RMS

Resource Maintenance System

Aircraft
Weight and Balance

Printed: 1/11/21 11:06:05 A
Serial #: 28-26263

Resource: N5541U
Model: PA-28-140

Location: RCM

N5541U

Who	Date	Total Time	Action	Item	Weight	Arm	Moment
Korman, Joel	Oct 06 2020	525.80	Install	Airplane Empty as weighed	1,314.00	85.2100	111,965.94
Korman, Joel	Jan 11 2021	525.80	Install	GPS 175 Navigator	1.90	61.9000	117.61
Korman, Joel	Jan 11 2021	525.80	Install	GI 106B indicator	1.30	68.1000	88.53
Korman, Joel	Jan 11 2021	525.80	Install	KX 155 nav/com	4.92	61.9000	304.55
Korman, Joel	Jan 11 2021	525.80	Install	King KI 208 indicator	1.00	68.1000	68.10
Korman, Joel	Jan 11 2021	525.80	Install	GPS antenna	0.53	106.0000	56.18

Max		Empty		Useful Load	CG
2,425.00	-	1,323.65	=	1,101.35	85.0685

TOTAL WEIGHT: 1,323.65

TOTAL MOMENT: 112,600.91

The above removal/installation was performed in accordance with manufacturers specifications and is approved for return to service.

FAA CERTIFIED REPAIR STATION: CMXR907C

Authorized Signature

RMS

Resource Maintenance System

Aircraft Weight and Balance

Resource: N5541U

Printed: 1/11/21 10:03:30 A

Serial #: 28-26263

Model: PA-28-140

Location: RCM

N5541U

Who	Date	Total Time	Action	Item	Weight	Arm	Moment
Korman, Joel	Oct 06 2020	525.80	Install	Airplane Empty as weighed	1,314.00	85.2100	111,965.94
Korman, Joel	Jan 11 2021	525.80	Install	GPS 175 Navigator	1.90	61.9000	117.61
Korman, Joel	Jan 11 2021	525.80	Install	GI 106B indicator	1.30	68.1000	88.53
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Authorized Signature

PREPARED T. S. Dean CHECKED R. J. Adeiman APPROVED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-140
	REPORT VB-162	PAGE 6 Section 1

3. WEIGHING - AIRPLANE EMPTY WEIGHT

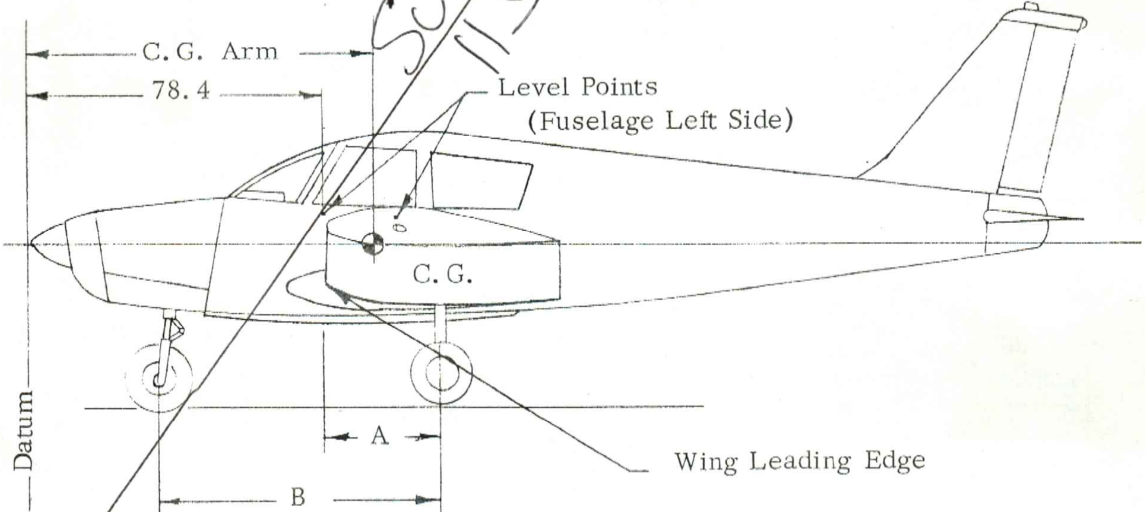
2. With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

Scale Position and Symbol		Scale Reading	Tare	Net Weight
Nose Wheel	(N)	431	∅	431
Right Main Wheel	(R)	441	∅	441
Left Main Wheel	(L)	442	∅	442
Airplane Empty Weight, as Weighed (T)				1314

Superceded By 11 Jan 2021

4. EMPTY WEIGHT CENTER OF GRAVITY

a. The following geometry applies to the PA-28-140 B airplane when airplane is level (See Item 2).



