TERRERBONNE (HUM)

COPTER VOR/DME 117° 29°34'N-90°40'W
HOUMA-TERRERBONNE (HUM)

HOUMA-TERRERBONNE (HUM) 3 SE UTC-6(-5DT) 29°34'04"N 90°39'38"W
9 B S4 FUEL 100LL JET A OX 1, 4 TPA—(See Remarks) NEW ORLEANS H-56, L17, IAP
Rwy 18-36: H5001X200 (CONC) S-50, D-70, DT-137 MIRL
Rwy 18: MALSR, PVASI(P SIL)—GA 3.0TCH 52'. Tree. Rwy 36: REIL, PVASI(P SIL)—GA 3.0TCH 39'. Tree.
Rwy 12-30: H4999X200 (CONC) S-50, D-70, DT-137 MIRL
Rwy 12: REIL, PVASI(P SIL)—GA 3.0TCH 42'.
Rwy 01-19: 1420X75 (TURF)
Rwy 11-29: 1167X75 (TURF)
Rwy 36: VASI(V2L)—GA 3.0TCH 39'.
AIRPORT REMARKS: Attended dawn-dusk. Birds on and in vicinity of arpt. Extensive helicopter ops south thru west of arpt. Rwy 01-19 and Rwy 11-29 soft and unusable when wet. Rwy 01-19 marked with white tires. Rwy 11-29 marked with white tires. Rvys 12-30 and 18-36 Sfc skid resistance fair to poor when wet. Oxygen avbl by prior request 504-876-0584. TPA—1009'(1000'), turbine powered 1509' (1500'). ACTIVATE MIRL Rwy 12-30 and Rwy 18-36 and MALSR Rwy 18 and REIL Rwy 12 and Rwy 36—CTAF. Control Zone effective 1200-0300Zt.
WEATHER DATA SOURCES: LAWR8
COMMUNICATIONS: CTAF 125.3 ATIS 120.25 UNICOM 122.95 DE RIDDER FSS (DR) TF 1-800-WX-BRIEF, NOTAM FILE HUM. TIBBY RCO 122.1R 112.0T (DE RIDDER FSS)
⑥ NEW ORLEANS APP/DEP CON 118.9
RADIO AIDS TO NAVIGATION: NOTAM FILE DRI
TOWER 125.3 (1200-0300Zt) GND CON 121.8 CLNC DEL 118.35
TIBBY (L) VORTAC 112.0 TBD Chan 57 29°39'51"N 90°49'44"W 117° 10.5 NM to fld. 10/06E
NDB (LOW) 219 HU 29°39'47"N 90°39'34"W 177° 5.7 NM to fld. NOTAM FILE HUM
ILS 108.5 -HUM Rwy 18 LOW HOUMA NDB.

Figure 68.—COPTER VOR DME-117 Degrees (HUM).

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Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER		TIME STARTED	SPECIALIST INITIALS	
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME	7. CRUISING ALTITUDE
<input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR	N2142S	C172/	128 KTS	GREENWOOD LAKE 4N1	PROPOSED (Z) ACTUAL (Z)	5000
8. ROUTE OF FLIGHT DIRECT SHAFF INT., V213 HELON INT., V58 JUDDS INT., JUDDS2						
9. DESTINATION (Name of airport and city) BRADLEY INTL. BDL		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS INSTRUMENT TRAINING FLIGHT		
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		15. NUMBER ABOARD 2
16. COLOR OF AIRCRAFT BROWN/TAN/WHITE		CIVIL AIRCRAFT PILOTS: FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.				

FAA Form 7233-1 (8-82) CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Cessna MODEL 172
N 2142S Vso 33

AIRCRAFT EQUIPMENT/STATUS**

**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) X
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: N/A
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) INOP (VISUAL) X

FIGURE 69.—Flight Plan and Aircraft Information.

FLIGHT LOG													
GREENWOOD LAKE (4N1) TO BRADLEY INTL. (BDL)													
CHECK POINTS		ROUTE		COURSE	WIND		SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE			TEMP	TAS	GS	LEG		TOT	LEG	TOT	
4N1	SHAFF	DIRECT		350°						:08:0			
		HELON	CLIMB V213 5000				128						
	IGN	V58 5000		029°									
		JUDDS2		102°									
		JUDDS2		112°									
	JUDDS	JUDDS2		100°									
	BRISS	JUDDS2		057°									
APPROACH & LANDING										:12:0			
	BDL INTL												

<p>OTHER DATA: NOTE: MAG. VAR. 14° W.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">FLIGHT SUMMARY</th> </tr> <tr> <th>TIME</th> <th>FUEL (LB)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	FLIGHT SUMMARY			TIME	FUEL (LB)				EN ROUTE			RESERVE			MISSED APPR.			TOTAL
FLIGHT SUMMARY																			
TIME	FUEL (LB)																		
		EN ROUTE																	
		RESERVE																	
		MISSED APPR.																	
		TOTAL																	

FIGURE 70.—Flight Planning Log.

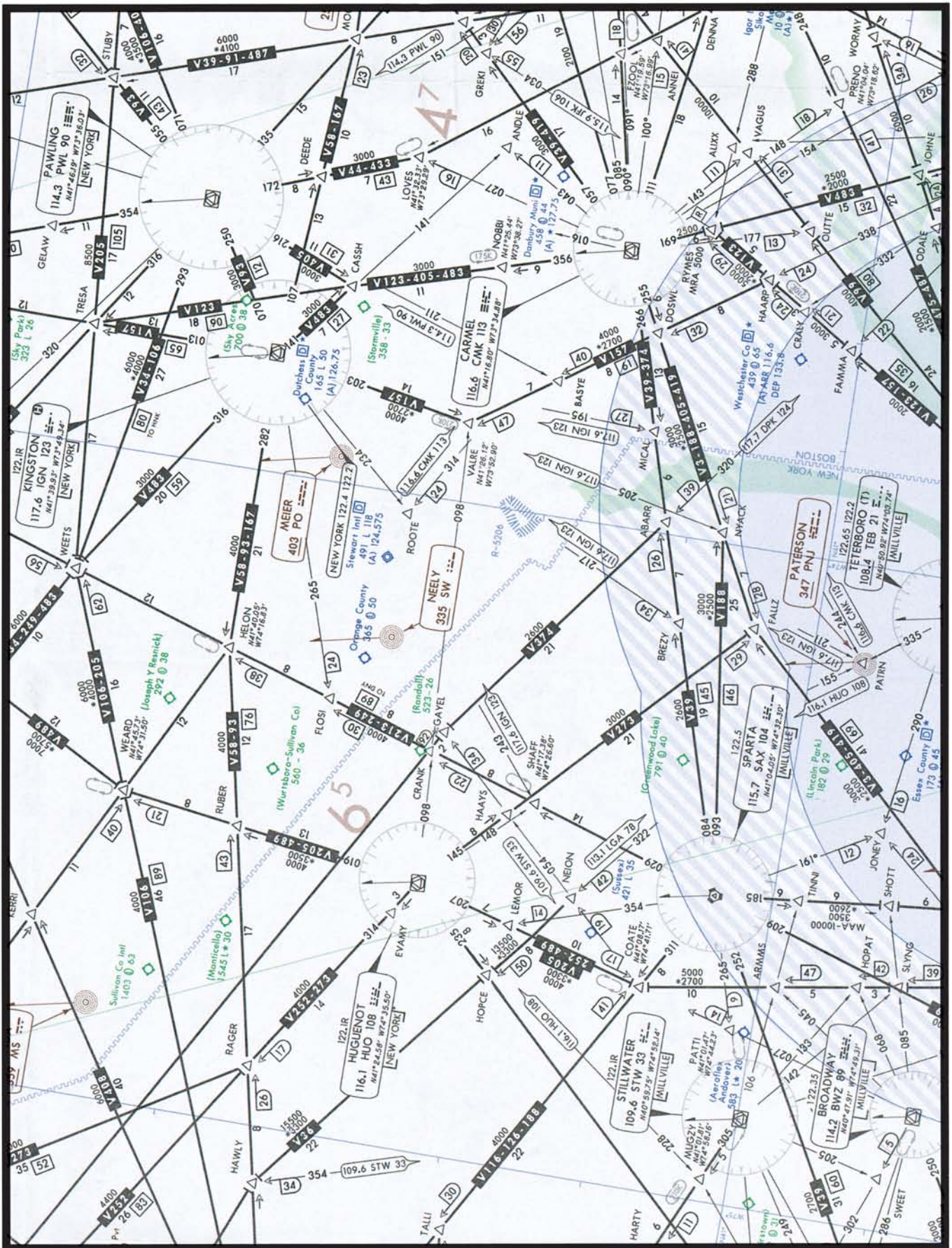


FIGURE 71.—En Route Chart Segment.

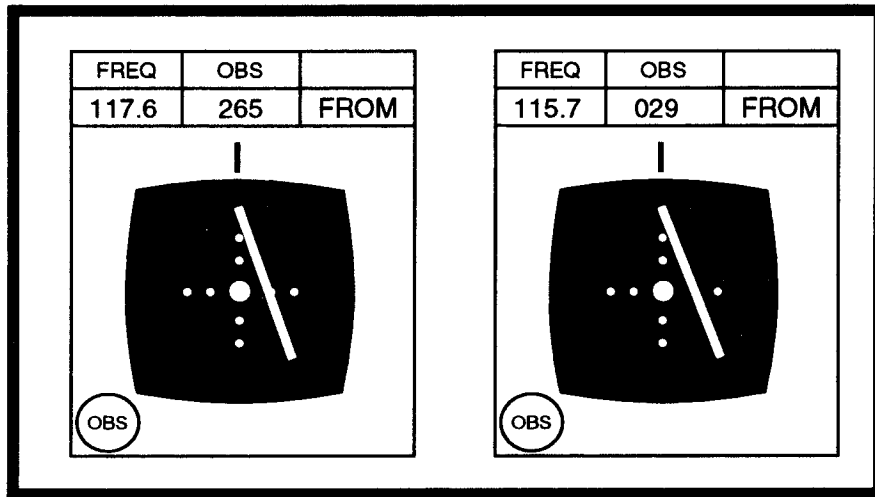
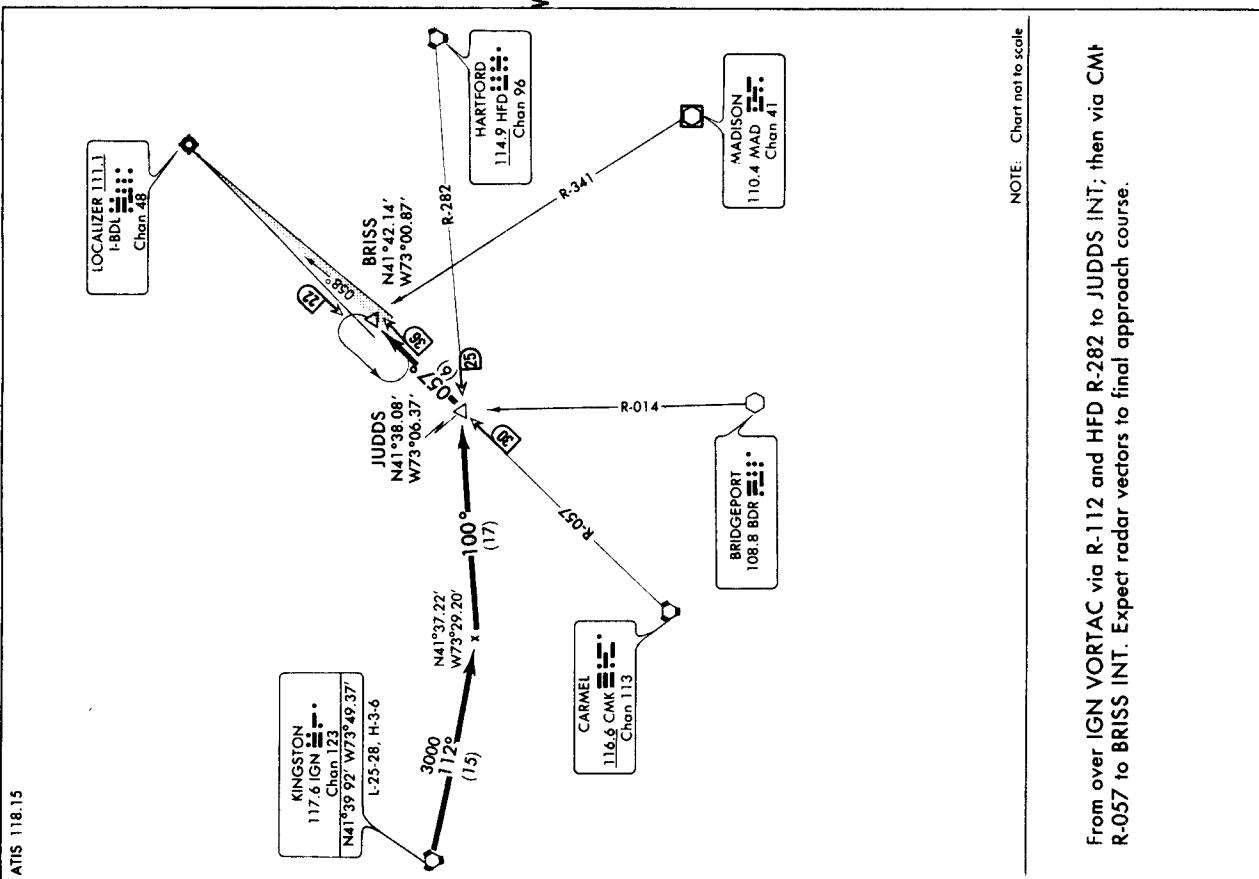


FIGURE 71A.—CDI and OBS Indicators.

91150
JUDDS TWO ARRIVAL (IGN.JUDDS2)
 ATIS 118.15



JUDDS TWO ARRIVAL (IGN.JUDDS2)
 WINDSOR LOCKS, CONNECTICUT
 BRADLEY INTERNATIONAL

CONNECTICUT

WINDSOR LOCKS

BRADLEY INTL (BDL) 3 W UTC-5(-4DT) 41°56'20"N 72°41'01"W
 174 B S4 FUEL 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks
 LRA ARFF Index D NEW YORK H-3D, 6J, L-25C, 28I IAP

RWY 06-24: H9502X200 (ASPH-GRVD) S-200, D-200, DT-350, DDT-710 HIRL CL
 RWY 06: ALSF2 TDZ, Trees. RWY 24: MALS, VASI(V4L)—GA 3.0°TCH 56'.
 RWY 15-33: H6846X200 (ASPH) S-200, D-200, DT-350 HIRL
 RWY 15: REIL, VASI(V4L)—GA 3.5°TCH 59'. Trees. RWY 33: MALS, VASI(V4R)—GA 3.0°TCH 59'. Trees
 RWY 01-19: H5141X100 (ASPH) S-60, D-190, DT-328 MIRL
 RWY 01: Building. RWY 19: Trees.

AIRPORT REMARKS: Attended continuously. RWY 01-19 restricted to ldg and tlf with maximum tlf gross weight of 73,000 pounds. This restriction does not apply to a/c emergency. Numerous birds frequently on or in vicinity of apt. Portions of taxiway Alpha not visible from tower. TPA—1174(1000) light act, 1874(1700) heavy act. Landing fee for business, corporate and revenue producing aircraft. 24 hours ARFF level D svc avbl. 24 hours PPR for unscheduled air carrier ops with more than 30 passenger seats call airt manager 203-627-3001/3008. This does not include delayed regularly schedule air carrier ops or diversions. RWY 15 REIL out of svc indefinitely. Flight Notification Service (ADCUS) available. NOTE: See SPECIAL NOTICE—Simultaneous Operations on Intersecting Runways.

WEATHER DATA SOURCES: LLWAS.
COMMUNICATIONS: ATIS 118.15 UNICOM 122.95
BRIDGEPORT FSS (BDR) TF 1-800-WX-BRIEF, NOTAM FILE BDL.
WINDSOR LOCKS RCO 122.3 (BRIDGEPORT FSS)
 (6) BRADLEY APP CON 125.8 (within 20 miles)
 (6) BRADLEY DEP CON 121.05 (South) 125.35 (North and West) 123.95 (Northeast)
TOWER 120.3 GND COM 121.9 CLNC DEL 121.75
ARSA c/c APP CON

RADIO AIDS TO NAVIGATION: NOTAM FILE BDL.
 (T) VORTAC 109.0 BDL Chan 27 41°56'27"N 72°41'21"W at fld. 165/14W.
 VOR portion unusable 090°-103° beyond 24 NM below 5000' 104°-170° beyond 10 NM below 6000'
 260°-290° beyond 15 NM below 6000'.
 DME portion unusable:
 040°-085° beyond 13 NM below 2000'
 130°-150° beyond 10 NM below 3000'
 170°-195° beyond 14 NM below 3000'
 250°-290° beyond 18 NM below 6000'
CHUPP NDB (LOM) 388 BD 41°52'38"N 72°46'00"W 058' 5.2 NM to fld.
ILS/DME 111.1 I-BDL Chan 48 RWY 06 LOM CHUPP-NDB.
ILS/DME 108.55 I-HX Chan 22 Y RWY 33
ILS/DME 111.1 I-MYQ Chan 48 RWY 24

FIGURE 72.—JUDDS TWO ARRIVAL.

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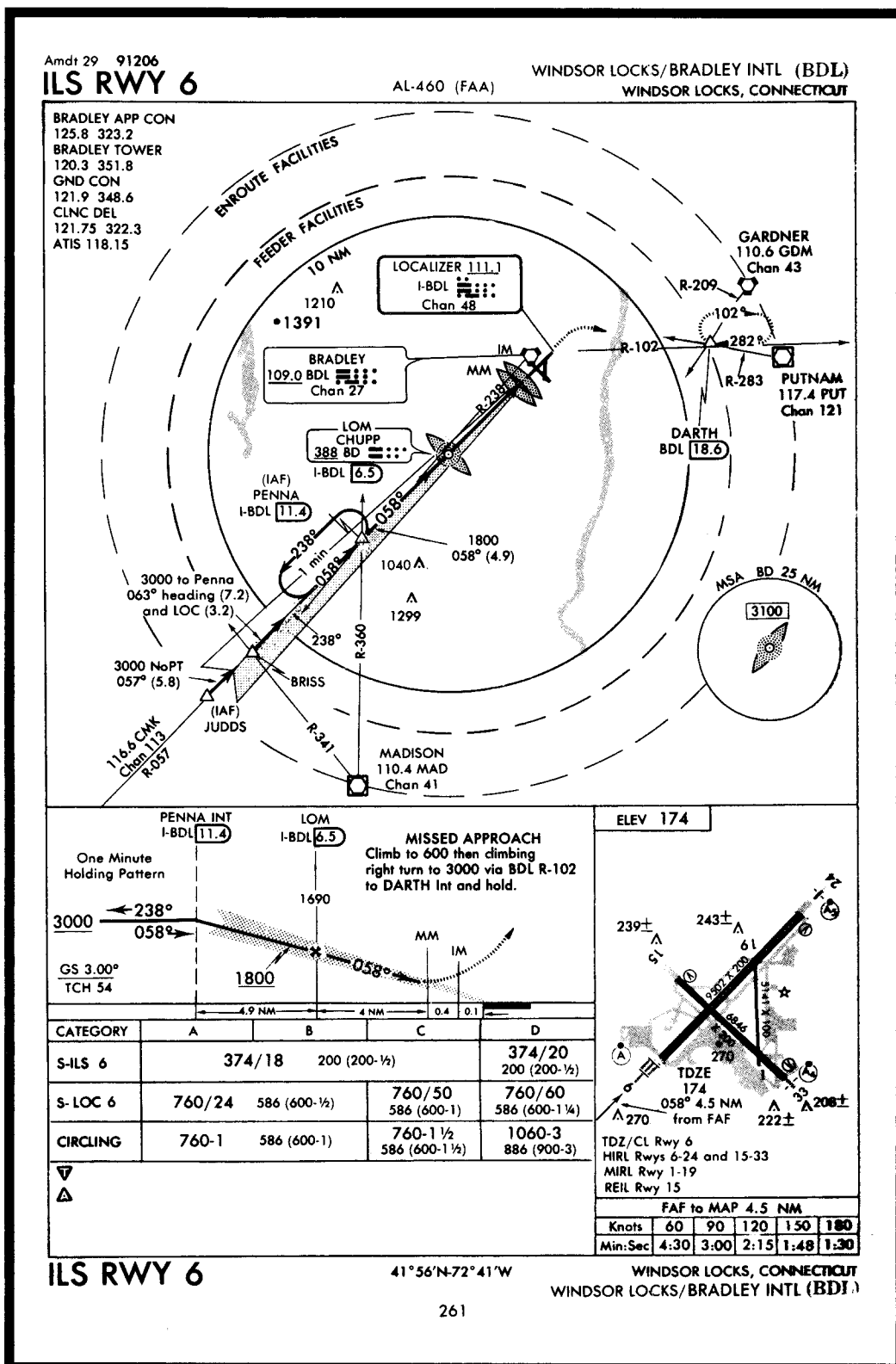


FIGURE 73.—ILS RWY 6 (BDL).

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U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION FLIGHT PLAN		(FAA USE ONLY) <input type="checkbox"/> PILOT BRIEFING <input type="checkbox"/> VNR <input type="checkbox"/> STOPOVER		TIME STARTED		SPECIALIST INITIALS	
1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT		6. DEPARTURE TIME	
<input type="checkbox"/> VFR <input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR	N242T	C310/	160 KTS	HLN		PROPOSED (Z)	ACTUAL (Z)
							11000
8. ROUTE OF FLIGHT STAKK2, V365 BZN, V86							
9. DESTINATION (Name of airport and city) LOGAN INTL. AIRPORT (BIL)		10. EST. TIME ENROUTE HOURS MINUTES		11. REMARKS			
12. FUEL ON BOARD HOURS MINUTES		13. ALTERNATE AIRPORT(S) N/A		14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE		15. NUMBER ABOARD	
				17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)		2	
16. COLOR OF AIRCRAFT RED/BLACK/WHITE		CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.					

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

AIRCRAFT INFORMATION

MAKE Cessna MODEL 310R
N 242T Vso 72

AIRCRAFT EQUIPMENT/STATUS**

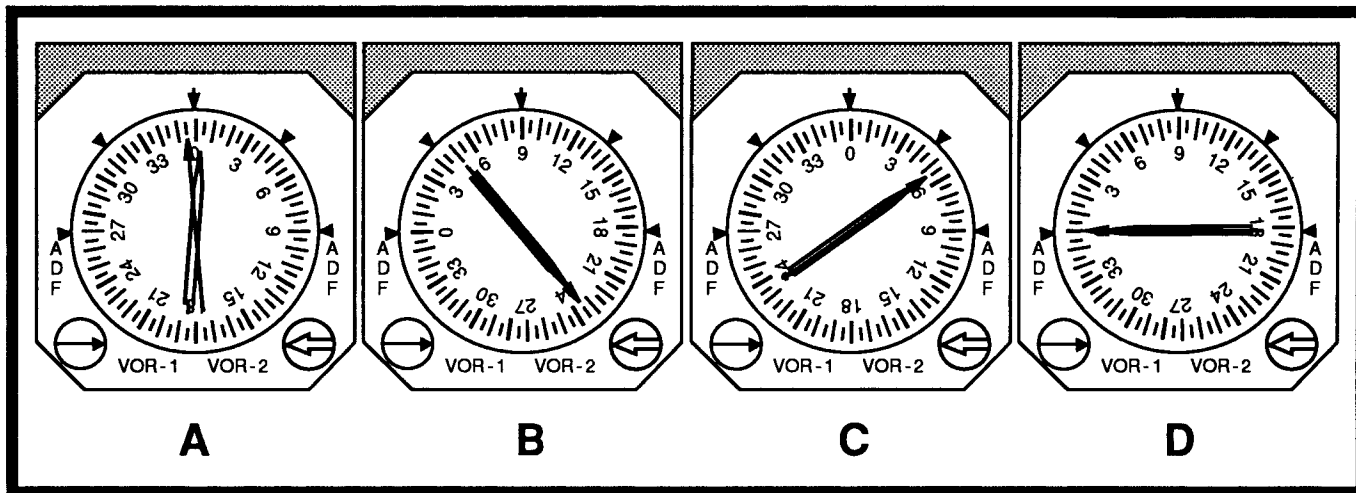
**NOTE: X= OPERATIVE INOP= INOPERATIVE N/A= NOT APPLICABLE
 TRANSPONDER: X (MODE C) X ILS: (LOCALIZER) X (GLIDE SLOPE) INOP
 VOR NO. 1 X (NO. 2) X ADF: X RNAV: N/A
 VERTICAL PATH COMPUTER: N/A DME: X
 MARKER BEACON: X (AUDIO) X (VISUAL) X

FIGURE 74.—Flight Plan and Aircraft Information.

FLIGHT LOG													
HELENA REGIONAL AIRPORT TO BILLINGS LOGAN INTL.													
CHECK POINTS		ROUTE		COURSE	WIND		SPEED-KTS		DIST NM	TIME		FUEL	
FROM	TO	ALTITUDE			TEMP	TAS	GS	LEG		TOT	LEG	TOT	
HLN	VESTS	STAKK2		103°						:15:0			
			CLIMB										
	BZN	V365											
		11000		140°		160							
	LVM	V86		110°									
		11000		063°									
	REEPO	V86											
		11000		067°									
	BIL	V86											
				069°									
APPROACH & LANDING										:15:0			
	LOGAN INTL												

<p>OTHER DATA: NOTE: MAG. VAR. 18° E.</p>	<p>FLIGHT SUMMARY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TIME</th> <th>FUEL (LB)</th> </tr> </thead> <tbody> <tr> <td></td> <td>EN ROUTE</td> </tr> <tr> <td></td> <td>RESERVE</td> </tr> <tr> <td></td> <td>MISSED APPR.</td> </tr> <tr> <td></td> <td>TOTAL</td> </tr> </tbody> </table>	TIME	FUEL (LB)		EN ROUTE		RESERVE		MISSED APPR.		TOTAL
TIME	FUEL (LB)										
	EN ROUTE										
	RESERVE										
	MISSED APPR.										
	TOTAL										

FIGURE 75.—Flight Planning Log.



HELENA REGIONAL (HLN) 2 NE UTC-7(-6DT) 46°36'25"N 111°58'55"W **GREAT FALLS**
 3873 B S4 FUEL 100LL, JET A OX 1,3 AOE ARFF Index B H-1C, L-9B
 RWY 09-27: H9000X150 (ASPH-PFC) S-100, D-160, DT-250 HIRL IAP
 RWY 09: VASI(V4L)—GA 3.0'TCH 45'. Ground. RWY 27: MALSR. VASI(V4L)—GA 3.0'TCH 55'. Rgt tfc.
 RWY 05-23: H4599X75 (ASPH-PFC) S-21, D-30
 RWY 05: Road. RWY 23: Fence. Rgt tfc.
 RWY 16-34: H2979X75 (ASPH) S-21, D-30 MIRL
 RWY 34: Ground. Rgt tfc.
AIRPORT REMARKS: Attended 1200-0800Zt. East 2400' Taxiway C and first 900' Rwy 27 not visible from tower.
 Prior permission for unscheduled FAR 121 operations, Call 406-442-2821. AOE, 1 hour prior notice required,
 phone 449-1569 1500-0000Zt, 0000-1500Zt 449-1024. Twys A,B; high speed and C (between A and D)
 not available for air carrier use by acft with greater than 30 passenger seats. Rwy 16-34 and Rwy 05-23 (except
 between Rwy 09-27 and Twy D) not available for air carrier use by acft with greater than 30 passenger seats.
 When tower closed, ACTIVATE HIRL Rwy 09-27 and MALSR Rwy 27—CTAF, when twr closed MIRL Rwy 16-34
 are off. Ldg fee for all acft over 12,500 lbs. NOTE: See SPECIAL NOTICE—Simultaneous Operations on
 Intersecting Runways.
COMMUNICATIONS: CTAF 118.3 ATIS 120.4 (Mon-Fri 1300-0700Zt, Sat-Sun 1300-0500Zt)
 UNICOM 122.95
GREAT FALLS FSS (GTF) TF 1-800-WX-BRIEF. NOTAM FILE HLN.
 RCO 122.2 122.1R 117.7T (GREAT FALLS FSS)
 APP/DEP CON 119.5 (Mon-Fri 1300-0700Zt, Sat-Sun 1300-0500Zt)
 SALT LAKE CENTER APP/DEP CON 133.4 (Mon-Fri 0700-1300Zt, Sat-Sun 0500-1300Zt)
 TOWER 118.3 (Mon-Fri 1300-0700Zt, Sat-Sun 1300-0500Zt) GND CON 121.9
RADIO AIDS TO NAVIGATION: NOTAM FILE HLN.
 (H) VORTAC 117.7 HLN Chan 124 46°36'25"N 111°57'10"W 254° 1.2 NM to fld. 3810/16E.
 VORTAC unusable:
 006°-090° beyond 25 NM below 11,000' 091°-120° beyond 20 NM below 16,000'
 121°-240° beyond 25 NM below 10,000' 355°-006° beyond 15 NM below 17,500'
 241°-320° beyond 25 NM below 10,000'
CAPITOL NDB (HW) 317 CVP 46°36'24"N 111°56'11"W 254° 1.9 NM to fld.
 NDB unmonitored when tower closed.
HAUSER NDB (MHW) 386 HAU 46°34'08"N 111°45'26"W 268° 9.6 NM to fld.
 ILS 110.1 I-HLN Rwy 27 ILS unmonitored when tower closed.

VOR RECEIVER CHECK

Facility Name (Arprt Name)	Freq/Ident	Type Check Pt. Gnd. AB/ALT	Azimuth from Fac. Mag	Dist. from Fac. N.M.	Check Point Description
Helena (Helena Regional)	117.7/HLN	G	237	0.7	On Twy E midway between Twy C and Rwy 27.
Kalispell (Glacier Park Intl)	108.4/FCA	A/4000	316	6.4	Over apch end Rwy 29.
Lewistown (Lewistown Muni)	112.0/LWT	A/5200	072	5.4	Over apch end Rwy 07.
Livingston	116.1/LVM	A/6500	234	5.5	Over northern most radio twr NE of city.
Miles City (Frank Wiley Field)	112.1/MLS	G	036	4.2	On twy leading to Rwy 30.
Missoula (Missoula Intl)	112.8/MSO	G	340	0.6	On edge of ramp in front of Admin Building.

FIGURE 76.— VOR Indications and Excerpts from Airport/Facility Directory (HLN).

