

# PA-44-180

## SHORT FIELD ACCELERATE AND STOP DISTANCE

BOTH ENGINES 2700 RPM & FULL THROTTLE  
MIXTURE FULL RICH  
WING FLAPS 0° - ABORT SPEED AT  
SCHEDULED ROTATION SPEED  
COWL FLAPS OPEN  
PAVED LEVEL DRY RUNWAY  
MAXIMUM BRAKING

Example:

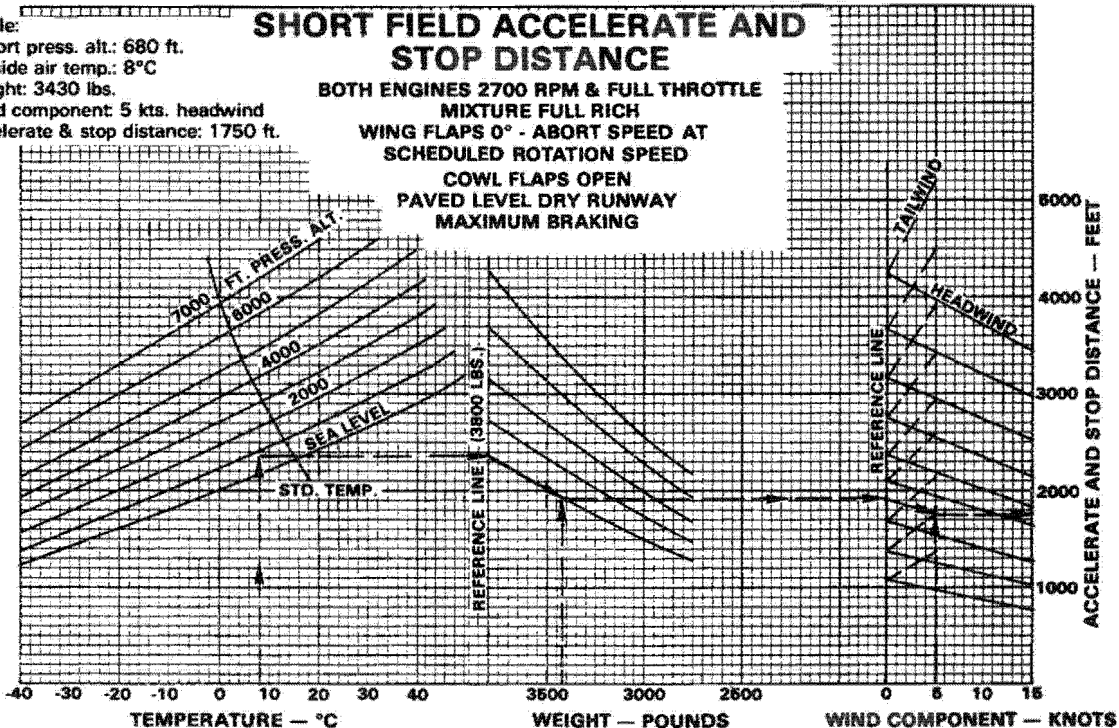
Airport press. alt.: 680 ft.

Outside air temp.: 8°C

Weight: 3430 lbs.

