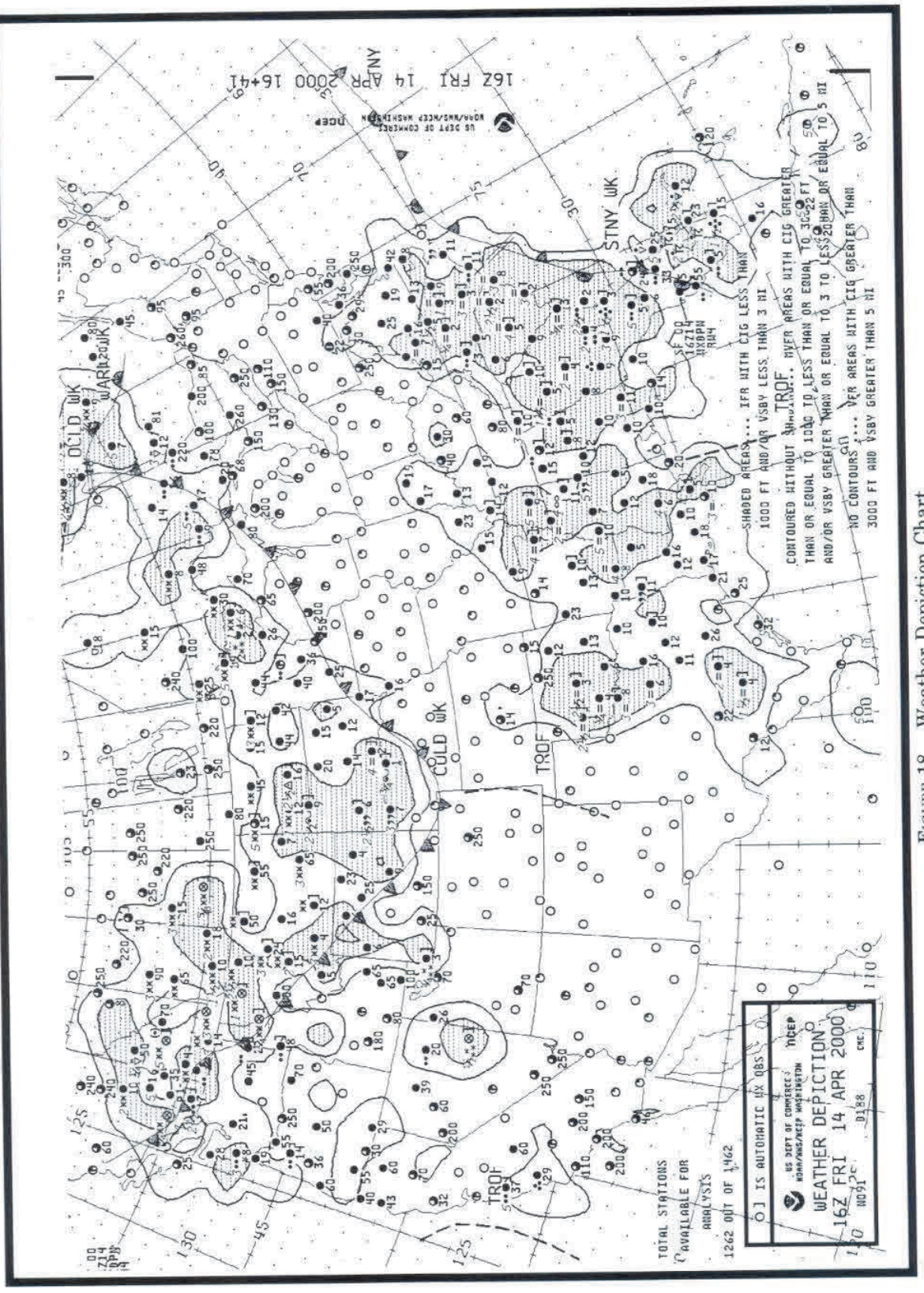


FIGURE 18.—Weather Depiction Chart.

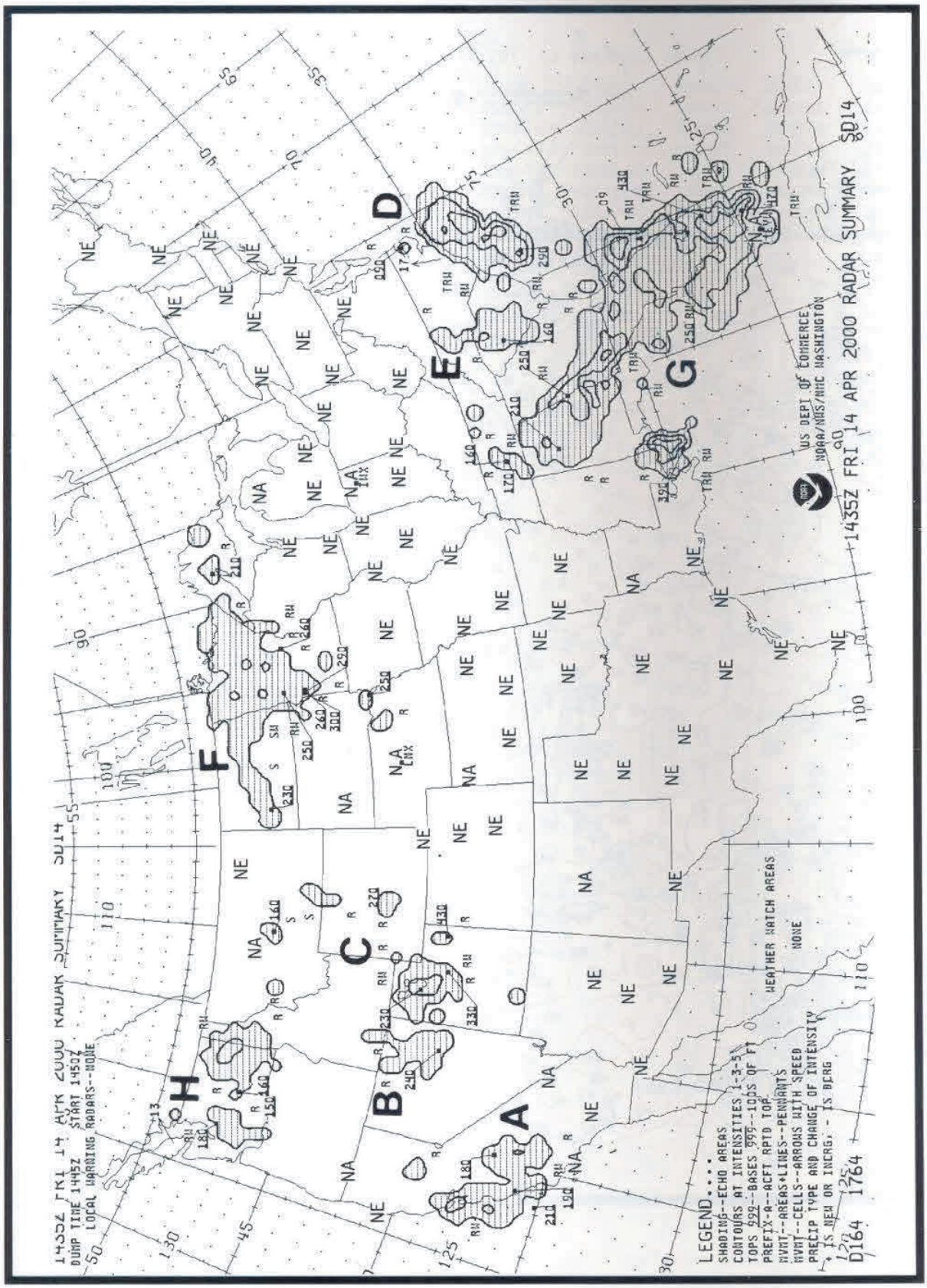


FIGURE 19.—Radar Summary Chart.

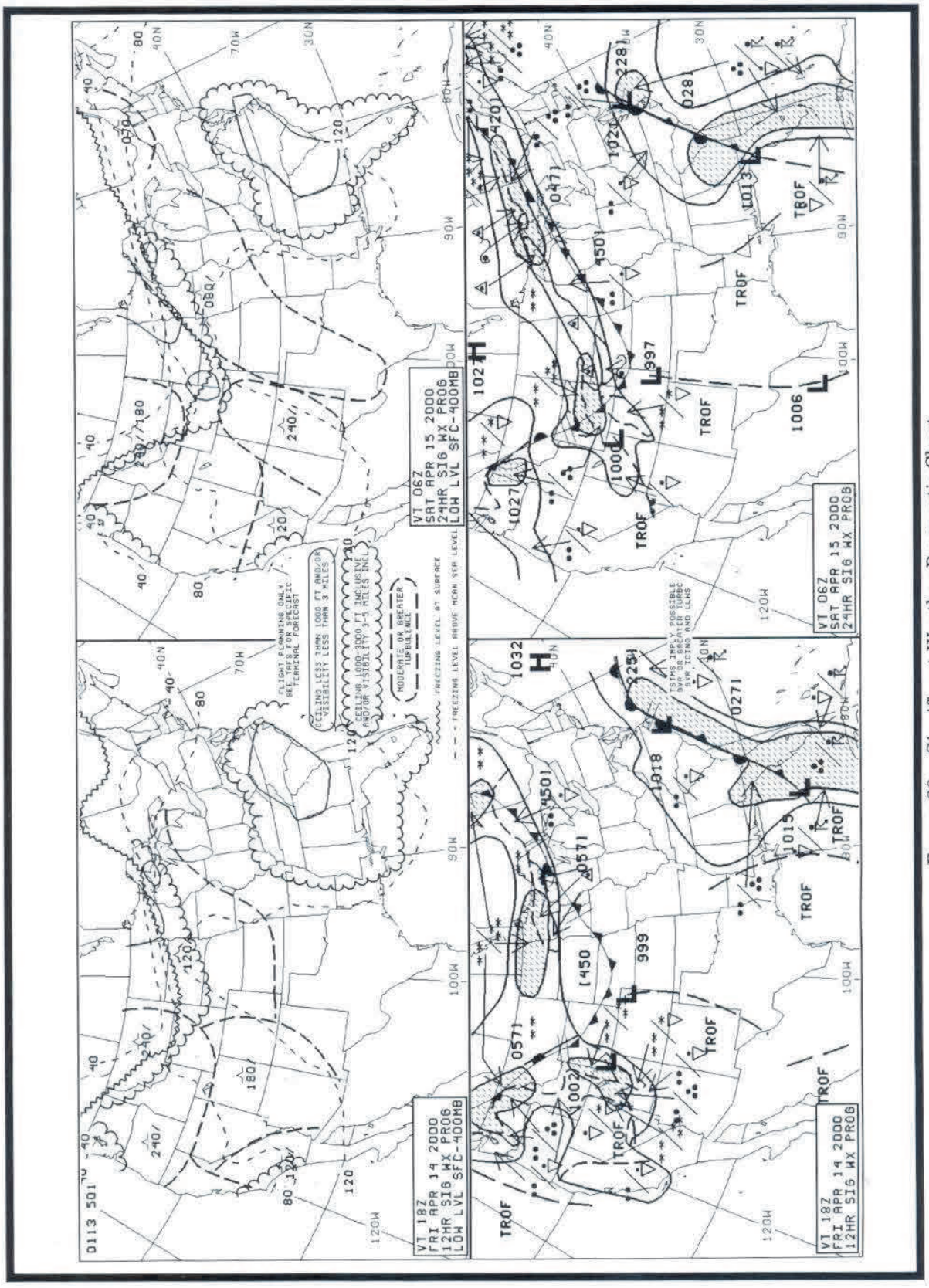


FIGURE 20.—Significant Weather Prognostic Chart.

FIGURE 21.—Sectional Chart Excerpt.

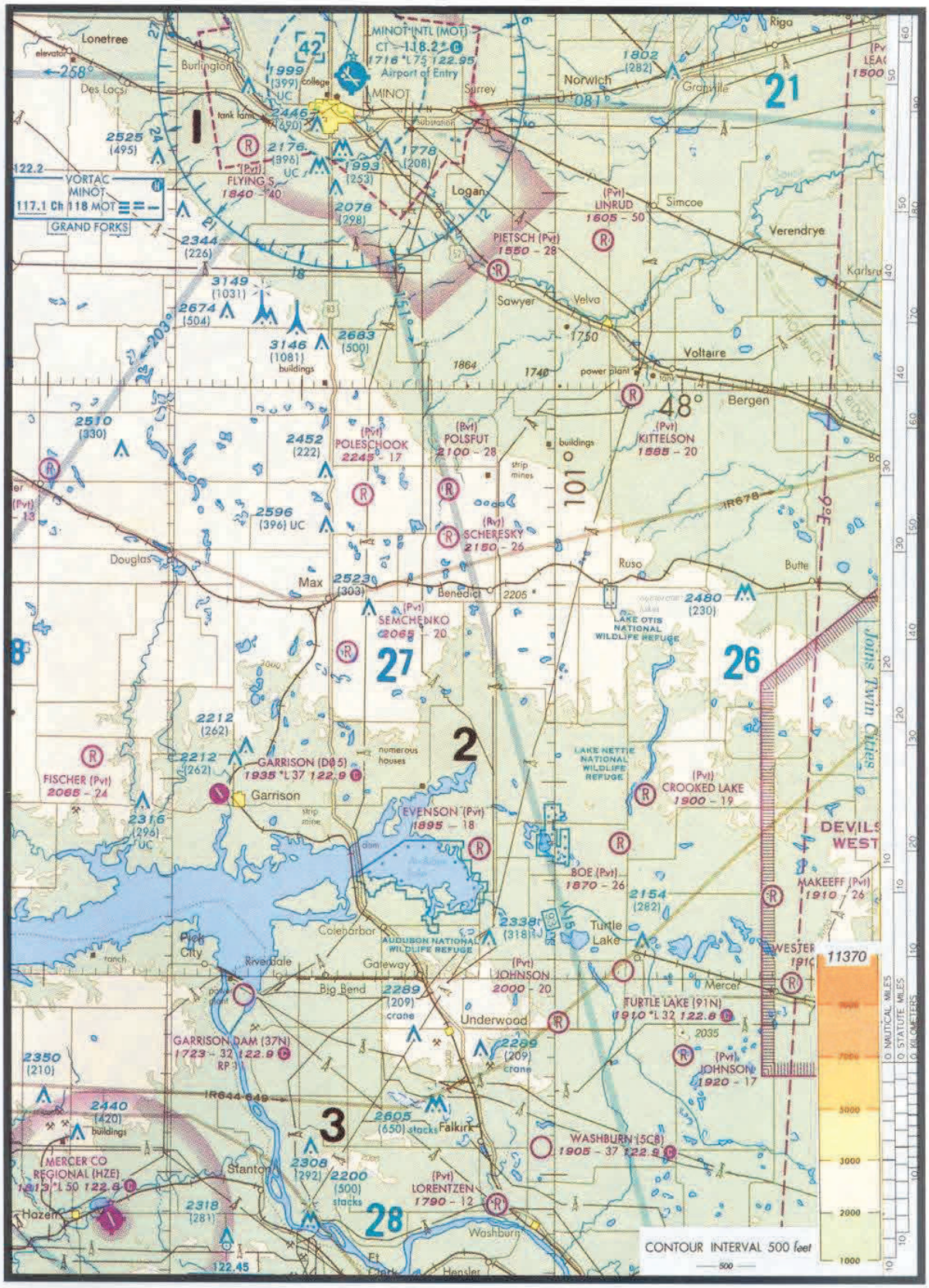


FIGURE 22.—Sectional Chart Excerpt.

FIGURE 23.—Sectional Chart Excerpt.

FIGURE 24.—Sectional Chart Excerpt.

