

GENERAL INFORMATION

This Airport/Facility Directory is a Civil Flight Information Publication published and distributed every eight weeks by the National Aeronautical Charting Office, FAA, Department of Transportation, Silver Spring, Maryland 20910. It is designed for use with Aeronautical Charts covering the conterminous United States, Puerto Rico and the Virgin Islands.

This directory contains all open to the public airports, seaplane bases and heliports, military facilities, and selected private use facilities specifically requested by the Department of Defense (DoD) for which a DoD Instrument Approach Procedure has been published in the U.S. Terminal Procedures Publication. Additionally, this directory contains communications data, navigational facilities and certain special notices and procedures.

Military data contained within this publication is provided by the National Geospatial-Intelligence Agency and is intended to provide reference data for military and/or joint civil/military airports. Not all military data contained in this publication is applicable to civil users.

CORRECTIONS, COMMENTS, AND/OR PROCUREMENT

CRITICAL information such as equipment malfunction, abnormal field conditions, hazards to flight, etc., should be reported as soon as possible to the nearest FAA facility, either in person or by reverse charge telephone call.

FOR AIRPORT SUPPLEMENT REVISIONS FORM VISIT WEB SITE: <http://nfdc.faa.gov/portal/airportchanges.do>

FAA, Aeronautical Information Services, ATO-R, Rm. 626
800 Independence Ave., SW
Washington, DC 20591
Telephone 1-866-295-8236
Fax 202-267-5322
Email 9-ATOR-HQ-AIS-AIRPORTCHANGES@FAA.GOV

NOTICE: Changes must be received by the Aeronautical Information Services as soon as possible but not later than the "cut-off" dates listed below to assure publication on the desired effective date.

Effective Date	Airport Information	Airspace Information*
	Cut-off date	Cut-off date
5 Jun 08	23 Apr 08	3 Apr 08
31 Jul 08	18 Jun 08	29 May 08
25 Sep 08	13 Aug 08	24 Jul 08
20 Nov 08	8 Oct 08	18 Sep 08
15 Jan 09	3 Dec 08	13 Nov 08
12 Mar 09	28 Jan 09	8 Jan 09

*Including changes to preferred routes and graphic depictions on charts.

FOR CHARTING ERRORS CONTACT:

FAA, National Aeronautical Charting Office, ATO-W
SSMC-4 Sta. #2335
1305 East West Highway
Silver Spring, MD 20910-3281
Telephone 1-800-626-3677
Email 9-AMC-Aerochart@faa.gov

Frequently asked questions (FAQs) are answered on our web site at www.naco.faa.gov. See the FAQs prior to contact via toll free number.

FOR PROCUREMENT CONTACT:

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10201 Good Luck Road
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Online at www.naco.faa.gov
Email 9-AMC-Chartsales@faa.gov
Telephone 1-800-638-8972
Fax 301-436-6829
or any authorized FAA Chart Agent

New or Changed Information—To alert users of new information or changes to information from the previous issue, a vertical line will be portrayed in the outside margin and extending the full length of the new and/or revised data. This will not apply to the front cover or the airport/facility directory listing.

This Airport/Facility Directory comprises part of the following sections of the United States Aeronautical Information Publication (AIP): GEN, ENR and AD.

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ABBREVIATIONS

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

AAF	Army Air Field	blo	below
AB	Airbase	byd	beyond
abv	above	C	Commercial Circuit (Telephone)
ACC	Air Combat Command; Area Control Center	CGAF	Coast Guard Air Facility
acft	aircraft	CGAS	Coast Guard Air Station
ADCC	Air Defense Control Center	CIV	Civil
AER	approach end rwy	clsd	closed
AFB	Air Force Base	comd	command
AFCC	Air Force Communications Command	CONUS	Continental United States
AFHP	Air Force Heliport	CSTMS	Customs
afld	airfield	ctc	contact
AFOD	US Army Flight Operations Detachment	ctl	control
AFRC	Armed Forces Reserve Center/Air Force Reserve Command	dalgt	daylight
AFSS	Automated Flight Service Station	Dec	December
AG	Agriculture	DIAP	DoD Instrument Approach Procedure
A-GEAR	Arresting Gear	DoD	Department of Defense
AGL	above ground level	DSN	Defense Switching Network (Telephone)
AHP	Army heliport	dsplcd	displaced
ALS	Approach Light System	durn	duration
alt	altitude	eff	effective
AMC	Air Mobility Command	emerg	emergency
ANGS	Air National Guard Station	EOR	End of Runway
apch	approach	ETA	Estimated Time of Arrival
APR	April	ETD	Estimated Time of Departure
APU	Auxiliary Power Unit	exc	except
ARB	Air Reserve Base	extd	extend
arpt	airport	FBO	fixed-base operator
ARS	Air Reserve Station	Feb	February
AS	Air Station	fld	field
ASDE-X	Airport Surface Detection Equipment—Model X	FLIP	Flight Information Publication
ASU	Aircraft Starting Unit	fit	flight
ATC	Air Traffic Control	flw	follow
Aug	August	Fri	Friday
AUW	All Up Weight (gross weight)	FSS	Flight Service Station
avbl	available	GA	glide angle
bcn	beacon	GCA	Ground Controlled Approach
		GS	glide slope
		haz	hazard
		HQ	Headquarters

CONTINUED ON NEXT PAGE

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hr	hour	npi	non precision instrument
IAP	Instrument Approach Procedure	NS ABTMT	Noise Abatement
ICAO	International Civil Aviation Organization	NSTD	nonstandard
IFR	Instrument Flight Rules	ntc	notice
ILS	Instrument Landing System	obsn	observation
IM	Inner Marker	Oct	October
IMG	Immigration	OLF	Outlying Field
incr	increase	opr	operate, operator, operational
indef	indefinite	ops	operations
ints	intensity	OTS	out of service
invof	in the vicinity of	ovrn	overrun
IMC	Instrument Meteorological Conditions	PAEW	personnel and equipment working
Jan	January	pat	pattern
JASU	Jet Aircraft Starting Unit	p-line	power line
JOAP	Joint Oil Analysis Program	PMSV	Pilot-to-Metro Service
JOSAC	Joint Operational Support Airlift Center	POL	Petrol, Oils and Lubricants
JRB	Joint Reserve Base	PPR	prior permission required
Jul	July	PRM	Precision Runway Monitoring
Jun	June	PTD	Pilot to Dispatcher
Kt	Knots	RAMCC	Regional Air Movement Control Center
LAA	Local Airport Advisory	req	request
LAHSO	Land and Hold Short Operations	rgt tfc	right traffic
lbs	pounds	RON	Remain Overnight
ldg	landing	rqr	require
lgt	lighted	rstd	restricted
lgts	lights	RSRS	reduced same runway separation
LMM	Compass locator at Middle Marker ILS	rwy	runway
LOC	Localizer	Sat	Saturday
LOM	Compass locator at Outer Marker ILS	SELF	Strategic Expeditionary Landing Field
ltd	limited	Sep	September
MACC	Military Area Control Center	SFA	Single Frequency Approach
Mar	March	sfc	surface
MCAF	Marine Corps Air Facility	SOAP	Spectrometric Oil Analysis Program
MCALF	Marine Corps Auxiliary Landing Field	SOF	Supervisor of Flying
MCAS	Marine Corps Air Station	SPB	Seaplane Base
MCB	Marine Corps Base	SR	sunrise
med	medium	SS	sunset
METRO	Pilot-to-Metro voice call	std	standard
Mil	military	Sun	Sunday
min	minute	svc	service
MLS	Microwave Landing System	tfc	traffic
MM	Middle Marker of ILS	thld	threshold
Mon	Monday	Thu	Thursday
MP	Maintenance Period	tkf	take-off
MSL	mean sea level	tmpry	temporary
MSAW	minimum safe altitude warning	tran	transient
NAAS	Naval Auxiliary Air Station	Tue	Tuesday
NADC	Naval Air Development Center	twr	tower
NADEP	Naval Air Engineering Center	twy	taxiway
NAEC	Naval Air Engineering Center	USA	United States Army
NAES	Naval Air Engineering Station	USAF	United States Air Force
NAF	Naval Air Facility	USCG	United States Coast Guard
NALCO	Naval Air Logistics Control Office	USN	United States Navy
NALO	Navy Air Logistics Office	V	Defense Switching Network (telephone, formerly AUTOVON)
NALF	Naval Auxiliary Landing Field	VFR	Visual Flight Rules
NAS	Naval Air Station	VIP	Very Important Person
NAWC	Naval Air Warfare Center	VMC	Visual Meteorological Conditions
NAWS	Naval Air Weapons Station	Wed	Wednesday
ngt	night	wx	weather
NOLF	Naval Outlying Field		
Nov	November		

