WEIGHT AND BALANCE DATA
MODEL PA-28R-200 CHEROKEE

Airplane Serial Number _____

Registration Number _____

Date _____

AIRPLANE EMPTY WEIGHT

Item	Weight (lbs.)	X C.G. Arm (Inches Aft of Datum) =	Moment (In-lbs.)
Standard Empty Weight * Actual / Computed			
Optional Equipment			
Unusable Fuel (13 1/3 Pints)	10.0	103.0	1030
Licensed Empty Weight = Total of Above Items			

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

AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

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

(2600 lbs) - (lbs.) = 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.

_____

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)

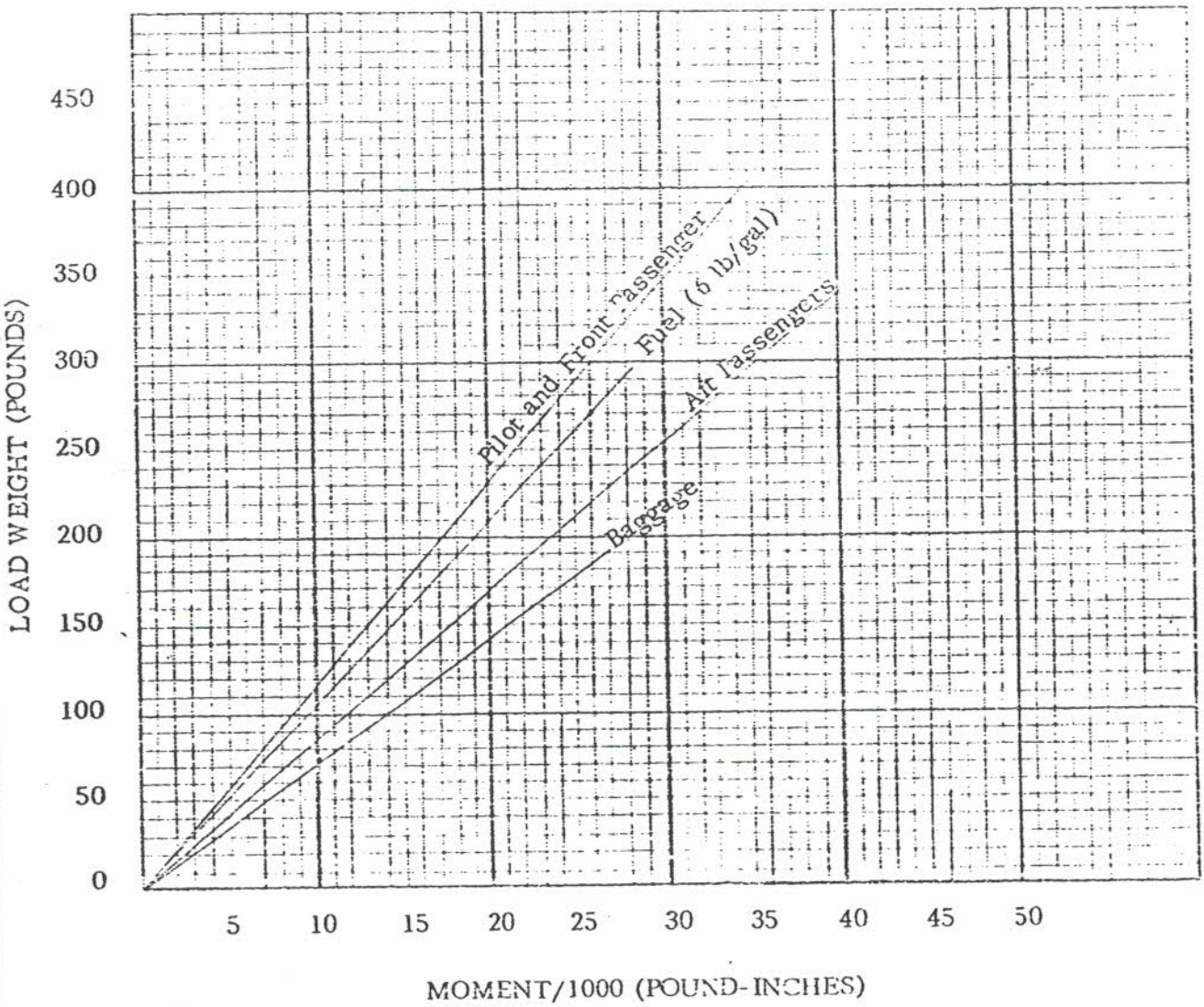
	Weight (lbs)	Arm Aft Datum (Inches)	Moment (In - lbs)
Licensed Empty Weight			
Oil (8 quarts)	15	29.5	443
Pilot and Front Passenger	340	85.5	29070
Passengers, Aft (Rear Seat)	340	118.1	40154
Fuel (50 Gal. Maximum)		95.0	
* Baggage		142.8	
Moment due to Retracting of Landing Gear	-	-	819
Total Loaded 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.

