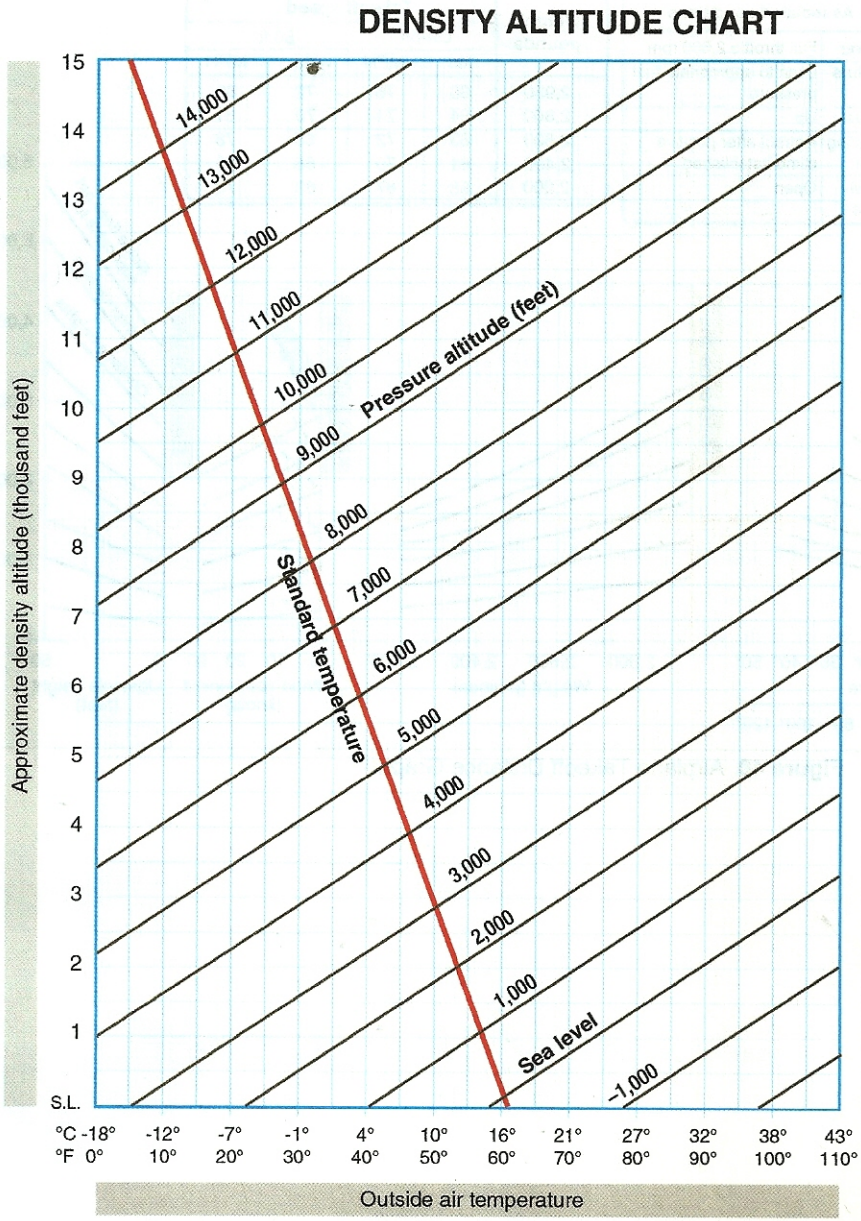
altitude.



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.