DIRECTORY LEGEND

SAMPLE



CITY NAME
AIRPORT NAME (ALTERNATE NAME) (LTS) (KLTS) CIV/MIL 3 N UTC-6(-5DT) N34°41.93' W99°20.20' JACKSONVILLE
 200 B S4 FUEL 100, JET A OX 1, 2, 3 TPA-1000(800) AOE ARFF Index A Not insp. COPTER
 H-4G, L-19C IAP, DIAP, AD

- ⑩ → RWY 18-36: H12004X200 (ASPH-CONC-GRVD)
 S-90, D-160, DT-300 PCN 80 R/B/W/T HIRL CL
 RWY 18: LDIN. MALSF. TDZL. REIL. PAPI(P2R)—GA 3.0° TCH 36'.
 Thld displd 300'. Trees. Rgt tfc. 0.3% up.
 RWY 36: ALSF1. 0.4% down.
 RWY 09-27: H6000X150 (ASPH) MIRL
 RWY 173-353: H3515X150 (ASPH-PFC) AUV PCN 59 F/A/W/T

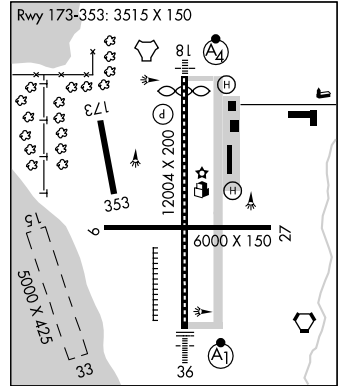
LAND AND HOLD SHORT OPERATIONS

LANDING	HOLD SHORT	POINT	DIST	AVBL
RWY 18	09-27		6500	
RWY 36	09-27		5400	

RUNWAY DECLARED DISTANCE INFORMATION

RWY 18:	TORA-12004	TODA-12704	ASDA-11704	LDA-11504
RWY 36:	TORA-12004	TODA-12004	ASDA-12004	LDA-11704

- ⑪ → **ARRESTING GEAR/SYSTEM**
 RWY 18 → HOOK E5 (65' OVRN) BAK-14 BAK-12B (1650')
 BAK-14 BAK-12 (B) (1087') HOOK E5 (74' OVRN) ← RWY 36
- ⑫ → **MILITARY SERVICE: A-GEAR E-5** connected on dep end, disconnected on apch end. JASU 3(AM32A-60) 2(A/M32A-86)



- ⑬ → **FUEL** J8(Mil) (NC-100, A) FLUID W SP PRESAIR LOX ← ⑮
- ⑭ → OIL O-128 TRAN ALERT Avbl 1300-0200Z±, svc limited weekends.

- ⑯ → **AIRPORT REMARKS:** Special Air Traffic Rules—Part 93, see Regulatory Notices. Attended 1200-0300Z±. Parachute Jumping. Deer invof arpt. Heavy jumbo jet training surface to 9000'. Twy A clsd indef. Flight Notification Service (ADCUS) avbl.
- ⑰ → **MILITARY REMARKS:** ANG PPR/Official Business Only. Base OPS DSN 638-4390, C503-335-4222. Ctc Base OPS 15 minutes prior to ldg and after dep. Limited tran parking.
- ⑱ → **WEATHER DATA SOURCES:** AWOS-1 120.3 (202) 426-8000. LLWAS.
- ⑲ → **COMMUNICATIONS:** SFA ATIS 127.25 273.5 (202) 426-8003 UNICOM 122.95 PTD 372.2
 NAME FSS (ORL) on arpt. 123.65 122.65 122.2. TF 1-800-WX-BRIEF. NOTAM FILE ORL. ← ⑳
- ⑳ → NAME RCO 112.2T 112.1R (NAME FSS)
- ㉑ → NAME APP/DEP CON 128.35 257.725 (1200-0400Z±)
 TOWER 119.65 255.6 (1200-0400Z±) GND CON 121.7 GCO 135.075 (ORLANDO CLNC) CLNC DEL 125.55
 NAME COMD POST (GERONIMO) 311.0 321.4 6761 PMSV METRO 239.8 NAME OPS 257.5

- ㉒ → **AIRSPACE:** CLASS B See VFR Terminal Area Chart.
- ㉓ → **RADIO AIDS TO NAVIGATION:** NOTAM FILE ORL. VHF/DF ctc FSS.
 (H) VORTAC 112.2 MCO Chan 59 N28°32.55' W81°20.12' at fld. 1110/8E.
 (H) TACAN Chan 29 CBU (109.2) N28°32.65' W81°21.12' at fld. 1115/8E.
 HERNY NDB (LOM) 221 OR N28°37.40' W81°21.05' 177° 5.4 NM to fld.
 ILS/DME 108.5 I-ORL Chan 22 Rwy 18. Class IIE. LOM HERNY NDB.
 ASR/PAR (1200-0400Z±)

- ㉔ → **COMM/NAV/WEATHER REMARKS:** Emerg frequency 121.5 not avbl at twr.
 • • • • •
 HELIPAD H1: H100X75 (ASPH)
 HELIPAD H2: H60X60 (ASPH)
 HELIPORT REMARKS: Helipad H1 lctd on general aviation side and H2 lctd on air carrier side of arpt.
 • • • • •
 187 TPA 1000(813)
 WATERWAY 15-33: 5000X425 (WATER)
 SEAPLANE REMARKS: Birds roosting and feeding areas along river banks. Seaplanes operating adjacent to SW side of arpt not visible from twr and are required to ctc twr.

All bearings and radials are magnetic unless otherwise specified.
 All mileages are nautical unless otherwise noted.
 All times are Coordinated Universal Time (UTC) except as noted.
 All elevations are in feet above/below Mean Sea Level (MSL) unless otherwise noted.
 The horizontal reference datum of this publication is North American Datum of 1983 (NAD83), which for charting purposes is considered equivalent to World Geodetic System 1984 (WGS 84).

10

SKETCH LEGEND

RUNWAYS/LANDING AREAS

- Hard Surfaced
- Metal Surface
- Sod, Gravel, etc.
- Light Plane,
- Ski Landing Area or Water Under Construction
- Closed
- Helicopter Landings Area
- Displaced Threshold
- Taxiway, Apron and Stopways

RADIO AIDS TO NAVIGATION

- VORTAC
- VOR
- VOR/DME
- NDB
- TACAN
- NDB/DME

MISCELLANEOUS AERONAUTICAL FEATURES

- Airport Beacon
- Wind Cone
- Landing Tee
- Tetrahedron
- Control Tower

MISCELLANEOUS BASE AND CULTURAL FEATURES

- Buildings
- Power Lines
- Fence
- Towers
- Tanks
- Oil Well
- Smoke Stack
- Obstruction
- Controlling Obstruction
- Trees
- Populated Places
- Cuts and Fills
- Cliffs and Depressions
- Ditch
- Hill

APPROACH LIGHTING SYSTEMS

A dot "•" portrayed with approach lighting letter identifier indicates sequenced flashing lights (F) installed with the approach lighting system e.g. (A1) Negative symbology, e.g., (A1) (V) indicates Pilot Controlled Lighting (PCL).

- Runway Centerline Lighting
- (A) Approach Lighting System ALSF-2
- (A1) Approach Lighting System ALSF-1
- (A2) Short Approach Lighting System SALS/SALSF
- (A3) Simplified Short Approach Lighting System (SSALR) with RAIL
- (A4) Medium Intensity Approach Lighting System (MALS and MALSF)/(SSALS and SSALF)
- (A5) Medium Intensity Approach Lighting System (MALS) and RAIL
- (V) Omnidirectional Approach Lighting System (ODALS)
- (D) Navy Parallel Row and Cross Bar
- (F) Air Force Overrun
- (V) Visual Approach Slope Indicator with Standard Threshold Clearance provided
- (V2) Pulsating Visual Approach Slope Indicator (PVASI)
- (V3) Visual Approach Slope Indicator with a threshold crossing height to accommodate long bodied or jumbo aircraft
- (V4) Tri-color Visual Approach Slope Indicator (TRCV)
- (V5) Approach Path Alignment Panel (APAP)
- (P) Precision Approach Path Indicator (PAPI)

LEGEND

This directory is a listing of data on record with the FAA on all open to the public airports, military facilities and selected private use facilities specifically requested by the Department of Defense (DoD) for which a DoD Instrument Approach Procedure has been published in the U.S. Terminal Procedures Publication. Additionally this listing contains data for associated terminal control facilities, air route traffic control centers, and radio aids to navigation within the conterminous United States, Puerto Rico and the Virgin Islands. Joint civil/military and civil airports are listed alphabetically by state, associated city and airport name and cross-referenced by airport name. Military facilities are listed alphabetically by state and official airport name and cross-referenced by associated city name. Nav aids, flight service stations and remote communication outlets that are associated with an airport, but with a different name, are listed alphabetically under their own name, as well as under the airport with which they are associated.