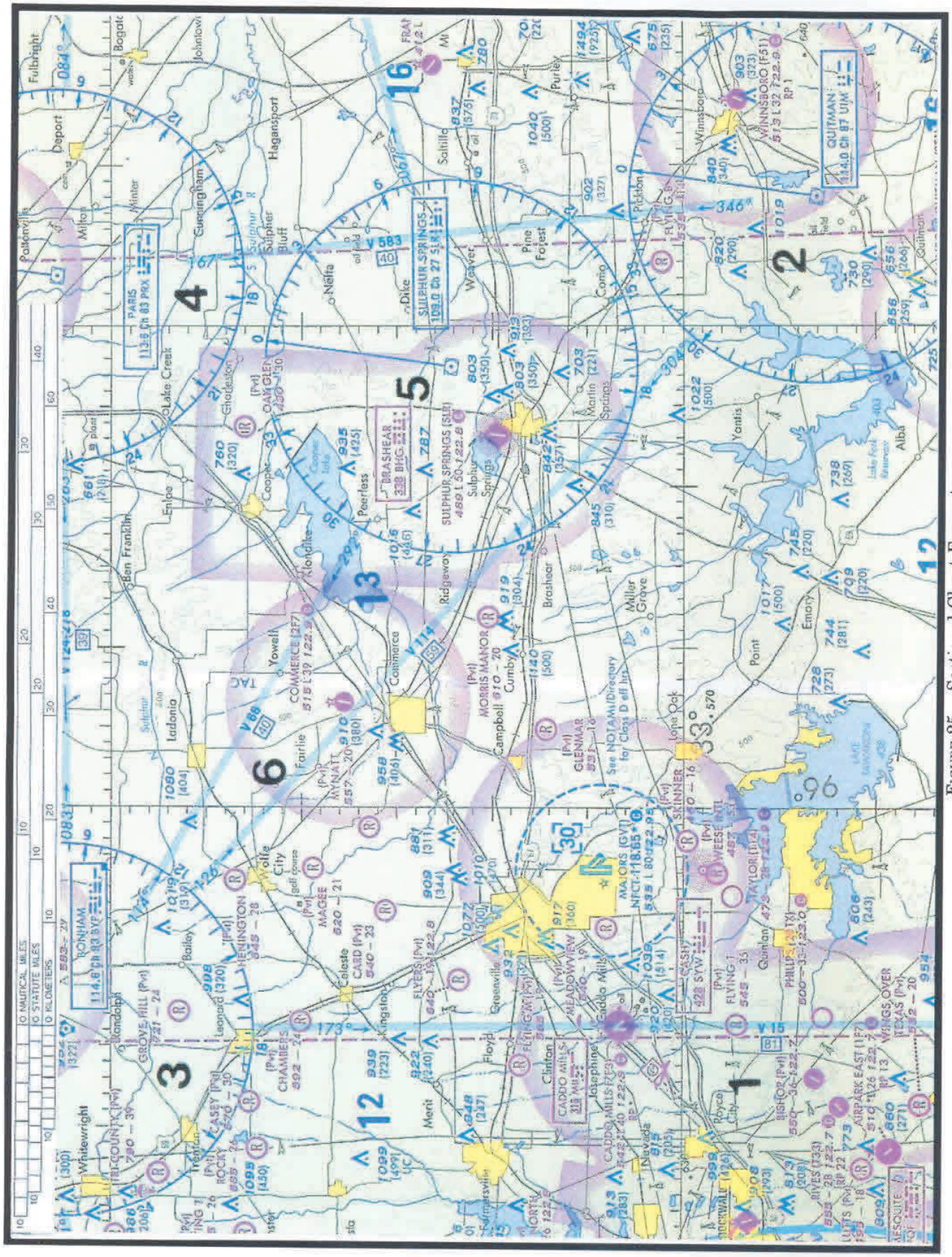


FIGURE 25.—Sectional Chart Excerpt.

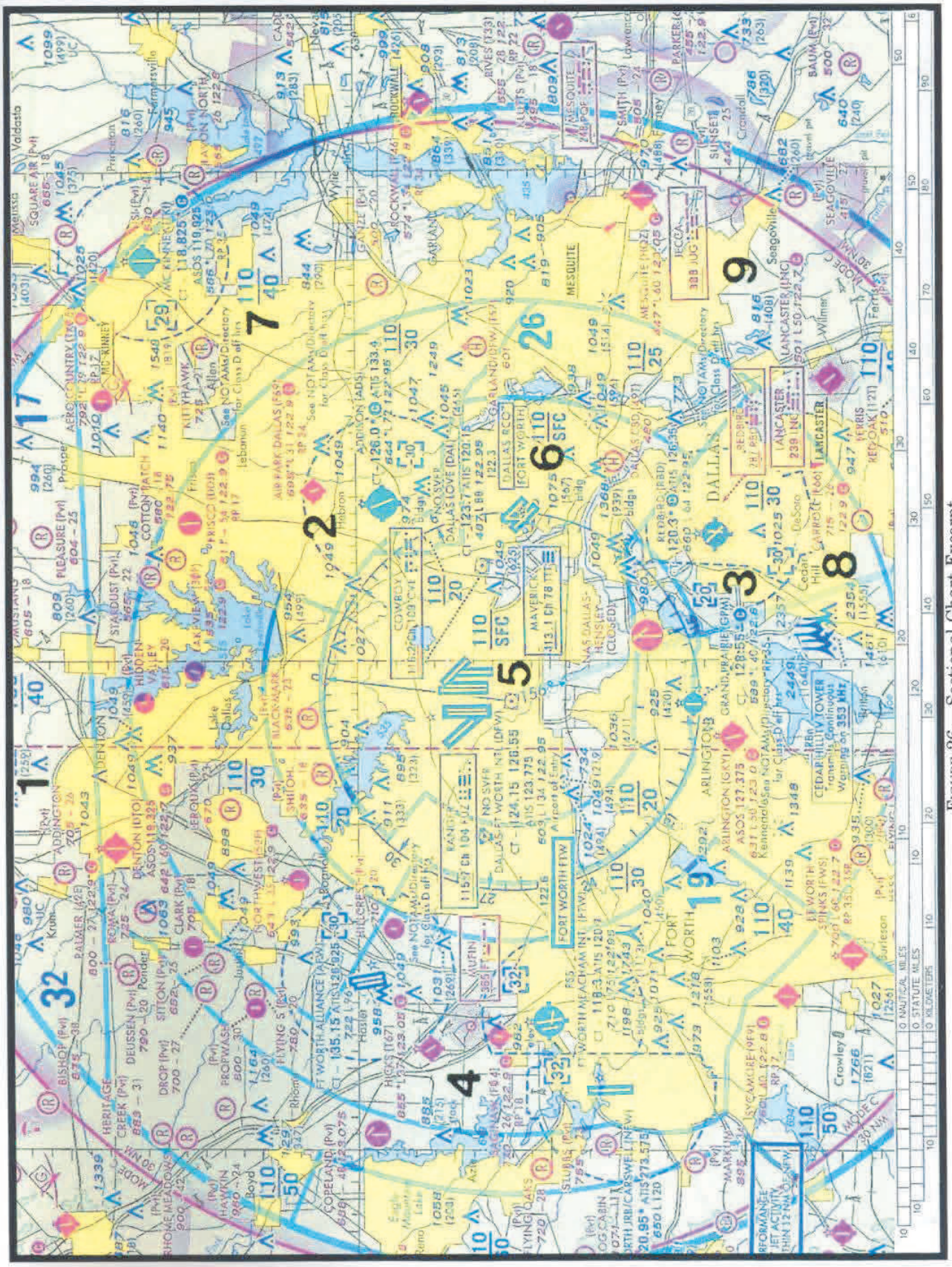


FIGURE 26.—Sectional Chart Excerpt.

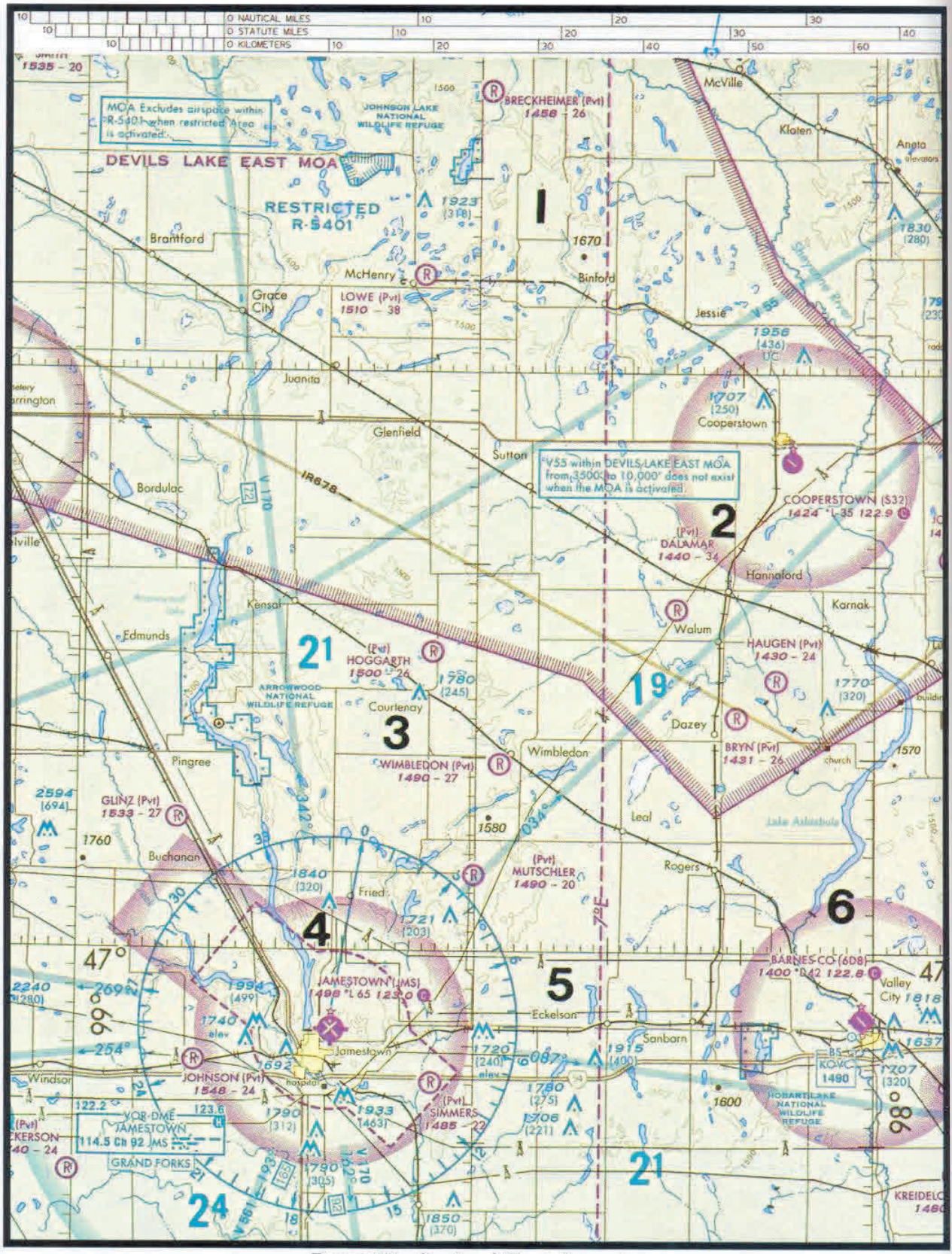


FIGURE 27.—Sectional Chart Excerpt.

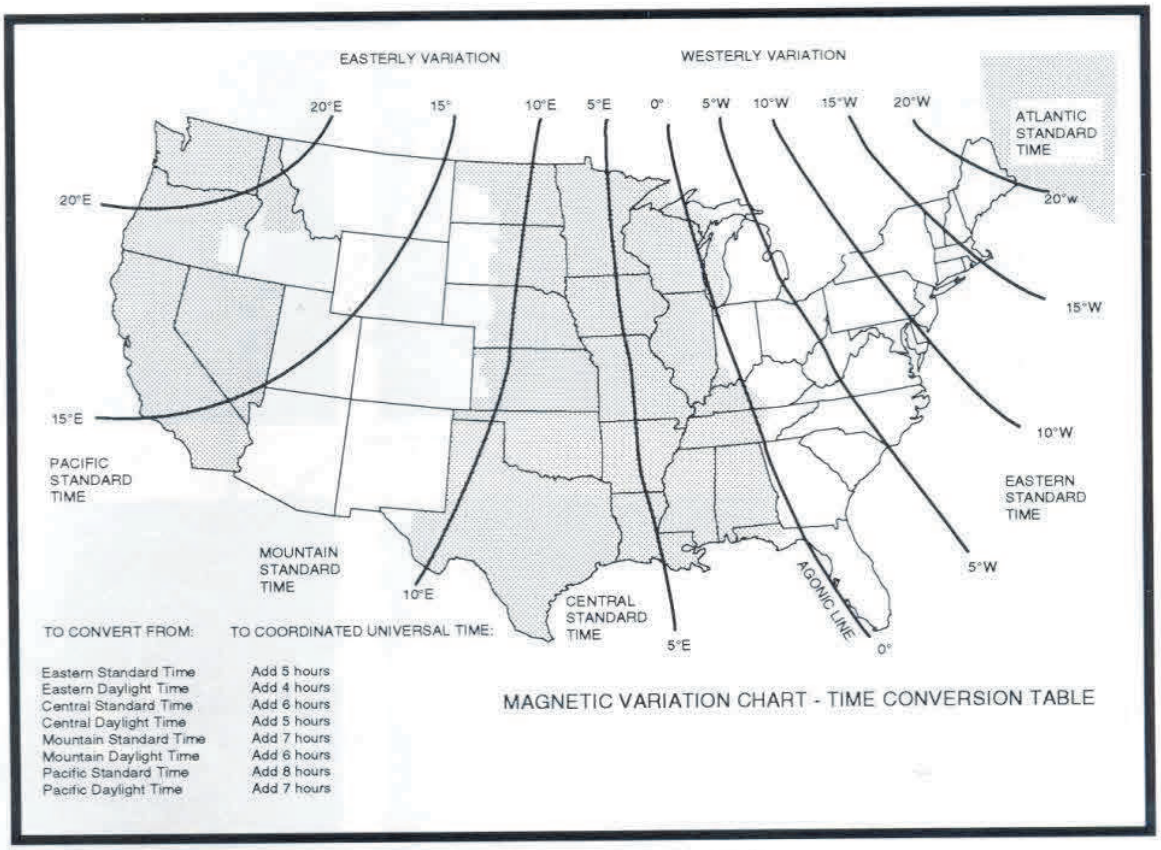


FIGURE 28.—Time Conversion Table.

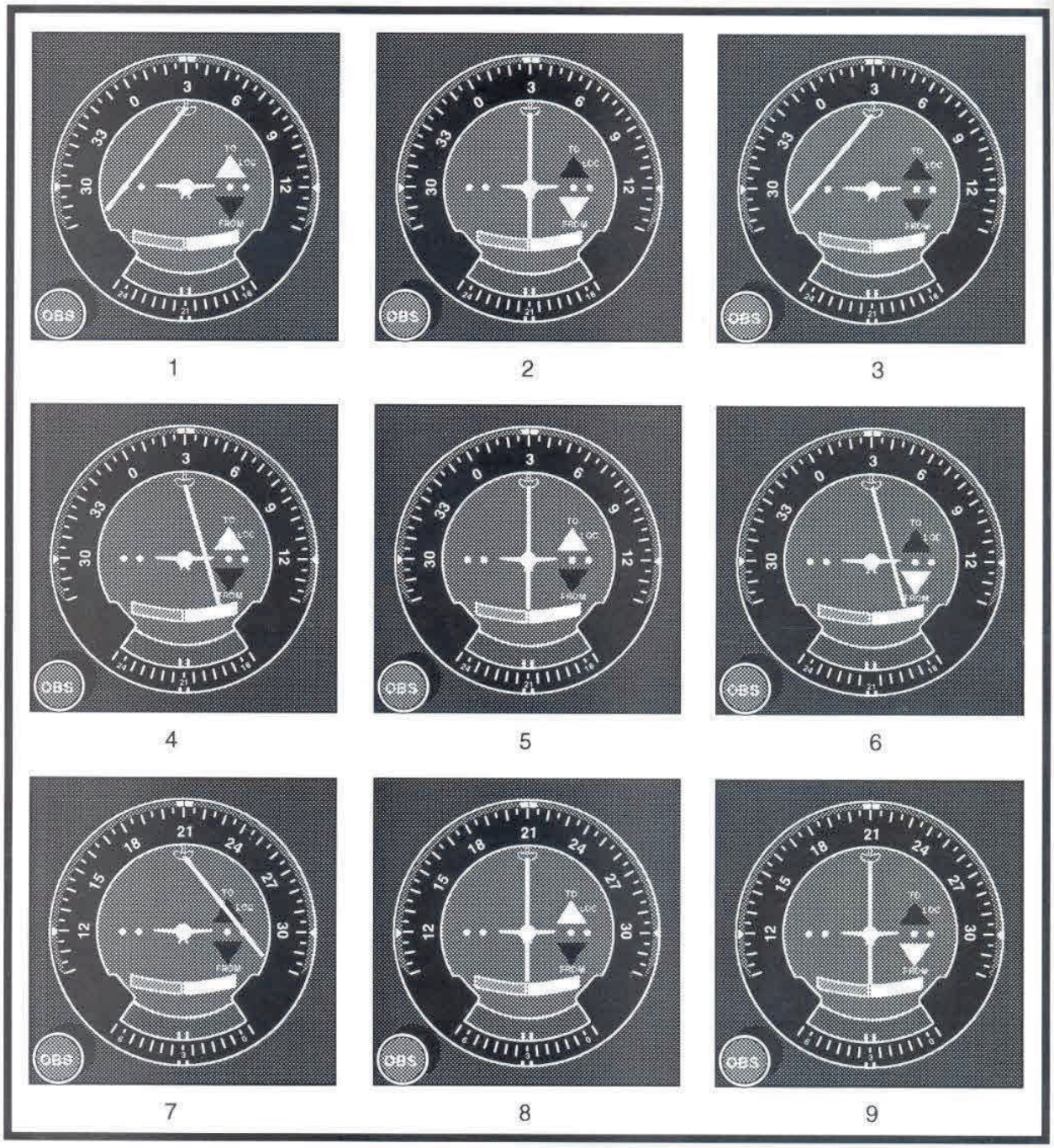


FIGURE 29.—VOR.

