

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-210 REV 3	PAGE <u> i </u>

AIRPLANE FLIGHT MANUAL

MODEL PA-28-180

FAA IDENTIFICATION NO. N2156T

SERIAL NO. 28-7205006

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA DOA SO-1
APPROVED

H. M. Toomey
H. M. Toomey

DATE

4/22/69

PREPARED

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

Airplane Flight Manual
Model PA-28-180

CHECKED

APPROVED

REPORT VB-210

PAGE iiLog of Revisions

REV. NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	1	Engine Limitations Section: Deleted "Maximum Permissible RPM for Take-off, -2475".		
	3	Added to Placard No. 3: "Baggage Maximum 200 Lbs."	<i>H. M. Toomey</i> H. M. Toomey FAA DOA SO-1	12/17/69
2	2	Added Forward Intermediate and Forward Gross Weight Points	<i>H. M. Toomey</i> H. M. Toomey FAA DOA SO-1	5/8/70
3	4	Placards Section: Added Items 8 and 9.		
	7	Procedures Section: Added Item 8. Added Page 7	<i>G. C. Stephen</i> G. C. Stephen FAA DOA DO-1	3/10/70

PREPARED

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

Airplane Flight Manual
Model PA-28-180

CHECKED

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REPORT VB-210

PAGE 1 of 7

Piper Model PA-28-180
Normal and Utility Categories

AIRPLANE FLIGHT MANUAL

1. Limitations Section The following limitations must be observed in the operation of this airplane:
 - Engine Lycoming O-360-A4A
 - Engine Limits For all operations,
2700 rpm, 180 hp.
 - Fuel 91/96 minimum octane aviation fuel.
 - Propeller Sensenich M76EMMS or 76EM8S5. Maximum diameter 76 inches,
minimum diameter 76 inches. Static RPM at maximum permissible
throttle setting. Not over 2450, not under 2275. No additional
tolerance permitted.
 - Power Instruments
 - Oil Temperature: GREEN arc (normal operating range)
75° F to 245° F
RED line (maximum) 245° F.
 - Oil Pressure: GREEN arc (normal operating range)
60 psi to 90 psi
YELLOW arc (caution range)
25 psi to 60 psi
RED line (minimum) 60 psi
RED line (maximum) 90 psi
 - Fuel Pressure: GREEN arc (normal operating range)
.5 psi to 8 psi
RED line (minimum) .5 psi
RED line (maximum) 8 psi
 - Tachometer: GREEN arc (normal operating range)
500 to 2700 rpm
RED line (maximum continuous power)
2700 rpm

FAA APPROVED 4/22/69

REVISED 12/17/59 Rev. No. 1

Airspeed Limits	Never exceed	171 mph
	Maximum structural cruise	140
	Maneuvering	129
	Flaps extended	115
	Maximum positive load factor	3.8 Normal Category
	Maximum positive load factor	4.4 Utility Category
	Maximum negative load factor	No inverted maneuvers approved

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

Baggage Capacity 200 lbs.

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

1. Normal Category (S/N 571 thru S/N 5859, inclusive)

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
2400	92.1	94.5
2200	89.2	95.9
1975	85.9	95.9
1650	84.0	95.9

Normal Category (S/N 7105001 and up)

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
2400	91.0	94.5
2200	87.8	95.9
2150	87.0	95.9
1650	84.0	95.9

2. Utility Category

Weight (Pounds)	Forward Limit (In. Aft of Datum)	Rearward Limit (In. Aft of Datum)
1950	85.8	86.5
1650	84.0	86.5

Straight Line variation between points given.

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See weight and balance section for proper loading instructions.

- Maneuvers
1. Normal Category - All acrobatic maneuvers including spins prohibited.
 2. Utility Category - Approved maneuvers for Utility Category only.

	<u>Entry Speed</u>
Spins (Flaps Up)	Stall
Steep Turns	129 mph.
Lazy Eights	129
Chandelles	129

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-210	PAGE 3 of 7

Placards

1. In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL OR UTILITY CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS.

ALL MARKINGS AND PLACARDS ON THIS AIRPLANE APPLY TO ITS OPERATION AS A UTILITY CATEGORY AIRPLANE. FOR NORMAL AND UTILITY CATEGORY OPERATIONS, REFER TO THE AIRPLANE FLIGHT MANUAL.

FOR SPIN RECOVERY, USE FULL RUDDER AGAINST SPIN, FOLLOWED IMMEDIATELY BY FORWARD WHEEL.

NO ACROBATIC MANEUVERS (INCLUDING SPINS) ARE APPROVED FOR NORMAL CATEGORY OPERATIONS. "
2. Adjacent to upper door latch:

"ENGAGE LATCH BEFORE FLIGHT. "
3. On the inside of the baggage compartment door:

"BAGGAGE MAXIMUM 200 LBS. "

"UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS. "
4. In full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED - 129 MPH. "

"UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED. "
5. On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed:

"OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50⁰F. "
6. On the instrument panel in full view of the pilot when the autoflite is installed:

"FOR HEADING CHANGES: PRESS DISENGAGE SWITCH ON CONTROL WHEEL. CHANGE HEADING, RELEASE DISENGAGE SWITCH. "

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual
CHECKED		Model PA-28-180
APPROVED	REPORT VB-210	PAGE 4 of 7

Placards
(Cont'd)

7. In full view of the pilot: "UTILITY CATEGORY ONLY."

Acrobatic maneuvers are limited to the following:

	<u>Entry Speed</u>
Spins (Flaps Up)	Stall
Steep Turns	129 mph
Lazy Eights	129
Chandelles	129

8. On the instrument panel in full view of the pilot when the AutoFlite II is installed:

"TURN AUTOFLITE ON. ADJUST TRIM KNOB FOR MINIMUM HEADING CHANGE. FOR HEADING CHANGE, PRESS DISENGAGE SWITCH ON CONTROL WHEEL, CHANGE HEADING, RELEASE SWITCH. ROTATE TURN KNOB FOR TURN COMMANDS. PUSH TURN KNOB IN TO ENGAGE TRACKER. PUSH TRIM KNOB IN FOR HI SENSITIVITY. LIMITATIONS AUTOFLITE OFF FOR TAKEOFF AND LANDING."

9. On the instrument panel in full view of the pilot when the supplementary white strobe lights are installed:

"WARNING - TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE."

Airspeed Instrument Markings	RED radial line	Never Exceed	171 mph (148 knots)
	YELLOW arc	Caution Range (Smooth Air Only)	140 to 171 mph (121 to 148 knots)
	GREEN arc	Normal Operating Range	67 to 140 mph (58 to 121 knots)
	WHITE arc	Flap Down Range	57 to 115 mph (50 to 100 knots)

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-210	PAGE 5 of 7

2. Procedures
Section

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

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-210	PAGE <u>6 of 7</u>

2. Procedures
Section
(Cont'd)

5. (Electric Pitch Trim Installation Only with Pitch Trim Switch)
The following emergency information applies in case of electric pitch trim malfunction:

- a. In case of malfunction, disengage electric pitch trim by pushing pitch trim switch on instrument panel to OFF position.
- b. In an emergency, electric pitch trim may be overpowered using manual pitch trim.
- c. In cruise configuration, malfunction results in 10° pitch change and 30 ft altitude variation.

