



INSTRUCTIVO PARA POSTULANTES A LA OBTENCIÓN DE LA LICENCIA PTLA Ó EOVS

INFORMACIÓN GENERAL:

Este material de Ayuda, en que las cartas, tablas y gráficos que se utilizan, son sólo para dar respuesta a algunas de las preguntas del examen para obtener la Licencia de Piloto Transporte Línea Aérea (PTLA) o la Licencia de Encargado de Operaciones de Vuelo (EOV).

Como el postulante a las Licencias indicadas anteriormente, debe tener un conocimiento del uso e interpretación de la información contenida en este Material de Apoyo, se hace indispensable que en ningún caso la información contenida (cartas, tablas y gráficos), reemplaza a las publicaciones aeronáuticas actualizadas o manuales de las aeronaves, ya que estos se consideran oficiales.

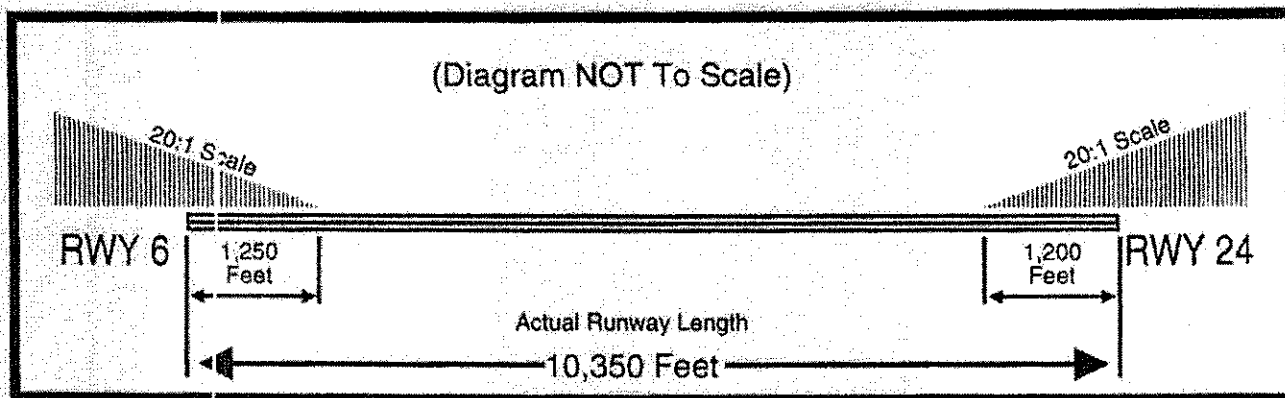


FIGURE 1.—Runway Diagram.

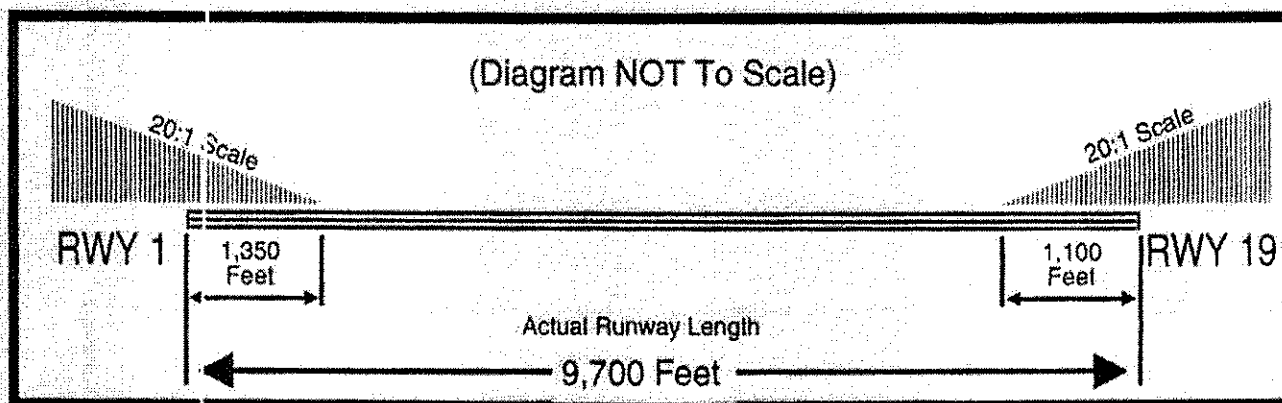


FIGURE 2.—Runway Diagram.

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	-	60	-	100
FWD CABIN	250	100	120	-	200
AFT (FWD SEC)	500	200	250	600	-
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.

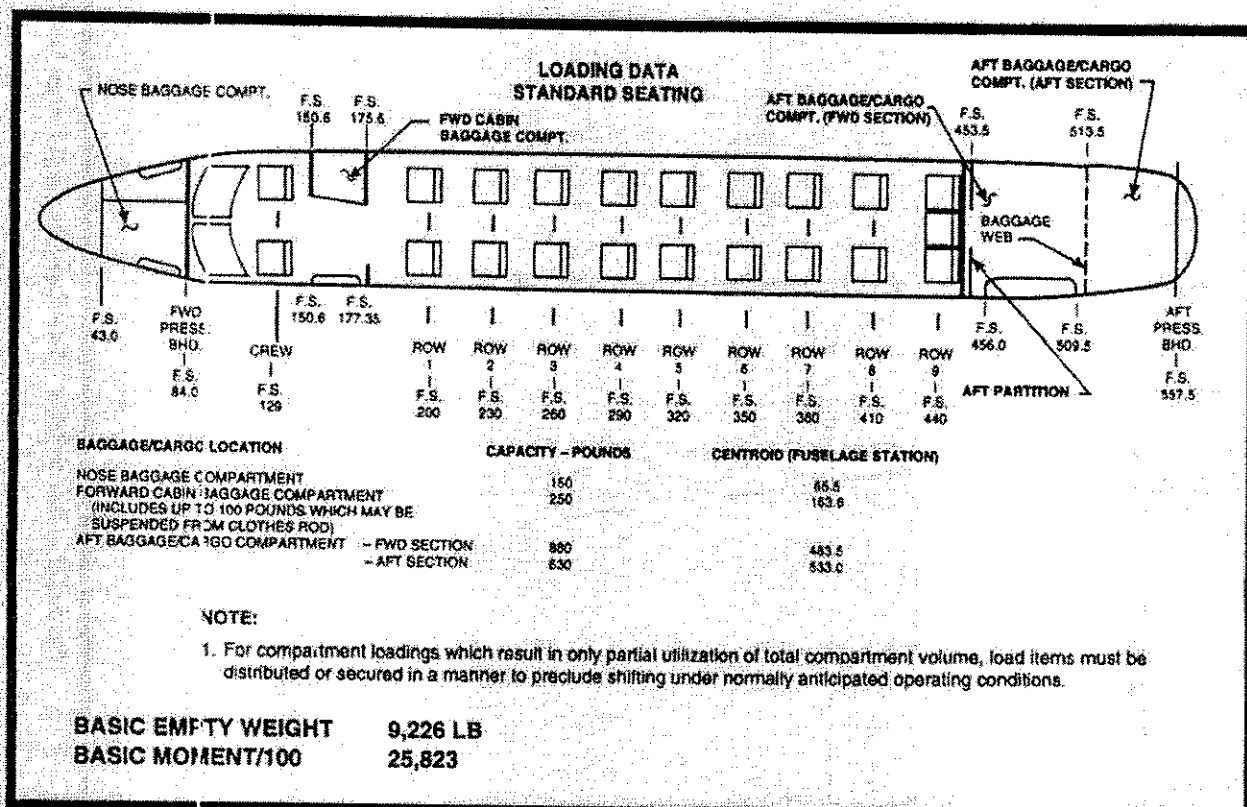
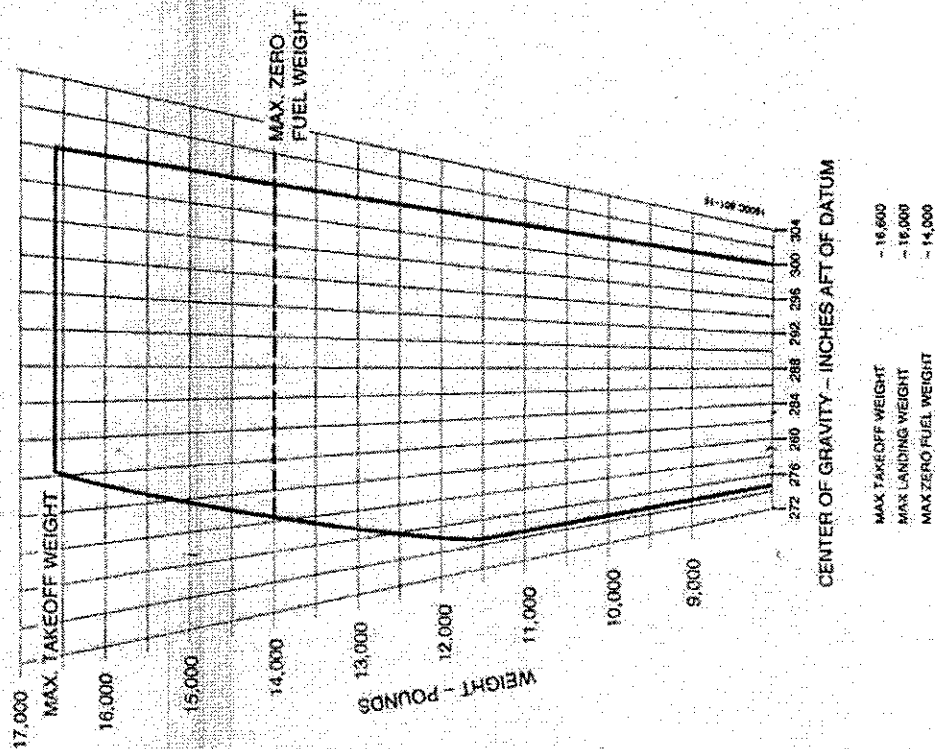


FIGURE 6.—Airplane – Loading Data.

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WEIGHT AND BALANCE DIAGRAM

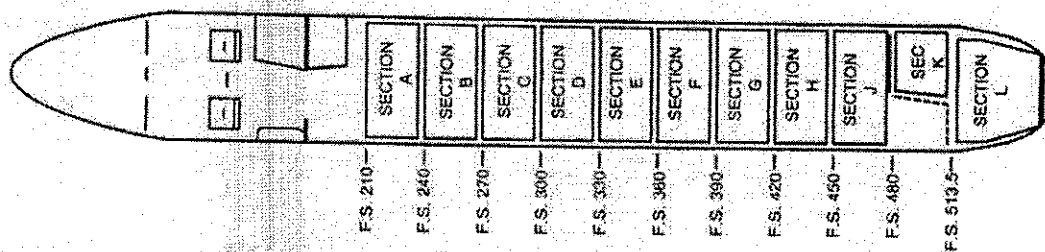


LOADING DATA CARGO CONFIGURATION

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. 495.5
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 COMPART- MENT F.S. 65.5	FORWARD CABIN BAGGAGE COMPART- MENT F.S. 163.6	AFT BAGGAGE/ CARGO COMPART- MENT (FORWARD SECTION) F.S. 483.5	AFT BAGGAGE/ CARGO COMPART- MENT (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 .96 for Aviation Gasoline (100/130) to obtain actual fuel quantity in pounds.

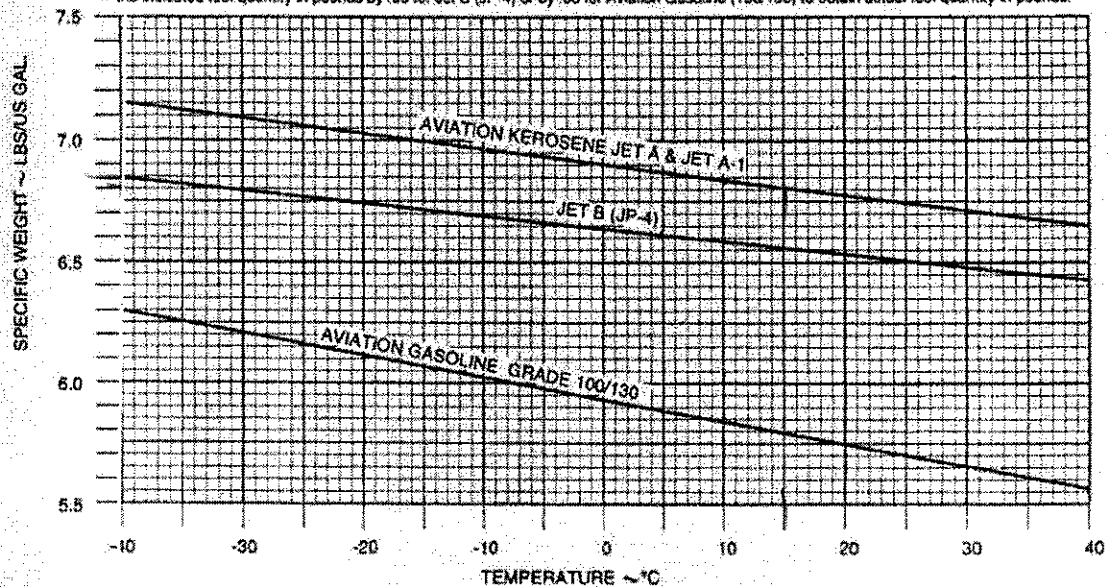


FIGURE 10.—Density Variation of Aviation Fuel.

USEFUL LOAD WEIGHTS AND MOMENTS

USABLE FUEL

GALLONS	5.5 LB/GAL		5.6 LB/GAL		5.7 LB/GAL		5.8 LB/GAL	
	WEIGHT	MOMENT	WEIGHT	MOMENT	WEIGHT	MOMENT	WEIGHT	MOMENT
		100		100		100		100
10	85	107	85	200	87	203	88	206
20	130	384	132	401	134	407	135	413
30	193	592	196	601	201	610	204	619
40	280	789	284	802	288	814	292	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	2036	680	2066
110	715	2175	726	2208	737	2242	748	2275
120	780	2372	792	2409	804	2445	816	2482
130	845	2569	858	2608	871	2646	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	4362	1474	4448	1496	4514
230	1495	4507	1518	4678	1541	4646	1564	4715
240	1560	4698	1584	4770	1608	4843	1632	4815
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	7606	2584	7722
390	2535	7575	2574	7691	2613	7808	2652	7924
400	2600	7768	2640	7886	2680	8007	2720	8127
410	2665	7962	2706	8085	2747	8207	2786	8330
420	2730	8156	2772	8282	2814	8407	2856	8532
425	2763	8259	2805	8386	2846	8513	2890	8640

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

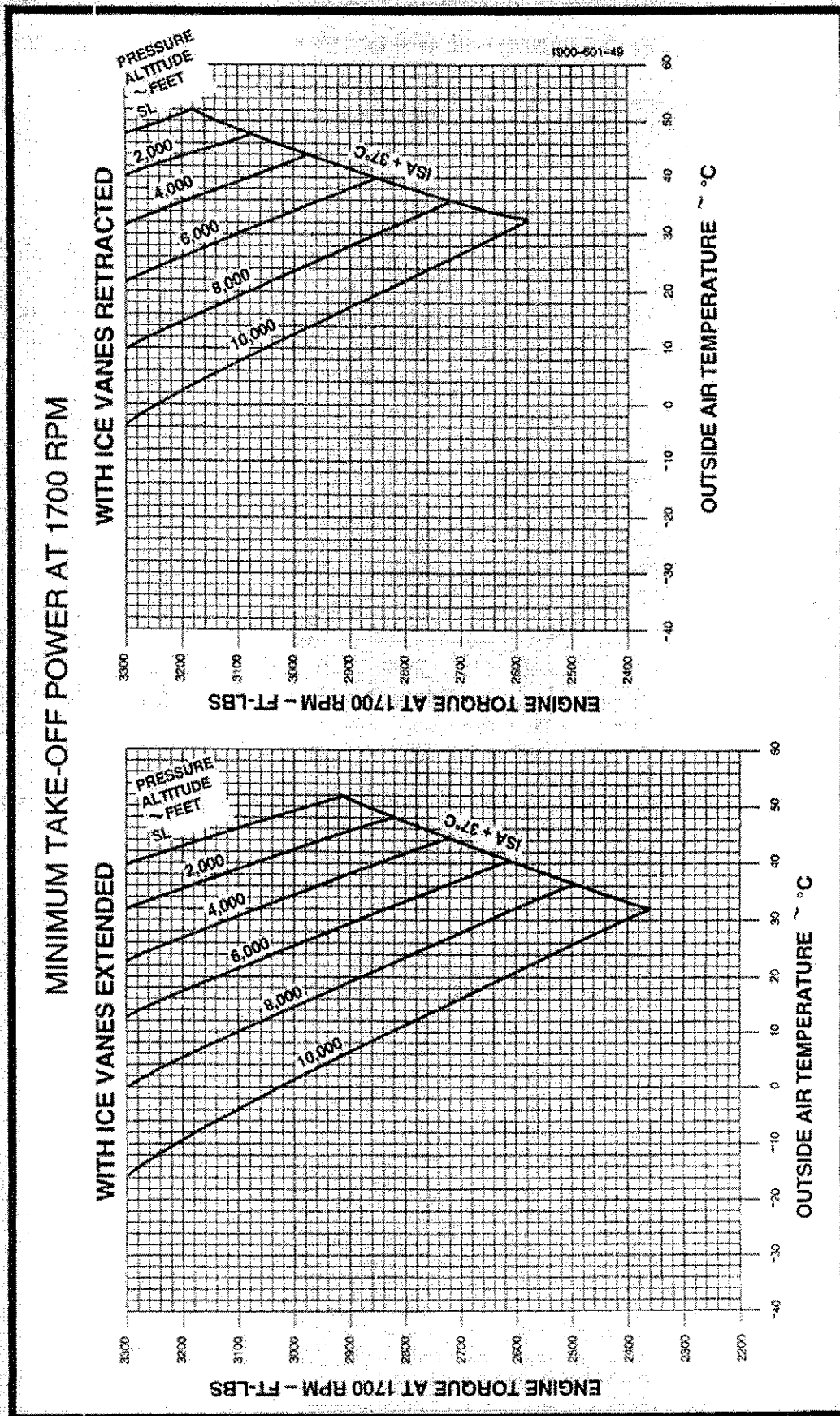


FIGURE 12.—Minimum Takeoff Power at 1700 RPM.

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
18,600	108	115
18,000	107	114
14,000	102	112
12,000	102	112
10,000	102	112

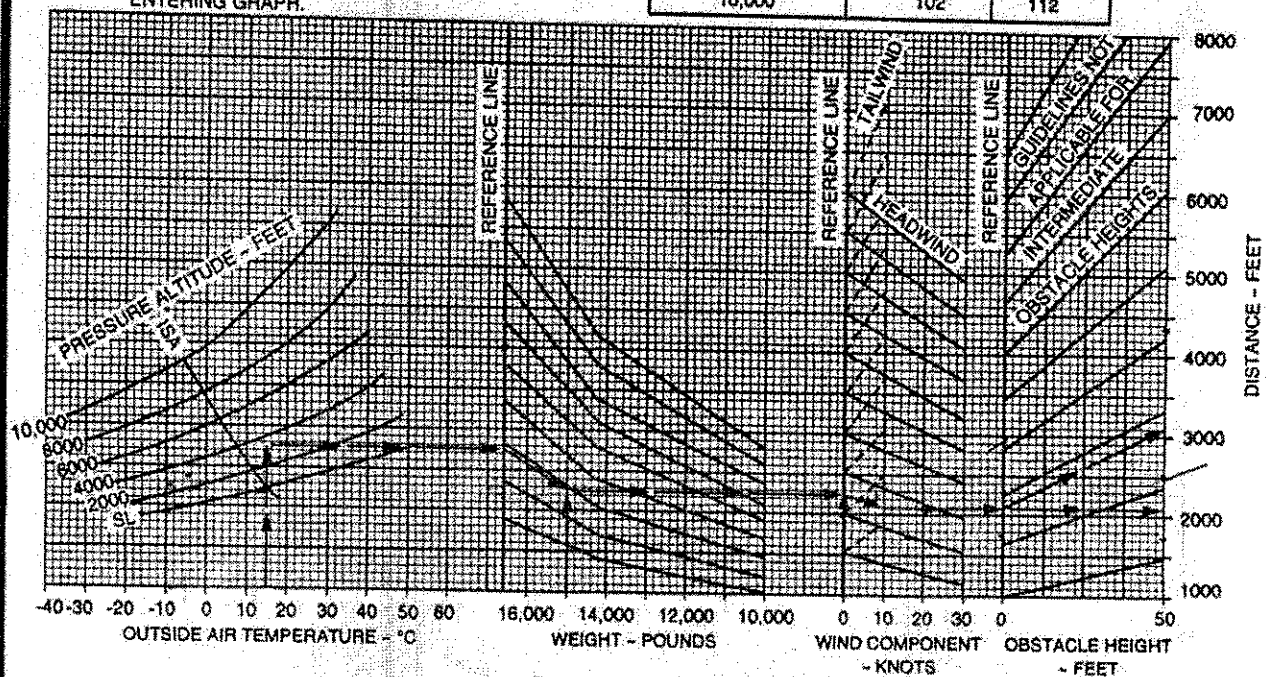


FIGURE 13.—Takeoff Distance - Flaps Takeoff.

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

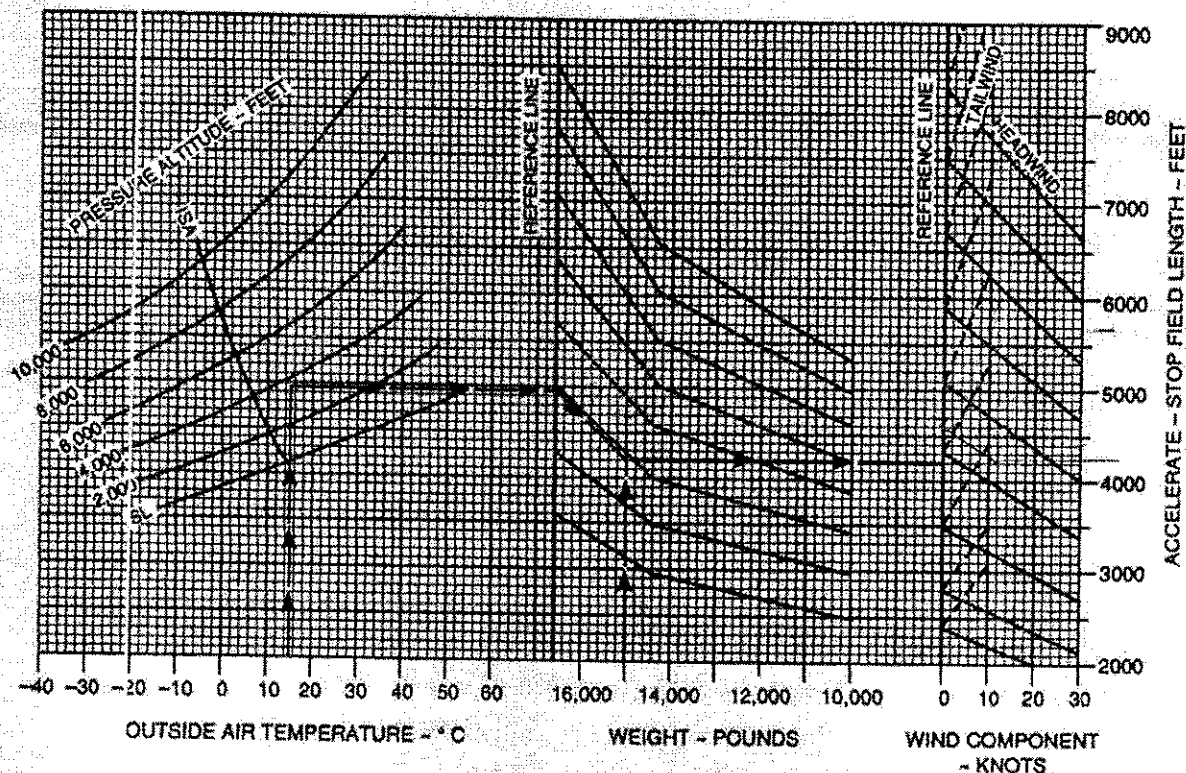


FIGURE 14.—Accelerate-Stop - Flaps Takeoff.

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

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

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

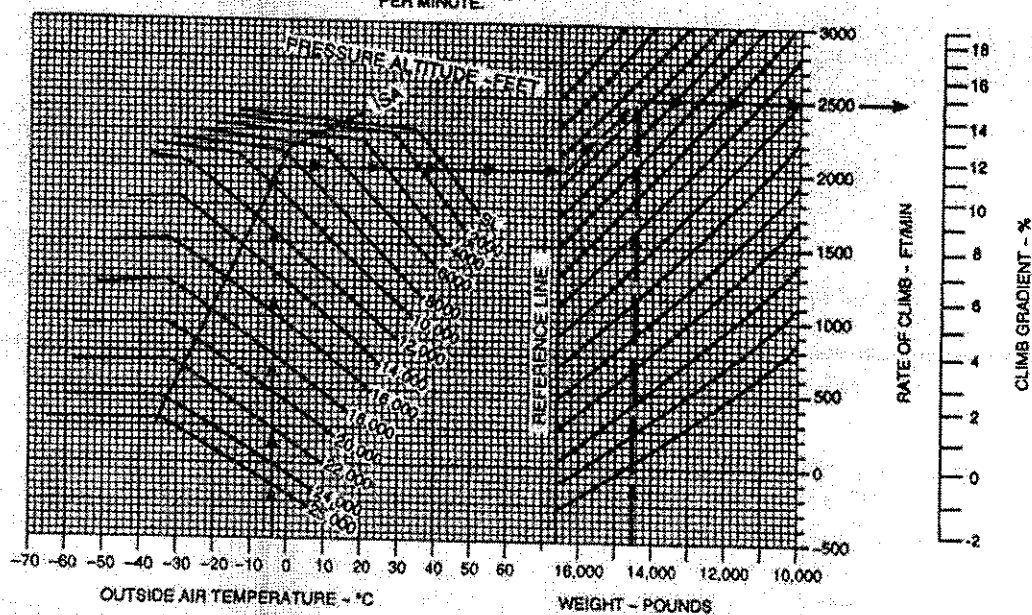


FIGURE 16.—Climb — Two Engines — Flaps Up.

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
16,800	125
16,000	124
14,000	119
12,000	116
10,000	112

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

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

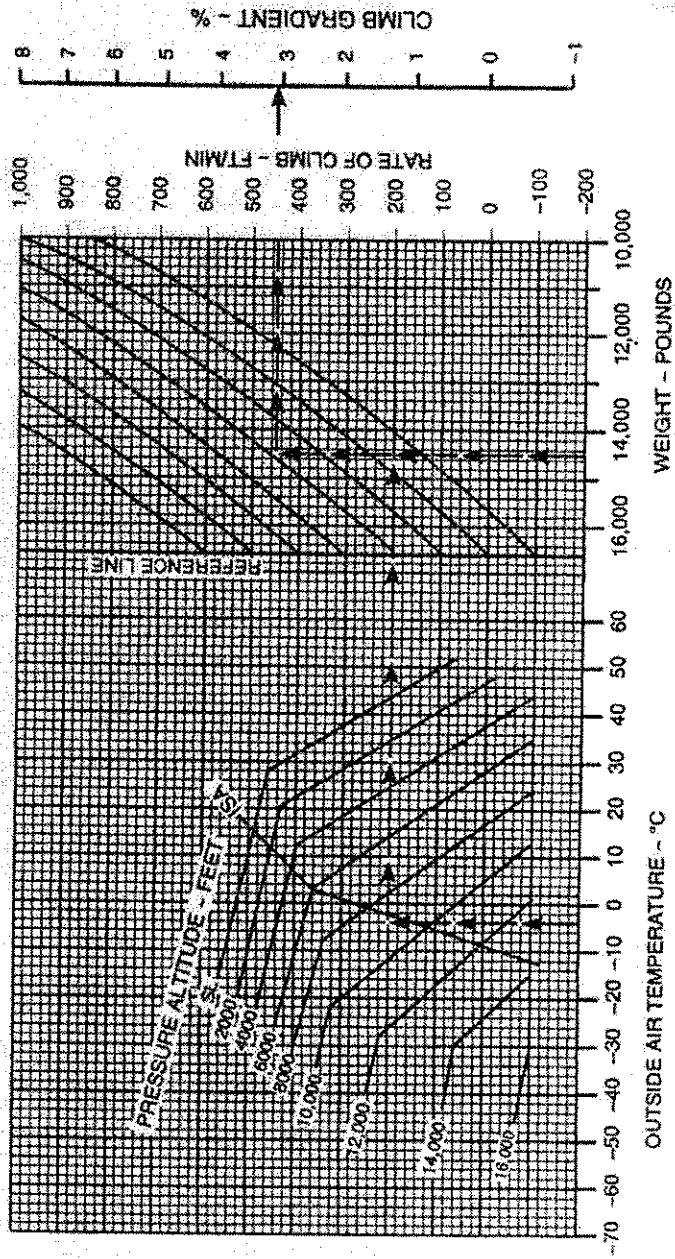


FIGURE 17.—Climb — One Engine Inoperative.

TIME, FUEL, AND DISTANCE TO CRUISE CLIMB

ASSOCIATED CONDITIONS:

PROPELLER SPEED 1550 RPM
 POWER:
 ITT 750 °C
 OR TORQUE 3400 FT-LBS

- NOTES: 1. ADD 110 LBS FUEL FOR START, TAXI, AND TAKEOFF
 2. FOR OPERATION WITH ICE VANES EXTENDED, ADD 10 °C TO THE ACTUAL OAT BEFORE ENTERING THE GRAPH

ALTITUDE - FEET	CLIMB SPEED - KNOTS
SL TO 10,000	160
10,000 TO 15,000	150
15,000 TO 20,000	140
20,000 TO 25,000	130

EXAMPLE:

OAT AT TAKEOFF 15 °C
 OAT AT CRUISE -10 °C
 AIRPORT PRESSURE ALTITUDE 3495 FT
 CRUISE ALTITUDE 11,000 FT
 INITIAL CLIMB WEIGHT 15,000 LBS
 TIME TO CLIMB (4.8-8) 4 MIN
 FUEL TO CLIMB (93-25) 68 LBS
 DISTANCE TO CLIMB (13-2) 11 NM

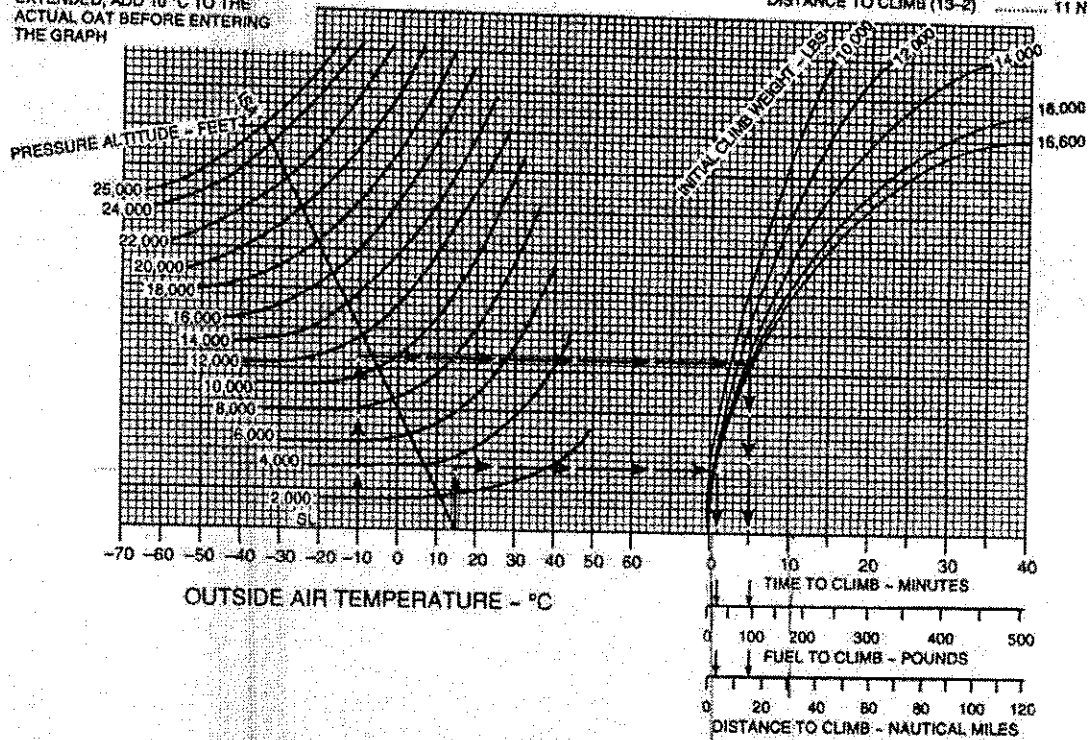


FIGURE 18.—Time, Fuel, and Distance to Cruise Climb.

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.

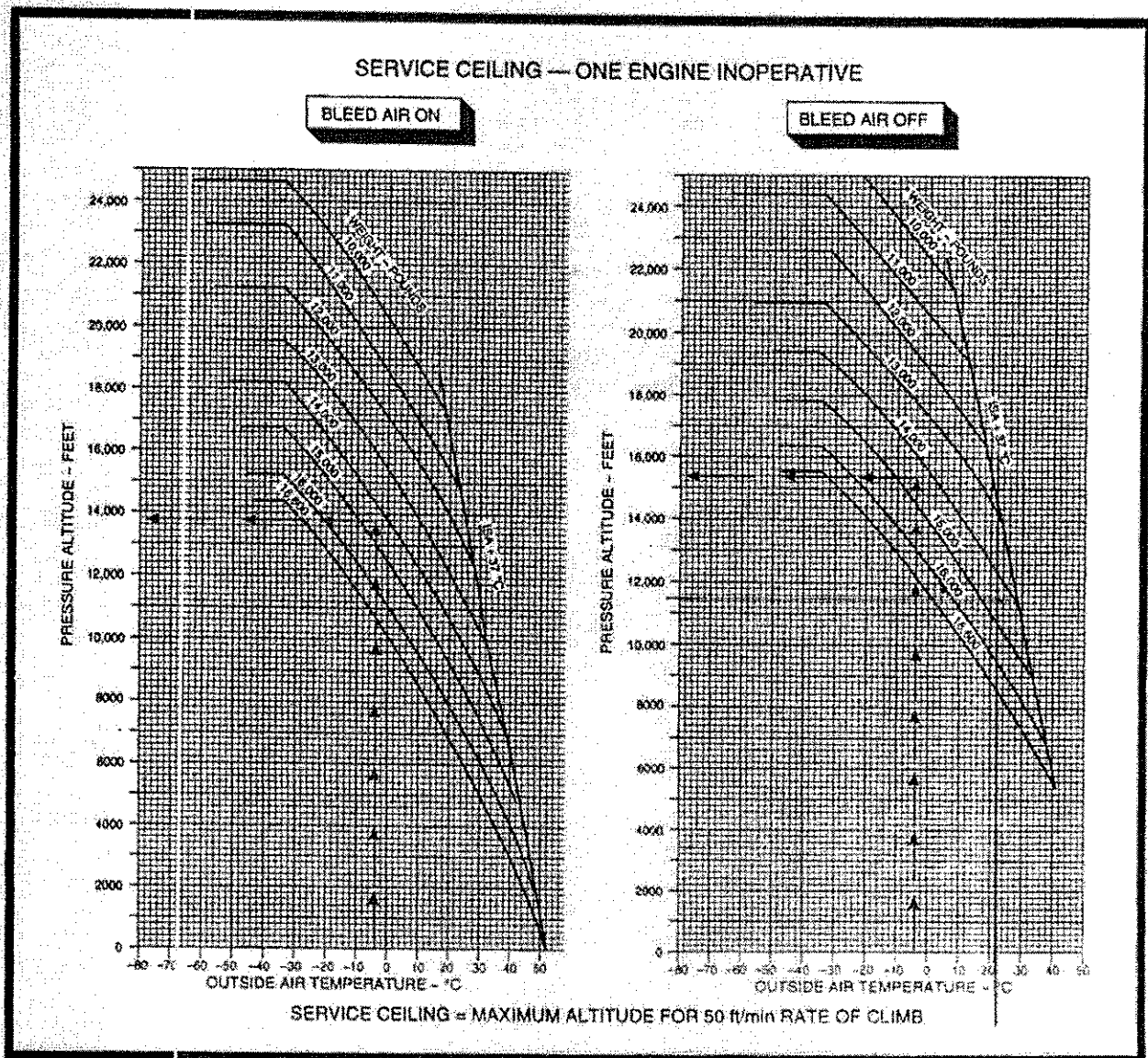


FIGURE 20.—Service Ceiling – One Engine Inoperative.

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.

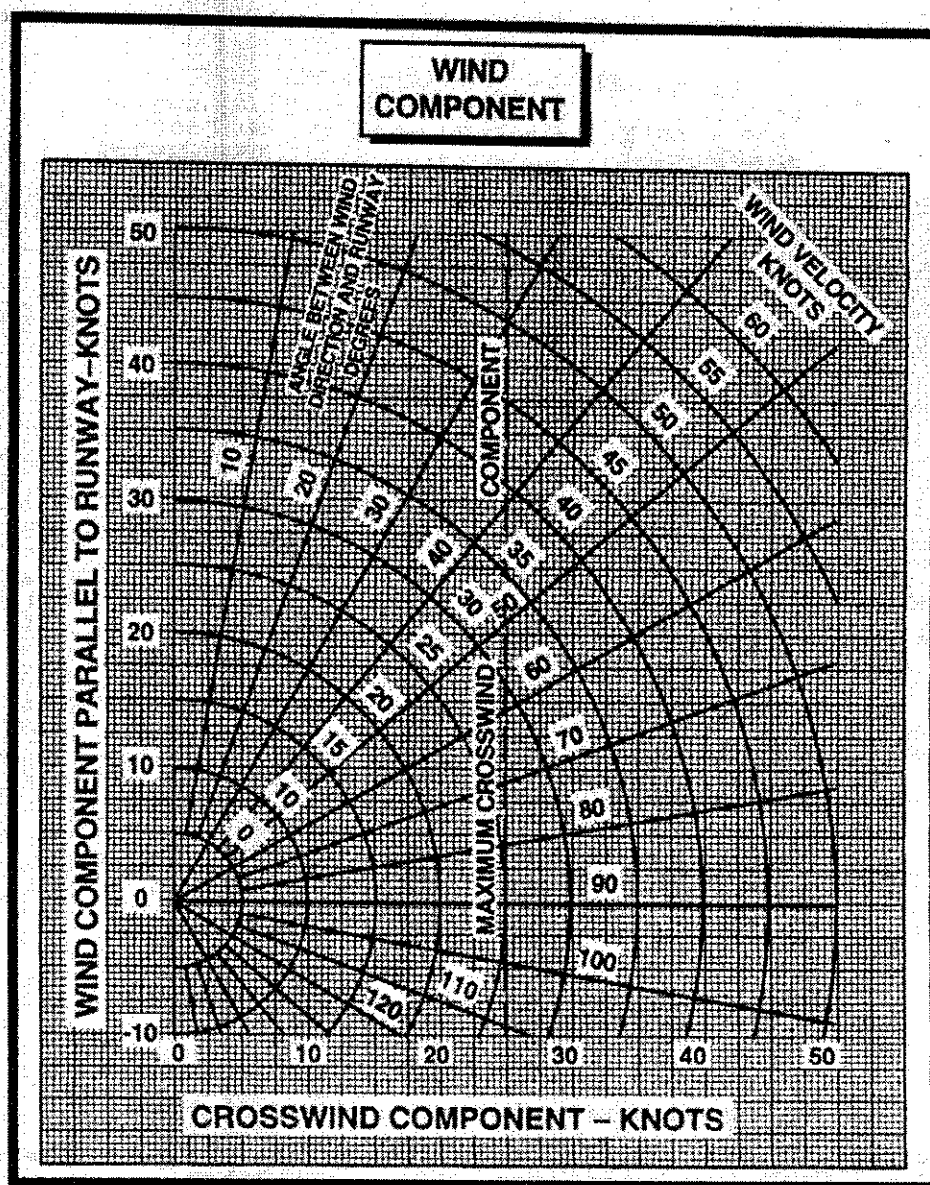


FIGURE 22.—Wind Component Chart.