Wind component: 5 kts. headwind

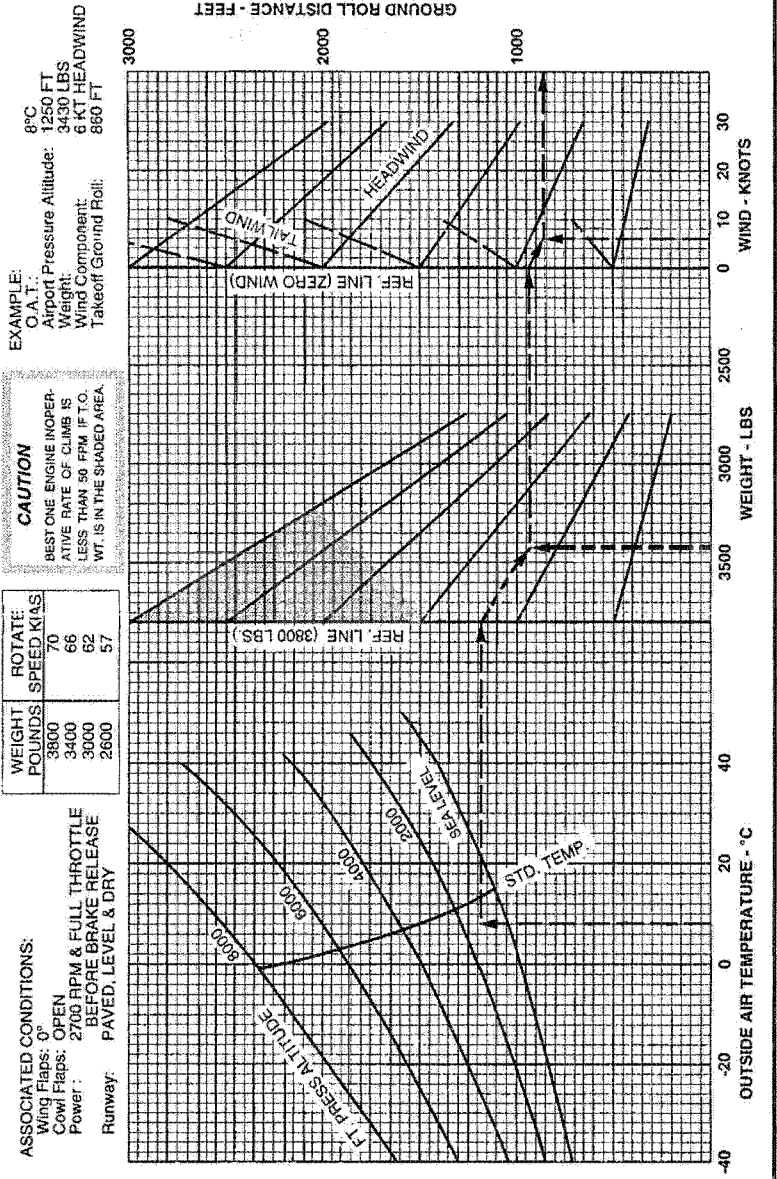
Accelerate & stop distance: 1750 ft.



ACCELERATE AND STOP DISTANCE - SHORT FIELD EFFORT

Figure 5-10

TAKEOFF GROUND ROLL - SHORT FIELD EFFORT



TAKEOFF GROUND ROLL - SHORT FIELD EFFORT

Figure 5-11

## TAKEOFF DISTANCE OVER 50 FT OBSTACLE - SHORT FIELD EFFORT

**ASSOCIATED CONDITIONS:**

Wing Flaps: 0°  
 Cowl Flaps: OPEN  
 Power: 2700 RPM & FULL THROTTLE  
 BEFORE BRAKE RELEASE  
 Runway: PAVED, LEVEL & DRY

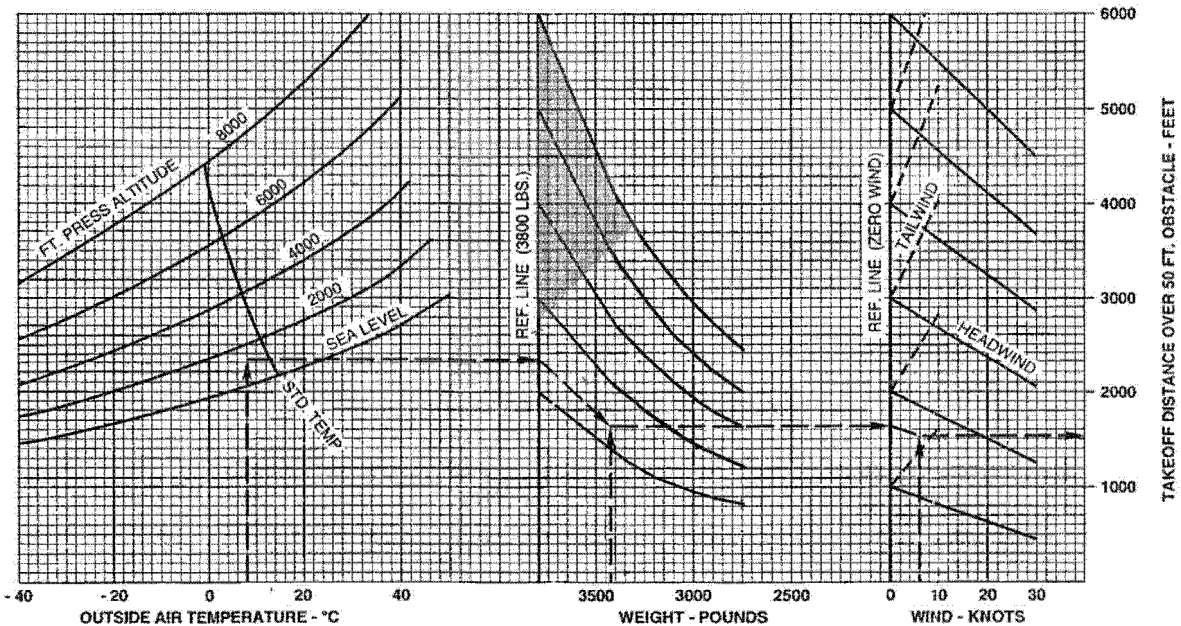
WEIGHT POUNDS	ROTATE SPEED KIAS	OBSTACLE SPEED KIAS
3800	70	82
3400	66	77
3000	62	72
2600	57	67

**CAUTION**

BEST ONE ENGINE INOPERATIVE RATE OF CLIMB IS LESS THAN 50 FPM IF T.D. WT. IS IN THE SHADED AREA.

