PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	
CHECKED		
APPROVED		PAGE

AIRPLANE FLIGHT MANUAL

MODEL PA-28-180

FAA IDENTIFICATION NO. N9242J

SERIAL NO. 28-3316

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA APPROVED: Original signed by Walter R. Haldeman *
Walter R. Haldeman
Chief, Engineering & Manufacturing Branch
Southern Region - - - Atlanta, Georgia

DATE: August 3, 1962

* FAA APPROVED: Gene Dearing For R
Gene Dearing
Aerospace Engineer

DATE: August 12, 1964

Piper Model PA-28-180

Normal and Utility Categories

AIRPLANE FLIGHT MANUAL

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

Engine	Lycoming 0-360-A3A or 0-360-A4A
Engine Limits	Maximum permissible RPM for takeoff, 2475. For all other operations, 2700 rpm, 180 hp, (A/C S/N 28-671 to 1760A). For all operations, 2700 rpm, 180 hp, (A/C S/N 28-1571, 1573, 1761 and up).
Fuel	91/96 minimum octane aviation fuel.
Propeller	Sensenich M76 EMM or 76EM8 (S/N 671 to 1760A) Sensenich M76 EMMS or 76EM8S5 (S/N 1571,1573, 1761 & up) Maximum diameter 76 inches, minimum diameter 76 inches. Static RPM at maximum permissible throttle setting. Not over 2450, not under 2275. 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 671 to S/N 1760A) Oil Temperature: GREEN arc (Normal operating range) 75° F to 245° F; RED line (maximum) 245° F (S/N 1571, 1573, 1761 & up) Oil Pressure: GREEN arc (normal operating range) 60 psi to 90 psi; YELLOW arc (caution range) 25 psi to 60 psi; RED line (minimum) 60 psi; RED line (maximum) 90 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 671 to S/N 1760A) Fuel Pressure: GREEN arc (normal operating range) .5 psi to 8 psi; RED line (minimum) .5 psi; RED line (maximum) 8 psi (S/N 1571, 1573, 1761 and up) Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.

Airspeed Limits

Never exceed	171 mph
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

Maximum Weight

2400 lbs. - Normal Category; 1950 lbs. - Utility Category.

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)
2400	92.1	94.5
2200	89.2	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 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

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 the inside of the baggage compartment door:

   "MAXIMUM BAGGAGE 125 LBS." (S/N 671 to 1760A)
   (MAXIMUM BAGGAGE MAY BE INCREASED TO 200 LBS. IN ACCORDANCE WITH PIPER SERVICE SPARES LETTER NO. 242)

   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. In full view of the pilot:

   "ROUGH AIR OR MANEUVERING SPEED 129 MPH." ✓

   "UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED." ✓

5. 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." ✓

6. 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." ✓

Placards (Cont'd) 7. 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	67 to 140 mph (58 to 121 knots)
	WHITE arc	Flap Down Range	57 to 115 mph (50 to 100 knots)

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. The PA-28-180 airplane is approved under FAA Regulation CAR 3 which prohibits intentional spins for normal category operation. The following information is noteworthy:
   a. The stall characteristics of the PA-28-180 are normal with the nose pitching down moderately following the stall, occasionally with a moderate roll which can be corrected by normal use of ailerons and rudder against the roll.
   b. Prolonged use of full rudder during stall practice may result in a rapid roll followed by a spin and should be avoided. Recovery from an incipient spin may be effected in less than one additional turn by use of opposite rudder followed by full forward control wheel.
   c. In the event that a fully developed spin is inadvertently experienced, recovery is best made by using full opposite rudder followed by full forward wheel and full opposite aileron. The control positions against the spin should be maintained during the entire recovery, which may require several turns and a substantial loss of altitude if the airplane is loaded heavily with a rearward center of gravity.
4. Except as noted above, all operating procedures for this airplane are normal.

Procedures Section (Cont'd.)

5. (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.

6. (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 Ft. altitude loss.

   e. In approach configuration malfunction, 1 second delay results in 10^{o} bank and 0 Ft. altitude loss.

7. (AutoControl III Installation Only)
   I. Limitations:
   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, pilot may be overpowered manually.
         3. In cruise configuration malfunction, 3 seconds delay results in 60^{o} bank and 100 Ft. altitude loss.
         4. In approach configuration malfunction, 1 second delay results in 10^{o} bank and 0 Ft. altitude loss.

3. Performance Section

The following performance figures were obtained during FAA Type tests and may be realized under conditions indicated with the airplane and engine in good condition and with average piloting technique. All performance is given for 2400 pounds.

