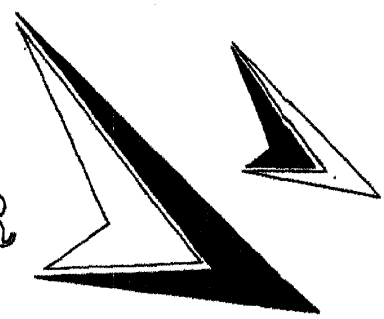
the

CHEROKEE SIX B

Owner's Handbook

PIPER



Piper Aircraft Corporation, Vero Beach, Florida
U.S.A.

Assurance that the airplane is in an airworthy condition is the responsibility of the owner. The pilot in command is responsible for determining that the airplane is safe for flight. The pilot is also responsible for remaining within the operating limitations outlined by the Flight Manual, instrument markings, and placards.

If an inconsistency of information exists between this handbook and the Flight Manual approved by the FAA, the Flight Manual shall be the authority.

Additional copies of this manual, Part No. 753 788 may be obtained from your Piper Dealer.

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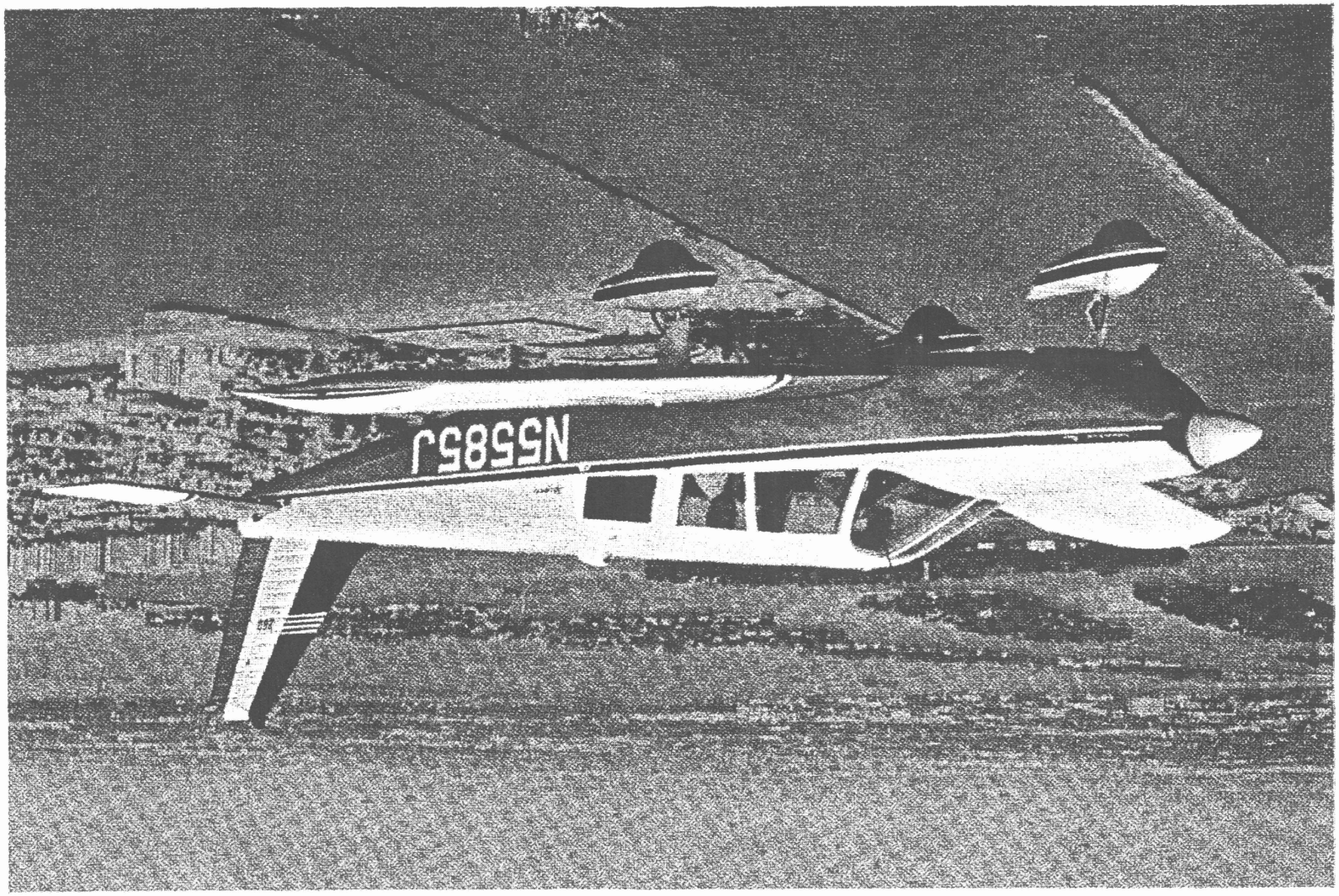
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SECTION I

SPECIFICATION FEATURES

SPECIFICATION FEATURES:

POWER PLANT GROSS WEIGHTS	Fixed Pitch 3400	Fixed Pitch 2900	Const. Speed 3400	Const. Speed 2900
Engine - Lycoming	O-540-E4B5	O-540-E4B5	O-540-E4B5	O-540-E4B5
Rated Horsepower	260	260	260	260
Rated Speed (rpm)	2700	2700	2700	2700
Bore (inches)	5.125	5.125	5.125	5.125
Stroke (inches)	4.375	4.375	4.375	4.375
Displacement (cubic inches)	541.5	541.5	541.5	541.5
Compression Ratio	8.5:1	8.5:1	8.5:1	8.5:1
Dry Weight (pounds)	397	397	397	397
Oil Sump Capacity (qts)	12	12	12	12
Propeller	1P235PFA82	1P235PFA82	HC-C2YK-1A/8477-2	HC-C2YK-1A/8477-2
Propeller Diameter (inches)	82	82	82	82

PERFORMANCE

Take-off Run (Minimum)*	810	560	740	520
Take-off over 50 ft. barrier (Minimum)*	1360	1110	1240	1020
Best Rate of Climb Speed (mph)	105	100	105	100
Rate of Climb (ft. per min.)	760	845	850	995
Service Ceiling (ft.)	13,000	15,000	14,500	17,500
Absolute Ceiling (ft.)	15,000	17,000	16,500	19,000
Top Speed (mph)	168	171	166	169
Optimum Cruise Speed (7000 ft.) (75% power) (mph)	158	161	158	161
Cruising Range (55% power) (Standard Fuel) (Optimum Altitude, Miles)	660	670	660	670
Cruising Range (55% power) (Standard Auxiliary Fuel) (Optimum Altitude, Miles)	1110	1125	1110	1125
Cruising Range (75% power) (Standard Fuel) (Optimum Altitude, Miles)	560	570	560	570
Cruising Range (75% power) (Standard Auxiliary Fuel) (Optimum Altitude, Miles)	950	960	950	960

*THESE FIGURES ARE FOR MAXIMUM EFFORT. SEE CHARTS IN SECTION IV FOR NORMAL TAKE-OFF DISTANCES.

SPECIFICATION FEATURES: (cont)

PERFORMANCE GROSS WEIGHTS	Fixed Pitch 3400	Fixed Pitch 2900	Const. Speed 3400	Const. Speed 2900
Stall Speed (full flaps - 40°)	63	58	63	58
Stall Speed (no flaps)	70	65	70	65
Landing Roll (flaps down, ft.)	630	540	630	540
Landing Distance over 50 ft. barrier (ft.)	1000	850	1000	850

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.

WEIGHTS

Empty Weight (Standard) (lbs)	1706	1706	1731	1731
USEFUL LOAD (Standard) (lbs)	1694	1694	1669	1669
Empty Weight (Five seats removed for cargo)(lbs)	1636	1636	1661	1661
USEFUL LOAD (Five seats removed for cargo)(lbs)	1764	1764	1739	1739

FUEL AND OIL

Fuel Capacity Main Tanks (U.S. gal.)	50
Fuel Capacity Tip Tanks (U.S. gal.)	34
Oil Capacity (qts)	12
Fuel Aviation Grade (min. Octane)	100/130

BAGGAGE

	Forward	Aft
Maximum Baggage (lbs)	100	100
Baggage Space (cubic ft)	8	20
Baggage Door Size (in)	16 x 22	

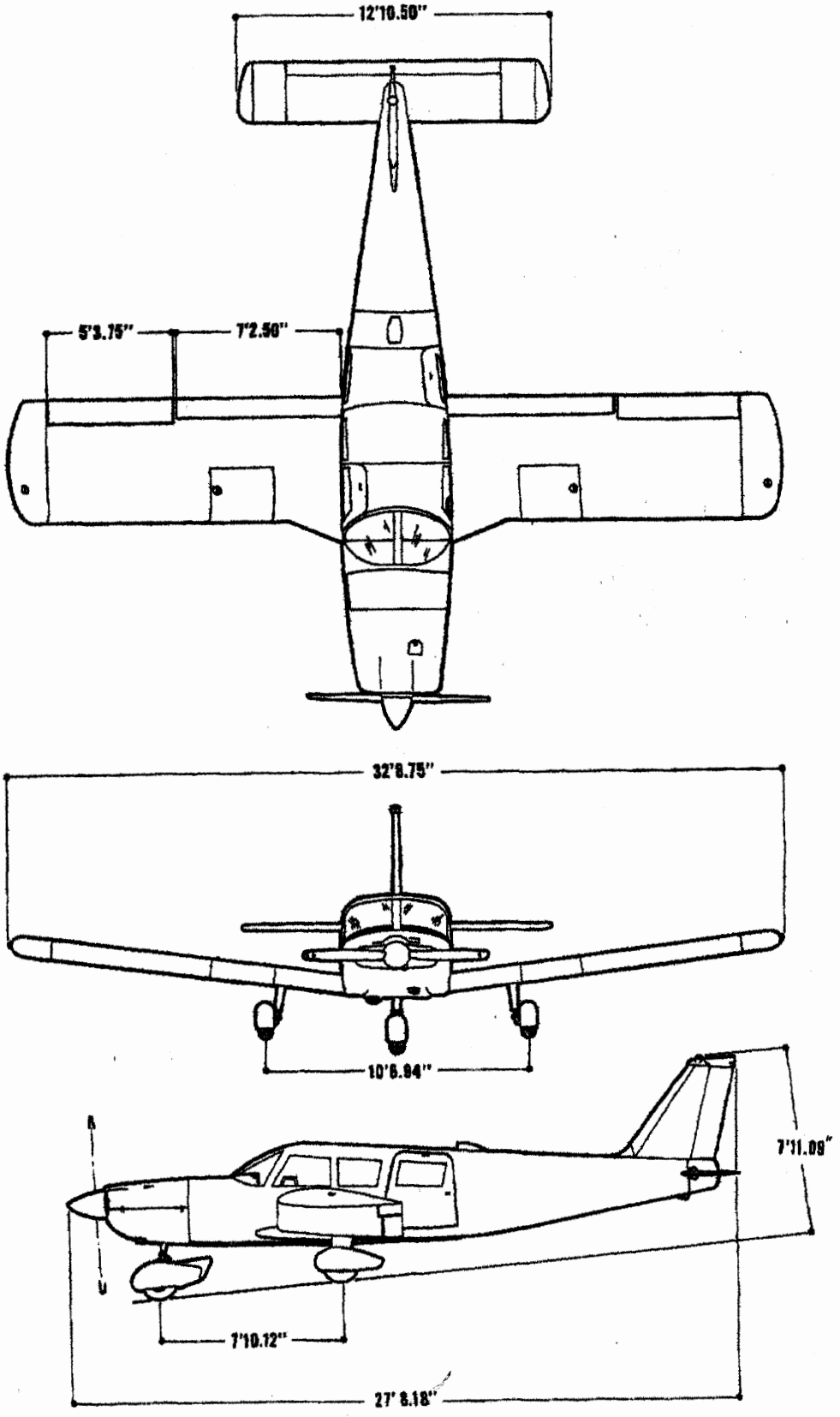
SPECIFICATION FEATURES: (cont)

DIMENSIONS

Wing Span (ft.)		32.8
Wing Area (sq. ft.)		174.5
Wing Loading (lbs. per sq. ft.)		19.5
Length (ft.)		27.7
Height (ft.)		7.9
Power Loading (lbs. per HP)		13.1

LANDING GEAR

Wheel Base (ft.)		7.8
Wheel Tread (ft.)		10.6
Tire Pressure (lbs.)	Nose	28-30
	Main	35-40


12'10.50"
5'3.75"
7'2.50"
32'8.75"
10'6.94"
7'11.09"
7'10.12"
27' 8.18"

SECTION II

DESIGN INFORMATION

SECTION II

DESIGN INFORMATION

ENGINE AND PROPELLER

The Lycoming O-540-E4B5 engine installed in the Cherokee Six, PA-32-260 is rated at 260 horsepower at 2700 rpm. This engine has a compression ratio of 8.5 to 1 and requires 100/130 minimum octane fuel. The engine is equipped with a geared starter, a 60 ampere alternator, dual magnetos, vacuum pump drive, a diaphragm-type fuel pump and a float carburetor.

Exhaust gases are carried through a system constructed of heavy gauge stainless steel which incorporates two heater shrouds, one for cabin heat and the other for carburetor deicing.

The propeller used on the PA-32-260 is either the McCauley 1P235PFA82 fixed pitch aluminum alloy unit or the Hartzell HC-C2YK-1A/8477-2 constant speed propeller.

The McCauley propeller is 82 inches in diameter, with a standard pitch of 66 inches, although propellers with a pitch from 60 inches to 66 inches may be installed for special purposes. All performances figures are based on the standard 66 inch propeller.

The Hartzell propeller is 82 inches in diameter and is controlled by a Hartzell F-4-4 governor mounted on a pad on the forward end of the crankcase. This governor supplies oil to the propeller through the engine shaft. The governor is controlled by a cable from the cockpit.

Cowling on the Cherokee Six is designed to cool the engine in all normal flight conditions, including protracted climb, without the use of cowl flaps or cooling flanges.

The power control quadrant is designed with the throttle mixture and, when installed, propeller control. The quadrant has

a friction lock adjustment to prevent creeping of controls. Carburetor heat is operated by the control to the right of the quadrant. Maximum heat is provided when the control is in the **ON** position. Prolonged ground operation with heat control in the **ON** position should be avoided as the air is unfiltered. Air passes through a high efficiency, dry type filter for the normal system. Full rich position of the mixture control is obtained when the control is full forward, while the full aft position provides an idle cut-off for stopping the engine. Intermediate positions are used for leaning the mixture at altitudes above sea level.

