

FLIGHT INFORMATION PUBLICATION

PLANNING

PLANNING DATA
AND PROCEDURES

UNITED STATES

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Planning Data and Procedures — United States, Section II of the FLIP Planning is a joint USAF/USN/USA publication, produced and distributed every eight weeks by the Aeronautical Chart & Information Center (ACIC), USAF. This section is published primarily for flight planning. It contains information relative to Special Use Airspace, Pilot Procedures, Special Notices, and other information pertaining to flight planning.

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IFRS	FLIP Enroute IFR Supplement
VFRS	FLIP Enroute VFR Supplement
EC	FLIP Enroute Charts (Low and High Altitude)
E LA	FLIP Enroute Low Altitude Charts
E HA	FLIP Enroute High Altitude Charts
AAC	Area Arrival Chart

AS	FLIP Aerodrome Sketches
TC	FLIP Terminal Charts (Low and High Altitude)
T LA	FLIP Terminal Low Altitude Charts
T HA	FLIP Terminal High Altitude Charts
SID	Standard Instrument Departure
FCG	Foreign Clearance Guide
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REGULAR FOREIGN CLEARANCE BASES

FOREIGN CLEARANCE — USAF

General Information Section, USAF Foreign Clearance Guide authorizes specifically designated AF bases in continental U.S. to serve as foreign clearing authorities to obtain diplomatic clearances for all flights into foreign areas and to insure that crew and passengers comply with border inspection requirements of foreign nations to be entered. AFR 5-30 established the USAF Foreign Clearance Guide as the official source for foreign clearance information. The Guide will be consulted prior to departure for a foreign clearing base. General Information Section, USAF Foreign Clearance Guide requires that appropriate designated clearing base be the last point of departure from the U.S., unless otherwise authorized by the commander of zone of interior major air command to which aircraft is assigned (with such commander responsible for meeting requirements normally the responsibility of designated clearing base commander).

General Information Section, USAF Foreign Clearance Guide established two types of clearing bases: Regular, listed below by authorized areas, available as departure point for all USAF aircraft; Special, which clear only aircraft authorized to engage in specified projects. Unclassified Special projects are listed in unclassified USAF Foreign Clearance Guide; classified in the Classified Supplement to the Guide.

Aircraft returning direct from foreign areas are authorized to re-enter continental U.S. through any Regular clearing base. Aircraft returning from U.S. territories or possessions (other than Canal Zone) without an enroute stop, in addition to re-entry privilege through any Regular clearing base, may re-enter through any AF base or civilian aerodrome designated by "AF" or "(AF)" in Enroute Supplement United States, provided compliance with U.S. customs, immigration, and agriculture laws and regulations is insured and proper clearances have been obtained.

WORLDWIDE

Andrews AFB, Md.
Charleston AFB/Muni, S. C.
Dover AFB, Del.
Hickam AFB, Hawaii
McGuire AFB, N. J.
Travis AFB, Calif.

AFRICA AND AZORES

Homestead AFB, Fla.

ALASKA

Malmstrom AFB, Mont.
McChord AFB, Wash.

BERMUDA

Homestead AFB, Fla.

CANADA

Malmstrom AFB, Mont.
McChord AFB, Wash.
Selfridge AFB, Mich.

CANAL ZONE, MEXICO, CENTRAL AND SOUTH AMERICA

Homestead AFB, Fla.
Kelly AFB, Tex.
March AFB, Calif.

EUROPEAN THEATER

Homestead AFB, Fla.

FOREIGN CLEARANCE — USN

Procedures applicable to U.S. Navy aircraft intending flight over or destined to foreign territory are contained in current OPNAVINST 3710.2 and P3710.7.

AERODROMES OF ENTRY

AERODROMES OF ENTRY WITH CUSTOMS FACILITIES

A. GENERAL

1. A reciprocal agreement exists between the U. S. and Canada whereby a pilot will file a flight plan with the appropriate FAA or DOT (Department of Transport) communications facility, this flight plan to include the number of aliens and the number of citizens aboard the aircraft and request to advise customs. The FAA or DOT will in turn notify the Customs Service, and Customs will advise all other border inspection agencies concerned. If a pilot finds it necessary to change his flight plan en route to designate another airport of entry, he should, when contacting the ground communications station for this purpose, include the following information: "Notify Customs at..... and....." (Aerodromes to which these messages may be transmitted are indicated by an asterisk in the Civil Airports of Entry listing.)
2. There are no Naval Air Stations of entry with permanent customs personnel. If a Naval air activity is situated near a civil airport or seaport having customs facilities, arrangements can be made with customs personnel at such civil facilities to meet any known flight arriving at a Naval air activity from outside United States territory.
3. The following is a consolidated listing of both civil and military aerodromes of entry and exit from the continental United States including information with regard to availability of customs, hours of operation, and advance notice required for clearance. Publication of this consolidated listing does not preclude requirement for USAF aircraft and U. S. Navy aircraft to comply with the instructions on preceding page with regard to processing into and out of the continental United States.

UNITED STATES

USAF REGULAR FOREIGN CLEARING BASES

Andrews AFB, Md.	Customs available 24 hours with 1 hour advance notice.
Charleston AFB/Muni, S. C.	Customs available 24 hours with 2 hours advance notice prior to ETA.
Dover AFB, Del.	Customs available 24 hours with 3 hours advance notice necessary
Homestead AFB, Fla.	Customs available 24 hours
Kelly AFB, Texas	Customs available 24 hours.
Malmstrom AFB, Mont.	Customs available 1500-2400Z Mon-Fri, 4 hrs advance notice OT.
March AFB, Calif.	Customs available 24 hours with 8 hours advance notice.
McChord AFB, Wash.	Customs available 24 hours with 1 hour advance notice.
McGuire AFB, N. J.	Customs available 24 hours.
Selfridge AFB, Mich.	Customs available 1300-2100Z Mon-Fri except holidays, 24 hours advance notice OT.
Travis AFB, Calif.	Customs available 24 hours with 4 hours advance notice.

UNITED STATES CIVIL AIRPORTS OF ENTRY AND EXIT

NOTE: USAF Aircraft may use only the aerodromes that meet requirements listed on preceding page.

*Akron Muni, Ohio
 *Albany Co., N.Y.
 *Baudette Intl, Minn.
 *Bellingham Muni, Wash.
 *Bisbee-Douglas Intl (Douglas), Ariz.
 *Burlington Muni, Vt.
 *Calexico Intl, Calif.
 *Caribou Muni, Me.
 *Chicago-Midway, Ill.
 *Cleveland-Hopkins Intl, Ohio
 *Cut Bank, Mont.
 *Del Rio Intl, Tex.
 *Detroit City, Mich.
 *Detroit Metropolitan Wayne Co., Mich.
 *Duluth Intl, Minn.
 Eagle Pass Muni, Texas
 *El Paso Intl, Texas
 *Falls Intl (International Falls), Minn.
 *Felts Field (Spokane), Wash.
 *Fort Lauderdale-Hollywood Intl, Fla.
 Glasgow Intl, Mont.
 *Grand Forks Intl, N. Dak.
 *Greater Buffalo Intl, N.Y.
 *Great Falls Intl, Mont.
 *Griffing-Sandusky, Ohio
 *Havre-City Co., Mont.
 *Jefferson Co. Intl (Port Townsend), Wash.
 *Key West Intl, Fla.
 *King Co. (Boeing Field), (Seattle), Wash.
 *Laredo Muni, Tex.
 *Miami Intl, Fla.
 *Miller Intl (McAllen), Texas
 *Minot Intl, N. Dak.
 *Nogales Intl, Ariz.
 *Ogdensburg Muni, N.Y.
 *Palm Beach Intl (West Palm Beach), Fla.
 *Pembina, N. Dak.
 *Portal Muni, N. Dak.
 Put-in-Bay, Ohio
 *Richards Field (Massena), N.Y.
 *Rio Grande Valley Intl (Brownsville), Tex.
 *Rochester-Monroe Co., N.Y.
 *St. Clair Co. Muni (Port Huron), Mich.
 *San Diego Intl-Lindbergh Field, Calif.
 *Sault Ste. Marie Muni, Mich.
 *Scobey Border Station, Mont.
 *Sky Harbor (Duluth), Minn.
 *Sloulin Field Intl (Williston), N. Dak.
 *Tampa Intl, Fla.
 *Tucson Intl, Ariz.
 *Watertown Muni, N.Y.
 *Yuma MCAS/Yuma Intl, Ariz.

*Aerodromes to which Notification of Customs messages may be transmitted.

Officially Designated Airports of Entry are available for aircraft landings at any time upon furnishing the necessary advance notice of arrival. Official working hours are usually from 0830-1700 local, charges accrue for overtime (services performed after official hours) or for Sunday and Holiday services. Advance notice must allow sufficient time to enable customs officials to reach the airport prior to the arrival of the aircraft.

SPECIAL USE AIRSPACE

LEGEND

All bearings/radials are true unless otherwise indicated

Days	- Sunrise to Sunset
Nights	- Sunset to Sunrise
Time	- Hours shown are GM
Continuous	- 24 hrs a day and/or 7 days a week
FL	- Flight Level

P - Prohibited Area (Flights prohibited except by special permission).
R - Restricted Area (Flights prohibited during published periods of use, unless permission obtained from controlling authority).
W - Warning Area (Flights not restricted, but avoidance is advised during use).
C - Caution Area (Flights not restricted, but pilot is warned to exercise extreme vigilance).

II-10 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
W-105	Narragansett, RI	To FL500 ⁽¹⁾	Cont	Cont	VFR-IFR	CO, NAVSTA (NAVPORCO) Newport, RI
		Beginning at 40°40'N 72°30'W to 40°42'N 72°07'W to 41°10'N 70°13'W to 39°52'N 69°34'W to 39°52'N 71°02'W to 39°07'N 71°53'W to 39°34'N 72°30'W to point of beginning.				
		(1) Excluding the airspace from FL240 to FL300 inclusive, within a 10.2 NM radius of the Nantucket CONSOLAN station, 41°15'35"N 70°09'19"W.				
W-106	Patchogue, NY	Unltd	Cont	Days	VFR-IFR	CO, U. S. Naval Station Newport, RI
		Beginning at 40°40'N 72°30'W to 39°34'N 72°30'W to 40°07'N 73°15'W to 40°24'N 73°15'W to 40°33'N 73°04'W to point of beginning, excluding that portion above 3000 ft MSL within and west of V139.				
W-107	Atlantic City, NJ	Unltd	By NOTAM	By NOTAM	VFR-IFR	CO, NAS Lakehurst, NJ/for COMFAIRNORFOLK NAS, Norfolk, Va
		Beginning at 40°00'N 73°52'W to 40°00'N 73°37'W to 38°48'N 72°23'W to 38°21'N 73°02'W to 38°03'N 73°02'W to 39°09'N 74°37'W thence 3 NM from and parallel to the shoreline to 39°54'N 74°01'W to point of beginning, excluding the portion above 2000' MSL within and west of V139.				
		Note: W-107 is divided by a line (A) Extending NW from the SE boundary at the following points, 38°46'N 72°26'W; 38°40'N 72°34'W; 38°35'N 72°41'W; 38°30'N 72°49'W; 38°24'N 72°58'W to Airway V-139 and number 1 thru 6. (B) Extending NE from the SW boundary at 38°23'N 73°30'W; 38°37'N 73°50'W and named Charlie and Bravo. (C) Area 7 is that portion between Airway V-139 and NW boundary of W-107 with limited altitude, surface to 2000'. Areas activated by NOTAM.				
W-108	Patuxent River, Md	To FL 750	Cont	Cont	VFR-IFR	CO, NAS Patuxent River, Md.
						VO 3-3111 Extn 7795 (Duty Hours): Extn 312/313 (After 2000Z and Sat, Sun and hol)
		Beginning at 38°45'N 74°53'W to 38°45'N 74°31'W to 38°00'N 73°44'W to 38°00'N 75°11'W, thence 3 NM from and parallel to the shoreline to 38°37'N 75°00'W to the point of beginning.				
W-122A	Cherry Point, N.C.	Unltd	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
		Beginning at 35°30'N 75°25'W to 34°21'N 74°05'W to 33°43'N 75°00'W to 34°50'N 76°15'W thence 3 NM from and parallel to the shoreline to the point of beginning.				
W-122B	Cherry Point, N.C.	Unltd	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
		Beginning at 34°50'N 76°15'W to 33°43'N 75°00'W to 33°05'N 75°53'W to 34°18'N 77°38'W thence 3 NM from and parallel to the shoreline to the point of beginning.				
W-122C	Cherry Point, N.C.	Unltd	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
		Beginning at 34°18'N 77°38'W to 33°05'N 75°53'W to 32°15'N 77°00'W to 32°20'N 77°20'W to 34°05'N 77°43'W thence to point of beginning.				
W-132	Charleston, SC	Unltd	Cont	Cont	VFR-IFR	COMNAVBASE CHASN, Charleston, SC 743-2000 Extn 3890/3891/3892 (Charleston OPAREA Coordinator)
		Beginning at 32°42'N 79°46'W to 32°15'N 78°32'W to 32°00'N 78°36'W to 32°00'N 80°29'W to 32°30'N 80°11'W thence 3 NM from and parallel to the shoreline to the point of beginning.				
W-151	Valparaiso, Fla	Unltd	Cont	Cont	VFR-IFR	Commander, Air Proving Ground, Eglin AFB, Fla, 882-1319
		Beginning at 29°37'N 85°22'W to 28°10'N 84°30'W to 28°10'N 84°39'W to 28°37'N 86°21'W to 28°42'N 86°48'W to 30°20'N 86°48'W thence 3 NM from and parallel to the shoreline to the point of beginning.				
		NOTE: Contact (Eglin) (Tyndall) RAPCON for operations within the transition area in W-151.				
W-155	Pensacola, Fla	To FL400	Cont	Days	VFR	Chief of Naval Air Basic Tng, NAS Pensacola, Fla
						GL 5-3211, Extn 5262/7246 (day) Extn 7253 (nig, wk-ends, & holidays)
		Beginning at 30°10'N 88°02'W thence E along a line parallel to and 3 NM from the shoreline to 30°11'N 87°45'W to 30°06'N 87°49'W thence counterclockwise along a 38 NM arc centered at NAAS Saufley Field (30°28'N 87°21'W) to 29°55'N 87°20'W to 30°15'N 87°15'W to 30°18'00" N 86°59'30" W to 30°18'N 87°00'W thence E along a line parallel to and 3 NM from the shoreline to 86°48'W thence S along 86°48'W to 29°25'N 86°48'W to 29°36'N 88°02'W thence N along 88°02'W to point of beginning.				
W-157	Fernandina, Fla	To FL550	Cont	Cont	VFR-IFR	COMFAIRJAX, NAS Jacksonville, Fla
						EV 9-7711, Extn 445/8298 (wk-days 1300-2130Z)
		Beginning at 32°00'N 80°29'W to 32°00'N 78°36'W to 30°37'N 78°56'W to 30°33'N 80°58'W to 30°44'N 80°57'W to 31°12'N 80°59'W to 31°37'N 80°41'W to point of beginning.				
W-158A	Mayport, Fla	To FL 620 ⁽¹⁾	Cont	Cont	VFR-IFR	COMFAIRJAX, NAS Jacksonville, Fla
						EV 9-7711, Extn 445/8298 (wk-days 1300-2130Z)
		Beginning at 30°17'N 81°00'W to 30°12'N 79°02'W to 29°57'N 79°06'W to 29°07'N 79°09'W to 28°50'N 80°06'W to 28°50'N 80°42'W thence 3 NM from and parallel to the shoreline to 29°00'N 80°48'W to 29°32'N 81°02'W to 30°03'N 81°02'W to point of beginning.				
		(1) NOTE: Excluding the airspace in control 1386.				
W-158B	Mayport, Fla	Surface to FL 620	Cont	Cont	VFR-IFR	FAA ARTCC Jacksonville, Fla
						COMFAIRJAX, NAS Jacksonville, Fla
						EV 9-7711, Extn 445/8298 (wk-days 1300-2130Z)
		Beginning at 30°37'N 78°56'W to 30°12'N 79°02'W to 30°17'N 81°00'W to 30°33'N 80°58'W to the point of beginning.				

II-12 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
W-260	San Francisco, Calif	To FL600	Cont	Cont	VFR-IFR	COMFAIRALAMEDA, Alameda, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245 Contact Nas Alameda Tower prior to flight penetration Beginning at 39°00'N 123°57'W to 38°07'N 123°15'W to 38°03'N 123°14'W to 38°00'N 123°23'W to 37°50'N 124°25'W to 38°06'N 125°22'W to 38°52'N 125°53'W to point of beginning.
W-281	Point Arguello, Calif	To FL450	Cont	Cont	VFR-IFR	COMFAIRALAMEDA, Alameda, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245 Contact 15th AF March AFB prior to flight penetration Beginning at 35°58'N 121°57'W to 35°37'N 121°32'W to 35°04'N 122°43'W to 35°29'N 123°00'W to point of beginning.
W-283	San Francisco, Calif	To FL 600	Cont	Cont	VFR-IFR	COMFAIRALAMEDA, Alameda, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245 Contact NAS Alameda tower prior to flight penetration Beginning at 37°05'N 122°43'W to 35°58'N 121°57'W to 35°13'N 123°34'W to 36°20'N 124°19'W to point of beginning.
W-289	Pt. Mugu, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Pacific Missile Range, Pt. Mugu, Calif Area Code 805 488-3511, Oxnard, Calif, Extn 7545 Attn - Range Scheduler Officer Beginning at 34°06'N 119°13'W thence 3 NM from and parallel to the shoreline to 34°02'N 119°04'W to 33°52'N 119°07'W to 32°57'N 119°07'W to 32°50'N 119°18'W to 32°14'N 121°43'W to 33°15'N 122°19'W to 34°06'N 120°30'W to 34°00'N 120°30'W to 34°00'N 119°38'W to point of beginning, excluding that portion which would coincide with W-412.
W-289N	Pt. Mugu, Calif	Surface to FL 240	Cont	Cont	VFR-IFR	FAA, Los Angeles ARTC Center Comdr-Pacific Missile Range Beginning at 34°07'N 120°30'W to 34°08'N 120°26'W to 34°08'N 120°11'W to 34°00'N 120°16'W to 34°00'N 120°30'W to point of beginning.
W-290	San Diego, Calif	To FL 800	Cont	Days	VFR-IFR	Fleet Air Control and Surveillance Facility, San Diego, Calif. (FACSFAC SDIEGO) 437-6845; AUTOVON 831-3925 Beginning at 33°29'N 119°07'W to 33°29'N 118°44'W to 33°27'N 118°41'W to 33°29'N 118°40'W to 33°29'N 118°37'W to 33°20'N 118°37'W to 32°57'N 119°07'W to point of beginning. Note: Intensive surface and air operations hazardous to non-participating units. All aircraft call Beaver (FACSFAC SDIEGO) prior to entry into W-290/W-291; freq 264.0/342.9/308.1/289.9/326.5/309.3/126.3 for current advisory of hot areas.
W-291	San Diego, Calif	To FL800	Cont	Cont	VFR-IFR	Fleet Air Control and Surveillance Facility, San Diego, Calif. (FACSFAC SDIEGO) 437-6845; AUTOVON 831-3925 Beginning at 33°11'N 117°49'W to 32°58'N 117°35'W to 32°50'N 117°45'W to 32°35'N 117°39'W to 32°37'N 117°33'W to 32°32'N 117°30'W to 32°13'N 117°30'W to 32°13'N 117°12'W to 29°35'N 115°57'W to 29°35'N 118°10'W to 24°00'N 125°00'W to 27°30'N 127°10'W to 30°40'N 120°50'W to 30°50'N 120°40'W to 31°50'N 119°42'W to 32°12'N 119°42'W to 32°44'N 119°07'W to 33°17'N 118°25'W to point of beginning. Note: Intensive surface and air operations hazardous to non-participating units. All aircraft call Beaver (FACSFAC SDIEGO) prior to entry into W-290/W-291; freq 264.0/342.9/308.1/289.9/326.5/309.3/126.3 for current advisory of hot areas.
W-386	Virginia Capes, Va	Unltd	Cont	Cont	VFR-IFR	VACAPES, OPAREA COORD (COMFAIRNORFOLK), NAS Norfolk, Va 444-7071 (Duty Hours) 8666-8235 (After 2130Z and Sat, Sun, and hol) Beginning at 37°00'N 75°32'W to 37°08'N 75°32'W to 37°08'N 75°47'W thence 3 NM from and parallel to the shoreline to 38°00'N 75°11'W to 38°00'N 73°44'W to 37°18'N 73°00'W to 37°00'N 73°00'W to the point of beginning.
W-412	Santa Cruz Is, Calif	To 3,000'	Cont	Days	VFR-IFR	Commander, Pacific Missile Range, Pt. Mugu, Calif. 805-488-3511 Ext 7545 Beginning at 34°08'N 119°40'W to 33°59'N 119°40'W to 33°53'N 120°07'W to 33°49'N 120°16'W to 34°00'N 120°16'W to 34°08'N 120°11'W to point of beginning.
W-453	Gulfport, Miss	To FL500	Cont	Days	VFR-IFR	Comdr, ANG Tng, Gulfport, Miss Beginning at 30°09'N 88°02'W to 29°36'N 88°02'W to 29°43'N 88°50'W thence 3 NM offshore of the Chandeleur Islands to 30°06'N 88°51'W to 30°11'N 88°42'W thence 3 NM from and parallel to the shoreline to the point of beginning.
W-460	Hoquiam, Wash	Unltd	Cont	Cont	VFR-IFR	CO, 15th Air Force, March AFB, Calif Beginning at 47°21'N 125°39'W to 46°28'N 125°16'W to 45°50'N 128°27'W to 46°43'N 128°49'W to point of beginning.
W-465	Key West, Fla	FL 210 to FL 700	Cont	Cont	VFR-IFR	COMFAIRKWEST, NAS Key West, Fla CY 6-3561, Extn 430/267 Beginning at 24°34'N 80°25'W to 23°39'N 80°25'W to 23°30'N 80°44'W to 23°30'N 81°17'W to 24°33'N 81°11'W to 24°35'N 80°51'W to point of beginning.

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
W-470	Panama City, Fla	Unltd	Cont	Cont	VFR-IFR	Commander, Tyndall, AFB, Fla Atlantic 6-2111, Extn 3111/4111 Beginning at 29°37'N 85°22'W to 28°10'N 84°30'W to 28°56'N 83°31'W to 29°43'N 84°00'W to 29°43'N 84°40'W, thence 3 NM from and parallel to the shoreline to point of beginning. (1) Address requests for use to HQ APGC (PGOOC), Eglin AFB, Fla., 882-3322.
C-488	Pensacola, Fla	To 2,000' within Federal Airways, otherwise to FL 240	Mon-Sat	Cont	VFR-IFR	Chief Naval Air Basic Training, NAS Pensacola, Fla Beginning at 31°30'N 86°45'W thence due South to the boundary of R-2915A thence counterclockwise around the boundaries of R-2915A and R-2915B to the boundary of R-2909 to 30°21'N 87°01'W to 30°18'N 87°00'W to 30°15'N 87°12'W to 30°19'N 87°13'W thence along the shoreline to 30°15'N 87°41'W to 30°31'N 87°55'W thence along the shoreline to 30°42'N 88°00'W to 30°50'N 87°48'W to 31°25'N 87°18'W to 31°30'N 86°56'W to point of beginning, excluding all control zones. ACTIVITY: Concentrated student flying.
W-497	Patrick AFB, Fla.	Unltd	Cont	Cont	VFR-IFR	Commander Air Force Eastern Test Range/ETOOT-1/Cape Kennedy AFS, Fla. 853-5941 (Duty Hours). 494-7001 (After Duty Hours, Sat, Sun and hol) Beginning at 28°42'N 80°35'W to 29°20'N 78°20'W to 29°30'N 78°18'W to 30°00'N 77°13'W to 30°00'N 77°00'W to 27°00'N 77°05'W to 27°00'N 79°48'W to 27°20'N 80°06'W to 27°30'N 80°14'W thence 3 NM from and parallel to the shore line to the point of beginning, excluding all designated and approved domestic control areas and the airspace below 5000' MSL in a corridor 2 1/2 SM on each side of a line between 27°00'N 79°00'W to 27°15'N 78°24'W to 27°00'N 77°43'W.
W-506	Nantucket Shoals, Offshore, Mass	To FL450	Cont	Cont	VFR-IFR	Comdr, ANG Permanent Field Training Site, Otis AFB, Mass 02542. 617 968-5224 Beginning at 41°06'N 69°40'W to 41°06'N 68°00'W to 41°00'N 68°00'W to 39°54'N 68°57'W to 40°48'N 69°40'W to point of beginning.
W-513	Point Reyes, Calif	To 3,000' Unltd	Mon-Fri Mon-Fri	0400-1600Z 1600-0400Z	VFR-IFR VFR-IFR	COMFAIRALAMEDA, Alameda, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245 Contact NAS Alameda Tower prior to flight penetration Beginning at 38°03'N 123°14'W to 37°56'N 123°13'W to 37°51'N 123°03'W to 37°47'N 123°00'W to 37°43'N 124°00'W to 37°50'N 124°25'W to 38°00'N 123°23'W to point of beginning.
C-520	Memphis, Tenn	10,000' To FL 300	Cont	Days	VFR-IFR	CO NAS, Memphis, Tenn Beginning at 34°34'N 89°12'W to 34°17'N 88°34'W to 33°40'N 89°40'W to 33°47'N 89°47'W to 34°22'N 89°31'W to point of beginning.
W-532	Pt. Arguello, Calif	Unltd	Cont	Cont	VFR-IFR	Commander, Pacific Missile Range, Pt. Mugu, Calif Area Code 805 488-3511 Oxnard, Calif, Extn 7545 Attn - Range Schedule Officer Beginning at 35°37'N 121°32'W to 34°57'N 120°44'W thence 3 NM from and parallel to the shoreline to 34°23'N 120°30'W to 33°46'N 122°38'W to 35°13'N 123°34'W to 35°29'N 123°00'W to 35°04'N 122°43'W to point of beginning.
W-537	Santa Barbara, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Commander, Pacific Missile Range, Point Mugu, Calif That airspace included in Control Area 1176 which lies west of 120°30'W. Note: Prior approval required before entering Control Area 1176 West of 120°30'W.
W-601	Cape Flattery, Wash	To FL 600	Cont	Cont	VFR-IFR	FAA, ARTCC, Seattle, Wash COMFAIRWHIDBEY NAS Whidbey Island Autovon 368-2870 or 2881 and 554-3340 ORchard 5-2211, Extn 3643-2323 Beginning at 48°27'N 125°15'W to 48°17'N 125°15'W to 48°17'N 125°45'W to 48°27'N 125°45'W to point of beginning.
W-602	Gulf of Mexico—South of Houston, Tex	To FL 450	Cont	Cont	VFR-IFR	HQ, 2nd AF, Barksdale AFB, La Beginning at 28°10'N 94°58'W to 28°10'N 94°14'W to 27°22'N 93°26'W to 26°00'N 95°05'W to point of beginning.
R-2101	Anniston Army Depot, Ala	To 5,000' Beginning at 33°41'N 86°01'W to 33°41'N 85°59'W to 33°41'N 85°59'W to 33°40'N 86°00'W to 33°40'N 86°00'30'W to the point of beginning.	Mon-Sat	1300-2400Z	VFR-IFR	CO, Anniston Army Depot, Ala

II-14 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-2102	Fort McClellan, Ala	Subarea A To 5000' Subarea B 5000' To 14,000' Subarea C 14,000' To 24,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Atlanta, Ga CO, Fort McClellan, Ala
		Beginning at 33°45'00"N 85°53'55"W to 33°44'07"N 85°53'36"W to 33°44'07"N 85°52'55"W to 33°41'04"N 85°52'55"W to 33°40'15"N 85°54'00"W to 33°41'20"N 85°55'30"W to 33°41'20"N 86°01'07"W to 33°43'55"N 86°01'07"W to 33°44'11"N 86°00'54"W to 33°45'00"N 86°00'45"W to 33°45'20"N 86°00'31"W to 33°45'27"N 86°00'16"W to 33°45'27"N 85°59'26"W to 33°45'14"N 85°59'26"W to 33°45'14"N 85°55'17"W to 33°45'00"N 85°55'17"W to the point of beginning.				
R-2103	Fort Rucker, Ala	To 15,000' A circular area 4 SM in radius centered on a point 31°27'N 85°48'W.	Cont	Cont	VFR-IFR	CG, USA Aviation Cen, Fort Rucker, Ala
R-2104A	Huntsville, Ala	To 30,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Memphis, Tenn Commanding General, United States Army Missile Command, Redstone Arsenal, Ala
		Beginning at 34°40'N 86°38'W to 34°34'N 86°38'W, thence W along the Tennessee River to 34°35'N 86°43'W to 34°37'19"N 86°43'20"W to 34°37'19"N 86°43'05"W to 34°41'N 86°43'W to 34°42'N 86°42'W to 34°40'N 86°41'W to the point of beginning.				
R-2104B	Huntsville, Ala	To 2,400'	Cont	Cont	VFR-IFR	FAA, ARTCC, Memphis, Tenn Commanding General, United States Army Missile Command, Redstone Arsenal, Ala
		Beginning at 34°40'N 86°38'W to 34°39'N 86°36'W to 34°38'N 86°36'W to 34°38'N 86°35'W to 34°35'N 86°35'W, thence W along the Tennessee River to 34°34'N 86°38'W to the point of beginning.				
R-2301	Ajo, Ariz	To FL 800①	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, NM Comdr, Luke AFB, Ariz 935-7411, Extn 2022 or 2023
		Beginning at 32°50'N 112°49'W to 32°12'N 112°57'W to 32°12'N 113°06'W to 31°58'N 113°06'W along US-Mexican border to 32°24'N 114°29'W to 32°30'N 114°29'W to 32°30'N 114°31'W to 32°35'N 114°31'W to 32°35'N 114°29'W to 32°40'N 114°29'W to 32°41'N 114°18'W along Southern Pacific RR and US Highway 80 to 32°44'N 113°41'W to 32°46'N 113°35'W to the point of beginning; ①excluding that airspace below 3,000 ft MSL N of a line beginning at 32°41'N 114°18'W to 32°38'N 114°13'W to 32°38'N 114°09'W to 32°43'N 113°45'W to 32°44'N 113°41'W.				
R-2302	Flagstaff, Ariz	To 11,000'	Mon-Sat	1500-0700Z		CO, Navajo Ordnance Depot, Flagstaff, Ariz
		A circular area with a 6,600-foot radius centered at 35°10'N 111°51'W.				
R-2303A	Fort Huachuca, Ariz	To 35,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, NM CG, U. S. Army Electronic Proving Ground, Fort Huachuca, Ariz
		Beginning at 31°29'N 110°01'W to 31°29'N 110°15'W to 31°34'N 110°15'W to 31°34'N 110°22'W to 31°33'N 110°23'W to 31°29'N 110°23'W to 31°29'N 110°41'W to 31°34'N 110°44'W to 31°39'N 110°42'W to 31°39'N 110°40'W to 31°41'N 110°34'W to 31°41'N 110°12'W to 31°36'N 110°03'W to point of beginning.				
R-2303B	Fort Huachuca, Ariz	15,000'—35,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, NM CG, U. S. Army Electronic Proving Ground, Fort Huachuca, Ariz
		Beginning at 31°29'N 110°41'W to 31°29'N 110°23'W to 31°33'N 110°23'W to 31°34'N 110°22'W to 31°34'N 110°22'W to 31°34'N 110°15'W to 31°29'N 110°18'W to 31°24'N 110°18'W to 31°24'N 110°39'W to point of beginning.				
R-2304	Gila Bend, Ariz	To FL 240	Mon-Fri	Days	VFR-IFR	FAA, ARTCC, Albuquerque, NM Comdr, Luke AFB, Ariz 935-9311, Extn 2022 or 2023
		Beginning at 32°39'N 112°18'W to 32°27'N 112°18'W to 32°27'N 112°44'W to 32°49'N 112°39'W to point of beginning.				
R-2305	Gila Bend, Ariz	To FL 240	Cont	Days	VFR-IFR	FAA, ARTCC, Albuquerque, NM Comdr, Luke AFB, Ariz 935-9311, Extn 2022 or 2023
		Beginning at 32°50'N 112°49'W to 32°51'N 112°43'W to 32°49'N 112°39'W to 32°29'N 112°43'W to 32°29'N 112°54'W to point of beginning.				
R-2306A	Yuma West, Ariz.	Surface to FL 240	Cont	Cont	VFR-IFR	Los Angeles ARTC Center Commanding Officer Yuma Proving Ground
		Beginning at 33°15'N 114°15'W thence south along State Highway 95 to 33°00'N 114°17'W to 33°00'N 114°30'W to 33°03'N 114°30'W to 33°03'N 114°34'W to 33°15'N 114°35'W to the point of beginning.				
R-2306B	Yuma West, Ariz.	Surface to FL 240	Cont	Cont	VFR-IFR	Los Angeles ARTC Center Commanding Officer Yuma Proving Ground
		Beginning at 33°28'N 114°13'W thence south along State Highway 95 to 33°15'N 114°15'W to 33°15'N 114°30'W to 33°26'N 114°30'W to 33°28'N 114°28'W to the point of beginning.				

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-2307	Yuma, Ariz	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, Yuma Proving Ground, Yuma, Ariz Beginning at 32°52'N 114°00'W to 32°53'N 113°50'W to 32°58'N 113°37'W to 33°02'N 113°37'W to 33°02'N 113°57'W to 33°00'N 114°11'W to 33°00'N 114°30'W thence along the west bank of the Colorado River to 32°52'N 114°28'W to 32°53'N 114°21'W to 32°51'N 114°21'W to the point of beginning.
R-2308A	Yuma East, Ariz	1500' AGL to FL 200	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, Yuma Proving Ground, Yuma, Ariz. Beginning at 33°28'N 114°13'W to 33°24'N 113°39'W to 33°18'N 113°22'W to 33°15'N 113°20'W to 33°13'N 113°18'W to 33°06'N 113°20'W to 33°04'N 113°24'W to 33°02'N 113°27'W to 33°02'N 113°57'W to 33°00'N 114°11'W to 33°00'N 114°17'W thence north along State Highway 95 to point of beginning.
R-2308B	Yuma East, Ariz	To FL 200	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, Yuma Proving Ground, Yuma, Ariz Beginning at 33°02'N 113°45'W to 33°18'N 113°45'W to 33°18'N 113°39'W to 33°02'N 113°39'W to point of beginning.
R-2401	Fort Chaffee, Ark	To 13,000' MSL	1 Jun thru 31 Aug 1 Sep thru 31 May	Cont	VFR-IFR	FAA, ARTCC, Memphis, Tenn CG, Fort Chaffee, Ark Beginning at 35°19'N 94°12'W to 35°18'N 94°16'W to 35°17'N 94°18'W to 35°16'N 94°19'W to 35°14'N 94°15'W to 35°14'N 94°12'W to point of beginning.
R-2402	Fort Chaffee, Ark	To 30,000' MSL	1 Jun thru 31 Aug 1 Sep thru 31 May	Cont	VFR-IFR	FAA, ARTCC, Memphis, Tenn CG, Fort Chaffee, Ark Beginning at 35°17'N 94°12'W to 35°14'N 94°12'W to 35°14'N 94°11'W to 35°11'N 94°11'W to 35°11'N 94°01'W to 35°17'N 94°02'W to 35°18'N 94°06'W to 35°17'N 94°10'W to point of beginning.
R-2403	Little Rock, Ark	To 6,000'	Sat-Sun	1300Z Sat- 2300Z Sun	VFR-IFR	FAA, Little Rock App Con Adjutant General, State of Ark, Little Rock, Ark Beginning at 34°57'N 92°15'W to 34°52'N 92°15'W to 34°52'N 92°20'W to 34°57'N 92°20'W to the point of beginning.
R-2404	Mountain Home, Ark (Temporary)	①	Cont Mon thru Sat Apr 27, 1967 thru Oct 15, 1967	Maximum daily use 9½ hrs	VFR-IFR	FAA, Memphis ARTCC Joint Task Force Two, Sandia Base, N Mex Boundaries: The airspace 4.6 SM on each side of two courses defined by coordinates as follows: Navigational Course No. 1 Beginning at 36°15'N 92°15'W; thence to 35°40'N 92°52'W; thence to 35°21'N 93°20'W; thence to 34°44'N 93°39'W; thence to 34°23'N 94°03'W; thence to 34°02'N 94°34'W. Navigational Course No. 2 Beginning at 36°15'N 92°15'W; thence to 35°40'N 93°04'W; thence to 35°10'N 93°40'W; thence to 34°59'N 93°47'W; thence to 34°41'N 94°20'W; thence to 34°20'N 94°39'W; excluding the airspace within three SM of the Clarksville, Arkansas airport. ① To 2500' MSL from point of beginning to a line drawn from 36°00'N 92°44'W to 35°50'N 92°35'W; thence to 3600' MSL to the south edge of V-74 North Alternate; thence to 4000' MSL to the ends of both courses.
R-2501	Bullion Mts, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CG, Marine Corps Base, Twentynine Palms, Calif Beginning at 34°41'N 116°03'W to 34°36'N 115°58'W to 34°33'N 115°47'W to 34°25'N 115°47'W to 34°25'N 115°44'W to 34°14'N 115°44'W to 34°14'N 116°17'W to 34°30'N 116°27'W to 34°41'N 116°30'W to 34°43'N 116°26'W to 34°43'N 116°17'W to point of beginning.
R-2502	Fort Irwin, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CG, Camp Irwin, Calif Beginning at 35°38'N 116°30'W to 35°35'N 116°30'W to 35°35'N 116°24'W to 35°29'N 116°19'W to 35°19'N 116°19'W to 35°07'N 116°34'W to 35°07'N 116°48'W to 35°10'N 116°49'W to 35°19'N 116°49'W to 35°19'N 116°55'W to 35°38'N 116°55'W to point of beginning.

II-16 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-2503	Camp Pendleton, Calif	To 15,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, El Toro APP CON CG, Camp Pendleton, Calif
	Beginning at 33°24'N 117°15'W to 33°18'N 117°16'W to 33°18'N 117°17'W to 33°18'N 117°22'W to 33°28'N 117°33'W to 33°30'N 117°29'W to point of beginning					
R-2504	Camp Roberts, Calif	To 5,000' MSL	Mon-Fri	1400-0800Z	VFR-IFR	FAA, ARTCC, Oakland, Calif CG, Fort Ord, Calif
	Beginning at 35°42'N 120°48'W to 35°42'N 120°47'W to 35°43'N 120°46'W to 35°47'N 120°45'W to 35°48'N 120°46'W to 35°49'N 120°46'W to 35°51'N 120°46'W to 35°51'N 120°48'W to 35°49'N 120°50'W to 35°46'N 120°50'W to 35°44'N 120°48'W to 35°43'08" N 120°49'00" W to 35°42'44" N 120°48'48" W to the point of beginning.					
R-2505	China Lake, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Naval Ordnance Test Station, China Lake, Calif FR 7-7411, Ext 8462 China Lake, Calif
	Beginning at 36°14'N 117°53'W to 36°14'N 117°25'W to 35°41'N 117°25'W to 35°38'N 117°36'W to 35°38'N 117°48'W to 35°54'N 117°53'W to point of beginning.					
R-2506	China Lake South, Calif	To 6,000'	Mon-Fri	Days	VFR-IFR	FAA, ARTCC Los Angeles, Calif Comdr, Naval Ordnance Test Station, China Lake, Calif FR 7-7411, Ext 8462 China Lake, Calif
	Beginning at 35°38'N 117°41'W to 35°28'N 117°41'W to 35°28'N 117°47'W to 35°38'N 117°48'W to point of beginning.					
R-2507	Chocolate Mt, Calif	To FL 400	Cont	Cont	VFR-IFR	FAA, ARTCC Los Angeles, Calif CO, U. S. MCAS, Yuma, Arizona SU 3-8821, Ext 317 Yuma, Ariz
	Beginning at 33°33'N 115°34'W to 33°32'N 115°32'W to 33°31'N 115°27'W to 33°29'N 115°20'W to 33°26'N 115°15'W to 33°24'N 115°17'W to 33°22'N 115°12'W to 33°23'N 115°10'W to 33°09'N 114°57'W to 33°01'N 115°06'W to 33°22'N 115°33'W to 33°24'N 115°33'W to 33°29'N 115°42'W to the point of beginning.					
R-2508	Complex, Calif	20,000' to Unltd	Cont	Cont Normally unavailable weekday daylight hours	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Naval Ordnance Test Station, China Lake, Calif
	Beginning at 37°12'N 117°20'W to 35°34'N 116°23'W to 35°29'N 116°19'W to 35°19'N 116°19'W to 35°07'N 116°34'W to 35°07'N 116°48'W to 35°09'N 116°49'W to 35°07'N 116°59'W to 34°54'N 117°12'W to 34°50'N 117°32'W to 34°49'N 117°32'W to 34°48'N 117°35'W to 34°48'N 118°01'W to 34°50'N 118°06'W to 34°52'N 118°06'W to 34°56'N 118°21'W to 35°15'N 118°35'W to 37°12'N 118°35'W to point of beginning.					
R-2509	Cuddeback Dry Lake, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, George AFB, Calif
	Beginning at 35°25'N 117°26'W to 35°25'N 117°17'W to 35°16'N 117°17'W to 35°16'N 117°26'W to the point of beginning.					
R-2510	El Centro, Calif	To 20,000' 20,000-FL 500	Cont Mon-Fri	Cont Days	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, U. S. MCAS, Yuma, Arizona
	Beginning at 32°00'N 115°44'W to 32°56'N 115°40'W to 32°54'N 115°40'W thence counter clockwise along the arc of a 5SM radius circle centered at 32°49'N 115°40'W to 32°50'N 115°45'W to 32°50'N 115°55'W to 32°56'N 115°55'W to 33°01'N 116°02'W to 33°07'N 115°57'W to 33°07'N 115°51'W to point of beginning.					
R-2511	Fort Ord, Calif	To 5,000'	Cont	Cont	VFR-IFR	FAA, Monterey APP CON CG, Fort Ord, Calif
	Beginning at 36°38'N 121°49'W to 36°38'N 121°46'W; thence counterclockwise around the arc of a 3SM radius circle centered at 36°41'N 121°46'W to 36°39'N 121°44'W to 36°38'N 121°43'W to 36°36'N 121°43'W to 36°35'N 121°47'W; thence counterclockwise along the arc of a 3SM radius circle centered at 36°36'N 121°51'W to point of beginning.					
R-2512	Holtville, Calif	To 23,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, U.S. MCAS, Yuma, Arizona SU 3-8821, Ext 317 Yuma, Ariz
	Beginning at 33°05'N 115°18'W to 33°00'N 115°14'W to 32°51'N 115°06'W to 32°51'N 115°17'W to 32°58'N 115°18'W to 33°05'N 115°20'W to point of beginning.					
R-2513	Hunter Liggett, Calif	To FL 240	Cont	Cont	VFR-IFR	FAA, Oakland ARTCC, Calif CG, Fort Ord, Calif
	From 36°04'N 121°23'W to 36°03'N 121°18'W to 35°59'N 121°14'W to 35°57'N 121°10'W to 35°55'N 121°06'W to 35°48'N 121°11'W to 35°51'N 121°16'W to 35°51'N 121°17'W to 35°58'N 121°24'W to 35°58'N 121°22'W to 36°02'N 121°25'W to the point of beginning.					
R-2514	Merced (Castle AFB) Mil Climb Corridor, Calif	A. 0-3 NM To FL 230 B. 3-6 NM 2,000'—FL 230 C. 6-11 NM 5,000'—FL 230 D. 11-15 NM 10,000'—FL 230 E. 15-19 NM 14,000'—FL 230 F. 19-25 NM 16,000'—FL 230	Cont	Cont	VFR-IFR	Castle AFB APP CON, Calif RA 3-1611, Ext 2104 or 2179 Merced, Calif
	From a point of beginning at 37°25'N 120°36'W, the area centered on a bearing therefrom of 320°, extending to a point 25 NM NW, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	MONTH OF DAY	WEATHER	
R-2515	Muroc Lake, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comur, Edwards AFB, Calif
			Beginning at 35°19'N 116°49'W to 35°10'N 116°49'W to 35°09'N 116°49'W to 35°07'N 116°59'W to 34°54'N 117°12'W to 34°50'N 117°32'W to 34°49'N 117°32'W to 34°48'N 117°35'W to 34°48'N 118°01'W to 34°50'N 118°06'W to 35°01'N 118°06'W to 35°28'N 117°26'W to 35°16'N 117°26'W to 35°16'N 116°55'W to 35°19'N 116°55'W to point of beginning.			
R-2516	Pt. Arguello, Calif	Unltd	Cont	Cont	VFR-IFR	Comdr, Air Force Western Test Range, Vandenberg AFB, Calif. 805-866-1611 Extn 865-2405
			Beginning at 35°00'N 120°42'W to 34°49'N 120°27'W to 34°46'N 120°27'W to 34°40'N 120°31'W to 34°35'N 120°32'W to 34°35'N 120°43'W thence 3 NM from and parallel to the shoreline to the point of beginning.			
R-2517	Pt. Arguello, Calif	Unltd	Cont	Cont	VFR-IFR	Comdr, Air Force Western Test Range, Vandenberg AFB, Calif. 805-866-1611 Extn 865-2405
			Beginning at 34°35'N 120°43'W to 34°35'N 120°32'W to 34°25'N 120°27'W to 34°24'N 120°30'W thence 3 NM from and parallel to the shoreline to the point of beginning.			
R-2518	Offshore, Calif	To 2,000'	Cont	Days	VFR	Fleet Air Control and Surveillance Facility, San Diego, Calif. Officer in Charge (FACS FACS DIEGO) 437-6826 Autovon 831-3925
			A circular area with a 300 yard radius centered at 33°02'04"N 118°36'47"W.			
R-2519	Point Mugu, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Pacific Missile Range, Pt. Mugu, Calif, Area Code 805 488-3511, Oxnard, Calif, Extn 7545 Attn Rng Schedule Officer
			Beginning at 34°07'N 119°07'W to 34°04'N 119°04'W to 34°02'N 119°04'W thence 3 NM from and parallel to the shoreline to 34°06'N 119°13'W to 34°06'N 119°11'W to 34°07'N 119°10'W to point of beginning.			
R-2520	Point Mugu, Calif	To 3,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Pacific Missile Range, Pt. Mugu, Calif, Area Code 805 488-3511, Oxnard, Calif, Extn 7545 Attn Rng Schedule Officer
			Beginning at 34°09'N 119°06'W to 34°07'N 119°05'W to 34°06'N 119°05'W to 34°07'N 119°07'W to 34°07'N 119°09'W to 34°09'N 119°08'W to the point of beginning.			
R-2521	Salton Sea, Calif	To FL 400 days To 4000' nights	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif CO, Naval Air Facility, El Centro, Calif
			Beginning at 33°18'N 115°44'W to 33°11'N 115°44'W to 33°11'N 115°50'W to 33°23'N 115°59'W to 33°26'N 115°54'W to point of beginning.			
R-2524	Trona, Calif	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, NOTS, China Lake, Calif
			Beginning at 35°48'N 116°55'W to 35°16'N 116°55'W to 35°16'N 117°17'W to 35°25'N 117°17'W to 35°25'N 117°26'W to 35°36'N 117°26'W to 35°48'N 117°17'W to point of beginning.			
R-2525	Vernalis, Calif	To 17,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Oakland, Calif COMFAIRALAMEDA, Calif 523-2200, Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245
			A 5 NM radius circle centered 37°24'N 121°20'W.			
R-2529	Fort Ord West, Calif	To 1,000'	Cont	30 min before SR to 30 min after SS	VFR-IFR	FAA, Monterey APP CON CG, Fort Ord, Calif
			Beginning at 36°42'N 121°50'W to 36°41'N 121°48'W thence south along California State Highway 1 to 36°38'N 121°50'W to 36°38'N 121°52'W to point of beginning.			
R-2530	Sierra Army Depot, Calif	To 8,600' MSL	Mon-Fri	1600Z-0200Z	VFR-IFR	CO, Sierra Army Depot Herlong, Calif
			Beginning at 40°18'N 120°05'W to 40°18'N 120°03'W to 40°16'N 120°03'W to 40°16'N 120°05'W to the point of beginning.			
R-2531	Tracy, Calif	To 4000'	Mon-Fri	1800-0200Z dur Pacific Standard Time 1700-0100Z dur Pacific Daylight Time	VFR-IFR	United States Atomic Energy Coman, San Francisco, Operations Office, Calif
			Beginning at 37°41'N 121°34'W to 37°41'N 121°31'W to 37°39'N 121°30'W to 37°39'N 121°31'W to 37°39'N 121°34'W thence to the point of beginning.			

II-18 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-2601	Fort Carson, Colo.	To 35,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Denver, Colo CG, Fort Carson, Colo Beginning at 38°32'N 104°49'W to 38°32'N 104°45'W to 38°43'38"N 104°45'50"W to 38°43'43"N 104°46'20"W to 38°42'58"N 104°48'30"W to 38°43'12"N 104°49'07" W thence SW along Colo Highway 115 to 38°39'N 104°52'W to 38°36'N 104°52'W to point of beginning.
R-2602	Fort Carson, Colo.	To 35,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Denver, Colo CG, Fort Carson, Colo Beginning at 38°39'N 104°52'W to 38°36'N 104°52'W to 38°32'N 104°49'W to 38°32'N 104°45'W to 38°26'N 104°45'W to 38°26'N 104°57'W to 38°33'N 104°57'W thence Northerly along Colorado Hwy 115 to point of beginning.
R-2801	Bethany Beach, Del	To 23,500' MSL	① Mon thru Fri 1 Jun thru 30 Sep	1300-0100Z dur Eastern Standard Time 1200-2400Z dur Eastern Daylight Time	VFR-IFR	FAA, Salisbury, Maryland/FSS Adjutant General, State of Delaware, Wilmington, Del
			① Sat and Sun 1 Oct thru 31 May	1300-2100Z dur Eastern Standard Time 1200-2000Z dur Eastern Daylight Time		
			Beginning at 38°31'N 75°03'W to 38°34'N 75°00'W thence 3 NM from and parallel to the shoreline to 38°27'N 74°59'W to 38°29'N 75°03'W to point of beginning. ① By NOTAM 48 hours in advance during the above periods.			
R-2901A	Avon Park North, Fla	500' MSL to 6,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, MacDill AFB, Fla Beginning at 27°45'N 81°21'W to 27°53'N 81°24'W to 27°55'N 81°18'W to 27°45'N 81°14'W to point of beginning.
R-2901B	Avon Park South, Fla	500' MSL to 6,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, MacDill AFB, Fla Beginning at 27°35'N 81°10'W to 27°26'N 81°01'W to 27°23'N 81°05'W thence along Highway 98 to 27°23'N 81°07'W to 27°33'N 81°17'W to 27°33'N 81°12'W to point of beginning.
R-2901C	Avon Park West, Fla	To FL 240	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, MacDill AFB, Fla Beginning at 27°36'N 81°08'W to 27°35'N 81°10'W to 27°33'N 81°12'W to 27°33'N 81°17'W to 27°33'N 81°22'W thence North along Arbuckle Creek to Arbuckle Lake and along the east and north shore of Arbuckle Lake to 27°43'N 81°25'W to 27°45'N 81°25'W to 27°45'N 81°21'W to 27°45'N 81°12'W to point of beginning.
R-2901D	Avon Park East, Fla	To 13,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, MacDill AFB, Fla Beginning at 27°45'N 81°10'W to 27°37'N 81°07'W to 27°36'N 81°08'W to 27°45'N 81°12'W to point of beginning.
R-2902A	Cape Kennedy, Fla.	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, Air Force Eastern Test Range, ETOOT-1, Cape Kennedy AFS, Fla. 853-5941 (duty hours). 494-7001 (after duty hours Sat, Sun and hol).
			Beginning at 28°42'N 80°35'W thence three NM from and parallel to the shoreline to 28°25'N 80°31'W to 28°25'N 80°42'W to 28°31'N 80°44'W to 28°37'35"N 80°46'50" W to 28°38'00"N 80°47'02" W to point of begining.			
R-2902B	Cape Kennedy, Fla	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Miami, Fla Comdr, Air Force Eastern Test Range, ETOOT-1, Cape Kennedy AFS, Fla. 853-5941 (duty hours). 494-7001 (after duty hours Sat, Sun and hol).
			Beginning at 28°54'N 80°44'W; thence 3 nautical miles from and parallel to the shorelines to 28°42'N 80°35'W; to 28°38'N 80°47'W; to 28°49'N 80°51'W; to 28°50'N 80°51'W; to 28°53'N 80°48'W; to the point of beginning.			
R-2903A	Jacksonville, Fla	To 10,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla Beginning at 30°16'N 81°43'W; clockwise along an arc of a circle 2½ NM in radius centered at 30°14'N 81°41'W; to 30°11'N 81°41'W; to 29°59'N 81°41'W; to 29°59'N 82°02'W; to 30°22'N 82°02'W; to 30°21'N 81°56'W; to 30°16'N 81°50'W; to point of beginning.