2156T ✓

6. (Autoflite Installation Only)
The following emergency information applies in case of autoflite malfunction:

- a. In case of malfunction PRESS disconnect switch on pilot's control wheel.
- b. Rocker switch on instrument panel - OFF.
- c. Unit may be overpowered manually.
- d. In cruise configuration malfunction, 3 seconds delay results in 60° bank, and 100 ft altitude loss.
- e. In approach configuration malfunction, 1 second delay results in 10° bank and 0 ft altitude loss.

7. (AutoControl III Installation Only)

I. Limitations: Pilot off during takeoff and landing.

II. Procedures:

a. Normal Operation

Refers to Manufacturer's Operation Manual.

b. Emergency

1. In case of malfunction, disengage manual controls.
2. In emergency, pilot may be overpowered manually.
3. In cruise configuration malfunction, 3 seconds delay results in 60° bank and 100 ft altitude loss.
4. In approach configuration malfunction, 1 second delay results in 10° bank and 0 ft altitude loss.

FAA APPROVED 4/22/69

REVISED

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-210	PAGE 7 of 7

2. Procedures
Section
(Cont'd)

8. (AutoFlite II Installation Only) 2156T ✓
I Limitations: AutoFlite off for takeoff and landing.

II Procedures:

- a. Normal Operation - Refer to Manufacturer's Operation Manual.
- b. Emergency
 - 1. In case of malfunction PRESS disconnect switch on pilot's control wheel.
 - 2. Rocker switch on instrument panel - OFF.
 - 3. Unit may be overpowered manually.
 - 4. In cruise configuration malfunction, 3 seconds delay results in 60° bank, and 100' altitude loss.
 - 5. In approach configuration malfunction, 1 second delay results in 10° bank and 0' altitude loss.

3. Performance
Section

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

Loss of altitude during stalls varied from 125 to 200 feet, depending on configuration and power.

Stalling speeds, in mph, power off, versus angle of bank (Calibrated Airspeed):

	KIAS MPH				
Angle of bank	0	20	40	50	60
Flaps Up	58 = 67	69	76	83	94
Flaps Down	50 = 57	--	--	--	--

3000'

LEVEL FLIGHT 2575 RPM 124 KIAS 143 MPH

DATE

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

Weight and Balance Data
Model PA-28-180

CHECKED

APPROVED

PAGE _____ Title _____

REPORT VB-268

WEIGHT & BALANCE DATA

AND

EQUIPMENT LIST

MODEL PA-28-180

DATE August 17, 1970

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268	PAGE <u>ii</u>

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	10	Revised weight and arm of individual rear seats from 28.0 and 118.1 to 27.0 and 124.1		
	13	Added -2 or -13 to Piper drawing 62143 (Tru Speed Indicator)		
	18	Revised weight and arm of adjustable front seats from 3.8 and 85.5 to 3.2 and 87.5	<i>V. Tennant</i>	12 JULY 1971
2	10	Added inertia safety belts		
		Added wheel fairings		
	11	Corrected name of battery		
	15	Added Genave 200A and 300 Radio		
		Added King KX170 Radio		
		Added King KI201 Omni Indicator		
	17	Added I. F. D. Starlight Transponder		
	18	Added King KN60C DME		
		Deleted Wheel Fairings		
		Added inertia safety belts (rear)		
		Deleted inertia safety belts (set of 2)		
	16,17, 18, 19	Retyped pages	<i>V. Tennant</i>	11 AUG. 1971

*Superseded By
10-31-94 Revision*

AVIONICS AUTHORITY
713 AIRPORT ROAD
MT. STERLING, KY 40353
FAA Repair Station UTYR015L

FORM 107

DATE: 4-12-94

WO: _____

Aircraft Make	Model	Serial No.	N Number
Piper	PA28-180	28-72050006	N2156T
Owners' Name:		Address:	
Robert E. Welch		P.O. Box 1143 Prestonsburg, KY 41653	

Supplement to weight and balance data and equipment list

ITEM	WEIGHT	ARM	MOMENT
Aircraft Empty Weight	1437.4	87.33	125528.14
Removed 1 ea:			
KX-170A	7.6	62.2	472.72
KI-214	2.5	65.1	162.75
Narco ADF-31	5.0	63.5	317.50
Antenna	2.5	162.7	406.75
AT-50	3.0	64.0	192.00
Escort 110	5.0	61.0	305.00
King KR-21	.6	64.4	38.64

Empty Weight _____

CG _____

Moment _____ New Empty Weight CG _____

Weight _____ New Useful Load _____

AVIONICS AUTHORITY
 713 AIRPORT ROAD
 MT. STERLING, KY 40353
 FAA Repair Station UTYR015L

FORM 107

DATE: 4-12-94

WO: _____

Aircraft Make	Model	Serial No.	N Number
Piper	PA28-180	28-72050006	N2156T
Owners' Name:		Address: P.O. Box 1143	
Robert E. Welch		Prestonsburg, KY 41653	

Supplement to weight and balance data and equipment list

ITEM	WEIGHT	ARM	MOMENT
Aircraft Empty Weight			
Installed: Narco Com 120 (2 units)	7.0	62.2	435.4
Nav 122	3.0	65.1	195.3
Nav 121	2.5	65.1	162.75
ADF 140	2.6	63.5	165.1
ADF 140 (Loop Antenna)	1.6	162.7	260.32
DME 190	5.1	62.2	317.22
AT 150	2.3	64.0	147.2
Apollo Flybuddy GPS	3.0	62.2	186.6
Softcom ATP-4P	.3	64.4	19.32

Empty Weight _____
 CG _____

Moment _____ New Empty Weight CG _____
 Weight _____ New Useful Load _____

AVIONICS AUTHORITY
 713 AIRPORT ROAD
 MT. STERLING, KY 40353
 FAA Repair Station UTYR015L

FORM 107

DATE: 4-12-94

WO: _____

Aircraft Make	Model	Serial No.	N Number
Piper	PA28-180	28-72050006	N2156T
Owners' Name:		Address: P.O. Box 1143	
Robert E. Welch		Prestonsburg, KY 41653	

Supplement to weight and balance data and equipment list

ITEM	WEIGHT	ARM	MOMENT
Aircraft Empty Weight			

Installed :

Ameriking AK-350	.4	59.6	23.84
Narco ADF 140 Ind	1.6	66.2	105.92
Narco CP 136	1.5	63.5	95.25

Empty Weight 1442.1

CG 87.2

Moment 125747.0

New Empty Weight CG 87.2

Weight 1442.1

New Useful Load 957.9

Make Piper	Model PA28-180	N No. N2156T	Date 2-1-74	Serial 28-72
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REVISED WEIGHT & BALANCE DATA