A = 31 3/16   31.1875 > 52.75

B = 74 5/16   74.3125

C.G. = 78.4 + 31.1875 − 74.3125(431) / 1314   85.21

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

10/6/2020

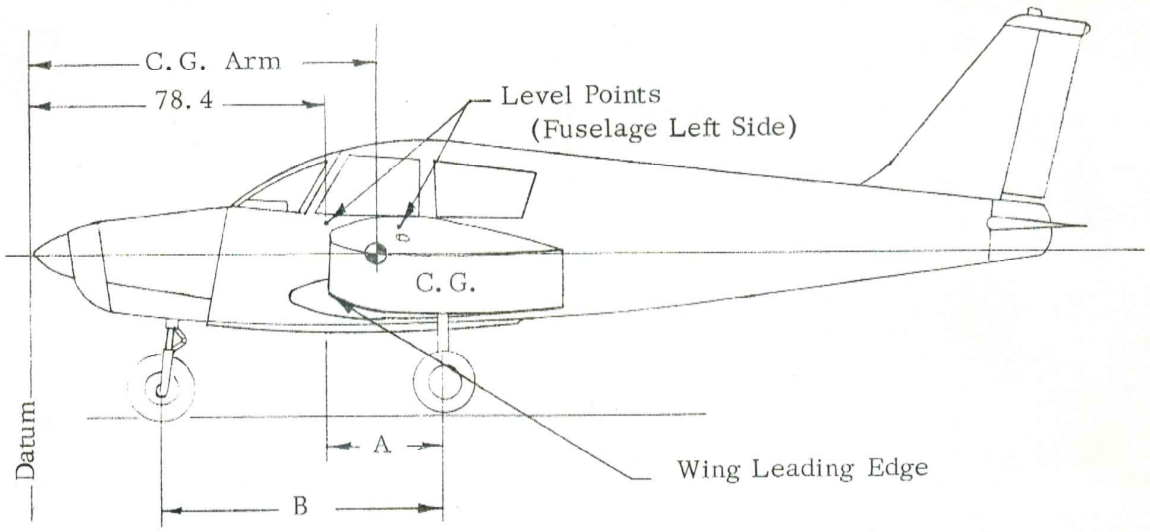
3. WEIGHING - AIRPLANE EMPTY WEIGHT

2. 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-28-140 B 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.

AIRPLANE FLIGHT MANUAL

MODEL PA-28-140

FAA IDENTIFICATION NO. N5541U

SERIAL NO. 28-26263

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA APPROVED: H. E. Waterman

H. E. Waterman
Supervisor, EMDO 42
FAA Southern Region
Atlanta, Georgia

DATE: February 14, 1964

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	1	Deleted Propeller - And Static RPM - Information	for H. E. Waterman Supervisor SO-EMDO-42	3/24/64
2	1	Added Static R.P.M. Information	for H. E. Waterman Supervisor SO-EMDO-42	5/25/64
3	3	Placards Section: Added Placard No. 4	H. E. Waterman Supervisor SO-EMDO-42	7/8/64
4	2	Maneuvers Section: Deleted Stalls in Utility Category	H. C. Faller Supervisor SO-EMDO-43	8/31/64
5c	2,3	Increased Gross Weight to 2150 and Baggage Capacity to 200 Lbs.	H. C. Faller Supervisor SO-EMDO-43	5/21/65
6	1	Limitations Section: Revised Oil Temperature and Fuel Pressure Range	for H. C. Faller Supervisor, SO-EMDO-43	6/23/65
7	1	Static RPM Corrected	for H. C. Faller Supervisor SO-EMDO-43	8/12/65
8	1	Revised Static RPM, Oil Temperature and Fuel Pressure Limitations	for H. C. Faller Supervisor SO-EMDO-43	12/13/65
	2	Added Note to Maximum Weight Callout		
	3	Revised Placard No. 4		

FAA APPROVED 2/14/64

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
9	3	Procedure Section. Added Item No. 4 "Electric Pitch Trim Procedures"		
	4	Added Page 4	H. C. Faller Supervisor SO-EMDO-43	3/16/66
10	4	Add Procedures Section And Item 5		
	3	Added Placard No. 5	H. C. Faller Supervisor SO-EMDO-43	5/20/66
11	3	Added Placard No. 6	H. C. Faller Supervisor SO-EMDO-43	12/6/66
12	2	Revised C. G. Range	H. C. Faller Supervisor SO-EMDO-43	9/25/67
13	Title Page	Added FAA Identification No., Serial No. and this document must be kept in airplane at all times.	H. C. Faller Supervisor SO-EMDO-43	11/27/67
14	1	Added Propeller Designation		
	2, 3	Revised Placard Nos. 1 and 6 to read: "In full view of the Pilot".	H. C. Faller Supervisor SO-EMDO-43	6/24/68

FAA APPROVED 2/14/64

Log of Revisions

REVISON NO.	PAGE	DESCRIPTION	APPROVED	DATE
15	2	Revised Baggage Capacity Limitations	H. M. Toomey FAA DOA SO-1	10/29/68
16	Title	Allocated Piper Report No. VB-160 to this Manual.	H. M. Toomey FAA DOA SO-1	11/7/68
17	4	Procedures Section: Revised Item 4 and Added Item 6.	H. M. Toomey FAA DOA SO-1	5/5/69
	5	Added Page 5.		

FAA APPROVED 2/14/64

Piper Model PA-28-140
Normal and Utility Categories

FAA Identification No. N5541U

Serial No. 28-26263

AIRPLANE FLIGHT MANUAL

1. Limitations Section — The following limitations must be observed in the operation on this airplane:

Engine	Lycoming 0-320-E2A
Engine Limits	For all operations 2700 rpm, 150 hp
Fuel	80/87 Octane Aviation Fuel
Propeller	Sensenich M74DM or 74DM6, Maximum diameter 74 inches. Minimum diameter 72-1/2 inches. Static RPM at maximum permissible throttle setting: 2150 - 2425 for maximum allowable weight of 1950 lbs 2275 - 2425 for maximum allowable weight of 2150 lbs 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 20,000 to 20,550) Oil temperature: GREEN arc (normal operating range) 75° F to 245° F; RED line (maximum) 245° F (S/N 20,551 and up) Oil pressure: GREEN arc (normal operating range) 60 psi to 85 psi; YELLOW arc (caution range) 25 psi to 60 psi; RED line (minimum) 60 psi; RED line (maximum) 85 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 20,000 to 20,550). Fuel Pressure: GREEN arc (normal operating range) .5 psi to 8 psi; RED line (minimum) .5 psi; RED line (maximum) 8 psi (S/N 20,551 and up). Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.
Airspeed Limits (Calibrated Airspeed) (Miles per Hour	Never exceed . . . . . 171 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.

FAA APPROVED 2/14/64

REVISED 6/24/68 Rev. No. 14

Maximum Weight — 2150 lbs. (See Limitations Section for Static RPM Limits).

