

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-32-300
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REPORT VB-154

AIRPLANE FLIGHT MANUAL

MODEL PA-32-300

SERIAL NOS. 40000 THRU 40565

DATE: December 17, 1968

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Piper Model PA-32-300
Normal Category Only

AIRPLANE FLIGHT MANUAL

1. Limitations Section The following limitations must be observed in the operation of this airplane:

Engine Lycoming IO-540-K1A5

Engine Limits For all operations, 2700 rpm, 300 hp

Fuel 100/130 minimum aviation grade fuel

Propeller Hartzell HC-C2YK-1/8475D-4 or HC-C2YK-1()/8475-4, low pitch stop $13.5^{\circ} \pm .2^{\circ}$, high pitch stop $34^{\circ} \pm 1^{\circ}$, maximum diameter 80 inches, minimum diameter 78.5 inches.

Optional Propeller Hartzell HC-C2YK-1()/8475R, low pitch stop $12.4^{\circ} \pm .2^{\circ}$, high pitch $29^{\circ} \pm 1^{\circ}$, maximum diameter 84 inches, minimum diameter 82.3 inches.

Power Instruments Oil Temperature: GREEN arc (normal operating range) 75° to 245°F , RED line (maximum) 245°F .

Oil Pressure: GREEN arc (normal operating range) 60 psi to 90 psi; YELLOW arc (caution range) 25 psi to 60 psi; RED line (minimum) 25 psi when installed or 60 psi when installed; RED line (maximum) 90 psi.

Fuel pressure: GREEN arc (normal operating range) 18 to 40 psi; RED line (minimum) 18 psi; RED line (maximum) 40 psi; YELLOW arc (idle range) 12 to 18 psi.

Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.

Airspeed Limits	Never exceed	212
(Calibrated Airspeed)	Maximum structural cruise	168
(Miles per Hour)	Maneuvering	149
	Flaps extended	125
	Maximum positive load factor	3.8
	Maximum negative load factor	No inverted
		maneuvers approved

Maximum Weight 3400 lbs.

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C.G. Range

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

<u>WEIGHT</u> <u>(POUNDS)</u>	<u>FORWARD LIMIT</u> <u>(IN. AFT OF DATUM)</u>	<u>REARWARD LIMIT</u> <u>(IN. AFT OF DATUM)</u>
3400	91.4	95.5
3300	90.2	96.2
2600	81.4	96.2
2060	78.0	96.2

Straight line variation between points given.

Note: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See weight and balance section for proper loading instructions.

Maneuvers

No acrobatic maneuvers including spins approved.

Placards

1. In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS. NO ACROBATIC MANEUVERS, INCLUDING SPINS, APPROVED."

"THIS AIRCRAFT APPROVED FOR NIGHT IFR NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135."

2. On the instrument panel in full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED 149 MPH."

3. On the instrument panel in full view of the pilot:

"DEMONSTRATED CROSS WIND COMPONENT 20 MPH."

4. (For operation with the rear door removed)

In full view of the pilot:

"FOR FLIGHT WITH THE DOOR REMOVED, SEE THE LIMITATIONS AND PROCEDURES SECTIONS OF THE AIRPLANE FLIGHT MANUAL."

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Placards (Cont'd)

5. On the instrument panel in full view of the pilot when the auto-flite is installed: "FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING. RELEASE DISENGAGE SWITCH."
6. On the fuel selector valve cover: "ALL WEIGHT IN EXCESS OF 3112 POUNDS MUST BE FUEL WEIGHT ONLY, FILL TIP TANKS FIRST, USE MAIN TANKS FIRST."

Airspeed Instrument Markings

RED radial line	Never Exceed	212 mph (184 knots)
YELLOW arc	Caution Range (Smooth Air Only)	168 to 212 mph (146 to 184 knots)
GREEN arc	Normal Operating Range	71 to 168 mph (62 to 146 knots)
WHITE arc	Flap Down Range	63 to 125 mph (55 to 109 knots)

Rear Cabin Door or Rear Cabin Door and Cargo Door Removal Limitations

The following limitations must be observed in the operation of this airplane with the rear cabin door or rear cabin door and cargo door removed:

1. The airplane may be flown with the rear cabin door or rear cabin door and cargo door removed. Flight with the front door removed is not approved.
2. Maximum speed - 165 mph.
3. No smoking.
4. All loose articles must be tied down and stowed.
5. Jumper's static lines must be kept free of pilot's controls and control surfaces.
6. Operation approved VFR flight conditions only.

