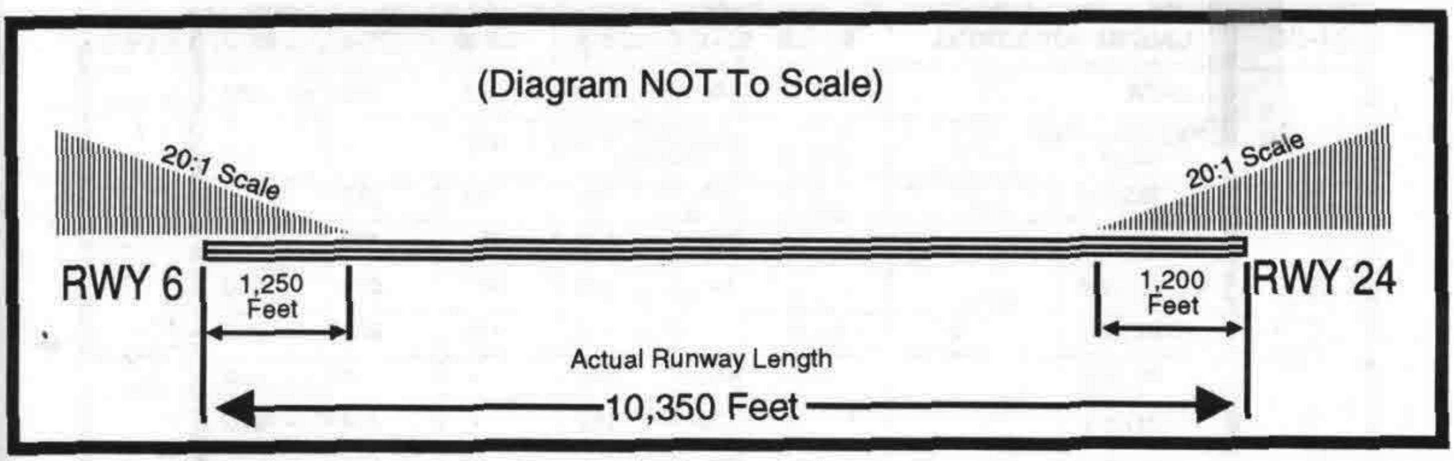


FIGURE 1.—Runway Diagram.

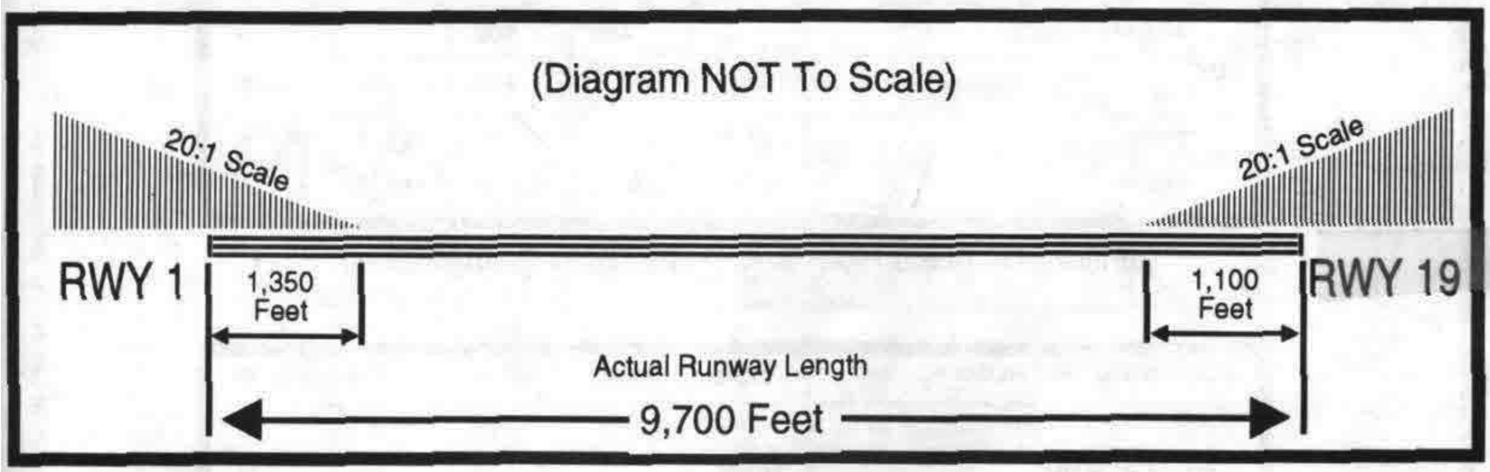


FIGURE 2.—Runway Diagram.

LOADING CONDITIONS	BE-1	BE-2	BE-3	BE-4	BE-5
CREW	360	340	350	340	360
PASSENGERS ROW 1	350	300	120	-	-
ROW 2	260	250	340	370	-
ROW 3	200	190	350	400	170
ROW 4	340	170	300	290	200
ROW 5	120	190	170	200	290
ROW 6	400	340	-	170	400
ROW 7	120	190	-	210	370
ROW 8	250	-	-	190	340
ROW 9	-	-	-	420	430
BAGGAGE NOSE	60	-	80	-	100
FWD CABIN	250	100	120	-	200
AFT (FWD SEC)	500	200	250	800	-
AFT (AFT SEC)	-	600	500	-	-
FUEL GAL	370	390	400	290	340
TYPE	JET B	JET A	JET B	JET A	JET B
TEMP	+5 °C	+15 °C	-15 °C	+10 °C	+25 °C

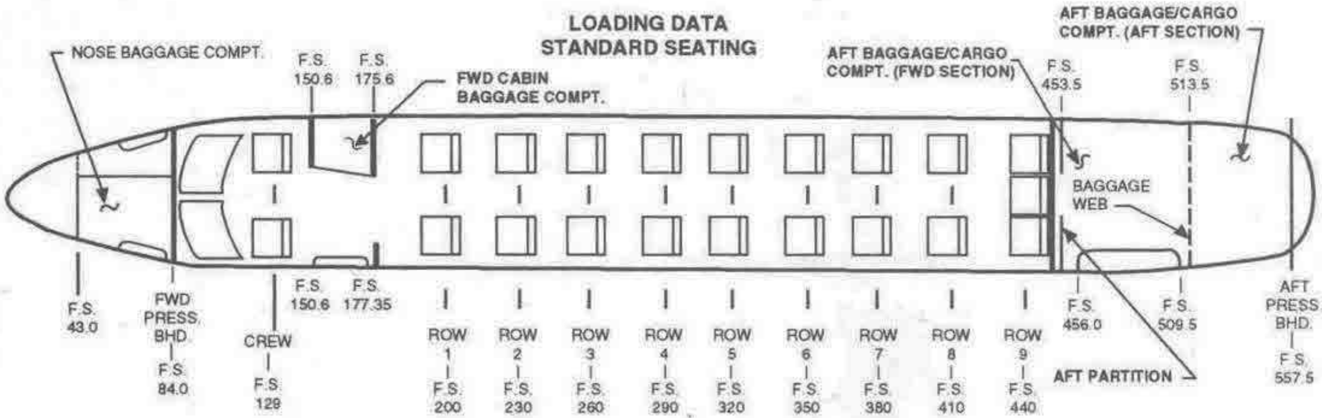
FIGURE 3.—Beech 1900 – Loading Passenger Configuration.

LOADING CONDITIONS	BE-6	BE-7	BE-8	BE-9	BE-10
CREW	360	340	350	370	420
CARGO SECTION A	500		600	600	350
B	500	400	200	600	450
C	550	450	400	600	450
D	550	600	400	600	550
E	600	600	200	550	550
F	600	600	200	350	600
G	450	500	200	250	600
H		-	200	250	-
J	350	-	300	150	-
K	-	-	250	200	-
L	-	-	100	100	-
FUEL GAL	340	370	390	290	400
TYPE	JET B	JET B	JET A	JET A	JET B
TEMP	+25 °C	+5 °C	+15 C	+10 C	-15 C
BASIC OPERATING WEIGHT - 9,005 POUNDS, 25,934 MOM/100					

FIGURE 4.—Beech 1900 – Loading Cargo Configuration.

OPERATING CONDITIONS	BE-11	BE-12	BE-13	BE-14	BE-15
BASIC EMPTY WT WEIGHT MOM/100	 9,225 25,820	 9,100 24,990	 9,000 24,710	 8,910 24,570	 9,150 25,240
CREW WEIGHT	340	380	360	400	370
PASS AND BAG WEIGHT MOM/100	 4,200 15,025	 4,530 16,480	 4,630 16,743	 4,690 13,724	 4,500 13,561
FUEL (6.8 LB/GAL) RAMP LOAD-GAL USED START AND TAXI REMAIN AT LDG	 360 20 100	 320 20 160	 340 10 140	 310 20 100	 410 30 120

FIGURE 5.—Beech 1900 – Loading Limitations.



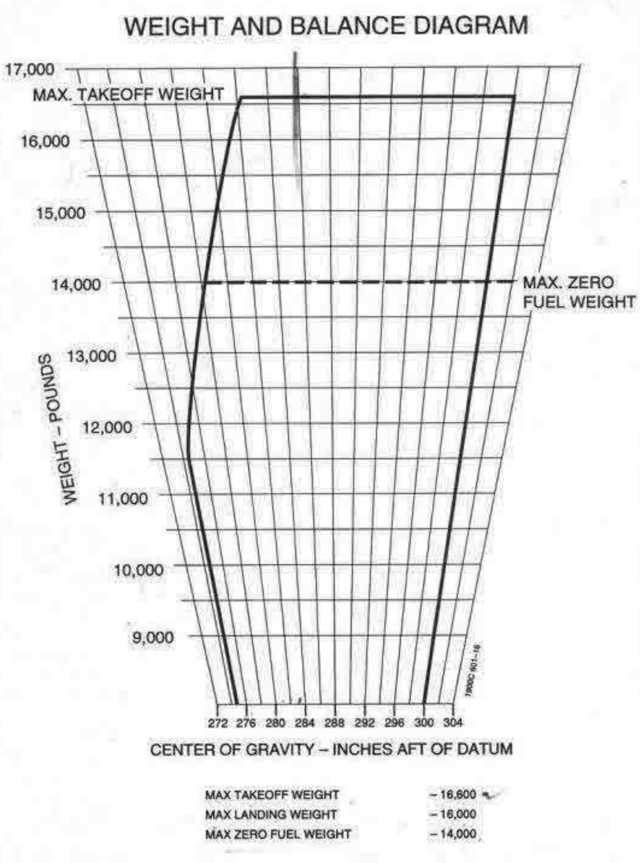
BAGGAGE/CARGO LOCATION		CAPACITY – POUNDS	CENTROID (FUSELAGE STATION)
NOSE BAGGAGE COMPARTMENT		150	65.5
FORWARD CABIN BAGGAGE COMPARTMENT (INCLUDES UP TO 100 POUNDS WHICH MAY BE SUSPENDED FROM CLOTHES ROD)		250	163.6
AFT BAGGAGE/CARGO COMPARTMENT	– FWD SECTION	880	483.5
	– AFT SECTION	630	533.0

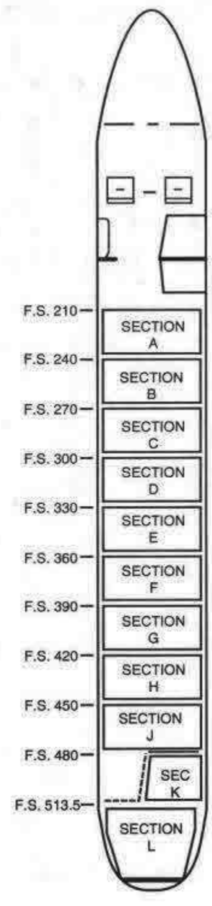
NOTE:

1. For compartment loadings which result in only partial utilization of total compartment volume, load items must be distributed or secured in a manner to preclude shifting under normally anticipated operating conditions.

BASIC EMPTY WEIGHT 9,226 LB
BASIC MOMENT/100 25,823

FIGURE 6.—Airplane – Loading Data.





LOADING DATA
CARGO CONFIGURATION

SECTION	MAXIMUM STRUCTURAL CAPACITY	CENTROID ARM
A	600	F.S. 225
B	600	F.S. 255
C	600	F.S. 285
D	600	F.S. 315
E	600	F.S. 345
F	600	F.S. 375
G	600	F.S. 405
H	600	F.S. 435
J	600	F.S. 465
K	250	F.S. 499.5
L	565	F.S.533

NOTES:

1. ALL CARGO IN SECTIONS A THROUGH J MUST BE SUPPORTED ON THE SEAT TRACKS AND SECURED TO THE SEAT TRACKS AND SIDE SEAT RAILS BY AN FAA APPROVED SYSTEM.
2. CONCENTRATED CARGO LOADS IN SECTIONS A THROUGH L MUST NOT EXCEED 100 LBS. PER SQUARE FOOT.
3. CARGO IN SECTIONS K AND L MUST BE RETAINED BY BAGGAGE WEBS AND PARTITIONS PROVIDED AS PART OF STANDARD AIRPLANE.
4. ANY EXCEPTIONS TO THE ABOVE PROCEDURES WILL REQUIRE APPROVAL BY A LOCAL FAA OFFICE.

1900–603–50

FIGURE 7.—Beech 1900 – CG Envelope and Cargo Loading Data.

USEFUL LOAD WEIGHTS AND MOMENTS

BAGGAGE

WEIGHT	NOSE BAGGAGE COMPARTMENT F.S. 65.5	FORWARD CABIN BAGGAGE COMPARTMENT F.S. 163.6	AFT BAGGAGE/ CARGO COMPARTMENT (FORWARD SECTION) F.S. 483.5	AFT BAGGAGE/ CARGO COMPARTMENT (AFT SECTION) F.S. 533.0
	MOMENT/100			
10	7	16	48	53
20	13	33	97	107
30	20	49	145	160
40	26	65	193	213
50	33	82	242	266
60	39	98	290	320
70	46	115	338	373
80	52	131	387	426
90	59	147	435	480
100	66	164	484	533
150	98	245	725	800
200		327	967	1066
250		409	1209	1332
300			1450	1599
350			1692	1866
400			1934	2132
450			2176	2398
500			2418	2665
550			2659	2932
600			2901	3198
630			3046	3358
650			3143	
700			3384	
750			3626	
800			3868	
850			4110	
880			4255	

FIGURE 8.—Airplane – Weights and Moments – Baggage.

USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

WEIGHT	CREW	CABIN SEATS								
	F.S. 129	F.S. 200	F.S. 230	F.S. 260	F.S. 290	F.S. 320	F.S. 350	F.S. 380	F.S. 410	F.S. 440
	MOMENT/100									
80	103	160	184	208	232	256	280	304	328	352
90	116	180	207	234	261	288	315	342	369	396
100	129	200	230	260	290	320	350	380	410	440
110	142	220	253	286	319	352	385	418	451	484
120	155	240	276	312	348	384	420	456	492	528
130	168	260	299	338	377	416	455	494	533	572
140	181	280	322	364	406	448	490	532	574	616
150	194	300	345	390	435	480	525	570	615	660
160	206	320	368	416	464	512	560	608	656	704
170	219	340	391	442	493	544	595	646	697	748
180	232	360	414	468	522	576	630	684	738	792
190	245	380	437	494	551	608	665	722	779	836
200	258	400	460	520	580	640	700	760	820	880
210	271	420	483	546	609	672	735	798	861	924
220	284	440	506	572	638	704	770	836	902	968
230	297	460	529	598	667	736	805	874	943	1012
240	310	480	552	624	696	768	840	912	984	1056
250	323	500	575	650	725	800	875	950	1025	1100

Note: Weights reflected in above table represent weight per seat.

FIGURE 9.—Beech 1900 – Weights and Moments – Occupants.

DENSITY VARIATION OF AVIATION FUEL

BASED ON AVERAGE SPECIFIC GRAVITY

FUEL	AVERAGE SPECIFIC GRAVITY AT 15 °C (59 °F)
AVIATION KEROSENE JET A AND JET A1	.812
JET B (JP-4)	.785
AV GAS GRADE 100/130	.703

NOTE: The Fuel Quantity Indicator is calibrated for correct indication when using Aviation Kerosene Jet A and Jet A1. When using other fuels, multiply the indicated fuel quantity in pounds by .99 for Jet B (JP-4) or by .98 for Aviation Gasoline (100/130) to obtain actual fuel quantity in pounds.

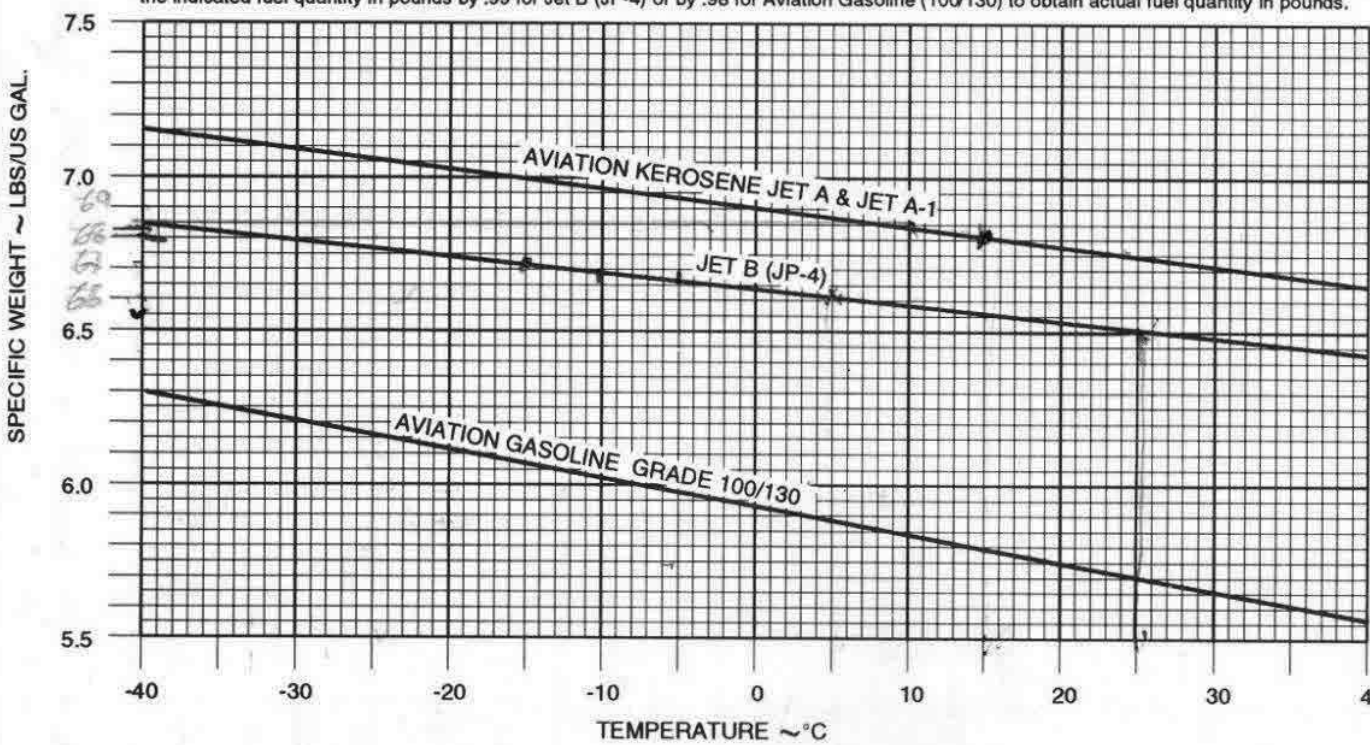


FIGURE 10.—Density Variation of Aviation Fuel.

USEFUL LOAD WEIGHTS AND MOMENTS

USABLE FUEL

GALLONS	6.5 LB/GAL WEIGHT	6.5 LB/GAL MOMENT/100	6.6 LB/GAL WEIGHT	6.6 LB/GAL MOMENT/100	6.7 LB/GAL WEIGHT	6.7 LB/GAL MOMENT/100	6.8 LB/GAL WEIGHT	6.8 LB/GAL MOMENT/100
10	65	197	66	200	67	203	68	206
20	130	394	132	401	134	407	136	413
30	195	592	198	601	201	610	204	619
40	260	789	264	802	268	814	272	826
50	325	987	330	1002	335	1018	340	1033
60	390	1185	396	1203	402	1222	408	1240
70	455	1383	462	1404	469	1426	476	1447
80	520	1581	528	1605	536	1630	544	1654
90	585	1779	594	1806	603	1834	612	1861
100	650	1977	660	2007	670	2038	680	2068
110	715	2175	726	2208	737	2242	748	2275
120	780	2372	792	2409	804	2445	816	2482
130	845	2569	858	2608	871	2648	884	2687
140	910	2765	924	2808	938	2850	952	2893
150	975	2962	990	3007	1005	3053	1020	3099
160	1040	3157	1056	3205	1072	3254	1088	3303
170	1105	3351	1122	3403	1139	3454	1156	3506
180	1170	3545	1188	3600	1206	3654	1224	3709
190	1235	3739	1254	3797	1273	3854	1292	3912
200	1300	3932	1320	3992	1340	4053	1360	4113
210	1365	4124	1386	4187	1407	4250	1428	4314
220	1430	4315	1452	4382	1474	4448	1496	4514
230	1495	4507	1518	4576	1541	4646	1564	4715
240	1560	4698	1584	4770	1608	4843	1632	4915
250	1625	4889	1650	4964	1675	5040	1700	5115
260	1690	5080	1716	5158	1742	5236	1768	5315
270	1755	5271	1782	5352	1809	5433	1836	5514
280	1820	5462	1848	5546	1876	5630	1904	5714
290	1885	5651	1914	5738	1943	5825	1972	5912
300	1950	5842	1980	5932	2010	6022	2040	6112
310	2015	6032	2046	6125	2077	6218	2108	6311
320	2080	6225	2112	6321	2144	6416	2176	6512
330	2145	6417	2178	6516	2211	6615	2244	6713
340	2210	6610	2244	6711	2278	6813	2312	6915
350	2275	6802	2310	6907	2345	7011	2380	7116
360	2340	6995	2376	7103	2412	7210	2448	7318
370	2405	7188	2442	7299	2479	7409	2516	7520
380	2470	7381	2508	7495	2546	7609	2584	7722
390	2535	7575	2574	7691	2613	7808	2652	7924
400	2600	7768	2640	7888	2680	8007	2720	8127
410	2665	7962	2706	8085	2747	8207	2788	8330
420	2730	8156	2772	8282	2814	8407	2856	8532
425	2763	8259	2805	8386	2848	8513	2890	8640

FIGURE 11.—Beech 1900 – Weights and Moments – Usable Fuel.

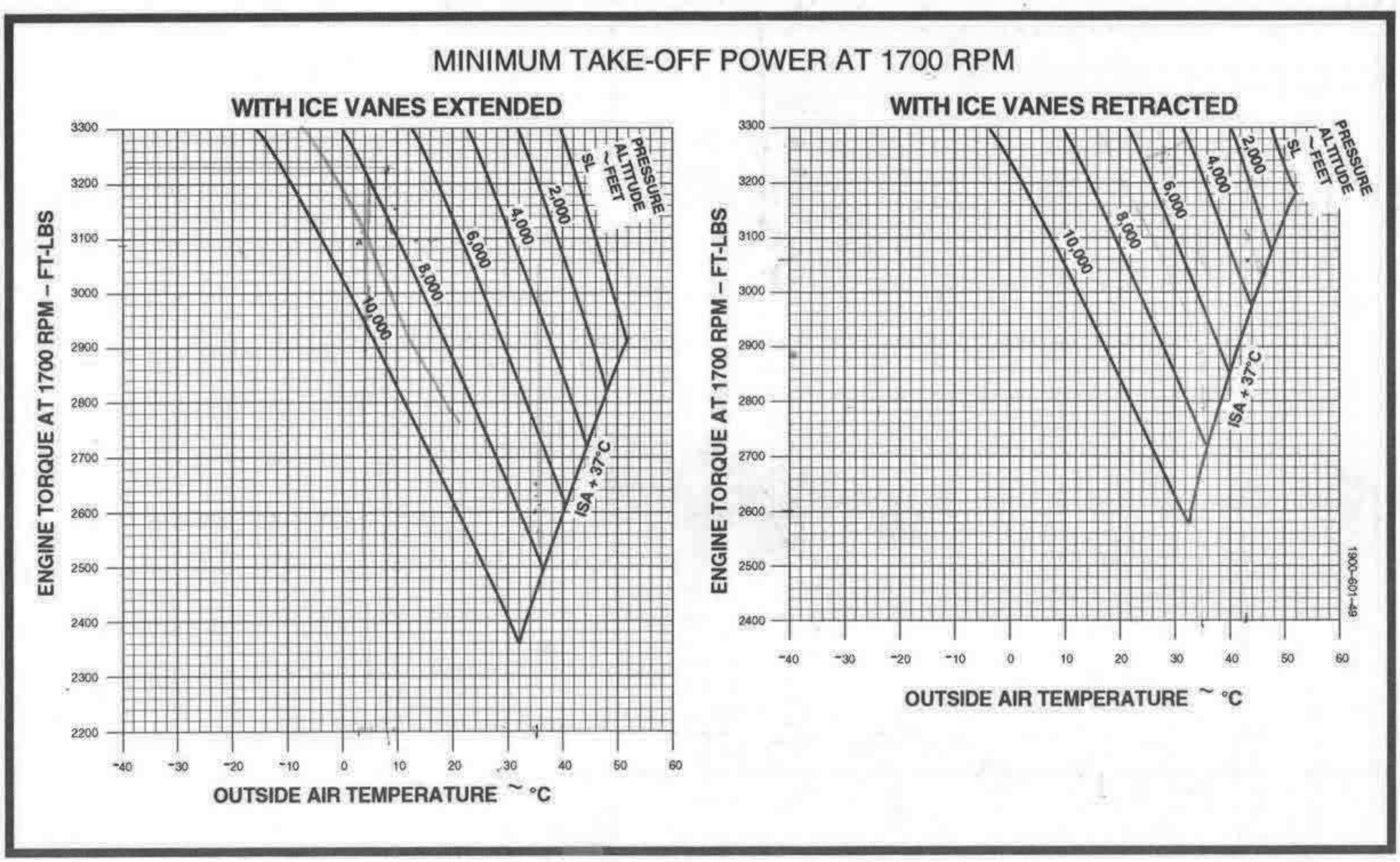


FIGURE 12.—Minimum Takeoff Power at 1700 RPM.

TAKE-OFF DISTANCE – FLAPS TAKEOFF

ASSOCIATED CONDITIONS:
POWER .... TAKE-OFF POWER SET BEFORE BRAKE RELEASE
LANDING GEAR .... RETRACT AFTER LIFT-OFF
RUNWAY .... PAVED, LEVEL, DRY SURFACE

NOTE: FOR OPERATION WITH ICE VANES EXTENDED ADD 5 °C TO THE ACTUAL OAT BEFORE ENTERING GRAPH.

WEIGHT ~ POUNDS	TAKE-OFF SPEED ~ KNOTS	
	V_1	V_2
16,600	108	115
16,000	107	114
14,000	102	112
12,000	102	112
10,000	102	112

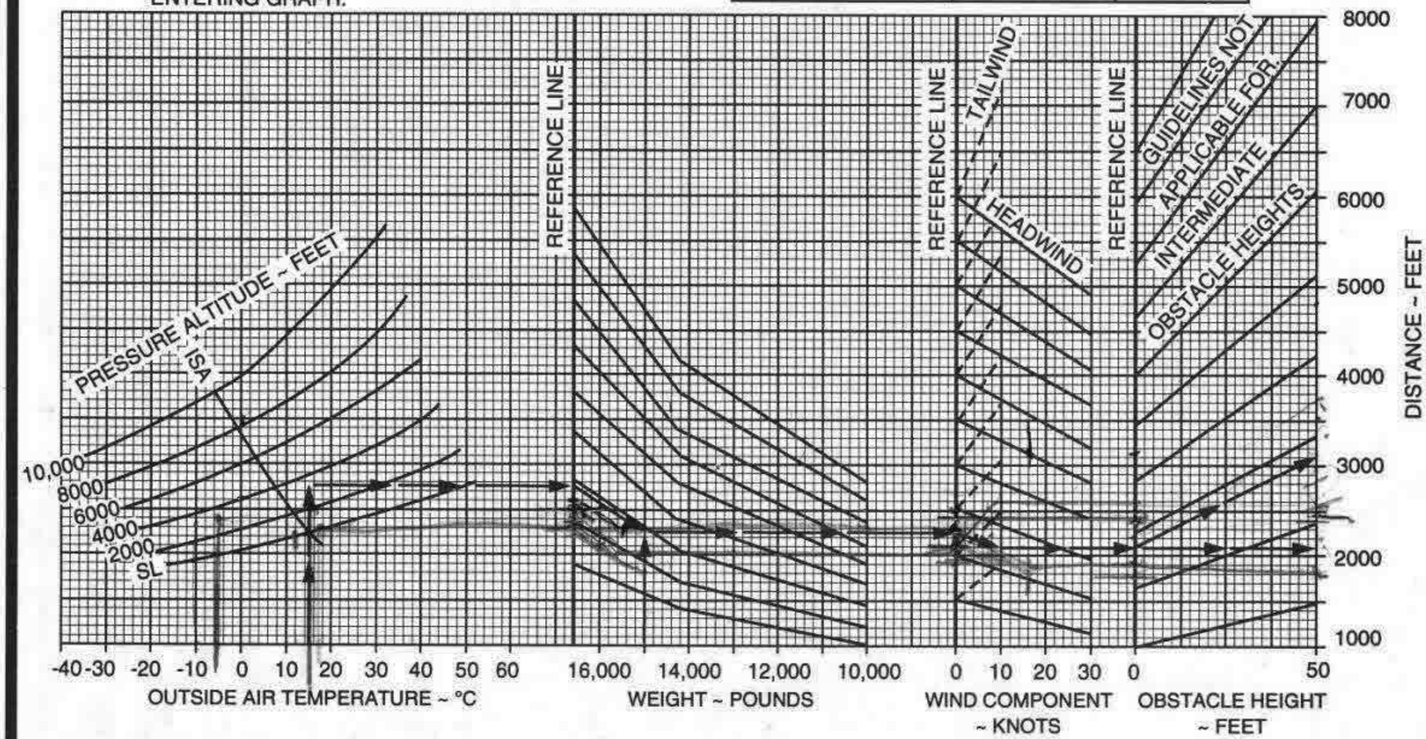


FIGURE 13.—Takeoff Distance – Flaps Takeoff.

ACCELERATE–STOP — FLAPS TAKEOFF

ASSOCIATED CONDITIONS:

POWER .... 1. TAKE-OFF POWER SET BEFORE BRAKE RELEASE
2. BOTH ENGINES IDLE AT V_1 SPEED

AUTOFEATHER .... ARMED

BRAKING .... MAXIMUM

RUNWAY .... PAVED, LEVEL, DRY SURFACE

NOTE: FOR OPERATION WITH ICE VANES EXTENDED, ADD 3 °C TO THE ACTUAL OAT BEFORE ENTERING GRAPH.

WEIGHT ~ POUNDS	V_1 ~ KNOTS
16,600	108
16,000	107
14,000	102
12,000	102
10,000	102

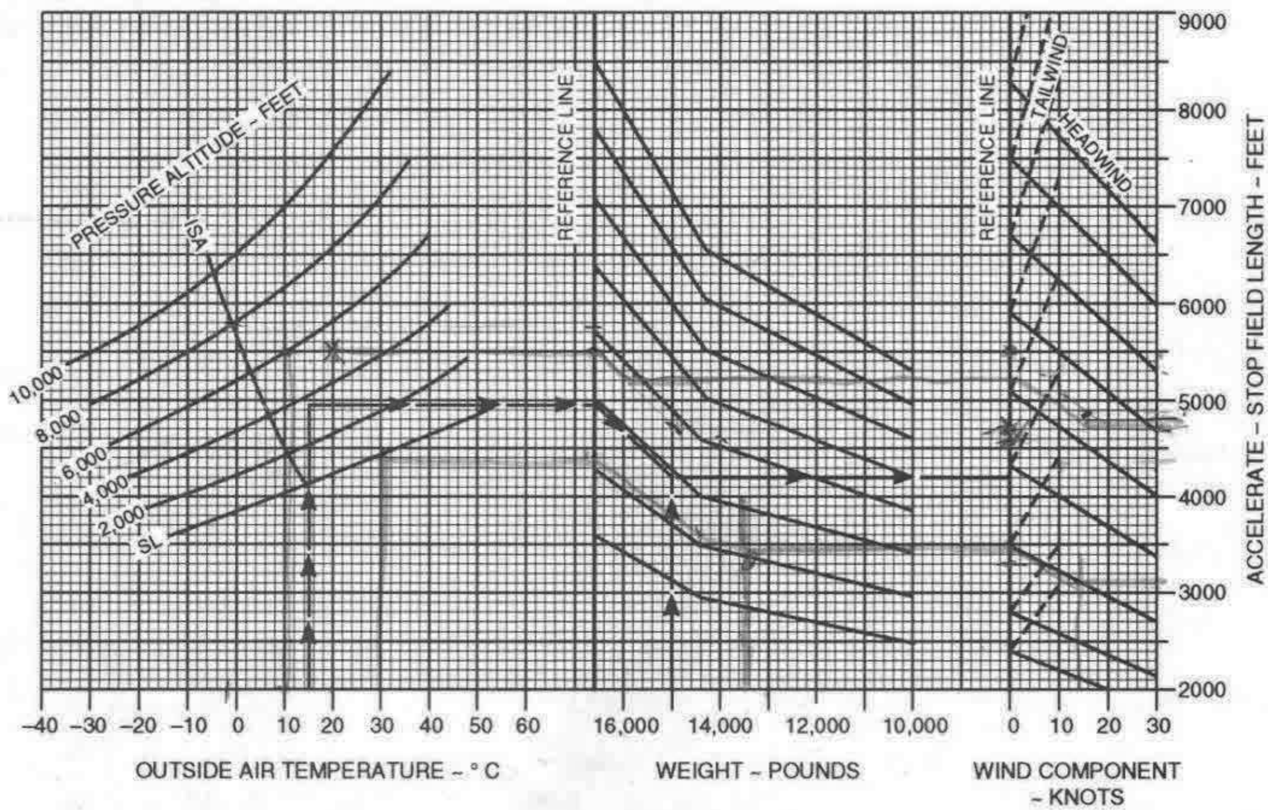


FIGURE 14.—Accelerate-Stop – Flaps Takeoff.

OPERATING CONDITIONS	BE-21	BE-22	BE-23	BE-24	BE-25
OAT AT TAKEOFF	+10 °C	0 °C	+20 °C	+25 °C	–10 °C
OAT AT CRUISE	–20 °C	–25 °C	ISA	0 °C	–40 °C
AIRPORT PRESS ALTITUDE	2,000	1,000	3,000	4,000	5,000
CRUISE ALTITUDE	16,000	18,000	20,000	14,000	22,000
INITIAL CLIMB WEIGHT	16,600	14,000	15,000	16,000	14,000
ICE VANES	RETRACT	EXTEND	RETRACT	RETRACT	EXTEND

FIGURE 15.— Beech 1900 – Climb.

CLIMB — TWO ENGINES — FLAPS UP

ASSOCIATED CONDITIONS:

POWER .... MAXIMUM CONTINUOUS
FLAPS .... UP
LANDING GEAR .... UP

WEIGHT ~ POUNDS	CLIMB SPEED ~ KNOTS
16,600	135
16,000	134
14,000	130
12,000	125
10,000	121

NOTE: DURING OPERATION WITH ICE VANES EXTENDED, RATE OF CLIMB WILL BE REDUCED APPROXIMATELY 240 FEET PER MINUTE.

EXAMPLE:

OAT .... –4 °C
PRESSURE ALTITUDE .... 9,000 FT
WEIGHT .... 14,500 LBS
RATE OF CLIMB .... 2490 FT/MIN
CLIMB GRADIENT .... 14.7 %
CLIMB SPEED .... 131 KTS

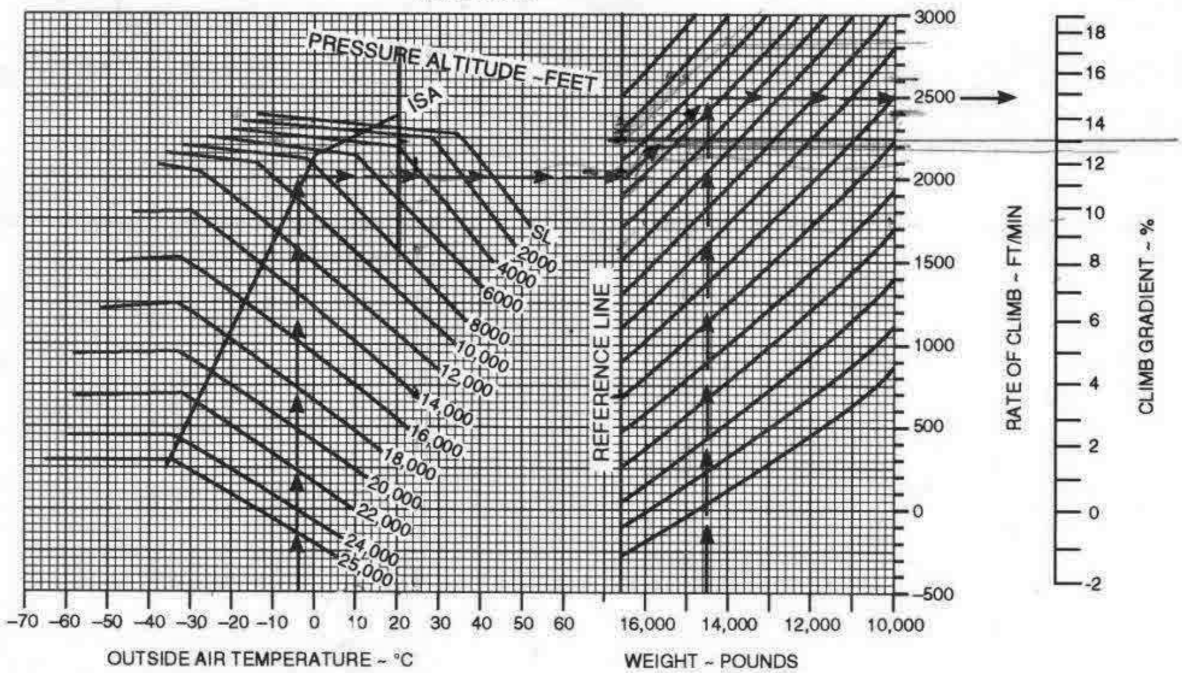


FIGURE 16.—Climb – Two Engines – Flaps Up.

CLIMB — ONE ENGINE INOPERATIVE

BLEED AIR ON

ASSOCIATED CONDITIONS:

POWER .... MAXIMUM CONTINUOUS
FLAPS .... UP
LANDING GEAR .... UP
INOPERATIVE PROPELLER .... FEATHERED

WEIGHT ~ POUNDS	CLIMB SPEED ~ KNOTS
16,600	125
16,000	124
14,000	119
12,000	116
10,000	112

NOTES: DURING OPERATION WITH ICE VANES EXTENDED, RATE OF CLIMB WILL BE REDUCED APPROXIMATELY 115 FEET PER MINUTE.

EXAMPLE:

OAT .... −4 °C
PRESSURE ALTITUDE ...... 9,000 FT
WEIGHT .... 14,500 LBS

RATE OF CLIMB .... 450 FT/MIN
CLIMB GRADIENT .... 3.1 %
CLIMB SPEED .... 120 KTS

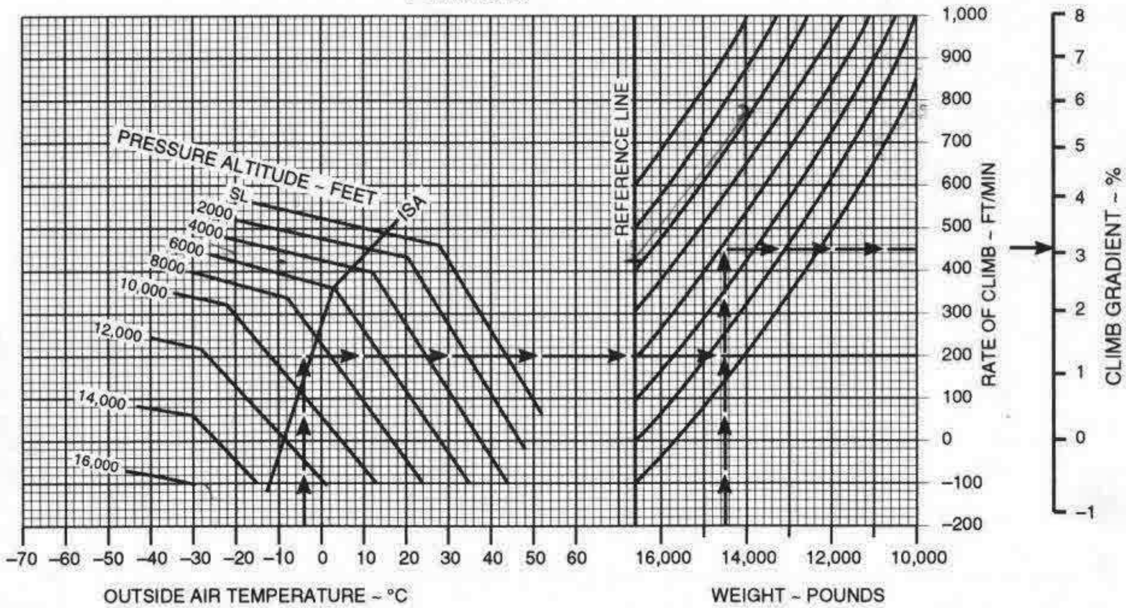


FIGURE 17.—Climb – One Engine Inoperative.

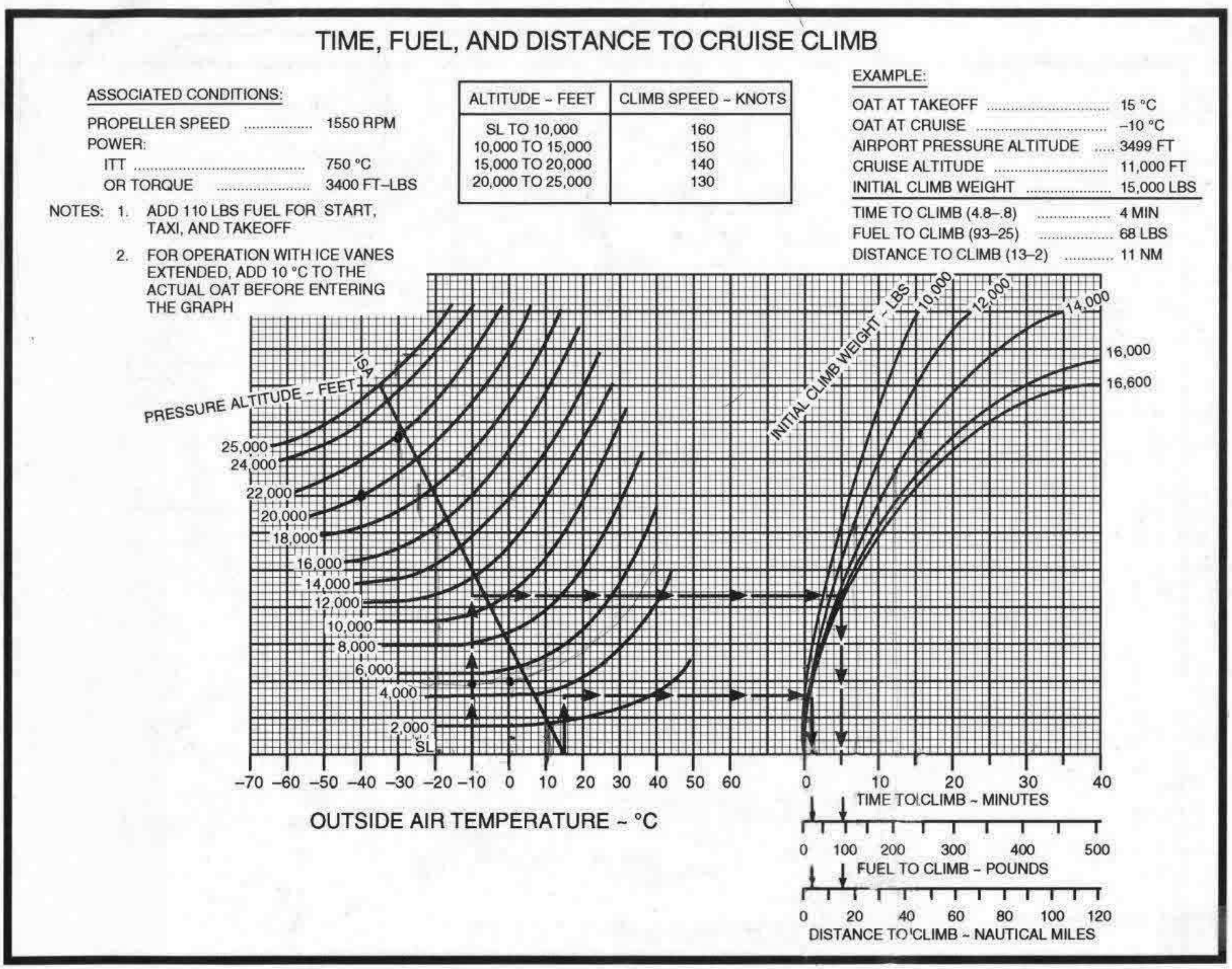


FIGURE 18.—Time, Fuel, and Distance to Cruise Climb

OPERATING CONDITIONS	BE-26	BE-27	BE-28	BE-29	BE-30
OAT AT MEA	–8 °C	+30 °C	+5 °C	+18 °C	+22 °C
WEIGHT	15,500	16,600	16,000	16,300	14,500
ROUTE SEGMENT MEA	6,000	5,500	9,000	7,000	9,500
BLEED AIR	ON	ON	OFF	ON	OFF

FIGURE 19.—Beech 1900 – Service Ceiling.

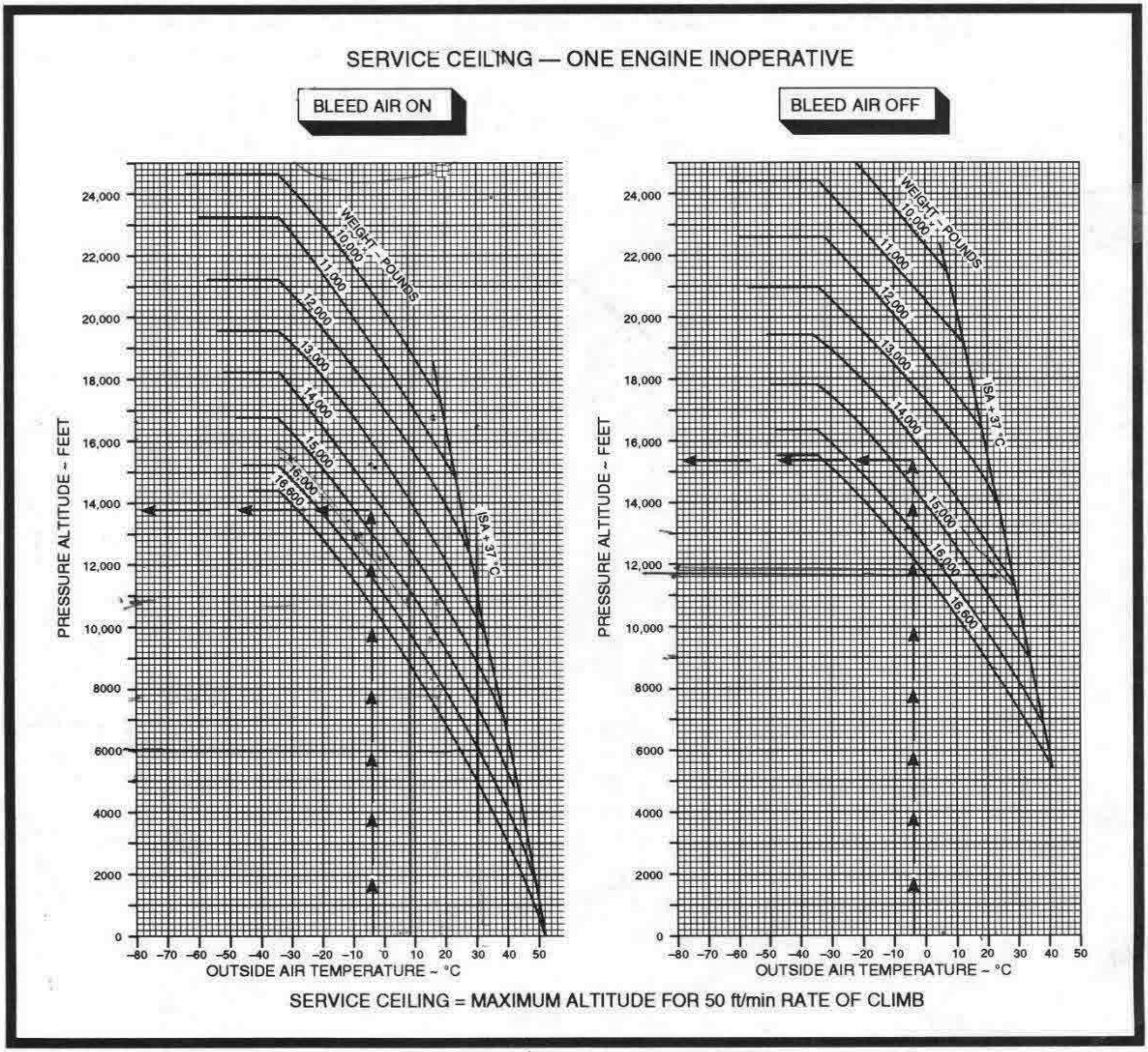


FIGURE 20.—Service Ceiling – One Engine Inoperative.