Loss of altitude during stalls varied from 125 to 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	67	69	76	83	94
Flaps Down	57	--	--	--	--

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	1	Deleted Propeller Pitch Information. Added Static R.P.M. Information	for H. E. Waterman Supervisor SO-EMDO-42	5/25/64
2	2	Placards Section: Added Placard No. 5	H. E. Waterman Supervisor SO-EMDO-42	7/8/64
3	2	Added to Placard No. 3: "BAGGAGE, MAX. 200 LBS., SEE WEIGHT AND BALANCE DATA FOR BAGGAGE LOADINGS BETWEEN 150 LBS. AND 200 LBS."	for H. C. Faller Supervisor SO-EMDO-43	8/5/64
	1	Added Sensenich M76EMMS		
4	3	Item 5 added to Procedures Section.	H. C. Faller Supervisor SO-EMDO-43	10/20/64
5	1	Limitations Section: Revised Oil Temperature and Fuel Pressure Range	for H. C. Faller Supervisor, SO-EMDO-43	6/23/65
6	1	Limitation Section: Add note to Engine Limits	H. C. Faller Supervisor, SO-EMDO-43	1/5/66
7	2	C. G. Range: 1975 lbs. 85.9 In. 95.9 In. 1650 lbs. 84.0 In. 95.9 In. Was 18.50 lbs. 85.1 In. 95.9 In.		
	4	Added Procedures Section And Item 6		
	2	Added Placard No. 6	H. C. Faller Supervisor SO-EMDO-43	5/20/66

FAA APPROVED 8/3/62

Log of Revisions

Revision No.	Page	Description	Approved	Date
8	1	Revised Oil Temperature, Oil Pressure and Fuel Pressure Limitations		
	2,3	Revised Placards No. 3 and No. 5		
	5	Added Page 5		
		Procedures Section - Added Item 7		
	6	Added Page 6	for Henry C. Faller Supervisor SO-EMDO-43	7/15/66
9	1	Limitations Section Add "or 0-360-A4A	Henry C. Faller Supervisor SO-EMDO-43	8/2/66
10	2, 3	C. G. Range - Placard No. 1 and Placard No. 3 revised to include utility category operations. Added utility category max. wt. and approved maneuvers		
	4	Procedures Section - Added to Item 3 "For Normal Category Operation". Added Placard No. 7.		
	3	Placards Section - Added utility category operation to Item 4.		
	1	Added Utility Category		
	2	Added maximum positive load factor for Utility Category. Added Baggage Capacity.	Henry C. Faller Supervisor SO-EMDO-43	12/6/66

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
11	3	Placards Section: Revised Placard No. 1 to read, "In Full View of the Pilot"	H. C. Faller Supervisor SO-EMDO-43	5/12/67
12	2	Revised C. G. Range	H. C. Faller Supervisor SO-EMDO-43	9/25/67
13	3, 4	Revised Placard No. 4 and No. 7 to read: "In full view of the pilot"	H. C. Faller Supervisor SO-EMDO-43	4/2/68
14	1	Added Aircraft Serial Numbers 1571 and 1573 to Engine and Propeller Limitations	H. C. Faller Supervisor SO-EMDO-43	6/3/68
15	1	Added Propeller Designations	H. C. Faller Supervisor SO-EMDO-43	6/24/68

WEIGHT-AND-BALANCE REPORT

MAKE Piper MODEL PA-28-180 TC 2A13 Date: 6/21/2023

S/N 28-3316 N9242J

Distance Between Main Wheels and **nose** wheel is 76.2 Inches.

Datum is 78.4 Inches **forward** of wing leading edge. (At approximate spinner tip)

1. Aircraft as Weighed

Position	Scale Reading	- Tare =
Left Wheel		
Right Wheel		
Tail or Nose		

Notes:

Fuel Capacities: Main Fuel- 50 Gal. **(48 usable)**

	Weight	Arm	Moment
Acft. Empty Wt.Total	**1369.2**	**86.3**	**118163**

Data from report revision dated 8/14/2014.

2. Items Removed

Item	Weight x	Arm =	Moment
Dry Air Vacuum Pump	5.0	37.0	185
Directional Gyro	2.4	64.7	155.28
Vacuum Regulator & Filt.	2.2	57.0	125.4
Suction Gauge	0.5	67.2	33.6
Total of Items Removed	**10.1**		499.28

3. Items Added

Item	Weight x	Arm =	Moment
			0
			0
			0
			0
Total of Items	0	#DIV/0!	0

4. C.G. Calculated

	Weight x	Arm =	Moment
Main Wheels	0	109.9	0
Nose Wheel	0	33.4	0
Items Removed	10.1	0.0	499.28
Items Added	0	#DIV/0!	0
New Acft. Empty Wt.Total	**1359.1**	**86.6**	**117664**

Empty Wt. C.G.	**86.6**
Max. Gross Wt.	**2400**
Useful Load	**1040.9**

WEIGHT AND BALANCE EXTREME CONDITIONS

	Forward Weight	x	Check Arm	=	Moment
Aircraft Empty	1359.1		86.6		117663.64
Front Seats	**400**		85.5		34200
Fuel, 50 gal.	**300**		95		28500
Aft Seats	**0**		118.1		0
					0
					0
					0
					0
					0
Total	**2059.1**				180363.64
	TM		180363.64		**87.6**
	TW		**2059.1**		

