

NTSB postaccident W&B - Start with 42.23 gals less flight KINK to KPRS				
	Fuel (Gal.)	Weight	Arm(ln.)	Moment (ln.-lbs)
Basic Empty Weight		1455	83.0	120765
Oil (3 gals)		22.5	34.1	767.25
Fuel Mains (6lb/gal)	24.23	145.38	95.0	13811.1
Pilot & Front Passenger		443	85.5	37876.5
Rear Passengers (3)		560	118.1	66136
Rear Baggage; 200 lbs MAX		150	142.8	21420
Total weight		2775.88		260775.85
AIRCRAFT CG (max +93.5) 93.94348819 CG				
+/- MAX CERT. WEIGHT 124.12 lbs remaining				

NTSB postaccident W&B - Start with full tanks less flight KINK to KPRS				
	Fuel (Gal.)	Weight	Arm(ln.)	Moment (ln.-lbs)
Basic Empty Weight		1455	83.0	120765
Oil (3 gals)		22.5	34.1	767.25
Fuel Mains (6lb/gal)	66	396	95.0	37620
Pilot & Front Passenger		443	85.5	37876.5
Rear Passengers (3)		560	118.1	66136
Rear Baggage; 200 lbs MAX		150	142.8	21420
Total weight		3026.5		284584.75
AIRCRAFT CG (max +93.5) 94.03097638 CG				
+/- MAX CERT. WEIGHT -126.5 lbs remaining				

NTSB postaccident W&B - Takeoff from KPRS with minimal fuel				
	Fuel (Gal.)	Weight	Arm(ln.)	Moment (ln.-lbs)
Basic Empty Weight		1455	83.0	120765
Oil (3 gals)		22.5	34.1	767.25
Fuel Mains (6lb/gal)	2	12	95.0	1140
Pilot & Front Passenger		443	85.5	37876.5
Rear Passengers (3)		560	118.1	66136
Rear Baggage; 200 lbs MAX		150	142.8	21420
Total weight		2642.5		248104.75
AIRCRAFT CG (max +93.5) 93.89016083 CG				
+/- MAX CERT. WEIGHT 257.5 lbs remaining				

September 18, 2023

Page No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Revision No.	64	48	48	48	48	48	64	48	48	48	48	48	48	48	48	48	48	48
Page No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Revision No.	48	50	59	62	63	48	57	50	63	63	59	48	48	48	48	48	59	62
Page No.	37	38	39	40	41	42	43	44	45	46	47							
Revision No.	61	64	59	59	62	57	62	64	59	62	64							

VI - Model PA-28-235 (Cherokee Pathfinder), 4 PCLM (Normal Category), Approved July 15, 1963, for S/N 28-10001 through 28-11378, and 28-7110001 through 28-7210023.

