

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	PAGE _____
CHECKED		
APPROVED	REPORT VB-160	

AIRPLANE FLIGHT MANUAL

MODEL PA-28-140

FAA IDENTIFICATION NO. N5840U

SERIAL NO. 28-26671

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA APPROVED: _____

H. E. Waterman
Supervisor, EMDO 42
FAA Southern Region
Atlanta, Georgia

DATE: _____

February 14, 1964

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REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	1	Deleted Propeller - And Static RPM - Information	<i>H. E. Waterman</i> Supervisor SO-EMDO-42	3/24/64
2	1	Added Static R.P.M. Information	<i>H. E. Waterman</i> Supervisor SO-EMDO-42	5/25/64
3	3	Placards Section: Added Placard No. 4	<i>H. E. Waterman</i> Supervisor SO-EMDO-42	7/8/64
4	2	Maneuvers Section: Deleted Stalls in Utility Category	<i>H. C. Faller</i> Supervisor SO-EMDO-43	8/31/64
5c	2,3	Increased Gross Weight to 2150 and Baggage Capacity to 200 Lbs.	<i>H. C. Faller</i> Supervisor SO-EMDO-43	5/21/65
6	1	Limitations Section: Revised Oil Temperature and Fuel Pressure Range	<i>H. C. Faller</i> Supervisor, SO-EMDO-43	6/23/65
7	1	Static RPM Corrected	<i>H. C. Faller</i> Supervisor SO-EMDO-43	8/12/65
8	1	Revised Static RPM, Oil Temperature and Fuel Pressure Limitations	<i>H. T. Harold</i> for <i>H. C. Faller</i> Supervisor SO-EMDO-43	12/13/65
	2	Added Note to Maximum Weight Callout		
	3	Revised Placard No. 4		

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REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
9	3	Procedure Section. Added Item No. 4 "Electric Pitch Trim Procedures"		
	4	Added Page 4	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	3/16/66
10	4	Add Procedures Section And Item 5		
	3	Added Placard No. 5	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	5/20/66
11	3	Added Placard No. 6	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	12/6/66
12	2	Revised C. G. Range	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	9/25/67
13	Title Page	Added FAA Identification No., Serial No. and this document must be kept in airplane at all times.	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	11/27/67
14	1	Added Propeller Designation		
	2,3	Revised Placard Nos. 1 and 6 to read: "In full view of the Pilot".	<i>H. C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	6/24/68

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REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
15	2	Revised Baggage Capacity Limitations	<i>H.M. Toomey</i> H. M. Toomey FAA DOA SO-1	10/29/68
16	Title	Allocated Piper Report No. VB-160 to this Manual.	<i>H.M. Toomey</i> H. M. Toomey FAA DOA SO-1	11/7/68
17	4	Procedures Section: Revised Item 4 and Added Item 6.	<i>H.M. Toomey</i> H. M. Toomey FAA DOA SO-1	5/5/69
	5	Added Page 5.		
18	3	Placards Section: Added Placard No. 7.	<i>H.M. Toomey</i> H. M. Toomey FAA DOA SO-1	12/17/69
19	1	Limitations Section: Rephrased Propeller Limits.		
	2	Maximum Weight: Added information.		
	2 thru 5	Pages re-arranged to provide space for added information.	<i>H.M. Toomey</i> Herbert M. Toomey FAA DOA SO-1	1/6/70

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Piper Model PA-28-140
Normal and Utility Categories

FAA Identification No. N5840U

Serial No. 28-26671

AIRPLANE FLIGHT MANUAL

1. Limitations Section

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

Engine	Lycoming O-320-E2A
Engine Limits	For all operations 2700 rpm, 150 hp
Fuel	80/87 Octane Aviation Fuel
Propeller	Sensenich M74DM or 74DM6, Maximum diameter 74 inches. Minimum diameter 72-1/2 inches. Static RPM at maximum permissible throttle setting: Not under 2150, not over 2425 for max. allowable weight of 1950 lbs. Not under 2275, not over 2425 for max. allowable weight of 2150 lbs. No additional tolerance permitted.
Power Instruments	<u>Oil temperature:</u> GREEN arc (normal operating range) 120° F to 245° F; YELLOW arc (caution range) 60° F to 120° F; RED line (maximum) 245° F (S/N 20,000 to 20,550) <u>Oil temperature:</u> GREEN arc (normal operating range) 75° F to 245° F; RED line (maximum) 245° F (S/N 20,551 and up) <u>Oil pressure:</u> GREEN arc (normal operating range) 60 psi to 85 psi; YELLOW arc (caution range) 25 psi to 60 psi; RED line (minimum) 60 psi; RED line (maximum) 85 psi. <u>Fuel Pressure:</u> GREEN arc (normal operating range) .5 psi to 5 psi; RED line (minimum) .5 psi; RED line (maximum) 5 psi (S/N 20,000 to 20,550). <u>Fuel Pressure:</u> GREEN arc (normal operating range) .5 psi to 8 psi; RED line (minimum) .5 psi; RED line (maximum) 8 psi (S/N 20,551 and up). <u>Tachometer:</u> GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.
Airspeed Limits (Calibrated Airspeed) (Miles per Hour)	Never exceed 171 Maximum structural cruise 140 Maneuvering 129 Flaps extended 115 Maximum positive load factor 3.8 Normal Category Maximum positive load factor 4.4 Utility Category Maximum negative load factor No inverted maneuvers approved.

