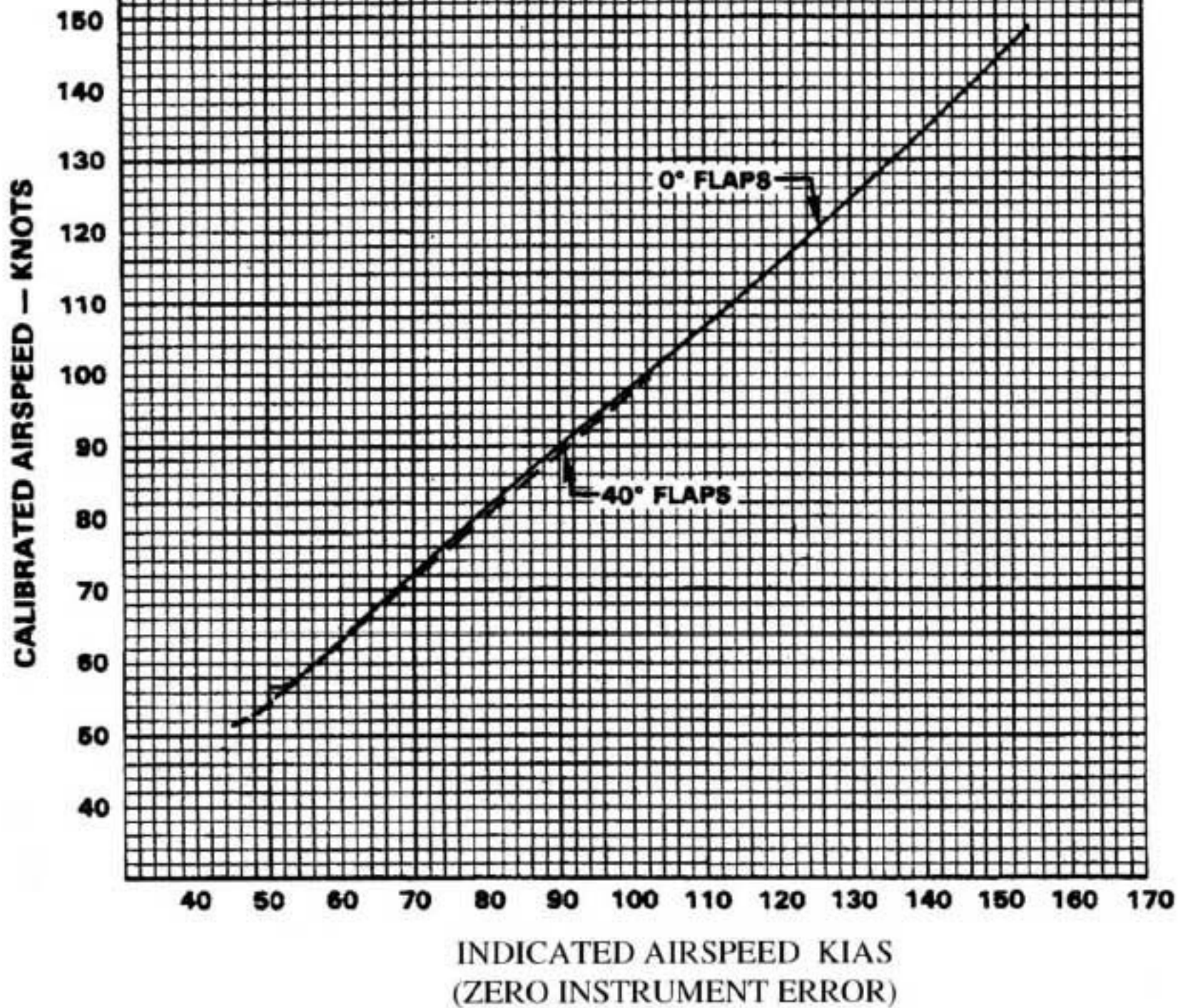


TEMPERATURE CONVERSION

Figure 5-1

AIRSPEED SYSTEM CALIBRATION

2550 LBS. GROSS WEIGHT



AIRSPEED SYSTEM CALIBRATION

Figure 5-3

Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 55% Power
Fuel Flow: Best Economy Mixture, 8.2 GPH

Pressure Altitude Feet	Indicated Outside Air Temperature			Engine Speed RPM	True Air Speed Knots **
	°C	°C	°F		
Sea Level	ISA-15	0	32	2245	105
	ISA	15	59	2265	
	ISA +10	25	77	2275	
	ISA +20	35	95	2285	
	ISA +30	45	113	2295	
2000	ISA -15	-4	25	2265	106
	ISA	11	52	2280	
	ISA +10	21	70	2295	
	ISA +20	31	88	2305	
	ISA +30	41	106	2315	
4000	ISA -15	-8	18	2285	106
	ISA	7	45	2300	
	ISA +10	17	63	2315	
	ISA +20	27	81	2325	
	ISA +30	37	99	2335	
6000	ISA -15	-12	10	2305	107
	ISA	3	37	2320	
	ISA +10	13	55	2330	
	ISA +20	23	73	2345	
	ISA +30	33	91	2355	
8000	ISA -15	-16	3	2320	107
	ISA	-1	30	2340	
	ISA +10	9	48	2350	
	ISA +17.5	16.5	62	2360	
9000	ISA -15	-18	0	2330	107
	ISA	-3	27	2350	
	ISA +8.5	5.5	42	2360	
10000	ISA -15	-20	-4	2340	107
	ISA	-5	23	2360	

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
 ** Subtract 3 KTAS if wheel pants are removed.

ENGINE/CRUISE PERFORMANCE (55%)

Figure 5-21

Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 65% Power
Fuel Flow: Best Economy Mixture, 9.5 GPH

Pressure Altitude Feet	Indicated Outside Air Temperature			Engine Speed RPM	True Air Speed Knots **
	°C	°C	°F		
Sea Level	ISA-15	0	32	2385	113
	ISA	15	59	2405	
	ISA +10	25	77	2415	
	ISA +20	35	95	2430	
	ISA +30	45	113	2440	
2000	ISA -15	-4	25	2405	114
	ISA	11	52	2425	
	ISA +10	21	70	2440	
	ISA +20	31	88	2450	
	ISA +30	41	106	2465	
4000	ISA -15	-8	18	2430	115
	ISA	7	45	2450	
	ISA +10	17	63	2460	
	ISA +20	27	81	2475	
	ISA +30	37	99	2485	
6000	ISA -15	-12	10	2450	116
	ISA	3	37	2470	
	ISA +10	13	55	2485	
	ISA +20	23	73	2495	
	ISA +30	33	91	2510	
8000	ISA -15	-16	3	2475	117
	ISA	-1	30	2495	
	ISA +10	9	48	2505	
	ISA +17.5	16.5	62	2515	
9000	ISA -15	-18	0	2485	117
	ISA	-3	27	2505	
	ISA +8.5	5.5	42	2515	
10000	ISA -15	-20	-4	2495	118
	ISA	-5	23	2515	

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
 ** Subtract 3 KTAS if wheel pants are removed.

ENGINE/CRUISE PERFORMANCE (65%)

Figure 5-23

Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 75% Power
Fuel Flow: Best Economy Mixture, 11.0 GPH

Pressure Altitude Feet	Indicated Outside Air Temperature			Engine Speed RPM	True Air Speed Knots **
	°C	°C	°F		
Sea Level	ISA-15	0	32	2485	119
	ISA	15	59	2515	
	ISA +10	25	77	2535	
	ISA +20	35	95	2550	
	ISA +30	45	113	2565	
2000	ISA -15	-4	25	2520	121
	ISA	11	52	2545	
	ISA +10	21	70	2565	
	ISA +20	31	88	2580	
	ISA +30	41	106	2600	
3000	ISA -15	-6	21	2535	122
	ISA	9	48	2560	
	ISA +10	19	66	2580	
	ISA +20	29	84	2595	
	ISA +30	39	102	2615	
4000	ISA -15	-8	18	2550	123
	ISA	7	45	2575	
	ISA +10	17	63	2595	
	ISA +20	27	81	2610	
	ISA +30	37	99	2630	
5000	ISA -15	-10	14	2565	124
	ISA	5	41	2590	
	ISA +10	15	59	2610	
	ISA +20	25	77	2625	
	ISA +25	30	86	2635	
6000	ISA -15	-12	10	2580	125
	ISA	3	37	2605	
	ISA +10	13	55	2625	
	ISA +15	18	64	2635	
7000	ISA -15	-14	6.8	2595	126
	ISA	1	34	2625	
	ISA +7.5	8.5	47	2635	

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
 ** Subtract 3 KTAS if wheel pants are removed.

ENGINE/CRUISE PERFORMANCE (75%)

Figure 5-25

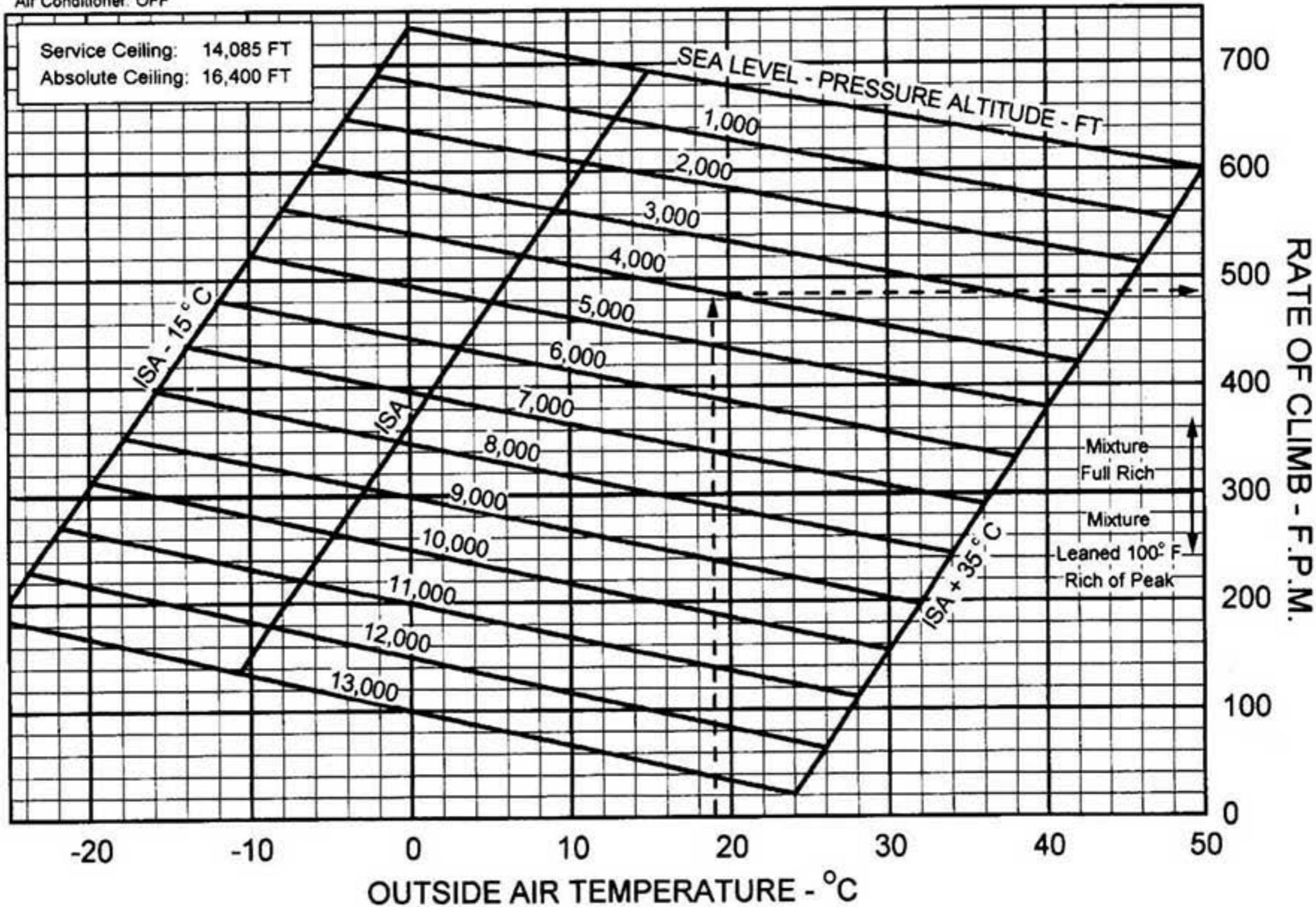
CLIMB PERFORMANCE

ASSOCIATED CONDITIONS:

Gross Weight: 2550 LBS.
 Power: FULL THROTTLE
 Airspeed: 76 KIAS
 Flaps: UP
 Air Conditioner: OFF

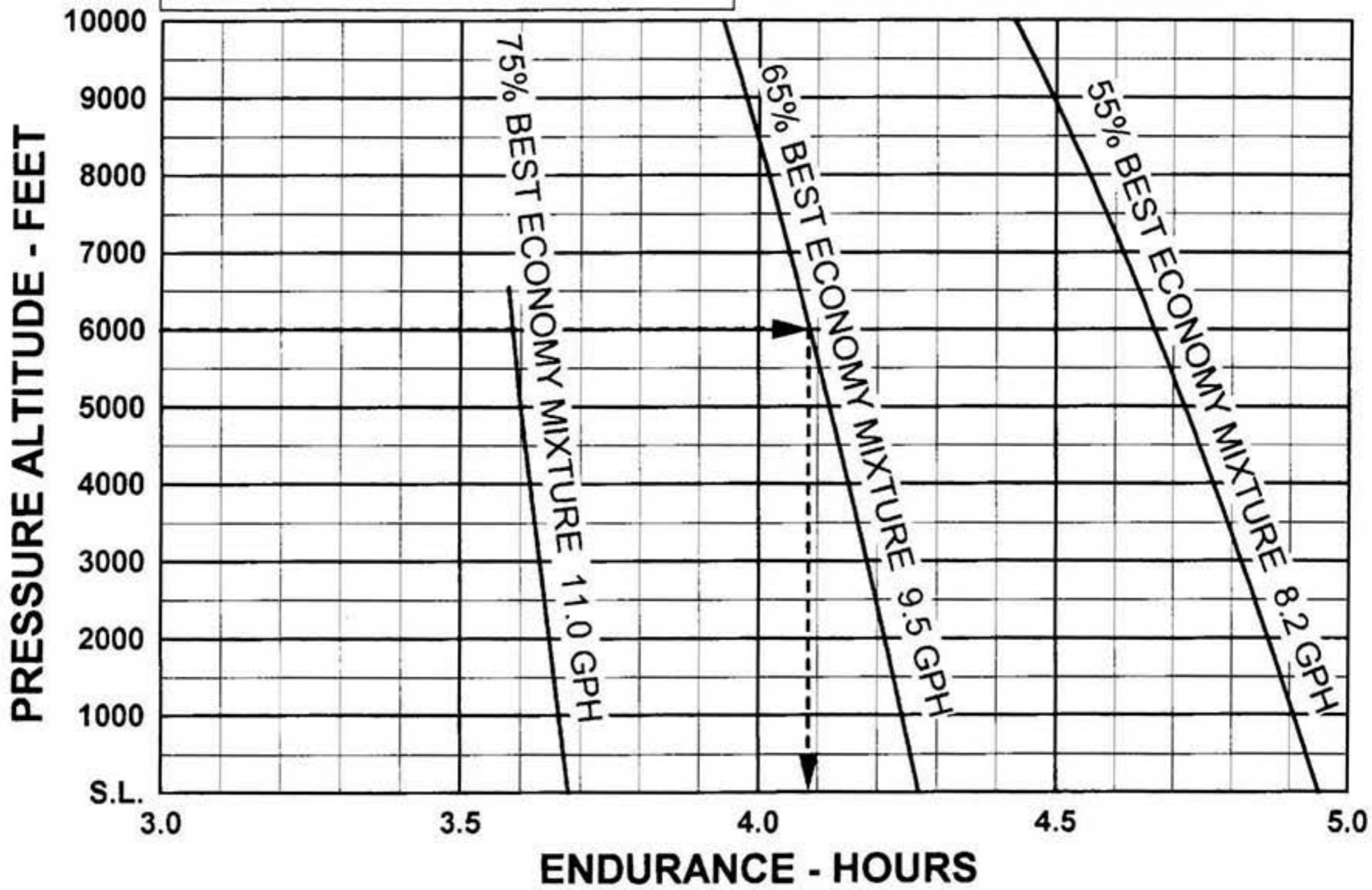
EXAMPLE:

Climb Pressure Alt. 4000 Ft.
 Temperature: 19° C
 Rate of Climb: 487 F/Min.



ENDURANCE WITH 45 MIN. RESERVE
 48 GAL USABLE FUEL 2550 LBS GROSS WT.
 SENSENICH 76EM8S14-0-62 PROP
 ENDURANCE INCLUDES CLIMB AND DESCENT TIMES
 RESERVE FUEL = 45 MIN. AT 55% POWER

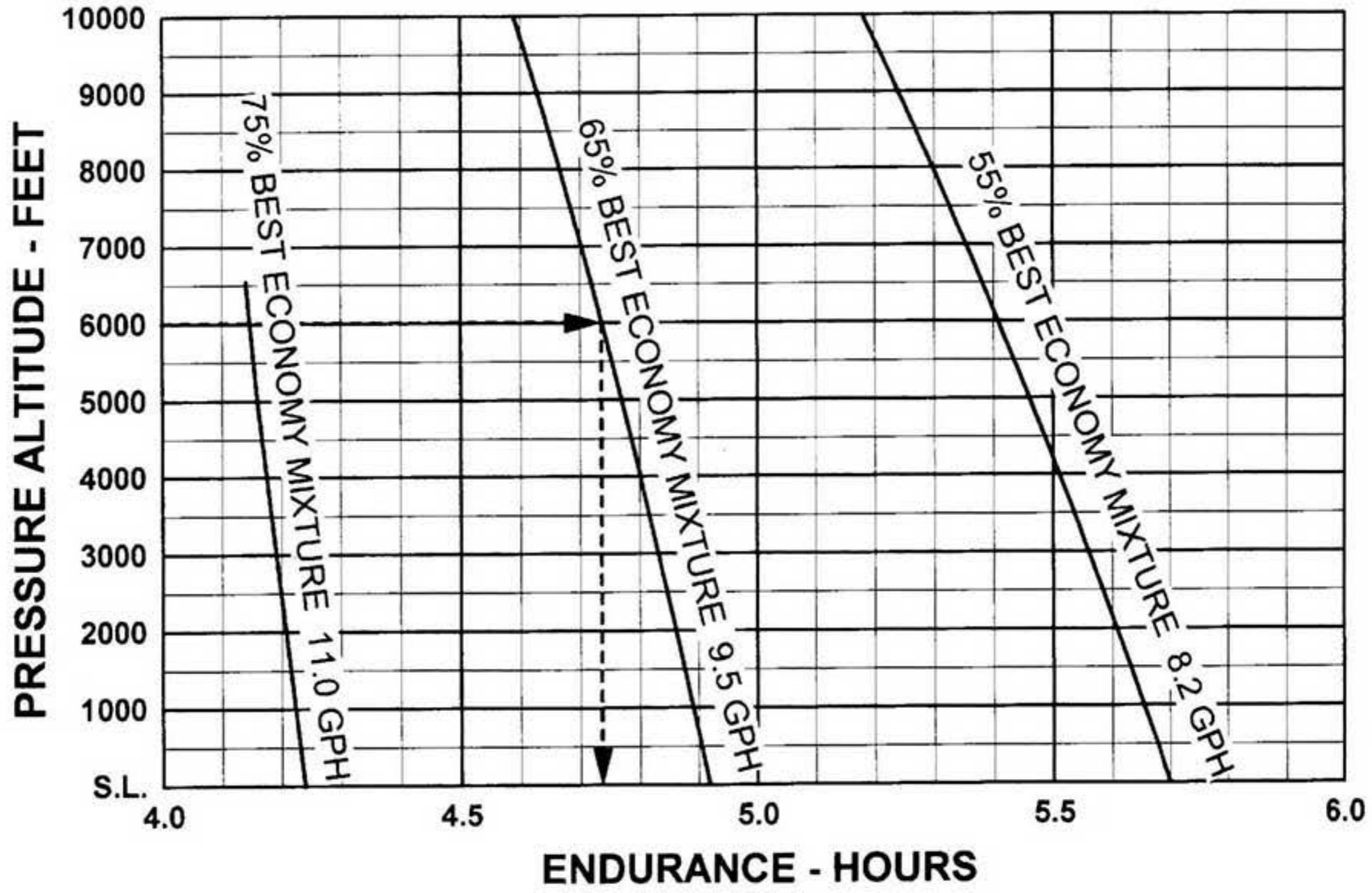
EXAMPLE:
 Cruise Pressure Alt. 6000 ft
 Power 65% Best Economy
 Endurance (45 Min. Reserve) 4.1 Hrs



ENDURANCE (45 MIN. RESERVE)
 Figure 5-35

ENDURANCE WITH NO RESERVE
 48 GAL USABLE FUEL 2550 LBS GROSS WT.
 SENSENICH 76EM8S14-0-62 PROP
 ENDURANCE INCLUDES CLIMB AND DESCENT TIMES

EXAMPLE:
 Cruise Pressure Alt. 6000 ft
 Power 65% Best Economy
 Endurance (No Reserve) 4.7 Hrs



ENDURANCE (NO RESERVE)

Figure 5-33

ENGINE PERFORMANCE

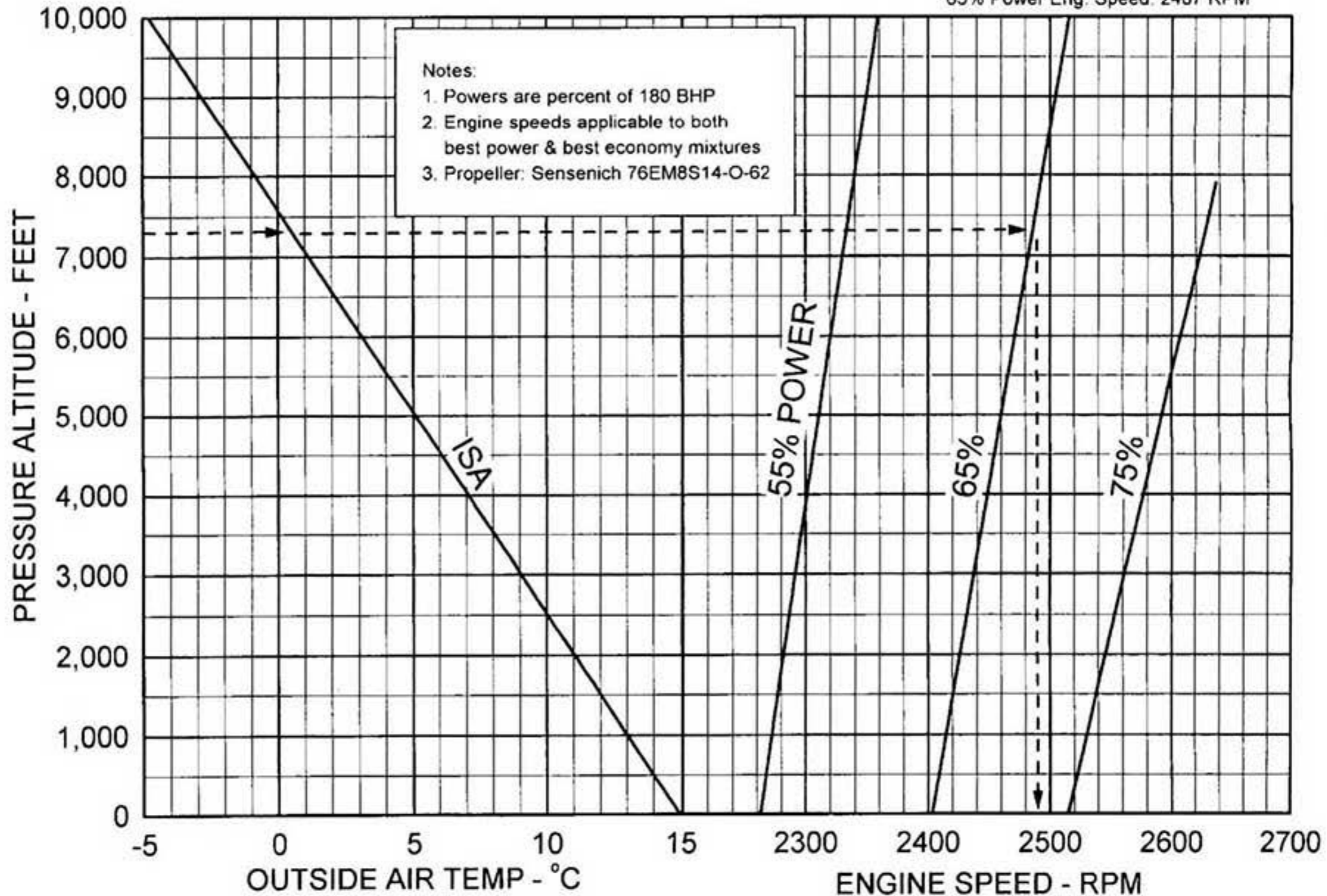
POWER VERSUS RPM @ ISA

EXAMPLE:

Pressure Altitude: 7,375 Ft.