Baggage Capacity

100 lbs. (+117) — S/N 28-20001 through 28-20939 (Maximum baggage may be increased to 200 lbs by the installation of Piper Kit 756 962 and Sensenich propeller M74DM58 or 74DM6-0-58. Maximum baggage may be increased to 300 lbs by the installation of Piper Kit 756 962, Sensenich propeller M74DM58 or 74DM6-0-58 and when modified in accordance with Piper drawing 66671. See Page 2A of tne weight and balance section for proper loading of baggage).

200 lbs. (+117) — S/N 28-20940 and up. (See Page 2A of the weight and balance section for proper loading of baggage).

300 lbs. (+117) (&) (+133) — S/N 28-20940 and up. (Aircraft are eligible for 300-lb maximum baggage when modified in accordance with Piper drawing 66671. See Page 2A of the weight and balance section for proper loading of baggage).

C. G. Range

The datum used is 78.4 inches ahead of the 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)
2150	88.4	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 given points.

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

Maneuvers

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

	Entry Speed
Spins (Flaps Up)	Stall
Steep Turns	129 mph
Lazy Eights	129
Chandelles	129

FAA APPROVED 2/14/64

REVISED 10/29/68 Rev. No. 15

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 aft side of baggage compartment: "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. 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."

5. 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."

6. In full view of the pilot: Utility Category Only

Acrobatic maneuvers are limited to the following:

	Entry Speed
Spins (Flaps Up)	Stall
Steep Turns	129 mph
Lazy Eights	129
Chandelles	129

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	64 to 140 mph (56 to 121 knots)
WHITE arc	Flaps Down Range	55 to 115 mph (48 to 100 knots)

FAA APPROVED 2/14/64

REVISED 6/24/68 Rev. No. 14

2. Procedures Section

1. The stall warning system is inoperative with the master switch off.
2. The electric fuel pump must be on for both takeoff and landing.
3. Except as noted above, all operating procedures for this airplane are normal.
4. (Electric Pitch Trim Installation Without 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 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 10^{o} pitch change and 30 ft altitude variation.

5. (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^{o} bank, and 100' altitude loss.

   e. In approach configuration malfunction, 1 second delay results in 10^{o} bank and 0' altitude loss.

6. (Electric Pitch Trim Installation 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^{o} pitch change and 30' altitude variation.

3. Performance Section

All performance is given for a weight of 2150 pounds.

Loss of altitude during stalls can be as great as 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	64	66	73	80	91
Flaps Down	55	--	--	--	--

FAA APPROVED 2/14/64

REVISED 5/ 5/69 Rev. No. 17

REPORT VB-162

EQUIPMENT LIST

MODEL PA-28-140

Log of Revisions

REVISION NO.	PAGE	DESCRIPTION	APPROVED	DATE
1	12	Added: R. C. Allen Turn Coordinator #80-9	G. McCleanor	1-26-69
2	14	Changed Narco Mark 12 to read: Narco Mark 12A or Narco Mark 12B	G. McCleanor	1-31-69
		Added: Narco Mark VIII Narco VOA-50M Omni Convertor Narco VOA-40 Omni Convertor (2)		
3	13	Added: Narco Mark 16 Installations	G. McCleanor	7-16-69
	17	Added: Adjustable Front Seat Installations and Overhead Vent System		

PREPARED	PIPER AIRCRAFT CORP.	Weight & Balance Data
CHECKED	DEVELOPMENT CENTER, VERO BEACH, FLA.	Model PA-28-140
APPROVED	REPORT VB-162	PAGE 1 Section 1

WEIGHT AND BALANCE DATA
MODEL PA-28-140 CHEROKEE

Airplane Serial Number 28- 26263

Registration Number N5541U

Date 9-26-69

AIRPLANE EMPTY WEIGHT

ITEM	Weight (Lbs.)	X	C.G. Arm (Inches Aft of Datum)	=	Moment (In.-Lbs.)
Standard Empty Weight* ~~Actual~~ Computed	1224.0		84.4		103294
Optional Equipment	69.4 ~~51.9~~		88.1		6114 ~~4570~~
Unusable Fuel (3 Pints)	2.2		103.0		227
Licensed Empty Weight=Total of Above Items	1295.6 ~~1278.1~~		88.0 ~~84.6~~		109635 ~~108091~~

15 NOV 72 Wm J Roff 1515915

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

AIRPLANE USEFUL LOAD

	(Gross Weight)	-	(Licensed Empty Weight)	=	Useful Load
Normal Category:	(2150 Lbs.)	-	(1295.6 ~~1278.1~~ Lbs.)	=	854.4 ~~871.9~~ Lbs.
Utility Category:	(1950 Lbs.)	-	(1295.6 ~~1278.1~~ Lbs.)	=	654.4 ~~671.9~~ Lbs.

THIS LICENSED EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS DELIVERED FROM THE FACTORY. REFER TO FORM FA_-337 WHEN ALTERATIONS HAVE BEEN MADE.

Ruby V. Holcomb

Prepared by Ruby V. Holcomb

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.

NOTE: With optional jump seats installed, aft passenger weight is restricted only by airplane weight and balance limitations (See Page 4 of this section). For baggage allowance, see Page 2A of this section.

SAMPLE LOADING PROBLEM (Normal Category)

		Weight (lbs)		Arm Aft Datum (Inches)		Moment (In-lbs)
1	Licensed Empty Weight	1278.1	X	84.6	=	108091
2	Oil (8 quarts)	15	X	32.5	=	488
3	Pilot and Front Passenger	340	X	85.5	=	29070
4	Passengers, Aft *		X	117.0	=	
5	Fuel (50 Gal. Maximum)	300	X	95.0	=	28500
6	Baggage * Area (1)	200	X	117.0	=	23400
7	Baggage * Area (2)		X	133.3	=	
	Total Loaded Airplane	2133.1		88.9		189549

