WARRIOR II

N31082

WEIGHT & BALANCE

PERFORMANCE CHARTS

Piper PA-28-161

S/N: 28-7816551

Aircraft Weight and Balance Revision

Tail Number: **N31082**	Date: 3/22/2022
Prepared by: Carolina Aviation Center	Work Order No:
	Type Certificate Data No: 2A13

Aircraft Make:	Model:	Serial No:	Time:
Piper	PA28-161	28-7816551	5090.8

Registered Owner:	Address:
Alan Lutz	6369 Huntington Lane Conover, NC 28613

Maximum Weight **2325.0**	CG Range FWD **+87.0**	AFT **+93.0**

As Received; Date of Previous Weight and Balance:	**Useful Load:**	**EW:**	**EWCG:**	**Moment:**
3/22/2022	861.11	1463.89	87.49	128082.38

Notes:
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	Weight	**Arm**	**Moment**
Installed Garmin GNC 355 GPS/Com	+3.4	60.1	204.34
Installed GAD 29B and GAD 13	.89	60.5	53.84
Installed Garmin G5 A/I G5 HSI	+2.0	61.5	123.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00

		New Empty Weight CG	**New Useful Load**
☒ As Calculated	Moment 128463.57	**87.38**	**854.82**
☐ As Weighed	Weight 1470.18		

Signature

Repair Agency or License No: 2683054

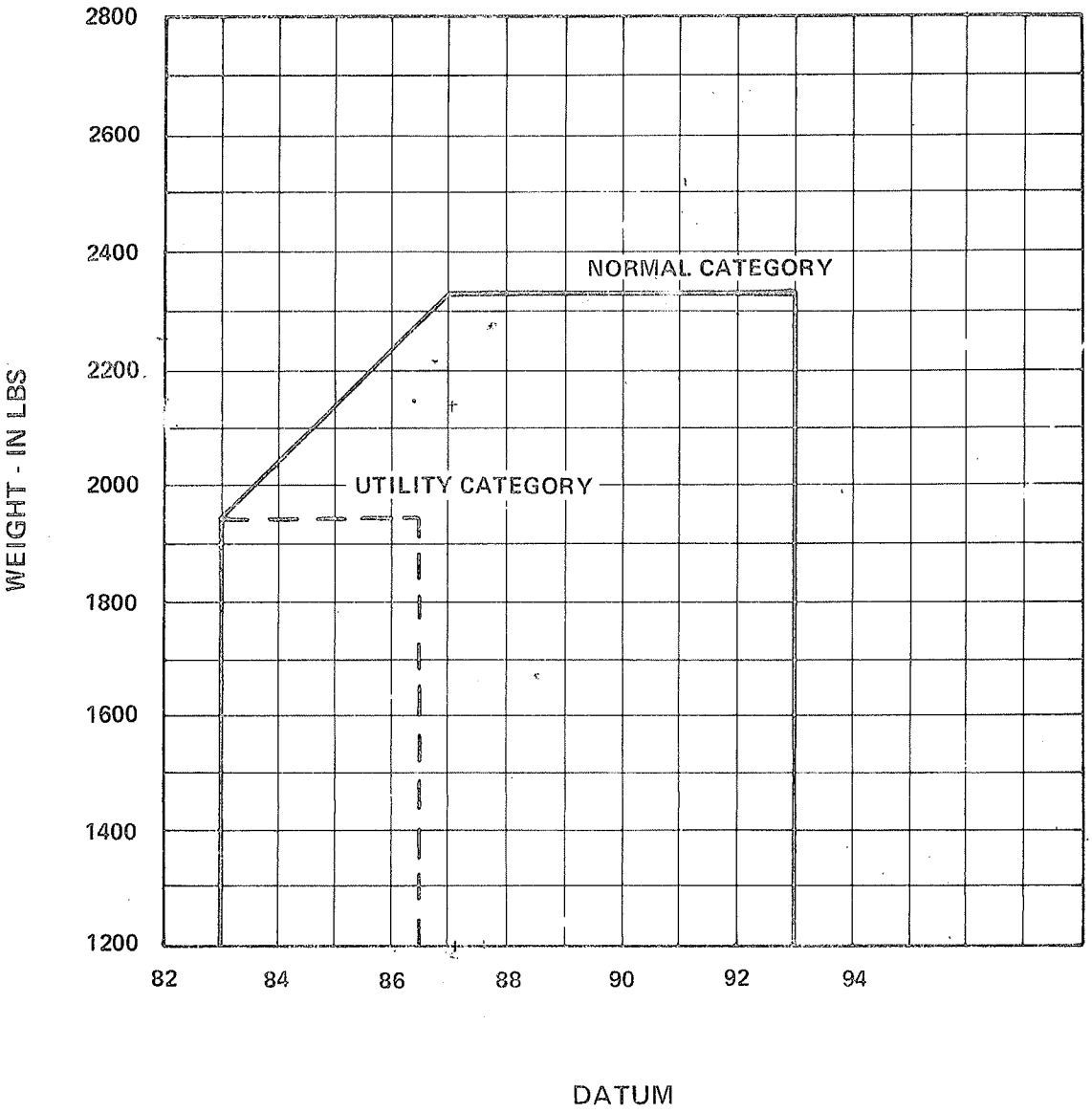
	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight	1463.9	87.49	128,082.3
Pilot and Front Passenger		80.5	
Passenger (Rear Seats)*		118.1	
Fuel (48 Gallon Maximum)		95.0	
Baggage*		142.8	
Total Loaded Airplane			

Totals must be within approved weight and C.G. limits. It is the responsibility of the airplane owner and the pilot to insure 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 aft passengers allowed.

