INDEX

INDEX (cont)

SPECIFICATION FEATURES: 5276W.

POWER PLANT	PA-28-150	PA-28-160	PA-28-180
Engine - Lycoming	*O-320-A2B	*O-320-B2B	O-360-A2A
Engine - Lycoming	**O-320-E2A	**O-320-D2A	
Rated Horsepower	150	160	180
Rated Speed RPM	2700	2700	2700
Bore, inches	5.125	5.125	5.125
Stroke, inches	3.875	3.875	4.375
Displacement (cubic inches)	319.8	319.8	361.0
Compression Ratio	7:1	8.5:1	8.5:1
Dry Weight, pounds	272	278	285
Fuel Consumption (75% power, gph)	9	9	10
Oil Sump Capacity (qts)	8	8	8
Fuel Aviation Grade Octane	80	91/96	91/96
Propeller (Sensenich)	M74DM58	M74DM60	M76EMM60

PERFORMANCE

Take-off Run, ft.	800	775	775
Best Rate of Climb Speed (MPH)	85	85	85
Rate of Climb (ft. per min.)	660	700	720
Service Ceiling (ft.)	14,300	15,000	15,700
Absolute Ceiling	16,800	17,500	18,300
Top Speed (MPH)	139 (142***)	141 (144***)	150
Cruising Speed (75% power, sea level MPH)	121 (124***)	123 (126***)	132

*This engine used in Cherokee with Serial Nos. 28-1 to 28-510
**This engine used in Cherokee with Serial Nos. 28-511 and up
***Wheel fenders optional equipment on PA-28-150 and -160

SPECIFICATION FEATURES: (cont)

PERFORMANCE	PA-28-150	PA-28-160	PA-28-180
Optimum Cruising Speed (75% power, 7000 ft., MPH)	130 (133***)	132 (135***)	141
Fuel Consumption (gal. per hr. 75%)	9	9	10
Cruising Range (75% power, sea level, std. fuel)	4 hrs. 490 mi.	4 hrs. 500 mi.	5 hrs. 660 mi.
Optimum Cruising Range (55% power, 10,000 ft, std. fuel,	5 hrs. 570 mi.	5 hrs. 580 mi.	7 hrs. 750 mi.
Cruising Range (75% power, sea level, reserve fuel)	5.5 hrs. 680 mi.	5.5 hrs. 695 mi.	
Optimum Cruising Range (55% power, 10,000 ft, reserve fuel 7.2 gph)	7 hrs. 790 mi.	7 hrs. 805 mi.	
Stalling Speed (flaps down, MPH)	54	55	57
Landing Roll (flaps down, ft.)	535	550	600

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.

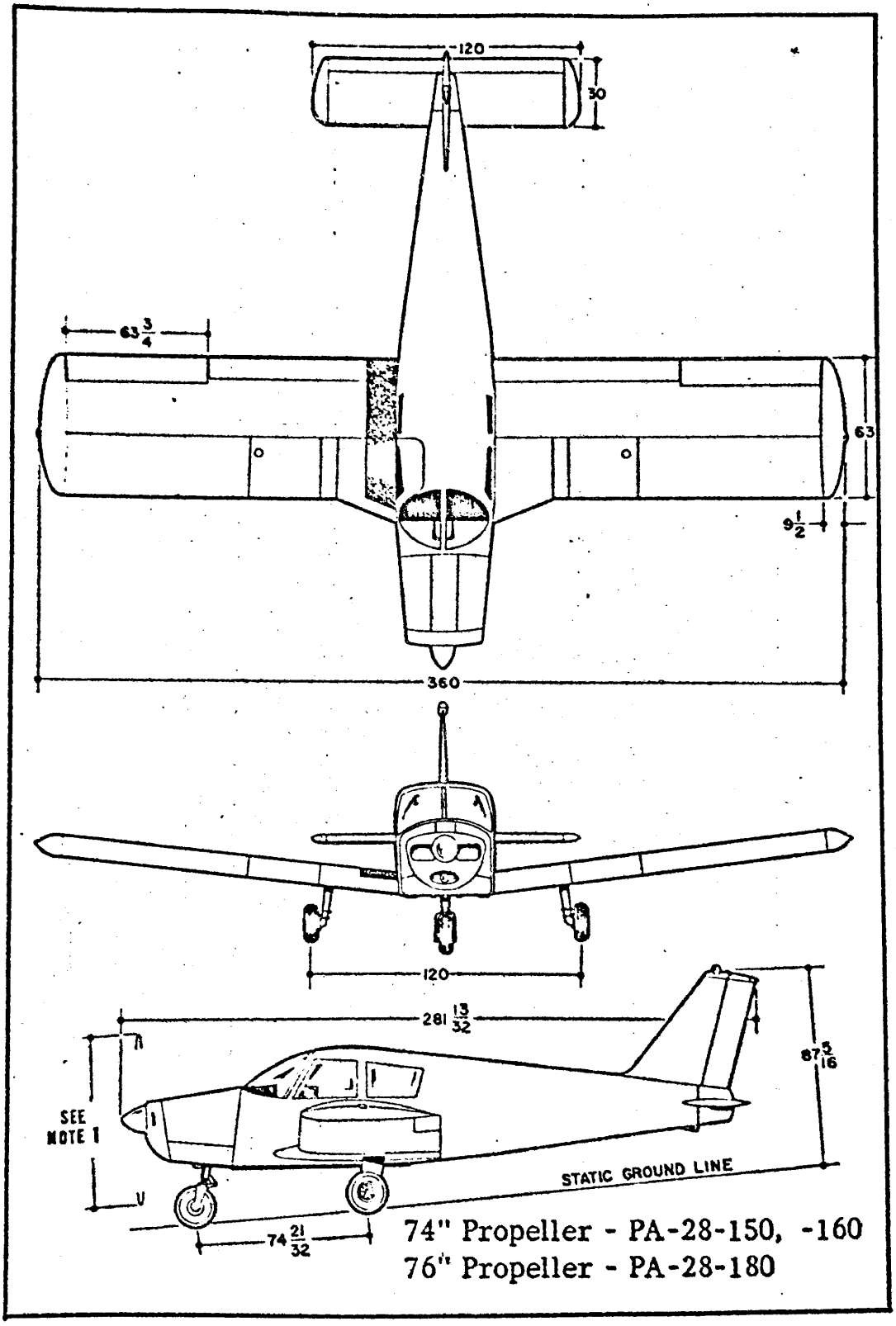
WEIGHTS	PA-28-150	PA-28-160	PA-28-180
Gross Weight (lbs)	2150	2200	2400
Empty Weight (Standard) (lbs)	1205	1210	1225

***Wheel fenders optional equipment on PA-28-150 and -160

SPECIFICATION FEATURES: (cont)

WEIGHTS	PA-28-150	PA-28-160	PA-28-180
USEFUL LOAD (Standard) (lbs)	945	990	1175
Empty Weight (AutoFlight (lbs)	1245	1250	1265
USEFUL LOAD (AutoFlight) (lbs)	905	950	1135
FUEL AND OIL			
Fuel Capacity (Standard) (gal)	36	36	50
Fuel Capacity (with reserve) (gal)	50	50	
Oil Capacity (qts)	8	8	8
BAGGAGE			
Maximum Baggage (lbs)	100 (125*)	100 (125*)	125
Baggage Space (cubic ft)	19	19	19
Baggage Door Size (in)	20 x 22	20 x 22	20 x 22
DIMENSIONS			
Wing Span (ft)	30	30	30
Wing Area (sq. ft)	160	160	160
Wing Loading (lbs. per sq. ft)	13.4	13.8	15.0
Length (ft)	23.3	23.3	23.3
Height (ft)	7.3	7.3	7.3
Power Loading (lbs. per HP)	14.3	13.8	13.3
LANDING GEAR			
Wheel Base (ft)	6.2	6.2	6.2
Wheel Tread (ft)	10	10	10
Tire Pressure (lbs) Nose	18	18	18
Main	24	24	24

*PA-28 - Serial Nos. 28-725 and up



74" Propeller - PA-28-150, -160
76" Propeller - PA-28-180

SECTION II

DESIGN INFORMATION

SECTION II

DESIGN INFORMATION

ENGINE AND PROPELLER

The Cherokee is powered by a Lycoming engine of either 150, 160 or 180 H.P. (Refer to Power Plant Specifications on Page 1) Each engine is furnished with a starter, 35 ampere 12 volt *generator or **alternator, voltage regulator, shielded ignition, vacuum pump drive, fuel pump and a dry, automotive type carburetor air filter.

The exhaust system is a stainless steel cross-over type. A large muffler with heater shroud is provided to supply heat for both the cabin and carburetor de-icing.

The propeller used is a Sensenich fixed pitch, all metal aluminum alloy. Refer to the Power Plant Specifications on Page 1 for the model of propeller used with each engine.

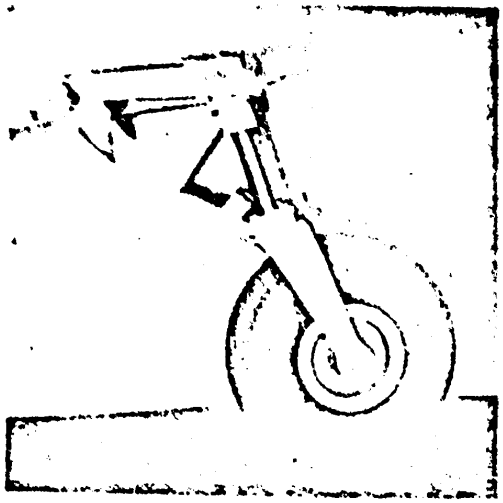
STRUCTURES

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 about 40% aft of the leading edge. This permits the main spar carry through structure to be located under the rear seat providing unobstructed cabin

*PA-28 Serial Nos. 28-1 to 28-507 inclusive
**PA-28 Serial Nos. 28-508 and up



floor space ahead of the rear seat.

LANDING GEAR

The three landing gears use a Cleveland 600 x 6 wheel, the main wheels being provided with brake drums and Cleveland single disc hydraulic brake assemblies, No. 30-18. All wheels use 600 x 6 four ply tires with tubes.

The nose gear is steerable through a 30 degree arc 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 three struts are of the air-oil type, with the normal extension being 3-1/2 inches for the nose gear and 2 inches for the main gear.

The brakes are actuated by a hand lever and master cylinder, which is located below and behind the left center of the instrument sub-panel. The brake-fluid reservoir is installed on the top, left, front face of the firewall. The parking brake is incorporated in the master cylinder and is actuated by pulling back on the brake lever and depressing the knob attached to the left side of the handle. Then release the brake lever. To release the parking brake, pull back on the brake lever to disengage the catch mechanism. Then allow the handle to swing forward.

CONTROL SYSTEMS

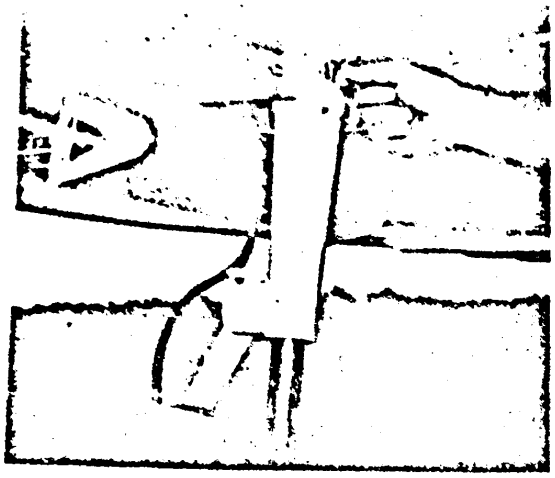
Dual controls are provided as standard equipment, with a cable system used between the controls and the surfaces. The horizontal tail is of the all movable slab type, with an anti-servo tab which also acts as a longitudinal trim tab, actuated by a control on the cabin ceiling. The stabilator provides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

Fuel is stored in two twenty-five gallon tanks which are secured to the leading edge structure of each wing by screws and nut plates. This allows easy removal for service or inspection.

The standard quantity of fuel is 36 gallons for the Cherokee 150 and 160 and 50 gallons for the Cherokee 180. To obtain the standard quantity of 36 gallon of fuel on the 150 and 160 fill the tanks only to the bottom of the filler necks, which extends some distance into the tanks. To fill to the standard plus

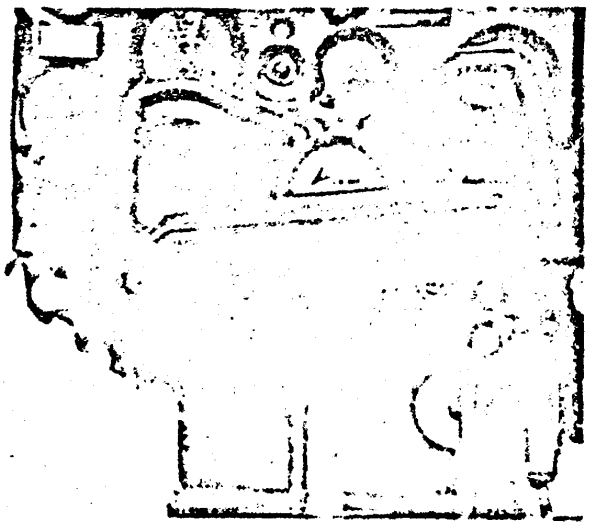


reserve quantity of 50 gallons the tanks are filled completely to the top. This system allows the fuel quantity to be varied conveniently according to the payload.

An auxiliary electric fuel pump is provided for use in case of failure of the engine driven pump. The electric pump should be on for all take-offs and landings.

The fuel strainer, which is equipped with a quick drain, is located on the front lower left corner of the firewall. This strainer should be drained regularly to check for water or sediment accumulation. To drain the lines from the tanks, the tank selector valve must be switched to each tank in turn, with the electric pump on, and the gascolator drain valve opened. Each tank has an individual quick drain located at the bottom, inboard, rear corner.

Fuel quantity and pressure are indicated on gauges located in the engine gauge cluster on the right side of the instrument panel.



Electrical Switches

ELECTRICAL SYSTEM

The electrical system includes a 12 volt *generator or **alternator, battery, voltage regulator and master switch relay. The battery, regulator and relay are mounted in the battery compartment immediately aft of the baggage compartment. Access for service or inspection is conveniently obtained through a removable

*Generator installed on PA-28, Serial Nos. 28-1 to 28-507 inclusive
**Alternator installed on PA-28, Serial Nos. 28-508 and up

panel at lower right corner of the compartment.

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

Standard electrical accessories include: Starter, Electric Fuel Pump, Fuel Gauge, Stall Warning Indicator, Cigar Lighter and Ammeter.

Navigation Lights, Anti-Collision Light, Landing Light, Instrument Lighting and the Cabin Dome Light are offered as optional accessories.

Circuit provisions are made to handle optional communications and navigational equipment.

Installed on late model Cherokees (Serial Nos. 28-508 and up) is the Piper F.T.P. (Full Time Power) Electrical System.

Derived from this system are many advantages both in operation and maintenance. The main advantage is, of course, full electrical power output regardless of engine R.P.M. This is a great improvement for radio and electrical equipment operation. Also because of the availability of generator output at all times, the battery will be charging for a greater percentage of use, which will greatly improve cold-morning starting.

