

Name: \_\_\_\_\_

Datum: \_\_\_\_\_

## **PA 34-200 T – Musterberechtigung (IR)**

**TEST**

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zum Nachweis der theoretischen Systemkenntnisse  
und Flugplanung anhand des Flughandbuches  
für eine PA34-200 T  
Seneca II

**1. What is the MTOW ?**

a) 4407 lbs

b) 5240 lbs

c) 5400 lbs

**2. What is the MLW**

a) 4342 lbs

b) 5400 lbs

c) 4900 lbs

**3. What is the ZFW for the D-GAIR**

a) 4000 lbs

b) 4200 lbs

c) 4057,7 lbs

**4. The single engine service ceiling with 4407 lbs gross weight and an OAT of 0° F (Altimeter setting standard) is**

a) 13200 ft

b) 16000 ft

c) 19250 ft

5. What type of engine is installed in the PA 34-200 T  
\_\_\_\_\_
6. Should a decrease in manifold pressure be experienced when flying in icing conditions the \_\_\_\_\_ should be manually opened.
7. The auxiliary fuel pumps are located in the
- a) Auxiliary tanks
  - b) Main tanks
  - c) Wing lockers
8. When fuel selector valve handles are changed from one position to another, the auxiliary fuel pumps should be switched to
- a) Low position
  - b) On position
  - c) Off position
9. For heater operation the \_\_\_\_\_ and/or \_\_\_\_\_ knob must be open.
10. Using the heater for ventilation on the ground works by placing the cabin heat toggle switch in the \_\_\_\_\_ position.

**11. What is the max. oxygen using duration with 63 cu ft capacity and 1850 psi by using of 3 passengers – pilot at 20.000 ft**

**Flow rate per passenger                      125 psi/hr**

**Flow rate pilot:                                      195 psi/hr**

a)    5:30 hours

b)    3.16 hours

c)    2.10 hours

**12. List the parts of the de-icing-system**

➤ \_\_\_\_\_

➤ \_\_\_\_\_

➤ \_\_\_\_\_

➤ \_\_\_\_\_

**13. The fully retractable landing gear system is**

a)    electrically operated

b)    hydraulic operated

c)    mechanic operated

**14. The landing gear warning horn ist controlled by \_\_\_\_\_ and sounds when**

- a) airspeed indicator / when IAS ist below 92 kt
- b) throttles / when retarded approximately 14 in. Hg.
- c) flaps selector / when positioned to 30 °

**15. The rudder and trim-system is operating**

- a) hydraulically
- b) mechanically
- c) electrically

**16. What is the rating of the batteries ?**

- a) 12 volts DC
- b) two 12-volt connected in serie
- c) 24 volts, 44 ah

**17. If the main voltage regulator fails the voltage regulator switch must be positioned to**

- a) main, for reseting the main regulator
- b) standby, for manually selecting the standby regulator
- c) off

**18. Where is the external power receptacle installed**

- a) in the cabin forward compartment left side of the nose
- b) in the right wing near the cabin body
- c) in the left wing, just under the batteries

**19. If the external power for engine start is used, the alternator switches and batterie switch must be**

- a) alternator switch off, batterie off
- b) alternator switch off, batterie on
- c) alternator switch on, batterie on

**20. What is the flap operating airspeed (CAS) for 40 ° ?**

- a) 107 kt
- b) 138 kt
- c) 121 mph

**21. The minimum control speed is (red line)**

- a) 76 kt
- b) 66 kt
- c) 63 kt

**22. What is the maximal allowable manifold pressure at 20.000 ft**

a) 28,0 in. Hg.

b) 26,4 in. Hg

c) 32 in. Hg

**23. With a gross weight of 4.407 lbs and clean configuration, bank 0° a stall speed is to expect at**

a) 63 kt IAS

b) 66 kt IAS

c) 76 kt IAS

**24. Reference POH 5-16, Normal Takeoff Distance (total distance to clear 50 ft)**

GIVEN: pressure altitude 2.000 ft  
OAT 80° F  
gross weight 4.407 lbs  
headwind 0 kt  
level hard surface runway

FIND: distance to clear 50 ft

a) 1700 ft

b) 1750 ft

c) 2400 ft

**25. What is the minimum multi-engine approach speed ?**

- a) 89 kt
- b) 110 kt
- c) 108 mph

**26. If engine failure happens on Take-Off below 85 kt IAS (with sufficient runway remaining) your action should be**

- a) continue T/O, climb with best rate of single engine climb speed
- b) disconnect T/O, throttles closed, brake
- c) full power, increase speed to normal T/O speed

**27. With engine failure after T/O above 90 kt IAS, obstacles cleared you should climb out with**

- a) 89 kt IAS best single engine rate of climb speed
- b) 110 kt IAS best single engine rate of climb speed
- c) 105 kt IAS minimum control speed

**28. What's to be done to perform an emergency descent ?**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_



**29. How do you close the door during flight ?**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**30. Weight and balance:**

