

# NAVIGATOR'S OPERATING CARD.

MAXIMUM OPERATING SPEED (V <sub>MO</sub> /M <sub>MO</sub> )	BASIC OPERATING SPEEDS	IN SEVERE TURBULENCE	HOLDING SPEEDS	3 ENGINE NET CEILING			
V <sub>MO</sub> : 337 Kts. IAS at sea level, reducing by 1 Kt./1000 ft. to 317 Kts. IAS at 20,000 ft. increasing by about 1 Kt./1000 ft. to 329 Kts. IAS at 31,000 ft.  M <sub>MO</sub> : 0.886 M <sub>IND</sub> at 31,000 ft. and above.	Climb: 290 Kts. IAS/0.84 M <sub>IND</sub> .  Cruise: above 30,000 ft. 0.886 to 0.84 M <sub>IND</sub> .  below 30,000 ft. 300 Kts. IAS.  Descent: 0.84 M <sub>IND</sub> /290 Kts. IAS.	290 Kts. IAS up to 35,000 ft.  0.855 M <sub>IND</sub> above 35,000 ft.  Holding: minimum: 250 Kts. IAS below 20,000 ft. 265 Kts. IAS above 20,000 ft. at AUV less than 260,000 lb.	Normal: 230 Kts. IAS below 20,000 ft. 250 Kts. IAS above 20,000 ft.  Flaps and slats 20°: 180 Kts. IAS below 20,000 ft.	WT. lb/1000	PRESS. HEIGHT - FT.		
				ISA	ISA + 10	ISA + 20	
				200	34000	32000	27300
				240	31300	28600	23100
				280	28300	24700	18500
				320	24800	20300	13700