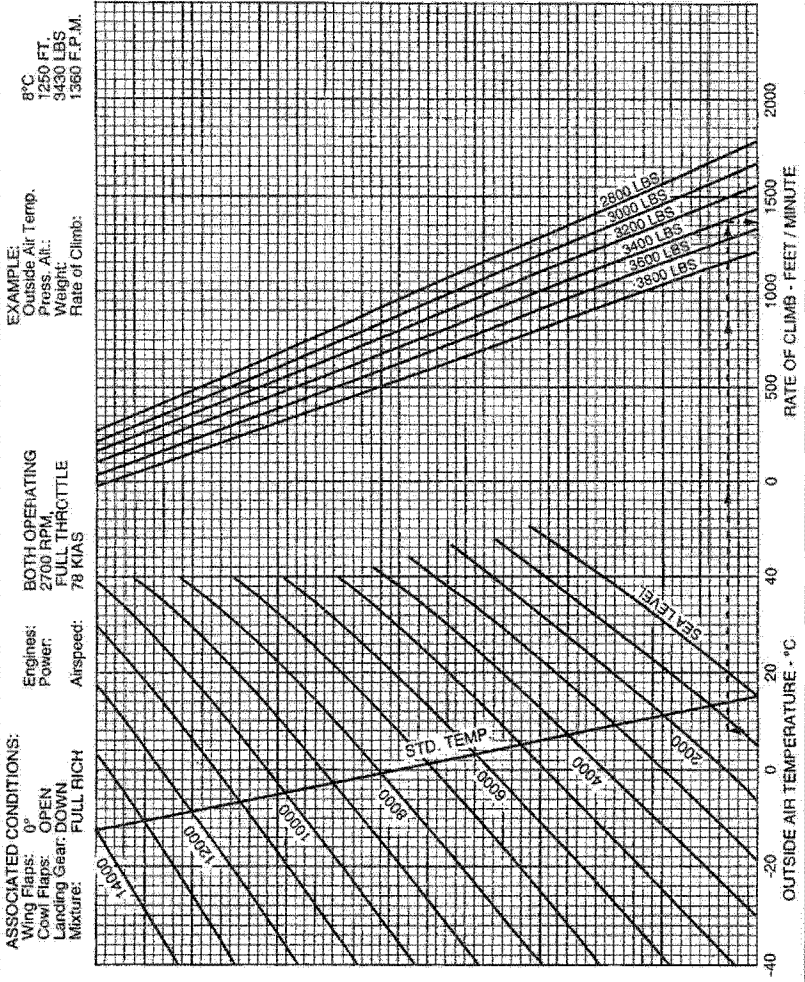
**EXAMPLE:**

O.A.T.: 8°C  
 Airport Pressure Altitude: 1250 FT  
 Weight: 3430 LBS  
 Wind Component: 6 KT HEADWIND  
 Takeoff Distance  
 Over 50 FT Obstacle: 1520 FT