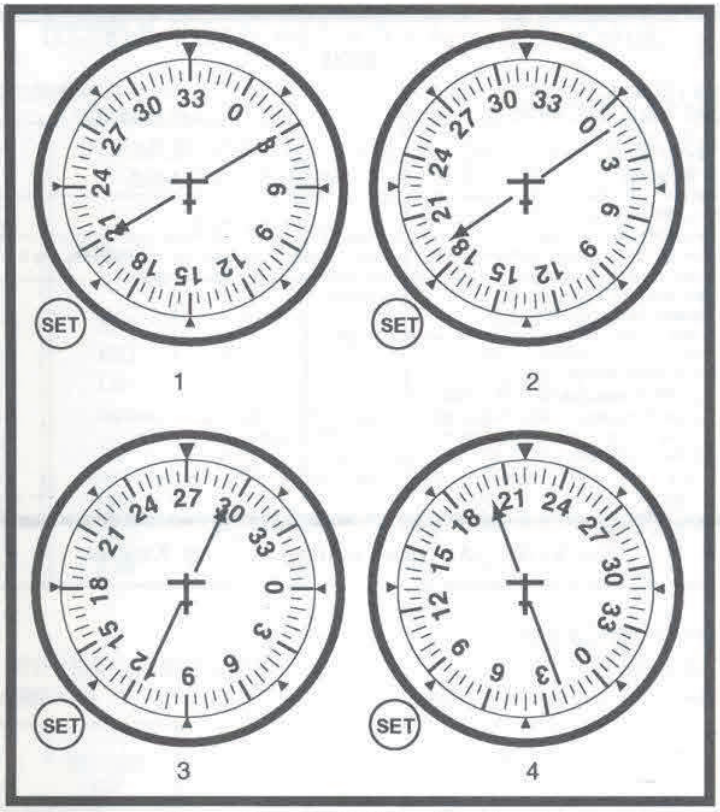


FIGURE 30.—ADF (Movable Card).

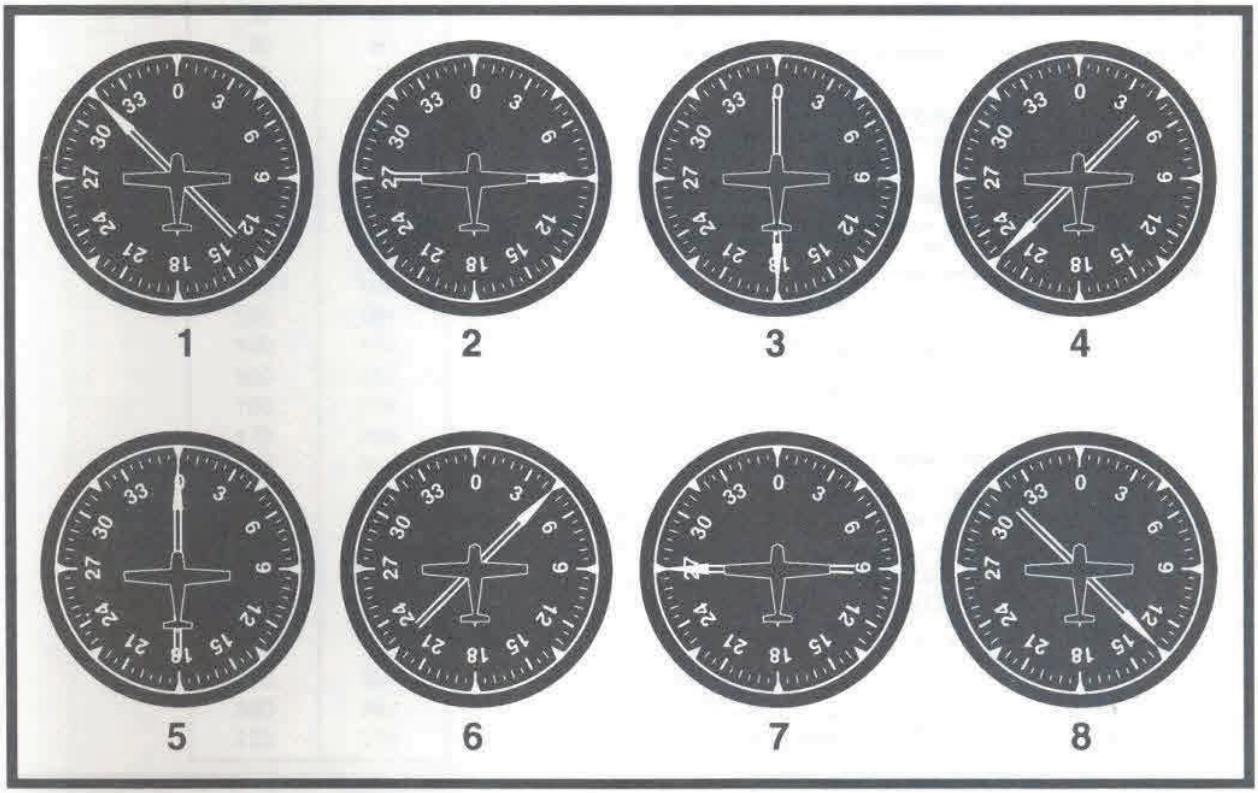
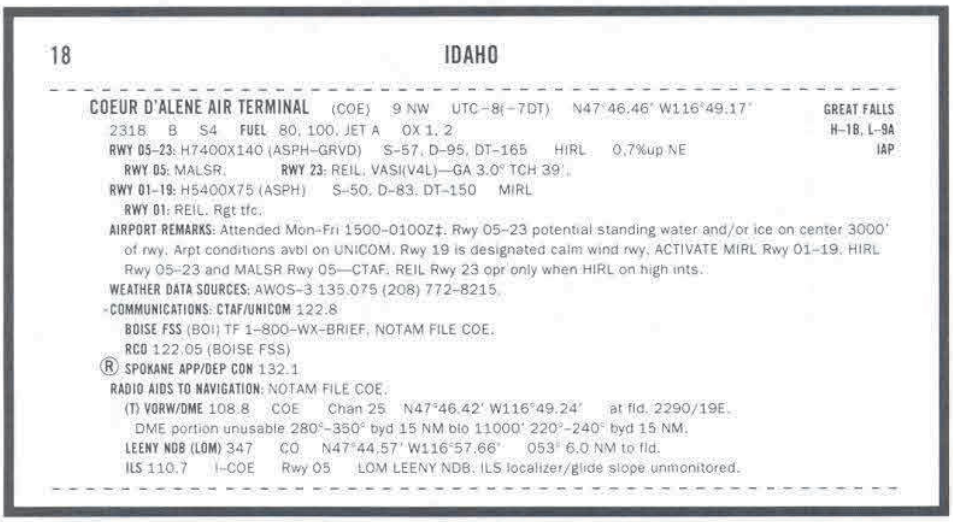


FIGURE 31.—ADF (Fixed Card).



18 IDAHO

COEUR D'ALENE AIR TERMINAL (COE) 9 NW UTC−8(−7DT) N47°46.46' W116°49.17' GREAT FALLS H−1B, L−9A IAP
2318 B S4 **FUEL** 80, 100, JET A OX 1, 2
RWY 05−23: H7400X140 (ASPH−GRVD) S−57, D−95, DT−165 HIRL 0.7%up NE
RWY 05: MALSR. **RWY 23:** REIL, VASI(V4L)—GA 3.0° TCH 39'.
RWY 01−19: H5400X75 (ASPH) S−50, D−83, DT−150 MIRL
RWY 01: REIL. Rgt tfc.
AIRPORT REMARKS: Attended Mon−Fri 1500−0100Z‡. Rwy 05−23 potential standing water and/or ice on center 3000' of rwy. Arpt conditions avbl on UNICOM. Rwy 19 is designated calm wind rwy. ACTIVATE MIRL Rwy 01−19. HIRL Rwy 05−23 and MALSR Rwy 05—CTAF. REIL Rwy 23 opr only when HIRL on high ints.
WEATHER DATA SOURCES: AWOS−3 135.075 (208) 772−8215.
COMMUNICATIONS: CTAF/UNICOM 122.8
BOISE FSS (BOI) TF 1−800−WX−BRIEF. NOTAM FILE COE.
RCO 122.05 (BOISE FSS)
Ⓡ **SPOKANE APP/DEP CON** 132.1
RADIO AIDS TO NAVIGATION: NOTAM FILE COE.
(T) VORW/DME 108.8 COE Chan 25 N47°46.42' W116°49.24' at fld. 2290/19E.
DME portion unusable 280°−350° byd 15 NM blo 11000' 220°−240° byd 15 NM.
LEENY NDB (LOM) 347 CO N47°44.57' W116°57.66' 053° 6.0 NM to fld.
ILS 110.7 I−COE Rwy 05 LOM LEENY NDB. ILS localizer/glide slope unmonitored.

FIGURE 32.—Airport/Facility Directory Excerpt.

USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment / 100	Weight	Moment / 100
120	102	120	145
130	110	130	157
140	119	140	169
150	128	150	182
160	136	160	194
170	144	170	206
180	153	180	218
190	162	190	230
200	170	200	242

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment / 100
10	14
20	28
30	42
40	56
50	70
60	84
70	98
80	112
90	126
100	140
110	154
120	168
130	182
140	196
150	210
160	224
170	238
180	252
190	266
200	280
210	294
220	308
230	322
240	336
250	350
260	364
270	378

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment / 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment / 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment / 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

MOM / 100 ~ 1554

MOMENT LIMITS vs WEIGHT

Moment limits are based on the following weight and center of gravity limit data (landing gear down).

WEIGHT CONDITION	FORWARD CG LIMIT	AFT CG LIMIT
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

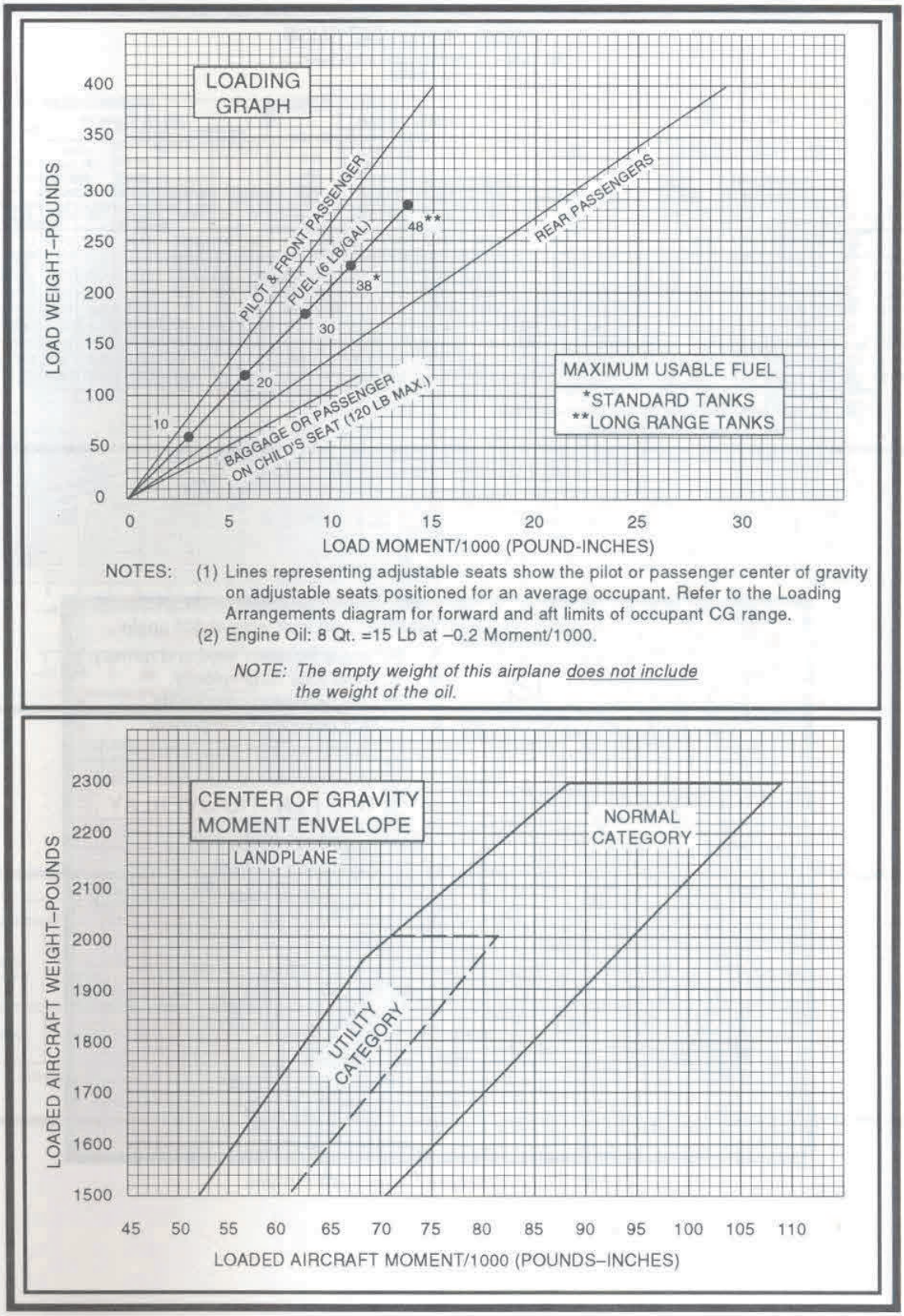
FIGURE 33.—Airplane Weight and Balance Tables.

MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34.—Airplane Weight and Balance Tables.



NOTES: (1) Lines representing adjustable seats show the pilot or passenger center of gravity on adjustable seats positioned for an average occupant. Refer to the Loading Arrangements diagram for forward and aft limits of occupant CG range.
(2) Engine Oil: 8 Qt. =15 Lb at –0.2 Moment/1000.

NOTE: The empty weight of this airplane does not include the weight of the oil.

FIGURE 35.—Airplane Weight and Balance Graphs.