RECOMMENDED CRUISE POWER

1550 RPM

ISA +10 °C

WEIGHT			16,000 POUNDS								14,000 POUNDS								12,000 POUNDS								10,000 POUNDS							
PRESSURE ALTITUDE	MOAT	°C	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	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	FT-LBS	LBS/HR	LBS/HR	KTS	KTS							
		30	25	3294	577	1154	232	239	3301	577	1154	235	241	3307	577	1154	237	243	3312	577	1154	238	245	3312	577	1154	238	245						
		26	21	3191	551	1102	227	240	3198	551	1102	230	243	3204	552	1104	232	245	3209	552	1104	233	247	3209	552	1104	233	247						
		22	17	3092	527	1054	222	242	3100	528	1056	224	244	3106	528	1056	227	247	3111	528	1056	228	249	3111	528	1056	228	249						
		19	13	2992	504	1008	216	243	3000	505	1010	219	246	3006	505	1010	222	249	3012	505	1010	224	251	3012	505	1010	224	251						
		15	9	2886	481	962	211	244	2896	482	964	214	247	2903	482	964	216	250	2909	482	964	219	253	2909	482	964	219	253						
		11	5	2778	458	916	205	244	2789	458	916	208	248	2797	459	918	211	252	2804	459	918	213	254	2804	459	918	213	254						
		7	1	2636	432	864	198	243	2648	433	866	202	248	2657	433	866	205	252	2664	434	868	207	255	2664	434	868	207	255						
		3	-3	2495	408	816	190	241	2508	409	818	195	247	2516	409	818	198	251	2525	409	818	201	255	2525	409	818	201	255						
		-1	-7	2352	384	768	182	239	2367	385	770	188	246	2378	385	770	192	251	2386	386	772	195	255	2386	386	772	195	255						
		-5	-11	2208	361	722	174	235	2226	362	724	180	243	2239	363	726	185	250	2248	363	726	188	254	2248	363	726	188	254						
		-10	-15	2063	338	676	164	229	2085	340	680	172	240	2100	341	682	177	248	2111	341	682	181	253	2111	341	682	181	253						
		-14	-19	1911	316	632	153	221	1939	317	634	163	235	1957	319	638	169	245	1969	319	638	174	252	1969	319	638	174	252						
		-19	-23	1749	292	584	137	206	1790	295	590	152	229	1812	297	594	161	241	1827	298	596	167	249	1827	298	596	167	249						
		-21	-25	1649	279	558	122	187	1714	284	568	147	224	1739	286	572	156	238	1756	287	574	163	248	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	°C	°F	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	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°C	°F	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	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	20	15	3400	596	1172	237	239	3400	585	1170	239	241	3400	585	1170	241	243	3400	585	1170	242	244	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	248	3400	572	1144	240	248
4000	13	7	3400	560	1120	232	248	3400	559	1118	234	250	3400	559	1118	236	252	3400	559	1118	237	254	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	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	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	3112	495	990	223	261
12,000	-3	-9	2929	468	932	208	251	2937	467	934	212	255	2945	467	934	214	258	2950	467	934	217	261	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	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	2633	415	830	203	261
18,000	-15	-21	2435	388	776	184	244	2449	389	778	189	251	2459	389	778	193	256	2467	390	780	196	260	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	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	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	1991	319	638	174	255
25,000	-30	-35	1848	303	606	145	216	1880	305	610	157	235	1901	307	614	165	246	1915	308	616	170	253	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	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	TORQUE PER ENG	FUEL FLOW PER ENG	TOTAL FUEL FLOW	IAS	TAS
FEET	°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	FT-LBS	LBS/HR	LBS/HR	KTS	KTS
SL	10	5	582	1164	238	237	3400	582	1164	240	239	3400	581	1162	242	240	3400	581	1162	243	242	3400	581	1162	243	242
2000	6	1	569	1138	236	241	3400	569	1138	238	243	3400	568	1136	240	245	3400	568	1136	241	246	3400	568	1136	241	246
4000	3	-3	558	1116	233	245	3400	558	1114	236	248	3400	557	1114	237	249	3400	557	1114	239	251	3400	557	1114	239	251
6000	-1	-7	548	1096	231	250	3400	548	1094	233	252	3400	547	1094	235	254	3400	546	1092	236	256	3400	546	1092	236	256
8000	-5	-11	538	1076	228	254	3400	538	1076	231	257	3400	538	1076	232	259	3400	537	1074	234	261	3400	537	1074	234	261
10,000	-9	-15	530	1060	226	259	3400	530	1060	228	262	3400	530	1060	230	264	3400	529	1058	232	266	3400	529	1058	232	266
12,000	-13	-19	499	998	218	268	3200	499	998	221	261	3215	500	1000	223	264	3220	501	1002	225	266	3220	501	1002	225	266
14,000	-17	-23	470	940	210	266	3010	470	942	213	260	3026	471	942	216	263	3032	472	944	218	266	3032	472	944	218	266
16,000	-21	-27	442	884	202	254	2833	442	884	205	258	2841	443	886	209	262	2848	443	886	211	265	2848	443	886	211	265
18,000	-25	-31	414	828	193	251	2652	415	830	198	256	2661	416	832	201	261	2668	416	832	204	264	2668	416	832	204	264
20,000	-29	-35	387	774	184	247	2471	388	776	189	254	2481	389	778	193	259	2489	390	780	196	263	2489	390	780	196	263
22,000	-33	-39	361	722	174	242	2296	363	726	181	250	2308	363	726	185	256	2318	364	728	189	261	2318	364	728	189	261
24,000	-37	-43	336	672	163	234	2128	338	676	172	246	2144	339	678	177	254	2155	340	680	181	260	2155	340	680	181	260
25,000	-40	-45	324	648	157	230	2044	326	652	167	243	2061	327	654	173	252	2073	328	656	177	258	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

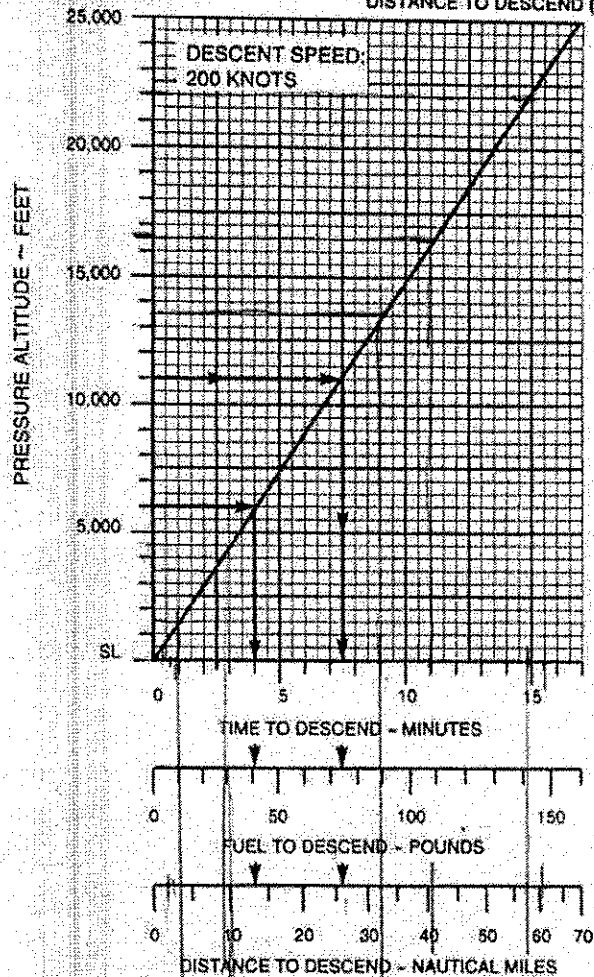


FIGURE 26.—Time, Fuel, and Distance to Descend.

VI-10-31

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

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

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

ASSOCIATED CONDITIONS:

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

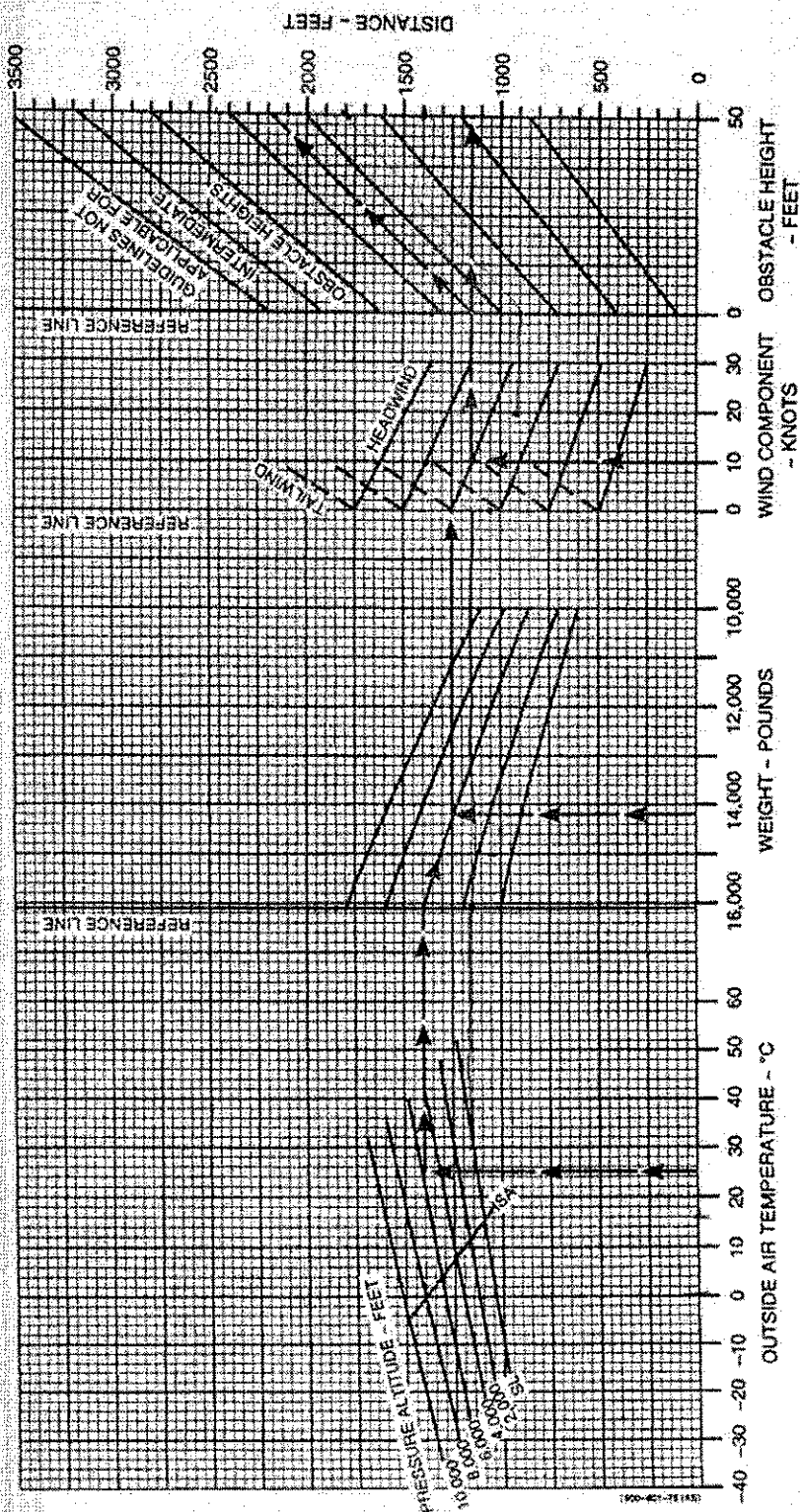


FIGURE 28.—Normal Landing Distance — Flaps Landing.

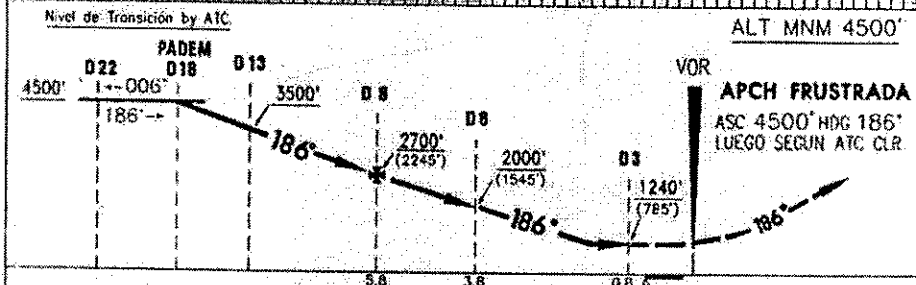
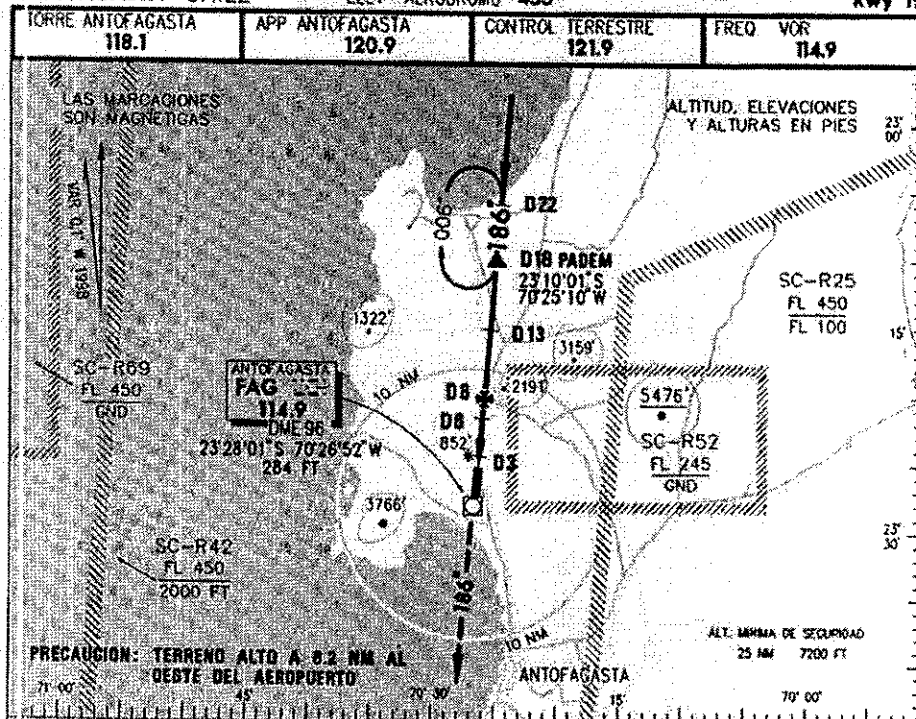
CERRO MORENO

ANTOFAGASTA - CHILE

ELEV. AERODROMO 455'

VOR/DME

Rwy 19



DCT Rwy 19				CIRCULANDO OESTE		ALTN	
MDA 1240'(785')							
A	1.6 Km	1240'	1.6 Km	(800')	3.2 Km		
B	2.0 Km	(785')	2.0 Km	(800')	4.0 Km		
C	3.6 Km	1300'	4.0 Km	(845')	4.0 Km		
D	4.0 Km	(845')	4.4 Km	(845')	4.4 Km		
Veloc. Terrestre Kts				70	90	100	120
MIN. SEC. (FAF to MAP) (5.0 NM)				4.17	3.20	5.00	2.30
SCFA				100	120	140	160
IAC 1				4.17	3.20	5.00	2.30
DGAC				4.17	3.20	5.00	2.30

CAMBIO: ROL APCH

AMBT 37

03 DICIEMBRE 1998

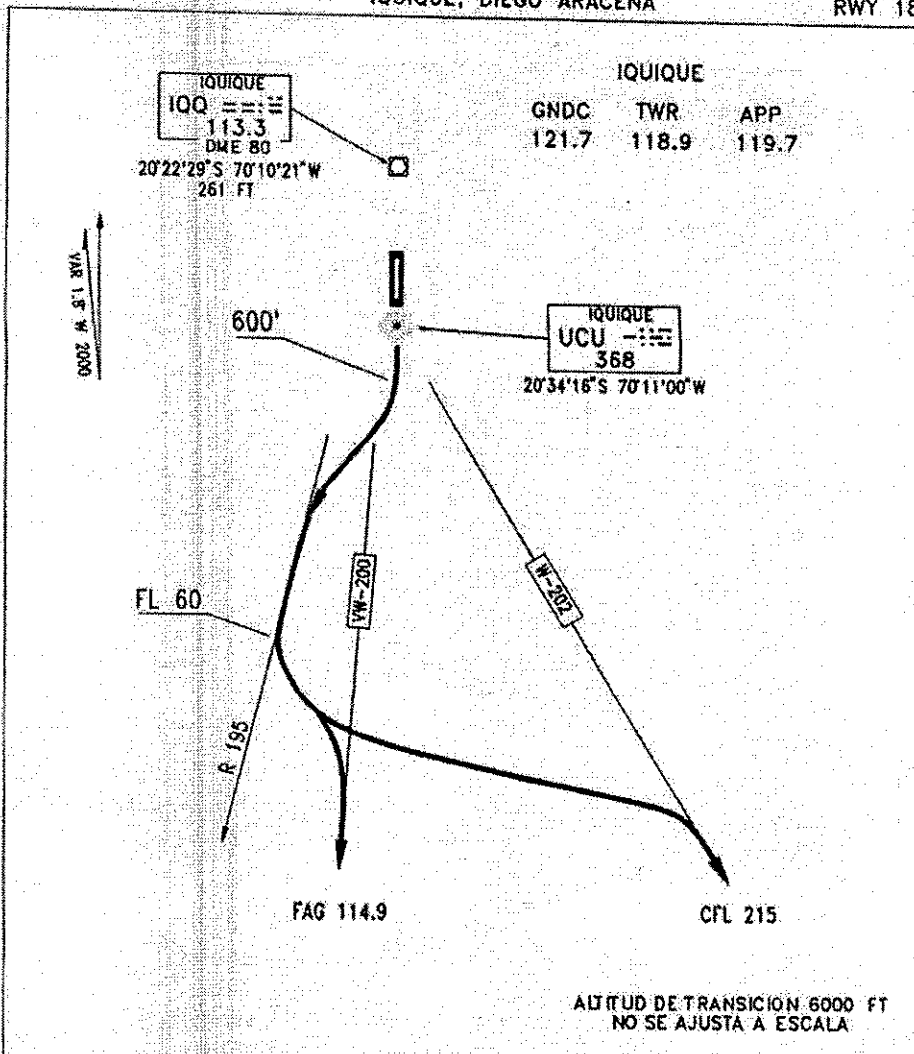
CERRO MORENO
VOR/DME Rwy 19
ANTOFAGASTA - CHILE

FIGURA 29

**CARTA DE SALIDA
NORMALIZADA-VUELO
POR INSTRUMENTOS**

IQUIQUE, DIEGO ARACENA

**PATIK 1
RWY 18**



SID - PATIK 1

DEP RWY 18: ASCENDER RWY HDG HASTA 600 FT, POSTERIOR VIRAJE DERECHA PARA INTERCEPTAR Y ASCENDER EN R 195 IQQ VOR/DME HASTA FL 60, LUEGO CONTINUAR SEGUN AUTORIZACION ATC.

SID 2

D G A C

18 MAYO 2000

CAMBIO: ← R175/VAR

AMDT 41

**DIEGO ARACENA
PATIK 1
IQUIQUE - CHILE**

FIGURA 30

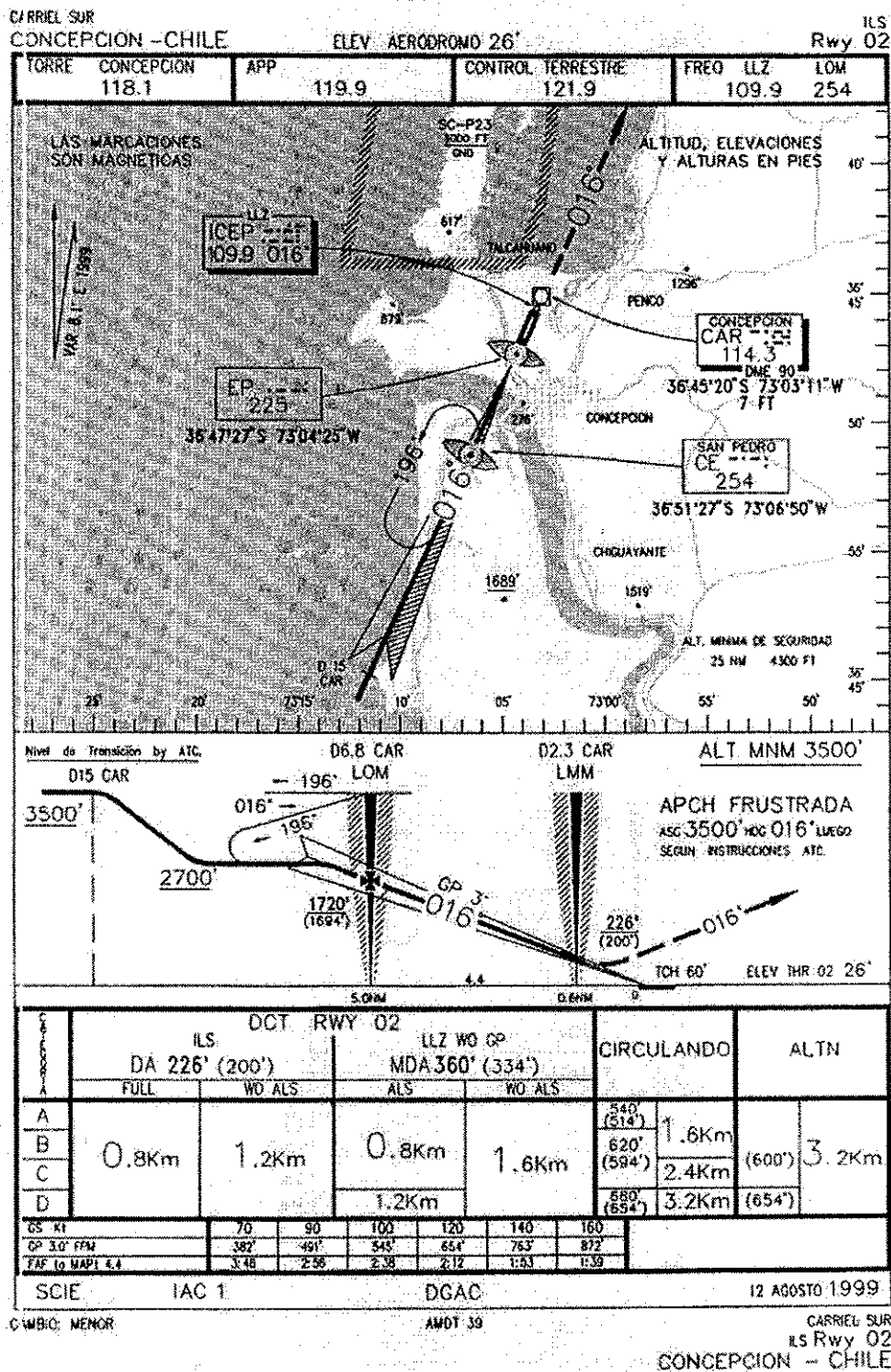
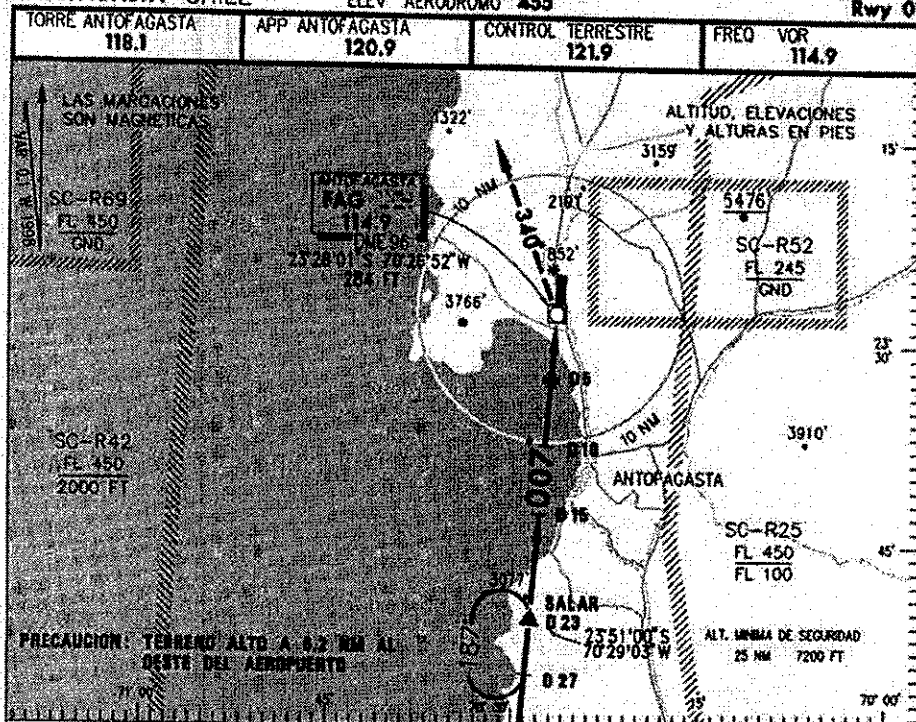


FIGURA 31

CERRO MORENO

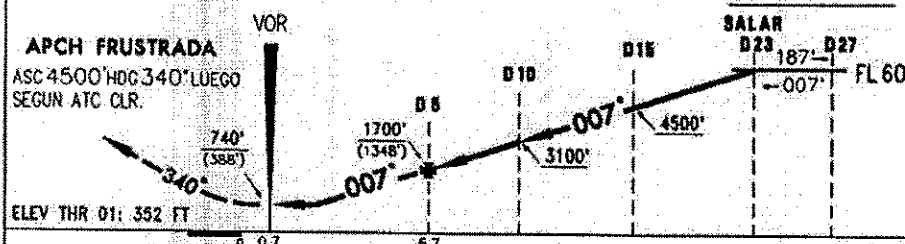
ANTOFAGASTA - CHILE

ELEV. AERODROMO 455'

VOR/DME
Rwy 01

Nivel de Transición by ATC

ALT MNM FL 60



C O O R D E N A D A	DCT RWY 01						CIRCULANDO OESTE		ALTN	
	MDA 740'(388')									
	1.6 Km						1120' (665')	1.6Km	(800')	3.2 Km
							1300' (845)	4.0Km	(845')	4.0 Km
								4.4Km		4.4 Km
A										
B										
C										
D										
Veloc. Terrestre Kts		70	90	100	120	140	160			
FAI to MAP 5.0		4:17	3:20	3:00	2:30	2:08	1:52			
SCFA		IAC 3		DGAC				03 DECEMBRE 1998		

SCFA

IAC 3

DGAC

03 DICIEMBRE 1998

CAMBIO: ROL APCH

AMDT 27

CERRO MORENO
VOR/DME Rwy 01
ANTOFAGASTA - CHILE

FIGURA 32

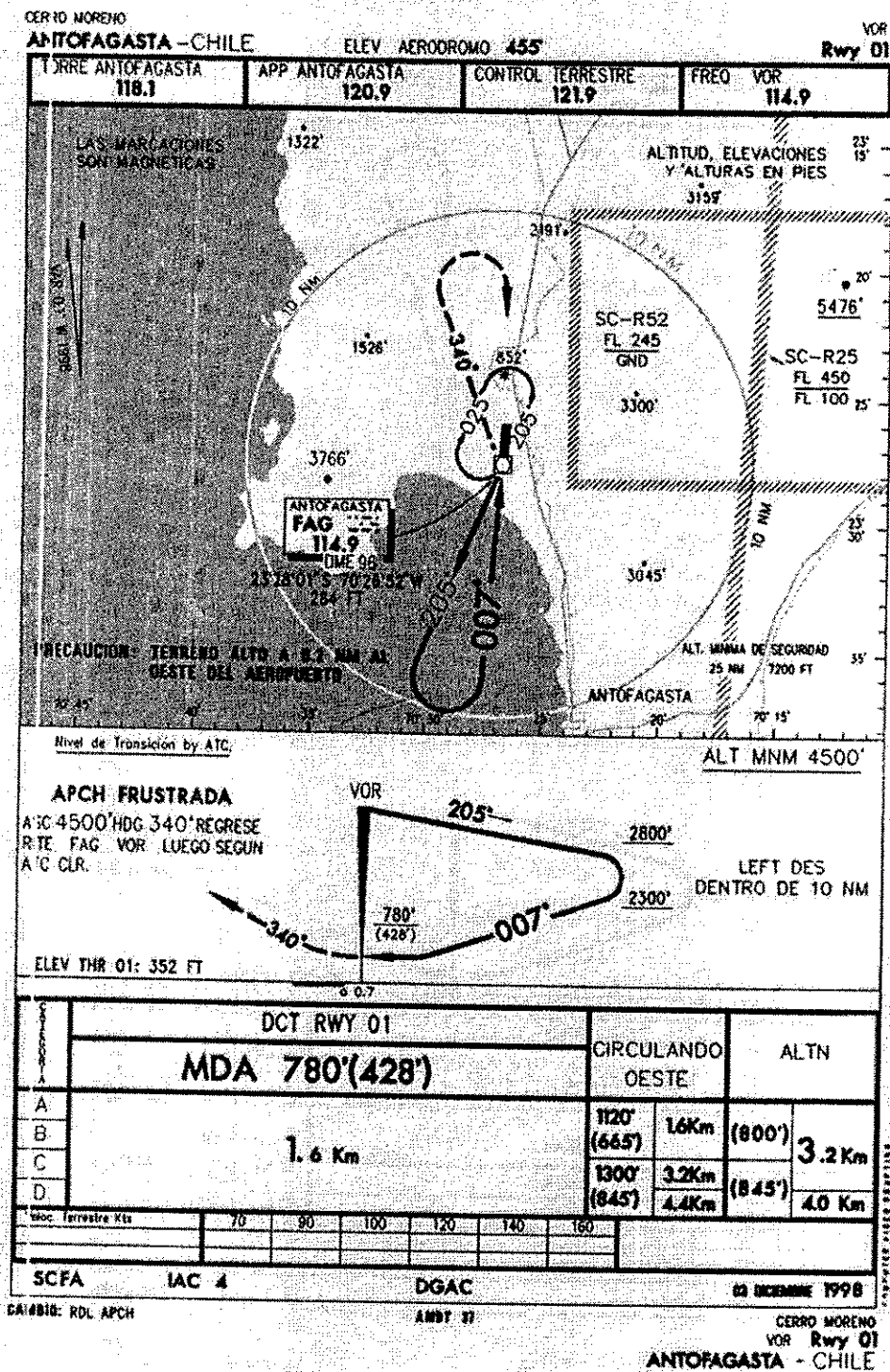


FIGURA 33

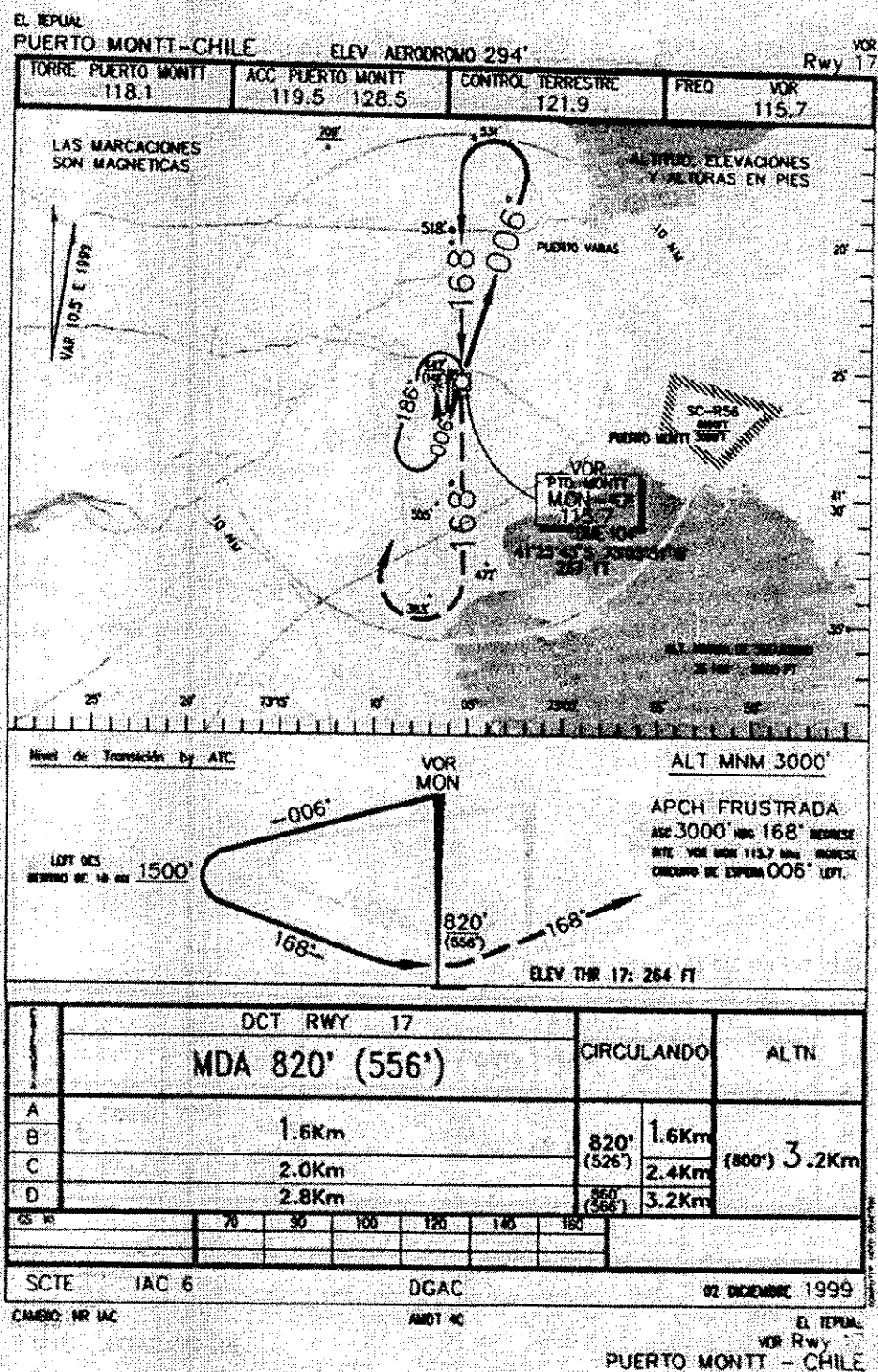


FIGURA 34

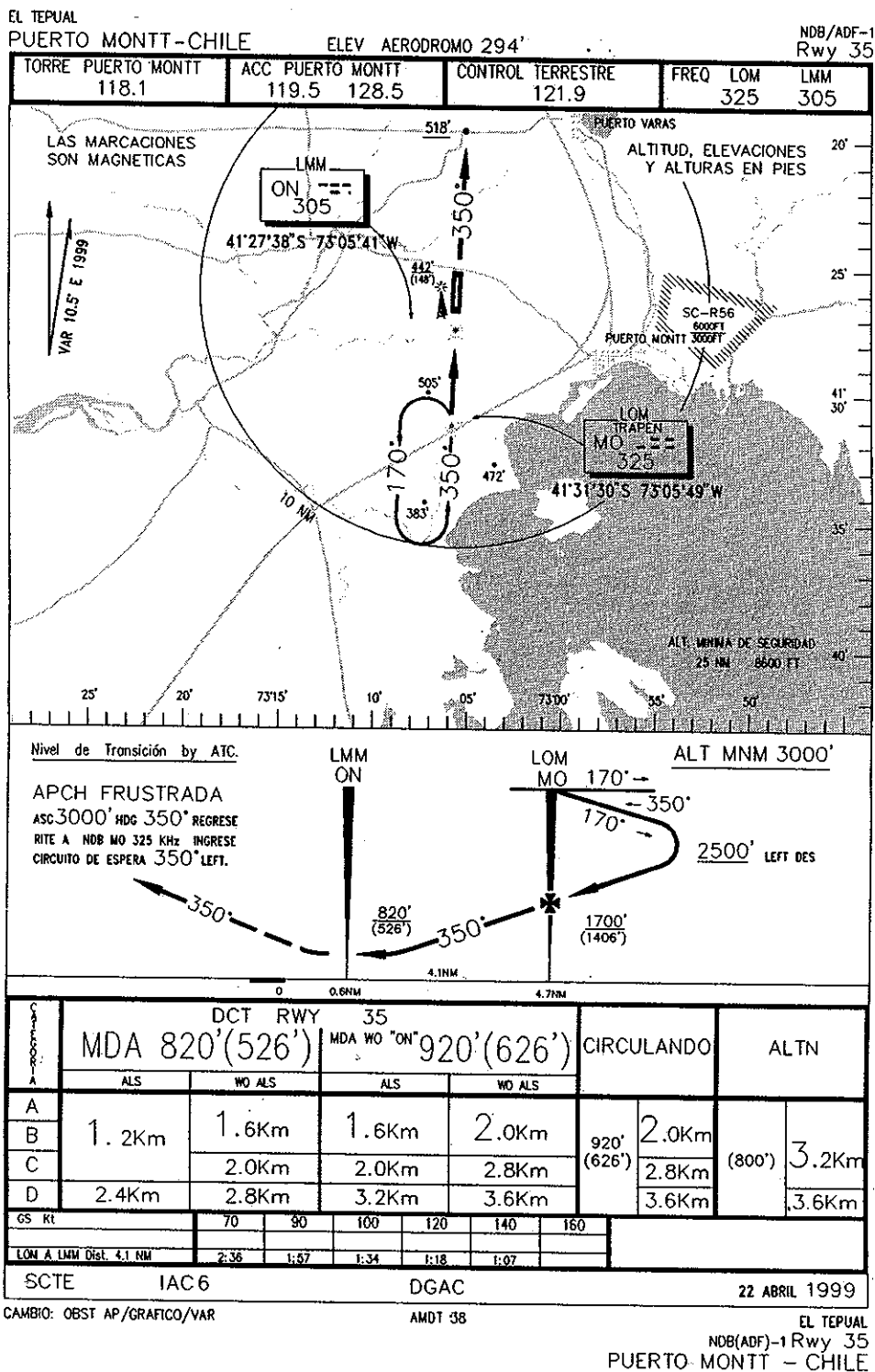


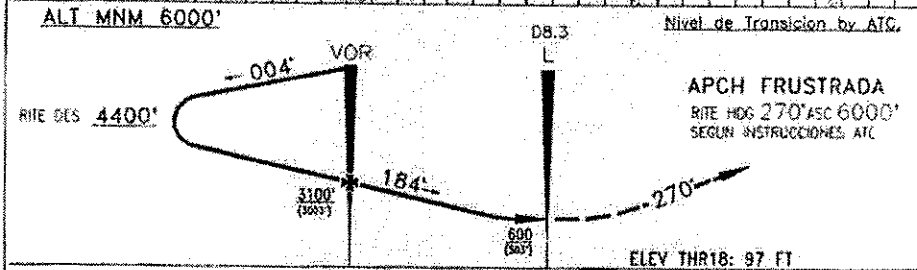
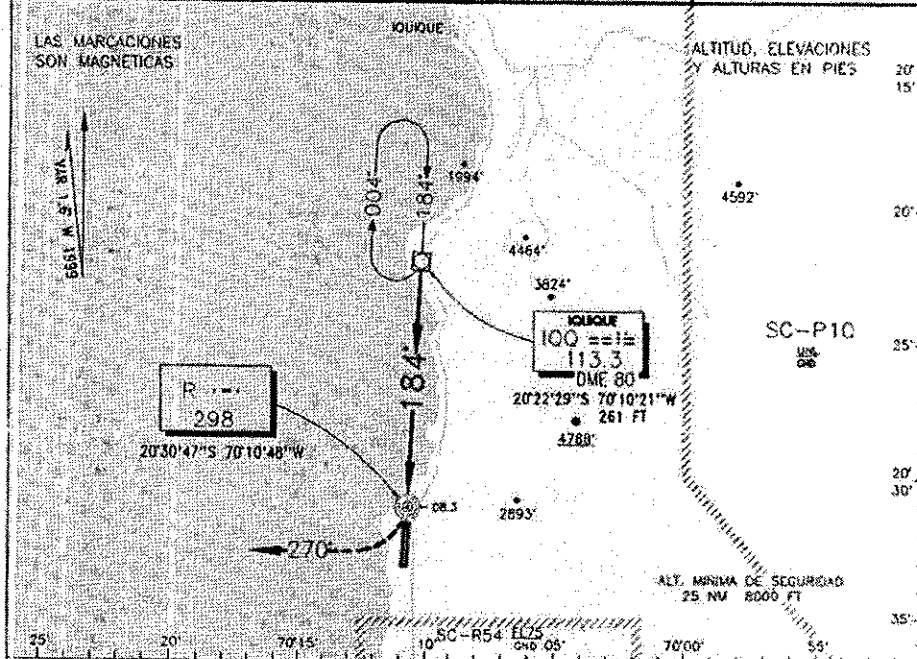
FIGURA 34 A

