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AIRPLANE FLIGHT MANUAL

MODEL PA-28-140

FAA IDENTIFICATION NO. N7292J

SERIAL NO. 28-24645

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA APPROVED: H. E. Waterman

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

DATE: February 14, 1964

Log of Revisions

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

FAA APPROVED 2/14/64

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
9	3	Procedure Section. Added Item No. 4 "Electric Pitch Trim Procedures"		
	4	Added Page 4	H.C. Faller Supervisor SO-EMDO-43	3/16/66
10	4	Add Procedures Section And Item 5		
	3	Added Placard No. 5	H. C. Faller Supervisor SO-EMDO-43	5/20/66
11	3	Added Placard No. 6	H.C. Faller Supervisor SO-EMDO-43	12/6/66
12	2	Revised C.G. Range	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.	H.C. Faller Supervisor SO-EMDO-43	11/27/67

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Piper Model PA-28-140
Normal and Utility Categories

FAA Identification No. N7292J

Serial No. 28-24645

AIRPLANE FLIGHT MANUAL

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

Engine	Lycoming 0-320-E2A
Engine Limits	For all operations 2700 rpm, 150 hp
Fuel	80/87 Octane Aviation Fuel
Propeller	Sensenich M74DM, Maximum diameter 74 inches. Minimum diameter 72-1/2 inches. Static RPM at maximum permissible throttle setting: 2150 - 2425 for maximum allowable weight of 1950 lbs 2275 - 2425 for maximum allowable weight of 2150 lbs No additional tolerance permitted.
Power Instruments	Oil temperature: 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)
	Oil temperature: GREEN arc (normal operating range) 75° F to 245° F; RED line (maximum) 245° F (S/N 20,551 and up)
	Oil pressure: 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.
	Fuel Pressure: 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).
	Fuel Pressure: 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).
	Tachometer: 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.

FAA APPROVED 2/14/64

REVISED 12/13/65 Rev. No. 8

Maximum Weight — 2150 Lbs. (See Limitations Section for Static RPM Limits).

Baggage Capacity — 200 Lbs.

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.

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.

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. On the instrument panel 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."

Placards (Cont'd)

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 AND 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."

6. On the instrument panel 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

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 Only)
   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^{o} pitch change and 30 Ft. altitude variation.
5. (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 60^{o} bank, and 100' altitude loss.
   e. In approach configuration malfunction, 1 second delay results in 10^{o} bank and 0' altitude loss.

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	--	--	--	--

Load w/ full ... 556 = 3 pass + 46 ...
556 = ... 178 pass

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
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WEIGHT AND BALANCE DATA
MODEL PA-28-140 CHEROKEE

Airplane Serial Number 28 - 24645

Registration Number N7292J

Date JUN 6 1968

Empty wt. 1277.7
Empty CG 85.08
Useful load 872 norm
672 utility

7-1-72

AIRPLANE EMPTY WEIGHT

Item	Weight (lbs)	X	C.G. Arm (Inches Aft of Datum)	=	Moment (In-lbs)
Standard Empty Weight * ~~XXXXXX~~ Computed	1204.0		84.7		101930
Optional Equipment	63.7		91.8		5847
Unusable Fuel (3 Pints)	2.2		103.0		227
Licensed Empty Weight = Total of Above Items	1269.9		85.1		108004

* 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)	-	(1269.9 lbs)	=	880.1 lbs.
Utility Category:	(1950 lbs)	-	(1269.9 lbs)	=	680.1 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.

James E. Wood

INSPECTION REPRESENTATIVE

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.) Baggage capacity is limited to 200 pounds by tiedown requirements.

SAMPLE LOADING PROBLEM (Normal Category)

