

Basic Performance Charts

Headwind and Crosswind Component Graph

3688. (Refer to Figure 37.) What is the crosswind component for a landing on Runway 18 if the tower reports the wind as 220° at 30 knots?

- A—19 knots.
- B—23 knots.
- C—30 knots.

3683. (Refer to Figure 37.) What is the headwind component for a landing on Runway 18 if the tower reports the wind as 220° at 30 knots?

- A—19 knots.
- B—23 knots.
- C—26 knots.

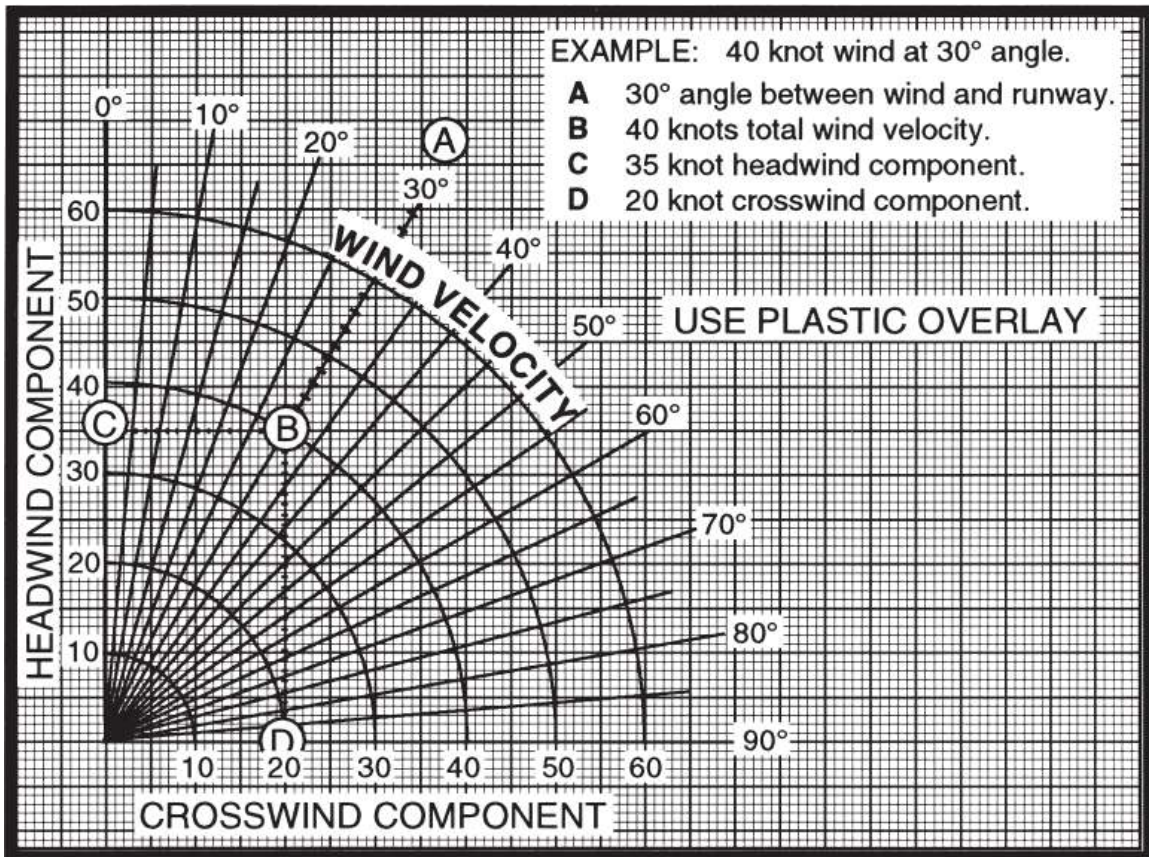


FIGURE 37.—Crosswind Component Graph.

Density Altitude

International Standard Pressure at sea level is _____ in Hg or _____ mb.

International Standard Temperature at sea level is _____ °C or _____ °F.

Density altitude is increased by an increase in _____,
_____ or _____.

3296. (Refer to Figure 8.) What is the effect of a temperature increase from 30 to 50°F on the density altitude if the pressure altitude remains at 3,000 feet MSL?
- A—900-foot increase.
 - B—1,100 foot-decrease.
 - C—1,300-foot increase.