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-2903B	Stevens Lake, Fla	To FL 600	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla Beginning at 29°56'N 82°00'W to 30°02'N 81°55'W to 30°00'N 81°52'W to 29°54'N 81°58'W to 29°51'N 81°49'W to 29°48'N 81°51'W to 29°51'N 81°58'W thence clockwise along an arc of a circle with a 3 NM radius centered at 29°53'N 82°00'W to the point of beginning, excluding that area 1 NM either side of a 220° bearing from, and more than 1 1/2 NM from 29°53'N 82°00'W.
R-2903C	Putnam, Fla	To 14,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla The area within a 3 NM radius of 29°47'N 81°41'W.
R-2903D	Jacksonville West, Fla	1,200' AGL to FL 230	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla Beginning at 30°22'N 82°02'W to 29°56'N 82°02'W counterclockwise along an arc of a circle 3 NM in radius centered at 29°53'N 82°00'W to 29°54'N 82°04'W to 30°00'N 82°20'W to 30°03'N 82°20'W to 30°22'N 82°20'W to point of beginning.
R-2903E	Jacksonville North, Fla	To FL 230	Cont	Cont	VFR-IFR	FAA, ARTCC Jacksonville, Fla Commander, Fleet Air Jacksonville, NAS Jacksonville, Fla Beginning at 30°16'N 81°50'W to 30°16'N 82°02'W to 30°22'N 82°02'W to 30°21'N 81°56'W to point of beginning.
R-2906	Rodman, Fla	Within NW, SW extension to 6,000' within 3 nm radius to 14,000'	Cont	SR to 0500Z	IFR-VFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla Within a 3 NM radius of 29°29'N 81°46'W and within 1.5 NM either side of the 240° and 300° bearings from the center extending from the 3 NM radius to 10 NM NW and SW of the center.
R-2907	Lake George, Fla	To FL 500	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla Beginning at 29°23'N 81°32'W to 29°20'N 81°31'W to 29°13'N 81°30'W to 29°13'N 81°40'W to 29°23'N 81°40'W to the point of beginning.
R-2908	Pensacola, Fla	To 12,000'	Cont	Days	VFR-IFR	Chief of Naval Air Basic Tng, NAS Pensacola, Fla GL 5-3211, Extn 5262/7246 (day) Extn 7253 (ngt, wk-ends & holidays) Bounded on the N by the Alabama-Florida shoreline, on the E by a line extending from 30°15'N 87°41'W to 30°11'N 87°44'W, on the S by a line 3 NM from and parallel to the Alabama-Florida shoreline and on the W by 88°02'W.
R-2909	Pensacola, Fla	To 12,000'	Cont	Days	VFR-IFR	Chief of Naval Air Basic Tng, NAS Pensacola, Fla GL 5-3211, Extn 5262/7246 (day) Extn 7253 (ngt, wk-ends & holidays) Bounded on the N by the Florida shoreline; on the E by 86°48'W; on the S by a line 3 NM from and parallel to the Florida shoreline; and on the W by a line extending from 30°18'N 87°00'W to 30°21'N 87°01'W.
R-2910	Pinecastle, Fla	Within SE, NW extensions to 6,000' within 5 nm circle to FL 370	Cont	Cont	VFR-IFR	FAA, ARTCC Jacksonville, Fla COMFAIRJAX, NAS Jacksonville, Fla EV 9-7711, Extn 500/8250 (ngts wk- ends, & holidays) A circular area with a 5 NM radius centered at 29°07'N 81°43'W including the area within 2.5 NM either side of the 137° and the 317° bearings from the center of the circular area extending from the 5 NM radius to 10 NM SE and NW of the center.
R-2912	Panama City, Fla	700' MSL to 5,000' MSL	Mon-Fri	1200-2400Z	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Commander, Tyndall AFB, Fla. Atlantic 6-2111, Extn 3111/4111 Beginning at 30°42'N 85°53'W to 30°43'N 85°10'W to 30°09'N 84°38'W to 29°58'N 84°30'W to 29°44'N 84°59'W to point of beginning.
R-2914	Valparaiso, Fla	To FL 500	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, APG, Eglin AFB, Fla Beginning at 30°43'N 86°28'W to 30°44'N 86°11'W to 30°41'N 86°05'W to 30°24'N 85°56'W to 30°11'N 85°56'W thence 3 NM from and parallel to the shoreline to 30°20'N 86°24'W to 30°25'N 86°22'W to 30°25'N 86°25'W to 30°33'N 86°25'W to 30°33'N 86°26'W to 30°37'N 86°26'W to 30°37'N 86°28'W to the point of beginning.

II-20 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-2915A	Eglin AFB, Fla	To FL 500	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Air Proving Ground Comd, Eglin AFB, Fla Beginning at 30°34'N 86°55'W to 30°39'N 86°55'W thence along the L and N Railroad to 30°43'N 86°46'W to 30°43'N 86°38'W to 30°29'N 86°38'W to 30°27'N 86°52'W thence along the Navarre-Milton Highway to point of beginning.
R-2915B	Eglin AFB, Fla	To FL 1200	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Air Proving Ground Comd, Eglin AFB, Fla Beginning at 30°29'N 86°38'W to 30°21'N 86°39'W thence 3 NM from and parallel to the shoreline to 30°20'N 86°48'W to 30°23'20" N 86°48'W to 30°22'50" N 86°52'W to 30°23'50" N 86°52'W to 30°24'20" N 86°48'W to 30°27'N 86°52'W to point of beginning.
R-2916	Cudjoe Key, Fla.	To 14,000' MSL	BY NOTAMS		VFR-IFR	U.S. Air Force Cambridge Laboratory, Office of Aerospace Research, United States Air Force, L.G. Hanscom Field, Bedford, Mass A circular area 4 SM in diameter centered at 24°42'N 81°31'W.
R-3001	Dawsonville, Ga	To 5,000'	Cont	Cont	VFR-IFR	Comdr, AF Systems Command, Andrews AFB, Md A circle of 1.5 SM radius centered at 34°22'N 84°10'W.
R-3002A	Fort Benning, Ga	To 18,000' MSL	Cont	Cont	VFR-IFR	CG, Fort Benning, Ga Beginning at 32°31'N 84°52'W along the Central of Georgia Railroad to 32°32'N 84°41'W to 32°31'N 84°40'W; thence northeast along Upatoi Creek to 32°32'N 84°39'W to 32°19'N 84°39'W; along the Central of Georgia Railroad to 32°21'N 84°47'W; to 32°15'N 84°47'W to 32°15'N 84°53'W; along the Chattahoochee River to 32°15'N 84°56'W; to 32°15'N 84°59'W to 32°20'N 84°59'W; along northwest side of Dixie Road to 32°21'N 84°57'W; to 32°23'N 84°57'W; along Upatoi Creek to 32°24'N 84°54'W to 32°29'N 84°53'W to 32°29'N 84°52'W to 32°30'19" N 84°51'35" W; to 32°30'19" N 84°52'21" W to the point of beginning.
R-3002B	Fort Benning, Ga	18,000' MSL To 29,000' MSL	Cont	Cont	VFR-IFR	FAA ARTCC Atlanta, Ga CO, Fort Benning, Ga Beginning at 32°31'N 84°52'W along the Central of Georgia Railroad to 32°32'N 84°41'W to 32°31'N 84°40'W; thence northeast along Upatoi Creek to 32°32'N 84°39'W to 32°19'N 84°39'W; along the Central of Georgia Railroad to 32°21'N 84°47'W; to 32°15'N 84°47'W to 32°15'N 84°53'W; along the Chattahoochee River to 32°15'N 84°56'W; to 32°15'N 84°59'W to 32°20'N 84°59'W; along northwest side of Dixie Road to 32°21'N 84°57'W; to 32°23'N 84°57'W; along Upatoi Creek to 32°24'N 84°54'W to 32°29'N 84°53'W to 32°29'N 84°52'W to 32°30'19" N 84°51'35" W; to 32°30'19" N 84°52'21" W to the point of beginning.
R-3003	Fort Gordon, Ga	To 4,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CO, Fort Gordon, Ga Beginning at 33°24'N 82°09'W to 33°22'N 82°08'W to 33°22'N 82°09'W to 33°22'N 82°17'W to 33°25'N 82°12'W to point of beginning.
R-3004	Fort Gordon, Ga	To 20,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CO, Fort Gordon, Ga Beginning at 33°22'N 82°12'W to 33°20'N 82°12'W to 33°16'N 82°18'W to 33°17'N 82°23'W to 33°21'N 82°19'W to 33°22'N 82°17'W to point of beginning.
R-3005A	Fort Stewart, Ga	To 29,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CO, Fort Stewart, Ga Beginning at 32°05'N 81°50'W to 32°07'N 81°44'W to 32°06'15" N 81°31'30" W to 32°05'30" N 81°31'30" W to 32°05'N 81°30'W to 31°57'N 81°30'W thence along the arc of a 5 SM circle centered at 31°53'N 81°34'W to 31°57'N 81°31'W thence SW along Georgia Highway 144 to 31°53'N 81°38'W to 31°52'N 81°38'W to 31°56'N 81°53'W to 31°57'N 81°53'W to 32°00'N 81°51'W to the point of beginning.
R-3005B	Fort Stewart, Ga	To 29,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CO, Fort Stewart, Ga Beginning at 32°05'N 81°30'W to 32°04'N 81°23'W thence along the Ogeechee River to 32°01'N 81°20'W to 31°59'N 81°20'W to 31°56'N 81°23'W to 31°54'N 81°29'W thence along the arc of a 5 SM rad circle centered at 31°53'N 81°34'W to 31°57'N 81°30'W to the point of beginning.
R-3005C	Fort Stewart, Ga	To 3,500'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CO, Fort Stewart, Ga Beginning at 31°54'N 81°29'W to 31°51'N 81°36'W to 31°52'N 81°38'W to 31°53'N 81°38'W thence NE along Georgia Highway 144 to 31°57'N 81°31'W thence along the arc of a 5 SM radius circle centered at 31°53'N 81°34'W to the point of beginning.
R-3006	Townsend, Ga	①	Mon-Fri	1100-2300Z	VFR-IFR	FAA, ARTCC Jacksonville, Fla Comdr, Fleet Air Jacksonville, NAS Jacksonville, Fla. Beginning at 31°41'N 81°42'W; to 31°38'N 81°37'W; thence clockwise via the arc of a circle with a 5 NM radius centered at 31°33'N 81°35'W; to 31°33'N 81°41'W; to 31°36'N 81°46'W; to point of beginning.
						① Surface to 14,000 feet MSL within the circle with a 5 NM radius centered at 31°33'N 81°35'W. Surface to 9000 feet MSL within the area beginning at 31°39'N 81°40'W; to 31°38'N 81°37'W; thence counterclockwise along the arc of the circle with a 5 NM radius centered at 31°33'N 81°35'W; to 31°33'N 81°41'W; to 31°34'N 81°44'W; to the point of beginning. Surface to 6000 feet MSL within the area beginning at 31°41'N 81°42'W; to 31°39'N 81°40'W; to 31°34'N 81°44'W; to 31°36'N 81°46'W; to point of beginning.
R-3201	Arco, Id	To 10,000'	Cont	Cont	VFR-IFR	Mgr, Atomic Energy Commission, Idaho Falls, Idaho Beginning at 43°59'N 112°44'W to 43°50'N 112°30'W to 43°32'N 112°35'W to 43°27'N 113°03'W to 43°35'N 113°12'W to 43°49'N 112°50'W to point of beginning.

II-22 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-3803	Fort Polk, La	To 20,000'	Cont 1 Jun - 31 Aug Other times as published by NOTAM 24 hrs in advance	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Polk, La
			Beginning at 31°24'N 93°10'W to 31°23'N 93°10'W to 31°22'N 93°10'W to 31°19'N 93°11'W to 31°19'N 93°20'W to 31°25'N 93°20'W to 31°25'N 93°17'W to 31°24'N 93°13'W to the point of the beginning.			
R-3804A	Fort Polk, La	To 15,000' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Polk, La
			Beginning at 31°01'N 93°08'W to 31°01'N 92°57'W to 31°00'N 92°56'W to 31°00'N 92°54'W to 31°04'N 92°52'W to 31°10'N 92°58'W to 31°10'N 93°01'W to 31°09'N 93°02'W to 31°09'N 93°08'W to the point of beginning.			
R-3804B	Fort Polk, La	To 3,000'	Cont	Cont	VFR-IFR	FAA, Alexandria, La FSS CG, Fort Polk, La
			Beginning at 31°01'N 93°11'W to 31°01'N 93°08'W to 31°06'N 93°08'W to 31°04'N 93°13'W to the point of the beginning.			
R-3804C	Fort Polk, La	15,000' MSL To 29,000' MSL	As published by NOTAM 24 hrs in advance	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Polk, La	
			Beginning at 31°01'N 93°08'W to 31°01'N 92°57'W to 31°00'N 92°56'W to 31°00'N 92°54'W to 31°04'N 92°52'W to 31°10'N 92°58'W to 31°10'N 93°01'W to 31°09'N 93°02'W to 31°09'N 93°08'W to the point of beginning.			
R-3805	New Orleans (NAS New Orleans/Alvin Callender Field) Mil Climb Corridor, La.	A. 0-1 NM 2,000'-14,000' MSL B. 1-2 NM 2,000'-17,000' C. 2-3 NM 2,000'-FL 190 D. 3-4 NM 2,000'-FL 210 E. 4-5 NM 2,000'-FL 230 F. 5-8 NM 4,000' FL 230 G. 8-13 NM 7,000'-FL 230 H. 13-18 NM 12,000'-FL 230 I. 18-25 NM 15,000'-FL 230 J. 25-30 NM FL 200-FL 230	Cont	VFR-IFR	FAA, New Orleans APP CON, La Comdr, NAS New Orleans/Alvin Callender Field, La.	
		Beginning at 29°48'N 90°04'W, the area centered on a bearing therefrom of 201°, extending to a point 30 NM S, having a width of 2 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.				
R-4001	Aberdeen, Md	Unltd	Cont	Cont	VFR-IFR	FAA ARTCC Washington, DC CG, Aberdeen Proving Ground, Md
			Beginning at 39°31'N 76°10'W to 39°29'N 76°08'W to 39°30'N 76°05'W to 39°27'N 76°01'W to 39°20'N 76°12'W to 39°12'N 76°17'W to 39°13'N 76°23'W to 39°18'N 76°20'W to 39°19'N 76°22'W to 39°22'N 76°22'W to 39°23'N 76°21'W to 39°26'N 76°15'W to 39°27'N 76°13'W to point of beginning.			
R-4002	Bloodsworth Is, Md	To 20,000'	Cont SR to 0500Z daily during Eastern Stand- ard Time SR to 0400Z daily during Eastern Day- light Time Other times as specified in a NOTAM issued 48 hrs in advance	VFR-IFR	COMPHIBTRALANT, U. S. Naval Amphibious Base, Little Creek, Norfolk, Va HO 4-1611, Ext 418	
			Beginning at 38°13'N 76°00'W to 38°08'N 76°00'W to 38°08'N 76°09'W to 38°13'N 76°11'W to point of beginning.			
R-4005	Patuxent, Md	To FL 850	Cont	Cont	VFR-IFR	Patuxent APP CON/TWR
		Beginning at 38°06'N 76°34'W to 38°11'N 76°25'W to 38°18'N 76°17'W to 38°18'N 76°15'W to 38°13'N 76°11'W to 38°08'N 76°09'W to 37°55'N 76°03'W to 37°53'N 76°14'W to the point of beginning.				
R-4006	Patuxent, Md	3,500' to FL 850①	Cont	Cont	VFR-IFR	Patuxent APP CON/TWR
		Beginning at 38°41'N 75°46'W to 38°33'N 75°44'W to 38°19'N 75°37'W along the Pennsylvania Railroad to 38°13'N 75°42'W to 38°03'N 75°53'W to 37°55'N 75°53'W to 37°47'N 75°58'W clockwise along the arc of a 5 NM radius centered at 37°48'N 76°04'W to 37°45'N 76°09'W to 37°45'N 76°24'W to 37°51'N 76°32'W to 38°05'N 76°34'W to 38°11'N 76°25'W to 38°30'N 76°04'W to 38°36'N 75°56'W along the Pennsylvania railroad to point of beginning, excluding R-4002①, R-4005, and R-6609①.				
		①NOTE: R-4002 and R-6609 extend from ground to 20,000'.				

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY	
			DAYS OF WEEK	HOURS OF DAY	WEATHER		
R-4007	Patuxent, Md Beginning at 38°21'N 76°14'W to 38°11'N 76°25'W to 38°05'N 76°34'W to 38°15'N 76°37'W to 38°17'N 76°33'W to 38°26'N 76°24'W to point of beginning.	To 5,000'	Cont	Cont	VFR-IFR	Patuxent APP CON/TWR	
R-4101	Camp Edwards, Mass	To 9000'	Cont	1100-2300Z ①	VFR-IFR	FAA, Otis APP CON, Mass 968-4470 CO, Camp Edwards, Mass	
				A circle with a 3 SM radius centered at 41°44'N 70°33'W; excluding the portion NW of a line extending from 41°45'N 70°36'W; to 41°45'N 70°35'W; to 41°46'N 70°34'W; and excluding the portion SE of a line extending from 41°41'N 70°33'W; to 41°42'N 70°32'W; to 41°42'N 70°31'W; to 41°42'N 70°30'W; to 41°43'N 70°31'W; to 41°44'N 70°29'W.			
				① Other times as specified in a NOTAM issued 48 hours in advance.			
R-4103	Falmouth (Otis AFB) Mil Climb Corridor, Mass	A. 0-2 NM To FL 240 B. 2-3 NM 1,000'—FL 240 C. 3-6 NM 2,000'—FL 240 D. 6-11 NM 5,000'—FL 240 E. 11-15 NM 10,000'—FL 240 F. 15-19 NM 14,000'—FL 240 G. 19-25 NM 16,000'—FL 240 H. 25-30 NM FL 200—FL 240	Cont	Cont	VFR-IFR	FAA, Otis APP CON, Mass 968-4470 Comdr, Otis AFB, Mass	
		That area within the United States from a point of beginning at 41°42'N 70°29'W, centered on Otis AFB TACAN 033° rad, extending to a point 30 NM NE, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					
R-4105	No Mans Land Island, Mass	To 20,000'	Cont	1200-0500Z	VFR-IFR	FAA, Quonset APP CON, RI CY 4-4511, Extn 2631/749 Comdr, Fleet Air Quonset, NAS Quonset Point, RI	
		A circular area with a 3SM radius centered at 41°16'N 70°49'W.					
R-4106	N. Eastham, Mass	To 2,000	Cont	1300-0500Z	VFR-IFR	FAA, Otis APP CON, Mass 968-4470 Comdr, Fleet Air Quonset, NAS Quonset Point, RI	
		A circle with a radius of 2SM centered at 41°51'N 70°03'W.					
R-4201	Camp Grayling, Mich	N of 44°47' to 29,000' 1 Jun-31 Aug to 20,000' 1 Sep-31 May. S of 44°47', 9,000'	N of 44°47', Cont 1 Jun- 31 Aug. SR- S of SS 1 Sep- 44°47', Cont 1 Jun-31 Aug	N of 44°47' VFR-IFR Cont 1 Jun- 31 Aug. SR- S of SS 1 Sep- 44°47', Cont 1 Jun-31 Aug	VFR-IFR	FAA, Traverse City FSS, The Adjutant General, State of Michigan, Lansing 1, Mich	
		Beginning at 44°54'N 84°29'W to 44°41'N 84°29'W to 44°41'N 84°40'W to 44°43'N 84°40'W to 44°43'N 84°38'W to 44°47'N 84°38'W to 44°47'N 84°39'W to 44°52'N 84°39'W to 44°52'N 84°37'W to 44°54'N 84°37'W to the point of beginning.					
R-4202	Lake Margrethe, Mich	To 8,200' MSL	1 June 31 Aug (with specific dates to be pub- lished by NOTAM)	Cont	VFR-IFR	The Adjutant General, State of Michigan, Lansing 1, Mich	
		Beginning at 44°37'N 84°51'W to 44°37'N 84°48'W to 44°34'N 84°48'W to 44°34'N 84°50'W to 44°35'N 84°51'W to point of beginning.					
R-4203	Mount Clemens (Selfridge AFB) Mil Climb Corridor, Mich	A. 0-3 NM To FL 240 B. 3-6 NM 2,000'—FL 240 C. 6-10 NM 5,000'—FL 240 D. 10-15 NM 9,000'—FL 240 E. 15-21 NM 14,000'—FL 240 F. 21-26 NM 17,000'—FL 240 G. 26-30 NM FL 200—FL 240	Cont	Cont	VFR-IFR	Selfridge AFB APP CON, Mich 465-1241, Extn 7220	
		Beginning at 42°40'N 82°50'W, the area centered on a bearing therefrom of 008°, extending to a point 30 NM N, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					
R-4204	Oscoda (Wurtsmith AFB) Mil Climb Corridor, Mich	A. 0-3 NM To FL 270 B. 3-6 NM 2,000'—FL 270 C. 6-11 NM 5,000'—FL 270 D. 11-15 NM 10,000'—FL 270 E. 15-20 NM 14,000'—FL 270 F. 20-25 NM 17,000'—FL 270 G. 25-30 NM FL 200—FL 270	Cont	Cont	VFR-IFR	Wurtsmith AFB APP CON, Mich	
		Beginning at 44°26'N 83°27'W, the area centered on a bearing therefrom of 238°, extending to a point 30 NM SW, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					
R-4205	Sault Ste Marie (Kincheloe AFB) Mil Climb Corridor, Mich	A. 0-3 NM To FL 270 B. 3-5 NM 2,000'—FL 270 C. 5-9 NM 4,000'—FL 270 D. 9-15 NM 8,000'—FL 270 E. 15-24 NM 14,000'—FL 270 F. 24-30 NM FL 190—FL 270	Cont	Cont	VFR-IFR	Kincheloe AFB APP CON, Mich Melrose 5-5271, Extn 2243/2105	
		Beginning at 46°12'N 84°26'W, the area centered on a bearing therefrom of 150°, extending to a point 30 NM SE, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					

II-24 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-4207	Upper Lake Huron, Mich	To FL 450	Cont	1100-0300 1 April thru 31 Oct.	VFR-IFR	FAA, ARTCC, Minneapolis, Minn Comdr Permanent Field trng site Det Phelps-Collins ANGB Alpena, Mich
			Thursday	1300-2100		
			thru	1 Nov-31		
			Sunday	March		
						Beginning at 45°17'N 83°00'W to 45°20'N 82°31'W along the U. S.-Canadian border to 44°31'N 82°20'W to 44°28'N 82°47'W to the point of beginning.
R-4208	Marquette (K. I. Sawyer AFB) Mil Climb Corridor, Mich	A. 0-3 NM To FL 270 B. 3-4 NM 3,000'-FL 270 C. 4-6 NM 4,000'-FL 270 D. 6-9 NM 6,000'-FL 270 E. 9-15 NM 9,000'-FL 270 F. 15-24 NM 14,000'-FL 270 G. 24-30 NM FL 200—FL 270	Cont	Cont	VFR-IFR	K. I. Sawyer AFB APP CON, Mich
						Beginning at 46°24'N 87°23'W, the area centered on a bearing therefrom of 009°, extending to a point 30 NM N, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.
R-4301	Camp Ripley, Minn	To 27,000' MSL To 14,500' MSL	1 May thru 31 Oct Sat and Sun 1 Nov thru 30 Apr	Cont	VFR-IFR	FAA, ARTCC, Minneapolis, Minn Commanding Officer, Camp Ripley, Minn
						Beginning at 46°19'N 94°29'W thence along the S bank of the Crow Wing River and the W bank of the Mississippi River to 46°06'N 94°21'W to 46°06'N 94°26'W to 46°09'N 94°26'W to 46°09'N 94°30'W to 46°18'N 94°30'W to the point of the beginning.
R-4305	Lake Superior, Minn	To FL 450	Mon-Fri	Cont	VFR-IFR	FAA, ARTCC, Minneapolis, Minn Comdr 2nd AF, Barksdale AFB, La
						Beginning at 47°45'N 90°05'W to 47°45'N 89°28'W to 46°55'N 89°28'W to 46°55'N 90°05'W to the point of beginning.
R-4401	Camp Shelby, Miss	Subarea A - To 5000' Subarea B - 4000' to 18000' Subarea C - 18000' to 29000'	As activated by NOTAMS at least 24 hrs in advance (1)	VFR-IFR	FAA ARTCC, Houston, Tex. Adjutant General, State of Miss., Jackson, Miss	
						Beginning at 31°13'N 89°11'W to 31°12'N 89°00'W to 31°10'N 88°57'W to 31°09'N 88°57'W thence Southwest along Mississippi State Highway 15 to 31°05'N 88°59'W to 31°05'N 89°11'W to point of beginning.
			(1) NOTAMS to contain information concerning deactivation of area.			
R-4402	Pascagoula, Miss	1,000' MSL to 23,500' MSL	Cont	Days	VFR-IFR	FAA, ARTCC, Houston, Tex Commander, Brookley AFB, Ala
						Beginning at 30°14'N 88°02'W to 30°09'N 88°02'W thence 3 NM from and parallel to the shoreline to 30°11'N 88°42'W to 30°16'N 88°33'W to 30°18'N 88°12'W to the point of beginning.
R-4403	Gainesville, Miss.	To 5,000' MSL	Cont	Cont	VFR-IFR	FAA Houston, ARTC Center Manager, Mississippi Test Operations, NASA, Bay St. Louis, Miss.
						Beginning at 30°21'N 89°37'W to 30°23'N 89°37'W to 30°23'N 89°34'W to 30°21'N 89°34'W to point of beginning.
R-4501A	Fort Leonard Wood West, Mo	To 2200' MSL Mon-Fri; To 11,200' MSL Sat-Sun	Cont	Cont	VFR-IFR	FAA, ARTCC, Kansas City, Mo CG, Fort Leonard Wood, Mo, Rolla, Mo, Maj Gen T. A. Lane, Rolla 2000
						Beginning at 37°41'N 92°09'W to 37°38'N 92°09'W to 37°37'N 92°14'W to 37°37'N 92°15'W to 37°39'N 92°15'W to 37°41'N 92°14'W to the point of beginning.
R-4501B	Fort Leonard Wood East, Mo	To 1,500' MSL the area N of a line btwn 37°42'51"N 92°06'47"W & 37°42'53"N 92°09'W. To 2,200' MSL the area S of this line	Cont	Cont	VFR-IFR	FAA, Kansas City ARTCC, Mo. CG, Fort Leonard Wood, Mo, Rolla, Mo, Maj Gen T. A. Lane, Rolla 2000
						Beginning at 37°43'N 92°07'W to 37°42'N 92°06'14" W to 37°39'N 92°06'17" W to 37°38'N 92°09'W to 37°43'N 92°09'W to the point of beginning.
R-4802	Lone Rock, Nev	To 8,000'	Cont ex Sun	Cont	VFR-IFR	COMFAIRALAMÉDA, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z. Other times Extn 245
						A circular area within a 3 SM radius of 39°53'N 118°21'W.

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-4803	Fallon, Nev	To 8000' N to 18,000' S of a line from 39°28'N 118°58'W to 39°30'N 118°52'W	Cont ex Sun	Cont	VFR-IFR	FAA, ARTCC, Oakland, Calif COMFAIRALAMEDA, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z, Other times Extn 245 A 3 NM radius circle centered at 39°21'N 118°52'W; and within 3 NM W and 2 NM E of a line extending 349.5° from the center to 15 NM NNW.
R-4804	Twin Peaks, Nev	To FL 240	Cont ex Sun	Cont	VFR-IFR	FAA, ARTCC, Oakland, Calif COMFAIRALAMEDA, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z, Other times Extn 245 A 5 NM radius circle centered at 39°13'N 118°13'W; and a 3 NM radius circle centered at 39°14'N 118°18'W.
R-4806	Las Vegas, Nev	Unltd Mon-Sat 13,000' to Unltd Sun	Cont	Cont	VFR-IFR	FAA, ARTCC, Los Angeles, Calif Comdr, Nellis AFB, Las Vegas, Nev Beginning at 37°17'N 115°18'W; to 36°26'N 115°18'W; to 36°26'N 115°23'W; to 36°35'N 115°37'W; to 36°35'N 115°53'W; to 36°36'N 115°56'W; to 37°06'N 115°56'W; to 37°06'N 115°35'W; to 37°17'N 115°35'W; to point of beginning.
R-4807	Tonopah, Nev	Unltd Mon-Sat 13,000' to Unltd Sun	Cont	Cont	VFR-IFR	Commander, Nellis AFB, Nev Beginning at 36°51'N 116°34'W to 37°27'N 117°05'W to 37°53'N 117°01'W to 37°53'N 116°55'W to 37°47'N 116°55'W to 37°33'N 116°43'W to 37°33'N 116°26'W to 37°53'N 116°26'W to 37°53'N 116°11'W to 37°42'N 116°11'W to 37°42'N 115°53'W to 37°33'N 115°53'W to 37°33'N 115°48'W to 37°28'N 115°48'W to 37°28'N 116°00'W to 37°16'N 116°00'W to 37°16'N 116°34'W to the point of beginning.
R-4808	Las Vegas, Nev	To Unltd	Cont	Cont	VFR-IFR	Manager, Nevada Operations Office, U. S. Atomic Energy Commission, 2753 South Highland Drive, Las Vegas, Nev. Beginning at 36°41'N 115°56'W to 36°41'N 116°27'W to 36°51'N 116°27'W to 36°51'N 116°34'W to 37°16'N 116°34'W to 37°16'N 116°00'W to 37°28'N 116°00'W to 37°28'N 115°35'W to 37°06'N 115°35'W to 37°06'N 115°56'W to the point of beginning.
R-4809	Tonopah, Nev	Unltd	Cont	Cont	VFR-IFR	Manager, Atomic Energy Commission, Albuquerque, N. Mex Beginning at 37°53'N 116°26'W to 37°33'N 116°26'W to 37°33'N 116°43'W to 37°47'N 116°55'W to 37°53'N 116°55'W to the point of beginning.
R-4810	Desert Mountains, Nev	To FL 240	Mon-Sat	Cont	VFR-IFR	FAA, ARTCC, Oakland, Calif COMFAIRALAMEDA, Calif 523-2200 Extn 4653 Mon-Fri 1600-0030Z, Other times Extn 245 A 5 NM radius circle centered at 39°10'N 118°38'W; and a 3 NM radius circle centered at 39°09'N 118°42'W.
R-4811	Hawthorne, Nev.	To 15,000'	Mon-Fri	1600-2300Z	VFR-IFR	Comdr, Naval Ammunition Depot, Hawthorne, Nev. A 1½ NM radius circle centered at 38°15'N 118°38'W.
R-4812	Sand Springs, Nev	To FL 240	Mon-Sat	Cont	VFR-IFR	FAA, ARTCC, Oakland, Calif Commander Fleet Air, Alameda That area within 5 NM either side of a line extending from 39°10'N 118°37'W to 39°13'N 118°13'W and bounded on the east by R-4804 and bounded on the west by R-4810.
R-4813	Carson Sink, Nev	To FL 240	Mon-Sat	Days	VFR-IFR	FAA, ARTCC, Oakland, Calif Commander Fleet Air, Alameda That area surrounding R-4802 from 39°51'N 118°38'W to 40°01'N 118°15'W to 40°01'N 118°01'W to 39°53'N 118°01'W thence via the arc of a 15 NM radius circle centered at 39°53'N 118°20'W to 39°46'N 118°38'W to the point of beginning.
R-4902	Nashua, NH	1500' To FL 200	Cont	1400Z to SS	VFR-IFR	FAA, Boston ARTCC; Comdr, USN Operational Test Evaluation Force, Norfolk, Va. Beginning at 42°51'N 71°41'W to 43°03'N 71°55'W to 43°07'N 71°47'W to 42°56'N 71°33'W to point of beginning.
R-5001A	Fort Dix, NJ	Surface to and including 4000'	Cont	Cont	VFR-IFR	FAA, New York ARTCC CG, Fort Dix, N.J. Beginning at 40°03'N 74°27'W; to 40°00'N 74°26'W; to 39°59'N 74°25'W; to 39°58'N 74°25'W; to 39°59'N 74°28'W; to 39°59'N 74°31'W; to 39°59'N 74°34'W; to 40°02'N 74°34'W; to 40°03'N 74°33'W; to the point of beginning.

II-26 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-5001B	Fort Dix, NJ	From 4000' to and including 8000'	Fri-Sun Other Times by NOTAM	Cont 48 Hrs in advance	VFR-IFR	FAA, New York ARTCC CG, Fort Dix, N.J.
		Beginning at 40°03'N 74°27'W; to 40°00'N 74°26'W; to 39°59'N 74°25'W; to 39°58'N 74°25'W; to 39°59'N 74°28'W; to 39°59'N 74°31'W; to 40°02'N 74°34'W; to 40°03'N 74°33'W; to the point of beginning.				
R-5002	Warren Grove, NJ	To 14,000', ex surface to 4000' for the portion N of 39°45'N; surface to 9000' SE of a line btwn 39°44'N 74°18'W and 39°39'N 74°24'W.	Cont	Days	VFR-IFR	FAA, ARTCC, New York, NY Comdr, 108th Tactical Fighter Wing, NJ ANG, McGuire AFB, NJ
		Beginning at 39°46'N 74°20'W to 39°43'N 74°18'W to 39°39'N 74°24'W to 39°40'N 74°26'W to 39°44'N 74°24'W to point of beginning.				
R-5003	Wrightstown (McGuire AFB) Mil Climb Corridor, NJ	A. 0-3 NM 1,500'—FL 230 B. 3-6 NM 2,000'—FL 230 C. 6-11 NM 5,000'—FL 230 D. 11-15 NM 10,000'—FL 230 E. 15-19 NM 14,000'—FL 230 F. 19-25 NM 16,000'—FL 230 G. 25-30 NM FL 200—FL 230	Cont	Cont	VFR-IFR	McGuire AFB APP CON, NJ RA 4-2100, Extn 3385 Trenton, NJ
		Beginning at 39°59'N 74°38'W, the area centered on the McGuire AFB TACAN 224° rad, extending to a point 30 NM SW, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.				
R-5101	Los Alamos, N Mex	To 12,000'	Cont	Cont	VFR-IFR	Mgr Atomic Energy Comrn. Los Alamos, N Mex
		Beginning at 35°45'N 106°15'W to 35°50'N 106°22'W to 35°52'N 106°21'W to 35°53'N 106°17'W to 35°53'N 106°15'W to 35°49'N 106°15'W to 35°47'N 106°12'W to the point of beginning.				
R-5103A	McGregor, N Mex	Untd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex CG, Fort Bliss, Tex
		Beginning at 32°45'N 105°59'W to 32°45'N 105°52'W to 32°35'N 105°30'W to 32°26'N 105°30'W to 32°00'N 105°57'W to 32°00'N 106°10'W to 32°05'N 106°09'W to 32°06'N 106°16'W along the Southern Pacific railroad to 32°28'N 106°02'W to 32°28'N 106°00'W to 32°36'N 106°00'W to the point of beginning, excluding that airspace within a 2 NM radius of 32°40'N 105°40'W; from the surface to 1500' AGL.				
R-5103B	McGregor, N Mex	20,000' to Untd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex CG, Fort Bliss, Tex
		Beginning at 32°45'N 105°52'W to 32°45'N 105°30'W to 32°35'N 105°30'W to the point of beginning.				
R-5104	Melrose, N Mex	To 23,000'	Cont	Days	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, Cannon AFB, N Mex 784-3311, Extn 2253
		Beginning at 34°28'N 103°43'W to 34°25'N 103°40'W to 34°10'N 103°40'W to 34°10'N 103°55'W to 34°28'N 103°55'W to point of beginning.				
R-5105	Melrose, N Mex	To 14,000'	Cont	Days	VFR	FAA, ARTCC, Albuquerque, N Mex Comdr, Cannon AFB, Clovis, N Mex 784-3311, Extn 2253
		Beginning at 34°39'N 103°55'W to 34°39'N 103°40'W to 34°25'N 103°40'W to 34°28'N 103°43'W to 34°28'N 103°55'W to the point of beginning.				
R-5106	Orogrande, N Mex	10,000' MSL to Untd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex CG, Fort Bliss, Tex
		Beginning at 32°36'N 106°00'W to 32°28'N 106°00'W to 32°28'N 106°02'W; along the Southern Pacific Railroad to 32°06'N 106°15'W to 32°07'N 106°17'W to 32°25'N 106°06'W to 32°36'N 106°06'W to point of beginning.				
R-5107A	White Sands Proving Grounds, N Mex	Untd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex CG, Fort Bliss, Tex
		Beginning at 32°23'N 106°07'W to 32°05'N 106°18'W to 32°05'N 106°29'W to 32°06'N 106°34'W to 32°18'N 106°34'W to 32°18'N 106°39'W to 32°20'N 106°40'W to 32°20'N 106°21'W to 32°25'N 106°09'W to the point of beginning.				
R-5107B	White Sands Proving Grounds, N Mex	Untd	Cont	Cont	VFR-IFR	Comdr, Holloman AFB, N Mex
		Beginning at 33°45'N 106°04'W to 32°50'N 106°04'W to 32°36'N 106°06'W to 32°25'N 106°06'W to 32°23'N 106°07'W to 32°25'N 106°09'W to 32°20'N 106°21'W to 32°20'N 106°40'W to 33°13'N 106°52'W to 33°50'N 106°45'W to 33°50'N 106°17'W thence along the S side of U. S. Highway 380 to the point of beginning. The airspace in R-5107D is excluded.				

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-5107C	White Sands Proving Grounds, N Mex	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, Holloman AFB, N Mex
	Beginning at 34°17'N 106°04'W to 33°45'N 106°04'W thence along the S side of U. S. Highway 380 to 33°50'N 106°17'W to 33°50'N 106°45'W to 34°16'N 106°41'W to 34°17'N 106°12'W to the point of beginning.					
R-5107D	White Sands Proving Grounds, N Mex	To 22,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, Holloman AFB, N Mex
	Beginning at 33°11'N 106°04'W to 33°11'N 106°17'W to 33°04'N 106°21'W to 32°34'N 106°15'W to 32°34'N 106°06'W to 32°36'N 106°06'W to 32°50'N 106°04'W to point of beginning.					
R-5109A	White Sands, N Mex	24,000' to Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 33°32'N 105°27'W to 32°45'N 105°27'W to 32°45'N 105°59'W to 32°36'N 106°00'W to 32°36'N 106°06'W to 32°50'N 106°04'W to 33°44'N 106°04'W to the point of beginning.					
R-5109B	White Sands, N Mex	24,000' to Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, Holloman AFB, N Mex
	Beginning at 34°17'N 106°04'W to 34°17'N 105°51'W to 33°57'N 105°27'W to 33°32'N 105°27'W to 33°44'N 106°04'W to the point of beginning.					
R-5111A	Elephant Butte, N Mex (East)	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 33°00'N 106°49'W to 33°00'N 107°00'W to 33°27'N 107°00'W to 33°35'N 106°48'W to 33°13'N 106°52'W to the point of beginning.					
R-5111B	Elephant Butte, N Mex (West)	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 33°00'N 106°49'W to 32°43'N 106°45'W to 32°47'N 107°06'W to 33°00'N 107°13'W to 33°21'N 107°08'W to 33°27'N 107°00'W to 33°00'N 107°00'W to the point of beginning.					
R-5112	Magdalena, N Mex	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 34°33'N 107°41'W to 34°30'N 107°25'W to 34°16'N 107°17'W to 34°02'N 107°28'W to 33°53'N 107°55'W to 33°54'N 108°10'W to 34°09'N 108°18'W to 34°25'N 108°03'W to point of beginning.					
R-5114	Fort Wingate, N Mex	Unltd	Cont	May 5 to July 31, 1967 As published in NOTAMS 24 hrs in advance of use	VFR-IFR	FAA, ARTCC, Albuquerque, N Mex Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 35°27'N 108°35'W; to 35°11'N 108°13'W; to 35°05'N 108°24'W; to 35°24'N 108°38'W; to the point of beginning.					
R-5201	Camp Drum, NY	To 23,000' 1 Apr-30 Sep To 20,000' 1 Oct-31 Mar	Cont	Cont	VFR-IFR	CO, Camp Drum, NY
	Beginning at 44°15'N 75°32'W to 44°11'N 75°25'W to 44°03'N 75°34'W to 44°03'N 75°38'W to 44°07'N 75°44'W to point of beginning.					
R-5202	Gardiners Island, NY	To 10,000'	Cont	1400-2300Z 15 Apr- 14 Oct 1400-2100Z 15 Oct- 14 Apr	VFR	FAA, ARTC New York, NY Comdr, Suffolk AFB, NY
	A circular area with a radius of 3 NM centered at 41°09'N 72°09'W.					
R-5203	Oswego, NY	To FL 320	Cont	Days 1 Apr thru 31 Dec annually	VFR-IFR	Comdr, ANG, Niagara Falls Muni Apt, Niagara Falls, NY 297-4100, Extn 462
	Beginning at 43°37'N 76°45'W to 43°24'N 76°45'W to 43°24'N 78°00'W to 43°37'N 78°00'W to the point of beginning.					
R-5204	Rome (Griffiss AFB) Mil Climb Corridor, NY	A. 0-3 NM To FL 240 B. 3-6 NM 2,000'—FL 240 C. 6-11 NM 5,000'—FL 240 D. 11-15 NM 10,000'—FL 240 E. 15-19 NM 14,000'—FL 240 F. 19-25 NM 16,000'—FL 240 G. 25-30 NM FL 200—FL 240	Cont	Cont	VFR-IFR	FAA Griffiss AFB APP CON, NY Comdr, Griffiss AFB, NY
	Beginning at 43°16'N 75°27'W, the area centered on a bearing therefrom of 314°, extending to a point 30 NM NW, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.					

II-28 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAYS OF WEEK	HOURS OF DAY	WEATHER	
R-5205	Westhampton Beach (Suffolk Co AFB) Mil Climb Corridor, NY	A. 0-3 NM To FL 240 B. 3-6 NM 2,000'—FL 240 C. 6-11 NM 5,000'—FL 240 D. 11-15 NM 10,000'—FL 240 E. 15-19 NM 14'000'—FL 240 F. 19-25 NM 16,000'—FL 240 G. 25-30 NM FL 200—FL 240	Cont	Cont	VFR-IFR	Suffolk Co AFB APP CON Area Code 516 Tel: 288-1900 Ask for Con Twr
		From a point of beginning at 40°52'N 72°36'W, the area centered on the Suffolk Co AFB TACAN 040° radial, extending to a point 30 NM NE, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.				
R-5206	West Point, NY	To 7,000'	1 July thru 31 Aug annually (1 May thru 30 June by NOTAM 48 hrs in advance)	1100-0500Z	VFR-IFR	FAA, ARTCC, New York, NY Supt US Military Academy, West Point, NY
		Beginning at 41°20'N 74°04'W to 41°20'N 74°00'W to 41°21'N 74°00'W to 41°21'N 73°59'W to 41°23'N 73°59'W along U. S. Hwy 9W to 41°23'08" N 73°59'42" W to 41°23'N 74°00'W along NY Hwy 293 to 41°21'N 74°04'W to the point of beginning.				
R-5207	Romulus, NY	To 2,000'	Mon-Fri	1230-2315Z	VFR-IFR	CO, Seneca Army Depot, Romulus, NY
	A circular area with a radius of 1,350' centered at 42°47'N 76°53'W.					
R-5301A	Albemarle Sound, NC	To 5,000'	Cont	Days	VFR-IFR	VACAPES, OPAREA COORD (COMFAIRNORFOLK) NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
	A circular area with a 3 SM radius centered at 36°04'N 76°20'W, excluding the airspace within R-5301B.					
R-5301B	Albemarle Sound, NC	To 5,000'	Cont	Cont	VFR-IFR	VACAPES, OPAREA COORD (COMFAIRNORFOLK) NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
	A circular area with a 1½ NM radius centered at 36°05'N 76°19'W.					
R-5302	Albemarle Sound, NC	To FL 200	Cont	1300-0400Z	VFR-IFR	VACAPES, OPAREA COORD (COMFAIRNORFOLK), NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
	Beginning at 36°04'N 76°03'W to 35°58'N 76°02'W to 35°56'N 76°24'W to 36°01'N 76°25'W to beginning.					
R-5306A	Cherry Point, NC	To FL 350	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
	Beginning at 35°23'N 76°35'W to 35°18'N 76°17'W to 35°05'N 76°05'W to 34°47'N 76°25'W to 34°45'N 76°41'W to 34°42'N 76°56'W to 34°38'N 76°56'W; thence SW along the boundary of W-122 to 34°35'N 77°09'W to 34°45'N 77°15'W to 35°03'N 76°57'W thence to point of beginning.					
R-5306B	Cherry Point, NC	To FL 290	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
	Beginning at 34°45'N 77°15'W to 34°35'N 77°09'W; thence SW along the boundary of W-122 to 34°30'N 77°16'W to 34°33'N 77°19'W to 34°36'N 77°26'W to 34°40'N 77°22'W to 34°39'N 77°21'W thence to point of beginning.					
R-5306C	Cherry Point, NC	To 20,000'	Cont	Cont	VFR-IFR	Marine Cherry Point App Con 268.7 CG, MCAS Cherry Point, N.C.
	Beginning at 34°40'00" N 77°22'00" W to 34°36'N 77°26'W to 34°38'N 77°26'W to 34°40'20" N 77°22'12" W to point of beginning.					
R-5310	Currituck Sound, NC	To 10,000'	Cont	Cont	VFR-IFR	FAA Elizabeth City, N.C. FSS. VACAPES, OPAREA COORD (COMFAIRNORFOLK), NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
	A circular area with a 3 SM radius centered at 36°10'N 75°45'W.					
R-5311	Fort Bragg, NC	To 29,000'	Cont	Cont	VFR-IFR	CG, Fort Bragg, NC HY 7-2311, Ext 33193
	Beginning at 35°11'N 79°02'W to 35°09'N 79°02'W to 35°07'N 79°03'W to 35°06'N 79°02'W to 35°02'N 79°06'W to 35°03'N 79°20'W to 35°07'N 79°23'W to 35°09'N 79°20'W thence along Little River to point of beginning.					
R-5313	Long Shoal Pt, NC	To FL 400	Cont	Cont	VFR-IFR	VACAPES, OPAREA COORD (COMFAIRNORFOLK), NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
	A circular area with a 3 SM radius centered at 35°33'N 75°41'W.					

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-5314	Dare County, NC		Cont	Cont	VFR-IFR	FAA, ARTCC, Washington, DC Commander, 4th Tactical Fighter Wing, Seymour Johnson AFB, NC RE 5-1121, Extn. 109
SUBAREA A	To, but not including FL 240					Beginning at 35°46'N 75°49'W to 35°40'N 75°50'W to 35°42'N 76°00'W to 35°47'N 75°59'W to the point of beginning
SUBAREA B	500' AGL to 14,000' MSL					Beginning at 35°40'N 75°46'W to 35°35'N 75°47'W to 35°37'N 76°01'W to 35°42'N 76°00'W to the point of beginning.
SUBAREA C	500' AGL to 14,000' MSL					Beginning at 35°49'N 75°44'W to 35°45'N 75°45'W to 35°47'N 75°59'W to 35°52'N 75°58'W to 35°50'N 75°45'W to the point of beginning.
SUBAREA D	To 14,000' MSL					Beginning at 35°41'N 75°52'W to 35°39'N 75°53'W to 35°39'N 75°55'W to 35°41'N 75°54'W to the point of beginning.
SUBAREA E	To 14,000' MSL					Beginning at 35°48'N 75°49'W to 35°46'N 75°49'W to 35°46'N 75°53'W to 35°48'N 75°52'W to the point of beginning.
SUBAREA F	500' AGL to, but not including FL 240					Beginning at 35°45'N 75°45'W to 35°40'N 75°46'W to 35°40'N 75°50'W to 35°46'N 75°49'W to the point of beginning.
SUBAREA G	200' AGL to 14,000' MSL					Beginning at 35°50'N 75°58'W to 35°39'N 76°01'W to 35°39'N 76°05'W to 35°50'N 76°03'W to the point of beginning.
SUBAREA H	500' AGL to 5,000' MSL					Beginning at 35°50'N 76°03'W to 35°39'N 76°05'W to 35°40'N 76°12'W to 35°51'N 76°10'W to the point of beginning.
SUBAREA J	1,000' AGL to 5,000' MSL					Beginning at 35°51'N 76°10'W to 35°40'N 76°12'W to 35°44'N 76°36'W to 35°55'N 76°33'W to the point of beginning.
R-5402	Grand Forks (Grand Forks AFB) Mil Climb Corridor, N Dak	A. 0-1 NM To FL 190 B. 1-3 NM To FL 270 C. 3-4 NM 2,000'—FL 270 D. 4-6 NM 3,000'—FL 270 E. 6-11 NM 5,000'—FL 270 F. 11-15 NM 10,000'—FL 270 G. 15-19 NM 14,000'—FL 270 H. 19-25 NM 17,000'—FL 270 I. 25-30 NM FL 200—FL 270	Cont	Cont	VFR-IFR	Grand Forks AFB APP CON, N Dak Grand Forks 23431, Extn 5447, N Dak
		Beginning at 48°01'N 97°24'W, the area centered on the 001° radial of the Red River TACAN, extending to a point 30 NM N, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.				
R-5501	Columbus (Lockbourne AFB) Mil Climb Corridor, Ohio	A. 0-1 NM To FL 200 B. 1-3 NM To FL 240 C. 3-6 NM 2,000'—FL 240 D. 6-11 NM 5,000'—FL 240 E. 11-15 NM 10,000'—FL 240 F. 15-19 NM 14,000'—FL 240 G. 19-25 NM 16,000'—FL 240 H. 25-30 NM FL 200—FL 240	Cont	Cont	VFR-IFR	FAA, Columbus APP CON, Ohio Comdr, Lockbourne AFB, Ohio
		Beginning at 39°47'N 82°59'W, the area centered on a bearing therefrom of 233°, extending to a point 30 NM SW, having a width of 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.				
R-5502	Lacarme, Ohio	Unltd	Cont	Cont	VFR	FAA, ARTCC, Cleveland, Ohio CO, Erie Ordnance Dept, Lacarme, Ohio
		Beginning at 41°51'N 83°09'W to 41°36'N 82°54'W to 41°32'N 83°02'W to 41°32'N 83°03'W to 41°38'N 83°11'W to 41°40'N 83°15'W to 41°46'N 83°20'W to point of beginning.				
R-5503	Wilmington, Ohio	To FL 600	Mon-Sat	1300-0300Z	VFR-IFR	FAA, ARTCC Indianapolis, Ind Aeronautical Systems Division, Wright-Patterson AFB, Ohio W-PAFB, Ext 70637 (Flight Test Radar). Prim 225.8 altn 257.0
		Beginning at 39°08'N 83°02'W to 38°49'N 83°02'W to 38°59'N 84°05'W to 39°13'N 84°05'W to point of beginning.				