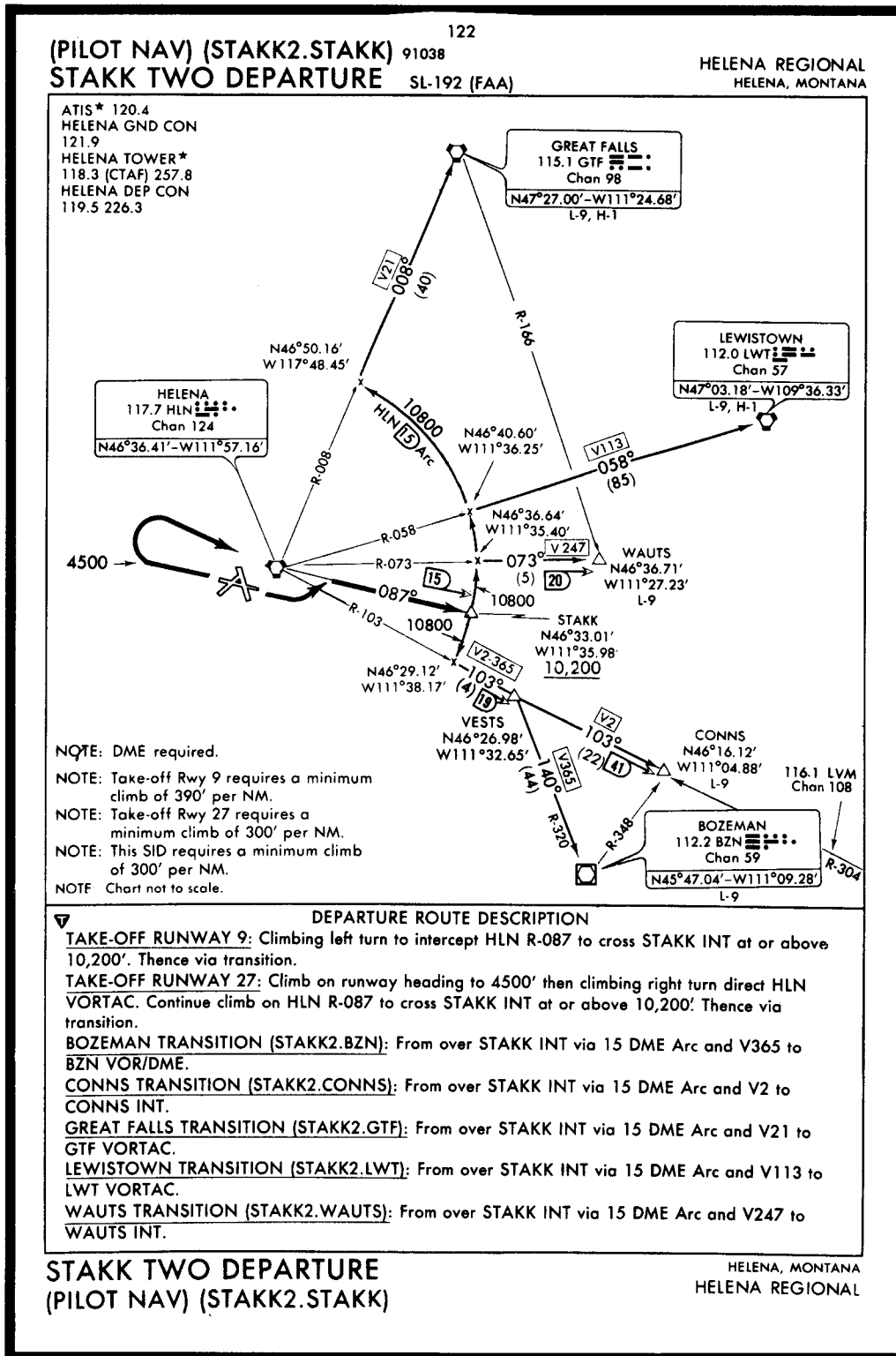


FIGURE 77.— STAKK TWO DEPARTURE.

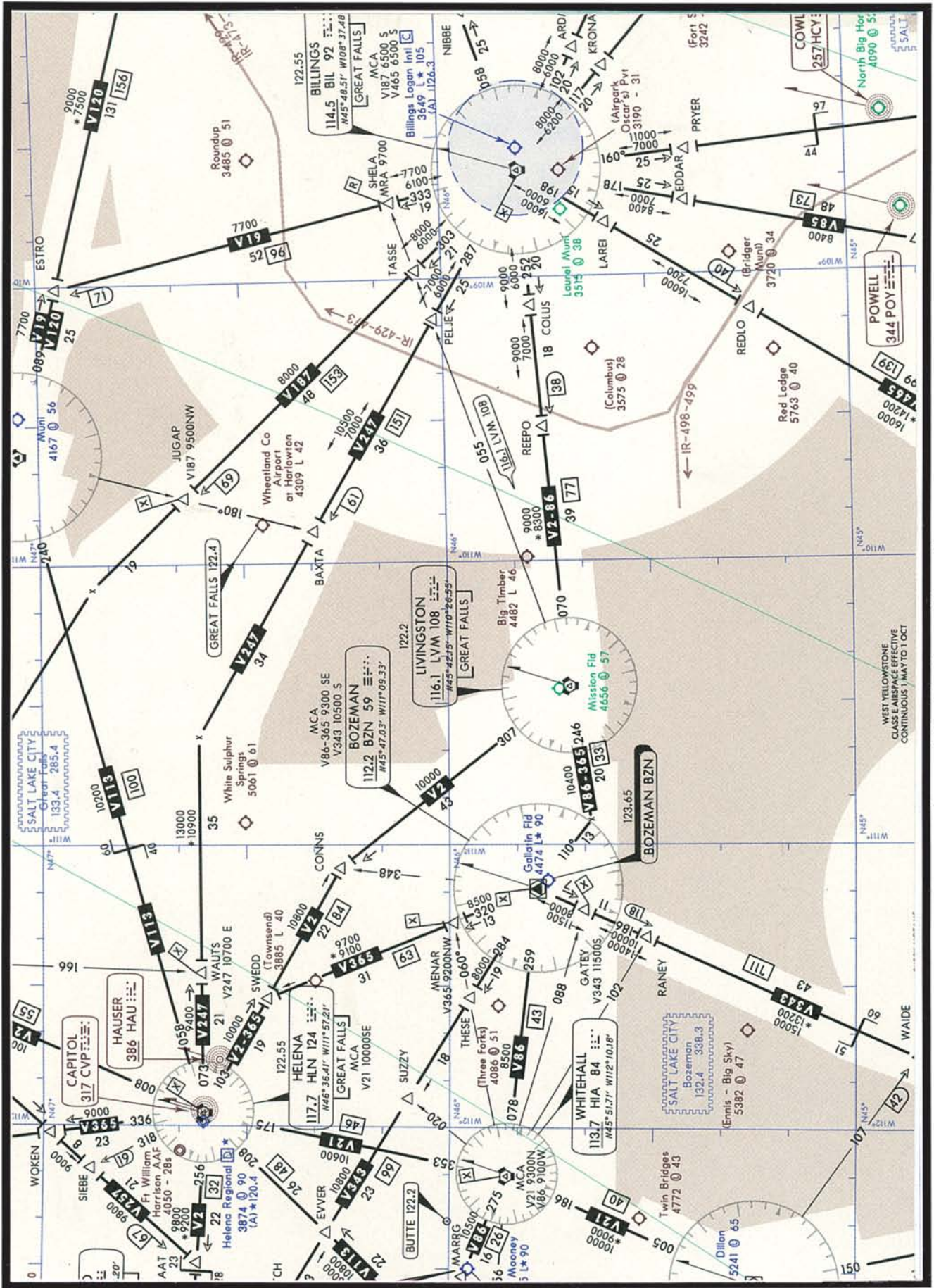


FIGURE 78.—En Route Chart Segment.

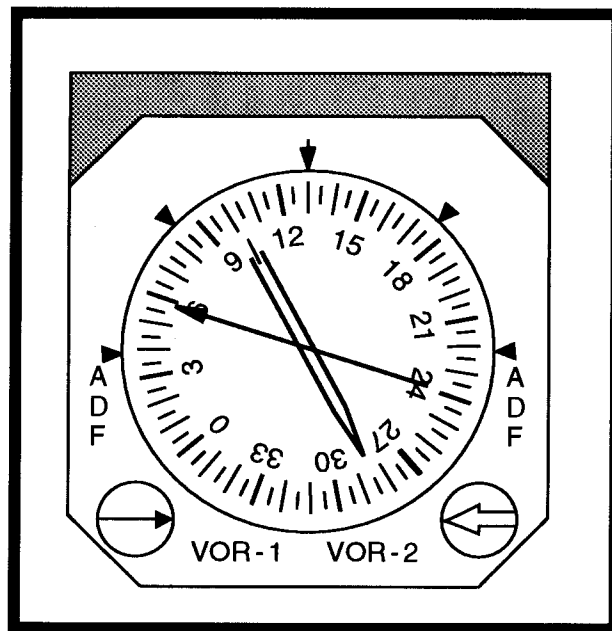


FIGURE 79.—RMI Indicator.

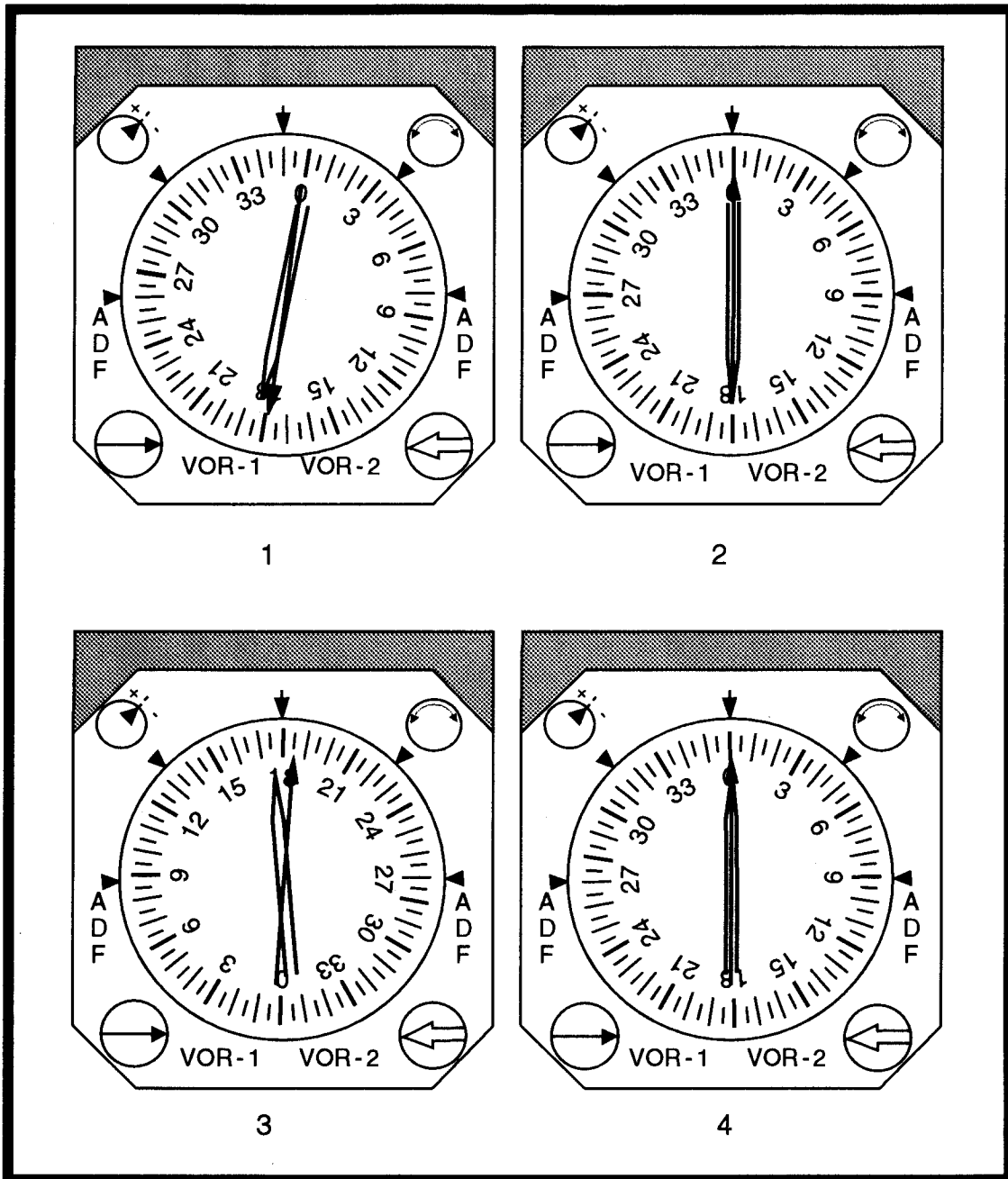


FIGURE 81.—Dual VOR System, VOT Check.

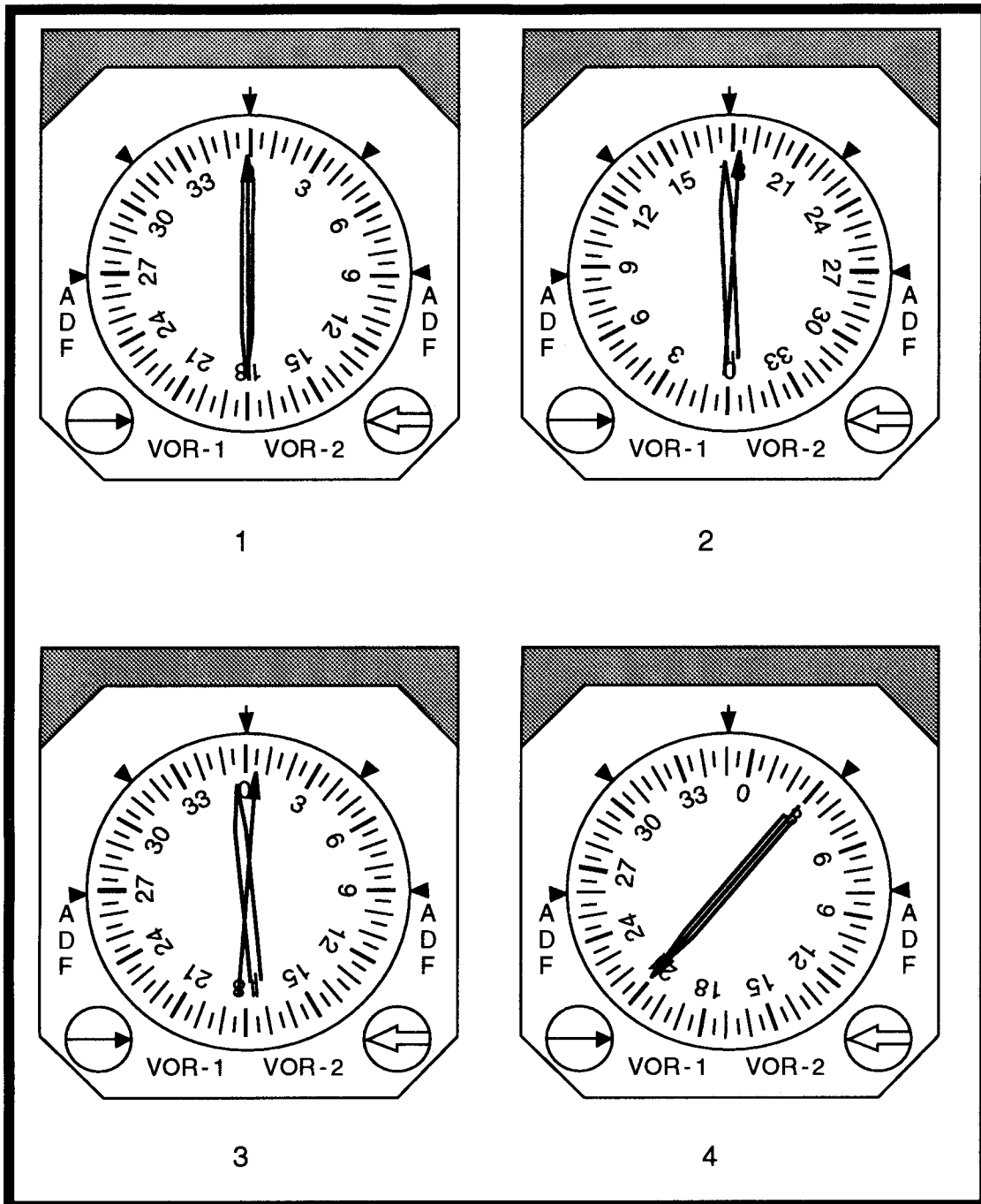


FIGURE 82.—Dual VOR System, Accuracy Check.

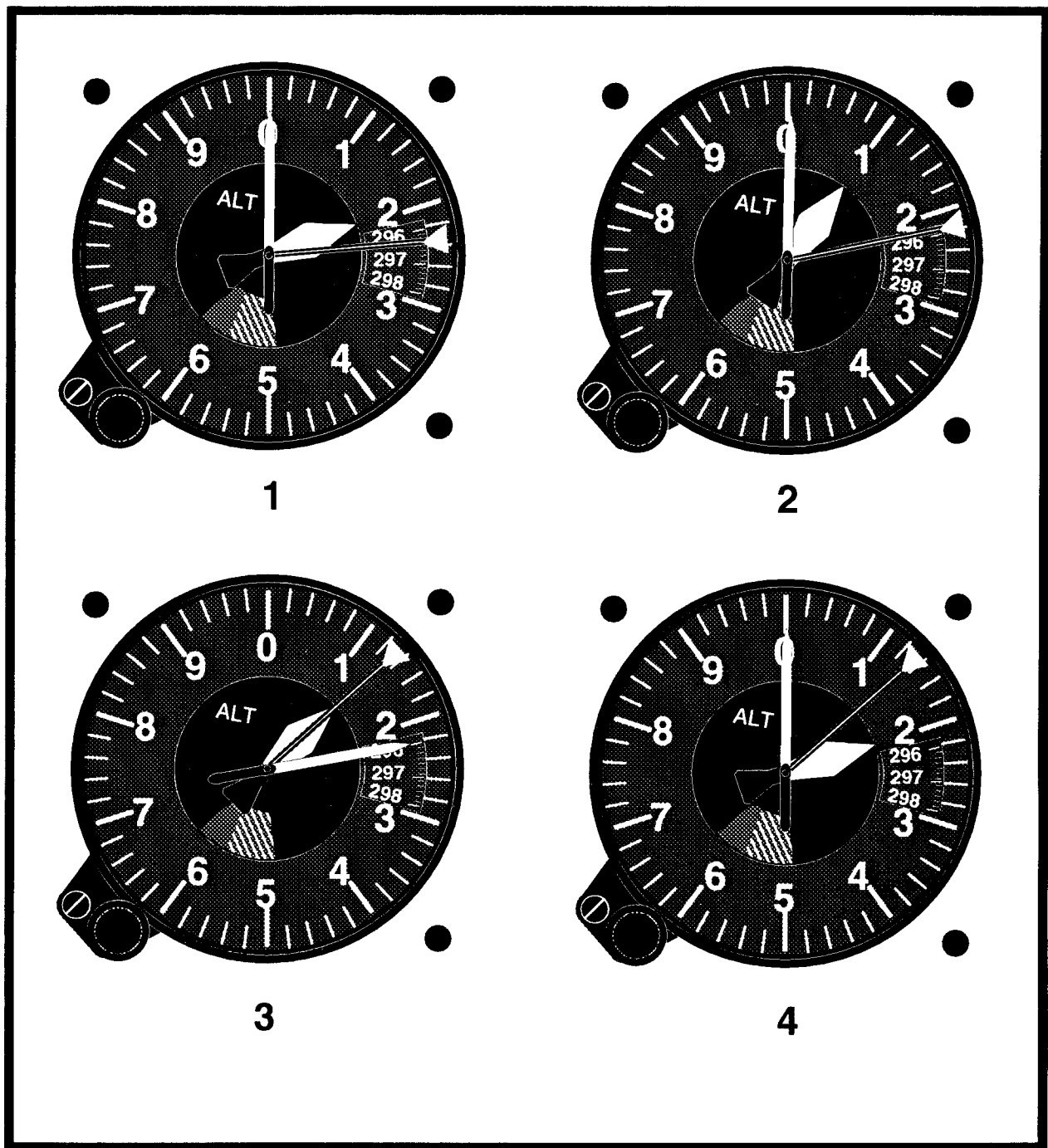


FIGURE 83.—Altimeter/12,000 Feet.

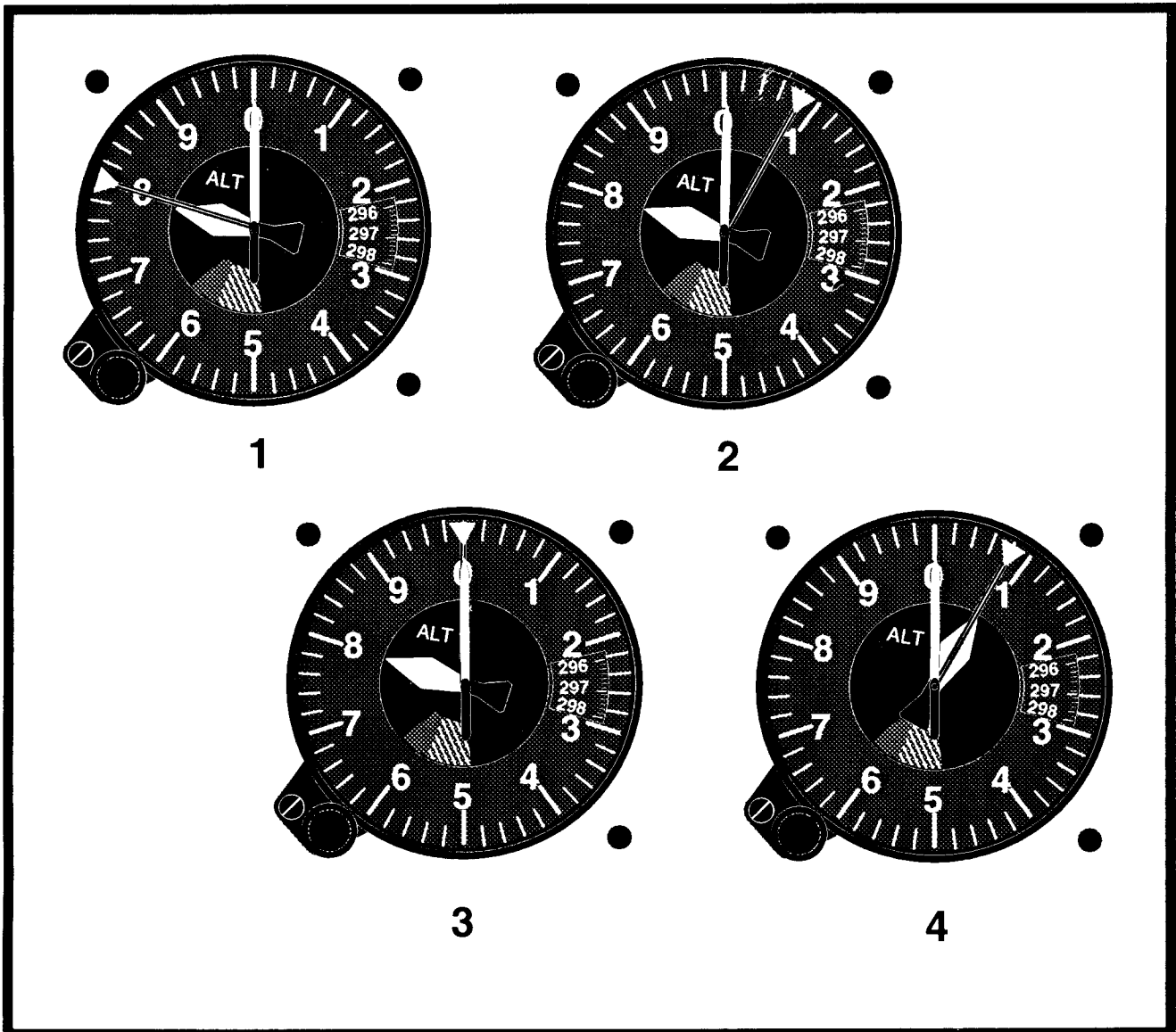


FIGURE 84.—Altimeter/8,000 Feet.

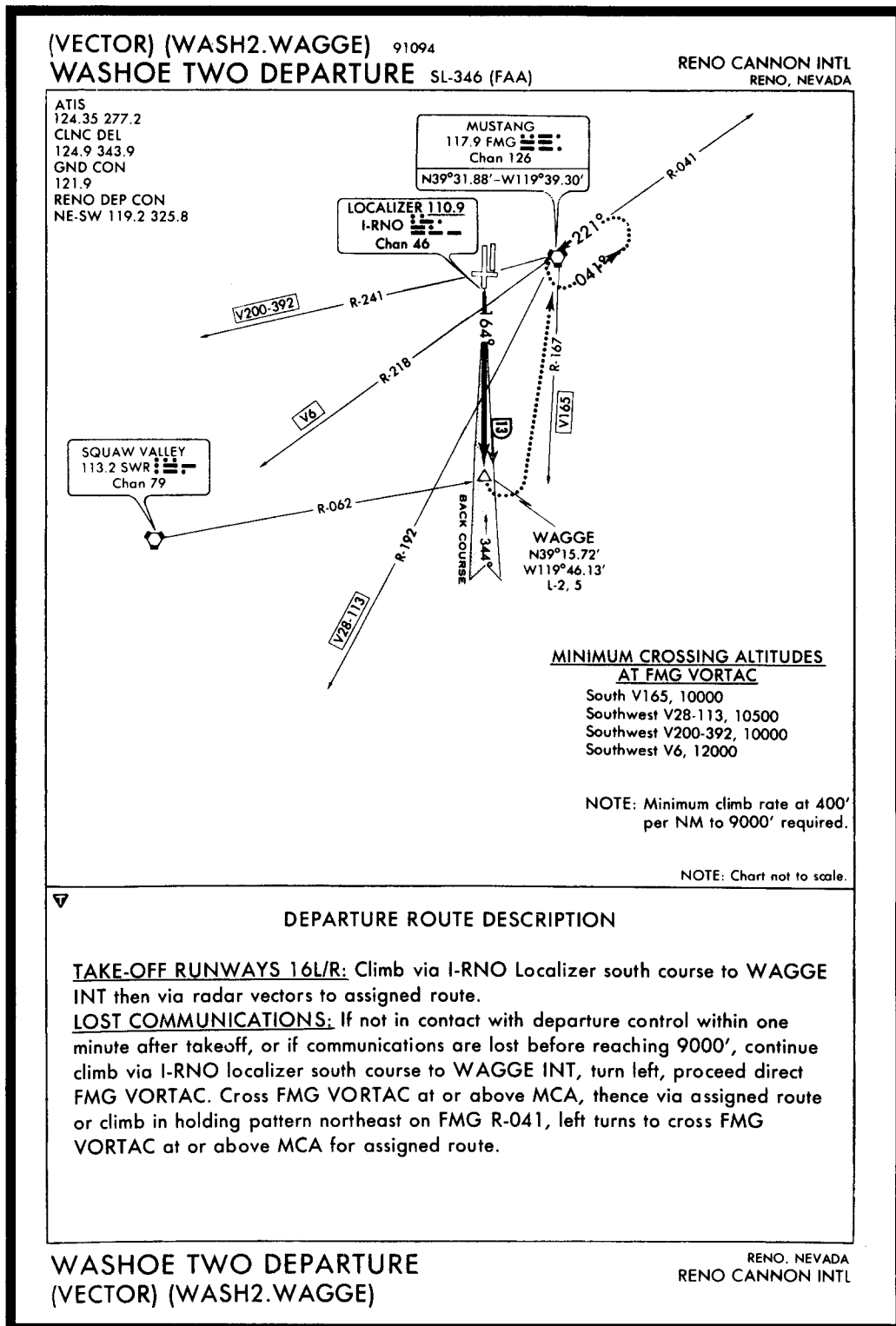


FIGURE 85.—WASHOE TWO DEPARTURE.

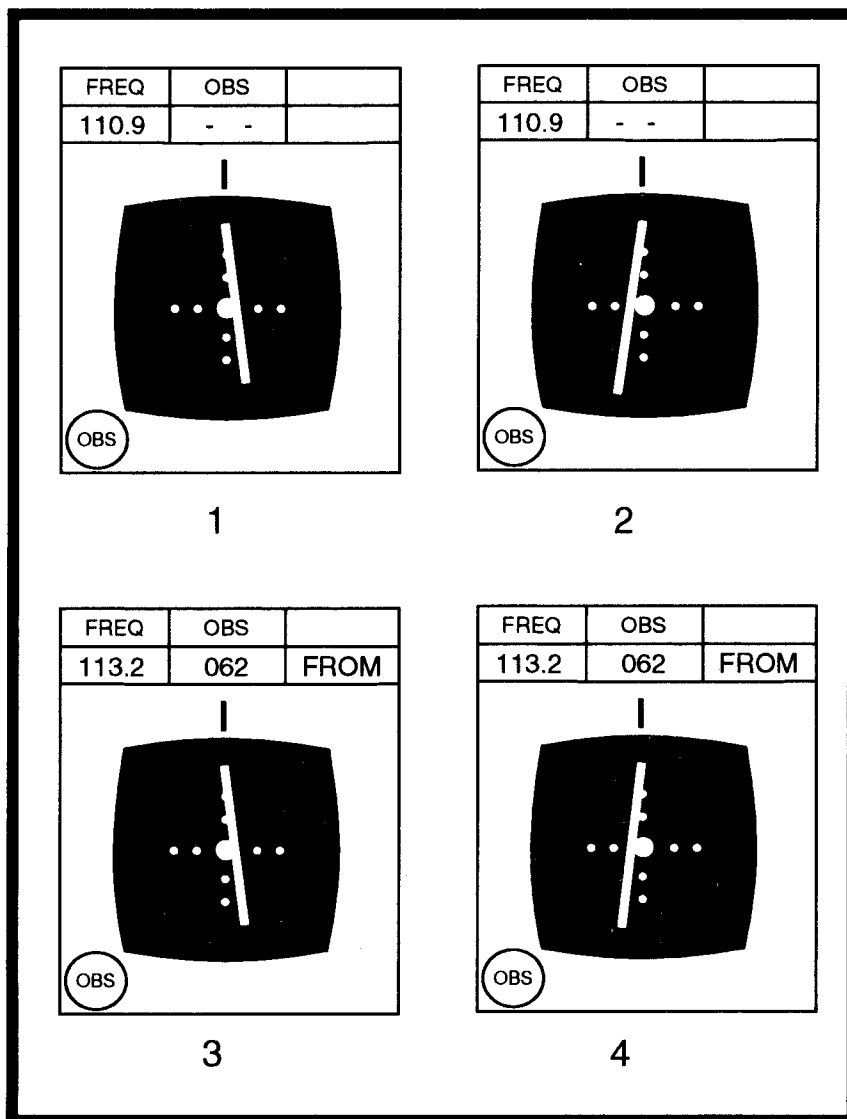


FIGURE 86.—CDI and OBS Indicators.

