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PERFORMANCE

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SECTION 5 PERFORMANCE

5.1 GENERAL

All of the required (FAA regulations) and complementary performance information applicable to the Cherokee Six is provided by this section.

Performance information associated with those optional systems and equipment which require handbook supplements is provided by Section 9 (Supplements).

5.3 INTRODUCTION TO PERFORMANCE AND FLIGHT PLANNING

The performance information presented in this section is based on measured Flight Test Data corrected to I.C.A.O. standard day conditions and analytically expanded for the various parameters of weight, altitude, temperature, etc.

The performance charts are unfactored and do not make any allowance for varying degrees of pilot proficiency or mechanical deterioration of the aircraft. This performance, however, can be duplicated by following the stated procedures in a properly maintained airplane.

Effects of conditions not considered on the charts must be evaluated by the pilot, such as the effect of soft or grass runway surface on takeoff and landing performance, or the effect of winds aloft on cruise and range performance. Endurance can be grossly affected by improper leaning procedures, and inflight fuel flow and quantity checks are recommended.

REMEMBER! To get chart performance, follow the chart procedures.

The information provided by paragraph 5.5 (Flight Planning Example) outlines a detailed flight plan using the performance charts in this section. Each chart includes its own example to show how it is used.

WARNING

Performance information derived by extrapolation beyond the limits shown on the charts should not be used for flight planning purposes.

SECTION 5
PERFORMANCE

5.1 GENERAL

All of the performance (TAA regulations) and complementary performance information applicable to the aircraft is provided by this section.

Performance information associated with those optional systems and equipment which require special procedures is provided by Section 5.2 (Supplemental).

5.2 INTRODUCTION TO PERFORMANCE AND FLIGHT PLANNING

The performance information presented in this section is based on measured flight test data conducted by P.A.C. under the following conditions and is not to be used for extrapolation beyond the limits shown on the charts should not be used for flight planning purposes.

The performance charts are not to be used for extrapolation beyond the limits shown on the charts should not be used for flight planning purposes. However, can be duplicated by following the stated procedures in a properly maintained airplane.

Limits of use should not be exceeded on the charts must be evaluated by the pilot, such as the effect of wind on gross weight, fuel, and landing performance, or the effect of wind on cruise and range performance. Performance can be grossly affected by improper loading procedures, and multiple fuel load and capacity checks are recommended.

REMEMBER! To get best performance, follow the chart procedures.

The information provided by paragraph 5.2 (Flight Planning Example) contains a detailed flight plan using the performance charts in this section. Each chart includes its own example to show how it is used.

WARNING

Performance information derived by extrapolation beyond the limits shown on the charts should not be used for flight planning purposes.

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5.5 FLIGHT PLANNING EXAMPLE

(a) Aircraft Loading

The first step in planning our flight is to calculate the airplane weight and center of gravity by utilizing the information provided by Section 6 (Weight and Balance) of this handbook.

The basic empty weight for the airplane as delivered from the factory has been entered in Figure 6-5. If any alterations to the airplane have been made effecting weight and balance, reference to the aircraft logbook and Weight and Balance Record (Figure 6-7) should be made to determine the current basic empty weight of the airplane.

Make use of the Weight and Balance Loading Form (Figure 6-11) and the C.G. Range and Weight graph (Figure 6-15) to determine the total weight of the airplane and the center of gravity position.

After proper utilization of the information provided we have found the following weights for consideration in our flight planning example.

The landing weight cannot be determined until the weight of the fuel to be used has been established [refer to item (g)(1)].

(1) Basic Empty Weight	2145.6	1954.8 lbs.
(2) Occupants		1020 lbs.
(3) Baggage and Cargo		100 lbs.
(4) Fuel (6 lb./gal. x 54) 94 USEABLE	564	324 lbs.
(5) Takeoff Weight		3398.8 lbs.
(6) Landing Weight		
(a)(5) minus (g)(1), (3398.8 lbs. minus 213.6 lbs.)		3185.2 lbs.

Our takeoff weight is below the maximum of 3400 lbs. and our weight and balance calculations have determined our C.G. position within the approved limits.

(b) Takeoff and Landing

Now that we have determined our aircraft loading, we must consider all aspects of our takeoff and landing.

All of the existing conditions at the departure and destination airport must be acquired, evaluated and maintained throughout the flight.

Apply the departure airport conditions and takeoff weight to the appropriate Takeoff Performance graph (Figures 5-5, 5-7, 5-9 and 5-11) to determine the length of runway necessary for the takeoff and/or the barrier distance.

The landing distance calculations are performed in the same manner using the existing conditions at the destination airport and, when established, the landing weight.

The conditions and calculations for our example flight are listed below. The takeoff and landing distances required for our example flight have fallen well below the available runway lengths.

	Departure Airport	Destination Airport
(1) Pressure Altitude	1000 ft.	3000 ft.
(2) Temperature	70°F	60°F
(3) Wind Component	0 KTS	15 KTS Hdwind
(4) Runway Length Available	3600 ft.	7600 ft.
(5) Runway Required		
Ground Roll	1275 ft.*	560 ft.**
Total	1900 ft.*	840 ft.***

NOTE

The remainder of the performance charts used in this flight plan example assume a no wind condition. The effect of winds aloft must be considered by the pilot when computing climb, cruise and descent performance.

(c) Climb

The next step in our flight plan is to determine the necessary climb segment components.

The desired cruise pressure altitude and corresponding cruise outside air temperature values are the first variables to be considered in determining the climb components from the Time, Distance, and Fuel to Climb graph (Figure 5-15). After the time, distance and fuel for the cruise pressure altitude and outside air temperature values have been established, apply the existing conditions at the departure field to graph (Figure 5-15). Now, subtract the values obtained from the graph for the field of departure conditions from those for the cruise pressure altitude.

The remaining values are the true time, distance and fuel components for the climb segment of the flight plan corrected for field pressure altitude and temperature.

The following values were determined from the above instructions in our flight planning example:

(1) Cruise Pressure Altitude	7000 ft.
(2) Cruise OAT	45°F
(3) Time to Climb (9.0 min. minus 1.5 min.)	7.5 min.
(4) Distance to Climb (15.5 nautical miles minus 3.0 nautical miles)	12.5 nautical miles
(5) Fuel to Climb (3.5 gal. minus 0.5 gal.)	3.0 gal.

*reference Figure 5-5

**reference Figure 5-47

***reference Figure 5-45

(d) Descent

The descent data will be determined prior to the cruise data to provide the descent distance for establishing the total cruise distance.

Utilizing the cruise pressure altitude and OAT we determine the basic time, distance and fuel for descent (Figure 5-41). These figures must be adjusted for the field pressure altitude and temperature at the destination airport. To find the necessary adjustment values, use the existing pressure altitude and temperature conditions at the destination airport as variables to find the time, distance and fuel values from the graph (Figure 5-41). Now, subtract the values obtained from the field conditions from the values obtained from the cruise conditions to find the true time, distance and fuel values needed for the flight plan.

The values obtained by proper utilization of the graphs for the descent segment of our example are shown below.

- | | |
|---|-------------------|
| (1) Time to Descend (15.5 min. minus 8.0 min.) | 7.5 min. |
| (2) Distance to Descend (39 nautical miles minus 19 nautical miles) | 20 nautical miles |
| (3) Fuel to Descend (4.5 gal. minus 2.5 gal.) | 2.0 gal. |

(e) Cruise

Using the total distance to be traveled during the flight, subtract the previously calculated distance to climb and distance to descend to establish the total cruise distance. Refer to the appropriate Avco Lycoming Operator's Manual and the Power Setting Table (Figure 5-17) when selecting the cruise power setting. The established pressure altitude and temperature values and the selected cruise power should now be utilized to determine the true airspeed from the appropriate Cruise Performance graph (Figure 5-19, 5-21, 5-23, 5-25 or 5-27).

Calculate the cruise fuel flow for the cruise power setting from the information provided by the Avco Lycoming Operator's Manual.

The cruise time is found by dividing the cruise distance by the cruise speed and the cruise fuel is found by multiplying the cruise fuel flow by the cruise time.

The cruise calculations established for the cruise segment of our flight planning example are as follows:

- | | |
|---|---------------------------|
| (1) Total Distance | 300 nautical miles |
| (2) Cruise Distance | |
| (e)(1) minus (c)(4) minus (d)(2), (300 nautical miles | |
| minus 12.5 nautical miles minus 20 nautical miles) | 267.5 nautical miles |
| (3) Cruise Power | 65% rated power |
| (4) Cruise Speed | 139 KTS TAS* |
| (5) Cruise Fuel Consumption | 16.1 GPH |
| (6) Cruise Time | |
| (e)(2) divided by (e)(4), (267.5 nautical miles | |
| divided by 139 KTS) | 1.9 hrs. (1 hr., 54 min.) |
| (7) Cruise Fuel | |
| (e)(5) multiplied by (e)(6), (16.1 GPH multiplied | |
| by 1.9 hrs.) | 30.6 gal. |

*reference Figure 5-19

(f) Total Flight Time

The total flight time is determined by adding the time to climb, the time to descend and the cruise time. Remember! The time values taken from the climb and descent graphs are in minutes and must be converted to hours before adding them to the cruise time.

The following flight time is required for our flight planning example.

(1) Total Flight Time

(c)(3) plus (d)(1) plus (e)(6), (125 hrs. plus .125 hrs. plus 1.9 hrs.)
(7.5 min. plus 7.5 min. plus 1 hr., 54 min.) 2.15 hrs. (2 hrs., 9 min.)

(g) Total Fuel Required

Determine the total fuel required by adding the fuel to climb, the fuel to descend and the cruise fuel. When the total fuel (in gallons) is determined, multiply this value by 6 lb./gal. to determine the total fuel weight used for the flight.

The total fuel calculations for our example flight plan are shown below.

(1) Total Fuel Required

(c)(5) plus (d)(3) plus (e)(7), (3.0 gal. plus 2.0 gal. plus 30.6 gal.) 35.6 gal.
(35.6 gal. multiplied by 6 lb./gal.) 213.6 lbs.

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5.7 PERFORMANCE GRAPHS

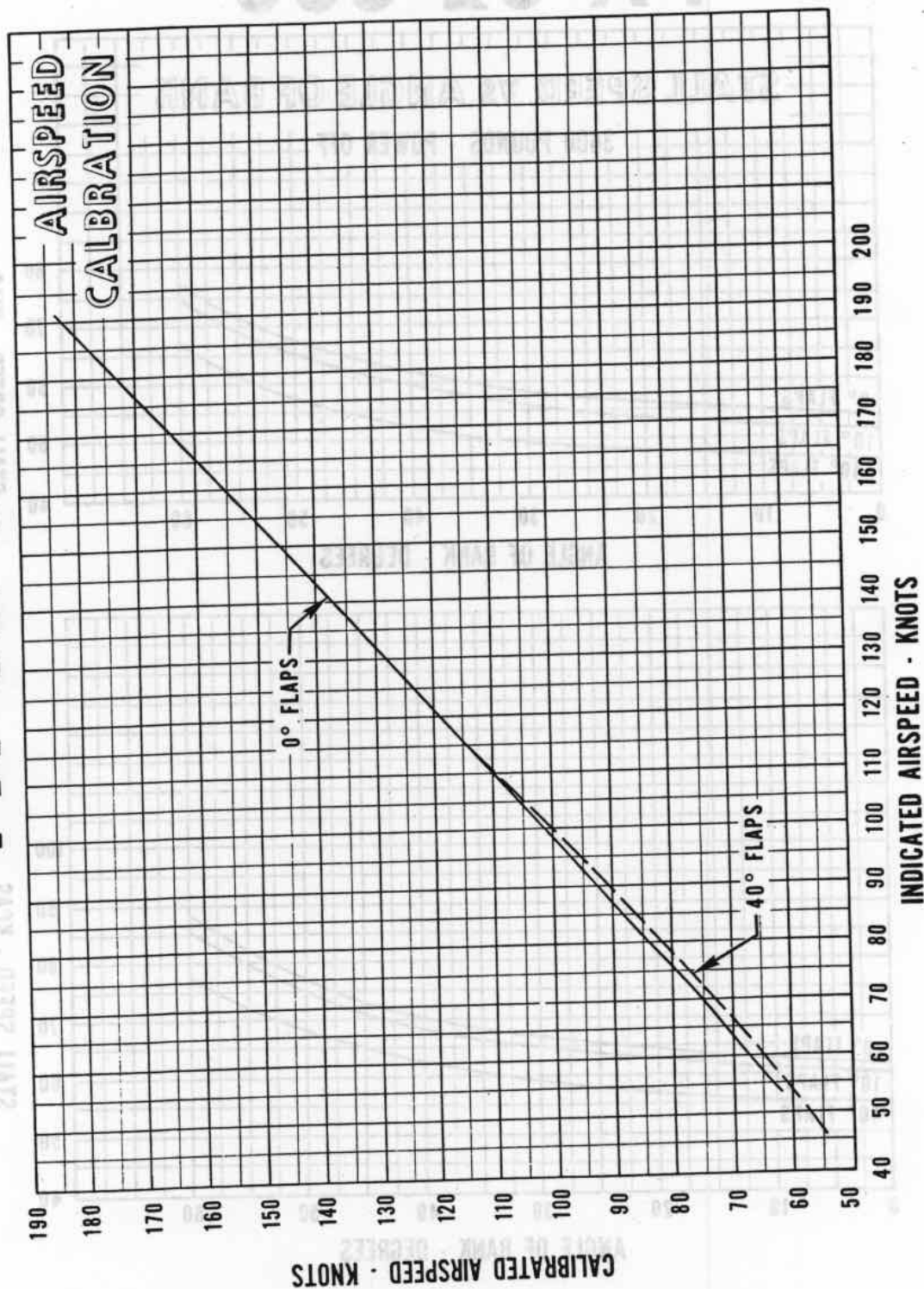
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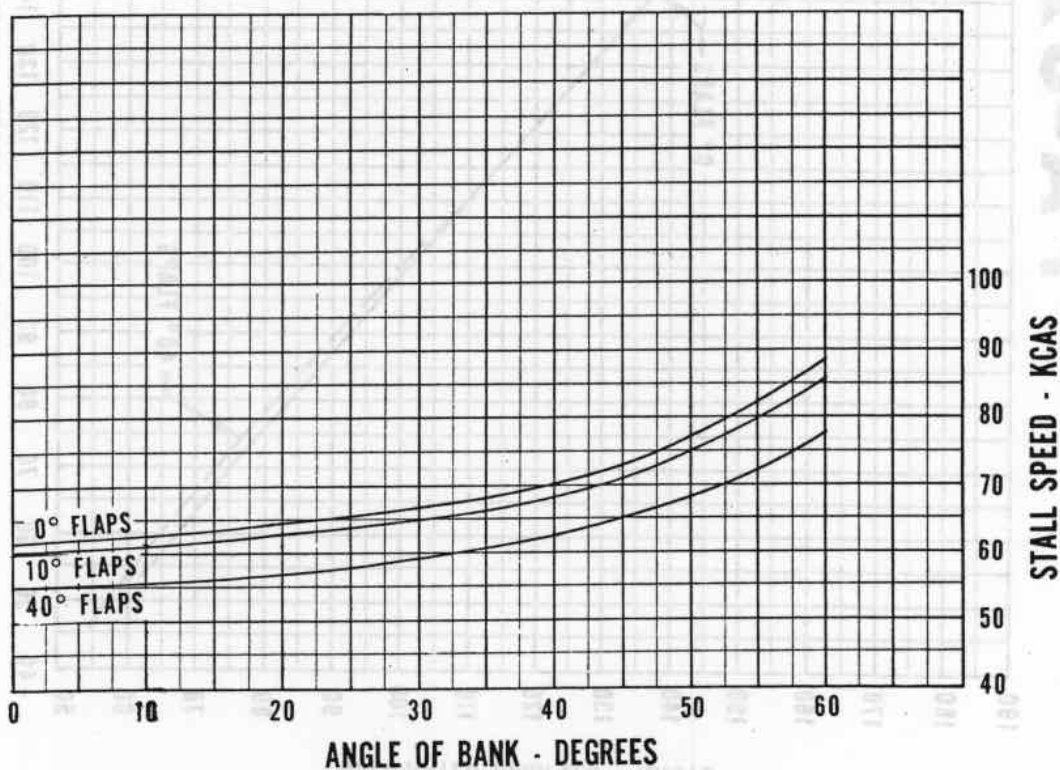
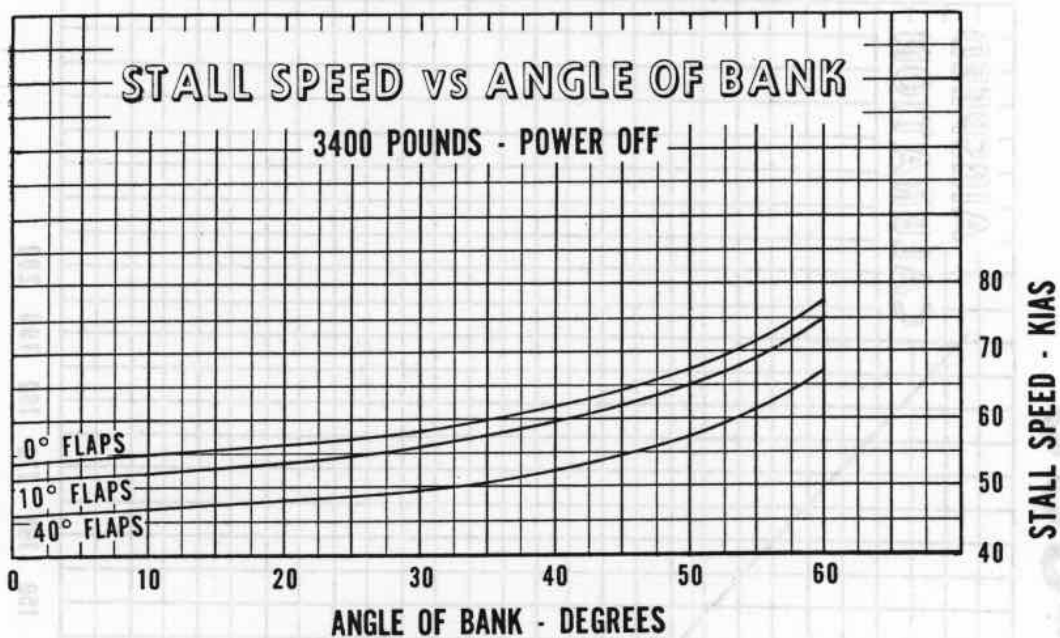
PA-32-300



AIRSPEED CALIBRATION

Figure 5-1

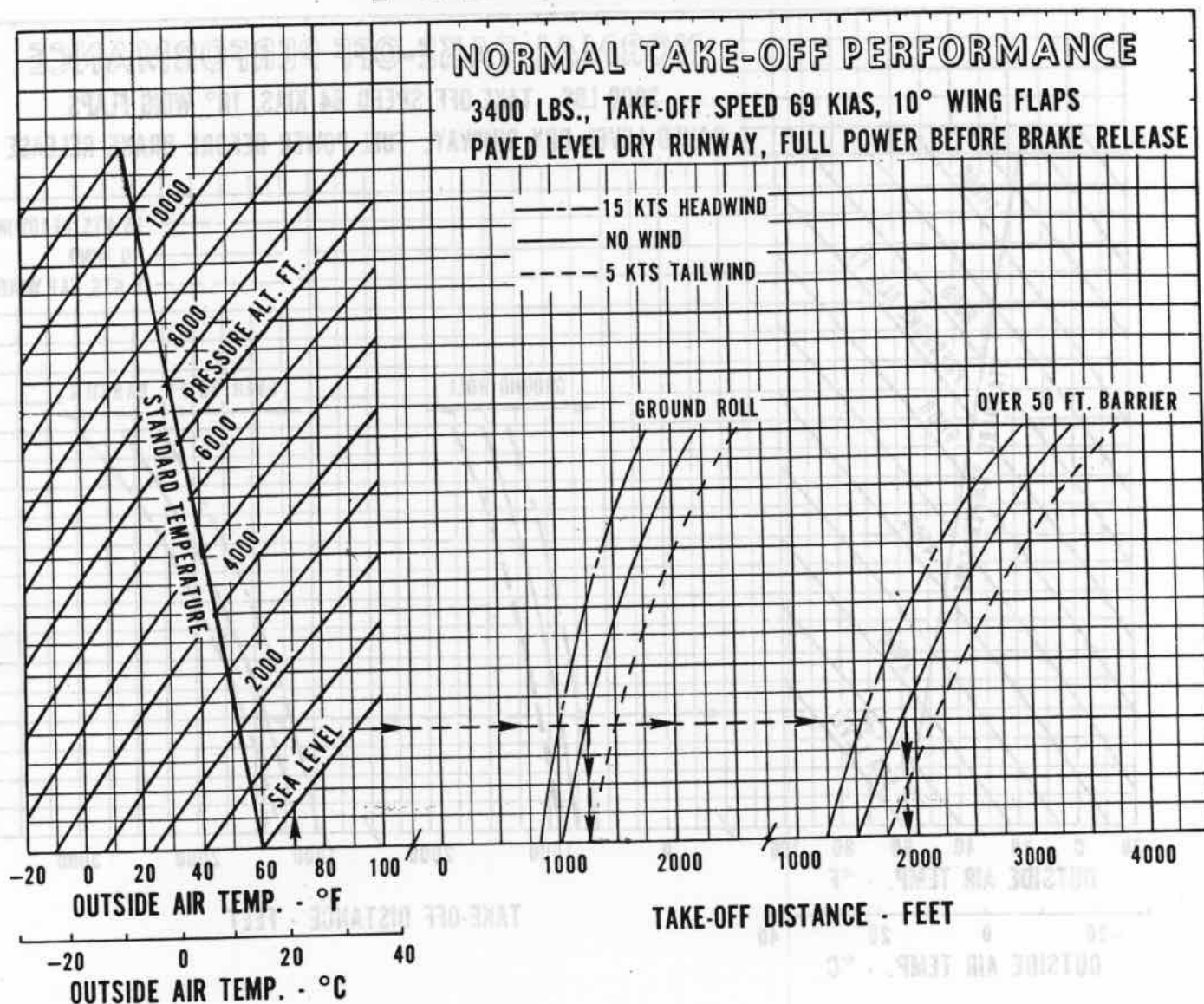
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STALL SPEED VS ANGLE OF BANK

Figure 5-3

PA-32-300



Example:

OAT: 70°F

Airport pressure altitude: 1000 ft.

Gross weight: 3399 lbs.

Wind component: 0 knots

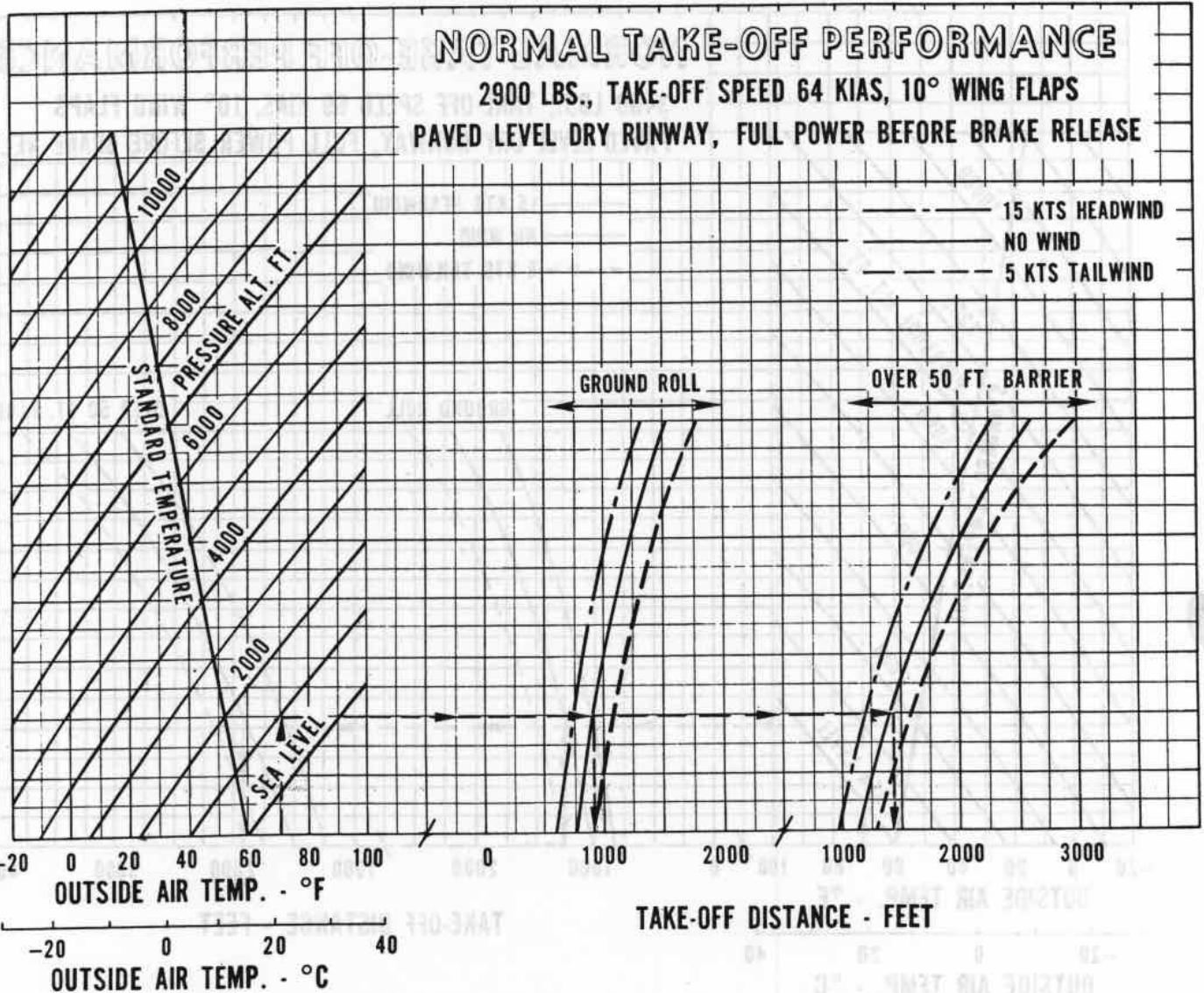
Ground roll: 1250 ft.