Installed KR 21 Marker Beacon Receiver
 Marker Beacon Antenna
 KI 214 Indicator
 Removed KI 201 Indicator

11/25/74 Superseded.
 SEE LOG BOOK for current Weight & Balance.
 SOUTHERN AERO RADIO

ITEM	WEIGHT (LBS)	C. G. ARM (INCHES)	MOMENT (LB. INCHES)
A/C weight before alteration	1425.2	87.0	124121
Installed KR 21	16	64.4	38.64
Antenna	2.0	168.0	336.0
KI 214	2.9	64.4	186.76
Removed KI 201	-2.8	64.4	180.32
LICENSED EMPTY WEIGHT= TOTAL OF ITEMS ABOVE	1427.2	87.23	12451

NEW USEFUL LOAD (LBS)
 Normal 972.8

BY: Charles M. Cas
 Edson L. Tomberlin
 AERONAUTICS SOUTH, I
 Repair Station #70

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-180
APPROVED		REPORT V3-268
		PAGE 1 Section 1

WEIGHT AND BALANCE DATA
MODEL PA-28-180 CHEROKEE

Airplane Serial Number 28 -7205006

Registration Number N2156T

Date 8/23/71

AIRPLANE EMPTY WEIGHT

Item	Weight (lbs)	C. G. Arm X (Inches Aft of Datum)	Moment (In-lbs)
Standard Empty Weight * Complex	1350.7	86.7	117157
Optional Equipment	63.0	97.5	6159
Unusable Fuel (3 Pints)	2.2		227
Licensed Empty Weight = Total of Above Items	1416.1	87.2	123543

SUPERSEDED
SEE REVISED WEIGHT AND BALANCE
DATED 8-23-71
PIPER AIRCRAFT CORPORATION
VERO BEACH, FLORIDA

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

AIRPLANE USEFUL LOAD

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

Normal Category: (2400 lbs) - (1416.1 lbs) = 983.9 lbs.

Utility Category: (1950 lbs) - (1416.1 lbs) = 533.9 lbs.

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.

Mae A. Keller
Inspection Representative

DATE 9/8/71

REVISED
WEIGHT AND BALANCE

REG. NO: N2156T

SERIAL NO: 28-7205006

REMOVED: Narco Mark 16 VHF and Narco VOA-40 Omni Converter.

INSTALLED: King KX 170 (A) (VHF Comm/Nav) and King KI 201 (C) Omni Converter.

WEIGHT COMPUTATIONS

<u>ITEM</u>	<u>WEIGHT</u>	<u>ARM</u>	<u>MOMENT</u>
Licensed Empty Weight	1416.1	87.2	123543
<u>Weight Removed:</u>			
Narco Mark 16 (VHF Comm/Nav) Transceiver, Single	- 7.5	61.9	- 464
Narco VOA-40 Omni Converter	- 1.9	64.9	- 123
<u>Weight Added:</u>			
King KX 170 (A) (VHF Comm/Nav) Transceiver	+ 7.6	62.2	+ 473
King KI 201 (C) Omni Converter	+ 2.5	65.1	+ 163
New Licensed Empty Weight:	1416.8	87.2	123592

THE WEIGHT AND BALANCE DATA SHOWN IN THIS REPORT ARE COMPUTED ON THE BASIS OF FEDERAL AVIATION ADMINISTRATION APPROVED PROCEDURES FOR ESTABLISHING FLEET WEIGHT AVERAGES.

PIPER AIRCRAFT CORPORATION

Mae Keller
MAE A. KELLER

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

FOR FAA USE ONLY

OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form.

1. AIRCRAFT	MAKE Piper	MODEL PA28-180
	SERIAL NO. 28-7205006	NATIONALITY AND REGISTRATION MARK N2156T
2. OWNER	NAME (As shown on registration certificate) Piper Aircraft Corporation	ADDRESS (As shown on registration certificate) PO Box 1328 Vero Beach, Florida 32960

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION				5. TYPE	
UNIT	MAKE	MODEL	SERIAL NO.	REPAIR	ALTERATION
AIRFRAME	♦♦♦♦♦♦♦♦♦♦♦♦♦♦♦♦ (As described in item 1 above) ♦♦♦♦♦♦♦♦♦♦♦♦♦♦♦♦				X
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE				
	MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS Piper Aircraft Corporation PO Box 1328 Vero Beach, Florida 32960	B. KIND OF AGENCY <input type="checkbox"/> U.S. CERTIFICATED MECHANIC <input type="checkbox"/> FOREIGN CERTIFICATED MECHANIC <input type="checkbox"/> CERTIFICATED REPAIR STATION <input checked="" type="checkbox"/> MANUFACTURER	C. CERTIFICATE NO. FAA DOA SO-1
---	--	---

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE September 10, 1971	SIGNATURE OF AUTHORIZED INDIVIDUAL Anthony J. Divola <i>Anthony J. Divola</i>
-----------------------------------	---

7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA FLT. STANDARDS INSPECTOR <input checked="" type="checkbox"/>	MANUFACTURER	INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	REPAIR STATION	CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	
DATE OF APPROVAL OR REJECTION September 10, 1971		CERTIFICATE OR DESIGNATION NO. DOA S01	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Glenn C. Stepha</i>	

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed: King KX-170A NAV/COM, with a KI-201 Omni per PAC King KX-170 dwg. #99608, with the following exception, using the manufacturer's instructions.

a-Two separate circuits are used; one for NAV. and one for COMM. An extra circuit breaker was added for this purpose. FAR 23.1557 complied with.

- 1-All wiring is routed with factory existing cables.
- 2-FAR 23.1547 compass calibration complied with.
- 3-Aircraft flown for function check.
- 4-Aircraft equipment list and weight and balance is revised.
- 5-Power requirement .65 amps COMM. side continuous, and .45 amps NAV. side continuous. Maximum continuous power load is 55% of a 60 amp alternator.

~~XX~~

***** END *****

FAA DOA SO-1
 APPROVED
 DATE 9/10/71
 INITIALS Glenn C. [Signature]

ADDITIONAL SHEETS ARE ATTACHED

FEDERAL AVIATION AGENCY
MAJOR REPAIR AND ALTERATION
 (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
 Budget Bureau No. 04-R060.1

FOR FAA USE ONLY

OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form.

