

CHAPTER 3 CONTENT

3.1 AIRPORT/FACILITY DIRECTORY (AFD)

The Supplement shall contain an Airport/Facility Directory and supplementary textual, tabulated, and graphic data, as required, to support flight operations. Data published will be for use in conjunction with US Government Enroute and Visual Charts and the Flight Information Handbook.

Remarks in the Airport/Facility Directory (Section 2) shall not include pilot instruction or procedural information.

3.1.1 Supplement Data Attributes

The Supplement shall contain data attributes, which unless otherwise specified, shall be published as follows:

3.1.1.1 **Communication Frequencies**

Frequencies will be grouped in the following order: VHF, UHF, HF, LF/MF. Within each grouping individual frequencies will be listed in ascending order.

Primary frequencies in each group will be listed first, followed by secondary frequencies.

3.1.1.1.1 **Emergency Frequencies**

Emergency VHF (121.5) and UHF (243.0) frequencies are normally available at all facilities and will not be listed. If not available it will be noted as a remark.

3.1.1.1.2 **‘On Request’, ‘Receive Only’ and/or ‘Transmit Only’ Frequencies**

Frequencies which are ‘On Request’, ‘Receive Only’, and/or ‘Transmit Only’ shall be symbolized by the letter ‘X’ (on request), ‘R’ (receive only), ‘T’ (transmit only), following the frequency.

3.1.1.1.3 **Frequency Sectors**

Frequency sectors are indicated by outbound radials and are shown in parentheses after the frequency.

3.1.1.2 **Tabulated Data**

Tabulated data shall have column headings on each page where the data appears.

3.1.1.3 **Reporting Times**

Reporting of Times shall be published as follows:

- a. All times will be Coordinated Universal Time (UTC).
- b. Standard time converted to UTC shall be shown, e.g., 1500-0600Z.
- c. The symbol (‡) will be shown following all UTC (Z) time affected by daylight saving time. Winter operating hours will be used as primary times.
- d. If the state or country observes daylight savings time and the operating times are other than those daylight savings times specified, the operating hours will include the dates and no ‡ symbol will be shown; e.g., 0630-1700Z Apr 15-Aug 31, 0630-1700Z Sep 1–Apr 14).

Airports operate continuously unless otherwise specified.

3.1.1.4 Communication Services

Communications Services (ATIS, PTD, APP/DEP, TWR, A/G, etc.) operate continuously unless otherwise specified.

3.1.1.5 NAVAIDS

NAVAIDS operate and are monitored continuously unless otherwise specified.

3.1.1.6 Bearings, Radials, Courses and Tracks

All bearings, radials, courses, and tracks shall be magnetic and shown as a three-digit number (e.g., 001 to 360).

3.1.1.7 Mileages

All mileages shown shall be nautical miles unless otherwise specified.

3.1.1.8 Elevations

All elevations shall be in feet above/below Mean Sea Level (MSL) unless otherwise indicated. When the elevation is “Sea Level” it shall be shown as “00”. When the elevation is “Below Sea Level” it shall be prefixed by a minus sign (-).

3.1.1.9 Runways Designators

All runway designators shall be shown using a two-digit number. Parallel runways shall be further identified by L, C, or R, i.e., Runway 09R, Runway 20L. Reciprocal runway headings shall be shown together separated by a dash, e.g., Runway 07-25. Assault strips (landing zone) designators shall be expressed in three digits.

3.1.1.10 Geographic Coordinates

Geographic coordinates shall be shown as hemisphere, degrees, minutes, hundredths-of-minutes, e.g., N42°20.25' W102°24.57'.

Published positions shall be compatible with the World Geodetic System 1984 (WGS 84).

3.1.2 Section 1 - Airport/Facility Directory Legend

References:

[Appendix 17](#) - Section 1: A/FD Directory Legend Sample

3.1.2.1 Airport/Facility Directory Legend

The legend shall be representative of items found within the directory. The legend shall include a sample pictorial type depiction of an airport entry, with data keyed by sequenced circled numbers to detail the location and nature of the data tabulated within the directory. In addition, the following statements shall be shown:

- a. All bearings, radials, courses, and tracks are magnetic.
- b. All mileages are nautical miles (NM) unless otherwise noted.
- c. All times are Coordinated Universal Time (UTC) except as noted.
- d. All elevations are in feet above/below Mean Sea Level (MSL) unless otherwise noted.
- e. 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).

3.1.2.2 Airport Sketches Legend

The Airport Sketches Legend will reflect items used in an airport sketch that are not self-explanatory.

References:

[Appendix 18](#) - Section 1: A/FD Sketch Legend

3.1.2.3 Selection Criteria Statement

Immediately following the sketch legend example, and preceding explanations of sample data, will be a statement explaining the selection criteria for the airports published in the supplement.

3.1.2.4 Description of Data

A brief description of data contained within the Airport/Facility Directory will be shown following the sketch legend sample listings. Explanations shall be arranged in the same sequence in which the data appears in the directory tabulation. Explanation of data shall be keyed by sequenced bold circled numbers to data portrayed in the sample directory entries; e.g.:

Figure 3.1 Description of Data Example

⑪ 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.

3.1.3 Section 2 - Airport/Facility Directory - Arrangement of Data

The directory shall be an arrangement of data related to airports, heliports, seaplane landing areas, air traffic control, air traffic service facilities, communication stations, and NAVAIDs falling within the area of coverage of the publication. Refer to Appendices for a sample airport directory.

References:

[Appendix 17](#) - Section 1: A/FD Directory Legend Sample

[Appendix 18](#) - Section 1: A/FD Sketch Legend

[Appendix 19](#) - Section 2: A/FD Directory

3.1.3.1 **Layout and Format**

The format of the Airport/Facility Directory is an alphabetical listing of individual entries, each entry being a flexible arrangement or grouping of data for an individual airport or facility. The flexibility of a data-grouping format is aimed at achieving the best possible utilization of space within a given area on a page. Listings will be organized by state within each Chart Supplement volume. Facilities listed within each state will be alphabetized by associated city and then by facility name. In the Chart Supplement Alaska, Canadian data will be listed following the U.S. data.

3.1.3.2 **Required Items**

The required items includes the following:

1. Associated City,
2. Facility Name,
3. Alternate Name,
4. Location Identifier,
5. ICAO Location Indicator,
6. Airport Operating Agency,
7. Tenant Units,
8. Airport Location,
9. Time Conversion,
10. Geographic Location,
11. Airport Elevation,
12. Rotating Beacon,
13. Airport of Entry,
14. Landing Rights Airport
15. Airport NOTAM File
16. Sectional Chart Reference
17. Helicopter Chart Reference
18. Enroute Chart Number(s) and Panel Identification
19. Terminal Procedures Volume and Number (IAP)
20. Airport Diagrams indicator (AD)
21. Runway Designation,
22. Runway Dimensions,
23. Runway Surface,
24. Runway Weight Bearing Capacity,
25. Pavement Classification Number
26. Runway Lighting,

27. Runway Slope Information (runways less than 8000 feet)
28. Followed by data related to a given runway end, to include
 - a. runway end designation
 - b. approach lighting
 - c. visual glideslope Indicators
 - d. glide angle and threshold crossing heights
 - e. centerline lights
 - f. runway visual range
 - g. displaced threshold,
 - h. controlling obstruction
 - i. right traffic indication
 - j. runway slope information (runways 8000 feet or greater)
29. Land and Hold-Short Data,
30. Runway Declared Distance Information
31. Arresting Gear/System Data.
32. Service
33. Airport Remarks, Military Remarks, Heliport Remarks, Seaplane Remarks
34. Airport Manager
35. Weather Data Services
36. Communication
37. Airspace
38. VOR Test Facility
39. Radio Aids to Navigation (NAVAIDs) and Instrument Landing Systems
40. Radar
41. Comm/NAV/Weather Remarks

Except as otherwise specified, entries for NAVAIDs, weather data, and remote communications outlets not depicted at an individual airport entry will have their own separate entry and shall be listed in the Directory under the appropriate name in alphabetical sequence.

Each major grouping of information shall be preceded by the appropriate heading and sub-headings, e.g., SERVICE, LGT, FUEL, etc.

3.1.3.3 Weather Data, Communications, Airspace and NAVAIDs Remark(s)

WEATHER DATA, COMMUNICATIONS, AIRSPACE, and NAVAIDs remarks will follow at the end of the appropriate entry; e.g.,

Figure 3.2 Weather Data, Communications, Airspace and NAVAIDs Remark(s)

KINGSTON (H) VORTAC 113.8 KGS CH76 N37°47.36' W122°49.13' at fld. 150/8E. Unmonitored. OTS indef.

Additional remarks relating to Communications, NAVAIDs or Weather can also be displayed in the Comm/NAV/Weather Remarks section at the bottom of the airport entry if necessary.

3.1.3.4 Services, Airport, and Military Remarks

In the SERVICES, AIRPORT, and MILITARY REMARKS sections’ remarks will follow the item titles to which they pertain.

Figure 3.3 Special Remarks

LGT ACTIVATE MIRL Rwy 03-21 and VASI Rwy 03 and Rwy 21-CTAF.
 FUEL J8 Avbl 0700-2000Z±, callout fee other times.

3.1.3.5 Specific Remarks

Specific remarks applicable to individual elements in a listing will be enclosed in parentheses with the element.

Figure 3.4 Special Remarks

APP/DEP CON 119.8 124.4 290.1 (during twr hrs) TWR 119.6 126.5
 (0600-2000Z±.).

3.1.3.6 Descriptive Terms, Abbreviations, and Acronyms

The following descriptive terms, abbreviations, and acronyms, as part of the airport data, shall always be capitalized and in bold type.

Table 3.1 Descriptive Terms Headings and Sub-headings

Section Heading	Sub-headings
ASSOCIATED CITY AIRPORT NAME	
SECTIONAL CHART, COPTER CHART, ENROUTE CHART NUMBER AND PANEL IDENTIFICATION, TERMINAL PROCEDURE VOLUME, AIRPORT DIAGRAM (AD),	
RUNWAY DESIGNATION	RUNWAY END DESIGNATION
LAND AND HOLD SHORT OPERATIONS (LAHSO)	LANDING, HOLD SHORT POINT, DIST AVBL, RUNWAY END DESIGNATION
RUNWAY DECLARED DISTANCE INFORMATION	LDG/TKOF, TORA, TODA, ASDA, LDA, RUNWAY END DESIGNATION
ARRESTING GEAR/SYSTEM	RUNWAY END DESIGNATION
SERVICES	ARFF, LGT, A-GEAR, JASU, FUEL, FLUID, OIL, MAINT

Table 3.1 Descriptive Terms Headings and Sub-headings (Continued)

AIRPORT REMARKS HELIPAD REMARKS SEAPLANE REMARKS	GENERAL, TFC PAT, NS ABTMT, CSTMS/AG/IMG, TRAN ALERT
MILITARY REMARKS	RSTD, CAUTION, MISC, TENANT UNIT NAME
AIRPORT MANAGER	
WEATHER DATA SOURCES	ASOS, AWOS, etc., PMSV
COMMUNICATIONS	SFA,CTAF, UNICOM, AUNICOM, PTD, ATIS, D-ATIS, AFIS (Alaska), FSS ANME, NAME RDO, NAME RCO, CALL NAME-APP, CALL NAME-CALL NAME TWR, CALL NAME-GND, CALL NAME-DEP, CALL NAME-GCA, NAME-GCO, CALL NAME-CLNC DEL, CPDLC SVC (LOGON IDENT) CALL NAME-PRE TAXI CLNC, CALL NAME-VFR ADVSY SVC, NAME COMD POST, CALL NAME-A/G, NAME-ARPT OPS, MF (Canada), etc.
AIRSPACE	CLASS B, CLASS C, CLASS D, CLASS E, APP CON, TRSA
VOR TEST FACILITY (VOT)	
RADIO AIDS TO NAVIGATION (NAVAIDS)	VORTAC, VOR, VOR/DME, TACAN, DME, NDB, LOM, VHF/ UHF, HIWAS, ILS, ILS/DME, LOC, SDF, LDA
ASR, PAR, ASR/PAR	

3.1.4 Section 2 - Airport/Facility Directory - Organization of Facilities

Listings in the airport/facility directory will be organized by state and then associated city name. In the Chart Supplement Alaska, Canadian data will be listed following the U.S. data.