<u>Engine</u>	Lycoming O-540-B2B5, O-540-B1B5, or O-540-B4B5 with carburetor setting 10-4404, 10-5042, or 10-5054. (Baffle P/N 68759 required with 10-5054 setting.)			
<u>Fuel</u>	80/87 minimum grade aviation gasoline			
<u>Engine Limits</u>	For all operations, 2575 r.p.m. (235 hp)			
<u>Propeller and Propeller Limits</u>	McCauley 1P235PFA80 Static r.p.m. at maximum permissible throttle setting not over 2300 r.p.m., not under 2125 r.p.m. No additional tolerance permitted. Diameter: Not over 80", not under 78.5". or Hartzell HC-C2YK-1/8468A-4 or HC-C2YK-1()F/F8468A-4 Pitch: High $27^{\circ} \pm 2^{\circ}$, Low $13.5^{\circ} \pm .2^{\circ}$ at 30" station. Diameter: Not over 80", not under 80". Governor assembly: Hartzell F-4-3 () or F-4-13 See NOTE 21. or <u>Approved for Use with O-540-B4B5 Engine Only:</u> Sensenich M80BMM or 80BM8 Pitch from 69" to 71". Static r.p.m. at maximum permissible throttle setting not over 2300 r.p.m., not under 2150 r.p.m. No additional tolerances permitted. Diameter: Not over 80", not under 78.5".			
<u>Propeller Spinner</u>	Piper P/N 65209-00 or P/N 63760-03 with fixed pitch propeller. Spinner required. Piper P/N 65435-0 or P/N 68713 or P/N 66785 spinner tip and P/N 66786 spinner shell or P/N 67790-0 spinner, P/N 67791-0 bulkhead, P/N 67793-0 bulkhead and P/N 99499-0 plate. Two each P/N 67794-0 cuff, or Kit 760 452V with constant speed propeller. See NOTE 14.			
<u>Airspeed Limits</u>	Never exceed	197 mph	(171 knots)	CAS
	Maximum structural cruising	156 mph	(136 knots)	CAS
	Maneuvering	138 mph	(120 knots)	CAS
	Flaps Extended	115 mph	(100 knots)	CAS
<u>Center of Gravity Range</u>	S/N 28-10001 through 28-11378 (See NOTE 16): (+81.5) to (+93.5) at 2100 lb. or less (+91.5) to (+93.5) at 2900 lb. S/N 28-7110001 through 28-7210023: (+85.1) to (+93.5) at 2100 lb. or less (+86.0) to (+93.5) at 2600 lb. (+91.5) to (+93.5) at 2900 lb. Straight line variation between points given.			
<u>Empty Weight C. G. Range</u>	None			
<u>Maximum Weight</u>	2900 lb.			
<u>No. of Seats</u>	4 (2 at +85.5, 2 at +118.1)			
<u>Maximum Baggage</u>	200 lb. at (+142.8)			

<u>Fuel Capacity</u>	84 gallons at (+95) (50 gallons in 2 wing tanks, 34 gallons in 2 tip tanks). See NOTE 1 for data on system fuel.		
<u>Oil Capacity</u>	12 quarts at (+34.1)(9 ¼ quarts usable) See NOTE 1 for data on system oil.		
<u>Control Surface Movements</u>	Wing flaps	(±2°)	Up 0° Down 40°
	Ailerons	(±2°)	Up 30° Down 15°
	Rudder	(+2°)	Left 27° Right 27°
	Stabilator	(±1°)	Up 18° Down 2°
	Stabilator Tab	(±1°)	Up 3° Down 12°
<u>Nose Wheel Travel</u>	(±2°)	Left 30° Right 30°	
	(Effective on S/N 28-10001 through 28-11039)		
	(±2°)	Left 22° Right 22°	
	(Effective on S/N 28-11040 through 28-11378, and 28-7110001 through 28-7210023)		
<u>Manufacturer's Serial Nos.</u>	28-10001 through 28-11378, and 28-7110001 through 28-7210023. The manufacturer is authorized to issue airworthiness certificates for airplane serial numbers 28-11063, 28-11064, 28-11070, 28-11072 through 28-11378, and 28-7110001 through 28-7210023 under the delegation option provisions of FAR 21. See NOTE 17 and 20.		

VII - Model PA-28-140 (Cherokee Cruiser), 2 PCLM (Utility or Normal Category); 1950 lb. Maximum Weight, Approved February 14, 1964; 2150 lb. Maximum Weight, Approved June 17, 1965; for S/N 28-20001 through 28-26946, and 28-7125001 through 28-7725290.

<u>Engine</u>	Lycoming O-320-E2A with carburetor setting 10-3678-32 or O-320-E3D with carburetor setting 10-5009		
<u>Fuel</u>	80/87 minimum grade aviation gasoline		
<u>Engine Limits</u>	For all operations 2700 r.p.m. (150 hp)		
<u>Propeller and Propeller Limits</u>	For 1950 lb. maximum weight - Normal Category; S/N 28-20001 through 28-20939; or Utility Category, S/N 28-20001 through 28-26946, and 28-7125001 through 28-7725290: Sensenich M74DM or 74DM6 Static r.p.m. at maximum permissible throttle setting not over 2425 r.p.m., not under 2150 r.p.m. No additional tolerance permitted. Diameter: Not over 74", not under 72.5". For 2150 lb. maximum weight - Normal Category; S/N 28-20940 through 28-26946, and 28-7125001 through 28-7725290: Sensenich M74DM or 74DM6 Static r.p.m. at maximum permissible throttle setting not over 2425 r.p.m., not under 2275 r.p.m. No additional tolerance permitted. Diameter: Not over 74", not under 72.5".		
<u>Propeller Spinner</u>	Piper P/N 14422-00. See NOTE 11.		
<u>Airspeed Limits</u>	Never exceed	171 mph (148 knots)	CAS
	Maximum structural cruising	140 mph (121 knots)	CAS
	Maneuvering	129 mph (112 knots)	CAS
	Flaps Extended	115 mph (100 knots)	CAS