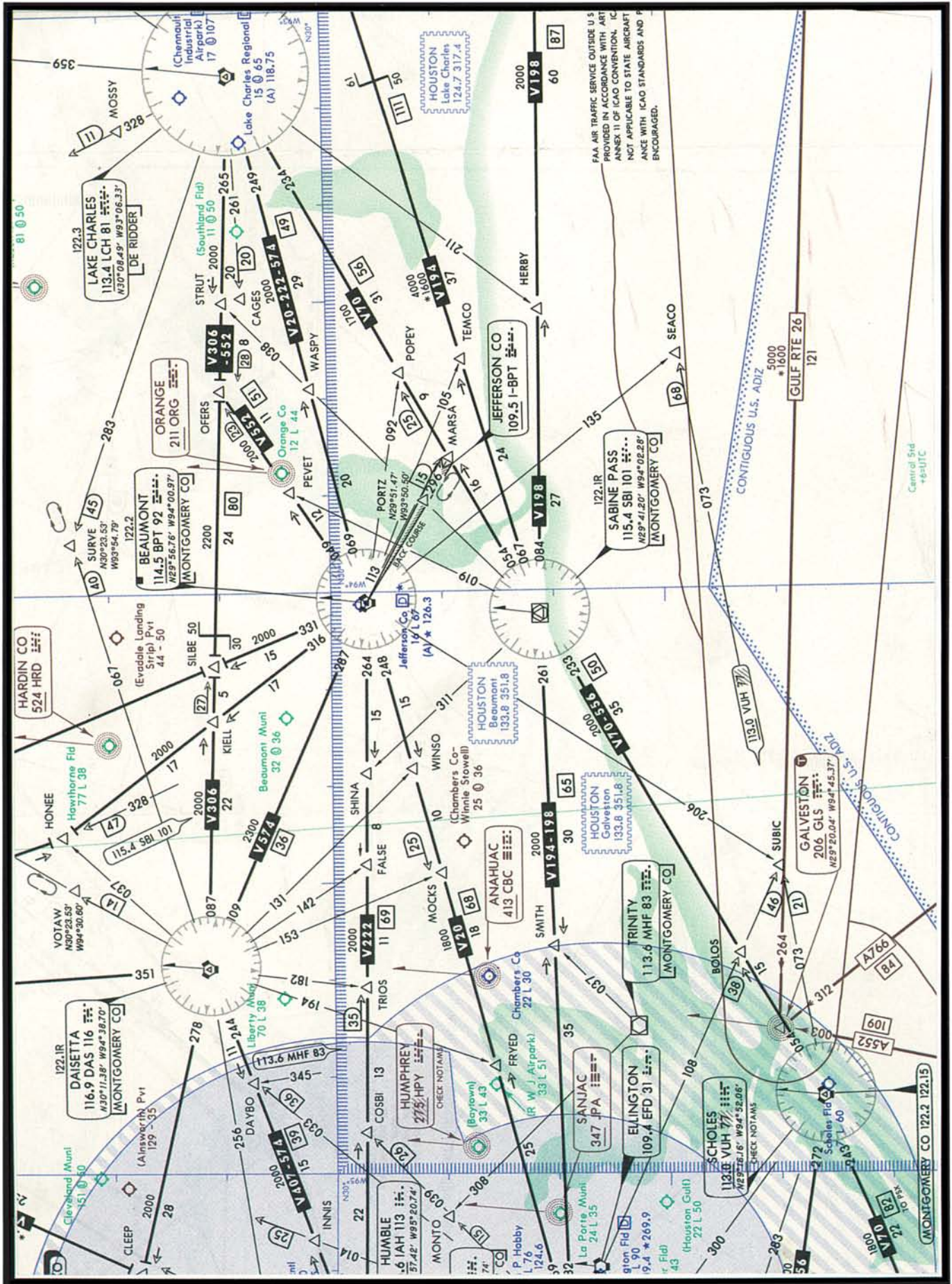


FIGURE 87.—En Route Chart Segment.

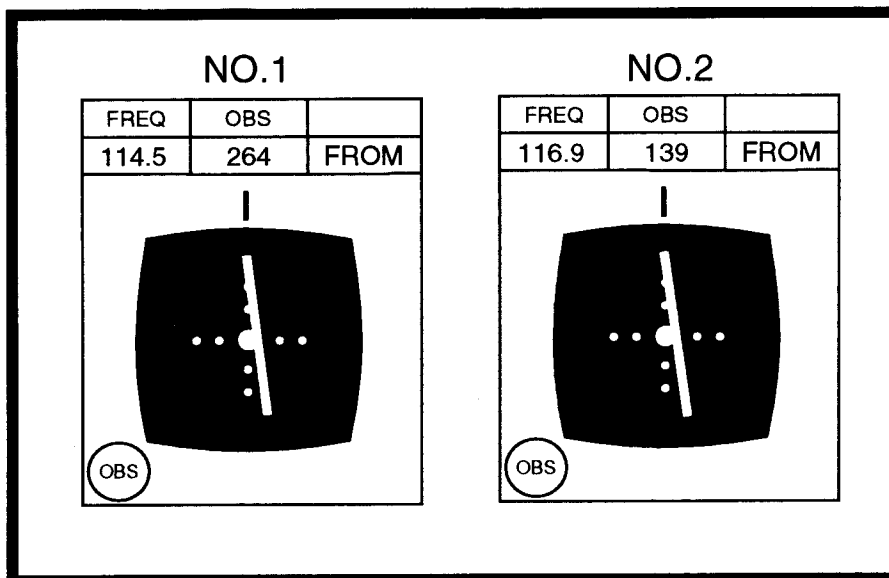


FIGURE 88.—CDI and OBS Indicators.

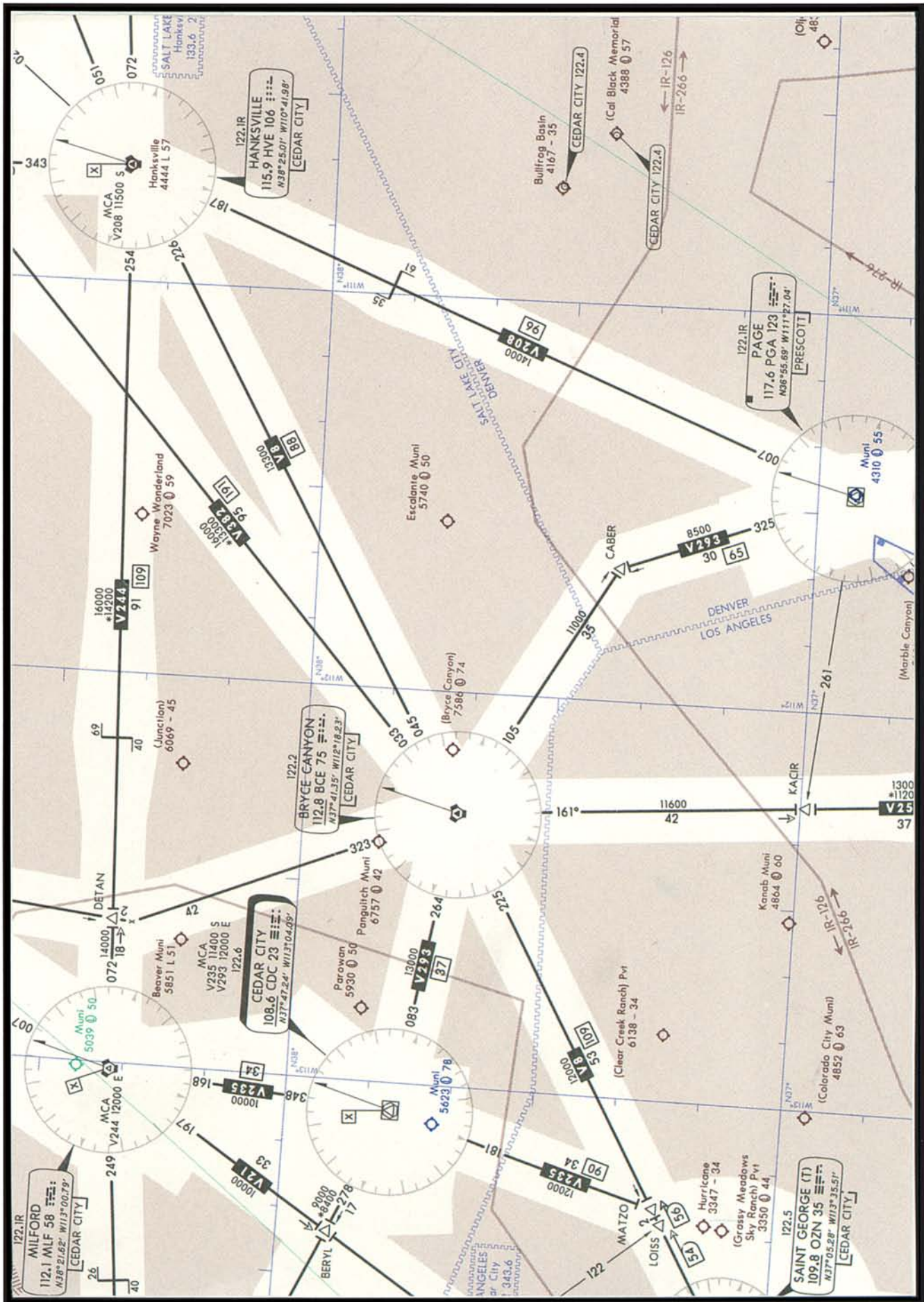


FIGURE 89.—En Route Chart Segment.

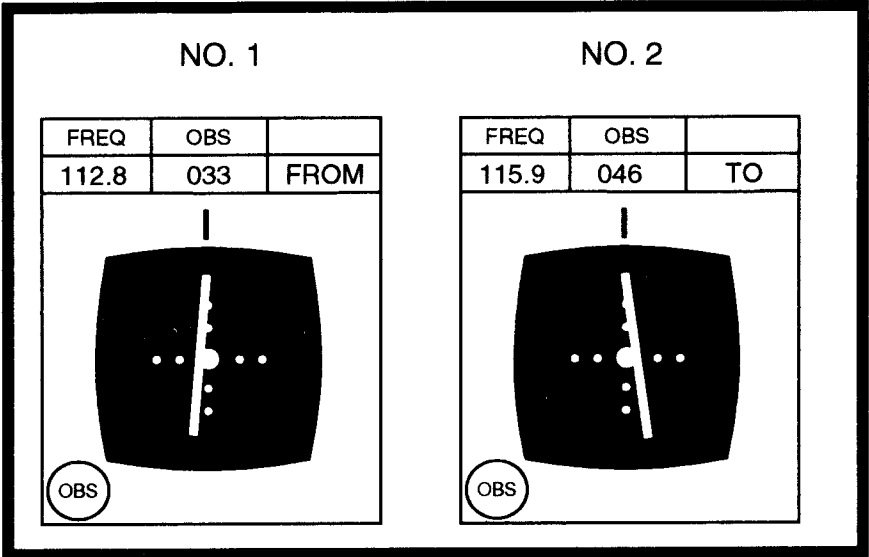


FIGURE 90.—CDI/OBS Indicators.

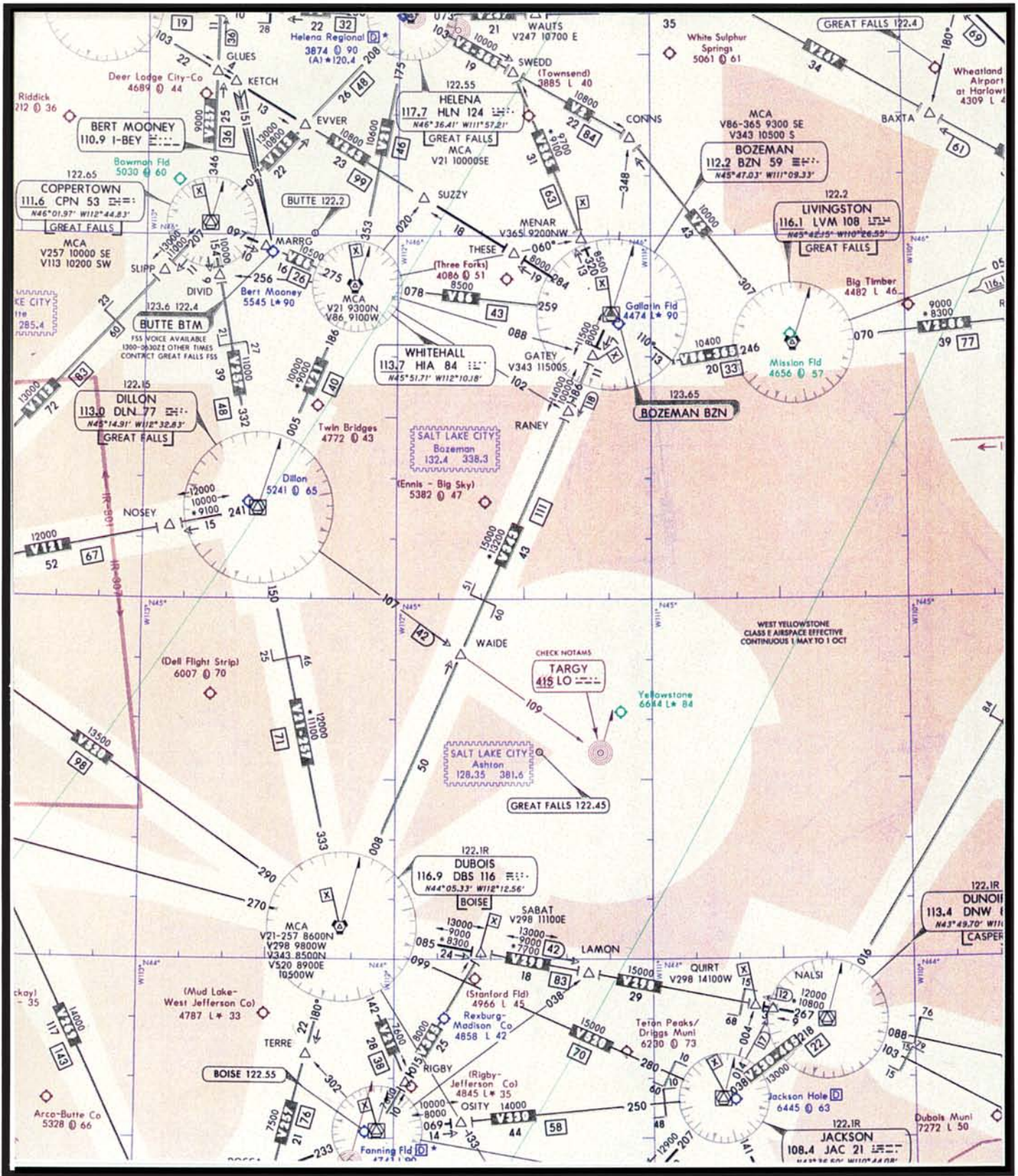


FIGURE 91.—En Route Chart Segment.

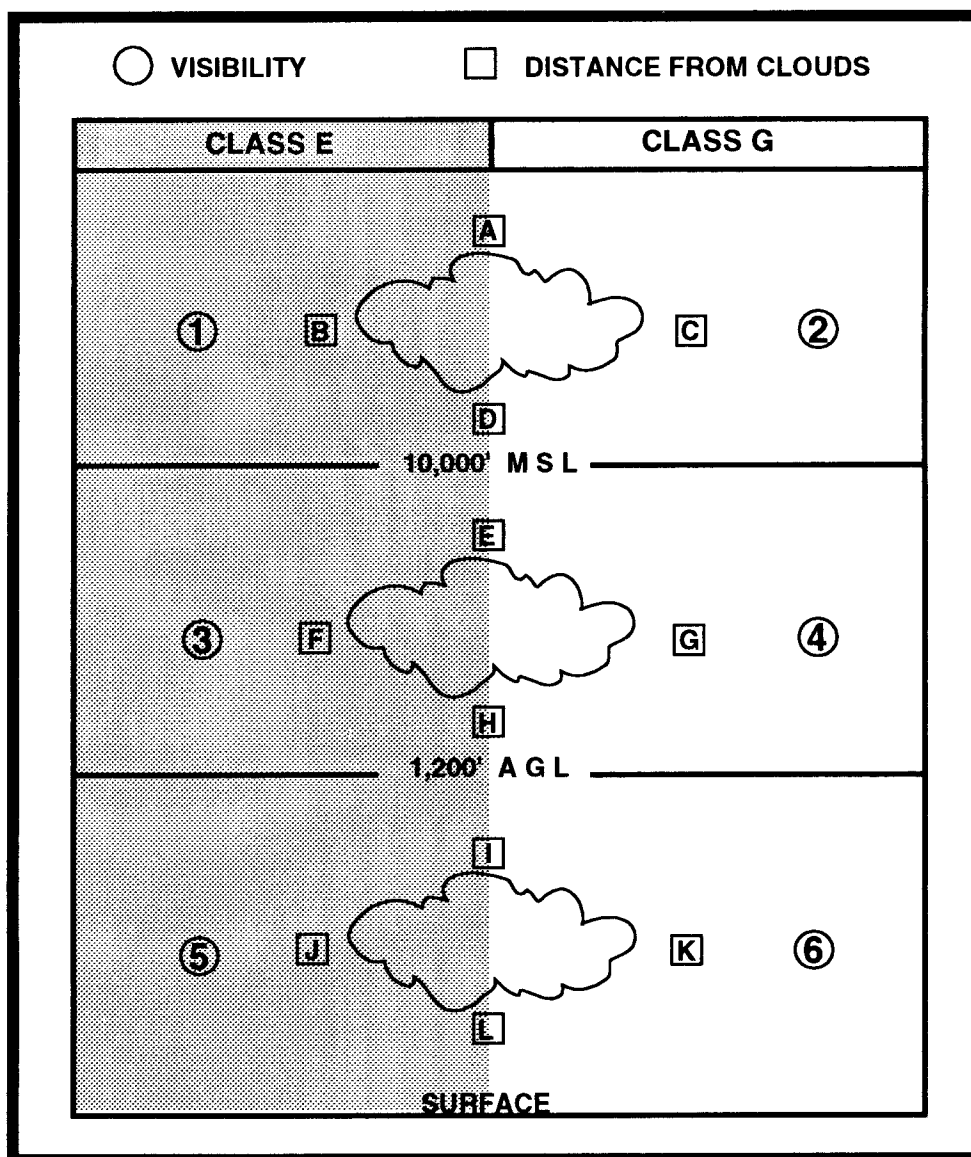


FIGURE 92.—Minimum In-Flight Visibility and Distance from Clouds.

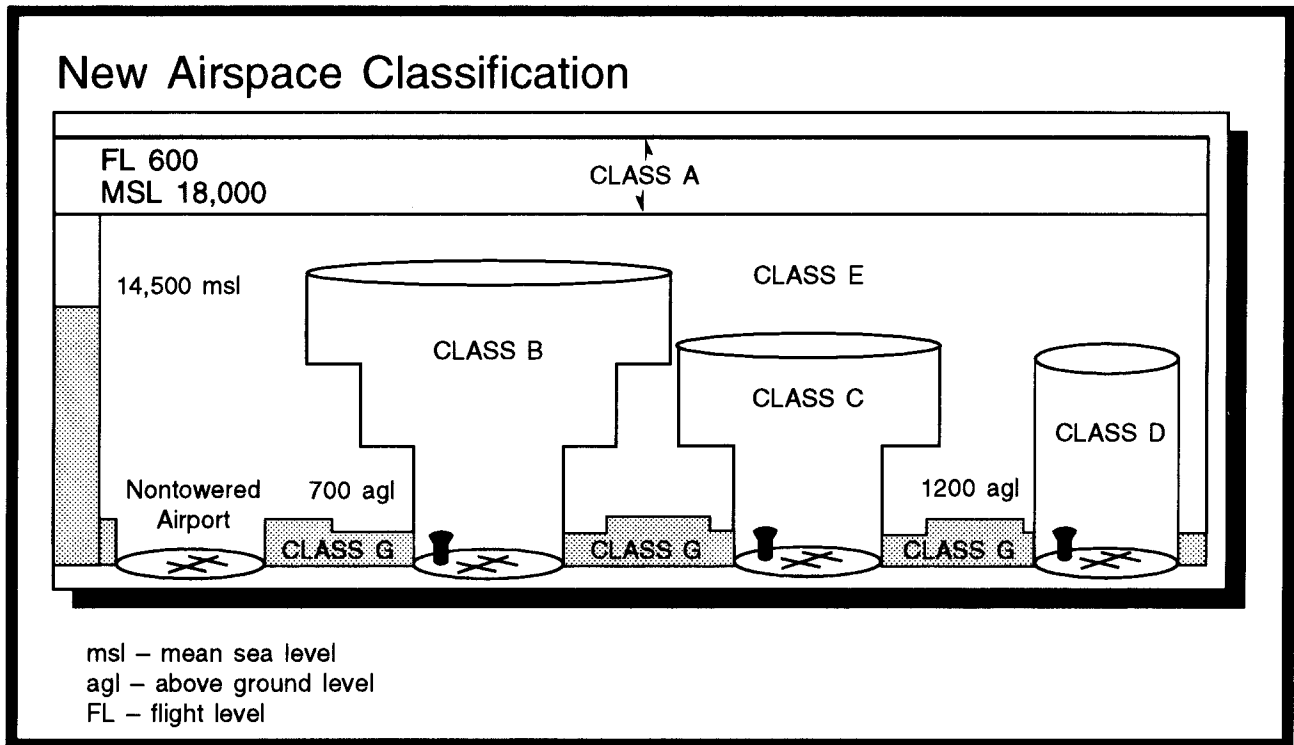


FIGURE 93.—New Airspace Classification.

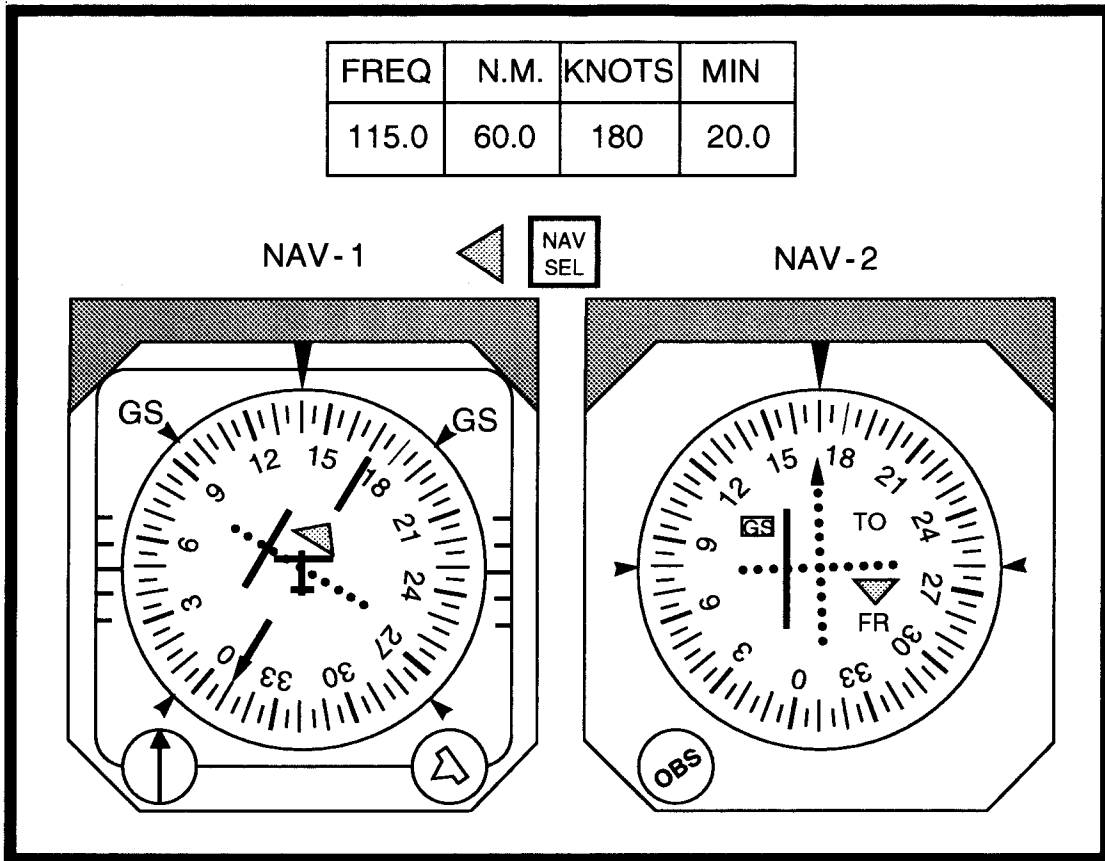


FIGURE 95.—No. 1 and No. 2 NAV Presentation.

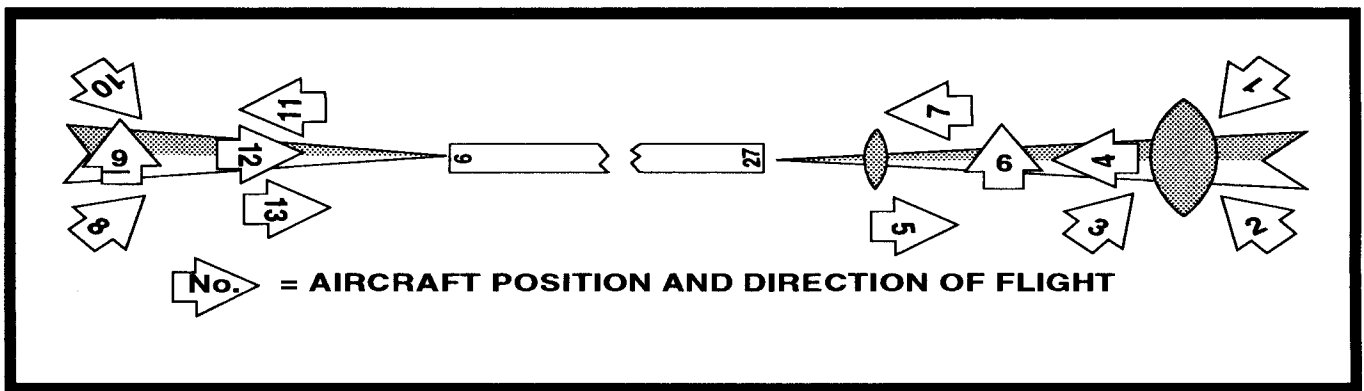


FIGURE 96.—Aircraft Position and Direction of Flight.

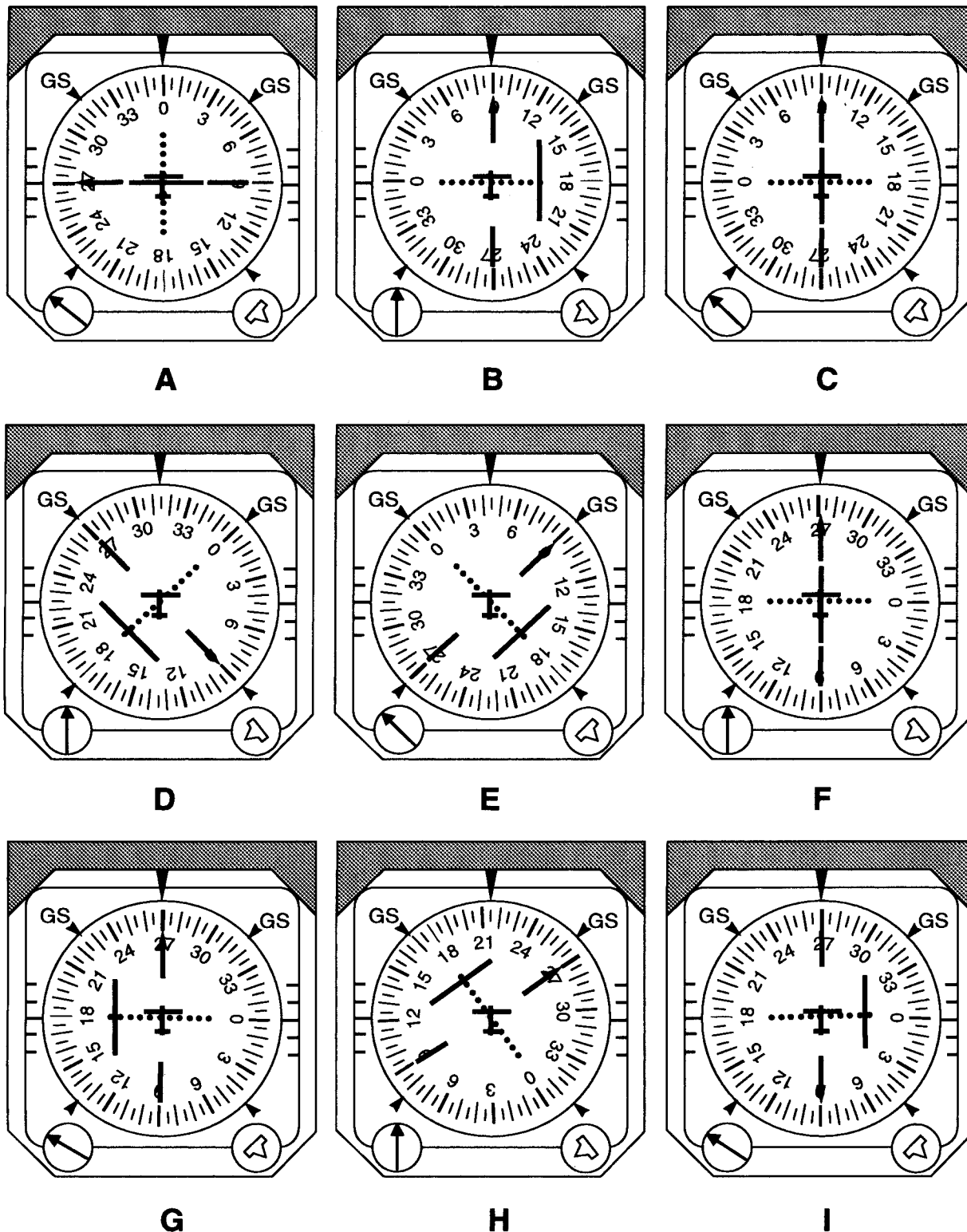


FIGURE 97.—HSI Presentation.