II-30 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-5504	Wilmington, Ohio	3,000' to FL 600	Mon-Sat	1300-0300Z	VFR-IFR	FAA, ARTCC Indianapolis, Ind Aeronautical Systems Division, Wright-Patterson AFB, Ohio W-PAFB, Ext 70637 (Flight Test Radar). Prim 225.8 altn 257.0
		Beginning at 39°30'N 83°02'W to 39°08'N 83°02'W to 39°13'N 84°05'W to 39°14'N 84°05'W to 39°18'N 84°03'W to 39°26'N 83°48'W to 39°30'N 83°39'W to the point of beginning, excluding the portion that coincides with Restricted Area R-5501.				
R-5601A	Fort Sill, Okla	To 23,000	Cont	Cont	VFR-IFR	CG, Fort Sill, Okla
		Beginning at 34°38'N 98°17'W to 34°38'N 98°21'W thence counterclockwise along the arc of a 3 SM radius circle centered at 34°38'N 98°24'W to 34°40'N 98°26'W to 34°40'N 98°26'W thence counterclockwise along the arc of a 2.5 SM radius circle centered at 34°38'N 98°24'W to 34°38'N 98°27'W to 34°38'N 98°45'W to 34°42'N 98°45'W to 34°42'N 98°40'W to 34°44'N 98°36'W to 34°43'30" N 98°21'20" W to 34°43'45" N 98°21'00" W to 34°46'N 98°21'W to 34°46'N 98°17'W to the point of beginning.				
R-5601B	Fort Sill, Okla	To 23,000	Cont	Cont	VFR-IFR	FAA, ARTCC, Fort Worth, Tex CG, Fort Sill, Okla
		Beginning at 34°38'N 98°27'W thence clockwise along the arc of a 2.5 SM radius circle centered at 34°38'N 98°24'W to 34°39'33" N 98°26'17" W to 34°40'12" N 98°26'17" W thence clockwise along the arc of a 3 SM radius circle centered at 34°38'N 98°24'W to 34°38'N 98°21'W to the point of beginning.				
R-5601C	Fort Sill, Okla	23,000' to 65,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Fort Worth, Tex CG, Fort Sill, Okla
		Beginning at 34°38'N 98°17'W to 34°38'N 98°45'W to 34°42'N 98°45'W to 34°42'N 98°40'W to 34°44'N 98°36'W to 34°44'N 98°21'W to 34°44'N 98°21'W to 34°46'N 98°21'W to 34°46'N 98°17'W to point of beginning.				
R5603A	McAlester, Okla (Temporary)	①	Cont Mon thru Sat Apr 27, 1967 thru Oct 15, 1967	Maximum daily use 9 1/2 hrs	VFR-IFR	FAA, Memphis ARTCC Joint Task Force Two, Sandia Base, N Mex
		Boundaries: The airspace 4.6 SM on each side of the course defined by coordinates as follows: Beginning at 34°23'N 94°57'W; thence to 34°40'N 96°01'W; thence describing an arc 3.6 SM in radius centered at 34°37'N 96°01'W; to 34°34'N 96°01'W; thence to 34°19'N 95°04'W. ① To 3300' MSL east of, and to 2500' MSL west of a line from 34°40'N 95°38'W to 34°24'N 95°43'W.				
R-5603B	Hugo, Okla (Temporary)	To 2000'	Cont Mon thru Sat Apr 27, 1967 thru Oct 15, 1967	Maximum daily use 9 1/2 hrs	VFR-IFR	FAA, Memphis ARTCC Joint Task Force Two, Sandia Base, N Mex
		Beginning at 34°03'N 94°48'W; thence NW along Oklahoma State Highway #3 to the arc of a 3 SM circle centered at 34°14'N 95°37'W; thence clockwise along this arc to Oklahoma State Highway #3; thence W along Oklahoma State Highway #3 to 34°15'N 95°49'W; thence to 34°08'N 95°49'W; thence to 34°08'N 95°37'W; thence to 34°06'N 95°37'W; thence to 34°05'N 95°32'W; thence to 34°05'N 95°28'W; thence to 34°01'N 95°22'W; thence along U.S. Highway #70 to 33°56'N 94°53'W.				
R-5701	Boardman, Oreg	See Below	Cont	Cont	VFR-IFR	FAA, ARTCC, Seattle, Wash COMFAIRWHIDBEY RAS, Whidbey Island Autovon 368-2870 or 2881 and 554-3340 ORchard 5-2211, Ext 3643-2323
		A 5 NM radius circle centered at 45°44'N 119°41'W, surface to FL 230; within 3 NM either side of the 093° and 263° bearings from the center of the circle extending to 11 NM from the center, excluding the airspace within 5 SM of the 256° radial of the Pendleton, Oreg., VORTAC, 20,000 feet MSL to FL 230; within 2 NM N and 3 NM S of the 082° bearing from the center of the circle extending to a line one NM W of and parallel to Butter Creek, surface to 10,000 feet MSL to a distance of 7 NM from the center of the circle, thence surface to 6,000 feet MSL to the E extremity; within 3 NM either side of the 234° bearing from the center of the circle extending to 10 NM from the center, excluding the airspace within VOR Federal Airway No. 112, surface to 10,000 feet MSL to a distance of 7 NM from the center of the circle, thence surface to 6,000 feet MSL to the SW extremity; within 3 NM either side of the 270° bearing from the center of the circle extending to 15 NM from the center, surface to 10,000 feet MSL to a distance of 7 NM from the center of the circle, thence surface to 6,000 feet MSL to the W extremity.				
R-5704	Hermiston, Oreg	To 5,000'	Mon-Fri	1600-0400Z	VFR-IFR	CO, Umatilla Ordnance Depot, Hermiston, Oreg
		Beginning at 45°52'N 119°29'W to 45°50'N 119°29'W to 45°50'N 119°31'W to 45°52'N 119°31'W to the point of beginning.				
R-5801	Chambersburg, Pa	To 4,000'	Mon-Fri	1300-2100Z	VFR-IFR	CO, Letterkenny Ordnance Depot, Chambersburg, Pa
		The Arc of a circle having a 5000' radius centered at 40°00'N 77°44'W.				
R-5802	Indianetown Gap, Pa	To 13,000'	Cont 1 June thru 31 Aug Sat & Sun 15 Feb thru 31 May Sat & Sun 1 Sep thru 15 Dec	VFR-IFR 1130Z to 0500Z 1300Z to 2300Z 1300Z to 2300Z Other dates and times by NOTAM 48 hrs in advance	VFR-IFR	FAA, ARTCC, New York, NY CG, 2nd US Army, Fort Meade, Md
		Beginning at 40°29'N 76°36'W to 40°26'N 76°36'W to 40°25'N 76°37'W to 40°24'N 76°43'W to 40°24'N 76°45'W to 40°29'N 76°38'W to point of beginning.				

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY	
			DAY OF WEEK	HOURS OF DAY	WEATHER		
R-5803	Chambersburg, Pa	To 4,000'	Mon-Fri	1300-2100Z	VFR-IFR	CO, Letterkenny Ordnance Depot, Chambersburg, Pa A circular area with a 2,400' radius centered at 40°02'N 77°44'W.	
R-6001	Fort Jackson, SC	To 24,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Jacksonville, Fla CG, Fort Jackson, SC Beginning at 34°04'N 80°42'W to 34°02'N 80°42'W to 34°02'N 80°55'W to 34°02'N 80°56'W to 34°05'N 80°53'W to 34°06'N 80°49'W to 34°06'N 80°46'W to point of beginning.	
R-6002	Poinsett-Sumter, SC	To 13,000'	Cont	Days	VFR-IFR	FAA, ARTCC, Jacksonville, Fla Comdr, Shaw AFB, Sumter, SC SP 5-1111, Extn 3123, 3122, 4268 Beginning at 33°53'N 80°26'W to 33°46'N 80°25'W to 33°44'N 80°33'W to 33°48'N 80°34'W to 33°53'N 80°30'W to point of beginning.	
R-6004	Savannah River Plant, SC	Unltd	Cont	Cont	VFR-IFR	Manager, Atomic Energy Commission, Savannah River Plant, Aiken, SC Beginning at 33°24'N 81°41'W to 33°23'N 81°29'W to 33°21'N 81°24'W to 33°15'N 81°25'W to 33°09'N 81°23'W to 33°05'N 81°32'W to 33°03'N 81°43'W to 33°05'N 81°49'W to 33°16'N 81°51'W to the point of beginning.	
R-6302A	Fort Hood, Tex	To 30,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Hood, Tex Beginning at 31°06'N 97°33'W to 31°08'N 97°39'W to 31°10'N 97°41'W to 31°11'N 97°43'W to 31°10'N 97°45'W to 31°09'N 97°47'W to 31°15'N 97°51'W to 31°19'N 97°51'W to 31°24'N 97°48'W to 31°23'N 97°43'W to 31°21'N 97°41'W to 31°20'N 97°41'W to 31°14'N 97°33'W to point of beginning.	
R-6302B	Fort Hood, Tex	To 30,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Hood, Tex Beginning at 31°08'N 97°39'W to 31°09'N 97°41'W to 31°10'N 97°41'W to 31°10'N 97°43'W to 31°09'N 97°44'W to 31°09'N 97°45'W to 31°10'N 97°45'W to 31°11'N 97°43'W to 31°10'N 97°41'W to point of beginning.	
R-6302C	Fort Hood, Tex	To 30,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex CG, Fort Hood, Tex Beginning at 31°09'N 97°47'W to 31°09'N 97°52'W to 31°09'N 97°55'W to 31°16'N 97°54'W to 31°19'N 97°51'W to 31°15'N 97°51'W to point of beginning.	
R-6303	Matagorda Island, Tex	To FL 600	Cont	Cont	VFR-IFR	FAA, ARTCC, Houston, Tex Comdr, 2nd AF, Barksdale AFB, La Barksdale AFB, Extn 6817 or 6954 Beginning at 28°15'N 96°27'W to 28°19'N 96°28'W to 28°21'N 96°29'W to 28°12'N 96°46'W to 28°07'N 96°42'W, thence 3 NM from and parallel to the shoreline to the point of beginning.	
R-6310	Houston (Ellington AFB) Mil Climb Corridor, Tex	A. 0-1 NM 2,000'—14,000' MSL B. 1-2 NM 2,000'—16,000' C. 2-3 NM 2,000'—FL 190 D. 3-4 NM 2,000'—FL 210 E. 4-6 NM 2,000'—FL 230 F. 6-10 NM 5,000'—FL 230 G. 10-13 NM 9,000'—FL 230 H. 13-19 NM 12,000'—FL 230 I. 19-25 NM 16,000'—FL 230 J. 25-30 NM FL 200—FL 230	Cont	VFR-IFR	FAA, Houston APP CON Comdr, Ellington AFB, Tex	From a point of beginning at 29°34'N 95°10'W, the area centered on a bearing therefrom of 183°, extending to a point 30 NM S, having a width 1 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.	
R-6311	San Antonio (Kelly AFB) Mil Climb Corridor, Tex	A. 0-1 NM 3,000'—FL 190 B. 1-6 NM 3,000'—FL 230 C. 6-11 NM 5,000'—FL 230 D. 11-15 NM 10,000'—FL 230 E. 15-20 NM 14,000'—FL 230 F. 20-25 NM 17,000'—FL 230 G. 25-30 NM FL 200—FL 230	Cont	Cont	VFR-IFR	FAA, San Antonio APP CON Comdr, Kelly AFB, Tex	Beginning at 29°20'N 98°34'W, the area centered on a bearing therefrom of 164°, extending to a point 30 NM S, having a width of 2 NM at the beginning and expanding uniformly to a width of 6 NM at the outer extremity.
R-6312	Cotulla, Tex	To 15,000' MSL (1)	Cont	Days	VFR-IFR	FAA, ARTCC Houston, Tex Chief of Naval Air Advanced Training Command, NAS Corpus Christi, Tex	The area within 5 NM of geographical points located at 28°15'N 98°44'W and 28°06'N 98°43'W. ① Except for the area west of a line between 28°18'N 98°48'W, and 28°12'N 98°48'W, and the area along highway 624 extending 1/4 mile each side where the floor is 1000' AGL.

II-32 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-6401	Deseret, Utah	To 10,000'	Cont	Cont	VFR-IFR	CO, Tooele Ordnance Depot, Tooele, Utah
	Beginning at 40°16'27"N 112°18'43"W to 40°15'42"N 112°18'43"W to 40°15'42"N 112°21'01"W to 40°16'27"N 112°21'01"W to the point of beginning.					
R-6402	Dugway, Utah	To FL 400	Cont	Cont	VFR-IFR	CO Dugway Proving Ground, Dugway, Utah
	Beginning at 40°25'N 112°56'W to 40°13'N 112°43'W to 39°49'N 112°43'W to 39°44'N 113°08'W to 39°49'N 113°08'W to 39°52'N 113°27'W to 39°55'N 113°27'W to 40°20'N 113°20'W to 40°20'N 113°07'W to 40°25'N 113°07'W to point of beginning.					
R-6403	Tooele, Utah	To 9,000'	Cont	1600-0400Z	VFR-IFR	CO, Tooele Ord Depot, Tooele, Utah
	Beginning at 40°31'N 112°28'W to 40°30'N 112°28'W to 40°30'N 112°29'W to 40°31'N 112°29'W to the point of beginning.					
R-6404A	Hill AFB Range South, Utah	To FL 600	Cont	Days	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah Comdr, Hill AFB, Utah
	Beginning at 41°00'N 112°57'W to 40°52'N 112°57'W to 40°49'N 113°40'W to 41°00'N 113°42'W to the point of beginning.					
R-6404B	Hill AFB Range North, Utah	To FL 600	Cont	Days	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah Comdr, Hill AFB, Utah
	Beginning at 41°11'N 112°45'W to 41°00'N 112°45'W to 41°00'N 113°42'W to 41°15'N 113°44'W to the point of beginning.					
R-6405	Wendover, Utah	To FL 400	Cont	Cont	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah Comdr, Hill AFB, Utah 777-2161 or 777-2166, Clearfield, Utah
	Beginning at 39°44'N 113°08'W to 39°23'N 113°19'W to 39°23'N 113°48'W to 39°55'N 113°48'W to 39°55'N 113°27'W to 39°52'N 113°27'W to 39°49'N 113°08'W to the point of beginning.					
R-6406A	Wendover North, Utah	To FL 400; joint-use at and above 7,500' MSL	Cont	Cont	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah Comdr, Hill AFB, Utah
	Beginning at 40°41'N 113°00'W to 40°29'N 113°00'W to 40°29'N 113°18'W to 40°20'N 113°49'W to 40°17'N 114°00'W to 40°38'N 114°00'W to the point of beginning.					
R-6406B	Wendover South, Utah	To FL 400; joint-use at and above FL 240	Cont	Cont	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah Comdr, Hill AFB, Utah
	Beginning at 40°29'N 113°00'W to 40°25'N 112°56'W to 40°25'N 113°07'W to 40°20'N 113°07'W to 40°20'N 113°49'W to 40°29'N 113°18'W to the point of beginning.					
R-6407	Dugway West, Utah	To FL 400; joint-use at and above FL 240	Cont	Cont	VFR-IFR	FAA, ARTCC, Salt Lake City, Utah CO, Dugway Proving Ground, Dugway, Utah
	Beginning at 40°20'N 113°20'W to 39°55'N 113°27'W to 39°55'N 113°48'W to 40°00'N 113°48'W to 40°00'N 114°00'W to 40°17'N 114°00'W to 40°20'N 113°49'W to the point of beginning.					
R-6408	Indian Creek, Utah	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Denver, Colo Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 37°59'N 109°23'W to 37°57'N 109°25'W to 37°58'N 109°40'W to 38°02'N 109°54'W to 38°21'N 109°54'W to 38°23'N 109°52'W to 38°22'N 109°38'W to 38°21'N 109°31'W to 38°16'N 109°24'W to 38°06'N 109°22'W to the point of beginning.					
R-6409	Green River, Utah	Unltd	Cont	Cont	VFR-IFR	FAA, ARTCC, Denver, Colo Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 39°00'N 110°03'W to 38°54'N 109°58'W to 38°51'N 110°05'W to 38°58'N 110°09'W to point of beginning.					
R-6410	Blonding, Utah	Unltd	Cont 1 Mar 67 thru 15 Dec 67	Cont	VFR-IFR	FAA, ARTCC, Denver, Colo Comdr, AF Missile Development Center, Holloman AFB, N Mex
	Beginning at 37°33'N 109°33'W to 37°21'N 109°21'W to 37°17'N 109°29'W to 37°31'N 109°36'W to point of beginning.					
R-6412	Camp Williams, Utah	To 10,000' MSL	Max two-wk period dur the month of June ea yr with specific dates to be publ by NOTAM	Cont	VFR-IFR	FAA, Salt Lake City Tower The Adjutant General, State of Utah
	Beginning at 40°28'N 111°57'W to 40°26'N 111°57'W to 40°24'N 111°57'W to 40°24'N 112°06'W to 40°28'N 112°06'W to the point of beginning.					
R-6501	Underhill, Vt	To 13,600' MSL	Mon-Sat Other times by NOTAM 24 hrs in advance.	Cont	VFR-IFR	Adjutant General, State of Vermont, Montpelier, Vt University 4-9848 (Burlington, Vt)
	Beginning at 44°30'N 72°52'W to 44°27'N 72°52'W to 44°27'N 72°55'W to 44°28'30"N 72°56'30" W to 44°29'15" N 72°56'30" W to 44°30'N 72°54'W to the point of beginning.					

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-6601	Camp A.P. Hill, Va.	To 5,000'	1 June-8 Sept	Cont	VFR-IFR	FAA, ARTCC, Washington, DC C.G. United States Quartermaster Center and Fort Lee, Fort Lee, Va.
			9 Sept-31 May	1200-0400Z By NOTAM		
			Beginning at 38°07'N 77°11'W to 38°06'N 77°09'W to 38°05'N 77°10'W to 38°03'N 77°10'W to 38°02'N 77°12'W to 38°03'N 77°15'W to 38°02'N 77°16'W to 38°02'N 77°18'W to 38°04'N 77°19'W to 38°05'N 77°19'W thence along U. S. Highway 301 to 38°08'N 77°14'W to 38°07'N 77°12'W thence to the point of beginning.			
R-6602	Camp Pickett, Va	The area NW of a line betwn 37°01'N 77°51'W and 36°58'N 77°53'W surface to 18,500' MSL. The area SE of this line, surface to 1,900'	Cont	1 June thru 8 Sept	VFR-IFR	CG, US Army Quartermaster Center and Fort Lee, Fort Lee, Va.
			8 Sept	1100Z Sat to 0300Z Sun 9 Sept thru 31 May, other times as NOTAMed at least 48 hrs in advance. When activated by NOTAM another NOTAM shall be issued upon termination of use.		
			Beginning at 37°06'N 77°52'W to 37°04'N 77°52'W along State Hwy 40 to 37°04'N 77°51'W to 37°03'N 77°51'W to 37°01'N 77°51'W to 37°00'N 77°51'W to 36°58'N 77°52'W to 36°58'N 77°53'W to 36°58'N 77°58'W to 37°02'N 77°59'W to 37°02'N 77°56'W to 37°06'N 77°56'W to point of beginning.			
R-6604	Chincoteague Inlet, Va	United	Cont	Cont	VFR-IFR	Chief, Wallops Sta, National Aeronautics and Space Adm, Wallops Island, Va
			Beginning at 37°57'N 75°28'W to 37°52'N 75°17'W thence 3 NM from and parallel to the shoreline to 37°39'N 75°31'W, N to 37°50'N 75°31'W to point of beginning.			
R-6606	Pendleton, Va	United	Mon-Fri	1300-2200Z VFR-IFR Ex that portion N of 36°42'N fr the surface to 1000' MSL which is cont		CO, USFAAWTRACEN, Dam Neck, Va, 428-9050 Extn 364/207/371
			Beginning at 36°51'N 75°55'W thence paralleling the shoreline at a distance of 3 NM to 36°35'N 75°49'W to 36°45'N 75°56'W to 36°45'N 75°57'W to 36°45'N 75°58'W to 36°47'N 75°59'W to 36°47'N 75°57'W to point of beginning.			
R-6608	Quantico, Va	To 14,000'	Cont	Cont	VFR-IFR	FAA, ARTCC, Washington, DC Commandant, Marine Corps Schools, Quantico, Va. Quantico 1000, Extn 2-2115 (Marine Corps Schools)
			Beginning at 38°31'N 77°24'W to 38°29'N 77°29'W to 38°31'N 77°34'W to 38°37'N 77°34'W to 38°38'N 77°32'W to 38°37'N 77°26'W to 38°34'N 77°24'W to the point of beginning.			
R-6609	Tangier Island, Va	To 20,000'	Cont	1300-0400Z VFR-IFR other times as specified in a NOTAM issued 48 hrs in advance		VACAPES, OPAREA COORD (COMFAIRNORFOLK), NAS Norfolk, Va. 444-7071 (Duty Hours) 8666/8235 (After 2130Z and Sat, Sun, and hol)
			A circular area with a radius of 5 NM centered at 37°48'N 76°04'W.			
R-6611	Dahlgren Complex, Va	To FL 400	Mon-Sat	1300-2200Z VFR-IFR 1 Sep thru 31 May 1200-2100Z 1 June thru 31 Aug		FAA, ARTCC, Washington, DC Comdr, Naval Proving Grounds, Dahlgren, Va NO 3-2511, Extn 904 (Nav Weapons Lab, Dahlgren: Duty Hours) ST 3-0745 (Washington ARTCC: After 2130Z, Sat, Sun and holidays)
			Beginning at 38°22'N 77°01'W to 38°18'N 76°56'W to 38°16'N 76°52'W to 38°13'N 76°55'W to 38°19'N 77°02'W to point of beginning.			
R-6612	Dahlgren Complex, Va	To 7,000	Mon-Sat	1300-2200Z VFR-IFR 1 Sep thru 31 May 1200-2100Z 1 June thru 31 Aug		FAA, ARTCC, Washington, DC Comdr, Naval Proving Grounds, Dahlgren, Va NO 3-2511, Extn 904 (Nav Weapons Lab, Dahlgren: Duty Hours) ST 3-0745 (Washington ARTCC: After 2130Z, Sat, Sun and holidays)
			Two overlapping circular areas with 7,000' radii centered at 38°18'N 77°02'W, and 38°18'N 77°03'W.			

II-34 SPECIAL USE AIRSPACE

NUMBER	AREA NAME	EFFECTIVE ALTITUDE	TIME USED			CONTROLLING AUTHORITY
			DAY OF WEEK	HOURS OF DAY	WEATHER	
R-6904	Volk Field, Wis	To 15,000'	Cont	Days	VFR-IFR	FAA, ARTCC Chicago, Ill Comdr, Volk Field, Wis
		Beginning at 44°16'N 89°59'W to 44°12'N 89°59'W to 44°12'N 90°07'W to 44°16'N 90°07'W to the point of beginning.				
R-7001	Guernsey, Wyo	To 23,500'	Cont 15 May- 5 Sep	1130-0700Z	VFR-IFR	FAA, FSS, Casper, Wyo Adjutant General, State of Wyo
		Beginning at 42°28'N 104°53'W to 42°28'N 104°43'W to 42°23'N 104°43'W to 42°20'N 104°53'W thence to the point of beginning.				

INTENSIVE STUDENT JET TRAINING AREAS

Operations in this airspace, segregated from non-participating aircraft, will be conducted in high speed jet aircraft by Undergraduate pilots of the Air Training Command. These training missions will be flown in VFR conditions only. VFR flight advisory service will be provided by any FSS station within 100 NM of the area concerned.

CRAIG 1	8000' to 23,500'	Mon-Fri OT as publ by NOTAM 24 hrs in advance	Days	VFR
Beginning at 32°28'N 86°49'W to 32°24'N 86°49'W to 32°30'N 87°15'W to 32°31'N 87°16'W to 32°31'N 88°11'W to 32°45'N 87°51'W to 32°46'N 87°49'W to 32°47'N 87°47'W to 33°01'N 87°28'W to 33°01'N 87°18'W to 33°11'N 87°06'W to 33°12'N 86°58'W to 33°00'N 86°58'W to 32°34'N 87°01'W to point of beginning.				
CRAIG 2	8000' to 23,500'	Mon-Fri OT as publ by NOTAM 24 hrs in advance	Days	VFR
Beginning at 32°16'N 88°22'W to 32°16'N 87°06'W to 32°12'N 87°00'W to 32°12'N 86°49'W to 32°03'N 86°42'W to 31°33'N 87°31'W to 31°32'N 88°05'W to 31°35'N 88°06'W to 31°35'N 88°19'W to the point of beginning.				
MERIDIAN	8,000' MSL to FL 235	Mon-Fri OT by NOTAM Memphis Center/Area FSS	Days	VFR
Beginning at 32°35'N 90°04'W to 33°00'N 89°59'W to 33°06'N 90°02'W to 33°24'N 89°59'W to 33°25'N 88°46'W to 33°14'N 88°35'W to 33°05'N 88°13'W to 33°09'N 88°02'W to 33°04'N 88°01'W to 33°02'N 88°00'W to 32°28'N 88°48'W to 32°38'N 89°00'W to 32°33'N 89°05'W to 32°40'N 89°27'W to point of beginning.				
MOODY 1	8000' to 23,500'	Mon-Fri OT as publ by NOTAMS 24 hrs in advance	Days	VFR
Beginning at 32°01'N 83°24'W to 31°15'N 82°38'W to 30°38'N 82°38'W to 30°37'N 83°39'W to 31°22'N 84°02'W to 31°43'N 83°39'W to 31°57'N 83°47'W to the point of beginning.				
MOODY 2	12,000' to 23,500'	Mon-Fri OT as publ by NOTAMS 24 hrs in advance	Days	VFR
Beginning at 30°19'N 82°40'W to 29°51'N 82°35'W to 29°49'N 82°54'W to 30°03'N 83°17'W to 30°23'N 83°33'W to 30°19'N 82°51'W to the point of beginning.				
MOODY 3	14,500' to 23,500'	Mon-Fri OT as publ by NOTAMS 24 hrs in advance	Days	VFR
Beginning at 32°03'N 83°08'W to 31°33'N 82°38'W to 31°15'N 82°38'W to 32°01'N 83°24'W to the point of beginning.				
RANDOLPH 1	10,000' to FL 230	Mon-Fri Other times by NOTAM	Days	VFR
Beginning at 29°35'N 97°46'W to 29°35'N 97°29'W to 29°33'N 96°53'W thence clockwise via an 82 NM arc centered on 29°39'N 98°28'W to 28°53'N 97°10'W to 29°06'N 97°32'W to 29°03'N 97°34'W to 29°10'N 97°47'W to 29°19'N 97°53'W thence counterclockwise via the 36 NM arc centered at 29°39'N 98°28'W to the point of beginning.				
RANDOLPH 2	10,000' to 17,000'	Mon-Fri Other times by NOTAM	Days	VFR
Beginning at 29°10'N 97°47'W to 29°03'N 97°34'W thence clockwise along a 59 NM arc centered at 29°39'N 98°28'W to 28°46'N 97°58'W to 28°50'N 98°10'W to 28°55'N 98°11'W thence counterclockwise along the 46 NM arc centered at 29°39'N 98°28'W to point of beginning.				

II-36 SPECIAL USE AIRSPACE

METEOROLOGICAL DATA

I. U. S. WEATHER BUREAU — FAA INFORMATION SERVICE

A. GENERAL

1. The U.S. Weather Bureau maintains a comprehensive surface and upper air weather observing program and a nation-wide aviation weather forecasting and pilot briefing service.
2. Weather observations are made each hour or more often at over 600 locations in the United States. These observations may be used to determine the present weather conditions for flight planning purposes.
3. Every six hours the Weather Bureau's Aviation Forecasting Centers prepare detailed flying weather forecasts for 12-hour periods for about 385 air terminals in the United States including Alaska and Hawaii. In addition, 24-hour terminal forecasts are provided for about 120 major airports throughout the country. Every six hours a detailed 12-hour area forecast is prepared for each of the 29 areas into which the continental United States has been divided for forecasting purposes. In Hawaii, forecasts are issued for the main traveled air routes instead of areas. Winds aloft forecasts are provided for about 150 locations in the United States including Alaska and Hawaii for flight operational purposes. All of the above flying weather forecasts are given wide distribution via teletypewriter circuits.
4. Available aviation weather reports and forecasts are displayed at each Weather Bureau Station and FAA Flight Service Station. Pilots should feel free to help themselves to this information or to ask the assistance of the duty employee.
5. When telephoning for information, use the following procedures:
 - a. Identify yourself as a pilot and give aircraft identification if known. (Many persons calling WB stations want information for purposes other than flying.)
 - b. State your intended route, destination, proposed departure time, and estimated time enroute.
 - c. Advise if prepared to fly IFR.

B. TRANSCRIBED WEATHER BROADCASTS

1. Equipment is provided at selected FAA FSSs by which meteorological and Notice to Airmen data is recorded on tapes and broadcast continuously over the low-frequency (200-415 kc) navigational aid (L/MF range or H facility).
2. Broadcasts are made from a series of individual tape recordings. The first three tapes identify the station, give general weather forecast conditions in the area, pilot reports (PIREP), radar reports when available, and winds aloft data. The remaining tapes contain weather at selected locations within a 400 SM radius of the central point. Changes, as they occur, are transcribed onto the tapes.
3. The following FSS facilities provide Transcribed Weather Broadcast service:

LOCATION	IDENT	FREQUENCY	HOURS OF OPERATION
		LFR	NDB
Albuquerque, N. Mex.	ABQ	...	230 Cont.
Allegheny, Pa.	AGC	...	254 Cont.
Amarillo, Texas	AM	...	251 Cont.
Atlanta, Ga.	ATL	...	266 Cont.
Big Spring, Texas	BGS	...	326 Cont.
Billings, Mont.	BIL	...	400 Cont.
Birmingham, Ala.	BH	...	224 Cont.
Blythe, Calif.	BLH	...	251 1300-0500Z
Boise, Idaho	BOI	...	359 Cont.

LOCATION	IDENT	FREQUENCY	HOURS OF OPERATION
		LFR	NDB
Boston, Mass.	BOS	...	382 Cont.
Bozeman, Mont.	BNZ	...	329 Cont.
Burlington, Vt.	BTB	...	323 Cont.
Casper, Wyo.	CPR	...	269 Cont.
Charleston, S.C.	CH	...	329 Cont.
Chicago, Illinois	MDW	...	350 Cont.
Cincinnati, Ohio	LUK	...	335 Cont.
Cleveland, Ohio	CLE	...	344 Cont.
Delta, Utah	DTA	...	212 1200-0400Z
Detroit, Mich.	DT	...	388 Cont.
Duluth, Minn.	DL	...	379 Cont.
Elmira, N.Y.	ELM	...	375 Cont.
El Paso, Texas	ELP	...	242 Cont.
Englewood, Colo.	EWD	...	379 1100-0600Z
Fort Worth, Texas	FT	...	365 1000-0500Z
Fresno, Calif.	FAT	...	344 Cont.
Galveston, Tex.	GLS	...	206 Cont.
Garden City, Kan.	GCK	...	257 Cont.
Gulf, Wis.	GM	...	242 Cont.
Grand Isle, La.	GNI	...	236 Cont.
Great Falls, Mont.	GT	...	371 Cont.
Houghton, Mich.	CMX	...	227 Cont.
Idaho Falls, Idaho	IDA	...	350 Cont.
Indianapolis, Ind.	IN	...	266 Cont.
Jackson, Miss.	JAN	...	260 Cont.
Jacksonville, Fla.	JAX	...	344 Cont.
Kansas City, Mo.	MC	...	359 Cont.
Knoxville, Tenn.	TYS	...	281 0900-0200Z
La Crosse, Wis.	LSE	...	371 Cont.
Las Vegas, Nev.	LAS	...	206 1300-0500Z
Little Rock, Ark.	LI	...	353 Cont.
Los Angeles, Calif.	LAX	...	332 Cont.
Memphis, Tenn.	TS	...	371 Cont.
Miami, Fla.	MF	...	365 Cont.
Miles City, Mont.	MLS	...	320 Cont.
Millinocket, Maine	MLT	...	344 1000-0400Z
Minneapolis, Minn.	MS	...	266 Cont.
Missoula, Mont.	MSO	...	308 Cont.
Nashville, Tenn.	BN	...	304 1000-0300Z
Newark, N.J.	EWR	...	379 Cont.
North Platte, Nebr.	LBF	...	224 Cont.
Oakland, Calif.	OAK	...	362 1300-0500Z
Ogden, Utah	OGD	...	263 1200-0400Z
Oklahoma City, Okla.	OKC	...	350 Cont.
Omaha, Nebr.	OM	...	320 Cont.
Pendleton, Oreg.	PDT	...	341 1300-0500Z
Pensacola, Fla.	PNS	...	326 Cont.
Portland, Oreg.	PDX	...	332 1300-0500Z
Raleigh-Durham, N.C.	RDU	...	350 Cont.
Rapid City, S. Dak.	RAP	...	254 Cont.
Red Bluff, Calif.	RBL	...	338 Cont.
Redmond, Oreg.	RDM	...	368 Cont.
Roanoke, Va.	ROA	...	371 Cont.
Rock Springs, Wyo.	RKS	...	290 Cont.
Roswell, N. Mex.	ROW	...	305 1100-0400Z
St. Louis, Mo.	LM	...	338 Cont.
Sault Ste. Marie, Mich.	SSM	...	400 Cont.
Seattle, Wash.	SEA	...	362 1300-0500Z
Shreveport, La.	SH	...	230 Cont.
Spartanburg, S.C.	SPA	...	248 1000-0500Z
Spokane, Wash.	GEG	...	365 1300-0500Z
Springfield, Mo.	SGF	...	254 Cont.
Tallahassee, Fla.	TL	...	379 Cont.
Tampa, Fla.	AMP	...	388 Cont.
Traverse City, Mich.	TVC	...	365 Cont.
Trinidad, Colo.	TAD	...	329 Cont.
Tucson, Ariz.	TUS	...	338 Cont.
Tulsa, Okla.	DW	...	245 Cont.
Walla Walla, Wash.	ALW	...	356 1300-0500Z
Washington, D.C.	DC	...	332 Cont.
Wichita, Kan.	IC	...	332 Cont.

I. U. S. WEATHER BUREAU — FAA INFORMATION SERVICE

C. SCHEDULED WEATHER BROADCASTS

1. All Flight Service Stations having voice facilities on continuously operated radio navigation aids broadcast weather reports and other airway information at 15 and 45-minutes past each hour. The 45-minute past the hour broadcast is an "airway" broadcast consisting of weather reports from important terminals located on airways within approximately 400 SM of the broadcasting station. The 15-minute past the hour broadcast is an "area" broadcast consisting of weather reports from the stations within approximately 150 SM of the broadcasting station.
2. At each station, the material broadcast on schedule and the order in which it is broadcast follows:
 - a. Alert notice announcement.
 - b. SIGMET (Significant Meteorology) or AIRMET (Airmen's Meteorological Information) if available.
 - c. Pilot report/s when available.
 - d. Radar report/s if available.
 - e. Aviation weather.
 - f. Flight information — any non-meteorological information not a part of a weather report but which requires broadcast.
 - g. Additional special weather reports and some Notice to Airmen data are broadcast off-schedule upon receipt.

NOTE — Winds aloft forecast will be transmitted only on pilot's request.
3. The time of observation of weather reports included in a scheduled broadcast normally is .58 minutes past the hour preceding the broadcast. When the time of observation is otherwise, the observation time is given.

D. PILOT-TO-WEATHER BRIEFER SERVICE

1. Direct pilot-to-weather briefer service is available by radio contact with any Flight Service Station operated by the FAA. Flight Service Specialists are qualified and certificated by the USWB as Pilot Weather Briefers. They are not authorized to make original forecasts but are authorized to adapt, translate and interpret available forecasts and reports directly into terms of the weather conditions which you can expect along your flight route and at destination. They also will assist you in selecting an alternate course of action in the event adverse weather is encountered. It is not necessary to be thoroughly familiar with the standard phraseologies and procedures for air/ground communications. A brief call stating your message in your own words will receive immediate attention.

E. IN-FLIGHT ADVISORY PROCEDURE

1. The Weather Bureau issues in-flight safety advisories in two categories, designated as SIGMETS and AIRMETS.
2. The purpose of this service is to make available to any aircraft in-flight, information on weather which may be hazardous to the flight. Whether or not the weather condition described is potentially hazardous to a particular flight is for the pilot himself to evaluate on the basis of his own experience and qualifications and the operational limits of his aircraft.
3. The SIGMET advisories include weather phenomena potentially hazardous to all categories of aircraft, specifically covering:
 - a. Tornadoes.

- Lines of thunderstorms (squall lines).
- Hoist 3/4" or more.
- Severe and extreme turbulence.
- Heavy icing.
- Widespread duststorms/sandstorms, lowering visibilities to less than two miles.

4. AIRMETS include weather phenomena of less severity than that covered by SIGMETS, which are potentially hazardous to aircraft having limited capability because of lack of equipment of instrumentation (or pilot qualifications), and are of operational interest to all aircraft, specifically covering:
 - Moderate icing.
 - Moderate Turbulence.
 - The initial onset of phenomena producing extensive areas of visibilities less than two miles or ceilings less than 1000 feet, including mountain ridges and passes, and winds of 40 knots or more within 2000 feet of the surface.

NOTE: When a SIGMET and an AIRMET apply simultaneously for approximately the same areas, the AIRMET will be appended to the SIGMET as an "additional AIRMET".

5. The following are samples of the two types of advisories:
 - a. **CHICAGO SIGMET NO. 3** WISCONSIN SOUTH OF LINE FROM LA CROSSE TO GREEN BAY HEAVY ICING IN CLOUDS 4000 TO 8000 FEET MSL. MEMPHIS AIRMEN'S METEOROLOGICAL INFORMATION NO. 1. TENNESSEE SOUTH OF LINE FROM DYERSBURG TO CROSSVILLE CONDITIONS LOWERING RAPIDLY IN RAIN AND FOG TO BELOW 800 FEET AND 2 MILES BY 1200C. HIGHER TERRAIN OBSCURED.
 - b. **KANSAS CITY SIGMET NO. 2** SOLID LINE THUNDERSTORMS 50 SM WIDE FROM GRAND ISLAND TO HILL CITY TO GARDEN CITY AT 1400C MOVING EAST 35 KNOTS REACHING LINCOLN-SALINA-HUTCHINSON LINE BY 1800C. THUNDERSTORMS LOCALLY SEVERE WITH 3/4-INCH HAIL AND SEVERE TO EXTREME TURBULENCE.
 - c. **WASHINGTON SIGMET NO. 1** SEVERE CLEAR AIR TURBULENCE EXTENDING FROM SOUTH CENTRAL VIRGINIA THROUGH DELAWARE AT 14,000 TO 24,000 FEET. ADDITIONAL AIRMEN'S METEOROLOGICAL INFORMATION. OVER EASTERN VIRGINIA, EASTERN MARYLAND, AND DELAWARE MODERATE ICING IN CLOUDS 2000 TO 8000 FEET DECREASING BUT WITH WINDS LOWER LEVELS BECOMING 40 TO 50 KNOTS SOON AFTER 0800E ACCOMPANIED BY MODERATE TURBULENCE.
6. FAA Flight Service Stations broadcast SIGMETS and AIRMETS, when they pertain to the area within 150 NM of the FSS, as follows:
 - a. SIGMETS — at 15 minute intervals at H + 00, H + 15, H + 30 and H + 45;
 - b. AIRMETS — at 30 minute intervals at H + 15 and H + 45. SIGMETS and AIRMETS are broadcast during the valid period and are included in the regular scheduled broadcasts at H + 15 and H + 45.
7. When a SIGMET is issued, the ARTCC within whose area it applies, the enroute control towers within the area, and selected FSSs make the following announcement on enroute air-ground channels:
 - a. FOR [Name] issuing Flight Advisory Weather Service SIGMET (number of SIGMET) MONITOR VOR VOICE.
8. Pilots hearing this announcement must not interrupt their guard of ATC channels (without prior permission of the ATC facility) but should use the audio of their VOR voice channel until SIGMET broadcast is intercepted.

I. U. S. WEATHER BUREAU — FAA INFORMATION SERVICE

F. PILOT WEATHER REPORTS (PIREPS)

- Whenever ceilings at or below 5,000 feet, visibilities at or below five miles, or thunderstorms are reported or forecast, FAA Stations are required to solicit and collect PIREPS which describe conditions aloft. Pilots are urged to cooperate and volunteer reports of cloud tops, upper cloud layers, thunderstorms, ice, turbulence, strong winds, and other significant flight condition information. Such conditions observed between weather reporting stations are vitally needed. The PIREPS should be given to the FAA ground facility with which communication is established, i.e., FSS or Air Route Traffic Control Center. In addition to complete PIREPS, pilots can materially help round out the in-flight weather picture by adding to routine position reports, both VFR and IFR, the following phrases as appropriate:

ON TOP
BELOW OVERCAST
WEATHER CLEAR
MODERATE (or HEAVY) ICING
MODERATE, SEVERE, EXTREME TURBULENCE
FREEZING RAIN (or DRIZZLE)
THUNDERSTORM (location)
BETWEEN LAYERS
ON INSTRUMENTS
ON AND OFF INSTRUMENTS

- Some of the uses made of the reports are:

- The airport traffic control tower uses the reports to expedite the flow of air traffic in the vicinity of the field and also forwards reports to other interested offices.
- The Flight Service Station uses the reports to brief other pilots.
- The local Weather Bureau Office uses the reports in briefing other pilots and in forecasting.
- The Air Route Traffic Control Center uses the reports to expedite the flow of enroute traffic and determine most favorable altitudes.
- The Weather Bureau Flight Advisory Weather Service finds pilot reports very helpful in issuing advisories of hazardous weather conditions. This office also uses the reports to brief other pilots, and in forecasting.

- The following procedures are applicable in making in-flight and post-flight weather reports in accordance with AFM 60-16 and OPNAV Instruction 3140.32A:

- Mandatory Pilot Reports (PIREP's)
 - In-flight reports when requested.
 - In-flight reports of unusual weather conditions
 - To appropriate agency when IFR approach made and conditions differ from last observation.
 - To appropriate agency when missed approach executed due to below minimum weather.

- PIREP Format
 - Location
 - Time (GMT)
 - Phenomena reported to include:
 - Any hazardous weather

- Marked wind changes
- All turbulence with intensity and proximity to clouds

- Altitude of phenomena
- Type aircraft
- Additional items for reporting clear-air-turbulence (CAT): (USAF AIR WEATHER SERVICE HAS ESTABLISHED A CLEAR-AIR-TURBULENCE (CAT) FORECASTING SECTION AT GLOBAL WEATHER CENTRAL, OFFUTT AFB, NEBRASKA. THIS SECTION prepares CAT FORECASTS FOR TELETYPE RELAY TO ALL WEATHER DETACHMENTS FOR USE IN WEATHER BRIEFINGS. THE SUCCESS OF THE PROGRAM DEPENDS MAINLY UPON THE NUMBER OF CAT PIREP's RECEIVED.)

- Use indicator "CAT"
- Proximity of clouds
- Indicated air speed (IAS)
- Variation of IAS
- Temperature variation during encounter

- Examples:

- OVR TIK 1615Z CU TOPS 340.
- 50E LRY 2210Z SVR CAT 330 B-47 CI ABV IAS 280 VARN 30 —32C TO —43C IN 15 MI.
- OVR MXF 0140Z SVR TURBC IN TSTM 200 T-33.

6. PIREP Transmission

- Conditions permitting, reports will be given to both military metro (PFSV) and ARTC/FSS.

Avoid, if possible, calling a FSS at 15 and 45 minutes past the hour because of interference with scheduled hourly weather broadcasts. If a call is sufficiently urgent to warrant interrupting a weather broadcast, the pilot should make the call stating that the call is urgent. This is especially directed to the pilot's attention when he is expecting a reply on other than the range voice channel, since the communicator who answers the call may also be required to make the scheduled weather broadcasts over the range voice channels.

7. Debriefing

- At termination of flight, report to forecaster any unusual weather conditions encountered or if they differed from those forecast.
- A written report of any hazardous weather phenomenon such as hail, lightning strikes, electrostatic discharges, or severe turbulence will be made by USAF pilots on AF FORM 457 "Operational Hazard Report". (Forms available in base operations).

II. U. S. A. F. AIR WEATHER SERVICE

- Some military bases have Pilot to Forecaster Service (PFSV) which is a means provided whereby the pilot can communicate directly with the weather forecaster while in flight. The radio call for this service is METRO; i.e., "Andrews METRO". Maximum use of this service is encouraged when requesting or reporting enroute weather. Bases providing PFSV are listed in the FLIP Enroute Supplement, and are indicated on FLIP Enroute Charts.

III EXPLANATION OF TELETYPEWRITER WEATHER REPORTS

1. KEY TO AVIATION WEATHER REPORTS

LOCATION IDENTIFIERS	"SPECIAL" REPORT +	SKY AND CEILING	VISIBILITY WEATHER AND OBSTRUCTION TO VISION	SEA LEVEL PRESSURE	TEMPERATURE AND DEW POINT	WIND	ALTIMETER SETTING	RUNWAY VISUAL RANGE	CODED PIREPS	REMARKS
MKC	S	150M25⊕	4R-K	132	/58/56	/1807	/993/	VR32	/⊕55	RBO5 ⊕V⊕

a. SKY AND CEILING

Sky cover symbols are in ascending order. Figures preceding symbols are heights in hundreds of feet above station.

Sky cover symbols are:

- Clear: Less than 0.1 sky cover.
- ⊕ Scattered: 0.1 to less than 0.6 sky cover.
- ⊖ Broken: 0.6 to 0.9 sky cover.
- ⊕ Overcast: More than 0.9 sky cover.
- Thin (When prefixed to the above symbols.)
- X Partial Obscuration: 0.1 to less than 1.0 sky hidden by precipitation or obstruction to vision (bases at surface).
- X Obscuration: 1.0 sky hidden by precipitation or obstruction to vision (bases at surface).

Letter preceding height of layer identifies ceiling layer and indicates how ceiling height was obtained. Thus:

- A Aircraft
- B Balloon (Pilot or Ceiling).
- D Estimate height of cirriform clouds on basis of persistency.
- E Estimated heights of noncirriform clouds
- M Measured
- R Radiosonde Balloon or Radar
- W Indefinite
- U Height of cirriform ceiling layer unknown
- / Height of cirriform non-ceiling layer unknown.
- "V" Immediately following numerical value indicates a varying ceiling.

b. VISIBILITY

Reported in Statute Miles and Fractions. (V= Variable)

c. WEATHER SYMBOLS

- A Hail
- AP Small Hail
- E Sleet
- EW Sleet Showers
- IC Ice Crystals
- L Drizzle
- R Rain
- RW Rain Showers
- S Snow
- SG Snow Grains
- SP Snow Pellets
- SW Snow Showers
- T Thunderstorm
- ZL Freezing Drizzle
- ZR Freezing Rain

INTENSITIES are indicated thus:

-- Very Light - Light (no sign) Moderate + Heavy

d. OBSTRUCTION TO VISION SYMBOLS

- D Dust
- F Fog
- GF Ground Fog
- H Haze
- IF Ice Fog
- K Smoke
- BD Blowing Dust
- BN Blowing Sand
- BS Blowing Snow

e. WIND

Direction in ten's of degrees from true north, speed in knots, 0000 indicates calm. G indicates gusty. Peak speed of gusts follows G or Q when squall is reported. The contractions WSHFT followed by local time group in remarks indicates windshift and its time of occurrence.

EXAMPLES: 3627 360 Degrees, 27 Knots;
0127 010 Degrees, 27 Knots;
1027 100 Degrees, 27 Knots;
3627G40 360 Degrees, 27 Knots Peak speed in gusts 40 Knots.

f. ALTIMETER SETTING

The first figure of the actual altimeter setting is always omitted from the report.

g. RUNWAY VISUAL RANGE (RVR)

RVR is reported only from selected stations. The value reported is a 10-minute mean of the visual range in hundreds of feet.

h. CODED PIREPS

Pilot reports of clouds not visible from ground are coded with MSL height data preceding and/or following sky cover symbol to indicate cloud bases and/or tops, respectively.

i. DECODED REPORT

Kansas City: Special observation, 1500 feet scattered clouds, measured ceiling 2500 feet overcast, visibility 4 miles, light rain, smoke, sea level pressure 1013.2 millibars, temperature 58°F, dewpoint 56°F, wind 180°, 7 knots, altimeter setting 29.93 inches. Runway Visual Range 3200 feet, pilot reports top of overcast 5500 feet, rain began 5 minutes past the hour, overcast variable broken.

+ S indicates that report contains important change.

VOR RECEIVER CHECK POINTS

VOR RECEIVER CHECK

1. The following facilities are available for operational checks of airborne VOR equipment:
 - a. VOR test facility (VOT) (on selected civil and joint use airfields). VOT frequencies are listed opposite "COMMUNICATIONS" in the Aerodrome/Facility Directory listings in the IFR and VFR Supplements.
 - b. Certified airborne check points (on established airways and/or in the vicinity of selected VOR facilities).
 - c. Certified check points on the airport surface (Military and civil airfields).

(1) The VOR test facility (VOT) transmits a test signal which provides users of VOR a convenient and accurate means to determine the operational status of their receivers. The facility is primarily designed for checking the VOR receiver while the aircraft is on the ground, however, it may also be used while in flight. Since VOT facilities are very low powered, in-flight checks should be restricted to low altitude near the facility. Adequate signal strength is present when the VOT identification is received and the VOR course warning flag is not in view. The radiated test signal is used by tuning the receiver to the designated frequency of the test facility. With the Course Deviation Indicator centered, the

course selector shall read 0° with the "To-From" indicator reading "From," or the course selector should read 180° with the "To-From" indicator reading "To." Should the VOR receiver be of the automatic indicating type, the indication should be 180°. (This is true for all airborne receivers except Mitchell, which will indicate 0°.) Two means of identification are used with the VOR radiated test signal. In some cases a continuous series of dots are used, while in others, a continuous 1020 cycle tone will identify the test signal. The maximum permissible indicated error is ± 4 degrees. Information concerning an individual test signal can be obtained from the local control tower.

2. Airborne and ground check points consist of certified radials that should be received at specific points on the airport surface or over specific landmarks while airborne in the immediate vicinity of the airport. Should an error in excess of ± 4 ° be indicated through use of the ground check or ± 6 ° using the airborne check, IFR flight should not be attempted.

2. The list of airborne check points and ground check points is given on the following pages.

NOTE: The information is provided in the following order: Facility name (plus airport name, if needed); bearing in degrees magnetic from the VOR; location of the check point (distances in nautical miles); and altitude (in feet MSL, if any).

AIRBORNE CHECK POINTS

Aberdeen, S. Dak.: 278°, 7.5 nm; grain elev; 2500'.

Abilene, Tex. (Muni): 047°, 10.1 nm; over silos in center of Ft. Phantom Lake; alternate for Igt acft 099° 9 nm; over con twr and bcn; 2800'.

Akron, Ohio: 177°, over twr 7 nm; 5500'.

Albany, N.Y. (Schenectady Apt): 334°, 10.8 nm; over intxn rwys 15-33 and 4-22; 1500'.

Alexandria, La. (Esler): 152°; over hangar 3.6 nm from VORTAC; 1000'.

Alexandria, Minn.: 224°, 8.3 nm; over app end of rwy 22; 2600'.

Allendale, S.C. (Barnwell Co. Apt): 342°, 15 nm; over N/S rwy.

Alliance, Nebr.: 307°, 4 nm; over outdoor theater E edge of town; 5000'.

Alpena, Mich.: 256°, 10.3 nm; over Dam NE corner of Fletchers pond; 2100'.

Anniston, Ala. (Muni): 082°; over center of segmented circle, distance 9.5 nm; 2000'.

Appleton, Ohio: 238°; over con twr Port Columbus Intl; 2500'.

Appleton, Ohio (Mt. Vernon Apt): 018°, 11 nm; over hangar; 2500'.

Asheville, N.C. (Muni): 278°; over con twr 13.6 nm from VORTAC; 3200'.

Athens, Ga.: 025°, 11.5 nm; over red brick bldg inside t/c circle at crossroads in Danielsville; 2000'.

Augusta, Ga. (Bush Field): 140°, 12.8 nm; directly over No. 17 of rwy #17; 1200'.

Austin, Tex. (Robert Mueller Muni): 337°, 6 nm; over cement plant; 1600'.

Bakersfield, Calif. (Meadows Fld): 127°; over app end rwy 30; 1200'.

Bangor, Me.: 072°, 10.7 nm; over FSS Bldg., Old Town Apt; 1000'.

Baton Rouge, La. (Ryan): 063°; over tank W side of apt; 1500'.

Battle Creek, Mich.: 262°; 11 nm from VORTAC over power house stocks 1 nm E of Comstock, Mich.; 2000'.

Beatrice, Nebr.: 360°; over RR at Princeton, Nebr.; 2500'.

Beaumont, Tex. (Jefferson County): 056°, 5 nm; water twr aprx 0.4 nm NE of NE end of rwy 2; 1000'.

Bellingham, Wash.: 146°; N end of rwy 16-34; 1000' MSL.

Bemidji, Minn. (Muni): 131°, 5 nm; over app end rwy 13; 2400'.

Big Spring, Tex.: 199°, 11.7 nm; over the RBn; 3600'.

Billings, Mont.: 196°, 10.5 nm; over refinery at Laurel; 5000'.

Blackwater, Mo.: 321°, 17.5 nm; over Marshall VORTAC bldg; 2000'.