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Maximum Weight 1950 lbs. Utility Category - S/N 28-20001 and up
Normal Category - S/N 28-20001 through 28-20939
(Normal category maximum weight for aircraft with S/N 28-20001 through 28-20939 may be increased to 2150 lbs. by the installation of Piper Kit 756 962 and Sensenich propeller M74DM58)

2150 lbs. Normal Category Only (S/N 28-20940 and up)

Baggage Capacity 100 lbs. (+117) S/N 28-20001 through 28-20939 (Maximum baggage may be increased to 200 lbs. by the installation of Piper Kit 756 962 and Sensenich propeller M74DM58 or 74DM6-0-58. Maximum baggage may be increased to 300 lbs. by the installation of Piper Kit 756 962, Sensenich propeller M74DM58 or 74DM6-0-58 and when modified in accordance with Piper drawing 66671. See Page 2A of the weight and balance section for proper loading of baggage).

200 lbs. (+117) S/N 28-20940 and up. (See Page 2A of the weight and balance section for proper loading of baggage).

300 lbs. (+117) S/N 28-20940 and up. (Aircraft are eligible for 300-lb maximum baggage when modified in accordance with Piper drawing 66671. See Page 2A of the weight and balance section for proper loading of baggage).

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

1. Normal Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
2150	88.4	95.9
1975	85.9	95.9
1650	84.0	95.9

2. Utility Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
1950	85.8	86.5
1650	84.0	86.5

Straight line variation between given points.

NOTE: It is the responsibility of the airplane owner and/or the pilot to insure that the airplane is properly loaded. See weight and balance section for loading information.

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Maneuvers

1. Normal Category - All acrobatic maneuvers including spins prohibited.
2. Utility Category - Approved maneuvers for Utility Category only.

Entry Speed

Spins (Flaps Up)	Stall
Steep Turns	129 mph
Lazy Eights	129
Chandelles	129

Placards

1. In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

ALL MARKINGS AND PLACARDS ON THIS AIRPLANE APPLY TO ITS OPERATION AS A UTILITY CATEGORY AIRPLANE. FOR NORMAL AND UTILITY CATEGORY OPERATIONS, REFER TO THE AIRPLANE FLIGHT MANUAL.

FOR SPIN RECOVERY, USE FULL RUDDER AGAINST SPIN, FOLLOWED IMMEDIATELY BY FORWARD WHEEL.

NO ACROBATIC MANEUVERS (INCLUDING SPINS) ARE APPROVED FOR NORMAL CATEGORY OPERATIONS."

2. Adjacent to upper door latch: "ENGAGE LATCH BEFORE FLIGHT."
3. On aft side of baggage compartment: "UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS."
4. On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed: "OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50°F."
5. On the instrument panel in full view of the pilot when the autoflite is installed: "FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING. RELEASE DISENGAGE SWITCH."

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Placards
(Cont'd)

6. In full view of the pilot: Utility Category Only

Acrobatic maneuvers are limited to the following:

	Entry Speed
Spins (Flaps Up)	Stall
Steep Turns	129 mph
Lazy Eights	129
Chandelles	129

7. In full view of the pilot: "ROUGH AIR OR MANEUVERING SPEED - 129 MPH."

Airspeed
Instrument
Markings

RED radial line	Never Exceed	171 mph (148 knots)
YELLOW arc	Caution Range (Smooth Air Only)	140 to 171 mph (121 to 148 knots)
GREEN arc	Normal Operating Range	64 to 140 mph (56 to 121 knots)
WHITE arc	Flaps Down Range	55 to 115 mph (48 to 100 knots)

2. Procedures Section

1. The stall warning system is inoperative with the master switch off.
2. The electric fuel pump must be on for both takeoff and landing.
3. Except as noted above, all operating procedures for this airplane are normal.

4. (Electric Pitch Trim Installation Without Pitch Trim Switch)

The following emergency information applies in case of electric pitch trim malfunction:

- a. In case of malfunction, disengage electric pitch trim by pulling out circuit breaker on instrument panel.
- b. In emergency, electric pitch trim may be overpowered using manual pitch trim.
- c. In cruise configuration, malfunction results in 10° pitch change and 30 ft. altitude variation.

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2. Procedures
Section
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5. (AutoFlite Installation Only)

The following emergency information applies in case of autoflite malfunction:

- In case of malfunction PRESS disconnect switch on pilot's control wheel.
- Rocker switch on instrument panel - OFF.
- Unit may be overpowered manually.
- In cruise configuration malfunction, 3 seconds delay results in 60° bank, and 100' altitude loss.
- In approach configuration malfunction, 1 second delay results in 10° bank and 0' altitude loss.

6. (Electric Pitch Trim Installation With Pitch Trim Switch)

The following emergency information applies in case of electric pitch trim malfunction:

- In case of malfunction, disengage electric pitch trim by pushing pitch trim switch on instrument panel to OFF position.
- In an emergency, electric pitch trim may be overpowered using manual pitch trim.
- In cruise configuration, malfunction results in 10° pitch change and 30' altitude variation.

3. Performance
Section

All performance is given for a weight of 2150 pounds.

Loss of altitude during stalls can be as great as 200 feet, depending on configuration and power.

Stalling speeds, in MPH, power off, versus angle of bank
(Calibrated Airspeed):

Angle of Bank	0	20	40	50	60
Flaps Up	64	66	73	80	91
Flaps Down	55	--	--	--	--

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EQUIPMENT LIST

MODEL PA-28-140

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REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	12	Added: R. C. Allen Turn Coordinator #80-9	<i>G. McCann</i>	1-26-69
2	14	Changed Narco Mark 12 to read: Narco Mark 12A or Narco Mark 12B Added: Narco Mark VIII Narco VOA-50M Omni Convertor Narco VOA-40 Omni Convertor (2)	<i>G. McCann</i>	1-31-69
3	13	Added: Narco Mark 16 Installations	<i>G. McCann</i>	7-16-69
	17	Added: Adjustable Front Seat Installations and Overhead Vent System		
4	10	Added: Strobe Light, Whelen Engineering Company	<i>G. McCann</i>	10-3-69
5	16	Removed Piper Drawing 65766 from Inertia Safety Belt (Set of 2)	<i>G. McCann</i>	11-5-69
6	17	Under Exterior Finish Changed 2nd Trim Color to Trim Color and 1st Trim Color to Accent Color	<i>G. McCann</i>	12-4-69
7	9	Altimeter - Piper Drawing 67467 changed to 99009-2 or -3	<i>G. McCann</i>	1-15-70