3297. (Refer to Figure 8.) Determine the pressure altitude at an airport that is 1,386 feet MSL with an altimeter setting of 29.97.
- A—1,341 feet MSL.
 - B—1,451 feet MSL.
 - C—1,562 feet MSL.

3294. (Refer to Figure 8.) Determine the density altitude for these conditions:
- | | |
|-------------------------|--------------|
| Altimeter setting..... | 29.25 |
| Runway temperature..... | +81°F |
| Airport elevation..... | 5,250 ft MSL |
- A—4,600 feet MSL.
 - B—5,877 feet MSL.
 - C—8,500 feet MSL.

Density Altitude, Continued

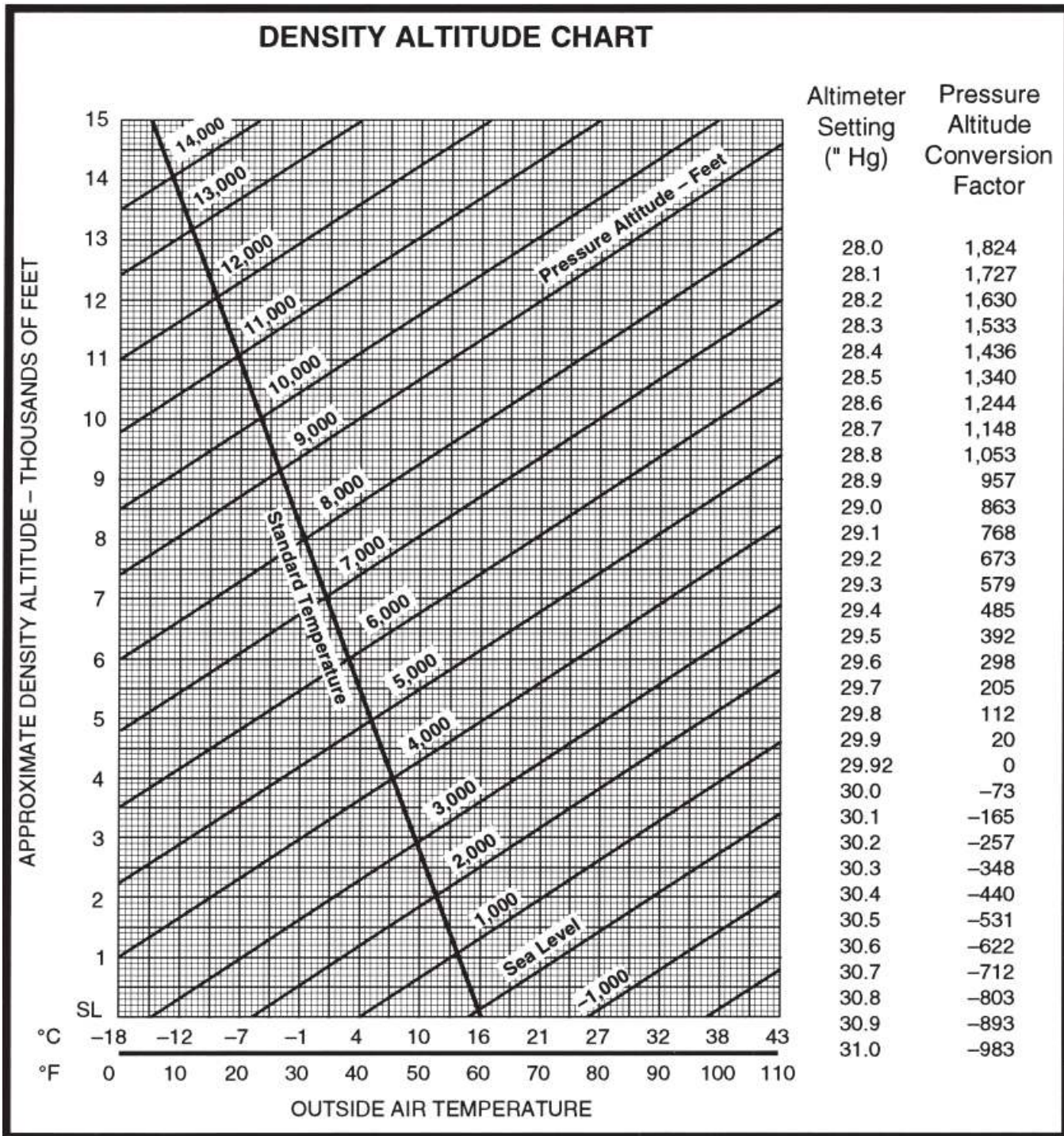


FIGURE 8.—Density Altitude Chart.