	Rearward Weight	Check Arm	= Moment
Aircraft Empty	1359.1	86.6	117664
Front Seats	**170**	85.5	14535
Fuel, 46.6 gal.	**280**	95	26600
Aft Seats	**340**	118.1	40154
Baggage	**125**	142.8	17850
Total	**2274.1**		216803
TM		216802.64	**95.3**
TW		**2274.1**	

Signature: Dennis Moseley

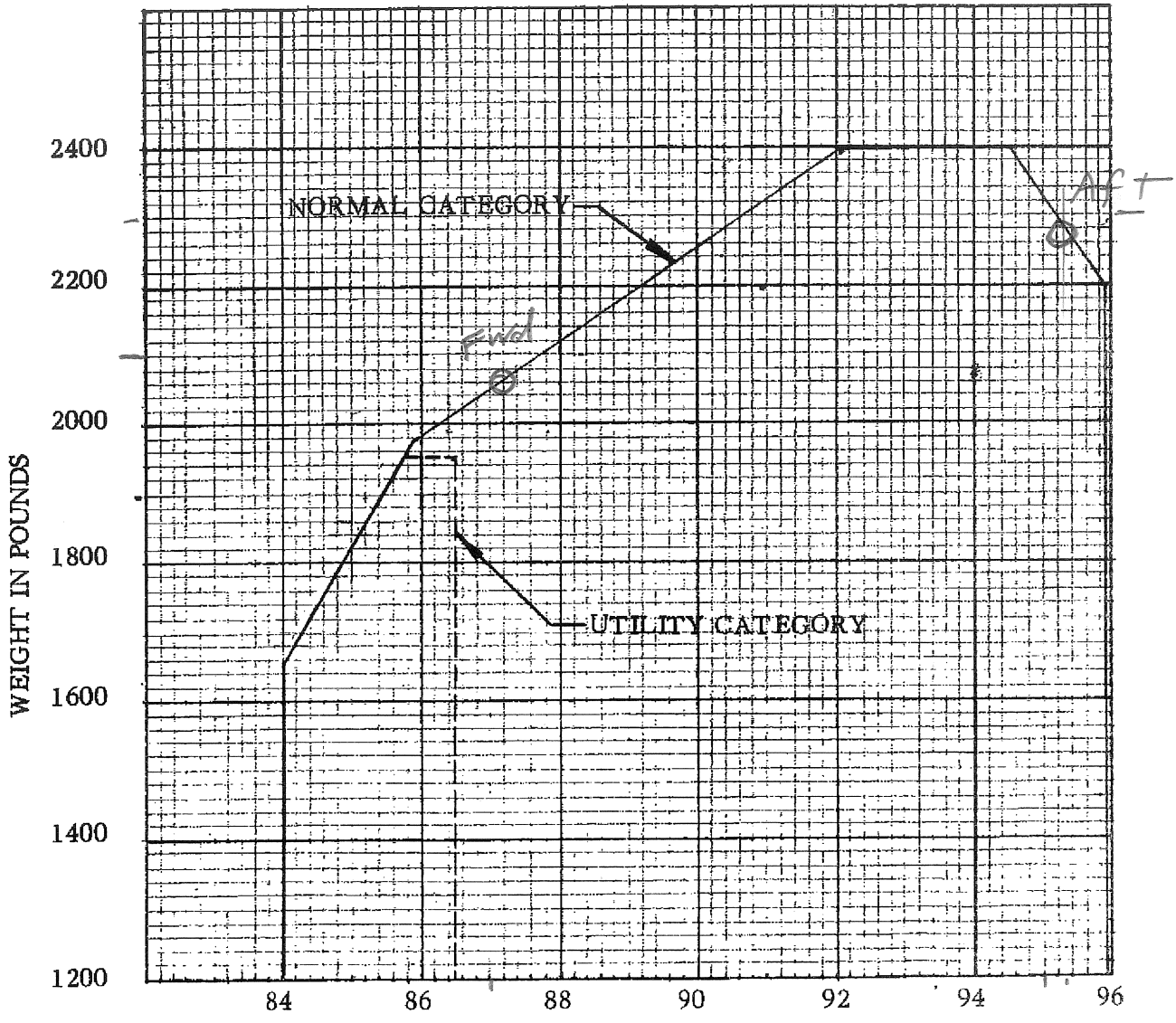
Cert. No. 1849177

Date: 6/21/2023

PREPARED	PIPER AIRCRAFT CORP.	Weight & Balance Data
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.	Model PA 28-180 D
APPROVED		PAGE 4 Section 1

C. G. RANGE AND WEIGHT

6/21/23



Weight / Balance & Equipment List Revision

G & G Avionics - GG7R357J
6002 N. Cedar Ave.
Lubbock, TX 79403-9712 Tel: 806-765-6446