The directory shall consist of an alphabetical listing, within the area of coverage, of

1. Airports, heliports and seaplane landing areas;
2. Communications stations;
3. NAVAIDs; and
4. Weather data.

3.1.4.1 Airports

3.1.4.1.1 Public-use Civil Airports and Joint Public-use Civil/Military Airports

Airports within the Directory will be classified into two basic categories, military/federal government or civil airport open to the general public. Some selected private airports may be published at the specific request of the appropriate authority to meet operational needs. A joint-use airport (civil and military) is jointly controlled and used/operated by both military and civil agencies. Civil designation will be shown first; e.g., CIV/MIL.

3.1.4.1.1.1 Airport Listing - Organizational Rules

3.1.4.1.1.1.1 City Name Same Name as First Word of Multiple-Word Airport Name

When the city name is the same name as the first word of a multiple-word airport name (e.g., Boise Air Terminal), or a hyphenated airport name (e.g., Altoona-Blair Co) the listing under the airport name shall suffice. The city name will not be shown.

3.1.4.1.1.1.2 Airport Name is Different than the Associated City Name

When the airport name is different than the city name, the city name will be shown on the preceding line in 10 pt. bold face type.

Airports with names other than the city name will be cross-referenced alphabetical by the airport name and page number, e.g., ELLINGTON FLD, TX See HOUSTON page xxx.

3.1.4.1.1.1.3 Multiple Airports Referenced to the Same City

In cases where multiple airports are referenced to the same city, those airports shall be sub listed alphabetically, with all associated data, and separated by a dashed ruled line extending across the width of the page. The city name will not be repeated.

References:

[Appendix 19](#) - Section 2: A/FD Directory

3.1.4.1.2 Airport has an Associated Helipad or Waterway

When an airport has an associated helipad or waterway, data pertinent to the helipad/waterway shall be grouped separately and placed immediately following the last data entry for the airport. The same arrangement and sequence of data prescribed for airport data shall be used and modified as necessary to accommodate any unique feature of the helipad/waterway data. General information common to both facilities will only be shown at the airport entry, e.g., facility name, coordinates, chart references, etc. When this situation exists, airport groupings and helipad groupings shall be separated by a horizontal dotted line extending across the width of the page.

References:

[Appendix 17](#) - Section 1: A/FD Directory Legend Sample

3.1.4.2 NAVAIDs

3.1.4.2.1 NAVAIDs - Same Name as an Airport Published in Directory

NAVAIDs having the same name as an airport published in the Directory shall be listed in the NAVAIDS section of that airport listing. A separate alphabetical listing with the NAVAID under its own name is not required.

3.1.4.2.2 NAVAIDs - Has same first word/name as Airport Published in Directory

When a NAVAID has the same name as the first word of a multiple-word airport name (e.g., Boise Air Terminal) or a hyphenated airport name (e.g., Allentown-Bethlehem-Easton) the listing under the airport name shall suffice.

3.1.4.2.3 NAVAIDs - Same name as an associated city name

NAVAIDs having the same name as an associated city name for an airport published in the Directory shall be listed in the NAVAIDS section of that airport listing. A separate alphabetical listing with the NAVAID under its own name is not required.

3.1.4.2.4 Weather Data (Not Associated with NAVAID)

Weather data facilities not associated with an airport or NAVAID will be listed alphabetically by name.

3.1.4.3 Remote Communications Outlets (RCO)

3.1.4.3.1 RCO - Same Name as an Airport

Remote Communication Outlets (RCO) having the same name as an airport published in the Directory shall be listed in the COMMUNICATIONS section of that airport listing. A separate alphabetical listing with the RCO name is not required.

3.1.4.3.2 RCO - Same Name as the Airport's Associated City

Remote Communication Outlets (RCO) having the same name as the airport's associated city published in the Directory shall be listed in the COMMUNICATIONS section of that airport listing. A separate alphabetical listing with the RCO name is not required.

3.1.4.4 **NAVAIDs, RCOs and AWOS/ASOS Facilities with the Same Name**

NAVAIDs, RCOs, and AWOS/ASOS facilities with the same name may be listed together under the same name listing.

3.1.5 **Airport, Heliport and Seaplane Base entries**

The following information and sequence of data shall be shown, when available, for airport, heliport and seaplane bases:

3.1.5.1 **Primary Airport Data**

Primary airport data is indicated on the first line of an airport entry.

3.1.5.1.1 **Associated City**

The name of the associated city will appear on the line above the facility name when the city name differs from the facility name. See organizational rules in Section [3.1.4.1.1.1](#) - Airport Listing - Organizational Rules.

References:

[Appendix 19](#) - Section 2: A/FD Directory

3.1.5.1.2 **Airport Name**

Airport name in 8 point bold type (caps).

3.1.5.1.3 **Heliports**

For heliports, the word HELIPORT shall be shown immediately following the facility name.

3.1.5.1.4 **Seaplane Bases**

For seaplane bases, the abbreviation SPB shall be shown immediately following the facility name.

3.1.5.1.5 **Alternate Names for Military Fields**

Alternate names for military fields shall be shown in parentheses.

Figure 3.5 Alternate Names for Military Fields

BEAUFORT MCAS (MERRITT FLD)

3.1.5.1.6 **Island Names**

Island name may be shown in lieu of State/Province/City name for clarification purposes.

3.1.5.1.7 **Airport Location Identifiers**

The three or four character FAA Location Identifier shall be shown in parentheses; e.g., (ADW).

The four character ICAO Location Indicator will be shown in parentheses immediately following the FAA Identifier; e.g., (ADW)(KADW).

Zeroes will be shown with a slash (Ø) to differentiate them from the letter O in Indicators and Identifiers.

If two four-character codes are assigned, the civil code will be shown first, followed by the military code. Codes shall be separated by a slash. If two military codes are assigned, show the primary operating agency's code first; e.g., (KADW/KNSF).

3.1.5.1.8 Operating Agency

To readily identify the type of airport, an abbreviation to indicate operating entity (e.g., AF, N, CG, CIV/MIL, PVT, etc.) shall be shown. When another organization shares airport management responsibility, but is a military or civil tenant unit, the appropriate official/approved abbreviation shall be enclosed in parentheses.

Figure 3.6 Operating Agency

N (AFRC), AF (ANG), etc.

3.1.5.1.9 Airport Location Relative to Associated City

Shows distance and direction of the airport from the center of the associated city in nautical miles and cardinal points; e.g., 4 NE.

3.1.5.1.10 Time Conversion

All airport listings shall indicate the time conversion factor from UTC to local time, and where appropriate, the conversion factor for daylight saving time (DT), e.g., UTC-5 (-4DT). A double plus (‡) symbol will be shown following all UTC (Z) time affected by daylight saving time wherever it appears within the listing. Within states/countries that do not observe daylight saving time, the airport listing shall indicate the UTC + or – local time conversion only, e.g., UTC+5 or UTC-5.

3.1.5.1.11 Geographic Location

The geographic coordinates of the facility shall be shown as hemisphere, degrees, minutes, and hundredths-of-minutes.

3.1.5.2 Secondary Airport Data

The following airport data, when available, shall be shown on the second or following lines of the airport data tabulations indented two spaces.

3.1.5.2.1 Elevation

The airport elevation in feet above/below mean sea level (MSL) shall be indicated. When elevation is sea level, “00” will be shown; when elevation is below sea level a minus sign (-) shall precede the figure. A leading zero is not required for single digit elevations.

3.1.5.2.2 Airport Rotating Beacon

The letter B shall indicate the availability of an airport rotating beacon. If beacon does not operate sunset to sunrise, remarks will be shown in the **SERVICES** entry following the LGT subheading; e.g., **SERVICES LGT** Rotating bcn opr 2100-2300Z‡. Should on-request or PPR be used, the method of requesting by letter, telephone, etc., will be included.

3.1.5.2.3 Traffic Pattern Altitude (TPA)

The first figure shown is TPA above mean sea level. The second figure in parentheses is TPA above airport elevations. Multiple TPA shall be shown as "TPA–See Remarks" and detailed information shall be shown in the Airport or Military Remarks Section.

3.1.5.2.4 Airport of Entry

An Airport of Entry will be indicated by AOE.

3.1.5.2.5 Landing Right Airport

A Landing Rights Airport will be LRA.

3.1.5.2.6 NOTAM File Identifier

The NOTAM File Identifier for this airport is listed.

3.1.5.2.7 Chart References

Chart references will be shown in a continuous row set flush right in the following order:

- Sectional Chart,
- Helicopter Chart,
- Enroute High Chart Number(s) and Panel Identification,,
- Enroute Low Chart Number(s) and Panel Identification,
- Enroute Area Chart Number and Panel Identification,
- Terminal Procedures indicator (IAP)
- Airport Diagram indicator (AD).

3.1.5.2.7.1 Sectional Chart

The primary sectional chart on which the airport is shown will be referenced. The Terminal Area Chart will be referenced for Puerto Rico and Virgin Islands facilities.

3.1.5.2.7.2 Helicopter Chart

When the airport is shown on a helicopter chart the word COPTER will be shown after the sectional chart reference.

3.1.5.2.7.3 Chart References to Airport Entry Only

Chart references in an airport entry only refer to the location of the airport.

3.1.5.2.7.4 Enroute and Terminal Area Charts

The Enroute and Terminal Area Chart number(s) and panel identification on which the airport is shown shall be indicated in ascending order following the copter chart reference

Figure 3.7 Enroute and Terminal Chart Listings

H-11C, 12J, L-25B, 26F, A-2H.

3.1.5.2.7.5 Instrument Approach Procedures, Airport Diagrams

IAP will be shown the Terminal Procedures have been published. AD indicates an airport for which an airport diagram has been published. These will be shown following the En-route chart references, e.g., **IAP. AD**.

3.1.5.3 Runway Data

Runway data common to the entire runway will be shown on the following line(s) indented and aligned with the elevation. Information common to the entire runway will be listed in the following sequence:

- a. Runway Designators
- b. Runway Length and Width
- c. Runway Surface
- d. Runway Weight Bearing Capacity and PCN
- e. Runway Edge Lighting
- f. Runway Slope (for runways under 8000')

Information pertaining to the runway approach end characteristics will follow on the next line indented two spaces. Data will be listed in the following sequence:

- a. Runway End Designator
- b. Approach Lights
- c. Centerline Lights
- d. Touchdown Zone Lights
- e. Runway End Identification Lights
- f. Visual Glideslope Indicators
- g. Glide angle and threshold crossing heights
- h. Runway Visual Range
- i. Displaced Threshold Information
- j. Controlling Obstruction
- k. Right Traffic Indication
- l. Runway Slope (for runways 8000' and longer)

3.1.5.3.1 Runway Arrangement

Runways are arranged by runway length in descending order with the longest runway depicted first. Leading zero is used on runway designation lower than 10; e.g., **RWY 07**.

3.1.5.3.2 Runway Designators

Runway designators; e.g., RWY 18-36. The letters 'L', 'C', and 'R' will follow the two-digit runway number if required

Figure 3.8 Runway Designators

RWY 13L-31R: 6000x150 ASPH
 RWY 13C-31C: 6000x150 ASPH
 RWY 13R-31L: 6000x150 ASPH

3.1.5.3.3 Ultralight Runways

Ultralight runways will be identified by the letter U following the runway designator; e.g.,

Figure 3.9 Ultralight Runways

RWY 18U-36U

3.1.5.3.4 Water Landing Areas

Water landing areas will be identified by the term WATERWAY; e.g., WATERWAY 18-36, WATERWAY NE-SW.

3.1.5.3.5 Helicopter Landing Areas

Helicopter landing areas will be identified by the term HELIPAD; e.g., HELIPAD H1.

3.1.5.3.6 Landing Zone Runways

Landing zone runways (Assault strip) will be identified by magnetic bearing; e.g., 173-353.

3.1.5.3.7 Runway Dimensions

Runway dimensions are shown in feet. Length shown is the actual runway length end to end including any displaced thresholds, but does not include overruns or stopways; e.g., 8000x150.

3.1.5.3.8 Permanently Closed Runways

Permanently closed runways shall not be shown. Temporarily closed runways and runways under construction shall be addressed in the AIRPORT REMARKS.