Aircraft Weight and Balance Revision

Tail Number: N584OU						Date: 9/15/16	
Prepared by: CHESAPEAKE AVIATION 44174 AIRPORT RD 3700 CALIFORNIA MD 20619 BASED ON LAST W&B						Work Order No:	
						Type Certificate Data No:	
Aircraft Make: PIPER		Model: PA28-140		Serial No: 28-26671		Time:	
Registered Owner: AMIS WILLIAM A				Address: 4023 GRANT STREET NE WASHINGTON DC 20019			
Maximum Weight 2150			CG Range FWD 88.4		AFT 95.9		
As Received; Date of Previous Weight and Balance: 2/25/70			Useful Load: 859.9	EW: 1290.1	EWCG: 85.2	Moment: 109895.3	
Notes:							
				Weight	Arm	Moment	
ELT WITH BATTERY, ELT TRAY AND STRAPS				1.8	156.	280.80	
PREVIOUSLY INSTALLED SKYTEC 149NL STARTER				9.4	19.5	183.30	
REMOVED ORIG STARTER				-17.	19.5	-331.50	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
☒ As Calculated		Moment		110027.90		New Empty Weight CG	
☐ As Weighed		Weight		1284.30		New Useful Load	
				85.67		865.70	
				Signature			
				Repair Agency or License No: AP3601821			

AEROTRONIC SERVICES

MONTGOMERY COUNTY AIRPARK

GAITHERSBURG, MD. 20760

F.A.A. CRS 1047

WEIGHT AND BALANCE DATA

For: Piper PA-28-140 "C"

Ser# 28-26671

N5840U

Aug. 27, 1970

<u>ITEM</u>	<u>WEIGHT</u>	<u>ARM</u>	<u>MOMENT</u>
Aircraft empty taken from original wt. & bal. data dtd. 2/25/70	1284.8	85.3	109572.0
Added:			
Genave Alpha-200	<u>5.3</u>	<u>61.0</u>	<u>323.3</u>
	1290.1	85.2	109895.3

New Empty Weight

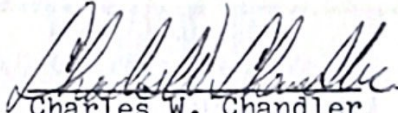
1290.1 Lbs.

New E. W. C. G.

85.2 Ins.

New Useful Load (N)

859.9 Lbs.


Charles W. Chandler
A&P 1536671

Superseded
9/15/16

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WEIGHT AND BALANCE DATA
MODEL PA-28-140 CHEROKEE

Airplane Serial Number 28 - 26671

Registration Number N5840U

Date FEB 25 1970

AIRPLANE EMPTY WEIGHT

Item	Weight (lbs)	C. G. Arm X (Inches Aft of Datum)	Moment (In-lbs)
Standard Empty Weight * XXXXXX Computed	1228.0	84.5	103771
Optional Equipment	54.6	102.1	5574
Unusable Fuel (3 Pints)	2.2	103.0	227
Licensed Empty Weight = Total of Above Items	1284.8	85.13	109570

* Standard Empty Weight includes paint, hydraulic fluid and undrainable engine oil.

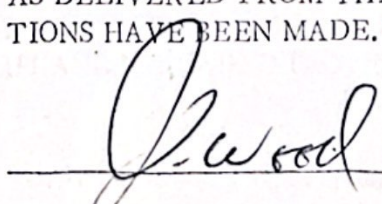
AIRPLANE USEFUL LOAD

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

Normal Category: (2150 lbs) - (1284.8 lbs) = 865.2 lbs.

Utility Category: (1950 lbs) - (1284.8 lbs) = 665.2 lbs.

THIS LICENSED EMPTY WEIGHT, C. G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY. REFER TO FORM FAA-337 WHEN ALTERATIONS HAVE BEEN MADE.


Inspection Representative

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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.

NOTE: With optional jump seats installed, aft passenger weight is restricted only by airplane weight and balance limitations (See Page 4 of this section). For baggage allowance, see Page 2A of this section.

SAMPLE LOADING PROBLEM (Normal Category)

	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In - lbs)
Licensed Empty Weight	1284.8	85.3	109572
Oil (8 quarts)	15	32.5	488
Pilot and Front Passenger	340	85.5	29070
Passengers, Aft *	340	117.0	39780
28.4 gallons Fuel (50 Gal. Maximum)	170.2	95.0	16169
Baggage * Area ①		117.0	
Baggage * Area ②		133.3	
Total Loaded Airplane	2150	90.7	195079

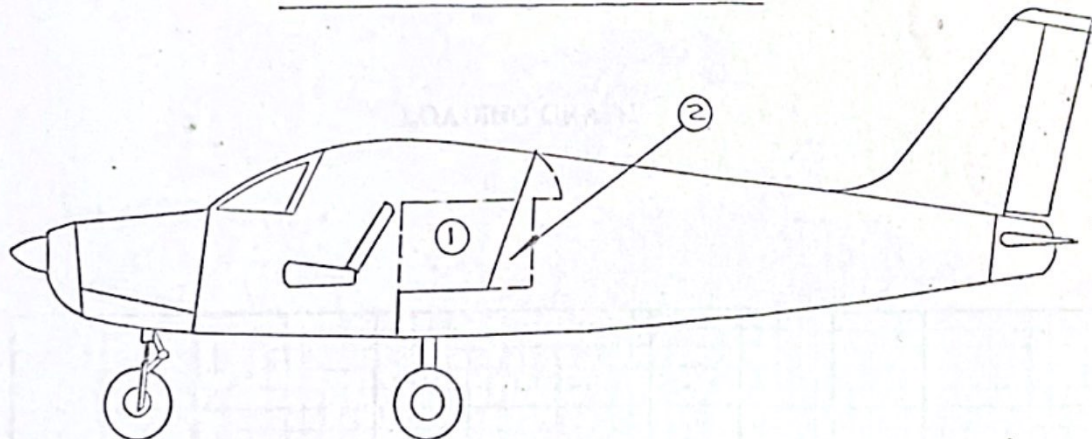
The center of gravity (C. G.) of this sample loading problem is at 90.7 inches aft of the datum line. Locate this point (90.7) on the C. G. range and weight graph. Since this point falls within the weight - C. G. envelope, this loading meets the weight and balance requirements.