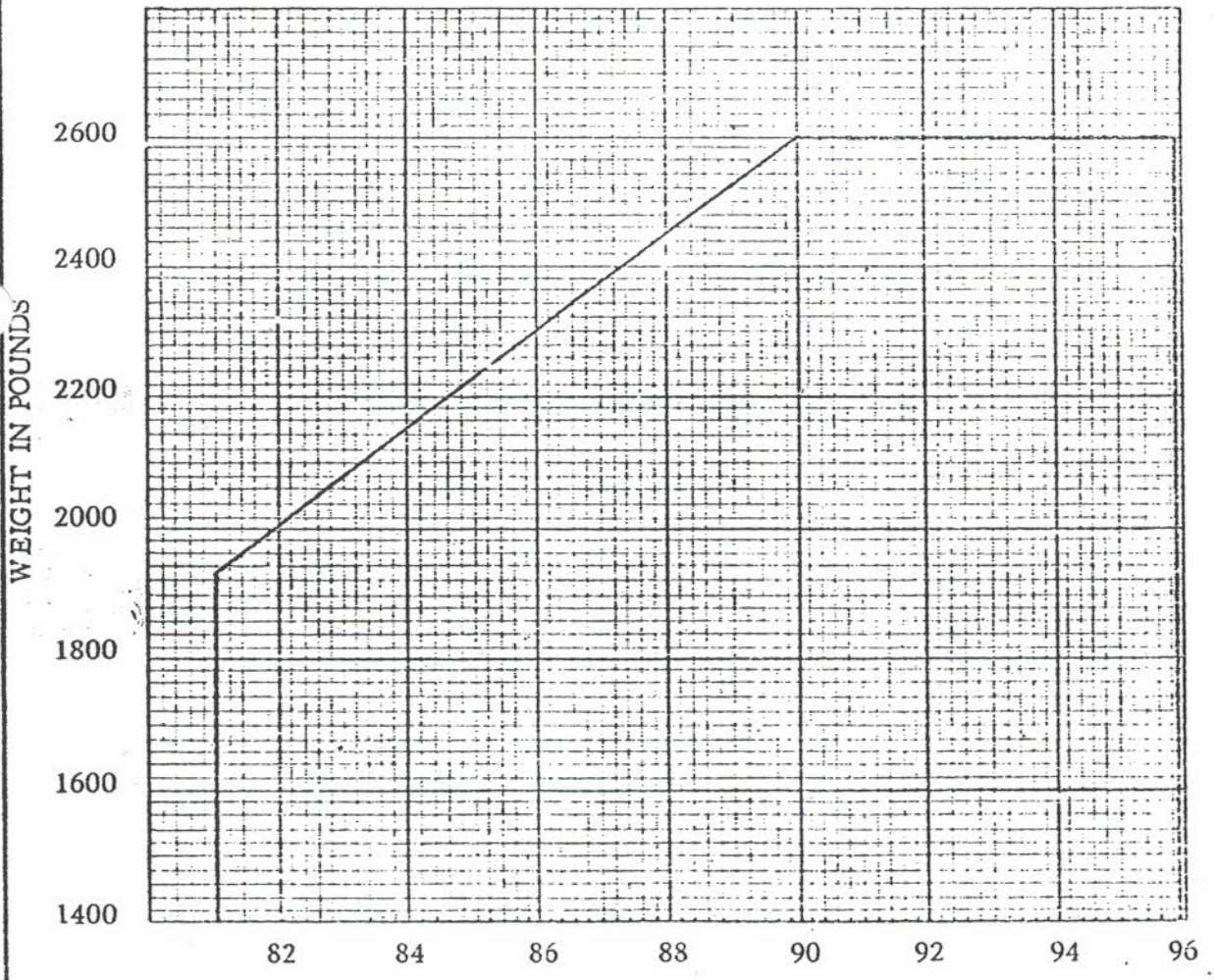
IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

* Check Aft C.G. between 150 lbs and 200 lbs.

LOADING GRAPH



C. G. RANGE AND WEIGHT



MOMENT DUE TO RETRACTING LANDING GEAR = + 819 IN-LBS

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.