3.1.5.3.9 Runway Surface Material

Runway surface material is the visible material comprising the major portion of the usable rolling surface. It will be classified as follows:

- a. AM2 - Temporary metal planks coated with nonskid material
- b. ASPH - Asphalt, asphaltic concrete, tar macadam, or bitumen-bound macadam – where asphalt or tar is used as a binder to create a surfacing. Includes those runways with concrete ends.
- c. BRICK – Brick, laid or mortared
- d. CALICHE – Caliche
- e. CONC – Concrete or cement (white surface)
- f. DECK – Deck
- g. DIRT –Dirt
- h. GRASS – Grass landing area
- i. GRVL – Gravel
- j. ICE – Ice
- k. MATS –Mats
- l. PEM – Part concrete, part asphalt, or part bitumen-bound macadam
- m. PSP – Pierced steel plank
- n. ROOF-TOP – Roof-Top
- o. SN – Snow
- p. TRTD –Treated

3.1.5.3.10 Runway Surface Treatment

Runway surface treatment shall be shown immediately after the runway surface, as follows:

- a. AFSC – Aggregate friction seal
- b. GRVD – Saw-cut or plastic grooved
- c. PFC – Porous friction course
- d. RFSC – Rubberized friction seal
- e. WC – Wire comb or wire tine

3.1.5.3.11 Runway Weight Bearing Capacity

A weight bearing capacity in thousands of pounds shall be shown for each runway expressed in terms of gross aircraft weight accepted for continuing operations. Applicable codes will be published from the following list:

Figure 3.10 Runway Weight Bearing Capacity Codes

S- single wheel type landing gear	DC3, C47, F15, etc.
D- dual wheel type landing gear	B737, BE1900, etc.
D - dual wheel type landing gear	P3, C9, etc.
2S - two single wheels in tandem type landing gear	C130
2T - two triple wheels in tandem type landing gear	C17, etc.
2D - two dual wheels in tandem type landing gear	B707, etc.
2D - two dual wheels in tandem type landing gear	B757, KC135
2D/D1 - two dual wheels in tandem/dual wheel body gear type landing gear	KC10
2D/2D1 - two dual wheels in tandem/two dual wheels in tandem body gear type	A340-600
2D/2D2 - two dual wheels in tandem/two dual wheels in double tandem body gear type landing gear	B747, E4
3D - three dual wheels in tandem type landing gear	B777, etc.
D2 - dual wheel gear two struts per side main gear type landing gear	B52
C5 - complex dual wheel and quadruple wheel combination landing gear	C5

The last three digits of the runway weight bearing capacity shall not be shown. Blank spaces after S or D, i.e. S or D, indicate that the runway has weight bearing capacity to sustain aircraft with the type landing gear configuration shown, but definite figures are not available.

When the runway weight bearing capacity codes specified above are not available, the following data may be shown:

1. Figures for Equivalent Single Wheel Loading (ESWL) and Single Isolated Wheel Loading (SIWL) shall be published as SWL for a single wheel aircraft. It shall be symbolized as SWL110. The last three digits of SWL weight bearing capacity shall not be shown.
2. If only pounds per square inch (PSI) equated to pavement fracturing load capacity is available, it shall be symbolized as PSI200. Total PSI capacity shall be shown.
3. When only All Up Weight (AUW) and/or aircraft type is available, it shall be symbolized as AUW120, C9A or AUW120/C9A. The last three digits of AUW shall not be shown. Aircraft types will be of DoD aircraft, if available. If DoD type is not available, a civil aircraft commonly known in U.S. air carrier operations may be indicated.

3.1.5.3.12 Runway Bearing Strength Based on Pavement Classification Number (PCN)

Runway bearing strength based on a Pavement Classification Number (PCN) will be published as a five part code (e. g. PCN 80 R/B/W/T). Do not publish SWL, PSI, AUW, and aircraft types when PCN value is available. PCN codes are formatted based on the following:

1. PCN – The reported PCN indicates that an aircraft with an Aircraft Classification Number (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 – Unlimited - no pressure limit
 - X – High, limited to 254 psi
 - Y – Medium, limited to 181 psi
 - Z – Low, limited to 73 psi
5. Pavement evaluation method:
 - T – Technical evaluation
 - U – By experience of aircraft using the pavement

Figure 3.11 Concept - Pavement Classification Number

(1) The PCN NUMBER – The reported PCN indicates that an aircraft with an Aircraft Classification Number (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

3.1.5.3.13 Lighting

Lights are in operation sunset to sunrise. Lighting available by prior arrangement or operating part of the night and/or pilot controlled with specific operating hours will be explained in the SERVICES entry following the subheading LGT; e.g., MIRL Rwy 03-21 opr dusk-0800Z†.

At USN/USMC facilities lights are available only during the airport hours of operation.

3.1.5.3.13.1 Runway Edge Lighting Systems

Runway edge lighting systems are classified as:

- High Intensity Runway Lights (HIRL),
- Medium Intensity Runway Lights (MIRL), and
- Low Intensity Runway Lights (LIRL).
- Light system fails to meet FAA Standards (Non-Standard) (NSTD)

Threshold lights are not part of the runway edge light system.

Figure 3.12 Concept - Runway Edge Lighting System Codes

NSTD—Light system fails to meet FAA Standards
(Non-Standard).
LIRL—Low Intensity Runway Lights.
MIRL—Medium Intensity Runway Lights.
HIRL—High Intensity Runway Lights.

3.1.5.3.13.2 Non-standard (NSTD) Runway Lighting Systems

Runway lighting systems that are defined as non-standard (NSTD) in the source documentation, and provide a remark describing the lighting system type, will be shown as a HIRL, MIRL, or LIRL (NSTD) on the runway line. A qualifying remark will be shown in the SERVICES entry following the subheading LGT.

Figure 3.13 Non-standard Runway Lighting Systems

Rwy 15-33 NSTD MIRL, lgts 25' from rwy edge.

Runway lighting system types that are defined as NSTD in the source documentation and do not provide a qualifying remark describing the lighting system type will be shown as RWY LGTS (NSTD) on the runway line.

3.1.5.3.13.3 Private Use Lighting

Private use lighting will not be shown on the runway line. The lighting availability will be shown in the SERVICES entry following the LGT subheading.

Figure 3.14 Private Use Lighting

MIRL Rwy 18-36 private use only.

3.1.5.3.13.4 Temporary, Emergency or Portable Runway Lighting

Temporary, emergency or portable runway lighting such as flares, smudge pots, and lanterns will be shown in the SERVICES entry under the LGT subheading.

3.1.5.3.13.5 Helipad Boundary Lights

Helipad boundary lights availability will be shown in the SERVICES entry under the LGT subheading.

3.1.5.3.13.6 Types of Lighting

Types of lighting are shown with the runway or runway end they serve.

Figure 3.15 Types of Lighting - Sample Entries

RWY 08-26: H11489x150 (CONC-GRVD) S-30, D-200, 2S-175, 2D-400, 2D/2D2-620 PCN 74 R/B/W/T HIRL
RWY 08: MALSF. PAPI(P4L)-GA 3.0° TCH 69'. Thld dsplcd 898'.Bldg.
RWY 26: REIL. PAPI(P4L)-GA 3.0° TCH 60'. Road. Rgt tfc.

RWY 07L-25R: H10300x150 (CONC-GRVD) S-30, D-200, 2S-175, 2D-400, 2D/2D2-620 PCN 70 R/B/W/T HIRL
RWY 07L: MALSF. PAPI(P4L)-GA 3.0° TCH 73'. Pole. Rt tfc.
RWY 25R: PAPI(P4L)-GA 3.0° TCH 70'. Antenna.

RWY 07R-25L: H7800x150 (CONC-GRVD) S-30, D-200, 2S-175, 2D-400, 2D/2D2-620 PCN 79 R/B/W/T HIRL
RWY 07R: MALSFR. PAPI(P4L)-GA 3.0° TCH 70'. Pole.
RWY 25L: MALSFR. PAPI(P4L)-GA 3.0° TCH 66'. Antenna.

3.1.5.3.13.7 Centerline Lights

Centerline lights may be shown on the runway line when bi-directional or will be shown on the runway end line when unidirectional using the abbreviation shown:

Figure 3.16 Centerline Lights

RWY 11L-29R: H0539x150 (ASPH-GRVD) S-70, D-170, 2S-175, 2D-250 HIRL CL
RWY 11L: REIL. PAPI(P4L)-GA 3.0° TCH 50'. Pole.
RWY 29R: ALSF2. TDZL. PAPI(P4L)-GA 3.0° TCH 73'. Thld dsplcd.

3.1.5.3.13.8 Approach Lighting Systems

Approach lighting systems, touchdown zone lights, and runway end identifier lights are shown on the runway end line using the abbreviations shown and sequenced as follows:

Figure 3.17 Approach Lighting System Codes

RLLS	Runway Lead-In Lighting System.
AF OVRN	Air Force Overrun 1000' Standard Approach Lighting System.
ALSAF	High Intensity Approach Lighting System with Sequenced Flashing Lights.
ALSF-1	High Intensity Approach Lighting System with Sequenced Flashing Lights, Category I, Configuration.
ALSF-2	ALSF-2—High Intensity Approach Lighting System with Sequenced Flashing Lights, Category II, Configuration.
MALS	Medium Intensity Approach Lighting System.
MALSF	Medium Intensity Approach Lighting System with Sequenced Flashing Lights.
MALSFR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights.
ODALS	Omni Directional Approach Lighting System.
SALS	Short Approach Lighting System.
SALSF	Short Approach Lighting System with Sequenced Flashing Lights.
SSALF	Simplified Short Approach Lighting System with Sequenced Flashing Lights.
SSALS	Simplified Short Approach Lighting System.
SSALR	Simplified Short Approach Lighting System with Runway Alignment Indicator Lights.
OLS	Optical Landing System.
CL	Centerline Lights.
TDZL	Touchdown Zone Lights.
RAIL	Runway Alignment Indicator Lights.
REIL	Runway End Identifier Lights.
WAVE-OFF	

Figure 3.18 Concept - Approach Light System Codes

SALS—Short Approach Lighting System.
 SALSF—Short Approach Lighting System with Sequenced Flashing Lights.
 SSALS—Simplified Short Approach Lighting System.

- RAIL—Runway Alignment Indicator Lights.
- REIL—Runway End Identifier Lights.
- CL—Centerline Lights.
- TDZL—Touchdown Zone Lights.
- ODALS—Omni Directional Approach Lighting System.
- AF OVRN—Air Force Overrun 1000' Standard Approach Lighting System.
- MALS—Medium Intensity Approach Lighting System.
- MALSF—Medium Intensity Approach Lighting System with Sequenced Flashing Lights.
- MALSR—Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights.
- RLLS—Runway Lead-In Lighting System.
- SSALF—Simplified Short Approach Lighting System with Sequenced Flashing Lights.
- SSALR—Simplified Short Approach Lighting System with Runway Alignment Indicator Lights.
- ALSAF—High Intensity Approach Lighting System with Sequenced Flashing Lights.
- ALSF-1—High Intensity Approach Lighting System with Sequenced Flashing Lights, Category I, Configuration.
- ALSF-2—High Intensity Approach Lighting System with Sequenced Flashing Lights, Category II, Configuration.
- SF—Sequenced Flashing Light.
- OLS—Optical Landing System.
- WAVE—OFF

3.1.5.3.13.9 Visual Glideslope Indicators

Visual glideslope indicators will be shown using the abbreviations shown:

Figure 3.19 Visual Glideslope Indicator Codes

VISUAL GLIDESLOPE INDICATORS			
APAP - A system of panels, which may or may not be lighted, used for alignment of approach path			
PNIL	APAP on left side of runway	PNIR	APAP on right side of runway
PAPI—Precision Approach Path Indicator			
P2L	2-identical light units placed on left side of runway	P4L	4-identical light units placed on left side of runway
P2R	2-identical light units placed on right side of runway	P4R	4-identical light units placed on right side of runway
PVASI - Pulsating/steady burning visual approach slope indicator, normally a single light unit projecting two colors.			
PSIL	PVASI on left side of runway	PSIR	PVASI on right side of runway
SAVASI—Simplified Abbreviated Visual Approach Slope Indicator			
S2L	2-box SAVASI on left side of runway	S2R	2-box SAVASI on right side of runway
TRCV - Tri-color visual approach slope indicator, normally a single light unit projecting three colors.			
TRIL	TRCV on left side of runway	TRIR	TRCV on right side of runway
VASI—Visual Approach Slope Indicator			
V2L	2-box VASI on left side of runway	V6L	6-box VASI on left side of runway
V2R	2-box VASI on right side of runway	V6R	6-box VASI on right side of runway
V4L	4-box VASI on left side of runway	V12	12-box VASI on both sides of runway
V4R	4-box VASI on right side of runway	V16	16-box VASI on both sides of runway

3.1.5.3.13.10 Approach Slope Angle and Threshold Crossing Height

Approach slope angle and threshold crossing height will be shown when available immediately after the visual glideslope indicator. For 3-bar VASI systems (6 box and 16 box), both upper angle & threshold crossing height and lower angle & threshold crossing height will be shown when provided by source.