D-GAIR	Gewicht/lbs	Hebelarm/inch	Moment
Leermasse	3227	85,24	275069,5
Pilot u. vorderer Fluggast	340	85,5	
Mittlere Fluggäste	-	119,1	-
Hintere Fluggäste	-	157,6	-
Gepäck (vorne)	-	22,5	-
Gepäck (hinten)	100	178,7	
Leergewicht ohne Kraftstoff Maximal jedoch 4057,7 lbs			
Kraftstoff (123 gal./466 l/ 738lbs)	700	93,6	
Startgewicht (max. 1999 kg)			

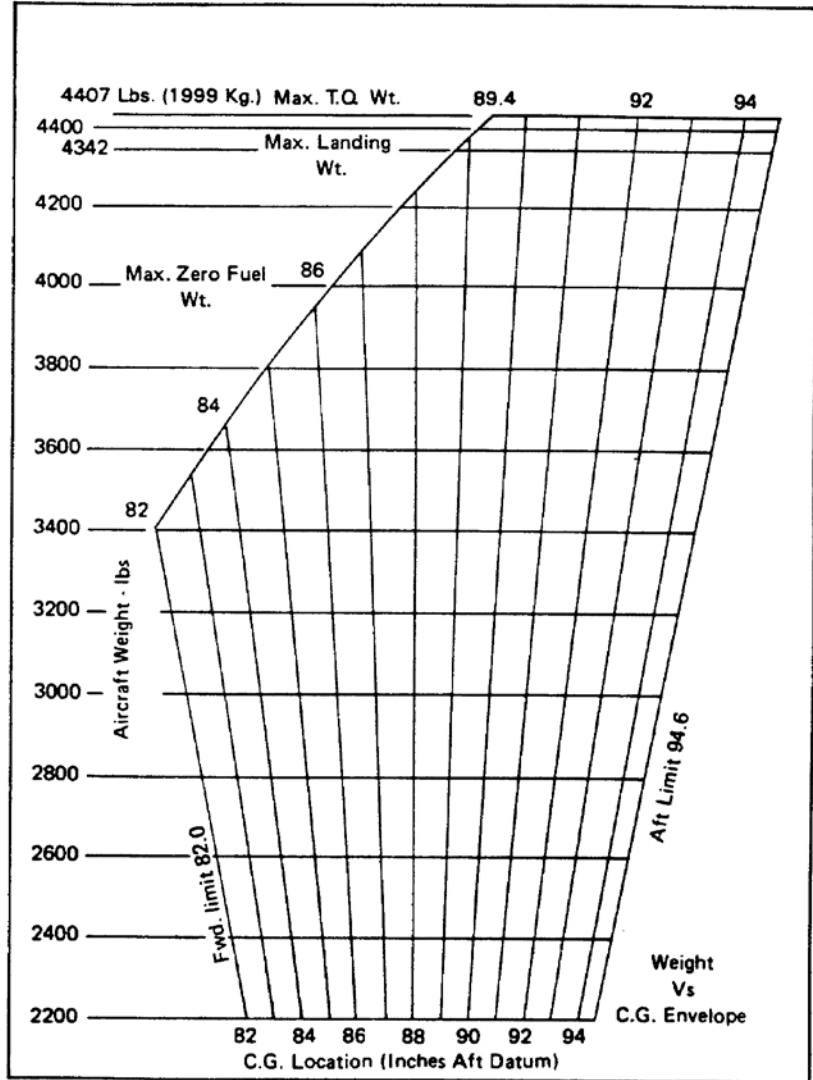
**31. Large tanks (128 USG) are installed in the airplane. How many liters of fuel are you able to refill in order to use the entire tank capacity ?**

- \_\_\_\_\_ liters or
- \_\_\_\_\_ lbs

**32. Are you able to complete T/O under conditions according to 30. an 31. ?**

- YES
- NO

To explain your decision use the enclosed diagramm next page. Please mark the C.G. Range and weight.



Moment change due to retracting Landing Gear = - 32 in.-lbs.

C. G. RANGE AND WEIGHT

Figure 6-15

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### 33. Flight Log

GIVEN:

IFR-Flight (overhead-overhead)

Duration: 2:20 h

Power setting: 65%

Fuel flow: \_\_\_\_\_

From destination to alternate:

Duration: 0:35 h

Power setting: 55%

Fuel flow: \_\_\_\_\_

Flightlevel to destination and alternate F080;

Holding: 0:45 h

Power setting: 45%

Fuel flow: \_\_\_\_\_

PIC & CO: 370 lbs

1 PAX with 170 lbs in the third row.

Baggage: 15 kg in the afterward compartment

Taxy fuel: 30 lbs

Contingency: 10 %

FIND:

Fuel calculation according to IFR-flight-log (use enclosed form) with MTOW:

➤ **Minimum TOF** \_\_\_\_\_ **lbs**

➤ **Extra fuel** \_\_\_\_\_ **lbs**

BEW	3.227
PIC & CO	370
DOW	
PAYLOAD	203
ZFW	

MTOW	4.407
ZFW	
TOF	
TXY	30
BLOCK	

CHECK POINTS	NAME	FREQ:	AWY	FL	MSA	TAS	WIND	GS	MC	DISTANCE		TIME		Flt PI	ETO	ATO
										INT	ACC	INT	ACC			

PAX:

Pilot:

To :

ATC-Clearance:

D-GAIR

From:

Weather Inform. & ATIS:

Alternates							Wind:	Minima:		
Airport	MC	DIST.	TIME	GS	FL	TAS	Destination	Vis.	Ceil.	
							Alternate I			
							Alternate II			

Fuel Calculation: lbs		
	Time	Fuel
TRIP FUEL		
CONTING.		
ALTERNATE		
HOLDING		
MIN.T/O F.		
EXTRA		
T/O FUEL		

1 FUEL: lbs	
MTOW	4407
PAYLOAD	
BEW	3227
T/O FUEL	
ACT. FUEL	

Mom. 275069,5

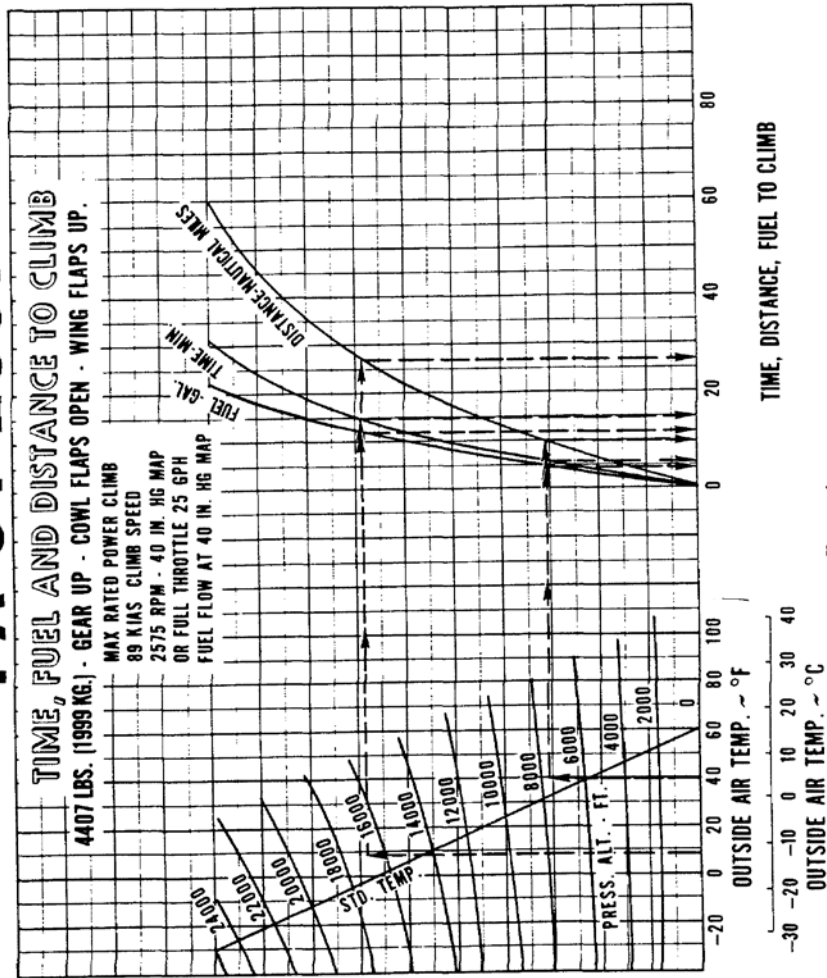
2 TAS / FF/US gal.	
CRUISE	
150	
CLIMB	
90	
ALTERN.	
150	

Zuschlag für Climb einbeziehen

3 PAYLOAD COMPUTATION				
	SEAT	ARM	WEIGHT	MOMENT / 100
PIC	1	85,5		
CO	2	85,5		
Seat	3	119,1		
Seat	4	119,1		
Seat	5	157,6		
Seat	6	157,6		
BAGGAGE	FWD	22,5		
BAGGAGE	AFT	178,7		
PAYLOAD				
Fuelmoment		93,6		

4		
ITEM	WEIGHT	MOMENT/100
BEW	3227	275069,5
+ PAYLOAD		
= ZFW		
+ T/O FUEL		
= T/O WEIGHT		
CG =		

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Example:  
Takeoff pressure altitude: 7586 ft. Cruise OAT: 8°F  
Takeoff OAT: 40°F  
Cruise pressure altitude: 16,500 ft. Power: Maximum power climb  
Time to climb: (15 minus 6) = 9 min.  
Fuel to climb: (12 minus 4) = 8 gal.  
Distance to climb: (26 minus 10) = 16 nautical miles.