Unlike previous generator systems, the ammeter does not indicate battery discharge, rather it displays the load in amperes placed on the system. With all electrical equipment off (except master switch) the ammeter will be indicating the amount of charging current demanded by the battery. This amount will vary, depending on the percentage of full charge in the battery at the time. As the battery becomes charged, the amount of current displayed on the ammeter will reduce to about two amperes. When each piece of electrical equipment is switched on, the currents will add up and the total, including the battery, will appear on the ammeter. The maximum continuous load for night flight, with radios on, is about 30 amperes. This 30-ampere value, plus approximately two amperes for a fully charged battery, will appear continuously under these flight conditions.

The amount of current shown on the ammeter will tell immediately whether or not the generator system is operating normally as this amount of current shown should equal the total amount of amperes being drawn by the equipment which is operating.

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

HEATING AND VENTILATING SYSTEM

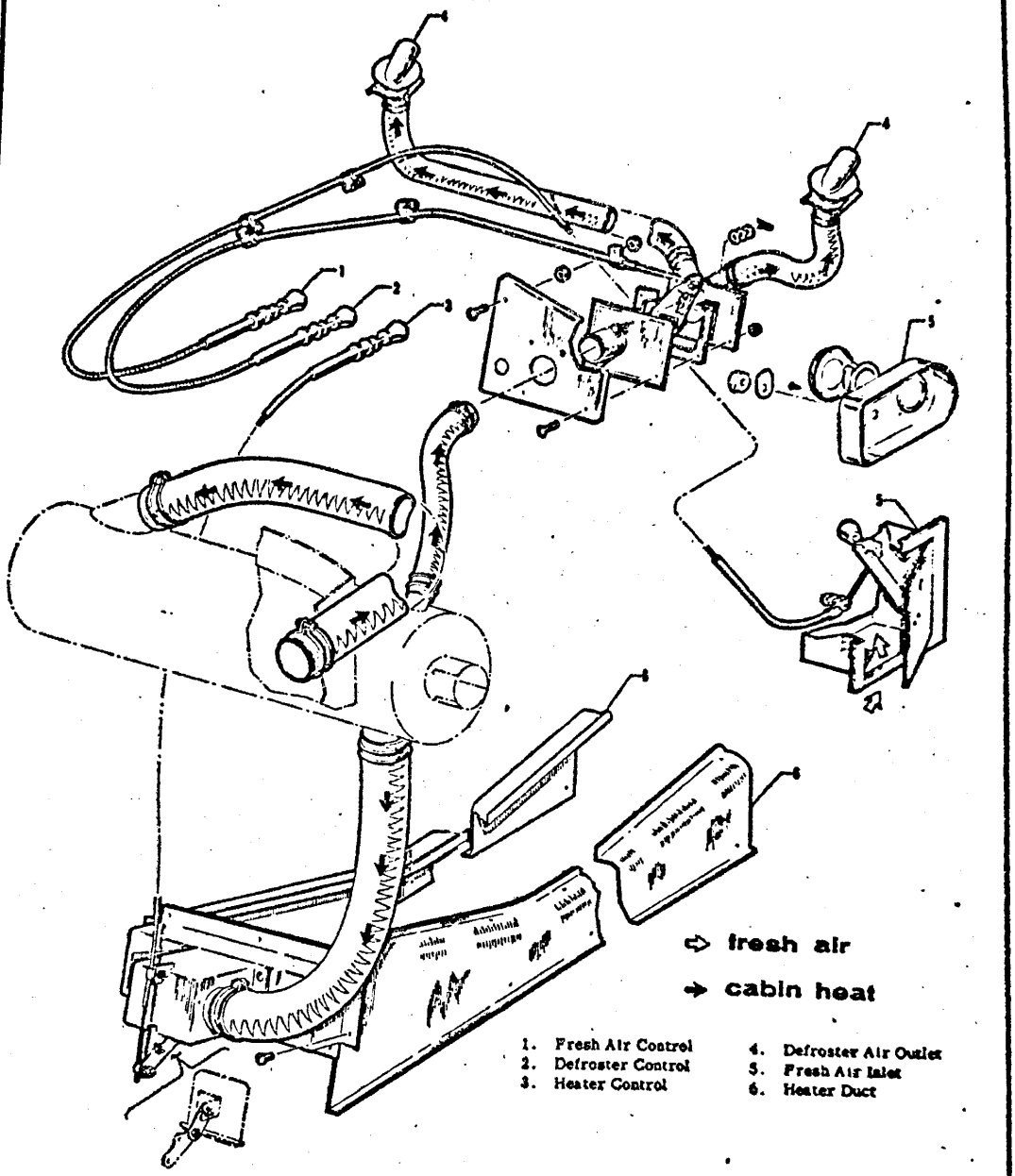
Heat for the cabin interior and the defroster system is provided by a heater muff attached to the exhaust system. The amount of heat desired can be regulated with the controls located on the lower right side of the instrument panel.

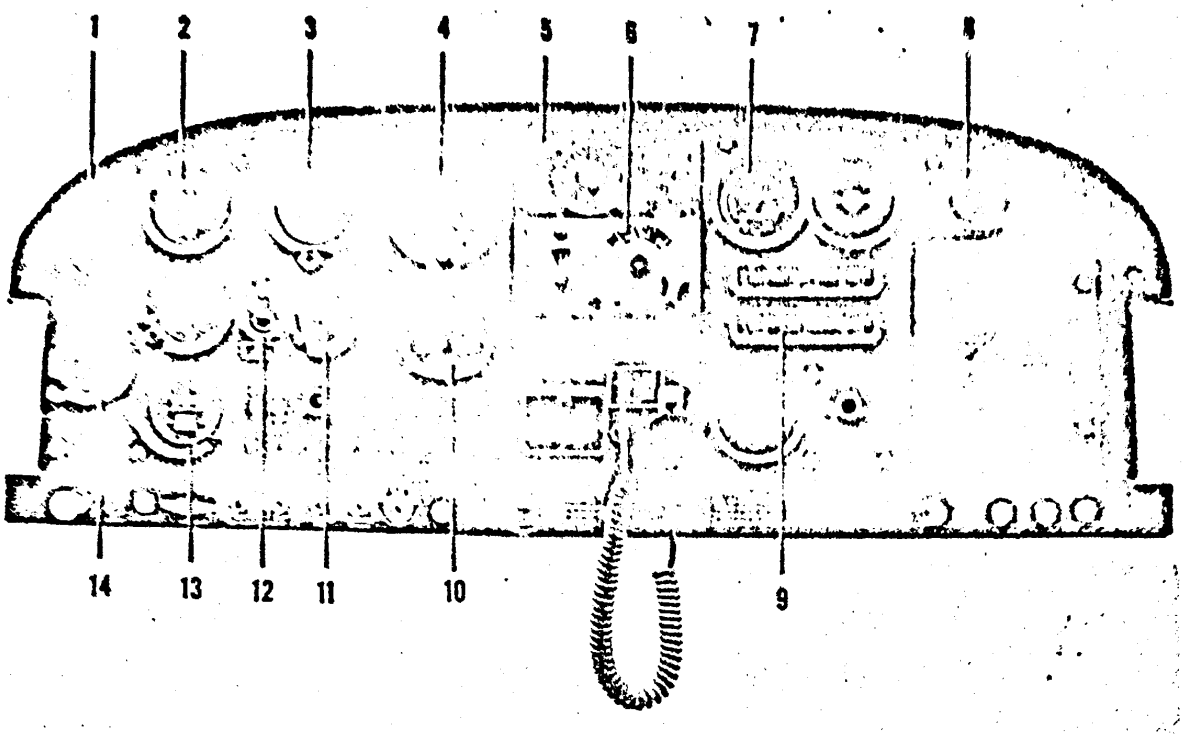
A control is provided to regulate the amount of fresh air to the cabin interior. Also provided are side vents at each seat location. These vents are regulated as desired by the seat occupant.

CABIN FEATURES

The instrument panel of the Cherokee is designed to accommodate the customary advanced flight instruments and all the normally required power plant instruments. The Artificial Horizon, Directional Gyro and the Turn and Bank instruments are vacuum operated through use of a vacuum pump installed on the engine. A natural separation of the flight group and the power group is provided by placing the communications and radio navigational equipment in the center of the panel.

The front seats are adjustable fore and aft for pilot comfort and ease of entry and exit.


fresh air
cabin heat
1. Fresh Air Control
2. Defroster Control
3. Heater Control
4. Defroster Air Outlet
5. Fresh Air Inlet
6. Heater Duct



1. Compass
2. Airspeed Indicator
3. Directional Gyro Indicator
4. Gyro Horizon Indicator
5. AutoNav Radio
6. Piper PTR-I Radio
7. Tachometer
8. Vacuum Gauge
9. Instrument Cluster
10. Turn and Bank Indicator
11. Clock
12. Stall Warning Light
13. Omni Indicator
14. Rate of Climb Indicator

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:

1. a. Ignition and battery switches "OFF".

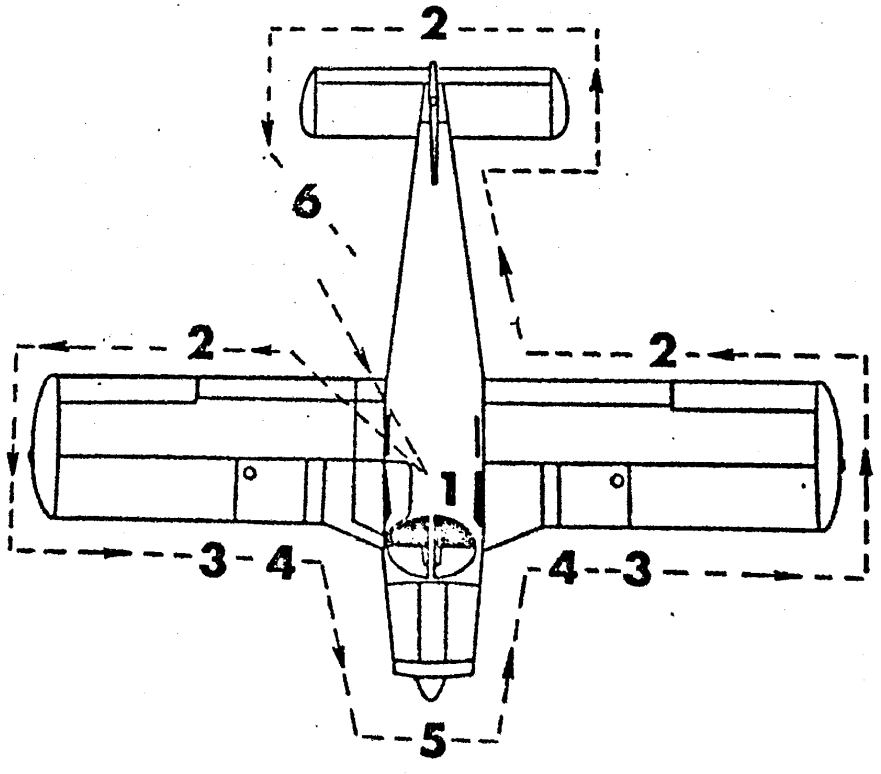
2. a. There is no external damage or operational interference to the control surfaces, wings or fuselage.

b. There is no snow, ice, or frost on the wings or control surfaces.

3. a. Check fuel supply visually, and insure that caps are secure.

b. Drain the fuel tank sumps.

c. Check to insure the fuel system vents are open.



4. a. The landing gear shock struts are properly inflated. (Refer to Section V)

b. The tires are satisfactorily inflated and not excessively worn.

5. a. The cowling and inspection covers are secured.

b. The windshield is clean and free of defects.

c. The propeller is free of detrimental nicks.

d. There are no obvious fuel or oil leads.

e. The engine oil is at the proper level.

f. Drain the fuel strainer.

6. a. The tow-bar and control locks are detached and properly stowed.

7. a. Upon entering the airplane, ascertain that all controls operate properly.

b. Close and secure the cabin door.

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

STARTING

After completion of the preflight inspection:

1. Lock the wheel brakes.
2. Set the carburetor heat control in the full "COLD" position.
3. Select the desired tank with the fuel valve.
4. Move the mixture to the full "RICH" position.
5. Open the throttle 1/8 to 1/4 inch.
6. Turn the electric fuel pump "ON".

In cold weather (below 40 degrees F.) prime the engine with one to three full strokes of the priming pump. If extremely cold, starting will be aided by pulling the propeller through by hand (switch "OFF") four to five revolutions. If the temperature is above 40 degrees the engine may be primed by three or four short quick strokes of the throttle.

After priming, turn the electric master switch on, engage the starter and allow the engine to turn approximately one full revolution, then turn the ignition switch to the "Left" magneto

position.

When the engine is firing evenly, turn the magneto switch to the "Both" position and advance the throttle to 800 RPM. Check the oil pressure gauge for a pressure indication. If oil pressure is not indicated within thirty seconds, stop the engine and determine the trouble.

If the engine fails to start at the first attempt, another attempt should be made without priming. If this fails, it is possible that the engine is overprimed. Turn the magneto switch off, open the throttle slowly, and rotate the engine approximately ten revolutions with the starter. Reprime the engine with one half the amount used in the initial attempt, turn the magneto switch to "Left", and repeat the starting procedure. If the engine again fails to start, refer to the "Lycoming Operating Handbook, "Section VII, "Engine Troubles".

WARM-UP

The engine on the Cherokee is air pressure cooled and depends on the forward speed of the airplane to provide an adequate air flow for proper cooling. Therefore, particular care is necessary when operating the engine on the ground. To prevent overheating and possible damage to the engine, it is recommended that the following precautions be observed:

1. Head the airplane into the wind.
2. Avoid prolonged idling at low RPM's, as this practice may result in fouled spark plugs.
3. Limit ground running time to four minutes in cold weather (below 70 degrees), and to two minutes in warm weather.

The engine is warm enough for take-off when the throttle may be opened fully without engine backfiring or skipping. If electrical power is desired during the warm-up to prevent battery drain, the engine may be idled slightly over 1200 RPM, which is the generator cut-in RPM.

GROUND CHECK

With the engine running at 1800 RPM, switch from both magnetos to only one and note the RPM loss, switch to the other magneto and again note the RPM loss. Drop off on either magneto should not exceed 125 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.

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 "UP"
3. Tab set
4. Mixture "RICH"
5. Carburetor heat "OFF"
6. Fuel on proper tank
7. Electric fuel pump "ON"
8. Engine gauges normal
9. Door latched
10. Altimeter set

The take-off technique is conventional for the Cherokee. 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 50 to 60 miles per hour, 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.

CLIMB

The best rate of climb at gross weight will be obtained at 85 miles per hour. The best angle of climb may be obtained at 74 miles per hour. At lighter than gross weight these speeds are reduced somewhat. For climbing enroute a speed of 100 miles per hour is recommended. This will produce better forward speed and increased visibility over the nose during the climb.

STALLS

The gross weight stalling speed of the Cherokee with power off and full flaps is 54 MPH on the 150, 55 MPH on the 160 and 57 MPH on the Cherokee 180. This speed is increased 9 miles per hour with the flaps up.