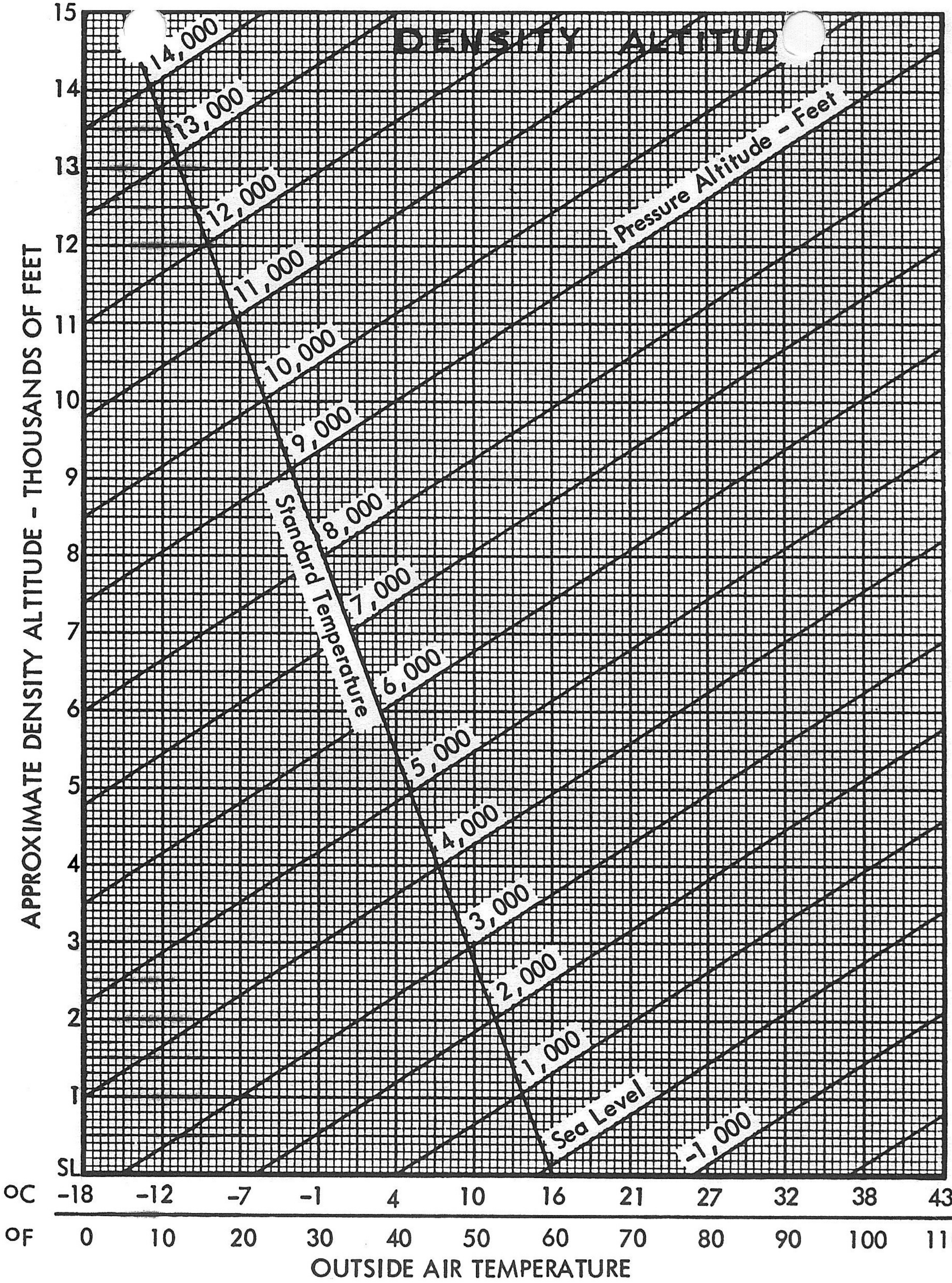


Figure 8. Density Altitude Chart.

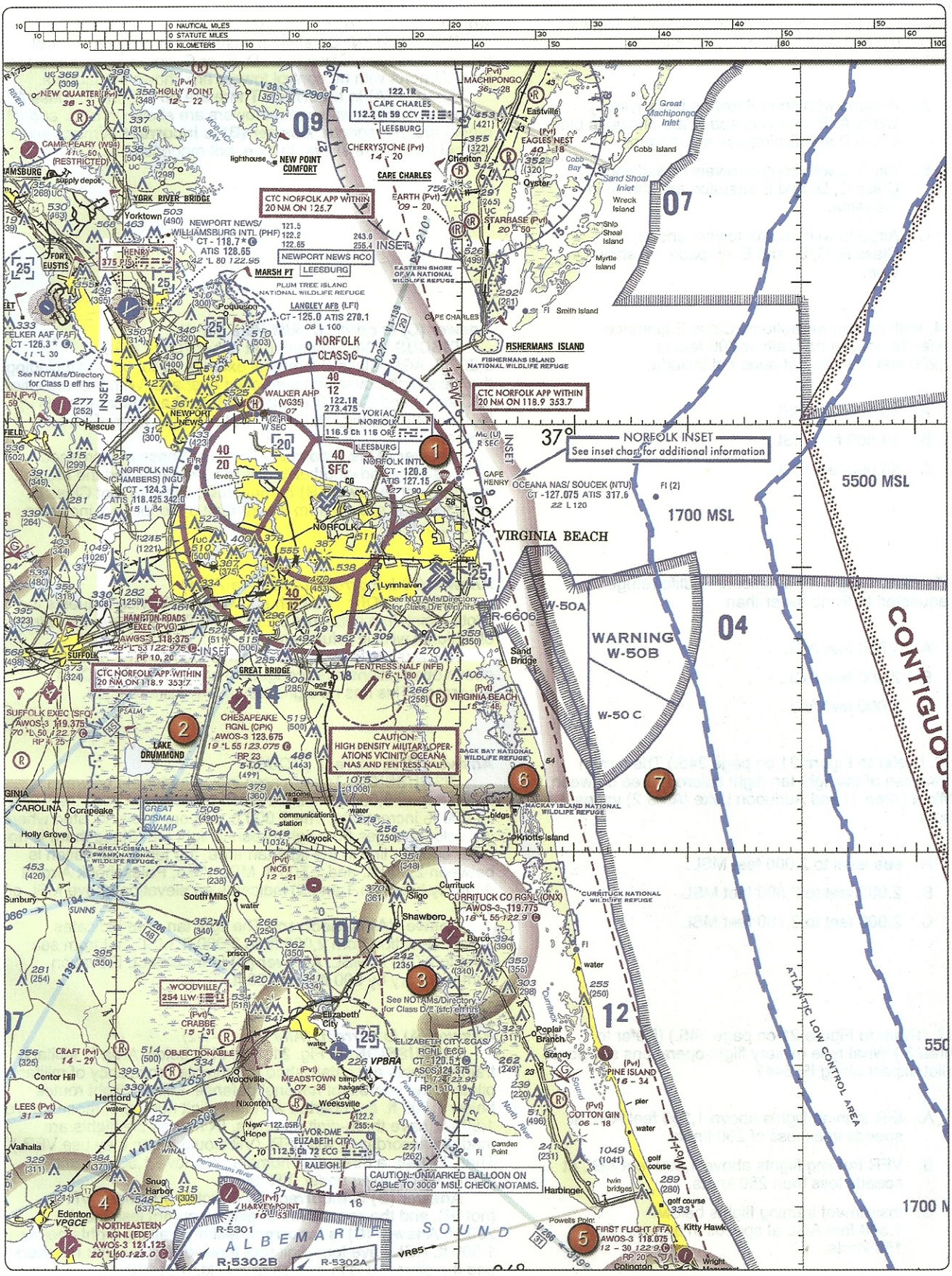


Figure 20. Sectional Chart Excerpt.
NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