TIME, FUEL AND DISTANCE TO CLIMB  
Figure 5-21

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POWER SETTING TABLE -- T.C.M. TSIO 360E SERIES

PRESS. ALT. FEET	STD. ALT. TEMP. °C	45% POWER (APPROX. 16.1 GPH FUEL CONS.)					55% POWER (APPROX. 18 GPH FUEL CONS.)					
		RPM	2000	2100	2200	2300	2000	2200	2300	2400	2500	2575
MANIFOLD PRESSURE -- INCHES MERCURY												
S.L.	15		27.6	26.4	25.6	24.6	31.8	29.6	28.4	27.0	26.0	25.6
2000	11		26.8	25.6	25.0	24.0	30.8	28.5	27.6	26.4	25.4	25.0
4000	7		26.0	25.0	24.0	23.4	29.8	28.0	27.0	25.8	25.0	24.6
6000	3		25.0	24.4	23.6	22.8	29.0	27.4	26.4	25.2	24.4	24.0
8000	-1		24.6	23.6	22.8	22.3		26.6	25.6	24.8	24.0	23.8
10000	-5		23.8	23.0	22.4	21.8		26.0	25.0	24.2	23.6	23.2
12000	-9		23.0	22.4	21.7	21.0		25.0	24.4	23.8	23.0	22.8
14000	-13		22.6	21.8	21.0	20.6		24.5	23.8	23.0	22.6	22.4
16000	-17			21.0	20.4	20.0		24.0	23.4	22.6	22.0	22.0
18000	-21				19.8	19.4			22.8	22.0	21.0	21.7
20000	-25					18.8			21.6	20.8	21.0	21.0
22000	-28								20.6	20.6	20.8	20.8
24000	-33								20.4	20.4	20.4	20.4
25000	-34								20.0	20.0	20.0	20.0

To maintain constant power, add approximately 1% for each 6°C above standard, subtract approximately 1% for each 6°C below standard.

NOTE: Full throttle manifold pressure values may not be obtainable when atmospheric conditions are non-standard.

POWER SETTING TABLE (45% AND 55%)

Figure 5-23

POWER SETTING TABLE - T.C.M. TSIO 360E SERIES

PRESS. ALT. FEET	STD. ALT. TEMP. °C	65% POWER (APPROX. 20.5 GPH FUEL CONS.)					75% POWER (APPROX. 23.6 GPH FUEL CONS.)				
		RPM	2200	2300	2400	2500	2575	2300	2400	2500	2575
MANIFOLD PRESSURE -- INCHES MERCURY											
S.L.	15		33.5	32.0	30.6	29.8	29.2	35.5	34.0	33.0	32.8
2000	11		32.8	31.5	30.0	29.0	28.8	35.0	33.4	32.6	32.0
4000	7		32.0	30.8	29.6	28.6	28.2	34.4	32.8	32.0	31.6
6000	3		31.4	30.0	29.0	28.0	27.8	33.6	32.0	31.4	30.9
8000	-1		30.6	29.6	28.4	27.6	27.4	33.0	31.6	30.8	30.3
10000	-5			28.8	27.8	27.0	27.0	32.4	31.0	30.2	29.8
12000	-9			28.0	27.2	26.6	26.4	31.6	30.4	29.8	29.3
14000	-13			27.4	26.6	26.0	26.0		29.8	29.2	29.0
16000	-17			26.7	26.0	25.8	25.6		29.4	28.8	28.6
18000	-21				25.6	25.2	25.0			28.4	28.3
20000	-25				24.8	24.8	24.8				
22000	-28				24.4	24.4	24.4				
24000	-33										
25000	-34						24.0				28.0

To maintain constant power, add approximately 1% for each 6°C above standard, subtract approximately 1% for each 6°C below standard.  
NOTE: Full throttle manifold pressure values may not be obtainable when atmospheric conditions are non-standard.

