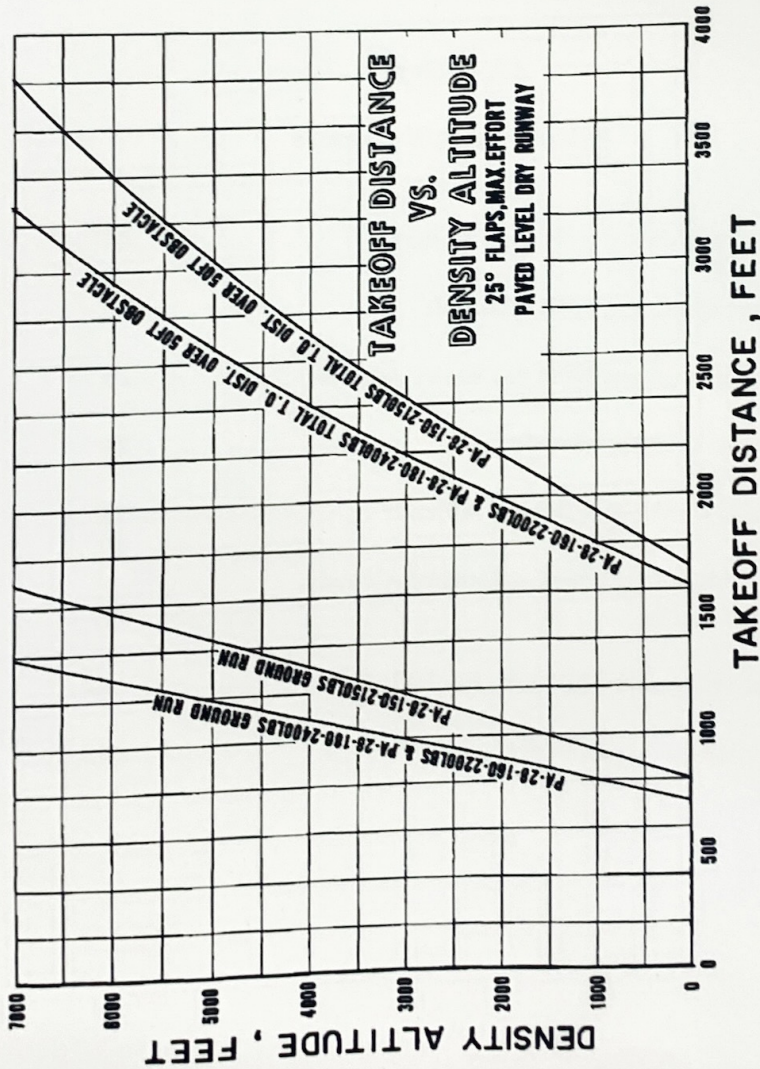


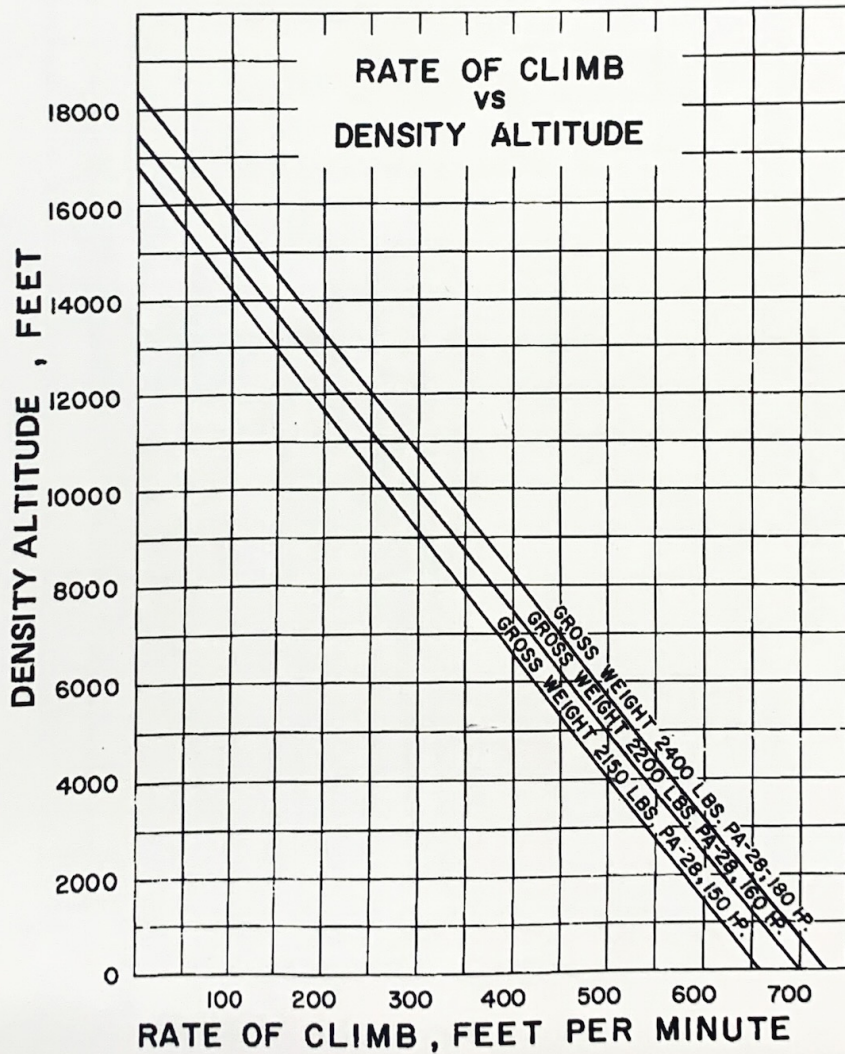
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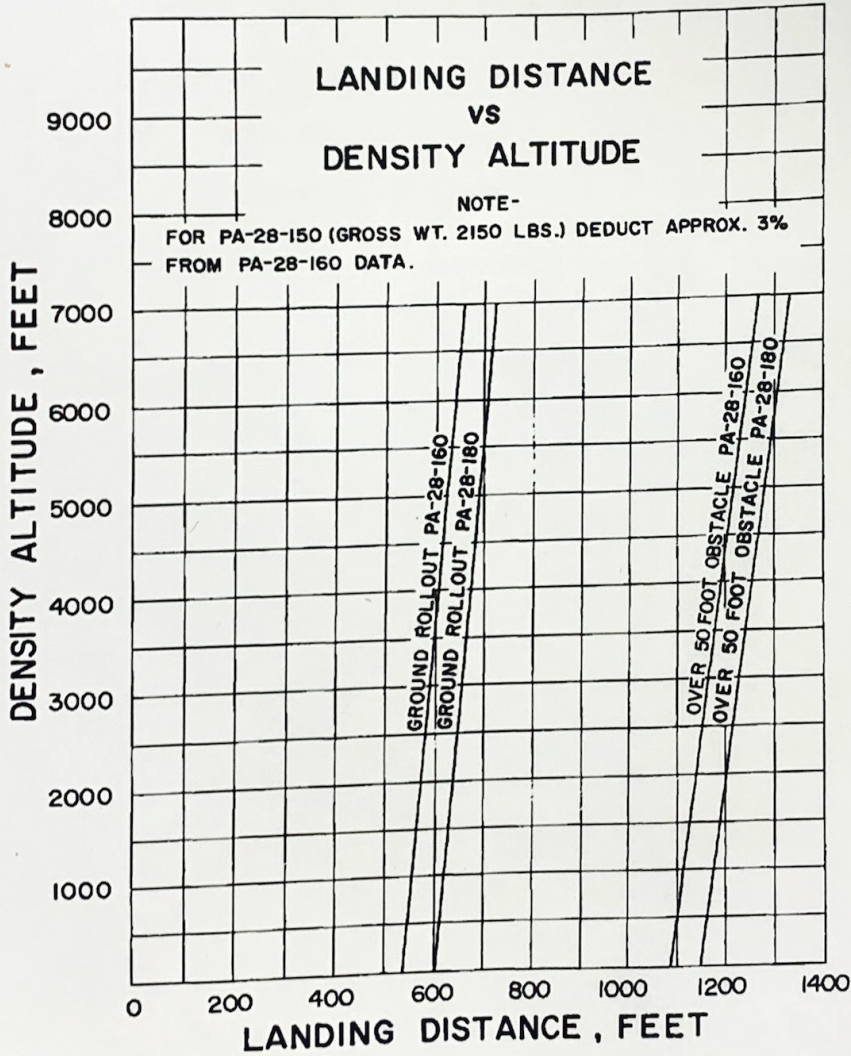