Bloomington, Ill. (Muni): 030°; lctd 11 nm NE of BMI VOR at railroad crossing river; 2000'.

Blytheville, Ark.: 094°, 5.8 nm; over hangar a/c to admin bldg; 1300'.

Boise, Idaho (Air Terminal): 088°; over dam outlet S end Lucky Peak Reservoir, 8.5 nm from VORTAC; 5000'.

VOR RECEIVER CHECK POINTS II-43

Brainerd, Minn.: 294°, 5.2 nm; over centerline app end rwy 30; 2300'.

Britton, Tex.: 285°, 13.5 nm; intxn Hwy 81S and farm road #787 NW aprt; 1700'.

Brooke, Va.: 234°, 6 nm; rot bcn center of Shannon Aprt; 1000'.

Brownwood, Tex.: 169°, 6.2 nm; over aprt bcn; 2600'.

Brunswick, Ga. (Malcolm-McKinnon): 025°, 7.2 nm; at aprt rotating beacon; 1050'.

Burlington, Iowa: 296°, 11.4 nm; over rdo twr; 2500'.

Burlington, Vt. (Muni): 030°; over aprt control twr 4.4 nm from VOR; 2000'.

Butler, Mo.: 058°, 7 nm; over intxn E/W road and N/S railroad; 1500'.

Butte, Mont. (Silver Bow Co.): 094°, 11.5 nm; intersection of rwy 29-33; 6600'.

Cape Charles, Va.: 048°, 8.9 nm; rwy intxn Kellam Fld; 1000'.

Cape Girardeau, Mo.: 032°; over smoke stack 3.2 nm NNE; 1700'.

Carleton, Mich. (Detroit-Metro Wayne Co.): 031°, 11 nm; the E/W and NW/SE rwys SE of new can twr; 2200'.

Casper, Wyo. (Air Terminal): 201°; over intersection rwys 21-25-30; 6300'.

Centralia, Ill. (Muni): 027°, 6.1 nm; at app end of rwy 36; 2000'.

Chadron, Nebr.: 015°; railroad intersection 1.5 nm N aprt bndry; 4500'.

Champaign, Ill.: 175°; over grain elevator 8 nm S at Pesotum, Ill.; 2000'.

Chardon, Ohio (Chagrin Falls Aprt): 239°, 9 nm; over hangar NE corner of field; 2500'.

Cheyenne, Wyo.: 172°, 9.5 nm; over N end of drag strip; 7200'.

Clarion, Pa. (Rhea Aprt): 020°; water tank SW corner of aprt; 2500'.

Cleveland, Ohio (Cleveland-Hopkins): 079°; over Cleveland RBn (H) distance 13.5 nm; 1500'.

Colorado Springs, Colo. (Peterson Fld): 320°; over microwave twr, 6.8 nm; 9000'.

Colts Neck, N.J.: 084°; over awy bcn twr at NE corner of Red Bank, N.J. Aprt.

Columbus, Nebr.: 079°; over grain elevator Schuyler, Nebr.; 2500'.

Concord, N.H. (Muni): 132°, 5 nm; over PBR RBn; 1500'.

Corpus Christi, Tex. (Intl): 187°; over grain elevator 1 nm E of aprt.

Cortez, Colo. (Cortez-Montezuma Co.): 196°; app end rwy 21; 7000'.

Cotulla, Tex.: 255°, 5.1 nm; rotating bcn on the Cotulla Muni Aprt.

Crescent City, Calif. (McNamara Fld): 104°; over tank farm E side of town; 1000'.

Crestview, Fla. (Bob Sikes): 106°, 8.6 nm; over rot bcn twr; 1200'.

Crossville, Tenn. (Mem Aprt): 333°; 11 nm over metal hangar; 2900'.

Cut Bank, Mont.: 293°, 6 nm; grain elev; 5000'.

Daggett, Calif.: 224°; over center twr LFR; 2500'.

Danville, Ill. (Vermilion Co.): 194°, 5.5 nm; intxn of rwys 21 and 17; 1700'.

Dayton, Ohio (Muni): 131°; over new terminal bldg. 10.76 nm; 2500'.

Delta, Utah: 346°; at app end of rwy 34; 4900'.

Des Moines, Iowa: 293°, 5.5 nm; over grain elevator Cummings, Iowa; 2500'.

Devils Lake, N. Dak.: 178°, 7.2 nm; over 2087' MSL rdo twr; 3000'.

Dillon, Mont.: 245°, 5 nm; over letter "B" on bluff; 7000'.

Dublin, Ga. (Muni): 069°, 7.8 nm; over SW end NE/SW rwy; 1400'.

Dubois, Idaho (Muni): 335°; rot bcn twr; 5200'.

Dubuque, Iowa: 082°, 6 nm; 2000'.

Dunkirk, N.Y.: 280°, 3.6 nm; over stacks; 2500'.

Eagle Lake, Tex.: 181°, 4.7 nm; over center of football fld 0.5 nm SW of Eagle Lake Aprt; 1200'.

El Dorado, Ark. (Goodwin): 004°, 6 nm; over white water twr in Smackover; 1500'.

Ellensburg, Wash. (Bowers): 255°; center, W end of rwy 7-25; 2300'.

El Paso, Tex. (Intl): 232°, 4.2 nm; over water twr 2 nm SE of aprt; 5000'.

El Toro, MCAS, Calif.: 254°; over intxn rwys 19R and mid-field twys; 200'.

Emporia, Kan.: 047°; over schoolhouse Neosho Rapids, Kans., 8.5 nm 2500'.

Ephrata, Wash.: 200°; centerline, SW end of rwy 2-20; 1500'.

Evansville, Ind. (Dress Memorial): 056°, 13 nm; over intxn E/W and NE/SW rwys; 2000'.

Fargo, N. Dak. (Hector): 360°, 9.4 nm; Icid app end Hector Fld rwy 35; 2000'.

Farmington, Mo.: 195°; over center of Open Air Theater NE of the town of Fredericktown and 7.0 nm from VOR; 2300'.

Fayetteville, Ark.: 183°, 14.3 nm; white circle on aprt; 2500'.

Fayetteville, N.C.: 239°; over water twr at Parktown, N.C. 8.0 nm; 1200'.

Fillmore, Calif.: 210°; at CAV RBn 1800'.

Findlay, Ohio: 048°; over the Marathon Oil Company Admin Bldg at 2000'; aprx 5 nm from FDY VOR.

Flippin, Ark.: 051°, 5 nm; dual water twr at Mountain Home; 1900'.

Flying Cloud, Minn.: 349°, 4.5 nm; over smokestack at Glen Lake Sanatorium; 2000'.

Fort Leonard Wood, Mo. (Forney AAF): 351°, 16 nm; water twr N side E-W highway; 2600'.

Fort Smith, Ark.: 233°, 5.2 nm; water tank at N edge of aprt; 1500'.

Fortuna, Calif.: 358°; over intersection of rwys Arcata Aprt; 800'.

Fortuna, Calif. (Rohnerville): 128°; over app end of rwy 11; 1400'.

Franklin, Pa. (Chess-Lamberton Aprt): 050°, 9 nm; over drive-in theater; 2700'.

Franklin, Va.: 105°, 9 nm; over drive-in theater; 2700'.

Fresno, Calif. (Air Terminal): 133°; over app end rwy 11; 800'.

Fulton, Ga. (County): 261°, 11.5 nm; over water tank in Douglasville, Ga.; 2500'.

Galesburg, Ill. (Muni): 234°; 8 NM SW of the GBG VOR over RR intxn; 2100'.

II-44 VOR RECEIVER CHECK POINTS

Galveston, Tex. (Scholes Field): 110°, 8 nm; aprt terminal bldg; 1000'.

Garden City, Kans.: 100°, 19 nm; Cimarron, Kans. at RR tracks and Main St.; 3800'.

Gardner, Mass.: 023°, 15.8 nm; intxn of rwy and twy; 2000'.

Gardner, Mass.: 169°, 18.7 nm; hangar marked "WORCESTER" on roof, Worcester Aprt; 2000'.

Gardner, Mass. (Fitchburg Aprt): 101°, 10.3 nm; over intxn rwys; 1500'.

Gardner, Mass. (Orange Aprt): 292°, 10 nm; over parachute jump circle; 1500'.

Gila Bend, Ariz.: 193°; over app end of rwy 35 of Gila Bend Aux. Fld; 1500'.

Goodland, Kans. (Muni): 083°; over water twr NE edge of town of Brewster, Kans., 16 nm; 4000'.

Gordonsville, Va.: 305°; over lcrz ant at app end of rwy 21, Charlottesville-Albemarle Aprt, 16 nm from GVE VOR; 2500'.

Grand Forks, N. Dak.: 101°, 6.4 nm; RR roundhouse center of Grand Forks; 2700'.

Grand Island, Nebr.: 142°; over smokestack 5.5 nm from VORTAC; 3100'.

Grand Junction, Colo. (Walker Fld): 059°; intxn rwys 29 and 22; 6500'.

Grants, N. Mex. (Grants-Milan): 295°, 12.7 nm; over FSS adjacent to rwy; 7000'.

Greeley, Colo. (Weld Co Muni): GLL 205°, 5.8 nm; over terminal bldg; 6100'.

Groton, Conn. (Fishers Island Aprt): 182°, 4.6 nm; over intxn rwys; 1000'.

Hallsville, Mo.: 225°; 14 nm, intxn of E/W and N/S rwys over Columbia Muni Aprt, Mo.; 2700'.

Harcum, Va.: 340°, 5.1 nm; wind indicator N side of West Point Muni Aprt; 1500'.

Harlingen, Tex.: 149°, 5.6 nm; over rot bcn on Muni Aprt; 1000'.

Harrisburg, Pa. (York State): 109°; over triangle formed by rwys; 2000'.

Hastings, Nebr.: 266°, 11 nm; over RR crossing in center of town of Kenesaw; 3200'.

Hattiesburg, Miss. (Muni): 149°, 10 nm; over water twr and rotating light bcn on aprt; 1150'.

Hibbing, Minn.: 311°, 7.9 nm; over FSS Bldg; 2400'.

Hickory, N.C.: 225°, 10.2 nm; over end rwy 24; 2200'.

Hill City, Kans.: 057°, 20 nm; Hill City Aprt bcn light; 4200'.

Hobart, Okla.: 353°, 7 nm; centerline of N/S rwy; 2500'.

Hoquiam, Wash. (Bowerman): 059°, 8.5 nm; Wend and center rwy 6; 1000'.

Houghton, Mich. (County Mem): 241°; WHDF coml bdct twr 3.5 nm from VOR; 2100'.

Houlton, Me.: 042°; over Admin Bldg on E side of field and 5.5 nm from VOR; 1500'.

Houma, La.: 117°, 10 nm; over intersection of rwys 17-35 and 11-29; 1000'.

Houston, Tex. (Andrau): 276°, 17.5 nm; aprt bcn on aprt; 1000'.

Houston, Tex.: 099°, 5.7 nm; over intersection of E/W twy and parking ramp of Ellington Field; 1000'.

Hutchinson, Kans.: 033°, 5 nm; app end rwy 3 Hutchinson Muni Aprt; 3500'.

Hyannis, Mass. (Chatham Aprt): 113°, 10.2 nm; twy and rwy intxn; 1200'.

Hyannis, Mass. (Martha's Vineyard Aprt): 239°, 26 nm; over VORTAC; 1600'.

Hyannis, Mass. (Oak Bluffs Aprt): 240°, 22.5 nm; strip intxn; 1600'.

Hyannis, Mass. (Provincetown Aprt): 012°, 20.7 nm; over rdo bcn; 1200'.

Imperial, Calif.: 313°; app end of rwy 32; 200'.

International Falls, Minn.: 142°; RR bridge over stream of Ericsburg, Minn. 5.4 nm; 2200'.

Iowa City, Iowa: 019° over Aprt bcn; 2000'.

Jack's Creek, Tenn. (McKellar): 267°, 27 nm; over bcn twr; 1500'.

Jackson, Miss. (Hawkins): 189°, 10.8 nm; over intxn of rwys 11-29 and 16-34; 1300'.

Jamestown, N.Y.: 258°, 6 nm; over hangar NE corner of aprt; 2500'.

Jamestown, N.D.: 077°, 7 nm; over rdo twr NW of Spiritwood, N.D.; 2600'.

Janesville, Wis. (Rock Co. Aprt): 035°, 4.3 nm; over end of rwy 04; 1900'.

Jefferson City, Mo.: 123°, 9.1 nm; over hwy bridge on Osage R; 2500' MSL.

Juliet, Ill.: 102°, 6.5 nm; over centerline of NW end of NW/SE rwy; 1500'.

Kalispell, Mont. (Flathead Co. Aprt): 314°, 6.4 nm; app end rwy 29; 4000'.

Kearney, Nebr.: 215°, 4.8 nm; over rdo twr KGFW; 3200'.

Keeler, Mich.: 266°, 13.3 nm; over intersection of N/S and E/W rwys at Ross Fld, Benton Harbor, Mich.; 1600'.

Keene, N.H.: 023°, 6.5 nm; over intxn rwy 2 and 32; 1600'.

Kennebunk, Me.: 061°; over Portland Aprt control twr 18.5 nm from Kennebunk VORTAC; 1500'.

Kennebunk, Me.: 268°, 4.85 nm; over Sanford Muni aprt rot bcn lctd between app ends rwys 8 and 14; 1300'.

Kirksville, Mo.: 138°; over water twr at La Plata, Mo. (8.2 nm from VOR); 2500'.

Kokomo, Ind.: 097°; over intxn NW/SE and NE/SW rwys Marion Muni Aprt, Ind., 17.5 nm from VORTAC; 1000'.

La Crosse, Wis.: 321°, 4.7 nm; RBn ant; 1800'.

Lafayette, Ind.: 135°, 10.4 nm; over Purdue Univ Stadium, 2100'.

Lake Charles, La. (Muni): 253°; over rotating bcn on control twr, 6.2 nm; 1000'.

Lamoni, Iowa: 041°, 12 nm; over highway "Y" 1 nm W of Leon, Iowa; 2200'.

Laredo, Tex.: 315°; over aprt bcn 9.5 DME; 1500'.

Laurel, Miss. (Muni): 025°, 17 nm; over water twr and rotating light bcn E side of aprt; 1250'.

Lawrenceville, Va.: 123°; over aprt bcn; 1500'.

Lebanon, N.H. (Lebanon-Regional Aprt): 248°, 5 nm; intxn rwys 25 and 18; 1600'.

Lewistown, Mont.: 072°, 5.4 nm; end of app rwy 7; 5200'.

Lexington, Ky. (Blue Grass): 305°; aprt control twr 7.6 nm from LEX VORTAC; 2500'.

Liberal, Kans.: 056°, 8.5 nm; grain elevator along RR track; 3900'.

Lincoln, Nebr.: 082°, 9.8 nm; grain elevator Waverly, Nebr.; 2500'.

Litchfield, Mich.: 050°, 18 nm; NE/SW rwy Reynolds Fld, Jackson, Mich.; 2000'.

Livingston, Mont.: 234°, 5.5 nm; over northernmost rdo twr NE of city; 6500'.

London, Ky.: 027°; terminal bldg 3.7 nm from LOZ VORTAC; 2500'.

Lufkin, Tex.: 328°, 4.6 nm; rotating bcn on Angelina Co. Apt; 1300'.

Macon, Ga. (Muni): 050°, 6.3 nm; rdo twr; 1800'.

Malden, Mo.: 349°, 14.8 nm; RR crossing 0.5 nm E of Dexter, Mo.; 1500'.

Manchester, N.H. (Grenier Fld-Manchester Muni): 341°; over former USAF aptl contral twr E side 17-35 rwy 5.0 nm; 1500'.

Manchester, N.H. (Lawrence Apt): 144°, 14.7 nm; intxn rwys 14 and 5; 1200'.

Manchester, N.H. (Nashua): 244°, 8.2 nm; over numeral 32, end of app rwy; 1200'.

Manhattan, Kans. (Muni): 062°, 6 nm; over RR bridge SE; 2500'.

Manitowoc, Wis.: 162°; over Manitowoc Portland Cement Co. stack, 1.9 nm; 1900'.

Marion, Ill.: 274°, 12 nm; intxn rwys 6-24 and 18-36 at Southern Apt; 1500'.

Marquette, Mich.: 120°, 5.5 nm; over NW tip of Pelesier Lake; 2000'.

Marshall, Mo. (Mem): 321° BWR; over MHL VORTAC Bldg; 2000'.

Massena, N.Y. (Richards): 297°, 5.3 nm; Admin Bldg; 1500'.

Mattoon, Ill.: 294°, 17 nm; CMI RR intxn W side Sullivan, Ill.; 1800'.

Maxwell, Calif. (Willows-GlennCo): 342°; over app rwy 34; 600'.

McComb, Miss. (Pike County): 248°, 11 nm; revolving aptl bcn; 1500'.

McCook, Nebr. (State): 311°, 8.5 nm; over intxn of rwys 8 and 12; 3800'.

Medford, Oreg.: 213° (VORTAC); over rdo twr, 4.8 nm 3000'.

Merced, Calif.: 289°; (Castle VOR); over end rwy 30; 650'.

Midland, Tex. (Ector Co. Apt): 230°, 11.5 nm; center of fld rwy intxn; 4000'.

Millinocket, Me. (Muni): 317°, 8 nm; over FSS Bldg; 1500'.

Millville, N.J.: 215°, 11.4 nm; over intxn rwys 23, 32; 1500'.

Milwaukee, Wis.: 134°, 30 nm; over Horlick-Racine Apt; 2100'.

Minneapolis, Minn. (Crystal Apt): 166°, 4.9 nm; over app end rwy 13L; 1900'.

Montebello, Va. (Preston Glenn near Lynchburg, Va.): 192°; intersection all rwys; 3500'.

Montgomery, Ala. (Dannelly): 319°; over water twr, distance 6.1 nm from VORTAC; 1300'.

Monticello, Ark. (Muni): 305°, 5.7 nm; over white water twr; 1500'.

Muncie, Ind.: 179°, 8 nm; RR between Cowan and Oakville, Ind.; 2500'.

Muskegon, Mich. (Muskegon Co.): 272°, .825 nm; over intxn of NW/SE and NE/SW rwys; 1500'.

Myrtle Beach, S.C. (Crescent Beach): 238°, 6 nm; over silver water tank; 1100'.

Napa, Calif. (Napa Co): 047°; over aptl bcn; 500'.

Naperville, Ill.: 328°, 10 nm; over RR underpass lctd 0.5 nm NE of the DuPage County Apt; 2000'.

Nashville, Tenn.: 242°; WSM rdo twr near Brentwood, Tenn., 10.2 nm from VORTAC; 2500'.

Neola, Iowa: 047°, 18.3 nm; over grain elevator Harlan, Iowa; 2500'.

Neosho, Mo.: 343°, 19 nm; center triangle formed by the intersection of 3 rwys of Joplin, Mo., Muni Apt; 2500'.

New Bern, N.C.: 261°, 11 nm; over intxn of E/W rwys Oak Grove (Navy) apt; 1100'.

New Orleans, La. (Lakefront Apt): 081°, 7.7 nm; over Lakefront twr; 1000'.

Newton, Iowa: 142°, 8 nm; lctd app end rwy 31; 2500'.

Norfolk, Nebr.: 095°, 10.5 nm; over racetrack Stanton, Nebr.; 2600'.

North Bend, Oreg.: 254°; intersection rwy 22-31; 750'.

North Platte, Nebr. (Lee Bird): 083°, 17 nm; over water twr Brady, Nebr.; 4000'.

Norwich, Conn. (Trumbull Apt): 204°, 13.7 nm; over GON VOR; 1600'.

Norwich, Conn. (Windham Co. Apt): 339°, 13.9 nm; intxn rwys 5-23 and 6-27; 1000'.

Okmulgee, Okla.: 229°, 6 nm; smoke stack in Phillips refinery yard; 1900'.

Omaha, Nebr. (Eppley Fld): 310°, 10.2 nm; app end rwy 32; 2500'.

O'Neill, Nebr.: 117°, 9 nm; at intersection of E/W road and the railroad 0.5 nm SE of Inman, Nebr.; 3000'.

Oshkosh, Wis.: 016°, 5.2 nm; over water twr at institution; 2500'.

Ottumwa, Iowa (Muni): 303°, 6.9 nm; intxn of rwys 32 and 22; 2500'.

Oxnard, Calif.: 253°, 7.5 nm; red and white smokestack on beach; 1000'.

Park Rapids, Minn.: 208°; over northernmost of two twrs 5.2 nm; 2500'.

Pawling, N.Y.: 249°; aptl twr site at Dutchess County apt; 1500'.

Peck, Mich.: 163°, 23 nm; over app end rwy 3 on St. Clair Co. Apt; 2200'.

Philip, S.D.: 156°, 5 nm; over 2712' twr; 3300'.

Phoenix, Ariz. (Phoenix-Sky Harbor Muni): 256°; centerline rwy 8R-26L; 2800'.

Picayune, Miss.: 140°; over rotating light bcn on aptl.

Pinehurst, N.C. (Pinehurst-Southern Pines): 086°, 9.5 nm; over windsock on top of hangar; 1500'.

Plainview, Tex. (Hale Co.): 024°; intersection rwys 4-22 and 12-30, 6 nm from VOR; 4400'.

Plattsburgh, N.Y.: 229°, 8 nm; aptl bcn Plattsburgh Apt; 1500'.

Pocatello, Idaho: 031° over intxn of rwys 21 and 25; 5450'.

Pontiac, Ill.: 255°, 26 nm; over RR bridge near NW corner of Eureka, Ill.; 1800'.

Portland, Oreg. (Intl): 162°; intersection rwy 2 and center E/W rwy; 1000'.

Poughkeepsie, N.Y.: 249°; aptl twr site at Dutchess County Apt; 1500'.

II-46 VOR RECEIVER CHECK POINTS

Prescott, Ariz. (Muni): 124°; rwy 3-21 and 12-30 intersection; 5500'.

Presque Isle, Me. (Loring AFB): 184°, 9 nm; Spragueville LFR site; 2000'.

Princeton, Maine: 163°; over intxn of rwy, 9.63 nm from VOR; 1000'.

Providence, R.I.: 360°, rwy intxn North Central State Apt.; 1500'.

Pueblo, Colo. (Pueblo Mem): 294°, 7.8 nm; over KOAA-TV lwr, 5.4 nm NW of apt; 7300'.

Putnam, Conn. (Southbridge Apt): 330°, 12 nm; lwy and rwy intxn; 1700'.

Quitman, Tex.: 241°, 14.5 nm; water tank, town of Alba, Tex.; 1500'.

Rawlings, Wyo. (Muni): 065°; (Cherokee VORTAC), 17 nm; over FSS bldg on apt; 7300'.

Red Bluff, Calif. (Muni): 329°; over centerline rwy 33; 500'.

Rhinelander, Wis.: 201°, 5.6 nm; over fire lwr near ski slope; 3000'.

Riverhead, N.Y. (Brookhaven Apt): 170° VORTAC; 4.5 nm; over app end of rwy 15; 1500'.

Roberts, Ill.: 074°, 6 nm; over intxn E/W hwy, N/S RR 0.5 nm N Buckley, Ill.; 1600'.

Rochester, Minn. (Muni): 024°, 8.5 nm; intxn rwy 2 and 31; 3000'.

Rocky Mount, N.C.: 260°, 5.8 nm; over smoke stack at power house; 1500'.

Roswell, N. Mex.: 027°, 4.9 nm; over app end rwy 03; 4000'.

Russell, Kans.: 092°, 16 nm; over water lwr in center of town of Wilson, Kans.; 2900'.

Sacramento, Calif.: 015°; app end rwy 02; 100'.

Saginaw, Mich. (Tri-City): 058°, 6.7 nm; over hwy intxn U.S.-10 and 1-75; 1700'.

St. Joseph, Mo. (Rosecrans Mem): 167°, 10.7 nm; app end rwy 17; 2500'.

Salina, Kans.: 117°; over grain elevator town of Kipp 10 nm; 2500'.

Salt Lake City, Utah: 159°; centerline rwy 34L/16R entire length #1-Apr; 4400'.

Samsville, Ill.: 064°, 19 nm; over intxn at rwy 4-22 and 13-31 at Mt. Carmel Muni Apt., Ill.; 1500'.

Sault Ste. Marie, Mich. (Muni): 336°, 4.25 nm; intxn E-W and NW/SE rwy; 2100'.

Sayre, Okla. (Muni): 175°, 8 nm; over rot bcn lwr; 3000'.

Sheridan, Wyo. (County): 122°; over center of app end rwy 13, distance 5 nm; 5000' MSL.

Shreveport, La. (Downtown): 290°, 10 nm; over white water lwr; 1500'.

Shreveport, La. (Greater Shreveport): 175°, 19.3 nm; over Admin Bldg; 1200'.

Sinton, Tex.: 318°, over bcn on fld 9.5 nm CRP VORTAC; 1000'.

Slate Run, Pa. (Cherry Springs): 045°, 11.5 nm; over hangar; 3500'.

South Boston, Va.: 254°; over terminal bldg Danville Muni Airport; 1500'.

Sparta, N.J. (Caldwell-Wright Apt): 145°, 16.4 nm; over intxn rwy 32 and 04; 1500'.

Spokane, Wash. (Intl): 027°; center NE end rwy 21; 2900'.

Stevens Point, Wis.: 314°, 5 nm; over 1449' rdo lwr; 2500'.

Stockton, Calif. (Muni): 299°; over water lwr adjacent to S side of apt; 1000'.

Sulphur Springs, Tex.: 223°, 7 nm; over projector booth and snack bar within outdoor movie; 1600'.

Syracuse, N.Y.: 131°, 4.7 nm; over centerline app end rwy 14; 1500'.

Terre Haute, Ind. (Hulman): 229°, 3 nm; intxn of NE/SW and NW/SE rwy; 2000'.

Texarkana, Ark.: 122°, 5.1 nm; over intxn rwy 13-31 and 4-22; 1400'.

Texico, N.M. (Clovis Muni Apt): 240°, 13 nm; rot bcn on steel lwr adjacent to term bldg; 6000'.

Thief River Falls, Minn.: 304°, 14 nm; rdo lwr 2 nm W of Viking, Minn.; 2500'.

Toccoa, Ga.: 179°, 6 nm; over apt bcn; 2000'.

Traverse City, Mich. (Muni): 342°, 4.5 nm; at intersection of the N/S-E/W rwy; 1600'.

Troy, Ill.: 322°, 11 nm; over intxn of rwy 17 and 11 at Civic Mem Apt., Alton, Ill.; 1600'.

Tucson, Ariz. (Intl): 258°; main rwy intersection; 2800'.

Utica, N.Y. (Oneida Co.): 319°; over control lwr bldg; 12 nm from VOR; 1500'.

Valdosta, Ga.: 006°, 6 nm; over light bcn E side of apt; 1200'.

Vandalia, Ill.: 170°, 5.8 nm; centerline at N end N/S rwy; 1700'.

Vienna, Ga.: 226°, 19 nm; over center of NE/SW rwy, Cordele, Ga., Apt.; 1300'.

Waterloo, Iowa: 127°, 8.2 nm; over center lwr KWKL broadcast stn; 2000'.

Waterville, Ohio: 181°; over Admin Bldg University Apt., Bowling Green, Ohio aprx 4.0 nm from VWV VORTAC; 2000'.

Waycross, Ga.: 097°, 8 nm; over wind tee in center of apt; 1200'.

Westpoint, Ind.: 036°, 9.6 nm; over intxn of rwy Purdue Univ Apt; 2000'.

Whitman (Mansfield Apt): 264°, 10.7 nm; over intxn rwy and strip; 1000'.

Whitman, Mass. (Norwood Apt): 327°, 11.5 nm; rwy intxns; 1000'.

Whitman, Mass. (Plymouth Apt): 144°, 14.5 nm; rwy intxns; 1100'.

Whitman, Mass. (Taunton Apt): 204°, 11.1 nm; apt bcn; 1200'.

Wichita, Kans.: 162°, 4.3 nm; app end rwy 14; 3300'.

Wichita Falls, Tex. (Sheppard AFB/Wichita Falls Air Terminal): 011°, 8 nm; at bridge over Red River; 2100'.

Wilkes Barre, Pa.: 243°; control lwr, Wilkes Barre-Scranton Apt; 3000'.

Williston, N. Dak. (Sloulin Fld): 121°, 6.1 nm; app end rwy 11; 3000'.

Wilmington, N.C. (New Hanover Co.): 204°, 5.5 nm; over weather radar ant on apt; 1100'.

Wink, Tex. (Winkler Co.): 149°, 5.9 nm; over intxn rwy 22 and 13; 3900'.

Winner, S. Dak. (Muni): 201°; over center of race track 7.8 nm; 3100'.

Winona, Minn.: 325°, 16 nm; rdo lwr; 2000'.

Winslow, Ariz.: 106°; intersection rwy 4-11; 5100'.

Winston-Salem, N.C. (Smith-Reynolds): 295° (GSO VORTAC); 13.5 nm over control lwr; 2000'.

Worthington, Minn.: 052°, 5.9 nm; over grain elevator at Brewster, Minn.; 2800'.

Yakima, Wash.: 246°; intersection N/S and E/W rwy; 1600'.

Yankton, S. Dak.: 257°, 6.8 nm; over lwr; 2500'.

Yardley, Pa. (Trenton Mercer Co. Apt): 080°; over control lwr; 1500'.

Youngstown, Ohio (Executive Apt): 208°, 18 nm; over T-hangars; 2500'.

Yuma, Ariz. (MCAS/Yuma Intl): 166°; centerline rwy 17-35; 400'.

GROUND CHECK POINTS

Albany, Ga.: 150°, 6 nm; center of tie down area on N edge of ramp.

Alexandria, La. (England AFB): #1, 322°, 6 nm; run-up pad rwy 14. #2, 324°, 4.2 nm; run-up pad rwy 32.

Alexandria, La. (Ester Fld): 151°, 3.5 nm; In front Admin Bldg.

Alice, Tex. (Intl): 270°, 0.5 nm; on taxi strip N of hangar.

Allentown, Pa. (Allentown-Bethlehem-Easton): 178°; on rwy 17 near the intersection of rwy 24.

Amarillo, Tex. (AFB/Muni): 207°, 4.5 nm; lctd 985' SE of centerline on NE end of the NE/SW rwy.

Amarillo, Tex. (Tradewind Aprt): 002° S-end on curve of taxiway 50' W opp end rwy 35 centerline.

Anderson, S.C. (Muni): 039°, 6 nm; on ramp In front of terminal bldg.

Ardmore, Okla. (Muni): 042°, 9 nm; adjacent to NW end NW/SE rwy.

Atlantic City, N.J. (Pomona/NAFEC): Lctn#1-313°; on runup pad at app end rwy 13, 250' from centerline rwy 13-31. Lctn #2-230°; on runup pad at app end rwy 4, 500' from centerline rwy 4-22. Lctn #3-208°; on runup pad at app end rwy 35, 250' from centerline of rwy 17-35. Lctn #4-121°; on runup pad at app end of rwy 31, 250' from centerline of rwy 13-31.

Baker, Oreg.: 177°, 0.5 nm; on ramp 85' NW of gas pumps.

Baltimore, Md. (Friendship Intl): Lctn #1-293°; centerline of rwy 10-28 on old runup pad. Lctn #2-290°; 400' N of centerline of rwy 10-28 on runup pad.

Bartlesville, Okla. (Phillips): 166°, 4 nm; opposite terminal on parallel taxi strip.

Beaumont, Tex. (Jefferson County): 052°; W edge of N end of parking ramp.

Big Spring, Tex. (Howard County): 140°, 5.1 nm; center of runup area to rwy 16.

Binghamton, N.Y. (Broome County): 077°; 400' S of control twr on S ramp south.

Bismarck, N. Dak.: 275°; N end ramp area just off app end rwy 12.

Blythe, Calif. (Riverside Co.): 048°; on ramp 500' in front of FSS bldg.

Boise, Idaho (Air Terminal): 084°; center N/S taxiway between rwys 28L-10R and 28R-10L on fld.

Bowling Green, Ky. (Bowling Green-Warren County): 023°; taxiway in front of Admin Bldg.

Bristol, Tenn. (Tri-City): 282°, 13.2 nm; on ramp S of terminal bldg.

Brownsville, Tex. (Rio Grande Valley Intl): 248°; app end rwy 13L.

Carlsbad, N. Mex.: 334°, 5.8 nm; immediately W of FSS and twr bldg on ramp.

Cedar Rapids, Iowa: 080°, 3.2 nm; rwy runup pad app end rwy 13.

Chanute, Kans.: 051°, 5.7 nm; app end rwy 12.

Chattanooga, Tenn. (Lovell): 332°, 5.1 nm; centerline S taxiway at point 175' NE of centerline rwy 32.

Chicago (West Chicago, Ill.) (Du Page Co.): 067°, 5.2 nm; on SW corner of N parking ramp at intxn of twy to rwy 15 and twy paralleling rwy 15-33.

Childress, Tex.: 353°, 3.7 nm; intersection of edge of ramp at center taxi strip.

Cincinnati, Ohio: (See Covington, Ky.)

College Station, Tex.: 097°, 2.8 nm; on W edge of parking ramp on Easterwood Aprt.

Columbia, S.C. (Owens Fld): 022°, 7.5 nm; compass rose on parking ramp.

Columbia, S.C. (Metropolitan): Lctn #1-332°, 6 nm; E/W taxiway (parallels rwy 10-28). Lctn #2-325°, 6.5 nm; W end of E/W twy.

Columbus, Ga. (Muscogee Co.): 145°, 7.1 nm; painted circle W end of main ramp area.

Columbus, Miss. (Lowndes County): 096°, 6.8 nm; at center taxiway between parking ramp and rwy.

Corvallis, Oreg.: 046°, S edge of term ramp.

Covington, Ky. (Greater Cincinnati): 043°; rwy 27R E of intersection rwys 27R and taxiway G.

Cross City, Fla. (Site 58, MEM-TPA): 300°, 4 nm; taxiway near wind indicator and rotating bcn light.

Dalhart, Tex.: 170°, 3.9 nm; SE corner of main ramp.

Dallas, Tex. (Addison): 159°, .75 nm; intersection of center and parallel taxiways.

Danville, Va. (Muni): 338°; S of terminal bldg center of intersection of twy to rwy 6 and twy to rwy 2.

Detroit, Mich. (Willow Run Aprt): 280°, 0.8 nm; NE corner of ramp near center taxi strip.

Dickinson, N. Dak.: 182°, 3.7 nm; intersection of E/W twy and N/S twy.

Dodge City, Kans.: 150°, 5.3 nm; center of NW end of rwy 14.

Dothan, Ala.: 334°, 3 nm; on ramp in front of Admin Bldg.

Douglas, Ariz. (Bisbee-Douglas Intl): 160°; intxn of SW ramp and twy T-2.

Duluth, Minn. (Intl): 012°, 2.3 nm; center of intersection formed by taxi strips leading to rwys 31 and 3 just off SE corner of ramp.

Duncan, Okla. (Holliburton Fld): 329°, 6 nm; terminal ramp at intxn N/S and center twys.

Dyersburg, Tenn.: 250°, 4.2 nm; intersection of ramp and center taxi strip.

East Hartford, Conn. (Rentschler): 347°, 8 nm; lctd at taxi strip near N side of control twr.

Eau Claire, Wis.: 180°, 2.1 nm; center of concrete ramp 150'W of Aprt Ops Office.

Elizabeth City, N.C. (CGAS): 028°, 0.5 nm; lctd on taxiway leading from CG ramp.

II-48 VOR RECEIVER CHECK POINTS

Elmira, N.Y. (Chemung County): 066°; midpoint of short taxiway between rwy 10 and 6 at W side of aprt, aprx 198' S of C/L rwy 10 and 374' N of centerline rwy 6.

Enid, Okla. (Woodring Field): 348°, 0.5 nm; ramp W of terminal bldg.

Erie, Pa. (Port Erie): 060°; twy approaching rwy 6.

Eugene, Oreg. (Mahlon Sweet): 068°; app to apron immediately W of the Admin Bldg.

Florence, S.C.: 235°, 4.3 nm; on taxiway W of the end of rwy 18.

Fort Benning, Ga. (Lawson AAF): Lctr #1-021°, .8 nm; run-up area on taxiway at app end of rwy 20. Lctr #2-130°, 1 nm; run-up area on taxiway at app end of rwy 32.

Fort Dodge, Iowa: 118°, 6.1 nm; W edge of terminal bldg.

Ft. Lauderdale, Fla. (Hollywood Intl Aprt): 120°, 0.5 nm; on ramp in front of Terminal Bldg.

Fort Myers, Fla. (Page): 172°, 1 nm; N side of terminal ramp.

Fort Riley, Kans. (Marshall AAF): 032°, 6.3 nm; on parking ramp o/a to radar antenna.

Fort Rucker, Ala. (Cairns AAF): Lctr #1-019°; run up area on twy app end rwy 13. Lctr #2-040°; run up area on twy intxn rwy 13 and 18. Lctr #3-059°; run up area on twy N of app end rwy 24. Lctr #4-063°; run up area on twy S app end rwy 24. Lctr #5-078°; run up area on twy W of app end rwy 36. Lctr #6-062°; on run up area twy N of app end rwy 6.

Fort Stockton, Tex. (Pecos Co.): 116°, 4 nm; on ramp N of terminal.

Frederick, Md. (Muni): 359°; twy between rwys near app end of rwy 23.

Gage, Okla.: 109°, 5.7 nm; intxn twys N/W corner of ramp.

Gallup, N. Mex. (Senator Clarke Field): 050°; center of twy in front of term bldg; 5.2 nm from VORTAC.

Goldsboro, N.C. (Seymour Johnson AFB): 280°, .6 nm; run up pad at app end rwy 8.

Great Falls, Mont. (Intl): #1-207°; intxn NE/SW and E/W twy adjacent to app end rwy 34; 2.4 nm. #2-027°; on NE/SW twy 100' SW rwy 25; 3.0 nm.

Green Bay, Wis. (Austin-Straubel): 141°, 4.6 nm; intersection of circular taxi strip, W of Admin Bldg, and taxi strip leading to intersection of S and SE rwys.

Greensboro, N.C. (High Point): 033°, 3.1 nm; ramp in front of twr.

Greenwood, Miss.: 060°, 4.3 nm; central taxiway adjacent to ramp.

Greenwood, S.C. (County): 251°, .7 nm; on taxiway app end of rwy 9.

Gulfport, Miss.: 098°, 0.7 nm; 100' NW of control twr.

Harrison, Ark.: 131°, 4.3 nm; intxn of taxiway and ramp.

Helena, Mont.: 235°, 0.7 nm; taxiway adjacent to app end rwy 26.

Hobbs, N. Mex. (Lea County): 030°, 3.5 nm; on run up pad app end rwy 3.

Hot Springs, Ark. (Mem Fld): 246°, .75 nm; run up pad rwy 5.

Hyannis, Mass. (Barnstable Muni): 242°, 3.2 nm; lctd on rwy apron for rwy 24.

Idaho Falls, Idaho (Fanning Fld): 007°; junction of N/S twy and rwy 16-34, at NE corner of aprt.

Ithaca, N.Y. (Tompkins Co.): 202°; at bend in twy, 375' from centerline of NW/SE rwy.

Johnstown, Pa. (Cambria County): 155°; taxiway to rwy 33.

Junction, Tex. (Kimble County): 143°, 5.2 nm; N edge of parking ramp.

Key West, Fla. (Intl): 127°, 3 nm; NW portion of ramp.

Kinston, N.C. (Stallings): 230°, 3.9 nm; 500' in front of Admin Bldg.

Klamath Falls, Oreg. (Kingsley Field): 294°; 154' N of twy in front of Admin Bldg, and 36' from E edge of ramp.

Lafayette, La.: Lctr #1-350°, 3.9 nm; on taxiway at N end N/S rwy. Lctr #2-343°, 3 nm; on taxiway at S end N/S rwy.

LaGrange, Ga. (Callaway): 106°, 7 nm; on compass rose at taxi strip intersection aprx 500' due S of Admin Bldg.

Lakeland, Fla. (Muni): 352°, 0.8 nm; twy leading from ctr of fld to terminal.

Lancaster, Pa.: 277°; intersection of ramp and twy leading to intersection of rwys.

Lansing, Mich. (Capital City): 053°, 5.4 nm; center of app end rwy 06.

Laredo, Tex. (AFB): Lctr #1-137°; off end of ramp on taxiway 2, 4.8 nm. Lctr #2-131°; off S end of ramp on taxiway 6, 4.0 nm.

Laredo, Tex.: 315°, 9.5 nm; on ramp adjacent to app bcn.

Las Vegas, Nev. (McCarran Fld): 351°; last twy W side approaching rwy 19.

Las Vegas, N. Mex. (Muni): 231°, .7 nm; on apron N of FSS bldg.

Lawton, Okla.: 349°, 4.6 nm; intxn of terminal ramp and S taxi strip.

Lexington, Tenn. (Franklin-Wilkins Aprt): JKS 337°, 3.4 nm; intxn ramp and taxiway.

Lincoln, Nebr. (Muni): 174°, 5.7 nm; on run-up ramp for rwy 35R.

Little Rock, Ark. (Adams Fld): 315°, 4.5 nm; on taxi strip adjacent to junction rwy 14.

Livingston, Mont. (Mission Fld): 208°; E side of twy leading from ramp to rwy.

Longview, Tex. (Gregg Co.): 126°, 2.5 nm; N end ramp on twy to rwy 13.

Louisville, Ky. (Bowman): 329°; taxiway W of rwy 1.

Louisville, Ky. (Standiford): 301°; taxiway between ramp and rwy 19.

Lubbock, Tex.: 103°, 4.5 nm; run up pad app end rwy 17R.

Lufkin, Tex. (Angelina Co. Apt): 328°, 4.6 nm; intersection of ramp and taxiway in front of Terminal Bldg.

Lynchburg, Va. (Muni-Preston Glenn Fld): 026°; mid twy to rwy 17-35.

Manhattan, Kans. (Muni): 145°, .5 nm; on ramp in front of Term Bldg.

Mansfield, Ohio (Muni): 133°; at intersection of NW and SW taxiways.

Marfa, Tex. (Alpine): 314°, 5 nm; from VOR intxn NW/SE-NE/SW twy. 450' E app end rwy 30.

Marianna, Fla.: 310°, 3.6 nm; ESE end taxiway 6.

Martinsburg, W. Va.: 281°; near app end of rwy 35.

Marysville, Calif. (Yuba Co.): 345°; warm up area to app end of rwy 14.

Mason City, Iowa: 356°, 3.4 nm; on centerline S end of N/S rwy.

McAlester, Okla. (Muni): 350°, 2 nm; intxn ramp and taxi strip.

McAllen, Tex. (Miller Intl): Lctn #1—040°, 0.4 nm; at intersection E/W twy and N/S rwy. Location #2—012°, 0.4 nm; in front airline terminal on gate two loading spot.

Melbourne, Fla. (Eau Gallie): 145°, 0.8 nm; NE corner of parking ramp.

Meridian, Miss. (Key Fld): Lctn #1—124°, 3.7 nm; on ramp in front of terminal bldg. Lctn #2—122°, 3.5 nm; intxn of N/S taxiway and SW corner of military ramp.

Midland, Tex. (Air Terminal): 178°, 4.3 nm; intxn twy C and ramp in front of Terminal Bldg.

Miles City, Mont.: 036°, 4.2 nm; on twy leading to rwy 30.

Mineral Wells, Tex.: 307°, 4.5 nm; intersection of twy and rwy 31.

Missoula, Mont. (County): 340°, 0.6 nm; from edge of ramp in front of Admin Bldg.

Mobile, Ala. (Bates): 107°, 7.9 nm; intxn of N/S and E/W twys E of rwy 18-36. 109.5°, 7.6 nm; intxn of W ramp and W twy.

Modesto, Calif. (City/Co.): 096°; E end of twy to rwy 29R.

Monroeville, Ala.: 041°, 0.3 nm; middle of twy at the holding line.

Morgantown, W. Va.: 337°; on twy in front of terminal bldg.

Muscle Shoals, Ala.: 289°, 6.3 nm; eastern end of E/W rwy 11-29 equi-distance from end and both sides of rwy.

Nantucket, Mass. (Memorial): 241°, 1.9 nm; taxiway approaching rwy 24.

Needles, Calif. (Site 25B, LAX-AMA): 253°; on ramp in front of Admin Bldg.

New Bern, N.C.: 088°; on compass rose at ramp.

New Haven, Conn. (Tweed-New Haven): 159°; ramp in front of terminal.

New Orleans, La. (Moisant Fld): 235°, 5 nm; cen of perimeter taxiway 100' S of rwy 10.

Norfolk, Va. (Muni): 031°; center of twy "E", 250' NW of centerline of rwy 22.

Oakland, Calif. (Intl): 081°; middle of pad between rwys 27L and 27R.

Ocala, Fla. (Muni): 139°, 0.6 nm; on ramp near Terminal Bldg.

Olympia, Wash.: 347°; on ramp in front of Admin Bldg.

Orlando, Fla. (Herndon): 300°, 0.8 nm; midpoint of N/S taxiway on W boundary of apt.

Paducah, Ky. (Barkley): 040°; on twy approaching end of rwy 22.

Pahokee, Fla.: 344°, 5 nm; overrun rwy 35.

Palacios, Tex.: 119°, 4 nm; intersection NW end NW/SE rwy and S twy strip.

Panama City, Fla. (Bay Co. Apt): 195°, 0.6 nm; N/S twy 1050' N of terminal bldg.

Paris, Tex. (Cox Fld): 348°, 5.6 nm; intersection of N/S and E/W rwys.

Parkersburg, W. Va. (Wood County): Lctn #1—209°; run up area N side of rwy 28. Lctn #2—207°; on twy near intersection rwys 16 and 21.

Pasco, Wash. (Tri-Cities): 020°; S of intxn of N/S twy and rwy 20L.

Paso Robles, Calif.: 248°; 150' S of Admin Bldg on parking ramps, indicated by circle and sign.

Pecos, Tex. (Muni): 133°, 5.5 nm; on ramp adjacent to center taxiway.

Pellston, Mich. (Emmet Co.): 239°, 6.6 nm; intersection of centerlines of N/S and E/W twy of apt.

Pendleton, Oreg.: 076°; 200' W of Admin Bldg.

Philadelphia, Pa. (North Philadelphia): 215°; on taxi strip between ramp and rwy 10.

Philipsburg, Pa. (Block Moshannon-State): 252°; rwy intersection.

Pierre, S. Dak.: 250°, 5.5 nm; in front of municipal hangar.

Pine Bluff, Ark. (Grider): 179°, 4 nm; center of twy and N/S rwy.

Ponca City, Okla.: 101°, 3 nm; taxi strip at junction to terminal ramp.

Pontiac, Mich.: 114°, 5.7 nm; over circle on warmup pad app end rwy 27.

Pueblo, Colo.: 246°; painted circle with arrow on ramp W of Admin Bldg; 2.9 nm.

Quincy, Ill. (Quincy-Baldwin Fld): 030°, 7.4 nm; at intersection of NE/SW taxiway N of Terminal bldg.

Raleigh, N.C.: 244°; 1 nm end rwy 5.

Rapid City, S. Dak.: 320°, 4.5 nm; in front of Admin Bldg adjacent to center taxi strip.

Redding, Calif. (Muni): 310°; intersection twy and rwy 12.

Redmond, Oreg. (Roberts Field): 066°; on ramp in front of Admin Bldg 60' W of centerline of twy to rwy 10-28.

Reno, Nev.: 240°; lctd on concrete run up mat for rwy 16.

Riverton, Wyo. (Muni): 180°, 25 nm; from Boysen Reservoir VORTAC; twy between Admin Bldg and rwy.

Roanoke, Va. (Woodrum): 099°; filled area rwy 27.

II -50 VOR RECEIVER CHECK POINTS

Rochester, N.Y. (Monroe Co.): 149°; on ramp in front of control twr 415' from centerline rwy 1-19 and 305' from centerline of rwy 7-25.

Rock Springs, Wyo.: Lctn #1-266°; in center of turn-around E end rwy 25; 1.9 nm. Lctn #2-261°; in center of turn-around W end rwy 7; 3.1 nm.

Rockford, Ill. (Greater Rockford): 112°; apex of twys at center of apt.

Rome, Ga. (Russel Fld): 348°, 11.5 nm; intersection of taxiways 200' S of the terminal bldg.

St. Paul, Minn. (Downtown Apt): 291°, 5 nm; over drain in center of intxn parking ramp and taxiway in front of terminal bldg.

St. Petersburg, Fla. (Pinellas County Intl): 268°; circle lctd N side of W end of ramp, 500' SE of Saint Aircraft bldg.

St. Thomas, V.I. (Harry S. Truman): 118°, 3.5 nm; on center point of apt twy.

Salinas, Calif. (Muni): 257°; rgt shoulder rwy 21, directly in front of terminal bldg.

Salisbury, Md. (Salisbury-Wicomico County): 243°; ramp front of control twr.

San Angelo, Tex. (Mathis Fld): 236°, 2.2 nm; E edge of ramp in front of twr.

San Antonio, Tex. (Stinson Muni): Lctn #1-329°, 5.1 nm; run up area at app end rwy 9. Lctn #2-335°, 5 nm; on W end ramp opposite hangars 1 and 2.

San Jose, Calif. (Muni): 069°; in front of Fire and Rescue Bldg.

San Juan, Puerto Rico (Int'l): 261°, 0.9 nm; lctd on twy NE terminal bldg.

Santa Barbara, Calif.: 198°; gate 2 in front of terminal bldg over Figure 2 painted on apron.

Santa Catalina, Calif.: 346°; SW corner app end rwy 4 Santa Catalina Apt.

Santa Fe, N. Mex. (New Municipal): 334°, 4.7 nm; at junction main intersection twy and ramp.

Santa Rosa, Calif. (Sonoma Co. Apt): 083.5°; SW corner main ramp.

Sarasota, Fla. (Bradenton): 172°, 0.4 nm; on ramp 800' N terminal bldg.

Scottsbluff, Nebr. (Muni): 240°, 5.1 nm; NE edge ramp opposite terminal bldg and W of twy leading to rwy 30 aprx 3000' from app end.

Seattle, Wash. (Seattle-Tacoma Intl): 028°; 30' near edge of ramp S and W of Admin Bldg.

Sioux City, Iowa: 314°, 4.2 nm; painted circle directly in front of new twr.

South Bend, Ind. (St. Joseph Co.): 176°, 3.9 nm; center of western N/S twy 200' N of N edge of terminal ramp.

Spartanburg, S.C. (Downtown Mem): 192°, 7.3 nm; at compass rose on ramp.

Springfield, Ill. (Capital): 214°, 3.8 nm; in front of twr at intersection NW/SE and NE/SW taxi strips.

Springfield, Mo.: 191°, 6.8 nm; at bend in N/S rwy 400' S of N end of taxi strip.

Stillwater, Okla. (Searcy Fld): 173°, 4 nm; NW ramp and taxi strip.

Thermal, Calif.: 328°; ramp 250' in front of hangar.

Topeka, Kans. (Philip Billard Muni): 213°, 5.4 nm; N/S taxiway W of tetrahedron.

Tri-City, Tenn.: HMV 282°, 13.2 nm; on ramp S of terminal bldg.

Truth or Consequences, N. Mex.: 157°, 2.8 nm; on NE/SW twy 200' NW of wind cone.

Tucumcari, N. Mex.: Lctn #1-255°, .5 nm; over square metal plate lctd on hangar ramp paved area. Lctn #2-266°, .7 nm; over painted orange circle, lctd on taxi strip 100' off end of rwy 8.

Tuscaloosa, Ala. (Van De Graaff): 241°, 4.3 nm; point lctd on centerline of twy midway between ramp and rwy.

Twin Falls, Idaho (Joslin): 030°; on parking strip apron 300' SW of Admin Bldg.

Vero Beach, Fla.: 112°, 4 nm; on taxiway adjacent to wind sock adjacent to rwy 11-29.

Vichy, Mo. (Rolla National): 241°, 2.9 nm; on twy W of NE/SW rwy.

Victoria, Tex. (Victoria Co.-Foster): 126°, 3.2 nm; app end rwy 13L.

Waco, Tex. (Muni): 132°, 3.5 nm; intxn of ramp and N taxi strip.

Walla Walla, Wash. (City-County): 025°; center of twy app rwy 20, mrkd.

Walnut Ridge, Ark.: 051°, 1.7 nm; taxi strip at parking ramp adjacent to tetrahedron.

Watertown, N.Y. (Muni): 048°, 2.6 nm; ramp in front of Admin Bldg.