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-235
CHECKED		
APPROVED		PAGE _____ Title _____

REPORT VB-171

EQUIPMENT LIST

MODEL PA-28-235

SERIAL NOS. 10,000 THRU 11,039

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data
CHECKED		Model PA 28-235
APPROVED	REPORT VB-171	PAGE <u>1</u> Section <u>1</u>

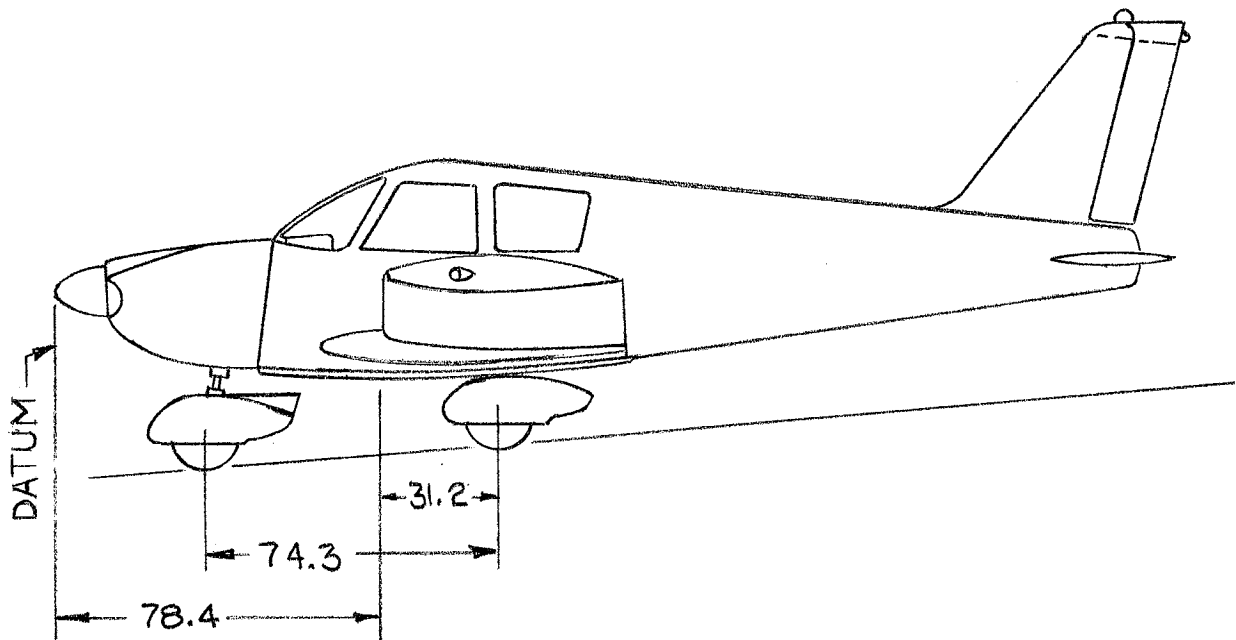
ACTUAL WEIGHT AND BALANCE

Model PA 28-235

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. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-235
CHECKED		
APPROVED	REPORT VB-171	PAGE 14 Section I

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 (3 GAL.)	22.5	34.1	767
PILOT & PASSENGER	340	85.5	29070
FUEL		95.0	
PASSENGERS (REAR SEAT)	340	118.1	40154
BAGGAGE		142.8	
	_____		_____