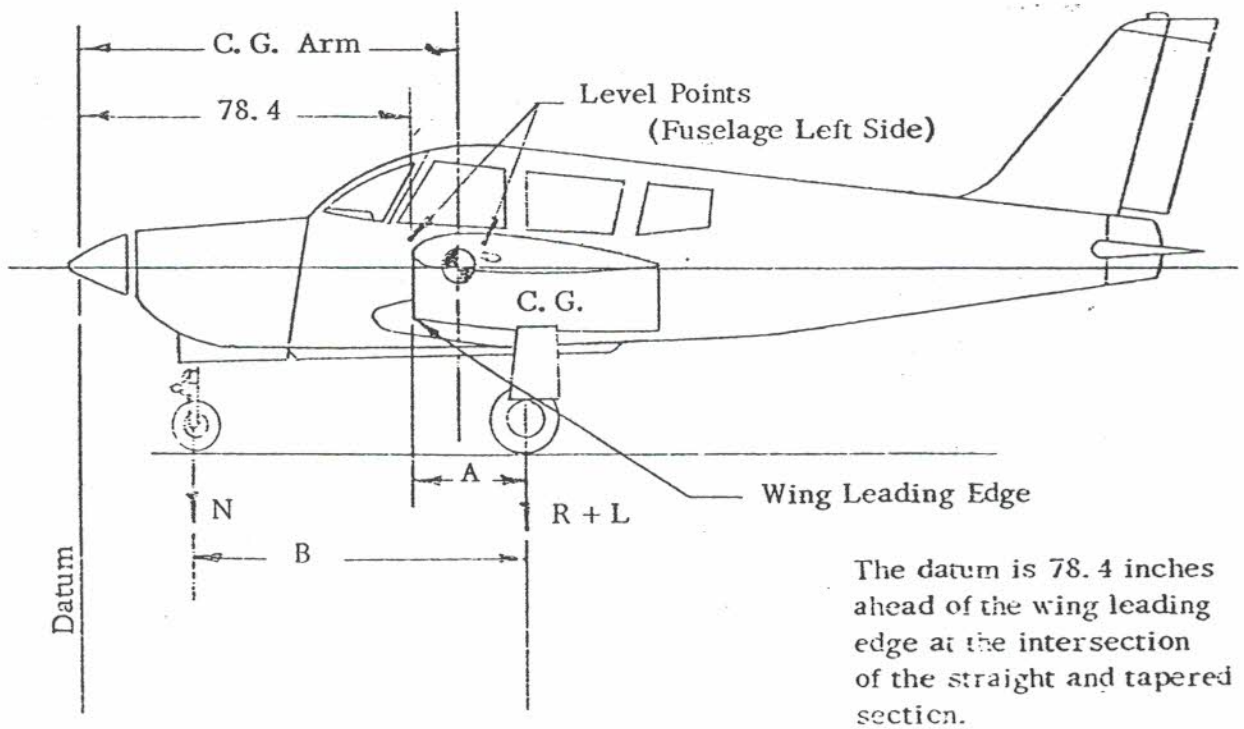
3. WEIGHING - AIRPLANE EMPTY WEIGHT

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	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-28R-200 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:

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

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

5. LICENSED EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY

	Weight	Arm	Moment
Empty Weight (as weighed)			
Unusable Fuel (13-1/3 Pints)	+ 10.0	103.0	+ 1030
Licensed Empty Weight			

See weight and balance docs for current weight and balance information

WEIGHT AND BALANCE
STANDARD EQUIPMENT LIST
MODEL PA-28R-200

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
✓	Engine - Lycoming Model IO-360-C1C	326.0	23.7	7726
✓	Fuel Pump, Electric Auxiliary, Weldon #8120-AB	2.8	47.9	134
✓	Fuel Pump, Engine Driven, Lycoming 75247	1.6	37.0	59
✓	Oil Cooler, Piper Drawing 67848	2.6	44.7	116
	Filter, Fram Model CA-144 PL	.5	42.2	21
✓	Alternator, 60 amp, Chrysler 2642997	12.5	14.6	183
✓	Starter - ~~Lycoming 76211 (Prestolite MZ 4206)~~ Hartzell SRZ9021	* ~~18.0~~ 7.75	15.5	~~279~~ 120.125
	Propeller and Propeller Accessories			
✓	Propeller, Hartzell HC-C2YK-1( )/7666A-2	55.0	3.1	171
✓	Spinner and Attachment Plates	3.5	4.8	17
✓	Governor, Hartzell F-2-7( )	5.5	39.1	215
✓	Spinner and Attachment Plate Installation, Piper Drawing 99374	5.0	2.8	14