Temperature: ISA

65% Power Eng. Speed: 2487 RPM



ENGINE PERFORMANCE

Figure 5-19

FLAPS 25° TAKEOFF GROUND ROLL

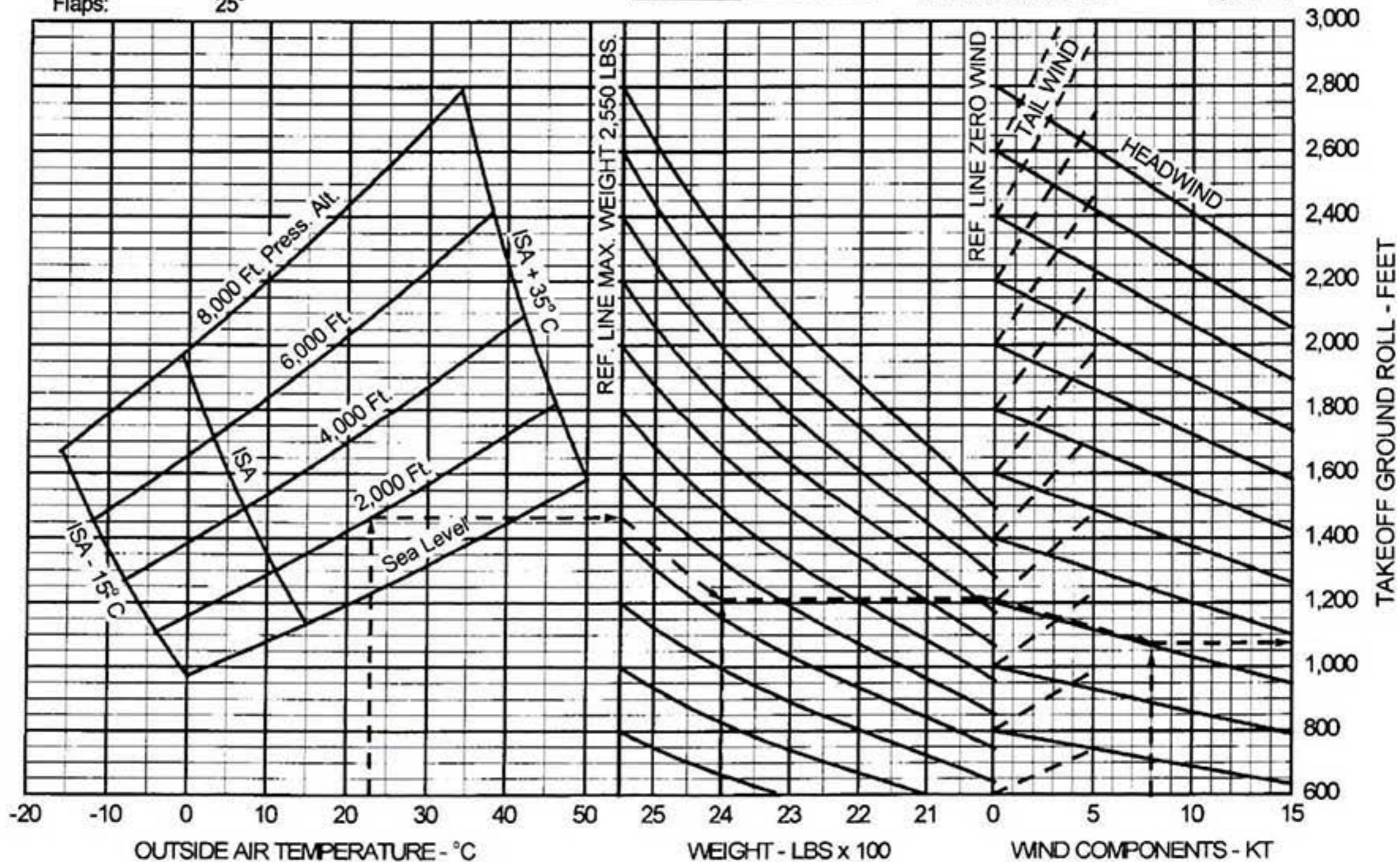
ASSOCIATED CONDITIONS

Power: FULL THROTTLE BEFORE BRAKE RELEASE
 Air Conditioner: OFF
 Runway: PAVED, LEVEL, & DRY
 Airspeed: REFER TO TABLE AT RIGHT
 Propeller: SENSENICH 76EM8S14-0-62
 Flaps: 25°

TAKEOFF SPEEDS KIAS	
WT	LIFTOFF
2,550	55
2,450	55
2,350	53
2,250	50

EXAMPLE

Depart Airport Pressure Alt: 2,000 Ft.
 Temperature: 23° C
 Gross Weight: 2,400 Lb.
 Headwind: 8 Kt.
 Takeoff Ground Roll: 1,071 Ft.



25° FLAPS TAKEOFF GROUND ROLL

Figure 5-13

FLAPS 25° TAKEOFF PERFORMANCE

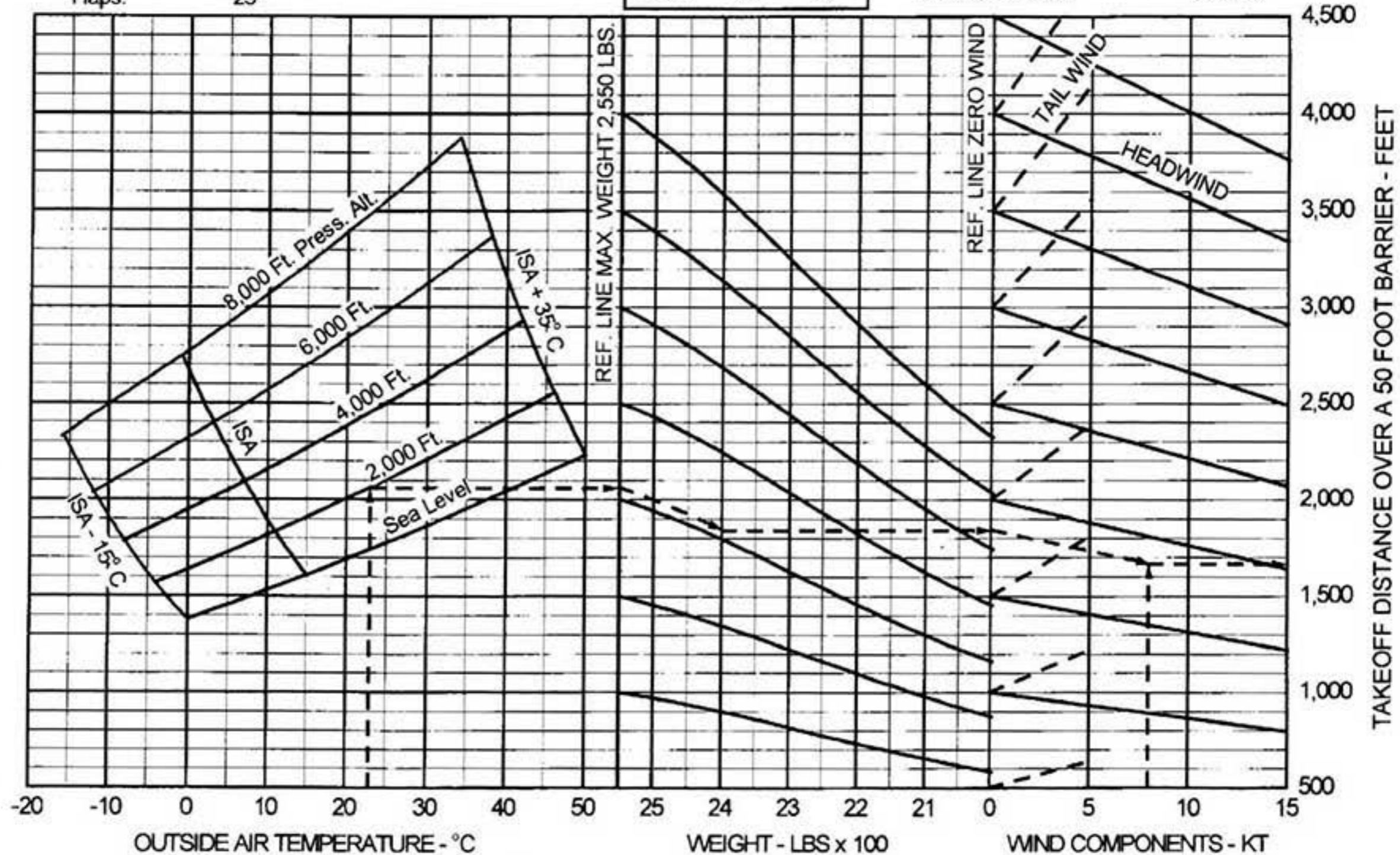
ASSOCIATED CONDITIONS

Power: FULL THROTTLE BEFORE BRAKE RELEASE
 Air Conditioner: OFF
 Runway: PAVED, LEVEL, & DRY
 Airspeed: REFER TO TABLE AT RIGHT
 Propeller: SENSENICH 76EM8S14-0-62
 Flaps: 25°

TAKEOFF SPEEDS		
WT	LIFTOFF	50 FT
2,550	55	60
2,450	55	58
2,350	53	56
2,250	50	54

EXAMPLE

Depart Airport Pressure Alt: 2,000 Ft.
 Temperature: 23° C
 Gross Weight: 2,400 Lb.
 Headwind: 8 Kt.
 Takeoff Distance: 1674 Ft.



