DINAC

DIRECCIÓN NACIONAL DE AERONÁUTICA CIVIL

SUBDIRECCIÓN DE NORMAS DE VUELO
GERENCIA DE LICENCIAS AL PERSONAL AERONÁUTICO

BANCO DE FIGURAS

LICENCIA DE PILOTO DE TRANSPORTE DE LÍNEA AÉREA – AVIÓN

Primera Edición – Año 2026

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FIGURAS DE EXAMEN TEÓRICO
PILOTO DE TRANSPORTE DE LÍNEA AÉREA – AVIÓN

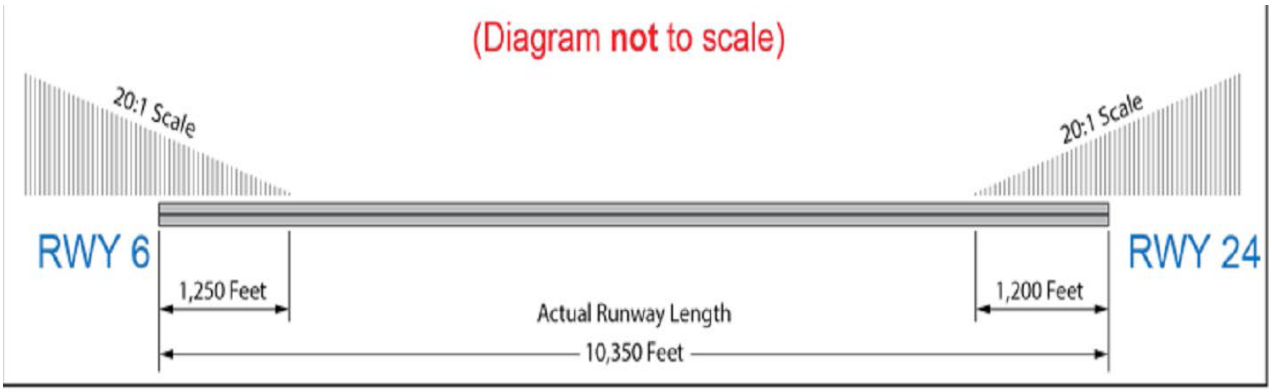

Figure 1. Runway Diagram. ©ASA

OPERATING CONDITIONS	R-1	R-2	R-3	R-4	R-5
FIELD ELEVATION	100	4,000	950	2,000	50
ALTIMETER SETTING	29.50"	1032 mb	29.40"	1017 mb	30.15"
TEMPERATURE (OAT)	+50 °F	−15 °C	+59 °F	0 °C	+95 °C
WEIGHT (X1000)	90	110	100	85	95
FLAP POSITION	15°	5°	5°	1°	1°
WIND COMPONENT (KTS)	5 HW	5 TW	20 HW	10 TW	7 HW
RUNWAY SLOPE %	1% UP	1% DN	1% UP	2% DN	1.5% UP
AIR CONDITIONING	ON	ON	OFF	ON	OFF
ENGINE ANTI-ICE	OFF	ON	OFF	ON	OFF
CG STATION	635.7	643.8	665.2	657.2	638.4
LEMAC – STA 625.0, MAC 134.0					

Figure 53. Transport Aircraft 2—Takeoff. ©ASA

0 TO 60 KTS

TAKEOFF EPR

A/C ON

EPR BLEED CORRECTIONS	Δ EPR
AIR CONDITIONING OFF	+.03
ENGINE ANTI-ICE	ZERO

OAT																				
°F	−65	−49	−40	−31	−22	−13	−4	5	14	23	32	41	50	59	68	77	86	95	104	120
°C	−54	−45	−40	−35	−30	−25	−20	−15	−10	−5	0	5	10	15	20	25	30	35	40	49
TEMP	2.31	2.31	2.31	2.29	2.27	2.24	2.22	2.19	2.17	2.14	2.11	2.07	2.04	2.01	2.01	2.01	2.00	1.95	1.91	1.82
LIMIT EPR																				
EPR	2.31						2.22		2.16		2.11	2.06				2.01	1.96			
ALT	5660 AND ABOVE						4000		3000		2000	1000				S.L.	1000			
PRESS																				

1. FIND TEMP LIMIT EPR
2. FIND PRESS LIMIT EPR
3. USE THE SMALLER OF THE TWO LIMITS

V_1, V_R, V_2

ANTI-SKID ON

PRESSURE ALTITUDE 1000 FT	OAT						
9 to 10	F° / C°			−65 to −19 −54 to −28	−18 to 18 −27 to −8	19 to 45 −7 to 7	46 to 86 8 to 30
7 to 9	F° / C°		−65 to −21 −54 to −29	−20 to 10 −28 to −23	11 to 39 −22 to 4	40 to 87 5 to 31	88 to 101 32 to 38
5 to 7	F° / C°	−65 to −15 −54 to −26	−14 to 15 −27 to −9	16 to 40 −8 to 4	41 to 87 5 to 31	88 to 105 32 to 40	106 to 109 41 to 43
3 to 5	F° / C°	−65 to 20 −54 to −8	21 to 42 −7 to 6	43 to 88 7 to 31	89 to 103 32 to 39	104 to 116 40 to 46	
1 to 3	F° / C°	−65 to 46 −54 to 8	47 to 89 9 to 32	90 to 104 33 to 40	105 to 120 41 to 49		
−1 to 1	F° / C°	−65 to 91 −54 to 33	92 to 105 34 to 40	106 to 120 41 to 49			

FLAPS	GROSS WT −1000 LB	V_1 V_R V_2	V_1 V_R V_2	V_1 V_R V_2	V_1 V_R V_2	V_1 V_R V_2	V_1 V_R V_2
1	120	159 161 164	160 162 164				
	110	150 152 155	151 153 155	152 154 155			
	100	141 143 147	142 143 147	142 144 147	143 145 147	144 146 147	
	90	131 133 138	132 134 138	133 135 138	133 136 138	134 136 138	135 137 138
	80	122 124 130	122 125 130	123 126 130	124 126 130	125 127 130	125 128 130
	70	112 116 123	113 117 123	113 117 122	114 118 122	115 119 122	116 119 122
5	120	153 155 158	154 156 158				
	110	144 146 150	145 147 150				
	100	135 137 142	136 138 142	137 139 142	138 140 142		
	90	126 128 133	127 129 133	128 130 133	129 131 133	130 132 133	
	80	116 118 125	117 119 125	118 121 125	119 122 125	120 123 125	121 124 125
	70	106 109 118	107 110 118	108 111 117	109 112 117	110 113 117	112 114 117
15	100	130 130 135	131 131 135	132 132 135			
	90	120 121 128	121 122 128	123 123 128	124 124 128	125 125 128	126 126 128
	80	111 112 119	112 113 119	113 114 119	114 115 119	115 116 119	117 117 119
	70	105 105 112	101 103 112	102 105 112	103 106 112	105 107 112	106 108 112
25	100	124 126 132	126 127 132				
	90	115 117 124	116 118 124	117 119 124	118 120 124		
	80	105 108 116	107 109 116	108 110 116	109 111 116	110 112 116	111 113 116
	70	105 105 108	104 104 108	101 101 108	99 102 108	100 103 108	101 104 108

SHADED AREA INDICATES PERFORMANCE AFFECTED BY MINIMUM CONTROL SPEED. MINIMUM FIELD LENGTH FOR LIGHTEST WEIGHT ABOVE SHADED AREA IS REQUIRED.

FLAP RETRACTION/ MANEUVERING SPEED

FLAP POS	KTS IAS
0	210
1	190
2	180
5	170
10	160
15	150
25	140

FOR MANEUVERS IMMEDIATELY AFTER TAKE-OFF EXCEEDING 15° BANK, MAINTAIN AT LEAST V2 + 15 AT TAKEOFF FLAPS

STAB. TRIM SETTING −UNITS AIRPLANE NOSE UP

CG	FLAPS ALL
6	8
8	7-3/4
10	7-1/2
12	7
14	6-3/4
16	6-1/4
18	5-3/4
20	5-1/2
22	5
24	4-1/2
26	4
28	3-1/2
30	3
32	2-1/2

SPEEDS NOT VALID WHEN WEIGHTS ARE PREDICTED ON USE OF CLEARWAY, STOPWAY, IMPROVED CLIMB OR ARE LIMITED BY BRAKE ENERGY

V_1 ADJUSTMENTS*

WIND	SLOPE
ADD 1 KT PER 20 KTS HEADWIND	ADD 1 KT PER 1% UP SLOPE
SUBTRACT 1 KT PER 5 KTS TAILWIND	SUBTRACT 1 KT PER 1% DOWN SLOPE

*V_1 MUST NOT EXCEED V_R

Figure 55. Transport Aircraft 2—Takeoff Performance. ©ASA

OPERATING CONDITIONS	V–1	V–2	V–3	V–4	V–5
BRK REL WEIGHT (X1000)	110	95	85	105	75
CRUISE PRESS ALT	33,000	27,000	35,000	22,000	31,000
AIRPORT ELEVATION	2,000	3,000	2,000	4,000	2,000
ISA TEMPERATURE	+10°	ISA	ISA	+10°	+10°
AVG WIND COMP (KTS)	20 HW	20 TW	30 HW	10 TW	40 HW

Figure 56. Transport Aircraft 2—En Route Climb. ©ASA

EN ROUTE CLIMB 280/.70 ISA

PRESSURE ALTITUDE - FT	UNITS MIN/LB NM/KNOTS	BRAKE RELEASE WEIGHT - LB										
		120000	115000	110000	105000	100000	95000	90000	85000	80000	75000	65000
37000	TIME/FUEL DIST./TAS		41/5700 251/387	32/4700 192/384	27/4100 162/382	24/3700 140/380	21/3400 124/379	19/3100 111/378	17/2800 100/377	16/2500 90/376	14/2300 82/375	12/1900 67/374
36000	TIME/FUEL DIST./TAS	41/5900 246/386	33/4900 194/383	28/4300 164/381	25/3900 143/379	22/3500 127/378	20/3200 114/377	18/2900 103/376	16/2700 93/375	15/2500 84/374	14/2300 77/374	11/1900 63/373
35000	TIME/FUEL DIST./TAS	33/5100 197/382	29/4500 168/380	25/4100 147/378	23/3700 131/377	21/3400 117/376	19/3100 106/375	17/2800 96/374	16/2600 87/373	14/2400 80/373	13/2200 73/372	11/1800 60/371
34000	TIME/FUEL DIST./TAS	29/4700 171/379	26/4300 150/377	23/3900 134/376	21/3500 120/375	19/3200 109/374	18/3000 99/373	16/2700 90/372	15/2500 82/372	14/2300 75/371	12/2100 69/371	10/1800 57/370
33000	TIME/FUEL DIST./TAS	27/4400 153/376	24/4000 137/375	22/3700 123/374	20/3400 112/373	18/3100 102/372	17/2900 93/371	15/2700 85/370	14/2500 78/370	13/2300 71/369	12/2100 65/369	10/1700 54/368
32000	TIME/FUEL DIST./TAS	25/4200 139/374	23/3900 126/372	21/3600 114/371	19/3300 104/370	17/3000 95/370	16/2800 87/369	15/2600 80/368	14/2400 74/368	12/2200 67/367	11/2000 62/367	10/1700 51/366
31000	TIME/FUEL DIST./TAS	23/4000 128/371	21/3700 117/370	19/3400 107/369	18/3200 98/368	16/2900 90/367	15/2700 82/367	14/2500 76/366	13/2300 70/366	12/2100 64/365	11/2000 59/365	9/1700 49/364
30000	TIME/FUEL DIST./TAS	22/3900 119/368	20/3600 109/367	18/3300 100/366	17/3100 92/365	16/2800 84/365	15/2600 78/364	13/2400 72/364	12/2300 66/363	11/2100 61/363	11/1900 56/363	9/1600 47/362
29000	TIME/FUEL DIST./TAS	21/3700 111/365	19/3400 102/364	18/3200 93/363	16/3000 86/363	15/2700 79/362	14/2500 73/362	13/2400 68/361	12/2200 62/361	11/2000 57/361	10/1900 53/360	9/1600 44/360
28000	TIME/FUEL DIST./TAS	19/3600 103/362	18/3300 95/361	17/3100 88/360	15/2900 81/360	14/2700 75/359	13/2500 69/359	12/2300 64/359	11/2100 59/358	11/2000 54/358	10/1800 50/358	8/1500 42/357
27000	TIME/FUEL DIST./TAS	19/3400 96/358	17/3200 89/358	16/3000 82/357	15/2800 76/357	14/2600 71/356	13/2400 65/356	12/2200 60/356	11/2100 56/356	10/1900 52/355	9/1800 47/355	8/1500 40/355
26000	TIME/FUEL DIST./TAS	17/3300 88/354	16/3000 82/354	15/2800 76/353	14/2600 70/353	13/2500 65/352	12/2300 60/352	11/2100 56/352	10/2000 52/352	10/1800 48/351	9/1700 44/351	7/1400 37/351
25000	TIME/FUEL DIST./TAS	16/3100 81/350	15/2900 75/350	14/2700 70/349	13/2500 65/349	12/2400 60/349	11/2200 56/348	11/2000 52/348	10/1900 48/348	9/1800 45/348	8/1600 41/348	7/1400 35/347
24000	TIME/FUEL DIST./TAS	15/3000 75/346	14/2800 69/346	13/2600 65/345	12/2400 60/345	12/2300 56/345	11/2100 52/345	10/2000 48/345	9/1800 45/344	9/1700 41/344	8/1600 38/344	7/1300 32/344
23000	TIME/FUEL DIST./TAS	14/2800 69/342	13/2700 64/342	13/2500 60/342	12/2300 56/342	11/2200 52/342	10/2000 48/341	9/1900 45/341	9/1800 41/341	8/1600 38/341	8/1500 35/341	6/1300 30/341
22000	TIME/FUEL DIST./TAS	14/2700 63/339	13/2500 59/339	12/2400 55/338	11/2200 51/338	10/2100 48/338	10/1900 45/338	9/1800 41/338	8/1700 38/338	8/1600 36/338	7/1400 33/338	6/1200 28/337
6000	TIME/FUEL DIST./TAS	4/1000 9/295	4/1000 9/295	4/900 8/295	4/800 8/295	3/800 7/295	3/700 7/295	3/700 6/295	3/700 6/295	3/600 5/295	2/600 5/295	2/500 4/295
1500	TIME/FUEL	2/600	2/600	2/500	2/500	2/500	2/400	2/400	2/400	1/400	1/300	1/300

FUEL ADJUSTMENT FOR HIGH ELEVATION AIRPORTS	AIRPORT ELEVATION	2000	4000	6000	8000	10000	12000
EFFECT ON TIME AND DISTANCE IS NEGLIGIBLE	FUEL ADJUSTMENT	–100	–200	–400	–500	–600	–700

Figure 57. En Route Climb 280/.70 ISA. ©ASA

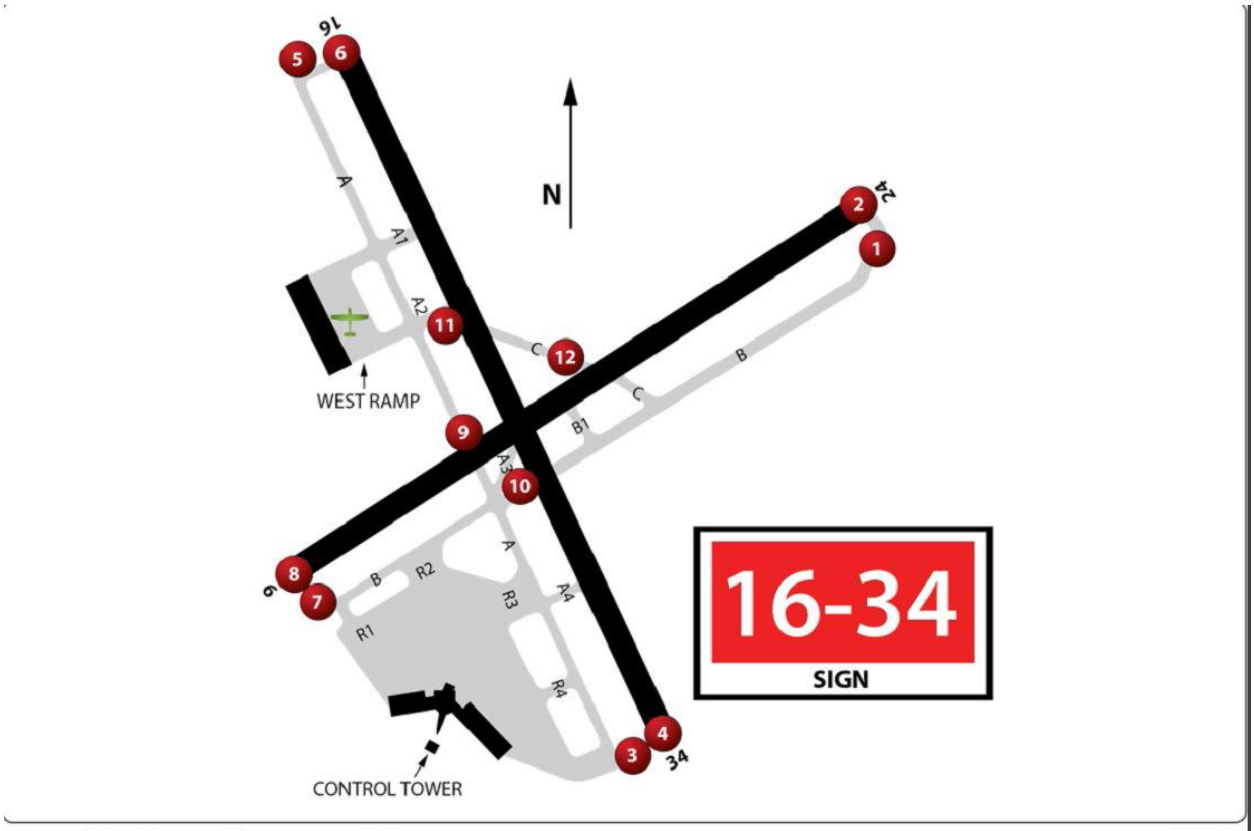

Figure 58. Airport Diagram and Sign ©ASA

OPERATING CONDITIONS	T-1	T-2	T-3	T-4	T-5
TOTAL AIR TEMP (TAT)	+10 °C	0 °C	−15 °C	−30 °C	+15 °C
ALTITUDE	10,000	5,000	25,000	35,000	18,000
ENGINE ANTI-ICE	ON	ON	ON	ON	OFF
WING ANTI-ICE	OFF	2 ON	2 ON	1 ON	OFF
AIR CONDITIONING	ON	OFF	ON	ON	OFF

Figure 59. Transport Aircraft 2—Climb and Cruise Power. ©ASA

EN ROUTE

MAX CLIMB & MAX CONTINUOUS EPR — A/C AIRBLEED ON

MAX. CLIMB	MAX. CONT.	TAT °C																		
		–40	–35	–30	–25	–20	–15	–10	–5	0	5	10	15	20	25	30	35	40	45	50
S.L. TO 30000	S.L. TO 1500 20000 TO 30000	2.25	2.23	2.21	2.18	2.15	2.12	2.09	2.04	1.99	1.94	1.90	1.86	1.82	1.79	1.76	1.73	1.70	1.67	1.64
	1500 TO 20000	2.30	2.28	2.26	2.24	2.21	2.19	2.16	2.13	2.10	2.07	2.04	2.00	1.95	1.91	1.86	1.81	1.75	1.71	1.66
	35000 & 37000	2.24	2.22	2.20	2.17	2.14	2.11	2.07	2.02	1.97	1.92									

2.30 — 5660 AND ABOVE; 2.20 — 4000; 2.14 — 3000; 2.09 — 2000; 2.04 — 1000; 1.98 — S.L.

TEMP / PRESS — LIMIT EPR

1. FIND TEMP LIMIT EPR
2. FIND PRESS LIMIT EPR
3. USE THE SMALLER OF THE TWO LIMITS

MAX CRUISE EPR

TAT °C		–50	–45	–40	–35	–30	–25	–20	–15	–10	–5	0	5	10	15	20	25	30	35	40
PRESS ALT 1000 FT	6 TO 30	2.18	2.16	2.14	2.12	2.10	2.07	2.05	2.02	1.99	1.95	1.91	1.85	1.79	1.73	1.68	1.64	1.61	1.57	1.54
	35 & 37	2.28	2.26	2.24	2.22	2.20	2.17	2. 14	2.11	2.07	2.02	1.97	1.92	1.87	1.84	1.80				

ANTI-ICE BLEED CORRECTIONS	Δ EPR
ENGINE ANTI-ICE	–.08
WING ANTI-ICE	2 ENG –.04
	1 ENG –.06

AIR COND-BLEED CORRECTIONS Δ EPR	A/C OFF
S.L. TO 37000	+.04

BLEED CORRECTIONS APPLY TO MAX CLIMB, MAX CONTINUOUS, AND MAX CRUISE EPR SETTINGS

Figure 60. Transport Aircraft 2—Climb and Cruise Power. ©ASA

OPERATING CONDITIONS	X-1	X-2	X-3	X-4	X-5
DISTANCE (NM)	2,000	2,400	1,800	2,800	1,200
WIND COMPONENT (KTS)	50 TW	50 HW	20 HW	50 TW	30 HW
CRUISE PRESS ALTITUDE	27,000	35,000	20,000	29,000	37,000
ISA TEMPERATURE	+10°	ISA	+20°	–10°	+10°
LANDING WEIGHT (X1000)	70	75	75	65	90

Figure 61. Flight Planning at .78 Mach Cruise. ©ASA

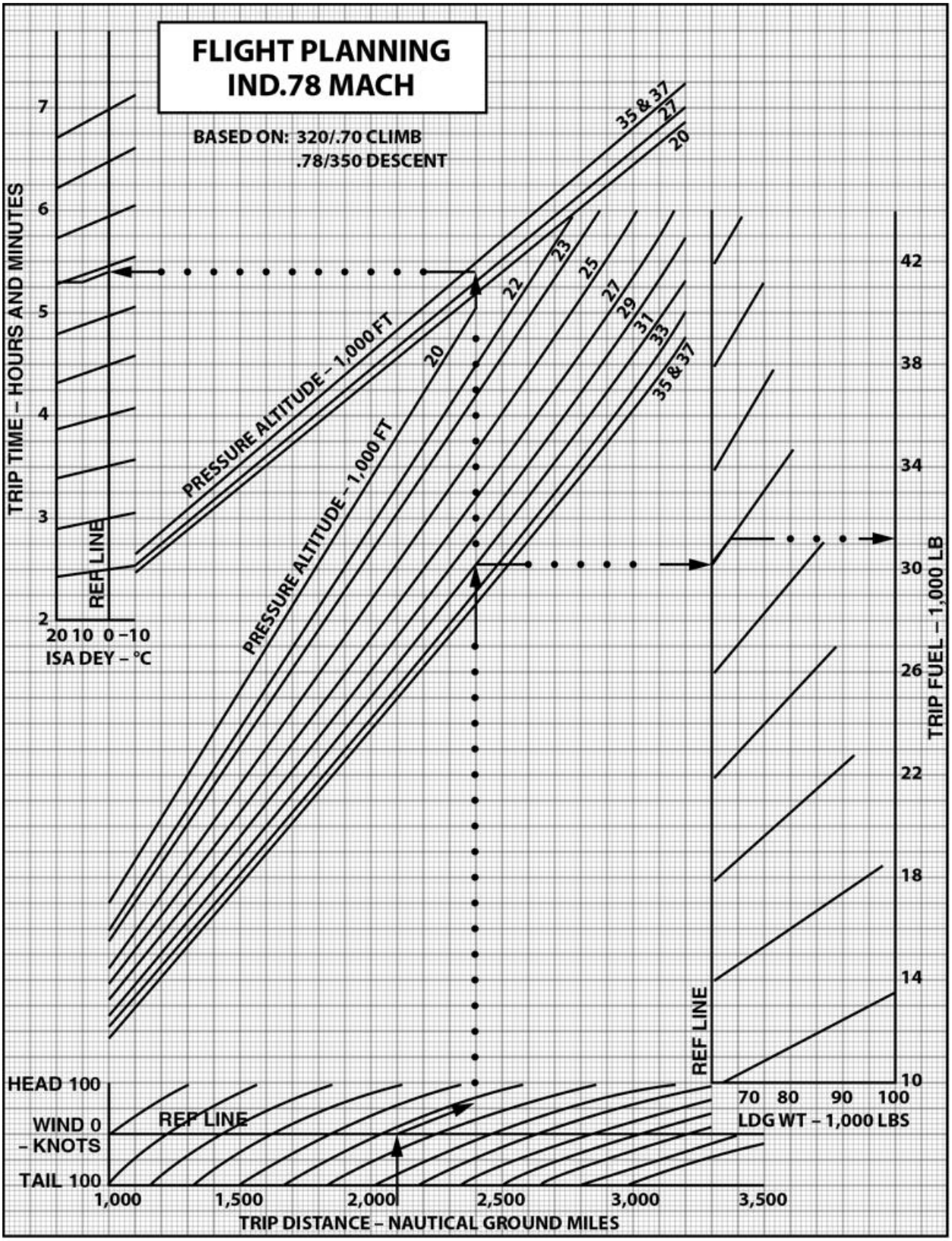

Figure 62. Transport Aircraft 2—Flight Planning at .78 Mach Indicated. ©ASA

OPERATING CONDITIONS	Z-1	Z-2	Z-3	Z-4	Z-5
DISTANCE (NM)	340	650	900	290	400
AVG WIND COMP (KTS)	25 TW	45 HW	35 TW	25 HW	60 HW

Figure 66. Flight Planning at .74 Mach Cruise. ©ASA

ABBREVIATED FLIGHT PLANNING
.280/.70 CLIMB
.74/320/340 DESCENT
250 KTS CRUISE BELOW 10000 FT.
320 KTS CRUISE 10000 THRU 23000 FT.
.74 MACH CRUISE 24000 FT. AND ABOVE

DIST. N. MI.	REC. ALT.	TAS KTS	AIR TIME MINS.	FUEL LBS.
50	6000-7000	279	16	1800
60	6000-7000	279	18	1950
260	26000-27000	447	44	4600
270	26000-27000	447	45	4750
280	27000-28000	445	47	4850
290	28000-29000	443	48	4950
300	28000-29000	443	49	5100
310	28000-29000	443	51	5200
320	29000-31000	441	52	5300
330	29000-31000	441	53	5400
340	31000-33000	438	55	5550
350	31000-33000	438	56	5650
400	33000-35000	433	62	6250
450	33000-35000	433	69	6850
500	33000-35000	433	76	7500
550	33000-35000	433	82	8100
600	33000-35000	433	89	8700
650	33000-35000	433	96	9300
700	33000-35000	433	102	9900
750	33000-35000	433	109	10500
800	33000-35000	433	115	11100
850	33000-35000	433	122	11700
900	33000-35000	433	129	12300
950	33000-35000	433	135	12900
1000	33000-35000	433	142	13500

TIME AND FUEL CORRECTION FOR WIND

Δ TIME = TIME X WIND COMPONENT ÷ TAS

Δ FUEL = FUEL X WIND COMPONENT ÷ TAS

EXAMPLE: DIST. = 250
STILL AIR TIME = 43 MIN.
STILL AIR FUEL = 4500 LBS
WIND COMPONENT = 20 KTS.

Δ TIME = 43 X 20 ÷ 449 = MIN.

Δ FUEL = 4500 X 20 ÷ 449 = 200 LBS.

ADD Δ TIME AND Δ FUEL FOR THE HEADWIND; SUBTRACT FOR TAILWIND

Figure 67. Abbreviated Flight Planning. ©ASA

OPERATING CONDITIONS	O-1	O-2	O-3	O-4	O-5
ALTITUDE	31,000	23,000	17,000	8,000	4,000
WEIGHT (X1000)	102	93	104	113	109
ENGINES OPERATING	2	2	2	2	2
HOLDING TIME (MIN)	20	40	35	15	25

Figure 68. Transport Aircraft 2—Holding. ©ASA

HOLDING

EPR
ISA KNOTS
FF PER ENGINE LB/HR

FLIGHT LEVEL	GROSS WEIGHT 1000 LB										
	115	110	105	100	95	90	85	80	75	70	65
350	2.13 234 2830	2.07 228 2810	2.01 223 2630	1.95 217 2460	1.90 211 2290	1.85 210 2180	1.80 210 2070	1.76 210 1960	1.71 210 1870	1.67 210 1780	1.64 210 1700
300	1.86 231 2740	1.82 226 2600	1.79 220 2470	1.75 215 2370	1.71 210 2250	1.67 210 2140	1.64 210 2050	1.60 210 1960	1.57 210 1880	1.54 210 1790	1.51 210 1720
250	1.69 229 2710	1.66 224 2610	1.63 218 2490	1.60 213 2370	1.57 210 2260	1.54 210 2180	1.51 210 2080	1.48 210 1980	1.45 210 1920	1.43 210 1840	1.41 210 1780
200	1.56 227 2716	1.53 222 2590	1.50 217 2490	1.48 211 2390	1.45 210 2310	1.43 210 2230	1.40 210 2130	1.38 210 2060	1.36 210 2000	1.34 210 1920	1.32 210 1860
150	1.45 226 2790	1.43 221 2668	1.40 216 2570	1.38 210 2470	1.36 210 2380	1.34 210 2290	1.32 210 2220	1.31 210 2140	1.29 210 2070	1.27 210 2000	1.26 210 1990
100	1.36 225 2860	1.34 220 2780	1.33 215 2670	1.31 210 2560	1.29 210 2470	1.28 210 2390	1.26 210 2310	1.25 210 2240	1.24 210 2170	1.22 210 2100	1.21 210 2030
050	1.29 224 2960	1.28 219 2870	1.27 214 2770	1.25 210 2670	1.24 210 2580	1.23 210 2500	1.21 210 2420	1.20 210 2350	1.19 210 2290	1.18 210 2230	1.17 210 2150
015	1.25 224 3050	1.24 219 2950	1.23 214 2850	1.22 210 2790	1.21 210 2670	1.20 210 2590	1.19 210 2510	1.18 210 2430	1.17 210 2370	1.16 210 2300	1.15 210 2240

Figure 69. Transport Aircraft 2—Holding Performance Chart. ©ASA

INITIAL FUEL WEIGHT 1000 LB	ENDING FUEL WEIGHT - 1000 LB															
	10	14	18	22	26	30	34	38	42	46	50	54	58	62	64	70
70	28	27	25	23	22	20	18	17	15	13	12	10	8	5	3	0
66	26	25	23	21	20	18	16	15	13	12	10	8	5	3	0	
62	23	23	20	18	17	15	13	11	10	8	7	5	3	0		
58	21	20	18	16	15	13	11	10	8	6	5	3	0			
54	18	16	15	13	12	10	8	7	5	3	2	0				
50	16	15	13	12	10	8	7	5	3	2	0					
46	15	13	12	10	8	7	5	3	2	0						
42	13	12	10	8	7	5	3	2	0			FUEL DUMP TIME				
38	12	10	8	7	5	3	2	0								
34	10	8	7	5	3	2	0									
30	8	7	5	3	2	0										
26	7	5	3	2	0											
22	5	3	2	0												
18	3	2	0							FUEL JETTISON TIME-MINUTES						
14	2	0														
10	0															

Figure 70. Fuel Dump Time. ©ASA

OPERATING CONDITIONS	D-1	D-2	D-3	D-4	D-5
WT AT ENG FAIL (X1000)	100	110	90	80	120
ENGINE ANTI-ICE	ON	OFF	ON	ON	ON
WING ANTI-ICE	OFF	OFF	ON	ON	OFF
ISA TEMPERATURE	ISA	+10°	−10°	−10°	+20°
AIR CONDITIONING	OFF	OFF	OFF	OFF	OFF

Figure 71. Transport Aircraft 2—Drift-Down. ©ASA

1 ENGINE INOP

ENGINE A/I OFF

GROSS WEIGHT 1000 LB		OPTIMUM DRIFTDOWN SPEED KIAS	ISA DEV °C			
AT ENGINE FAILURE	AT LEVEL OFF (APPROX)		–10	0	10	20
			APPROX GROSS LEVEL OFF PRESS ALT FT			
80	77	184	27900	26800	25400	22800
90	86	195	25000	23800	21700	20000
100	96	206	22000	20500	20000	18500
110	105	216	20000	19100	17500	15400
120	114	224	18200	16600	14700	12200

ENGINE A/I ON

GROSS WEIGHT 1000 LB		OPTIMUM DRIFTDOWN SPEED KIAS	ISA DEV °C			
AT ENGINE FAILURE	AT LEVEL OFF (APPROX)		–10	0	10	20
			APPROX GROSS LEVEL OFF PRESS ALT FT			
80	77	184	25500	24600	22800	20000
90	86	195	23000	21400	20000	19400
100	96	206	20000	19400	18700	15600
110	105	216	18100	16600	14700	12200
120	114	224	15500	13800	11800	8800

ENGINE AND WING A/I ON

GROSS WEIGHT 1000 LB		OPTIMUM DRIFTDOWN SPEED KIAS	ISA DEV °C			
AT ENGINE FAILURE	AT LEVEL OFF (APPROX)		–10	0	10	20
			APPROX GROSS LEVEL OFF PRESS ALT FT			
80	77	184	24400	23400	21400	20000
90	86	195	21600	20100	19800	18000
100	96	206	19600	18000	16400	14200
110	105	216	16800	15100	13300	10700
120	114	224	14000	12200	10300	7200

NOTE:
WHEN ENGINE BLEED FOR AIR CONDITIONING IS OFF BELOW 17,000 FT., INCREASE LEVEL OFF ALTITUDE BY 800 FT.

Figure 72. Drift-Down Performance Chart. ©ASA

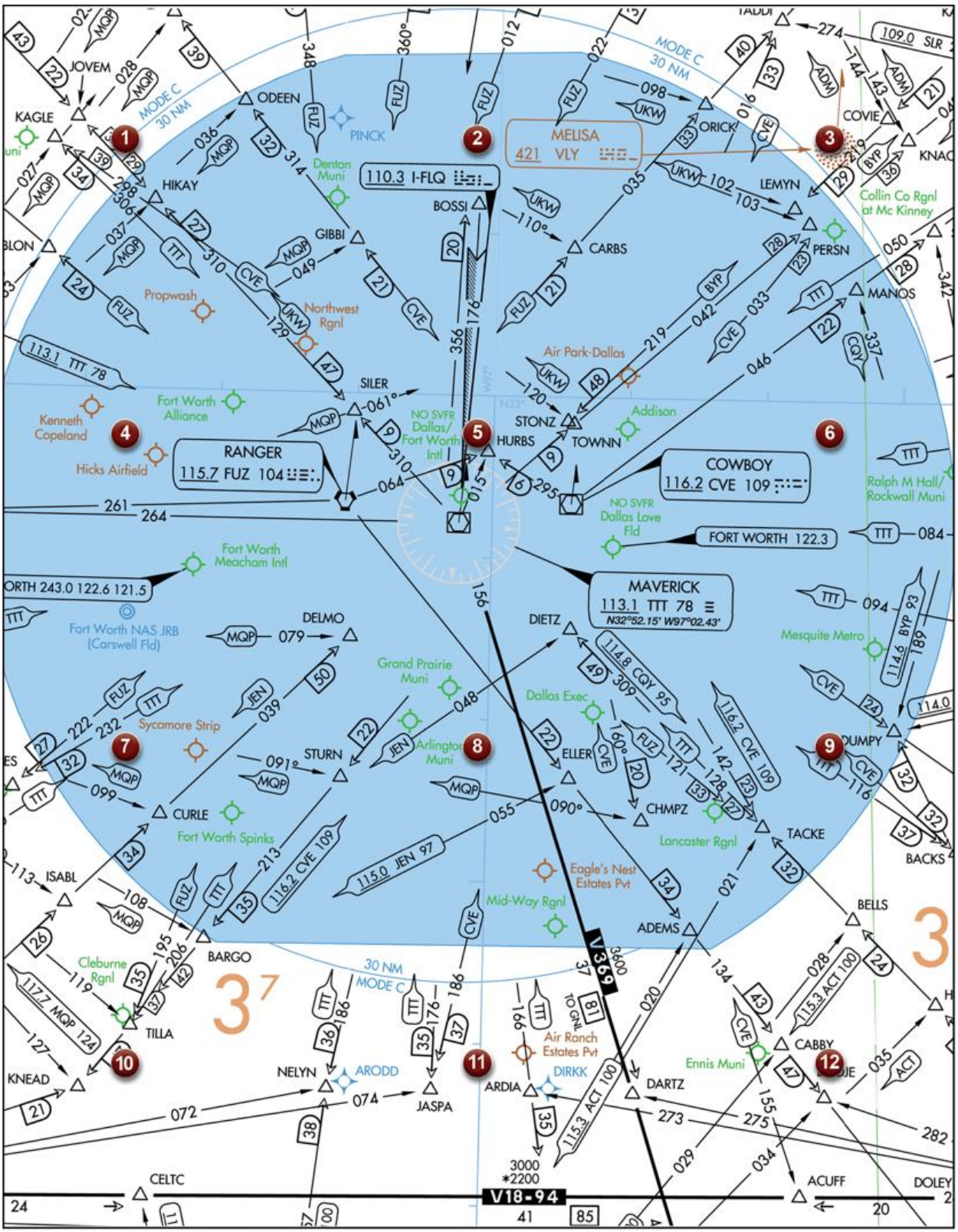

Figure 99. IFR Area Chart Segment. ©ASA

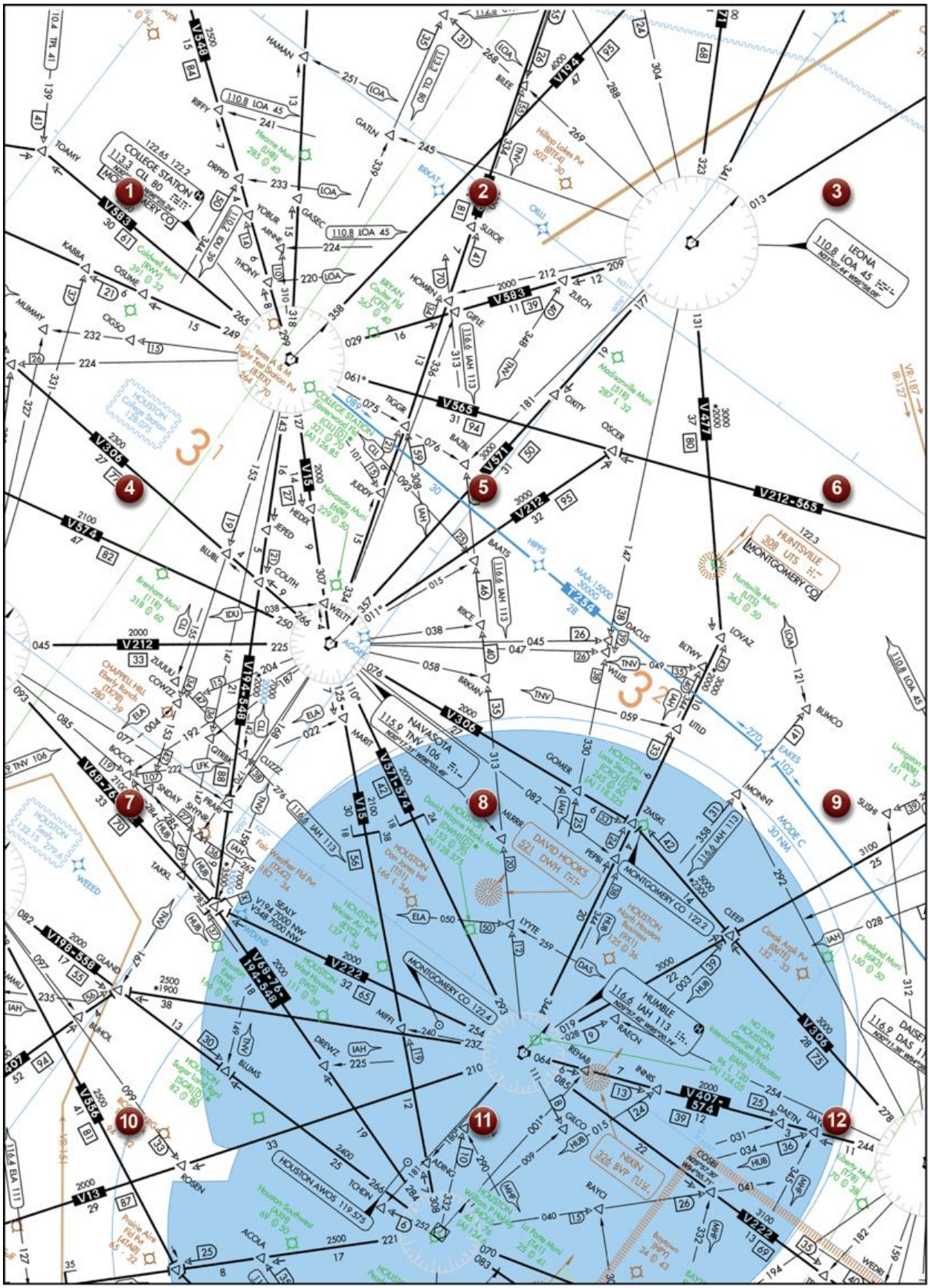

Figure 100. IFR En Route Low Altitude Chart Segment. ©ASA

DALLAS–FORT WORTH INTL (DFW)(KDFW) 12 NW UTC–6(–5DT) N32°53.83′ W97°02.26′ **DALLAS–FT WORTH COPTER H–6H, L–17C, A IAP, AD**
607 B AOE Class I, ARFF Index E NOTAM FILE DFW
RWY 17C–35C: H13401X150 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 82 R/B/W/T HIRL CL
RWY 17C: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 74′. RVR–TMR
RWY 35C: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 76′. RVR–TMR
RWY 17R–35L: H13401X200 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 78 R/B/W/T HIRL CL
RWY 17R: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 68′. RVR–TMR
RWY 35L: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 63′. RVR–TMR
RWY 18L–36R: H13400X200 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 83 R/B/W/T HIRL CL
RWY 18L: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 70′. RVR–TMR
RWY 36R: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 66′. RVR–TMR
RWY 18R–36L: H13400X150 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 82 R/B/W/T HIRL CL
RWY 18R: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 74′. RVR–TMR
RWY 36L: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 72′. RVR–TMR
RWY 13R–31L: H9301X150 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 83 R/B/W/T HIRL CL
RWY 13R: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 71′. RVR–TR
RWY 31L: REIL. PAPI(P4L)—GA 3.13° TCH 72′. RVR–TR
RWY 13L–31R: H9000X200 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 97 R/B/W/T HIRL CL
RWY 13L: REIL. PAPI(P4L)—GA 3.0° TCH 82′. RVR–TMR Thld dsplcd 625′. 0.5% down.
RWY 31R: MALSR. TDZL. PAPI(P4L)—GA 3.0° TCH 69′. RVR–TMR 0.5% up.
RWY 17L–35R: H8500X150 (CONC–GRVD) S–120, D–200, 2S–175, 2D–600, 2D/2D2–850 PCN 97 R/B/W/T HIRL CL
RWY 17L: ALSF2. TDZL. PAPI(P4L)—GA 3.0° TCH 77′. RVR–TMR Antenna. 0.6% up.
RWY 35R: ALSF2. TDZL. PAPI(P4R)—GA 3.0° TCH 73′. RVR–TMR 0.6% down.

LAND AND HOLD–SHORT OPERATIONS

LDG RWY	HOLD–SHORT POINT	AVBL LDG DIST
RWY 17C	TWY B	10460
RWY 18R	TWY B	10100
RWY 35C	TWY EJ	9050
RWY 36L	TWY Z	10650

RUNWAY DECLARED DISTANCE INFORMATION

RWY 13L:	TORA–9000	TODA–9000	ASDA–9000	LDA–8375
RWY 13R:	TORA–9301	TODA–9301	ASDA–9301	LDA–9301
RWY 17C:	TORA–13401	TODA–13401	ASDA–13401	LDA–13401
RWY 17L:	TORA–8500	TODA–8500	ASDA–8500	LDA–8500
RWY 17R:	TORA–13401	TODA–13401	ASDA–13401	LDA–13401
RWY 18L:	TORA–13400	TODA–13400	ASDA–13400	LDA–13400
RWY 18R:	TORA–13400	TODA–13400	ASDA–13400	LDA–13400
RWY 31L:	TORA–9301	TODA–9301	ASDA–9301	LDA–9301
RWY 31R:	TORA–8375	TODA–8375	ASDA–8375	LDA–8375
RWY 35C:	TORA–13401	TODA–13401	ASDA–13401	LDA–13401
RWY 35L:	TORA–13401	TODA–13401	ASDA–13401	LDA–13401
RWY 35R:	TORA–8500	TODA–8500	ASDA–8500	LDA–8500
RWY 36L:	TORA–13400	TODA–13400	ASDA–13400	LDA–13400
RWY 36R:	TORA–13400	TODA–13400	ASDA–13400	LDA–13400

SERVICE: **FUEL** 100LL, JET A **OX** 1, 3 **LGT** PAPI unusable byd 7° right of centerline.

CONTINUED ON NEXT PAGE

Figure 101. Chart Supplement.

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CONTINUED FROM PRECEDING PAGE

AIRPORT REMARKS: Attended continuously. Rwy 17L–35R CLOSED 0400–1200Z‡ exc PPR. Rwy 13R–31L CLOSED 0400–1200Z‡ except PPR. Rwy 13L–31R CLOSED 0400–1200Z‡ exc PPR. Visual screen 20´ AGL 1180´ south AER 35C. Visual screen 22´ AGL 1179´ south AER 35L. ASDE–X in use. Opr transponders with altitude reporting mode and ADS–B (if equipped) enabled on all airport surfaces. Runway Status Lights in operation. Acft at East Air Freight must contact DFW Twr at 127.5 prior to taxi out. PPR for acft with wingspan 215´ or greater (GROUP VI), call arpt ops 972–973–3112 for flw–me svcs while taxiing to and from ramp and rwys. Arpt under const, PAEW in movement areas. Birds on and invof arpt. B747–8 and A380 ops only authorized on Rwys 18R–36L and Rwy 18L–36R, contact arpt ops for additional info. Tkf distance for Rwy 17L from Twy Q2 is 8196´. Tkf distance for Rwy 35R from Twy Q9 is 8196´. Tkf distance for Rwy 17R from Twy EG is 13082´ and from Twy EH is 12816´. Tkf distance for Rwy 35L from Twy EQ is 13084´ and from Twy EP is 12811´. Tkf distance for Rwy 36R from Twy WP is 12815´, from Twy WQ is 13082´. Tkf distance for Rwy 18L from Twy WG is 13082´, from Twy WH is 12815´. Tkf distance for Rwy 17C from Twy EG is 13,082´. Tkf distance for Rwy 18R from Twy WG is 13,082´. Land And Hold Short signs on Rwy 17C at Twy B 10,460´ south of Rwy 17C thld, Rwy 18R at Twy B 10,100´ south of Rwy 18R thld, Rwy 35C at Twy EJ 9050´ north of Rwy 35C thld, Rwy 36L at Twy Z 10,650´ north of Rwy 36L thld, lgtd and marked with in–pavement pulsating white lgts. Acft using Terminal D gates D6–17 must obtain approval from DFW ramp tower 129.95 prior to entering ramp and prior to pushback 0600L–2200L(1200–0400Z‡). Use extreme care at other times. Acft using terminal E gates must obtain approval from DFW ramp 131.0 prior to entering ramp and prior to pushback 1030–0730Z‡ during time change only. Apron entrance/exit points 1 and 2 clsd to acft with wingspan greater than 89´ except PPR. Apron entrance/exit points 3 and 4 clsd to acft with wingspan greater than 118´ except PPR. Apron entrance/exit points 5, 7, 42, 44, 49, 51, 52, and 122 clsd to acft with wingspan greater than 118´. Apron entrance/exit points 22, 24, 105, and 107 clsd to acft with wingspan 125´ and greater. Apron entrance/exit points 31 and 39 clsd to acft with wingspan greater than 167´. Apron entrance/exit points 9, 32, 33, 34, 35, 36, 37, 38, and 53 clsd to acft with wingspan greater than 135´. Apron entrance/exit point 48 clsd to acft with wingspan greater than 195´. Apron entrance/exit point 124 clsd to acft with wingspan greater than 213´. Unless otherwise specified, all apron entrance/exit points clsd to acft with wingspan greater than 214´ except PPR. Terminal B apron taxilane btn apron entrance/exit point taxilanes 107 and 115 clsd to acft with wingspan 118´ and greater. Twy A5 clsd to acft with wingspan 171´ and greater. Twys may rqr judgemental oversteering for large acft. PPR general aviation ops 0600–1100Z‡, call arpt ops 972–973–3112. PPR from arpt ops for general aviation acft to proceed to airline terminal gate exc to general aviation fac. PPR from the primary tenant airlines to opr within the central terminal area. Proper minimum object free area distances may not be maintained for ramp/apron taxi lanes. Twy edge reflectors along all twys. Ldg fee. Flight Notification Service (ADCUS) available. NOTE: See Land and Hold Short Operations, Intersection Departures During Periods of Darkness, Noise Abatement Procedures and Continuous Power Facilities.

AIRPORT MANAGER: 972-973-3112

WEATHER DATA SOURCES: ASOS (972) 615–2608 LLWAS.

COMMUNICATIONS: D–ATIS ARR 123.775 (972) 615–2701 **D–ATIS DEP** 135.925 (972) 615–2701 **UNICOM** 122.95

® **RGNL APP CON** 118.1 135.975 124.3(North) 125.2 135.975(South) 119.875(West) 125.025(East)

DFW TOWER 126.55 127.5 (E) 124.15 134.9 (W) **GND CON** 121.65 121.8 (E) 121.85 (W)

CLNC DEL 128.25

® **RGNL DEP CON** 118.1 135.975 124.825(North) 125.125 135.975(South) 126.475(West) 118.55(East)

CPDLC (LOGON KUSA)

AIRSPACE: CLASS B See VFR Terminal Area Chart

RADIO AIDS TO NAVIGATION: NOTAM FILE FTW.

MAVERICK (H) VORW/DME 113.1 TTT Chan 78 N32°52.15´ W97°02.43´ 359° 1.7 NM to fld. 540/6E.
All acft arriving DFW are requested to turn DME off until departure due to traffic overload of Maverick DME
DME unusable:
180°–190°

ILS/DME 109.5 I–LWN Chan 32 Rwy 13R. Class IIE. DME unusable wi 2.5 NM (4.2 DME).

ILS/DME 110.3 I–FLQ Chan 40 Rwy 17C. Class IIIE. DME also serves Rwy 35C.

ILS/DME 111.75 I–PPZ Chan 54(Y) Rwy 17L. Class IIIE. DME also serves Rwy 35R.

ILS/DME 111.35 I–JHZ Chan 50(Y) Rwy 17R. Class IE. DME also serves Rwy 35L.

ILS/DME 110.55 I–CIX Chan 42(Y) Rwy 18L. Class IE. DME also serves Rwy 36R.

ILS/DME 111.9 I–VYN Chan 56 Rwy 18R. Class IIIE. DME also serves Rwy 36L.

ILS/DME 110.9 I–RRA Chan 46 Rwy 31R. Class IE.

ILS/DME 110.3 I–PKQ Chan 40 Rwy 35C. Class IIIE. DME also serves Rwy 17C.

ILS/DME 111.35 I–UWX Chan 50(Y) Rwy 35L. Class IE. LOC unusable byd 14 NM blo 3,400´. DME also serves Rwy 17R.

ILS/DME 111.75 I–AJQ Chan 54(Y) Rwy 35R. Class IIIE. DME also serves Rwy 17L. LOC unusable byd 16 NM 5° right of course.

ILS/DME 111.9 I–BXN Chan 56 Rwy 36L. Class ID. DME also serves Rwy 18R. LOC unusable byd 15 NM 5° right of course.

ILS/DME 110.55 I–FJN Chan 42(Y) Rwy 36R. Class IE. DME also serves Rwy 18L.

DAN E RICHARDS MUNI (See PADUCAH on page 358)

Figure 101A. Chart Supplement.