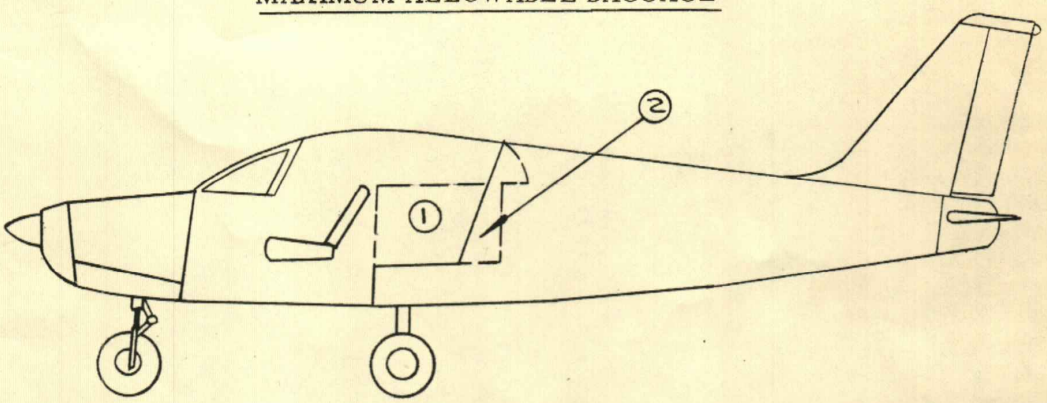
The center of gravity (C.G.) of this sample loading problem is at 88.9 inches aft of the datum line. Locate this point (88.9) on the C.G. range and weight graph. Since this point falls within the weight - C.G. envelope, this loading meets the weight and balance requirements.

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.

Normal Category Operation - See Page 2A of this section.

MAXIMUM ALLOWABLE BAGGAGE



A. Maximum Allowable Baggage Capacity Area (1) = 200 lbs.

1. S/N 28-20940 and up.

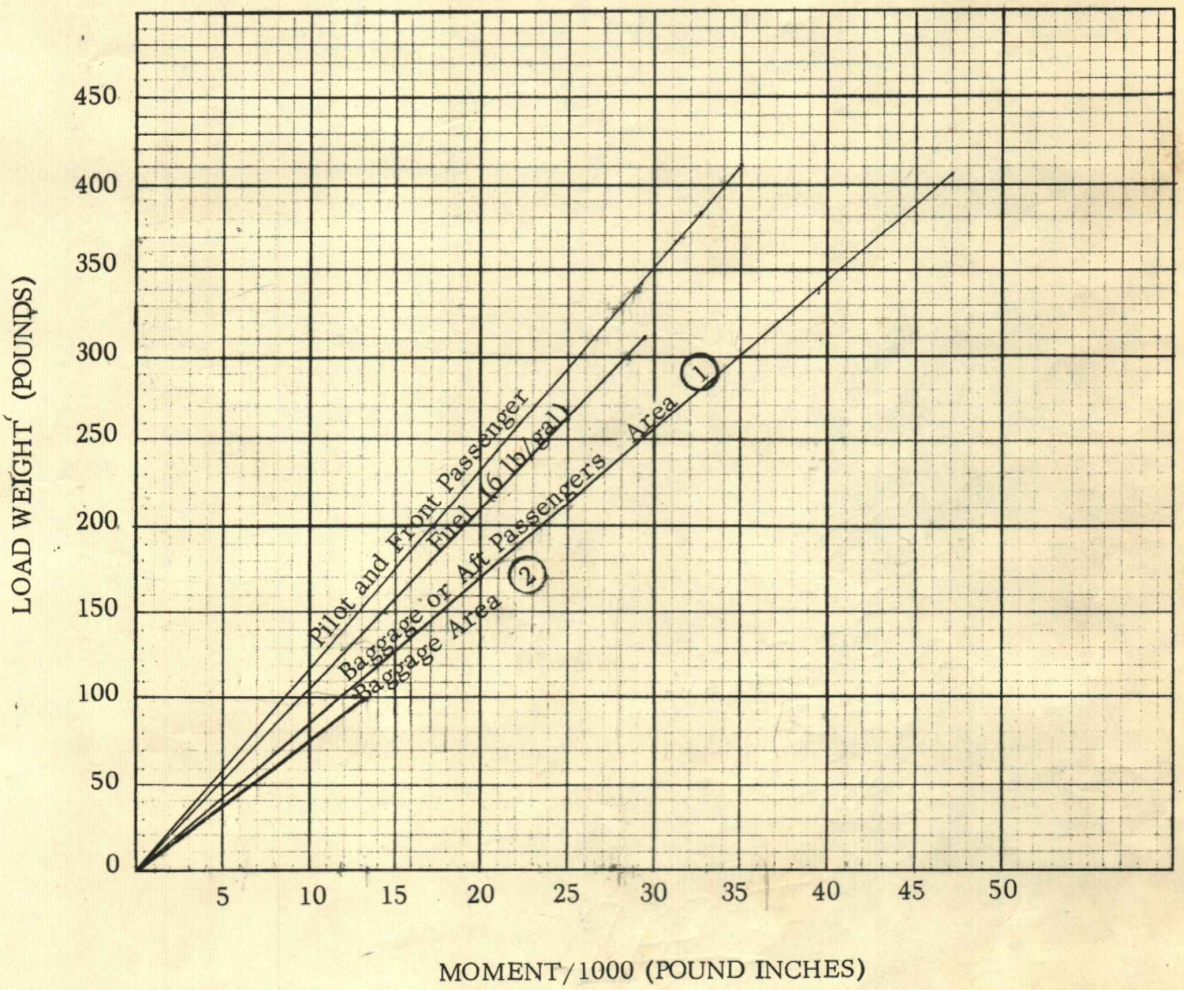
2. S/N 28-20001 through 28-20939 (maximum baggage may be increased to 200 lbs by the installation of Piper Kit 756 962 and Sensenich propeller M74DM58 or 74DM6-0-58).

