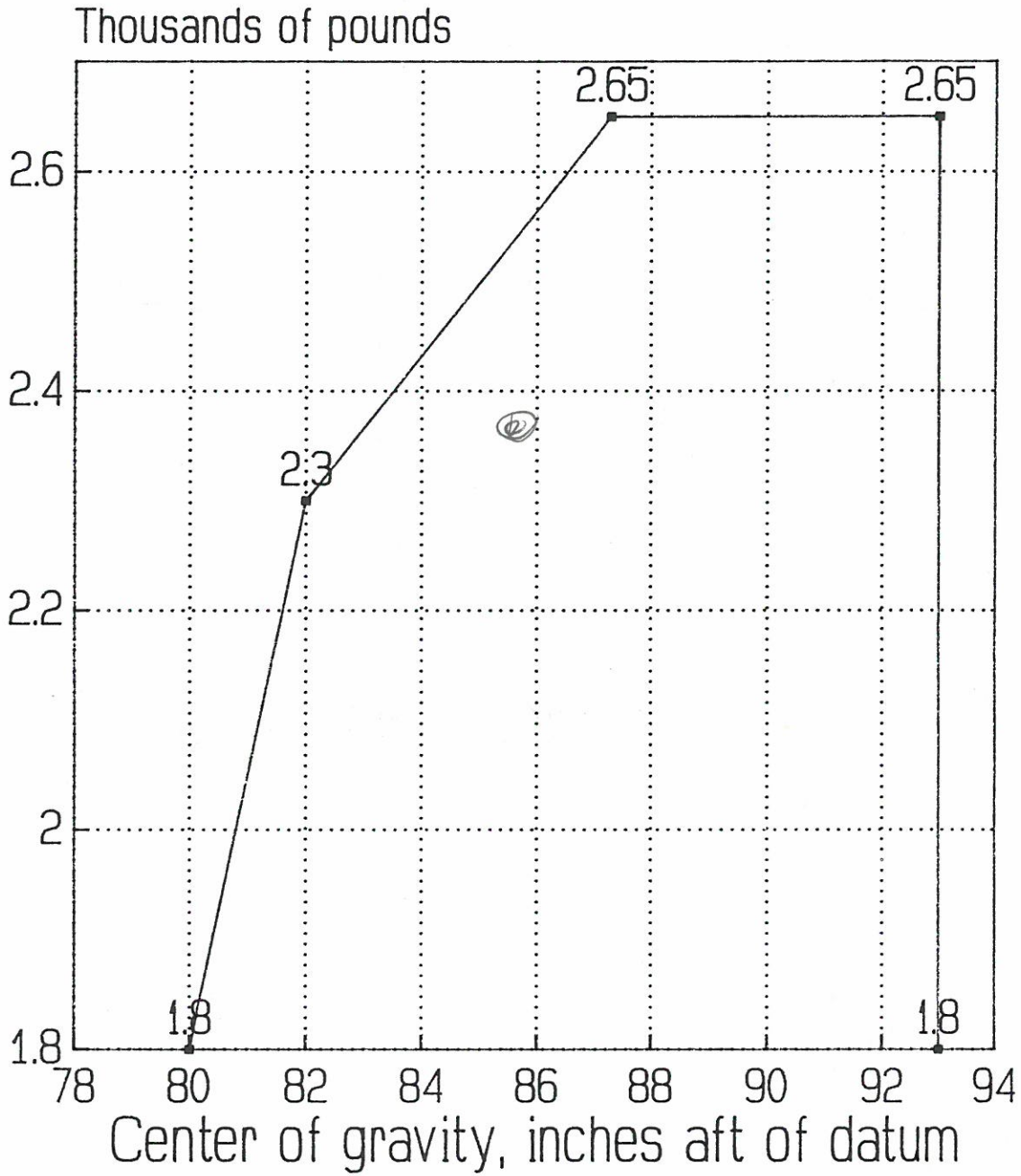


# Weight & Balance N4389X



Ser 28R-7635034 dated ~~07/23/86~~ ~~6/8/01~~ 10/25/02

N4389X, PA28R-200, Serial # 28R-7635034, dated 07-23-86

BASIC EMPTY WEIGHT	<del>1666.9</del> 1678.4	<del>85.0</del> 84.9	<del>141686</del>
FRONT SEAT PASSENGER/PILOT		80.5	
REAR SEAT PASSENGERS		118.1	
FUEL @ 6 lbs/gallon		95.0	
oil at 7.5 lbs/gallon	15	24.5	368
BAGGAGE, max 200 pounds		142.8	
gear retraction			<u>819</u>
TOTAL LOADED AIRPLANE			

BASIC EMPTY WEIGHT	<del>1666.9</del> 1678.4	<del>85.0</del> 84.9	<del>141686</del>
FRONT SEAT PASSENGER/PILOT		80.5	
REAR SEAT PASSENGERS		118.1	
FUEL @ 6 lbs/gallon		95.0	
oil at 7.5 lbs/gallon	15	24.5	368
BAGGAGE, max 200 pounds		142.8	
gear retraction			<u>819</u>
TOTAL LOADED AIRPLANE			

BASIC EMPTY WEIGHT	<del>1666.9</del> 1678.4	<del>85.0</del> 84.9	<del>141686</del>
FRONT SEAT PASSENGER/PILOT		80.5	
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oil at 7.5 lbs/gallon	15	24.5	368
BAGGAGE, max 200 pounds		142.8	
gear retraction			<u>819</u>
TOTAL LOADED AIRPLANE			

Note: Weight in pounds, arm in inches aft-of-datum, and moment in pound-inches.

PREPARED

CHECKED

APPROVED

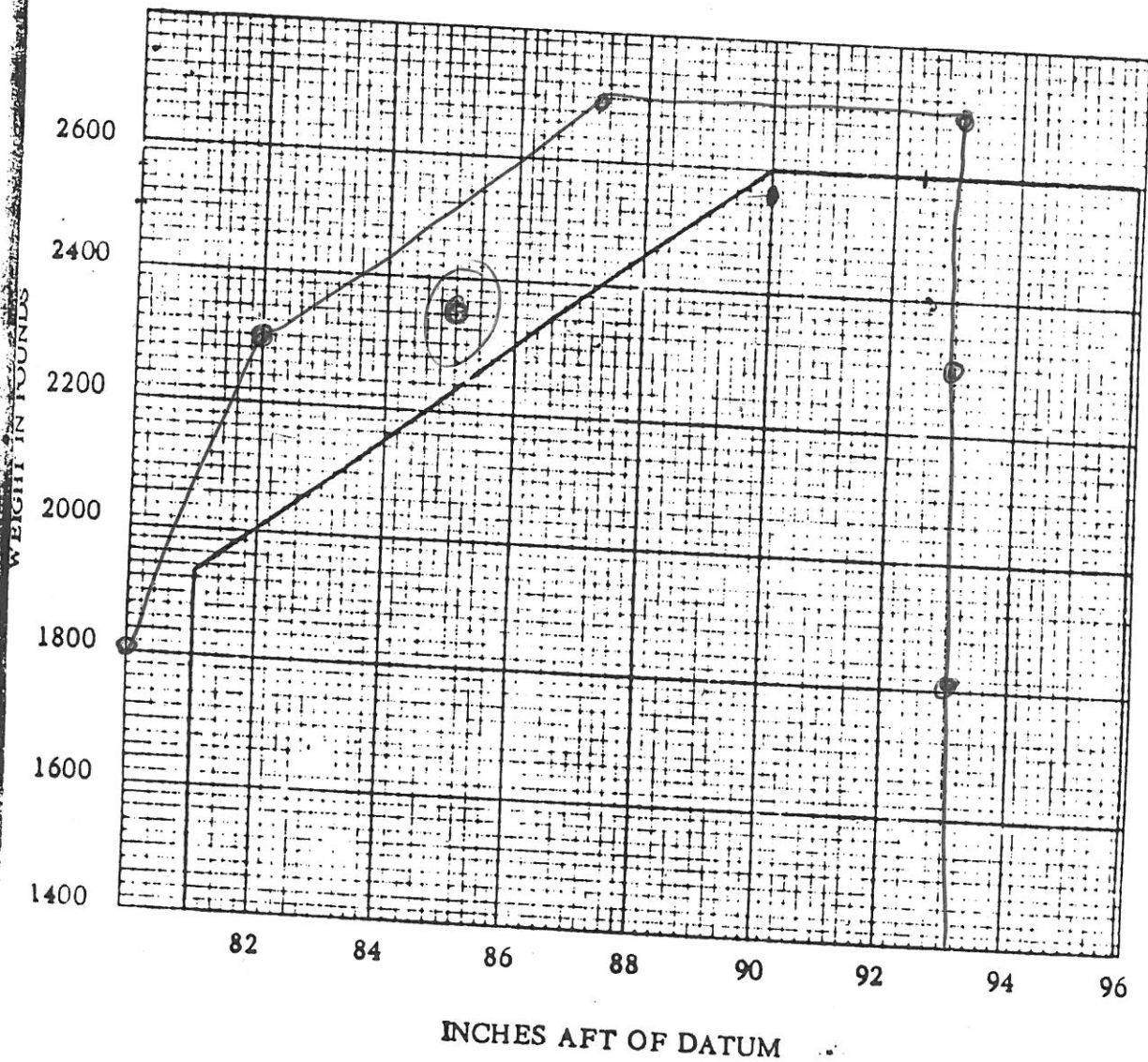
# PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.