* 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	31.5	109.8	3459
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-84 Brake Assembly No. 30-41			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
✓	One Nose Wheel 5.00-5	8.1	20.5	166
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-77 (Less Brake Drum)			
	(b) One Nose Wheel 4-Ply Rating Tire 5.00-5 with Regular Tube			
	Electrical Equipment			
✓	Stall Warning Device, Safe Flight Instrument Corporation No. C52207-4	.2	80.2	16
✓	Voltage Regulator, Wico Electric No. X-16300B	.5	64.4	32
	Battery 12V, 25 A.H., Rebat Model S-24 or S-25	21.5	168.0	3612

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments			
✓	Compass, Piper Drawing 67462	.9	65.7	59
✓	Airspeed Indicator, Piper Drawing 67434-2	.6	66.8	40
✓	Tachometer, Stewart-Warner, Piper Drawing 62177-6	.8	66.2	53
✓	Altimeter, Macleod No. 12003 or 12003M	1.0	65.9	66
✓	Manifold Pressure and Fuel Flow, Piper Drawing 67813	1.1	65.8	72
✓	Engine Cluster, Piper Drawing 95241-2	.9	67.4	61
	Engine Cluster, Piper Drawing 95241-3	.9	67.4	61
	Miscellaneous			
✓	Forward Seat Belts (2)	1.5	86.9	130
✓	Aft Seat Belts (2)	1.4	123.0	172
✓	Flight Manual	-	-	-
✓	Toe Brakes (Single)	5.0	54.6	273
✓	Tow Bar	2.3	133.0	306

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

OPTIONAL EQUIPMENT LIST
MODEL PA-28R-200

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
✓	Vacuum Pump and Drive, ~~Airborne Mechanisms~~ Model 200 CC Rapco 215cc	5.0	34.6	173
✓	Vacuum Regulator and Filter	2.2	57.0	125
✓	Oil Filter-Lycoming #74911 (AC81-A #6437032)	3.3	38.1	126
	Electrical Equipment			
✓	Rotating Beacon, Grimes #40-0101-7-12 or Grimes #40-0101-15-12	1.5	263.4	395
✓	Landing Light, G. E. Model 4509	.5	15.0	8
✓	Navigation Light (Rear)(1) Grimes Model A2064 (White)	.2	281.5	56
✓	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
✓	Dome Light	.3	104.0	31
✓	Speaker	.8	104.0	83
✓	Battery 12V, 35 A.H., Rebat R-33 or R-35 (Weight 27.0 lbs)	5.5 *	168.0	924
✓	Auxiliary Power Receptacle and Diode, Piper Drawing 65647	2.7	178.5	482
	External Power Cable, Piper Dwg. 62355-2	4.6	142.8	657
✓	Piper Pitch Trim	4.0	158.0	632
✓	Heated Pitot Head	.4	100.0	40
✓	Strobe Light, Whelen Engineering Company	2.7	217.4	587

* Weight and moment difference between standard and optional equipment.

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments			
____	Exhaust Gas Temperature Gauge, Piper Drawing 25668	.7	60.4	42
✓	Brittain Turn Coordinator #TC-100(12)	2.6	64.7	168
____	Rate of Climb, Karnish #135-3	1.0	65.9	66
✓	Air Temperature Gauge, Manning, Maxwell & Moore NHM-70	.2	82.6	17
✓	Clock, ~~8-Day, MIL-C-7939~~ Aero-tech	.4	67.4	27
____	Tru-Speed Indicator, Piper Drawing 67433-2	Same as Standard Equipment Weight		
✓	Electric Turn and Bank	2.2	64.9	143
____	Pictorial Rate of Turn, Mitchell 52D69	1.3	65.3	85
✓	Directional Gyro, Garwin #4000B	2.4	64.7	155
	or			
____	AIM #200	3.1	64.0	198
✓	Attitude Gyro, Garwin #5000B	1.8	64.9	117
	or			
____	AIM #100	2.2	64.4	142
✓	Attitude Gyro, R.C. Allen (3")	2.2	65.6	144
✓	Directional Gyro, R.C. Allen (3")	3.3	64.8	214
✓	Rate of Climb, Standard Precision SP-1403-(1)-PIP	.5	65.9	33
✓	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
____	R.C. Allen Turn Coordinator #80-9	2.3	64.7	149