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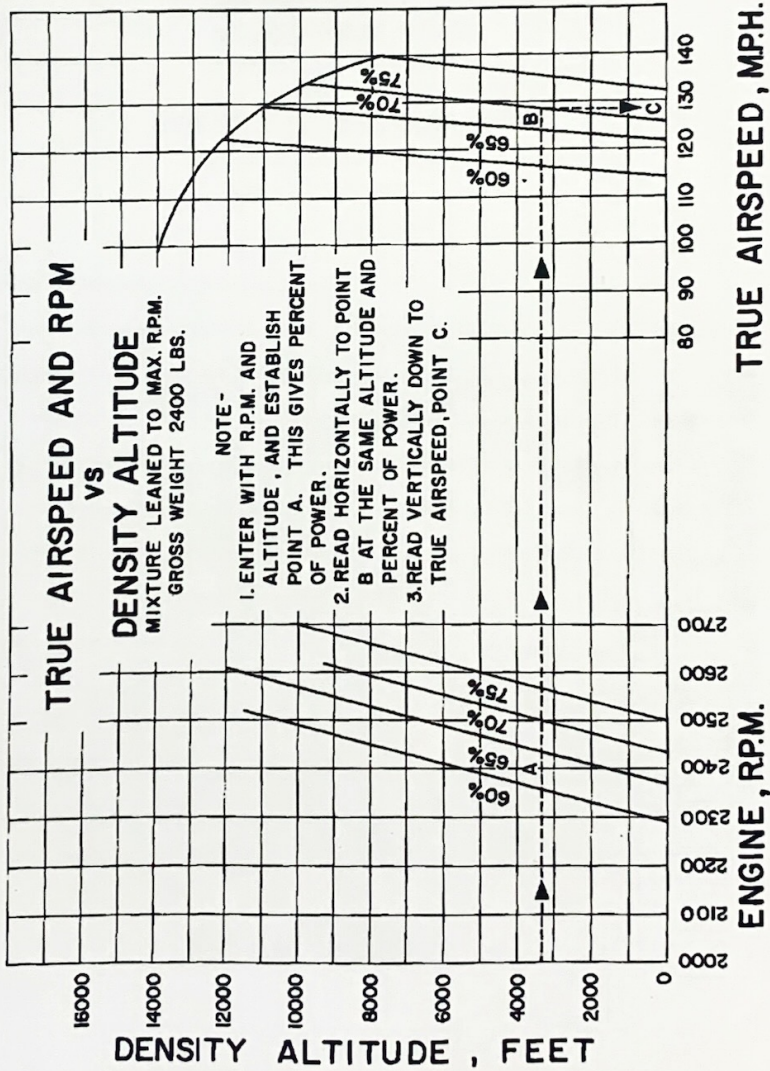
# PIPER CHEROKEE PA-28-150-160-180