B. Maximum Allowable Baggage Capacity Area (2) = 100 lbs.

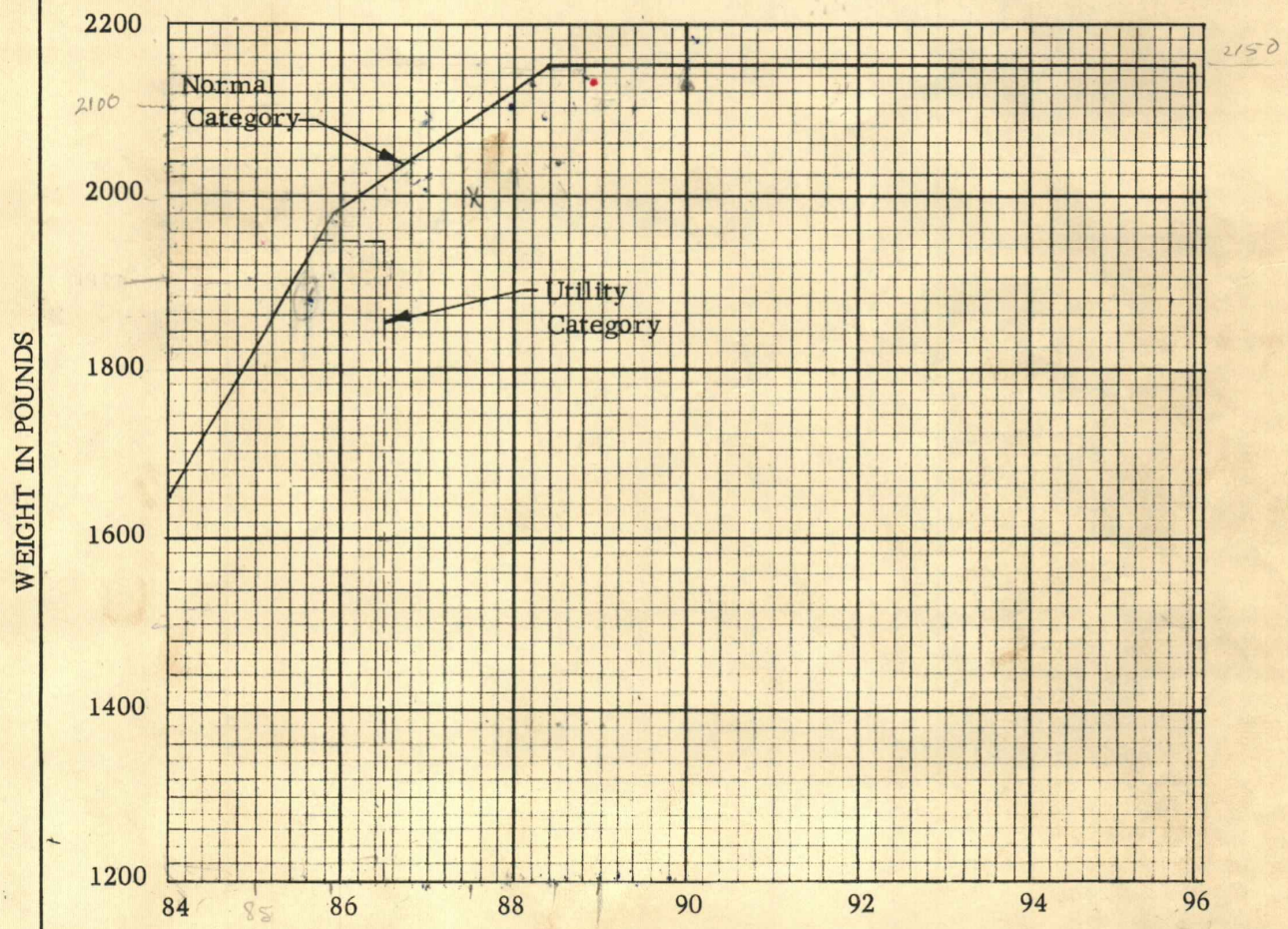
1. S/N 28-20940 and up. (Aircraft are eligible for 100-lb maximum baggage in this area when modified in accordance with Piper drawing 66671).

2. S/N 28-20001 through 28-20939. (Aircraft are eligible for 100-lb. maximum baggage in this area by the installation of Piper Kit 756 962, Sensenich propeller M74DM58 or 74DM6-0-58 and when modified in accordance with Piper drawing 66671).

LOADING GRAPH



C. G. RANGE AND WEIGHTS



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.

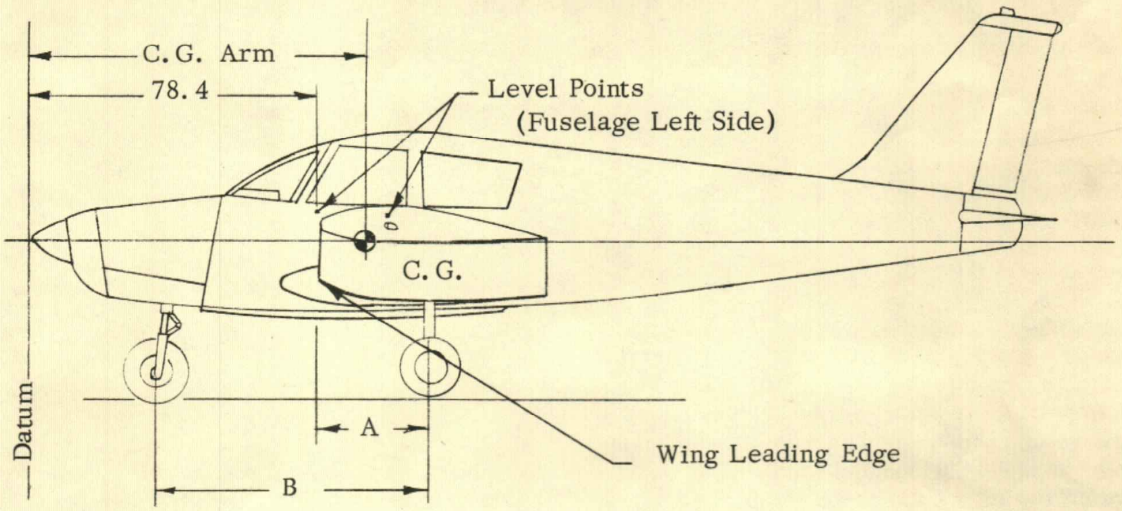
3. WEIGHING - AIRPLANE EMPTY WEIGHT

2. 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-28-140 B 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