Figure 3.20 Approach Slope Angle and Threshold Crossing Height

RWY18: PAPI(P2R)—GA 3.0° TCH 36'.
RWY18: VASI(V6L)—Upper GA 3.25° TCH 105'. Lower GA 3.0° TCH 60'.

3.1.5.3.13.11 Runway Visual Range

Runway Visual Range shall be shown as RVR appended with T for touchdown, M for midpoint, and R for rollout; e.g., RVR-TMR.

3.1.5.3.13.12 Displaced Thresholds

Displaced Thresholds are shown in feet from the runway end.

3.1.5.3.13.13 Controlling Obstruction

Only one obstruction will be shown for each runway end.

3.1.5.3.14 Right Hand Traffic Pattern

“Rgt tfc” will be used to indicate right turns should be made on landing and takeoff for the specified runway end.

3.1.5.3.15 Runway Slope

Runway slope data for both VFR and IAP runways will be shown, when available, only when the rounded slope value is 0.3% or greater. Runway slope shall be shown as a percentage value of the slope of the runway measured from each threshold to midpoint of all runways 8,000 feet or longer, from threshold to threshold on all runways shorter than 8,000 feet, and portrayed when the unrounded calculated value is greater than or equal to 0.25% (expressed to the nearest 0.1%). (0.249% does not require charting, 0.250% would be charted as 0.3%).

Slopes on runways 8,000 feet or longer shall be expressed as either up or down in the direction from the threshold to the midpoint and placed on the runway end line as shown:

Figure 3.21 Runway Slope

RWY 12R-30L: 8502x150 (CONC-GRVD S-95, D-190, 2D-270 HIRL CL
 RWY 12R: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 75'. 0.3% down.
 RWY 30L: MALSR. PAPI(P4L)—GA 3.0°. Building. 0.4% up.

Slopes on runways shorter than 8,000 feet shall always be expressed as up with cardinal direction and placed on the runway line as shown:

Figure 3.22 Runway Slopes Shorter than 8,000 feet

RWY 02-20: 6011x100 (ASPH) S-42, D-73 HIRL 0.3% up SW

3.1.5.3.16 Land and Hold-Short Operations (LAHSO)

Land and hold-short operations include landing and holding short of an intersecting runway, an intersecting taxiway, or other predetermined point on the runway. The measured distance represents the available landing distance on the landing runway in feet. LASHO will be shown in a tabular listing arranged by runway designator in ascending order with the lowest numerical designation on the first line.

Figure 3.23 Land and Hold-Short (LAHSO)

LAND AND HOLD-SHORT OPERATIONS		
LDG RWY:	HOLD-SHORT POINT	AVBL LDG DIST
RWY 04	14L/32R	4700
RWY 14L	04/22	7550
RWY 22	TWY B	5050

3.1.5.3.17 Declared Distance Information

Declared distance information is published, when available. The TORA (Take-off Run Available), TODA (Take-off Distance Available), ASDA (Accelerate-Stop Distance Available), and the LDA (Landing Distance Available) will be shown in a tabular listing arranged by runway designator in ascending order with the lowest numerical designation on the first line.

Figure 3.24 Runway Declared Distance Information

RUNWAY DECLARED DISTANCE INFORMATION				
RWY 06L:	TORA-12004	TODA-12700	ASDA-12700	LDA-11704
RWY 06C:	TORA-15004	TODA-10700	ASDA-10700	LDA-10000
RWY 06R:	TORA-17004	TODA-12700	ASDA-11700	LDA-10000
RWY 24R:	TORA-12004	TODA-12700	ASDA-12040	LDA-11704

3.1.5.3.18 Arresting Gear/System

3.1.5.3.18.1 Arresting Gear

Arresting Gear (**A-GEAR**) shall be shown by type and position. Information will be read from left or right depending on landing direction. The location of an arresting gear system will be expressed as distance from the end of the landing runway toward the center of the runway or, when located in an overrun area, the distance to the nearest runway end. Distance will be shown in parentheses immediately following the type; equipment located at the threshold shall be indicated by end of runway.

3.1.5.3.18.1.1 A-Gear

A-GEAR for a runway will be shown on a separate line(s) immediately below the ARRESTING GEAR/SYSTEM heading.

Figure 3.25 Arresting Gear/System

ARRESTING GEAR/SYSTEM
RWY 05 MA-1A (44') BAK-12(B)(1000') BAK-12(B)(1000') MA-1A (45') RWY 36

If there is insufficient space on this line, the A-GEAR for lower end runway will be on one line and the A-GEAR for higher end runway will be below it.

Figure 3.26 Arresting Gear/System - Limited Space Example

RWY 09 MA-1A MOD (50' OVRN) BAK-12(B) (1350') BAK-13 (B) (2700')
BAK-13(B) (2700') BAK-12(B) (1350') MA-1A MOD (50' OVRN) RWY 27

3.1.5.3.18.1.2 Navy Directional Equipment

Navy directional equipment shall have the engagement direction indicated by an arrow pointing in the direction of travel for the engaging aircraft.

Figure 3.27 Navy Directional Equipment

RWY 05 ← HOOK E5 (65' OVRN) BAK-14 BAK-12(B) (1650')
BAK-14 BAK-12(B) (1087') HOOK E5 (74' OVRN) → RWY 23.

3.1.5.3.18.1.3 Bi-directional Equipment

Bi-directional equipment shall be indicated by the letter “B” enclosed within parentheses following the type.

Figure 3.28 Bi-directional Equipment

BAK-12(B).

3.1.5.3.18.2 Arresting Systems

Engineered Material Arresting System (EMAS) located at the departure end of the runway will be shown.

Figure 3.29 Arresting Systems

RWY 08: EMAS

3.1.5.4 Services

Specific services available at the airport shall be listed under this general heading. These services will include, but not be limited to, **AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)**, **LIGHTING (LGT)** remarks, **A-GEAR** remarks, **JET AIRCRAFT STARTING UNITS (JA-SU)**, **FUEL, FLUID, OIL, OXYGEN, NITROGEN, MAINTENANCE (MAINT)**. Remarks applicable to any service will be shown in the individual service listing. If a service, function or item does not exist the subheading will not be shown.

3.1.5.4.1 Aircraft Rescue and Fire Fighting (ARFF)

Airports serving Department of Transportation certified carriers and certified under 14 CFR part 139 are indicated by the Class and the ARFF Index which relates to the availability of crash, fire, rescue equipment.

Figure 3.30 Aircraft Rescue and Fire Fighting Example

Class I, ARFF Index A

The hours during which an aircraft rescue and fire-fighting service is operated will be shown immediately following the ARFF data. The absence of published hours denotes a 24 hour service.

3.1.5.4.2 Lighting (LGT)

Show remarks when unusual conditions exist or if hours of operation do not approximate sunset to sunrise.

Figure 3.31 Lighting

LGT LIRL Rwy 03-21 OTS indef. ACTIVATE MIRL Rwy 16-34, LIRL Rwy 03-21, VASI Rwy 16 and Rwy 34-CTAF. PAPI Rwy 03 and Rwy 21 opr continuously.

3.1.5.4.3 A-Gear

Non-standard installations, prior notice required, or any necessary operational information will be explained by a remark.

Figure 3.32 Arresting Gear Example

A-GEAR 30 min notice rqr.

3.1.5.4.4 Jet Aircraft Starting Units (JASU)

Show the type and quantity of Jet Aircraft Starting Units (JASU) available. The number (quantity) of units of a specific type shall be shown preceding the type designation. The type designation shall be shown in parentheses. When ten or more units are available, no number will be shown. If the number of units is unknown, the number one will be shown.

Figure 3.33 Jet Aircraft Starting Unit Example

JASU (C-26) 3(AM32A-60) 4(MA-1)

Starter Probes shall be shown when available.

Figure 3.34 Starter Probes Example

(A4, F8 probes)

3.1.5.4.5 Fuel

All types of fuel, aviation oil, supporting fluids, and single point refueling capacity which are available to U.S. military and/or civil aircraft shall be shown by applicable codes.

Table 3.2 Fuel Code Table

CODE	FUEL, TYPE	CODE	FUEL, TYPE
80	Grade 80 gasoline (Red)	A1+	Jet A-1, Kerosene with FS-II*, FP** minus 47° C.
100	Grade 100 gasoline (Green)	B	Jet B, Wide-cut, turbine fuel without FS-II*, FP** minus 50° C.
100LL	100LL gasoline (low lead) (Blue)	B+	Jet B, Wide-cut, turbine fuel with FS-II*, FP** minus 50° C.
115	Grade 115 gasoline (115/145 military specification) (Purple)	J4(JP4)	(JP-4 military specification) FP** minus 58° C.
A	Jet A, Kerosene, without FS-II*, FP** minus 40° C.	J5(JP5)	(JP-5 military specification) Kerosene with FS-II, FP** minus 46° C.
A+	Jet A, Kerosene, with FS-II*, FP** minus 40° C.	J8(JP8)	(JP-8 military specification) Jet A-1, Kerosene with FS-II*, FP** minus 47° C.
A++	Jet A, Kerosene, with FSII*, CI/LI#, SDA##, FP** minus 40° C.	J8+100	(JP-8 military specification) Jet A-1, Kerosene with FS-II*, FP** minus 47° C, with-fuel additive package that improves thermo stability characteristics of JP-8.
A++100	Jet A, Kerosene, with FSII*, CI/LI#, SDA##, FP** minus 40° C, with +100 fuel additive that improves thermal stability characteristics of jet fuels	J	Jet Fuel Type Unknown
A1	Jet A-1, Kerosene, without FS-II*, FP** minus 47° C.	MOGAS	Automobile gasoline that is to be used as aircraft fuel.
		SP	Single Point Refueling

* (Fuel System Icing Inhibitor) ** (Freeze Point) # (Corrosion Inhibitors/Lubricity Improvers) ## (Static Dissipater Additive)

When military contract fuel is available the phone number of the refueling agency will be shown when available.

Figure 3.35 Military Contract Fuel

J4(Mil), 301-554-3456

Aviation fuels available through U.S. military base supply, into-plane contracts, or reciprocal agreements shall be listed first. When U.S. military supplied fuel is available at a non-military airport, the fuel entry shall be followed by Mil in parentheses.

Figure 3.36 Military Supplied Fuel Available at a Non-Military Airport

FUEL J4(Mil)

Additional aviation fuels not available through military contract at the same facility shall be shown after “(Mil)”.

Figure 3.37 Additional Fuels Not Available Through Military Contract

FUEL J4(Mil) 80, 100LL, JET A

Fuel types available through both contract and non-contract means shall be shown in both locations. After hour phone number will be shown if known.

Figure 3.38 Fuel Types Available - Contract and Non-Contract Means

J4(Mil) 80, 100LL, JET A, J4, 301-555-1234.

AVGAS availability will be shown followed by jet fuel and associated remarks.

Figure 3.39 AVGAS Availability

FUEL 80, 100LL, J8. Fuel avbl 24 hrs self-serve with credit card. For J8 after hrs call 425-555-6656.

3.1.5.4.5.1 Fuel Notes to be Shown in the Directory Legend (Civilian)

The following notes will be shown in the Directory Legend:

Figure 3.40 Fuel Notes - Civilian

NOTE: 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 suppliers at locations where refueling is planned.