©ASA

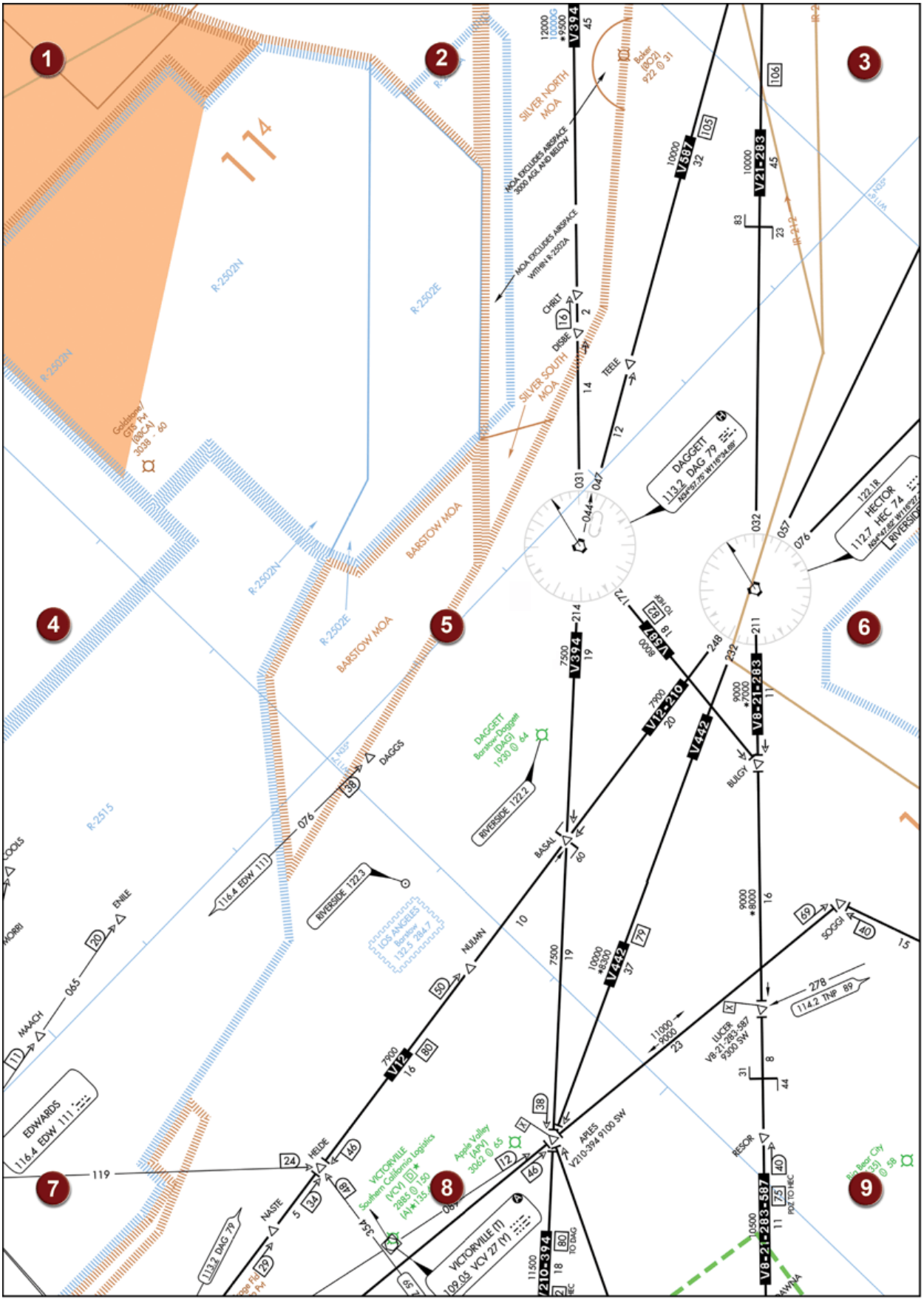


Figure 114. En Route Low Altitude Chart Segment. ©ASA

Figure 123. Aircraft Course and ©ASA

Figure 124. Aircraft Course and ©ASA

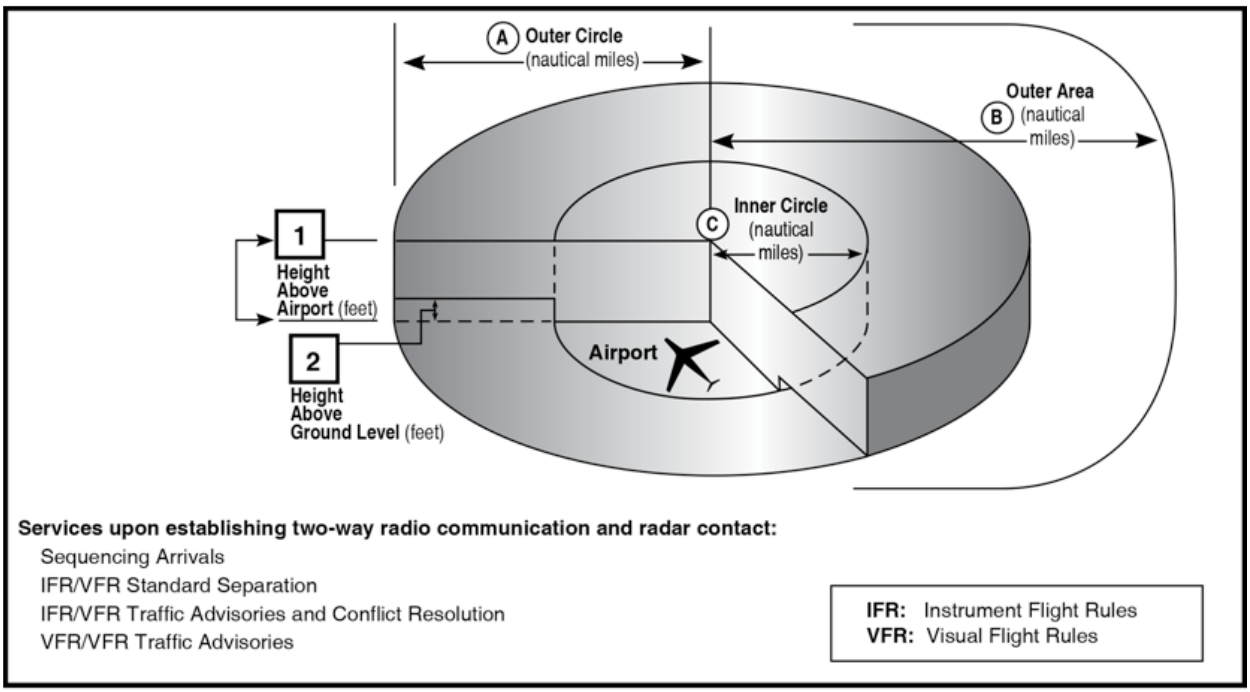


Figure 126. Class C Airspace. ©ASA

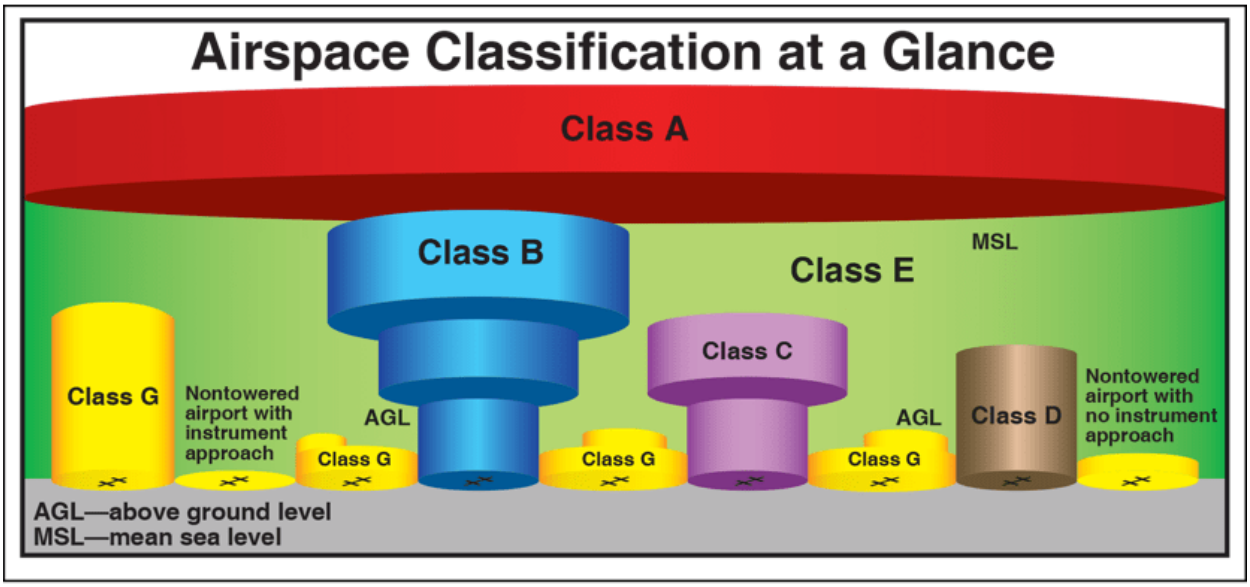


Figure 127. Airspace Classification. ©ASA

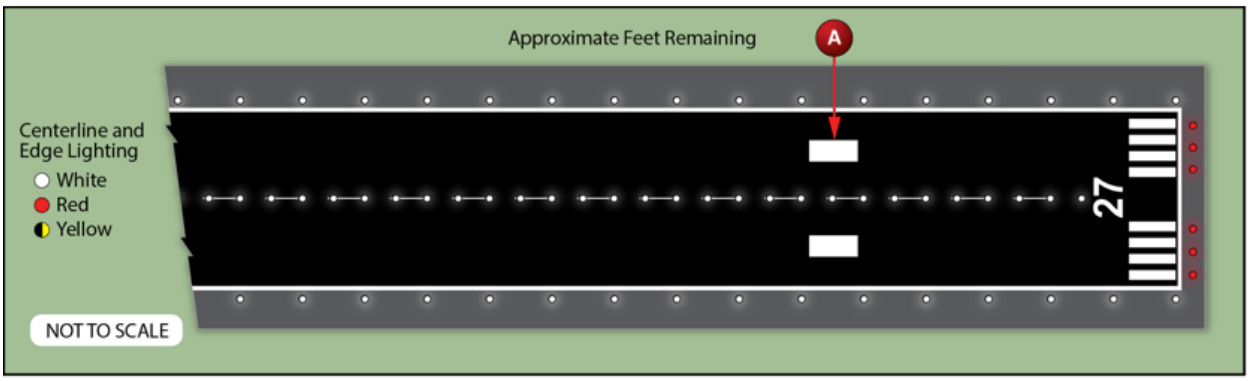


Figure 129. FAA Nonprecision Approach Runway Markings and Lighting. ©ASA

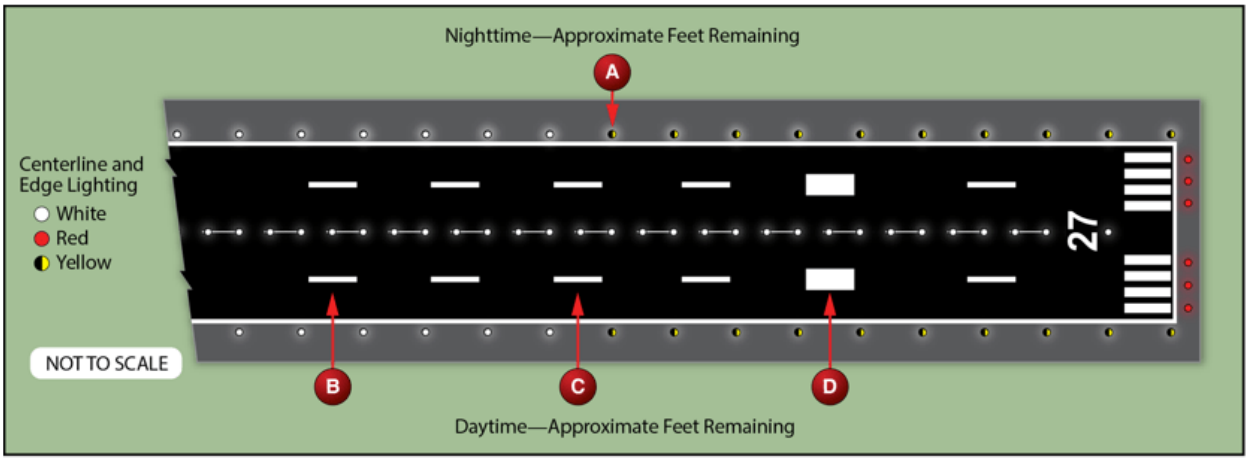


Figure 130. ICAO Nonprecision Approach Runway Markings and Lighting. ©ASA

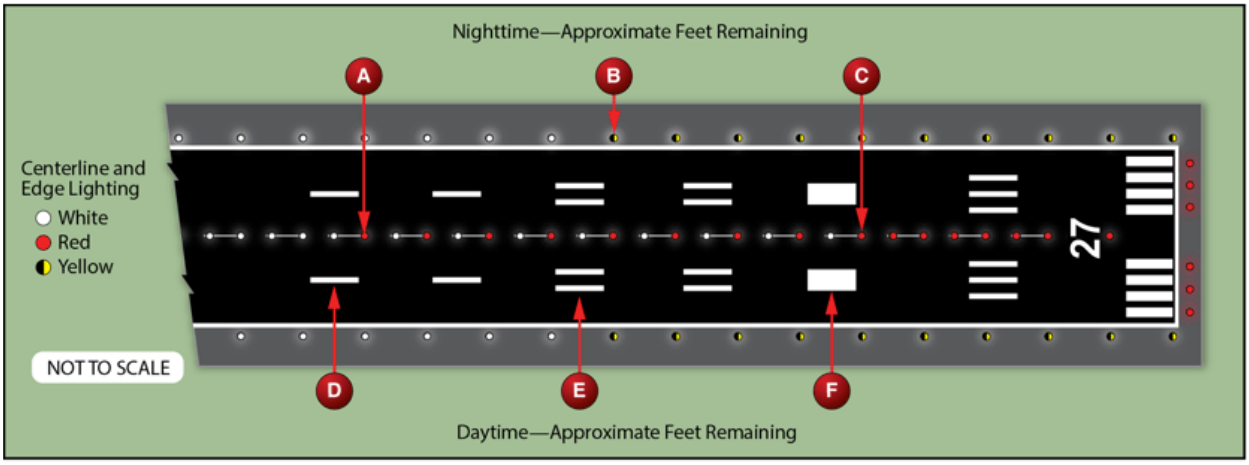


Figure 131. FAA ICAO Precision Approach Runway Markings and Lighting. ©ASA

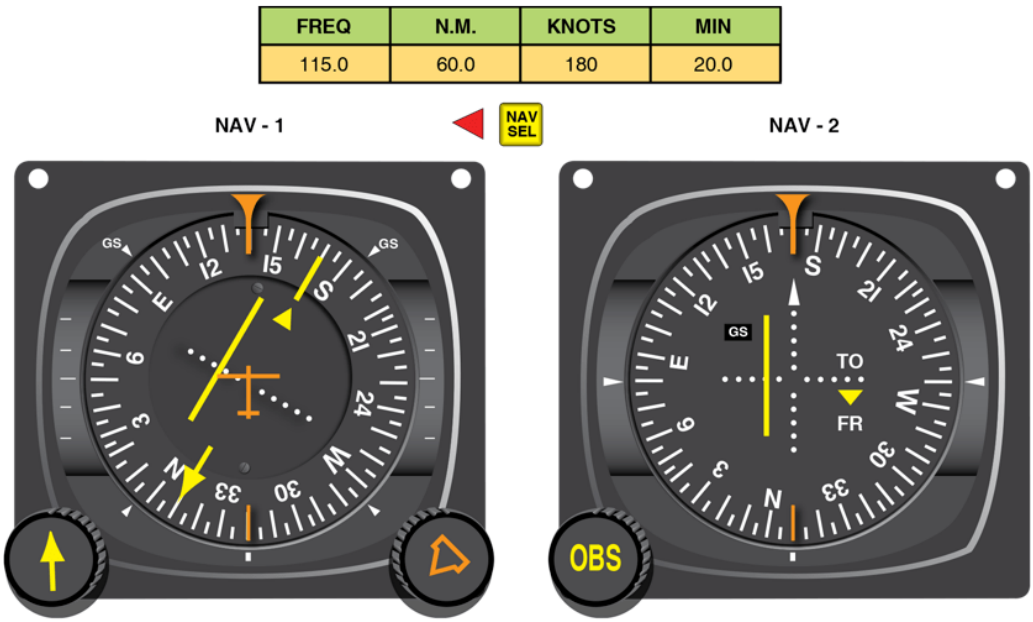


Figure 139. No. 1 and No. 2 NAV Presentation. ©ASA

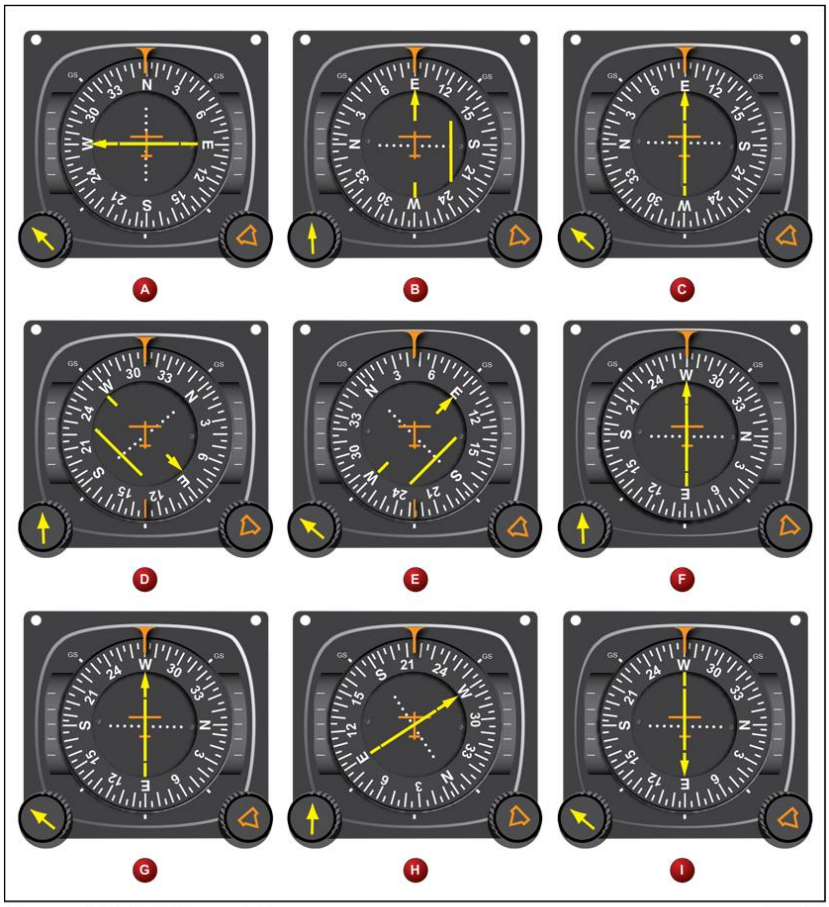


Figure 140. HSI Presentation. ©ASA

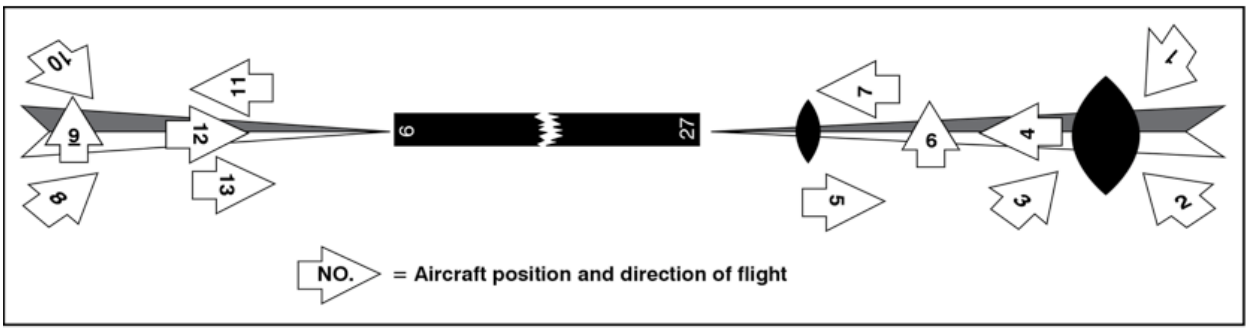


Figure 141. Aircraft Position and Direction of Flight. ©ASA

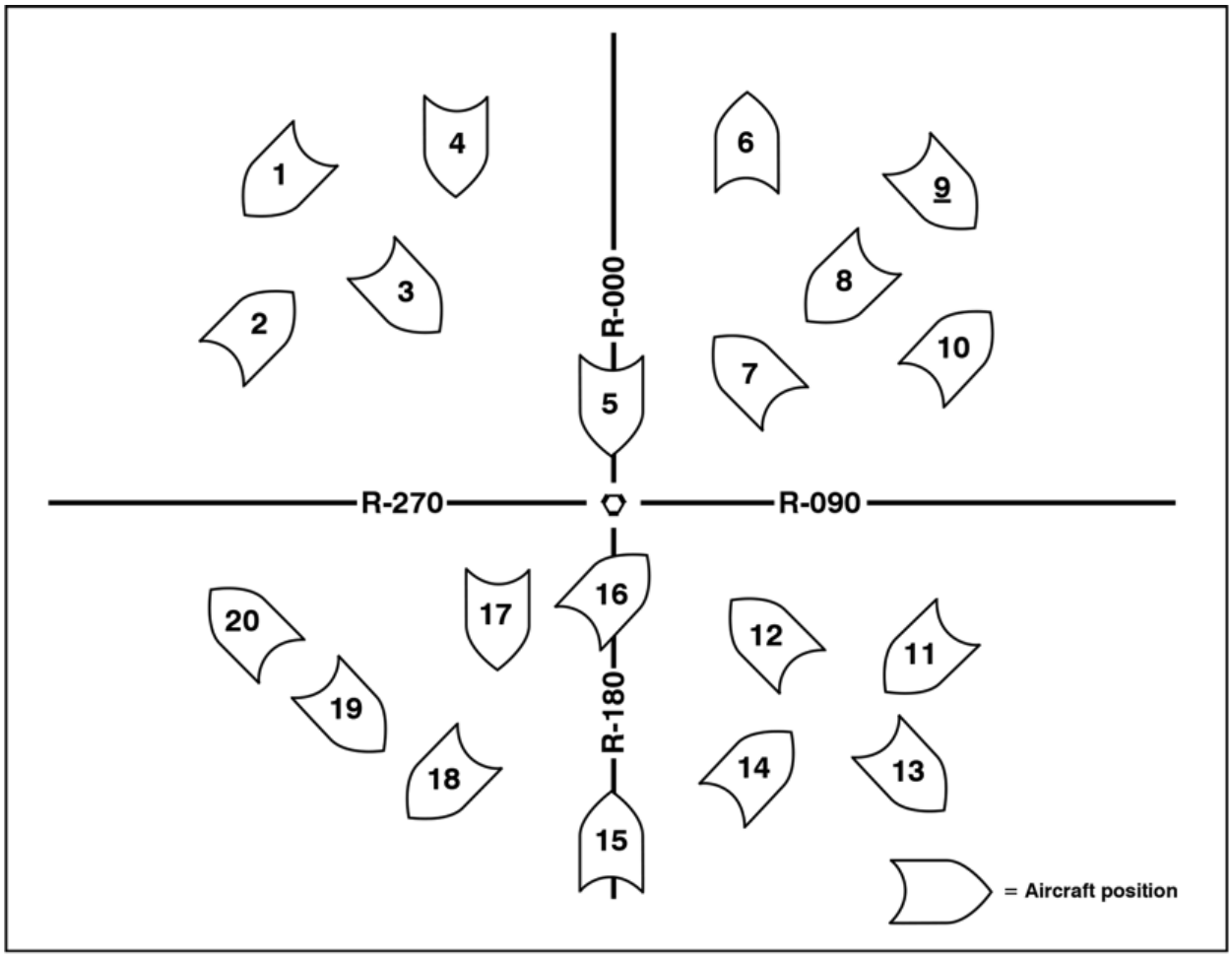


Figure 142. Aircraft Position. ©ASA

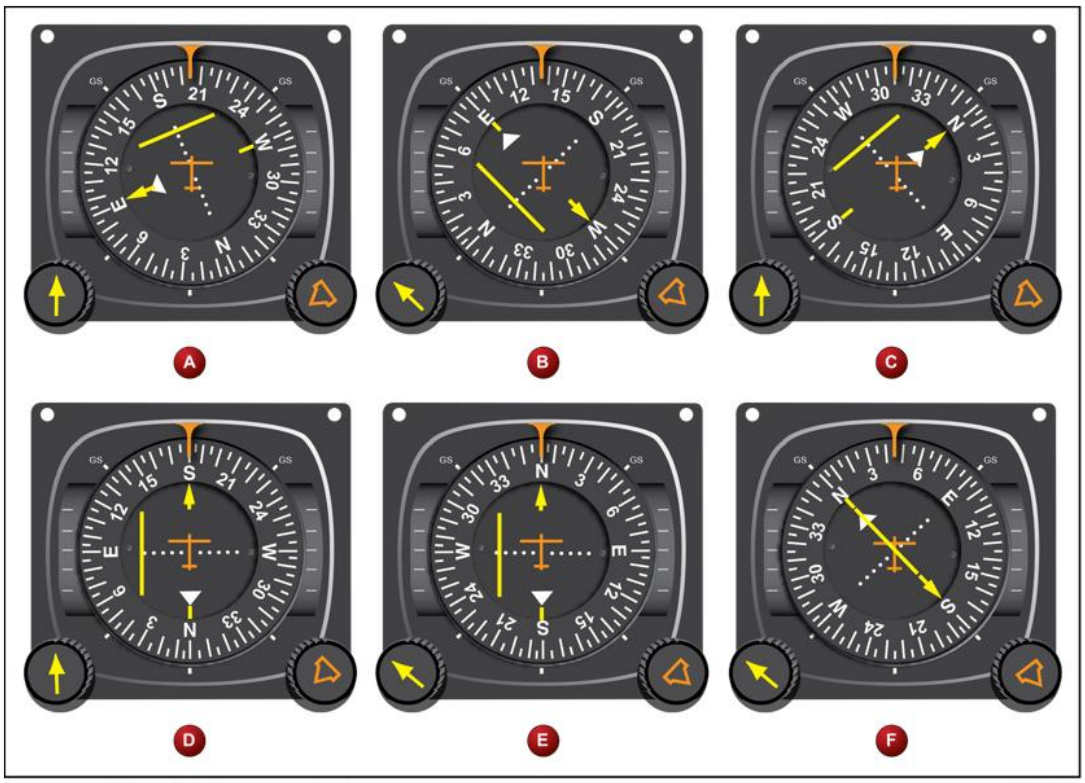


Figure 143. HSI Presentation. ©ASA

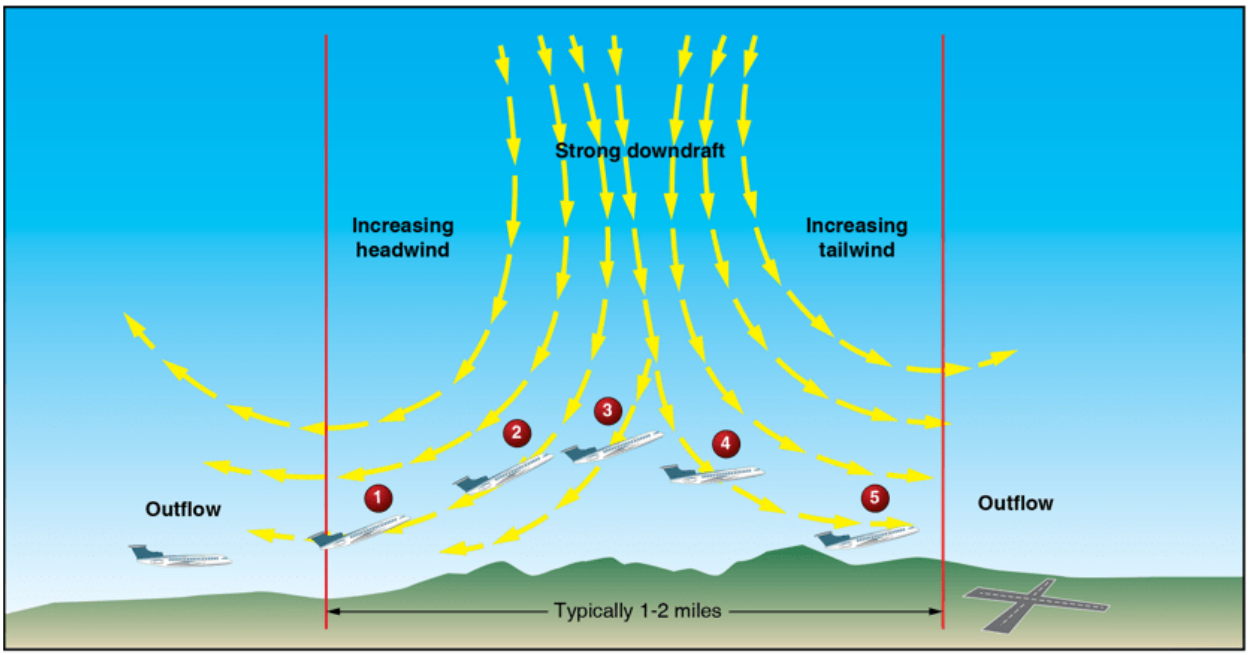


Figure 144. Microburst Section Chart. ©ASA

Aviation Routine Weather Reports (METAR)

TX

METAR KAMA 131755Z 33025G35KT 3/4SM IC OVC003 M02/M01 A2952 RMK PK WND 32039/43 WSHFT 1735 PRESFER P0003.

METAR KAUS 131753Z 19011G17KT 8SM SCT040 BKN250 31/21 A3006 RMK SLPNO.

METAR KBPT 131755Z 17004KT 7SM FEW001 SCT030 BKN250 34/23 A2979 RMK VIS E 2.

METAR KBRO 131755Z 14015KT 6SM HZ SCT034 OVC250 34/30 A2985 RMK PRESRR.

METAR KCDS 131758Z 11013KT 7SM-SHRA OVC180 23/21 A3012 RMK RAB42 VIRGA SW.

METAR KCLL 131749Z 21011KT 7SM SCT003 BKN025 OVC100 34/21 A3008 RMK BKN025 V OVC.

METAR KCOT 131749Z 13010KT 10SM SCT040 SCT200 31/21 A3002 RMK RAE24.

METAR KCRP 131753Z 16016KT 10SM SCT028 BKN250 32/24 A3003.

METAR KDAL 131755Z 16005KT 7SM SCT023 OVC100 30/22 A3007.

METAR KDFW 131800Z 17007KT 10SM SCT035 OVC120 29/20 A3008.

METAR KDHT 131756Z 04014KT 15SM BKN025 22/15 A3026.

METAR KDRT 131756Z 12012KT 10SM FEW006 SCT020 BKN100 OVC250 29/22 A3000 RMK CONS LTG DSTN ESE TS SE MOVG NW VIRGA W.

METAR KELP 131755Z 09007KT 60SM VCBLDU FEW070 SCT170 BKN210 29/13 A3015.

METAR KFTW 131750Z 18007KT 7SM SCT025 OVC100 29/20 A3008.

FTW 131815Z UA/OV DFW/TM 1803/FL095/TP PA30/SK 036 OVC 060/075 OVC/RM TOPS UNKN.

METAR KGGG 131745Z 15008KT 15SM SKC 32/21 A3011.

METAR KGLS 131750Z VRB04KT 6SM VCSH SCT041 BKN093 26/22 A2995.

SPECI KGLS 13180ZZ 10012G21KT 060V140 2SM +SHRA SCT005 BKN035 OVC050CB 24/23 A2980 RMK RAB57 WSHFT 58 FROPA

METAR KHOU 131752Z 15008KT 7SM SCT030 OVC250 31/27 A3008.

METAR KHRL 131753Z 14015KT 8SM SKC 30/25 A3010.

METAR KIAH 131755Z VRB03KT 1/4SM R33L/1200FT BCFG VV007 27/26 A3005.

METAR KINK 131755Z 04027G36KT 2SM BLSA PO OVC015TCU 24/13 A2985.

METAR KLBB 131750Z 06029G43KT 1SM BLSNDU SQ VV010 03/M01 A2949.

LBB 131808Z UUA/OV LBB /TM 1800/FL UNKN /TP B737 /TB MDT /RM LLWS -17 KT SFC-010 DURC RWY 36LBB.

SPECI KLBB 131818Z 35031G40KT 1/2SM FZDZ VV030 M01/M01 A2946 RMK WSHFT 12 FROPA.

LBB 131821Z UUA/OV LBB/TM1817/FL011/TPB727/SK UNKN OVC/TA -06/TB MOD/IC MDT CLR.

METAR KLFK 131756Z 24007KT 7SM BKN100 33/19 A3008.

METAR KMAF 131756Z 02020KT 12SM BKN025 OVC250 27/18 A3009 RMK RAE44.

METAR KMFF 131756Z 13015KT 7SM BKN125 33/19 A2998.

METAR KMRF 131752Z 09012G20KT 60SM SKC 28/14 A3000.

MRF 131801Z UUA/OV MRF/TM1758/FL450/TP B767/TB MDT CAT.

Figure 145. Aviation Routine Weather Reports (METAR). ©ASA

METARs & PIREPs

TX

METAR KABI 131755Z AUTO 21016G24KT 180V240 1SM R11/P6000FT -RA BR BKN015 OVC025 19/15 A2900 RMK AO2 PK WND 20035/25 WSHFT 1715 VIS 3/4V1 1/2 VIS 3/4 RWY11 RAB07 CIG 013V 017 CIG 014 RWY11 PRESFR SLP125 P0003 60009 T01940154 10196 20172 58033 TSNO $.

METAR KMWL 131756Z 13011KT 10SM BKN011 OVC050 25/23 A3006.

METAR KPSX 131755Z 20010KT 7SM SCT018 OVC200 31/24 A3007.

METAR KPVW 131750Z 05006KT 10SM SCT012 OVC030 30/20 A3011 RMK RAE47.

METAR KSAT 131756Z 15016KT 7SM SCT028 OVC250 30/20 A3005.

SAT 131756Z UA /OV SAT/TM 1739Z/FL UNKN/TP UNKN/SK OVC 040.

METAR KSIT 131755Z 22012KT 7SM BKN018 OVC070 25/23 A3002.

METAR KSPS 131757Z 09014KT 6SM -RA SCT025 OVC090 24/22 A3005.

SPECI KSPS 131820Z 01025KT 2SM +RA OVC015TCU 22/21 A3000 RMK DSNT TORNADO B15 N MOV E.

SPS 131820Z UA/OV SPS/TM 1818/FL090/TP C402/SK OVC 075.

METAR KTPL 131751Z 17015KT 15SM SCT015 SCT100 OVC250 31/20 A3007.

METAR KTYR 131753Z AUTO 26029G41KT 2SM +TSRA BKN008 OVC020 31/24 A3001 RMK A02 TSB44 RAB46.

METAR KVCT 131755Z 17013KT 7SM SCT030 OVC250 30/24 A3005.

AR

METAR KARG 131753Z AUTO 22015G25KT 3/4SM R28/2400FT +RA OVC010 29/28 A2985 RMK AO2.

METAR KELD 131755Z 06005G10KT 3SM FU BKN050 OVC100 30/21 A3010.

METAR KFSM 131756Z 00000KT 5SM SKC 30/20 A2982.

FSM 131830Z UA/OV HRO-FSM/TM 1825/FL290/TP B737/SK SCT 290.

METAR KFYV 131755Z 170018G32KT 2SM +TSRA SQ SCT030 BKN060OVC100CB 28/21 A2978 RMK RAB47.

FYV 131801Z UA/OV 1 E DAK/TM 1755Z/FL 001/TP CV 440/RM WS LND RWY16FYV.

METAR KHOT 131751Z 34006KT 18SM SCT040 OVC150 32/18 A3010.

METAR KHRO 131753Z 09007KT 7SM FEW020 BKN040CB 30/27 A3001.

SPECI KHRO 131815Z 13017G26KT 2SM +TSRA SCT020 BKN045TCU 29/24A2983 RMK RAB12 FRQ LTGICCG VC PRESFR.

HRO 131830Z UUA/OV 6 S HRO/TM 1825Z/FL 001/TP DC6/RM WS TKO RWY 18.

METAR KLIT 131754Z 07004KT 10SM SCT030 BKN250 34/29 A3007.

METAR KPBF 131753Z 29007KT 5SM SCT040 BKN100 35/19 A3008.

METAR KTXK 131753Z 25003KT 7SM SCT100 BKN200 33/19 A3010.

Figure 146. METARs & PIREPs. ©ASA

Convective SIGMET

MKCC WST Ø31755
CONVECTIVE SIGMET 42C
VALID UNTIL 1955Z
TX OK
FROM 5W MLC–PEQ–SJT–5W MLC
AREA SCT EMBDD TSTMS MOVG LTL. TOPS 3ØØ.

CONVECTIVE SIGMET 43C
VALID UNTIL 1955Z
CO KS OK
FROM AKO–OSW–3ØWNW OKC–AKO
AREA SCT TSTMS OCNLY EMBDD MOVG FROM 322Ø. TOPS 38Ø.

CONVECTIVE SIGMET 44C
VALID UNTIL 1955Z
5ØNE MEM
ISOLD INSTD LVL5 TSTM DIAM 1Ø MOVG FROM 2625. TOP ABV 45Ø.

OUTLOOK VALID UNTIL 2355Z
TSTMS OVR TX AND SE OK WL MOV SEWD 15 KTS.
TSTMS OVER CO, KS, AND N OK WL CONT MOVG SEWD 2Ø KTS.
TSTM OVR TN WL CONT MOVG EWD 25 KTS.

Figure 148. Convective SIGMET. ©ASA

Winds and Temperatures Aloft Forecasts

DATA BASED ON 031200Z
VALID 040000Z FOR USE 1800-0300Z. TEMPS NEG ABV 24000

FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
ABI		1306+16	1607+11	1807+06	2108-07	2208-18	240833	250942	300753
ABO			0810+14	0511+08	3415-06	3220-18	312333	312543	302554
AMA		0614	0814+10	0709+05	3210-07	2914-19	281934	282243	292554
ATL	0906	9900+17	9900+12	0205+07	3507-07	3305-19	290534	280543	990054
BNA	9900	9900+17	3205+12	3109+07	3018-07	2918-19	272134	262444	262855
BRO	1510	1614+20	1611+14	1708+08	9900-07	9900-19	990034	990043	990055
DAL	0910	1706+17	2009+11	2011+06	2015-08	2214-19	231333	241342	271153
DEN			9900+09	9900+04	3020-10	3029-21	303636	304145	294756
DSM	3615	3315+07	3118+04	3022+00	2835-12	2748-24	276438	277348	277957
ELP		0610	0614+13	0615+08	0113-05	3614-17	361433	361442	251354
GCK		0611+11	0809+08	9900+03	2817-09	2823-20	273135	273644	284155
HLC		0409+09	0405+07	3106+02	2822-10	2730-21	273936	274545	275256
HOU	0909	1607+19	1606+13	1606+07	1605-08	9900-20	990034	990043	990054
ICT	0516	0613+12	0607+08	9900+04	2718-09	2626-20	263635	264144	274655
IND	3611	3207+12	2912+08	2818+03	2733-09	2643-21	265635	265944	256255
INK		0609+16	0709+12	0608+07	0107-06	3607-18	350833	340842	350855
JAN	3612	3613+18	3611+13	3609+07	0105-08	9900-19	990034	990043	230854
LIT	0310	3608+16	3206+11	2808+06	2517-08	2518-19	252034	252243	262454
LOU	0105	9900+15	2908+10	2913+05	2825-08	2731-20	263834	264143	254454
MEM	0109	0108+17	3408+12	3110+06	2916-07	2717-19	261934	262144	262555
MKC	0316	0211+11	3409+07	3013+03	2728-10	2638-21	265036	265645	276356
MSY	0315	0216+19	0315+13	0414+07	0510-08	0605-20	990034	990043	210854
OKC	0715	0810+14	1106+10	9900+05	2414-08	2419-19	252534	252743	272754
SAT	1107	1713+18	1813+13	1911+07	2006-07	1906-19	180734	170743	990054
SGF	0414	0410+14	3605+09	2908+04	2624-09	2632-20	254135	264444	264655
SHV	0509	9900+18	9900+12	2106+06	2012-08	2109-19	220734	240743	260754
STL	0314	0110+12	3210+08	2915+03	2730-09	2741-21	265435	265744	266055
TUS		0807+23	0814+16	0814+10	0810-05	0505-17	330533	310842	290954

Figure 149. Winds and Temperatures Aloft Forecasts. ©ASA

Figure 149A. Winds and Temperatures Aloft Forecast. ©ASA

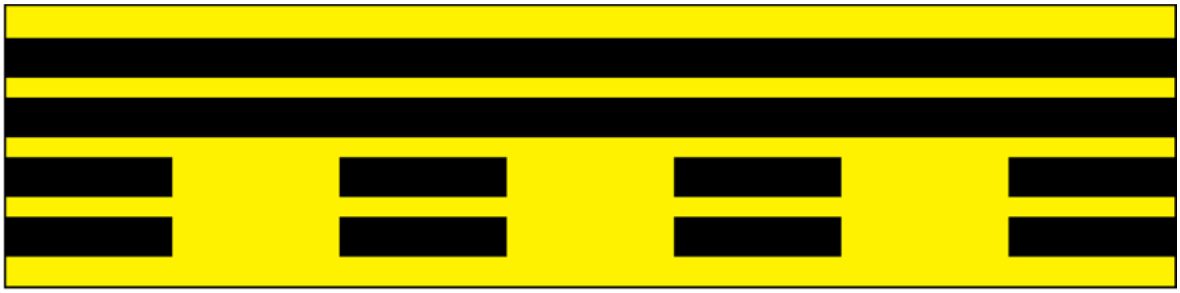


Figure 156. Airport Sign. ©ASA

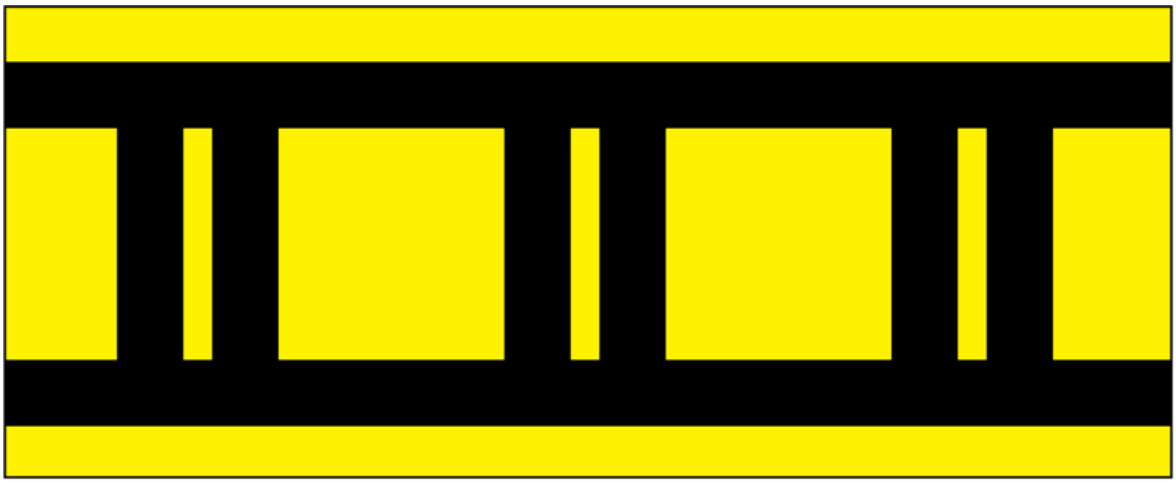
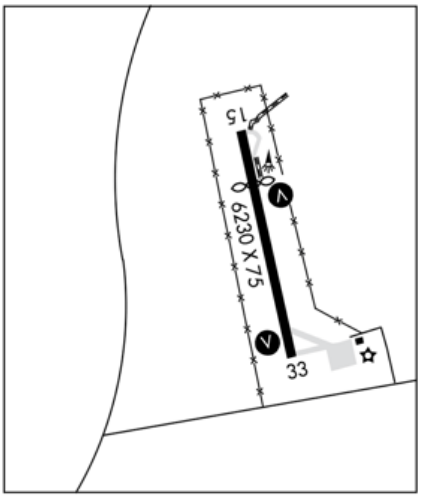


Figure 157. Airport Sign. ©ASA

68 **ARIZONA**

TUBA CITY (TØ3) 5 W UTC–7 N36°05.56′ W111°22.99′ **LAS VEGAS**
4513 B NOTAM FILE PRC **H–4J, L–8G**
RWY 15–33: H6230X75 (ASPH) S–12.5 MIRL
RWY 15: VASI(V2L)—GA 3.0° TCH 40′. Thld dsplcd 1520′. Hill.
RWY 33: VASI(V2L)—GA 3.0° TCH 40′.
AIRPORT REMARKS: Unattended. Rwy 15–33 uneven and rough 1500–2400′ from thld of Rwy 15 and cracked. Livestock on airport. ACTIVATE MIRL Rwy 15–33, VASI Rwy 15 and Rwy 33—CTAF.
AIRPORT MANAGER: 505-371-8327
COMMUNICATIONS: CTAF 122.9
RADIO AIDS TO NAVIGATION: NOTAM FILE PRC.
(H) VORTAC 113.5 TBC Chan 82 N36°07.28′ W111°16.18′ 238° 5.8 NM to fld. 5045/15E.



TUCSON

RYAN FLD (RYN)(KRYN) 10 SW UTC–7 N32°08.53′ W111°10.48′ **PHOENIX**
2419 B S4 **FUEL** 100LL, JET A TPA—3219(800) NOTAM FILE PRC **H–4J, L–5C**
RWY 06R–24L: H5503X75 (ASPH) S–12.5, D–30 MIRL **IAP, AD**
RWY 06R: REIL. Brush.
RWY 24L: VASI(V4L)—GA 3.0° TCH 26′. Brush.
RWY 06L–24R: H4900X75 (ASPH) S–12.5, D–30
RWY 06L: Tree.
RWY 15–33: H4000X75 (ASPH) 0.8% up S
RWY 33: Brush.
AIRPORT REMARKS: Attended Mon–Fri 1500–0000Z, Sat 1500–2200Z. After hrs, Jet A avbl as an on–call svc, and a $100 fee applies. Prior arrangements can be made by calling 520–744–7474, self serve 100LL avbl 24 hrs with major credit card. Rwy 15–33 CLOSED between SS–SR. Frequent practice of ILS approaches to Rwy 06R. Rwy 06R and Rwy 06L preferential rwy up to 10 knot tailwind. Afternoon winds usually favor Rwy 24L and Rwy 24R. Use landing lights in pattern. When twr clsd ACTIVATE MIRL Rwy 06R–24L—CTAF. VASI Rwy 24L opr continuously. REIL Rwy 06R opr dalgt hrs only. Note: See Special Notices—Glider Operations Northwest of Tucson, Arizona.
AIRPORT MANAGER: 520-573-8182
WEATHER DATA SOURCES: AWOS–3 133.35 (520) 578–0269.
COMMUNICATIONS: CTAF 125.8
Ⓡ **TUCSON APP/DEP CON** 128.5
TOWER 125.8 (1300–0300Z) **GND CON** 118.2
AIRSPACE: CLASS D svc 1300–0300Z other times CLASS E.
RADIO AIDS TO NAVIGATION: NOTAM FILE TUS.
TUCSON (H) VORTACW 116.0 TUS Chan 107 N32°05.71′ W110°54.89′ 270° 13.5 NM to fld. 2671/12E.
HIWAS.
VORTAC unusable:
050°–080° byd 30 NM blo 11,500′
350°–020° byd 30 NM blo 13,000′
DME unusable:
155°–165° byd 35 NM blo 13,000′
NDB (HW) 338 RYN N32°08.33′ W111°09.69′ at fld. NOTAM FILE PRC. NDB unmonitored.
NDB unusable:
025°–050° byd 25 NM blo 14,500′
ILS/DME 111.1 I–IVI Chan 48 Rwy 06R. Unmonitored when ATCT clsd.

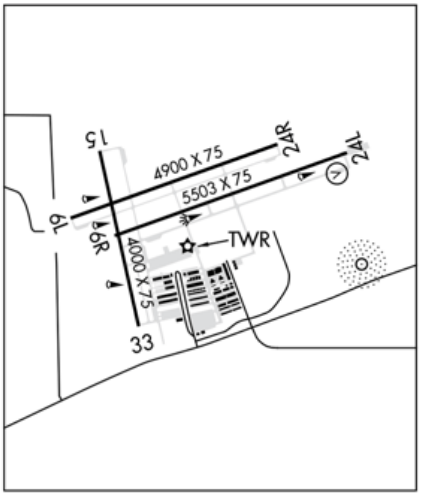


Figure 163A. Excerpt from Chart Supplement. ©ASA

280 **NEVADA**

CONTINUED FROM PRECEDING PAGE

AIRPORT REMARKS: Attended continuously. Large numbers of birds and bats invof arpt btn SS–SR. Lgtd golf range 1400´ south of Rwy 01R–19L and Rwy 01L–19R. Extensive glider/soaring ops weekends and hol, SR–SS, LAS 187/020, alts up to but not including FL 180. Gliders remain clear of the terminal ctl area but otherwise opr within the entire southwest quadrant of the terminal ctl area Veil. Acft may experience reflection of sun from glass hotels lctd northwest of arpt. Reflection may occur at various alts, headings and distances from arpt. Numerous helicopter ops on west side of arpt. Rwy 01L–19R 496,000 lbs GWT for L–1011, 555,000 lbs GWT for DC–10, 602,500 lbs GWT for MD–11. Acft using full length departure on Rwy 07L use minimal power until passing the power–up point on rwy. Power–up point is 348´ east of blast pad and marked with sign and std markings for beginning of rwy. Turbojet dep not permitted Rwy 01R–19L or Rwy 01L–19R 0400–1600Z‡. Exception for wx or operational necessity. All NSTD rwy ops PPR from Department of Aviation. ASDE–X surveillance system in use. Opr transponders with Mode C on all twys and rwys. Acft taxiing westbound on Twy B near Twy E use caution not to enter the rwy on Twy Y, acft taxiing westbound on Twy W near Twy E use caution not to enter the rwy on Twy U. Twy C no centerline lgts west of Twy B6, has edge lgts on south side of twy in this area. Directional twy signs will be incomplete due to construction. Acft larger than B757 PPR from Department of Aviation to use Twy H. Ops at all terminal gates and cargo ramp controlled by Department of Aviation 1330–0900Z‡. All acft ctc ramp ctl on freq 124.4 for ops at A, B, and C gates, ctc ramp ctl on freq 127.9 for ops at D and E gates and cargo ramp prior to entering ramp or pushing back from gate or parking spot. From 0900–1330Z‡ ctc Gnd Con on freq 121.1 for ops at all gates and cargo ramp. Acft opr near the intersection of Twys S, D, G and the north end of Twy Z should be alert as there are closely aligned twy centerlines and radius turns. Acft that departure full length of Rwy 01L and Rwy 07L must hold at the same hold line, as there is no room to hold between the rwy ends, and such acft should verify that they are on the correct rwy. Acft dep Rwy 19R use minimal power passing the rwy thld. Rwy 19R thld has std rwy markings and is 780´ south of the blast pad. Ldg Rights Arpt: Customs avbl to general aviation acft 1600–0600Z‡, all other times PPR call 702–2615539. General aviation acft rqrg immigration/customs svcs must ctc Department of Aviation for parking arrangements minimum 2 hrs prior to arr 702–261–4411. General aviation acft using the west side customs facility must ctc ramp ctl 124.4. General aviation parking very ltd. For parking availability ctc either FBO 702–736–1830 or 702–739–1100. Rotating bcn not visible 115º–240º southeast to southwest from twr. Rwy status lgts are in ops. Tiedown fee. General aviation customs and immigration lctd west side of afld between FBO´s. Flight Notification Service (ADUCS) avbl. NOTE: See Special Notices—Intersection Departures During Period of Darkness, Grand Canyon Special Flight Rules Area.

AIRPORT MANAGER: 702-261-5211

WEATHER DATA SOURCES: ASOS (702) 736–1416

COMMUNICATIONS: D–ATIS 132.4 702–736–0950 **UNICOM** 122.95

Ⓡ **LAS VEGAS APP CON** 125.025 125.6 (Rwy 25L and Rwy 25R)

Ⓡ **LAS VEGAS DEP CON** 125.02 (North)125.9 (South)

LAS VEGAS TOWER 119.9 (Rwy 07L–25R and Rwy 07R–25L) 118.75 (Rwy 01L–19R and Rwy 01R–19L)

GND CON 121.9 (West of Rwy 01R–19L) 121.1 (East of Rwy 01R–19L) **RAMP CON** 124.4 (Terminal A, B, C) 127.9 (D, Gates and Cargo Ramp) 129.175 (A, B, C Gates) **CLNC DEL** 118.0

AIRSPACE: CLASS B See VFR Terminal Area Chart

RADIO AIDS TO NAVIGATION: NOTAM FILE LAS.

LAS VEGAS (H) VORTACW 116.9 LAS Chan 116 N36º04.78´ W115º09.59´ at fld. 2136/15E.

No NOTAM MP: 1600–1800Z‡ Sat

VORTAC unusable:

025º–160º byd 20 NM blo 6,000´
160º–200º byd 20 NM blo 9,000´
200º–025º byd 25 NM blo 11,000´
200º–220º byd 15 NM blo 9,000´
220º–245º byd 35 NM blo 15,000´
245º–260º byd 35 NM blo 14,000´
260º–275º byd 35 NM blo 14,000´
275º–310º byd 35 NM blo 16,500´

ILS/DME 110.1 I–CUA Chan 38 Rwy 01L. Class IB. LOC unusable byd 30º left of course. LOC unusable within .2 NM from threshold.

ILS/DME 111.75 I–RLE Chan 54(Y) Rwy 25L. Class IE. LOC unusable byd 19º south of course.

ILS/DME 110.3 I–LAS Chan 40 Rwy 25R.

Figure 185. Excerpt from Chart Supplement. ©ASA

NEVADA 279

LAS VEGAS

HENDERSON EXECUTIVE (HND)(KHND) 11 S UTC–8(–7DT) N35°58.37′ W115°08.07′ **LAS VEGAS H–4I, L–7E IAP, AD**

2492 B **FUEL** 100LL, JET A OX 1, 2 TPA—3492(1000) NOTAM FILE HND

RWY 17R–35L: H6501X100 (ASPH) S–30, D–60 MIRL 1.4% up S

RWY 17R: REIL. PAPI(P4L)—GA 3.0° TCH 40′.

RWY 35L: REIL. PAPI(P4L)—GA 4.3° TCH 52′. Road.

RWY 17L–35R: H5001X75 (ASPH) S–30, D–30 MIRL 1.4% up S

RWY 17L: REIL. PAPI(P4L)—GA 3.0° TCH 40′.

RWY 35R: REIL. PAPI(P4L)—GA 4.3° TCH 52′.

AIRPORT REMARKS: Attended 1300–0600Z‡. Self–svc fuel 100LL 24 hrs. Rwy 17L–35R is CLOSED 0400–1500Z‡. Extensive commercial air tour tfc arriving from southeast at different times during dalgt hrs. Acft departure Rwy 17R or Rwy 35L should verify that they are taking off from the rwy and not the parallel twy. MIRI Rwy 17L–35R OTS unless Rwy 17R–35L is clsd. ACTIVATE MIRL Rwy 17R–35L and Rwy 17L–35R, PAPI Rwy 17R and Rwy 35L, PAPI Rwy 17L and Rwy 35R REIL Rwy 17R and 35L REIL Rwy 17L and 35R and twy—CTAF. REIL Rwy 17L and 35R avbl only when Rwy 17R and 35L clsd.

AIRPORT MANAGER: 702-261-4802

WEATHER DATA SOURCES: ASOS 120.775 (702) 614–4537.

COMMUNICATIONS: CTAF 125.1 **ATIS** 120.775 **UNICOM** 122.95

MOUNT POTOSI RCO 122.35 (RENO RADIO)

Ⓡ **LAS VEGAS APP/DEP CON** 118.4

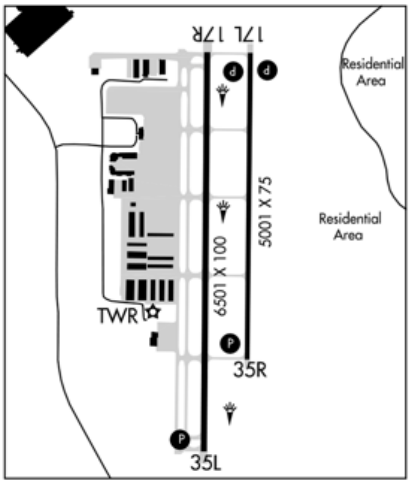
TOWER 125.1 (1400–0400Z‡) **GND CON** 127.8

AIRSPACE: CLASS D svc 1400–0400Z‡ other times CLASS G.