25° FLAPS TAKEOFF PERFORMANCE

Figure 5-9

FLAPS UP TAKEOFF GROUND ROLL

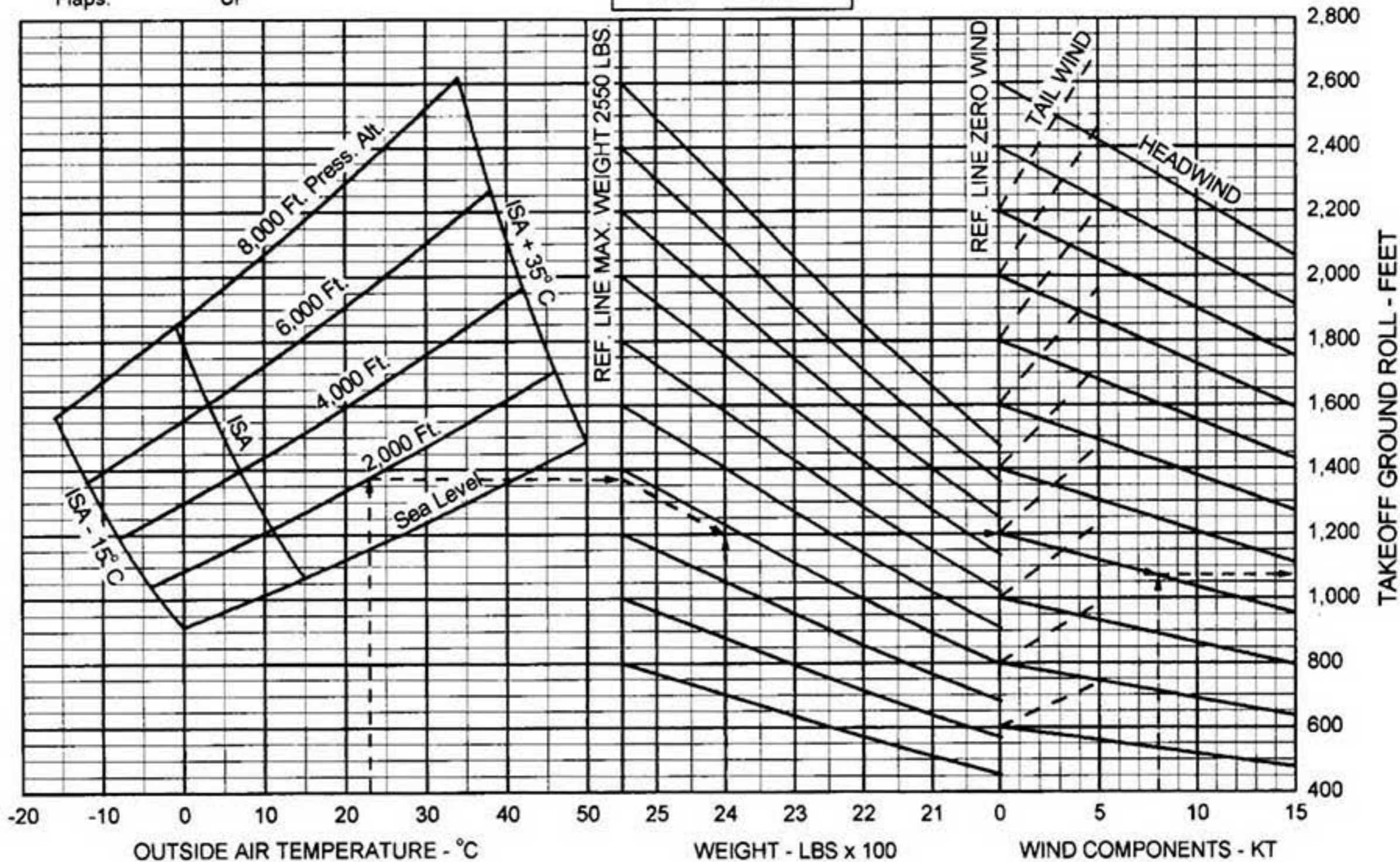
ASSOCIATED CONDITIONS:

Power: FULL THROTTLE BEFORE BRAKE RELEASE
 Air Conditioner: OFF
 Runway: PAVED, LEVEL, & DRY
 Airspeed: REFER TO TABLE AT RIGHT
 Propeller: SENSENICH 76EM8S14-0-62
 Flaps: UP

TAKEOFF SPEEDS KIAS	
WT	LIFTOFF
2,550	60
2,450	58
2,350	57
2,250	56

EXAMPLE:

Depart Airport Pressure Alt: 2,000 Ft.
 Temperature: 23° C
 Gross Weight: 2,400 Lb.
 Headwind: 8 Kt.
 Takeoff Ground Roll: 1073 Ft.



FLAPS UP TAKEOFF GROUND ROLL

Figure 5-11

FLAPS UP TAKEOFF PERFORMANCE

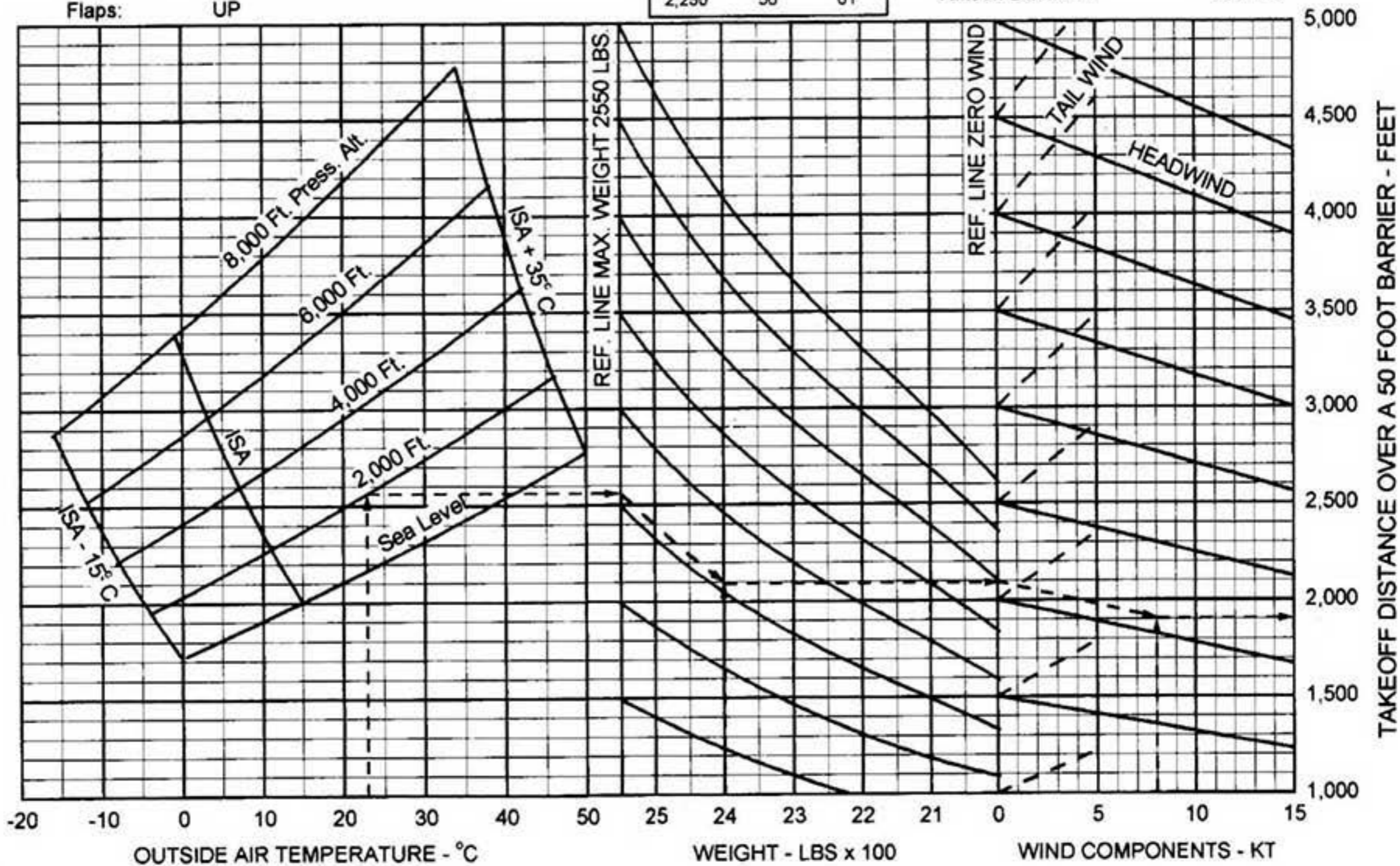
ASSOCIATED CONDITIONS:

Power: FULL THROTTLE BEFORE BRAKE RELEASE
 Air Conditioner: OFF
 Runway: PAVED, LEVEL, & DRY
 Airspeed: REFER TO TABLE AT RIGHT
 Propeller: SENSENICH 76EM8S14-0-62
 Flaps: UP

WT	TAKEOFF SPEEDS	
	LIFTOFF	50 FT
2,550	60	65
2,450	58	64
2,350	57	63
2,250	56	61

EXAMPLE:

Depart Airport Pressure Alt: 2,000 Ft.
 Temperature: 23° C
 Gross Weight: 2,400 Lb.
 Headwind: 8 Kt.
 Takeoff Distance: 1907 Ft.



FLAPS UP TAKEOFF PERFORMANCE

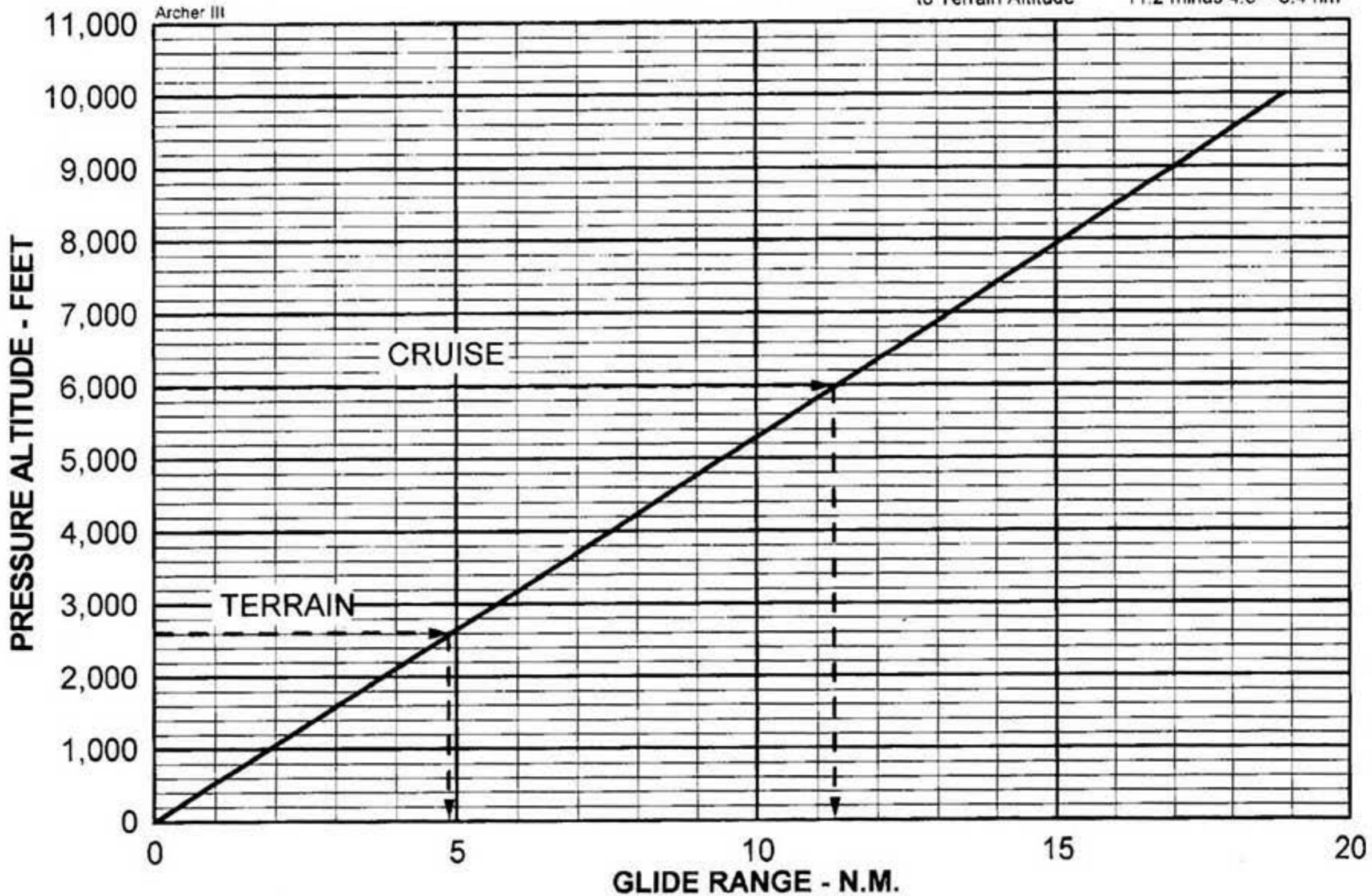
Figure 5-7

GLIDE RANGE

POWER OFF, FLAP UP, 76 KIAS
2,250 LB GROSS WT., NO WIND

EXAMPLE:

Glide Distance from 6,000 ft Cruise Alt. 11.2 nm
Glide Distance from 2,600 ft Terrain
above sea level 4.8 nm
Glide Distance from Cruise Altitude
to Terrain Altitude 11.2 minus 4.8 = 6.4 nm



GLIDE RANGE

Figure 5-39

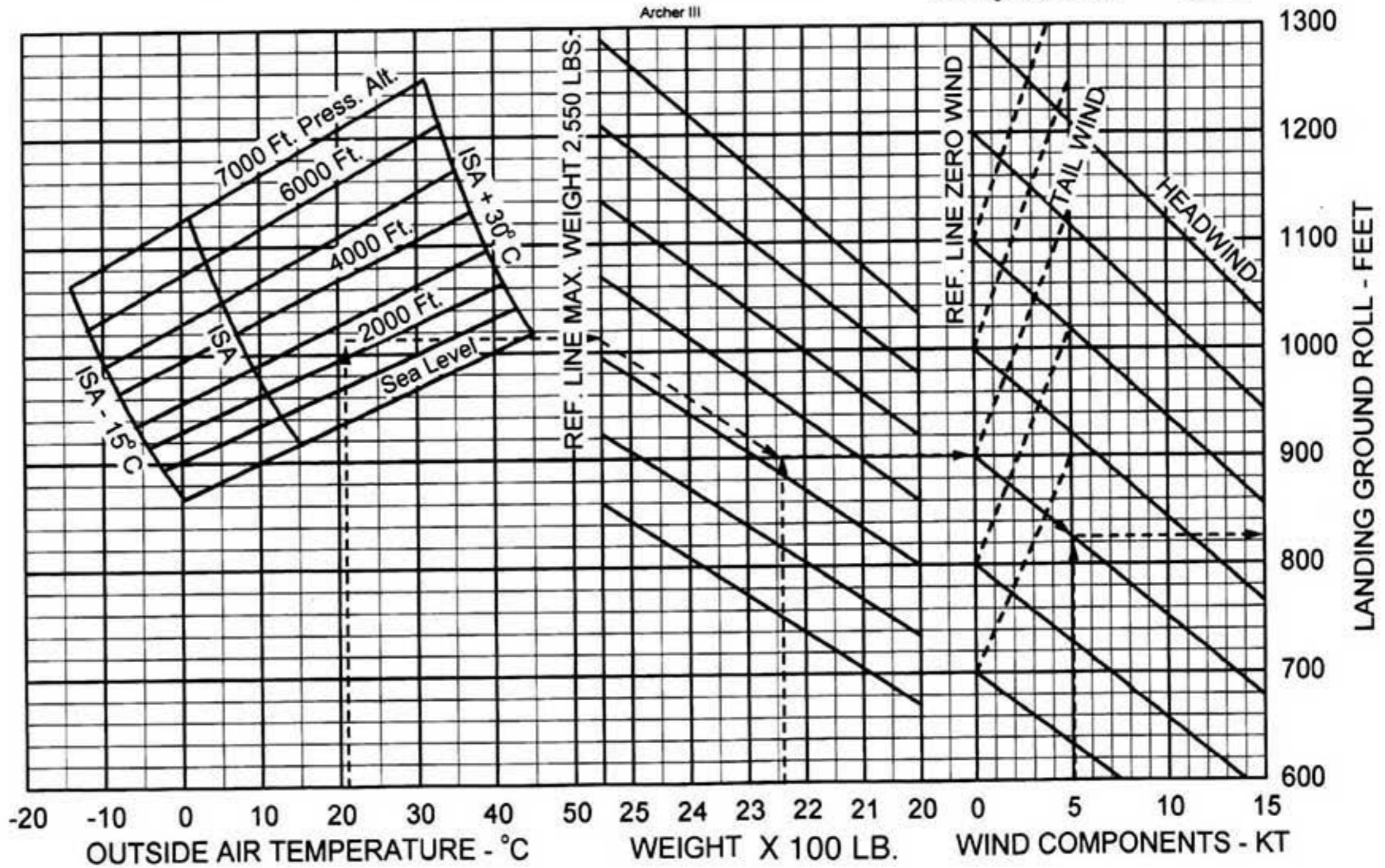
LANDING GROUND ROLL

ASSOCIATED CONDITIONS

Power Off Approach, 40° Flaps, Full Stall Touchdown
 Maximum Braking, Paved level, Dry Runway

EXAMPLE:

Airport Pressure Altitude:	2500 Ft.
O.A.T.:	21°C
Gross Weight:	2240 LB.
Headwind:	5 Kt.
Landing Ground Roll:	820 Ft.



LANDING GROUND ROLL

Figure 5-43

LANDING PERFORMANCE

ASSOCIATED CONDITIONS

Power Off Approach, 40° Flaps, 66 KIAS, Full Stall
 Touchdown, Maximum Braking, Paved, Level, Dry Runway

EXAMPLE:

Airport Pressure Altitude: 2,500 FT.
 O.A.T.: 21°C
 Gross Weight: 2,240 LB.
 Headwind: 5 KT.
 Landing Distance: 1,290 FT.

LANDING PERFORMANCE

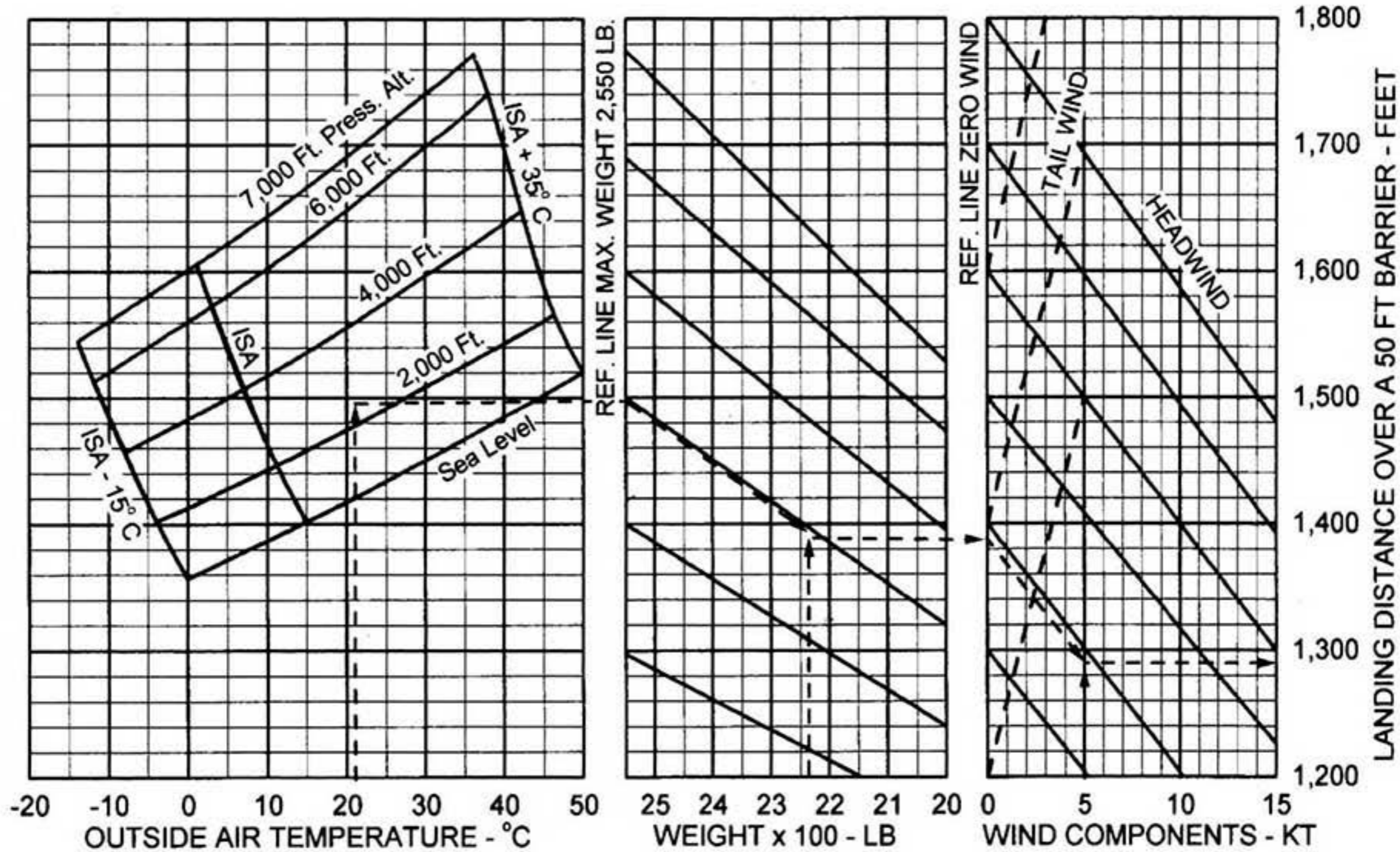
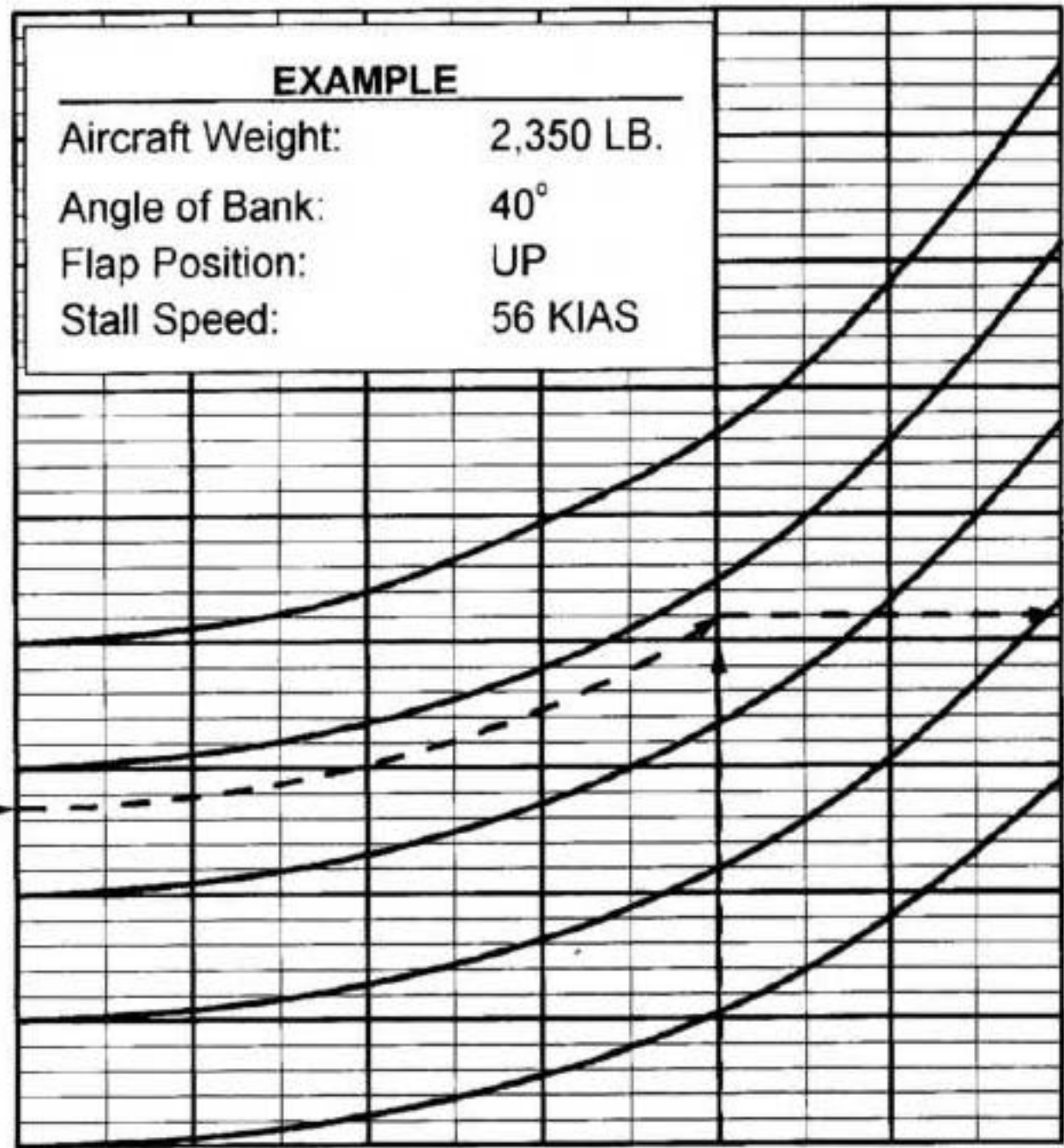
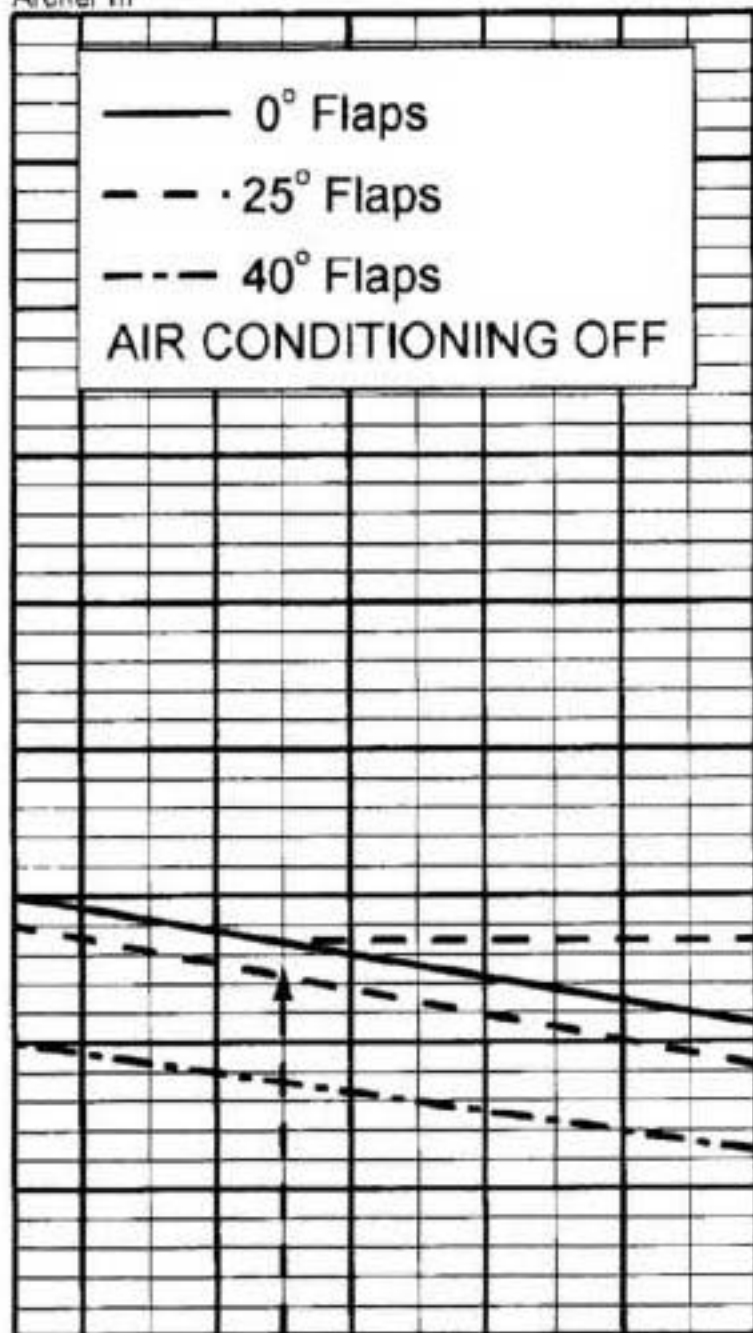