Takeoff Distance

3706. (Refer to Figure 41.) Determine the total distance required for takeoff to clear a 50-foot obstacle.

OAT.....Std
 Pressure altitude.....Sea level
 Takeoff weight.....2,700 lb
 Headwind component.....Calm

3708. (Refer to Figure 41.) Determine the approximate ground roll distance required for takeoff.

OAT.....95°F
 Pressure altitude.....2,000 ft
 Takeoff weight.....2,500 lb
 Headwind component.....20 kts

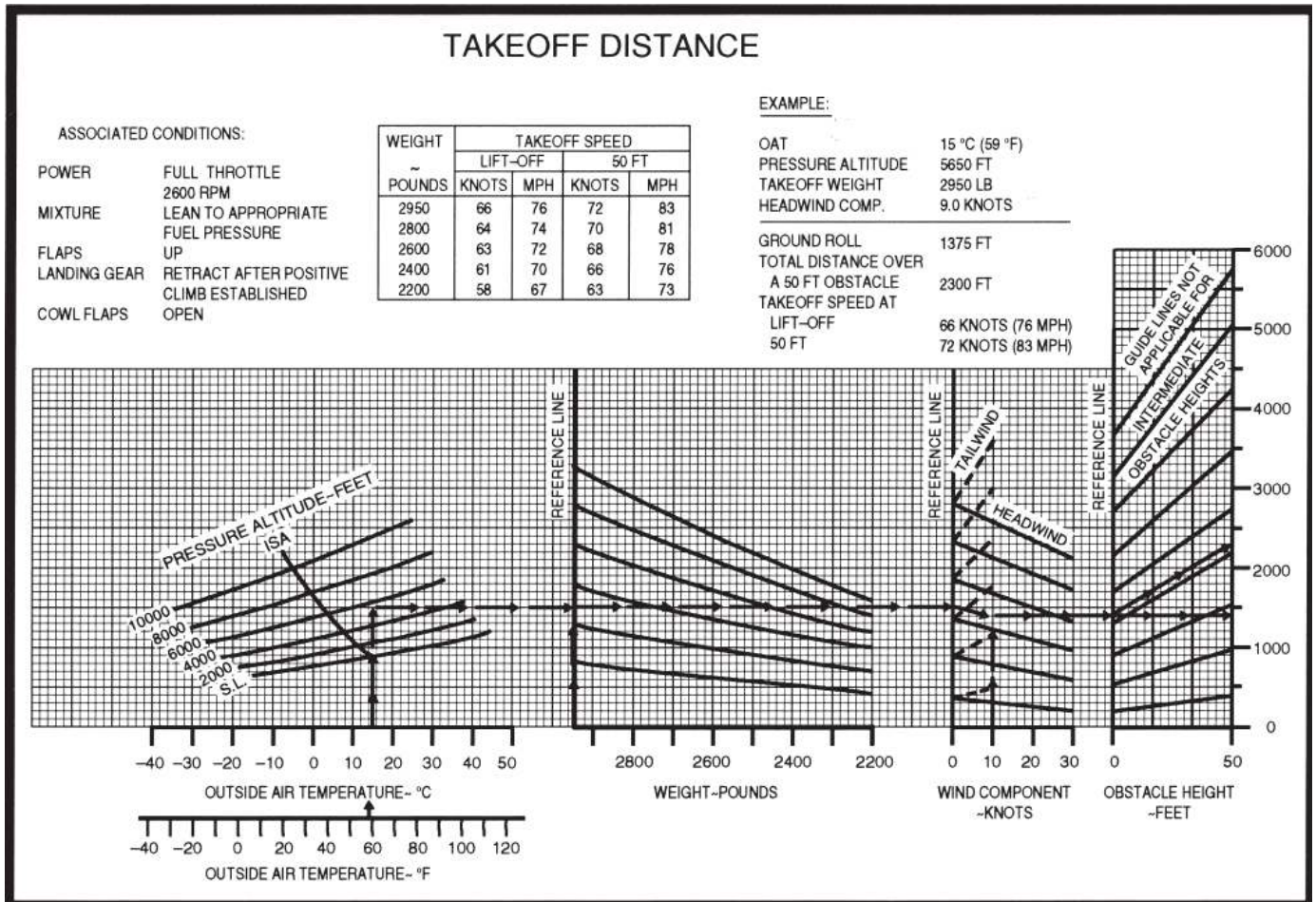


FIGURE 41.—Airplane Takeoff Distance Graph.