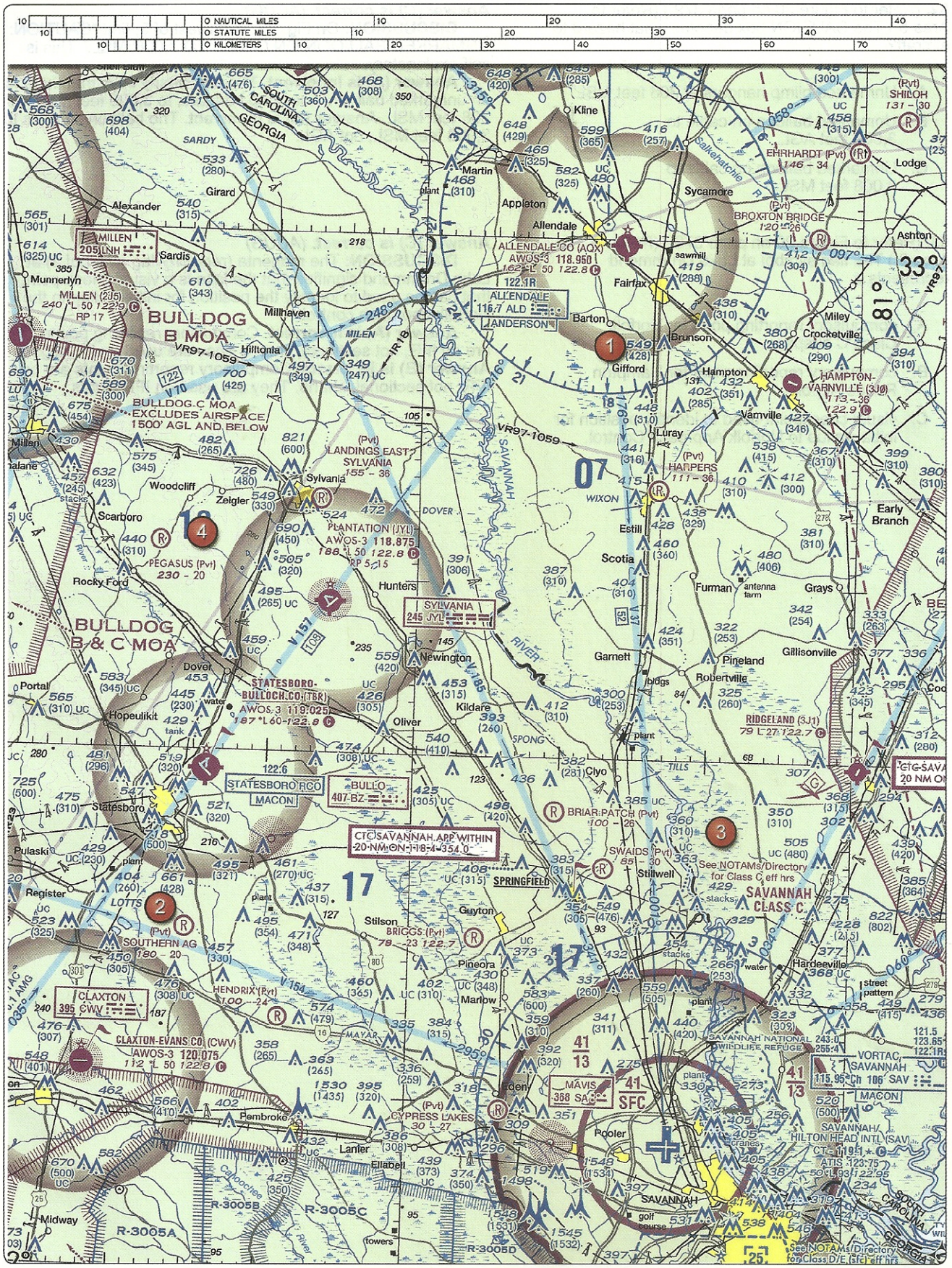


Figure 23. Sectional Chart Excerpt.
NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

Figure 24. Sectional Chart Excerpt.
NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