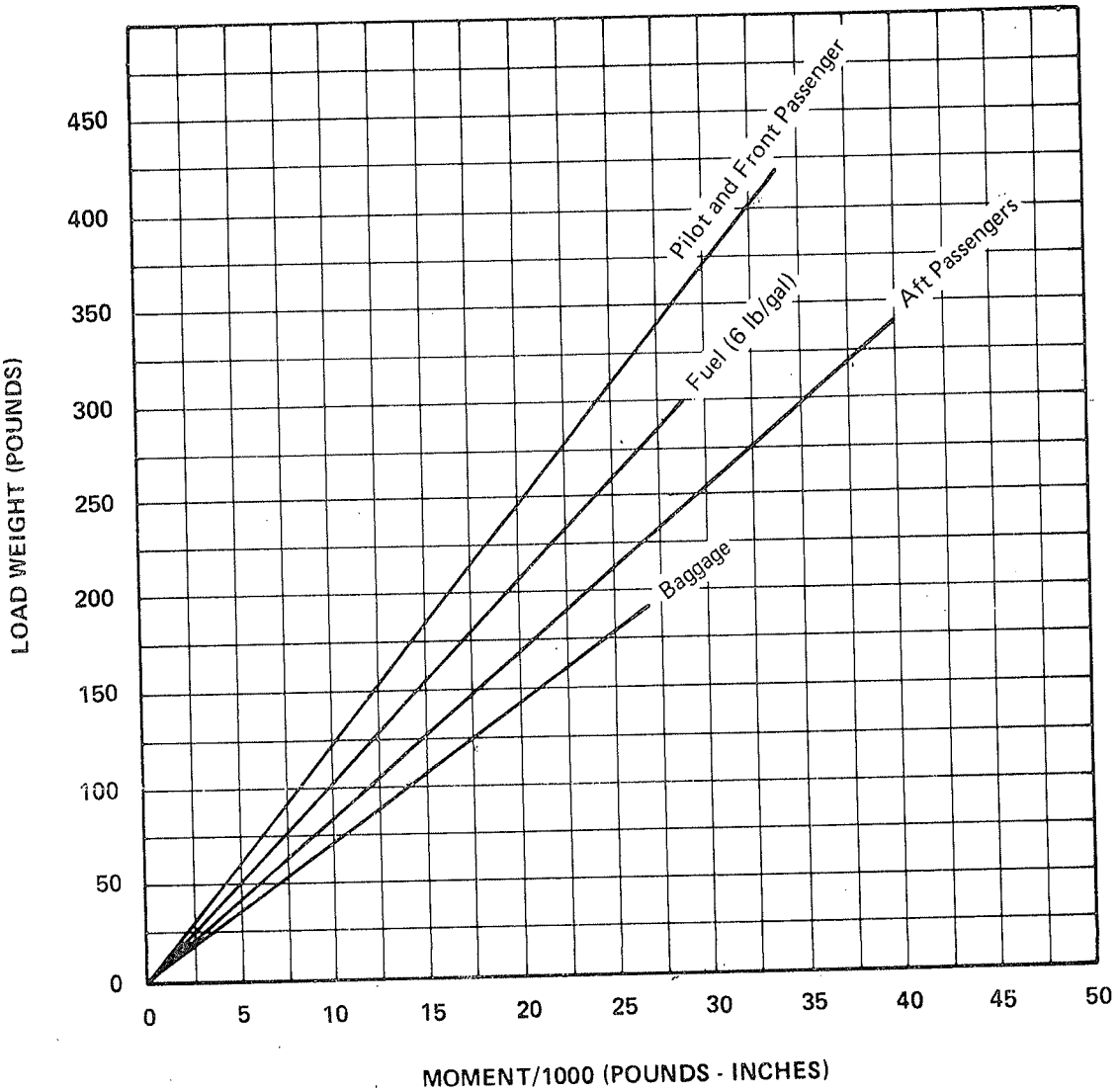
WEIGHT AND BALANCE LOADING FORM

Figure 6-11



C. G. RANGE AND WEIGHT

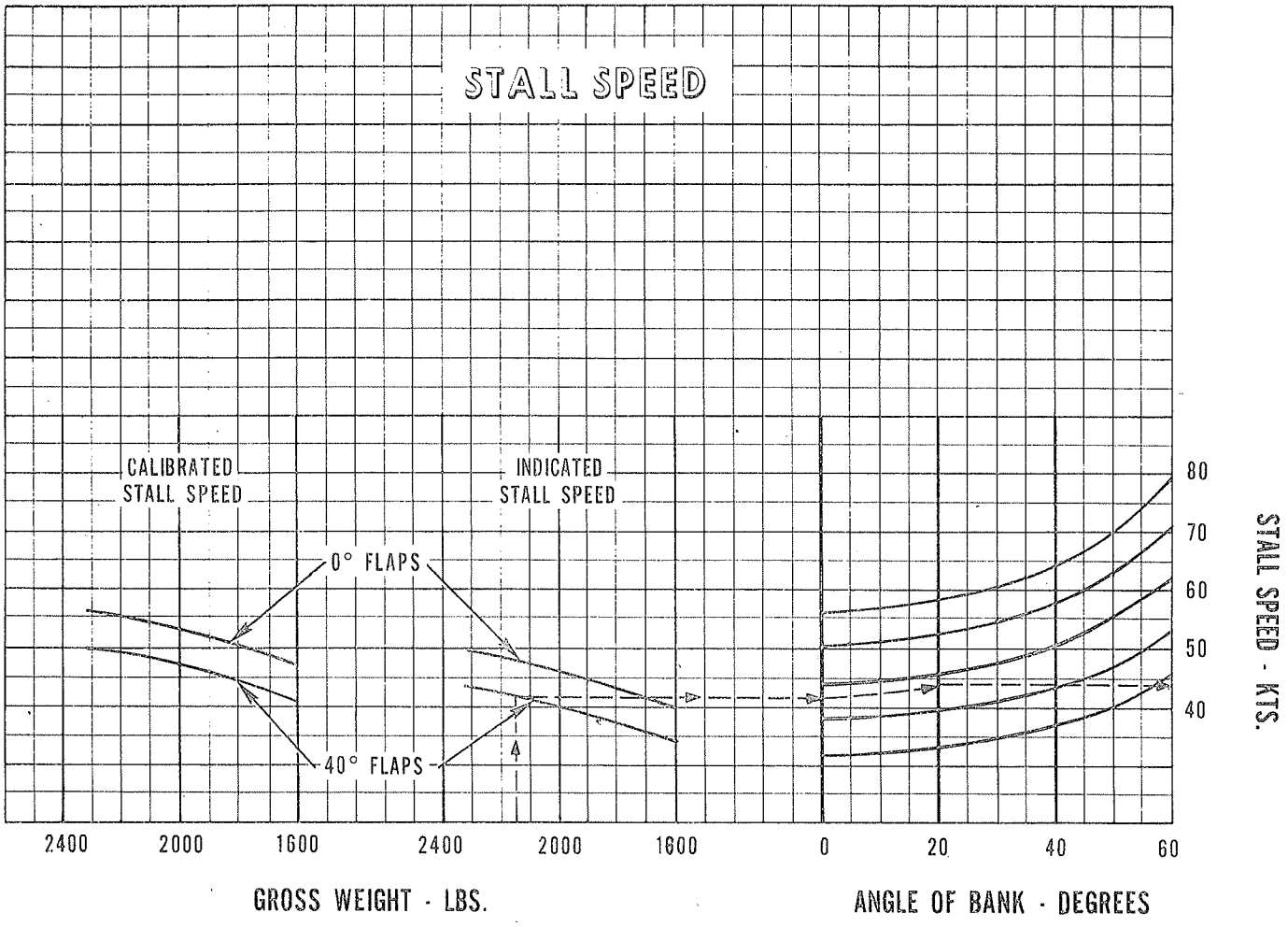
Figure 6-15



LOADING GRAPH

Figure 6-13

PA-28-161

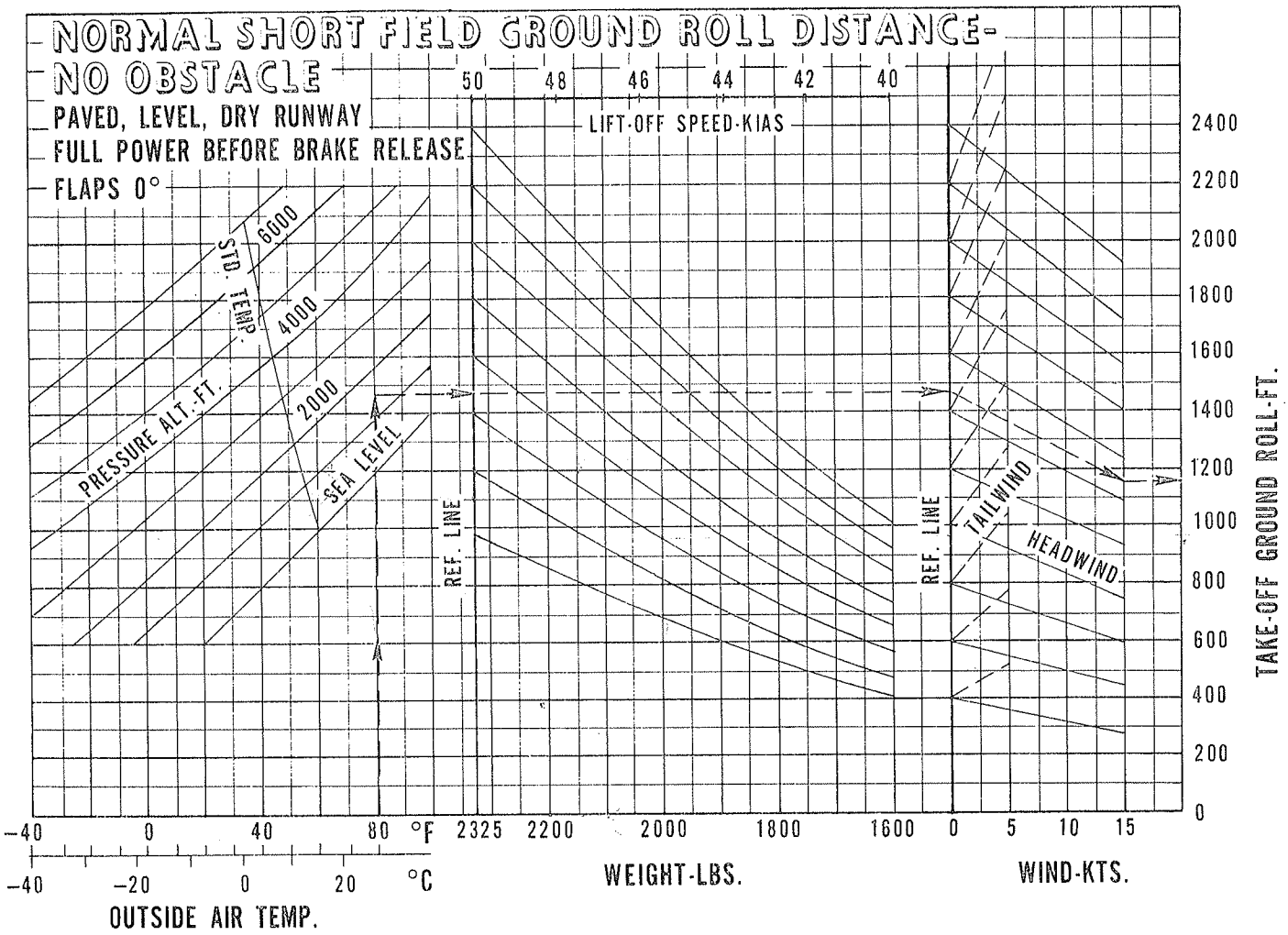


Example:
Gross weight: 2170 lbs.
Angle of bank: 20°
Flap position: 40°
Stall speed, indicated: 44 KTS

STALL SPEED

Figure 5-3

PA-28-161

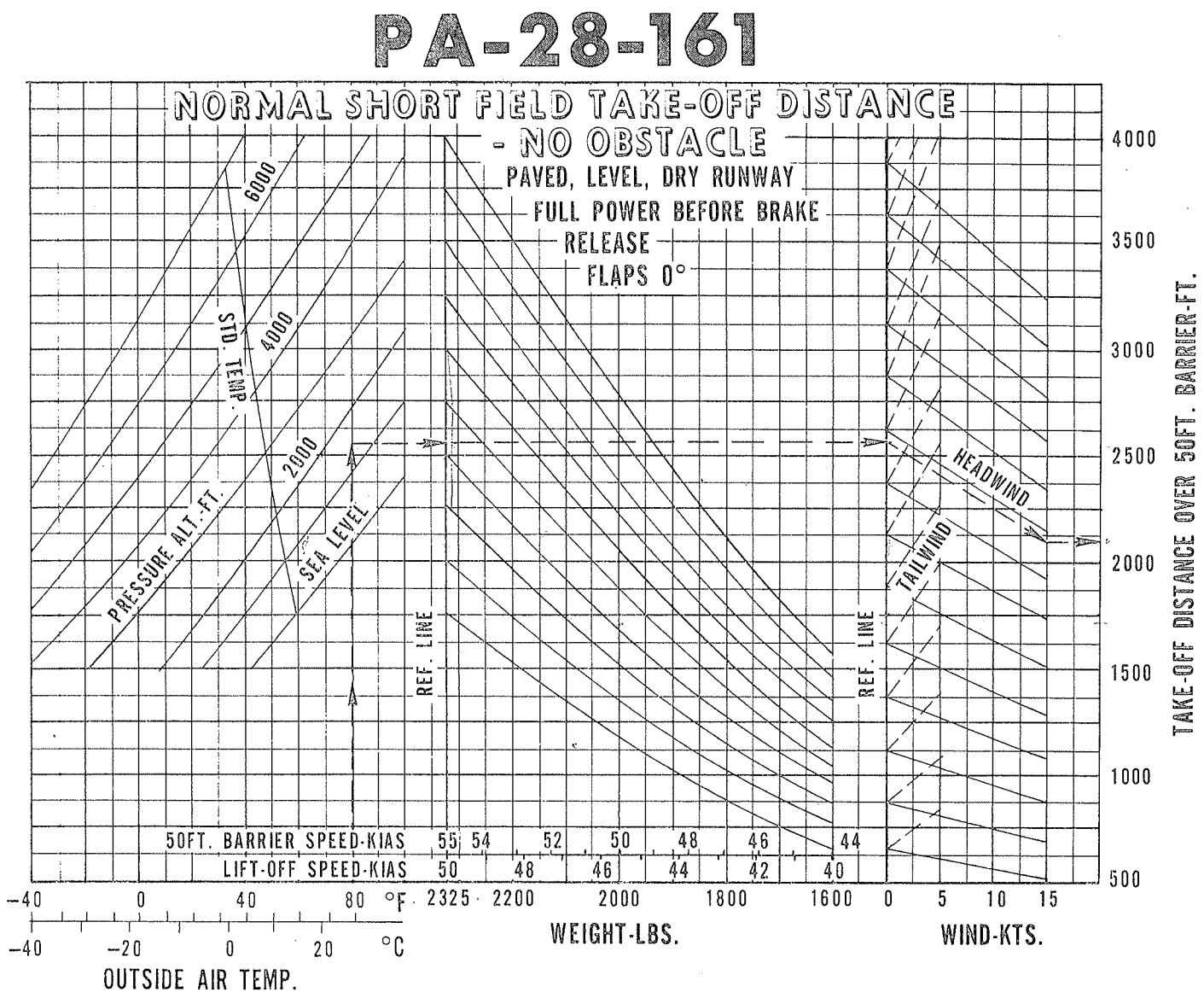


Example:

Departure airport pressure altitude: 1500 ft.
Departure airport temperature: 80° F
Weight: 2325 lbs.
Wind: 15 KTS headwind
Ground roll: 1150 ft.
Lift-off speed: 50 KIAS