TAKEOFF DISTANCE OVER 50 FT. OBSTACLE - SHORT FIELD EFFORT  
Figure 5-13

**CLIMB PERFORMANCE - BOTH ENGINES OPERATING - GEAR DOWN**



CLIMB PERFORMANCE - BOTH ENGINES OPERATING - GEAR DOWN

Figure 5-15

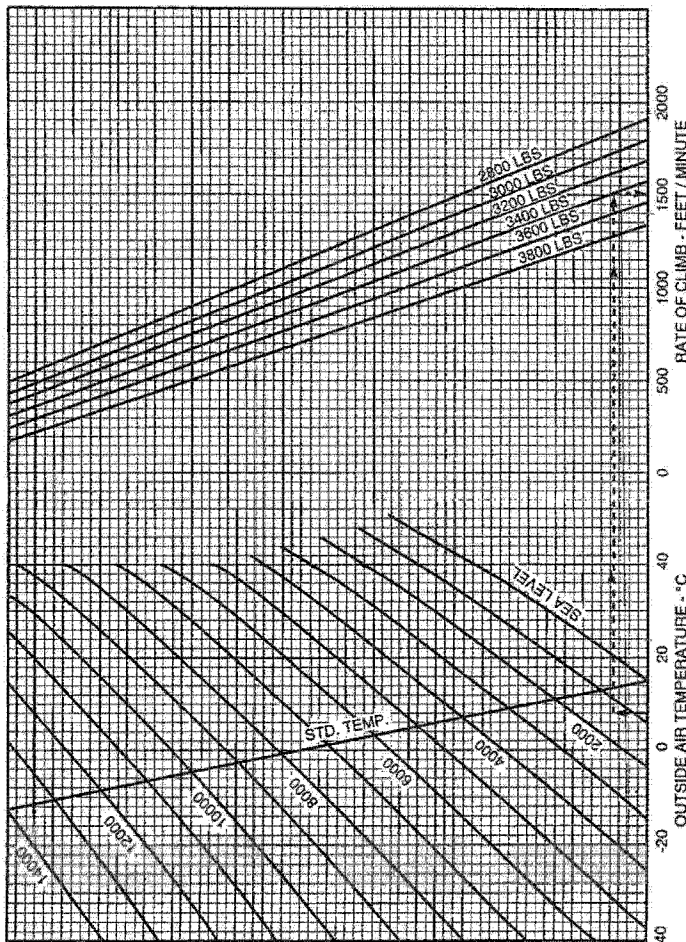
**CLIMB PERFORMANCE - BOTH ENGINES OPERATING - GEAR UP**

ASSOCIATED CONDITIONS:  
 FULL THROTTLE, 2700 RPM  
 Power Flaps  
 Cowl Flaps  
 Mixture  
 FULL RICH  
 88 KIAS  
 Wing Flaps

Engines:  
 Landing Gear:  
 UP

BOTH OPERATING  
 UP

EXAMPLE:  
 Press. Alt.: 1250 FT.  
 Outside Air Temp. 8°C  
 Weight: 3430 LBS  
 Rate of Climb: 1505 FT/MIN



CLIMB PERFORMANCE - BOTH ENGINES OPERATING - GEAR UP

Figure 5-17

**CLIMB PERFORMANCE - ONE ENGINE OPERATING - GEAR UP**

**ASSOCIATED CONDITIONS:**

Wing Flaps: 0°  
Cowl Flaps: (Operating Engine): OPEN  
(Inoperative Engine): CLOSED  
Landing Gear: UP

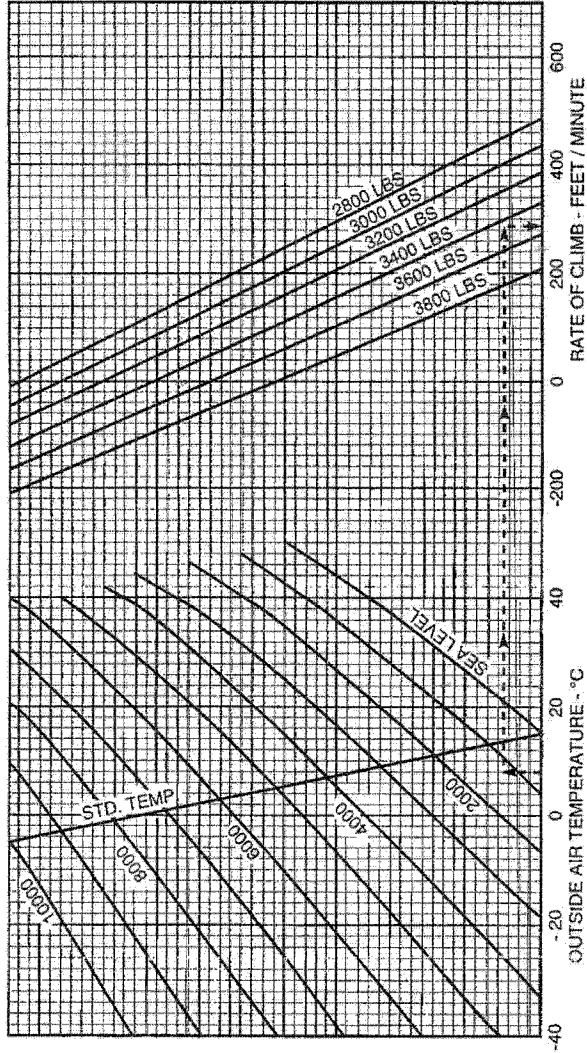
Mixture: FULL RICH  
Prop: (Inoperative Engine): FEATHERED  
Power: 2700 RPM  
Airspeed: 88 KIAS  
FULL THROTTLE

**NOTE**

2° TO 3° BANK TOWARD  
OPERATING ENGINE

**EXAMPLE:**

Outside Air Temp.: 8°C  
Press Alt.: 1250 FT.  
Weight: 3430  
One Engine  
Inoperative Climb: 285 F.P.M.