A/C Tail # : N9242J
Register Name : Coyote Flight Center
Name 2 :
Address 1 : 11001 Airport Blvd.
Address 2 :
City, State, PC : Amarillo, TX 79111

A/C Make : PIPER
A/C Model : PA-28-180
A/C Serial # : 28-3316
WO Ref # : 140805
WB Date : Aug-14-2014
WB ID # : 241

Previous data taken from document dated Jul-01-2009 Previous useful load = 1032.06

Model # / *Serial #*	Description / *Part #*	(LB / IN)	Weight	CG/Arm	Moment
		Previous data ->	1367.94	86.32	118082.92
NO ITEMS REMOVED					
INSTALLED ITEMS ----------					
GMA-340 AUDIO PANEL *96265975*	AUDIO PANEL WITH MARKER *011-00401-10*		1.25	64.00	80.00
INSTALLED SUB TOTAL	1 Item @		1.25	64.00	80.00
NEW DATA >>	NEW USEFUL LOAD = 1030.81		1369.19	86.30	118162.92

Supersceded

Authorized Individual : GG7R357j Dustin Delano

WEIGHT AND BALANCE DATA
MODEL PA-28-180 CHEROKEE

Airplane Serial Number 28 - 3316

Registration Number N9242J

Date 1966

AIRPLANE EMPTY WEIGHT

Item	Weight (Lbs)	X	C.G. Arm (Inches Aft of Datum)	=	Moment (In - lbs)
Standard Empty Weight * Computed	1298.0		85.4		110918
Optional Equipment Superceeded	62.9		91.1		5729
Unusable Fuel (3 Pints)	2.2		103.0		227
Licensed Empty Weight = Total of Above Items	1363.1		85.7		116874

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

AIRPLANE USEFUL LOAD

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

Normal Category: (2400 lbs) - (1363.1 lbs) = 1036.9 lbs.

Utility Category: (1950 lbs) - (1363.1 lbs) = 586.9 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.

Wm. Dellee

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.

SAMPLE LOADING PROBLEM (Normal Category)

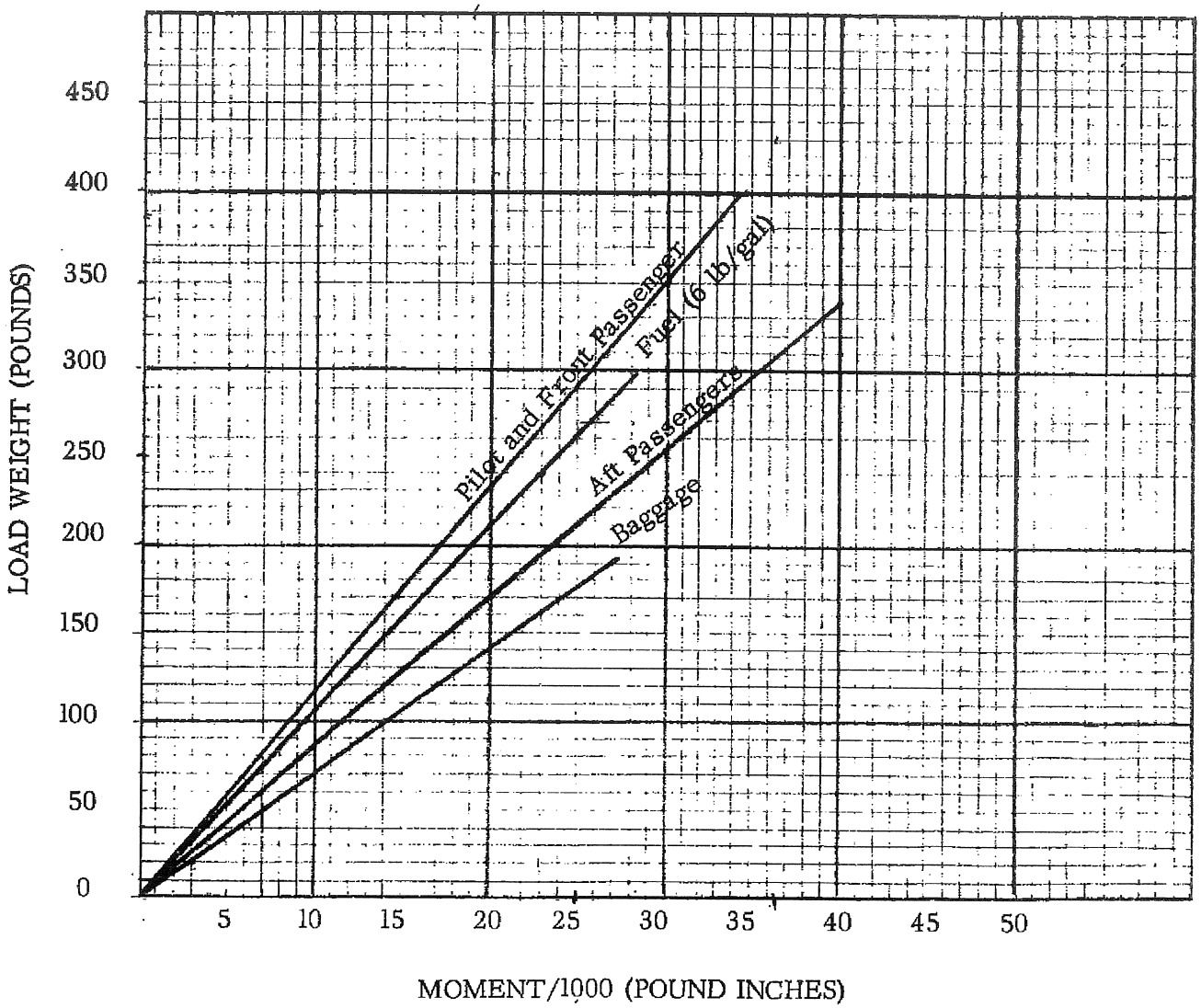
	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In - Lbs)
Licensed Empty Weight	1363.1	85.7	116874
Oil (8 quarts)	15	32.5	488
Pilot and Front Passenger	340	85.5	29070
Passengers, Aft * (Rear Seat)	340	118.1	40154
Fuel (50 Gal. Maximum)	300	95.0	28500
Baggage *	41.9	142.8	5983
Total Loaded Airplane	2400	92.1	221069