NORMAL SHORT FIELD GROUND ROLL DISTANCE - NO OBSTACLE

Figure 5-5

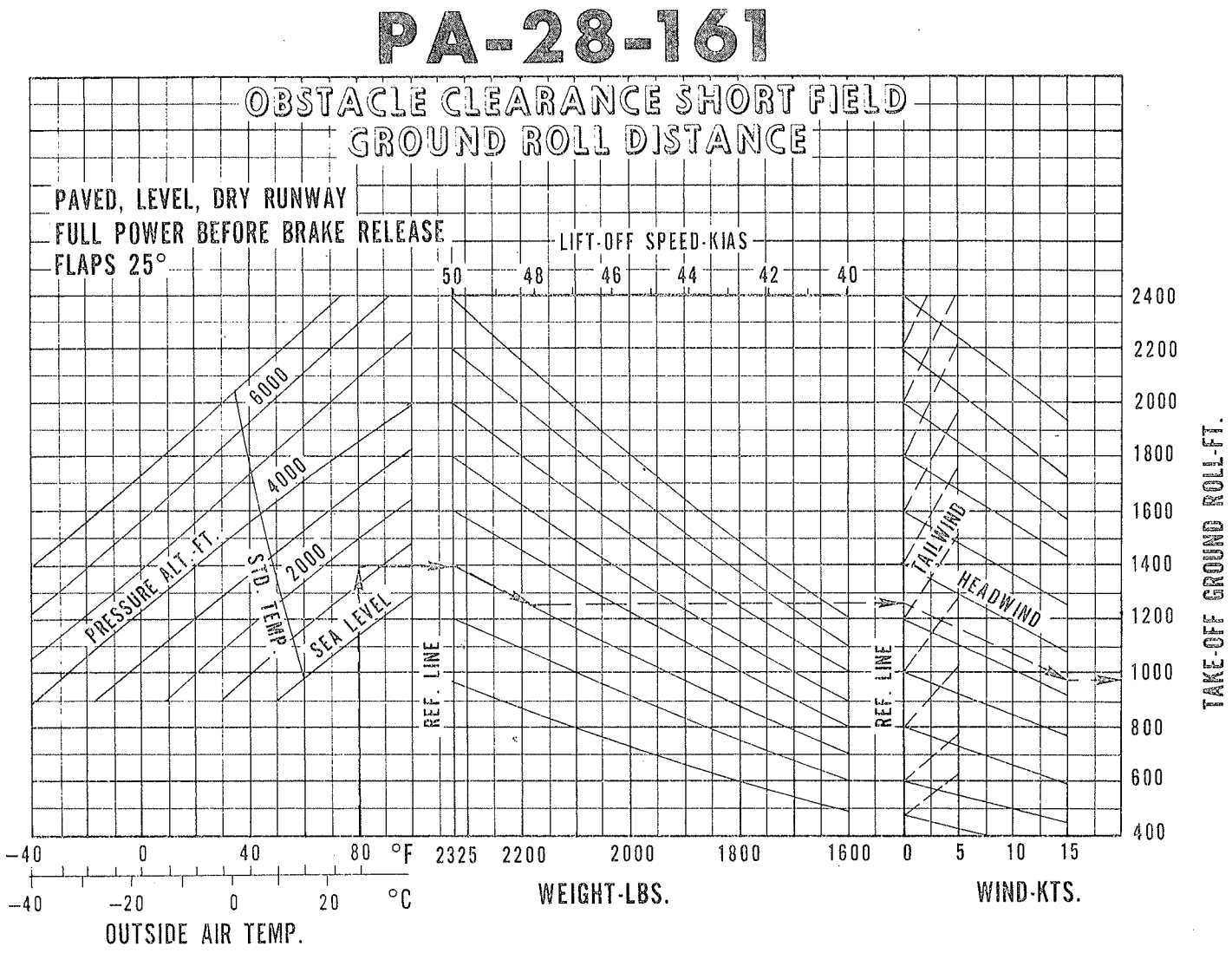


Example:

Departure airport pressure altitude: 1500 ft.
Departure airport temperature: 80° F
Weight: 2325 lbs.
Wind: 15 KTS headwind
Distance over 50 ft. barrier: 2100 ft.
Lift-off speed: 50 KIAS
Barrier speed: 55 KIAS

NORMAL SHORT FIELD TAKEOFF DISTANCE - NO OBSTACLE

Figure 5-6

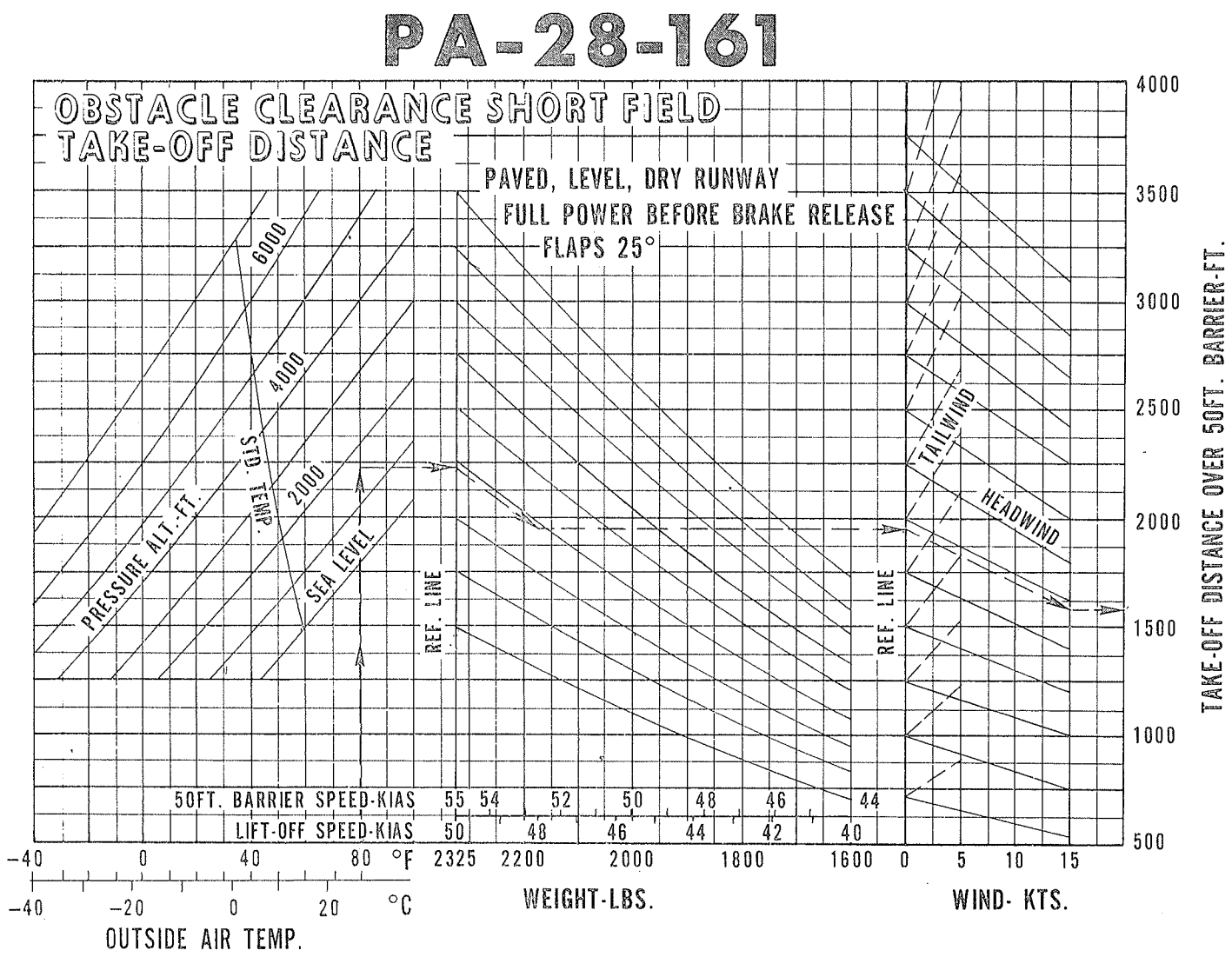


Example:

Departure airport pressure altitude: 1500 ft.
Departure airport temperature: 80° F
Weight: 2175 lbs.
Wind: 15 KTS headwind
Ground roll: 975 ft.
Lift-off speed: 48 KIAS

OBSTACLE CLEARANCE SHORT FIELD GROUND ROLL DISTANCE

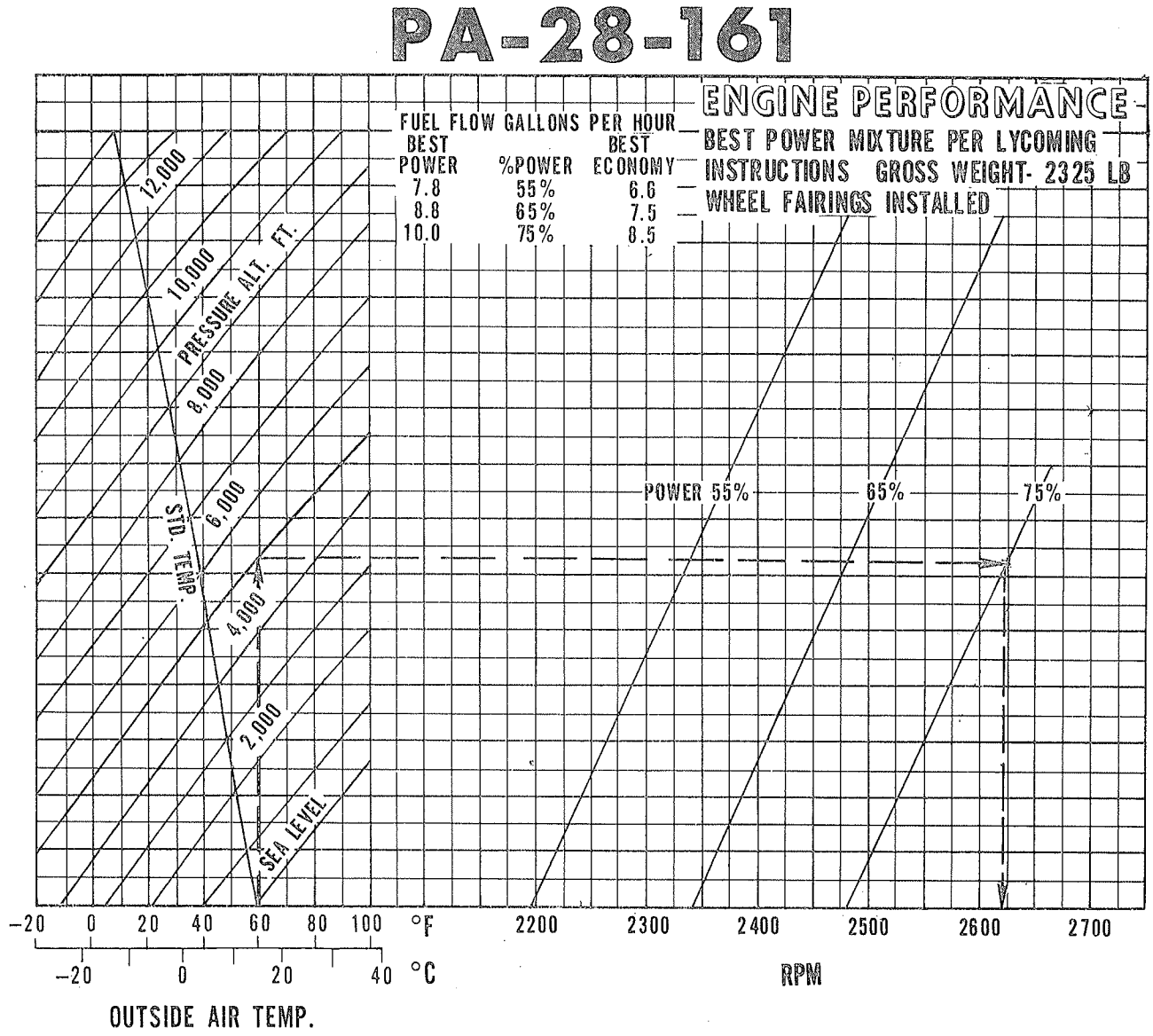
Figure 5-7



Example:
Departure airport pressure altitude: 1500 ft.
Departure airport temperature: 80° F
Weight: 2175 lbs.
Wind: 15 KTS headwind
Distance over 50 ft. barrier: 1600 ft.
Lift-off speed: 48 KIAS
Barrier speed: 53 KIAS