1. AIRCRAFT	MAKE Piper	MODEL PA-28-180G
	SERIAL NO. 28-7205006	NATIONALITY AND REGISTRATION MARK N 2156T
2. OWNER	NAME (As shown on registration certificate) Dixie Flight Inc	ADDRESS (As shown on registration certificate) P.O. Box 647 Milton, Fla

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION				5. TYPE	
UNIT	MAKE	MODEL	SERIAL NO.	REPAIR	ALTERATION
AIRFRAME	As described in item 1 above				X
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE				
	MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS David J. Thatcher 6225 San Monioa Rd Pensacola, Fla 32504	B. KIND OF AGENCY	C. CERTIFICATE NO. A&P 1355829
	<input checked="" type="checkbox"/> U.S. CERTIFICATED MECHANIC	
	<input type="checkbox"/> FOREIGN CERTIFICATED MECHANIC	
	<input type="checkbox"/> CERTIFICATED REPAIR STATION	
	<input type="checkbox"/> MANUFACTURER	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE Nov 22, 1971	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>David J. Thatcher</i>
----------------------	--

7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is APPROVED REJECTED

BY	FAA FLT. STANDARDS INSPECTOR	MANUFACTURER	<input checked="" type="checkbox"/>	INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	REPAIR STATION		CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	
DATE OF APPROVAL OR REJECTION Nov 22, 1971	CERTIFICATE OR DESIGNATION NO. A&P 1355829A1	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>David J. Thatcher</i>			

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed Narco Escort 110, and AT-50 transponder radios.
Installation made in accordance with AC 43.13-2 chapters 1,2,&3.
Equipment list revised, log entry made and weight and balance computed.

Nothing Follows

~~Empty weight 1425.2 lbs.~~

~~Empty C. G. +87.0~~

~~Useful load 974.8 lbs.~~

~~Moment 124121~~

*Superseded
2-1-74*

ADDITIONAL SHEETS ARE ATTACHED

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Form Approved
Budget Bureau No. 04-R0601

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

FOR FAA USE ONLY
OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form.

1. AIRCRAFT	MAKE Piper	MODEL PA28-180
	SERIAL NO. 28-72050006	NATIONALITY AND REGISTRATION MARK N2156T
2. OWNER	NAME (As shown on registration certificate) Welch, Robert E	ADDRESS (As shown on registration certificate) P.O. Box 1143 Prestonburg, KY 41653

3. FOR FAA USE ONLY

"THE DATA/ALTERATION IDENTIFIED HEREIN COMPLIES WITH THE APPLICABLE AIRWORTHINESS REQUIREMENTS AND IS APPROVED FOR THE ABOVE DESCRIBED AIRCRAFT, SUBJECT TO CONFORMITY INSPECTION BY A PERSON AUTHORIZED IN FAR 43"

Apr 15 1994 *Thomas E. Smith*
DATE SIGNATURE OF FAA INSPECTOR

4. UNIT IDENTIFICATION

UNIT	MAKE	MODEL	SERIAL NO.	REPAIR	ALTERATION
AIRFRAME	~~~~~ (As described in item 1 above) ~~~~~				X
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE				
	MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS AVIONICS AUTHORITY 713 AIRPORT ROAD MT. STERLING, KY 40353	B. KIND OF AGENCY U.S. CERTIFICATED MECHANIC FOREIGN CERTIFICATED MECHANIC <input checked="" type="checkbox"/> CERTIFICATED REPAIR STATION MANUFACTURER	C. CERTIFICATE NO. UTYR015L
--	---	--------------------------------

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

DATE 4-12-94	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Ray M. Clark</i>
-----------------	---

7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA FLT. STANDARDS INSPECTOR	MANUFACTURER	INSPECTION AUTHORIZATION	OTHER (Specify)
	FAA DESIGNEE	<input checked="" type="checkbox"/> REPAIR STATION	CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR REJECTION 4-12-94	CERTIFICATE OR DESIGNATION NO. UTYR015L	SIGNATURE OF AUTHORIZED INDIVIDUAL <i>Ray M. Clark</i>
--	--	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Removed 1 ea: King KX-170A Nav/Com, KI-214 Nav indicator KR-21 MKR beacon receiver, Narco ADF 31 system including loop antenna and cabling, AT-50A transponder, Escort 110 Nav/Com system.

Installed the following equipment: Two Narco Com 120 Transceivers, Narco ADF-140 automatic direction finder, Narco DME-190, Narco CP136 audio panel, Narco AT-150 transponder, and Apollo Flybuddy GPS. These units were mounted in the center and right hand avionics panels, in positions vacated by the equipment that was removed. "GPS limited to VFR Use Only" placard installed. GPS installed as per manufacturers manual P/N #560-0064, Revision B, dated January 1993. Narco Nav 122 and Nav 121 installed in positions vacated by KI-214 and digital ADF indicator. Softcom ATC-4P mounted in position vacated by KR-21 Marker beacon. Mic and phone jacks were installed to accommodate a 4-place intercom system. Ameriking AK-350 encoder was mounted behind instrument panel, co-pilot side. Mode C encoder calibrated to the aircraft altimeter as per FAR 91.36 (6) and FAR 91.177. New antenna's were installed in positions vacated by the removal of old antennas.

The installation was performed in accordance with AC 43.13-2A, Chapter 2. All cabling and wiring as per AC 43.13-1A, Chapter 11. Electrical load check performed and found within limitations.

Weight and Balance have been revised:

New Empty Weight	1442.1
New CG	87.2
New Moment	125747.0
New Useful Load	957.9

-----Nothing Below This Line-----



US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020

For FAA Use Only
Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make <i>Piper</i>	Model <i>PA 28-180</i>
	Serial No. <i>28-7205006</i>	Nationality and Registration Mark <i>N2156T</i>
2. Owner	Name (As shown on registration certificate) <i>Welch, Robert E.</i>	Address (As shown on registration certificate) <i>P.O. Box 1143 Prestonsburg, Ky 41653</i>

3. For FAA Use Only

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				<input checked="" type="checkbox"/>
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address <i>DONALD L. Rice Jr D-G AIRWAYS Inc. 1433 Airport Road Huntington, WV. 25704-9043</i>	B. Kind of Agency <input checked="" type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. <div style="font-size: 2em; text-align: center;"><i>400880718</i></div>
---	---	--

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date <i>10-31-94</i>	Signature of Authorized Individual <i>Donald L. Rice Jr.</i>
-------------------------	---

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	<input checked="" type="checkbox"/>	Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station		Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection <i>10-31-94</i>	Certificate or Designation No. <i>400880718</i>	Signature of Authorized Individual <i>Donald L. Rice Jr.</i>
--	--	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

NZ156T 1331 Total Time. 10-31-94
Supplemental Type Certificate # SA1401NW
Installation of fiberglass wing tips, each
tip having a 100 watt recognition light and
a clear plastic lens in accordance with
R.M.D. Aircraft Lighting, Inc. installation
instructions and installation kit RMD-00150-PS
supplied with supplemental type certificate.
Operational check normal. Weight and
balance revised this date. Log entry made.