Distance over 50 ft. barrier: 1900 ft.

NORMAL TAKEOFF PERFORMANCE (3400 LBS.)

Figure 5-5

PA-32-300



Example:

OAT: 70° F

Airport pressure altitude: 1000 ft.

Gross weight: 2900 lbs.

Wind component: 0 knots

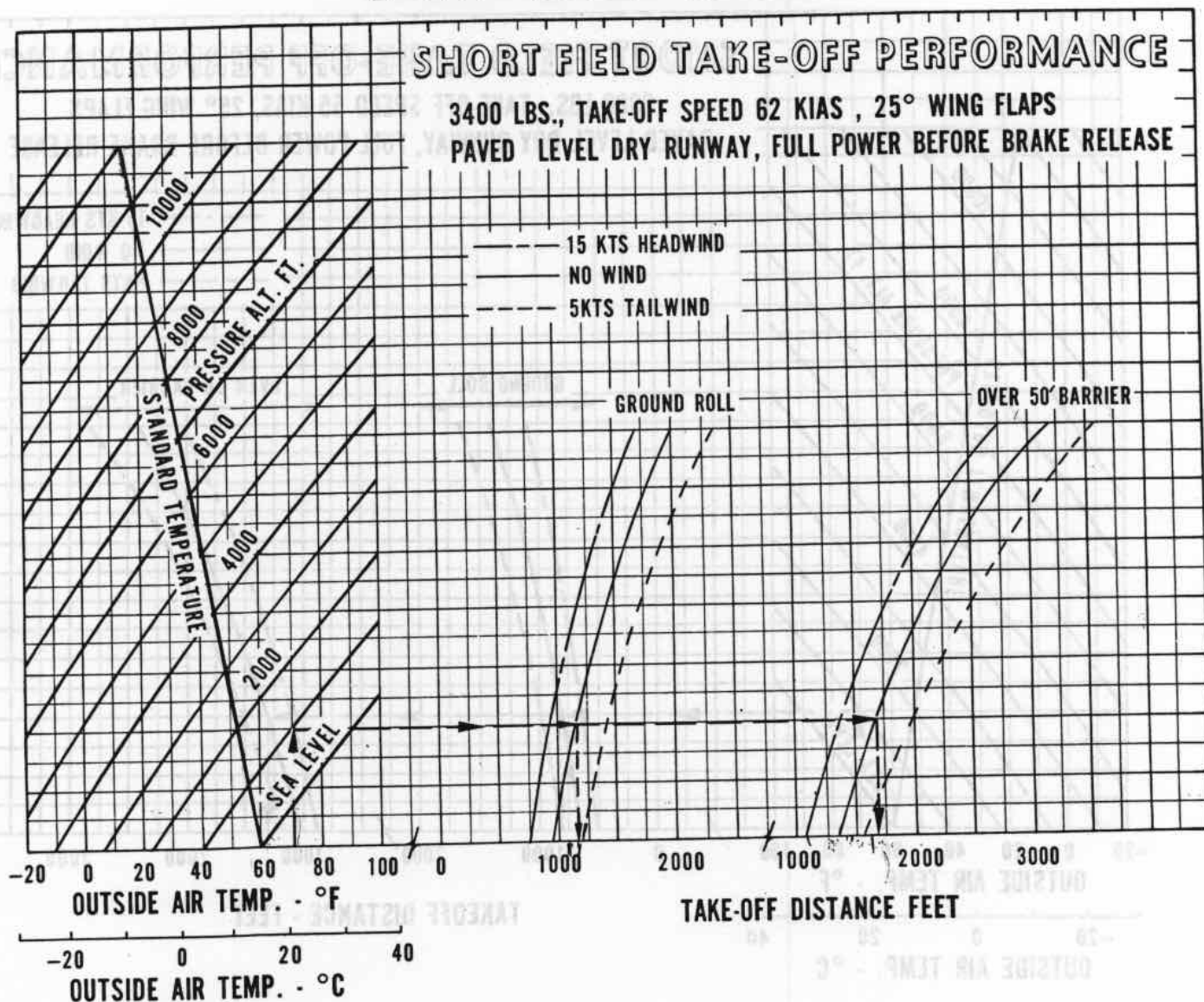
Ground roll: 900 ft.

Distance over 50 ft. barrier: 1400 ft.

NORMAL TAKEOFF PERFORMANCE (2900 LBS.)

Figure 5-7

PA-32-300



Example:

OAT: 70°F

Airport pressure altitude: 1000 ft.

Gross weight: 3400 lbs.

Wind component: 0 knots

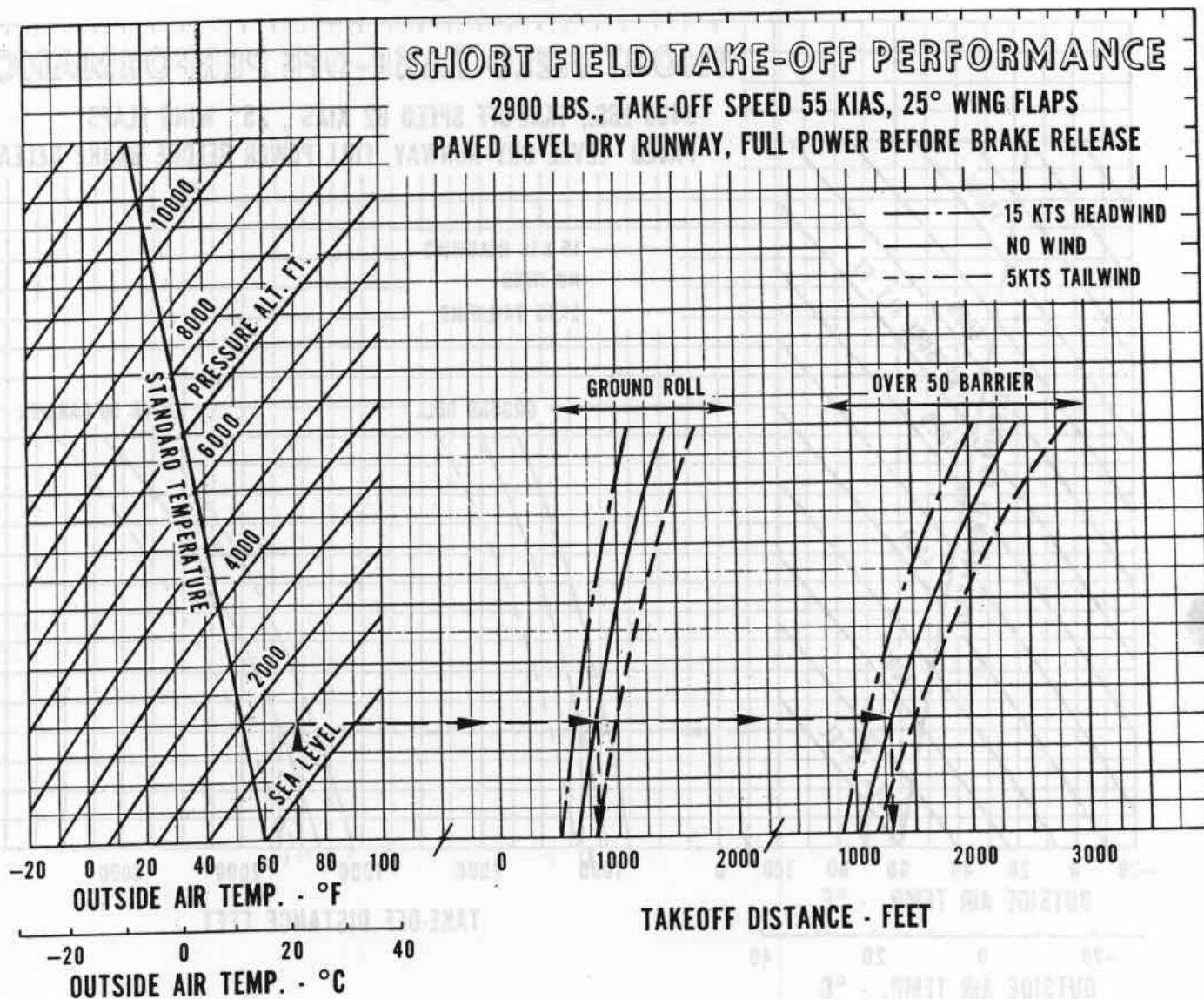
Ground roll: 1200 ft.

Distance over 50 ft. barrier: 1700 ft.

SHORT FIELD TAKEOFF PERFORMANCE (3400 LBS.).

Figure 5-9

PA-32-300



Example:

OAT: 70°F

Airport pressure altitude: 1000 ft.

Gross weight: 2900 lbs.

Wind component: 0 knots

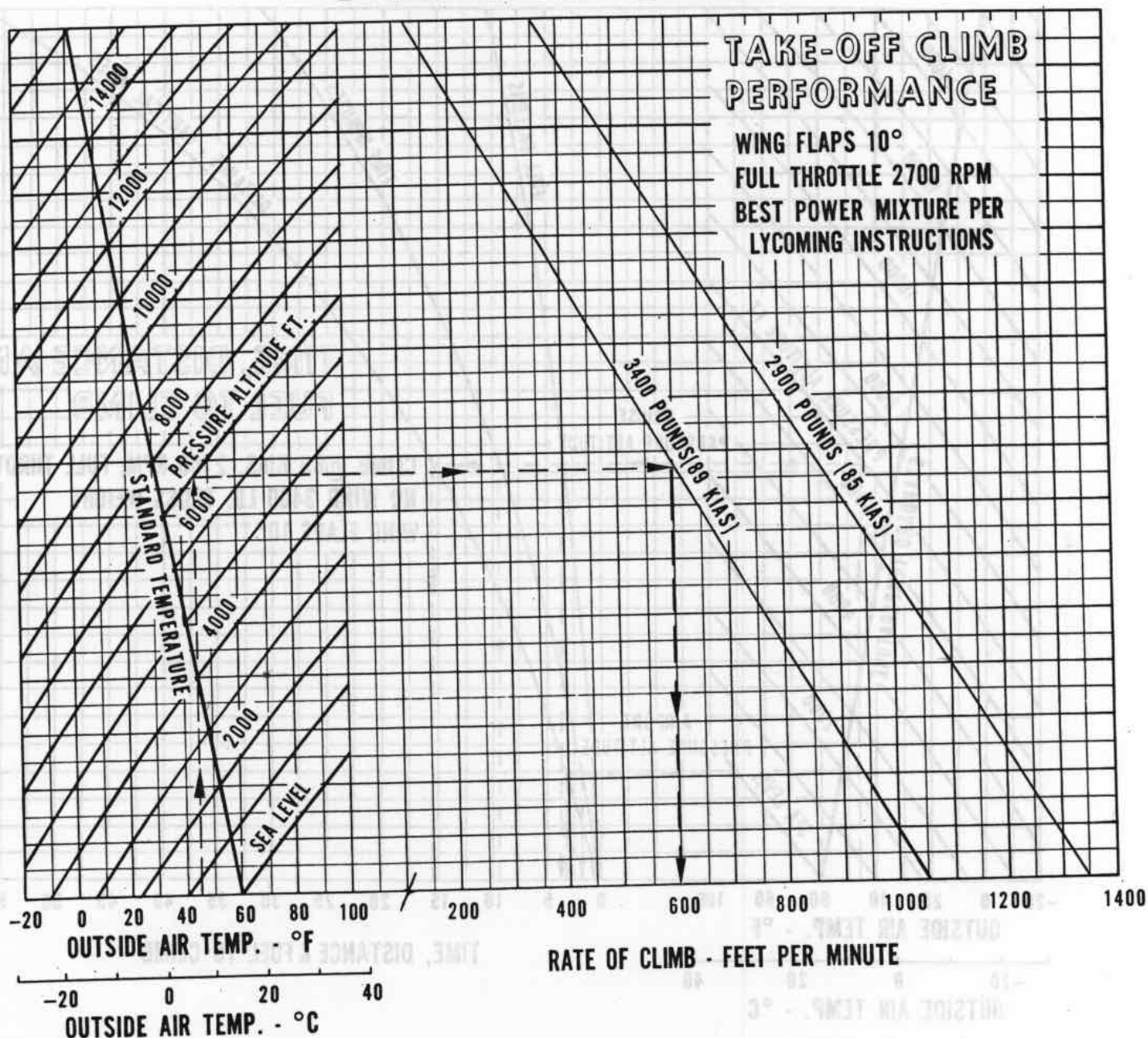
Ground roll: 800 ft.

Distance over 50 ft. barrier: 1300 ft.

SHORT FIELD TAKEOFF PERFORMANCE (2900 LBS.)

Figure 5-11

PA-32-300



Example:

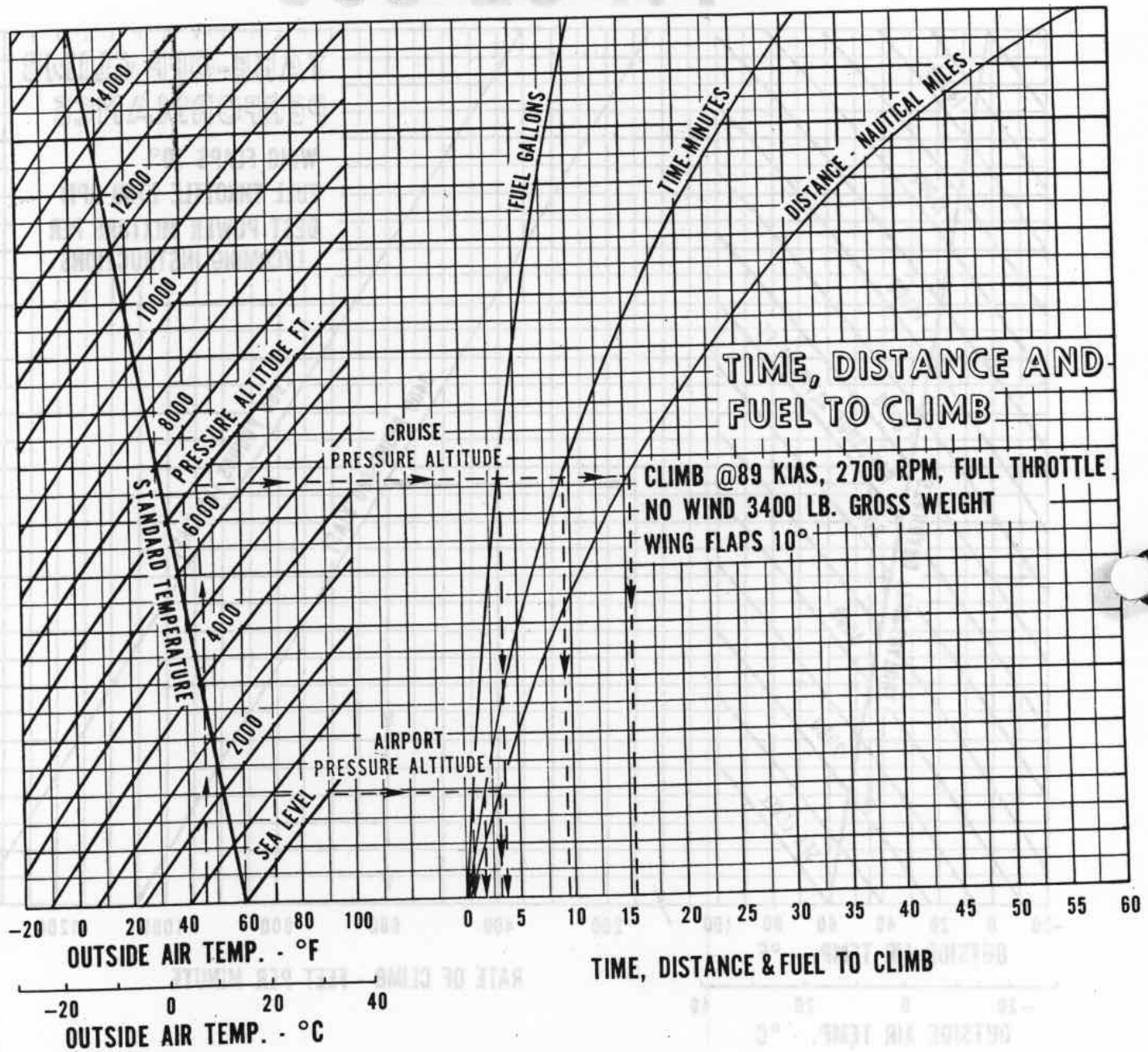
Climb pressure altitude: 7000 ft.
OAT: 45°F
Gross weight: 3400 lbs.
Rate of climb: 600 F.P.M.

Note: On serial numbers 32-7840001 and up, reduce rate of climb by 27 F.P.M. when the wheel fairings are removed.

TAKEOFF CLIMB PERFORMANCE

Figure 5-13

PA-32-300



Example:
Departure airport pressure altitude: 1000 ft.
Departure airport temperature: 70°F
Cruise pressure altitude: 7000 ft.

Cruise OAT: 45°F
Time to climb: (9 min. minus 1.5 min.) = 7.5 min.
Distance to climb: (15.5 miles minus 3 miles) = 12.5 miles
Fuel to climb: (3.5 gal. minus .5 gal.) = 3.0 gal.

TIME, DISTANCE AND FUEL TO CLIMB

Figure 5-15

Power Setting Table - Lycoming Model 10-540-K,-L,-M Series, 300 HP Engine

Press. Alt Feet	Std Alt Temp ° F	165 HP - 55% Rated RPM AND MAN. PRESS.				195 HP - 65% Rated RPM AND MAN. PRESS.				225 HP - 75% Rated RPM AND MAN. PRESS.				Press. Alt Feet
		2100	2200	2300	2400	2100	2200	2300	2400	2200	2300	2400		
SL	59	22.5	21.8	21.2	20.7	25.6	24.7	23.8	23.2	27.6	26.6	25.8	SL	
1,000	55	22.3	21.6	21.0	20.5	25.3	24.4	23.5	22.9	27.3	26.3	25.5	1,000	
2,000	52	22.1	21.4	20.7	20.2	25.1	24.2	23.3	22.7	27.1	26.1	25.2	2,000	
3,000	48	21.9	21.2	20.5	20.0	24.8	23.9	23.0	22.5	26.8	25.8	24.9	3,000	
4,000	45	21.7	21.0	20.3	19.8	24.6	23.7	22.8	22.2	26.5	25.6	24.6	4,000	
5,000	41	21.5	20.8	20.1	19.6	24.3	23.5	22.5	22.0	-	25.3	24.4	5,000	
6,000	38	21.3	20.6	19.8	19.3	24.0	23.2	22.3	21.7	-	25.0	24.1	6,000	
7,000	34	21.0	20.4	19.6	19.1	23.7	22.9	22.0	21.5	-	-	23.8	7,000	
8,000	31	20.8	20.2	19.4	18.9	-	22.5	21.8	21.2	-	-	-	8,000	
9,000	27	20.6	20.0	19.2	18.6	-	-	21.5	21.0	-	-	-	9,000	
10,000	23	20.4	19.8	19.0	18.4	-	-	21.2	20.7	-	-	-	10,000	
11,000	19	20.2	19.6	18.7	18.2	-	-	-	20.4	-	-	-	11,000	
12,000	16	20.0	19.4	18.5	18.0	-	-	-	-	-	-	-	12,000	
13,000	12	-	19.2	18.3	17.7	-	-	-	-	-	-	-	13,000	
14,000	9	-	-	18.0	17.3	-	-	-	-	-	-	-	14,000	
15,000	5	-	-	-	16.9	-	-	-	-	-	-	-	15,000	

To maintain constant power, correct manifold pressure approximately 0.18" Hg for each 10° F variation in induction air temperature from standard altitude temperature. Add manifold pressure for air temperature above standard; subtract for temperature below standard.