CRUISING

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

The normal cruising power is 75% of the rated horsepower of the engine. True airspeeds which may 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.

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.

In order to keep the airplane in best lateral trim during cruising flight the fuel should be used alternately from each tank. It is recommended that one tank should be used for one

hour after take-off, then the other tank used for two hours, then return to the first tank, which will have approximately one and one half hour of fuel remaining if the tanks were full plus reserve at take-off. The second tank will contain approximately one half hour of fuel.

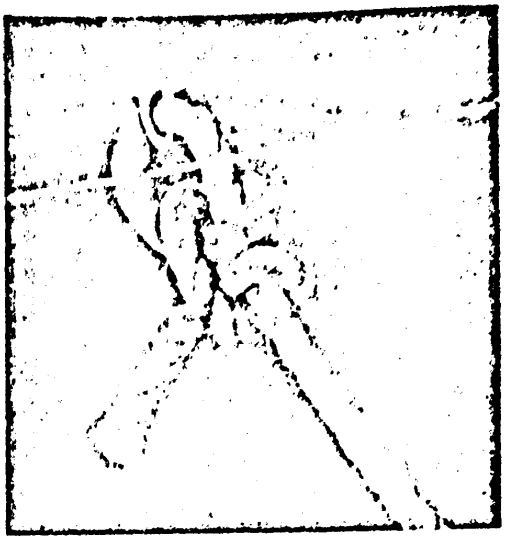
APPROACH AND LANDING

The airplane should be trimmed to an approach speed of about 85 miles per hour, and flaps extended. The flaps can be lowered at speeds up to 115 miles per hour if desired. 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 existing conditions both windwise, and loadwise. 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 (50 to 60 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 cross winds, it may be desirable to approach the ground at higher than normal speeds, with partial or no flaps.

GROUND HANDLING AND 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.

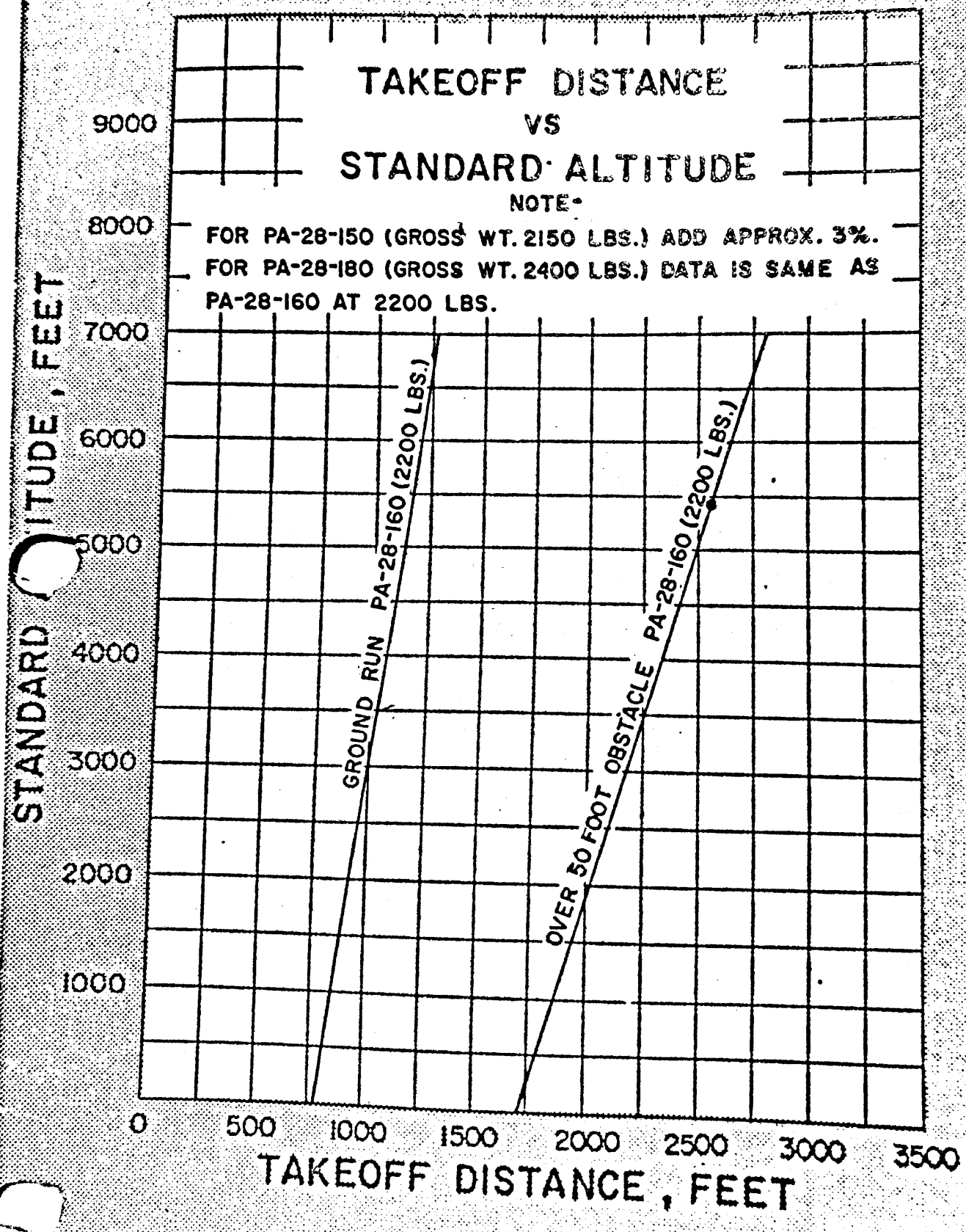
WEIGHT AND BALANCE

For weight and balance data, see the Airplane Flight Manual, and Weight and Balance form supplied with each airplane. This form gives the exact weight of each individual airplane as manufactured and the permissible center of gravity conditions.