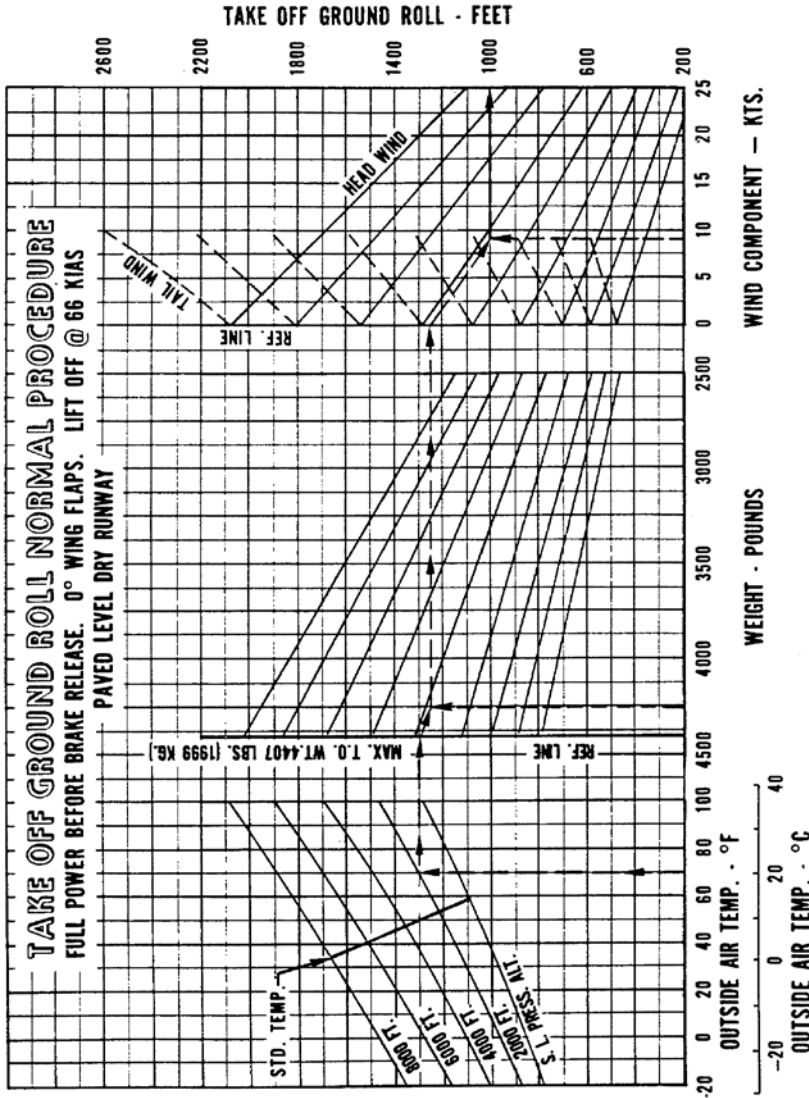
POWER SETTING TABLE (65% AND 75%)

Figure 5-25

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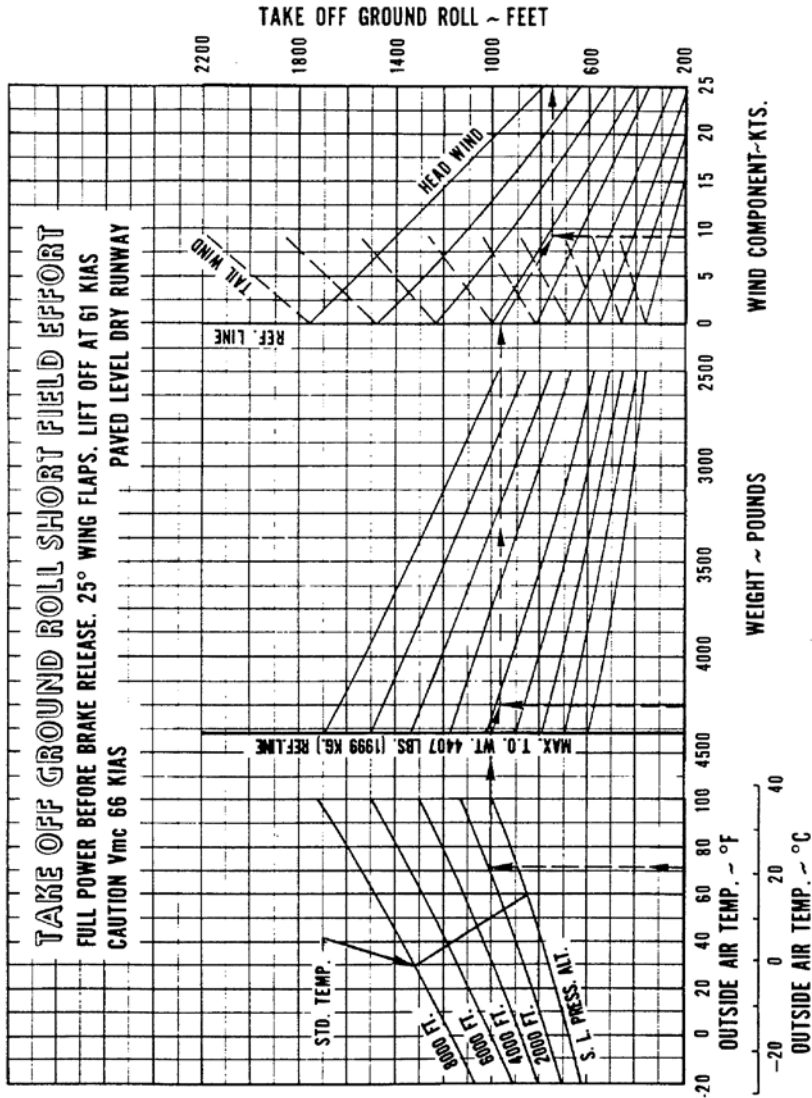


Example:  
 OAT: 70°F  
 Pressure altitude: 2000 ft.  
 Gross weight: 4250 lbs.  
 Headwind: 9 knots  
 Takeoff ground roll: 1000 ft.