OPERATING CONDITIONS	BE-31	BE-32	BE-33	BE-34	BE-35
WEIGHT	15,000	14,000	13,000	16,000	11,000
PRESSURE ALTITUDE	22,000	17,000	20,000	23,000	14,000
TEMPERATURE (OAT)	–19 °C	–19 °C	–35 °C	–31 °C	–3 °C
TRUE COURSE	110	270	185	020	305
WIND	180/30	020/35	135/45	340/25	040/50
CRUISE DISTANCE	280	320	400	230	300

FIGURE 21.—Beech 1900 – Cruise.

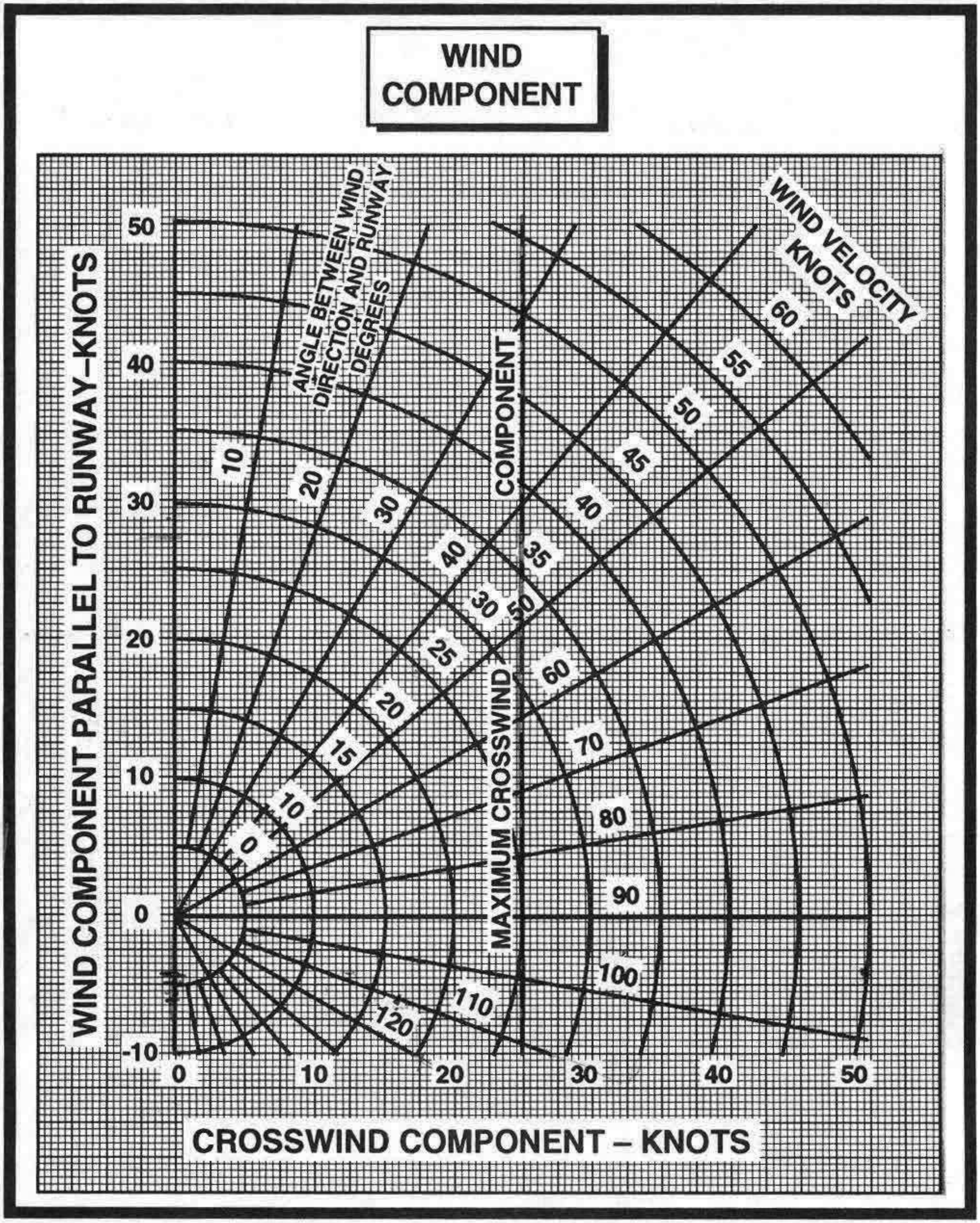


FIGURE 22.—Wind Component Chart.

RECOMMENDED CRUISE POWER

1550 RPM

ISA +10 °C

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	30	25	3294	577	1154	232	239	3301	577	1154	235	241	3307	577	1154	237	243	3312	577	1154	238	245
2000	26	21	3191	551	1102	227	240	3198	551	1102	230	243	3204	552	1104	232	245	3209	552	1104	233	247
4000	22	17	3092	527	1054	222	242	3100	528	1056	224	244	3106	528	1056	227	247	3111	528	1056	228	249
6000	19	13	2992	504	1008	216	243	3000	505	1010	219	246	3006	505	1010	222	249	3012	505	1010	224	251
8000	15	9	2886	481	962	211	244	2896	482	964	214	247	2903	482	964	216	250	2909	482	964	219	253
10,000	11	5	2778	458	916	205	244	2789	458	916	208	248	2797	459	918	211	252	2804	459	918	213	254
12,000	7	1	2636	432	864	198	243	2648	433	866	202	248	2657	433	866	205	252	2664	434	868	207	255
14,000	3	-3	2495	408	816	190	241	2508	409	818	195	247	2518	409	818	198	251	2525	409	818	201	255
16,000	-1	-7	2352	384	768	182	239	2367	385	770	188	246	2378	385	770	192	251	2386	386	772	195	255
18,000	-6	-11	2208	361	722	174	235	2226	362	724	180	243	2239	363	726	185	250	2248	363	726	188	254
20,000	-10	-15	2063	338	676	164	229	2085	340	680	172	240	2100	341	682	177	248	2111	341	682	181	253
22,000	-14	-19	1911	316	632	153	221	1939	317	634	163	235	1957	319	638	169	245	1969	319	638	174	252
24,000	-19	-23	1749	292	584	137	206	1790	295	590	152	229	1812	297	594	161	241	1827	298	596	167	249
25,000	-21	-25	1649	279	558	122	187	1714	284	568	147	224	1739	286	572	156	238	1756	287	574	163	248

FIGURE 23.—Recommended Cruise Power – ISA + 10 °C.

RECOMMENDED CRUISE POWER

1550 RPM

ISA

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	20	15	3400	586	1172	237	239	3400	585	1170	239	241	3400	585	1170	241	243	3400	585	1170	242	244
2000	17	11	3400	573	1146	234	244	3400	573	1146	236	246	3400	572	1144	238	248	3400	572	1144	240	249
4000	13	7	3400	560	1120	232	248	3400	559	1118	234	250	3400	559	1118	236	252	3400	559	1118	237	254
6000	9	3	3397	548	1096	229	252	3400	548	1096	231	255	3400	547	1094	233	257	3400	547	1094	235	259
8000	5	-1	3253	521	1042	223	253	3260	522	1044	225	256	3265	522	1044	228	258	3270	522	1044	229	260
10,000	1	-5	3092	494	988	216	252	3100	494	988	219	256	3107	495	990	221	258	3112	495	990	223	261
12,000	-3	-9	2929	466	932	208	251	2937	467	934	212	255	2945	467	934	214	258	2950	467	934	217	261
14,000	-7	-13	2772	440	880	201	250	2781	441	882	205	255	2789	441	882	208	258	2795	442	884	210	261
16,000	-11	-17	2606	414	828	193	248	2618	414	828	197	253	2626	415	830	201	258	2633	415	830	203	261
18,000	-15	-21	2435	288	776	184	244	2449	389	778	189	251	2459	389	778	193	256	2467	390	780	196	260
20,000	-19	-25	2263	363	726	175	239	2282	364	728	181	248	2294	365	730	186	254	2302	365	730	189	259
22,000	-24	-29	2094	338	676	164	233	2118	340	680	172	244	2133	341	682	178	251	2144	342	684	182	257
24,000	-28	-33	1931	315	630	152	223	1960	317	634	163	238	1979	318	636	169	248	1991	319	638	174	255
25,000	-30	-35	1846	303	606	145	216	1880	305	610	157	235	1901	307	614	165	246	1915	308	616	170	253

FIGURE 24.—Recommended Cruise Power – ISA.

RECOMMENDED CRUISE POWER

1550 RPM

ISA -10 °C

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	10	5	3400	582	1164	238	237	3400	582	1164	240	239	3400	581	1162	242	240	3400	581	1162	243	242
2000	6	1	3400	569	1138	236	241	3400	569	1138	238	243	3400	568	1136	240	245	3400	568	1136	241	246
4000	3	-3	3400	558	1116	233	245	3400	557	1114	236	248	3400	557	1114	237	249	3400	557	1114	239	251
6000	-1	-7	3400	548	1096	231	250	3400	547	1094	233	252	3400	547	1094	235	254	3400	546	1092	236	256
8000	-5	-11	3400	538	1076	228	254	3400	538	1076	231	257	3400	538	1076	232	259	3400	537	1074	234	261
10,000	-9	-15	3400	530	1060	226	259	3400	530	1060	228	262	3400	530	1060	230	264	3400	529	1058	232	266
12,000	-13	-19	3200	499	998	218	258	3208	500	1000	221	261	3215	500	1000	223	264	3220	501	1002	225	266
14,000	-17	-23	3010	470	940	210	256	3019	471	942	213	260	3026	471	942	216	263	3032	472	944	218	266
16,000	-21	-27	2823	442	884	202	254	2833	442	884	205	258	2841	443	886	209	262	2848	443	886	211	265
18,000	-25	-31	2641	414	828	193	251	2652	415	830	198	256	2661	416	832	201	261	2668	416	832	204	264
20,000	-29	-35	2456	387	774	184	247	2471	388	776	189	254	2481	389	778	193	259	2489	390	780	196	263
22,000	-33	-39	2277	361	722	174	242	2296	363	726	181	250	2308	363	726	185	256	2318	364	728	189	261
24,000	-37	-43	2105	336	672	163	234	2128	338	676	172	246	2144	339	678	177	254	2155	340	680	181	260
25,000	-40	-45	2017	324	648	157	230	2044	326	652	167	243	2061	327	654	173	252	2073	328	656	177	258

FIGURE 25.—Recommended Cruise Power – ISA –10 °C.

TIME, FUEL, AND DISTANCE TO DESCEND

AT 200 KNOTS

ASSOCIATED CONDITIONS:

POWER .... AS REQUIRED TO DESCEND AT 1500 FT/MIN

LANDING GEAR .... UP

FLAPS .... UP

EXAMPLE

INITIAL ALTITUDE................................ 11,000 FT
FINAL ALTITUDE ....5,998 FT

TIME TO DESCEND (7.4–4.1) .... 3.3 MIN
FUEL TO DESCEND (74–41) .... 33 LBS
DISTANCE TO DESCEND (26–13) ...... 13 NM

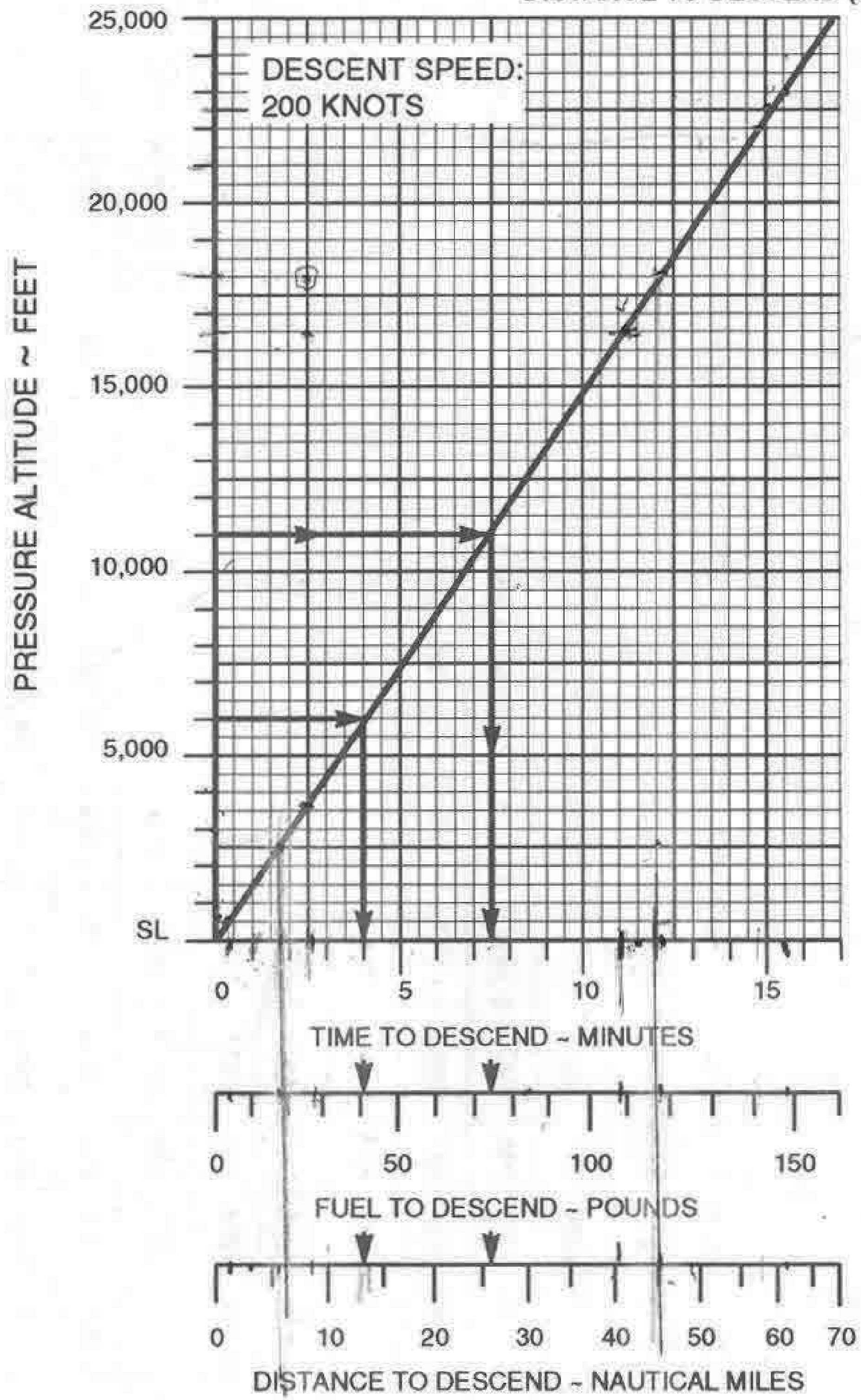


FIGURE 26.—Time, Fuel, and Distance to Descend.

OPERATING CONDITIONS	B–36	B–37	B–38	B–39	B–40
PRESSURE ALTITUDE	SL	1,000	2,000	4,000	5,000
TEMPERATURE (OAT)	+30 °C	+16 °C	0 °C	+20 °C	ISA
WEIGHT	16,000	14,500	13,500	15,000	12,500
WIND COMPONENT (KTS)	20 HW	10 TW	15 HW	5 TW	25 HW
RUNWAY LENGTH (FT)	4,000	4,500	3,800	5,000	4,000

FIGURE 27.—Beech 1900 – Landing.

NORMAL LANDING DISTANCE — FLAPS LANDING

ANTI–SKID ON

ASSOCIATED CONDITIONS:

POWER .... RETARD TO MAINTAIN 800 FT/MIN ON FINAL APPROACH
RUNWAY .... PAVED, LEVEL, DRY SURFACE
APPROACH SPEED..... IAS AS TABULATED
BRAKING .... MAXIMUM

WEIGHT - POUNDS	APPROACH SPEED - KNOTS
16,100	113
14,000	107
12,000	101
10,000	93

EXAMPLE:

OAT .... 25 °C
PRESSURE ALTITUDE .... 5998 FT
LANDING WEIGHT .... 14,182 LBS
HEADWIND COMPONENT .... 10 KTS

GROUND ROLL .... 1150 FT
TOTAL OVER 50–FT OBSTACLE ..... 2195 FT
APPROACH SPEED.................. 108 KTS

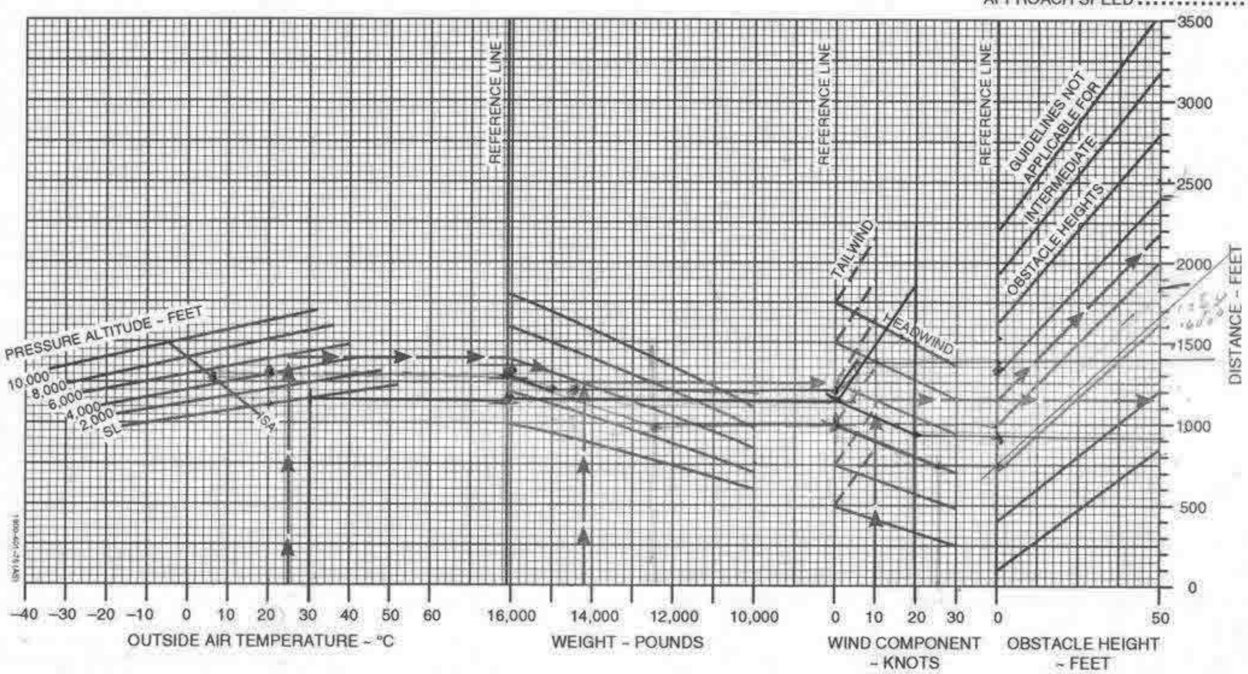


FIGURE 28.—Normal Landing Distance – Flaps Landing.

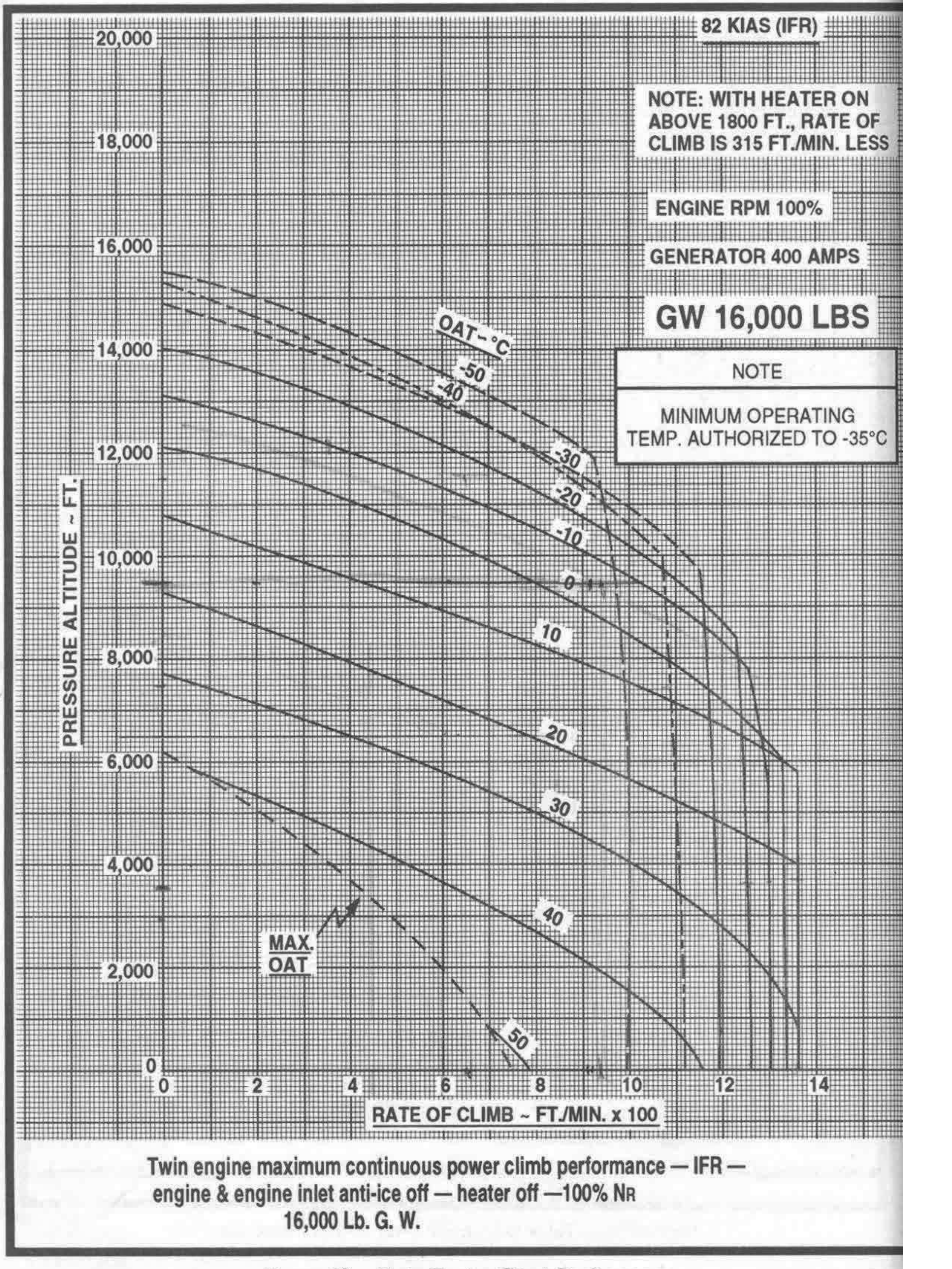


FIGURE 40.—Twin-Engine Climb Performance.

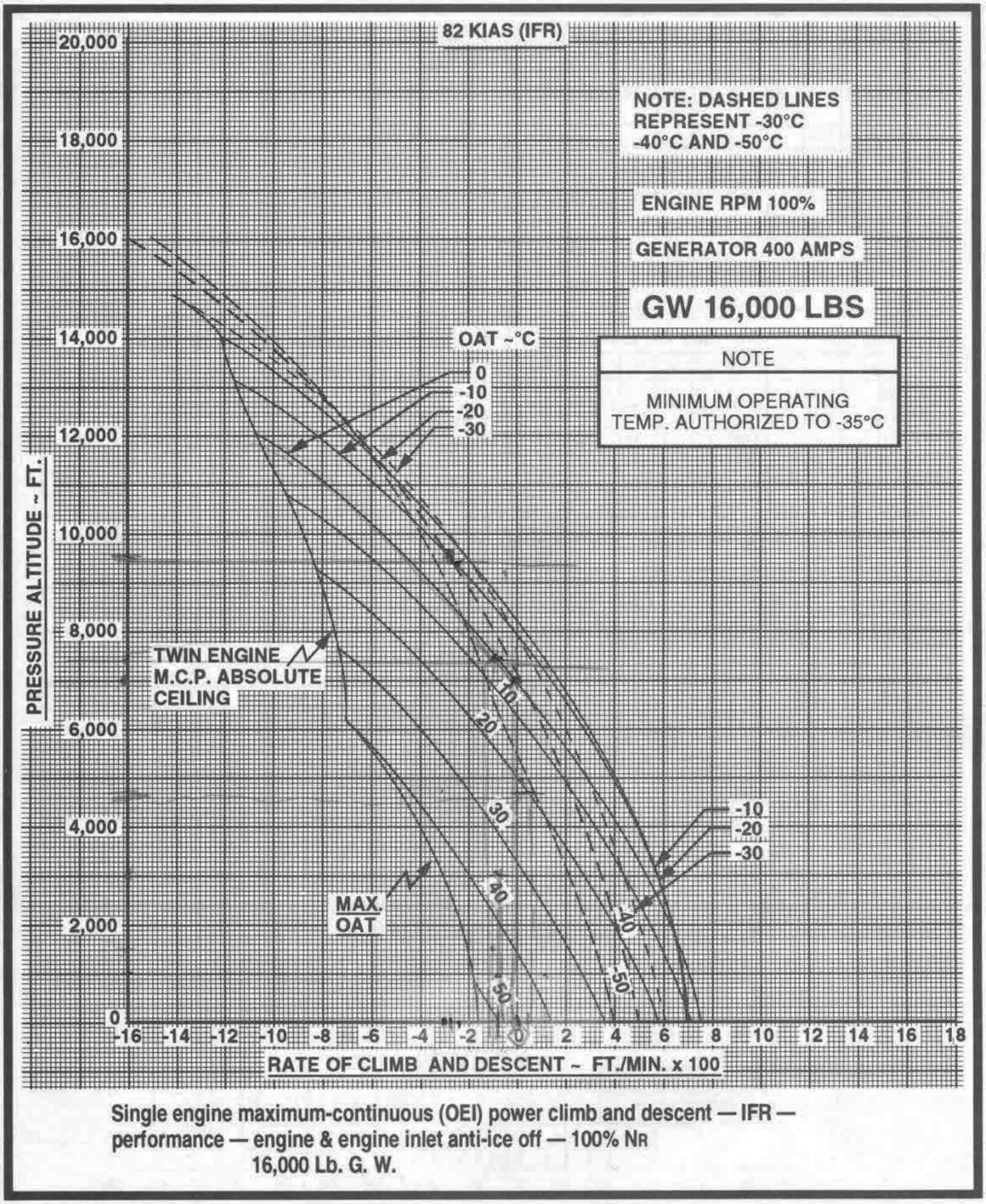


FIGURE 41.—Single-Engine Climb Performance.

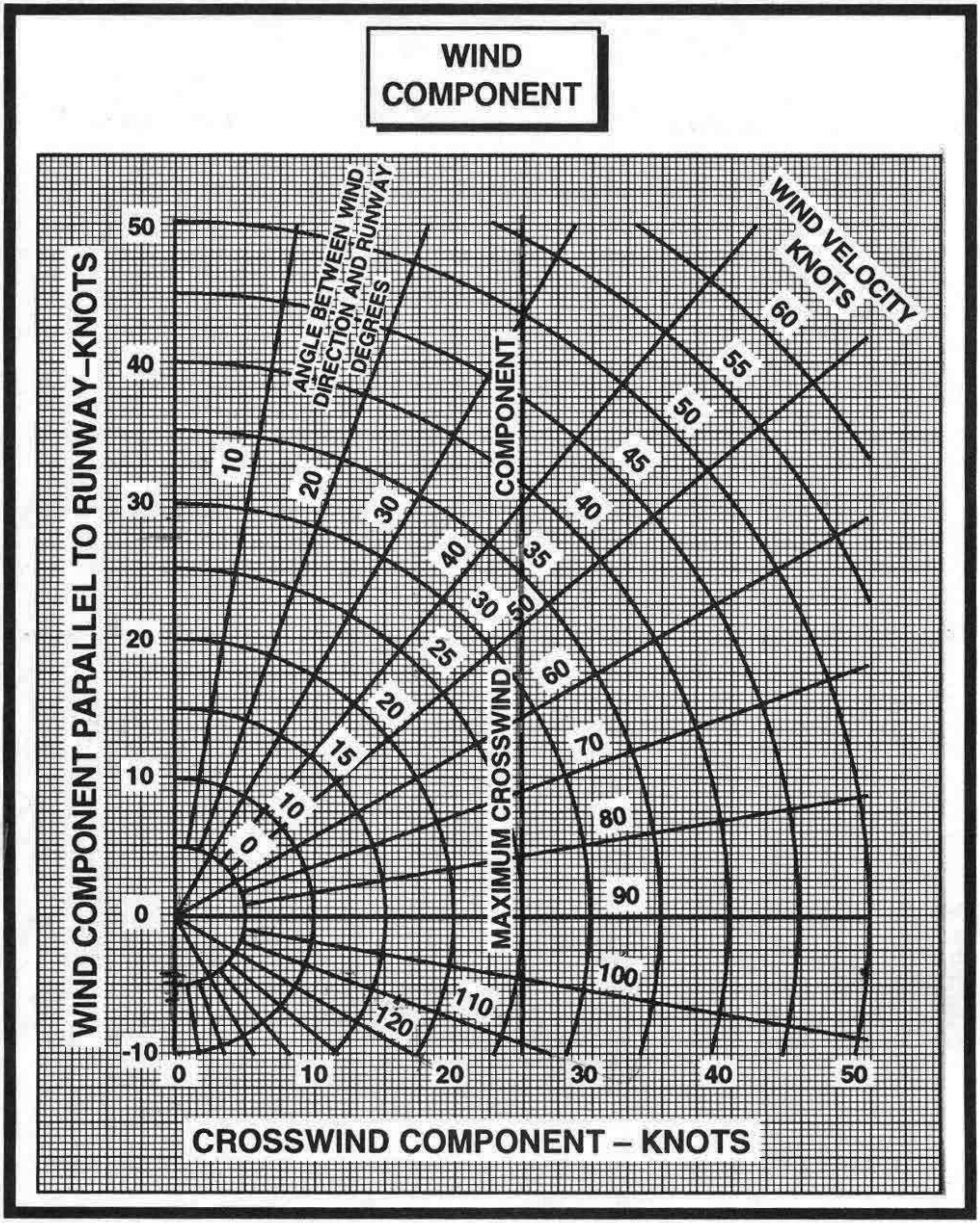


FIGURE 22.—Wind Component Chart.

RECOMMENDED CRUISE POWER

1550 RPM

ISA +10 °C

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	30	25	3294	577	1154	232	239	3301	577	1154	235	241	3307	577	1154	237	243	3312	577	1154	238	245
2000	26	21	3191	551	1102	227	240	3198	551	1102	230	243	3204	552	1104	232	245	3209	552	1104	233	247
4000	22	17	3092	527	1054	222	242	3100	528	1056	224	244	3106	528	1056	227	247	3111	528	1056	228	249
6000	19	13	2992	504	1008	216	243	3000	505	1010	219	246	3006	505	1010	222	249	3012	505	1010	224	251
8000	15	9	2886	481	962	211	244	2896	482	964	214	247	2903	482	964	216	250	2909	482	964	219	253
10,000	11	5	2778	458	916	205	244	2789	458	916	208	248	2797	459	918	211	252	2804	459	918	213	254
12,000	7	1	2636	432	864	198	243	2648	433	866	202	248	2657	433	866	205	252	2664	434	868	207	255
14,000	3	-3	2495	408	816	190	241	2508	409	818	195	247	2518	409	818	198	251	2525	409	818	201	255
16,000	-1	-7	2352	384	768	182	239	2367	385	770	188	246	2378	385	770	192	251	2386	386	772	195	255
18,000	-6	-11	2208	361	722	174	235	2226	362	724	180	243	2239	363	726	185	250	2248	363	726	188	254
20,000	-10	-15	2063	338	676	164	229	2085	340	680	172	240	2100	341	682	177	248	2111	341	682	181	253
22,000	-14	-19	1911	316	632	153	221	1939	317	634	163	235	1957	319	638	169	245	1969	319	638	174	252
24,000	-19	-23	1749	292	584	137	206	1790	295	590	152	229	1812	297	594	161	241	1827	298	596	167	249
25,000	-21	-25	1649	279	558	122	187	1714	284	568	147	224	1739	286	572	156	238	1756	287	574	163	248

FIGURE 23.—Recommended Cruise Power – ISA + 10 °C.

RECOMMENDED CRUISE POWER

1550 RPM

ISA

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	20	15	3400	586	1172	237	239	3400	585	1170	239	241	3400	585	1170	241	243	3400	585	1170	242	244
2000	17	11	3400	573	1146	234	244	3400	573	1146	236	246	3400	572	1144	238	248	3400	572	1144	240	249
4000	13	7	3400	560	1120	232	248	3400	559	1118	234	250	3400	559	1118	236	252	3400	559	1118	237	254
6000	9	3	3397	548	1096	229	252	3400	548	1096	231	255	3400	547	1094	233	257	3400	547	1094	235	259
8000	5	-1	3253	521	1042	223	253	3260	522	1044	225	256	3265	522	1044	228	258	3270	522	1044	229	260
10,000	1	-5	3092	494	988	216	252	3100	494	988	219	256	3107	495	990	221	258	3112	495	990	223	261
12,000	-3	-9	2929	466	932	208	251	2937	467	934	212	255	2945	467	934	214	258	2950	467	934	217	261
14,000	-7	-13	2772	440	880	201	250	2781	441	882	205	255	2789	441	882	208	258	2795	442	884	210	261
16,000	-11	-17	2606	414	828	193	248	2618	414	828	197	253	2626	415	830	201	258	2633	415	830	203	261
18,000	-15	-21	2435	288	776	184	244	2449	389	778	189	251	2459	389	778	193	256	2467	390	780	196	260
20,000	-19	-25	2263	363	726	175	239	2282	364	728	181	248	2294	365	730	186	254	2302	365	730	189	259
22,000	-24	-29	2094	338	676	164	233	2118	340	680	172	244	2133	341	682	178	251	2144	342	684	182	257
24,000	-28	-33	1931	315	630	152	223	1960	317	634	163	238	1979	318	636	169	248	1991	319	638	174	255
25,000	-30	-35	1846	303	606	145	216	1880	305	610	157	235	1901	307	614	165	246	1915	308	616	170	253

FIGURE 24.—Recommended Cruise Power – ISA.

RECOMMENDED CRUISE POWER

1550 RPM

ISA -10 °C

WEIGHT			16,000 POUNDS					14,000 POUNDS					12,000 POUNDS					10,000 POUNDS				
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	10	5	3400	582	1164	238	237	3400	582	1164	240	239	3400	581	1162	242	240	3400	581	1162	243	242
2000	6	1	3400	569	1138	236	241	3400	569	1138	238	243	3400	568	1136	240	245	3400	568	1136	241	246
4000	3	-3	3400	558	1116	233	245	3400	557	1114	236	248	3400	557	1114	237	249	3400	557	1114	239	251
6000	-1	-7	3400	548	1096	231	250	3400	547	1094	233	252	3400	547	1094	235	254	3400	546	1092	236	256
8000	-5	-11	3400	538	1076	228	254	3400	538	1076	231	257	3400	538	1076	232	259	3400	537	1074	234	261
10,000	-9	-15	3400	530	1060	226	259	3400	530	1060	228	262	3400	530	1060	230	264	3400	529	1058	232	266
12,000	-13	-19	3200	499	998	218	258	3208	500	1000	221	261	3215	500	1000	223	264	3220	501	1002	225	266
14,000	-17	-23	3010	470	940	210	256	3019	471	942	213	260	3026	471	942	216	263	3032	472	944	218	266
16,000	-21	-27	2823	442	884	202	254	2833	442	884	205	258	2841	443	886	209	262	2848	443	886	211	265
18,000	-25	-31	2641	414	828	193	251	2652	415	830	198	256	2661	416	832	201	261	2668	416	832	204	264
20,000	-29	-35	2456	387	774	184	247	2471	388	776	189	254	2481	389	778	193	259	2489	390	780	196	263
22,000	-33	-39	2277	361	722	174	242	2296	363	726	181	250	2308	363	726	185	256	2318	364	728	189	261
24,000	-37	-43	2105	336	672	163	234	2128	338	676	172	246	2144	339	678	177	254	2155	340	680	181	260
25,000	-40	-45	2017	324	648	157	230	2044	326	652	167	243	2061	327	654	173	252	2073	328	656	177	258

FIGURE 25.—Recommended Cruise Power – ISA –10 °C.

TIME, FUEL, AND DISTANCE TO DESCEND

AT 200 KNOTS

ASSOCIATED CONDITIONS:		EXAMPLE	
POWER	AS REQUIRED TO DESCEND AT 1500 FT/MIN	INITIAL ALTITUDE	11,000 FT
LANDING GEAR	UP	FINAL ALTITUDE	5,998 FT
FLAPS	UP	TIME TO DESCEND (7.4–4.1)	3.3 MIN
		FUEL TO DESCEND (74–41)	33 LBS
		DISTANCE TO DESCEND (26–13)	13 NM

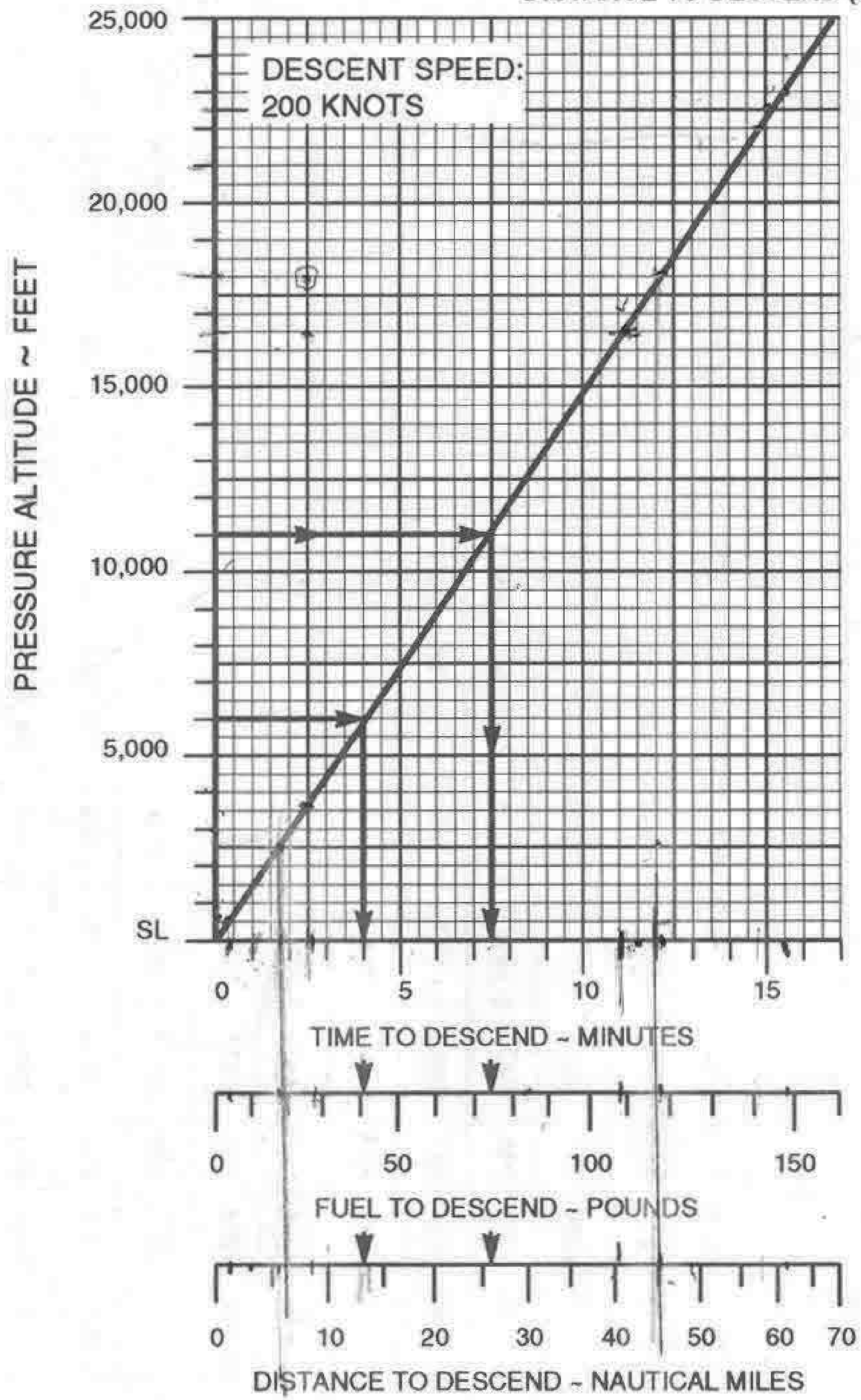


FIGURE 26.—Time, Fuel, and Distance to Descend.

OPERATING CONDITIONS	B–36	B–37	B–38	B–39	B–40
PRESSURE ALTITUDE	SL	1,000	2,000	4,000	5,000
TEMPERATURE (OAT)	+30 °C	+16 °C	0 °C	+20 °C	ISA
WEIGHT	16,000	14,500	13,500	15,000	12,500
WIND COMPONENT (KTS)	20 HW	10 TW	15 HW	5 TW	25 HW
RUNWAY LENGTH (FT)	4,000	4,500	3,800	5,000	4,000

FIGURE 27.—Beech 1900 – Landing.

NORMAL LANDING DISTANCE — FLAPS LANDING

ANTI–SKID ON

ASSOCIATED CONDITIONS:

POWER .... RETARD TO MAINTAIN 800 FT/MIN ON FINAL APPROACH
RUNWAY .... PAVED, LEVEL, DRY SURFACE
APPROACH SPEED..... IAS AS TABULATED
BRAKING .... MAXIMUM

WEIGHT - POUNDS	APPROACH SPEED - KNOTS
16,100	113
14,000	107
12,000	101
10,000	93

EXAMPLE:

OAT .... 25 °C
PRESSURE ALTITUDE .... 5998 FT
LANDING WEIGHT .... 14,182 LBS
HEADWIND COMPONENT .... 10 KTS

GROUND ROLL .... 1150 FT
TOTAL OVER 50–FT OBSTACLE ..... 2195 FT
APPROACH SPEED................... 108 KTS

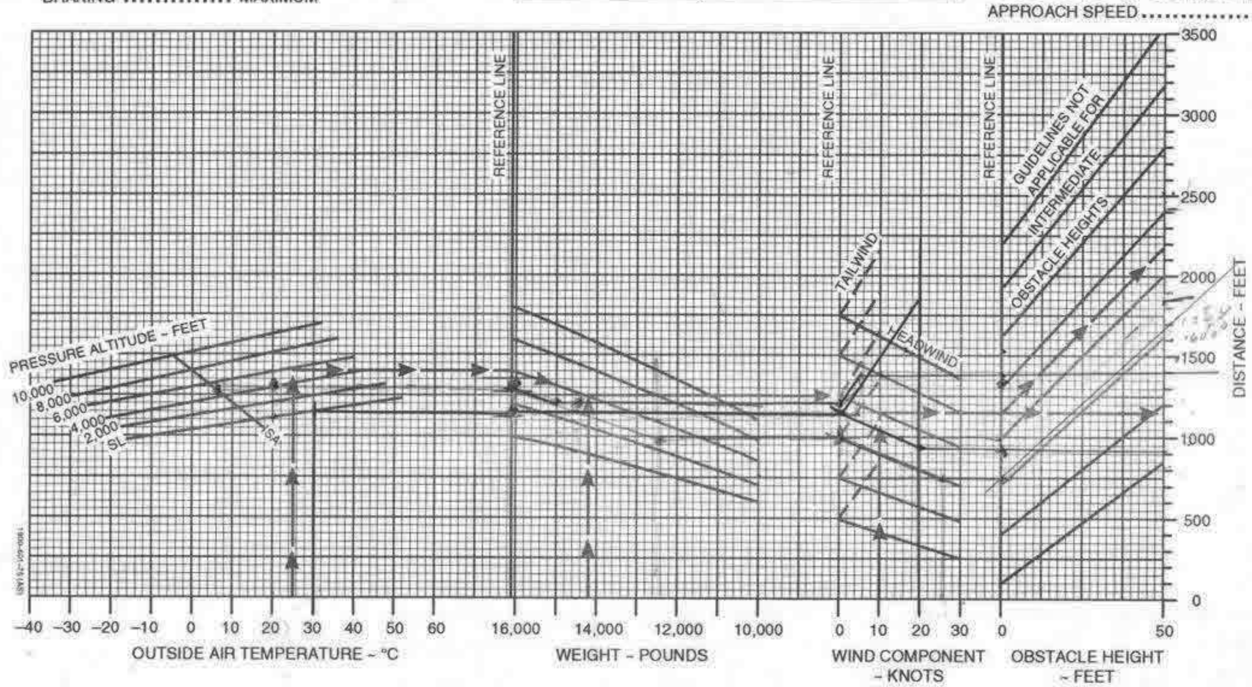
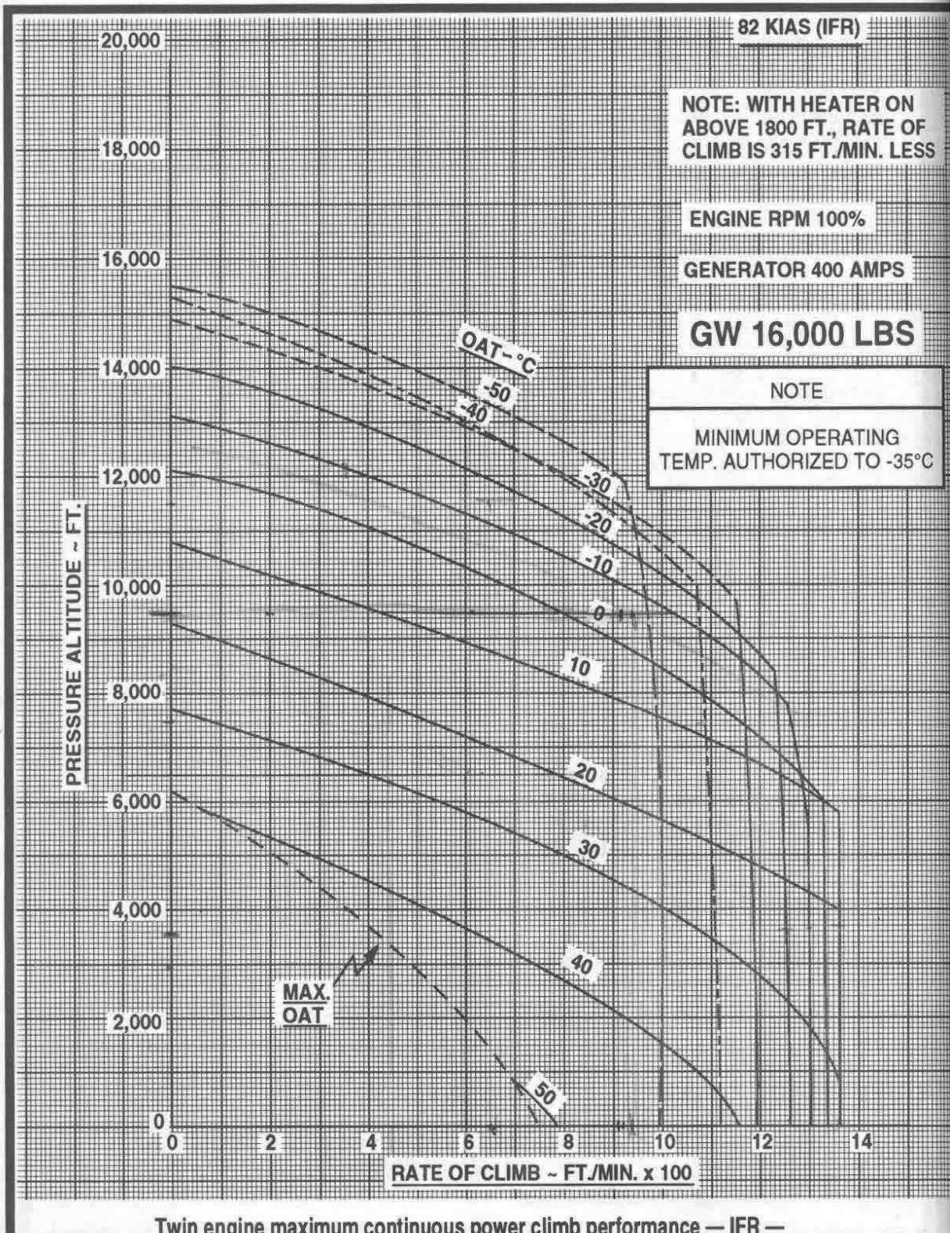
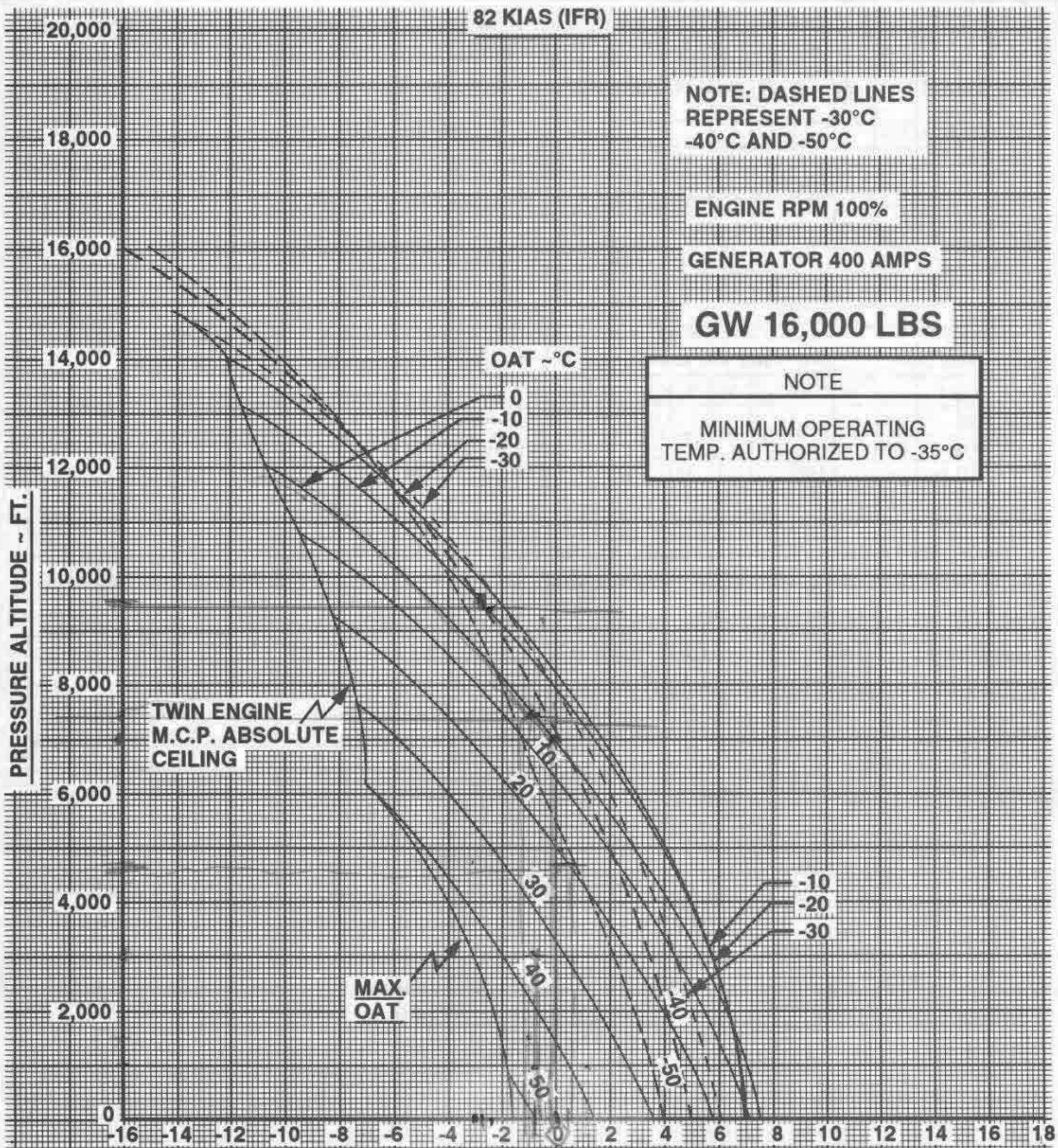


FIGURE 28.—Normal Landing Distance – Flaps Landing.