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**Loading
Limitations**

The following limitations must be observed in the operation of this airplane:

1. Fill tip tanks first; use main tanks first.
2. This airplane must not be operated at gross weights in excess of 3112 pounds unless the weight over 3112 pounds is fuel weight only.
3. Remove fuel from the main tanks first when required for proper weight and balance.

2. Procedures Section

1. The stall-warning system is inoperative with the master switch off.
2. Electric fuel pump must be on for both landing and takeoff.
3. Except as noted above, all operating procedures for this airplane are normal.
4. When operating with the rear cabin door removed, it is recommended that all occupants wear parachutes.
5. (Automatic Pilot Installation Only)

The following emergency information applies in case of automatic pilot malfunction:

- a. In case of malfunction, disengage automatic pilot controls.
- b. In emergency, automatic pilot may be overpowered manually.
- c. In cruise configuration, malfunction results in 55-degree bank and 50 ft. altitude loss. In approach configuration malfunction results in 30-degree bank and 50 ft. altitude loss.

6. (Electric Pitch Trim Installation Only)

The following emergency information applies in case of electric pitch malfunction.

- a. In case of malfunction, disengage electric pitch trim by pulling out circuit breaker on instrument panel.

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b. In emergency, electric pitch trim may be over-powered using manual pitch trim.

c. In cruise configuration, malfunction results in 10° pitch change and 50 ft. altitude variation.

7. (Autoflite Installation Only)

The following emergency information applies in case of autoflite malfunction:

a. In case of malfunction, PRESS disconnect switch on pilot's control wheel.

b. Rocker switch on instrument panel - OFF.

c. Unit may be overpowered manually.

d. In cruise configuration malfunction, 3 seconds delay results in 32° bank and 40 ft. altitude loss.

e. In approach configuration malfunction, 1 second delay results in 6° bank and 0 ft. altitude loss.

8. (AutoControl III Installation Only)

I. Limitations:

Automatic Pilot off during take off and landing.

II. Procedures:

a. Normal Operation
Refers to Manufacturer's Operation Manual.

- b. Emergency
1. In case of malfunction, disengage manual controls.
 2. In emergency, automatic pilot may be overpowered manually.
 3. In cruise configuration malfunction 3 second delay results in 32° bank and 40 ft. altitude loss.
 4. In approach configuration malfunction, 1 second delay results in 6° bank and 0 ft. altitude loss.

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9. (Altimatic III Installation Only)

I. Limitations:

Automatic Pilot off during take off and landing.

II. Procedures:

a. Normal Operation

Refer to Manufacturer's Operation Manual.

b. Emergency

1. In case of malfunction, disengage manual controls.
2. In emergency, automatic pilot may be overpower manually.
3. In cruise configuration malfunction, 3 second delay results in 35° bank and 400 ft. altitude loss.
4. In approach configuration malfunction, 1 second delay results in 20° bank and 180 ft. altitude loss.

3. Performance Section

All performance is given for a weight of 3400 lbs.

Loss of altitude during stalls can be as great as 350 feet, depending on configuration and power.

Stalling speed, in mph, (Calibrated Airspeed):

Flaps up	71
Flaps down	63

Flap deflection versus handle position is:

1st notch	10 degrees
2nd notch	25 degrees
3rd notch	40 degrees

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*Make sure lgs - 3+4
are dark
enough*

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WEIGHT AND BALANCE DATA

AND

EQUIPMENT LIST

MODEL PA-32-300

SERIAL NOS. 32-40000 THRU 32-40565

DATE: October 28, 1968

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C. G. RANGE AND WEIGHT INSTRUCTIONS

1. Add the weight of all items to be loaded to the licensed empty weight.
2. Use the loading graph to determine the moment of all items to be carried in the airplane.
3. Add the moment of all items to be loaded to the licensed empty weight moment.
4. Divide the total moment by the total weight to determine the C. G. location.
5. By using the figures of Item 1 and Item 4, locate a point on the C. G. range and weight graph. If the point falls within the C. G. envelope, the loading meets the weight and balance requirements.