TAKEOFF GROUND ROLL - NORMAL PROCEDURE  
 Figure 5-11



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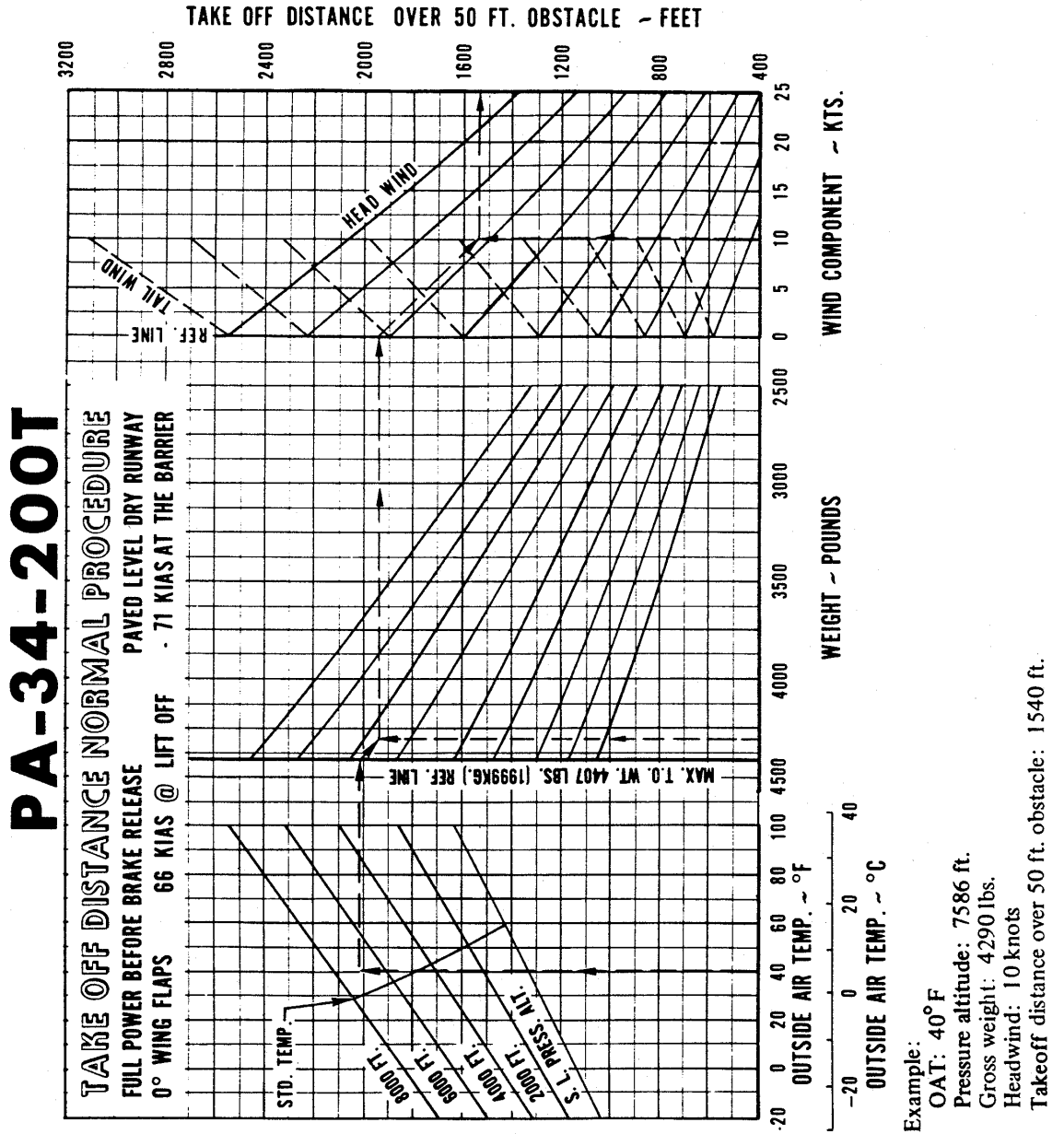
Example:  
 OAT: 70°F  
 Pressure altitude: 2000 ft.  
 Gross weight: 4250 lbs.  
 Headwind: 9 knots  
 Takeoff ground roll: 750 ft.