The listing of an open to the public airport in this directory merely indicates the airport operator's willingness to accommodate transient aircraft, and does not represent that the facility conforms with any Federal or local standards, or that it has been approved for use on the part of the general public. Military and private use facilities published in this directory are open to civil pilots only in an emergency or with prior permission. See Special Notice Section, Civil Use of Military Fields.

The information on obstructions is taken from reports submitted to the FAA. Obstruction data has not been verified in all cases. Pilots are cautioned that objects not indicated in this tabulation (or on the airports sketches and/or charts) may exist which can create a hazard to flight operation. Detailed specifics concerning services and facilities tabulated within this directory are contained in the Aeronautical Information Manual, Basic Flight Information and ATC Procedures.

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

① CITY/AIRPORT NAME

Civil and joint civil/military airports and facilities in this directory are listed alphabetically by state and associated city. Where the city name is different from the airport name the city name will appear on the line above the airport name. Airports with the same associated city name will be listed alphabetically by airport name and will be separated by a dashed rule line. A solid rule line will separate all others. FAA approved helipads and seaplane landing areas associated with a land airport will be separated by a dotted line. Military airports are listed alphabetically by state and official airport name.

② ALTERNATE NAME

Alternate names, if any, will be shown in parentheses.

③ LOCATION IDENTIFIER

The location identifier is a three or four character FAA code followed by a four-character ICAO code assigned to airports. ICAO codes will only be published at joint civil/military, and military facilities. If two different military codes are assigned, both codes will be shown with the primary operating agency's code listed first. These identifiers are used by ATC in lieu of the airport name in flight plans, flight strips and other written records and computer operations. Zeros will appear with a slash to differentiate them from the letter "O".

④ OPERATING AGENCY

Airports within this directory are classified into two categories, Military/Federal Government and Civil airports open to the general public, plus selected private use airports. The operating agency is shown for military, private use and joint civil/military airports. The operating agency is shown by an abbreviation as listed below. When an organization is a tenant, the abbreviation is enclosed in parenthesis. No classification indicates the airport is open to the general public with no military tenant.

A	US Army	MC	Marine Corps
AFRC	Air Force Reserve Command	N	Navy
AF	US Air Force	NAF	Naval Air Facility
ANG	Air National Guard	NAS	Naval Air Station
AR	US Army Reserve	NASA	National Air and Space Administration
ARRG	US Army National Guard	P	US Civil Airport Wherein Permit Covers Use by Transient Military Aircraft
CG	US Coast Guard	PVT	Private Use Only (Closed to the Public)
CIV/MIL	Joint Use Civil/Military		
DND	Department of National Defense Canada		

⑤ AIRPORT LOCATION

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

⑥ TIME CONVERSION

Hours of operation of all facilities are expressed in Coordinated Universal Time (UTC) and shown as "Z" time. The directory indicates the number of hours to be subtracted from UTC to obtain local standard time and local daylight saving time UTC-5(-4DT). The symbol ‡ indicates that during periods of Daylight Saving Time effective hours will be one hour earlier than shown. In those areas where daylight saving time is not observed the (-4DT) and ‡ will not be shown. Daylight saving time is in effect from 0200 local time the second Sunday in March to 0200 local time the first Sunday in November. Canada and all U.S. Conterminous States observe daylight saving time except Arizona and Puerto Rico, and the Virgin Islands. If the state observes daylight saving time and the operating times are other than daylight saving times, the operating hours will include the dates, times and no ‡ symbol will be shown, i.e., April 15-Aug 31 0630-1700Z, Sep 1-Apr 14 0600-1700Z.

7 GEOGRAPHIC POSITION OF AIRPORT—AIRPORT REFERENCE POINT (ARP)

Positions are shown as hemisphere, degrees, minutes and hundredths of a minute and represent the approximate geometric center of all usable runway surfaces.

8 CHARTS

Charts refer to the Sectional Chart and Low and High Altitude Enroute Chart and panel on which the airport or facility is located. Helicopter Chart locations will be indicated as COPTER.

9 INSTRUMENT APPROACH PROCEDURES, AIRPORT DIAGRAM

IAP indicates an airport for which a prescribed (Public Use) FAA Instrument Approach Procedure has been published. DIAP indicates an airport for which a prescribed DoD Instrument Approach Procedure has been published in the U.S. Terminal Procedures. See the Special Notice Section of this directory, Civil Use of Military Fields and the Aeronautical Information Manual 5-4-5 Instrument Approach Procedure Charts for additional information. AD indicates an airport for which an airport diagram has been published. Airport diagrams are located in the back of each A/FD volume alphabetically by associated city and airport name.

10 AIRPORT SKETCH

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

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.

12 ROTATING LIGHT BEACON

B indicates rotating beacon is available. Rotating beacons operate sunset to sunrise unless otherwise indicated in the AIRPORT REMARKS or MILITARY REMARKS segment of the airport entry.

13 SERVICING—CIVIL

- | | |
|--|--|
| 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. |

14 FUEL

CODE	FUEL	CODE	FUEL
80	Grade 80 gasoline (Red)	B+	Jet B, Wide-cut, turbine fuel with FS-II*, FP** minus 50° C.
100	Grade 100 gasoline (Green)	J4 (JP4)	(JP-4 military specification) FP** minus 58° C.
100LL	100LL gasoline (low lead) (Blue)	J5 (JP5)	(JP-5 military specification) Kerosene with FS-11, FP** minus 46° C.
115	Grade 115 gasoline (115/145 military specification) (Purple)	J8 (JP8)	(JP-8 military specification) Jet A-1, Kerosene with FS-II*, FP** minus 47° C.
A	Jet A, Kerosene, without FS-II*, 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+	Jet A, Kerosene, with FS-II*, FP** minus 40° C.	J	(Jet Fuel Type Unknown)
A1	Jet A-1, Kerosene, without FS-II*, FP** minus 47° C.	MOGAS	Automobile gasoline which is to be used as aircraft fuel.
A1+	Jet A-1, Kerosene with FS-II*, FP** minus 47° C.		
B	Jet B, Wide-cut, turbine fuel without FS-II*, FP** minus 50° C.		

*(Fuel System Icing Inhibitor)

** (Freeze Point)

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

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

15 OXYGEN—CIVIL

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

16 TRAFFIC PATTERN ALTITUDE

Traffic Pattern Altitude (TPA)—The first figure shown is TPA above mean sea level. The second figure in parentheses is TPA above airport elevation. Multiple TPA shall be shown as "TPA—See Remarks" and detailed information shall be shown in the Airport or Military Remarks Section. Traffic pattern data for USAF bases, USN facilities, and U.S. Army airports (including those on which ACC or U.S. Army is a tenant) that deviate from standard pattern altitudes shall be shown in Military Remarks.

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

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

AOE—Airport of Entry. A customs Airport of Entry where permission from U.S. Customs is not required to land. However, at least one hour advance notice of arrival is required.

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

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

US Customs Air and Sea Ports, Inspectors and Agents

Northeast Sector (New England and Atlantic States—ME to MD) 407-975-1740

Southeast Sector (Atlantic States—DC, WV, VA to FL) 407-975-1780

Central Sector (Interior of the US, including Gulf states—MS, AL, LA) 407-975-1760

Southwest East Sector (OK and eastern TX) 407-975-1840

Southwest West Sector (Western TX, NM and AZ) 407-975-1820

Pacific Sector (WA, OR, CA, HI and AK) 407-975-1800

18 CERTIFICATED AIRPORT (14 CFR PART 139)

Airports serving Department of Transportation certified carriers and certified under 14 CFR part 139 are indicated by the Class and the ARFF Index; e.g. Class I, ARFF Index A, which relates to the availability of crash, fire, rescue equipment. Class I airports can have an ARFF Index A through E, depending on the aircraft length and scheduled departures. Class II, III, and IV will always carry an Index A.

