

WEIGHT AND BALANCE

Log of Revisions.....	5-iii
Weight and Balance	5-1
Weight and Balance Data - Weighing Procedure	5-3
Weight and Balance Data	5-7
C. G. Range and Weight Instructions	5-8
Equipment List	5-11

WEIGHT AND BALANCE

FOR

CHEROKEE ARROW

WARNING

EXTREME CARE MUST BE EXERCISED TO LIMIT THE USE OF THIS REPORT TO APPLICABLE AIRCRAFT. THIS REPORT REVISED AS INDICATED BELOW OR SUBSEQUENTLY REVISED IS VALID FOR USE WITH THE AIRPLANE IDENTIFIED BELOW WHEN APPROVED BY PIPER AIRCRAFT CORPORATION. SUBSEQUENT REVISIONS SUPPLIED BY PIPER AIRCRAFT CORPORATION MUST BE PROPERLY INSERTED.

MODEL PA-28R-200

AIRCRAFT SERIAL NO. 28R-7535001 REGISTRATION NO. _____

WEIGHT AND BALANCE, REPORT NUMBER VB-549 REVISION 9

PIPER AIRCRAFT CORPORATION

APPROVAL SIGNATURE AND STAMP

Marie Fleming
MARIE FLEMING

PA
27

ISSUED: MAY 14, 1973
REVISED: MARCH 25, 1974

REPORT: VB-549
MODEL: PA-28R-200

BLANK PAGE

INDEX - WEIGHT AND BALANCE

Log of Revisions	5-iii
Weight and Balance	5-1
Weight and Balance Data - Weighing Procedure	5-3
Weight and Balance Data	5-7
C. G. Range and Weight Instructions	5-8
Equipment List	5-11
A. Propellers and Propeller Accessories	5-11
B. Engine and Engine Accessories - Fuel and Oil Systems	5-12
C. Landing Gear and Brakes	5-13
D. Electrical Equipment	5-14
E. Instruments	5-15
F. Hydraulic Equipment	5-17
G. Miscellaneous	5-18
H. Engine and Engine Accessories - Fuel and Oil System (Optional Equipment)	5-20
I. Electrical Equipment (Optional Equipment)	5-21
J. Autopilots (Optional Equipment)	5-23
K. Radio Equipment (Optional Equipment)	5-25
L. Instruments (Optional Equipment)	5-29
M. Miscellaneous (Optional Equipment)	5-31

WEIGHT AND BALANCE LOG OF REVISIONS

Revision	Revised Pages	Description and Revision	Approved Date
1	5-8 5-14 5-18 5-21 5-26 5-28 5-31 5-32	Revised Fuel Capacity on Sample Problem. Revised Battery and Voltage Regulator Weights and Moments. Revised Toe Brake Weight and Moment. Revised Battery Weights and Moment. Revised Selector Panel and Marker Beacon Weights, Arms and Moments. Revised -10 and -12 Microphones Weights, Arms and Moments. Revised Right and Left Vert. Adj. Front Seats' Weights, Arms and Moments. Revised Ground Vent. Blower; Added Corrosive Resistant Kit.	Oct. 29, 1973 <i>N. Tennant</i>
2	Title	Added PAC Approval Form. (NOTE: AIRCRAFT DELIVERED WITH MANUALS PRIOR TO THIS REVISION DO NOT REQUIRE THIS REVISION.)	March 25, 1974 <i>D. Melder</i>
3	5-12 5-14 5-18 5-20 5-23 5-25 5-26 5-27 5-28 5-28a 5-28b	Added Oil Filters and footnote. Added Annunciator Light and footnote. Revised Inertia Safety Belts Weights, Arm, Moment and Part No. Added Oil Filter, Lycoming #LW-13743; added Vacuum Pump Model 211cc; added Low Vacuum Annunciator Light; added Vacuum Regulator #133A4; added Vacuum Regulator 2H3-19; added footnotes. Added AutoControl IIIB; added footnotes; added ser. nos. to AutoControl III Console. Added footnotes; relocated Item. Added item relocated from Page 5-25; revised item entries; added footnote; relocated items; added Dual KNI-520. Added items relocated from Page 5-26; added footnote; relocated items. Added items relocated from Page 5-27; added footnote. Added page. Added page.	June 18, 1974 <i>J. H. Hall</i>

ISSUED: MAY 14, 1973
 REVISED: JUNE 18, 1974

REPORT: VB-549 PAGE 5-iii
 MODEL: PA-28R-200

WEIGHT AND BALANCE LOG OF REVISIONS (cont)

Revision	Revised Pages	Description and Revision	Approved Date
3 (cont)	5-28c 5-28d 5-29 5-31 5-32	Added page. Added page. Added Encoding Altimeter. Revised Inertia Safety Belts' Weights, Arm, Moment and Part No.; revised Assist Strap and Coat Hook (62353-5); relocated info to page 5-32. Added info from page 5-31.	
4	5-12 5-14 5-18 5-21 5-29 5-30 5-31 5-32	Deleted Alternator. Revised Battery description. Added 79337-3 Right Front Seat. Revised Rotating Beacon description. Deleted Vacuum Regulator. Added Engine Hour Meter, Radar Altimeter and NSD Gyro; added footnote. Added 79337-18 Front Headrest; added 79337-18 Rear Headrest; added 79591-0 Left Front Seat; relocated Right Front Seat to page 5-32. Added Right Front Seat from page 5-31; added 79591-1 Right Front Seat; added 76304-11 and -12 Overhead Vent Systems; added Stainless Steel Control Cables; added footnote.	June 27, 1975 <i>C.E. Riehl</i>
5	5-22 5-27 5-28 5-29 5-30	Revised Electric Trim System to Piper Pitch Trim 67469-2; added Piper Pitch Trim 67469-3; added footnote. Added King KN61 DME and King KN65A DME. Added Dwg. No. to PAL Transmitter; added PAL Transmitter 79265-6. Deleted Dwg. No. from Clock. Added Narco OC-110 Converter and Mount.	Dec. 8, 1975 <i>George Torgely</i>
6	5-28	Added PAL Transmitter 79761-4.	July 22, 1976 <i>George Torgely</i>

WEIGHT AND BALANCE LOG OF REVISIONS (cont)