Figure 5-41

POWER OFF STALL SPEED

Archer III



25 24 23 22 21 20

WEIGHT - LB x 100

0 10 20 30 40 50 60

ANGLE OF BANK - DEGREES

80
75
70
65
60
55
50
45
40
35

STALL SPEED - KNOTS

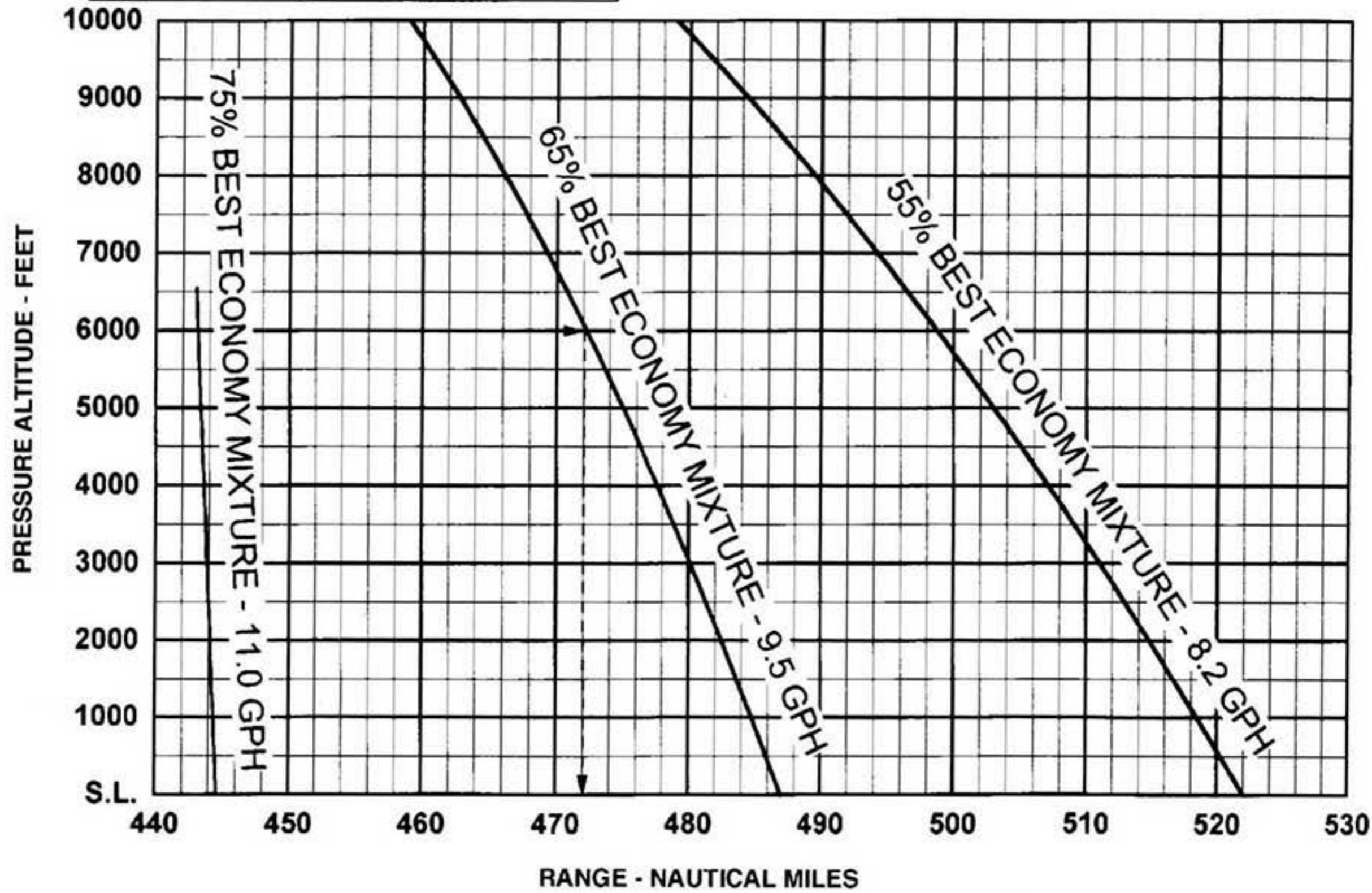
STALL SPEEDS

Figure 5-5

RANGE WITH 45 MIN. RESERVE
 48 GAL USABLE FUEL 2550 LBS GROSS WT.
 SENSENICH 76EM8S14-0-62 PROP
 RANGE INCLUDES CLIMB AND DESCENT DISTANCE
 RESERVE FUEL = 45 MIN. AT 55% POWER

EXAMPLE:
 Cruise Pressure Alt. 6000 Ft.
 Power 65% Best Economy
 Range with Reserves 472 n.m.

NOTE:
 REDUCE RANGE 3% IF
 WHEEL PANTS ARE
 REMOVED



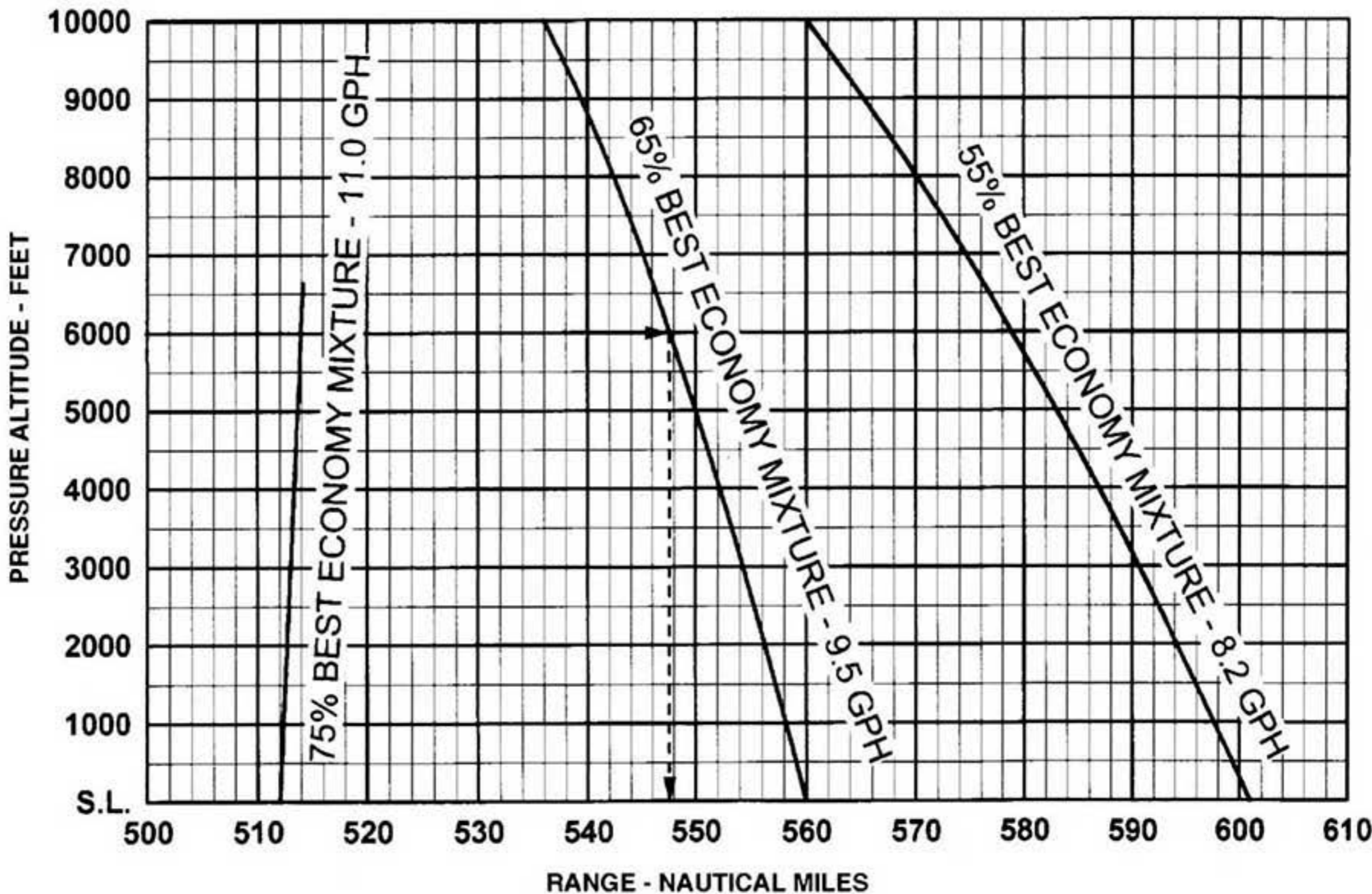
RANGE (45 MIN. RESERVE)

Figure 5-31

RANGE WITHOUT 45 MIN. RESERVE
 48 GAL USABLE FUEL 2550 LBS GROSS WT.
 SENSENICH 76EM8S14-0-62 PROP
 RANGE INCLUDES CLIMB AND DESCENT DISTANCE

EXAMPLE:
 Cruise Pressure Alt. 6000 Ft.
 Power 65% Best Economy
 Range with No Reserves 547 n.m.