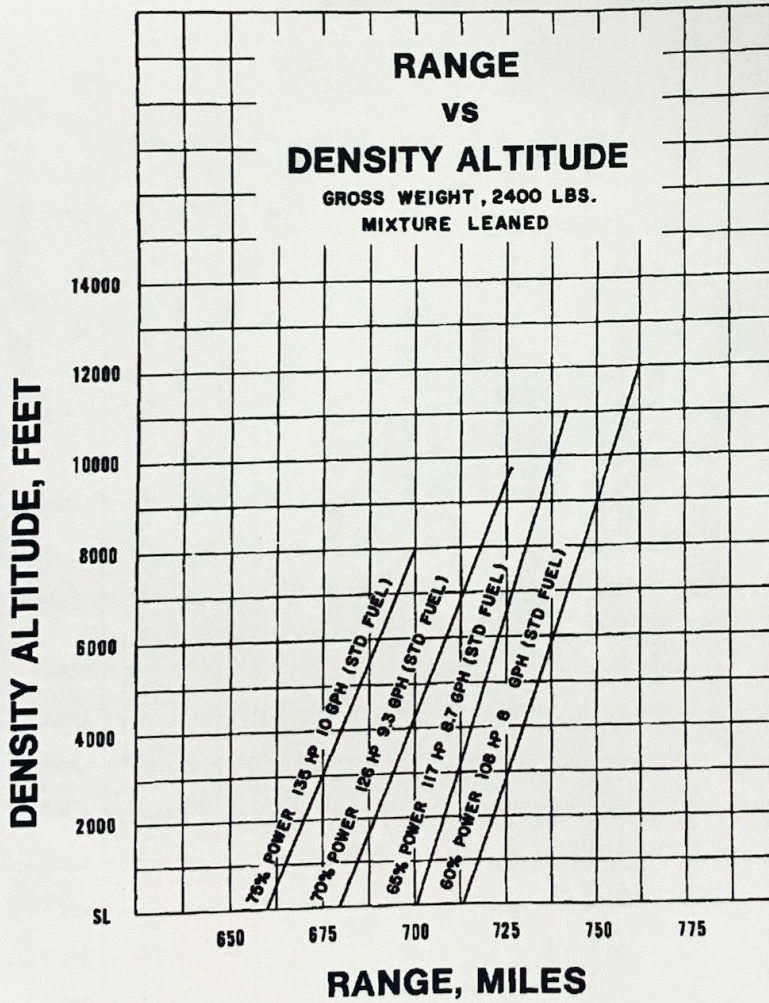
# PIPER CHEROKEE PA-28-150-160-180

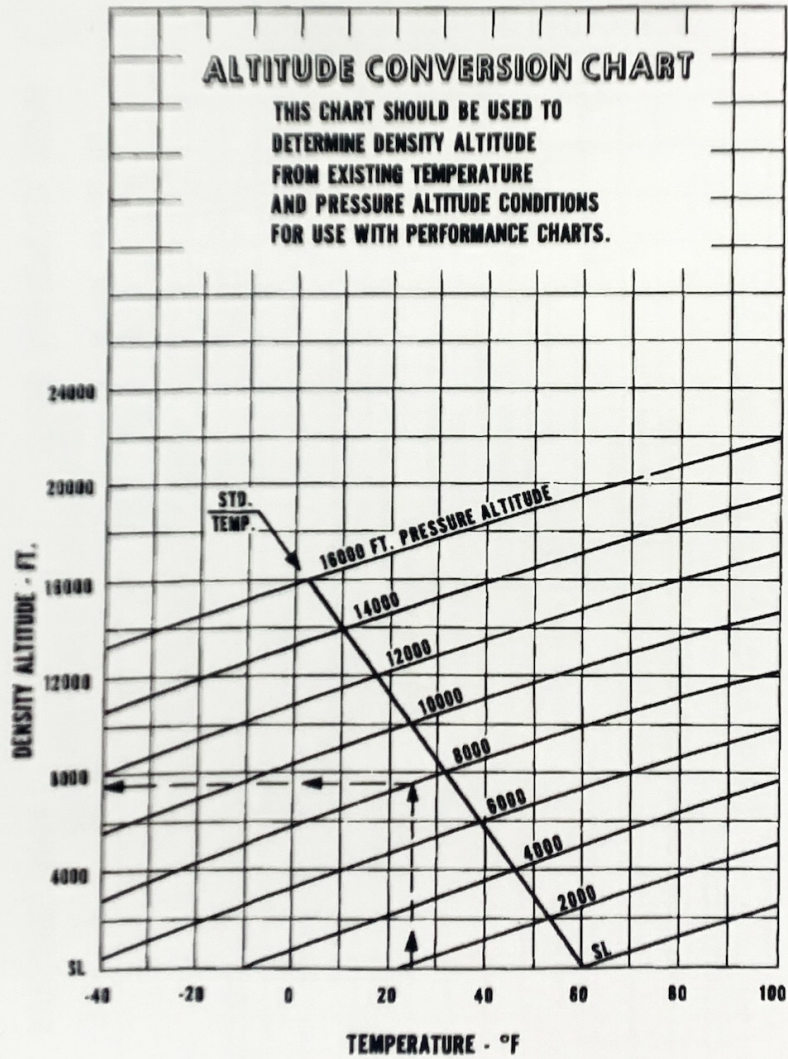


# PIPER CHEROKEE PA-28-180



# PIPER CHEROKEE PA-28-180





be done by filling with the fluid under pressure, from the brake end of the system. This will eliminate air from the system as it is being filled.

No adjustment of brake clearances is necessary on the Cherokee brakes. If after extended service the brake blocks become worn excessively, they are easily replaced with new segments.

LANDING GEAR SERVICE

Main wheels are easily removed by taking off the hub cap, axle nut, and the two bolts holding the brake segment in place, after which the wheel slips easily from the axle.

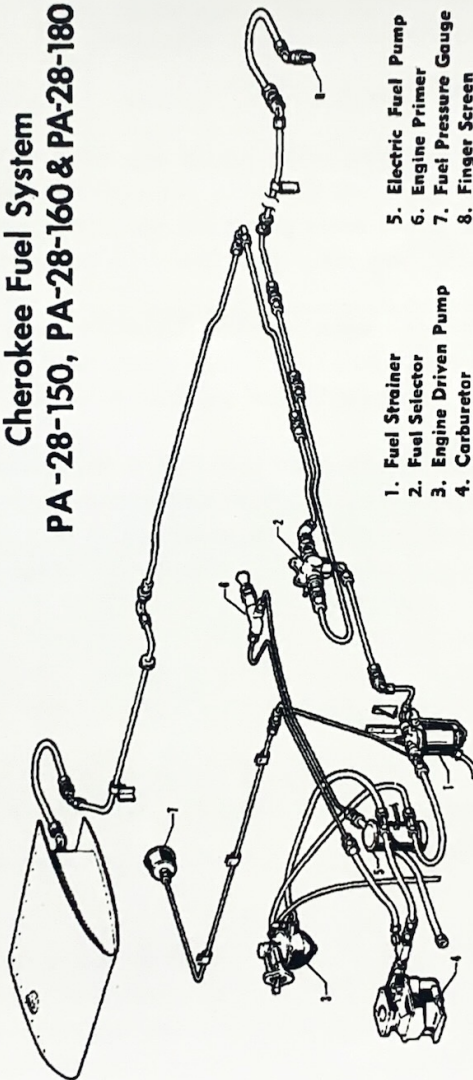
Tires are demounted from the wheels by first deflating the tire, then removing the three through bolts, and separating the wheel halves.

Landing gear oleos on the Cherokee should be serviced according to the instructions on the units. In order to obtain the correct static extension on the main gear struts it is necessary to jack the airplane up until the struts are clear of the ground and fully extended. Using a strut pump, add air until a pressure of 150 pounds is obtained. To add oil to the struts, release the air pressure in the strut, remove the valve core and add oil through this opening with the strut fully extended. After the strut is full compress it to full compression allowing excess air and oil to escape. With the strut still compressed reinsert the valve stem and pump up the strut as above. The nose strut is serviced with oil the same as the main struts, but in filling with air this strut may be left with the wheel on the ground, attaching the strut pump, and adding air until a strut extension of 3-1/2 inches is obtained.