DIEGO ARACENA
IQUIQUE-CHILE

ELEV. AERODROMO 156'

VOR/NDB(ADF)
Rwy 18

TORRE IQUIQUE	APP	CONTROL TERRESTRE	FREQ	VOR	L
118.9	119.7	121.7	113.3	298	



3.7 0.4 0

CATEGORIA	DIRECTO RWY 18		CIRCULANDO OESTE	ALTN		
	MDA 600'(503')	MDA SIN L y DME 760'(663')				
A						
B	1.6 Km	1.6 Km	760'	1.6 Km		
C	2.0 Km	2.8 Km	(604')	(800') 3.2 Km		
D	2.4 Km	3.2 Km		3.2 Km		
Veloc. Terrestre Kts		90	120	150	180	210
Dist. FAF a MAP 8.25 NM		5.31	4.08	3.19	2.46	2.22

SCDA IAC 1 DGAC 22 ABRIL 1999

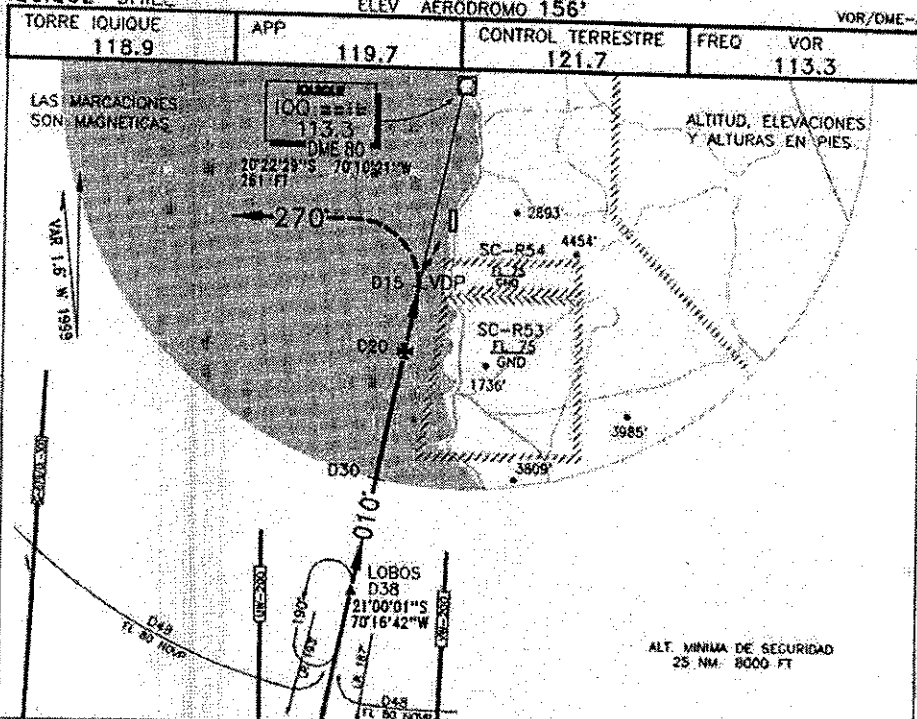
CAMBIO: GRAFICO/VAR AMDT 38 DIEGO ARACENA VOR/NDB(ADF) Rwy 18 IQUIQUE-CHILE

FIGURA 35

DIEGO ARACENA
IQUIQUE-CHILE

ELEV AFERODROMO 156'

VOR/DME-A



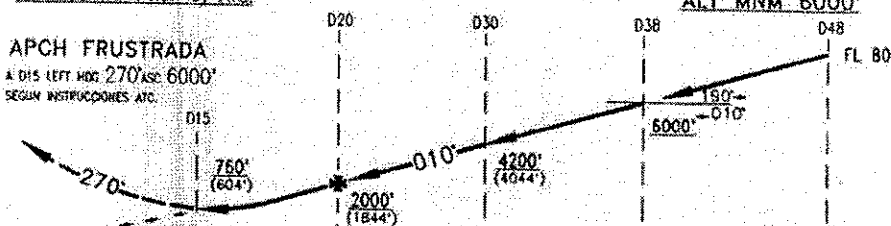
Nivel de Transición by ATC

ALT MNM 6000'

APCH FRUSTRADA

A D15 LEFT HDG 270° ALT 6000'

SEGUN INSTRUCCIONES ATC



C	T	I	P	T	I	O	R	D	M	D	A	C	I	R	C	U	L	A	N
A																			
B																			
C																			
D																			

Veloc: Terrestre Kts	90	120	150	180	210
DIST: FAF a MAP 5 NM	3.20	2.30	2.00	1.40	1.20

SCDA	IAC 2	DGAC	12 AGOSTO 1999
------	-------	------	----------------

CAMBIO: GRAFICO

AMDT 39

DIEGO ARACENA
VOR/DME-A
IQUIQUE-CHILE

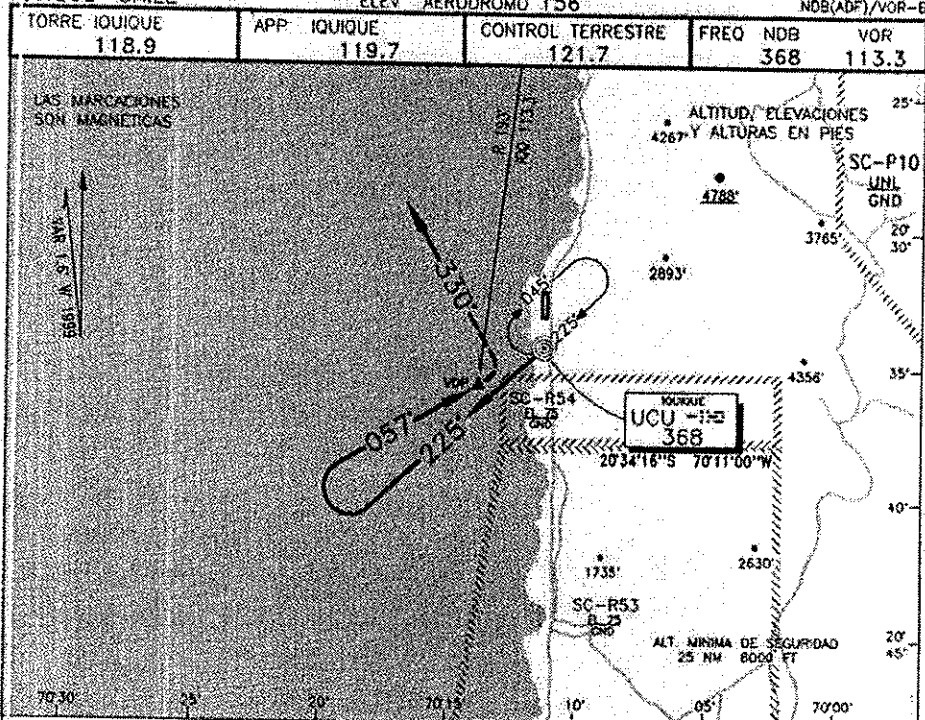
FIGURA 36

D EGO ARACENA

IQUIQUE-CHILE

ELEV AERODROMO 156'

NDB(ADF)/VOR-B

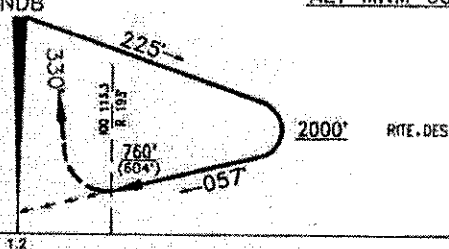


Nivel de transición by ATC.

NDB

ALT MNM 6000'

APCH FRUSTRADA
AL INTERCEPTAR "R" 19.3° VOR
100 113.3 MHz LEFT HDG 330°
ASC 6000' SEGUN INSTRUCCIONES ATC.



C		CIRCULANDO OESTE	ALTN
A			
B		760' (604')	1.6 Km (800') 3.2 Km
C			
D			
Veloc. Terrestre Kts		90	120
		150	180
		210	
SCDA		IAC 4	DGAC
CAMBIO: NR IAC		AMDT 39	12 AGOSTO 1999

CAMBIO: NR IAC

AMDT 39

DIEGO ARACENA

NDB(ADF)/VOR-B

IQUIQUE-CHILE

FIGURA 37

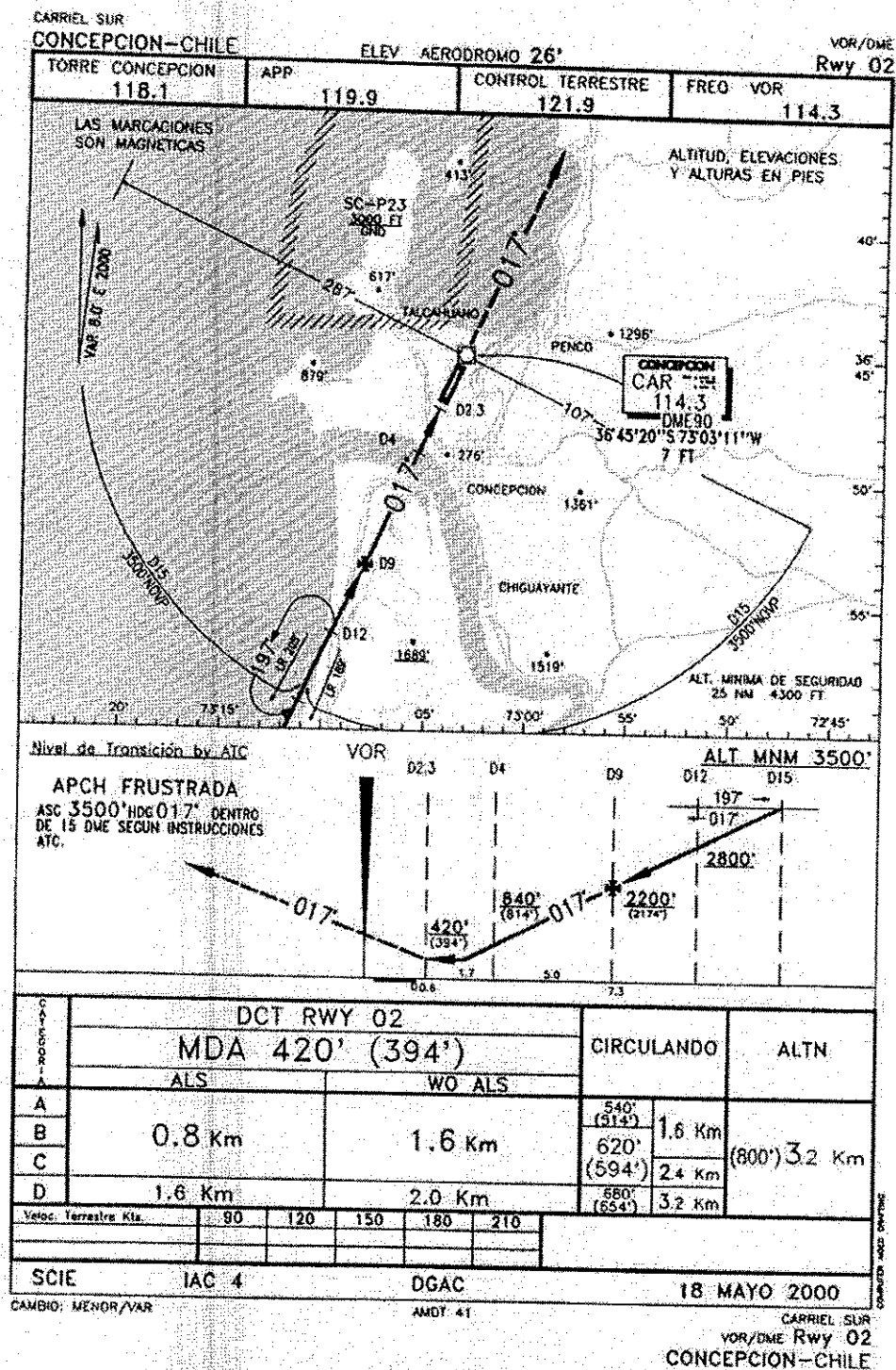


FIGURA 38

TAKE-OFF DISTANCE OVER 50 FOOT OBSTACLE

52° T/D -35°C

HOVER POWER + 10% TORQUE

ENGINE RPM 100%

GENERATOR 400 AMPS

INITIATED FROM 5 FT. SKID HEIGHT

VTOCS = 50 KIAS

HEATER ON OR OFF

ENGINE AND ENGINE INLET ANTI-ICE OFF

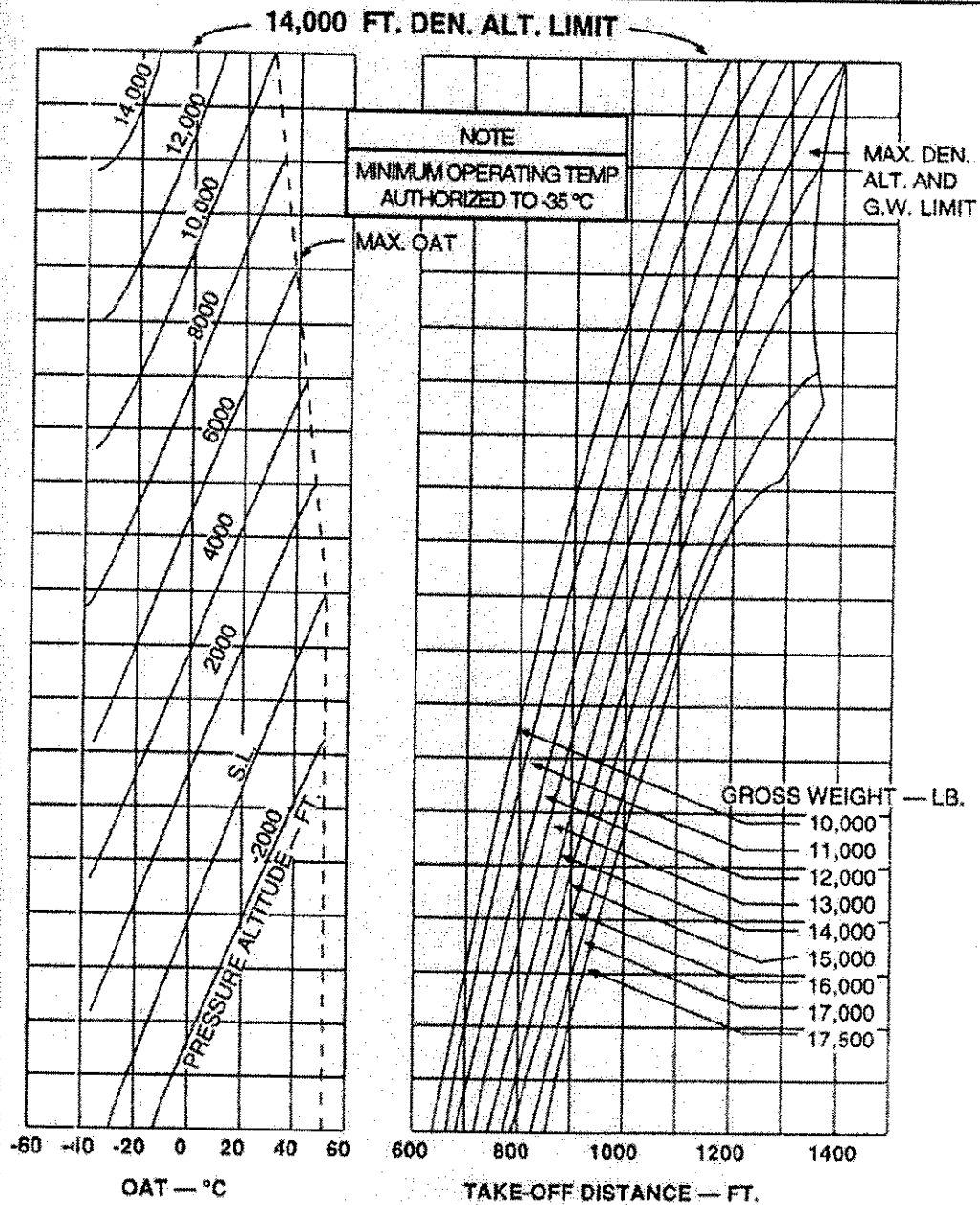


FIGURE 39.—Takeoff Distance Over 50-Foot Obstacle.

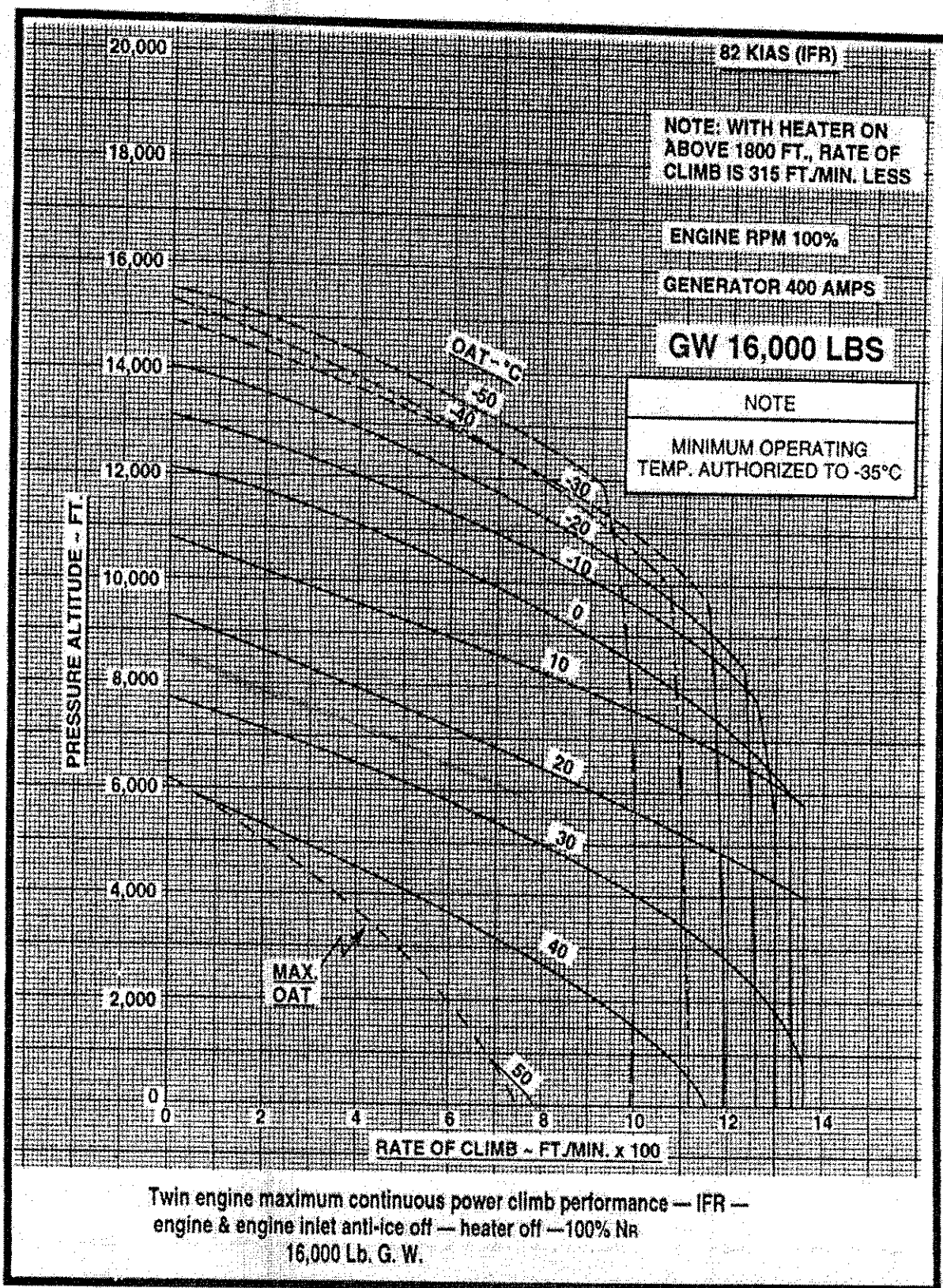


FIGURE 40.—Twin-Engine Climb Performance.

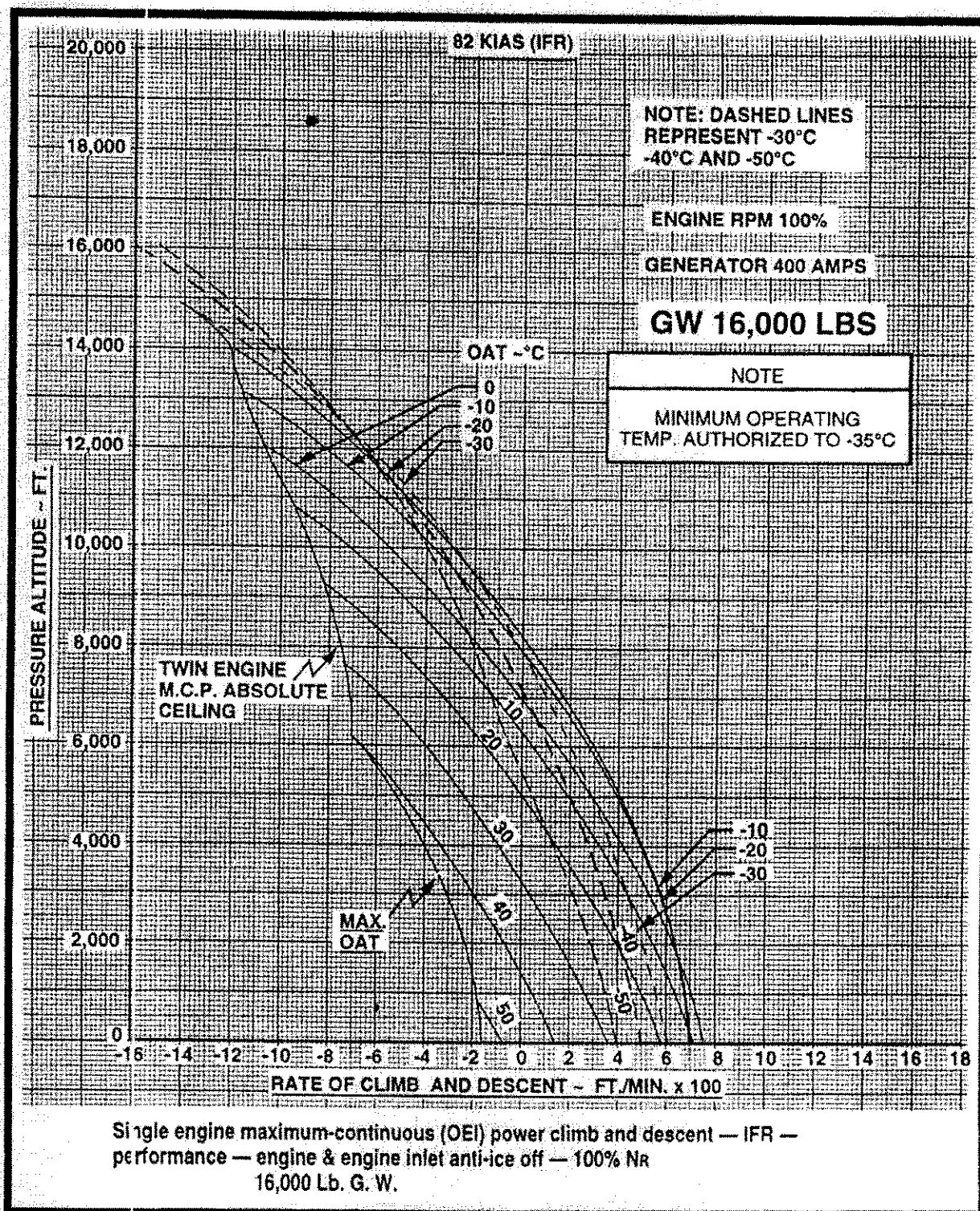


FIGURE 41.—Single-Engine Climb Performance.

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	88	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	96	92	88	
-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	123	-	-	-	-	-	-	-	-	-	-	
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	138	131	126	121	116	112	104	94	84	-	
-25	132	127	122	117	113	108	104	100	96	88	78	
-35	122	117	113	108	104	100	96	92	88	84	81	

17500 LB		AIRSPEED LIMY (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.

SINGLE ENGINE LANDING DISTANCE OVER 50 FT. OBSTACLE

2.5 MIN. OEI POWER AS REQUIRED
ENGINE RPM 100%
GENERATOR 400 AMPS
INOPERATIVE ENGINE SECURED

52° TO -35 C
HEATER OFF

RATE OF DESCENT 500 FT/MIN
HARD SURFACED RUNWAY
45 KIAS AT 50 FEET
ENGINE AND ENGINE INLET ANTI-ICE OFF

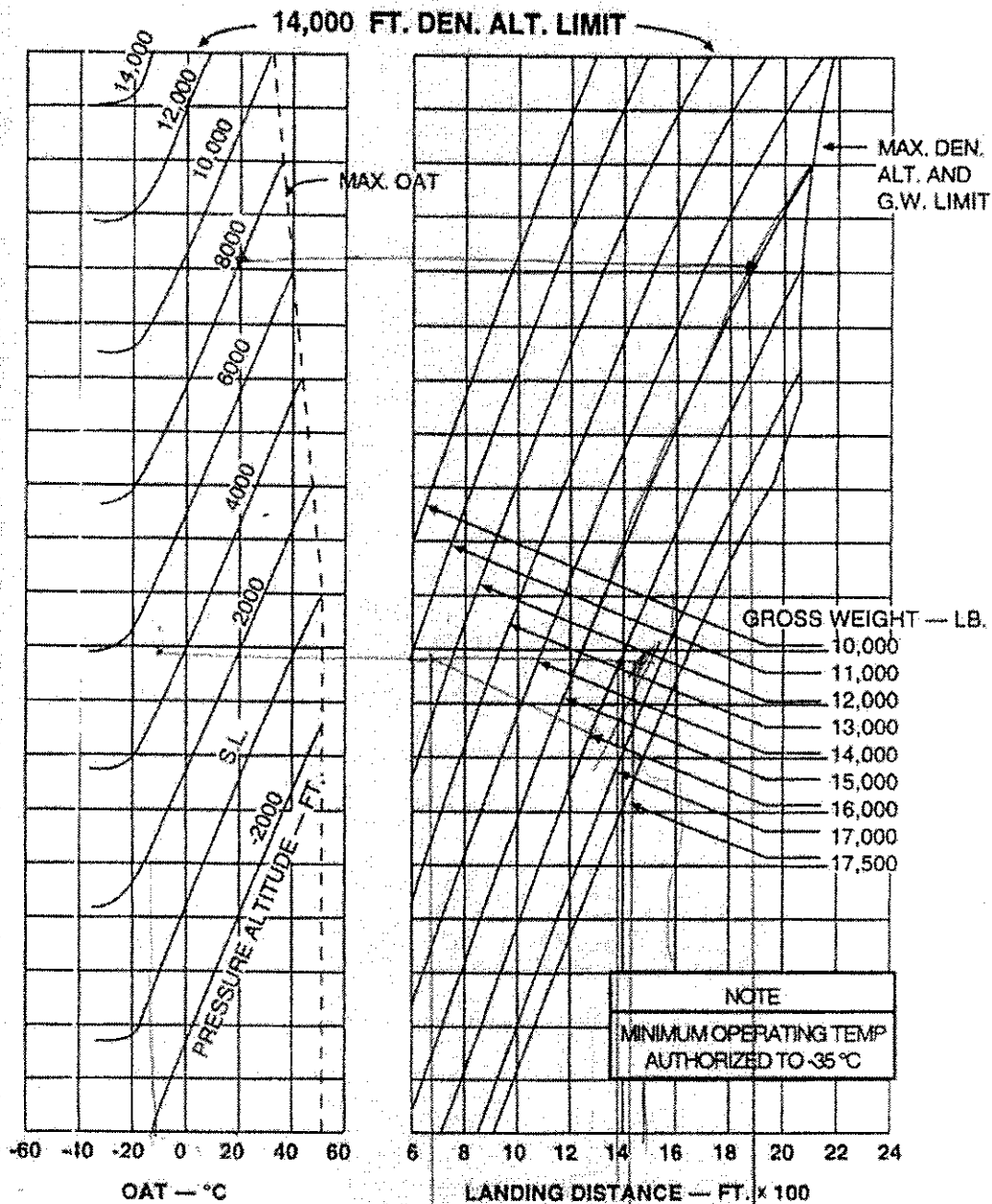


FIGURE 43.—Single-Engine Landing Distance Over 50-Foot Obstacle.

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 <u>CG % MAC = STAB TRIM SETTING</u>					

FIGURE 45.—DC-9 - Takeoff.

**ALTIMETER SETTING
TO
STATION PRESSURE**

**QFE
STATION
PRESSURE**
MSL 1000 FT



QNH TO PRESSURE ALTITUDE

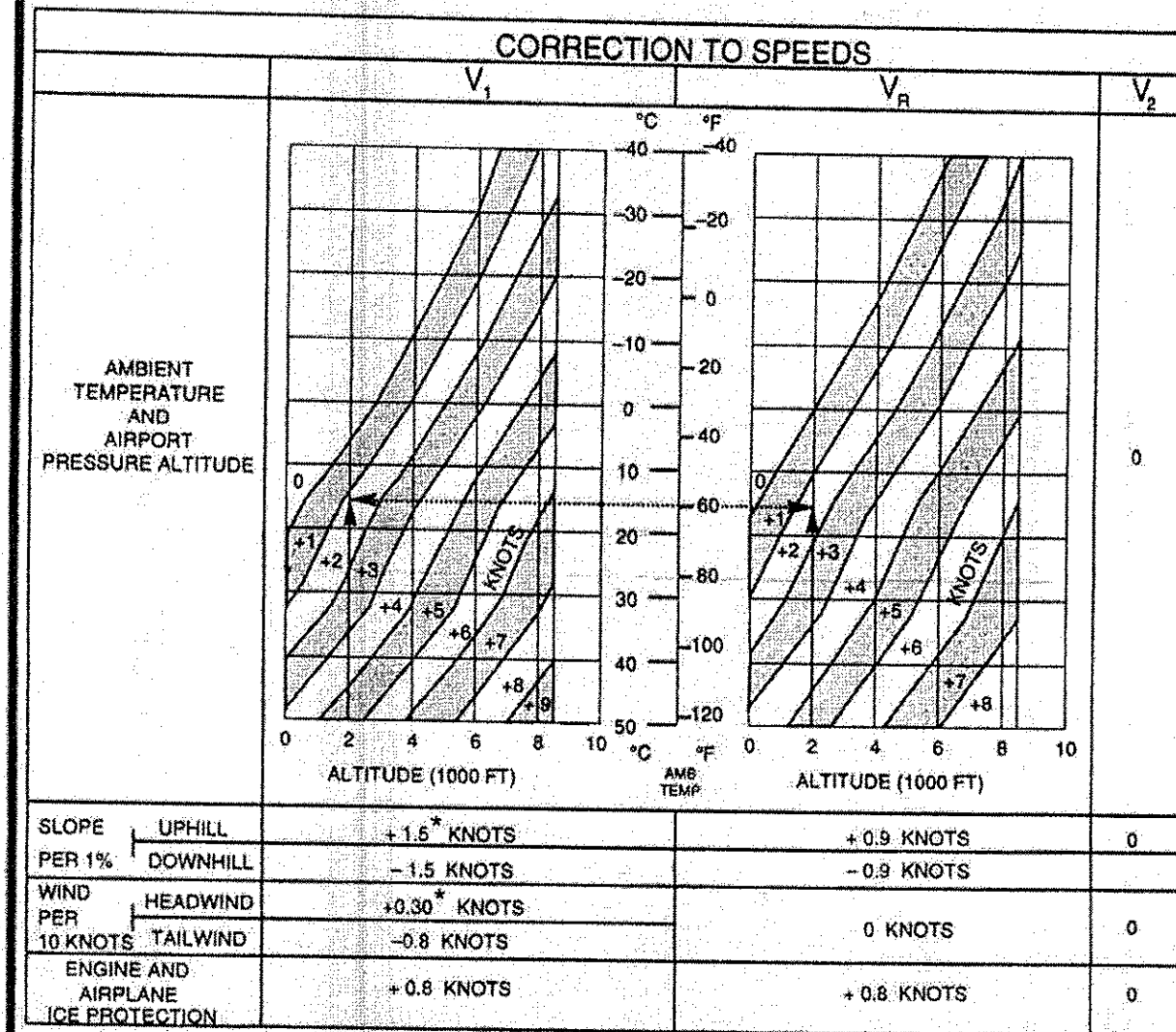
QNH IN. HG.		CORRECTION TO ELEVATION FOR PRESS. ALT FT		QNH MILLIBARS
28.81	to 28.81	1000	976	to 979
28.91	to 29.02	900	979	to 983
29.02	to 29.12	800	983	to 986
29.12	to 29.23	700	986	to 990
29.23	to 29.34	600	990	to 994
29.34	to 29.44	500	994	to 997
29.44	to 29.55	400	997	to 1001
29.55	to 29.66	300	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



* 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				INITIAL WEIGHT = 90000. POUNDS			
PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.	PRES. ALT. FEET	TIME MIN.	FUEL BURNED LB.	DIST. N. MI.
0.	0.	0.	0.	0.	0.	0.	0.
2000.	0.5	133.	2.8	2000.	0.6	140.	3.0
4000.	1.1	267.	5.9	4000.	1.1	282.	6.3
6000.	1.7	403.	9.3	6000.	1.8	426.	9.8
8000.	2.3	541.	13.0	8000.	2.5	573.	13.8
10000.	3.0	684.	17.2	10000.	3.2	724.	18.2
12000.	3.8	830.	21.3	12000.	4.0	879.	23.1
14000.	4.6	982.	27.0	14000.	4.8	1041.	28.6
16000.	5.5	1141.	32.9	16000.	5.8	1211.	34.9
18000.	6.4	1309.	39.6	18000.	6.9	1390.	42.1
20000.	7.6	1489.	47.4	20000.	8.0	1583.	50.4
22000.	8.8	1684.	56.6	22000.	9.4	1793.	60.3
23500.	9.9	1845.	64.7	23500.	10.6	1968.	69.1
23500.	9.9	1845.	64.7	23500.	10.6	1968.	69.1
24000.	10.2	1886.	66.8	24000.	10.9	2013.	71.5
26000.	11.4	2052.	75.9	26000.	12.3	2196.	81.5
28000.	12.8	2225.	85.8	28000.	13.8	2389.	92.6
30000.	14.3	2410.	97.1	30000.	15.5	2598.	105.4
32000.	16.2	2613.	110.3	32000.	17.6	2833.	120.6
34000.	18.4	2844.	126.3	34000.	20.3	3110.	139.8
36000.	21.4	3136.	147.8	36000.	24.3	3494.	168.0
INITIAL WEIGHT = 88000. POUNDS				INITIAL WEIGHT = 92000. POUNDS			
0.	0.	0.	0.	0.	0.	0.	0.
2000.	0.5	136.	2.9	2000.	0.6	144.	3.1
4000.	1.1	274.	6.1	4000.	1.2	290.	6.4
6000.	1.7	414.	9.6	6000.	1.8	438.	10.1
8000.	2.4	557.	13.4	8000.	2.5	589.	14.2
10000.	3.1	703.	17.7	10000.	3.3	744.	18.7
12000.	3.9	855.	22.5	12000.	4.1	905.	23.8
14000.	4.7	1012.	27.8	14000.	5.0	1072.	29.5
16000.	5.6	1176.	33.9	16000.	6.0	1247.	36.0
18000.	6.6	1349.	40.8	18000.	7.1	1432.	43.4
20000.	7.8	1535.	48.9	20000.	8.3	1631.	52.0
22000.	9.1	1738.	58.4	22000.	9.7	1850.	62.3
23500.	10.3	1908.	66.9	23500.	11.0	2032.	71.5
23500.	10.3	1908.	66.9	23500.	11.0	2032.	71.5
24000.	10.6	1949.	69.1	24000.	11.3	2079.	73.9
26000.	11.9	2123.	78.6	26000.	12.7	2272.	84.4
28000.	13.3	2308.	89.1	28000.	14.3	2476.	96.2
30000.	14.9	2502.	101.2	30000.	16.2	2693.	109.8
32000.	16.9	2720.	115.3	32000.	18.4	2951.	126.2
34000.	19.3	2973.	132.8	34000.	21.4	3258.	147.4
36000.	22.7	3304.	157.2	36000.	25.1	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.	108.2

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.	4.8
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	1853.	66.5
26860.	10.9	1853.	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:	:06	:17	:19	:20	:22	:23	:25	:28	:28	:29	:30	:32	:33
FUEL	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700
TAS	215	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 825.0, MAC 134.0					

FIGURE 53.—B-737 - Takeoff.

**ALTIMETER SETTING
TO
STATION PRESSURE**

**QFE
STATION
PRESSURE**
MSL 1000 FT



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	800	979 to 983
29.02 to 29.12	600	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 = 2600 FT
QNH = 29.48 IN. HG
CORRECTION = 400 FT
PRESS ALT = 2900 FT

FIGURE 54.—Altimeter Setting to Pressure Altitude.