RADIO AIDS TO NAVIGATION: NOTAM FILE RNO.

BOULDER CITY (H) VORTACW 116.7 BLD Chan 114 N35°59.75′ W114°51.81′ 249° 13.3 NM to fld. 3642/15E. **HIWAS.**

Unusable:
155°–180° byd 30 NM blo 9,000′



MC CARRAN INTL (LAS)(KLAS) 5 S UTC–8(–7DT) N36°04.80′ W115°09.14′ **LAS VEGAS H–4I, L–7E IAP, AD**

2181 B S4 **FUEL** 100, 100LL, JET A1+ OX 1, 2, 3 LRA Class I, ARFF Index E NOTAM FILE LAS

RWY 07L–25R: H14512X150 (ASPH–PFC) S–23, D–220, 2S–175, 2D–633, 2D/2D2–877 HIRL

RWY 07L: PAPI(P4L)—GA 3.0° TCH 76′. Thld dsplcd 2138′. Hangar. 1.1% down.

RWY 25R: MALSR. PAPI(P4L)—GA 3.0° TCH 84′. Thld dsplcd 1397′. 0.9% up.

RWY 07R–25L: H10525X150 (CONC–GRVD) S–23, D–220, 2S–175, 2D–633, 2D/2D2–914 HIRL

RWY 07R: REIL. PAPI(P4L)—GA 3.0° TCH 61′. Pole. 1.1% down.

RWY 25L: MALSF. PAPI(P4L)—GA 3.0° TCH 84′. 0.9% up.

RWY 01R–19L: H9771X150 (CONC–GRVD) S–23, D–220, 2S–175, 2D–633, 2D/2D2–877 MIRL

RWY 01R: REIL. PAPI(P4L)—GA 3.0° TCH 76′. Thld dsplcd 491′. Railroad. Rgt tfc. 1.1% down.

RWY 19L: REIL. PAPI(P4L)—GA 3.0° TCH 75′. Thld dsplcd 878′. Pole. 0.9% up.

RWY 01L–19R: H8988X150 (CONC–GRVD) S–30, D–145, 2S–175, 2D–460, 2D/2D2–833 HIRL

RWY 01L: MALSF. PAPI(P4L)—GA 3.4° TCH 57′. Thld dsplcd 587′. Railroad. 1.1% down.

RWY 19R: REIL. PAPI(P4L)—GA 3.0° TCH 80′. Fence. Rgt tfc. 1.0% up.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 01L: TORA–8985 TODA–8985 ASDA–8985 LDA–8401
RWY 01R: TORA–9775 TODA–10172 ASDA–9441 LDA–8681
RWY 07L: TORA–14510 TODA–15099 ASDA–14099 LDA–11966
RWY 19L: TORA–9775 TODA–10175 ASDA–9685 LDA–8745
RWY 19R: TORA–8985 TODA–9397 ASDA–8397 LDA–8397
RWY 25R: TORA–14510 TODA–15155 ASDA–14155 LDA–12755

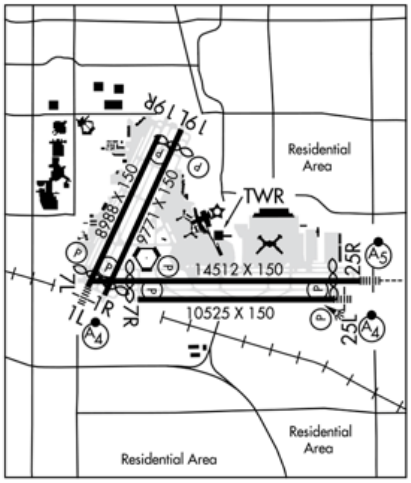
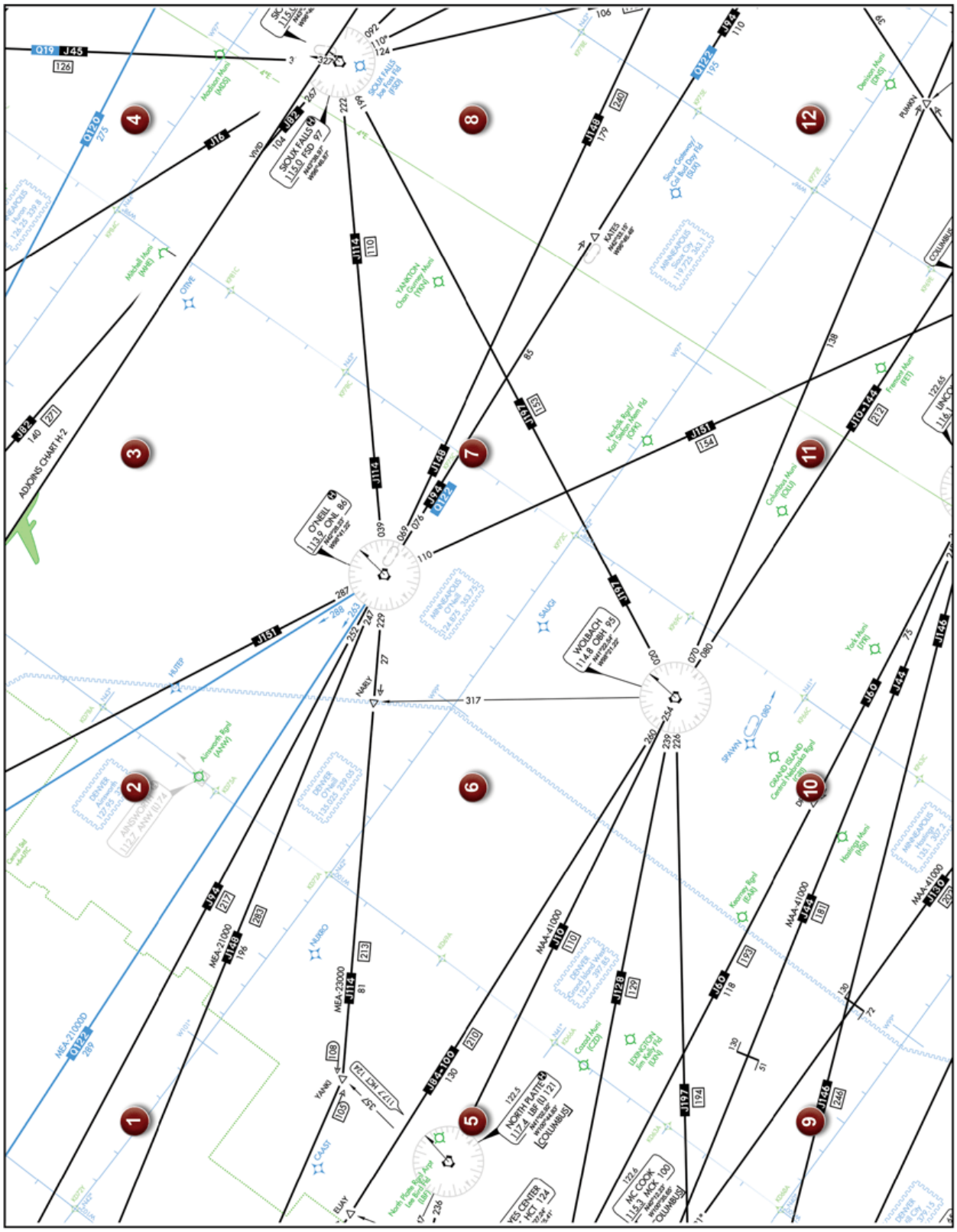


Figure 185A. Excerpt from Chart Supplement. ©ASA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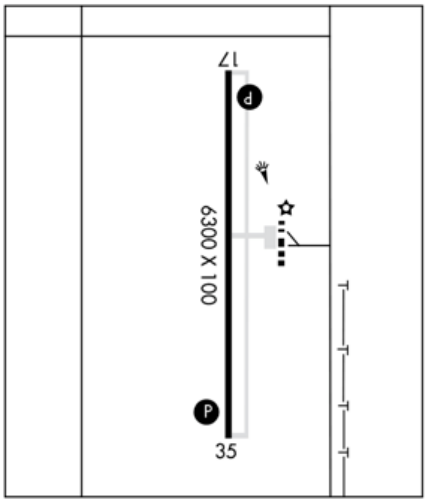
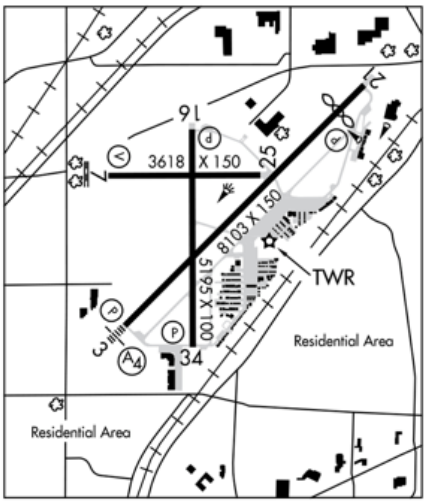
340 **UTAH**

NEPHI MUNI (U14) 3 NW UTC–7(–6DT) N39°44.20′ W111°52.20′ **LAS VEGAS H–3D, L–9C IAP**
5022 B **FUEL** 100LL, JET A NOTAM FILE CDC
RWY 17–35: H6300X100 (ASPH) S–21, D–30 MIRL 0.6% up S
RWY 17: REIL. PAPI(P2L)—GA 3.0° TCH 40′.
RWY 35: REIL. PAPI(P2L)—GA 3.0° TCH 40′.
AIRPORT REMARKS: Unattended. Fuel avbl 24 hrs, self svc credit card system. ACTIVATE MIRL Rwy 17–35, PAPI Rwy 17 and Rwy 35, and REIL Rwy 17 and Rwy 35—CTAF.
AIRPORT MANAGER: 435-623-0822
WEATHER DATA SOURCES: AWOS–3 118.275 (435) 623–1397.
COMMUNICATIONS: CTAF/UNICOM 122.8
Ⓡ**SALT LAKE CENTER APP/DEP CON** 127.825
RADIO AIDS TO NAVIGATION: NOTAM FILE PVU.
PROVO (T) VORW/DME 108.4 PVU Chan 21 N40°12.90′ W111°43.28′ 179° 29.5 NM to fld. 4493/15E.
VOR/DME unusable:
350°–080° byd 10 NM



OGDEN–HINCKLEY (OGD)(KOGD) 3 SW UTC–7(–6DT) N41°11.74′ W112°00.78′ **SALT LAKE CITY H–3D, L–9C, 11D IAP, AD**
4473 B S4 **FUEL** 100, JET A1+ OX 1, 2 TPA—See Remarks Class I, ARFF Index B
NOTAM FILE OGD
RWY 03–21: H8103X150 (ASPH–GRVD) S–85, D–150, 2S–152 HIRL
RWY 03: MALS. PAPI(P4L)—GA 3.0° TCH 56′. Trees. 0.8% down.
RWY 21: PAPI(P4L)—GA 3.0° TCH 50′. Thld dsplcd 851′. Pole. Rgt tfc. 0.6% up.
RWY 16–34: H5195X100 (ASPH–GRVD) S–80, D–140 PCN 63 F/A/X/T MIRL 0.4% up S
RWY 16: REIL. PAPI(P4L)—GA 3.0° TCH 50′. Road. Rgt tfc.
RWY 34: REIL. PAPI(P4L)—GA 3.0° TCH 50′. Sign.
RWY 07–25: H3618X150 (ASPH) S–12.5 0.4% up W
RWY 07: VASI(V4L)—GA 3.5° TCH 50′.
RWY 25: Rgt tfc.



LAND AND HOLD–SHORT OPERATIONS

LDG RWY	HOLD–SHORT POINT	AVBL LDG DIST
RWY 03	07–25	4700
RWY 07	03–21	3500
RWY 21	16–34	4600
RWY 34	07–25	3880

RUNWAY DECLARED DISTANCE INFORMATION

RWY 03:	TORA–8103	TODA–8103	ASDA–7252	LDA–7252
RWY 07:	TORA–3618	TODA–3618	ASDA–3618	LDA–3618
RWY 16:	TORA–5195	TODA–5195	ASDA–5195	LDA–5195
RWY 21:	TORA–8103	TODA–8103	ASDA–8103	LDA–7252
RWY 25:	TORA–3618	TODA–3618	ASDA–3618	LDA–3618
RWY 34:	TORA–5195	TODA–5195	ASDA–5195	LDA–5195

AIRPORT REMARKS: Attended continuously. Parachute jumping on NE portion of arpt east of Twy A. No multiple approaches. Heavy volume of Military acft flying over Ogden Arpt at 5700′–6300′ MSL enroute to Hill AFB. No practice approaches—full stop ldgs only from 0500–1400Z‡. Rwy 07–25 numerous large and deep cracks, break–outs and ravelling. Rwy 07–25 massive crack–sealing has obliterated much of the marking. CLOSED to acft ops with more than 30 passenger seats except PPR, minimum 60 min notice required, call arpt manager 801–629–8223/336–7459/710–3706. No snow removal after twr closes. Arpt sfc condition unmonitored 0300–1400Z‡. TPA—5200(727) rqr due to interfacing tfc from Hill AFB. When twr clsd ACTIVATE HIRL Rwy 03–21, MIRL Rwy 16–34 and twy lgts—CTAF. Rwy 07–25 not avbl when twr clsd.
AIRPORT MANAGER: 801-629-8223
WEATHER DATA SOURCES: ASOS (801) 622–5600

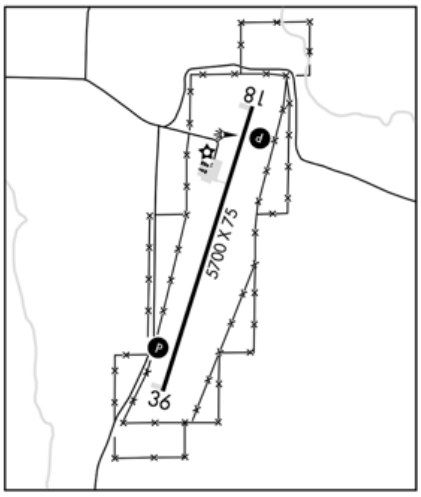
Figure 201. Excerpt from Chart Supplement. ©ASA

UTAH 341

CONTINUED FROM PRECEDING PAGE

COMMUNICATIONS: CTAF 118.7 **ATIS** 125.55 **UNICOM** 122.95
RCO 122.45 (CEDAR CITY RADIO)
Ⓡ**SALT LAKE CITY APP/DEP CON** 121.1
TOWER 118.7 (1400–0300Z‡) **GND CON** 121.7
AIRSPACE: CLASS D svc 1400–0300Z‡ other times CLASS E.
RADIO AIDS TO NAVIGATION: NOTAM FILE OGD.
(L) VORTACW 115.7 OGD Chan 104 N41°13.45′ W112°05.89′ 100° 4.2 NM to fld. 4223/14E.
VOR portion unusable:
030°–070° byd 25 NM blo 17,000′
070°–130° byd 15 NM
355°–030° byd 15 NM
TACAN and DME unusable:
255°–280° byd 30 NM blo 11,000′
355°–130° byd 15 NM
ILS/DME 111.7 I–OGD Chan 54 Rwy 03. Class IT. ILS/DME unmonitored when ATCT closed.
COMM/NAV/WEATHER REMARKS: Emerg frequency 121.5 not avbl at twr.

PANGUITCH MUNI (U55) 3 NE UTC–7(–6DT) N37°50.71′ W112°23.52′ — **LAS VEGAS H–3D, L–9C IAP**
6763 B S2 NOTAM FILE CDC
RWY 18–36: H5700X75 (ASPH) S–20 MIRL
RWY 18: PAPI(P2L)—GA 3.0° TCH 40′.
RWY 36: PAPI(P2L)—GA 3.0° TCH 40′.
AIRPORT REMARKS: Unattended. Antelope on and in vicinity of arpt during summer months. ACTIVATE MIRL Rwy 18–36 and PAPI Rwy 18 and Rwy 36—CTAF.
AIRPORT MANAGER: 435-676-8585
WEATHER DATA SOURCES: AWOS–3 133.125 (435) 676–8784.
COMMUNICATIONS: CTAF 122.9
Ⓡ**SALT LAKE CENTER APP/DEP CON** 133.6
RADIO AIDS TO NAVIGATION: NOTAM FILE BCE.
BRYCE CANYON (H) VORTACW 112.8 BCE Chan 75 N37°41.35′ W112°18.23′ 321° 10.2 NM to fld. 9040/15E.



PAROWAN (1L9) 1 NE UTC–7(–6DT) N37°51.58′ W112°48.95′ — **LAS VEGAS H–3D, L–9C**
5930 B S3 **FUEL** 100LL, JET A OX 1, 2, 4 NOTAM FILE CDC
RWY 04–22: H5000X75 (ASPH) S–12.5 MIRL 1.3% up SW
RWY 04: REIL. PAPI(P2L)—GA 3.0° TCH 40′. Fence.
RWY 22: REIL. PAPI(P2L)—GA 3.0° TCH 40′. Road. Rgt tfc.
AIRPORT REMARKS: Attended 1500–0000Z‡. Prairie dog mounds and holes on rwy edges and twy. REIL Rwy 04 OTS indef. ACTIVATE MIRL Rwy 04–22, PAPI Rwy 04 and PAPI Rwy 22, REIL Rwy 04 and REIL Rwy 22—CTAF.
AIRPORT MANAGER: 435-477-8911
COMMUNICATIONS: CTAF/UNICOM 122.8
RADIO AIDS TO NAVIGATION: NOTAM FILE CDC.
CEDAR CITY (H) VORW/DME 117.3 CDC Chan 120 N37°47.24′ W113°04.09′ 054° 12.8 NM to fld. 5464/16E.
VOR/DME unusable:
060°–100° byd 20 NM
100°–135° byd 15 NM
135°–175° byd 20 NM
215°–255° byd 35 NM blo 10,500′

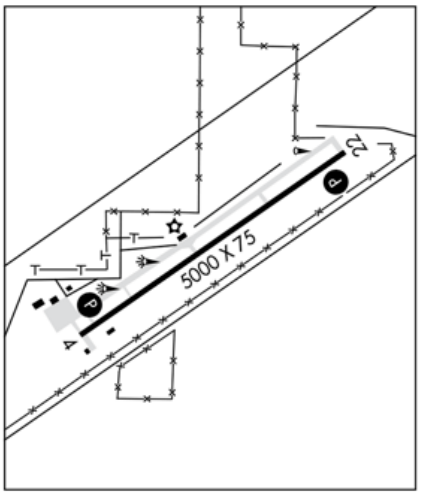


Figure 201A. Excerpt from Chart Supplement. ©ASA

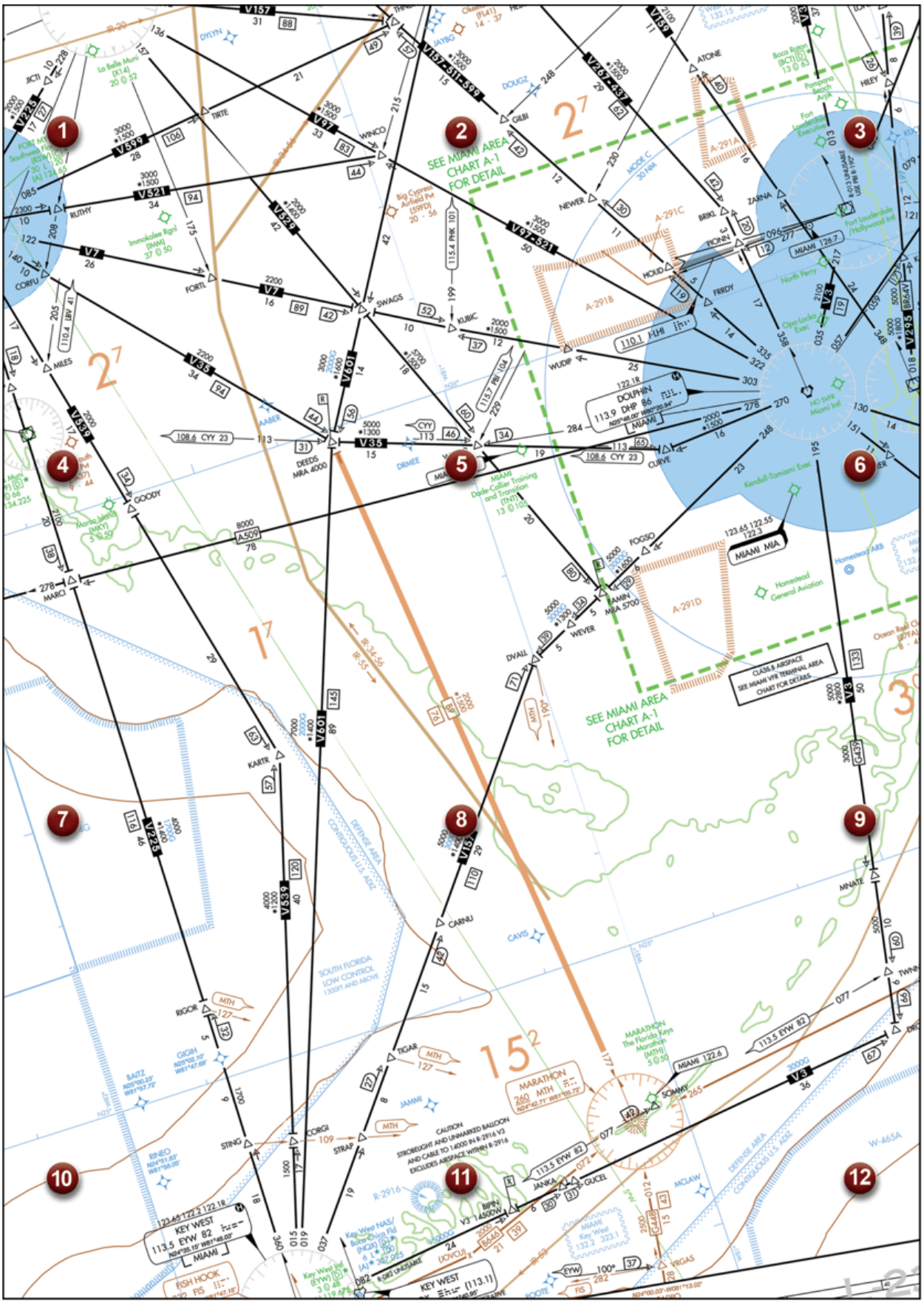


Figure 210. Low Altitude Airways.

©ASA

Figure 223. Airport Sign and Marking. ©ASA

Figure 224. Airport Sign and Marking. ©ASA

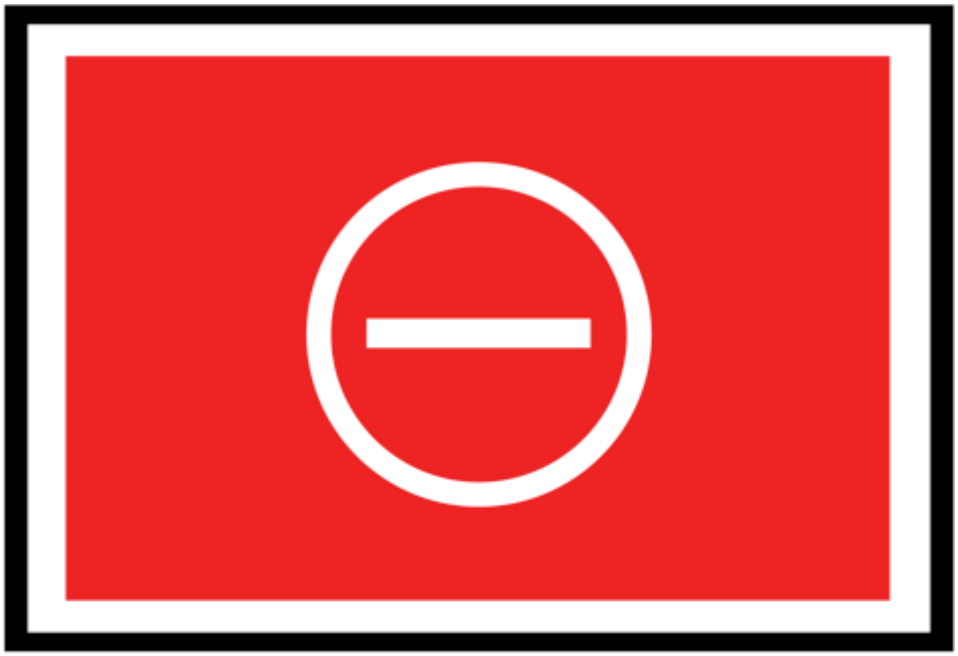


Figure 225. Airport Sign. ©ASA

Figure 226. Airport Sign. ©ASA

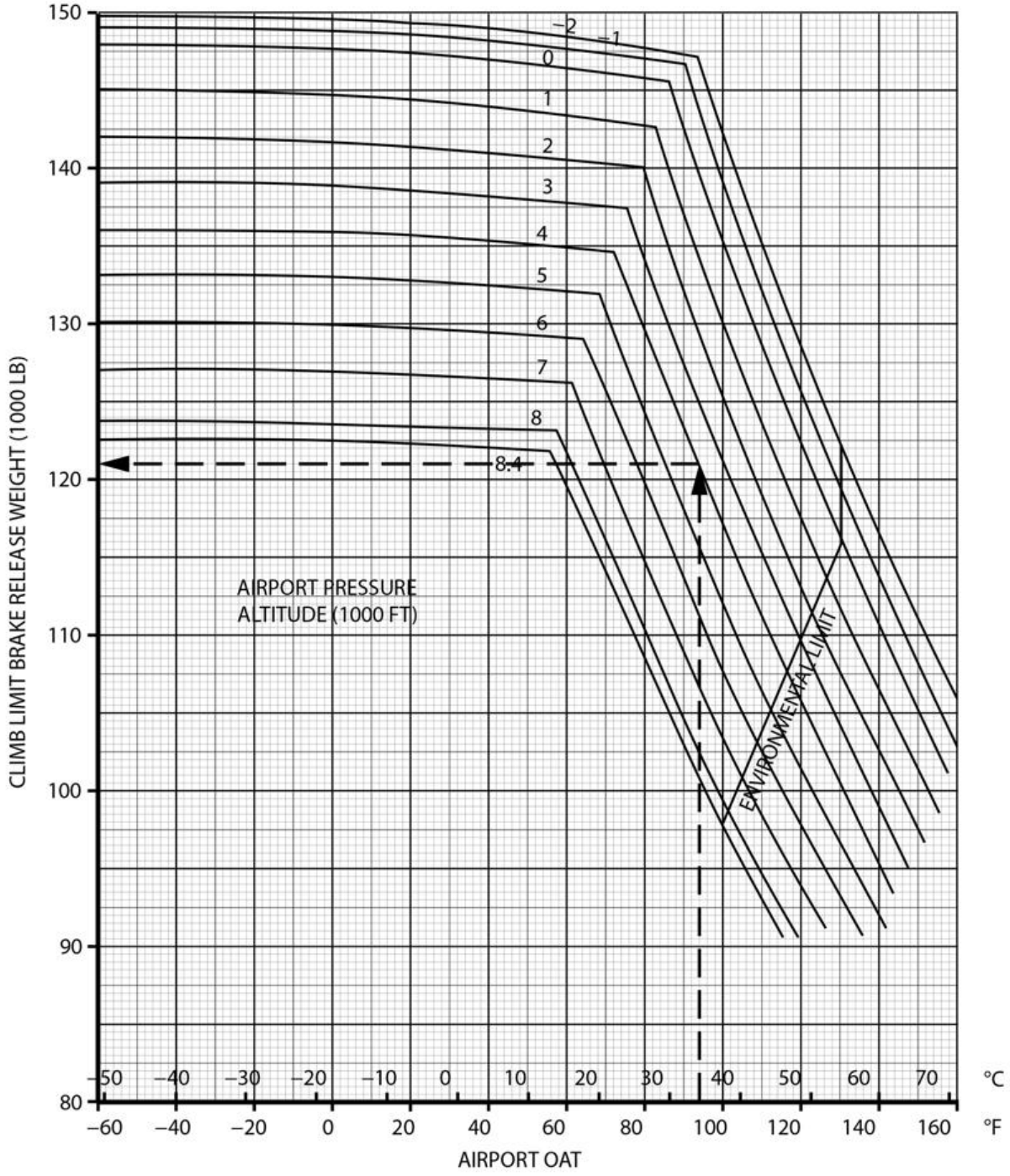
Figure 227. Airport Sign. ©ASA

Figure 228. Airport Sign. ©ASA

Takeoff Climb Limit

Flaps 15

Based on engine bleed for packs on and anti-ice off



With engine bleed for packs off, increase weight by 2400 lb.
With engine anti-ice on, decrease weight by 400 lb.
With engine and wing anti-ice on, decrease weight by 2300 lb (optional system).

Figure 231. Takeoff Climb Limit.

©ASA

HOT SPOTS

An "airport surface hot spot" is a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

A "hot spot" is a runway safety related problem area on an airport that presents increased risk during surface operations. Typically it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. The area of increased risk has either a history of or potential for runway incursions or surface incidents, due to a variety of causes, such as but not limited to: airport layout, traffic flow, airport marking, signage and lighting, situational awareness, and training. Hot spots are depicted on airport diagrams as open circles or polygons designated as "HS 1", "HS 2", etc. and tabulated in the list below with a brief description of each hot spot. Hot spots will remain charted on airport diagrams until such time the increased risk has been reduced or eliminated.

CITY/AIRPORT	HOT SPOT	DESCRIPTION*
CARLSBAD, CA		
MC CLELLAN-PALOMAR (CRQ)	HS 1	Large Jets may obscure twr visibility of small aircraft.
CHINO, CA		
CHINO (CNO)	HS 1	Twy D close proximity to Rwy 08L-26R.
	HS 2	Twy L close proximity to Rwy 03-21.
HAWTHORNE, CA		
JACK NORTHROP FIELD/ HAWTHORNE MUNI (HHR)	HS 1	Rwy 25 run-up area.
LONG BEACH, CA		
LONG BEACH (DAUGHERTY FLD) (LGB)	HS 1	Rwy 30 and Rwy 07L-25R, Twy A and Twy D.
	HS 2	Rwy 12-30 and Rwy 07L-25R, Twy B and Twy K.
	HS 3	Rwy 07R-25L, Twy B.
	HS 4	Rwy 07R-25L and Rwy 12-30, Twy J and Twy D.
	HS 5	Rwy 16R-34L, southwest ramp, Twy F and Twy B.
	HS 6	Rwy 34R and Rwy 07R-25L.
	HS 7	Rwy 12-30 cross every other rwy.
LOS ANGELES, CA		
LOS ANGELES INTL (LAX)	HS 1	Twy R not visible from the control twr.
PALM SPRINGS, CA		
PALM SPRINGS INTL (PSP)	HS 1	Twy C mistaken for Rwy 13R-31L or Rwy 13L-31R.
	HS 2	Int of Twy B and Twy C.
	HS 3	Twy B and Rwy 31R.
	HS 4	Twy C and Twy J.
RIVERSIDE, CA		
RIVERSIDE MUNI (RAL)	HS 1	Rwy 27, Twy C.
	HS 2	ATC non-visibility area.
SAN DIEGO, CA		
MONTGOMERY FLD (MYF)	HS 1	Rwy 10R-28L, Twy G and Twy H.
	HS 2	Rwy 28R and Rwy 28L, Twys G.
	HS 3	Rwy 28R and Rwy 28L, Twys F.
SANTA ANA, CA		
JOHN WAYNE ARPT-ORANGE COUNTY (SNA)	HS 1	Rwy 19L and Rwy 19R, Twy L and Twy K.
	HS 2	Rwy 19L and Rwy 19R, Twy H.
	HS 3	Twy A,Twy H, and Twy C.

(SEE CONTINUATION PAGE FOR MORE LISTINGS)

Figure 241. Hot Spots. ©ASA

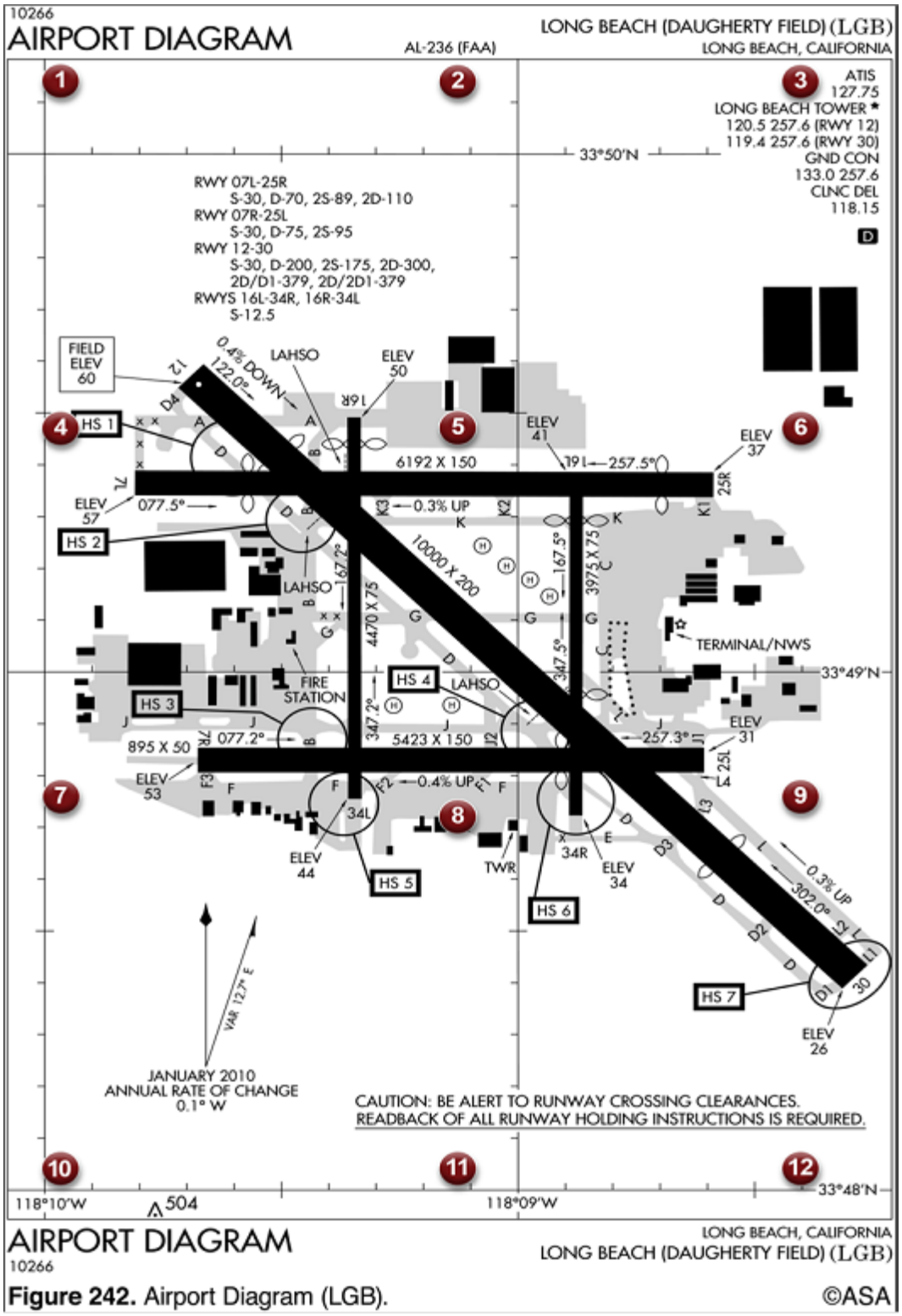


Figure 242. Airport Diagram (LGB).

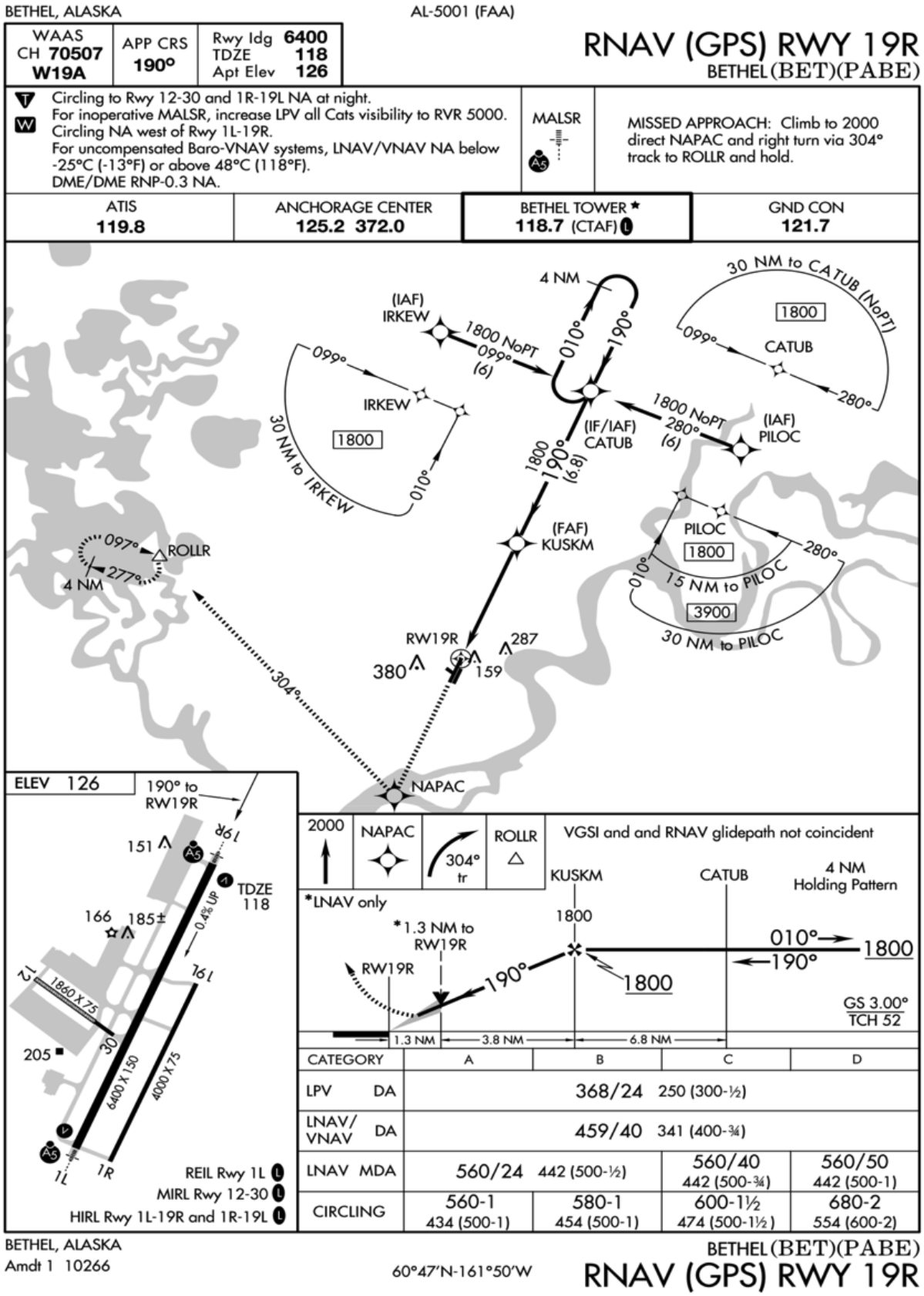


Figure 249. RNAV (GPS) RWY 19R (BET) (PABE). ©ASA

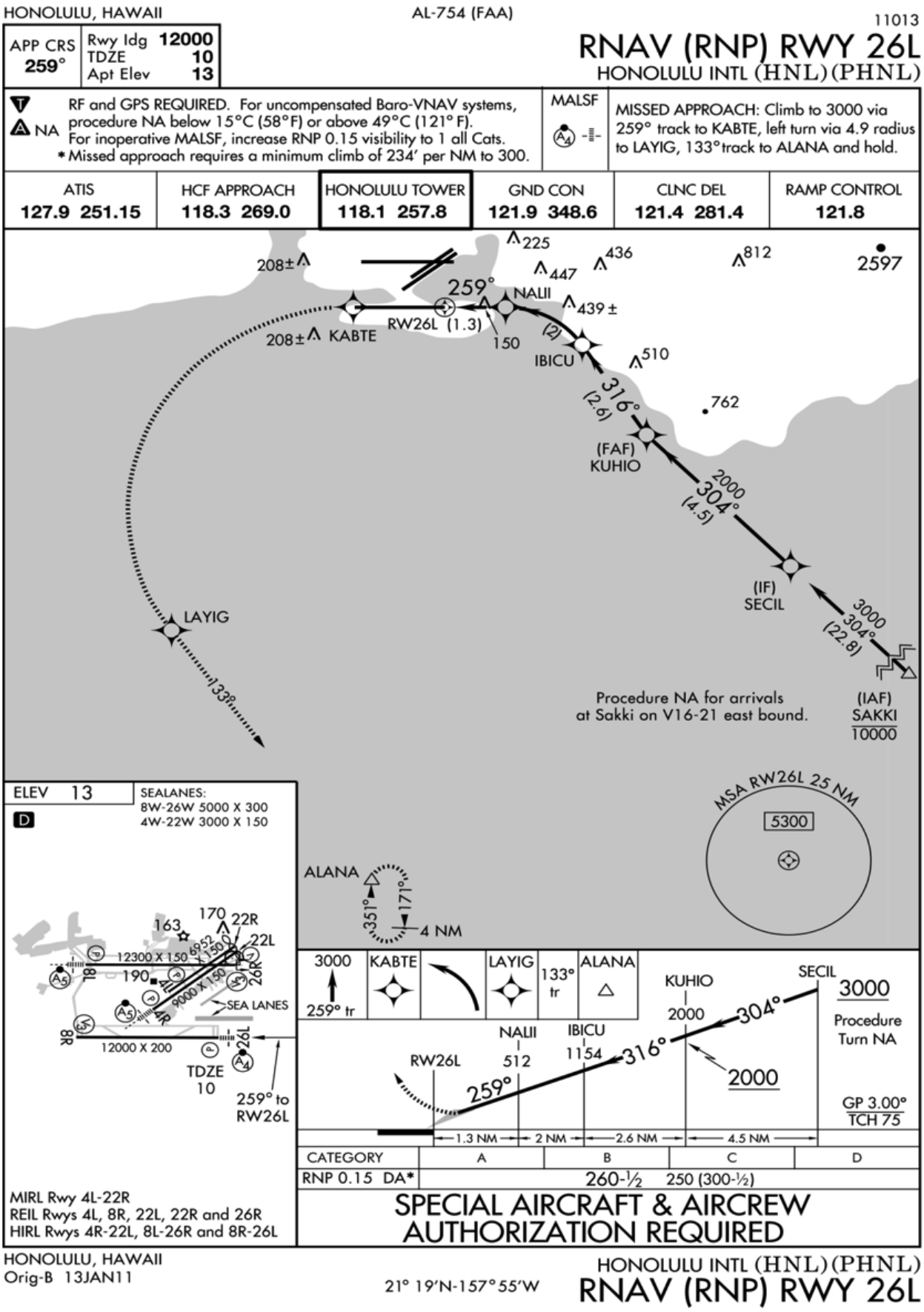


Figure 251. RNAV (RNP) RWY 26L (HNL) (PHNL). ©ASA

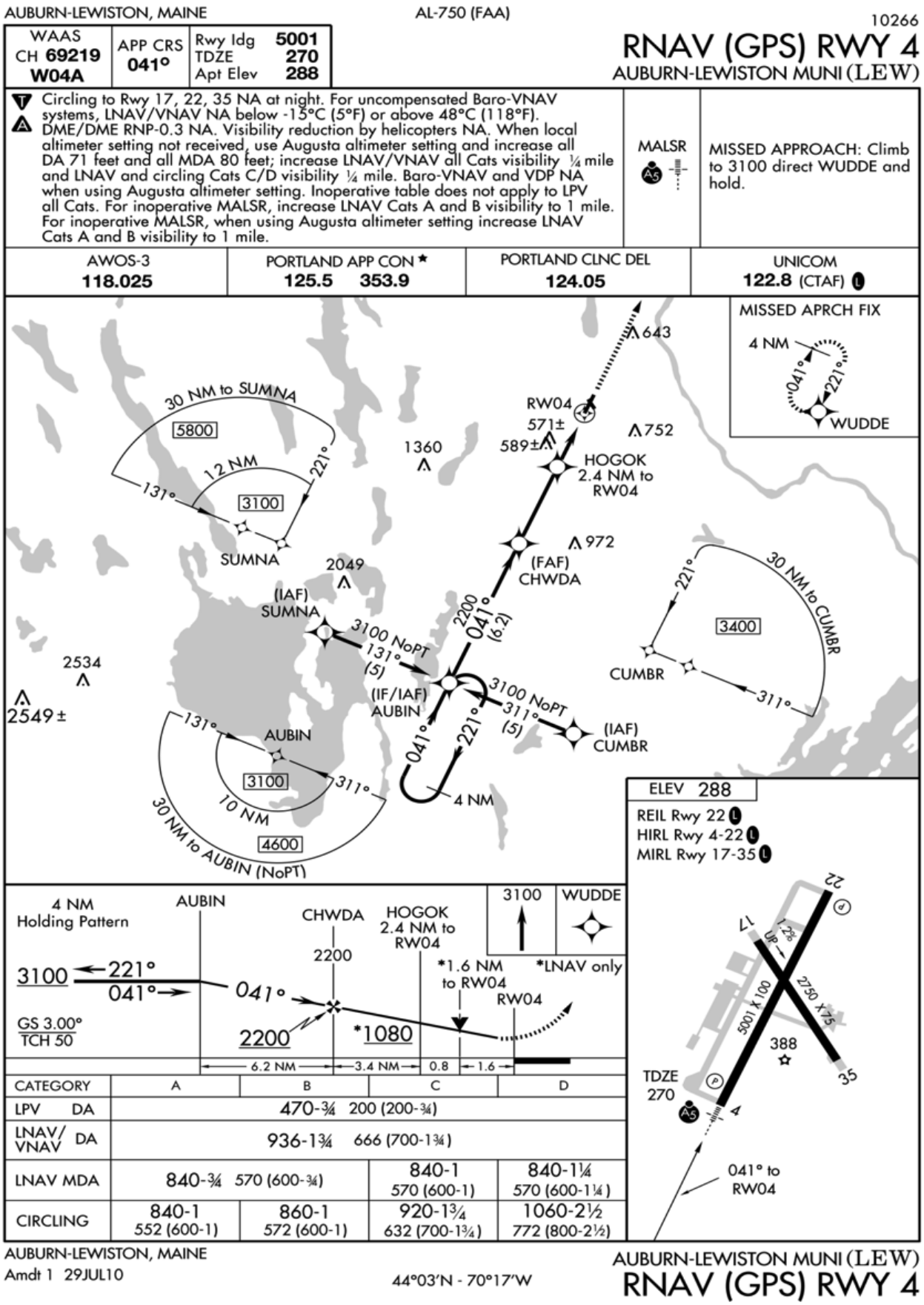


Figure 252. RNAV (GPS) RWY 4 (LEW).

©ASA

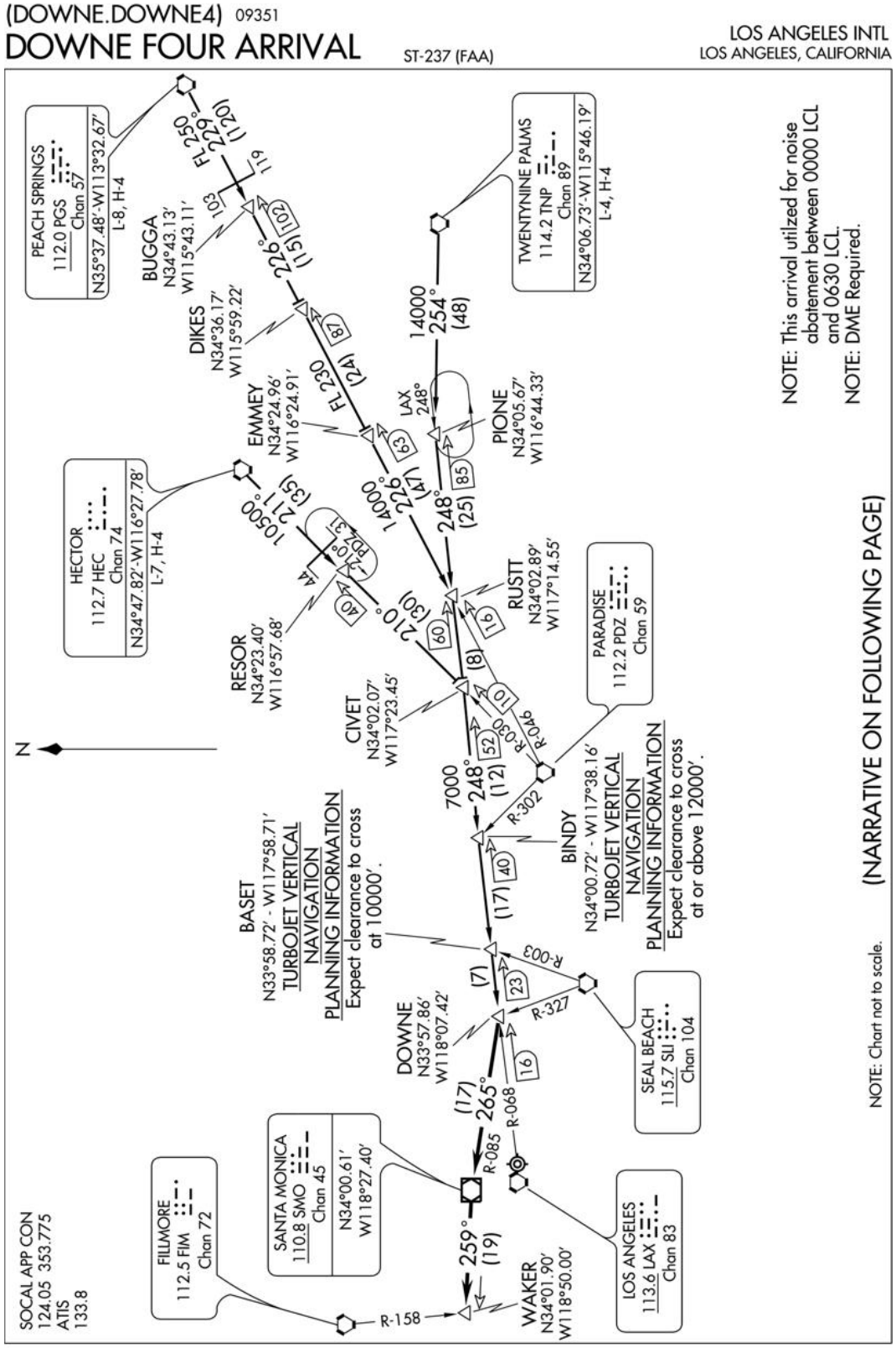


Figure 255A. DOWNE FOUR Arrival (DOWNE.DOWNE4). ©ASA

(DOWNE.DOWNE4) 02276

DOWNE FOUR ARRIVAL

ST-237 (FAA)

LOS ANGELES INTL
LOS ANGELES, CALIFORNIA

ARRIVAL DESCRIPTION

HECTOR TRANSITION (HEC.DOWNE4): From over HEC VORTAC via HEC R-211 and PDZ R-030 to CIVET INT, then LAX R-068 to DOWNE INT. Thence....
PEACH SPRINGS TRANSITION (PGS.DOWNE4): From over PGS VORTAC via PGS R-229 and PDZ R-046 to RUSTT INT, then LAX R-068 to DOWNE INT. Thence....
TWENTYNINE PALMS TRANSITION (TNP.DOWNE4): From over TNP VORTAC via TNP R-254 to PIONE DME, then LAX R-068 to DOWNE INT.Thence....
....From DOWNE INT via SMO R-085 to SMO VOR/DME, then via SMO R-259 to WAKER INT, expect vector to final approach course for runways 6 and 7.

DOWNE FOUR ARRIVAL
(DOWNE.DOWNE4) 02276

LOS ANGELES, CALIFORNIA
LOS ANGELES INTL

Figure 255B. DOWNE FOUR Arrival (DOWNE.DOWNE4). ©ASA

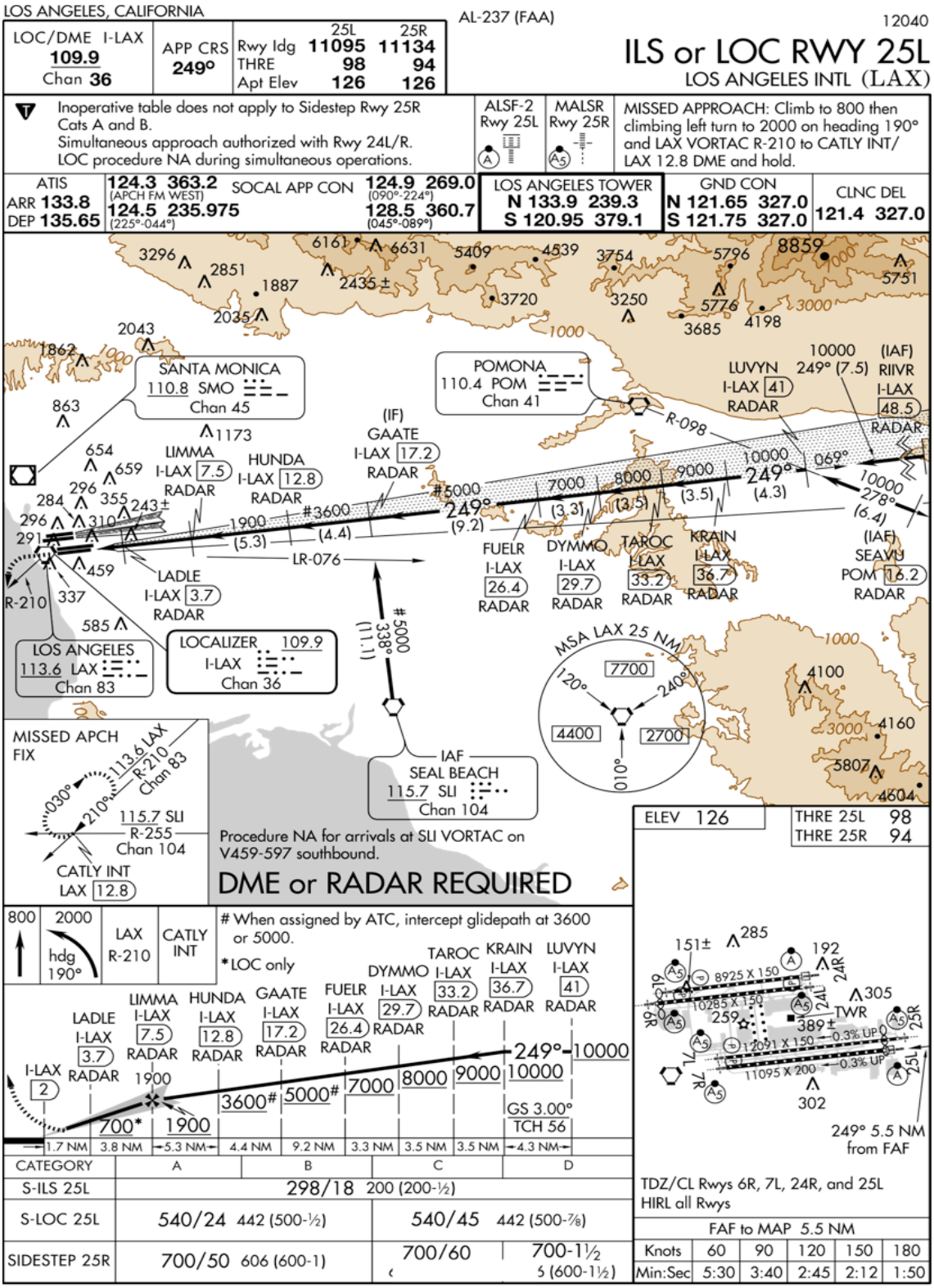


Figure 257A. ILS or ROC RWY 25L (LAX).