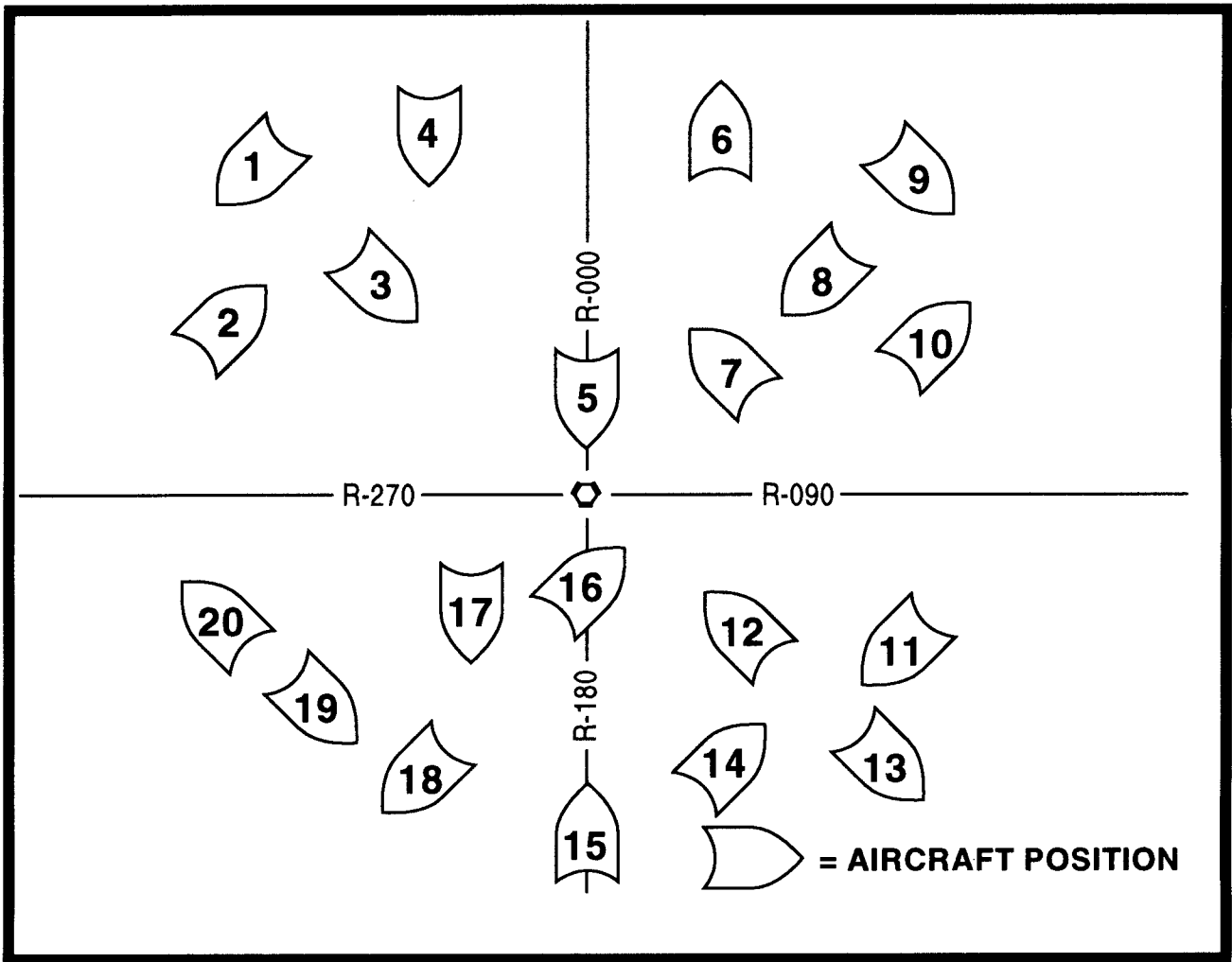


FIGURE 98.—Aircraft Position.

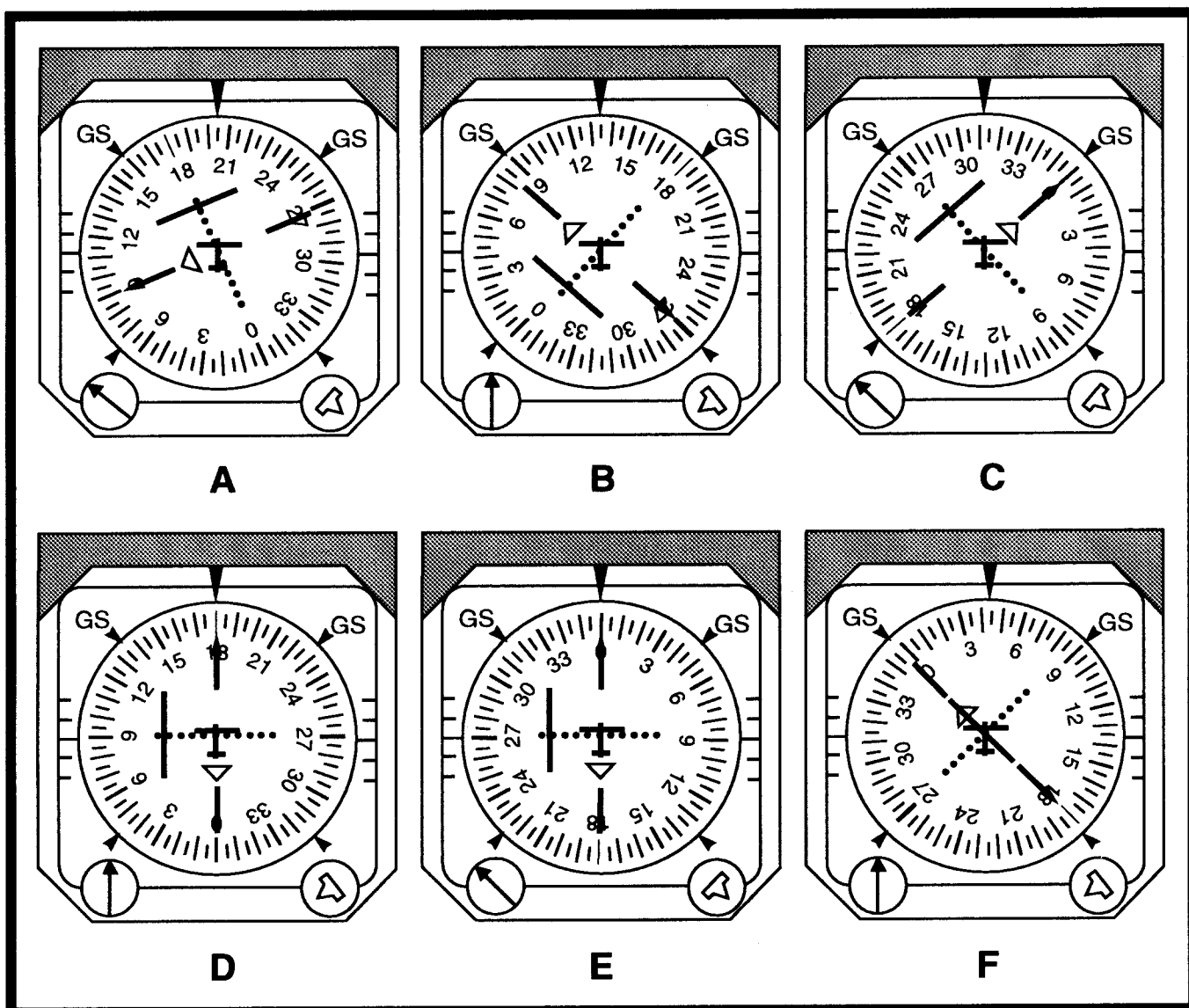


FIGURE 99.—HSI Presentation.

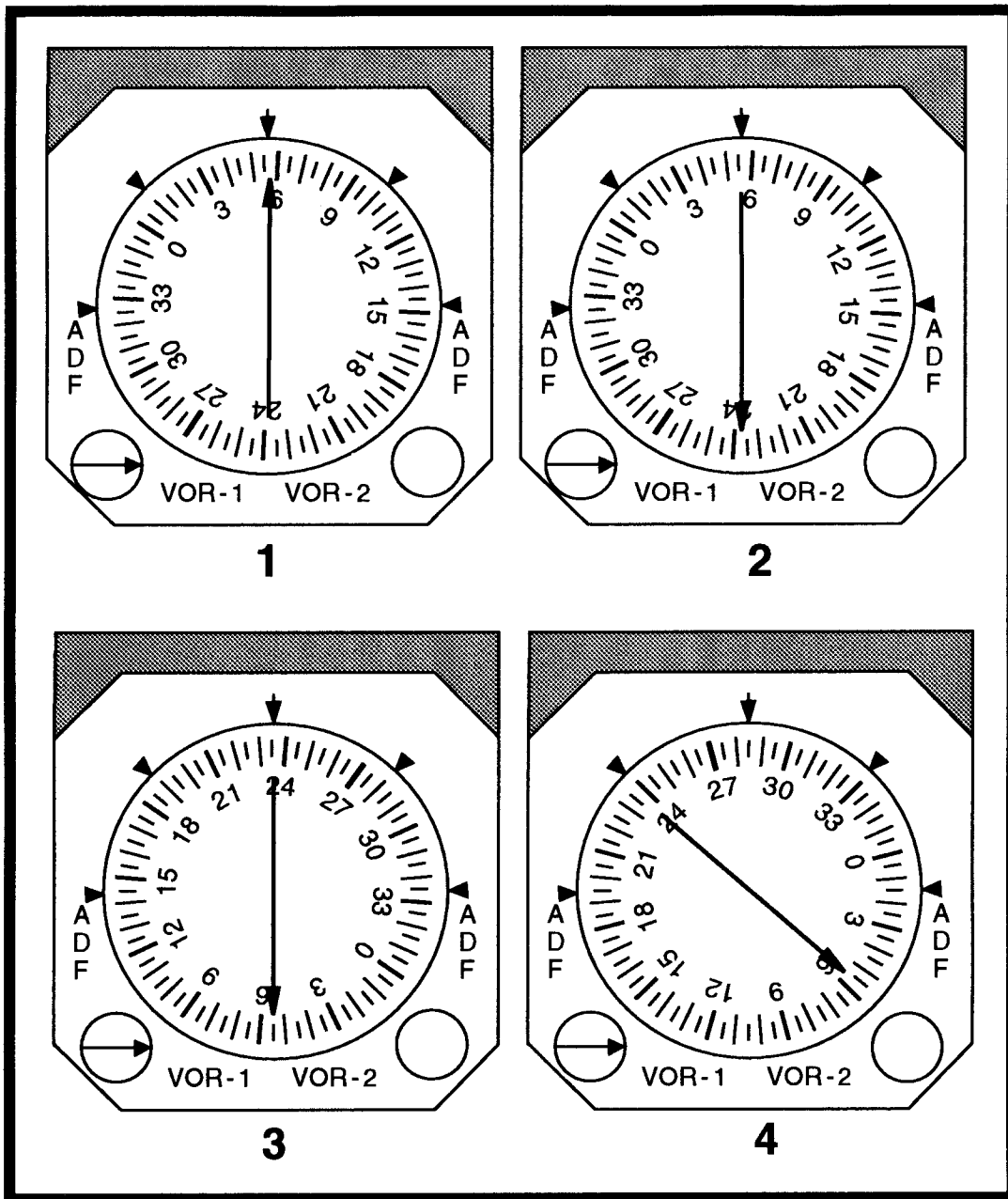


FIGURE 100.—RMI Illustrations.

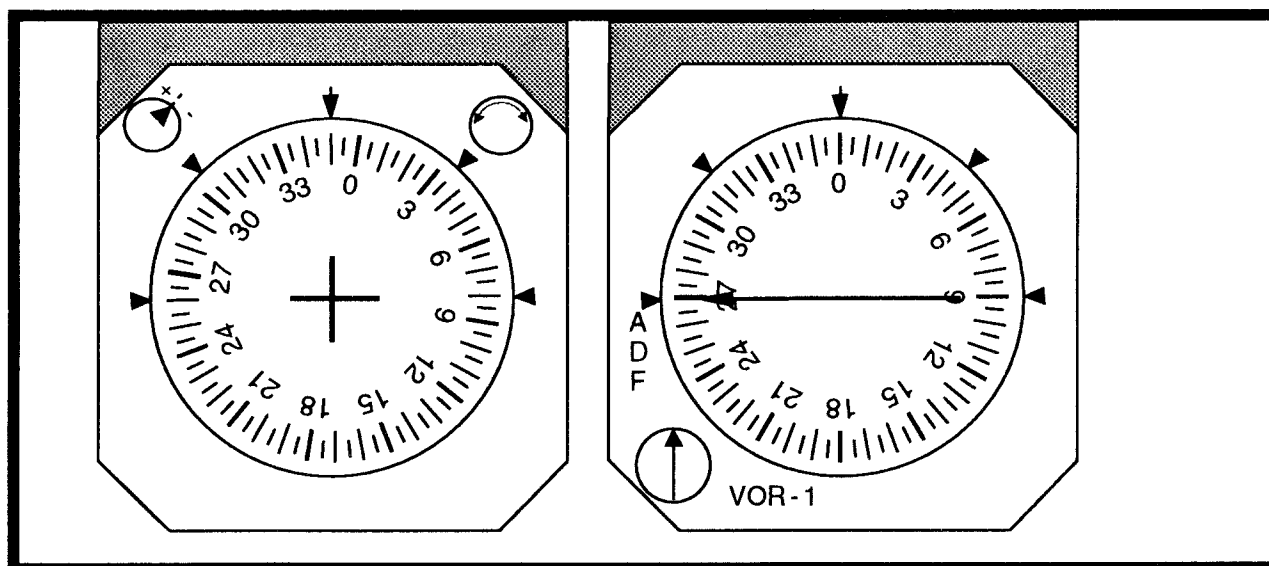


FIGURE 101.—Directional Gyro and ADF Indicator.

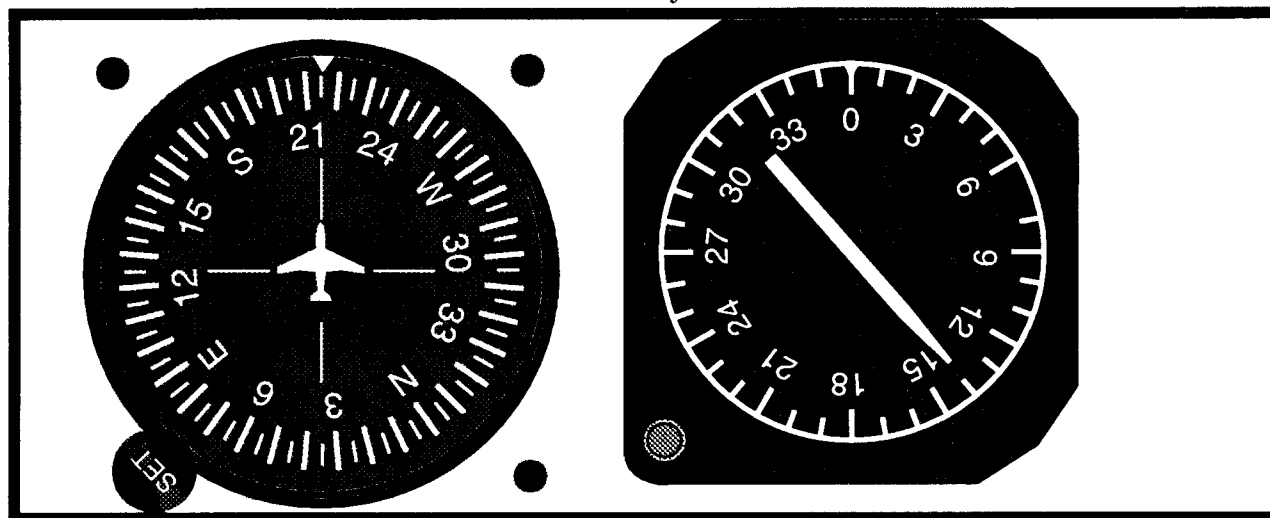


FIGURE 102.—Directional Gyro and ADF Indicator.

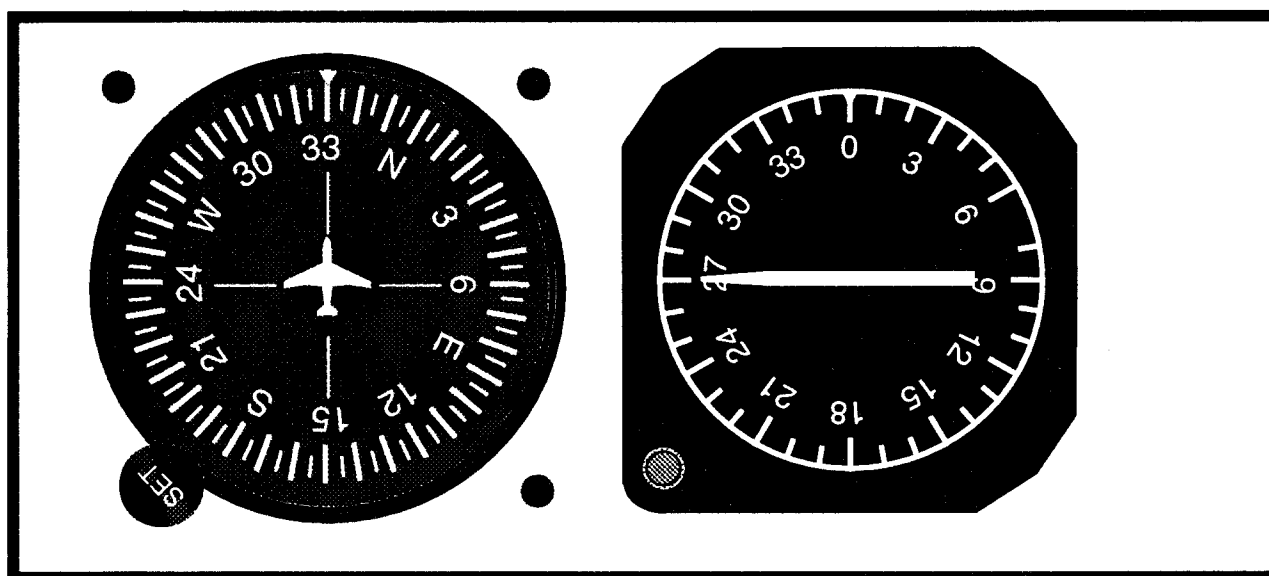


FIGURE 103.—Directional Gyro and ADF Indicator.

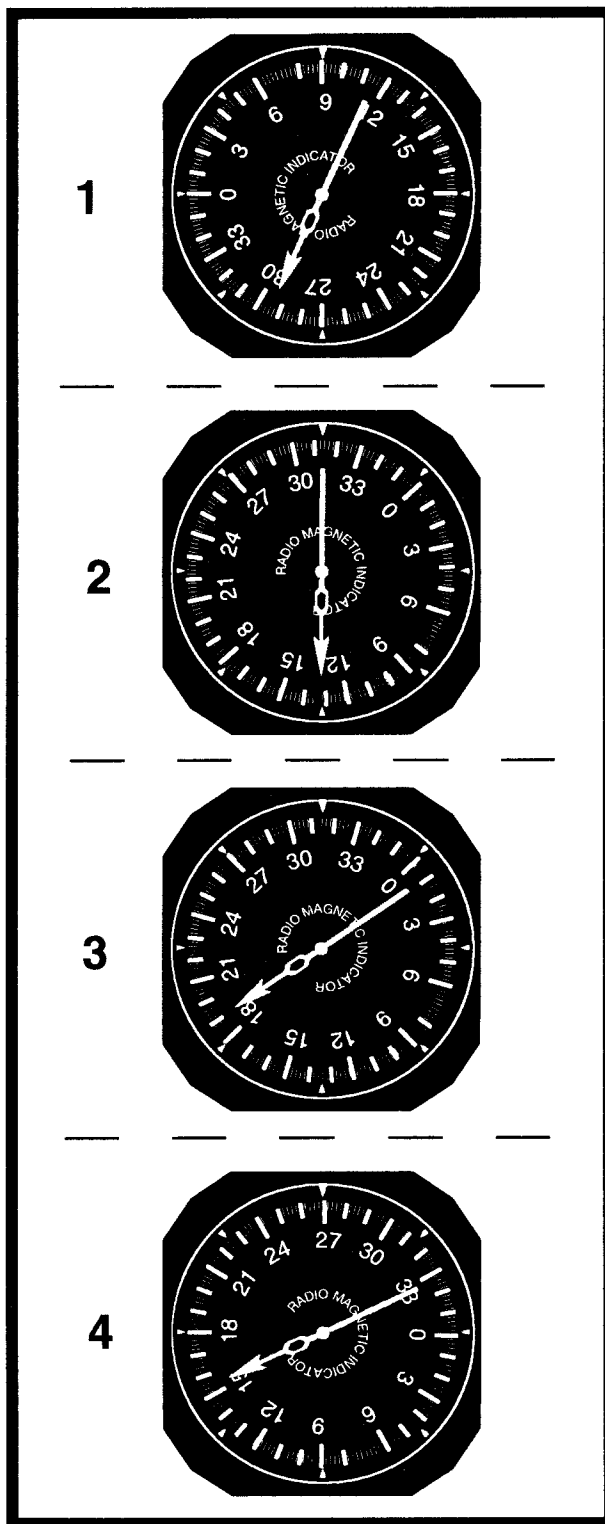


FIGURE 104.—Radio Magnetic Indicator.

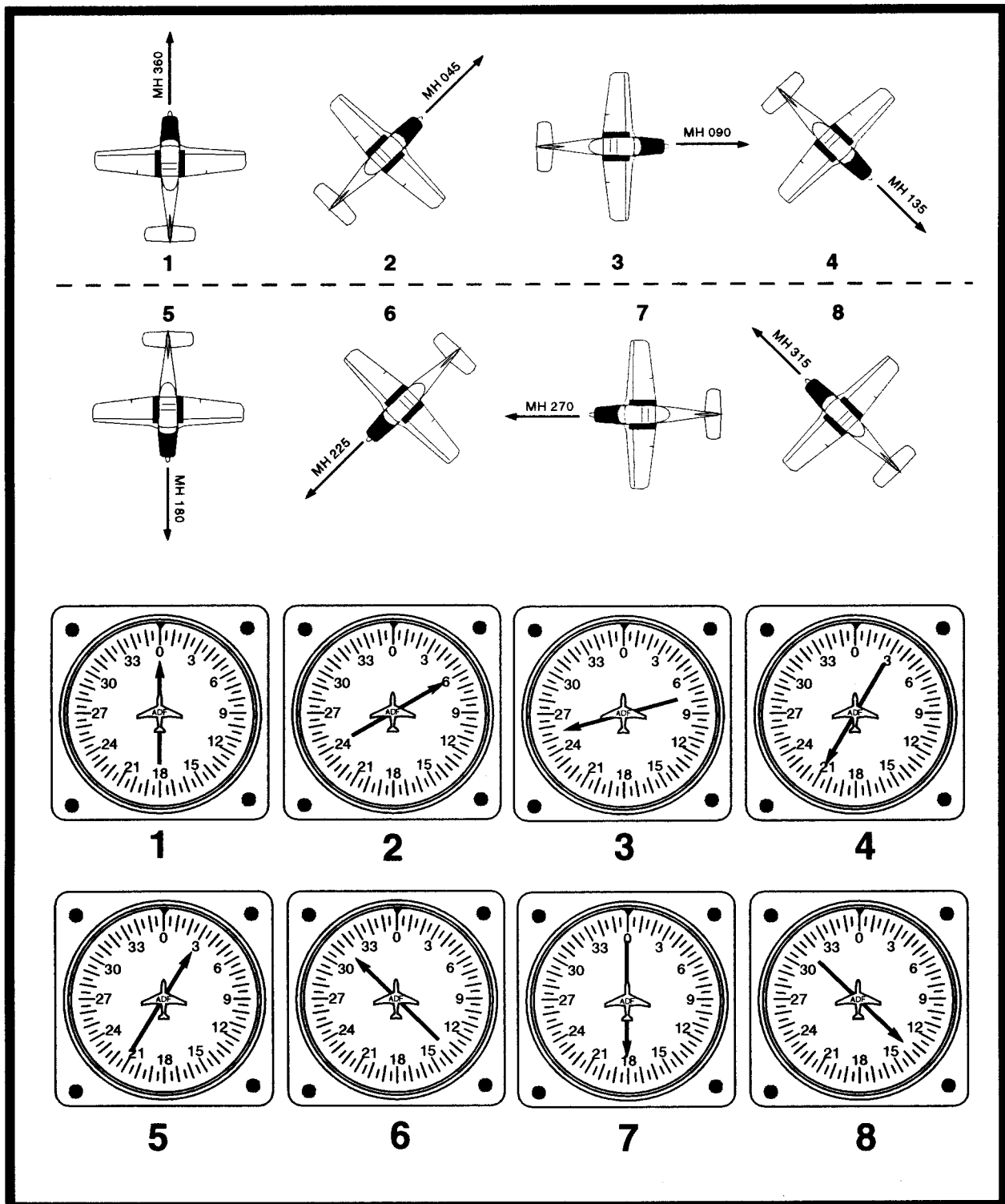


FIGURE 105.—Aircraft Magnetic Heading and ADF Illustration.

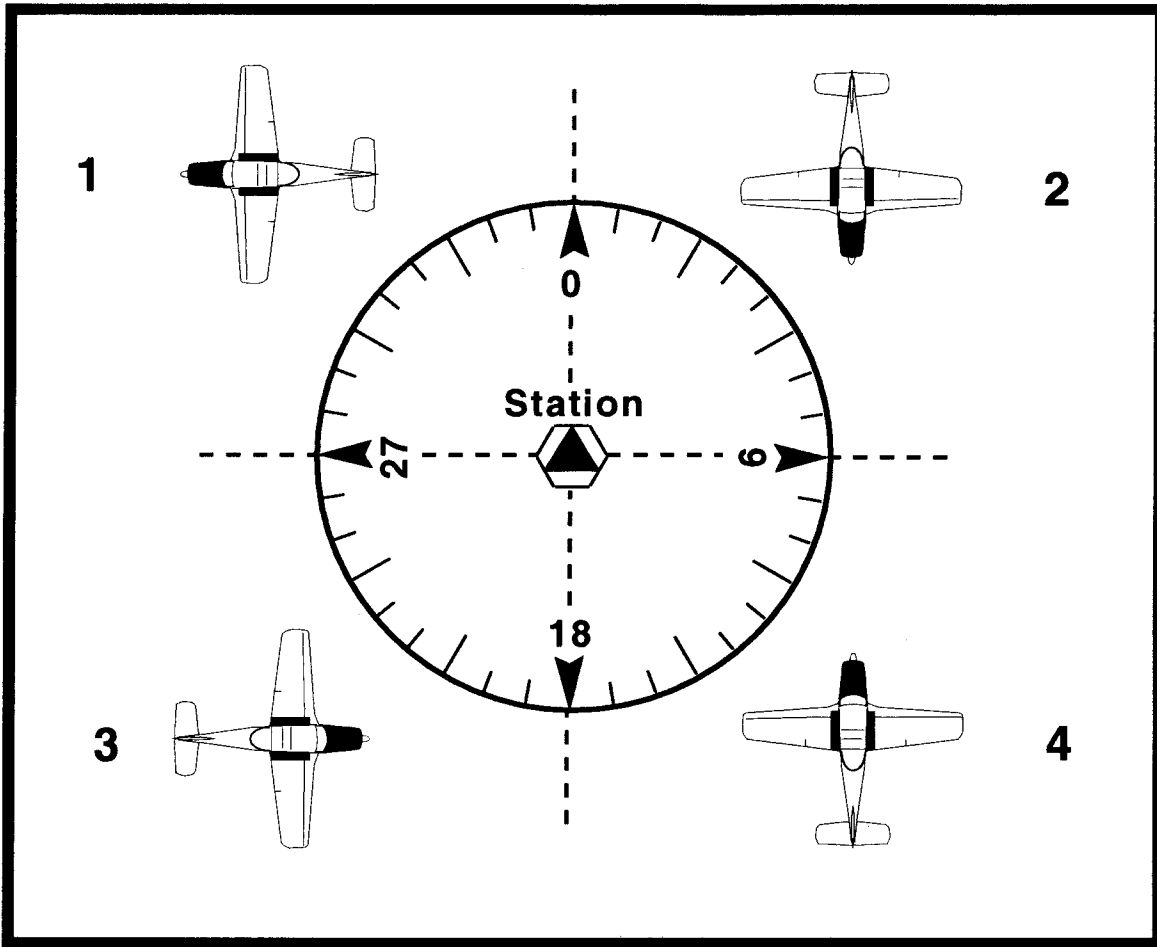


FIGURE 106.—Aircraft Location Relative to VOR.

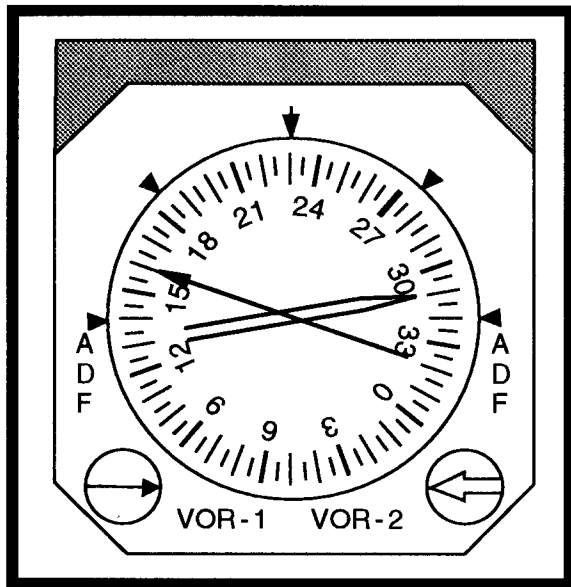


FIGURE 107.—RMI — DME — ARC Illustration Wind Component.