Revision	Revised Pages	Description and Revision	Approved Date
7	5-11 5-12 5-15 5-29	Added McCauley Propeller and Spinner; added footnotes. Added Lycoming IO-360-C1C6 Engine and footnotes. Added Tachometer and footnotes. Revised Attitude and Directional Gyro dash nos.	<i>Jay Chyng</i> Feb. 28, 1977
8	5-1 5-3 5-4	Revised Weight and Balance info. Added Caution; relocated para. 2.6 to pg. 5-4. Added para. 2.b. from pg. 5-3.	<i>Hal Fletcher</i> April 13, 1979
9	5-1 5-3 5-7	Revised Weight and Balance info. Revised weighing procedures para. Revised info.	<i>Ward Evans</i> Feb. 29, 1984

ISSUED: FEBRUARY 28, 1977
 REVISED: FEBRUARY 29, 1984

REPORT: VB-549 PAGE 5-v
 MODEL: PA-28R-200

ARROW

THIS PAGE INTENTIONALLY LEFT BLANK

WEIGHT AND BALANCE

In order to achieve the performance and flying characteristics which are designed into the aircraft, the Arrow must be flown with the weight and center of gravity (C.G.) position within the approved envelope. The aircraft offers flexibility of loading. However, you cannot fill the aircraft, with four adults, full fuel tanks and maximum baggage. With the flexibility comes responsibility. The pilot must insure that the airplane is loaded within the loading envelope before he makes a takeoff.

Misloading carries consequences for any aircraft. An overloaded airplane will not take off, climb or cruise as well as when it is properly loaded. The heavier the airplane is loaded the less climb performance it will have.

Center of gravity is a determining factor in flight characteristics. If the C.G. is too far forward in any airplane, it may be difficult to rotate for takeoff or landing. If the C.G. is too far aft, the airplane may rotate prematurely on takeoff or try to pitch up during climb. Longitudinal stability will be reduced. This can lead to inadvertent stalls and even spins; and spin recovery becomes more difficult as the center of gravity moves aft of the approved limit.

A properly loaded aircraft, however, will perform as intended. Before the aircraft is licensed, the Arrow is weighed and a licensed empty weight and C.G. location computed. Using the licensed empty weight and C.G. location, the pilot can easily determine the weight and C.G. position for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved envelope.

The licensed empty weight and C.G. location for a particular airplane are recorded in the weight and balance section of the Airplane Flight Manual. The current values should always be used. Whenever new equipment is added or any modification work is done, the mechanic responsible for the work is required to compute a new basic empty weight and C.G. position and to write these in the aircraft log book. The owner should make sure that it is done.

A weight and balance calculation is necessary in determining how much fuel or baggage can be boarded so as to keep within allowable limits. Check calculations prior to adding fuel to insure against improper loading.

The following pages are forms used in weighing an airplane in production and in computing empty weight, C.G. position, and useful load. Note that the useful load includes fuel, oil, baggage, cargo and passengers. Following this is the method for computing takeoff weight and C.G.

THIS PAGE INTENTIONALLY LEFT BLANK

WEIGHT AND BALANCE DATA**WEIGHING PROCEDURE**

At the time of licensing, Piper Aircraft Corporation provides each airplane with the licensed empty weight and center of gravity location. This data is on Page 5-7.

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.

CAUTION

Whenever the fuel system is completely drained and fuel is replenished it will be necessary to run the engine for a minimum of 3 minutes at 1000 RPM on each tank to insure no air exists in the fuel supply lines.

- 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 copilot 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.

ARROW

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

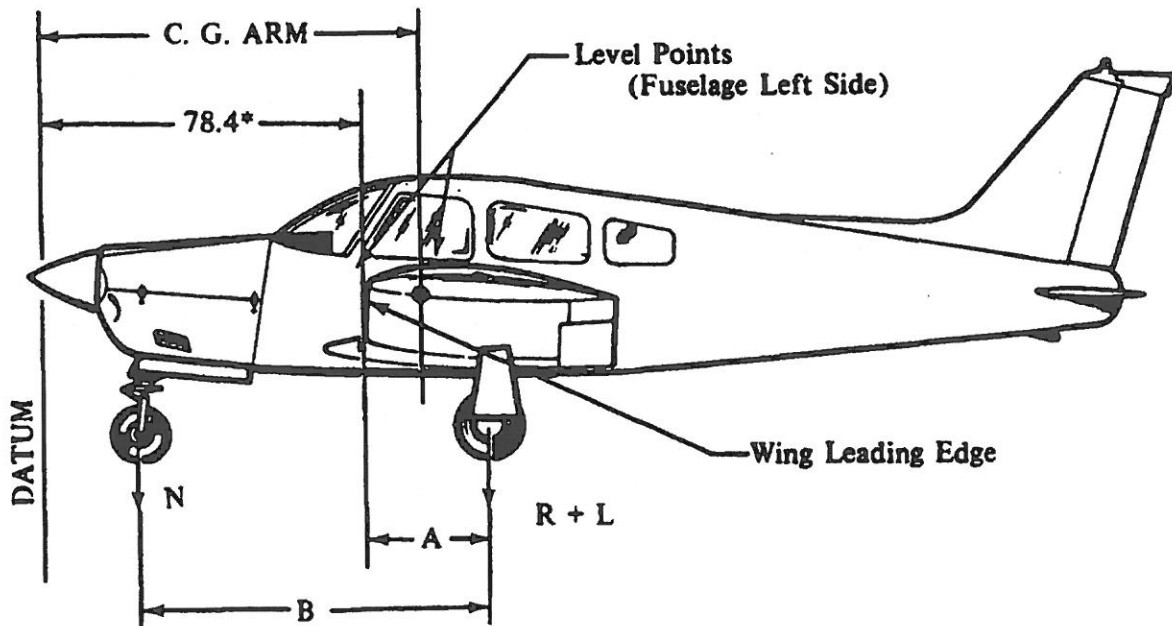
3. WEIGHING - AIRPLANE EMPTY WEIGHT

- 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).



A =
B =

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

- 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 (13 1/3 Pints)	+10.0	103.0	+1030
Licensed Empty Weight			

ARROW

THIS PAGE INTENTIONALLY LEFT BLANK

WEIGHT AND BALANCE DATA

MODEL PA-28R-200 CHEROKEE

Airplane Serial Number _____

Registration Number _____

Date _____

AIRPLANE EMPTY WEIGHT

Item		Weight (Lbs)	C. G. Arm (Inches Aft of Datum)	Moment (In-Lbs)
*Empty Weight	Actual Computed			
Unusable Fuel (13-1/3 pints)		10.0	103.0	1030
Standard Empty Weight				
Optional Equipment				
Licensed Empty Weight				

*Empty weight is defined as dry empty weight (including paint and hydraulic fluid) plus 1.8 lbs undrainable engine oil.

AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

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

(2650 lbs) - (lbs) = lbs

THIS LICENSED EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS LICENSED AT THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD 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)

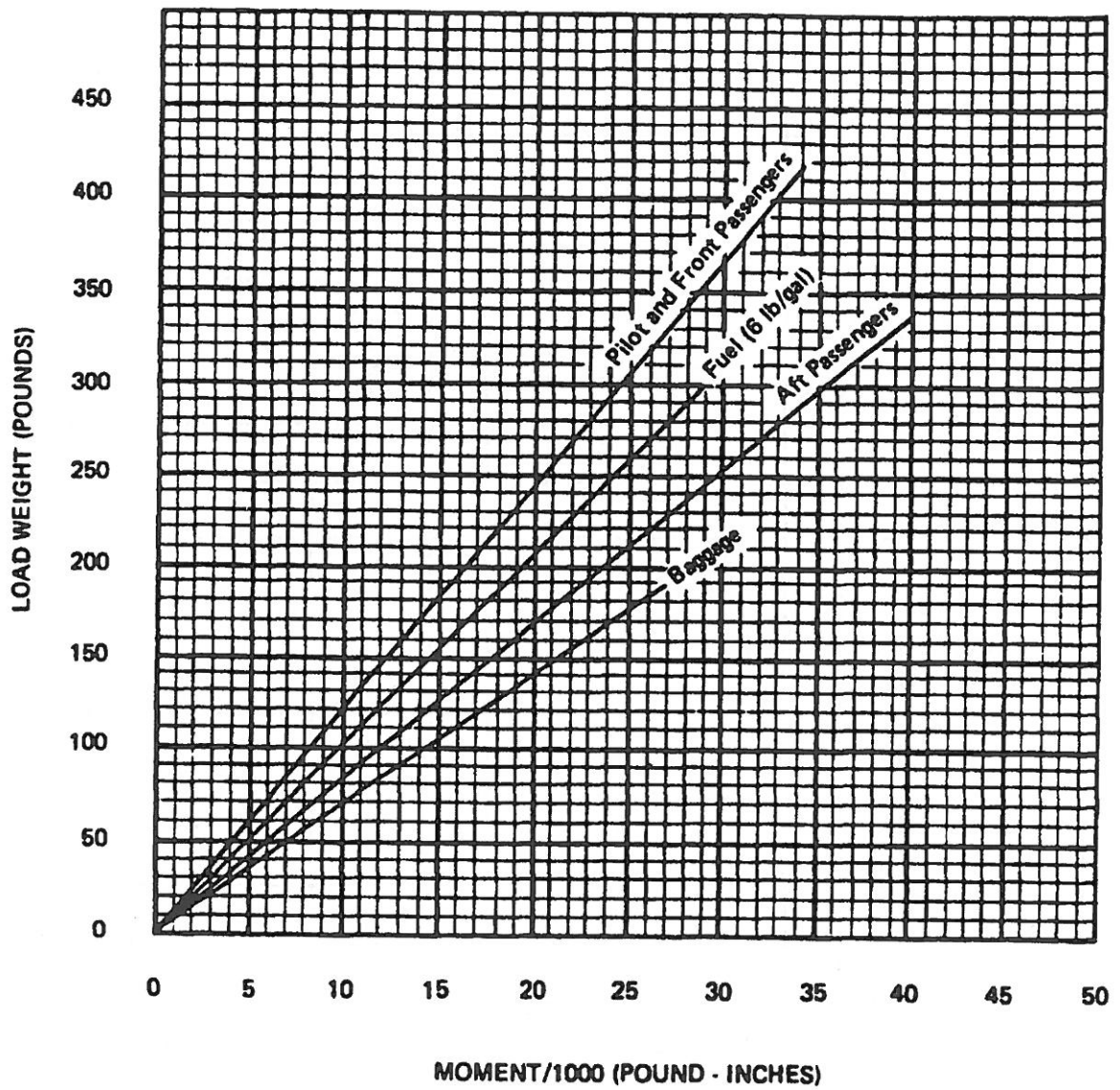
	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Licensed Empty Weight			
Oil (8 quarts)	15	24.5	368
Pilot and Front Passenger	340	80.5	27370
Passengers, Aft (Rear Seat)	340	118.1	40154
Fuel (48 Gal. Maximum)		95.0	
*Baggage		142.8	
Moment due to Retracting of Landing Gear			819
Total Loaded Airplane			

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.