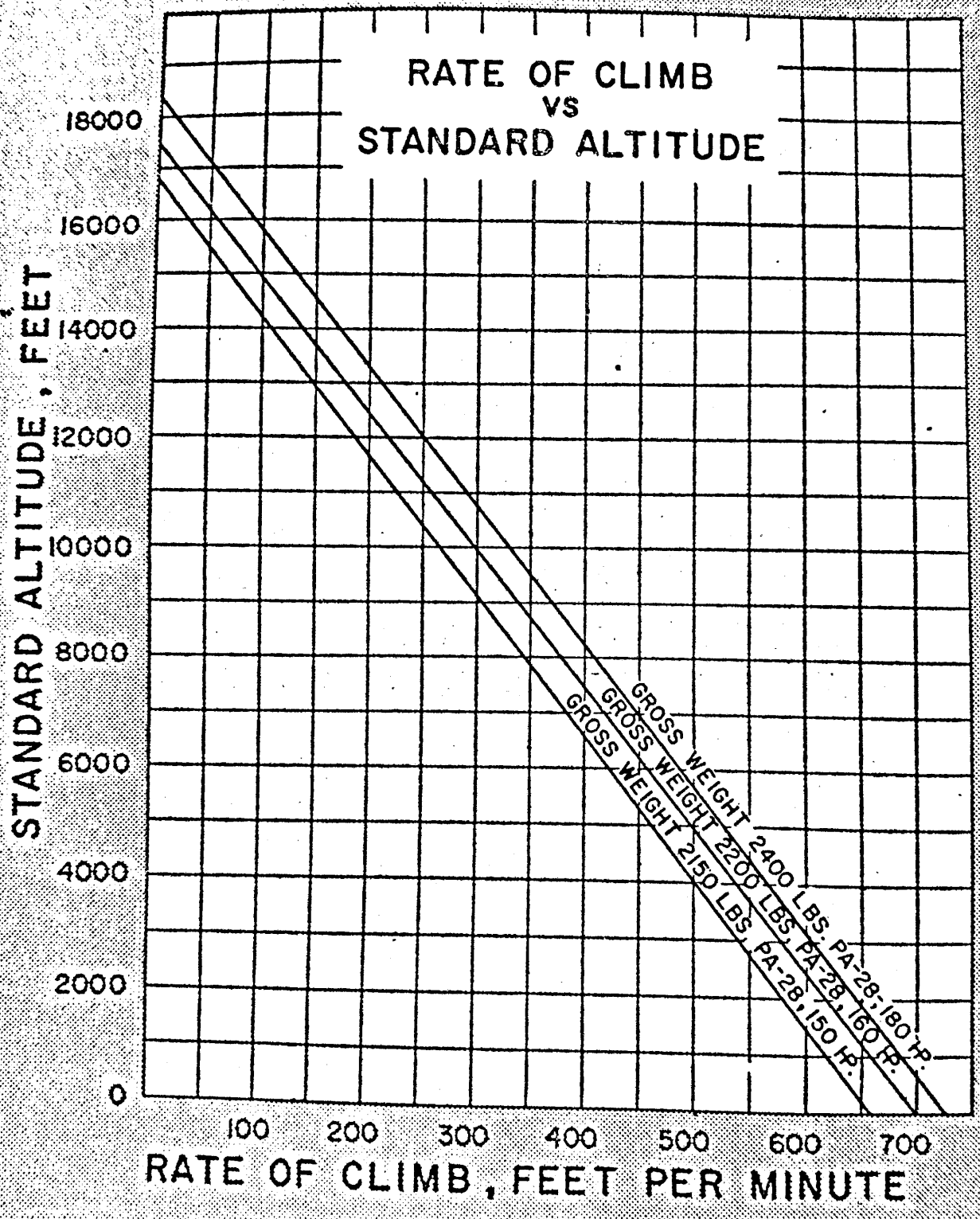
SECTION IV

PERFORMANCE CHARTS

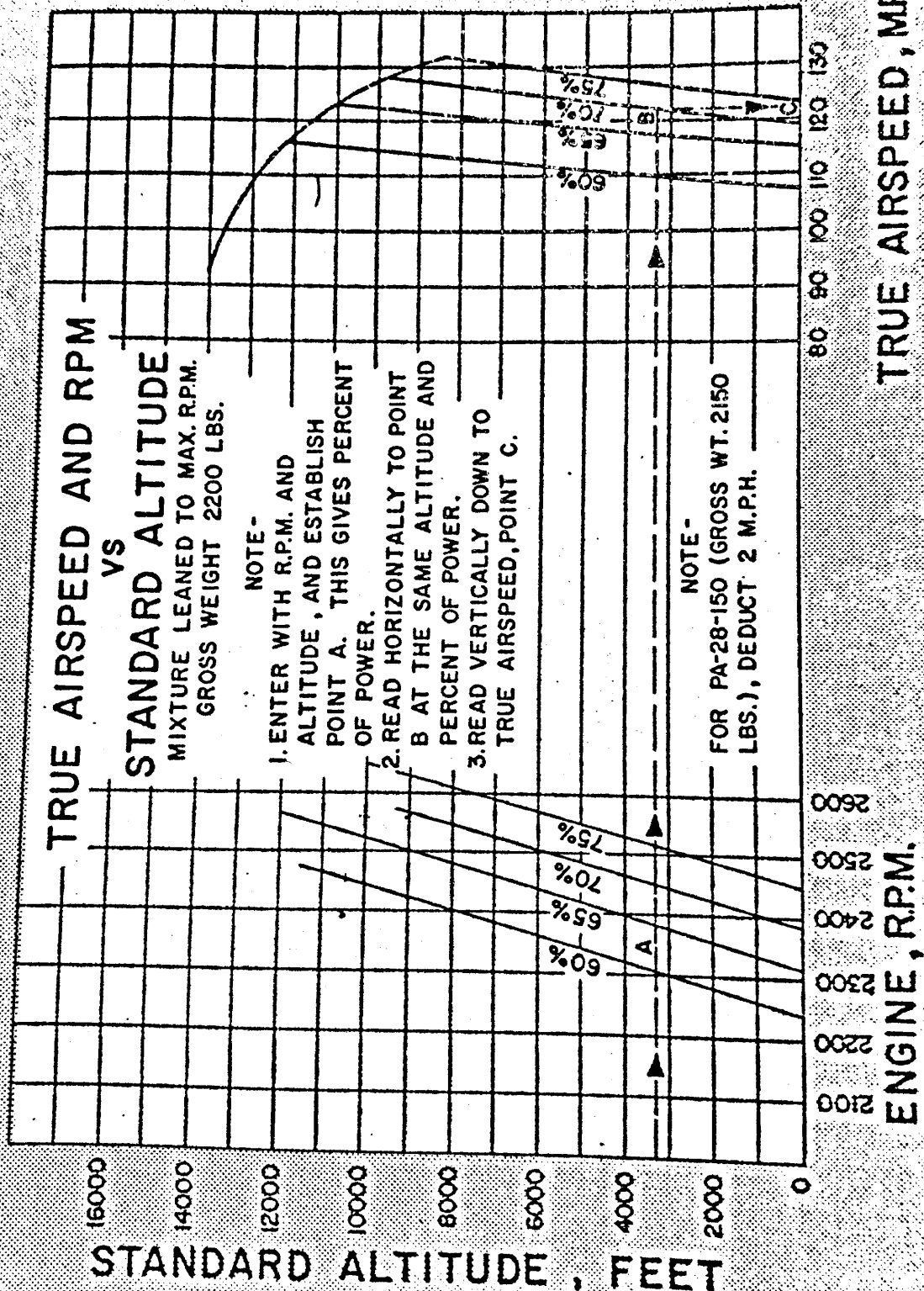
PIPER CHEROKEE
PA-28-150-160-180



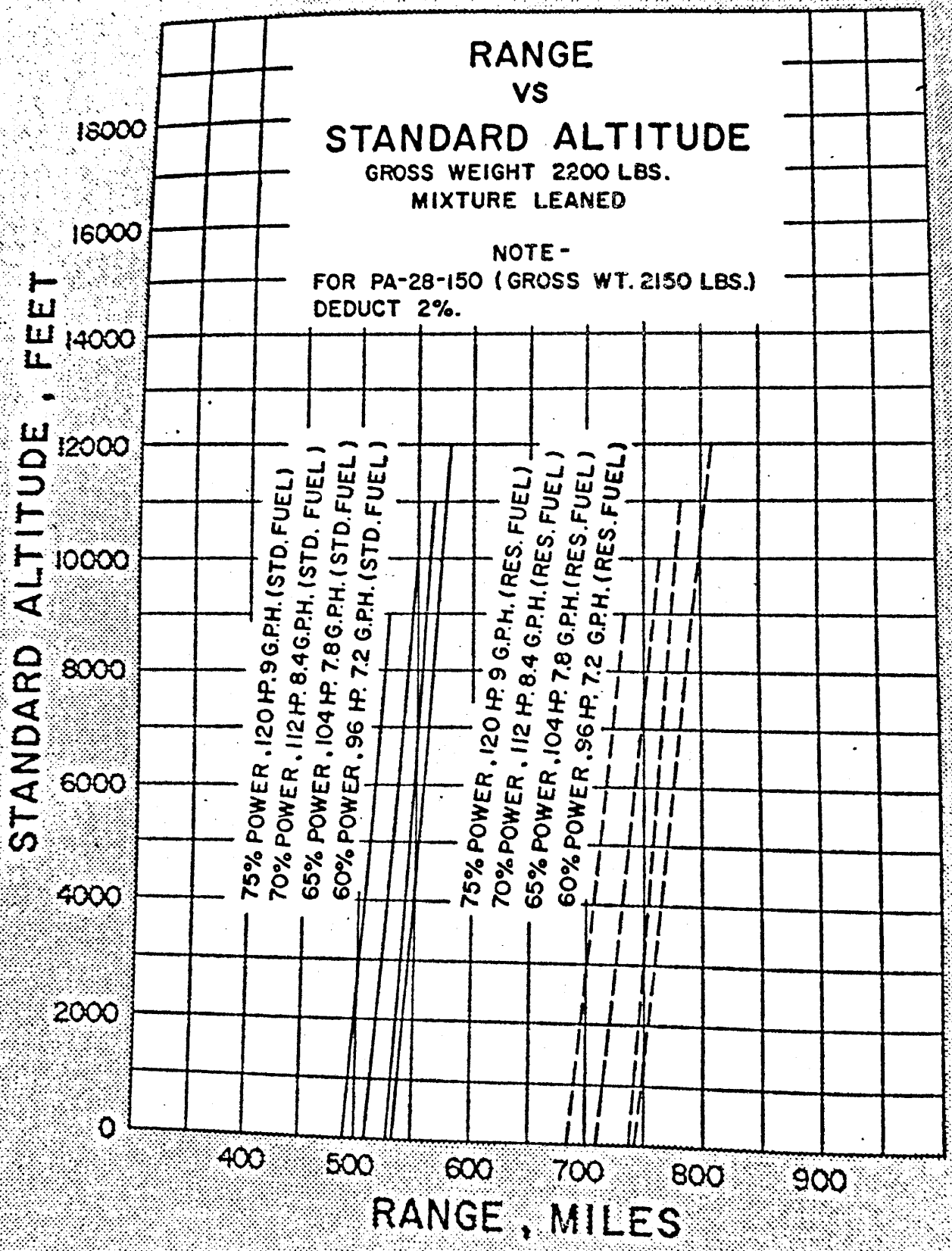
PIPER CHEROKEE
PA-28-150-160-180



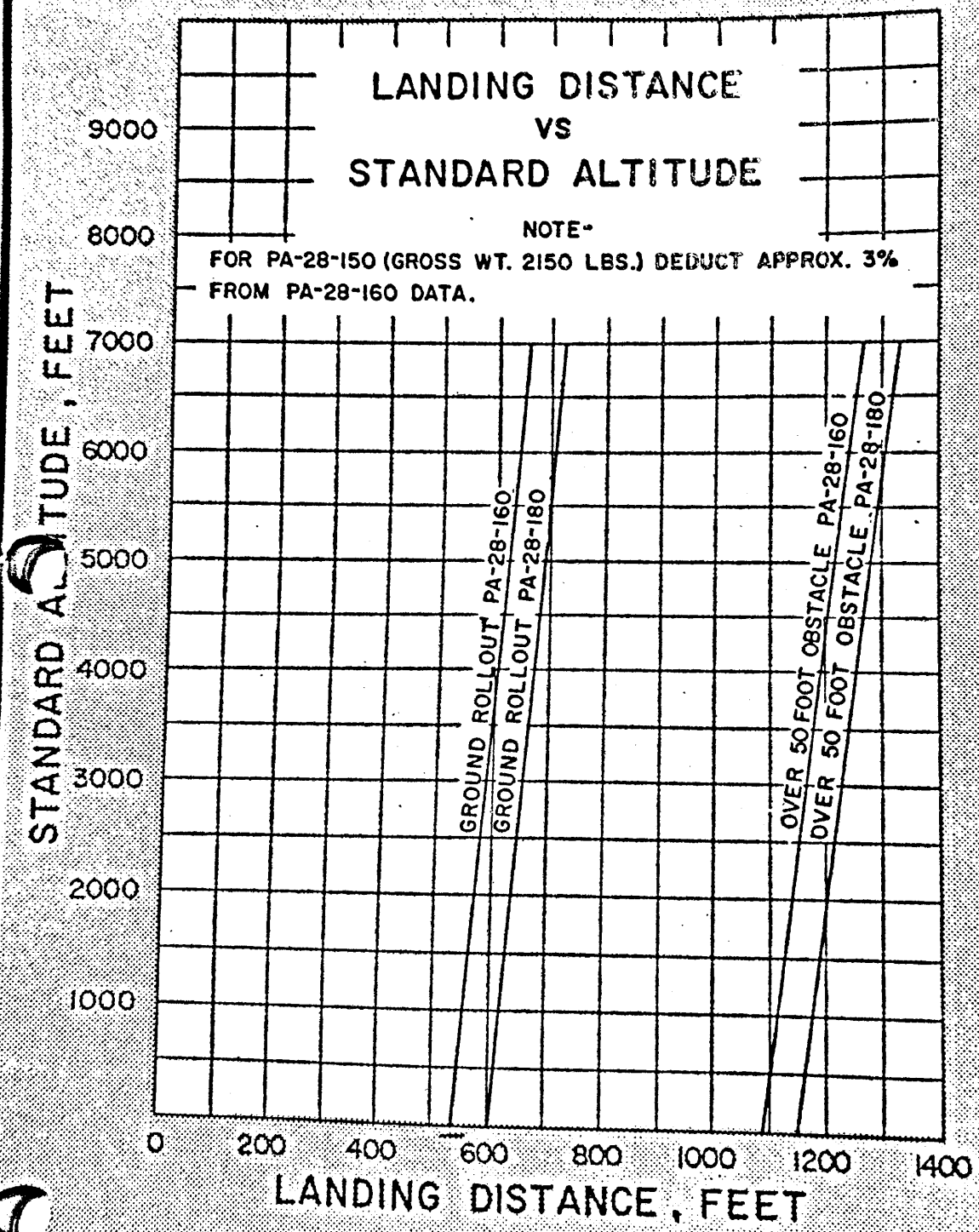
PIPER CHEROKEE
PA-28-160



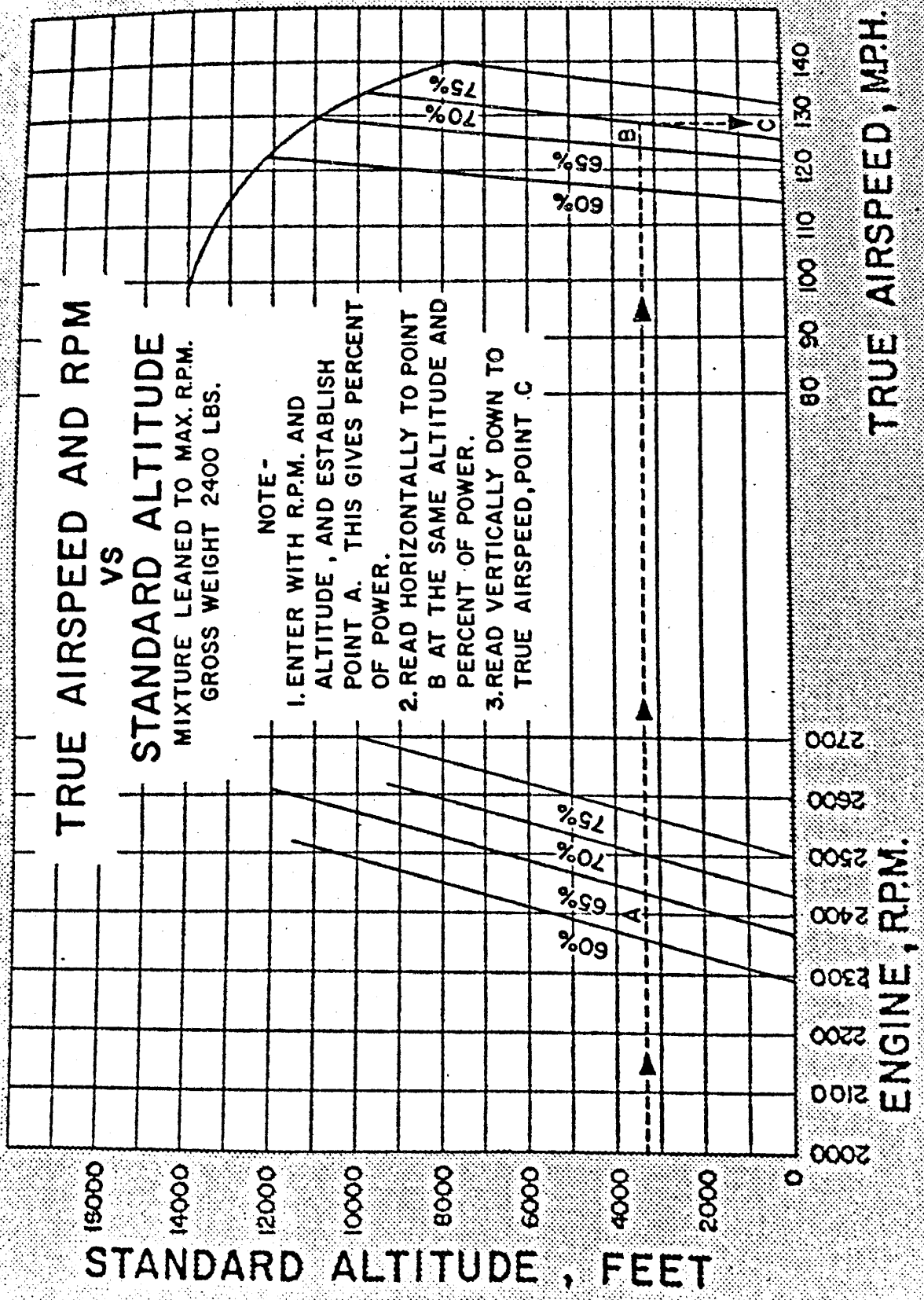
PIPER CHEROKEE
PA-28-160



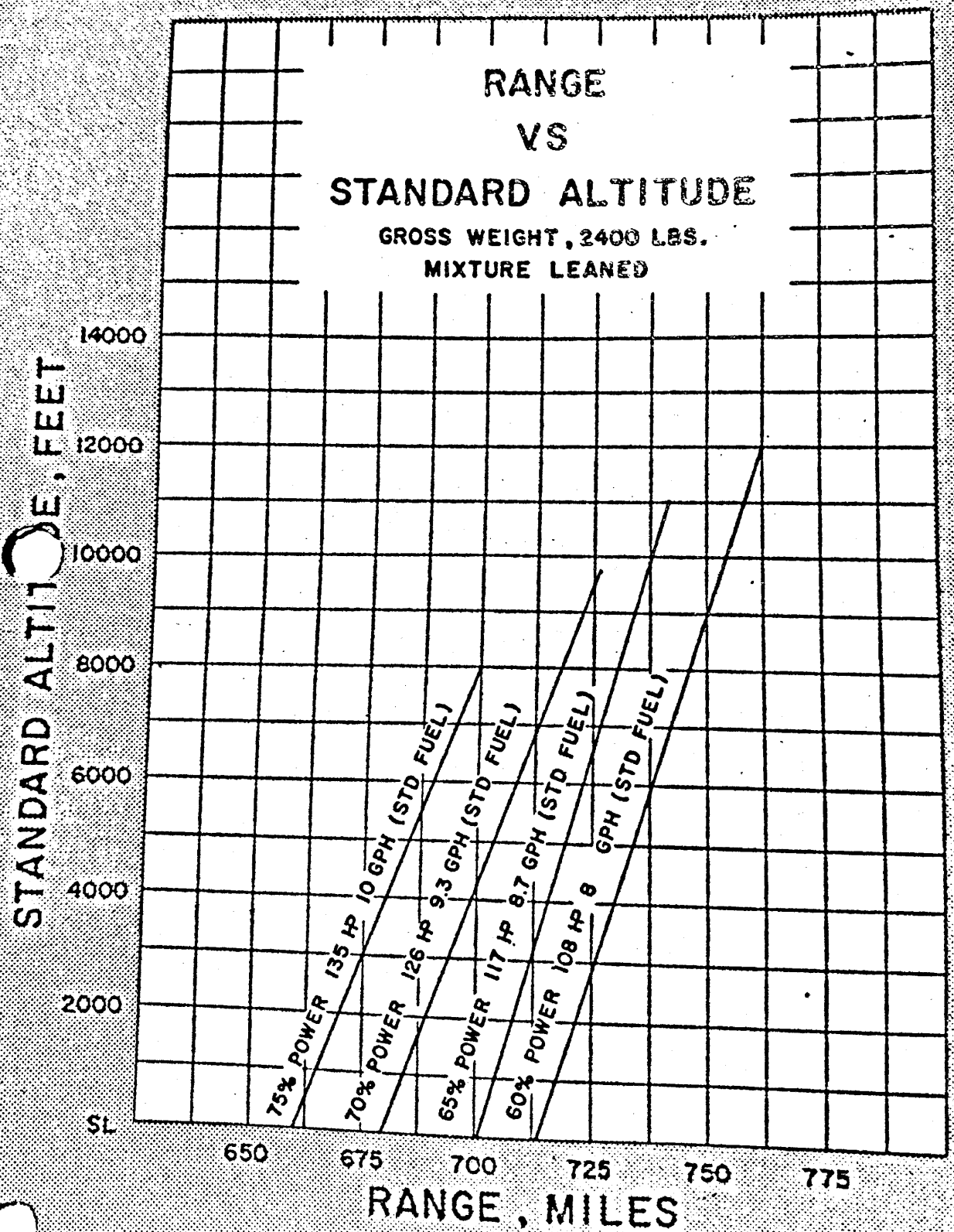
PIPER CHEROKEE
PA-28-150-160-180



PIPER CHEROKEE
PA-28-180



PIPER CHEROKEE
PA-28-180



SECTION V

GENERAL MAINTENANCE

SECTION V

GENERAL MAINTENANCE

TIRE INFLATION

For maximum service from the tires on the Cherokee, keep the tires inflated to the proper pressure of 24 pounds for the main gear, and 18 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 wheel with the tires mounted.

BATTERY SERVICE

Access to the 12 volt battery is through the right rear baggage compartment panel. The stainless steel box has a plastic drain tube which is normally closed off with a clamp 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.