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

POWER SETTING TABLE

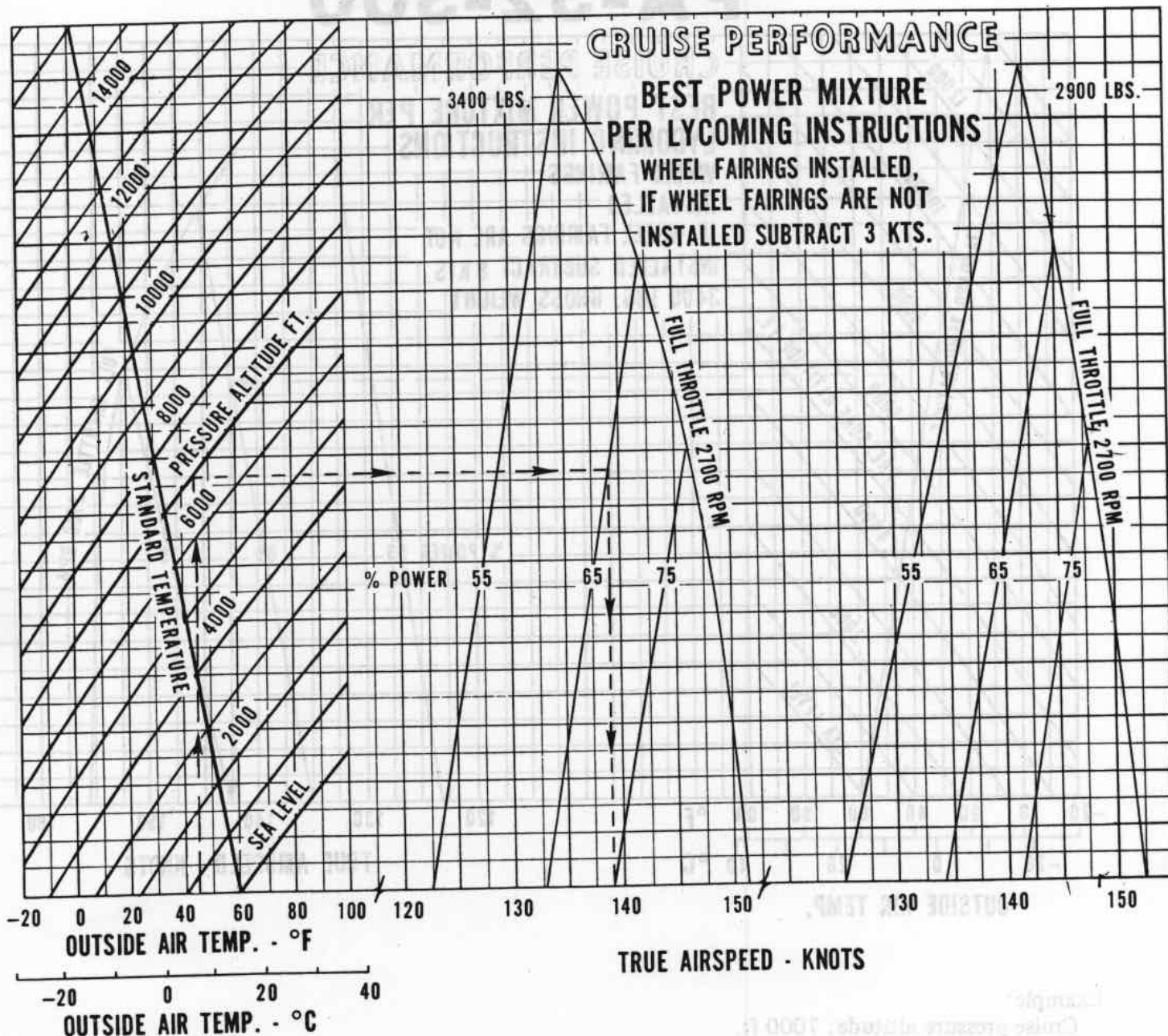
Figure 5-17

SECTION 5 PERFORMANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

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PA-32-300



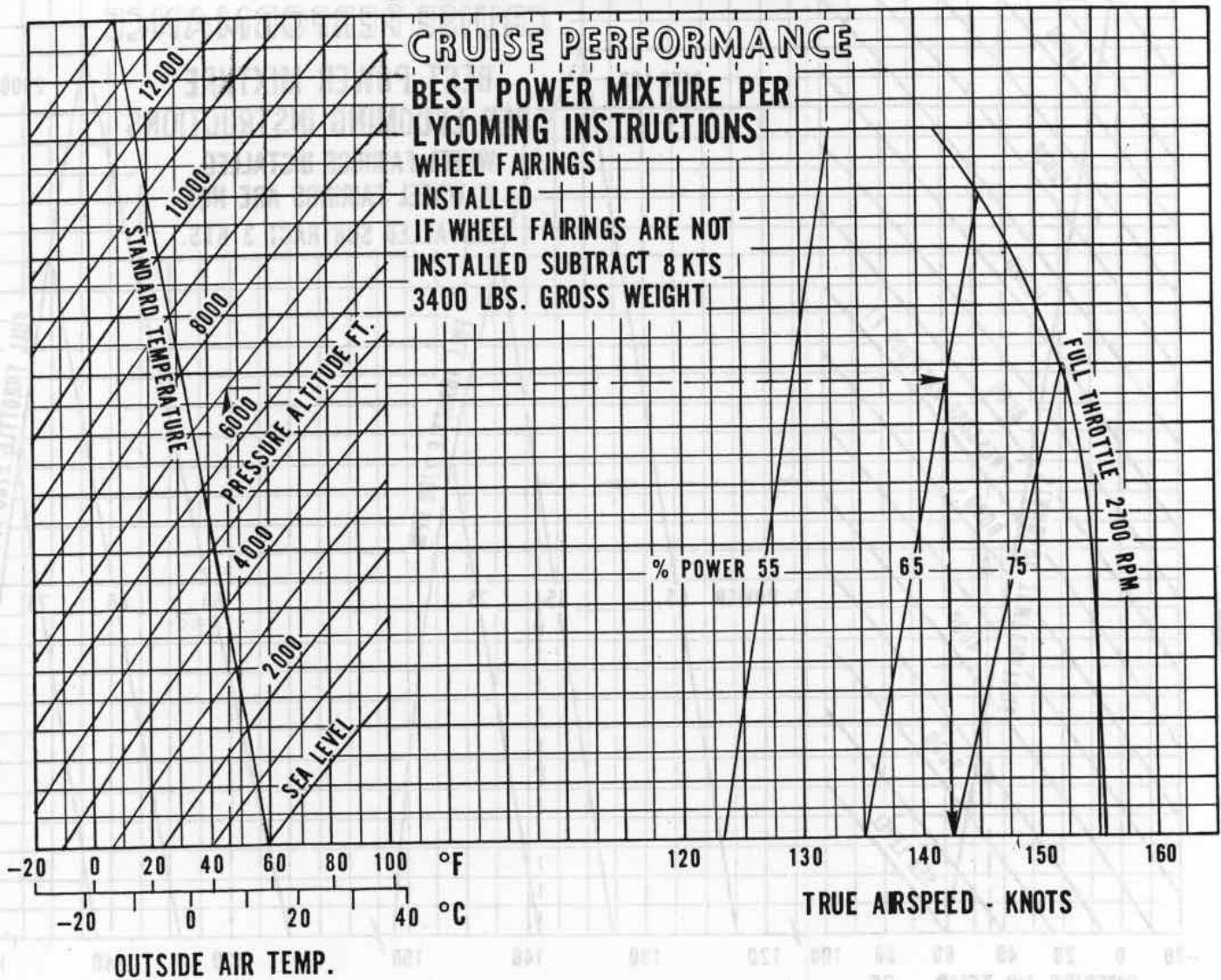
Example:

Cruise pressure altitude: 7000 ft.
Cruise OAT: 45°F
Gross weight: 3400 lbs.
Power: 65%
True airspeed: 139 knots

CRUISE PERFORMANCE - BEST POWER (3400 LBS., 2900 LBS.)
(SERIAL NUMBERS 32-7740001 THROUGH 32-7740113)

Figure 5-19

PA-32-300



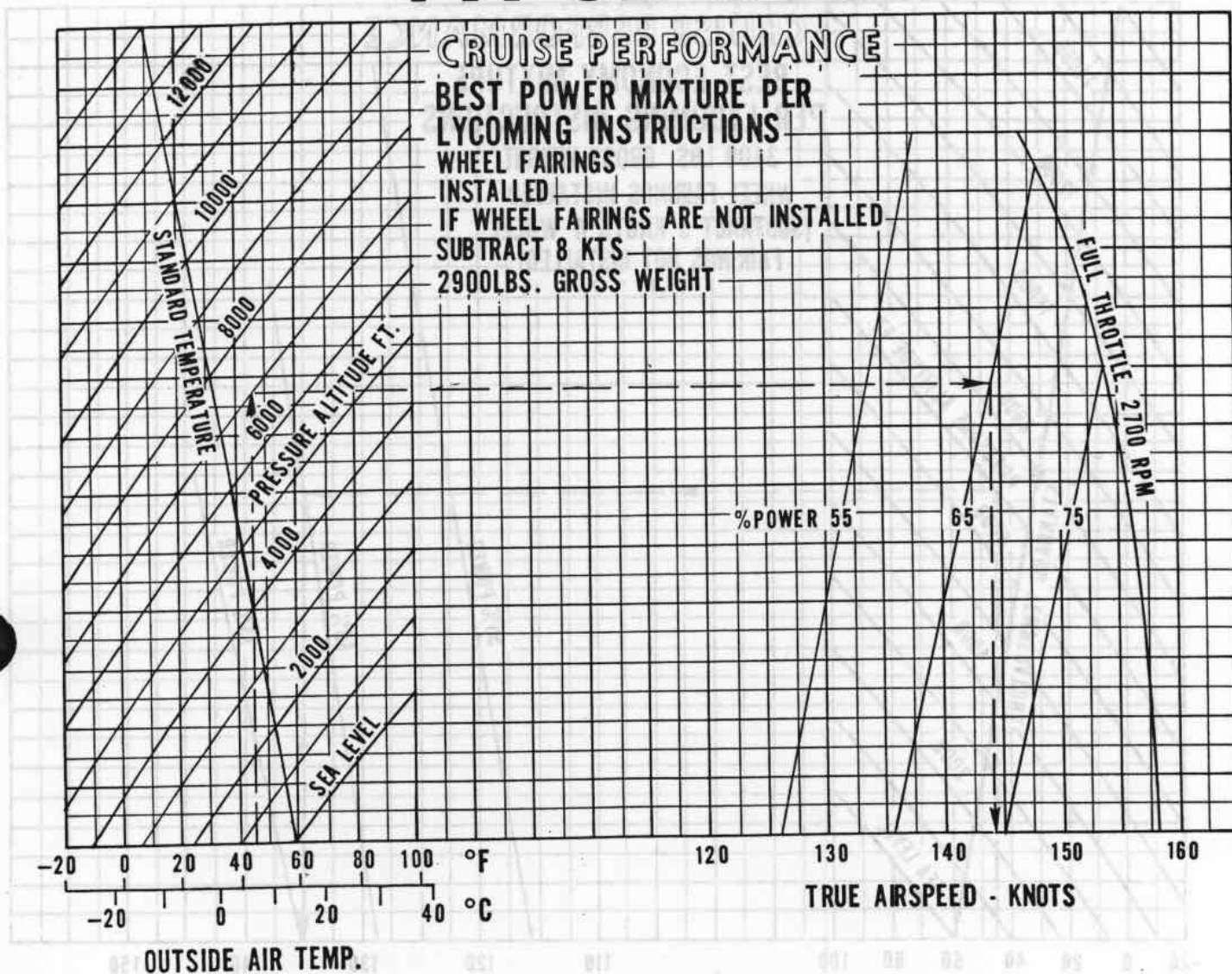
Example:

Cruise pressure altitude: 7000 ft.
Cruise OAT: 45° F
Gross weight: 3400 lbs.
Power: 65%
True airspeed: 142.5 knots

CRUISE PERFORMANCE - BEST POWER (3400 LBS.) (SERIAL NOS. 32-7840001 AND UP)

Figure 5-21

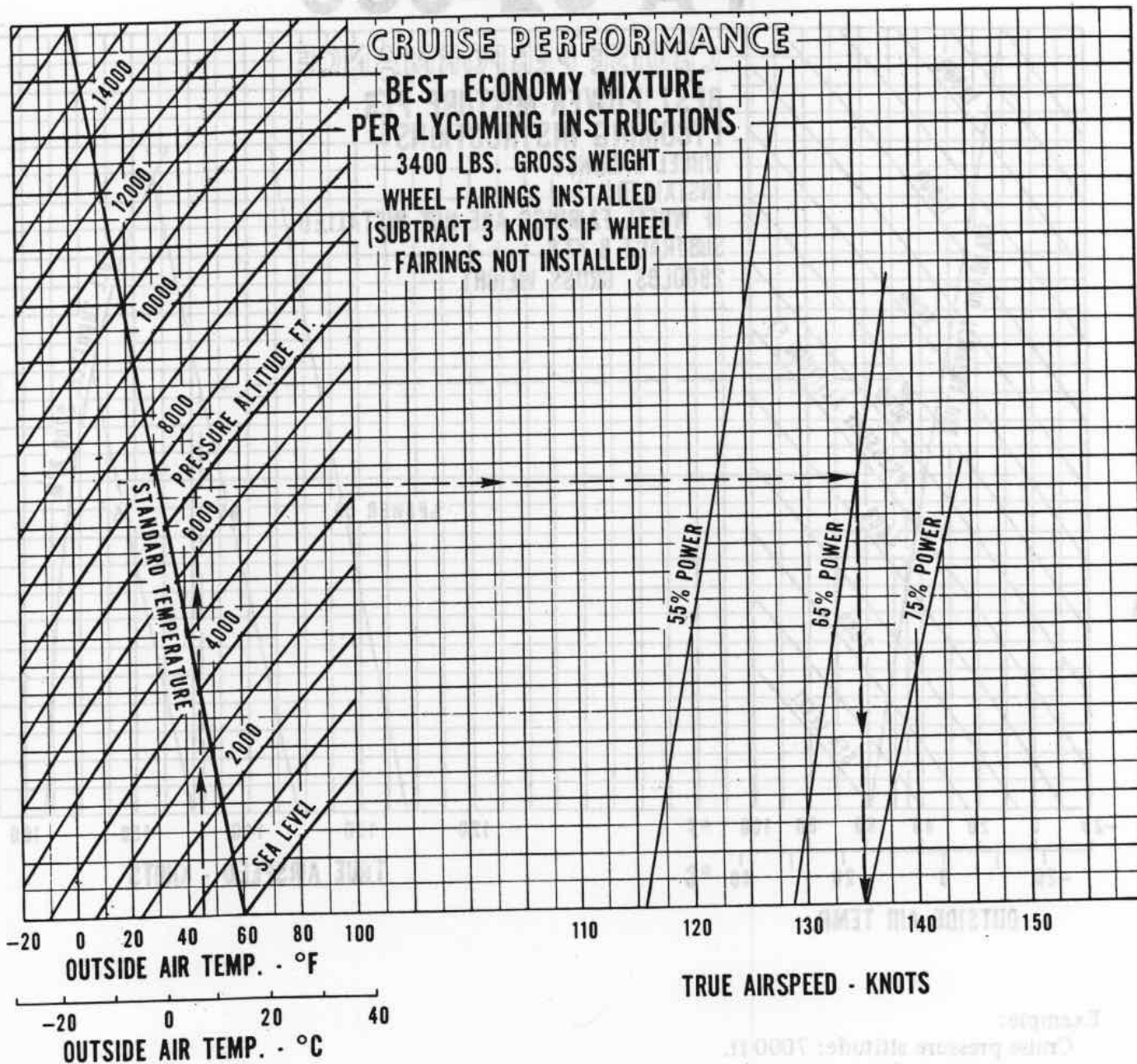
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CRUISE PERFORMANCE - BEST POWER (2900 LBS) (SERIAL NOS. 32-7840001 AND UP)

Figure 5-23

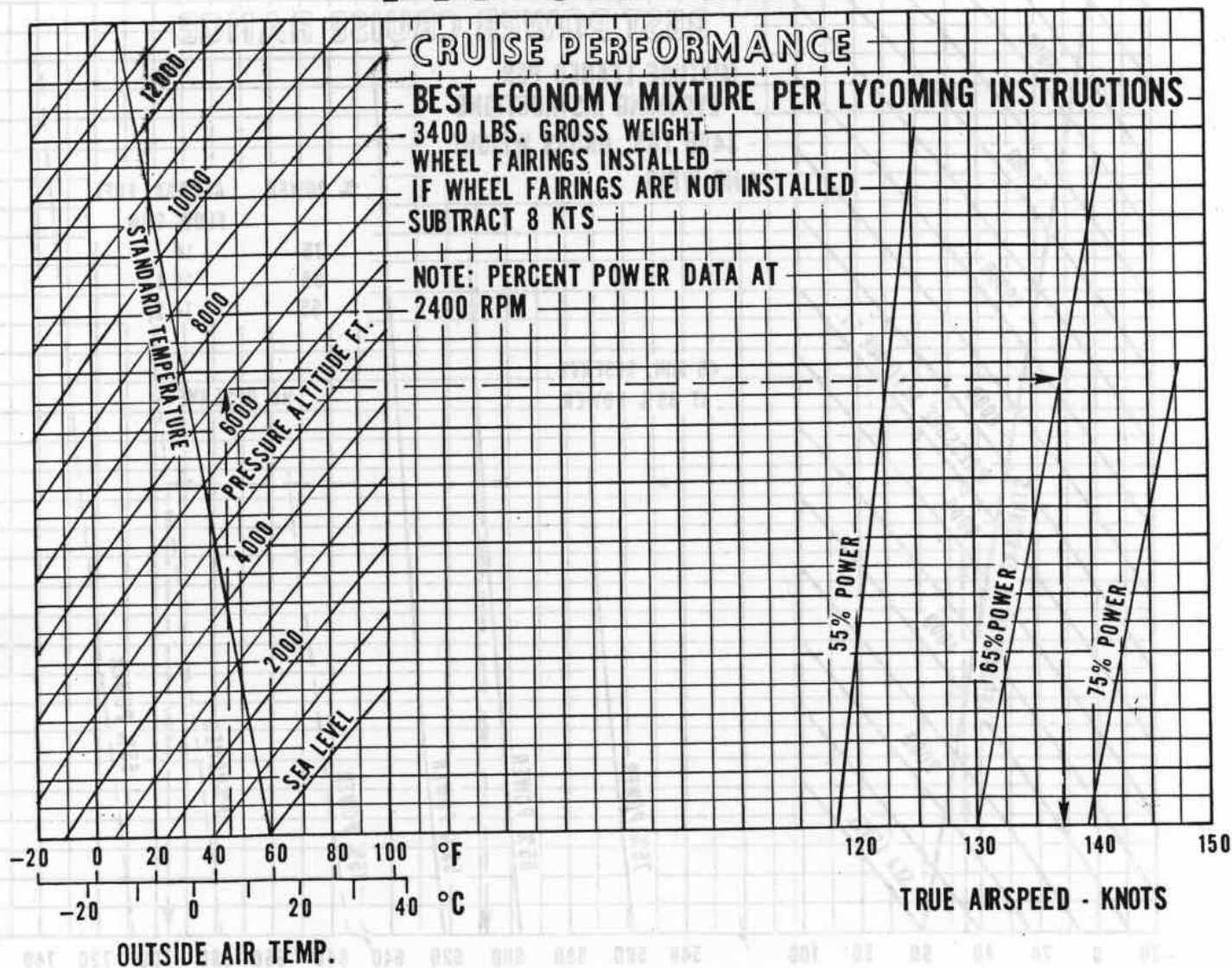
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CRUISE PERFORMANCE - BEST ECONOMY (SERIAL NOS. 32-7740001 THROUGH 32-7740113)

Figure 5-25

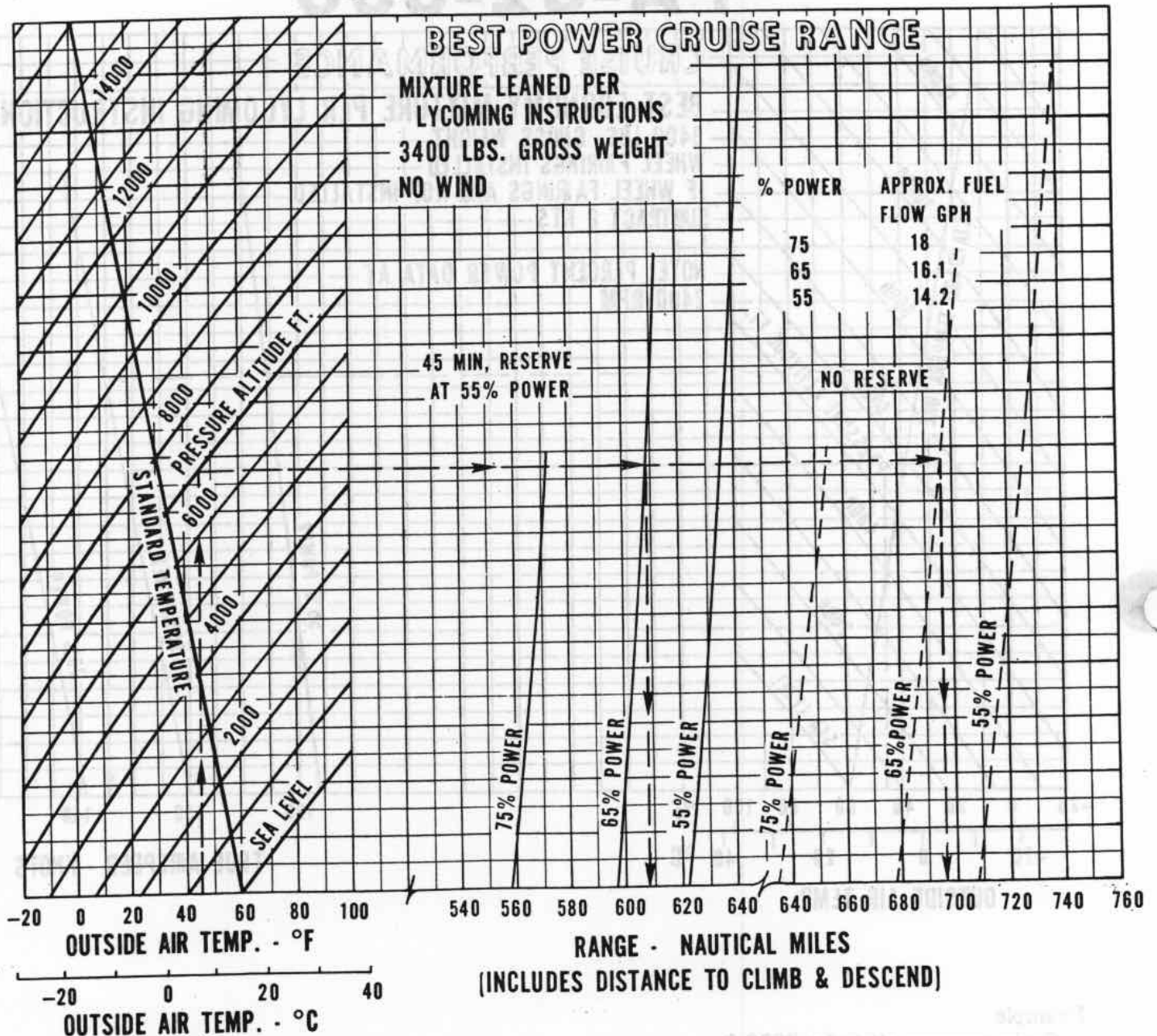
PA-32-300



CRUISE PERFORMANCE - BEST ECONOMY (SERIAL NOS. 32-7840001 AND UP)

Figure 5-27

PA-32-300



Example:

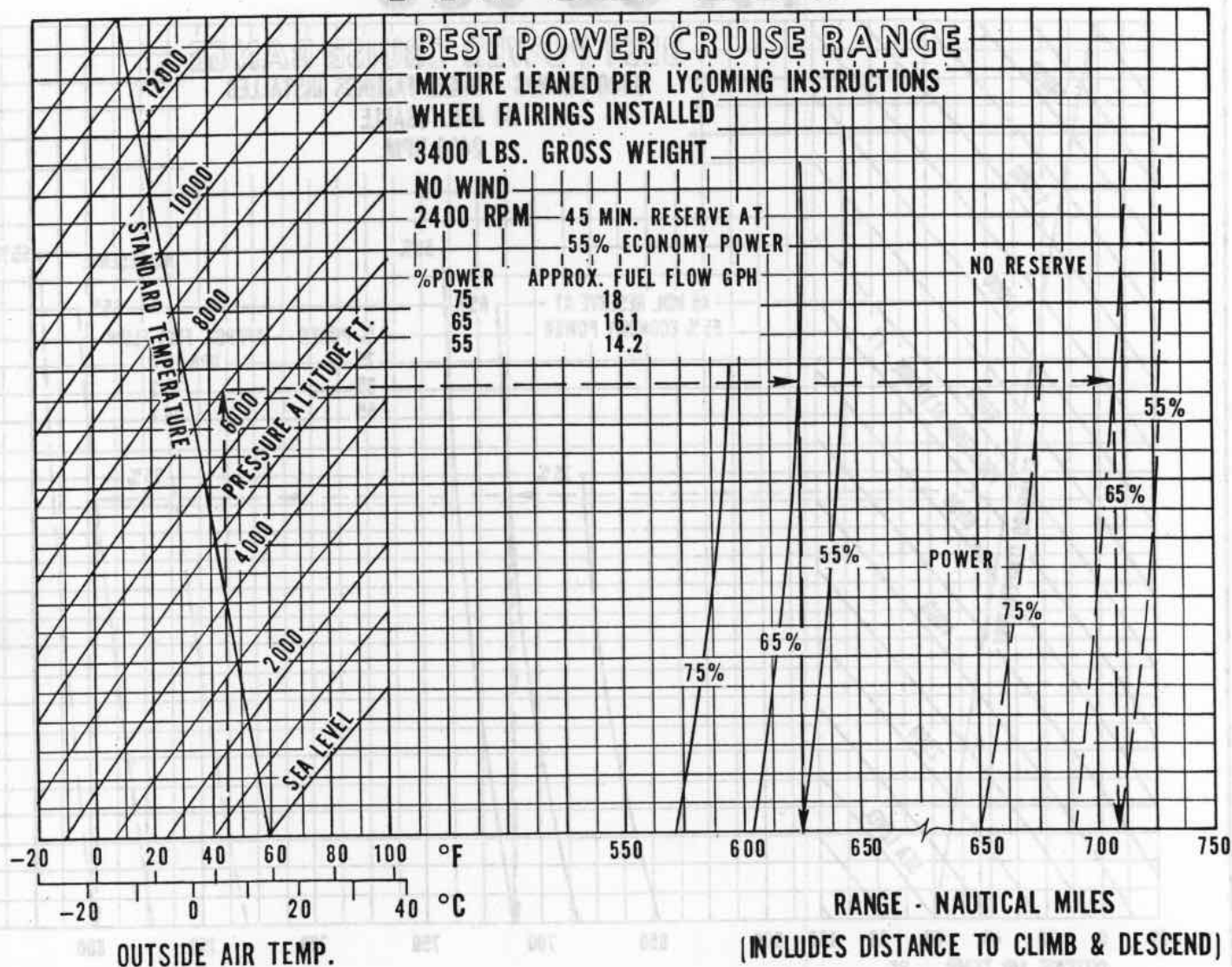
Cruise pressure altitude: 7000 ft.
Cruise OAT: 45°F
Power: 65%
Range (with reserve): 608 nautical miles
Range (no reserve): 696 nautical miles

Note: Range may be reduced by up to 3% if wheel fairings are not installed.