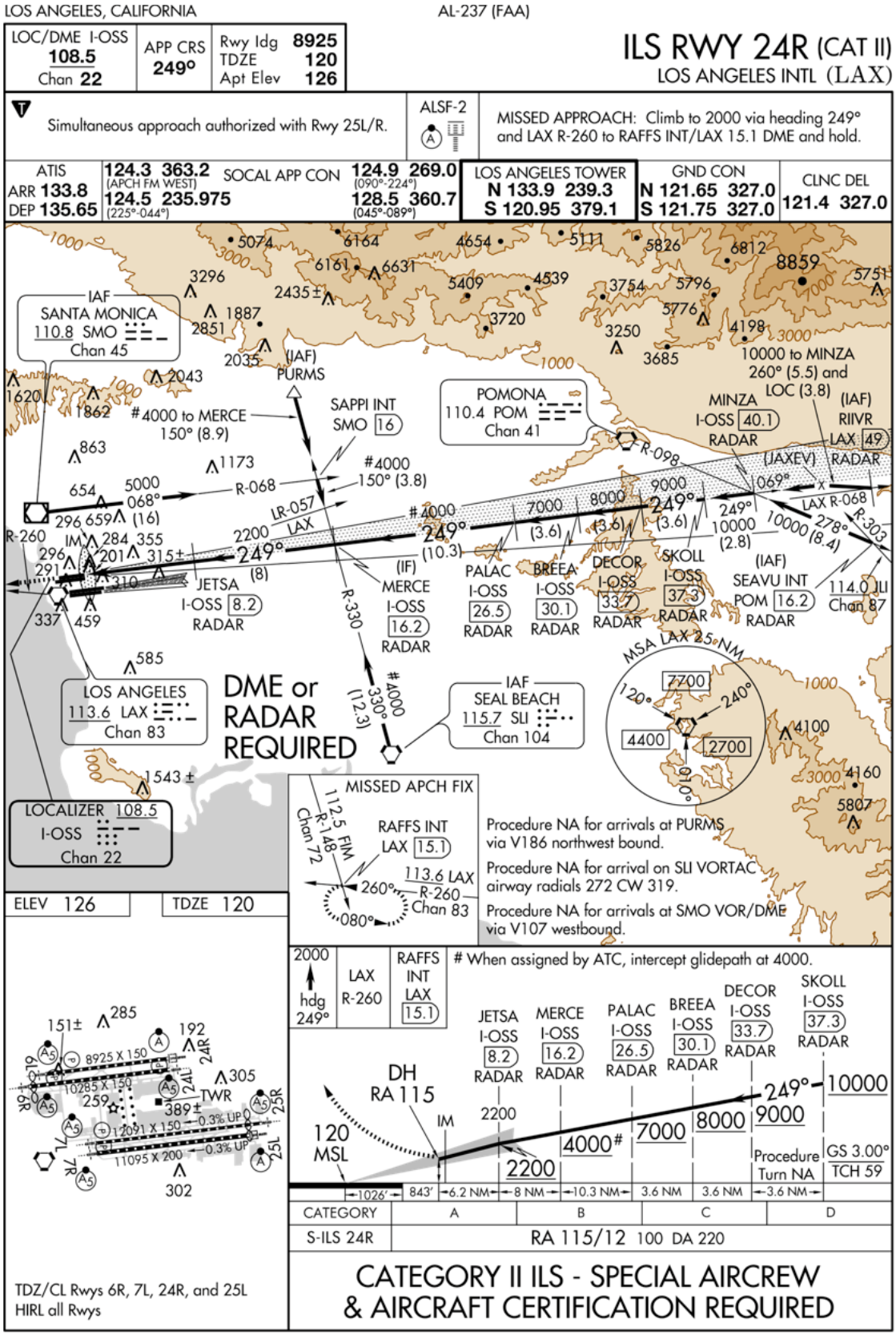


Figure 257B. ILS RWY 24R (CAT II) (LAX).

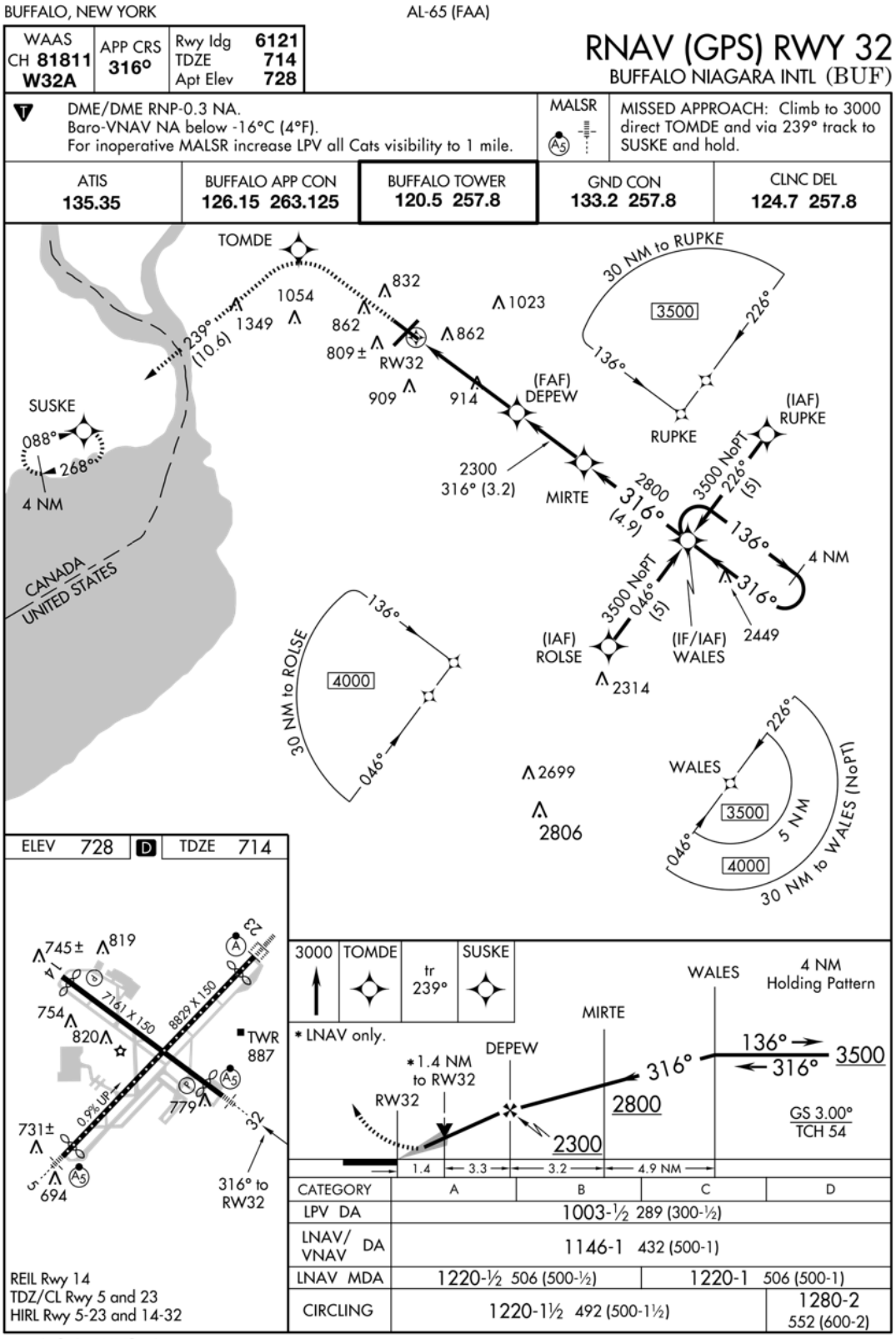


Figure 258. RFNAV (GPS) RWY 32 (BUF).

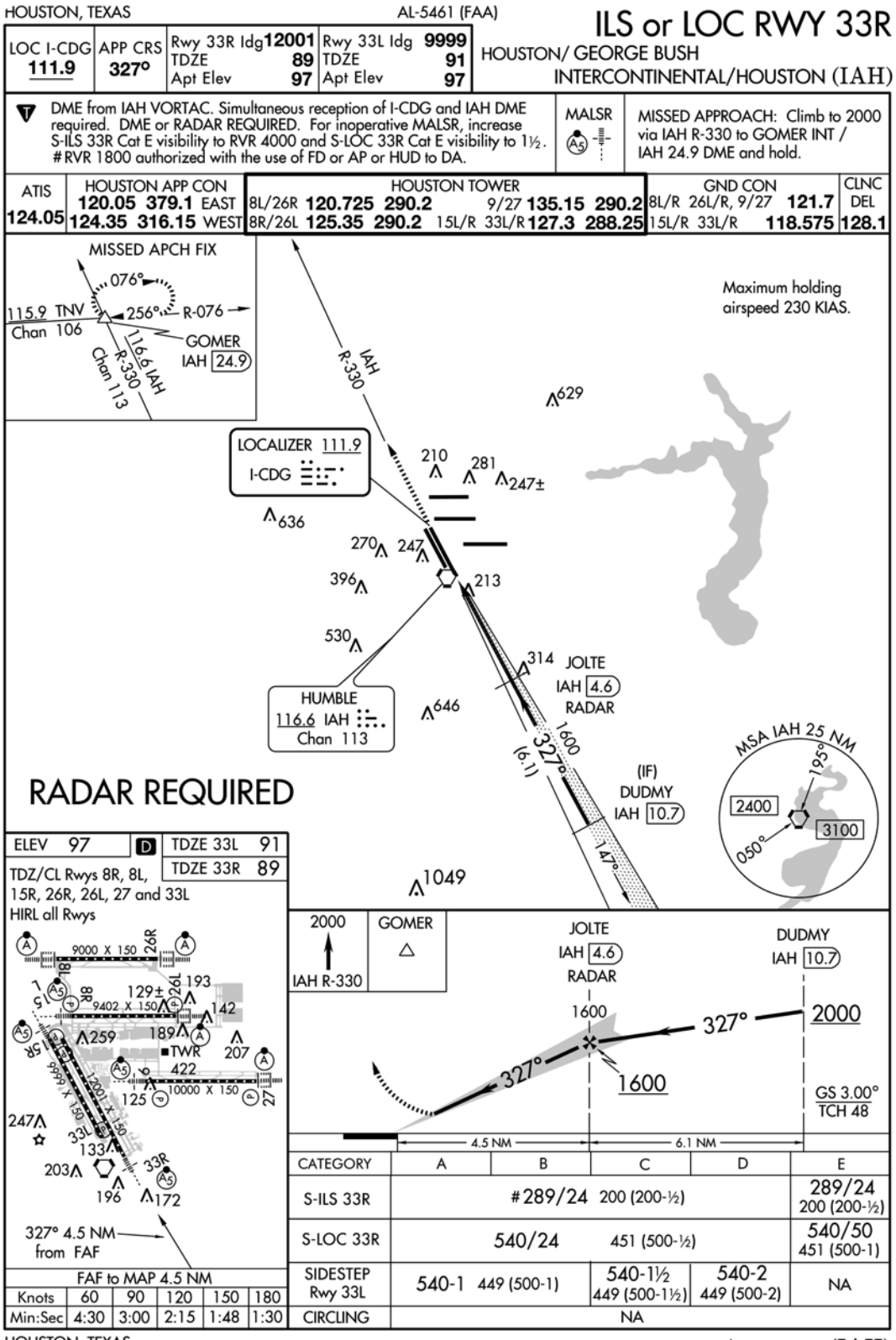


Figure 259. ILS or LOC RWY 33R (IAH). ©ASA

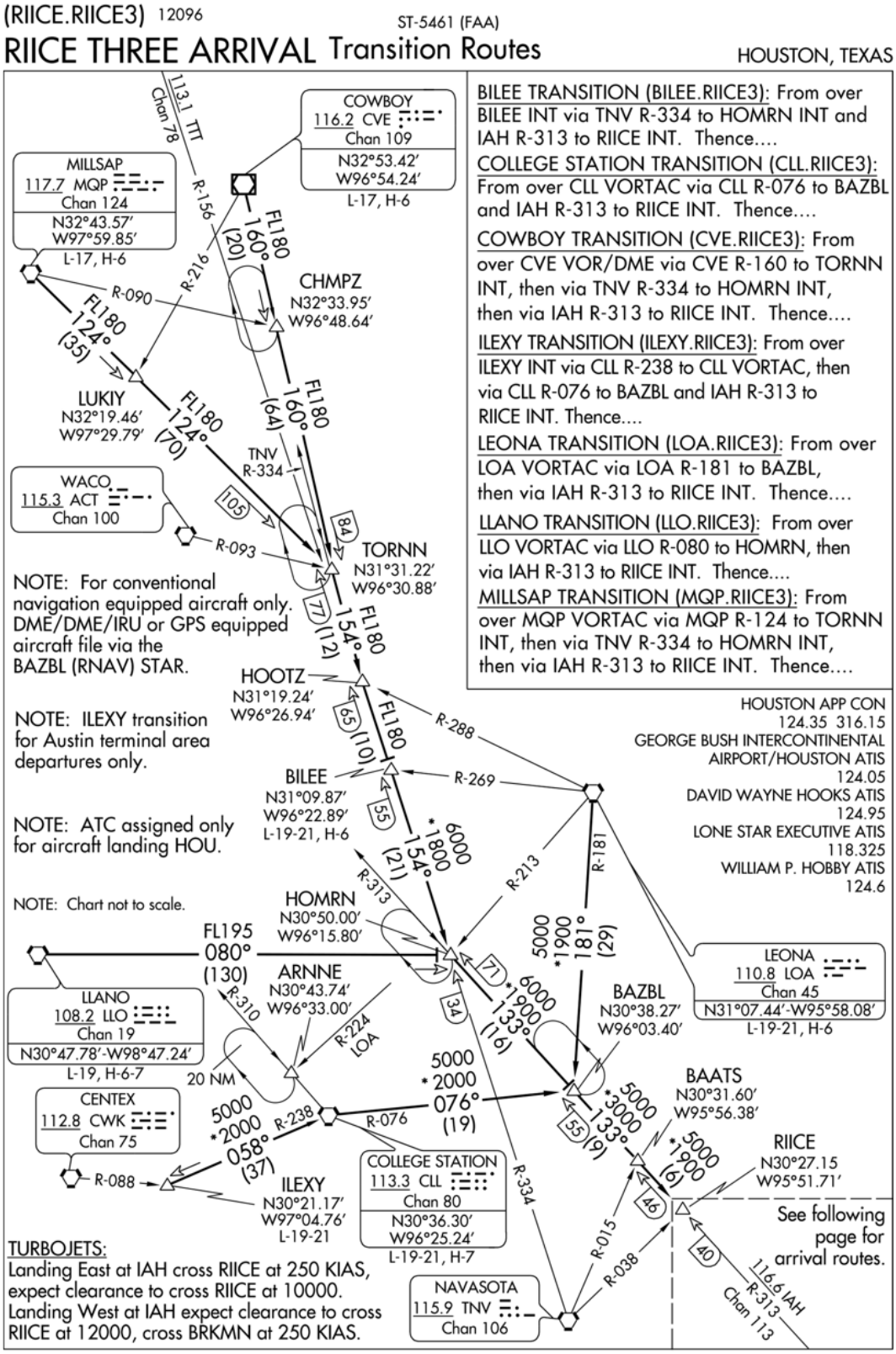


Figure 262. RIICE THREE ARRIVAL Transition Routes (RIICE.RIICE3). ©ASA

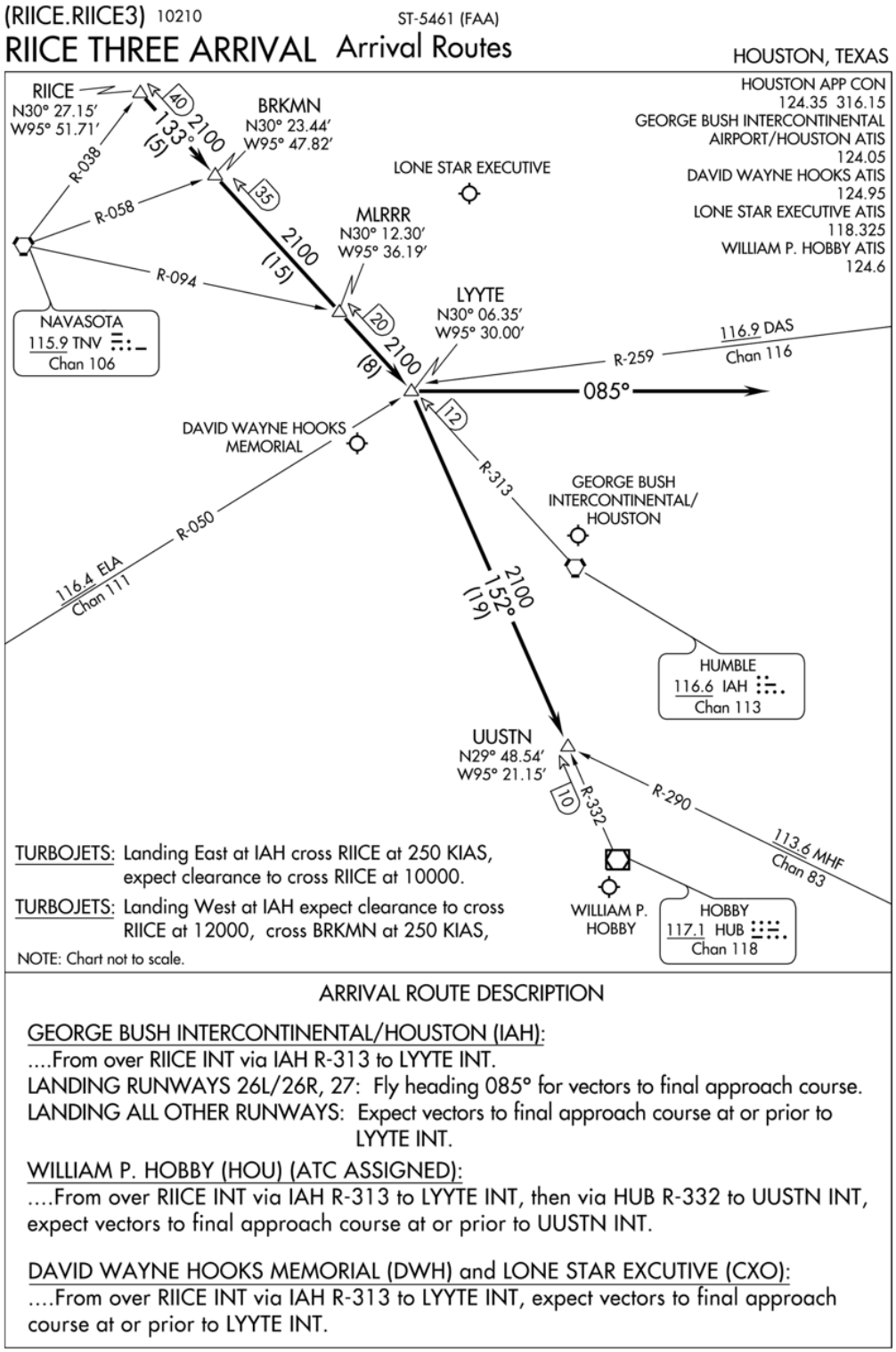


Figure 263. RIICE THREE ARRIVAL Arrival Routes (RIICE.RIICE3). ©ASA

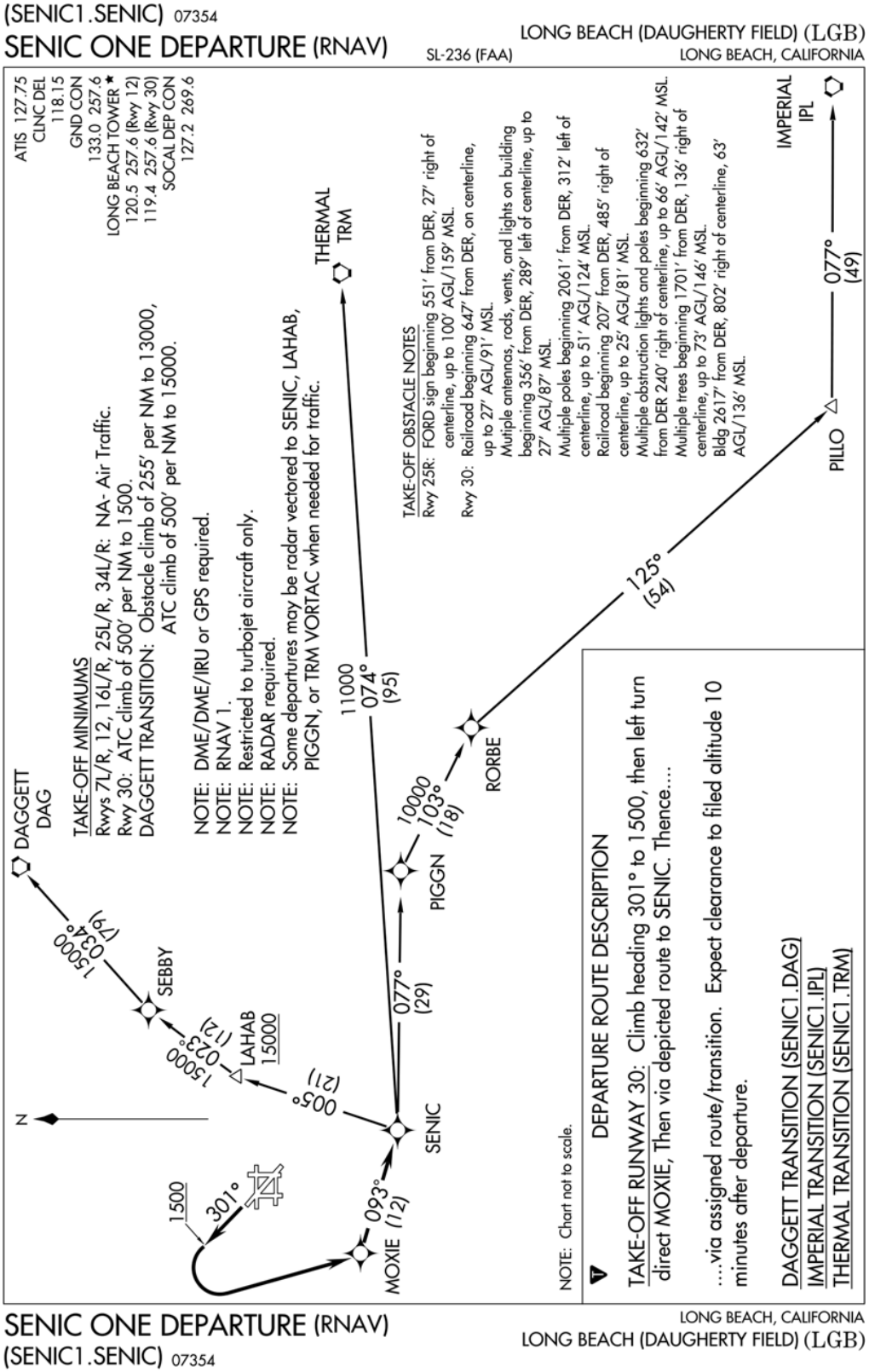


Figure 269. SENIC ONE Departure (RNAV) (SENIC1.SENIC). ©ASA

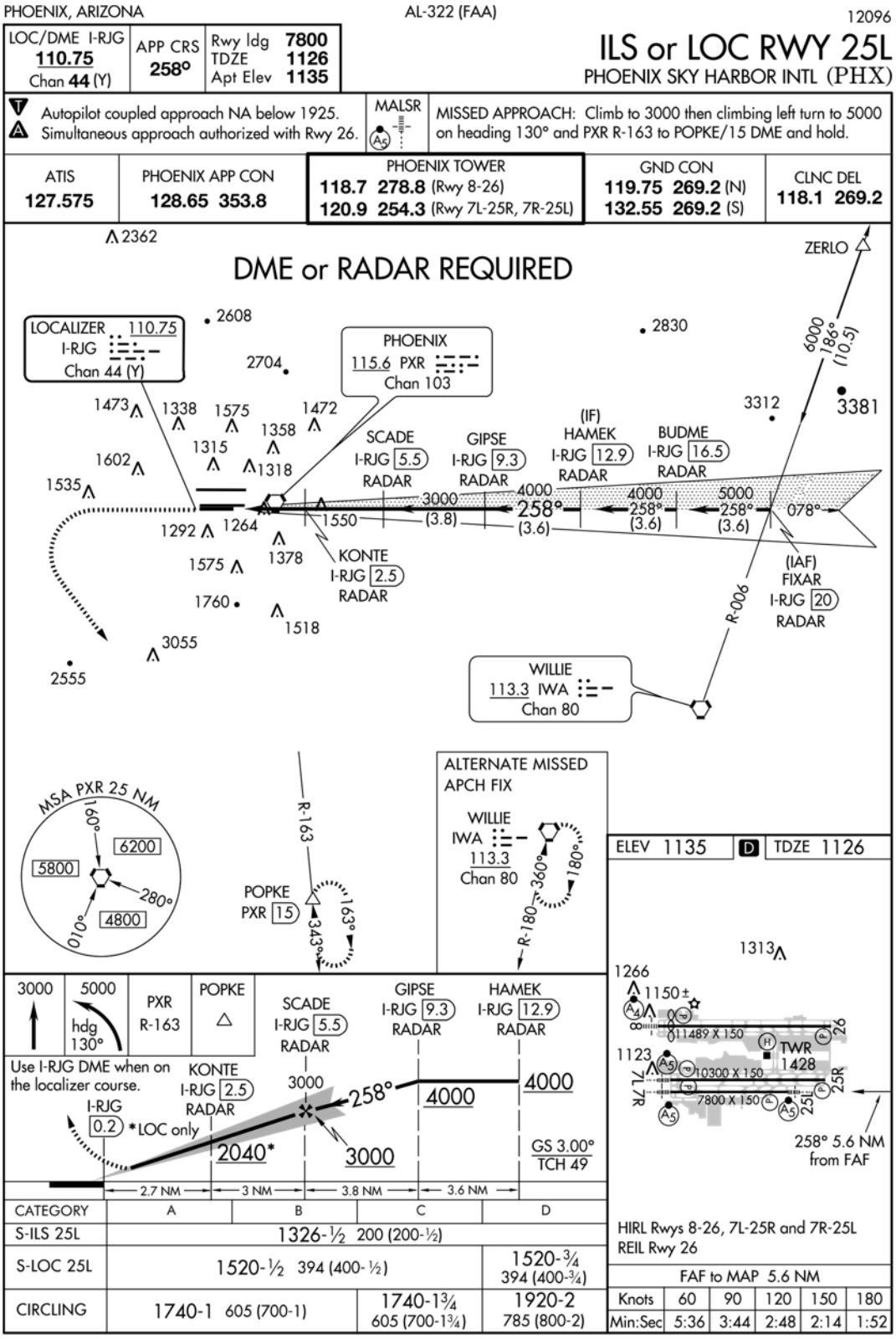


Figure 273. ILS or LOC RWY 25L (PHX).

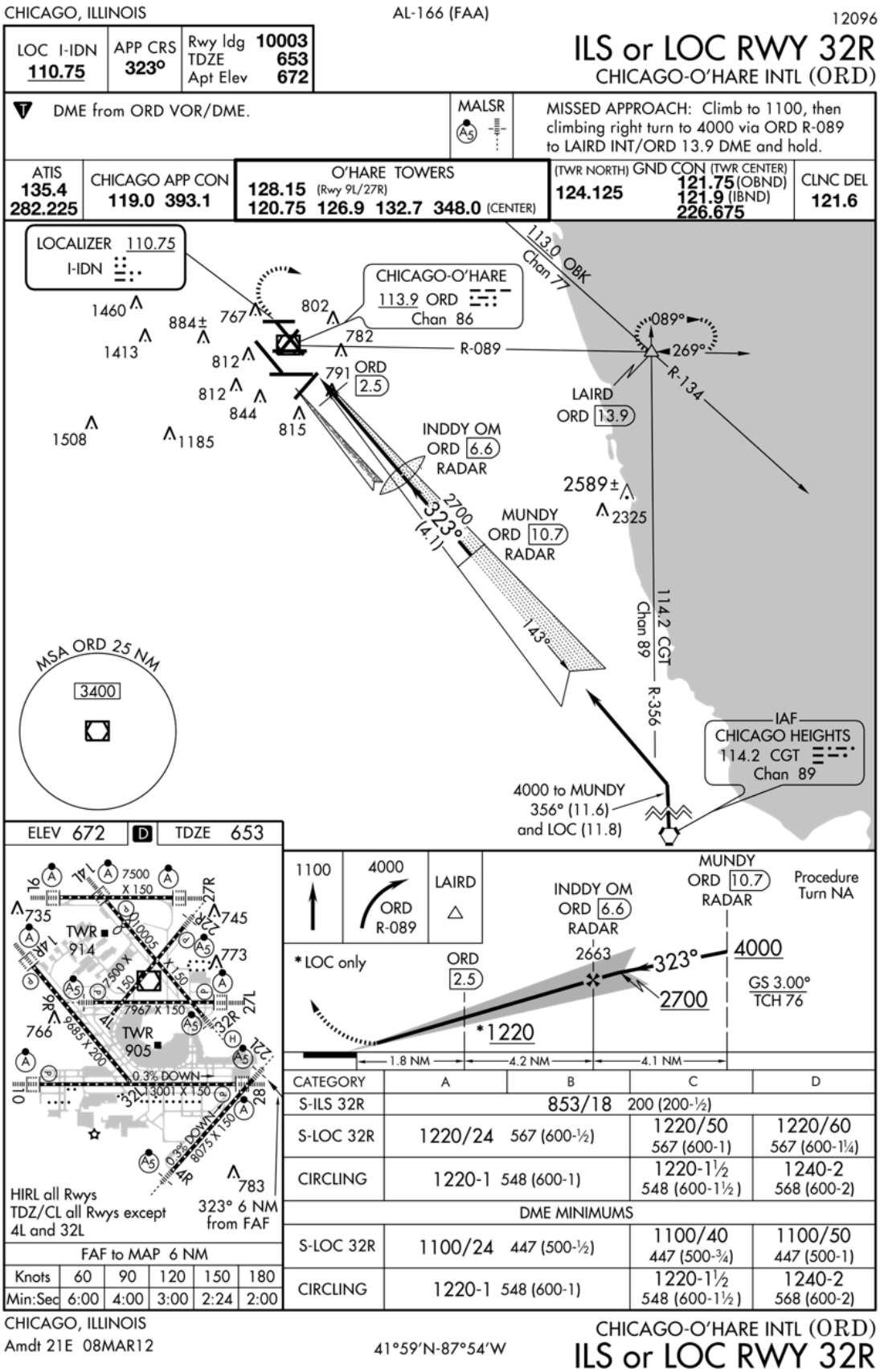


Figure 279. ILS or LOC RWY 32R (ORD).

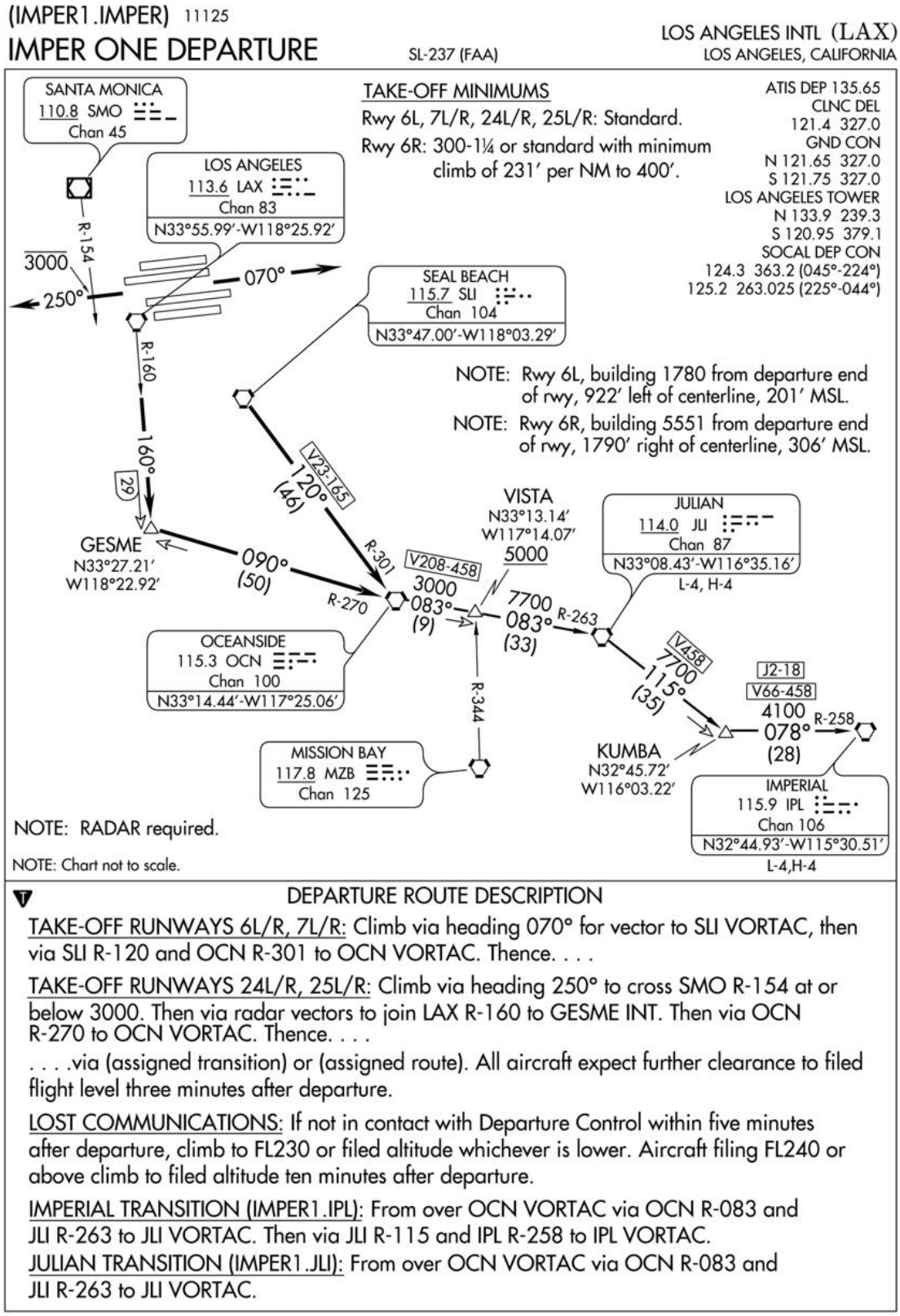


Figure 271. IMPER ONE Departure (IMPER1.IMPER)(LAX). ©ASA

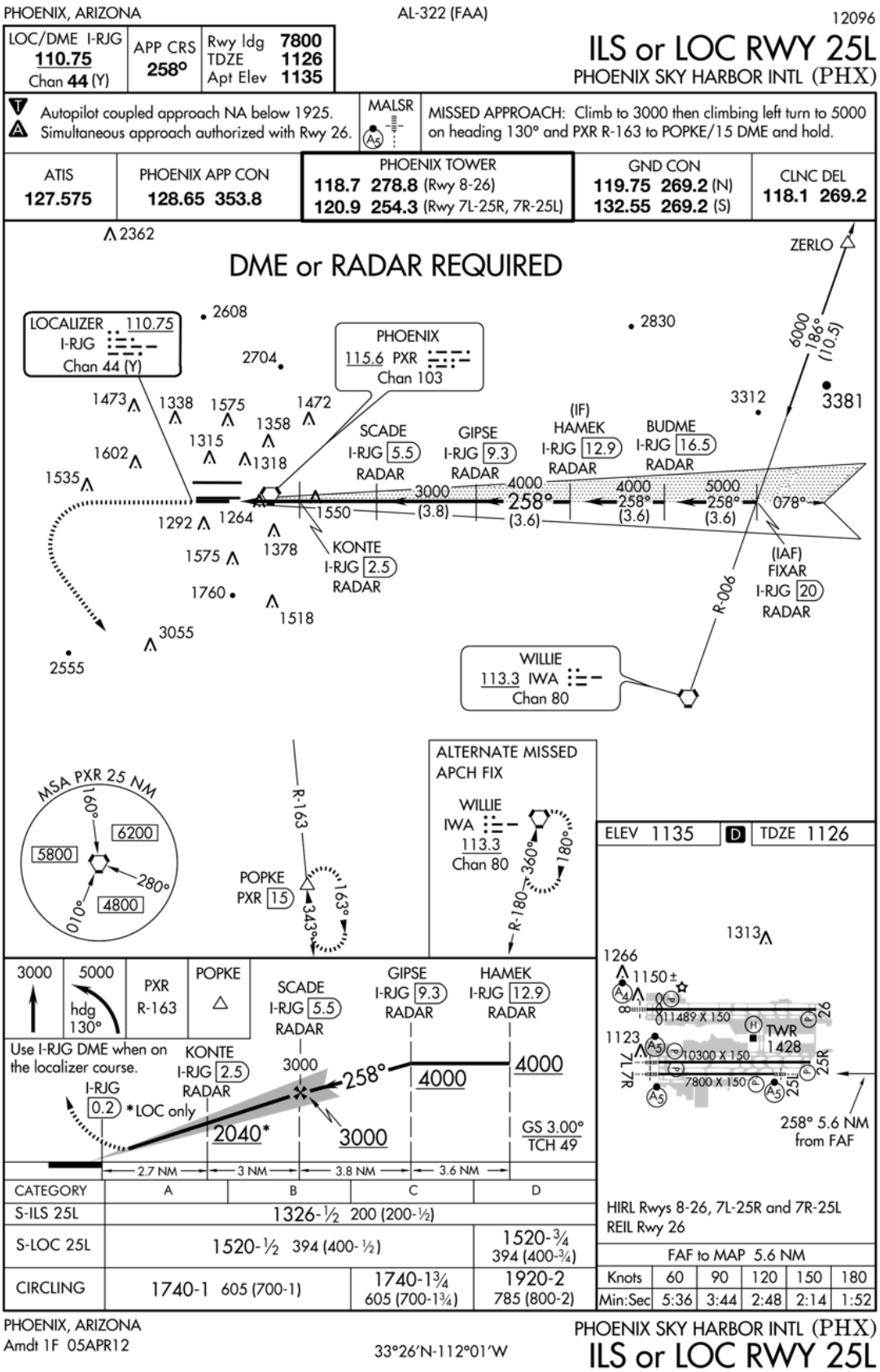


Figure 273. ILS or LOC RWY 25L (PHX).

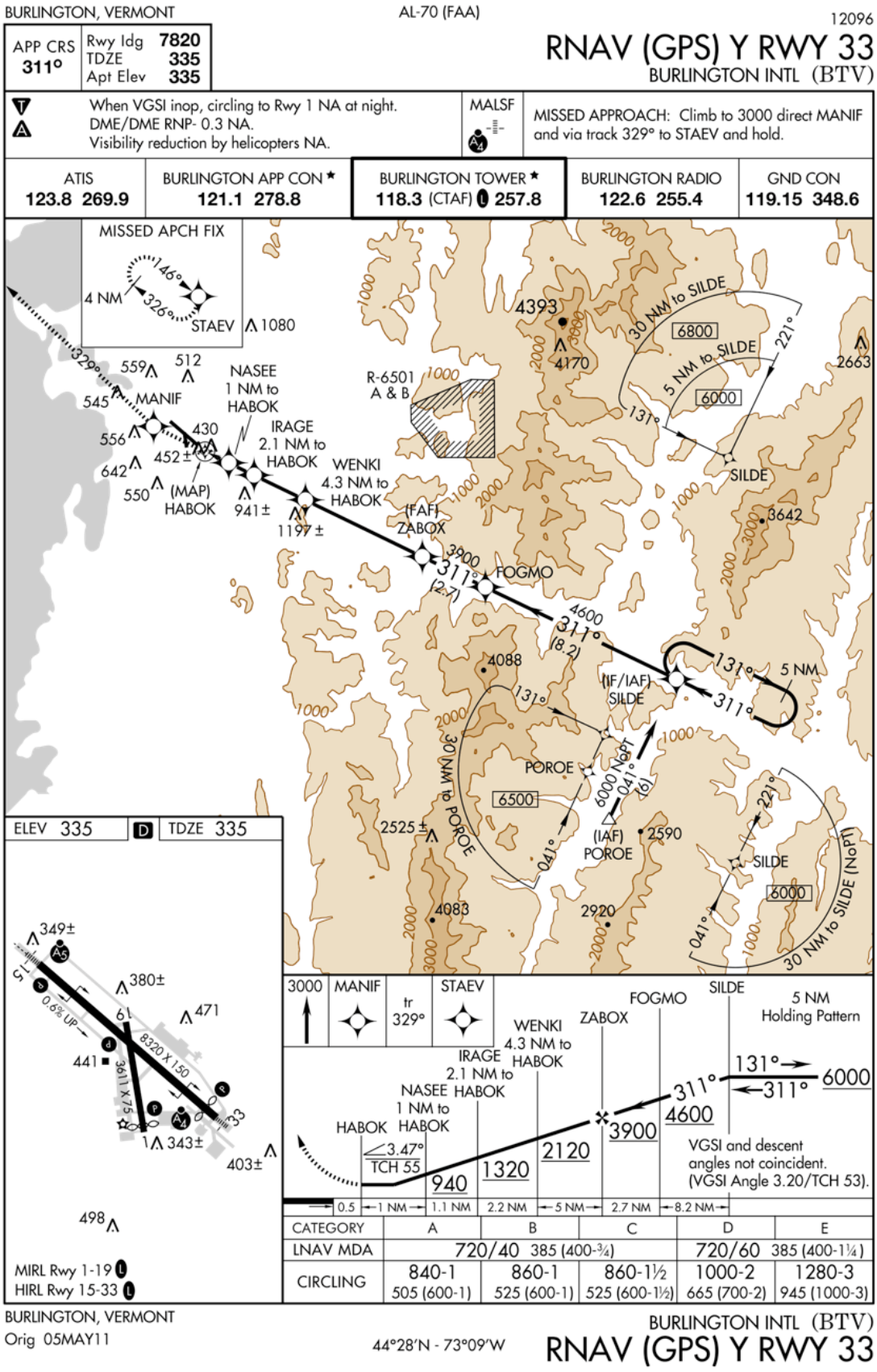


Figure 287. RNAV (GPS) Y RWY 33 (BTV).

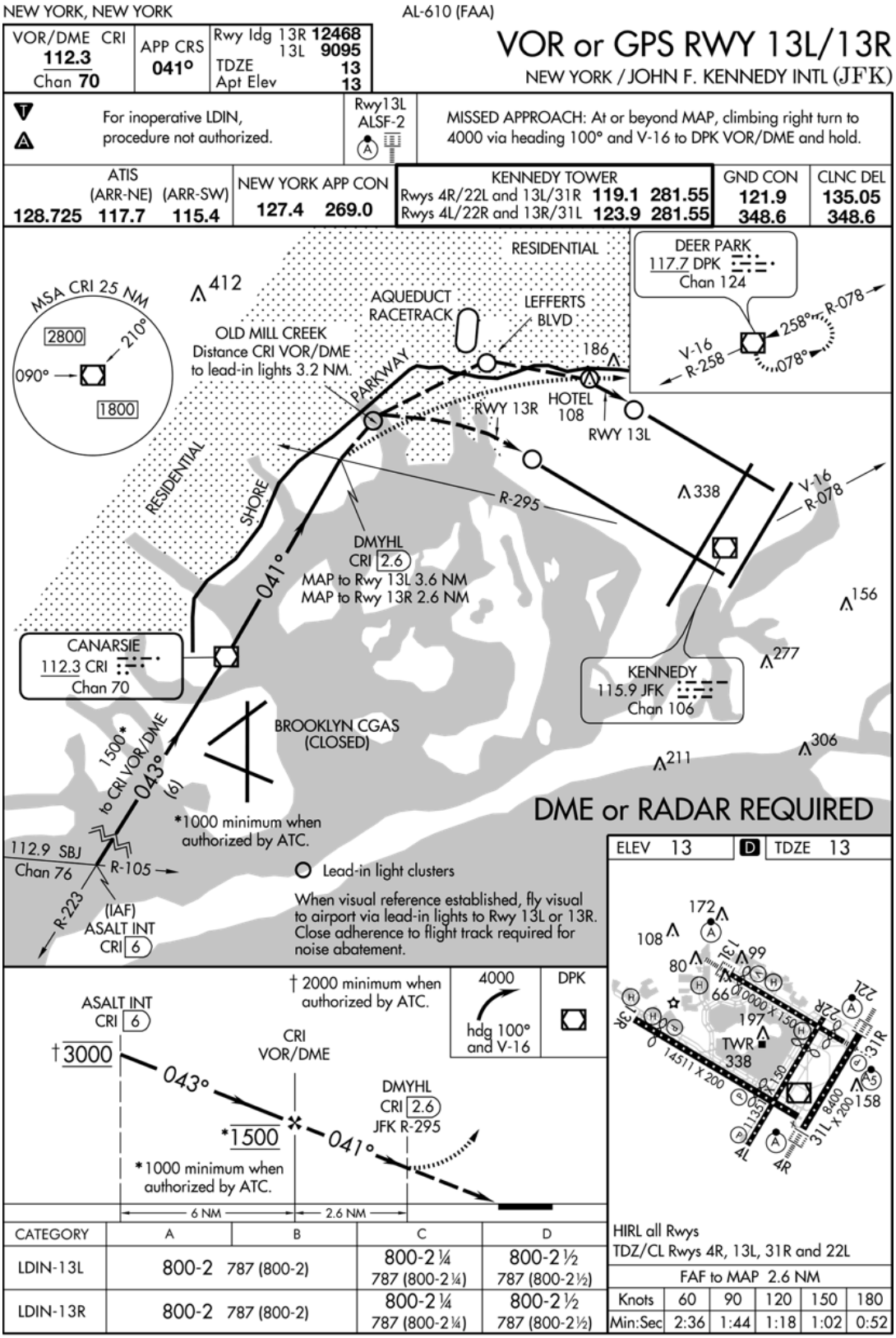


Figure 293. VOR or GPS RWY 13L/13R (JFK). ©ASA

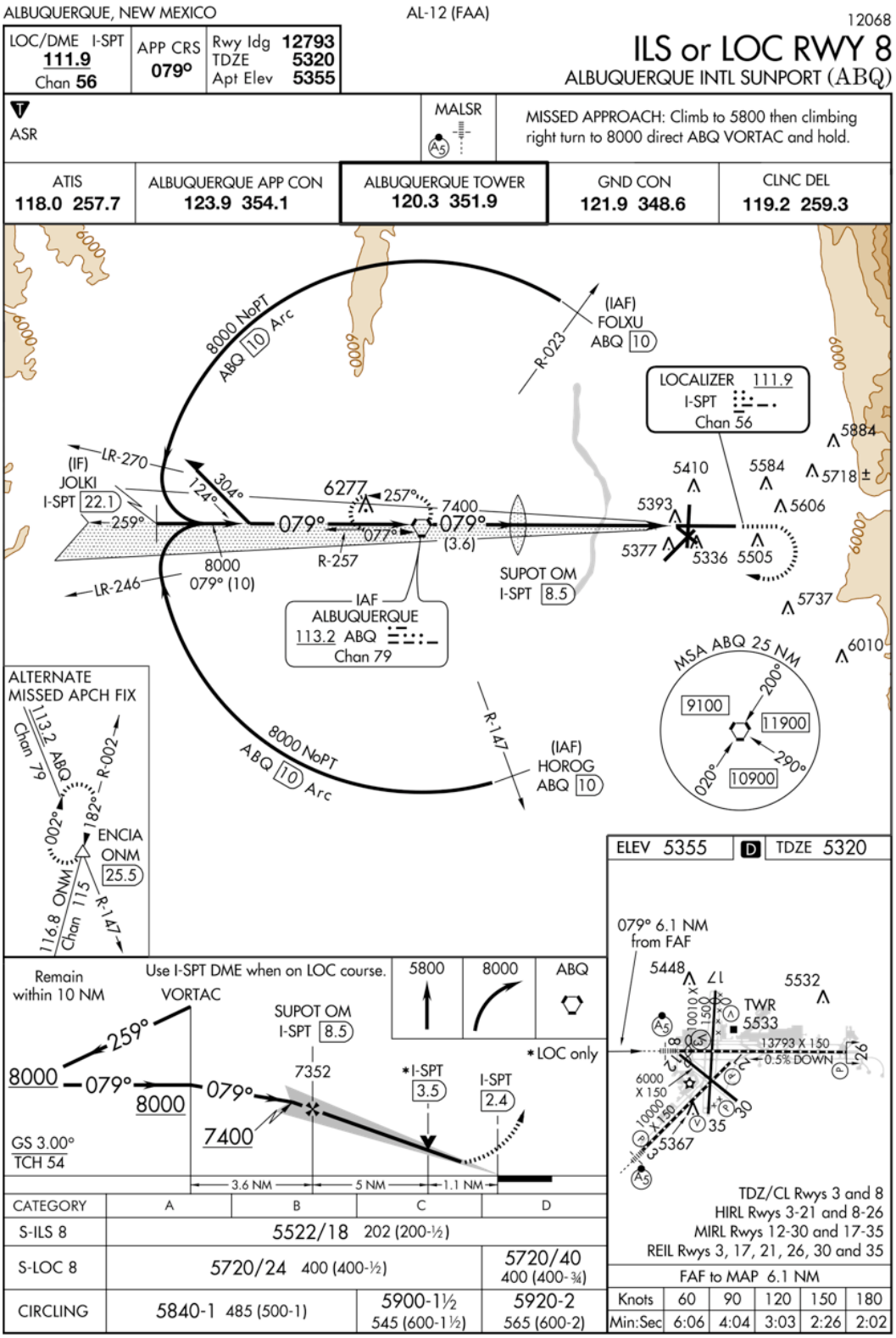


Figure 297. ILS or LOC RWY 8 (ABQ).

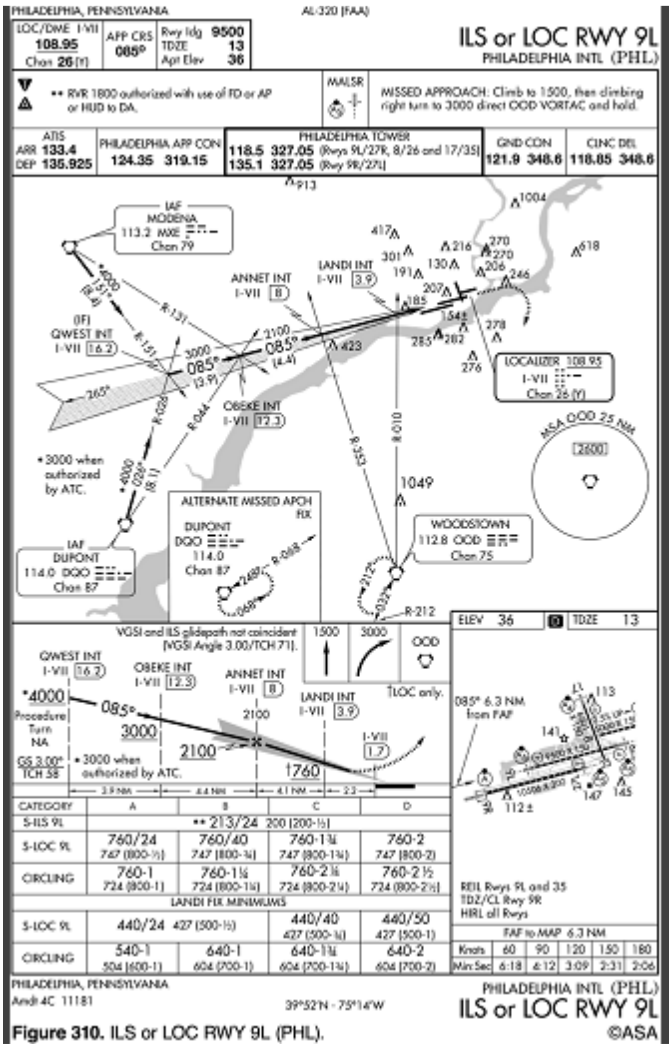


Figure 310. ILS or LOC RWY 9L (PHL).