Twin engine maximum continuous power climb performance — IFR — engine & engine inlet anti-ice off — heater off —100% NR 16,000 Lb. G. W.

FIGURE 40.—Twin-Engine Climb Performance.



Single engine maximum-continuous (OEI) power climb and descent — IFR — performance — engine & engine inlet anti-ice off — 100% NR
16,000 Lb. G. W.

FIGURE 41.—Single-Engine Climb Performance.

12500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	155	-	-	-	-	-	-	-	-	-	-
40	159	150	140	-	-	-	-	-	-	-	-
20	159	159	149	139	128	118	109	99	-	-	-
0	155	150	144	139	134	128	118	108	98	-	-
-15	142	136	131	126	121	116	112	106	103	95	-
-25	132	127	122	117	113	108	104	100	96	92	88
-35	122	117	113	108	104	100	96	92	88	84	81

15500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	139	-	-	-	-	-	-	-	-	-	-
40	144	134	122	-	-	-	-	-	-	-	-
20	144	143	133	121	110	99	89	78	-	-	-
0	144	144	143	132	120	109	98	88	77	-	-
-15	142	136	131	126	121	116	105	94	83	72	-
-25	132	127	122	117	113	108	104	100	89	77	-
-35	122	117	113	108	104	100	96	92	88	83	-

13500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	150	-	-	-	-	-	-	-	-	-	-
40	154	154	135	-	-	-	-	-	-	-	-
20	154	154	144	134	123	113	104	94	-	-	-
0	154	150	144	139	133	123	113	103	93	-	-
-15	142	136	131	126	121	116	112	106	99	89	-
-25	132	127	122	117	113	108	104	100	96	92	86
-35	122	117	113	108	104	100	96	92	88	84	81

16500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	133	-	-	-	-	-	-	-	-	-	-
40	139	124	110	-	-	-	-	-	-	-	-
20	139	138	123	108	93	79	-	-	-	-	-
0	139	139	138	122	107	92	78	-	-	-	-
-15	139	136	131	126	118	103	87	72	-	-	-
-25	132	127	122	117	113	108	93	78	-	-	-
-35	122	117	113	108	104	100	96	87	75	-	-

14500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	145	-	-	-	-	-	-	-	-	-	-
40	149	140	129	-	-	-	-	-	-	-	-
20	149	149	139	128	118	108	99	89	-	-	-
0	149	149	144	138	127	118	108	98	88	-	-
-15	142	136	131	126	121	116	112	104	94	84	-
-25	132	127	122	117	113	108	104	100	96	88	79
-35	122	117	113	108	104	100	96	92	88	84	81

17500 LB	AIRSPEED LIMIT (VNE) - KIAS										
OAT °C	PRESS ALT - FT X1000										
	0	2	4	6	8	10	12	14	16	18	20
51.7	122	-	-	-	-	-	-	-	-	-	-
40	128	115	102	-	-	-	-	-	-	-	-
20	128	127	114	101	-	-	-	-	-	-	-
0	128	128	127	113	100	-	-	-	-	-	-
-15	128	128	128	123	110	94	-	-	-	-	-
-25	128	127	122	117	113	101	87	-	-	-	-
-35	122	117	113	108	104	100	93	-	-	-	-

FIGURE 42.—Airspeed Limit.

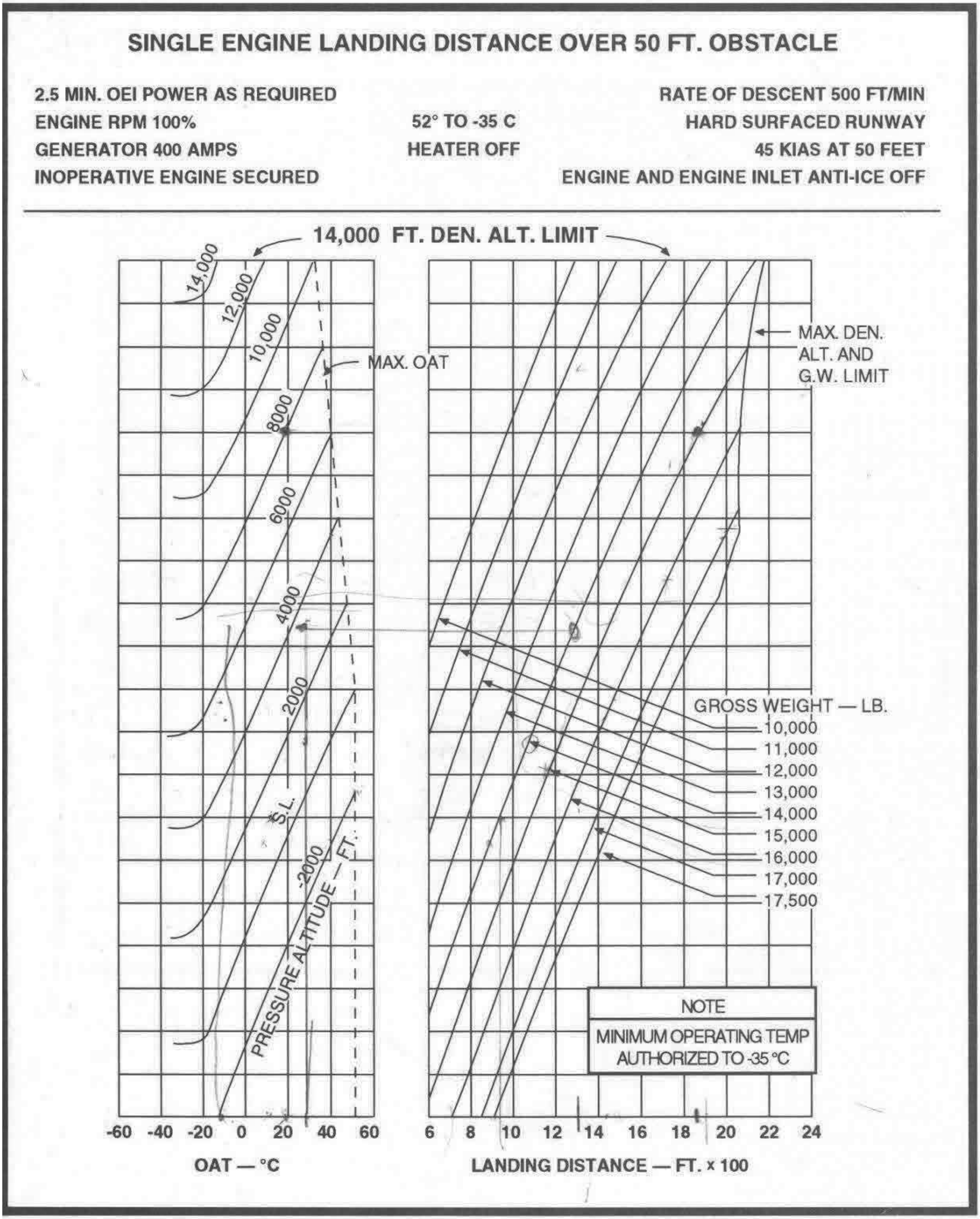


FIGURE 43.—Single-Engine Landing Distance Over 50-Foot Obstacle.

LOADING CONDITIONS	WS-1	WS-2	WS-3	WS-4	WS-5
LOADED WEIGHT	90,000	85,000	84,500	81,700	88,300
LOADED CG (% MAC)	22.5%	28.4%	19.8%	30.3%	25.5%
WEIGHT CHANGE (POUNDS)	2,500	1,800	3,000	2,100	3,300

FWD COMPT CENTROID – STA 352.1 AND –227.9 INDEX ARM
AFT COMPT CENTROID – STA 724.9 AND +144.9 INDEX ARM
MAC – 141.5 INCHES, LEMAC – STA 549.13, AND –30.87 INDEX ARM

FIGURE 44.—DC-9 – Weight Shift.

OPERATING CONDITIONS	A-1	A-2	A-3	A-4	A-5
FIELD ELEVATION	2,500	600	4,200	5,100	2,100
ALTIMETER SETTING	29.40"	30.50"	1020mb	29.35"	1035mb
AMBIENT TEMPERATURE	+10 °F	+80 °F	0 °C	+30 °F	+20 °C
WEIGHT (X1000)	75	85	90	80	65
FLAP POSITION	20°	20°	20°	20°	20°
RUNWAY SLOPE %	+1%	–1.5%	0	+1.5%	–2%
WIND COMPONENT	10 HW	10 TW	15 HW	5 TW	20 HW
ICE PROTECTION	BOTH	NONE	BOTH	ENGINE	NONE
CG STATION	590.2	—	580.3	—	594.4
CG INDEX ARM	—	–3.1	—	+5.9	—
INDEX ARM REF – STA 580.0, LEMAC – STA 549.13, AND –30.87 INDEX, MAC 141.5 CG % MAC = STAB TRIM SETTING					

FIGURE 45.—DC-9 – Takeoff.

ALTIMETER SETTING
TO
STATION PRESSURE

QNH TO PRESSURE ALTITUDE

QNH IN. HG.	CORRECTION TO ELEVATION FOR PRESS. ALT FT	QNH MILLIBARS
28.81 to 28.91	1000	976 to 979
28.91 to 29.02	900	979 to 983
29.02 to 29.12	800	983 to 986
29.12 to 29.23	700	986 to 990
29.23 to 29.34	600	990 to 994
29.34 to 29.44	500	994 to 997
29.44 to 29.55	400	997 to 1001
29.55 to 29.66	300	1001 to 1004
29.66 to 29.76	200	1004 to 1008
29.76 to 29.87	100	1008 to 1012
29.87 to 29.97	0	1012 to 1015
29.97 to 30.08	-100	1015 to 1019
30.08 to 30.19	-200	1019 to 1022
30.19 to 30.30	-300	1022 to 1026
30.30 to 30.41	-400	1026 to 1030
30.41 to 30.52	-500	1030 to 1034
30.52 to 30.63	-600	1034 to 1037
30.63 to 30.74	-700	1037 to 1041
30.74 to 30.85	-800	1041 to 1045
30.85 to 30.96	-900	1045 to 1048
30.96 to 31.07	-1000	1048 to 1052

EXAMPLE: ELEVATION = 2500 FT
QNH = 29.48 IN.HG
CORRECTION = 400 FT.
PRESS ALT = 2900 FT

FIGURE 46.—Altimeter Setting to Pressure Altitude.

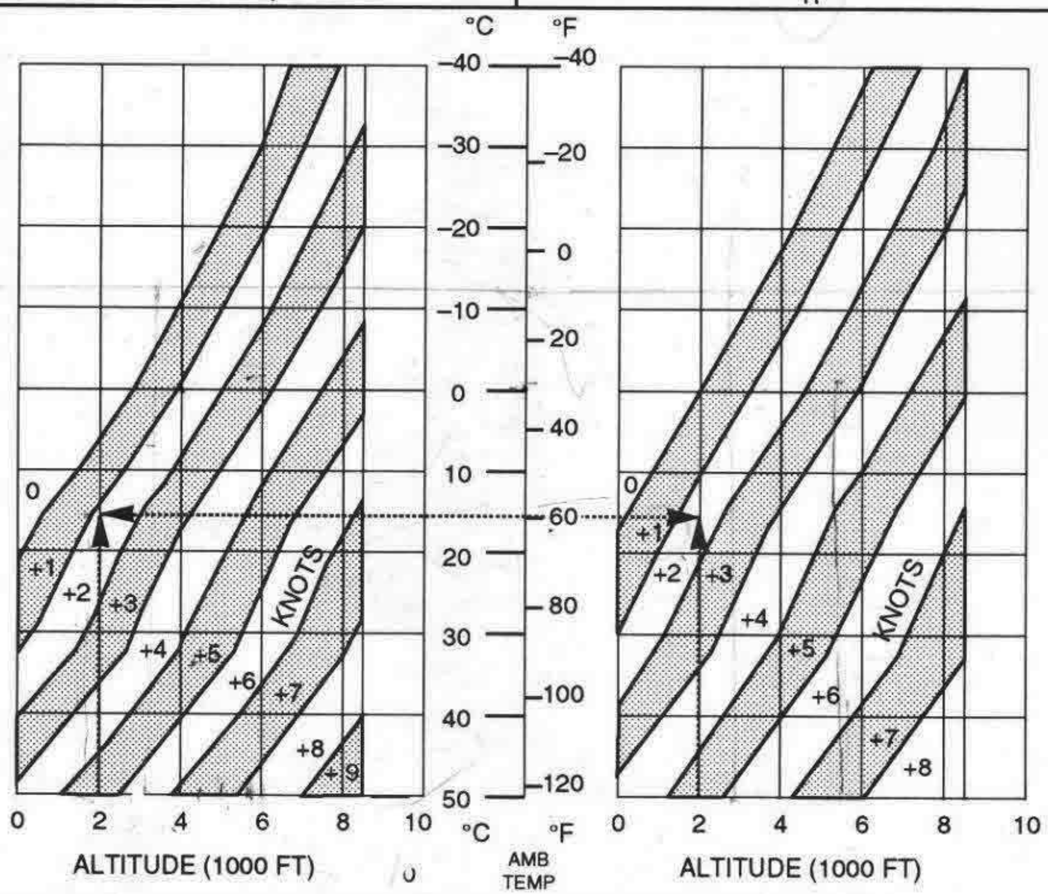
MODEL DC–9
TAKEOFF SPEEDS
JT8D–1 ENGINES

TAKEOFF SPEED – 20 ° FLAPS
EITHER NO ICE PROTECTION OR ENGINE ICE PROTECTION ONLY

TAKEOFF WEIGHT (1000 LB)	60	65	70	75	80	85	90	95
V_1 (KNOTS, IAS)	104.0	110.0	115.0	120.5	125.0	129.5	133.5	136.0
V_R (KNOTS, IAS)	106.5	112.5	118.0	123.5	129.0	134.0	139.0	143.5
V_2 (KNOTS, IAS)	117.0	121.5	126.5	130.5	135.0	139.0	143.0	147.0

CORRECTION TO SPEEDS

	V_1	V_R	V_2
AMBIENT TEMPERATURE AND AIRPORT PRESSURE ALTITUDE	see chart	see chart	0
SLOPE PER 1% — UPHILL	+ 1.5* KNOTS	+ 0.9 KNOTS	0
SLOPE PER 1% — DOWNHILL	− 1.5 KNOTS	− 0.9 KNOTS	
WIND PER 10 KNOTS — HEADWIND	+0.30* KNOTS	0 KNOTS	0
WIND PER 10 KNOTS — TAILWIND	–0.8 KNOTS		
ENGINE AND AIRPLANE ICE PROTECTION	+ 0.8 KNOTS	+ 0.8 KNOTS	0



* IF V_1 EXCEEDS V_R, SET V_1 EQUAL TO V_R

FIGURE 47.—DC-9 – Takeoff Speeds.

OPERATING CONDITIONS	W-1	W-2	W-3	W-4	W-5
CLIMB SCHEDULE	LR	HS	LR	HS	HS
INITIAL WEIGHT (X1000)	84	86	78	88	92
CRUISE PRESS ALTITUDE	34,000	28,000	32,000	22,000	24,000
ISA TEMPERATURE	ISA	ISA	ISA	ISA	ISA
AVG WIND COMP (KTS)	20 HW	30 HW	10 TW	20 TW	40 HW

FIGURE 48.—DC-9 – En Route Climb.

TIME, FUEL, AND DISTANCE TO CLIMB
JT8D-1 ENGINES - NORMAL BLEED
DC-9 SERIES 10 - HIGH SPEED CLIMB SCHEDULE
CLIMB AT 320 KNOTS IAS TO 23500 FT ALTITUDE THEN CLIMB AT M .74

INITIAL WEIGHT = 86000 POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	133.	2.8
4000.	1.1	267.	5.9
6000.	1.7	403.	9.3
8000.	2.3	541.	13.0
10000.	3.0	684.	17.2
12000.	3.8	830.	21.3
14000.	4.6	982.	27.0
16000.	5.5	1141.	32.9
18000.	6.4	1309.	39.6
20000.	7.6	1489.	47.4
22000.	8.8	1684.	56.6
23500.	9.9	1845.	64.7
23500.	9.9	1845.	64.7
24000.	10.2	1886.	66.8
26000.	11.4	2052.	75.9
28000.	12.8	2225.	85.8
30000.	14.3	2410.	97.1
32000.	16.2	2613.	110.3
34000.	18.4	2844.	126.3
36000.	21.4	3136.	147.8

INITIAL WEIGHT = 90000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.6	140.	3.0
4000.	1.1	282.	6.3
6000.	1.8	426.	9.8
8000.	2.5	573.	13.8
10000.	3.2	724.	18.2
12000.	4.0	879.	23.1
14000.	4.8	1041.	28.6
16000.	5.8	1211.	34.9
18000.	6.9	1390.	42.1
20000.	8.0	1583.	50.4
22000.	9.4	1793.	60.3
23500.	10.6	1968.	69.1
23500.	10.6	1968.	69.1
24000.	10.9	2013.	71.5
26000.	12.3	2196.	81.5
28000.	13.8	2389.	92.6
30000.	15.5	2598.	105.4
32000.	17.6	2833.	120.6
34000.	20.3	3110.	139.8
36000.	24.3	3494.	168.0

INITIAL WEIGHT = 88000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	136.	2.9
4000.	1.1	274.	6.1
6000.	1.7	414.	9.6
8000.	2.4	557.	13.4
10000.	3.1	703.	17.7
12000.	3.9	855.	22.5
14000.	4.7	1012.	27.8
16000.	5.6	1176.	33.9
18000.	6.6	1349.	40.8
20000.	7.8	1535.	48.9
22000.	9.1	1738.	58.4
23500.	10.3	1906.	66.9
23500.	10.3	1906.	66.9
24000.	10.6	1949.	69.1
26000.	11.9	2123.	78.6
28000.	13.3	2306.	89.1
30000.	14.9	2502.	101.2
32000.	16.9	2720.	115.3
34000.	19.3	2973.	132.8
36000.	22.7	3304.	157.2

INITIAL WEIGHT = 92000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.6	144.	3.1
4000.	1.2	290.	6.4
6000.	1.8	438.	10.1
8000.	2.5	589.	14.2
10000.	3.3	744.	18.7
12000.	4.1	905.	23.8
14000.	5.0	1072.	29.5
16000.	6.0	1247.	36.0
18000.	7.1	1432.	43.4
20000.	8.3	1631.	52.0
22000.	9.7	1850.	62.3
23500.	11.0	2032.	71.5
23500.	11.0	2032.	71.5
24000.	11.3	2079.	73.9
26000.	12.7	2272.	84.4
28000.	14.3	2476.	96.2
30000.	16.2	2693.	109.8
32000.	18.4	2951.	126.2
34000.	21.4	3258.	147.4
36000.	26.1	3713.	181.0

FIGURE 49.—High-Speed Climb Schedule.

TIME, FUEL, AND DISTANCE TO CLIMB
JT8D-1 ENGINES - NORMAL BLEED
DC-9 SERIES 10 - LONG RANGE CLIMB SCHEDULE
CLIMB AT 290 KNOTS IAS TO 26860 FT ALTITUDE THEN CLIMB AT M .72

INITIAL WEIGHT = 78000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	113.	2.2
4000.	0.9	227.	4.6
6000.	1.5	342.	7.3
8000.	2.0	457.	10.2
10000.	2.6	574.	13.3
12000.	3.2	693.	16.8
14000.	3.9	815.	20.7
16000.	4.6	941.	25.0
18000.	5.4	1070.	29.9
20000.	6.3	1205.	35.4
22000.	7.2	1347.	41.7
24000.	8.3	1498.	49.0
26000.	9.5	1661.	57.6
26860.	10.1	1736.	61.8
26860.	10.1	1736.	61.8
28000.	10.7	1813.	66.2
30000.	11.9	1953.	74.6
32000.	13.3	2102.	84.2
34000.	14.9	2267.	95.4
36000.	16.9	2456.	109.2

INITIAL WEIGHT = 82000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	120.	2.4
4000.	1.0	241.	4.9
6000.	1.5	363.	7.7
8000.	2.1	486.	10.8
10000.	2.7	610.	14.2
12000.	3.4	737.	17.9
14000.	4.1	868.	22.1
16000.	4.9	1002.	26.7
18000.	5.7	1141.	31.9
20000.	6.7	1286.	37.9
22000.	7.7	1439.	44.6
24000.	8.9	1602.	52.5
26000.	10.2	1780.	61.9
26860.	10.9	1863.	66.5
26860.	10.9	1863.	66.5
28000.	11.6	1948.	71.4
30000.	12.9	2104.	80.8
32000.	14.4	2274.	91.7
34000.	16.3	2464.	104.6
36000.	18.7	2693.	121.3

INITIAL WEIGHT = 80000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	117.	2.3
4000.	1.0	234.	4.8
6000.	1.5	352.	7.5
8000.	2.1	471.	10.5
10000.	2.7	592.	13.7
12000.	3.3	715.	17.4
14000.	4.0	841.	21.4
16000.	4.7	971.	25.9
18000.	5.6	1105.	30.9
20000.	6.5	1245.	36.6
22000.	7.5	1392.	43.2
24000.	8.6	1549.	50.7
26000.	9.9	1719.	59.7
26860.	10.5	1798.	64.1
26860.	10.5	1798.	64.1
28000.	11.1	1879.	68.7
30000.	12.4	2027.	77.7
32000.	13.8	2186.	87.8
34000.	15.6	2362.	99.8
36000.	17.7	2570.	114.9

INITIAL WEIGHT = 84000. POUNDS

PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.
2000.	0.5	124.	2.4
4000.	1.0	248.	5.1
6000.	1.6	374.	8.0
8000.	2.2	500.	11.1
10000.	2.8	629.	14.6
12000.	3.5	760.	18.5
14000.	4.2	894.	22.8
16000.	5.1	1033.	27.6
18000.	5.9	1177.	33.0
20000.	6.9	1327.	39.1
22000.	8.0	1486.	46.2
24000.	9.2	1656.	54.4
26000.	10.6	1841.	64.1
26860.	11.3	1928.	69.0
26860.	11.3	1928.	69.0
28000.	12.0	2018.	74.1
30000.	13.4	2183.	84.1
32000.	15.0	2364.	95.7
34000.	17.1	2570.	109.7
36000.	19.7	2826.	128.3

FIGURE 50.—Long-Range Climb Schedule.

OPERATING CONDITIONS	L-1	L-2	L-3	L-4	L-5
WEIGHT (START TO ALT)	85,000	70,000	86,000	76,000	82,000
DISTANCE (NAM)	110	190	330	50	240
WIND COMPONENT (KTS)	15 HW	40 TW	50 HW	20 TW	45 HW
HOLDING TIME AT ALT (MIN)	15	15	15	15	15

FIGURE 51.—DC-9 – Alternate Planning.

ALTERNATE PLANNING CHART

DIST. - NAM	20	30	40	50	60	70	80	90	100	110	120	130	140
OPTM. ALT.	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000
TIME:	:16	:17	:19	:20	:22	:23	:25	:26	:28	:29	:30	:32	:33
FUEL	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700
TAS	275	280	283	286	289	292	296	300	303	306	309	312	315

DIST. NAM	150	160	170	180	190	200	210	220	230	240	250	260	270
OPTM. ALT.	15000	16000	17000	18000	19000	20000	21000	22000	23000	24000	25000	26000	27000
TIME:	:35	:36	:38	:39	:40	:42	:43	:45	:46	:48	:49	:50	:52
FUEL	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000
TAS	319	323	326	330	334	338	341	345	349	353	357	361	365

DIST. - NAM	280	290	300	310	320	330	340	350	360	370	380	390	400
OPTM. ALT.	27000	28000	28000	29000	29000	30000	30000	31000	31000	31000	31000	31000	31000
TIME:	:53	:55	:56	:58	:59	1:00	1:02	1:03	1:04	1:05	1:07	1:08	1:10
FUEL	5150	5250	5350	5450	5600	5700	5800	5900	6050	6150	6250	6350	6500
TAS	368	372	376	380	385	388	392	397	397	397	397	397	397

NOTES:

1. Fuel includes 1/2 climb distance en route credit, fuel to cruise remaining distance at LRC schedule, 15 minutes holding at alternate, and 800 lbs. for descent.

2. Time includes 1/2 climb distance credit, time to cruise distance shown at LRC schedule and 8 minutes for descent. 15 minutes holding is not included in time.

FIGURE 52.—DC-9 – Alternate Planning Chart.

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 °F
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.—B-737 – Takeoff.

ALTIMETER SETTING
TO
STATION PRESSURE

QNH TO PRESSURE ALTITUDE

QNH IN. HG.	CORRECTION TO ELEVATION FOR PRESS. ALT FT	QNH MILLIBARS
28.81 to 28.91	1000	976 to 979
28.91 to 29.02	900	979 to 983
29.02 to 29.12	800	983 to 986
29.12 to 29.23	700	986 to 990
29.23 to 29.34	600	990 to 994
29.34 to 29.44	500	994 to 997
29.44 to 29.55	400	997 to 1001
29.55 to 29.66	300	1001 to 1004
29.66 to 29.76	200	1004 to 1008
29.76 to 29.87	100	1008 to 1012
29.87 to 29.97	0	1012 to 1015
29.97 to 30.08	-100	1015 to 1019
30.08 to 30.19	-200	1019 to 1022
30.19 to 30.30	-300	1022 to 1026
30.30 to 30.41	-400	1026 to 1030
30.41 to 30.52	-500	1030 to 1034
30.52 to 30.63	-600	1034 to 1037
30.63 to 30.74	-700	1037 to 1041
30.74 to 30.85	-800	1041 to 1045
30.85 to 30.96	-900	1045 to 1048
30.96 to 31.07	-1000	1048 to 1052

EXAMPLE ELEVATION = 2500 FT
QNH = 29.48 IN.HG
CORRECTION = 400 FT.
PRESS ALT = 2900 FT

FIGURE 54.—Altimeter Setting to Pressure Altitude.

TAKEOFF EPR

0 TO 60 KTS

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
OAT °C	-54	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	49
TEMP LIMIT EPR	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

PRESS 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

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.

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

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

FIGURE 55.—B-737 – Takeoff Performance.

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.—B-737 – En Route Climb.

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.

EN ROUTE CLIMB 280/.70 ISA +10 °C

PRESSURE ALTITUDE -FT	UNITS MIM/LB NM/KNOTS	BRAKE RELEASE WEIGHT - LB										
		120000	115000	110000	105000	100000	95000	90000	85000	80000	75000	65000
37000	TIME/FUEL DIST./TAS			42/5700 263/395	34/4700 206/391	29/4100 174/389	25/3700 151/388	23/3300 133/386	20/3000 119/385	18/2700 107/384	16/2500 96/384	13/2100 78/382
36000	TIME/FUEL DIST./TAS		43/5900 266/394	35/5000 211/391	30/4400 179/389	26/3900 156/387	23/3500 138/385	21/3200 123/384	19/2900 111/383	17/2700 100/383	16/2400 90/382	13/2000 74/381
35000	TIME/FUEL DIST./TAS	45/6200 275/394	36/5300 219/390	31/4600 186/388	27/4100 162/386	24/3700 143/385	22/3400 128/384	20/3100 115/383	10/2800 104/382	16/2600 94/381	15/2400 85/380	12/2000 70/379
34000	TIME/FUEL DIST./TAS	38/5600 228/390	32/4900 193/387	28/4400 168/386	25/3900 149/384	23/3600 133/383	21/3300 120/382	19/3000 108/381	17/2700 98/380	16/2500 89/379	14/2300 81/379	12/1900 67/378
33000	TIME/FUEL DIST./TAS	34/5100 200/387	30/4600 174/385	26/4100 154/383	24/3800 138/382	22/3400 124/381	20/3100 113/380	18/2900 102/379	16/2600 93/378	15/2400 85/378	14/2200 77/377	11/1900 64/376
32000	TIME/FUEL DIST./TAS	31/4800 180/384	28/4400 160/382	25/4000 143/381	23/3600 129/379	21/3300 116/378	19/3000 106/378	17/2800 96/377	16/2600 88/376	14/2400 80/376	13/2200 73/375	11/1800 61/374
31000	TIME/FUEL DIST./TAS	29/4600 165/381	26/4200 147/379	23/3800 133/378	21/3500 120/377	20/3200 109/376	18/2900 100/375	16/2700 91/375	15/2500 83/374	14/2300 76/374	13/2100 70/373	11/1800 58/372
30000	TIME/FUEL DIST./TAS	27/4400 152/378	24/4000 137/376	22/3700 124/375	20/3400 113/374	19/3100 103/374	17/2900 94/373	16/2600 86/372	14/2400 79/372	13/2200 72/371	12/2100 66/371	10/1700 55/370
29000	TIME/FUEL DIST./TAS	25/4200 141/375	23/3800 128/374	21/3500 116/373	19/3200 106/372	18/3000 97/371	16/2800 89/370	15/2600 82/370	14/2400 75/369	13/2200 69/369	12/2000 63/369	10/1700 52/368
28000	TIME/FUEL DIST./TAS	24/4000 131/371	22/3700 119/370	20/3400 109/369	18/3100 100/369	17/2900 91/368	16/2700 84/368	14/2500 77/367	13/2300 71/367	12/2100 65/366	11/1900 60/366	9/1600 50/365
27000	TIME/FUEL DIST./TAS	22/3800 121/368	21/3500 111/367	19/3300 102/366	18/3000 93/366	16/2800 86/365	15/2600 79/364	14/2400 73/364	13/2200 67/364	12/2000 61/363	11/1900 56/363	9/1600 47/363
26000	TIME/FUEL DIST./TAS	21/3600 110/363	19/3400 101/362	18/3100 93/362	16/2900 86/361	15/2700 79/361	14/2500 73/360	13/2300 67/360	12/2100 62/360	11/2000 57/359	10/1800 52/359	9/1500 44/359
25000	TIME/FUEL DIST./TAS	19/3400 101/358	18/3200 93/358	17/3000 85/357	15/2800 79/357	14/2600 73/357	13/2400 67/356	12/2200 62/356	11/2000 57/356	10/1900 53/356	10/1700 48/355	8/1500 41/355
24000	TIME/FUEL DIST./TAS	18/3300 92/354	17/3000 85/354	16/2800 78/353	15/2600 72/353	13/2400 67/353	12/2300 62/352	12/2100 57/352	11/1900 53/352	10/1800 49/352	9/1700 45/352	8/1400 38/351
23000	TIME/FUEL DIST./TAS	17/3100 84/350	16/2900 78/350	15/2900 72/350	14/2500 67/349	13/2300 62/349	12/2200 57/349	11/2000 53/349	10/1900 49/348	9/1700 45/348	9/1600 42/348	7/1300 35/348
22000	TIME/FUEL DIST./TAS	16/3000 77/346	15/2800 71/346	14/2600 66/346	13/2400 61/346	12/2200 57/345	11/2100 53/345	10/1900 49/345	10/1800 45/345	9/1700 42/345	8/1500 38/345	7/1300 32/344
6000	TIME/FUEL DIST./TAS	5/1100 10/301	4/1000 10/301	4/900 9/301	4/900 9/301	4/800 8/301	3/800 8/301	3/700 7/301	3/700 7/301	3/600 6/301	3/600 6/301	2/500 5/301
1500	TIME/FUEL	3/600	2/600	2/500	2/500	2/500	2/500	2/400	2/400	2/400	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	-300	-400	-500	-600	-800

FIGURE 58.—En Route Climb 280/.70 ISA +10 °C.

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.—B-737 – Climb and Cruise Power.

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	2.20	2.14	2.09	2.04	1.98
5660 AND ABOVE	4000	3000	2000	1000	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.—B-737 – Climb and Cruise Power.

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.

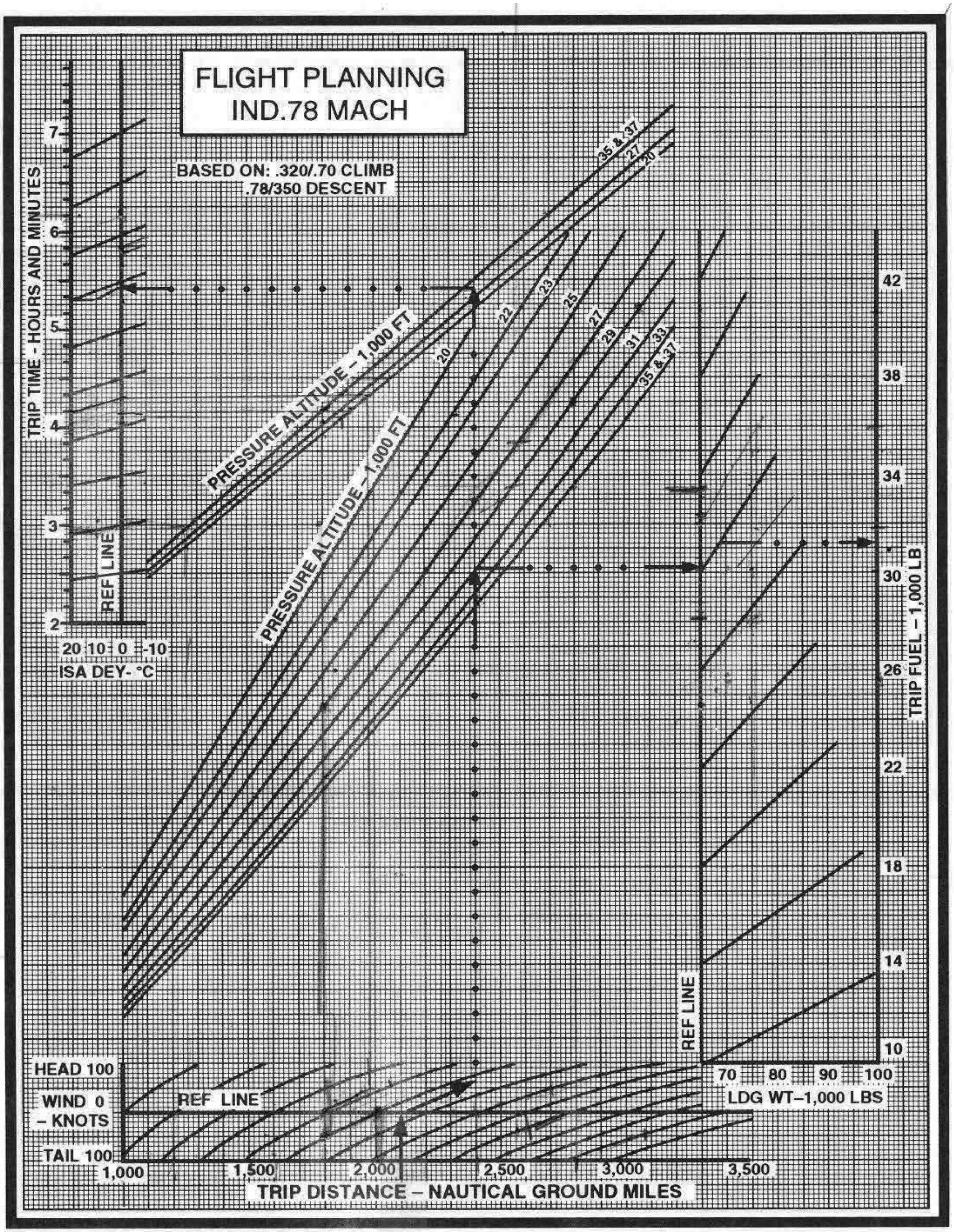


FIGURE 62.—B-737 – Flight Planning .78 Mach Indicated.

OPERATING CONDITIONS	Q–1	Q–2	Q–3	Q–4	Q–5
WEIGHT (X1000)	110	70	90	80	100
PRESSURE ALTITUDE	30,000	25,000	35,000	20,000	10,000
TOTAL AIR TEMP (TAT)	–8 °C	–23 °C	–16 °C	+4 °C	–6 °C

FIGURE 63.—B-737– Turbulent Air RPM.

TURBULENT AIR PENETRATION

TARGET SPEED IAS/MACH	PRESS ALT -1000 FT	GROSS WEIGHT - 1000 LB / APPROXIMATE POWER SETTING -%N1 RPM					ISA TAT -°C	% N_1 ADJUSTMENT PER 10 °C VARIATION FROM TABLE TAT COLDER - WARMER +
		70	80	90	100	110		
280/.70	35	77.1	79.0	81.0	83.4		-36	1.6
	30	77.2	78.2	79.4	81.1	82.4	-23	1.6
	25	76.7	77.5	78.3	79.2	80.1	-13	1.5
	20	74.7	75.4	76.1	77.0	77.9	-6	1.4
	15	72.7	73.5	74.2	74.8	75.7	1	1.2
	10	70.5	71.3	72.1	72.9	73.9	9	1.3

FIGURE 64.—B-737 – Turbulent Air Penetration.

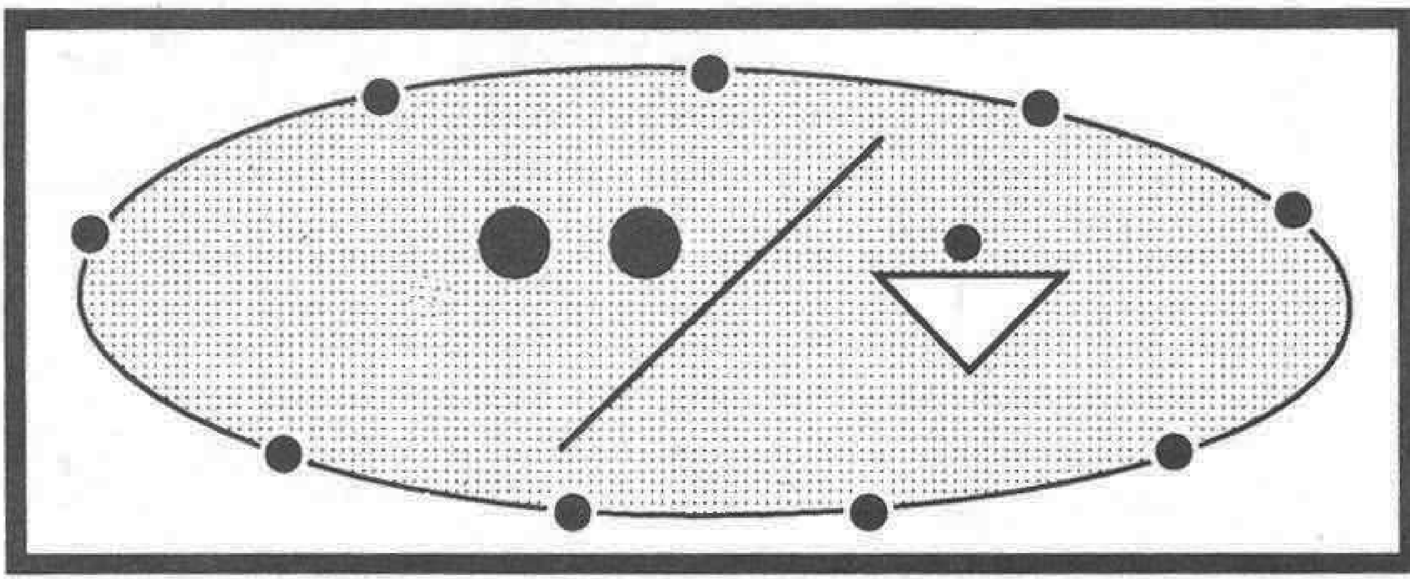


FIGURE 65.—Symbol Used on U.S. Low Level Significant Weather Prog Chart.

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.

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.

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.—B-737 – Holding.

HOLDING

EPR
IAS KNOTS
FF PER ENGINE LB/HR

FLIGHT LEVEL	GROSS WEIGHT 1000 LB										
	115	110	105	100	95	90	85	80	75	70	65
	2.13	2.07	2.01	1.95	1.90	1.85	1.80	1.76	1.71	1.67	1.64
350	234	228	223	217	211	210	210	210	210	210	210
	2830	2810	2630	2460	2290	2180	2070	1960	1870	1780	1700
	1.86	1.82	1.79	1.75	1.71	1.67	1.64	1.60	1.57	1.54	1.51
300	231	226	220	215	210	210	210	210	210	210	210
	2740	2600	2470	2370	2250	2140	2050	1960	1880	1790	1720
	1.69	1.66	1.63	1.60	1.57	1.54	1.51	1.48	1.45	1.43	1.41
250	229	224	218	213	210	210	210	210	210	210	210
	2710	2610	2490	2370	2260	2180	2080	1980	1920	1840	1780
	1.56	1.53	1.50	1.48	1.45	1.43	1.40	1.38	1.36	1.34	1.32
200	227	222	217	211	210	210	210	210	210	210	210
	2716	2590	2490	2390	2310	2230	2130	2060	2000	1920	1860
	1.45	1.43	1.40	1.38	1.36	1.34	1.32	1.31	1.29	1.27	1.26
150	226	221	216	210	210	210	210	210	210	210	210
	2790	2680	2570	2470	2380	2290	2220	2140	2070	2000	1990
	1.36	1.34	1.33	1.31	1.29	1.28	1.26	1.25	1.24	1.22	1.21
100	225	220	215	210	210	210	210	210	210	210	210
	2860	2780	2670	2560	2470	2390	2310	2240	2170	2100	2030
	1.29	1.28	1.27	1.25	1.24	1.23	1.21	1.20	1.19	1.18	1.17
050	224	219	214	210	210	210	210	210	210	210	210
	2960	2870	2770	2670	2580	2500	2420	2350	2290	2230	2150
	1.25	1.24	1.23	1.22	1.21	1.20	1.19	1.18	1.17	1.16	1.15
015	224	219	214	210	210	210	210	210	210	210	210
	3050	2950	2850	2790	2670	2590	2510	2430	2370	2300	2240

FIGURE 69.—B-737 – Holding Performance Chart.

INITIAL FUEL WEIGHT	ENDING FUEL WEIGHT - 1000 LB															
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							
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													
14	2	0														
10	0															

FUEL DUMP TIME

FUEL JETTISON TIME-MINUTES

FIGURE 70.—Fuel Dump Time.

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. —B-737– Drift-Down.

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.

OPERATING CONDITIONS	L-1	L-2	L-3	L-4	L-5
TEMPERATURE	+15 °C TAT	+27 °F OAT	−8 °C OAT	−10 °C TAT	+55 °F OAT
PRESSURE ALTITUDE	500	3,100	2,500	2,100	1,200
AIR CONDITIONING	OFF	ON	ON	ON	ON
WING ANTI-ICE	OFF	2 ON	1 ON	2 ON	OFF
WEIGHT (X1000)	100	95	90	105	85
FLAP SETTING	30°	25°	15°	40°	30°
RUNWAY ASSIGNED	35	04	27	34	09
SURFACE WIND	300/20	350/15	310/20	030/10	130/15

FIGURE 73.—B-737 – Landing.

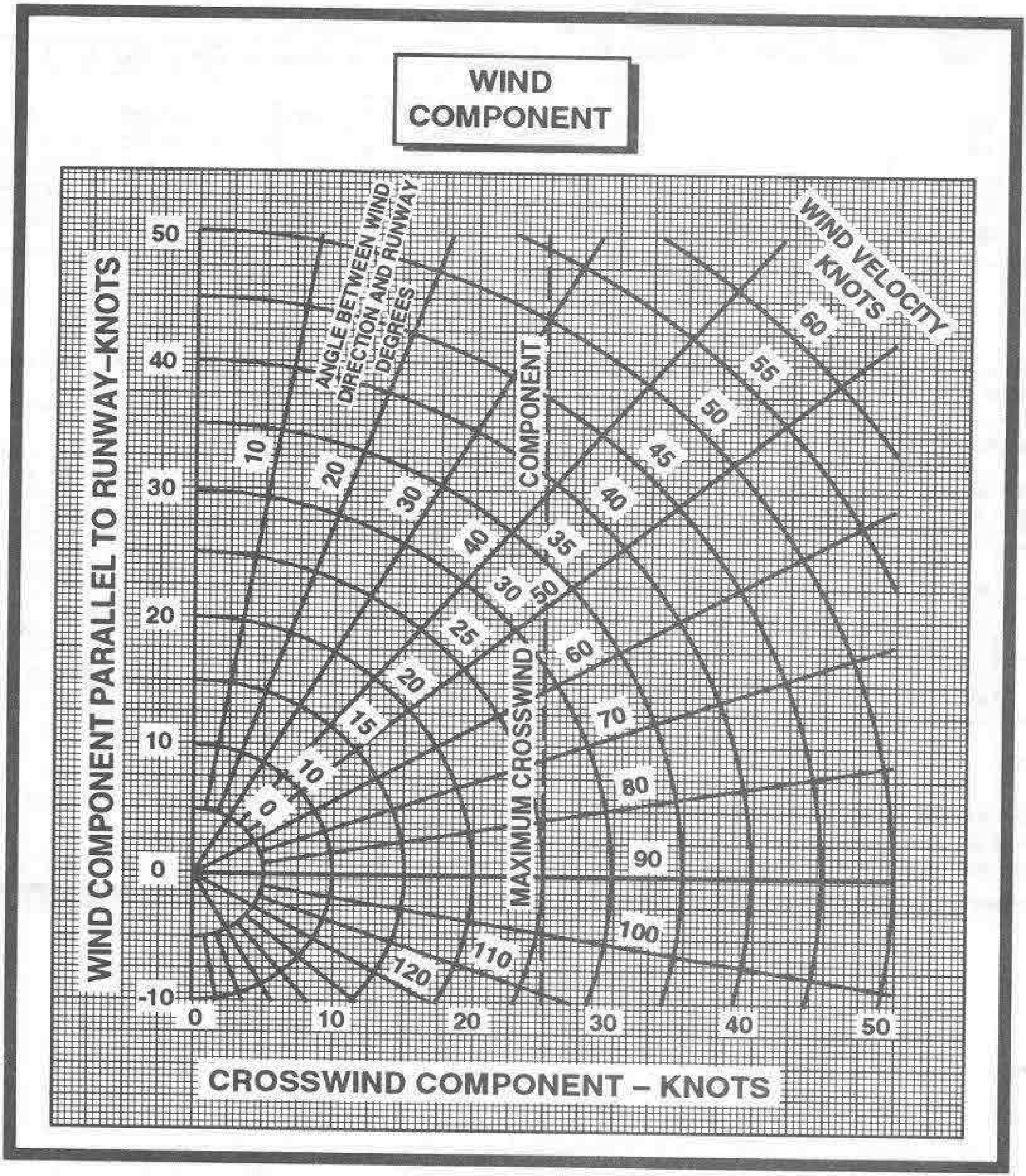


FIGURE 74.—Wind Component Chart.