Certain automobile gasoline may be used in specific aircraft engines if an 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.

3.1.5.4.5.2 Fuel Notes to be Shown in the Directory Legend (Military)

The following note will be shown in the Directory Legend:

The U.S. Government Aviation Into-Plane Reimbursement (AIR) Card (currently issued by AVCARD) is the instrument to be used to obtain fuel under a DESC Into-Plane Contract and for NC purchases if the refueling agent at the commercial airport accepts the AV-CARD.

Figure 3.41 Fuel Notes - Civilian

The U.S. Government Aviation Into-Plan Reimbursement (AIR) Card (currently issued by AVCARD) is the instrument to be used to obtain fuel under a DESC Into-Plane Contract and for NC purchases if the refueling agent at a commercial airport accepts the AVCARD.

3.1.5.4.6 Supporting Fluids and Systems

Supporting fluids that are available to U.S. military and/or civil aircraft shall be shown by applicable codes.

Table 3.3 Fluid Codes Table

ADI	Anti-Detonation Injection Fluid - Reciprocating Engine Aircraft
W	Water Thrust Augmentation - Jet Aircraft
WAI	Water-Alcohol Injection Type, Thrust Augmentation - Jet Aircraft
PRESAIR	Air compressors rated at 3000 PSI or more
De-Ice	Anti-icing/De-icing/Defrosting Fluid (MIL-A-8243)

3.1.5.4.7 Oil

Various types of oil available for use shall be shown by applicable codes.

Table 3.4 Oil Codes Table

<u>CODE</u>	<u>GRADE, TYPE</u>
0-113	1065, Reciprocating Engine Oil (MIL-L-6082)
0-117	1100, Reciprocating Engine Oil (MIL-L-6082)

Table 3.4 Oil Codes Table (Continued)

<u>CODE</u>	<u>GRADE, TYPE</u>
O-117+	1100, O-117 plus cyclohexanone (MIL-L-6082)
O-123	1065, (Dispersant), Reciprocating Engine Oil (MIL-L-22851 Type III)
O-128	1100, (Dispersant), Reciprocating Engine Oil (MIL-L-22851 Type II)
O-132	1005, Jet Engine Oil (MIL-L-6081)
O-133	1010, Jet Engine Oil (MIL-L-6081)
O-147	None, MIL-L-6085A Lubricating Oil, Instrument, Synthetic
O-148	None, MIL-L-7808 (Synthetic Base) Turbine Engine Oil
O-149	None, Aircraft Turbine Engine Synthetic, 7.5c St
O-155	None, MIL-L-6086C, Aircraft, Medium Grade
O-156	None, MIL-L-23699 (Synthetic Base), Turboprop and Turbohaft Engines
JOAP/SOAP	Joint Oil Analysis Program. JOAP support is furnished during normal duty hours, other times on request. (JOAP and SOAP programs provide essentially the same service, JOAP is now the standard joint service supported program.)

3.1.5.4.8 Oxygen

Various types of oxygen available for use by aircrew/aircraft shall be shown by applicable codes.

Table 3.5 Oxygen Codes Table

LPOX	Low pressure oxygen servicing
HPOX	High pressure oxygen servicing
LHOX	Low and high pressure oxygen servicing
LOX	Liquid oxygen servicing
OXR	Oxygen replacement bottles
LHOXR	Low and high pressure oxygen servicing and replacement bottles
LPOXR	Low pressure oxygen replacement bottles
HPOXR	High pressure oxygen replacement bottles
OX	Oxygen unknown

3.1.5.4.9 Nitrogen

Nitrogen available for use by aircrew/aircraft shall be shown by applicable codes.

Table 3.6 Nitrogen Code Table

LPNIT	Low pressure nitrogen servicing
HPNIT	High pressure nitrogen servicing
LHNIT	Low and high pressure nitrogen servicing
NIT	Nitrogen unknown

3.1.5.4.10 Maintenance

Show the type of maintenance service by the codes shown. Pertinent remarks shall be shown immediately after the code.

Figure 3.42 Maintenance

MAINT S1. Mon-Fri 1000-2200Z. Call out fee after hours.

Table 3.7 Maintenance Codes

S1	Minor airframe repairs	S5	Major airframe repairs
S2	Minor airframe and minor powerplant repairs	S6	Minor airframe and major powerplant repairs
S3	Major airframe and minor powerplant repairs	S7	Major powerplant repairs
S4	Major airframe and major powerplant repairs	S8	Minor powerplant repairs

3.1.5.5 Remarks

Facility remarks will be listed under the general heading **AIRPORT REMARKS, MILITARY REMARKS, HELICOPTER REMARKS** or **SEAPLANE REMARKS** as applicable.

3.1.5.5.1 Civil and Joint Civil/Military Airports

At civil and joint civil/military airports, the attendance schedule is listed first. Airport attendance does not mean watchman duties or telephone accessibility, but rather an attendant or operator on duty to provide at least minimum services (e.g., repairs, fuel, transportation). The airport attendance schedule is the days, months and hours the airport is actually attended.

Figure 3.43 Civil and Joint Civil/Military Airports

Attended 1500-0300Z† Mon-Sat 1 May-30 Sep 1500-0300Z†, 1 Oct-30 Apr.

3.1.5.5.2 Military Facilities

At military facilities the airport operating hours are listed first. Operating hours are those during which airport services (Fuel, Transient Service, etc.) and communications (ATIS, PTD, UNICOM, APP, DEP, TWR, A/G, etc.) are available unless otherwise specified. Airport operating schedule is the days, months and hours the airport is operational.

Figure 3.44 Military Facilities

Opr 1500-0300Z† Mon-Sat 1 May-30 Sep 1500-0300Z†, 1 Oct-30 Apr.

3.1.5.5.3 Pertinent Remarks

Pertinent remarks are grouped in the order of applicability under the subheadings – RSTD, CAUTION (Only MILITARY REMARKS section), TFC PAT, NS ABTMT, CSTMS/AG/IMG, TRANS ALERT and MISC. Remarks applicable to the military only or tenants on the airport are shown following the general remarks under the subheading MILITARY. Remarks applicable to a specific tenant(s) will be shown after the appropriate subheading; e.g., ARNG, A, NAVY etc.

3.1.5.5.4 Publishing Criteria for Item in SERVICE and REMARKS

The following criteria shall be used for items to be published in SERVICE and REMARKS sections.

3.1.5.5.4.1 Remarks about conditions of an indefinite nature and conditions

Remarks about conditions of an indefinite nature and conditions that will be in effect 56 days or more, the knowledge of which is essential for safe and efficient operation of civil and military aircraft, will be listed. These conditions may be related to, but are not limited to, aeronautical facilities, services, maintenance availability, procedures, hazards, etc.

3.1.5.5.4.2 Remarks describing occurrence of defects, correction of defects

Remarks describing occurrence of defects, correction of defects, or changes in the landing or operating area will be included.

Note: Remarks such as “Do not land first 1000’ of rwy” are both instructional and incomplete and should not be published. Remarks should be qualified as to the reason for the condition; e.g., First 1000’ Rwy 12 CLOSED due to construction.

Figure 3.45 Remarks Describing Occurrence of Defects, Correction of Defects

First 1000’ Rwy 12 CLOSED due to construction.

3.1.5.5.4.3 Other remarks of operational significance

Other remarks of operational significance may be included at the specific request of the airport manager or appropriate authority.

3.1.5.5.4.4 Conditions which will be in a effect for 56 days or more

Conditions which will be in effect for 56 days or more and in the opinion of the airport manager or the appropriate authority should be brought to the attention of aviators will be listed. Examples follow.

3.1.5.5.4.4.1 RSTD Remarks

Remarks describing airport conditions such as PPR, Official Business, CLOSED in-def, which limit aircraft operations at the airport will be included.

3.1.5.5.4.4.2 CAUTION Remarks

Caution remarks will be included and placed in this section when provided by source - military only.

3.1.5.5.4.4.3 GENERAL Remarks

General remarks that do not fit the existing descriptive categories including but limited to the following:

- Landing, ram, and other fees. The existence of a fee when civil or military aircraft may be liable for the fee will be indicated; e.g. “Ldg fee for acft over 12,500 lb” “Commercial ldg and tie down fee” or “Fee for all charter, travel club, and revenue producing acft.” The following will be shown if only military aircraft will be liable for the fee; e.g., “Fee for US mil acft using N ramp”. Service fees should be listed with the service type.
- Seasonal availability, if it exists, will be indicated.
- Non-standard markings, should they exist, will be indicated and described.
- Published information concerning overruns, stopways, and blast pads will be described
- Telephone numbers listed in the Directory are commercial telephone numbers unless otherwise noted and will be shown with the area code and number; e.g., 240-857-2740. Defense Switching Network numbers will be identified by the prefix DSN and number; e.g., DSN 857-5761.

3.1.5.5.4.4.4 TFC PAT Remarks

Remarks pertaining to traffic pattern altitude and exceptions to the standard traffic pattern altitude shall be included.

3.1.5.5.4.4.5 NS ABTMT Remarks

Remarks regarding the existence of noise abatement procedures shall be included. They shall be limited to contact information.

Figure 3.46 Noise Abatement Remarks Example

Noise abatement procedures in effect, contact airport manager 987-654-3210.

3.1.5.5.4.4.6 CSTMS/AG IMG Remarks

Customs, agriculture, quarantine, and immigration services shall be shown. The designation of an Airport of Entry (AOE) or Landing Rights Airport (LRA) shall be shown when applicable. Supplement legends will carry a definition of terms. Restrictions to available facilities at airports that are not designated an AOE or LRA will be identified.

3.1.5.5.4.4.7 Military Transient Alert Services (TRAN ALERT)

Show the availability of normal Transient Alert Services by use of TRAN ALERT. Transient Alert service is considered to include all services required for normal Military aircraft turn around: i.e., servicing (fuel, oxygen, etc.), debriefing to determine requirements for maintenance, minor maintenance, inspection, and parking assistance for military transient aircraft.

Figure 3.47 TRAN ALERT Example

TRAN ALERT Opr Sun-Sat 1200-0400Z† except holidays. TRAN ALERT NAVY Servicing not avbl T-43 acft. No maintenance/cargo handling avbl. Expect servicing delay. Local staging fight prohibited.

3.1.5.5.4.4.8 Notices

The notation Special Air Traffic Rules Part 93 shall be listed when applicable. ‘See Section 3 - Regulatory/Special Notices’ and the title of the notice shall be shown when a notice applicable to the facility is contained in the Notices section of the directory. When both a Regulatory and a Special Notice are published for a single facility, the Regulatory Notice shall be referenced first.

Figure 3.48 Notice Example

NOTE: See Section 3 - Regulatory Notices. Special Notices-District of Columbia Ronald Reagan Washington National Airport. When multiple notices are published for the same facility the notation ‘See Section 3’ will not be duplicated. ‘See Section 4- Parachute Jumping Areas’ shall be shown when applicable.

3.1.5.5.4.5 Type Data Not Published in the SERVICES and REMARKS Sections

The following type data shall NOT be published in the SERVICES and REMARKS sections:

- a. Any condition which is expected to remain in effect for less than 56 days. This type of data will normally be disseminated by NOTAM.
- b. Permanent closures of airports, runways, taxiways (these items will be deleted from the supplement);
- c. Remarks about obstructions designated as close-in or controlling obstructions;
- d. Presence or removal of hazardous conditions due to snow, ice, water, or temporary obstructions on or adjacent to the landing area;
- e. Incomplete remarks such as “Do not use Rwy 12 or Twy A2,” etc.; complete remarks indicate the condition which makes the remark effective. “Do not use Rwy 23 under crosswind conditions.”
- f. Data regarding IFR arrival and departure procedures, including noise abatement procedures;
- g. Temporary shortages of certain types of fuel, starting equipment, or other aircraft services;
- h. Data regarding temporary closures or restrictions at airports due to air shows, close proximity of athletic events, etc.;
- i. Data regarding availability of box lunches, hotel reservations, government transportation, billeting, etc.;
- j. Telephone numbers not directly necessary for the advance coordination of aircraft movements.
- k. Names of commercial entities; non-government web sites;
- l. Any other information not described in the allowable remarks.

3.1.5.6 Airport Manager

The telephone number for the airport manager shall be shown.