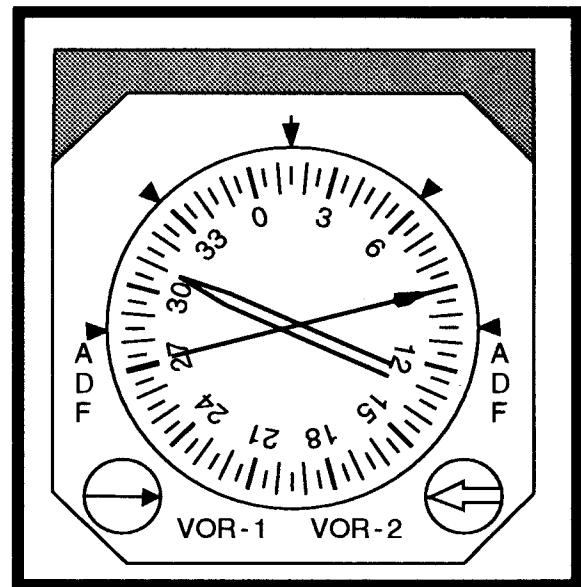


FIGURE 108.—RMI — DME — ARC Illustration Wind Component.

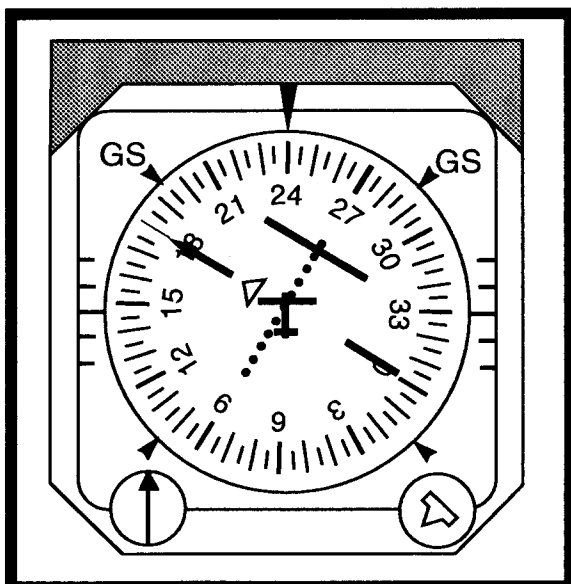


FIGURE 109.—CDI Direction from VORTAC.

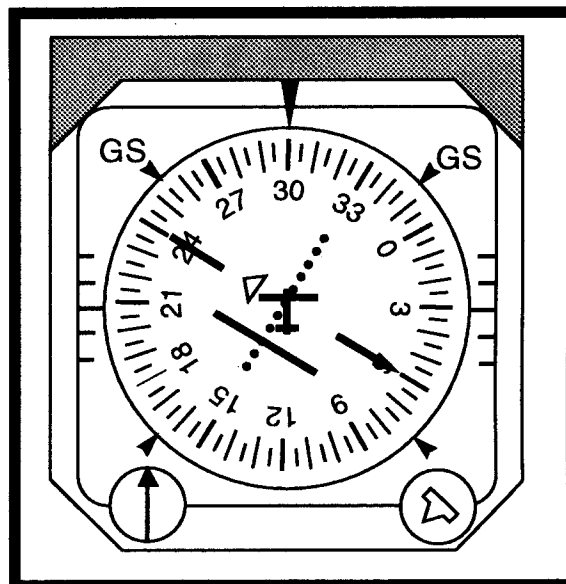


FIGURE 110.—CDI Direction from VORTAC.

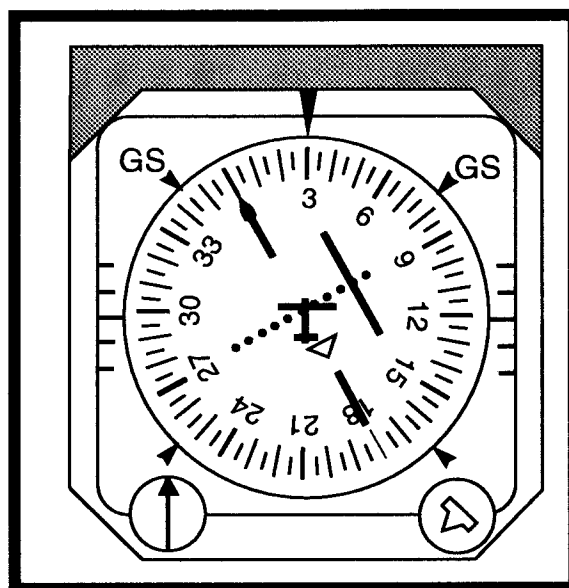


FIGURE 111.—CDI Direction from VORTAC.

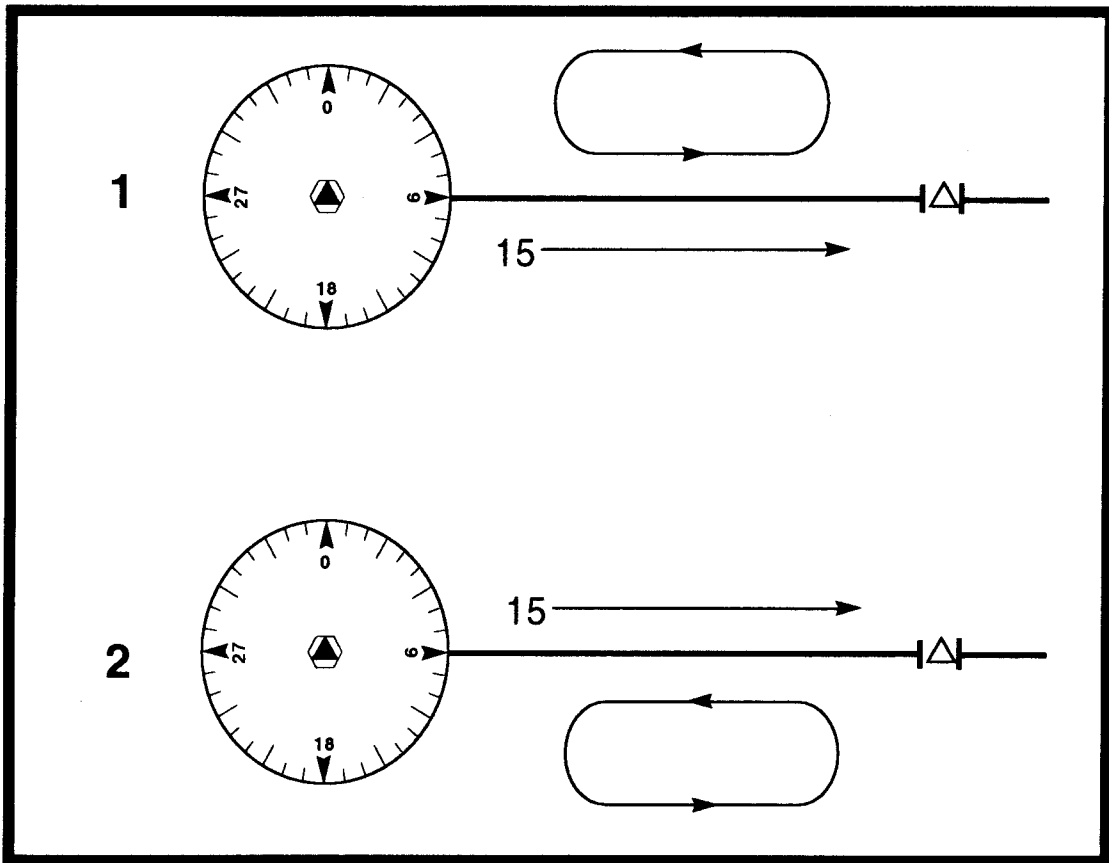


FIGURE 112.—Holding Entry Procedure.

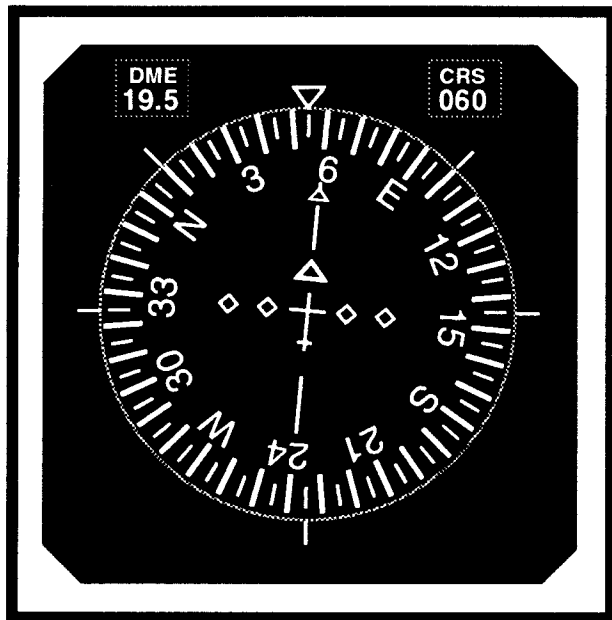


FIGURE 113.—Aircraft Course and DME Indicator.



FIGURE 114.—Aircraft Course and DME Indicator.

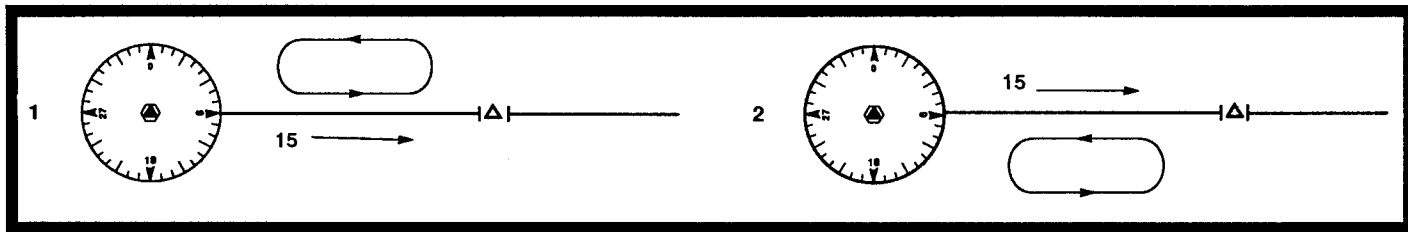


FIGURE 115.—DME Fix with Holding Pattern.

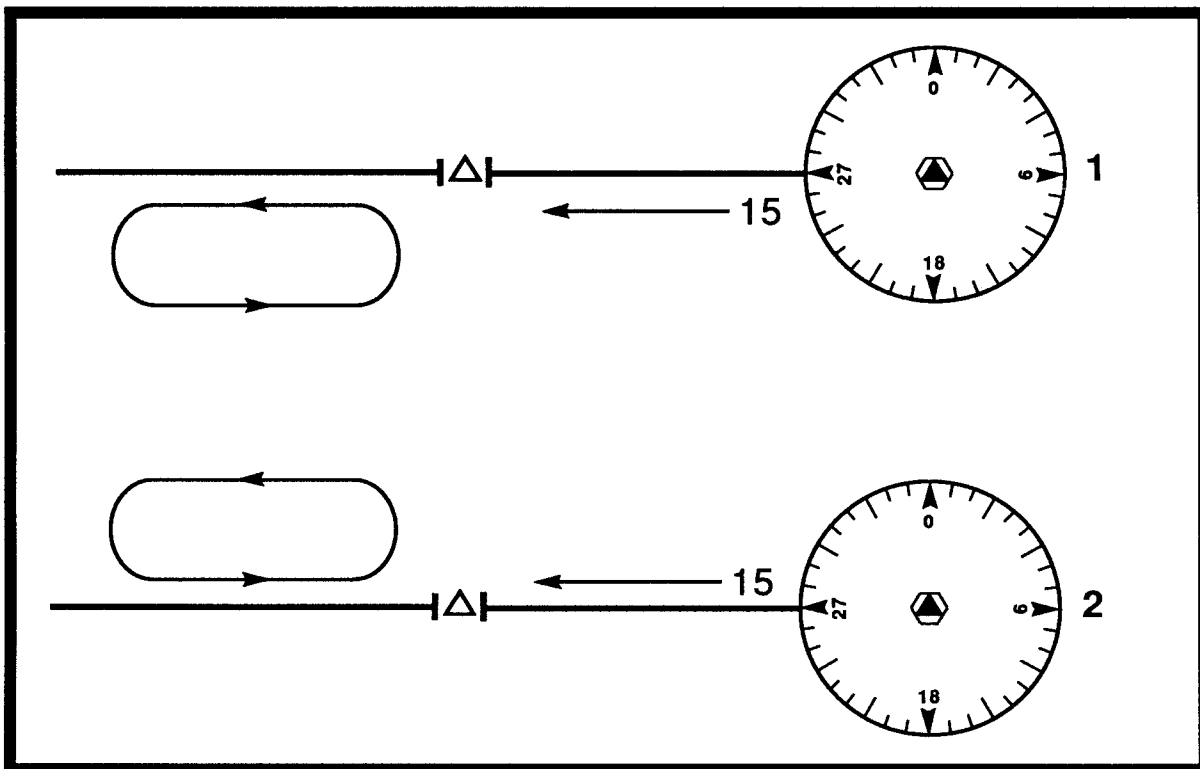


FIGURE 116.—Holding Entry Procedure.

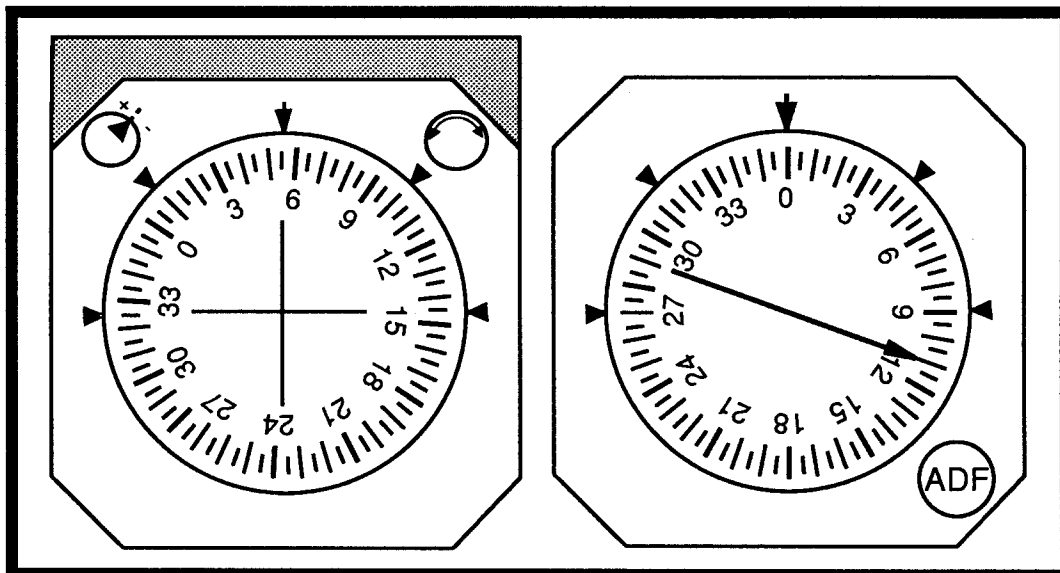


FIGURE 117.—Heading and ADF Indicators.

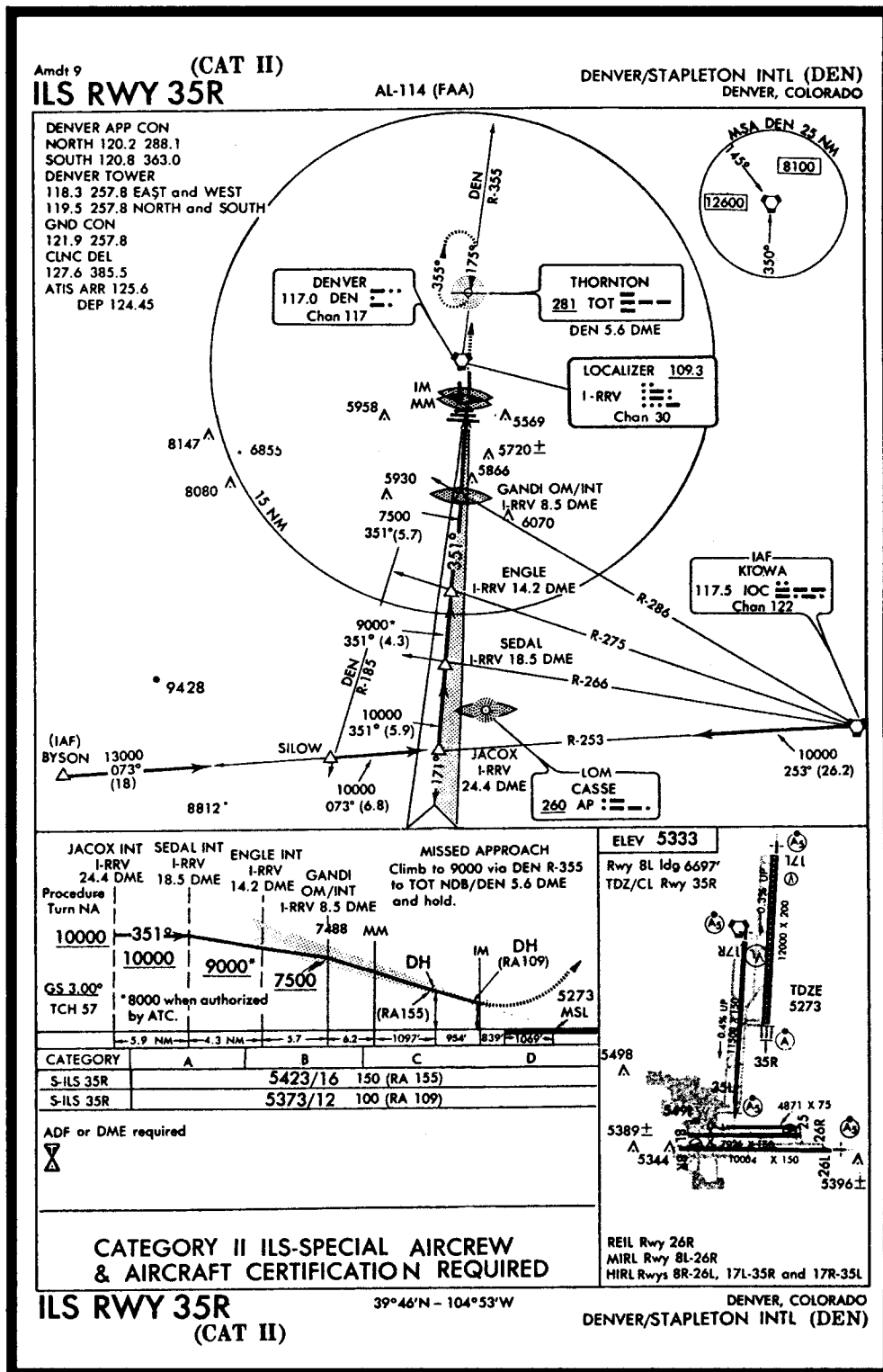


FIGURE 120.—ILS RWY 35R (DEN).

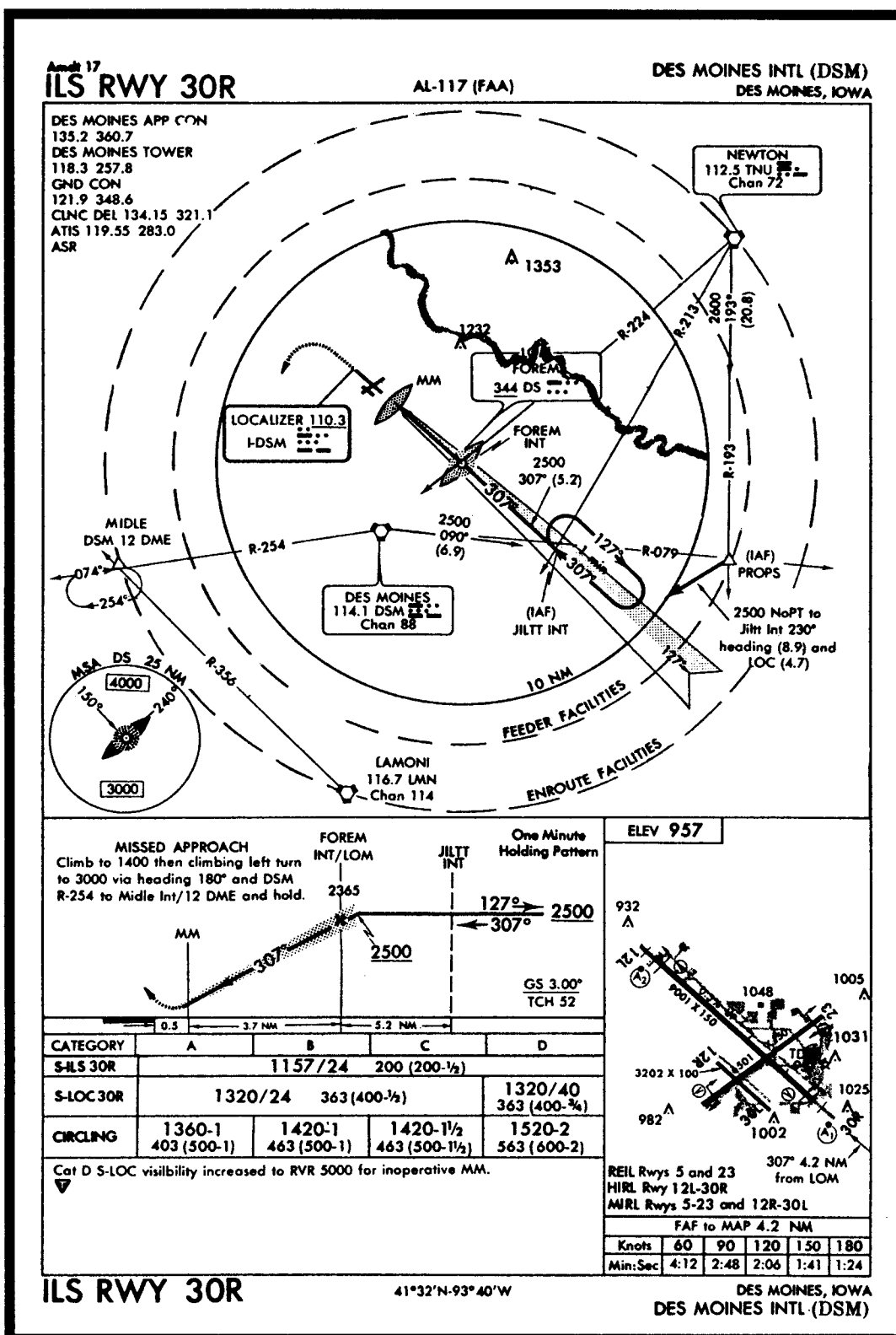


FIGURE 121.—ILS RWY 30R (DSM).

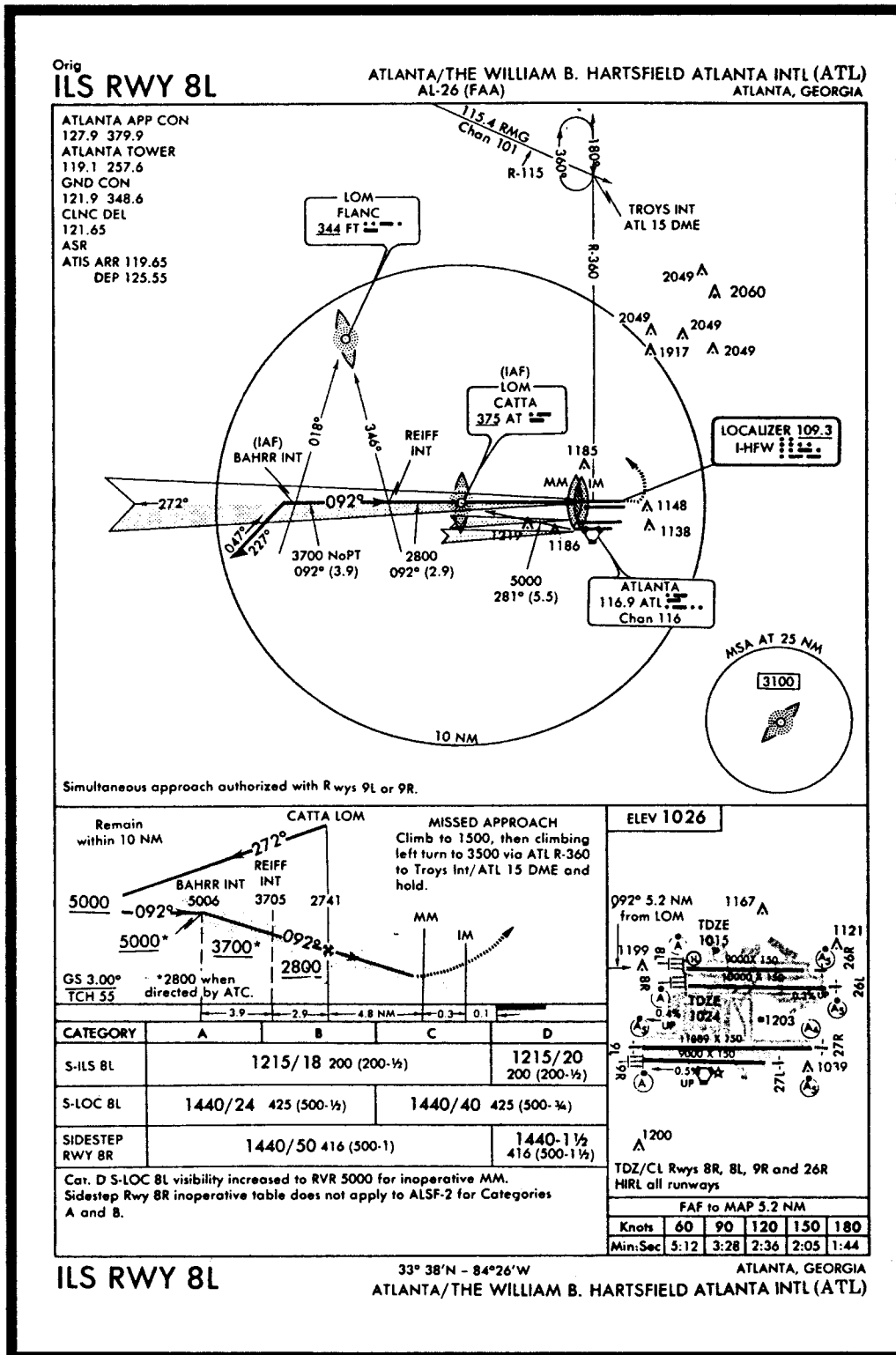


FIGURE 122.—ILS RWY 8L (ATL).

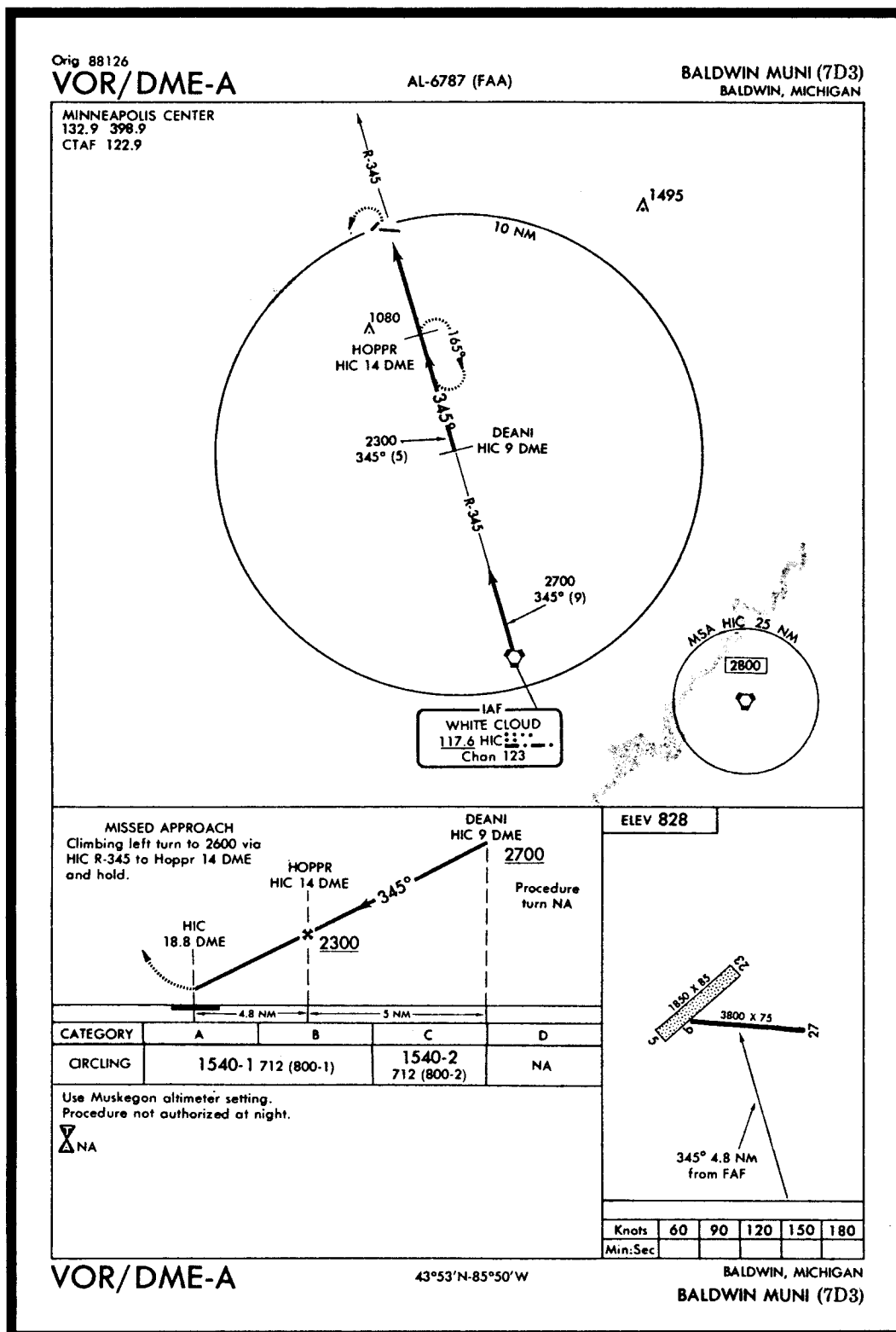


FIGURE 123.—VOR/DME-A (7D3).