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

- * Utility Category Operation - No baggage or aft passengers allowed.
Normal Category Operation - See Page 2A of this section.

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MAXIMUM ALLOWABLE BAGGAGE



A. Maximum Allowable Baggage Capacity Area (1) = 200 lbs.

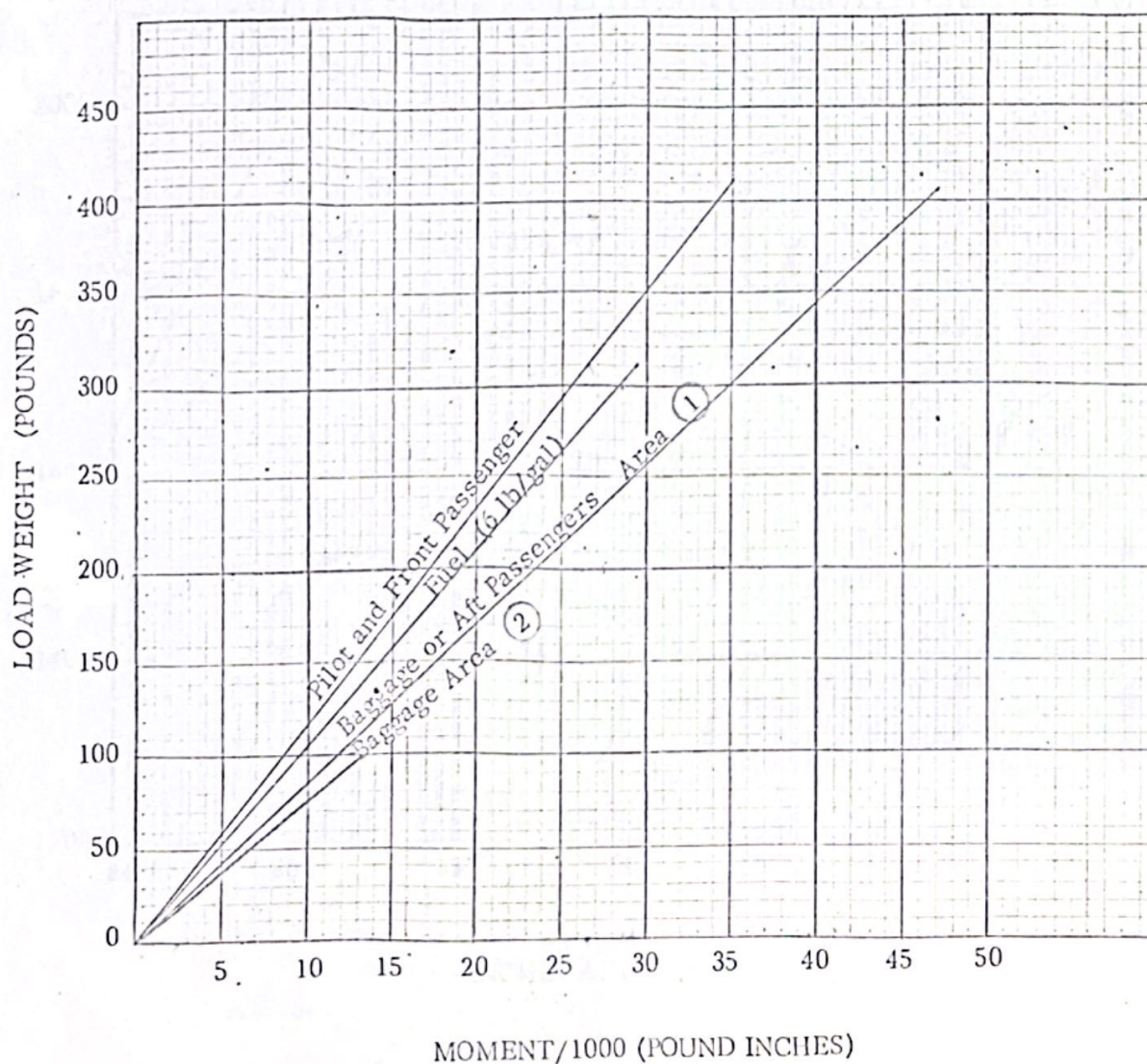
1. S/N 28-20940 and up.
2. S/N 28-20001 through 28-20939 (maximum baggage may be increased to 200 lbs by the installation of Piper Kit 756 962 and Sensenich propeller M74DM58 or 74DM6-0-58).

B. Maximum Allowable Baggage Capacity Area (2) = 100 lbs.

1. S/N 28-20940 and up. (Aircraft are eligible for 100-lb maximum baggage in this area when modified in accordance with Piper drawing 66671).
2. S/N 28-20001 through 28-20939. (Aircraft are eligible for 100-lb. maximum baggage in this area by the installation of Piper Kit 756 962, Sensenich propeller M74DM58 or 74DM6-0-58 and when modified in accordance with Piper drawing 66671).