3.1.5.7 Weather Data

Weather data associated with the airport shall be shown by the following abbreviations:

Figure 3.49 Weather Data Abbreviations

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 (all other information is advisory only)
AWOS-1	Reports altimeter setting, wind data and usually temperature, dew point 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.
AWOS-3P	Reports the same as the AWOS-3 system, plus a precipitation identification sensor
AWOS-3PT	Reports the same as the AWOS-3 system, plus a precipitation identification sensor and a thunderstorm/lightning reporting capability.
AWOS-3T	Reports the same as the AWOS-3 system and includes a thunderstorm/lightning reporting capability.
AWOS-4	Reports the same as the AWOS-3 system, plus a precipitation occurrence, type and accumulation, freezing rain, thunderstorm, and runway surface sensors.
LAWRS	Limited Aviation Weather Reporting Station where observers report cloud height, weather, obstructions to vision, temperature and dew point (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.
PMSV	Indicates Pilot to METRO Service is available at selected facilities to provide military aircrews direct radio contact with weather forecasters.
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.
WSP	Indicates airports that have Weather System Processor.
WX CAM	Aviation Closed Circuit Television Weather Camera.

3.1.5.7.1 Listing of Weather Data

Weather data will be listed alphabetically followed by the assigned frequencies and/or telephone number and hours of operation.

Figure 3.50 Weather Data

AWOS-3 121.25 470-876-1291. LLWAS. PMSV 306.5 41.2 (Full svc avbl 1115-0315Z)

3.1.5.7.2 Automated Weather Source Broadcast over a NAVAID

When the automated weather source is broadcast over the primary (NAVAID main entry) NAVAID frequency, it shall be indicated by a ASOS, AWOS, followed by the frequency, NAVAID identifier and phone number, if available.

Figure 3.51 Automated Weather Source Broadcast over a NAVAID

AWOS-3 860-876-2297. HIWAS 114.9 HFD. LAWRS. LLWAS.

3.1.5.8 Communications

Specific communication data available at the airport will be listed under this general heading. Data entries shall include call sign, applicable frequencies and hours of operations. Remarks applicable to any communication item shall appear after the specific call sign or frequency entry. Items published in this entry will include, but will not be limited to, SFA, CTAF, UNICOM, AUNICOM, ATIS, D-ATIS, PTD, FSS, RADIO, NAME/IDENT/FREQUENCIES/TELEPHONE NUMBER, NAME RCO, APP, TWR, GND, GCO, DEP, VFR ADVSY SVC, CLNC DEL, CPDLC, COMD POST, ARPT OPS, and MF (Canada).

The availability of Single Frequency Approach (SFA) service, Common Traffic Advisory Frequency (CTAF), Private Aeronautical Advisory Stations (UNICOM), Automated UNICOM (AUNICOM), Automatic Terminal Information Service (ATIS), Data Link Automatic Terminal Service (D-ATIS) and Pilot to Dispatcher (PTD) service will be shown in the above order by their abbreviations immediately following the heading, "COMMUNICATIONS".

3.1.5.8.1 CTAF, UNICOM, AUNICOM, ATIS, D-ATIS and PTD Frequencies

CTAF, UNICOM, AUNICOM, ATIS, D-ATIS, and PTD assigned frequencies will be published.

Figure 3.52 CTAF, UNICOM, AUNICOM, ATIS, D-ATIS and PTD Frequencies

SFA CTAF 118.7 UNICOM 122.95 ATIS 127.25 301-584-6541 PTD 372.2

3.1.5.8.2 Language - ATIS Frequencies

Only English speaking ATIS frequencies will be published.

3.1.5.8.3 CTAF and UNICOM Frequencies

When the CTAF and UNICOM frequencies are the same, the frequency, the headings will be combined and published as CTAF/UNICOM 122.8.

3.1.5.8.4 Flight Service Stations (FSS)

The servicing FSS name shall be shown followed by the identifier and information concerning availability of telephone service.

3.1.5.8.4.1 FSS Located at Airport

Where the servicing FSS is located on the airport the notation ‘on arpt’ will be shown after the FSS identifier.

3.1.5.8.4.2 FSS Frequencies

Frequencies available at the FSS will follow listed in ascending order. Emergency frequencies 121.5 and 243.0 will not be shown at FSSs where published.

3.1.5.8.4.3 FSS Telephone Numbers

FSS telephone numbers will only be shown when other than the standard TF 1-800-WX-BRIEF.

Figure 3.53 FSS Telephone Numbers

FORT WORTH FSS (FTW) on arpt. 122.2 122.65 123.65

3.1.5.8.4.4 FSS Call Sign

When the call sign is the same as the airport name the call sign will not be shown.

Figure 3.54 FSS Call Sign

FSS (ORL) 122.2 122.65 123.65

3.1.5.8.4.5 FSSs with Names Other than the Airport

FSSs with names other than the airport shall be listed separately in the normal alphabetical listing.

3.1.5.8.4.6 FSS Operating Hours (Includes Part Time)

When a Flight Service Station operates part time and a different Flight Service Station takes over during other periods, the listing will be shown as follows:

Figure 3.55 FSS Operating Hours

ILIAMNA FSS (ILI) 1200-0300Z+. OT ctc KENAI FSS (ENA).

3.1.5.8.5 Remote Communications Outlet (RCO)

At those airports which offer remote voice communications with Flight the entry will be shown by the name of RCO (NAME RCO) followed by the available frequencies and the associated FSS facility, followed by the word “RADIO”.

Figure 3.56 Remote Communications Outlet

NUTSY RCO 117.1T 122.1R (ILIAMNA RADIO)

3.1.5.8.5.1 RCO Name is Different than the Airport Name

When the RCO name is different than the airport it will be show in a separate listing.

3.1.5.8.5.2 Two Same Name RCOs with Same Associated Radio (FSS in Alaska)

When two same name RCOs with the same associated RADIO(FSS in AK) are published, the RCO frequencies can be combined and published as a single entry.

Figure 3.57 Two Same Name RCOs with Same Associated Radio (FSS in AK)

KANSAS CITY RCO 122.65 113.25T 122.1R.

3.1.5.8.5.3 Emergency Frequencies

Emergency frequency 121.5 and 243.0 will be shown, if available.

3.1.5.8.5.4 Stand-alone RCO Entries

Stand-alone RCO entries that are not at an airport or NAVAID shall be listed in the normal alphabetical listing.

3.1.5.8.6 Remaining Communication Frequencies

The remaining communication frequencies will be shown after the RCO data in the following sequence by the abbreviations shown:

Figure 3.58 Communication Frequency Abbreviations

APP	Approach Control. The symbol ® indicates radar approach control
ARRIVAL	Arrival Control
TWR	Control Tower
GCA	Ground Control Approach System
GND CON	Ground Control
GND METERING	Ground Metering
GCO	Ground Communication Outlet
DEP	Departure Control. The symbol ® indicates radar departure control
CLNC DEL	Clearance Delivery
CPDLC	Controller Pilot Data Link Communication
PRE TAXI CLNC	Pre Taxi Clearance
GATE HOLD	Gate Hold
VFR ADVSY SVC	VFR Advisory Service. Service provided by Non-Radar Approach Control
COMD POST	Command Post

3.1.5.8.6.1 Approach Control Data

Approach Control data shall be shown immediately following the subheading APP. A bold circle R symbol ® shall be shown preceding the approach control data to indicate that the approach control has radar capability.

Figure 3.59 Approach Control Data

® DOVER APP 132.425

3.1.5.8.6.2 Tower and Ground Control Data

Tower and Ground Control data will be shown immediately following the subheadings TWR and GND.

3.1.5.8.6.3 Departure Control Data

Departure Control data shall be shown immediately following the subheading DEP. A bold circle R symbol ® shall be shown preceding the departure control data to indicate that the departure control has radar capability.

Figure 3.60 Departure Control Data

® DOVER DEP 132.425.

3.1.5.8.6.4 Order of Frequencies

Frequencies shall be shown in ascending order with the primary frequency listed first. All primary frequencies will be listed together with sectorization, hours of operation and any pertinent remarks.

Figure 3.61 Order of Frequencies

GALVESTON APP 132.15 321.0 (090°-270°) 135.55 232.0 (271°-089°)(1200 0300Z±)
other times ctc
HOUSTON CENTER APP 127.9 330.1

Call name shall be shown.

Figure 3.62 Call Name

GALVESTON APP/DEP 132.15 329.7

3.1.5.8.6.5 UHF Frequencies

UHF frequencies will be shown, when available.

3.1.5.8.6.6 Approach and Departure Information

Approach and departure information shall be combined where information is the same.

Figure 3.63 Approach and Departure Information

GALVESTON APP/DEP 132.15 329.7

3.1.5.8.6.7 Air Traffic Control Facility (ARTCC)

Where the enroute air traffic control facility (ARTCC) provides approach or departure control service, the listing will contain the Center name followed by the frequencies and service information.

Figure 3.64 Air Traffic Control Facility (ARTCC)

OAKLAND CENTER APP/DEP 125.7 328.6

3.1.5.8.6.8 Part-Time Approach and/or Departure Control

When approach control and/or departure control operates part time and the alternate approach and/or departure takes over during other periods, the listing will be shown as follows:

Figure 3.65 Part-Time Approach and/or Departure Control

GALVESTON APP 132.15 321.0 (1200-0300Z±), other times ctc
HOUSTON CENTER APP 127.9 330.1.

3.1.5.8.6.9 CLNC DEL - Clearance Delivery**3.1.5.8.6.10 CPDLC - Controller Pilot Data Link Communications**

When CPDLC service is provided, the listing will contain the CPDLC services offered, e.g. DCL, followed by the logon in parentheses.

Figure 3.66 CPDLC - Controller Pilot Data Link Communications

CPDLC DCL (LOGON KMEM)

3.1.5.8.6.11 NAME COMD POST - RAMP and AMC AIRLIFT COORDINATION CNTR, etc.**3.1.5.9 Airspace**

Information concerning Class B, C, D and E surface area airspace shall be published with effective times.

Figure 3.67 Airspace

CLASS D svc Mon-Sat 1300-0500Z† OT CLASS G. CLASS B See VFR Terminal Area Chart. CLASS E svc Sun-Fri 1100-0300Z†, Sat 1200-2300Z†, OT CLASS G. TRSA svc ctc APP 20 NM out.

3.1.5.10 VOR Test Facility (VOTs)

On-airport ground based VOR test facilities shall be shown with identifier, frequency and referenced remarks.

3.1.5.11 Radio aids to Navigation (NAVAIDs)

All public use NAVAIDs and private use military owned and operated TACANs shall be listed. Navigational Aids will not refer to airports not listed in the supplement.

This grouping shall consist of radio aids to navigation (NAVAIDs) to include all same name NAVAIDs available at the alphabetized radio facility and/or airport name listing, and different name NAVAIDs which:

- a. are located on the airport.
- b. are used to furnish final approach guidance on a published U.S. Government or DoD instrument approach procedure (high or low) serving the airport.
- c. is the closest usable NAVAID to an airport depicted on the Enroute Chart

NAVAIDs that do not share the name, the first portion of a hyphenated name, or multiple word name of the airport or associated city shall be listed separately in the normal alphabetical list.

The chart(s) on which the NAVAID is depicted shall be listed when the NAVAID appears as its own separate entry.

3.1.5.11.1 NOTAM Accountability

When a NAVAID is listed as a separate entry, the NOTAM accountability identifier will be shown immediately following geographical position and on the same line with the NAVAID name.

When the NAVAID is listed under an airport entry, the NOTAM accountability identifier will be shown if it is different than that of the airport on the same line with the NAVAID heading. When two or more NAVAIDs are listed and the NOTAM FILE identifier is different than shown on the NAVAID line, then it will be shown with the NAVAID listing.

3.1.5.11.2 VHF/DF Availability

VHF/DF availability will be shown immediately following and on the same line with the NOTAM accountability identifier. Controlling facility will be shown when more than one FSS serves the airport.

Figure 3.68 VHF/DF Availability

"VHF/DF ctc Phoenix RADIO (or FSS)"

3.1.5.11.3 NAVAID Listing Sequencing

NAVAIDS shall be listed in the following sequence: VORTAC, VOR/DME, VOR, TACAN, DME, NDB/DME, UHF NDB, LF/MF NDB, NDB/LOM, NDB/LMM, and DME. LOM and LMM when published as compass locators shall be shown. Marker beacons shall not be shown.