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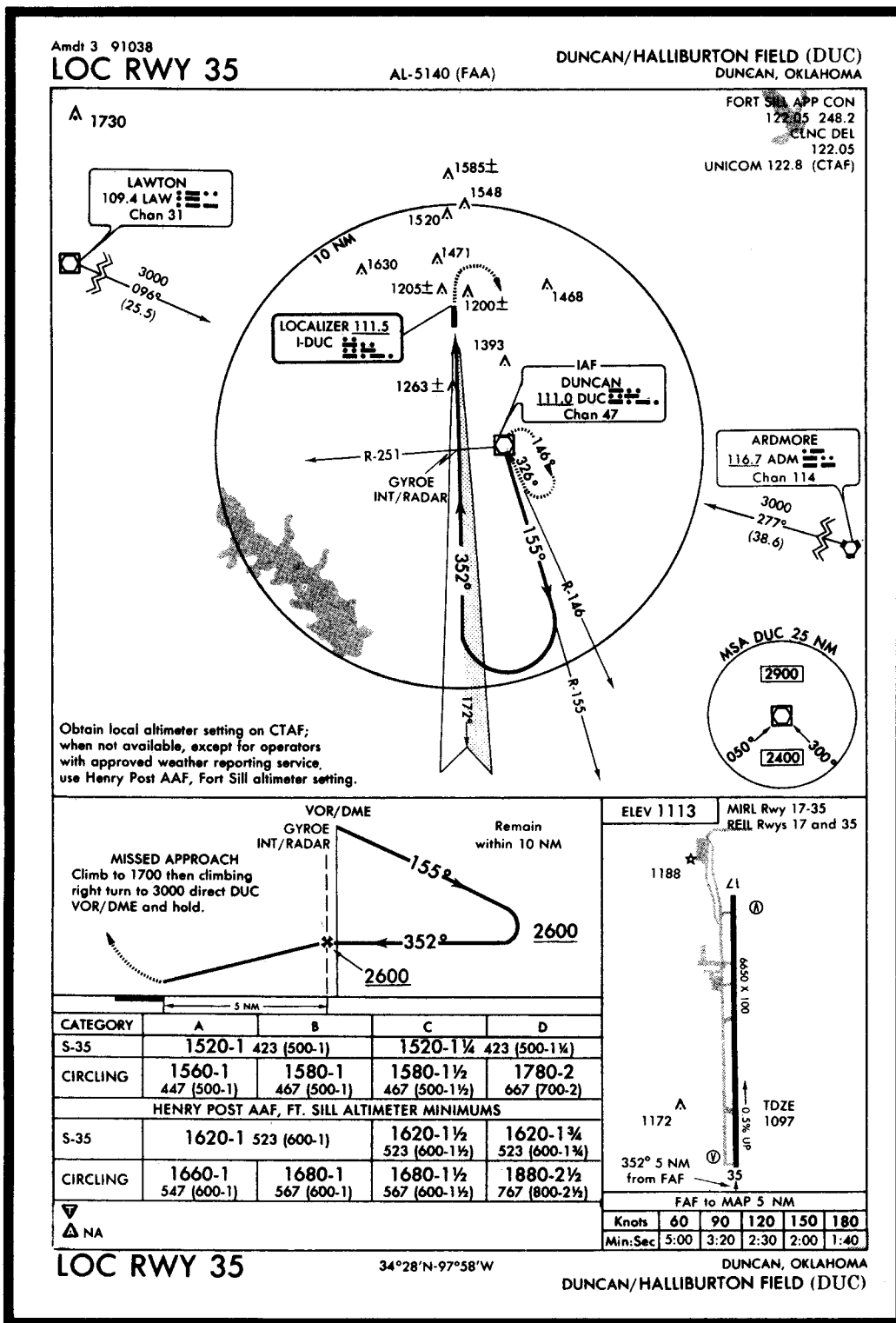


FIGURE 124.—LOC RWY 35, Duncan, Oklahoma.

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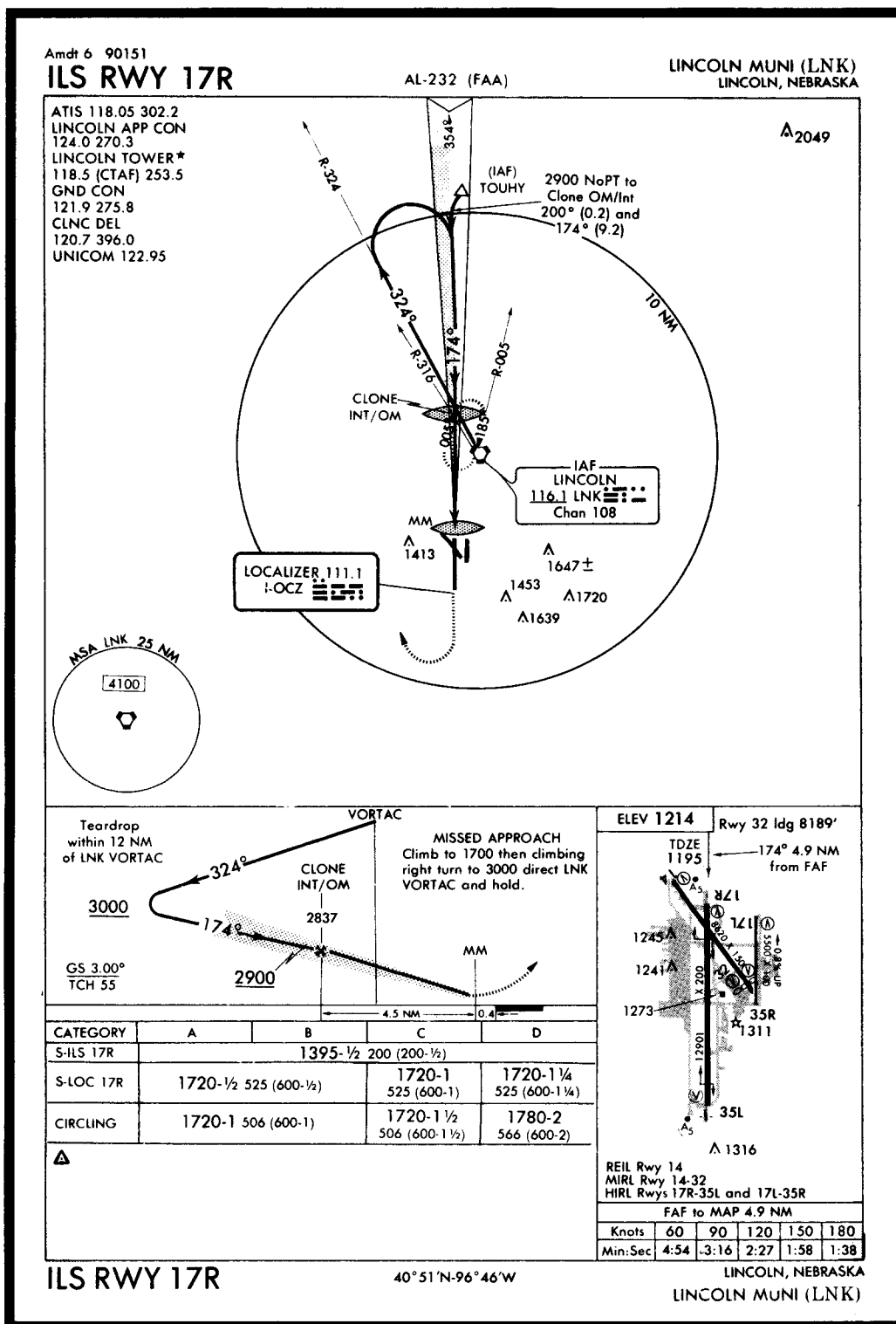


FIGURE 125.—ILS RWY 17R, Lincoln, Nebraska.

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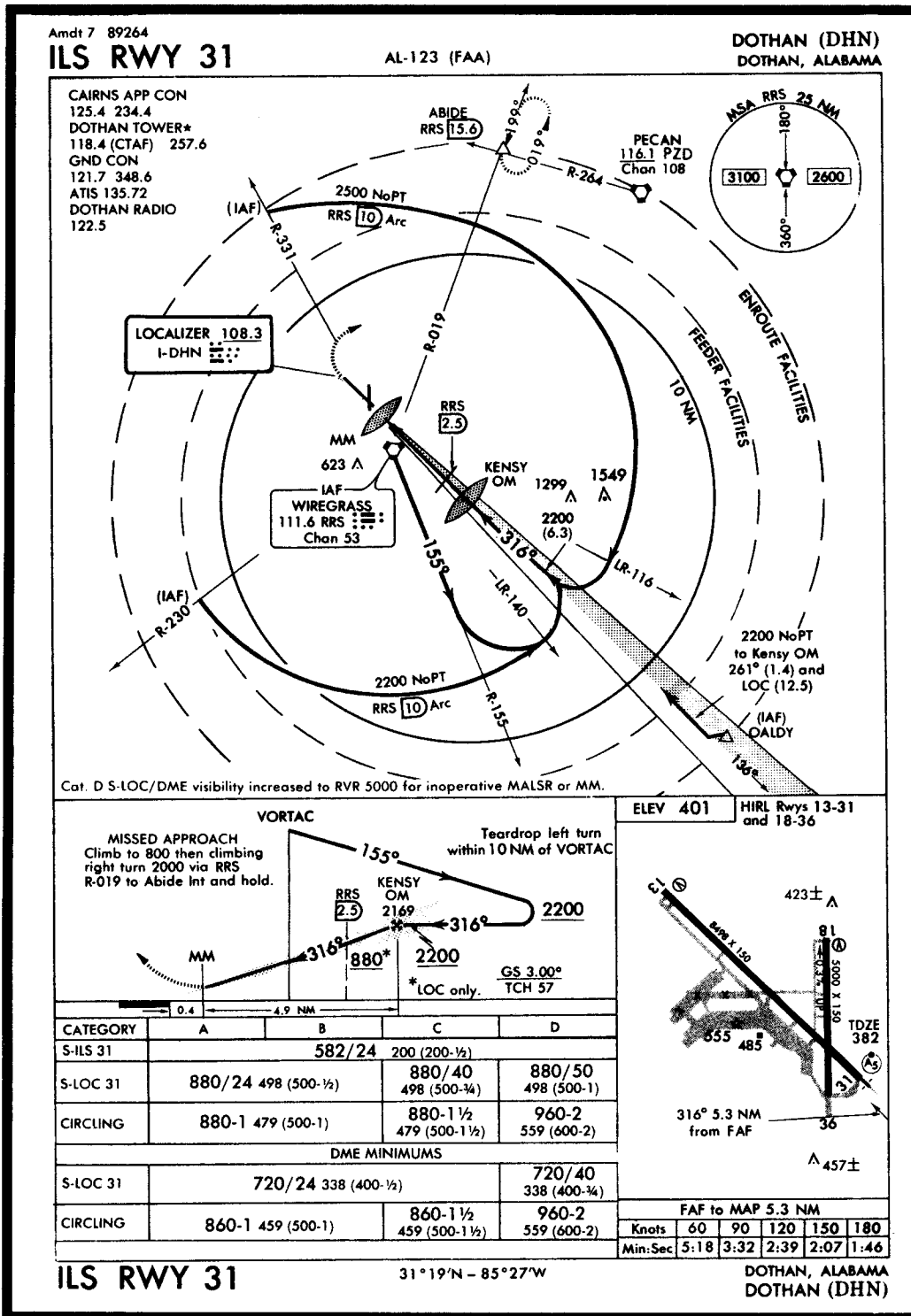


FIGURE 126.—ILS RWY 31, Dothan, Alabama.

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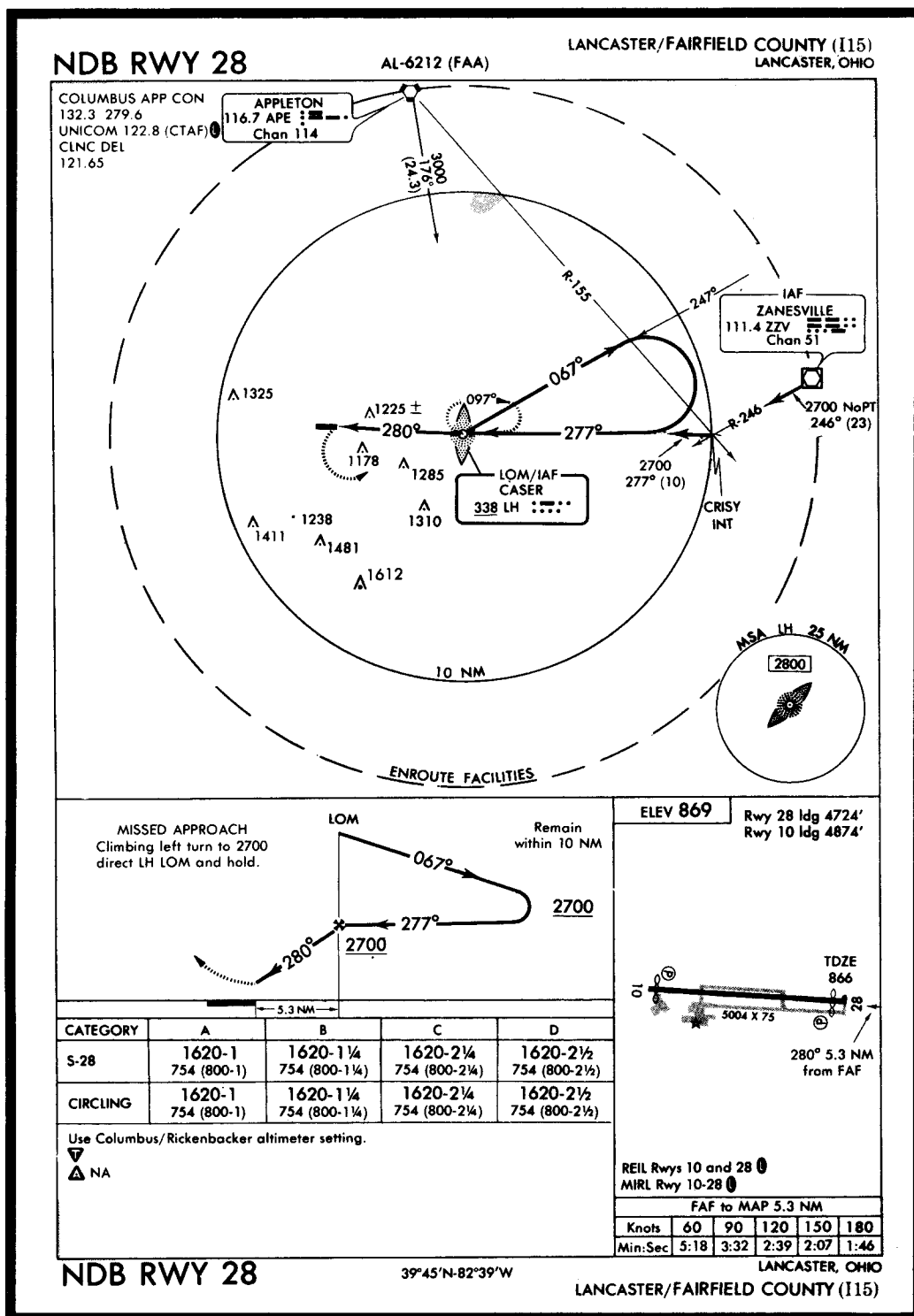


FIGURE 127.—NDB RWY 28, Lancaster/Fairfield County.

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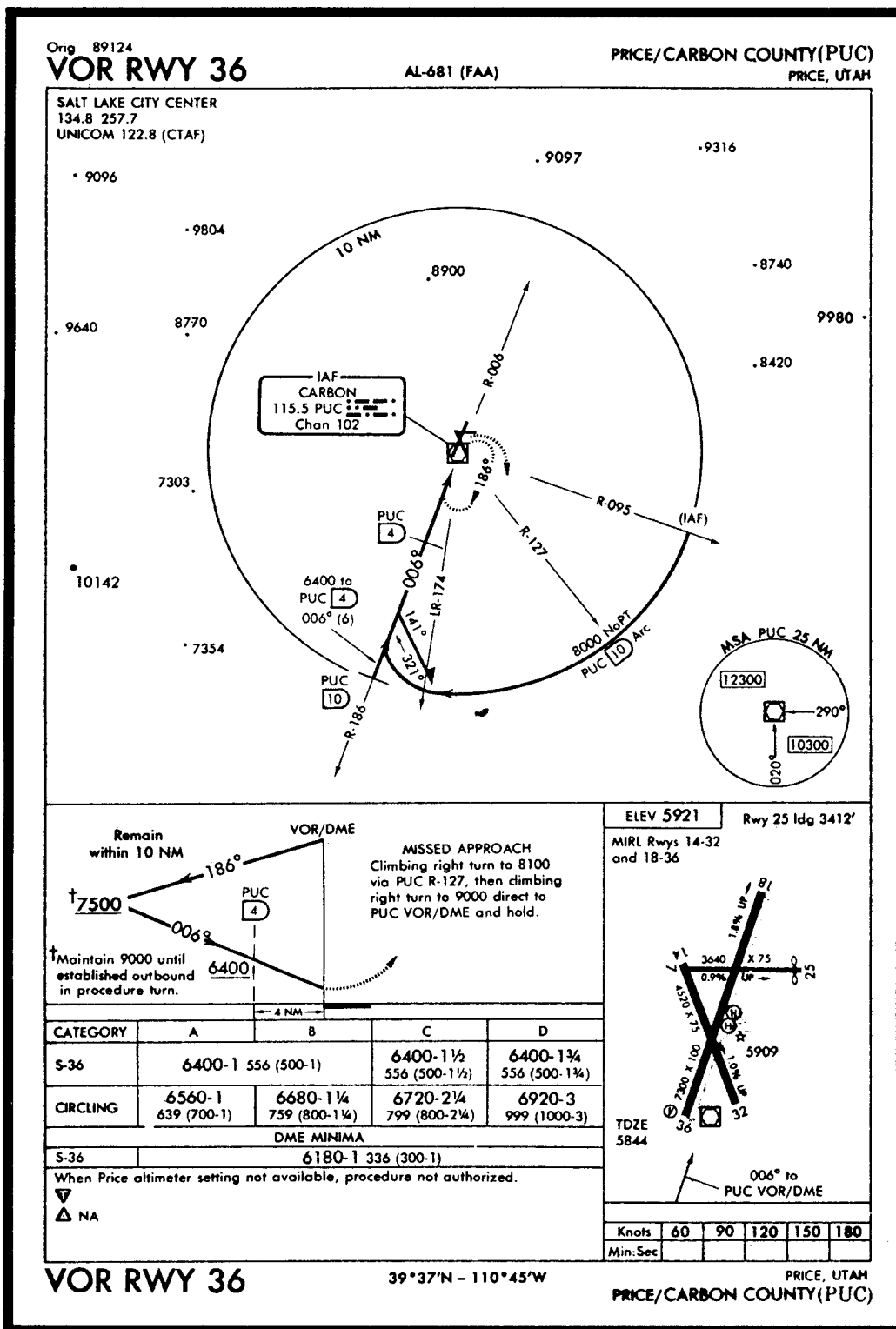


FIGURE 128.—VOR RWY 36 (PUC).

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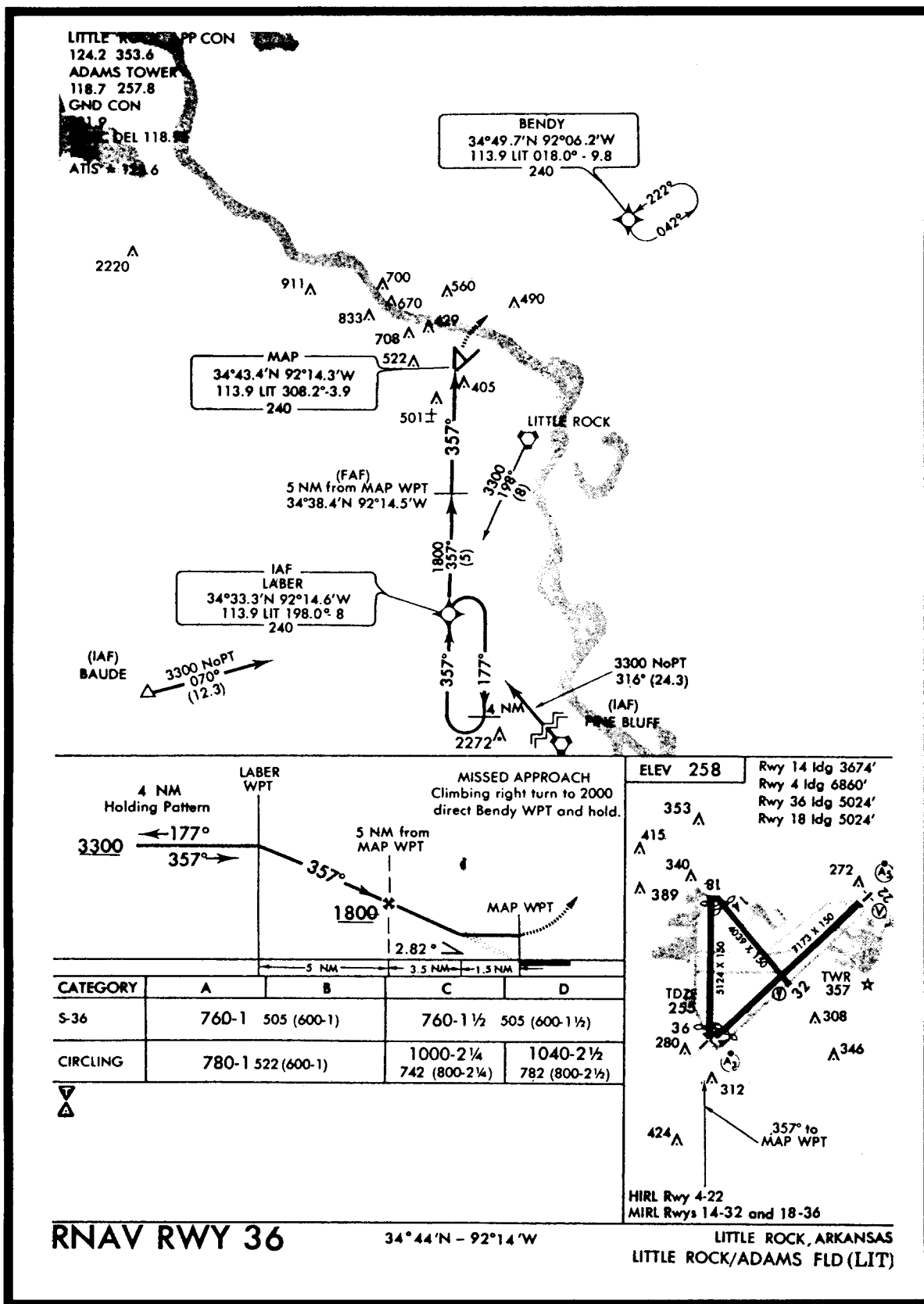


FIGURE 129.—RNAV RWY 36 (LIT).

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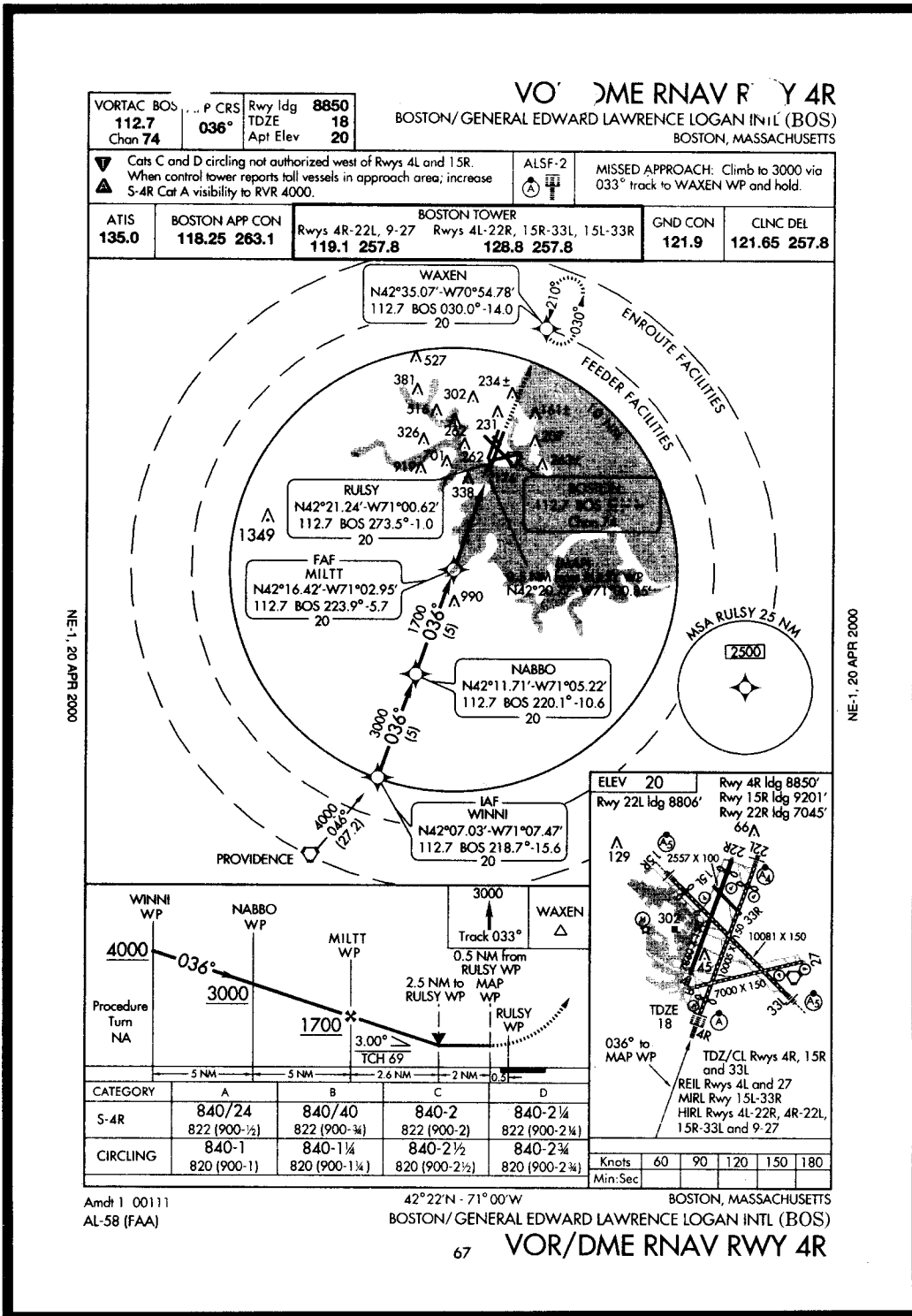


FIGURE 131.—VOR/DME RNAV RWY 4R.

Figure 132.—Deleted.

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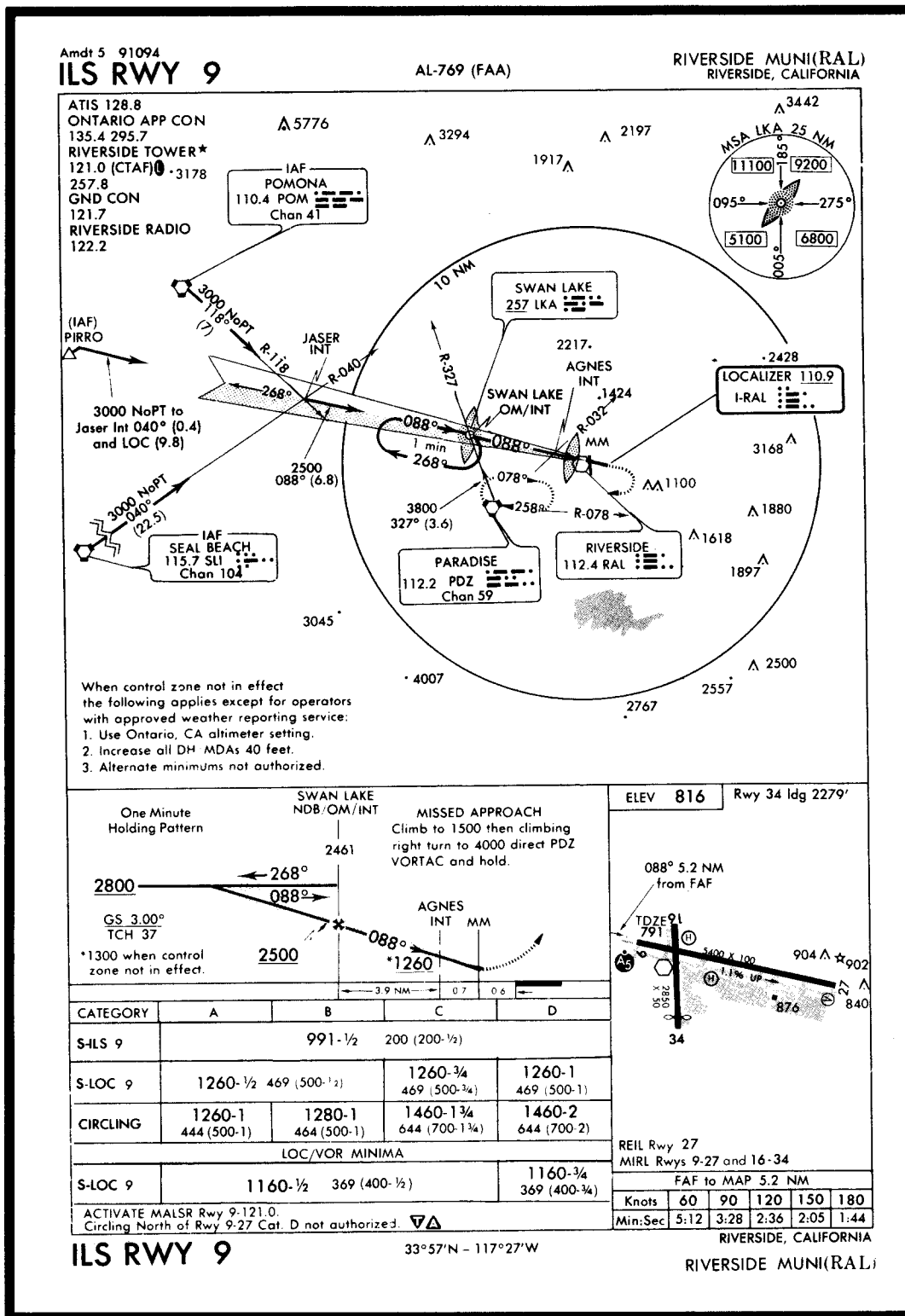


FIGURE 133.—ILS RWY 9 (RAL).