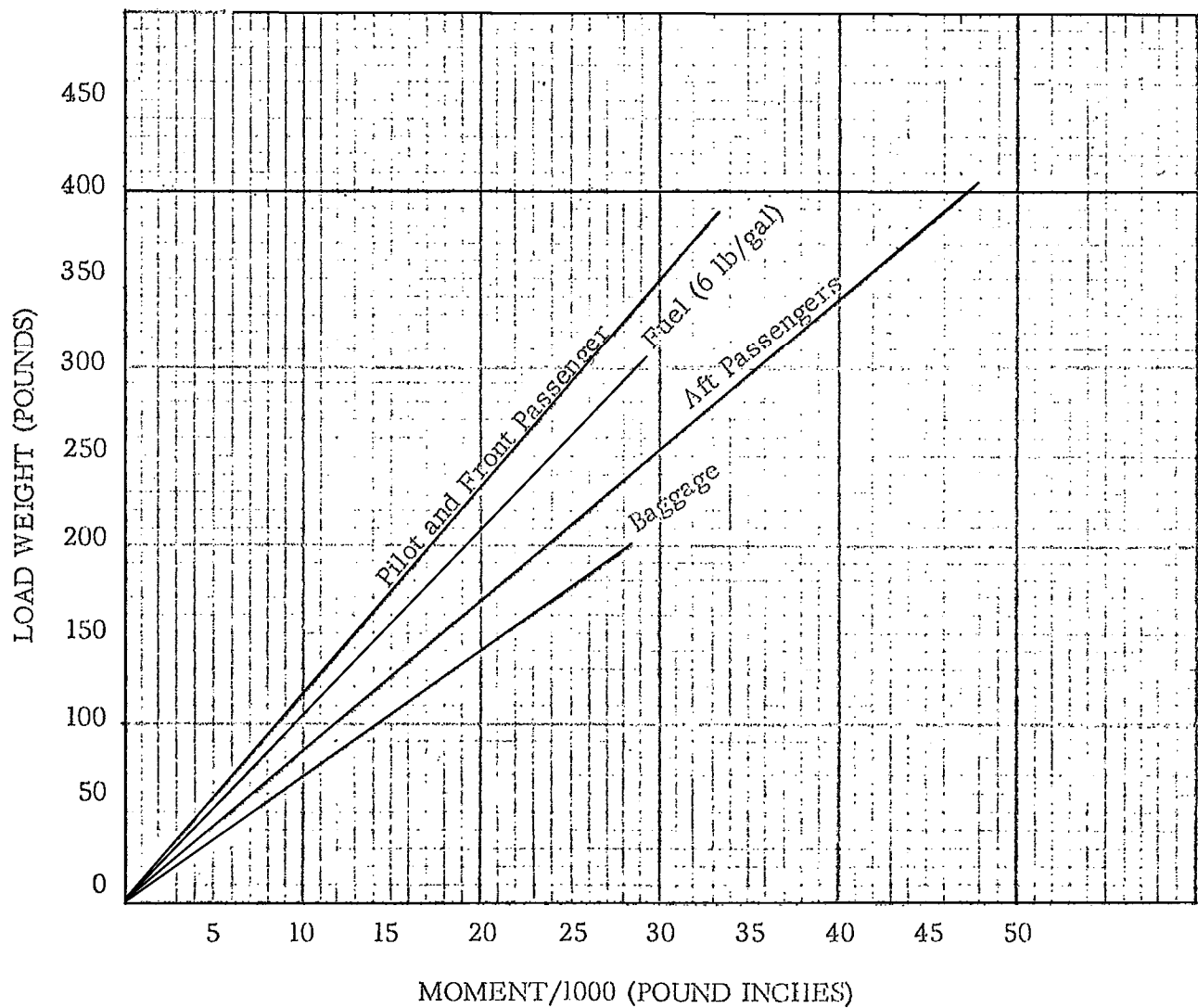
TOTAL LOADED AIRPLANE

_____ = 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.

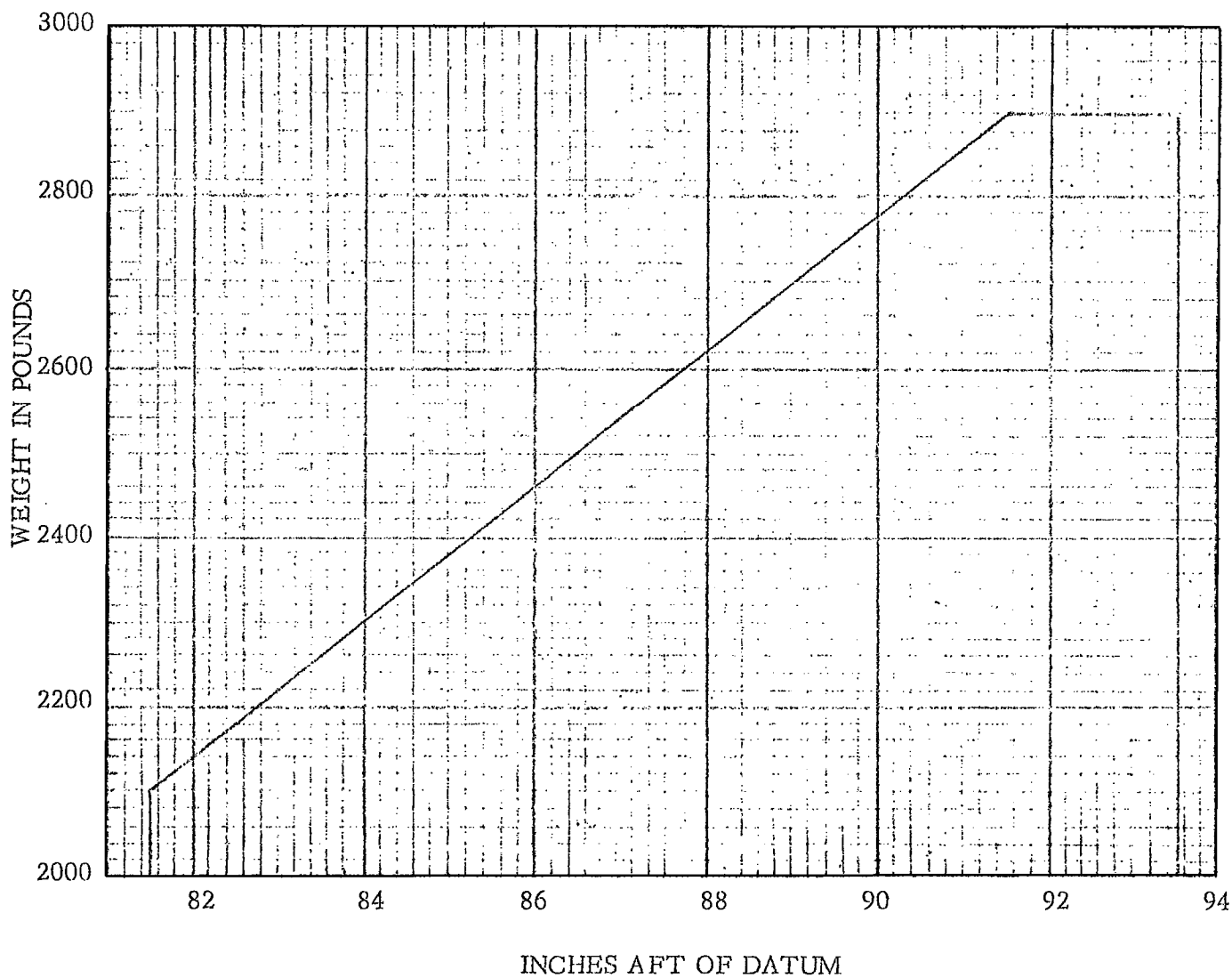
PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-235
CHECKED		
APPROVED		
	REPORT VB-171	PAGE 15 Section 1

LOADING GRAPH



PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	Weight and Balance Data Model PA-28-235
CHECKED		
APPROVED		REPORT VB-171

C. G. RANGE AND WEIGHT



SECTION I

SPECIFICATIONS

PERFORMANCE

Performance figures are for standard airplanes flown at gross weight under standard conditions at sea level, or stated altitude. Any deviation from standard equipment may result in changes in performance.