In jacking the Cherokee for landing gear or other service, a jack kit (available through the Piper Aircraft Service Department) should be used. This kit consists of two hydraulic jacks and a tail stand. At least 250 pounds of ballast should be placed on the base of the tail stand before jacking up the aircraft. The hydraulic jacks should be placed under the jack points on the bottom of the wing and the airplane jacked up until the tail



**Cherokee Fuel System  
PA-28-150, PA-28-160 & PA-28-180**



- 1. Fuel Strainer
- 2. Fuel Selector
- 3. Engine Driven Pump
- 4. Carburetor
- 5. Electric Fuel Pump
- 6. Engine Primer
- 7. Fuel Pressure Gauge
- 8. Finger Screen

skid is at the right height to attach the tail stand. After attaching the tail stand, and adding the ballast, the jacking may be continued until the aircraft is at the height desired.

### FUEL REQUIREMENTS

Aviation grade 80 Octane (minimum) fuel must be used in the Cherokee 150 while the Cherokee 160 and 180 require 91 Octane fuel. Since the use of lower grades can cause serious engine damage in a short period of time, the engine warranty is invalidated by the use of lower octanes.

Whenever 80/87 is not available, the lowest lead 100 grade should be used. (See Fuel Grade Comparison Chart, next page.) Refer to the latest issue of Lycoming Service Instruction No. 1070 for additional information.

The continuous use, more than 25% of the operating time, of the higher leaded fuels can result in increased engine deposits, both in the combustion chamber and in the engine oil. It may require increased spark plug maintenance and more frequent oil changes. The frequency of spark plug maintenance and oil drain periods will be governed by the amount of lead per gallon and the type of operation. Operation at full rich mixture requires more frequent maintenance periods; therefore it is important to use proper approved mixture leaning procedures.

Reference the latest issue of Lycoming Service Letter No. L185 for care, operation and maintenance of the airplane when using the higher leaded fuel.

A summary of the current grades as well as the previous fuel designations are shown in the following chart:

**FUEL GRADE COMPARISON CHART**

Previous Commercial Fuel Grades (ASTM-D910)			Current Commercial Fuel Grades (ASTM-D910-75)			Current Military Fuel Grades (MIL-G-5572E) Amendment No. 3		
Grade	Color	Max. TEL ml/U.S. gal.	Grade	Color	Max. TEL ml/U.S. gal.	Grade	Color	Max. TEL ml/U.S. gal.
80/87	red	0.5	80	red	0.5	80/87	red	0.5
91/98	bluc	2.0	* 100LL	blue	2.0	none	none	none
100/130	green	3.0	100	green	**3.0	100/130	green	**3.0
115/145	purple	4.6	nonc	none	none	115/145	purple	4.6

\* - Grade 100LL fuel in some over seas countries is currently colored green and designated as "100L."  
 \*\* - Commercial fuel grade 100 and grade 100/130 (both of which are colored green) having TEL content of up to 4 ml/U.S. gallon are approved for use in all engines certificated for use with grade 100/130 fuel.

**OIL REQUIREMENTS**

The oil capacity of the O-320 series and O-360 is 8 quarts, and the minimum safe quantity is 2 quarts. It is recommended that the oil be changed every 50 hours and sooner under unfavorable operating conditions. Intervals between oil changes can be increased as much as 100% on engines equipped with full flow cartridge type oil filters, provided the element is replaced each 50 hours of operation and the specified octane fuel is used. Should fuel other than the specified octane rating for the power plant be used, refer to the latest issue of Lycoming Service Letter No. L185 and Lycoming Service Instruction No. 1014 for additional information and recommended service procedures. The following grades are recommended for the specified temperatures:

- |                                   |        |
|-----------------------------------|--------|
| Temperatures above 60°F           | SAE 50 |
| Temperatures between 30°F to 90°F | SAE 40 |
| Temperatures between 0°F to 70°F  | SAE 30 |
| Temperatures below 10°F           | SAE 20 |

Either mineral oil or anti-dispersant oil may be used, but the two types of oil may never be mixed.

CARE OF AIR FILTER

The carburetor air filter must be cleaned at least once every fifty hours. Under extremely adverse conditions of operation it may be necessary to clean the filter daily. Extra filters are inexpensive and a spare should be kept on hand and used as a rapid replacement.

The following cleaning procedure is recommended by the filter manufacturer:

1. Remove the air-filter landing-light assembly.
2. Remove filter and tap gently to remove dirt particles. Do not blow out with compressed air.
3. Reinstall filter and replace the air-filter landing-light assembly.

CARE OF WINDSHIELD AND WINDOWS

A certain amount of care is needed to keep the plexiglas windows clean and unmarred. The following procedure is recommended:

1. Flush with clean water and dislodge excess dirt, mud, etc., with your hand.
2. Wash with mild soap and water. Use a soft cloth or sponge, do not rub.
3. Remove oil, grease or sealing compounds with a soft cloth and kerosene.
4. After cleaning, apply a thin coat of hard polishing wax. Rub lightly with a soft cloth.
5. A severe scratch or mar may be removed by using jeweler's rouge to rub out the scratch, smoothing, and then applying wax.