14 CFR PART 139 CERTIFICATED AIRPORTS AIRPORT CLASSIFICATIONS

Type of Air Carrier Operation	Class I	Class II	Class III	Class IV
Scheduled Air Carrier Aircraft with 31 or more passenger seats	X			
Unscheduled Air Carrier Aircraft with 31 or more passengers seats	X	X		X
Scheduled Air Carrier Aircraft with 10 to 30 passenger seats	X	X	X	

14 CFR—PART 139 CERTIFICATED AIRPORTS

INDICES AND AIRCRAFT RESCUE AND FIRE FIGHTING EQUIPMENT REQUIREMENTS

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

> Greater Than; < Less Than; ≥ Equal or Greater Than; ≤ Equal or Less Than; H₂O—Water; DC—Dry Chemical.

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

19 FAA INSPECTION

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

20 RUNWAY DATA

Runway information is shown on two lines. That information common to the entire runway is shown on the first line while information concerning the runway ends is shown on the second or following line. Runway direction, surface, length, width, weight bearing capacity, lighting, and slope, when available are shown for each runway. Multiple runways are shown with the longest runway first. Direction, length, width, and lighting are shown for sea-lanes. The full dimensions of helipads are shown, e.g., 50X150. Runway data that requires clarification will be placed in the remarks section.

RUNWAY DESIGNATION

Runways are normally numbered in relation to their magnetic orientation rounded off to the nearest 10 degrees. Parallel runways can be designated L (left)/R (right)/C (center). Runways may be designated as STOL, Ultralight, or assault strips. Assault strips are shown by magnetic bearing.

RUNWAY DIMENSIONS

Runway length and width are shown in feet. Length shown is runway end to end including displaced thresholds, but excluding those areas designed as overruns.

RUNWAY SURFACE AND LENGTH

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

(AFSC)—Aggregate friction seal coat	(GRVL)—Gravel, or cinders	(PSP)—Pierced steel plank
(ASPH)—Asphalt	(MATS)—Pierced steel planking, landing mats, membranes	(RFSC)—Rubberized friction seal coat
(CONC)—Concrete	(PEM)—Part concrete, part asphalt	(TURF)—Turf
(DIRT)—Dirt	(PFC)—Porous friction courses	(TRTD)—Treated
(GRVD)—Grooved		(WC)—Wire combed

RUNWAY WEIGHT BEARING CAPACITY

Runway strength data shown in this publication is derived from available information and is a realistic estimate of capability at an average level of activity. It is not intended as a maximum allowable weight or as an operating limitation. Many airport pavements are capable of supporting limited operations with gross weights in excess of the published figures. Permissible operating weights, insofar as runway strengths are concerned, are a matter of agreement between the owner and user. When desiring to operate into any airport at weights in excess of those published in the publication, users should contact the airport management for permission. Runway strength figures are shown in thousand of pounds, with the last three figures being omitted. Add 000 to figure following S, D, DT, DDT, AUW, SWL, etc., for gross weight capacity. A blank space following the letter designator is used to indicate the runway can sustain aircraft with this type landing gear, although definite runway weight bearing capacity figures are not available, e.g., S, D. Applicable codes are:

- S—Single-wheel type landing gear. (DC-3), (C-47), (F-15), etc.
- D—Dual-wheel type landing gear. (DC-6), etc.
- T—Twin-wheel type landing gear. (DC-6), (C-9A), etc.
- ST—Single-tandem type landing gear. (C-130).
- SBBT—Single-belly twin tandem landing gear (KC-10).
- DT—Dual-tandem type landing gear, (707), etc.
- TT—Twin-tandem type (includes quadricycle) landing gear (707), (B-52), (C-135), etc.
- TRT—Triple-tandem type landing gear, (C-17)
- DDT—Double dual-tandem landing gear. (E4A/747).
- TDT—Twin delta-tandem landing gear. (C-5, Concorde).
- TTT—Twin-triple tandem type landing gear (777), etc.
- AUW—All up weight. Maximum weight bearing capacity for any aircraft irrespective of landing gear configuration.
- SWL—Single Wheel Loading. (This includes information submitted in terms of Equivalent Single Wheel Loading (ESWL) and Single Isolated Wheel Loading).
- PSI—Pounds per square inch. PSI is the actual figure expressing maximum pounds per square inch runway will support, e.g., (SWL 000/PSI 535).

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

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

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

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

RUNWAY LIGHTING

Lights are in operation sunset to sunrise. Lighting available by prior arrangement only or operating part of the night and/or pilot controlled lighting with specific operating hours are indicated under airport or military remarks. At USN/USMC facilities lights are available only during airport hours of operation. Since obstructions are usually lighted, obstruction lighting is not included in this code. Unlighted obstructions on or surrounding an airport will be noted in airport or military remarks. Runway lights nonstandard (NSTD) are systems for which the light fixtures are not FAA approved L-800 series: color, intensity, or spacing does not meet FAA standards. Nonstandard runway lights, VASI, or any other system not listed below will be shown in airport remarks or military service. Temporary, emergency or limited runway edge lighting such as flares, smudge pots, lanterns or portable runway lights will also be shown in airport remarks or military service. Types of lighting are shown with the runway or runway end they serve.

NSTD—Light system fails to meet FAA standards.

LIRL—Low Intensity Runway Lights.

MIRL—Medium Intensity Runway Lights.

HIRL—High Intensity Runway Lights.

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.

LDIN—Lead-In 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.

NOTE: Civil ALSF2 may be operated as SSALR during favorable weather conditions. When runway edge lights are positioned more than 10 feet from the edge of the usable runway surface a remark will be added in the "Remarks" portion of the airport entry. This is applicable to Air Force, Air National Guard and Air Force Reserve Bases, and those joint civil/military airfields on which they are tenants.

SALS—Short Approach Lighting System.

SALSF—Short Approach Lighting System with Sequenced Flashing Lights.

SSALS—Simplified Short Approach 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.

ALSF1—High Intensity Approach Lighting System with Sequenced Flashing Lights, Category I, Configuration.

ALSF2—High Intensity Approach Lighting System with Sequenced Flashing Lights, Category II, Configuration.

SF—Sequenced Flashing Lights.

OLS—Optical Landing System.

WAVE-OFF.

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

NOTE: Approach slope angle and threshold crossing height will be shown when available; i.e., -GA 3.5° TCH 37'.

PILOT CONTROL OF AIRPORT LIGHTING

<u>Key Mike</u>	<u>Function</u>
7 times within 5 seconds	Highest intensity available
5 times within 5 seconds	Medium or lower intensity (Lower REIL or REIL-Off)
3 times within 5 seconds	Lowest intensity available (Lower REIL or REIL-Off)

Available systems will be indicated in the airport or military remarks, e.g., ACTIVATE HIRL Rwy 07–25, MALSR Rwy 07, and VASI Rwy 07—122.8.

Where the airport is not served by an instrument approach procedure and/or has an independent type system of different specification installed by the airport sponsor, descriptions of the type lights, method of control, and operating frequency will be explained in clear text. See AIM, "Basic Flight Information and ATC Procedures," for detailed description of pilot control of airport lighting.

RUNWAY SLOPE

When available, runway slope data will only be provided for those airports with an approved FAA instrument approach procedure. Runway slope will be shown only when it is 0.3 percent or greater. On runways less than 8000 feet, the direction of the slope up will be indicated, e.g., 0.3% up NW. On runways 8000 feet or greater, the slope will be shown (up or down) on the runway end line, e.g., RWY 13: 0.3% up., RWY 21: Pole. Rgt tfc. 0.4% down.

RUNWAY END DATA

Information pertaining to the runway approach end such as approach lights, touchdown zone lights, runway end identification lights, visual glideslope indicators, displaced thresholds, controlling obstruction, and right hand traffic pattern, will be shown on the specific runway end. "Rgt tfc"—Right traffic indicates right turns should be made on landing and takeoff for specified runway end.

LAND AND HOLD SHORT OPERATIONS (LAHSO)

LAHSO is an acronym for "Land and Hold Short Operations." These operations include landing and holding short of an intersection runway, an intersecting taxiway, or other predetermined points on the runway other than a runway or taxiway. Measured distance represents the available landing distance on the landing runway, in feet. The hold-short point, marked by an asterisk (*), represents the predetermined points on the runway other than a runway or taxiway. Specific questions regarding these distances should be referred to the air traffic manager of the facility concerned. The Aeronautical Information Manual contains specific details on hold-short operations and markings.

RUNWAY DECLARED DISTANCE INFORMATION

TORA—Take-off Run Available. The length of runway declared available and suitable for the ground run of an aeroplane take-off.

TODA—Take-off Distance Available. The length of the take-off run available plus the length of the clearway, if provided.