STRUCTURES

All structures are of aluminum alloy construction and are designed to ultimate load factors well in excess of normal requirements. All exterior surfaces are primed with etching primer and painted with acrylic enamel.

The wings are attached to each side of the fuselage by inserting the butt ends of the respective main spars into a spar box carry through which is an integral part of the fuselage structure, providing, in effect, a continuous main spar with splices at each side of the fuselage. There are also fore and aft attachments at the rear spar and at an auxiliary front spar.

The wing airfoil section is a laminar flow type, NACA 65_2-415 with the maximum thickness at about 40% aft of the leading edge.

LANDING GEAR

The three landing gears use a Cleveland 600 x 6 wheel, the main wheels being provided with brake drums and Cleveland

double disc hydraulic brake assemblies. The nose wheel carries a 600 x 6 four ply tire with tube while the main gear uses 600 x 6 six ply tires with tubes.

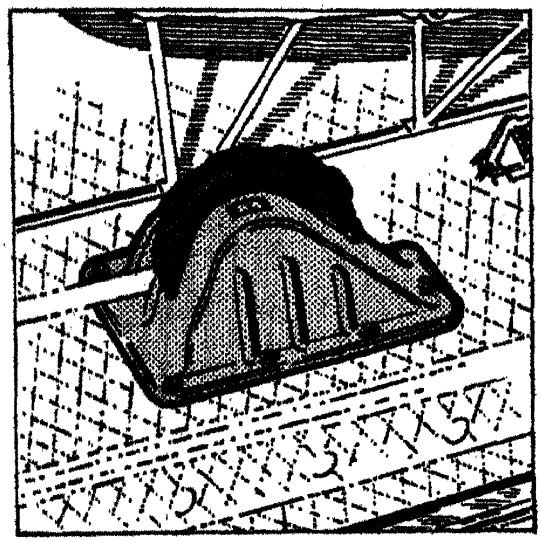
The nose gear is steerable through a 30 degree arc each side of neutral by use of the rudder pedals. A spring device is incorporated in the rudder pedal torque tube assembly to aid in rudder centering and to provide rudder trim. The nose gear steering mechanism also incorporates a hydraulic shimmy dampener.

The oleo struts are of the air oil type, with normal extension being 3-1/4 inches for the nose gear and 4-1/2 inches for the main gear under normal static load (empty weight of airplane plus full fuel and oil).

The brakes are actuated by toe pedals which are attached to the left rudder pedals, or by a hand lever and master cylinder which is located below and behind the left center of the instrument sub-panel. Hydraulic cylinders are located above each pedal and adjacent to the hand lever. The brake-fluid reservoir is installed on the top left front of the firewall. The parking brake is incorporated in the lever brake and is operated by pulling back on the lever and depressing the knob attached to the top of the handle. To release the parking brake, pull back on the brake lever to disengage the catch; then allow the handle to swing forward.

CONTROL SYSTEM

Dual controls are provided as standard equipment, with a cable system used between the controls and the surfaces. The horizontal tail is of the all movable slab type, with an anti-servo tab which also acts as a longitudinal trim tab, actuated by a control mounted on the control tunnel between 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



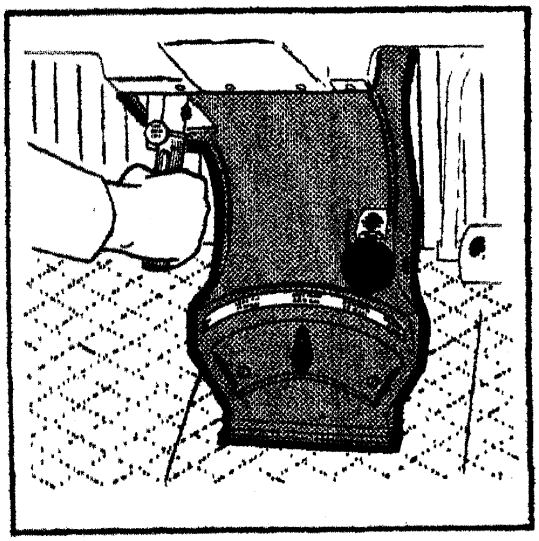
Stabilator Trim Control

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. Since the flap will not support a step load except when in the full up position, it should be completely retracted when the airplane is on the ground. The flaps have three extended positions, 10, 25, and 40 degrees.

FUEL SYSTEM

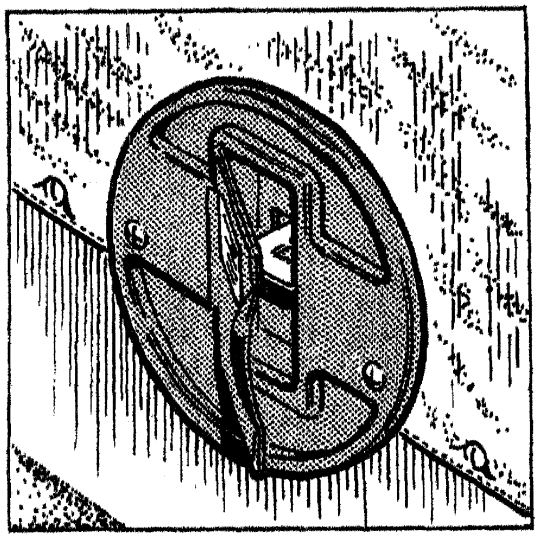
The total fuel capacity of the Cherokee Six is 84 gallons, all of which is usable except for approximately one pint in each of the four tanks. The two main inboard tanks, which hold 25 gallons each, are attached to the wing structure with screws and nut plates and can be removed easily for service or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



Fuel Control Selector

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 inboard or tip tanks.



Fuel Drain Lever

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 right center seat.

Fuel quantity gauges for each of the four tanks are located in the engine gauge cluster on the left 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 single switch and should be **ON** for all take-offs and landings.

ELECTRICAL SYSTEM

The electrical system includes a 12 volt 60 ampere alternator, battery, voltage regulator, overvoltage relay, and master switch relay. The battery, master switch relay, voltage regulator and overvoltage relay are located beneath the floor of the forward baggage compartment and access is obtained by removing the floor.

Electrical switches are located on a panel to the pilot's left and all circuit breakers are on the lower right instrument panel. Two thumb-wheel rheostat-switches to the left of the circuit breakers control the navigation lights and the intensity of the instrument panel lights.

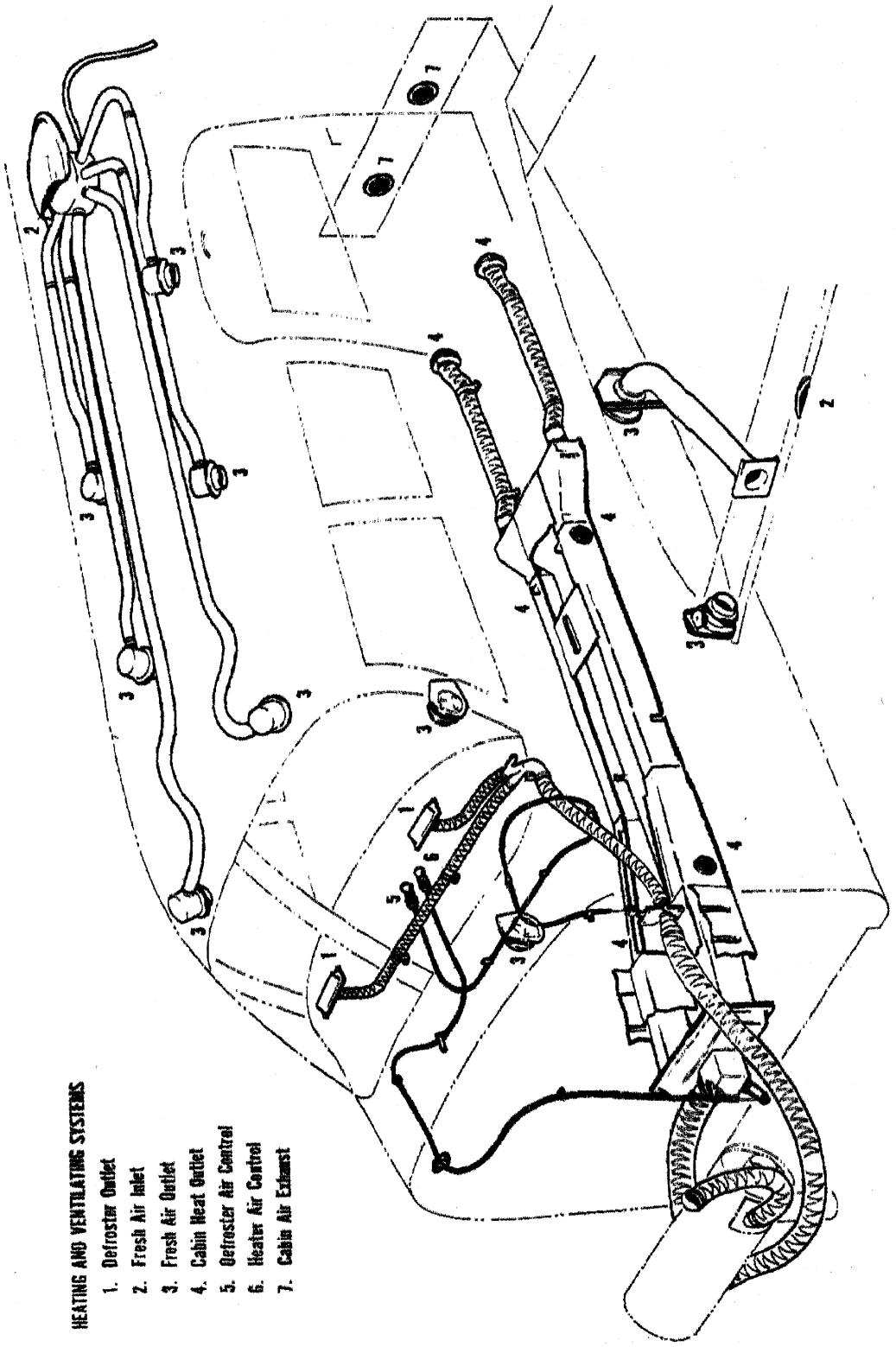
Standard electrical accessories include starter, electric fuel pump, stall warning indicator, cigar lighter, and ammeter. Navigation lights, anti-collision light, landing light and instrument panel lighting are offered as optional accessories.

Circuit provisions are made to handle a complete complement of communications and navigational equipment.

The alternator system offers many advantages over the generator system. The main advantage is full electrical power output at much lower engine RPM and results in improved radio and electrical equipment operation. Since the alternator output is available all the time, the battery will be charging almost continuously. This will make cold weather starting easier.

Unlike previous generator systems, the ammeter does not indicate battery discharge; rather it displays in amperes the load placed on the alternator. With all electrical equipment off (except the master switch) the ammeter will be indicating the amount of charging current demanded by the battery. As each item of electrical equipment is turned on, the current will increase to a total appearing on the ammeter. This total includes the battery. The maximum continuous load for night flight, with radios on, is about 30 amperes. This 30 ampere value, plus approximately 2 amperes for a fully charged battery, will appear continuously under these flight conditions.

The master switch is a split switch with the left half operating the master relay and the right half energizing the alternator. This switch is inter-locked so that the alternator cannot be operated without the battery. For normal operation, be sure both halves are turned on. If no output is indicated on the ammeter, during flight, reduce the electrical load by turning off all unnecessary electrical equipment. Check both 5 ampere field breaker and 60 ampere output breaker and reset if open. If neither circuit breaker is open, turn off the alternator switch for 30



HEATING AND VENTILATING SYSTEMS

1. Defroster Outlet
2. Fresh Air Inlet
3. Fresh Air Outlet
4. Cabin Heat Outlet
5. Defroster Air Control
6. Heater Air Control
7. Cabin Air Exhaust

seconds to reset the overvoltage relay. If ammeter continues to indicate no output, turn off the alternator switch, maintain minimum electrical load and terminate flight as soon as practical.

Maintenance on the alternator should prove to be a minor factor. Should service be required, contact the local Piper Dealer.

HEATING AND VENTILATING SYSTEM

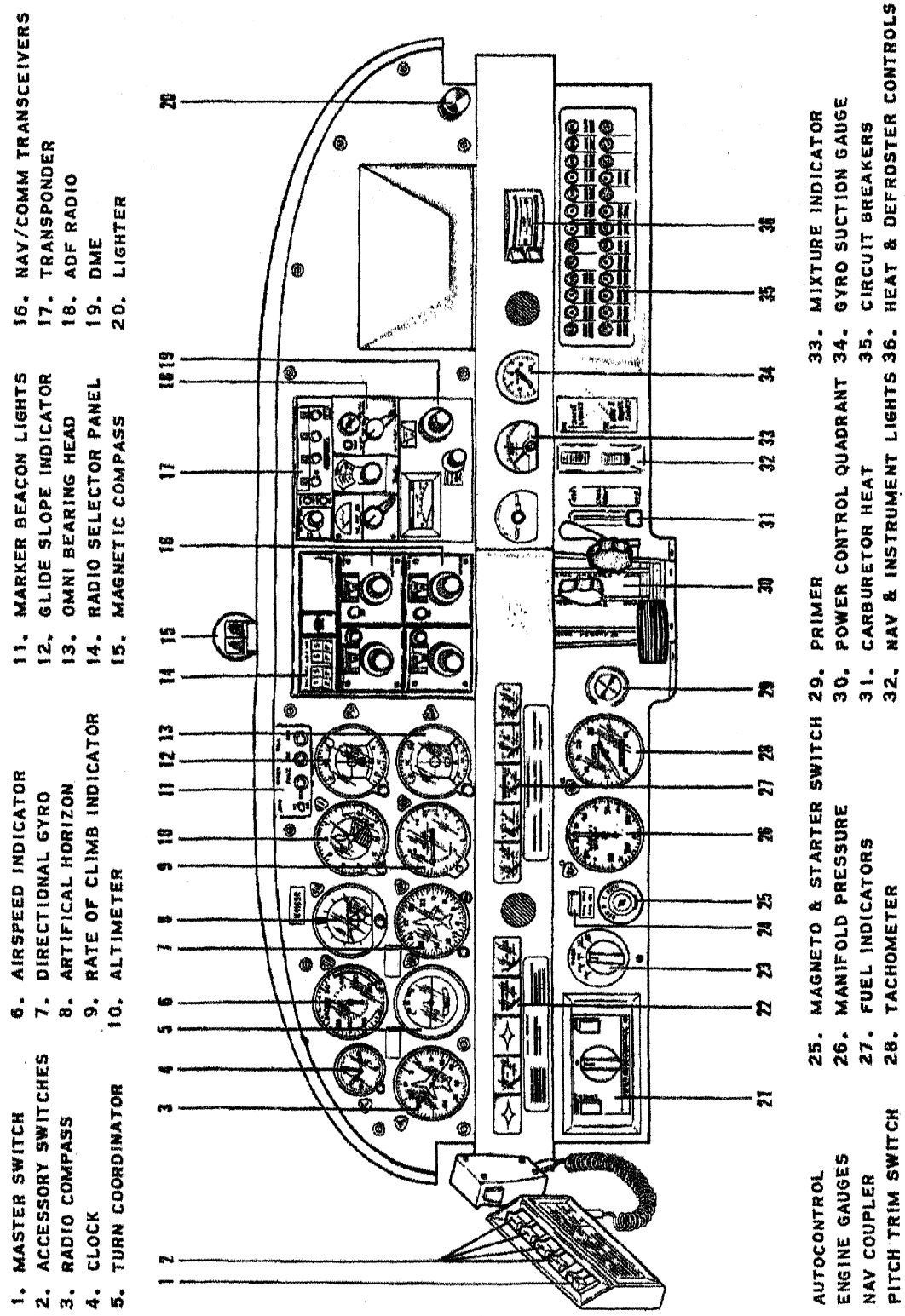
Heat for the cabin interior and the defroster system is provided by a heater muff attached to the exhaust system. Controls for these systems are located on the lower right side of the instrument panel. There are 6 heater outlets, one for each seat. If unusual odors are noticed from the heater system, turn off heat and inspect system for leaks.