BEST POWER CRUISE RANGE (SERIAL NOS. 32-7740001 THROUGH 32-7740113)

Figure 5-29

PA-32-300



Example:

Cruise pressure altitude: 7000 ft.

Cruise OAT: 45° F

Power: 65%

Range (with reserve): 625 nautical miles

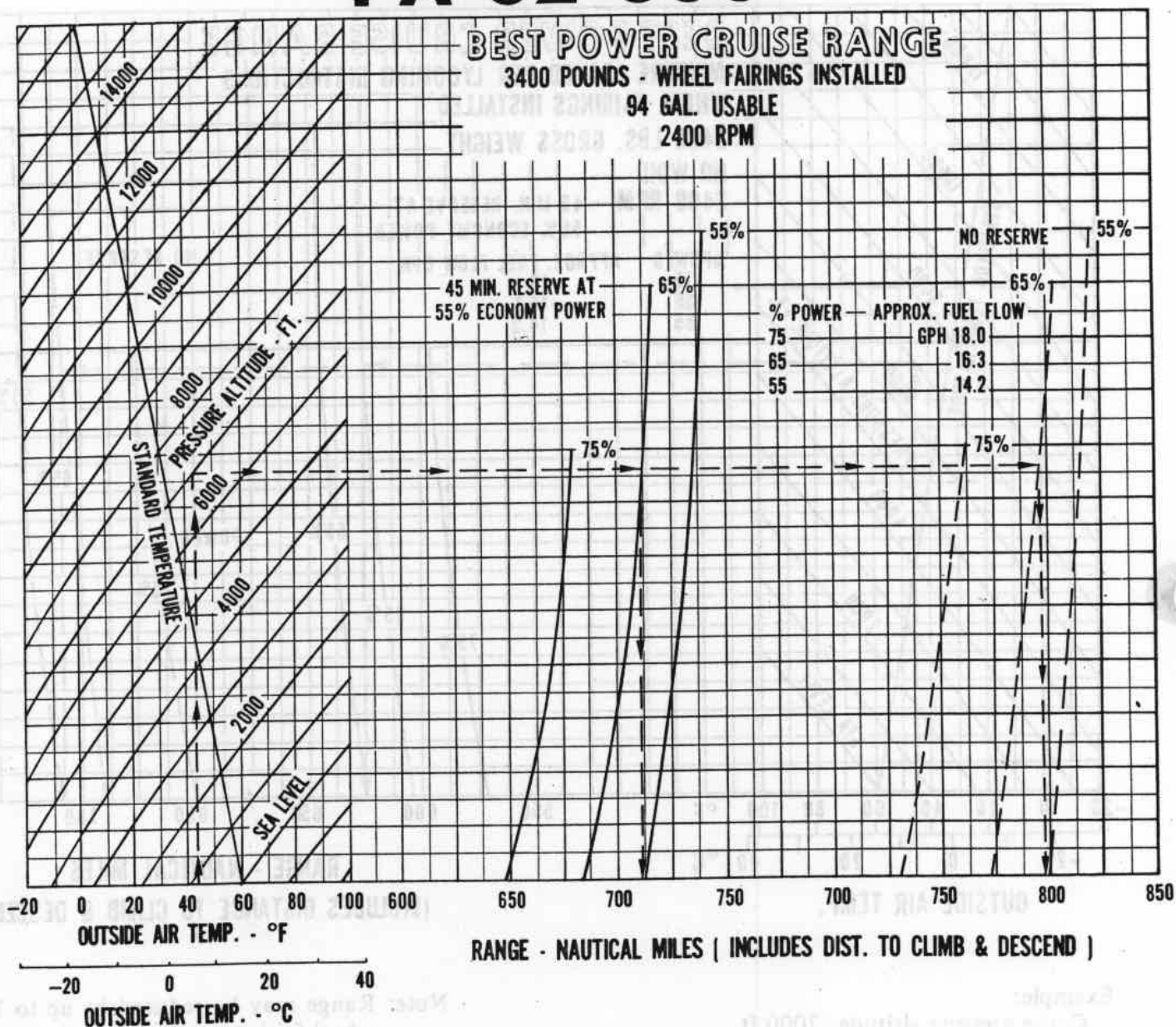
Range (no reserve): 710 nautical miles

Note: Range may be reduced by up to 7% if wheel fairings are not installed.

BEST POWER CRUISE RANGE (SERIAL NOS. 32-7840001 THROUGH 32-7840202)

Figure 5-31

PA-32-300

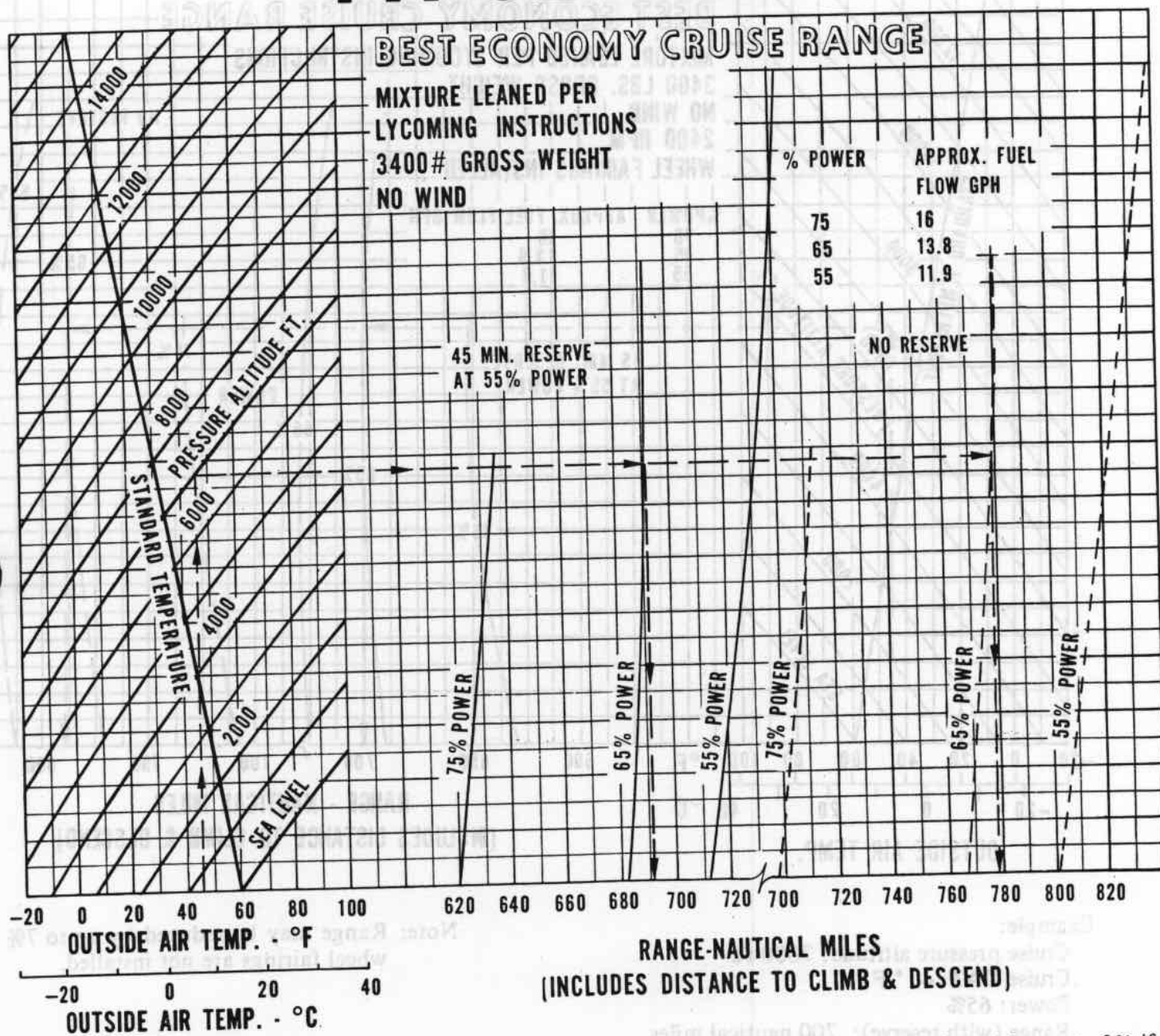


Note: Range may be reduced by up to 7% if wheel fairings are not installed.

BEST POWER CRUISE RANGE (SERIAL NOS. 32-7940001 AND UP)

Figure 5-32

PA-32-300



Example:

Cruise pressure altitude: 7000 ft.

Cruise OAT: 45° F

Power: 65%

Range (with reserve): 691 nautical miles

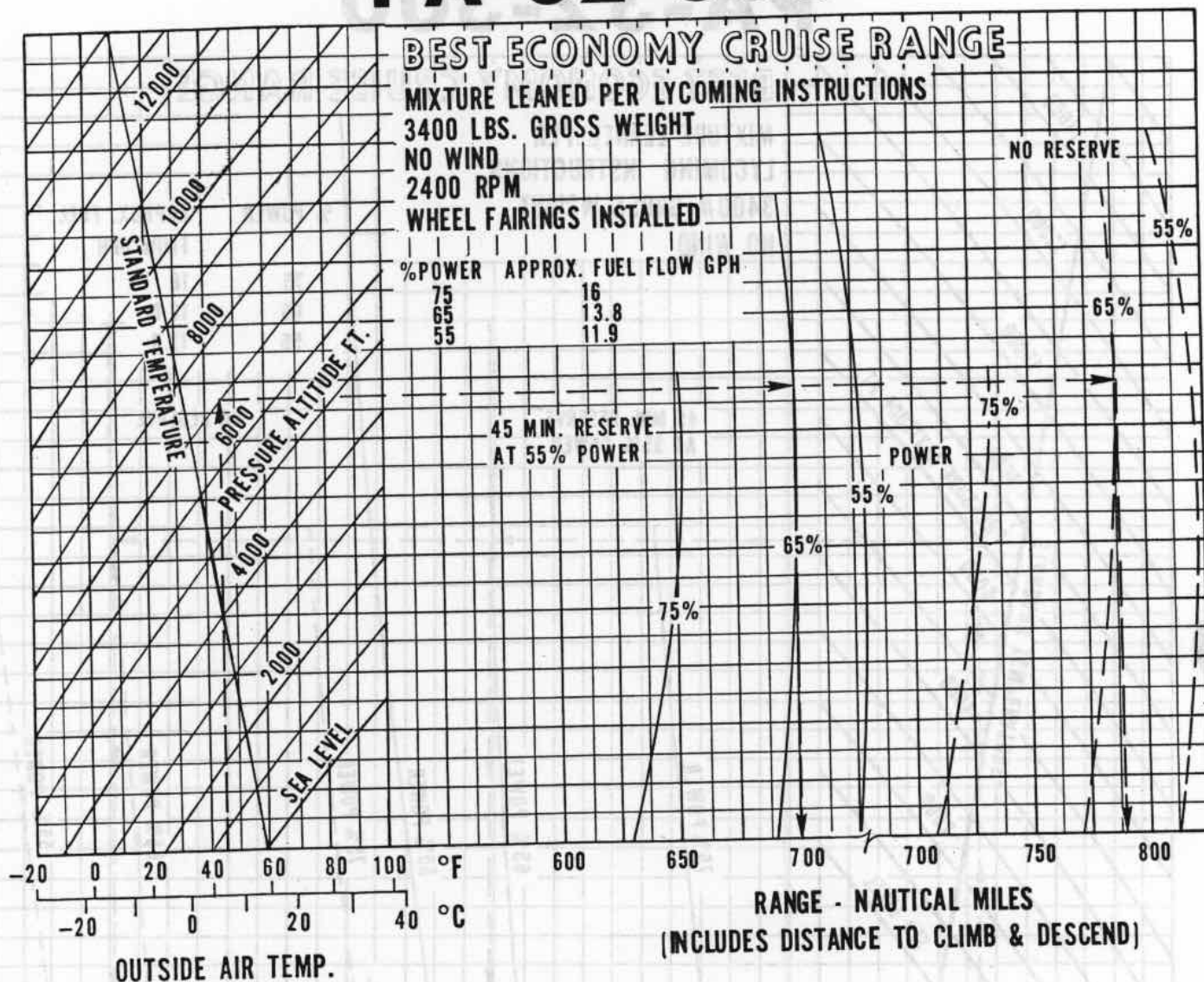
Range (no reserve): 777 nautical miles

Note: Range may be reduced by up to 3% if wheel fairings are not installed.

BEST ECONOMY CRUISE RANGE (SERIAL NOS. 32-7740001 THROUGH 32-7740113)

Figure 5-33

PA-32-300



Example:

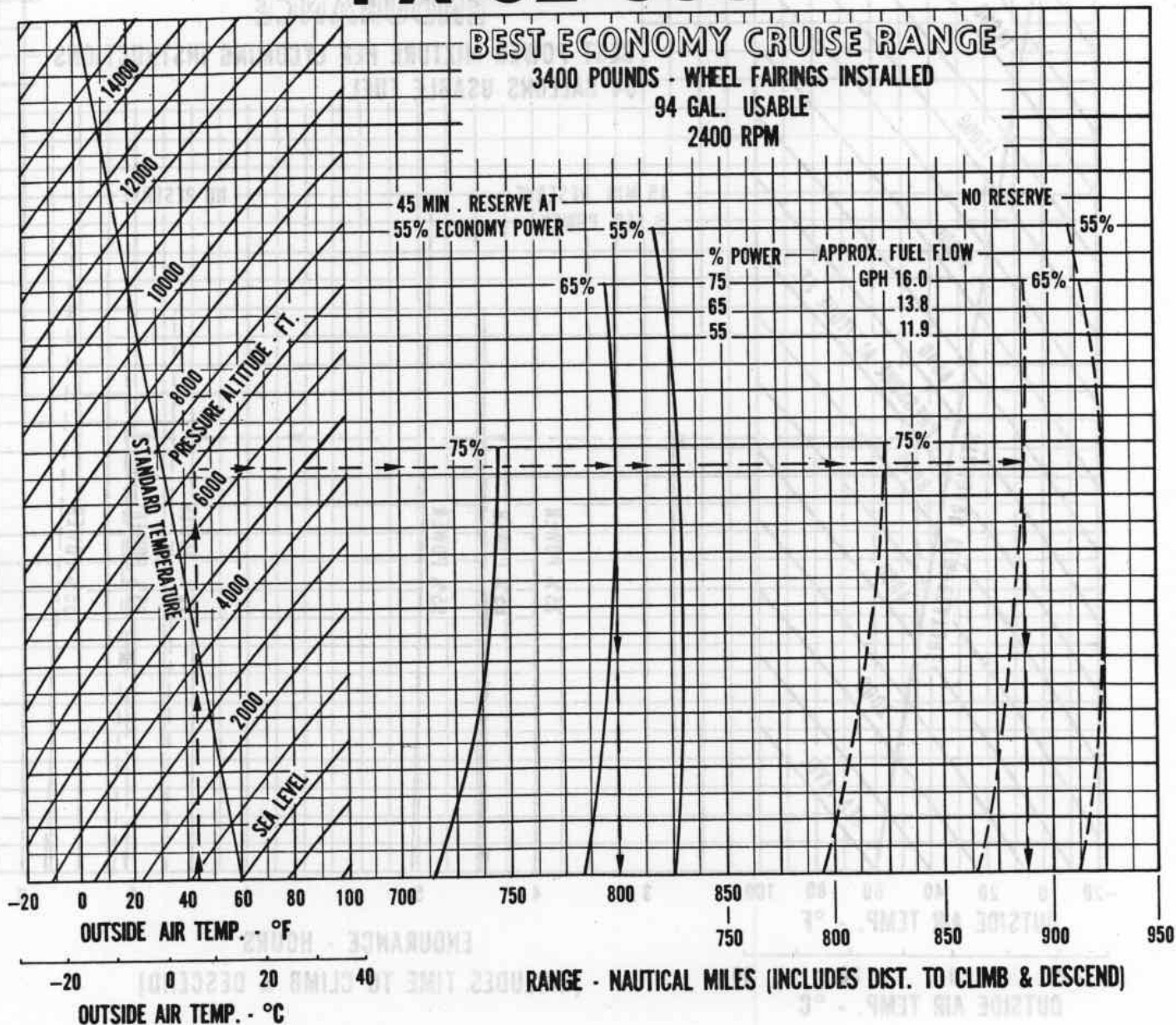
Cruise pressure altitude: 7000 ft.
Cruise OAT: 45° F
Power: 65%
Range (with reserve): 700 nautical miles
Range (no reserve): 790 nautical miles

Note: Range may be reduced by up to 7% if wheel fairings are not installed.

BEST ECONOMY CRUISE RANGE (SERIAL NOS. 32-7840001 THROUGH 32-7840202)

Figure 5-35

PA-32-300

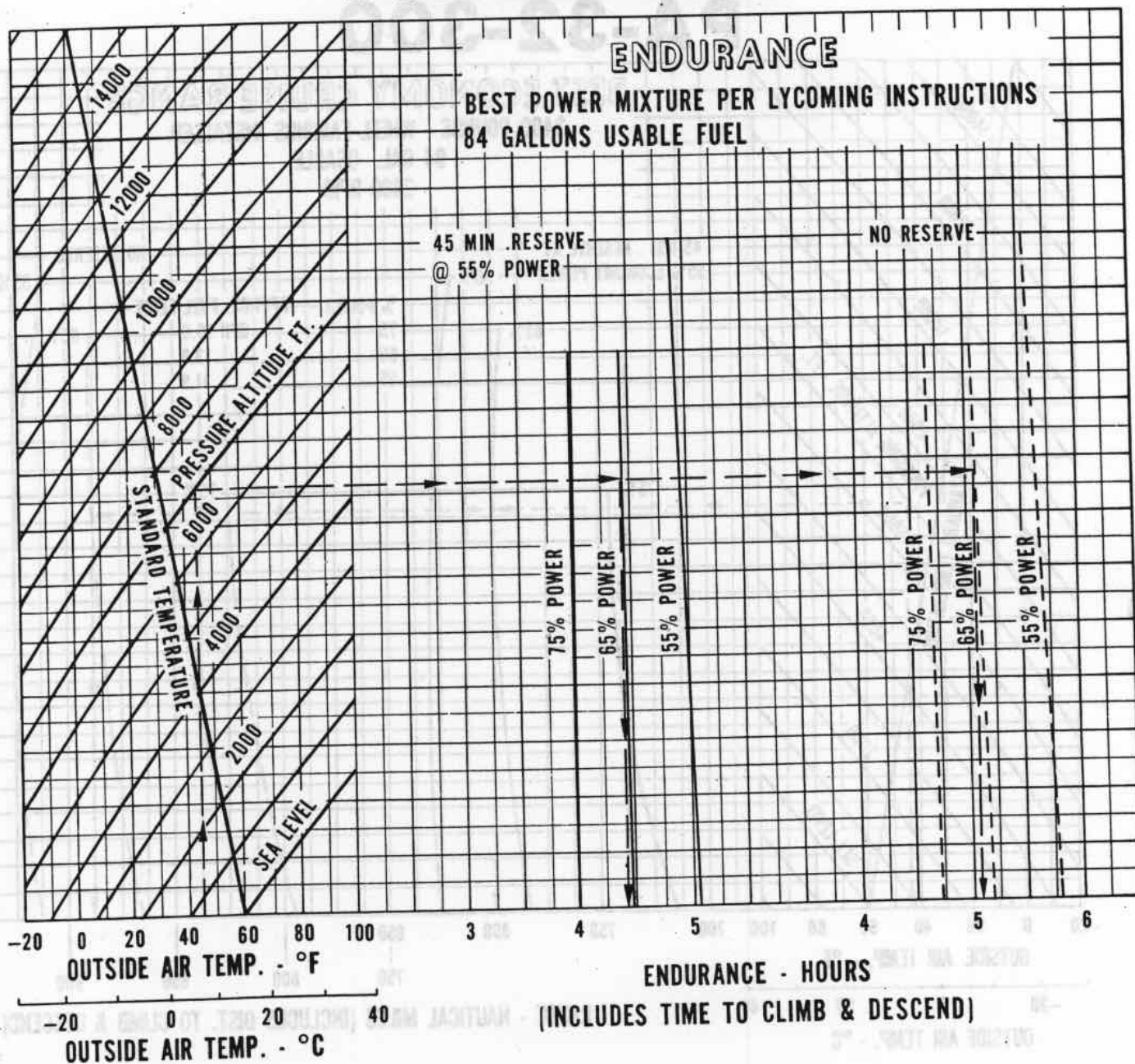


Note: Range may be reduced by up to 7% if wheel fairings are not installed.

BEST ECONOMY CRUISE RANGE (SERIAL NOS. 32-7940001 AND UP)

Figure 5-36

PA-32-300



Example:

Cruise pressure altitude: 7000 ft.