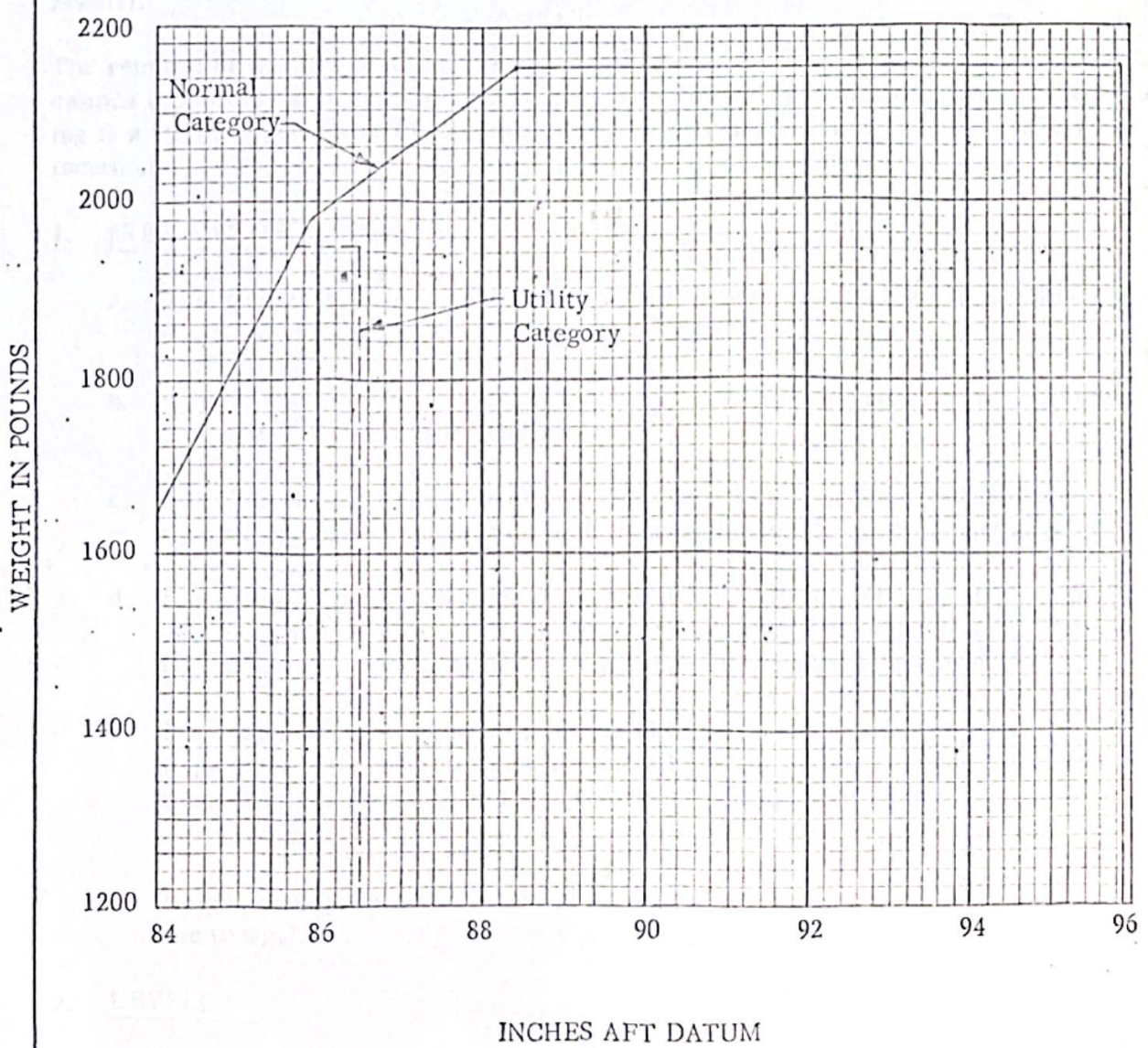
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LOADING GRAPH



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C.G. RANGE AND WEIGHTS



PREPARED <i>J. S. Dean</i>	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED <i>R. J. Adams</i>		
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WEIGHT AND BALANCE DATA

WEIGHING PROCEDURE

At the time of delivery, Piper Aircraft Corporation provides each airplane with the licensed empty weight and center of gravity location. This data is on Page 1, Section 1 of this Flight Manual.

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

1. PREPARATION

- a. Be certain that all items checked in the airplane equipment list are installed in the proper location in the airplane.
- b. Remove excessive dirt, grease, moisture, foreign items such as rags and tools from the airplane before weighing.
- c. 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.
- d. Drain all oil from the engine, by means of the oil drain, with the airplane in ground attitude. This will leave the undrainable oil still in the system. Engine oil temperature should be in the normal operating range before draining.
- e. Place pilot and co-pilot 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.
- f. Weigh the airplane inside a closed building to prevent errors in scale readings due to wind.

2. LEVELING

- a. With airplane on scales, block main gear oleo pistons in the fully extended position.
- b. Level airplane (see diagram) by deflating nose wheel tire, to center bubble on level.