NOTE:
 REDUCE RANGE 3% IF
 WHEEL PANTS ARE
 REMOVED



RANGE (NO RESERVE)

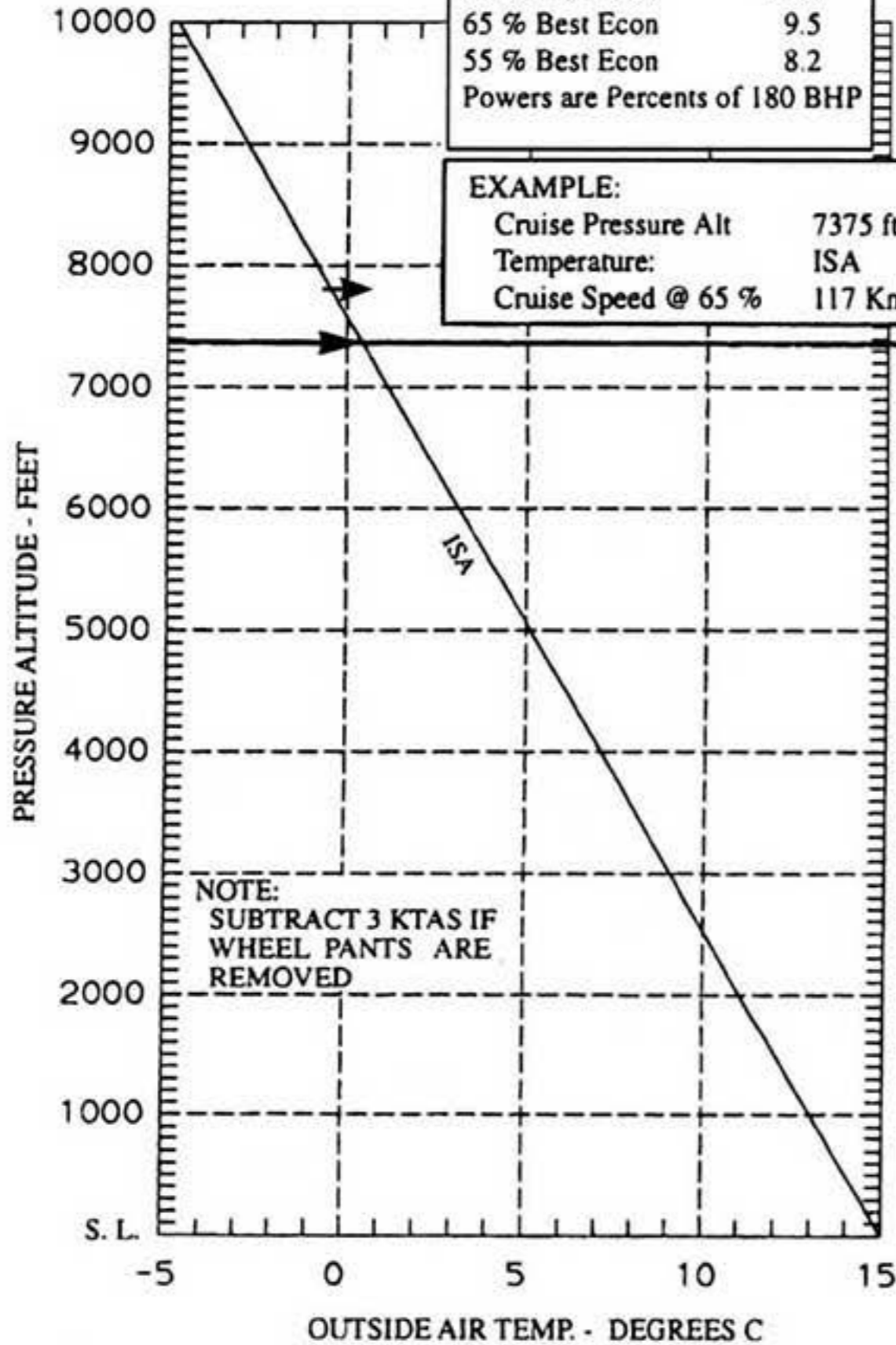
Figure 5-29

SPEED POWER

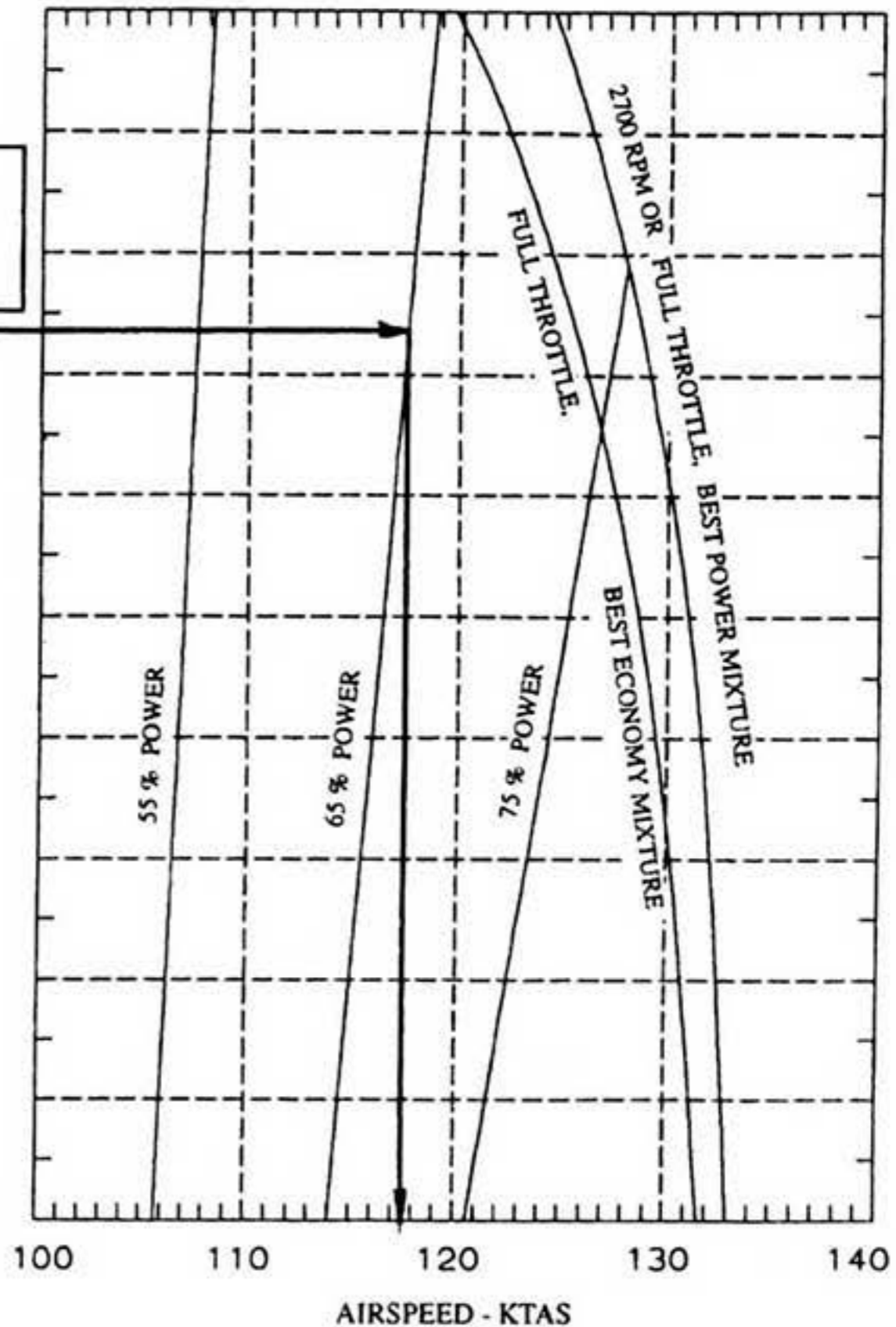
OAT = ISA 2550 LBS GROSS WT. SENSENICH 76EM8S14-0-62 PROP

Fuel Flow	Gal. per Hour
Power Mixture	
75 % Best Econ	11.0
65 % Best Econ	9.5
55 % Best Econ	8.2
Powers are Percents of 180 BHP	

EXAMPLE:	
Cruise Pressure Alt	7375 ft
Temperature:	ISA
Cruise Speed @ 65 %	117 Knots