15 Nov. 72 [illegible] 15-915

	Weight	Arm	Moment
Empty Weight (as weighed)	1293.4		
Unusable Fuel (3 pints)	+ 2.2	103.0	+ 227
Licensed Empty Weight	1295.6	88.0	

WEIGHT AND BALANCE
STANDARD EQUIPMENT LIST
MODEL PA-28-140

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
X	Engine - Lycoming Model 0-320-E2A	261.4	26.1	6822
X	Fuel Pump, Electric Auxiliary, Bendix Model 478360	1.8	41.8	75
X	Fuel Pump, Engine Driven, Lycoming Dwg. No. 73297, 74082, 75148 or 75246	1.6	41.3	66
X	Oil Cooler, Piper Dwg., Harrison C-8526250	2.6	18.1	47
X	Filter, Fram Model CA-161PL or AC No. A48C or Purolator AFP-2	.9	20.1	18
X	Starter-Lycoming #76210 (Prestolite MZ 4204)	17.0 *	19.5	332
X	Alternator, 60 Amp, Chrysler No. 2642997	12.5	19.0	238
	Propeller and Propeller Accessories			
X	Propeller, Sensenich M74DM58 or 74DM6-0-58	30.0	10.1	303
X	Spinner and Attachment Plates	2.0	8.0	16
	Landing Gear and Brakes			
X	Two Main Wheel Assemblies 6.00-6 (a) Cleveland Aircraft Products (2) Wheel Assembly No. 40-86 (2) Brake Assembly No. 30-55 (b) Two Main 4-Ply Rating Tires 6.00-6 with Regular Tubes	32.0	109.6	3507
X	One Nose Wheel 6.00-6 (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	12.5	34.8	435

* Included in Engine Weight

Check if Installed	ITEM	WEIGHT (LBS)	ARM AFT DATUM (INCHES)	MOMENT (POUND INCHES)
	Electrical Equipment			
X	Stall Warning Device, Safe Flight Instrument Corporation, No. C52207-4	.2	80.2	16
X	Voltage Regulator, Wico Electric No. X16300B	.5	57.8	29
	Battery 12V, 25 A.H. , Rebat Model S-25	21.5	114.9	2470
X	Overvoltage Relay, Wico Electric No. X16799	.5	53.8	27
	Instruments			
X	Compass - Piper Drawing 67462	.9	64.9	58
	Airspeed Indicator - Piper Drawing 63205	.6	66.8	40
X	Tachometer - Piper Drawing 62177-2 or -3	.7	66.2	46
X	Engine Cluster - Piper Drawing 95241-7	.8	67.4	54
X	Altimeter - Piper Drawing 67467	1.0	65.9	66
X	Ammeter - Piper Drawing 66696	.3	67.4	20
	Miscellaneous			
X	Forward Seat Belts (2)	1.5	86.9	130
X	Baggage Tie Down Straps	.8	118.0	94
X	Flight Manual	----	-----	---
X	Tow Bar	1.3	104.7	136

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

OPTIONAL EQUIPMENT LIST
MODEL PA-28-140

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Engine Accessories			
X	Vacuum Pump, Airborne Mechanisms Model No. 10-113A1 or 113A5 or 200 cc and Drive	5.0	37.0	185
	Starter-Lycoming 76211 (Prestolite MZ 4206) (Weight 18.0 lbs.)	1.0*	19.5	20
X	Oil Filter-Lycoming #74911 (AC 81-A #6437032)	3.3	40.5	134
X	Vacuum Regulator and Filter	2.2	57.0	125
	Vacuum Regulator	1.5	56.0	84
	Electrical Equipment			
X	Rotating Beacon, Grimes #40-0101-7-12 or Grimes #40-0101-15-12	1.5	263.4	395
X	Landing Light, G. E. Model 4509	.5	18.1	9
X	Navigation Lights (2) Grimes Model A1285 (Red and Green)	.4	106.6	43
X	Navigation Light (Rear) (1) Grimes Model 2064 (White)	.2	281.0	56
X	Battery 12 V., 35 A.H. Reading R-35 (Weight 27.0 lbs.)	5.5*	114.9	632

* Weight and Moment difference between standard and optional equipment.

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND - INCHES)
	Electrical Equipment (Cont'd.)			
X	Cabin Light	.3	104.0	31
X	Cabin Speaker	.8	104.0	83
	Auxiliary Power Receptacle 65529	3.0	133.0	399
	External Power Cable 62355-7	4.6	117.0	538
	Piper Pitch Trim	4.3	155.3	668
	Heated Pitot Head	.4	100.0	40
	Instruments			
	Suction Gauge - Piper Drawing 67481	.5	67.2	34
	Suction Gauge, U.S. Gauge AW1821AF03	.5	67.2	34
X	Suction Gauge, Airborne Mechanisms 1G3-4	.5	67.2	34
	Altimeter, AN5760-2 (C-12 or C-13)	Same as Standard Equipment Weight		
X	Rate of Climb - Piper Drawing 67468	1.0	65.9	66
X	Artificial Horizon, Garwin (3")	1.8	64.9	117
	Artificial Horizon, AIM (3")	2.2	64.4	142
X	Directional Gyro, Garwin (3")	2.4	64.7	155
	Directional Gyro, AIM (3")	3.1	64.0	198
	Attitude Gyro, R.C. Allen (3")	2.2	65.6	144
	Directional Gyro, R.C. Allen (3")	3.3	64.8	214