The center of gravity (C. G.) of this sample loading problem is at 92.1 inches aft of the datum line. Locate this point (92.1) 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.

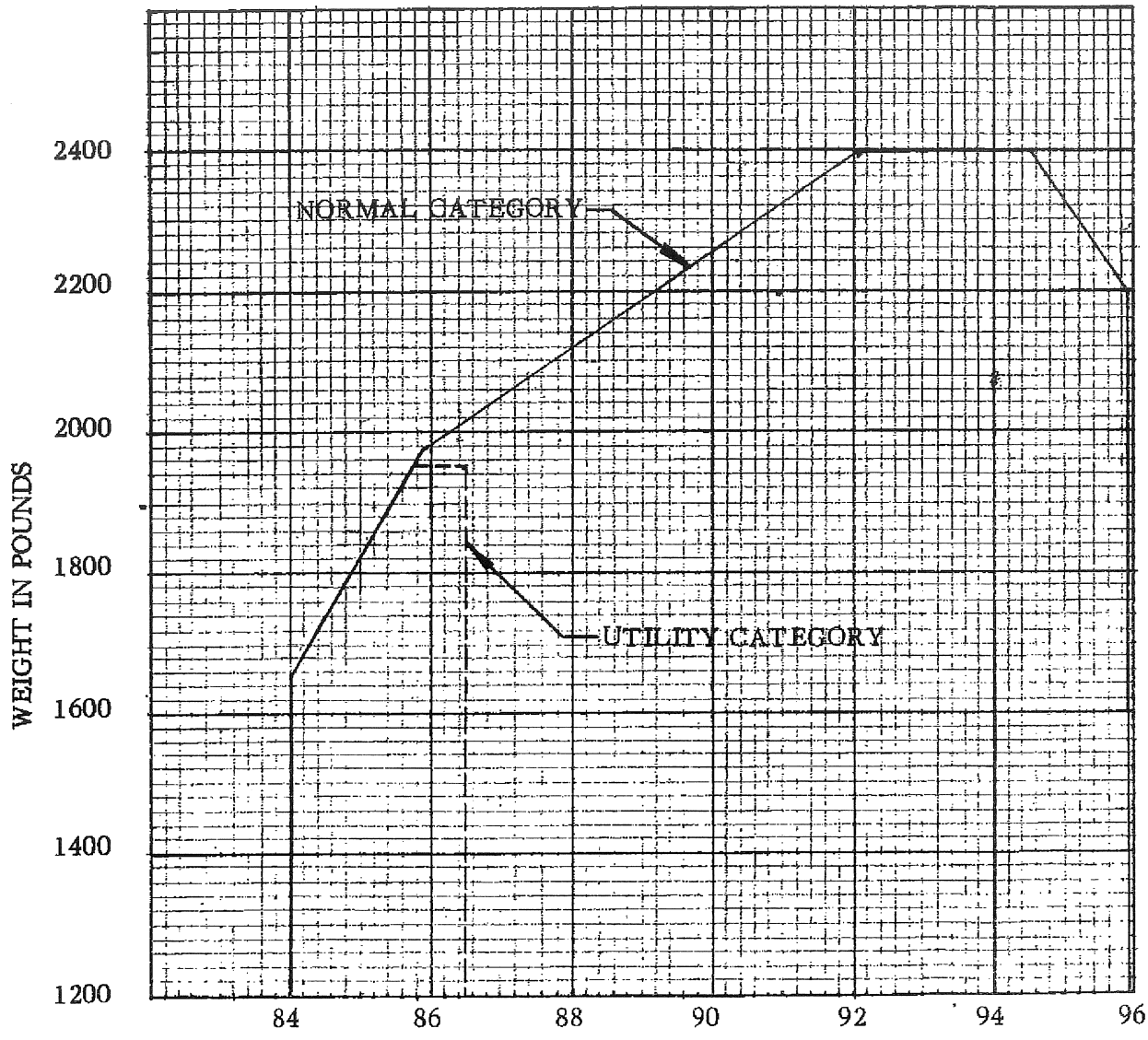
IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

* 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 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.