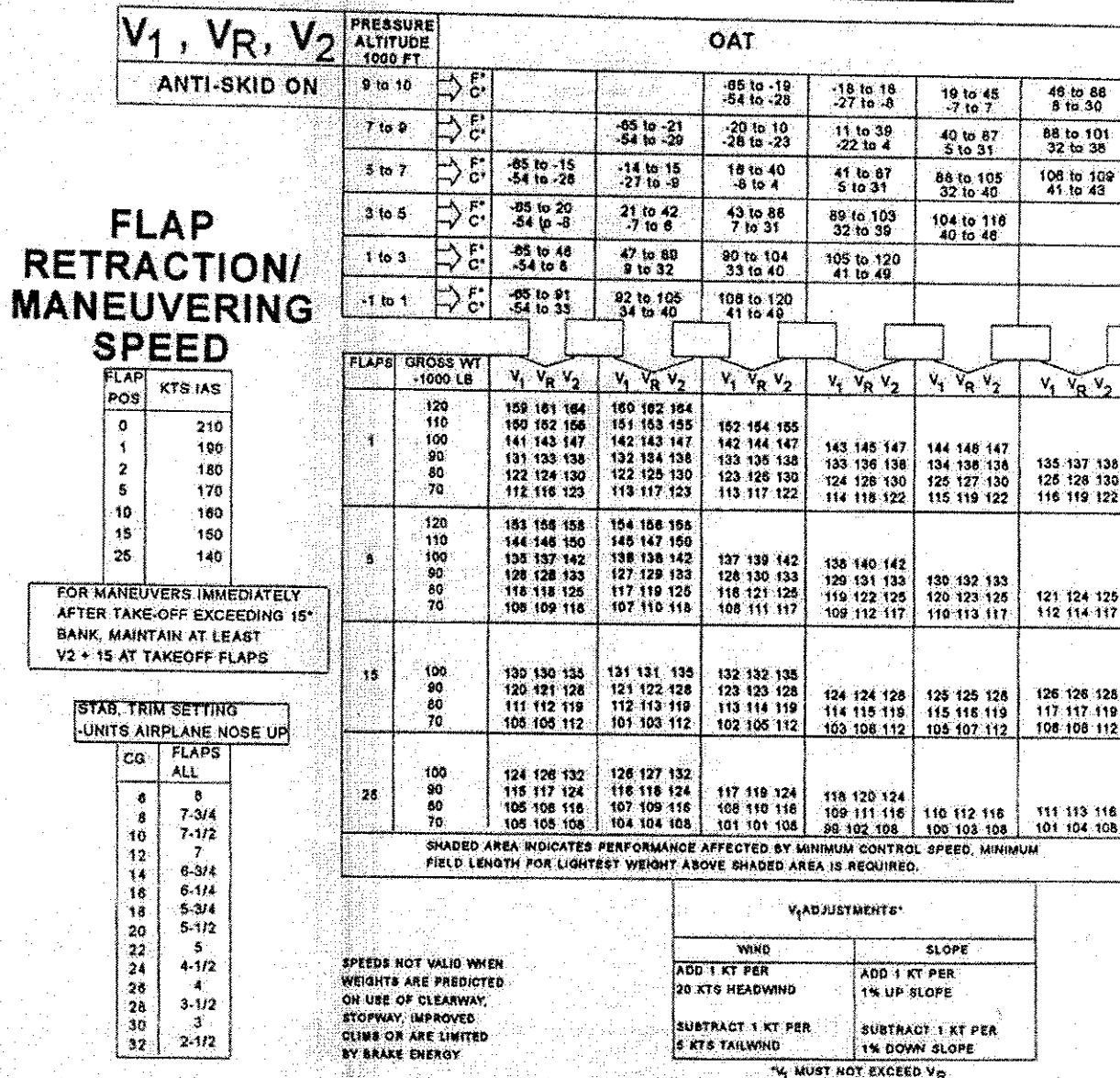
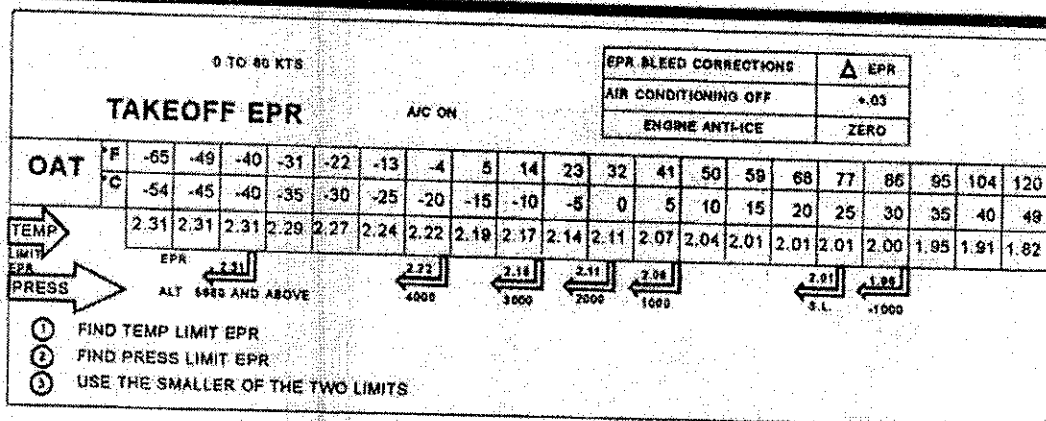


FIGURE 55.—B-737 — Takeoff Performance.

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 MM/LB MM/KNOTS	BRAKE RELEASE WEIGHT - LB										
		120000	115000	110000	105000	100000	95000	90000	85000	80000	75000	65000
37000	TIME/FUEL DIST./TAI		41/5700 251/387	32/4700 182/384	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./TAI	41/5900 249/386	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./TAI	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./TAI	29/4700 171/379	26/4300 150/377	23/3900 134/376	21/3500 120/375	19/3200 108/374	18/3000 98/373	16/2700 90/372	15/2500 82/372	14/2300 75/371	12/2100 69/371	10/1800 57/370
33000	TIME/FUEL DIST./TAI	27/4400 153/375	24/4000 137/375	22/3700 123/374	20/3400 112/373	18/3100 100/372	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./TAI	25/4200 139/374	23/3900 126/372	21/3600 114/371	19/3300 104/370	17/3000 95/369	16/2800 87/368	15/2600 80/368	14/2400 74/368	12/2200 67/367	11/2000 62/367	10/1700 51/366
31000	TIME/FUEL DIST./TAI	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./TAI	22/3900 119/368	20/3600 109/367	18/3300 100/366	17/3100 92/365	16/2900 84/365	15/2700 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./TAI	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./TAI	19/3600 103/362	18/3300 95/361	17/3100 88/360	16/2900 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./TAI	19/3400 98/358	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./TAI	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	9/1800 48/351	8/1700 44/351	7/1400 37/351
25000	TIME/FUEL DIST./TAI	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./TAI	15/3000 75/348	14/2800 69/348	13/2600 65/348	12/2400 60/348	11/2200 56/348	11/2100 52/348	10/2000 48/348	9/1800 45/348	8/1700 41/348	7/1600 38/348	6/1300 32/347
23000	TIME/FUEL DIST./TAI	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	8/1800 41/341	7/1600 38/341	6/1500 35/341	5/1300 30/341
22000	TIME/FUEL DIST./TAI	14/2700 63/339	13/2500 59/339	12/2400 56/338	11/2200 51/338	10/2100 48/338	10/1900 45/338	9/1800 41/338	8/1700 38/338	7/1600 35/338	6/1500 32/338	5/1200 28/337
21000	TIME/FUEL DIST./TAI											
20000	TIME/FUEL DIST./TAI											
19000	TIME/FUEL DIST./TAI											
18000	TIME/FUEL DIST./TAI											
17000	TIME/FUEL DIST./TAI											
16000	TIME/FUEL DIST./TAI											
15000	TIME/FUEL DIST./TAI											
14000	TIME/FUEL DIST./TAI											
13000	TIME/FUEL DIST./TAI											
12000	TIME/FUEL DIST./TAI											
11000	TIME/FUEL DIST./TAI											
10000	TIME/FUEL DIST./TAI											
9000	TIME/FUEL DIST./TAI											
8000	TIME/FUEL DIST./TAI											
7000	TIME/FUEL DIST./TAI											
6000	TIME/FUEL DIST./TAI	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 DIST./TAI	2/600	2/600	2/500	2/500	2/600	2/400	2/400	2/400	1/400	1/300	1/300
FUEL ADJUSTMENT FOR HIGH ELEVATION AIRPORTS		AIRPORT ELEVATION										
EFFECT ON TIME AND DISTANCE IS NEGLIGIBLE		FUEL ADJUSTMENT										
		2000	4000	6000	8000	10000	12000					
		-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 MM/LS 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 133/388	20/3000 119/385	18/2700 107/384	16/2500 96/384	13/2100 78/382
36000	TIME/FUEL DIST./TAS		43/5800 285/394	35/5000 211/391	30/4400 179/389	26/3900 158/387	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	31/4800 186/388	27/4100 162/386	24/3700 143/385	22/3400 128/384	20/3100 115/383	18/2800 104/382	16/2600 94/381	15/2400 85/380	12/2000 70/378
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	30/4800 174/385	26/4100 154/383	24/3800 138/382	22/3400 120/381	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 98/377	16/2600 89/376	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 137/378	22/3700 124/375	20/3400 113/374	19/3100 103/374	17/2900 94/373	16/2800 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 76/369	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 109/368	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 93/368	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 52/358	9/1500 44/359
25000	TIME/FUEL DIST./TAS	19/3400 101/358	18/3200 93/358	17/3000 85/357	16/2800 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	15/2700 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
8000	TIME/FUEL DIST./TAS	5/1100 10/301	4/1000 10/301	4/900 9/301	4/800 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												
EFFECT ON TIME AND DISTANCE IS NEGLIGIBLE						AIRPORT ELEVATION	2000	4000	6000	8000	10000	12000
						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 TC 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 30000	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	1.68	
	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														
		5680 AND ABOVE	4000	3000	2000	1000	S.L.														
		<div>TEMP LIMIT EPR</div> <div>PRESS</div>																			
		<div>① FIND TEMP LIMIT EPR</div> <div>② FIND PRESS LIMIT EPR</div> <div>③ USE THE SMALLER OF THE TWO LIMITS</div>																			
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	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 TO 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		△ EPR																			
ENGINE ANTI-ICE		-.08																			
WING ANTI-ICE		2 ENG -.04																			
		1 ENG -.06																			
AIR COND-BLEED CORRECTIONS		△ EPR																			
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.

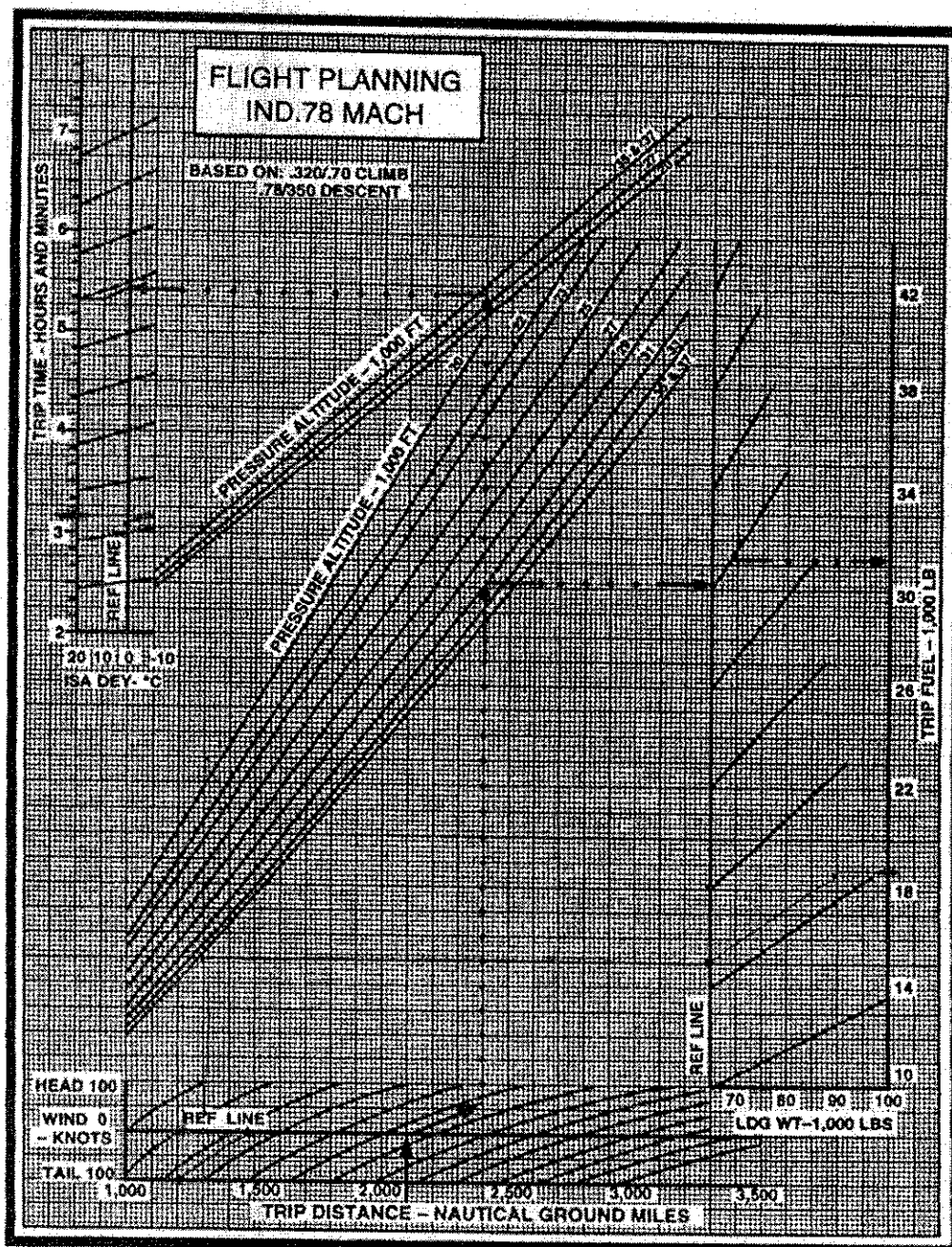


FIGURE 62.—B-737 - Flight Planning .78 Mach Indicated.

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					ISA TAT -°C	% N ₁ ADJUSTMENT PER 10 °C VARIATION FROM TABLE TAT COLDER - WARMER +
		70	80	90	100	110		
		APPROXIMATE POWER SETTING -°N ₁ RPM						
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.

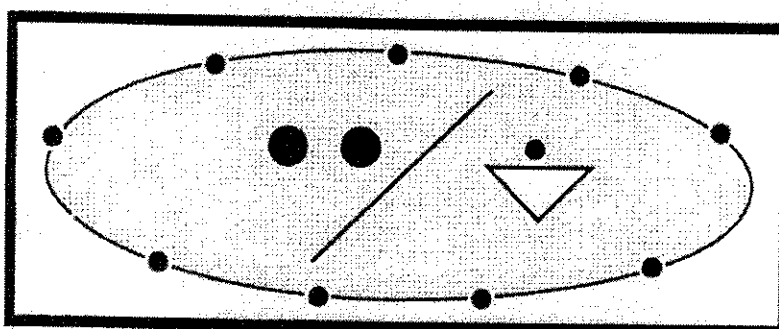


FIGURE 65.—Symbol Used on U.S. Low Level Significant Weather Prog Chart.

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	4800
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 (K1000)	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.

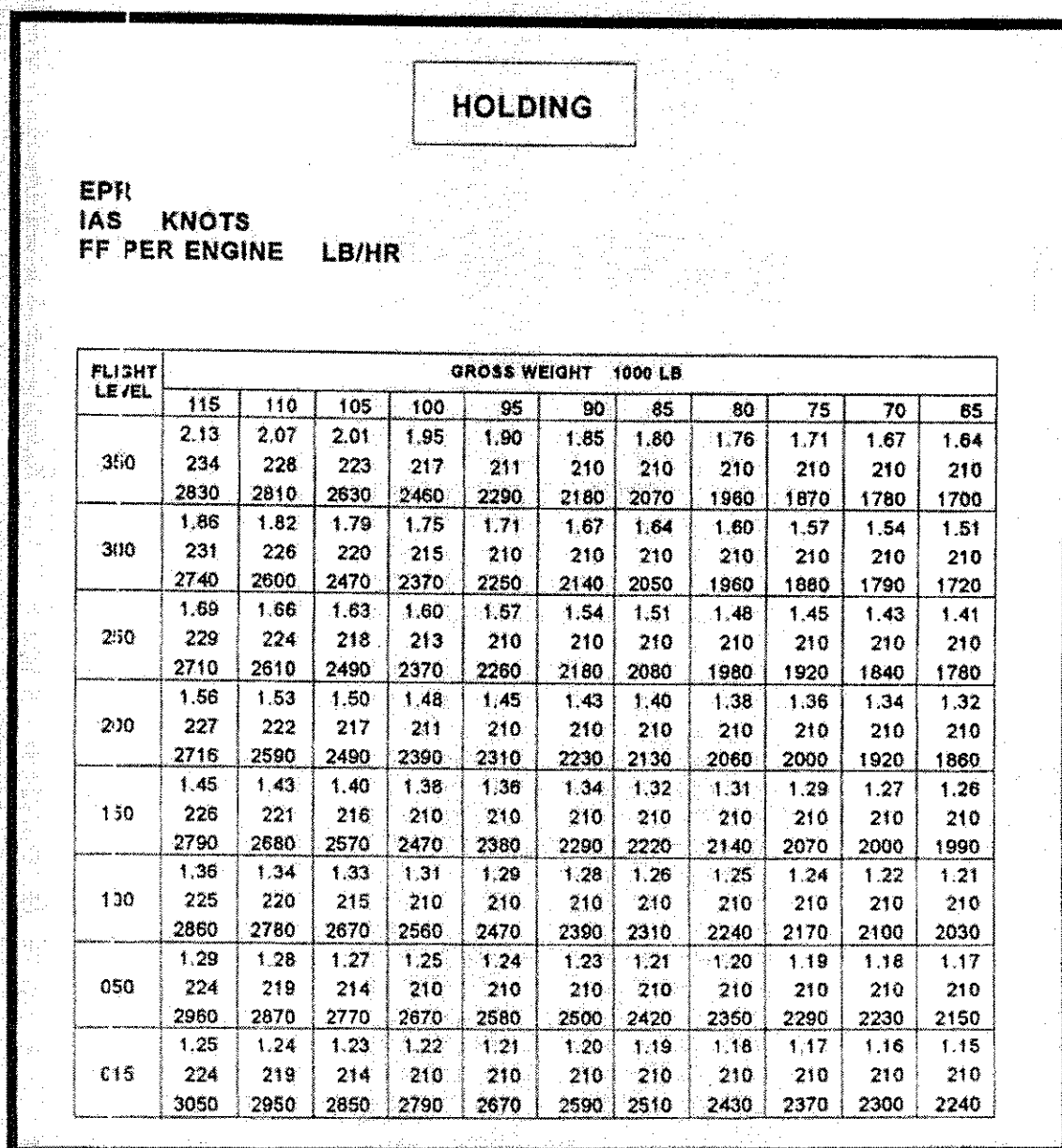


FIGURE 69.—B-737 — Holding Performance Chart.

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

FIGURE 70.—Fuel Dump Time.

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.

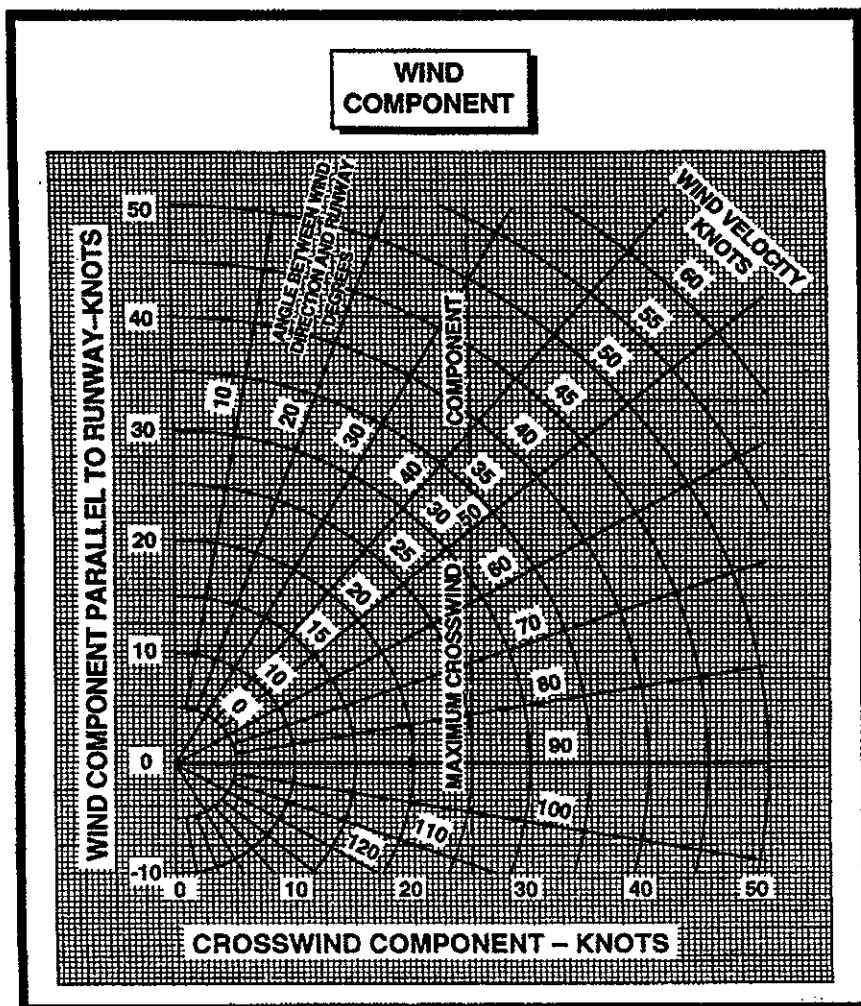


FIGURE 74.—Wind Component Chart.

GO AROUND EPR
A/C BLEED ON

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

**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	156	29/30/40
25	140	30/40
30	VREF	
40	VREF	

GROSS WT 1000 LB	REFERENCE SPEED AT FLAP POSITION			
	40	30	25	15
110	135	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	138
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)

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	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		
Forward Hold Aft Hold		
Weight Lbs.	Arm 680.0	Arm 1166.0
8,000		6,988
6,000	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)			TANKS 2 (3 CELL)					
Weight Lbs.	Arm	Moment 1000	Weight Lbs.	Arm	Moment 1000	Weight Lbs.	Arm	Moment 1000
8,500	992.1	8,433	8,500	917.5	7,799	22,500	914.5	20,576
9,000	993.0	8,937	9,000	917.2	8,255	23,000	914.5	21,034
9,500	993.9	9,442	9,500	917.0	8,711	23,500	914.4	21,488
10,000	994.7	9,947	10,000	916.8	9,168	24,000	914.3	21,943
10,500	995.4	10,451	10,500	916.6	9,624	24,500	914.3	22,400
11,000	996.1	10,957	11,000	916.5	10,082	25,000	914.2	22,855
11,500	996.8	11,463	11,500	916.3	10,537	25,500	914.2	23,312
12,000	997.5	11,970	12,000	916.1	10,993	26,000	914.1	23,767
FULL CAPACITY			**(See note at lower left)			26,500	914.1	24,244
**Note: Computations for Tank 2 weights for 12,500 lbs. to 18,000 lbs. have been purposely omitted.			18,500	915.1	16,929	27,000	914.0	24,678
			19,000	915.0	17,385	27,500	913.9	25,132
			19,500	914.9	17,841	28,000	913.9	25,589
			20,000	914.9	18,298	28,500	913.8	26,043
			20,500	914.8	18,753	29,000	913.7	26,497
			21,000	914.7	19,209	29,500	913.7	26,954
			21,500	914.6	19,664	30,000	913.6	27,408
			22,000	914.6	20,121	FULL CAPACITY		

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 880.5, MAC 180.9"					

FIGURE 81.—B-727 — Takeoff.

ALTIMETER SETTING TO STATION PRESSURE

OFF
STATION
PRESSURE

MSL 1000 FT

700 10
9
760 8
7
800 6
5
850 4
3
900 2
950 1
1000 0
1050 -1

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

PRESS ALT FT	OAT °F	47 TO 5	4	3	16	22	26	41	66	88	66	77	94	99	104	112	120
1000	1 & 3 2	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04
S.L.	1 & 3 2	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
1000	1 & 3 2	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
2000	1 & 3 2	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
3000	1 & 3 2	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
4000	1 & 3 2	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
5000 & ABOVE	1 & 3 2	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27

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

REDUCE ENG 2 EPR BY .05 WITH 5TH
STAGE BLEED ON (IF INSTALLED) FOR 10 °C
(50 °F) OAT & WARMER

V_1 , V_R , V_2
ANTI-SKID OPERATIVE

STAB TRIM SETTING

CG	FLAPS		
	0	15 / 20	25
UNITS AIRPLANE NOSE UP			
10	5 3/4	7 1/2	8 1/4
12	5 1/2	7 1/4	8
14	5 1/4	7	7 3/4
16	5	6 3/4	7 1/2
18	4 3/4	6 1/2	7
20	4 1/2	6	6 1/2
22	4	5 3/4	6 1/4
24	3 3/4	5 1/4	6
26	3 1/2	5	5 3/4
28	3	4 3/4	5 1/4
30	2 3/4	4 1/4	5
32	2 1/2	4	4 3/4
34	2 1/4	3 3/4	4 1/4
36	2 1/2	3 1/2	4 1/4
38	2 1/2	3 1/2	4 1/4
40	2 1/2	3 1/2	4 1/4
42	2 1/2	3 1/2	4 1/4

FLAP RETRACTION/ MANEUVERING SPEEDS

GROSS WEIGHT LB	FLAP POSITION			
	15	5	2	0
154500 TO 178000	150	180	190	200
178001 TO 191000	160	170	200	210
191001 TO 191800	170	180	210	220
ABOVE 191800	180	190	225	235

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

PRESSURE ALT - 1000 FT		OAT							
8 TO 11	°F °C	(ABOVE CERTIFIED ALTITUDE)		-35 TO 25 -34 TO 31			26 TO 37 -3 TO 31		
7 TO 9	°F °C			-85 TO 9 -64 TO -13	10 TO 75 -12 TO 24	76 TO 104 25 TO 40			
5 TO 7	°F °C	-85 TO -10 -64 TO -23	-6 TO 42 -22 TO 5	43 TO 97 6 TO 36	98 TO 111 37 TO 44	112 TO 144 45 TO 60			
3 TO 5	°F °C	-85 TO 32 -64 TO 0	33 TO 90 1 TO 32	91 TO 115 33 TO 45	116 TO 120 46 TO 49	121 TO 144 50 TO 60			
1 TO 3	°F °C	-85 TO 83 -64 TO 28	84 TO 106 29 TO 41	107 TO 126 42 TO 49	127 TO 144 51 TO 60				
-1 TO 1	°F °C	-85 TO 98 -64 TO 37	100 TO 120 38 TO 48						
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	166	175	168	175				
	200	160	171	162	171				
	190	155	167	157	167	158	167		
	180	150	163	152	163	154	163		
	170	144	158	147	159	149	158	150	158
	160	140	154	141	153	143	153	145	153
	150	135	149	136	148	138	148	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
10	210	166	168	167	168				
	200	161	162	163	162				
	190	156	158	158	158	149	159		
	180	151	154	153	154	145	154		
	170	146	150	148	150	140	150	141	148
	160	142	146	143	145	135	145	137	145
	150	137	141	138	141	130	141	132	140
	140	132	137	133	137	124	136	126	136
	130	127	133	128	132	118	131	120	131
	120	122	128	123	127	113	127	115	126
20	210	161	161	162	161				
	200	156	157	158	157				
	190	151	152	153	153	144	153		
	180	146	148	148	148	140	149		
	170	142	146	143	146	135	145	136	145
	160	138	142	139	141	131	141	133	141
	150	133	137	134	137	126	136	126	136
	140	128	133	129	133	120	132	122	132
	130	123	129	124	128	114	127	116	127
	120	118	124	119	123	109	123	111	122
25	210	146	157	147	157				
	200	141	153	143	153				
	190	137	148	138	148	139	149		
	180	132	145	134	145	135	145		
	170	127	141	129	141	131	141	132	140
	160	123	137	124	137	126	137	128	136
	150	118	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	116

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	1.85 288 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	1.38 260 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

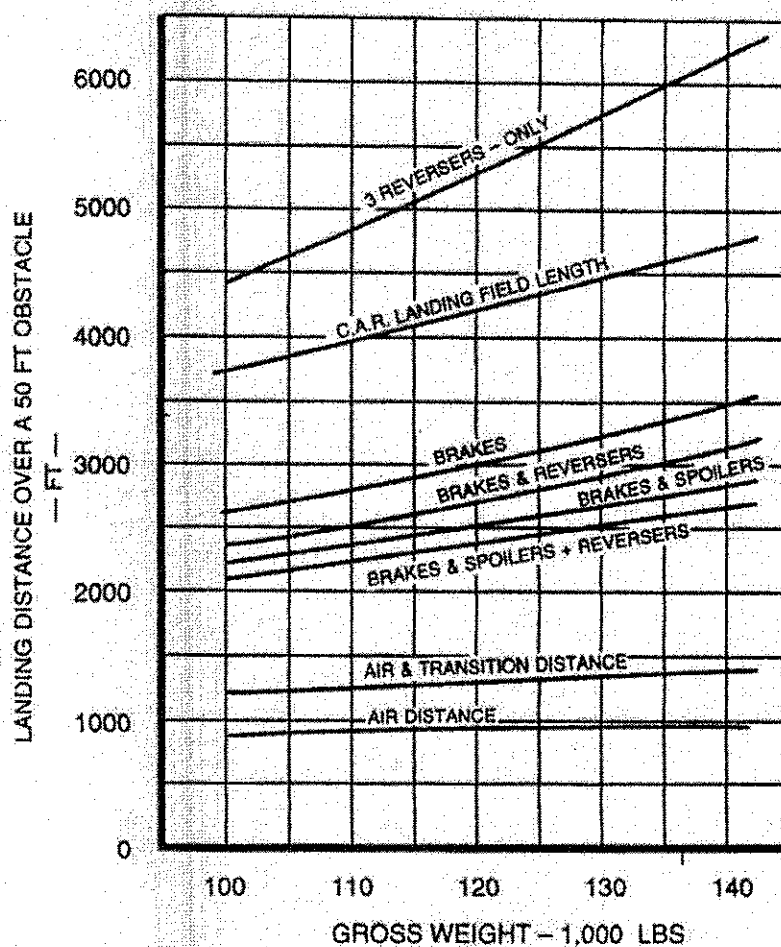
NOTE: FUEL FOR A STRAIGHT-IN APPROACH IS INCLUDED

NOTE: FUEL FOR A STRAIGHT-IN APPROACH IS INCLUDED

FIGURE 87.—Descent Performance Chart.

LANDING DISTANCE COMPARISON DRY 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
FLIGHT TEST DATA.



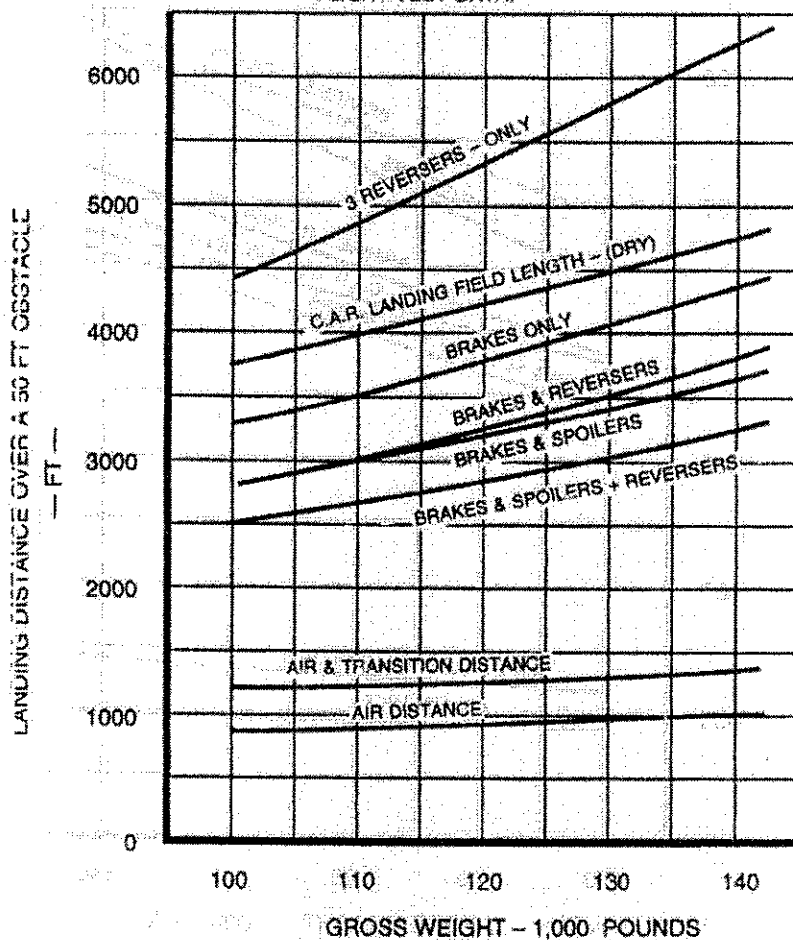
TRAINING INFORMATION ONLY REPRESENTATIVE

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.



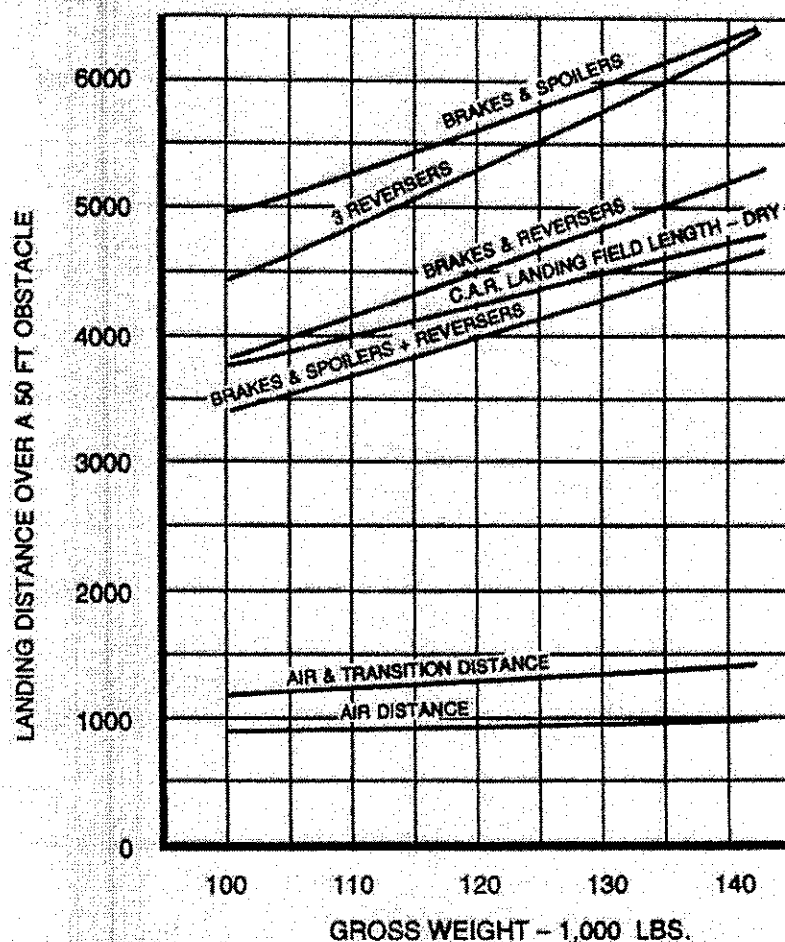
TRAINING INFORMATION ONLY REPRESENTATIVE

NORMAL LANDING

FIGURE 89.—B-727 — Normal Landing — Wet Runway.

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 8.3 SECONDS.
CERTIFIED LANDING PARAMETERS USED,
EXCEPT REVERSE THRUST WHICH IS
BASED ON FLIGHT TEST DATA.