OBSTACLE CLEARANCE SHORT FIELD TAKEOFF DISTANCE

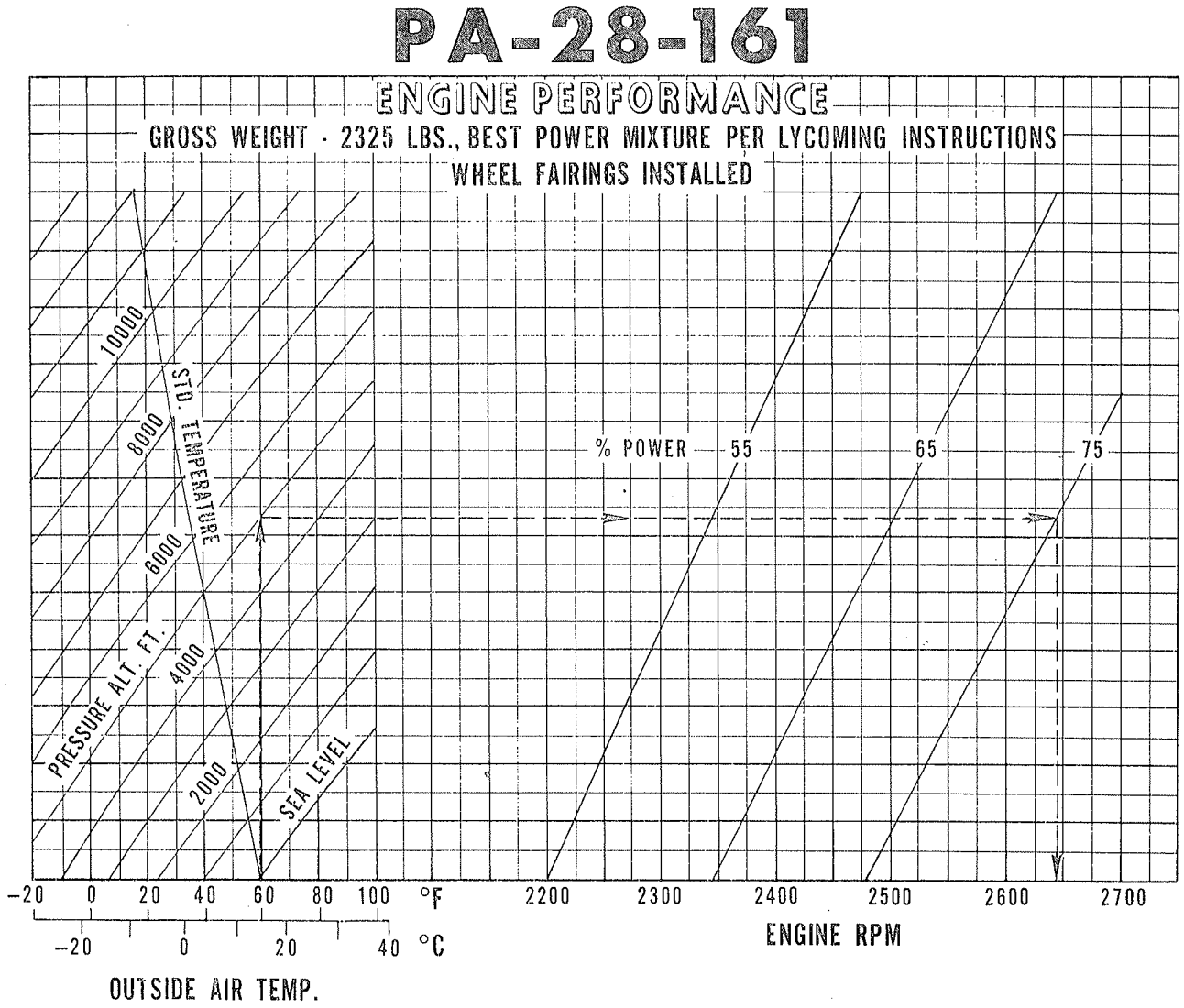
Figure 5-8



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75%
Engine RPM: 2620

ENGINE PERFORMANCE (SERIAL NOS. 28-7816001 AND UP)

Figure 5-10

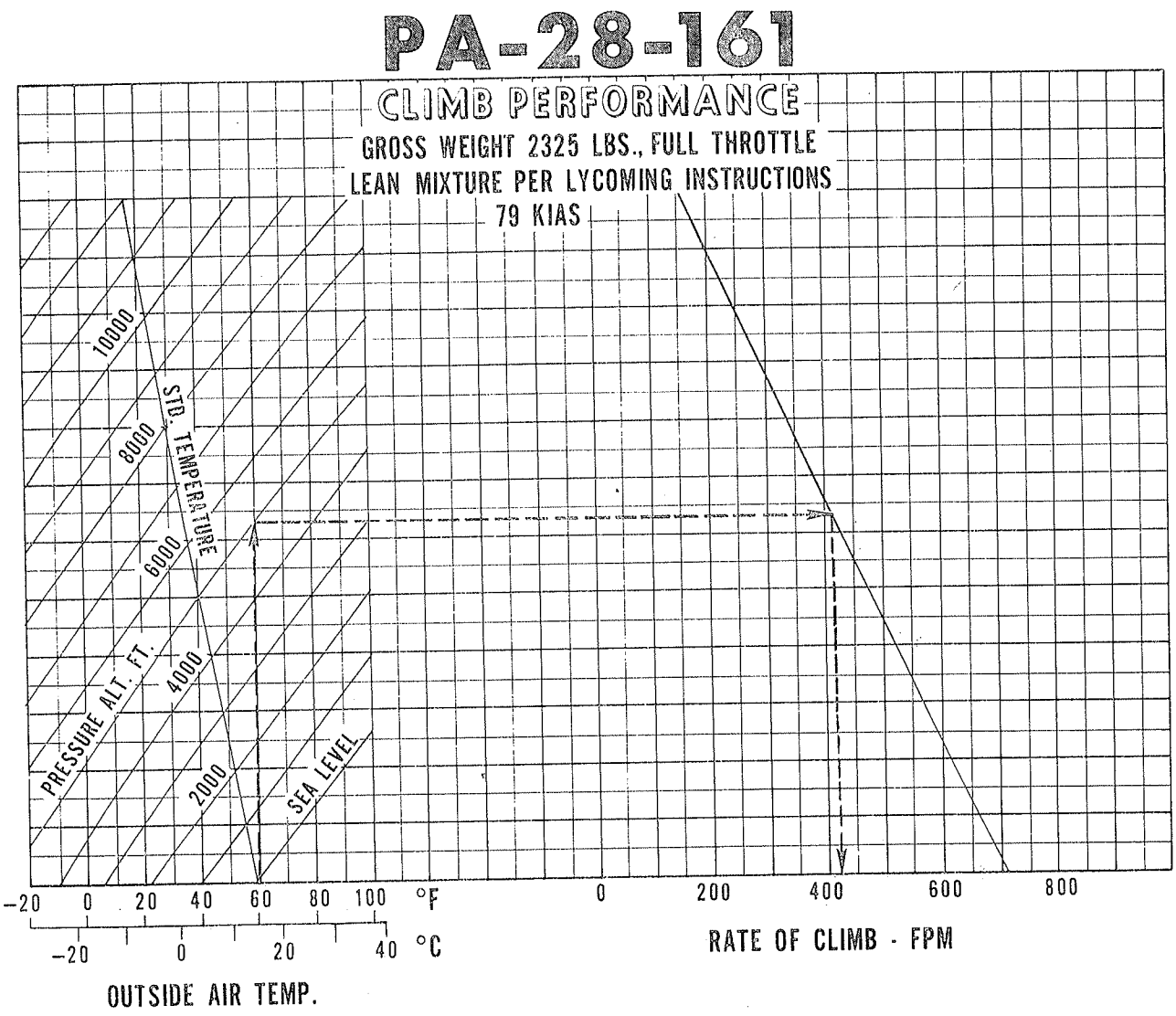


Example:

Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75%
Engine RPM: 2645

ENGINE PERFORMANCE (SERIAL NOS. 28-7716001 THROUGH 7716323)