End

Additional Sheets Are Attached

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268	PAGE 2 Section 1

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	1416.1	87.2	123543
Oil (8 quarts)	15	32.5	488
Pilot and Front Passenger	340	85.5	29070
Passengers, Aft * (Rear Seat) (45.8 gallons)	340	118.1	40154
Fuel (50 Gal. Maximum)	275	95.0	26125
Baggage *	13.9	142.8	1985
Total Loaded Airplane	2400	92.2	221365

The center of gravity (C. G.) of this sample loading problem is at 92.2 inches aft of the datum line. Locate this point (92.2) on the C. G. range and weight graph. Since this point falls within the weight - C. G. envelope, this loading meets the weight and balance requirements.

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

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

PREPARED

CHECKED

APPROVED

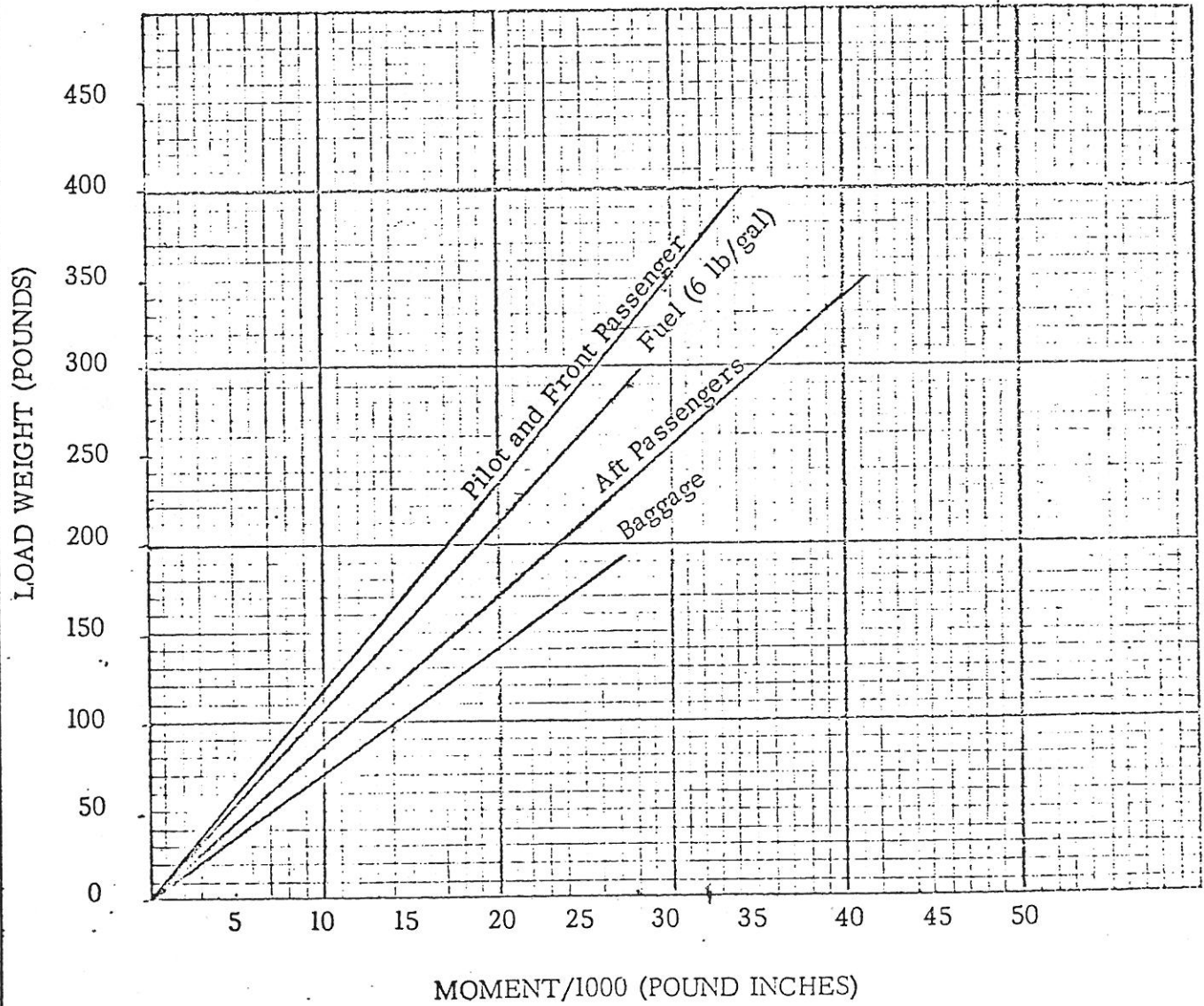
PIPER AIRCRAFT CORP.
DEVELOPMENT CENTER, VERO BEACH, FLA.