TRAINING INFORMATION ONLY REPRESENTATIVE

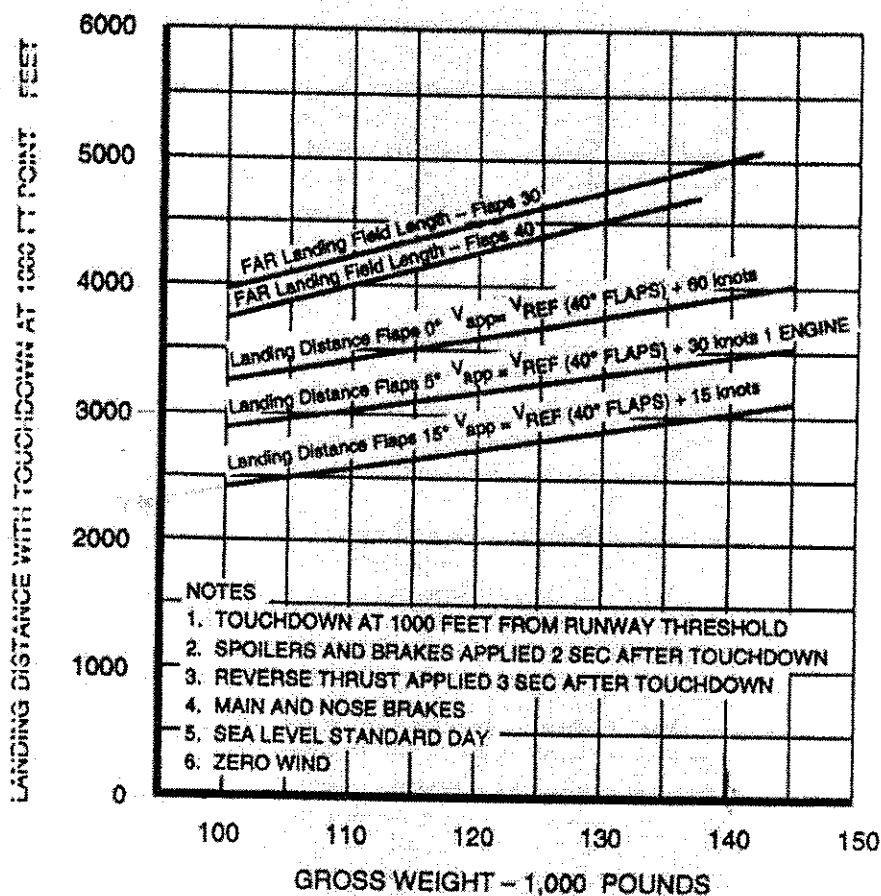
NORMAL LANDING

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

LANDING DISTANCE COMPARISON

FLAPS 0
FLAPS 5
FLAPS 15

TOUCHDOWN AT 1000 FEET FROM RUNWAY THRESHOLD
SPOILERS AND BRAKES APPLIED 2 SECONDS AFTER TOUCHDOWN
REVERSE THRUST APPLIED 3 SECONDS AFTER TOUCHDOWN
MAIN AND NOSE BRAKES
SEA LEVEL, STANDARD DAY
ZERO WIND, DRY RUNWAY
ANTI-SKID OPERATIVE



NOTES

1. TOUCHDOWN AT 1000 FEET FROM RUNWAY THRESHOLD
2. SPOILERS AND BRAKES APPLIED 2 SEC AFTER TOUCHDOWN
3. REVERSE THRUST APPLIED 3 SEC AFTER TOUCHDOWN
4. MAIN AND NOSE BRAKES
5. SEA LEVEL STANDARD DAY
6. ZERO WIND

TRAINING INFORMATION ONLY REPRESENTATIVE

NORMAL LANDING

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

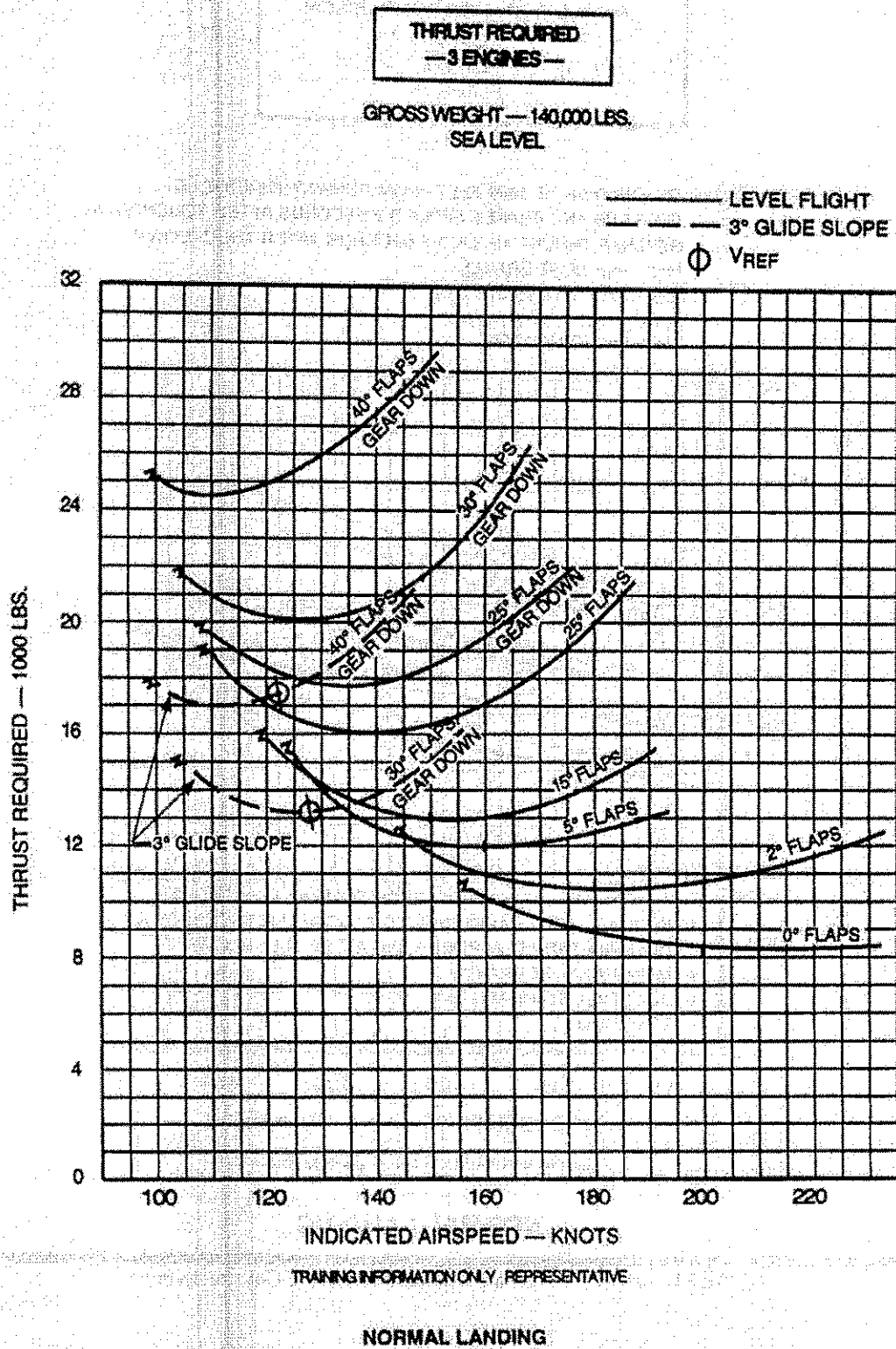


FIGURE 92.—B-727 — Landing Thrust — 140,000 Pounds.

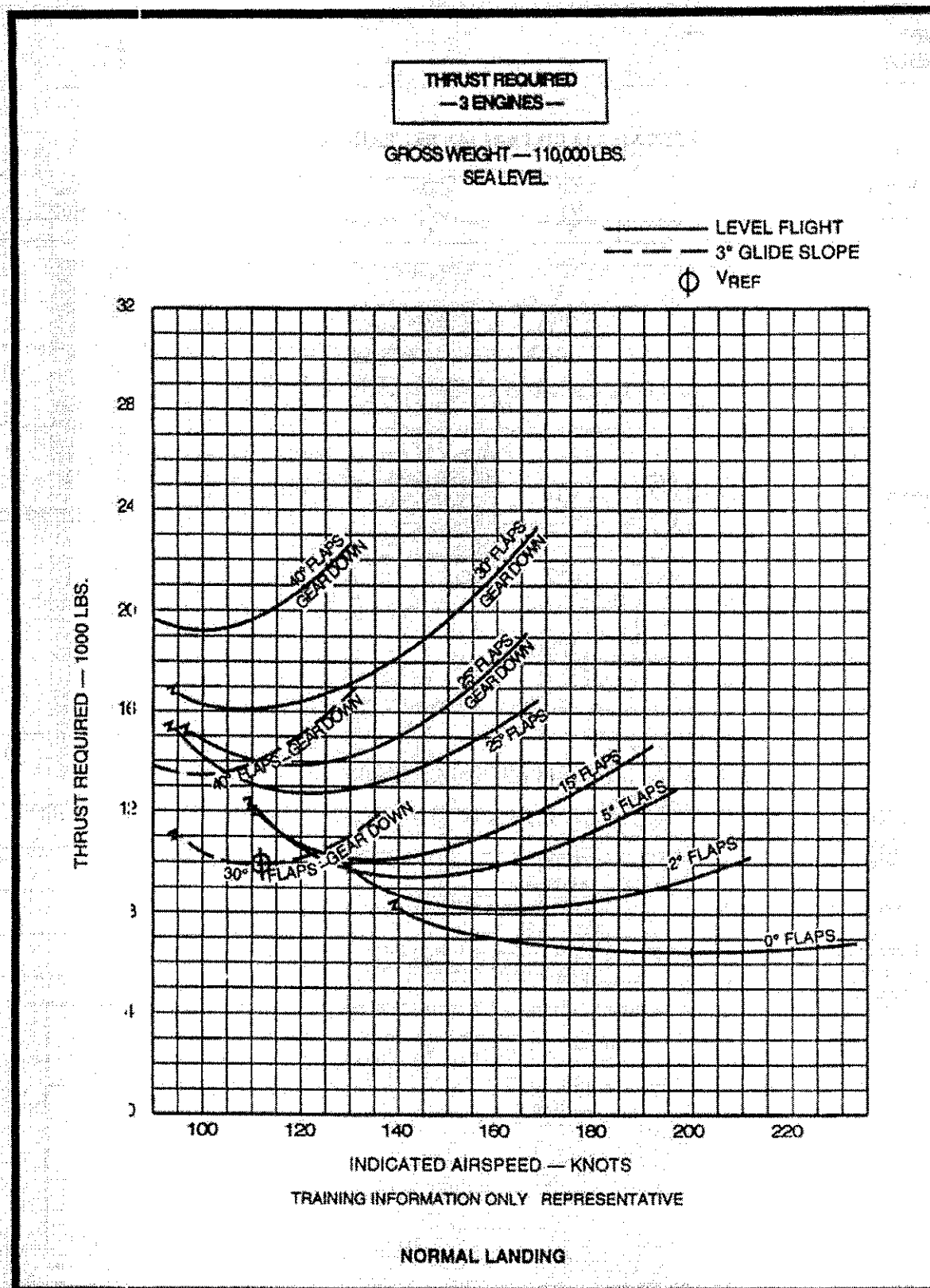


FIGURE 93.—B-727 — Landing Thrust — 110,000 Pounds.

SCTE AD 2.13 DISTANCIAS DECLARADAS

Designador RWY	TORA (M)	TODA (M)	ASDA (M)	LDA (M)	Observaciones
1	2	3	4	5	6
17	2.650	2.710	2.650	2.650	Nil
35	2.650	2.710	2.650	2.650	Nil

SCTE AD 2.14 LUCES DE APROXIMACIÓN Y DE PISTA

Designador RWY	Tipo LGT APCH LEN INTST	Color LGT THR WBAR	PAPI VASIS (MEHT)	LEN, LGT TDZ	Longitud, espaciado, color, INTST LGT eje RWY	Longitud, espaciado, color, INTST LGT borde RWY	Color WBAR LGT extremo RWY	LEN (M) color LGT SWY	Observaciones
1	2	3	4	5	6	7	8	9	10
17	REIL HIRL	Verde	PAPI 3°	Nil	Nil	2.650 M 60 M Blanca, LIH	Nil	Nil	
35	REIL HIRL ALSIF-2	Verde	PAPI 3	Nil	Nil	2.650 M 60 M Blanca, LIH	Nil	Nil	

SCTE 2.15 OTRAS LUCES, FUENTE SECUNDARIA DE ENERGÍA

1	Emplazamiento, características y horas de funcionamiento ABN/IBN	ABN: 412552S 730532W, Edificio de la torre, FLG W EV 10 SEC/IBN: NIL H24
2	Emplazamiento LDI y LGT	LDI: Nil Anemómetro:
3	Luces de borde y eje de TWY	Borde: Todas las TWY. Eje: Nil
4	Fuente auxiliar de energía/tiempo de conmutación	Fuente auxiliar de energía para todas las luces en el área de maniobra. Tiempo de conmutación: 10 SEC
5	Observaciones	

FIGURA 94

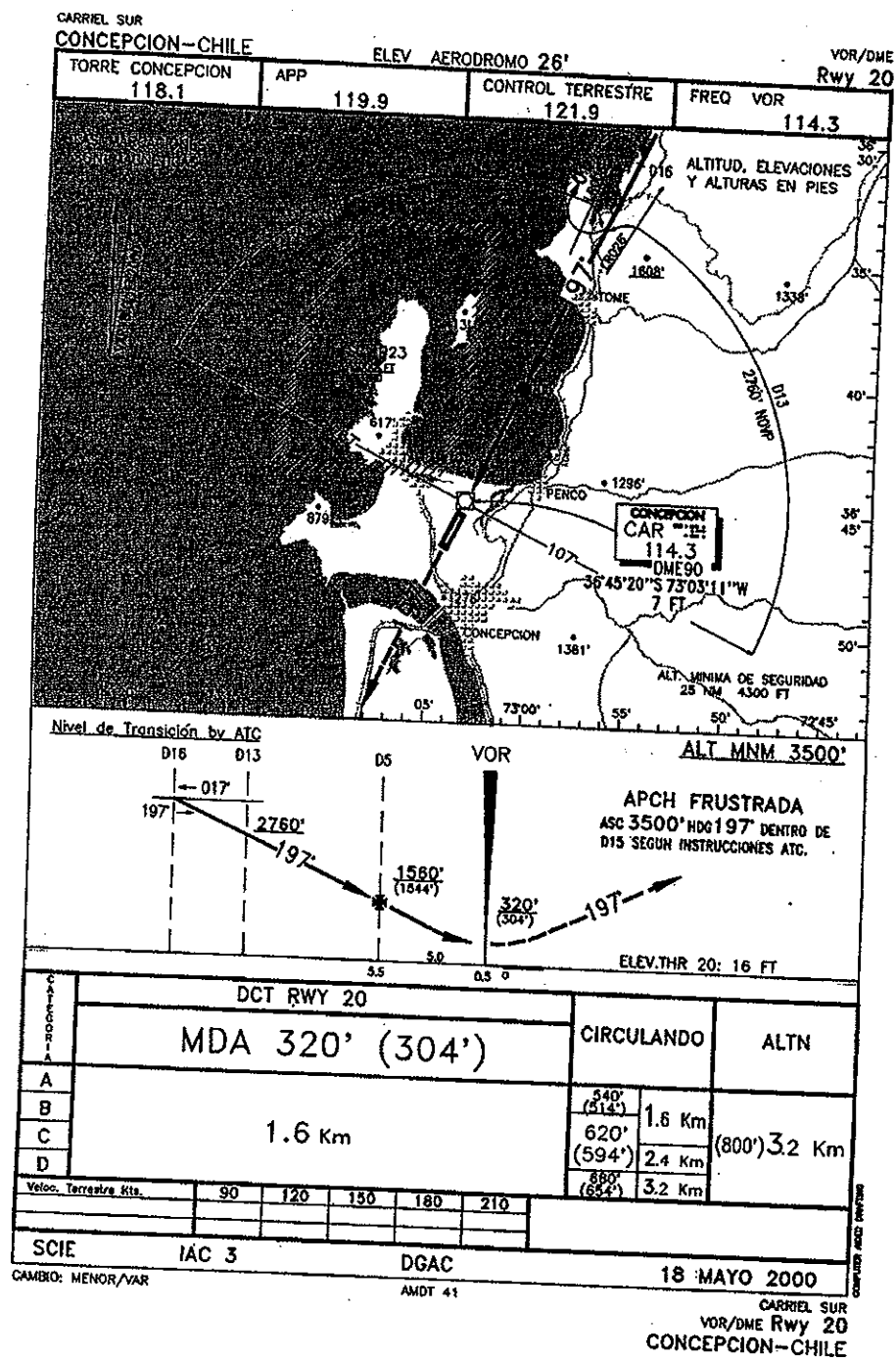
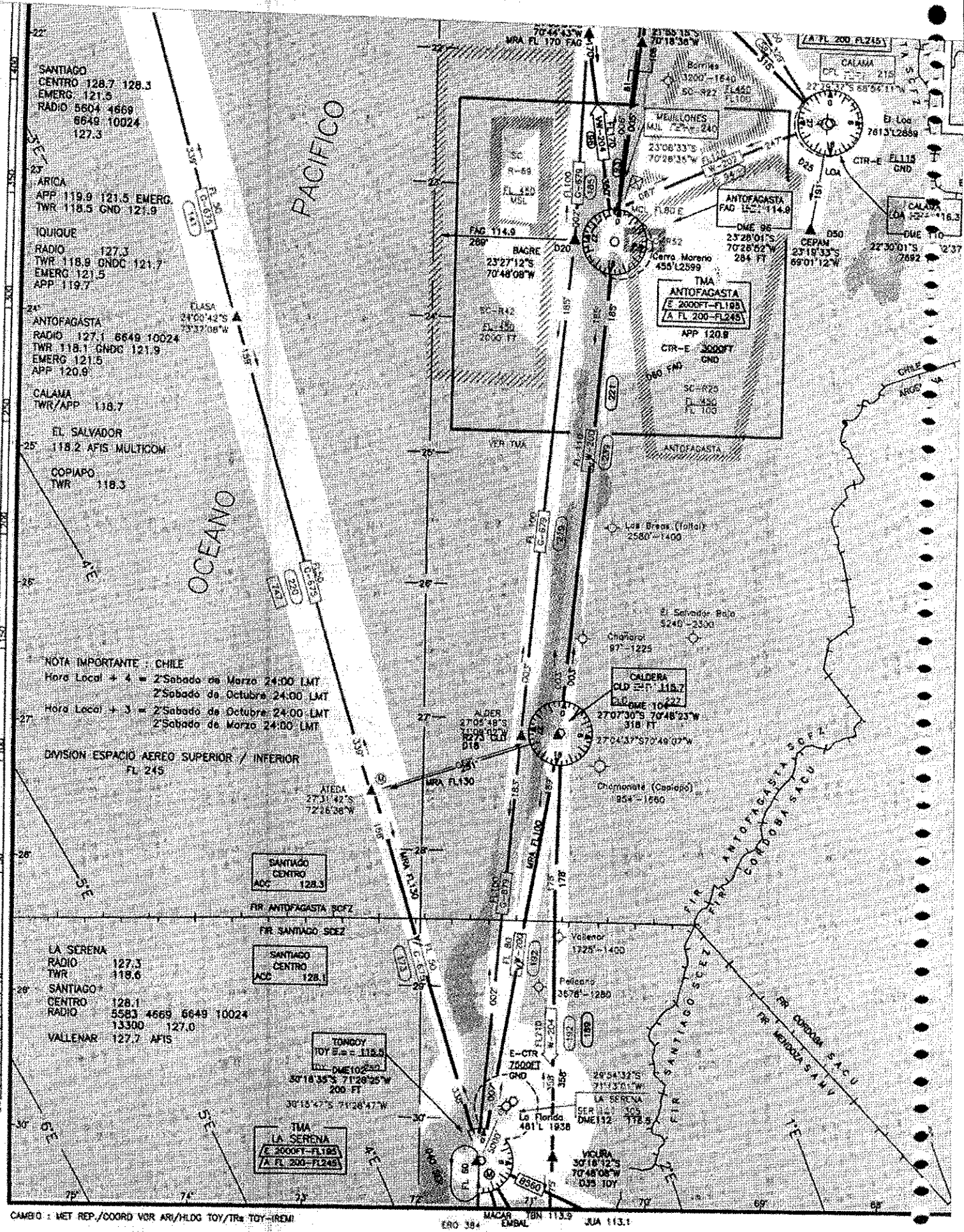


FIGURA 95



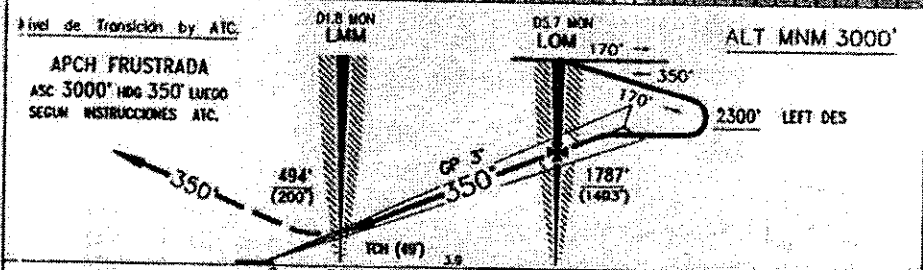
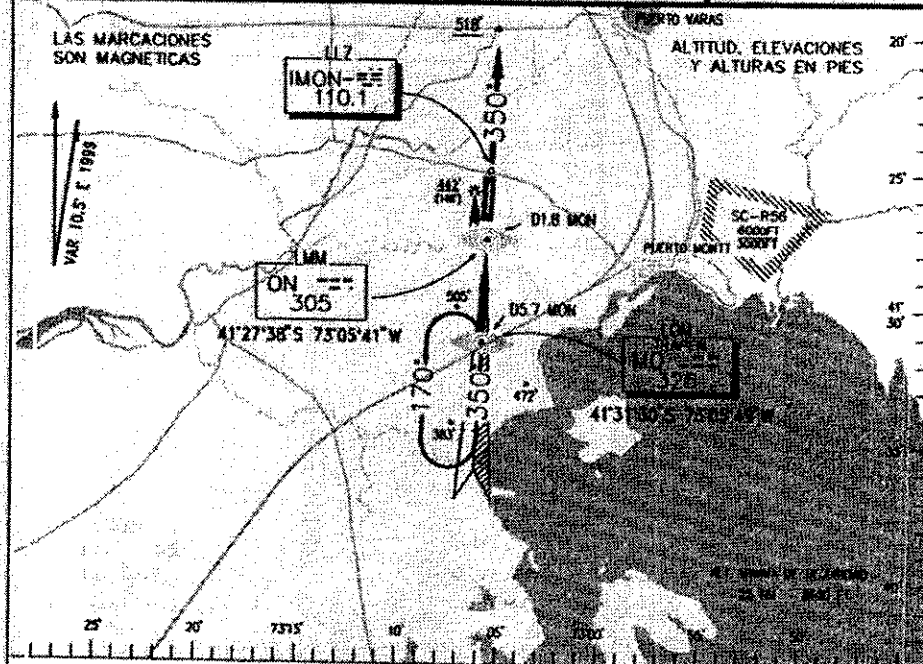
Preparado y Publicado por:
Direccion General de Aeronautica Civil
CHILE

FIGURA 96

Sigue I-2 TONGOY-ON!

EL TIPIAL
 PUERTO MONTT-CHILE ELEV. AERODROMO 294' Rwy 35

TCRRE PUERTO MONTT	ACC PUERTO MONTT	CONTROL TERRESTRE	FREQ LLZ	LOM
118.1	119.5 128.5	121.9	110.1	325



ILS	DCT RWY 35		LLZ W/O GP		CIRCULANDO	ALTN
	DA 494' (200')	MDA 760' (466')	ALS	W/O ALS		
A	FULL	W/O ALS	ALS	W/O ALS		
B	RVR 720 m		0.8Km	1.6Km	1.6Km	
C	0.8Km	1.2Km	1.2Km	2.0Km	2.4Km	
D			1.6Km	2.4Km	3.2Km	
25 ft	70	90	100	120	140	160
GP 3.8° FPM	307	480	553	664	774	885
1/4 to MAP 3.8	3.30	2.36	2.20	1.37	1.40	1.28

CANINO: MNM/OBST AP/GRAFICO/VAR

AMDT 38

22 ABRIL 1999

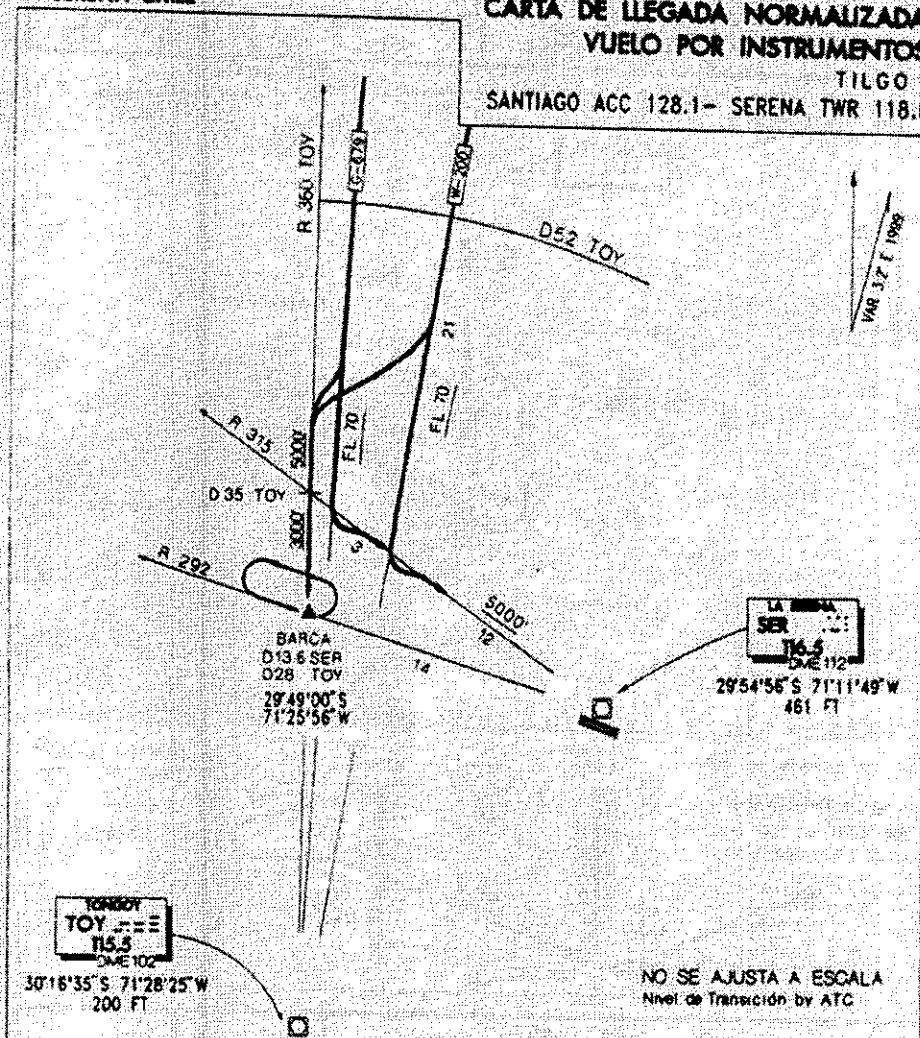
EL TIPIAL
 as Rwy 35
 PUERTO MONTT - CHILE

FIGURA 97

LA FLORIDA
LA SERENA-CHILE

CARTA DE LLEGADA NORMALIZADA VUELO POR INSTRUMENTOS

TILGO 3
SANTIAGO ACC 128.1- SERENA TWR 118.6



STAR TILGO 3

TILGO 3: EN AWY W200/G679 CRUZANDO D 52 TOY VOR DESCENDIENDO PARA FL 70
TRANS. BARCA: EN DESCENSO PARA FL 70, VIRAJE DERECHA PARA INTERCEPTAR R 360 TOY VOR/DME, UNA VEZ ESTABLECIDO, CONTINUE DESCENSO DIRECTO INTERSECCION BARCA, SEGUN AUTORIZACION ATC.
TRANS. REKOV: MANTENGA FL 70 HASTA INTERCEPTAR R 315 SER VOR/DME, UNA VEZ ESTABLECIDO, DESCENDIENDO PARA 5000 FT. DIRECTO SER VOR.

STAR 2

D G A C

02 DICIEMBRE 1999

CAMBIO: D TRANS/VAP

AMDT 40

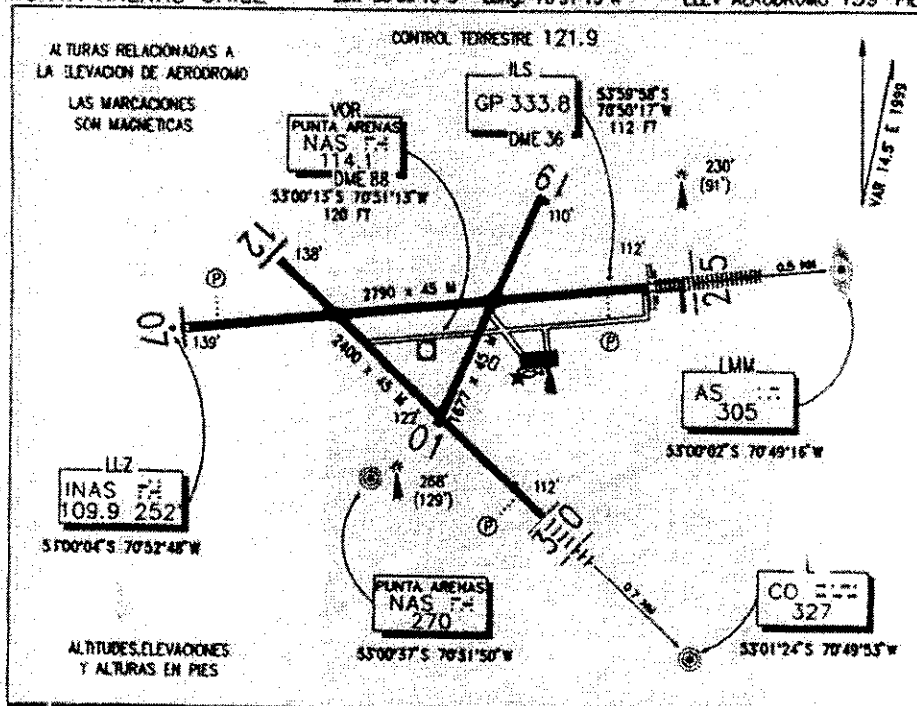
LA FLORIDA
TILGO 3
LA SERENA - CHILE

FIGURA 98

CIBANE! DEL CAMPO
PUNTA ARENAS-CHILE

Lat: 53°00'13"S Long: 70°51'13"W

ELEV AERODROMO 139 PIES



INFORMACION ADICIONAL DE LA PISTA

PIS A	ILUMINACION	RESISTENCIA	DATOS OPERACION DE PISTA DISPONIBLE				
			TORA	TODA	ASDA	LDA	ANCHO
01	DE EMERGENCIA	PCN40 F/A/W/T	1677 M	1737 M	1677 M	1677 M	45 M
07	DIRL REL (P) 3.0 ALSF-1 DIRL (P) 2.7		2790 M	3090 M	3030 M	2790 M	45 M
12	DIRL REL (P) 2.7		2400 M	2460 M	2400 M	2400 M	45 M
30	DIRL REL (P) 2.7						

SERVICIOS DISPONIBLES

PELIGRO INTERNACIONAL ☒ ADUANA ☒ SANIDAD ☒ METEOROLOGIA ☒ S.E.L. ☒

MINIMOS DE DESPEGUE					HORA OPERACION	CONSULTE Pag. 6.1		
AERONAVES	PISTA				* CONSULTE Pag. 2.13. TABLA 2.2			
	01	19	07/25	12/30				
MON MOTOR/REACTOR/TURBO	*	VIS 2.4 KM TECHO 200M		*				
BIMOTOR/REACTOR/TURBO	1.6 km	VIS 2.4 KM TECHO 200M	1.6 km	1.6 km				
TRES O MAS MOTOR/REACTOR/TURBO	0.8 km	VIS 2.4 KM TECHO 200M	0.8 km	0.8 km				
SIN ALTERNATIVA POST DESPEGUE	MIN. LDC AD. SALIDA	VIS 2.4 KM TECHO 200M	MINIMOS ATERRIZAJE AD. SALIDA					
SCCI	DGAC				02 DICIEMBRE 1999			

CAMBIOS: PAPI RWY 25/VAR

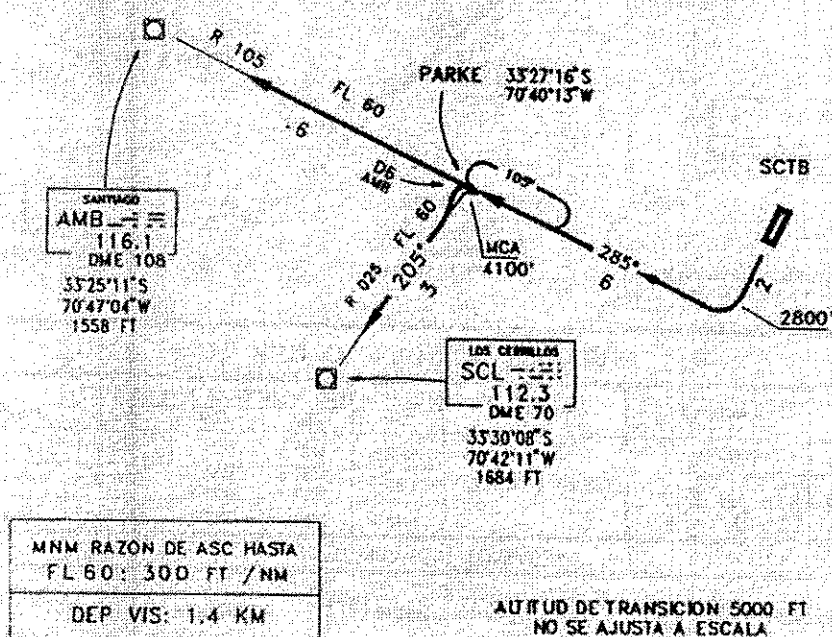
FIGURA 99

PARKE 1
RWY 19

TOBALABA		STGO
GNDC	TWR	ACC
121.6	118.7	119.7
		121.1

PROCEDIMIENTO SOLO PARA ACFT CON FPL IFR

USO OBLIGATORIO SSR



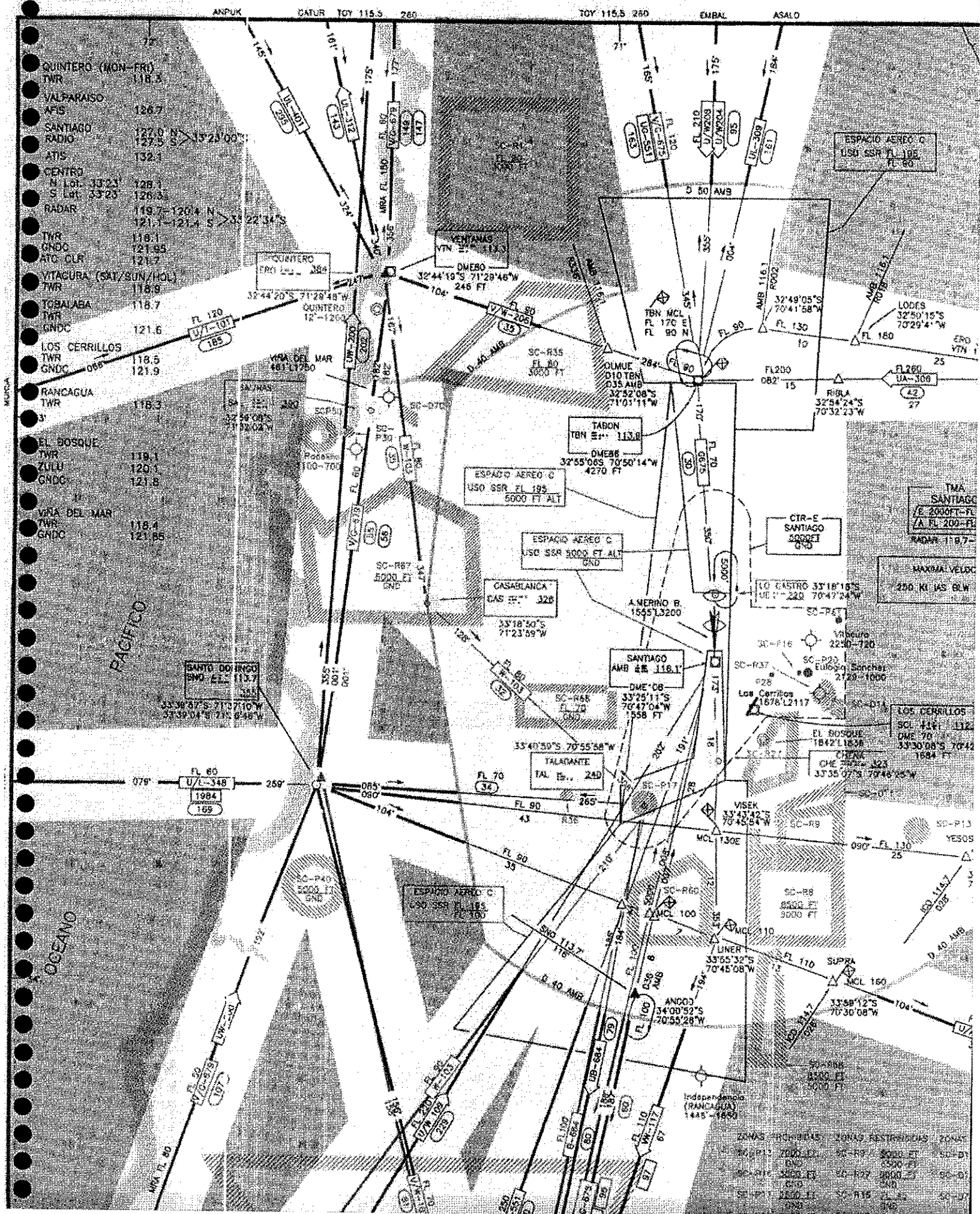
DEP RWY 19: ASCENSO RUMBO EJE DE PISTA HASTA 2800 FT, POSTERIOR VIRAJE DERECHA PARA ASCENDER R 105 AMB VOR DIRECTO PARKE INT. CRUZAR PARKE INT 4100 FT O SUPERIOR, ASCENSO EN HLDG PARA ABANDONAR PARKE INT FL 60 O SUPERIOR DIRECTO SCL VOR O AMB VOR SEGUN AUTORIZACION ATC.