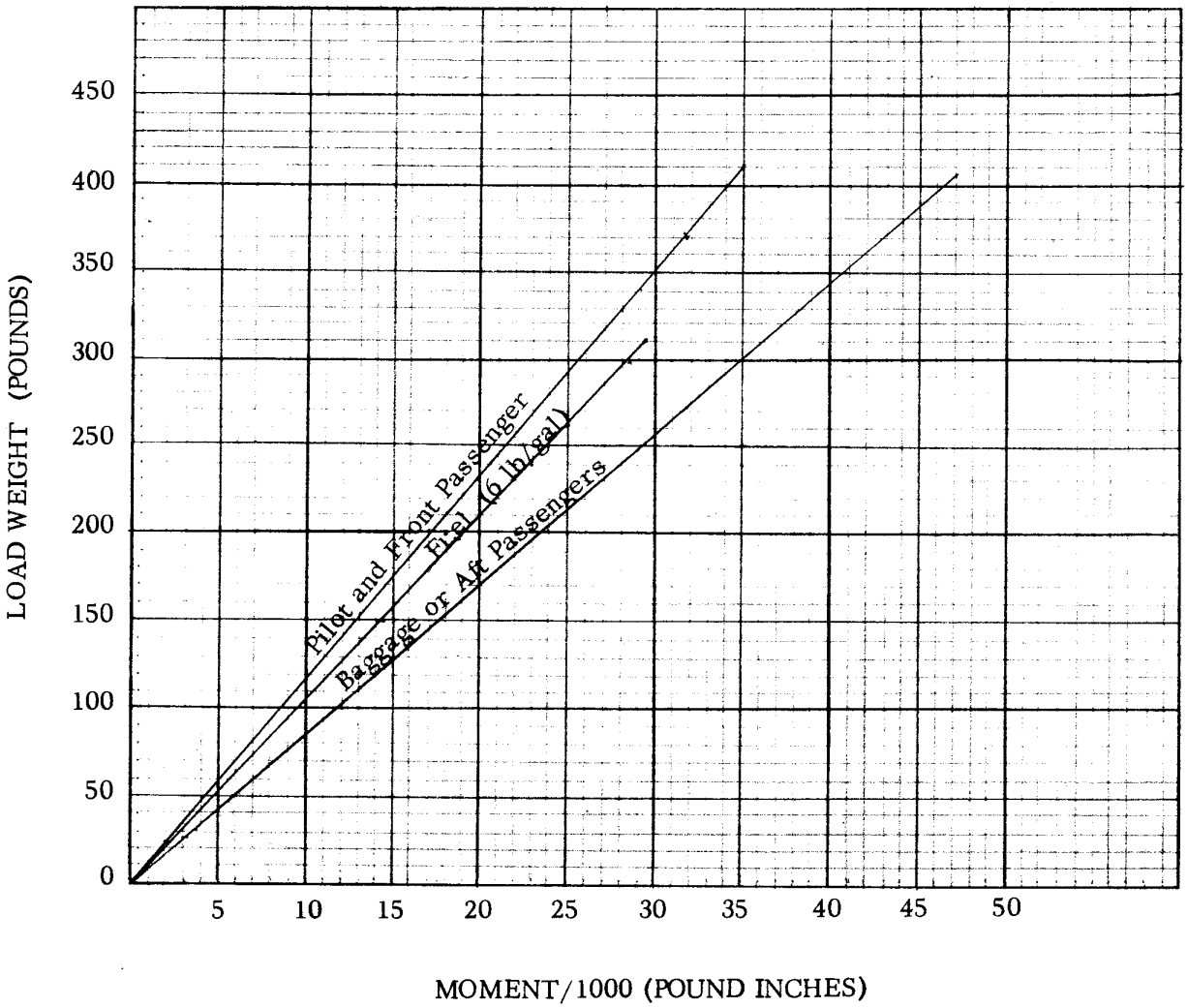
	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Licensed Empty Weight	1269.9	85.1	108004
Oil (8 quarts)	15	32.5	488
Pilot and Front Passenger	340	85.5	29070
Passengers, Aft *	340	117.0	39780
Fuel (50 Gal. Maximum) 30.9 gal.	185.1	95.0	17585
Baggage *		117.0	
Total Loaded Airplane	2150.0	90.7	194927

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.