Weight & Balance Data
Model PA 28-180

REPORT VB-268

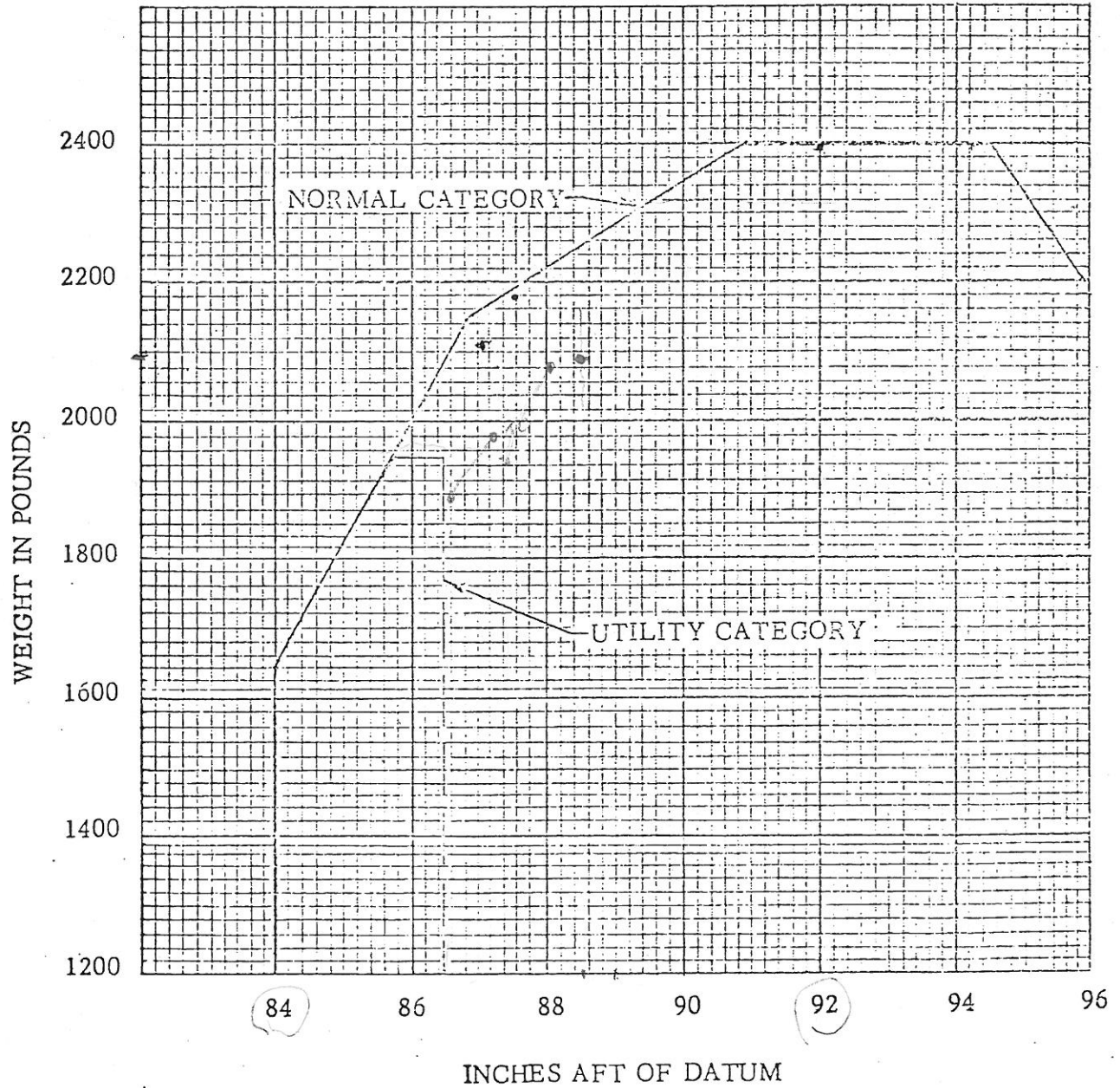
PAGE 3 Section I

LOADING GRAPH



PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight & Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268	PAGE 4 Section 1

C. G. RANGE AND WEIGHT



PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268	PAGE 5 Section 1

WEIGHT AND BALANCE DATA

WEIGHING PROCEDURE

At the time of delivery, Piper Aircraft Corporation provides each airplane with the licensed empty weight and center of gravity location. This data is on Page 1, Section 1 of this Flight Manual.

The removal or addition of an excessive amount of equipment or excessive airplane modifications can affect the licensed empty weight and empty weight center of gravity. The following is a weighing procedure to determine this licensed empty weight and center of gravity location:

1. PREPARATION

- a. Be certain that all items checked in the airplane equipment list are installed in the proper location in the airplane.
- b. Remove excessive dirt, grease, moisture, foreign items such as rags and tools from the airplane before weighing.
- c. Defuel airplane. Then open all fuel drains until all remaining fuel is drained. Operate engine on each tank until all undrainable fuel is used and engine stops.
- d. Drain all oil from the engine, by means of the oil drain, with the airplane in ground attitude. This will leave the undrainable oil still in the system. Engine oil temperature should be in the normal operating range before draining.
- e. Place pilot and co-pilot seats in fourth (4th) notch, aft of forward position. Put flaps in the fully retracted position and all control surfaces in the neutral position. Tow bar should be in the proper location and all entrance and baggage doors closed.
- f. Weigh the airplane inside a closed building to prevent errors in scale readings due to wind.

2. LEVELING

- a. With airplane on scales, block main gear oleo pistons in the fully extended position.
- b. Level airplane (see diagram) by deflating nose wheel tire, to center bubble on level.

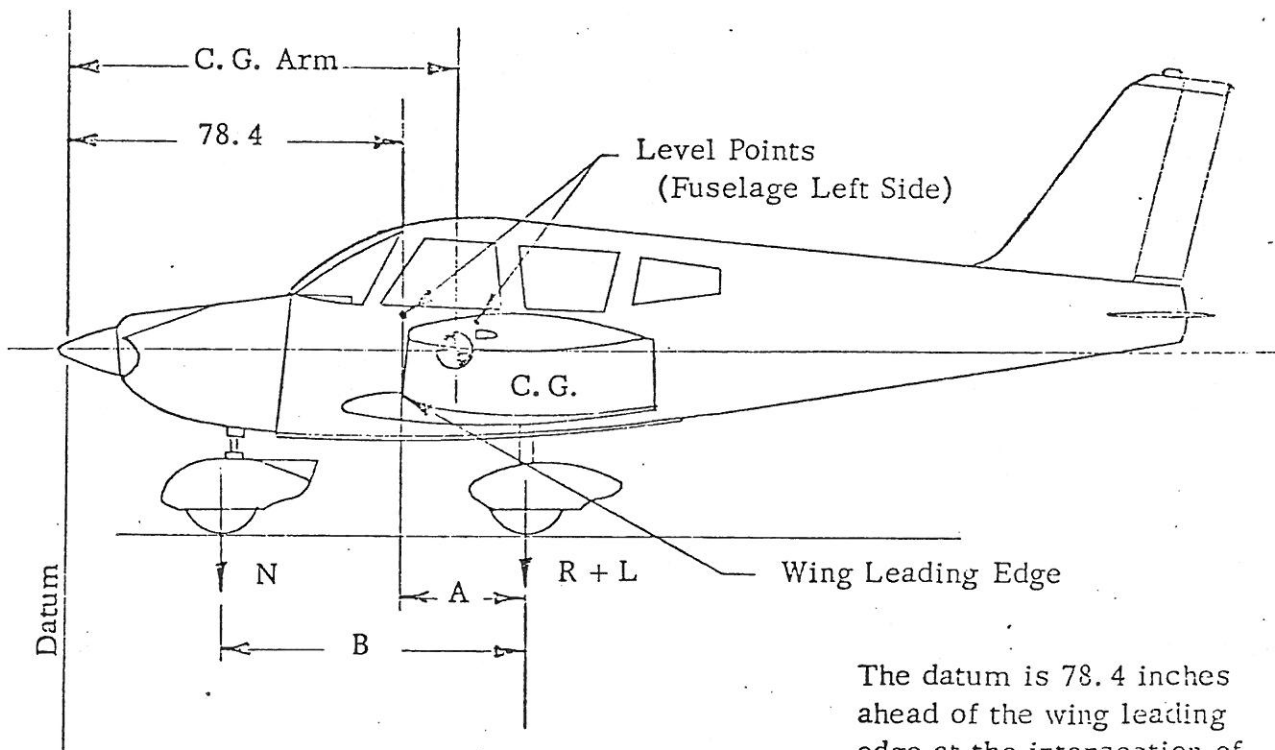
3. WEIGHING - AIRPLANE EMPTY WEIGHT

- a. With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

Scale Position and Symbol	Scale Reading	Tare	Net Weight
Nose Wheel (N)			
Right Main Wheel (R)			
Left Main Wheel (L)			
Airplane Empty Weight, as Weighed (T)			

4. EMPTY WEIGHT CENTER OF GRAVITY

- a. The following geometry applies to the PA-28-180 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:

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

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

5. LICENSED EMPTY WEIGHT AND EMPTY WEIGHT CENTER OF GRAVITY

	Weight	Arm	Moment
Empty Weight (as weighed)			
Unusable Fuel (3 pints)	+ 2.2	103.0	+ 227
Licensed Empty Weight			