12 AGOSTO 1999

EULOGIO SANCHEZ

SANTIAGO - CHILE

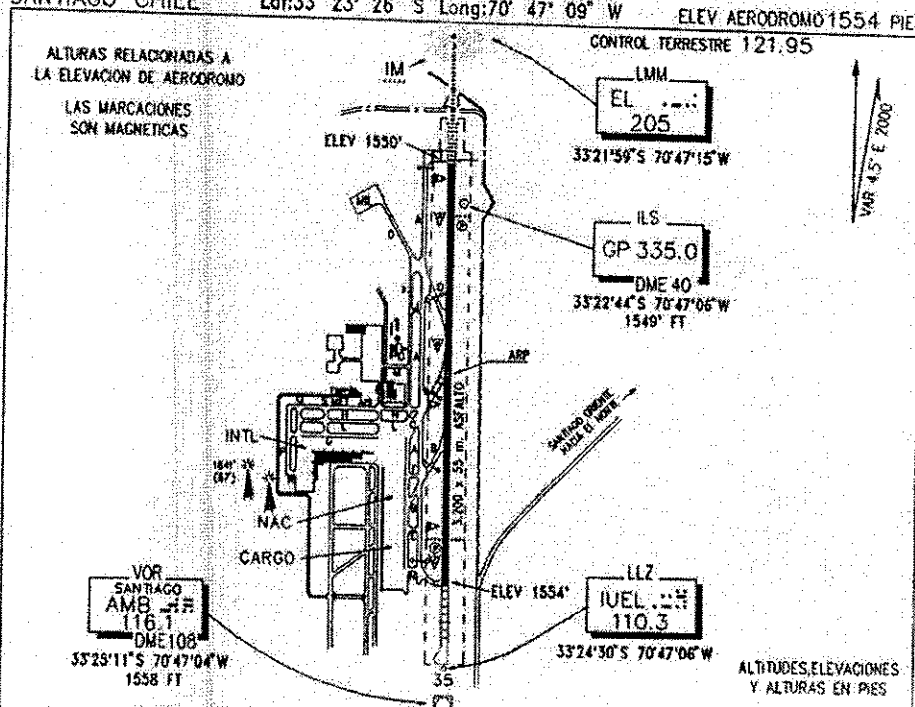
FIGURA 100



ARTURO MERINO BENITEZ
SANTIAGO-CHILE

Lat: 33° 23' 26" S Long: 70° 47' 09" W

ELEV AERODROMO 1554 PIES



INFORMACION ADICIONAL DE LA PISTA

PISTA	ILUMINACION	RESISTENCIA	DATOS OPERACION DE PISTA DISPONIBLE				
			TORA	TODA	ASDA	LDA	ANCHO
17	ALSF-2 RCLL HIRL TDZL REIL @ 3.0	PCN63/F/B/W/T	3200 M	3530 M	3470 M	3200 M	55 M
35	SSALF RCLL HIRL REIL @ 2.5		3200 M	3520 M	3200 M	3200 M	55 M

SERVICIOS DISPONIBLES

POLICIA INTERNACIONAL	<input checked="" type="checkbox"/>	ADUANA	<input checked="" type="checkbox"/>	SANIDAD	<input checked="" type="checkbox"/>	METEOROLOGIA	<input checked="" type="checkbox"/>	S.E.I.	<input checked="" type="checkbox"/>
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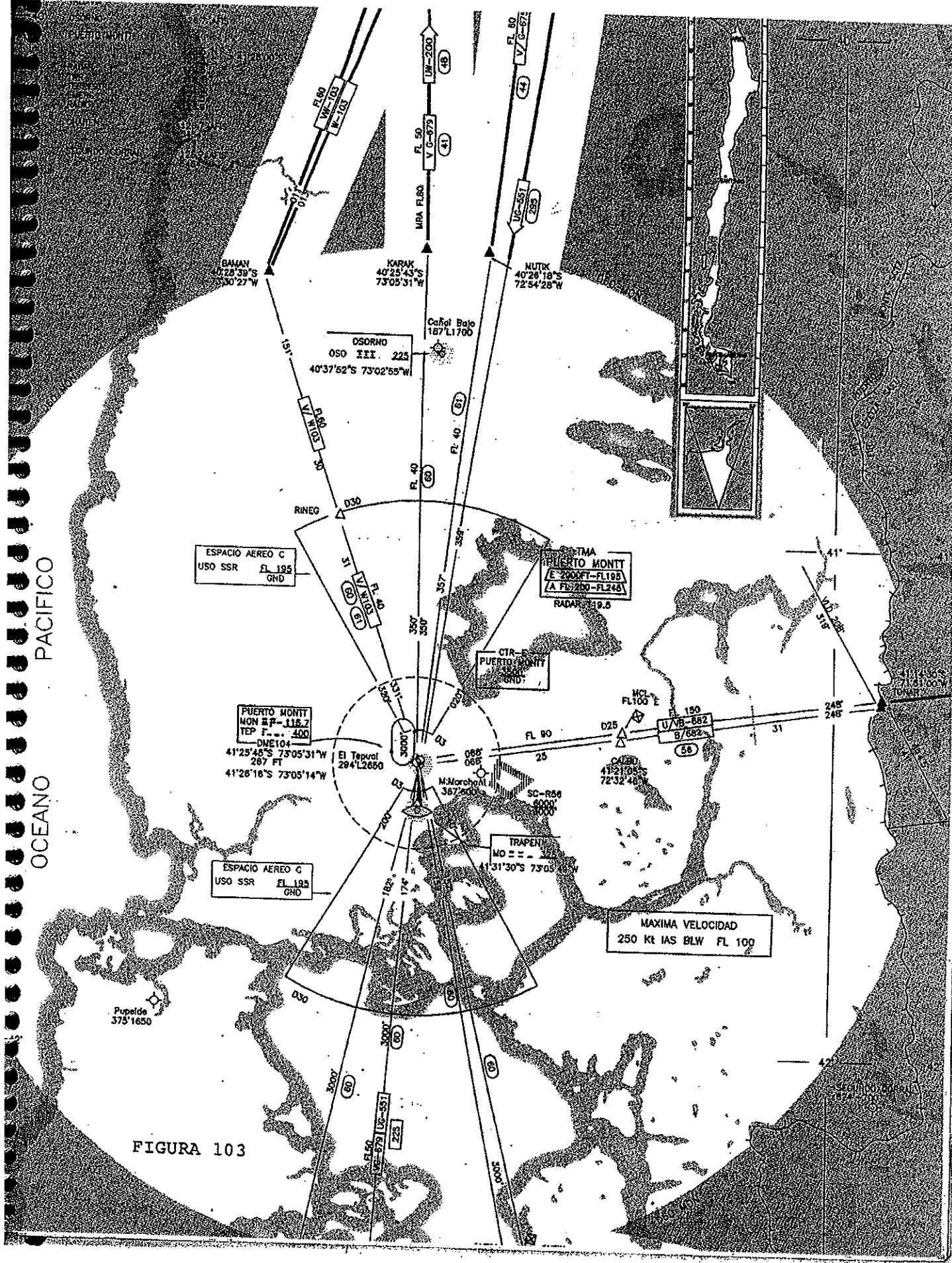
MINIMOS DE DESPEGUE			HORA OPERACION
AERONAVES	PISTA		CONSULTE Pag. 61
	17	35	
MONOMOTOR/REACTOR/TURBO	*	*	* CONSULTE Pag. 213 TABLA 2.2 ■ DIST DECLARADAS SUBJ A CHG POR WIP DE EXTENSION HACIA EL SUR. NUEVAS DIST SE INFORMARAN VIA NOTAM.
BIMOTOR/REACTOR/TURBO	1.6 km*	1.6 km*	
TRES O MAS MOTOR/REACTOR/TURBO	0.8 km*	0.8 km*	
SN ALTERNATIVA POST DESPEGUE	MINIMOS ATERRIZAJE AD. SALIDA	MINIMOS ATERRIZAJE AD. SALIDA	

SCEL DGAC 18 MAYO 2000

CAMBIO: RAMP-TWY INTL/
ELEV THR 17/VAR

FIGURA 102

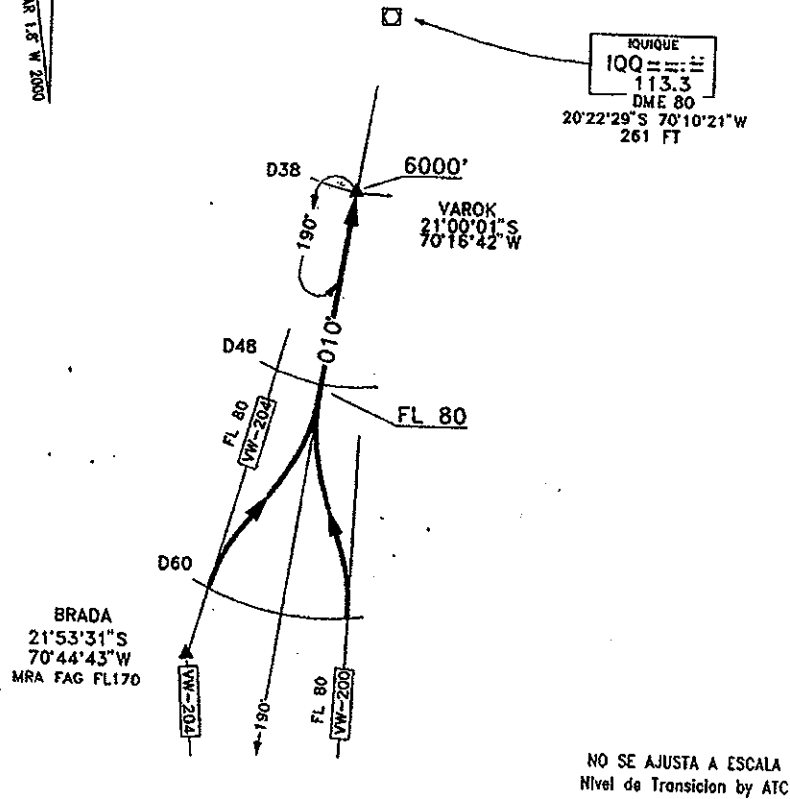
OCEANO



DIEGO ARACENA
IQUIQUE, CHILE

CARTA DE LLEGADA NORMALIZADA
VUELO POR INSTRUMENTOS
DIMAR 2
FREQ APP IQUIQUE 119.7 - TWR 118.9

VAR 1.5° W 2000



STAR DIMAR 2

EN ARCO 60 SUR IQQ VOR/ DME , ABANDONAR AWY PARA INTERCEPTAR R190° (TR 010) IQQ VOR DCT A VAROK INT. CRUZAR D48 S IQQ VOR/DME FL 80 O SUPERIOR , LUEGO CONTINUAR EN CURSO DE APROXIMACION VOR/DME-A O SEGUN AUTORIZACION ATC.

STAR 2

D G A C

18 MAYO 2000

CAMBIO: TEXTO/VAR

AMDT 41

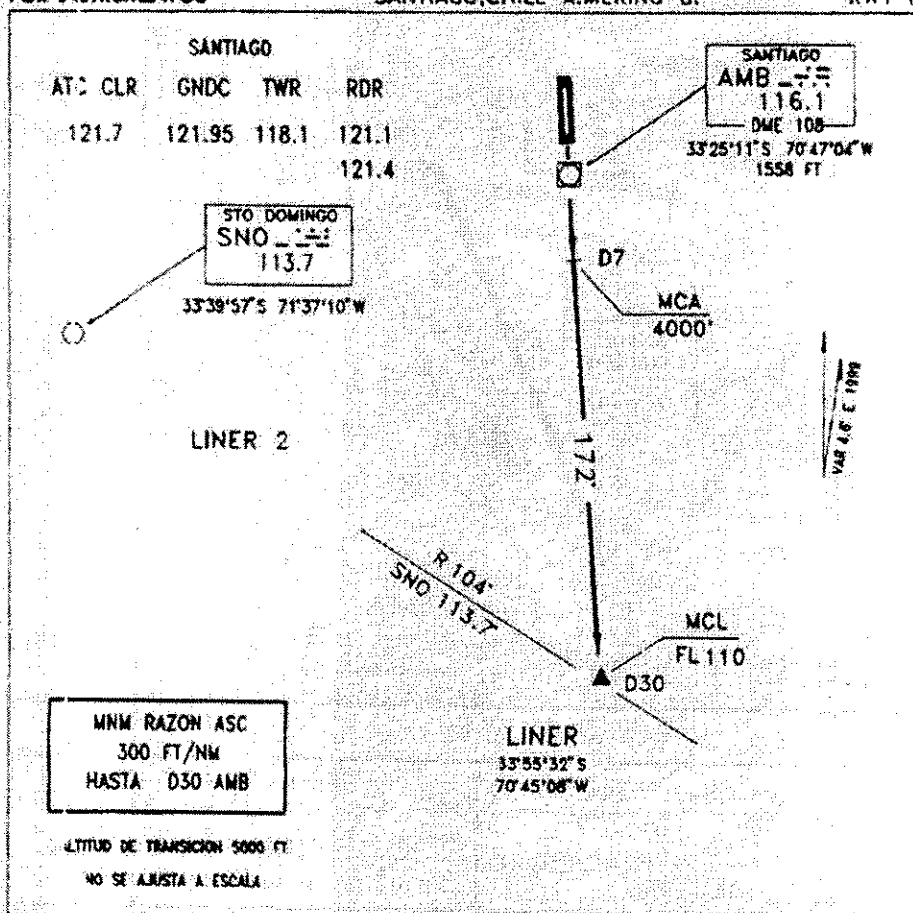
DIEGO ARACENA
DIMAR 2
IQUIQUE - CHILE

FIGURA 104

CARTA DE SALIDA
NORMALIZADA - VUELO
POR INSTRUMENTOS

SANTIAGO, CHILE A. MERINO B.

LINER 2
RWY 17



SID LINER 2

DEP RWY 17: ASCENDER VIA R 172 AMB VOR HASTA LINER INT.
CRUZAR D7 AMB 4000 FT O SUPERIOR. CRUZAR
LINER INT FL110 O SUPERIOR. LUEGO SEGUN
AUTORIZACION ATC.

SID 7 D G A C 02 DICIEMBRE 1999

CAMBIO: FREQ RDR/ROL SNO

AMOT 40

A. MERINO B.
LINER 2
SANTIAGO - CHILE

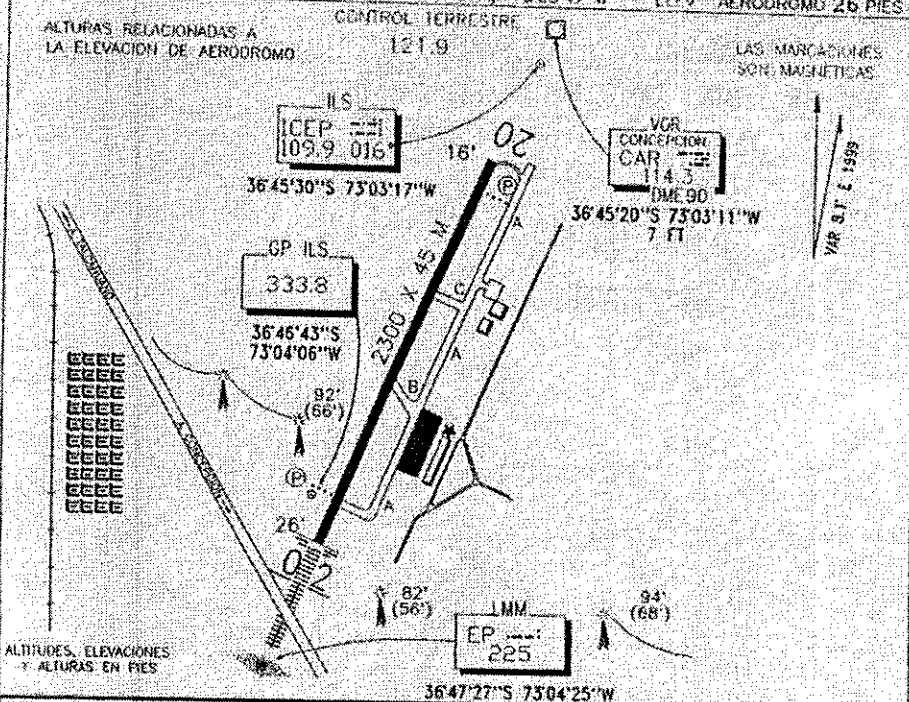
FIGURA 105

CARRIL SUR

CONCEPCION-CHILE

Lat: 36°46'22"S Long: 73°03'47"W

Elv. AERODROMO 26 PIES



INFORMACION ADICIONAL DE LA PISTA

PISTA	ILUMINACION	RESISTENCIA	DATOS OPERACION DE PISTA DISPONIBLE				
			TORA	TODA	ASCA	LDA	ANCHO
02	ALSIF-1 HIRL REIL	PCN38/F/B/X/T	2300 M	2360 M	2300 M	2300 M	45 M
20	HIRL REIL		2300 M	2360 M	2300 M	2300 M	45 M

SERVICIOS DISPONIBLES

POLICIA INTERNACIONAL ☐ ADUANA ☐ SANIDAD ☐ METEOROLOGIA ☒ S.E.A. ☒

MINIMOS DE DESPEGUE			HORA OPERACION
AERONAVES	PISTA		CONSULTE Pag. 6.1
	02	20	
MONOMOTOR/REACTOR/TURBO	*	*	* CONSULTA Pag. 2.13
BIOMOTOR/REACTOR/TURBO	1.6 KM *	1.6 KM *	* OPS DE ACFT CON ACN SUPERIOR A LOS INDICADOS DEBE SOLICITARSE CLP A LA DGAC.
TRES O MAS MOTOR/REACTOR/TURBO	0.8 KM *	0.8 KM *	
SIN ALTERNATIVA PARA EL DESPEGUE	MINIMOS ATERIZAJE AD. SALIDA	MINIMOS ATERIZAJE AD. SALIDA	
SCIE	DGAC		12 AGOSTO 1999

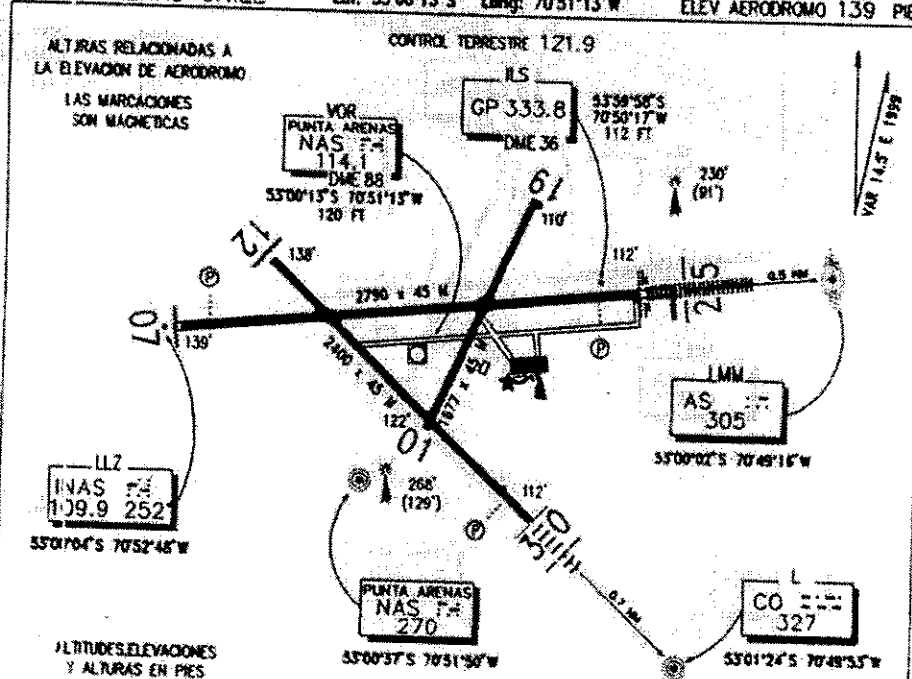
CAMBIO: MOTOR

FIGURA 106

CIBANES DEL CAMPO
PUNTA ARENAS-CHILE

Lat: 53°00'13"S Long: 70°51'13"W

ELEV AERODROMO 139 PIES



INFORMACION ADICIONAL DE LA PISTA

PISTA	ILUMINACION	RESISTENCIA	DATOS OPERACION DE PISTA DISPONIBLE				
			TORA	TODA	ASDA	LDA	ANCHO
01	DE EMERGENCIA	PCN40 F/A/W/T	1677 M	1737 M	1677 M	1677 M	45 M
07	HRL 02L (P) 3.0		2790 M	3090 M	3030 M	2790 M	45 M
25	ALSF-1 HRL (P) 2.7		2790 M	3090 M	3030 M	2790 M	45 M
12	HRL 02R (P) 2.7		2400 M	2400 M	2400 M	2400 M	45 M
30	HRL 02L (P) 2.7						

SERVICIOS DISPONIBLES

POLICIA INTERNACIONAL ☒ ADUANA ☒ SANIDAD ☒ METEOROLOGIA ☒ S.E.I. ☒

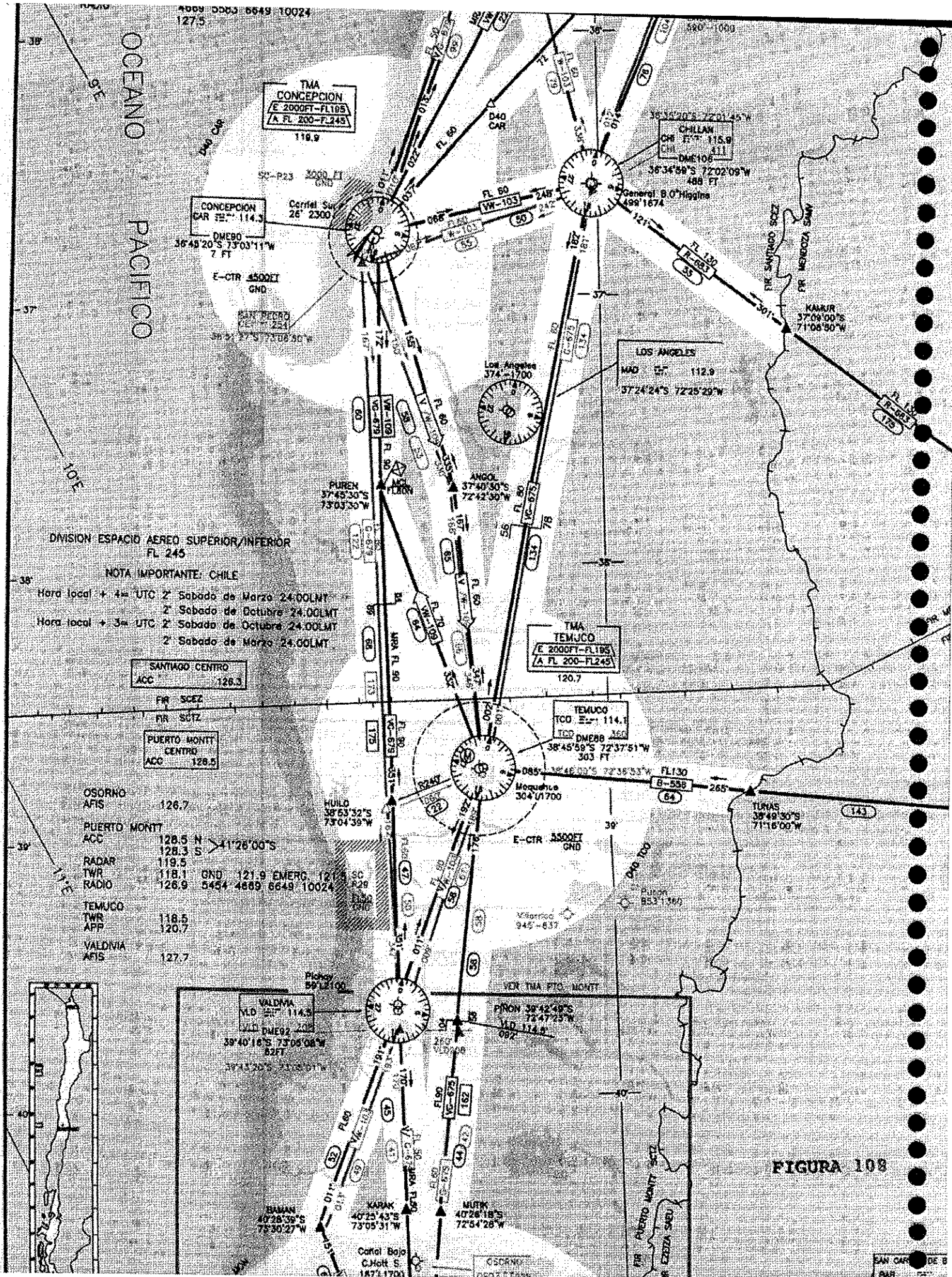
MINIMOS DE DESPEGUE

AERONAVES	PISTA				HORA OPERACION
	01	19	07/25	12/30	
MONOMOTOR/REACTOR/TURBO	1.6 km	1.6 km	1.6 km	1.6 km	* CONSULTE Pag. 2.13 TABLA 2.2
BIMOTOR/REACTOR/TURBO	1.6 km	1.6 km	1.6 km	1.6 km	
TRIPLES O MAS MOTOR/REACTOR/TURBO	1.6 km	1.6 km	1.6 km	1.6 km	
SIN ALTERNATIVA POST DESPEGUE	1.6 km	1.6 km	1.6 km	1.6 km	

SCCI DGAC 02 DICIEMBRE 1999

CAMBIO: P.I. RWY 25/VAR

FIGURA 107



CARRIEL-SUR
CONCEPCION, CHILE

CARTA DE LLEGADA NORMALIZADA
VUELO POR INSTRUMENTOS
MENKE-3
FREQ APP CONCEPCION: 119.9 - TWR: 118.1

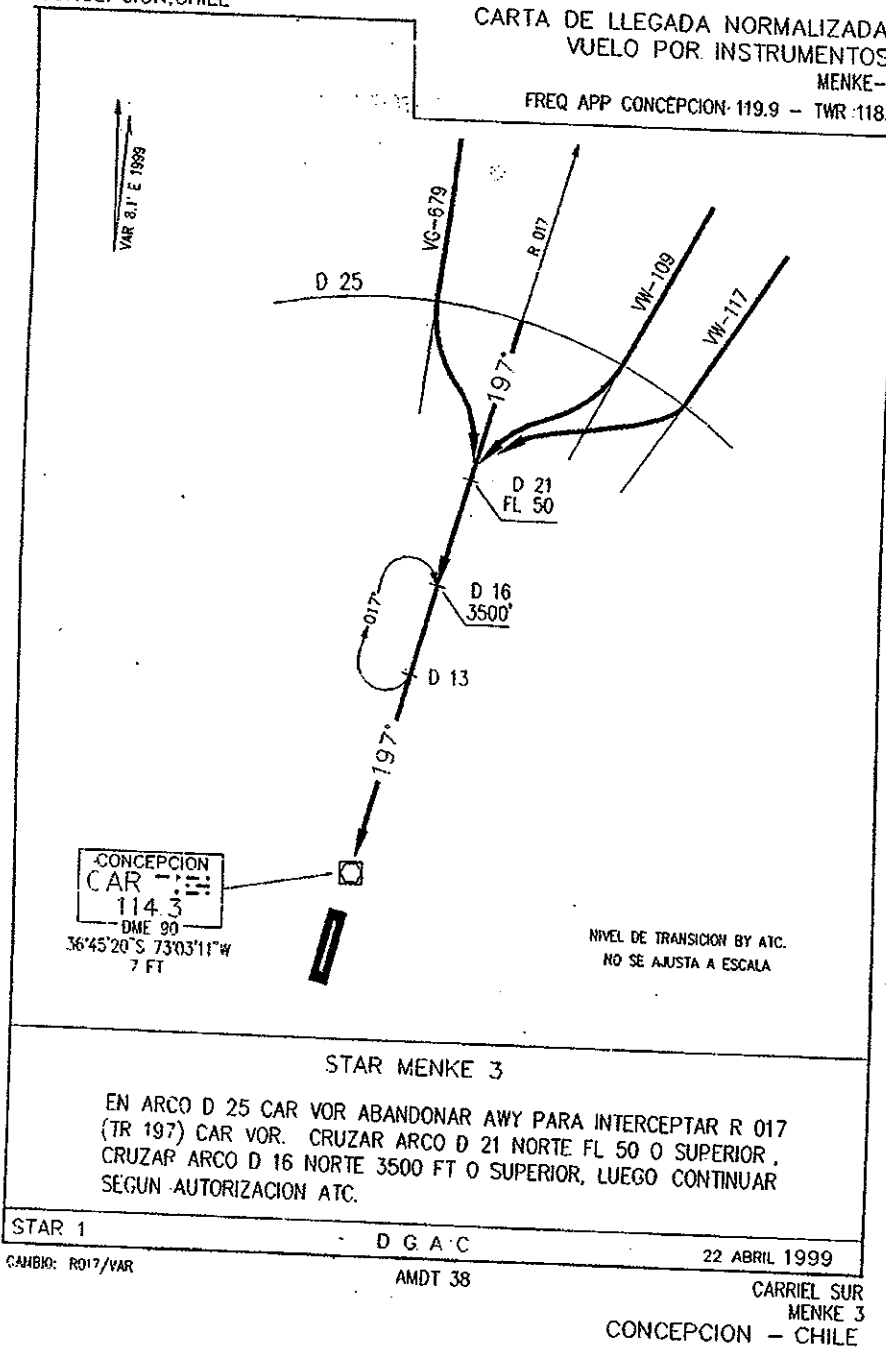
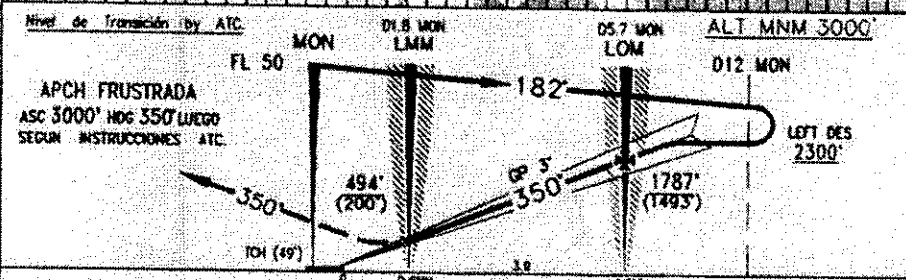
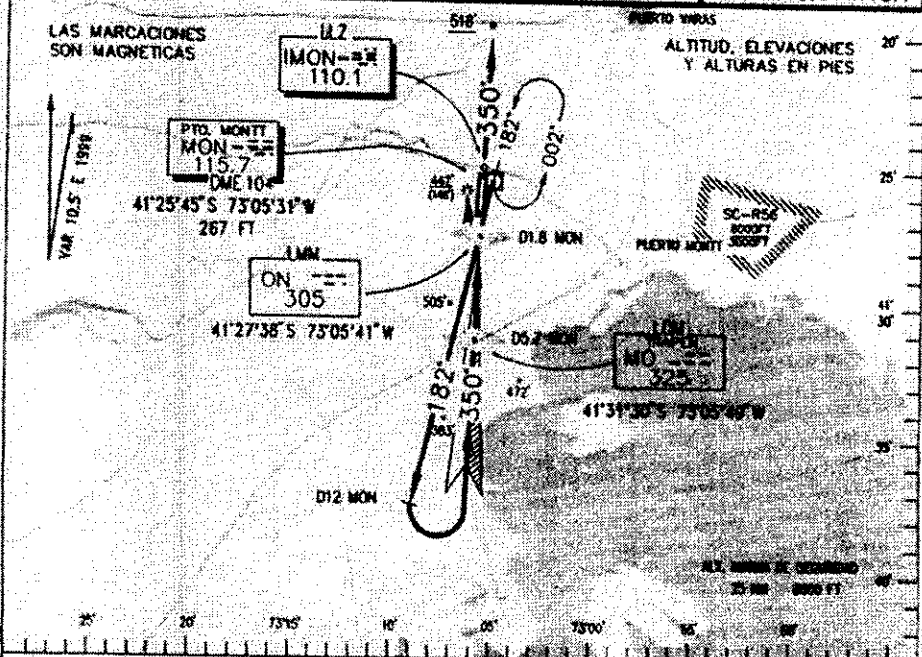


FIGURA 109

WOT/ONE-LS
Rwy 35

TORRE PUERTO MONTT	AOC PUERTO MONTT	CONTROL TERRESTRE	FREQ	VOR	ILZ
118.1	119.5 128.5	121.9		115.7	110.1



LATITUD	DCT RWY 35						CIRCULANDO	ALTN
	LS			LLZ WO GP				
	DA 494'(200')			MDA 760'(466')				
	FULL		WO ALS	ALS		WO ALS		
A	RVR 720m		1.2Km	0.8Km		1.6Km		(600') 3.2Km
B	0.8Km			(326')		1.6Km		
C				1.2Km		2.0Km		
D				1.6Km		2.4Km		
820'			(326')		2.4Km		(600') 3.2Km	
860'			(466')		3.2Km			
GS KI			70	90	100	120	140	160
GP 10° FPM			387	498	553	664	774	885
FAF to MAP1 3.9			1.20	2.36	2.70	1.53	1.40	2.78
SCTE			IAC 2		DCAC			02 DICIEMBRE 1999

CAMBIO NUEVO PROC

AMDT 40

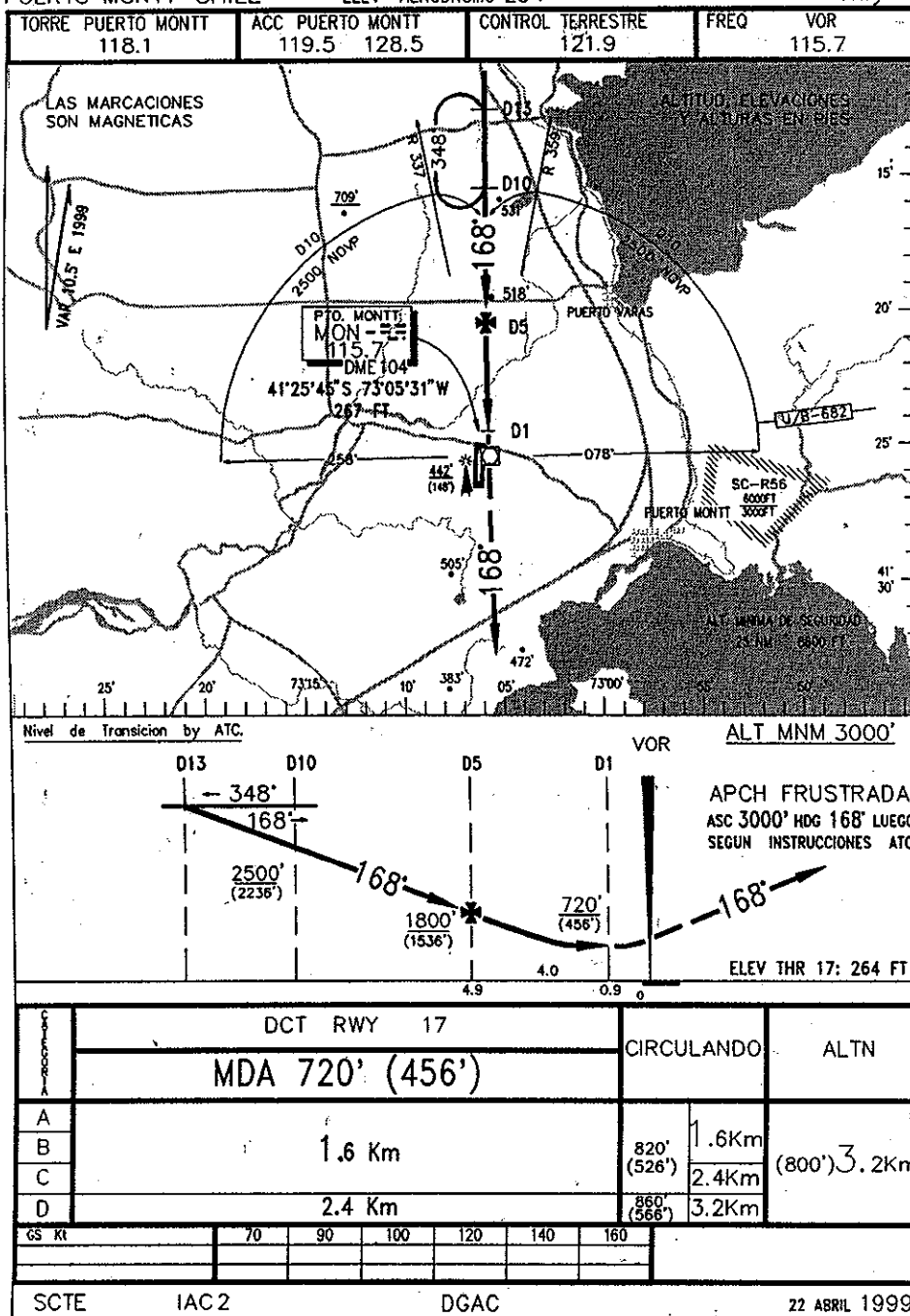
EL TEPUAL
VOR/DME-ILS Rwy 35
PUERTO MONTT - CHILE

FIGURA 110

EL TEPUAL
PUERTO MONTT-CHILE

ELEV AERODROMO 294'

VOR/DME
Rwy 17



CAMBIO: OBST AP/GRFICO/VAR

AMDT 38

EL TEPUAL
VOR/DME Rwy 17
PUERTO MONTT - CHILE

FIGURA 110 A

A. MERINO B.
SANTIAGO, CHILE

CARTA DE LLEGADA NORMALIZADA VUELO POR INSTRUMENTOS

PARVA 4

FREQ SANTIAGO RADAR 119.7 - 120.4

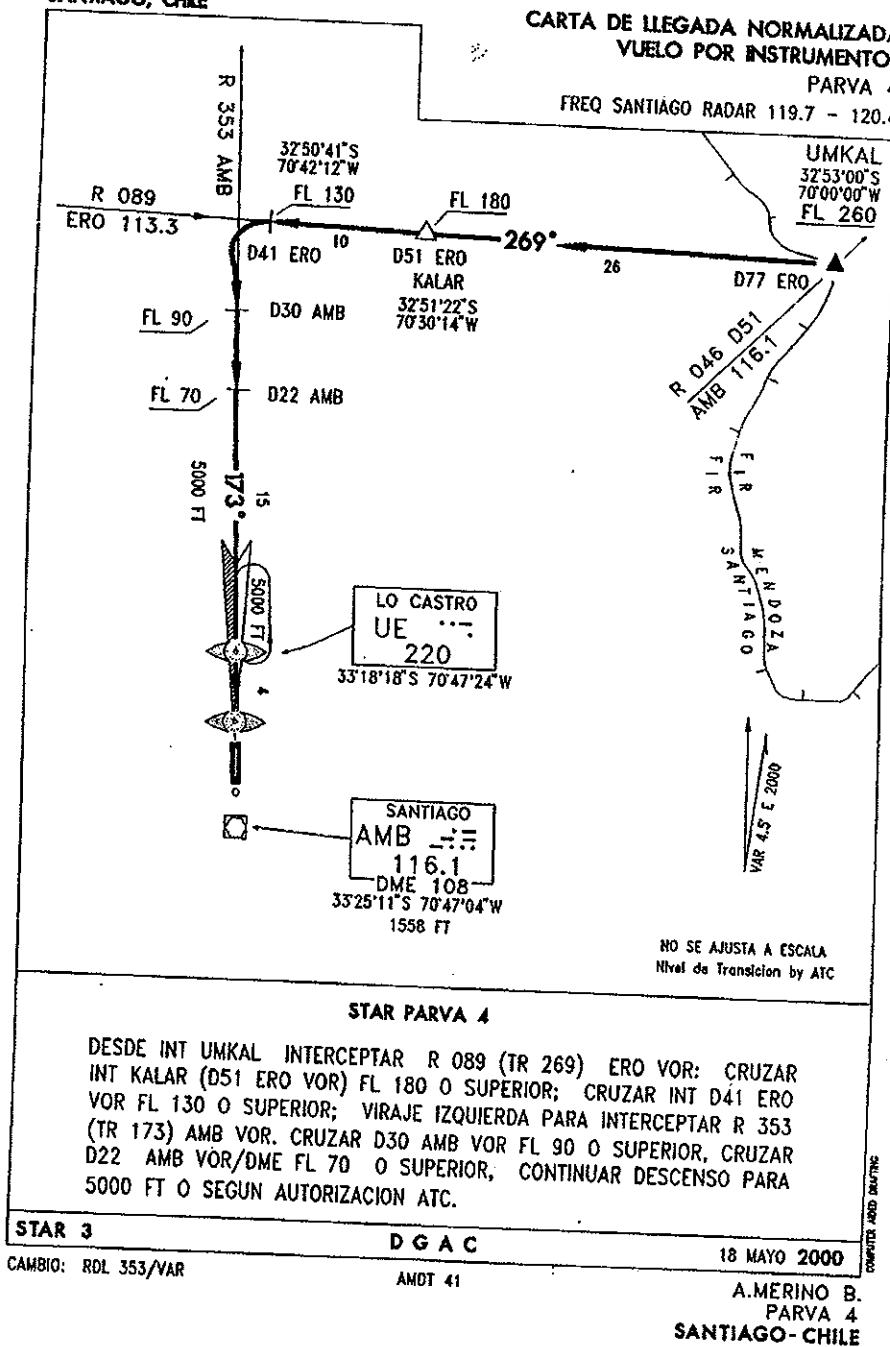
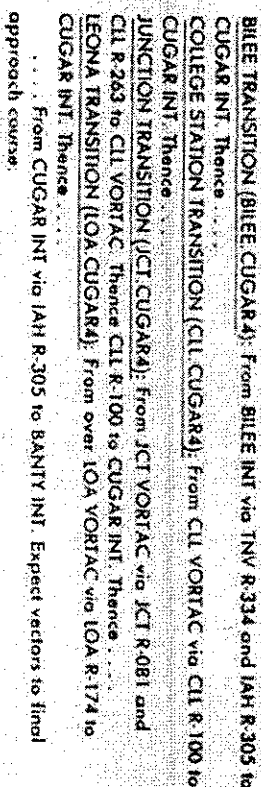


FIGURA 111



KMIA
MIAMI INTL

26 JUN 98

(11-5)

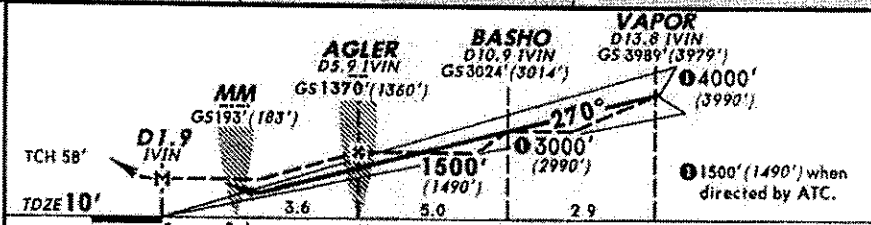
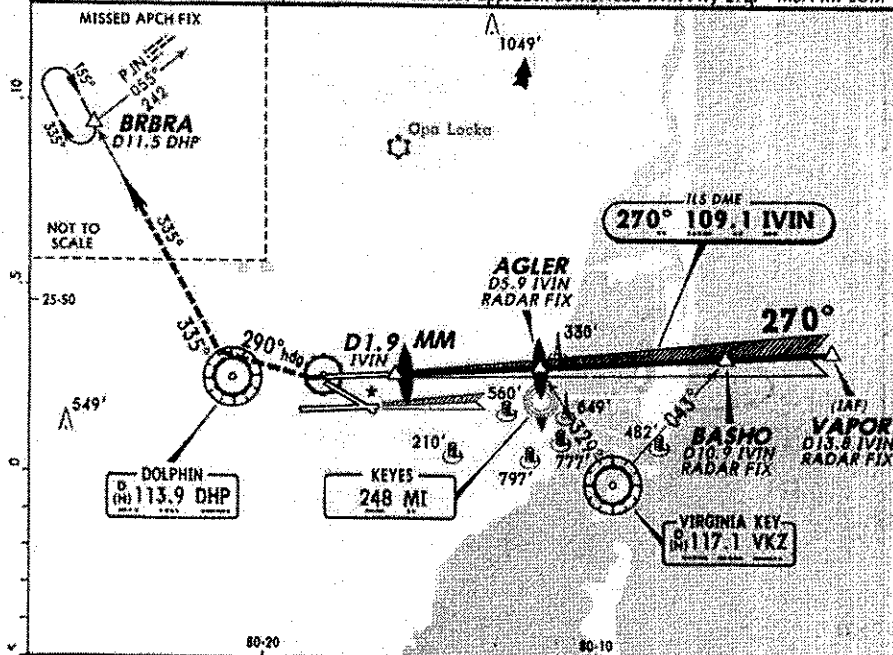
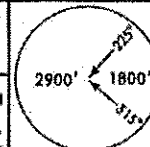
JEPPESSEN

MIAMI, FLA
ILS Rwy 27R

D-ATIS 119.15	MIAMI Approach (R) 124.85	MIAMI Tower 270°-089° 118.3	090°-269° 123.9	Ground Rwys 9L, 12, 27R 121.8	Rwys 9R, 27L, 30 127.5
LOC IVIN 109.1	Final Apch Crs 270°	GS AGLER 1370' (1360')	ILS DA(H) 210' (200')	Appt Elev 11'	TDZE 10'

MISSED APCH: Climb to 800' then climbing RIGHT turn to 2000' via heading 290° and DHP R-335 to BRBRA INT/D11.5 DHP and hold.