CRUISE POWER SETTINGS

65% MAXIMUM CONTINUOUS POWER (OR FULL THROTTLE)
2800 POUNDS

PRESS ALT.	ISA –20 °C (–36 °F)								STANDARD DAY (ISA)								ISA +20 °C (+36 °F)							
	IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS	
FEET	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH
SL	27	-3	2450	20.7	6.6	11.5	147	169	63	17	2450	21.2	6.6	11.5	150	173	99	37	2450	21.8	6.6	11.5	153	176
2000	19	-7	2450	20.4	6.6	11.5	149	171	55	13	2450	21.0	6.6	11.5	153	176	91	33	2450	21.5	6.6	11.5	156	180
4000	12	-11	2450	20.1	6.6	11.5	152	175	48	9	2450	20.7	6.6	11.5	156	180	84	29	2450	21.3	6.6	11.5	159	183
6000	5	-15	2450	19.8	6.6	11.5	155	178	41	5	2450	20.4	6.6	11.5	158	182	79	26	2450	21.0	6.6	11.5	161	185
8000	-2	-19	2450	19.5	6.6	11.5	157	181	36	2	2450	20.2	6.6	11.5	161	185	72	22	2450	20.8	6.6	11.5	164	189
10000	-8	-22	2450	19.2	6.6	11.5	160	184	28	-2	2450	19.9	6.6	11.5	163	188	64	18	2450	20.3	6.5	11.4	166	191
12000	-15	-26	2450	18.8	6.4	11.3	162	186	21	-6	2450	18.8	6.1	10.9	163	188	57	14	2450	18.8	5.9	10.6	163	188
14000	-22	-30	2450	17.4	5.8	10.5	159	183	14	-10	2450	17.4	5.6	10.1	160	184	50	10	2450	17.4	5.4	9.8	160	184
16000	-29	-34	2450	16.1	5.3	9.7	156	180	7	-14	2450	16.1	5.1	9.4	156	180	43	6	2450	16.1	4.9	9.1	155	178

NOTES: 1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.

FIGURE 36.—Airplane Power Setting Table.

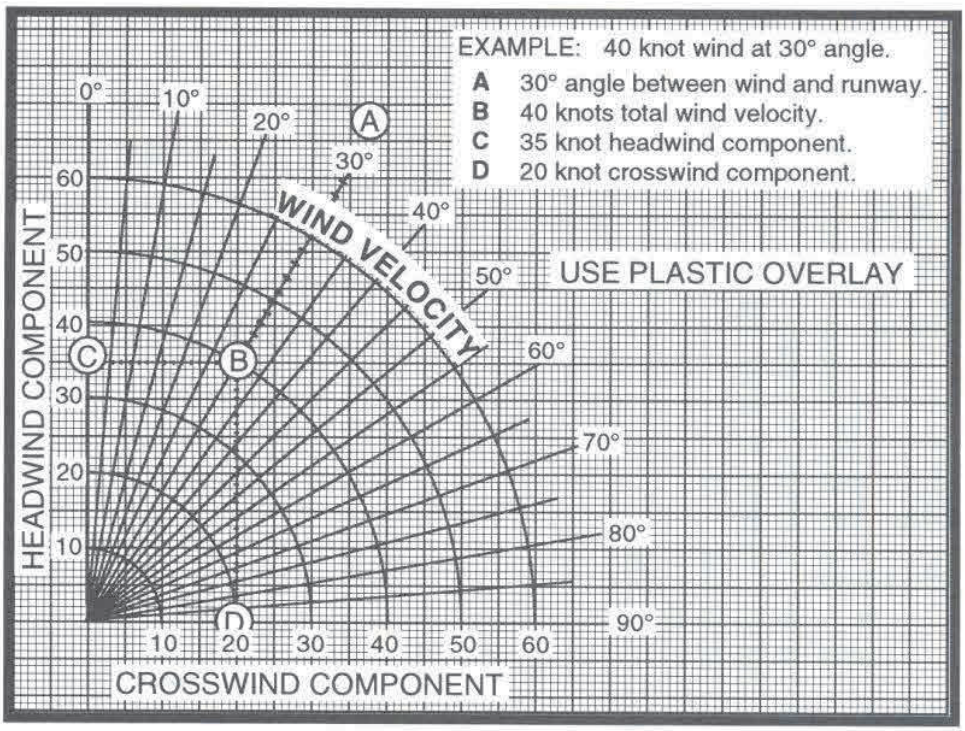


FIGURE 37.—Crosswind Component Graph.

CRUISE POWER SETTINGS

65% MAXIMUM CONTINUOUS POWER (OR FULL THROTTLE)
2800 POUNDS

PRESS ALT.	ISA –20 °C (–36 °F)								STANDARD DAY (ISA)								ISA +20 °C (+36 °F)							
	IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS	
FEET	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH
SL	27	-3	2450	20.7	6.6	11.5	147	169	63	17	2450	21.2	6.6	11.5	150	173	99	37	2450	21.8	6.6	11.5	153	176
2000	19	-7	2450	20.4	6.6	11.5	149	171	55	13	2450	21.0	6.6	11.5	153	176	91	33	2450	21.5	6.6	11.5	156	180
4000	12	-11	2450	20.1	6.6	11.5	152	175	48	9	2450	20.7	6.6	11.5	156	180	84	29	2450	21.3	6.6	11.5	159	183
6000	5	-15	2450	19.8	6.6	11.5	155	178	41	5	2450	20.4	6.6	11.5	158	182	79	26	2450	21.0	6.6	11.5	161	185
8000	-2	-19	2450	19.5	6.6	11.5	157	181	36	2	2450	20.2	6.6	11.5	161	185	72	22	2450	20.8	6.6	11.5	164	189
10000	-8	-22	2450	19.2	6.6	11.5	160	184	28	-2	2450	19.9	6.6	11.5	163	188	64	18	2450	20.3	6.5	11.4	166	191
12000	-15	-26	2450	18.8	6.4	11.3	162	186	21	-6	2450	18.8	6.1	10.9	163	188	57	14	2450	18.8	5.9	10.6	163	188
14000	-22	-30	2450	17.4	5.8	10.5	159	183	14	-10	2450	17.4	5.6	10.1	160	184	50	10	2450	17.4	5.4	9.8	160	184
16000	-29	-34	2450	16.1	5.3	9.7	156	180	7	-14	2450	16.1	5.1	9.4	156	180	43	6	2450	16.1	4.9	9.1	155	178

NOTES: 1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.

FIGURE 36.—Airplane Power Setting Table.

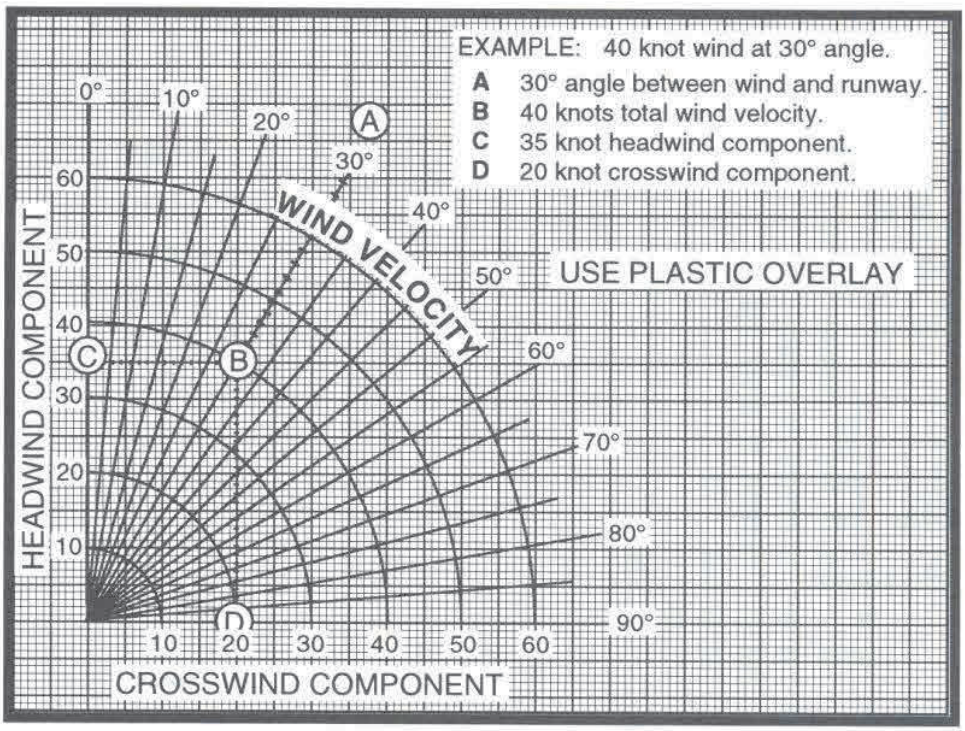


FIGURE 37.—Crosswind Component Graph.

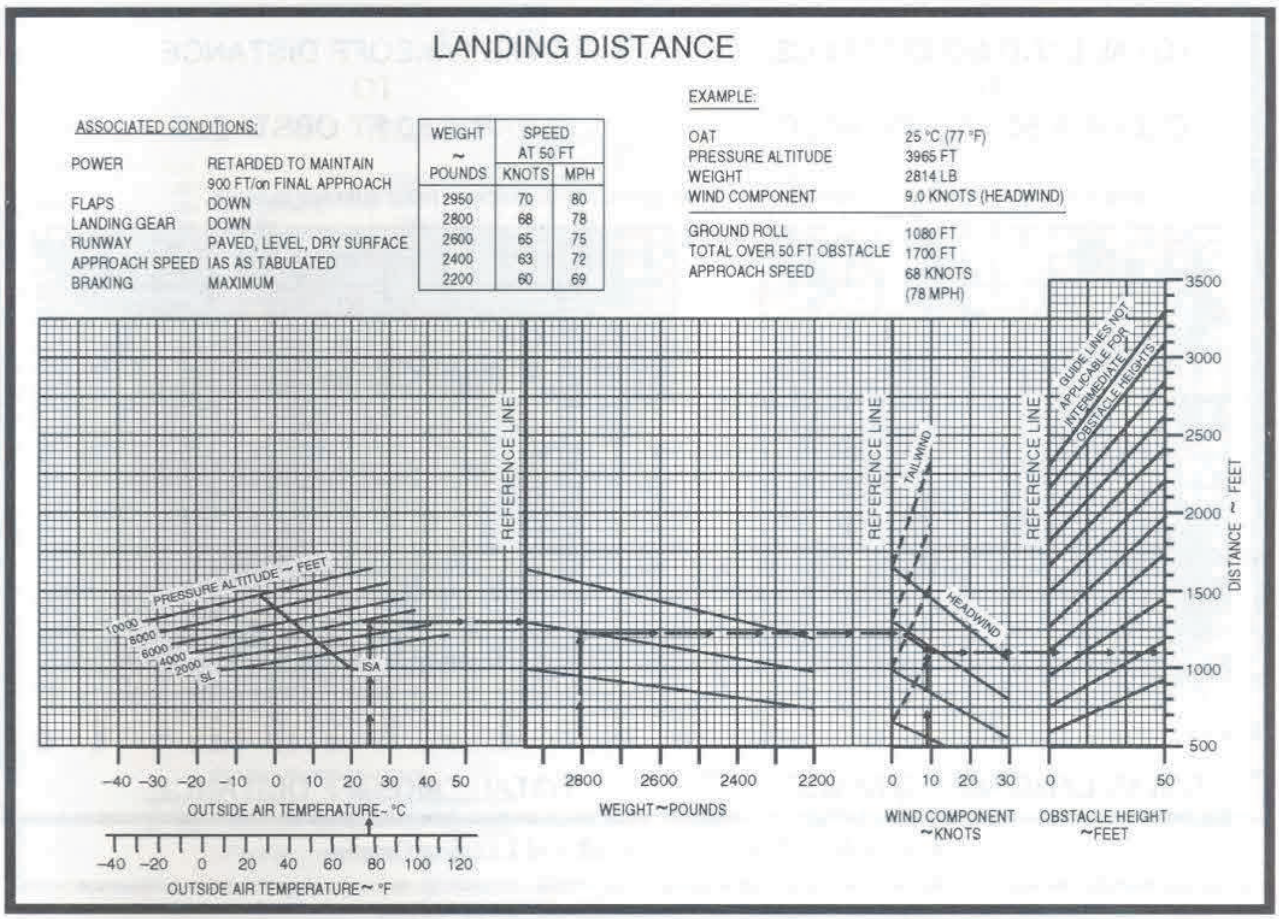


FIGURE 38.—Airplane Landing Distance Graph.

LANDING DISTANCE

FLAPS LOWERED TO 40 ° - POWER OFF
HARD SURFACE RUNWAY - ZERO WIND

GROSS WEIGHT LB	APPROACH SPEED, IAS, MPH	AT SEA LEVEL & 59 °F		AT 2500 FT & 50 °F		AT 5000 FT & 41 °F		AT 7500 FT & 32 °F	
		GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS
1600	60	445	1075	470	1135	495	1195	520	1255

NOTES: 1. Decrease the distances shown by 10% for each 4 knots of headwind.
2. Increase the distance by 10% for each 60 °F temperature increase above standard.
3. For operation on a dry, grass runway, increase distances (both "ground roll" and "total to clear 50 ft obstacle") by 20% of the "total to clear 50 ft obstacle" figure.

FIGURE 39.—Airplane Landing Distance Table.

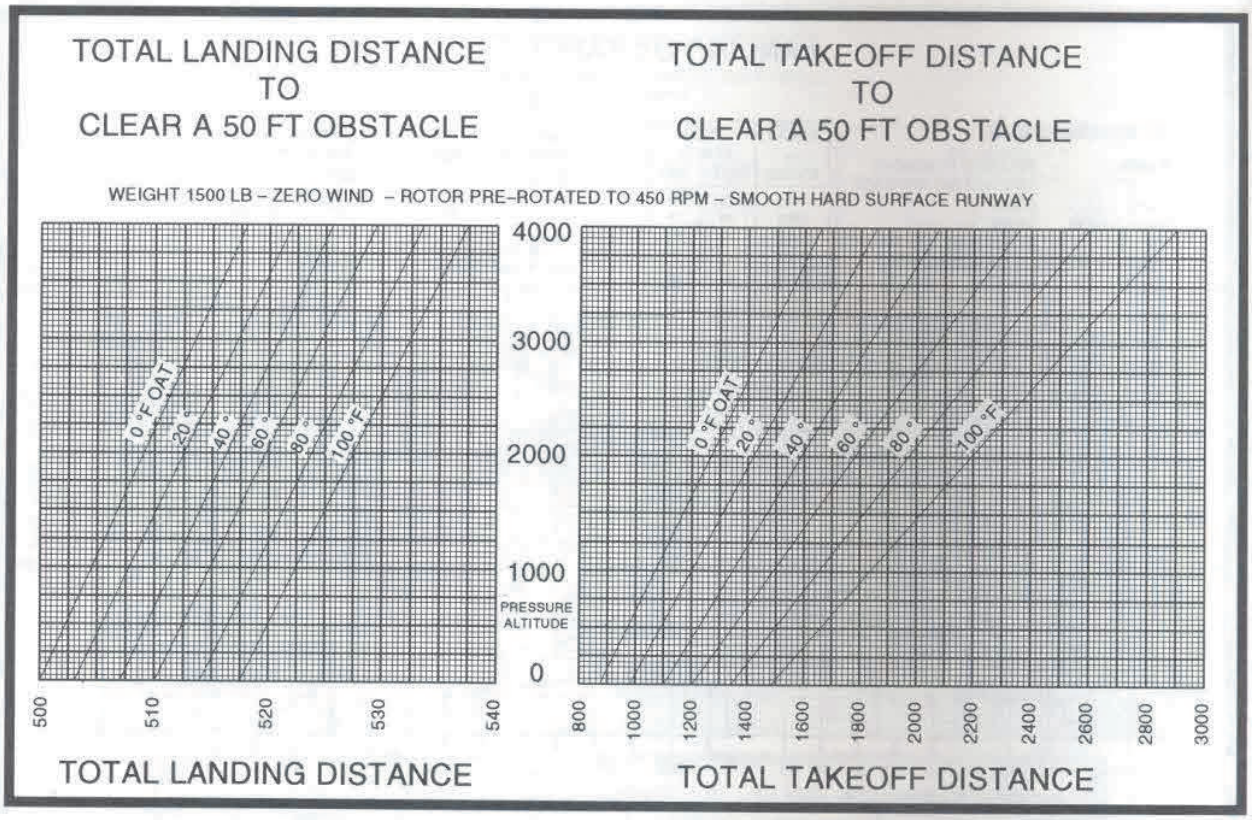


FIGURE 40.—Gyroplane Takeoff and Landing Graphs.