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

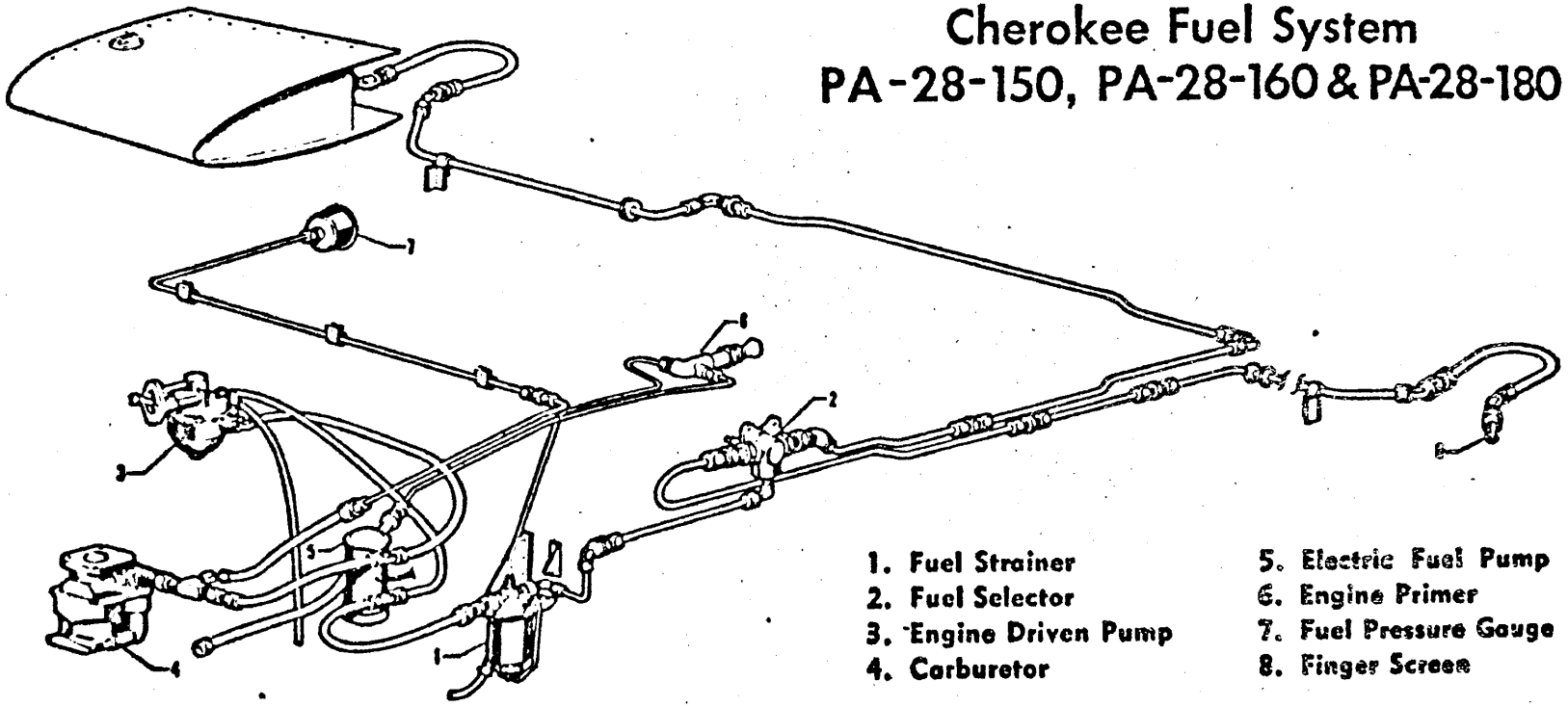
Main wheels are easily removed by taking off the hub cap, axle nut, and the two bolts holding the brake segment in place, after which the wheel slips easily from the axle.

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 AND OIL REQUIREMENTS

Aviation grade 80 Octane (minimum) fuel must be used in the Cherokee 150 while the Cherokee 160 and 180 will utilize 91 Octane fuel. 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-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, or sooner under unfavorable conditions. The following grades are recommended for the specified temperatures:

Temperatures above 40° F . . . . . S.A.E. 50
Temperatures between 10° and 40° 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 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° dihedral, *no wash, **2° washout.
2. Stabilator Travel: 18° up, 2° down, tolerance +/-1°.
3. Fin should be vertical, and in line with center of fuselage.
4. Ailerons Travel: 30° up, 15° down, tolerance +/-2°.
5. Flaps Travel: 10°, 25°, 40°, tolerance +/-2°.
6. Rudder Travel: 27° right and left, tolerance +/-2°.
7. Stabilator Tab Travel: 3° up, 12° down, tolerance +/-1°.

Cable tensions for the various controls are as follows:

Rudder: 40+/-5#
Ailerons: 40+/-5#
Stabilator: 40+/-5#
Stabilator Trim: 5+/-1#
Flap: 10+/-2#

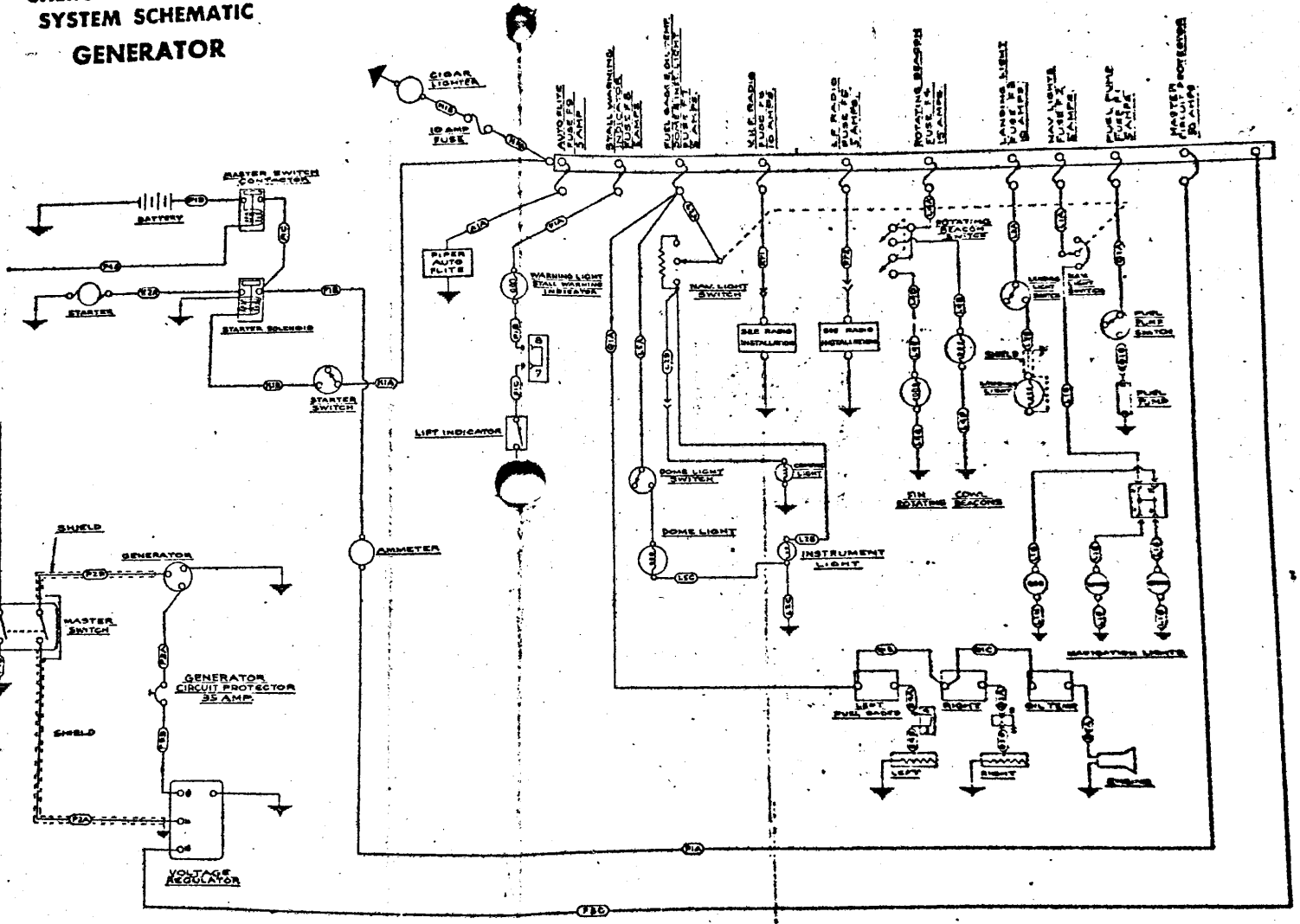
For purposes of changing the lateral trim, a fixed tab is provided on the left aileron which may be adjusted as necessary. For extreme cases of wing heaviness, either of the flaps may be adjusted up or down from the zero position as desired.

*Cherokee 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.

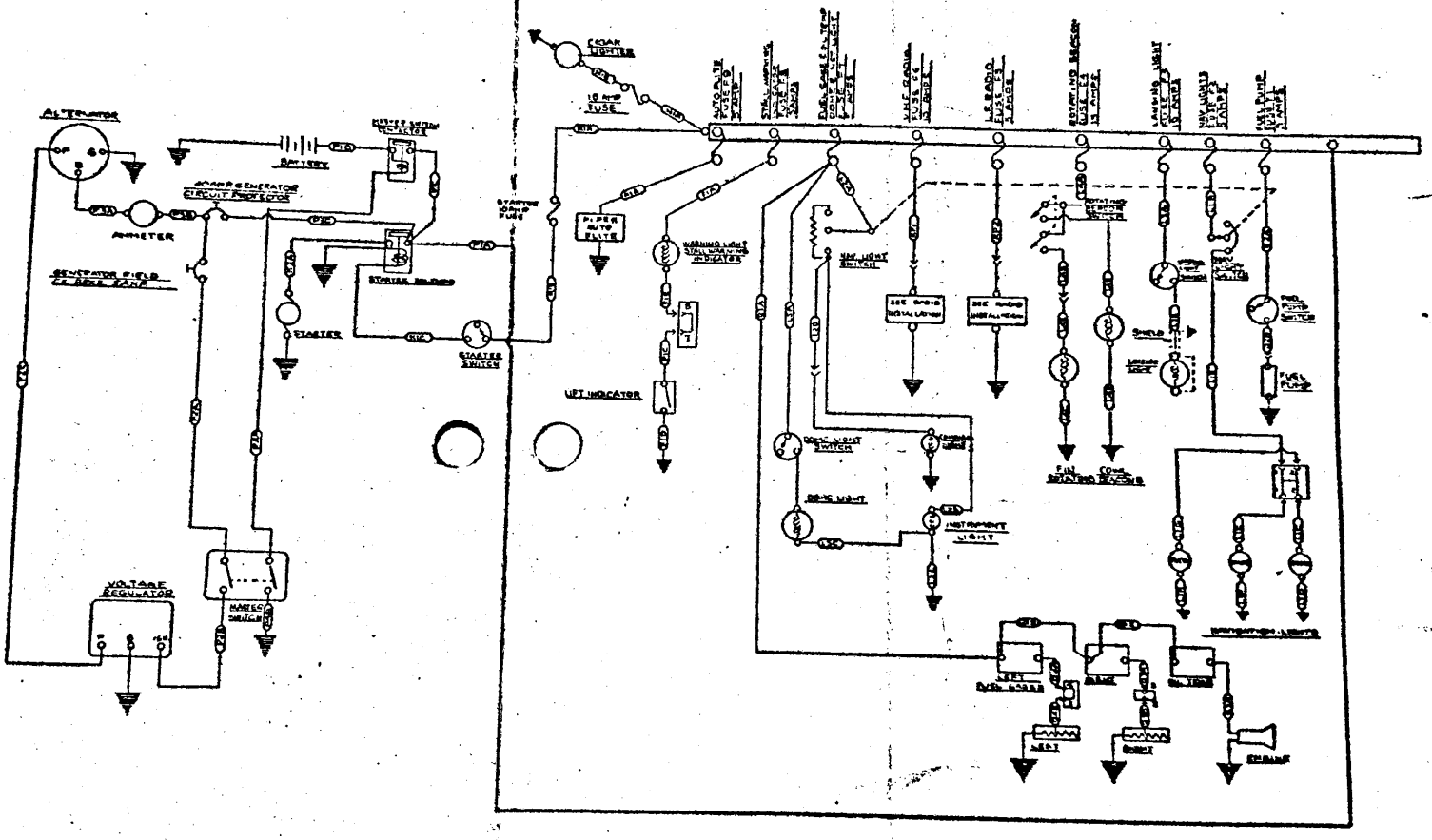
**Cherokee PA-28, Serial Nos. 28-46, 28-55, 28-58, 28-59, 28-60, 28-78, 28-85, 28-90, 28-91, 28-95 and up.

CHEROKEE ELECTRICAL SYSTEM SCHEMATIC

GENERATOR



CHEROKEE ELECTRICAL SYSTEM SCHEMATIC ALTERNATOR



LUBRICATION CHART FOR PIPER CHEROKEE PA-28

	HOURS	LUBRICANT
RUDDER HINGES AND HORN	100	
STABILATOR HINGES	100	
STABILATOR TRIM TAB	100	
STABILATOR ADJUSTMENT MECHANISM	100	
STABILATOR CONTROL PULLEYS	100	
BAGGAGE DOOR AND MAIN DOOR HINGES	100	
AILERON AND FLAP TORQUE TUBE, PULLEYS, BELLCRANK. LEFT AND RIGHT AILERON HINGES.	100 50	
MAIN LANDING GEAR GREASE FITTINGS LEFT AND RIGHT, 4 EACH	100	△
MAIN WHEEL BEARINGS LEFT AND RIGHT	100	□

HOURS		LUBRICANT
500	STABILATOR TRIM PULLEYS (SEE CAUTION 4)	
100	CONTROL COLUMN	
50	BRAKE RESERVOIR MAINTAIN FLUID LEVEL INDICATED ON THE SIDE OF RESERVOIR	○
100	RUDDER ADJUSTMENT MECHANISM AND RUDDER ASSEMBLY	
100	FRONT SEAT ADJUSTMENT	△
100	NOSE WHEEL STEERING	△
100	NOSE WHEEL BEARING	□
100	NOSE WHEEL SCISSORS	
50	ENGINE OIL TANK DRAIN AND REFILL 8 QTS.	ENGINE

NOTES

1. FUEL SYSTEM - THE FOLLOWING POINTS REQUIRE REGULAR SERVICING - FUEL PUMP STRAINER, CARBURETOR SCREEN, FILTER BOWL, QUICK DRAIN UNIT.
2. LANDING GEAR STRUTS - FOLLOW INSTRUCTION PLACARD ON OLEO STRUT.
3. MISCELLANEOUS - DURING ROUTINE MAINTENANCE CHECKS, APPLY LUBRICATION TO MISCELLANEOUS LINKAGES.
4. BATTERY - CHECK BATTERY FLUID LEVEL & BATTERY CONDITION EVERY 25 HOURS.