LANDING

GO AROUND EPR
A/C BLEED ON

EPR BLEED CORRECTIONS	1 ENG	2 ENG
AIR CONDITIONING OFF	+.03	+.03
ENGINE ANTI-ICE ON	ZERO	ZERO
WING ANTI-ICE ON (FLT)	-.06	-.04

REPORTED OAT °F	-61	-52	-43	-35	-25	-17	-10	0	10	18	27	38	47	55	64	73	83	91	100	119
REPORTED OAT °C	-52	-47	-42	-37	-32	-27	-23	-18	-13	-8	-3	3	8	13	18	23	28	33	38	48
TAT °C	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	50
TEMP LIMIT EPR	2.30	2.30	2.30	2.29	2.26	2.24	2.21	2.19	2.16	2.13	2.10	2.07	2.04	2.00	1.98	1.98	1.98	1.94	1.90	1.80

PRESS LIMIT EPR	5660 AND ABOVE	4000	3000	2000	1000	S.L.	-1000
EPR	2.30	2.20	2.15	2.09	2.04	1.98	1.93

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

LANDING SPEED

GROSS WT -1000 LB	REFERENCE SPEED AT FLAP POSITION 40	30	25	15
110	138	142	153	158
105	134	138	149	154
100	130	135	144	150
95	127	131	140	145
90	123	127	136	141
85	119	124	132	136
80	115	120	127	132
75	113	116	123	127
70	109	112	119	123

ADD WIND FACTOR OF: 1/2 HEADWIND COMPONENT + GUST (MAX: 20 KTS)

FLAP EXTENSION/ MANEUVERING SPEED

NORMAL MANEUVER AND FLAP EXTENSION SPEEDS

FLAP POS	NORMAL MANEUVER	SELECT FLAP
0	210	1
1	190	5
5	170	10/15
10	160	15
15	150	25/30/40
25	140	30/40
30	V_{REF}	—
40	V_{REF}	—

FIGURE 75.—B-737 – Landing Performance Chart.

LOADING CONDITIONS	WT-1	WT-2	WT-3	WT-4	WT-5
PASSENGERS					
FORWARD COMPT	18	23	12	28	26
AFT COMPT	95	112	75	122	103
CARGO					
FORWARD HOLD	1,500	2,500	3,500	850	1,400
AFT HOLD	2,500	3,500	4,200	1,500	2,200
FUEL					
TANKS 1 AND 3 (EACH)	10,500	11,000	FULL	10,000	11,500
TANK 2	28,000	27,000	24,250	26,200	25,200

FIGURE 76.—B-727 – Loading.

LOADING CONDITIONS	WT-6	WT-7	WT-8	WT-9	WT-10
PASSENGERS					
FORWARD COMPT	10	27	6	29	21
AFT COMPT	132	83	98	133	127
CARGO					
FORWARD HOLD	5,000	4,500	1,300	975	2,300
AFT HOLD	6,000	5,500	3,300	1,250	2,400
FUEL					
TANKS 1 AND 3 (EACH)	9,500	9,000	FULL	11,000	10,500
TANK 2	21,700	19,800	12,000	29,300	22,700

FIGURE 77.—B-727 – Loading.

LOADING CONDITIONS	WT-11	WT-12	WT-13	WT-14	WT-15
PASSENGERS					
FORWARD COMPT	11	28	22	17	3
AFT COMPT	99	105	76	124	130
CARGO					
FORWARD HOLD	3,100	4,200	1,600	3,800	1,800
AFT HOLD	5,500	4,400	5,700	4,800	3,800
FUEL					
TANKS 1 AND 3 (EACH)	8,500	11,500	12,000	11,000	10,500
TANK 2	19,600	27,800	29,100	25,400	21,900

FIGURE 78.—B-727 – Loading.

AIRPLANE DATUM CONSTANTS

MAC	180.9 inches
L.E. of MAC	860.5 inches
Basic Operating Index	$\frac{92,837.0}{1,000}$

OPERATING LIMITATIONS

Maximum Takeoff Slope	±2%
Maximum Takeoff / Landing Crosswind Component	32 knots
Maximum Takeoff / Landing Tailwind Component	12 knots

WEIGHT LIMITATIONS

Basic Operating Weight	105,500 pounds
Maximum Zero Fuel Weight	138,500 pounds
Maximum Taxi Weight	185,700 pounds
Maximum Takeoff Weight (Brake Release)	184,700 pounds
Maximum In-flight Weight (Flaps 30)	155,500 pounds
(Flaps 40)	144,000 pounds
Maximum Landing Weight (Flaps 30)	155,000 pounds
(Flaps 40)	143,000 pounds

FIGURE 79.—B-727 – Table of Weights and Limits.

PASSENGER LOADING TABLE

Number of Pass.	Weight Lbs.	Moment/1000
Forward Compartment Centroid-582.0		
5	850	495
10	1,700	989
15	2,550	1,484
20	3,400	1,979
25	4,250	2,473
29	4,930	2,869
AFT Compartment Centroid-1028.0		
10	1,700	1,748
20	3,400	3,495
30	5,100	5,243
40	6,800	6,990
50	8,500	8,738
60	10,200	10,486
70	11,900	12,233
80	13,600	13,980
90	15,300	15,728
100	17,000	17,476
110	18,700	19,223
120	20,400	20,971
133	22,610	23,243

CARGO LOADING TABLE

	Moment/1000	
Weight Lbs.	Forward Hold Arm 680.0	Aft Hold Arm 1166.0
6,000		6,996
5,000	3,400	5,830
4,000	2,720	4,664
3,000	2,040	3,498
2,000	1,360	2,332
1,000	680	1,166
900	612	1,049
800	544	933
700	476	816
600	408	700
500	340	583
400	272	466
300	204	350
200	136	233
100	68	117

NOTE: These computations are to be used for testing purposes only.

FUEL LOADING TABLE

TANKS 1 & 3 (EACH)

Weight Lbs.	Arm	Moment/1000
8,500	992.1	8,433
9,000	993.0	8,937
9,500	993.9	9,442
10,000	994.7	9,947
10,500	995.4	10,451
11,000	996.1	10,957
11,500	996.8	11,463
12,000	997.5	11,970
FULL CAPACITY		

**Note: Computations for Tank 2 weights for 12,500 lbs. to 18,000 lbs. have been purposely omitted.

TANKS 2 (3 CELL)

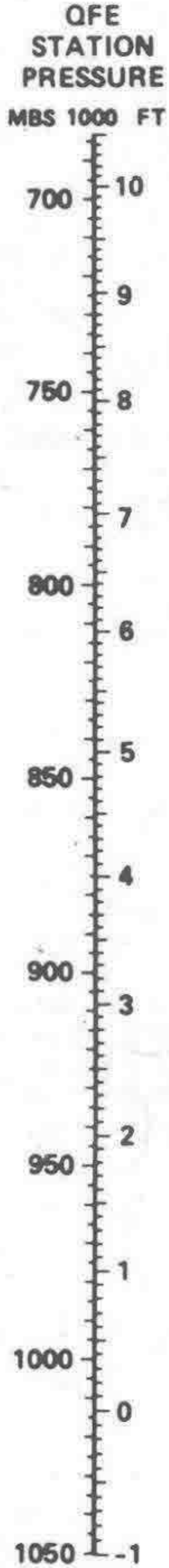
Weight Lbs.	Arm	Moment/1000	Weight Lbs.	Arm	Moment/1000
8,500	917.5	7,799	22,500	914.5	20,576
9,000	917.2	8,255	23,000	914.5	21,034
9,500	917.0	8,711	23,500	914.4	21,488
10,000	916.8	9,168	24,000	914.3	21,943
10,500	916.6	9,624	24,500	914.3	22,400
11,000	916.5	10,082	25,000	914.2	22,855
11,500	916.3	10,537	25,500	914.2	23,312
12,000	916.1	10,993	26,000	914.1	23,767
**(See note at lower left)			26,500	914.1	24,244
			27,000	914.0	24,678
18,500	915.1	16,929	27,500	913.9	25,132
19,000	915.0	17,385	28,000	913.9	25,589
19,500	914.9	17,841	28,500	913.8	26,043
20,000	914.9	18,298	29,000	913.7	26,497
20,500	914.8	18,753	29,500	913.7	26,954
21,000	914.7	19,209	30,000	913.6	27,408
21,500	914.6	19,664	FULL CAPACITY		
22,000	914.6	20,121			

FIGURE 80.—Loading Tables.

OPERATING CONDITIONS	G-1	G-2	G-3	G-4	G-5
FIELD ELEVATION FT	1,050	2,000	4,350	3,050	2,150
ALTIMETER SETTING	29.36"	1016 mb	30.10"	1010 mb	29.54"
TEMPERATURE	+23 °F	+10 °C	+68 °F	–5 °C	+5 °F
AIR COND ENGS 1 AND 3	OFF	ON	ON	ON	ON
ANTI-ICE ENG 2	ON	OFF	OFF	ON	ON
GROSS WEIGHT (X1000)	140	190	180	160	120
6TH STAGE BLEED	OFF	ON	ON	OFF	OFF
FLAP POSITION	15°	5°	25°	15°	5°
CG STATION	911.2	882.2	914.8	932.9	925.6
LEMAC – STA 860.5, MAC 180.9"					

FIGURE 81.—B-727 – Takeoff.

ALTIMETER SETTING TO STATION PRESSURE



QNH TO PRESSURE ALTITUDE

QNH IN. HG.	CORRECTION TO ELEVATION FOR PRESS. ALT FT	QNH MILLIBARS
28.81 to 28.91	1000	976 to 979
28.91 to 29.02	900	979 to 983
29.02 to 29.12	800	983 to 986
29.12 to 29.23	700	986 to 990
29.23 to 29.34	600	990 to 994
29.34 to 29.44	500	994 to 997
29.44 to 29.55	400	997 to 1001
29.55 to 29.66	300	1001 to 1004
29.66 to 29.76	200	1004 to 1008
29.76 to 29.87	100	1008 to 1012
29.87 to 29.97	0	1012 to 1015
29.97 to 30.08	-100	1015 to 1019
30.08 to 30.19	-200	1019 to 1022
30.19 to 30.30	-300	1022 to 1026
30.30 to 30.41	-400	1026 to 1030
30.41 to 30.52	-500	1030 to 1034
30.52 to 30.63	-600	1034 to 1037
30.63 to 30.74	-700	1037 to 1041
30.74 to 30.85	-800	1041 to 1045
30.85 to 30.96	-900	1045 to 1048
30.96 to 31.07	-1000	1048 to 1052

EXAMPLE: ELEVATION = 2500 FT
QNH = 29.48 IN.HG
CORRECTION = 400 FT.
PRESS ALT = 2900 FT

FIGURE 82.—Altimeter Setting to Pressure Altitude.

TAKEOFF EPR, SPEEDS AND STAB TRIM SETTING

MAX TAKEOFF EPR

0 - 60 KNOTS — ENG 1 & 3 AIRBLEED ON; ENG 2 NO AIRBLEED

PRESS ALT FT	OAT °F / °C	-67 TO -9 / -55 TO -23	-4 / -20	5 / -15	14 / -10	23 / 5	32 / 0	41 / 5	50 / 10	59 / 15	68 / 20	77 / 25	86 / 30	95 / 35	104 / 40	113 / 45	120 / 49
-1000	1 & 3	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.03	1.99	1.94	1.91
	2	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.05	2.00	1.96	1.92
S.L.	1 & 3	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.08	2.03	1.99	1.94	1.91
	2	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.10	2.05	2.00	1.96	1.92
1000	1 & 3	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.13	2.12	2.12	2.11	2.08	2.03	1.99	1.94	1.91
	2	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.15	2.13	2.13	2.12	2.10	2.05	2.00	1.96	1.92
2000	1 & 3	2.21	2.21	2.21	2.21	2.21	2.20	2.17	2.14	2.14	2.14	2.11	2.08	2.03	1.99	1.94	1.91
	2	2.22	2.22	2.22	2.22	2.22	2.21	2.18	2.16	2.16	2.15	2.12	2.10	2.05	2.00	1.96	1.92
3000	1 & 3	2.26	2.26	2.26	2.25	2.23	2.20	2.17	2.14	2.14	2.14	2.11	2.08	2.03	1.99	1.94	1.91
	2	2.28	2.28	2.28	2.27	2.24	2.21	2.18	2.16	2.16	2.15	2.12	2.10	2.05	2.00	1.96	1.92
3856 & ABOVE	1 & 3	2.31	2.29	2.27	2.25	2.23	2.20	2.17	2.14	2.14	2.14	2.11	2.08	2.03	1.99	1.94	1.91
	2	2.32	2.31	2.29	2.27	2.24	2.21	2.18	2.16	2.16	2.15	2.12	2.10	2.05	2.00	1.96	1.92

EPR BLEED CORRECTIONS	ENG 1 & 3	ENG 2
AIR CONDITIONING	OFF +.04	
ENGINE ANTI-ICE ON		-.03

REDUCE ENG 2 EPR BY .05 WITH 6TH STAGE BLEED ON (IF INSTALLED) FOR 10 °C (50 °F) OAT & WARMER

V_1, V_R, V_2

ANTI-SKID OPERATIVE

PRESSURE ALT - 1000 FT		OAT							
9 TO 11	°F °C	(ABOVE CERTIFIED ALTITUDE)				-65 TO 25 -54 TO -4		26 TO 87 -3 TO 31	
7 TO 9	°F °C			-65 TO 9 -54 TO -13		10 TO 75 -12 TO 24		76 TO 104 25 TO 40	
5 TO 7	°F °C	-65 TO -10 -54 TO -23		-8 TO 42 -22 TO 5		43 TO 97 6 TO 36		98 TO 111 37 TO 44	
3 TO 5	°F °C	-65 TO 32 -54 TO 0		33 TO 90 1 TO 32		91 TO 113 33 TO 45		114 TO 120 46 TO 49	
1 TO 3	°F °C	-65 TO 83 -54 TO 28		84 TO 106 29 TO 41		107 TO 120 42 TO 49			
-1 TO 1	°F °C	-65 TO 99 -54 TO 37		100 TO 120 38 TO 49					
FLAPS	GROSS WEIGHT 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
5	210	165	175	166	175				
	200	160	171	162	171				
	190	155	167	157	167	158	167		
	180	150	163	152	163	154	163		
	170	144	159	147	159	149	159	150	158
	160	140	154	141	153	143	153	145	153
	150	135	149	136	149	138	149	140	148
	140	129	145	130	145	132	144	134	144
	130	124	140	125	139	126	138	128	138
	120	119	135	120	134	120	134	121	133
15	210	156	166	157	166				
	200	151	162	153	162				
	190	146	158	148	158	149	158		
	180	141	154	143	154	145	154		
	170	136	150	138	150	140	150	141	149
	160	132	146	133	145	135	145	137	145
	150	127	141	128	141	130	141	132	140
	140	122	137	123	137	124	136	126	136
	130	117	133	118	132	118	131	120	131
	120	112	128	113	127	113	127	115	126
20	210	151	161	152	161				
	200	146	157	148	157				
	190	141	153	143	153	144	153		
	180	136	150	138	150	140	149		
	170	132	146	133	146	135	145	136	145
	160	128	142	129	141	131	141	133	141
	150	123	137	124	137	126	136	128	136
	140	118	133	119	133	120	132	122	132
	130	113	129	114	128	114	127	116	127
	120	109	124	109	123	109	123	111	122
25	210	146	157	147	157				
	200	141	153	143	153				
	190	137	149	138	149	139	149		
	180	132	145	134	145	136	145		
	170	127	141	129	141	131	141	132	140
	160	123	137	124	137	126	137	128	136
	150	119	133	120	133	122	133	124	132
	140	114	129	115	129	116	128	118	128
	130	109	125	110	124	110	124	112	123
	120	105	120	106	120	106	119	108	118

STAB TRIM SETTING

CG	FLAPS 5	FLAPS 15 / 20	FLAPS 25
	UNITS AIRPLANE NOSE UP		
10	6 3/4	7 1/2	8 1/4
12	6 1/2	7 1/4	8
14	6 1/4	7	7 3/4
16	6	6 3/4	7 1/2
18	5 3/4	6 1/2	7
20	5 1/2	6	6 1/2
22	5	5 3/4	6 1/4
24	4 3/4	5 1/4	5 3/4
26	4 1/2	4 3/4	5 1/4
28	4	4 1/2	4 3/4
30	3 3/4	4	4 1/4
32	3 1/2	3 3/4	4
34	3 1/4	3 1/4	3 1/2
36	2 3/4	3	3
38	2 1/2	2 1/2	2 1/2
40	2 1/2	2 1/2	2 1/2
42	2 1/2	2 1/2	2 1/2

FLAP RETRACTION/ MANEUVERING SPEEDS

GROSS WEIGHT LB	FLAP POSITION 15	5	2	0
154500 & BELOW	150	160	190	200
154501 TO 176000	160	170	200	210
176001 TO 191000	170	180	210	220
ABOVE 191000	180	190	225	235

FOR MANEUVERS IMMEDIATELY AFTER TAKEOFF EXCEEDING 15° BANK MAINTAIN AT LEAST V_2 +10 AT TAKEOFF FLAPS

FIGURE 83.—Takeoff Performance.

OPERATING CONDITIONS	H-1	H-2	H-3	H-4	H-5
ALTITUDE	24,000	17,000	8,000	18,000	22,000
WEIGHT (X1000)	195	185	155	135	175
ENGINES OPERATING	3	3	3	3	3
HOLDING TIME (MIN)	15	30	45	25	35

FIGURE 84.—B-727 – Holding.

EPR IAS - KTS FF PER ENG - LB/HR	HOLDING							B-727
PRESSURE ALTITUDE FT	**GROSS WEIGHT - 1000 LB**								
	200	**190**	**180**	**170**	**160**	**150**	**140**	**130**	**120**
25000	1.85 268 3600	1.81 261 3400	1.77 253 3210	1.73 246 3030	1.69 238 2860	1.64 230 2680	1.60 222 2510	1.55 213 2340	1.51 205 2180
20000	1.69 265 3630	1.66 258 3450	1.62 251 3280	1.59 244 3110	1.55 236 2940	1.51 228 2770	1.48 220 2600	1.44 212 2440	1.40 204 2270
15000	1.56 263 3670	1.53 256 3500	1.50 249 3340	1.47 242 3170	1.44 235 3000	1.41 227 2850	1.38 219 2680	1.35 211 2520	1.32 203 2350
10000	1.45 262 3800	1.43 255 3640	1.40 248 3460	1.38 241 3310	1.35 234 3140	1.33 226 2970	1.30 218 2810	1.28 210 2640	1.25 202 2480
5000	1.36 260 3890	1.34 254 3720	1.32 247 3550	1.30 240 3380	1.28 233 3220	1.26 225 3060	1.24 218 2890	1.22 210 2730	1.20 201 2560

FIGURE 85.—B-727 – Holding Performance Chart.

OPERATING CONDITIONS	S–1	S–2	S–3	S–4	S–5
FLIGHT LEVEL	370	350	410	390	330
LANDING WEIGHT (X1000)	130	150	135	155	125
DESCENT TYPE	.80M/ 250	.80M/ 280/250	.80M/ 320/250	.80M/ 350/250	.80M/ 320/250

FIGURE 86.—Descent Performance.

.80M/250 KIAS

FLIGHT LEVEL	TIME MIN	FUEL LB	DISTANCE NAM AT LANDING WEIGHTS		
			120,000 LB	140,000 LB	160,000 LB
410	27	1610	133	137	138
390	27	1600	130	134	136
370	26	1570	123	128	129
350	25	1540	116	120	122
330	24	1510	110	113	115
310	23	1480	103	107	108
290	22	1450	97	100	101
270	21	1420	90	93	95
250	20	1390	84	87	88
230	19	1360	78	80	81
210	18	1320	72	74	75
190	17	1280	66	68	68
170	16	1240	60	62	62
150	14	1190	54	56	56
100	11	1050	39	40	40
050	8	870	24	24	24
015	5	700	12	12	12

.80M/280/250 KIAS

FLIGHT LEVEL	TIME MIN	FUEL LB	DISTANCE NAM AT LANDING WEIGHTS		
			120,000 LB	140,000 LB	160,000 LB
410	25	1550	123	129	132
390	24	1540	121	127	130
370	24	1520	115	121	125
350	23	1500	111	117	120
330	23	1480	106	111	115
310	22	1450	100	105	108
290	21	1430	94	99	102
270	20	1400	88	93	95
250	19	1370	83	87	89
230	18	1350	77	81	83
210	17	1310	72	75	76
190	16	1280	66	69	70
170	15	1240	61	63	64
150	14	1200	55	57	58
100	12	1080	42	42	42
050	8	870	24	24	24
015	5	700	12	12	12

.80M/320/250 KIAS

FLIGHT LEVEL	TIME MIN	FUEL LB	DISTANCE NAM AT LANDING WEIGHTS		
			120,000 LB	140,000 LB	160,000 LB
410	22	1490	113	120	123
390	22	1480	111	117	121
370	21	1460	105	112	116
350	21	1440	101	107	111
330	20	1420	96	103	107
310	20	1400	92	98	102
290	19	1390	89	94	98
270	19	1370	85	90	94
250	18	1350	80	85	88
230	17	1330	75	79	82
210	17	1300	71	74	77
190	16	1270	66	69	71
170	15	1240	61	64	65
150	14	1210	56	59	60
100	12	1110	45	46	46
050	8	870	24	24	24
015	5	700	12	12	12

.80M/350/250 KIAS

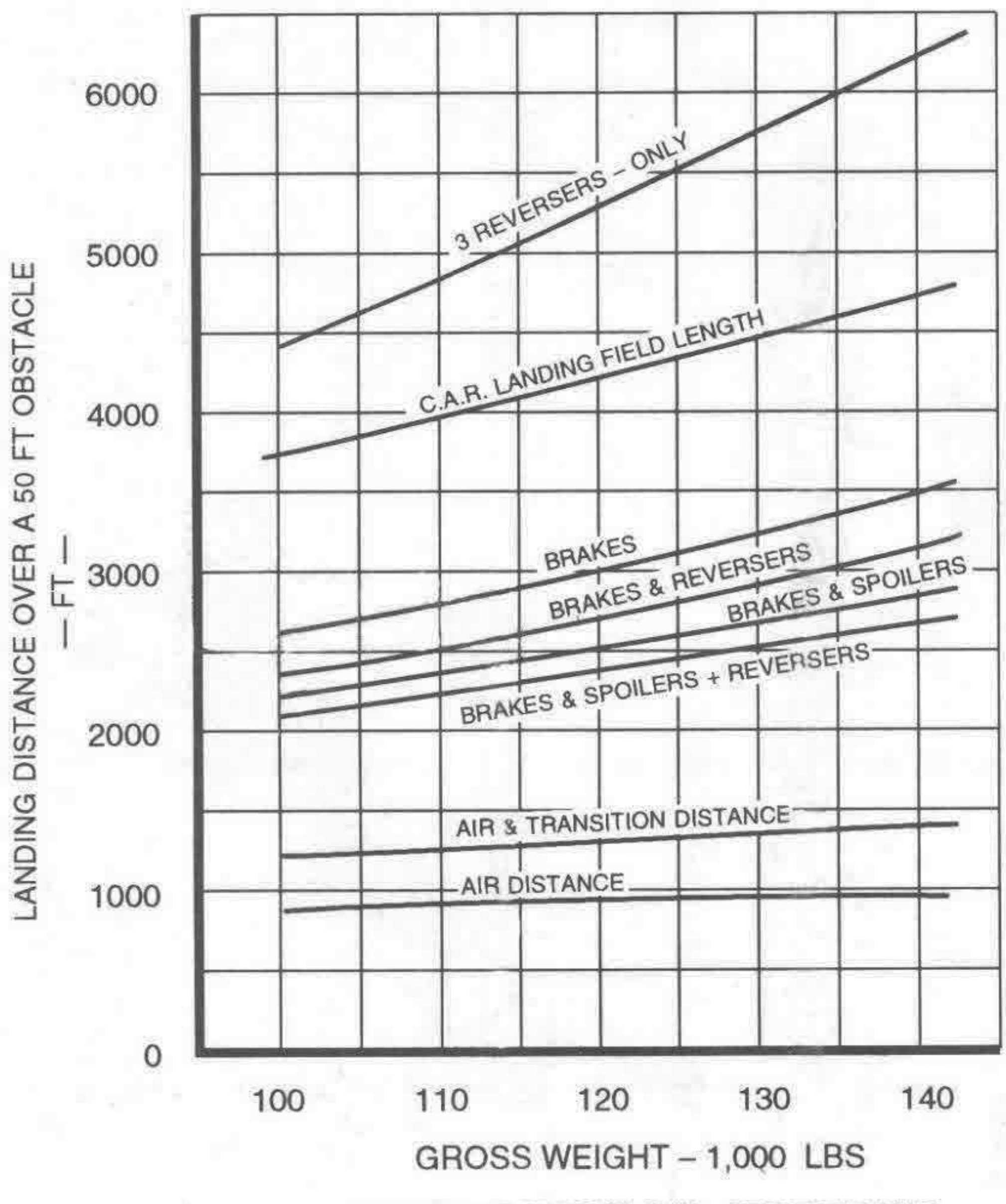
FLIGHT LEVEL	TIME MIN	FUEL LB	DISTANCE NAM AT LANDING WEIGHTS		
			120,000 LB	140,000 LB	160,000 LB
410	21	1440	106	112	116
390	21	1430	103	110	114
370	20	1420	99	106	110
350	20	1400	95	101	106
330	19	1390	91	98	102
310	19	1380	88	94	98
290	18	1360	85	90	95
270	18	1350	82	87	91
250	17	1330	78	83	87
230	17	1310	74	78	81
210	16	1290	70	74	76
190	16	1270	65	69	71
170	15	1240	61	64	66
150	14	1210	57	60	61
100	13	1130	47	48	49
050	8	870	24	24	24
015	5	700	12	12	12

NOTE: FUEL FOR A STRAIGHT-IN APPROACH IS INCLUDED

FIGURE 87.—Descent Performance Chart.

LANDING DISTANCE COMPARISON DRY RUNWAY 1

SEA LEVEL 59 °F
40° FLAPS
ANTI–SKID OPERATIVE.
BRAKES & SPOILERS APPLIED
2 SECONDS AFTER TOUCHDOWN.
REVERSERS INITIATED
3 SECONDS AFTER TOUCHDOWN.
ENGINE SPIN–UP TIME FOR
REVERSE THRUST IS 6.3 SECONDS.
CERTIFIED LANDING PARAMETERS USED,
EXCEPT REVERSE THRUST WHICH IS
FLIGHT TEST DATA.



TRAINING INFORMATION ONLY REPRESENTATIVE

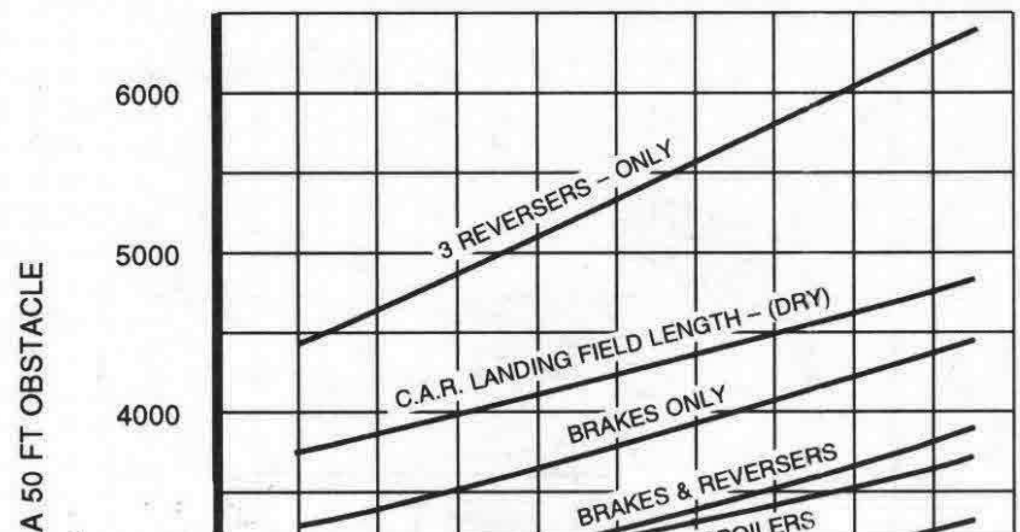
NORMAL LANDING

FIGURE 88.—B-727 – Normal Landing – Dry Runway.

LANDING DISTANCE
COMPARISON

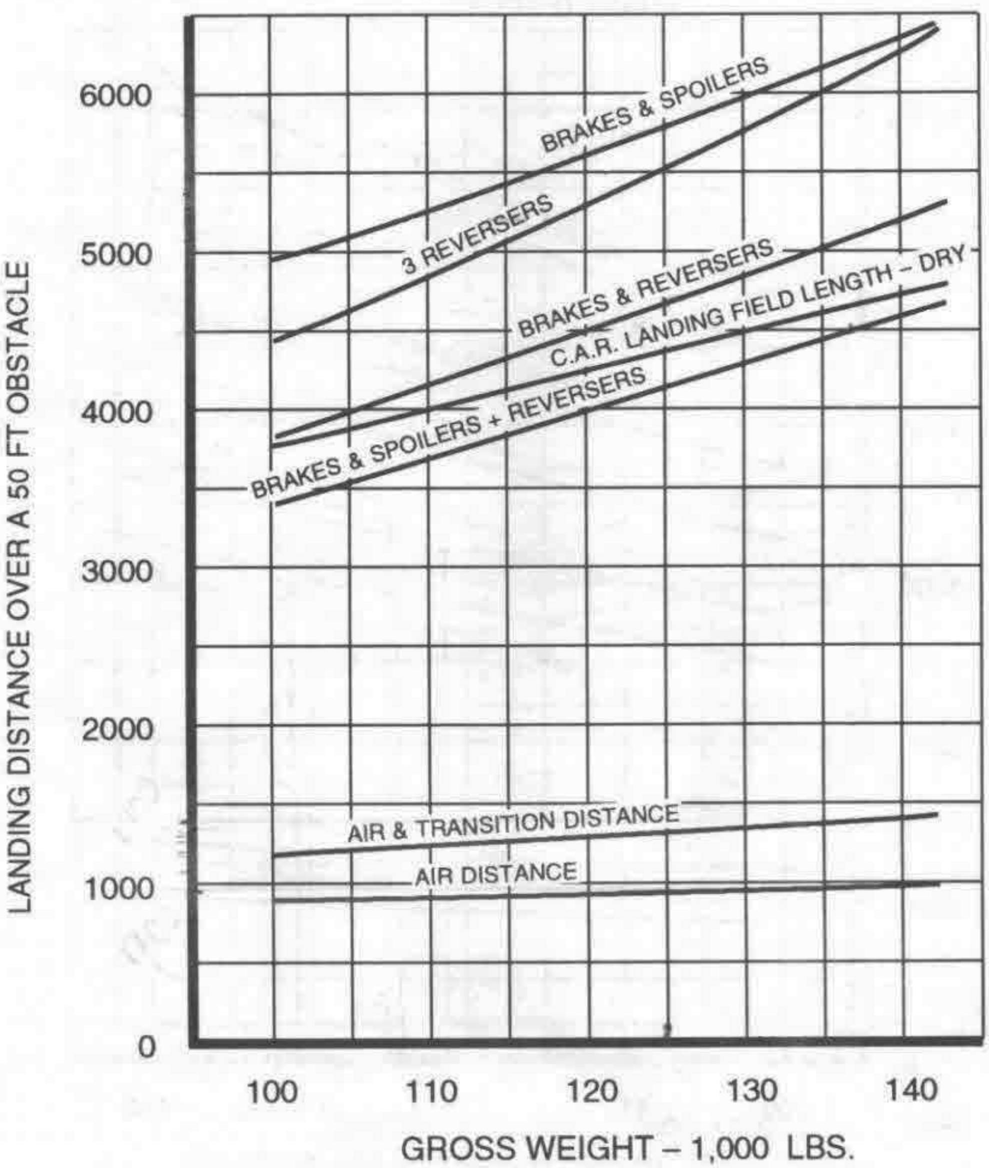
WET RUNWAY

SEA LEVEL 59 °F
40° FLAPS
ANTI–SKID OPERATIVE.
BRAKES & SPOILERS APPLIED
2 SECONDS AFTER TOUCHDOWN.
REVERSERS INITIATED
3 SECONDS AFTER TOUCHDOWN.
ENGINE SPIN–UP TIME FOR
REVERSE THRUST IS 6.3 SECONDS.
CERTIFIED LANDING PARAMETERS USED,
EXCEPT REVERSE THRUST WHICH IS
RIGHT
FLIGHT TEST DATA.



LANDING DISTANCE
COMPARISON
ICY RUNWAY

SEA LEVEL 59 °F
40° FLAPS
ANTI–SKID OPERATIVE.
BRAKES & SPOILERS APPLIED
2 SECONDS AFTER TOUCHDOWN.
REVERSERS INITIATED
3 SECONDS AFTER TOUCHDOWN.
ENGINE SPIN–UP TIME FOR
REVERSE THRUST IS 6.3 SECONDS.
CERTIFIED LANDING PARAMETERS USED,
EXCEPT REVERSE THRUST WHICH IS
BASED ON FLIGHT TEST DATA.



TRAINING INFORMATION ONLY REPRESENTATIVE

NORMAL LANDING

FIGURE 90.—B-727 – Normal Landing – Icy Runway.

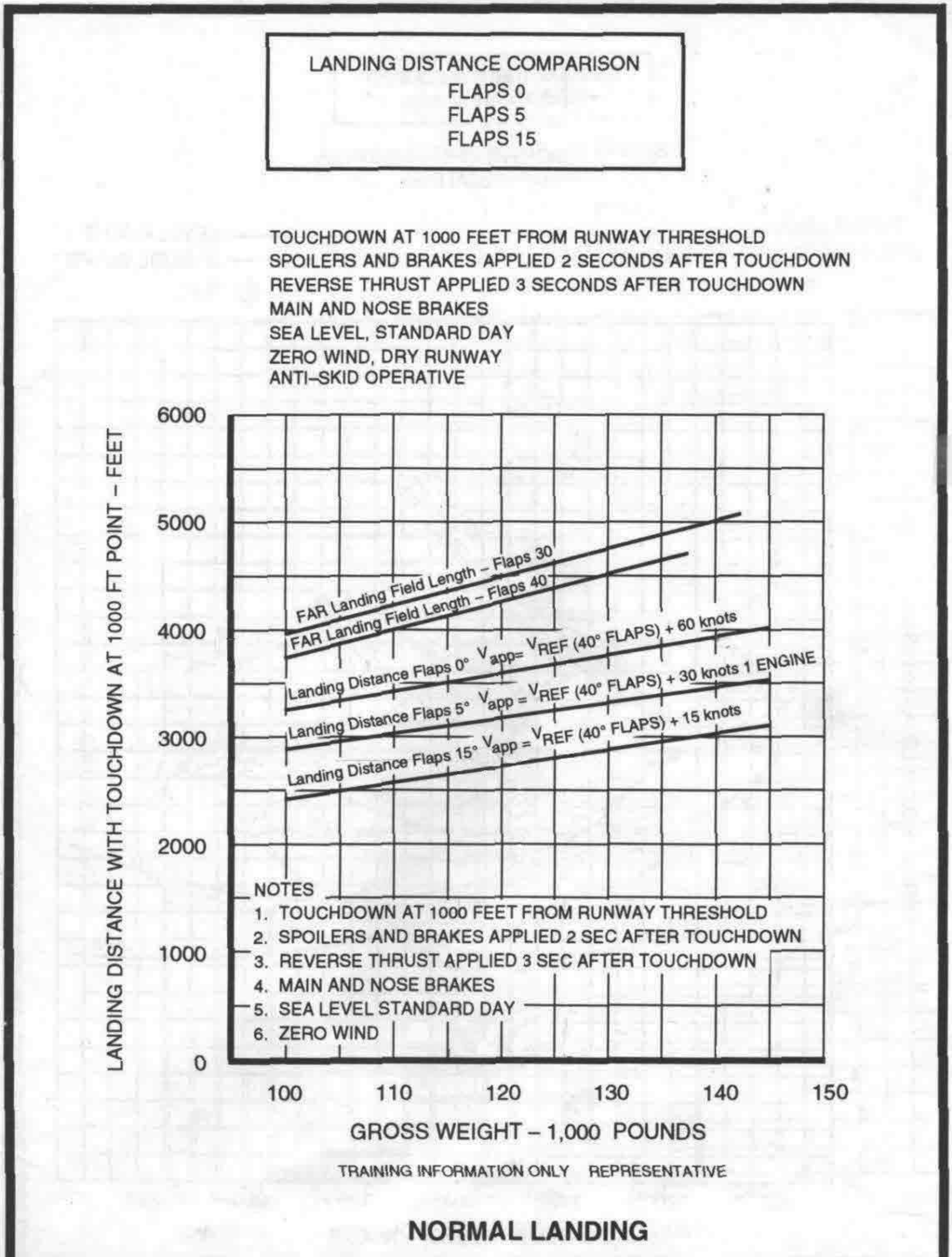


FIGURE 91.—B-727 – Normal Landing Distance Comparison.

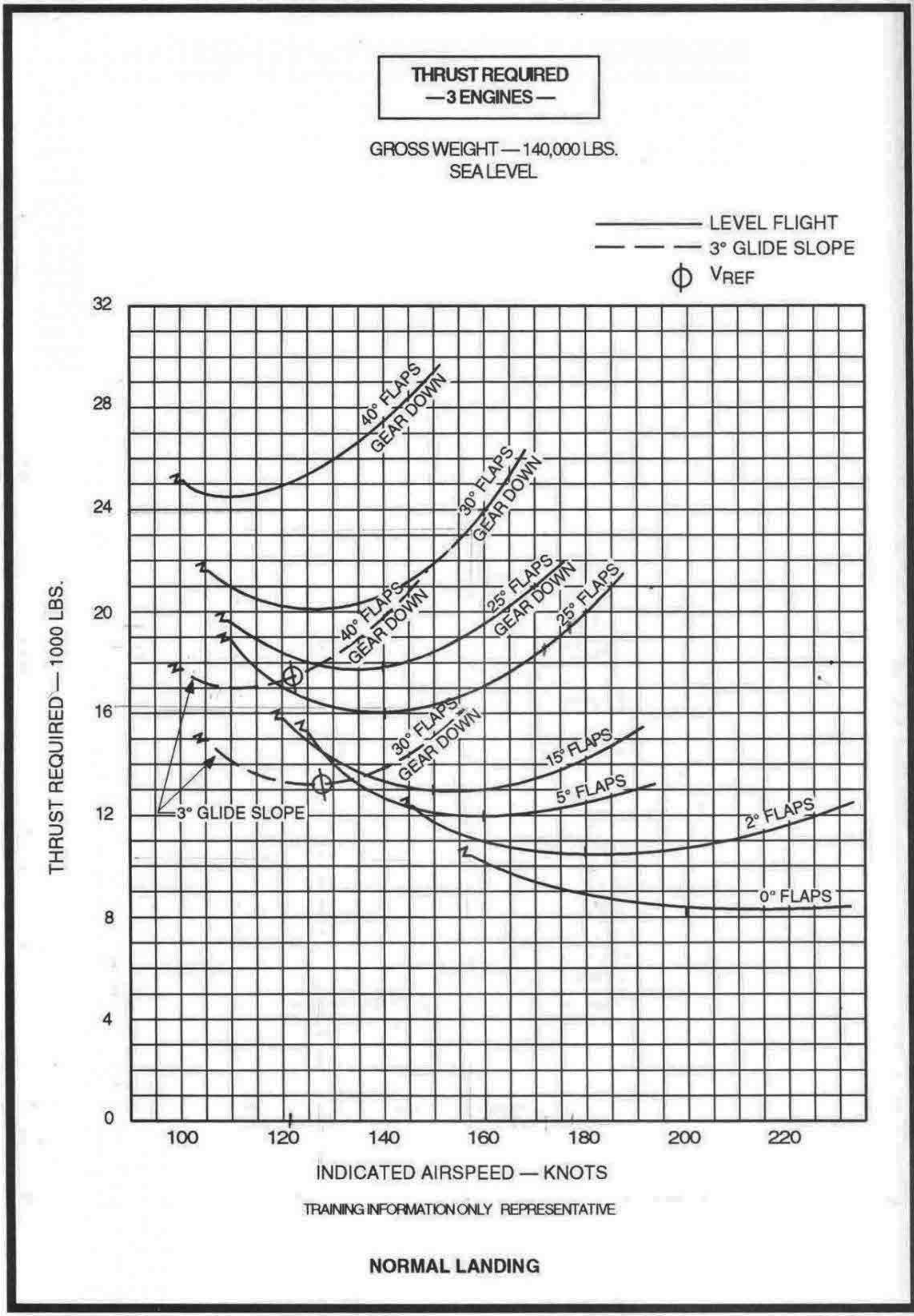


FIGURE 92.—B-727 – Landing Thrust – 140,000 Pounds.

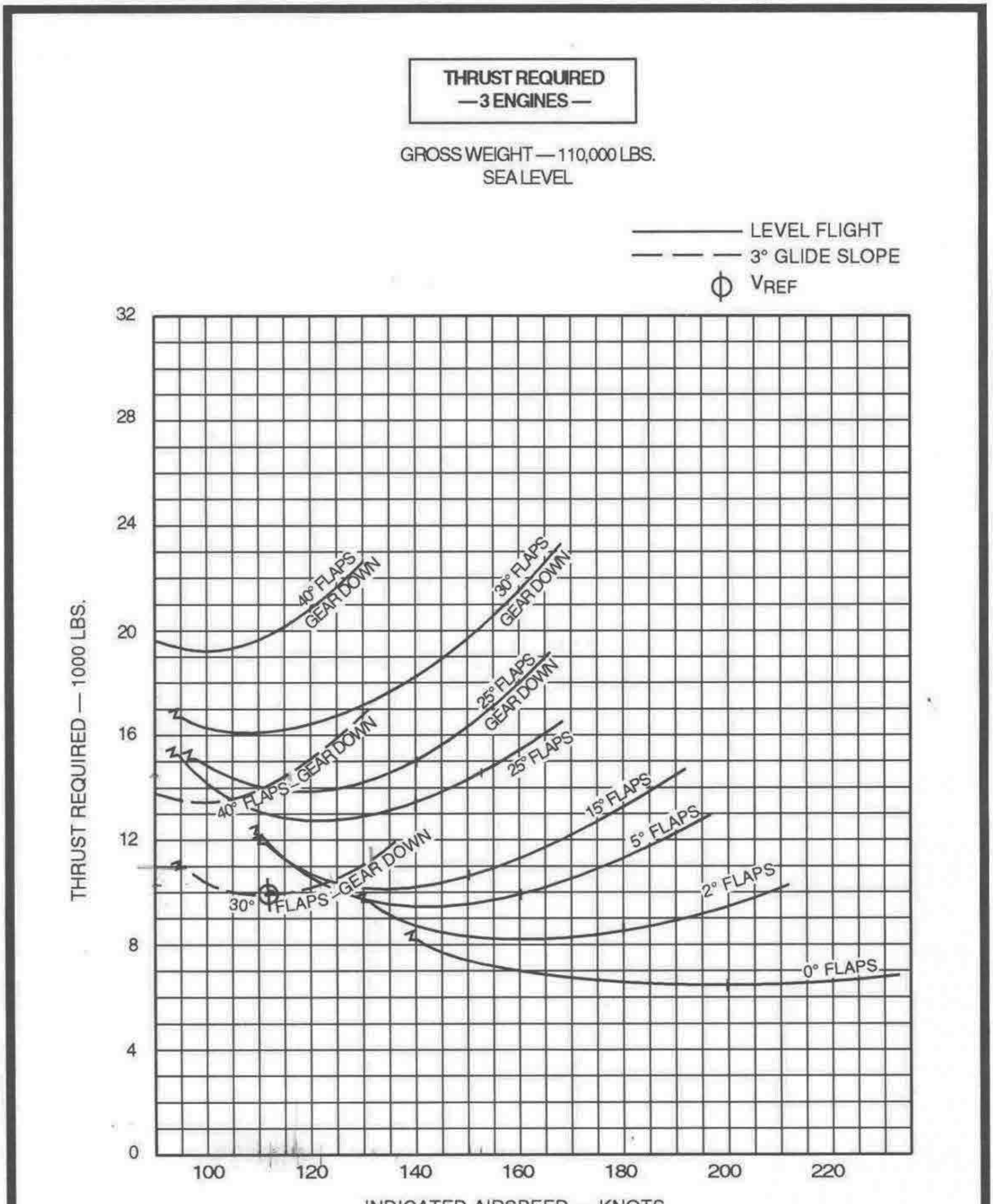


FIGURE 93.—B-727 – Landing Thrust – 110,000 Pounds.

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **FLIGHT PLAN**	(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER	TIME STARTED	SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR X IFR DVFR	N60JB	C208/R	160 KTS	MDW Chicago Midway			FL190

8. ROUTE OF FLIGHT
Midway Four Dep. GIJ, J554 CRL, J586 YXU, J547 BUF

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
BUF Greater Buffalo Int'l. Buffalo			L/O = Level off. PPH = Pounds Per Hour L/O R-270/19 GIJ Variation: GIJ 1W, CRL 3W, YXU 6W, BUF 8W.

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE / 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	15. NUMBER ABOARD
3	20	ROC Rochester		2

16. COLOR OF AIRCRAFT
Brown/Tan

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

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

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE / ALTITUDE	COURSE	WIND / TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
MDW	L/O GIJ R-270/19	MDW 4 / Climb					49		:19:00		.327*
R-270/19 GIJ	GIJ	Direct / FL190		230/51 / ISA							
GIJ	CRL	J554 / FL190									
CRL	YXU	J586 / FL190		240/59 / ISA							
YXU	BUF R-282/30	J547 / FL190		250/62 / ISA							
BUF R-282/30	BUF	Descent & / Approach					30	:14:00		121.5	
BUF	ROC	V2 / 7000			150		44	:20:00			

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 610 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 710 PPH Total Fuel Flow For Reserve And Alternate Requirements.
A Missed Approach Requires 81# of Fuel.

TIME and FUEL: As required by FARs.