Figure 5-9

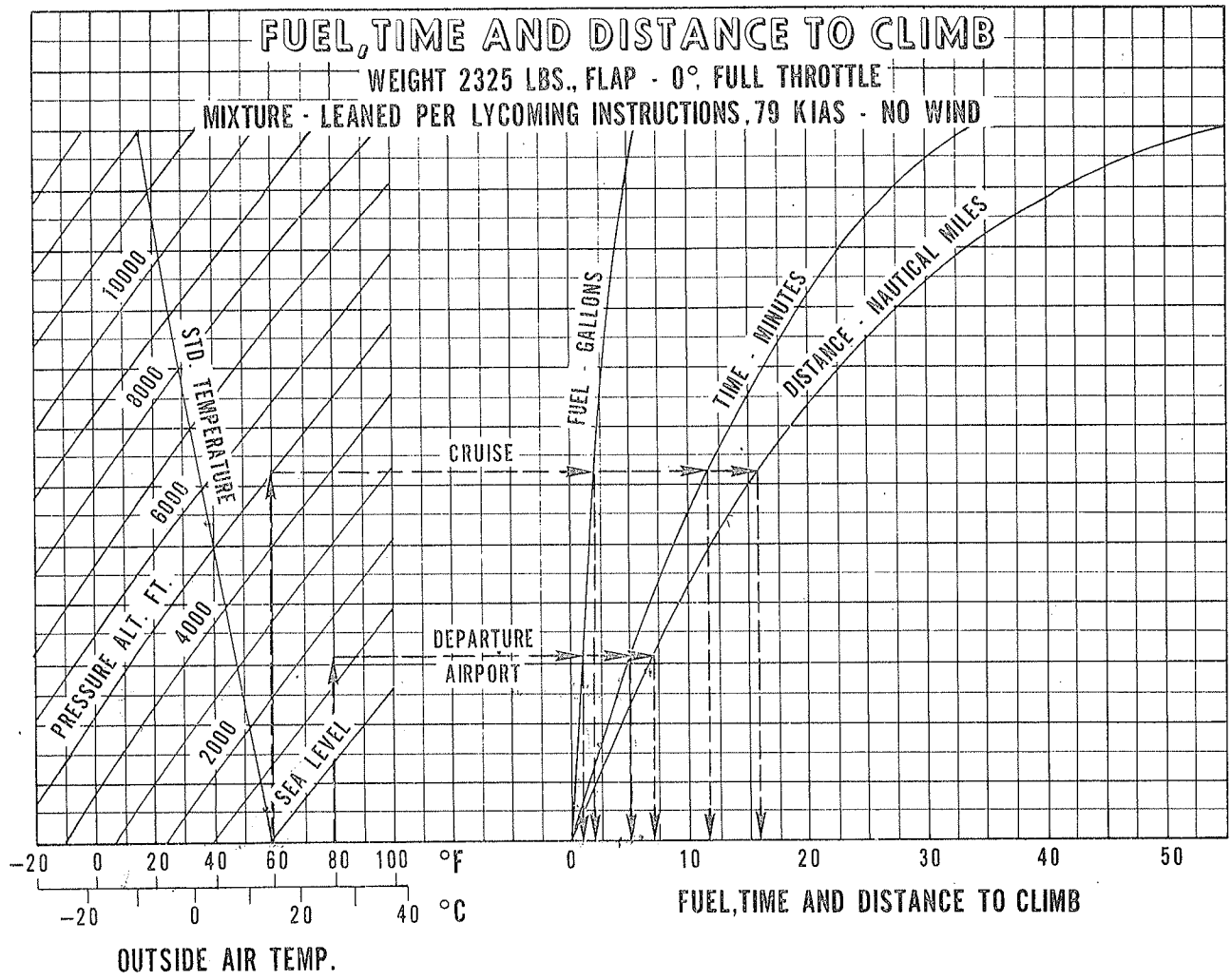


Example:
Climb pressure altitude: 5000 ft.
Climb OAT: 60°F
Rate of climb: 420 ft/min.

CLIMB PERFORMANCE

Figure 5-11

PA-28-161

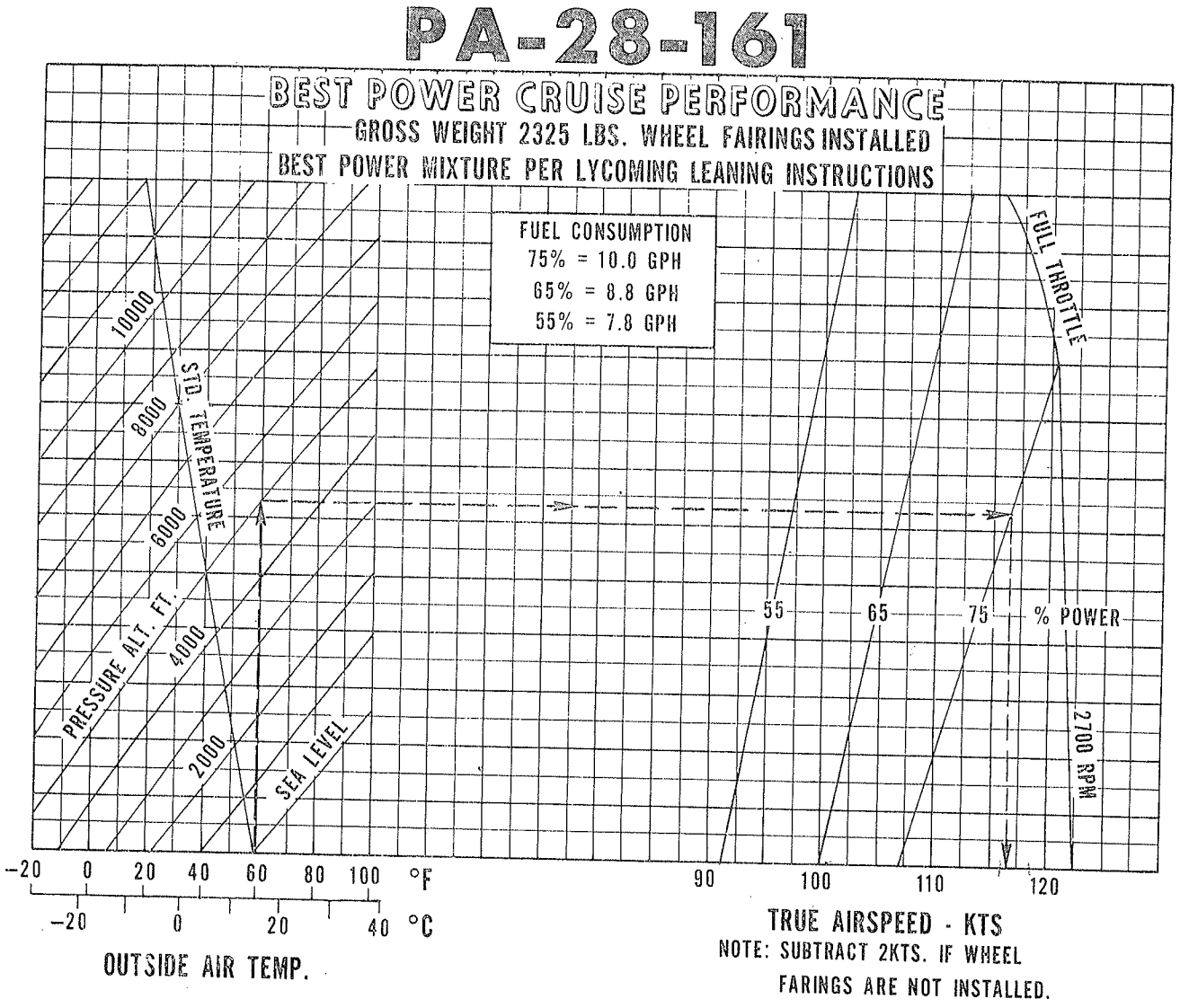


Example:

Departure airport pressure altitude: 1500 ft. 2000
Departure airport temperature: 80°F 80
Cruise pressure altitude: 5000 ft. 6500
Cruise OAT: 60°F 55°F
Time to climb (11.5 min. minus 5 min.): 6.5 min. 8min
Distance to climb (15.7 miles minus 7 miles): 8.7 nautical miles 10nm
Fuel to climb (2 gal. minus 1 gal.): 1 gal. 2gal

FUEL, TIME AND DISTANCE TO CLIMB

Figure 5-13

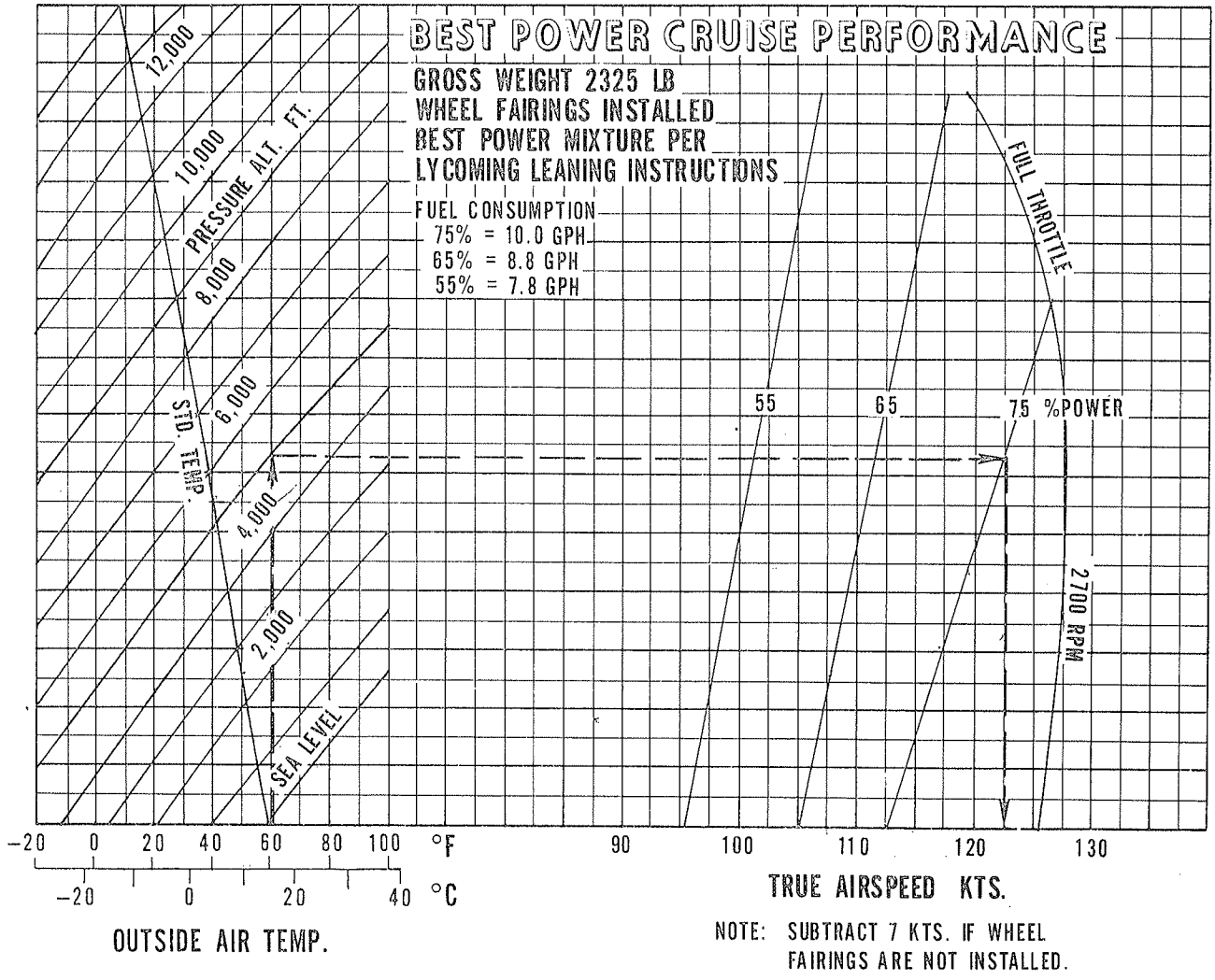


Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60°F
Cruise power: 75% best power mixture
Cruise speed: 116.5 KTS TAS

BEST POWER CRUISE PERFORMANCE (SERIAL NOS. 28-7716001 THROUGH 7716323)