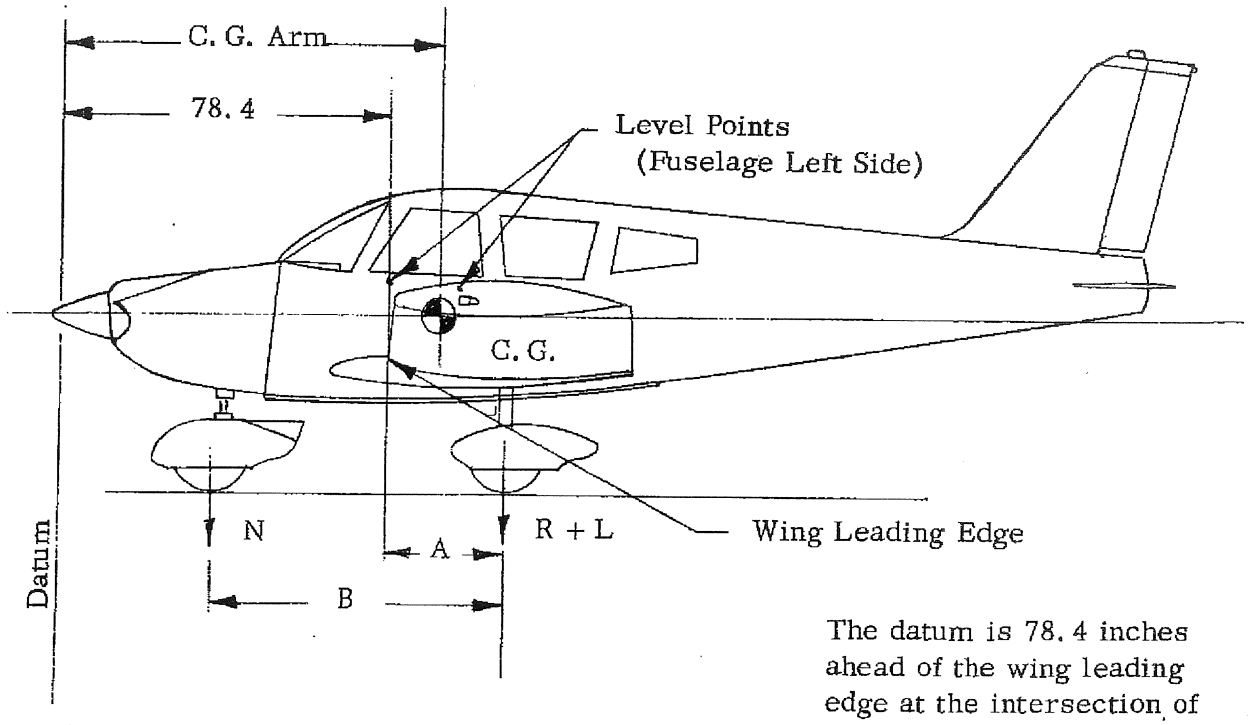
3. WEIGHING - AIRPLANE EMPTY WEIGHT

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-28-180 D 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.

A =

B =

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:

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

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

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			

WEIGHT AND BALANCE
STANDARD EQUIPMENT LIST
MODEL PA-28-180

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
____	Engine - Lycoming Model O-360-A3A	274.4	26.1	7162
X	Engine - Lycoming Model O-360-A4A	282.4	26.1	7371
X	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
X	Fuel Pump, Engine Drive, Lycoming Dwg. No. 73297, 74082, 75148 or 75246	1.6	41.3	66
X	Oil Cooler, Piper Dwg, Harrison C-8526250	2.6	52.3	136
X	Filter, Fram Model CA-161 PL or AC No. A48C or Purolator AFP-2 - BA-104/BA-3	.9	20.1	18
____	Alternator, 35 Amp, Chrysler #2098615	12.5	19.0	238
X	Alternator, 60 Amp, Chrysler #2642210 or #2642997	12.5	19.0	238
____	Starter-Lycoming 74092 (Delco-Remy 1109511) *	18.0	19.5	351
X	Starter-Lycoming 76211 (Prestolite MZ4206) *	18.0	19.5	351
	Propeller and Propeller Accessories			
____	Propeller, Sensenich M76EMM or 76EM8	34.5	10.1	348
X	Propeller, Sensenich M76EMMS60 or 76EM8S5-0-60	38.5	8.8	339
X	Spinner and Attachment Plates	4.3	8.0	34

* Included in Engine Weight.