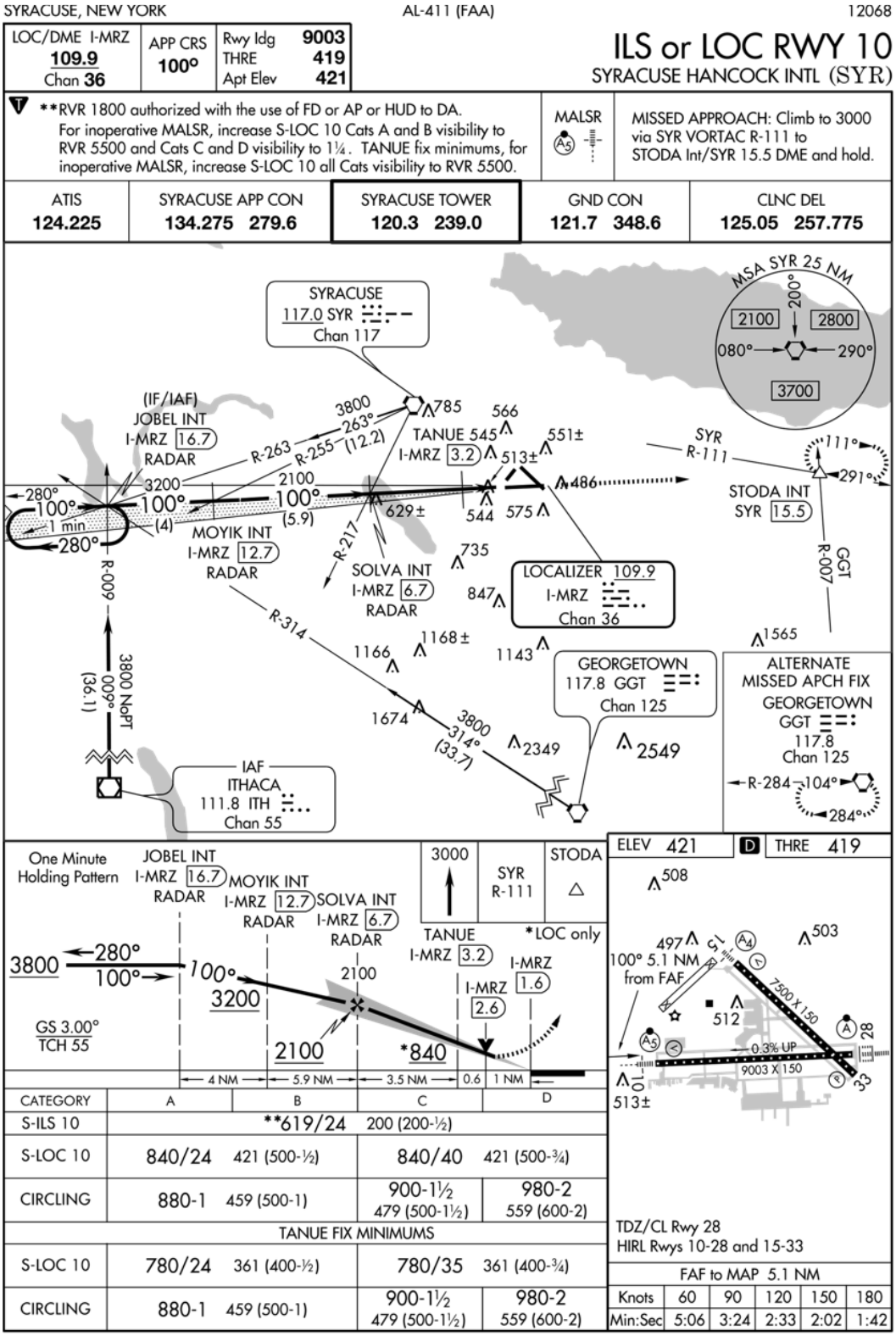


Figure 301. ILS RWY 10 (SYR).

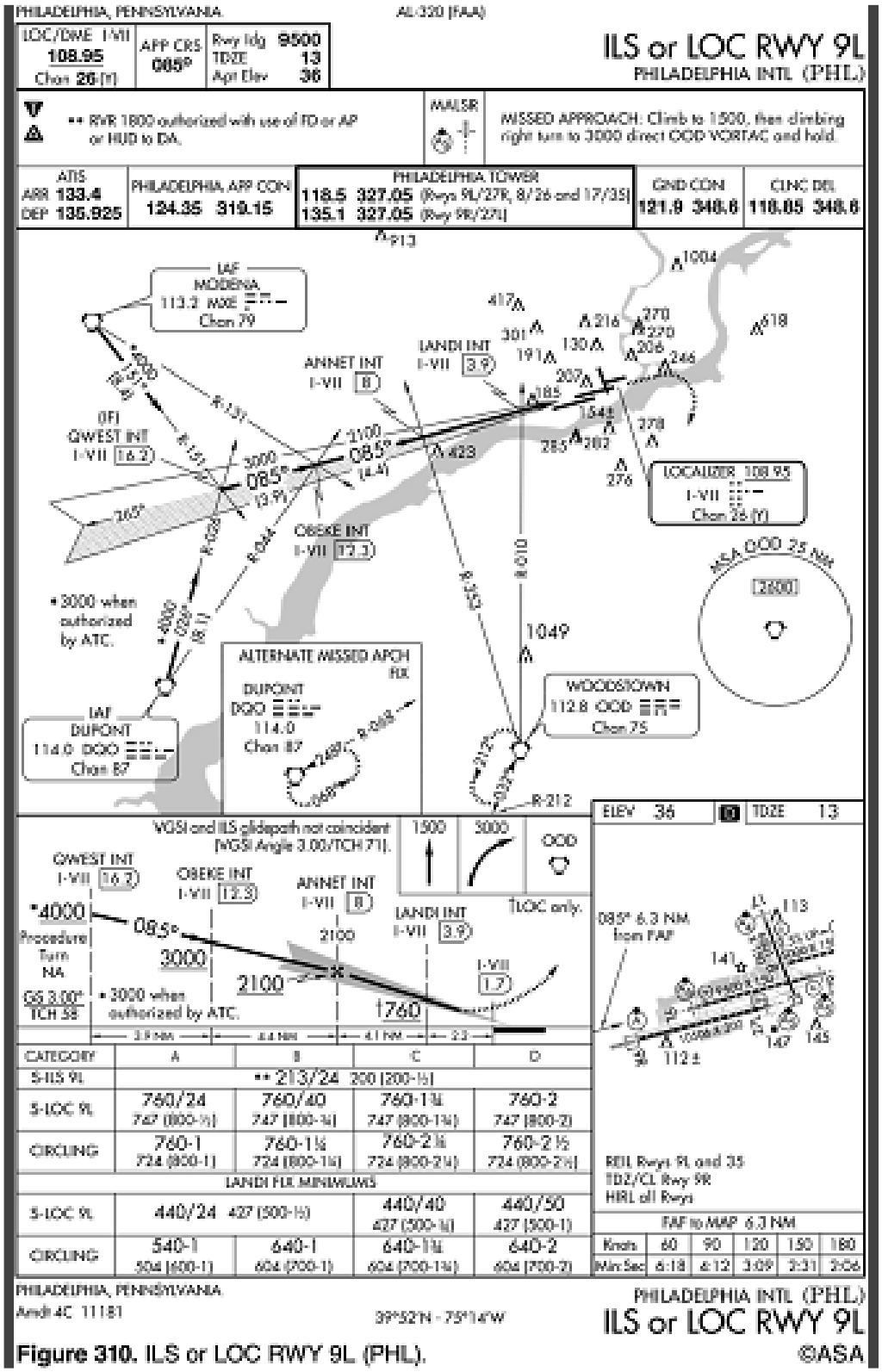


Figure 310. ILS or LOC RWY 9L (PHL).

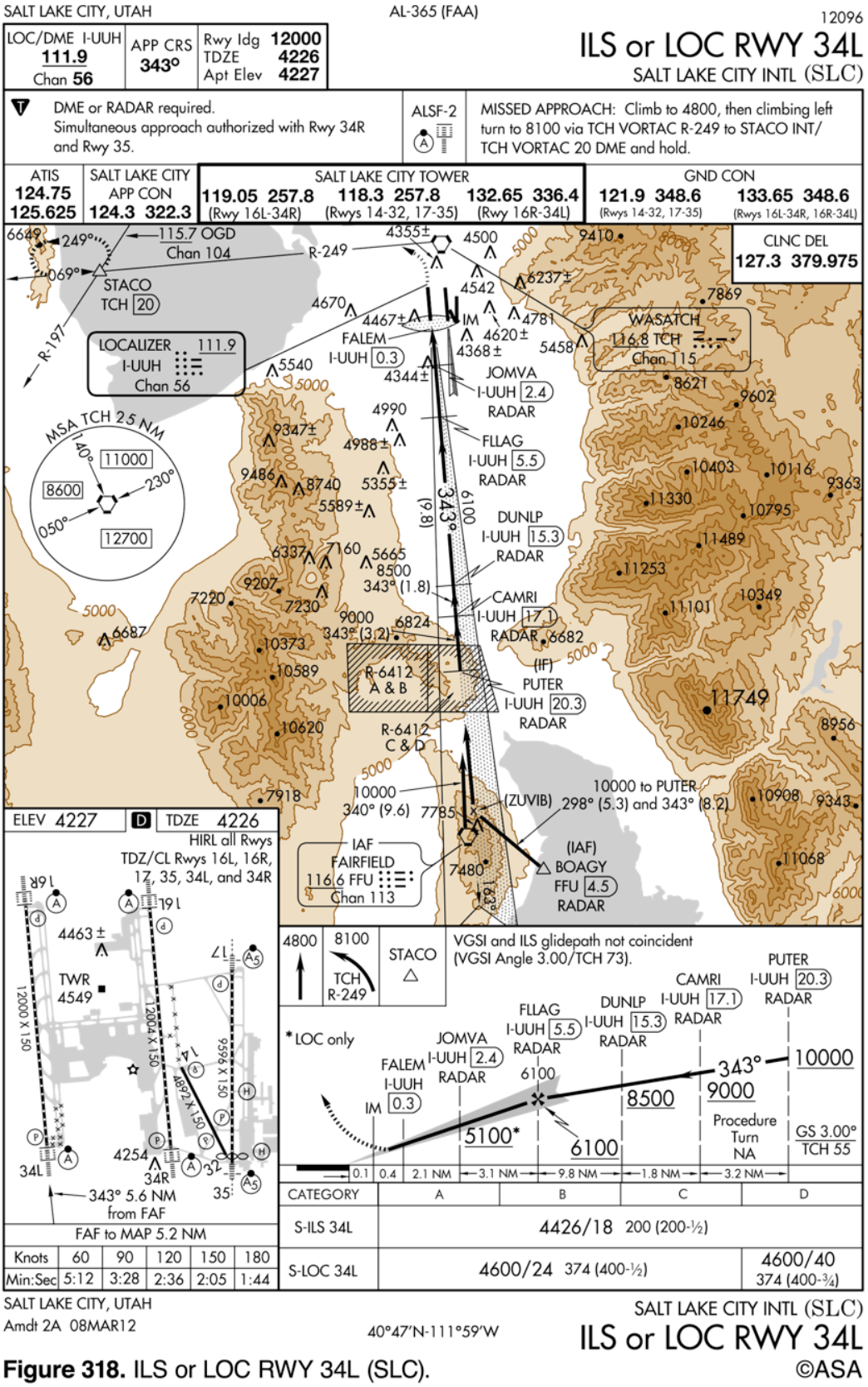


Figure 318. ILS or LOC RWY 34L (SLC).

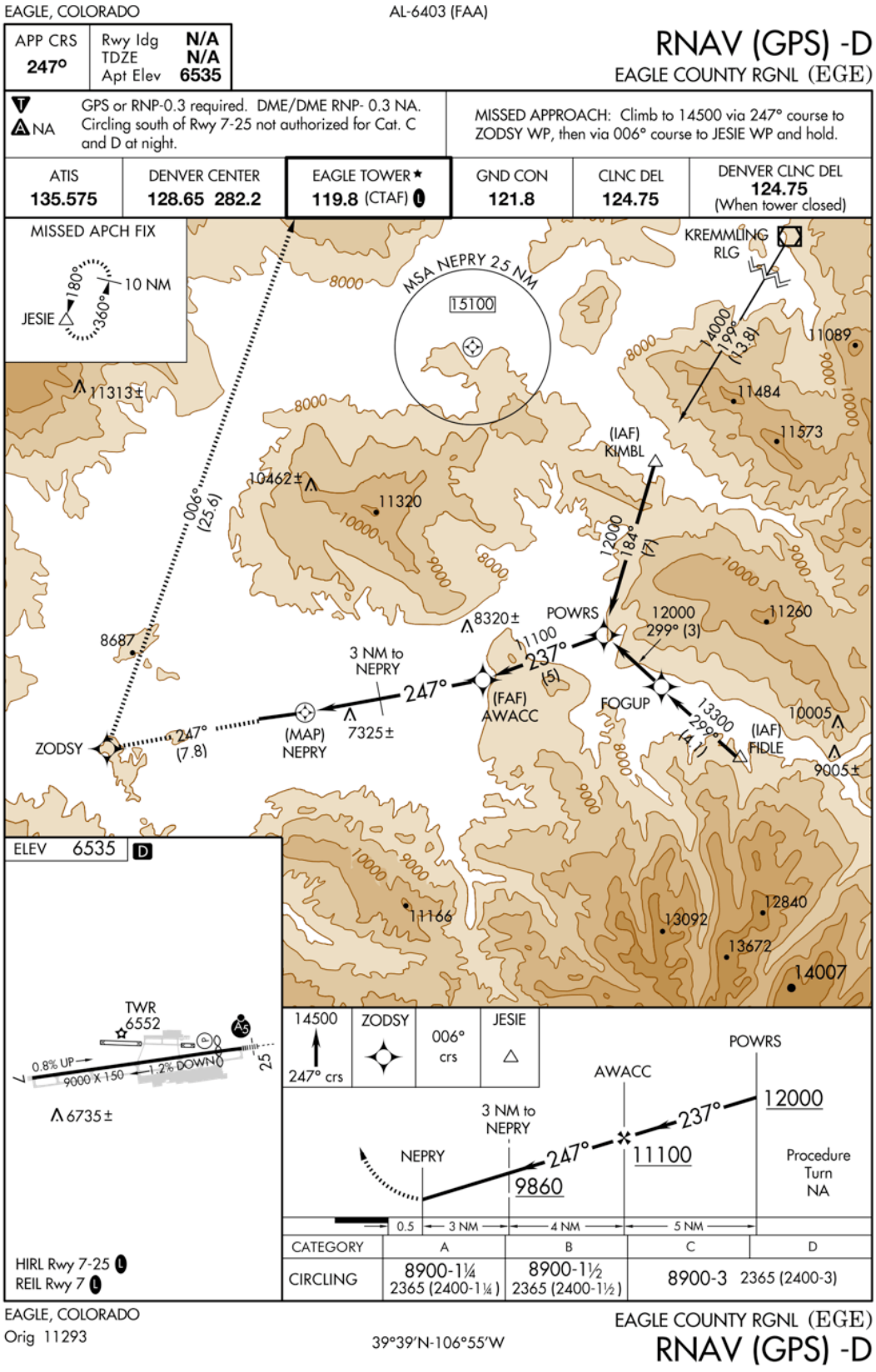


Figure 321. RNAV (GPS) –D (EGE).

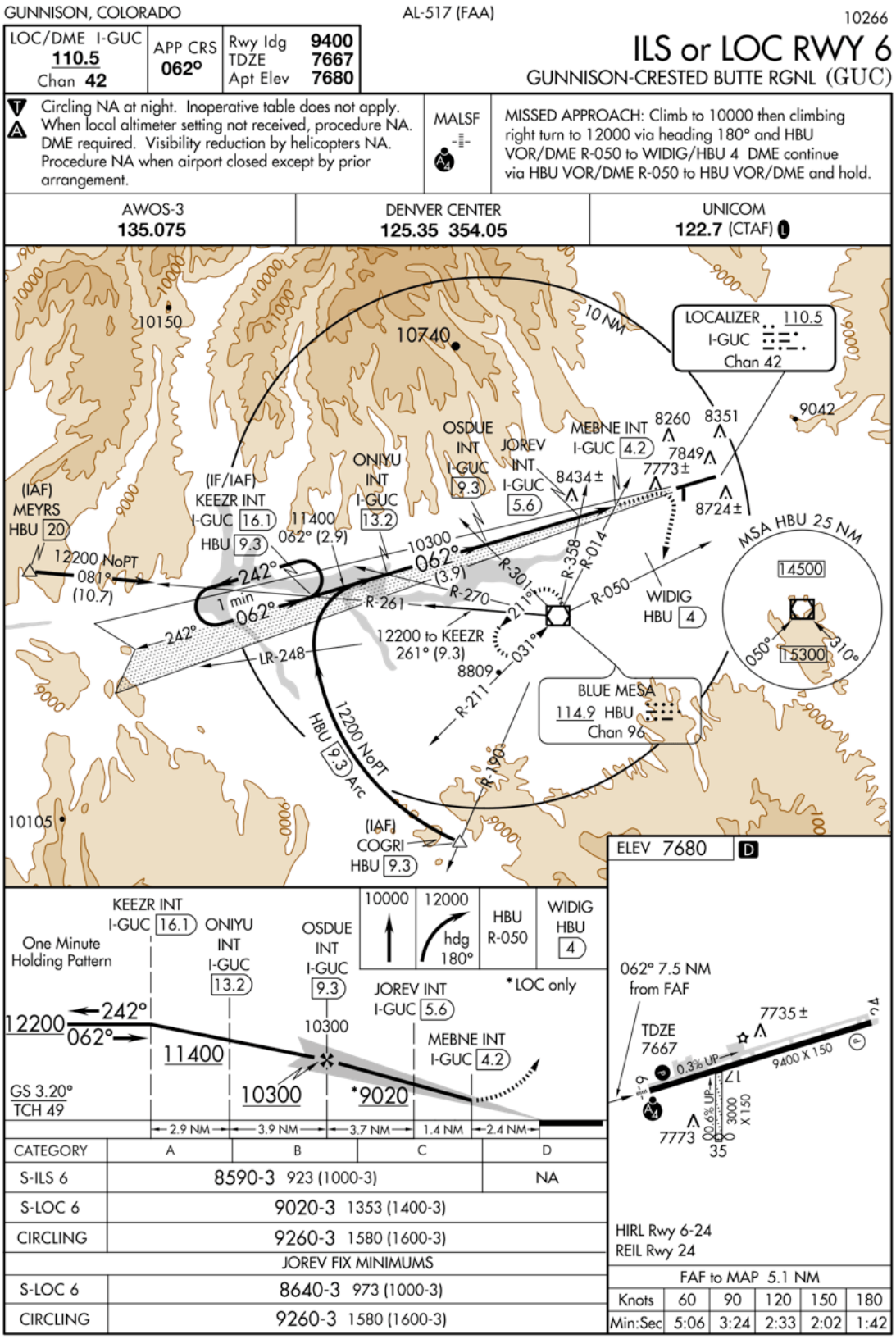


Figure 327. ILS or LOC RWY 6 (GUC).

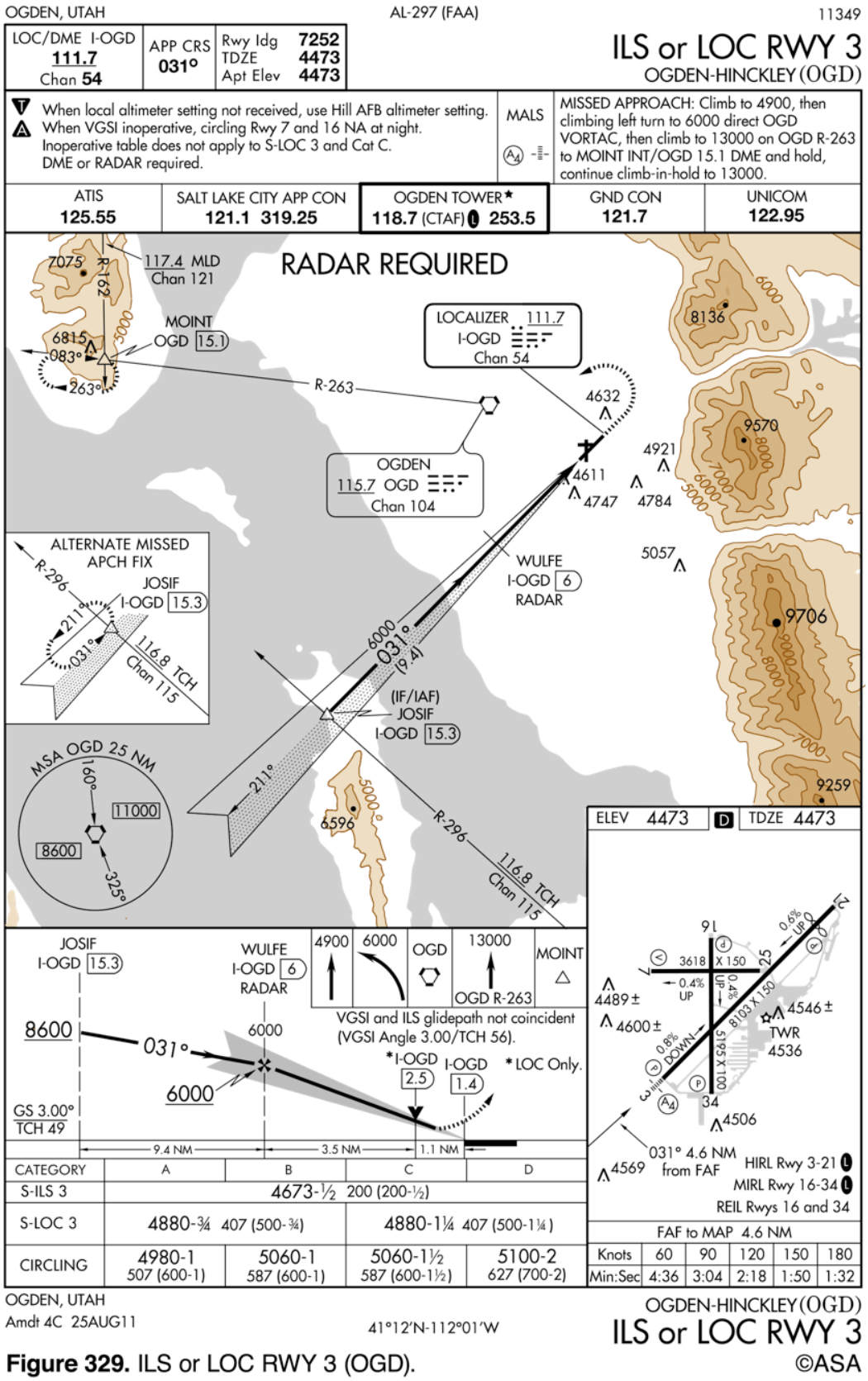


Figure 329. ILS or LOC RWY 3 (OGD).

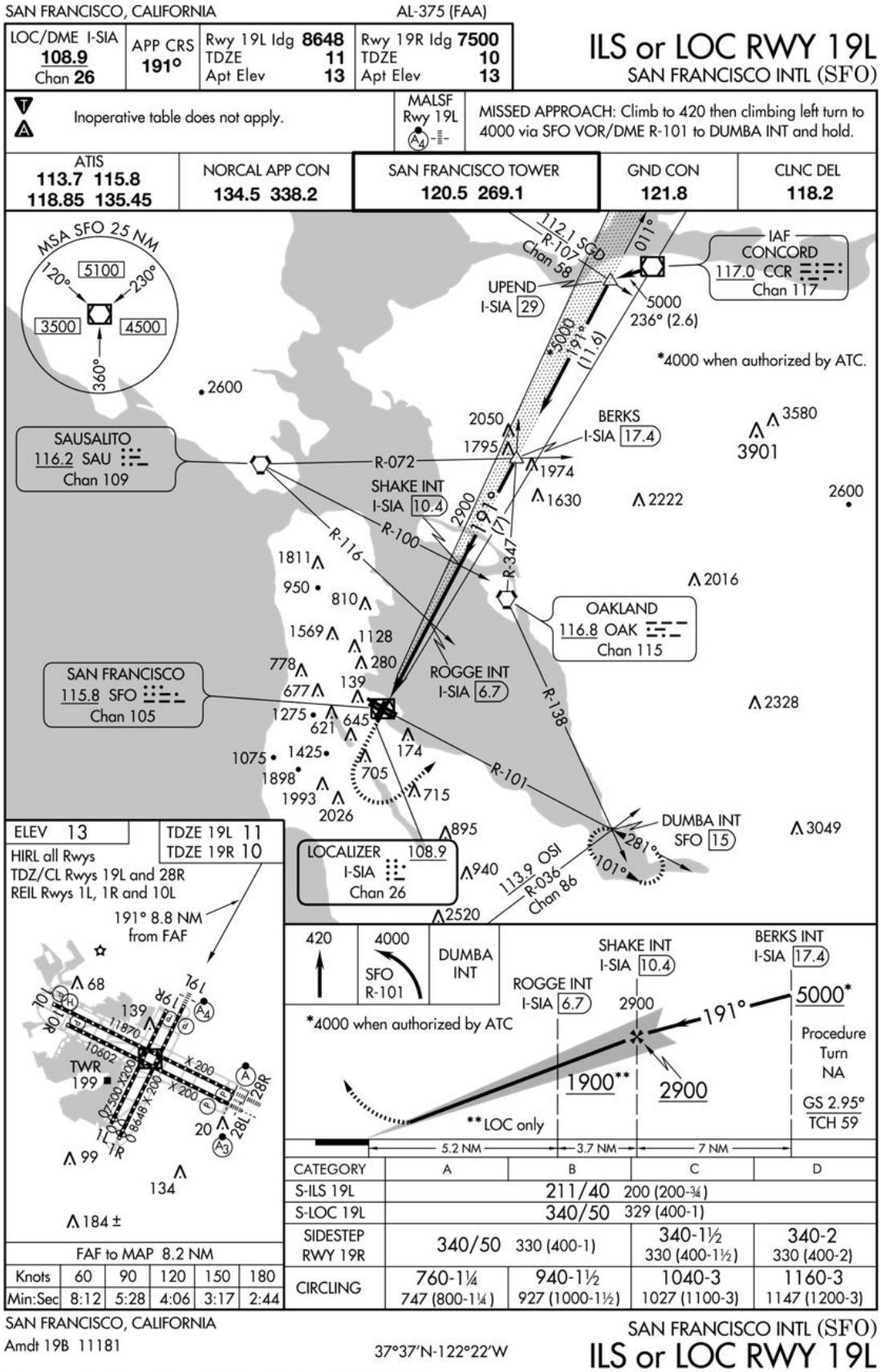


Figure 330. ILS or LOC RWY 19L (SFO).

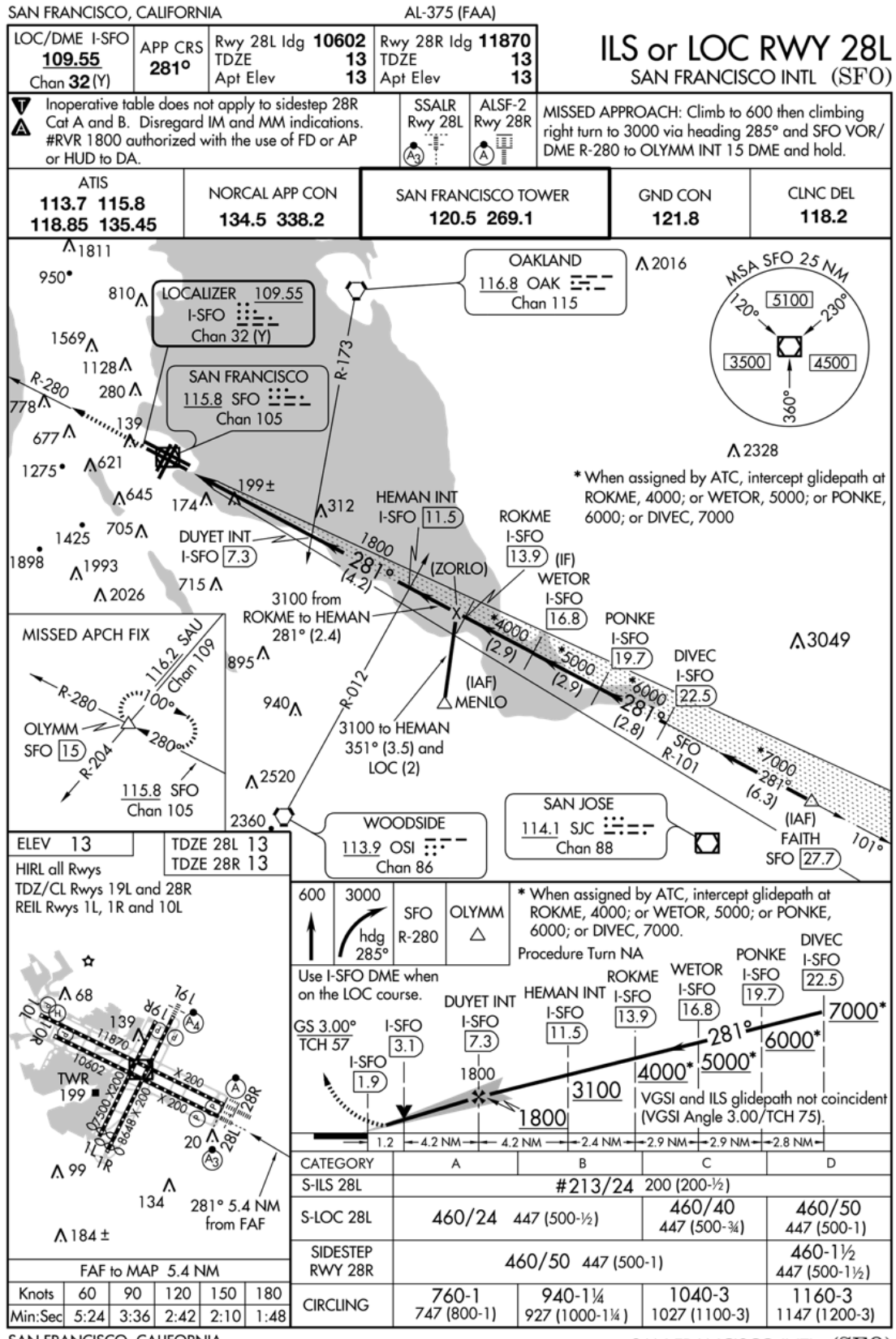


Figure 331. ILS or LOC RWY 28L (SFO).

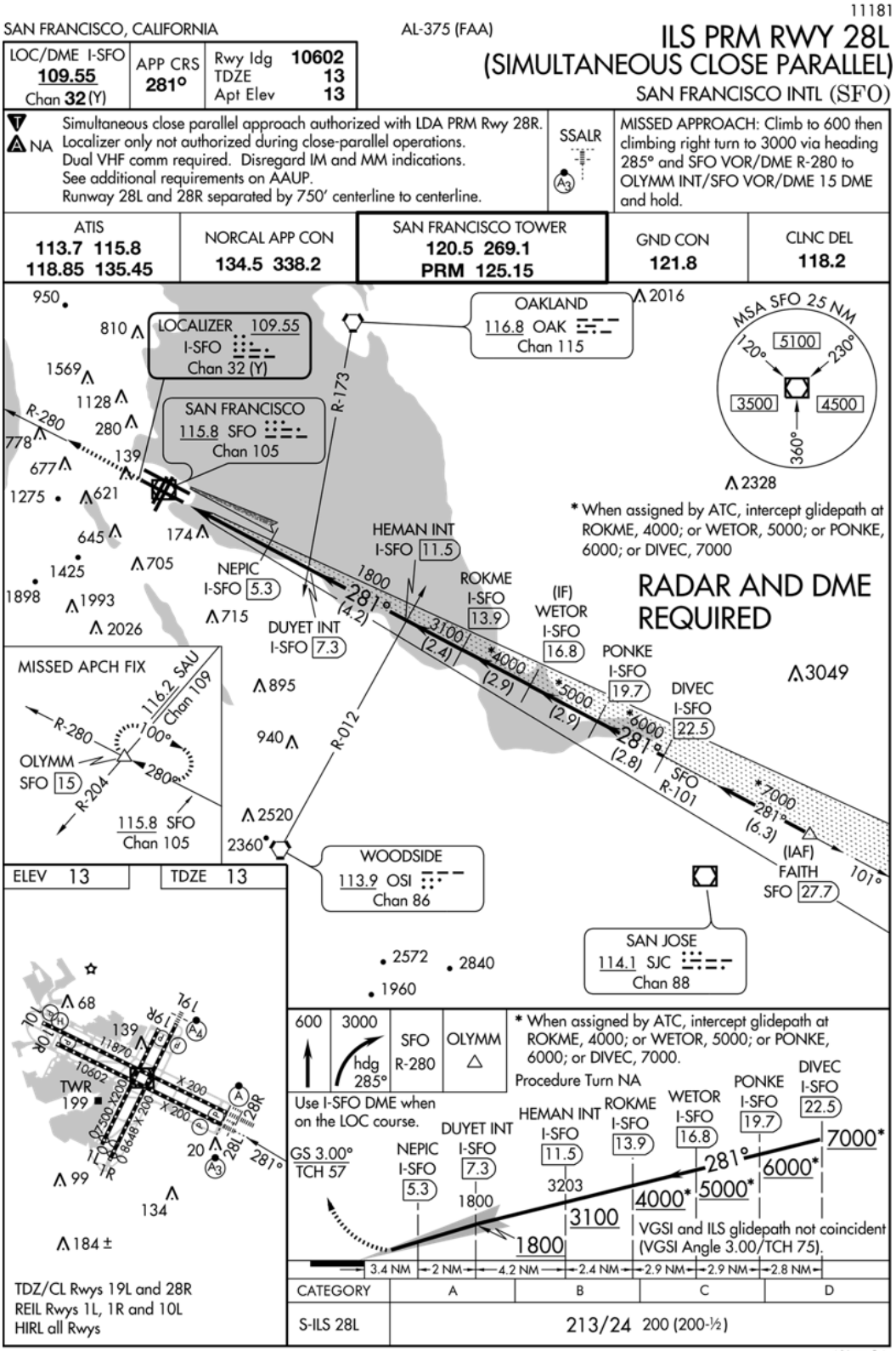


Figure 332. ILS PRM RWY 28L (Simultaneous Close Parallel) (SFO). ©ASA

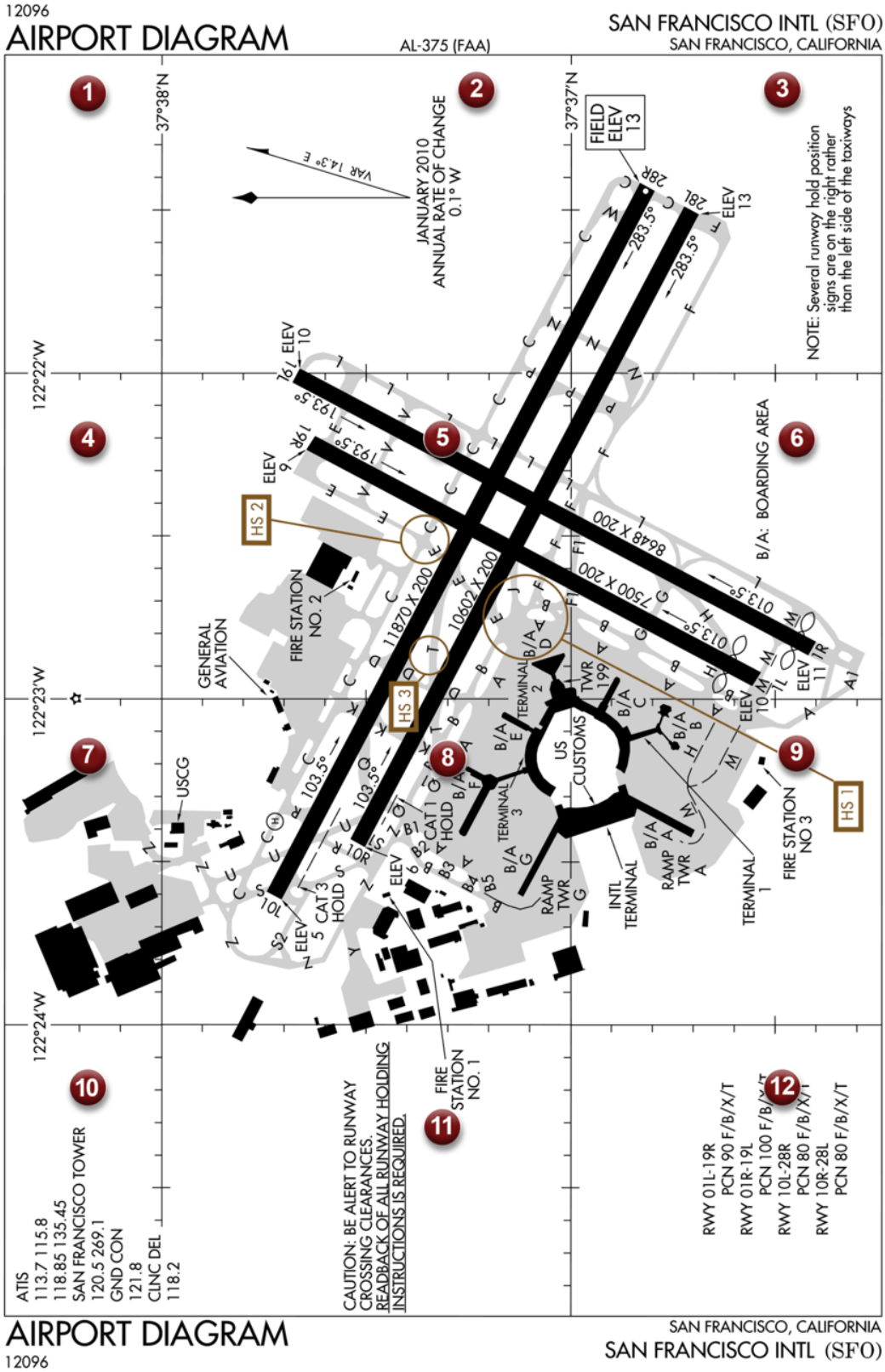


Figure 335. Airport Diagram (SFO). ©ASA

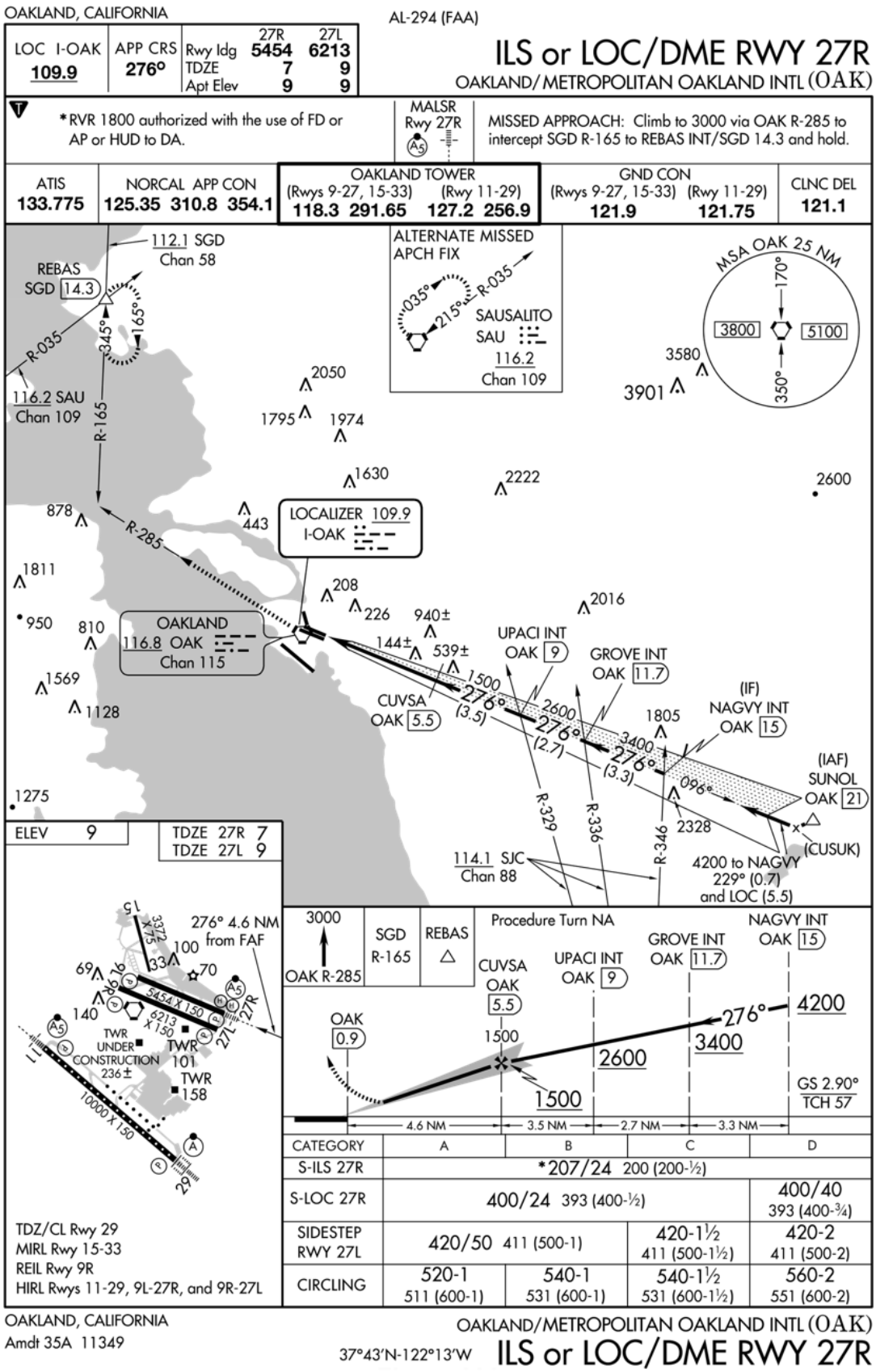


Figure 336. ILS or LOC/DME RWY 27R (OAK).

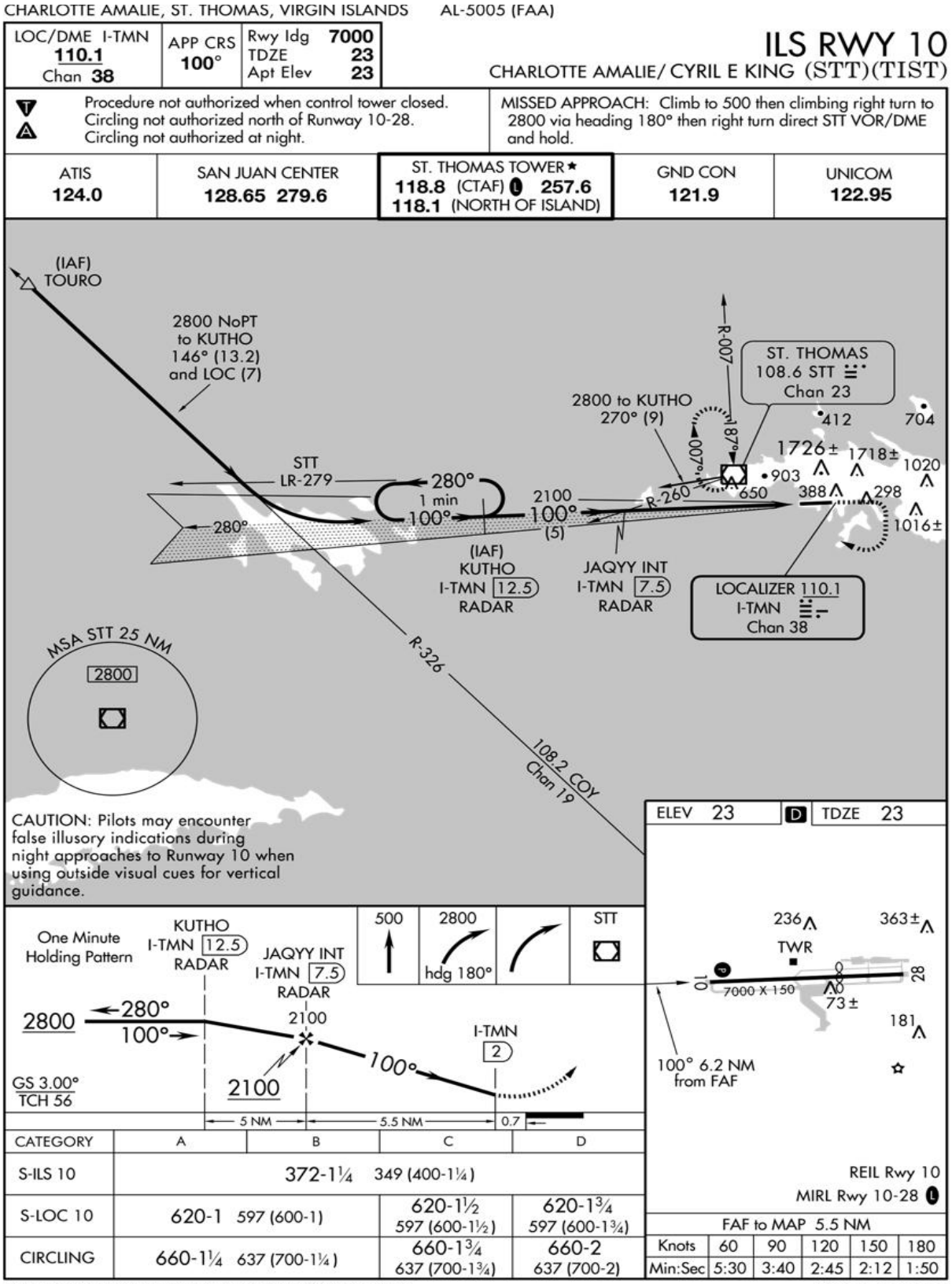


Figure 340. ILS RWY 10 (STT) (TIST).

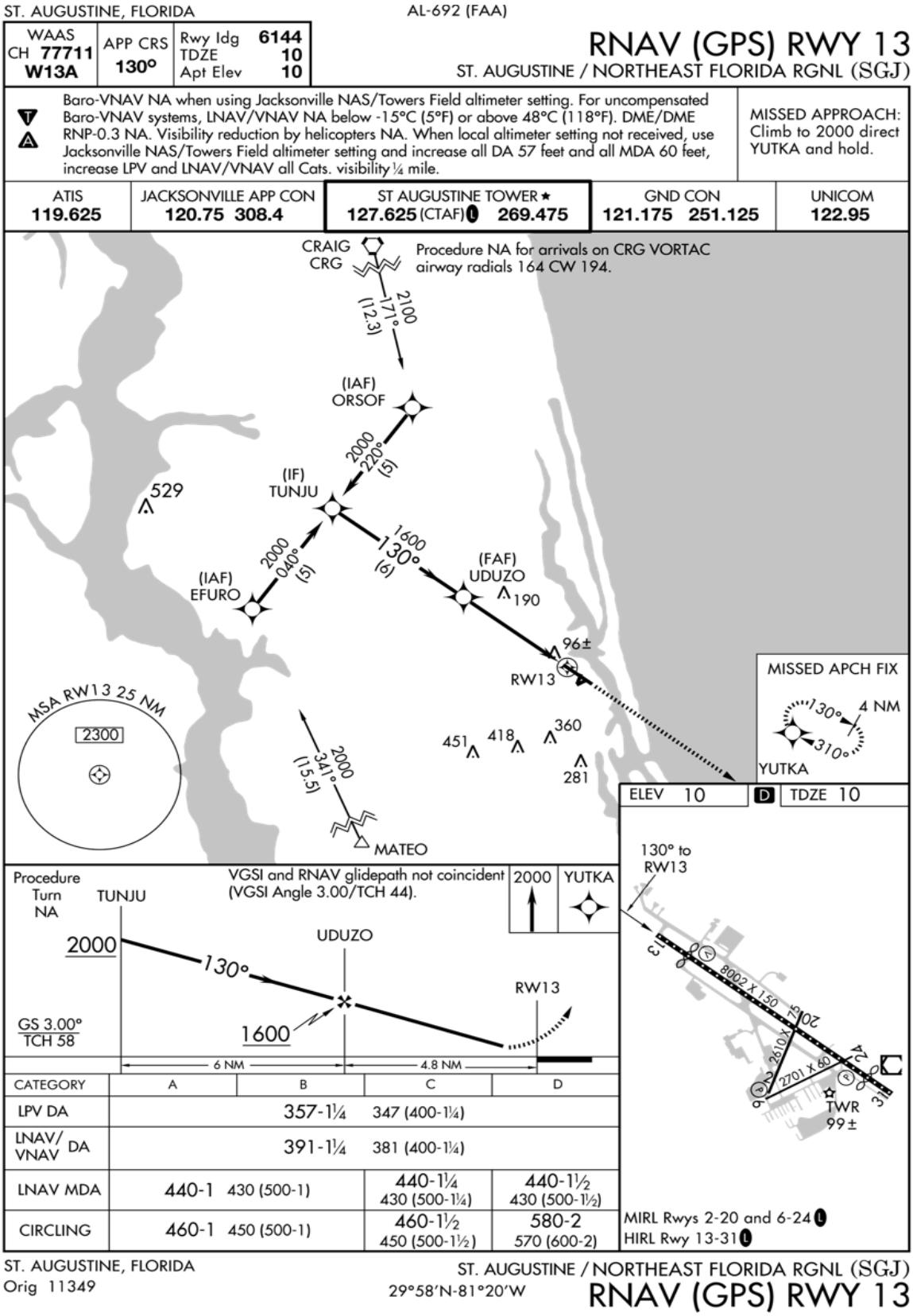
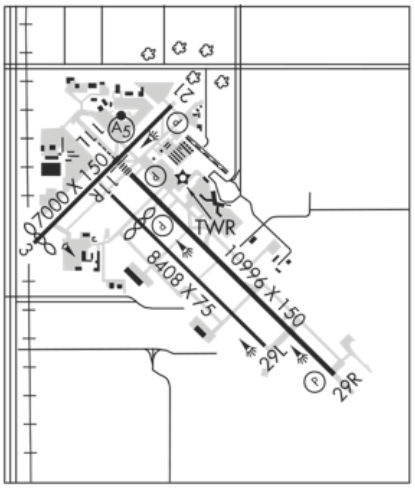


Figure 342. RNAV (GPS) RWY 13 (SGJ).

64 **ARIZONA**

TUCSON INTL (TUS) 6 S UTC–7 N32°06.97′ W110°56.46′ **PHOENIX**
2643 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks AOE Class I, ARFF Index C **H–4J, L–5C**
NOTAM FILE TUS **IAP, AD**

RWY 11L–29R: H10996X150 (ASPH–GRVD) S–160, D–200, 2S–175, 2D–350, 2D/2D2–585 HIRL
RWY 11L: MALSR. PAPI(P4L)—GA 3.0° TCH 55′. 0.7% up..
RWY 29R: REIL. PAPI(P4L)—GA 3.0° TCH 76′. Ground. 0.5% down..
RWY 11R–29L: H8408X75 (ASPH) S–120, D–140, 2S–175, 2D–220 MIRL
RWY 11R: PAPI(P4L)—GA 3.0° Thld dsplcd 1410′. Rgt tfc. 0.7% up..
RWY 29L: REIL. Pole. 0.6% down..
RWY 03–21: H7000X150 (ASPH–GRVD) S–105, D–137, 2S–174, 2D–230, 2D/2D2–500 MIRL
RWY 03: Thld dsplcd 841′. Railroad.
RWY 21: REIL. PAPI(P4L)—GA 3.0° TCH 55′. Rgt tfc.



RUNWAY DECLARED DISTANCE INFORMATION
RWY 03: TORA–7000 TODA–7000 ASDA–7000 LDA–6160
RWY 21: TORA–6000 TODA–7000 ASDA–6000 LDA–6000
ARRESTING GEAR/SYSTEM
RWY 03 ← HOOK E5 (403′)
RWY 11L HOOK BAK-12B(B) (1220′ OVRN) BAK-14 BAK-12B(B) (1000′)
BAK-14 BAK-12B(B) (1215′) HOOK BAK-12B(B) (128′ OVRN) **RWY 29L**

AIRPORT REMARKS: Attended continuously. Air carriers use Rwy 11L–29R. Rwy 11R–29L rstd to acft with wing span less than 73′ and ldg speed less than 120 kt. Acft dep Rwy 11R required to attain at least 400′AGL prior to starting turn. No B–747 training except PPR; no flight training 0500–1300Z except PPR, call Flightline Office 520–573–8128. Rwy 11L–29R gross weight limit: DC–10–10 315,000 lbs, DC–10–30/40 400,000 lbs, L–1011–1 325,000 lbs, L–1011–100/200 340,000 lbs. Rwy 03–21 gross weight limit: DC–10–10 300,000 lbs DC–10–30/40 375,000 lbs, L–1011–01 310,000 lbs, L–1011–100/200 315,000 lbs. Helicopter ops located south of Rwy 11R–29L and west of Twy A13. TPA–3443 (800) small acft, 4043 (1400) large/heavy turbojet acft. B–747 acft taxi with inboard engines only. Rwy 11L touchdown runway visual range avbl. Twy T-general aviation twy 30,000 lbs. or less. Portions of Twy D not visible from twr due to hangars. Twy A5 limited to 70,000 lbs or less. REIL Rwy 29L and Rwy 29R dalgt hrs only. Ldg fee. Flight Notification Service (ADCUS) avbl. NOTE: See Special Notices—Glider Operations Northwest of Tucson, Arizona, U.S. Special Customs Requirement.
WEATHER DATA SOURCES: ASOS (520) 889-7236. **HIWAS** 116.0 TUS.LLWAS.
COMMUNICATIONS: ATIS 123.8 520-741-1177 **UNICOM** 122.95
TUCSON RCO 122.2 (PRESCOTT RADIO)
MOUNT LEMMON RCO 122.4 (PRESCOTT RADIO)
Ⓡ**APP/DEP CON** 125.1 (Rwy 11 090°-285°) (Rwy 29 275°-065°) 119.4 (Rwy 11 286°-089°) (Rwy 29 066°-274°)
TOWER 118.3 119.0 **GND CON** 124.4 **CLNC DEL** 126.65
AIRSPACE: CLASS C svc ctc **APP CON**
RADIO AIDS TO NAVIGATION: NOTAM FILE TUS.
(H) VORTACW 116.0 TUS Chan 107 N32°05.71′ W110°54.89′ 301° 1.8 NM to fld. 2672/12E. **HIWAS.**
VORTAC unusable:
050°-080° byd 30 NM blo 13,000′
350°-020° byd 30 NM blo 13,000′
DME unusable:
155°-165° byd 35 NM blo 13,000′
ILS/DME 111.7 I-TUS Chan 54 Rwy 11L. Localizer backcourse unusable byd 15 NM blo 7,200′. Backcourse unusable byd 10° right of course.