TAKEOFF GROUND ROLL - SHORT FIELD EFFORT

Figure 5-13

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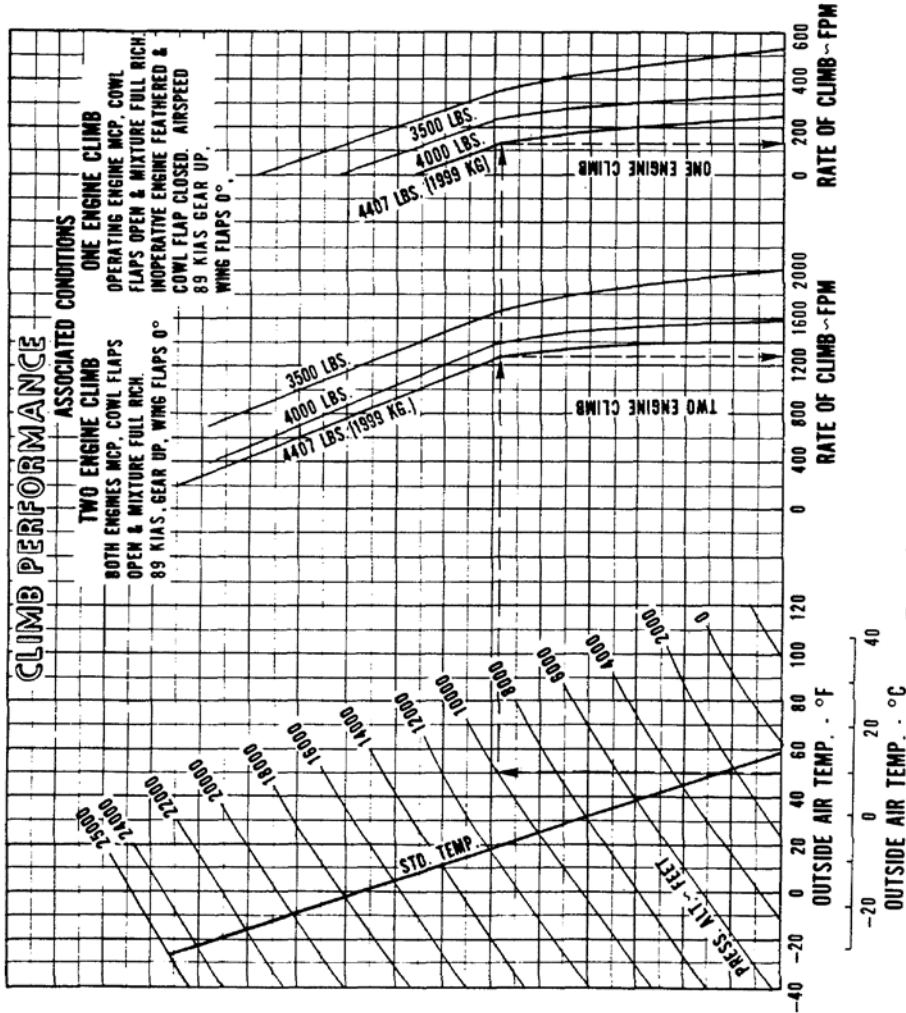
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TAKEOFF DISTANCE - NORMAL PROCEDURE

Figure 5-15

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Example:  
 OAT: 50°F  
 Pressure altitude: 10,000 ft.  
 Gross Weight: 4407 lbs.

Two engine rate of climb: 1290 F.P.M.  
 One engine rate of climb: 130 F.P.M.