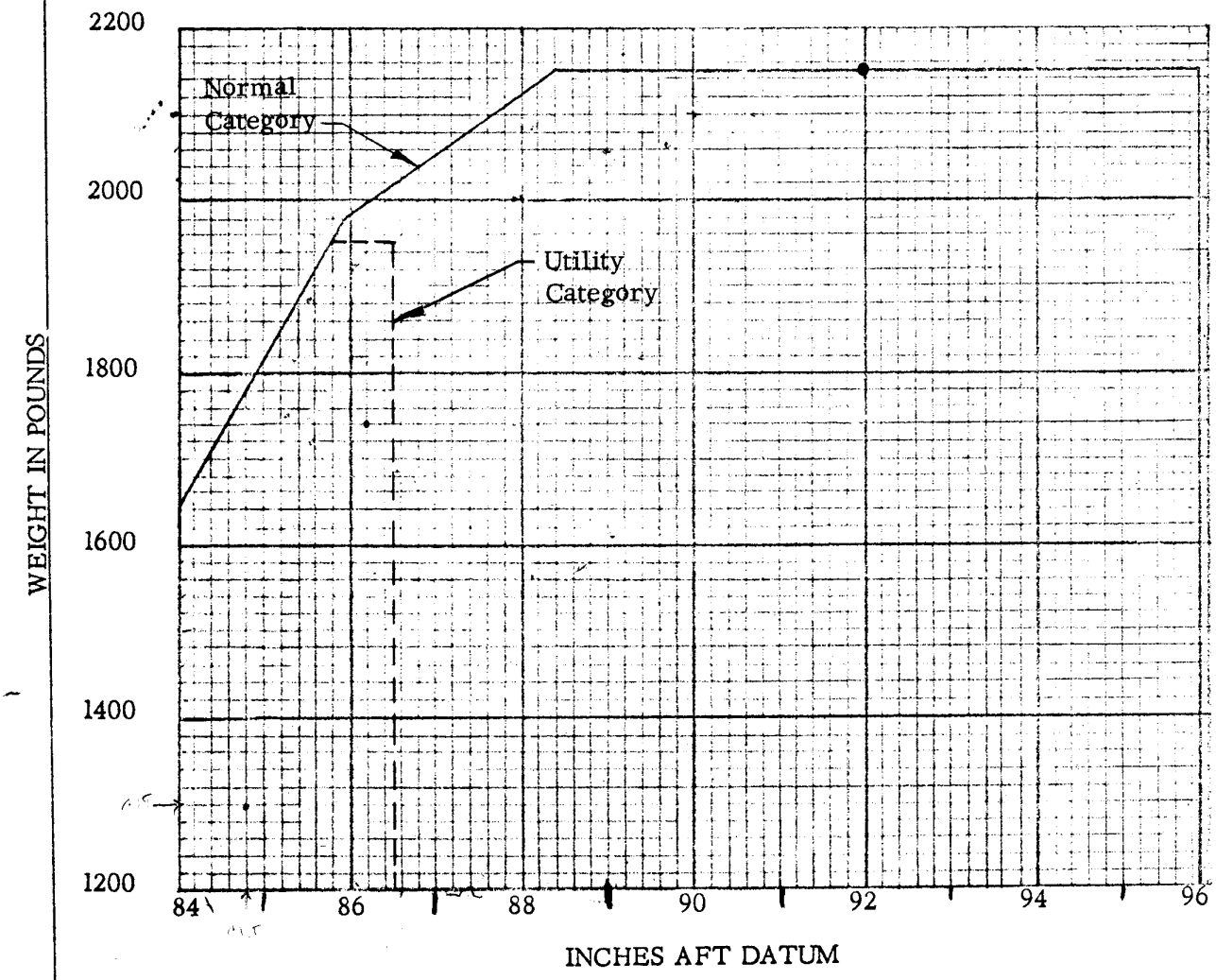
IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

* Utility Category Operation - No baggage or aft passengers allowed.

LOADING GRAPH



C.G. RANGE AND WEIGHT



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 locationThis 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. Open all fuel drains and operate engine until all unusable and undrainable fuel is used from each tank 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.

   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, nose wheel strut exposure should be 3.50 inches and main gear fully extended.

   b. Level airplane (see diagram) by deflating nose wheel tire, to center bubble on level.