**CLIMB PERFORMANCE - ONE ENGINE OPERATING - GEAR UP**

Figure 5-19

# FUEL, TIME AND DISTANCE TO CLIMB

**ASSOCIATED CONDITIONS:**

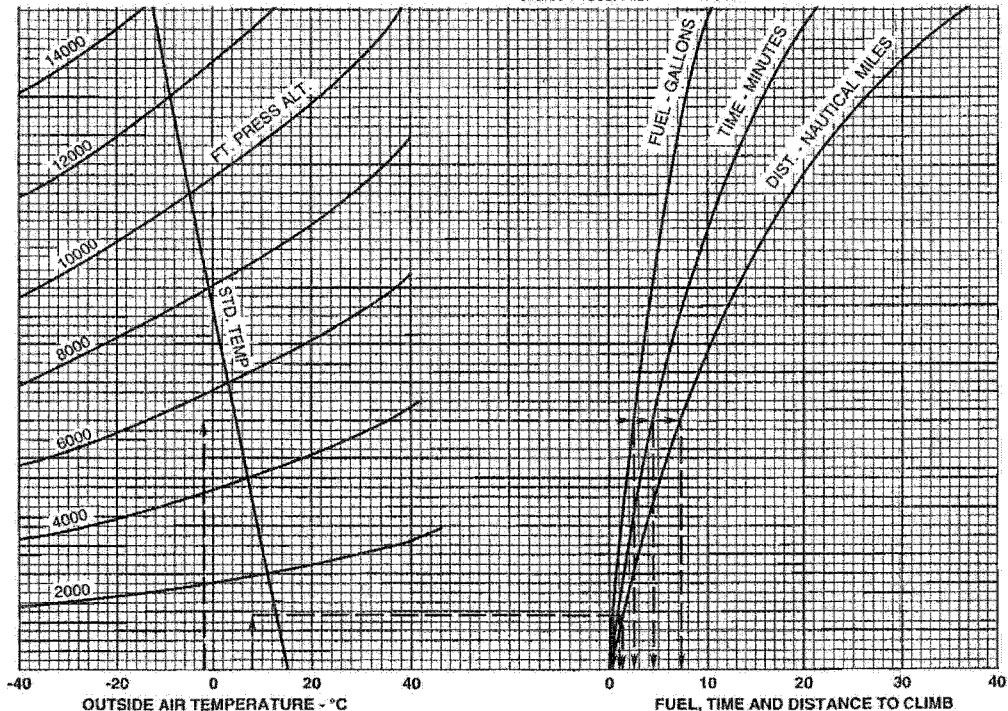
Wing Flaps: 0°  
 Cowl Flaps: OPEN  
 Landing Gear: UP  
 Power: 2700 RPM &  
 FULL THROTTLE

Climb Speed: 88 KIAS  
 Wind: NONE

**EXAMPLE:**

Departure Airport O.A.T.: 8°C  
 Dep. Airport Press. Alt.: 1250 FT  
 Cruise O.A.T.: 2°C  
 Cruise Press. Alt.: 5500 FT

Fuel to Climb: 2.6-0.4=2.2 GAL  
 Time to Climb: 4.5-0.9=3.6 MIN  
 Distance to Climb: 7.3-1.4=5.9 N.M.



FUEL, TIME AND DISTANCE TO CLIMB

Figure 5-21

**FUEL AND POWER SETTING TABLE**  
**LYCOMING (L) O-360-A1H6 (PER ENGINE)**

Press. Alt. Feet	Std. Alt. Temp. °C	99 BHP- 55% Rated Power Approx. Fuel Flow 8.7 G.P.H.* RPM AND MAN. PRESS.				117 BHP- 65% Rated Power Approx. Fuel Flow 10.2 G.P.H.* RPM AND MAN. PRESS.				135 BHP- 75% Rated Power Approx. Fuel Flow 11.7 G.P.H.* RPM AND MAN. PRESS.				Press. Alt. Feet
		2100	2200	2300	2400	2100	2200	2300	2400	2200	2300	2400	2500	
SL	15	22.3	21.7	21.1	20.6	24.9	24.2	23.5	22.9	26.7	26.0	25.2	24.6	SL
1000	13	22.0	21.3	20.8	20.3	24.6	23.8	23.2	22.6	26.3	25.6	24.9	24.3	1000
2000	11	21.7	21.0	20.5	20.0	24.2	23.5	22.9	22.3	25.9	25.3	24.6	24.0	2000
3000	9	21.3	20.7	20.2	19.8	23.9	23.2	22.6	22.0	25.6	25.0	24.4	23.7	3000
4000	7	21.1	20.5	20.0	19.5	23.5	22.8	22.3	21.8	FT	24.7	24.1	23.5	4000
5000	5	20.8	20.2	19.7	19.2	23.2	22.5	22.0	21.5	—	FT	23.8	23.2	5000
6000	3	20.5	19.9	19.4	19.0	22.9	22.2	21.7	21.3	—	—	FT	22.9	6000
7000	1	20.2	19.7	19.2	18.7	FT	21.9	21.5	21.0	—	—	—	FT	7000
8000	-1	20.0	19.4	18.9	18.5	—	FT	21.2	20.8					8000
9000	-3	19.7	19.1	18.7	18.2	—	—	FT	20.6					9000
10,000	-5	19.5	18.9	18.4	18.0	—	—	—	FT					10,000
11,000	-7	19.2	18.7	18.2	17.8									11,000
12,000	-9	FT	18.4	18.0	17.6									12,000
13,000	-11	—	FT	FT	17.4									13,000
14,000	-13	—	—	—	FT									14,000