LEGEND

✓	MIL-L-7870 OIL - GENERAL PURPOSE LOW TEMP. LUBRICATION.
△	MIL-L-2711 GREASE - LUBRICATION GENERAL PURPOSE AIRCRAFT.
□	MIL-L-3545 GREASE - LUBRICATION HIGH TEMP.
○	MIL-O-6806 HYDRAULIC FLUID (RED).
ENGINE	SAE 60 ABOVE 40 AIR TEMP. ⊕ SAE 30 BETWEEN 10° & 40° AIR TEMP. ⊕ SAE 20 BELOW 10° AIR TEMP. ⊕

CAUTIONS

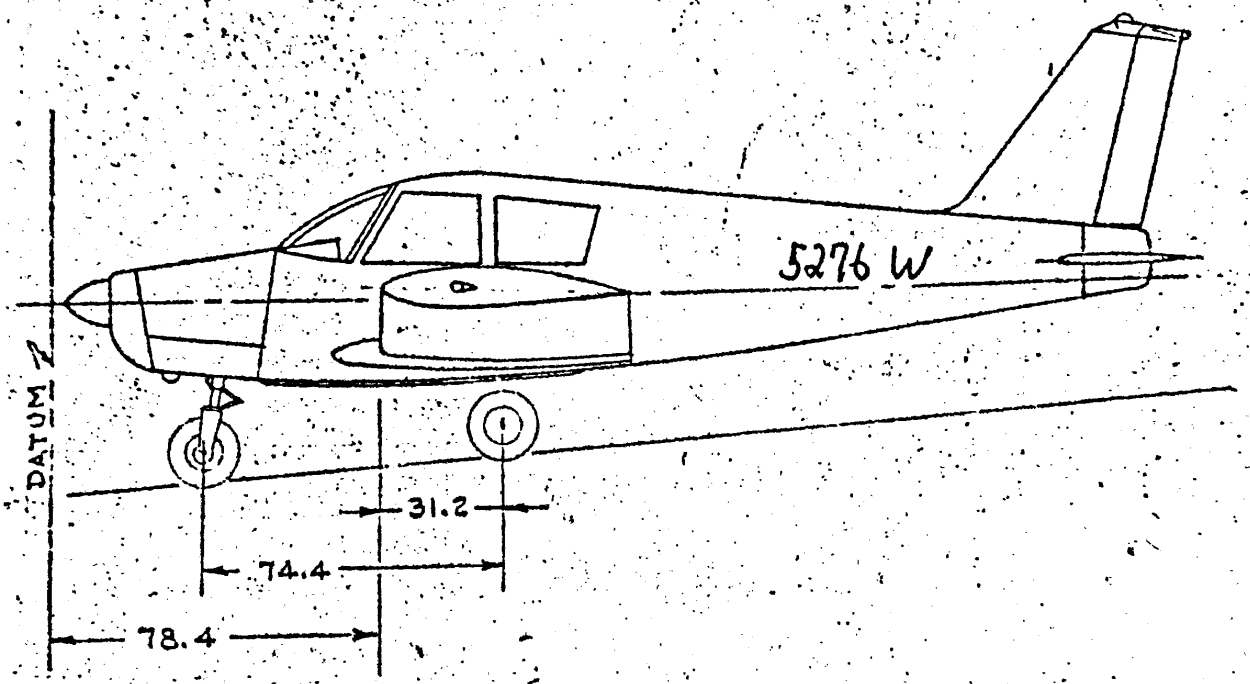
1. DO NOT USE A HYDRAULIC FLUID WITH A CASTOR OIL OR ESTER BASE.
2. DO NOT OVER-LUBRICATE PEDESTAL CONTROLS.
3. DO NOT APPLY LUBRICANT TO RUBBER PARTS.
4. UNDER NO CIRCUMSTANCES SHOULD THE TRIM CABLES FROM THE COCKPIT TO THE REAR OF THE FUSELAGE BE LUBRICATED - AS THIS MAY CAUSE SLIPPAGE.
5. REMOVE ALL EXCESS GREASE FROM GREASE FITTINGS.
⊕ NON-DETERGENT. SEE LYCOMING SERVICE INSTRUCTIONS NO. 1014 FOR USE OF DETERGENT OIL.
6. OIL AILERON HINGES EVERY FIFTY HOURS.

PREPARED	PIPER AIRCRAFT CORP. DEVELOPMENT CENTER, VERO BEACH, FLA.	
CHECKED		
APPROVED		PAGE 1 Section 2

Actual Weight and Balance

Model PA-28

SERIAL NO. 28- 323 CERTIFICATE NO. N 5276W Date 1-29-62



Empty Weight as Weighed (Includes items checked on Equipment List)

Left Wheel	461.00
Right Wheel	473.25
Nose Wheel (N)	388.35
Total (T)	1308.50 LBS.

Ronald Pitcher

Ronald Pitcher
DMIR-2049

REVISED WEIGHT AND BALANCE

PIPER PA-28-160 SERIAL NO. 28-322

AUGUST 23, 1990

ACTUAL WEIGHT WITH THE FOLLOWING EQUIPTMENT

LEFT WHEEL	461.00 LBS.
RIGHT WHEEL	473.25 LBS.
NOSE WHEEL	388.35 LBS.
LESS ENGINE OIL 7.5 QTS.	14.10 LBS.

AIRCRAFT GROSS WEIGHT	2200.00 LBS.
NEW A/C EMPTY WEIGHT	1308.50 LBS.
NEW A/C USEFUL LOAD	891.50 LBS.

NEW EMPTY C.G.	88.28 ARM AFT.
NEW MOMENT	115526.80 LBS/INCHES

	LBS.	'ARM AFT DATUM
ENGINE ACCESSORIES		
FUEL PUMP-ELECTRIC AUXILIARY BENDIX MODEL #478360	1.8	41.75
FUEL PUMP-ENGINE DRIVEN TYPE A.H. NO. #5594068	3.0	41.34
OIL COOLER PIPER #18622	2.6	18.14
AIR BOX PIPER #63601	.5	33.56
FILTER-FRAM MODEL CA-161PL	.9	20.14
GENERATOR-DELCO REMY #1101900 12V. 35 AMP.	16.6	19.00
STARTER-DELCO REMY MODEL #110657	17.0	19.00
VACUUM PUMP-AIRBORNE MECHANISMS MODEL #10-113A1	3.6	32.27
PROPELLER AND PROPELLER ACCESSORIES		
PROPELLER-SENSENICH M74DM60	30.0	10.08
SPINNER AND ATTACHMENT PLATES	2.0	8.00
LANDING GEAR AND BRAKES		
TWO MAIN WHEEL ASSY'S 6:00 X 6 CLEVELAND AIRCRAFT PRODUCTS WITH BRAKE ASSY'S NO. 30-18	14.0	109.64
TWO 4 PLY RATING TIRES 6:00 X 6 WITH REGULAR TUBES	18.0	109.64
ONE NOSE WHEEL 6:00 X 6 CLEVELAND AIRCRAFT PRODUCTS (LESS BRAKE DRUM)	5.0	34.25
ONE 4 PLY RATING TIRE 6:00 X 6 WITH TUBE	9.0	34.25

ELECTRICAL EQUIPTMENT	LBS.	ARM AFT DATUM
BATTERY 12V 35 AMP. GILL MODEL G-35	27.0	160.88
AFT. ROTATING BEACON WELEN MODEL WRM 12	2.0	263.37
LANDING LIGHT G.E. MODEL #4507	.5	18.14
INSTRUMENTS		
TURN AND BANK	1.5	66,43
SUCTION GUAGE	.4	68.05
RATE OF CLIMB	1.4	66.80
DIRECTIONAL GYRO-VACUUM	2.5	66.55
ARTIFICIAL HORIZON-VACUUM (ATTITUDE INDICATOR)	2.7	66.05
AVIONICS AND RADIOS		
OMNI ANTENNA	.4	266.23
TRANSMITTING ANTENNA	.3	54.50
NARCO ELT-10	3.3	170.88
NARCO AT-50 TRANSPONDER	3.5	62.55
KING KX-155 NAV/COMM S/N #5557	5.3	62.50
KING KI-209 NAV INDICATOR	1.2	66.40
KING KMA-24 AUDIO PANEL S/N #31351	1.7	62.50
KING KY-97A COMM TRANSCEIVER S/N #5595	2.8	62.50
NORTHSTAR M-1 LORAN-C S/N #N19761	4.2	62.50
NORTHSTAR AN-100 LORAN-C ANTENNA S/N NA	.4	54.50
A/C MIC AND INTERCOM 66TRA PPT/SWITCH	1.0	62.50
MISC ITEMS		
TOW BAR ASSY	1.5	132.00
FIRE EXTINGUISHER HALON 1121	3.5	75.5

SAMPLE LOADING PROBLEM

ITEM	WEIGHT	ARM	MOMENT
EMPTY WEIGHT	1308.5	88.28	115526.8
PILOT	280.0	85.50	23940.0
REAR SEAT		118.10	
OIL	15.0	31.70	475.5
FUEL (40 GAL.)	240.0	95.00	22800.0
BAGGAGE	12.0	142.80	1713.6
TOTALS=	1855.5	88.63	164455.9

* C.G. RANGE IS FROM 85.1 TO 95.9

* FIRE EXTINGUISHER HALON 1121 IS NOT PART OF THESE FIGURES. WT. IS 3.5 LBS.

WEIGHT AND BALANCE DATA COMPUTATION

Manufacturer PIPER Model PA-28-160 S/N 28-323

Registration No. 5276W Total Hrs

Item	Weight	Arm	Moment
A/C Empty Weight From Records	1,305.0	88.36	115,306.6
Total Weight and Moment Change	3.5		220.2
New Computed Totals	3.5		115,526.8

New Moment/ New Weight = New Empty C.G.

115,526.8 / 1,308.5 = 88.28

New Empty Weight:	1,308.5
New Useful Load	891.5
New Empty C. G.	88.28
New Moment	115,526.8
A/C Gross Weight	2,200.00

VEGAS RADIO
2772 NORTH RANCHO ROAD
LAS VEGAS NEVADA 89130

Work Order No: 2582

FAA Approved Repair Station
VQRS557K

Computed By _____ Date: 08-21-90
Chief Inspector

See revised equipment list for items added or removed in this computation

AIRCRAFT EQUIPMENT LIST

A/C Registration No. 5276W Serial No. 28-323

#	MFGR	MODEL #	DESCRIPTION	WT	ARM	MOMENT
R1	NARCO	NAV-11	NAV S/N # 57185	-3.4	62.5	-212.5
R2	NARCO	COM-11A	TRANSCEIVER S/N # 24949	-3.6	62.5	-225.0
R3	NARCO	COM-11A	TRANSCEIVER S/N # 31035	-3.6	62.5	-225.0
R4	RST	RST-501	AUDIO PANEL S/N # 37-527	-1.5	62.5	-93.7
01	KING	KX-155	NAV-COM S/N # 5557	5.3	62.5	331.2
02	KING	KI-209	NAV-INDICATOR S/N # KI-209	1.2	66.4	79.7
03	KING	KMA-24	AUDIO PANEL S/N # 31351	1.7	62.5	106.2
04	KING	KY-97A	TRANSCEIVER S/N # 5595	2.8	62.5	175.0
05	NORTHSTAR	M-1	LORAN-C S/N # N19761	4.2	62.5	262.5
08	NORTHSTAR	AN-100	LORAN-C ANTENNA S/N # N/A	.4	54.5	21.8
	Total Changes This Computation			3.5		220.2

VEGAS RADIO WORK ORDER NUMBER: 2582
VQRS557K DATE COMPLETED: 08-21-90

INITIALED BY RJZ DATE 08-21-90

FAA REPAIR STATION NO. 4921

Hughes Aviation Services

6005 Las Vegas Boulevard South
Las Vegas Nevada 89119
702 739 9322
Telex 684 426

A Division of
Summa Corporation

WEIGHT AND BALANCE SHEET

AIRCRAFT MFG. PIPER MODEL PA28-160 N 5276W SERIAL NO. 28-323

EMPTY C. G. COMPUTATION:

ITEM	WEIGHT	ARM	MOMENT
AIRCRAFT EMPTY	1299.15	88.49	114961.78
WEIGHT INCREASE			
INSTALLED			
NARCO NAV 12 H	3.25	62.5	203.13
TOTALS	1302.4		115164.91

Superceded

TOTAL MOMENT / TOTAL WEIGHT = 115164.9 / 1302.4 EMPTY C. G 88.43

NEW EMPTY WEIGHT 1302.4
NEW USEFUL LOAD 897.6
NEW EMPTY C. G. 88.43
NEW MOMENT 115164.91

DATE: FEBRUARY 12, 1979

COMPUTED BY: George O'Connor
GEORGE O'CONNOR

FAA REPAIR STATION NO. 4921

Hughes Aviation Services

6005 Las Vegas Boulevard South
Las Vegas Nevada 89119
702 739 9322
Telex 684 426

A Division of
Summa Corporation

WEIGHT AND BALANCE SHEET

AIRCRAFT MFG. PIPER MODEL PA28-160 N 5276W SERIAL NO. 28-323

EMPTY C. G. COMPUTATION: HRS. 422.3 TACH TIME
622.6 HR. METER

W. O. #3857

ITEM	WEIGHT	ARM	MOMENT
AIRCRAFT EMPTY	1302.4		115164.91
WEIGHT INCREASE			
U6R-2A, S/N 28HM9	2.3	54.5	125.35
U6R-2 MOUNT	.3	54.5	16.35
TOTALS	1305.0		115306.61

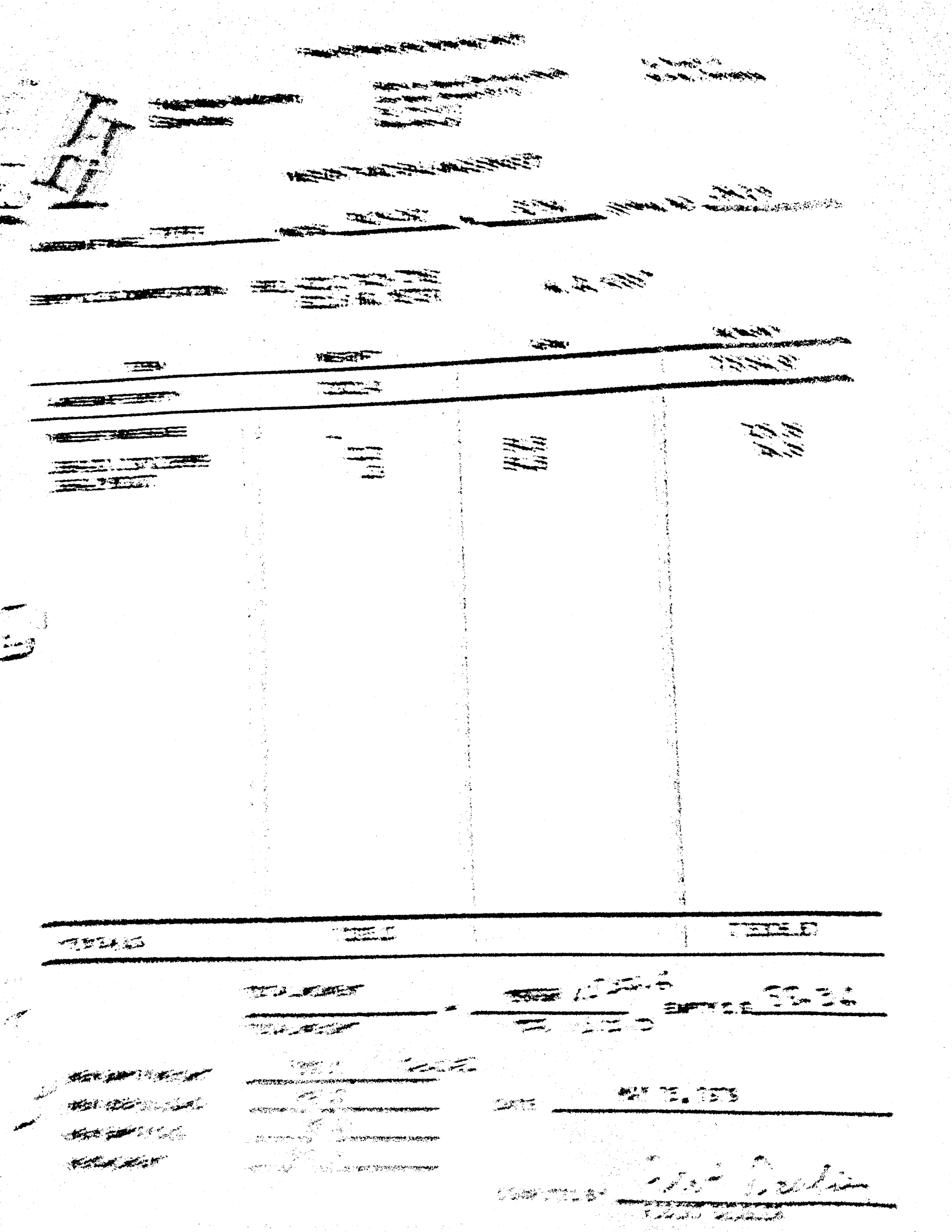
Superseded

TOTAL MOMENT 115306.6 / TOTAL WEIGHT 1305.0 = EMPTY C. G. 88.36

NEW EMPTY WEIGHT 1305.0
NEW USEFUL LOAD 895.0
NEW EMPTY C. G. 88.36
NEW MOMENT 115306.61

DATE: MAY 15, 1979

COMPUTED BY: Robert Deubler
ROBERT DEUBLER



superceeded on 8-21-90
Butler

MOST FORWARD C. G. (REDUCED WEIGHT)