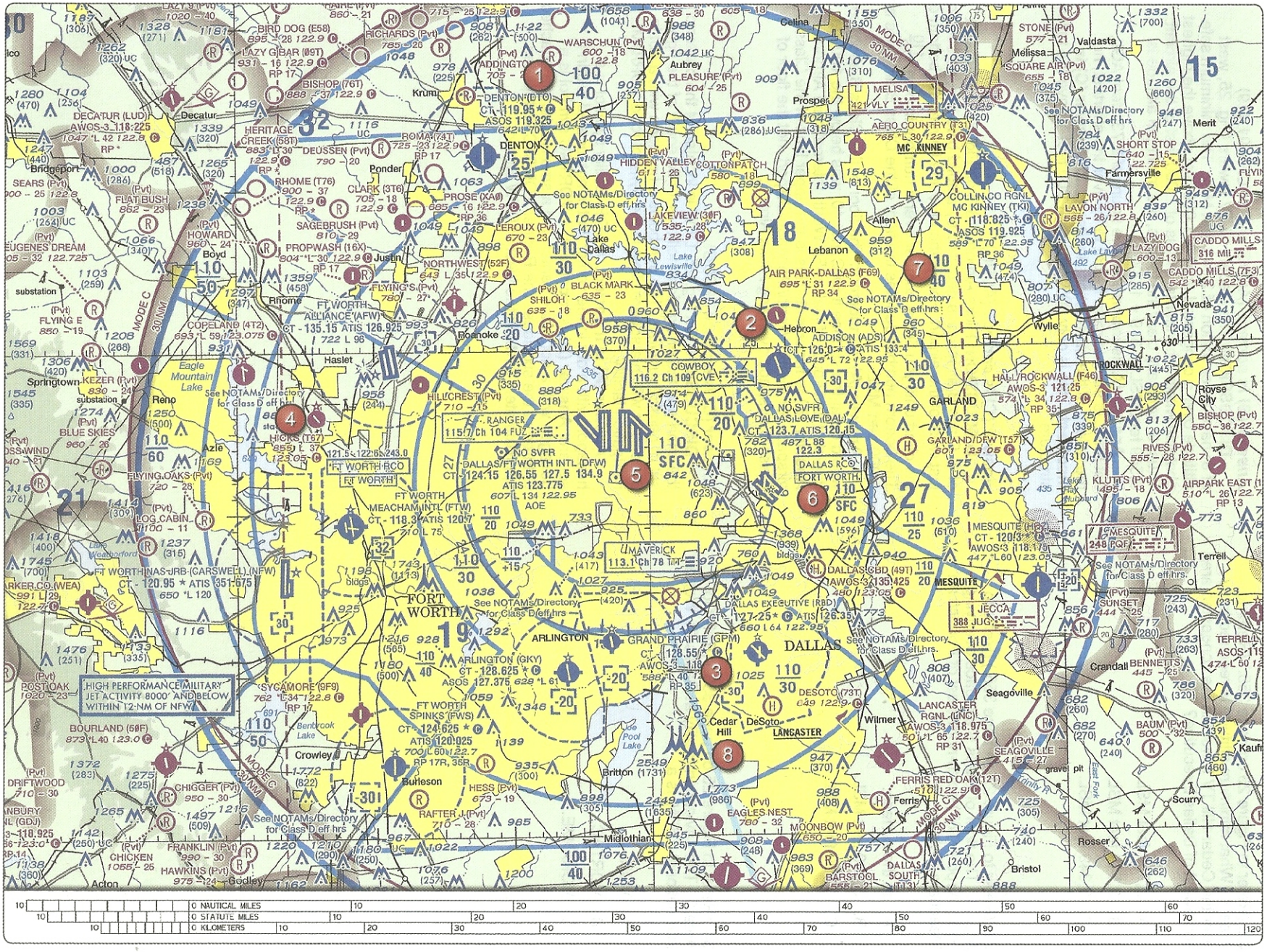


Figure 25. Sectional Chart Excerpt.

NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

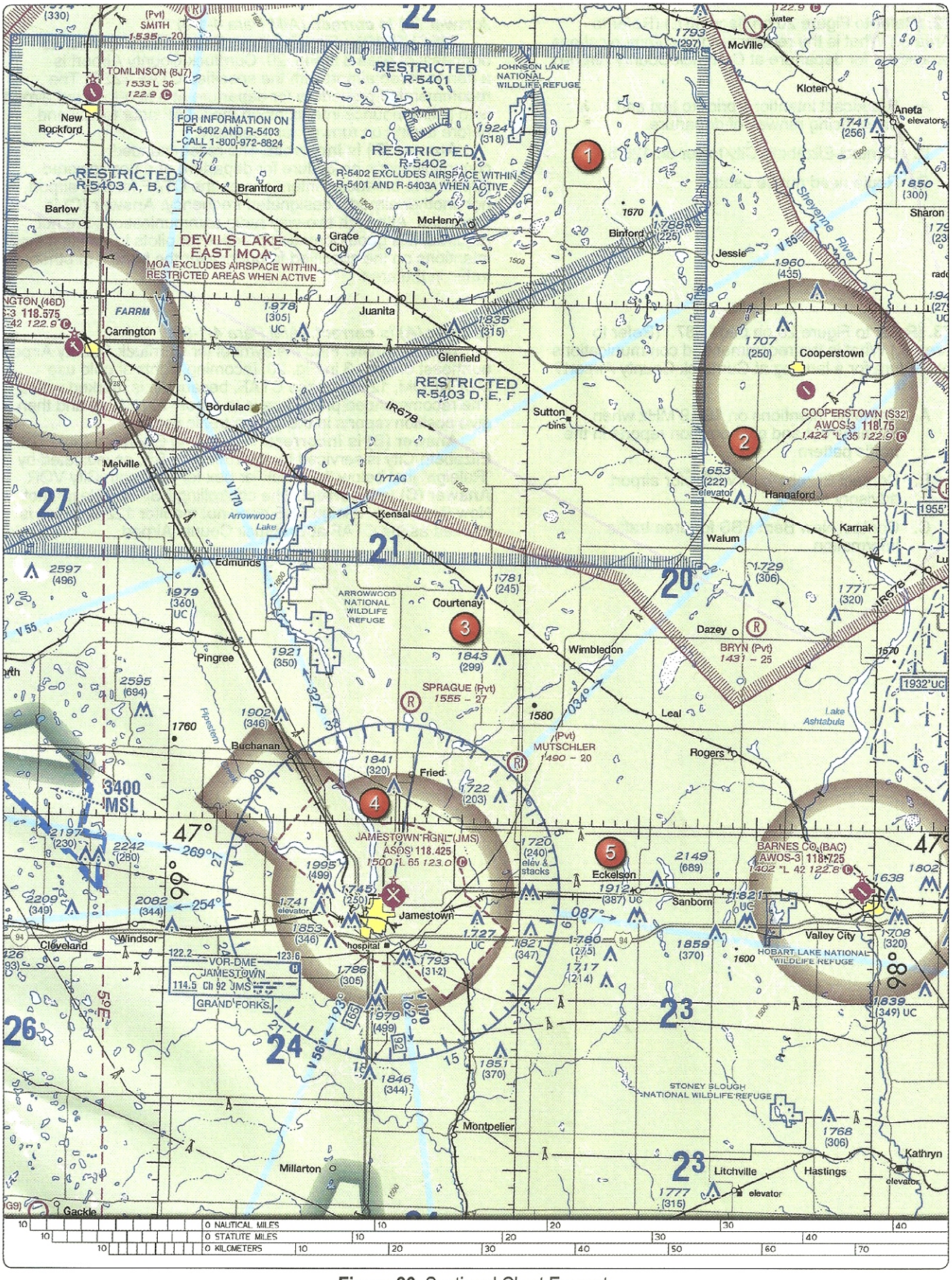


Figure 26. Sectional Chart Excerpt.
NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

Useful load weights and moments

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

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

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~2,015

MOM/100~1,554

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
2,950 lb (takeoff or landing)	82.1	84.7
2,525 lb	77.5	85.7
2,475 lb or less	77.0	85.7

Figure 32. Airplane Weight and Balance Tables.

Moment limits vs weight (continued)

Weight	Minimum Moment / 100	Maximum Moment / 100
2,100	1,617	1,800
2,110	1,625	1,808
2,120	1,632	1,817
2,130	1,640	1,825
2,140	1,648	1,834
2,150	1,656	1,843
2,160	1,663	1,851
2,170	1,671	1,860
2,180	1,679	1,868
2,190	1,686	1,877
2,200	1,694	1,885
2,210	1,702	1,894
2,220	1,709	1,903
2,230	1,717	1,911
2,240	1,725	1,920
2,250	1,733	1,928
2,260	1,740	1,937
2,270	1,748	1,945
2,280	1,756	1,954
2,290	1,763	1,963
2,300	1,771	1,971
2,310	1,779	1,980
2,320	1,786	1,988
2,330	1,794	1,997
2,340	1,802	2,005
2,350	1,810	2,014
2,360	1,817	2,023
2,370	1,825	2,031
2,380	1,833	2,040
2,390	1,840	2,048
2,400	1,848	2,057
2,410	1,856	2,065
2,420	1,863	2,074
2,430	1,871	2,083
2,440	1,879	2,091
2,450	1,887	2,100
2,460	1,894	2,108
2,470	1,902	2,117
2,480	1,911	2,125
2,490	1,921	2,134

Weight	Minimum Moment / 100	Maximum Moment / 100
2,500	1,932	2,143
2,510	1,942	2,151
2,520	1,953	2,160
2,530	1,963	2,168
2,540	1,974	2,176
2,550	1,984	2,184
2,560	1,995	2,192
2,570	2,005	2,200
2,580	2,016	2,208
2,590	2,026	2,216
2,600	2,037	2,224
2,610	2,048	2,232
2,620	2,058	2,239
2,630	2,069	2,247
2,640	2,080	2,255
2,650	2,090	2,263
2,660	2,101	2,271
2,670	2,112	2,279
2,680	2,123	2,287
2,690	2,133	2,295
2,700	2,144	2,303
2,710	2,155	2,311
2,720	2,166	2,319
2,730	2,177	2,326
2,740	2,188	2,334
2,750	2,199	2,342
2,760	2,210	2,350
2,770	2,221	2,358
2,780	2,232	2,366
2,790	2,243	2,374
2,800	2,254	2,381
2,810	2,265	2,389
2,820	2,276	2,397
2,830	2,287	2,405
2,840	2,298	2,413
2,850	2,309	2,421
2,860	2,320	2,428
2,870	2,332	2,436
2,880	2,343	2,444
2,890	2,354	2,452
2,900	2,365	2,460
2,910	2,377	2,468
2,920	2,388	2,475
2,930	2,399	2,483
2,940	2,411	2,491
2,950	2,422	2,499

Figure 33. Airplane Weight and Balance Tables.

WIND COMPONENTS

EXAMPLE:

WIND SPEED	10 KNOTS
ANGLE BETWEEN WIND DIRECTION AND FLIGHT PATH	20^{o}
HEADWIND COMPONENT	9.5 KNOTS
CROSSWIND COMPONENT	3.5 KNOTS