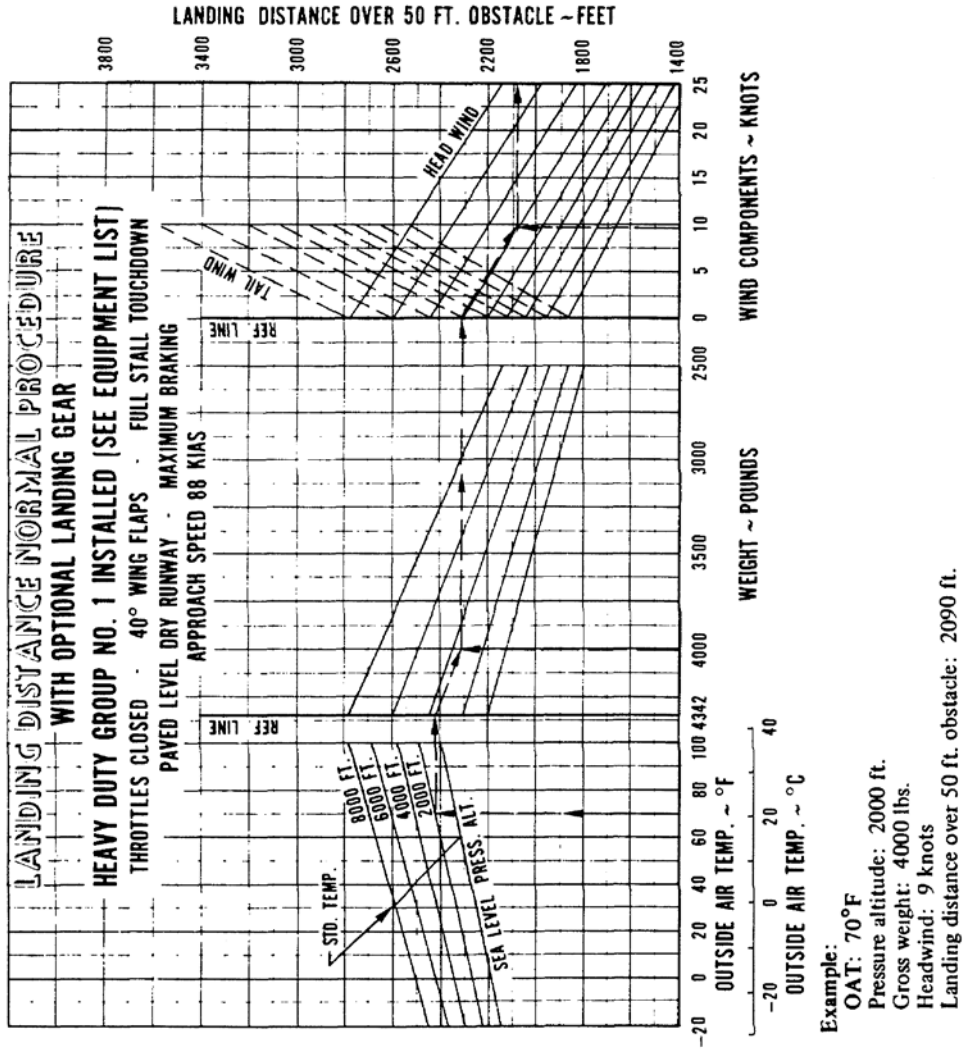
CLIMB PERFORMANCE

Figure 5-19

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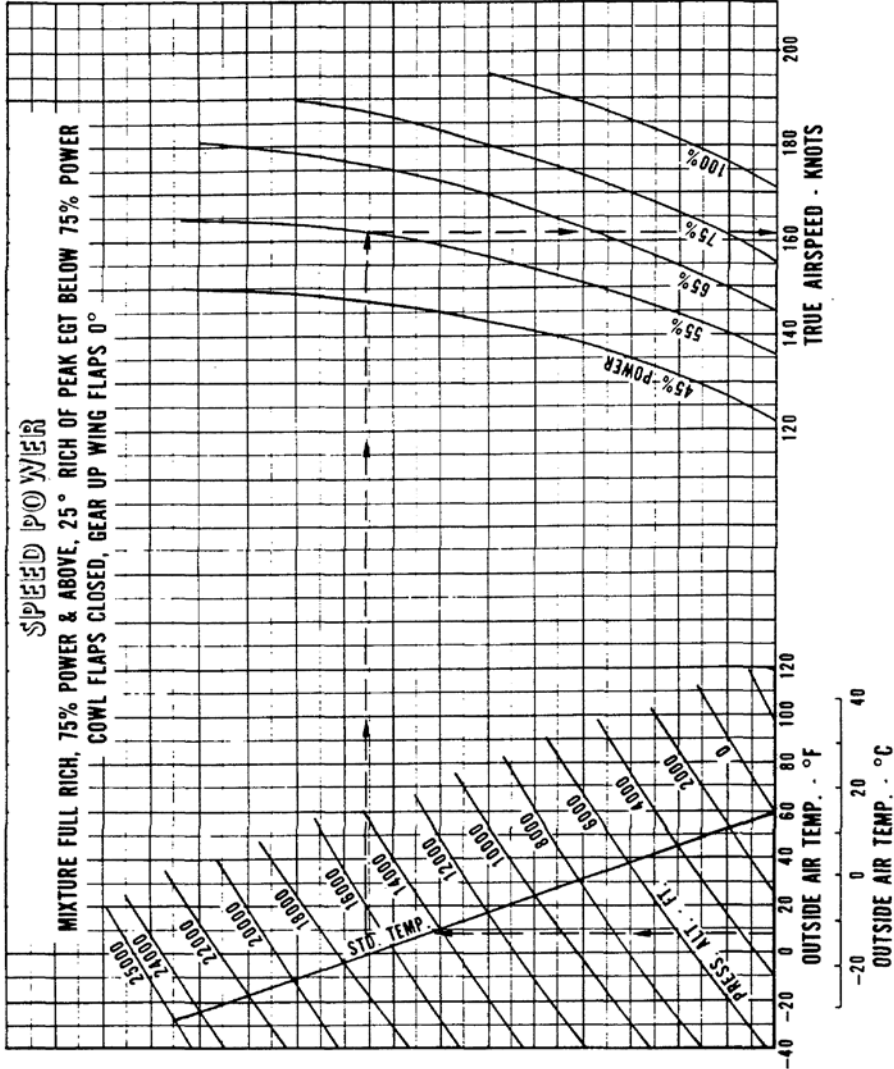
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LANDING DISTANCE - NORMAL PROCEDURE (HEAVY DUTY GROUP 1)

Figure 5-43

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Example:  
OAT: 8°F  
Pressure altitude: 16,500 ft.  
Power: 55%  
True airspeed: 161 knots

SPEED POWER  
Figure 5-35