VALLE (See GRAND CANYON on page 39)

Figure 348. Excerpt from Chart Supplement. ©ASA

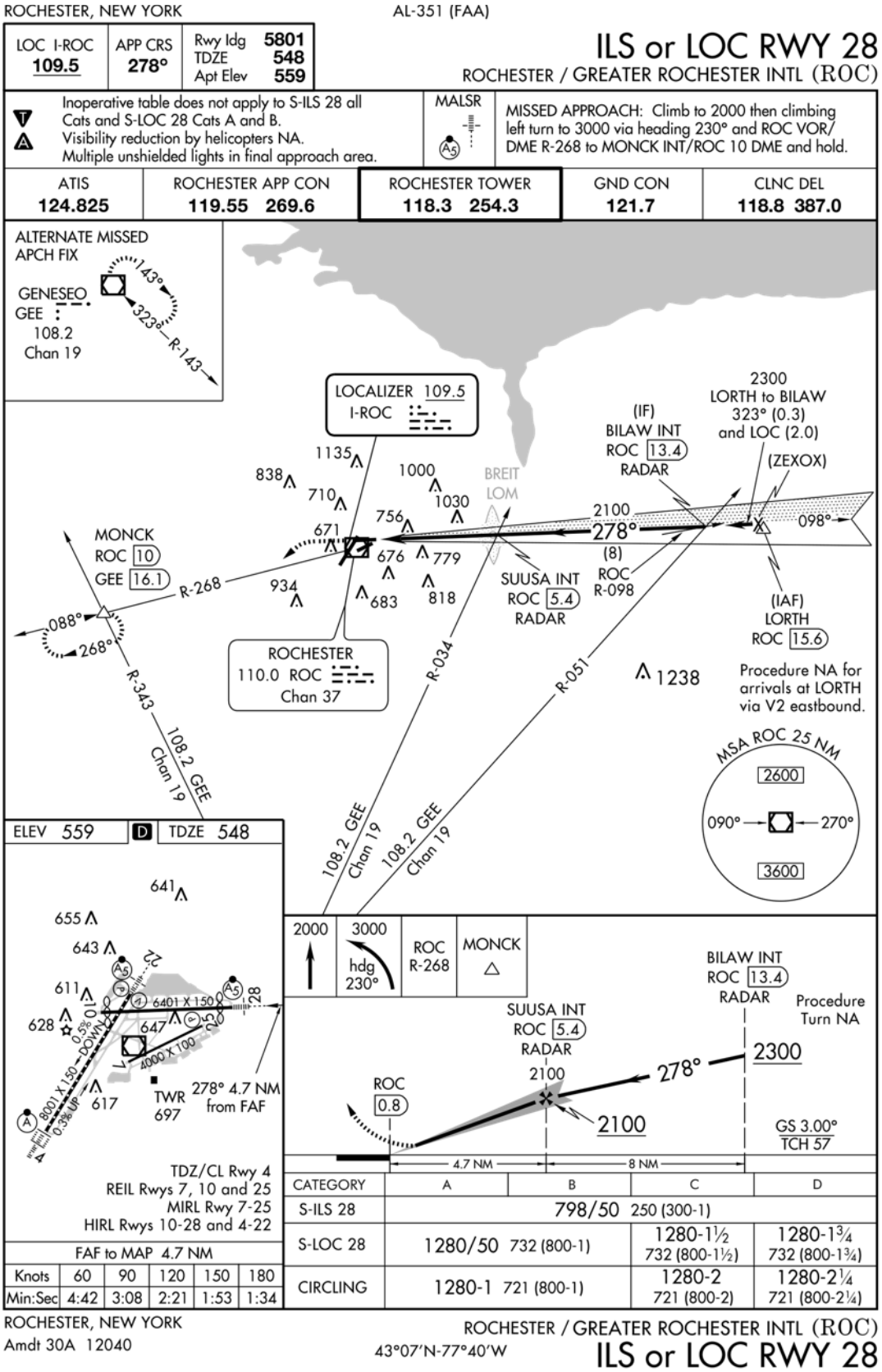


Figure 360. ILS or LOC RWY 28 (ROC).

(TUS7.TUS) 09183

TUCSON SEVEN DEPARTURE

SL-430 (FAA)

TUCSON INTL (TUS)
TUCSON, ARIZONA

TAKE-OFF OBSTACLE NOTES

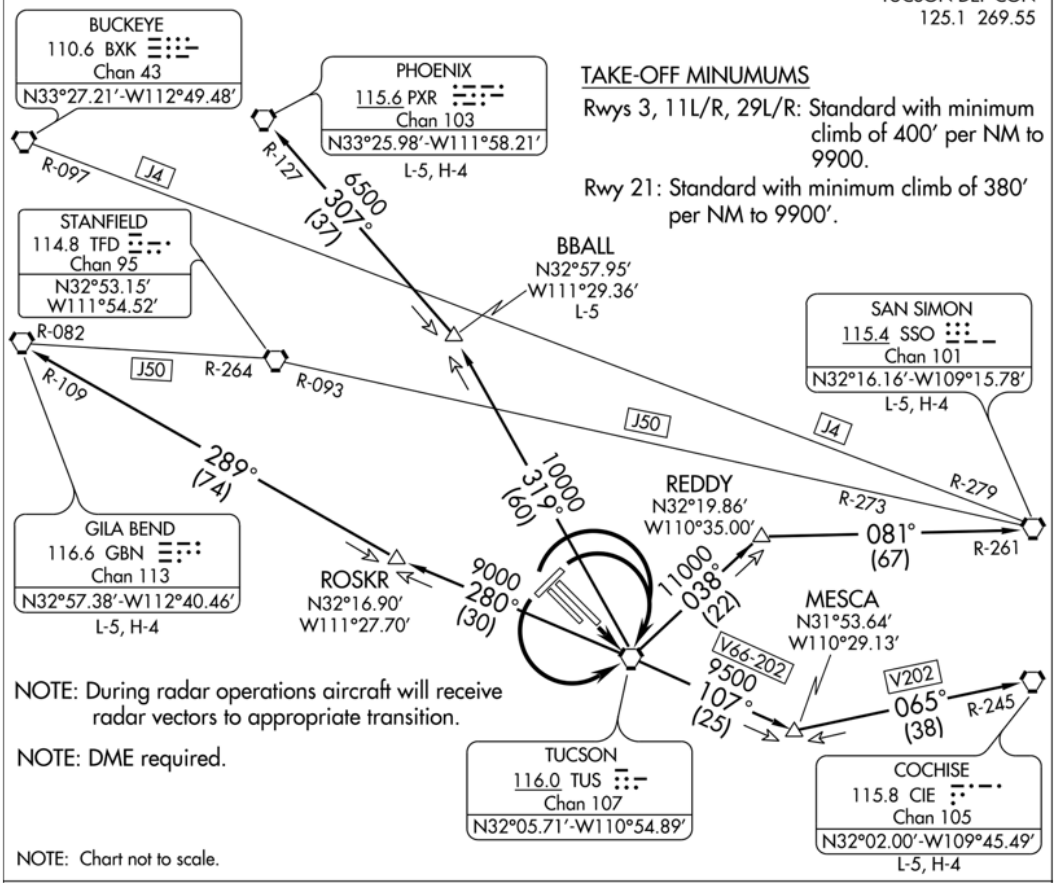
RWY 3: Multiple trees and a sign beginning 1385′ from DER, 322′ left of centerline to 333′ right of centerline, up to 45′ AGL/2626′ MSL.

RWY 11L: Multiple bushes and vents beginning 115′ from DER, 606′ left of centerline to 383′ right of centerline, up to 24′ AGL/2674′ MSL.

RWY 11R: Tree 584′ from DER, 176′ right of centerline, 25′ AGL/2645′ MSL.

RWY 21: Multiple bushes, poles, lights, railroad cars, and trees beginning 104′ from DER, 594′ left of centerline to 330′ right of centerline, up to 48′ AGL/2616′ MSL.

ATIS
123.8 279.65
CLNC DEL
126.65 326.2
GND CON
124.4 348.6
TUCSON TOWER
118.3 257.8
TUCSON DEP CON
125.1 269.55



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAYS 11L/R: Climb direct TUS VORTAC. Thence. . . .

TAKE-OFF RUNWAYS 3, 29L/R: Climbing right turn direct TUS VORTAC. Thence. . . .

TAKE-OFF RUNWAY 21: Climbing left turn direct TUS VORTAC. Thence. . . .

. . . . via assigned transition. Maintain 17000, expect clearance to filed altitude 10 minutes after departure.

BBALL TRANSITION (TUS7.BBALL): From over TUS VORTAC via TUS R-319 to BBALL INT.

COCHISE TRANSITION (TUS7.CIE): From over TUS VORTAC via TUS R-107 and CIE R-245 to CIE VORTAC.

GILA BEND TRANSITION (TUS7.GBN): From over TUS VORTAC via TUS R-280 and GBN R-109 to GBN VORTAC.

PHOENIX TRANSITION (TUS7.PXR): From over TUS VORTAC via TUS R-319 and PXR R-127 to PXR VORTAC.

SAN SIMON TRANSITION (TUS7.SSO): From over TUS VORTAC via TUS R-038 and SSO R-261 to SSO VORTAC.

TUCSON SEVEN DEPARTURE
TUCSON, ARIZONA
TUCSON INTL (TUS)
(TUS7.TUS) 09183

Figure 361. TUCSON SEVEN Departure (TUS7.TUS). ©ASA

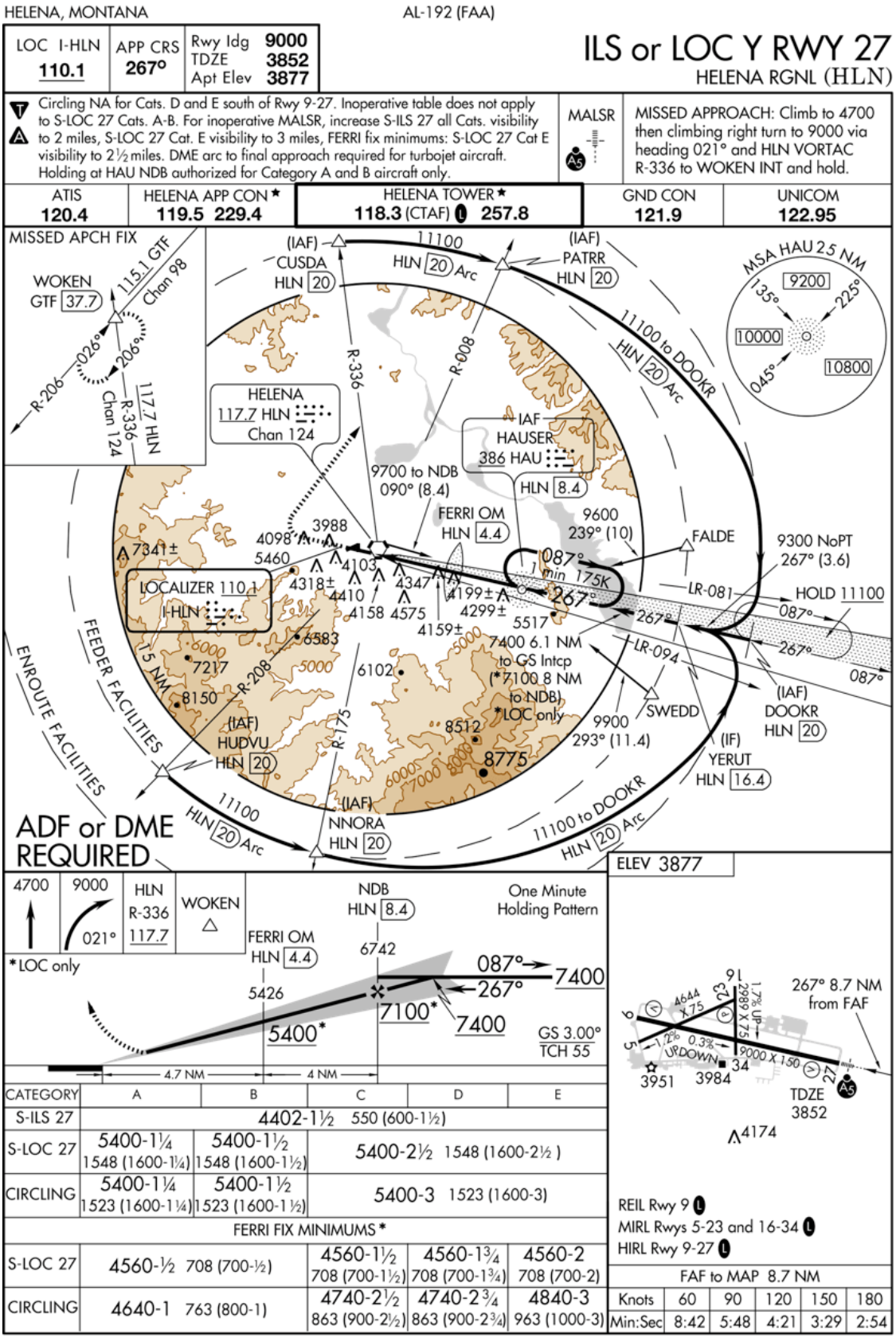


Figure 363. ILS or LOC Y RWY 27 (HLN).

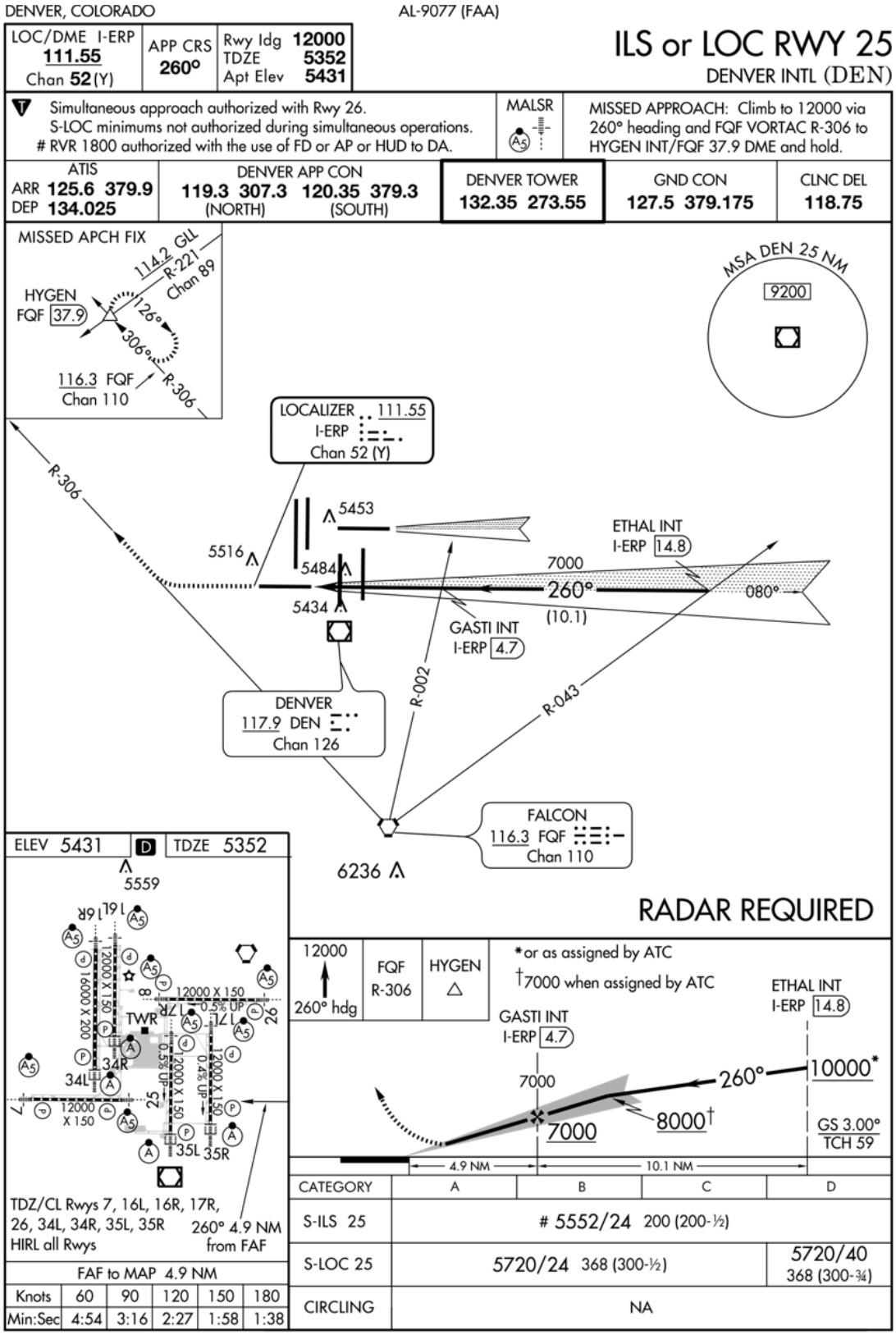


Figure 373. ILS or LOC RWY 25 (DEN).

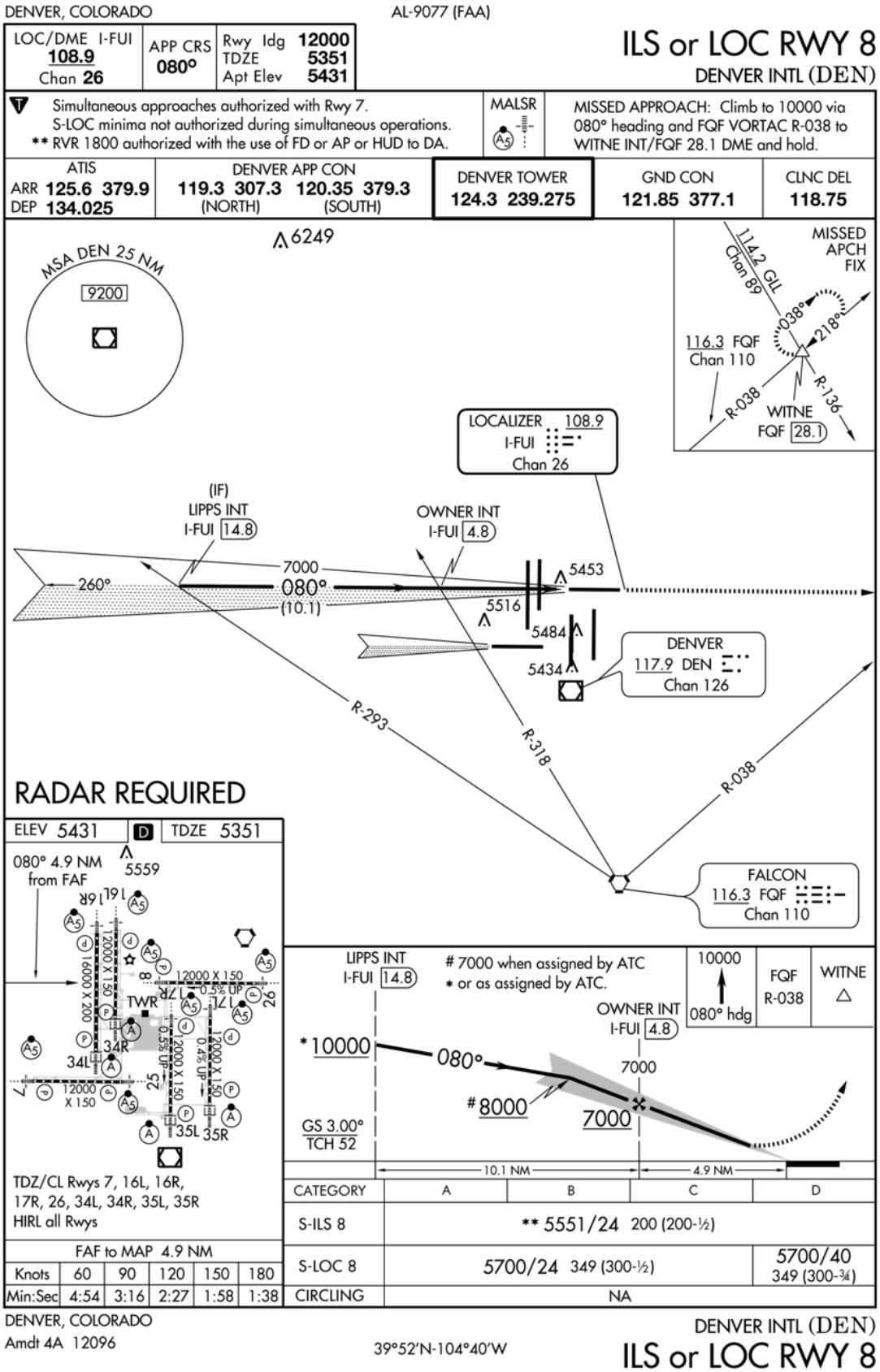


Figure 374. ILS or LOC RWY 8 (DEN).

ALTERNATE MINS

M4

12096

NAME	ALTERNATE MINIMUMS
ROCHESTER, NY	
GREATER ROCHESTER INTL (ROC)	**ILS or LOC Rwy 4[1]**
	ILS or LOC Rwy 22[1]
	ILS or LOC Rwy 28[2]
	RNAV (GPS) Rwy 4[3]
	RNAV (GPS) Rwy 22[3]
	RNAV (GPS) Rwy 25[3]
	RNAV (GPS) Rwy 28[4]
	VOR Rwy 4[3]
	VOR/DME Rwy 4[3]

[1]ILS, Category D, 700-2¼. LOC, Category D, 800-2¼.
[2]ILS, Categories A,B,C, 800-2; Category D, 800-2¼. LOC, Category D, 800-2¼.
[3]Category D, 800-2¼.
[4]Category C, 800-2¼; Category D, 800-2½.

NAME	ALTERNATE MINIMUMS
ROME, NY	
GRIFFISS INTL (RME)	**ILS or LOC Rwy 33[1,2]**
	RNAV (GPS) Rwy 15[3]
	RNAV (GPS) Rwy 33[3]

NA when local weather not available.
[1]NA when control tower closed.
[2]ILS, Categories A, B, 700-2; Category C, 800-2; Category D, 800-2½. LOC, Category D, 800-2½.
[3]Category D, 800-2½.

NAME	ALTERNATE MINIMUMS
SARANAC LAKE, NY	
ADIRONDACK RGNL (SLK)	**VOR/DME Rwy 5[1]**
	VOR or GPS Rwy 9[2]

[1]Category A, 1100-2; Category B, 1200-2; Categories C,D, 1200-3.
[2]Categories A,B, 1400-2; Categories C,D, 1400-3.

NAME	ALTERNATE MINIMUMS
SHIRLEY, NY	
BROOKHAVEN (HWV)	**RNAV (GPS) Rwy 6**
	RNAV (GPS) Rwy 15
	RNAV (GPS) Y Rwy 24
	RNAV (GPS) Z Rwy 24
	RNAV (GPS) Rwy 33
	VOR Rwy 6

NA when local weather not available.

NAME	ALTERNATE MINIMUMS
SUSSEX, NJ	
SUSSEX (FWN)	**RNAV (GPS) Rwy 3[1]**
	VOR-A[2]

NA when local weather not available.
[1]Categories A, B, 900-2; Category C, 900-2½.
[2]Categories A, B, 1400-2; Category C, 1400-3.

NAME	ALTERNATE MINIMUMS
TETERBORO, NJ	
TETERBORO (TEB)	**ILS or LOC Rwy 6[1]**
	ILS RWY 19[1]
	RNAV (GPS) Y Rwy 6[3]
	RNAV (RNP) Z Rwy 6, 800-2¼
	VOR/DME-A[2]
	VOR/DME-B[2]
	VOR/DME Rwy 6[3]
	VOR Rwy 24[4]

[1]ILS, Categories A,B, 800-2; Category C, 800-2¼; Category D, 900-2¾. LOC, Category C, 800-2¼; Category D, 900-2¾.
[2]Categories A,B, 1000-2; Categories C,D, 1000-3.
[3]Category C, 800-2¼; Category D, 900-2¾.
[4]Categories B,C,D, 1000-3.

NAME	ALTERNATE MINIMUMS
TRENTON, NJ	
TRENTON MERCER (TTN)	**ILS Rwy 6**
	NDB or GPS Rwy 6
	VOR or GPS-A
	VOR or GPS Rwy 24

NA when control tower closed.

NAME	ALTERNATE MINIMUMS
WATERTOWN, NY	
WATERTOWN INTL (ART)	**ILS or LOC Rwy 7[1]**
	RNAV (GPS) Rwy 7[2]
	RNAV (GPS) Rwy 10[3]
	RNAV (GPS) Rwy 28[3]
	VOR Rwy 7[2]

[1]ILS, Categories A, B, C, 700-2; Category D 700-2¼. LOC, Category D, 800-2¼.
[2]Category D, 800-2¼.
[3]NA when local weather not available.

NAME	ALTERNATE MINIMUMS
WELLSVILLE, NY	
WELLSVILLE MUNI ARPT,TARANTINE FIELD (ELZ)	**RNAV (GPS) Rwy 10**
	RNAV (GPS) Rwy 28
	VOR-A[1]

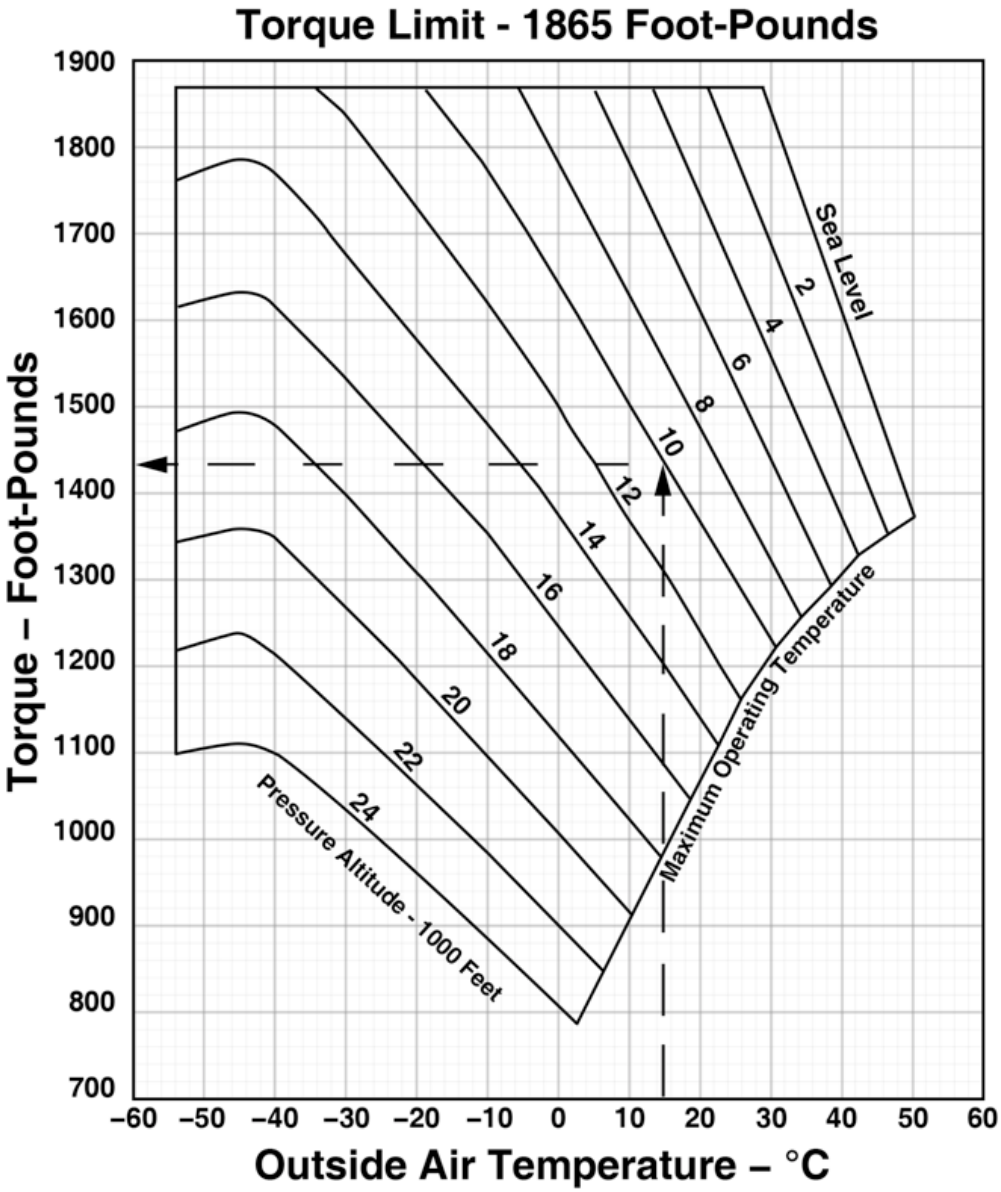
NA when local weather not available.
[1]Categories A,B, 1100-2; Categories C,D, 1100-3.

NAME	ALTERNATE MINIMUMS
WESTHAMPTON BEACH, NY	
FRANCIS S. GABRESKI (FOK)	**ILS or LOC Rwy 24[1]**
	RNAV (GPS) Rwy 24

NA when local weather not available.
[1]NA when control tower closed.
[2]NA when control tower closed.
[3]Category D, 800-2¼.

Figure 388. IFR Alternate Minimums. ©ASA

CONDITIONS:
1900 RPM
V_y KIAS
INERTIAL SEPARATOR **NORMAL**



NOTE
1. Torque on this chart shall be achieved without exceeding 765 °C ITT or 101.6 N_g.

2. With the inertial separator in BYPASS, decrease torque setting by 100 Foot-Pounds.

3. With the cabin heater ON, decrease torque setting by 80 Foot-Pounds.

Figure 393. CE-208—Maximum Engine Torque for Climb. ©ASA

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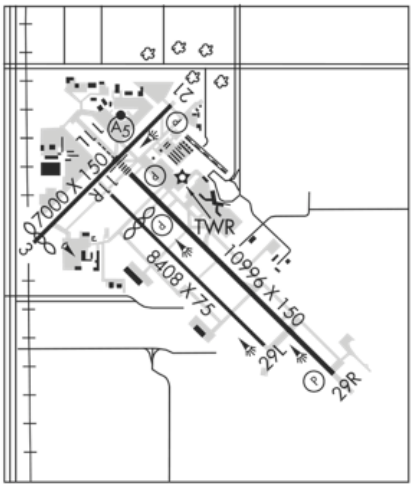
64 **ARIZONA**

TUCSON INTL (TUS) 6 S UTC–7 N32°06.97′ W110°56.46′ **PHOENIX**
2643 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks AOE Class I, ARFF Index C **H–4J, L–5C**
NOTAM FILE TUS **IAP, AD**

RWY 11L–29R: H10996X150 (ASPH–GRVD) S–160, D–200, 2S–175, 2D–350, 2D/2D2–585 HIRL
RWY 11L: MALSR. PAPI(P4L)—GA 3.0° TCH 55′. 0.7% up..
RWY 29R: REIL. PAPI(P4L)—GA 3.0° TCH 76′. Ground. 0.5% down..
RWY 11R–29L: H8408X75 (ASPH) S–120, D–140, 2S–175, 2D–220 MIRL
RWY 11R: PAPI(P4L)—GA 3.0° Thld dsplcd 1410′. Rgt tfc. 0.7% up..
RWY 29L: REIL. Pole. 0.6% down..
RWY 03–21: H7000X150 (ASPH–GRVD) S–105, D–137, 2S–174, 2D–230, 2D/2D2–500 MIRL
RWY 03: Thld dsplcd 841′. Railroad.
RWY 21: REIL. PAPI(P4L)—GA 3.0° TCH 55′. Rgt tfc.

RUNWAY DECLARED DISTANCE INFORMATION
RWY 03: TORA–7000 TODA–7000 ASDA–7000 LDA–6160
RWY 21: TORA–6000 TODA–7000 ASDA–6000 LDA–6000

ARRESTING GEAR/SYSTEM
RWY 03 ← HOOK E5 (403′)
RWY 11L HOOK BAK-12B(B) (1220′ OVRN) BAK-14 BAK-12B(B) (1000′)



BAK-14 BAK-12B(B) (1215′) HOOK BAK-12B(B) (128′ OVRN) **RWY 29L**

AIRPORT REMARKS: Attended continuously. Air carriers use Rwy 11L–29R. Rwy 11R–29L rstd to acft with wing span less than 73′ and ldg speed less than 120 kt. Acft dep Rwy 11R required to attain at least 400′AGL prior to starting turn. No B–747 training except PPR; no flight training 0500–1300Z except PPR, call Flightline Office 520–573–8128. Rwy 11L–29R gross weight limit: DC–10–10 315,000 lbs, DC–10–30/40 400,000 lbs, L–1011–1 325,000 lbs, L–1011–100/200 340,000 lbs. Rwy 03–21 gross weight limit: DC–10–10 300,000 lbs DC–10–30/40 375,000 lbs, L–1011–01 310,000 lbs, L–1011–100/200 315,000 lbs. Helicopter ops located south of Rwy 11R–29L and west of Twy A13. TPA–3443 (800) small acft, 4043 (1400) large/heavy turbojet acft. B–747 acft taxi with inboard engines only. Rwy 11L touchdown runway visual range avbl. Twy T-general aviation twy 30,000 lbs. or less. Portions of Twy D not visible from twr due to hangars. Twy A5 limited to 70,000 lbs or less. REIL Rwy 29L and Rwy 29R dalgt hrs only. Ldg fee. Flight Notification Service (ADCUS) avbl. NOTE: See Special Notices—Glider Operations Northwest of Tucson, Arizona, U.S. Special Customs Requirement.

WEATHER DATA SOURCES: ASOS (520) 889-7236. **HIWAS** 116.0 TUS.LLWAS.

COMMUNICATIONS: ATIS 123.8 520-741-1177 **UNICOM** 122.95
TUCSON RCO 122.2 (PRESCOTT RADIO)
MOUNT LEMMON RCO 122.4 (PRESCOTT RADIO)
Ⓡ**APP/DEP CON** 125.1 (Rwy 11 090°-285°) (Rwy 29 275°-065°) 119.4 (Rwy 11 286°-089°) (Rwy 29 066°-274°)
TOWER 118.3 119.0 **GND CON** 124.4 **CLNC DEL** 126.65

AIRSPACE: CLASS C svc ctc **APP CON**

RADIO AIDS TO NAVIGATION: NOTAM FILE TUS.
(H) VORTACW 116.0 TUS Chan 107 N32°05.71′ W110°54.89′ 301° 1.8 NM to fld. 2672/12E. **HIWAS.**
VORTAC unusable:
050°-080° byd 30 NM blo 13,000′
350°-020° byd 30 NM blo 13,000′
DME unusable:
155°-165° byd 35 NM blo 13,000′
ILS/DME 111.7 I-TUS Chan 54 Rwy 11L. Localizer backcourse unusable byd 15 NM blo 7,200′. Backcourse unusable byd 10° right of course.

VALLE (See GRAND CANYON on page 39)

Figure 348. Excerpt from Chart Supplement. ©ASA

WEIGHT AND BALANCE RECORD (LOAD MANIFEST)

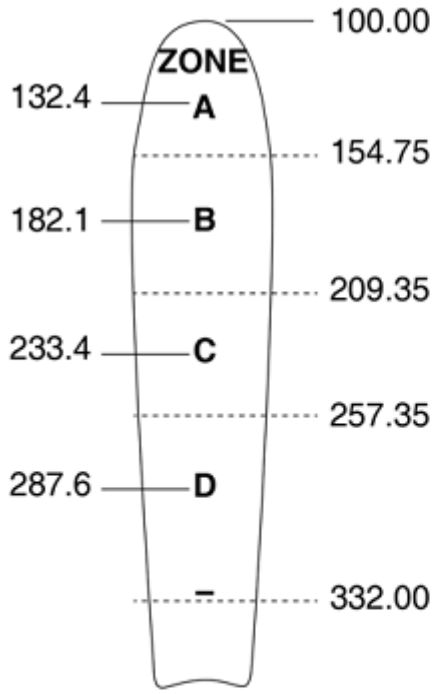
MAXIMUM STRUCTURAL WEIGHTS

MAX RAMP	8785 LBS
MAX TAKEOFF	8750 LBS
MAX LANDING	8500 LBS

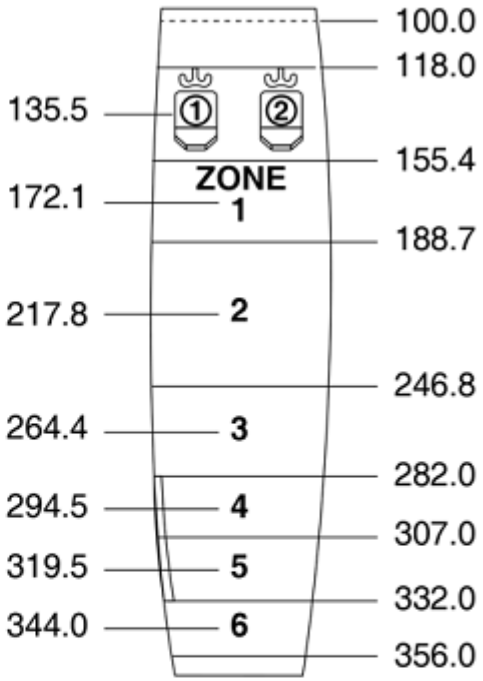
INDEX FORMULA

BASIC AIRPLANE INDEX = $\frac{\text{WT (ARM} - 192)}{500} + 500$
LOAD ITEM INDEX = $\frac{\text{WT (ARM} - 192)}{500}$ = (IF NEG. SUBTRACT FROM 1,000)

CENTROID (C.G. ARM)	POD STATION ARM	CENTROID C.G. ARM	CABIN STATION ARM



CARGO POD



CABIN CARGO

Figure 405. CE-208—Weight and Balance Record (Load Manifest). ©ASA

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CARGO POD

The airplane may be equipped with a 111.5 cubic foot capacity cargo pod attached to the bottom of the fuselage. The pod is divided into four compartments (identified as Zones A, B, C, and D) by bulkheads and has a maximum floor loading of 30 pounds per square foot and maximum load weight limit of 1090 pounds. Each compartment has a loading door located on the left side of the pod. The doors are hinged at the bottom, and each has two latches. When the latch handles are rotated to the horizontal position with the doors closed, the doors are secured. Refer to the Pod Internal Dimension and Load Markings and Cargo Pod Loading Arrangements figures for additional details.

MAXIMUM ZONE/COMPARTMENT LOADINGS

Maximum zone loadings are as follows:

	Weight Limits (Pounds)				
	Zone/ Compartment	Volume (Cubic Feet)	*Secured by Tie-downs	**Unsecured Using Partitions or in Cargo Pod	C.G. (Station Location)
FUSELAGE	1	52.9	1780	415	172.1
	2	109.0	3100	860	217.8
	3	63.0	1900	495	264.4
	4	43.5	1380	340	294.5
	5	40.1	1270	315	319.5
	6	31.5	320	245	344.0
CARGO POD	A	23.4	---	230	132.4
	B	31.5	---	310	182.1
	C	27.8	---	270	233.4
	D	28.8	---	280	287.6

*** THIS IS THE MAXIMUM CARGO ALLOWED IN THE BAY INDICATED.**
****DENSITY MUST BE 7.9 LBS/FT^3 OR LESS AND BAY 75% OR MORE FULL.**

Figure 406. CE-208—Cargo Pod and Maximum Zone/Compartment Loadings. ©ASA

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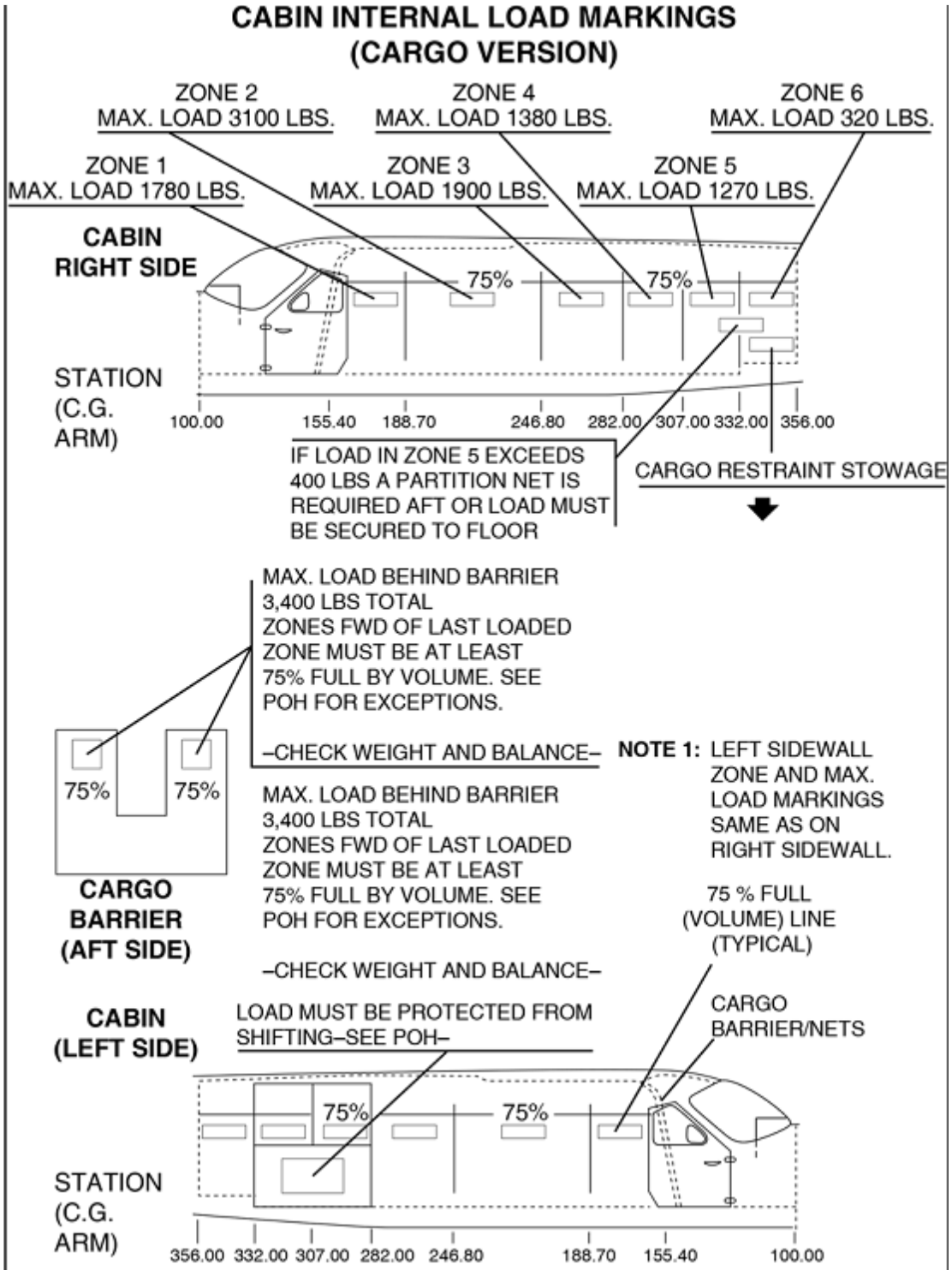

Figure 407. CE-208—Cabin Internal Load Markings (Cargo Version). ©ASA

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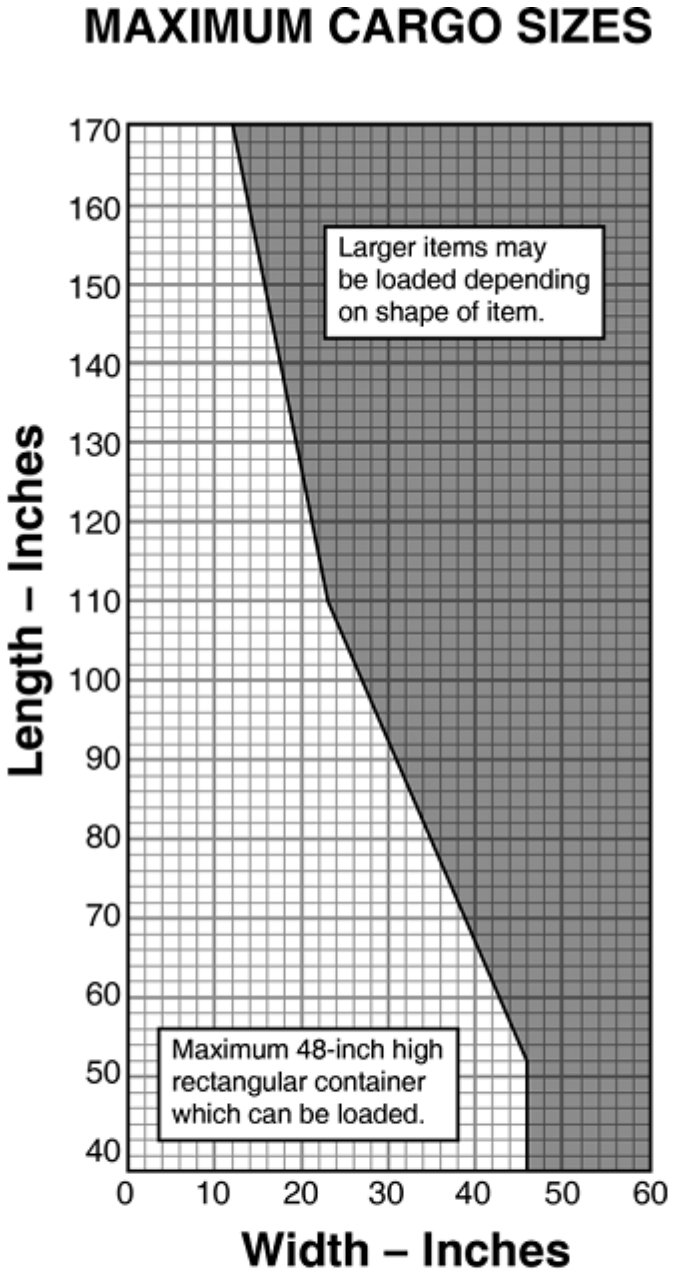

NOTE

1. Approximately one inch clearance allowed from sidewall and ceiling.
2. Subtract roller height and pallet thickness, if applicable.

Figure 408. CE-208—Maximum Cargo Sizes. ©ASA

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CARGO POD INSTALLED
SHORT FIELD LANDING DISTANCE

CONDITIONS:
Flaps **FULL**
Zero Wind
Maximum Braking
PROP RPM Lever **MAX**
Paved, Level, Dry Runway

POWER Lever **IDLE** after clearing obstacles. **BETA** range (lever against spring) after touchdown.

8500 Pounds

Speed at 50 Feet: 78 KIAS

Pressure Altitude (Feet)	-10 °C		0 °C		10 °C	
	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst
Sea Level	835	1625	865	1670	900	1715
2000	900	1715	935	1765	965	1815
4000	965	1815	1005	1865	1040	1920
6000	1040	1920	1080	1975	1120	2030
8000	1125	2035	1165	2095	1210	2155
10000	1215	2160	1260	2220	1305	2285
12000	1310	2295	1360	2360	1410	2430

Pressure Altitude (Feet)	20 °C		30 °C		40 °C	
	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst	Grnd Roll (Feet)	Total Dist To Clear 50 Foot Obst
Sea Level	930	1765	965	1810	995	1855
2000	1000	1860	1035	1910	1070	1960
4000	1075	1970	1115	2020	1150	2070
6000	1160	2085	1200	2140	1240	2195
8000	1250	2210	1295	2270	1340	2330
10000	1350	2345	1400	2410	---	---
12000	1460	2495	1510	2560	---	---

Figure 409. CE-208—Weight and Moment Tables—Pilot and Front Passenger. ©ASA

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WEIGHT AND MOMENT TABLES
10 PLACE COMMUTER
Crew and Passengers (Single Commuter Seating)

Weight (Pounds)	Pilot/Front Passenger Seats 1 and 2 (Arm = 135.5 Inch)	Aft Passengers Seats			
		3 and 4 (Arm = 173.9 Inch)	5 and 6 (Arm = 209.9 Inch)	7 and 8 (Arm = 245.9 Inch)	9 and 10 (Arm = 281.9 Inch)
	Moment (Inch-Pound/1000)				
1	0.1	0.2	0.2	0.2	0.3
2	0.3	0.3	0.4	0.5	0.6
3	0.4	0.5	0.6	0.7	0.8
4	0.5	0.7	0.8	1.0	1.1
5	0.7	0.9	1.0	1.2	1.4
6	0.8	1.0	1.3	1.5	1.7
7	0.9	1.2	1.5	1.7	2.0
8	1.1	1.4	1.7	2.0	2.3
9	1.2	1.6	1.9	2.2	2.5
10	1.4	1.7	2.1	2.5	2.8
20	2.7	3.5	4.2	4.9	5.6
30	4.1	5.2	6.3	7.4	8.5
40	5.4	7.0	8.4	9.8	11.3
50	6.8	8.7	10.5	12.3	14.1
60	8.1	10.4	12.6	14.8	16.9
70	9.5	12.2	14.7	17.2	19.7
80	10.8	13.9	16.8	19.7	22.6
90	12.2	15.7	18.9	22.1	25.4
100	13.6	17.4	21.0	24.6	28.2
200	27.1	34.8	42.0	49.2	56.4
300	40.7	52.2	63.0	73.8	84.6

EXAMPLE:
To obtain moments for a 185 pound passenger in seat 5, add moments shown for 100 pounds (21.0), 80 pounds (16.8), and 5 pounds (1.0) for a total moment of 38.8 inch-pound/1000.

NOTE:
The airplane may be configured with left single commuter seats installed on the right side, and right single commuter seats installed on the left side. Actual seat location should be noted when computing airplane weight and balance.

Figure 410. CE-208—Weight and Moment Tables—10 Place Commuters. ©ASA

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WEIGHT AND MOMENT TABLES

FUEL (JET FUEL WITH DENSITY OF 6.7 POUNDS/GALLON AT 60 °F)

Gallons	Weight Pounds	Moment Inch-Pound/1000 (Arm Varies)	Gallons	Weight Pounds	Moment Inch-Pound/1000 (Arm Varies)
5	34	6.8	175	1173	238.4
10	67	13.6	180	1206	245.2
15	101	20.4	185	1240	252.0
20	134	27.2	190	1273	258.8
25	168	34.0	195	1307	265.7
30	201	40.8	200	1340	272.5
35	235	47.6	205	1374	279.3
40	268	54.4	210	1407	286.1
45	302	61.2	215	1441	292.9
50	335	68.0	220	1474	299.7
55	369	74.8	225	1508	306.5
60	402	81.6	230	1541	313.3
65	436	88.4	235	1575	320.1
70	469	95.2	240	1608	326.9
75	503	102.0	245	1642	333.7
80	536	108.8	250	1675	340.5
85	570	115.7	255	1709	347.3
90	603	122.5	260	1742	354.1
95	637	129.3	265	1776	360.9
100	670	136.1	270	1809	367.7
105	704	142.9	275	1843	374.5
110	737	149.7	280	1876	381.2
115	771	156.6	285	1910	388.0
120	804	163.4	290	1943	394.8
125	838	170.2	295	1977	401.6
130	871	177.0	300	2010	408.4
135	905	183.8	305	2044	415.2
140	938	190.6	310	2077	422.0
145	972	197.5	315	2111	428.8
150	1005	204.3	320	2144	435.6
155	1039	211.1	325	2178	442.4
160	1072	217.9	327	2189	444.7
165	1106	224.7	330	2211	449.1
170	1139	231.5	332	2224	451.7

Figure 411. CE-208—Weight and Moment Tables—Fuel. ©ASA

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WEIGHT AND MOMENT TABLES
CARGO (CABIN LOCATIONS)

Weight (Pounds)	Zone 1 (Arm = 172.1 Inch)	Zone 2 (Arm = 217.8 Inch)	Zone 3 (Arm = 264.4 Inch)	Zone 4 (Arm = 294.5 Inch)	Zone 5 (Arm = 319.5 Inch)	Zone 6 (Arm = 344.0 Inch)
	Moment (Inch-Pound/1000)					
1	0.2	0.2	0.3	0.3	0.3	0.3
2	0.3	0.4	0.5	0.6	0.6	0.7
3	0.5	0.7	0.8	0.9	1.0	1.0
4	0.7	0.9	1.1	1.2	1.3	1.4
5	0.9	1.1	1.3	1.5	1.6	1.7
6	1.0	1.3	1.6	1.8	1.9	2.1
7	1.2	1.5	1.9	2.1	2.2	2.4
8	1.4	1.7	2.1	2.4	2.6	2.8
9	1.5	2.0	2.4	2.7	2.9	3.1
10	1.7	2.2	2.6	2.9	3.2	3.4
20	3.4	4.4	5.3	5.9	6.4	6.9
30	5.2	6.5	7.9	8.8	9.6	10.3
40	6.9	8.7	10.6	11.8	12.8	13.8
50	8.6	10.9	13.2	14.7	16.0	17.2
60	10.3	13.1	15.9	17.7	19.2	20.6
70	12.0	15.2	18.5	20.6	22.4	24.1
80	13.8	17.4	21.2	23.6	25.6	27.5
90	15.5	19.6	23.8	26.5	28.8	31.0
100	17.2	21.8	26.4	29.5	32.0	34.4
200	34.4	43.6	52.9	58.9	63.9	68.8
300	51.6	65.3	79.3	88.4	95.9	103.2
400	68.8	87.1	105.8	117.8	127.8	
500	86.1	108.9	132.2	147.3	159.8	
600	103.3	130.7	158.6	176.7	191.7	
700	120.5	152.5	185.1	206.2	223.7	
800	137.7	174.2	211.5	235.6	255.6	
900	154.9	196.0	238.0	265.1	287.6	
1000	172.1	217.8	264.4	294.5	319.5	
2000		435.6				
3000		653.4				

EXAMPLE:
To obtain moments for 350 pounds of cargo in Zone 1, add moments shown in Zone 1 for 300 pounds (51.6) and 50 pounds (8.6) for a total moment of 60.2 inch-pound/1000.

Figure 412. CE-208—Weight and Moment Tables—Cargo (Cabin Locations). ©ASA
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WEIGHT AND MOMENT TABLES

CARGO (CARGO POD LOCATIONS)

Weight Pounds	Zone A (Arm = 132.4 Inch)	Zone B (Arm = 182.1 Inch)	Zone C (Arm = 233.4 Inch)	Zone D (Arm = 287.6 Inch)
	Moment (Inch-Pound/1000)			
1	0.1	0.2	0.2	0.3
2	0.3	0.4	0.5	0.6
3	0.4	0.5	0.7	0.9
4	0.5	0.7	0.9	1.2
5	0.7	0.9	1.2	1.4
6	0.8	1.1	1.4	1.7
7	0.9	1.3	1.6	2.0
8	1.1	1.5	1.9	2.3
9	1.2	1.6	2.1	2.6
10	1.3	1.8	2.3	2.9
20	2.6	3.6	4.7	5.8
30	4.0	5.5	7.0	8.6
40	5.3	7.3	9.3	11.5
50	6.6	9.1	11.7	14.4
60	7.9	10.9	14.0	17.3
70	9.3	12.7	16.3	20.1
80	10.6	14.6	18.7	23.0
90	11.9	16.4	21.0	25.9
100	13.2	18.2	23.3	28.8
200	26.5	36.4	46.7	57.5
300		54.6		

EXAMPLE:

To obtain moments for 48 pounds of cargo in Zone A, add moments shown in Zone A for 40 pounds (5.3) and 8 pounds (1.1) for a total moment of 6.4 inch-pound/1000.