Watertown, S. Dak.: 184°, 3.8 nm; lctd SE corner of ramp near taxiway leading to rwy 12-30.

Wausau, Wis. (Alexander): 338°; 100' N of wind tee, 30' from S edge of concrete terminal ramp where concrete ramp terminates and blacktop ramp begins.

Wenatchee, Wash. (Pangborn Fld): 045°; front of Admin Bldg.

Wheeling, W. Va. (Wheeling-Ohio County): 219°; twy on E side of ramp.

Wichita Falls, Tex. (Muni): 096°, 5.2 nm; NE edge of muni ramp.

Williamsport, Pa. (Williamsport-Lycoming Co.): 237°; vicinity of base operator ramp.

Youngstown, Ohio: Lctn #1-182°; compass rose end of rwy 18. Lctn #2-194°; NW twy off app end of rwy 14; 300' from centerline rwy 14-32.

Zanesville, Ohio: 010°; on apt 270' NE of intersection of NE/SW and NW/SE taxi strips on centerline of NE/SW taxi strip.

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ENROUTE PREFERRED ROUTES

Low Altitude Stratum — The following listing of preferred routes has been established to guide pilots in planning their route of flight, to minimize route changes during the operational phase of flight, and to aid in the efficient orderly management of the air traffic using federal airways. The preferred routings which follow are designed to serve the needs of airspace users and to provide for a systematic flow of air traffic in the major terminal and enroute flight environments.

Preferred routes generally commence and terminate at fixes on or near the perimeter of the terminal area. Preferred routes beginning/ending with an airway number indicate that the airway essentially overlies the

airport and flights are normally cleared directly on the airway. All preferred routes are listed alphabetically under the name of the departure airport. Major airports in close proximity are listed under the principal airport and characterized as a metropolitan area; e.g., Chicago Metro area. Where two navaids or an intersection and a navaid follow in succession, the route is direct.

Chart Numbers — The numbers of the Enroute charts required for a flight by a preferred route are listed in parentheses at the end of the routing for your convenience.

LOW ALTITUDE STRATUM

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Albany	Boston	V2, Gardner VORTAC, V431 (L-25)	Atlanta	Jacksonville	Griffin Intxn, V243, Waycross VORTAC, V243W, Callahan Intxn (L-20, L-18)
	New York (Kennedy)	V91, Riverhead VORTAC (L-25)		Memphis	Chattahoochee Intxn, V18, Birmingham VORTAC, V159N, Holly Springs VOR (L-20, L-14)
	(La Guardia)	V91, V487, Stamford Intxn (L-25)		Miami	Brooks Intxn, V97, Albany VOR, V159, V159W, Cross City VORTAC, V7, Fort Myers VORTAC, V35, Miami VORTAC (L-20, L-18, L-19)
	(Newark)	V489, Budd Lake Intxn (L-25)		New York (Kennedy)	Conyers Intxn, V66, Fort Mill VORTAC, V454, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, V44, Beachwood Intxn (L-20, L-22, L-24)
Albuquerque	Denver	Aden Intxn, V19W, Santa Fe VORTAC, V83, Pueblo VORTAC, V19E, Kiowa VORTAC (L-4, L-6)		(La Guardia)	Conyers Intxn, V66, Fort Mill VORTAC, V454, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, Robbinsville VORTAC (L-20, L-22, L-24)
	Kansas City	Aden Intxn, V19W, Santa Fe VORTAC, V19, Las Vegas VORTAC, V190, Dalhart VORTAC, V234, V280, Farley Intxn (L-6)		(Newark)	Conyers Intxn, V66, Fort Mill VORTAC, V454, V157, V20, V213, V29, V433, Rocky Hill Intxn (L-20, L-22, L-24)
	Los Angeles	Grants VORTAC, V12, Needles VORTAC, V208, Twentynine Palms VORTAC, V264S, Ontario VORTAC (L-4, L-3)		Orlando	Griffin Intxn, V243, Waycross VORTAC, V157, Ocala VORTAC, V159W, Clermont Intxn (L-20, L-18, L-19)
	Phoenix	Grants VORTAC, V190N, St. Johns VORTAC, V190, Lake Intxn (L-4)		Pittsburgh	Crabapple Intxn, V97, Knoxville VORTAC, V115, Parkersburg VOR, V119, Wheeling VORTAC (L-20, L-22, L-24)
Atlanta	Birmingham	Chattahoochee Intxn, V18, Anniston VOR (L-20, L-14)		Tampa	Brooks Intxn, V97, Albany VOR, V159, V159W, Cross City VORTAC, V7, Homo Intxn, V35E, Hazel Intxn (L-20, L-18, L-19)
	Charlotte	Conyers Intxn, V66, Fort Mill VORTAC (L-20)		Washington	Conyers Intxn, V66, Fort Mill VORTAC, V454, Lawrenceville VOR, V157, Ironsides Intxn (L-20, L-22)
	Chicago	Crabapple Intxn, V51, Chicago Heights VORTAC (L-20, L-14, L-21, L-23)		(Dulles)	Conyers Intxn, V66, Fort Mill VORTAC, V454, Lawrenceville VOR, V155, Gordonsville VORTAC, V39E, Brandy Intxn (L-20, L-22)
	Cincinnati	Crabapple Intxn, V97, Dry Ridge Intxn (L-20, L-22)		Baltimore	See Washington/Baltimore Metro Area
	Dallas	Chattahoochee Intxn, V18, Monroe VORTAC, V94, V477E, Forney Intxn (L-20, L-14, L-18, L-17, L-13)	Birmingham	Atlanta	Birmingham VORTAC, V18S, Palmetto Intxn (L-14, L-20)
	Houston	Chattahoochee Intxn, V18, Meridian VORTAC, V194, McComb VORTAC, V222, Lake Charles VORTAC, V20, Fry Intxn (L-20, L-14, L-18, L-17)			

ENROUTE PREFERRED ROUTES II-53

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Birmingham	New Orleans	Tuscaloosa VORTAC, V18, Meridian VORTAC, V455, Hattiesburg VORTAC, V455W, Madison Intxn (L-14, L-18, L-17)	Charleston W Va	Columbus	V133, V214 Hanover Intxn (L-22, L-23)
	Pittsburgh	Gadsden VORTAC, V115E, Chattanooga VORTAC, V115, Parkersburg VORTAC, V119, Wheeling VORTAC (L-14, L-20, L-22, L-24)		Louisville	V128, York VOR, V44, Falmouth VOR, V502 (L-22, L-21)
Boston	Albany	V2 (L-25)		Pittsburgh	V115, Parkersburg VORTAC, V119, Wheeling VORTAC (L-22, L-24)
	Buffalo	V14, Bellona Intxn, V31, Rochester VORTAC, V142, Grant Intxn (L-25)		Washington	V4S, Elkins VORTAC, V4, Henderdon VORTAC (L-22)
	Cleveland	V14, Albany VORTAC, V72, Hadley Intxn, V232, Mentor Intxn (L-25, L-24, L-23)	Charlotte	Atlanta	Charlotte VORTAC, V194, Norcross VORTAC (L-20)
	New York (Kennedy)	V292, Putnam VORTAC, V475E, V16, Riverhead VORTAC (L-25)		Cleveland	Mooresville Intxn, V37, Pulaski VORTAC, V59, V427, V40, Sharon Intxn (L-20, L-22, L-24, L-23)
	(La Guardia) (Newark)	V3, V445, Stamford Intxn (L-25) V3, Hartford VORTAC, V292, Budd Lake Intxn (L-25)		Miami	Charlotte VORTAC, V37, Alendale VOR, V157, Lakeland VORTAC, V7, Fort Myers VORTAC, V35, Miami VORTAC (L-20, L-19)
	Philadelphia	V3, Warrington Intxn (L-25, L-24)		New York (Kennedy)	New London Intxn, V454, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, V44, Beachwood Intxn (L-20, L-22, L-24)
	Rochester	V14, Bellona Intxn, V31, Fishers Intxn (L-25)		(La Guardia)	New London Intxn, V454, Lawrenceville VOR, V157, V20, V213, Robbinsville VORTAC (L-20, L-22, L-24)
	Washington	V-308, North Beach Intxn (L-25, L-24)		Washington	New London Intxn, V454, Lawrenceville VOR, V157, Ironsides Intxn (L-20, L-22)
	Windsor Locks	V292, Putnam VORTAC 295 rad, Meadow Intxn (L-25)	Chicago (Midway or O'Hare)	Atlanta	Peotone VORTAC, V171, Scotland VORTAC, V243, Kennesaw Intxn (L-23, L-21, L-14, L-20)
Buffalo	Boston	Genesee VORTAC, V14, Gardner VORTAC, V431 (L-12, L-25)		Denver	Malta Intxn, V172, Wolbach VORTAC, V219, Hayes Center VORTAC, V8 (L-23, L-11, L-8)
	Chicago (Midway)	V84, Lansing VOR, V218, Suri Intxn (L-12, L-23)		Detroit (City)	Musky Intxn, V100, Keeler VORTAC, V218, Troy Intxn (L-23, L-12)
	(O'Hare)	V84, Northbrook VORTAC (L-12, L-23)		Indianapolis	Peotone VORTAC, V128 (L-23)
	Cleveland	Langford Intxn, V464, Dunkirk VOR, V14, Mentor Intxn (L-12, L-24)		Los Angeles	Malta Intxn, V172, Wolbach VORTAC, V219, Hayes Center VORTAC, V8 (L-23, L-11, L-8, L-5, L-3)
	Detroit	V2, Aylmer VOR, V90N, Dolphin Intxn, V90, Windsor VOR (L-12, L-23)		Memphis	Big Run Intxn, V173, Capital VORTAC, V9, Kerrville Intxn (L-23, L-21, L-14)
	New York (Kennedy)	V252, Binghamton VORTAC, V270, V34, Carmel VORTAC, Bridgeport VOR, Riverhead VORTAC (L-12, L-25)		Miami	Peotone VORTAC, V171, Scotland VORTAC, V243, Atlanta VORTAC, V97, Albany VOR, V159, Greenville VOR, V159W, Cross City VORTAC, V7, Fort Myers VORTAC, V35, Miami VORTAC (L-23, L-21, L-14, L-20, L-18, L-19)
	(La Guardia)	V252, Geneseo VORTAC, V147, Allentown VORTAC, V6, V433, Liberty Intxn (L-12, L-25)		Minneapolis	Malta Intxn, V218, Rochester VOR, V82, Farmington VOR (L-23, L-11, L-10)
	(Newark)	V252, Geneseo VORTAC, V147, Thornhurst VORTAC, V226, Budd Lake Intxn (L-12, L-25)		New York (Kennedy)	V6, Selinsgrove VORTAC, V170, V276, Robbinsville VORTAC (L-23, L-24)
	Philadelphia	V33, Philipsburg VORTAC, V184, West Chester VORTAC (L-12, L-24)		(La Guardia)	V6, V433, Liberty Intxn (L-23, L-24)
	Pittsburgh	V115, Ellwood City VORTAC (L-12, L-24)			
	Washington	V33, Harrisburg VORTAC, V265, Dayton Intxn, Georgetown RBn, Washington VOR (L-12, L-24)			
Charleston W Va	Cincinnati	V128, California Intxn (L-22)			
	Cleveland	V115, Parkersburg VORTAC, V59, V427, V40, Sharon Intxn (L-22, L-24, L-23)			

II-54 ENROUTE PREFERRED ROUTES

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Chicago (Midway or O'Hare)	(Newark)	V6, Selinsgrove VORTAC, V30, Rocky Hill Intxn (L-23, L-24)	(O'Hare)	(Windsor)	V100, V218, Troy Intxn (L-23, L-12)
	Philadelphia	V6, Philipsburg VORTAC, V184, West Chester VORTAC (L-23, L-24)		Kansas City	V84, Bradford VORTAC, V10, Kearney Intxn (L-23, L-11, L-21)
	Pittsburgh	V6, Chagrin Falls Intxn, V103, Akron VORTAC, V297, Ellwood City VORTAC (L-23, L-24)		Omaha	V172, Neola VORTAC (L-23, L-11)
	St. Louis	Big Run Intxn, V191, V14, Staunton Intxn (L-23, L-21)	Cincinnati	Atlanta	V97, Knoxville VORTAC, V267 Norcross VORTAC (L-22, L-20)
	San Francisco	Malta Intxn, V172, Polo VORTAC, V158, Dubuque VORTAC, V100, Medicine Bow VORTAC, V6, Reno VORTAC, V6N, Sacramento VORTAC, V6 (L-23, L-11, L-8, L-7, L-2)		Charleston W Va	V128S, York VOR, V128 (L-22)
	Tampa	Peotone VORTAC, V171, Scotland VORTAC, V243, Atlanta VORTAC, V97, Albany VOR, V159, Greenville VOR, V159W, Cross City VORTAC, V7, Homo Intxn, V35E, Hazel Intxn (L-23, L-21, L-14, L-20, L-18, L-19)		Chicago	V97, Chicago Heights VORTAC (L-21, L-23)
	Tulsa	Naperville VOR, V10, Burlington VORTAC, V63, Springfield, Mo VORTAC, V14 (L-23, L-11, L-21, L-6)		Detroit (City)	V275, Salem VORTAC (L-21, L-23)
	Washington	Peotone VORTAC, V144, Kessel VOR, V4, Herndon VORTAC (L-23, L-24)		(Metro Wayne Co)	V275, Milan Intxn (L-21, L-23)
	(Dulles)	Peotone VORTAC, V144, Blue Ridge Intxn (L-23, L-24)		(Willow Run)	V275, Milan Intxn (L-21, L-23)
(Midway)	Cleveland	Crib Intxn, V6, Sandusky VORTAC, V232, Vermilion Intxn (L-23)		Indianapolis	V97 (L-21, L-23)
	Des Moines	Naperville VOR, V8, Cordova VOR, V294, Cedar Rapids VORTAC, V172, Neola VORTAC (L-23, L-11)		Louisville	V47, Nabb VOR, V51 (L-21)
	Detroit (Metro Wayne Co)	Crib Intxn, V10, Milan Intxn (L-23)		Miami	V47, Nabb VOR, V51, Crabapple, Intxn, V97, Albany VOR, V159, V159W, Cross City VORTAC, V7, Fort Myers VORTAC, V35, Miami VORTAC (L-21, L-22, L-20, L-18, L-19)
	(Willow Run)	Crib Intxn, V10, Milan Intxn (L-23)		New York (La Guardia)	V128S, York VOR, V44, Morgantown VORTAC, V35, Johnstown VORTAC, V106, Selinsgrove VORTAC, V6, V433, Liberty Intxn (L-22, L-24)
	Kansas City	Naperville VOR, V10, Kearney Intxn (L-23, L-11, L-21)		(Newark)	V128S, York VOR, V44, Morgantown VORTAC, V35, Johnstown VORTAC, V106, V30, Rocky Hill Intxn (L-22, L-24)
	Omaha	Naperville VOR, V8, Cordova VOR, V294, Cedar Rapids VORTAC, V172, Neola VORTAC (L-23, L-21)	Pittsburgh		V128S, York VOR, V44, Parkersburg VOR, V119, Wheeling VORTAC (L-22, L-24)
(O'Hare)	Cleveland	V172, V228, South Bend VORTAC, V6, V232, Vermilion Intxn (L-23)	St. Louis		V47, Nabb VOR, V44, Mounds Intxn (L-21)
	Des Moines	V172, Newton VOR (L-23, L-11)	Cleveland	Boston	V14N, Erie VORTAC, V270, Binghamton VORTAC, V72, Albany VORTAC, V2, Gardner VORTAC, V431 (L-23, L-24, L-12, L-25)
	Detroit (Metro Wayne Co)	V172, Musky Intxn, V100, Milan Intxn (L-23)		Buffalo	V14N, Crystal Beach Intxn (L-23, L-24, L-12)
	(Willow Run)	V172, Musky Intxn, V100, Milan Intxn (L-23)		Charlotte	V443, Tiverton VOR, V133, Stanley Intxn (L-23, L-22, L-20)
				Chicago	V126, Chicago Heights VORTAC, V7, Niles Intxn (L-23)
				Columbus	V443, Tiverton VOR, V43, Appleton VORTAC (L-23)
				Dayton	V14, Attica VORTAC, V435, Rosewood VORTAC (L-23)
				Detroit (City)	Crib Intxn, V103, Cleveland VORTAC 345 rad, Comber Intxn (L-23)
				Detroit (Metro Wayne Co)	V42E, V103, LaSalle Intxn (L-23)
				(Willow Run)	V42E, V103, LaSalle Intxn (L-23)
				Indianapolis	Cleveland VORTAC, V14 (L-23)

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Cleveland	Miami	V443, V133, V35, V185, Dover Intxn, V157, Lakeland VORTAC, V7, Fort Myers VORTAC, V35, Miami VORTAC (L-23, L-22, L-20, L-18, L-19)	Dallas/ Ft. Worth	Los Angeles	Joshua Intxn, V94, Wink VORTAC, V16, Salt Flat VORTAC, V94, Gila Bend VORTAC, V461, Buckeye VORTAC, V16, Ontario VORTAC (L-13, L-4, L-3)
	New York (Kennedy)	Akron VORTAC, V30, Selinsgrove VORTAC, V170, V276, Robbinsville VORTAC (L-24)		Memphis	Dallas VORTAC, V278, Texarkana VORTAC, V16, Walls Intxn (L-13, L-14)
	(La Guardia)	Akron VORTAC, V30, Clarion VORTAC, V6, Amboy Intxn, V433, Liberty Intxn (L-24)		New Orleans	Dallas VORTAC, V114, French Intxn (L-13, L-17)
	(Newark)	Akron VORTAC, V30, Rocky Hill Intxn (L-24)		San Antonio	Red Oak Intxn, V15E, Waco VORTAC, V17, Austin VORTAC, V17W, Bergheim Intxn (L-13, L-15)
	Philadelphia	Akron VORTAC, V30, Philipsburg VORTAC, V184, West Chester VORTAC (L-24)		Tulsa	Dallas VORTAC, V15, Gunter Intxn, Perrin VOR, McAlester VORTAC, V131, Okmulgee VOR, Haskell Intxn; or Dallas VORTAC, V15, Okmulgee VOR, Haskell Intxn (L-13, L-6)
	Pittsburgh	Akron VORTAC, V297, Ellwood City VORTAC (L-24)		Washington	Dallas VORTAC, V278, V16, Nashville VORTAC, V140, Montebello VOR, V16N, Gordonsville VORTAC, V16, Ironsides Intxn (L-13, L-14, L-21, L-22)
	Rochester	V14N, Erie VORTAC, V14, Buffalo VORTAC, V2, Clifton Intxn (L-23, L-24, L-12)		(Dulles)	Dallas VORTAC, V278, V16, Nashville VORTAC, V140, Montebello VOR, V143, V174, Blue Ridge Intxn (L-13, L-14, L-21, L-22)
	Washington	Akron VORTAC, V103, Imperial VORTAC, V37, Millsboro Intxn, V92, Front Royal VORTAC, V4, Herndon VORTAC (L-24)		Dayton	Dayton VORTAC 001° radial, V277, Ft Wayne VORTAC, V55, V422, Chicago Heights VORTAC (L-23)
Columbus	Charleston	Appleton VORTAC, V38, V133 (L-23, L-22)		Chicago	Cleveland V275, V47W, Findlay VORTAC, V8, Mansfield VORTAC, V72, Sharon Intxn (L-23)
	Indianapolis	Grindell Intxn, V210 (L-23)			Detroit (City) V275, Salem VORTAC (L-23)
	New York (La Guardia)	Appleton VORTAC, V12, V106, V6, V433, Liberty Intxn (L-23, L-24)			(Metro Wayne Co) V275, Milan Intxn (L-23)
	Pittsburgh	Appleton VORTAC, V12, Wheeling VORTAC (L-23, L-24)			(Willow Run) V275, Milan Intxn (L-23)
	St Louis	V12, V210, Indianapolis VORTAC, V24, Staunton Intxn (L-23, L-21)			New York (La Guardia) V12, V106, V6, V433, Liberty Intxn (L-23, L-24)
	Toledo	V38, Findlay VORTAC, V47 (L-23)		Oklahoma City	Oklahoma City Dayton VORTAC, V50N, Indianapolis VORTAC, V14, Tulsa VORTAC, V14N, Langston Intxn (L-23, L-21, L-6)
	Washington	Appleton VORTAC, V144, Kessel VOR, V4, Herndon VORTAC (L-23, L-24)		Washington	Washington V12, Appleton VORTAC, V144, Kessel VOR, V4, Herndon VORTAC (L-23, L-24)
Dallas/ Ft. Worth	Amarillo	Lakeside Intxn, V114, Claude Intxn (L-13)		Denver	Denver VORTAC, V172, Holyoke Intxn, V8N, Hayes Center VORTAC, V8, Iowa City VORTAC, V38, Joliet VORTAC (L-8, L-11, L-23)
	Atlanta	Dallas VORTAC, V278, V18S, Palmetto Intxn (L-13, L-14, L-20)		Chicago	New York (Kennedy) Denver VORTAC, V172, Holyoke Intxn, V8N, Hayes Center VORTAC, V8, Iowa City VORTAC, V38, Joliet VORTAC, V92, Waterville VORTAC, V6, V30, East Texas VORTAC, Robbinsville VORTAC, (L-8, L-11, L-23, L-24)
	Chicago (Midway)	Dallas VORTAC, V15, Gunter Intxn, Perrin VOR, McAlester VORTAC, V63, Quincy VORTAC, V116, Joliet VORTAC, (L-13, L-6, L-21, L-11, L-23)			
	(O'Hare)	Dallas VORTAC, V15, Gunter Intxn, Perrin VOR, McAlester VORTAC, V63, Quincy VORTAC, V116, Joliet VORTAC (L-13, L-6, L-21, L-11, L-23)			
	El Paso	Joshua Intxn, V94, Wink VORTAC, V16, Rio Intxn (L-13, L-4)			
	Houston	Trinity Fork Intxn, V477, Leona VORTAC, V477W, Silver Intxn (L-13, L-17)			

II-56 ENROUTE PREFERRED ROUTES

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Detroit	New York (Kennedy)	V221, Erie VORTAC, V170, V276, Robbinsville VORTAC (L-12, L-24)	Houston	Dallas	Gulf Coast Intxn, V477E, Forney Intxn (L-17, L-13)
Detroit (City & Windsor)	Chicago (Midway)	Salem VORTAC, V170, V84, V7E, V116 (L-23)	Indianapolis	Chicago (Midway)	V97W, V97, Chicago Heights VORTAC (L-23)
	(O'Hare)	Salem VORTAC, V170, V84, Northbrook VORTAC (L-23)		Detroit (City)	V11, Salem VORTAC (L-23)
	Ft. Wayne	Salem VORTAC, V170, Leslie Intxn, V45, Jackson VORTAC, V221 (L-23)		(Metro Wayne Co)	V11, V10, Milan Intxn (L-23)
	Milwaukee	Salem VORTAC, V170, Pullman VORTAC, V30S, Pike Intxn (L-12, L-23)		(Willow Run)	V11, V10, Milan Intxn (L-23)
	New York (Newark)	V221, Erie VORTAC, V170, Selinsgrove VORTAC, V30, Rocky Hill Intxn (L-12, L-24)		Evansville	V11W, Scotland VORTAC, V11E (L-21)
	Philadelphia	V221, Erie VORTAC, V116, Bradford VORTAC, V33, Harrisburg VORTAC, V184, West Chester VORTAC (L-12, L-24)		New York (Kennedy)	V50, Dayton VORTAC, V12, V106, V276, Robbinsville VORTAC (L-23, L-24)
Detroit (Metro Wayne Co or Willow Run)	Buffalo	V221, V90, V14N, Crystal Beach Intxn (L-12)		(La Guardia)	V50, Dayton VORTAC, V12, V106, V6, V433, Liberty Intxn (L-23, L-24)
	Chicago (Midway)	Pinckney Intxn, V170, V84, V7E, V116 (L-23)		(Newark)	V50, Dayton VORTAC, V12, V106, V30, Rocky Hill Intxn (L-23, L-24)
	(O'Hare)	Pinckney Intxn, V170, V84, Northbrook VORTAC (L-23)		Pittsburgh	V50, Dayton VORTAC, V12, Wheeling VORTAC (L-23, L-24)
	Cleveland	Stripe Intxn, V297, Vermilion Intxn (L-23)	Jacksonville	Atlanta	Kings Intxn, V267, Dublin VOR, V5, McDonough Intxn (L-18, L-20)
	Ft. Wayne	Dexter Intxn, V221 (L-23)		Miami	Blue Jacket Intxn, V267, New River Intxn (L-19)
	Milwaukee	Dexter Intxn, V116, Jackson VORTAC, V45, Leslie Intxn, V170, Pullman VORTAC, V30S, Pike Intxn (L-23, L-12)		New York (Kennedy)	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, Kenton VORTAC, V44, Beachwood Intxn (L-18, L-20, L-22, L-24)
	Pittsburgh	Stripe Intxn, V133, Bay Intxn, V6, V42, Akron VORTAC, V297, Ellwood City VORTAC (L-23, L-24)		(La Guardia)	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Richmond VORTAC, V20, Tappahannock Intxn, V213, Robbinsville VORTAC (L-18, L-20, L-22, L-24)
	Rochester	V221, V90, V14, V2 (L-12)		(Newark)	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, V29, V433, Rocky Hill Intxn (L-18, L-20, L-22, L-24)
	Washington	Stripe Intxn, V133, Zanesville VORTAC, V144, Kessel VOR, V4, Herndon VORTAC (L-23, L-24)			
El Paso	Dallas	Hudspeth VOR, V66, Midland VORTAC, V16S, Big Spring VOR, V16, Abilene VORTAC, V66, Denton Intxn, V114, Lakeside Intxn (L-4, L-13)			
	Los Angeles	Newman VOR, V94, Gila Bend VORTAC, V461, Buckeye VORTAC, V16, Ontario VORTAC (L-4, L-3)			
	San Antonio	Hudspeth VOR, V198, Bandera Intxn (L-4, L-15)		Norfolk	Clinch Intxn, V3E, Savannah VORTAC, V437, Charleston VORTAC, V1, Myrtle Beach VORTAC, V213, Rocky Mount VORTAC, V189, Franklin VORTAC, V266, Carrsville Intxn (L-18, L-20, L-22)
Havana	Miami	Balboa Intxn, Marathon RBn, Sable Intxn, B19, Perrine RBn (L-19)		Orlando	Blue Jacket Intxn, V267, Woodruff Intxn (L-18, L-19)
Houston	Atlanta	Fry Intxn, V20, Lafayette VORTAC, V70, Monroeville VOR, V20, (L-17, L-18, L-14, L-20)			

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Jacksonville	Philadelphia (International)	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Richmond VORTAC, V20, V213, Woodstown VOR (L-18, L-20, L-22, L-24)	Miami	Charlotte	Miami VORTAC, V157, Allendale VOR, V37, Charlotte VORTAC (L-19, L-20)
	Washington	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Ironsides Intxn (L-18, L-20, L-22)		Chicago	Miami VORTAC, V157, Alma VORTAC, V51, Dublin VOR, V267, Knoxville VORTAC, V97, Chicago Heights VORTAC (L-19, L-20, L-22, L-21, L-23)
	(Dulles)	Clinch Intxn, V3E, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Gordonsville VORTAC, V39E, Brandy Intxn (L-18, L-20, L-22)		Cleveland	Miami VORTAC, V157, Allendale VOR, V37, Pulaski VORTAC, V59, Newcomerstown VOR, V427, Briggs VORTAC, V40, Sharon Intxn (L-19, L-20, L-22, L-24, L-23)
Kansas City	Chicago (Midway)	Excelsior Intxn, V116, Joliet VORTAC (L-21, L-11, L-23)		Detroit (City)	Miami VORTAC, V157, Allendale VOR, V37, Pulaski VORTAC, V59, Newcomerstown VOR, V427, Briggs VORTAC, V40, Cleveland VORTAC, V42, Windsor VOR (L-19, L-20, L-22, L-24, L-23)
	(O'Hare)	Excelsior Intxn, V116, Joliet VORTAC (L-21, L-11, L-23)		(Metro Wayne Co)	Miami VORTAC, V157, Allendale VOR, V37, Pulaski VORTAC, V59, Newcomerstown VOR, V427, Briggs VORTAC, V40, Cleveland VORTAC, V42, V103, LaSalle Intxn (L-19, L-20, L-22, L-24, L-23)
	St. Louis	Blue Springs VORTAC, V12, Maryland Heights VORTAC (L-21)		(Willow Run)	Miami VORTAC, V157, Allendale VOR, V37, Pulaski VORTAC, V59, Newcomerstown VOR, V427, Briggs VORTAC, V40, Cleveland VORTAC, V42, V103, LaSalle Intxn (L-19, L-20, L-22, L-24, L-23)
	Wichita	Bonner Springs Intxn, V12, DeGraff Intxn (L-6)		Havana	Miami VORTAC, V157, Allendale VOR, V37, Pulaski VORTAC, V59, Newcomerstown VOR, V427, Briggs VORTAC, V40, Cleveland VORTAC, V42, V103, LaSalle Intxn (L-19, L-20, L-22, L-24, L-23)
Louisville	New York (La Guardia)	V4, Charleston VORTAC, V35, Johnstown VORTAC, V106, Selinsgrove VORTAC, V6, V433, Liberty Intxn (L-21, L-22, L-24)		Jacksonville	Gary Intxn, V51, Key West VORTAC, Santa Fe RBn; or Perrine RBn, B19, Key West VORTAC, Santa Fe RBn (L-19)
	(Newark)	V4, Charleston VORTAC, V35, Johnstown VORTAC, V106, Selinsgrove VORTAC, V30, Rocky Hill Intxn (L-21, L-22, L-24)		New York (Kennedy)	Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V3E, Shiloh Intxn (L-19)
Memphis	Atlanta	Holly Springs VOR, V159, Birmingham VORTAC, V18S, Palmetto Intxn (L-14, L-20)			Guppy Intxn, direct Halibut Intxn, Control 1150, Wilmington VORTAC, V1, Beachwood Intxn, or Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V437, Starfish Intxn, V1, Beachwood Intxn (L-19, L-20, L-22, L-24)
	Chicago (Midway)	Cuba Intxn, V9W, V9, Joliet VORTAC (L-14, L-21, L-23)		(La Guardia)	Guppy Intxn, direct Halibut Intxn, Control 1150, Wilmington VORTAC, V1W, V213, Robbinsville VORTAC, or Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V437, Starfish Intxn, V1, Salisbury VORTAC, V29, V213, Robbinsville VORTAC (L-19, L-20, L-22, L-24)
	(O'Hare)	Cuba Intxn, V9W, V9 Joliet, VORTAC (L-14, L-21, L-23)		(Newark)	Guppy Intxn, direct Halibut Intxn, Control 1150, Wilmington VORTAC, V1, V29, V433, Rocky Hill Intxn, or Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V437, Starfish Intxn, V1, Salisbury VORTAC, V29, V433, Rocky Hill Intxn (L-19, L-20, L-22, L-24)
	Dallas	Prichard Intxn, V16S, Pine Bluff VORTAC, V16, Dallas VORTAC (L-14, L-13)			
	New Orleans	Savage Intxn, V9W, Greenwood VORTAC, V9, Madison Intxn (L-14, L-17)			
	Washington	Moscow Intxn, V16S, Graham VOR, V16, V140, Montebello VOR, V16N, Gordonsville VORTAC, V16, Ironsides Intxn (L-14, L-21, L-22)			
	(Dulles)	Moscow Intxn, V16S, Graham VOR, V16, V140, Montebello VOR, V143, V174, Blue Ridge Intxn (L-14, L-21, L-22)			
Miami	Atlanta	Miami VORTAC, V157, Alma VORTAC, V5, McDonough Intxn (L-19, L-18, L-20)		Pittsburgh	Miami VORTAC, V157, Allendale VOR, V37, Allegheny VORTAC (L-19, L-20, L-22, L-24)

II-58 ENROUTE PREFERRED ROUTES

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Miami	Tampa	Miami VORTAC, V97, Gibson Intxn (L-19)	New Orleans	Memphis	Oyster Intxn, V9, Greenwood VORTAC, V9E, Independence Intxn (L-17, L-14)
	Washington	Guppy Intxn, direct Halibut Intxn, Control 1150, Wilmington VORTAC, V1, Kinston VORTAC, V157, Ironsides Intxn, or Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V437, Savannah VORTAC, V3, Raleigh-Durham VORTAC, V155, Lawrenceville VOR, V157, Ironsides Intxn (L-19, L-20, L-22)		New York (Kennedy)	Picayune VOR, V70, Monroeville VOR, V20, V213, Kenton VORTAC, V44, Beachwood Intxn (L-17, L-18, L-14, L-20, L-22, L-24)
(Dulles)		Guppy Intxn, direct Halibut Intxn, Control 1150, Wilmington VORTAC, V1, Kinston VORTAC, V157, Lawrenceville VOR, V155, Gordonsville VORTAC, V39E, Brandy Intxn, or Martin Intxn, V295, Vero Beach VORTAC, V3, Daytona Beach VORTAC, V437, Savannah VORTAC, V3, Pinehurst VORTAC, V39, Gordonsville VORTAC, V39E, Brandy Intxn (L-19, L-20, L-22)		(Newark)	Picayune VOR, V70, Monroeville VOR, V20, V213, Kenton VORTAC, V29, V433, Rocky Hill Intxn (L-17, L-18, L-20, L-22, L-24)
				Washington	Picayune VOR, V70, Monroeville VOR, V20, South Boston VORTAC, V39, Gordonsville VORTAC, V16, Ironsides Intxn (L-17, L-18, L-14, L-20, L-22)
				(Dulles)	Picayune VOR, V70, Monroeville VOR, V20, South Boston VORTAC, V39, Gordonsville VORTAC, V39E, Brandy Intxn (L-17, L-18, L-14, L-20, L-22)
Milwaukee	Chicago	V9, Naperville VOR, or Taylor Intxn, V7E, V116, Surf Intxn (L-12, L-23)			
	Detroit	V2S, Muskegon VORTAC, V2, Salem VORTAC (L-12)		Albany	Sound Intxn, Pawling VORTAC, V487, Brainard Intxn, V130, (L-25)
	New York (Kennedy)	V2S, Muskegon VORTAC, V2, Salem VORTAC, V116, Bradford VORTAC, V170, Ravine VORTAC, V276, Robbinsville VORTAC (L-12, L-23, L-24)	New York (Kennedy)	Atlanta	Dutch Intxn, V308, Kenton VORTAC, V213, V20, Spartanburg VORTAC, V20N, Norcross VORTAC (L-24, L-22, L-20)
Minneapolis	Chicago (Midway)	Prescott Intxn, V2, V97, V171, V6, Naperville VOR (L-10, L-11, L-23)		Baltimore	Dutch Intxn, V308, Kenton VORTAC, V268 (L-24)
	(O'Hare)	Prescott Intxn, V2, V97, Lakewood Intxn (L-10, L-11, L-23)		Boston	Hampton VORTAC, V139, Cohasset Intxn, V141 (L-25)
Montgomery	Washington	Tuskegee VOR, V154, Macon VORTAC, V56, Augusta VORTAC, V155, V157, Ironsides Intxn (L-18, L-20, L-22)		Buffalo	Huguenot VORTAC, V126, V36 Dale Intxn (L-25)
Nashville	New York (La Guardia)	Freedom Intxn, V140N, London VORTAC, V140, Montebello VOR, V16N, Gordonsville VORTAC, V16, Kenton VORTAC, V213, Robbinsville VORTAC (L-21, L-22, L-24)	Chicago (O'Hare)		Huguenot VORTAC, V126, V116, V170, V84, Northbrook VORTAC (L-25, L-24, L-23)
	(Newark)	Freedom Intxn, V140N, London VORTAC, V140, Montebello VOR, V16N, Gordonsville VORTAC, V16, Kenton VORTAC, V29, V433, Rocky Hill Intxn (L-21, L-22, L-24)	Cleveland	Huguenot VORTAC, V126, V58, Williamsport VORTAC, V188, Jefferson VORTAC, V14, Mentor Intxn (L-25, L-24, L-23)	
New Orleans	Atlanta	Picayune VOR, V70, Monroeville VOR, V20, Tyrone Intxn (L-17, L-18, L-20)	Detroit (City)		Huguenot VORTAC, V126, V116, Windsor VOR (L-25, L-24, L-23)
	Birmingham	Picayune VOR, V455, Meridian VORTAC, V154, V209, Brookwood VOR, Birmingham IOM (L-17, L-18, L-14)	(Metro Wayne Col)		Huguenot VORTAC, V126, Bradford VORTAC, V72, V188, V103, LaSalle Intxn (L-25, L-24, L-23)
	Dallas	Walker Intxn, V114N, Alexandria VORTAC, V114, Gregg Co VORTAC, V94, V477E, Forney Intxn (L-17, L-13)	(Willow Run)		Huguenot VORTAC, V126, Wilkes-Barre VORTAC, V116, Windsor VOR (L-25, L-24, L-23)
			Europe		Hampton VORTAC, V46 (L-25)
			Jacksonville		Dutch Intxn, V139, V1, V437, V3, St. Mary's Intxn (L-24, L-22, L-20, L-19)
			Louisville		Huguenot VORTAC, V39, V143, V166, V4, V174, V44, Falmouth VOR, V502 (L-25, L-24, L-22, L-21)

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
New York (Kennedy)	Miami	Dutch Intxn, V139, V1, Control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-24, L-22, L-20, L-19)	New York (La Guardia)	Columbus	Sparta VORTAC, Thornhurst VORTAC, V226, Clarion VORTAC, V119, V214, Hanover Intxn (L-24, L-23)
	Montreal	Sound Intxn, Pawling VORTAC, V487 (L-25, L-26)		Detroit (City)	Sparta VORTAC, Thornhurst VORTAC V147, V116, Windsor VOR (L-24, L-23)
	New Orleans	Dutch Intxn, V308, Nottingham VORTAC, V16, V115, V18, V455, V455W, Madison Intxn, (L-24, L-22, L-20, L-14, L-18, L-17)		IMetro Wayne Co	Sparta VORTAC, Thornhurst VORTAC, V147, V116, Windsor VOR (L-24, L-23)
	Norfolk	Dutch Intxn, V139, Cape Charles VORTAC (L-24, L-22)		IWillow Run	Sparta VORTAC, Thornhurst VORTAC, V147, V116, Windsor VOR (L-24, L-23)
	Philadelphia	Dutch Intxn, V312, Coyle VORTAC, V16, V166, Woodstown VOR (L-24)		Indianapolis	Sparta VORTAC, Thornhurst VORTAC, V226, V119, V210 (L-24, L-23)
	Pittsburgh	Huguenot VORTAC, V126, Wilkes-Barre VORTAC, V58, V226, Ellwood City VORTAC (L-25, L-24)		Louisville	Paterson Intxn, V3, V166, V4, V174, V44, Falmouth VOR, V502 (L-24, L-22, L-21)
	Providence	Hampton VORTAC, V139 (L-25)		Miami	Solberg VORTAC, V3, V29, Salisbury VORTAC, V1, control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-24, L-22, L-20, L-19)
	Rochester	Huguenot VORTAC, V249, V34, Fishers Intxn (L-25)		Montreal	Sound Intxn, Pawling VORTAC, V487 (L-25, L-26)
	Syracuse	Huguenot VORTAC, V483 (L-25)		Nashville	Paterson Intxn, V3, V39, V140, Lebanon Intxn (L-24, L-22, L-21)
	Toronto	Huguenot VORTAC, V126, Wilkes-Barre VORTAC, V36 (L-25, L-12)		Philadelphia	Paterson Intxn, V3, Warrington Intxn (L-24)
	Washington	Dutch Intxn, V308, North Beach Intxn (L-24)		Pittsburgh	Sparta VORTAC, Thornhurst VORTAC, V226, Elwood City VORTAC (L-24)
	(Dulles)	Huguenot VORTAC, V39, V162, Harrisburg VORTAC, V223, Sugar Loaf Intxn (L-25, L-24)		Providence	Sound Intxn, V467, V475E, V130, Lafayette Intxn (L-25)
	Windsor Locks (Bradley)	Sound Intxn, V433, Waterbury Intxn (L-25)		Rochester	Sparta VORTAC, V116, Wilkes-Barre VORTAC, V29, V423, V34, Fishers Intxn (L-25)
(La Guardia)	Albany	Sound Intxn, Pawling VORTAC, V487, Brainard Intxn, V130 (L-25)		Toronto	Sparta VORTAC, V36 (L-25, L-12)
	Atlanta	Paterson Intxn, V3, Westminster VORTAC, V39, V140, Montebello VOR, V143, V222, V35, V20N, Norcross VORTAC (L-24, L-22, L-20)		Washington	Paterson Intxn, V3, West Chester VORTAC, V140, Dayton Intxn, Georgetown RBn, Washington VOR (L-24)
	Baltimore	Paterson Intxn, V3, V93 (L-24)	(Dulles)		Paterson Intxn, V3, Westminster VORTAC, V166, V223, Sugar Loaf Intxn (L-24)
	Boston	Sound Intxn, V467, Madison VORTAC, V475E, V16 (L-25)			
	Buffalo	Sparta VORTAC, V36, Dale Intxn (L-25)		Windsor Locks (Bradley)	Sound Intxn, V433, Waterbury Intxn (L-25)
	Chicago (O'Hare)	Sparta VORTAC, Thornhurst VORTAC, V147, V116, V170, V84, Northbrook VORTAC (L-24, L-23)	(Newark)	Albany	Spartan VORTAC, Pawling VORTAC, V487, Brainard Intxn, V130 (L-25)
	Cincinnati	Paterson Intxn, V3, V166, V4, V174, V128, California Intxn (L-24, L-22)		Atlanta	Solberg VORTAC, V3, Westminster VORTAC, V39, V140, Montebello VOR, V143, V222, V35, V20N, Norcross VORTAC (L-24, L-22, L-20)
	Cleveland	Sparta VORTAC, Thornhurst VORTAC, V188, Jefferson VORTAC, V14, Mentor Intxn (L-24, L-23)		Baltimore	Solberg VORTAC, V3, V93 (L-24)

II-60 ENROUTE PREFERRED ROUTES

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
New York (Newark)	Boston	Sparta VORTAC, Pawling VORTAC, V58, V167, Sterling Intxn, V26 (L-25)	New York (Newark)	Syracuse	Sparta VORTAC, V483 (L-25)
Bradley		Sparta VORTAC, V489, Kingston VOR, Kingston 103 rad, Waterbury Intxn (L-25)	Toledo	Tannersville VORTAC, V232, Mentor Intxn, V126 (L-24, L-23)	
Buffalo		Tannersville VORTAC, V188, V147, V36, Dale Intxn (L-25)	Washington	Solberg VORTAC, V3, West Chester VORTAC, V140, Dayton Intxn, Georgetown RBn, Washington VOR (L-24)	
Cincinnati		Solberg VORTAC, V3, V166, V4, V174, V128, California Intxn (L-24, L-22)	(Dulles)	Solberg VORTAC, V3, Westminister VORTAC, V166, V223, Sugar Loaf Intxn (L-24)	
Cleveland		Tannersville VORTAC, V232, Mentor Intxn (L-24, L-23)	Norfolk	Charlotte	Cofield VORTAC, V194, Raleigh-Durham VORTAC, V66, Midland Intxn (L-22, L-20)
Detroit		Tannersville VORTAC, V188, V147, V116, Windsor VOR (L-24, L-23)	Jacksonville	Cofield VORTAC, V1, Charleston VORTAC, V437, Savannah VORTAC, V3, St. Marys Intxn (L-22, L-20, L-18)	
(City)		Tannersville VORTAC, V188, Thornhurst VORTAC, V147, V116, Windsor VOR (L-24, L-23)	New York (Kennedy)	Cape Charles VORTAC, V1, Beachwood Intxn (L-22, L-24)	
(Metro Wayne Co)		Tannersville VORTAC, V188, Thornhurst VORTAC, V147, V116, Windsor VOR (L-24, L-23)	(La Guardia)	Cape Charles VORTAC, V1, Salisbury VORTAC, V29, Kenton VORTAC, V213, Robbinsville VORTAC (L-22, L-24)	
(Willow Run)		Tannersville VORTAC, V188, Thornhurst VORTAC, V147, V116, Windsor VOR (L-24, L-23)	(Newark)	Cape Charles VORTAC, V1, Salisbury VORTAC, V29, New Castle VORTAC, V433, Rocky Hill Intxn (L-22, L-24)	
Indianapolis		Tannersville VORTAC, V232, Keating VORTAC, V226, V119 V210 (L-24, L-23)	Philadelphia	Cape Charles VORTAC, V1, Salisbury VORTAC, V29, Kenton VORTAC, V213, Woodstown VOR (L-22, L-24)	
Jacksonville		Solberg VORTAC, V3, V29, Salisbury VORTAC, V1, V437, Savannah VORTAC, V3, St. Marys Intxn (L-24, L-22, L-20, L-18)	Richmond	Harcum VOR, V38 (L-22, L-24)	
Louisville		Solberg VORTAC, V3, V166, V4, V174, V44, Falmouth VOR, V502 (L-24, L-22, L-21)	Washington	Farnham Intxn, V286, V157, Iron-sides Intxn (L-22)	
Miami		Solberg VORTAC, V3, V29, Salisbury VORTAC, V1, Control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-24, L-22, L-20, L-19)	(Dulles)	Farnham Intxn, V286, Brandy Intxn (L-22)	
Nashville		Solberg VORTAC, V3, Westminister VORTAC, V39, V140, Lebanon Intxn (L-24, L-22, L-21)	Oklahoma City	Prague Intxn, V14S, Tulsa VORTAC, V14, Springfield Mo VORTAC, V190, Evansville VORTAC, V11, V12 (L-6, L-21, L-23)	
New Orleans		Solberg VORTAC, V3, Westminister VORTAC, V39, V140, V16N, V16, V115, V18, V455, V455W, Madison Intxn (L-24, L-22, L-20, L-14, L-18, L-17)	Wichita	Crescent Intxn, V77, Mayfield Intxn (L-6)	
Norfolk		Solberg VORTAC, V3, V29, Salisbury VORTAC, V1, Cape Charles VORTAC (L-24, L-22)	Orlando	Leesburg Intxn, V159, Albany VOR, V97, Brooks Intxn (L-19, L-18, L-20)	
Philadelphia		Solberg VORTAC, V3, Warrington Intxn (L-24)	Jacksonville	Sanford Intxn, V152, Daytona Beach VORTAC, V3E, Shiloh Intxn (L-19)	
Pittsburgh		Tannersville VORTAC, V232, Keating VOR, V226, Ellwood City VORTAC (L-24)	Philadelphia	New Castle VORTAC, V166, V93 (L-24)	
Providence		Sparta VORTAC, Pawling VORTAC, V58, V130, Lafayette Intxn (L-25)	Baltimore	Millville VORTAC 101 rad, V139, Cohasset Intxn, V141 (L-24, L-25)	
Rochester		Sparta VORTAC, V116, V29, Binghamton VORTAC, V423, V34, Fishers Intxn (L-25)	Boston	Boyer Intxn, V170, Slate Run VORTAC, Wellsville VOR, V119, Burns Intxn, V36, Dale Intxn (L-24, L-25)	
			Buffalo	Boyer Intxn, V162S, Harrisburg VORTAC, V12, Allegheny VORTAC, V8, Briggs VORTAC, V40, Sharon Intxn (L-24, L-23)	
			Cleveland		

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Philadelphia	Detroit (City)	Boyer Intxn, V162S, V12, V37, V103, Cleveland VORTAC 045 rad, Comber Intxn (L-24, L-23)	(Allegheny Co)	New York (Kennedy)	V12, V106, Reedsville Intxn, V276, Robbinsville VORTAC (L-24)
	(Metro Wayne Co)	Boyer Intxn, V162S, V12, V37, V103, LaSalle Intxn (L-24, L-23)		(La Guardia)	V12, V106, Selinsgrove VORTAC, V6, V433, Liberty Intxn (L-24)
	(Willow Run)	Boyer Intxn, V162S, V12, V37, V103, LaSalle Intxn (L-24, L-23)		(Newark)	V12, V106, V30, Rocky Hill Intxn (L-24)
Jacksonville		Millville VORTAC 205 rad, Waterloo VORTAC, V1, V437, V3, St. Mary's Intxn (L-24, L-22, L-20, L-19)	(Greater Pittsburgh Only)	Atlanta	V103, V115, Knoxville VORTAC, V267, Norcross VORTAC (L-24, L-22, L-20)
Miami		Millville VORTAC 205 rad, Waterloo VORTAC, V1, Control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-28, L-27, L-19)		Baltimore	V103, V92, Keyser Intxn, V44, Martinsburg VORTAC, V166, Westminster VORTAC (L-24)
	New York (Kennedy)	Columbus Intxn, V123, Robbinsville VORTAC (L-24)		Boston	Freeport Intxn, V119, V276, Tyrone VORTAC, V35, Elmira VORTAC, V72, Albany VORTAC, V2, Gardner VORTAC, V431 (L-24, L-25)
	(La Guardia)	Columbus Intxn, V213, Robbinsville VORTAC (L-24)		Charleston W. Va.	V103, V115, Parkersburg VOR, V59, V35 (L-24, L-22)
	(Newark)	V433, Rocky Hill Intxn (L-24)		Chicago	V40, Briggs VORTAC, V8, Findlay VORTAC, V422, Chicago Heights VORTAC, V7, Niles Intxn (L-24, L-23)
Norfolk		Millville VORTAC 205 rad, Waterloo VORTAC, V1, Cape Charles VORTAC (L-24, L-22)		Columbus	V103, Wolfdale Intxn, V214 (L-24, L-23)
Pittsburgh		Boyer Intxn, V162S, V12 (L-24)		Detroit	V40, V42, V103, LaSalle Intxn (L-24, L-23)
Rochester		Boyer Intxn, V170, V31, Fishers Intxn (L-24, L-25)		Indianapolis	V210, or Kilgore Intxn, V210 (L-24, L-23)
Washington		New Castle VORTAC, V166, V140, Dayton Intxn, Georgetown RBN, Washington VOR (L-24)		New York (Kennedy)	V119, V276, Robbinsville VORTAC (L-24)
	(Dulles)	New Castle VORTAC 305 rad, V3, Westminster VORTAC, V166, V223, Sugar Loaf Intxn (L-24)		(La Guardia)	V119, V276, Reedsville Intxn, V106, Selinsgrove VORTAC, V6, V433, Liberty Intxn (L-24)
Phoenix	Albuquerque	Lake Intxn, V190, Suwanee Intxn (L-4)		(Newark)	V119, V276, Reedsville Intxn, V106, Selinsgrove VORTAC, V30, Rocky Hill Intxn (L-24)
	El Paso	V105, Casa Grande VORTAC, V94, San Simon VORTAC, V198, Harrington Ranch Intxn (L-4)		Philadelphia	Carrolltown VORTAC, V210, Harrisburg VORTAC, V184, West Chester VORTAC (L-24)
	Kansas City	V190, Dalhart VORTAC, V234, Hutchinson VORTAC, V280, Topeka VORTAC, V4N, Farley Intxn (L-4, L-6)		St. Louis	Kilgore Intxn, V210, Indianapolis VORTAC, V14, Staunton Intxn (L-24, L-23, L-21)
Pittsburgh	Buffalo	V37, Ellwood City VORTAC, V115 (L-24, L-12)		Washington	V103, V92, Front Royal VORTAC, V4, Herndon VORTAC (L-24)
	Cleveland	V40, Sharon Intxn (L-24, L-23)		Providence	V167, V16, Riverhead VORTAC (L-25)
	Detroit (Willow Run)	V40, V42, V103, LaSalle Intxn (L-24, L-23)		New York (Kennedy)	V167, V3, V445, Stamford Intxn (L-25)
	Philadelphia	Carrolltown VORTAC, V210, Harrisburg VORTAC, V184, West Chester VORTAC (L-24)		(La Guardia)	V167, V3, V445, Stamford Intxn (L-25)
(Allegheny Co)	Chicago	Allegheny VORTAC, V8, Findlay VORTAC, V422, Chicago Heights VORTAC, V7, Niles Intxn (L-24, L-23)		(Newark)	V167, Hartford VORTAC, V292, Budd Lake Intxn (L-25)
				Richmond	V20, Tappahannock Intxn, V213, Woodstown VOR (L-22, L-24)
	Philadelphia International				