SERIAL NUMBER PLATE

The serial number plate is located near the stabilator on the left side of the airplane. Refer to this number for service or warranty matters.

LEVELING AND RIGGING

Leveling the Cherokee for purposes of weighing or rigging is accomplished as follows:

1. Partially withdraw two machine screws located immediately below the left front side window. These screws are leveling points and the airplane is longitudinally level when a level placed on the heads of these screws indicates level.

2. To put the airplane in a longitudinally level position on scales, first block the main gear oleos in the fully extended position, then deflate the nose wheel tire until the proper attitude is obtained. For rigging only, the airplane may be placed on jacks for leveling.

3. To level the airplane laterally, place a level across the baggage compartment floor along the rear bulkhead.

Rigging: Although the fixed flight surfaces on the Cherokee cannot be adjusted for rigging purposes, it may be necessary upon occasion to check the position of these surfaces. The movable surfaces all have adjustable stops, as well as adjustable turnbuckles on the cables or push-pull tubes, so that their range of travel can be altered. The positions and angular travels of the various surfaces are as follows:

1. Wings:  $7^{\circ}$  dihedral, \*no wash, \*\* $2^{\circ}$  washout.
2. Stabilator Travel:  $18^{\circ}$  up,  $2^{\circ}$  down, tolerance  $\pm 1^{\circ}$ .
3. Fin should be vertical, and in line with center of fuselage.

\*Cherokee PA-28, Serial Nos. 28-1 to 28-45, 28-47 to 28-54, 28-56, 28-57, 28-61 to 28-77, 28-79 to 28-84, 28-86 to 28-89, 28-92 to 28-94 inclusive.

\*\*Cherokee PA-28, Serial Nos. 28-46, 28-55, 28-58, 28-59, 28-60, 28-78, 28-85, 28-90, 28-91, 28-95 and up.

4. Ailerons Travel:  $30^{\circ}$  up,  $15^{\circ}$  down, tolerance  $\pm 2^{\circ}$ .
5. Flaps Travel:  $10^{\circ}$ ,  $25^{\circ}$ ,  $40^{\circ}$ , tolerance  $\pm 2^{\circ}$ .
6. Rudder Travel:  $27^{\circ}$  right and left, tolerance  $\pm 2^{\circ}$ .
7. Stabilator Tab Travel:  $3^{\circ}$  up,  $12^{\circ}$  down, tolerance  $\pm 1^{\circ}$ .

Cable tensions for the various controls are as follows:

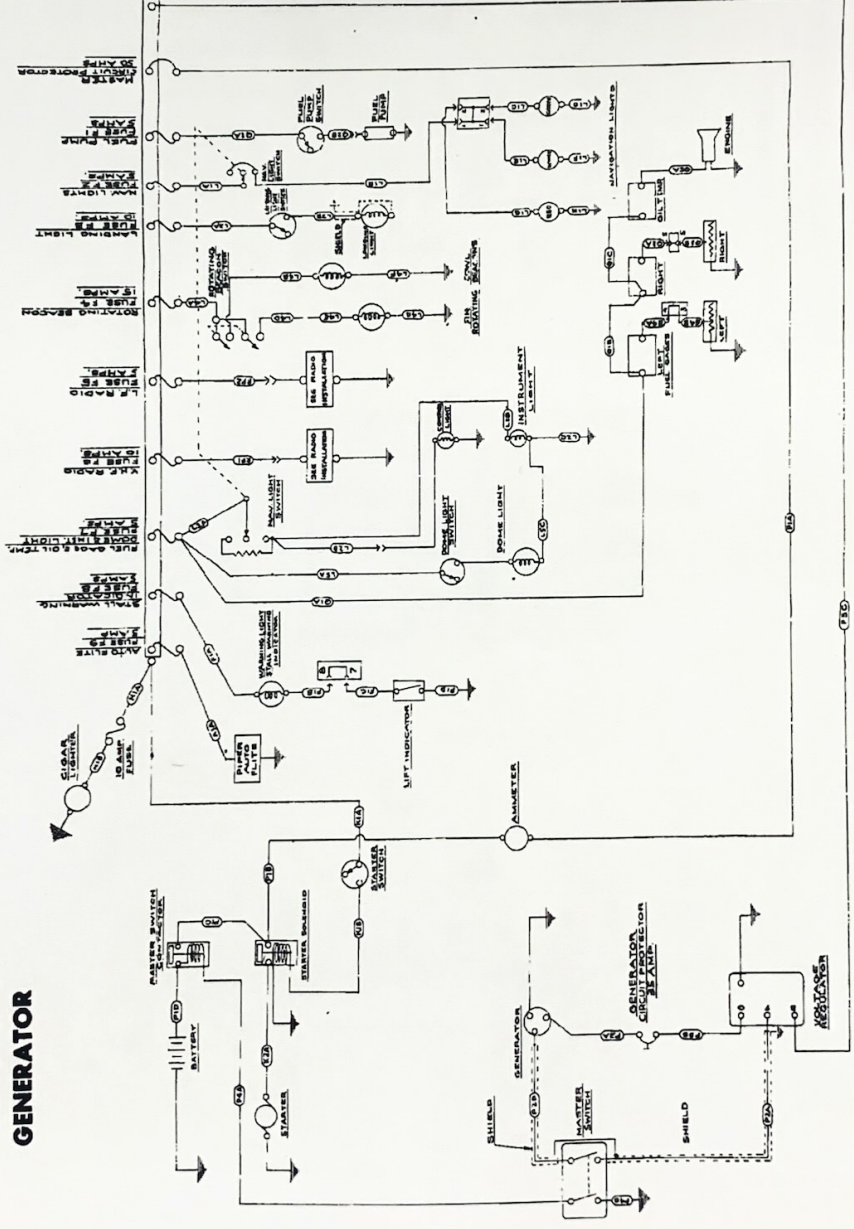
Rudder: 40 $\pm$ 5#                      Stabilator Trim: 5 $\pm$ 1#