3.1.5.11.4 NAVAID DATA

NAVAIDs shall be shown as follows:

Figure 3.69 NAVAID DATA

KINGSTON (H) VORTAC 113.8 KGS CH 76 N37°47.36' W122°49.13' at fld. 150/8E.
(0100-2200Z±). Unmonitored. NOTAM FILE ABC. No NOTAM MP 2200-0100Z±. SHUTDOWN.
COLUMBIA (H) TACAN 109.2 CBU CH29 N28°32.65' W81°21.12' 177° 5.4 NM to fld. 1115/8E

3.1.5.11.5 Types of Radio Facilities

The types of radio facilities and class code in parentheses shall be shown using the Radio Class Codes from the Directory legend; e.g., MAVERICK (T) VORTAC.

3.1.5.11.6 DME and VOR/DME

DME or VOR NAVAIDs with Distance Measuring Equipment shall be indicated by the letters "DME", e.g., VOR/DME. VOR/DME facilities that require TACAN to be placed in the "Y" mode to receive DME will be indicated by a (Y) suffix following the channel; e.g.,

Figure 3.70 VOR/DME Example

HARBER (T) VOR/DME 112.15 HAR CH 58(Y).

3.1.5.11.7 VHF/UHF NAVAIDs (VORTAC, VOR, TACAN, DME)

The operational radio classification code (frequency protected service range) of VHF/UHF NAVAID (VORTAC, VOR, TACAN, DME) facilities shall be shown in parentheses followed by the type designation; e.g., (L) VORTAC.

3.1.5.11.8 NAVAID Identifier

The identifier of the NAVAID shall be shown.

3.1.5.11.9 NAVAID Frequencies

NAVAID frequencies shall be shown.

3.1.5.11.10 Channel Number and (Y) Suffix

The channel number and (Y) suffix if applicable shall be shown. Add the paired VHF frequency, in parenthesis, to the TACAN and DME data block after the NAVAID identifier.

Figure 3.71 Channel Number and (Y) Suffix

COLUMBIA (H) TACAN CH 29 CBU (109.2) N28°32.65' W81°21.12' 177° 5.4 NM to fld. 1115/8E

3.1.5.11.11 Geographic Coordinate

The geographic coordinates as hemisphere, degrees, minutes and hundredths-of-minutes for NAVAIDs shall be shown.

Figure 3.72 Geographic Coordinates

N28°49.56' W81°09.33'

3.1.5.11.12 Magnetic Bearing and Distance

The magnetic bearing and distance to the field shall be shown for all NAVAIDs listed under the airport.

3.1.5.11.13 NAVAID Co-Located at Field (1 NM or Less)

If the NAVAID is located at the field (1 nautical mile or less from the Airport Reference Point) show “at fld”.

In addition, other magnetic bearing and distance information from the NAVAID to the airport may be shown when specifically and officially requested. Care must be taken to effect a correlation of identical information at each affected airport or NAVAID.

3.1.5.11.14 Elevation and Magnetic Variation

The elevation and magnetic variation will be shown when available, e.g., 135/8E.

3.1.5.11.15 Hazardous In-flight Weather Advisory Service (HIWAS)

Hazardous In-flight Weather Advisory Service (HIWAS) is broadcast on the NAVAID voice facility and will be shown following the appropriate NAVAID information.

Figure 3.73 Hazardous In-Flight Weather Advisory Services (HIWAS)

KINGSTON (H) VORTAC 113.8 KGS CH 76 N37°47.36' W122°49.13' at fld 150/8E HIWAS

3.1.5.11.16 NOTAM Identifier

The NOTAM identifier will be shown when it is different than shown on the Radio Aids to Navigation line.

3.1.5.11.17 Hours of Operation

Specific hours of operation, if any, will be shown in UTC, i.e., 1500-0700Z. A double dagger (‡) symbol will be shown following all UTC (Z) time affected by daylight saving time.

3.1.5.11.18 NAVAID Remarks

Pertinent remarks affecting the current status or usability of NAVAID facilities shall be shown, on the same line(s) following the NAVAID data.

Figure 3.74 NAVAID Remarks

NOTAM FILE FTW. Unmonitored. VFR only. OTS indef.

3.1.5.11.19 NAVAID Restriction

The NAVAID restriction will be preceded by the NAVAID or component type. Restrictions will be listed north going clockwise.

NAVAID restrictions will be listed at every instance where the NAVAID appears.

Figure 3.75 NAVAID Restriction

BRADLEY (L)VOR/DME 115.8 SFO CH 105 (Y) N37°37.16' W122°22.00' at fld. 160/14W. 1200-2000Z†.

VOR unusable: 015°-070° byd 25 NM blo 4500'
150°-180° byd 20 NM blo 6300'
181°-260° byd 20 NM blo 9000'

DME unusable: 015°-030° byd 25 NM blo 4500'
031°-040° byd 30 NM blo 7000'

HUMBLE (H) VORTAC IAH 116.6 CH 113 N29°57.42' W95°20.74' 003° 1.7 NM to fld. 90/5E. HIWAS

VOR unusable: 015°-070° byd 25 NM blo 4500'
150°-180° byd 20 NM blo 6300'
181°-260° byd 20 NM blo 9000'

TACAN unusable: 040°-055° blw 5,000'
150°-320°

DME unusable: 015°-030° byd 25 NM blw 4500'
031°-040° byd 30 NM blw 7000'

3.1.5.12 Instrument Approach Procedures

This grouping shall consist of the availability of ILS, LOC, LDA, and SDF, which are used, in an approved instrument approach procedure.

3.1.5.12.1 Procedure Type - ILS, ILS Y, ILS Z and LOC

The procedure type ILS, ILS Y, ILS Z and LOC shall be shown followed by the procedure components. ILS with DME shall be indicated as ILS/DME, LOC with DME shown as LOC/DME.

3.1.5.12.1.1 Localizer Frequency

3.1.5.12.1.2 Localizer Identification

3.1.5.12.1.3 DME Channel

3.1.5.12.1.3.1 DME Channel Numbers with a (Y) Suffix

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

3.1.5.12.1.4 Runway Identifier**3.1.5.12.1.5 ILS Facility Performance Classification Codes****3.1.5.12.1.6 Locator Outer Marker**

If the marker is designated a MARKER/COMLO or MARKER/NDB it will be shown as LOM NAME NDB.

The entire NDB data shall be listed separately, in the same manner as other NAVAIDS.

Pertinent remarks shall be shown, positioned on the same line.

Figure 3.76 Locator Outer Marker

ILS/DME 108.5 I-ORL CH 22 RWY 18 Class IIE LOM HENRY NDB

3.1.5.12.2 Simplified Directional Facility (SDF)

The procedure type Simplified Directional Facility will be shown by the abbreviation SDF followed by the procedure data.

3.1.5.12.2.1 Frequency**3.1.5.12.2.2 Identification****3.1.5.12.2.3 DME Channel****3.1.5.12.2.4 Runway Identifier****3.1.5.12.3 Airport Surveillance Radar (ASR) and Precision Approach Radar (PAR) Approaches**

The availability of Airport Surveillance Radar and Precision Approach Radar shall be shown by the abbreviations ASR and PAR respectively; e.g., **RADAR: ASR/PAR**.

- Part-time hours of operation will be shown, if available.
- Frequency data will not be shown.

Figure 3.77 ASR Example

ASR (Mon-Fri 1200-0400Z†, Sat-Sun 1300-2300Z†)

3.1.6 Airport Sketch

References:

Appendix 17 - Section 1: A/FD Directory Legend Sample

Appendix 18 - Section 1: A/FD Sketch Legend

3.1.6.1 General

A sketch of the airport providing a depiction of the runway pattern, taxiways and related cultural information enclosed within a border line and placed to the right of the textual information shall be positioned in the upper right corner of the airport entry under the chart references.

3.1.6.2 Scale

The scale of each sketch shall be that which provides detail required to be shown by these specifications.

3.1.6.3 Sketch Orientation

Sketches shall be oriented with True North at the top.

3.1.6.4 Plotting of Information

All information shall be plotted in its relative geographic position.

3.1.6.5 Bearings/Radials

All bearings/radials shall be magnetic and shall be depicted by a three (3) digit figure, e.g., 001, 012, 123.

3.1.6.6 Textual or Type Data

All textual or type data, unless otherwise stated, shall be positioned perpendicular to True North.

3.1.6.7 Identification and Data Notes

Identification and data notes shall be positioned adjacent to or as near to the symbol as possible except when such placement would result in the obliteration of other detail.

3.1.6.8 Leader Lines

Leader lines, with arrowheads, may be used when necessary for clarity of detail or to show the correct relationship between type and symbolization.

3.1.6.9 Placement of Type

The placement of type plays an important part in the overall acceptable design of an airport sketch. A definite sense of proportion, balance, and good presentation is essential in preparing a sketch that represents the ultimate in readability and user appeal. Therefore, rules and standards concerning type placement must by necessity be flexible.

3.1.6.10 Symbol Patterns

Symbol patterns specified within these specifications shall be as stated, or an equivalent symbol size and line weight.

3.1.6.11 Drag Strips

Drag strips or any other form of a strip in the proximity of the airport and falling within the coverage of the airport sketch shall be shown and identified.

3.1.6.12 Scale

All runways/landing areas shown shall be drawn to scale.

3.1.6.13 Runway Patterns**3.1.6.13.1 Paved and Hard Surfaced Runways**

Paved or hard surfaced runways consisting of concrete, asphalt, bitumen, or macadam shall be shown in solid pattern.

3.1.6.13.2 Metal Surfaced Runways

Metal surfaced runways shall be shown in solid color, by the cross-hatched pattern at right angles to each other and 45° to the edge of the runway as indicated in the appendix. A .005" line shall be use to form the runway boundary.

3.1.6.13.3 Unpaved or other than Hard Surface Runways

Unpaved or other than hard surface runways, such as grass, gravel, etc., shall be shown by the solid dot pattern indicated in the appendix and outlining the runway with a solid .005" line.

3.1.6.13.4 Permanently Closed Runways

Permanently closed, hard-surface runways shall be indicated by the outline only, using a .005" solid line, and an "X" overprinted on both ends of the runway. No data (dimensions, lighting systems, runway end designations etc.) will be shown for these runways.

3.1.6.13.5 Future Runways Under Construction

Future runways under construction shall be shown by outline only, using a .005" solid black dotted outline.

3.1.6.13.6 Area Around an Existing Operational Runway Under Construction

The area around an existing operational runway under construction shall be outlined using a .005" solid black dotted outline. Currently published runway data (dimensions, lighting systems, runway end designations etc.) will be shown for these runways.

3.1.6.13.7 Light Plane, Ski Landing Area, or Water Runways

Light Plane, Ski Landing Area, or Water runways shall be displayed using a .005" line, .05" dash, separated by a .02" space to outline the runway boundary.

3.1.6.13.8 Hard Surfaced Overruns, Stopways and Blast Pads

Only hard surfaced overruns, stopways and blast pads shall be shown, using 120L/15%.

3.1.6.14 Taxiways, Aprons, and Hardstands

Taxiways, aprons, and hardstands shall be drawn to scale using 120L/15%.

3.1.6.14.1 Dispersal Areas

Dispersal areas shall not be shown.

3.1.6.14.2 Closed Taxiways

Closed taxiways shall be identified by a series of "X"s (see legend for graphic portrayal) overprinting the taxiways using 4 to 7 point upper case type, solid color.

3.1.6.14.3 Future Taxiways Under Construction

Future taxiways under construction shall be shown by outline only, using a .005" solid black dotted outline.

3.1.6.14.4 Area Around an Existing Operational Taxiway Under Construction

The area around an existing operational taxiway under construction shall be outlined using a .005" solid black dotted outline. Currently published taxiway designations will be shown for these taxiways.

3.1.6.15 Runway Dimensions

Runway dimensions (length and width) shall be shown for all operational runways with the numerals positioned along and parallel to the runway using 6 point type.

Runway length shall be the actual published length of the runway (pavement, end to end) including displaced thresholds, but excluding overruns, stopways and blast pads.