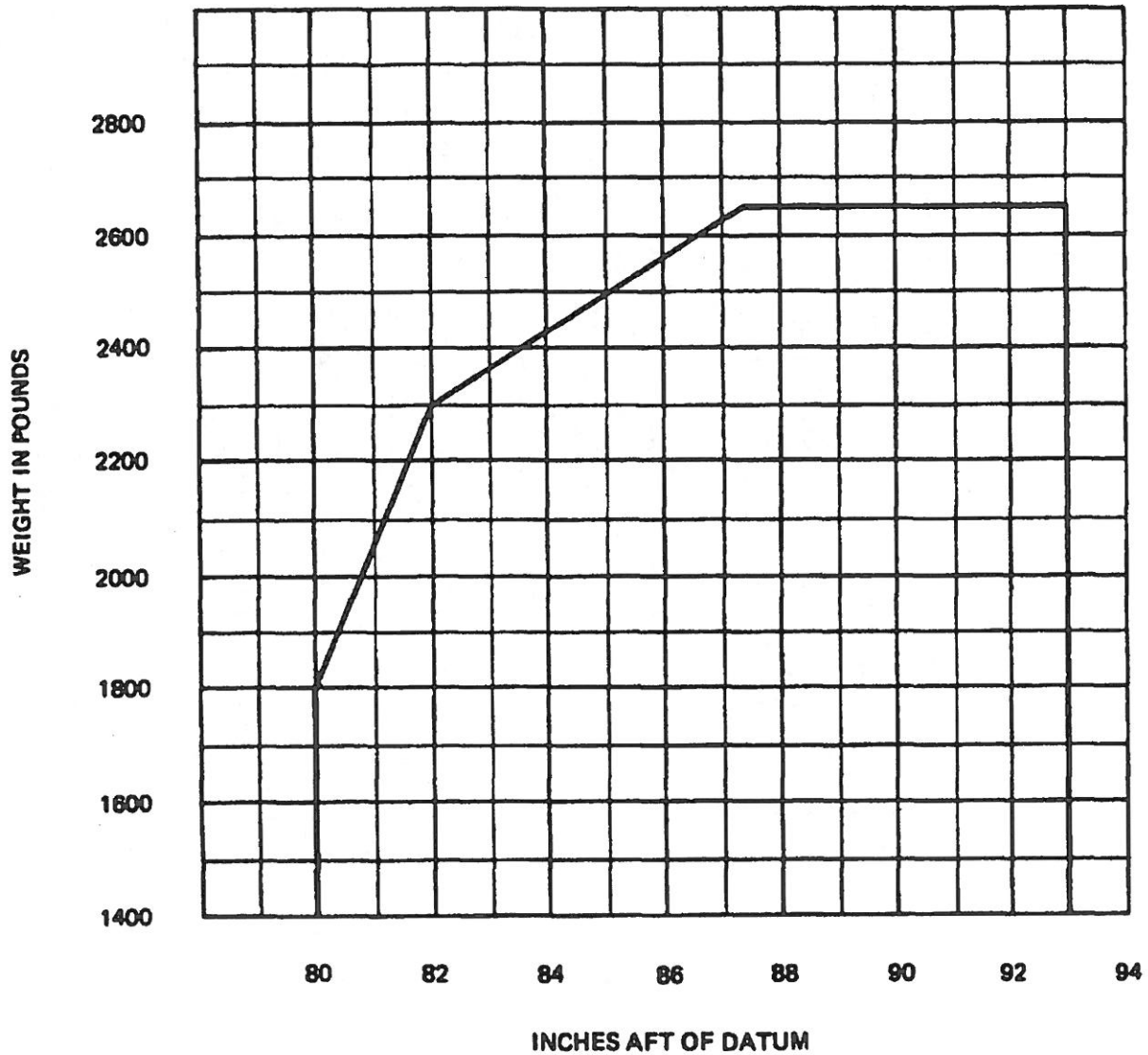
LOADING GRAPH



ARROW

IT IS THE RESPONSIBILITY OF THE OWNER AND PILOT TO ASCERTAIN THAT THE AIRPLANE ALWAYS REMAINS WITHIN THE ALLOWABLE WEIGHT VS. CENTER OF GRAVITY ENVELOPE WHILE IN FLIGHT.

C. G. RANGE AND WEIGHT



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

EQUIPMENT LIST

The following is a list of equipment which may be installed in the PA-28R-200. Items marked with an "X" are items installed when the airplane was delivered by the manufacturer.

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
A. Propellers and Propeller Accessories					
_____	Propeller - Hartzell Model HC-C2YK-1()/7666A-2 or HC-C2YK-1()F/7666A-2*	55.0	-1.9	-105	TC P920
_____	Propeller - McCauley Model B2D34C213/90DHA-16**	49.0	-1.9	-93	TC P7EA
_____	Spinner and Attachment Plate Installation PAC Dwg. 99374*	5.0	-2.2	-11	TC 2A13
_____	Spinner and Attachment Plate Installation PAC Dwg. 35828-2**	4.7	-2.2	-10	TC 2A13
_____	Hydraulic Governor Hartzell Model F-2-7 ()	5.5	34.1	188	TC P920

* Serial Nos. 28R-7435001 through 28R-7635516

** Serial Nos. 28R-7635517 and up

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	B. Engine and Engine Accessories Fuel and Oil Systems				
_____	Engine - Lycoming Model IO-360-C1C**	326	18.7	6096	TC 1E10
_____	Engine - Lycoming Model IO-360-C1C6***	333	18.7	6227	TC 1E10
_____	Fuel Pump - Electric Auxiliary Weldon #8120-AB	2.8	42.9	120	TC 2A13
_____	Induction Air Filter Fram Model CA-144PL	.5	37.2	19	TC 2A13
_____	Fuel Pump - Engine Driven Lycoming 75247	1.6	32.0	51	TC 1E10
_____	Starter - 12V Prestolite Model MZ-4206 Lycoming 76211	18.0	10.5	189	TC 1E10
_____	Oil Cooler, PAC 67848	2.6	39.7	103	TC 2A13
_____	Oil Filter with Adapter AC 0F5578770 (3.3 lbs. each) (Lycoming #75528)*	3.3	33.1	109	TC 2A13
_____	Oil Filter, Lycoming #LW-13743 (Champion #CH-48110)*	2.8	33.1	93	TC 2A13

* Serial Nos. 28R-7535001 and up

** Serial Nos. 28R-7435001 through 28R-7635516

*** Serial Nos. 28R-7635517 and up

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	C. Landing Gear and Brakes				
	Two Main Wheel - Brake Assemblies 40-86 Wheel Assembly (Cleveland) 30-55 Brake Assembly (Cleveland) Two Main 4 Ply Rating Tires 6.00-6 with Regular Tubes	34.4	109.8	3777	TC 2A13
	One Nose Wheel Assembly 40-77 Wheel Assembly (Cleveland) (less brake drum) One 4 Ply Rating Tire 5.00-5 Regular Tube	8.1	15.5	126	TC 2A13

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	D. Electrical Equipment				
_____	One Battery 12V, 25 Amp Hour Rebat S-25	21.9	168.0	3679	TC 2A13
_____	Battery Contactor, Piper 63880-0	1.2	168.0	202	TC 2A13
_____	Stall Warning Detector, Safe Flight Inst. Corp. No. C52207-4	.2	80.2	16	TC 2A13
_____	Switch - Landing Gear Selector Cutler Hammer 8906-K 1736	.2	62.8	13	TC 2A13
_____	Voltage Regulator Wico Electric No. X-16300B	.9	59.4	53	TC 2A13
_____	Overvoltage Relay Wico Electric No. X-16799B	.5	55.4	28	TC 2A13
_____	Starter Relay Piper Dwg. 99130-2	1.0	47.0	47	TC 2A13
_____	Landing Gear Motor Contactor Cole-Hersee #24059 (2) .8 lbs. each	1.6	162.0	259	TC 2A13
_____	Annunciator Lights *	.9	55.5	50	TC 2A13