Figure 413. CE-208—Weight and Moment Tables—Cargo (Cargo POD Locations). ©ASA

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SAMPLE LOADING PROBLEM

(CARGO LOADING SHOWN)	SAMPLE AIRPLANE		YOUR AIRPLANE	
	Weight Pounds	Moment Inch-Pound/1000	Weight Pounds	Moment Inch-Pound/1000
1. Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped (includes unusable fuel and full oil).	5005	929.4	5005	929.4
2. Usable Fuel (332 Gallons Max)	2224	451.7		
3. Pilot (Seat 1) (STA. 133.5 to 146.5)	170	23.1	200	
4. Front Passenger (Seat 2) (STA 133.5 to 146.5)				
5. Aft Passengers (Commuter Seating):				
STA. 173.9				
STA. 209.9				
STA. 245.9				
STA. 281.9				
6. Baggage/Cargo (Cabin Locations):				
Zone 1 (STA. 155.40 to 188.70)	120	20.6		
Zone 2 (STA. 188.70 to 246.80)	416	90.6		
Zone 3 (STA. 246.80 to 282.00)	200	52.9		
Zone 4 (STA. 282.00 to 307.00)	200	58.9		
Zone 5 (STA. 307.00 to 332.00)	200	63.9		
Zone 6 (STA. 332.00 to 356.00)	50	17.2		
7. Baggage/Cargo (Cargo Pod Locations):				
Zone A (STA. 100.00 to 154.75)	50	6.6		
Zone B (STA. 154.75 to 209.35)	50	9.1		
Zone C (STA. 209.35 to 257.35)	50	11.7		
Zone D (STA. 257.35 to 332.00)	50	14.4		
8. **RAMP WEIGHT AND MOMENT**	8785	1750.1		
9. Fuel Allowance (for engine start, taxi, and runup)	–35	–7.0		
10. **TO WEIGHT AND MOMENT** (Subtract Step 9 from Step 8)	8750	1743.1		

11. Locate this point (8750 at 1743.1) on the Center of Gravity Moment Envelope, and since this point falls within the envelope, the loading is acceptable.

NOTE:

Refer to the Weight and Moment Tables for weight and moment of crew, passengers, usable fuel, and cargo being carried. Refer to Cabin Internal Loading Arrangements for aft passengers seating arrangements.

Figure 414. CE-208—Sample Loading Problem. ©ASA

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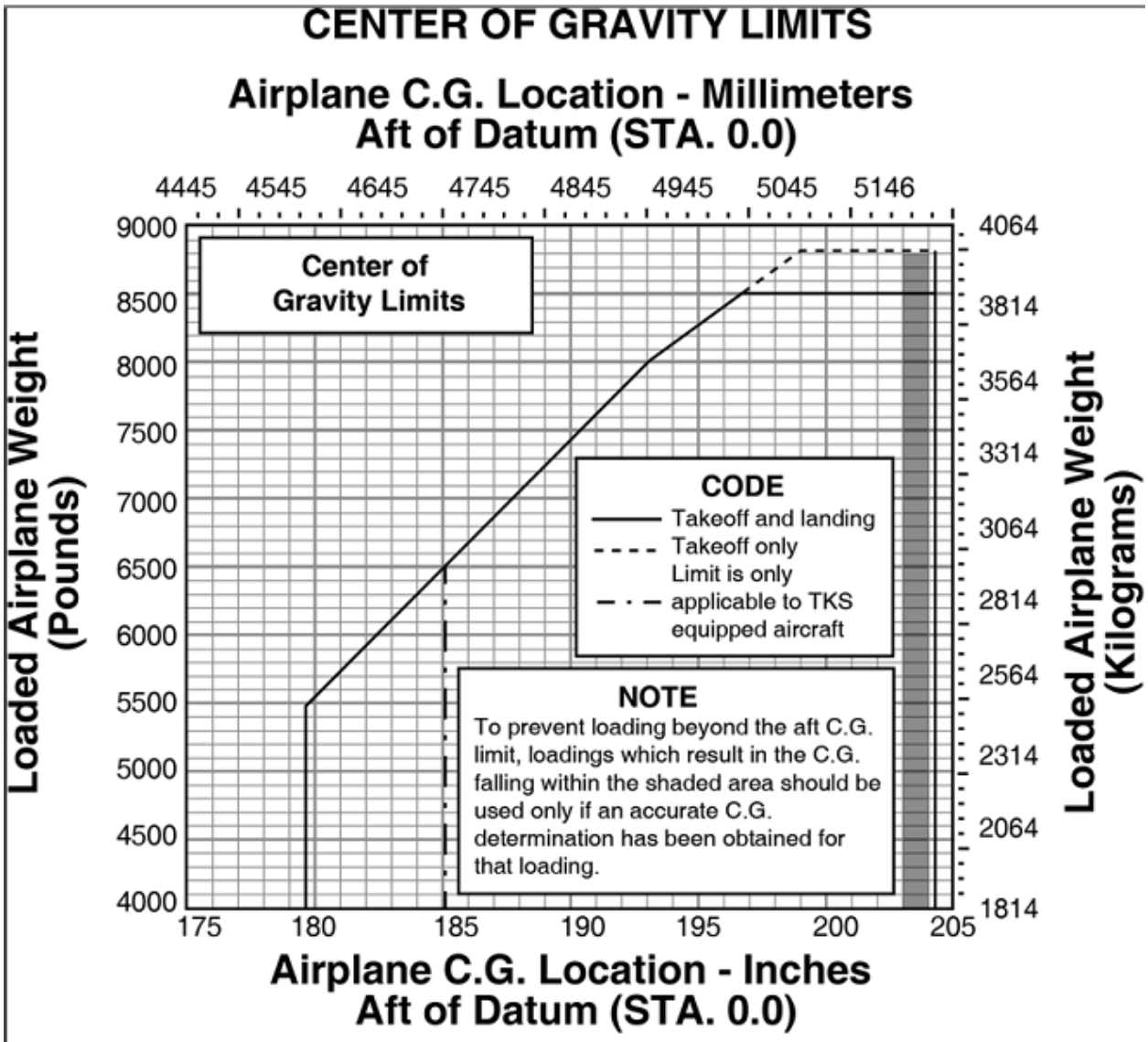

WARNING

It is the responsibility of the pilot to make sure that the airplane is loaded correctly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

Figure 415. CE-208—Center of Gravity Limits. ©ASA

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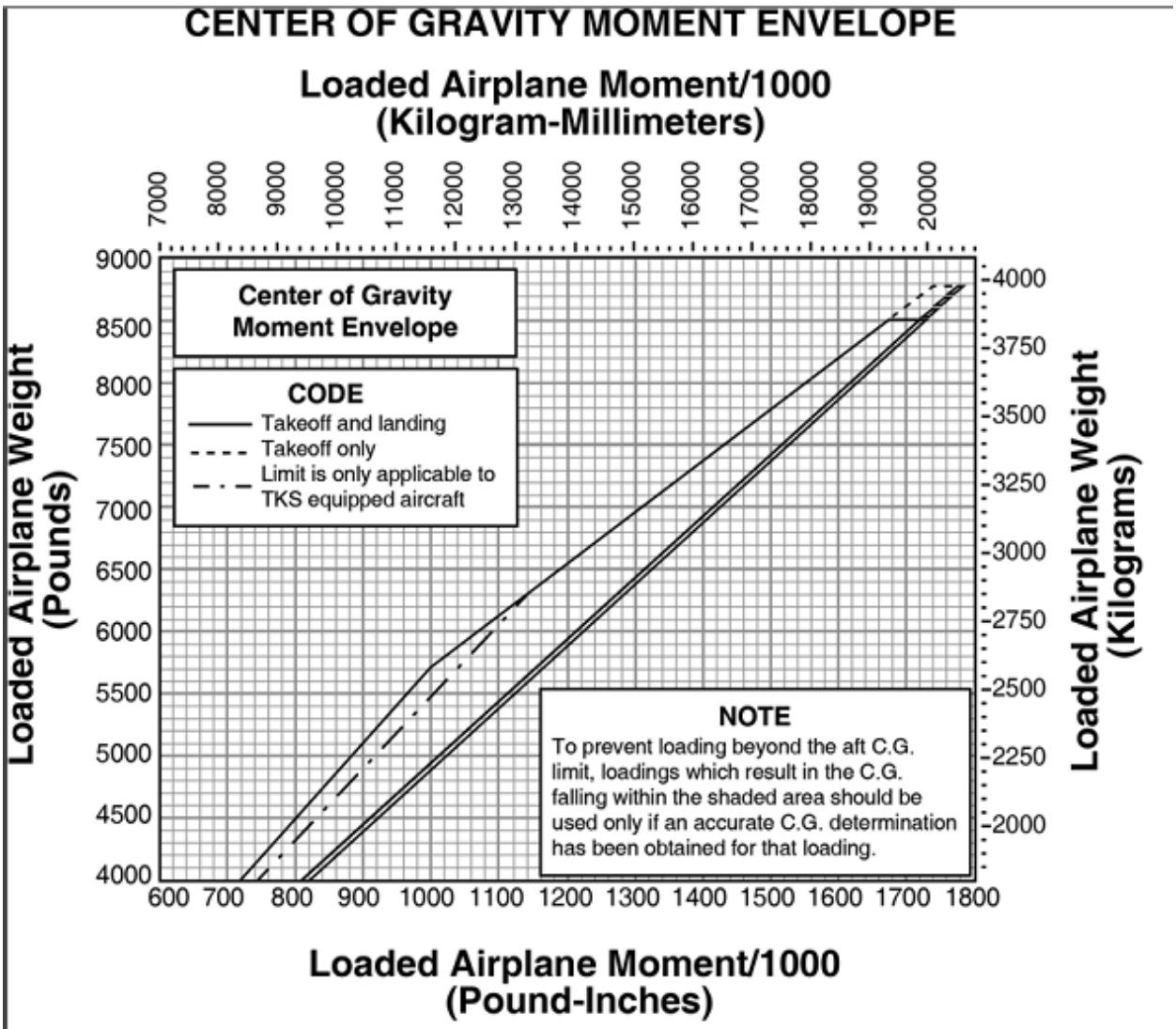

WARNING

Because loading personnel may not always be able to achieve an ideal loading, a means of protecting the C.G envelope is provided by supplying an aft C.G. location warning (shaded area) between 38.33% MAC and the maximum aft C.G. of 40.33% MAC on the center of gravity moment envelope. Points falling within this shaded area should be used only if accurate C.G. determination for cargo loadings can be obtained.

It is the responsibility of the pilot to make sure that the airplane is loaded correctly. Operation outside of prescribed weight and balance limitations could result in an accident and serious or fatal injury.

Figure 416. CE-208—Center of Gravity Moment Envelope. ©ASA

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1. INTRODUCTION

Observance of the limitations included in this chapter is mandatory.

2. KINDS OF AIRPLANE OPERATION

The airplane is certified in the transport category for day and night operations, in the following conditions when the equipment and instruments required by the airworthiness and operating regulations are approved, installed, and in an operable condition:

- VFR and IFR
- Flight in icing conditions

The airplane is certified for ditching when the safety equipment specified by the applicable regulations is installed.

The airplane is certified capable of RVSM operations in accordance with the FAA "Interim guidance material on the approval of operations/aircraft for RVSM operations," 91-RVSM, dated June 30, 1999 and with the JAA Temporary Guidance Leaflet, TGL No. 6, Revision 1, RVSM. <1030>

NOTE

Compliance with these FAA and JAA standards does not constitute an operational approval. <1030>

RVSM operations must not be commenced or continued unless all of the required equipment specified in the RVSM Required Equipment List table is operational. <1030>

RVSM Required Equipment List <1030>	
Equipment	**Requirements for RVSM**
Autopilot	Must be operational.
Altitude Alerting System	Must be operational.
Altitude Reporting Transponder (2)	One (1) must be operational.
Air Data Computers (2)	Two (2) must be operational.

Effectivity:

- On airplanes registered in the Republic of Argentina:
  - The Necessary equipment for the different kinds of operations must comply with the applicable Argentinean regulation. <DNA>

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Figure 417. CRJ 900—Limitations. ©ASA

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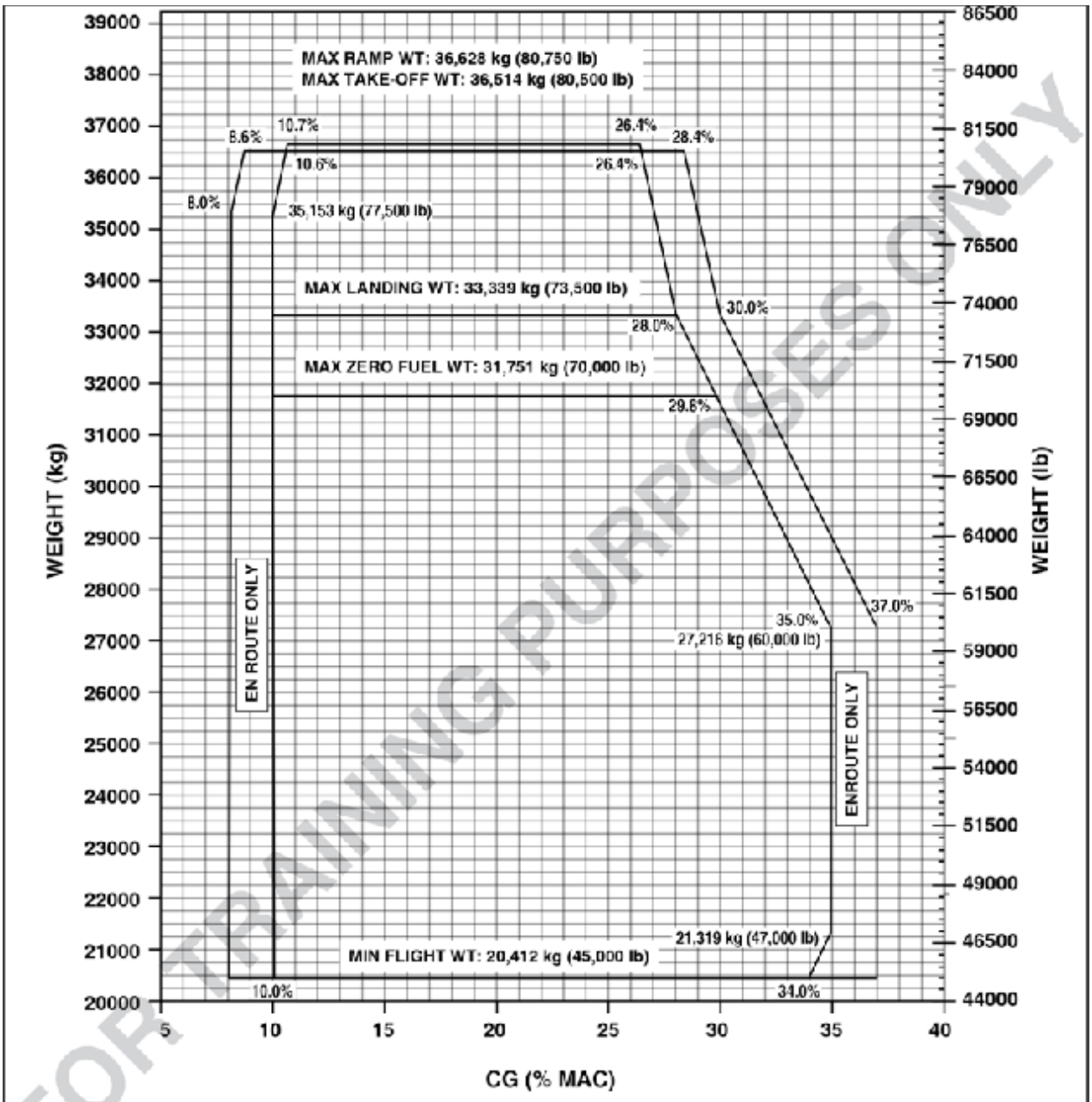

Figure 419. CRJ 900—Center of Gravity Limits. ©ASA

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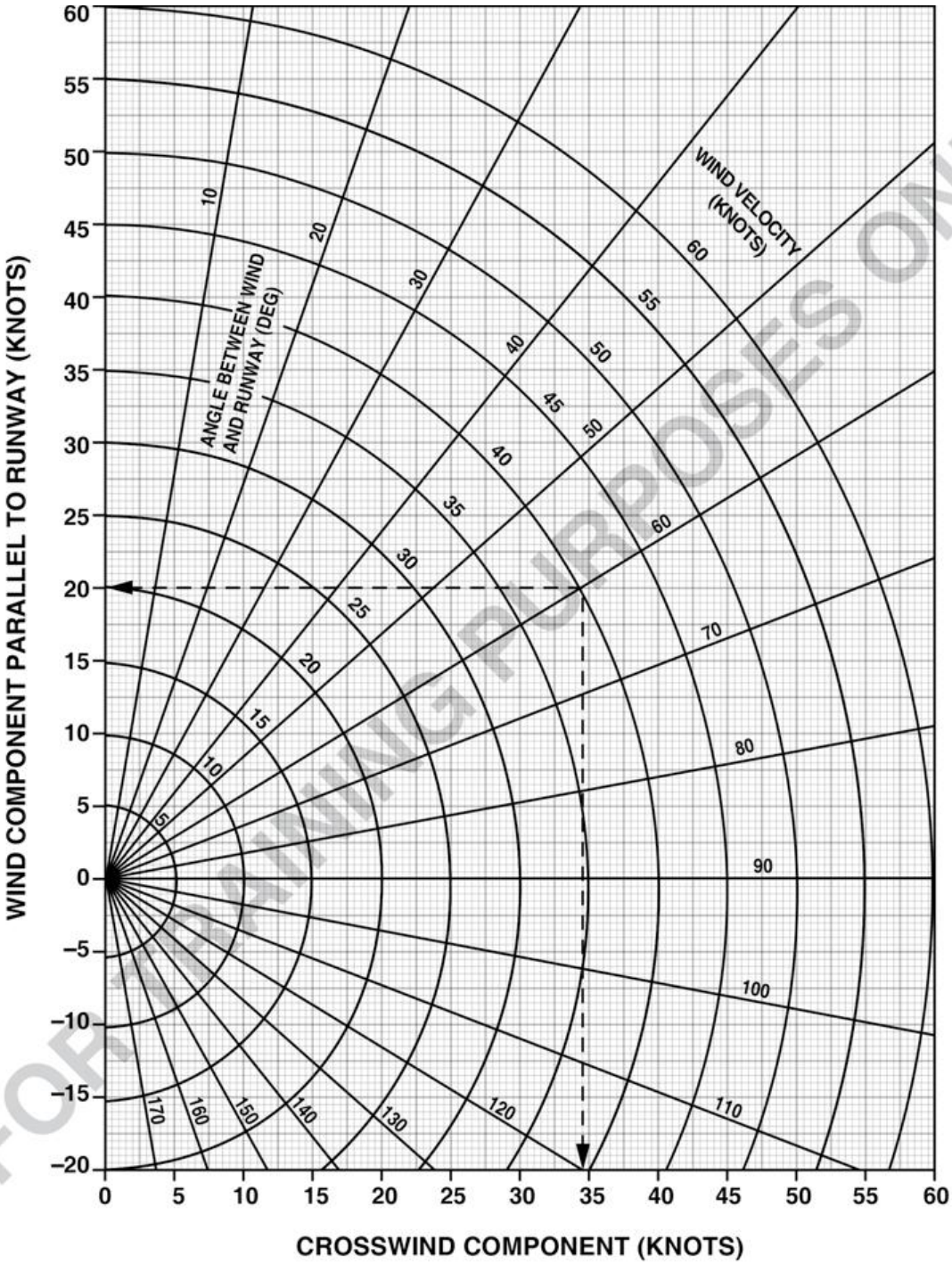

Figure 421. CRJ 900—Performance—Wind Component. ©ASA

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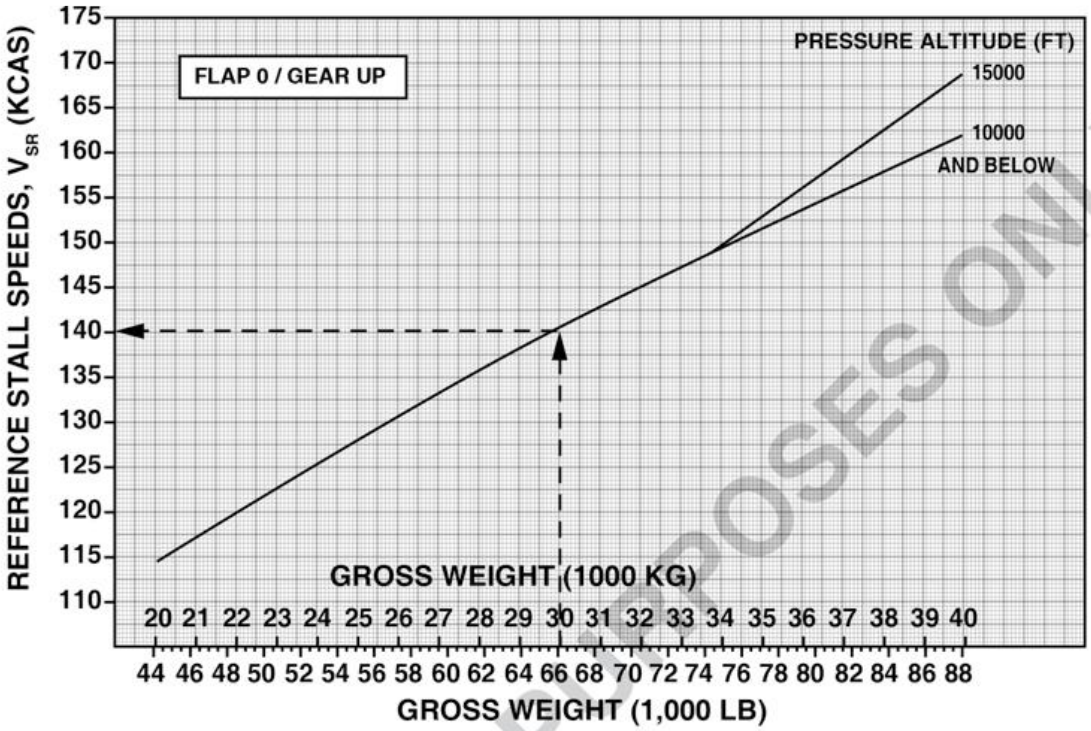

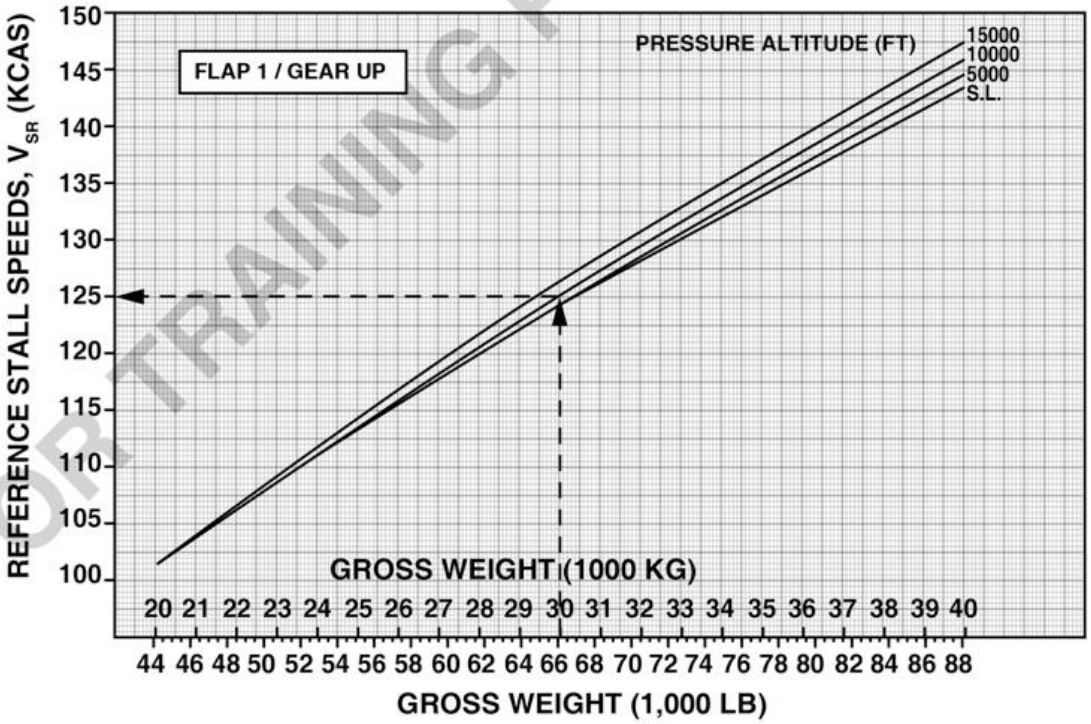

Figure 422. CRJ 900—Performance—Stall Speeds, V_{SR}. ©ASA

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OAT		PRESSURE ALTITUDE (Feet)									
(°C)	(°F)	–1,000	0	2000	4000	6000	8000	10000	12000	14000	16000
–45	–49								85.1	86.0	85.8
–40	–40	80.0	81.1	81.8	82.8	83.6	84.3	85.2	86.0	86.8	86.6
–35	–31	80.8	81.9	82.7	83.6	84.5	85.2	86.0	86.8	87.7	87.4
–30	–22	81.6	82.7	83.5	84.4	85.3	86.0	86.8	87.6	88.5	88.3
–25	–13	82.4	83.5	84.3	85.2	86.1	86.8	87.6	88.4	89.3	89.1
–20	–4	83.2	84.3	85.1	86.0	86.9	87.6	88.4	89.2	90.1	89.9
–15	5	84.0	85.1	85.9	86.8	87.7	88.4	89.2	90.0	90.9	90.7
–10	14	84.7	85.9	86.7	87.6	88.5	89.2	90.0	90.8	91.7	91.5
–5	23	85.5	86.7	87.5	88.4	89.3	90.0	90.8	91.6	92.4	92.0
0	32	86.3	87.4	88.2	89.2	90.1	90.8	91.6	92.4	93.2	92.1
5	41	87.0	88.2	89.0	90.0	90.8	91.6	92.4	93.2	93.6	91.8
10	50	87.8	88.9	89.8	90.7	91.6	92.3	93.1	93.3	93.2	91.2
15	59	88.5	89.7	90.5	91.5	92.4	92.9	93.0	92.9	92.7	90.6
20	68	89.2	90.4	91.3	92.2	92.7	92.6	92.4	92.4	92.3	90.2
25	77	90.0	91.2	92.0	92.3	92.2	92.1	92.0	91.9	91.7	90.1
30	86	90.7	91.9	91.8	91.7	91.6	91.5	91.4	91.3	91.2	
35	95	90.4	90.9	90.9	91.0	90.9	90.8	90.7	90.6		
40	104	89.3	89.8	89.9	89.9	89.9	90.1				
45	113	88.1	88.6	88.6	88.7	88.9					
50	122	86.8	87.3	87.3	87.4						

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Figure 428. CRJ 900—Thrust Settings—Normal Takeoff Thrust Setting (All Engines Operating), %N_1 Engine Bleeds Closed—Static to 65 KIAS. ©ASA

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OAT		PRESSURE ALTITUDE (Feet)									
(°C)	(°F)	–1000	0	2000	4000	6000	8000	10000	12000	14000	16000
–45	–49								84.2	85.0	84.9
–40	–40	79.4	80.5	81.2	82.1	82.9	83.6	84.3	85.1	85.8	85.7
–35	–31	80.2	81.3	82.1	83.0	83.7	84.4	85.1	85.9	86.6	86.5
–30	–22	81.0	82.1	82.9	83.8	84.6	85.2	86.0	86.7	87.4	87.3
–25	–13	81.8	82.9	83.7	84.6	85.4	86.0	86.8	87.5	88.2	88.1
–20	–4	82.6	83.7	84.5	85.4	86.2	86.8	87.6	88.3	89.0	88.9
–15	5	83.4	84.5	85.3	86.2	87.0	87.6	88.3	89.1	89.8	89.7
–10	14	84.1	85.3	86.0	87.0	87.7	88.4	89.1	89.8	90.6	90.5
–5	23	84.9	86.0	86.8	87.7	88.5	89.1	89.9	90.6	91.3	91.1
0	32	85.6	86.8	87.6	88.5	89.3	89.9	90.6	91.3	92.0	90.9
5	41	86.4	87.5	88.3	89.2	90.0	90.7	91.4	91.9	92.0	90.3
10	50	87.1	88.3	89.1	90.0	90.8	91.4	91.8	91.8	91.4	89.7

FOR TRAINING PURPOSES ONLY

Figure 429. CRJ 900—Thrust Settings—Normal Takeoff Thrust Setting (All Engines Operating), %N_1 Cowl Anti-ice On, PACK On—Static to 65 KIAS. ©ASA

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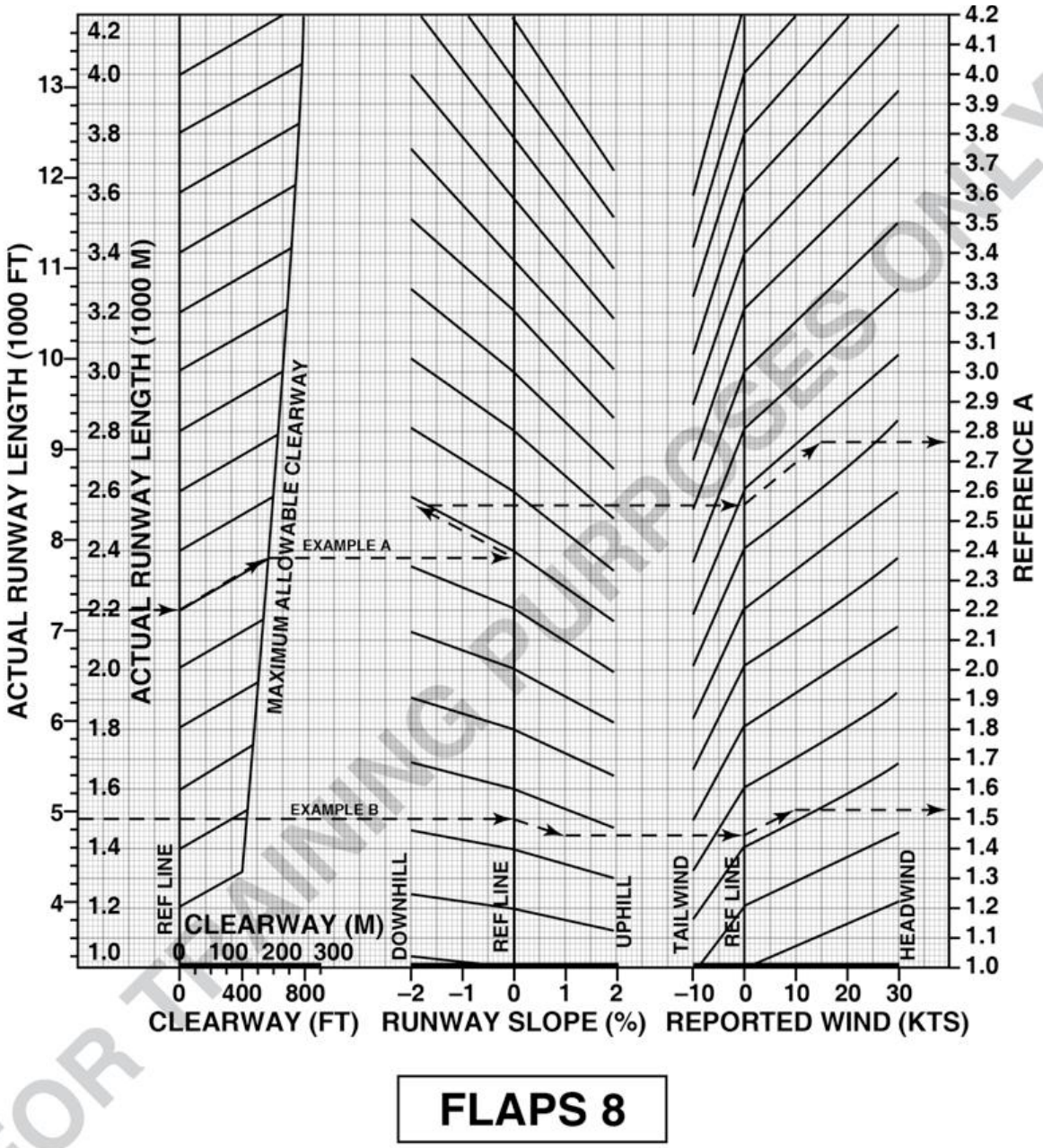

FOR TRAINING PURPOSES ONLY

Figure 438. CRJ 900—Takeoff Performance—Takeoff Weight Limited by Field Length Requirements—All Engines Operating, FLAPS 8 ©ASA

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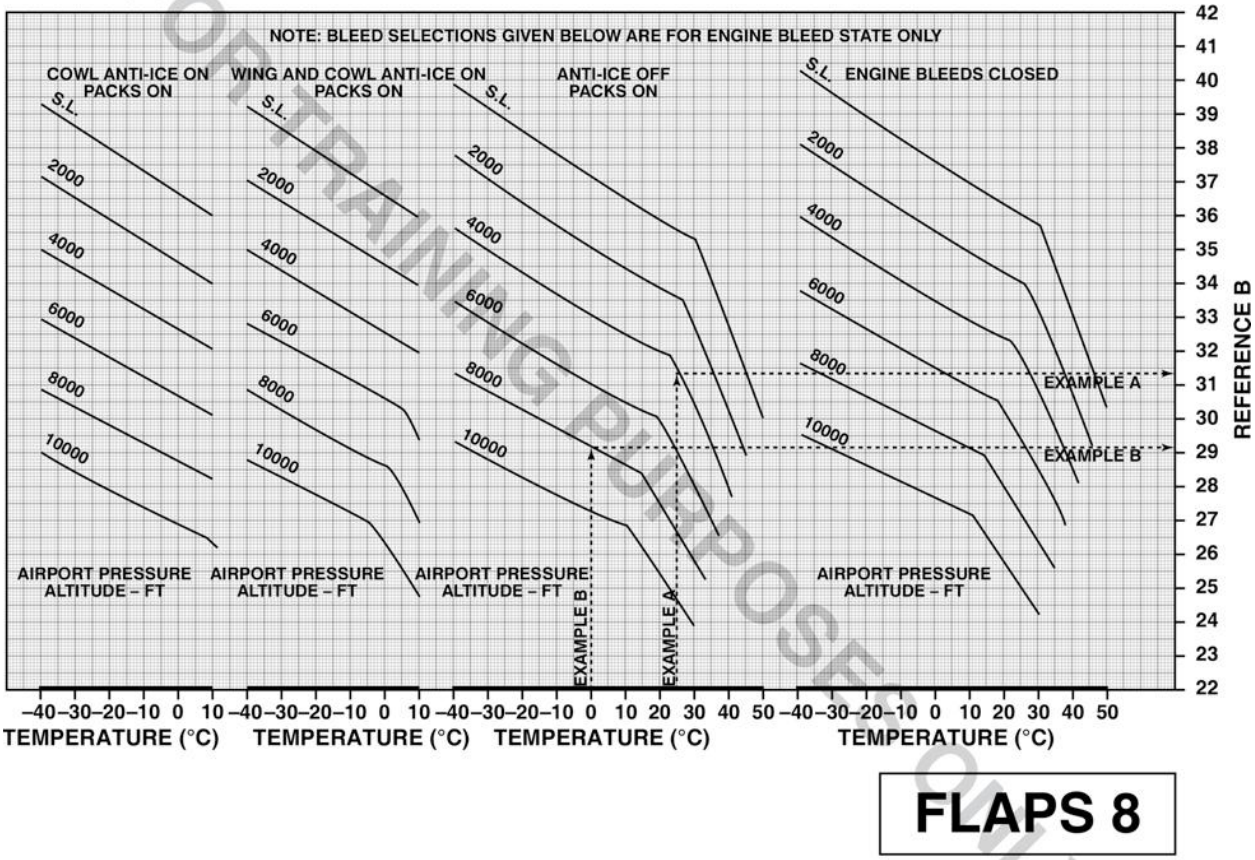

Figure 439. CRJ 900—Takeoff Performance—Takeoff Weight Limited by Field Length Requirements—All Engines Operating, FLAPS 8 ©ASA

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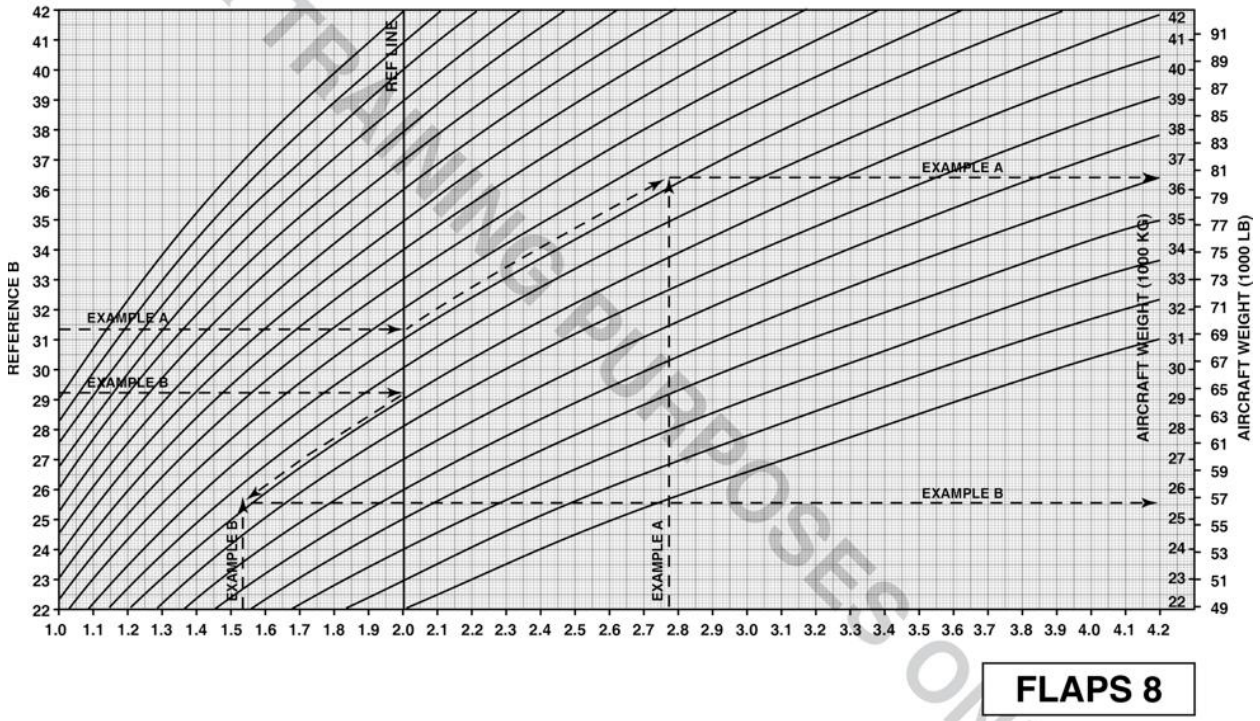

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Figure 440. CRJ 900—Takeoff Performance—Takeoff Weight Limited by Field Length Requirements—All Engines Operating, FLAPS 8 ©ASA

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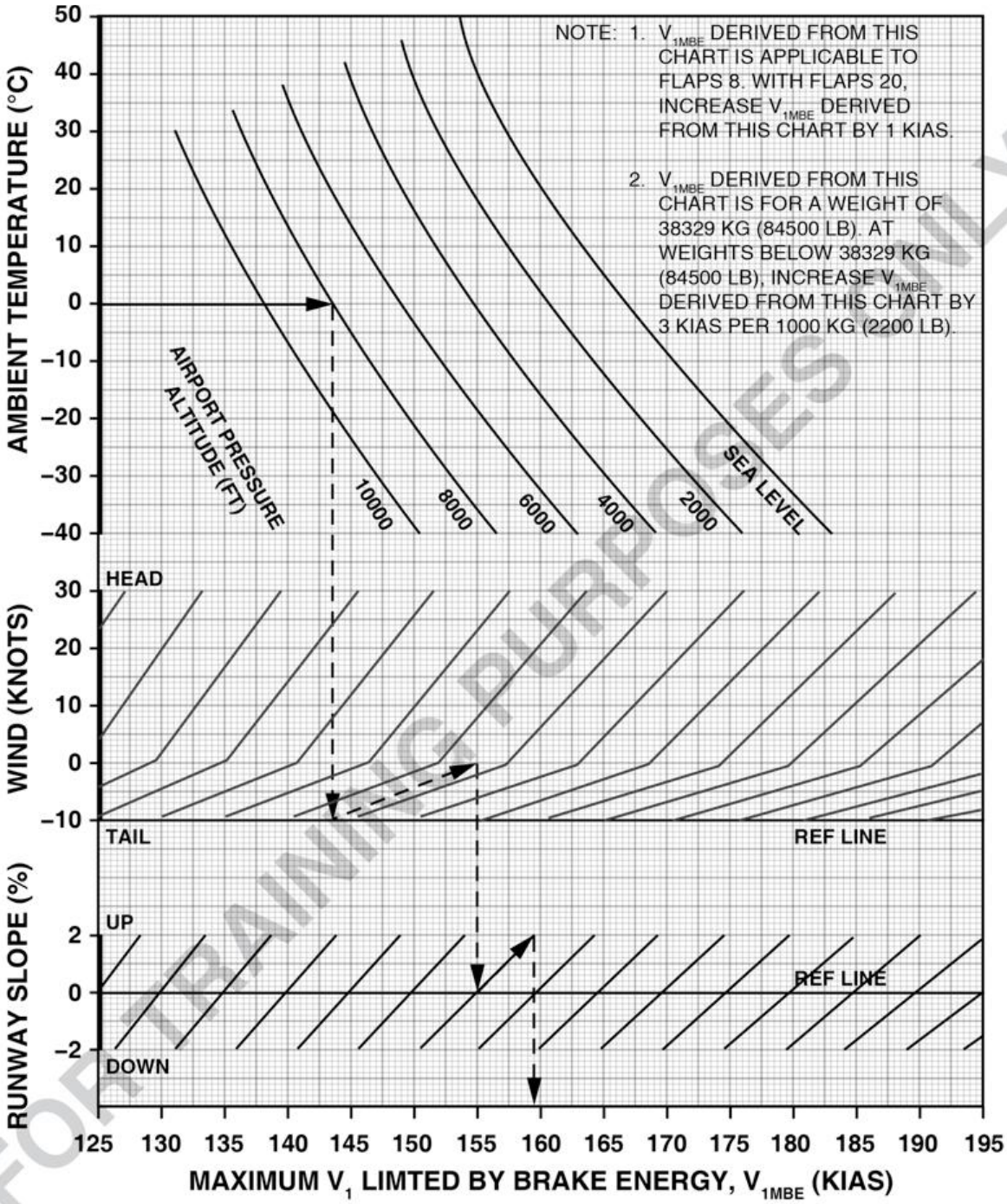

FLAPS 8

Figure 450. CRJ 900—Takeoff Performance—Maximum V_1 Limited by Brake Energy (V_{1MBE})— FLAPS 8. ©ASA

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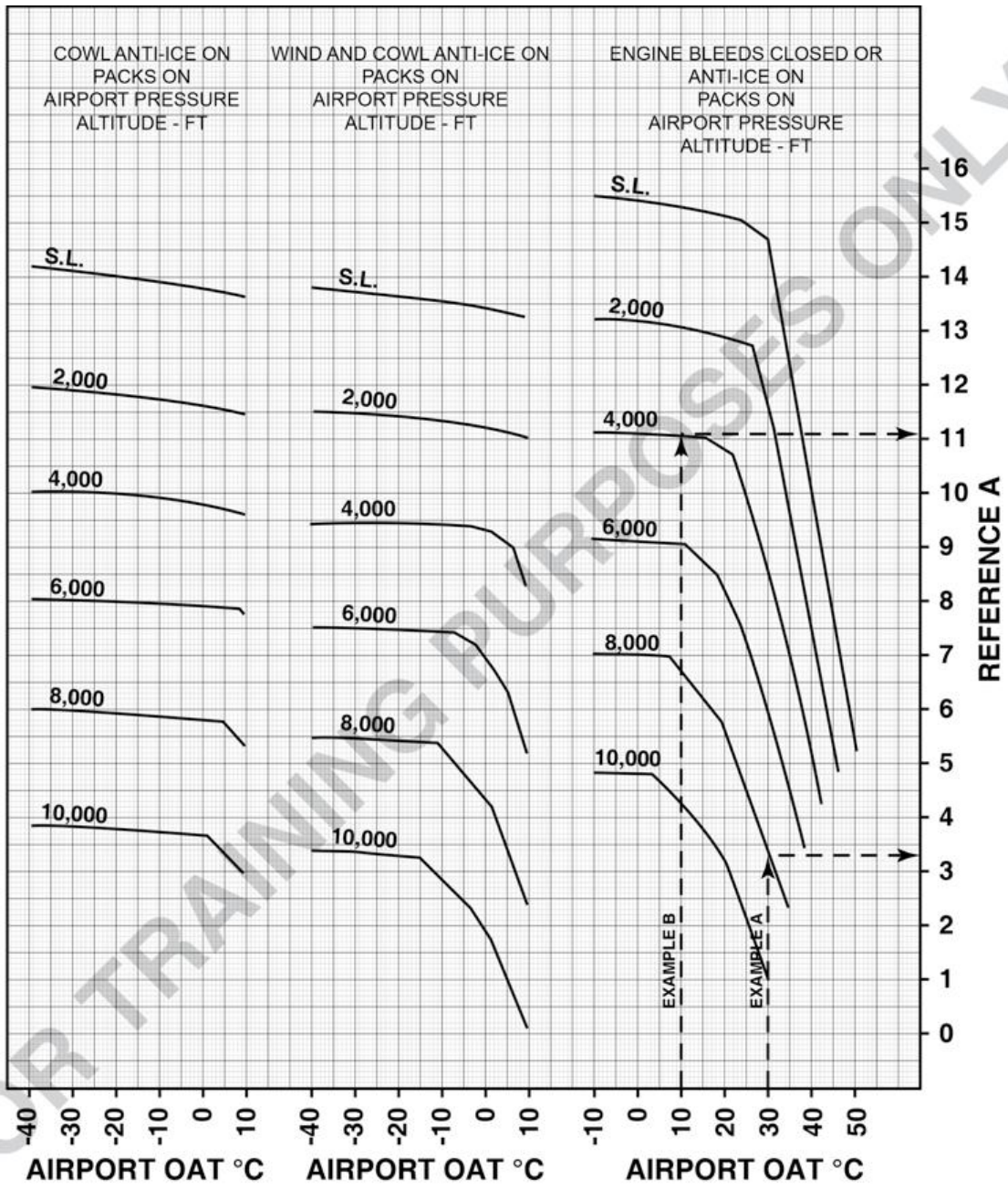

FLAPS 8

Figure 451. CRJ 900—Takeoff Performance—Takeoff Speeds—FLAPS 8. ©ASA

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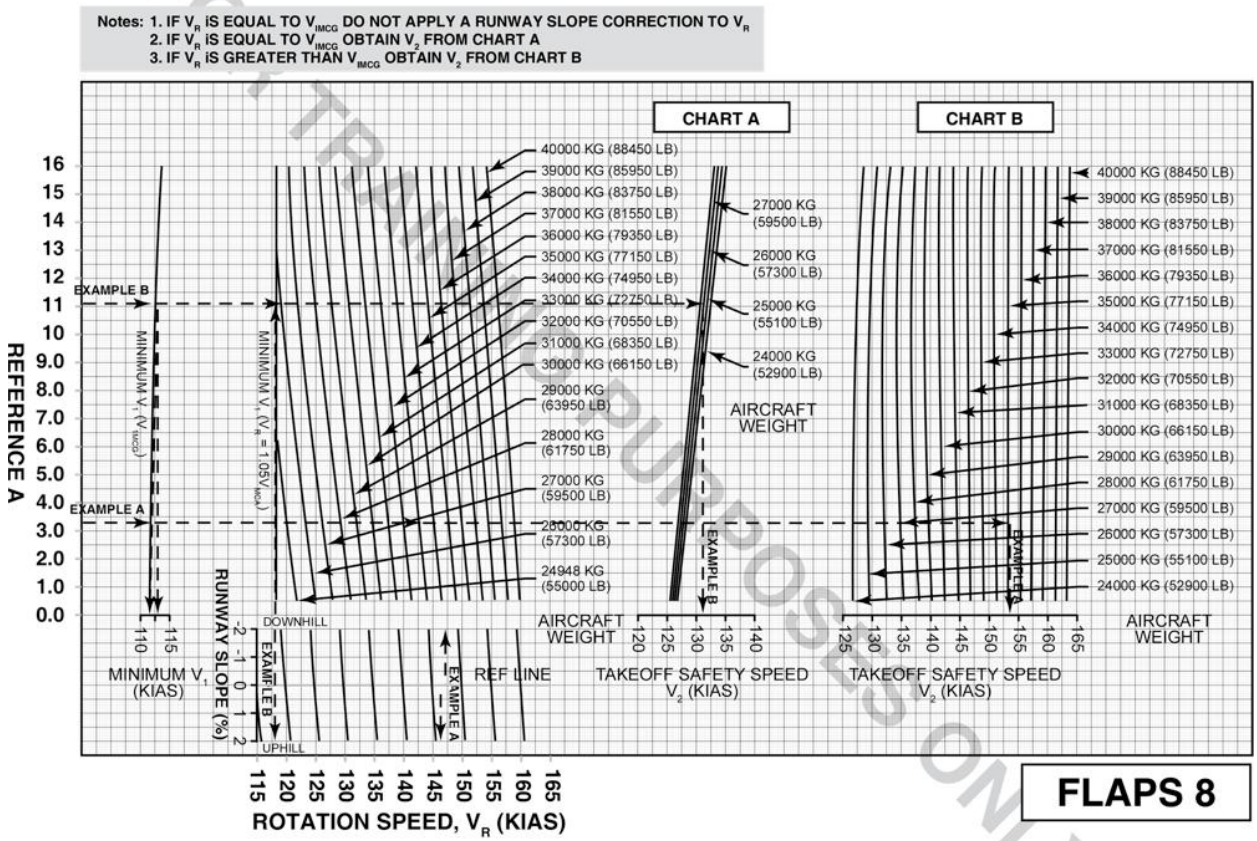

Figure 452. CRJ 900—Takeoff Performance—Takeoff Speeds—FLAPS 8. ©ASA

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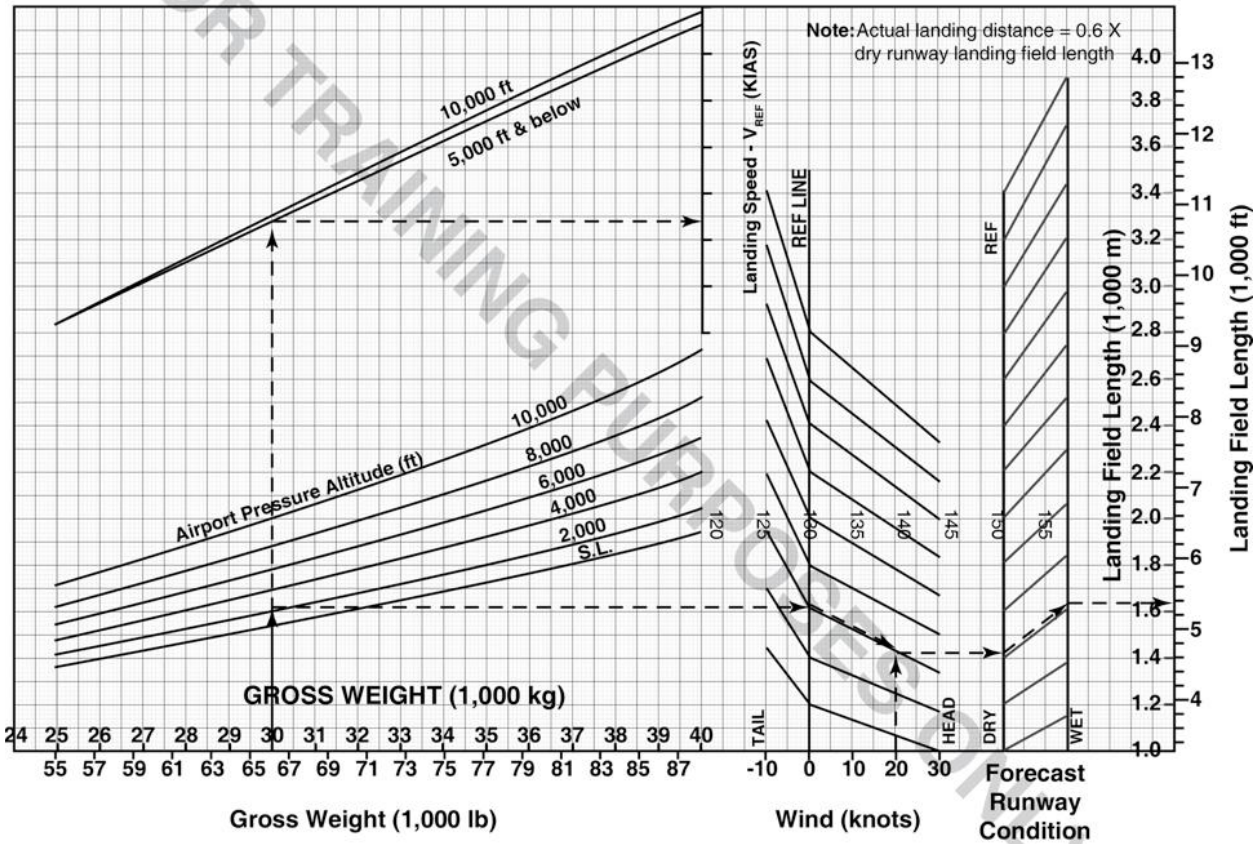

Figure 457. CRJ 900—Landing Performance—Landing Field and Landing Speed—FLAPS 45. ©ASA