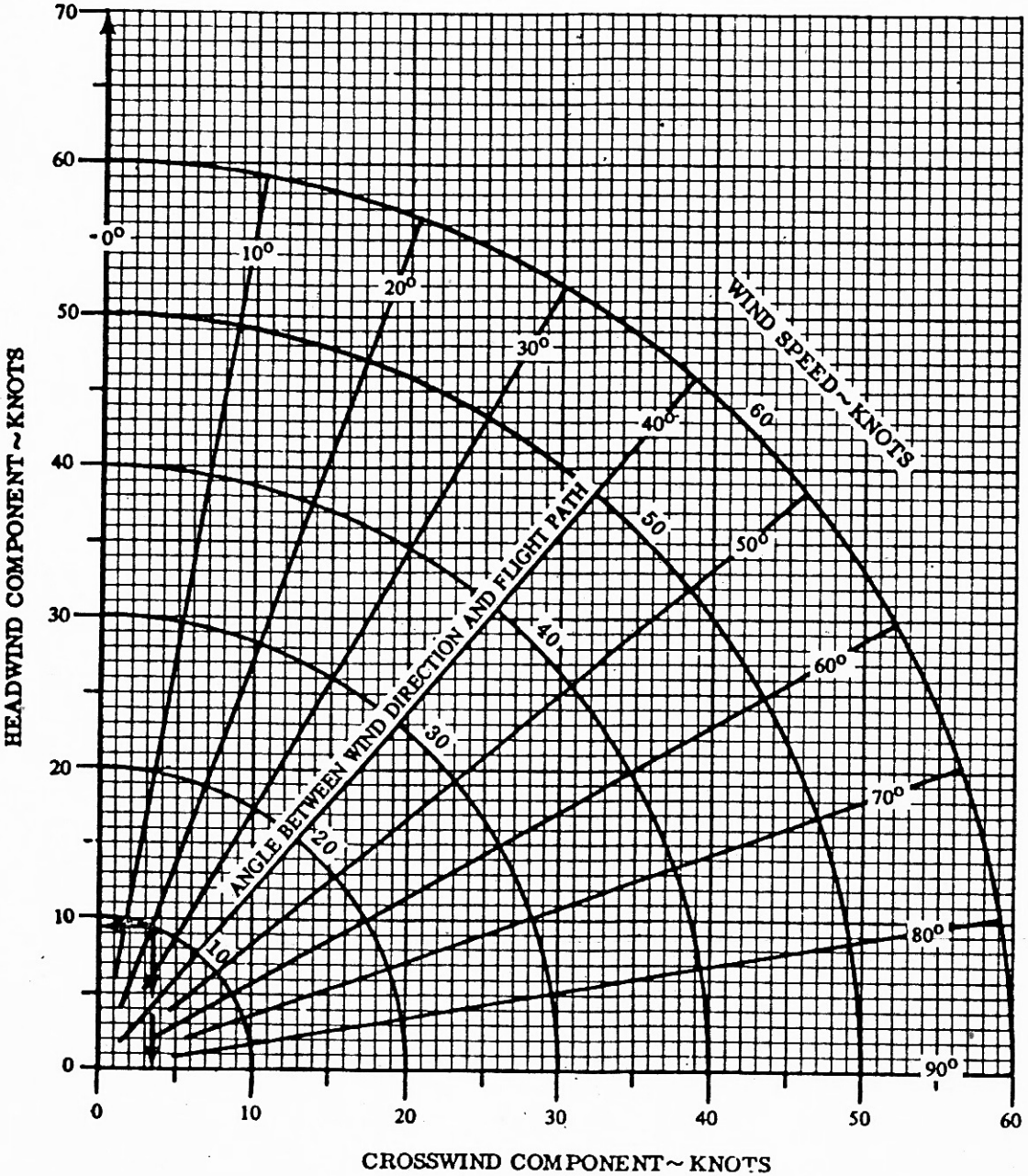


Figure 36. Crosswind Componet Graph

Example:	
OAT	15 °C (59 °F)
Pressure altitude	5,650 feet
Takeoff weight	2,950 lb
Headwind comp.	9.0 knots
Ground roll	1,375 feet
Total distance over a 50 feet obstacle	2,300 feet
Takeoff speed at	
Lift-off	66 knots (76 mph)
50 feet	72 knots (83 mph)

Associated conditions	
Power	Full throttle 2,600 rpm
Mixture	Lean to appropriate fuel pressure
Flaps	Up
Landing gear	Retract after positive climb established
Cowl flaps	Open

Weight pounds	Takeoff speed			
	Lift-off		50 ft	
	kts	MPH	kts	MPH
2,950	66	76	72	83
2,800	64	74	70	81
2,600	63	72	68	78
2,400	61	70	66	76
2,200	58	67	63	73

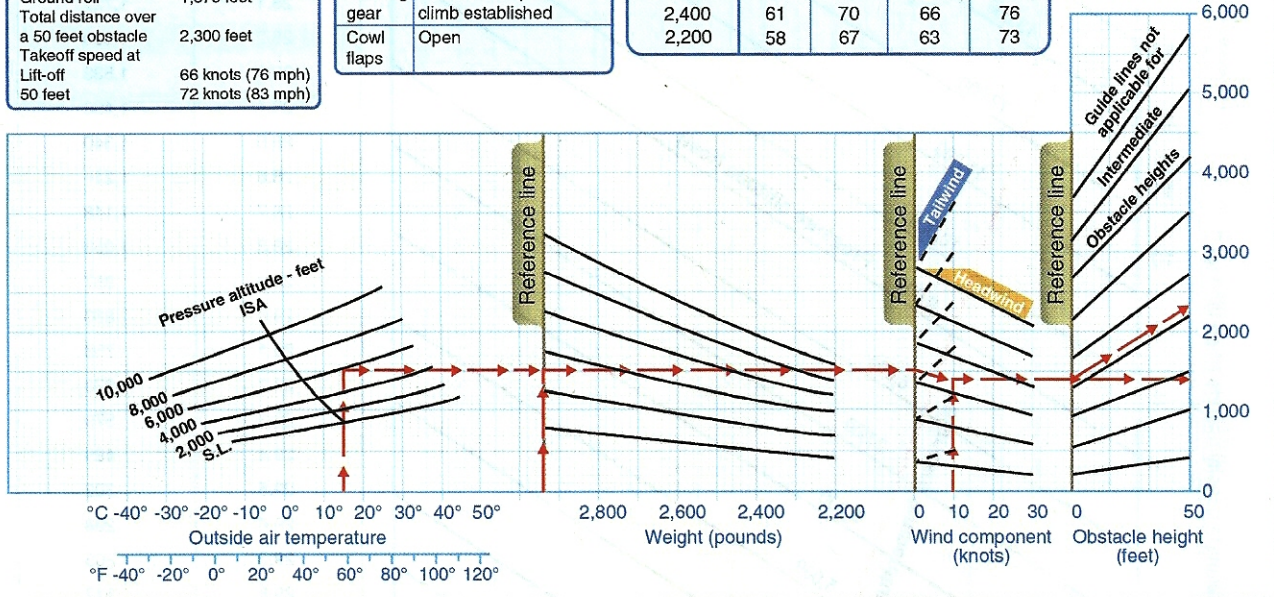


Figure 40. Airplane Takeoff Distance Graph.