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	AutoPilots			
	AutoFlite			
	Roll Servo, Mitchell #1D363-183R	2.6	122.2	318
	Gyro Amplifier, Mitchell #1C359-1	1.8	111.8	201
	Cables	1.0	95.5	96
	Panel Unit	.3	67.9	20
✓	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, Garwin	1.9	64.9	123
	or AIM #700-2CF	2.3	64.4	148
	Directional Gyro, Garwin	2.5	64.7	162
	or AIM #200-6	3.2	64.0	205
✓	Omni Coupler	.9	64.3	58

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio			
_____	Bendix ADF-T-12			
_____	Receiver	3.8	65.8	250
_____	Loop Antenna	1.2	160.8	193
_____	Servo Indicator	1.7	66.4	113
_____	Audio Amplifier	.8	56.0	45
_____	Antenna Cable	1.5	108.0	162
_____	Sense Antenna and Cable	.4	150.0	60
_____	Narco ADF-31A, Piper Drawing 67456			
_____	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 Mark III	7.5	62.7	470
_____	Narco Mark VIII	7.5	62.7	470

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
✓	Narco Mark 12D			
	Transceiver, Single	6.0	61.9	371
✓	Transceiver, Dual	12.0	61.9	742
	Modulator - Power Unit, Single	4.0	186.0	744
✓	Modulator - Power Unit, Dual	8.0	186.0	1488
	Cables - Single	1.7	120.0	204
✓	Cables - Dual	5.1	120.0	612
	Narco Mark 16			
	Transceiver, Single	7.5	61.9	464
	Transceiver, Dual	15.0	61.9	929
	Junction Box	.6	67.2	40
	Transmitter Selector (Dual VHF Only)	.7	66.3	46
	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
	Omni Receiving Antenna, Narco VRP-37 (Includes Cables)	1.4	203.0	284
	VHF #1 Transmitting Antenna, Narco VTP-17	.3	157.8	47
	VHF #2 Transmitting Antenna, Narco VTP-17	.3	192.8	58
	Cable VHF #1 Trans Antenna	.4	118.0	47
	Cable VHF #2 Trans Antenna	.5	135.0	68

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Continued)			
	PM-1 Marker Beacon			
	Receiver	1.1	121.3	133
	Panel Unit	.3	68.1	20
	Cable	.3	85.0	26
	Glide Slope - UGR-2			
	Receiver	2.4	173.8	417
	Cable	2.1	128.0	269
	Antenna	.4	92.4	37
	Cable, Antenna	.5	145.0	73
	Narco VOA-4 Omni Convertor	3.0	64.4	193
	Narco UDI-4, DME			
	Receiver	8.5	61.7	524
	Antenna	.3	113.9	34
	Cable	.4	100.0	40
✓	Microphone	.5	75.0	38
	Headset	.5	65.0	33
	Omni Tracker (#1D482)	.5	54.9	27

PREPARED	PIPER AIRCRAFT CORP.	Weight and Balance Data
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.	Model PA-28R-200
APPROVED	REPORT VB-176 OPTIONAL EQUIPMENT LIST	PAGE 17 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd)			
_____	Narco VOA-8 Omni Convertor	3.3	64.4	213
_____	Narco VOA-8 Omni Convertor	3.3	64.4	213
_____	Narco VOA-9 Omni Convertor	3.4	64.4	219
_____	Narco VOA-9 Omni Convertor	3.4	64.4	219
_____	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
_____	Audio Selector Panel, Piper Drawing 99395	.7	66.3	46
✓	GARMIN GMA 340	.9	~~64.4~~ 62.0	55.8
✓	GARMIN GNS $430W	6.2	62.0	384.40
✓	GARMIN GA35 ANTENNA	.5	98.0	49.0

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Miscellaneous			
✓	Assist Step	1.8	156.0	281
	Toe Brakes (Right)	5.0	54.6	273
	Fire Extinguisher - Stop Fire #A-20	7.5	93.0	698
✓	Inertia Safety Belt	2.5	111.6	279
	Assist Strap & Coat Hooks	.2	109.5	22
✓	Lighter	.2	67.9	14
	Alternate Static Source	.4	64.9	26
	Calibrated Alternate Static Source Placard Required: Yes___ No___			
	Fire Extinguisher, Kidde Kompact VI (With Brackets)	5.3	85.0	451
	Adjustable Front Seat (Left)	3.8 *	85.5	325
	Adjustable Front Seat (Right)	3.8 *	85.5	325
	Overhead Vent System	1.2	129.7	156
	TOTAL OPTIONAL EQUIPMENT			

EXTERIOR FINISH

Base Color _____ Registration No. Color _____

Trim Color _____ Type Finish _____

Accent Color _____

* Weight and moment difference between standard and optional equipment.