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Landing Gear and Brakes			
_____	Two Main Wheel Assemblies 6.00-6	32.0	109.6	3507
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-28 Brake Assembly No. 30-18			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
X	Two Main Wheel Assemblies	32.3	109.6	3540
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-86 Brake Assembly No. 30-55			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
X	One Nose Wheel 6.00-6	12.5	34.8	435
	(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			
	Electrical Equipment			
X	Stall Warning Device, Safe Flight Inst. Corporation No. C52207-4	.2	80.2	16
_____	Voltage Regulator, Delco-Remy #118704	1.5	168.5	253
_____	Voltage Regulator, Chrysler #2098613	.5	57.8	29
X	Voltage Regulator, Wico Electric #X-16300	.5	57.8	29
X	Battery 12V, 25 A.H., Rebat Model S-25	21.5	168.0	3612

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instrument			
X	Compass - Piper Drawing 67462	.9	65.7	59
	Airspeed Indicator, Piper Dwg. 63205-2	.6	66.8	40
X	Tachometer, Piper Drawing 62177-3	.7	66.2	46
X	Altimeter, Piper Drawing 67467	1.0	65.9	66
	Engine Cluster, Piper Drawing 65852-2	.8	67.4	54
	Engine Cluster, Piper Drawing 67441-2	.8	67.4	54
X	Engine Cluster, Piper Drawing 95241-4	.8	67.4	54
X	Engine Cluster, Piper Drawing 95241-2	.8	67.4	54
	Miscellaneous			
X	Forward Seat Belts (2)	1.5	86.9	130
X	Aft Seat Belts (2)	1.4	123.0	172
X	Flight Manual	-----	-----	-----
X	Tow Bar	1.3	133.0	173

THE ABOVE ITEMS ARE INCLUDED IN THE AIRPLANE STANDARD EMPTY WEIGHT.

OPTIONAL EQUIPMENT LIST

MODEL PA-28-180 D

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
_____	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1, 113A5 or 200 cc and Drive	5.0	37.0	185
X	Oil Filter - Lycoming No. 74911 (AC of 81A No. 6437032)	3.3	40.5	134
_____	Vacuum Regulator and Filter	2.2	57.0	125
	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 Light (Rear)(1) Grimes Model 2064 (White)	.2	281.0	56
X	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
_____	Battery 12V, 35 A.H., Rebat R-33 or R-35 (Weight 27.0 lbs)	5.5 *	168.0	924
X	Cabin Light	.3	104.0	31
X	Cabin Speaker	.8	104.0	83
_____	Rotating Beacon, Whelen Model WRM L-12	1.6	263.4	421
X	**Strobe System, Whelen Model HDT-3**			
	Power Unit	**3.125**	**156.0**	**487.5**
X (2)	**A429 Heads**	**.125**	**106.6**	**13.3**
X (1)	**A408 Head**	**.375**	**125.4**	**47.0**

* 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)			
_____	Auxiliary Power Receptacle, PAC 62355-3	2.7	168.0	454
_____	External Power Cable, PAC 62355-2	4.6	142.8	657
X	Piper Pitch Trim	4.0	158.0	632
X	Heated Pitot Head	.4	100.0	40
X	Electronics Intl, Clock / Timer	.4	67.4	27
	Instruments			
_____	Suction Gauge - Piper Drawing 67481	.5	67.2	34
_____	Suction Gauge - U.S. Gauge AW1821AFO3	.5	67.2	34
_____	Suction Gauge - Airborne Mechanisms IG3-4	.5	67.2	34

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments (Cont'd)			
	Turn and Bank, Piper Drawing 41711-2	2.2	64.9	143
	Rate of Climb, Garwin #22-201-01-1A	1.0	65.9	66
	Directional Gyro, Garwin (3")	2.4	64.7	155
	Directional Gyro, AIM (3")	3.1	64.0	198
X	Artificial Horizon, Garwin (3")	1.8	64.9	117
	Artificial Horizon, AIM (3")	2.2	64.4	142
X	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
X	Tru-Speed Indicator, PAC 62143-2	Same as Standard Equipment Weight		
X	Pictorial Rate of Turn, Mitchell 52D69	1.3	65.3	85
	Brittain Turn Coordinator TC-100(12)	2.6	64.7	168
X	Exhaust Gas Temperature	.7	60.4	42
	Attitude Gyro, R.C. Allen (3")	2.2	65.6	144
	Directional Gyro, R.C. Allen (3")	3.3	64.8	214
	Manifold Pressure Gauge, PAC 21962	1.1	65.8	72
	Rate of Climb, Standard Precision SP-1403-(1)-PIP	.5	65.9	33
X	Rate of Climb, Karnish #AC-135-3	1.0	65.9	66