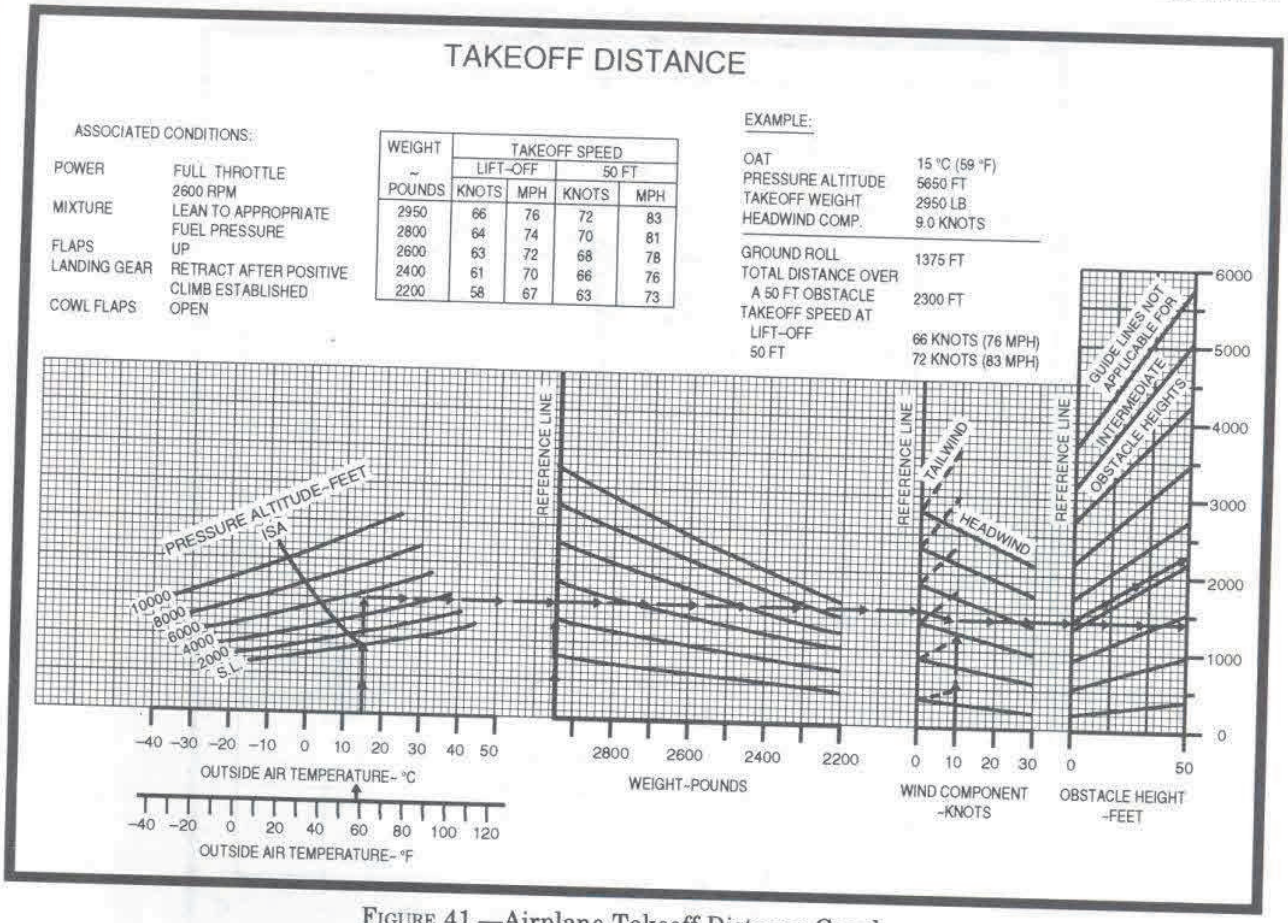


FIGURE 41.—Airplane Takeoff Distance Graph.

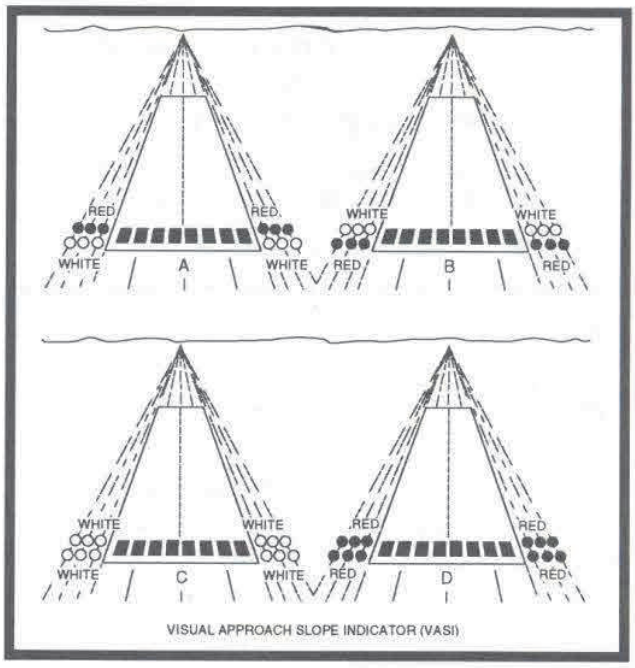


FIGURE 48.—VASI Illustrations.

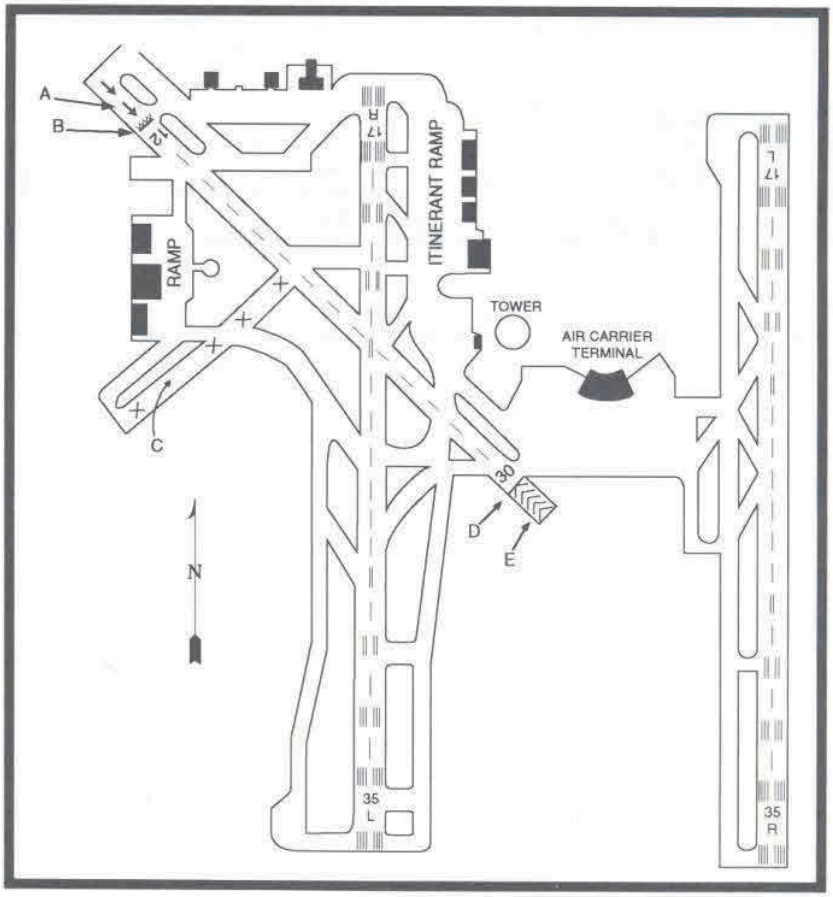


FIGURE 49.—Airport Diagram.

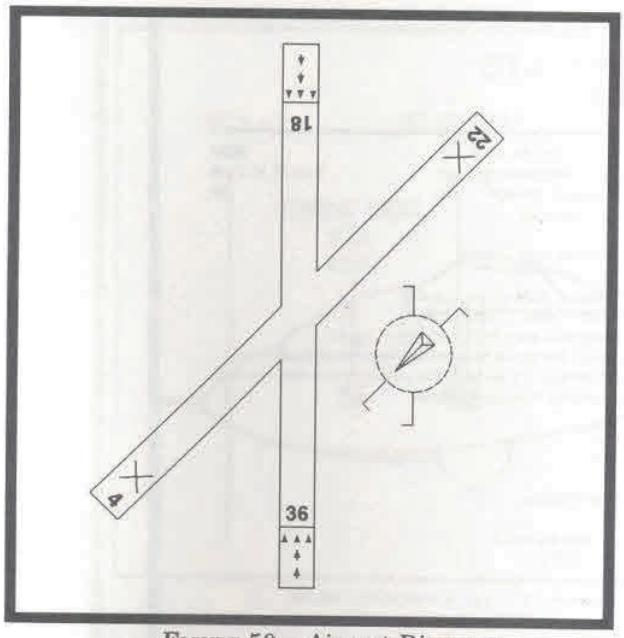


FIGURE 50.—Airport Diagram.

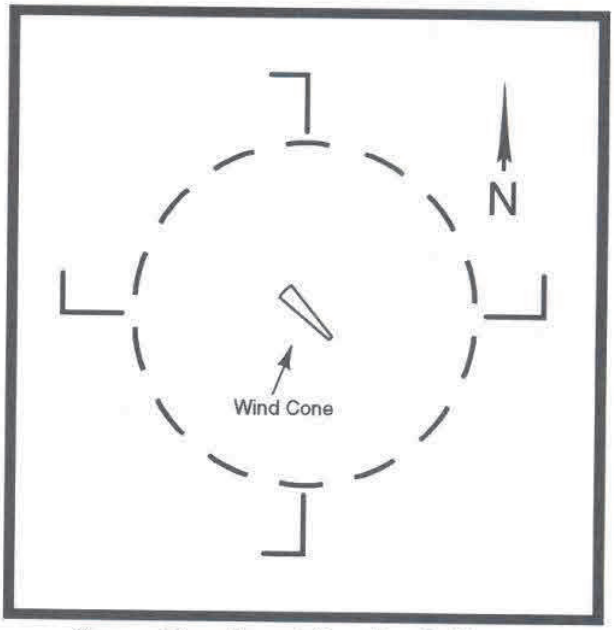


FIGURE 51.—Airport Landing Indicator.

Form Approved: OMB No. 2120-0026

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER | TIME STARTED | SPECIALIST INITIALS

1 TYPE	2 AIRCRAFT IDENTIFICATION	3 AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4 TRUE AIRSPEED	5 DEPARTURE POINT	6 DEPARTURE TIME		7 CRUISING ALTITUDE
☐ VFR ☐ IFR ☐ DVFR			KTS		PROPOSED (Z)	ACTUAL (Z)	

8 ROUTE OF FLIGHT

9 DESTINATION (Name of airport and city)	10 EST. TIME ENROUTE		11 REMARKS
	HOURS	MINUTES	

12 FUEL ON BOARD		13 ALTERNATE AIRPORT(S)	14 PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15 NUMBER ABOARD
HOURS	MINUTES			
			17 DESTINATION CONTACT/TELEPHONE (OPTIONAL)	

16 COLOR OF AIRCRAFT

CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

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

FIGURE 52.—Flight Plan Form.

LINCOLN MUNI (LNK) 4 NW UTC-6(-5DT) N40°51.05' W96°45.55' OMAHA
1218 B S4 **FUEL** 100LL, JET A TPA—2218(1000) ARFF Index B H-1E, 3F, 4F, L-11B
RWY 17R-35L: H12901X200 (ASPH-CONC-GRVD) S-100, D-200, DT-400 HIRL IAP
RWY 17R: MALSR, VASI(V4L)—GA 3.0° TCH 55', Rgt tfc. 0.4% down.
RWY 35L: MALSR, VASI(V4L)—GA 3.0° TCH 55'.
RWY 14-32: H8620X150 (ASPH-CONC-GRVD) S-80, D-170, DT-280 MIRL
RWY 14: REIL, VASI(V4L)—GA 3.0° TCH 48'.
RWY 32: VASI(V4L)—GA 3.0° TCH 53', Thld dsplcd 431', Pole, 0.3% up.
RWY 17L-35R: H5400X100 (ASPH-CONC-AFSC) S-49, D-60 HIRL 0.8% up N
RWY 17L: PAPI(P4L)—GA 3.0° TCH 33'. **RWY 35R:** PAPI(P4L)—GA 3.0° TCH 40', Pole, Rgt tfc.
AIRPORT REMARKS: Attended continuously. Birds in vicinity of arpt. Twy D clsd between taxiways S and H indef. For MALSR Rwy 17R and Rwy 35L ctc twr. When twr clsd MALSR Rwy 17R and Rwy 35L preset on med ints, and REIL Rwy 14 left on when wind favor. NOTE: See Land and Hold Short Operations Section.
WEATHER DATA SOURCES: ASOS (402) 474-9214. LLWAS
COMMUNICATIONS: CTAF 118.5 **ATIS** 118.05 **UNICOM** 122.95
COLUMBUS FSS (OLU) TF 1-800-WX-BRIEF. NOTAM FILE LNK.
RCO 122.65 (COLUMBUS FSS)
Ⓡ **APP/DEP CON** 124.0 (170°-349°) 124.8 (350°-169°) (1130-0630Z‡)
Ⓡ **MINNEAPOLIS CENTER APP/DEP CON** 128.75 (0630-1130Z‡)
TOWER 118.5 125.7 (1130-0630Z‡) **GND CON** 121.9 **CLNC DEL** 120.7
AIRSPACE: CLASS C svc 1130-0630Z‡ ctc **APP CON** other times CLASS E.
RADIO AIDS TO NAVIGATION: NOTAM FILE LNK. VHF/DF ctc FSS.
(H) VORTACW 116.1 LNK Chan 108 N40°55.43' W96°44.52' 181° 4.5 NM to fld. 1370/9E
POTTS NDB (MHW/LOM) 385 LN N40°44.83' W96°45.75' 355° 6.2 NM to fld. Unmonitored when twr clsd.
ILS 111.1 I-OCZ Rwy 17R. MM and OM unmonitored.
ILS 109.9 I-LNK Rwy 35L LOM POTTS NDB. MM unmonitored. LOM unmonitored when twr clsd.
COMM/NAVAID REMARKS: Emerg frequency 121.5 not available at tower.

LOUP CITY MUNI (NE03) 1 NW UTC-6(-5DT) N41°17.42' W98°59.44' OMAHA
2070 B **FUEL** 100LL L-11B
RWY 15-33: H3200X50 (ASPH) S-8 LIRL
RWY 33: Trees.
RWY 04-22: 2100X100 (TURF)
RWY 04: Tree. **RWY 22:** Road.
AIRPORT REMARKS: Unattended. For svc call 308-745-0328/1244/0664.
COMMUNICATIONS: CTAF 122.9
COLUMBUS FSS (OLU) TF 1-800-WX-BRIEF. NOTAM FILE OLU.
RADIO AIDS TO NAVIGATION: NOTAM FILE OLU.
WOLBACH (H) VORTAC 114.8 OBH Chan 95 N41°22.54' W98°21.22' 253° 29.3 NM to fld. 2010/7E.

MARTIN FLD (See SO SIOUX CITY)

MC COOK MUNI (MCK) 2 E UTC-6(-5DT) N40°12.36' W100°35.51' OMAHA
2579 B S4 **FUEL** 100LL, JET A ARFF Index Ltd. H-2D, L-11A
RWY 12-30: H5999X100 (CONC) S-30, D-38 MIRL 0.6% up NW IAP
RWY 12: MALS, VASI(V4L)—GA 3.0° TCH 33', Tree. **RWY 30:** REIL, VASI(V4L)—GA 3.0° TCH 42'.
RWY 03-21: H3999X75 (CONC) S-30, D-38 MIRL
RWY 03: VASI(V2L)—GA 3.0° TCH 26', Rgt tfc. **RWY 21:** VASI(V2L)—GA 3.0° TCH 26'.
RWY 17-35: 1350X200 (TURF)
AIRPORT REMARKS: Attended daylight hours. Parachute Jumping. Deer on and in vicinity of arpt. Numerous waterfowl/migratory birds invof arpt. Arpt closed to air carrier operations with more than 30 passengers except 24 hour PPR, call arpt manager 308-345-2022. Avoid McCook State (abandoned) arpt 7 miles NW on the MCK VOR/DME 313° radial at 8.3 DME. ACTIVATE VASI Rwys 12 and 30 and MALS Rwy 12—CTAF.
COMMUNICATIONS: CTAF/UNICOM 122.8
COLUMBUS FSS (OLU) TF 1-800-WX-BRIEF. NOTAM FILE MCK.
RCO 122.6 (COLUMBUS FSS)
DENVER CENTER APP/DEP CON 132.7
AIRSPACE: CLASS E svc effective 1100-0500Z‡ except holidays other times CLASS G.
RADIO AIDS TO NAVIGATION: NOTAM FILE MCK.
(H) VORW/DME 115.3 MCK Chan 100 N40°12.23' W100°35.65' at fld. 2570/8E.