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Instruments (Cont'd)			
X	Air Temperature Gauge, Rochester Manufacturing Co., No. 1592-C2 or NHM-70 (Manning, Maxwell & Moore)	.2	82.6	17
X	Clock, 8-Day - MIL-C-7939	.4	67.4	27
X	Tru-Speed Indicator, Piper Drawing 62143	Same as Standard Equipment Weight		
X	Pictorial Rate of Turn, Mitchell 52D69	1.3	65.3	85
	Turn and Bank, Piper Drawing 41711-2	2.2	64.9	143
	Brittain Turn Coordinator #TC-100 (12)	2.6	64.7	168
	R.C. Allen Turn Coordinator #80-9	2.3	64.7	149
	Auto Pilots			
	Auto Flite			
	Roll Servo, Mitchell #1C363-1-183R	2.2	122.3	269
	Gyro Amplifier, Mitchell #1C359-1	1.8	111.8	201
	Cables	1.0	95.5	96
	Panel Unit	.3	67.9	20
	Omni Tracker (#1D482)	.5	54.9	27

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Auto Pilots (Cont'd)			
	Auto Control III			
	Roll Servo, Mitchell #1C363-1-183R	2.5	122.2	306
	Console, Mitchell #1C338	1.2	65.1	78
	Cables	.7	95.5	67
	Attitude Gyro, Mitchell#52D66 (Garwin)	1.9	64.9	123
	Attitude Gyro, Mitchell#52D66 (AIM)	2.3	64.4	148
	Directional Gyro, Mitchell #52D54 (Garwin)	2.5	64.7	162
	Directional Gyro, Mitchell #52D54 (AIM)	3.2	64.0	205
	Omni Coupler, Mitchell #1C388	.9	64.3	58
	Radio			
- X	Narco ~~PM-1~~ Marker Beacon			
	Receiver	1.1	121.3	133
X	Panel Unit	.3	68.1	20
	Cable	.3	85.0	26
X	Omni Receiving Antenna, Narco VRP - 37	1.4	203.0	284
	Narco Mark 16			
	Transceiver, Single	7.5	61.9	464
	Transceiver, Dual	15.0	61.9	929

PREPARED / CHECKED / APPROVED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight & Balance Data Model PA-28-140
	REPORT VB-162 OPTIONAL EQUIPMENT LIST	PAGE 14 Section 1

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd.)			
X	VHF Antenna, Transmitting VHF-1	.3	157.8	47
X	VHF Antenna, Transmitting VHF-2	.3	192.8	58
X	Cable, VHF-1	.4	118.0	47
X	Cable, VHF-2	.5	135.0	68
	Low Frequency Antenna	.5	167.0	84
X	Narco Mark 12A or Narco Mark 12B			
(X)	Transceiver, Single	6.0	61.9	371
X	Transceiver, Dual	12.0	61.9	743
(X)	Modulator - Power Unit, Single	4.0	146.8	587
X	Modulator - Power Unit, Dual	8.0	149.7	1198
(X)	Cable, Single	1.8	120.0	216
X	Cable, Dual	3.8	120.0	456
X	Narco ~~VOA-6 Omni Convertor~~ AT 50 Transponder	1.8	64.4	116
	Narco VOA-5 Omni Convertor	3.1	64.4	200
	Narco VOA-4 Omni Convertor	3.0	64.4	193
	Narco Mark III	7.5	62.7	470
	Narco Mark VIII	7.5	62.7	470
	Narco VOA-50M Omni Convertor	2.1	64.9	136
X	Narco VOA-40 Omni Convertor	1.9	64.9	123
X	Narco VOA-40 Omni Convertor	1.9	64.9	123

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND - INCHES)
	Radio (Cont'd.)			
_____	Bendix ADF-T-12			
_____	Receiver	3.8	64.0	243
_____	Audio Amplifier	.8	64.0	51
_____	Radio Compass	1.7	66.4	113
_____	Loop Antenna	1.2	160.8	193
_____	Cable, Antenna	1.5	108.0	162
_____	Sense Antenna and Cable	.4	150.0	60
___X___	Microphone	.5	75.0	38
___X___	Headset	.5	65.0	33
_____	Narco ADF-31			
_____	Panel Unit	4.8	63.5	305
_____	Sensor Unit and Doublers	2.2	162.7	358
_____	Sensor Cable	2.3	105.6	243
_____	Sense Antenna and Cable	.4	150.0	60
_____	Narco VOA-8 Omni Convertor	3.3	64.4	213
_____	Narco VOA-9 Omni Convertor	3.4	64.4	219
_____	Narco UDI-4 DME			
_____	Receiver	8.5	61.7	524
_____	Antenna	.3	113.9	34
_____	Cable, Antenna	.4	100.0	40

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Radio (Cont'd.)			
	UGR-2 Glide Slope			
	Receiver	2.4	141.8	340
	Cable	1.8	106.0	191
	Antenna	.4	92.4	37
	Cable, Antenna	.5	145.0	73
X	Transmitter Selector (Dual VHF Only)	.7	66.3	46
X	Junction Box	.6	66.3	40
	Miscellaneous			
	Fire Extinguisher - Stop Fire #A-20	7.5	93.0	698
	Fire Extinguisher - Kidde Kompact VI (With brackets)	5.3	85.0	451
	Nose Wheel Fairing - Piper Dwg. 65348	3.8	34.8	132
	Main Wheel Fairings - Piper Dwg. 65237	7.0	109.6	767
	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 Belt - Piper Dwg. 65766 (Set of 2)	2.5	111.6	279
X	Lighter	.2	67.9	14

Check if Installed	ITEM	WEIGHT (LBS.)	ARM AFT DATUM (INCHES)	MOMENT (POUND-INCHES)
	Miscellaneous (Cont'd.)			
	Jump Seat Installation, Piper Drawing 66664			
	Jump Seats (2)	16.2	118.0	1912
	Jump Seat Belts and Cables	1.1*	123.0	135
	Close Out Panel	7.3*	140.6	1026
	Ventilators (2)	1.0	100.9	101
	Ash Trays (2)	.8	110.2	88
X	Assist Strap and Coat Hooks	.2	109.5	22
	Baggage Tie Down Straps	.8	126.7	101
	Adjustable Front Seat (Left)	3.8*	85.5	325
	Adjustable Front Seat (Right)	3.8*	85.5	325
	Overhead Vent System	1.2	130.0	156
	TOTAL OPTIONAL EQUIPMENT	~~51.9~~ 69.4	88.1 88.09	~~4570~~ 6114

EXTERIOR FINISH

Base Color Juneau White

1st Trim Color Pontiac Red

2nd Trim Color Newport Blue

Registration No. Color Newport Blue

Type Finish Lacquer

* Weight and moment difference between standard and optional equipment.