Figure 5-15

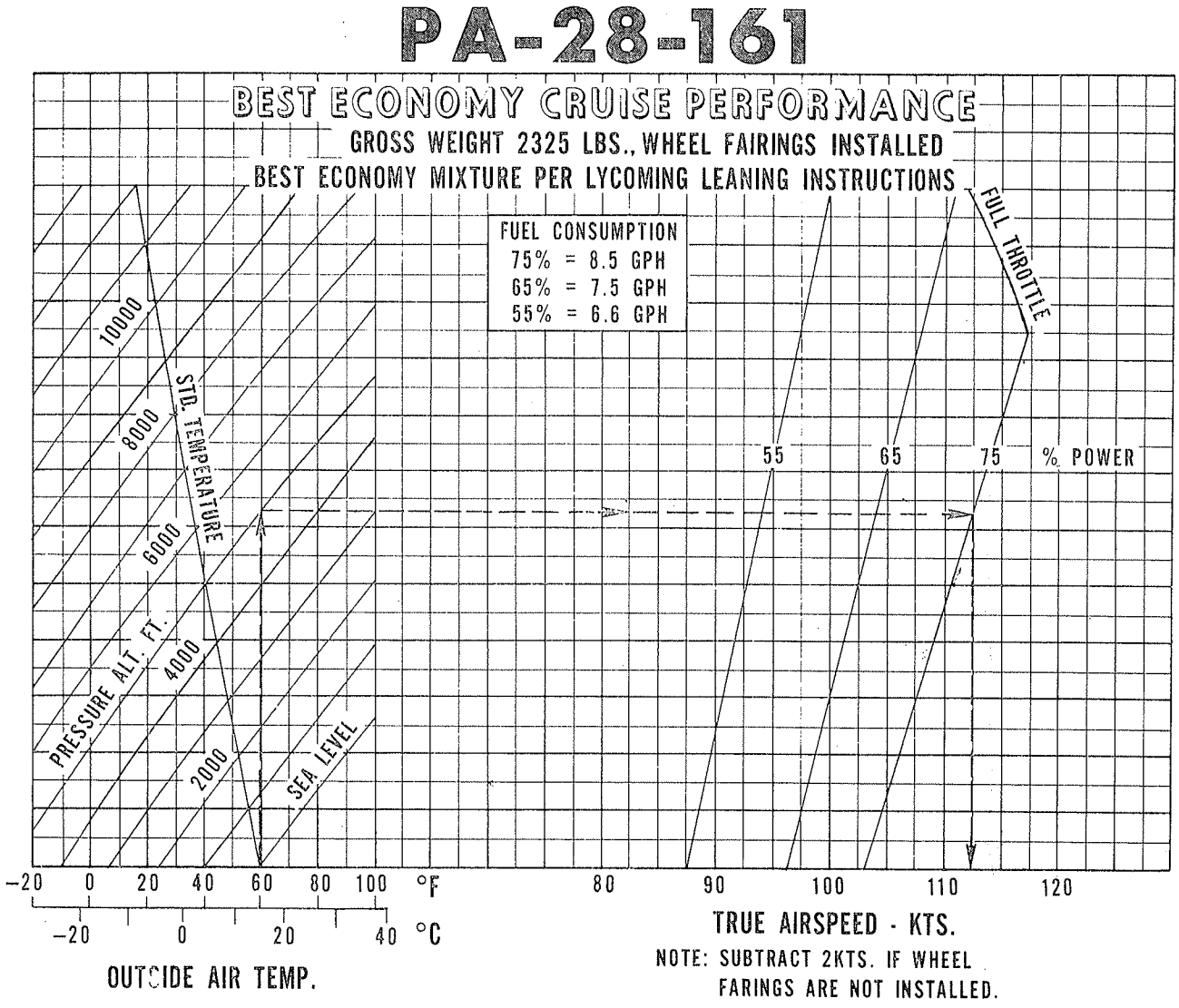
PA-28-161



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60°F
Cruise power: 75% best power mixture
Cruise speed: 122.5 KTS TAS

BEST POWER CRUISE PERFORMANCE (SERIAL NOS. 28-7816001 AND UP)

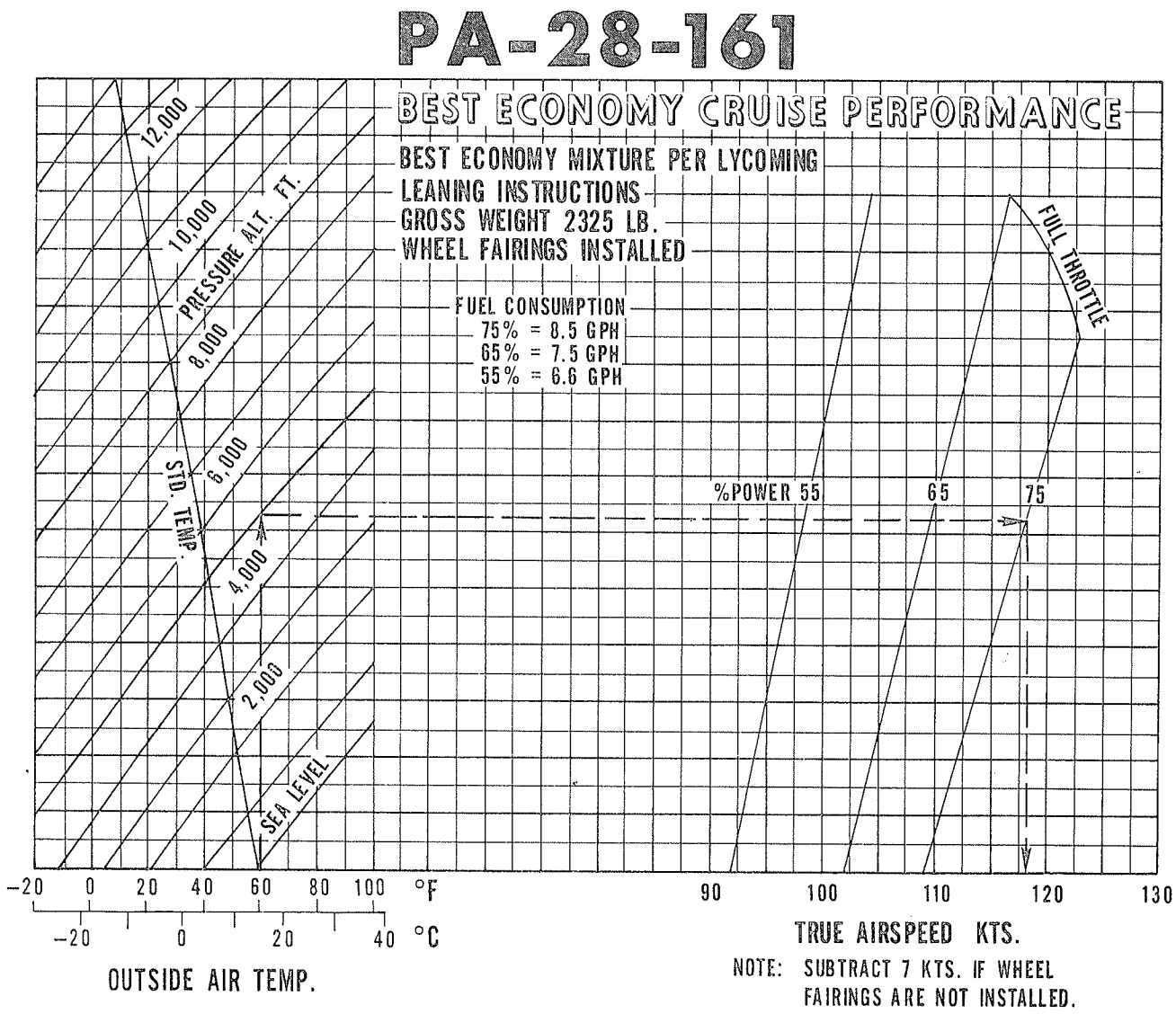
Figure 5-16



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75% best economy mixture
Cruise speed: 112.5 KTS TAS

BEST ECONOMY CRUISE PERFORMANCE (SERIAL NOS. 28-7716001 THROUGH 7716323)

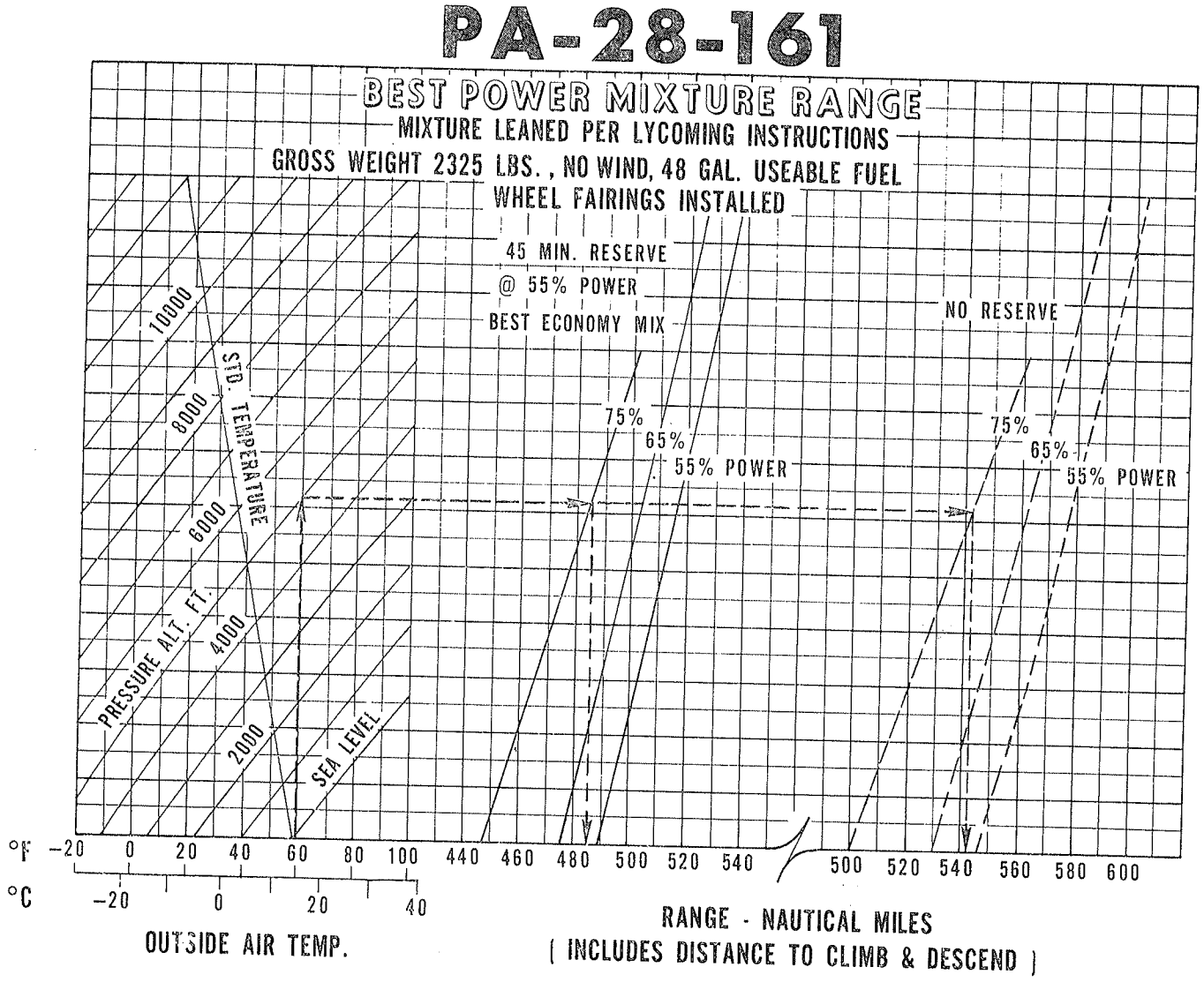
Figure 5-17



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75% best power mixture
Cruise speed: 118 KTS TAS

