

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, WOOD BRIDGE, ILL	
CHECKED		
APPROVED	REPORT VB-163	PAGE _____

DUPLICATE

AIRPLANE FLIGHT MANUAL

MODEL PA-28-180

SERIAL NOS. 671 THRU 5600

FAA IDENTIFICATION NO. OY-BBW

SERIAL NO. 28-2737

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

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

DATE: August 3, 1962

FAA APPROVED: Gene Dearing For Retype Only.
Gene Dearing
Aerospace Engineer

DATE: August 12, 1964

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH FLA.	Airplane Flight Manual
CHECKED		Model PA-28-180
APPROVED	REPORT VB-153	PAGE II

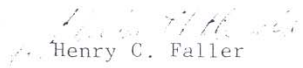
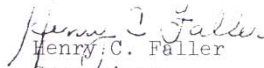
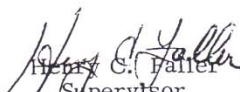
Log of Revisions

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

FAA APPROVED 8/3/62

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED		REPORT VE-163 PAGE <u>III</u>

Log of Revisions

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

FAA APPROVED 8/3/62

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED		REPORT VB-163

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
11	3	Placards Section: Revised Placard No. 1 to read, "In Full View of the Pilot"	<i>H.C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	5/12/67
12	2	Revised C. G. Range	<i>H.C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	9/25/67
13	3, 4	Revised Placard No. 4 and No. 7 to read: "In full view of the pilot"	<i>H.C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	4/2/68
14	1	Added Aircraft Serial Numbers 1571 and 1573 to Engine and Propeller Limitations	<i>H.C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	6/3/68
15	1	Added Propeller Designations	<i>H.C. Faller</i> H. C. Faller Supervisor SO-EMDO-43	6/24/68
16	Title	Allocated Piper Report No. VB-163 to this Manual.	<i>H.M. Toomey</i> Herb M. Toomey FAA DOA SO-1	11/14/68
17	Title	Added Applicable Serial Nos. 1 Thru 4377	<i>H.M. Toomey</i> H. M. Toomey FAA DOA SO-1 4/22/69	
	1	Added Supplement No. 1		

FAA APPROVED 8/3/62

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED		REPORT VB-163

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
18	Title	Changed applicable Serial Nos. from 1 thru 4377 to 1 thru 5600.	<i>H. M. Toomey</i> H. M. Toomey FAA DOA SO-1	7/15/69
19	Title	Changed applicable Serial Nos. from 1 thru 5600 to 571 thru 5600.	<i>H. M. Toomey</i> H. M. Toomey FAA DOA SO-1	9/23/69
20	2	Added Forward Intermediate and Forward Gross Weight Points	<i>H. M. Toomey</i> H. M. Toomey FAA DOA SO-1	5/8/70
21	2	Deleted Forward Intermediate and Forward Gross Weight Points	<i>G. C. Stephen</i> G. C. Stephen FAA DOA SO-1	9/14/70
22	1	Changed oil pressure gauge markings	<i>Ward Evans</i>	7-25-75

FAA APPROVED 8/3/62

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-163	PAGE 1 of 6

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-A3A or O-360-A4A |
| Engine Limits | Maximum permissible RPM for takeoff, 2475. For all other operations, 2700 rpm, 180 hp, (A/C S/N 28-671 to 1760A).
For all operations, 2700 rpm, 180 hp, (A/C S/N 28-1571, 1573, 1761 and up). |
| Fuel | 91/96 minimum octane aviation fuel. |
| Propeller | Sensenich M76 EMM or 76EM8 (S/N 671 to 1760A)
Sensenich M76 EMMS or 76EM8S5 (S/N 1571, 1573, 1761 & up).
Maximum diameter 76 inches, minimum diameter 76 inches.
Static RPM at maximum permissible throttle setting. Not over 2450, not under 2275. No additional tolerance permitted. |
| Power Instruments | Oil temperature: GREEN arc (normal operating range) 120°F to 245°F; YELLOW arc (caution range) 60°F to 120°F; RED line (maximum) 245°F (S/N 671 to S/N 1760A)

Oil Temperature: GREEN arc (normal operating range) 75°F to 245°F; RED line (maximum) 245°F (S/N 1571, 1573, 1761 & up).