NOTE:
SUBTRACT 3 KTAS IF
WHEEL PANTS ARE
REMOVED



SPEED POWER

Figure 5-27

TIME, FUEL, DISTANCE TO CLIMB

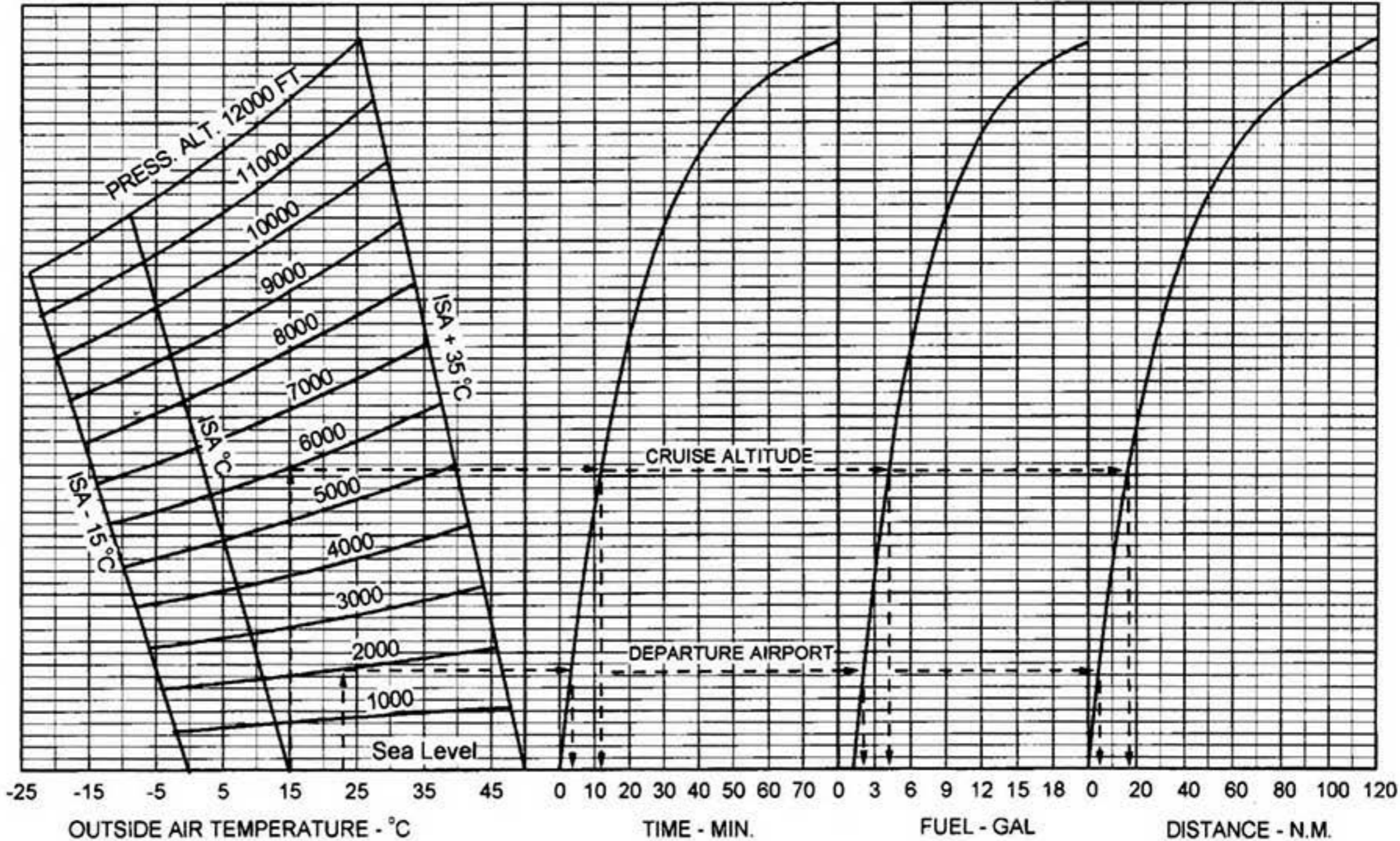
ASSOCIATED CONDITIONS

Gross Weight: 2550 LB Flaps: UP
 Power: FULL THROTTLE Airspeed: 76 KIAS

EXAMPLE

Depart Airport Press Alt.: 2000 FT. Temperature: 23 °C
 Cruise Press Alt.: 6000 FT. Cruise OAT: 15 °C
 Time to Climb: 12 min. minus 3 min. = 9 min
 Fuel to Climb: 4 gal. minus 2 gal = 2 gal
 Distance to Climb: 17 n.m. minus 5 n.m. = 12 n.m.

NOTE: This chart includes fuel allowance for start, taxi, & takeoff.



TIME, DISTANCE AND FUEL TO CLIMB

Figure 5-17

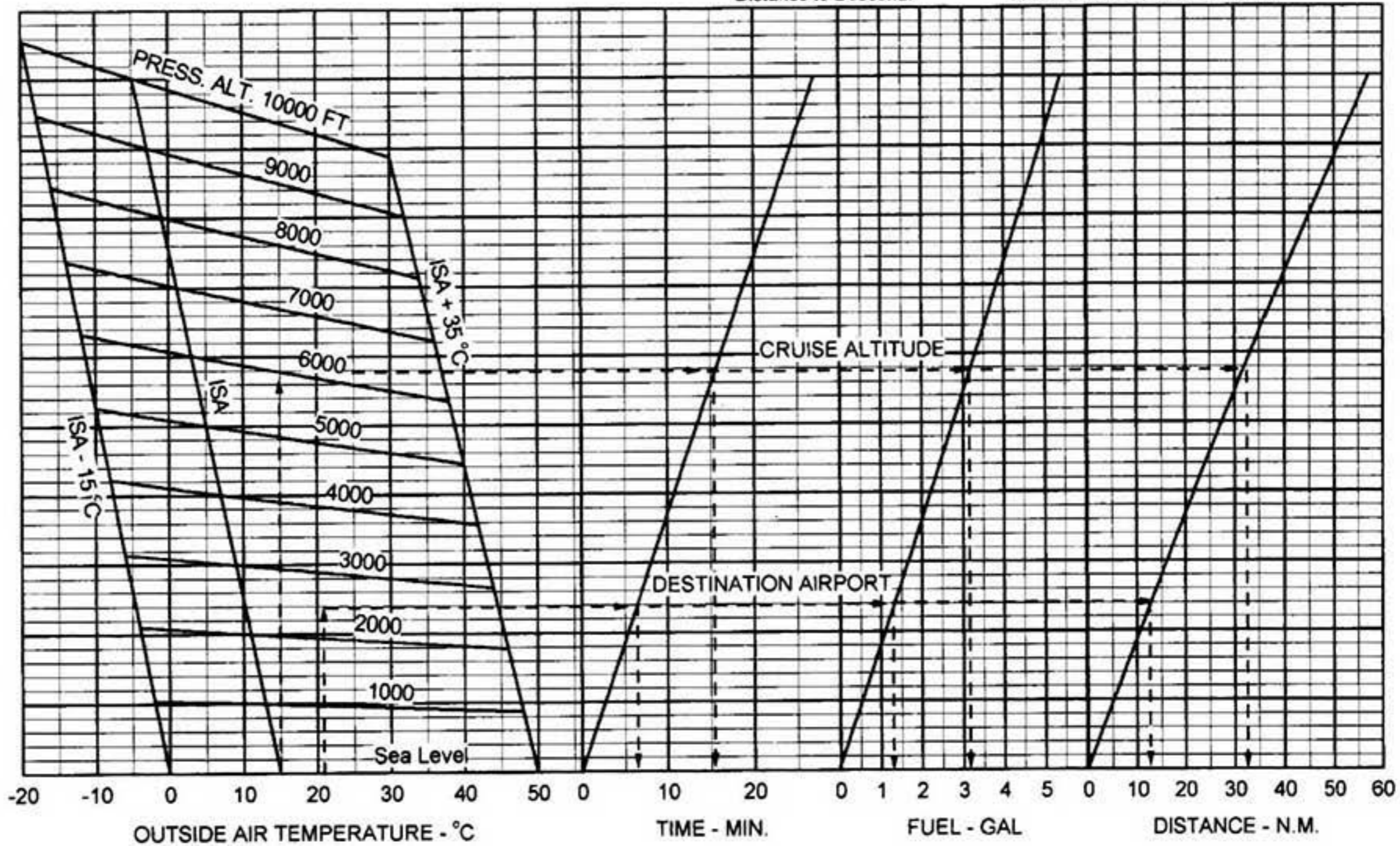
TIME, FUEL, DISTANCE TO DESCEND

ASSOCIATED CONDITIONS

Gross Weight: 2550 LB
 Engine RPM: 2500
 Airspeed: 122 KIAS
 Flaps: UP

EXAMPLE

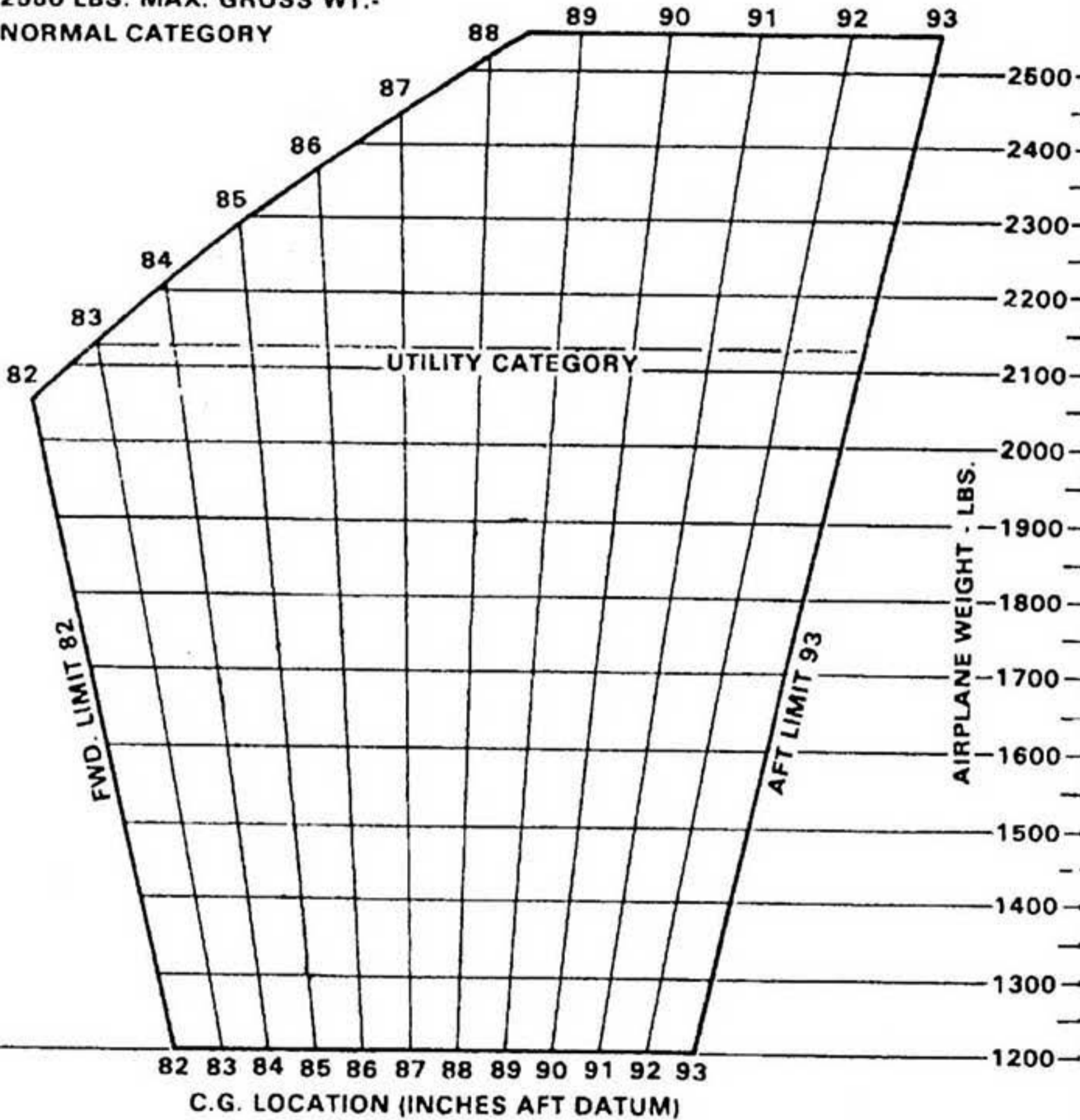
Depart Airport Press Alt. 2500 FT. Temperature: 21 °C
 Cruise Press Alt.: 6000 FT. Cruise OAT: 15 °C
 Time to Descend: 18 min. minus 6 min. = 10 min
 Fuel to Descend: 3.2 gal. minus 1.3 gal = 1.9 gal
 Distance to Descend: 33 n.m. minus 13 n.m. = 20 n.m.



TIME, DISTANCE AND FUEL TO DESCEND
 Figure 5-37

**WEIGHT
VS.
C.G. ENVELOPE**

**2550 LBS. MAX. GROSS WT.-
NORMAL CATEGORY**



C.G. RANGE AND WEIGHT

Figure 6-15

	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight			
Pilot and Front Passenger		80.5	
Passengers (Rear Seats)*		118.1	
Fuel (48 Gallon Maximum)		95.0	
Baggage (200 Lbs. Maximum)*		142.8	
Ramp Weight (2558 Lbs. Normal, 2138 Lbs. Utility Maximum)			
Fuel Allowance For Engine Start, Taxi and Run Up	-8	95.0	-760
Takeoff Weight (2550 Lbs. Normal, 2130 Lbs. Utility Maximum)			

Totals must be within approved weight and C.G. limits. It is the responsibility of the airplane owner and the pilot to ensure that the airplane is loaded properly. The Basic Empty Weight C.G. is noted on the Weight and Balance Data Form (Figure 6-5). If the airplane has been altered, refer to the Weight and Balance Record for this information.

*Utility Category Operation - No baggage or rear passengers allowed.

WEIGHT AND BALANCE LOADING FORM

Figure 6-11