Item	Weight	Arm	Moment
Empty Weight	1299.15	88.49	114964.95
Oil (2 Gal.)	15.0	31.70	475.50
Fuel (8 Gal.)	48.0	95.0	4560.00
Pilot	170.0	85.5	14535.00
TOTAL	1532.15	87.81	134535.45

MOST FORWARD C. G. IS 87.81 INCHES AFT DATUM

MOST FORWARD C. G. (ALTERNATE)

Item	Weight	Arm	Moment
Empty Weight	1299.15	88.49	114964.95
Oil (2 Gal.)	15.0	31.70	475.50
Fuel (50 Gal.)	300	95.0	28500
Pilot	170	85.5	14535
Passenger (Front Seat)	170	85.5	14535
TOTAL	1954.15	88.53	173010.45

MOST FORWARD C. G.(ALTERNATE) IS 88.53 INCHES AFT DATUM

Superseded by ... 8-21-80

MOST REARWARD C. G. (GROSS WT.)

Item	Weight	Arm	Moment
Empty Weight	1299.15	88.49	114964.95
Oil (2 Gal.)	15.0	31.70	475.5
Fuel (25 Gal.)	150.0	95.0	14250.0
Pilot & Passenger F/S	340	85.5	29070.0
Passengers (Rear Seat)	340	118.1	40154.0
Baggage	55.0	142.8	7854.0
TOTAL	2199.15	94.02	206768.45

MOST REARWARD C. G. (GROSS WT.) IS 94.02 INCHES AFT DATUM

MOST REARWARD C.G. (GROSS WT. ALTERNATE)

Item	Weight	Arm	Moment
Empty weight	1299.15	88.49	114964.95
Oil (2 Gal.)	15.0	31.70	475.5
Fuel (Amonnt required to reach 2200 lbs.)	105.85	95.0	10055.75
Pilot & Passenger F/s	340	85.5	29070.0
Passengers (Rear Seat)	340	118.1	40154.0
Baggage	100	142.8	14280.0
TOTAL	2200	95.0	209000.2

MOST REARWARD C. G. (GROSS WT. ALTERNATE) IS 95.0 INCHES AFT DATUM

APPROVED 11/24/76 [signature] A1 1678553

DATE 11/24/76

TAKE OFF WEIGHT AND BALANCE

PIPER PA-28-160

5276W

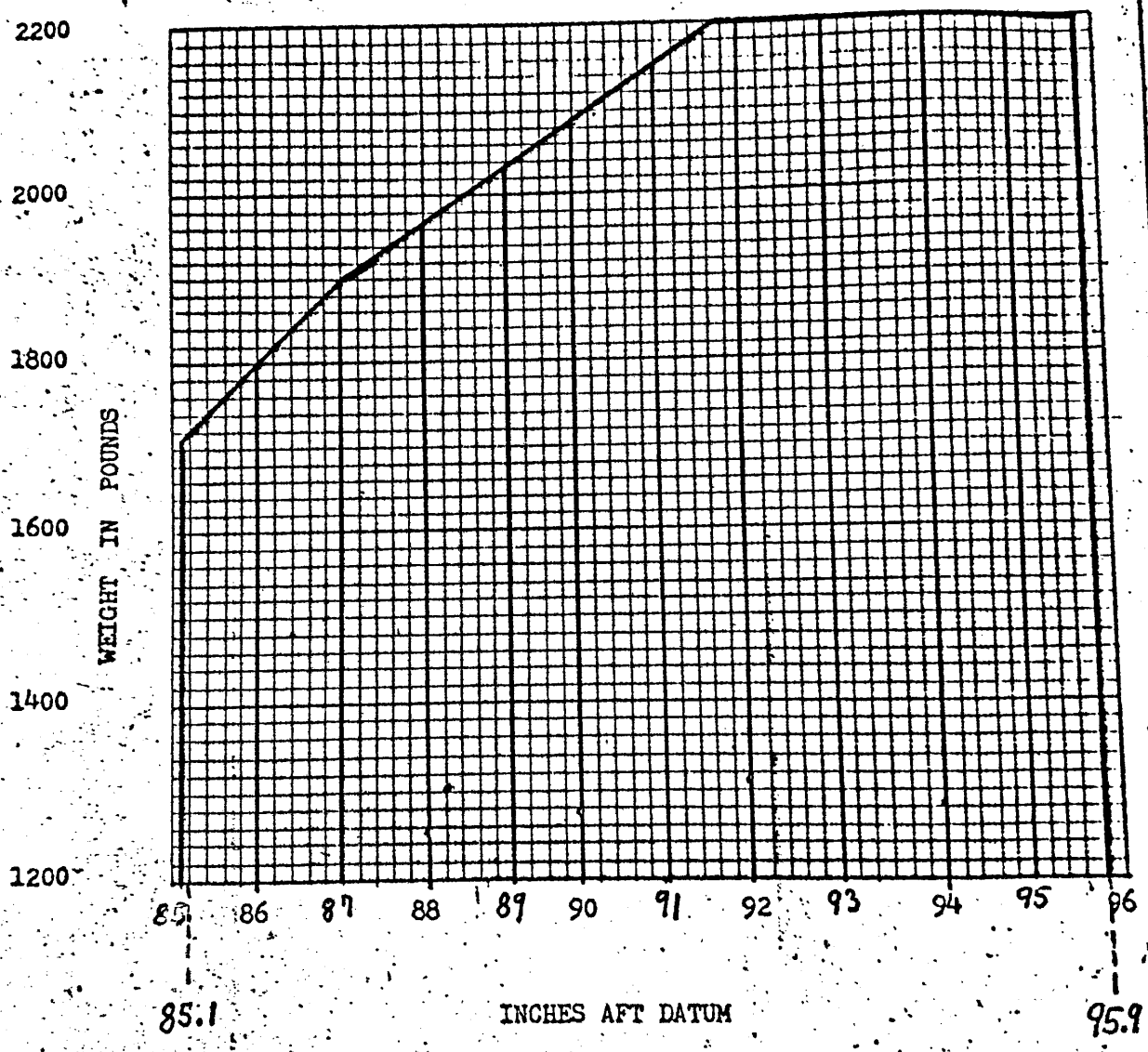
GROSS TAKE OFF WEIGHT IS 2200 LBS.

	WT. LBS.	AFT ARM.	MOMENT
BASIC EMPTY WEIGHT	1308.50	88.28	115526.8
PILOT & FRONT PASSENGER		85.5	
PASSENGERS (REAR SEAT)		118.1	
OIL (7.5 QTS. MAX)	15.0	31.7	475.5
FUEL (50 GAL. MAX.)		95.0	
BAGGAGE (MAX 100 LBS.)		142.8	
TOTAL LOADED A/C.			

ABOVE FIGURES DO NOT REFLECT THE HALON 1121 EXTINGUISHER WHICH IS 3.5 LBS.
C.G. RANGE IS FROM 85.1 TO 95.9

PIPER AIRCRAFT CORP.
DEVELOPMENT CENTER, VERO BEACH, FLA.

C. G. RANGE AND WEIGHT.



Arthur R. Mattson
11412 Charles Road
Woodstock Il 60098
Date:

HOFFMAN GPS 352

GPS 352

AIRPLANE FLIGHT MANUAL SUPPLEMENT

FOR

PIPER MODELS
PA-28-140, PA-28-150, PA-28-151, PA-28-160,
PA-28-161, PA-28-180, PA-28-181, PA-28-235,
PA-28-236, PA-28S-160, PA-28S-180,
PA-28R-180, PA28R-200, PA-28R-201,
PA-28R-201T, PA-28-201T

WITH

GAP SEALS PER STC SA470CH

Registration No. N5276W

Serial No. 28-323

This Airplane Flight Manual Supplement must be attached to the FAA Approved Piper Model PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-181, PA-28-235, PA-28-236, PA-28S-160, PA-28S-180, PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T, or PA-28-201T Flight Manual when gap seals per STC SA470CH are installed in accordance with Art Mattson's Gap Seal Installation Instructions.

The information contained herein supplements or supersedes the information of the basic Airplane Flight Manual only in those areas listed. For Limitations, Procedures, and Performances data not contained in this supplement, consult the basic Airplane Flight Manual.

Approved: Marvin Anderson

for Manager, Systems and Flight Test Branch
Chicago Aircraft
Certification Office
FAA Central Region

FAA Approved
Date: NOV 06 1995

Arthur R. Mattson
11412 Charles Road
Woodstock Il 60098
Date:

GPS 352

AIRPLANE FLIGHT MANUAL SUPPLEMENT
PIPER MODELS PA-28-140, PA-28-150,
PA-28-151, PA-28-160, PA-28-161,
PA-28-180, PA-28-181, PA-28-235,
PA-28-236, PA-28S-160, PA-28S-180,
PA-28R-180, PA-28R-200, PA-28R-201
PA-28R-201T, PA-28-201T

GAP SEALS PER STC SA470CH

GPS 352

LOG OF REVISIONS

Rev. No.	Description	Pages revised	Approved By	Date
1	increase (VNE) to 214mph (186kts)	3 of 3	Joseph C Mattson	9/24/96

Arthur R. Mattson
11412 Charles Road
Woodstock Il 60098
Date:

GPS 352

AIRPLANE FLIGHT MANUAL SUPPLEMENT
PIPER MODELS PA-28-140, PA-28-150,
PA-28-151, PA-28-160, PA-28-161,
PA-28-180, PA-28-181, PA-28-235
PA-28-236, PA-28S-160, PA-28S-180,
PA-28R-180, PA-28R-200, PA-28R-201
PA-28R-201T, PA-28-201T

GAP SEALS PER STC SA470CH

GPS 352

INTRODUCTION:

This modification was done to make your airplane safer and more enjoyable to fly. It is very important that you follow the original Flight Manual except the changes listed below:

OPERATING LIMITATIONS:

The Never Exceed Airspeed (VNE) for the Gap Seals is 186 Knots, or 214 m.p.h, IAS. If the original VNE of the airplane is lower, the lower VNE remains in effect. All other operating limitations are unchanged.

NORMAL OPERATING PROCEDURES:

NO CHANGE

EMERGENCY PROCEDURES:

NO CHANGE

PERFORMANCE:

The performance of the airplane equipped with gap seals per STC SA470CH is equal to or better than the performance of the original airplane.

TO BE ADDED TO FLIGHT MANUAL:

Inspection of the condition of the gap seals must be added to the preflight inspection listed in The Piper Owners Manual. The gap seals are to be checked to make sure the adhesion of the seal is intact and that there are no cracks or slits in the seal. If there is any sign of delamination, the gap seal must be resealed before flight. See gap seal installation and repair instructions.

At each annual inspection, the gap seal must be tested for flexibility by using a Maule Fabric Tester. The aileron or stabilator trim tab should be deflected down slightly (approximately 1/2"). The probe end of the Maule Fabric Tester should be placed on the gap seal material in the center of and perpendicular to the gap. Apply downward pressure to the tester, forcing the probe into the material until the larger portion of the tester makes contact with the rigid surface either side of the gap. If the material deforms without rupturing, the gap seal is acceptable for further use. If the material ruptures, the material must be removed and new gap seals installed.

FAA Approved
Date: September 24, 1996

Weight and Balance Report

Make	Piper	**Model**	PA28-160
Serial#	28-323	**Reg.#**	N5276W
Date of scale calibration:			
Aircraft gross weight:			2,200.00

Aircraft as Weighed					
Weight Point	**Scale Reading**	**Tare**	**Net Weight**	**Arm**	**Moment**
Left	564.00	5.00	559.00	109.60	61,266.40
Right	558.00	4.00	554.00	109.60	60,718.40
Nose	449.00	0.00	449.00	35.20	15,804.80
Total As Weighed			1,562.00	88.21	137,789.60

Weight Adjustments			
Description	**Weight**	**Arm**	**Moment**
FUEL	-216.00	95.00	-20,520.00
OIL 7 QTS	-13.13	31.70	-416.22
Total Corrected Empty Weight	1,332.87	87.67	116,853.38

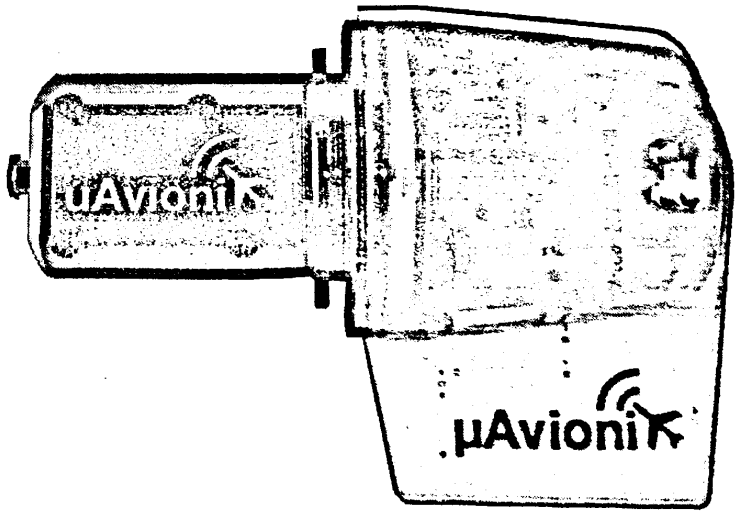
Corrected Empty Weight:	1,332.87
Center of Gravity:	87.67
Useful Load:	867

A.J. Pawlowski	AJP AERO, LLC	AP3134269	11/28/2009
Authorized Signature	Title	Cert. Number	Date

uAvionix

tailBeacon™ TSO

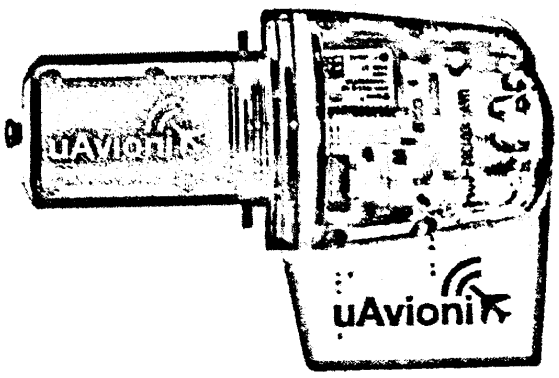
User and Installation Guide



uAvionix

TSO Certified ADS-B

tailBeacon



Overview

tailBeacon is a TSO Certified 2020 compliant, near zero- install, Class B1S ADS-B UAT transmitter and WAAS GPS integrated into a rear position light. The power transcoder decodes replies from legacy Mode C and Mode S transponders. 14 CFR §91.227 compliant. Smart phone configurable over Wi-Fi.