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 STANDARD EQUIPMENT LIST	PAGE 8 Section I

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

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Engine Accessories</u>			
<u>X</u>	Engine - Lycoming Model O-360-A4A	282.4	26.1	7371
<u>X</u>	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
<u>X</u>	Fuel Pump, Engine Driven, Lycoming Drawing No. 73297, 74082, 75148 or 75246	1.6	41.3	66
<u>X</u>	Oil Cooler, Piper Dwg., Harrison #C-8526250	2.6	18.1	47
<u>X</u>	Air Filter, Fram Model CA-161 PL or Purolator AFP-2	.9	20.1	18
<u>X</u>	Alternator, 60 Amp., Chrysler No. 2642997	12.5	19.0	238
<u>X</u>	Starter-Lycoming 76211 (Prestolite MZ4206) *	18.0	19.5	351
	<u>Propeller and Propeller Accessories</u>			
<u>X</u>	Propeller, Sensenich 76EM8S5-0-60	38.5	8.8	339
<u>X</u>	Spinner and Attachment Plates	4.3	8.0	34

* Included in Engine Weight.

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 STANDARD EQUIPMENT LIST	PAGE 9 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Landing Gear and Brakes</u>			
<u>X</u>	Two Main Wheel Assemblies	32.3	109.6	3540
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-86 Brake Assembly No. 30-55			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
<u>X</u>	One Nose Wheel 6.00-6	12.5	34.8	435
	(a) Cleveland Aircraft Products Wheel Assembly No. 38501 (Less Brake Drum)			
	(b) One Nose Wheel 4-Ply Rating Tire 6.00-6 with Regular Tube			
	<u>Electrical Equipment</u>			
<u>X</u>	Stall Warning Device, Safe Flight Instrument Corporation No. C52207-4	.2	80.2	16
<u>X</u>	Voltage Regulator, Wico Electric #X-16300B	.5	56.9	28
	Battery 12V, 25A. H., Rebat Model S-25	21.5	168.0	3612
<u>X</u>	Overvoltage Relay, Wico Electric No. X16799	.5	60.4	30

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 STANDARD EQUIPMENT LIST	PAGE 10 Section I

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Instrument</u>			
<u>X</u>	Compass - Piper Drawing 67462	.9	64.9	58
	Airspeed Indicator, Piper Drawing 63205-2	.6	66.8	40
<u>X</u>	Tachometer, Piper Drawing 62177-3	.7	66.2	46
<u>X</u>	Altimeter, Piper Dwg. 99009-2, -3, -4, or-5	1.0	65.9	66
<u>X</u>	Engine Cluster, Piper Drawing 95241-4	.8	67.4	54
<u>X</u>	Engine Cluster, Piper Drawing 95241-2	.8	67.4	54
	<u>Miscellaneous</u>			
<u>X</u>	Forward Seat Belts (2) .75 lbs. each	1.5	86.9	130
<u>X</u>	Inertia Safety Belts (2) 0.9 lbs. each	1.8	119.6	215
<u>X</u>	Rear Seat Belts (2) .70 lbs. each	1.4	123.0	172
<u>X</u>	Rear Seats (2)	27	124.1	3351
<u>X</u>	Flight Manual	---	---	---
<u>X</u>	Tow Bar	1.3	161.8	210
<u>X</u>	Nose Wheel Fairing - Piper Dwg. 65348	3.8	34.8	132
<u>X</u>	Main Wheel Fairings - Piper Dwg. 65237	7.0	109.6	767

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

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE <u>11</u> Section <u>1</u>

OPTIONAL EQUIPMENT LIST
MODEL PA-28-180

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Engine Accessories</u>			
<u>X</u>	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1, 113A5 or 200cc and Drive	5.0	37.0	185
<u>X</u>	Oil Filter-Lycoming No. 75528 (AC #OF5578770)	3.3	40.5	134
<u>X</u>	Vacuum Regulator	.7	57.0	40
<u>X</u>	Vacuum Filter	.3	57.0	17
	<u>Electrical Equipment</u>			
	Rotating Beacon, Grimes #40-0101-15-12	1.5	263.4	395
<u>X</u>	Landing Light, G. E. Model 4509	.5	18.1	9
<u>X</u>	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
<u>X</u>	Navigation Light (Rear)(1) Grimes Model 2064 (White)	.2	281.0	56
<u>X</u>	Battery 12 V, 35 A. H. Rebat R-35 (Weight 27.0 lbs.)	5.5 *	168.0	924

* Weight and Moment difference between standard and optional equipment.

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Electrical Equipment</u> (Cont'd)			
<u>X</u>	Cabin Light	.3	104.0	31 ✓
<u>X</u>	Cabin Speaker	.8	104.0	83 ✓
<u> </u>	Auxiliary Power Receptacle, Piper Dwg. 65647	2.7	178.5	482
<u> </u>	External Power Cable 62355-2	4.6	142.8	657
<u>X</u>	Piper Pitch Trim	4.3	155.3	668 ✓
<u>X</u>	Heated Pitot Head	.4	100.0	40 ✓
<u> </u>	Red Strobe Light, Whelen Engineering Company			
<u> </u>	Power Supply, Whelen Model HS	2.3	198.0	455
<u> </u>	Light (Fin Tip)	.4	263.4	105
<u> </u>	Cable	.4	230.7	92
<u>X</u>	Red/White Strobe Light, Whelen Engineering Company			
<u>X</u>	Power Supply, Whelen Model HD, T3	3.0	198.0	594 ✓
<u>X</u>	Light (Fin Tip)	.4	263.4	105 ✓
<u>X</u>	Cable	.4	230.7	92 ✓
<u>X</u>	Lights (Wing Tip) (2)	.3	106.6	32 ✓
<u>X</u>	Cables	2.0	115.6	231 ✓

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-180
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE 13 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Instruments</u>			
<u>X</u>	Suction Gauge, Piper Drawing 99480-0 or -2	.5	67.2	34 ✓
<u>X</u>	Vertical Speed, Piper Drawing 99010-2, -4 or -5	1.0	65.9	66 ✓
	Vertical Speed, Piper Drawing 99010-3	.5	67.2	34
<u>X</u>	Attitude Gyro, Piper Drawing 99002-2, -3, -4 or -5	2.2	64.4	142 ✓
<u>X</u>	Directional Gyro, Piper Drawing 99003-2, -3, -4 or -5	2.6	64.7	168 ✓
<u>X</u>	Air Temperature Gauge, Piper Drawing 99479-0 or -2	.2	77.6	16 ✓
<u>X</u>	Clock, Piper Drawing 99478	.4	67.4	27 ✓
<u>X</u>	Tru-Speed Indicator, Piper Dwg. 62143-2 (Same as Standard Equipment Weight) or -13			
	Turn Coordinator, Piper Drawing 99001	2.6	64.7	168
	Turn Coordinator, Piper Drawing 99004	2.3	64.7	149
	Turn and Bank, Piper Drawing 99005	2.3	64.7	149
	Manifold Pressure Gauge, Piper Dwg. 99006	.9	65.8	59
	Exhaust Gas Temperature, Piper Dwg. 99026	.7	60.4	42