Weight and Balance Data  
Model PA-28R-200

REPORT VB-176

PAGE 4 Section I

## C. G. RANGE AND WEIGHT





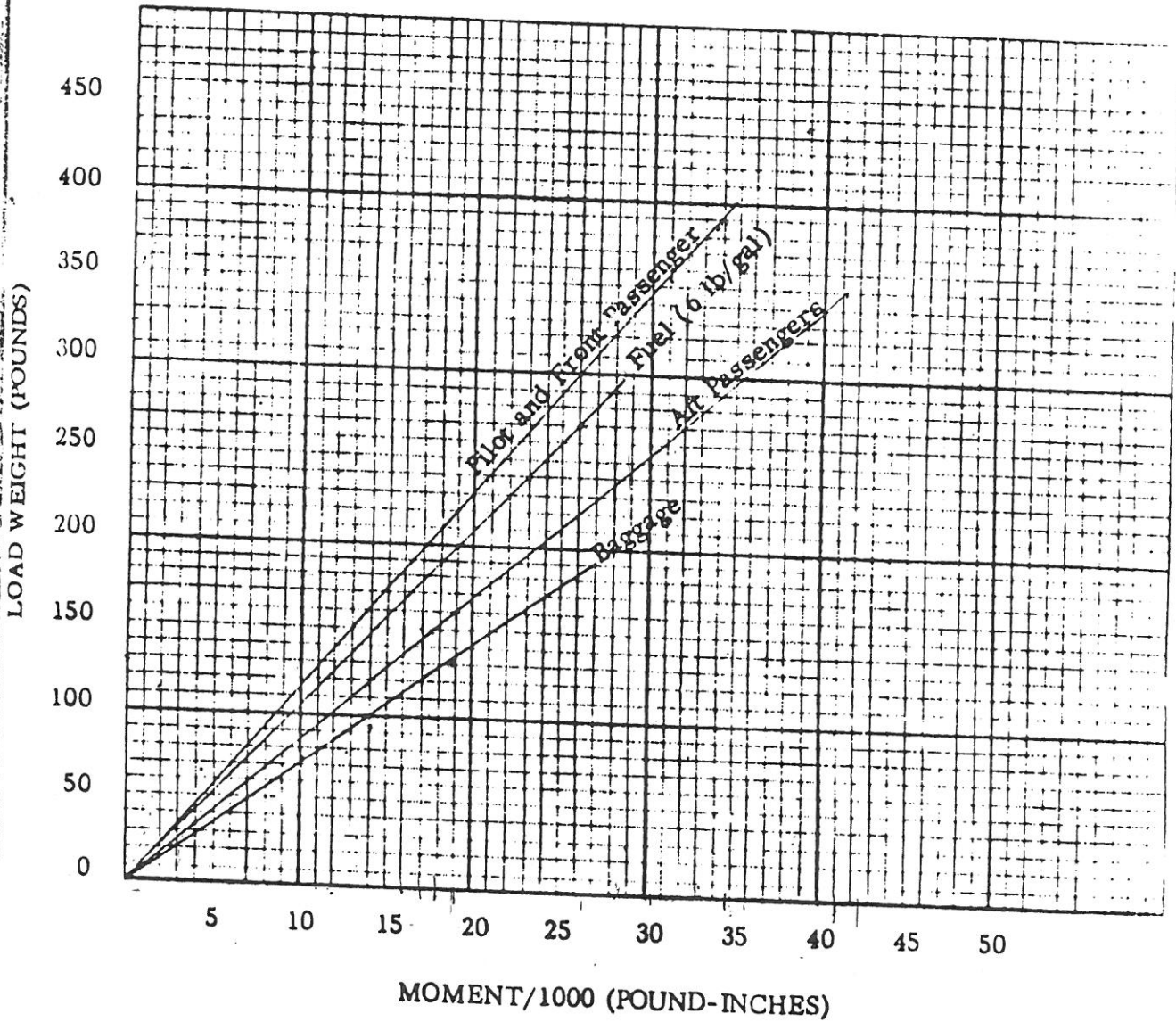
CHECKED

APPROVED

REPORT VB-176

PAGE 3 Section 1

LOADING GRAPH





# 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-7635034 REGISTRATION NO. N4389X

WEIGHT AND BALANCE, REPORT NUMBER VB-549 REVISION 4

PIPER AIRCRAFT CORPORATION

APPROVAL SIGNATURE AND STAMP M. Keller



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

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





## WEIGHT AND BALANCE

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## 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 Tangel</i>
6	5-28	Added PAL Transmitter 79761-4.	July 22, 1976 <i>George Tangel</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>Jayne King</i>  Feb. 28, 1977

ARROW

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## WEIGHT AND BALANCE

In order to achieve the performance, safety and good 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 a tremendous 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 ensure that the airplane is loaded within the loading envelope before he makes a take-off.

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 take-off or landing. If the C.G. is too far aft, the airplane may rotate prematurely on take-off 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. The Arrow is designed to provide excellent performance and safety within the flight envelope. Before the aircraft is delivered, the Arrow is weighed and a basic weight and C.G. location computed. (Basic weight consists of the empty weight of the aircraft plus the unusable fuel and full oil capacity.) Using the basic 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 determine whether they are within the approved envelope.

The basic weight and C.G. location for a particular airplane are recorded in the aircraft log book or 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 weight and basic 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 can be helpful in determining how much fuel or baggage can be boarded so as to keep the C.G. within allowable limits. If it is necessary to remove some of the fuel to stay within maximum allowable gross weight, the pilot should not hesitate to do so.

The following pages are forms used in weighing an airplane in production and in computing basic weight, basic 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 take-off weight and C.G.

ARROW

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## WEIGHT AND BALANCE DATA

### WEIGHING PROCEDURE

At the time of delivery, Piper Aircraft Corporation provides each airplane with the licensed empty weight and center of gravity location. This data is on Page 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.
- 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.
- b. Level airplane (see diagram) deflating nose wheel tire, to center bubble on level.