ASDA—Accelerate-Stop Distance Available. The length of the take-off run available plus the length of the stopway, if provided.

LDA—Landing Distance Available. The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

(21) ARRESTING GEAR/SYSTEMS

Arresting gear is shown as it is located on the runway. The a-gear distance from the end of the appropriate runway (or into the overrun) is indicated in parentheses. A-Gear which has a bi-direction capability and can be utilized for emergency approach end engagement is indicated by a (B). The direction of engaging device is indicated by an arrow. Up to 15 minutes advance notice may be required for rigging A-Gear for approach and engagement. Airport listing may show availability of other than US Systems. This information is provided for emergency requirements only. Refer to current aircraft operating manuals for specific engagement weight and speed criteria based on aircraft structural restrictions and arresting system limitations.

Following is a list of current systems referenced in this publication identified by both Air Force and Navy terminology:

BI-DIRECTIONAL CABLE (B)

<u>TYPE</u>	<u>DESCRIPTION</u>
BAK-9	Rotary friction brake.
BAK-12A	Standard BAK-12 with 950 foot run out, 1-inch cable and 40,000 pound weight setting. Rotary friction brake.
BAK-12B	Extended BAK-12 with 1200 foot run, 1¼ inch Cable and 50,000 pounds weight setting. Rotary friction brake.
E28	Rotary Hydraulic (Water Brake).
M21	Rotary Hydraulic (Water Brake) Mobile.

The following device is used in conjunction with some aircraft arresting systems:

BAK-14	A device that raises a hook cable out of a slot in the runway surface and is remotely positioned for engagement by the tower on request. (In addition to personnel reaction time, the system requires up to five seconds to fully raise the cable.)
H	A device that raises a hook cable out of a slot in the runway surface and is remotely positioned for engagement by the tower on request. (In addition to personnel reaction time, the system requires up to one and one-half seconds to fully raise the cable.)

UNI-DIRECTIONAL CABLE

<u>TYPE</u>	<u>DESCRIPTION</u>
MB60	Textile brake—an emergency one-time use, modular braking system employing the tearing of specially woven textile straps to absorb the kinetic energy.

E5/E5-1/E5-3

Chain Type. At USN/USMC stations E-5 A-GEAR systems are rated, e.g., E-5 RATING-13R-1100 HW (DRY), 31L/R-1200 STD (WET). This rating is a function of the A-GEAR chain weight and length and is used to determine the maximum aircraft engaging speed. A dry rating applies to a stabilized surface (dry or wet) while a wet rating takes into account the amount (if any) of wet overrun that is not capable of withstanding the aircraft weight. These ratings are published under Military Service.

FOREIGN CABLE

<u>TYPE</u>	<u>DESCRIPTION</u>	<u>US EQUIVALENT</u>
44B-3H	Rotary Hydraulic (Water Brake)	
CHAG	Chain	E-5

UNI-DIRECTIONAL BARRIER

<u>TYPE</u>	<u>DESCRIPTION</u>
MA-1A	Web barrier between stanchions attached to a chain energy absorber.
BAK-15	Web barrier between stanchions attached to an energy absorber (water squeezer, rotary friction, chain). Designed for wing engagement.

NOTE: Landing short of the runway threshold on a runway with a BAK-15 in the underrun is a significant hazard. The barrier in the down position still protrudes several inches above the underrun. Aircraft contact with the barrier short of the runway threshold can cause damage to the barrier and substantial damage to the aircraft.

OTHER

<u>TYPE</u>	<u>DESCRIPTION</u>
EMAS	Engineered Material Arresting System, located beyond the departure end of the runway, consisting of high energy absorbing materials which will crush under the weight of an aircraft.

22 MILITARY SERVICE

Specific military services available at the airport are listed under this general heading. Remarks applicable to any military service are shown in the individual service listing.

23 JET AIRCRAFT STARTING UNITS (JASU)

The numeral preceding the type of unit indicates the number of units available. The absence of the numeral indicates ten or more units available. If the number of units is unknown, the number one will be shown. Absence of JASU designation indicates non-availability.

The following is a list of current JASU systems referenced in this publication:

USAF JASU (For variations in technical data, refer to T.O. 35-1-7.)

ELECTRICAL STARTING UNITS:

A/M32A-86	AC: 115/200v, 3 phase, 90 kva, 0.8 pf, 4 wire DC: 28v, 1500 amp, 72 kw (with TR pack)
MC-1A	AC: 115/208v, 400 cycle, 3 phase, 37.5 kva, 0.8 pf, 108 amp, 4 wire DC: 28v, 500 amp, 14 kw
MD-3	AC: 115/208v, 400 cycle, 3 phase, 60 kva, 0.75 pf, 4 wire DC: 28v, 1500 amp, 45 kw, split bus
MD-3A	AC: 115/208v, 400 cycle, 3 phase, 60 kva, 0.75 pf, 4 wire DC: 28v, 1500 amp, 45 kw, split bus
MD-3M	AC: 115/208v, 400 cycle, 3 phase, 60 kva, 0.75 pf, 4 wire DC: 28v, 500 amp, 15 kw
MD-4	AC: 120/208v, 400 cycle, 3 phase, 62.5 kva, 0.8 pf, 175 amp, "WYE" neutral ground, 4 wire, 120v, 400 cycle, 3 phase, 62.5 kva, 0.8 pf, 303 amp, "DELTA" 3 wire, 120v, 400 cycle, 1 phase, 62.5 kva, 0.8 pf, 520 amp, 2 wire

AIR STARTING UNITS

AM32-95	150 +/- 5 lb/min (2055 +/- 68 cfm) at 51 +/- 2 psia
AM32A-95	150 +/- 5 lb/min @ 49 +/- 2 psia (35 +/- 2 psig)
LASS	150 +/- 5 lb/min @ 49 +/- 2 psia
MA-1A	82 lb/min (1123 cfm) at 130° air inlet temp, 45 psia (min) air outlet press
MC-1	15 cfm, 3500 psia
MC-1A	15 cfm, 3500 psia
MC-2A	15 cfm, 200 psia
MC-11	8,000 cu in cap, 4000 psig, 15 cfm

COMBINED AIR AND ELECTRICAL STARTING UNITS:

AGPU	AC: 115/200v, 400 cycle, 3 phase, 30 kw gen DC: 28v, 700 amp AIR: 60 lb/min @ 40 psig @ sea level
AM32A-60*	AIR: 120 +/- 4 lb/min (1644 +/- 55 cfm) at 49 +/- 2 psia AC: 120/208v, 400 cycle, 3 phase, 75 kva, 0.75 pf, 4 wire, 120v, 1 phase, 25 kva DC: 28v, 500 amp, 15 kw

AM32A-60A	AIR: 150 +/- 5 lb/min (2055 +/- 68 cfm at 51 +/- psia AC: 120/208v, 400 cycle, 3 phase, 75 kva, 0.75 pf, 4 wire DC: 28v, 200 amp, 5.6 kw
AM32A-60B*	AIR: 130 lb/min, 50 psia AC: 120/208v, 400 cycle, 3 phase, 75 kva, 0.75 pf, 4 wire DC: 28v, 200 amp, 5.6 kw

*NOTE: During combined air and electrical loads, the pneumatic circuitry takes preference and will limit the amount of electrical power available.

USN JASU

ELECTRICAL STARTING UNITS:

NC-8A/A1	DC: 500 amp constant, 750 amp intermittent, 28v; AC: 60 kva @ .8 pf, 115/200v, 3 phase, 400 Hz.
NC-10A/A1/B/C	DC: 750 amp constant, 1000 amp intermittent, 28v; AC: 90 kva, 115/200v, 3 phase, 400 Hz.

AIR STARTING UNITS:

GTC-85/GTE-85	120 lbs/min @ 45 psi.
MSU-200NAV/A/U47A-5	204 lbs/min @ 56 psia.
WELLS AIR START SYSTEM	180 lbs/min @ 75 psi or 120 lbs/min @ 45 psi. Simultaneous multiple start capability.