PREPARED <i>J. S. Deane</i>	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
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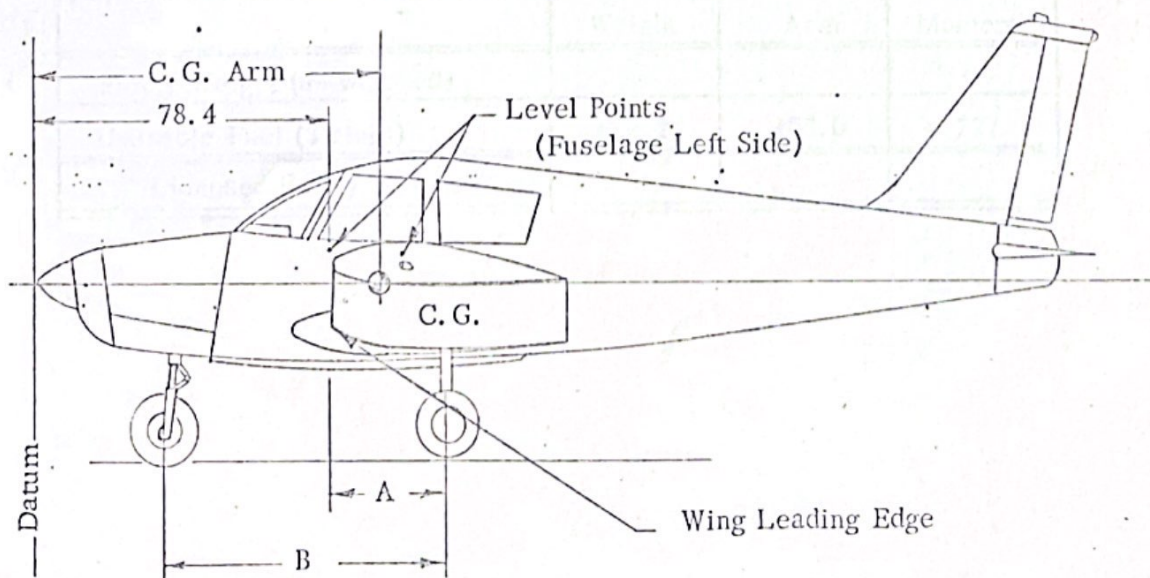
3. WEIGHING - AIRPLANE EMPTY WEIGHT

2. 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)			

4. EMPTY WEIGHT CENTER OF GRAVITY

- a. The following geometry applies to the PA-28-140 B airplane when airplane is level (See Item 2):



A =

B =

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

PREPARED <i>T. L. Dean</i>	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED <i>R. L. Munner</i>		
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- b. Obtain measurement "A" by measuring from a plumb bob dropped from the wing leading edge, at the intersection of the straight and tapered section, horizontally and parallel to the airplane centerline, to the main wheel centerline.
- c. Obtain measurement "B" by measuring the distance from the main wheel centerline, horizontally and parallel to the airplane centerline, to each side of the nose wheel axle. Then average the measurements.
- d. The empty weight center of gravity (as weighed including optional equipment and undrainable oil) can be determined by the following formula:

$$C. G. Arm = 78.4 + A - \frac{B(N)}{T}$$

$$C. G. Arm = 78.4 + (\quad) - \frac{(\quad) (\quad)}{(\quad)} = \quad \text{inches}$$

5. LICENSED EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY

	Weight	Arm	Moment
Empty Weight (as weighed)			
Unusable Fuel (3 pints)	+ 2.2	103.0	+ 227
Licensed Empty Weight			

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-140
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WEIGHT AND BALANCE STANDARD EQUIPMENT LIST MODEL PA-28-140				
Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Engine Accessories</u>			
<u>X</u>	Engine - Lycoming Model O-320-E2A	261.4	26.1	6822
<u>X</u>	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
<u>X</u>	Fuel Pump, Engine Driven, Lycoming Dwg. No. 73297, 74082, 75148 or 75246	1.6	41.3	66
<u>X</u>	Oil Cooler, Piper Dwg., Harrison C-8526250	2.6	18.1	47
<u>X</u>	Filter, Fram Model CA-161PL or AC No. A48C or Purolator AFP-2	.9	20.1	18
<u>X</u>	Starter-Lycoming #76210 (Prestolite MZ 4204)	17.0 *	19.5	332
<u>X</u>	Alternator, 60 Amp, Chrysler No. 2642997	12.5	19.0	238
	<u>Propeller and Propeller Accessories</u>			
<u>X</u>	Propeller, Sensenich M74DM58 or 74DM6-0-58	30.0	10.1	303
<u>X</u>	Spinner and Attachment Plates	2.0	8.0	16
	<u>Landing Gear and Brakes</u>			
<u>X</u>	Two Main Wheel Assemblies 6.00-6 (a) Cleveland Aircraft Products (2) Wheel Assembly No. 40-86 (2) Brake Assembly No. 30-55 (b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes	32.0	109.6	3507
<u>X</u>	One Nose Wheel 6.00-6 (a) Cleveland Aircraft Products Wheel Assembly No. 38501 (less brake drum) (b) One Nose Wheel 4-Ply Rating Tire 6.00-6 with Regular Tubes	12.5	34.8	435

* Included in Engine Weight

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-140
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Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Electrical Equipment</u>			
X	Stall Warning Device, Safe Flight Instrument Corporation, No. C52207-4	.2	80.2	16
X	Voltage Regulator, Wico Electric No. X16300B	.5	57.8	29
	Battery 12V, 25 A. H., Rebat Model S-25	21.5	114.9	2470
X	Overvoltage Relay, Wico Electric No. X16799	.5	53.8	27
	<u>Instruments</u>			
X	Compass - Piper Drawing 67462	.9	64.9	58
	Airspeed Indicator - Piper Drawing 63205	.6	66.8	40
X	Tachometer - Piper Drawing 62177-2 or -3	.7	66.2	46
X	Engine Cluster - Piper Drawing 95241-7	.8	67.4	54
X	Altimeter - Piper Drawing 99009-2 or -3	1.0	65.9	66
X	Ammeter - Piper Drawing 66696	.3	67.4	20
	<u>Miscellaneous</u>			
X	Forward Seat Belts (2)	1.5	86.9	130
	Baggage Tie Down Straps	.8	118.0	94
X	Flight Manual	---	---	---
X	Tow Bar	1.3	104.7	136
THE ABOVE ITEMS ARE INCLUDED IN THE AIRPLANE STANDARD EMPTY WEIGHT.				