Oil Pressure: GREEN arc (normal operating range) 60 psi to 90 psi; YELLOW ARC (caution range) 25 psi to 60 psi; RED line (minimum) 25 psi when installed or 60 psi when installed; RED line (maximum) 90 psi.

Fuel Pressure: GREEN arc (normal operating range) .5 psi to 5 psi; RED line (minimum) .5 psi; RED line (maximum) 5 psi (S/N 671 to S/N 1760A)

Fuel Pressure: GREEN arc (normal operating range) .5 psi to 8 psi; RED line (minimum) .5 psi; RED line (maximum) 8 psi (S/N 1571, 1573, 1761 and up)

Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm. |

FAA APPROVED 8-3-62
REVISED 7-25-75

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-163	PAGE 2 of 6

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; 150 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

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

2. Utility Category

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

Straight line variation between points given.

NOTE: It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See weight and 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

FAA APPROVED 8/3/62

REVISED 9/14/70 Rev. No. 21

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED		REPORT VB-163

Placards

1. In full view of the pilot:

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

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

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

NO ACROBATIC MANEUVERS (INCLUDING SPINS) ARE APPROVED FOR NORMAL CATEGORY OPERATIONS."

2. Adjacent to upper door latch:

"ENGAGE LATCH BEFORE FLIGHT."

3. On the inside of the baggage compartment door:

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

UTILITY CATEGORY OPERATION - NO BAGGAGE OR AFT PASSENGERS ALLOWED. NORMAL CATEGORY OPERATION - SEE AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE SECTION FOR BAGGAGE AND AFT PASSENGER LIMITATIONS.

4. In full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED 129 MPH."

"UTILITY CATEGORY OPERATION - NO AFT PASSENGERS ALLOWED."

5. On the instrument panel in full view of the pilot when the oil cooler winterization kit is installed:

"OIL COOLER WINTERIZATION PLATE TO BE REMOVED WHEN AMBIENT TEMPERATURE EXCEEDS 50° F."

6. On the instrument panel in full view of the pilot when the autoflite is installed:

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

FAA APPROVED 8/3/62

REVISED 4/2/68 Rev. No. 13

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED	REPORT VB-163	PAGE <u>4 of 6</u>

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

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

FAA APPROVED 8/3/62

REVISED 4/2/68 Rev. No. 13

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA 28-180
CHECKED		
APPROVED		REPORT VB-163

Procedures Section
(Cont'd.)

5. (Electric Pitch Trim Installation Only)
The following emergency information applies in case of electric pitch trim malfunction:
 - a. In case of malfunction, disengage electric pitch trim by pulling out circuit breaker on instrument panel.
 - b. In emergency, electric pitch trim may be overpowered using manual pitch trim.
 - c. In cruise configuration, malfunction results in 10⁰ pitch change and 30 Ft. altitude variation.

6. (Autoflite Installation Only)
The following emergency information applies in case of autoflite malfunction:
 - a. In case of malfunction PRESS disconnect switch on pilot's control wheel.
 - b. Rocker switch on instrument panel - OFF.
 - c. Unit may be overpowered manually.
 - d. In cruise configuration malfunction, 3 seconds delay results in 60⁰ bank, and 100 Ft. altitude loss.
 - e. In approach configuration malfunction, 1 second delay results in 10⁰ bank and 0 Ft. altitude loss.

7. (AutoControl III Installation Only)
 - I. Limitations:
Pilot off during take off and landing.
 - II. Procedures:
 - a. Normal Operation
Refers to Manufacturer's Operation Manual.
 - b. Emergency
 1. In case of malfunction, disengage manual controls.
 2. In emergency, pilot may be overpowered manually.
 3. In cruise configuration malfunction, 3 seconds delay results in 60⁰ bank and 100 Ft. altitude loss.
 4. In approach configuration malfunction, 1 second delay results in 10⁰ bank and 0 Ft. altitude loss.

FAA APPROVED 8/3/62
REVISED 7/15/66 Rev. No. 8

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28-180
CHECKED		
APPROVED		REPORT VB-163

3. Performance Section

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

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

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

Angle of bank	0°	20	40	50	60
Flaps Up	67	69	76	83	94
Flaps Down	57	--	--	--	--

FAA APPROVED 8/3/62
 REVISED 7/15/66 Rev. No. 8

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Airplane Flight Manual Model PA-28
CHECKED		Supplement No. 1
APPROVED		REPORT VB-163

SUPPLEMENT NO. 1 TO PIPER MODEL PA-28 FLIGHT MANUAL

MODELS AFFECTED: Piper PA-28 models equipped with Lycoming O-360-A3A engine and Sensenich M76EMM-0, M76EMMS-0, 76EM8S5-0 or 76EM8-0 propeller.