**ARROW**

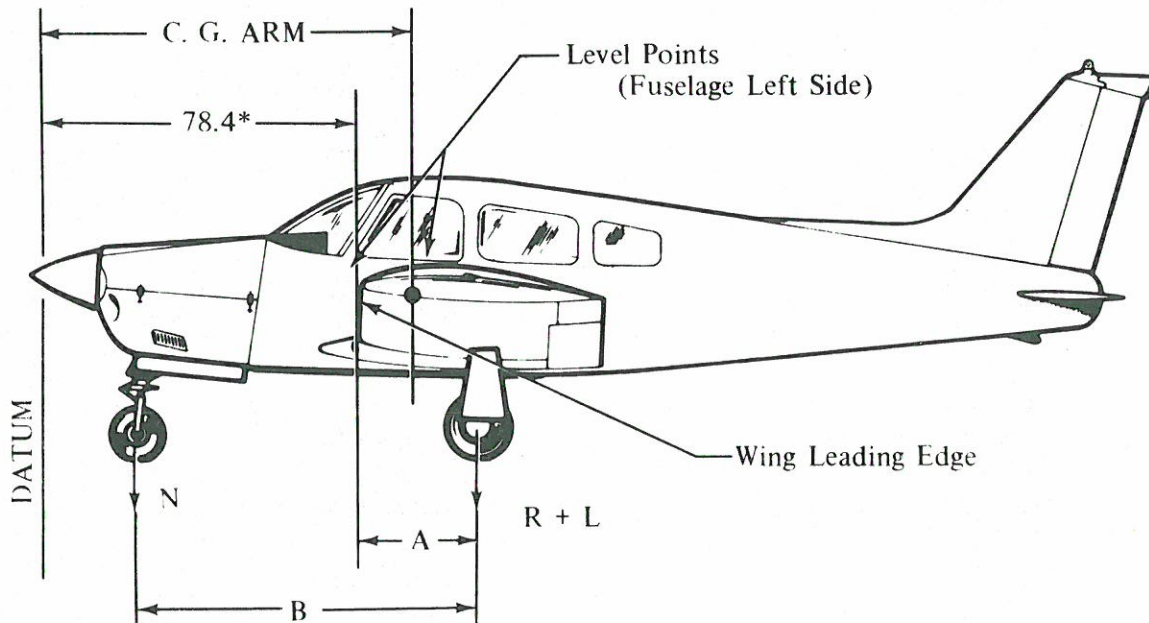
**3. WEIGHING - AIRPLANE EMPTY WEIGHT**

- 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

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PIPER CHEROKEE SERVICE MANUAL

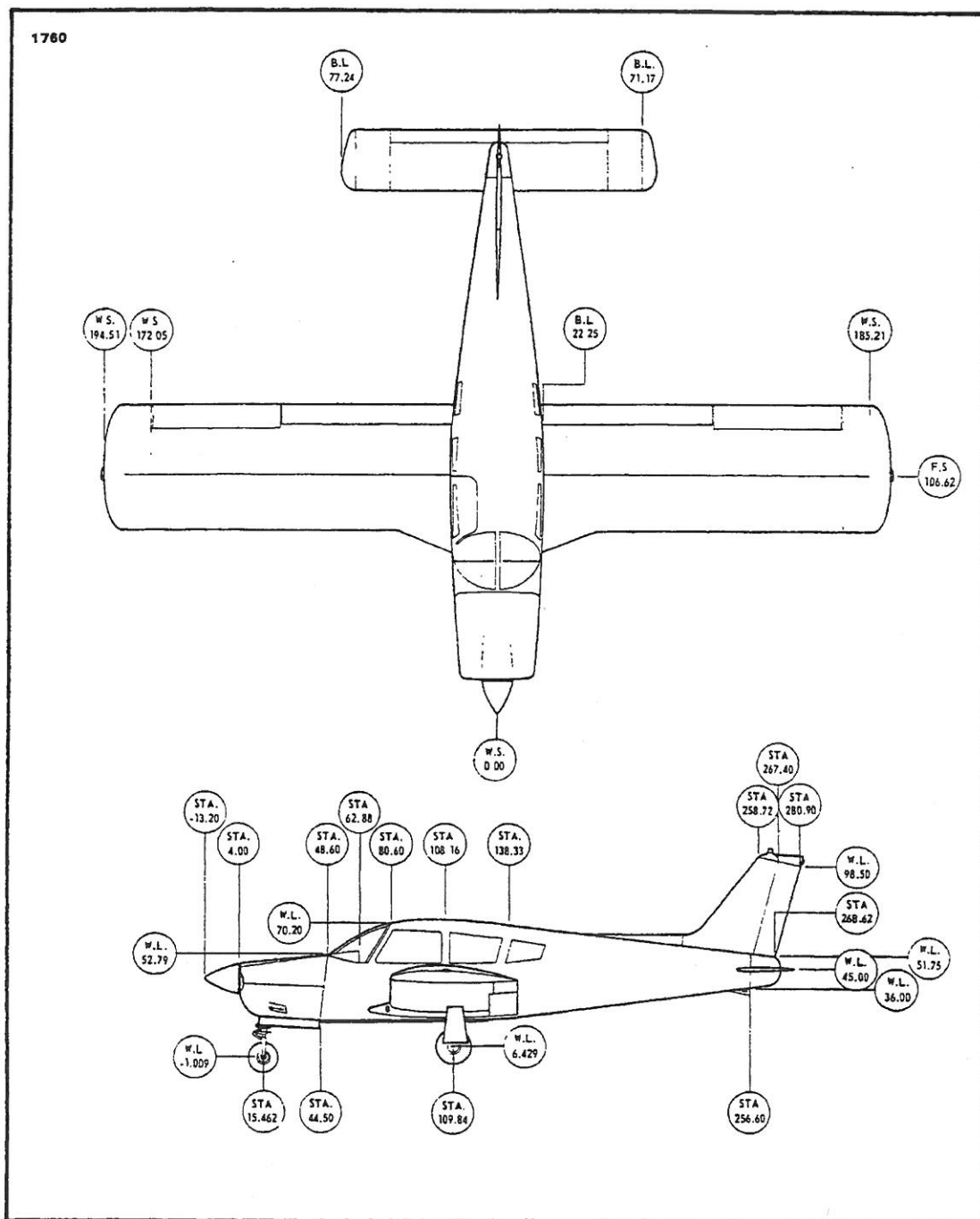


Figure 2-24. Station Reference Lines,  
PA-28R-200, Serial Nos. 28-7235001 and up

Reissued: 1/15/81

HANDLING AND SERVICING

1C15





## Aircraft Weight and Balance Revision

Tail Number: N4389X		Date: <i>10/02/2015</i> <i>11/2/2015</i>	
Prepared by:		Work Order No:	
		Type Certificate Data No: 4PCLM	
Aircraft Make: PIPER	Model: PA-28R-200	Serial No: 28R-7635034	Time: <i>TACH: 4519.53</i>
Registered Owner: POLISHCHUK ROSTYSLAV		Address: 3108 BLUE HERON ST SAFETY HARBOR, FL 34695-5304	
Maximum Weight	<b>2650.0</b>	CG Range FWD	80.0 AFT 93.0
As Received; Date of Previous Weight and Balance: 09-08-2015	Useful Load: 979.56	EW: 1670.44	EWCG: 84.75 Moment: 141574.9
Notes: C.G. RANGE: (+80.0) to (+93.0) at 1800 lb. or less, (+82.0) to (+93.0) at 2300lb., (+87.3) to (+93.0) at 2650 lb.			
		<b>Weight</b>	<b>Arm</b>
			<b>Moment</b>
Removed 52D54 Gyro/Heading Indicator		-2.9	59
Installed King KI 525A HSI Indicator <i>SN: 15092</i>		3.4	59.1
Installed King KI 525A and King KI 206 Indicators <u>wiring</u>		1.9	54
Installed King KA 51B Slaving Accessory <i>SN: 26399</i>		0.2	61.7
Removed King KI206 wiring		-0.9	54
Installed King KMT 112 Magnetic Transmitter with mount <i>SN: 23437</i>		0.5	118
Installed Magnetic Transmitter <u>wiring</u>		1.5	110
Installed King KG 102A Remote Gyro with mount <i>SN: 23050</i>		4.8	192
Installed Remote Gyro <u>wiring</u>		3.1	133
Installed King KA 57 Autopilot Adaptor with mount		0.4	60
Removed King KT 76A Transponder with tray		-3.1	58.1
Installed Garmin GTX 327 Transponder with tray <i>SN: 83718216</i>		3.0	59.3
<input checked="" type="checkbox"/> As Calculated	Moment	New Empty Weight CG	
	143250.77	85.15	
<input type="checkbox"/> As Weighed	Weight		
	1682.34	New Useful Load	
		967.66	
		Signature <i>Randy D. Paul</i>	
		Repair Agency or License No: <i>A+P 2065155 IA</i>	