COMBINED AIR AND ELECTRICAL STARTING UNITS:

NCPP-105/RCPT	180 lbs/min @ 75 psi or 120 lbs/min @ 45 psi. 700 amp, 28v DC. 120/208v, 400 Hz AC, 30 kva.
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JASU (ARMY)

59B2-1B	28v, 7.5 kw, 280 amp.
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OTHER JASU

ELECTRICAL STARTING UNITS (DND):

CE12	AC 115/200v, 140 kva, 400 Hz, 3 phase
CE13	AC 115/200v, 60 kva, 400 Hz, 3 phase
CE14	AC/DC 115/200v, 140 kva, 400 Hz, 3 phase, 28vDC, 1500 amp
CE15	DC 22-35v, 500 amp continuous 1100 amp intermittent
CE16	DC 22-35v, 500 amp continuous 1100 amp intermittent soft start

AIR STARTING UNITS (DND):

CA2	ASA 45.5 psig, 116.4 lb/min
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COMBINED AIR AND ELECTRICAL STARTING UNITS (DND)

CEA1	AC 120/208v, 60 kva, 400 Hz, 3 phase DC 28v, 75 amp AIR 112.5 lb/min, 47 psig
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ELECTRICAL STARTING UNITS (OTHER)

C-26	28v 45kw 115-200v 15kw 380-800 Hz 1 phase 2 wire
C-26-B, C-26-C	28v 45kw: Split Bus: 115-200v 15kw 380-800 Hz 1 phase 2 wire
E3	DC 28v/10kw

AIR STARTING UNITS (OTHER):

A4	40 psi/2 lb/sec (LPAS Mk12, Mk12L, Mk12A, Mk1, Mk2B)
MA-1	150 Air HP, 115 lb/min 50 psia
MA-2	250 Air HP, 150 lb/min 75 psia

CARTRIDGE:

MXU-4A	USAF
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24 FUEL—MILITARY

Fuel available through US Military Base supply, DESC Into-Plane Contracts and/or reciprocal agreement is listed first and is followed by (Mil). At commercial airports where Into-Plane contracts are in place, the name of the refueling agent is shown. Military fuel should be used first if it is available. When military fuel cannot be obtained but Into-Plane contract fuel is available, Government aircraft must refuel with the contract fuel and applicable refueling agent to avoid any breach in contract terms and conditions. Fuel not available through the above is shown preceded by NC (no contract). When fuel is obtained from NC sources, local purchase procedures must be followed. The US Military Aircraft Identaplates DD Form 1896 (Jet Fuel), DD Form 1897 (Avgas) and AF Form 1245 (Avgas) are used at military installations only. The US 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 AVCARD. A current list of contract fuel locations is available online at www.desc.dla.mil/Static/ProductsAndServices.asp; click on the Commercial Airports button.

See legend item 14 for fuel code and description.

25 SUPPORTING FLUIDS AND SYSTEMS—MILITARY

CODE

ADI	Anti-Detonation Injection Fluid—Reciprocating Engine Aircraft.
W	Water Thrust Augmentation—Jet Aircraft.
WAI	Water-Alcohol Injection Type, Thrust Augmentation—Jet Aircraft.
SP	Single Point Refueling.

PRESAIR	Air Compressors rated 3,000 PSI or more.
De-Ice	Anti-icing/De-icing/Defrosting Fluid (MIL-A-8243).
OXYGEN:	
LPOX	Low pressure oxygen servicing.
HPOX	High pressure oxygen servicing.
LHOX	Low and high pressure oxygen servicing.
LOX	Liquid oxygen servicing.
ORXB	Oxygen replacement bottles. (Maintained primarily at Naval stations for use in acft where oxygen can be replenished only by replacement of cylinders.)
OX	Indicates oxygen servicing when type of servicing is unknown.
NOTE:	Combinations of above items is used to indicate complete oxygen servicing available;
LHOXRB	Low and high pressure oxygen servicing and replacement bottles;
LPOXRB	Low pressure oxygen replacement bottles only, etc.
NOTE:	Aircraft will be serviced with oxygen procured under military specifications only. Aircraft will not be serviced with medical oxygen.
NITROGEN:	
LPNIT	Low pressure nitrogen servicing.
HPNIT	High pressure nitrogen servicing.
LHNIT	Low and high pressure nitrogen servicing.

26 OIL—MILITARY

US AVIATION OILS (MIL SPECS):

CODE	GRADE, TYPE
0-113	1065, Reciprocating Engine Oil (MIL-L-6082)
0-117	1100, Reciprocating Engine Oil (MIL-L-6082)
0-117+	1100, 0-117 plus cyclohexanone (MIL-L-6082)
0-123	1065, (Dispersant), Reciprocating Engine Oil (MIL-L-22851 Type III)
0-128	1100, (Dispersant), Reciprocating Engine Oil (MIL-L-22851 Type II)
0-132	1005, Jet Engine Oil (MIL-L-6081)
0-133	1010, Jet Engine Oil (MIL-L-6081)
0-147	None, MIL-L-6085A Lubricating Oil, Instrument, Synthetic
0-148	None, MIL-L-7808 (Synthetic Base) Turbine Engine Oil
0-149	None, Aircraft Turbine Engine Synthetic, 7.5c St
0-155	None, MIL-L-6086C, Aircraft, Medium Grade
0-156	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.)

27 TRANSIENT ALERT (TRAN ALERT)—MILITARY

Tran Alert service is considered to include all services required for normal aircraft turn-around, e.g., servicing (fuel, oil, oxygen, etc.), debriefing to determine requirements for maintenance, minor maintenance, inspection and parking assistance of transient aircraft. Drag chute repack, specialized maintenance, or extensive repairs will be provided within the capabilities and priorities of the base. Delays can be anticipated after normal duty hours/holidays/weekends regardless of the hours of transient maintenance operation. Pilots should not expect aircraft to be serviced for TURN-AROUNDS during time periods when servicing or maintenance manpower is not available. In the case of airports not operated exclusively by US military, the servicing indicated by the remarks will not always be available for US military aircraft. When transient alert services are not shown, facilities are unknown. NO PRIORITY BASIS—means that transient alert services will be provided only after all the requirements for mission/tactical assigned aircraft have been accomplished.

28 AIRPORT REMARKS

The Attendance Schedule is the months, days and hours the airport is actually attended. 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).

Airport Remarks have been grouped in order of applicability. Airport remarks are limited to those items of information that are determined essential for operational use, i.e., conditions of a permanent or indefinite nature and conditions that will remain in effect for more than 30 days concerning aeronautical facilities, services, maintenance available, procedures or hazards, knowledge of which is essential for safe and efficient operation of aircraft. Information concerning permanent closing of a runway or taxiway will not be shown. A note "See Special Notices" shall be applied within this remarks section when a special notice applicable to the entry is contained in the Special Notices section of this publication.

Parachute Jumping indicates parachute jumping areas associated with the airport. See Parachute Jumping Area section of this publication for additional information.

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

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

29 MILITARY REMARKS

Military Remarks published at a joint Civil/Military facility are remarks that are applicable to the Military. At Military Facilities all remarks will be published under the heading Military Remarks. Remarks contained in this section may not be applicable to civil users. The first group of remarks is applicable to the primary operator of the airport. Remarks applicable to a tenant on the airport are shown preceded by the tenant organization, i.e., (A) (AF) (N) (ANG), etc. Military airports operate 24 hours unless otherwise specified. Airport operating hours are listed first (airport operating hours will only be listed if they are different than the airport attended hours or if the attended hours are unavailable) followed by pertinent remarks in order of applicability. Remarks will include information on restrictions, hazards, traffic pattern, noise abatement, customs/agriculture/immigration, and miscellaneous information applicable to the Military.

Type of restrictions:

CLOSED: When designated closed, the airport is restricted from use by all aircraft unless stated otherwise. Any closure applying to specific type of aircraft or operation will be so stated. USN/USMC/USAF airports are considered closed during non-operating hours. Closed airports may be utilized during an emergency provided there is a safe landing area.

OFFICIAL BUSINESS ONLY: The airfield is closed to all transient military aircraft for obtaining routine services such as fueling, passenger drop off or pickup, practice approaches, parking, etc. The airfield may be used by aircrews and aircraft if official government business (including civilian) must be conducted on or near the airfield and prior permission is received from the airfield manager.

AF OFFICIAL BUSINESS ONLY OR NAVY OFFICIAL BUSINESS ONLY: Indicates that the restriction applies only to service indicated.

PRIOR PERMISSION REQUIRED (PPR): Airport is closed to transient aircraft unless approval for operation is obtained from the appropriate commander through Chief, Airfield Management or Airfield Operations Officer. Official Business or PPR does not preclude the use of US Military airports as an alternate for IFR flights. If a non-US military airport is used as a weather alternate and requires a PPR, the PPR must be requested and confirmed before the flight departs. The purpose of PPR is to control volume and flow of traffic rather than to prohibit it. Prior permission is required for all aircraft requiring transient alert service outside the published transient alert duty hours. All aircraft carrying hazardous materials must obtain prior permission as outlined in AFJI 11-204, AR 95-27, OPNAVINST 3710.7.