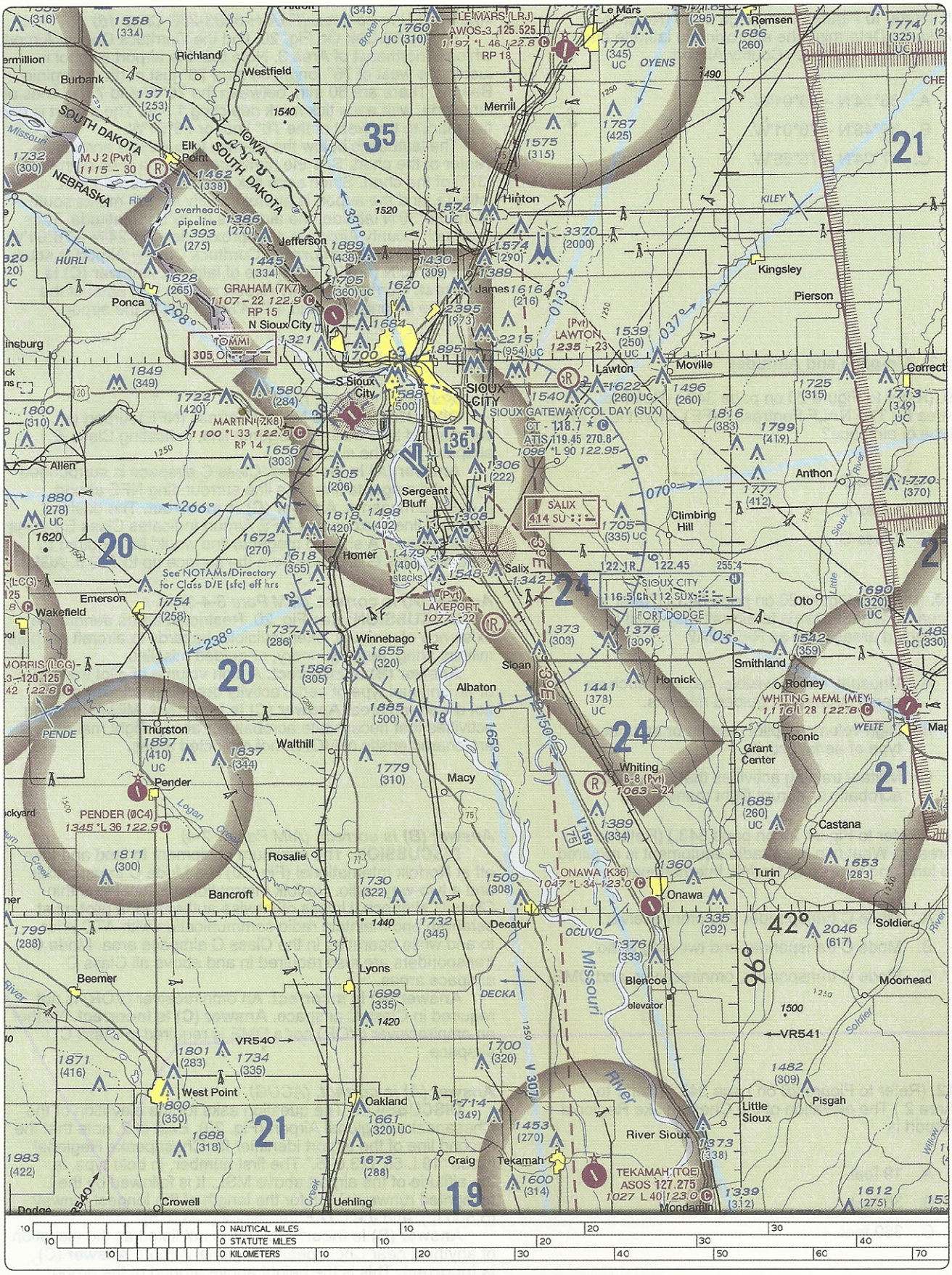


Figure 78. Sectional Chart Excerpt.
NOTE: Chart is not to scale and should not be used for navigation. Use associated scale.

SECTIONAL AERONAUTICAL CHART

SCALE 1:500,000

LEGEND Airports having control towers are shown in blue, all others in magenta. Consult Chart Supplement for details involving airport lighting, navigation aids, and services. For additional symbol information refer to the Chart User's Guide.

Legend 1. Sectional Aeronautical Chart.

AIRPORTS

Other than hard-surfaced runways

Seaplane Base

Hard-surfaced runways 1500 ft. to 8069 ft. in length

Hard-surfaced runways greater than 8069 ft., or some multiple runways less than 8069 ft.

Open dot within hard-surfaced runway configuration indicates approximate VOR, VOR-DME, or VORTAC location.

All recognizable hard-surfaced runways, including those closed, are shown for visual identification. Airports may be public or private.

ADDITIONAL AIRPORT INFORMATION

Restricted or Private – (Soft surfaced runway, or hard surfaced runway less than 1500' in length.) Use only in emergency, or by specific authorization.

Military – Other than hard-surfaced. All military airports are identified by abbreviations AFB, NAS, AAF, etc. For complete airport information, consult DOD FLIP.