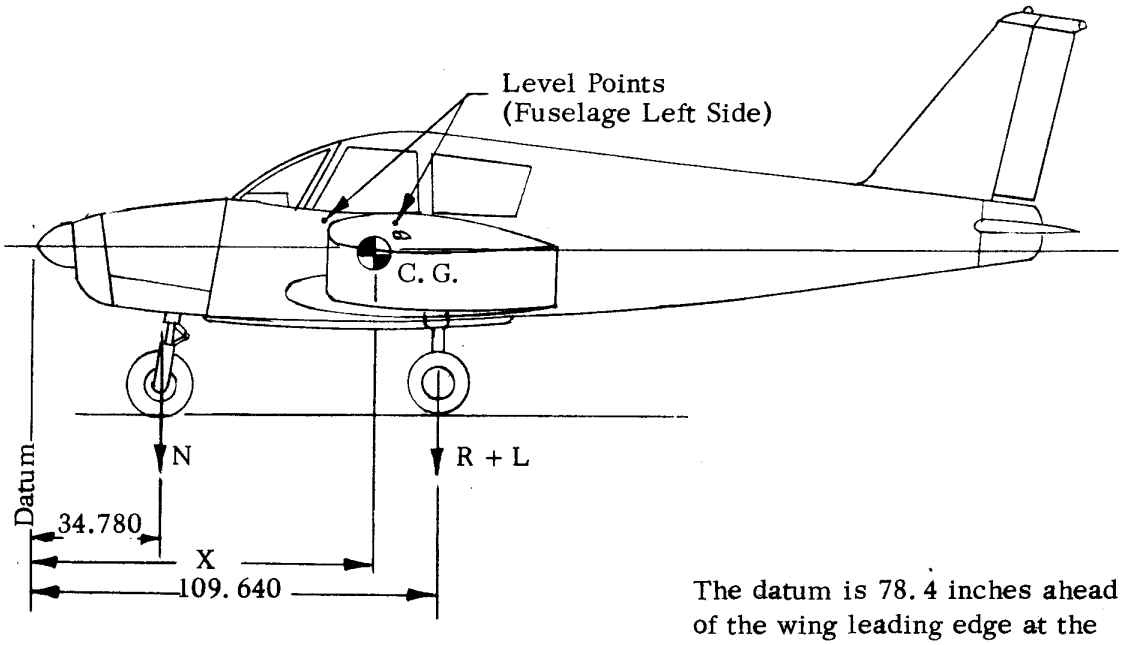
3. WEIGHING - AIRPLANE EMPTY WEIGHT

a. 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 airplane when airplane is level (See Item 2).



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

b. The empty weight center of gravity (as weighed including optional equipment and undrainable oil) can be determined by the following formula:

$$\text{C.G. Arm} = X = \frac{(N)(34.780) + (R + L)(109.640)}{(T)}$$

$$X = \frac{(\quad)(34.780) + (\quad)(109.640)}{(\quad)} = \quad \text{inches aft datum}$$

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			

WEIGHT AND BALANCE
STANDARD EQUIPMENT LIST
MODEL PA 28-140

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
X	Engine - Lycoming Model O-320-E2A	261.4	26.1	6822
X	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
X	Fuel Pump, Engine Driven, Lycoming Dwg. No. 73297, 74082, 75148 or 75246	1.6	41.3	66
X	Oil Cooler, Piper Dwg. Harrison #C-8526250	2.6	18.1	47
X	Filter, Fram Model CA-161PL or AC No. A48C or Purolator AFP-2	.9	20.1	18
	Starter - Lycoming #69952 (Delco Remy #1109657)	* 17.0	19.5	332
X	Starter - Lycoming #76210 (Prestolite MZ 4204)	* 17.0	19.5	332
X	Alternator, 35 Amp., Chrysler No. 2098615 or No. 2642996	12.5	19.0	238
	Propeller and Propeller Accessories			
X	Propeller, Sensenich M74DM58	30.0	10.1	303
X	Spinner and Attachment Plates	2.0	8.0	16
	Landing Gear and Brakes			
X	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
X	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 Model PA-28-140
CHECKED		
APPROVED	STANDARD EQUIPMENT LIST	PAGE 9 Section 1

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Electrical Equipment			
X	Stall Warning Device, Safe Flight Instrument Corp., No. C52207-4	.2	80.2	16
X	Voltage Regulator, Chrysler No. 2098613	.5	57.8	29
	Battery 12V 25 A.H., Rebat Model S-25	21.5	114.9	2470
	Instruments			
X	Compass - Airpath No. C2350-L41	.9	66.6	60
	Airspeed Indicator, Piper Drawing 63205	.6	67.7	41
	Tachometer, AC1548302	.8	67.7	54
X	Tachometer, Stewart-Warner, PAC 62177	.7	67.7	47
	Altimeter, Aero Marine No. 522	1.4	66.8	94
X	Engine Cluster - Piper Drawing 63426	.8	68.8	55
	Engine Cluster - Piper Drawing 63922-2	.8	68.8	55
X	Altimeter, Macleod No. 12003 or 12003M	1.0	66.8	67
	Miscellaneous			
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.