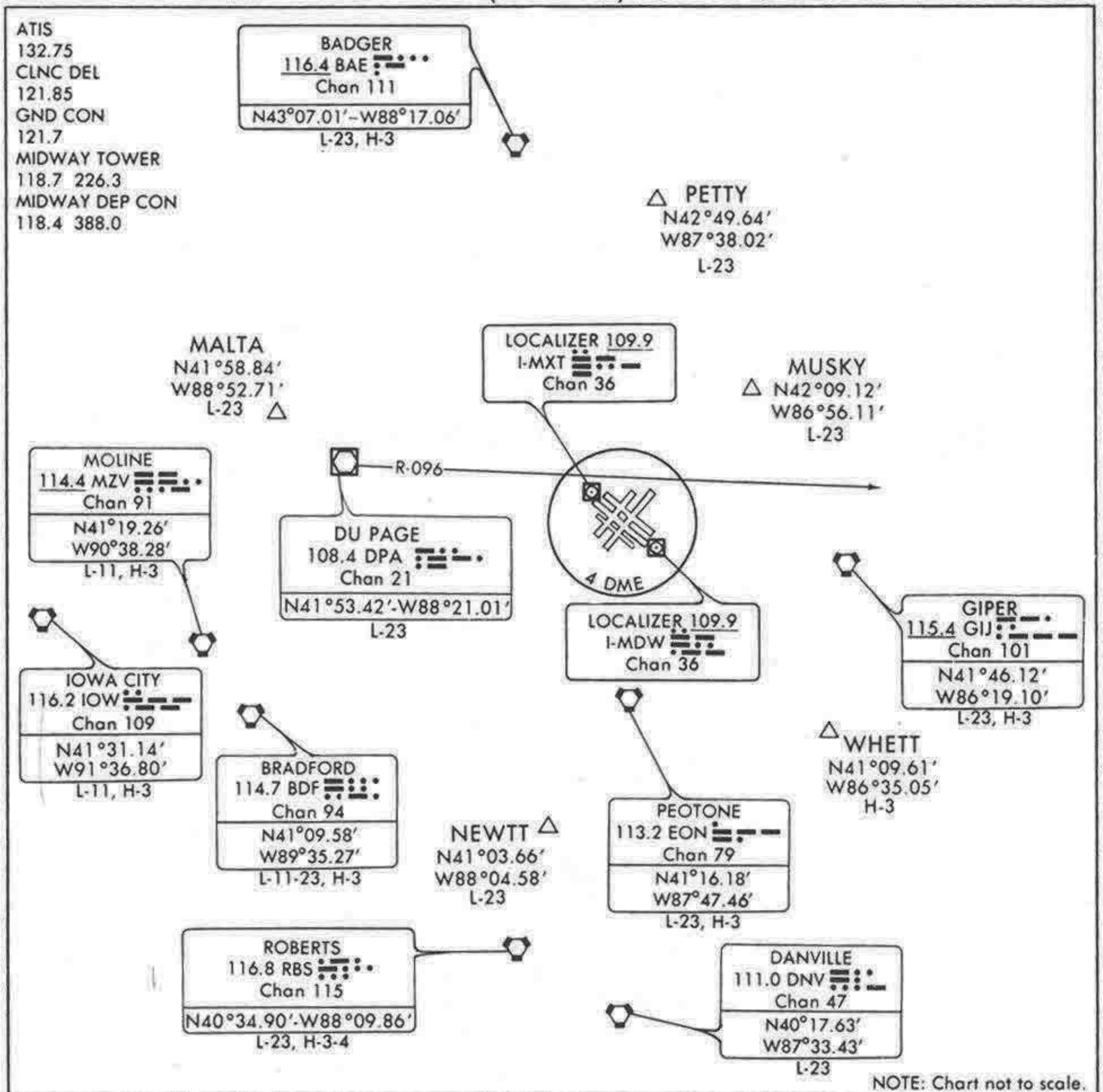
TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 94.—Flight Plan/Flight Log.

94342 SL-81 (FAA)

MIDWAY FOUR DEPARTURE (VECTOR)

CHICAGO MIDWAY (MDW)
CHICAGO, ILLINOIS



DEPARTURE ROUTE DESCRIPTION

All aircraft expect radar vectors to first enroute fix. Expect clearance to requested altitude/flight level ten minutes after departure.

TAKE-OFF RUNWAYS 22L/R, 31C/R, 13L/C: Climb runway heading to 1300′ before turning on course.

TAKE-OFF RUNWAYS 4L/R: Northbound departures assigned headings 360° (CW) thru 080°, turn right climb on heading 100° until leaving 2400. Thence via vector to assigned route.

DME-EQUIPPED AIRCRAFT: Complete initially assigned turn within 4 DME of Midway. Maintain 3000′ or assigned lower altitude. Expect clearance to requested altitude 10 minutes after departure.

NON-DME EQUIPPED AIRCRAFT: Complete initially assigned turn south of DPA R-096, maintain 3000′ or assigned lower altitude. Expect clearance to requested altitude 10 minutes after departure.

MIDWAY FOUR DEPARTURE (VECTOR)
94342

CHICAGO, ILLINOIS
CHICAGO MIDWAY (MDW)

FIGURE 95.—Midway Four Departure (Vector).

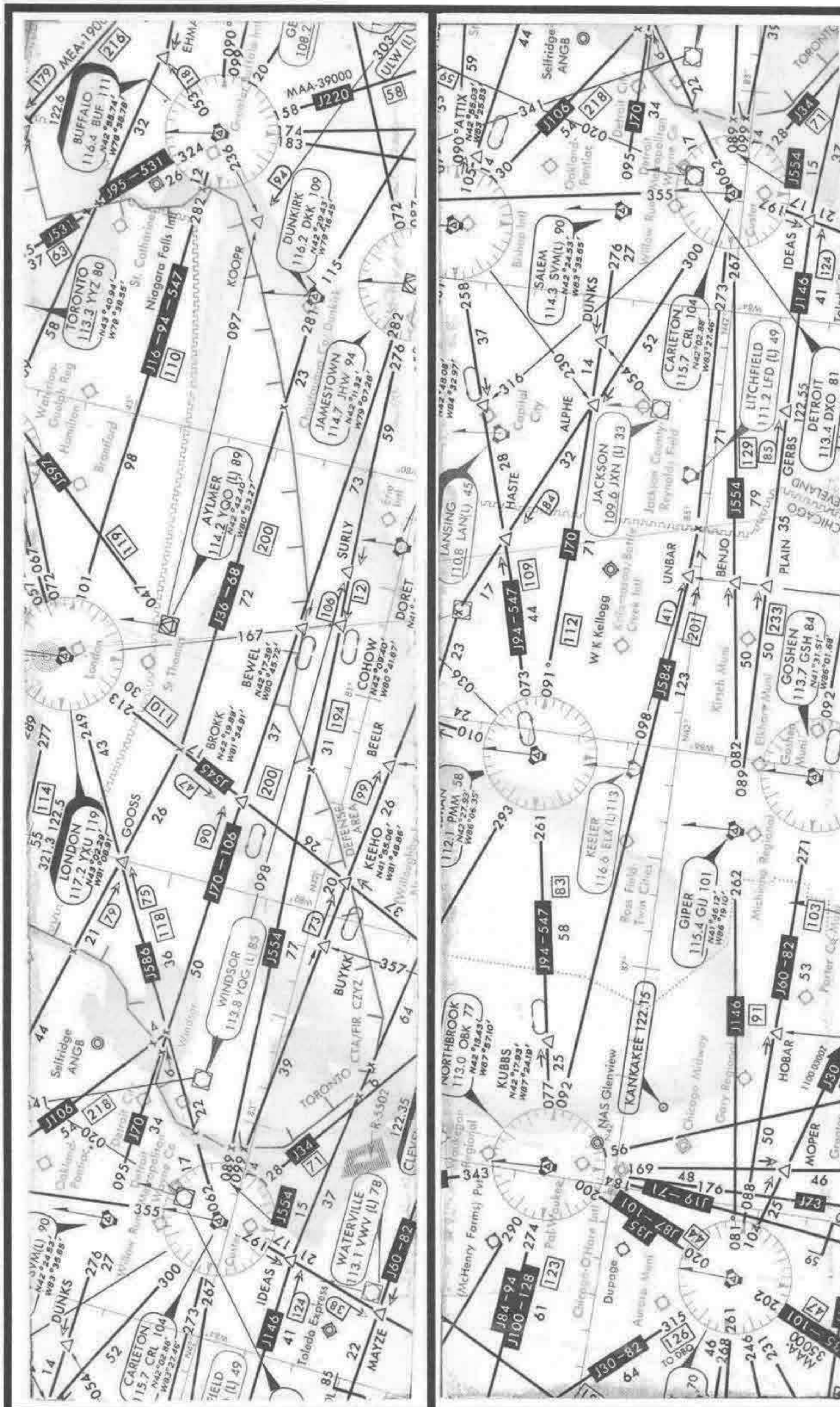


FIGURE 96.—IFR En Route High Altitude Chart Segment.

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **FLIGHT PLAN**	(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER	TIME STARTED	SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR / X IFR / DVFR	N55JB	BE90/A	248 KTS	DFW Dallas Ft. Worth			15,000

8. ROUTE OF FLIGHT
DFW V369 BILEE, CUGAR 4 IAH

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
IAH Houston Intercontinental Houston			L/O = Level off. PPH = Pounds Per Hour

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE / 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	15. NUMBER ABOARD
		BPT Beaumont-Port Arthur Jefferson County		4

16. COLOR OF AIRCRAFT
BLUE/YELLOW

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

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

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE ALTITUDE	COURSE	WIND TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
DFW	L/O	V369 Climb					27		:12:00		231*
L/O	Bilee	V369 15,000		230/42 ISA							
Bilee	Cugar	Cugar 4 15,000									
Cugar	Start Descent	Cugar 4 15,000		230/42 ISA							
Start Descent	IAH	Descent & Approach					25	:14:00		132	
IAH	BPT	Vectors 3000				194	68				

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 850 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 880 PPH Total Fuel Flow For Reserve And Alternate Requirements.
A Missed Approach Requires 82# of Fuel.

TIME and FUEL: As required by FARs.

TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 98.—Flight Plan/Flight Log.

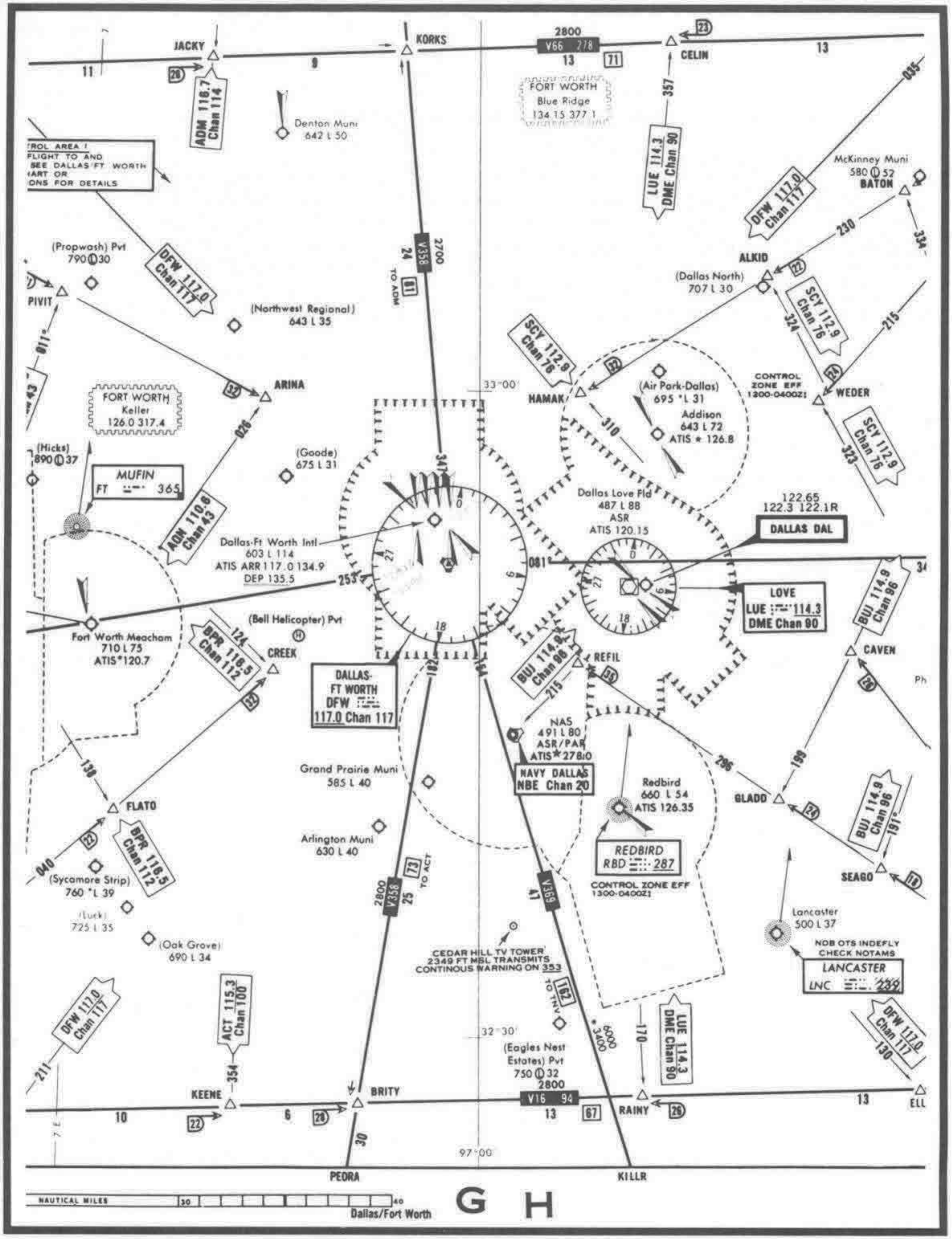


FIGURE 99.—IFR Area Chart Segment.

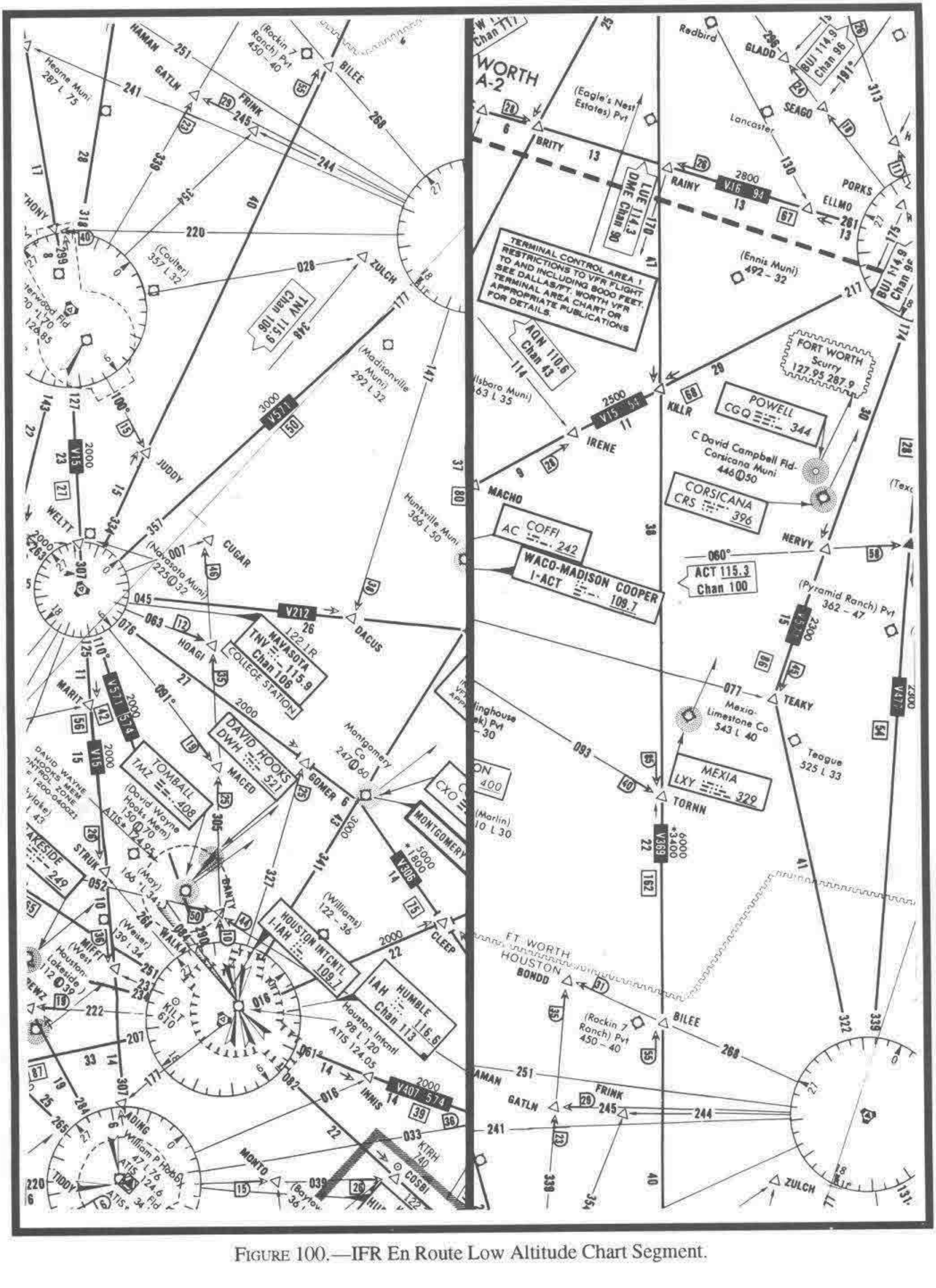


FIGURE 100.—IFR En Route Low Altitude Chart Segment.

§ DALLAS-FORT WORTH INTL (DFW) 12 NW UTC-6(-5DT) 32°53'47"N 97°02'28"W — DALLAS-FT. WORTH H-2K, 4F, 5B, L-13C, A IAP

603 B FUEL 100LL, JET A OX 1,3 LRA CFR Index E

RWY 17L-35R: H11,388X150 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL, CL
RWY 17L: ALSF2. TDZ. RWY 35R:MALSR. TDZ.

RWY 17R-35L: H11,388X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL, CL
RWY 17R: SSALR TDZ. RWY 35L:TDZ. VASI(V6L).

RWY 18L-36R: H11,387X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL, CL
RWY 18L: SSALR.TDZ. RWY 36R:TDZ. VASI(V6L).

RWY 18R-36L: H11,388X150 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL, CL
RWY 18R: ALSF2. TDZ RWY 36L:MALSR. TDZ.

RWY 13L-31R: H9000X200 (CONC-GRVD) S-120, D-200, DT-600, DDT-850 HIRL, CL .5% up NW.
RWY 13L: TDZ. VASI(V6L)—Upper GA 3.25°TCH 93'. Lower GA 3.0°TCH 47'.
RWY 31 R:MALSR. TDZ.

RWY 13R-31L: H9300X150 (CONC-GRVD) S-120, D-220, DT-600, DDT-850 HIRL, CL
RWY 13 R:MALSR. TDZ. RWY 31L: TDZ.

RWY 18S-36S: H4000X100 (CONC)

AIRPORT REMARKS: Attended continuously. Prior Permission Required from arpt ops for General Aviation acft to proceed to airline terminal gate except to General Aviation Facility. Rwy 18S-36S located on taxiway G. 4000' long 100' wide restricted to prop acft 12,500 lbs. & below and stol acft daylight VFR plus IFR departures. Prior permission required from the primary tenant airlines to operate within central terminal area. CAUTION: proper minimum clearance may not be maintained within the central terminal area. Landing fee. Clearways 500x1000 each end Rwy 17L-35R, Rwy 17R-35L, Rwy 18L-36R and Rwy 18R-36L. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: LLWAS.

COMMUNICATIONS: ATIS 117.0 134.9 (ARR) 135.5 (DEP) UNICOM 122.95
FORT WORTH FSS (FTW) LC 624-8471, Toll free call, dial 1-800-WX-BRIEF. NOTAM FILE DFW
® REGIONAL APP CON 119.05(E) 119.4(E) 125.8(W) 132.1(W)
REGIONAL TOWER 126.55 (E) 124.15 (W) GND CON 121.65 133.15(E) 121.8 (W) CLNC DEL 128.25 127.5
® REGIONAL DEP CON 118.55 (E) 124.25 (WEST) 127.75 (NORTH-SOUTH)
TCA Group I: See VFR Terminal Area chart.

RADIO AIDS TO NAVIGATION: NOTAM FILE DFW.
(H) VORTACW 117.0 DFW Chan 117 32°51'57"N97°01'40"W at fld. 560/08E.
VOR Portion unusable 045°-050° all altitudes and distances, 350-100° beyond 30 NM below 2100'.
ISSUE NDB (LOM) 233 PK 32°47'35"N97°01'49"W 353° 5.1 NM to fld.
JIFFY NDB (LOM) 219 FL 32°59'45"N97°01'46"W 173° 5.1 NM to fld.
ILS/DME 109.5 I-LWN Chan 32 Rwy 13R
ILS/DME 109.1 I-FLQ Chan 28 Rwy 17L LOM JIFFY NDB
ILS 111.5 I-JHZ Rwy 17R LOM JIFFY NDB
ILS 111.3 I-CIX Rwy 18L
ILS/DME 111.9 I-VYN Chan 56 Rwy 18R
ILS 110.9 I-RRA Rwy 31R
ILS/DME 109.1 I-PKQ Chan 28 Rwy 35R LOM ISSUE NDB
ILS/DME 111.9 I-BXN Chan 56 Rwy 36L

§ HOUSTON INTERCONTINENTAL (IAH) 15N UTC-6(-5DT) 29°58'49"N 95°20'22"W — HOUSTON H-5B, L-17B IAP

98 B S4 FUEL 100LL, JET A OX2 LRA CFR Index D

RWY 14L-32R: H1200X150 (CONC-GRVD) S-100, D-200, DT-400, DDT-778 HIRL, CL
RWY 14L:MALSR. VASI(V4L)—GA 3.0°TCH 54'. RWY 32R:MALSR.

RWY 09-27: H10000X150 (ASPH-GRVD) S-75, D-191, DT-400, DDT-850 HIRL,CL
RWY 09:MALSR. TDZ. PAPI(P4L)—GA 3.0°TCH 63'.
RWY 27:ALSF2. TDZ. PAPI(P4L)—GA 3.0°TCH 63'.

RWY 08-26: H9401X150 (CONC-GRVD) S-120, D-155, DT-265 HIRL, CL
RWY 08:MALSR. TDZ. RWY 26: ALSF2. TDZ. VASI(V4L)—GA 3.0°TCH 53'.

RWY 14R-32L: H6038X100 (ASPH-GRVD) S-30, D-60, DT-60 MIRL
RWY 14R: VASI(V4L)—GA 3.0°TCH 40'. Road. RWY 32L: VASI(V4L)—GA 3.0°TCH 45'.

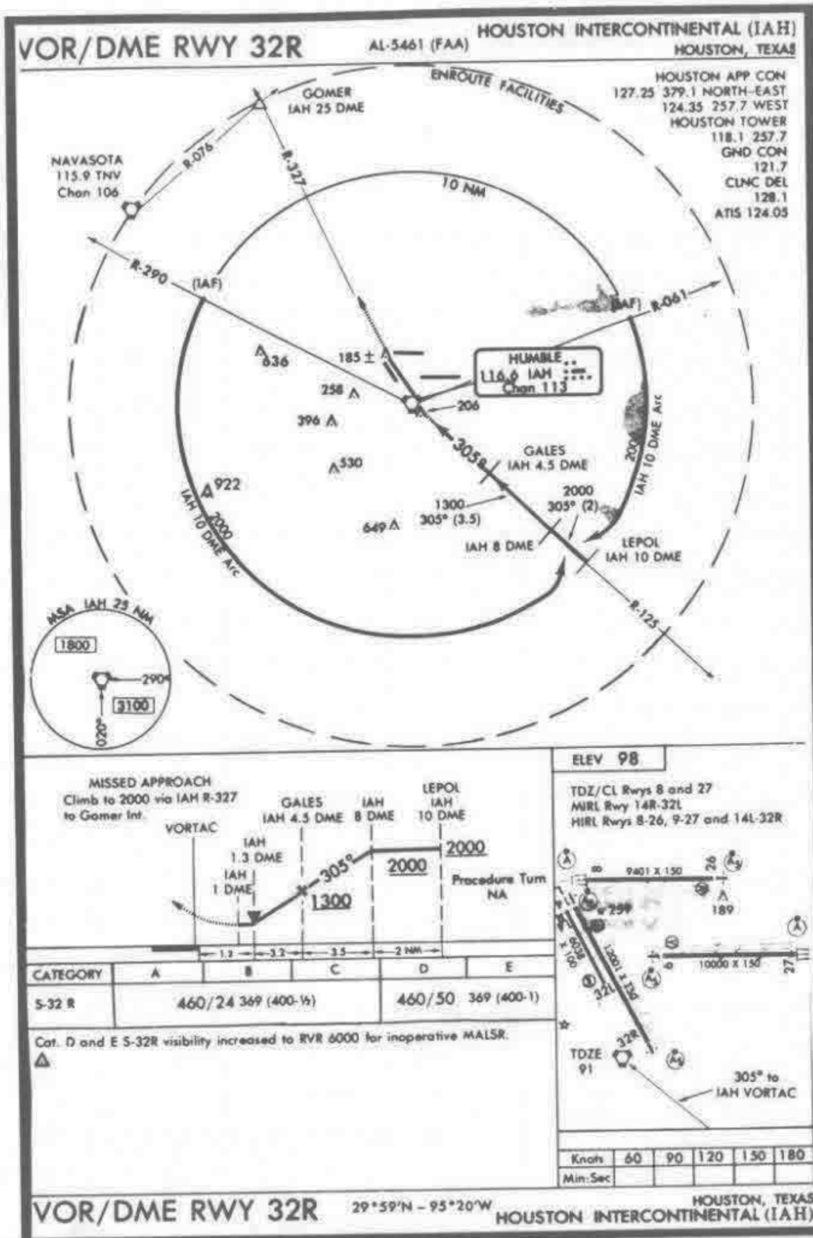
AIRPORT REMARKS: Attended continuously. CAUTION: Birds on and in vicinity of arpt. CAUTION—Approach end of rwy 26 bright lgts approximately one mile from thld and 900' South of centerline. Caution—Deer on and in vicinity of arpt. Rwy 14R-32L CLOSED to acft over 140,000 lbs gross weight. Landing Fee. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: LLWAS

COMMUNICATIONS: ATIS 124.05 UNICOM 122.95
MONTGOMERY COUNTY FSS (CXO) Toll free call, dial 1-800-WX-BRIEF. NOTAM FILE IAH.
® APP CON 124.35 (West) 127.25 (North and East)
TOWER 118.1 (135.15 copter control) GND CON 121.7 CLNC DEL 128.1 (135.15 copter control)
® DEP CON 123.8 (West) 119.7 (North and East)
TCA Group II: VFR Terminal Area chart.

RADIO AIDS TO NAVIGATION: NOTAM FILE IAH.
HUMBLE (H) VORTACW 116.6 IAH Chan 113 29°57'24"N95°20'44"W at fld. 90/08E. HIWAS.
MARBE NDB (LOM) 379 HS 30°04'29"N 95°24'45"W 146° 5.9 NM to fld.
NIXIN NDB (LOM) 326 JY 29°59'36"N 95°12'54"W 257° 6.5 NM to fld.
ILS/DME 109.7 I-JYV Chan 34 Rwy 26 LOM NIXIN NDB
ILS 111.9 I-HSQ Rwy 14L LOM MARBE NDB
ILS/DME 109.7 I-IAH Chan 34 Rwy 08
ILS/DME 110.9 I-UYO Chan 34 Rwy 09
ILS 111.9 I-CDG Rwy 32R

FIGURE 101.—Airport/Facility Directory Excerpts.



CATEGORY	A	B	C	D	E
S-32 R	460/24 369 (400-½)			460/50 369 (400-1)	

Cat. D and E S-32R visibility increased to RVR 6000 for inoperative MALSR.

Knots	60	90	120	150	180
Min:Sec					

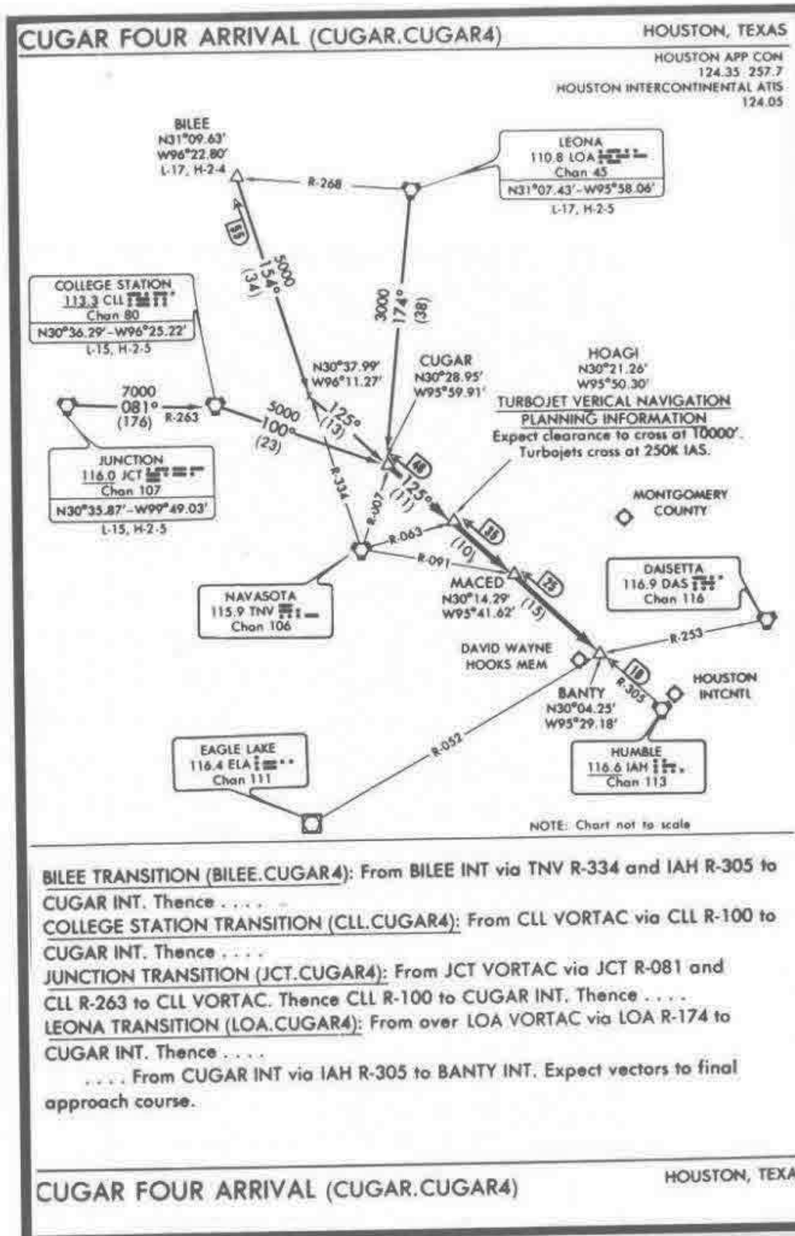


FIGURE 102.—VOR/DME RWY 32R (IAH)/Cugar Four Arrival (Cugar.Cugar4).

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

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

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR X IFR DVFR	N91JB	BE1900/A	233 KTS	TUS TUCSON			FL220

8. ROUTE OF FLIGHT
TUS TUS3.GBN, J104TNP, TNP.DOWNE 3 LAX

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
LAX LOS ANGELES INT'L Los Angeles			L/O = Level Off PPH = Pounds Per Hour TEC = Tower Enroute Control This flight is operating under FAR 135.

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
		BUR Burbank-Glendale-Pasadena	17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	18

16. COLOR OF AIRCRAFT
Maroon/White

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

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

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE ALTITUDE	COURSE	WIND TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
TUS	L/O	TUS3.GBN Climb					73		:25:00		350*
L/O	GBN	TUS3.GBN FL220		280/46 ISA-3							
GBN	INT. J104	J104 FL220									
INT J104	PKE			280/46 ISA-3							
PKE	TNP										
TNP	Start Descent										
Start Descent	Downe 3 LAX	Descent & Approach					52	:18:00		170	
LAX	BUR	TEC 3000					31	:19:00			

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 676 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 726 PPH Total Fuel Flow For Reserve And Alternate Requirements.
A Missed Approach Requires 120# of Fuel.

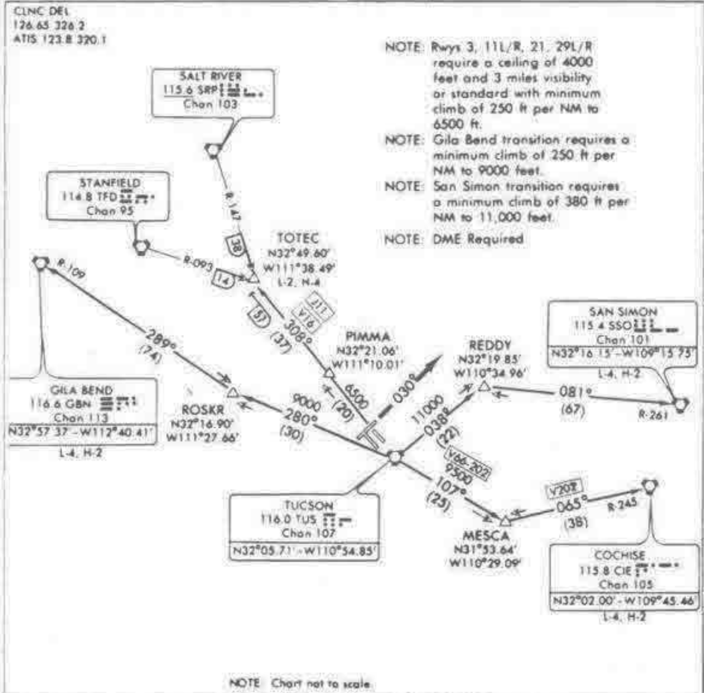
TIME and FUEL: As required by FARs.

TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 103.—Flight Plan/Flight Log.

(PILOT NAV) (TUS3.TUS) 90347
TUCSON THREE DEPARTURE SL-430 (FAA)

TUCSON INTL
TUCSON, ARIZONA



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 3: Fly heading 030° for vector to appropriate transition. Maintain 17,000 feet or assigned lower altitude. Expect clearance to filed flight level 10 minutes after departure.

TAKE-OFF RUNWAYS 11L/R, 21, 29L/R: Fly assigned heading for vector to intercept appropriate transition. Maintain 17,000 feet, or assigned lower altitude. Expect clearance to filed flight level 10 minutes after departure.

COCHISE TRANSITION (TUS3.CIE): Via TUS R-107 and CIE R-245 to CIE VORTAC.

GILA BEND TRANSITION (TUS3.GBN): Via TUS R-280 and GBN R-109 to GBN VORTAC.

SAN SIMON TRANSITION (TUS3.SSO): Via TUS R-038 and SSO R-261 to SSO VORTAC.

TOTEC TRANSITION (TUS3.TOTEC): Via TUS R-308 to TOTEC INT.

TUCSON THREE DEPARTURE
(PILOT NAV) (TUS3.TUS)

TUCSON, ARIZONA
TUCSON INTL

ARIZONA

TUCSON INTL (TUS) 6 S UTC-7 32°06'58"N 110°56'26"W — PHOENIX, H-2H, L-4F, IAP
2641 B S4 **FUEL** 100, 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks
AOE ARFF index D
RWY 11L-29R: H10994X150 (ASPH-PFC) S-160, D-200, DT-350, DDT-585 HIRL 0.6% up SE
RWY 11L: MALSR. REIL. PAPI (P4L)—GA 3.0° TCH 55'. Rgt tfc. Arresting device.
RWY 29R: REIL. VASI(V6L)—Upper GA 3.25°TCH 94'. Lower GA 3.0°TCH 50'. Arresting device.
RWY 11R-29L: H9129X75 (ASPH) S-120, D-140, DT-220 MIRL 0.6% up SE
RWY 11R: REIL. Thld dsplcd 2109'. Pole. Rgt tfc. **RWY 29L:** REIL. Pole.
RWY 03-21: H7000X150 (ASPH-PFC) S-105, D-137, DT-230, DDT-500 MIRL
RWY 03: Thld dsplcd 841'. Railroad.
RWY 21: REIL. VASI(V4L)—GA 3.0°TCH 50'. Tree. Rgt tfc. Arresting device.
AIRPORT REMARKS: Attended continuously. Commercial ldg fee and tiedown fee. Acft departing Rwy 11R reqd to attain at least 400' AGL prior to starting turn. Rwy 11L-29R has distance remaining markers on both sides. Rwy 03-21 has distance remaining markers on east side. Rwy 11R dsplcd thld not lgtd. No B-747 training except PPR. No flight training 0500-1300Z except PPR; call manager aviation svc 602-573-8152. 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. TPA-3441 (800) small acft, 4041 (1400) large/heavy turbojet acft. Portions of Taxiways C and 9 not visible from the twr due to vegetation; portions of Taxiway 2 not visible from the twr due to hangars. Note: See Special Notices—Glider Operations Northwest of Tucson, Arizona. Flight Notification Service (ADCUS) available.
WEATHER DATA SOURCES: LLWAS.
COMMUNICATIONS: **ATIS** 123.8 (602) 741-1177 **UNICOM** 122.95
TUCSON FSS (TUS) on arpt. 122.2 LC 889-9689. NOTAM FILE TUS.
MOUNT LEMMON RCO 122.4 (TUCSON FSS)
Ⓡ **APP/DEP CON** 125.1 (Rwy 11 090°-285°) (Rwy 29 275°-065°) 118.5 (Rwy 11 286°-089°) (Rwy 29 066°-274°)128.5
TOWER 118.3 119.0 **GND CON** 124.4 **CLNC DEL** 126.65
RADIO AIDS TO NAVIGATION: NOTAM FILE TUS. VHF/DF ctc FSS.
(H) VORTAC 116.0 TUS Chan 107 32°05'42"N 110°54'51"W 301° 1.8 NM to fld. 2670/12E.
VORTAC unusable 050°-080°beyond 30 NM below 10,500' 350°-005°beyond 30 NM below 11,200'
ILS/DME 108.5 I-TUS Chan 22 Rwy 11L.

▼ TAKE-OFF MINS

TUCSON, AZ

RYAN FIELD

DEPARTURE PROCEDURE: **Rwy 6,** turn right; **Rwy 24,** turn left direct to Ryan NDB. Continue climb in holding pattern (W, right turn 090° inbound) to 5000 before proceeding on course.

TUCSON INTL

TAKE-OFF MINIMUMS: **Rwys 3, 11L/R, 21, 29L/R,** 4000-3 or std. with min. climb of 250' per NM to 6500.

DEPARTURE PROCEDURE: Comply with SID or radar vectors; or turn left or right as assigned by ATC direct TUS VORTAC, climb in holding pattern (NW, right turn, 128 inbound) to depart TUS VORTAC at or above MCA or MEA for assigned airway.

FIGURE 104.—Tucson Three Departure (Pilot Nav) (TUS3.TUS).

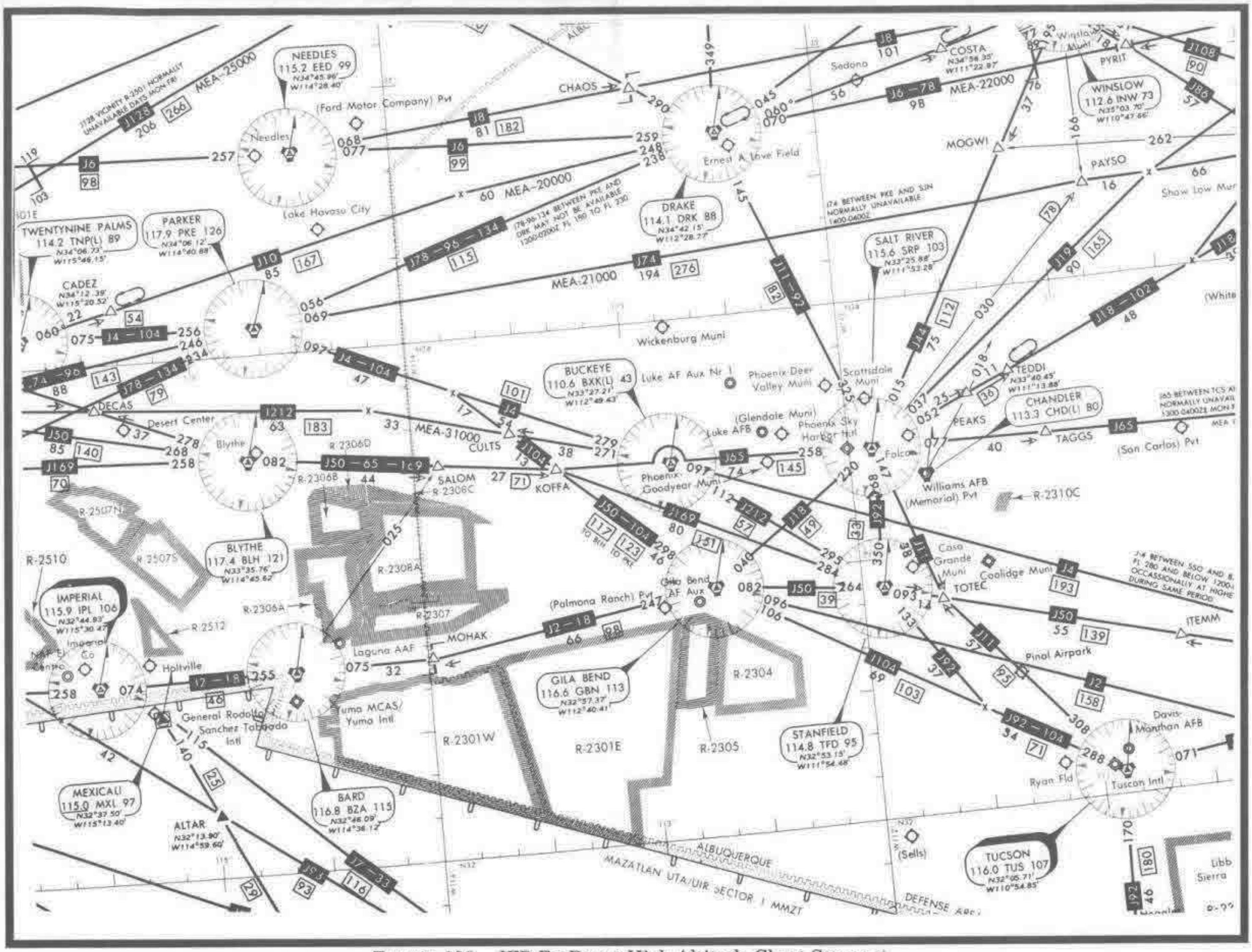
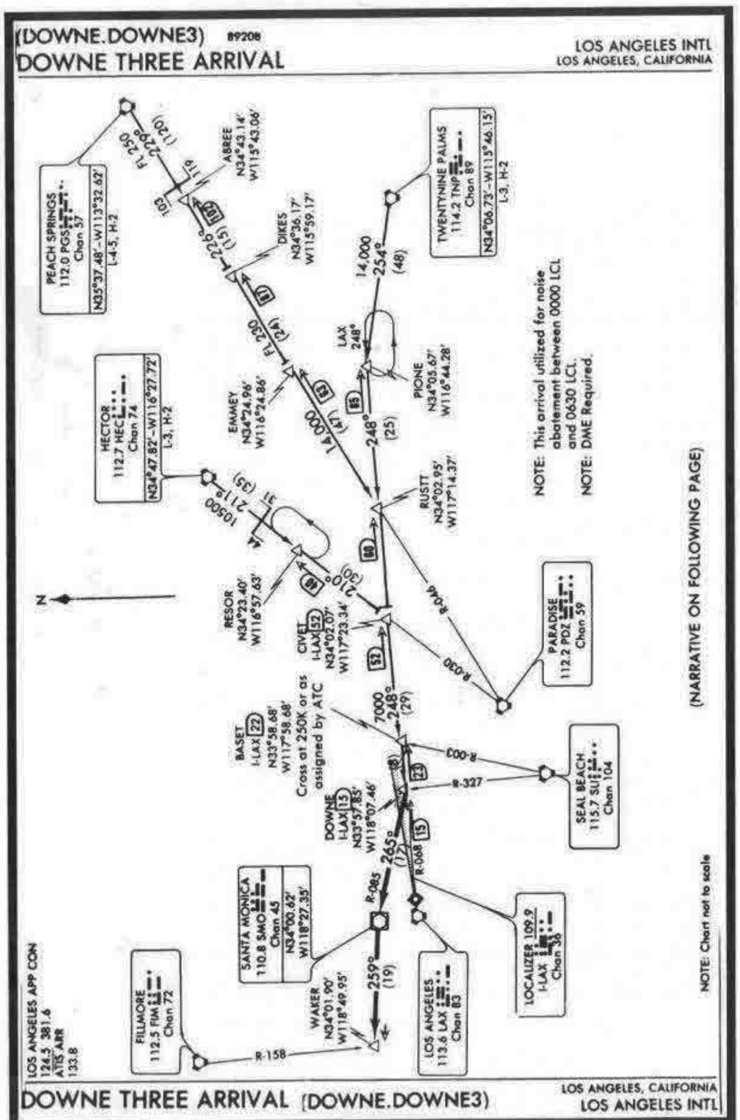


FIGURE 105.—IFR En Route High Altitude Chart Segment.



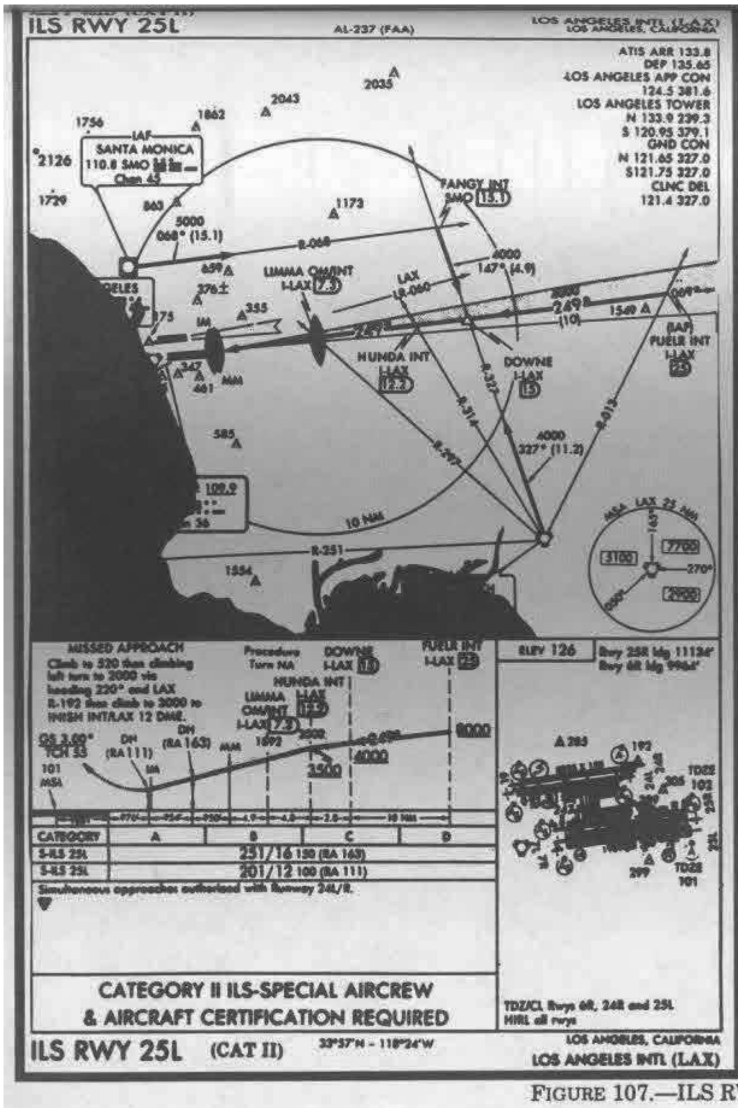
(DOWNE.DOWNE3) 89208 — LOS ANGELES INTL, LOS ANGELES, CALIFORNIA

DOWNE THREE ARRIVAL

ARRIVAL DESCRIPTION

HECTOR TRANSITION (HEC.DOWNE3): 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.DOWNE3): 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.DOWNE3): 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.

FIGURE 106.—Downe Three Arrival (Downe.Downe3).



CALIFORNIA

LOS ANGELES

LOS ANGELES INTL (LAX) 9 SW UTC–8(–7DT) 33°56'33"N 118°24'26"W — LOS ANGELES COPTER H-2G, L-3B, A IAP

126 B S4 FUEL 100, 100LL, JET A OX 4 LRA ARFF Index E

RWY 07L-25R: H12091X150 (CONC-GRVD) S-175, D-225, DT-400, DDT-900 HIRL CL

RWY 07L: MALSR. VASI(V4L)—GA 2.5° TCH 59'. Building. Rgt tfc.

RWY 25R: MALSR. Thld dsplcd 957'. Railroad.

RWY 07R-25L: H11096X200 (CONC-GRVD) S-175, D-225, DT-400, DDT-900 HIRL CL

RWY 07R: MALSR. VASI(V4L)—GA 3.0° TCH 56'. Pole. Rgt tfc. **RWY 25L:** ALSF2. TDZ. Railroad.

RWY 06R-24L: H10285X150 (CONC-GRVD) S-175, D-225, DT-400, DDT-900 HIRL CL

RWY 06R: MALSR. TDZ. VASI(V6L)—Upper GA 3.25° TCH 92'. Lower GA 3.0° TCH 60'. Thld dsplcd 321'. Pole.