	PA-28-235 (Fixed Pitch)	PA-28-235 (Const. Speed)
Take-off Run (ft) (flaps up)	935	810
Take-off Distance Over 50-ft Obstacle (ft) (flaps up)	1510	1350
Take-off Run (ft) (flaps 25°)	800	750
Take-off Distance Over 50-ft Obstacle (ft) (flaps 25°)	1360	1220
Best Rate of Climb Speed (mph)	100	100
Rate of Climb (ft per min)	825	900
Service Ceiling (ft)	14,500	16,500
Absolute Ceiling	16,500	18,500
Top Speed (mph)	166	164
Cruising Speed (75% power, sea level mph)	146	145
Optimum Cruising Speed (75% power, 7000 ft, mph)	156	154
Fuel Consumption (gal per hr 75%)	14.0	14.0
Cruising Range (75% power, sea level, mi)	875	870

SPECIFICATIONS (cont):

PERFORMANCE

	PA-28-235 (Fixed Pitch)	PA-28-235 (Const. Speed)
Cruising Range (75% power, 7000 ft) (mi)	935	923
Optimum Cruising Range (55% power, 10,000 ft)	1130	1105
Stalling Speed (flaps down, mph)	60	60
Stalling Speed (flaps up, mph)	70	70
Landing Roll (flaps down, ft)	680	680
Landing Distance Over 50-ft Obstacle (ft)	1300	1300

WEIGHTS

Gross Weight (lbs)	2900	2900
Empty Weight (Standard) (lbs)	1435	1460
USEFUL LOAD (Standard)(lbs)	1465	1440

POWER PLANT

Engine - Lycoming	O-540-B4B5	O-540-B4B5
Rated Horsepower	235	235
Rated Speed (rpm)	2575	2575
Bore (inches)	5.125	5.125
Stroke (inches)	4.375	4.375
Displacement (cubic inches)	541.5	541.5
Compression Ratio	7.2:1	7.2:1
Dry Weight (pounds)	395	395
Propeller	1P235PFA80	HC-C2YK-1

SPECIFICATIONS (cont):

FUEL AND OIL

Fuel Capacity (main tank) (U.S. gal)	50
Fuel Capacity (auxiliary tanks) (U.S. gal)	34
Oil Capacity (U.S. qts)	12
Fuel, Aviation Grade (min octane)	80/87

BAGGAGE

Maximum Baggage (lbs)	200
Baggage Space (cubic ft)	24
Baggage Door Size (in)	20 x 22

DIMENSIONS

Wing Span (ft)	32.0
Wing Area (sq ft)	170
Wing Loading (lbs per sq ft)	17.0
Length (ft)	23.7
Height (ft)	7.1
Power Loading (lbs per hp)	12.4

LANDING GEAR

Wheel Base (ft)	6.2
Wheel Tread (ft)	10.0
Tire Pressure (lbs)	Nose 28-30
	Main 35-40

Reduce the speed during the flareout and contact the ground close to the stalling speed (55 to 65 MPH). After ground contact hold the nose wheel off as long as possible. As the airplane slows down, drop the nose and apply the brakes. There will be less chance of skidding the tires if the flaps are retracted before applying the brakes. Braking is most effective when back pressure is applied to the control wheel, putting most of the aircraft weight on the main wheels. In high wind conditions, particularly in strong crosswinds, it may be desirable to approach the ground at higher than normal speeds with partial or no flaps.

MOORING

The Cherokee should be moved on the ground with the aid of the nose wheel tow bar provided with each plane and secured in the baggage compartment. Tie downs may be secured to rings provided under each wing, and to the tail skid. The aileron and stabilator controls should be secured by looping the safety belt through the control wheel and pulling it tight. The rudder is held in position by its connections to the nose wheel steering, and normally does not have to be secured. The flaps are locked when in the full up position, and should be left retracted.