Fresh air inlets are located in the leading edge of the wing at the intersection of the tapered and straight sections. Two large adjustable outlets are located on each side of the cabin, one forward and one aft of the front seat near the floor. In addition there is an adjustable outlet above each seat.

CABIN FEATURES

The instrument panel of the Cherokee Six is designed to accommodate the customary advanced flight instruments and the normally required power plant instruments. An Artificial Horizon and Directional Gyro are vacuum operated through use of a vacuum pump installed on the engine with a vacuum gauge mounted on the right side of the instrument panel. The Turn and Bank instrument is electrically operated. A natural separation of the flight group and power group is provided by placing the flight group in the upper instrument panel and the power group in the center and lower instrument panels. The radios are located in the center portion of the instrument panel with circuit breakers on the right hand instrument panel.

The front seats are adjustable fore and aft for pilot comfort


1. MASTER SWITCH
2. ACCESSORY SWITCHES
3. RADIO COMPASS
4. CLOCK
5. TURN COORDINATOR
6. AIRSPEED INDICATOR
7. DIRECTIONAL GYRO
8. ARTIFICAL HORIZON
9. RATE OF CLIMB INDICATOR
10. ALTIMETER
11. MARKER BEACON LIGHTS
12. GLIDE SLOPE INDICATOR
13. OMNI BEARING HEAD
14. RADIO SELECTOR PANEL
15. MAGNETIC COMPASS
16. NAV/COMM TRANSCEIVERS
17. TRANSPONDER
18. ADF RADIO
19. DME
20. LIGHTER
21. AUTOCONTROL
22. ENGINE GAUGES
23. NAV COUPLER
24. PITCH TRIM SWITCH
25. MAGNETO & STARTER SWITCH
26. MANIFOLD PRESSURE
27. FUEL INDICATORS
28. TACHOMETER
29. PRIMER
30. POWER CONTROL QUADRANT
31. CARBURETOR HEAT
32. NAV & INSTRUMENT LIGHTS
33. MIXTURE INDICATOR
34. GYRO SUCTION GAUGE
35. CIRCUIT BREAKERS
36. HEAT & DEFROSTER CONTROLS

and ease of entry and exit, while center and rear seats are easily removable for added cargo space. A jump seat installation is available between the two middle seats making the Cherokee a seven place airplane.

The airplane is provided with two baggage compartments. The forward compartment is just aft of the firewall with access through a door on the right side of the fuselage, and the aft compartment behind the rear seats.

NOTES

SECTION III

OPERATING INSTRUCTIONS

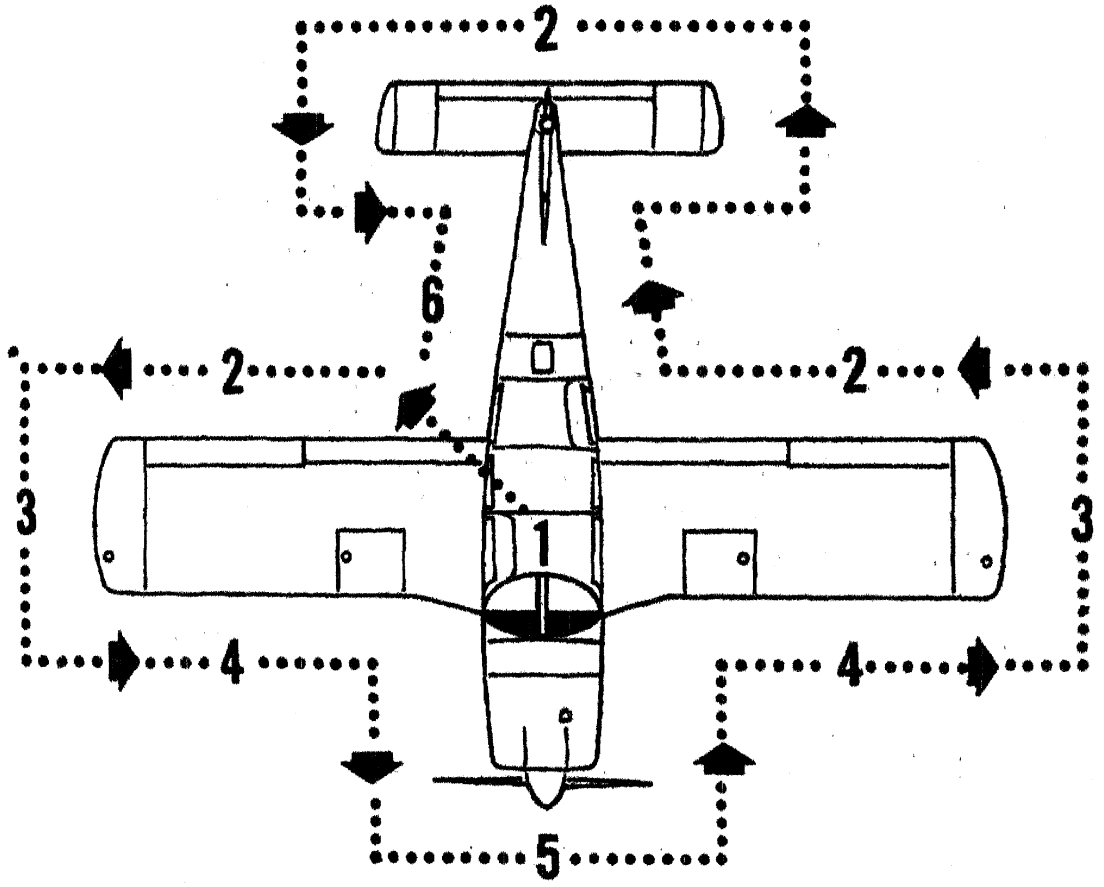
SECTION III

OPERATING INSTRUCTIONS

PREFLIGHT

The airplane should be given a thorough visual inspection prior to each flight. Particular attention should be given to the following items in the illustration below:

1. a. Master switch **ON.**
   b. Check fuel quantity indicators (four tanks).



c. Depress sump drain knob for five seconds to drain water and sediment. Check from outside the airplane to make sure the drain has closed.

d. Master switch and ignition **OFF**.

2. a. Check for external damage and operational interference of control surfaces or hinges.

b. Insure that wings and control surfaces are free of snow, ice or frost.

3. a. Visually check fuel supply, secure caps.

b. Drain fuel tank sumps.

c. Check navigation lights.

4. a. Visually check fuel supply, secure caps.

b. Drain fuel tank sumps.

c. Check that fuel system vents are open.

d. Check landing gear shock struts for proper inflation.

e. Check tires for cuts, wear and proper inflation.

5. a. Check windshield for cleanliness.

b. Check the propeller and spinner for defects or nicks.

c. Check for obvious fuel or oil leaks.

d. Check oil level. (Insure dipstick is properly seated.)

e. Check cowling and inspection covers for security.

f. Check nose wheel tire for inflation, wear.

g. Check nose wheel shock strut for proper inflation.

h. Check air inlet for foreign matter.

6. a. Stow tow bar and control locks, if used.

b. Check baggage for proper storage and security.

c. Close and secure the baggage compartment door.

7. a. Upon entering aircraft ascertain that all primary flight controls operate properly.

b. Close and secure the cabin door.

c. Check that required papers are in order and in the aircraft.

STARTING ENGINE

After completion of the preflight inspection:

1. Set brakes **ON**.

2. Set the carburetor heat control in the full **COLD** position.
3. Select the desired tank with the fuel valve.
4. Set propeller control in full **INCREASE** RPM.

Starting Engine When Cold:

1. Open throttle approximately 1/4 inch.
2. Turn the master switch **ON.**
3. Turn the electric fuel pump **ON.**
4. Move the mixture control to **FULL RICH.**
5. Engage the starter by rotating magneto switch clockwise and pressing in.
6. When the engine fires, release magneto switch, and advance throttle to desired setting. If the engine does not fire within five to ten seconds, disengage starter and prime with one to three strokes of the priming pump. Repeat the starting procedure.

Starting Engine When Hot:

1. Open the throttle approximately 1/2 inch.
2. Turn the master switch **ON.**
3. Turn the electric fuel pump **ON.**
4. Put mixture control in **IDLE CUT-OFF.**
5. Engage the starter by rotating magneto switch clockwise and pressing in. When the engine fires, release magneto switch, advance the mixture control and move the throttle to desired setting.

Starting Engine When Flooded:

1. Open the throttle full.
2. Turn the master switch **ON.**
3. Turn the electric fuel pump **OFF.**
4. Put mixture control in **IDLE CUT-OFF.**
5. Engage the starter by rotating magneto switch clockwise and pressing in. When the engine fires, release magneto switch, advance the mixture control and retard the throttle.

When the engine is firing evenly, advance the throttle to 800 RPM. If oil pressure is not indicated within thirty seconds,

stop the engine and determine the trouble. In cold weather it will take a few seconds longer to get an oil pressure indication. If the engine has failed to start, refer to the "Lycoming Operating Handbook, Engine Troubles and Their Remedies."

Starter manufacturers recommend that cranking periods be limited to thirty seconds with a two minute rest between cranking periods. Longer cranking periods will shorten the life of the starter.

GROUND CHECK

The magnetos should be checked at 1800 RPM on airplanes with a fixed pitch propeller or at 2300 RPM with propeller set at high RPM on airplanes with a constant speed propeller. Drop off on either magneto should not exceed 175 RPM, with a differential between magnetos of not over 50 RPM.

Check both the oil temperature and pressure. The temperature may be low for some time if the engine is being run for the first time of the day, but as long as the pressure is within limits the engine is ready for take-off.

The propeller control should be moved through its complete range to check for proper operation, and then placed in full "increased RPM" for take-off. To obtain maximum RPM, push the pedestal mounted control fully toward the instrument panel. Do not allow a drop of more than 500 RPM during this check. In cold weather the propeller control should be cycled at least three times to assure that warm engine oil has circulated.

Check the operation of the engine driven fuel pump by observing fuel pressure gauge with the electric fuel pump off.

Carburetor heat should also be checked prior to take-off to be sure that the control is operating properly and to clear any ice which may have formed during taxiing.

TAKE-OFF

Just before take-off the following items should be checked:

1. Controls free
2. Flaps set
3. Tab set
4. Propeller set
5. Mixture **RICH**
6. Carburetor heat **OFF**
7. Fuel selector on proper tank
8. Electric fuel pump **ON**
9. Engine gauges normal
10. Doors latched
11. Altimeter set

The take-off technique is conventional for the Cherokee Six. The tab should be set slightly aft of neutral, with the exact setting determined by the loading of the aircraft. Allow the airplane to accelerate to 65 to 70 MPH, then ease back on the wheel enough to let the airplane fly itself off the ground. Premature raising of the nose, or raising it to an excessive angle, will result in a delayed take-off. After take-off let the aircraft accelerate to the desired climb speed by lowering the nose slightly.

Take-offs are normally made with flaps extended 10° (first notch). However, for short field take-offs, and for take-offs under difficult conditions such as in deep grass or on a soft surface, distances can be reduced appreciably by lowering flaps to 25° (second notch).

Short Field, Obstacle Clearance:

Lower flaps to 25° (second notch), accelerate aircraft to 65-70 MPH and ease back on the wheel to rotate. After breaking ground, accelerate to best angle of climb speed, 95 MPH and climb past obstacle. Continue climb and accelerate to best rate of climb speed, 105 MPH and slowly retract the flaps.

Short Field, No Obstacle:

Lower flaps to 25° (second notch), accelerate aircraft to 65-70 MPH and ease back on the wheel to rotate, after breaking ground accelerate to best rate of climb speed, 105 MPH and slowly retract the flaps while climbing out.

Soft Field, Obstacle Clearance:

Lower flaps to 25° (second notch) accelerate aircraft, pull nose gear off as soon as possible and lift off at lowest possible airspeed. Accelerate just above the ground to best angle of climb speed, 95 MPH to climb past obstacle clearance height, continue climb while accelerating to best rate of climb speed, 105 MPH and slowly retract the flaps.

Soft Field, No Obstacle:

Lower flaps to 25° (second notch) accelerate aircraft, pull nose gear off as soon as possible and lift off at lowest possible airspeed. Accelerate just above the ground to best rate of climb speed, 105 MPH and climb out while slowly retracting the flaps.

CLIMB

The best rate of climb at gross weight will be obtained at 105 MPH. The best angle of climb may be obtained at 95 MPH. At lighter than gross weight these speeds are reduced somewhat. For climbing en route a speed of 115 MPH is recommended. This will produce better forward speed and increased visibility over the nose during the climb. Turn fuel pump off after climb-out.

STALLS

The stall characteristics of the Cherokee Six are conventional. Visual stall warning is provided by a red light located on the left side of the instrument panel which is turned on automatically between 5 and 10 MPH above the stall speed. The gross weight stalling speed of the Cherokee Six with power off and full flaps is 63 MPH. With the flaps up this speed is increased 8 MPH.

Intentional spins are prohibited in this airplane. In the event that an inadvertent spin occurs, standard recovery technique should be used immediately.

Lazy eights and chandelles may be performed provided a 60° angle of bank or a 30° angle of pitch is not exceeded.

CRUISING

The cruising speed of the Cherokee Six is determined by many factors including power setting, altitude, temperature, loading, and equipment installed on the airplane.