NOTE: To maintain constant power, add approximately 1% Manifold Pressure for each 8°C above standard. Subtract approximately 1% for each 8°C below standard.

\*PERFORMANCE CRUISE POWER

FUEL & POWER SETTING TABLE  
Figure 5-23



# SPEED POWER

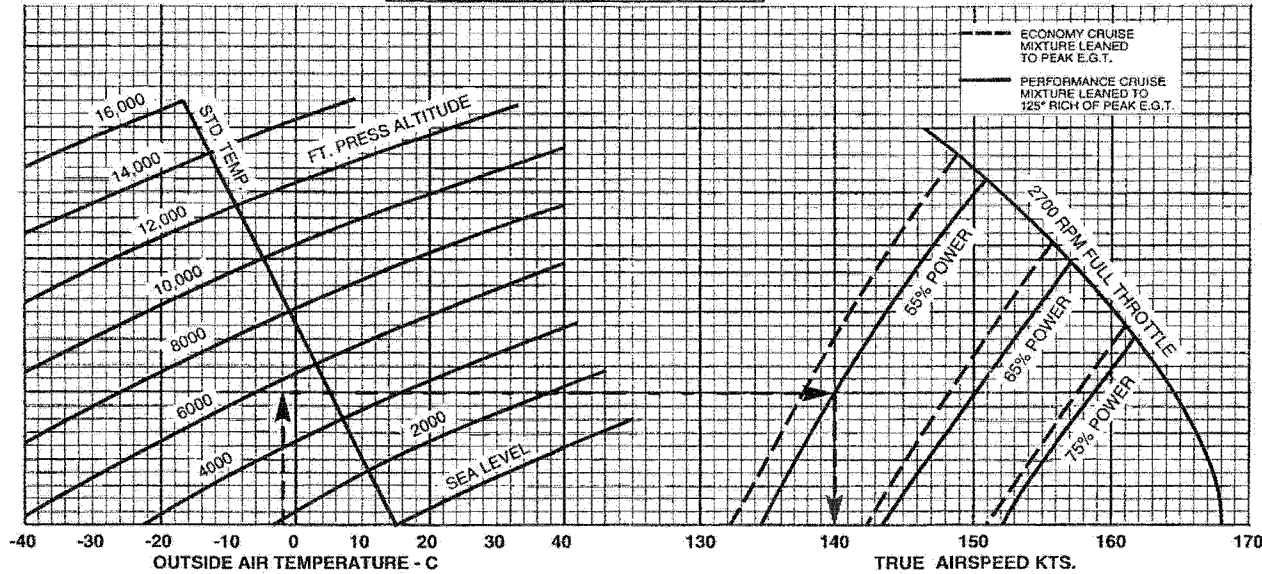
ASSOCIATED CONDITIONS:  
 Cowl Flaps: CLOSED  
 Landing Gear: UP  
 Wing Flaps: 0°  
 Mid Cruise Weight: 3480 LBS

APPROX. FUEL FLOW		%
PERF. CRUISE	ECON CRUISE	POWER
17.4 GPH	14.0 GPH	55
20.4 GPH	16.6 GPH	65
23.3 GPH	19.2 GPH	75

EXAMPLE:  
 Cruise OAT: -2°C  
 Cruise pressure altitude: 5500 FT  
 Cruise power: 55 %  
 Cruise speed: 140 KTAS