**Aircraft Equipment List Supplement****N4389X**

<b>Item</b>	<b>Weight Lbs.</b>	<b>Arm Aft Datum</b>	<b>Moment In-lbs.</b>	<b>Cert. Basis</b>
Hartzell HC-C3YK Propeller	69	-1.9	-131.1	STC#SA4528NM
Hartzell Propeller Spinner	3.4	-2.2	-7.48	STC#SA4528NM
Copper Battery Cables	5.5	101	555.5	STC#SA3531NM
PS Engineering PMA8000-SR Audiopanel	2.2	60.2	132.44	C50c, C35d
Insight Engineering Strikefinder Display	1.2	59.85	71.82	TSO C110a
Insight Engineering Strikefinder Sensor	0.6	111.1	66.6	TSO C110a
Insight Engineering GEM-602 Engine Monitor	0.75	59	44.25	STC#SA175NE
Garmin GTX 327 Transponder	3.0	59.3	177.9	TSO C74b
King KA-60 Transponder Antenna	0.3	58.75	16	TSO C74b
Comant CI-104 Glide Slope Antenna	0.44	158.3	70.4	TSO C74b
Sky-Tec # 149-12LS Starter	7.8	10.5	81.9	STC#SE00218NY
Precise Flight Standby Vacuum System	1.8	36	64.8	STC#SE1779NM & STC#SA2167NM
Reiff L-4 Engine Preheat System	1.2	18.7	22.44	FAA-PMA PQ2585CE
Trans-Cal SSD120-30A Altitude Encoder/Digitizer	0.7	50	35	TSO C88a
King KX-155 Nav/Comm	5.3	57.6	305.28	C37b, C38b, C36c, C40a, C34c
King KI-204 Course Indicator	1.7	59.5	101.15	C34c, C36c, C40a
King KCS 55a Compass System	15.8	120.1	1897.8	TSO C6c
Garmin 530W GPS	9.2	58	533.6	STC#SA01933LA-D
Garmin GA 35 GPS Antenna	0.6	98	58.8	STC#SA01933LA-D
King KI-206 Course Indicator	1.3	59.9	77.87	C34c, C36c, C40a



## Aircraft Weight and Balance Revision

Tail Number: N4389X		Date: 9/8/2015	
Prepared by:		Work Order No:	
		Type Certificate Data No: 4PCLM	
Aircraft Make: PIPER	Model: PA-28R-200	Serial No: 28R-7635034	Time:
Registered Owner: POLISHCHUK ROSTYSLAV		Address: 3108 BLUE HERON ST SAFETY HARBOR, FL 34695-5304	
Maximum Weight	<b>2650.0</b>	CG Range FWD	80.0
		AFT	93.0
As Received; Date of Previous Weight and Balance: 12-05-2015	<b>Useful Load:</b> 972.66	<b>EW:</b> 1677.34	<b>EWCG:</b> 84.83
<b>Moment:</b> 142282.86			
Notes: C.G. RANGE: (+80.0) to (+93.0) at 1800 lb. or less, (+82.0) to (+93.0) at 2300lb., (+87.3) to (+93.0) at 2650 lb.			
	<b>Weight</b>	<b>Arm</b>	<b>Moment</b>
INSTALLED KING KX-155 RADIO, WIRING AND TRAY	5.3	57.6	305.28
INSTALLED KING KI-204 INDICATOR	1.7	59.5	101.15
INSTALLED PS ENGINEERING PMA8000-SR AUDIOPANEL, WIRING AND TRAY	2.2	60.2	132.44
REMOVED KING KMA-20 AUDIOPANEL, WIRING AND TRAY	-2.8	60.2	-168.56
REMOVED PS ENGINEERING PM-1000-II INTERCOM	-0.8	60.5	-48.4
REMOVED LOOP CABLE	-1.8	105.5	-189.9
REMOVED KING KX-170B RADIO, WIRING AND TRAY	-7.5	56.6	-424.5
REMOVED KING KI-209 INDICATOR	-1.2	59.5	-71.4
REMOVED KING KN-75 GLIDESLOPE RECEIVER	-1.5	189.4	-284.1
REMOVED GS ANTENNA CABLE	-0.5	120.0	-60
<input checked="" type="checkbox"/> As Calculated	Moment	141574.9	New Empty Weight CG 84.75
<input type="checkbox"/> As Weighed	Weight	1670.44	
		New Useful Load 979.56	
		Signature 	
		Repair Agency or License No: AIP 2065155 IA	



**Aircraft Equipment List Supplement**

**N4389X**

Item	Weight Lbs.	Arm Aft Datum	Moment In-lbs.	Cert. Basis
Hartzell HC-C3YK Propeller	69	-1.9	-131.1	STC#SA4528NM
Hartzell Propeller Spinner	3.4	-2.2	-7.48	STC#SA4528NM
Copper Battery Cables	5.5	101	555.5	STC#SA3531NM
✓ PS Engineering PMA8000-SR Audiopanel	2.2	60.2	132.44	C50c, C35d
Insight Engineering Strikefinder Display	1.2	59.85	71.82	TSO C110a
Insight Engineering Strikefinder Sensor	0.6	111.1	66.6	TSO C110a
Insight Engineering GEM-602 Engine Monitor	0.75	59	44.25	STC#SA175NE
King KT-76A Transponder	3.1	58.1	180.11	TSO C74b
King KA-60 Transponder Antenna	0.3	58.75	16	TSO C74b
Comant CI-104 Glide Slope Antenna	0.44	158.3	70.4	TSO C74b
Sky-Tec # 149-12LS Starter	7.8	10.5	81.9	STC#SE00218NY
Precise Flight Standby Vacuum System	1.8	36	64.8	STC#SE1779NM & STC#SA2167NM
Reiff L-4 Engine Preheat System	1.2	18.7	22.44	FAA-PMA PQ2585CE
Trans-Cal SSD120-30A Altitude Encoder/Digitizer	0.7	50	35	TSO C88a
✓ King KX-155 Nav/Comm	5.3	57.6	305.28	C37b, C38b, C36c, C40a, C34c
✓ King KI-204 Course Indicator	1.7	59.5	101.15	C34c, C36c, C40a
Garmin 530W GPS	9.2	58	533.6	STC#SA01933LA-D
Garmin GA 35 GPS Antenna	0.6	98	58.8	STC#SA01933LA-D
King KI-206 Course Indicator	1.3	59.9	77.87	C34c, C36c, C40a

*David A. Parks 9/8/2015*  
*A+P 2065155IA*





## Aircraft Weight and Balance Revision

Tail Number: <b>N4389X</b>		Date: 12-05-2014	
Prepared by: BENDER AVIATION SERVICES INC. 1000 N. HERCULES AVE. CLEARWATER, FL 33765		Work Order No:	
		Type Certificate Data No: 4PCLM	
Aircraft Make: PIPER	Model: PA-28R-200	Serial No: 28R-7635034	Time: 4329.73
Registered Owner: POLISHCHUK ROSTYSLAV		Address: 3108 BLUE HERON ST SAFETY HARBOR, FL 34695-5304	
Maximum Weight <b>2650.00</b>		CG Range FWD <b>80.0</b> AFT <b>93.0</b>	
As Received; Date of Previous Weight and Balance: 08-25-2002	Useful Load: 968.56	EW: 1681.44	EWCG: 84.77      Moment: 142530.88
Notes: C.G. RANGE; (+80.0) to (+93.0) at 1800 lb. or less, (+82.0) to (+93.0) at 2300 lb., (+87.3) to (+93.0) at 2650 lb.			
	<b>Weight</b>	<b>Arm</b>	<b>Moment</b>
INSTALLED GARMIN 530W, WIRING AND TRAY.	9.2	58.00	533.60
INSTALLED GA 35 GPS ANTENNA AND CABLE.	0.60	98.00	58.80
INSTALLED KI-206 COURSE INDICATOR AND CONNECTOR.	1.30	59.90	77.87
REMOVED KR85 ADF RECEIVER, CONNECTOR AND TRAY.	-4.30	59.40	-255.42
REMOVED KR85 ADF SENSE ANTENNA AND CABLE.	-0.40	147.50	-59.00
REMOVED KX170B NAV/COM, CONNECTOR AND TRAY.	-7.60	56.60	-430.16
REMOVED KI-201C COURSE INDICATOR AND CONNECTOR.	-2.90	59.90	-173.71
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
<input checked="" type="checkbox"/> As Calculated	Moment	142282.86	
<input type="checkbox"/> As Weighed	Weight	1677.34	
		<b>New Empty Weight CG</b>	<b>New Useful Load</b>
		<b>84.83</b>	<b>972.66</b>
Signature <i>J. Miller</i>			
Repair Agency or License No: <i>AvP 3047363</i>			