Ailerons: 40 $\pm$ 5#                      Flap: 10 $\pm$ 2#

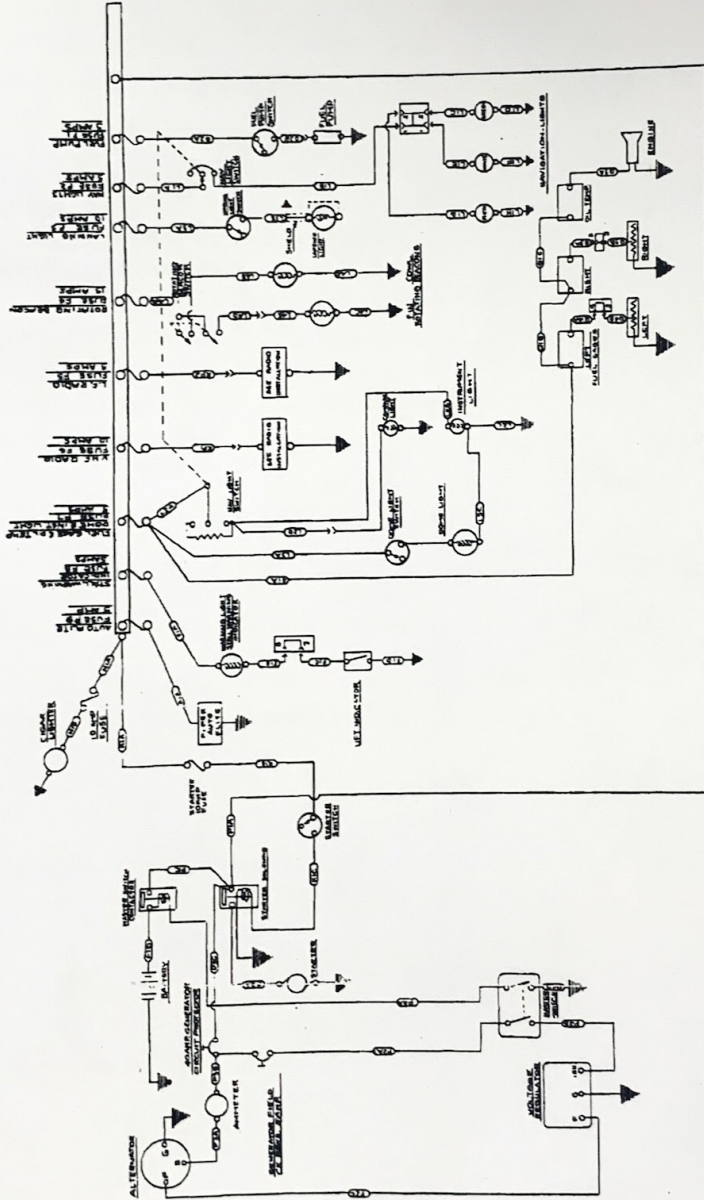
Stabilator: 40 $\pm$ 5#.

For purposes of changing the lateral trim, a fixed tab is provided on the left aileron which may be adjusted as necessary. For extreme cases of wing heaviness, either of the flaps may be adjusted up or down from the zero position as desired.