RWY 24L: MALSR. Rgt tfc.

RWY 06L-24R: H8925X150 (CONC-GRVD) S-175, D-225, DT-400, DDT-900 HIRL CL

RWY 06L: MALSR. VASI(V6L)—Upper GA 3.25° TCH 94'. Lower GA 3.0°TCH 54'. Pole.

RWY 24R: ALSF2. TDZ. Sign. Rgt tfc.

AIRPORT REMARKS: Attended continuously. Turbulence may be deflected upward from the blast fence 180' E of Rwy 25R. CAUTION: Impaired wing clearance may exist on taxiway J between 30K and 19K when taxilane K occupied; 165' centerline to centerline Twr will advise. Rwy 07L–25R hold lines have been relocated N on Taxiways 28J, 30J, 32J, 36J and 42J. Practice instrument approaches and touch and go landings are prohibited. Taxiway Tango between taxilanes 32 and 35 north of terminal one is restricted to B–767 or smaller acft. Taxiways 2L, 8L, 11F, 20G, 30L, 32L, 36L, 42L, T33, and 32S will not accommodate A B747–200. Noise sensitive arpt. On westerly tkfs no turns before crossing shoreline. Over-ocean apchs utilized 0800-1430Z‡. Rwy 24R ALSF2 operates as SSALR till weather goes below VFR. Rwy 25L ALSF2 operates as SSALR until weather goes below VFR. Rwy 07L-25R FAA strength evaluation DC-10-10 540,000 lbs, DC-10-30 600,000 lbs, L-1011 600,000 lbs, B747-SP 630,000 lbs. Rwy 06L-24R FAA strength evaluation DC-10-10 430,000 lbs, DC-10-30 510,000 lbs, L-1011 510,000 lbs. Rwy 07R-25L FAA strength evaluation DC-10-10 400,000 lbs, DC-10-30 600,000 lbs, L-1011 600,000 lbs, B747-SP 710,000 lbs. Rwy 06R-24L FAA strength evaluation DC-10-10 340,000 lbs, DC-10-30 480,000 lbs, L-1011 480,000 lbs. Dual wheel acft up to 200,000 lbs, dual tandem wheel up to 350,000 lbs and double dual tanden wheel up to 834,000 lbs and DC10–10 to 430,000 lbs, DC10–30 to 578,000 lbs and L–1011 to 466,000 lbs and A–300 to 366,000 lbs regularly opr on all rwys. A 700'X500' clearway has been established at west end of Rwy 24L. Numerous birds on and in vicinity of airport. Rwy 25R MALSR out of service indefinitely. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: LLWAS.

COMMUNICATIONS: ATIS ARRIVAL 133.8 ATIS DEP 135.65 (213) 646-2297 UNICOM 122.95

HAWTHORNE FSS (HHR) TF 1–800–WX–BRIEF. NOTAM FILE LAX.

Ⓡ APP CON 128.5 (045°-089°), 124.9 (090°-224°), 124.5 (225°-044°)

TOWER 133.9 (N. complex), 120.95 (S. complex), 119.8 120.35 (helicopters).

GND CON 121.75 (S. complex), 121.65 (N. complex) CLNC DEL 121.4

Ⓡ DEP CON 125.2 (249°-044°) 124.3 (045°-248°)

TCA: See VFR Terminal Area chart.

RADIO AIDS TO NAVIGATION: NOTAM FILE LAX.

(H) VORTAC 113.6 LAX Chan 83 33°55'59"N 118°25'52"W 050° 1.3 NM to fld. 180/15E

VOR unusable 270-280° 17-35 NM below 8000' 280-300° 10-20 NM below 8000'

ROMEN NDB (LOM) 278 OS 33°57'54"N 118°16'37"W 244° 6.6 NM to fld.

ILS/DME 108.5 I-OSS Chan 22 Rwy 24R LOM ROMEN NDB

ILS/DME 108.5 I-HQB Chan 22 Rwy 24L LOM ROMEN NDB

ILS/DME 109.9 I-LAX Chan 36 Rwy 25L

ILS/DME 109.9 I-CFN Chan 36 Rwy 25R

ILS/DME 111.7 I-UWU Chan 54 Rwy 06L

ILS/DME 111.7 I-GPE Chan 54 Rwy 06R

ILS/DME 111.1 I-HAS Chan 48 Rwy 07L

ILS/DME 111.1 I-MKZ Chan 48 Rwy 07R

FIGURE 107.—ILS RWY 25L (CAT II) – LAX.

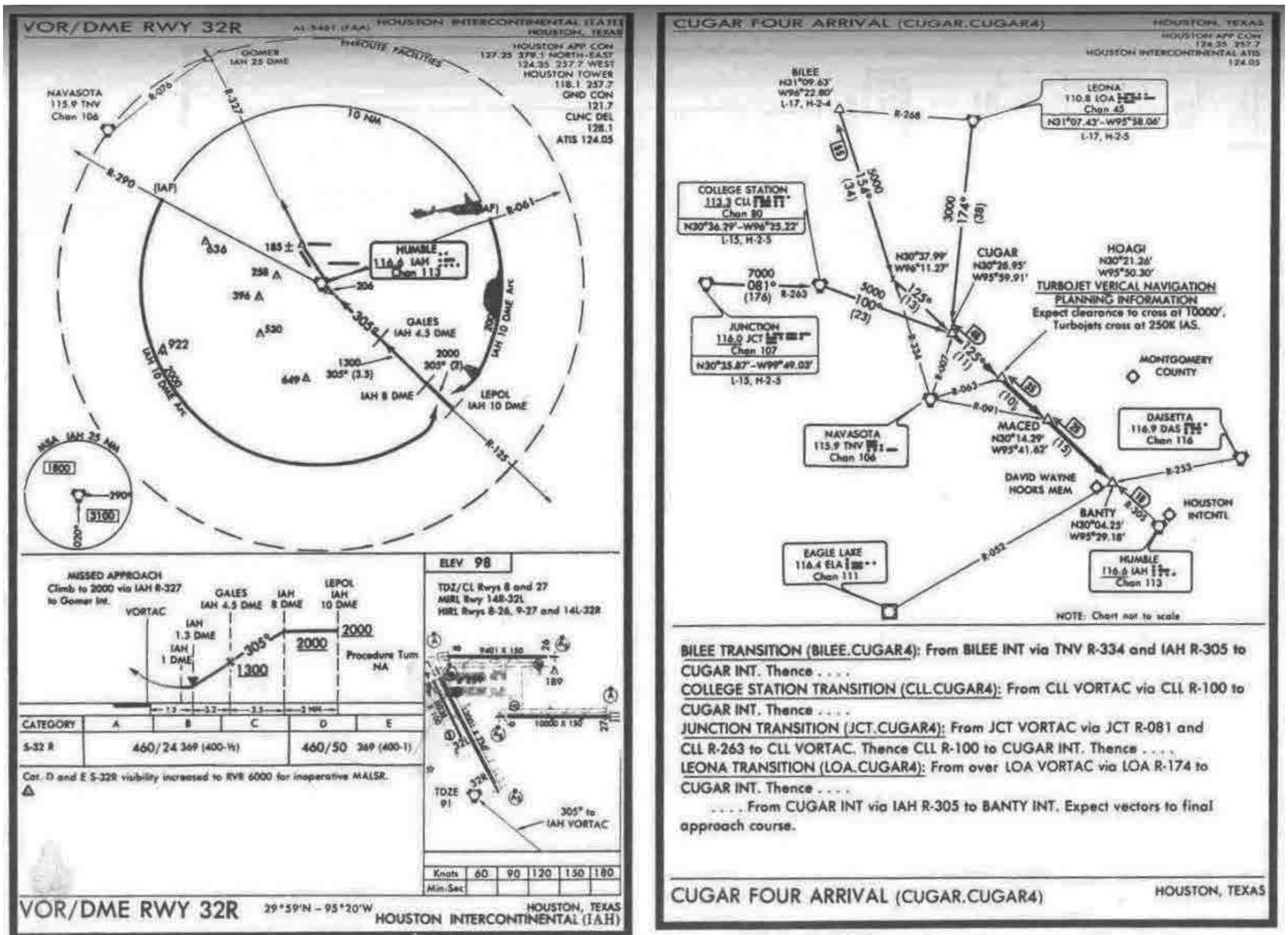


FIGURE 112.—VOR / DME RWY 32R (IAH) / Cugar Four Arrival (Cugar.Cugar4).

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

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

☐ STOPOVER

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR X IFR DVFR	PTL 130	B727/R	*** KTS	LAX			FL270

8. ROUTE OF FLIGHT
LAX INP3.IPL, J2 MOHAK, ARLIN 9 PHX

9. DESTINATION (Name of airport and city)
PHX
PHOENIX SKY HARBOR
PHOENIX

10. EST. TIME ENROUTE
HOURS | MINUTES

11. REMARKS L/O = Level Off PPH = Pounds Per Hour
** L/O at OCN R-270/50
*** MACH .78

12. FUEL ON BOARD
HOURS | MINUTES

13. ALTERNATE AIRPORT(S)
TUS
TUCSON INT'L

14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE

15. NUMBER ABOARD
83

17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)

16. COLOR OF AIRCRAFT
RED/BLACK

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

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH ________________ FSS ON ARRIVAL

FLIGHT LOG

CHECK POINTS		ROUTE		WIND	SPEED-KTS		DIST	TIME		FUEL	
FROM	TO	ALTITUDE	COURSE	TEMP	TAS	GS	NM	LEG	TOT	LEG	TOT
LAX	L/O**	IPL3.IPL Climb					43		:19:00		4510*
L/O	IPL	IPL3.IPL FL270		300/43 ISA-2							
IPL	BZA	J2 FL270									
BZA	Mohak Int	J2 FL270		300/43 ISA-2							
Mohak	Arlin Int	Arlin 9 FL270									
Arlin	PHX	Radar Vec DES/APP						:12:00		1140	
PHX	TUS	Radar V FL190					97	:26:00			

OTHER DATA: * Includes Taxi Fuel

NOTE: Use 9600 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 9250 PPH Total Fuel Flow For Reserve And Alternate Requirements.
A Missed Approach Requires 416# of Fuel.

TIME and FUEL: As required by FARs.

TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

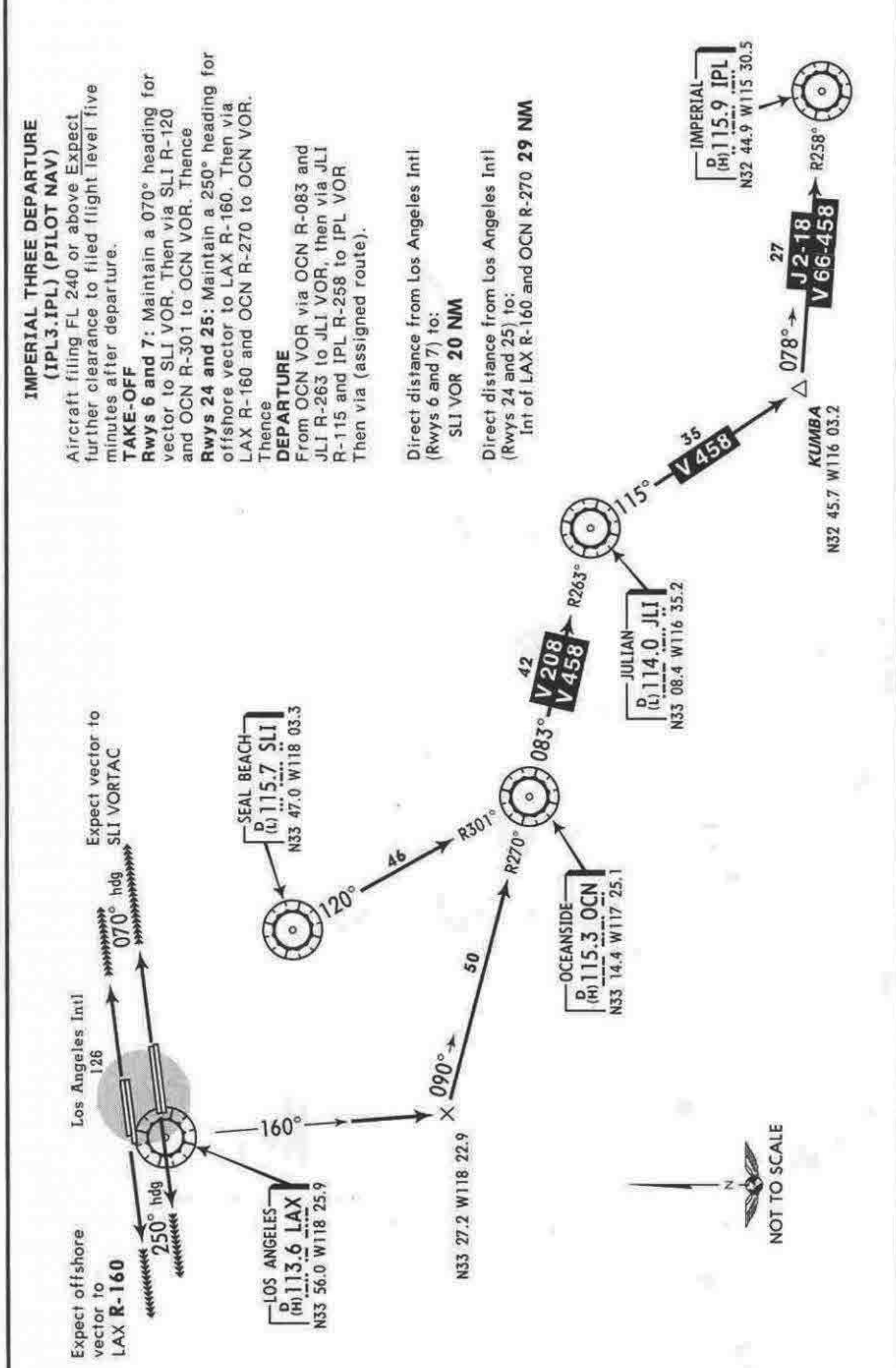
FIGURE 115.—Flight Plan/Flight Log.

SID

JEPPESEN 3 MAR 95 (10-3C) **LOS ANGELES, CALIF**

SOCAL Departure (R) 225°-044° **125.2** 045°-224° **124.3** LOS ANGELES INTL

IMPERIAL THREE DEPARTURE (IPL3.IPL) (PILOT NAV)



CHANGES: Communications.

FIGURE 116.—Imperial Three Departure (IPL3.IPL) (PILOT NAV).

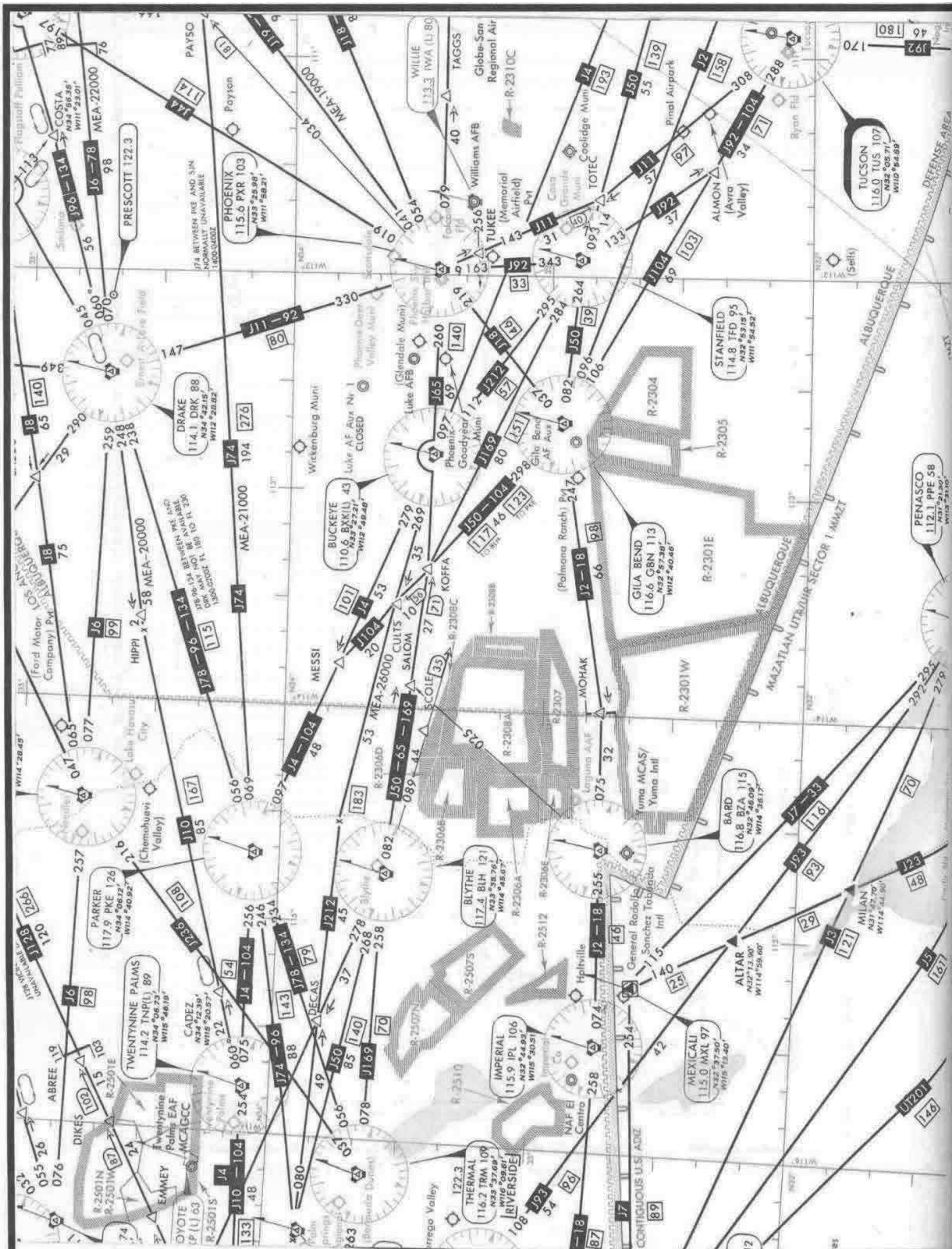


FIGURE 117.—IFR En Route High Altitude Chart Segment.

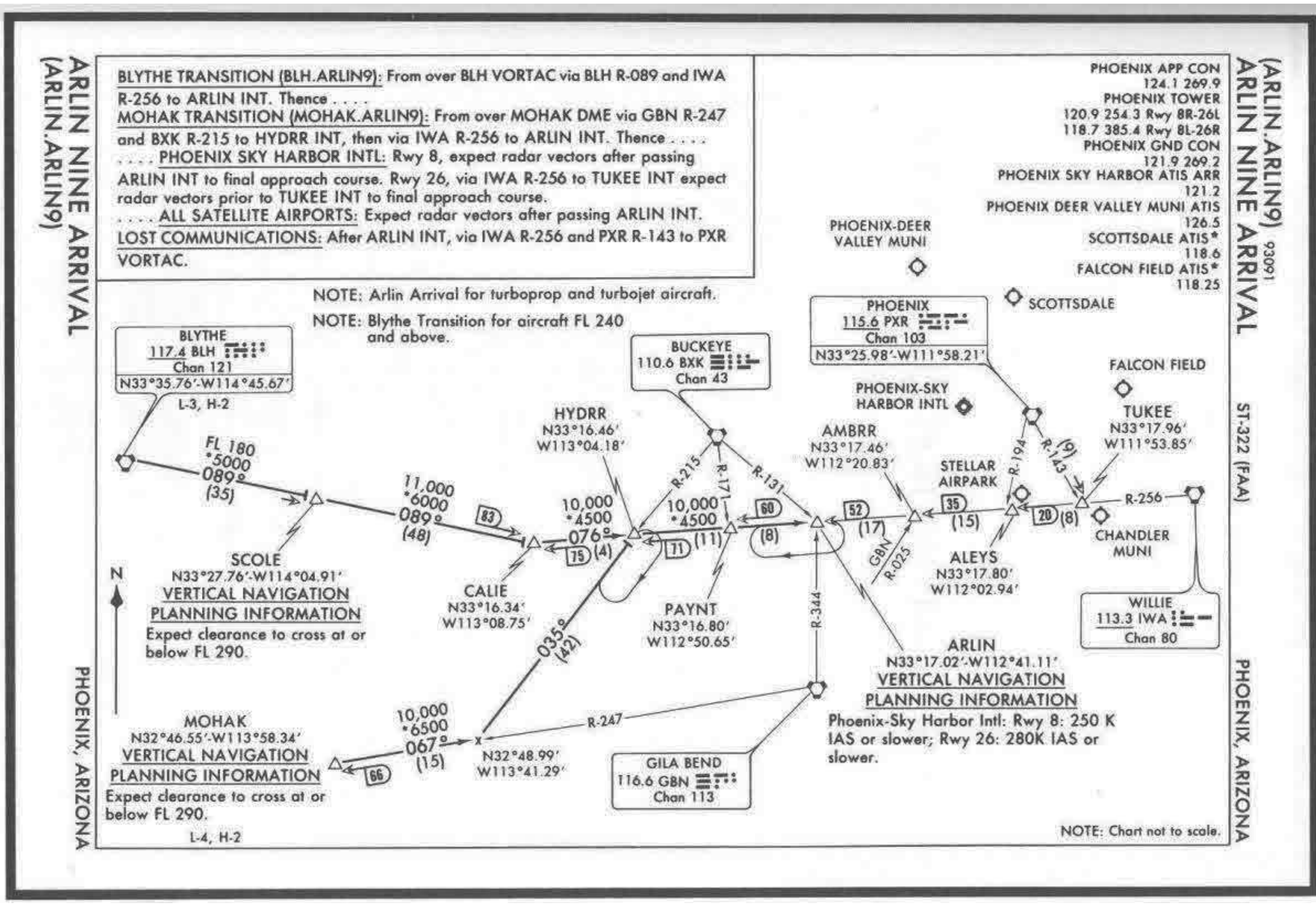


FIGURE 118.—ARLIN NINE ARRIVAL (ARLIN.ARLIN9).

PHOENIX

PHOENIX-DEER VALLEY MUNI (DVT) 15 N UTC-7 N33°41.30' W112°04.93' **PHOENIX**

1476 B S4 **FUEL** 80, 100LL, JET A OX 1, 3 TPA—See Remarks **H-2C, L-4E**

RWY 07R-25L: H8200X100 (ASPH) S-40, D-50, DT-80 MIRL **IAP**

RWY 07R: REIL. VASI(V2L)—GA 3.0° Thld dsplcd 900'. Rgt tfc.

RWY 25L: REIL. VASI(V2L)—GA 3.0° Thld dsplcd 920'.

RWY 07L-25R: H4500X75 (ASPH) S-20 MIRL

RWY 07L: REIL. PVASI(PSIL)—GA 3.0° TCH 40'. **RWY 25R**: REIL. PVASI(PSIL)—GA 3.5° TCH 47'. Hill. Rgt tfc.

AIRPORT REMARKS: Attended 1300-0400Z. Fuel avbl only during hours 1400-0300Z‡7 days. Lgtd hills NE, E, SE and W. Hot air balloon ops fall, winter, and spring months and ultralight opr South and West of arpt. Rwy 07L-25R is designated training rwy. Aerobatic practice area approximately 8½ miles northwest of the Deer Valley Arpt from the surface to 6000' MSL. Parallel taxiway north and close proximity to Rwy 07L-25R. Rwy 07R VASI and REIL, Rwy 25L VASI and REIL, Rwy 07L PVASI and Rwy 25R PVASI on when twr clsd. Fee for all charters, travel clubs and certain revenue producing acft. TPA-2501(1025) single engine and 3001(1525) multi engine.

COMMUNICATIONS: CTAF 118.4 **ATIS** 126.5 **UNICOM** 122.95

PRESCOTT FSS (PRC) TF 1-800-992-7433. NOTAM FILE DVT.

PHOENIX RCO 122.6 122.2 (PRESCOTT FSS)

Ⓡ **PHOENIX APP/DEP CON** 120.7

DEER VALLEY TOWER 118.4 (Rwy 07R-25L) 120.2 (Rwy 07L-25R) (1300-0400Z) **GND CON** 121.8

CLNC DEL 119.5

AIRSPACE: CLASS D svc effective 1300-0400Z other times CLASS G.

RADIO AIDS TO NAVIGATION: NOTAM FILE PRC.

PHOENIX (H) VORTACW 115.6 PXR Chan 103 N33°25.98' W111°58.21' 328° 16.3 NM to fld. 1180/12E. **HIWAS.**

SCOTTSDALE NDB (MHW) 224 SDL N33°37.75' W111°54.47' 279° 9.4 NM to fld. NOTAM FILE SDL. Unmonitored when twr closed.

COMM/NAVAID REMARKS: Emerg frequency 121.5 not available at twr.

PHOENIX SKY HARBOR INTL (PHX) 3 E UTC-7 N33°26.17' W112°00.57' **PHOENIX**

1133 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks **H-2C, L-4E**

LRA ARFF Index D **IAP**

RWY 08L-26R: H11001X150 (ASPH-GRVD) S-30, D-170, DT-280, DDT-620 HIRL

RWY 08L: REIL. VASI(V4L)—GA 3.0° TCH 55'. Building.

RWY 26R: REIL. VASI(V4L)—GA 3.0° TCH 60'. Road. Rgt tfc.

RWY 08R-26L: H10300X150 (ASPH-GRVD) S-30, D-200, DT-400, DDT-620 HIRL

RWY 08R: MALSR. Pole. Rgt tfc.

RWY 26L: REIL. VASI(V6L)—Upper GA 3.25° TCH 90'. Lower GA 3.0° TCH 53'. Antenna.

AIRPORT REMARKS: Attended continuously. Training by civil turbojet acft prohibited except PPR. TPA—2133(1000) lgt acft and non-turbo jets; 2633(1500) heavy acft and turbojets. Unless advised by ATC all turbine acft and acft 12,500 lbs and over remain at or above 3000' MSL until established on final. Fly base leg at least 5 mile from arpt. Overnight parking fee. Fee for all charters, travel clubs and certain revenue producing aircraft. Taxiway A-6 limited to 68,000 GWT. Rwy 08L-26R FAA strength evaluation DC-10-10 505,000 pounds, DC-10-30/40 500,000 pounds, L-1011-1 450,000 pounds, aircraft up to DDTW 620,000 pounds, DC-10-10 505,000 pounds, DC-10-30/40 540,000 pounds, L-1011-1 450,000 pounds regularly operate on rwy. Rwy 08R-26L gross weight limit DC-10-10 430,000 pounds, DC-10-30/40 540,000 pounds, L-1011-1 430,000 pounds. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: ASOS (602) 231-8557. LLWAS.

COMMUNICATIONS: ATIS ARR 121.2 DEP 124.3 (602) 244-0963 **UNICOM** 122.95

PRESCOTT FSS (PRC) TF 1-800-992-7433. NOTAM FILE PHX.

RCO 122.6 122.2 (PRESCOTT FSS)

Ⓡ **APP/DEP CON** 126.8 (259°-309°) 124.9 (053°-146°) 124.1(147°-258° above 5500') 123.7 (147°-258° 5500' and below) 120.7 120.4 (Rwy 08L 275°-290° blo 6000', Rwy 26R 030°-080°) (310°-052° 5500' and below) 119.2 (310°-052° above 5500')

TOWER 118.7 (Rwy 08L-26R) 120.9 (Rwy 08R-26L) **GND CON** 121.9 (North) 121.85 (South) **CLNC DEL** 118.1

AIRSPACE: CLASS B See VFR Terminal Area Chart.

RADIO AIDS TO NAVIGATION: NOTAM FILE PRC.

PHOENIX (H) VORTACW 115.6 PXR Chan 103 N33°25.98' W111°58.21' 263° 2.0 NM to fld. 1180/12E. **HIWAS.**

ILS 111.75 I-PZZ Rwy 26R (LOC only).

ILS/DME 108.3 I-PHX Chan 20 Rwy 08R. GS unusable below 1280'. LOC back course unusable beyond 20° south of course.

FIGURE 118C.—Excerpt from Airport/Facilities Directory.

PHOENIX

PHOENIX-DEER VALLEY MUNI (DVT) 15 N UTC-7 N33°41.30' W112°04.93' **PHOENIX**

1476 B S4 **FUEL** 80, 100LL, JET A OX 1, 3 TPA—See Remarks **H-2C, L-4E**

RWY 07R-25L: H8200X100 (ASPH) S-40, D-50, DT-80 MIRL **IAP**

RWY 07R: REIL. VASI(V2L)—GA 3.0° Thld dsplcd 900'. Rgt tfc.

RWY 25L: REIL. VASI(V2L)—GA 3.0° Thld dsplcd 920'.

RWY 07L-25R: H4500X75 (ASPH) S-20 MIRL

RWY 07L: REIL. PVASI(PSIL)—GA 3.0° TCH 40'. **RWY 25R:** REIL. PVASI(PSIL)—GA 3.5° TCH 47'. Hill. Rgt tfc.

AIRPORT REMARKS: Attended 1300-0400Z. Fuel avbl only during hours 1400-0300Z‡ 7 days. Lgtd hills NE, E, SE and W. Hot air balloon ops fall, winter, and spring months and ultralight opr South and West of arpt. Rwy 07L-25R is designated training rwy. Aerobatic practice area approximately 8½ miles northwest of the Deer Valley Arpt from the surface to 6000' MSL. Parallel taxiway north and close proximity to Rwy 07L-25R. Rwy 07R VASI and REIL, Rwy 25L VASI and REIL, Rwy 07L PVASI and Rwy 25R PVASI on when twr clsd. Fee for all charters, travel clubs and certain revenue producing acft. TPA-2501(1025) single engine and 3001(1525) multi engine.

COMMUNICATIONS: CTAF 118.4 **ATIS** 126.5 **UNICOM** 122.95

PRESCOTT FSS (PRC) TF 1-800-992-7433. NOTAM FILE DVT.

PHOENIX RCO 122.6 122.2 (PRESCOTT FSS)

Ⓡ **PHOENIX APP/DEP CON** 120.7

DEER VALLEY TOWER 118.4 (Rwy 07R-25L) 120.2 (Rwy 07L-25R) (1300-0400Z) **GND CON** 121.8

CLNC DEL 119.5

AIRSPACE: CLASS D svc effective 1300-0400Z other times CLASS G.

RADIO AIDS TO NAVIGATION: NOTAM FILE PRC.

PHOENIX (H) VORTACW 115.6 PXR Chan 103 N33°25.98' W111°58.21' 328° 16.3 NM to fld. 1180/12E. **HIWAS.**

SCOTTSDALE NDB (MHW) 224 SDL N33°37.75' W111°54.47' 279° 9.4 NM to fld. NOTAM FILE SDL. Unmonitored when twr closed.

COMM/NAVAID REMARKS: Emerg frequency 121.5 not available at twr.

PHOENIX SKY HARBOR INTL (PHX) 3 E UTC-7 N33°26.17' W112°00.57' **PHOENIX**

1133 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 TPA—See Remarks **H-2C, L-4E**

LRA ARFF Index D **IAP**

RWY 08L-26R: H11001X150 (ASPH-GRVD) S-30, D-170, DT-280, DDT-620 HIRL

RWY 08L: REIL. VASI(V4L)—GA 3.0° TCH 55'. Building.

RWY 26R: REIL. VASI(V4L)—GA 3.0° TCH 60'. Road. Rgt tfc.

RWY 08R-26L: H10300X150 (ASPH-GRVD) S-30, D-200, DT-400, DDT-620 HIRL

RWY 08R: MALSR. Pole. Rgt tfc.

RWY 26L: REIL. VASI(V6L)—Upper GA 3.25° TCH 90'. Lower GA 3.0° TCH 53'. Antenna.

AIRPORT REMARKS: Attended continuously. Training by civil turbojet acft prohibited except PPR. TPA—2133(1000) lgt acft and non-turbo jets; 2633(1500) heavy acft and turbojets. Unless advised by ATC all turbine acft and acft 12,500 lbs and over remain at or above 3000' MSL until established on final. Fly base leg at least 5 mile from arpt. Overnight parking fee. Fee for all charters, travel clubs and certain revenue producing aircraft. Taxiway A-6 limited to 68,000 GWT. Rwy 08L-26R FAA strength evaluation DC-10-10 505,000 pounds, DC-10-30/40 500,000 pounds, L-1011-1 450,000 pounds, aircraft up to DDTW 620,000 pounds, DC-10-10 505,000 pounds, DC-10-30/40 540,000 pounds, L-1011-1 450,000 pounds regularly operate on rwy. Rwy 08R-26L gross weight limit DC-10-10 430,000 pounds, DC-10-30/40 540,000 pounds, L-1011-1 430,000 pounds. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: ASOS (602) 231-8557. LLWAS.

COMMUNICATIONS: ATIS ARR 121.2 DEP 124.3 (602) 244-0963 **UNICOM** 122.95

PRESCOTT FSS (PRC) TF 1-800-992-7433. NOTAM FILE PHX.

RCO 122.6 122.2 (PRESCOTT FSS)

Ⓡ **APP/DEP CON** 126.8 (259°-309°) 124.9 (053°-146°) 124.1(147°-258° above 5500') 123.7 (147°-258° 5500' and below) 120.7 120.4 (Rwy 08L 275°-290° blo 6000', Rwy 26R 030°-080°) (310°-052° 5500' and below) 119.2 (310°-052° above 5500')

TOWER 118.7 (Rwy 08L-26R) 120.9 (Rwy 08R-26L) **GND CON** 121.9 (North) 121.85 (South) **CLNC DEL** 118.1

AIRSPACE: CLASS B See VFR Terminal Area Chart.

RADIO AIDS TO NAVIGATION: NOTAM FILE PRC.

PHOENIX (H) VORTACW 115.6 PXR Chan 103 N33°25.98' W111°58.21' 263° 2.0 NM to fld. 1180/12E. **HIWAS.**

ILS 111.75 I-PZZ Rwy 26R (LOC only).

ILS/DME 108.3 I-PHX Chan 20 Rwy 08R. GS unusable below 1280'. LOC back course unusable beyond 20° south of course.

FIGURE 118C.—Excerpt from Airport/Facilities Directory.

Form Approved: OMB No. 2120-0034

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

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

☐ STOPOVER

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
☐ VFR X IFR ☐ DVFR	N130JB	B727/A	** KTS	BUF Greater Buffalo Intl			FL310

8. ROUTE OF FLIGHT
Buffalo One Dep. J547 FNT, FNT.PMM 2 ORD

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
ORD Chicago-Ohare Int'l Chicago			L/O = Level Off PPH = Pounds Per Hour ** MACH .78 Variation: BUF 8W, FNT 3W, ORD 2E ATC cleared N130JB to maintain FL310 until PMM R-073/15 cross PMM at FL200, cross Pivot at 10,000 feet.

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE / 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	15. NUMBER ABOARD
		RFD Greater Rockford Rockford, Ill		101

16. COLOR OF AIRCRAFT
RED/WHITE/BLUE

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

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

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE ALTITUDE	COURSE	WIND TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
BUF	L/O	Buffalo 1 Climb					70		:16:00		4960*
L/O	YXU	J547 FL310		330/39 ISA-6							
YXU	FNT										
FNT	R-073/15 PMM	FNT.PMM2		330/39 ISA-6							
R-073/15 PMM	PMM	FNT.PMM2 Descent	253				15	:02:00		216.7	
PMM	ORD	FNT.PMM2 Descent & Approach	261/216				89	:13:00		1408.3	
ORD	RFD	Radar V 10,000					97	:17:00			

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 9300 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 9550 PPH Total Fuel Flow For Reserve And Alternate Requirements.
A Missed Approach Requires 450# of Fuel.

TIME and FUEL: As required by FARs.

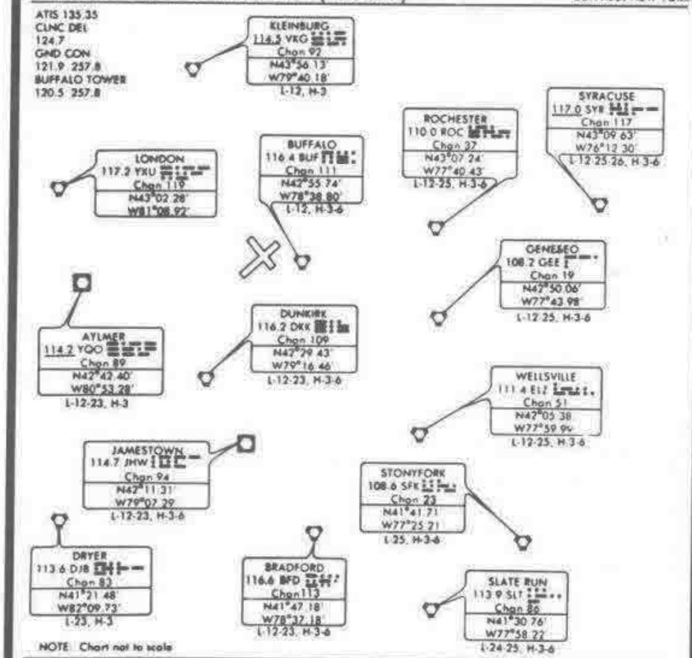
TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 119.—Flight Plan/Flight Log.

90347 SL-65 (FAA)

BUFFALO ONE DEPARTURE (VECTOR)

BUFFALO/GREATER BUFFALO INTL
BUFFALO, NEW YORK



DEPARTURE ROUTE DESCRIPTION

All aircraft cleared as filed. Expect vectors to filed route or depicted fix. Maintain 10,000′ or assigned lower altitude. Expect further clearance to requested altitude/flight level ten minutes after departure.

All Runways: Maintain runway heading for vectors.

BUFFALO ONE DEPARTURE (VECTOR)
BUFFALO, NEW YORK
BUFFALO/GREATER BUFFALO INTL

NEW YORK

BUFFALO

§ **BUFFALO AIRFIELD** (9GØ) 6.1 SE UTC–5(–4DT) 42°51′40″N 78°43′00″W — DETROIT L-12H IAP

670 B S2 **FUEL** 80, 100LL

RWY 06-24: H2665X60 (ASPH) S-8 MIRL

RWY 06: Trees. **RWY 24:** Tree.

AIRPORT REMARKS: Attended daylight hours. CAUTION: Ultralight activity on arpt. Airport lgts opr dusk-0700Z‡. For runway lights after 0700Z‡ phone 716-668-4900.

COMMUNICATIONS: CTAF/UNICOM 122.8

BUFFALO FSS (BUF) LC 631-9830. NOTAM FILE BUF.

Ⓡ **BUFFALO APP DEP/CON** 123.8

RADIO AIDS TO NAVIGATION: NOTAM FILE BUF.

BUFFALO (H) VORTAC 116.4 BUF Chan 111 42°55′44″N 78°38′48″W 225°4.9 NM to fld. 730/08W.

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§ **GREATER BUFFALO INTL** (BUF) 5.2 E UTC–5(–4DT) 42°56′26″N 78°43′57″W — DETROIT H-3C, 6I, L-12H IAP

724 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 LRA CFR Index D

RWY 05-23: H8102X150 (ASPH-GRVD) S–75, D–195, DT–450 HIRL CL 0.6% up NE

RWY 05: SSALR. TDZ. Thld dsplcd 335′. Pole. **RWY 23:** SSALR. TDZ.

RWY 14-32: H5376X150 (ASPH) S-75, D-100, DT-160 MIRL 0.3% up SE.

RWY 14: VASI(V4L)—GA 3.0°TCH 55′. Tree. **RWY 32:** REIL. VASI(V4L)—GA 3.0°TCH 55′. Fence.

AIRPORT REMARKS: Attended continuously. Landing fee. CAUTION Jet engine test stand located approximately 3600′ from approach end Rwy 32 1400′ south center line. Jet exhaust may reach altitude 100′ AGL. Ops conducted occasionally 1300-2300Z‡. CAUTION: Numerous types of birds may be encountered in holding pattern over Grand Island up to 5000′. Heavy concentration of Gulls, Blackbirds, and Starlings up to 5000′ on and in vicinity of arpt. Deer on and in vicinity of arpt. Flight Notification Service (ADCUS) available.

WEATHER DATA SOURCES: LLWAS.

COMMUNICATIONS: ATIS 135.35 **UNICOM** 122.95

BUFFALO FSS (BUF) on arpt. 122.6 122.2 122.1R 116.4T DL NOTAM FILE BUF

Ⓡ **BUFFALO APP DEP/CON** 123.8 (055°-194°) 126.5 (195°-279°) 126.15 (280°-054°)

BUFFALO TOWER 120.5 **GND CON** 121.9

CLNC DEL 124.7 **PRE-TAXI CLNC** 124.7

ARSA ctc **APP CON**

RADIO AIDS TO NAVIGATION: NOTAM FILE BUF.

BUFFALO (H) VORTAC 116.4 BUF Chan 111 42°55′44″N 78°38′48″W 288°3.5 NM to fld. 730/08W.

KLUMP NDB (LOM) 231 BU 43°00′01″N 78°39′04″W 233° 4.4 NM to fld.

PLAZZ NDB (LOM) 204 GB 42°52′26″N 78°49′00″W 053° 4.8 NM to fld.

ILS 111.3 I-BUF Rwy 23 LOM KLUMP NDB. Inner marker out of svc indefinitely. Back course unusable beyond 15 NM.

ILS 108.5 I-GBI Rwy 05 LOM PLAZZ NDB.

ASR

FIGURE 120.—Buffalo One Departure (Vector).

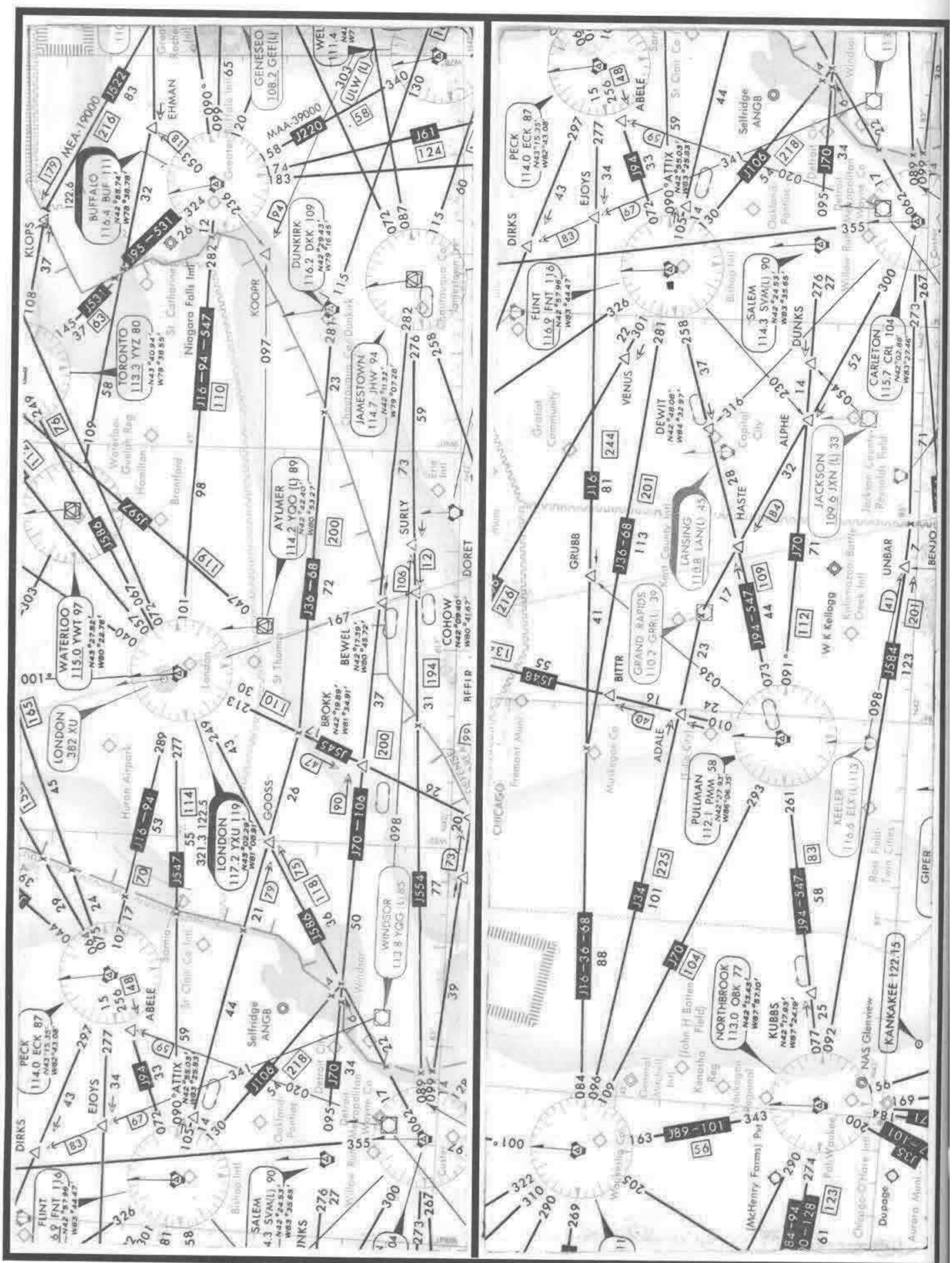
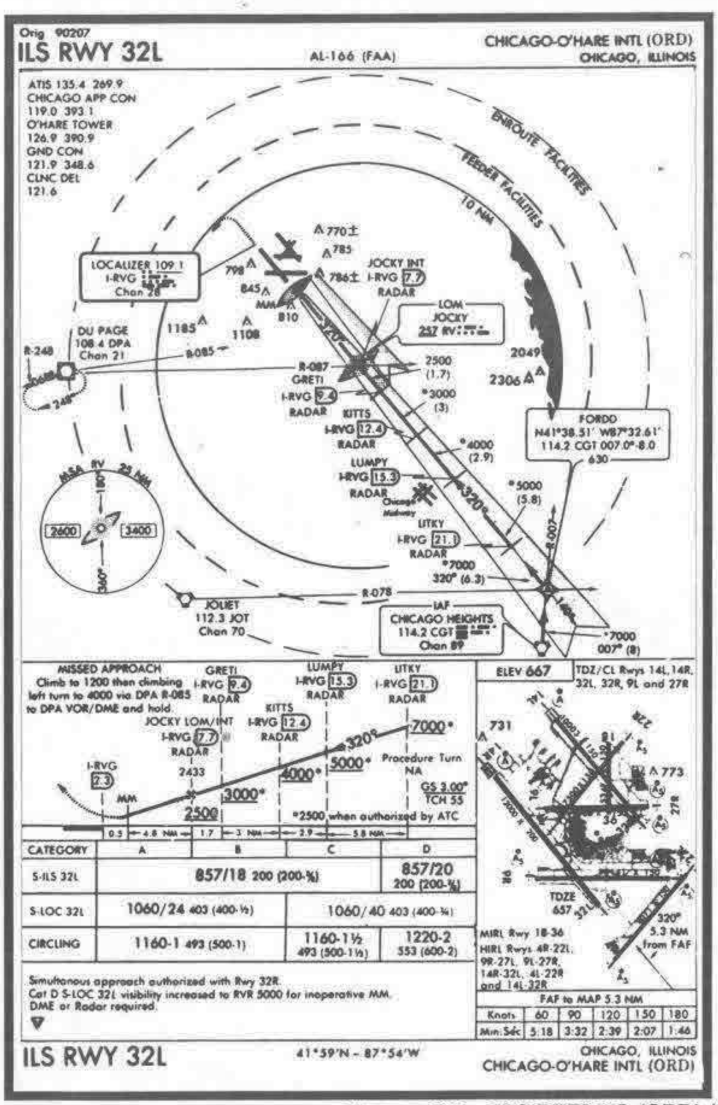


FIGURE 121.—IFR En Route High Altitude Chart Segment.