Note: OFFICIAL BUSINESS ONLY AND PPR restrictions are not applicable to Special Air Mission (SAM) or Special Air Resource (SPAR) aircraft providing person or persons on board are designated Code 6 or higher as explained in AFJMAN 11-213, AR 95-11, OPNAVINST 3722-8J. Official Business Only or PPR do not preclude the use of the airport as an alternate for IFR flights.

30 WEATHER DATA SOURCES

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

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, dewpoint and density altitude.

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

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

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

HIWAS—See RADIO AIDS TO NAVIGATION

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

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

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

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

TDWR—indicates airports that have Terminal Doppler Weather Radar.

TWEB—See RADIO AIDS TO NAVIGATION

WSP—indicates airports that have Weather System Processor.

When the automated weather source is broadcast over an associated airport NAVAID frequency (see NAVAID line), it shall be indicated by a bold ASOS, AWOS, HIWAS or TWEB, followed by the frequency, identifier and phone number, if available.

31 COMMUNICATIONS

Airport terminal control facilities and radio communications associated with the airport shall be shown. When the call sign is not the same as the airport name the call sign will be shown. Frequencies shall normally be shown in descending order with the primary frequency listed first. Frequencies will be listed, together with sectorization indicated by outbound radials, and hours of operation. Communications will be listed in sequence as follows:

Single Frequency Approach (SFA), Common Traffic Advisory Frequency (CTAF), Automatic Terminal Information Service (ATIS) and Aeronautical Advisory Stations (UNICOM) or (AUNICOM) along with their frequency is shown, where available, on the line following the heading "COMMUNICATIONS." When the CTAF and UNICOM frequencies are the same, the frequency will be shown as CTAF/UNICOM 122.8.

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

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

(See AIM, Para 4-1-9 Traffic Advisory Practices at Airports Without Operating Control Towers or AC 90 - 42C.)

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

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

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

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

Emergency frequency 121.5 and 243.0 are available at all Flight Service Stations, Towers, Approach Control and RADAR facilities, unless indicated as not available.

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

TERMINAL SERVICES

SFA—Single Frequency Approach.

CTAF—A program designed to get all vehicles and aircraft at airports without an operating control tower on a common frequency.


ATIS—A continuous broadcast of recorded non-control information in selected terminal areas.

D-ATIS—Digital ATIS provides ATIS information in text form outside the standard reception range of conventional ATIS via landline & data link communications and voice message within range of existing transmitters.

AUNICOM—Automated UNICOM is a computerized, command response system that provides automated weather, radio check capability and airport advisory information selected from an automated menu by microphone clicks.

UNICOM—A non-government air/ground radio communications facility which may provide airport information.

PTD—Pilot to Dispatcher.

APP CON—Approach Control. The symbol  indicates radar approach control.

TOWER—Control tower.

GCA—Ground Control Approach System.

GND CON—Ground Control.

GCO—Ground Communication Outlet—An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to takeoff. Pilots will use four "key clicks" on the VHF radio to contact the appropriate ATC facility or six "key clicks" to contact the FSS. The GCO system is intended to be used only on the ground.

DEP CON—Departure Control. The symbol  indicates radar departure control.

CLNC DEL—Clearance Delivery.

PRE TAXI CLNC—Pre taxi clearance.

VFR ADVSY SVC—VFR Advisory Service. Service provided by Non-Radar Approach Control.

Advisory Service for VFR aircraft (upon a workload basis) ctc APP CON.

COMD POST—Command Post followed by the operator call sign in parenthesis.

PMSV—Pilot-to-Metro Service call sign, frequency and hours of operation, when full service is other than continuous. PMSV installations at which weather observation service is available shall be indicated, following the frequency and/or

hours of operation as "Wx obsn svc 1900-0000Z" or "other times" may be used when no specific time is given. PMSV facilities manned by forecasters are considered "Full Service". PMSV facilities manned by weather observers are listed as "Limited Service".

OPS—Operations followed by the operator call sign in parenthesis.

CON

RANGE

FLT FLW—Flight Following

MEDIVAC

NOTE: Communication frequencies followed by the letter "X" indicate frequency available on request.

32 NOTAM SERVICE

All public use landing areas are provided NOTAM "D" (distant dissemination) and NOTAM "L" (local dissemination) service. Airport NOTAM file identifier is shown following the associated FSS data for individual airports, e.g. "NOTAM FILE IAD". See AIM, Basic Flight Information and ATC Procedures for detailed description of NOTAM's. Current NOTAMs are available from Flight Service Stations at 1-800-WX-BRIEF. Real time Military NOTAMs are available using the DoD Internet NOTAM Distribution System (DINS) www.notams.jcs.mil.

33 AIRSPACE

Information concerning Class B, C, and part-time D and E Airspace shall be published with effective times. Class D and E Airspace that is continuous as established by Docket will not be shown.

CLASS B—Radar Sequencing and Separation Service for all aircraft in CLASS B airspace.

TRSA—Radar Sequencing and Separation Service for participating VFR Aircraft within a Terminal Radar Service Area

Class C, D, and E airspace described in this publication is that airspace usually consisting of a 5 NM radius core surface area that begins at the surface and extends upward to an altitude above the airport elevation (charted in MSL for Class C and Class D).

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

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

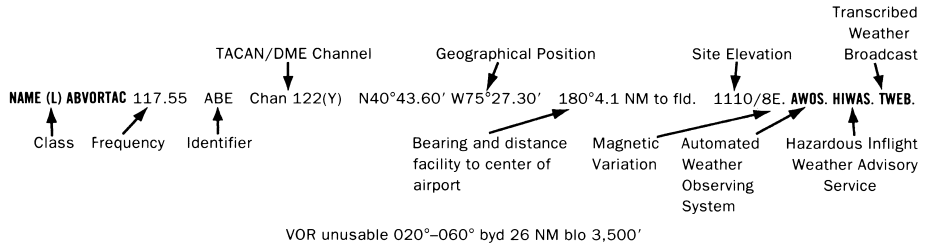
NOTE: AIRSPACE SVC "TIMES" INCLUDE ALL ASSOCIATED EXTENSIONS. Arrival extensions for instrument approach procedures become part of the primary core surface area. These extensions may be either Class D or Class E airspace and are effective concurrent with the times of the primary core surface area.

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

34 RADIO AIDS TO NAVIGATION

The Airport/Facility Directory lists, by facility name, all Radio Aids to Navigation that appear on National Aeronautical Charting Office Visual or IFR Aeronautical Charts and those upon which the FAA has approved an Instrument Approach Procedure, with exception of selected TACANs. Military TACAN information will be published for Military facilities contained in this publication. All VOR, VORTAC, TACAN, ILS and MLS equipment in the National Airspace System has an automatic monitoring and shutdown feature in the event of malfunction. Unmonitored, as used in this publication, for any navigational aid, means that FSS or tower personnel cannot observe the malfunction or shutdown signal. The NAVAID NOTAM file identifier will be shown as "NOTAM FILE IAD" and will be listed on the Radio Aids to Navigation line. When two or more NAVAIDS are listed and the NOTAM file identifier is different from that shown on the Radio Aids to Navigation line, it will be shown with the NAVAID listing. NOTAM file identifiers for ILSs and its components (e.g., NDB (LOM) are the same as the associated airports and are not repeated. Automated Surface Observing System (ASOS), Automated Weather Observing System (AWOS), Hazardous Inflight Weather Advisory Service (HIWAS) and Transcribed Weather Broadcast (TWEB) will be shown when this service is broadcast over selected NAVAIDS.

NAVAID information is tabulated as indicated in the following sample:



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

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

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

TWEB—Transcribed Weather Broadcast—A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots.

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

RADIO CLASS DESIGNATIONS

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

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

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

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

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

ILS FACILITY PERFORMANCE CLASSIFICATION CODES

Codes define the ability of an ILS to support autoland operations. The two portions of the code represent Official Category and farthest point along a Category I, II, or III approach that the Localizer meets Category III structure tolerances.

Official Category: I, II, or III; the lowest minima on published or unpublished procedures supported by the ILS.

Farthest point of satisfactory Category III Localizer performance for Category I, II, or III approaches: A – 4 NM prior to runway threshold, B – 3500 ft prior to runway threshold, C – glide angle dependent but generally 750–1000 ft prior to threshold, T – runway threshold, D – 3000 ft after runway threshold, and E – 2000 ft prior to stop end of runway.