BEST ECONOMY CRUISE PERFORMANCE (SERIAL NOS. 28-7816001 AND UP)

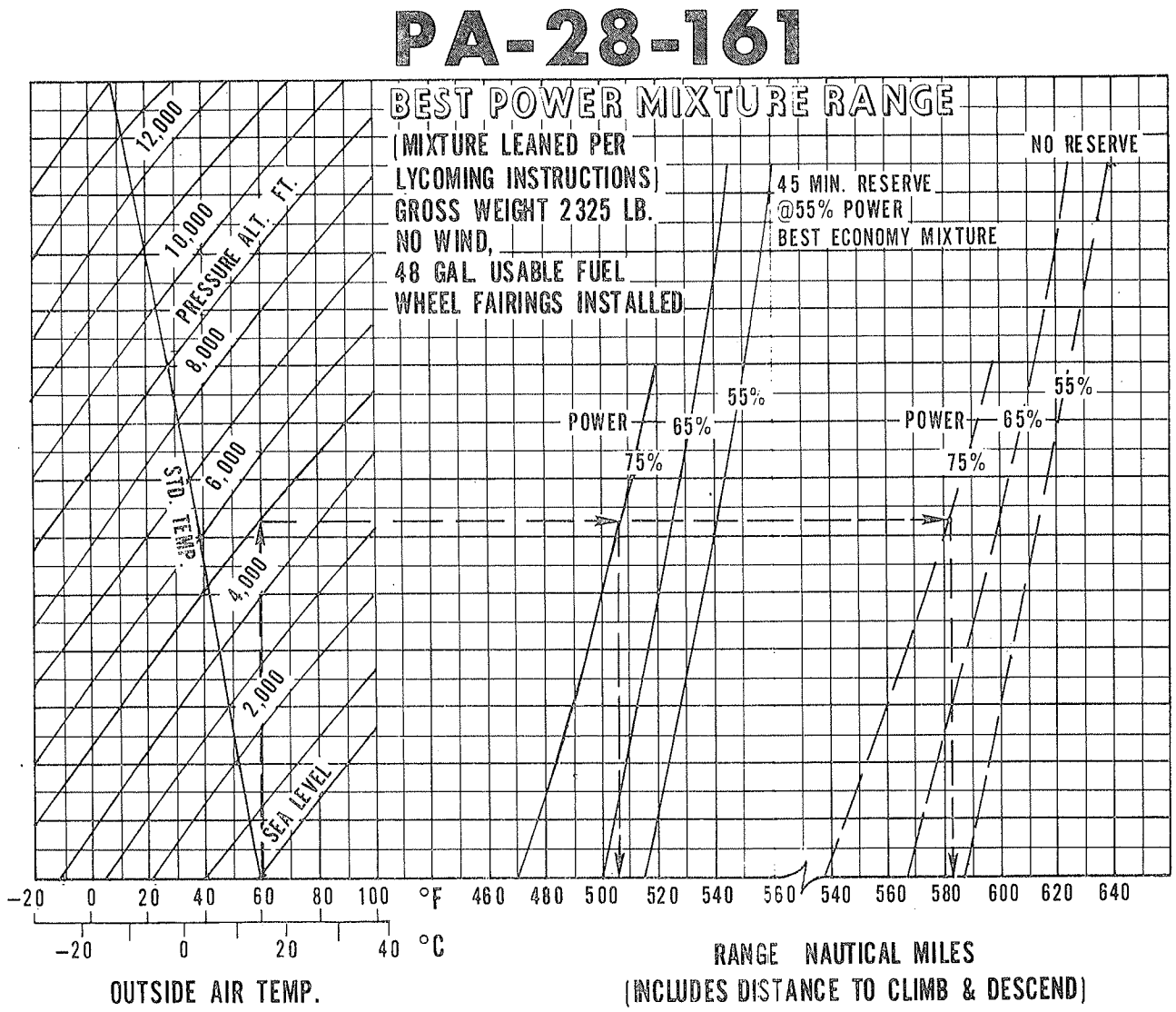
Figure 5-18



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75% best power mixture
Range w/45 min. reserve @ 55% power: 485 nautical miles
Range w/no reserve: 542 nautical miles

BEST POWER MIXTURE RANGE (SERIAL NOS. 28-7716001 THROUGH 7716323)

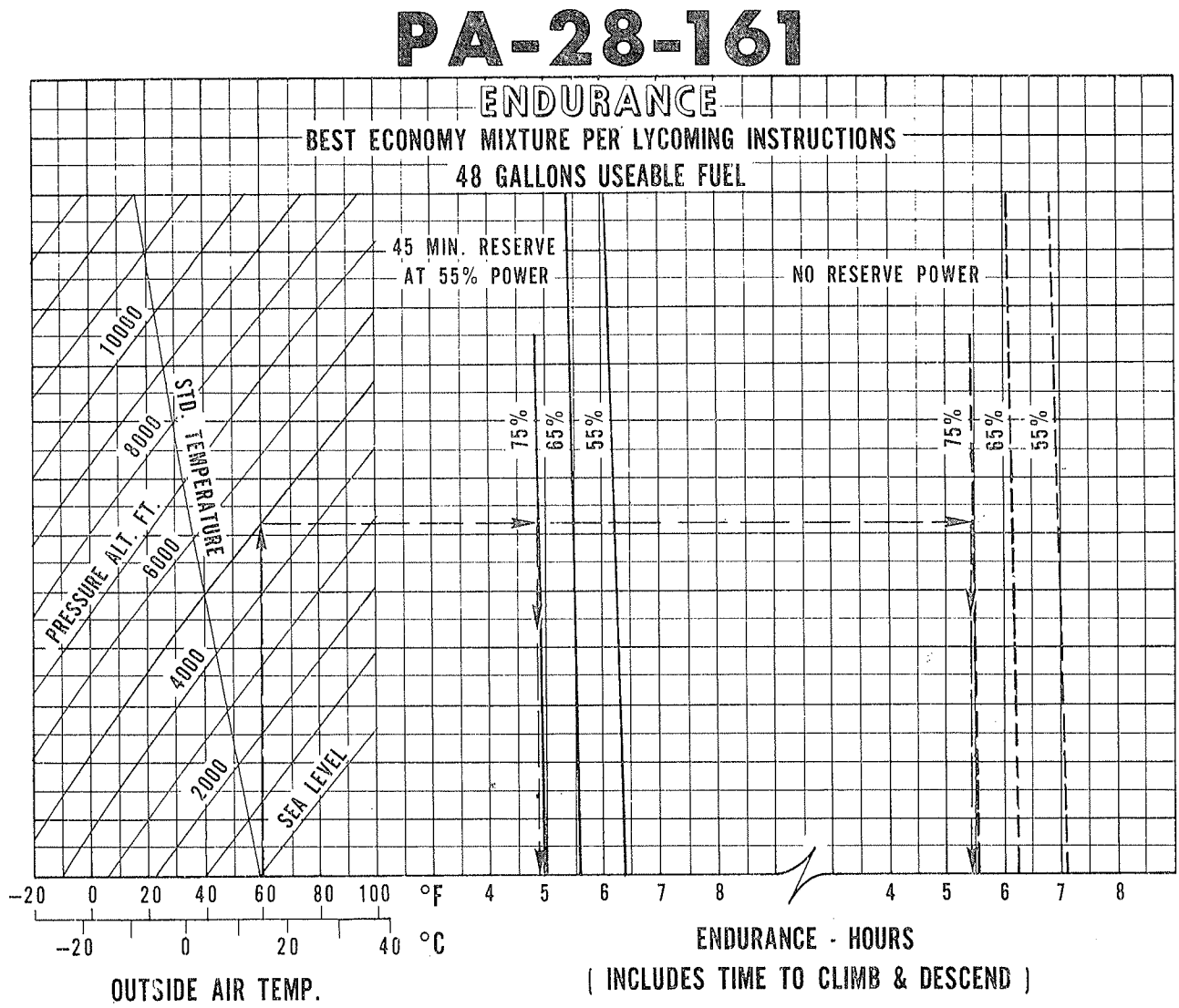
Figure 5-19



Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60° F
Cruise power: 75% best power mixture
Range w/45 min. reserve @ 55% power: 505 nautical miles
Range w/no reserve: 582 nautical miles

BEST POWER MIXTURE RANGE (SERIAL NOS. 28-7816001 AND UP)