The normal maximum cruising power is 75% of the rated horsepower of the engine. True airspeeds, which can be obtained at various altitudes and power settings, can be determined from the charts in Section IV of this handbook.

Use of the mixture control in cruising flight reduces fuel consumption significantly, especially at high altitudes. The mixture should always be leaned during cruising operations at 75% power or less, but during the climb only at altitudes above 5000 feet.

When selecting cruising RPM below 2300, limiting manifold pressure for continuous operation, as specified by the Lycoming Operator's Manual, should be observed.

The continuous use of carburetor heat during cruising flight decreases engine efficiency. Unless icing conditions in the carburetor are severe, do not cruise with the heat on. Apply full carburetor heat slowly and only for a few seconds at intervals determined by icing severity.

For best lateral trim during cruise, the fuel should be used from alternate tip tanks. Draw fuel from one tip tank for an hour after take-off, from the alternate tip tank until it is nearly empty, then back to the first tip tank. Alternate the fuel selector between main tanks at one hour intervals.

Avoid switching tanks at low altitude since little recovery time is available in event of an error in tank selection. To preclude making a hasty decision, and to provide continuity of flow, the selector should be changed before fuel is exhausted from the tank in use. Be sure that the fuel selector drops into a detent and is aligned with the desired tank. Turn the electric fuel pump

on before switching tanks and leave it on for a short period to establish flow.

During cruise the electric fuel pump should be off so that any malfunction of the engine driven fuel pump is immediately apparent. If signs of fuel starvation occur, suspect fuel exhaustion in the tank being used and switch to a tank with fuel.

The following listing contains a few recommended fuel operation procedures.

1. Fuel quantity should be visually checked in all fuel tanks before entering the aircraft.

2. After using the under-seat quick drain, it should be checked from outside the aircraft to make sure it has closed completely, and is not leaking.

3. Take-off should be made on the fullest main tank to assure best fuel flow, and this tank selected before or immediately after starting in order to allow fuel flow to be adequately established before take-off. The main or tip tank with the highest quantity of fuel should be selected for landing.

4. Fuel tank selection at low altitude is not recommended, since little recovery time is available in the event of an error in tank selection. When switching tanks, make sure that the selector drops into a detent, and is lined up with the desired tank.

5. The electric fuel pump should be turned on before switching tanks, and should be left on for a short period thereafter.

6. To preclude making a hasty selection, and to provide continuity of flow, it is desired that the selector be changed to another tank before fuel is exhausted from the tank in use.

7. Operation of the engine driven fuel pump should be checked while taxiing or during pretake-off engine run up by switching off the electric fuel pump and observing fuel pressure.

8. During cruise, the electric fuel pump should be in the off position so that any malfunction of the engine driven fuel pump is immediately apparent.

9. If signs of fuel starvation should occur at any time during flight, fuel exhaustion should be suspected, at which time the fuel selector should be immediately positioned to a full tank and the electric fuel pump switched to the on position.

APPROACH AND LANDING

Before landing check list:

1. Mixture **RICH**
2. Propeller set
3. Carburetor heat **OFF** (unless icing conditions exist)
4. Electric fuel pump **ON**
5. Fuel selector on proper tank
6. Flaps as desired (under 125 MPH)

The airplane should be trimmed to an approach speed of about 90 MPH and flaps extended. The flaps can be lowered at speeds up to 125 MPH, if desired. The propeller should be set at full RPM or at a high cruising RPM to facilitate an emergency go-around if needed. Carburetor heat should not be applied unless there is an indication of carburetor icing, since the use of carburetor heat causes a reduction in power which may be critical in case of a go-around. Full throttle operation with heat on is likely to cause detonation.

The amount of flap used during landings and the speed of the aircraft at contact with the runway should be varied according to the landing surface and conditions of wind and aircraft loading. It is generally good practice to contact the ground at the minimum possible safe speed consistent with existing conditions.

Normally, the best technique for short and slow landings is to use full flap and enough power to maintain the desired airspeed and approach flight path. Mixture should be full rich, fuel on the fullest tank, carburetor heat off, and electric fuel pump on. Reduce the speed during the flareout and contact the ground close to the stalling speed (63 to 70 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 Six should be moved on the ground with the aid of the nose wheel tow bar provided with each plane and secured behind the rear seats. Tie downs can 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

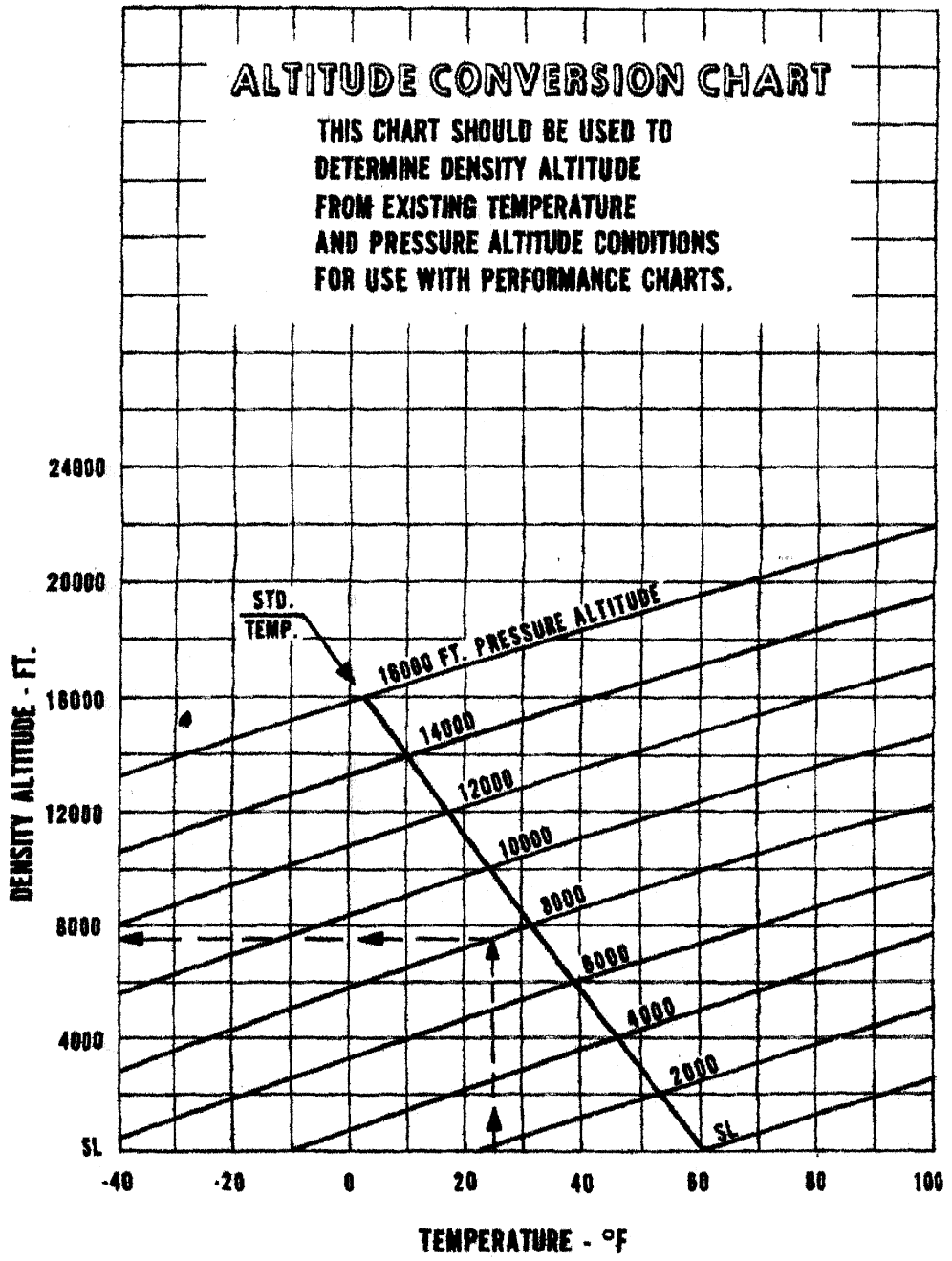
It is the responsibility of the owner and pilot to determine that the airplane remains within the allowable weight vs. center of gravity envelope while in flight. For weight and balance data see the Airplane Flight Manual and Weight and Balance form supplied with each airplane.

NOTES

SECTION IV

PERFORMANCE CHARTS

PA-32-260
CHEROKEE SIX



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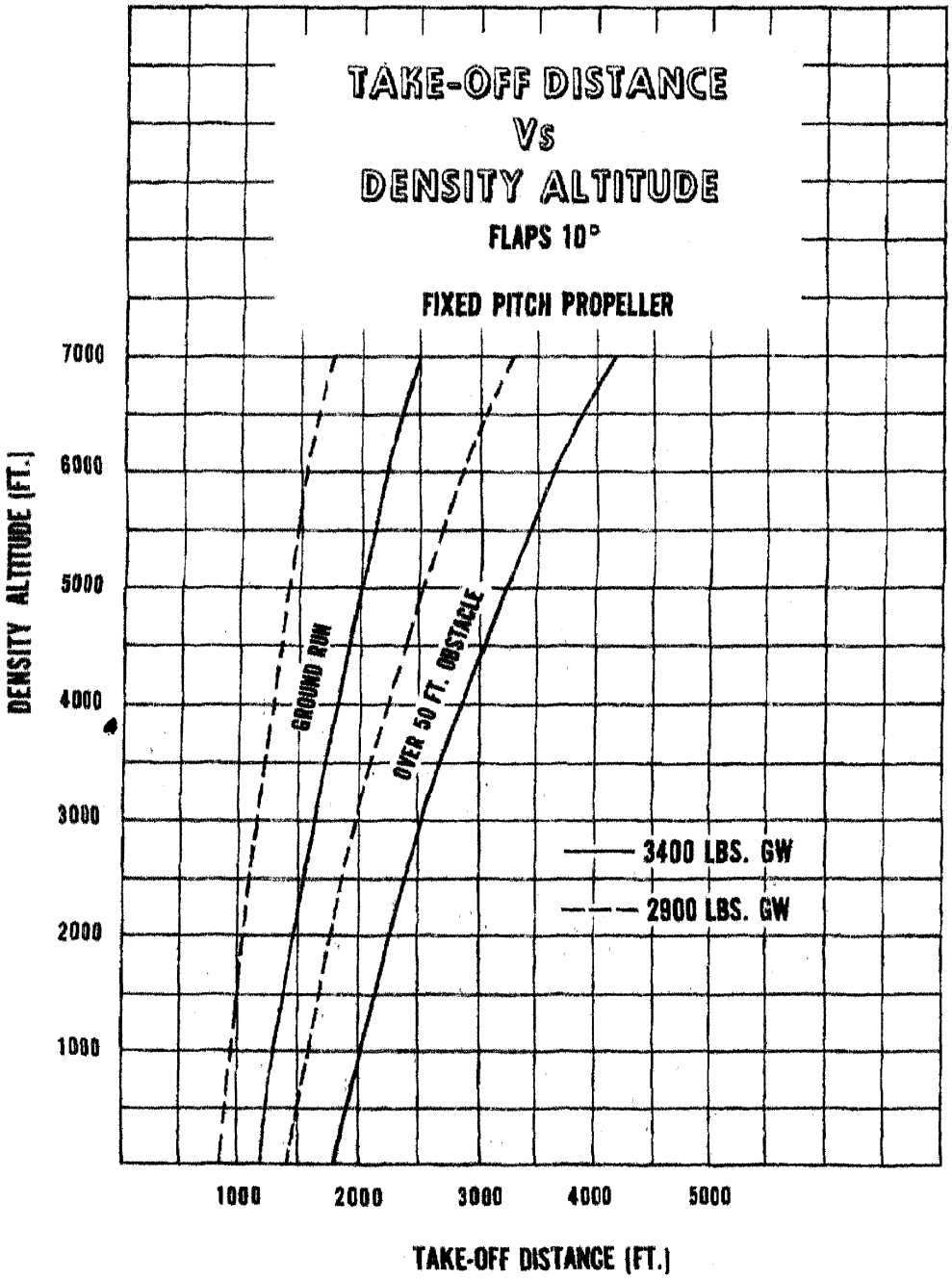
CHEROKEE SIX



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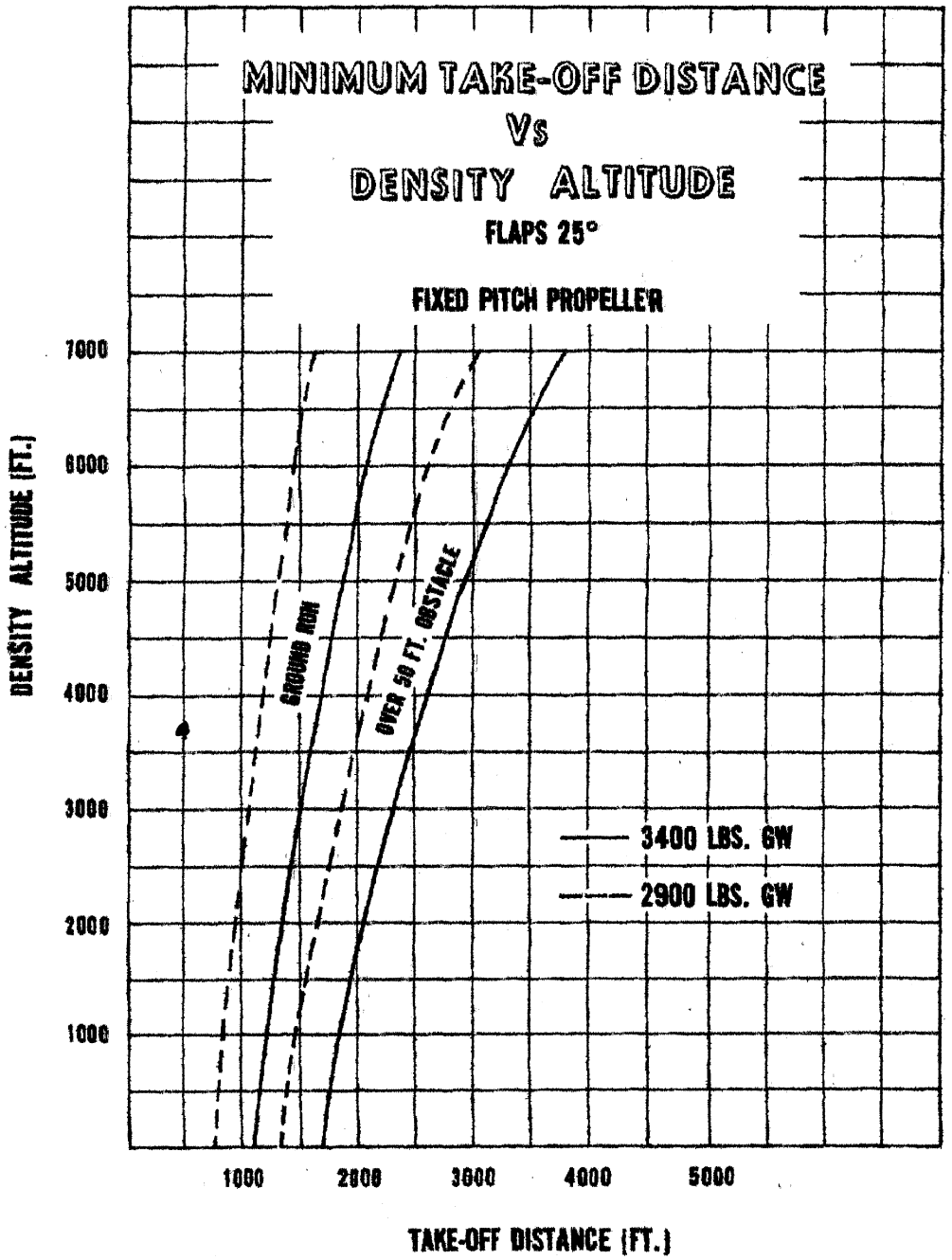