SPEED POWER

Figure 5-25



# FUEL, TIME AND DISTANCE TO DESCEND

**ASSOCIATED CONDITIONS:**

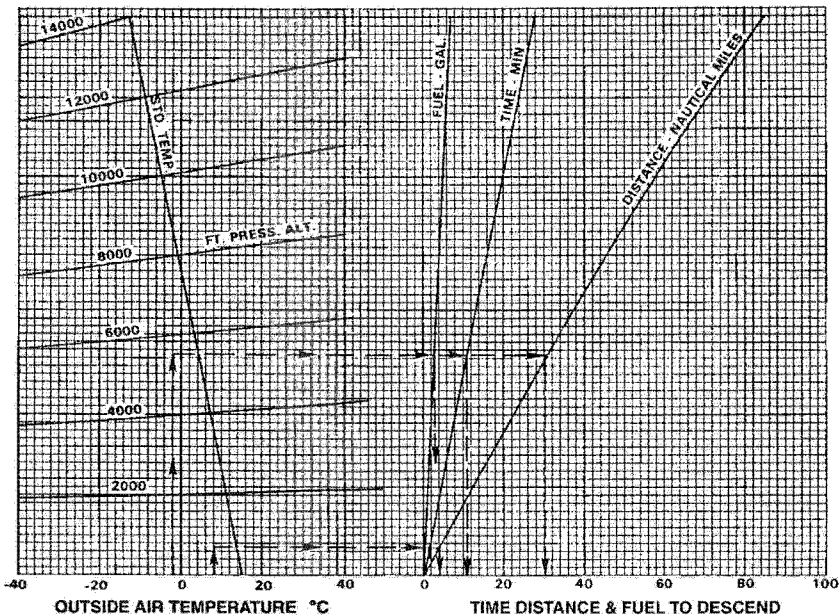
Airspeed: 165 KIAS  
 Descent: 500 FPM  
 Both Engines: 2400 RPM &  
 THROTTLE AS REQUIRED  
 TO MAINTAIN AIRSPEED  
 AND DESCENT RATE

Wing Flaps: 0°  
 Cowl Flaps: CLOSED  
 Landing Gear: UP  
 Wind: NONE

**EXAMPLE:**

Cruise O.A.T.: -2°C  
 Cruise Altitude: 5500 FT  
 Destination Airport O.A.T.: 8°C  
 Destination Airport Altitude: 680 FT

Fuel to Descend: 3 - 1 = 2 GAL  
 Time to Descend: 9 - 2 = 7 MIN  
 Distance to Descend: 30 - 4 = 26 N.M.