Cruise OAT: 45°F

Power: 65%

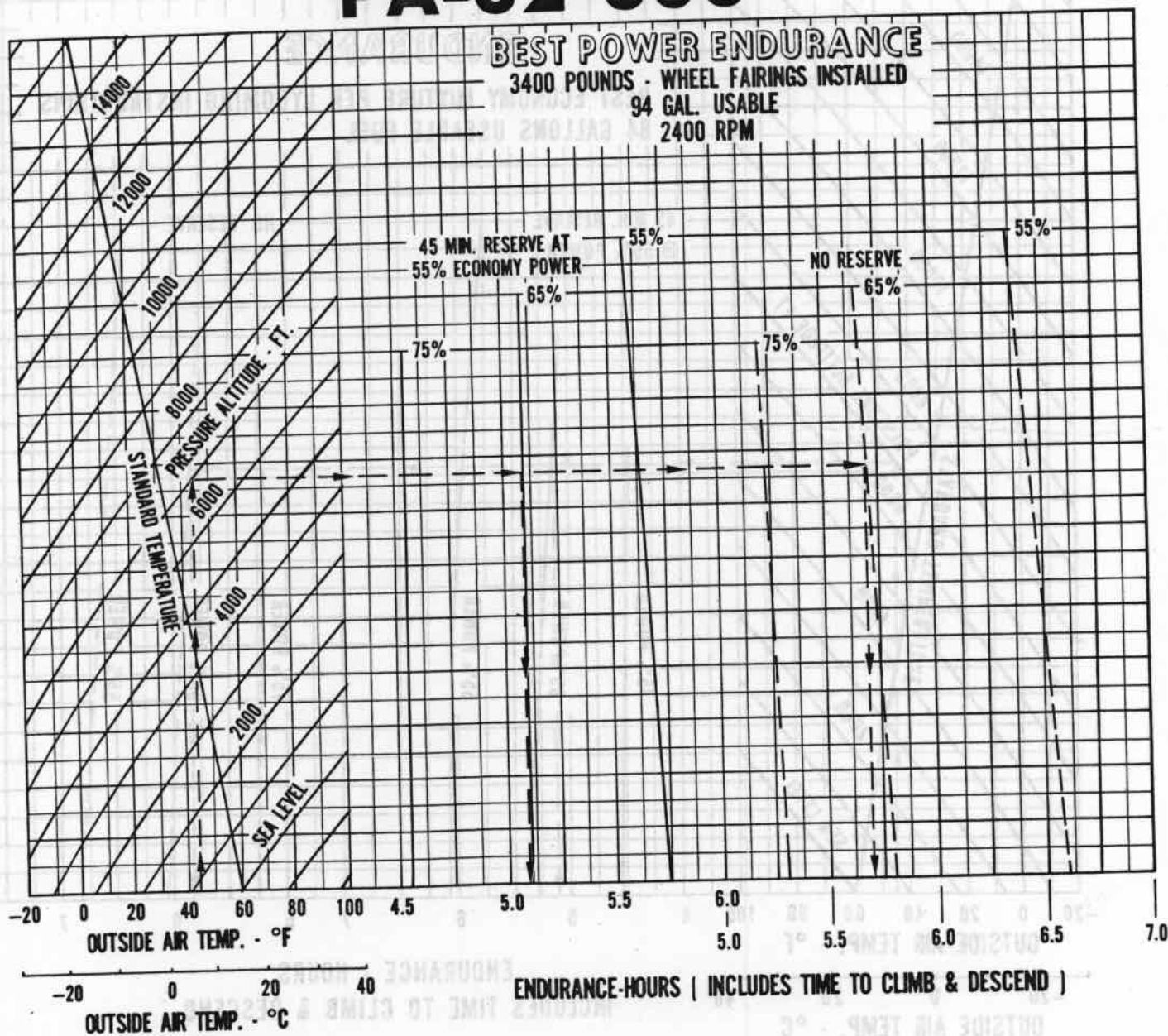
Endurance (with reserve): 4.4 hours

Endurance (no reserve): 5.1 hours

ENDURANCE - BEST POWER (SERIAL NOS. 32-7740001 THROUGH 32-7840202)

Figure 5-37

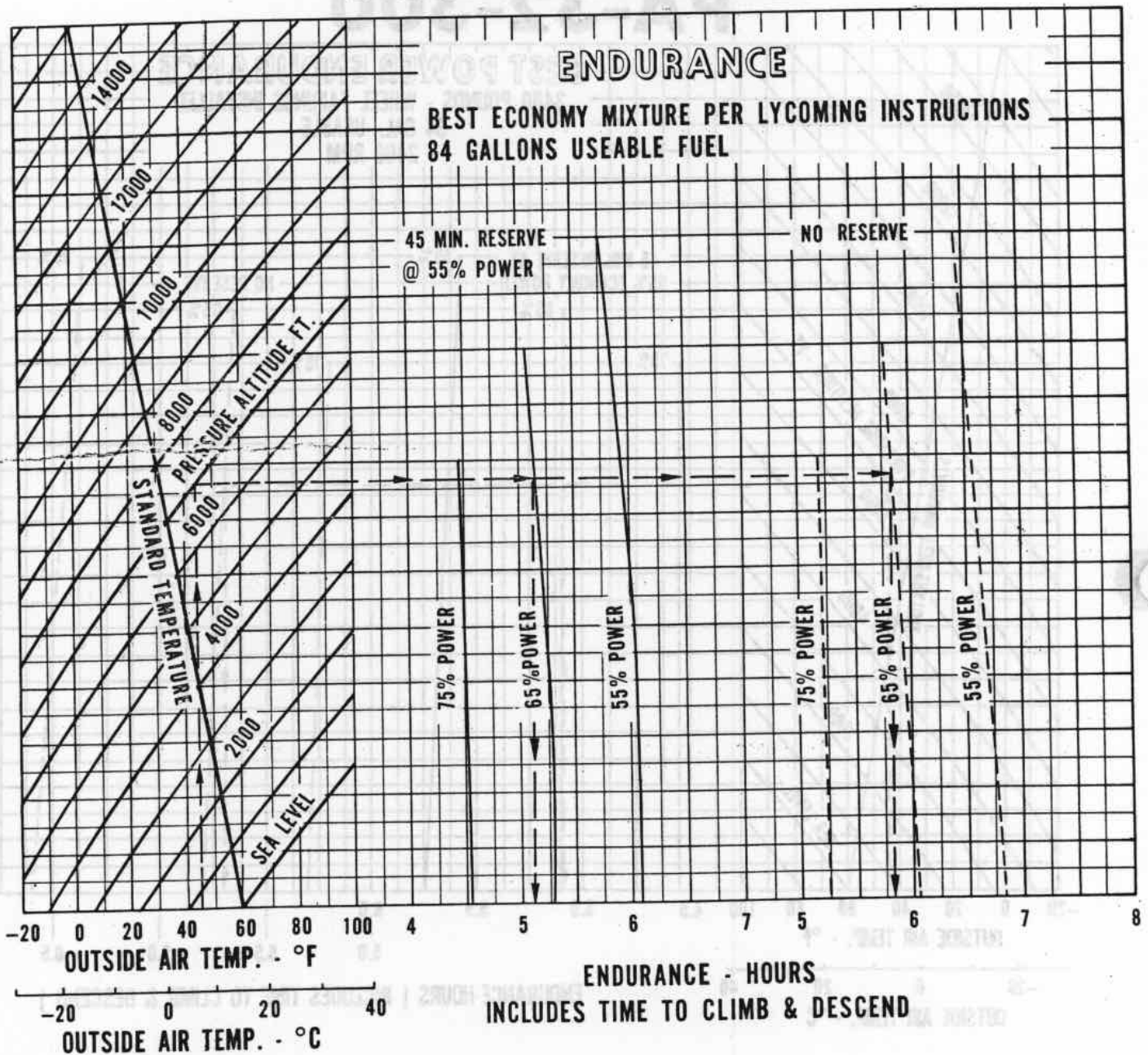
PA-32-300



ENDURANCE - BEST POWER (SERIAL NOS. 32-7940001 AND UP)

Figure 5-38

PA-32-300



Example:

Cruise pressure altitude: 7000 ft.

Cruise OAT: 45°F

Power: 65%

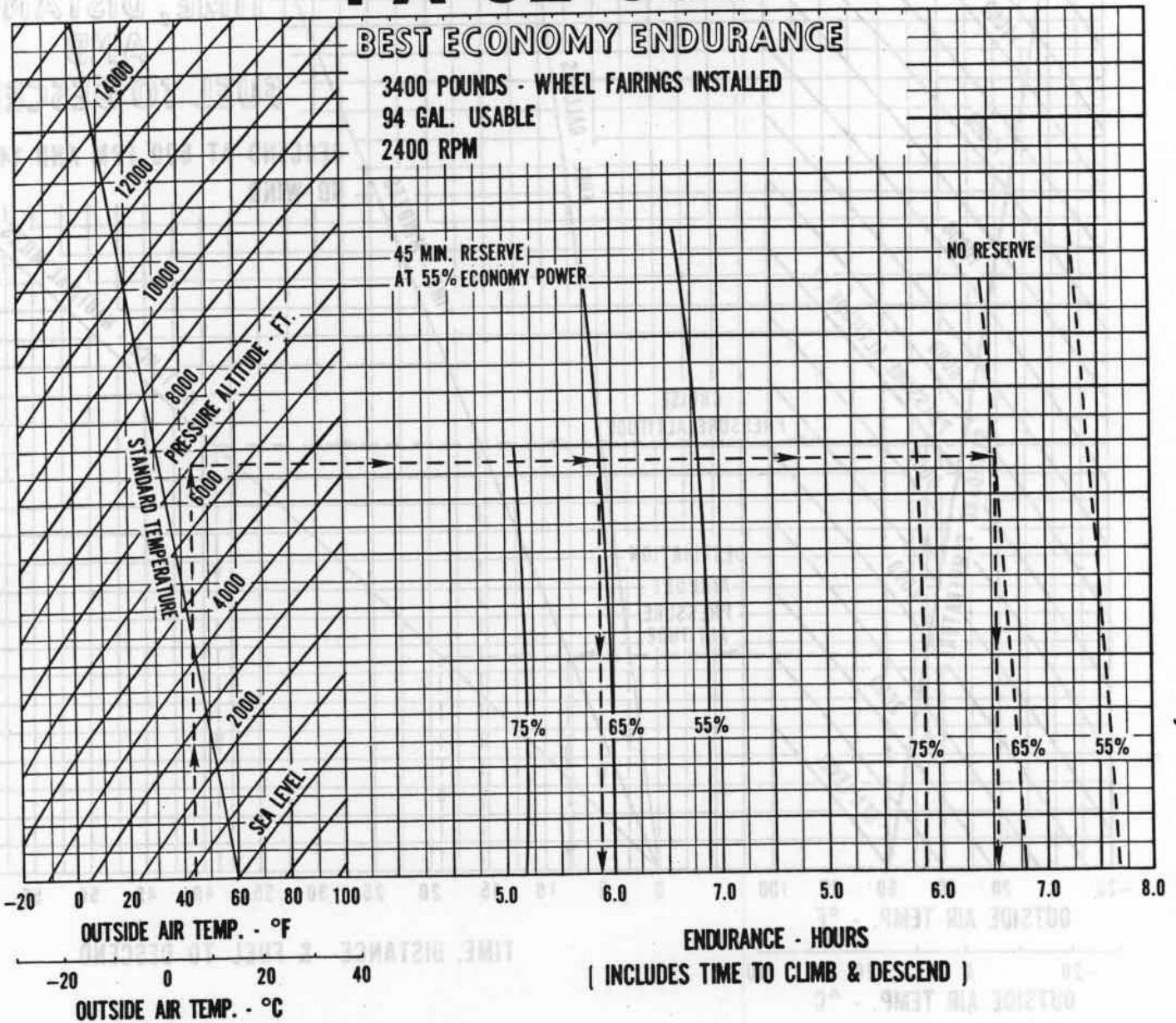
Endurance (with reserve): 5.15 hours

Endurance (no reserve): 5.80 hours

ENDURANCE - BEST ECONOMY (SER. NOS. 32-7740001 THROUGH 32-7840202)

Figure 5-39

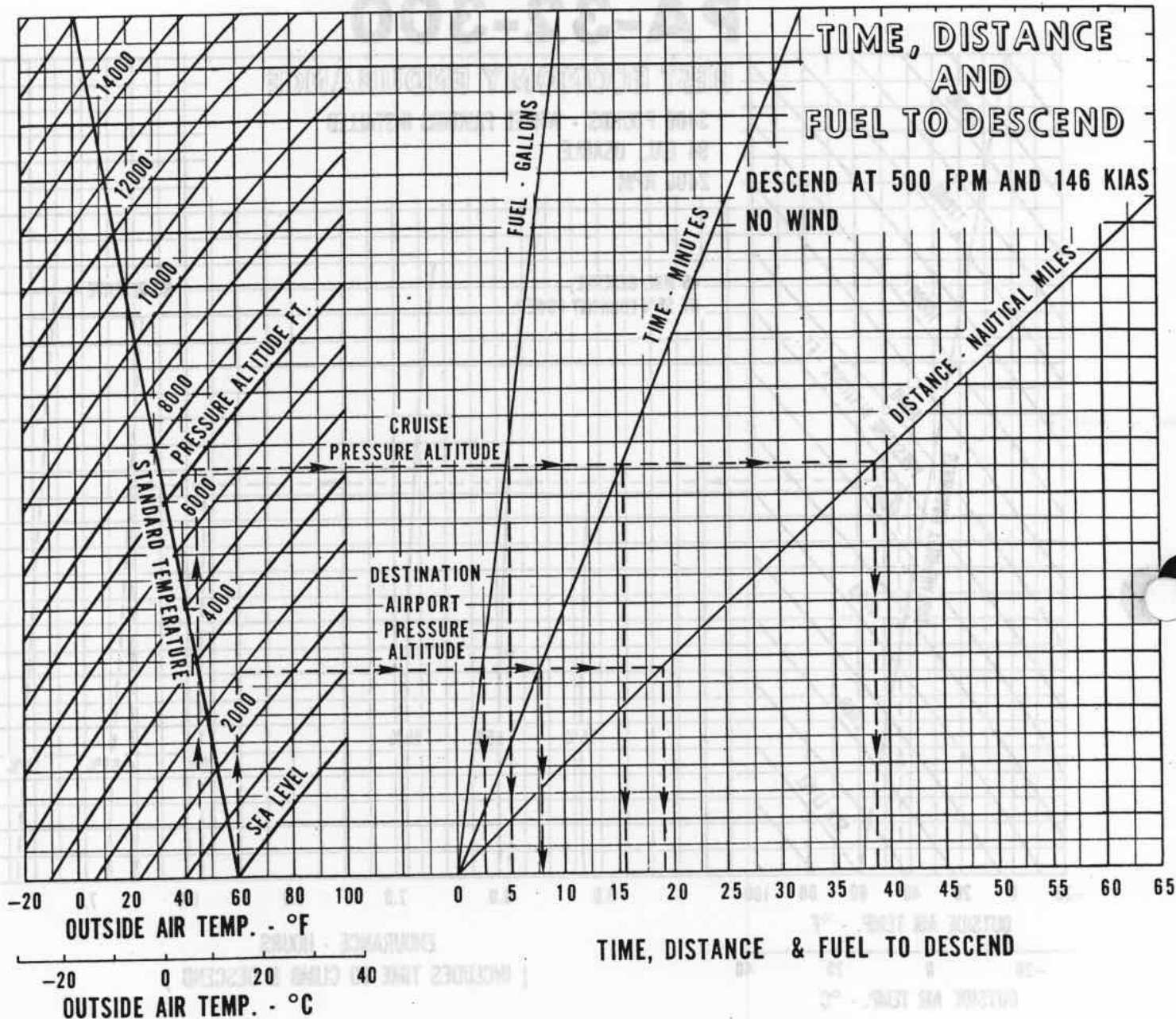
PA-32-300



ENDURANCE - BEST ECONOMY (SERIAL NOS. 32-7940001 AND UP)

Figure 5-40

PA-32-300



Example:

Cruise pressure altitude: 7000 ft.

Cruise OAT: 45°F

Destination airport pressure altitude: 3000 ft.

Destination airport temperature: 60°F

Fuel to descend: (4.5 gal. minus 2.5 gal.) = 2.0 gal.

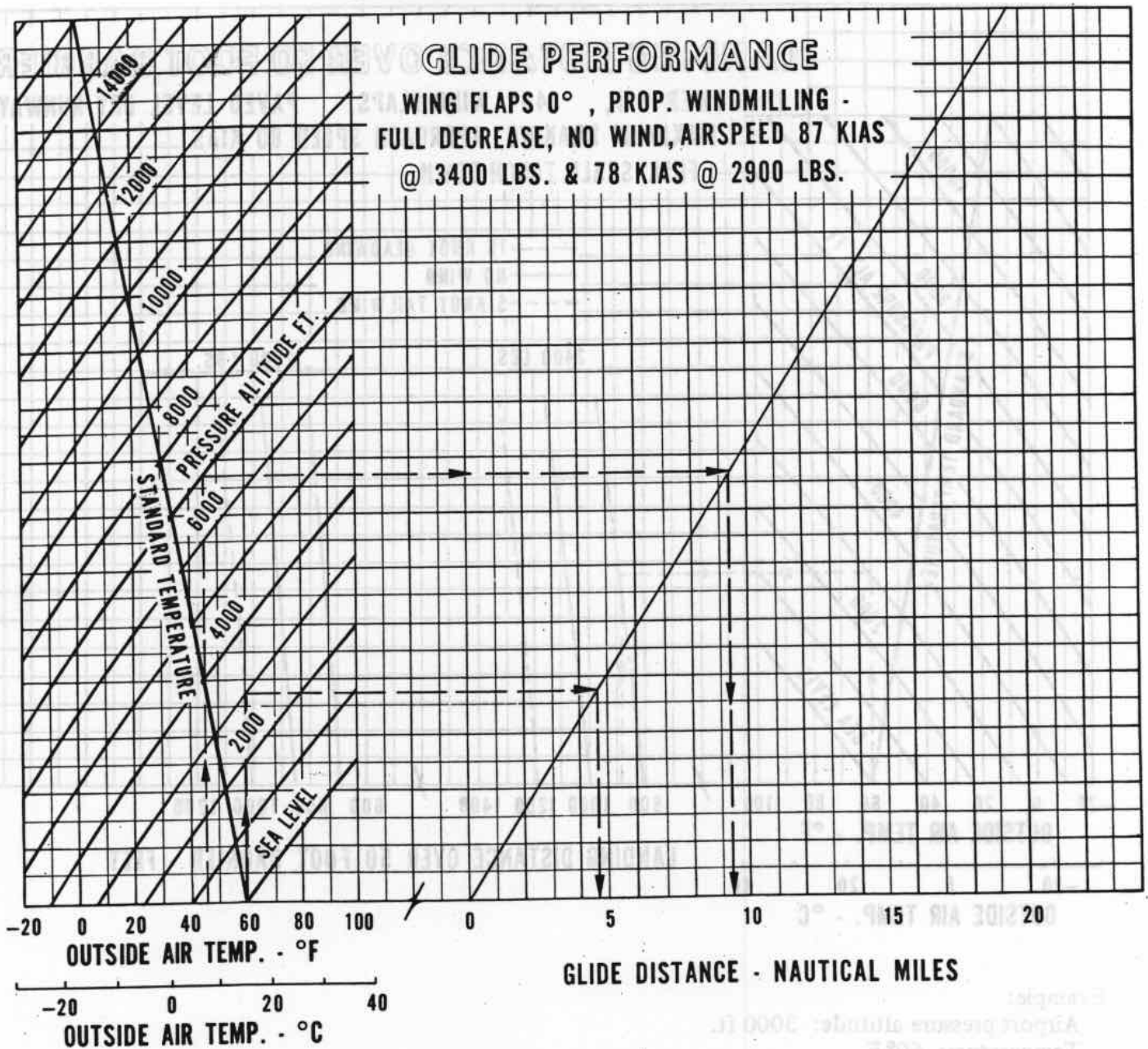
Time to descend: (15.5 min. minus 8 min.) = 7.5 min.

Distance to descend: (39 nautical miles minus 19 nautical miles) = 20 nautical miles

TIME, DISTANCE AND FUEL TO DESCEND

Figure 5-41

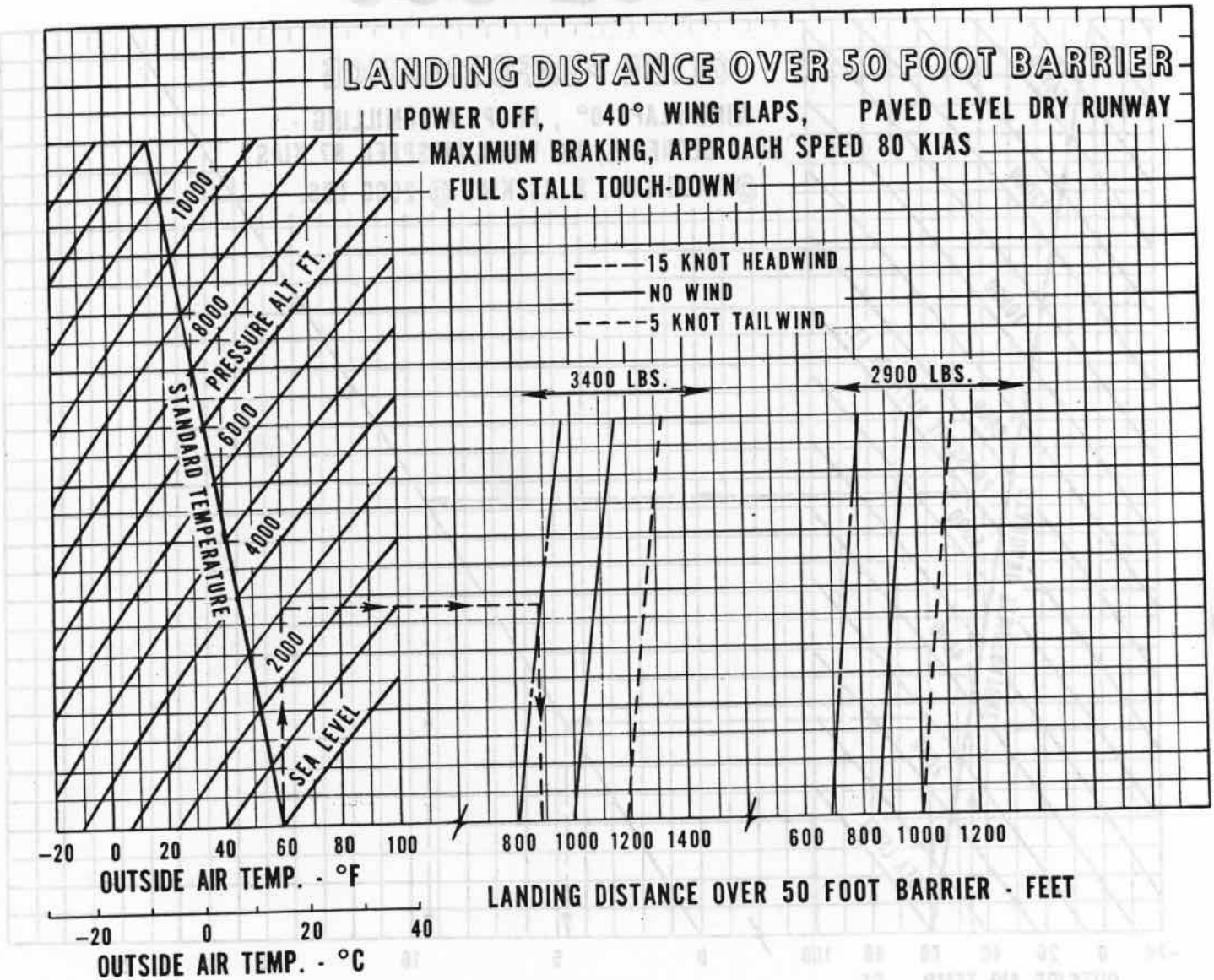
PA-32-300



GLIDE PERFORMANCE

Figure 5-43

PA-32-300



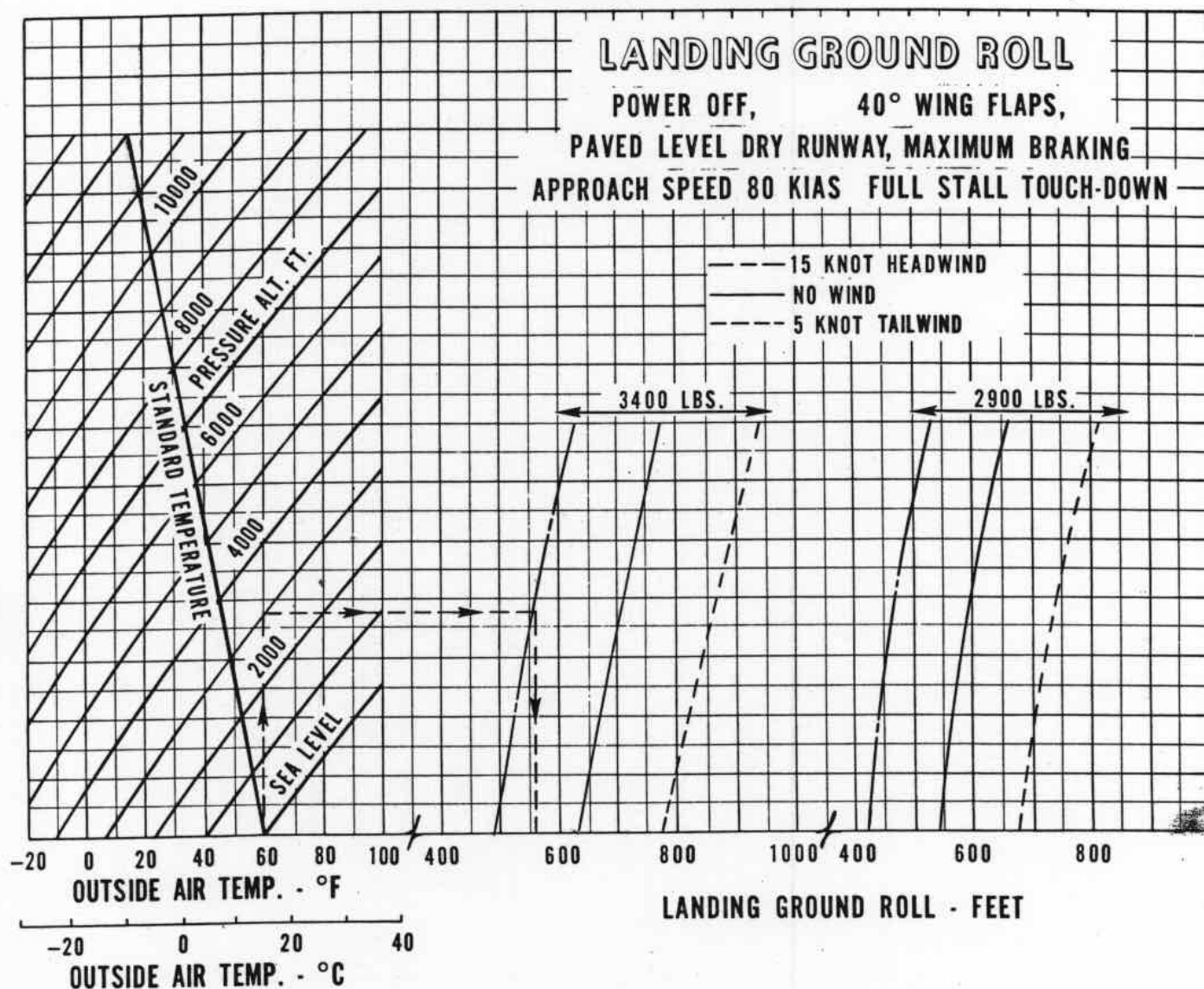
Example:

Airport pressure altitude: 3000 ft.
Temperature: 60°F
Gross weight: 3400 lbs.
Wind component: 15 knots headwind
Landing Distance over 50 ft. barrier: 840 ft.