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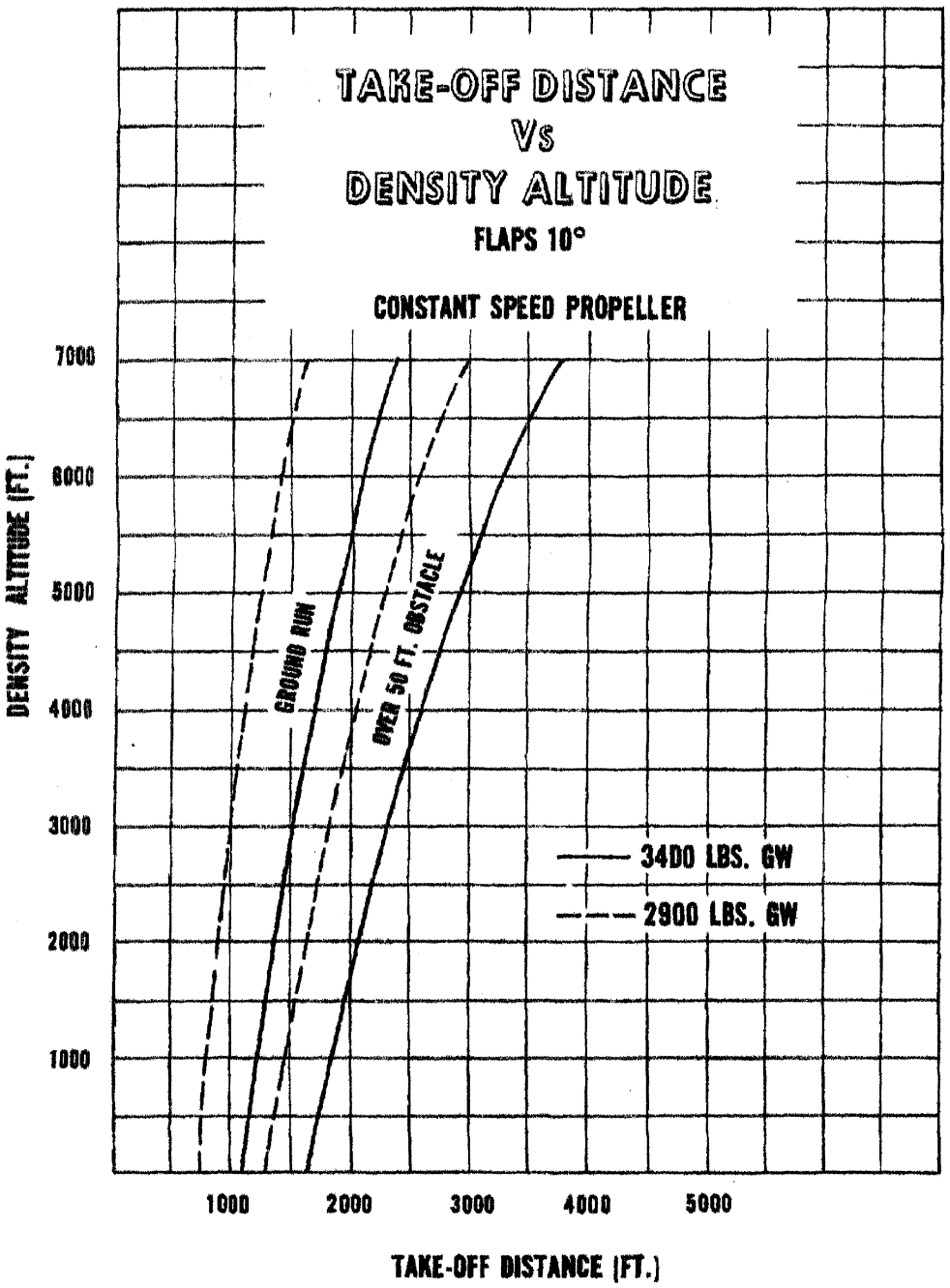

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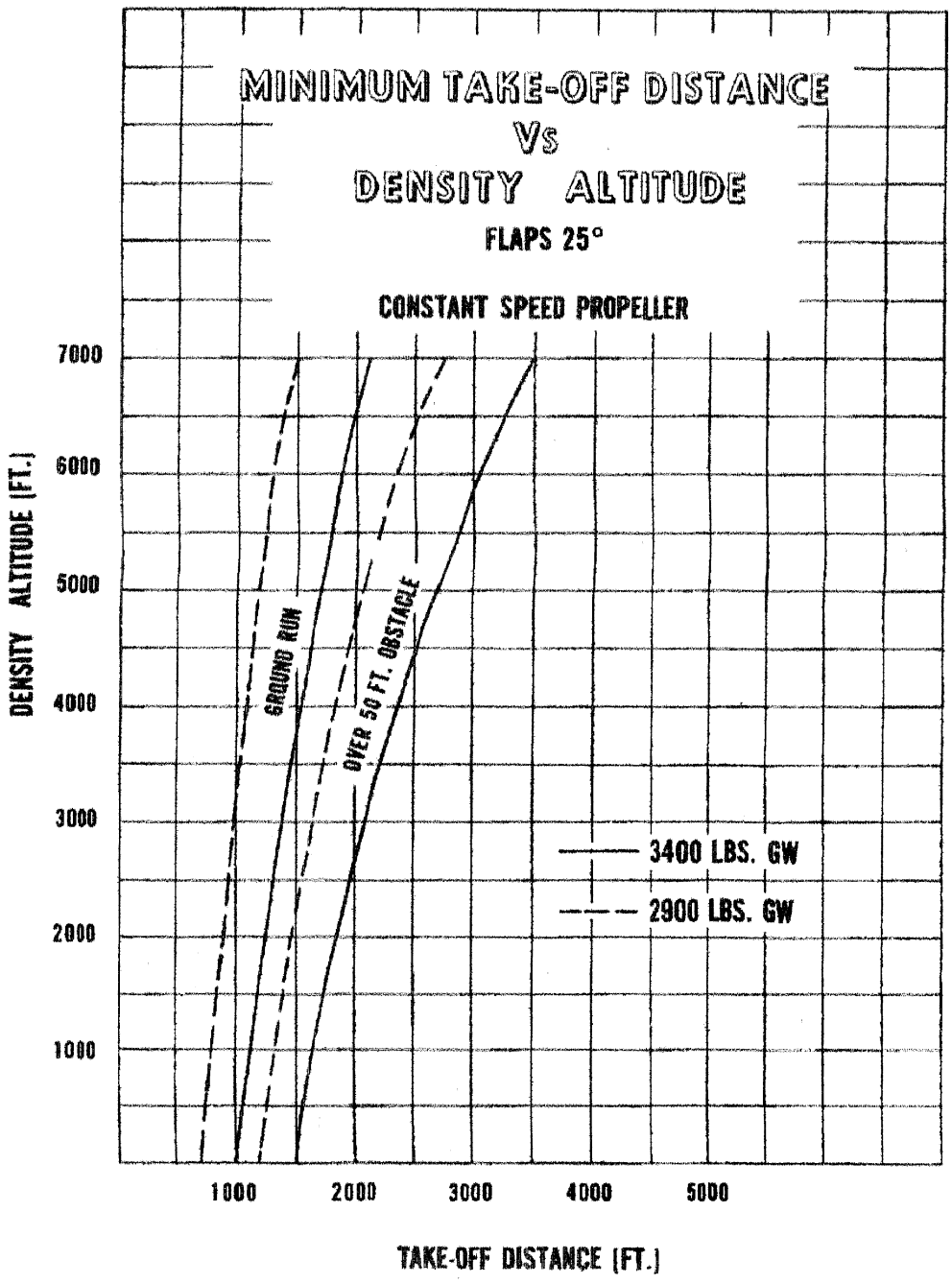

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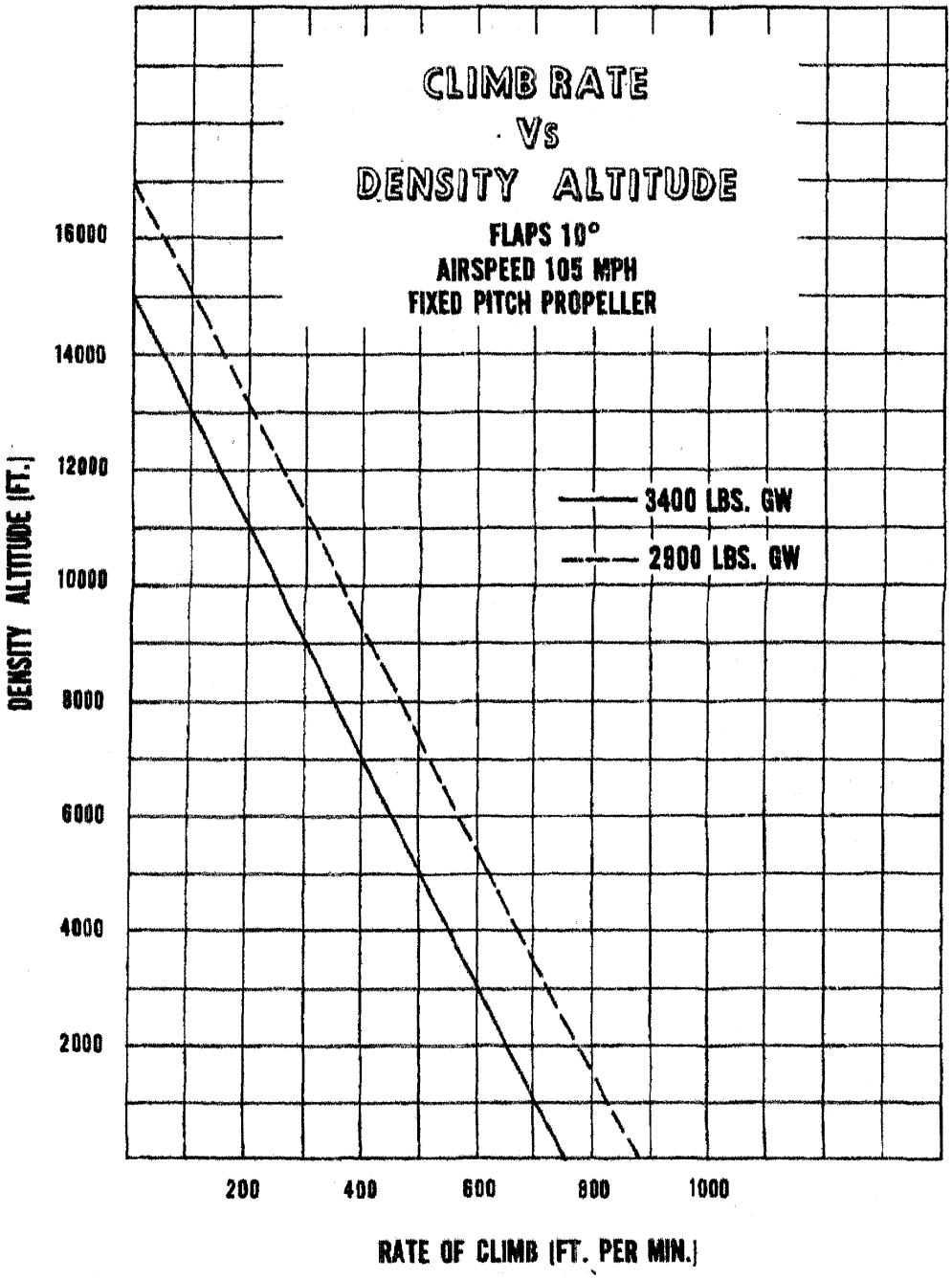

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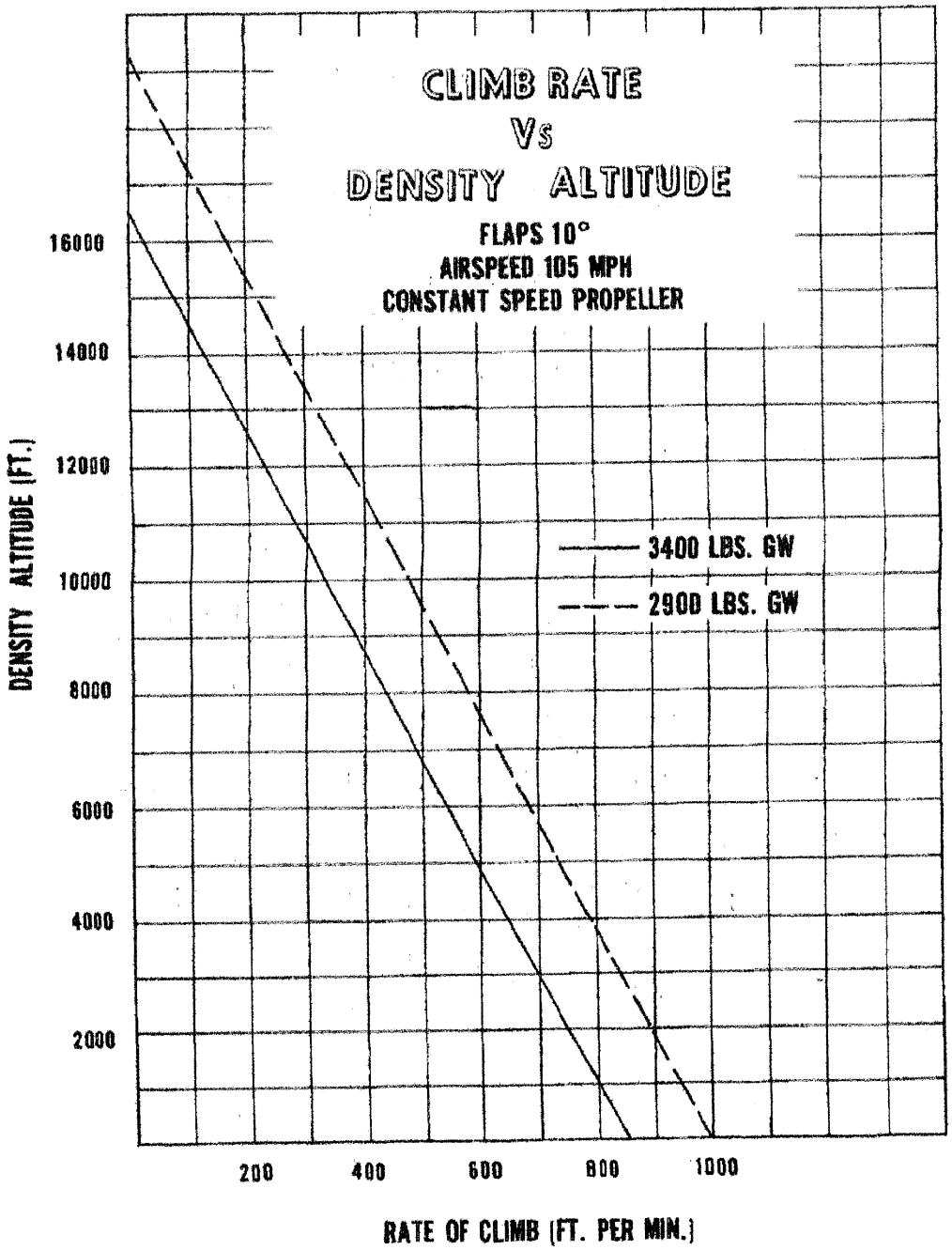