II-62 ENROUTE PREFERRED ROUTES

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Rochester	Baltimore	V147, Elmira VORTAC, V31 (L-25, L-24)	(San Francisco)	Burbank	Shrimp Intxn, V27, San Luis Obispo VORTAC, V137, Pozo Intxn, V25, V12, Fillmore VORTAC (L-2, L-3)
	Boston	Fishers Intxn, V31, Bellona Intxn, V14, Gardner VORTAC, V431 (L-25)			
Detroit		V142, Buffalo VORTAC, V2, Aylmer VOR, V90N, Dolphin Intxn, V90, Park Intxn (L-12, L-23)		New York (Kennedy)	Linden VORTAC, V113, Reno VORTAC, V6, Medicine Bow VORTAC, V100, Northbrook VORTAC, V84, Lansing VOR, V2, Salem VORTAC, V116, Erie VORTAC, V170, V276, Robbinsville VORTAC (L-2, L-5, L-7, L-8, L-11, L-23, L-12, L-24)
(Willow Run)		V142, Buffalo VORTAC, V2, Aylmer VOR, V90N, Dolphin Intxn, V90, V98, LaSalle Intxn (L-12, L-23)			
New York (Kennedy)		V147, Geneseo VORTAC, V252, Binghamton VORTAC, V270, V34, Carmel VORTAC, Bridgeport VOR, Riverhead VORTAC, (L-25)	Syracuse	New York (Kennedy)	V273, Hancock VORTAC, V34, Carmel VORTAC, Bridgeport VOR, Riverhead VORTAC (L-25)
(La Guardia)		V147, Allentown VORTAC, V6, V433, Liberty Intxn (L-25)		(La Guardia)	V153, V29, V6, V433, Liberty Intxn (L-25)
(Newark)		V147, Thornhurst VORTAC, V226, Budd Lake Intxn (L-25)		(Newark)	V273, Budd Lake Intxn (L-25)
Philadelphia		V147, Allentown VORTAC, V149, V3, Warrington Intxn (L-25, L-24)		Philadelphia	V29, Binghamton VORTAC, V149, V3, Warrington Intxn (L-25, L-24)
Washington		V147, Elmira VORTAC, V31, Harrisburg VORTAC, V265, Dayton Intxn, Georgetown RBn, Washington VOR (L-25, L-24)	Tampa	Atlanta	V97W, Scallop Intxn, V97, Brooks Intxn (L-19, L-18, L-20)
				Miami	Hansen Intxn, V35, Chester Intxn (L-19)
St. Louis	Chicago (Midway)	V9, Joliet VORTAC (L-21, L-11, L-23)	Toronto	New York (Kennedy)	V34, Carmel VORTAC, Bridgeport VOR, Riverhead VORTAC (L-12, L-25)
	(O'Hare)	V9, Joliet VORTAC (L-21, L-11, L-23)		(La Guardia)	V36, V147, V6, V433, Liberty Intxn (L-12, L-25)
Cleveland		Troy VORTAC, V12, Wilbur Intxn, V11, Indianapolis VORTAC, V14, Findlay VORTAC, V8, Mansfield VORTAC, V72, Sharon Intxn (L-21, L-23)	Tulsa	Chicago	V14, Springfield VORTAC, V63, V116, Joliet VORTAC (L-6, L-21, L-11, L-23)
Columbus		Troy VORTAC, V12 (L-21, L-23)		Dallas	Oklmulgee VOR, V15, Ardmore VORTAC, 167° rad, V114, Lakeside Intxn, (L-6, L-13)
Dallas		V14, Neosha VOR, V15, Ardmore VORTAC, 167° radial, V114, Lakeside Intxn (L-21, L-6, L-13)		Dayton	V140, Fayetteville VORTAC, V72, Maples VORTAC, V190, Evansville VORTAC, V11, V12 (L-6, L-21, L-23)
Ft. Worth		V14, Neosho VOR, V15, Okmulgee VOR, V161, Justin Intxn (L-21, L-6, L-13)		Indianapolis	V140, Fayetteville VORTAC, V72, Maples VORTAC, V190, Evansville VORTAC, V11 (L-6, L-21) V140, Fayetteville VORTAC, V72, V9, Lemay Intxn (L-6, L-21)
Indianapolis		Troy VORTAC, V12, Wilbur Intxn, V11 (L-21, L-23)	St. Louis		Rockdale VOR, Hancock VORTAC, V273, Budd Lake Intxn (L-25)
Kansas City		V4, Missouri City Intxn (L-21)	Utica	New York (Newark)	Swan Point Intxn, V268, V139, Cahasset Intxn, V141 (L-24, L-25)
Memphis		V9, Kerrville Intxn (L-21, L-14)	Washington/Baltimore	Boston	Flint Stone Intxn, V8, Findlay VORTAC, V422, Chicago Heights VORTAC (L-24, L-23)
Tulsa		V14 (L-21, L-6)		Chicago	Flint Stone Intxn, V8, Briggs VORTAC, V40, Sharon Intxn (L-24, L-23)
Washington		Troy VORTAC, V52, Evansville VORTAC, V4, Herndon VORTAC (L-21, L-22)		Cleveland	Brooke VORTAC, V3, St. Mary's Intxn (L-22, L-20, L-18)
San Antonio	Dallas	Mission Intxn, V17, Waco VORTAC, V15, Desoto Intxn (L-15, L-17, L-21)		Jacksonville	Swan Point Intxn, V123, Robbinsville VORTAC, (L-24)
	El Paso	Guadalupe Intxn, V222, Rio Intxn (L-15, L-4)		New York (Kennedy)	Swan Point Intxn, V123, Robbinsville VORTAC (L-24)
San Francisco/Oakland Metro Area	Chicago (O'Hare)	Linden VORTAC, V113, Reno VORTAC, V6, Medicine Bow VORTAC, V100, Lakewood Intxn (L-2, L-5, L-7, L-8, L-11, L-23)		(La Guardia)	Swan Point Intxn, V123, Robbinsville VORTAC (L-24)
				(Newark)	Swan Point Intxn, V433, Rocky Hill Intxn (L-24)

FROM	TO	ROUTE and E-LA CHARTS	FROM	TO	ROUTE and E-LA CHARTS
Washington/ Baltimore	Philadelphia (International)	Swan Point Intxn, V123, Woods- town VOR (L-24)	(Washington)	Miami	Brooke VORTAC, V3, V155, V157, V213, V1W, Wilmington VORTAC, Control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-22, L-20, L-19)
	Pittsburgh	Flint Stone Intxn, V8, Allegheny VORTAC, (L-24)		Nashville	Casanova VORTAC, V140, Leb- anon Intxn (L-22, L-21)
(Baltimore)	Jacksonville	V93, V213, V20, V157, V155, V3, St. Mary's Intxn (L-24, L-22, L-20, L-19)		New Orleans	Casanova VORTAC, V140, V16N, V16, Knoxville VORTAC, V115, Birmingham VORTAC, V18, Meri- dian VORTAC, V455, V455W, Mad- ison Intxn (L-22, L-20, L-14, L-18, L-17)
Washington/ Baltimore (Dulles)	Jacksonville	Casanova VORTAC, V39, Gordonsville VORTAC, V155, Flat Rock VORTAC, V3, Saint Marys Intxn (L-22, L-20, L-18)		Norfolk	Brooke VORTAC, V286, Tappahan- nock Intxn, V213, Hopewell VOR- TAC, V260, Surry Intxn (L-22)
	Miami	Casanova VORTAC, V39, Gordonsville VORTAC, V155, V157, V213, V1W, Wilmington VORTAC, Control 1150, Porpoise Intxn, Palm Beach VORTAC, V3, Bradley Intxn (L-22, L-20, L-19)		Wichita	Oklahoma City
	New York (Kennedy)	Braddock Intxn, V166, New Castle VORTAC, V157, Robbinsville VORTAC; or Braddock Intxn, V166, Woodstown VOR, V184, Atlantic City VORTAC, V1. Beachwood Intxn (L-24)			Mayfield Intxn, V77, Ponca City VORTAC, V77E, Langston Intxn (L-6)
	(La Guardia)	Braddock Intxn, V166, New Castle VORTAC, V157, Robbinsville VORTAC (L-24)			
	(Newark)	Braddock Intxn, V166, New Castle VORTAC, V433, Rocky Hill Intxn (L-24)			
	Philadelphia	Braddock Intxn, Herndon VORTAC 354 rad, V143, V184, West Chester VORTAC (L-24)			
(Washington)	Atlanta	Casanova VORTAC, V140, Montebello VOR, V143, Lynch- burg VORTAC, V222, Asheville VORTAC, V35, Clemson Intxn, V20N, Norcross VORTAC (L-22, L-20)			
	Charleston W Va	Casanova VORTAC, V308, V174, V4, Ivydale Intxn (L-22)			
	Charlotte	Brooke VORTAC, V3, Raleigh- Durham VORTAC, V66, Midland Intxn (L-22, L-20)			
	Dallas	Casanova VORTAC, V140, Nash- ville VORTAC, V16, Dallas VOR- TAC (L-22, L-21, L-14, L-13)			
	Greensboro	Casanova VORTAC, V140, Montebello VOR, V143, Leaks- ville Intxn (L-22)			
	Harrisburg	Ashburn Intxn, V8N, V223 (L-24)			
	Jacksonville	Brooke VORTAC, V3, St. Mary's Intxn (L-22, L-20, L-19)			
	Memphis	Casanova VORTAC, V140, Nash- ville VORTAC, V16, Fisherville Intxn (L-22, L-21, L-14)			

PILOT PROCEDURES

I PRE-FLIGHT

A. FILLING OUT FLIGHT PLAN (MILITARY FLIGHT PLAN, DD FORM 175).

All information shown on following sample DD 175 is not required for each flight. Refer to appropriate service directives for specific instructions on contents of the DD 175.

MILITARY FLIGHT PLAN		AIRCRAFT UNIT OF ASSIGNMENT/HOME STATION		AIRCRAFT SERIAL NO.	
<input checked="" type="checkbox"/> IFR <input type="checkbox"/> DVFR (3) <input type="checkbox"/> VFR <input type="checkbox"/> FVFR		(1) 62nd TCW/MCCHORD AFB AIRCRAFT DESIGNATION/ TD CODE		(2) 51-4789 DEPARTURE TIME (Z) PROPOSED ACTUAL	
(8) 8000		(4) T14789 POINT OF DEPARTURE MCCHORD AFB		(5) C-124/B ESTIMATED TRUE AIRSPEED (6) 205 STANDARD INSTRUMENT DEPARTURE	
		NAME AND NUMBER (10) RAINIER ONE DEPARTURE		TO (11) SEA	

1. Aircraft unit of assignment and name or location identifier of home station; e.g., 62nd TCW/McChord AFB.

2. Complete Aircraft/Bureau Number. (Enter the number of each aircraft in a formation.)

3. IFR - Instrument Flight Rules

VFR - Visual Flight Rules

DVFR - Defense VFR

FVFR - Flight Following VFR

NOTE: Check both VFR and IFR for a composite flight.

4. The following codes will precede the last five digits of the aircraft/bureau number:

A - Air Force

V - Navy

R - Army

M - Marine

G - Air or Army Guard

C - Coast Guard

T - MAC

S - Special Air Mission

E - Air Evac.

Formation flights will use only the radio call of the leader's aircraft. For USAF aircraft, tactical call signs will be entered as spoken, i.e., "Bongo 23." Navy/Marine fleet and training command aircraft may use radio call consisting of assigned letter/letter or number/letter (tail marking) plus not less than two or more than four digits.

5. B-58, T-39, etc. Include number and designation of each aircraft in a formation flight, i.e., 4/F-104, 2/F-101 & 2/F-106.

The following suffixes will be added to aircraft designations

to denote transponder/DME equipment available.

/X Transponder with no code capability.

/T Transponder with 64 code capability.

/U Transponder with 4096 code capability.

/D DME

/L DME and transponder with no code capability.

/B DME and transponder with 64 code capability.

/A DME and transponder with 4096 code capability.

/M TACAN-only and transponder with no code capability.

/N TACAN-only and transponder with 64 code capability.

/P TACAN-only and transponder with 4096 code capability.

NOTE: The absence of a suffix indicates no transponder equipment.

6. True air speed to be maintained at initial cruising altitude/flight level.

7. Greenwich Mean Time (GMT). Allow for administrative clearance processing time established by base operations.

8. Altitude/flight level requested for the first leg of the flight. On VFR flight, enter "VFR." For IFR/VFR on-top flights, enter "VFR/OT." If subsequent altitude changes are desired, enter the altitude/flight level and location of the change (FL 390/Alt) in the "Remarks" Section and/or request altitude change in flight with ARTCC or an FSS as appropriate.

9. Name or location identifier of the installation.

10. Where a SID is not published or will not be used, leave blank, or enter "Request Radar Departure," if appropriate.

11. Termination point of the SID (published transition point, if one is used).

VFR FLIGHT PLAN

IFR	VFR	ROUTE OF FLIGHT		TO	ETE
(12)	(13) (b)	<input checked="" type="checkbox"/> OLM PDX		(14)	(15)
				PORTLAND INTL O+25	

IFR FLIGHT PLAN

IFR	VFR	ROUTE OF FLIGHT		TO	ETE
(12)		<input checked="" type="checkbox"/> OLM V-287 PDX V-23 SAC		(14)	(15)
				McCLELLAN AFB 2+26	

I PRE-FLIGHT

COMPOSITE IFR/VFR FLIGHT PLAN

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
(12) ✓	(13)	OLM PDX		
✓		V-23 SAC	(14) McCLELLAN AFB	(15) 2+51

STOP-OVER FLIGHT PLAN

IFR	VFR	ROUTE OF FLIGHT	TO	ETE
✓ (12)	(13)	V-23 PDX	(14) PORTLAND INTL	0+21
✓ (16) C		V-23 SAC	(17) McCLELLAN AFB/R	(18) 2+19
✓		V-150 CROCKETT SRF		HAMILTON AFB 0+16

12. Condition of flight: Do not combine IFR and VFR route segments on the same line entry.

13. Route of flight:

a. Enter enough information to clearly indicate the proposed flight path. If more than one airway or jet route is to be used, indicate points of transition. If transition is made at an unnamed intersection, show the next succeeding navaid or named intersection on the intended route and the complete route from that point: e.g., ALB J37 ATL J14 BHM, indicating transition to J14 at Atlanta; or, ALB J37 J14 RIC J14 BHM, indicating transition to J14 at unnamed intersection prior to Richmond.

b. The absence of airway identifiers between fixes denotes direct flight, i.e., "PIT, PKB, CRW."

c. The last fix entered (IFR) will be the one which the pilot intends to use for an instrument approach to the destination airfield (TACAN initial approach fixes will be clearly identified by name or location, i.e., BAL 195/30).

d. The last fix entered (VFR) is the point from which the final leg is begun to the destination.

e. For inflight refueling operations, enter:

(1) Air Refueling Initial Point (ARIP) and for tankers, Air Refueling Control Point (ARCP), using degree/distance or navaid definition.

(2) Track number

(3) Exit Point using degree/distance or navaid definition.

EXAMPLES: Receiver: FMY 148/82, AR-200, TLH 324/66
Tanker: RMY 333/17, AR-200, TLH 324/66

NOTE: Requested refueling levels will be entered in "Remarks".

REMARKS

(20)

RANK/HONOR
CODE

PSGR/CARGO CODE

(21) 7

(22) AP5 Q3M/2M-1FDC40 AC40 DPI M5 TCM

20. Only information essential to safe and efficient control of air traffic will be placed in this section:

a. Aircraft equipped with ADF as the only enroute navigational aid will be identified in the "Remarks" section as "ADF only".

b. Except for the first leg of a stopover flight plan, the pilot will request his ETA be passed to the next stopover point as soon as practical after takeoff from each intermediate stop. This limits advance notice of an ETA to the ETE for that leg. If it is necessary to provide any "down line" stopover point with earlier notice of an arrival time, estimates should be forwarded to the proper addressees by including

14. Name or location identifier of each intended destination. (Planned VFR enroute delays will be indicated in remarks section to show location and duration.)

15. ETE

VFR - The time from takeoff to a position over the destination airfield, including known or preplanned enroute delays (practice airwork, approaches, landings, etc.).

IFR - The time from takeoff to the last fix shown in block #13, exclusive of the time anticipated for enroute delays, i.e., practice approaches, landings, etc. (Enter the length and location of planned enroute delays, in the remarks section.)

NOTE: Composite IFR/VFR flight plans will show a single ETE to be entered opposite the base of intended landing. Show the total estimated elapsed time for the entire flight to the destination as computed^a according to "VFR" and "IFR" above.

16. Continuation of #13 (route), or second leg of a stopover flight.

17. Same as #14 above.

18. On a stopover flight add "/R" to any intermediate destination at which refueling is planned i.e., McClellan AFB/R.

19. ETE for the second leg of a stopover flight will not include ground time. This ETE is not forwarded to ARTCC or FSS. It serves only to assist in search and rescue action or as a convenience to the pilot when filing in flight.

the information in the "Remarks" section of the original flight plan or by requesting an enroute FSS to forward the information, e.g., ETA/ADW 0915Z.

c. U-2 and B-57F operations above FL 600 will contain the entry VFR/OT above FL 600.

d. Enter requested refueling levels, i.e., "Refueling FL 240/270."

21. See paragraph I.B.1 and I.B.2, this section (high rank and VIP honor codes).

22. See paragraph I.B.3, this section (code for control of passengers and cargo).

II-66 PILOT PROCEDURES

I PRE-FLIGHT

HOURS FUEL ON BOARD 23 6+00	DIST TO DESTN 24 96	ALTERNATE AIR FIELD 25 MCCHORD AFB	ETE TO ALTN 26 0+32	NOTAMS 27 <input checked="" type="checkbox"/>	DD FORM 365F (Wt. and Bal.) 27 <input checked="" type="checkbox"/>	WEATHER 27 <input checked="" type="checkbox"/>	REQUEST CLEAR-ANCE AFTER 28																																																																								
INST RATING 28	SIGNATURE OF PILOT IN COMMAND 30		SIGNATURE OF APPROVING AUTHORITY 31		<i>J. A. Roberts</i>		DATE 32 1 SEPT 66																																																																								
33 CREW/PASSENGER LIST - <input type="checkbox"/> Attached <table border="1"> <thead> <tr> <th>DUTY</th> <th>NAME AND INITIALS</th> <th>GRADE</th> <th>SERVICE NO.</th> <th colspan="4">ORGANIZATION AND LOCATION</th> </tr> </thead> <tbody> <tr> <td>PILOT IN COMMAND 34 CP</td> <td>ROBERTS, J.A.</td> <td>COL</td> <td>FR8787</td> <td colspan="4">62nd TCW/MCCHORD AFB</td> </tr> <tr> <td></td> <td>SMALLEY, C.E.</td> <td>CAPT</td> <td>FV776567</td> <td>38</td> <td>39</td> <td>40</td> <td>62nd TCW/MCCHORD AFB</td> </tr> <tr> <td>FE</td> <td>MCCARTNEY, R.J.</td> <td>T/S</td> <td>AF18796352</td> <td colspan="4">62nd TCW/MCCHORD AFB</td> </tr> <tr> <td>N</td> <td>SCHAEFFER, W.F.</td> <td>CAPT</td> <td>7988</td> <td colspan="4">NAS MIRAMAR (USN)</td> </tr> <tr> <td>RO</td> <td>CRELLING, B.H.</td> <td>A/IC</td> <td>AF31965824</td> <td colspan="4">62nd TCW/MCCHORD AFB</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								DUTY	NAME AND INITIALS	GRADE	SERVICE NO.	ORGANIZATION AND LOCATION				PILOT IN COMMAND 34 CP	ROBERTS, J.A.	COL	FR8787	62nd TCW/MCCHORD AFB					SMALLEY, C.E.	CAPT	FV776567	38	39	40	62nd TCW/MCCHORD AFB	FE	MCCARTNEY, R.J.	T/S	AF18796352	62nd TCW/MCCHORD AFB				N	SCHAEFFER, W.F.	CAPT	7988	NAS MIRAMAR (USN)				RO	CRELLING, B.H.	A/IC	AF31965824	62nd TCW/MCCHORD AFB																											
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23. Total time that the aircraft can stay aloft with the fuel available at takeoff using procedures recommended in the appropriate flight manual/NATOPS. A second time group will be entered to show the amount of additional flight time possible if a planned aerial refueling operation is completed successfully, i.e., 6+00 / 4+00 and accompanied by entry in "Route of Flight" section showing the location of planned in-flight refueling. On a stopover flight enter "Fuel on Board" to point of first intended refueling.

24. VFR - The distance from the base of departure to the base of destination.

IFR - The distance (including the SID, if applicable) from the base of departure to the initial approach fix or facility intended to be used for penetration and/or approach to the destination.

NOTE: On stopover flights, the distance will be to the first point of intended landing IFR or VFR.

25. (Criteria as contained in appropriate Service directives.) If IFR on a stopover flight plan, the alternate listed is for the first point of intended landing. Alternates required for subsequent stops will be included in the flight plan filed in flight.

26. Time required to fly from original destination to the airfield shown in #25 above, based on flight at the last cruising altitude.

27. Included only as a pre-flight reminder. May be used as directed locally.

28. Base operations personnel will enter the earliest time that an ATC clearance may be requested by the pilot.

29. USN: Enter "Standard" or "Special." USA: Enter "1" or "2" as appropriate. USAF: No entry required.

30. To be signed by any pilot not acting as his own approving authority.

31. Signature of the pilot, if he possesses his own approving authority, or the base operations personnel designated by the base/station commander as an approving authority.

32. Date of flight in local time.

33. The name of the pilot in command must appear in the crew list. The names of all other crew members and passengers will be entered in accordance with appropriate service instructions. If a passenger manifest is used, check the block "See Passenger Manifest".

34. Symbol for the duty to be performed by each crew member listed, as prescribed by appropriate service directives. For formation flights, identify the crew duty symbol and position of the aircraft in formation, i.e., IP/1, P/2, etc.

35, 36 and 37. Self-explanatory.

38 and 39. Organization and location of unit of assignment, i.e., Hq USAF, Pentagon; 43rd Bomb Wing, Carswell AFB; VF 43 NAS Oceana.

40. Where crew is composed of members from more than one branch of the military service, identify the branch.

I PRE-FLIGHT

B. FLIGHT PLAN CODES

Listed below are the VIP Number Codes to indicate the highest grade aboard (Colonel or USN Captain or higher only) and the Code for Control of Passengers and Cargo. For flights within the Continental US only, the name of the highest ranking VIP aboard may be included immediately following the Grade Code, at his discretion.

1. HIGH RANK ABOARD CODE

Code No.

- 1 — President of the U.S.
— Ex-President of the U.S.
— Heads of State of foreign countries and reigning royalty
- 2 — The Vice President
— Governor of a State of the United States in jurisdiction
— Speaker of the House of Representatives
— The Chief Justice of the United States
— Secretary of State
— Retired Chief Justices of the United States
— Foreign Prime Minister or Cabinet Officer
— Foreign Ambassador, High Commissioner or Special Diplomatic Representative whose credentials give him authority equal to or greater than that of an Ambassador
— Secretary General of the U.N.
— The United States Ambassador to the United Nations
— Ministers of Foreign Powers
— Associate Justices of the Supreme Court
— Retired Associate Justices of the Supreme Court
— The Cabinet
 - Secretary of Treasury
 - Secretary of Defense
 - The Attorney General
 - The Postmaster General
 - The Secretary of Interior
 - The Secretary of Agriculture
 - The Secretary of Commerce
 - The Secretary of Labor
 - The Secretary of Health, Education & Welfare
 - The Secretary of Housing & Urban Development
- President Pro-Tempore of the Senate
— United States Senators
— Governor of a State of the United States out of jurisdiction (according to dates of States admission to the Union)
— Acting Heads of Executive Departments (in absence of the Cabinet Member)
— Ex-Vice Presidents of the United States
— Members of the House of Representatives of the United States
— Under Secretaries or Deputy Secretaries of Executive Departments (see Cabinet above for Executive Depts.)
— Administrator, Agency for International Development
— Director, U.S. Arms Control and Disarmament Agency
— Charge d'Affaires of Foreign Powers
— Secretary of the Army
— Secretary of the Navy
— Secretary of the Air Force
— Director, Bureau of the Budget
— Chairman, Council of Economic Advisers
— Chairman, Board of Governors, Federal Reserve
— Chairman, Joint Chiefs of Staff
— Chief of Staff, United States Army
— Chief of Naval Operations

- Chief of Staff, United States Air Force
— Commandant of the Marine Corps
— Retired Chief of Staff
— General of the Army
— Fleet Admiral (5 Star Rank)
— General of the Air Force
— Secretary General & Representatives to Organization of American States
— Director of Central Intelligence Agency
— Administrator, General Service Administration
— Director, U.S. Information Agency
— Administrator, National Aeronautics & Space Administration
— Administrator, Federal Aviation Administration
— Chairman, Civil Service Commission
— Chairman, The Atomic Energy Commission
— Director, Defense Research & Engineering
— Director, Office of Emergency Planning
— Director, The Peace Corps
- 3 — Special Assistant to the President
— Special Counsel to the President
— Deputy Under Secretaries of Other Executive Departments
— Assistant Secretaries of The Executive Departments
— Assistant Secretaries of Defense & General Counsel (by date of appointment)
— The Chief of Protocol
— Active or Designate U.S. Ambassadors and Ministers (Career rank when in the United States)
— Under Secretaries of The Army, The Navy & The Air Force
— Governors of Territories
— Commandant of the Coast Guard
— Vice Chief of Staff U.S. Army, Vice Chief of Naval Operations, and Vice Chief of Staff U.S. Air Force
— Generals & Admirals (4 Star Rank)
— Retired Four-Star Generals & Admirals
— Assistant Secretaries of the Army, The Navy & The Air Force (by date of appointment within each service)
— Special Assistant to the Secretary of Defense
— Assistants to the Secretary of Defense
 - Legislative Affairs
 - Atomic Energy
- 4 — Director, Advance Research Projects Agency
— Bishops of Washington
— Lieutenant Generals & Vice Admirals (3 Star Rank)
— Retired Lieutenant Generals & Vice Admirals
— Chief, Scientists, Department of Defense, Air Force, etc.
— General Counsels of the Military Departments
— Deputy Directors, Defense Research & Engineering & Deputy General Counsel (by date of appointment)
— Deputy Assistant Secretaries of The Executive Departments
— Chairman of Statutory Boards & Committees, Independent Agencies, Mayors
— Administrative Assistants to the President
— Special Assistants of Military Departments
— Deputy Under Secretaries of The Army, The Navy & The Air Force (by date of appointment within each service)
— Counselors of Foreign Powers
— P.L. 313 (Appointed Civilians)
— GS-18 (Civilians)
- 5 — Major Generals, Rear Admirals (Upper Half) (2 Star Rank)
— Deputy Assistant Secretaries of The Army, The Navy & The Air Force (by date of appointment within each service)
— Surgeon General, Public Health Service

I PRE-FLIGHT

5. Pilots should file IFR flight plans at least 30 minutes prior to estimated time of departure to afford required processing time by operations and air traffic control agencies.
6. Flight plan filing procedures for operations above FL600 will be in accordance with current practices, except where classified information must be withheld. For example, for true airspeed (TAS) certain aircraft may file TAS-SC (meaning supersonic classified) and for altitude they may file, above FL600.
7. Leave a copy of the Flight Plan and Passenger Manifest with the airport manager or other suitable person.

II DEPARTURE

A. AIR TRAFFIC CONTROL CLEARANCES

1. CLEARANCE DELIVERY

At airports where a control tower is in operation, ATC IFR clearances normally are relayed to pilots of departing aircraft by the tower "ground control" position. At many busy airports, however, a tower "clearance delivery" position has been established and a separate radio frequency has been designated for this purpose. No visual surveillance or control over the movement of traffic is exercised by the tower "clearance delivery" position of operation.

2. IFR CLEARANCE ITEMS

IFR clearances to departing aircraft are issued prior to take-off and will include the following items, as appropriate, in the order listed:

- a. Aircraft identification.
- b. Clearance limit or approach procedure.
- c. Route of flight.
- d. Altitude data in the order flown.
- e. Departure procedure or standard instrument departure.
- f. Holding instructions.
- g. Any special information.
- h. Frequency and beacon code information.

3. CLEARANCE LIMIT

- a. Initial clearances issued to departing aircraft will include, whenever practicable, the destination airport as the clearance limit. ATC may, however, utilize short-range clearance procedures, in lieu of clearance to destination airport. When any part of the route beyond the short-range clearance limit differs from that specified in the original flight plan, clearance will include the proposed routing beyond said clearance limit.
- b. When a flight has been cleared to a fix short of its destination airport, additional clearance to proceed beyond or instructions to hold at such fix, which ever is appropriate, will be issued at least five minutes before aircraft is estimated to reach the fix. If further clearance has not been received, hold at the fix and contact ATC (see enroute clearance all altitudes).
- c. Flights which are conducted in accordance with IFR for the initial part of the flight and VFR for subsequent portions will be cleared to the fix at which the IFR portion of the flight terminates.

4. ROUTE OF FLIGHT

- a. The phraseology "via flight plan route" may be used in a traffic clearance to replace the lengthier detailed description of any portion of the route that is identical to the route filed. When used, the phrase will be preceded by sufficient detailed route of flight information to establish the flight on the filed route. The "via flight plan route" phraseology does not include approval of an altitude/flight level filed in the flight plan. Specific altitude/flight level assignments will be issued in each clearance and should be adhered to unless cleared otherwise.
- b. Standard instrument departure (SID) procedures are available at most military and joint civil/military aerodromes. U.S. Army pilots, along with USN pilots are encouraged to use SIDs provided no flight derogation will ensue. USAF pilots will use SIDs where available, except when: the SID would cause considerable deviation from the intended route, or a VFR climb to course is conducted in VFR conditions, or RADAR vectors are provided in lieu of a SID or portion of a SID, or local agreements for specialized local training preclude use of SIDs. After selecting the intended route of flight, pilots should enter in DD form 175 either the name and number of the SID or the phrase "request RADAR departure". After a SID is accepted in the air traffic clearance, the pilot will conform to exact routings, altitudes and specific restrictions shown on the departure chart or received from the air traffic controller. Except for RADAR vectors, route amendments to the published procedure will not be accepted unless the entire procedure is issued verbatim.

5. ADHERENCE TO AIR TRAFFIC CLEARANCE

- a. When an air traffic clearance has been obtained under either visual or instrument flight rules, the pilot in command of the aircraft shall not deviate from the provisions thereof unless an amended clearance is obtained. The addition of a VFR restriction does not authorize a pilot to deviate from the route of flight or any other provision of the air traffic control clearance.
- b. The most important and guiding principle to remember is that the last ATC clearance has precedence over related portions of the previous ATC clearance. A clearance which amends an altitude of a previous clearance does not affect route of flight. Similarly, a clearance which amends the route of flight does not affect the altitude portion of a previous clearance provided the amended route does not circumvent a fix, radial or airway where an altitude restriction was issued in the original clearance. This guidance applies to RADAR as well as non-radar air traffic control clearances. Example: A pilot accepts a SID which includes altitude restrictions to maintain 3000 feet to "X" fix, cross "Y" radial at 8000 feet, then to cross "Z" fix at FL 230. Immediately after takeoff he receives a radar vector. He should maintain 3000 feet, assuming the vector will permit him to cross "X" fix. If the controller intends to vector the aircraft so it will not cross "X" fix he must issue an altitude with his vector. When an aircraft is vectored off a previously assigned route, the controller is required to tell the pilot the airway, route or point to which the aircraft is being vectored.
- c. Should a pilot for any reason be incapable of complying with any provision of an issued ATC clearance or restriction added thereto, he is expected to immediately advise ATC. A brief reason, such as, "unable account of load", may be included if considered necessary. He may then expect an amended ATC clearance.

6. IFR IN VFR WEATHER CONDITIONS

Traffic clearances only provide standard separation between IFR flights. During the time an IFR flight is operating in VFR

II-70 PILOT PROCEDURES

II DEPARTURE

weather conditions, it is the direct responsibility of the pilot to avoid other aircraft, since VFR flights may be operating in the same area without the knowledge of ATC. "VFR CONDITIONS ON TOP" CLEARANCE DOES NOT PROVIDE TRAFFIC SEPARATION. THE RESPONSIBILITY FOR AVOIDANCE OF COLLISION WITH OTHER AIRCRAFT RESTS WITH THE PILOT. ATC will not amend the IFR CLEARANCE TO ENABLE EXECUTION OF ANY PART OF THE FLIGHT VFR, UNLESS SPECIFICALLY REQUESTED BY THE PILOT. The phrase "will accept VFR climb (VFR on top, etc.)" does not suffice for this purpose.

B. RAMP/GATE HOLD PROCEDURES

The following ramp/gate hold procedures are applicable to departing turbojet aircraft within the U.S. The purpose of these procedures is to determine taxi and air traffic control delays for departing turbojet aircraft and to advise pilots the amount of such delays prior to engine start. These procedures apply at Air Force and Navy bases. Certain tactical and training operations are exempt at local discretion due to their nature or environmental circumstances.

1. Prior to engine start, pilots call the tower ground controller.
2. If total taxi and ARTC clearance delay time is less than 15 minutes, the pilot is advised: no delay expected.
3. If delay is uncertain, the controller replies: "STANDBY FOR DEPARTURE TIME".
4. If the controller then figures the delay is greater than 15 minutes, the pilot is given a PROPOSED DEPARTURE TIME.
5. The pilot calls ground control in sufficient time to start engines and meet the proposed departure time. Should taxi/ARTC clearance delay conditions persist, the pilot is advised and a revised departure time issued, based upon the same method previously established.
6. At some bases, and during certain time periods at other bases, combined taxi/ARTC clearance delays normally are less than 15 minutes. At such locations and times these procedures need not be applied in which case a clearance to taxi indicates to the pilot he may anticipate his take-off clearance within 15 minutes of taxi clearance.

C. DEPARTURE RADAR

1. The primary objectives of Radar Departure Control are:
 - a. Increase the departure rate of IFR aircraft from airports.
 - b. Establish aircraft "on-course" by the most expeditious routes consistent with a traffic situation.
2. Normally aircraft will be cleared out of the terminal area utilizing standard instrument departures via radio navigation aids. When a pilot is given a vector taking his aircraft off a previously assigned nonradar route, he will be advised briefly what the vector is to achieve. Thereafter, radar service will not be terminated until the aircraft has been re-established "on-course" using an appropriate navigation aid and the pilot has been advised of his position.
3. When a flight has a malfunctioning directional gyro, the pilot will be advised, prior to issuance of vectors, to make all turns at the standard rate and to execute turns immediately upon receipt of instructions.

D. CLEARANCE SYMBOLS AND ABBREVIATIONS

1. As an aid in copying clearances the following symbols and abbreviations have been devised and standardized for use as clearance shorthand:

a. Clearance Instruction Symbols:

C	ATC clears
	Cross airways
	Join airways
	While on airways
△	While in control area
△△	Enter control area
△△△	Out of control area
VVV	Before
VVV	After
TKOF	Take-off
T—(direction)	Take-off (direction as specified)
LT	Left turn after take-off
RT	Right turn after take-off
LS	Left side
RS	Right side
/	Until
()	Alternate instructions
Restriction	Restriction
(time)	Clearance void after (specified time)
VIFNO (time)	Clearance void if aircraft not off ground by (specified time)
RACE	Request further altitude changes en route
S or S	(Use when shuttle climb or descent is indicated in clearance)
TFC	Traffic is
ADNL TFC	Additional traffic is
RC	Reverse course
UFA	Until further advised
FC (time)	Expect further clearance at (time)
EAC (time)	Expect approach clearance at (time)
DIA INDFT	Delay indefinite; expect approach clearance not later than (specified time)
LAX 120.3	Contact (name) center on (specified frequency)
DCA 118.1	Contact (name) approach control on (specified frequency)
A/C	Approach control
CT	Contact approach
ILS	ILS approach
RAP	Range approach
SI	Straight-in-approach

II DEPARTURE

VRAP	OMNI range approach
ADF	ADF approach
PAR	Precision approach
ASR	Surveillance approach
I	Initial approach
F	Final approach

b. Altitude Symbols:	
↑ (altitude)	Climb to (altitude) immediately
↑ (altitude) (time)	Climb to (altitude) at (time)
↑ (altitude) (fix)	Climb to (altitude) immediately after passing (specified fix)
↓ (altitude)	Descend to (altitude) immediately
↓ (altitude) (time)	Descend to (altitude) at (time)
↓ (altitude) (fix)	Descend to (altitude) immediately after passing (specified fix)
—→	Cruise
@	At
X	Cross
—M→	Maintain
ABV	Above
BLO	Below
OTP	Maintain VFR conditions on top of clouds, haze, smoke, or fog level
VFR or alter- nate in- structions)	Maintain VFR; if not possible (alternate instructions) and advise
RL	Report immediately on leaving (specified altitude or levels)
RR	Report immediately on reaching (specified altitude or levels)

III ENROUTE

A. ENROUTE CLEARANCE — ALL ALTITUDES

- When an aircraft is cleared to a fix short of its destination airport, further clearance will be issued at least five minutes before the aircraft is estimated to reach the fix. If further clearance has not been received, the pilot is expected to execute a standard holding pattern, and maintain the last assigned altitude/flight level, on the course on which the aircraft approaches the fix, until further clearance is received.
- Should it become necessary for a pilot to deviate from an approved route or altitude/flight level when on an IFR flight plan, it is important that the request for deviation be forwarded to ATC as far in advance as possible. Delay in submitting the request, or inability to do so, may delay or even preclude ATC approval of the request, or require that additional restrictions be placed on the clearance.
- If thunderstorm conditions encountered are of such severity that an immediate deviation from course and/or altitude/flight level is necessary and time will not permit approval by ATC, the pilot's emergency authority

may be exercised.

- The following information should be furnished ATC when requesting clearance to detour thunderstorm activity.
 - Proposed point at which detour will commence.
 - Proposed route and extent of detour (direction and distance).
 - Altitude(s) / Flight Level(s).
 - Point and estimated time where original route will be resumed.
 - Flight conditions (IFR or VFR).
 - Any further deviation that may become necessary as the flight progresses.
 - Advise if the aircraft is equipped with functioning airborne radar.
- When flying within the Continental Control Area, the proposed detour should be defined by appropriate navigational aids (however, not necessarily over or directly between such aids). When this is not possible and traffic exists at the desired altitude/flight level, ATC will be unable to approve the detour under his emergency authority.
- When the altitude/flight level instructions in an ATC clearance requires that a pilot "MAINTAIN" his assigned altitude/flight level while in control areas, changes while enroute should be requested prior to the time the change is desired.

NOTE: Due to traffic conditions it is frequently necessary for ATC to change the altitude/flight level or route originally assigned.

B. "VFR CONDITIONS ON TOP" CLEARANCE

- Clearances may be issued specifying that flights maintain "VFR Conditions On Top" of a cloud, haze, smoke, or other meteorological formation, provided:
 - Pilots specifically request such clearances.
 - The aircraft maintains 500 ft vertical under, 1000 ft vertical over, and 2000 ft horizontal clearance from all clouds (1000 ft vertical and 1 SM horizontal clearance within the Continental Control Area).
 - The flight is conducted at a VFR hemispheric altitude or flight level.
 - The flight visibility is reported to be at least three statute miles (five miles within the Continental Control Area - above 14,500' MSL).
 - The pilot is advised of the reported height of the top of the formation, or that no such reports have been received.
 - Issuance of such clearances is discontinued if pilot reports indicate that weather conditions are not suitable for the intended operation.
- Clearances which specify that flights maintain "VFR Conditions On Top" will not be issued to flights within "positive control" airspace. VFR on top clearances will not be granted for flights within "positive control" airspace nor will ATC issue such a clearance between sunset and sunrise to provide separation between aircraft which are holding.
 - When reports indicate to ATC that a flight operating in accordance with a clearance which specified "VFR Conditions On Top" is not adhering to the altitude/flight level requirements for direction of flight, the pilot thereof will be advised of the appropriate altitudes/flight levels.
 - Further, ATC will not issue clearances specifying that climb or descent or any portion of the flight be conducted in "VFR Conditions," to any IFR flight, regardless of altitude/flight level, except under emergency con-

III ENROUTE

ditions, or unless specifically requested by the pilot. When a clearance is issued specifying a "VFR Conditions" restriction for climb or descent, general traffic information will normally be provided.

C. COMBINATION CLEARANCES

Clearances issued when a flight plan indicates IFR for the first portion of flight and VFR for the latter portion will normally clear an aircraft to the point at which the change is proposed. Once the pilot has reported over the clearance limit and does not desire further IFR clearance, he should advise ATC to cancel the IFR portion of his flight plan. Further clearance will not be necessary for VFR flight beyond that point. If the pilot desires to continue his IFR flight plan beyond the clearance limit, he should contact ATC at least 5 minutes prior to the clearance limit and request further IFR clearance. If the requested clearance is not received prior to reaching the clearance limit fix, the pilot will be expected to establish himself in a standard holding pattern on the inbound radial/course to the fix.

D. AIR/GROUND COMMUNICATIONS

1. **VFR** — All VFR Operations except "VFR Conditions on Top" will utilize FSS frequency 255.4 mc as primary frequency for position reporting. However, frequency 272.7 mc may also be used where it is listed as available under communications in the Aerodrome/Facility Directory.
2. **IFR AND VFR CONDITIONS ON TOP** — Air Route Traffic Control (ARTC) Centers are equipped to conduct direct communications with IFR traffic on VHF and UHF frequencies. IFR operations are expedited through the use of direct communications; however, to reduce frequency congestion, pilots are requested to use these frequencies strictly for communications pertinent to the control of IFR aircraft. Flight plan filing, en route weather, etc., should be requested through Flight Service Stations, or appropriate military facilities.
3. **Most Air Route Traffic Control Center (ARTCC) Areas** are subdivided into two or more sectors with an individual controller assigned to handle traffic in his specific sector or sectors. A *discrete frequency* is assigned each sector for direct pilot/controller communication and normally this will be the initial frequency assigned aircraft.
4. The special use frequencies will be used for controlling aircraft operating above FL 600. The back-up frequency will be the high altitude sector discrete frequency. Additionally, the aircraft are required to monitor 243.0 mc (Guard) for emergency purposes.
5. **ATC Frequency Change Procedures:**
 - (1) The following phraseology will be used by controllers to effect a frequency change: "(Aircraft identification) CONTACT (location name) (facility or terminal control function) (frequency) AT (time, fix or altitude), OVER."
 - (2) The following phraseology should be utilized by pilots for establishing contact with the designated facility:
 - a. When a position report will be made:
"(Name) CENTER, (this is) (aircraft identification), (position), OVER."
 - b. When no position report will be made:
"(Name) CENTER, (this is) (aircraft identification), ESTIMATING (reporting point) (time) AT (altitude/

flight level) CLIMBING/DESCENDING TO (altitude/flight level) OVER."

- c. When operating in a radar environment and no position report is required:
"(Name) CENTER, (this is) (aircraft identification), AT(altitude/flight level) CLIMBING/DESCENDING TO (altitude/flight level) OVER."

NOTE: Words (this is) are optional and may be omitted if no confusion or misinterpretation will result.

- d. **Frequency Use.** If two-way communications cannot be established when changing frequencies, a pilot should attempt to recontact the transferring controller for the assignment of an alternative frequency or other instructions. If, however, communications are not reestablished, the pilot should then contact the appropriate communications medium as indicated below:

VHF FSS-126.7, 123.6, 122.2/122.1 or VOR/122.1

UHF FSS 255.4 (272.7 is now available only in Alaska, the Pacific and 12 stations in the conterminous U.S. where it is used at the option of the pilot)

E. CTA/FIR COMMUNICATIONS (USAF)

USAF aircraft departing the continental United States will, 15 minutes prior to reaching a CTA or FIR, contact the USAF HF air/ground station having guard responsibilities for the CTA or FIR in which the aircraft is flying, and report the following information:

(1) aircraft identification; (2) trip number (if applicable); (3) type aircraft; (4) point of departure; (5) departure time; (6) destination; (7) estimated time enroute (ETE). The USAF HF air/ground guard station (listed in applicable Enroute Supplements) at this time will assign primary and secondary frequencies and reporting times for the flight while in the CTA/FIR areas.

F. REPORTING OF MALFUNCTIONS OF NAVIGATION AIDS AND COMMUNICATIONS EQUIPMENT

1. APPLICABILITY

This special Federal Aviation Regulations applies to the operation of aircraft within Controlled Airspace under Instrument Flight Rules of Part 91 of Federal Aviation Regulations.

2. MALFUNCTION REPORTS

The pilot in command shall report immediately to Air Traffic Control any inflight malfunction of navigation or Air/Ground communications equipment as listed below:

- a. Loss of VOR, TACAN, ADF, or low frequency navigation receiver capability or
- b. complete or partial loss of ILS receiver capability or
- c. impairment of Air/Ground communications capability.

3. SUBSTANCE OF REPORTS

Each report required under paragraph 2 hereof shall include the following:

- a. Aircraft identification
- b. The equipment affected
- c. The degree to which capability of the pilot to operate IFR in the Air Traffic Control System is impaired and
- d. The nature and extent of assistance desired from Air Traffic Control: The exact nature and degree of assistance available from the ATC system will vary considerably. It is, therefore, essential that the pilot inform the controller of the assistance needed. If no assistance is required, normal handling may be expected.

III. ENROUTE

If special handling is requested, the ATC controller will provide maximum amount of assistance, consistent with the equipment at his disposal and the proper performance of his control functions with respect to other IFR aircraft. Should the circumstances warrant greater attention and priority handling with respect to other IFR aircraft, the pilot should then declare an Emergency.

G. POSITION REPORTING PROCEDURES

1. **IFR FLIGHT PLAN** — Position reports should be given at each compulsory reporting point and include the following items:
 - a. Identification,
 - b. Position,
 - c. Time,
 - d. Altitude or flight level (including actual altitude or flight level when operating on a clearance specifying "VFR conditions on top"),
 - e. Type of flight plan (not required in IFR position reports made directly to ARTC Centers or approach control),
 - f. ETA over next reporting point,
 - g. The name only of the next succeeding reporting point along the route of flight, and
 - h. Pertinent remarks.

2. OMISSION OF POSITION REPORTS IN A RADAR ENVIRONMENT

- a. When informed by ATC that their aircraft is in "RADAR CONTACT", pilots will discontinue position reports over designated reporting points.
- b. When a frequency change is required use the following phraseology:
"(Name) CENTER, (this is) (aircraft identification), AT (altitude/flight level) CLIMBING/DESCENDING TO (altitude/flight level) OVER."
- c. Pilots should resume normal position reporting when ATC advises "RADAR CONTACT LOST" or "RADAR SERVICE TERMINATED."

NOTE — Occasion may arise when controllers will request pilots of radar identified aircraft to report a specific fix. In such cases, report only the specific fix requested.

- d. When radar identified aircraft operating below FL 180 are observed passing a compulsory reporting point, ATC will issue the appropriate altimeter setting associated with that point.

3. ADDITIONAL REPORTS

- a. The following reports should be made without request:
 - (1) The time and altitude/flight level reaching a holding fix or point to which cleared.
 - (2) When vacating any previously assigned altitude/flight level for a newly assigned altitude/flight level.
 - (3) When leaving any assigned holding fix or point.
 - (4) When leaving final approach fix inbound on final approach.
 - (5) When approach has been missed. (Request clearance for specific action; i.e., to alternative airport, another approach, etc.)
 - (6) A corrected estimate at any time it becomes apparent that an estimate as previously submitted is in error in excess of three minutes.
 - (7) That an altitude change will be made if operating on a clearance specifying "VFR conditions-on-top."
 - (8) When changing TAS by more than 10 knots.
- b. Pilots encountering weather conditions which have not been forecast, or hazardous conditions which have been forecast, shall forward a report of such weather to air traffic control. The reporting of unanticipated weather or hazardous conditions may be of importance to the safety of other aircraft proposing flight within the area.

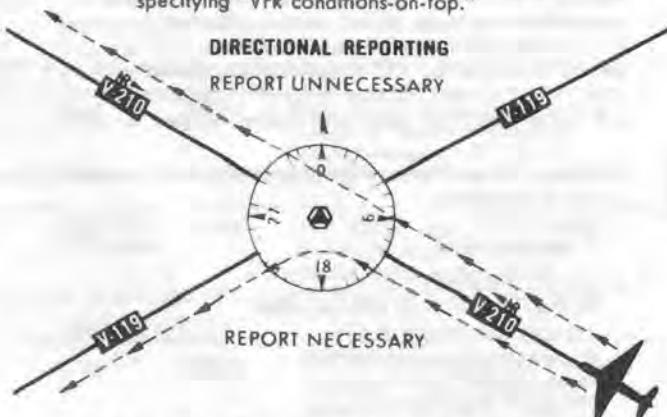
4. VFR POSITION REPORTS

- a. At and above flight level 180 report at least every 300 NM.
- b. Below flight level 180 report at least every 200 NM.

5. REPORTING POINTS

Pilots are required to maintain a continuous listening watch on the appropriate frequency and furnish reports as indicated by the symbols shown on the FLIP Enroute Charts.

- a. The compulsory reporting point symbol is a solid triangle. On request reporting points are symbolized by an open triangle.
- b. Flights along airways/Jet Routes — A position report is required by all flights regardless of altitude over each compulsory reporting point along the route being flown except where otherwise indicated by a "Not Required" (NR) symbol. This includes flights operating in accordance with an Air Traffic Clearance specifying "VFR conditions-on-top."



- c. Flights along a direct route — regardless of the altitude being flown — including flights operating in accordance with an ATC clearance specifying "VFR conditions-on-top" pilots shall report over each reporting point used on the flight plan to define the route of flight.

H. RADAR BEACON PROCEDURES

1. The Advanced Radar Traffic Control System (ARTS) and Stored Program ALPHA — Numeric Beacon System (SPAN) were developed to provide the radar controller with a display of aircraft identity, altitude and other required data to aid him in maintaining target identity and coordinating the handoff of targets between similar equipped sectors.
2. When filing a domestic IFR Flight Plan (DD Form 175 or equivalent), pilots will indicate the radar beacon transponder and/or DME equipment capability by adding a slant and the appropriate symbol immediately following the aircraft designation as follows:

/X	Transponder with no code capability.
/T	Transponder with 64 code capability.
/U	Transponder with 4096 code capability.
/D	DME
/L	DME and transponder with no code capability.
/B	DME and transponder with 64 code capability.
/A	DME and transponder with 4096 code capability.
/M	TACAN-only and transponder with no code capability.
/N	TACAN-only and transponder with 64 code capability.
/P	TACAN-only and transponder with 4096 code capability.

Aircraft without Transponder — Leave Blank.
Example: F4/U, T39/B, VC137/A, etc.

3. Pilots of transponder equipped aircraft departing from within a United States domestic control area to points outside the United States will comply with paragraph 2 above. Those entering the United States domestic control area from outside the United States will, when making the first radio report to a United States air traffic control

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center, advise of availability of such equipment by adding the words "Transponder" or "No Code Transponder" as appropriate.

4. Two basic types of airborne transponders having select code capability on Mode 3 can use the system. One has a 64 Code-two digit select capability and the other has a 4096 Code-four digit select capability. Both types of transponders are compatible and responsive to ATC ground interrogation equipment. The basic operational difference is that the 64 select code transponder transmits only the first two digits of the 4096 select code scale.
5. In order to standardize the system, air traffic control personnel will use a four digit code designation when assigning codes. When a four digit code is assigned to an aircraft which has only a 64 code-two digit capability, only the first two digits are used. Example: Code 2100 — use code 21, code 0700 — use code 07, etc. Pilots of aircraft operating IFR and equipped with a coded radar beacon transponder will be instructed by ATC to reply on a specified mode 3 code. When a flight has been assigned a particular code it will remain on that code until further advised by ATC.
 - a. VFR or VFR conditions on top or an aircraft which cancels its IFR flight plan:

Below FL 240	Code 0600
FL 240 and above	Code 0700
 - b. Special Operations:

NORAD aircraft on air defense duties and not under control of ATC	Code 0000
Aircraft operations which specify rapid or frequent changes in altitude/FL (flight test, oil burner, refueling, etc.). Assignment of code not mandatory and will be used only when assigned by ATC.	Code 0500
 - c. Mode 3 — Code 4400, has been assigned for aircraft operating above FL 600. This code will be preset on the ground and will not be changed in flight. However, the emergency code 7700 can be activated.

NOTE: After take-off and when climbing to FL 240 or above, and when descending to below FL 240 for landing, it is not necessary to change transponder settings unless otherwise instructed by ATC.