*Serial nos. 7535001 and up

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	E. Instruments				
_____	Compass - Piper 67462	.9	59.9	54	TSO C7c
_____	Airspeed Indicator - Piper 67434-2 or -3	.6	61.8	37	TSO C2b
_____	Tachometer - Piper 62177-6*	.7	61.2	43	TC 2A13
_____	Tachometer - Piper 62177-3**	0.7	61.2	43	TC 2A13
_____	Engine Cluster - Piper 95241-2	.8	62.4	50	TC 2A13
_____	Engine Cluster - Piper 95241-3	.8	62.4	50	TC 2A13
_____	Altimeter - Piper PS50008-2, -3, -4 or -5	1.0	60.9	61	TSO C10b
_____	Manifold Pressure and Fuel Flow - Piper PS50031-6	1.7	60.8	103	TSO C45
_____	Airspeed Indicator - Piper PS 50049-5	.6	61.8	37	TSO C2b

* Serial Nos. 28R-7435001 through 28R-7635516
 ** Serial Nos. 28R-7635517 and up

ISSUED: MAY 14, 1973
 REVISED: FEBRUARY 28, 1977

REPORT: VB-549 PAGE 5-15
 MODEL: PA-28R-200

ARROW

THIS PAGE INTENTIONALLY LEFT BLANK

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	F. Hydraulic Equipment				
_____	Cylinder Hydraulic Nose Gear Piper 67504	.9	45.0	41	TC 2A13
_____	Cylinder Hydraulic (2) Main Gear Piper 67505 (0.9 lbs. each)	1.8	108.4	195	TC 2A13
_____	Pump Assembly - Piper 67500-2	9.0	159.0	1431	TC 2A13
_____	Switch, Pressure Consolidated Controls #211C243-3	.2	116.7	23	TC 2A13
_____	Valve - Free Fall Piper 67522-2	.3	114.0	34	TC 2A13

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
G. Miscellaneous					
_____	Forward Seat Belts (2) PS50039-4-2 (.75 lbs. each)	1.5	81.9	123	TSO C22
_____	Rear Seat Belts (2) PS50039-4-3 (.70 lbs. each)	1.4	123.0	172	TSO C22
_____	Inertia Safety Belts, Front Seats (2) PS50039-4-17 (0.75 lbs. each)	1.5	119.6	179	TC 2A13
_____	Toe Brakes (Dual) Piper Dwg. 67018-3	11.0	49.6	546	TC 2A13
_____	Front Seat (Right) Piper Dwg. 76171-1	13.7	88.0	1206	TC 2A13
_____	(Right) Piper Dwg. 79337-3	13.9	87.6	1218	TC 2A13
_____	Individual Rear Seats(2) Piper Dwg. 99730-0 and -1 (13.5 lbs. each)	27.0	124.1	3351	TC 2A13
_____	Flight Manual and Logs	2.6	95.1	247	TC 2A13
_____	Tow Bar, Piper Dwg. 67336-0	2.3	155.2	357	TC 2A13

THIS PAGE INTENTIONALLY LEFT BLANK

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
H. Engine and Engine Accessories - Fuel and Oil System (Optional Equipment)					
_____	Vacuum Pump Airborne Manufacturing Co. Model 200 CC	5.0	29.6	148	TC 2A13
_____	Oil Filter with Adapter AC 0F5578770 (3.3 lbs. each) (Lycoming #75528) **	3.3	33.1	109	TC 2A13
_____	Oil Filter, Lycoming # LW-13743 (Champion # CH-48110)**	2.8	33.1	93	TC 2A13
_____	Vacuum Pump, Airborne Mfg. Co., Model 211cc PAC 79399-0	3.2	29.6	94	TC 2A13
_____	Low Vacuum Annunciator Light *	Neglect			TC 2A13
_____	Vacuum Regulator, Airborne ** Mfg. Co., #133A4	.6	52.0	31	TC 2A13
_____	Vacuum Regulator, Airborne * Mfg. Co., #2H3-19	.5	52.0	26	TC 2A13

* Serial nos. 7535001 and up

** Serial nos. 7435001 through 7435331

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
I. Electrical Equipment (Optional Equipment)					
_____	Landing Light G.E. Model 4509	.5	13.1	7	TC 2A13
_____	Navigation Light (Rear) Grimes A2064	.2	281.0	56	TSO C30b
_____	Navigation Light (Wing) (2) Grimes A1285-G-12 A1285-R-12 (0.2 lbs. each)	.4	106.6	43	TSO C30b
_____	Auxiliary Power Receptacle Piper 65647	2.7	178.5	482	TC 2A13
_____	External Power Cable Piper 62355-2	4.6	142.8	657	TC 2A13
_____	Cabin Speaker Quincy Spkr. Co. 8B-15052 or Oaktron Ind. GEV 1937	.8	99.0	79	TC 2A13
_____	Cabin Light	.3	99.0	30	TC 2A13
_____	Rotating Beacon	1.5	263.4	395	TC 2A13
_____	Battery 12V, 35 A.H. Reading R-35 (Weight 27.2 lbs.)	* 5.3	168.0	890	TC 2A13

*Weight and moment difference between standard and optional equipment.

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
I.	Electrical Equipment (Optional Equipment) (cont)				
_____	Heated Pitot Head - Piper 67477-0	.4	100.0	40	TC 2A13
	Anti-Collision Lights Whelen Engineering Co. Piper Dwg. 99030-2 or -5				
_____	Power Supply, Model HS, No. A412A-14 (with fin light only)	2.3	198.0	455	TC 2A13
_____	Power Supply, Model HD, T3 No. A413 (with fin and wing lights)	3.0	198.0	594	TC 2A13
_____	Light, Fin Tip, A408	.4	263.4	105	TC 2A13
_____	Cable, Fin Light, A417-1/300	.4	230.7	92	TC 2A13
_____	Lights, Wing Tip (2) (0.15 lbs. each) No. A429	.3	106.6	32	TC 2A13
_____	Cable, Wing Lights A417-1/298 & A417-1/252	2.0	115.6	231	TC 2A13
_____	Piper Pitch Trim Piper Dwg 67496-2	4.3	155.3	668	TC 2A13
_____	Piper Pitch Trim* Piper Dwg. 67496-3	4.3	155.3	668	TC 2A13

*Serial nos. 28-7535077 and up.