OPTIONAL EQUIPMENT LIST

MODEL PA-28-140

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
X	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1 or 113A5 or 200 cc and Drive	5.0	37.0	185
	Starter-Lycoming 74092 (Delco Remy 1109511) (Weight 18.0 lbs.)	1.0 *	19.5	20
	Starter-Lycoming 76211 (Prestolite MZ 4206) (Weight 18.0 lbs.)	1.0 *	19.5	20
X	Oil Filter-Lycoming #74911 (AC 81-A #6437032)	3.3	40.5	134
X	Vacuum Regulator and Filter	2.2	57.0	125
	Vacuum Regulator	1.5	56.0	84
	Electrical Equipment			
X	Rotating Beacon, Grimes #40-0101-7-12 or Grimes #40-0101-15-12	1.5	263.4	395
X	Landing Light, G.E. Model 4509	.5	18.1	9
X	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
X	Navigation Light (rear)(1) Grimes Model 2064 (White)	.2	281.0	56
X	Battery 12V., 35 A.H. Reading R-35 (Weight 27.0 lbs.)	5.5 *	114.9	632

* Weight and Moment difference between standard and optional equipment.

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Electrical Equipment (Cont'd)			
_____	Roll Servo Mitchell 1X221E-CH-1	2.8	60.6	170
_____	Console Amplifier and Cables, Mitchell 1X214E	1.8	66.6	120
X	Dome Light	.3	104.0	31
X	Speaker	.8	104.0	83
_____	Rotating Beacon, Whelen Model WRML-12	1.6	263.4	421
_____	Auxiliary Power Receptacle 65529	1.3	153.0	199
_____	Diode	2.0	111.5	223
_____	External Power Cable 62355-7	4.6	117.0	538
_____	Piper Auto Control-Mitchell #AKO85	4.5	60.0	270
_____	Piper Pitch Trim	4.0	158.0	632
_____	Heated Pitot Head	.4	100.0	40
X	STROBE LIGHT	2.0	156	312
	Instruments			
_____	Turn and Bank, Pioneer A-5	1.5	66.4	100
_____	Suction Gauge, AN5771-11	.5	68.1	34
_____	Suction Gauge, U.S. Gauge AW1821AFO3	.5	68.1	34
X	Suction Gauge, Airborne Mechanisms 1G3-4	.5	68.1	34
_____	Rate of Climb, Standard Precision SP-1403-(1)-PIP	.5	66.8	33

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments (Cont'd)			
_____	Altimeter, AN5760-2 (C-12 or C-13)	Same as Standard Equipment Weight		
_____	Rate of Climb, Pioneer C-7	1.0	66.8	67
_____	Rate of Climb, AN5825	1.0	66.8	67
_____	Artificial Horizon, Jack & Heintz	2.8	66.1	185
_____	Artificial Horizon, Garwin (3")	1.8	65.8	118
_____	Artificial Horizon, AIM (3")	2.2	65.3	144
_____	Directional Gyro, Jack & Heintz	2.6	66.6	173
_____	Directional Gyro, Sperry	3.9	66.6	260
_____	Directional Gyro, Garwin (3")	2.4	65.6	157
_____	Directional Gyro, AIM (3")	3.1	64.9	201
X	Air Temperature Gauge, Rochester Manufacturing Co., No. 1592-C2 or NHM-70(Manning, Maxwell & Moore)	.2	82.6	17
X	Clock, 8-Day - MIL-C-7939	.4	68.3	27
_____	Piper Course Selector, PAC 31058	3.0	66.6	200
X	Tru-Speed Indicator, PAC 62143	Same as Standard Equipment Weight		
X	Rate of Climb, Karnish AC 135-3	1.0	66.8	67
X	Pictorial Rate of Turn, Mitchell 52D69	1.3	66.2	86
_____	Turn and Bank, Electric	2.2	65.8	145
_____	Brittain Turn Coordinator #TC-100(12)	2.6	65.6	171
X	Artificial Horizon, R.C. Allen (3")	2.2	66.6	147
X	Directional Gyro, R. C. Allen (3")	3.3	65.7	217