FUEL, TIME AND DISTANCE TO DESCEND

Figure 5-31

### LANDING DISTANCE OVER 50 FT OBSTACLE — SHORT FIELD EFFORT

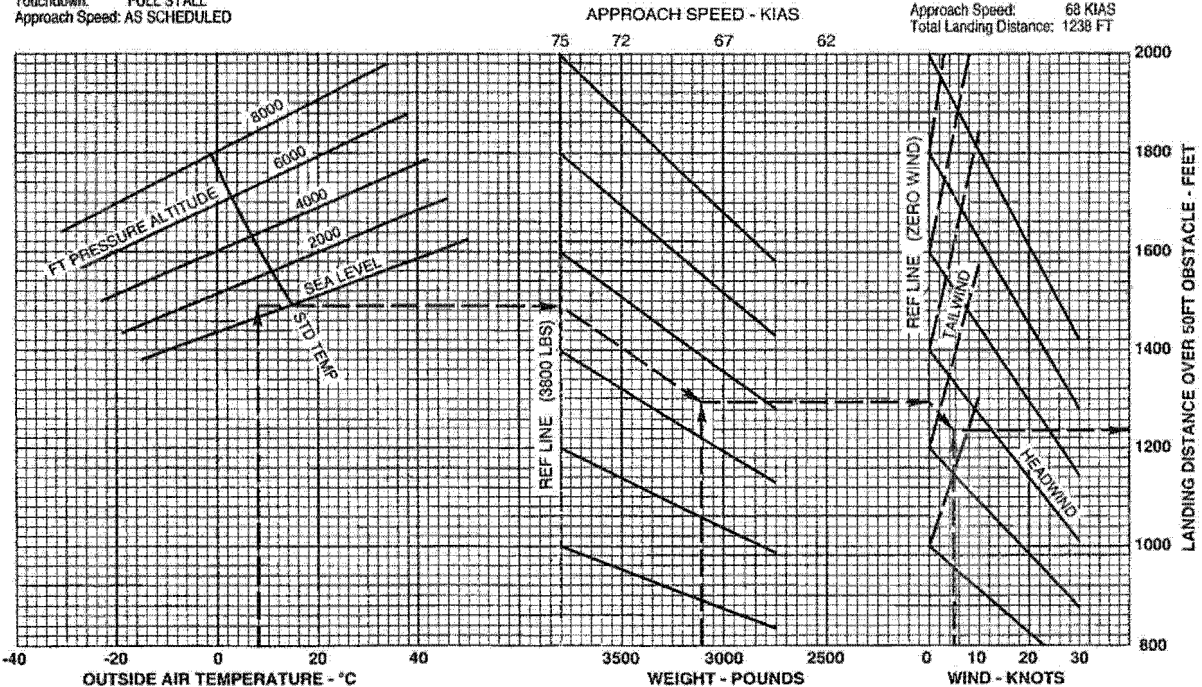
**ASSOCIATED CONDITIONS:**

Wing Flaps: 40°  
 Power: OFF  
 Cowl Flaps: AS REQUIRED  
 Runway: PAVED LEVEL & DRY  
 Touchdown: FULL STALL  
 Approach Speed: AS SCHEDULED

**EXAMPLE:**

O.A.T.: 6°  
 Press. Alt.: 680 FT  
 Weight: 3107 LBS  
 Wind Component: 5 KT HEADWIND

Approach Speed: 68 KIAS  
 Total Landing Distance: 1238 FT



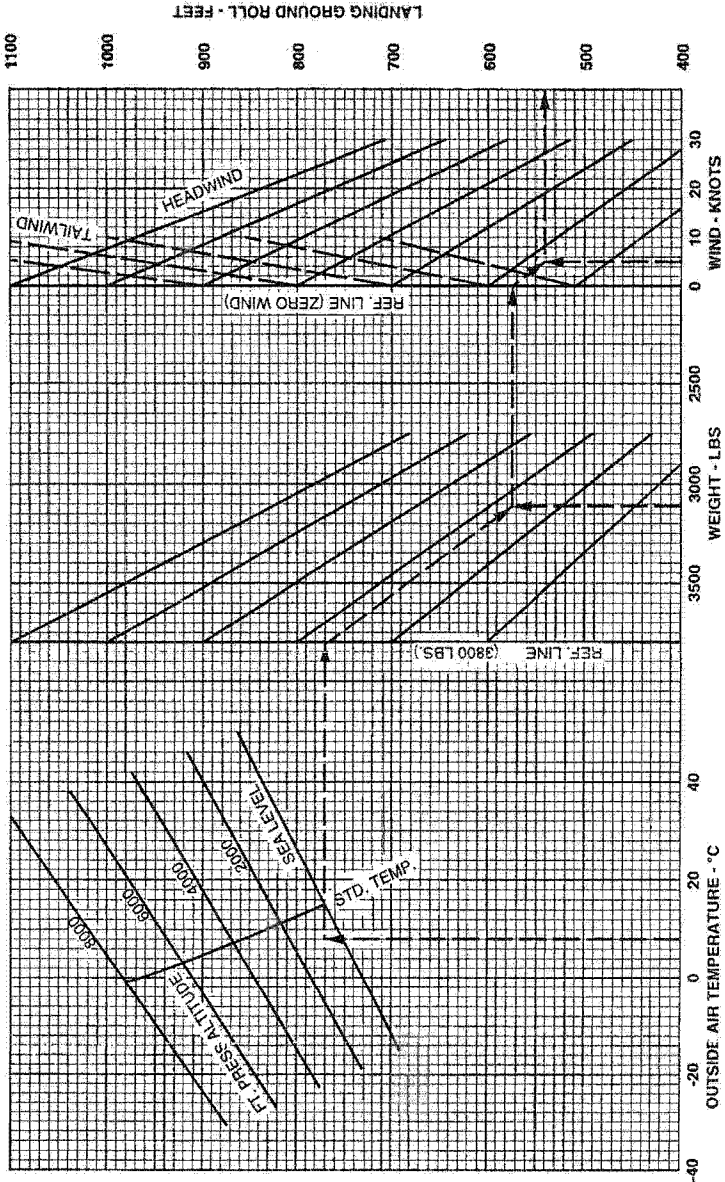
LANDING DISTANCE OVER 50 FT. OBSTACLE - SHORT FIELD EFFORT

Figure 5-33

LANDING GROUND ROLL — SHORT FIELD EFFORT

EXAMPLE:  
O.A.T.: 8°  
Pressure Altitude: 660 FT  
Weight: 3107 LBS  
Wind Component: 5 KT HEADWIND  
Landing Ground Roll: 542 FT

ASSOCIATED CONDITIONS:  
Wing Flaps: 40°  
Power: OFF  
Cow Flaps: OPEN  
Runway: PAVED LEVEL & DRY  
Touchdown: FULL STALL



LANDING GROUND ROLL - SHORT FIELD EFFORT

Figure 5-35