LANDING DISTANCE OVER 50 FOOT BARRIER

Figure 5-45

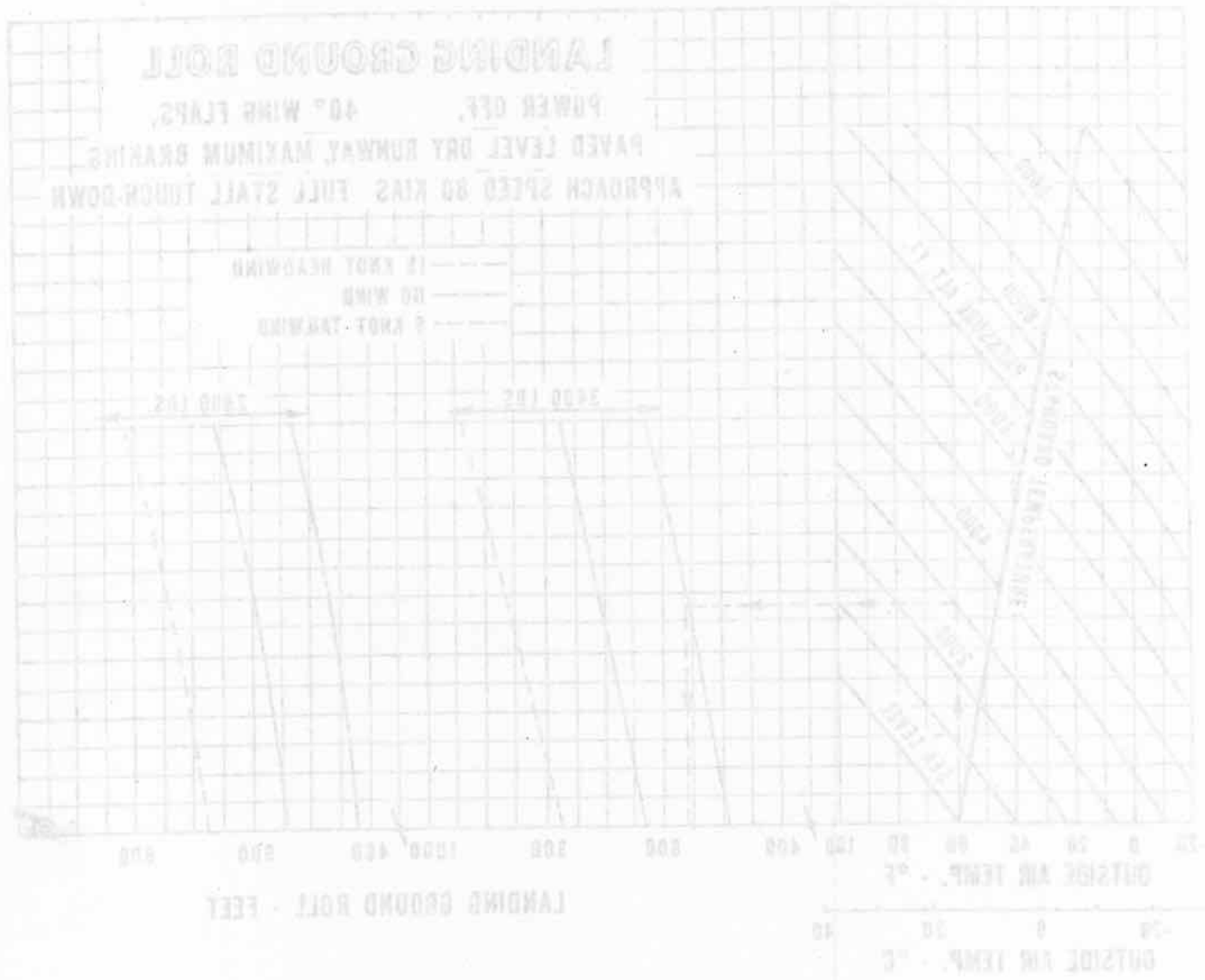
PA-32-300



LANDING GROUND ROLL

Figure 5-47

PA-32-300



Example:
Airport pressure altitude: 3000 ft.
Temperature: 60°F
Gross weight: 3400 lbs.
Wind: 12 Knot Headwind
(Ground roll: 250 ft.)

LANDING GROUND ROLL
Figure 2-47

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6-17	6.5	Equipment List
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6-19	(b)	Engine and Engine Accessories
6-21	(c)	Landing Gear and Brakes
6-22	(d)	Electrical Equipment
6-22	(e)	Instruments
6-23	(f)	Miscellaneous
6-29	(g)	Propeller and Propeller Accessories (Optional Equipment)
6-31	(h)	Engine and Engine Accessories (Optional Equipment)
6-33	(i)	Landing Gear and Brakes (Optional Equipment)
6-33	(j)	Electrical Equipment (Optional Equipment)
6-37	(k)	Instruments (Optional Equipment)
6-39	(l)	Autopilot (Optional Equipment)
6-41	(m)	Radio Equipment (Optional Equipment)
6-43	(n)	Miscellaneous (Optional Equipment)

SECTION 6

WEIGHT AND BALANCE

6.1 GENERAL

In order to achieve the performance and flying characteristics which are designed into the airplane, it must be flown with the weight and center of gravity (C.G.) position within the approved operating range (envelope). Although the airplane offers a tremendous flexibility of loading, it cannot be flown with the maximum number of adult passengers, full fuel tanks and maximum baggage. With the flexibility comes responsibility. The pilot must ensure that the airplane is loaded within the loading envelope before he makes a takeoff.

Misloading carries consequences for any aircraft. An overloaded airplane will not take off, climb or cruise as well as a properly loaded one. The heavier the airplane is loaded, the less climb performance it will have.

Center of gravity is a determining factor in flight characteristics. If the C.G. is too far forward in any airplane, it may be difficult to rotate for takeoff or landing. If the C.G. is too far aft, the airplane may rotate prematurely on takeoff or tend to pitch up during climb. Longitudinal stability will be reduced. This can lead to inadvertent stalls and even spins; and spin recovery becomes more difficult as the center of gravity moves aft of the approved limit.

A properly loaded airplane, however, will perform as intended. Before the airplane is licensed, a basic empty weight and C.G. location is computed (basic empty weight consists of the standard empty weight of the airplane plus the optional equipment). Using the basic empty weight and C.G. location, the pilot can easily determine the weight and C.G. position for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved envelope.

The basic empty weight and C.G. location are recorded in the Weight and Balance Data Form (Figure 6-7) and the Weight and Balance Record (Figure 6-9). The current values should always be used. Whenever new equipment is added or any modification work is done, the mechanic responsible for the work is required to compute a new basic empty weight and C.G. position and to write these in the Aircraft Log Book and the Weight and Balance Record. The owner should make sure that it is done.

A weight and balance calculation is necessary in determining how much fuel or baggage can be boarded so as to keep within allowable limits. Check calculations prior to adding fuel to insure against improper loading.

The following pages are forms used in weighing an airplane in production and in computing basic empty weight, C.G. position, and useful load. Note that the useful load includes usable fuel, baggage, cargo and passengers. Following this is the method for computing takeoff weight and C.G.

SECTION 6
WEIGHT AND BALANCE

6.1 GENERAL

In order to achieve the performance and flying characteristics which are designed into the airplane, it must be flown with the weight and center of gravity (C.G.) position within the approved operating range. Although the airplane offers a tremendous flexibility of loading, it cannot be flown with the maximum number of adult passengers, full fuel tanks and maximum baggage. With the flexibility comes responsibility. The pilot must ensure that the airplane is loaded within the loading envelope before he makes any flight.

Although certain consequences for any aircraft. An overloaded airplane will not take off, climb or make it with as properly loaded one. The heavier the airplane is loaded, the less climb performance it will have.

Center of gravity is a determining factor in flight characteristics. If the C.G. is too far forward in any airplane it may be difficult to rotate for takeoff or landing. If the C.G. is too far aft, the airplane may become prematurely on takeoff. In both cases, the stability will be reduced. This can lead to inadvertent stalls and even spins, and spin recovery becomes most difficult as the center of gravity moves aft of the approved limit.

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A properly loaded airplane, however, will perform as intended. Before the airplane is insured, a basic empty weight and C.G. location is computed (basic empty weight consists of the standard empty weight of the airplane plus the optional equipment). Using the basic empty weight and C.G. location, the pilot can easily determine the weight and C.G. position for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved envelope.

The basic empty weight and C.G. location are recorded in the Weight and Balance Data Form (Figure 1-7) and the Weight and Balance Record (Figure 1-8). The current values should always be used. Whenever new equipment is added or any modification work is done, the mechanic responsible for the work is required to compute a new basic empty weight and C.G. position and to write these in the Aircraft Log Book and the Weight and Balance Record. The owner should make sure that it is done.

A weight and balance calculation is necessary to determine how much fuel or baggage can be loaded so as to keep within allowable limits. Check calculations prior to adding fuel to insure against improper loading.

The following pages are forms used in weighing an airplane in production and in computing basic empty weight, C.G. position, and useful load. Note that the useful load includes usable fuel, baggage, cargo and passengers. Following this is the method for computing takeoff weight and C.G.

6.3 AIRPLANE WEIGHING PROCEDURES

At the time of licensing, Piper Aircraft Corporation provides each airplane with the basic empty weight and center of gravity location. This data is supplied by Figure 6-5.

The removal or addition of equipment or airplane modifications can affect the basic empty weight and center of gravity. The following is a weighing procedure to determine this basic empty weight and center of gravity location:

(a) Preparation

- (1) Be certain that all items checked in the airplane equipment list are installed in the proper location in the airplane.
- (2) Remove excessive dirt, grease, moisture, foreign items such as rags and tools from the airplane before weighing.
- (3) Defuel airplane. Then open all fuel drains until all remaining fuel is drained. Operate engine on each tank until all undrainable fuel is used and engine stops. Then add the unusable fuel per the following:
Serial numbers 32-7740001 through 32-7840202 - 0.4 gallons total, 0.2 gallons each wing.
Serial numbers 32-7940001 and up - 4.0 gallons total, 2.0 gallons each wing.

CAUTION

Whenever the fuel system is completely drained and fuel is replenished it will be necessary to run the engine for a minimum of 3 minutes at 1000 RPM on each tank to insure no air exists in the fuel supply lines.

- (4) Fill with oil to full capacity.
 - (5) Place pilot and copilot seats in fourth (4th) notch, aft of forward position. Put flaps in the fully retracted position and all control surfaces in the neutral position. Tow bar should be in the proper location and all entrance and baggage doors closed.
 - (6) Weigh the airplane inside a closed building to prevent errors in scale readings due to wind.
- #### (b) Leveling
- (1) With airplane on scales, block main gear oleo pistons in the fully extended position.
 - (2) Level airplane (refer to Figure 6-3) deflating nose wheel tire, to center bubble on level.

- (1) With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

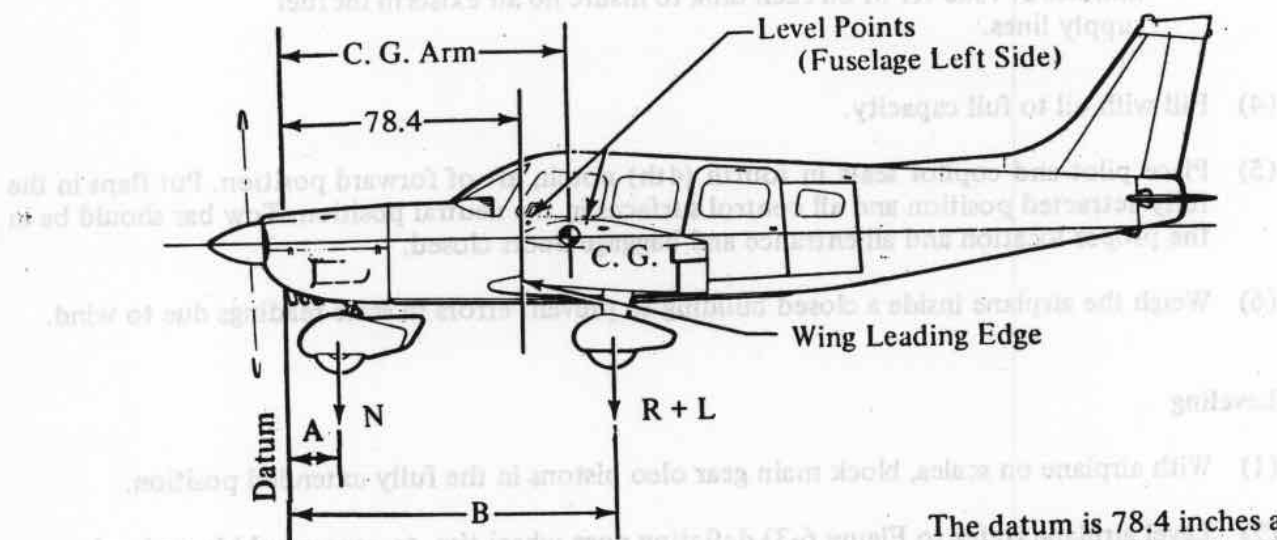
Scale Position and Symbol	Scale Reading	Tare	Net Weight
Nose Wheel (N)			
Right Main Wheel (R)			
Left Main Wheel (L)			
Airplane Empty Weight, as Weighed (T)	— —	— —	

WEIGHING FORM

Figure 6-1

(d) Basic Empty Weight Center of Gravity

- (1) The following geometry applies to the PA-32-300 airplane when it is level. Refer to Leveling paragraph 6.3 (b).



A = 16.3

The datum is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

$$A = 16.3$$
$$B = 109.7$$

LEVELING DIAGRAM

Figure 6-3

- (2) The basic empty weight center of gravity (as weighed including optional equipment, full oil and unusable fuel) can be determined by the following formula:

$$\text{C.G. Arm} = \frac{N(A) + (R+L)(B)}{T} \text{ inches}$$

$$\text{Where: } T = N + R + L$$

6.5 WEIGHT AND BALANCE DATA AND RECORD

The Basic Empty Weight, Center of Gravity Location and Useful Load listed in Figure 6-5 are for the airplane as delivered from the factory. These figures apply only to the specific airplane serial number and registration number shown.

The basic empty weight of the airplane as delivered from the factory has been entered in the Weight and Balance Record (Figure 6-7). This form is provided to present the current status of the airplane basic empty weight and a complete history of previous modifications. Any change to the permanently installed equipment or modification which affects weight or moment must be entered in the Weight and Balance Record.

- (2) The basic empty weight center of gravity (as weighed including optional equipment, full oil and unusable fuel) can be determined by the following formula:

$$\text{C.G. Arm} = \frac{N(A) + (R+L)(B)}{T} \text{ inches}$$

$$\text{Where: } T = N + R + L$$

16.3 +

6.5 WEIGHT AND BALANCE DATA AND RECORD

The Basic Empty Weight, Center of Gravity Location and Useful Load listed in Figure 6-5 are for the airplane as licensed at the factory. These figures apply only to the specific airplane serial number and registration number shown.

The basic empty weight of the airplane as licensed at the factory has been entered in the Weight and Balance Record (Figure 6-7). This form is provided to present the current status of the airplane basic empty weight and a complete history of previous modifications. Any change to the permanently installed equipment or modification which affects weight or moment must be entered in the Weight and Balance Record.

MODEL PA-32-300 CHEROKEE SIX

Airplane Serial Number 32-7940023
Registration Number N3011K
Date 12-21-78

AIRPLANE BASIC EMPTY WEIGHT

10/1/80
SUPERCEDED SEP 78

Item	Weight (Lbs)	x C.G. Arm (Inches Aft of Datum)	= Moment (In-Lbs)
Standard Empty Weight* XXXXXX Computed	1903.0	78.9	150124
Optional Equipment	235.7	110.8	26127
Basic Empty Weight	2138.7	82.4	176251

*The standard empty weight includes full oil capacity and unusable fuel per the following: (Serial numbers 32-7740001 through 32-7840202, 0.4 gallons and serial numbers 32-7940001 and up, 4.0 gallons).

AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

(Gross Weight) - (Basic Empty Weight) = Useful Load

$$(3400 \text{ lbs}) - (2138.7 \text{ lbs}) = 1261.3 \text{ lbs.}$$

~~2140.5~~ ~~1259.5~~

THIS BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN ALTERATIONS HAVE BEEN MADE.

WEIGHT AND BALANCE DATA FORM

Figure 6-5

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

MODEL PA-32-300 CHEROKEE SIX

Alphabetical Number 32-7940023
Registration Number 33011K
Date 12-21-78

AIRCRAFT BASIC EMPTY WEIGHT

Item	Weight (Lbs)	CG Arm (Inches Aft of Datum)	Moment (In-Lbs)
Basic Empty Weight	2138.7	82.4	176251
Optional Equipment	232.7	110.8	25813
Standard Empty Weight			150438

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The standard empty weight includes full oil capacity and unusable fuel per the following (Serial numbers 32-7940001 through 32-7940201, 0.4 gallons and serial numbers 32-7940001 and up, 4.0 gallons).

AIRCRAFT USEFUL LOAD - NORMAL CATEGORY OPERATION

(Gross Weight) - (Basic Empty Weight) = Useful Load

(3400 lbs) - (2138.7 lbs) = 1261.3 lbs
3260.2

THE BASIC EMPTY WEIGHT, CG, AND USEFUL LOAD ARE FOR THE AIRCRAFT AS DELIVERED FROM THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN ALTERATIONS HAVE BEEN MADE.

WEIGHT AND BALANCE DATA FORM

Figure 6-2

MODEL PA-32-300 CHEROKEE SIX

Airplane Serial Number 32-7940023
Registration Number N3011K
Date 12-21-78

AIRPLANE BASIC EMPTY WEIGHT

Item	Weight (Lbs)	x C.G. Arm (Inches Aft of Datum)	= Moment (In-Lbs)
Standard Empty Weight* Actual <u>Computed</u>	1908 <u>2140.5</u>	71.9 <u>82.4</u>	137184 <u>176251</u>
Optional Equipment	235	110.8	26127
Basic Empty Weight	<u>2138.7</u>	<u>82.4</u>	<u>176251</u>

*The standard empty weight includes full oil capacity and unusable fuel per the following: (Serial numbers 32-7740001 through 32-7840202, 0.4 gallons and serial numbers 32-7940001 and up, 4.0 gallons).

AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

(Gross Weight) - (Basic Empty Weight) = Useful Load

(3400 lbs) - (2140.5 lbs) = 1259.5 lbs.

THIS BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS LICENSED AT THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN ALTERATIONS HAVE BEEN MADE.

WEIGHT AND BALANCE DATA FORM

Figure 6-5

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

MODEL PA-32-300 CHEROKEE SIX

Aircraft Serial Number 25-7940023

Registration Number N301K

Date 12-8-78

AIRCRAFT BASIC EMPTY WEIGHT

Item	Weight (lbs)	Arm (in)	Moment (in-lbs)
Standard Empty Weight* (Composed)	2140.5	95.4	204214
Optional Equipment	110.8		12687
Basic Empty Weight	2251.3		216901

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*The standard empty weight includes full oil capacity and unusable fuel per the following (Serial numbers 32-794001 through 32-794002, 0.4 gallons and serial numbers 32-794001 and up, 4.0 gallons).

AIRCRAFT USEFUL LOAD - NORMAL CATEGORY OPERATION

(Gross Weight) - (Basic Empty Weight) = Useful Load

(2100 lbs) - (2251.3 lbs) = -151.3 lbs

THIS BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRCRAFT AS
LICENSED AT THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN
ALTERATIONS HAVE BEEN MADE.

WEIGHT AND BALANCE DATA FORM

Figure 6-2



PIPER 32 300
S/N 7940023
N3011K

VARIATIONS OF PASSENGER
SEAT CONFIGURATIONS
JUNE 10, 1992

	BASIC EMPTY WEIGHT	CG or ARM	EMPTY WIEGHT MOMENT	USEFUL LOAD
AIRCRAFT WEIGHED ALL SEATS INSTALLED	2106.0	84.3	177535.8	1294.0
SEATS 5 AND 6 REMOVED	-29.0	155.7	-4515.3	+29.0
SEATS 3 AND 4 REMOVED	-27.0	124.1	-3350.7	+27.0
AIRCRAFT CARGO CONFIGURATION	2050.0	82.8	169669.8	1350.0

MAXIMUM GROSS WEIGHT 3400.0 ALL CONFIGURATIONS

Signature

Date

Tom Meyer
7/17/93

*superseded 12-15-95
Bould Paralel*

FOR QB2R103L

Main Office
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Phone: 605 332-2596 • Fax 605 339-4778



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P.O. Box 124 • Huron, SD 57350
Phone: 605 352-9262 • Fax: 605 352-6796



CRYSTAL SHAMROCK

4000 Douglas Drive North • Minneapolis, MN 55429-2399 • 612-533-2214 • FAX 612-533-5519

SUPPLEMENTAL WEIGHT AND BALANCE EQUIPMENT LIST CONTINUATION

MAKE: Piper REGIS. NO. N3011K
MODEL: PA32-300 SERIAL NO. 32-7940023
TACH: 3196.1 DATE: 12/15/95
PREPARED BY: _____ HOBBS: 3749.5

ITEM DESCRIPTION		WEIGHT	ARM	MOMENT
Previous Weight & Balance Data Dated: <u>6/10/95</u>		2106.0	84.3	177535.8
with seats 3, 4, 5 and 6 removed		2050.0	82.8	169669.8
Removed the following equipment:				
A.	604 Loran	-3.75	58.4	-219.0
B.	A-16 Antenna	-.6	208.4	-125.04
Installed the following equipment:				
A.	AI155	.75	62.4	46.8
B.	GPS155	3.275	60.9	199.4475
C.	GA56	.25	118.4	29.6
EMPTY WEIGHT		EMPTY CG		MOMENT
ats: 2105.925		84.27		177467.61
: 2049.925		82.736		169601.6075
USEFUL LOAD		MAX GROSS		
1294.075		3400		
1350.075				

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SUBSEQUENT WEIGHT AND BALANCE EQUIPMENT LIST CONTINUATION

EQUIPMENT NO.	3188.1	EQUIPMENT TYPE	3188.1	EQUIPMENT NO.	3188.1
SERIAL NO.	3188.1	DATE	12/12/82	SERIAL NO.	3188.1
WEIGHT	3188.1	DATE	12/12/82	WEIGHT	3188.1

ITEM DESCRIPTION	WEIGHT	ARM	MOMENT
Removed the following equipment: A. 600 form B. A-18 Antenna	-3.75 -6	28.4 108.4	-112.0 -152.04
Installed the following equipment: A. A122 B. 67133 C. 67133	.75 3.175 .25	82.4 60.2 118.4	62.8 193.4432 29.6
Previous weight & balance data dated: 6/10/82 with entry 3, 4, 5 and 6 removed	2106.0 2050.0	84.3 82.8	177232.8 169689.8

NET WEIGHT	84.37	177287.61	1394.075	3400
EMPTY CG	82.756	169601.6972	1350.075	
MAX GROSS				

[illegible]

WEIGHT AND BALANCE RECORD

Figure 6.

[illegible]

WEIGHT AND BALANCE RECORD

Figure 6-7

1. What is the purpose of the experiment?
 2. What are the variables in the experiment?
 3. What is the hypothesis?
 4. What are the materials and equipment?
 5. What is the procedure?
 6. What are the results?
 7. What are the conclusions?
 8. What are the limitations of the experiment?
 9. What are the sources of error?
 10. What are the safety precautions?

WARD

WEIGHT AND BALANCE RECORD

ISSUED: AUGUST 19, 1976
REVISED: JULY 3, 1984

**PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX**

WEIGHT AND BALANCE RECORD (cont)

REPORT: VB-830
6-10

ISSUED: AUGUST 19, 1976
REVISED: JULY 3, 1984

6.7 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

- Add the weight of all items to be loaded to the basic empty weight.
- Use the Loading Graph (Figure 6-13) to determine the moment of all items to be carried in the airplane.
- Add the moment of all items to be loaded to the basic empty weight moment.
- Divide the total moment by the total weight to determine the C.G. location.
- By using the figures of item (a) and item (d) (above), locate a point on the C.G. range and weight graph (Figure 6-15). If the point falls within the C.G. envelope, the loading meets the weight and balance requirements.