FCC Form 404
Sept. 1969

Form Approved
Budget Bureau No. 52-R047.14

United States of America
FEDERAL COMMUNICATIONS COMMISSION

APPLICATION FOR AIRCRAFT RADIO STATION LICENSE

1. Mail one copy of the application to Federal Communications Commission, Gettysburg, Penna. 17325.
2. Enclose $ ~~20.00~~ 10.00 fee with this application. DO NOT SEND CASH. Make check or money order payable to Federal Communications Commission. The fee will not be refunded even if the application is not granted. Also, fee overpayments of $2.00 or less will not be refunded. (No fee is required for an application filed by a Governmental Entity.)
3. See Instruction Sheet.

DO NOT WRITE IN THIS BLOCK

PLEASE TYPE OR PRINT

1. FAA REGISTRATION (N NUMBER) OR FCC CONTROL NUMBER *(on existing license)*: FLEET

2. APPLICANT'S NAME

	IF AN INDIVIDUAL, LAST NAME	FIRST NAME	MIDDLE INITIAL
A	Roff	William	J

B. NAME IF OTHER THAN AN INDIVIDUAL

C. NAMES OF PARTNERS *(Do not repeat name shown in Item 1)*

LAST NAME	FIRST NAME	MIDDLE INITIAL

3. APPLICANT'S MAILING ADDRESS

NUMBER AND STREET: 1500 S. 135th E. Ave.

CITY: Tulsa,

STATE: Okla. ZIP CODE: 74108

4. CHECK STATUS OF APPLICANT *(If a non-governmental corporation or an unincorporated association, complete item 15 or item 16 on the reverse side)*

☒ INDIVIDUAL ☐ PARTNERSHIP ☐ CORPORATION
☐ ASSOCIATION ☐ GOVERNMENTAL ENTITY

13A. FREQUENCIES REQUESTED FOR:

☒ PRIVATE AIRCRAFT, OR
☐ AIR CARRIER

☐ AERONAUTICAL ENROUTE *(Specify by rule numbers)*

☐ PUBLIC SERVICE
☐ FLIGHT TEST HF
☐ INSTRUCTIONAL

☐ OTHER FREQUENCIES *(Specify)*

☐ FLIGHT TEST VHF

13B. WILL A VALID AGREEMENT WITH LICENSEES OF AERONAUTICAL ENROUTE STATIONS BE IN EFFECT AS REQUIRED BY THE RULES?

☐ YES ☐ NO

☒ INDIVIDUAL APPLICANT
☐ MEMBER OF APPLICANT PARTNERSHIP
☐ OFFICER OF APPLICANT CORPORATION
☐ OFFICER WHO IS ALSO A MEMBER OF THE APPLICANT ASSOCIATION
☐ OFFICIAL OF GOVERNMENTAL ENTITY

SIGNATURE: William J. Roff *(Designate appropriate qualification below)*

DATE: 18 July 69

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT. U.S. CODE, TITLE 18, SECTION 1001.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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

Form Approved
Budget Bureau No. 04-R060.1

FOR FAA USE ONLY
OFFICE IDENTIFICATION TUL GADO 2-1-12

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-28-140B
	SERIAL NO.: 28-26263	NATIONALITY AND REGISTRATION MARK: N5541U
2. OWNER	NAME (As shown on registration certificate): Wm. J. Reff	ADDRESS (As shown on registration certificate): 200 N. Jefferson, Neosho, Missouri

3. FOR FAA USE ONLY

4. UNIT IDENTIFICATION / **5. TYPE**

UNIT	MAKE	MODEL	SERIAL NO.	5. TYPE: REPAIR	5. TYPE: ALTERATION
AIRFRAME	◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆ (As described in item 1 above) ◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆				XX
POWERPLANT					
PROPELLER					
APPLIANCE	TYPE / MANUFACTURER				

6. CONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS	B. KIND OF AGENCY	C. CERTIFICATE NO.
Wm. J. Reff 11706 E. 1st Tulsa, Oklahoma 74128	XX U.S. CERTIFICATED MECHANIC FOREIGN CERTIFICATED MECHANIC CERTIFICATED REPAIR STATION MANUFACTURER	A&P 1515915

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	SIGNATURE OF AUTHORIZED INDIVIDUAL
19 June 1972	Wm. J. Reff

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						OTHER (Specify)
	FAA FLT. STANDARDS INSPECTOR		MANUFACTURER	XX	INSPECTION AUTHORIZATION	
	FAA DESIGNEE		REPAIR STATION		CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT	

DATE OF APPROVAL OR REJECTION	CERTIFICATE OR DESIGNATION NO.	SIGNATURE OF AUTHORIZED INDIVIDUAL
19 June 1972	A&P 1515915	Wm. J. Reff

FAA Form 337 (7-67) (8320)

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 Piper fuel selector valve cover replacement, Kit 760-545V, and Piper fuel selector handle Part No. 99181-00.
This Kit orginally designed for PA-28-140 Aircraft Serial No. 28-7125001 thru 28-7125666 by addition of the fuel selector handle Part No. 99181-00, the Kit is adaptable to all PA-28-140 Aircraft.
REFERENCE: 337 on PA-28-140 N98331 dated 19 May 1972.
**********LAST ITEM**********

☐ ADDITIONAL SHEETS ARE ATTACHED

U.S. GOVERNMENT PRINTING OFFICE : 1967 OF—272-085