## Aircraft Equipment List Supplement

N4389X

Item	Weight Lbs.	Arm Aft Datum	Moment In-lbs.	Cert. Basis
NARCO AR-850 Altitude Reporter	0.7	50	35	TSO-C88a
Hartzell HC-C3YK Propeller	69	-1.9	-131.1	STC # SA4528NM
Hartzell Propeller Spinner	3.4	-2.2	-7.48	STC # SA4528NM
Copper Battery Cables	5.5	101	555.5	STC # SA3531NM
PS Engineering PM-1000-II Intercom	0.8	60.5	48.4	TSO C50c
Insight Engineering Strikefinder Display	1.2	59.85	71.82	TSO C110a
Insight Engineering Strikefinder Sensor	0.6	111.1	66.66	TSO C110a
Insight Engineering GEM-602 Engine Monitor	0.75	59	44.25	STC # SA175NE
King KT-76A Transponder	3.1	58.1	180.11	TSO C74b
King KA-60 Transponder Antenna	0.3	58.75	16	TSO C74b
Comant CI-104 Glide Slope Antenna	0.44	158.3	70.4	TSO C74b
Sky-Tec # 149-12LS Starter	7.8	10.5	81.9	STC # SE00218NY
Precise Flight Standby Vacuum System	1.8	36	64.8	STC # SE1779NM & STC # SA2167NM
Reiff L-4 Engine Preheat System	1.2	18.7	22.44	FAA-PMA PQ2585CE
Trans-Cal SSD120-30A Altitude Encoder/Digitizer	0.7	50	35	TSO C88a

Removed 9/Nov/04  
WJL  
AIP/128361590



**WEIGHT AND BALANCE CHANGES**  
**N4389X**

Oct. 25, 2002

**Weight and Balance Data as of June 8, 2001**

<u>Weight:</u>	<u>Arm:</u>	<u>Moment:</u>
1680.24	84.81	142508.44

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added(+)</u>	<u>Arm Aft (+)</u>	<u>Moment Change</u>
Install: Reiff SL4 Engine Preheater System	1.20	18.70	22.44
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
Totals:	<u>1.20</u>		<u>22.44</u>

*S. G.*  
*12-5-2014*

**Weight and Balance Data as of 10/25/2002**

Moment: 142530.88

Gross Weight	2650.00	lb.
New Empty Weight	1681.44	lb.
New Empty Weight C.G.	84.77	in.
New Useful Load	968.56	lb.



**WEIGHT AND BALANCE CHANGES**  
**N4389X**

**Jun. 8, 2001**

**Weight and Balance Data as of 9/17/98**

<u>Weight:</u>	<u>Arm:</u>	<u>Moment:</u>
1678.44	84.87	142443.64

**Changes to Weight and Balance**

Equipment Changes	Weight Added(+)	Arm Aft (+)	Moment Change
Install: Precise Flight Standby Vacuum System	1.80	36.00	64.80
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
<b>Totals:</b>	1.80		64.80

Supersceded:  
 10/25/02  
 William H  
 A & P  
 128361590

**Weight and Balance Data as of 6/8/01**

**Moment: 142508.44**

Gross Weight	2650.00	lb.
New Empty Weight	1680.24	lb.
New Empty Weight C.G.	84.81	in.
New Useful Load	969.76	lb.





**WEIGHT AND BALANCE CHANGES  
N4389X**

Sept. 17, 1998

**Weight and Balance Data as of 5/28/97**

<u>Weight:</u>	<u>Arm:</u>	<u>Moment:</u>
1688.64	84.42	142550.74

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added (+)</u>	<u>Arm Aft (+)</u>	<u>Moment Change</u>
Remove Prestolite Starter	-18.00	10.50	-189.00
Install Sky-Tec 149-12LS Starter	7.80	10.50	81.90
			0.00
			0.00
			0.00
			0.00
			0.00
<b>Totals:</b>	<u>-10.20</u>		<u>-107.10</u>

Superceded  
 6/8/2001  
 William V. [Signature]  
 A & P  
 128361570

**New Weight and Balance Data as of 9/17/98**

<u>Weight:</u>	<u>Arm:</u>	<u>Moment:</u>
1678.44	84.87	142443.64



**WEIGHT AND BALANCE CHANGES  
N4389X**

**May 28, 1997**

**Weight and Balance Data as of 6/5/96**

Weight: 1688.30      Arm: 84.43      Moment: 142535.44

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added (+)</u>	<u>Arm Aft (+)</u>	<u>Moment Change</u>
Remove KT-76 Transponder & Tray	-3.10	58.10	-180.11
Install KT-76A Transponder & Tray	3.10	58.10	180.11
Remove Transponder Antenna	-0.15	58.75	-8.81
Install KA-60 Transp. Antenna	0.30	58.75	17.63
Remove G/S Antenna Cable	-0.75	124.45	-93.34
Install G/S Antenna Cable	0.50	120.00	60.00
Install CI-104 G/S Antenna	0.44	90.50	39.82
<b>Totals:</b>	<u>0.34</u>		<u>15.30</u>

**New Weight and Balance Data as of 5/28/97**

Weight: 1688.64      Arm: 84.42      Moment: 142550.74

*Superseded  
9/17/98  
WRJ  
A&P  
12836/1590*



**WEIGHT AND BALANCE CHANGES  
N4389X**

June 5, 1996

**Weight and Balance Data as of 12/2/95**

Weight:                      Arm:                      Moment:  
1686.95                      84.47                      142488.37

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added (+)</u>	<u>Arm Aft (+)</u>	<u>Momen Change</u>
Remove Piper EGT Gauge	-0.70	55.40	-38.78
Add Insight Engine Monitor	0.75	59.00	44.25
Add Probes and Cabling	1.30	32.00	41.60
<b>Totals:</b>	<u>1.35</u>		<u>47.07</u>

**New Weight and Balance Data as of 6/5/96**

Weight:                      Arm:                      Moment:  
1688.30                      84.43                      142535.44

*Superseded  
5/28/97  
William N. Quinn  
A&P  
128361590*



**WEIGHT AND BALANCE CHANGES  
N4389X**

December 2, 1995

**Weight and Balance Data as of 10/8/94**

Weight:                      Arm:                      Moment:  
1684.55                      84.47                      142291.09

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added (+)</u>	<u>Arm Aft (+)</u>	<u>Moment Change</u>
Strikefinder Display	1.20	59.85	71.82
Strikefinder Sensor	0.60	111.10	66.66
Cabling	0.60	98.00	58.80
<b>Totals:</b>	2.40		197.28

**New Weight and Balance Data as of 12/2/95**

Weight:                      Arm:                      Moment:  
1686.95                      84.47                      142488.37