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED		
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST	PAGE 10 Section 1

OPTIONAL EQUIPMENT LIST

MODEL PA-28-140

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Engine Accessories</u>			
<u>X</u>	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1 or 113A5 or 200 cc and Drive	5.0	37.0	185
	Starter-Lycoming 76211 (Prestolite MZ 4206) (Weight 18.0 lbs.)	1.0 *	19.5	20
<u>X</u>	Oil Filter-Lycoming #74911 (AC 81-A #6437032)	3.3	40.5	134
<u>X</u>	Vacuum Regulator and Filter	2.2	57.0	125
	Vacuum Regulator	1.5	56.0	84
	<u>Electrical Equipment</u>			
<u>X</u>	Rotating Beacon, Grimes #40-0101-7-12 or Grimes #40-0101-15-12	1.5	263.4	395
<u>X</u>	Landing Light, G. E. Model 4509	.5	18.1	9
<u>X</u>	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
<u>X</u>	Navigation Light (Rear)(1) Grimes Model 2064 (White)	.2	281.0	56
<u>X</u>	Battery 12 V., 35 A.H. Reading R-35 (Weight 27.0 lbs.)	5.5 *	114.9	632
	Strobe Light, Whelen Engineering Co.	2.7	217.4	587

* Weight and Moment difference between standard and optional equipment.

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED		
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST	PAGE 11 Section 1

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Electrical Equipment (Cont'd)</u>			
<u>X</u>	Cabin Light	.3	104.0	31
<u>X</u>	Cabin Speaker	.8	104.0	83
	Auxiliary Power Receptacle 65529	3.0	133.0	399
	External Power Cable 62355-7	4.6	117.0	538
	Piper Pitch Trim	4.3	155.3	668
	Heated Pitot Head	.4	100.0	40
	<u>Instruments</u>			
<u>X</u>	Suction Gauge - Piper Drawing 67481	.5	67.2	34
	Suction Gauge, U.S. Gauge AW1821AFO3	.5	67.2	34
	Suction Gauge, Airborne Mechanisms 1G3-4	.5	67.2	34
	Altimeter, AN5760-2 (C-12 or C-13)	Same as Standard Equipment Weight		
	Rate of Climb - Piper Drawing 67468	1.0	65.9	66
	Artificial Horizon, Garwin (3")	1.8	64.9	117
	Artificial Horizon, AIM (3")	2.2	64.4	142
	Directional Gyro, Garwin (3")	2.4	64.7	155
	Directional Gyro, AIM (3")	3.1	64.0	198
	Attitude Gyro, R. C. Allen (3")	2.2	65.6	144
	Directional Gyro, R. C. Allen (3")	3.3	64.8	214

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED		
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST	PAGE 12 Section 1

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Instruments</u> (Cont'd)			
<u>X</u>	Air Temperature Gauge, Rochester Manufacturing Co., No. 1592-C2 or NHM-70 (Manning, Maxwell & Moore)	.2	82.6	17
	Clock, 8-Day - MIL-C-7939	.4	67.4	27
<u>X</u>	Tru-Speed Indicator, Piper Drawing 62143	Same as Standard Equipment Weight		
	Pictorial Rate of Turn, Mitchell 52D69	1.3	65.3	85
	Turn and Bank, Piper Drawing 41711-2	2.2	64.9	143
	Brittain Turn Coordinator #TC-100(12)	2.6	64.7	168
	R. C. Allen Turn Coordinator #80-9	2.3	64.7	149
	<u>AutoPilots</u>			
	<u>AutoFlite</u>			
	Roll Servo, Mitchell #1C363-1-183R	2.2	122.3	269
	Gyro Amplifier, Mitchell #1C359-1	1.8	111.8	201
	Cables	1.0	95.5	96
	Panel Unit	.3	67.9	20
	Omni Tracker (#1D482)	.5	54.9	27

PREPARED	PIPER AIRCRAFT CORP.		Weight and Balance Data	
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.		Model PA-28-140	
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST		PAGE 13 Section I	

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT, DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>AutoPilots</u> (Cont'd)			
	AutoControl III			
	Roll Servo, Mitchell #1C363-1-183R	2.5	122.2	306
	Console, Mitchell #1C338	1.2	65.1	78
	Cables	.7	95.5	67
	Attitude Gyro, Mitchell #52D66 (Garwin)	1.9	64.9	123
	Attitude Gyro, Mitchell #52D66 (AIM)	2.3	64.4	148
	Directional Gyro, Mitchell #52D54 (Garwin)	2.5	64.7	162
	Directional Gyro, Mitchell #52D54 (AIM)	3.2	64.0	205
	Omni Coupler, Mitchell #1C388	.9	64.3	58
	<u>Radio</u>			
	PM-1 Marker Beacon			
	Receiver	1.1	121.3	133
	Panel Unit	.3	68.1	20
	Cable	.3	85.0	26
X	Omni Receiving Antenna, Narco VRP-37	1.4	203.0	284
	Narco Mark 16			
	Transceiver, Single	7.5	61.9	464
	Transceiver, Dual	15.0	61.9	929

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-140
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST	PAGE 14 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Radio</u> (Cont'd)			
X	VHF Antenna, Transmitting VHF-1	.3	157.8	47
	VHF Antenna, Transmitting VHF-2	.3	192.8	58
X	Cable, VHF-1	.4	118.0	47
	Cable, VHF-2	.5	135.0	68
	Low Frequency Antenna	.5	167.0	84
	Narco Mark 12A or Narco Mark 12B			
	Transceiver, Single	6.0	61.9	371
	Transceiver, Dual	12.0	61.9	743
	Modulator-Power Unit, Single	4.0	146.8	587
	Modulator-Power Unit, Dual	8.0	149.7	1198
	Cable, Single	1.8	120.0	216
	Cable, Dual	3.8	120.0	456
	Narco VOA-6 Omni Convertor	1.8	64.4	116
	Narco VOA-5 Omni Convertor	3.1	64.4	200
	Narco VOA-4 Omni Convertor	3.0	64.4	193
	Narco Mark III	7.5	62.7	470
	Narco Mark VIII	7.5	62.7	470
	Narco VOA-50M Omni Convertor	2.1	64.9	136
	Narco VOA-40 Omni Convertor	1.9	64.9	123
	Narco VOA-40 Omni Convertor	1.9	64.9	123