6. MISCELLANEOUS INSTRUCTIONS:

- a. Transponders will be operated in "Standby" while taxiing for take-off and "OFF" after landing. This action is necessary to eliminate undesirable interference and clutter on certain radar displays. Therefore, when requested to operate transponders in Mode 3, departing pilots should turn transponders to "ON" as late as practicable before commencing take-off, and landing pilots should turn transponders to "OFF" as soon as practicable after landing.
- b. Basic Mark X (IFF) equipment will not be operated except in emergency or when requested by ATC.
- c. Military flights operating on a Mode other than Mode 3 will adjust transponder to reply on the Mode 3 code specified in paragraph 5 above and the Mode assigned by the military simultaneously.
- d. Loss of radar tracking capability, in the event radar tracking is not possible above FL 600 due to loss of the air or ground radar systems, the pilot shall be advised and control will be based on the route filed and position reports/estimates as necessary. Where insufficient time

or lateral separation will occur on converging courses, the pilots shall be advised. Vertical separation shall be provided if pilots volunteer altitude information and request altitude separation. Otherwise, pilots shall be advised: "Unable to provide separation from (aircraft identification) (direction of flight)". It is understood that the military assumes responsibility for separation of aircraft (MARSA) in these instances.

7. EMERGENCY IFF/SIF PROCEDURES

- a. Emergency communications as required.
- b. IFF control box — emergency position.
- c. SIF control box — Mode 3 switch "in".
- d. SIF control box — Mode 3, Code 7700.

NOTE: Since many air traffic control radars do not have a capability to automatically monitor SIF emergency responses, pilots should make an appropriate emergency radio transmission when implementing the above procedures.

8. PHRASEOLOGY

a. Radar beacon code word phraseologies used by ATC controllers in air/ground communications and expected pilot action under specified conditions are as follows:

- (1) SQUAWK — (Mode one, two, or three) — Turn Master Control on "NORMAL". (With Master Control on "NORMAL" or "LOW" you are always squawking Mode 1).
- (2) SQUAWK THREE/CODE (number) — Operate radar beacon transponder on designated mode and code. (Transponder has not been operating on Mode 3).
- (3) SQUAWK CODE (number) — Operate transponder on a different code. (Transponder is already operating on a previously specified mode and code).
- (4) SQUAWK IDENT — Turn I/P switch "ON".
- (5) SQUAWK THREE CODE (number) and IDENT — Operate transponder on specified mode and code and turn I/P switch "ON". (Transponder has not been operating on Mode 3).
- (6) SQUAWK CODE (number) and IDENT — Operate transponder on a different code and turn I/P switch "ON". (Transponder is already operating on a previously specified mode and code).
- (7) SQUAWK STANDBY — Switch transponder to "STANDBY" position.
- (8) SQUAWK LOW/NORMAL — Operate transponder on low or normal sensitivity as specified. Transponder is operated in "NORMAL" position unless ATC specifies "LOW".
- (9) STOP SQUAWK (mode specified) — Switch off specified mode. (Used only when more than one mode may be in operation).
- (10) STOP SQUAWK — Turn Master Control switch "OFF". (STANDBY recommended).
- (11) SQUAWK MAYDAY — Switch to "EMERGENCY" position — follow appropriate emergency procedures.

I. ALTIMETER SETTINGS

1. SURFACE TO 18,000 FEET MSL — Federal Air Regulations prescribe that altitude shall be in FEET ABOVE SEA LEVEL (QNH). Accordingly, the current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft shall be used. If there is no station within 100 nautical miles, the current reported altimeter setting of an appropriate available station shall be used. In the case of an aircraft without a functioning radio, the elevation of the departure airport or an appropriate altimeter setting available before departure shall be used.
2. AT AND ABOVE 18,000 FEET MSL — The standard setting QNE (29.92" Hg) will be used at all times during flight.

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When using the standard altimeter setting, all reference to altitudes shall be made in flight levels. A flight level is a constant atmospheric pressure related to a reference datum of 29.92" Hg. FOR EXAMPLE — FL 250 represents a standard pressure differential of 25,000 ft. In order to assure that the FL is actually at or above 18,000 ft MSL, pilots will not select nor controllers assign certain flight levels when the altimeter setting is below 29.92" Hg. The lowest usable flight level is determined by the atmospheric pressure in the area of operation as follows:

ALTIMETER SETTING (Current Reported)	LOWEST USABLE FLIGHT LEVEL
29.92 or higher	180
29.91 to 29.42	185
29.41 to 28.92	190
28.91 to 28.42	195
28.41 to 27.92	200
27.91 to 27.42	205
27.41 to 26.92	210

3. ALTIMETER CHANGE-OVER PROCEDURES

- Climb — change to 29.92" Hg upon reaching 18,000 feet MSL.
- DESCENT — change to the local altimeter setting prior to descent through a flight level which is equivalent to 18,000 ft MSL. The appropriate number of ft specified below according to the current altimeter setting must be added to the flight level equivalent of the minimum altitude to assure that the change is made no lower than 18,000 ft MSL:

ALTIMETER SETTING (Current Reported)	LOWEST USABLE FLIGHT LEVEL	ADJUSTMENT FACTOR
29.92 or higher	180	None
29.91 to 29.42	185	500'
29.41 to 28.92	190	1000'
28.91 to 28.42	195	1500'
28.41 to 27.92	200	2000'
27.91 to 27.42	205	2500'
27.41 to 26.92	210	3000'

FOR EXAMPLE — altimeter setting 29.41, change must be made no lower than FL 190.

4. ALTIMETER ERROR CORRECTIONS

To maintain a desired altitude/FL the pilot will compute and apply the altimeter system (position) error contained in the pilot's flight manual applicable to the particular type and model aircraft. Temperature error should be considered only with respect to insuring that actual altitude of the aircraft permits ample clearance of the terrain and obstructions. Any change in assigned altitude/FL to compensate for temperature error must first be approved by ATC.

- Pilots shall read back all altimeter settings received from approach control agencies when inbound during penetrations, letdowns, entering and departing holding patterns, and during all approaches to a landing. (Exception: When under the control of the final controller on a GCA approach and the pilot has been released from further transmission requirements).

J. AIRWAY SYSTEMS

- The LF/MF and VOR/VORTAC Airways which constitute the low altitude system are 8 NM in width and extend from

700 feet (except where designated at higher altitudes) above the surface up to 18,000 ft MSL.

- The LF/MF system of airways is designated on aeronautical charts by number and color. Green and Red airways are plotted east and west. Amber and Blue airways are plotted north and south. This system, which is incompatible with the VOR/VORTAC system, is being phased out at a rapid rate now that the VOR/VORTAC system is nearing completion and an increasing number of aircraft are capable of receiving VOR/VORTAC signals.
- The VOR/VORTAC system consists of "main" airways and "alternate" airways. Main airways normally are designated on a straight line between successive omnirange stations. Alternate airways are laid out on the side of the main airway, usually departing from the main airway at an omnirange station at an angle of at least 15° and returning at an angle of at least 15° at the new omnirange station. Alternate airways are designated primarily for the purpose of establishing lateral separation between aircraft operating on IFR flight plans, when traffic conditions on the particular airways segment necessitate such action by ATC. Airways which run generally north and south have odd numbers, and those which run generally east and west have even numbers. A segment of an airway which is common to two or more routes carries the numbers of all the airways which coincide for that segment. Alternate airways are identified by their location with respect to the associated main airway. "Victor 9 West" indicates an alternate airway associated with, and lying to the west of, Victor 9. Since there are a number of west alternate airways along Victor 9, a traffic clearance specifying Victor 9 West must include the names of the omniranges forming the particular alternate airway to be used so that there will be no doubt.
 - VOR/VORTAC changeover points are established on some VOR airways in order that pilots will not continue to use the radio guidance display from one facility in the same airspace that other aircraft are using radial guidance from a different facility. These points are based on signal coverage provided by each respective VOR along direct airway segments. The changeover point symbol, as depicted on the Enroute-Low Altitude Charts, indicates the location in nautical miles between two VOR's along a direct Victor airway at which the aircraft receiver should be tuned to the station ahead.
 - Pilots operating via the low altitude Victor airways system will obtain track guidance by reference to the closest VOR/VORTAC aid forming the airway route segment, except when reference to a specific VOR/VORTAC aid is indicated by a radio changeover point on Enroute Charts.
 - VOR/VORTAC/TACAN radials which are not usable for direct enroute track determination because of terrain or other factors, will be defined in appropriate NOTAMS. ATC will not authorize use of such a radial beyond the distance/s or altitude/s publicized.
 - Preferred routes of flight have been designated in the low altitude system and will generally coincide with existing VOR/VORTAC Federal Airways. Descriptions of Preferred Routes are listed in FLIP Planning, Section II, U. S.

NOTE: Aircraft operating IFR on both the LF/MF and VOR/VORTAC airways will fly the centerline of the airway.

III. ENROUTE**K. COURSE CHANGES WHILE OPERATING
UNDER INSTRUMENT FLIGHT RULES
BELOW 18,000' MSL**

1. In the development of the two-level airspace structure which became effective 17 September 1964, the Federal Aviation Administration (FAA) considered the probability of an aircraft exceeding the airway/route boundaries while making course changes at different speeds. The normal navigational aid spacing for airways/routes below 18,000 feet MSL is 80 nautical miles and the airspace area to be protected has a total width of 8 nautical miles, 4 nautical miles each side of centerline, within 51 nautical miles of the facility. Beyond 51 nautical miles the 4.5 degree accuracy factor determines the width of the airways/routes (approx. 2 NM in total width every 13 NM). It was evident that aircraft operating in excess of 290 knots true airspeed (TAS) could exceed the normal airway/route boundaries depending on the amount of course change required, wind direction, and velocity, the character of the turning fix (distance measuring equipment, overhead navigation aid, or intersection), and the pilot's technique in making a course change. For example, a flight operating at 17,000 feet MSL with a TAS of 400 knots, a 25 degree bank, and a course change of more than 40 degrees would exceed the width of the airway/route; i.e., 4 nautical miles each side of centerline. As a result, the FAA: (1) took action to assure proper obstruction clearance for all known turning operations, and (2) provided additional instrument flight rules (IFR) separation protection for turns.
2. In the airspace at and above 18,000 feet MSL additional IFR separation protection is provided for turns. However, in the airspace below 18,000 feet MSL, where operations in excess of 290 knots TAS are less prevalent, the provision of additional IFR separation in all course change situations for the occasional aircraft making a turn in excess of 290 knots TAS creates an unacceptable waste of airspace and imposes a penalty upon the preponderance of traffic which operate at low speeds. Pilots are reminded that special attention must be given to the matter of making course changes so as to adhere as closely as possible to the airway/route being flown.

L. JET ROUTE SYSTEM

1. Navigation within the Jet Route System 18,000 ft MSL through FL 450 is conducted on designated high altitude facilities. A network of these facilities has been selected to establish the Jet Route System. Pilots operating via Jet Routes will obtain track guidance by reference to the closest VOR/VORTAC aid forming the route segment, except when reference to a specific VOR/VORTAC aid is indicated by a radio changeover point on Enroute Charts. VOR/VORTAC/TACAN radials which are not usable for direct enroute track determination because of terrain or other factors, will be defined in appropriate NOTAMS. ATC will not authorize use of such a radial beyond the distance/s or altitude/s publicized.
2. It is not necessary for aircraft to adhere to the route structure to receive air traffic control service. Operations may be conducted off the Jet Routes, provided the aircraft will be flown on a route defined as a direct course between two high altitude navigation aids.
3. When it is necessary to avoid certain areas, such as restricted areas, an intersection defined by radials of two high altitude aids may be used. Such intersections must not be more than 130 NM from either aid between FL 180 to FL 450 or 100 NM from either aid above FL 450 and will be defined in the flight plan by each of the specified radials.

4. Other navigation aid not designated as high altitude facilities may be used for routing or navigating aircraft to and from the Jet Route System.

M. HIGH ALTITUDE AREA SYSTEM

1. The airspace structure above FL 450 is designed to permit free selection of routes. For this reason, this structure contains no airways or predetermined routes. Navigation may be conducted via the navigation aids serving the Jet Route System provided the aids selected to define the routes are not more than 200 NM apart.
2. The route of flight above FL 600 will contain at least one fix within each center's area through which flight is planned without regard to distance between fixes. The fixes designated will be in relation to navaids depicted on enroute high altitude charts. Position reports and estimates may be requested in the event radar tracking is not possible and a crossing of courses will occur. Fixes used are not compulsory reporting points.

N. POSITIVE CONTROLLED AREA

1. **POSITIVE CONTROL AREAS** — extend from FL 240 up to FL 600 inclusive. They are depicted graphically on high altitude charts.
 2. The following rules and procedures apply to flight operations within these areas:
 - (1) Complete IFR flight procedures will prevail with prior ATC approval mandatory.
 - (2) All VFR activities are prohibited, including climbs' descents, and VFR-on-Top operations on IFR flight plans.
 - (3) All aircraft shall be equipped with a coded radar beacon transponder, having a Mode 3, Code capability, which shall be operated to reply to Mode 3 interrogation with the code specified by ATC: Provided, that in the event a radar beacon transponder failure is experienced in flight, ATC may approve operation within positive control area.
 - (4) All aircraft must be equipped with radio equipment capable of providing direct pilot-controller communications on the frequencies specified by ATC for the sector in which flight is conducted. Pilots will monitor assigned ATC frequency and request ATC permission prior to any change. This includes aircraft in formation and those operating in altitude reservations.
 - (5) Local flying areas will be established within the positive control area to permit activities which are not readily adaptable to air traffic control. This would include activities in which aircraft do not maintain constant heading and/or altitude. That is, local areas are not restricted areas but will be open to any user, traffic permitting. ATC clearance is required and aircraft will be assigned a FL or group of levels by ATC, depending on the activity. Using military activities may schedule aircraft to operate in local flying areas in excess of the quantities that can be accepted by ATC, subject to Military Assumption of Responsibility for Separation of Aircraft (MARS). In this event, participating aircraft must remain in VFR conditions to preclude collision with other aircraft in the local areas.
 - (6) Radius of action flight plans may be approved consistent with traffic conditions. However, pilots should be prepared to convert to point-to-point routing should radius clearance be refused.
 - (7) Altitude reservations will continue to apply within the Positive Control Areas.

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b. Procedures for entering and departing Positive Control Areas:

- (1) Pilots operating on IFR flight at an assigned FL require no additional clearance.
- (2) Pilots operating VFR and VFR-on-top (on IFR flight plan) must obtain an ATC clearance with an assigned FL prior to entering positive control areas. An abbreviated flight plan containing the following information must be provided ATC at least 30 minutes prior to estimated penetration:
 - (a) Identification
 - (b) True air speed (TAS)
 - (c) VFR position and altitude/flight level
 - (d) Estimated time and point of penetration
 - (e) Requested route and flight level
- (3) When flight inbound to destination is VFR-on-Top above the positive control area or departure from the area is to be IFR/VFR-on-Top, only the discrete frequency of the sector of arrival or departure need be preset.
- (4) Upon departing the area, IFF/SIF should be reset to the proper Mode 3 Code as assigned by ATC.
- (5) Pilots flying aircraft without manual tuning capability should preset required frequencies prior to departure. If, after presetting required frequencies, communications cannot be made or maintained on sector discrete frequencies, contact will be made thru the nearest FSS on frequency 255.4 mc (272.7 mc may be available).

IV. JET ADVISORY AREAS

To increase the safety of jet air carrier flight operations, "jet advisory areas" have been designated wherein "flight following" and "traffic advisory" service is provided. These areas are divided into two categories; radar jet advisory areas and nonradar jet advisory areas. They are distinctly identified on the Enroute High Altitude Charts. Jet advisory areas are 14 NM on each side of the route center line.

1. The following procedures apply while operating into, along, or within these areas:

CAUTION—to insure proper operation of radar beacon (SIF) the flight leader should check the SIF of at least one aircraft in the flight with a ground station prior to operations in radar jet advisory areas. In the absence of a positive check of SIF operations, ATC clearance is required prior to operation in or through such areas.

a. Radar Jet Advisory Areas — FL 240 to 410 inclusive unless otherwise specified on the chart.

- (1) Aircraft with operational SIF — no change from procedures set forth in the Radar Beacon section.
- (2) Aircraft not equipped with operational SIF — Before entering on VFR or VFR-on-Top clearance, obtain authorization from the appropriate ARTC Center by direct communication with it or relay through the nearest FSS or the controlling ADC facility. In the event of two-way communications failure which precludes obtaining authorization to operate within specified jet routes, the flight may proceed ACROSS these routes maintaining an appropriate VFR cruising flight level as specified in FAR 91 or AFM 60-16 for the direction of flight.

b. Nonradar Jet Advisory Areas — FL 270 to 310 and 370 to 410 inclusive.

- (1) No change in procedures for operations conducted under IFR is required, provided ATC has cleared the flight to maintain an assigned FL.
- (2) IFR flights cleared by ATC to maintain VFR conditions on top and VFR flights must initiate a request to, and receive approval from, the appropriate ARTC Center prior to operating within Nonradar Jet Advisory Areas. Requests for approval to cross, operate within or along these areas should be directed to the ARTC Center in whose areas of jurisdiction the penetration will occur.
- (3) When no civil turbojet air carrier flight is transiting the areas, ATC will honor requests to enter the airspace utilizing the following phraseology: (IDENT) THIS IS DENVER CENTER, NO CIVIL JET TRAFFIC REPORTED. VFR FLIGHT ACROSS JET ROUTE (NUMBER) APPROVED.
- (4) When a civil turbojet air carrier is transiting the areas, the VFR or VFR-on-Top flight will be advised of the direction, position and flight level of the civil jet and the flight level(s) at which crossing can be approved utilizing the following phraseology: (IDENT) THIS IS DENVER CENTER, UNABLE TO APPROVE FLIGHT LEVEL ACCOUNT CIVIL JET TRAFFIC ESTIMATED DENVER (TIME) AT FLIGHT LEVEL VFR FLIGHT AT OR ABOVE FLIGHT LEVEL ACROSS JET ROUTE (NUMBER) APPROVED.
- (5) ARTC Centers will provide standard nonradar separation for civil jet flights from all other flights cleared at an assigned flight level and from VFR or VFR-on-Top flights authorized to transit these areas.
- (6) In the event two-way communications failure precludes obtaining authorization to operate within these areas, they will be avoided. If, however, approval to enter the area has been received prior to loss of communications the pilot should proceed in accordance with the approval received.
- c. VFR Climb and Descent in Radar and Nonradar Jet Advisory Areas.
- (1) ATC clearance to climb or descend in VFR conditions or ATC clearance to maintain VFR-on-Top does not constitute specific authorization to operate within or across jet advisory areas.
- (2) Aircraft equipped with SIF do not require special clearance in Radar Jet Advisory areas.

NOTE: The Administrator, Federal Aviation Administration has designated these procedures as standing air traffic control instructions.

P. RESTRICTED AREA PROCEDURES

1. FLIGHT CLEARANCE THROUGH RESTRICTED AREAS

- a. ATC is responsible for aircraft clearance through, or alternate routing to avoid, restricted areas when a pilot files and flies an IFR flight plan.
- b. For restricted areas which are not joint use, or for areas not controlled by ATC, the pilot filing an IFR or VFR-on-Top flight plan must obtain prior clearance from the using activity. Failure to advise ATC that clearance has been obtained will result in ATC routing to avoid the area. An exception applies to aircraft flying in accordance with an approved ALTRV.
- c. When flying VFR, the pilot is responsible for obtaining approval from the using or controlling agency prior to penetration or transit of a restricted area.

III. ENROUTE

Q. AIR DEFENSE IDENTIFICATION ZONES (ADIZ) PROCEDURES

1. FILING OF FLIGHT PLANS

a. When a flight penetrates or operates within a coastal or Domestic ADIZ or DEWIZ, a DVFR (Defense Visual Flight Rules) or IFR flight plan will be filed in writing or by telephone with an appropriate aeronautical facility prior to take-off.

b. Authorized Exceptions:

- (1) Flights, regardless of altitude, operating into or within the Coastal and Domestic ADIZs north of 28 degrees north latitude or west of 85 degrees west longitude at a true airspeed of less than 180 knots.
- (2) Flights, regardless of altitude, operating into or within the Alaskan DEWIZ at a true airspeed of less than 180 knots, providing such flights maintain a listening watch at the appropriate frequency.
- (3) Flights, originating in any part of the continental United States except the State of Alaska, which maintains an outward bound track through the Southern Border ADIZ and which do not penetrate a Coastal ADIZ.
- (4) Flights which remain within ten nautical miles of the point of departure.
- (5) Flights conducted over any island or within three nautical miles of the coastline of any island located within the Hawaiian Coastal ADIZ.
- (6) Flights conducted wholly within the boundaries of an ADIZ, or flights conducted in accordance with special procedures prescribed by appropriate military authorities, may be exempted on a local basis only after coordination with FAA ARTCCs and concurrence of appropriate air defense or other military commanders concerned.

NOTE: In the event of the declaration of an Air Defense Emergency, SECURITY CONTROL RULES will become effective. These rules are included in the published SCATANA PLAN.

- (1) No deviation will be made from a DVFR or IFR flight plan unless prior notification is given to an appropriate aeronautical facility.
- (2) DVFR flights without two-way radio communication may be conducted provided:
 - a. The flight is conducted in accordance with a filed DVFR flight plan which contains the route, altitude and the estimated time to penetration and point of penetration, and
 - b. The departure is effected within five minutes of the filed estimated time of departure.

2. REVISION OF FLIGHT PLANS

Transmit corrected information to appropriate aeronautical facility immediately if it becomes evident that flight plan cannot be adhered to (see below for allowable Tolerances for Adherence to Flight Plan or Air Traffic Clearance.)

3. ADIZ POSITION REPORT

a. IFR FLIGHTS OUTSIDE AIR TRAFFIC CONTROL AREAS AND DVFR FLIGHTS (WITH TWO-WAY RADIO)

(1) Penetration shall not be effected until a report is made of the time, position and altitude at which the aircraft passed the last reporting point prior to penetration and a report is provided of the estimated time of arrival over the next appropriate reporting point along the route of flight. If no reporting points are available along the route of

flight, the pilot shall provide an estimate of the time, position and altitude at which he will penetrate. This report will be made no sooner than 30 minutes and not later than 15 minutes before penetration. Position reports will be made at least once an hour while within an ADIZ, unless more frequently required.

(2) If the airport of departure is in such proximity to the ADIZ boundary to preclude compliance with the above, the pilot shall report, immediately after taking off, the time of departure, altitude, and an estimate of the time of arrival over the first reporting point over the intended route of flight.

4. ALLOWABLE TOLERANCES FOR ADHERENCE TO ADIZ FLIGHT PLAN FOR AIR DEFENSE

- a. Time — Plus or minus five minutes from an estimate over a reporting point or point of penetration. Pilots departing from an airfield which has no tower facility will be required to make good a departure time within plus or minus five minutes of that proposed in the flight plan.
- b. Distance — Ten nautical miles from centerline of proposed route, if entering or operating within domestic ADIZ or twenty nautical miles from the centerline of proposed route if entering or operating within a coastal ADIZ or DEWIZ.
- c. Altitude Deviation — None unless an amended air traffic clearance is obtained, or, if operating where no air traffic clearance is required, prior notice is given to an appropriate aeronautical facility.

5. EMERGENCY PROCEDURES WITHIN ADIZ

In emergency situations, which require immediate decision and action for the safety of the flight, the pilot in command of the aircraft may deviate from the provisions of this part to the extent required for such emergency. When a deviation is exercised, the pilot in command shall report such deviation and the reasons therefor to an appropriate aeronautical facility as soon as practicable.

R. TWO-WAY RADIO FAILURE

1. Two-way radio failure and circumstances surrounding them are so varied that exact rules to be followed cannot be established. However, when such an emergency is encountered, the following procedures are those which the pilot will be expected to observe in order that ATC can effect the safe control of air traffic and are applicable to all types of aircraft:

During two-way radio communications failure, when confronted with a situation not covered in the regulation, pilots are expected to exercise good judgment in whatever action they elect to take. Should the situation so dictate, they should not be reluctant to use the emergency action contained in flying regulations. Pilots can expect ATC to attempt to communicate by systematically transmitting on suitable Air/Ground Radio frequencies as well as on the voice feature of all available radio navigational or approach aids. If two-way radio communications are lost with an aircraft under radar control, ATC will request the pilot to acknowledge in accordance with one of the following as appropriate:

- a. Reply with the Mode 3 ident feature.
- b. Change to a specified Mode 3 identification code 10200, 1200, 2200, 3200 or be assured that lack of a target is due to the requested change; or
- c. Change transponder to STANDBY for sufficient time for the controller to be assured that lack of a target is due to the requested change; or
- d. When the aircraft is not equipped with a functioning transponder; by executing specified turns.

III. ENROUTE

2. VFR CONDITIONS

If able to maintain flight in VFR conditions, continue flight under VFR and land as soon as practicable and notify ATC. It is not intended that the requirement to "land as soon as practicable" be construed to mean "as soon as possible." The pilot retains his prerogative of exercising his best judgment and is not required to land at an unauthorized airport, at an airport unsuitable for the type of aircraft flown, or to land only minutes short of his intended destination. The primary objective of this provision is to preclude extended IFR operations in the air traffic control system in VFR weather conditions. When operating "On Top" and unable to descend VFR prior to the destination, the procedures contained in the following paragraph (IFR CONDITIONS) are applicable.

3. IFR CONDITIONS

If the failure occurs in IFR conditions, or if VFR conditions are not encountered after the failure or paragraph R2 cannot be complied with, each pilot shall continue the flight according to the following:

a. ROUTE

- (1) By the route assigned in the last ATC clearance received;
- (2) If being radar vectored by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;
- (3) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or
- (4) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

b. ALTITUDE

At the highest of the following altitudes or flight levels:

- (1) The altitude or flight level assigned in the last ATC clearance received;
- (2) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in paragraph III-II) for IFR operations; or
- (3) The altitude or flight level ATC has advised may be expected in a further clearance.

c. CLIMB

When it is necessary to climb in order to comply with subparagraph b of this paragraph, the following applies:

- (1) Climb to the assigned altitude or flight level in accordance with the last ATC clearance received;
- (2) Climb to the minimum altitude for IFR operations at the time or place necessary to comply with the minimum; or
- (3) Climb to the altitude or flight level ATC has advised may be expected in a further clearance at the time or place included in the expected-further-clearance.

d. LEAVE CLEARANCE LIMIT/HOLDING FIX

If no holding instructions have been received, continue to the facility/fix serving destination airport at last assigned or minimum enroute altitude (MEA), whichever is higher. If holding instructions have been received, leave the holding fix at the expect-further-clearance time received, or, if an expected approach clearance time has been received, leave the holding fix in order to arrive over the fix from which the approach begins as close as possible to the expected approach clearance time.

e. DESCENT

Begin descent from the enroute altitude or flight level upon reaching the fix from which the approach begins, but not before —

- (1) The expected-approach-clearance time (if received); or
- (2) If no expected-approach-clearance time has been received, at the estimated time of arrival, shown on the flight plan, as amended with ATC.

f. HOLDING

If holding is necessary at the radio facility/fix to be used for the approach at the destination airport, holding and descent to the initial altitude or initial penetration altitude/flight level for the execution of the penetration and/or instrument approach shall be accomplished in a holding pattern in accordance with the procedure depicted on the approach and landing chart or jet approach and landing chart for the airport. If no holding pattern is depicted, holding and descent will be accomplished in a holding pattern on the side of the final approach course to the fix on which the procedure turn is prescribed.

e. SPECIAL MILITARY PROCEDURES

- (1) Aircraft, on a flight in which a delay enroute is planned, shall commence descent at the destination, at the estimated time of arrival (ETA) derived from the estimated time enroute (ETE) plus any delay for which an ATC clearance has been obtained.

EXAMPLE NO. 1. Point-to-point flight plan, from A to B to C to D (airport of destination). Estimated elapsed time enroute specified in flight plan is three hours (A to D). Remarks indicate proposed two hour local flight at B and one hour local flight at C. On departure, flight is cleared to D (or a short-range clearance limit). If radio communications failure is experienced prior to reaching B, flight should proceed to destination in accordance with established radio communications failure procedures. If the flight has obtained an amended clearance, authorizing a two-hour delay at B, and experiences radio communications failure prior to reaching B or after local flight is begun, local flight at B will be completed. Local flight at C will not be executed.

EXAMPLE NO. 2. Round Robin flight plan from Point A to B to C and back to A. Estimated elapsed time enroute specified in flight plan is three hours (A to A). Remarks indicate one hour local flight at B and one hour local flight at A prior to landing. Action governing delay at B would be as indicated in example #1. If the flight is cleared for local flight at A and subsequently experiences radio communications failure, local flight will be completed before beginning letdown.

(2) AERIAL REFUELING

(a) Tanker aircraft which have received authorization from ATC to conduct refueling operations involving more than one altitude/flight level and have not received clearance beyond the refueling track should exit the track at the highest altitude/flight level specified in the clearance for the refueling portion of the flight and proceed in accordance with radio communications failure procedures.

(b) Receiver aircraft which have received authorization from ATC to conduct refueling operations involving more than one altitude/flight level and have not received clearance beyond the refueling track should exit the track at the lowest altitude/flight level specified in the clearance for the refueling portion of the flight and proceed in accordance with radio communications failure procedures.

III. ENROUTE

(3) OIL BURNER. Aircraft which have been cleared for descent to the low altitude/s of the route shall maintain the altitude/s specified for the route. Aircraft which have not been cleared to descend to the Oil Burner route low altitude/s shall maintain the last assigned altitude/flight level and proceed in accordance with radio communications failure procedures.

(4) TURBOJET ENROUTE DESCENT. When a two-way communications failure is experienced during an enroute descent, proceed to the initial approach fix/radio facility to be used for the approach at destination airport at the last assigned altitude or the minimum safe altitude, whichever is higher, and from that altitude execute the published penetration in lieu of climbing to the initial approach altitude.

S. HOLDING PROCEDURES

The following procedures comply with the intent of Aircraft Holding Pattern Procedures established by the FAA and are to be used by USAF/USN pilots.

The standard no-wind holding pattern is flown by following a specified holding course inbound to the holding fix, making a 180° turn to the right, flying a heading outbound to parallel the holding course, and making another 180° turn to the right to intercept and follow the holding course to the fix. The holding pattern is non-standard when the turns are made to the left. Unless otherwise instructed by ATC, pilots are expected to hold in a standard pattern. The standard no-wind length of the legs of the holding pattern, except TACAN holding, is one minute at or below 14,000 ft and one and one-half minutes above 14,000 ft. The length of the legs while using TACAN is specified in nautical miles.

1. AIRSPEED

Pilots will not exceed the following maximum airspeeds while in the holding pattern:

a. Prop-Driven A/C (including Turboprop)

(Except as listed in b(4) below) 175 Knots IAS

b. Jet A/C (Except as listed in (4) below)

(1) All (except A/C listed below in

(2) and (3) 230 Knots IAS

(2) *F-100, F/RF-84, F-102, F-104, F-106, T-38, F4, F8, A5 and F11 265 Knots IAS

(3) *F-100, F/RF 101, F-105 and B-58 310 Knots IAS

(4) Turboprop aircraft may operate at normal climb IAS while climbing in a holding pattern and turbojet aircraft may operate at 310K IAS or less while climbing in a holding pattern.

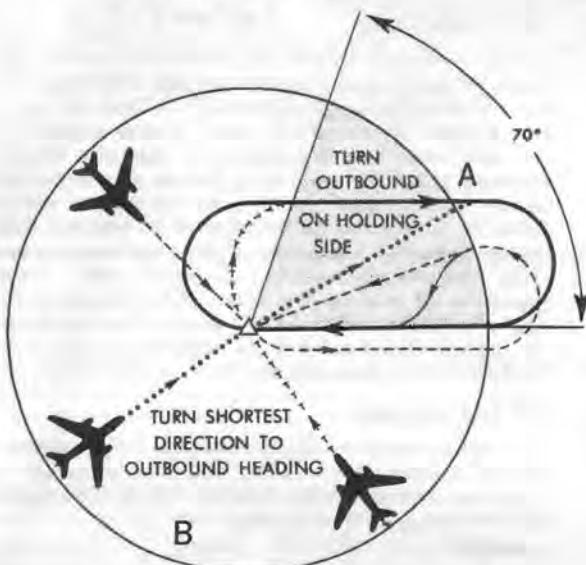
*Holding speed category of F-100 depends upon weight and drag configuration.

c. When a flight is assigned a clearance limit short of destination, ATC is required to issue holding information or authorize flight beyond it, at least five minutes before the aircraft is estimated to reach the clearance limit. When a clearance is not received by the time a flight is three minutes from the clearance limit the pilot is expected to reduce airspeed so as to cross the clearance limit at or below maximum holding speed. If the situation requires an airspeed greater than the maximum allowed for holding, notify ATC so that appropriate separation may be applied.

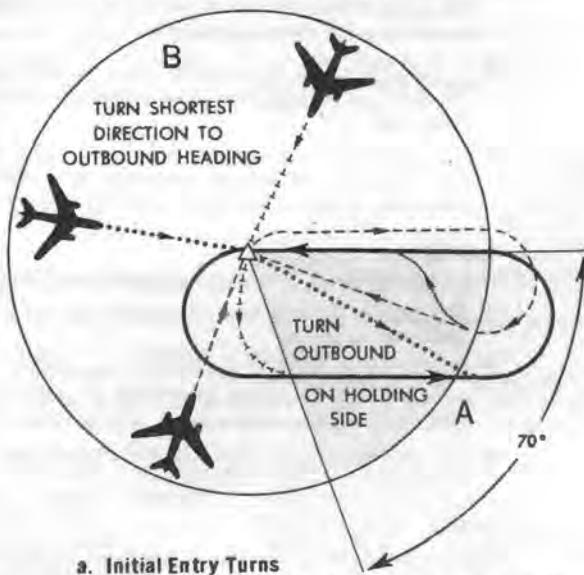
2. HOLDING PATTERN ENTRY

The aircraft is considered to be in the holding pattern at the time of initial passage of the holding fix. All turns during entry to the holding pattern will be made at a rate of 3° per second or 30° angle of bank, whichever requires the least angle of bank. The direction to turn at initial holding fix passage is dependent upon aircraft heading. An illustration of the two sectors (A & B) associated with entry procedures is shown below.

STANDARD PATTERN



NON-STANDARD PATTERN



a. Initial Entry Turns

- (1) When entering the holding pattern from Sector A, turn to proceed outbound, on the holding side, parallel to the inbound holding course.
- (2) When entering the holding pattern from Sector B, turn in the shorter direction to proceed outbound, parallel to the inbound course. If this places the aircraft on the non-holding side at completion of the outbound leg, turn towards the holding side.
- (3) The teardrop entry may be used at the pilot's discretion when fix passage is on a heading conveniently aligned with the teardrop course. The teardrop course is 30 degrees outbound from the holding course and on the holding side. Course interception is not mandatory prior to turning inbound.

NOTE: Holding pattern entry diagrams shown on high altitude instrument approach charts are provided as a pilot convenience. The sector B division into TD (Teardrop), RT (Right Turn), and LT (Left Turn) sectors is consistent with the intent of the above criteria. Note, however, that entry paths adjacent to the TD sector boundaries involve consideration of para. (3) provisions.

III ENROUTE

- b. **Timing** — The first outbound leg after initial holding fix passage will not exceed one minute at or below 14,000 ft and one and one-half minutes above 14,000 ft. When turning inbound the first time, proceed direct or intercept the holding course to the fix. When using TACAN for holding, the outbound leg will not exceed the specified length in nautical miles.
- c. **Holding Without Instructions** — Upon arrival at a clearance limit without further clearance and without holding instructions, hold in a standard holding pattern on the course on which the aircraft approached the fix. Maintain the last assigned altitude/flight level until further clearance is received. The procedure to apply when lost communications are experienced is covered elsewhere in this section.

3. CORRECTING FOR WIND

- a. **Crosswind Correction** — After entering the holding pattern the pilot is expected to compensate for a known effect of wind in order to arrive at an outbound position from which a turn inbound will place the aircraft on the holding course. This may be accomplished by shallowing the turns into the wind and steepening the turns downwind 1° for each degree of drift correction necessary to maintain the inbound course. In no case, however, should the angle of bank be shallowed to less than 15° nor steepened more than 30°. Normally the inbound and outbound drift correction should be the same; however, if further compensation is required, the drift correction outbound may be adjusted.
- b. **Headwind/Tailwind Corrections** — After completing the first circuit of the holding pattern, adjust the time outbound as necessary to provide inbound times of not more than one minute at or below 14,000 ft, or one and one-half minutes above 14,000 ft.

NOTE: Exception For Extreme Outbound Tailwinds. In extreme wind conditions, even though the turn inbound is initiated when abeam the station, the inbound leg may exceed the one or one and one-half minute limit. In this case only is the pilot authorized to exceed the time limit inbound.

IV. ARRIVAL

A. VIP ARRIVAL

It is the responsibility of each aircraft commander transporting VIPs to insure that flight plans reflect high rank on board and follow-up reporting is made approximately 15 min prior to arrival at destination base. Follow-up action is essential to preclude any embarrassment to the VIP, the station commander, or the aircraft commander, himself.

B. TURBOJET ENROUTE DESCENT

1. A turbojet enroute descent is a descent from an enroute altitude to the final approach of an established procedure without execution of the penetration maneuvers prescribed in the FLIP High Altitude Terminal instrument approach procedures publication. Its purpose is to expedite the movement of air traffic. The type of final approach to be conducted (PAR, ASR, ILS, etc.) should be understood by pilot and controller prior to commencing descent.

2. An enroute descent may be requested as follows: REQUEST ENROUTE DESCENT TO (destination airport). This service may also be initiated by the controller, in which case he must advise the pilot of his intent to provide this service. The pilot may refuse the service in favor of a published high altitude approach procedure.
3. Controllers are not to authorize an enroute descent if other than normal vectoring delays are anticipated. When an enroute descent is authorized the controller may not terminate it without the consent of the pilot except as required by radar outage or emergency situations.
4. Non-radar routings shall be comprised of only those navigational aids depicted on appropriate high altitude terminal flight information publications. The clearance limit assignment shall be a navigational aid/fix depicted on the high altitude instrument approach procedures charts from which an instrument approach can be conducted in the event of two-way communications failure.

C. SFA-UHF SINGLE FREQUENCY APPROACH

This service is provided to single-piloted jet aircraft on an IFR flight plan during the hours of darkness or when the aircraft is in instrument weather conditions. The abbreviation "SFA" will be shown after the heading "Communications" in the Enroute Supplement when procedures have been implemented by that station. Pilots receiving this service will not be required to change frequency from beginning of penetration to touchdown, except that pilots conducting an enroute penetration are required to change frequency when control is transferred from the Air Route Traffic Control Center to the terminal facility. Controllers may discontinue the service to all pilots who cancel IFR flight plans during daylight hours and to those pilots in level flight who cancel IFR flight plans at night.

D. AIRPORT TRAFFIC AREA

The following rules apply in airport traffic areas for the area from the surface up to but not including 2,000 feet:

- a. **Speed** — No person shall operate an aircraft within an airport traffic area at an indicated airspeed in excess of 156 kts (180 m.p.h.) for reciprocating engine aircraft or 200 kts (230 m.p.h.) for turbine powered aircraft unless the operating limitations or military normal operating procedures require a greater airspeed, in which case the aircraft shall not be flown in excess of such airspeed.
- b. **Communication Requirements** — No person shall take-off or land an aircraft at or enter the traffic pattern of a designated airport traffic area unless radio communication with the appropriate air traffic control facility has been established: PROVIDED, that an aircraft not equipped with functioning two-way radio may take-off or land at or enter the traffic pattern of such designated airport if prior authorization from the appropriate airport traffic control tower has been given.

E. AIRCRAFT SPEED

Arriving aircraft will not be operated at an IAS in excess of 250 knots during flight below 10,000 ft MSL within 30 nm of an airport where a landing is intended or where a simulated approach will be conducted unless the operating limitations or military normal operating procedures require a greater airspeed, in which case the aircraft shall not be flown in excess of such speed.

F. APPROACH CLEARANCES

Approach clearances will, when necessary, specify that the pilot execute a particular instrument approach. It need not, however, specify a particular procedure when it is desired to indicate that the pilot may execute an instrument approach procedure of his choice.

IV. ARRIVAL

1. The order of priority of issuance of approach clearances is normally established on the basis that the first aircraft estimated over the fixes from which approaches are commenced will be first to receive an approach clearance, followed by other aircraft in the order of their estimated or actual times of arrival over the fixes. If visual contact with the ground is made before the approach is completed, the complete approach procedure will be followed unless the pilot receives approval for a contact approach or cancels his IFR flight plan.

NOTE: It is solely the pilot's prerogative to cancel his IFR flight plan. However, a pilot's retention of an IFR flight plan does not afford priority over VFR flights. For example, this does not preclude the requirements for the pilot of an arriving IFR flight to adjust his flight path, as necessary, to enter a traffic pattern in sequence with arriving VFR flight

G. RADAR ATC PROCEDURES

Ordinarily, flights which are directed by radar will be vectored over routes which overlie navigational courses established by other navigation aids; i.e., VOR/VORTAC/TACAN and L/MF. If a pilot is given a vector taking his aircraft off a previously assigned nonradar route, he will be advised briefly what the vector is to achieve. Thereafter, radar service will not be terminated until the aircraft has been re-established "on course" using an appropriate navigational aid, and the pilot has been advised of his position.

1. When a flight has a malfunctioning directional gyro, the pilot will be advised, prior to the issuance of vectors, to make all turns at the standard rate and to execute turns immediately upon receipt of instructions.
2. The phraseology REDUCE TO APPROACH SPEED is sometimes used by radar air traffic controllers as a means of insuring separation between two aircraft in an approach area. Pilots should comply with this request whenever practicable; however, the final decision whether or not to reduce speed rests with the pilot who must consider aircraft performance capability, applicable aircraft operating manuals and existing flight conditions. Advise the controller if impractical to comply with his request to REDUCE TO APPROACH SPEED in order that he can take an alternate course of action. (Approach speed is the minimum speed, consistent with safety for that portion of the approach being flown.)

H. AIRPORT TRAFFIC CONTROL

Arriving aircraft not radio equipped, or unable to maintain radio communication, should fly along the side of the landing runway, 1000' above field elevation, rocking wings until it reaches the end of the runway. Then break to downwind and check mobile and/or tower for green light on downwind and final approach.

I. AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS)

1. Automatic Terminal Information Service is the continuous broadcast of recorded noncontrol information in selected high activity terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information.
2. Pilots of aircraft arriving or departing the terminal area can receive the ATIS broadcasts on designated VHF frequencies at times when cockpit duties are least pressing. Content consists of such items as ceiling, visibility, wind, altimeter, instrument approach and runway in use.
3. ATIS messages are identified by the aerodrome name and a phonetic alphabet code word (Alpha, Bravo, Charlie, etc.). Pilots should repeat the code word on initial contact with the tower or approach control to obviate the need for retransmission. Terminal controllers will issue pertinent information to pilots who do not acknowledge receipt of the ATIS message, or who acknowledge receipt by an alphabet code word which is not current.
4. Aerodromes currently providing ATIS are indicated on Enroute Chart with assigned frequency.

J. VISUAL SIGNALS

The following visual signals are used by airport traffic control tower personnel when radio contact with an aircraft cannot be established.

Directional Light Towards The Air- craft Concerned	Aircraft In Flight	Aircraft On The Ground
Alternating Red & Green	General Warning Signal	Exercise Extreme Caution
Steady Green	Cleared to Land	Cleared for Take-off
Steady Red	Give Way to Other Aircraft and Con- tinue Circling	Stop
Series of Green Flashes	Return for Landing*	Cleared to Taxi
Series of Red Flashes	Aerodromes Unsafe, Do Not Land	Taxi Clear of Landing Area in Use
Series of White Flashes		Return to Starting Point on the Aerodrome
Red Pyrotechnical Light	Notwithstanding any Previous In- structions, Do Not Land For The Time Being	

*Authorization to land will be thereafter given as a steady green light.

IV. ARRIVAL

K. CLOSING OF FLIGHT PLAN(FAA)

The pilot must insure that the proper agency is notified of flight termination:

1. **AT MILITARY INSTALLATIONS:** The pilot should verbally confirm the closing of his flight plan with Tower or Base Operations personnel.
2. **AT NON-MILITARY INSTALLATIONS:** The pilot closes the flight plan with Flight Service through any means of communications available. Collect long distance telephone service may be used.

V. EMERGENCY ASSISTANCE FOR DISTRESSED AIRCRAFT

AUTOMATED MERCHANT VESSEL REPORT SYSTEM (AMVER) SCOPE

The Automated Merchant Vessel Report (AMVER) System is an international maritime mutual assistance program. It provides important aid to the development and coordination of search and rescue (SAR) efforts in the offshore ocean areas of the world during marine and aviation emergencies. Merchant ships of all nations are encouraged to voluntarily send sailing and position reports during offshore passages to the AMVER Center in New York through cooperating radio stations made available by participating countries. Information from these and meteorological reports is entered into the AMVER electronic computer which generates and maintains dead reckoned positions for the participating ships. Characteristics of ships which are valuable for determining search and rescue capability are also stored in the computer. Information concerning predicted locations and characteristics of ships plotted near the scene of an actual or potential emergency is made available to recognized SAR agencies of any nation or person in actual or potential distress for use during an emergency. Predicted positions and identification of ships are disclosed only for reasons related to maritime safety.

OBLIGATION OF PARTICIPATING SHIPS

Ships in no way obligate themselves to provide assistance solely by reason of voluntarily participating in the AMVER System. All assistance is provided in accordance with international agreements and customs. The coverage, density, accuracy and use of the AMVER ship plot information increases with additional communication capability and increased participation by ships. AMVER information assists in more effective use of assistance available to help resolve an emergency and makes possible advance planning should an incident or alert develop into an emergency. Rescue agencies should not normally direct ships to provide assistance but they may be requested to assist in appropriate situations.

SURFACE PICTURES

The basic service provided for use during emergencies is the Surface Picture (SURPIC). A SURPIC is a list of ships with SAR characteristics predicted by the computer to be within a specified geographical region at a specified time, present or future. There are three types of SURPICS:

Radius — specified by datum point identified by latitude and longitude and the radius in miles. Ships are arranged in order of predicted distance from datum.

HI-LO — a rectangle whose sides are specified by the latitude and longitude of two opposite corners.

Trackline — specified by the latitude and longitude of the origin and the termination point of a rhumb line or great circle track and a half-width in miles. Ships are arranged in order along the track.

NOTE: See Sample Surface Picture.

USE OF SURPICS BY AIRCRAFT

SURPICS are useful to aircraft commanders during an alert or emergency situation by assisting in making contingency plans in case the situation should deteriorate rapidly into a distress and a ditching becomes imminent. Since AMVER positions are predicted, actual locations of ships should be verified either visually, by radio or by radar before a decision is made to ditch or before diverting from intentions last reported to the air route controller. In many cases it will be either necessary or advisable to establish communications and arrange for assistance through the established aeronautical and coastal radio stations and cognizant coordinating authority rather than directly because of incompatibility of communication capabilities of aircraft and ships.

NETWORK OF PRECAUTIONARY TRACKLINE SURPICS IN THE PACIFIC REGION

Because of the special nature of the long overwater flights in the Pacific and Indian Oceans and the associated lack or remoteness of regular SAR facilities, special services have been provided to aviation for many years by several countries. Positions of ships participating in weather reporting schemes were used to predict future locations and this information was provided to flight briefing offices by the cognizant civil aviation authority. In the United States Pacific Maritime region this service was called SAR Plan ALFA.

On 19 May 1966, the AMVER System not only replaced SAR Plan ALFA but also began providing additional precautionary trackline SURPICS to rescue centers and international flight services stations throughout the north and south central Pacific for major international flight routes. Additional routes will be added as the AMVER plot is developed in the more remote areas. The SURPICS are prepared and distributed for a network of tracklines in the event that an emergency should develop so rapidly that time is not available to request and provide more current information. They are also useful for initial evaluation of situations pending receipt of more current SURPIC from New York AMVER Center. The special terminology and procedures formerly unique to SAR Plan ALFA are no longer applicable. Assistance using AMVER information follows standard SAR procedures which are applicable internationally. The precautionary SURPIC includes the trackline identifier made from three letter codes for international airports of departure and destination.

The precautionary trackline SURPICS are predicted for a future mean time and distributed to briefing points by governmental communication networks. Copies of the SURPICS are normally made available by the briefing station for inclusion in the pre-flight briefing kit. The plane commander can easily calculate the approximate position of ships of interest for the time estimated abeam and place the information on the navigation chart if desired. In this way the information is ready for immediate use should an emergency develop. In some cases the aircraft radar can be used to scan the general vicinity of the predicted position to confirm the existence and determine exact location of ships on the SURPIC.

AIRCRAFT PROCEDURES FOR DIRECTING SURFACE CRAFT TO SCENE OF DISTRESS INCIDENT

The following procedures performed in sequence by an aircraft mean that the aircraft is directing a surface craft toward the scene of a distress incident:

1. Circling the surface craft at least once.

V. EMERGENCY ASSISTANCE FOR DISTRESSED AIRCRAFT

2. Crossing the projected course of the surface craft close ahead at low altitude, opening and closing the throttle, or changing the propeller pitch.

3. Heading in the direction in which the surface craft is to be directed. The surface craft should acknowledge the signal by changing course and following the aircraft. If, for any reason, it is impossible to follow, the surface craft should hoist the international code flag NOVEMBER, or use any other signaling means available to indicate this.

When the following procedure is performed by an aircraft it means that the assistance of the surface craft is no longer required.

1. Crossing the wake of the surface craft close astern at a low altitude opening and closing the throttle or changing the propeller pitch.

MERCHANT VESSEL PROCEDURES FOR ASSISTING AN AIRCRAFT THAT MUST DITCH

The following are recommended procedures for assisting an aircraft that desires to ditch alongside:

BY DAY:

1. Establish a radiotelephone watch on 2182 kcs if equipped. Attempt to contact the aircraft on this frequency.

2. Maintain a radiotelegraphy watch on 500 kcs. The Rescue Coordination Center controlling the case will try to contact the ship on this frequency via a shore radio station. Communications with the aircraft may have to be relayed in this manner.

3. Be prepared to send homing signals for the aircraft on 410 kcs.

4. Provide black smoke if possible to aid aircraft in sighting the ship.

5. Post extra lookouts.

6. Prepare to stop vessel or proceed towards plane according to circumstances.

7. Have two lifeboats and lifeboat crews ready. Include in each

lifeboat two ring buoys with buoyant heaving lines, and fire extinguishers.

8. Have medicine chest, stretchers, blankets, hot drinks, and food ready.

9. Have ship's hospital prepared to receive injured persons.

10. Rig Jacobs ladders. Rig cargo net or rope mail sling on lee side amidships by cargo boom, to be used if necessary to heave up exhausted survivors. Injured persons should be left in the lifeboat to be hoisted aboard with it.

11. Be prepared to give aircraft information on weather and sea conditions. Aircraft will want to know wind direction and force; direction, height, and length of primary and secondary swell systems. If pilot selects ditch heading in sufficient time and conditions otherwise permit, lay foam path along ditching course.

12. When aircraft is in sight set course parallel to ditch heading the pilot had chosen. If not in communication with the aircraft by the time the plane is sighted and unable to obtain pilot's ditch heading, set course parallel to the main swell system and into the wind component, if any.

13. If on board, use a lifeboat or buoyant apparatus in water as a landing platform at the Jacobs ladder.

14. Instruct coxswains to recover those survivors in the water or clinging to wreckage before recovering those in liferafts.

15. Keep the Rescue Coordination Center advised by radio, prior to, and subsequent to ditching.

BY NIGHT:

In addition to procedures recommended for daytime, the following are also recommended if the emergency occurs at night:

1. Lay a string of not less than 6 ring buoys with water lights approximately 500 feet apart in a single line along the ditch heading received from the pilot. Take station two-thirds down the lighted lane off to one side. The aircraft will attempt to land close to the lighted lane. Do not use carbide water lights because of the danger of gasoline on the water.

2. Light up the ship with all fixed deck lights and rig cargo lights on masts, king posts, top of decks, etc., if possible.

3. Use searchlights as visual beacons, shining one vertically and sweeping the sky at 15° off the horizon with the other. Do not shine lights toward the aircraft at any time, since this would blind the pilot.