FIGURE 53.—Airport/Facility Directory Excerpt.

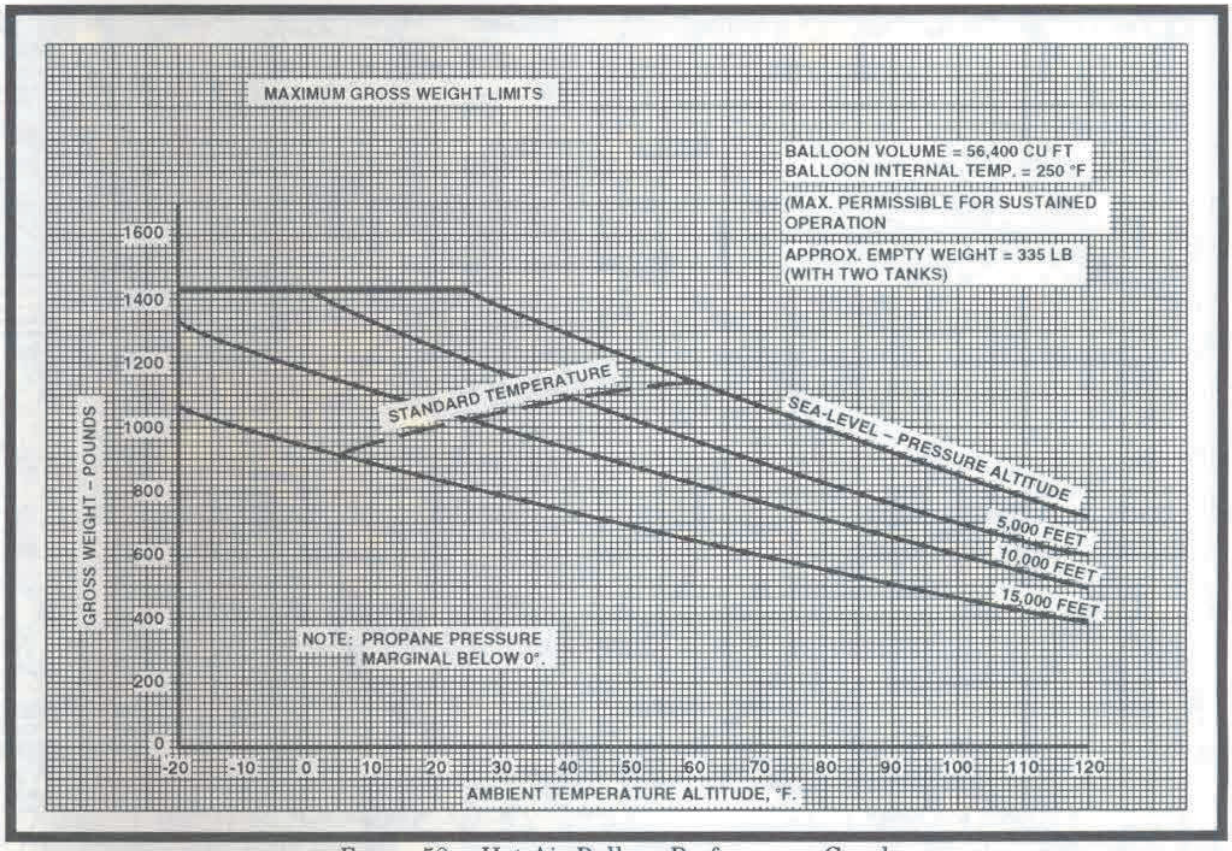


FIGURE 58.—Hot Air Balloon Performance Graph.

For	N	30	60	E	120	150
Steer	0	27	56	85	116	148
For	S	210	240	W	300	330
Steer	181	214	244	274	303	332

FIGURE 59.—Compass card.

FIGURE 60.—Sectional Chart Excerpt.

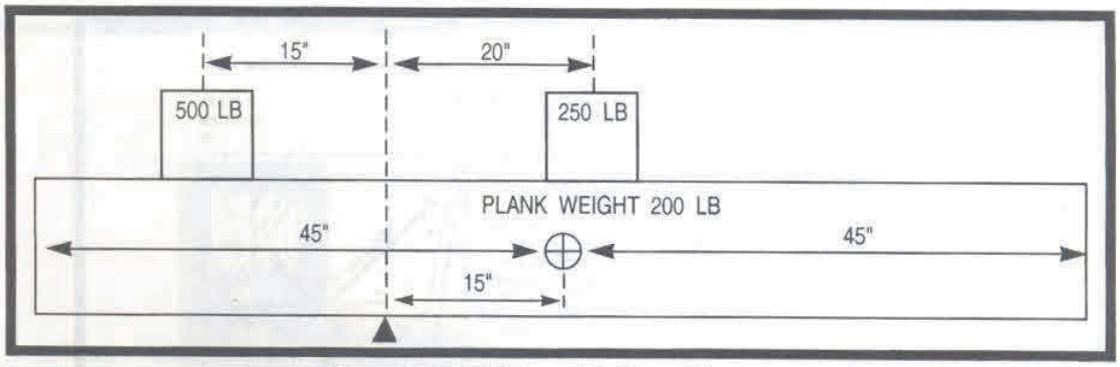


FIGURE 61.—Weight and Balance Diagram.

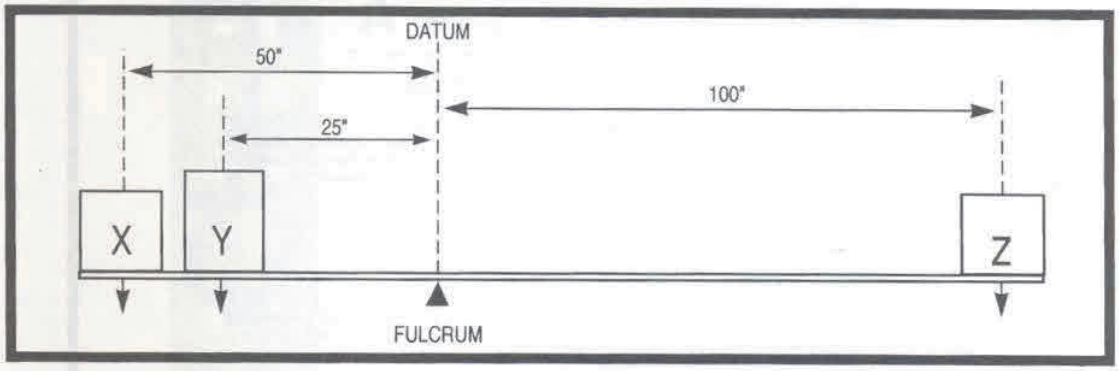


FIGURE 62.—Weight and Balance Diagram.

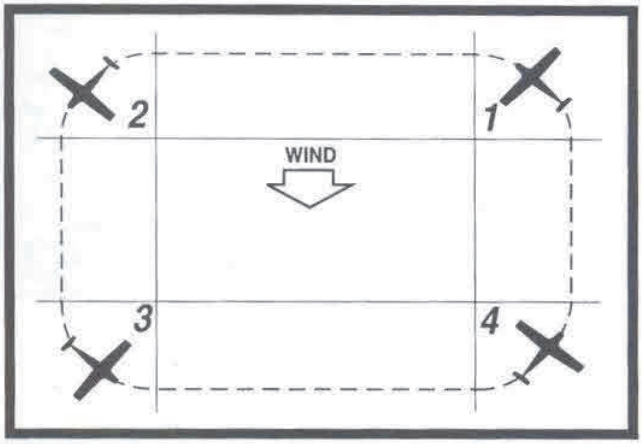


FIGURE 63.—Rectangular Course.

OHIO

TOLEDO

METCALF FLD (TDZ) 6 SE UTC-5(-4DT) N41°33.89' W83°28.94' DETROIT H-3H, L-23C IAP

622 B S4 FUEL 100LL, JET A OX 1, 3

RWY 14-32: H5830X100 (ASPH) S-63, D-85 MIRL

RWY 14: REIL. Tower. RWY 32: VASI(V4L)—GA 3.0° TCH 43'. Road.

RWY 04-22: H3664X150 (ASPH) S-63, D-85 MIRL

RWY 04: REIL. VASI(V4L)—GA 3.0° TCH 45'. Trees.

RWY 22: REIL. VASI(V4R)—GA 3.0° TCH 39'. Thld dsplcd 90'. Tree.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 14: TORA 4600 TODA 4600 ASDA 5242 LDA 4680

RWY 32: TORA 5268 TODA 5268 ASDA 5268 LDA 4680

AIRPORT REMARKS: Attended Mon-Fri all hrs; Sat-Sun 1200-0100Z‡. Parallel twy Rwy 04-22 and Rwy 14-32 25' wide. Seagulls on and invof arpt. Ldg fee. ACTIVATE REILs Rwy 04 and Rwy 22—CTAF. Rwy 32 VASI OTS indef. REIL Rwy 14 OTS indef.

WEATHER DATA SOURCES: ASOS 119.275 (419) 838-5034.

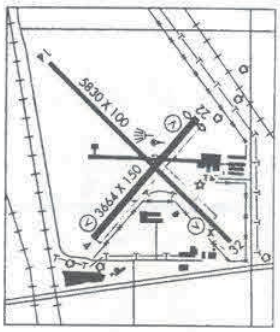
COMMUNICATIONS: CTAF/UNICOM 123.05

CLEVELAND FSS (CLE) TF 1-800-WX-BRIEF. NOTAM FILE TDZ.

Ⓡ TOLEDO APP/DEP CON 134.35 CLNC DEL 125.6 OTS indef.

RADIO AIDS TO NAVIGATION: NOTAM FILE CLE.

WATERVILLE (L) VOR/DME 113.1 VWV Chan 78 N41°27.09' W83°38.32' 048° 9.8 NM to fld. 660/2W.



TOLEDO EXPRESS (TOL) 10 W UTC-5(-4DT) N41°35.21' W83°48.47' DETROIT H-3H, L-23C IAP

684 B S4 FUEL 100LL, JET A OX 3 LRA ARFF Index B

RWY 07-25: H10600X150 (ASPH-GRVD) S-100, D-174, DT-300, DDT-550 HIRL CL

RWY 07: ALSF2. TDZL. Tree. Arresting device.

RWY 25: MALSR. VASI(V4L)—GA 3.0° TCH 51'. Tree. Arresting device. 0.3% up.

RWY 16-34: H5599X150 (ASPH-GRVD) S-100, D-174, DT-300 MIRL

RWY 16: REIL. Trees. RWY 34: REIL. VASI(V4L)—GA 3.0° TCH 35'. Trees.

AIRPORT REMARKS: Attended continuously. Fuel and svc avbl 1300-0500Z‡. Birds and deer on and invof arpt. Customs: Sat-Sun req must be made prior to 2200Z‡ on Fri, phone 419-259-6424. Twy C restricted to B-727 acft or smaller. Rwy 34 REIL OTS indef. NOTE: See Land and Hold Short Operations Section.

WEATHER DATA SOURCES: ASOS (419) 865-8351.

COMMUNICATIONS: ATIS 118.75 UNICOM 122.95

CLEVELAND FSS (CLE) TF 1-800-WX-BRIEF. NOTAM FILE TOL.

Ⓡ APP/DEP CON 126.1 (180°-359°) 134.35 (360°-179°) 123.975

TOWER 118.1 GND CON 121.9 CLNC DEL 121.75

AIRSPACE: CLASS C svc continuous ctc APP CON

RADIO AIDS TO NAVIGATION: NOTAM FILE CLE.

WATERVILLE (L) VOR/DME 113.1 VWV Chan 78 N41°27.09' W83°38.32' 319° 11.1 NM to fld. 660/2W.

TOPHR NDB (LOM) 219 TO N41°33.21' W83°55.27' 074° 5.5 NM to fld. Unmonitored. NOTAM FILE TOL.

ILS 109.7 I-TOL Rwy 07. LOM TOPHR NDB.

ILS 108.7 I-BQE Rwy 25.

ASR

SEAGATE HELISTOP (6T2) 00 N UTC-5(-4DT) N41°39.25' W83°31.88' DETROIT

650

HELIPAD H1: 50X50 (CONC)

HELIPORT REMARKS: Unattended. Ldg fee. ACTIVATE orange perimeter lgts—CTAF. Helipad H1 NSTD 1-box (2 VASIS). For heliport access do street phone 419-247-2172; 2 days in advance. Helipad H1 not marked with "H." Helipad H1 perimeter lgts.

COMMUNICATIONS: CTAF/UNICOM 123.05

CLEVELAND FSS (FDY) TF 800-WX-BRIEF. NOTAM FILE CLE.

MICHIGAN

ADRIAN

LENAWEE CO (ADG) 3 SW UTC-5(-4DT) N41°52.17' W84°04.49' DETROIT L-23C IAP

798 B S4 FUEL 100LL, JET A

RWY 05-23: H3994X75 (ASPH) S-20 MIRL

RWY 05: REIL. VASI(V4L)—GA 3.0 TCH 40'. Road. RWY 23: PAPI(P4R)—GA 3.2° TCH 30'. Tree.

RWY 11-29: 2400X270 (TURF)

RWY 11: Trees. RWY 29: Trees.

AIRPORT REMARKS: Attended 1300Z‡-dusk. Arpt unattended major holidays except by prior arrangement; call arpt manager 517-263-0045. Rwy 11-29 CLOSED Dec-Apr and when snow covered. Snow removal Rwy 05-23 only. Extensive glider ops weekends. Rgt tfc Rwy 05 for glider ops. Perimeters twy marked with reflectors. Taxi on hard surfaces only during spring thaw and wet conditions. Rwy 11-29 marked with 3' yellow cones. MIRL Rwy 05-23 preset low inst; to increase ints and ACTIVATE REIL Rwy 05; VASI Rwy 05 and PAPI Rwy 23—CTAF.

WEATHER DATA SOURCES: ASOS 118.375 (517) 265-9089.

COMMUNICATIONS: CTAF/UNICOM 122.8

LANSING FSS (LAN) TF 1-800-WX-BRIEF. NOTAM FILE ADG.

Ⓡ TOLEDO APP/DEP CON 126.1

RADIO AIDS TO NAVIGATION: NOTAM FILE JXN.

JACKSON (L) VORW/DME 109.6 JXN Chan 33 N42°15.55' W84°27.52' 149° 29 NM to fld. 1000/5W.

ADRIAN NDB (MHW) 278 ADG N41°52.20' W84°04.66' at fld. NOTAM FILE ADG. Unmonitored.

FIGURE 64.—Airport/Facility Directory Excerpt.