PROPELLER LIMITS

Avoid continuous operation between 2150 and 2350 RPM.

The aircraft tachometer must be placarded to show a red arc between 2150 and 2350 RPM in accordance with Piper Service Letter No. 526.

NOTE: This document must be attached to the Airplane Flight Manual.

FAA DOA SO-1
APPROVED

H. M. Toomey
H. M. Toomey

DATE

4/22/69

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		PAGE _____ Title _____
APPROVED		

REPORT VB-164

EQUIPMENT LIST

MODEL PA-28-180

SERIAL NOS. 671 THRU 4377

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA-28-180
APPROVED	REPORT VB-164	PAGE <u>ii</u>

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	Title	Changed applicable Serial Nos. from 1 thru 4377 to 1 thru 5600.	<i>G. Mc Cleaver</i>	7/15/69
2	Title	Changed applicable Serial Nos. from 1 thru 5600 to 671 thru 5600.	<i>G. Mc Cleaver</i>	9/23/69
3	Title	Changed applicable Serial Nos. from 671 thru 5600 to 671 thru 4377.	<i>G. Mc Cleaver</i>	5/8/69

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-164	PAGE 1 Section 1

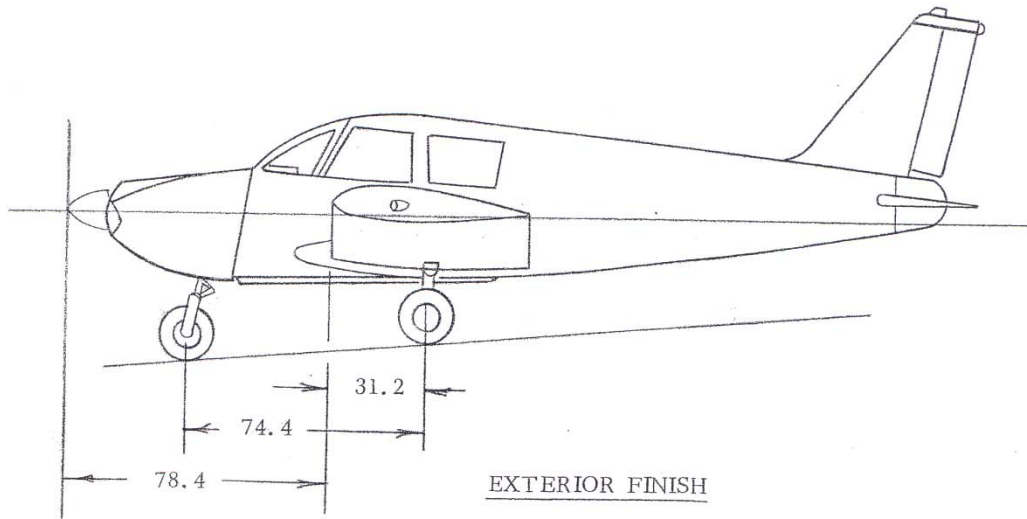
ACTUAL WEIGHT AND BALANCE

MODEL PA-28-180

SERIAL NUMBER 28 -

CERTIFICATE NUMBER _____

DATE _____



EXTERIOR FINISH

Base Color _____

1st Trim Color _____

2nd Trim Color _____

Registration No. Color _____

Type Finish _____

PREPARED	PIPER AIRCRAFT CORP.		Weight and Balance Data	
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.		Model PA-28-180	
APPROVED	REPORT VB-164		PAGE 2 Section 1	
<u>WEIGHT AND BALANCE</u> <u>STANDARD EQUIPMENT LIST</u> <u>MODEL PA-28-180</u>				
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Engine Accessories</u>			
_____	Engine - Lycoming Model 0-360-A3A	274.4	26.1	6962
_____	Engine - Lycoming Model 0-360-A4A	282.4	26.1	7371
_____	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
_____	Fuel Pump, Engine Driven, Lycoming Drawing Nos. 73297, 74082, 75148 or 75246	1.6	41.3	66
_____	Oil Cooler, Piper Drawing, Harrison #C-8526250	2.6	18.1	47
_____	Filter, Fram Model CA-161 PL or AC No. A48C or Purolator AFP-2	.9	20.1	18
_____	Alternator, 35-amp, Chrysler No. 2098615	12.5	19.0	238
_____	Alternator, 60-amp, Chrysler No. 2642210 or 2642997	12.5	19.0	238
_____	Starter - Lycoming 74092 (Delco-Remy 1109511)	* 18.0	19.5	351
_____	Starter - Lycoming 76211 (Prestolite MZ 4206)	* 18.0	19.5	351
	<u>Propeller and Propeller Accessories</u>			
_____	Propeller, Sensenich M76EMM	34.5	10.1	348
_____	Propeller, Sensenich M76EMMS60	38.5	8.8	339
_____	Spinner and Attachment Plates	2.0	8.0	16
	* Included in Engine Weight.			

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data Model PA-28-180	