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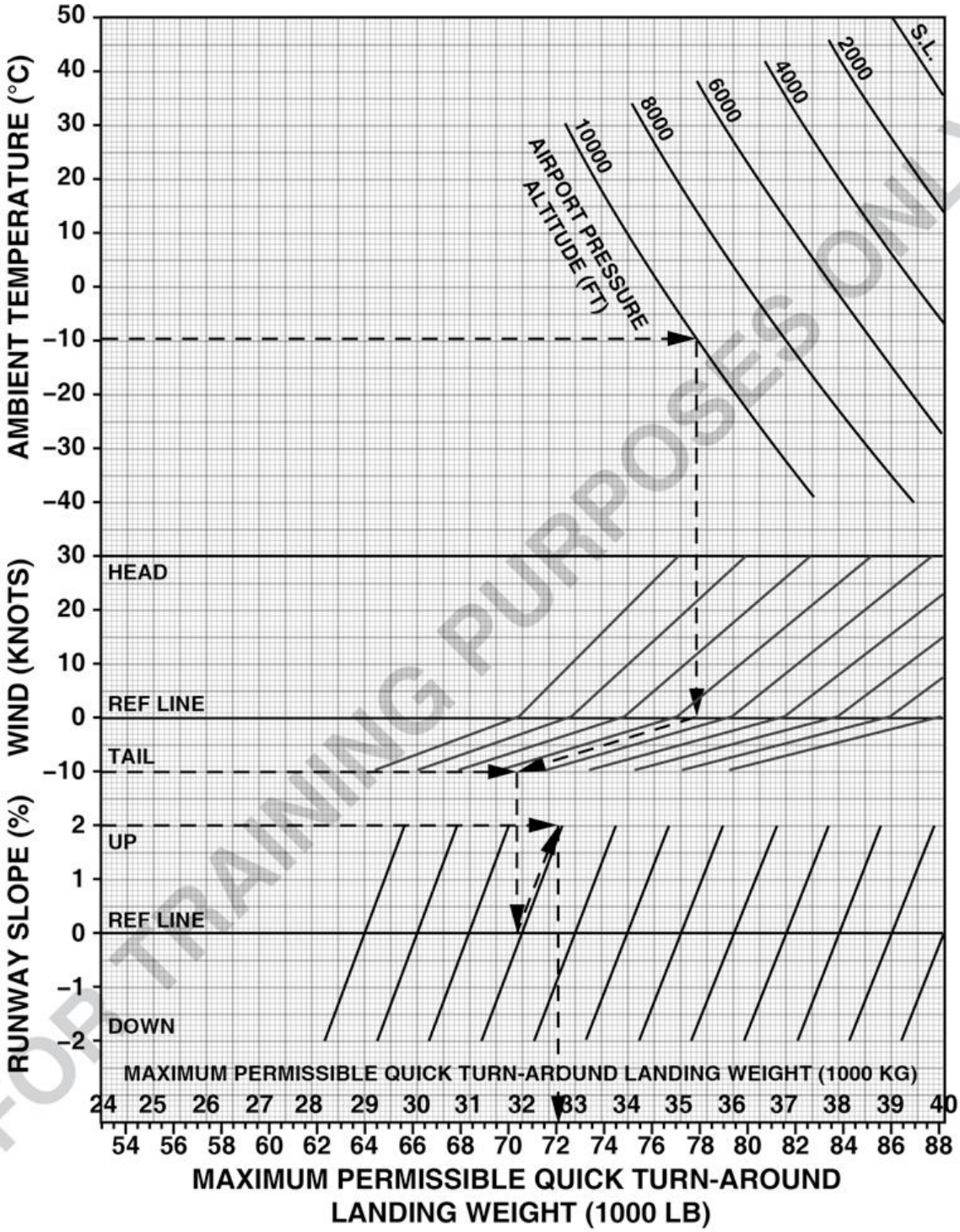

Figure 458. CRJ 900—Landing Performance—Maximum Permissible Quick Turn-around Landing Weight. ©ASA

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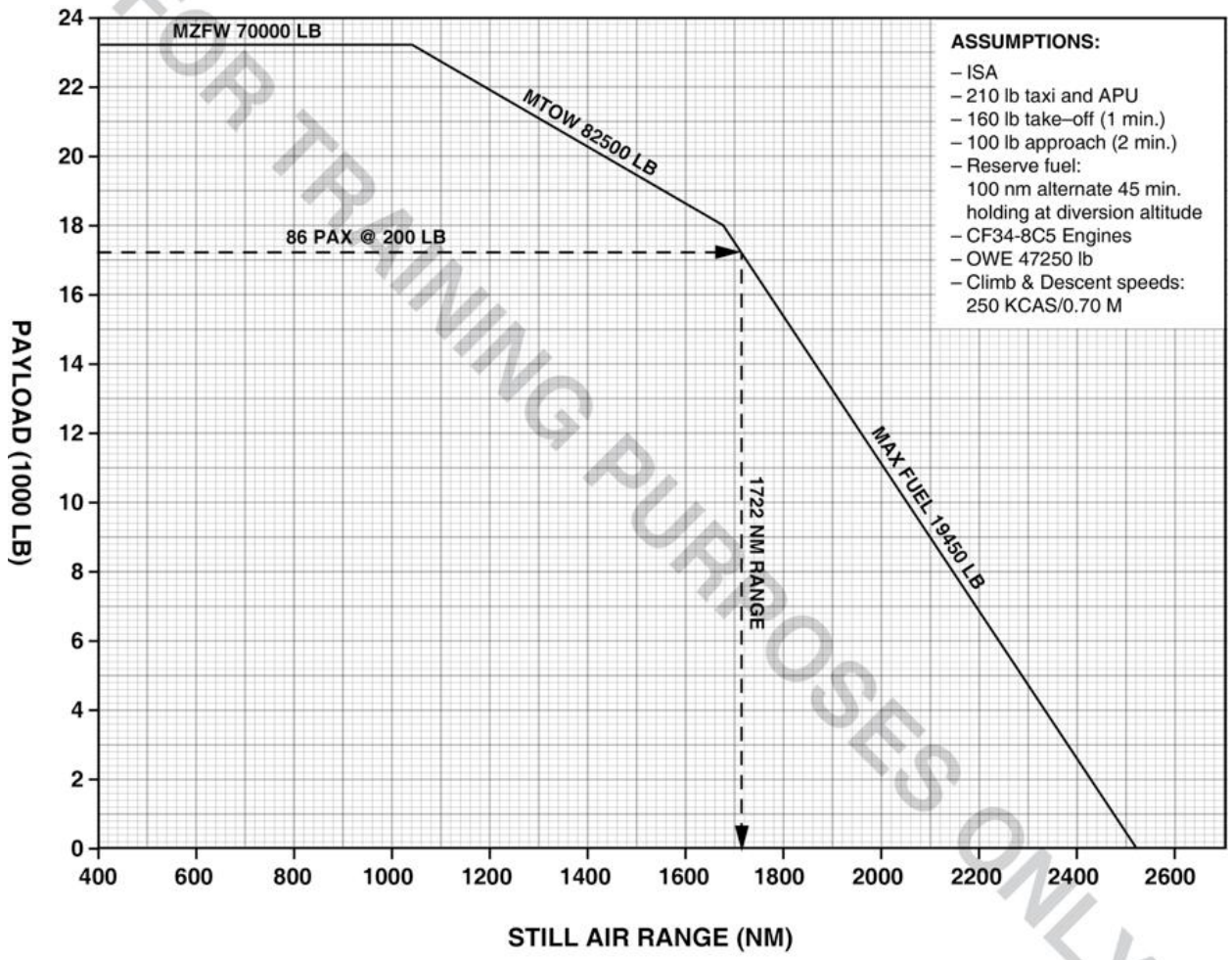

FOR TRAINING PURPOSES ONLY

Figure 459. CRJ 900—Airport Planning Manual—Payload/Range. ©ASA

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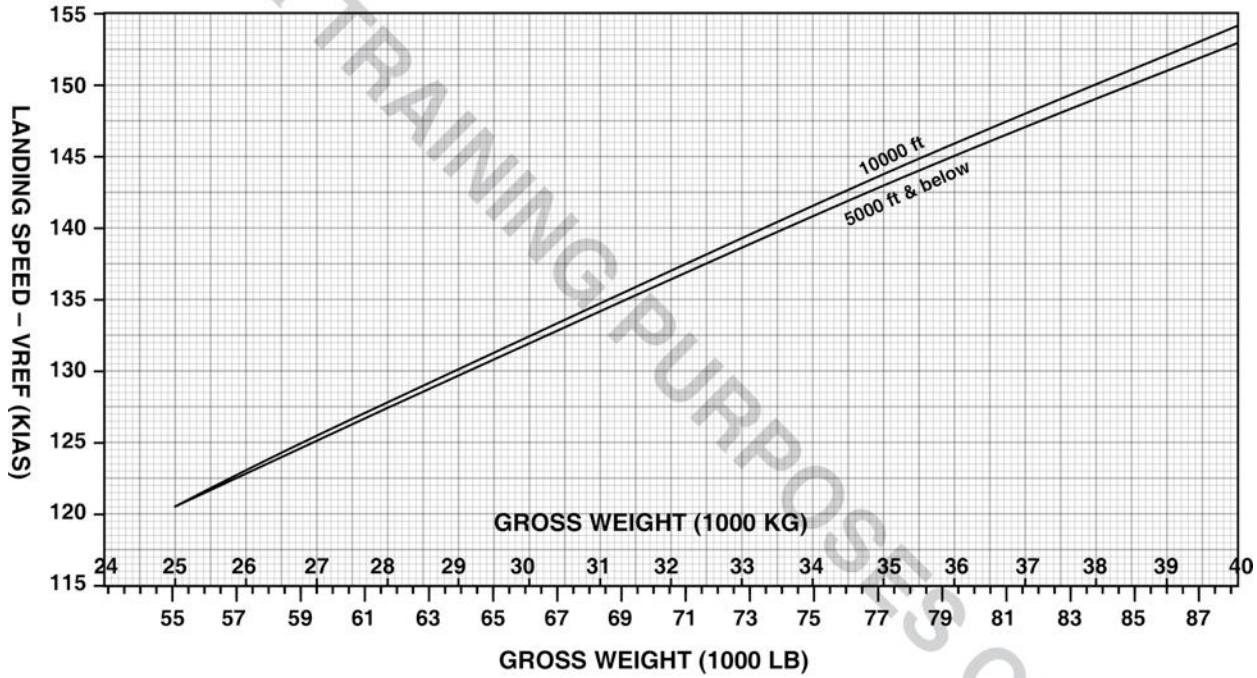

FOR TRAINING PURPOSES ONLY

Figure 460. CRJ 900—Airport Planning Manual—Flaps at 45 Degrees/Slats Extended. ©ASA
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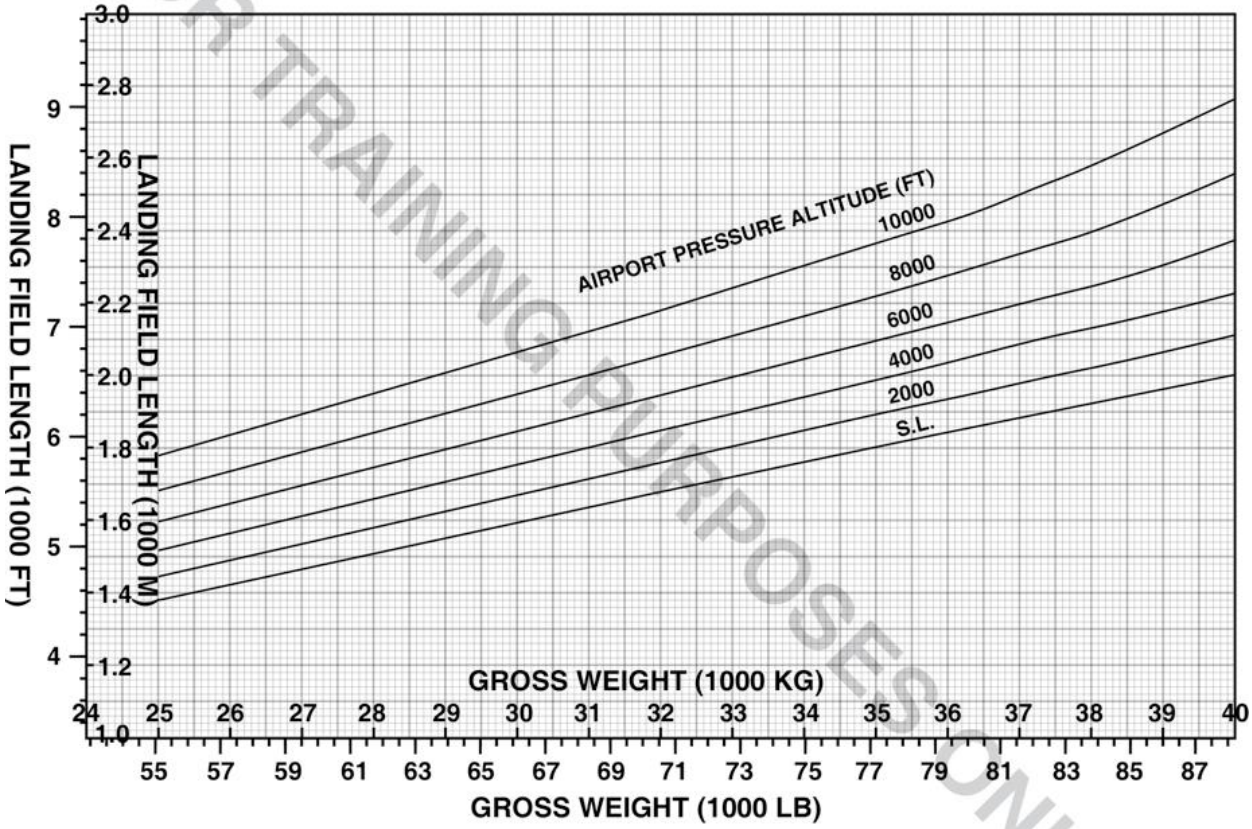

FOR TRAINING PURPOSES ONLY

Figure 461. CRJ 900—Airport Planning Manual—Landing Field Length—Flaps at 45 Degrees/ Slats Extended. ©ASA

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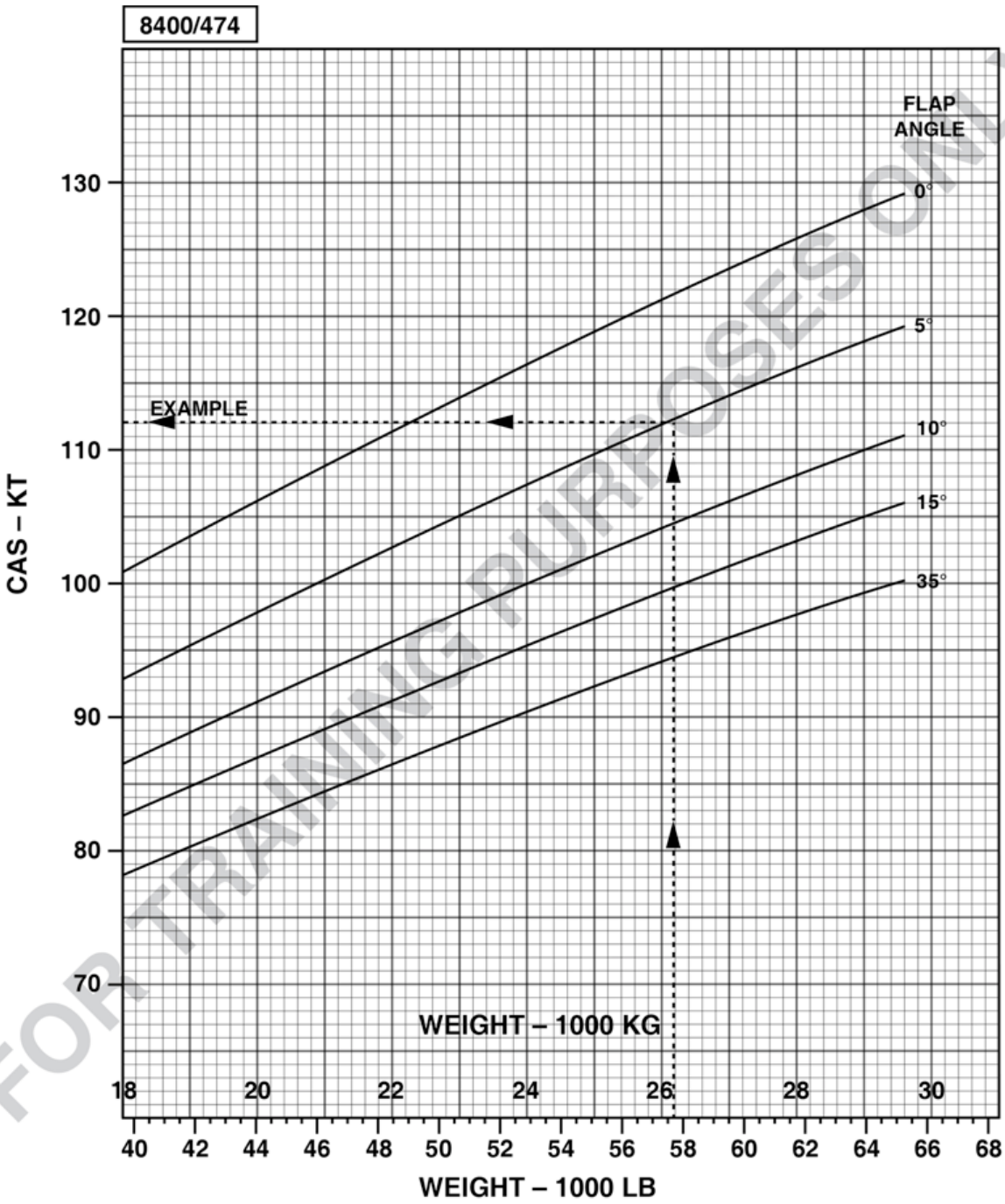

Figure 465. Q400—Weight and Loading—Reference Stall Speeds (V_{SR}). ©ASA

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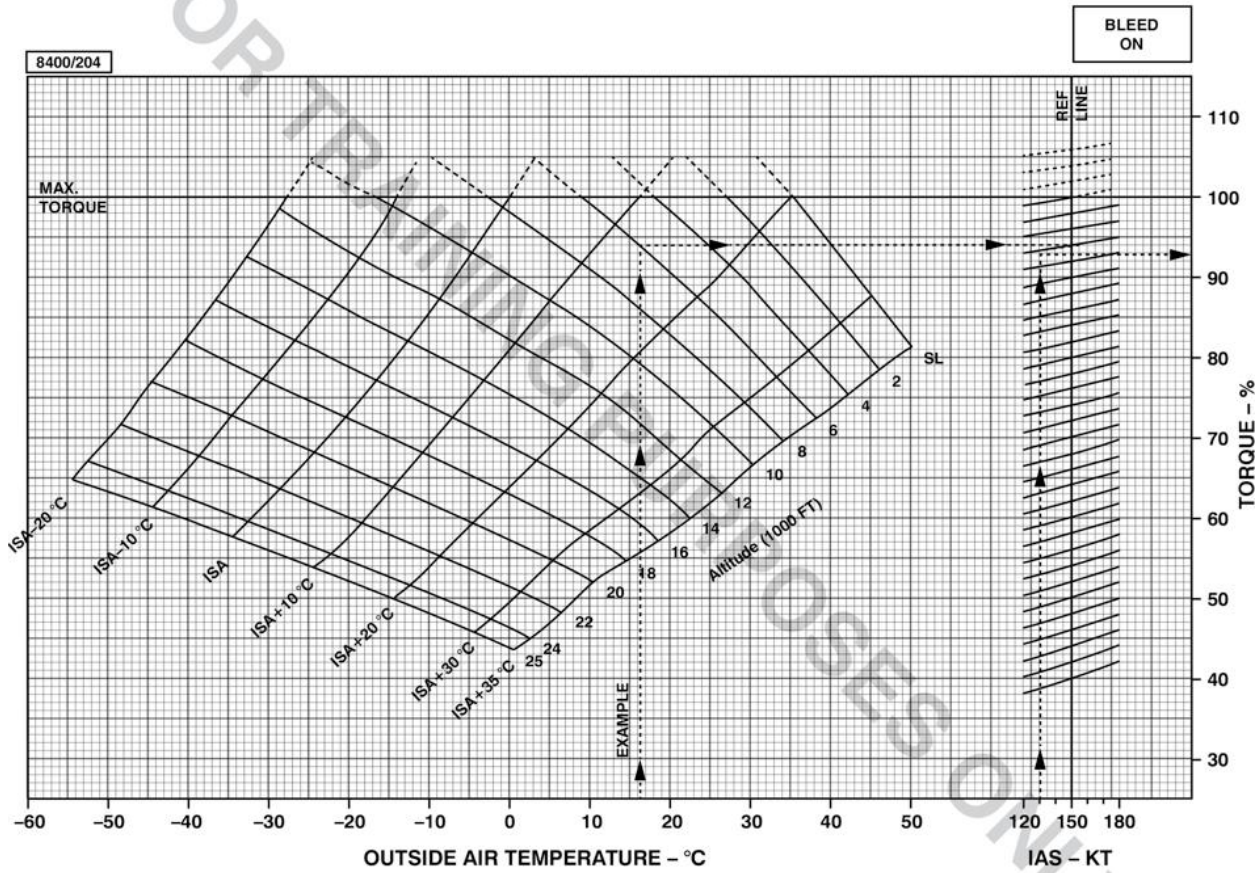

FOR TRAINING PURPOSES ONLY

Figure 469. Q400—Maximum Continuous Power Torque Setting (In-Flight) ©ASA
Propeller RPM–1020 Deicing Systems ON or OFF.
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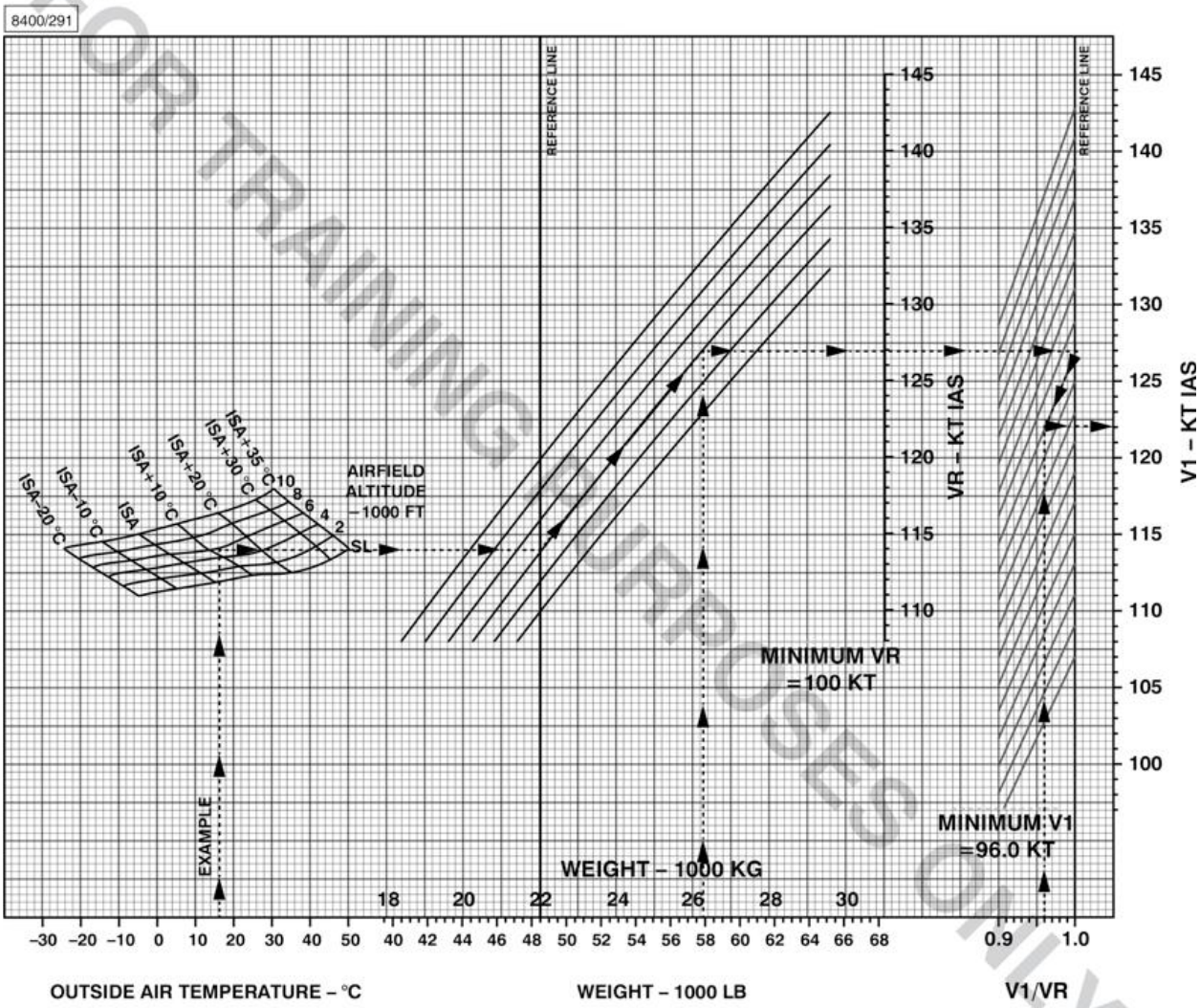

Figure 470. Q400—Rotation Speed V_R and Conversion of V_R and V_1/V_R Ratio to V_1—Flap 15°. ©ASA

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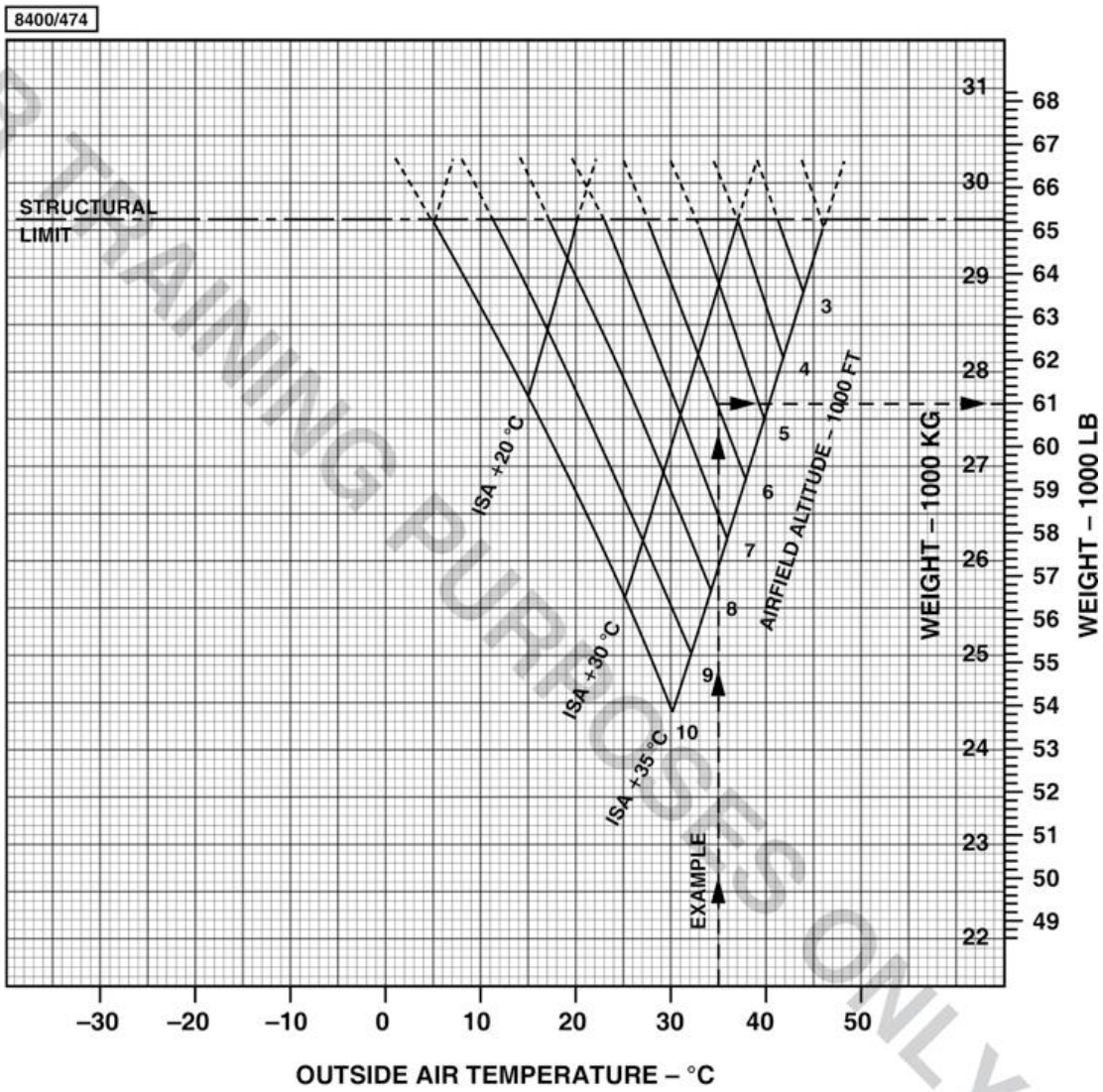

Figure 473. Q400—Maximum Permissible Takeoff Weight (WAT Limit)—Takeoff Flap 5°. ©ASA

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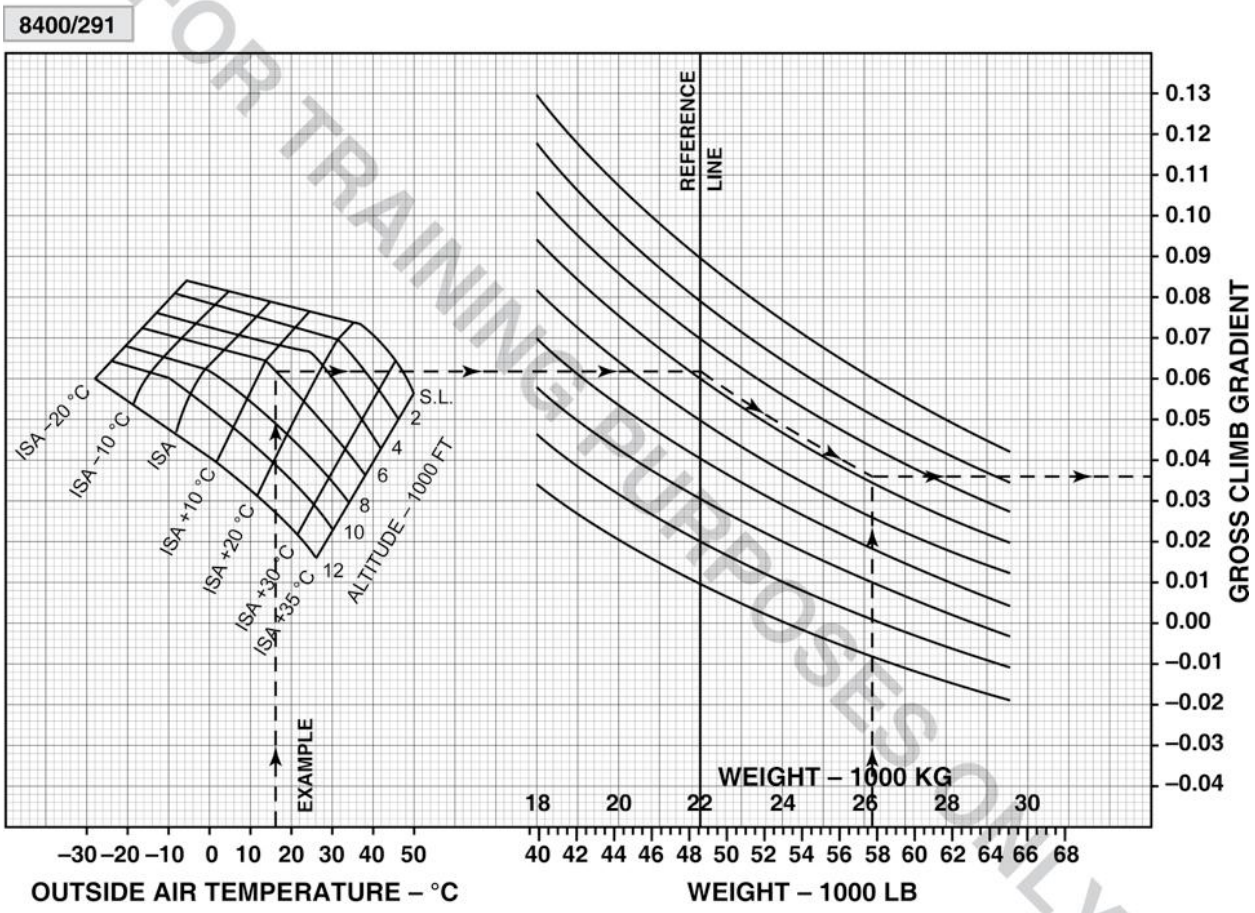

FOR TRAINING PURPOSES ONLY

Figure 474. Q400—First Segment Takeoff Gross Climb Gradient One Engine Inoperative—Flap 5°. ©ASA

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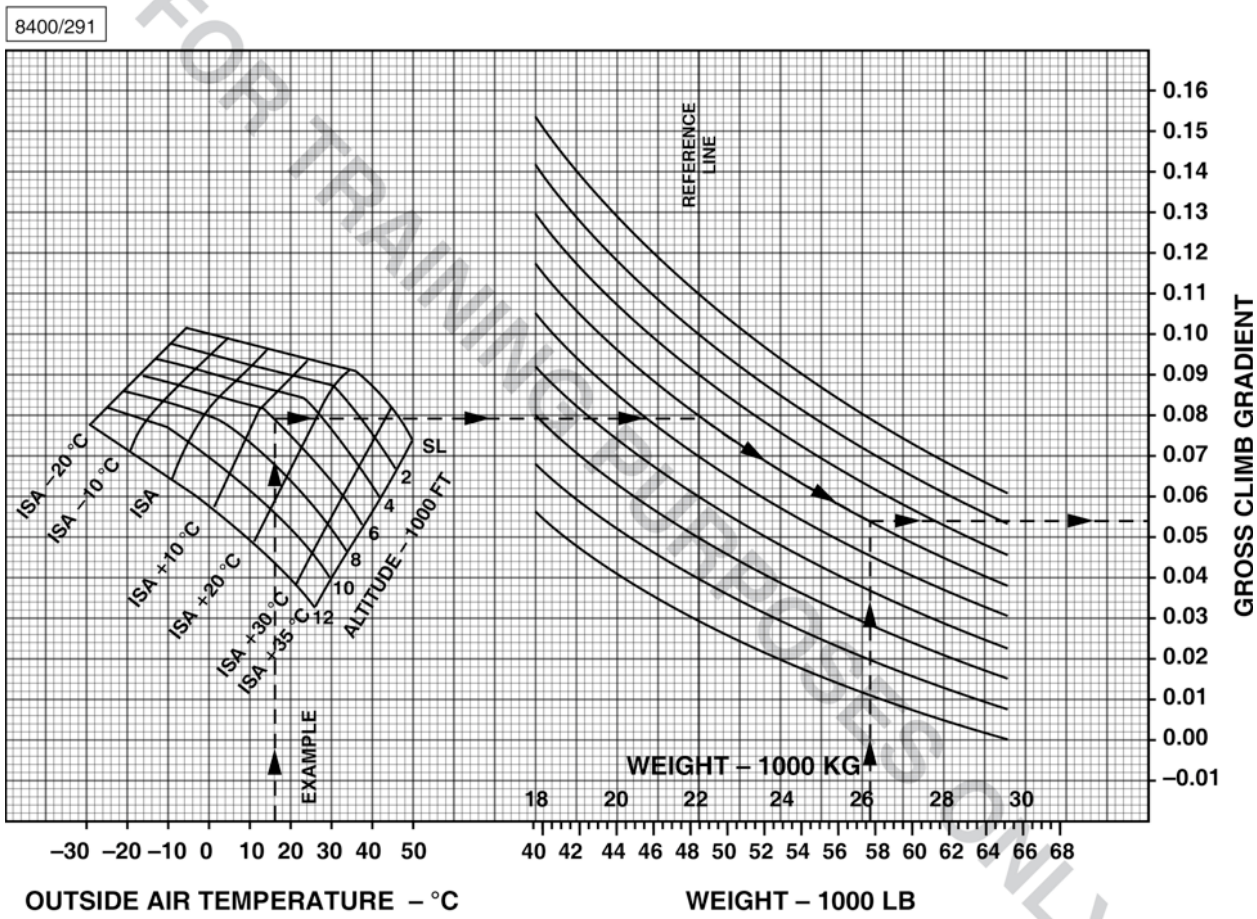

FOR TRAINING PURPOSES ONLY

Figure 475. Q400—Second Segment Takeoff Gross Climb Gradient One Engine Inoperative—Flap 5°. ©ASA

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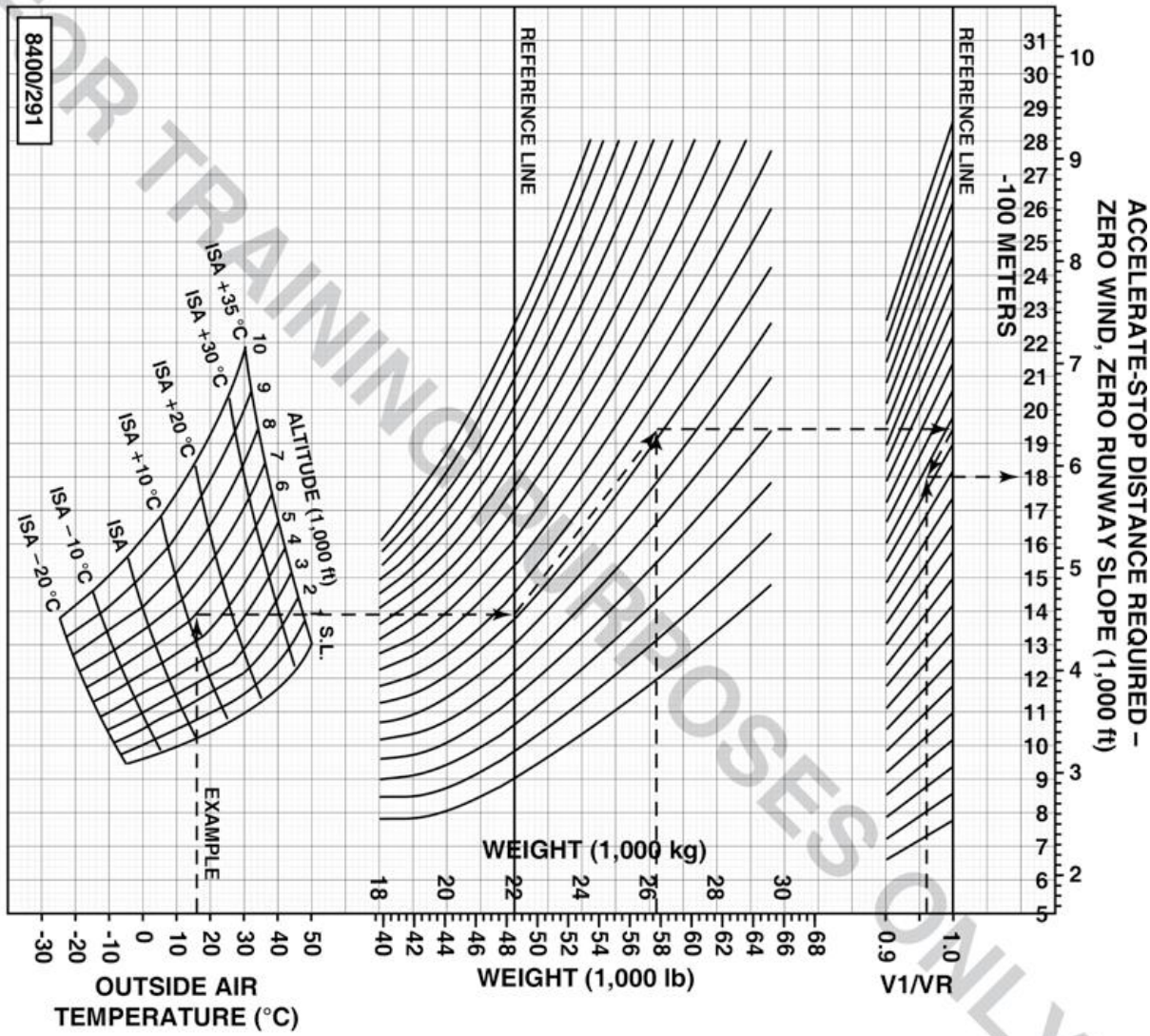

Figure 478. Q400—Accelerate—Stop Distance Required—Zero Wind, Zero Runway Slope Flap 5°. ©ASA

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FOR TRAINING PURPOSES ONLY

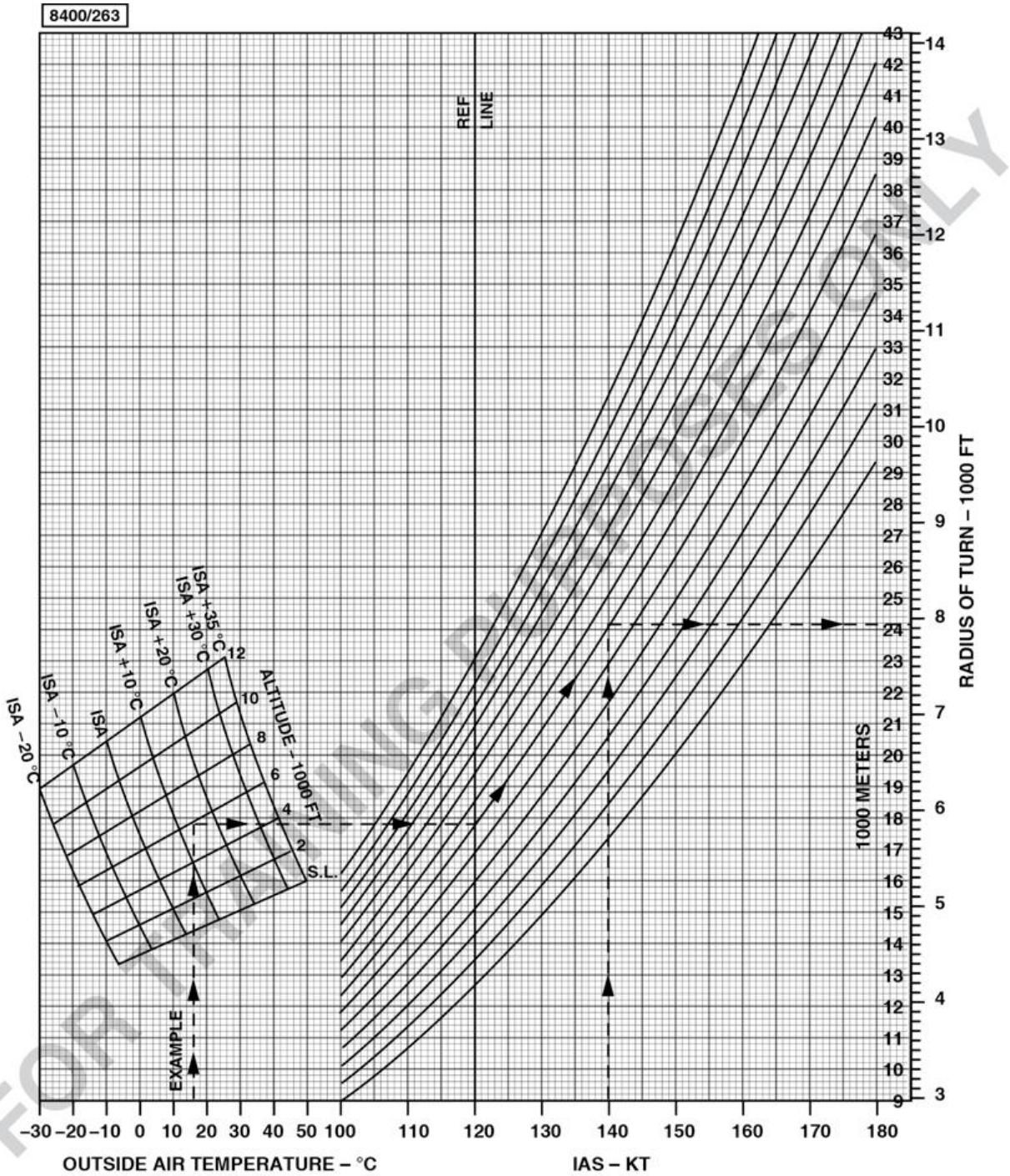

Figure 481. Q400—Net Takeoff Flight Path—Radius of Steady 15° Banked Turn. ©ASA

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AIRPORT/FACILITY DIRECTORY LEGEND 23

(23) AIRPORT REMARKS

The Attendance Schedule is the months, days and hours the airport is actually attended. Airport attendance does not mean watchman duties or telephone accessibility, but rather an attendant or operator on duty to provide at least minimum services (e.g., repairs, fuel, transportation).

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

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

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

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

(24) MILITARY REMARKS

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

Type of restrictions:

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

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

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

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

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

(25) AIRPORT MANAGER

The phone number of the airport manager.

(26) WEATHER DATA SOURCES

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

ASOS—Automated Surface Observing System. Reports the same as an AWOS–3 plus precipitation identification and intensity, and freezing rain occurrence;

AWOS—Automated Weather Observing System

AWOS–A—reports altimeter setting (all other information is advisory only).

AWOS–AV—reports altimeter and visibility.

AWOS–1—reports altimeter setting, wind data and usually temperature, dew point and density altitude.

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

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

AWOS–3P reports the same as the AWOS–3 system, plus a precipitation identification sensor.

AWOS–3PT reports the same as the AWOS–3 system, plus precipitation identification sensor and a thunderstorm/lightning reporting capability.

Legend 19. Airport/Facility Directory Legend from Chart Supplement. ©ASA

24 **AIRPORT/FACILITY DIRECTORY LEGEND**

AWOS–3T reports the same as AWOS–3 system and includes a thunderstorm/lightning reporting capability.

See AIM, Basic Flight Information and ATC Procedures for detailed description of Weather Data Sources.

AWOS–4—reports same as AWOS–3 system, plus precipitation occurrence, type and accumulation, freezing rain, thunderstorm and runway surface sensors.

HIWAS—See RADIO AIDS TO NAVIGATION

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

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

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

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

TDWR—indicates airports that have Terminal Doppler Weather Radar.

WSP—indicates airports that have Weather System Processor.

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

(27) COMMUNICATIONS

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

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

The FSS telephone nationwide is toll free 1–800–WX–BRIEF (1–800–992–7433). When the FSS is located on the field it will be indicated as "on arpt". Frequencies available at the FSS will follow in descending order. Remote Communications Outlet (RCO) providing service to the airport followed by the frequency and FSS RADIO name will be shown when available. FSS's provide information on airport conditions, radio aids and other facilities, and process flight plans. Airport Advisory Service (AAS) is provided on the CTAF by FSS's for select non–tower airports or airports where the tower is not in operation.

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

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

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

Civil Communications Frequencies–Civil communications frequencies used in the FSS air/ground system are operated on 122.0, 122.2, 123.6; emergency 121.5; plus receive–only on 122.1.

a. 122.0 is assigned as the Enroute Flight Advisory Service frequency at selected FSS RADIO outlets.
b. 122.2 is assigned as a common enroute frequency.
c. 123.6 is assigned as the airport advisory frequency at select non–tower locations. At airports with a tower, FSS may provide airport advisories on the tower frequency when tower is closed.
d. 122.1 is the primary receive–only frequency at VOR's.
e. Some FSS's are assigned 50 kHz frequencies in the 122–126 MHz band (eg. 122.45). Pilots using the FSS A/G system should refer to this directory or appropriate charts to determine frequencies available at the FSS or remoted facility through which they wish to communicate.

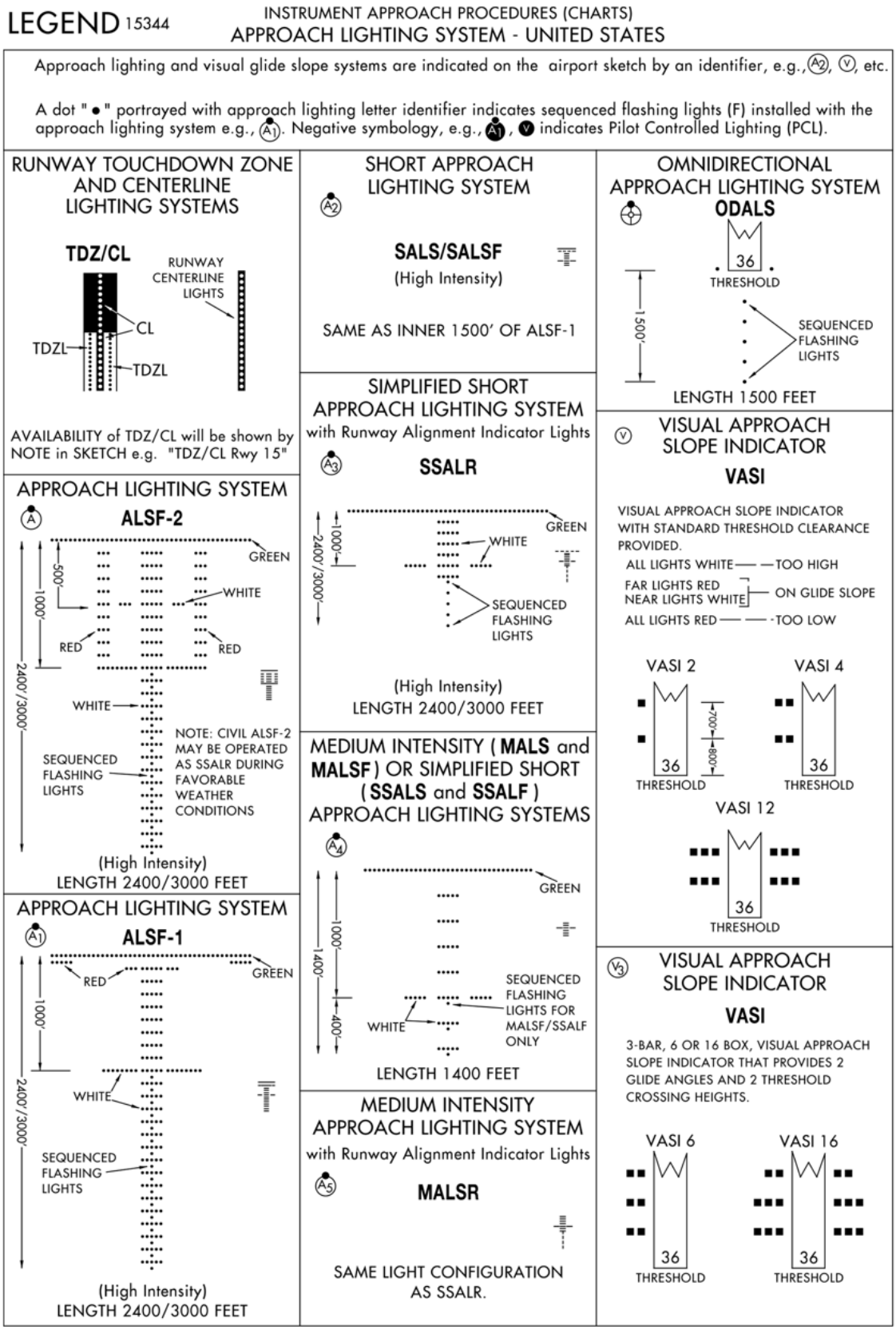
Emergency frequency 121.5 and 243.0 are available at all Flight Service Stations, most Towers, Approach Control and RADAR facilities.

Frequencies published followed by the letter "T" or "R", indicate that the facility will only transmit or receive respectively on that frequency. All radio aids to navigation (NAVAID) frequencies are transmit only. In cases where communications frequencies are annotated with (R) or (E), (R) indicates Radar Capability and (E) indicates Emergency Frequency.

TERMINAL SERVICES

SFA—Single Frequency Approach.
CTAF—A program designed to get all vehicles and aircraft at airports without an operating control tower on a common frequency.
ATIS—A continuous broadcast of recorded non–control information in selected terminal areas.
D–ATIS—Digital ATIS provides ATIS information in text form outside the standard reception range of conventional ATIS via landline & data link communications and voice message within range of existing transmitters.
AUNICOM—Automated UNICOM is a computerized, command response system that provides automated weather, radio check capability and airport advisory information selected from an automated menu by microphone clicks.
UNICOM—A non–government air/ground radio communications facility which may provide airport information.
PTD—Pilot to Dispatcher.
APP CON—Approach Control. The symbol Ⓡ indicates radar approach control.
TOWER—Control tower.
GCA—Ground Control Approach System.
GND CON—Ground Control.

Legend 20. Airport/Facility Directory Legend from Chart Supplement. ©ASA



Legend 38. U.S. Terminal Procedures Approach Lighting System.

CLIMB/DESCENT TABLE 10042

INSTRUMENT TAKEOFF OR APPROACH PROCEDURE CHARTS
RATE OF CLIMB/DESCENT TABLE

(ft. per min)

A rate of climb/descent table is provided for use in planning and executing climbs or descents under known or approximate ground speed conditions. It will be especially useful for approaches when the localizer only is used for course guidance. A best speed, power, altitude combination can be programmed which will result in a stable glide rate and altitude favorable for executing a landing if minimums exist upon breakout. Care should always be exercised so that minimum descent altitude and missed approach point are not exceeded.

CLIMB/ DESCENT ANGLE (degrees and tenths)	ft/NM	GROUND SPEED (knots)										
		60	90	120	150	180	210	240	270	300	330	360
2.0	210	210	320	425	530	635	743	850	955	1060	1165	1275
2.5	265	265	400	530	665	795	930	1060	1195	1325	1460	1590
VERTICAL PATH ANGLE 2.7	287	287	430	574	717	860	1003	1147	1290	1433	1576	1720
2.8	297	297	446	595	743	892	1041	1189	1338	1486	1635	1783
2.9	308	308	462	616	770	924	1078	1232	1386	1539	1693	1847
3.0	318	318	478	637	797	956	1115	1274	1433	1593	1752	1911
3.1	329	329	494	659	823	988	1152	1317	1481	1646	1810	1975
3.2	340	340	510	680	850	1020	1189	1359	1529	1699	1869	2039
3.3	350	350	526	701	876	1052	1227	1402	1577	1752	1927	2103
3.4	361	361	542	722	903	1083	1264	1444	1625	1805	1986	2166
3.5	370	370	555	745	930	1115	1300	1485	1670	1860	2045	2230
4.0	425	425	640	850	1065	1275	1490	1700	1915	2125	2340	2550
4.5	480	480	715	955	1195	1435	1675	1915	2150	2390	2630	2870
5.0	530	530	795	1065	1330	1595	1860	2125	2390	2660	2925	3190
5.5	585	585	880	1170	1465	1755	2050	2340	2635	2925	3220	3510
6.0	640	640	960	1275	1595	1915	2235	2555	2875	3195	3510	3830
6.5	690	690	1040	1385	1730	2075	2425	2770	3115	3460	3805	4155
7.0	745	745	1120	1490	1865	2240	2610	2985	3355	3730	4105	4475
7.5	800	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800
8.0	855	855	1280	1710	2135	2560	2990	3415	3845	4270	4695	5125
8.5	910	910	1360	1815	2270	2725	3180	3630	4085	4540	4995	5450
9.0	960	960	1445	1925	2405	2885	3370	3850	4330	4810	5295	5775
9.5	1015	1015	1525	2035	2540	3050	3560	4065	4575	5085	5590	6100
10.0	1070	1070	1605	2145	2680	3215	3750	4285	4820	5355	5890	6430

CLIMB/DESCENT TABLE 10042

Legend 72. Rate of Climb/Descent Table.