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	AutoPilots			
_____	AutoControl III			
_____	Roll Servo, Mitchell #1D363-183R	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 #52D54P (Garwin)	2.5	64.7	162
_____	Directional Gyro, Mitchell #52D54P (AIM)	3.2	64.0	205
_____	Omni Coupler	.9	64.3	58
_____	AutoFlite			
_____	Roll Servo, Mitchell #1D363-183R	2.6	122.2	318
_____	Gyro Amplifier, Mitchell #1C359	1.8	111.8	201
_____	Cables	1.0	95.5	96
_____	Panel Unit	.3	67.9	20

PREPARED	PIPER AIRCRAFT CORP.	Weight and Balance Data
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.	Model PA-28-180
APPROVED	OPTIONAL EQUIPMENT LIST	PAGE 15 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio			
	KX 155 Nav-comm	4.3	63.7	274
	Receiver	1.1	121.3	133
	Panel Unit	.3	68.1	20
	Cable	.3	85.0	26
	Piper Radio Compass PRC-3	4.5	64.4	290
	Piper VHF Transceiver PTR-1	5.0	64.8	324
	Piper Omni Convertor 0-1	2.5	65.3	163
	King KX150B	9.1	61.9	563
X	Omni Receiving Antenna, Narco VRP-37	1.4	203.0	284
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
	Loop Antenna (PRC-3)	.3	54.5	16
	Omni Tracker (#1D482)	.5	54.9	27
~~X~~	~~Narco Mark 12A~~			
~~X~~	~~Transceiver, Single~~ Removed 9/8/99	6.0	61.9	371
	Transceiver, Dual	12.0	61.9	743
~~X~~	~~Modulator-Power Unit, Single~~ Removed 9/8/99	4.0	186.0	744

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
	Modulator-Power Unit, Dual	8.0	186.0	1488
X	Cable, Single	1.7	120.0	204
	Cable, Dual	3.4	120.0	408
	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 VOA-4 Omni Convertor	3.0	64.4	193
	Narco ADF-31A, Piper Drawing 67456			
	~~Panel Unit~~	~~4.8~~	~~63.5~~	~~305~~ Rev 9/18/
	Sensor Unit and Doublers	2.2	162.7	358
	~~Sensor Cable~~	~~2.3~~	~~105.6~~	~~243~~ Rev 9/18/
	Sense Antenna and Cable	.4	150.0	60
	Bendix ADF-T-12			
	Receiver	3.8	65.8	250
	Audio Amplifier	.8	56.0	45
	Radio Compass	1.7	66.4	113
	Loop Antenna	1.2	160.8	193
	Cable, Antenna	1.5	108.0	162
X	Narco VOA-8 Omni Convertor	3.3	64.4	213
	Narco VOA-9 Omni Convertor	3.4	64.4	219

PREPARED / CHECKED / APPROVED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
	OPTIONAL EQUIPMENT LIST	PAGE 17 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
	Narco - UDI-111 DME	8.6	62.6	538
	Narco Mark III	7.5	62.7	470
	Narco UDI-4 DME			
	Receiver	8.5	61.7	524
	Antenna	.3	113.9	34
	Cable, Antenna	.4	100.0	40
X	GMA-340 Audio Panel w/ Marker	1.25	64.0	80
	UGR-2 Glide Slope			
	~~Receiver~~	~~2.4~~	~~173.8~~	~~417~~
	Cable	2.1	128.0	269
	Antenna	.4	92.4	37
	Cable, Antenna	.5	145.0	73
	Transmitter Selector (Dual VHF Only)	.7	66.3	46
X	Microphone	.5	75.0	38
X	Headset	.5	65.0	33
X	Junction Box	.6	66.3	40
X	AT150 Narco Transponder	3.5	63.7	222.95
X	Cable and Antenna	1.1	83.5	918.5

Rem 9%

PREPARED / CHECKED / APPROVED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
	OPTIONAL EQUIPMENT LIST	PAGE 18 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Miscellaneous			
_____	Nose Wheel Fairing, Piper Drawing 65348	3.8	34.8	132
_____	Main Wheel Fairing, Piper Drawing 65237	7.0	109.6	767
X	Assist Step	1.8	156.0	281
_____	Toe Brakes (Dual)	10.5	54.6	573
X	Toe Brakes (Single)	5.0	54.6	273
_____	Fire Extinguisher-Stop Fire #A-20	7.5	93.0	698
_____	Inertia Safety Belt, PAC 65766 (Set of 2)	2.5	111.6	279
X	Assist Strap and Coat Hooks	.2	109.5	22
X	Lighter	.2	67.9	14
_____	Fire Extinguisher, Kidde Kompact VI (With Brackets)	5.3	85.0	451
	TOTAL OPTIONAL EQUIPMENT	62.9	91.1	5729
X	ELT, Amerking AK-450	3.7	176.0	651

EXTERIOR FINISH

Base Color Juneau White

1st Trim Color Mocha Tan

2nd Trim Color Denver Brown

Registration No. Color Denver Brown

Type Finish Lacquer