Heliport Selected

Unverified

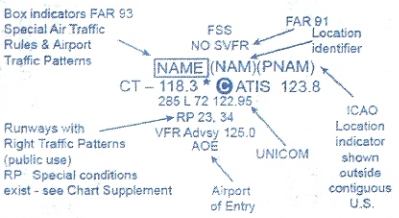
Abandoned–paved. having landmark value, 3000 ft. or greater

Ultralight Flight Park Selected

Services–fuel available and field attended during normal working hours depicted by use of ticks around basic airport symbol. (Normal working hours are Mon thru Fri 10.00 A.M. to 4:00 P.M. local time.) Consult Chart Supplement for service availability at airports with hard-surfaced runways greater than 8069 ft.

Rotating airport beacon in operation Sunset to Sunrise

AIRPORT DATA



FSS – Flight Service Station
NO SVFR – Fixed wing special VFR flight is prohibited.
CT– 118.3 – Control Tower (CT) primary frequency
* – Star indicates operation part-time (see tower frequencies tabulation for hours of operation).
C – Indicates Common Traffic Advisory Frequencies (CTAF)
ATIS 123.8 – Automatic Terminal Information Service
ASOS/AWOS 135.42 – Automated Surface Weather Observing Systems (shown where full-time ATIS is not available).
Some ASOS/AWOS facilities may not be located at airports.
UNICOM – Aeronautical advisory station
VFR Advsy – VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency.

285 – Elevation in feet
L – Lighting in operation sunset to sunrise
*L – Lighting limitations exist, refer to Airport/Facility Directory.
72 – Length of longest runway in hundreds of feet; usable length may be less.

When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.

AIRPORT TRAFFIC SERVICE AND AIRSPACE INFORMATION

Only the controlled and reserved airspace effective below 18,000 ft. MSL are shown on this chart. All times are local.

Class B Airspace

Class C Airspace (mode C See FAR 91.215/AIM.)

Class D Airspace

40 Ceiling of Class D Airspace in hundreds of feet. (A minus ceiling value indicates surface up to but not including that value).

Class E (sfc) Airspace

Class E Airspace with floor 700 ft. above surface.

Class E Airspace with floor 1200 ft. or greater above surface that abuts Class G Airspace.

2400 MSL / 4500 MSL Differentiates floors of Class E Airspace greater than 700 ft. above surface.

Class E Airspace exists at 1200' AGL unless otherwise designated as shown above.
Class E Airspace low altitude Federal Airways are indicated by center line.
Intersection - Arrows are directed towards facilities which establish intersection.

132° V 69

Total mileage between NAVAID, on direct Airways 169

Class E Airspace low altitude RNAV routes are indicated by center line.

T319 TK313 (helicopter only) RNAV waypoint

Prohibited, Restricted, and Warning Areas: Canadian Advisory, Danger, and Restricted Areas.

Alert Area and MOA - Military Operations Area

Special Airport Traffic Area (See FAR Part 93 for details)

ADIZ - Air Defense Identification Zone

Mode C (See FAR 91.215/AIM).

National Security Area

Terminal Radar Service Area (TRSA)

IR211 MTR - Military Training Route

MISCELLANEOUS

–1° E– Isogonic Line (2010 VALUE)

U Ultralight Activity

H Hang Glider Activity

G Glider Operations

UA Unmanned Aircraft Activity

Parachute Jumping Area (See Chart Supplement.)

Marine Light

NAME (VPXYZ)

VFR Waypoints (See Chart Supplement for latitude/longitude).

TOPOGRAPHIC INFORMATION

95 40 Roads & Road Markers

Railroad

Power Transmission Lines

Aerial Cable

Landmark Feature - stadium, factory, school, golf course, etc.

Outdoor Theater

Lookout Tower 618 (Elevation Base of Tower)

CG Coast Guard Station

Race Track

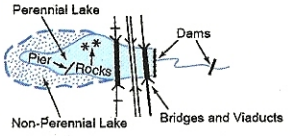
Tank-water, oil or gas

Oil Well Water Well

Mine or Quarry

Mountain Pass 11823 (Elevation of Pass)

(Pass symbol does not indicate a recommended route or direction of flight and pass elevation does not indicate a recommended clearance altitude. Hazardous flight conditions may exist within and near mountain passes).



RADIO AIDS TO NAVIGATION

VHF OMNI RANGE (VOR)

VORTAC

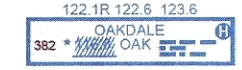
VOR-DME

Non-Directional Radiobeacon (NDB)

NDB-DME

Other facilities. i.e., FSS Outlet, RCO, etc.

COMMUNICATION BOXES



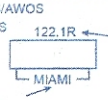
Underline indicates no voice on this frequency.

Crosshatch indicates Shutdown Status

* Operates less than continuous or On-Request.

A ASOS/AWOS

H HIWAS



FSS radio providing voice communication

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0 and 255.4 (Canada - 121.5, 126.7 and 243.0) are available at many FSSs and are not shown above boxes. All other frequencies are shown.

Certain FSSs provide Airport Advisory Service, see Chart Supplement.

R - Receive Only.

Frequencies above this line box are remoted to NAVAID site. Other FSS frequencies providing voice communication may be available as determined by altitude and terrain. Consult Chart Supplement for complete information.

OBSTRUCTIONS

1000 ft. and higher AGL

below 1000 ft. AGL

or Group Obstruction

Obstruction with high-intensity lights May operate part-time

or

2049 Elevation of the top above mean sea level

(1149) Height above ground

UC Under construction or reported; position and elevation unverified.

NOTICE: Guy wires may extend outward from structures.