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
J. Autopilots (Optional Equipment)					
	AutoControl III *				
_____	Roll Servo #1C363-1-183R	2.5	122.2	306	STC SA1406SW
_____	Console #1C338 (thru S/N 9999)	1.2	60.1	72	STC SA1406SW
_____	Cables	.7	95.5	67	STC SA1406SW
_____	Attitude Gyro #52D66	2.3	59.4	137	STC SA1406SW
_____	Directional Gyro #52D54	3.2	59.0	189	STC SA1406SW
_____	Omni Coupler #1C388	.9	59.3	53	STC SA1406SW
	AutoFlite II				
_____	Roll Servo #1C363-1-183R	2.5	122.2	306	STC SA1157SW
_____	Cable	.7	93.4	65	STC SA1157SW
_____	Panel Unit #52D75-3 or -4	2.4	59.4	143	STC SA1157SW
	AutoControl III B **				
_____	Roll Servo #1C363-1-183R	2.5	122.2	306	STC SA1406SW
_____	Console, #1C338 (S/N 10000 & up)	1.0	60.1	60	STC SA1406SW
_____	Cables	.5	95.5	48	STC SA1406SW
_____	Attitude Gyro, #52D66	2.7	59.4	160	STC SA1406SW
_____	Directional Gyro, #52D54	2.9	59.0	171	STC SA1406SW
_____	Omni Coupler, #1C388	1.0	59.3	59	STC SA1406SW

* Serial nos. 7435001 through 7435331

** Serial nos. 7535001 and up

ISSUED: MAY 14, 1973
REVISED: JUNE 18, 1974

REPORT: VB-549 PAGE 5-23
MODEL: PA-28R-200

THIS PAGE INTENTIONALLY LEFT BLANK

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K. Radio Equipment (Optional Equipment)					
_____	Narco Mark 16 Transceiver, Single *	7.5	56.9	427	TC 2A13
_____	Narco Mark 16 Transceiver, Dual *	15.0	56.9	854	TC 2A13
_____	Narco VOA-50M Omni Converter *	2.1	59.9	126	TC 2A13
_____	Narco VOA-40M Omni Converter *	1.9	59.9	114	TC 2A13
_____	Narco VOA-40 Omni Converter *	1.9	59.9	114	TC 2A13
_____	Nav. Receiving Antenna	.5	265.0	133	TC 2A13
_____	Cable, Nav. Antenna	.9	157.0	141	TC 2A13
_____	#1 VHF Comm. Antenna	.3	157.8	47	TC 2A13
_____	Cable, #1 VHF Comm. Antenna	.4	103.4	41	TC 2A13
_____	#2 VHF Comm. Antenna	.3	192.8	58	TC 2A13
_____	Cable, #2 VHF Comm. Antenna	.5	147.5	60	TC 2A13
Anti Static Kit					
_____	#1 VHF Comm. Antenna	1.0	160.8	161	TC 2A13
_____	Cable, #1 VHF Comm. Antenna	.4	103.4	41	TC 2A13
_____	#2 VHF Comm. Antenna	1.0	195.8	196	TC 2A13
_____	Cable, #2 VHF Comm. Antenna	.5	120.9	60	TC 2A13
_____	Low Frequency Antenna	.5	147.5	74	TC 2A13
_____	Static Wicks	—	—	—	TC 2A13

*Serial nos. 7435001 through 7435331

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K. Radio Equipment (Optional Equipment) (cont)					
_____	Bendix ADF-T-12C or D * Receiver Model 201F	3.9	59.4	232	TC 2A13
_____	Receiver Model 201 C or D	3.5	59.4	208	TC 2A13
_____	Audio Amplifier 102A	.8	52.4	42	TC 2A13
_____	Servo Indicator 551A	1.7	60.9	104	TC 2A13
_____	Loop Antenna 2321E	1.3	160.8	209	TC 2A13
_____	Cable, Interconnecting	2.3	108.0	248	TC 2A13
_____	Sense Antenna and Cable	.4	150.0	60	TC 2A13
_____	Narco Comm 10 ()	3.9	57.4	224	TC 2A13
_____	Narco Comm 11 ()	3.6	57.4	207	TC 2A13
_____	Dual Comm 11 ()	7.1	57.4	408	TC 2A13
_____	Narco Nav 10	1.9	58.6	111	TC 2A13
_____	Narco Nav 11	2.8	58.6	164	TC 2A13
_____	Narco Nav 12	3.4	58.6	199	TC 2A13
_____	Dual Nav 11	5.6	58.6	328	TC 2A13
_____	King KX-170 () or KX-175 ()	7.5	56.6	425	TC 2A13
_____	Dual KX-170 () or KX-175 ()	15.0	56.6	849	TC 2A13
_____	King KI-201 ()	2.5	59.9	150	TC 2A13
_____	King KI-211 ()	3.3	59.9	198	TC 2A13
_____	Dual KI-201 ()	5.0	59.9	300	TC 2A13
_____	Dual KNI-520	5.6	59.9	335	TC 2A13
_____	Narco ADF-31 *				
_____	Panel Unit	5.0	58.5	293	TC 2A13
_____	Sensor Unit	2.5	162.7	407	TC 2A13
_____	Sensor Cable	2.3	105.6	243	TC 2A13
_____	Sensor Antenna and Cable	.4	150.0	60	TC 2A13