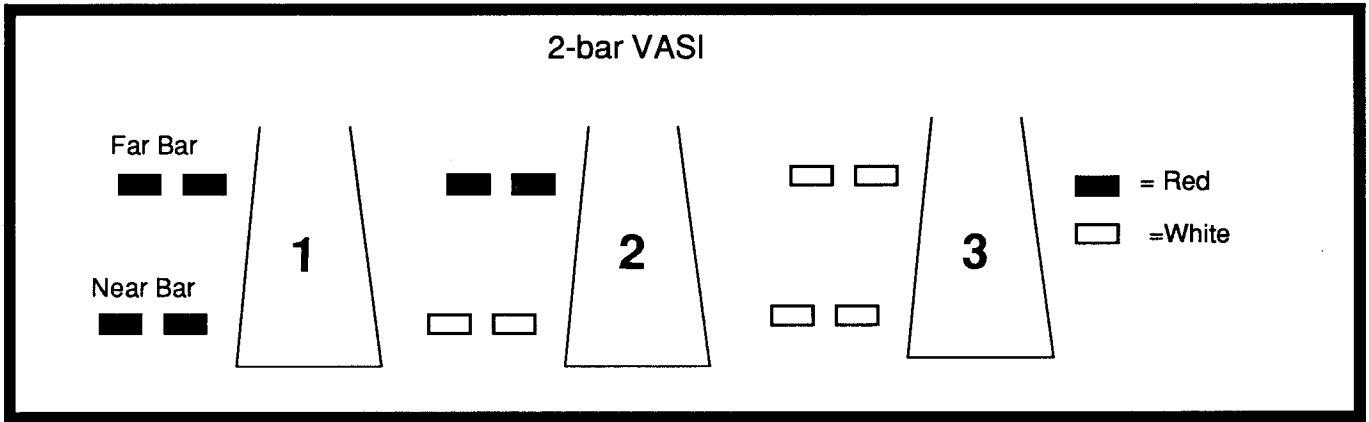


FIGURE 134.—2-BAR VASI.

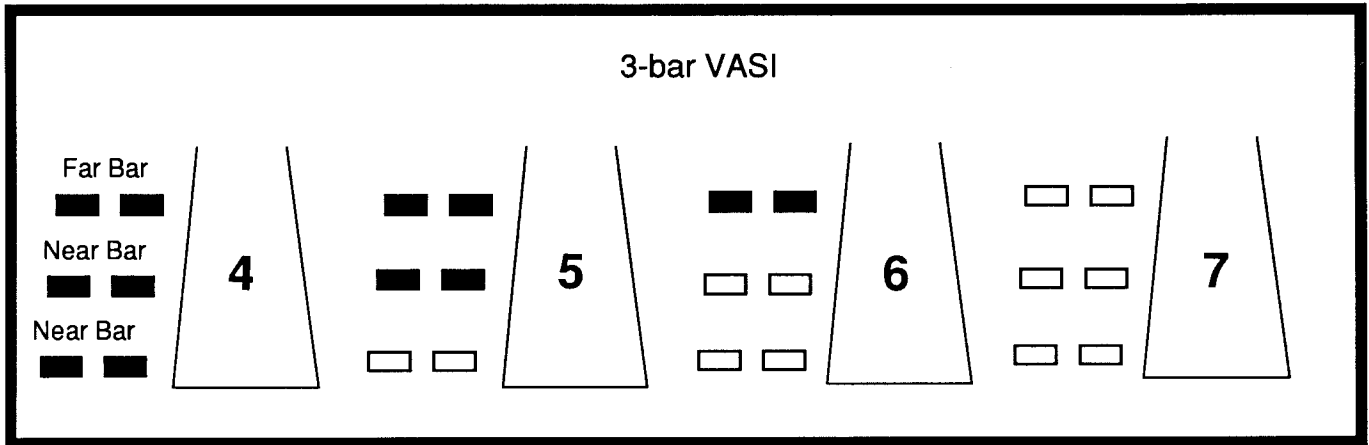


FIGURE 135.—3-BAR VASI.

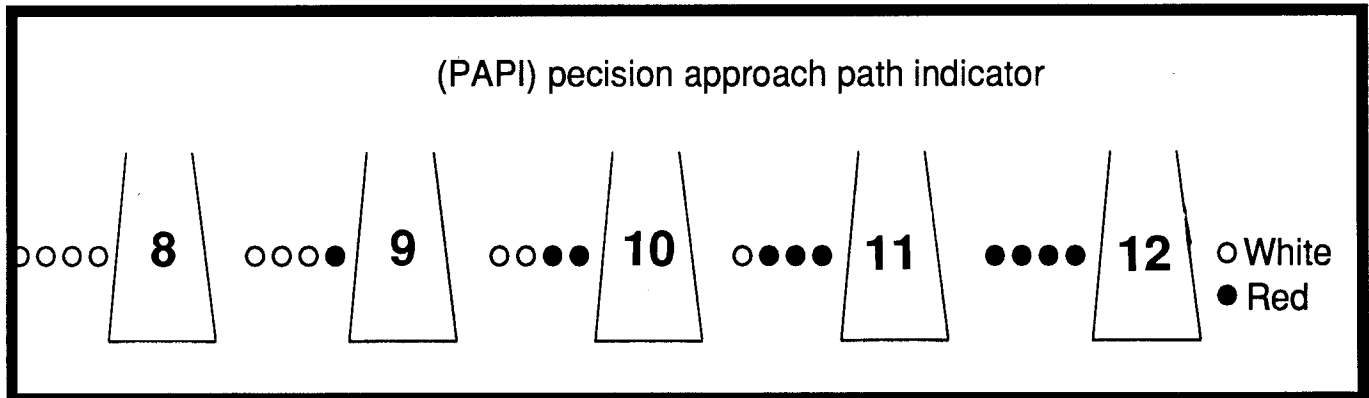


FIGURE 136.—Precision Approach Path Indicator (PAPI).

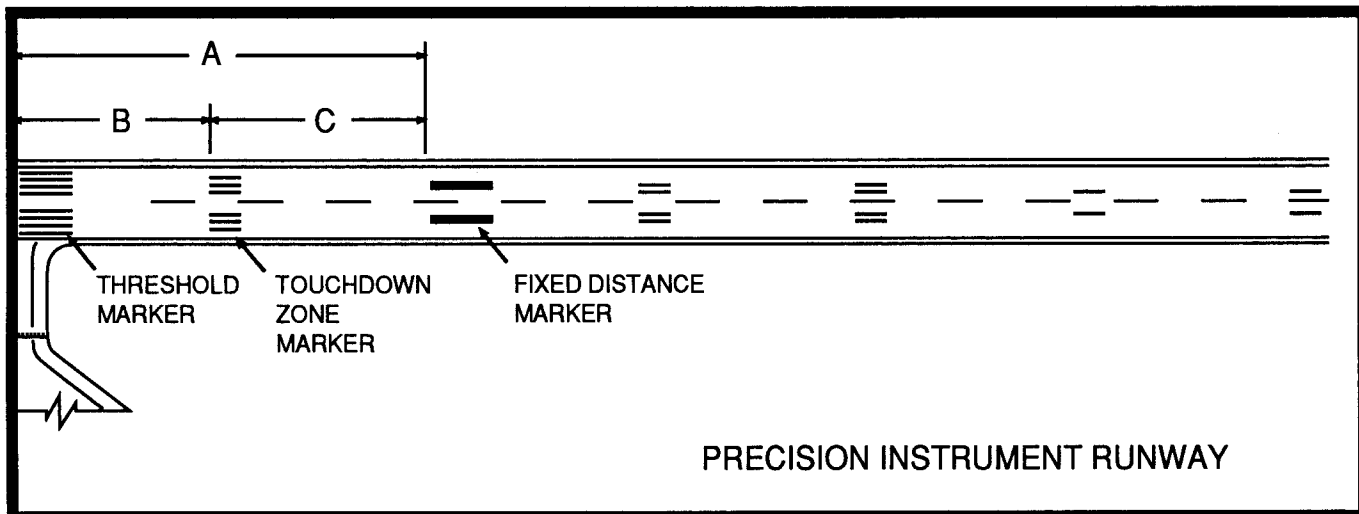


FIGURE 137.—Precision Instrument Runway.

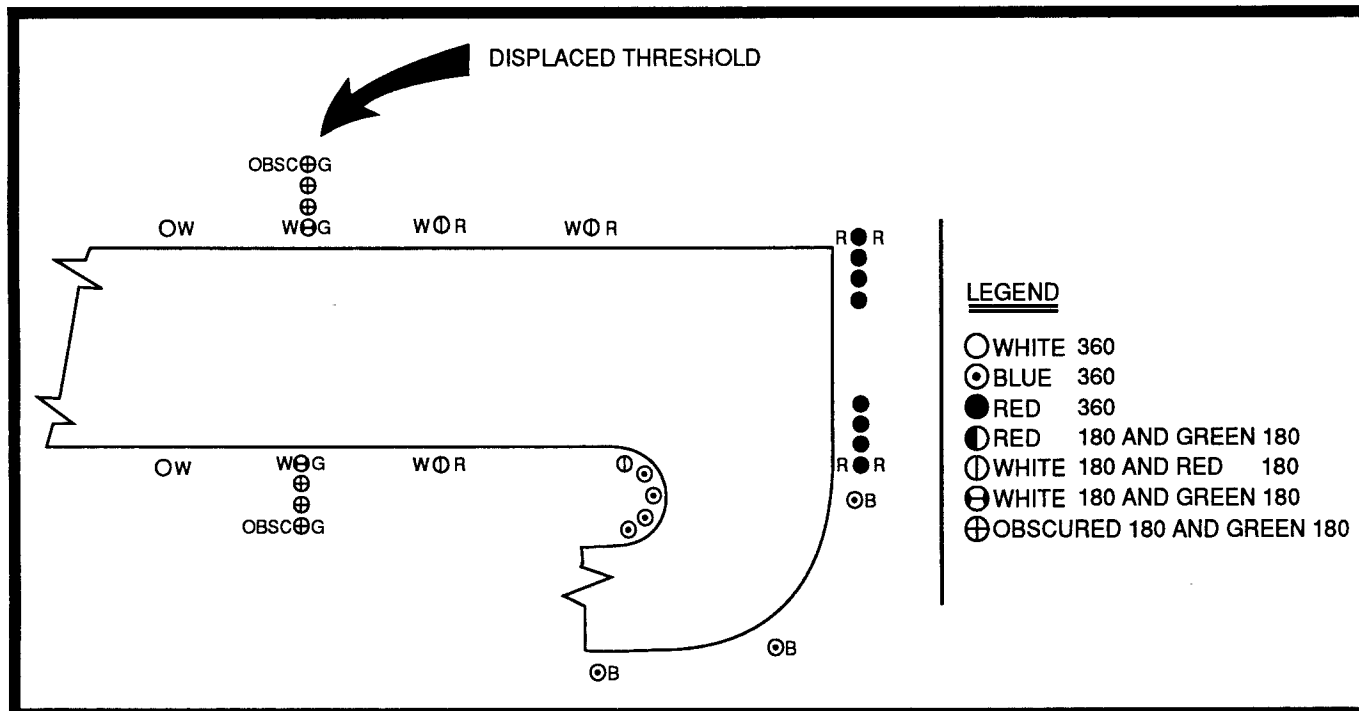


FIGURE 138.—Runway Legend.

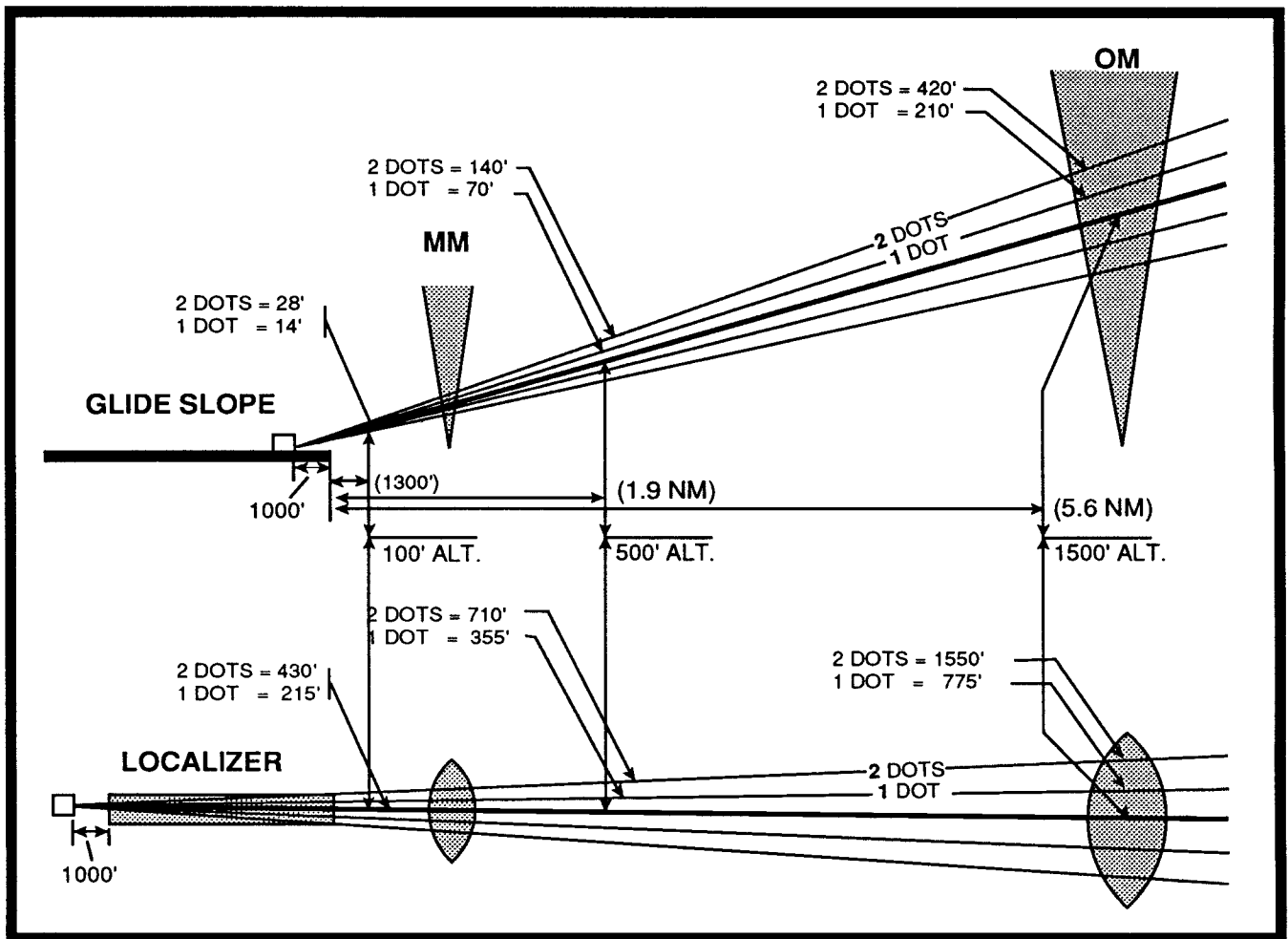


FIGURE 139.—Glide Slope and Localizer Illustration.

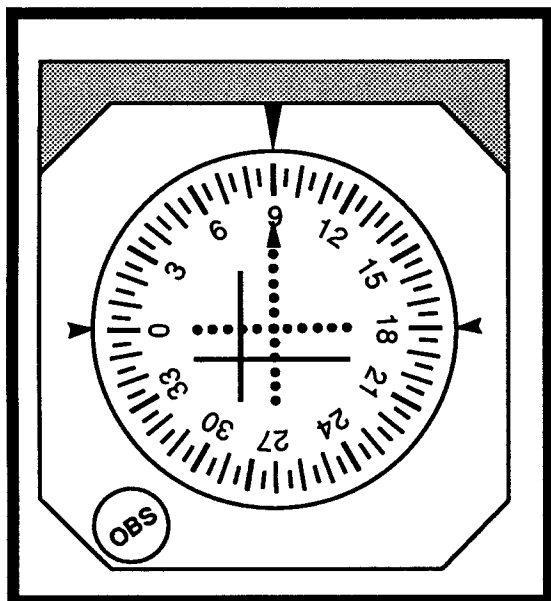


FIGURE 140.—OBS, ILS, and GS Displacement.

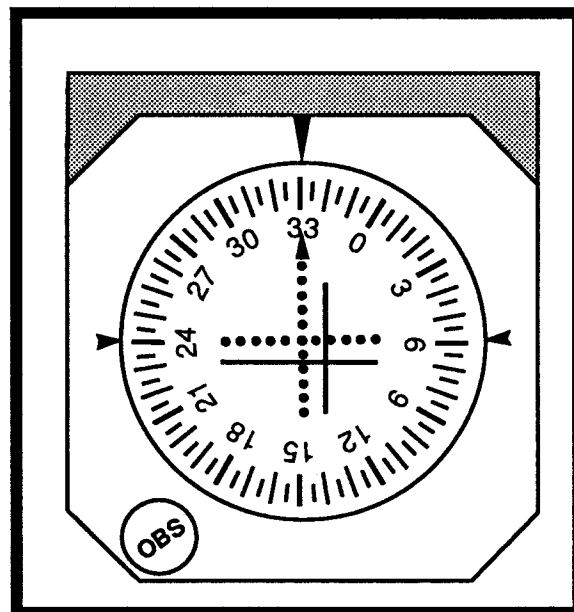


FIGURE 141.—OBS, ILS, and GS Displacement.

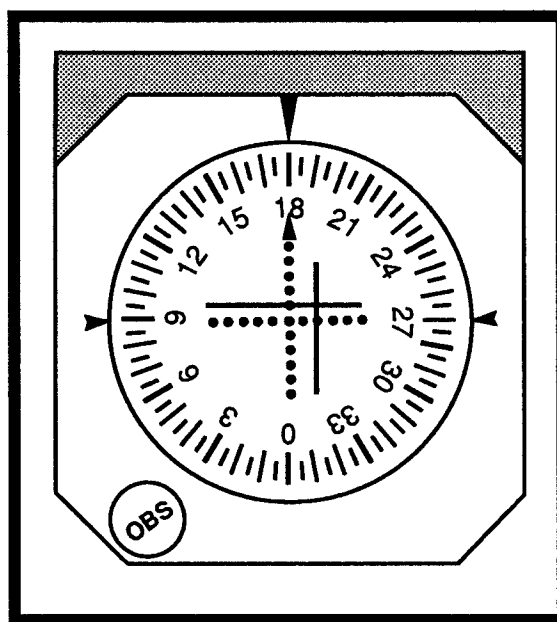


FIGURE 142.—OBS, ILS, and GS Displacement.

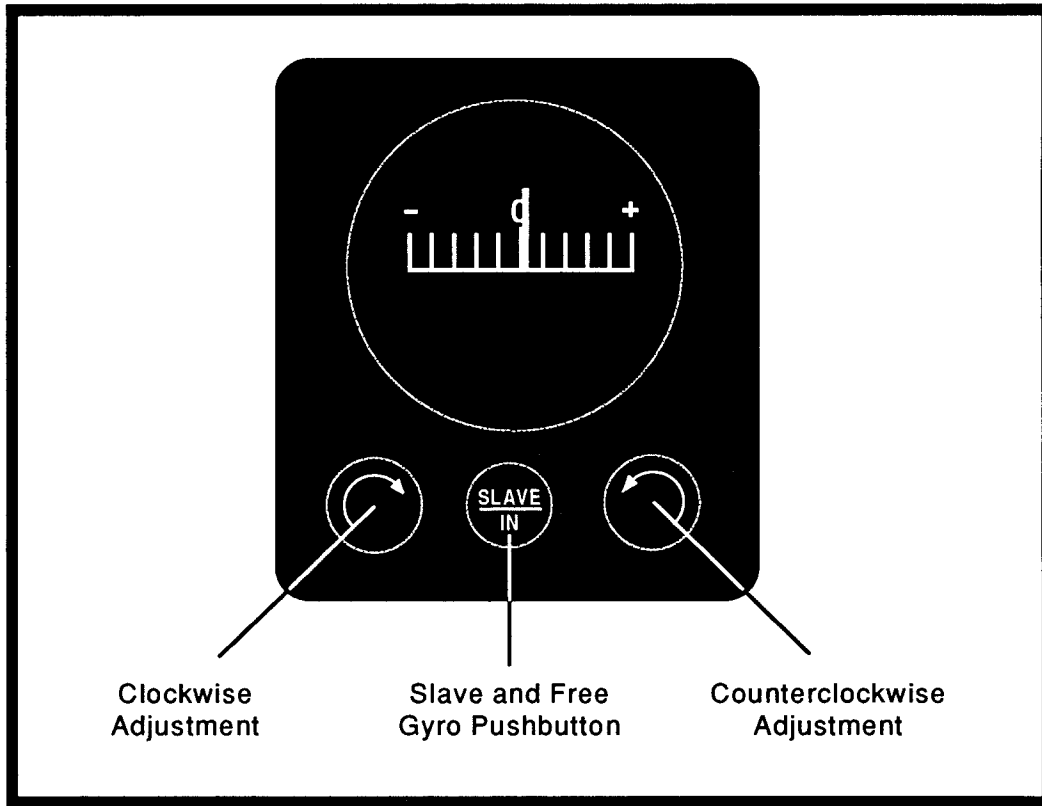


FIGURE 143.—Slaved Gyro Illustration.

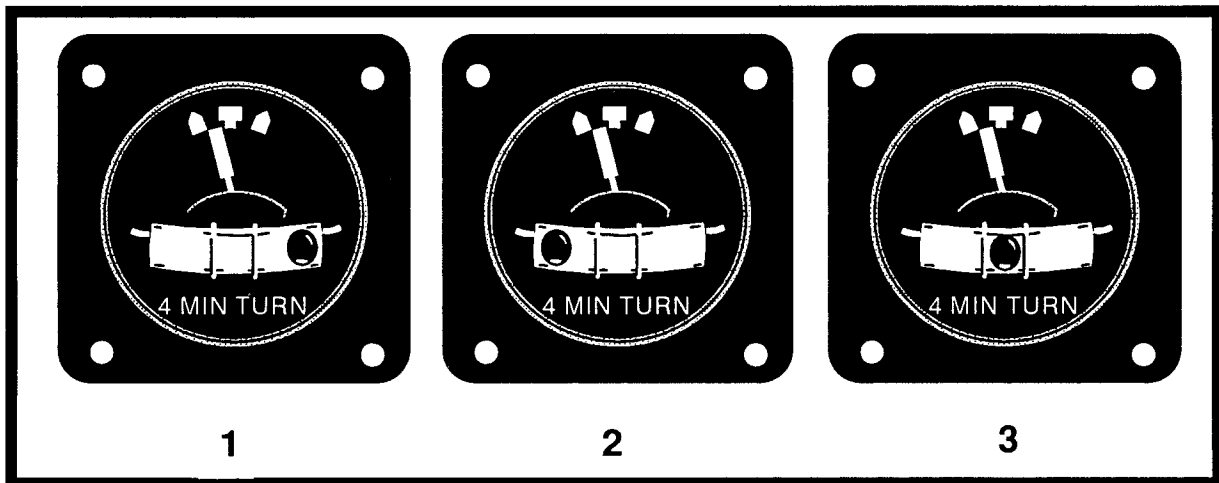


FIGURE 144.—Turn-and-Slip Indicator.

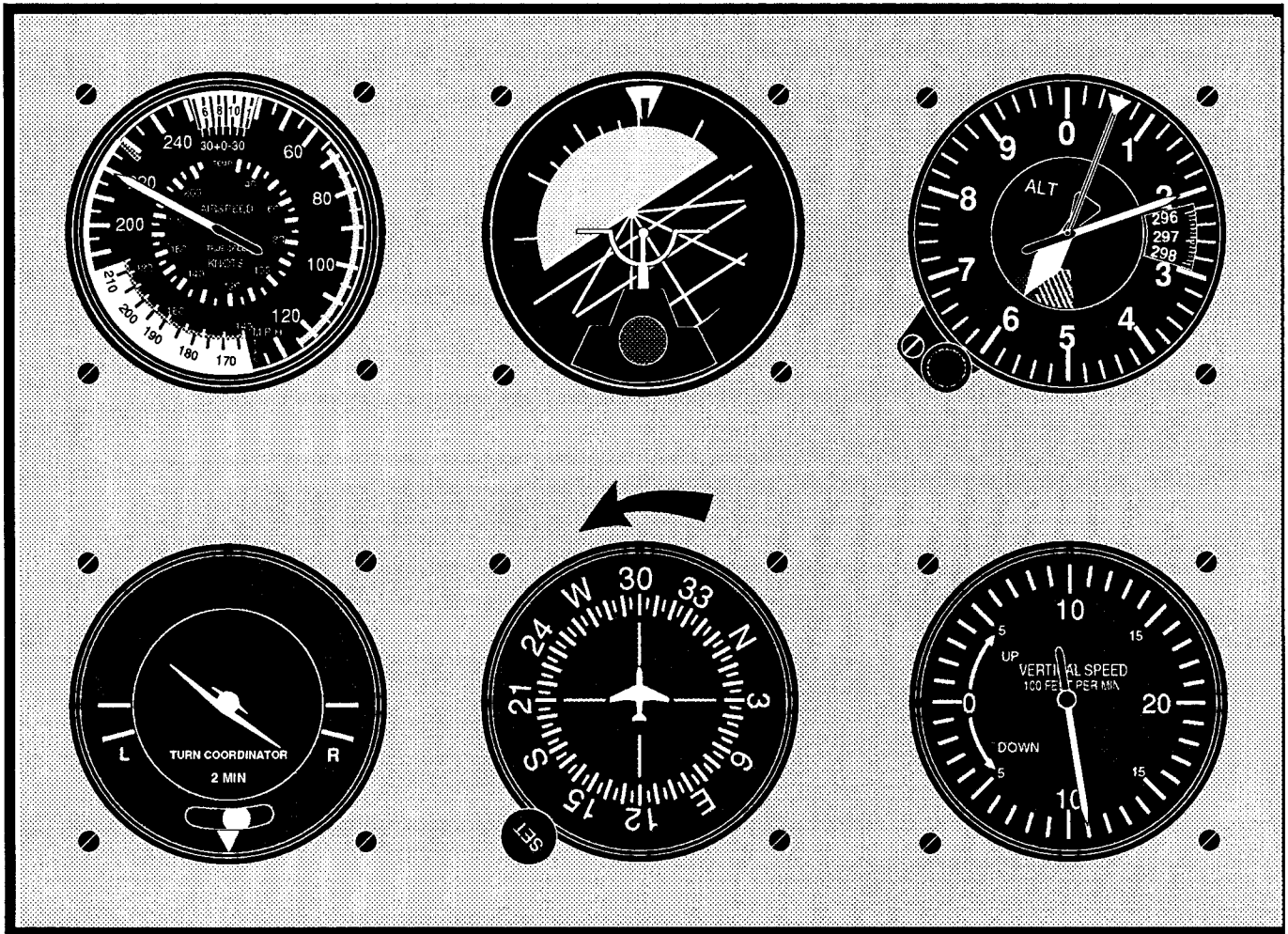


FIGURE 145.—Instrument Sequence (Unusual Attitude).

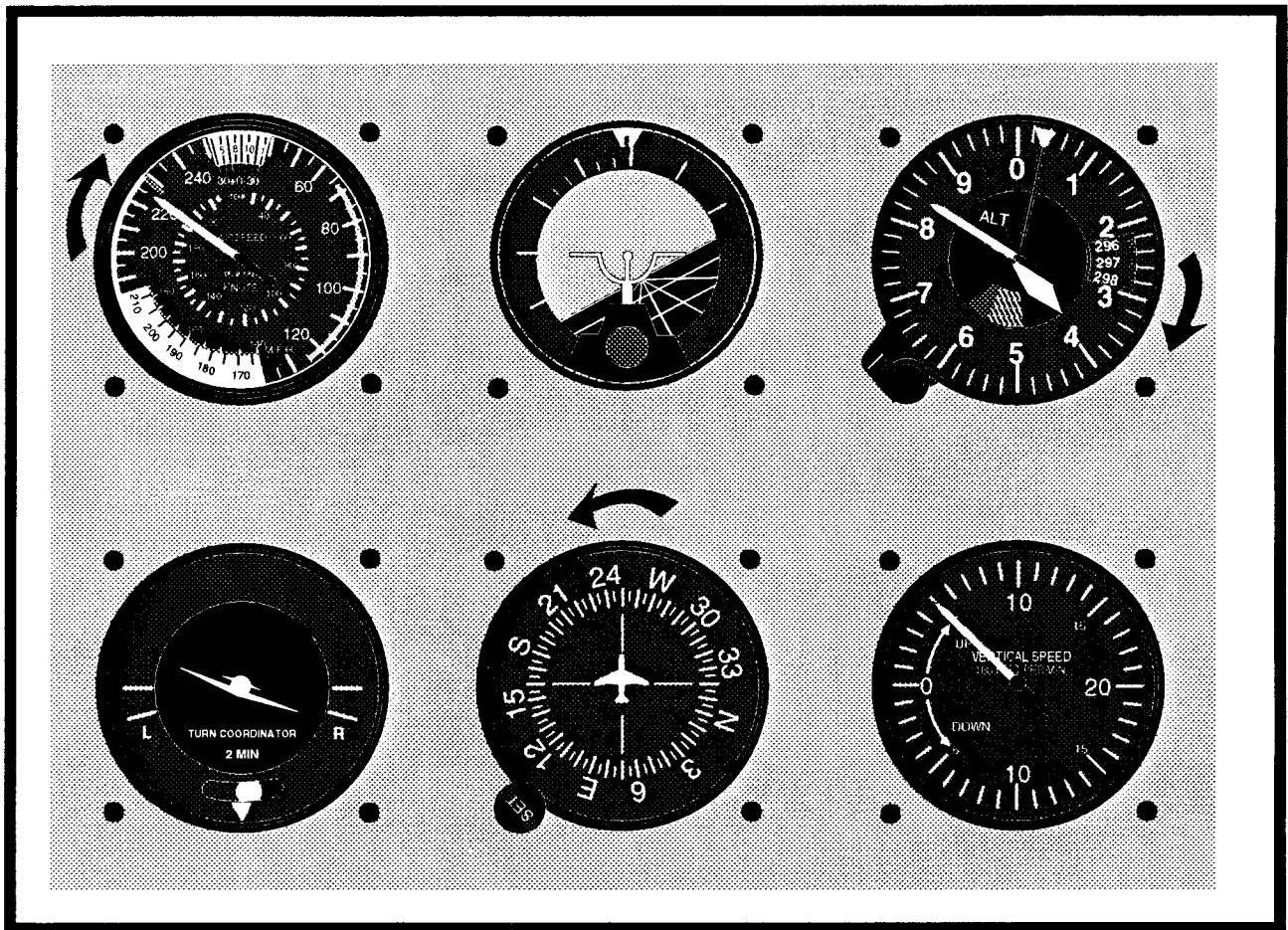


FIGURE 146.—Instrument Sequence (System Failed).