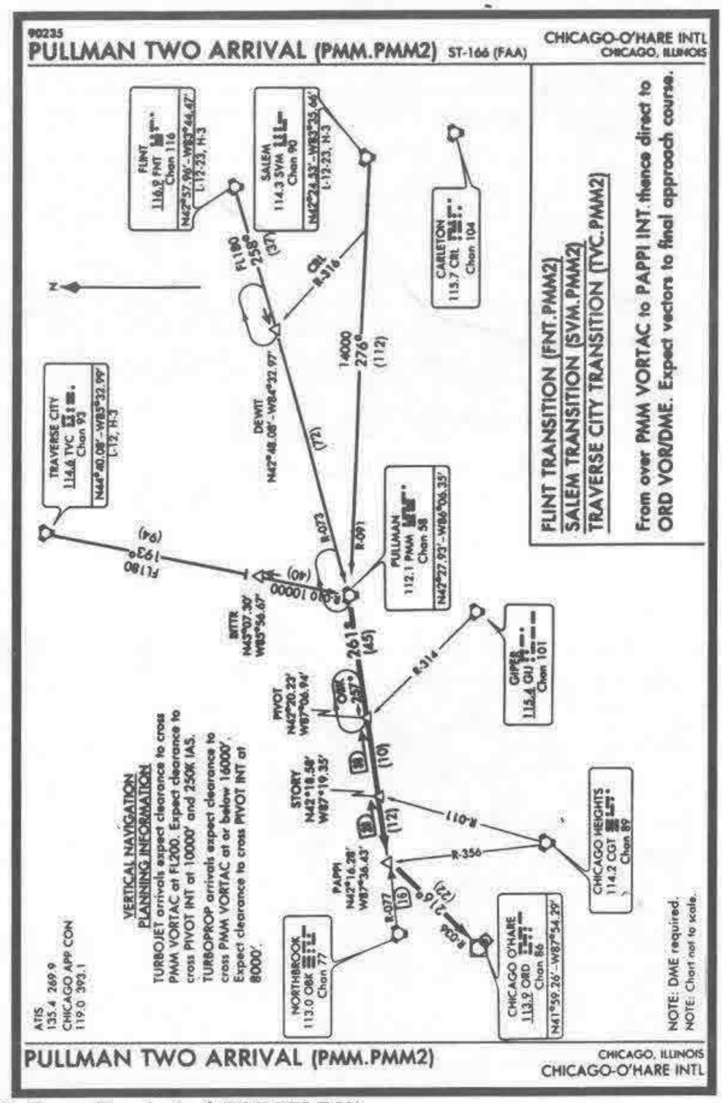


FIGURE 122.—ILS RWY 32L (ORD) / Pullman Two Arrival (PMM.PMM2).

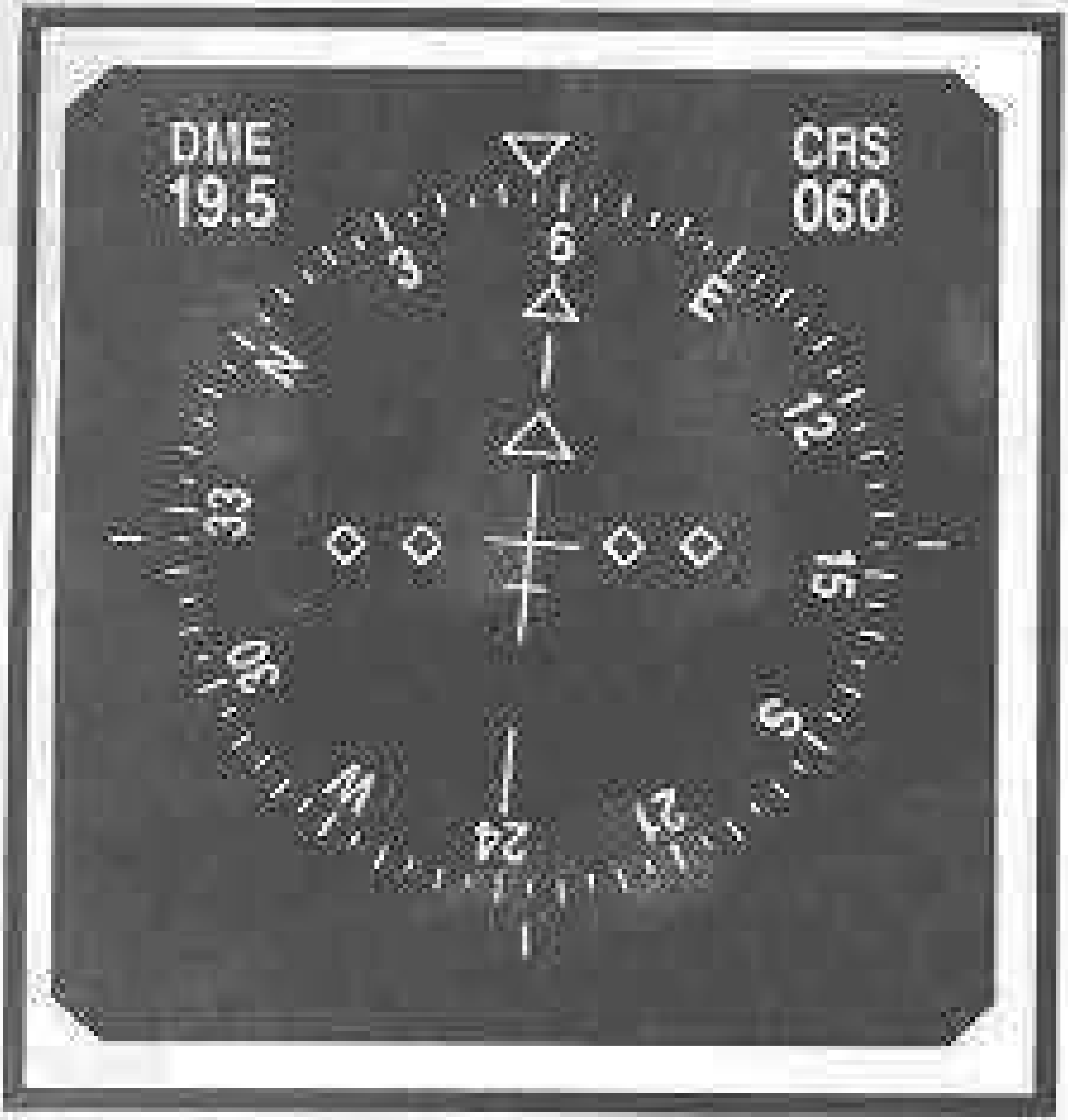


FIGURE 123.—Aircraft Course and DME Indicator.

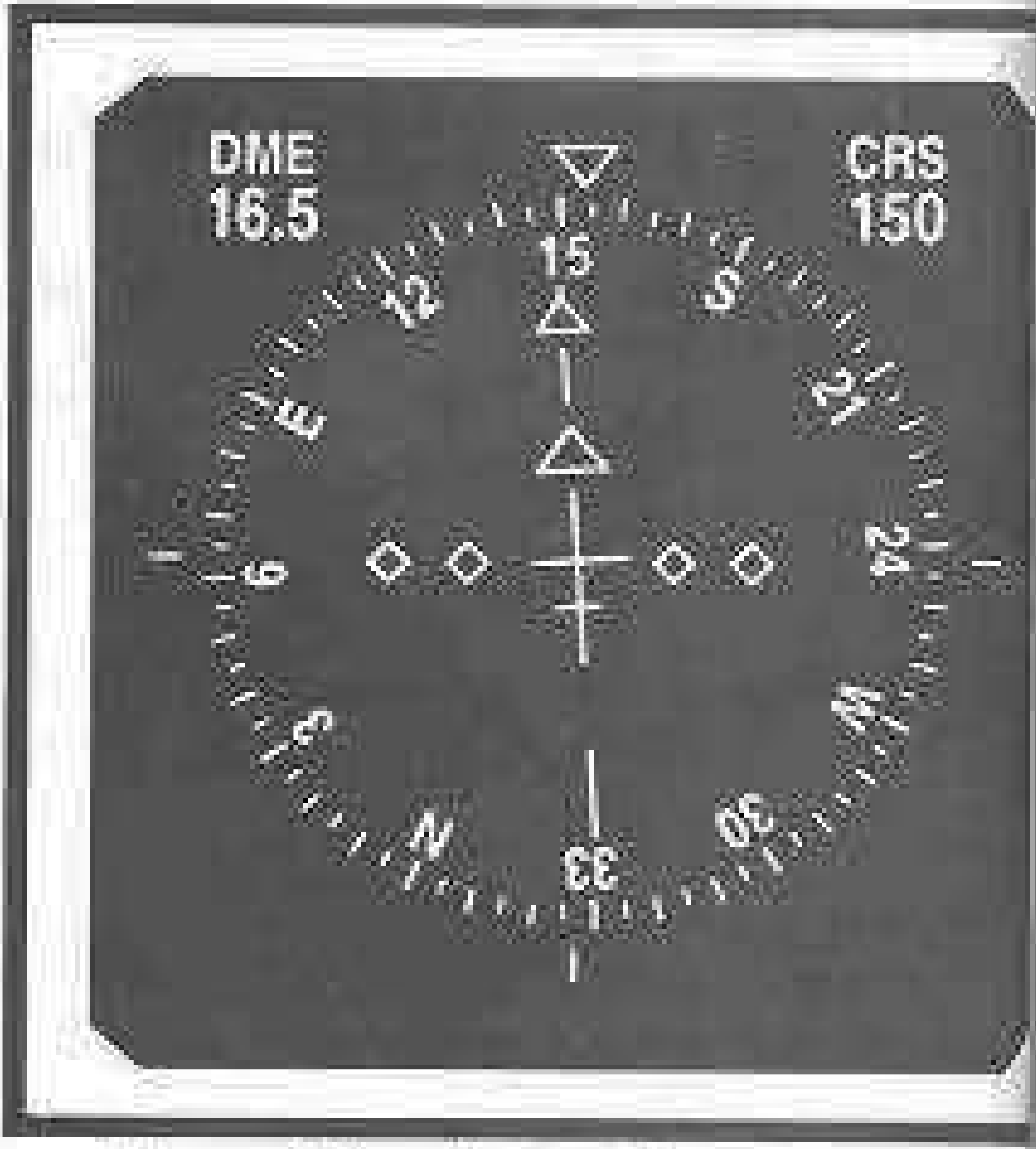


FIGURE 124.—Aircraft Course and DME Indicator.

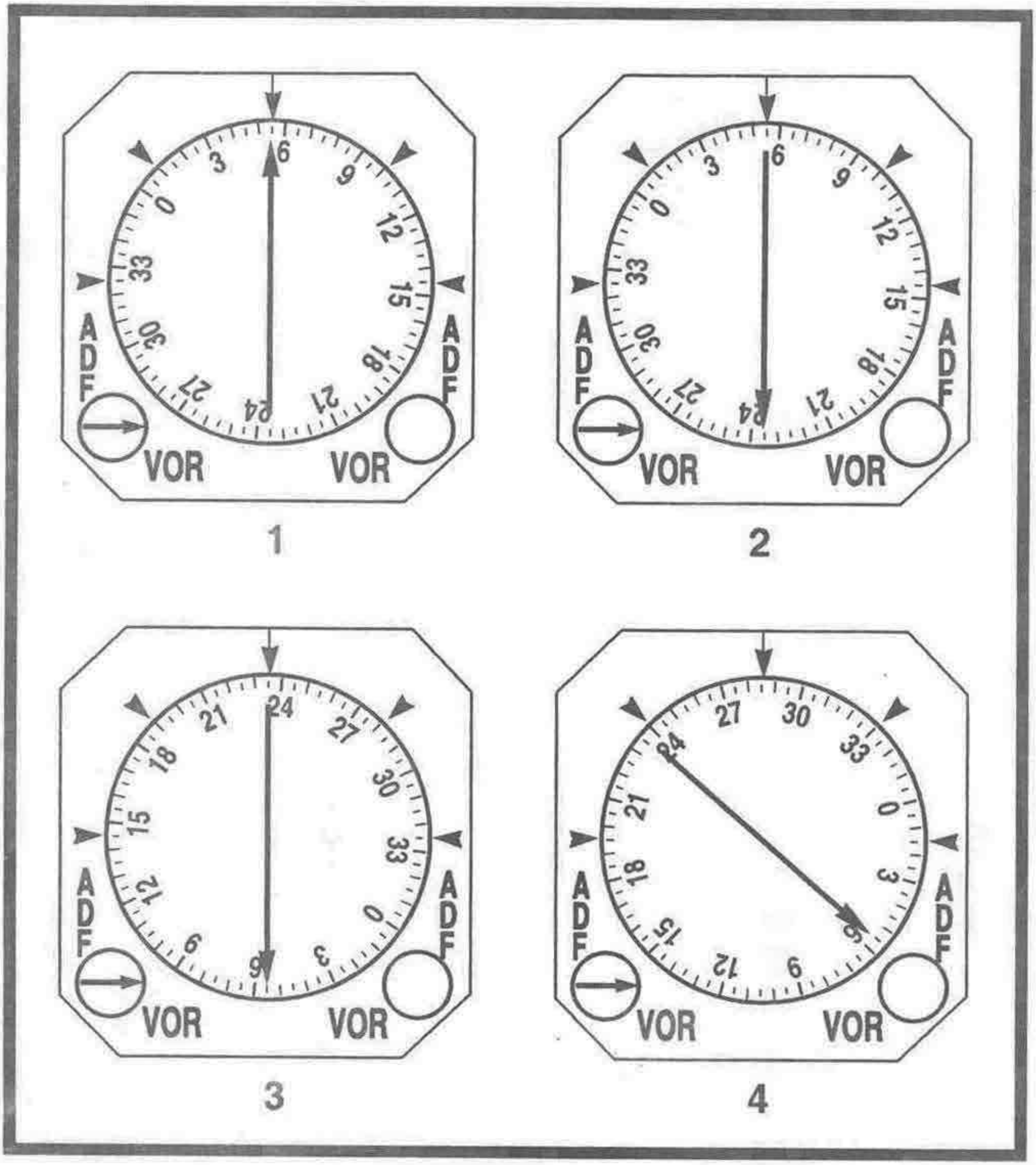


FIGURE 125.—RMI Illustrations.

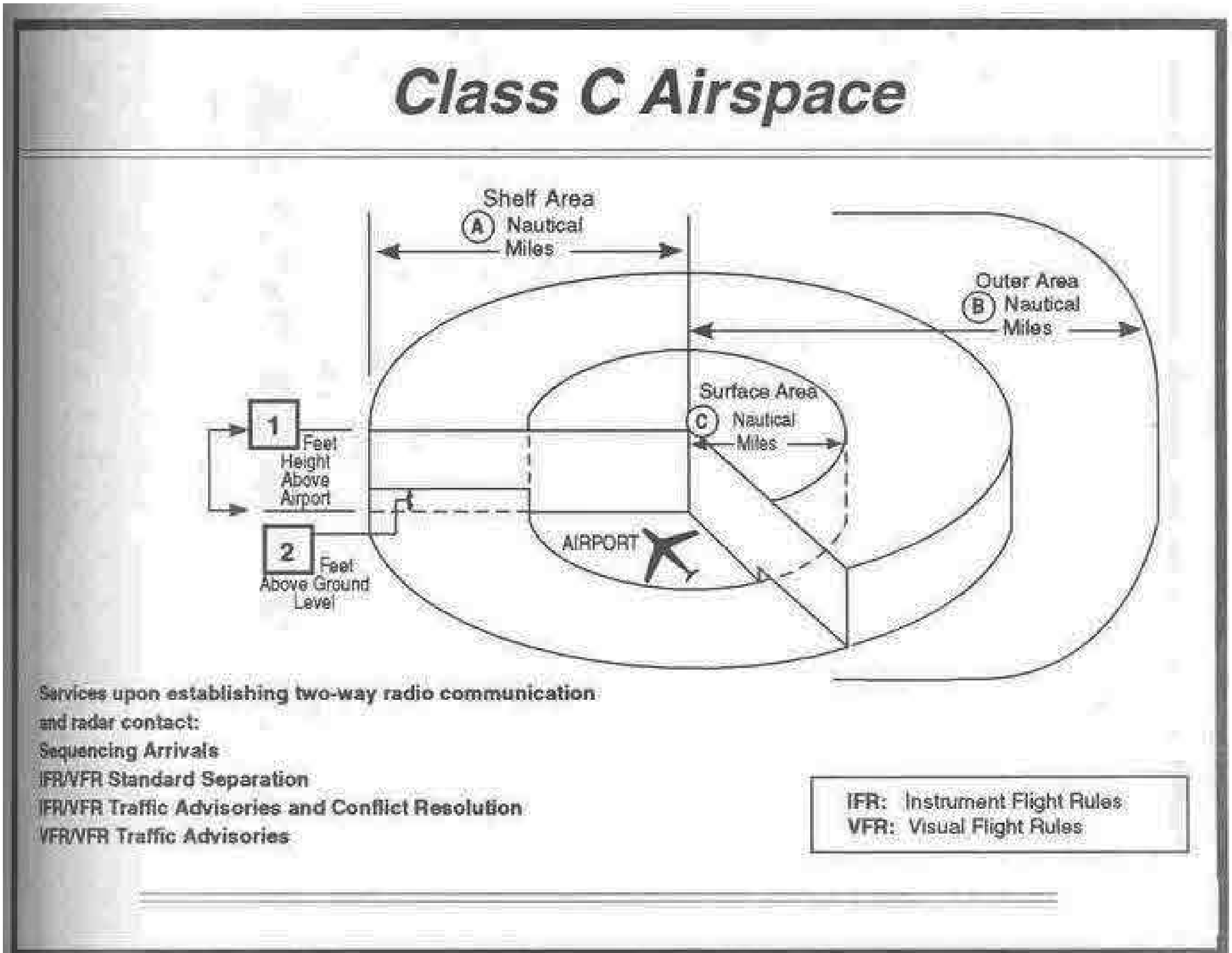
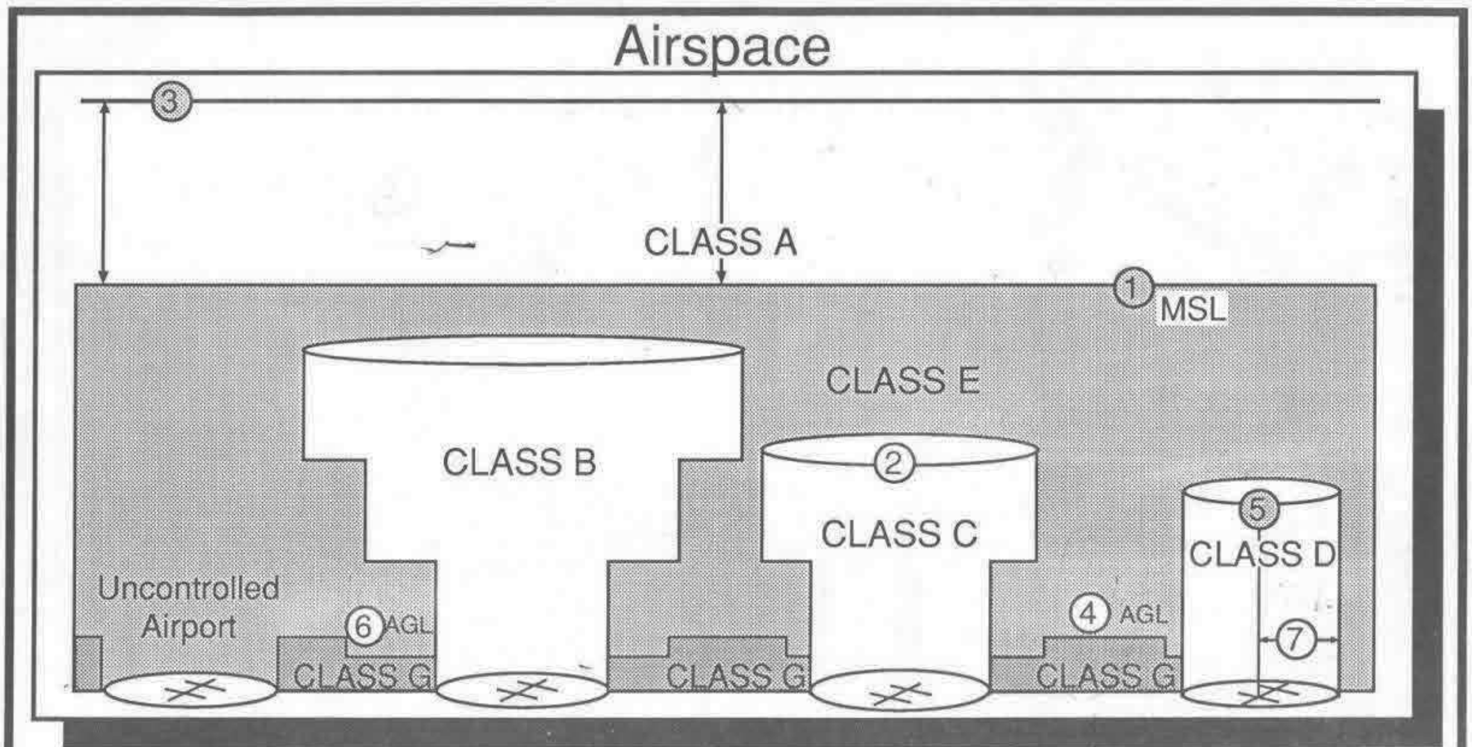


FIGURE 126.—Class C Airspace.



*MSL – above mean sea level
AGL– above ground level
FL – flight level

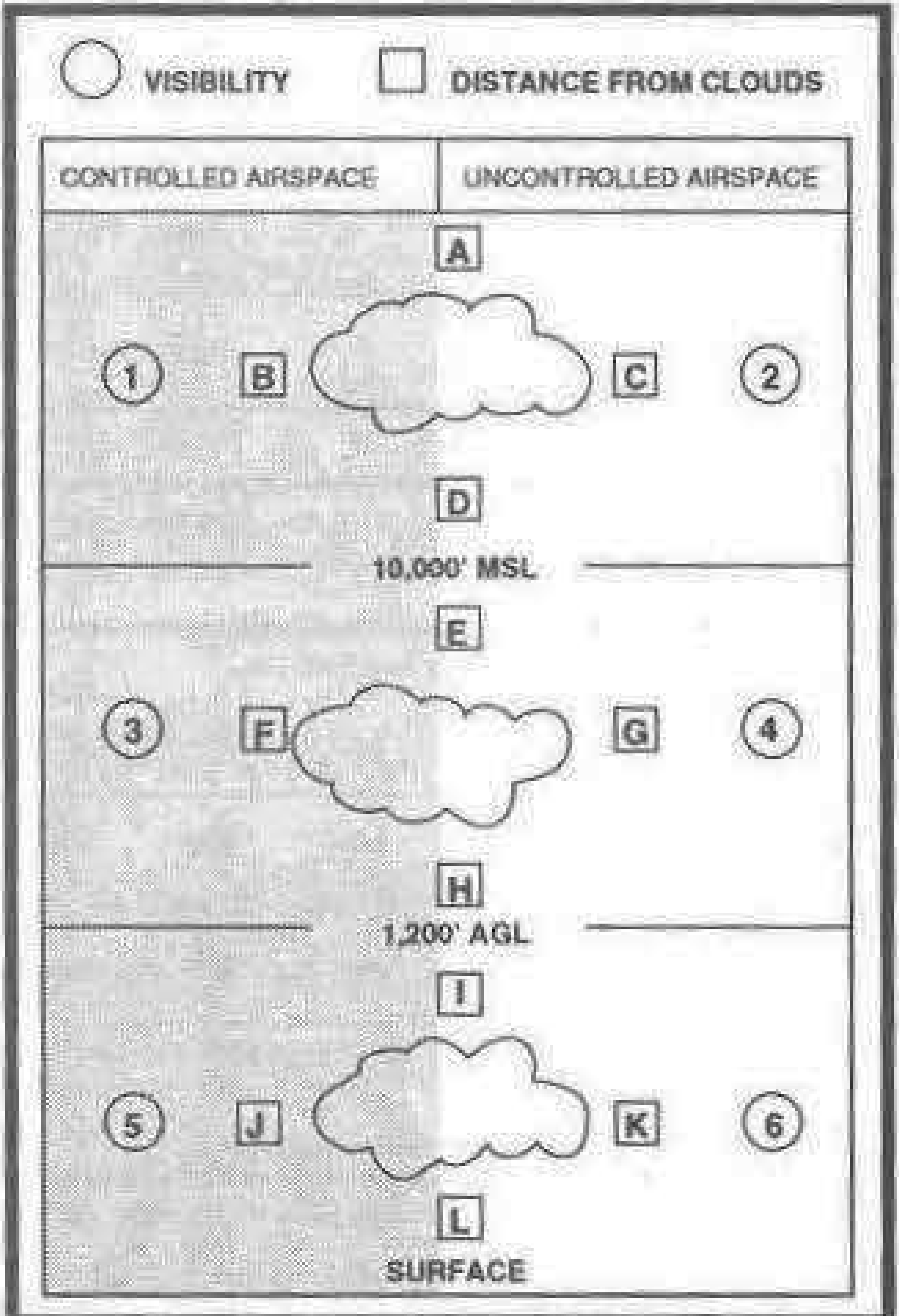


FIGURE 128.—Minimum In-Flight Visibility and Distance From Clouds.

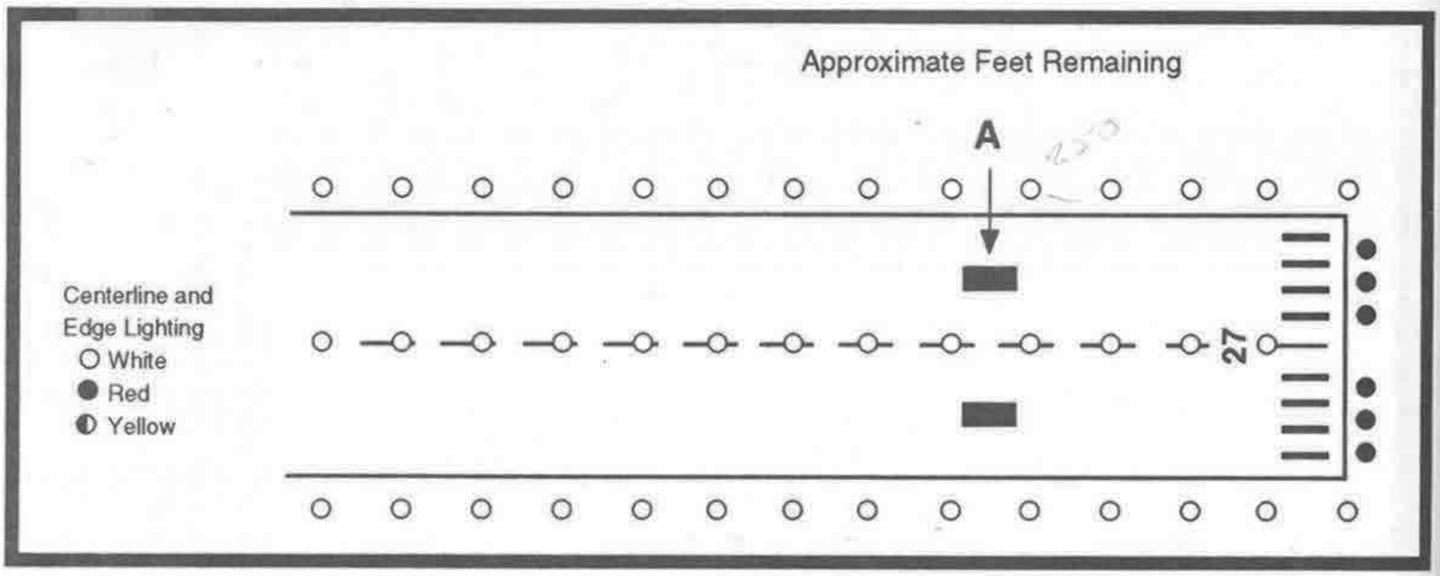


FIGURE 129.—FAA Nonprecision Approach Runway Markings and Lighting.

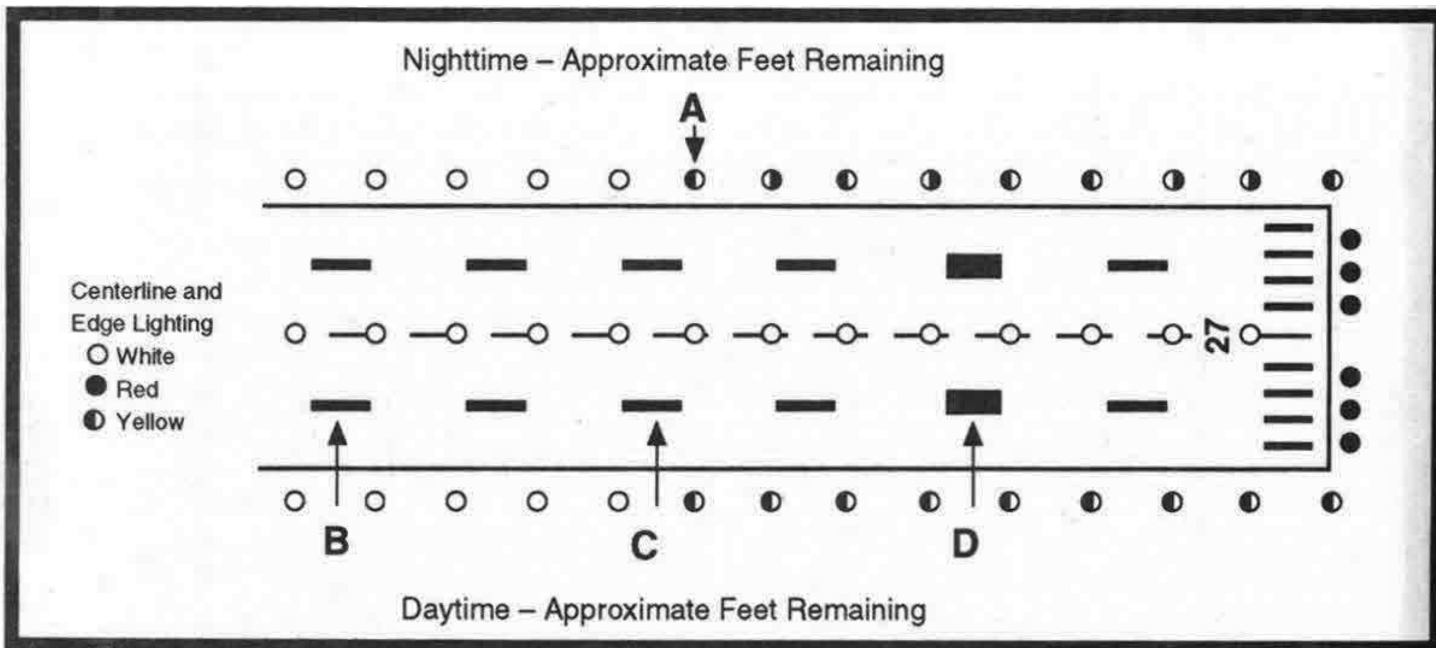


FIGURE 130.—ICAO Nonprecision Approach Runway Markings and Lighting.

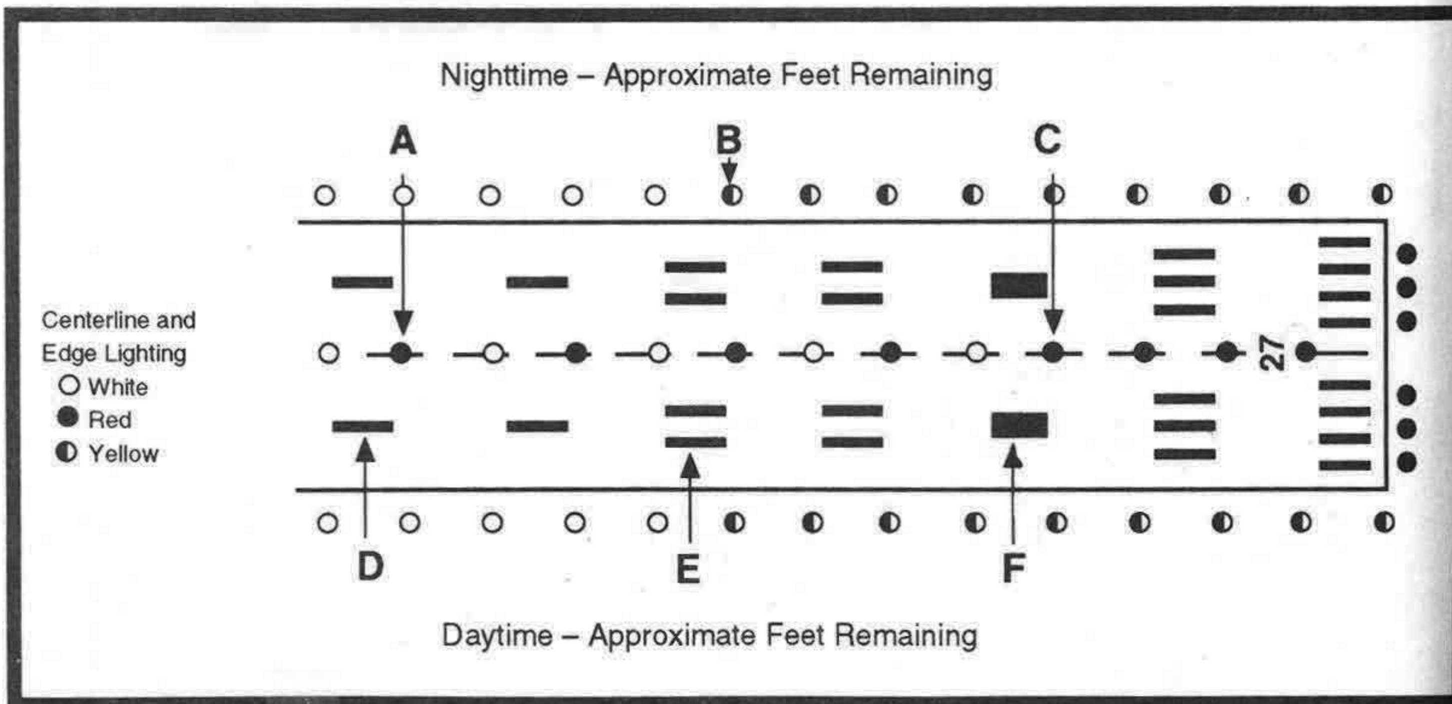


FIGURE 131.—FAA ICAO Precision Approach Runway Markings and Lighting.

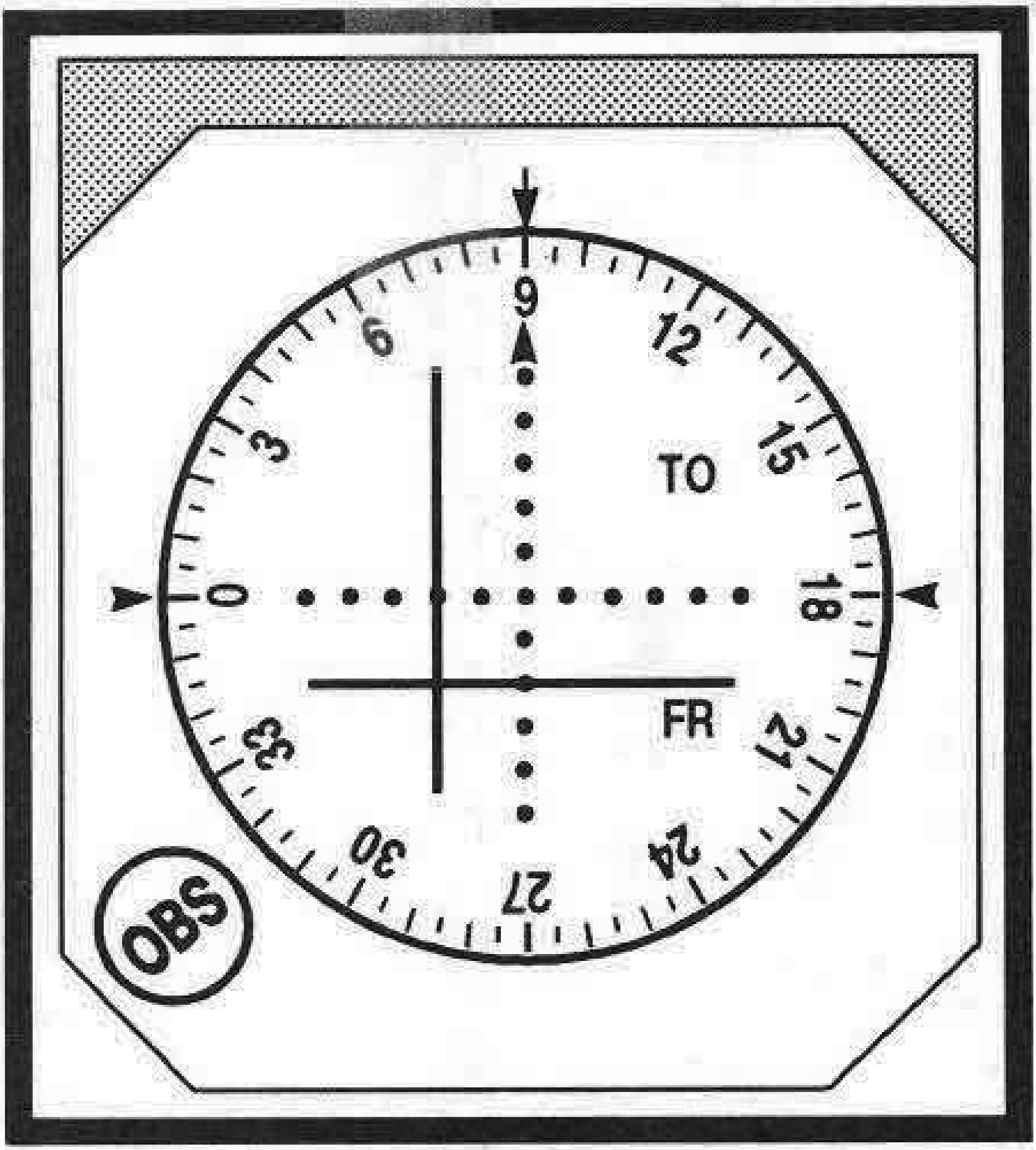


FIGURE 135.—OBS, ILS, and GS Displacement.

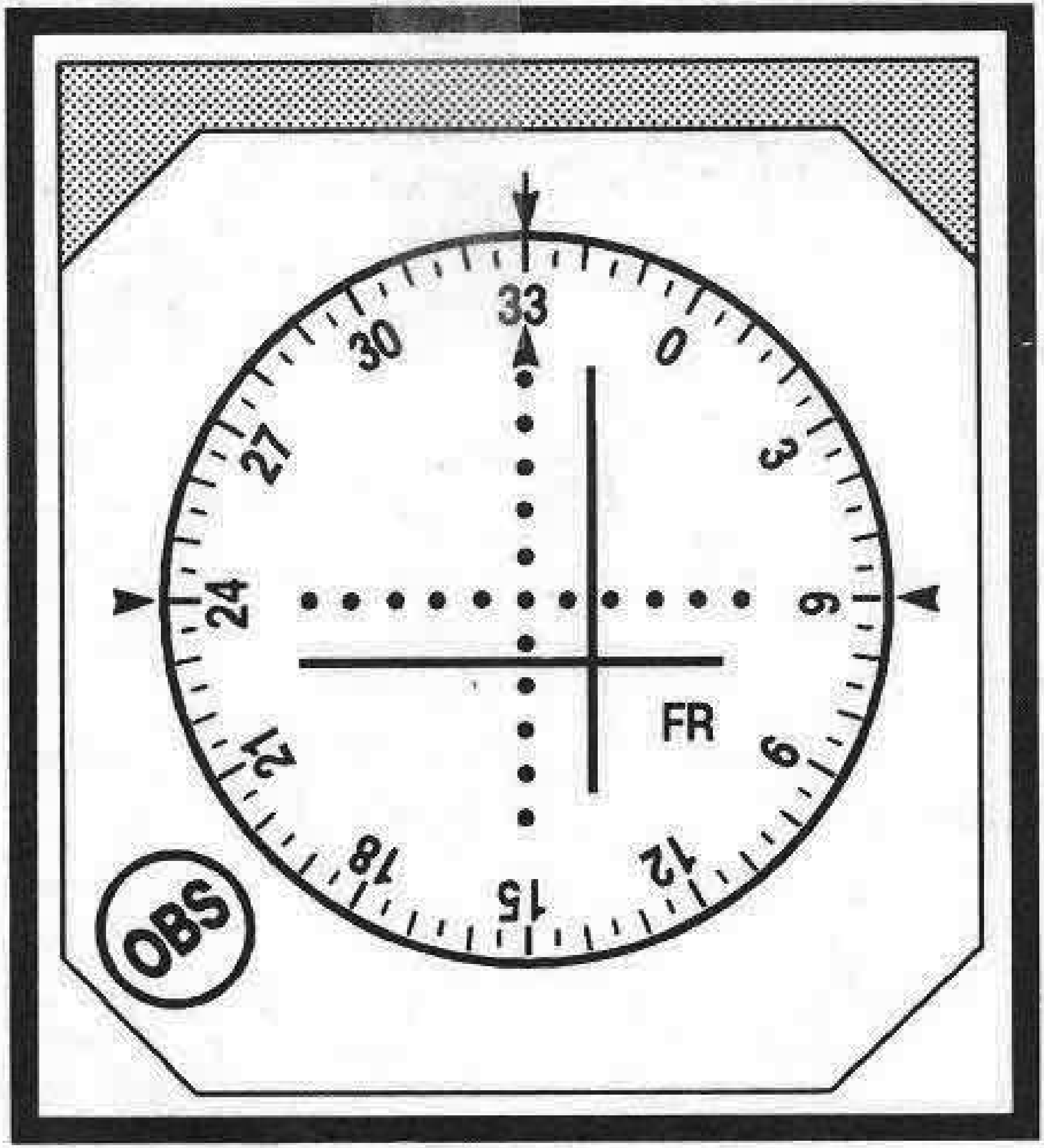


FIGURE 136.—OBS, ILS, and GS Displacement.

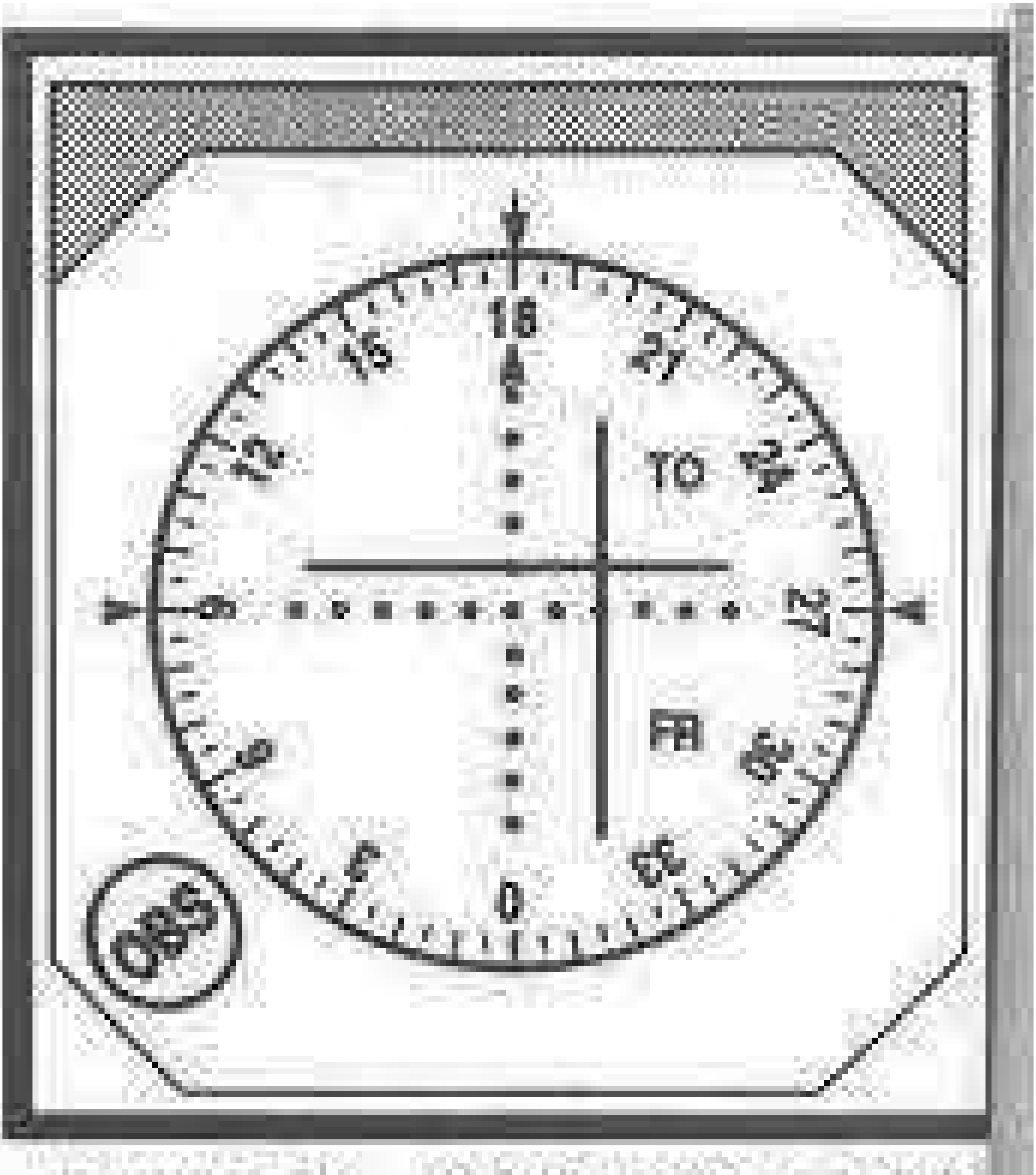


FIGURE 137.—OBS, ILS, and GS Displacement.

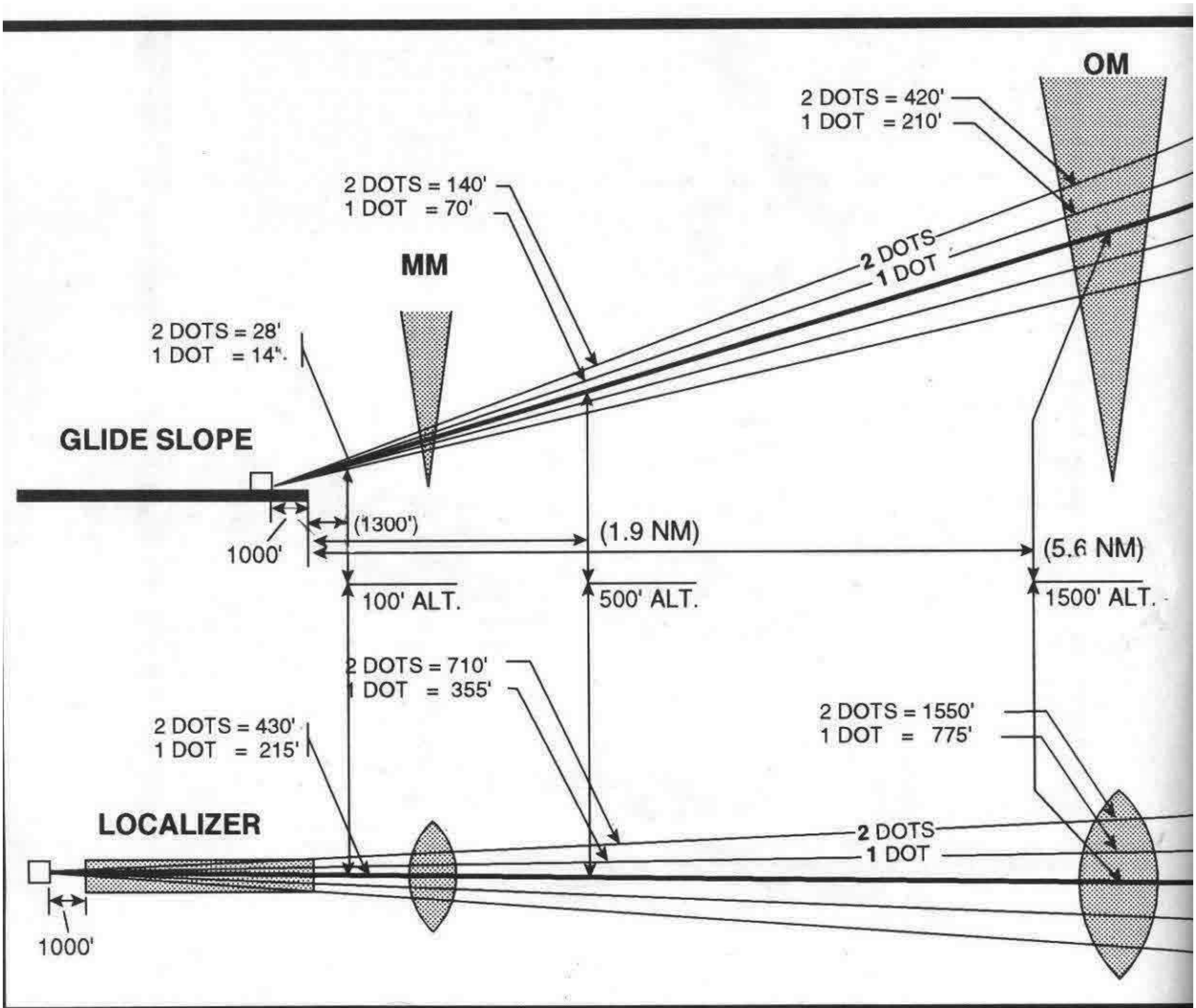


FIGURE 138.—Glide Slope and Localizer Illustration.