*Serial nos. 7435001 through 7435331

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K. Radio Equipment (Optional Equipment) (cont)					
	King KR-85				
_____	Receiver	4.3	59.4	255	TC 2A13
_____	Servo Indicator	1.2	61.3	74	TC 2A13
_____	Loop Antenna	1.3	161.5	210	TC 2A13
_____	Loop Cable	1.8	105.5	190	TC 2A13
_____	Audio Amplifier	.8	51.0	41	TC 2A13
_____	Sense Antenna and Cable	.4	147.5	59	TC 2A13
_____	Narco CP-25B/125 Selector *				
_____	Panel	1.2	55.0	66	TC 2A13
_____	Narco MBT-12-R Marker Beacon	3.1	69.1	214	TC 2A13
_____	Narco Comm 110 *	3.0	57.4	172	TC 2A13
_____	Narco Comm 111	3.0	57.4	172	TC 2A13
_____	Narco Nav 110 *	1.7	58.6	100	TC 2A13
_____	Narco Nav 111	2.5	58.6	147	TC 2A13
_____	Narco Nav 112	3.3	58.6	193	TC 2A13
	PM-1 Marker Beacon *				
_____	Receiver	1.1	121.3	133	TC 2A13
_____	Remote Unit	.3	128.4	39	TC 2A13
_____	Cable	.3	85.0	26	TC 2A13
	UGR-2A Glide Slope				
_____	Receiver	2.4	173.8	417	TC 2A13
_____	Cable	1.8	128.0	230	TC 2A13
_____	Antenna	.4	92.4	37	TC 2A13
_____	Cable, Antenna	.5	145.0	73	TC 2A13
	King KN60C DME				
_____	Receiver	6.8	56.7	386	TC 2A13
_____	Antenna	.2	112.1	22	TC 2A13
_____	Cable, Antenna	.3	83.1	25	TC 2A13
_____	King KN61 DME	12.5	179.0	2237	TC 2A13
_____	King KN65A DME	13.0	174.9	2274	TSO C66a

*Serial nos. 7435001 through 7435331

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K. Radio Equipment (Optional Equipment) (cont)					
IFD Starlight Transponder *					
_____	Panel Unit	2.3	59.4	137	TC 2A13
_____	Antenna	.1	47.2	5	TC 2A13
_____	Cable	.3	46.5	14	TC 2A13
IFD Skyline 300 Transponder *					
_____	Panel Unit	1.7	60.4	103	TC 2A13
_____	Remote Unit	1.8	53.1	96	TC 2A13
_____	Antenna	.1	47.5	5	TC 2A13
_____	Cable	.1	52.1	5	TC 2A13
Piper Automatic Locator					
_____	Transmitter, Piper Dwg. 79265-0	1.7	236.2	402	TC 2A13
_____	Transmitter, Piper Dwg. 79265-6	1.3	236.2	307	TC 2A13
_____	Transmitter, Piper Dwg. 79761-4	1.7	236.2	402	TC 2A13
_____	Antenna & Coax	.2	224.4	45	TC 2A13
_____	Shelf & Access Hole	.33	235.4	78	TC 2A13
King KT76/78 Transponder					
_____	Panel Unit	3.1	58.1	180	TC 2A13
_____	Antenna & Cable	—	—	—	TC 2A13
Narco AT-50A Transponder (Includes Antenna & Cable)					
_____		3.0	57.3	172	TC 2A13
King KMA-20 () Audio Panel					
_____	Antenna	.5	116.3	58	TC 2A13
_____	Cable	.4	87.5	35	TC 2A13
Audio Selector Panel - Piper *					
_____	99395-0, -2, or -3	.7	61.3	43	TC 2A13
Microphone (Carbon)					
_____	Piper Dwg. 68856-10	.3	64.9	19	TC 2A13
Microphone (Dynamic)					
_____	Piper Dwg. 68856-12	.3	64.9	19	TC 2A13
_____	Headset	.5	60.0	30	TC 2A13

*Serial nos. 7435001 through 7435331

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	K. Radio Equipment (Optional Equipment) (cont)				
_____	King KI-213 VOR/LOC/GS Indicator *	2.5	60.4	151	TC 2A13
	King KR-86 ADF *				
_____	Receiver	3.9	59.4	232	TC 2A13
_____	Loop Antenna	1.5	161.5	242	TC 2A13
_____	Loop Cable	1.3	105.5	137	TC 2A13
_____	Audio Amplifier	0.8	51.0	41	TC 2A13
_____	Sense Antenna & Cable	0.4	147.5	59	TC 2A13
	King KR-86 ADF (2nd) *				
_____	Receiver	3.9	59.4	232	TC 2A13
_____	Loop Antenna	1.5	150.7	226	TC 2A13
_____	Loop Cable	1.3	105.0	137	TC 2A13
_____	Sense Antenna & Cable	3.0	147.5	443	TC 2A13
_____	King KN-73 Glide Slope Receiver *	3.2	184.3	590	TC 2A13
_____	King KN-77 VOR/LOC Converter *	3.6	183.6	661	TC 2A13
_____	King Dual KN-77 VOR/LOC Converter *	7.8	183.6	1432	TC 2A13
	King KN-65 DME *				
_____	Receiver	7.6	201.6	1532	TC 2A13
_____	Antenna	0.2	112.1	22	TC 2A13
_____	Cable, Antenna	0.3	157.1	47	TC 2A13
_____	Indicator	1.0	60.0	60	TC 2A13
	King KN-74 R-Nav *				
_____	Computer	3.7	57.6	213	TC 2A13
_____	Cable Assy.	1.0	53.0	53	TC 2A13
_____	King KI-214 VOR/LOC Indicator *	3.3	59.9	198	TC 2A13

*Serial nos. 7535001 and up

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K.	Radio Equipment (Optional Equipment) (cont)				
_____	Narco Comm 11B VHF Transceiver	3.9	57.4	224	TC 2A13
_____	Narco Dual Comm 11B VHF Transceiver *	7.8	57.4	448	TC 2A13
_____	Narco Dual Comm 111 VHF Transceiver *	6.0	57.4	344	TC 2A13
_____	Narco Comm 111B VHF Transceiver	3.9	57.4	224	TC 2A13
_____	Narco Dual Comm 111B VHF Transceiver *	7.8	57.4	448	TC 2A13
_____	Narco Nav 14 VHF Receiver *	2.5	57.4	144	TC 2A13
_____	Narco Nav 114 VHF Receiver *	2.5	57.4	144	TC 2A13
_____	Narco UGR-3 Glide Slope *				
_____	Receiver	2.4	173.8	417	TC 2A13
_____	Cable	1.8	128.0	230	TC 2A13
_____	Antenna	0.4	92.4	37	TC 2A13
_____	Cable, Antenna	0.5	145.0	73	TC 2A13
_____	Narco CP-125 Audio Selector Panel *	2.2	55.0	121	TC 2A13
_____	Narco ADF-140 *				
_____	Receiver	2.5	58.3	146	TC 2A13
_____	Servo Indicator	1.3	61.0	79	TC 2A13
_____	Loop Antenna	1.6	162.0	259	TC 2A13
_____	Cable, Loop	0.6	105.5	63	TC 2A13
_____	Sense Antenna and Cable	0.4	147.5	59	TC 2A13