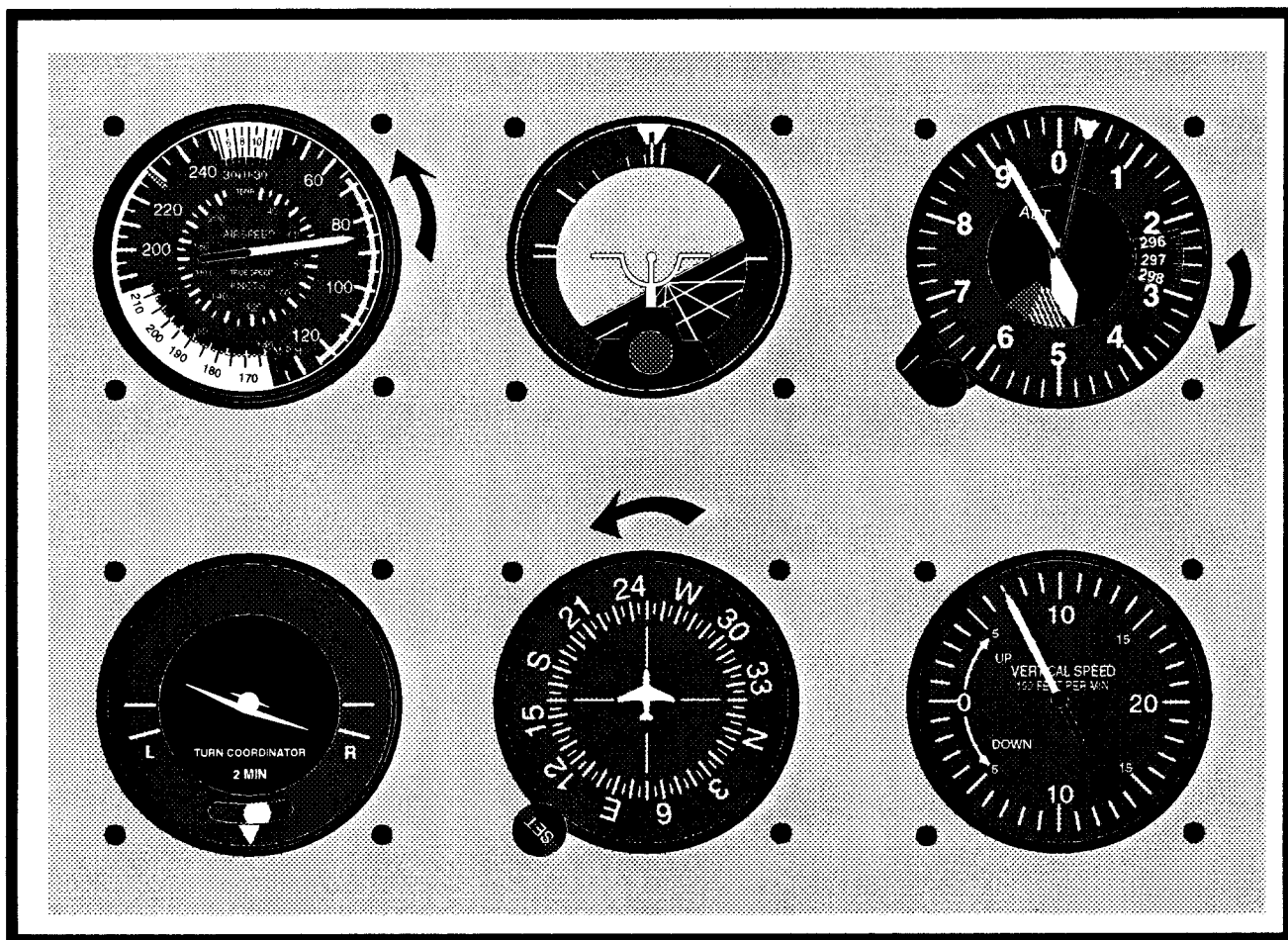


FIGURE 147.—Instrument Sequence (Unusual Attitude).

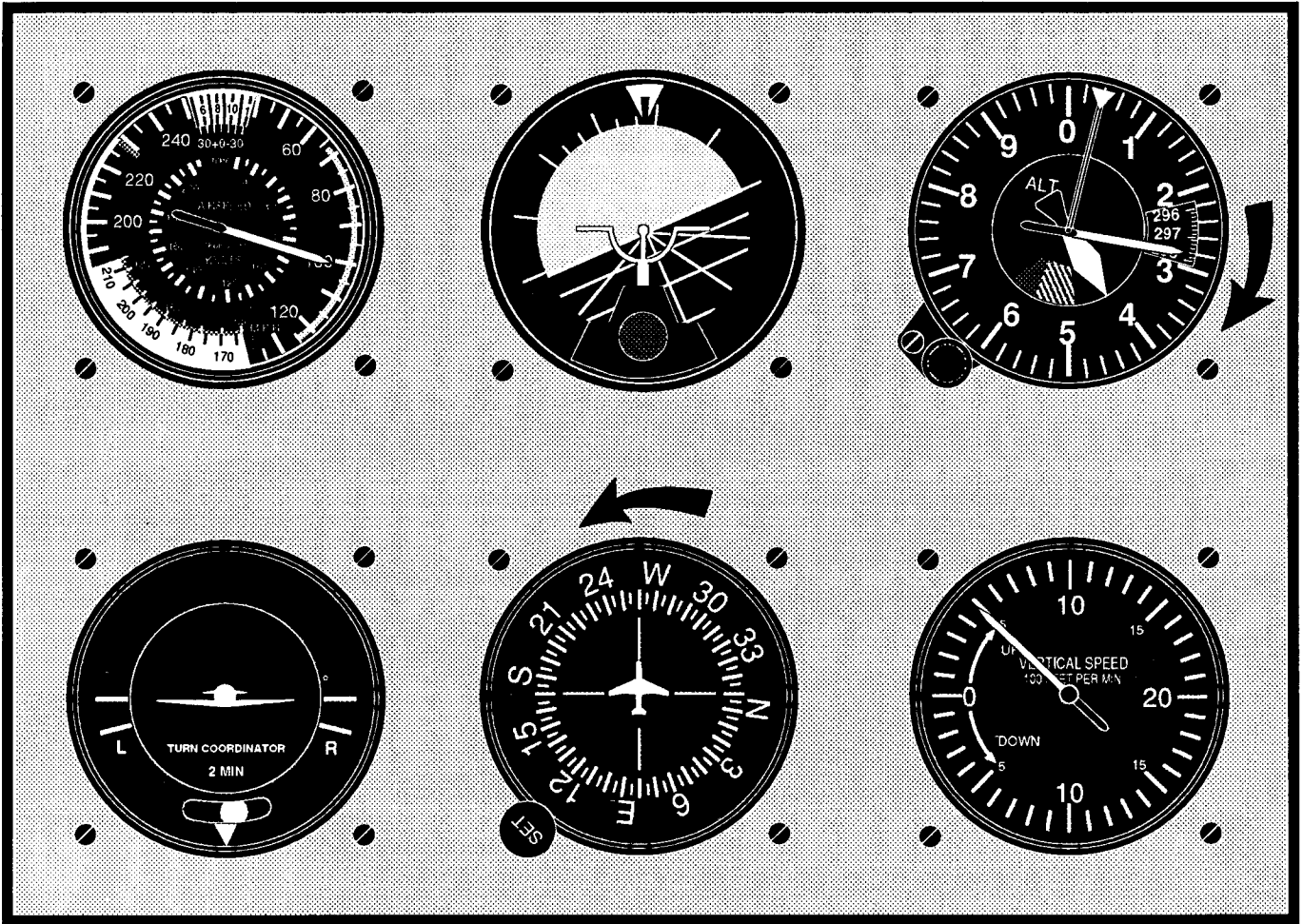


FIGURE 148.—Instrument Interpretation (System Malfunction).

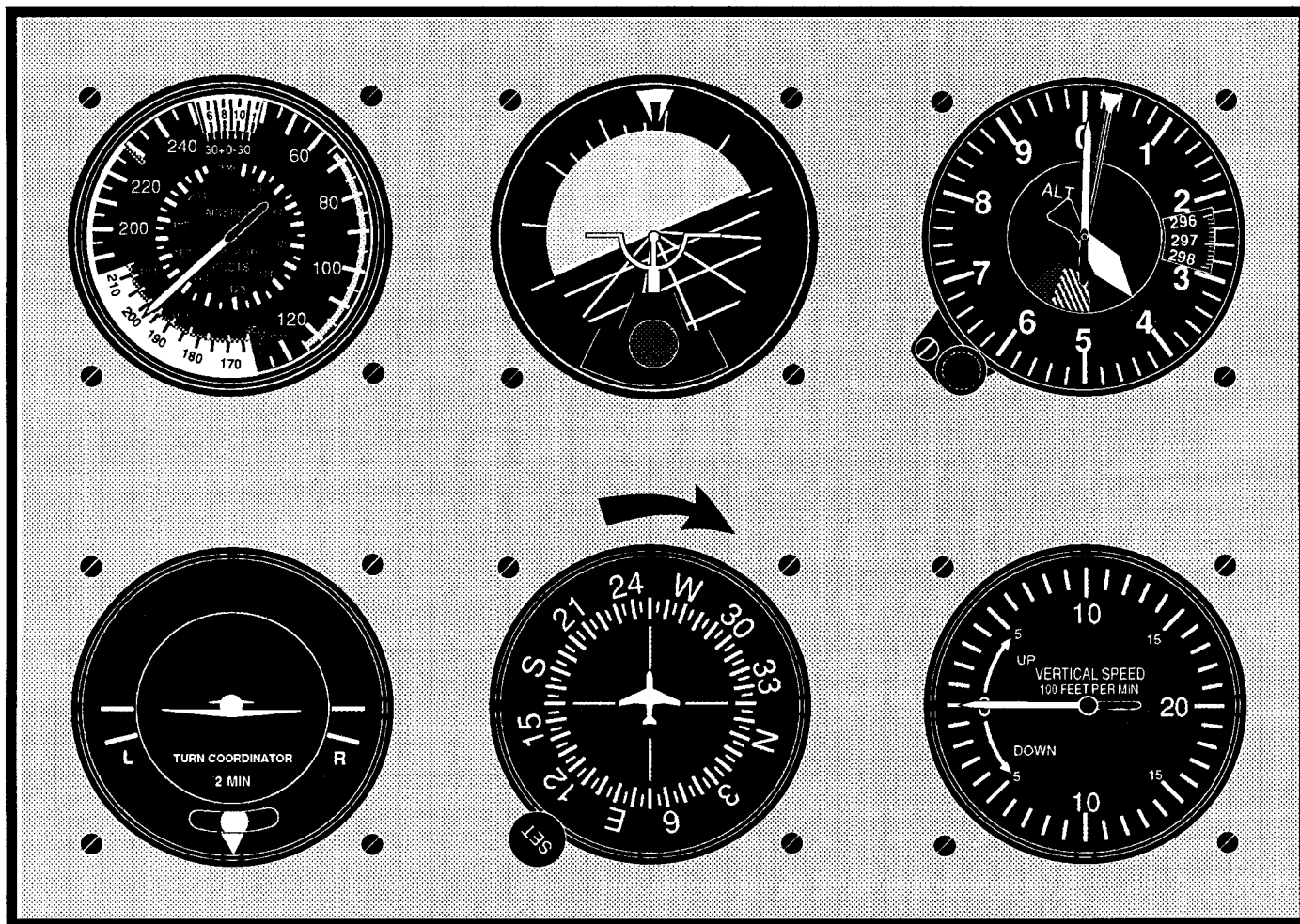


FIGURE 149.—Instrument Interpretation (System Malfunction).

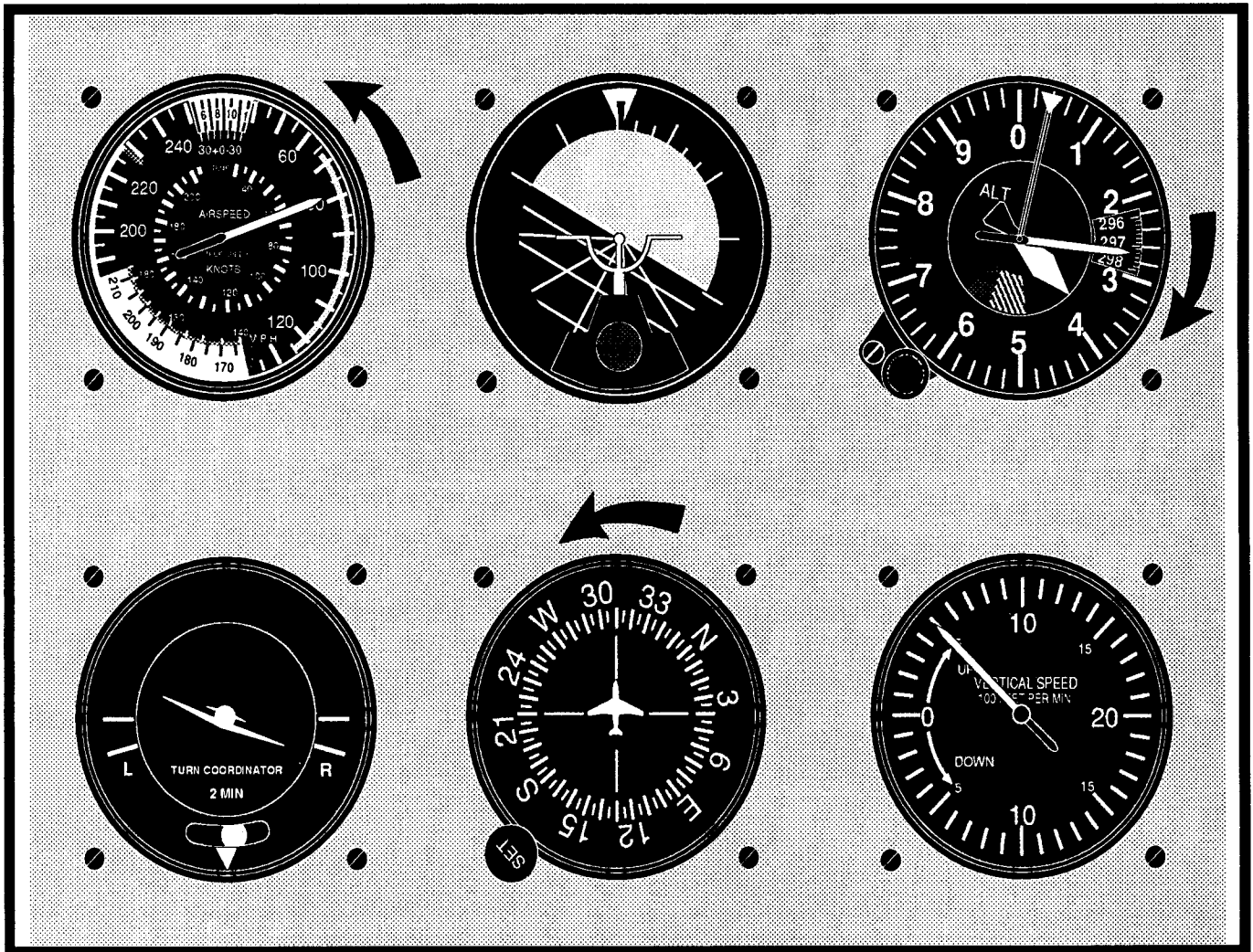


FIGURE 150.—Instrument Interpretation (Instrument Malfunction).

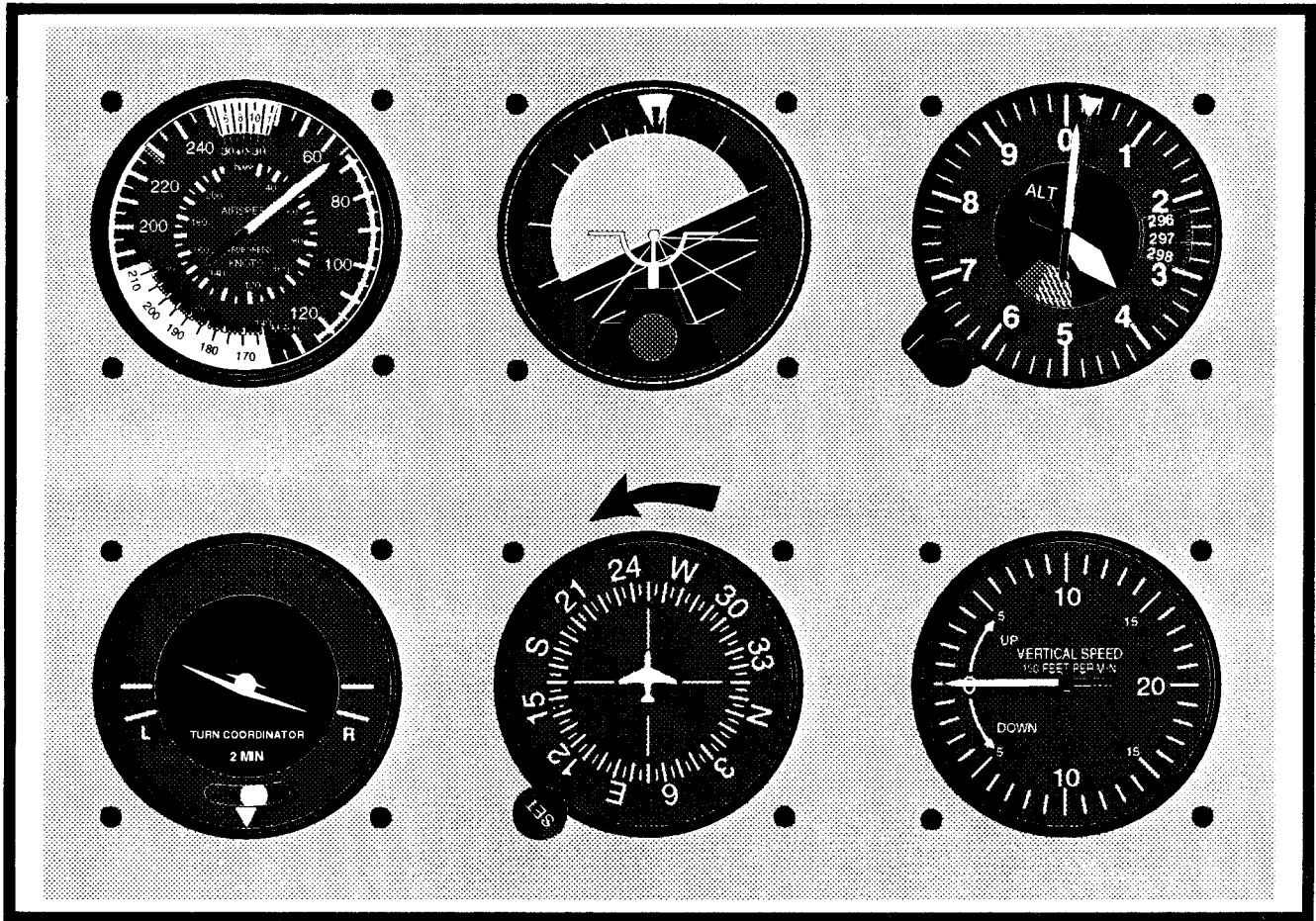


FIGURE 151.—Instrument Interpretation (Instrument Malfunction).

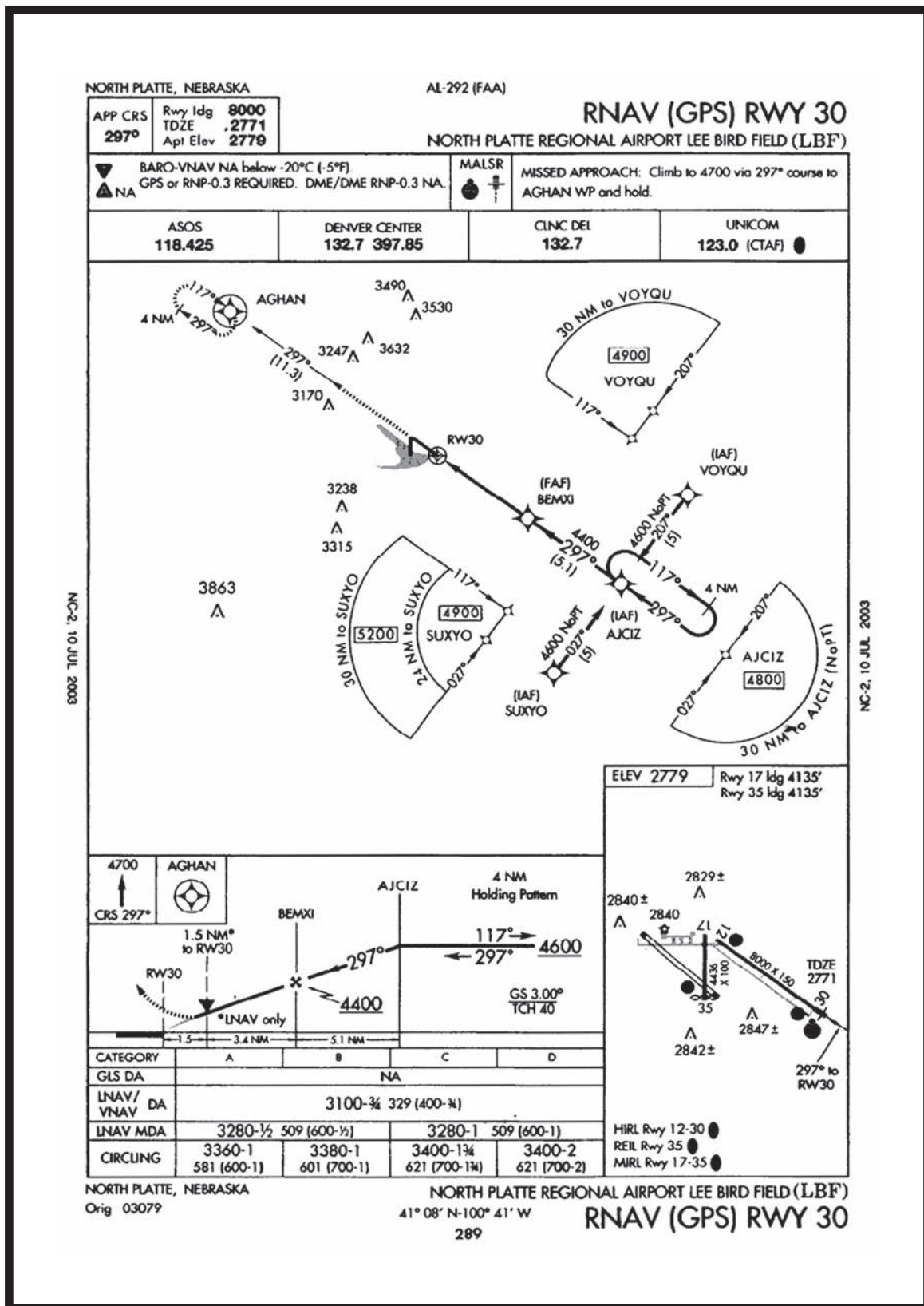


FIGURE 152.—RNAV (GPS) RWY 30, North Platte Regional Airport Lee Bird Field (LBF).

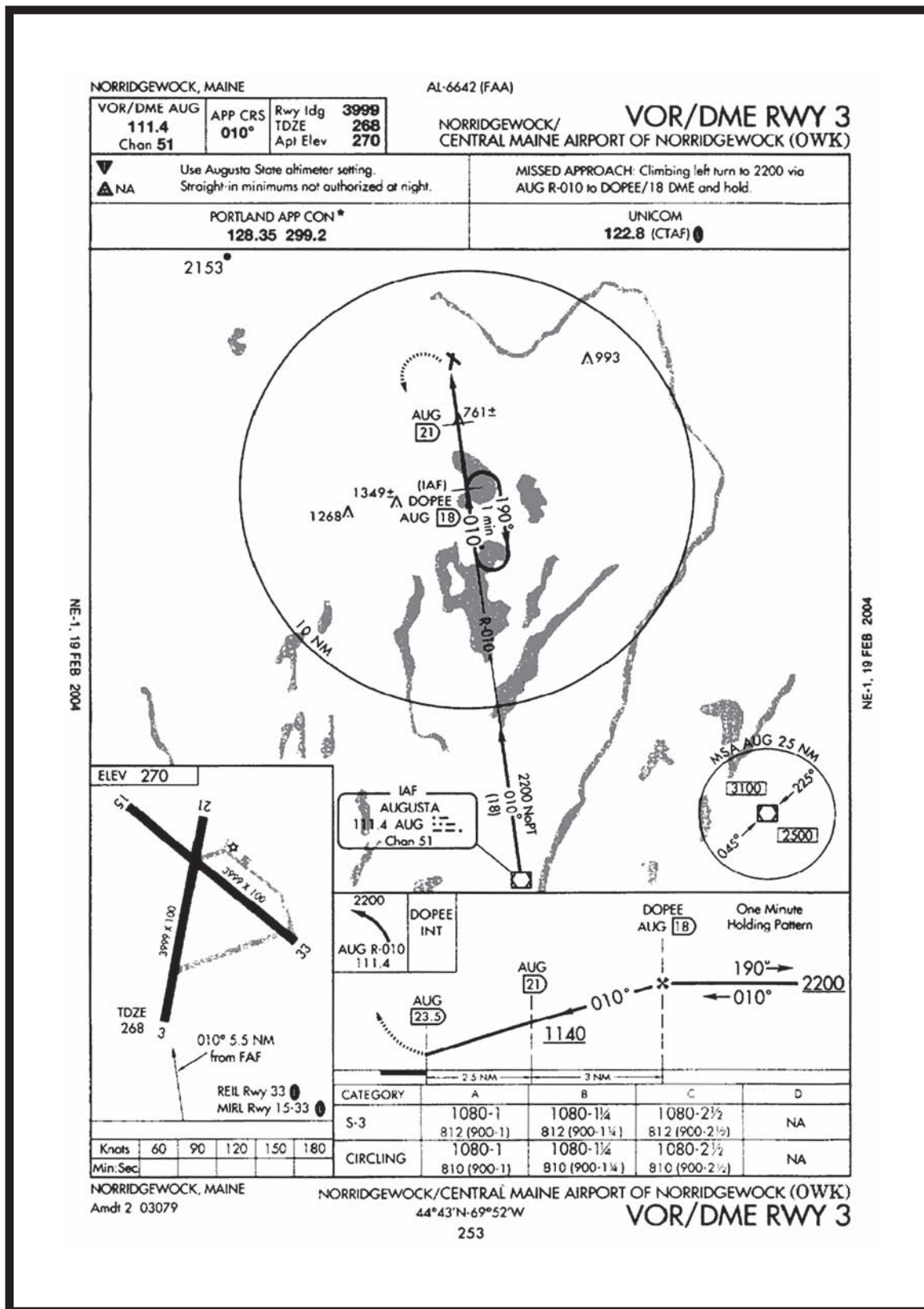


FIGURE 153.—VOR/DME RWY 3, Norridgewock/Central Maine Airport of Norridgewock (OWK).

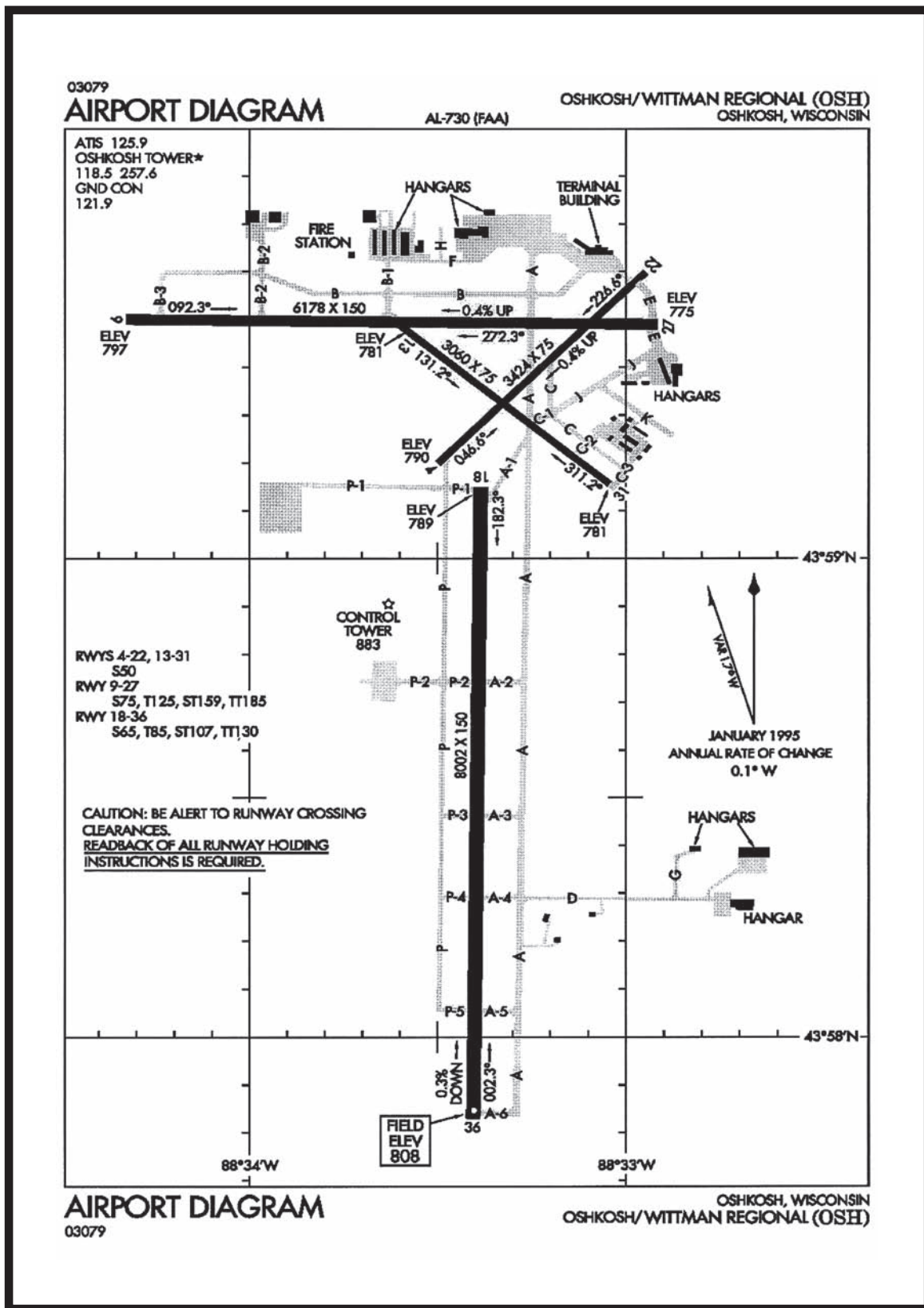


FIGURE 154.—Osh Kosh/Wittman Regional (OSH).