1. RADAR and DME or ADF required. 2. Simultaneous approach authorized with rwy 27L



Gnd speed-Kts	70	90	100	120	140	160
GS	3:00	3:76	4:84	5:37	6:45	7:52
MAP at D1.9 IVIN or	4.0	3:26	2:40	2:24	2:00	1:43
AGLER to MAP	4.0	3:26	2:40	2:24	2:00	1:43

STRAIGHT-IN LANDING RWY 27R				CIRCLE-TO-LAND			
ILS DA(H) 210' (200')		LOC (GS out) MDA(H) 420' (410')		FULL		RAIL or ALS out	
FULL		RAIL out		ALS out		NA	
A		RVR 24 or 1/2	RVR 40 or 3/4	RVR 50 or 1			
B							
C	RVR 24 or 1/2	RVR 40 or 3/4					
D		RVR 40 or 3/4	RVR 60 or 1 1/4				

CHANGES: Chart reindexed, new chart format.

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FIGURA 113

GRAL. BERNARDO O'HIGGINS
CHILLAN-CHILE

**RUTAS DE LLEGADA
VUELO POR INSTRUMENTOS ***

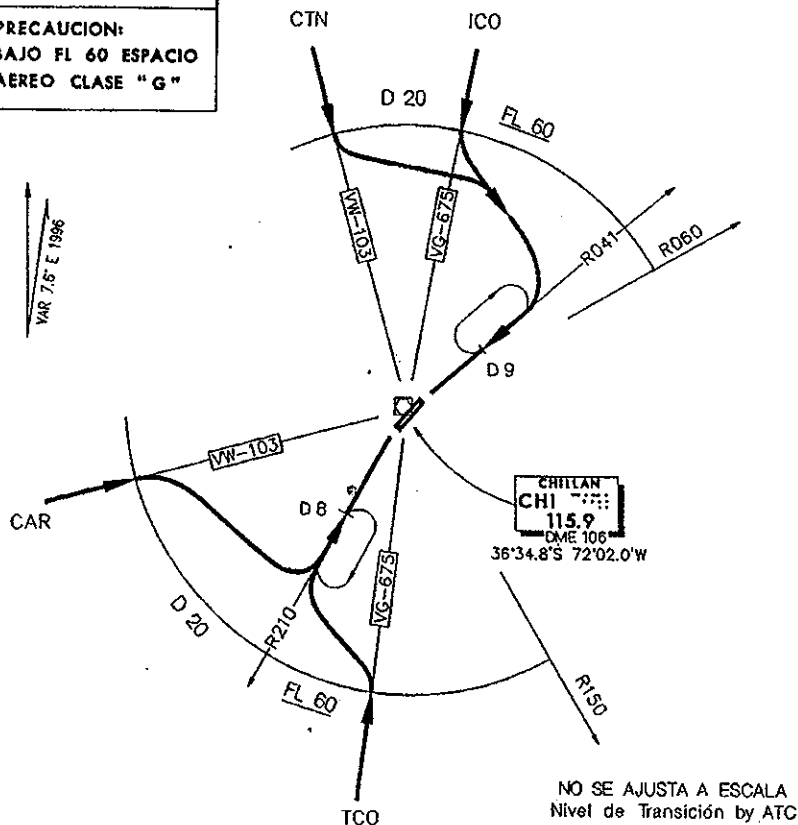
VOR/DME CHILLAN

FREQ ACC SANTIAGO 126.3 - AFIS 127.7

* SOLO GUIA PARA
TRIPULACIONES

PRECAUCION:
BAJO FL 60 ESPACIO
AEREO CLASE "G"

VAR 7.5° E 1996



STAR VOR/DME CHILLAN

NORTE: CRUZANDO ARCO D20 CHI VOR/DME, ABANDONAR AWY E INTERCEPTAR R 041 (TR 221'). CRUZAR ARCO D9 3000 FT O SUPERIOR.

SUR/WESTE: CRUZANDO ARCO D20 CHI VOR/DME, ABANDONAR AWY E INTERCEPTAR R 210 (TR 030'). CRUZAR ARCO D8 3000 FT O SUPERIOR.

STAR 1

D G A C

15 AGOSTO 1996

CAMBIO: FREQ

AMDT 30

GRAL BERNARDO O'HIGGINS
CHILLAN - CHILE

COMPUTER AIDED DRAFTING

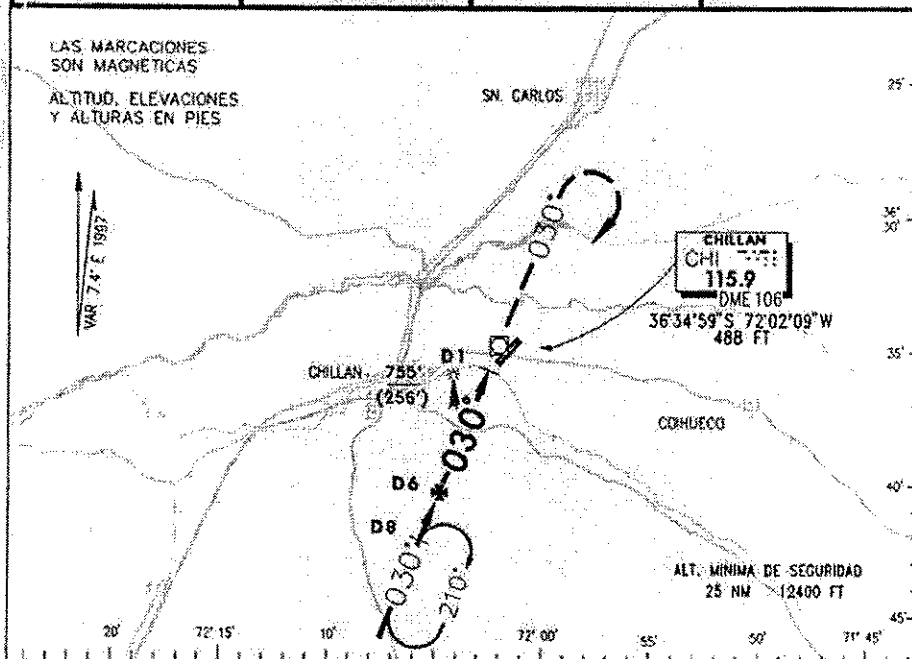
FIGURA 114

GRAL. BERNARDO O'HIGGINS
CHILLAN-CHILE

ELEV. AERODROMO 499'

VOR/DME
Rwy 04

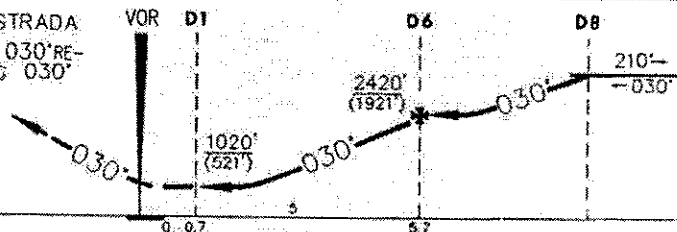
CHILLAN INFORMACION 127.7	ACC. SANTIAGO 126.3	CONTROL TERRESTRE	FREQ VOR 115.9
------------------------------	------------------------	-------------------	-------------------



Nivel de Transición by ATC.

ALT MNM 3000'

APCH FRUSTRADA
ASC 3000' HDG 030° RE-
GRESE RITE HDG 030°
RITE



Circulando	DCT RWY 04		CIRCULANDO	ALTN			
	MDA 1020' (521')						
A	1.6 Km		1020' (521')	1.6 Km (800')			
B							
C							
2.4 Km		2.4 Km					
Veloc. Terrestre Kts		70	90	100	120	140	160
FPM		327	420	467	580	658	743
MIN-SEC (FAF to MAP: 5.0 NM)		4:17	3:20	3:00	2:30	2:08	1:53

SCCH IAC 2 DGAC 01 ENERO 1998

CAMBIO: COORD WGS-84/ELEV/VAR

AMDT 34

GRAL. BERNARDO O'HIGGINS
VOR/DME Rwy 04
CHILLAN-CHILE

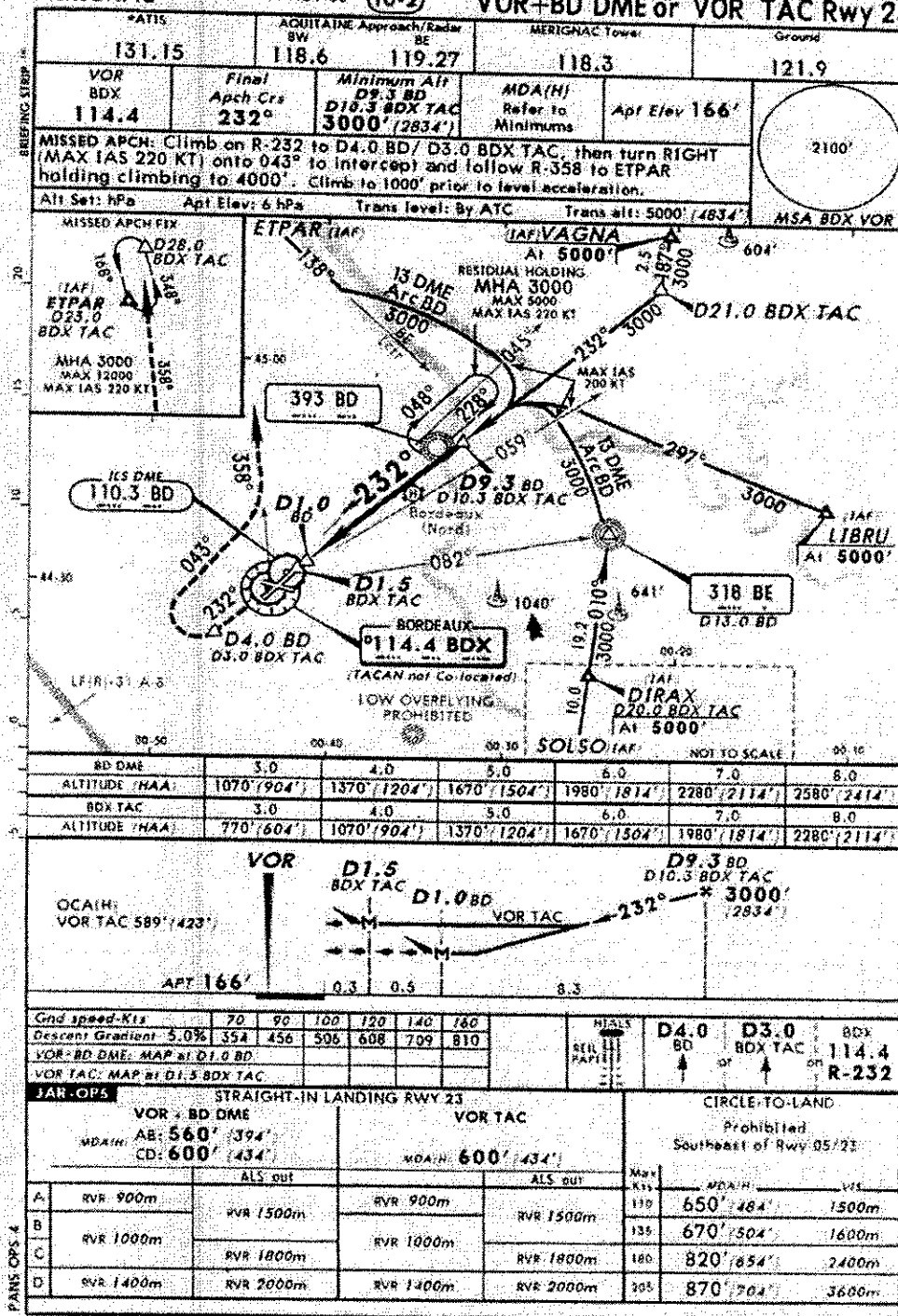
FIGURA 115

BORDEAUX, FRANCE

10 NOV 00

13-2

VOR+BD DME or VOR TAC Rwy 23



METEOROLOGICAL INFORMATION

SJL161700

SCAR 161700Z 21012KT CAVOK 26/18 Q1010 RMK NOSIG=
 SCDA 161700Z 21013KT CAVOK 26/17 Q1011 NOSIG=
 SCCF 161700Z 25019KT 9999 FEW060 23/12 Q1024 NOSIG=
 SCFA 161700Z 19011KT 9999 FEW026 25/17 Q1012 NOSIG=
 SCIP 161700Z 08011KT 040V110 9999 FEW020 27/19 Q1019 NOSIG=
 SCHB 1700Z 24013KT CAVOK 27/17 Q1009 NOSIG=
 SCIL 1700Z 18006KT CAVOK 26/15 Q1011 NOSIG=
 SCSE 161700Z 28007KT 9999 OVC019 21/15 Q1013 NOSIG=
 SCVM 1700Z 33010KT 9999 OVC019 18/15 Q1013 NOSIG=
 SCRD 1700Z 33012KT 0400 FG VV/// 15/15 Q1014 NOSIG=
 SCBL 161700Z 17010KT 9999 FEW050 30/13 Q1011 NOSIG=
 SCTI 1700Z 22009KT CAVOK 30/14 Q1011 NOSIG=
 SCTB 161700Z 23003KT 6000 SKC 30/17 Q1012 NOSIG=
 SCST 1700Z 29010KT 9999 BKN013 19/15 Q1013 NOSIG=
 SCTC 1700Z 15003KT CAVOK 29/16 Q1009 NOSIG=
 SCCH 1700Z 23002KT CAVOK 28/16 Q1011 NOSIG=
 SCIE 161700Z 22010KT 180V250 CAVOK 24/13 Q1011 NOSIG=
 SCGE 1700Z 18015KT CAVOK 29/16 Q1012=
 SCTC 161700Z 22007KT 120V260 CAVOK 27/14 Q1015 NOSIG=
 SCVD 161700Z 15005KT CAVOK 24/13 Q1017 NOSIG=
 SCJO 161700Z 20008KT 090V270 CAVOK 21/14 Q1019 NOSIG=
 SCTE 161700Z 13009KT 9999 FEW020 20/14 Q1021 NOSIG=
 SCST 1700Z 33006KT CAVOK 24/13 Q1029 NOSIG=
 SCTN 1700Z 29005KT 3000W BR BKN003 15/14 Q1019 NOSIG=
 SCOT 1700Z 16004KT 9999 SCT025 16/14 Q1020 NOSIG=
 SCFT 1700Z 25004KT CAVOK 23/11 Q1017 NOSIG=
 SCAP 1700Z 24010KT CAVOK 22/12 Q1020 NOSIG=
 SCAS 1700Z 24008KT 9999 OVC030 15/13 Q1014 NOSIG=
 SCCY 1700Z 06007KT 9999 BKN030 17/13 Q1012 NOSIG=
 SCBA 161700Z 31027G39KT 9999 SCT040 SCT200 18/11 Q1008 NOSIG=
 SCBC 161700Z 27030G45KT 9999 SCT040 SCT200 25/13 Q1005 NOSIG=
 SCHR 161700Z 20006KT 9999 BKN040 21/13 Q1005 NOSIG=
 SCNT 1700Z 29007KT 9999 -RA BKN030 OVC090 09/09 Q0998 NOSIG=
 SSCI 161700Z 27026KT 9999 FEW020 BKN200 14/06 Q0994 NOSIG=
 SCFM 1700Z 27020KT 9999 FEW020 SCT070 BKN200 13/05 Q0995 NOSIG=
 SCJZ 1700Z 26020G30KT 9999 SCT043 12/05 Q0989 NOSIG=
 SCEP 161700Z 10013KT 9999 SCT007 OVC015 02/00 Q0978 NOSIG=

SE PROHIBE SU VENTA Y REPRODUCCION TOTAL Y/O PARCIAL
 SIN LA AUTORIZACION PREVIA DE LA D.M.C

FIGURA 116

METEOROLOGICAL INFORMATION

FR151600

ROUTE FCST LAT 46S/LAT 60S VAL 151800 / 161200 UTC
APG.: SISTEMA FRONTAL AFECTA LA RUTA DURANTE LAS PRIMERAS HORAS DEL PERIODO DE PRONOSTICO DANDO PASO A INESTABILIDAD POSTFRONTAL. LINEA FRONTAL INGRESARA AL SECTOR NORTE Y CENTRO DE LA RUTA A MEDIADOS DEL PERIODO DE PRONOSTICO. SECTOR PASO DRAKE BAJO INCURSION DE SISTEMA FRONTAL. INESTABLE

JET STREAM: ABARCA ENTRE LAT49S Y LAT 57S CON NUCLEO SOBRE SCNT A LOS 34MFT DE LOS 270/110KT

TROPOPAUSA SOBRE AREA DE SCCI A LOS 35 MIL FT MS50 GRDS LAT 46S/LAT 50S:

COT: BKN 1.6MFT TOP 6.5MFT RA/-SHRA INT: SCT/BKN 2MFT TOP 6MFT -RA -SHRA COT-INT: SCT 8MFT TOP 13MFT BECMG 2123 COT: 8MFT TOP 20MFT SHRA BECMG 2302 INT: BKN 8MFT TOP 18MFT -SHRA/-RA, TURB MOD BLW 12MFT LIG/MOD OCNL BTN 28/35MFT, LIG BTN 37/40MFT, ICE LIG/MOD OCNL INC BTN 3/11MFT BECMG 0204 ICE LIG/MOD INC BTN 3/13MFT

LAT 50S/LAT 55S
COT: BKN 1.8MFT TOP 6MFT SHRA INT: SCT 2MFT TOP 6MFT TEMPO -SHRA COT E INT: SCT 8MFT TOP 16MFT BKN 26MFT BECMG 0204 BKN 8MFT TOP 22MFT -RA/-SHRA BECMG 0810 SCT 8MFT TOP 14MFT, TURB MOD BLW 14MFT LIG/MOD OCNL BTN 27/35MFT, LIG BTN 37/40MFT, ICE LIG/MOD INC BTN 03/12MFT

LAT 55S/LAT60S

BKN 1700FT TOP 6MFT BKN 8MFT TOP 22MFT -SHRA/SHRA TURB MOD BLW 14MFT, LIG/MOD OCNL 26/35MFT, ICE MOD/LIG INC BTN 3/10MFT

WIND/TEMP

LAT46S/LAT60S

03/28030/03 06/28040/M02 09/27050/M06 12/27060/M11 15/27080/M16 20/27070/M24 25/27080/M34 30/27100/M47 35/27110/M50 40/26090/M51
ISOTERMA CERO: 3.000 FT=

=

FT151800

SCCI 151610Z 151812 33015G25KT 9999 BKN018 TEMPO 1800 8000 -SHRA BKN018 T14/18Z BECMG 1820 SCT020 BECMG 2200 27015G25KT BECMG 0204 35010KT BKN020 T06/08Z TEMPO 0310 -SHRA BECMG 1012 28015G25KT=

SCNT 151610Z 151812 28020G30KT 9999 SCT030 BKN050 TEMPO 1802 8000 -SHRA BKN022 T18/18Z BECMG 0204 34018KT -RA BKN018 T06/08Z BECMG 1012 28015G27KT 9999 SCT030=

SCFM 151610Z 151812 34015G25KT 9999 BKN020 TEMPO 1800 8000 -SHRA BKN018 T12/18Z BECMG 2022 27015G25KT SCT020 TEMPO 0410 35010KT -SHRA T07/08Z BECMG 1012 28020G30KT=

SCGZ 151610Z 151812 33015KT 9999 SCT050 BKN090 T14/18Z BECMG 1820 SCT030 BKN080 TEMPO 1800 8000 RA -SHRA BKN020 BECMG 2200 31015G25KT T05/08Z BECMG 0810 SCT020 BKN080 TEMPO 0812 -SHRA=

TAF SCEF 151553Z 151812 12015KT 7000 BKN015 BKN070 T00/20Z TEMPO 1822 4000 -SN/SHSN BKN010 OVC070 BECMG2200 34015KT 4000 BR OVC 008 TEMPO 2206 36015KT 500 FG DZ OVC003 T02/12Z=

FIGURA 117

** AIRPORT METEOROLOGICAL INFORMATION 22FEB01 00:03Z **
** METEO. INFORMATION OF GROUP SCLMIA 22FEB01 00:03 Z **

SCL/SANTIAGO/A MERINO BENITEZ, INTL

-FT212300/FEB01

SCEL 212200Z 220018 17005KT 8000 SKC BECMG 0305 VRB03KT T13/10Z BECMG
0608 5000 HZ BECMG 1416 18005KT 8000 SKC T29/18Z=

CCP/CONCEPCION/CARRIEL S, INTL

-FT212300/FEB01

SCIE 212200Z 220018 23015KT CAVOK BECMG 0204 20005KT T11/10Z BECMG
1618 23015KT T23/18Z=

ANF/ANTOFAGASTA-CERRO MORENO INTL

-FT212200/FEB01

SCFA 212200Z 220018 VRB03KT 9999 SCT023 T18/10Z BECMG 1416 SCT027
T25/18Z=

IQQ/IQUIQUE/DIEGO ARACENA INTL.

-FT212200/FEB01

SCDA 212200Z 220018 VRB03KT CAVOK T20/09Z BECMG 1416 24010KT T26/18Z=

ARI/ARICA/CHACALLUTA INTL

-FT212200/FEB01

SCAR 212200Z 220018 VRB03KT CAVOK T21/10Z BECMG 1416 22013KT T27/18Z=

LIM/LIMA-CALLAO/J. CHAVEZ INTL

-FT212300/FEB01

SPIM 212300Z 220000 24004KT CAVOK PROB30 0815 VRB03KT 4000 BR
SCT007 BKN130 FM16 29007KT CAVOK T28/19 T23/11Z=

CIX/CHICLAYO/J.A. QUINONES GONZALE
FT NJT AVBL.

GYE/GUAYAQUIL/SIMON BOLIVAR INTL

-FT212300/FEB01

SEGU 212230Z 220024 300004KT 9999/ SCT020 BKN090
TEMPO 8000 -RA
FM1200 VRB03KT 9999 SCT020 SCT090
FM1800 03005KT 9999 BKN020=

FIGURA 118

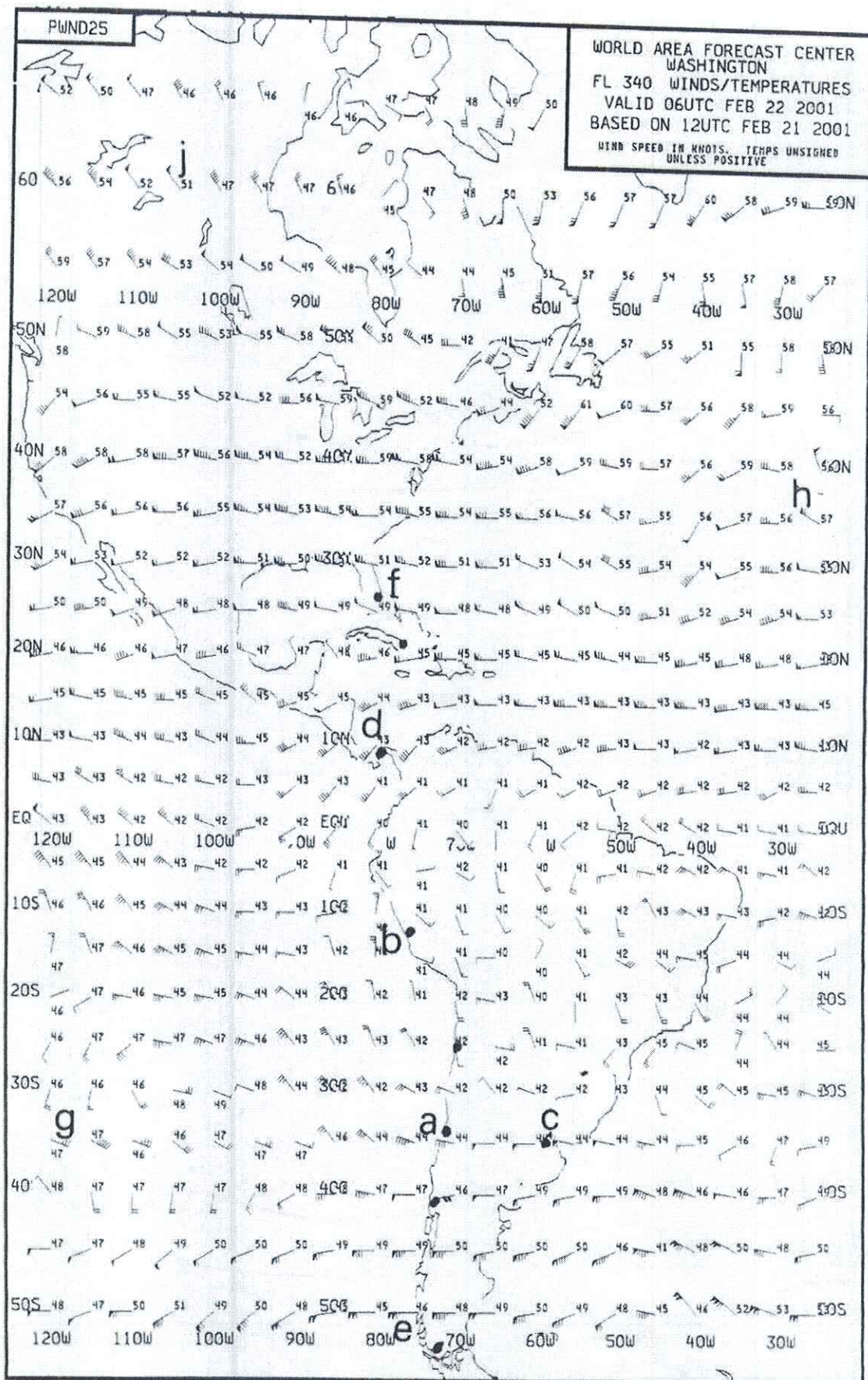


FIGURA 121

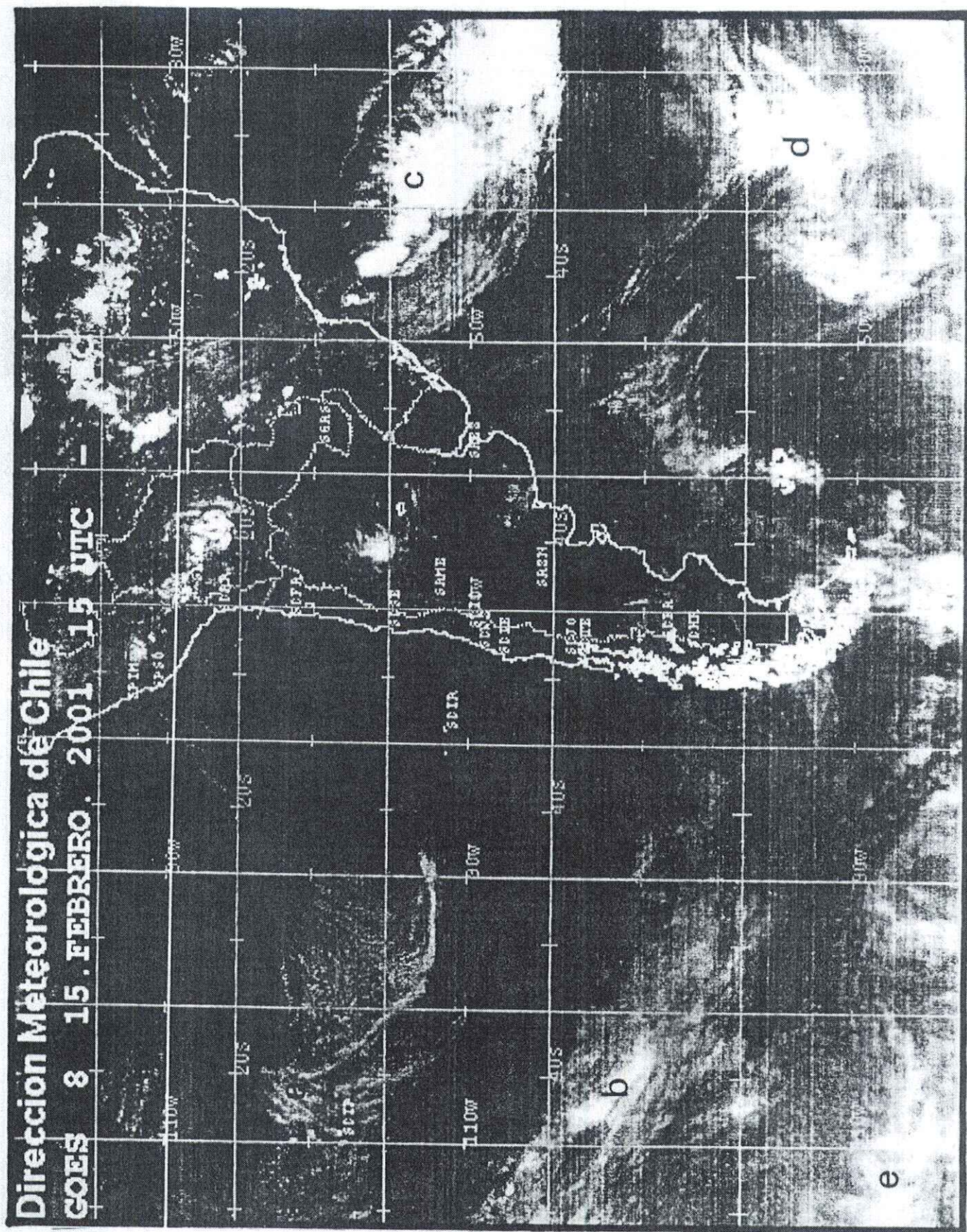
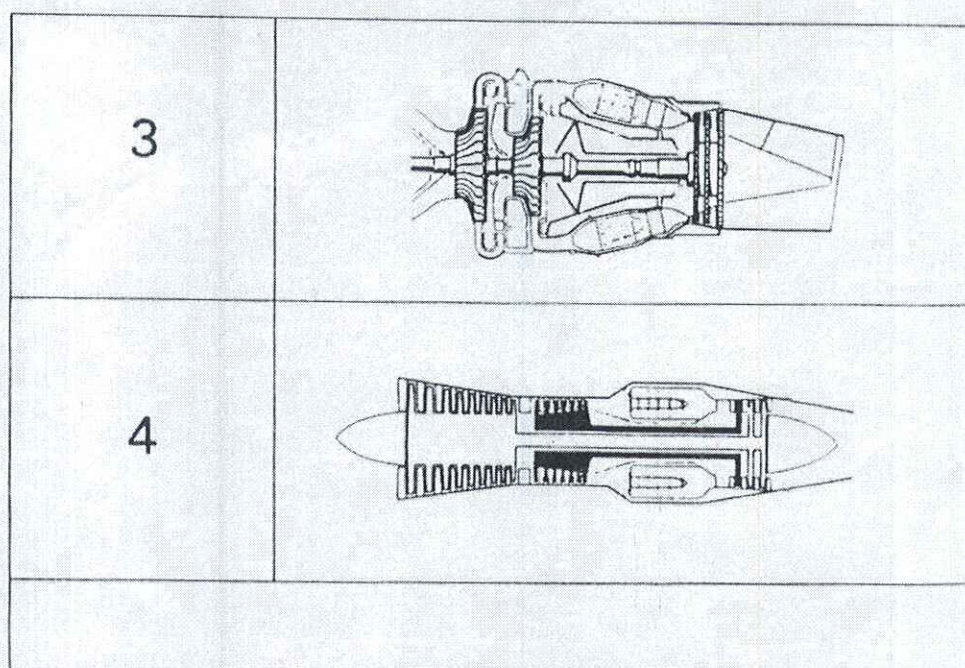
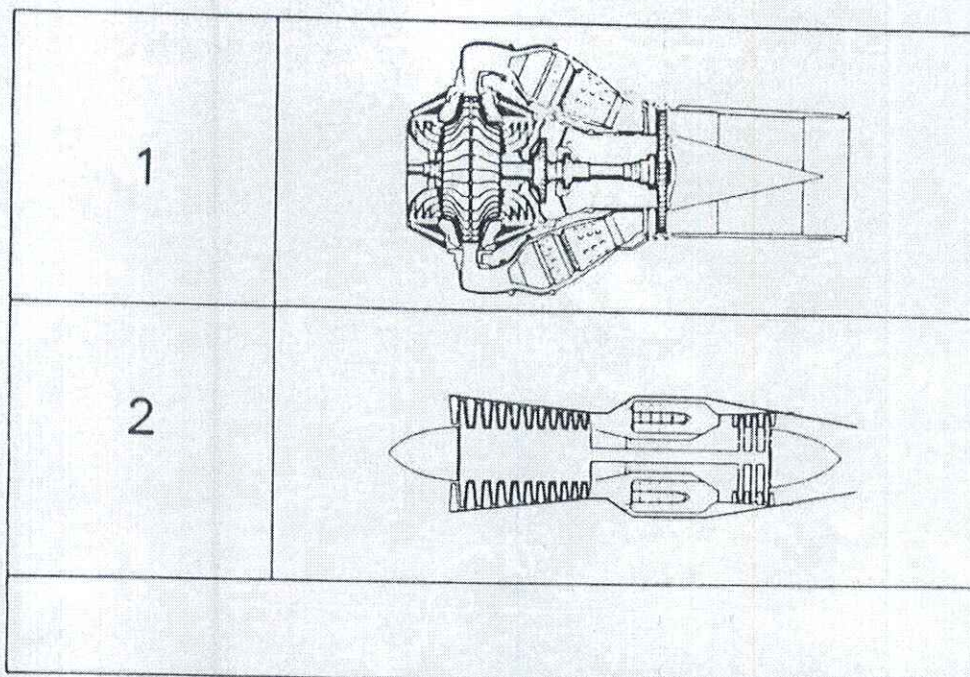


FIGURA 122



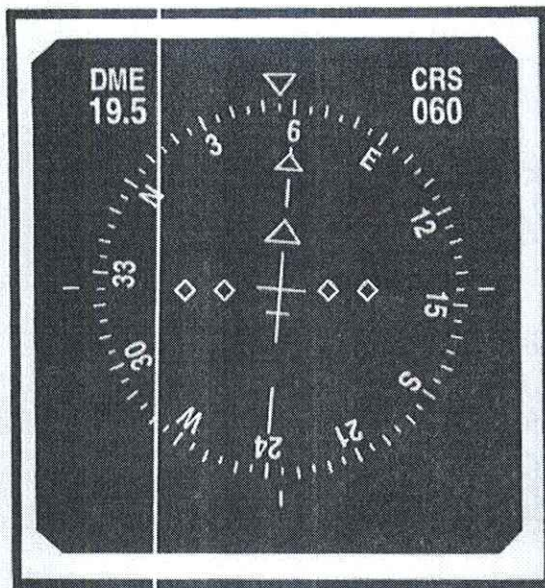


FIGURE 123.—Aircraft Course and DME Indicator.

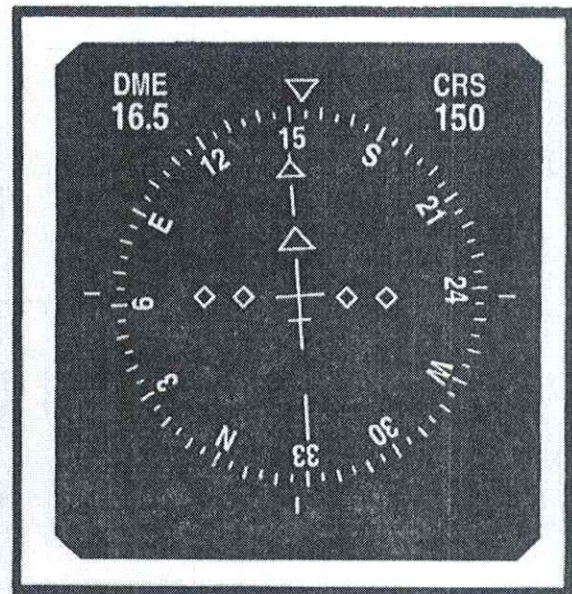


FIGURE 124.—Aircraft Course and DME Indicator.