Figure 5-20

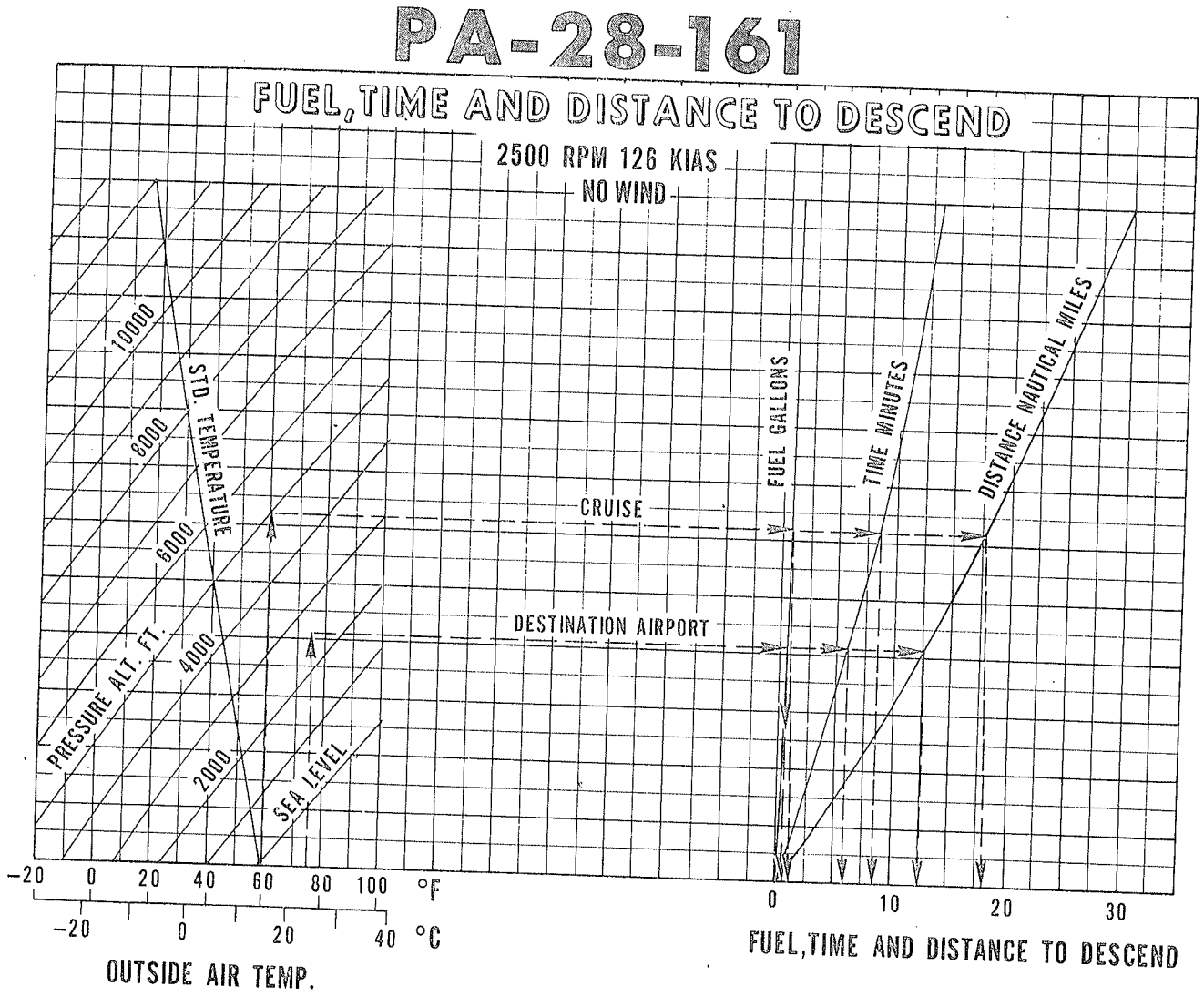


Example:

Cruise pressure altitude: 5000 ft.
Cruise OAT: 60°F
Cruise power: 75% best economy mixture
Endurance w/45 min. reserve @ 55% power: 4.85 hrs.
Endurance w/no reserve: 5.45 hrs.

ENDURANCE

Figure 5-23



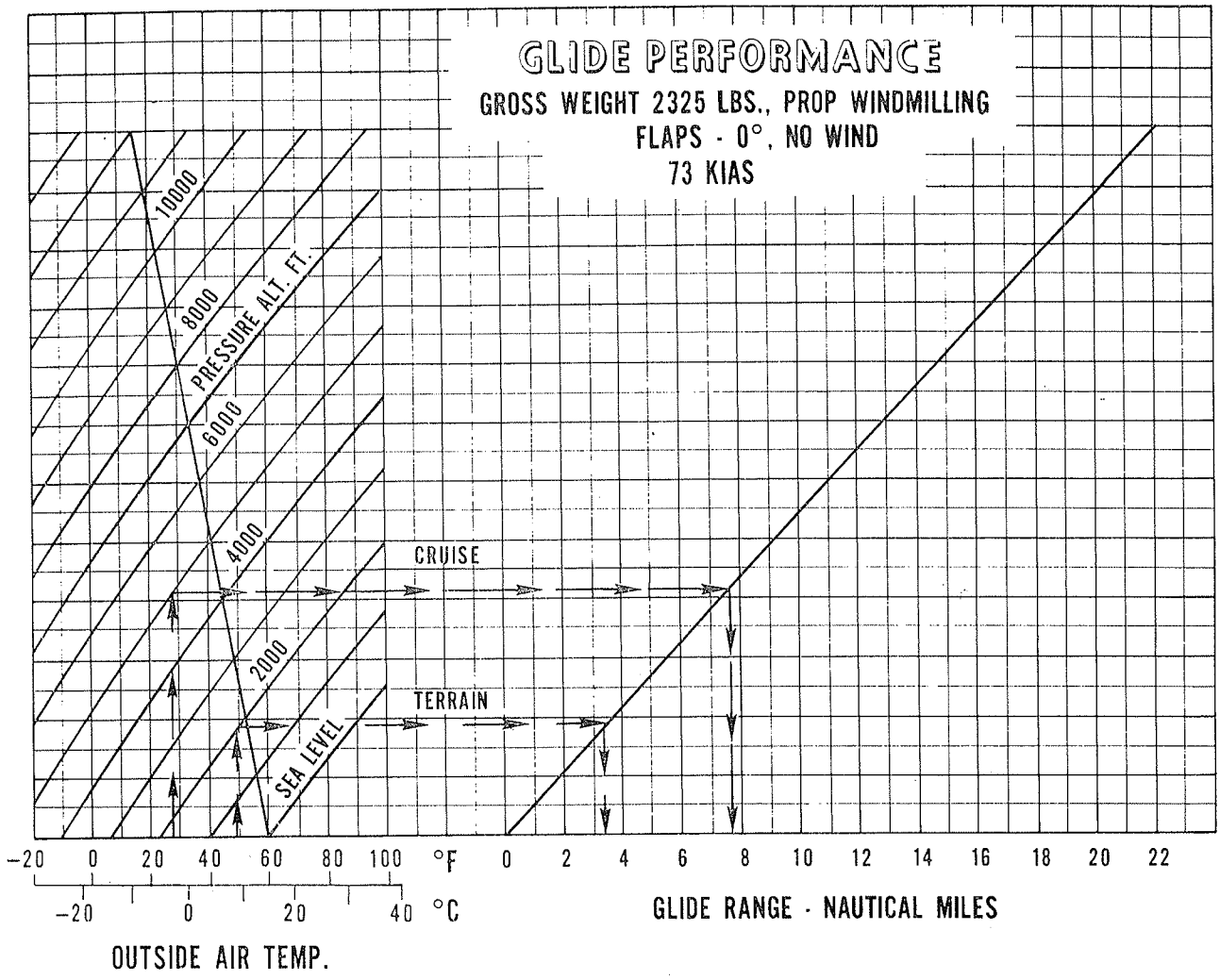
Example:

Destination airport pressure altitude: 2500 ft.
Destination airport temperature: 75°F
Cruise pressure altitude: 5000 ft.
Cruise OAT: 60°F
Time to descend (8.5 min. minus 6 min.): 2.5 min.
Distance to descend (18 miles minus 12.5 miles): 55 nautical miles
Fuel to descend: (1 gal. minus .5 gal.): .5 gal.

FUEL , TIME AND DISTANCE TO DESCEND

Figure 5-25

PA-28-161

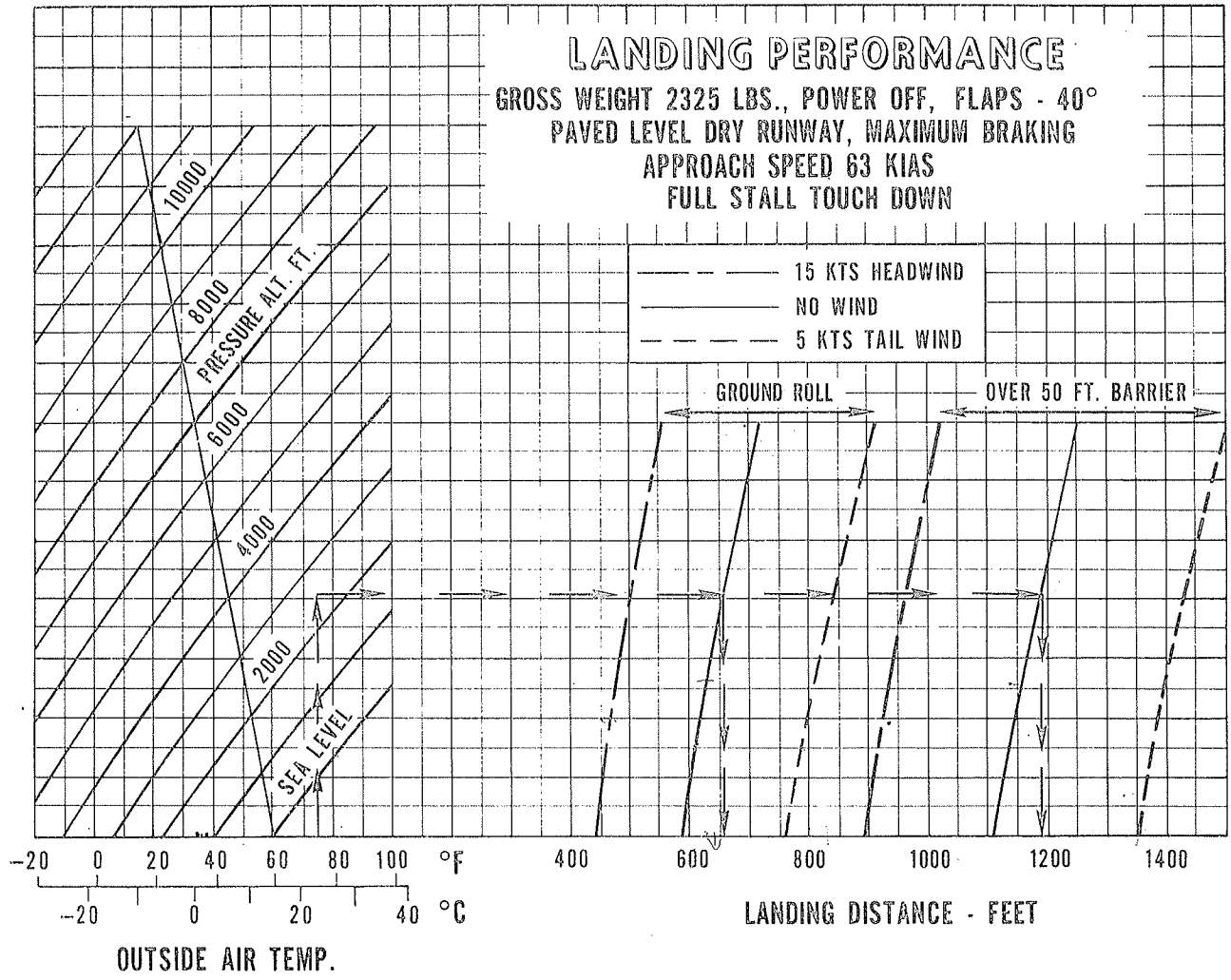


Example:
Cruise pressure altitude: 5000 ft.
Cruise OAT: 28° F
Terrain pressure altitude: 2000 ft.
Temperature at terrain: 50° F
Glide distance (7.7 miles minus 3.5 miles): 4.2 nautical miles

GLIDE PERFORMANCE

Figure 5-27

PA-28-161



Example:
Destination airport pressure altitude: 2500 ft. 2000
Destination airport temperature: 75°F 80
Destination airport wind: 0 KTS 5 kts
Ground roll: 660 ft.
Distance over 50 ft. barrier: 1190 ft.

LANDING PERFORMANCE

Figure 5-29