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data Model PA-28-140	
CHECKED				
APPROVED	REPORT VB-162 OPTIONAL EQUIPMENT LIST		PAGE 15 Section 1	
Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Radio</u> (Cont'd)			
	Bendix ADF-T-12			
	Receiver	3.8	64.0	243
	Audio Amplifier	.8	64.0	51
	Radio Compass	1.7	66.4	113
	Loop Antenna	1.2	160.8	193
	Cable, Antenna	1.5	108.0	162
	Sense Antenna and Cable	.4	150.0	60
	Microphone	.5	75.0	38
	Headset	.5	65.0	33
	Narco ADF-31			
	Panel Unit	4.8	63.5	305
	Sensor Unit and Doublers	2.2	162.7	358
	Sensor Cable	2.3	105.6	243
	Sense Antenna and Cable	.4	150.0	60
	Narco VOA-8 Omni Convertor	3.3	64.4	213
	Narco VOA-9 Omni Convertor	3.4	64.4	219
	Narco UDI-4 DME			
	Receiver	8.5	61.7	524
	Antenna	.3	113.9	34
	Cable, Antenna	.4	100.0	40

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA. REPORT VB-162 OPTIONAL EQUIPMENT LIST	Weight and Balance Data Model PA-28-140
CHECKED		
APPROVED		PAGE 16 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Radio</u> (Cont'd)			
	UGR-2 Glide Slope			
	Receiver	2.4	141.8	340
	Cable	1.8	106.0	191
	Antenna	.4	92.4	37
	Cable, Antenna	.5	145.0	73
	Transmitter Selector (Dual VHF Only)	.7	66.3	46
	Junction Box	.6	66.3	40
X	<i>GENAVUE ALPHA 200</i>	5.3	61.0	323.3
	<u>Miscellaneous</u>			
	Fire Extinguisher - Stop Fire #A-20	7.5	93.0	698
	Fire Extinguisher - Kidde Kompact VI (With Brackets)	5.3	85.0	451
X	Nose Wheel Fairing - Piper Dwg. 65348	3.8	34.8	132
X	Main Wheel Fairings - Piper Dwg. 65237	7.0	109.6	767
	Toe Brakes (Dual)	10.5	54.6	573
	Toe Brakes (Single)	5.0	54.6	273
X	Assist Step	1.8	156.0	281
	Inertia Safety Belt (Set of 2)	2.5	111.6	279
X	Lighter	.2	67.9	14

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA. REPORT VB-162 OPTIONAL EQUIPMENT LIST	Weight and Balance Data
CHECKED		Model PA-28-140
APPROVED		PAGE 17 Section 1

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Miscellaneous</u> (Cont'd)			
<u>X</u>	Jump Seat Installation, Piper Drawing 66664			
<u>X</u>	Jump Seats (2)	16.2	118.0	1912
<u>X</u>	Jump Seat Belts and Cables	1.1 *	123.0	135
	Close Out Panel	7.3 *	140.6	1026
<u>X</u>	Ventilators (2)	1.0	100.9	101
<u>X</u>	Ash Trays (2)	.8	110.2	88
<u>X</u>	Assist Strap and Coat Hook	.2	109.5	22
	Baggage Tie Down Straps	.8	126.7	101
	Adjustable Front Seat (Left)	3.8 *	85.5	325
	Adjustable Front Seat (Right)	3.8 *	85.5	325
	Overhead Vent System	1.2	130.0	156
	TOTAL OPTIONAL EQUIPMENT	54.6	102.1	5574

EXTERIOR FINISH

Base Color Juneau White

Trim Color Beaumont Blue

Accent Color Ocala Orange

Registration No. Color Beaumont Blue

Type Finish Lacquer

* Weight and moment difference between standard and optional equipment.

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

FOR FAA USE ONLY

OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form.

1. AIRCRAFT	MAKE Piper	MODEL PA-28-140 "C"
	SERIAL NO. 28-26671	NATIONALITY AND REGISTRATION MARK N 5840U
2. OWNER	NAME (As shown on registration certificate) Jones, Vernon U. Jones, Joyce W.	ADDRESS (As shown on registration certificate) 1040 45TH Street N.E. Washington, D.C. 20019

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION				5. TYPE	
UNIT	MAKE	MODEL	SERIAL NO.	REPAIR	ALTERATION
AIRFRAME	***** (As described in item 1 above) *****				XX
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE				
	MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
Charles W. Chandler % Montgomery County Airpark Gaithersburg, Md 20760	☒ U.S. CERTIFICATED MECHANIC	A&P 1536671
	☐ FOREIGN CERTIFICATED MECHANIC	
	☐ CERTIFICATED REPAIR STATION	
	☐ MANUFACTURER	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE August 27, 1970	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Charles W. Chandler</i>
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7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED

BY	FAA FLT. STANDARDS INSPECTOR	MANUFACTURER	☒ INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	REPAIR STATION		
DATE OF APPROVAL OR REJECTION 8-27-70		CERTIFICATE OR DESIGNATION NO. 1536671 FA	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Charles W. Chandler</i>	

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed a Genave Alpha 200 in accordance with the manufacturers instructions and recomendations, using the existing antennas.

This installation complies with AC 43.13-2 Chapter 2 as applicable.

Computed wt. & bal. data and entered in the aircraft records.

Revised the equipment list to reflect this change.

***** END *****

☐ ADDITIONAL SHEETS ARE ATTACHED