3.1.6.15.1 Displaced Thresholds

Displaced thresholds shall be shown in their relative position on the runway by the symbol illustrated in the appendix

3.1.6.16 Runway Numbers

Runway numbers, as shown on the runway shall be placed as close as possible to the end of the associated runways.

Runway numbers shall not be shown for "new runways under construction" or closed runways.

3.1.6.17 Helicopter Alighting Area

Known helicopter alighting areas will be shown if they are in the database or by request. Helipad dimensions will not be shown.

The alighting area symbols on the chart shall be representative of the markings painted on the heliport. When unknown, the standard circle H symbol shall be used.

The intended landing point shall be shown by the appropriate alighting area symbol in negative print.

A paved surface with various alighting areas shall be treated the same as a runway surface, with the various alighting areas superimposed thereon, in solid color.

3.1.6.18 Approach Lighting Systems

Various approach lighting systems shall be shown symbolized in miniature.

The circled letters associated with and identifying the various systems shall also be shown.

The approach lighting system symbols and associated letter designation shall be positioned as illustrated in the appendices. A dot "•" portrayed with approach lighting indicates sequenced flashers are installed with the approach lights.

3.1.6.18.1 Threshold Lights

Threshold lights shall be indicated only when an integral part of the approach lighting symbol. They shall not be shown separately.

3.1.6.18.2 Airport Beacon (Rotating Light)

The Airport Beacon (rotating light) shall be symbolized by the five-pointed star with an open center, as shown in Appendix ?, positioned as near the proper location as possible.

3.1.6.18.3 Runway Centerline Lights

The centerline lights will be symbolized by a dotted line down the center of the runway. If directionality exists it will be noted on the runway end line of the airport entry.

3.1.6.18.4 Pilot Activated Airport Lighting Systems

Pilot capability to activate airport lighting systems, including beacons, shall be shown using negative symbols or type, as shown in the appendix.

3.1.6.18.5 USN Optical Landing System

U.S. Navy Optical Landing System shall be shown by the symbol indicated in the appendix, in its exact position alongside of the runway.

3.1.6.19 Control Tower

The location of the control tower shall be indicated by symbol as indicated in the appendix and positioned as near the proper location as possible, accompanied by the notation "TWR". If the rotating beacon is located on the tower, the rotating beacon symbol shall suffice for the tower symbol, supplemented by the letters "TWR". The elevation of the tower, when available, shall be shown.

3.1.6.20 Landing Direction Indicator

If a wind cone, landing tee, and/or tetrahedron is located on the sketch; they will be positioned as near the proper location as possible.

3.1.6.21 Obstructions

Obstructions, as specifically requested, shall be shown as lighted or unlighted. The obstruction shall be supported by the elevation data and symbolized as illustrated in the appendix.

3.1.6.21.1 Spot Elevations

Spot elevations shall not be shown.

3.1.6.22 Radio Aids to Navigation (NAVAIDs)

Radio aids to navigation that fall within the area of the airport sketch, except components of the ILS, shall be indicated by symbol as indicated in the appendix.

3.1.6.23 Base Information

Base information having significant landmark value that would assist the user in rapid airport identification shall be shown.

Significant visual landmark features shall be charted and symbolized as indicated in the appendix and IACC 2, Sectional Aeronautical and VFR Terminal Area Charts. Other symbology may be designed as needed.

3.1.6.23.1 Hydrography

Hydrography shall include such features of which water is a constituent part as shown in the appendices.

3.1.6.23.1.1 Lakes

The shoreline of lakes shall be that which corresponds to the normal water stage.

3.1.6.23.1.2 Reservoirs and Pools

The shoreline represents the water level at the normal stage.

3.1.6.23.1.3 Streams

Streams are shown by a single line or shape.

3.1.6.23.1.4 Aqueducts, Flumes and Conduits

Aqueducts, flumes, and conduits shall be shown as illustrated in Appendix ?.

3.1.6.23.1.5 Canals and Levees

Canals and levees shall be shown using a .04" line and labeled in .45 point type.

Multiple channels shall be shown with two (2) .04" lines and labeled in .45 point type.

3.1.6.23.2 Railroads, Roads and Related Features**3.1.6.23.2.1 Railroads****3.1.6.23.2.1.1 Single and Multiple Track Railroads**

A railroad consisting of one or more track(s) on an roadbed. They shall be shown using a .01" line. Crossties will be displayed by a .01" line, .01" long at .25" intervals.

3.1.6.23.2.1.2 Railroads Under Construction or Abandoned Railroads

They shall be labeled "Under Construction" or "Abandoned".

3.1.6.23.2.1.3 Marshalling and Storage Yards

Marshalling and Storage Yards shall be outlined to scale with a pattern of tracks shown.

3.1.6.23.2.2 Roads

They are all weather roads, hard surface and otherwise which have exceptional landmark value. They shall be shown with a .02" line.

3.1.6.23.2.2.1 Multi-Lane Highways

Multi-Lane Highways are highways that are separated by a median strip between the two directions of travel. They shall be shown with a .02" line, separated by a .012" space

3.1.6.23.2.3 Tunnels

Tunnels shall be shown on the appropriate railroad or road symbol using a .04" dash separated by a .02" space.

3.1.6.23.2.4 Bridges

Bridges shall be shown on the appropriate railroad or road symbol.

3.1.6.23.3 Residential Area

The term 'residential area' as used in these specifications shall be interpreted as a concentration of structures designed and built for human occupancy. Residential areas may vary in size and shall be shown textually as 'Residential Area'.

3.1.6.23.4 Built Up Areas**3.1.6.23.4.1 Industrial Area**

The term 'industrial area' as used in these specifications shall be interpreted as an area containing multiple buildings for the purpose of industrial development. Industrial areas may vary in size and shall be shown textually as 'Industrial Area'.

3.1.6.23.4.2 Mobile Home Parks

The term 'mobile home park' as used in these specifications shall be interpreted as a neighborhood consisting of an area of land where travel trailers rest. Mobile home areas may vary in size and shall be shown textually as 'Mobile Home Area'.

3.1.6.23.4.3 Areas of Landmark Value

Areas of landmark value such as cemeteries, parks, campgrounds, baseball fields, soccer fields, football fields, tennis courts and golf courses shall be shown textually in their approximate locations.

3.1.6.23.4.4 Buildings

All buildings located within the airport sketch boundary shall be shown to scale in the approximate location. Sketches should not be cluttered with buildings which have no landmark value. Exercise good cartographic judgment when evaluating building placement.

3.1.6.23.5 Relief Features

Relief features, such as hills, ditches, cliffs, depressions, cuts, fills, strip mines, mine dumps and tailings, shall be portrayed symbolically as shown in Appendix ?. Open pit mines and quarries shall be portrayed symbolically and labeled as illustrated in Appendix ?

3.1.6.23.5.1 Hachuring

Hachuring shall be used to portray (1) great difference (not gradual slopes) between airport and surrounding terrain, i.e., peaks, ridges, hills, etc. and (2) relief which falls in the category of obstructions. Hachuring depicted in the legend will be defined as a hill and shall be shown as illustrated in Appendix?

3.1.6.23.6 Vegetation

Trees shall be shown as illustrated in Appendix ?. If they create an obstruction, the tree symbol will be used. Sketches should not be cluttered with the tree symbol. Wooded areas should be shown by the use of multiple tree symbol scattered within the area. Exercise good cartographic judgment when evaluating tree placement.

3.1.6.23.7 Swamps

Swamp shall be shown as illustrated in Appendix ?. Sketches should not be cluttered with the swamp symbol. Swamp areas should be shown by the use of multiple swamp symbols scattered within the area. Exercise good cartographic judgment when evaluating swamp placement.

3.1.6.23.8 Miscellaneous Cultural Features

If the feature creates an obstruction or if it used as a landmark it will be shown.

3.1.6.23.8.1 Power Lines and High Tension Lines

Power Lines and High Tension Lines shall be shown as illustrated in Appendix ?.

3.1.6.23.8.2 Dams

Dams shall be plotted to scale using a solid line and labeled.

3.1.6.23.8.3 Race Tracks

Race Tracks shall be plotted to scale using a solid line for the outline.

3.1.6.23.8.4 Stadiums

Stadiums shall be plotted to scale using a solid line for the outline.

3.1.6.23.8.5 Outdoor Theaters

Outdoor Theaters shall be shown in their approximate location as illustrated in Appendix ?

3.1.6.23.8.6 Towers, Tanks, Oil Wells and Smoke Stacks

Towers, Tanks, Oil Wells and Smoke Stacks shall be positioned as near the proper location as possible.

3.1.6.23.8.7 Fences

Fences shall be positioned as near the proper location as possible. Only fences outside the movement area will be shown.

3.2 BACK MATTER CONTENT

3.2.1 Section 3 - Notices

Notices contained within this section shall pertain to and consist of information of operational value to the pilot. Information pertaining to air traffic control procedures; noise abatement procedures; special cautionary notes; permanent restrictions to radio aids to navigation; etc., are representative of the type of notice to be carried.

3.2.1.1 **Aeronautical Chart Bulletin**

Chart bulletins will provide a listing of the major changes in aeronautical information that have occurred since the last publication date of the Sectional, Terminal Area, Helicopter, IFR Gulf of Mexico and US Gulf Coast VFR Charts. World Aeronautical Charts will also be listed when requested by the originating office.

The general policy will be to include major changes to obstructions; airports; radio navigation facilities; airspace and special-use airspace that present a hazardous condition or impose a restriction on the pilot; military training routes; and miscellaneous chart changes, thereby providing the VFR pilot with essential data necessary to update and maintain chart currency.

The corrective notice shall be removed from this bulletin upon publication of the next edition of the chart.

3.2.1.1.1 **Military Training Routes**

Military Training Routes - shall indicate the routes by identifier that have been deleted, revised or added. The nature of the changes will not be shown.

3.2.1.1.2 **Chart Coverage**

Only those charts that fall within the volume coverage will be listed.

3.2.1.1.3 **Introduction/Explanation Paragraph**

An introductory/explanation paragraph shall precede the listing.

3.2.1.1.4 **New Data**

New data that has been added to the current issue shall be listed after the effective date as illustrated in [Appendix 20](#) - Aeronautical Chart Bulletin.

3.2.1.2 **General Notices**

Notices of a general nature of universal application and other than for a specific geographical location shall be appropriately grouped together as a unit under the heading of "General Notices." as illustrated in Appendix?.

3.2.1.3 **Area Notices**

Notices pertinent to a specific geographical area shall be appropriately grouped and organized together as a unit under the heading of "Area Notice." Area Notices shall be grouped alphabetically by area, then by city, airport or location within an area as illustrated in Appendix?.

An introductory/explanation paragraph shall be shown at the top of the first page of the Regulatory Notice listing.

3.2.1.4 Regulatory Notices

New or revised Rules, Parts, Advisory Circulars, Special Procedures and other regulatory matters of operational interest to the pilot shall be published collectively under the heading as illustrated in Appendix xx.

3.2.2 Section 4 - Associated Data

Associated data, such as contact information, reference data, parachute jump areas, etc. (text, tabulated and/or graphic) will appear in this section.

3.2.2.1 VOR Receiver Checkpoints & VOTs

When required, Associated Data entries will be preceded by a brief write-up describing its use and/or service.

Only items applicable to each chart supplement will be shown.

3.2.2.2 ICAO International Phonetic Alphabet/Morse Code

ICAO International Phonetic Alphabet/Morse Code listing will be shown as illustrated in Appendix ? The ICAO International Phonetic Alphabet; numbers One (1) through Zero (0) inclusive, with the associated pronunciation; and Morse Code, shall be shown as the next entry.

3.2.2.3 List of Abbreviations**3.2.2.4 Frequency Pairings****3.2.2.5 FAA and NWS Informational Postings?**

FAA And NWS shall be provided in this section to assist the pilot in obtaining various operational information on conditions of facilities/airports, filing and closing flight plans and various weather data as illustrated in Appendix ? – Appendix ?

3.2.3 Section 5 - Procedures**3.2.4 Section 6 - Emergency Procedures****3.2.5 Section 7 - Airport Diagrams - U.S. and AK****3.2.6 Section 7 - Terminal Procedures - PAC**

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