*Serial nos. 7535001 and up

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
K. Radio Equipment (Optional Equipment) (cont)					
Narco Dual ADF-140 *					
_____	Receivers	5.0	58.3	292	TC 2A13
_____	Dual Needle Indicator	3.5	61.0	214	TC 2A13
_____	Loop Antenna # 1	1.6	162.0	259	TC 2A13
_____	Cable, Loop # 1	0.6	105.5	63	TC 2A13
_____	Sense Antenna and Cable # 1	0.4	143.8	58	TC 2A13
_____	Loop Antenna # 2	1.6	150.0	240	TC 2A13
_____	Cable, Loop # 2	0.6	93.5	56	TC 2A13
_____	Sense Antenna and Cable # 2	3.0	143.8	431	TC 2A13
_____	Remote for Dual Ind.	2.0	185.5	371	TC 2A13
Narco DME-190 *					
_____	Receiver	5.2	61.8	321	TC 2A13
_____	Antenna	0.3	113.9	34	TC 2A13
_____	Cable, Antenna	0.4	85.6	34	TC 2A13
Microphone (Dynamic) *					
_____	Piper Dwg. 68856-11	0.6	69.9	42	TC 2A13

*Serial nos. 7535001 and up

ISSUED: JUNE 18, 1974

REPORT: VB-549 PAGE 5-28c
MODEL: PA-28R-200

THIS PAGE INTENTIONALLY LEFT BLANK

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
L. Instruments (Optional Equipment)					
_____	Suction Gauge - Piper 99480-0 or -2	.5	62.2	31	TC 2A13
_____	Vacuum Filter, Piper 66673	.3	52.0	16	TC 2A13
_____	Indicator - Rate of Climb - Piper 99010-2, -4, or -5	1.0	60.9	61	TSO C8b
_____	Indicator - Rate of Climb - Piper 99010-3	.5	62.2	31	TSO C8b
_____	Attitude Gyro - Piper 99002-2, -3, -4, or -8	2.2	59.4	131	TSO C4c
_____	Directional Gyro - Piper 99003-2, -3, -4, or -7	2.6	59.7	155	TSO C5c
_____	Air Temperature Gauge Piper Dwg. 79316	.2	72.6	15	TC 2A13
_____	Clock	.4	62.4	25	TC 2A13
_____	Turn and Slip Indicator - Piper PS50030-2 or -3	2.6	59.7	155	TSO C3B Type II
_____	Exhaust Gas Temperature Gauge Piper 99026	.7	55.4	39	TC 2A13
_____	Tru-Speed Indicator Piper 67433-2 or -3 or PS50049-4	(same as Standard Equipment)			
_____	Encoding Altimeter PS50008 -6 or -7	* .9	60.3	54	TSO C10b, C88

* Weight and Moment difference between standard and optional equipment.

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
L.	Instruments (Optional Equipment) (cont)				
_____	Engine Hour Meter* Piper Dwg. 79548-0	.3	61.2	18	TC 2A13
_____	MK10 Radar Altimeter* Piper Dwg. 37693-2	5.4	156.3	844	TC 2A13
_____	NSD-360 Gyro*	4.1	59.0	241	TSO C52a TSO C5c
_____	Narco OC-110* Converter and Mount	2.1	185.5	390	TSO C36c C40a

*Serial nos. 28R-7635001 and up.

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
M. Miscellaneous (Optional Equipment)					
_____	Assist Step Piper 65384-0	1.8	156.0	281	TC 2A13
_____	Assist Strap and Coat Hook Piper 62353-5	.2	109.5	22	TC 2A13
_____	Assist Strap Piper Dwg. 79455	.2	109.5	22	TC 2A13
_____	Inertia Safety Belts, Rear Seats (2) PS50039-4-14	1.6	140.3	224	TC 2A13
_____	Lighter 200462 (12V Universal)	.2	62.9	13	TC 2A13
_____	Fire Extinguisher, Scott Aviation 42211-00 Piper Dwg. 76167-2	4.6	71.0	327	TC 2A13
_____	Headrests, (2) (1.0 lbs each) (Front) Piper Dwg. 99255-3	2.0	94.5	189	TC 2A13
_____	(Front) Piper Dwg. 79337-18	2.0	94.5	189	TC 2A13
_____	Headrests, (2) (1.0 lbs each) (Rear) Piper Dwg. 99255-3	2.0	132.1	264	TC 2A13
_____	(Rear) Piper Dwg. 79337-18	2.0	132.1	264	TC 2A13
_____	Alternate Static Source	.4	61.0	24	TC 2A13
Calibrated Alternate Static Source					
Placard Required: Yes _____ No _____					
_____	Zinc Chromate Finish	5.0	158.0	790	TC 2A13
_____	Air Conditioner Instl.	68.9	105.0	7235	TC 2A13
_____	Vert. Adj. Front Seat				
_____	(Left) Piper Dwg. 76340-0	* 6.6	80.7	533	TC 2A13
_____	(Left) Piper Dwg. 79591-0	* 6.6	80.3	530	TC 2A13

* Weight and Moment difference between standard and optional equipment.

ARROW

Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
M. Miscellaneous (Optional Equipment) (cont)					
_____	Vert. Adj. Front Seat (Right) Piper Dwg. 76340-1	* 6.8	80.0	544	TC 2A13
_____	(Right) Piper Dwg. 79591-1	* 6.6	79.6	525	TC 2A13
_____	Super Cabin Sound Proofing Piper Dwg. 79030-4	18.1	86.8	1571	TC 2A13
_____	Cabin Overhead Vent System Piper Dwg. 76304-3	5.9	157.9	932	TC 2A13
_____	Cabin Overhead Vent System With Ground Ventilating Blower Piper Dwg. 76304-4	13.5	170.4	2300	TC 2A13
_____	Cabin Overhead Vent System Piper Dwg. 76304-11	6.4	159.6	1022	TC 2A13
_____	Cabin Overhead Vent System With Ground Ventilating Blower Piper Dwg. 76304-12	14.0	170.7	2390	TC 2A13
_____	Corrosive Resistant Kit	3.0	106.0	318	TC 2A13
_____	Stainless Steel Control Cables	—	—	—	TC 2A13

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.