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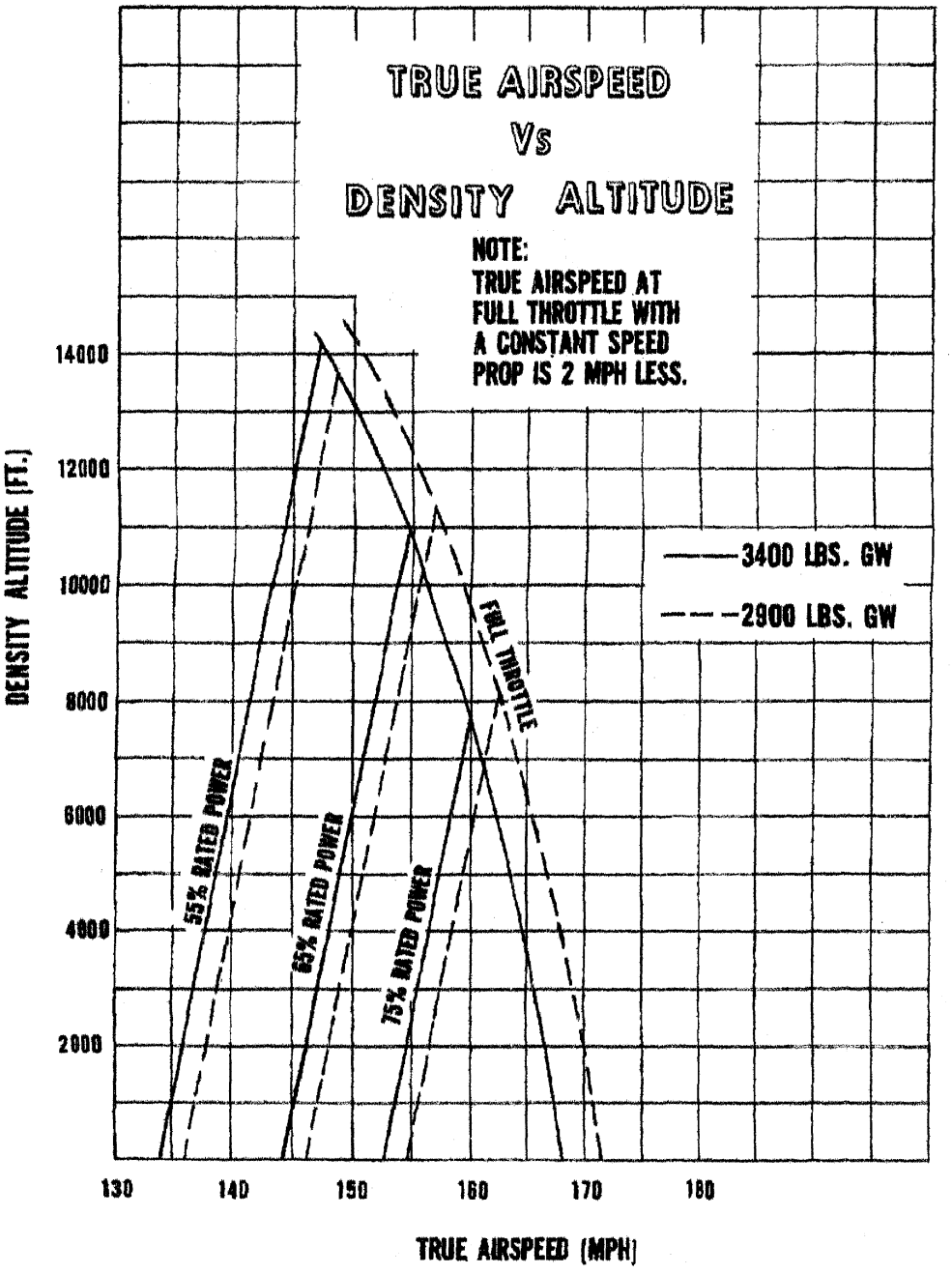

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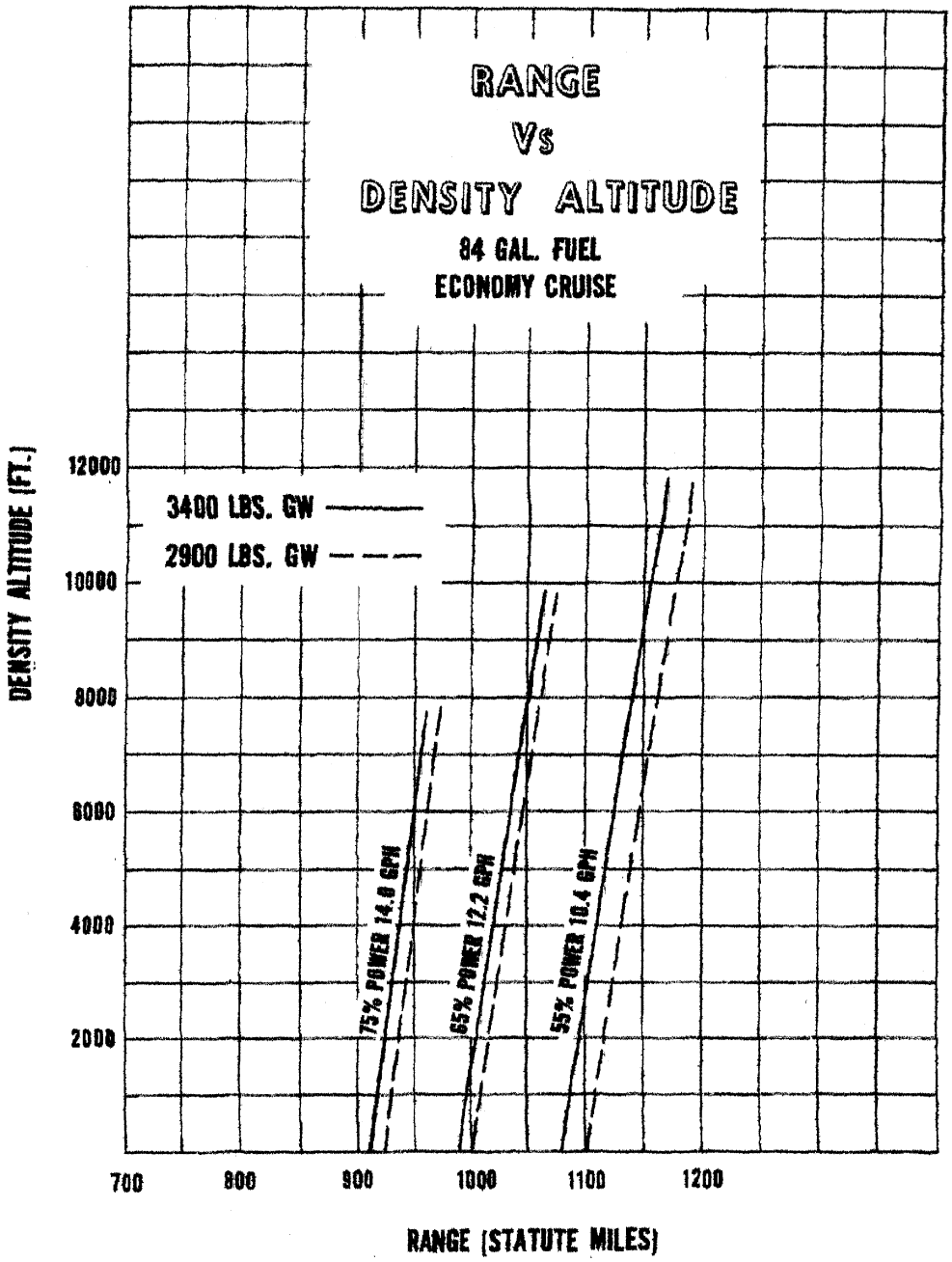

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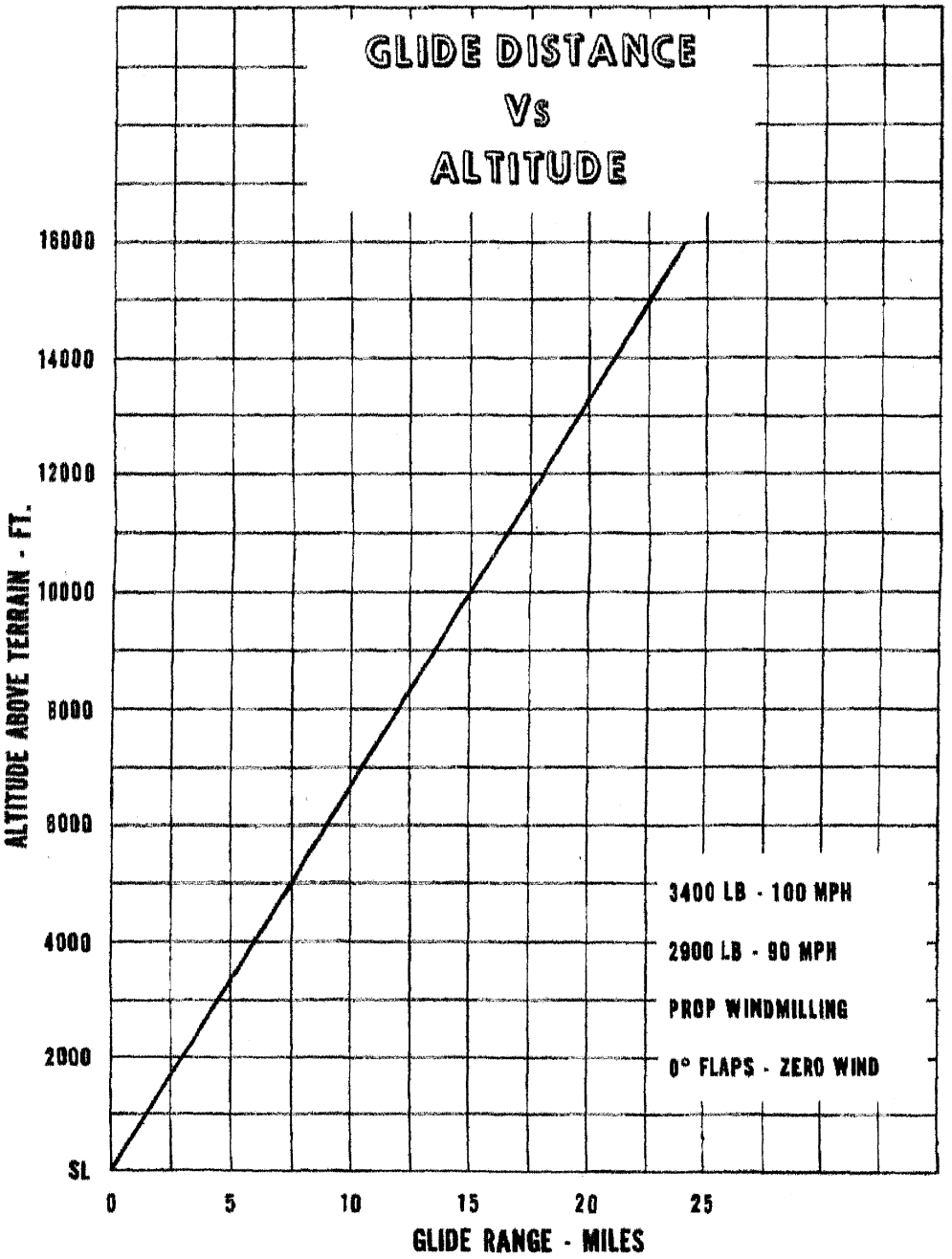