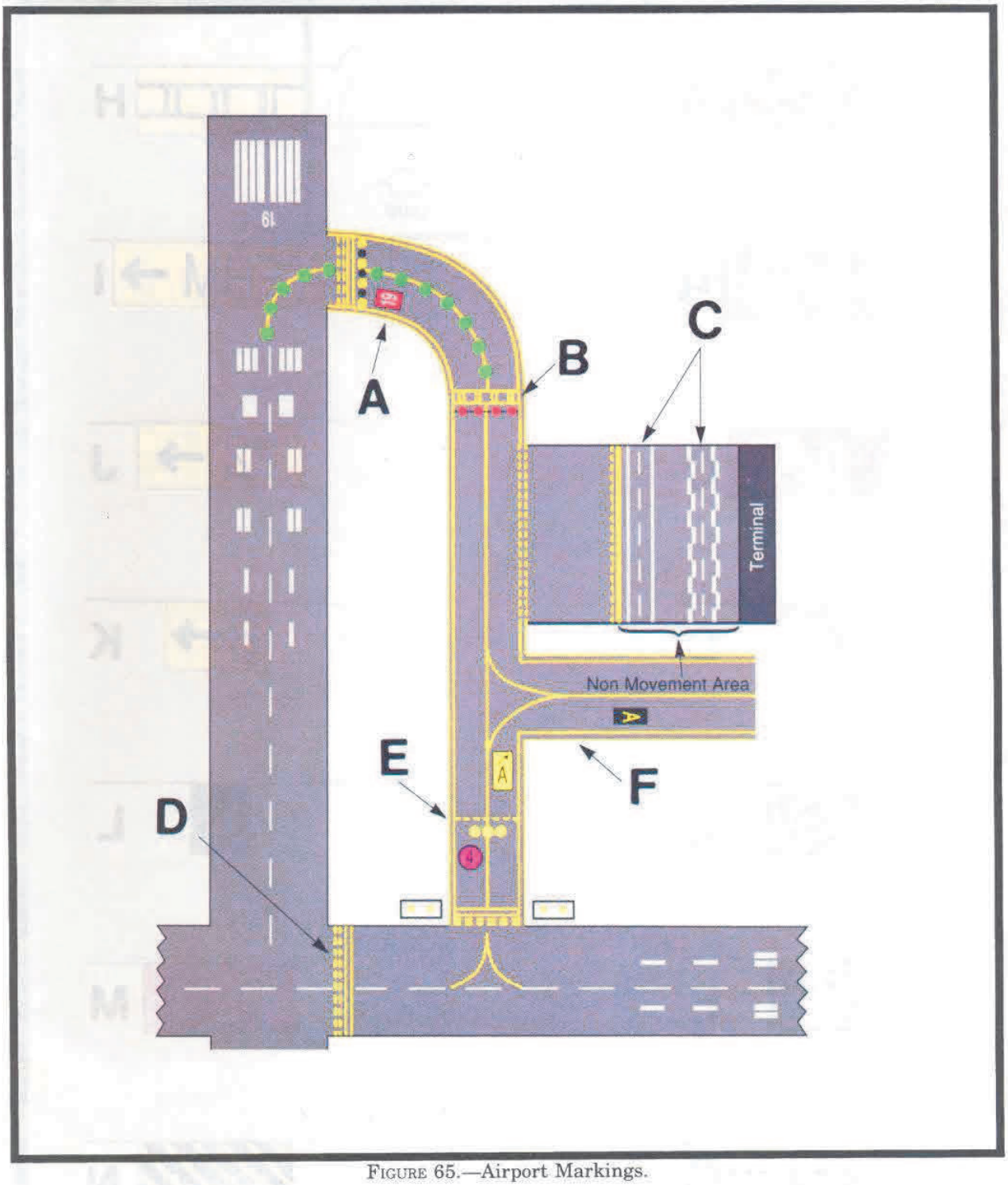


FIGURE 65.—Airport Markings.

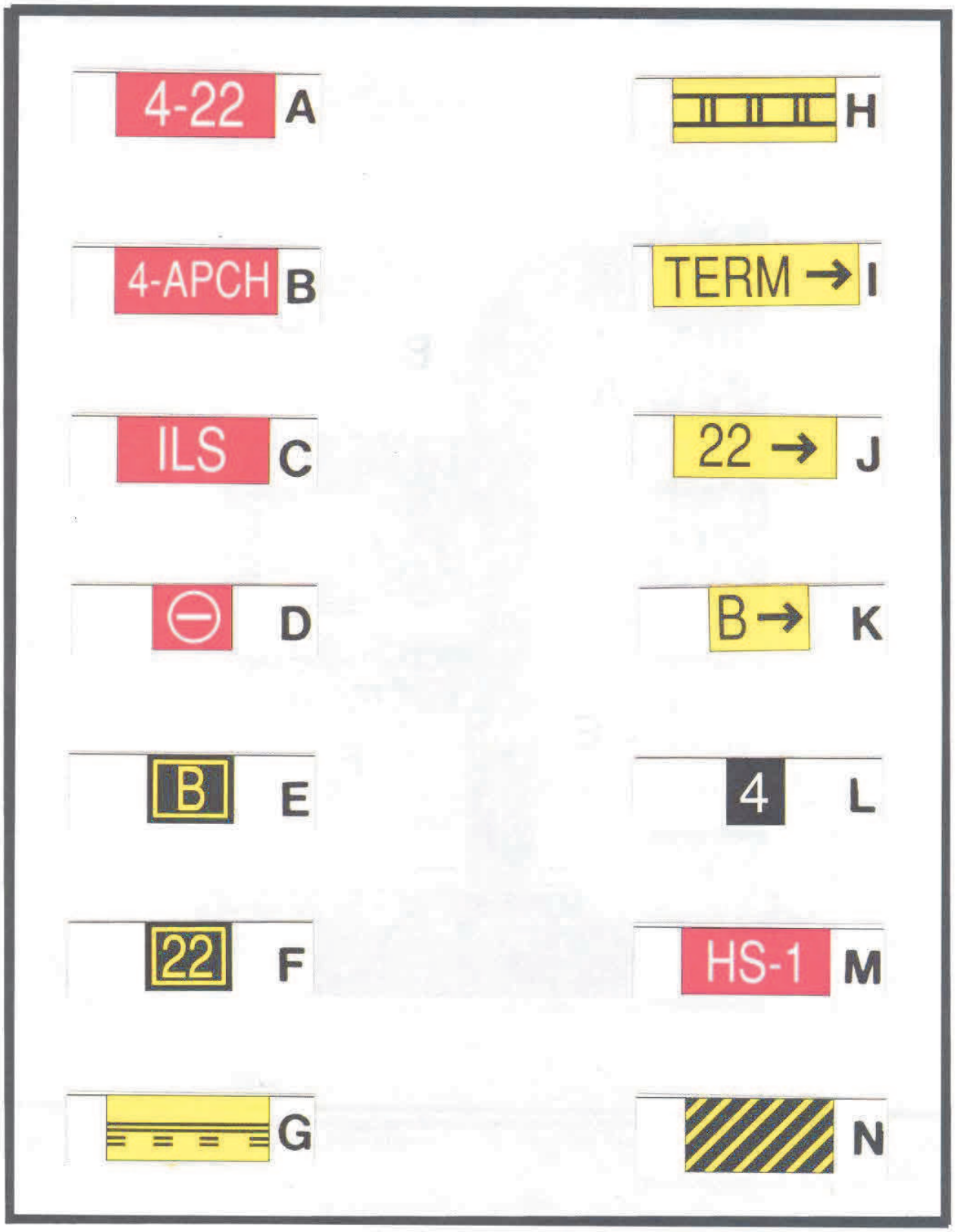


FIGURE 66.—U.S. Airport Signs.

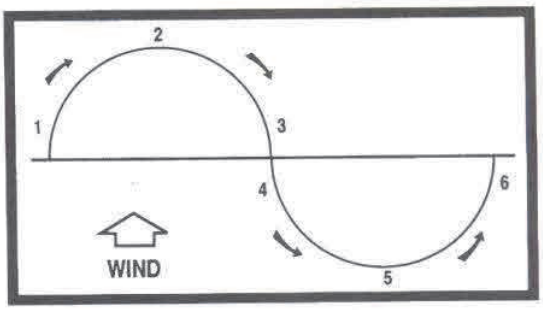


FIGURE 67.—S-Turn Diagram.

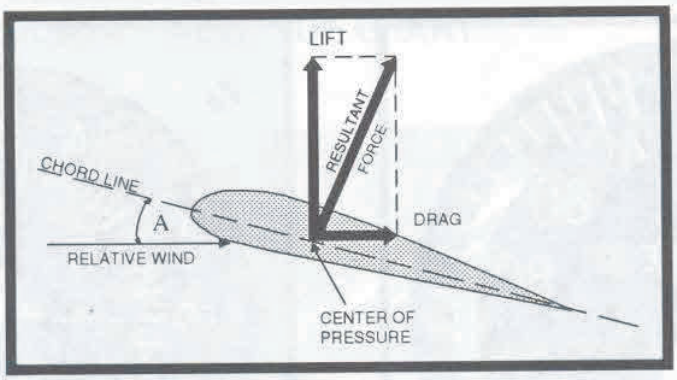


FIGURE 1.—Lift Vector.

ANGLE OF BANK ϕ	LOAD FACTOR n
0°	1.0
10°	1.015
30°	1.154
45°	1.414
60°	2.000
70°	2.923
80°	5.747
85°	11.473
90°	∞

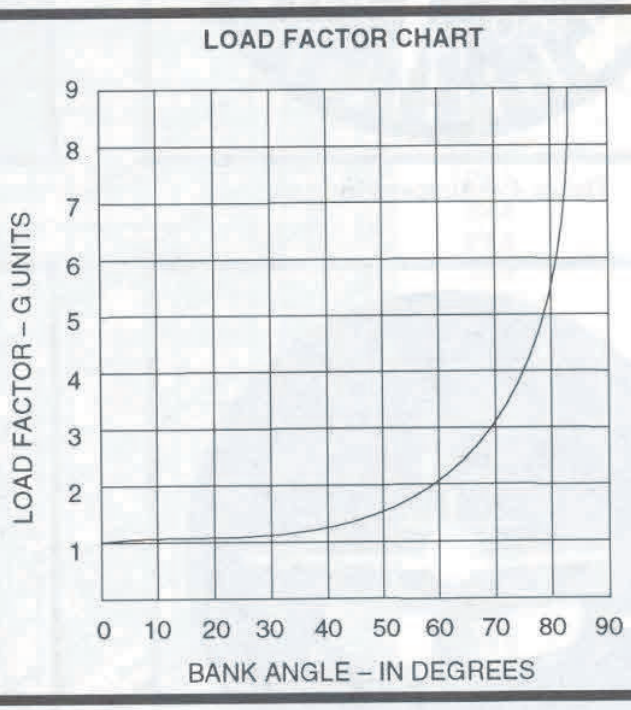


FIGURE 2.—Load Factor Chart.

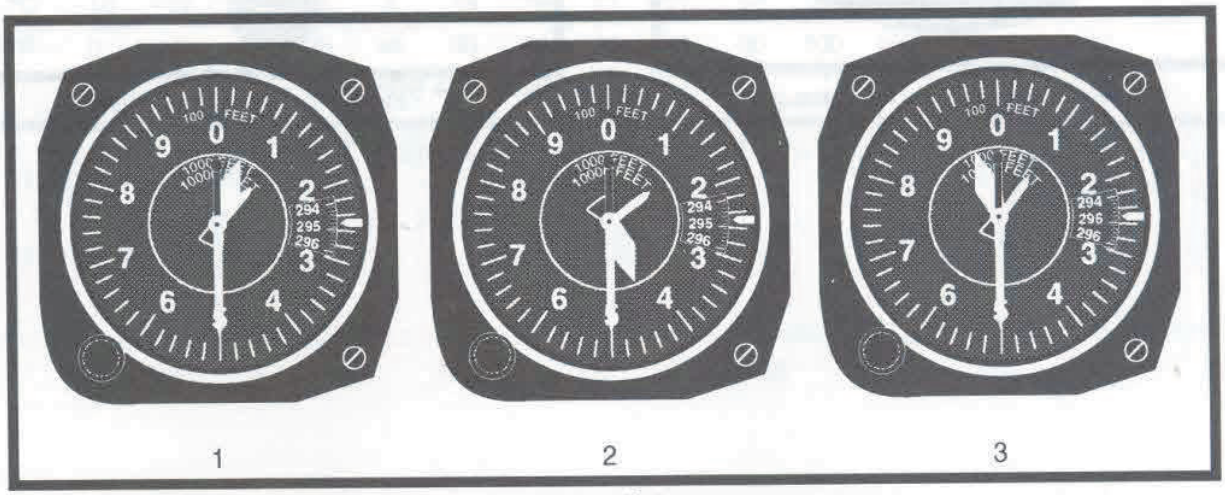


FIGURE 3.—Altimeter.

FIGURE 4.—Airspeed Indicator.

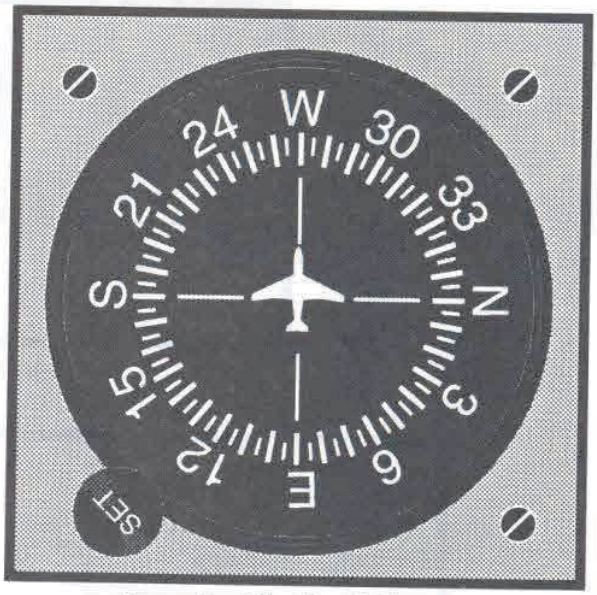


FIGURE 6.—Heading Indicator.

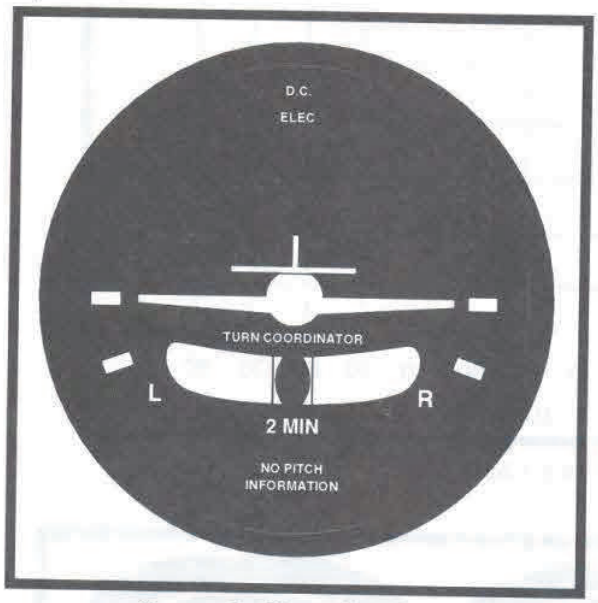


FIGURE 5.—Turn Coordinator.