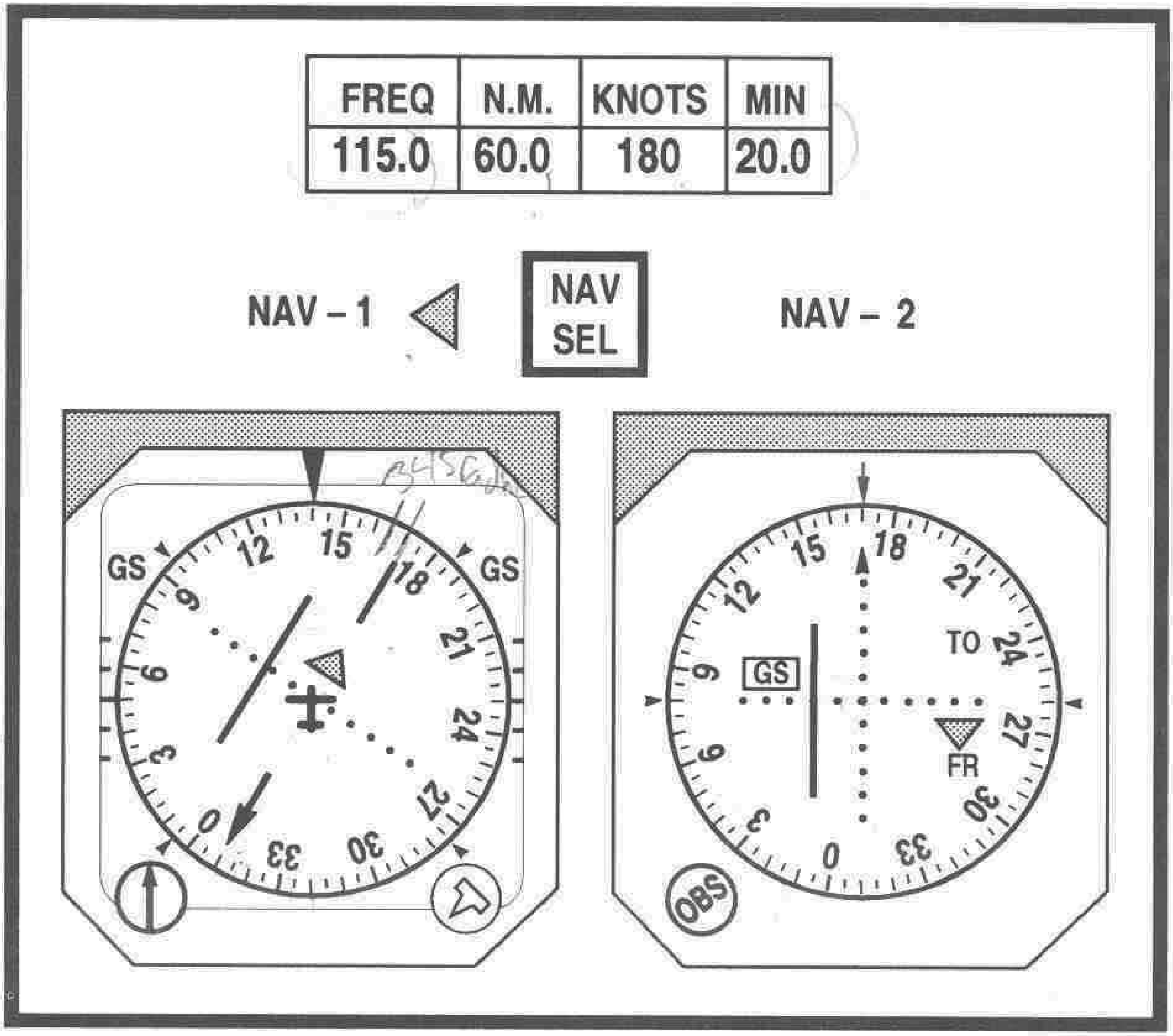


FIGURE 139.—No. 1 and No. 2 NAV Presentation.

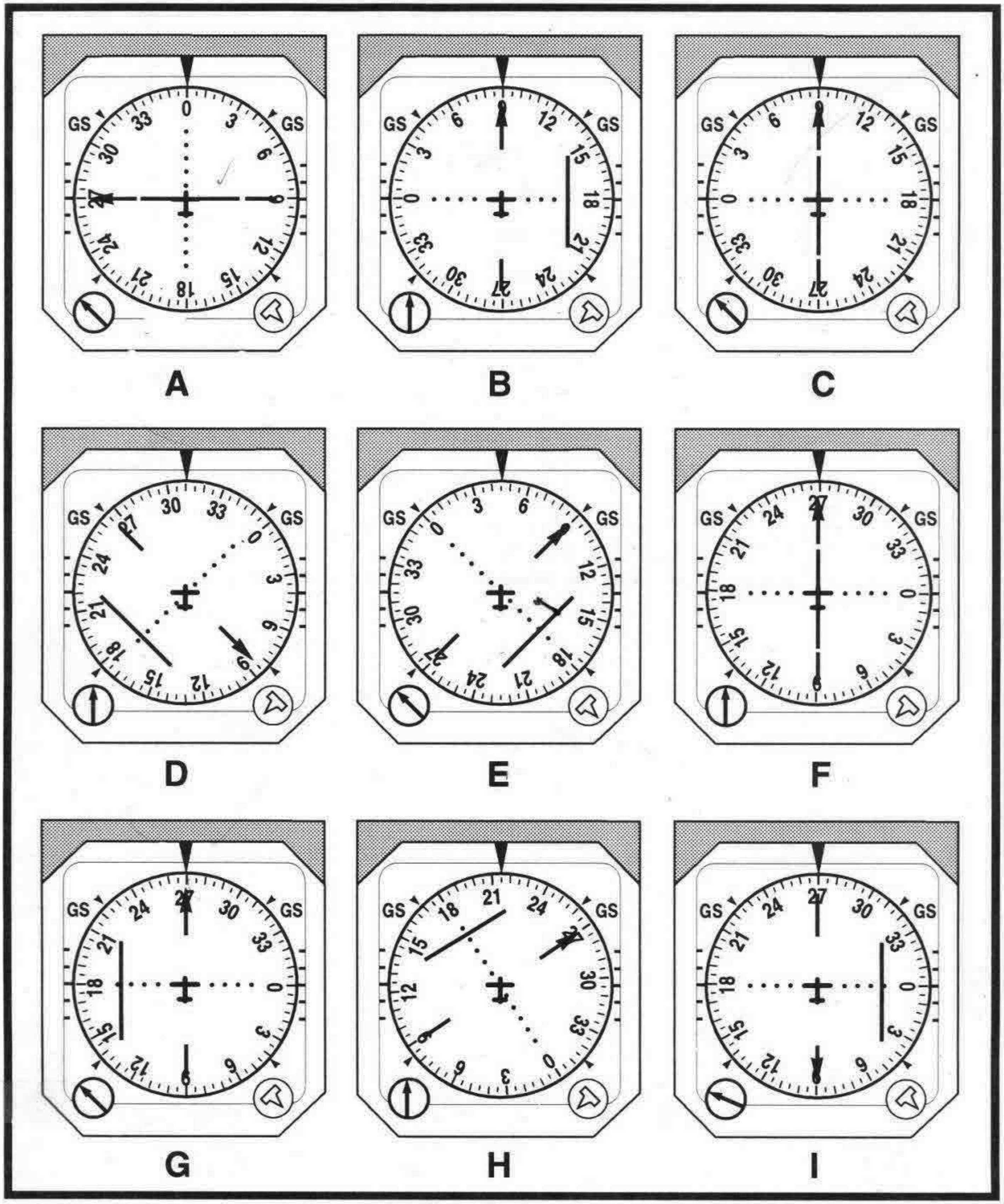


FIGURE 140.—HSI Presentation.

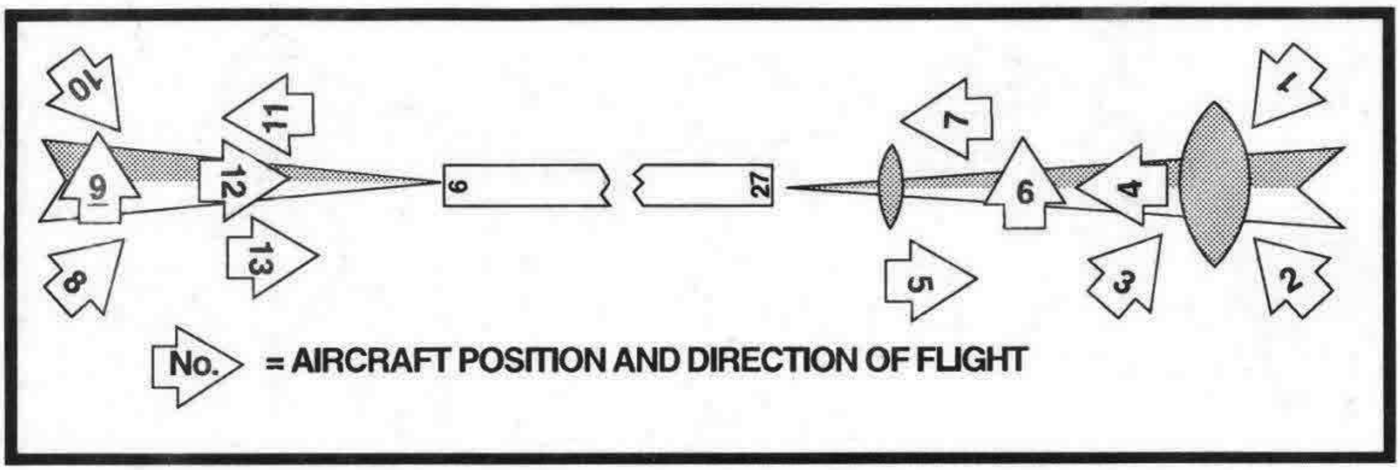


FIGURE 141.—Aircraft Position and Direction of Flight.

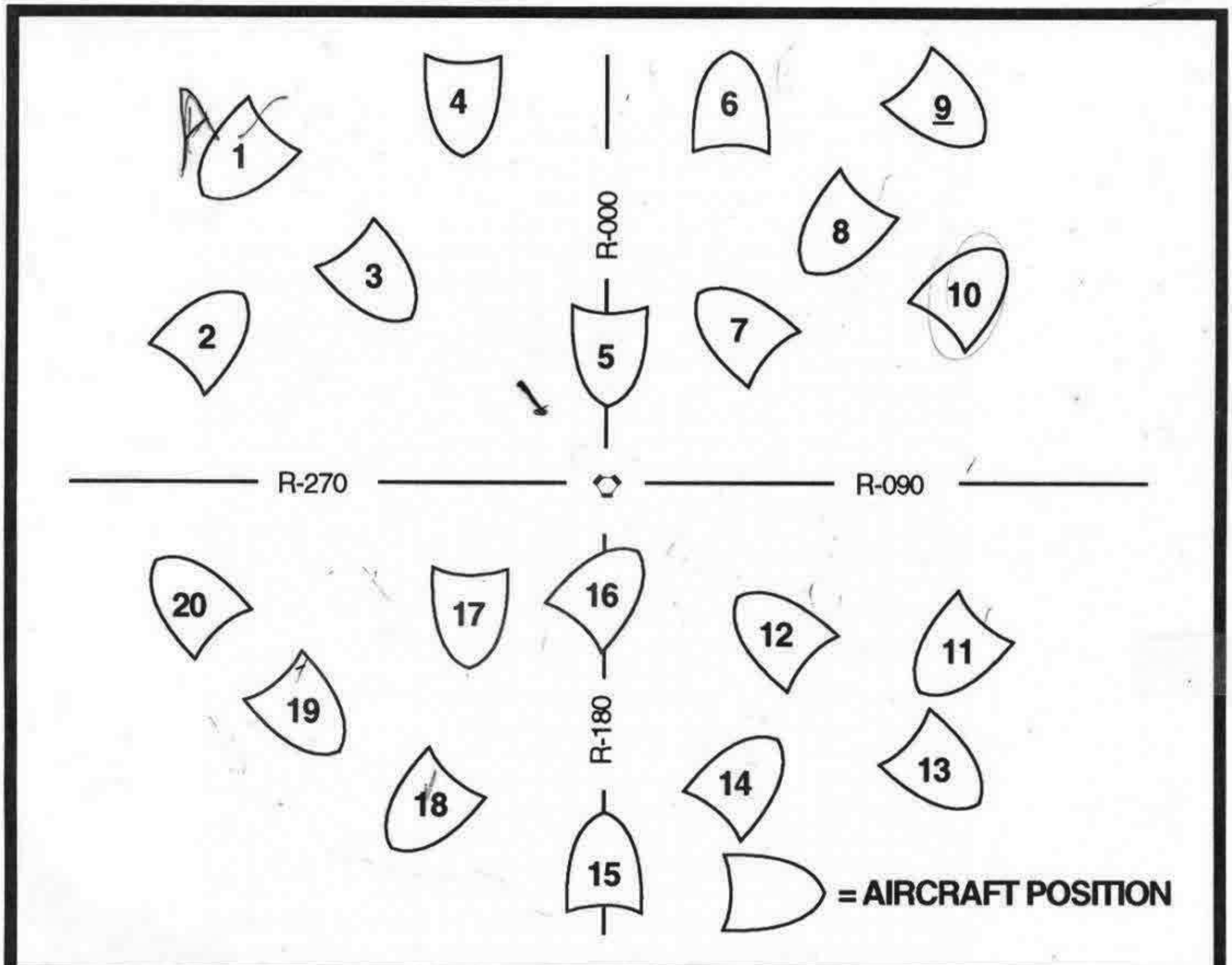


FIGURE 142.—Aircraft Position.

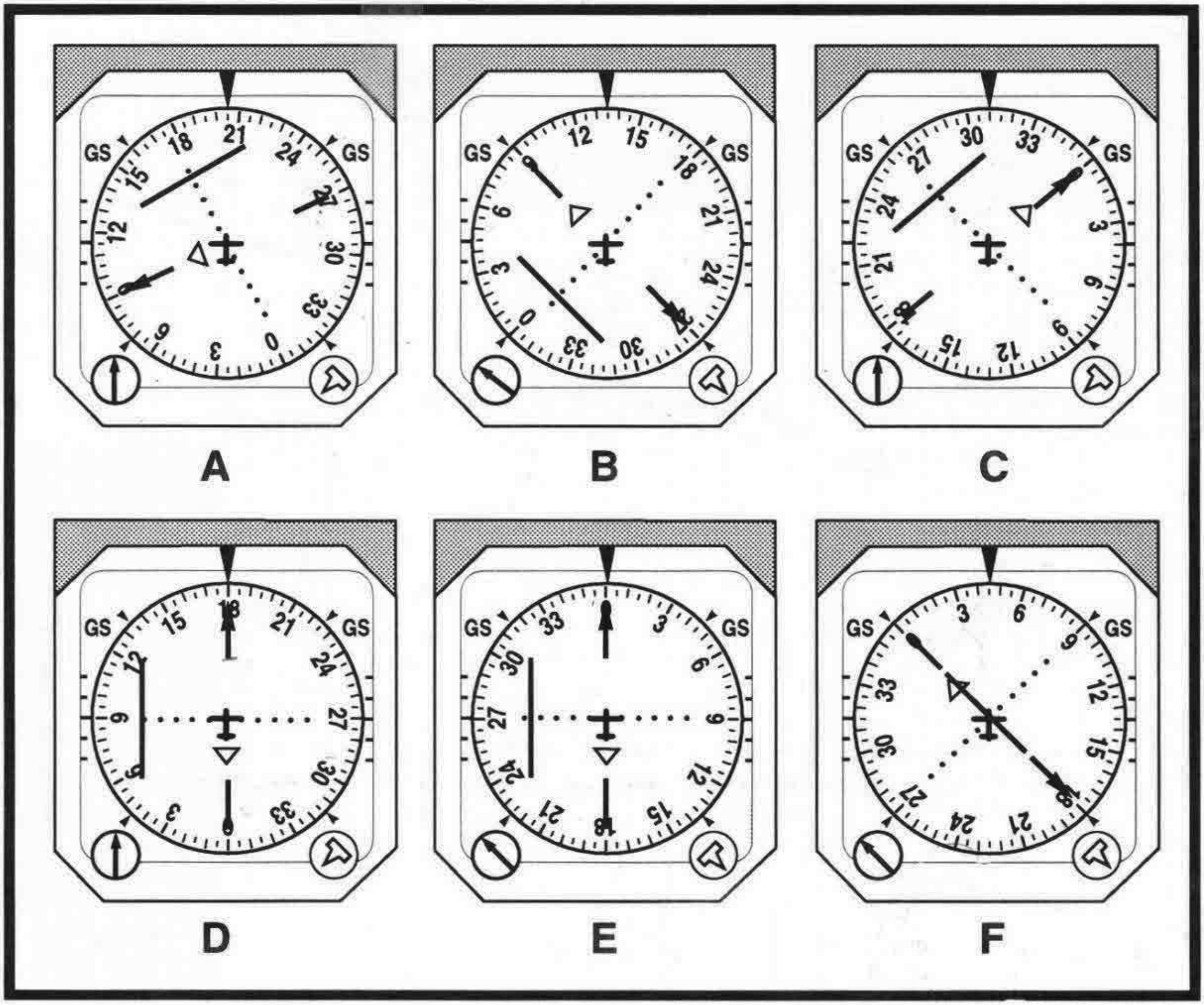


FIGURE 143.—HSI Presentation.

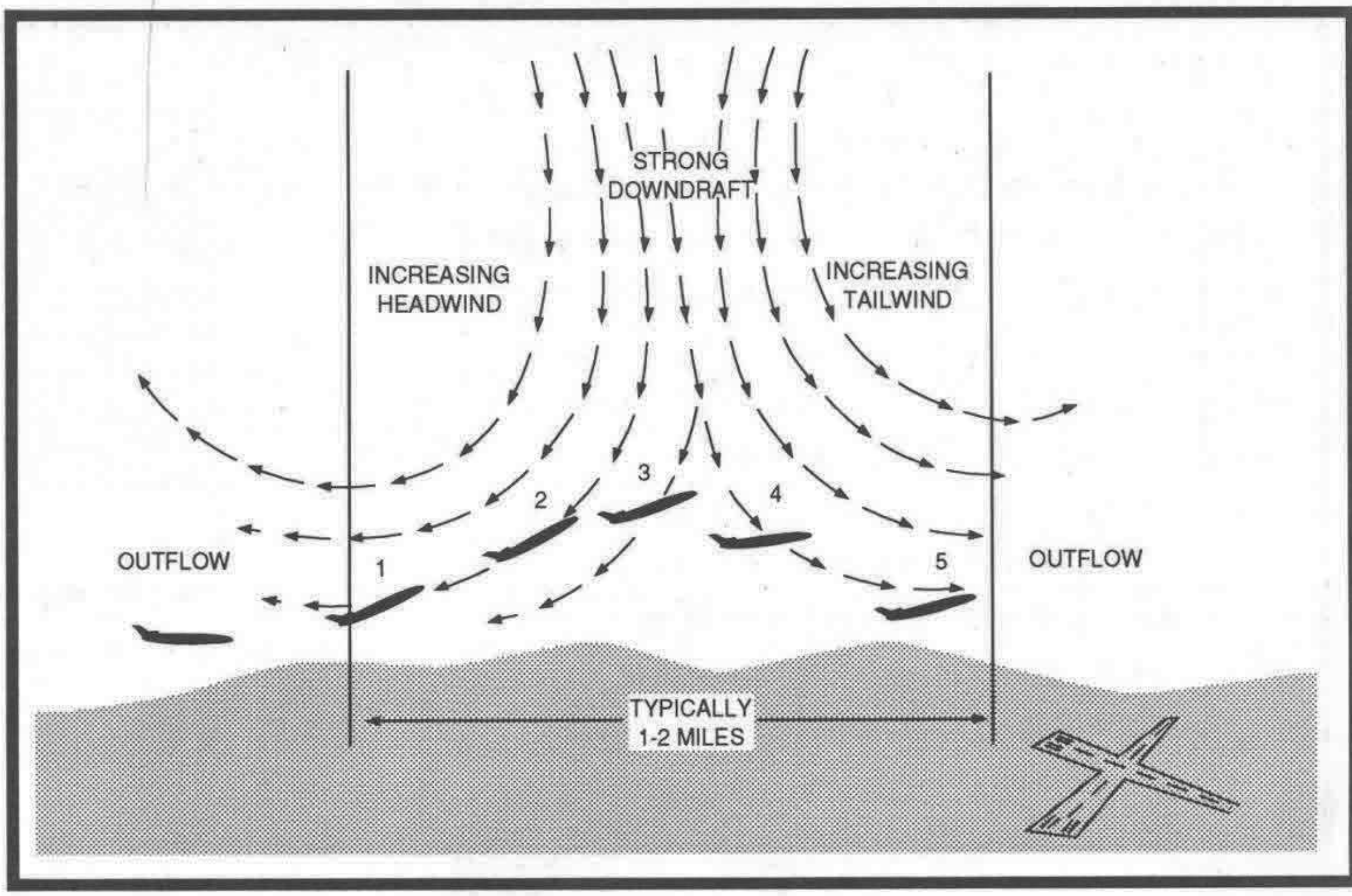


FIGURE 144.—Microburst Section Chart.

AVIATION ROUTINE WEATHER REPORTS (METAR)

TX

METAR KAMA 131755Z 33025G35KT 3/4SM IC OVC003 M02/M01 A2952 RMK PK WND 32039/43 WSHFT 1735 PRESFR 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 131802Z 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 36 LBB.

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

LBB 131821Z UUA /OV LBB/TM1817/FL011/TP B727/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 KMFE 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).

AVIATION ROUTINE WEATHER REPORTS (METAR)

TX

METAR KABI 131755Z AUTO 21016G24KT 180V240 1SM R11/P6000FT -RA BR BKN015 OVC025 19/15 A2990 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 KSJT 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 CV440/RM WS LND RWY16 FYV.

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.—Aviation Routine Weather Reports (METAR).

INTERNATIONAL TERMINAL AERODROME FORECASTS (TAF), CONTINUED

TAF
KLBB 031745Z 031818 06012KT 3SM -TSRA SCT010 OVC020
FM2100 04015KT 5SM BR BKN020 OVC060 PROB40 0103 06025G35KT 1/8SM +SHRASNPE OVC003
FM0400 05018KT 3SM -RA BR OVC010 PROB30 0608 07020KT 1SM +TSRA
FM0900 00000KT 1/4SM -RA FG VV002
FM1300 01005G12KT 1SM FZRA
FM1600 VBR04KT 1/8SM FG VV001

TAF
KSAT 031745Z 031818 17010KT 6SM HZ BKN016 OVC030
FM2000 17015KT P6SM BKN025
FM2200 19012KT 4SM FU BKN030 OVC250 PROB40 0104 07020G30KT 3SM TSRA BKN020
FM0500 12015KT 3SM SG BKN010 BKN035 PROB40 0709 05015G23KT 1SM +TSRA OVC010
FM1000 35008G16KT 4SM BLSN OVC020

TAF
KSJT 031745Z 031818 12012KT 6SM HZ BKN016
FM2000 17018KT 4SM BR BKN025
FM2200 14020G28KT 3SM GS BKN030 OVC250 PROB40 0103 16025G32KT 1SM +TSRA OVC008CB
FM0900 17020G34KT 2SM RA BR OVC010CB

TAF
KSPS 031745Z 031818 07012KT 4SM -RA FG SCT030 BKN080 TEMPO 0203 09022G30KT 1SM FZDZ OVC020
FM0900 05015KT 2SM BR SCT001 BKN005 OVC010 SNRA WS090/09035KT

FIGURE 147.—International Terminal Aerodrome Forecasts (TAF), Continued.

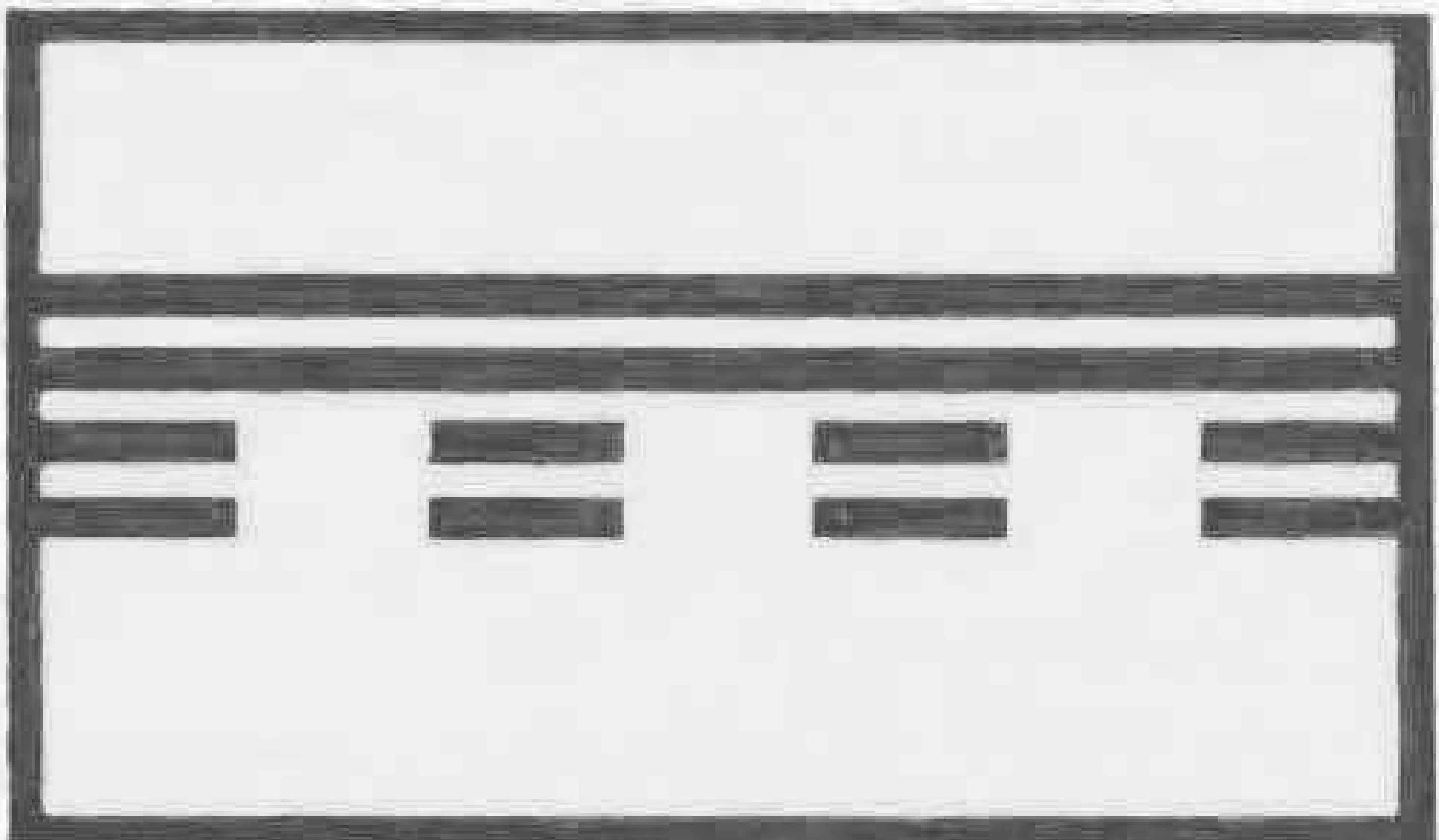


FIGURE 156.—Airport Sign.

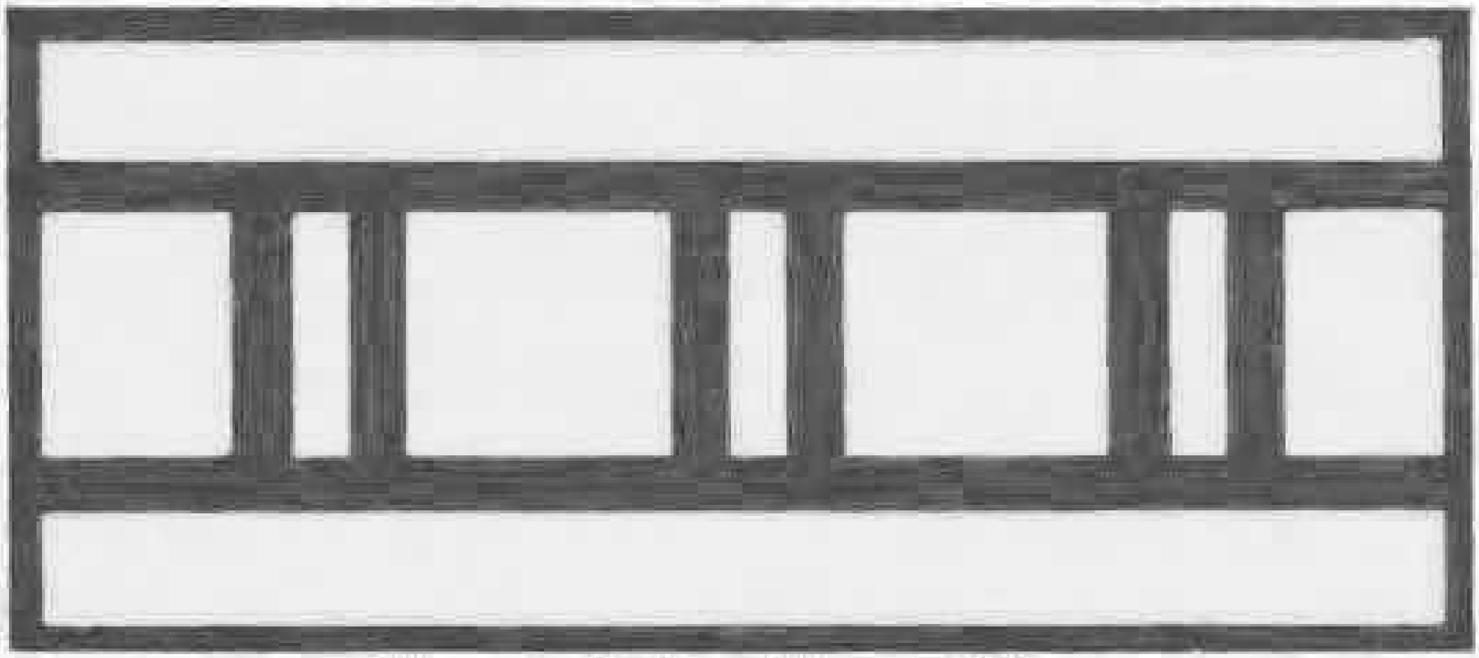


FIGURE 157.—Airport Sign.

Form Approved: OMB No. 2120-0026

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FLIGHT PLAN

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

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR / X IFR / DVFR	N711JB	G1159/A	506 KTS	STL ST LOUIS, MO			FL370

8. ROUTE OF FLIGHT
STL, GATWAY2.ROD, J29 DJB, J60 PSB, PSB.MIP8, LGA

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
LGA LA GAURDIA NEW YORK, NY			L/O = LEVEL OFF PPH = POUNDS PER HOUR TEC = TOWER ENROUTE CONTROL VARIATION: BIB IE, ROD IW, DJB 5W, PSB 8W, MIP 11W, SBJ 11W, LGA 12W

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
4	00	JFK NEW YORK, NY	17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	12

16. COLOR OF AIRCRAFT
BLACK/RED

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

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

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE / ALTITUDE	COURSE	WIND / TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
STL	BIB	GATWAY 2 ROD / CLIMB					95		:16:00		987*
BIB	ROD	GATWAY2 ROD / FL370		350/96 / ISA-1							
ROD	DJB	J29 / FL370									
DJB	PSB	J60 / FL370									
PSB	MIP	PSB.MIP8 / FL370									
MIP	SBJ										
SBJ	LGA	DESCENT					52	:16:26		269	
LGA	JFK	TEC / 4000			260			:15:00			

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 2389 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 1898 PPH Total Fuel Flow For Reserve And Alternate Requirements.

A Missed Approach Requires 233# of Fuel.

TIME and FUEL: As required by FARs.

TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 158.—Flight Plan/Flight Log.

Form Approved: OMB No. 2120-0026

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION **FLIGHT PLAN**	(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER	TIME STARTED	SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	ACTUAL (Z)	7. CRUISING ALTITUDE
VFR X IFR DVFR	N711JB	G1159/A	506 KTS	STL ST LOUIS, MO			FL370

8. ROUTE OF FLIGHT
STL, GATWAY2.ROD, J29 DJB, J60 PSB, PSB.MIP8, LGA

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	MINUTES	11. REMARKS
LGA LA GAURDIA NEW YORK, NY			L/O = LEVEL OFF PPH = POUNDS PER HOUR TEC = TOWER ENROUTE CONTROL VARIATION: BIB IE, ROD IW, DJB 5W, PSB 8W, MIP 11W, SBJ 11W, LGA 12W

12. FUEL ON BOARD HOURS	MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE / 17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	15. NUMBER ABOARD
4	00	JFK NEW YORK, NY		12

16. COLOR OF AIRCRAFT
BLACK/RED

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

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH ____________ FSS ON ARRIVAL

FLIGHT LOG

CHECK POINTS FROM	TO	ROUTE ALTITUDE	COURSE	WIND TEMP	SPEED-KTS TAS	GS	DIST NM	TIME LEG	TOT	FUEL LEG	TOT
STL	BIB	GATWAY 2 ROD CLIMB					95		:16:00		987*
BIB	ROD	GATWAY2 ROD FL370		350/96 ISA-1							
ROD	DJB	J29 FL370									
DJB	PSB	J60 FL370									
PSB	MIP	PSB.MIP8 FL370									
MIP	SBJ										
SBJ	LGA	DESCENT					52	:16:26		269	
LGA	JFK	TEC 4000			260			:15:00			

OTHER DATA: * Includes Taxi Fuel
NOTE: Use 2389 PPH Total Fuel Flow From L/O To Start Of Descent.
Use 1898 PPH Total Fuel Flow For Reserve And Alternate Requirements.

A Missed Approach Requires 233# of Fuel.

TIME and FUEL: As required by FARs.

TIME	FUEL (LB)	
		EN ROUTE
		RESERVE
		ALTERNATE
		TOTAL

FIGURE 158.—Flight Plan/Flight Log.

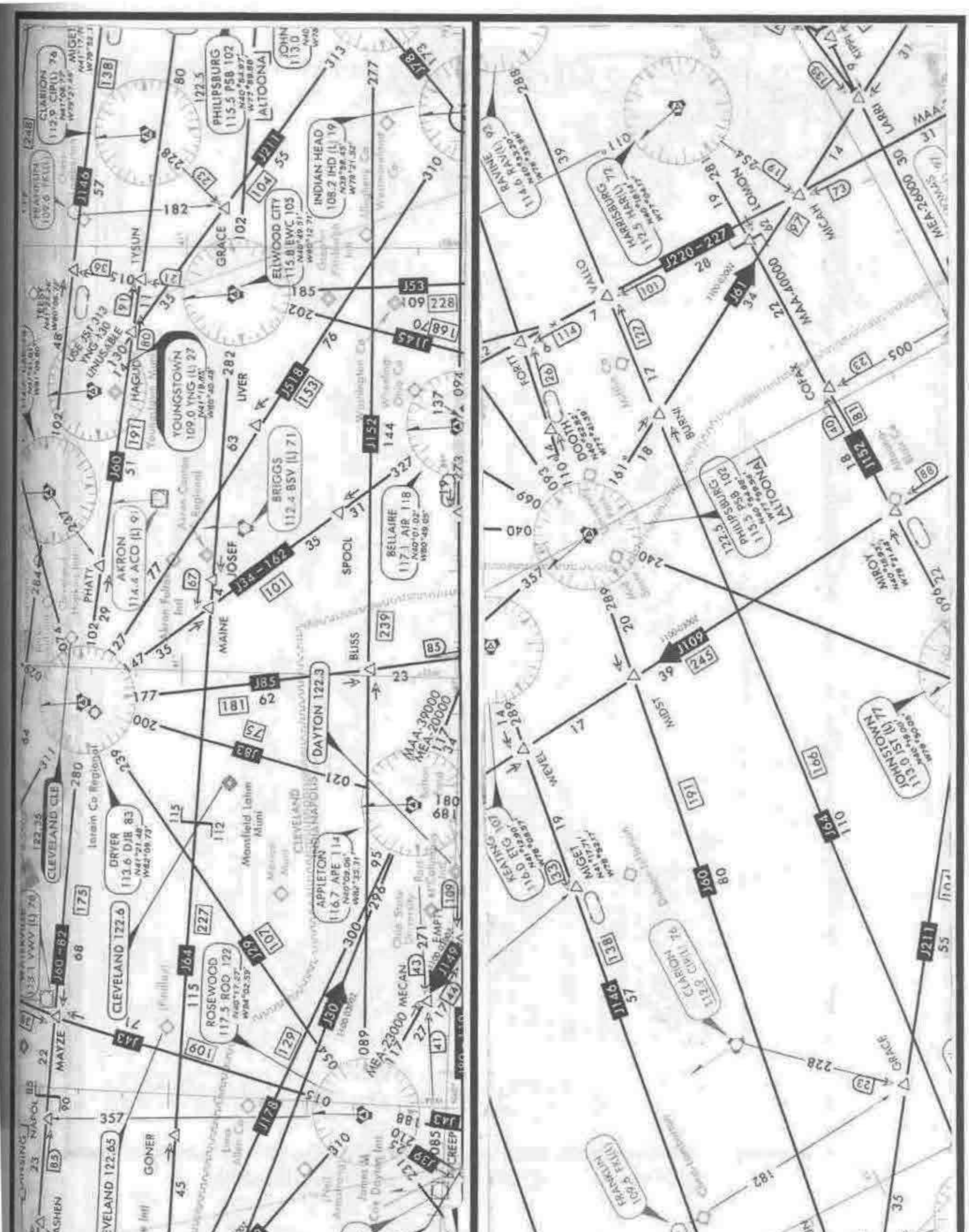


FIGURE 159.—High Altitude Airways.

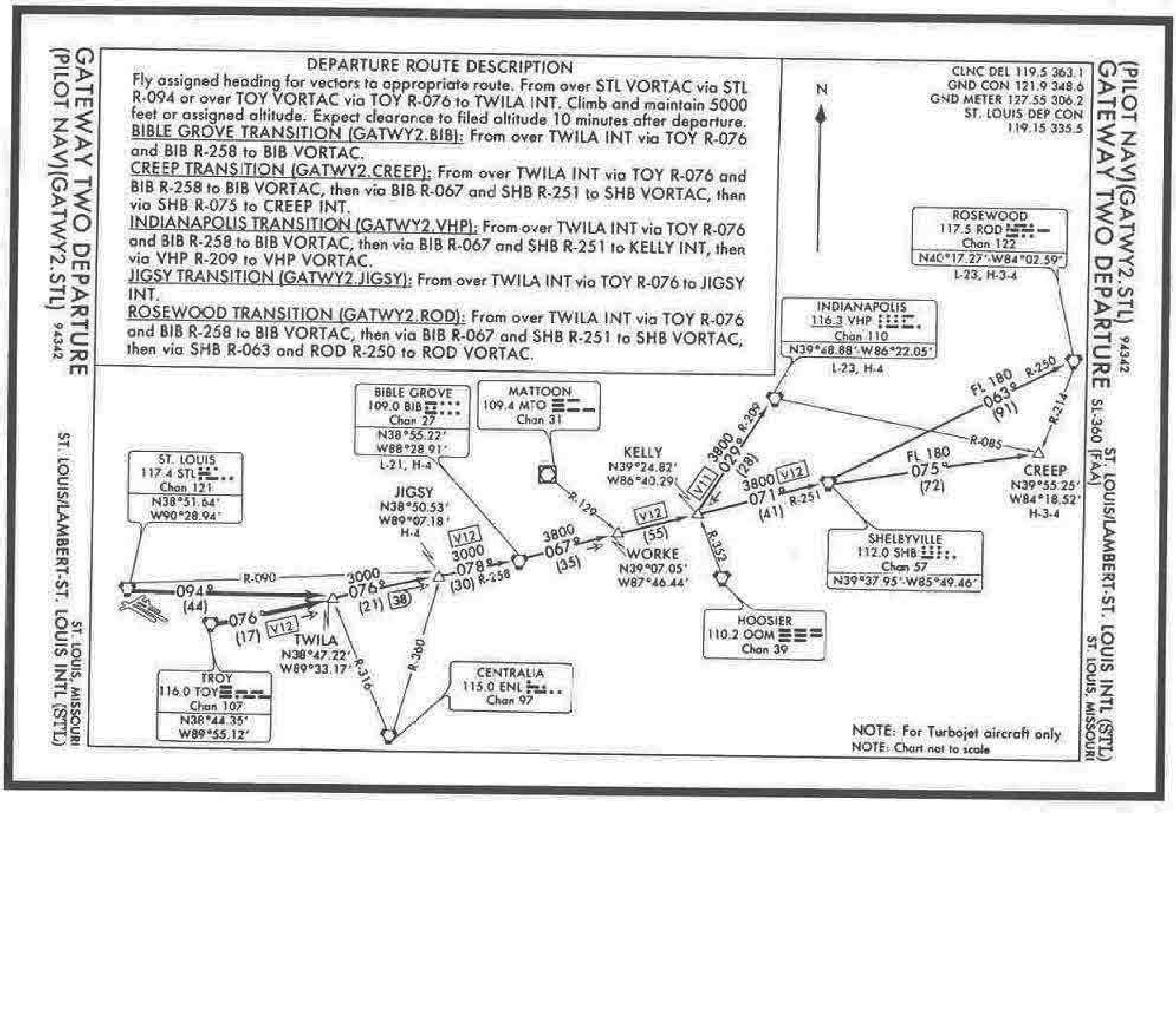


FIGURE 160.—GATEWAY TWO DEPARTURE (STL).

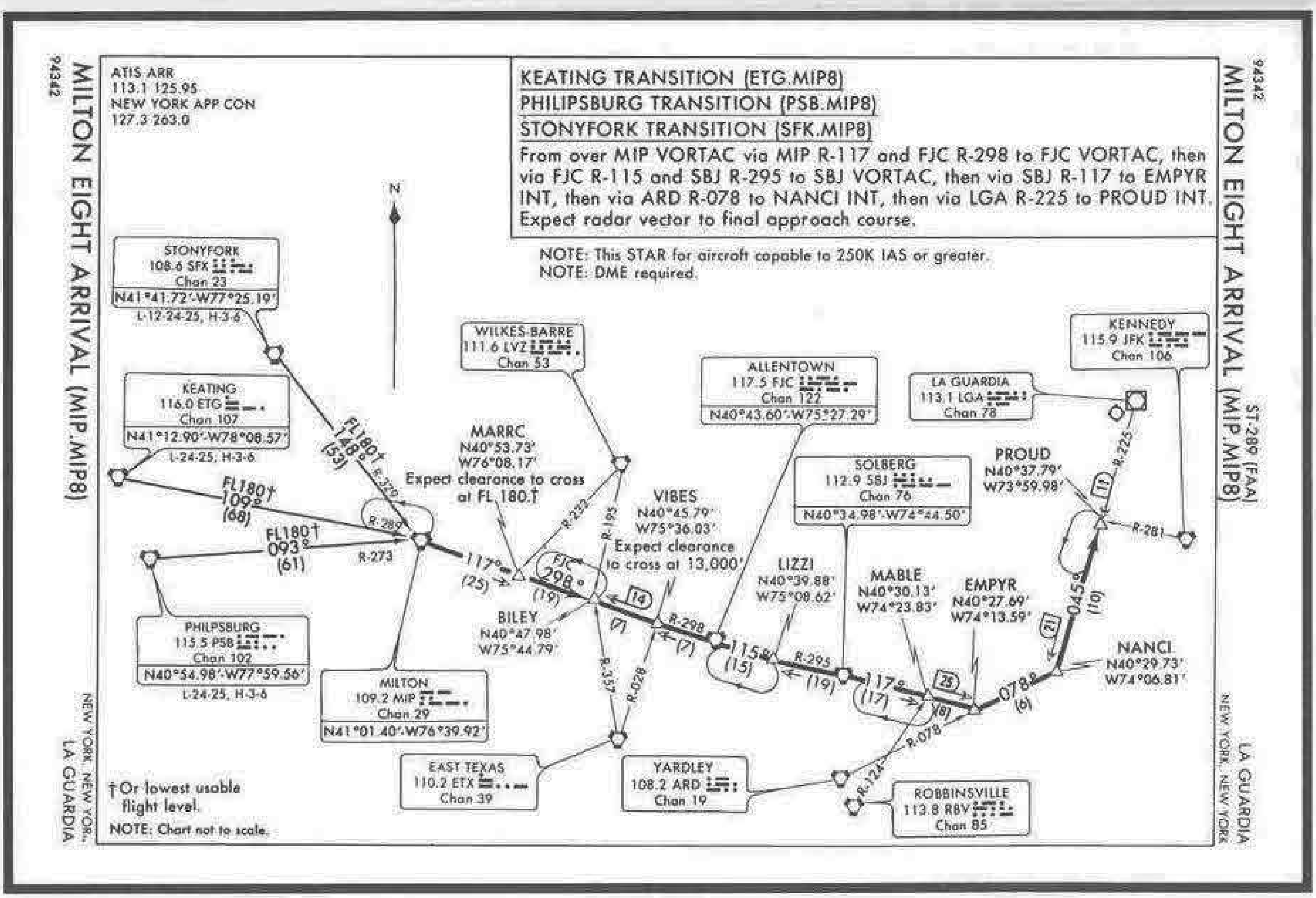


FIGURE 160A.—MILTON EIGHT ARRIVAL (MIP.MIP8).

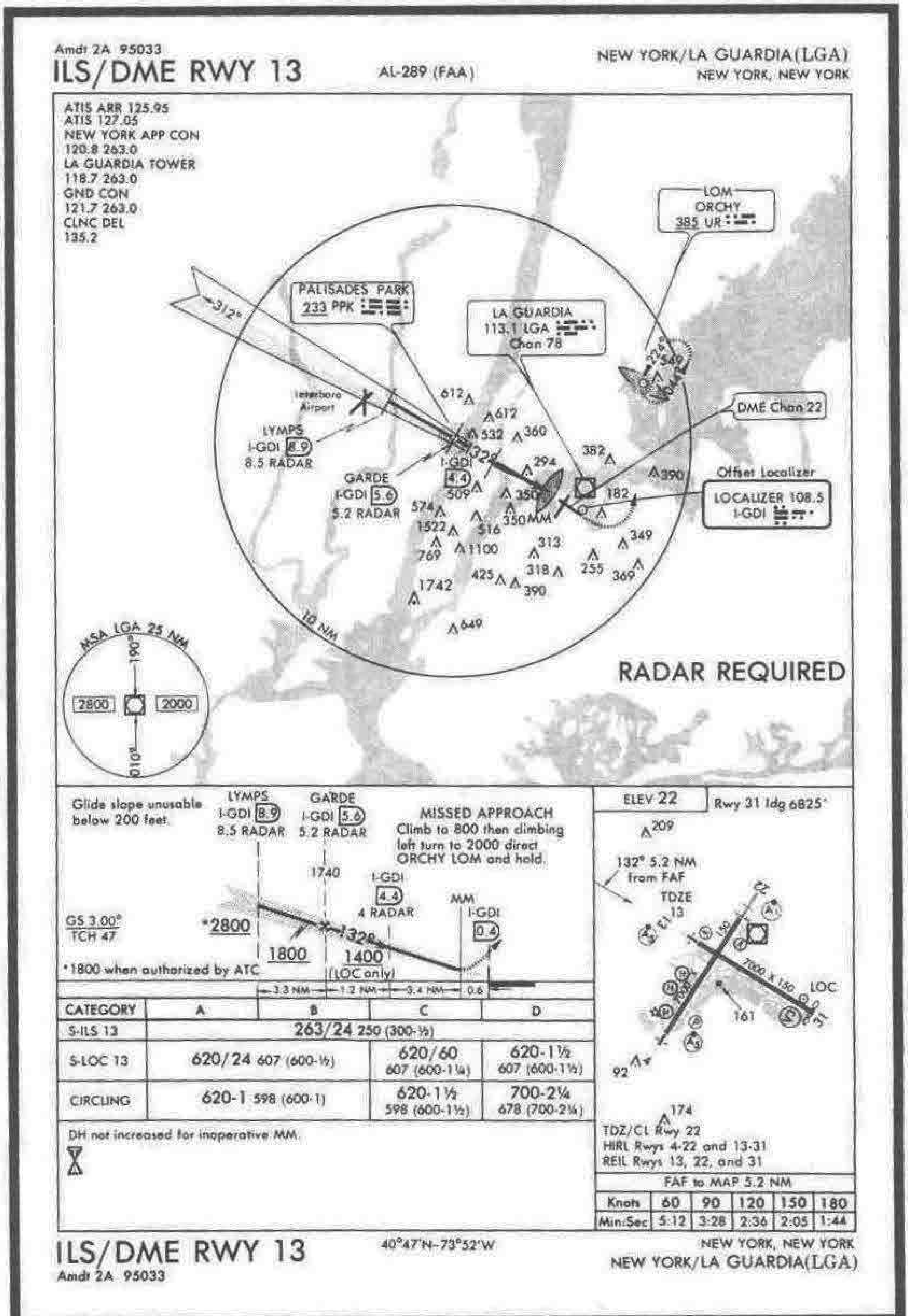


FIGURE 161.—ILS/DME RWY 13 (LGA).