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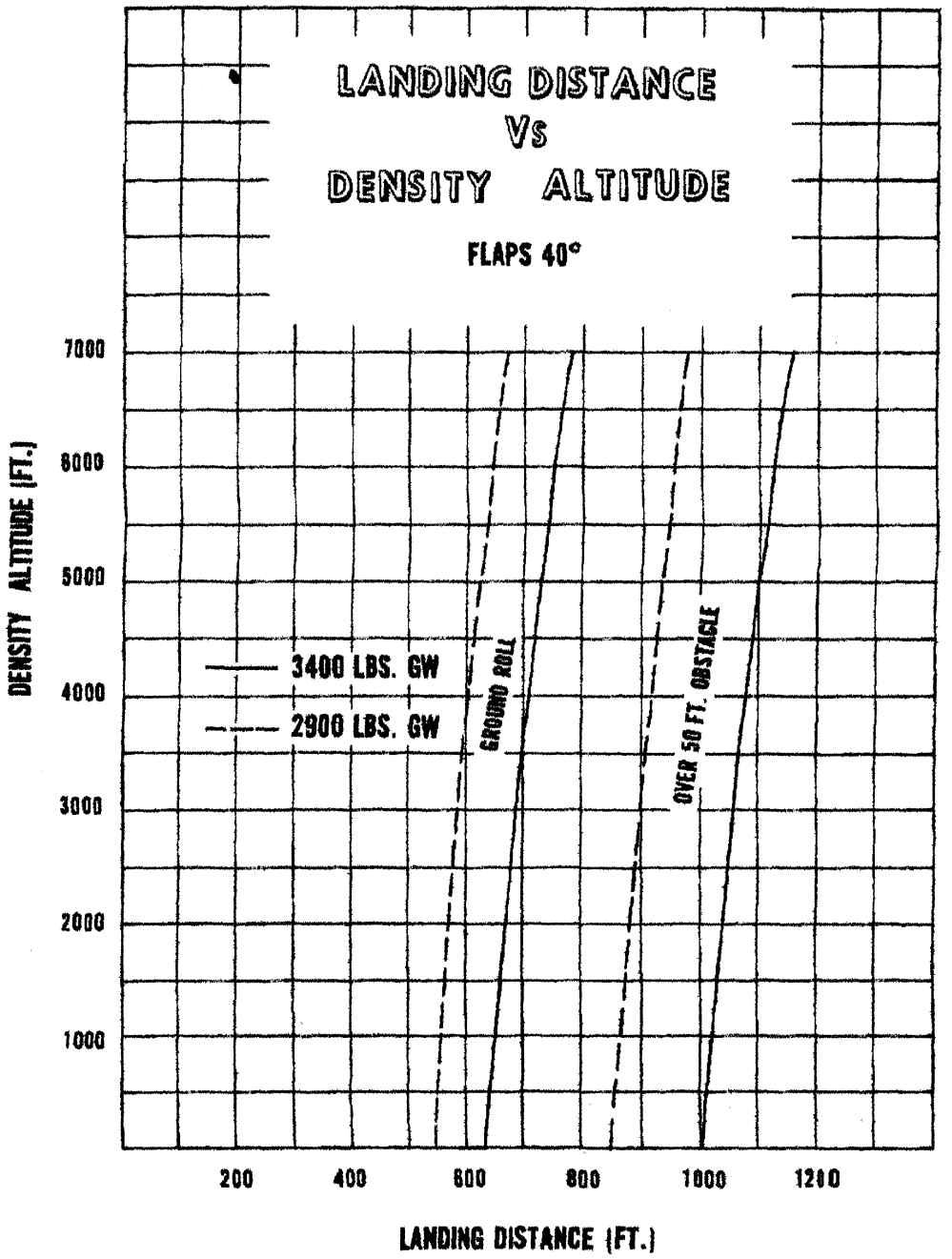

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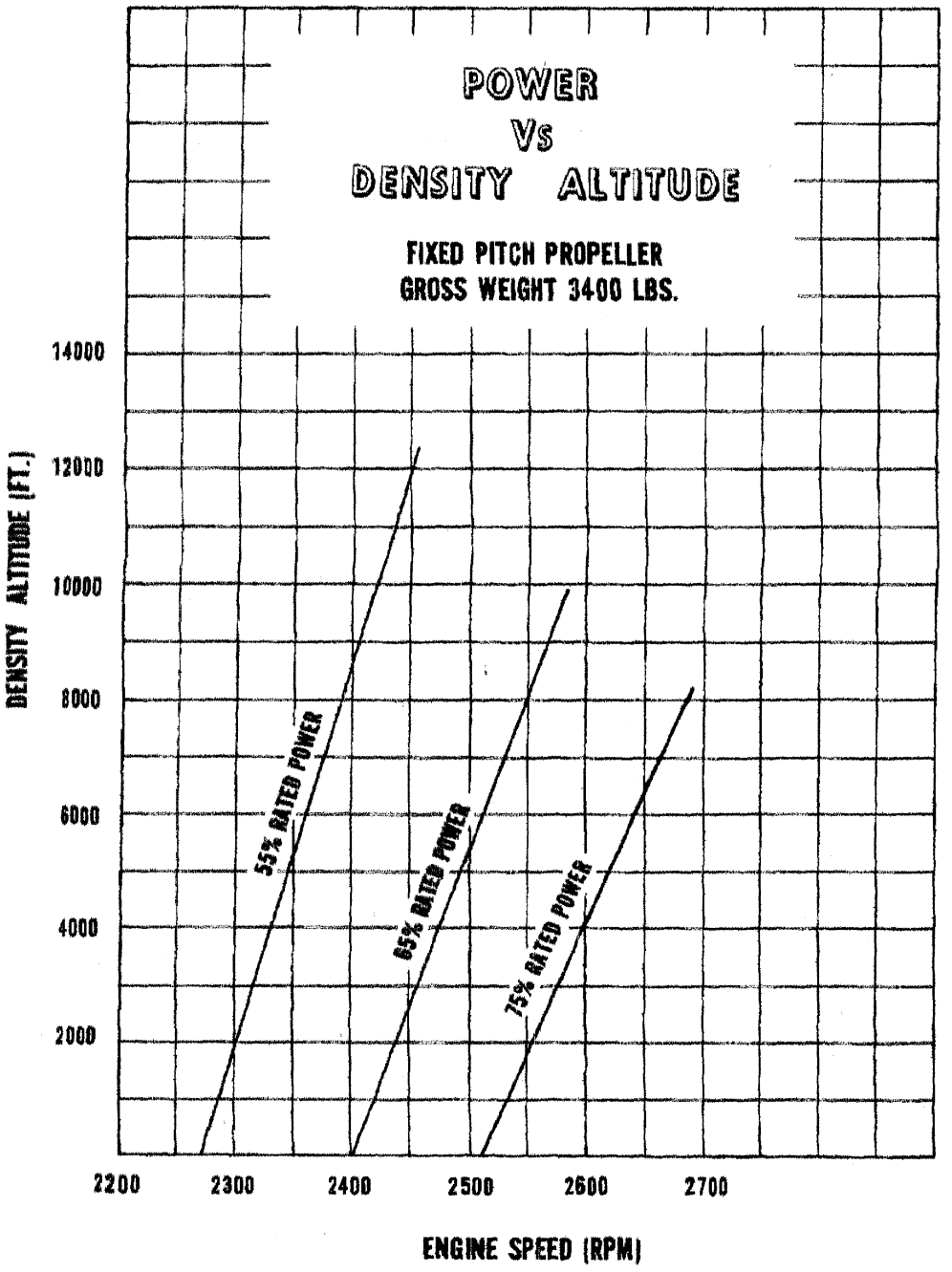

Power Setting Table - Lycoming Model O-540-E,-G, 260 HP Engine

Press. Alt Feet	Std. Alt Temp °F	143 HP – 55% Rated RPM AND MAN. PRESS. 2100	2200	2300	2400	169 HP – 65% Rated RPM AND MAN. PRESS. 2100	2200	2300	2400	195 HP – 75% Rated RPM AND MAN. PRESS. 2200	2300	2400	2500	Press. Alt Feet
SL	59	21.7	20.8	20.2	19.5	24.6	23.6	22.7	21.9	26.3	25.3	24.4	23.8	SL
1,000	55	21.5	20.6	20.0	19.3	24.4	23.3	22.5	21.7	26.0	25.0	24.1	23.5	1,000
2,000	52	21.3	20.4	19.8	19.1	24.1	23.1	22.2	21.5	25.7	24.8	23.9	23.3	2,000
3,000	48	21.0	20.1	19.6	18.9	23.8	22.9	22.0	21.2	25.4	24.5	23.6	23.0	3,000
4,000	45	20.8	19.9	19.4	18.7	23.6	22.6	21.8	21.0	25.1	24.2	23.3	22.7	4,000
5,000	41	20.6	19.7	19.2	18.4	23.3	22.4	21.5	20.8	24.8	23.9	23.0	22.5	5,000
6,000	38	20.4	19.5	18.9	18.2	23.1	22.2	21.3	20.6	--	23.7	22.8	22.2	6,000
7,000	34	20.2	19.3	18.7	18.0	22.8	22.0	21.1	20.4	--	--	22.5	22.0	7,000
8,000	31	20.0	19.1	18.5	17.8	22.6	21.8	20.8	20.1	--	--	22.3	21.7	8,000
9,000	27	19.8	18.8	18.3	17.6	--	21.6	20.6	19.9					9,000
10,000	23	19.6	18.6	18.1	17.4	--	--	20.3	19.7					10,000
11,000	19	19.4	18.4	17.9	17.2	--	--	--	19.5					11,000
12,000	16	19.2	18.2	17.7	17.0				19.3					12,000
13,000	12	--	17.9	17.4	16.8									13,000
14,000	9	--	17.7	17.2	16.6									14,000
15,000	5	--	--	17.0	16.4									15,000

To maintain constant power, correct manifold pressure approximately 0.17" Hg for each 10° F variation in carburetor air temperature from standard altitude temperature. Add manifold pressure for air temperature above standard; subtract for temperatures below standard.

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SECTION V

GENERAL MAINTENANCE

SECTION V

GENERAL MAINTENANCE

TIRE INFLATION

For maximum service from the tires keep inflated to the proper pressure of 35 to 40 pounds for the main gear and 28 to 30 pounds for the nose wheel. Interchange the tires on the main wheels, if necessary, to produce even wear. All wheels and tires are balanced before original installation, and the relationship of the tire, tube and wheel should be maintained, if at all possible. Out of balance wheels can cause extreme vibration on take-off. In the installation of new components, it may be necessary to rebalance the wheels with the tires mounted.

BATTERY SERVICE

Access to the 12 volt battery is through a removable panel in the floor of the forward baggage compartment. The stainless steel box has a plastic drain tube which is normally closed off with a cap and which should be opened occasionally to drain off any accumulation of liquid. The battery should be checked for proper fluid level but must not be filled above the baffle plates. A hydrometer check should be performed to determine the percent of charge present in the battery.

If the battery is not up to charge, recharge starting at a 4 amp rate and finishing with a 2 amp rate. Quick charges are not recommended.

BRAKE SERVICE

The brake system is filled with Univis No. 40 (petroleum base) hydraulic brake fluid. This should be checked at every 100 hour inspection and replenished when necessary by filling the brake reservoir on the firewall to the indicated level. If the system as a whole has to be refilled with fluid, this should 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.

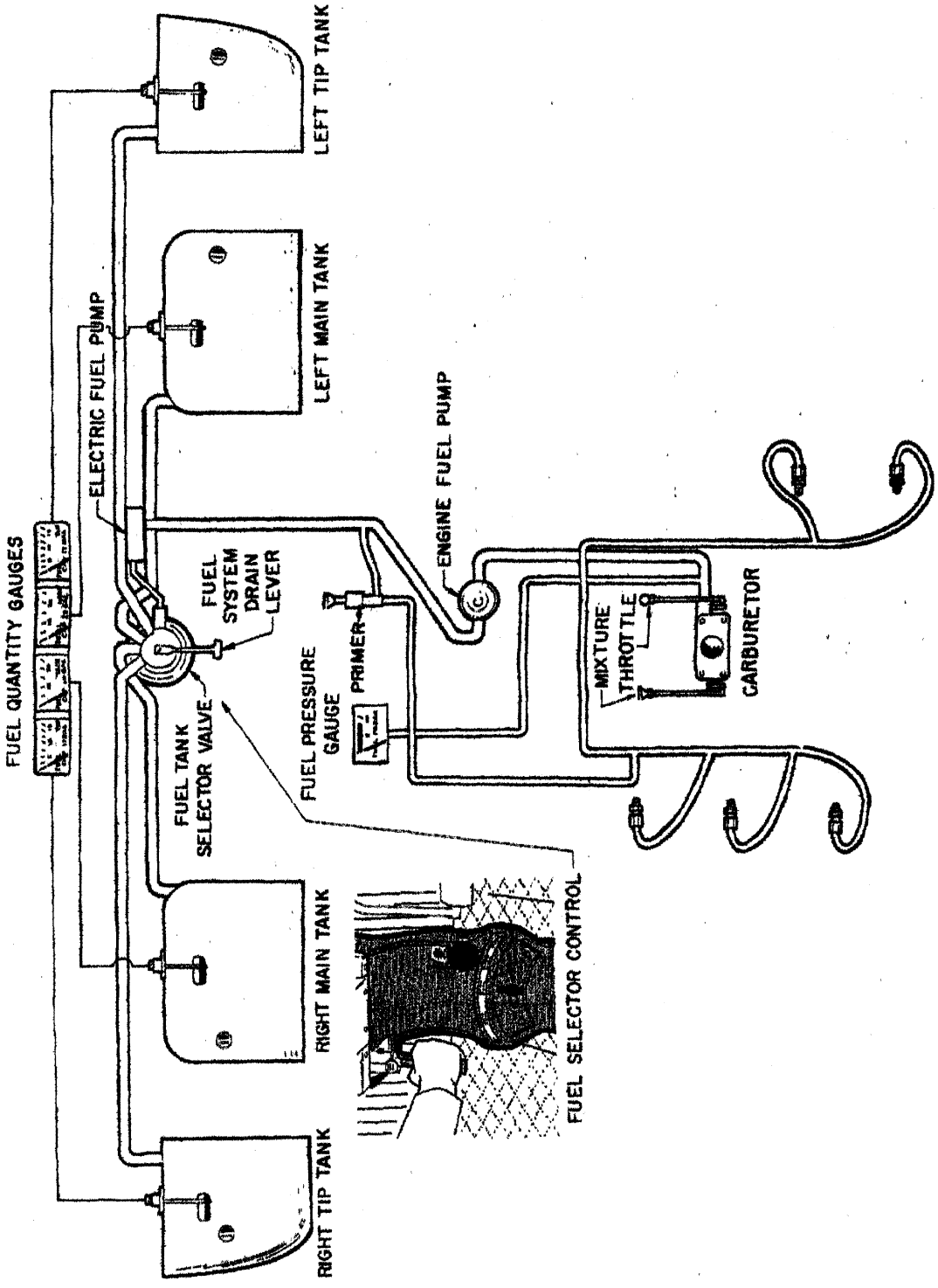
If after extended service the brake blocks become worn excessively, they are easily replaced with new segments. No adjustment of brake clearances is necessary.

LANDING GEAR SERVICE

Main wheels are 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 by deflating the tire, removing the through bolts and separating the wheel halves.

Landing gear oleo struts should be checked for proper strut exposures and fluid leaks. The required extensions for the strut when under normal static load (empty weight of airplane plus full fuel and oil) is 3-1/4 inches for the nose gear and 4-1/2 inches for the main gear. If the strut exposure is below that required, it should be determined whether air or oil is required by first raising the airplane on jacks. Depress the valve core to allow air to escape from the strut housing chamber. Remove the filler plug and slowly raise the strut to full compression. If the strut has sufficient fluid it will be visible up to the bottom of the filler plug hole and will only require proper inflation.