Cruise Power Setting Table

3681. (Refer to Figure 36.) What fuel flow should a pilot expect at 11,000 feet on a standard day with 65 percent maximum continuous power?

- A—10.6 gallons per hour.
- B—11.2 gallons per hour.
- C—11.8 gallons per hour.

3680. (Refer to Figure 36.) What is the expected fuel consumption for a 500-nautical mile flight under the following conditions?

Pressure altitude.....4,000 ft
 Temperature.....+29°C
 Manifold pressure.....21.3” Hg
 Wind.....Calm

- A—31.4 gallons.
- B—36.1 gallons.
- C—40.1 gallons.

3682. (Refer to Figure 36.) Determine the approximate manifold pressure setting with 2,450 RPM to achieve 65 percent maximum continuous power at 6,500 feet with a temperature of 36°F higher than standard.

- A—19.8” Hg.
- B—20.8” Hg.
- C—21.0” Hg.

CRUISE POWER SETTINGS																								
65% MAXIMUM CONTINUOUS POWER (OR FULL THROTTLE) 2800 POUNDS																								
PRESS ALT.	ISA -20 °C (-36 °F)								STANDARD DAY (ISA)								ISA +20 °C (+36 °F)							
	IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS	
	FEET	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS
SL	27	-3	2450	20.7	6.6	11.5	147	169	63	17	2450	21.2	6.6	11.5	150	173	99	37	2450	21.8	6.6	11.5	153	176
2000	19	-7	2450	20.4	6.6	11.5	149	171	55	13	2450	21.0	6.6	11.5	153	176	91	33	2450	21.5	6.6	11.5	156	180
4000	12	-11	2450	20.1	6.6	11.5	152	175	48	9	2450	20.7	6.6	11.5	156	180	84	29	2450	21.3	6.6	11.5	159	183
6000	5	-15	2450	19.8	6.6	11.5	155	178	41	5	2450	20.4	6.6	11.5	158	182	79	26	2450	21.0	6.6	11.5	161	185
8000	-2	-19	2450	19.5	6.6	11.5	157	181	36	2	2450	20.2	6.6	11.5	161	185	72	22	2450	20.8	6.6	11.5	164	189
10000	-8	-22	2450	19.2	6.6	11.5	160	184	28	-2	2450	19.9	6.6	11.5	163	188	64	18	2450	20.3	6.5	11.4	166	191
12000	-15	-26	2450	18.8	6.4	11.3	162	186	21	-6	2450	18.8	6.1	10.9	163	188	57	14	2450	18.8	5.9	10.6	163	188
14000	-22	-30	2450	17.4	5.8	10.5	159	183	14	-10	2450	17.4	5.6	10.1	160	184	50	10	2450	17.4	5.4	9.8	160	184
16000	-29	-34	2450	16.1	5.3	9.7	156	180	7	-14	2450	16.1	5.1	9.4	156	180	43	6	2450	16.1	4.9	9.1	155	178

NOTES: 1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.

FIGURE 36.—Airplane Power Setting Table.

Landing Distance Graph

3689. (Refer to Figure 38.) Determine the total distance required to land.

OAT.....32°F
 Pressure altitude.....8,000 ft
 Weight.....2,600 lb
 Headwind component.....20 kts
 Obstacle.....50 ft

- A—850 feet.
- B—1,400 feet.
- C—1,750 feet.