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE 14 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Auto Pilots</u>			
	AutoControl III			
	Roll Servo, #1C363-1-183R	2.5	122.2	306
	Console, #1C338	1.2	65.1	78
	Cables	.7	95.5	67
	Attitude Gyro, #52D66	2.3	64.4	148
	Directional Gyro, #52D54	3.2	64.0	205
	Omni Coupler, #1C388	.9	64.3	58
X	AutoFlite II			
X	Roll Servo, #1C363-1-183R	2.5	122.2	306 ✓
X	Cable	.7	93.4	65 ✓
X	Panel Unit, #52D75-3 or -4	2.4	64.4	155 ✓

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Radio</u>			
<input checked="" type="checkbox"/>	Narco Mark 16 (VHF Comm/Nav)			
<input checked="" type="checkbox"/>	Transceiver, Single <i>Removed 9/8/71</i>	7.5	61.9	464 ✓
<input type="checkbox"/>	Transceiver, Dual	15.0	61.9	929
<input type="checkbox"/>	Narco Mark 12B (VHF Comm/Nav)			
<input type="checkbox"/>	Transceiver, Single	5.7	61.9	353
<input type="checkbox"/>	Transceiver, Dual	11.4	61.9	706
<input type="checkbox"/>	Modulator-Power Unit, Single	4.0	186.0	744
<input type="checkbox"/>	Modulator-Power Unit, Dual	8.0	186.0	1488
<input type="checkbox"/>	Cable, Single Interconnecting	2.0	120.0	240
<input type="checkbox"/>	Cable, Dual Interconnecting	4.0	120.0	480
<input type="checkbox"/>	Narco VOA-50M Omni Converter	2.1	64.9	136
<input type="checkbox"/>	Narco VOA-40(M) Omni Converter	1.9	64.9	123
<input checked="" type="checkbox"/>	Narco VOA-40 Omni Converter	1.9	64.9	123 ✓
<input type="checkbox"/>	Genave 200A (VHF Comm/Nav)	5.9	62.7	370
<input type="checkbox"/>	Genave 300 (VHF Comm/Nav)	5.9	62.7	370
<input checked="" type="checkbox"/>	King KX 170 () (VHF Comm/Nav) <i>Removed 4/12/94</i>			
<input checked="" type="checkbox"/>	Transceiver <i>Installed 9/8/71</i>	7.6	62.2	473
<input type="checkbox"/>	King KI 201 () Omni Converter	2.5	65.1	163
<input checked="" type="checkbox"/>	Nav Receiving Antenna	.5	265.0	133 ✓
<input checked="" type="checkbox"/>	Cable, Nav Antenna	.9	157.0	141 ✓

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE 16 Section I

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Radio</u> (continued)			
<u>X</u>	#1 VHF Comm Antenna	.3	157.8	47 ✓
<u>X</u>	Cable, Antenna #1 VHF	.4	118.0	47 ✓
	#2 VHF Comm Antenna	.3	192.8	58
	Cable, Antenna #2 VHF	.5	135.0	68
<u>X</u>	Narco ADF-31			
<u>X</u>	Panel Unit	5.0	63.5	318
<u>X</u>	Sensor Unit	2.5	162.7	407
<u>X</u>	Sensor Cable	2.3	105.6	243
<u>X</u>	Sense Antenna and Cable	.4	150.0	60
	Bendix ADF-T-12			
	Receiver	3.5	64.4	225
	Audio Amplifier	.8	57.4	46
	Servo Indicator	1.7	65.9	112
	Loop Antenna	1.3	160.8	209
	Cable, Interconnecting	2.3	108.0	248
	Sense Antenna and Cable	.4	150.0	60
	PM-1 Marker Beacon			
	Receiver	1.1	121.3	133
	Remote Unit**	.3	128.4	* 39
	Cable	.3	85.0	26

	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Radio</u> (Cont'd)			
	UGR-2 Glide Slope			
	Receiver	2.4	173.8	417
	Cable	1.8	128.0	230
	Antenna	.4	92.4	37
	Cable, Antenna	.5	145.0	73
	Narco UDI-4 DME			
	Receiver	8.5	61.7	524
	Antenna	.3	113.9	34
	Cable, Antenna	.4	100.0	40
	Narco AT6-A Transponder			
	Panel Unit	2.0	64.4	129
	Remote Unit	5.7	203.0	1157
	Antenna and Cable	.3	197.0	59
	Cable, Interconnecting	.4	133.7	53
	I. F. D. Starlight Transponder			
	Panel Unit	2.3	64.4	148
	Antenna	0.1	52.2	5
	Cable	0.3	51.5	15
<u>X</u>	Narco AT-50 Transponder	3.0	64.0	192
<u>X</u>	antenna	1.0 1.1	52.0	52 55
<u>X</u>	Narco Escort 110	5.0	61.0	305.
<u>X</u>	antenna	.3	90	27

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-180
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE 18 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Radio</u> (continued)			
	King KN60C DME			
	Receiver	6.8	61.7	420
	Antenna	.2	112.1	22
	Cable, Antenna	0.3	85.6	26
	Audio Selector Panel, Piper Dwg. 99395-0, -2, or -3	.7	66.3	46
X	Microphone	.5	75.0	38 ✓
X	Headset	.5	65.0	33 ✓
	<u>Miscellaneous</u>			
	Fire Extinguisher - Kiddie Compact VI (With Brackets)	5.3	85.0	451
	Toe Brakes (Dual)	10.5	54.6	573
X	Toe Brakes (Single)	5.0	54.6	273 ✓
X	Assist Step	1.8	156.0	281 ✓
	Inertia Safety Belts (Rear) (2) 0.8 lbs. each	1.6	140.3	224
X	Lighter	.2	67.9	14 ✓
X	Assist Strap and Coat Hook	.2	109.5	22 ✓
X	Adjustable Front Seat (Left)	3.2 *	87.5	280 ✓
	Adjustable Front Seat (Right)	3.2 *	87.5	280
	Overhead Vent System	1.2	130.0	156

* Weight and moment difference between standard and optional equipment.

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-180
APPROVED	REPORT VB-268 OPTIONAL EQUIPMENT LIST	PAGE 19 Section 1

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Miscellaneous</u> (continued)			
	Alternate Static Source	.4	66.0	26
	Calibrated Alternate Static Source			
	Placard Required: Yes _____ No _____			
	Headrest (2) (Front)	2.0	99.5	199
	Headrest (2) (Rear)	2.0	132.1	264
	TOTAL OPTIONAL EQUIPMENT	63.2	97.5	6159

EXTERIOR FINISH

Base Color Juneau White Registration No. Color Las Vegas Gold

Trim Color Bahama Blue Type Finish Lacquer

Accent Color Las Vegas Gold