CHECKED	REPORT VB-164		PAGE 3 Section 1	
APPROVED				
Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Landing Gear and Brakes</u>			
	Two Main Wheel Assemblies 6.00-6	32.0	109.6	3507
	(a) Cleveland Aircraft Products Wheel Assembly No. 40-28 Brake Assembly No. 30-18			
	(b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes			
	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			
	One Nose Wheel 6.00-6	14.0	34.3	480
	(a) Cleveland Aircraft Products Wheel Assembly No. 38501 (Less Brake Drum)			
	(b) One Nose Wheel 4-Ply Rating Tire 6.00-6 with Regular Tubes			
	<u>Electrical Equipment</u>			
	Stall Warning Device, Safe Flight Instrument Corporation No. C52207-4	.2	80.2	16
	Voltage Regulator, Delco-Remy #118704	1.5	168.5	253
	Voltage Regulator, Chrysler #2098613	.5	57.8	29
	Voltage Regulator, Wico Electric #X-16300	.5	57.8	29
	Battery 12V, 25 A. H., Rebat Model S-25	21.5	160.9	3540

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA 28-180
CHECKED		
APPROVED	REPORT VB-154	PAGE 4 Section 1

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Instrument</u>			
_____	Compass - Airpath No. C2350-L41	.9	66.6	60
_____	Airspeed Indicator, PAC 63205-2	.6	67.7	41
_____	Tachometer, AC 1548302	.8	67.7	54
_____	Tachometer, Stewart Warner PAC 62177-2 or 62177-3	.7	67.7	47
_____	Altimeter, Aero Marine No. 522	1.4	66.8	94
_____	Engine Cluster, PAC 63922-2	.8	68.8	55
_____	Engine Cluster, PAC 63426	.8	68.8	55
_____	Engine Cluster, PAC 63426-2	.8	68.8	55
	<u>Miscellaneous</u>			
_____	Fwd. Seat Belts	1.0	86.9	87
_____	Aft Seat Belts	.8	123.0	98
_____	Flight Manual	----	----	----
_____	Tow Bar	1.3	122.3	139
	TOTAL			
	AIRCRAFT EMPTY WEIGHT AS	_____	_____	_____
	(INCLUDES ITEMS CHECKED ON STANDARD EQUIPMENT LIST, UNUSABLE FUEL AND UNDRAINABLE OIL.)			

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-164	PAGE 5 Section 1

OPTIONAL EQUIPMENT LIST
MODEL PA-28-180

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Engine Accessories</u>			
_____	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1, 113A5 or 200 cc and Drive	5.0	37.0	185
_____	Oil Filter - Lycoming #74911 (AC 81-A #6437032)	3.3	40.5	134
_____	Vacuum Regulator and Filter	2.2	57.0	125
	<u>Electrical Equipment</u>			
_____	Rotating Beacon, Grimes Model D7080	2.0	263.4	527
_____	Landing Light, G. E. Model 4509	.5	18.1	9
_____	Navigation Light (Rear) (1) Grimes Model 2064 (White)	.2	281.0	56
_____	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
_____	Battery 12V, 35 A. H. , Reading R-35	27.0	160.9	4344
_____	Cabin Light	.3	104.0	31
_____	Cabin Speaker	.8	104.0	83
_____	Rotating Beacon, Whelen Model WRM L-12	1.6	264.0	422