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	AutoPilots			
	AutoControl II			
	Roll Servo, Mitchell #1X221E-CH-1	2.8	60.6	170
	Console, Mitchell #1X224E-3	1.3	66.6	87
	Directional Gyro, Mitchell #52B15E	4.3	66.6	286
	or Directional Gyro, Course Selector PAC Drawing 31058-2	3.0	66.6	200
	Artificial Horizon, Mitchell #52B9	4.5	66.1	298
	Auto Flite			
	Roll Servo, Mitchell #1D363-153	2.6	122.2	318
	Gyro Amplifier, Mitchell #1C359	1.8	111.8	201
	Cables	1.0	95.5	96
	Panel Unit	.3	68.8	21
	Radio			
	Piper Radio Compass PRC-3	4.5	64.4	290
	Piper VHF Transceiver PTR-1	5.0	64.8	324
	Piper Omni Convertor O-1	2.5	65.3	163

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
_____	King KX150B	9.1	62.8	572
X	Omni Receiving Antenna, Narco VRP-37	1.4	203.0	284
X	VHF Transmitting Antenna, Narco VTP-17-VHF-1 (Includes Cable)	.7	135.0	95
_____	Low Frequency Antenna	.5	167.0	84
_____	Loop Antenna (PRC-3)	.3	54.5	16
X	Narco Mark 12A	6.0	61.9	372
_____	Transceiver	6.0	62.8	377
X	Modulator - Power Unit	4.0	56.0	224
_____	Cable	.3	58.0	17
_____	Narco VOA-6 Omni Convertor	1.8	65.3	118
_____	Narco VOA-5 Omni Convertor	3.1	65.3	202
X	Narco VOR-4 Omni Convertor indicator	3.0	65.3	196
_____	Narco Omnigator VTR-2A Installation (Less Antenna)	14.0	58.0	812
_____	Marker Antenna	1.2	64.8	78
X	~~Narco Mark HI~~	~~7.5~~	~~63.6~~	~~477~~
_____	Piper Radio Compass PRC-4	4.9	64.4	316
_____	Loop Antenna (PRC-4)	.4	112.6	45
_____	Piper Omni Convertor OL-1	2.8	65.3	183
_____	VHF Transmitting Antenna, Narco VTP-17-VHF-2 (Includes Cable)	.8	156.6	125

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
CHECKED		
APPROVED	OPTIONAL EQUIPMENT LIST	PAGE 15 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
	Bendix ADF-T-12			
	Receiver	3.8	64.9	247
	Audio Amplifier	.8	64.9	52
	Radio Compass	1.7	67.3	114
	Loop Antenna	1.2	160.8	193
	Cable, Antenna	1.5	108.0	162
X	Microphone	.5	66.0	33
X	Headset	.5	66.0	33
	Narco ADF-31A, Piper Drawing 65602			
	Panel Unit	4.8	64.4	309
	Sensor Unit and Doublers	2.2	162.7	358
	Sensor Cable	2.3	105.6	243
	Sense Antenna and Cable	.4	150.0	60
	Omni Tracker (#1D482)	.5	64.5	32
	Narco VOA-8 Omni Convertor	3.3	65.3	215
	Narco VOA-9 Omni Convertor	3.4	65.3	222
~~X~~ X	~~Genave Alpha 200 Transceiver~~ Narco Escort 110 4-27-78	~~5.3~~ 5.0	~~65.3~~ 63	~~359~~ 315
	Miscellaneous			
	Fire Extinguisher - Stop Fire #A-20	7.5	93.0	698
	Nose Wheel Fairing, Piper Dwg. 65348	3.8	34.8	132
	Main Wheel Fairings, Piper Dwg. 65237	7.0	109.6	767
	Toe Brakes (Dual)	10.5	54.6	574
X	Toe Brakes (Single)	5.0	54.6	273
	Fire Extinguisher, Kidde Kompact VI (With Brackets)	5.3	85.0	451

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Miscellaneous (Cont'd)			
X	Assist Step	1.8	156.0	281
X	Jump Seat (2) Piper Drawing 65500	16.2	118.0	1912
	Inertia Safety Belt, PAC 65766 (Set of 2)	2.5	111.6	279
X	Jump Seat Belts and Cables	1.1 *	123.0	135
X	Assist Strap and Coat Hooks	.2	109.5	22
X	Lighter	.2	68.8	14
	TOTAL OPTIONAL EQUIPMENT	63.7	91.8	5847

EXTERIOR FINISH

Base Color Juneau White

1st Trim Color Newport Blue

2nd Trim Color

Registration No. Color Newport Blue

Type Finish Lacquer

* Weight and moment difference between standard and optional equipment.