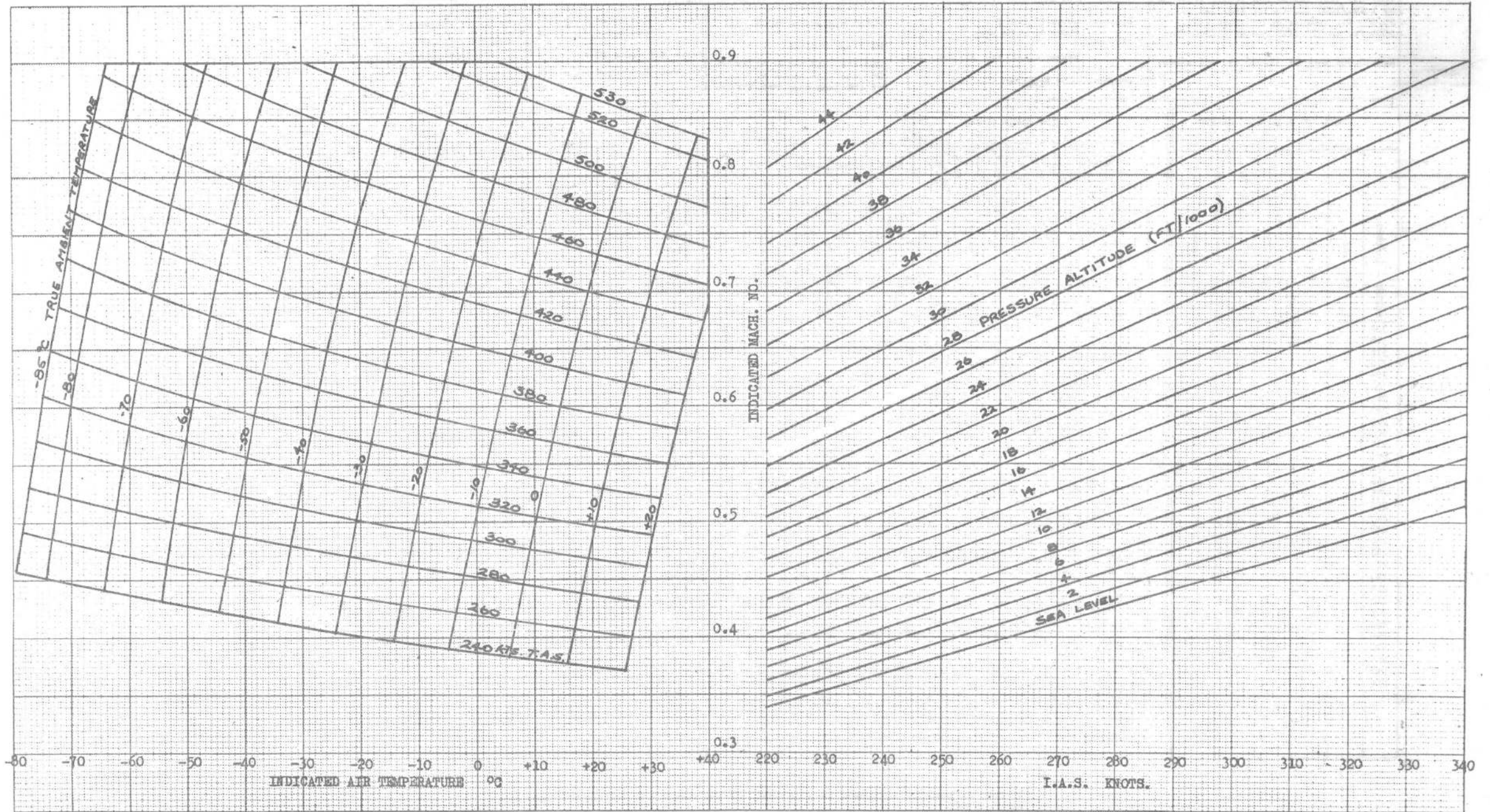
TAKE OFF & LANDING SPEEDS					LOW SPEED BUFFET									J.S.A. TEMP.		DESCENT								
WEIGHT - lb/1000	V <sub>R</sub> - Kts. IAS	V <sub>2</sub> - Kts. IAS	Min. speed for start of flap retraction	Min. speed for completion of flap retraction	Threshold speed Kts. IAS.	PRESSURE HEIGHT - FT.									FT. / 1000	TEMP. °C	PRESS. HT. FT.	MEAN TAS KTS.	FUEL USED lb.	TIME MINS.	DISTANCE N.W.L.			
						1.35g 1.2g															50 KTS. HEAD	ZERO WIND	50 KTS. TAIL	
						30000	32000	34000	36000	38000	40000	42000	44000											
323	155	167	201	227	156	180	194	197	200	202	204	206	208	211	43	-71	43000	368	1300	22	117	135	153	
320	154	167	199	227	155	180	194	197	200	202	204	206	208	211	42	-69	42000	366	1300	22	114	131	149	
315	153	166	196	226	154	180	194	197	200	202	204	206	208	211	41	-67	41000	364	1300	21	111	129	147	
310	152	165	193	225	152	180	194	197	200	202	204	206	208	211	40	-65	40000	362	1300	21	109	126	143	
305	151	164	190	224	151	180	194	197	200	202	204	206	208	211	39	-63	39000	360	1300	20	106	123	140	
300	149	163	187	223	150	180	194	197	200	202	204	206	208	211	38	-61	38000	358	1300	20	103	120	137	
295	148	162	184	222	149	180	194	197	200	202	204	206	208	211	37	-59	37000	356	1300	20	101	117	133	
290	147	161	181	221	147	180	194	197	200	202	204	206	208	211	36	-57	36000	355	1200	19	98	114	130	
285	145	160	177	220	146	180	194	197	200	202	204	206	208	211	35	-55	35000	353	1200	19	95	111	127	
280	144	160	174	220	144	180	194	197	200	202	204	206	208	211	34	-53	34000	351	1200	18	92	107	123	
275	143	159	171	219	143	180	194	197	200	202	204	206	208	211	33	-51	33000	349	1200	18	89	104	119	
270	142	158	168	218	142	180	194	197	200	202	204	206	208	211	32	-49	32000	347	1200	17	86	101	116	
265	141	157	165	217	141	180	194	197	200	202	204	206	208	211	31	-47	31000	346	1100	17	84	98	112	
260	139	156	162	216	139	180	194	197	200	202	204	206	208	211	30	-45	30000	344	1100	17	81	95	109	
255	138	155	159	215	138	180	194	197	200	202	204	206	208	211	29	-43	29000	343	1100	16	79	92	105	
250	137	155	156	215	136	180	194	197	200	202	204	206	208	211	28	-41	28000	342	1100	16	76	89	102	
245	136	154	155	214	135	180	194	197	200	202	204	206	208	211	27	-39	27000	340	1000	15	73	85	98	
240	134	153	154	213	133	180	194	197	200	202	204	206	208	211	26	-37	26000	339	1000	15	70	82	94	
235	133	152	153	212	132	180	194	197	200	202	204	206	208	211	25	-35	25000	338	1000	14	67	79	91	
230	132	152	153	212	130	180	194	197	200	202	204	206	208	211	24	-33	24000	337	900	13	65	76	87	