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data Model PA-28-180	
CHECKED				
APPROVED	REPORT VB-164		PAGE 6 Section 1	
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Electrical Equipment</u> (Cont'd)			
_____	Auxiliary Power Receptacle PAC 62225	2.7	168.0	454
_____	External Power Cable PAC 62355-2	4.6	142.8	657
_____	Piper Pitch Trim	4.0	158.0	632
_____	Heated Pitot Head	.4	100.0	40
	 <u>Instruments</u>			
_____	Turn and Bank, Pioneer A-5	1.5	66.4	100
_____	Turn and Bank, Electric	2.7	65.8	178
_____	Suction Gauge, AN5771-11	.5	68.1	34
_____	Suction Gauge, Airborne Mechanisms 1G3-4	.5	68.1	34
_____	Suction Gauge, U. S. Gauge AW1821AFO3	.5	68.1	34
_____	Altimeter, AN5760-2 (C-12 or C-13)	Same as Standard Equipment Weight		
_____	Rate of Climb, Pioneer C-7	1.0	66.8	67
_____	Rate of Climb, AN5825	1.0	66.8	67
_____	Directional Gyro, Jack & Heintz	2.6	66.6	173
_____	Directional Gyro, Sperry	3.9	66.6	260
_____	Directional Gyro, Garwin (3")	2.4	65.6	157
_____	Directional Gyro, AIM (3")	3.1	64.9	201

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data	
CHECKED			Model PA-28-180	
APPROVED	REPORT VB-164		PAGE 7 Section 1	
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Instruments</u> (Cont'd)			
_____	Artificial Horizon, Jack & Heintz	2.8	66.1	185
_____	Artificial Horizon, Garwin (3")	1.8	65.8	118
_____	Artificial Horizon, AIM (3")	2.2	65.3	144
_____	Air Temperature Gauge, Rochester Manufacturing Co., No. 1592-C2 or NHM-70 (Manning, Maxwell & Moore)	.2	82.6	17
_____	Clock, 8-Day, MIL-C-7939	.4	68.3	27
_____	Tru-Speed Indicator, PAC 62143-2	Same as Standard Equipment Weight		
_____	Piper Course Selector PAC 31058	3.0	66.6	200
_____	Electric Turn and Bank	2.7	65.8	178
_____	Pictorial Rate of Turn, Mitchell 52D69	1.3	66.2	86
_____	Rate of Climb, Karnish AC 135-3	1.0	66.8	67
_____	Brittain Turn Coordinator #TC-100(12)	2.6	65.6	171
	<u>AutoPilots</u>			
_____	AutoControl II			
_____	Roll Servo, Mitchell #1X221E-CH-1	2.8	60.6	170
_____	Console, Mitchell #1X224E-3	1.3	66.6	87
_____	Directional Gyro, Mitchell #52B15E or	4.3	66.6	286
_____	Directional Gyro, Course Selector PAC Drawing 31058-2	3.0	66.6	200

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data	
CHECKED			Model PA-28-180	
APPROVED	REPORT VB-164		PAGE 9 Section 1	
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Radio</u>			
_____	PM-1 Marker Beacon			
_____	Receiver	1.1	121.3	133
_____	Panel Unit	.3	69.0	21
_____	Cable	.3	85.0	26
_____	Piper Radio Compass PRC-3	4.5	64.4	290
_____	Piper VHF Transceiver PTR-1	5.0	64.8	324
_____	Piper Omni Convertor O-1	2.5	65.3	163
_____	King KX150B	9.1	62.8	572
_____	Omni Receiving Antenna, Narco VTP-37 (Includes Cables)	1.4	203.0	284
_____	VHF Antenna, Transmitting VHF-1	.3	157.8	47
_____	VHF Antenna, Transmitting VHF-2	.3	192.8	58
_____	Cable, VHF-1	.4	118.0	47
_____	Cable, VHF-2	.5	135.0	68
_____	Low Frequency Antenna	.5	167.0	84
_____	Loop Antenna (PRC-3)	.3	54.5	16
_____	Narco Mark 12A			
_____	Transceiver, Single	6.0	62.8	377
_____	Transceiver, Dual	12.0	62.8	754
_____	Modulator-Power Unit, Single	4.0	56.0	224
_____	Modulator-Power Unit, Dual	8.0	186.0	1488