	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight	2138.7	82.4	176251
Pilot and Front Passenger	340.0	85.5	29070
Passengers (Center Seats) (Forward Facing)		118.1	
Passengers (Center Seats) (Aft Facing) (Optional)		119.1	
Passengers (Rear Seats)	340.0	157.6	53584
Passenger (Jump Seat) (Optional)		118.1	
Fuel (Ser. nos. 32-7740001 through 32-7840202 - 84 Gallons Maximum)		95.0	
Fuel (Ser. nos. 32-7940001 and up - 98 Gallons Maximum) (32-7940023) 94 USEABLE	581.3	93.6	54410
Baggage (Forward)		42.0	
Baggage (Aft)		178.7	
Total Loaded Airplane	3400	92.2	313315

The center of gravity (C.G.) of this sample loading problem is at 92.2 inches aft of the datum line. Locate this point (92.2) on the C.G. range and weight graph. Since this point falls within the weight - C.G. envelope, this loading meets the weight and balance requirements.

IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

SAMPLE LOADING PROBLEM (NORMAL CATEGORY)

Figure 6-9

SECTION 6
WEIGHT AND BALANCE

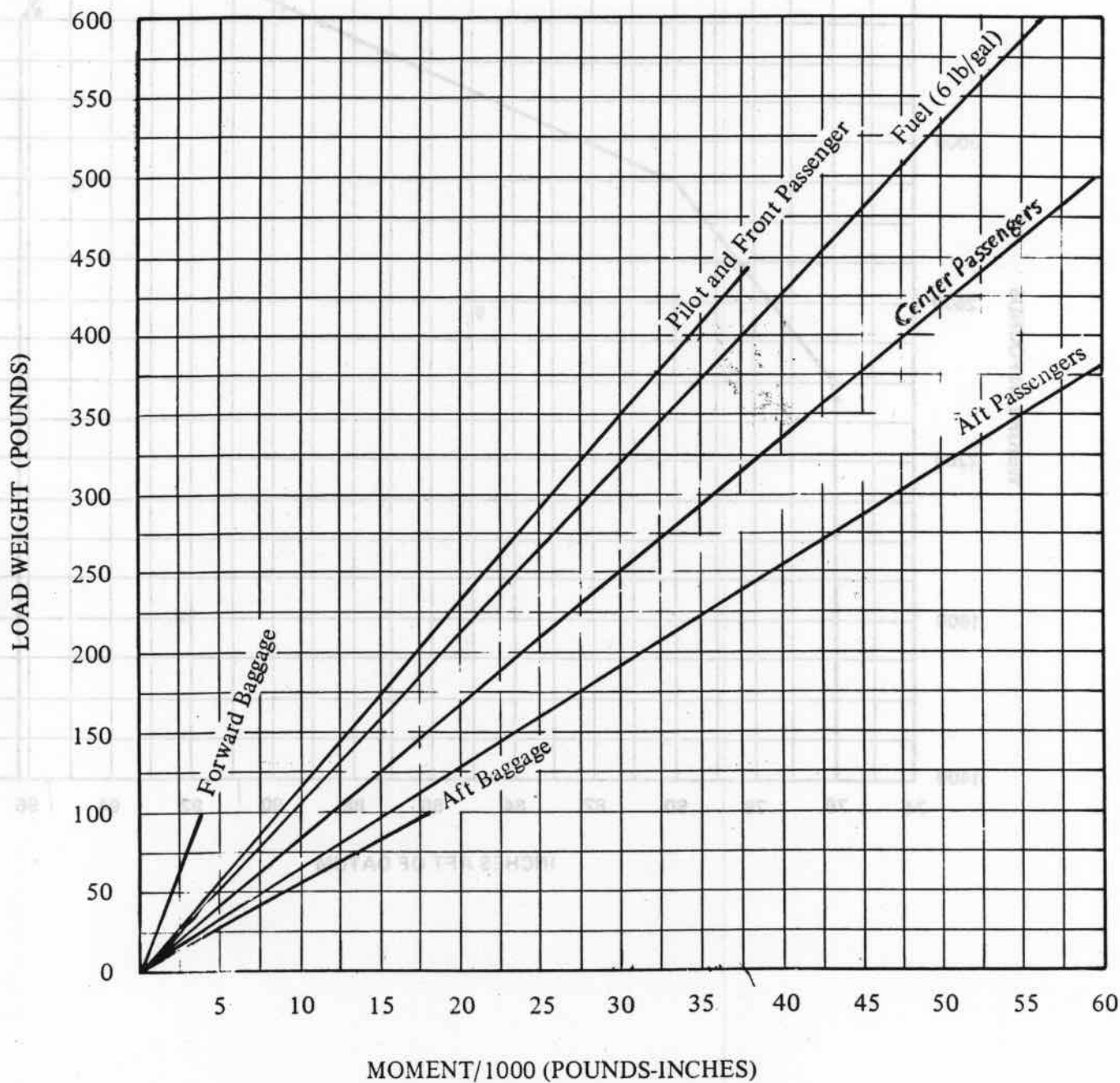
PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight	2145.6	82.7	
Pilot and Front Passenger	370.0	85.5	
Passengers (Center Seats) (Forward Facing)		118.1	
Passengers (Center Seats) (Aft Facing) (Optional)		119.1	
Passengers (Rear Seats)		157.6	
Passenger (Jump Seat) (Optional)		118.1	
Fuel (Ser. nos. 32-7740001 through 32-7840202 - 84 Gallons Maximum)		95.0	
Fuel (Ser. nos. 32-7940001 and up - 98 Gallons Maximum) <i>(32-7940023) 94 USEABLE</i>	564.0	93.6	
Baggage (Forward)		42.0	
Baggage (Aft)		178.7	
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.

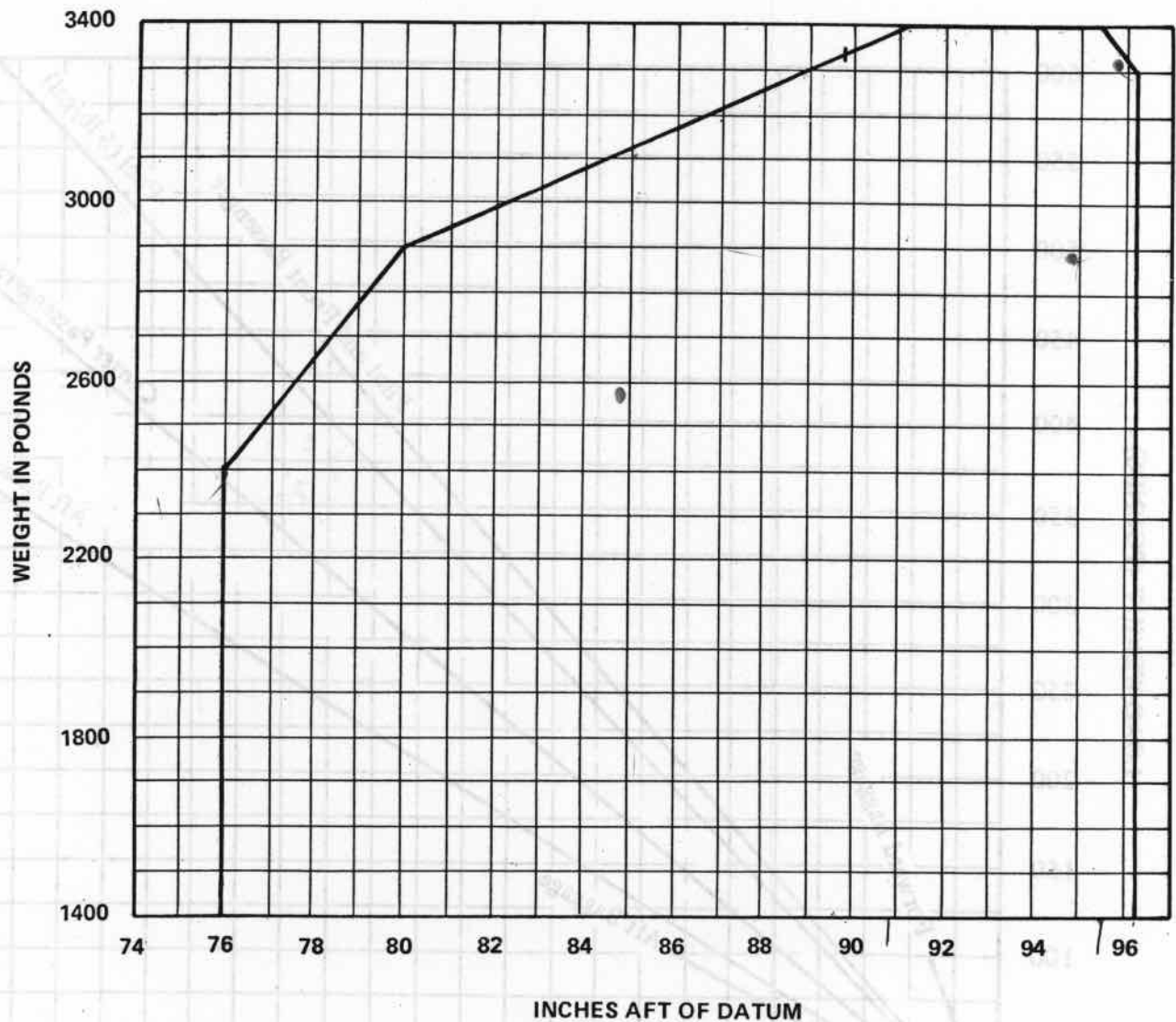
WEIGHT AND BALANCE LOADING FORM

Figure 6-11



LOADING GRAPH

Figure 6-13'



C.G. RANGE AND WEIGHT

Figure 6-15

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6.9 EQUIPMENT LIST

The following is a list of equipment which may be installed in the PA-32-300. It consists of those items used for defining the configuration of an airplane when the basic empty weight is established at the time of delivery. Only those standard items which are alternate standard items and those required to be listed by the certifying authority (FAA) are presented. Items marked with an "X" are those items which were installed on the airplane described below as delivered by the manufacturer.

Where the letter "A," "B," or "C" precedes an item; "A" denotes an item which is required equipment that must be installed in the aircraft; "B" denotes an item which is required equipment that must be installed in the aircraft unless replaced by an optional equivalent item; "C" denotes an optional item which replaces a required item of standard equipment. Where no letter precedes an item, that item is not required equipment.

Unless otherwise indicated, the installation certification basis for the equipment included in this list is the aircraft's approved type design.

PIPER AIRCRAFT CORPORATION

PA-32-300 CHEROKEE SIX

SERIAL NO. 32-7940023 REGISTRATION NO. N3011K DATE: 12-21-78

(a) Propeller and Propeller Accessories

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
1 A	Propeller, Hartzell (HC-C2YK-1()F/F8475D-4) Cert. Basis - TC P920		51.0	-12.1	-618
3	Spinner Piper Dwg. 99374-0		4.8	-13.2	-63
5 A	Propeller Governor Piper Dwg. 66634-8 (Hartzell F-4-11 ()) Cert. Basis - TC P920		4.5	-3.1	-14

EQUIPMENT LIST

The following is a list of equipment which may be installed in the PA-32-300. It consists of those items used for defining the configuration of an airplane when the basic empty weight is established at the time of delivery. Only those standard items which are otherwise standard items and those required to be listed by the manufacturer (FAA) are presented. Items marked with an "X" are those items which were installed on the airplane described below as delivered by the manufacturer.

When the letter "A", "B", or "C" precedes an item, "A" denotes an item which is required equipment that must be installed in the aircraft; "B" denotes an item which is required equipment that must be installed in the aircraft unless replaced by an optional equipment item; "C" denotes an optional item which replaces a required item of standard equipment. When no letter precedes an item, that item is not required equipment.

Unless otherwise indicated, the installation certification basis for the equipment included in this list is the aircraft's approved type design.

PA-32-300 CHEROKEE SIX

PIPER AIRCRAFT CORPORATION

SERIAL NO. 32-700023 REGISTRATION NO. N301K DATE 12-21-78

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Item	Mark	Weight (Pounds)	Arm (In.)	Moment (Lb.-In.)
1 A Propeller (Hartzell) (HC-C37K-II) (717512D-6) Car. Base - TC P930		31.0	-12.1	-018
2 Propeller Governor Spline Part Dwg 99334-0		4.8	-12.1	-03
3 A Propeller Governor Spline (Hartzell P-4-II) (717512D-6) Car. Base - TC P930		4.2	-12.1	-04

(b) Engine and Engine Accessories

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
7 A	Engine (Lycoming Model IO-540-K1G5) Cert. Basis - TC 1E4	—	468.8	11.25	5274
9 A	Engine Driven Fuel Pump (Lycoming P/N 75247) Cert. Basis - TC 1E4		*1.7	27.6	47
11 A	Electric Fuel Pump (Airborne P/N 1B5-6)		3.0	112.6	338
13 A	Fuel Valve Piper Dwg. 69735-5 (Airborne P/N 1-H65-5)		2.4	110.8	266
15 A	Oil Coolers (2) Piper Dwg. 16599-0 (Harrison P/N C-8529245) or (Niagara P/N N.D.M. 20003A)		4.2	22.5	94
17 A	Air Filter (Fram P/N CA-161PL)		1.0	16.0	16
19 B	Alternator Piper Dwg. 99945-0 a. Chrysler P/N 3656624 b. Chrysler P/N 4111810	<u>X</u>	*12.7 13.5	-2.5 -2.5	-32 -34
21 A	Starter (Lycoming P/N 76211) (Prestolite P/N MZ 4206) Cert. Basis - TC 1E4		*18.0	0.7	13
23 A	Oil Filter (Lycoming P/N 63459) Cert Basis - TC 1E4		*1.6	43.5	70

*Included in basic engine dry weight.

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

Item No.	Item Description	Weight (Pounds)	Arm (In.)	Moment (Lb.-In.)
1	Engine and Engine Accessories			
2	Engine (Lycoming Model IO-540-K102) Carb. Base - TC 154	408.8	11.25	4597.4
3	Engine Driven Fuel Pump (Lycoming P/N 73347) Carb. Base - TC 154	41.7	57.0	2376.9
4	Electric Fuel Pump (Airtex P/N 187-6)	3.0	112.6	337.8
5	Fuel Valve Piper Part 99735-2 (Airtex P/N 1-1465-2)	3.5	110.8	387.8
6	Oil Cooler (2) Piper Part 16292-0 (Harrison P/N C-82525-2) or (Harrison P/N C.M. 20003A)	4.5	22.2	99.9
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7	Air Filter (Piper P/N CA-161PL)	1.0	16.0	16.0
8	Alternator Piper Part 99455-0 a. Charger P/N 365654 b. Charger P/N 411810	13.7	-2.5	-34.25
9	Starter (Lycoming P/N 70211) (Piper P/N MX 1206) Carb. Base - TC 154	18.0	0.5	9.0
10	Oil Filter (Lycoming P/N 63429) Carb. Base - TC 154	4.6	27.2	124.32

*Included in basic empty dry weight.

(c) Landing Gear and Brakes

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
31 A	Two Main Wheel Assemblies		32.9	109.8	3612
	a. Cleveland Aircraft Products				
	Wheel Assy. No. 40-90				
	Brake Assy. No. 30-65				
	Cert. Basis - TSO C26a				
	b. 6.00-6 Type III 6 Ply Rating				
	Tires with Regular Tubes				
	Cert. Basis - TSO C62				
33 B	Nose Wheel Assembly				
	a. Cleveland Aircraft Products				
	Wheel Assy. No. 38501 or 40-76F				
	Cert. Basis - TSO C26a	_____	4.3	16.3	70
	b. McCauley Industrial Corp.				
	Wheel Assy. No. D-30625 or D-30665				
	Cert. Basis - TSO C26b	_____	5.5	16.3	90
	c. 6.00-6 Type III 4 Ply Rating				
	Tire with Regular Tube				
	Cert. Basis - TSO C62	_____	9.0	16.3	147
35 A	Handbrake Master Cylinder				
	Cleveland Aircraft Products				
	No. 10-22		0.6	60.9	37
37 A	Toe Brake Cylinders				
	a. Cleveland Aircraft Products				
	No. 10-27	_____	0.7	55.1	39
	b. Gar-Kenyon Instruments 17000	_____	0.4	55.1	22

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

Item No.	Item	Mark II (lb.)	Weight (Pounds)	Arm (In.)	Moment (lb.-in.)
11 A	Two Main Wheel Assemblies a. Cleveland Aircraft Products Wheel Assy. No. 40-90 Brake Assy. No. 30-63 Gear Base - TSO C506 b. 600-6 Type III 6 Ply Rearing Tires with Regular Tube Gear Base - TSO C503		32.9	109.8	3612
11 B	Main Wheel Assembly a. Cleveland Aircraft Products Wheel Assy. No. 38501 or 40-76F Gear Base - TSO C504 b. McCauley Industrial Corp. Wheel Assy. No. D-30622 or D-30623 Gear Base - TSO C503 c. 600-6 Type III 6 Ply Rearing Tires with Regular Tube Gear Base - TSO C501		4.3	16.3	70
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			9.0	10.3	92.7
12 A	Handmade Master Cylinder Cleveland Aircraft Products No. 10-23		0.6	60.9	37
12 A	Toe Brake Cylinder a. Cleveland Aircraft Products No. 10-23 b. Gar-Kroyon Instruments 17000		0.3	22.1	79
			0.4	22.1	22

(d) Electrical Equipment

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
41 A	Voltage Regulator Piper Dwg. 68804-3		0.5	19.4	10
43 B	Battery (Rebat S-25)	_____	21.9	41.4	907
45 A	Starter Relay Piper Dwg. 99130-2 (Rebat P/N 111-111)		1.0	32.4	33
47 A	Over Voltage Relay Piper PS50034-1 (Prestolite, Wico Div., P/N X16799)		0.5	23.0	12

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**SECTION 6
WEIGHT AND BALANCE**

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Item	Weight (Pounds)	Arm (In.)	Moment (Lb.-In.)
1. A. Voltage Regulator Piper Part 08804-3	0.2	19.4	10
2. B. Battery (Kabat B-32)	21.9	41.4	907
3. A. Starter Relay Piper Part 99130-2 (Kabat B/N 111-111)	1.0	14.4	33
4. A. Over Voltage Relay Piper P820034-1 (Pentonic, Waco Div. P/N X16799)	0.2	22.0	15

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(e) Instruments

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
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Item No.	Item Description	Weight (Pounds)	Arm (In.)	Moment (Lb-in.)
21	Altimeter Piper P25000-2 (United Instruments H15934-P or H15934-P-1) Cen. Base - TSO C105	1.1	62.8	70
22	Airspeed Indicator Piper P25004-352 (United Instruments 8012-B-280) Cen. Base - TSO C25	0.6	62.8	40
23	Altimeter & Fuel Flow Indicator Cen. Base - TSO C25 and C27 Piper P25001-7 (United Instruments 6002-H-36 or 6331-H-36) Piper P2500 H-92 (United Instruments 6331-H-92)	1.2	66.1	80
24	Compass Piper Dwg. 67402-6 (Airbus P/N C-2200-14-B) Cen. Base - TSO C25	0.9	64.2	58
25	Tabometer Piper Dwg. 62177-2 (A/C 5411-022) or Piper Dwg. 62177-3 (Stewart Warner 521-WEN)	0.7	66.7	47
26	Left Engine Cluster Piper Dwg. 93241-20	0.8	67.4	54
27	Right Engine Cluster Piper Dwg. 93211-12 or -32	0.8	67.4	54

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(f) Miscellaneous

Item No.		Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
85	B	Left Front Seat Piper Dwg. 79337-19	_____	15.5	93.0	1442
87		Right Front Seat Piper Dwg. 79337-20		15.5	93.0	1442
89		Left Middle Seat Piper Dwg. 96827-24		13.5	124.1	1676
91		Right Middle Seat Piper Dwg. 96827-25		13.5	124.1	1676
93		Left Rear Seat Piper Dwg. 79479-2		14.5	155.7	2258
95		Right Rear Seat Piper Dwg. 79479-3		14.5	155.7	2258
97	A	Front Seat Belts (2) Piper PS50039-4-2A (American Safety Eqpt. Corp. 449965 Black) Cert. Basis - TSO C22f		1.8	86.9	156
99	A	Center Seat Belts (2) Piper PS50039-4-3A (American Safety Eqpt. Corp. 500577 Black) Cert. Basis - TSO C22f		1.6	123.0	197
101	A	Aft Seat Belts (2) Piper PS50039-4-4A (American Safety Eqpt. Corp. 500576 Black) Cert. Basis - TSO C22f		1.6	163.0	261

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(f) Miscellaneous (cont)

Item No.	Item	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
103 A	Shoulder Harness (2) (Front Seats Only) Piper PS50039-4-21 (Pacific Scientific 1107447-05 Black)	1.4	120.1	169
105 A	Baggage Straps Piper Dwg. 66804-0 and 66805-0	1.3	177.0	230
107	Tow Bar Piper Dwg. 69975-2	2.3	193.9	452

(g) Propeller and Propeller Accessories
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
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WEIGHT AND BALANCE

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(h) Engine and Engine Accessories
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
111	Vacuum Pump				
	a. Piper Dwg. 26749-3 (Airborne P/N 200CC)	_____	3.6	27.4	99
	b. Piper Dwg. 79399-0 (Airborne P/N 211CC)	_____ x _____	1.8	27.4	50
	c. Piper Dwg. 36535-02 (Edo-Aire P/N 1U128A)	_____	2.2	27.4	60
113	Exhaust Gas Temperature Gauge Installation Piper Dwg. 69185-3, Alcor Indicator P/N 202A-7A or P/N 202B-7A Probe Model "A" Lead Assembly 90.00	_____ x _____	0.7	60.4	42

**SECTION 6
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Item	Weight (Pounds)	Arm (In.)	Moment (lb-in.)
Empty Weight	1,100	37.4	41,140
Oil (15 qt.)	15	37.4	561
Unusable Fuel	15	37.4	561
Basic Operating Weight	1,130	37.4	42,262
Max. Payload	1,100	37.4	41,140
Max. Ramp Weight	2,230	37.4	83,402
Max. Taxi Weight	2,230	37.4	83,402
Max. Landing Weight	2,230	37.4	83,402
Max. Ramp Weight	2,230	37.4	83,402
Max. Taxi Weight	2,230	37.4	83,402
Max. Landing Weight	2,230	37.4	83,402

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(i) Landing Gear and Brakes
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
121 C	Nose Wheel Assembly a. Cleveland Aircraft Products Wheel Assy. No. 38501 Cert. Basis - TSO C26a b. 6.00-6 Type III 6 Ply Rating Tire with Regular Tube Cert. Basis - TSO C62	_____	*0.3	16.3	5
123	Nose Wheel Fairing Piper Dwg. 76416	_____	3.6	23.1	83
125	Main Wheel Fairings (2) Piper Dwg. 65237	_____	7.6	113.6	863
127	Nose Wheel Fairing Piper Dwg. 37896-5	_____	10.3	23.1	238
128	Main Wheel Fairings (2) Piper Dwg. 37885-2, -3	_____	20.6	113.6	2340
129	Nose Wheel Fairing Piper Dwg. 35944-12	<u>X</u>	7.0	23.1	162
130	Main Wheel Fairings (2) Piper Dwg. 79893-2, -3	<u>X</u>	17.0	113.6	1931

*Weight and moment difference between standard and optional equipment.

**SECTION 6
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**PIPER AIRCRAFT CORPORATION
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Item No.	Item	Mark if Installed	Weight (Pounds)	Arm (In.)	Moment (Lb.-In.)
121 C	Nose Wheel Assembly as Cleveland Aircraft Products Wheel Assy. No. 36501 Cot. Bush - TSO C-104 a. 1000-1 Type III-6 Ply Rating The with Regular Tube Cot. Bush - TSO C-104	_____	10.3	16.3	168
122	Nose Wheel Fairing Piper Part 35412	_____	3.6	23.1	83
123	Main Wheel Fairing (2) Piper Part 65237	_____	7.6	110.6	863
124	Nose Wheel Fairing Piper Part 35412	_____	10.3	23.1	238
125	Main Wheel Fairing (2) Piper Part 35412-2	_____	20.8	113.6	240
126	Nose Wheel Fairing Piper Part 35412-12	X	7.0	23.1	162
127	Main Wheel Fairing (2) Piper Part 35412-3	X	17.0	113.6	1931

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*Weight and moment differ between standard and optional equipment.