WEIGHT AND BALANCE

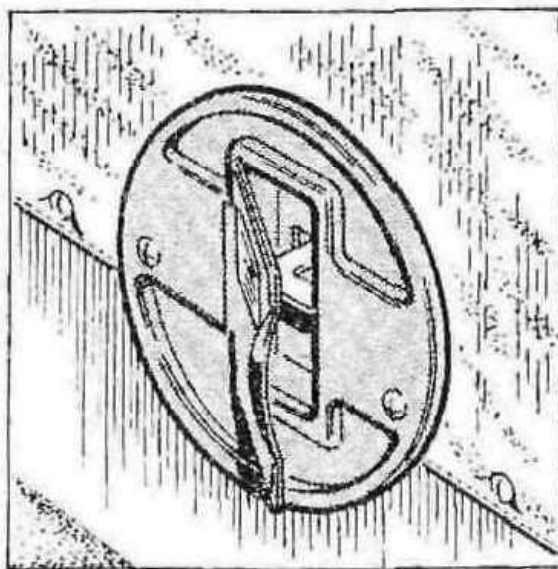
It is the responsibility of the owner and pilot to determine that the airplane remains within the allowable weight vs. center of gravity envelope while in flight. For weight and balance data see the Airplane Flight Manual and Weight and Balance form supplied with each airplane.

the two front seats. The stabilator provides extra stability and controllability with less size, drag and weight than conventional tail surfaces. The ailerons are provided with a differential action which tends to eliminate adverse yaw in turning maneuvers and to reduce the amount of coordination required in normal turns.

The flaps are manually operated, balanced for light operating forces and spring loaded to return to the up position. A past-center lock incorporated in the actuating linkage holds the flap when it is in the up position so that it may be used as a step on the right side. The flap will not support a step load except when in the full up position, so it must be completely retracted when used as a step. The flaps have three extended positions, 10, 25 and 40 degrees.

FUEL SYSTEM

Standard fuel capacity of the Cherokee is 84 gallons, all of which is usable except for approximately one pint in each of the four tanks. The two main inboard tanks, which hold 25 gallons each, are attached to the wing structure with screws and nutplates and may be easily removed for service or inspection. The tip tanks are constructed of resin-impregnated fiberglass and hold 17 gallons each.



Fuel Drain Lever

The fuel selector control is located below the center of the instrument panel on the sloping face of the control tunnel. It has five positions corresponding to each of the four tanks plus an "OFF" position. When using less than the standard 84 gallon capacity of the tanks, fuel should be distributed equally between each side and may be placed in either the in-

board or tip tanks.

Each fuel tank is equipped with an individual quick drain located at the lower inboard rear corner of the tank. The fuel strainer and a system quick drain valve are located in the fuselage at the lowest point of the fuel system. This strainer should be drained regularly to avoid the accumulation of water or sediment. The drain valve is operated by pressing DOWN on the lever located on the right hand side of the cabin below the forward edge of the rear seat.

Fuel quantity gauges for each of the four tanks are located in the engine gauge cluster on the right side of the instrument panel. A fuel pressure indicator is also incorporated in the engine gauge cluster.

An electric fuel pump is provided for use in case of failure of the engine-driven pump. The electric pump operates from a switch and should be "ON" for all take-offs and landings.

ELECTRICAL SYSTEM

The Cherokee is equipped with a 12 volt, 60 ampere alternator which provides electrical power at all engine speeds and results in improved performance for radio and electrical equipment and longer battery life.

In addition to the alternator, the electrical system includes a 25 ampere-hour battery, a voltage regulator and a master switch relay. The battery and relay are mounted immediately aft of the baggage compartment. Access for service or inspection is obtained through a removable panel adjacent to the baggage door. The battery box is designed to accommodate a larger capacity battery for extreme cold weather operation.

Electrical switches, fuses and fuse spares are located on the lower left side of the instrument panel.

Standard electrical accessories, in addition to those already listed, include a starter, stall warning indicator, cigar lighter and ammeter. Navigation lights, anti-collision light, landing light, instrument lighting and a cabin dome light are offered as