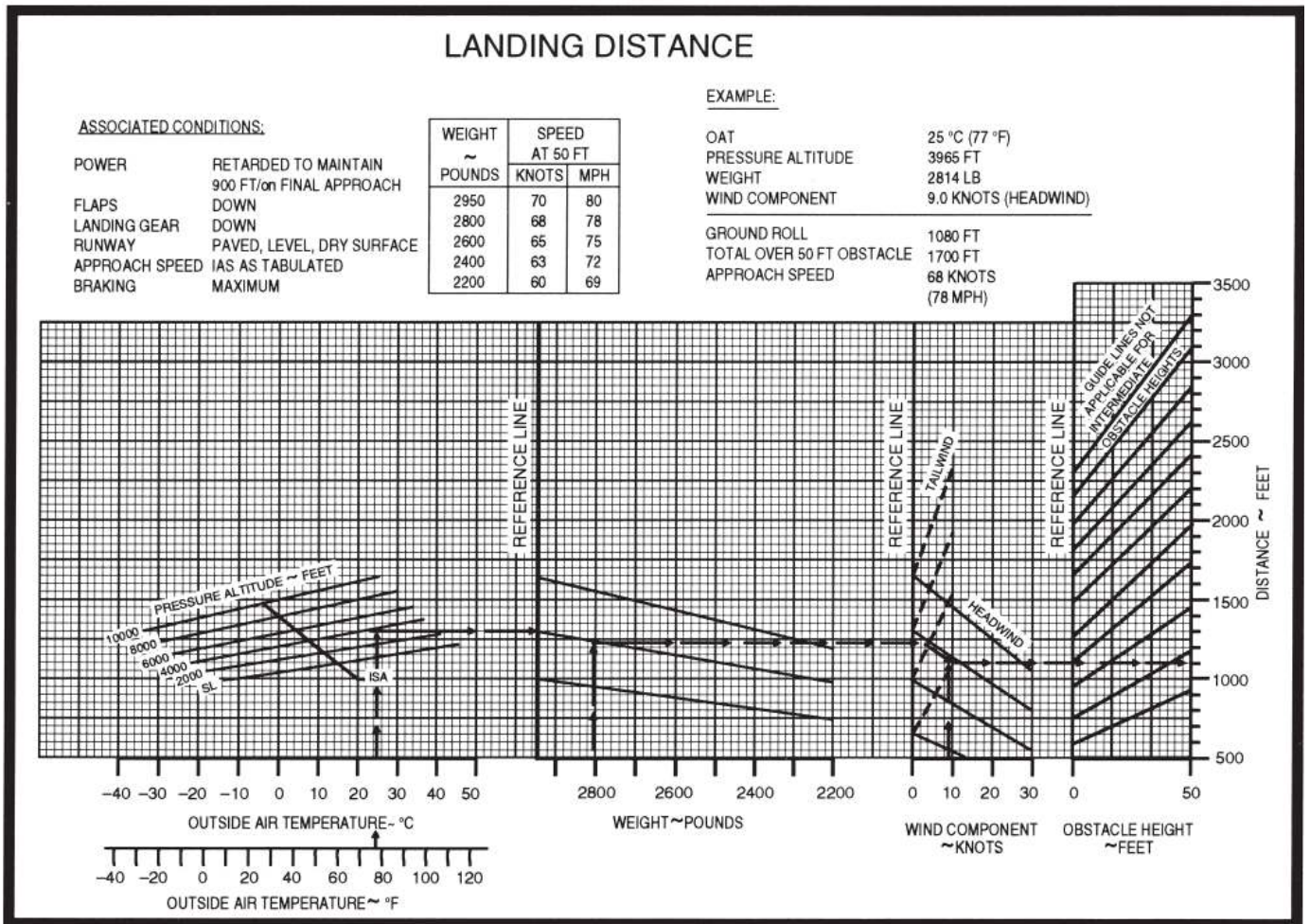


FIGURE 38.—Airplane Landing Distance Graph.

Landing Distance Table

3693. (Refer to Figure 39.) Determine the approximate landing ground roll distance.

Pressure altitude.....Sea level
 Headwind.....4 kts
 Temperature.....Std

- A—356 feet.
- B—401 feet.
- C—490 feet.

3697. (Refer to Figure 39.) Determine the total distance required to land over a 50-foot obstacle.

Pressure altitude.....3,750 ft
 Headwind.....12 kts
 Temperature.....Std

- A—794 feet.
- B—836 feet.
- C—816 feet.

LANDING DISTANCE									
FLAPS LOWERED TO 40° - POWER OFF HARD SURFACE RUNWAY - ZERO WIND									
GROSS WEIGHT LB	APPROACH SPEED, IAS, MPH	AT SEA LEVEL & 59 °F		AT 2500 FT & 50 °F		AT 5000 FT & 41 °F		AT 7500 FT & 32 °F	
		GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS
1600	60	445	1075	470	1135	495	1195	520	1255

NOTES: 1. Decrease the distances shown by 10% for each 4 knots of headwind.
 2. Increase the distance by 10% for each 60 °F temperature increase above standard.
 3. For operation on a dry, grass runway, increase distances (both "ground roll" and "total to clear 50 ft obstacle") by 20% of the "total to clear 50 ft obstacle" figure.

FIGURE 39.—Airplane Landing Distance Table.