ILS information is tabulated as indicated in the following sample:

ILS/DME 108.5 I-ORL Chan 22 Rwy 18. Class IIE. LOM HERNY NDB.
 ILS Facility Performance Classification Code

FREQUENCY PAIRING PLAN AND MLS CHANNELING

MLS CHANNEL	VHF FREQUENCY	TACAN CHANNEL	MLS CHANNEL	VHF FREQUENCY	TACAN CHANNEL	MLS CHANNEL	VHF FREQUENCY	TACAN CHANNEL
500	108.10	18X	568	109.45	31Y	636	114.15	88Y
502	108.30	20X	570	109.55	32Y	638	114.25	89Y
504	108.50	22X	572	109.65	33Y	640	114.35	90Y
506	108.70	24X	574	109.75	34Y	642	114.45	91Y
508	108.90	26X	576	109.85	35Y	644	114.55	92Y
510	109.10	28X	578	109.95	36Y	646	114.65	93Y
512	109.30	30X	580	110.05	37Y	648	114.75	94Y
514	109.50	32X	582	110.15	38Y	650	114.85	95Y
516	109.70	34X	584	110.25	39Y	652	114.95	96Y
518	109.90	36X	586	110.35	40Y	654	115.05	97Y
520	110.10	38X	588	110.45	41Y	656	115.15	98Y
522	110.30	40X	590	110.55	42Y	658	115.25	99Y
524	110.50	42X	592	110.65	43Y	660	115.35	100Y
526	110.70	44X	594	110.75	44Y	662	115.45	101Y
528	110.90	46X	596	110.85	45Y	664	115.55	102Y
530	111.10	48X	598	110.95	46Y	666	115.65	103Y
532	111.30	50X	600	111.05	47Y	668	115.75	104Y
534	111.50	52X	602	111.15	48Y	670	115.85	105Y
536	111.70	54X	604	111.25	49Y	672	115.95	106Y
538	111.90	56X	606	111.35	50Y	674	116.05	107Y
540	108.05	17Y	608	111.45	51Y	676	116.15	108Y
542	108.15	18Y	610	111.55	52Y	678	116.25	109Y
544	108.25	19Y	612	111.65	53Y	680	116.35	110Y
546	108.35	20Y	614	111.75	54Y	682	116.45	111Y
548	108.45	21Y	616	111.85	55Y	684	116.55	112Y
550	108.55	22Y	618	111.95	56Y	686	116.65	113Y
552	108.65	23Y	620	113.35	80Y	688	116.75	114Y
554	108.75	24Y	622	113.45	81Y	690	116.85	115Y
556	108.85	25Y	624	113.55	82Y	692	116.95	116Y
558	108.95	26Y	626	113.65	83Y	694	117.05	117Y
560	109.05	27Y	628	113.75	84Y	696	117.15	118Y
562	109.15	28Y	630	113.85	85Y	698	117.25	119Y
564	109.25	29Y	632	113.95	86Y			
566	109.35	30Y	634	114.05	87Y			

FREQUENCY PAIRING PLAN AND MLS CHANNELING

The following is a list of paired VOR/ILS VHF frequencies with TACAN channels and MLS channels.

TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL	TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL	TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL
2X	134.5	-	19Y	108.25	544	25X	108.80	-
2Y	134.55	-	20X	108.30	502	25Y	108.85	556
11X	135.4	-	20Y	108.35	546	26X	108.90	508
11Y	135.45	-	21X	108.40	-	26Y	108.95	558
12X	135.5	-	21Y	108.45	548	27X	109.00	-
12Y	135.55	-	22X	108.50	504	27Y	109.05	560
17X	108.00	-	22Y	108.55	550	28X	109.10	510
17Y	108.05	540	23X	108.60	-	28Y	109.15	562
18X	108.10	500	23Y	108.65	552	29X	109.20	-
18Y	108.15	542	24X	108.70	506	29Y	109.25	564
19X	108.20	-	24Y	108.75	554	30X	109.30	512

TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL	TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL	TACAN CHANNEL	VHF FREQUENCY	MLS CHANNEL
30Y	109.35	566	63X	133.60	-	95Y	114.85	650
31X	109.40	-	63Y	133.65	-	96X	114.90	-
31Y	109.45	568	64X	133.70	-	96Y	114.95	652
32X	109.50	514	64Y	133.75	-	97X	115.00	-
32Y	109.55	570	65X	133.80	-	97Y	115.05	654
33X	109.60	-	65Y	133.85	-	98X	115.10	-
33Y	109.65	572	66X	133.90	-	98Y	115.15	656
34X	109.70	516	66Y	133.95	-	99X	115.20	-
34Y	109.75	574	67X	134.00	-	99Y	115.25	658
35X	109.80	-	67Y	134.05	-	100X	115.30	-
35Y	109.85	576	68X	134.10	-	100Y	115.35	660
36X	109.90	518	68Y	134.15	-	101X	115.40	-
36Y	109.95	578	69X	134.20	-	101Y	115.45	662
37X	110.00	-	69Y	134.25	-	102X	115.50	-
37Y	110.05	580	70X	112.30	-	102Y	115.55	664
38X	110.10	520	70Y	112.35	-	103X	115.60	-
38Y	110.15	582	71X	112.40	-	103Y	115.65	666
39X	110.20	-	71Y	112.45	-	104X	115.70	-
39Y	110.25	584	72X	112.50	-	104Y	115.75	668
40X	110.30	522	72Y	112.55	-	105X	115.80	-
40Y	110.35	586	73X	112.60	-	105Y	115.85	670
41X	110.40	-	73Y	112.65	-	106X	115.90	-
41Y	110.45	588	74X	112.70	-	106Y	115.95	672
42X	110.50	524	74Y	112.75	-	107X	116.00	-
42Y	110.55	590	75X	112.80	-	107Y	116.05	674
43X	110.60	-	75Y	112.85	-	108X	116.10	-
43Y	110.65	592	76X	112.90	-	108Y	116.15	676
44X	110.70	526	76Y	112.95	-	109X	116.20	-
44Y	110.75	594	77X	113.00	-	109Y	116.25	678
45X	110.80	-	77Y	113.05	-	110X	116.30	-
45Y	110.85	596	78X	113.10	-	110Y	116.35	680
46X	110.90	528	78Y	113.15	-	111X	116.40	-
46Y	110.95	598	79X	113.20	-	111Y	116.45	682
47X	111.00	-	79Y	113.25	-	112X	116.50	-
47Y	111.05	600	80X	113.30	-	112Y	116.55	684
48X	111.10	530	80Y	113.35	620	113X	116.60	-
48Y	111.15	602	81X	113.40	-	113Y	116.65	686
49X	111.20	-	81Y	113.45	622	114X	116.70	-
49Y	111.25	604	82X	113.50	-	114Y	116.75	688
50X	111.30	532	82Y	113.55	624	115X	116.80	-
50Y	111.35	606	83X	113.60	-	115Y	116.85	690
51X	111.40	-	83Y	113.65	626	116X	116.90	-
51Y	111.45	608	84X	113.70	-	116Y	116.95	692
52X	111.50	534	84Y	113.75	628	117X	117.00	-
52Y	111.55	610	85X	113.80	-	117Y	117.05	694
53X	111.60	-	85Y	113.85	630	118X	117.10	-
53Y	111.65	612	86X	113.90	-	118Y	117.15	696
54X	111.70	536	86Y	113.95	632	119X	117.20	-
54Y	111.75	614	87X	114.00	-	119Y	117.25	698
55X	111.80	-	87Y	114.05	634	120X	117.30	-
55Y	111.85	616	88X	114.10	-	120Y	117.35	-
56X	111.90	538	88Y	114.15	636	121X	117.40	-
56Y	111.95	618	89X	114.20	-	121Y	117.45	-
57X	112.00	-	89Y	114.25	638	122X	117.50	-
57Y	112.05	-	90X	114.30	-	122Y	117.55	-
58X	112.10	-	90Y	114.35	640	123X	117.60	-
58Y	112.15	-	91X	114.40	-	123Y	117.65	-
59X	112.20	-	91Y	114.45	642	124X	117.70	-
59Y	112.25	-	92X	114.50	-	124Y	117.75	-
60X	133.30	-	92Y	114.55	644	125X	117.80	-
60Y	133.35	-	93X	114.60	-	125Y	117.85	-
61X	133.40	-	93Y	114.65	646	126X	117.90	-
61Y	133.45	-	94X	114.70	-	126Y	117.95	-
62X	133.50	-	94Y	114.75	648	-	-	-
62Y	133.55	-	95X	114.80	-	-	-	-

35 COMM/NAV/WEATHER REMARKS:

These remarks consist of pertinent information affecting the current status of communications, NAVAIDs and weather.