SAMPLE AMVER SURFACE PICTURE WITH KEY TO COLUMNS

1	2	3	4	5	6	7	8	9	10	11	12	13
USNS PECOS	NJVX	47.6N	59.4W	111200	C006	S14.0	HX	R	T	HARMON	11	
CGC MCCULLOCH	NODA	46.6N	55.6W	111200	C068	S16.0	H24	R	D	ARG NF	11	
TROLLAGOSS	TFNA	46.4N	53.7W	111200	C243	S10.5	H8	R	T	NYK	15	
BLACK CONDOR	LLHM	44.1N	52.0W	111200	C263	S14.0	HX	R	T	BSN	13	
HOOSIER STATE	KPCD	41.7N	55.1W	111200	C264	S15.0	HX	R	T	AMBROS	13	
USNS ELATANIN	KLAL	44.8N	54.9W	111200	C249	S13.0	HX	R	T	NYK	15	
CAIRNGOWAN	GNZZ	46.6N	54.6W	111200	C275	S12.0	H8	R	N	MONTRL		

Column Number Key

1	Vessel Name (Contractions are used in names of more than 17 letters)
2	International Call Sign
3 & 4	Latitude and Longitude (In whole and tenths of a degree)
5	Date/Time (GMT)
6	Course (True)
7	Speed
8	Radio Watch Schedule

H24	24 hour continuous service
H16	16 hour service ITU schedule
H8	8 hours service ITU schedule
HX	8 hour service, schedule not specified
9	Surface Radar ("R" - yes, Blank - No or unknown)
10	Doctor Aboard ("D" - yes, Blank - No or unknown)
11	Radio Telephone ("T" - yes, "N" - No, Blank - Unknown) (1605-2850 Kcs)
12	Destination (Abbreviated, limited to six letters)
13	Estimated date of arrival

V. SUPPLEMENTARY INFORMATION

A. NAVIGATION AID CLASSIFICATION

1. OPERATIONAL LIMITATIONS — The table below lists the intended interference-free service volume of the various categories of VORs, TACANs and VORTACs. Use of these facilities outside the service volume is not intended, and may therefore result in undependable or inadequate indications in the aircraft. All published routes and instrument approach procedures are frequency protected regardless of radio class designation.

RADIO CLASS DESIGNATIONS

Identification of VOR/VORTAC/TACAN Stations by class (Operational limitations).

NORMAL USEABLE ALTITUDES AND RADIUS DISTANCES

Class	Altitudes	Distances
(T)	12,000 ft and below	25 NM
(L)	Below 18,000 ft	40 NM
(H)	Below 18,000 ft	40 NM
(H)	14,500 ft- 17,999 ft	100 NM *
(H)	18,000 ft-FL 450	130 NM
(H)	Above FL 450	100 NM

* Application only east of the 105° meridian within the contiguous 48 states.

NOTE: An H facility is capable of providing (L) and (T) service volume and an (L) facility additionally provides (T) service volume.

2. ROUTE SYSTEMS — Two route systems have been established for navigational purposes in the contiguous 48 states, as follows:

- VOR AND L/MF AIRWAYS SYSTEM — Consists of airways designated from 700 ft above the surface (or in some instances higher) to but not including 18,000 ft MSL and is designed to serve aircraft which operate at these altitudes.
- JET ROUTE SYSTEM — Consists of Jet Routes established from 18,000 ft MSL to FL 450 inclusive and is designed to serve aircraft which customarily operate at these altitudes.
- Operations above FL 450 may be conducted on a point to point basis. Navigational guidance is provided on an area basis utilizing those facilities depicted on FLIP Enroute High Altitude Charts for use in the 18,000 ft MSL-FL 450 Jet Route structure.

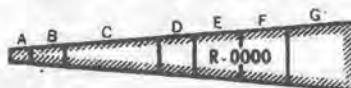
3. SELECTION OF NAVIGATION AIDS

When specifying a route other than an established airway or route, do not exceed the limitations shown in the table above on any portion of the route which lies within controlled airspace. These limitations need not be applied where radar navigational guidance is provided.

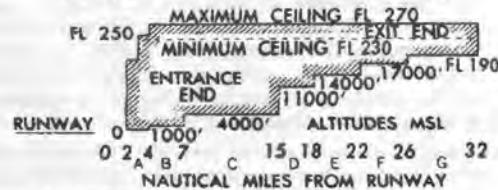
NOTE: When operating below 18,000 feet west of the 105° meridian or below 14,500 feet east of the 105° meridian, "H" aids may be used up to their interference-free distance service, even though those aids on the intended course are separated by distance greater than 80 NM. However, prior arrangement with air traffic control must be effected.

B. MILITARY CLIMB CORRIDORS (MCC)

- Military Climb Corridors (MCC) are designated in the vicinity of military interceptor airfields in view of the hazardous tactical operations involved. These corridors have the designation of restricted areas (RA).
- When the airspace concerned is not being used for air defense purposes, ATC may authorize VFR and/or IFR traffic to transit the area. This will depend on ATC's ability to provide priority handling to fighter interceptor aircraft and to obtain authorization from the controlling/using agency. Normal air traffic rules (FAR Part 91) are applicable to all non-air defense traffic operating within an RA/MCC.
- Vertical dimensions are MSL/FL, but do not extend above FL 270. Corridor dimensions may vary from that shown on the graphic profile below.



PROFILE VIEW OF A STANDARD RESTRICTED AREA/MILITARY CLIMB CORRIDOR (RA/MCC)



For VFR flight through Military Climb Corridors, consult FLIP Enroute Supplement for frequencies.

C. SERVICING

- The FLIP Enroute Supplement lists all fuels available at aerodromes and indicates whether or not these fuels are base supply and/or into plane contract. The government into plane contracts are established to support day to day into-plane operating requirements of aviation fuel and oil at non-military airports where military refueling is not available.
- Under the terms of into-plane contracts, delivery may be made of fuel and oil to any United States Government aircraft performing an official government mission whether Military, State or independent agency. Delivery is also provided to Royal Canadian Air Force and Royal Canadian Navy aircraft on official missions.
- The terms of the contracts do not include delivery to these aircraft when bailed or leased to commercial operators unless the bailor or lessor department submits to Directorate of AF Aerospace Fuels, Chemicals and Petroleum Products, Detachment 29, SAAMA (SAOMR), Cameron Station, Alexandria, Va. 22314, a request for coverage and agrees to accept reimbursement charges on Standard Form 1080.
- All servicing purchases from military airfields and those commercial airports having government contract fuel will be made on Form DD 1150.
- The ordering officer is responsible for ensuring that following data is provided on the delivery forms.
 - For Deliveries to USAF Aircraft — Home station, unit organization, name of Major Air Force Command to which the aircraft is assigned, and signature (and printed name), serial number and rank of person acknowledging receipt of quantities of product delivered, defueled or reserviced.
 - For Deliveries to Air National Guard Aircraft — Follow

VI. SUPPLEMENTARY INFORMATION

the same procedure for USAF aircraft except substitute ANG for Major Air Force Command.

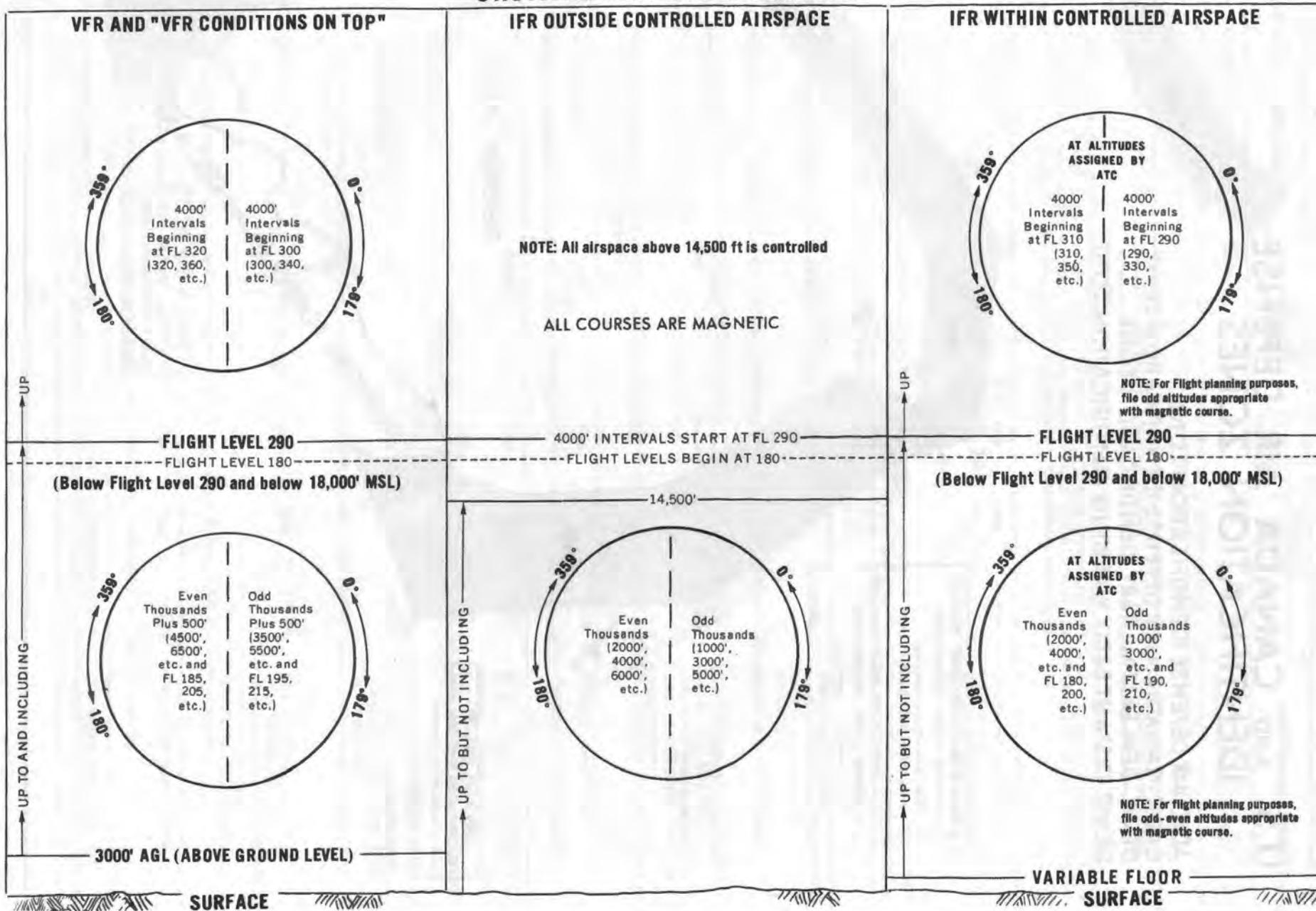
6. For Deliveries to US Navy and Marine Corps Aircraft — Necessary Navy Appropriation data, home station and unit organization to which the aircraft is assigned, and signature (and printed name), serial number and rank of person acknowledging receipt of quantities of product delivered, defueled or reserviced.
- d. For Deliveries to Army and Army National Guard Aircraft — Home station, unit organization to which the aircraft is assigned, and indicate whether Army or Army National Guard. Mailing address including zip code of station responsible for payment to the Air Force stock fund. Signature (and printed name), serial number and rank of person acknowledging receipt of quantities of product delivered, defueled, or reserviced.
8. For Deliveries to RCAF and RCN Aircraft — Home station and organization to which the aircraft is assigned, any data required by the Canadian Defense Department for identifying the delivery so that same can be processed through the RCAF-USAF Suspense Account, ("Emergency Credit Purchase Orders" will not be used for accomplishing receipts for deliveries made under these contracts), and signature and rank of the officer acknowledging receipt of quantities of product delivered, defueled or reserviced.
6. AF Form 15, "Invoice" and AF Form 15A, "Invoice Envelope" will be used by all Air Force personnel to invoice all authorized emergency purchases of necessary supplies and services for aircraft and vessels used by the Air Force when in a travel status or when carrying out sustained rescue activities from bases beyond the operational range of rescue aircraft utilizing established bases. AFR 67-24 governs the procedures to be followed for all Form 15 purchases of aviation fuel and oil.
7. Naval and Marine Corps aviators will use Standard Form 44 to obtain emergency supplies including fuel and oil from commercial sources not stocking government contract fuel. U. S. Coast Guard aviators will use Form DD-1155.

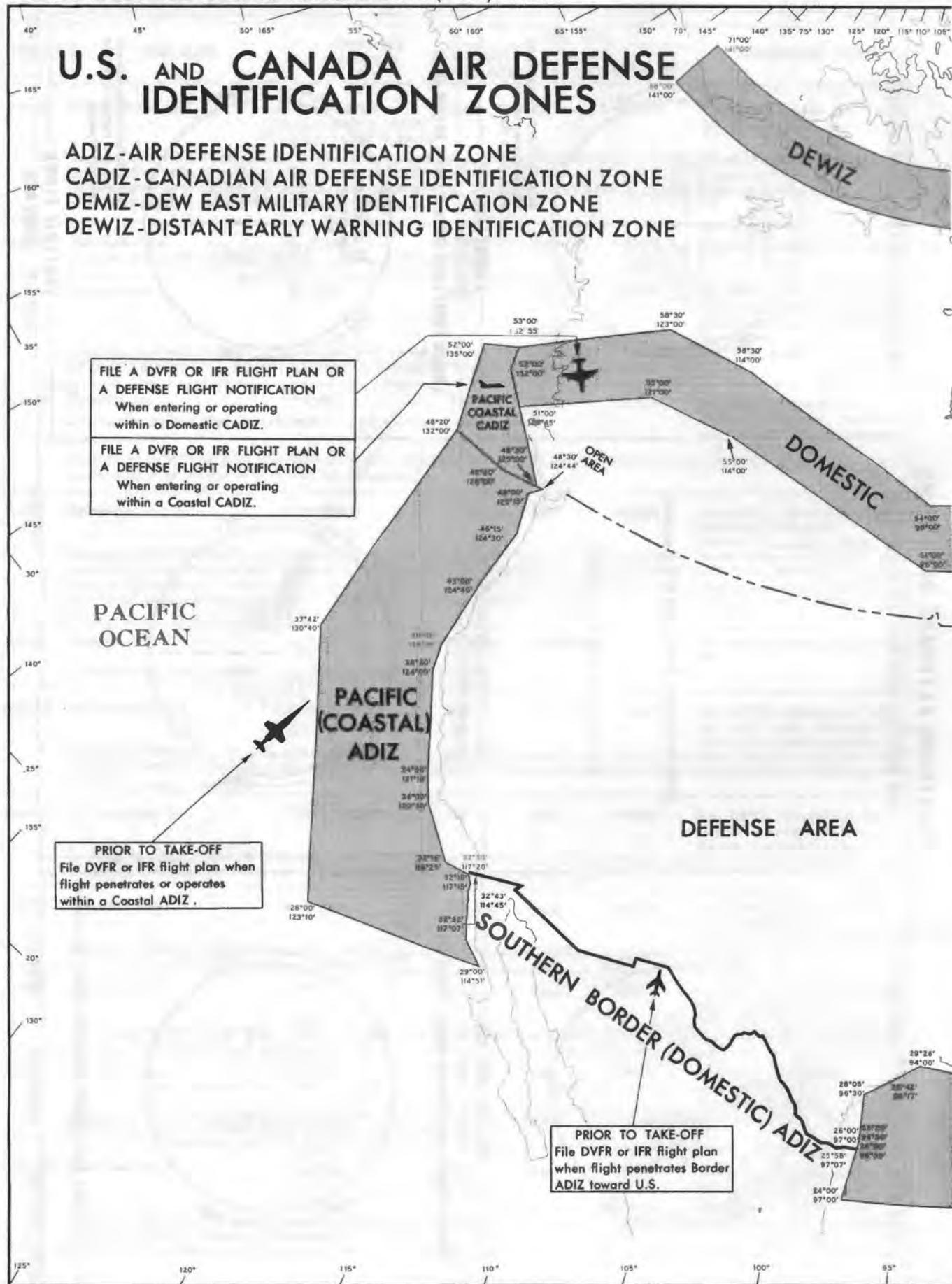
D. DIMENSIONAL UNITS OF MEASUREMENTS FOR AIR/GROUND COMMUNICATIONS

The following dimensional units of measurements will be used by military pilots in voice air/ground communication with United States military and civil ground stations.

Dimensions	All Aeronautical Stations, Under Jurisdiction of the United States
Distance	Nautical Miles and tenths
Altitude, elevations and dimensions on aerodromes and short distances	Feet
Horizontal speed	Knots
Vertical speed	Feet per minute
Wind speed Coded upper wind	Knots
All other	Knots
Wind direction surface	16 points compass (local aerodrome, tens of degrees magnetic)
Upper wind	Tens of degrees (true)
Pilots reports	Tens of degrees (true)
Cloud altitude and height	Feet
Visibility	Statute miles (or fractions)
Altimeter setting	Inches of mercury
Temperature: Surface	Fahrenheit
Upper air	Centigrade
Weight	Pounds
Time	24-hour clock Greenwich mean time

CRUISING ALTITUDE DIAGRAMS





AIR DEFENSE IDENTIFICATION ZONE (ADIZ) CHART II-89

FILE A DVFR OR IFR FLIGHT PLAN OR A DEFENSE FLIGHT NOTIFICATION
Prior to entering the DEWIZ inbound.

PRIOR TO TAKE-OFF
File DVFR or IFR flight plan or Defense Flight Notification with ATC or DEMIZ beacon when flight departs from location in DEMIZ.

NO FLIGHT PLANNING FACILITIES
Aircraft departing from within GREENLAND or DEMIZ contact ATC or DEMIZ beacon as soon as possible, airtel, include estimated time and place of penetration.

FILE A DVFR OR IFR FLIGHT PLAN OR A DEFENSE FLIGHT NOTIFICATION
When entering or operating within a Domestic CADIZ.

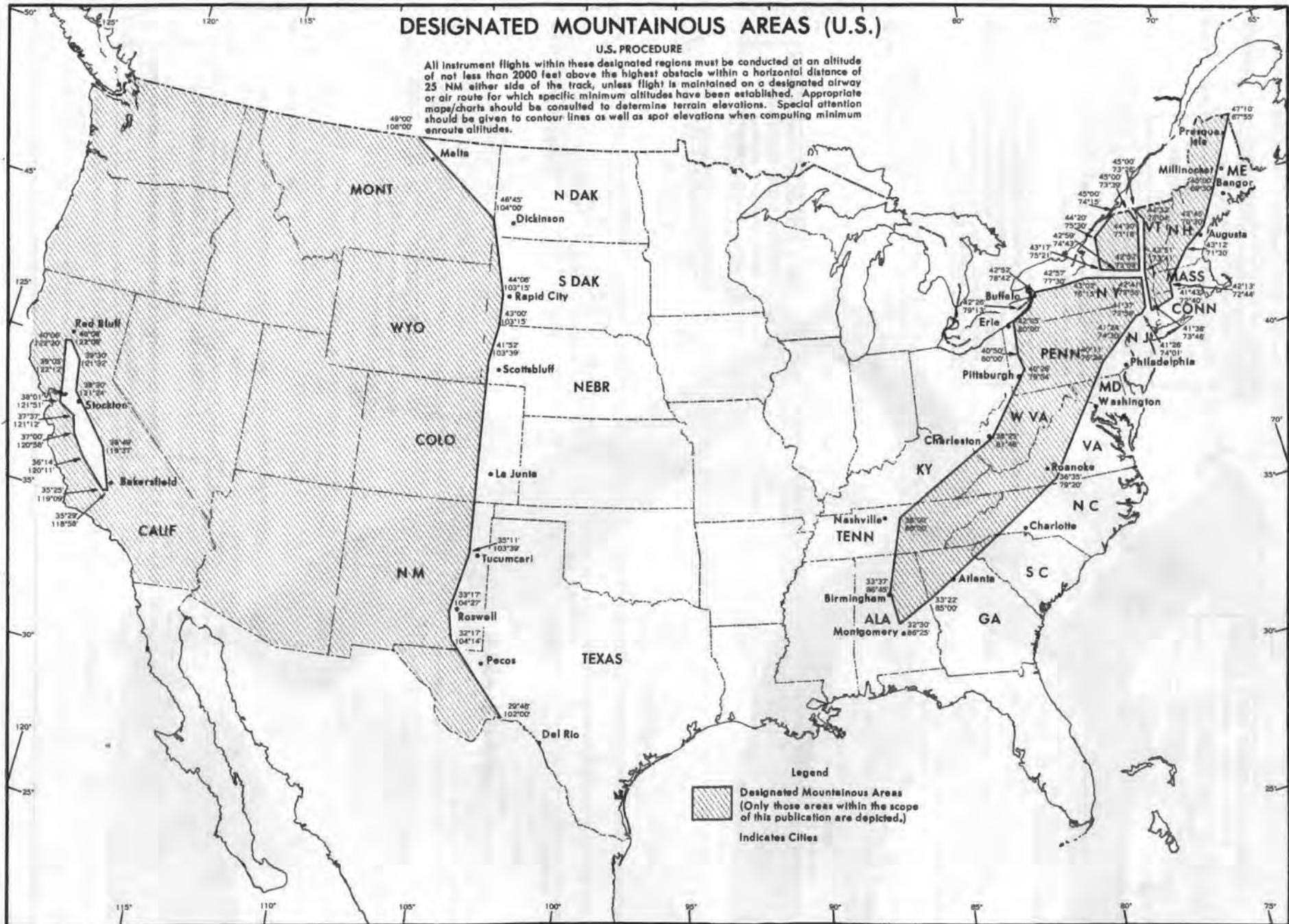
PRIOR TO TAKE-OFF
File DVFR or IFR flight plan when flight penetrates or operates within a Coastal ADIZ.

MAKE APPROPRIATE POSITION REPORTS (AS REQUIRED)
Prior to entering or operating within Air Defense Identification Zones.

DESIGNATED MOUNTAINOUS AREAS (U.S.)

U.S. PROCEDURE

All instrument flights within these designated regions must be conducted at an altitude of not less than 2000 feet above the highest obstacle within a horizontal distance of 25 NM either side of the track, unless flight is maintained on a designated airway or air route for which specific minimum altitudes have been established. Appropriate maps/charts should be consulted to determine terrain elevations. Special attention should be given to contour lines as well as spot elevations when computing minimum enroute altitudes.



SPECIAL NOTICES AND PROCEDURES

Special Notices of a permanent nature will be carried for three issues and then incorporated with other data when such relocation is appropriate. Notices of a temporary nature will be carried in this section for the life of the notice. Special Notices of a permanent nature will not be published for a period in excess of six months unless requirement for continuance is justified.

New or amended Special Notices are indicated by a solid vertical bar extending the full length of the new information.

A Special Notices section concerning NEW FLIP FEATURES appears below and contains notices of new requirements or major modifications of existing FLIPs. New Notices appearing for the first time shall be shown first. New feature notices will be carried for three issues and then dropped. In the event there are no new FLIP features, the word "NONE" shall be centered within the new FLIP feature box.

NEW FLIP FEATURES

NONE

ABBREVIATED IFR DEPARTURE CLEARANCE PROGRAM

- Effective 16 April 1966 Phase I of a standard abbreviated IFR departure clearance program was implemented. To afford Air Traffic Control (ATC) facilities, and users an opportunity to gain experience and to make any necessary adjustments, the program will be implemented in three phases: Phase I—air carrier operations; Phase II—air carrier and military operations; Phase III—all type of operations.
- ATC facilities will issue an abbreviated IFR departure based on the route filed in the IFR Flight Plan, provided the filed route can be approved with little or no revision. Its application will be based on the following:
 - It is expected that pilots will have a copy of the flight plan or that his company will provide the information on the clearance sheet or in his flight papers.
 - Pilots will not accept an abbreviated clearance if the flight plan filed with ATC has been changed by him before departure.
 - Controllers will not issue an abbreviated clearance if he is aware that the filed flight plan is subsequently changed by the pilot.
 - The clearance as issued will be considered as a clearance to the destination airport filed in the flight plan.
 - The assigned en route altitude/flight level will be stated in the clearance.
 - Abbreviated clearances will not be used with stored flight plans having prescribed waiting periods until the time specified has elapsed.
 - To clear a departing aircraft via the route filed, the controller will state "Cleared AS FILED, MAINTAIN (altitude/flight level)" and if required any additional departure instructions/information.
 - A specific SID as filed by the pilot will be considered as part of the flight plan. If a SID has not been filed, ATC may specify a SID (including transition, if necessary) to air carrier or military whenever appropriate.

EXAMPLE

(ident) CLEARED AS FILED, MAINTAIN (altitude/flight level) and if required additional departure instructions/information.

or

(ident) CLEARED AS FILED, MAINTAIN (altitude/flight level) DUTCH ONE DEPARTURE, and, if required, additional departure instructions/information.

- If it becomes necessary for the controller to clear a departing aircraft via a route which differs from that filed, the controller may issue approval of the flight plan to

destination airport, plus the changed portion by stating "Cleared AS FILED EXCEPT CHANGE (portion of route) TO READ (amended route) MAINTAIN (altitude/flight level) and, if required, any additional departure instructions/information.

EXAMPLE

(ident) CLEARED AS FILED EXCEPT CHANGE ROUTE J 37 TO READ J 64, MAINTAIN (altitude/flight level) and, if required, additional departure instructions/information.

(ident) CLEARED AS FILED, EXCEPT CHANGE DUTCH ONE DEPARTURE TO READ SOUTH ISLAND TWO DEPARTURE, MAINTAIN (altitude/flight level) and, if required, additional departure instructions/information.

- ATC WILL ISSUE A DETAILED CLEARANCE, WHEN REQUESTED BY THE PILOT.

- To ensure the success of the program, consistency of operation and accurate relay of information between pilot and controller, pilots should:

- Include specific SID/transitions and preferred routes in flight plans whenever such routes meet your needs.
- If possible, prior to departure, avoid making changes to a flight plan which has been filed with ATC. Request desired changes after departure when in direct communications with the appropriate ATC facility.
- Request route/altitude verification or clarification from ATC if any portion of clearance is not clearly understood.
- Use the following procedure and phraseology in initial radio communication with the ATC facility:
State aircraft identification, location, type of operation planned (IFR), and the point of first intended landing.

EXAMPLE

O'HARE GROUND CONTROL, THIS IS AMERICAN ONE TWENTY-THREE, AT GATE 18, READY TO TAXI, IFR TO LOS ANGELES.

3 MARCH 1966

NEW FLIGHT ASSISTANCE SERVICE FACILITIES

- The testing of two new types of facilities for providing flight assistance at aerodromes was completed by the FAA on 30 June 1965. These facilities will be continued for an indefinite period.
 - The part-time two-man Flight Service Facility (FSF) provides the terminal flight services now available at regular Flight Service Stations. FSF stations are listed in the IFR/VFR Enroute Supplement in the same manner as FSS stations, i.e.: RADIO - 123.6 (V) (FSF). Pilots may contact a FSF within 15 NM of the FSF aerodrome. In radio calls, use the name of the aerodrome followed by the word "RADIO": e.g., "KIMBLE CO RADIO THIS IS AF 12345 OVER". The four sites where FSF facilities are available are:

Delta Muni, Utah
Kimble Co (Junction), Tex.
Manhattan Muni, Kans.
Myrtle Beach (Crescent Beach), S.C.

II-92 SPECIAL NOTICES AND PROCEDURES

b. The unmanned Airport Information Desk (AID) provides "do-it-yourself" flight planning services, and has current weather information available and direct communications to the nearest Flight Service Station. The 16 locations where this service is provided are:

Aiken Muni, S.C.
Altus Muni, Okla.
Aspen-Pitkin Co, Colo.
Auburn-Opelika, Ala.
Capital City (Frankfort), Ky.
Jamestown Muni, N.Y.
Kerrville Muni, Tex.
Laconia Muni, N.H.
Lakeland Muni, Fla.
Liberal Muni, Kans.
Marion Muni, Ind.
Mt Vernon Muni, Ill.
Pecos Muni, Tex.
Pittsfield Muni, Mass.
Ruidosa Muni, N. Mex.
Tacoma Industrial, Wash.
Twin Falls Muni, Ida.

3 March 1966

VISUAL APPROACH SLOPE INDICATOR

1. The Visual Approach Slope Indicator (VASI), is designed to provide by visual reference the same information that the glide slope unit of an ILS provides electrically. If the VASI glide slope is flown with correct power settings and airspeed touchdown will be made in the normal touchdown area.
2. The VASI is aligned to provide a visual glide slope of 2.5 deg to 3 deg from horizontal. A 2.5 deg glide slope will be 266' at a distance of 1 NM and 1329' at a distance of 5 NM. A 3 deg glide slope will be 319' at a distance of 1 NM and 1593' at a distance of 5 NM. Only the final approach course and transition-areas are protected for obstruction clearance.
3. The VASI glide slope is normally aligned to coincide with the ILS and PAR glide slopes where these facilities are located on the same runway. In cases where the glide slope angles differ, deviations will be shown in aerodrome remarks of the IFR/VFR Supplement.
4. In order to conduct a VASI approach, align the aircraft with the runway or runway lights approximately 250-300' elevation for each mile distance from the airport. When the glide path is intersected the pilot will see the near bars as white and the far bars as red. A position below the glide path will cause both bars to be red, and a high position will cause both bars to be white. A departure from the glide path is indicated to the pilot by a transition in color from red through pink to white (high) or vice versa (low). The lights are arranged so that the pilot will see the following:

a. Above glide path	white	white
	white	white
b. On glide path	red	red
	white	white
c. Below glide path	red	red
	red	red

5. Where installed, USAF/USN VASI facilities operate continuously on the active runway unless otherwise noted in the appropriate listing in the IFR/VFR Supplement. The intensity of VASI at civil facilities can be adjusted by the controller at pilot's request. USAF/USN installations are automatically adjusted by a photo-electric cell.

18 AUGUST 1966

USE OF GREEN ANTI-COLLISION LIGHTS BY USN/USMC AIRCRAFT

USN/USMC aircraft have been authorized to display green anti-collision light(s) for the purpose of identifying aircraft involved in aerial refueling operations. When displayed, subject anti-collision light(s) will be used in conjunction with standard position lights. 30 MARCH 1967

HIGH DENSITY STUDENT FLYING TRAINING IN PENSACOLA, FLORIDA/MERIDIAN, MISSISSIPPI AREAS

1. COLLISION POTENTIAL TO TRANSIENT AIR OPERATIONS IN CAUTION AREA C-488, PENSACOLA, FLORIDA: Due to high density VFR and IFR student flying training in the area of Pensacola, Florida, an acute collision potential exists to unannounced transient air operations in caution area C-488. Consequently, it is strongly advised that transiting pilots contact Pensacola Approach Control or Navy Whiting Tower, prior to entering C-488, in order to obtain student traffic information and suggested best routing through the area. Pilots unable to make such prior contact or not desirous of this service are strongly advised to cross the area on airways above 2000 feet or cross above FL 235.
2. COLLISION POTENTIAL TO TRANSIENT AIR OPERATIONS IN VICINITY OF NAAS MERIDIAN, MISSISSIPPI: Due to high density VFR student flying training in the vicinity of NAAS Meridian, an acute collision potential exists to unannounced transient air operations in the following training airspace and period of student activity.

APPROXIMATE TRAINING BOUNDARIES: From the 294 degree radial of Meridian VORTAC, clockwise to the 035 degree radial for a radius of 85 nautical miles from the VORTAC, excluding airways. Floor 6000 feet MSL and ceiling FL 235.

TIME STUDENT ACTIVITY: Sunrise to sunset in VFR conditions on Mondays through Fridays. In view of above, it is strongly advised that transiting pilots operating in VFR conditions contact Meridian Approach Control, prior to entering above area, in order to obtain student traffic information and suggested best routing through the area. Pilots unable to make such contact or not desirous of this service are strongly advised to cross below 6000 feet MSL (avoiding airport traffic areas) or cross above FL 235.

NOTE: Pilots operating to or from Columbus AFB Mississippi and on published instrument arrival or departure procedures are not affected by this Special Notice.

10 DECEMBER 1964

HIRAN TRAINING MISSIONS IN SOUTHEASTERN U.S.

Extensive aerial electronic HIRAN training is being conducted over Alabama, Georgia, Mississippi and Tennessee by the 1370th photo-mapping wing in two specifically designated areas located as follows:

HIRAN Area #1—35°45'N 88°05'W to 33°18'N 87°20'W to 33°12'N 87°45'W to 35°38'N 88°32'W to origin.

HIRAN Area #2—36°10'N 85°58'W to 33°21'N 85°09'W to 33°15'N 85°40'W to 36°05'N 86°30'W to origin.

Training is conducted under Instrument Flight Rules, mostly on weekdays, from 8000 ft to 20,000 ft MSL.

11 AUGUST 1965

*AIRCRAFT CATEGORIES

1. A new United States Standard for Terminal Instrument Procedures (TERPS) recognizes the differences in aircraft performance. These differences have a direct effect on the airspace and visibility required to perform certain maneuvers such as circling approaches, missed approaches and corrections on final approach. This varying performance is reflected by placing aircraft in categories based upon maximum authorized landing weight and/or approach speed, and authorizing approach minimums by aircraft category. Unless specific designations are listed, categories apply to all series/models of the basic aircraft designation. Refer to Special Notice within FLIP Terminal and Enroute Supplement for specific detail regarding depiction of landing minima data.
2. Explanation of terms: Five approach categories (A thru E) control landing minima for different types of aircraft. Except for certain military aircraft which are placed in a higher category for operational reasons, aircraft are categorized on the basis of speed and weight as follows:

<u>Approach Category</u>	<u>Speed/Weight</u>
A	Speed 50-90 knots, weight 30,000 lbs or less
B	Speed 91-120 knots or weight 30,001-60,000 lbs
C	Speed 121-140 knots or weight 60,001-150,000 lbs
D	Speed 141-165 knots or weight over 150,000 lbs
E	Speed over 165 knots, weight not considered

ANTI-SUB SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
S-2A	A	S-2B	A
US-2A	A	S-2C	A
US-2B	A	S-2D	B
US-2C	A	S-2E	B
TS-2A	A		

ATTACK SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
A-1	B	A-5	C
AC-47	B	A-6	C
A-3	C	A-7	C
A-4	C	A-26	C
		AT-37	C

FIGHTER SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
F-1	C	F-89	D
F-2	C	F-111	D
F-3	C	YF-12/SR-71	E
F-6	C	F-100	E
F-9	C	F-101	E
F-10	C	F-102	E
F-11	C	F-104	E
F-4	D	F-105	E
F-8	D	F-106	E
F-84	D	F-5	E
F-86	D		

PATROL SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
P-2E	B	SP-2H	C
P-5	B	P-3	C
P-2F	C	P4M-1Q	C

TRAINER SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
T-34	A	T-33	C
T-41	A	T-37	C
T-42	A	T-39	C
T-28	B	TV-1	C
T-29	B	T-1A	C
		T-2A	C
		T-38	E

TRANSPORT/CARGO SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
C-1	A	C-119	C
CV-2	A	C-121	C
C-7A	A	C-130	C
VC-6	A	C-140	C
C-45	A	R-5D	C
C-2	B	R7V-2	C
CV-7	B	C-5A	D
C-46	B	KC-97	D
C-47	B	C-124	D
C-117	B	HC-130	D
C-123	B	C-133	D
C-131	B	C-135	D
C-54	C	VC-137	D
C-97	C	C-141	D
C-118	C	KC-135	E
		EC-135	E

BOMBER SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
B-26	C	B-47	E
B-50	C	B-52	E
B-57	D	B-58	E
B-66	D		

UTILITY SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
U-1	A	U-9	A
U-2	A	U-10	A
U-3	A	U-11	A
U-4	A	HU-16	B
U-6	A	LU-16	A
U-8	A	TU-16C	A

WARNING SERIES:

<u>Designation</u>	<u>Category</u>	<u>Designation</u>	<u>Category</u>
E-1	B	EC-121	C
E-2	B	WC-121	C

SPECIAL NOTICES AND PROCEDURES TT-95

Airport (2.5 NM N of Buckley). Avoid C & S Airport (4 NM SE of Buckley) which is used as practice area for local sky diving. Avoid USAF Academy (43 NM S of Buckley).

Flight below 10,000 ft MSL over Denver urban area is prohibited unless in the traffic pattern.

Right-hand pattern for runway 14. 360 degree overhead pattern for runway 14 is not authorized for transient aircraft.

Buckley jet traffic pattern is 7200 ft MSL. Buckley conventional and Aero Club traffic pattern is 6500 ft MSL. **18 AUGUST 1966**

USAF ACADEMY (PINE VALLEY)

Pilots are advised that overflight of the USAF Academy Airport (Pine Valley) traffic area which includes all USAFA buildings is prohibited below 2000' AGL unless previous and specific approval from USAFA operations and air traffic control agencies has been obtained. **25 MAY 1967**

FLORIDA

HOMESTEAD AFB

Personnel and cargo drops are conducted in an open field located 3 NM N at 25°33'N 80°22'W. This operation is conducted by Homestead AFB on an occasional basis during daylight VFR conditions, from surface to 3000 ft MSL. Additionally paradrop and parasail operations are conducted over water within a 5 NM radius of 25°25'N 80°15'W on a daily basis during daylight VFR conditions from the surface to 1500 ft MSL. **25 MAY 1967**

MACDILL AFB

Extensive jet training 1200Z – 2200Z Mon-Fri. Tactical jet VFR traffic patterns 1700 ft and 300 KIAS. For landing rwy 04 fly from SE to 3 NM initial for rgt overhead pattern. For rwy 22 fly from E to 3 NM initial to point 1000 ft rgt of rwy 22 for left overhead pattern. Avoid flying over base housing area. Conventional traffic 1000 ft MSL in control zone. Stay btwn 1300 ft and 2500 ft when VFR in area over East Bay btwn Peter O Knight Airport 5 NM NE clkzw to Albert Whitted Airport 8 NM SW. Heavy civil traffic in the area 800 ft and below; 3000 ft and above. Avoid flights below 1500 ft over four adjacent airports, Tampa and St. Petersburg housing areas. Rwy lights at Peter O Knight Airport 5 NM NE may be easily confused with lights on rwy 22 at MacDill. No tie down facts. Release deployed drag chute on either edge of adjacent turn-off area at ends of rwy 04-22. Aero Club aircraft land at Peter O Knight Airport. **24 JUNE 1965.**

VALPARAISO, FLORIDA TERMINAL AREA –

SPECIAL AIR TRAFFIC RULES

Unless otherwise authorized, no person may operate an aircraft in flight in the area described below, unless, before operating within the area, that person establishes communication with air traffic control (ATC) for the purpose of receiving an ATC advisory concerning operations being conducted therein.

This special air traffic rule applies to aircraft operated between sunrise and sunset, Monday through Saturday, in the airspace extending upward from the surface to the base of the overlying positive control airspace, bounded by a line beginning at latitude 30°42'50"N, longitude 86°38'02"W; thence to latitude 30°43'10"N, longitude 86°27'37"W; thence along the West boundary of R-2914 to latitude 30°19'45"N, longitude 86°23'45"W; thence three NM from and parallel to the shoreline to latitude 30°20'50"N, longitude 86°38'50"W; thence along the East boundaries of R-2915B and R-2915A to the point of beginning. **29 APRIL 1965.**

MAINE

Intensive High Speed Low Altitude Intercept Training is being conducted by T-33, F-89, F-100, F-101 aircraft within the following areas: 43°20'N 71°00'W to 43°36'N 71°30'W to 44°16'N 71°30'W to 44°50'N 70°50'W to 44°20'N 70°00'W to origin. Training is conducted under Visual Flight Rules, all hours, from 500 ft AGL to 14,000 ft MSL. **29 APRIL 1965.**

MISSISSIPPI

KEESLER AFB

T-28 acft conducting extv lng and inst approaches within 10 NM radius of Keesler AFB below 3500' MSL. Extv convl inst, acrobatic, and trns lng within area bounded by: New Orleans VORTAC northward along V-455 to Laurel VOR; southeast along V-11 to Mobile VORTAC, southwest along V-240 to New Orleans, from ground level to 9500' MSL, SR to SS. **30 MARCH 1967.**

NEVADA

NELLIS AFB

Due to hi density mil & civ air tfc in the Las Vegas area, it is strongly recommended that IFR clncs to Nellis AFB be retained as long as possible. Inbd VFR acft should ctc Las Vegas APP CON Radar on listed freqs for tfc advisories. **2 FEBRUARY 1967**

NEW HAMPSHIRE

Intensive High Speed Low Altitude Intercept Training is being conducted by T-33, F-89, F-100, F-101 aircraft within the following areas: 43°20'N 71°00'W to 43°36'N 71°30'W to 44°16'N 71°30'W to 44°50'N 70°50'W to 44°20'N 70°00'W to origin. Training is conducted under Visual Flight Rules, all hours, from 500 ft AGL to 14,000 ft MSL. **29 APRIL 1965.**

NEW MEXICO

GRANTS-SOCORRO AREA

Acft flying btwn FL 600 and FL1000 North of R-5112 should provide themselves an additional five miles clearance fr the northern boundary of R-5112 whenever the rstd area is activated. This is to provide acft at these altitudes with adequate clearance fr the flight path of missile boosters launched fr R-6409 impacting in R-5112. **29 APRIL 1965.**

NEW YORK

Low level flights will be conducted in the Adirondack Mountain area NE of Griffiss AFB at altitudes from 250' to 1000' AGL in a C131-B. On the following route: From 43°16'N 75°06'W to 43°55'N 75°17'W to 43°49'N 74°13'W to 43°29'N 74°30'W to 43°06'N 74°25'W to 43°43'N 74°56'W to 43°19'N 75°05'W. Flights will be conducted Monday thru Friday, three times daily, 1300Z, 1500Z, and 1900Z during VFR conditions.

Intensive High Speed Low Altitude Intercept Training is being conducted by T-33, F-89, F-100, F-101 aircraft within the following areas: 43°30'N 75°30'W to 44°40'N 75°10'W to 44°40'N 73°50'W to 43°30'N 73°50'W to origin. Training is conducted under Visual Flight Rules, all hours, from 500 ft AGL to 14,000 ft MSL. **29 APRIL 1965.**

JOHN F. KENNEDY INTERNATIONAL AIRPORT TRAFFIC AREA—SPECIAL AIR TRAFFIC RULES

Except when the VFR Clearance-From-Clouds rules require otherwise, when landing at JOHN F. KENNEDY INTER-

II-96 SPECIAL NOTICES AND PROCEDURES

NATIONAL AIRPORT, all pilots of aircraft over 12,500 lbs (except helicopters) shall enter the airport traffic area at an altitude of at least 1500 ft above the surface and maintain that altitude so long as practicable before landing.

All pilots of aircraft of 12,500 lbs or less (except helicopters) shall enter the airport traffic area at an altitude of at least 1200 ft above the surface and shall maintain an altitude of at least 1000 ft, but not more than 1200 ft above the surface so long as practicable before landing.

Pilots of all aircraft (except helicopters) landing on runways 19 or 24 at NAS New York shall operate at or below an altitude of 800 ft above the surface in that portion of the NAS New York traffic pattern that extends into the JOHN F. KENNEDY INTERNATIONAL AIRPORT traffic area.

29 APRIL 1965.

NORTH CAROLINA

POPE AFB

Extensive C-130 training operation in the Fulton Recovery System is conducted daily, 7 days a week, day and night, at a site located 4 miles north of Red Springs, 1.5 miles east of Antioch, N.C. (34°53'42"N 79°10'30"W). System consists of two moored balloons, 22 feet by 6 feet each, operating up to altitude of 1500 feet MSL. Nylon cable marked by flags for day-time, lights at night. C-130 aircraft maneuvering for pickup, operate within 5 NM radius of above location. Suggest area be avoided by 5 NM or above 2500 feet MSL. Contact Fayetteville Flight Service Station for latest information. 2 FEBRUARY 1967.

OHIO

YOUNGSTOWN-NEWTON FALLS-USAF DROP ZONE

USAF drop zone from altitudes up to 3500' MSL approximately one half mile square, centered 4 NM NNW of Newton Falls, and 12 NM W of Youngstown Muni Airport, Ohio. Single and multiple aircraft paratrooping heavy equipment and troops at any time. 4 FEBRUARY 1965.

OKLAHOMA

ENID

Mon-Fri dur daylt hrs, in addn to intsv stu jet ops being conducted within the areas designated on charts, intsv VFR stu jet ffc is conducted fr gnd to 10,000 ft MSL within 10 NM rad of Vance AFB and Kegelman AUX (lctd 23 NM NW of Vance AFB). These areas should be avoided. Low level jet nav missions now being flown at 1000 ft to 1500 ft above the gnd at 300 Kts along the fol routes - Vance AFB, Okla; Gary, Okla; Reydon, Okla; Lipscomb, Tex; Settlement, Okla; Canton, Okla; Enid, Okla; and along Helena, Okla; Hardtner, Kans; Minneola, Kans; Gate, Okla; Avard, Okla; Enid, Okla. Ctc Vance APP CON for ffc advsy 1200-2300Z Mon-Fri. 23 MAY 1967

SOUTH CAROLINA

SHAW AFB

CAUTION: Aircraft on gunnery mission fly outside limits of R-6002 (Poinsett Range). Pilots making approaches to rwy 04 are advised to remain on or Northwest of the ILS localizer or on the 217 deg radial of the Shaw TACAN. 11 OCTOBER 1966

Acf fdg at Shaw AFB on rwy 04 or 22 should remain on the visual (VASI) or electronic (GCA-ILS) glide paths provided until further notice. Thirty-one trees extend above the 50:1 final app surface. Their locations are as fol:

- a. Fourteen trees extend up to 16 feet above the final app surface at apprx 4700 feet fr the ldg thld of rwy 22.
- b. Seventeen trees extend up to 10 feet above the 50:1 final app surface at apprx 3500 feet fr the ldg thld of rwy 04.

20 JULY 1967

TEXAS

AMARILLO AFB/MUNI

Parachute jumping week-ends and holidays, SR-SS, 8-10 NM SW of Amarillo AFB/Muni, vicinity of Polo Duro Airport, 16,000 ft and below. 27 MAY 1965.

LAUGHLIN AFB

Extensive VFR student jet training is conducted within a 75 NM radius of Laughlin AFB from Mon-Sat through FL 450. Recommend extra caution be used while in this area.

9 DECEMBER 1965

RANDOLPH AFB

High performance jet acft and convl tng acft conducting intsvng and inst approaches within 15 NM N of Randolph AFB at or below 3500 ft MSL. Intsv jet and convl inst, acrobatic and trns tng in SE quadrant between V-198 and V-163 within 70 NM rad of Randolph fr gnd level to FL235 Mon-Fri. Numerous simulated approaches fr Stinson VOR to Stinson Field. Intsv jet ffc S of Randolph and S of San Antonio on tng routes to jet formation acrobatic and trns areas W of San Antonio vicinity Castroville, Tex, gnd level to 23,500 ft Mon-Fri. (Consult Enroute Supplement, Castroville Municipal Aerodrome Remarks.) Intsv VFR/IFR penetrations in area S of Randolph between 140 deg-160 deg rad of Lavernia VOR within 30 NM rad of Randolph Mon-Fri. 8 DECEMBER 1966.

UTAH

HANKSVILLE-GRAND JUNCTION AREA

Acft flying btwn FL 600 and FL 1000 in the area btwn R-6408 and R-6409 should provide themselves an additional 5 mi clnc fr the SE bdry of R-6409 and fr the northern bdry of R-6408 whenever these rstd areas are activated. This is to provide acft at these altitudes with adequate clnc fr the flt path of the missiles and boosters being launched fr R-6409 with booster impacts in R-6408. 29 APRIL 1965.

WASHINGTON D.C.

METROPOLITAN AREA

A. GENERAL

1. Aircraft operating VFR be alert for all types of aircraft from Washington National, Andrews AFB, Hyde, Rose Valley and Washington-Virginia airports. All aircraft flying in VFR conditions are requested to remain clear of the Andrews and Washington National Airport traffic areas, unless prior authorization has been received from the tower controlling the respective area. CAUTION: Jet IFR departures from Andrews climb out on the Andrews VORTAC 067, 137, and 187 degree radials.
2. Non-emergency parachute jumping is being conducted at locations outlined below within the Washington, D. C. area. These operations are conducted on or in close proximity to arrival — deparfure routes serving the area and present a potential hazard to aircraft operations. Jumps are conducted in VFR conditions, primarily on but not limited to weekends. Night jumps are conducted at

some locations and the parachutist may or may not display a light. Monitor Washington FSS for current activity.

Name of Jump Site	Location	From Altitudes MSL To Surface
Robert E. Lee Apt, Md.	3 NM EMI on V-3	12,000
Baublitz, Md.	11 NM E EMI on V-166	15,000
Jarrettsville, Md.	19 NM E EMI on V-166	12,500
Loch Raven, Md.	19 NM NE BAL on V-123/93	12,500
Dorsey, Md.	On BAL localizer at OM	8,000
Gaithersburg, Md.	12 NM NE HRN on 070 rad	10,000
Edgewood, Md.	30 NM NE of BAL, V-157/166	10,000
Nottingham, Md.	2 NM NE OTT on V-16	20,000
Aqualund, Va.	18 NM E GVE on 090 Rad	12,500
Midland, Va.	8 NM E CSN on 120 Rad V-286	12,000
Centreville, Va.	12 NM S HRN on 176 Rad V-92/155/74	12,500
Haymarket, Va.	15 NM SW HRN on 225 Rad V-44/85	13,500
Leesburg, Va.	10 NM NW HRN on 340 Rad	12,500

3. Pilots flying in the vicinity of Washington, D. C. are reminded to remain clear of prohibited area P-56, depicted on aeronautical charts.
4. Washington ARTCC radar service provided UHF equipped aircraft on following frequencies:
Arrival — 353.6 323.2 317.4 290.3
Departure — 348.7 285.4
5. Washington National and Dulles Intl. See FLIP Enroute Supplement.
6. Andrews VFR Procedures — "Aircraft operating on VFR flight plan may contact Washington approach control for advisory service when within 25 NM, at or below 4000 MSL."
7. Bolling AFB — Closed to all fixed wing aircraft. Helicopters require prior approval. All helicopter pilots operating to or from Bolling shall be thoroughly familiar with helicopter procedures outlined in joint regulation AFR 76-40, current OPNAVINST 3710.26. Helicopter pilots are required to contact Washington Tower prior to entering the area. Entry

and departure shall be along an established route published in AFR 76-40. While within the area pilots shall remain alert to collision hazards, and shall maintain a continuous listening watch on appropriate Washington National Tower frequency. Radio communication must be made with Washington Tower before commencing a takeoff or landing at or entering the traffic pattern of Bolling AFB, and Washington National Airport, unless prior authorization from Washington Tower has been received by pilots operating aircraft not equipped with functioning two-way radio — See FLIP ENROUTE SUPPLEMENT for Bolling traffic pattern and ground handling procedures.

8. MT VERNON VIRGINIA — Low flying acft requested to avoid immediate vicinity Mt. Vernon Estate lctd W bank Potomac River 10 NM S Washington National Airport.
10 DECEMBER 1964.

B. PROCEDURES AND REQUIREMENTS FOR CLEARANCE TO WASHINGTON AREA

1. **Procedures Requirements** — All pilots clearing to Washington National Apt and Bolling AFB under IFR should be thoroughly familiar with all Washington Area Communications facilities, reporting points, holding patterns, letdown, arrival and departure procedures. **11 NOVEMBER 1965**
2. **Communications Requirements** —
 - a. When weather conditions in the Washington Natl and Andrews Control Zones are above 1,000 ft Ceiling and 3 mi ground visibility, but below 1500 ft and 5 mi visibility, all aircraft operating VFR into these zones will contact the tower at destination for permission to enter the control zone.
 - b. USAF aircraft equipped with 8 channel VHF equipment and authorized to use Washington Natl Apt (See Aerodrome Facility listing, E-1) may clear IFR to Washington Natl Apt provided that, in addition to standard frequencies, 118.1 (or 118.3) and 119.1 are installed.
 - c. Navy aircraft equipped with ARC-1 standard channelization and authorized to use Washington Natl Apt may clear IFR to Washington Natl Apt provided that 121.7 and 119.1 are also installed. **20 AUGUST 1964**

WASHINGTON NATIONAL AIRPORT TRAFFIC AREA — SPECIAL AIR TRAFFIC RULES

Except when the VFR Clearance-From-Clouds rules require otherwise pilots of all aircraft (except helicopters) landing at Washington National Airport shall enter the traffic area at an altitude of at least 1500 ft MSL and maintain that altitude so long as practicable before landing.

Except when the VFR Clearance-From-Clouds rules require otherwise pilots of helicopters landing at Washington National Airport shall enter the traffic area at an altitude of at least 800 ft, but not more than 1000 ft and maintain an altitude of at least 800 ft MSL so long as practicable before landing.

11 NOVEMBER 1965.

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