SAMPLE LOADING PROBLEM (Normal Category)

	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In - Lbs)
Licensed Empty Weight			
Oil (12 quarts)	22.5	16.6	374
Pilot and Front Passenger	340.0	85.5	29070
Passengers (Center Seats)	340.0	120.2	40868
Passengers (Rear Seats)	340.0	155.7	52938
Passenger (Jump Seat) *		120.2	
Fuel (84 Gal. Maximum)		95.0	
Baggage (Forward)		42.0	
Baggage (Aft)		178.7	
Total Loaded Airplane			

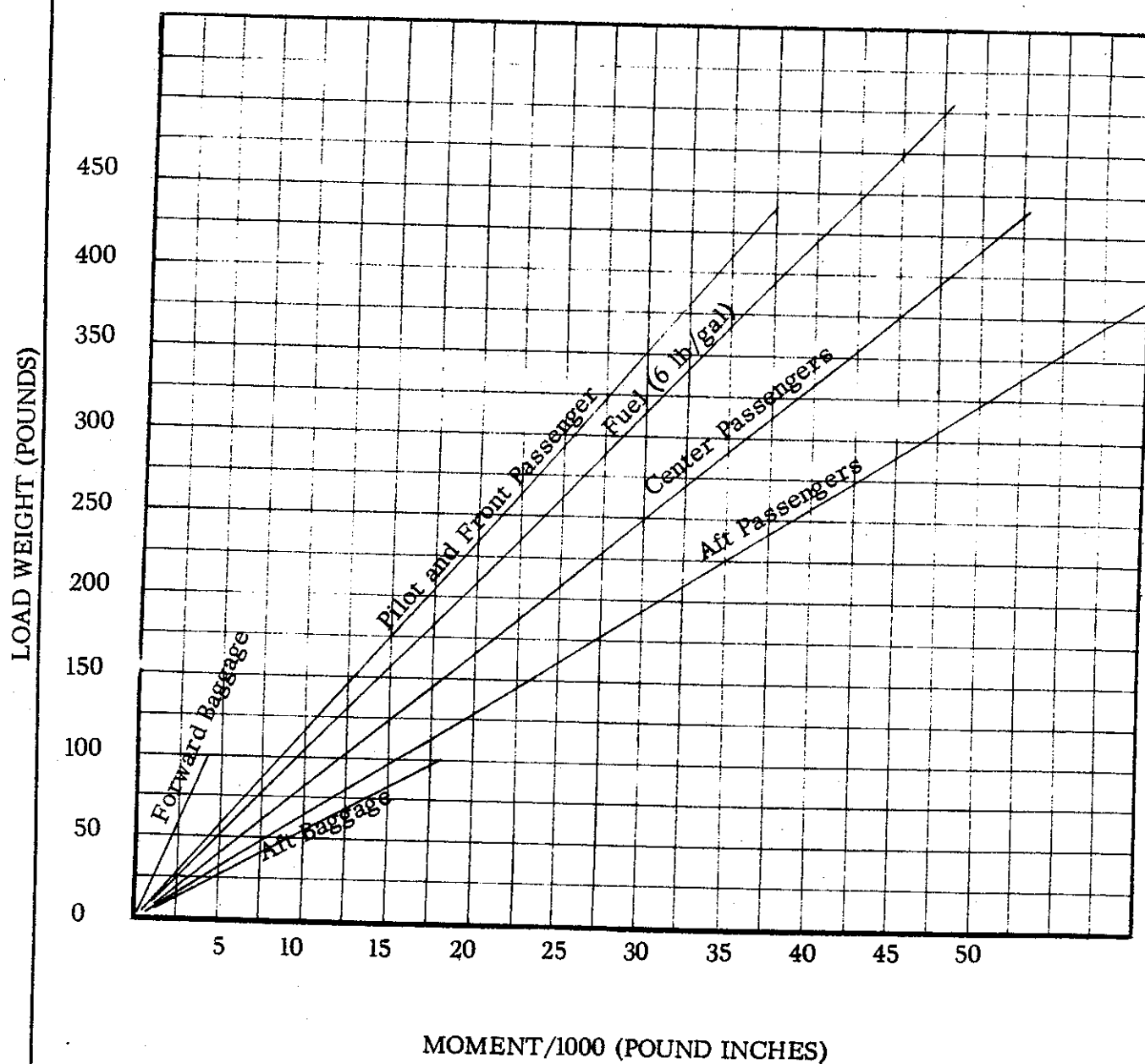
The center of gravity (C.G.) of this sample loading problem is at _____ inches aft of the datum line. Locate this point () on the C. G. range and weight graph. Since this point falls within the weight - C. G. envelope, this loading meets the weight and balance requirements.

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

* Optional Equipment

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LOADING GRAPH



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C. G. RANGE AND WEIGHT