*Superseded  
6/5/96  
William N  
A+P  
128361570*





**WEIGHT AND BALANCE CHANGES  
N4389X**

**October 8, 1994**

**Weight and Balance Data as of 9/10/91**

Weight: 1666.25      Arm: 85.01      Moment: 141647.91

**Changes to Weight and Balance**

<u>Equipment Changes</u>	<u>Weight Added(+)</u>	<u>Arm Aft (+)</u>	<u>Moment Change</u>
Remove 2-Blade Prop	-55.00	-1.90	104.50
Remove 2-Blade Spinner	-5.00	-2.20	11.00
Install 3-Blade Prop	69.00	-1.90	-131.10
Install 3-Blade Spinner	3.40	-2.20	-7.48
Remove Mech. Clock	-0.40	62.40	-24.96
Install Electric Clock	0.30	62.40	18.72
Remove Extinguisher	-4.60	71.00	-326.60
Install Extinguisher	4.60	97.00	446.20
Remove Aluminum Cables	-2.60	101.00	-262.60
Install Copper Cables	5.50	101.00	555.50
Install Intercom Amplifier	0.80	60.50	48.40
Install Intercom Wiring	2.30	92.00	211.60
<b>Totals:</b>	18.30		643.18

**New Weight and Balance Data as of October 8, 1994**

Weight: 1684.55      Arm: 84.47      Moment: 142291.09

*Superseded  
12/21/95  
William N. [Signature]  
A&P  
128361570*



GREENLEAF FLIGHT SERVICE, INC.  
 REVISED WEIGHT & BALANCE REPORT  
 \*\*\*\*\*

DATE 09/10/91

OWNER- ARTISAN FLYING CLUB, INC.  
 REGISTRATION- N-4389X  
 SERIAL NO.- 28R 7635034  
 AIRCRAFT MAKE- PIPER  
 MODEL- PA28 200R

ITEM	PREVIOUS		MOMENT
	WEIGHT	ARM	
===== REMOVED =====	1666.75	85	141673.7
			0
UNITED-KING TRANS CAL ENCODING ALTIMETER.	1.2	50	60
			0
			0
			0
			0
			0
			0
			0
			0
			0
----- ITEM -----			0
----- INSTALLED -----			0
NARCO AR-850 ALTITUDE REPORTER	0.7	50	35
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
TOTAL	1666.25		141648.7

*Surrendered  
10/8/94*

GROSS WEIGHT 2650 LBS.  
 NEW EMPTY WEIGHT 1666.25 LBS.  
 NEW EMPTY WEIGHT CG 85.01 INS.  
 NEW USEFUL LOAD 983.75 LBS.

R.R.GRENINGER A&P114180676

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



July 23, 1986

Artisan Flying Club  
Po Box 15482  
Rochester, N.Y. 14615

RE: N4389X, S/N 28R7635034, Piper PA28R-200

The weight and moment change incurred during the radio installation of the above aircraft are calculated below and on the attached sheets. Also see form 337.

Removed the following equipment:

1. King course selector indicator M/N KI-214, P/N 066-3025-01, S/N 1652.

Installed the following equipment:

1. King glideslope receiver M/N KN-75, P/N 066-1063-00, S/N 15119.
2. King Vor/Loc converter and glideslope indicator M/N KI209, P/N 066-3056-01 S/N 19219.
3. Wiring harness and coax cable.

The following is the aircraft empty weight, cg and moments from aircraft weight and balance revision dated 4-27-84.

<u>Weight</u>	<u>Cg</u>	<u>Moments</u>
1665.2	84.83	141258.9

The weight and moment change for this installation is:

<u>Weight</u>	<u>Moments</u>
+1.55	+375.61

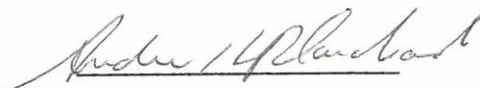
The new revised aircraft empty weight, cg, moments and useful load is:

<u>Weight</u>	<u>Cg</u>	<u>Moments</u>	<u>Useful load</u>
1666.75	85.0	141766.01	983.25

It is the pilots responsibility to ensure that this aircraft is loaded in accordance with limitation set forth in the aircraft specification.

Prepared by:  
Page Avjet Corp.  
CRS 3964

Andre H. Blanchard  
Chief Inspector





N 4389XS/N 28R-7635034MODEL PA28R-200DATE 7-23-86WEIGHT AND BALANCE

ITEM	WEIGHT	ARM	MOMENT
<u>Removed the following equipment</u>			
1. King course selector indicator M/N KI-214, P/N 066-3025-01, S/N 1652	-3.3	59.9	197.67
<u>Installed the following equipment</u>			
1. King glideslope receiver M/N KN-75, P/N 066-1063-00, S/N 15119	+1.5	189.4	284.1
2. King Vor/Loc converter & glideslope indicator M/N KI209, P/N 066-3056-01, S/N 19219	+1.2	59.5	71.4
3. Wiring harness	+1.0	124.45	124.45
4. Coax cable	+0.75	124.45	93.33
	+1.55		+375.61

*Superseded  
9/10/91*NEW EMPTY WEIGHT 1666.75NEW E.W.C.G. 85.0NEW USEFUL LOAD 983.25





TANGER-AIRE INC.  
 Royalton Airport  
 Dale & Mackey Rd.  
 Gasport, N.Y. 14067  
 716-772-7800

<u>Piper</u>	<u>Pa28R 200</u>	<u>28R7635034</u>	<u>N4389X</u>	<u>1078.93</u>
Manufacturer	Model	S/N	Registration	Tach
<u>Artisan Flying Club Inc.</u>	<u>West Ridge Station, Rochester, N.Y. 14615</u>			
Owner	Address			

	Weight	Arm	Moment
Last Aircraft Log Entry	1664.0	84.85	141201.39
Install Trans Cal Encoder	1.2	50.0	60.0
	<u>1665.2</u>	<u>84.83</u>	<u>141261.39</u>

SUPERSEDED  
 By 337 Dated 7-23-86  
 Signed: *[Signature]*

Gross Weight 2650.0  
 New Empty Weight 1665.2  
 New Empty Weight Center of Gravity 84.83  
 New Usefull Load 984.8

It is the pilot's responsibility to see that this aircraft is loaded in accordance with limitations set forth in the aircraft specifications issued to this airplane.

*R.E. Arnold*  
 FOR CRS # 1186

4-27-1984  
 Date



AREA CODE (308) 532-5864

**TREGO**

**AVIATION  
INC.**

GARY M. TREGO, PRES.

P. O. BOX 1226

LEE BIRD FIELD  
NORTH PLATTE, NEBRASKA  
69101

WEIGHT AND BALANCE DATA

June 5, 1976

N4389X Piper PA-28R-200 Serial No. 28R-7635034

Installed fire extinguisher, Scott 2 $\frac{1}{2}$  lb.

	<u>WEIGHT</u>	<u>ARM</u>	<u>MOMENT</u>
Old Data	1659.4	84.89	140874.39
fire extinguisher	<u>4.6</u>	<u>71.00</u>	<u>327.00</u>
New Data	1664.0	84.85	141201.39
New Empty Weight		1664.0 lbs.	
New Empty Weight C. G.		84.85 ins.	
New Empty Weight Moment		141201.39 in. lbs.	
New Useful Load (Normal) Gross	2650.0 lbs.	986.0 lbs.	