**CHEROKEE ELECTRICAL SYSTEM SCHEMATIC GENERATOR**



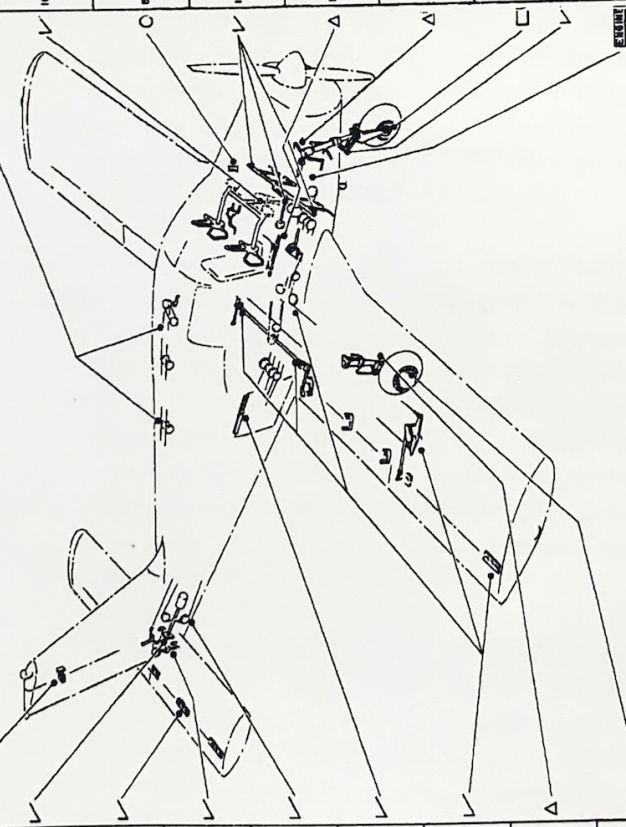
**CHEROKEE ELECTRICAL SYSTEM SCHEMATIC ALTERNATOR**





LUBRICATION CHART FOR PIPER CHEROKEE PA-28

HOORS	LUBRICANT	HOORS	LUBRICANT
RUDDER HINGES AND HORN 100	▽	STABILATOR TRIM 200 (SEE CAUTION 4)	▽
STABILATOR HINGES 100	▽	100 CONTROL COLUMN	▽
STABILATOR TRIM TAB 100	○	BRAKE RESERVOIR MAINTAIN FLUID LEVEL INDICATED ON THE SIDE OF RESERVOIR	○
STABILATOR ADJUSTMENT MECHANISM 100	△	RUDDER ADJUSTMENT MECHANISM AND RUDDER ASSEMBLY 100	△
STABILATOR CONTROL PULLEYS 100	△	FRONT SEAT 100 ADJUSTMENT	△
BAGGAGE DOOR AND MAIN DOOR HINGES 100	▽	NOSE WHEEL 100 STEERING	▽
AILERON AND FLAP TORQUE TUBE, PULLEYS, BELLCRANK, LEVER AND MAIN AILERON HINGES 100	▽	NOSE WHEEL 100 BEARING	▽
MAIN LANDING GEAR GREASE FITTINGS LEFT AND RIGHT, 4 EACH 100	○	NOSE WHEEL BOSSIONS 100	○
MAIN WHEEL BEARINGS LEFT AND RIGHT 100	□	ENGINE OIL TANK 50 DRAIN AND REFILL 8 QTY.	□



**NOTES**

- FUEL SYSTEM - THE FOLLOWING POINTS REQUIRE REGULAR SERVICING - FUEL PUMP STRAINER, CARBURETOR SCREEN, FILTER BOWL, DUCK OR ORANUMIT.
- WHEEL BEARINGS - CHECK AND OIL BEARINGS DURING ROUTINE MAINTENANCE CHECKS. APPLY LUBRICATION TO MISCELLANEOUS POINTS.
- MISCELLANEOUS POINTS - FUEL LEVEL & BATTERY CONDITION EVERY 25 HOURS.
- ENGINE OIL - CHECK OIL CHANGES CAN BE INCREASED AS MUCH AS 100% ON ENGINES EQUIPPED WITH FULL FLOW CARTRIDGE TYPE OIL FILTERS PROVIDED THE OIL IS CLEAN AND THE OIL LEVEL IS 1/2 INCH ABOVE THE FULL FLOW OIL OILING FOR THE POWER TAKE OFF SYSTEM. OIL CHANGES SHOULD BE MADE AT 100 HOUR INTERVALS AND 50 HOURS FOR ADDITIONAL INFORMATION AND RECOMMENDED SERVICE PROCEDURES.

**LEGEND**

▽ MIL-L-7870 OIL - GENERAL PURPOSE LDW TEMP. LUBRICATION  
 △ MIL-L-7711 GREASE - LUBRICATION  
 ○ MIL-L-3545 GREASE - LUBRICATION HIGH TEMP.  
 □ MIL-H-5606 HYDRAULIC FLUID (RED). SAE 50 ABOVE 60° AIR TEMP. SAE 30 BETWEEN 60° AIR TEMP. & SAE 20 BELOW 60° AIR TEMP.

**CAUTIONS**

- DO NOT USE A HYDRAULIC FLUID WITH A CASTOR OIL OR WATER BASE.
- DO NOT OVER-LUBRICATE PERZELL CONTROL.
- DO NOT APPLY LUBRICANT TO RUBBER PARTS.
- UNDER NO CIRCUMSTANCES SHOULD THE TRIM CABLES FROM THE COCKPIT TO THE REAR OF THE FUELTAGE BE LUBRICATED.
- AS THIS ALL GREASE FROM GREASE FITTINGS.
- NON-OVERHEAT. SEE LUBRICATING SERVICE INSTRUCTIONS.
- NO.104 FOR USE OF DEWATER OIL.
- OIL AILERON HINGES EVERY FIFTY HOURS.

# THE PIPER CHEROKEE

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