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data	
CHECKED			Model PA-28-180	
APPROVED	REPORT VB-164		PAGE 10 Section 1	
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Radio</u> (Cont'd)			
_____	Cable, Single	.3	58.0	17
_____	Cable, Dual	3.4	120.0	408
_____	Narco VOA-6 Omni Convertor	1.8	65.3	118
_____	Narco VOA-5 Omni Convertor	3.1	65.3	202
_____	Narco VOA-4 Omni Convertor	3.0	65.3	196
_____	Narco ADF-30	9.9	107.9	1068
_____	Narco Omnigator VTR-2A Installation (Less Antenna)	14.0	58.0	812
_____	Marker Antenna	1.2	64.8	78
_____	Piper Radio Compass PRC-4	4.9	64.4	316
_____	Loop Antenna (PRC-4)	.4	112.6	45
_____	Piper Omni Convertor OL-1	2.8	65.3	183
_____	Narco ADF-31			
_____	Receiver	5.1	64.4	328
_____	Loop Antenna	2.7	162.0	437
_____	Cable Antenna	1.7	108.0	184
_____	Bendix ADF-T-12C			
_____	Receiver	3.8	64.9	247
_____	Audio Amplifier	.8	64.9	52
_____	Radio Compass	1.7	67.3	114

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.		Weight and Balance Data	
CHECKED \$			Model PA-28-180	
APPROVED	REPORT VB-164		PAGE 11 Section 1	
	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
Check if Installed	<u>Radio</u> (Cont'd)			
_____	Loop Antenna	1.2	160.8	193
_____	Cable, Antenna	1.5	108.0	162
_____	Narco - UDI-III DME	8.6	62.6	538
_____	Narco Mark III	7.5	63.6	477
_____	Narco UDI-4 DME			
_____	Receiver	8.5	62.6	532
_____	Antenna	.3	113.9	34
_____	Cable, Antenna	.4	100.0	40
_____	UGR-2 Glide Slope			
_____	Receiver	2.4	173.8	417
_____	Cable	2.1	128.0	269
_____	Antenna	.4	92.4	37
_____	Cable, Antenna	.5	145.0	73
_____	Transmitter Selector (Dual VHF Only)	.7	67.2	47
_____	Microphone	.5	75.0	38
_____	Headset	.5	66.0	33
_____	Junction Box	.6	67.2	40

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED		REPORT VB-164

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND- INCHES)
	<u>Miscellaneous</u>			
_____	Nose Wheel Fairing	3.5	34.8	122
_____	Main Wheel Fairing	7.4	109.6	811
_____	Assist Step	1.8	156.0	281
_____	Toe Brakes (Dual)	10.5	54.6	573
_____	Toe Brakes (Single)	5.0	54.6	273
_____	Fire Extinguisher-Stop Fire #A-20	7.5	93.0	698
_____	Inertia Safety Belt PAC 65766	2.5	111.6	279
_____	Assist Strap and Coat Hooks	.2	109.5	22
_____	Lighter	.2	68.8	14
_____	Fire Extinguisher, Kidde Kompact VI (With Brackets)	<u>5.3</u>	<u>85.0</u>	<u>451</u>
	TOTAL			
EMPTY C. G. AFT DATUM IS _____				
AIRCRAFT EMPTY WEIGHT		_____	_____	
OPTIONAL EQUIPMENT WEIGHT		_____	_____	
LICENSED EMPTY WEIGHT		_____	_____	

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		
APPROVED	REPORT VB-164	PAGE 13 Section 1

IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY. THE EMPTY WEIGHT C.G. IS FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY. REFER TO FORM FAA-337 WHEN ALTERATIONS HAVE BEEN MADE.

C. G. RANGE AND WEIGHT INSTRUCTIONS

1. Add the weight of all items to be loaded to the licensed empty weight.
2. Use the loading graph to determine the moment of all items to be carried in the airplane.
3. Add the moment of all items to be loaded to the licensed empty weight moment.
4. Divide the total weight 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 all weight and balance requirements.