225	131	151	152	211	129	180	194	197	200	202	204	206	208	211	23	-31	23000	336	900	13	62	73	84	
220	129	151	152	211	127	180	194	197	200	202	204	206	208	211	22	-29	22000	335	900	12	59	69	80	
215	128	150	151	210	126	180	194	197	200	202	204	206	208	211	21	-27	21000	333	800	12	56	66	76	
210	127	150	151	210	124	180	194	197	200	202	204	206	208	211	20	-25	20000	332	800	11	54	63	72	
205	126	150	150	210	123	180	194	197	200	202	204	206	208	211	19	-23	19000	330	800	11	51	60	69	
200	124	149	150	209	121	180	194	197	200	202	204	206	208	211	18	-21	18000	327	700	10	48	57	66	
195	123	148	149	208	120	180	194	197	200	202	204	206	208	211	17	-19	17000	325	700	10	45	53	62	
190	122	148	149	208	118	180	194	197	200	202	204	206	208	211	16	-17	16000	322	700	9	42	50	58	
185	121	147	148	207	117	180	194	197	200	202	204	206	208	211	15	-15	15000	320	600	8	40	47	54	
180	119	147	148	207	115	180	194	197	200	202	204	206	208	211	14	-13	14000	318	600	8	37	43	50	
175	118	146	147	206	114	180	194	197	200	202	204	206	208	211	13	-11	13000	316	600	7	34	40	46	
						180	194	197	200	202	204	206	208	211	12	-9	12000	314	500	7	31	37	43	
						180	194	197	200	202	204	206	208	211	11	-7	11000	312	500	6	28	33	39	
						180	194	197	200	202	204	206	208	211	10	-5	10000	309	400	6	25	30	35	
						180	194	197	200	202	204	206	208	211	9	-3	9000	307	400	5	23	27	31	
						180	194	197	200	202	204	206	208	211	8	-1	8000	305	400	4	19	23	27	
						180	194	197	200	202	204	206	208	211	7	+1	7000	303	300	4	17	20	23	
						180	194	197	200	202	204	206	208	211	6	+3	6000	300	300	3	14	17	20	
						180	194	197	200	202	204	206	208	211	5	+5	5000	298	200	3	11	13	16	
						180	194	197	200	202	204	206	208	211	4	+7	4000	296	200	2	8	10	12	
						180	194	197	200	202	204	206	208	211	3	+9	3000	294	100	1	5	7	8	
						180	194	197	200	202	204	206	208	211	2	+11	2000	292	100	1	2	3	4	
						180	194	197	200	202	204	206	208	211	1	+13	1000	290	0	0	0	0	0	
						180	194	197	200	202	204	206	208	211	0	+15								

DESCENT TAS = start mean + end mean - 290.  
V<sub>MO</sub> DESCENT : add 40 ; halve time and fuel.

**NOTE**

- To find the mean T.A.S. between two altitudes, add the mean T.A.S. for the altitudes and subtract 290.
- DESCENT AT V<sub>MO</sub>  
Reduce normal descent time by one half.  
Reduce normal descent fuel by one half.  
Increase mean T.A.S. by 40 knots.

# SPEED AND TEMPERATURE CORRECTION.



RESTRICTED



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