If fluid is below the bottom of the filler plug hole, oil should be added. Replace the plug with valve core removed, attach a clear plastic hose to the valve strut of the filler plug and submerge the other end in a container of hydraulic fluid (MIL-H-5606). Fully compress and extend the strut several times thus drawing fluid from the container and expelling air from the strut chamber.


FUEL QUANTITY GAUGES
ELECTRIC FUEL PUMP
FUEL TANK SELECTOR VALVE
FUEL SYSTEM DRAIN LEVER
FUEL PRESSURE GAUGE
PRIMER
ENGINE FUEL PUMP
MIXTURE
THROTTLE
CARBURETOR
LEFT TIP TANK
LEFT MAIN TANK
RIGHT MAIN TANK
RIGHT TIP TANK
FUEL SELECTOR CONTROL

To allow the fluid to enter the bottom chamber of the main gear strut housing, the torque link assembly must be disconnected to let the strut extend a minimum of 10 inches. (The nose gear torque links need not be disconnected.) Do not allow the strut to extend more than 12 inches. When air bubbles cease to flow through the hose, compress the strut fully and again check fluid level. Reinstall the valve core, filler plug, and the main gear torque links, if disconnected.

With fluid in the strut housing at the correct level, attach a strut pump to the air valve. With the airplane on the ground, inflate the oleo strut to the correct height.

In jacking the aircraft for landing gear or other service, two hydraulic jacks and a tail stand should be used. At least 350 pounds of ballast should be placed on the base of the tail stand before jacking up the aircraft. The hydraulic jacks are placed under the jack points on the bottom of the wing and the airplane jacked up until the tail 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 AND OIL REQUIREMENTS

Aviation grade 100/130 octane (minimum) fuel must be used in the Cherokee Six. The use of lower grades can cause serious engine damage in a very short period of time and is considered of such importance that the engine warranty is invalidated by such use.

The oil capacity of the Lycoming O-540 series engines is 12 quarts and the minimum safe quantity is 2-3/4 quarts. It is recommended that the oil be changed every 50 hours or sooner under unfavorable conditions. The following grades are recommended for the specified temperatures:

Temperatures above 60° F	S.A.E. 50
Temperatures between 30° F and 90° F	S.A.E. 40
Temperatures between 0° F and 70° F	S.A.E. 30
Temperatures below 10° F	S.A.E. 20

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 filter manufacturer recommends that the filter be tapped gently to remove dirt particles. Do not blow out with compressed air.

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 on the left side of the fuselage near the stabilator. Refer to this number for service or warranty matters.

LEVELING AND RIGGING

To level the Cherokee Six for purposes of weighing or rigging:

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.

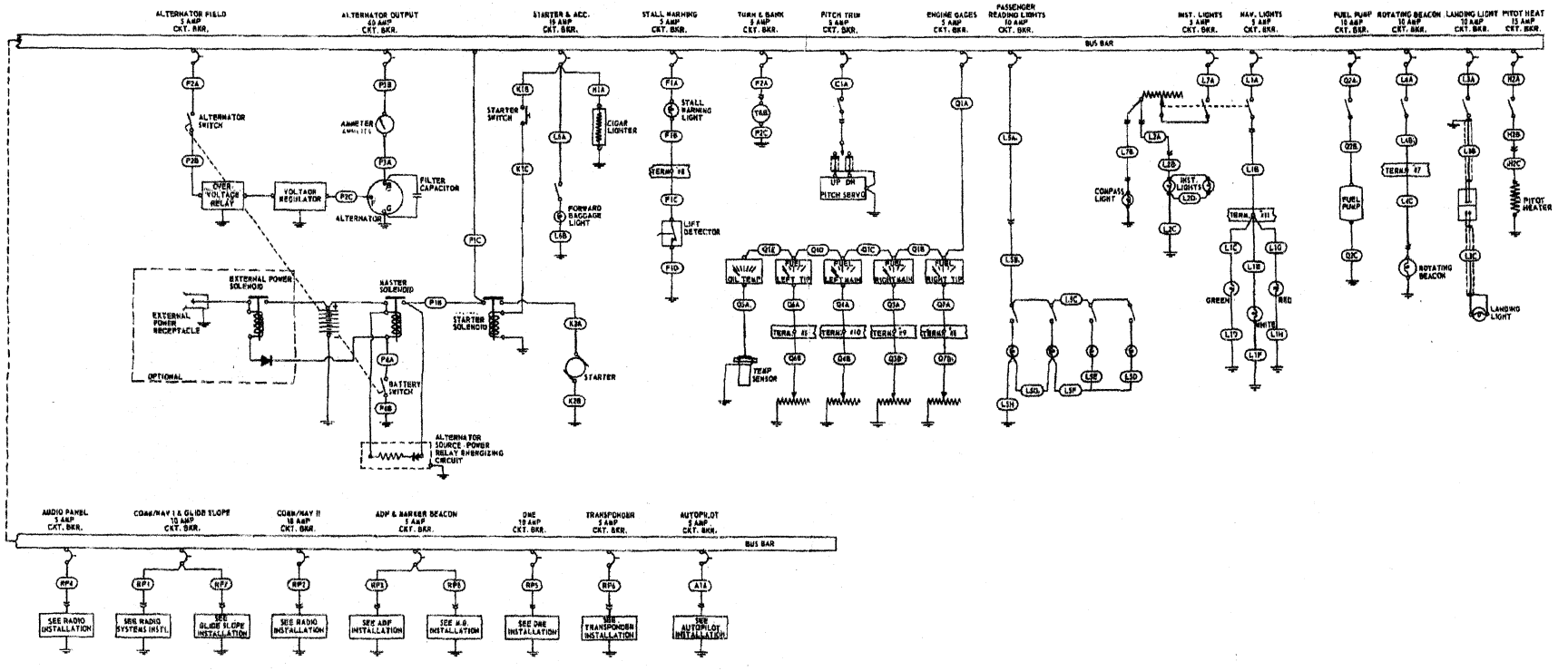
Rigging: Although the fixed flight surfaces on the Cherokee Six cannot be adjusted for rigging purposes, it may be necessary upon occasion to check the position of these surfaces. The movable surfaces all have adjustable stops, as well as adjustable turnbuckles on the cables or push-pull tubes, so that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

1. Wings: 7° dihedral, 2° washout.
2. Stabilator Travel: 16° up, 2° down, tolerance ± 1°.
3. Fin should be vertical, and in line with center of fuselage.
4. Aileron Travel: 30° up, 15° down, tolerance ± 2°.
5. Flap Travel: 10°, 25°, 40°, tolerance ± 2°.
6. Rudder Travel: 27° right and left, tolerance ± 2°.
7. Stabilator Trim Tab Travel: 5° up, 8° down, tolerance ± 1°.

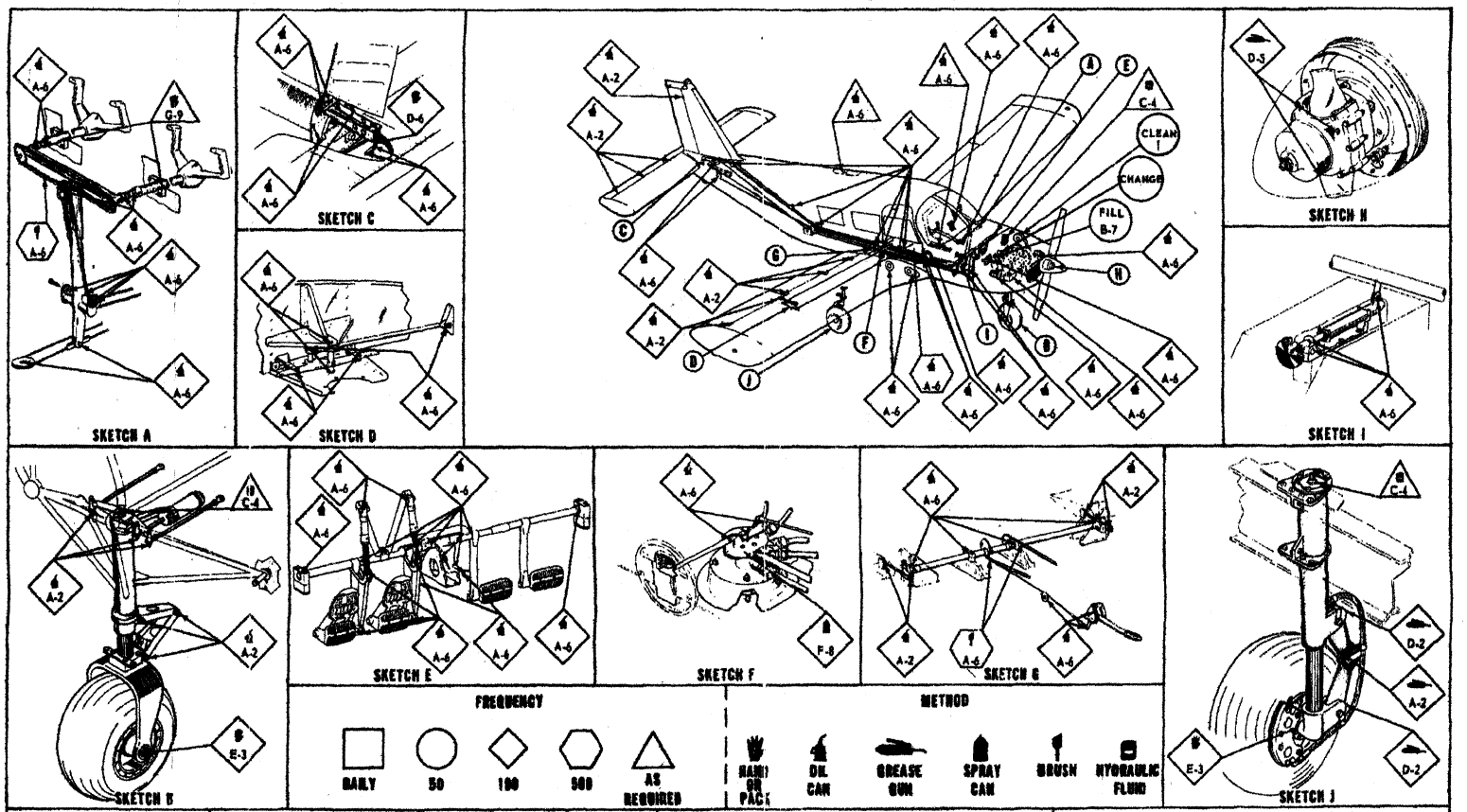
Cable tensions for the various controls are as follows:

Rudder: 85 lbs. ±5 lbs.	Stabilator: 40 lbs. ±5 lbs.
Ailerons: 40 lbs. ±5 lbs.	Stabilator Trim: 10 lbs. ±2 lbs.

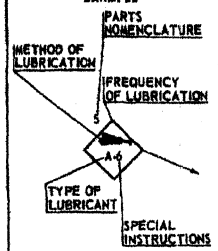
For extreme cases of wing heaviness, either of the flaps may be adjusted up or down from the zero position.



ELECTRICAL SYSTEM SCHEMATIC



EXAMPLE



LUBRICATION CHART PA-32 SERIES

TYPE OF LUBRICANTS

IDENTIFICATION LETTER	SPECIFICATION	LUBRICANT
A	MIL-L-7870	LUBRICATING OIL, GENERAL PURPOSE, LOW TEMPERATURE
B	MIL-L-6082	LUBRICATING OIL, AIRCRAFT RECIPROCATING ENGINE (PISTON) GRADE AS SPECIFIED SAE 50 ABOVE 60°F AIR TEMP. SAE 40 30° TO 90°F AIR TEMP. SAE 30 0° TO 70°F AIR TEMP. SAE 20 BELOW 10°F AIR TEMP.
C	MIL-H-5606	HYDRAULIC FLUID, PETROLEUM BASE
D	MIL-G-23827	GREASE, AIRCRAFT AND INSTRUMENT, GEAR AND ACTUATOR SCREW
E	MIL-G-3545	GREASE, AIRCRAFT, HIGH TEMPERATURE
F		DUPONT ALL PURPOSE SLIP SPRAY #6611 OR EQUIVALENT
G		PARKER "O" RING LUBRICANT

SPECIAL INSTRUCTIONS

1. AIR FILTER – TO CLEAN FILTER, TAP GENTLY TO REMOVE DIRT PARTICLES. DO NOT BLOW OUT WITH COMPRESSED AIR OR USE OIL. REPLACE FILTER IF PUNCTURED OR DAMAGED.
2. BEARINGS AND BUSHINGS – CLEAN EXTERIOR WITH A DRY TYPE SOLVENT BEFORE LUBRICATING.
3. WHEEL BEARINGS – DISASSEMBLE AND CLEAN WITH A DRY TYPE SOLVENT. ASCERTAIN THAT GREASE IS PACKED BETWEEN THE BEARING ROLLER AND CONE. DO NOT PACK GREASE IN WHEEL HOUSING.
4. OLEO STRUTS, HYDRAULIC PUMP RESERVOIR AND BRAKE RESERVOIR – FILL PER INSTRUCTIONS ON UNIT OR CONTAINER, OR REFER TO SERVICE MANUAL, SECTION II.
5. PROPELLER – REMOVE ONE OF THE TWO GREASE FITTINGS FOR EACH BLADE. APPLY GREASE THROUGH FITTING UNTIL FRESH GREASE APPEARS AT HOLE OF REMOVED FITTING.
6. LUBRICATION POINTS – WIPE ALL LUBRICATION POINTS CLEAN OF OLD GREASE, OIL, DIRT, ETC. BEFORE LUBRICATING.
7. 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.
8. FUEL SELECTOR VALVE – LUBRICATE AREA WHERE DETENT BALL MOVES ACROSS COVER PLATE.

SPECIAL INSTRUCTIONS (CONT.)

9. "O" RING, CONTROL SHAFT BUSHING – DISASSEMBLY "O" RING RETAINER PLATES FROM INSTRUMENT PANEL, LUBRICATE "O" RING AND REASSEMBLE.

NOTES

1. PILOT AND PASSENGER SEATS – LUBRICATE TRACK ROLLERS AND STOP PINS AS REQUIRED. (TYPE OF LUBRICANT: "A")
2. WHEEL BEARINGS REQUIRE CLEANING AND REPACKING AFTER EXPOSURE TO AN ABNORMAL QUANTITY OF WATER.
3. SEE LYCOMING SERVICE INSTRUCTIONS NO. 1014 FOR USE OF DETERGENT OIL.

CAUTIONS

1. DO NOT USE HYDRAULIC FLUID WITH A CASTOR OIL OR ESTER BASE.
2. DO NOT OVER-LUBRICATE COCKPIT CONTROLS.
3. DO NOT APPLY LUBRICANT TO RUBBER PARTS

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INDEX

INDEX (cont)