Karyl Clarida  
A&P 1723503

*Karyl Clarida*  
A&P 1723503

*Superseded 4-27-84  
R.E. Clarida FOR CRS #1186*

*1614  
986  
27500*



# AVIONIC SYSTEMS, INC.

P. O. BOX 307 GRAND ISLAND, NEBRASKA 68801  
 F A A REPAIR STATION 312.1  
 PHONE (308) 382-5783

DATE: 10-1-75

NAME: Trego Aviation Inc. AIRCRAFT MAKE: PA-28-R-200  
 ADDRESS: P. O. Box 1226 REGISTRATION MARKS: N 4389X  
 CITY, STATE: North Platte, Nebraska 69101

	WEIGHT	ARM	MOMENT
OLD EMPTY	1637.1	85.1	139279
ITEM REMOVED:			
Whip Com. Ant.	.3	157.8	47
King KX 170B	7.5	56.6	425
ITEM INSTALLED:			
#2 Comm Ant. Coax	.5	147.5	60
#1 Comm Ant.	.5	157.8	73.75
#2 Comm Ant.	.5	192.8	96.40
Dual KX 170B (King)	15.0	56.6	849.00
King KI 214	3.3	59.9	198.00
King KMA 20	2.8	60.2	169.00
King KR 85 ADF	4.0	59.4	237.60
King KI 225 Indicator	1.3	61.3	79.69
King Loop Ant.	1.3	121.5	157.95
Sense Antenna & Cable	.4	147.5	59.00
Marker Ant.	.5	174.0	87.00
TOTALS	1659.4	84.89	140874.39

NEW EMPTY WEIGHT 1659.4  
 NEW USEFUL LOAD 990.6  
 NEW EMPTY C.G. 84.89

*Warren P. Tress*  
*Supersceded*  
*June 5, 1976*  
*ADP 2003717*  
*New 4/5/76 - Gross 1664.0*  
*Useful 986.0*

NEW AND USED RADIO, PROFESSIONAL INSTALLATION AND REPAIR



## WEIGHT AND BALANCE DATA

## MODEL PA-28R-200 CHEROKEE

Airplane Serial Number 28R-7635034Registration Number N4384XDate 9/11/75

## AIRPLANE EMPTY WEIGHT

Item	Weight (Lbs)	C. G. Arm (Inches Aft of Datum)	Moment (In-Lbs)
*Empty Weight <del>Actual</del> Computed	1521.0	83.0	126219
Unusable Fuel (13-1/3 pints)	10.0	103.0	1030
Standard Empty Weight	1531.0	83.1	127249
Optional Equipment	106.1	113.4	12030
Licensed Empty Weight	1637.1	85.1	139279

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

**SUPERCEDED**  
**SUPERCEDED**

10-1-75

## AIRPLANE USEFUL LOAD - NORMAL CATEGORY OPERATION

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

(2650 lbs) - (1637.1 lbs) = 1012.9 lbs

- as of 5/76 = 946 lbs. useful

THIS LICENSED EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS DELIVERED FROM 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	1637.1	85.1	139279
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)	217.9	95.0	20701
*Baggage	100	142.8	14280
Moment due to Retracting of Landing Gear			819
Total Loaded Airplane	2650	91.7	242971

The center of gravity (C.G.) of this sample loading problem is at 91.7 inches aft of the datum line. Locate this point (91.7 ) 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.

\*Check Aft C.G. between 150 lbs and 200 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 <u>X</u> HC-C2YK-1( )F/F7666A-2*	55.0	-1.9	-105	TC P920
	Propeller - McCauley Model B2D34C213/90DHA-16**	49.0	-1.9	-93	TC P7EA
	<u>X</u> 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
	<u>X</u> 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				
<u>X</u>	Engine - Lycoming Model IO-360-C1C**	326	18.7	6096	TC 1E10
	Engine - Lycoming Model IO-360-C1C6***	333	18.7	6227	TC 1E10
<u>X</u>	Fuel Pump - Electric Auxiliary Weldon *8120-AB	2.8	42.9	120	TC 2A13
<u>X</u>	Induction Air Filter Fram Model CA-144PL	.5	37.2	19	TC 2A13
<u>X</u>	Fuel Pump - Engine Driven Lycoming 75247	1.6	32.0	51	TC 1E10
<u>X</u>	Starter - 12V Prestolite Model MZ-4206 Lycoming 76211	18.0	10.5	189	TC 1E10
<u>X</u>	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
<u>X</u>	Oil Filter, Lycoming *LW-13743 (Champion *CH-48110)*	2.8	33.1	93	TC 2A13

*Removed  
9/17/98 WKS*

\*Serial Nos. 28R-7535001 and up  
 \*\*Serial Nos. 28R-7435001 through 28R-7635516  
 \*\*\*Serial Nos. 28R-7635517 and up

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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)				
x	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)				
x	(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
_____	<input checked="" type="checkbox"/> Battery Contactor, Piper 63880-0	1.2	168.0	202	TC 2A13
_____	<input checked="" type="checkbox"/> Stall Warning Detector, Safe Flight Inst. Corp. No. C52207-4	.2	80.2	16	TC 2A13
_____	<input checked="" type="checkbox"/> Switch - Landing Gear Selector Cutler Hammer 8906-K 1736	.2	62.8	13	TC 2A13
_____	<input checked="" type="checkbox"/> Voltage Regulator Wico Electric No. X-16300B	.9	59.4	53	TC 2A13
_____	<input checked="" type="checkbox"/> Overvoltage Relay Wico Electric No. X-16799B	.5	55.4	28	TC 2A13
_____	<input checked="" type="checkbox"/> Starter Relay Piper Dwg. 99130-2	1.0	47.0	47	TC 2A13
_____	<input checked="" type="checkbox"/> Landing Gear Motor Contactor Cole-Hersee *24059 (2) .8 lbs. each	1.6	162.0	259	TC 2A13
_____	<input checked="" type="checkbox"/> 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					
<u>X</u>	Compass - Piper 67462	.9	59.9	54	TSO C7c
	Airspeed Indicator - Piper 67434-2 or -3	.6	61.8	37	TSO C2b
<u>X</u>	Tachometer - Piper 62177-6*	.7	61.2	43	TC 2A13
	Tachometer - Piper 62177-3**	0.7	61.2	43	TC 2A13
<u>X</u>	Engine Cluster - Piper 95241-2	.8	62.4	50	TC 2A13
<u>X</u>	Engine Cluster - Piper 95241-3	.8	62.4	50	TC 2A13
<u>X</u>	Altimeter - Piper PS50008-2, -3, -4 or -5	1.0	60.9	61	TSO C10b
<u>X</u>	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

**ARROW**

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Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
	F. Hydraulic Equipment				
<u>    </u> X	Cylinder Hydraulic Nose Gear Piper 67504	.9	45.0	41	TC 2A13
<u>    </u> X	Cylinder Hydraulic (2) Main Gear Piper 67505 (0.9 lbs. each)	1.8	108.4	195	TC 2A13
<u>    </u> X	Pump Assembly - Piper 67500-2	9.0	159.0	1431	TC 2A13
<u>    </u> X	Switch, Pressure Consolidated Controls *211C243-3	.2	116.7	23	TC 2A13
<u>    </u> X	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					
<u>X</u>	Forward Seat Belts (2) PS50039-4-2 (.75 lbs. each)	1.5	81.9	123	TSO C22
<u>X</u>	Rear Seat Belts (2) PS50039-4-3 (.70 lbs. each)	1.4	123.0	172	TSO C22
<u>X</u>	Inertia Safety Belts, Front Seats (2) PS50039-4-17 (0.75 lbs. each)	1.5	119.6	179	TC 2A13
<u>X</u>	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
<u>X</u>	(Right) Piper Dwg. 79337-3	13.9	87.6	1218	TC 2A13
<u>X</u>	Individual Rear Seats(2) Piper Dwg. 99730-0 and -1 (13.5 lbs. each)	27.0	124.1	3351	TC 2A13
<u>X</u>	Flight Manual and Logs	2.6	95.1	247	TC 2A13
<u>X</u>	Tow Bar, Piper Dwg. 67336-0	2.3	155.2	357	TC 2A13