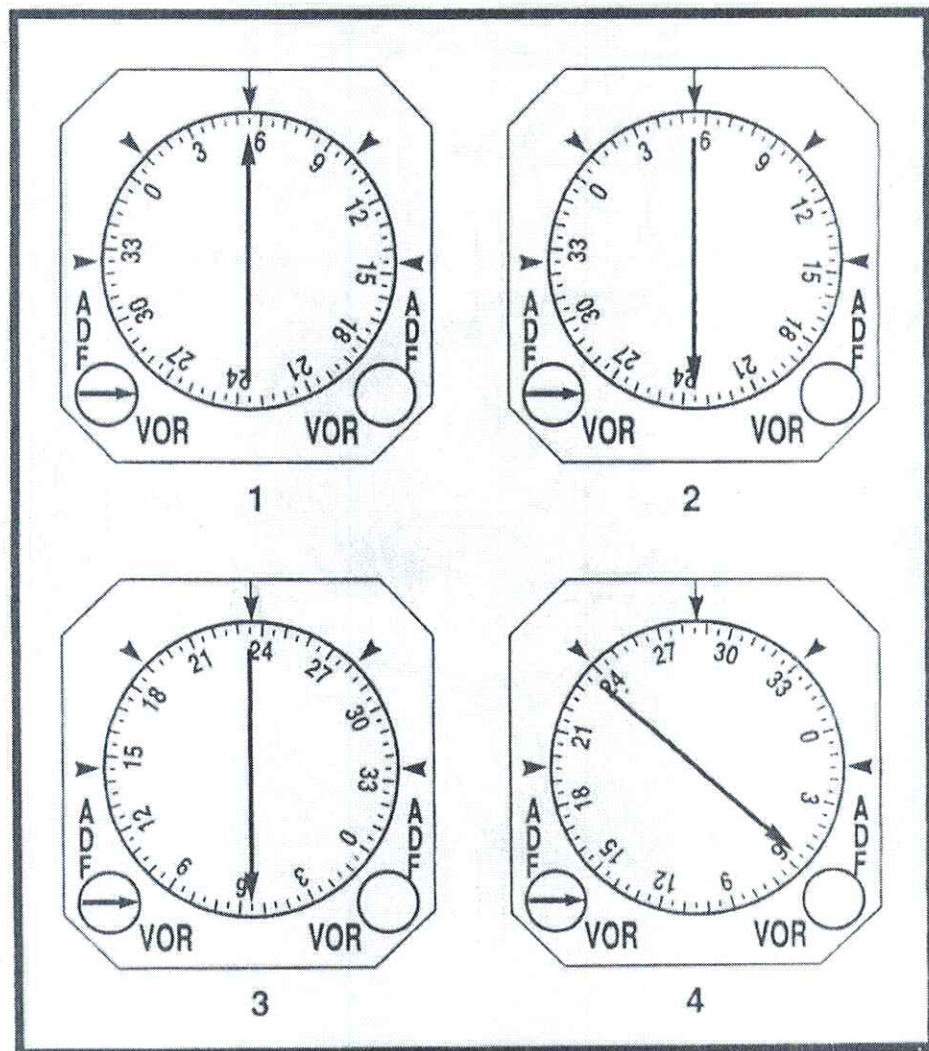


FIGURE 125.—RMI Illustrations.

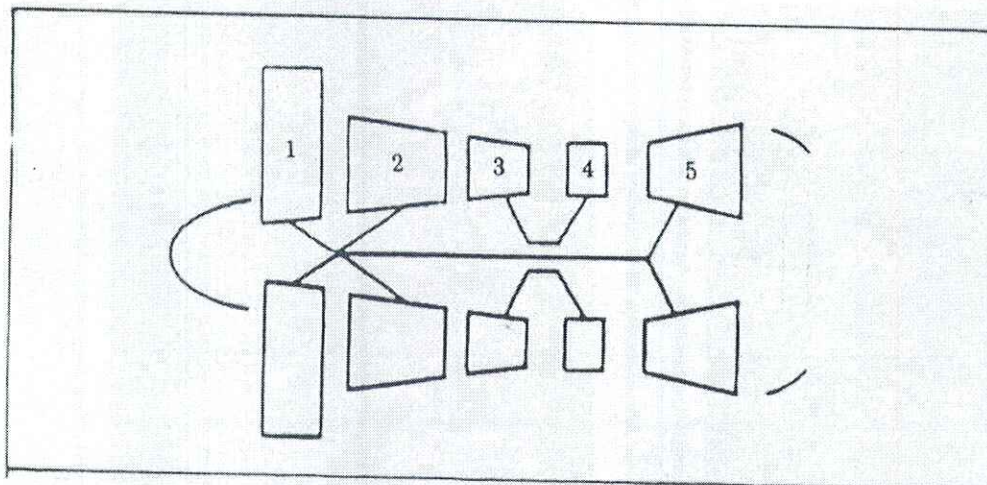


FIGURA 126

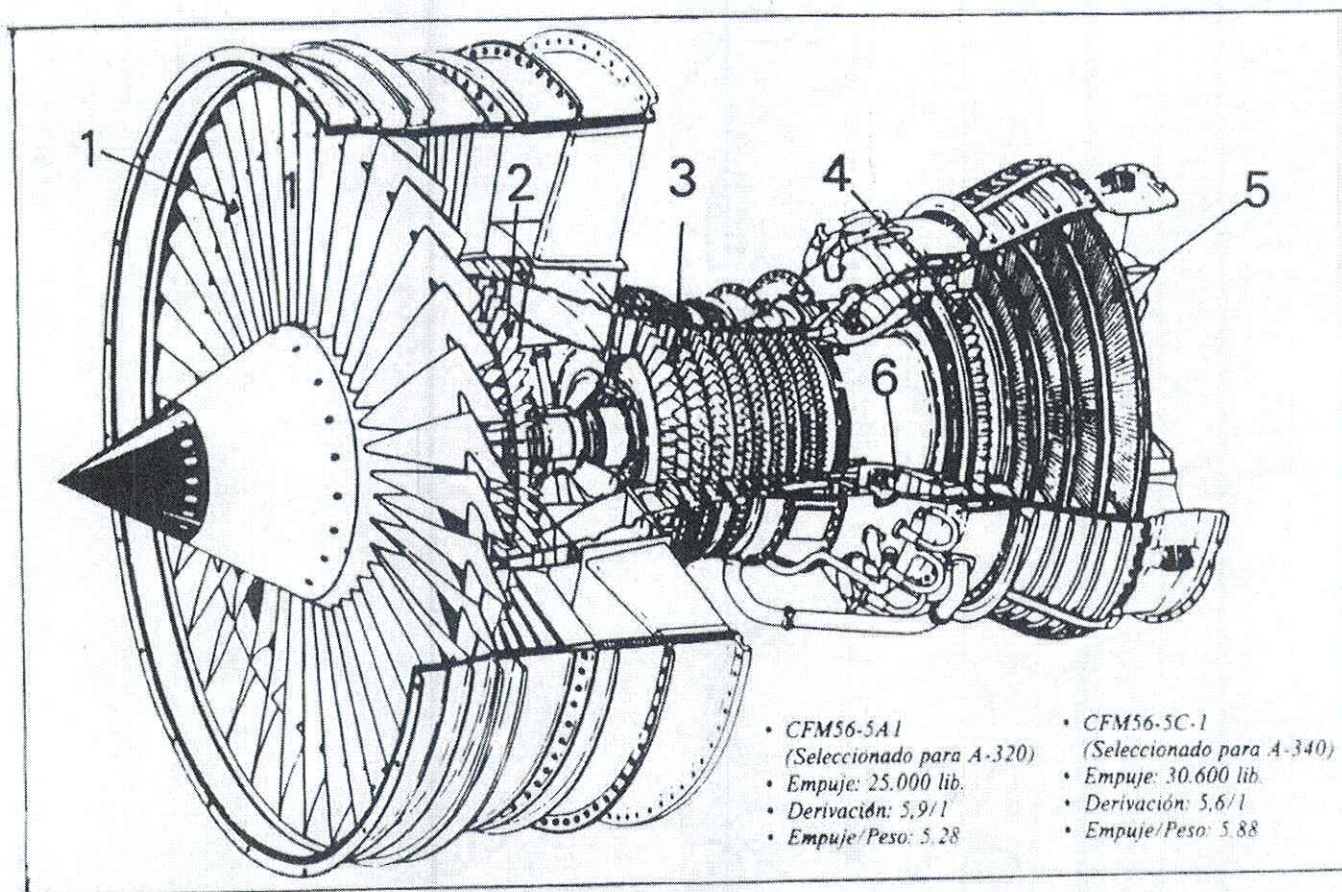


FIGURA 127

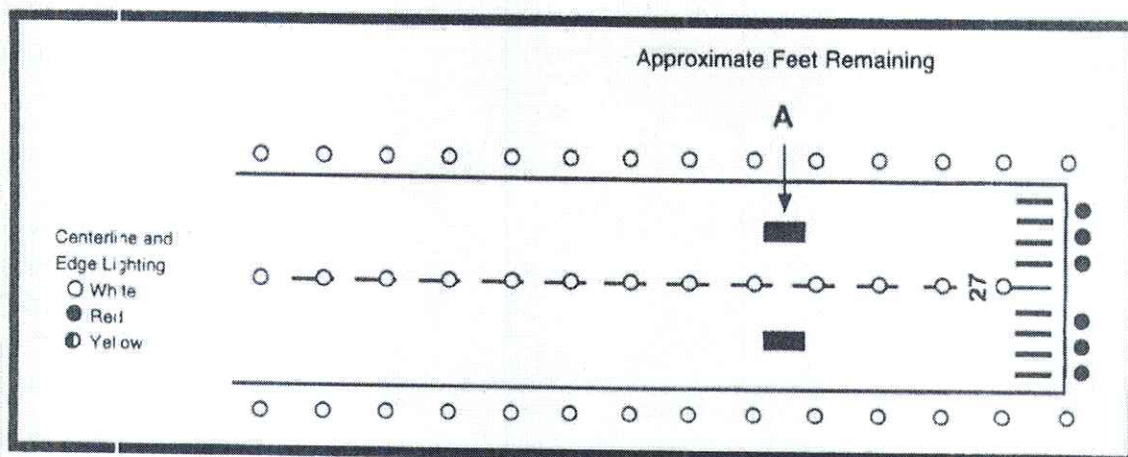


FIGURE 129.—FAA Nonprecision Approach Runway Markings and Lighting.

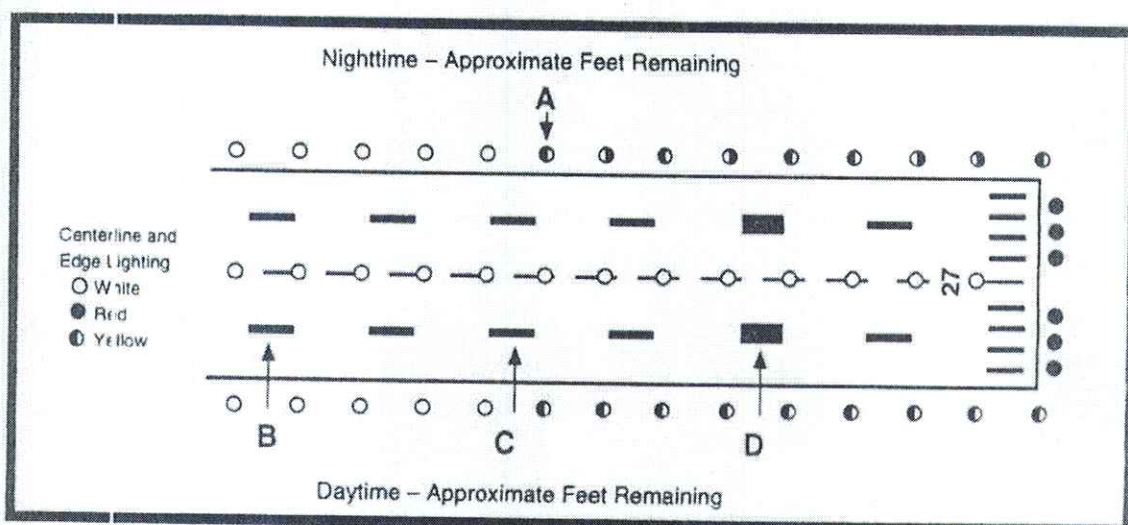


FIGURE 130.—ICAO Nonprecision Approach Runway Markings and Lighting.

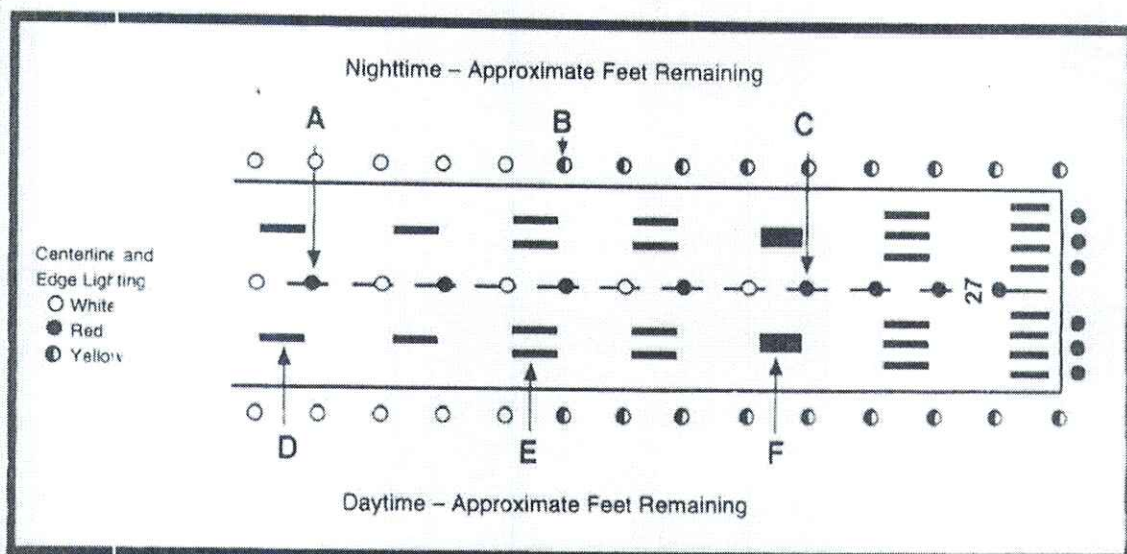


FIGURE 131.—FAA ICAO Precision Approach Runway Markings and Lighting.

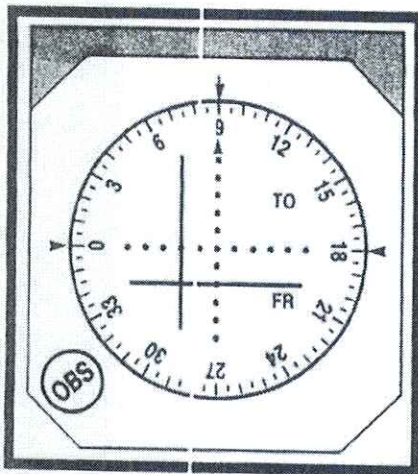


FIGURE 135.—OBS, ILS, and GS Displacement.

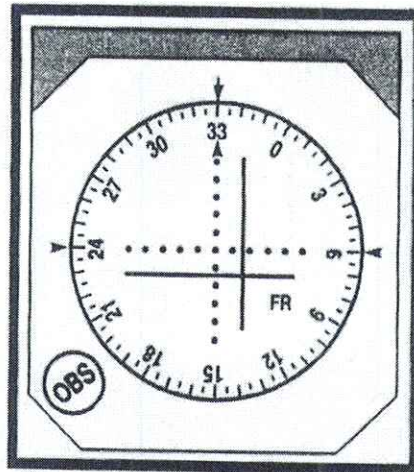


FIGURE 136.—OBS, ILS, and GS Displacement.

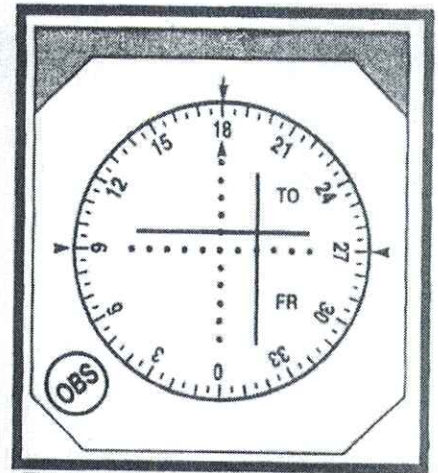


FIGURE 137.—OBS, ILS, and GS Displacement.

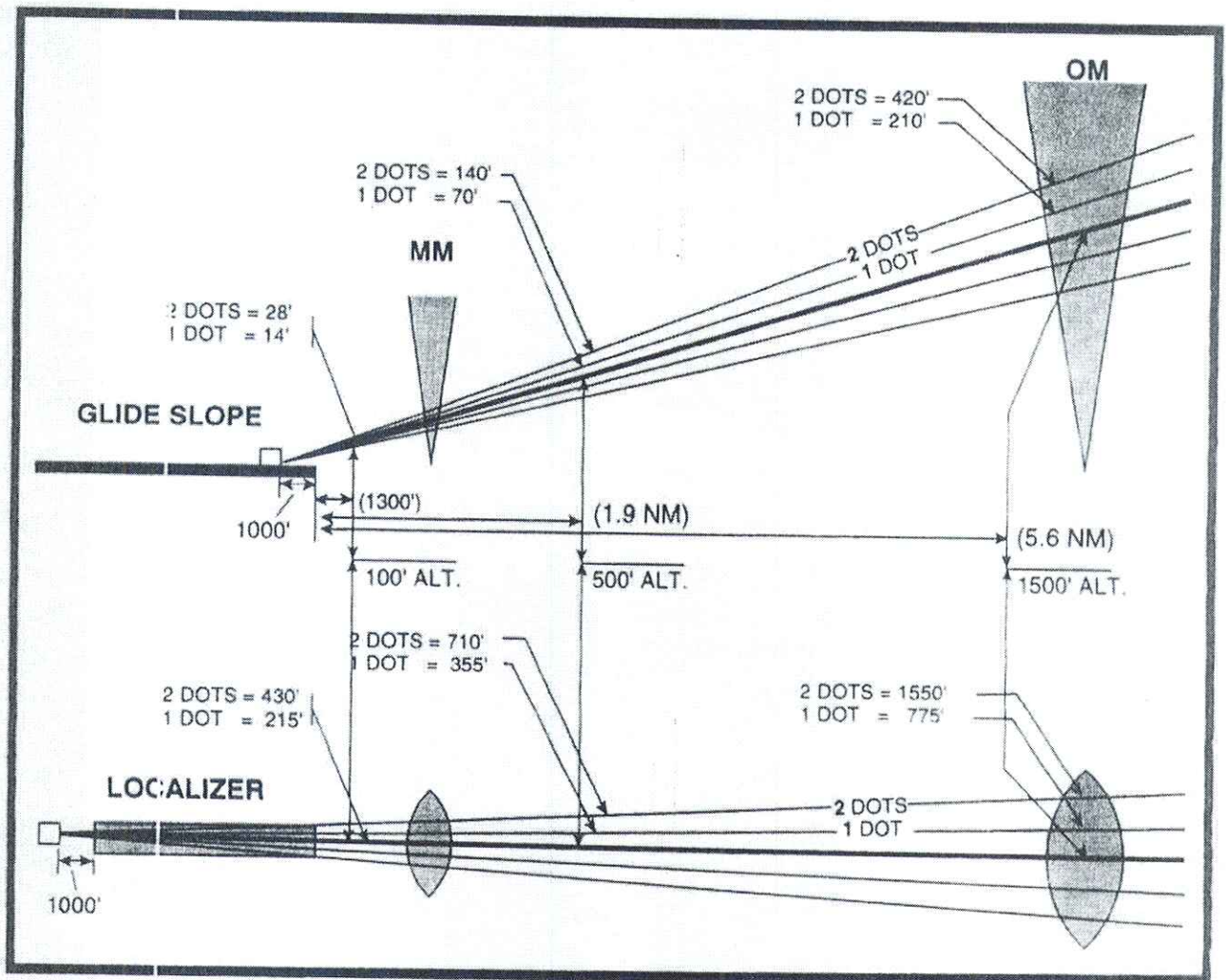


FIGURE 138.—Glide Slope and Localizer Illustration.

FREQ	N.M.	KNOTS	MIN
115.0	60.0	180	20.0

NAV - 1



NAV
SEL

NAV - 2

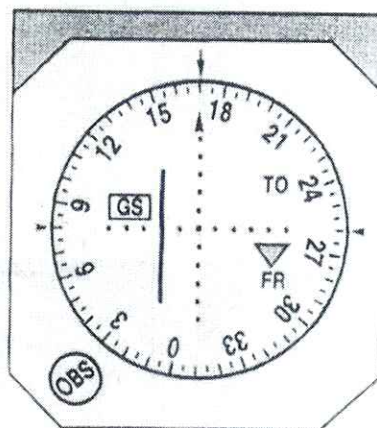
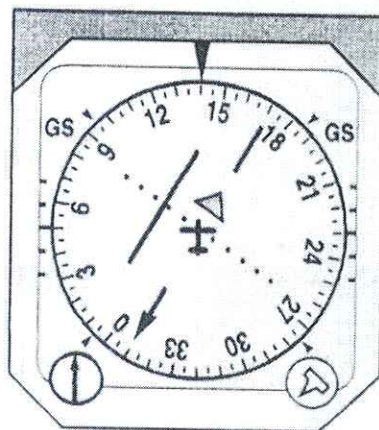
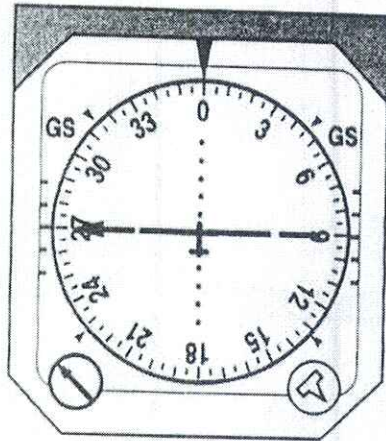
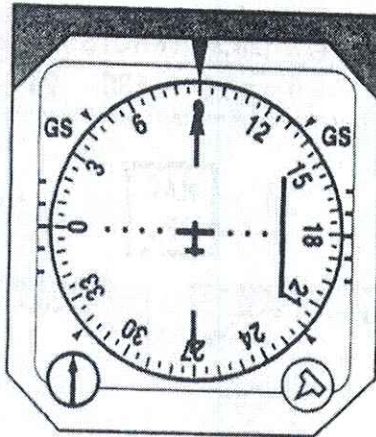


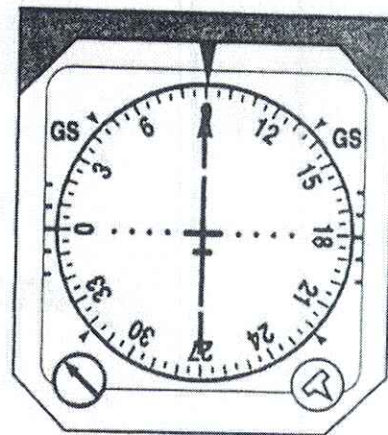
FIGURE 139.—No. 1 and No. 2 NAV Presentation.



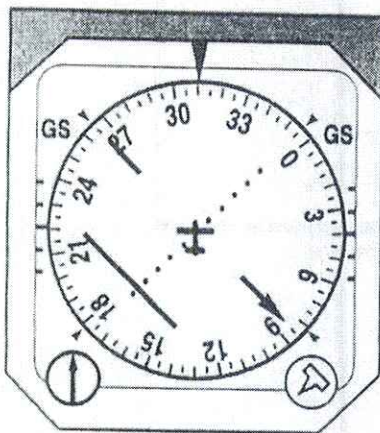
A



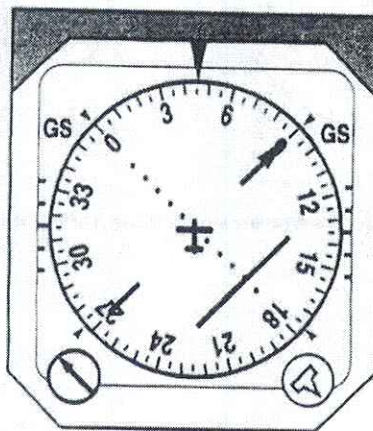
B



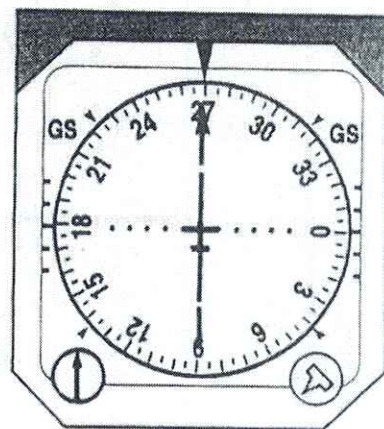
C



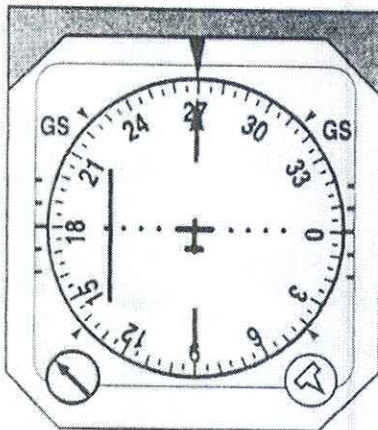
D



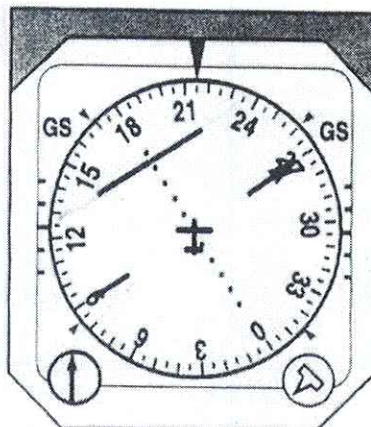
E



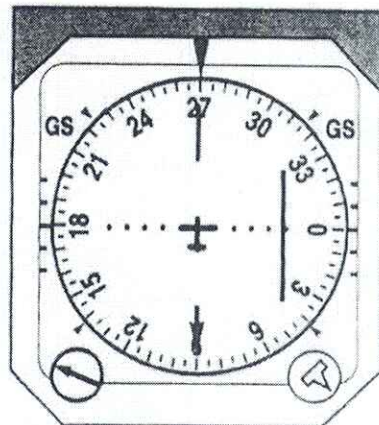
F



G



H



I

FIGURE 140.—HSI Presentation.

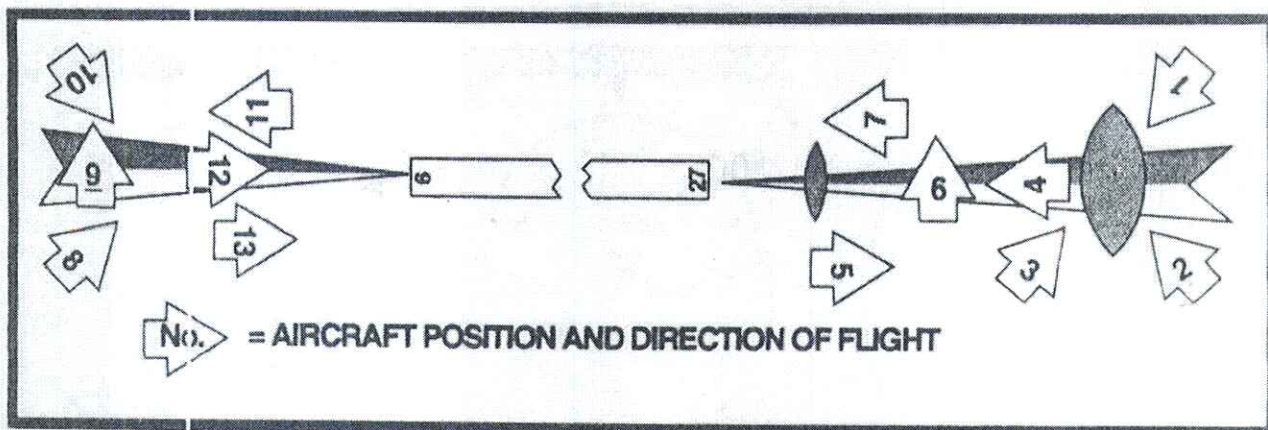


FIGURE 141.—Aircraft Position and Direction of Flight.

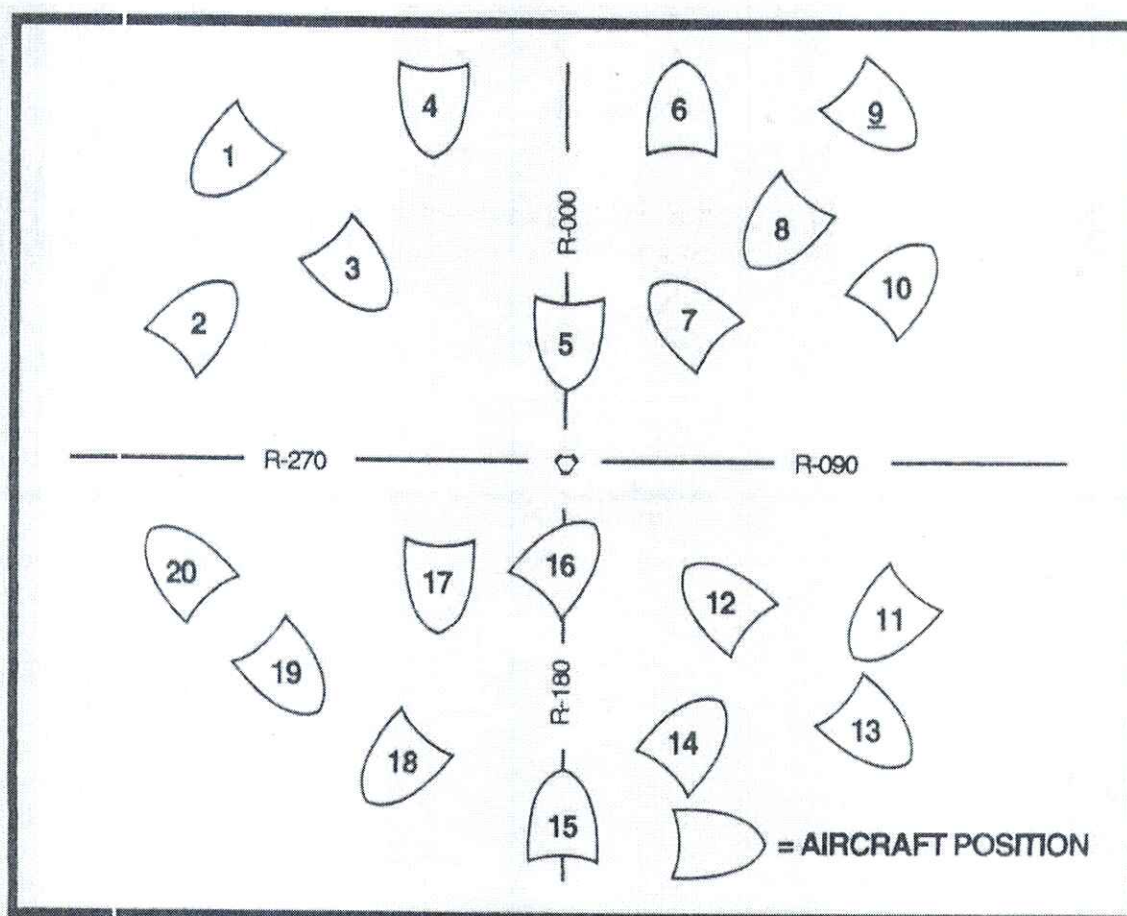


FIGURE 142.—Aircraft Position.

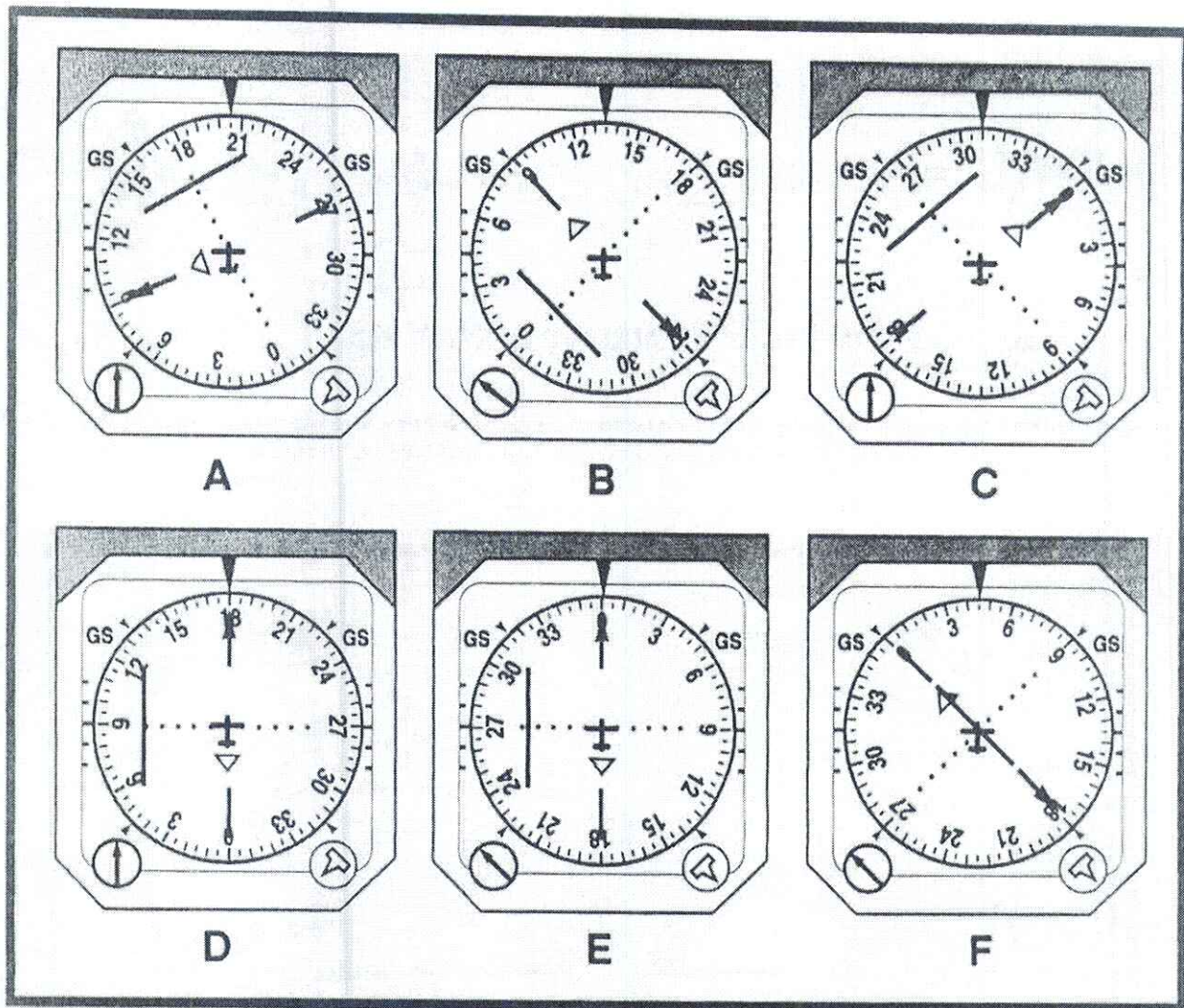


FIGURE 143.—HSI Presentation.

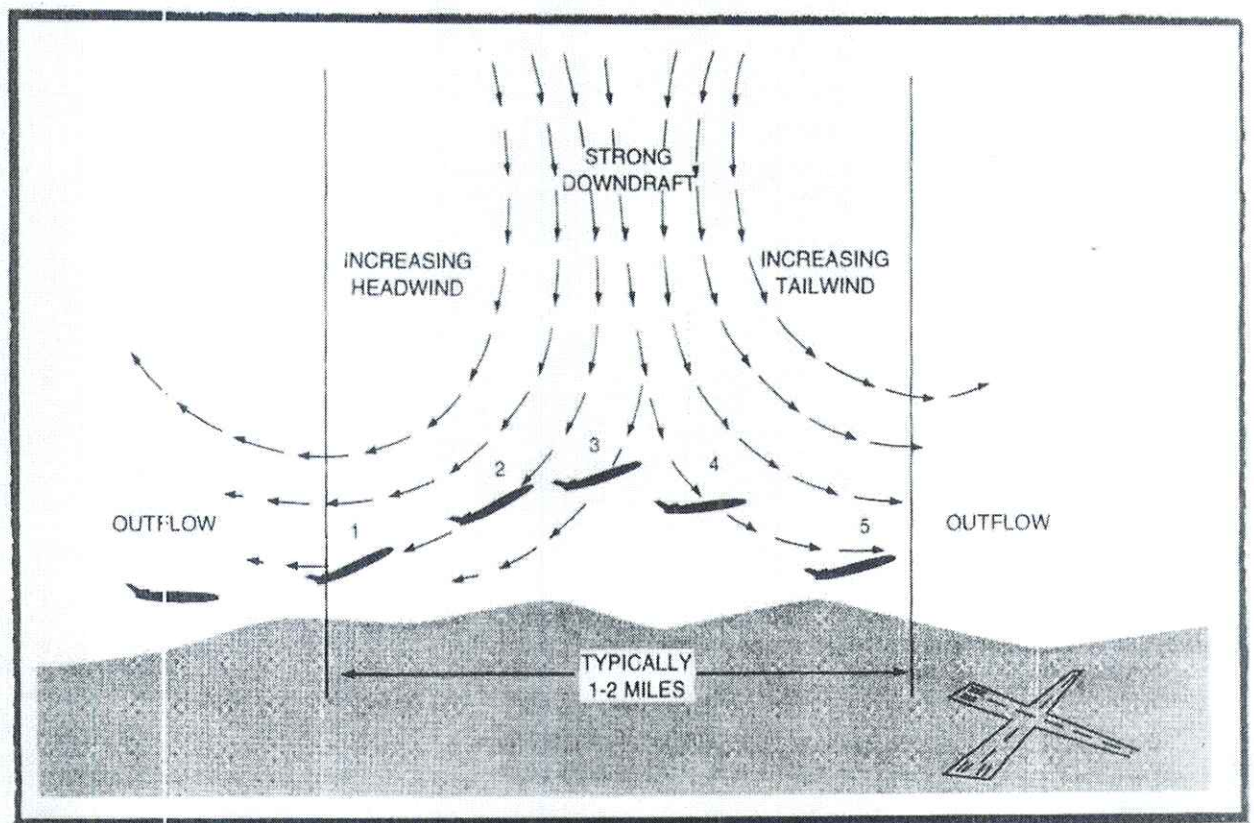


FIGURE 144.—Microburst Section Chart.

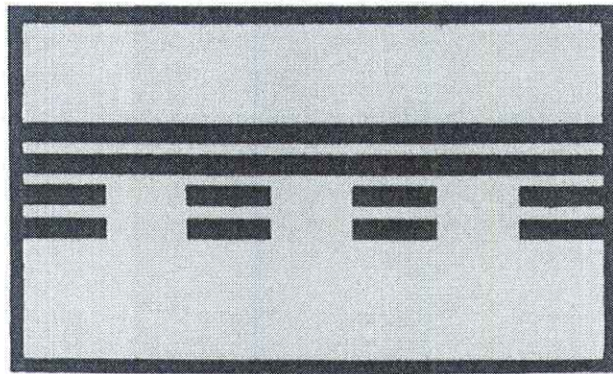


FIGURE 156.—Airport Sign.

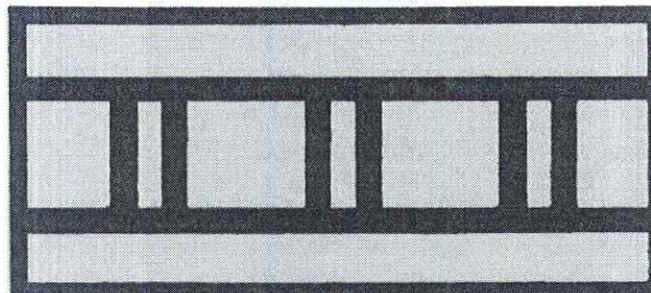


FIGURE 157.—Airport Sign.