(j) Electrical Equipment
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
		X			
131	Instrument Panel Lights	_____	0.3	67.8	20
		X			
133	Instrument Lights (2) Grimes 15-0083-7	_____	0.2	99.0	20
135	Reading Lights				
	a. (2) Grimes #10-0154-1	_____	0.5	149.3	75
	b. (2) Grimes #10-0154-1	_____	0.5	115.0	58
	c. (4) Grimes #10-0644-1	_____ X	0.6	133.3	80
137	Forward Baggage Light Piper Dwg. 68697	_____ X	0.2	43.5	9
139	Landing Light Piper PS10008-4509 (G.E. Model 4509)	_____ X	0.5	-2.6	-1
141	Navigation Lights (Wing) (2) Grimes Model A1285 (Red and Green)	_____	0.4	106.6	43
		X			
143	Navigation Light (Rear) (1) Grimes Model A2064 (White)	_____	0.2	311.7	62
145	Rotating Beacon Piper Dwg. 79850-17	_____	1.5	290.3	435
147	Anti-Collision Lights (Fin Tip Only) Piper Dwg. 99033-2	_____	3.1	241.6	749
		X			
149	Anti-Collision Lights (Wing and Fin Tips) Piper Dwg. 99033-7	_____	6.3	197.8	1246

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
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**(j) Electrical Equipment
(Optional Equipment) (cont)**

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
151	Heated Pitot Head Piper Dwg. 65797-5	X	0.4	100.0	40
153	Piper Pitch Trim Piper Dwg. 69378		4.4	191.5	843
155	Battery 12V 35 A.H. Rebat R35 (Wt. 28.4 lbs.)	X	*6.5	41.4	269
157	Auxiliary Power Receptacle Piper Dwg. 68815	X	2.6	48.4	126
159	External Power Cable Piper Dwg. 62355-2		4.3	42.0	181
161	Lighter #200462, 12 Volt Universal	X	.2	67.9	14

*Weight and moment difference between standard and optional equipment.

(k) Instruments
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
167	Attitude Gyro				
	a. Piper Dwg. 99002-3 (Edo-Aire P/N 5000B-9)	_____	1.9	64.4	122
	b. Piper Dwg. 99002-2 or -8 (Aeritalia S.P.A. P/N 36101P)	_____	2.2	64.4	142
	Cert. Basis - TSO C4c				
169	Directional Gyro				
	a. Piper Dwg. 99003-2 or -3 (Edo-Aire P/N 4000B-9)	_____	2.4	64.7	156
	b. Piper Dwg. 99003-4 (Aviation Inst. Mfg. Corp. P/N 200-5)	_____	2.8	64.7	181
	c. Piper Dwg. 99003-7 (Aeritalia S.P.A. P/N 31101P)	_____	1.9	64.7	123
	Cert. Basis - TSO C5c				
171	Horizontal Situation Indicator (HSI) (Mitchell P/N NSD-360A) Cert. Basis - TSO C6c, C9c, C52c	<u>X</u>	4.6	64.9	299
173 C	Tru-Speed Indicator Piper PS50049-35T (United Instruments P/N 81 25-B.275) Cert. Basis - TSO C2b	<u>X</u>	(Same as standard equipment)		

SECTION 6
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PIPER AIRCRAFT CORPORATION
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(k) Instruments
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
175 C	Altimeter Piper PS50008-3 (United Instruments P/N UI5934-PM or P/N UI5934PM-1) or Piper PS50008-4 (United Instruments P/N UI5934-PA or P/N UI5934PA-1) or Piper PS50008-5 (United Instruments P/N 5934-PAM-1) Cert. Basis - TSO C10b	X	(Same as standard equipment)		
177 C	Encoding Altimeter Piper PS50008-6 (United Instruments P/N UI5035P-P23) or Piper PS50008-7 (United Instruments P/N UI5035PM-P24) Cert. Basis - TSO C10b and C88		*0.7	65.3	46
179	Altitude Reporter (Narco AR-500) Piper Dwg. 69875-3 Cert. Basis - TSO C88	X	1.0	56.2	57
180	Altitude Digitizer (United Instruments P/N 5125-P3) Cert. Basis - TSO C88		1.0	56.2	56
181	Rate of Climb a. Piper Dwg. 99010-3 (Standard Precision Co. P/N SP-1403(1)-PIP)		0.5	67.2	34
	b. Piper Dwg. 99010-4 or -5 (United Instruments P/N UI-7000) Cert. Basis - TSO C8b	X	0.7	65.9	47

*Weight and moment difference between standard and optional equipment.

(k) Instruments
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
183	Alternate Static Source Installation Piper Dwg. 67479-2	☒	0.4	66.0	26
185	Turn and Slip Indicator a. Piper PS50030-2 (R. C. Allen P/N A2475-2)	☐	2.9	64.7	188
	b. Piper PS50030-2 (Electric Gyro Corp. P/N 1234T100-5(P))	☐	1.1	64.7	72
	c. Piper PS50030-2 (Electric Gyro Corp. P/N 1234T100-5(PTE) Cert. Basis - TSO C3b	☐	1.1	64.7	72
187	Turn Coordinator a. Piper PS50030-3 (R. C. Allen P/N RCA 80A-9)	☐	2.9	64.7	188
	b. Piper PS50030-3 (Electric Gyro Corp. P/N 1394T100-3(5P))	☐	1.1	64.7	72
	c. Piper PS50030-3 (Brittain (AIM) P/N 600-009-900)	☐	2.1	64.7	136
	d. Piper PS50030-3 (Electric Gyro Corp. P/N 1394T100-3(5PE) Cert. Basis - TSO C3b	☒	1.1	64.7	72
189	MK 10 Radar Altimeter Piper Dwg. 37693-2 or -8	☐	5.4	181.3	979
191	Engine Hour Meter Piper Dwg. 69889-0	☒	0.3	66.2	20

SECTION 6
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(k) Instruments
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
193	Clock Piper Dwg. 69920-3 or Piper Dwg. 99478-0 (Wakman P/N AN5743-L2) or (Aircraft Instruments and Dev. Inc. 1G10-1)	☒	0.4	67.4	27
195	Outside Air Temperature Gauge Piper Dwg. 79316-0 (Dresser Industries P/N NHM-70)	☒	0.2	77.6	16
197	Gyro Suction Gauge Piper Dwg. 99480-0 (Airborne P/N 1G10-1) or (AN Std. P/N AN577-11)	☒	0.5	67.2	34
199	Vacuum Regulator (Airborne P/N 2H3-19)	☒	0.6	53.2	32
201	Vacuum Filter Piper Dwg. 66673-0 (Airborne P/N 1J7-1)	☒	0.3	53.5	16

(I) Autopilots
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
207	AutoFlite II Cert. Basis - STC SA1157SW	_____	6.6	93.9	620
209	AutoControl IIIB	_____	7.4	88.5	655
	a. Directional Gyro #52D54	_____	3.1	64.0	198
	b. Omni Coupler IC-388	_____	0.9	64.3	58
	Cert. Basis - STC SA1406SW				
211	AltiMatic IIIC	_____	22.8	103.3	2355
	a. Directional Gyro #52D54	_____	3.1	64.9	201
	b. Omni Coupler IC-388	_____	0.9	64.3	58
	c. GS Coupler IC-493	_____	1.5	56.7	85
	Cert. Basis - STC SA3011SW				
213	Altimatic IIIC	_____X	21.3	103.3	2200
	a. Directional Gyro #52D54	_____	3.1	64.9	201
	b. Omni Coupler IC-388	_____X	0.9	64.3	58
	c. GS Coupler IC-493	_____X	1.5	56.7	85
	Cert. Basis - STC SA 3305SW/D				

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX**

Item No.	Item	Mark if Installed	Weight (Pounds)	Arm (In.)	Moment (lb.-in.)	(Optional Equipment)	(Optional Equipment)
307	Altitude H	_____	6.6	97.9	650		
308	Auto Control IIIH	_____	3.4	98.2	333		
	a. Directional Gyro #32D34	_____	3.1	64.0	198		
	b. Gunn Coupler IC-388	_____	0.9	64.7	58		
309	Altitude HIC	_____	22.8	100.3	2282		
	a. Directional Gyro #32D34	_____	3.1	64.9	201		
	b. Gunn Coupler IC-388	_____	0.9	64.3	58		
	c. GS Coupler IC-493	_____	1.3	60.7	78		
310	Altitude HIC	_____	21.3	102.3	2130		
	a. Directional Gyro #32D34	_____	3.1	64.9	201		
	b. Gunn Coupler IC-388	_____	0.9	64.3	58		
	c. GS Coupler IC-493	_____	1.3	60.7	78		

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(m) Radio Equipment
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
219	Collins VHF-250 or VHF-251 Comm Transceiver				
	a. Single	<u> </u> X	4.0	61.9	248
	b. Dual	<u> </u>	8.1	61.9	502
	Cert. Basis - TSO C37b, C38b				
221	Collins VIR-350 or VIR-351 Nav Receiver				
	a. Single	<u> </u>	3.9	62.4	243
	b. Dual	<u> </u> X	7.9	62.4	493
	Cert. Basis - TSO C40a, C36c				
223	Collins IND-350 VOR/LOC Indicator	X			
	a. Single	<u> </u>	1.0	65.2	65
	b. Dual	<u> </u>	2.0	65.2	130
	Cert. Basis - TSO C40a, C36c				
225	Collins IND-351 VOR/LOC/ GS Indicator				
	Cert. Basis - TSO C40a, C36c	<u> </u>	1.3	65.2	85
227	Collins GLS-350 Glide Slope Receiver	X			
	Cert. Basis - TSO C34c	<u> </u>	2.0	41.6	83
228	Collins DCE 400 Distance Computing Equipment				
	Cert. Basis - TSO C40a	<u> </u>	2.1	63.9	134
229	Collins RCR-650 ADF Receiver and Antenna and IND-650 Indicator	X			
	Cert. Basis - TSO C41c	<u> </u>	7.7	122.1	941
231	Collins AMR-350 Audio Marker Panel				
	Cert. Basis - TSO C35d, C50b	<u> </u> X	*3.3	123.9	409

*Weight includes antenna and cable.

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

(m) Radio Equipment
(Optional Equipment)

Item No.	Item	Weight (Pounds)	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb.-In.)
233	Collins TDR-950 Transponder Cert. Basis - TSO C74c	2.8	X	2.8	62.4	175
234	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
235	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
236	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
237	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
238	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
239	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
240	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
241	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
242	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
243	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
244	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
245	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
246	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
247	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
248	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
249	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		
250	Collins TDR-950 VOR/LOC Indicator	1.0		1.0		

*Weight includes antenna and cable.

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb.-In.)
239	King KX 170() VHF Comm/Nav				
	Transceiver, Single	_____	7.3	61.6	450
	Transceiver, Dual	_____	15.0	61.6	924
241	King KX 175() VHF Transceiver,	_____	11.4	61.6	703
	King KN 72 VOR/LOC Converter,	_____	2.8	38.7	108
	King KN 73 Glide Slope Receiver,	_____	2.8	39.9	111
	King KN 75 Glide Slope Receiver,	_____	2.0	39.5	79
	King KN 77 VOR/LOC Converter,	_____	3.1	38.7	120
	King KI 204 VOR/ILS Indicator,	_____	1.7	65.5	111
	King KNI 520 VOR/ILS Indicator	_____	1.7	65.5	111
	Cert. Basis - TSO C3bc, C37b, C38b, C40a	_____			
243	King KX 175() VHF Transceiver (2nd),	_____	10.0	61.6	616
	King KN 72 VOR/LOC Converter,	_____	2.8	38.7	108
	King KN 77 VOR/LOC Converter,	_____	3.5	38.7	135
	King KI 203 VOR/LOC Indicator	_____	1.7	65.5	111
	King KNI 520 VOR/ILS Indicator	_____	1.7	65.5	111
	Cert. Basis - TSO C36c, C37b, C38b, C40a	_____			
245	King KI 201() VOR/LOC Indicator				
	a. Single	_____	2.4	64.9	156
	b. Dual	_____	5.0	64.9	325
247	King KI 208 VOR LOC Indicator				
	a. Single	_____	1.0	64.9	65
	b. Dual	_____	2.0	64.9	130

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
249	King KI 209 VOR/LOC/GS Indicator Cert. Basis - TSO C34c, C36c, C40a	_____	1.2	64.9	78
251	King KI 213 VOR/LOC/GS Indicator	_____	2.5	64.9	162
253	King KI 214() VOR/LOC/GS Indicator	_____	2.9	64.9	189
255	King KN 74 R-Nav	_____	4.7	61.3	288
257	King KI 206 R-Nav Indicator	_____	1.3	61.6	80
259	King KN 61 DME Cert. Basis - TSO C66a	_____	13.3	189.5	2520
261	King KN 65A DME Cert. Basis - TSO C66a	_____	13.8	185.4	2559
263	King KR 85 Digital ADF a. Audio Amplifier Cert. Basis - TSO C41b	_____ _____	8.6 0.8	96.6 54.1	831 43
265	King KR 86 ADF a. First b. Second c. Audio Amplifier	_____ _____ _____	6.7 9.7 0.8	104.8 108.9 54.1	702 1057 43
267	King KMA 20() Audio Panel Cert. Basis - TSO C35c, C50b	_____	*3.7	74.9	277
269	King KT 76()/78() Transponder Cert. Basis - TSO C74b	_____	*3.1	63.1	196

*Weight includes antenna and cable.

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb.-In.)
275	Narco Comm 10A VHF Transceiver	_____	3.9	62.4	243
277	Narco Comm 11A VHF Transceiver	_____	3.6	62.4	225
	a. Single	_____	7.1	62.4	443
279	Narco Comm 11B VHF Transceiver	_____	3.9	62.4	243
	a. Single	_____	7.8	62.4	487
281	Narco Comm 111 VHF Transceiver	_____	4.0	62.4	250
	a. Single	_____	8.0	62.4	500
	b. Dual	_____			
	Cert. Basis - TSO C37b, C38b	_____			
283	Narco Comm 111B VHF Transceiver	_____	3.9	62.4	243
	a. Single	_____	7.8	62.4	487
	b. Dual	_____			
	Cert. Basis - TSO C37b, C38b	_____			
285	Narco Comm 120 VHF Transceiver	_____	4.8	61.9	297
	a. Single	_____	8.6	62.4	537
	b. Dual	_____			
	Cert. Basis - TSO C37b, C38b	_____			
287	Narco Nav 10 VHF Receiver	_____	1.9	63.6	121
289	Narco Nav 11 VHF Receiver	_____	2.8	63.6	178
	a. Single	_____	5.6	63.6	356
	b. Dual	_____			

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
291	Narco Nav 12 VHF Receiver	_____	3.4	63.6	216
293	Narco Nav 14 VHF Receiver	_____	2.5	62.4	156
295	Narco Nav 111 Cert. Basis - TSO C36c, C40a, C66a	_____	2.5	63.6	159
297	Narco Nav 112 Receiver Cert. Basis - TSO C36c, C40a, C66c, C34c	_____	3.3	63.6	210
299	Narco Nav 114 VHF Receiver Cert. Basis - TSO C38b, C40a, C36c, C34c, C66a	_____	2.5	62.4	156
301	Narco Nav 121 VHF Receiver a. Single b. Dual Cert. Basis - TSO C36c, C40c, C66a	_____ _____ _____	3.1 6.2	63.5 63.4	197 393
303	Narco Nav 122 VHF Receiver a. Single b. Dual Cert. Basis - TSO C35d, C36c, C40c, C66a	_____ _____ _____	*5.3 *8.8	105.7 87.5	560 770
305	Narco Nav 122A VHF Receiver a. Single b. Dual Cert. Basis - TSO C34c, C35d, C36c, C40c, C66a	_____ _____ _____	*5.4 *9.0	104.6 86.8	565 781
307	Narco Nav 124A VHF Receiver a. Single b. Dual Cert. Basis - TSO C35d, C36c, C40a, C66a	_____ _____ _____	*6.4 *11.1	100.3 84.2	642 935

*Weight includes marker antenna and cable.

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb.-In.)
309	Narco Nav 124R VHF Receiver Cert. Basis - TSO C36c, C40a, C66a	_____	4.4	62.4	275
311	Narco ID 124 VOR/LOC/GS Indicator	_____	1.2	65.5	79
	a. Single	_____	2.4	65.5	157
	b. Dual	_____			
	Cert. Basis - TSO C34c, C35d, C36c, C40c	_____			
313	Narco OC-110 Converter and Mount	_____	2.1	231.5	486
	Cert. Basis - TSO C36c, C40a	_____			
315	Narco UGR-2A Glide Slope	_____	3.0	40.0	120
	a. Single	_____	7.0	131.6	921
	b. Dual	_____			
	Cert. Basis - TSO C34b	_____			
317	Narco UGR-3 Glide Slope	_____	2.9	40.0	116
319	Narco MBT-12-R, Marker Beacon	_____	4.0	77.7	311
321	Narco CP-125 Audio Selector Panel	_____	2.2	76.2	168
323	Narco CP-135 Audio Selector Panel	_____	2.2	76.2	168
	Cert. Basis - TSO C50b	_____			
325	Narco CP-135M Audio Selector Panel	_____	*3.9	132.6	517
	Cert. Basis - TSO C50b, C35d	_____			
327	Narco CLC-60A R-Nav	_____	11.5	133.9	1540
	a. Narco SA-11 Adapter	_____	0.8	45.5	36

*Weight includes marker antenna and cable.

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

	*5.9	65.9	389
	*5.9	65.9	389
	*10.8	193.5	2090
	6.0	94.3	566
	**17.9	109.9	1967
	6.4	94.3	604
	**17.9	109.9	1967
	*3.0	62.3	187
	*3.2	62.3	200

****Weight includes dual antenna and cable.**

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
343	Antenna and Cable				
	a. Nav Receiving	X	1.3	209.4	273
	b. #1 VHF Comm		0.6	146.3	88
	c. #2 VHF Comm		0.9	181.1	163
	d. Glide Slope (Single)	X	0.9	96.7	87
	e. Glide Slope (Dual)		2.8	180.0	504
	f. Single ADF Sense		0.4	160.0	64
345	Anti-Static Antenna and Cable				
	a. #1 VHF Comm	X	1.5	162.7	252
	b. #2 VHF Comm	X	1.6	192.5	308
	c. Single ADF Sense		0.6	160.0	96
347	Emergency Locator Transmitter (C.C.C. Model CIR-11-2)				
	a. Antenna and Coax	X	1.7	267.2	454
	b. Shelf and Access Hole	X	0.2	255.4	51
	Cert. Basis - TSO C91	X	0.5	266.4	133
348	Emergency Locator Transmitter (Narco Model ELT-10)				
	a. Antenna and Coax		3.5	267.2	935
	b. Shelf and Access Hole		0.3	255.4	77
			0.5	266.4	133
349	RCA Radar Piper Dwg. 36885-2	X	23.0	81.0	1863
350	Microphone				
	a. Piper Dwg. 68856-10		0.3	69.9	21
	b. Piper Dwg. 68856-11		0.6	74.9	45
	c. Piper Dwg. 68856-12	X	0.3	69.9	21
351	Boom Microphone - Headset Piper Dwg. 37921-3		0.3	85.5	26
353	Cabin Speaker Piper Dwg. 63239-2	X	0.8	97.5	78
355	Headset Piper Dwg. 68856-10	X	0.5	65.0	33

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

(m) Radio Equipment
(Optional Equipment) (cont)

Item No.	Item	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb.-In.)
273	1.3	209.8		
86	0.6	146.3		
143	0.9	181.1		
87	0.6	96.7		
208	2.8	180.9		
64	0.4	180.0		
222	1.2	162.7		
308	1.6	192.2		
96	0.6	160.0		
424	1.7	207.3		
31	0.2	222.4		
133	0.2	266.4		
934	2.9	267.3		
77	0.3	222.4		
133	0.2	266.4		
1803	23.0	81.0		
31	0.3	69.9		
42	0.6	74.9		
31	0.3	69.9		
56	0.3	82.2		
74	0.8	97.2		
33	0.2	62.0		

(n) Miscellaneous
(Optional Equipment)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
363	Zinc Chromate Finish Piper Dwg. 79700-2	☒	7.5	113.2	849
365	Stainless Steel Control Cables Piper Dwg. 79700-10	☐	—	—	—
367	Air Conditioner Piper Dwg. 99750	☐	70.4	114.5	8061
369	Ground Ventilating Blower Piper Dwg. 79273-5, -11 or -18	☒	8.6	204.0	1754
371	Assist Step Piper Dwg. 65384 or 37846-3	☐	1.5	147.5	221
373	Super Cabin Sound Proofing a. Piper Dwg. 78480 b. Piper Dwg. 79601-7	☒	24.4 19.0	107.2 107.2	2616 2037
375 C	Adjustable Front Seat (Left) Piper Dwg. 79592-0 or 79592-2	☒	*4.6	84.7	390
377	Adjustable Front Seat (Right) Piper Dwg. 79592-1 or 79592-3	☒	*4.6	84.1	387
379	Jump Seat (With Seat Belts) Piper Dwg. 69595-4	☐	9.2	122.3	1125
381	Club Seating (Includes oversize headrest center seats) Piper Dwg. 37825-2	☒	*14.2	90.4	1284

*Weight and moment difference between standard and optional equipment.

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX

(n) Miscellaneous
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
383	Inboard Armrest - Aft Piper Dwg. 79479-7	x	2.6	152.0	395
385	Headrests (2) Front Piper Dwg. 79337-18		2.0	99.5	199
387	Headrests (2) Center Piper Dwg. 79337-18		2.0	132.1	264
389	Headrests (2) Rear Piper Dwg. 79337-18		2.0	171.5	343
391	Oversize Headrests - Front (2) Piper Dwg. 79764-2	x	3.2	99.5	318
393	Oversize Headrests - Center (2) (Fwd. Facing Seats Only) Piper Dwg. 79764-2	x	3.2	132.1	423
395	Oversize Headrests - Aft (2) Piper Dwg. 79764-2		3.2	171.5	549
397	Inertia Safety Belts - Center (2) Piper PS50039-4-15 (Pacific Scientific P N 1107319-03 Black) or (American Safety Eqpt. Corp. P N 500853-403)		1.5	133.9	201
399	Inertia Safety Belts - Rear (2) Piper PS50039-4-14 (Pacific Scientific P N 1107319-01 Black) or (American Safety Eqpt. Corp. P N 500853-401)		1.6	181.5	290
401	Assist Straps (2) Piper Dwg. 79455-0	x	0.3	120.0	36

(n) Miscellaneous
(Optional Equipment) (cont)

Item No.	Item	Mark if Instl.	Weight (Pounds)	Arm (In.) Aft Datum	Moment (Lb-In.)
403	Curtain and Rod Installation Piper Dwg. 79721-2	_____	1.9	143.6	273
405	Curtain and Rod Installation Piper Dwg. 67955-3	<u> X </u>	5.2	143.6	747
407	Refreshment Console Piper Dwg. 37825-5	<u> X </u>	7.0	118.5	830
409	Cabin Work Table Installation Piper Dwg. 37825-6	_____	3.9	**185.6	724
411	Deluxe Carpeting	_____	*-3.6	113.9	-410
413	Luxurious Interior Piper Dwg. 67953-3	<u> X </u>	*25.0	113.9	2848
415	Fire Extinguisher Installation				
	a. Piper Dwg. 35680-14 (Graviner P/N HA1014-01)	<u> X </u>	5.6	62.8	352
	b. Piper Dwg. 76167-2 (W. Kiddie P/N 2¼DCK-6)	_____	4.6	71.0	327
417	Clip Installation - Map Piper Dwg. 37907-2	_____	0.1	75.0	8
TOTAL OPTIONAL EQUIPMENT			<u>235.7</u>	<u>110.8</u>	<u>26127</u>

*Weight and moment difference between standard and optional equipment.

**Stowed position.

EXTERIOR FINISH

Base Color Juneau White

Registration No. Color Black

Trim Color Las Vegas Gold
Hickory Brown

Type Finish Lacquer

Accent Color Matador Red

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
PA-32-300, CHEROKEE SIX**

Item No.	Item Description	Weight (Pounds)	Arm (Inch)	Weight (Pounds)	Arm (Inch)
401	Curtain and Rod Installation Piper Dwg. 79721-2	1.9	147.6		
402	Curtain and Rod Installation Piper Dwg. 79721-2	2.2	147.6		
403	Reclinable Console Piper Dwg. 79721-2	2.0	147.6		
404	Cabin Work Table Installation Piper Dwg. 79721-2	2.9	147.6		
405	Deluxe Carpeting	2.3	147.6		
406	Luxurious Interior Piper Dwg. 79721-2	22.0	147.6		
407	Fire Extinguisher Installation a. Piper Dwg. 32080-14 b. Piper Dwg. 79721-2 c. Piper Dwg. 79721-2	2.5	147.6		
408	W. Kidde P/N 251DCX-61	4.6	147.6		
409	Map Installation - Map Piper Dwg. 79721-2	0.1	147.6		
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