SAMPLE LOADING PROBLEM (NORMAL CATEGORY)

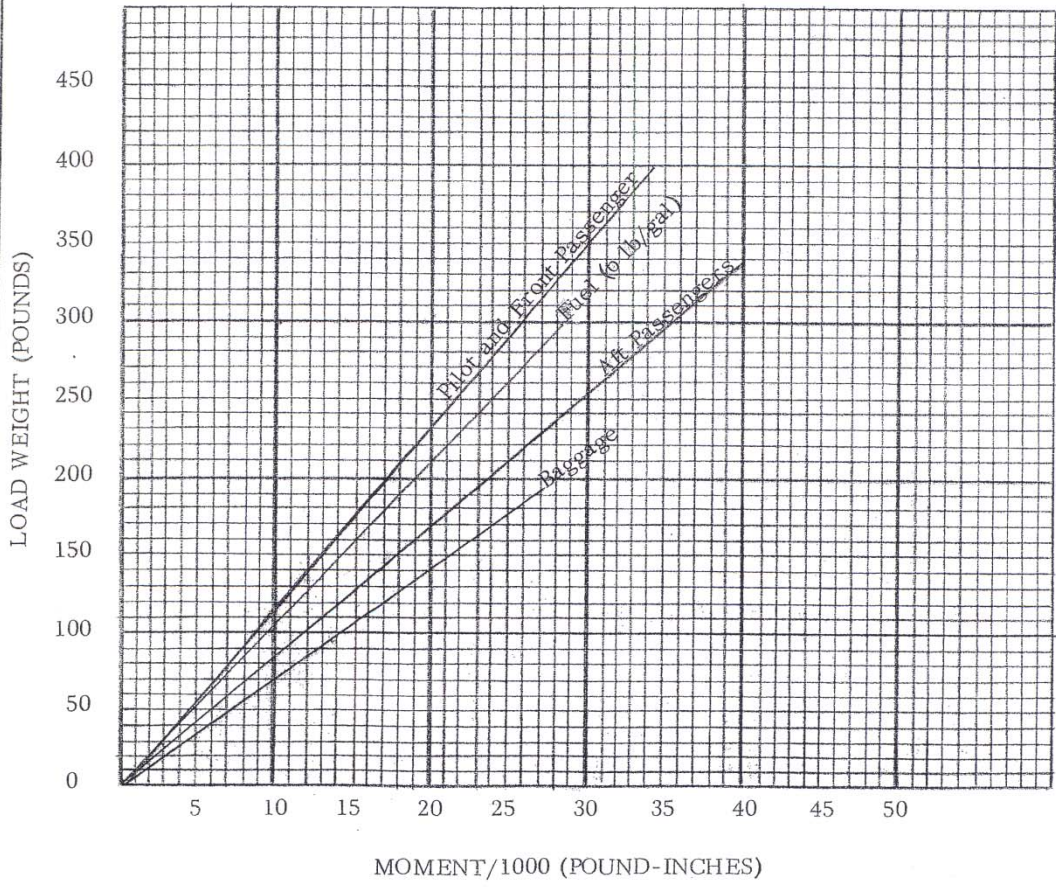
	<u>WEIGHT</u> <u>(LBS)</u>	<u>ARM AFT DATUM</u> <u>(INCHES)</u>	<u>MOMENT</u> <u>(POUND-INCHES)</u>
LICENSED EMPTY WEIGHT			
OIL (2 GALLON)	15	32.5	488
PILOT & PASSENGER	340	85.5	29070
FUEL		95.0	
PASSENGERS (REAR SEAT) *	340	118.1	40154
BAGGAGE *	_____	142.8	_____
TOTAL LOADED AIRPLANE			
	_____	=	INCHES (ARM AFT DATUM)

LOCATE THIS POINT () ON THE C. G. RANGE AND WEIGHT GRAPH. SINCE THIS POINT FALLS WITHIN THE C. G. ENVELOPE THE LOADING MEETS ALL WEIGHT AND BALANCE REQUIREMENTS.

- * Utility Category Operation - No baggage or aft passengers allowed.
- Normal Category Operation - Maximum baggage 125 lbs. (S/N 671 to 1760A).
Maximum baggage 200 lbs. (S/N 1761 and up).
Check aft C. G. between 150 lbs. and 200 lbs.

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		REPORT VB-164
APPROVED		PAGE 14 Section 1

LOADING GRAPH



PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-180
CHECKED		REPORT VB-164
APPROVED		PAGE 15 Section 1

C. G. RANGE AND WEIGHT