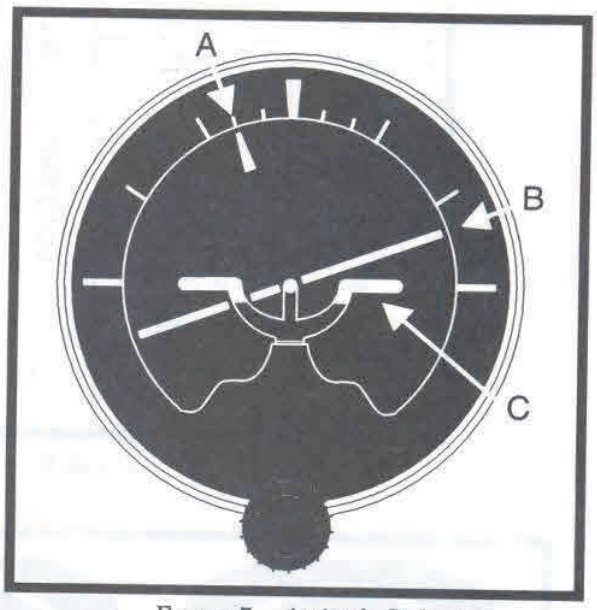
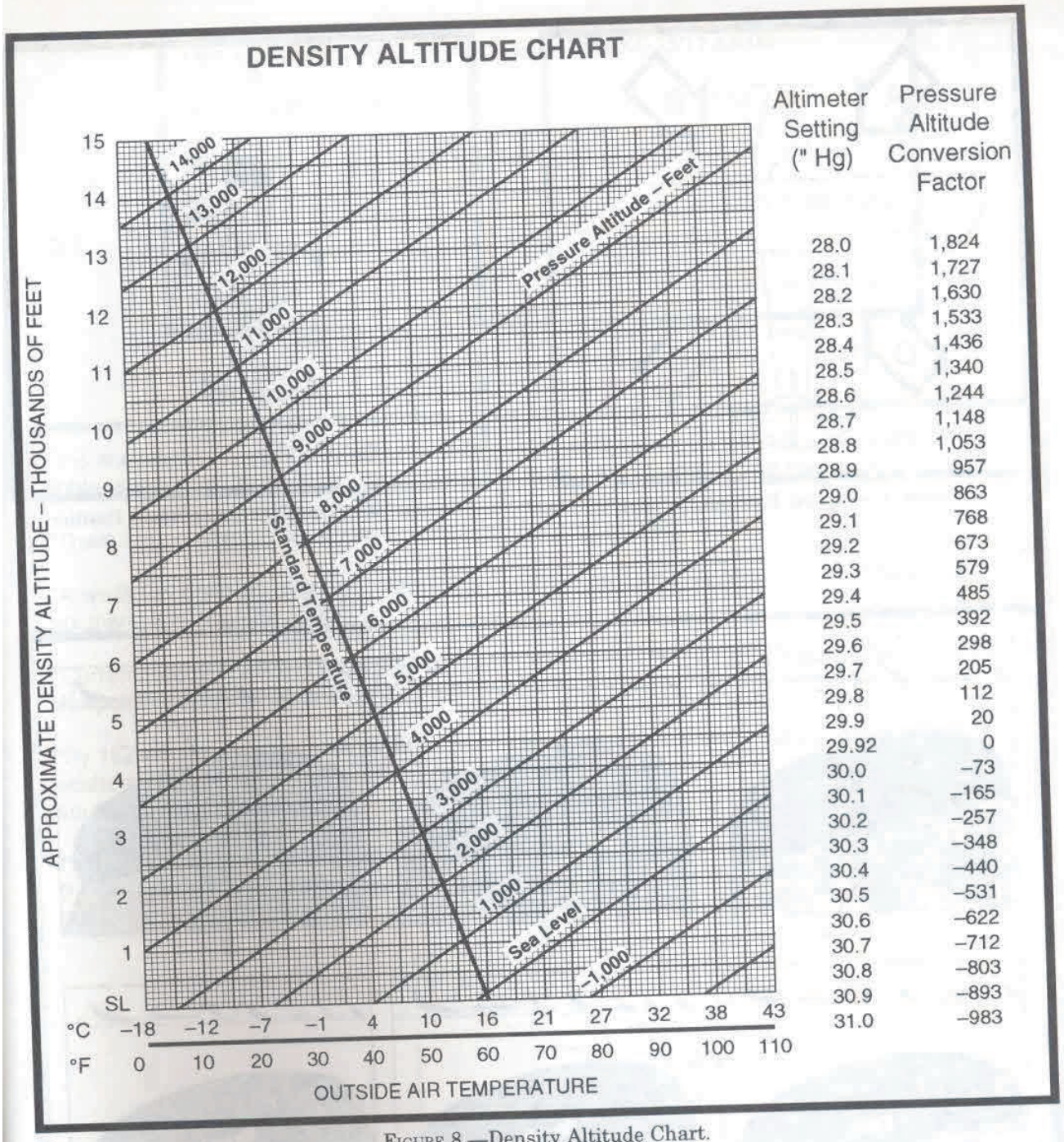


FIGURE 7.—Attitude Indicator.



Altimeter Setting (" Hg)	Pressure Altitude Conversion Factor
28.0	1,824
28.1	1,727
28.2	1,630
28.3	1,533
28.4	1,436
28.5	1,340
28.6	1,244
28.7	1,148
28.8	1,053
28.9	957
29.0	863
29.1	768
29.2	673
29.3	579
29.4	485
29.5	392
29.6	298
29.7	205
29.8	112
29.9	20
29.92	0
30.0	–73
30.1	–165
30.2	–257
30.3	–348
30.4	–440
30.5	–531
30.6	–622
30.7	–712
30.8	–803
30.9	–893
31.0	–983

FIGURE 8.—Density Altitude Chart.

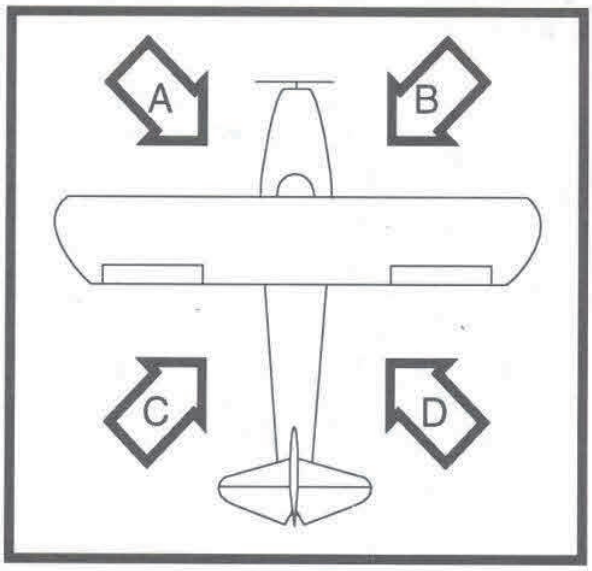


FIGURE 9.—Control Position for Taxi.

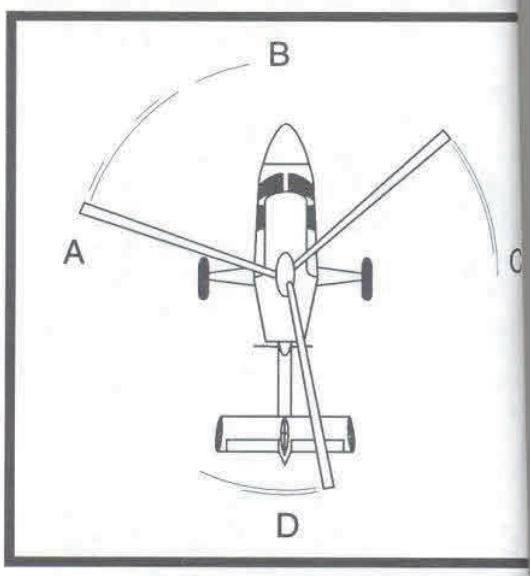


FIGURE 10.—Gyroplane Rotor Blade Positio

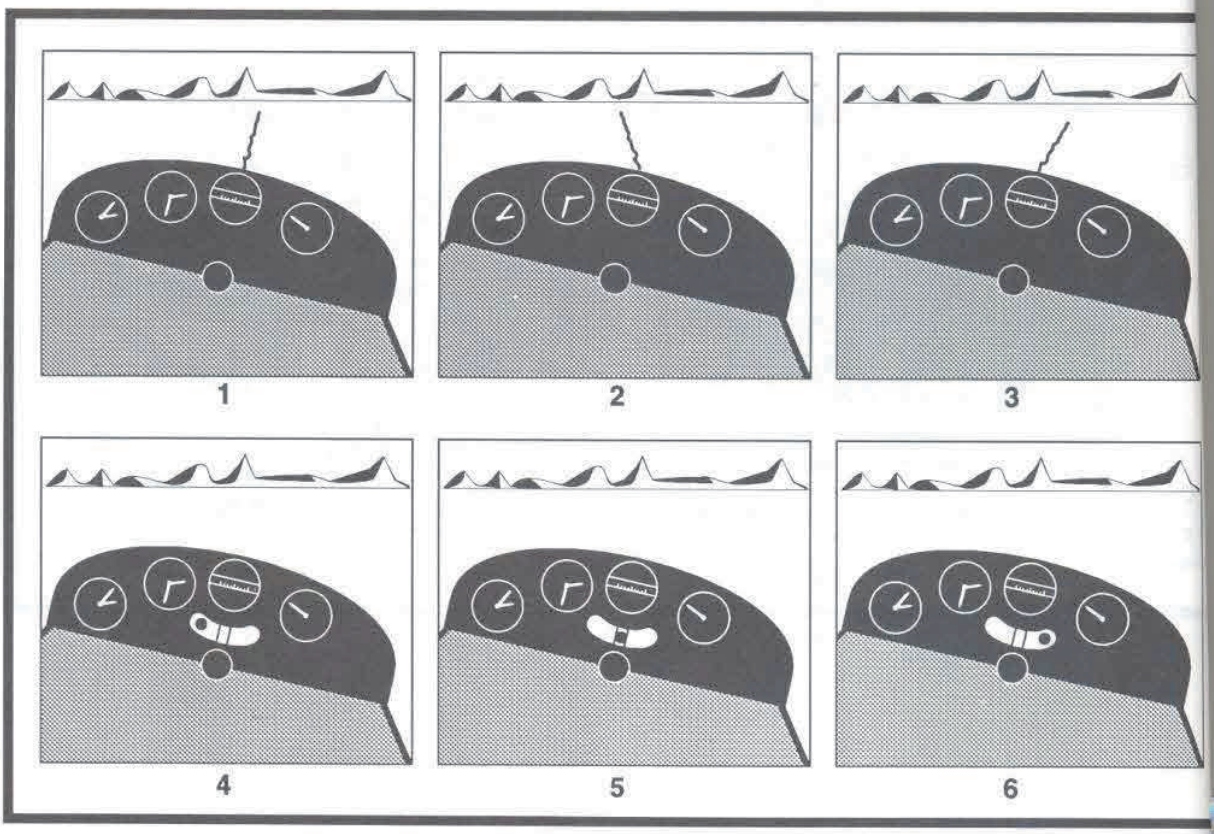


FIGURE 11.—Glider Yaw String.

METAR KINK 121845Z 11012G18KT 15SM SKC 25/17 A3000

METAR KBOI 121854Z 13004KT 30SM SCT150 17/6 A3015

METAR KLAX 121852Z 25004KT 6SM BR SCT007 SCT250 16/15 A2991

SPECI KMDW 121856Z 32005KT 1 1/2SM RA OVC007 17/16 A2980 RMK RAB35

SPECI KJFK 121853Z 18004KT 1/2SM FG R04/2200 OVC005 20/18 A3006

FIGURE 12.—Aviation Routine Weather Reports (METAR).

This is a telephone weather briefing from the Dallas FSS for a local operation of gliders and lighter-than-air at Caddo Mills, Texas (about 30 miles east of Dallas). The briefing is at 13Z.

"There are no adverse conditions reported or forecast for today."

"A weak low pressure over the Texas Panhandle and eastern New Mexico is causing a weak southerly flow over the area."

"Current weather here at Dallas is wind south 5 knots, visibility 12 miles, clear, temperature 21, dewpoint 9, altimeter 29 point 78."

"By 15Z we should have a few scattered cumuliform clouds at 5 thousand AGL, with higher scattered cirrus at 25 thousand MSL. After 20Z the wind should pick up to about 15 knots from the south."

"The winds aloft are: 3 thousand 170 at 7, temperature 20; 6 thousand 200 at 18, temperature 14; 9 thousand 210 at 22, temperature 8; 12 thousand 225 at 27, temperature 0; 18 thousand 240 at 30, temperature -7."

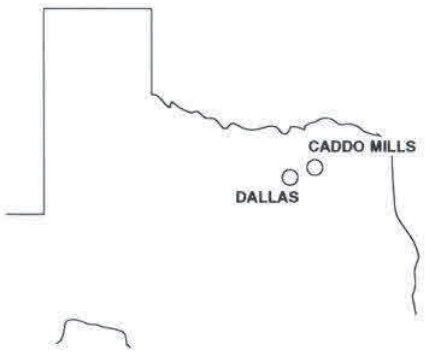


FIGURE 13.—Telephone Weather Briefing.

UA/OV KOKC-KTUL/TM 1800/FL120/TP BE90//SK BKN018-TOP055/OVC072-TOP089/CLR ABV/TA M7/WV 08021/TB LGT 055-072/IC LGT-MOD RIME 072-089

FIGURE 14.—Pilot Weather Report.

TAF

KMEM 121720Z 121818 20012KT 5SM HZ BKN030 PROB40 2022 1SM TSRA OVC008CB
FM2200 33015G20KT P6SM BKN015 OVC025 PROB40 2202 3SM SHRA
FM0200 35012KT OVC008 PROB40 0205 2SM -RASN BECMG 0608 02008KT BKN012
BECMG 1012 00000KT 3SM BR SKC TEMPO 1214 1/2SM FG
FM1600 VRB06KT P6SM SKC=

KOKC 051130Z 051212 14008KT 5SM BR BKN030 TEMPO 1316 1 1/2SM BR
FM1600 18010KT P6SM SKC BECMG 2224 20013G20KT 4SM SHRA OVC020
PROB40 0006 2SM TSRA OVC008CB BECMG 0608 21015KT P6SM SCT040=

FIGURE 15.—Terminal Aerodrome Forecasts (TAF).

```
BOSC FA 241845
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 251300
CLDS/WX VALID UNTIL 250700...OTLK VALID 250700-251300
ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...19Z CDFNT ALG A 160NE ACK-ENE LN...CONTG AS A QSTNRY
FNT ALG AN END-50SW MSS LN. BY 13Z...CDFNT ALG A 140ESE ACK-HTO
LN...CONTG AS A QSTNRY FNT ALG A HTO-SYR-YYZ LN. TROF ACRS CNTRL
PA INTO NRN VA.  ...REYNOLDS...
.
OH LE
NRN HLF OH LE...SCT-BKN025 OVC045. CLDS LYRD 150. SCT SHRA. WDLY
    SCT TSRA. CB TOPS FL350. 23-01Z OVC020-030. VIS 3SM BR. OCNL -
    RA. OTLK...IFR CIG BR FG.
SWRN QTR OH...BKN050-060 TOPS 100. OTLK...MVFR BR.
SERN QTR OH...SCT-BKN040 BKN070 TOPS 120. WDLY SCT -TSRA. 00Z
    SCT-BKN030 OVC050. WDLY SCT -TSRA. CB TOPS FL350. OTLK...VFR
    SHRA.
.
CHIC FA 241945
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 251400
CLDS/WX VALID UNTIL 250800...OTLK VALID 250800-251400
ND SD NE KS MN IA MO WI LM LS MI LH IL IN KY
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...LOW PRES AREA 20Z CNTRD OVR SERN WI FCST MOV NEWD INTO
LH BY 12Z AND WKN. LOW PRES FCST DEEPEN OVR ERN CO DURG PD AND
MOV NR WRN KS BORDER BY 14Z. DVLPG CDFNT WL MOV EWD INTO S CNTRL
NE-CNTRL KS BY 14Z.  ..SMITH..
.
UPR MI LS
WRN PTNS...AGL SCT030 SCT-BKN050. TOPS 080. 02-05Z BECMG CIG
    OVC010 VIS 3-5SM BR. OTLK...IFR CIG BR.
ERN PTNS...CIG BKN020 OVC040. OCNL VIS 3-5SM -RA BR. TOPS FL200.
    23Z CIG OVC010 VIS 3-5SM -RA BR. OTLK...IFR CIG BR.
.
LWR MI LM LH
CNTRL/NRN PTNS...CIG OVC010 VIS 3-5SM -RA BR. TOPS FL200.
    OTLK...IFR CIG BR.
.
SRN THIRD...CIG OVC015-025. SCT -SHRA. TOPS 150. 00-02Z BECMG CIG
    OVC010 VIS 3-5SM BR. TOPS 060. OTLK...IFR CIG BR.
.
IN
NRN HALF...CIG BKN035 BKN080. TOPS FL200. SCT -SHRA. 00Z CIG
    BKN-SCT040  BKN-SCT080. TOPS 120. 06Z AGL SCT-BKN030. TOPS 080.
    OCNL VIS 3-5SM BR. OTLK...MVFR CIG BR.
SRN HALF...AGL SCT050 SCT-BKN100. TOPS 120. 07Z AGL SCT 030
    SCT100. OTLK...VFR.
```

FIGURE 16.—Area Forecast.

FD WBC 151745
DATA BASED ON 151200Z
VALID 1600Z FOR USE 1800-0300Z. TEMPS NEG ABV 24000

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
ALS			2420	2635-08	2535-18	2444-30	245945	246755	246862
AMA		2714	2725+00	2625-04	2531-15	2542-27	265842	256352	256762
DEN			2321-04	2532-08	2434-19	2441-31	235347	236056	236262
HLC		1707-01	2113-03	2219-07	2330-17	2435-30	244145	244854	245561
MKC	0507	2006+03	2215-01	2322-06	2338-17	2348-29	236143	237252	238160
STL	2113	2325+07	2332+02	2339-04	2356-16	2373-27	239440	730649	731960

FIGURE 17.—Winds and Temperatures Aloft Forecast.