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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
_____	X Vacuum Pump, Airborne Mfg. Co., Model 21 lcc PAC 79399-0	3.2	29.6	94	TC 2A13
_____	X Low Vacuum Annunciator Light *	Neglect			TC 2A13
_____	Vacuum Regulator, Airborne ** Mfg. Co., * 133A4	.6	52.0	31	TC 2A13
_____	X 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)					
<u>  x  </u>	Landing Light G.E. Model 4509	.5	13.1	7	TC 2A13
<u>  x  </u>	Navigation Light (Rear) Grimes A2064	.2	281.0	56	TSO C30b
<u>  x  </u>	Navigation Light (Wing) (2) Grimes A1285-G-12 A1285-R-12 (0.2 lbs. each)	.4	106.6	43	TSO C30b
<u>  x  </u>	Auxiliary Power Receptacle Piper 65647	2.7	178.5	482	TC 2A13
<u>  x  </u>	External Power Cable Piper 62355-2	4.6	142.8	657	TC 2A13
<u>  x  </u>	Cabin Speaker Quincy Spkr. Co. 8B-15052 or Oaktron Ind. GEV 1937	.8	99.0	79	TC 2A13
<u>  x  </u>	Cabin Light	.3	99.0	30	TC 2A13
<u>      </u>	Rotating Beacon	1.5	263.4	395	TC 2A13
<u>  x  </u>	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)				
<u>      </u>	<b>X</b> Heated Pitot Head - Piper 67477-0	.4	100.0	40	TC 2A13
	Anti-Collision Lights Whelen Engineering Co. Piper Dwg. 99030-2 or -5				
<u>      </u>	Power Supply, Model HS, No. A412A-14 (with fin light only)	2.3	198.0	455	TC 2A13
<u>      </u>	<b>X</b> Power Supply, Model HD, T3 No. A413 (with fin and wing lights)	3.0	198.0	594	TC 2A13
<u>      </u>	<b>X</b> Light, Fin Tip, A408	.4	263.4	105	TC 2A13
<u>      </u>	<b>X</b> Cable, Fin Light, A417-1/300	.4	230.7	92	TC 2A13
<u>      </u>	<b>X</b> Lights, Wing Tip (2) (0.15 lbs. each) No. A429	.3	106.6	32	TC 2A13
<u>      </u>	<b>X</b> Cable, Wing Lights A417-1/298 & A417-1/252	2.0	115.6	231	TC 2A13
<u>      </u>	<b>X</b> Electric Trim System	4.3	155.3	668	TC 2A13

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 **				
<u>  X  </u>	Roll Servo *1C363-1-183R	2.5	122.2	306	STC SA1406SW
<u>  X  </u>	Console. *1C338 (S/N 10000 & up)	1.0	60.1	60	STC SA1406SW
<u>  X  </u>	Cables	.5	95.5	48	STC SA1406SW
<u>  X  </u>	Attitude Gyro, * 52D66	2.7	59.4	160	STC SA1406SW
<u>  X  </u>	Directional Gyro, * 52D54	2.9	59.0	171	STC SA1406SW
<u>  X  </u>	Omni Coupler, *1C388	1.0	59.3	59	STC SA1406SW

\*Serial nos. 7435001 through 7435331

\*\*Serial nos. 7535001 and up

ARROW

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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
<del>_____</del>	<del>X</del> Nav. Receiving Antenna	.5	265.0	133	TC 2A13
<del>_____</del>	<del>X</del> Cable, Nav. Antenna	.9	157.0	141	TC 2A13
<del>_____</del>	<del>X</del> #1 VHF Comm. Antenna	.5	157.8	47	TC 2A13
<del>_____</del>	<del>X</del> Cable, #1 VHF Comm. Antenna	.4	103.4	41	TC 2A13
<del>_____</del>	<del>X</del> #2 VHF Comm. Antenna	.5	192.8	58	TC 2A13
<del>_____</del>	<del>X</del> 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

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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
_____	<sup>removed 10-1-79</sup> King KX-170 ( ) or KX-175 ( )	7.5	56.6	425	TC 2A13
_____	X Dual KX-170 ( ) or KX-175 ( )	15.0	56.6	849	TC 2A13
_____	X King KI-201 ( )	2.5	59.9	150	TC 2A13 <sup>removed</sup>
_____	X King KI-214 ( )	3.3	59.9	198	TC 2A13 <sup>removed</sup>
_____	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				
<u>X</u>	Receiver	4.3	59.4	255	TC 2A13
<u>X</u>	Servo Indicator	1.2	61.3	74	TC 2A13 <i>Removed</i>
<u>X</u>	Loop Antenna	1.3	101.5	210	TC 2A13
<u>X</u>	Loop Cable	1.8	105.5	190	TC 2A13
<u>X</u>	Audio Amplifier	.8	51.0	41	TC 2A13
<u>X</u>	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

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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
_____	79265-6	1.3	236.2	307	TC 2A13
<u>X</u>	79761-4	1.7	236.2	402	TC 2A13
<u>X</u>	Antenna & Coax	.2	224.4	45	TC 2A13
<u>X</u>	Shelf & Access Hole	.33	235.4	78	TC 2A13
King KT76/ <del>78</del> Transponder					
<u>X</u>	Panel Unit	3.1	58.1	180	TC 2A13
<u>X</u>	Antenna & Cable	-	-	-	TC 2A13
Narco AT-50A Transponder (Includes Antenna & Cable)					
_____		3.0	57.3	172	TC 2A13
<u>X</u>	King KMA-20 ( ) Audio Panel	2.8	60.2	169	TC 2A13
<u>X</u>	Antenna	.5	116.3	58	TC 2A13
<u>X</u>	Cable	.4	87.5	35	TC 2A13
Audio Selector Panel - Piper * 99395-0, -2, or -3					
_____		.7	61.3	43	TC 2A13
<u>X</u>	Microphone (Carbon) Piper Dwg. 68856-10	.3	64.9	19	TC 2A13
_____	Microphone (Dynamic) Piper Dwg. 68856-12	.3	64.9	19	TC 2A13
<u>X</u>	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

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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

ARROW

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Item	Item	Weight Lbs.	Arm Aft Datum	Moment	Cert. Basis
L. Instruments (Optional Equipment)					
<u>X</u>	Suction Gauge - Piper 99480-0 or -2	.5	62.2	31	TC 2A13
<u>X</u>	Vacuum Filter, Piper 66673	.3	52.0	16	TC 2A13
<u>X</u>	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
<u>X</u>	Air Temperature Gauge Piper Dwg. 79316	.2	72.6	15	TC 2A13
<u>X</u>	Clock	.4	62.4	25	TC 2A13
<u>X</u>	Turn and Slip Indicator - Piper PS50030-2 or -3	2.6	59.7	155	TSO C3B Type II
<i>Removed 6/5/96</i> <u>X</u>	Exhaust Gas Temperature Gauge Piper 99026	.7	55.4	39	TC 2A13
<u>X</u>	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)					
<u>X</u>	Assist Step Piper 65384-0	1.8	156.0	281	TC 2A13
<u>      </u>	Assist Strap and Coat Hook Piper 62353-5	.2	109.5	22	TC 2A13
<u>X</u>	Assist Strap Piper Dwg. 79455	.2	109.5	22	TC 2A13
<u>      </u>	Inertia Safety Belts, Rear Seats (2) PS50039-4-14	1.6	140.3	224	TC 2A13
<u>X</u>	Lighter 200462 (12V Universal)	.2	62.9	13	TC 2A13
<u>X</u>	Fire Extinguisher, Scott Aviation 42211-00 Piper Dwg. 76167-2	4.6	71.0	327	TC 2A13
<u>      </u>	Headrests, (2) (1.0 lbs each) (Front) Piper Dwg. 99255-3	2.0	94.5	189	TC 2A13
<u>      </u>	(Front) Piper Dwg. 79337-18	2.0	94.5	189	TC 2A13
<u>      </u>	Headrests, (2) (1.0 lbs each) (Rear) Piper Dwg. 99255-3	2.0	132.1	264	TC 2A13
<u>X</u>	(Rear) Piper Dwg. 79337-18	2.0	132.1	264	TC 2A13
<u>X</u>	Alternate Static Source	.4	61.0	24	TC 2A13
	Calibrated Alternate Static Source				
	Placard Required: Yes <u>      </u> No <u>X</u>				
<u>      </u>	Zinc Chromate Finish	5.0	158.0	790	TC 2A13
<u>      </u>	Air Conditioner Instl.	68.9	105.0	7235	TC 2A13
<u>      </u>	Vert. Adj. Front Seat (Left) Piper Dwg. 76340-0	* 6.6	80.7	533	TC 2A13
<u>X</u>	(Left) Piper Dwg. 79591-0	* 6.6	80.3	530	TC 2A13

\* Weight and Moment difference between standard and optional equipment.