Features

UAT Transmitter

- TSO- 154c (RTCA/DO-282B) Class B1S

Position Lighting

- TSO-C30c Type III

WAAS GPS

- TSO- C145e (RTCA/DO-229E) Class Beta 1
- Integrated RAIM processor for Security and Integrity protection
- SBAS corrections and health messages used to detect and correct satellite range errors
- Satellite pseudo range step errors detected and excluded
- SBAS fast and long-term corrections applied

Power Transcoder

- Decodes altitude and squawk via aircraft electrical system

U.S. Patents – www.uavionix.com/patents

Regulatory

- FCC ID 2AFFTUAT016R
- ADS-B Out: §91.225, §91.227, AC 20-165B
- GNSS Position: AC 20-165B
- Position Light: SAE/AS8037

Technical Specifications

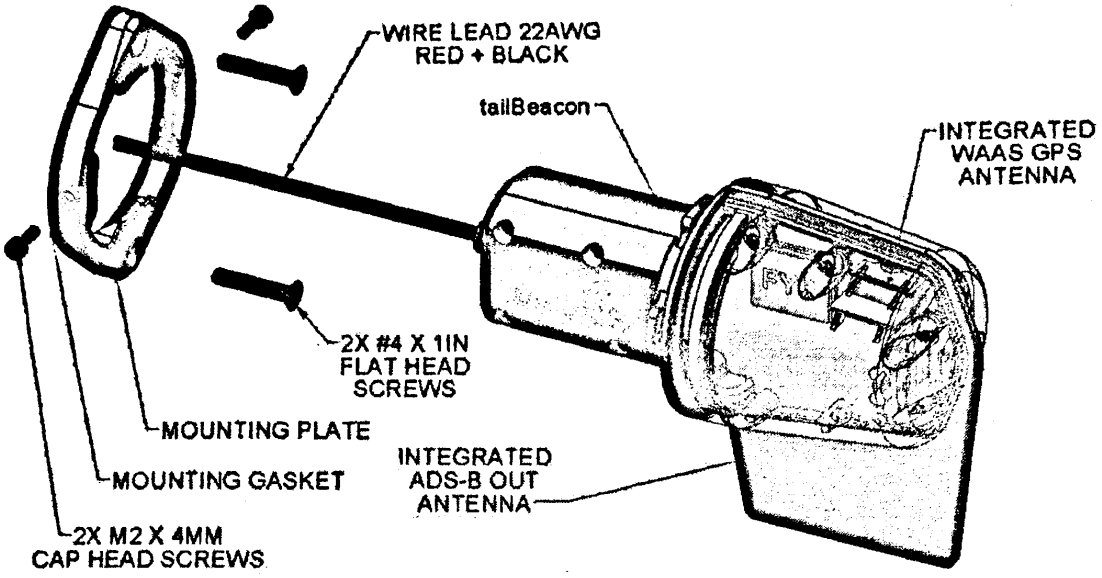
Specification	Value
Input Voltage	11-31V DC
Operating Power	3 watts
Size	92x43x73mm
Weight	70 grams
SDA/SIL	2/3
Operating Temp	-45 to 70°C
978MHz UAT Transmitter	
Power Classification	DO-282B Medium Power
WAAS GPS	
Tracking Reacquisition Cold Start	-166dBm -160dBm -148dBm
LED Position Light	
Color	Aviation White
Intensity	40 candelas
Wi-Fi Configuration	
Physical	802.11b/g/n
App Compatibility	iOS, Android
Power Transcoder	
Decodes Mode A, C and S via Power Transcoder	

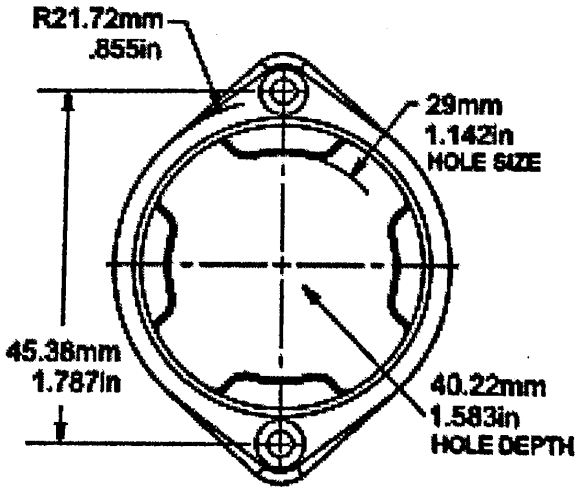
 www.uavionix.com

uAvionix

TSO Certified ADS-B

tailBeacon





MOUNTING RING CAN BE INSTALLED WITH SCREWS HORIZONTAL OR VERTICAL

uAvionix products are warranted to be free from defects in material and workmanship for one year from the date of installation in the aircraft. For the duration of the warranty period, uAvionix, at its sole option, will repair or replace any product which fails in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost.

1 Revision History

Revision	Date	Comments
A	7/3/2019	Initial release
B	8/28/2019	Update annual checks to include ADS-B version, and update TCAS limitation. Note installation kit.
C	12/2/2019	Updated installation kit instructions. Add rotorcraft specific language.

2 Warnings / Disclaimers

All device operational procedures must be learned on the ground.

uAvionix is not liable for damages arising from the use or misuse of this product.

This equipment is classified by the United States Department of Commerce's Bureau of Industry and Security (BIS) as Export Control Classification Number (ECCN) 7A994.

These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

3 Limited Warranty

uAvionix products are warranted to be free from defects in material and workmanship for two years from the installation of tailBeacon on the aircraft. For the duration of the warranty period, uAvionix, at its sole option, will repair or replace any product which fails in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost.

Restrictions: This warranty does not apply to cosmetic damage, consumable parts, damage caused by accident, abuse, misuse, fire or flood, theft, hangar rash, damage caused by unauthorized servicing, or product that has been modified or altered.

Disclaimer of Warranty: IN NO EVENT, SHALL UAVIONIX BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Warranty Service: Warranty repair service shall be provided directly by uAvionix. Proof of purchase for the product from uAvionix or authorized reseller is required to obtain and better expedite warranty service.

Please email or call uAvionix support with a description of the problem you are experiencing. Also, please provide the model, serial number, shipping address and a daytime contact number.

You will be promptly contacted with further troubleshooting steps or return instructions. It is recommended to use a shipping method with tracking and insurance.

4 Table of Contents

5 TSO and System Information

5.1 Certification

This installation manual provides mechanical and electrical information necessary to install tailBeacon. It is not equivalent to an approved airframe-specific maintenance manual, installation design drawing, or installation data package. The content of this manual assumes use by competent and qualified personnel using standard maintenance procedures in accordance with Title 14 of the Code of Federal Regulation and other related accepted procedures. The conditions and tests required for approval of this article are minimum performance standards. Those installing this article either on or within a specific type or class of aircraft must determine that the aircraft installation conditions are within the standards which include any accepted integrated functions not specified by the standards. TSO articles, articles approved with 14 CFR Part 21.8(d), and any accepted integrated function(s) not specified in the standard must have separate approval for installation in an aircraft. The article may be installed only according to 14 CFR Part 43 or the applicable airworthiness requirements. This is an incomplete system intended to provide the functions identified in, and when installed according to this installation manual.

5.2 TSO Authorization

Function	TSO/RTCA/SAE	Class/Type
Airborne Navigation Sensor Using the Global Positioning System (GPS) Augmented by the Satellite Based Augmentation System (SBAS)	TSO-C145e INCOMP RTCA/DO-229E	Beta 1
Universal Access Transmitter (UAT) Automatic Dependent Surveillance-Broadcast (ADS-B) Equipment Operating on Frequency of 978MHz	TSO-C154c RTCA/DO-260B	B1S
Position Light (White)	TSO-C30c SAE/AS8037	Type III
Automatic Pressure Altitude Reporting Code-Generating Equipment	TSO-C88b SAE/AS8003	

5.3 Applicable P/Ns

Description	P/Ns
skyBeacon PF007 Boot Program Firmware	UAV-1001758-( )
skyBeacon PF007 Operating Program Firmware	UAV-1001759-( )
skyBeacon GNSS Operating Program Firmware	UAV-1002029-( )
skyBeacon Wi-Fi Operating Program Firmware	UAV-1001761-( )
skyBeacon Transponder Monitor Firmware	UAV-1001762-( )

5.4 System Functions

System Function	DO-178C DAL	DO-254 DAL
GPS/SBAS	C	C
UAT Transmission	C	C
Transponder Monitor	C	C
Altitude Encoder	C	C
Wi-Fi [1]	E	E

[1] Wi-Fi not intended for and disabled during airborne operation

5.5 TSO Deviations and Incomplete

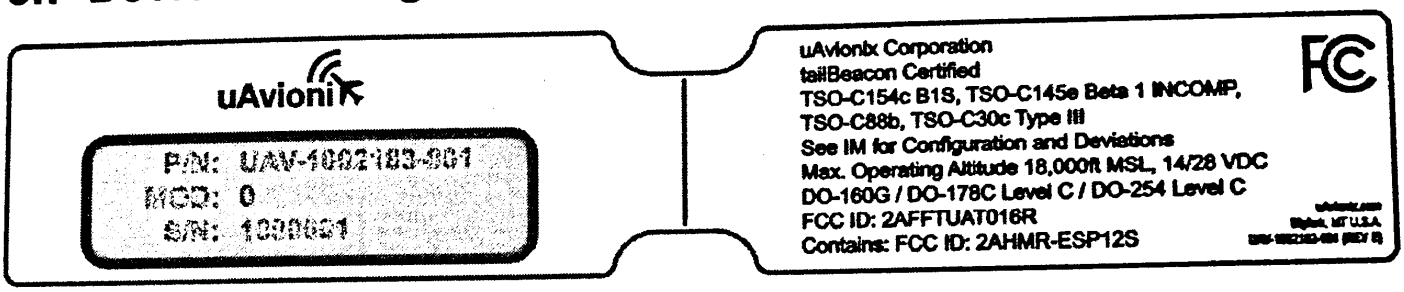
TSO	Deviation
C154c	uAvionix was granted a deviation from TSO-C154c paragraphs 3.e and 6.h to use DO-178C instead of DO-178B.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.4.5.2.5.1.e to allow an algorithm with multiple sources of data to determine the Vertical Status of light aircraft.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.4.5.4.15 to not provide installers with the configuration option to enable or disable Call Sign Identification Logic. CSID Logic is hardcoded to Enabled.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.12 to not provide a suppression bus output.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 1 to not provide a Barometric Vertical Rate Input.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 24 to not provide a SIL Supplement Flag input.
C154c	uAvionix was granted a deviation from RTCA/DO-282B section 2.2.7.1.a Table 2-63 Line 29 to not provide a TCAS/ACAS Operational Input.
C145e	uAvionix was granted a deviation from TSO-C145e Paragraph 3.g to use RTCA/DO-160G in place of RTCA/DO-160E.
C145e	uAvionix was granted a deviation from RTCA/DO-229E section 2.1.1.10 to use a GPS antenna that meets uAvionix minimum performance specifications instead of DO-301 qualified antennas.
C30c	uAvionix was granted a deviation from TSO-C30c Paragraph a.(2), TSO-C30c Paragraph c.(1).(viii), and SAE/AS8037 Section 4 to use RTCA/DO-160G in place of RTCA/DO-160B.
C88b	uAvionix was granted a deviation from TSO-C88b Paragraph a.(1) to use SAE/AS8017D in place of SAE/AS8017A.
C88b	uAvionix was granted a deviation from TSO-C88b Paragraph 3.d to use RTCA/DO-160G in place of RTCA/DO-160E.

TSO-C145e Class Beta 1 functionality is incomplete. tailBeacon does not implement LNAV approach mode, instead operating in En Route/Terminal mode only, as appropriate for ADS-B Out applications.

5.6 FCC ID

Model	FCC ID
tailBeacon	2AFFTUAT016R
Contains	2AHMR-ESP12S

5.7 Device Marking



5.8 Environmental Qualification Form

Conditions	DO-160G Section	Description of Conducted Tests
Temperature and Altitude	4.0	Equipment tested to Category B2
Low temperature ground survival	4.5.1	-55°C
Low Temperature Short-Time Operating	4.5.1	-45°C
Low Temperature Operating	4.5.2	-45°C
High Temperature Operating	4.5.4	+70°C
High Temperature Short-Time Operating	4.5.3	+70°C
High Temperature Ground Survival	4.5.3	+85°C
Loss of Cooling	4.5.5	Cooling air not required (+70°C operating without cooling)
Altitude	4.6.1	25,000feet
Decompression	4.6.2	Equipment identified as Category B2 – no test
Overpressure	4.6.3	Equipment identified as Category B2 – no test
Temperature Variation	5.0	Equipment tested to Category A
Humidity	6.0	Equipment tested to Category C
Operation Shocks and Crash Safety	7.0	Equipment tested to Category A
Vibration	8.0	Aircraft type 5: zone 1 (Single Engine) to Category S level M Aircraft type 1: zone 7 (Helicopter) to Category R level J
Explosion	9.0	Equipment identified as Category H
Waterproofness	10.0	Equipment identified as Category S
Fluids Susceptibility	11.0	Equipment identified as Category F
Sand and Dust	12.0	Equipment identified as Category D
Fungus	13.0	Equipment identified as Category X – no test
Salt Spray	14.0	Equipment identified as Category S
Magnetic Field	15.0	Equipment identified as Category A
Power Input	16.0	Equipment identified as Category BX
Voltage Spike	17.0	Equipment identified as Category B
AF Conducted Susceptibility	18.0	Equipment identified as Category B
Induced Signal Susceptibility	19.0	Equipment identified as Category AC
RF Susceptibility	20.0	Equipment identified as Category T
RF Emissions	21.0	Equipment identified as Category H
Lightning Induced Transient Susceptibility	22.0	Equipment identified as Category A2G2L2 with no loss of function, A3G3L3 with no incorrect broadcasts
Lightning Direct Effects	23.0	Equipment identified as Category X – no test
Icing	24.0	Equipment identified as Category X – no test
Electrostatic Discharge	25.0	Equipment identified as Category A
Fire, Flammability	26.0	Equipment identified as Category C

5.9 Continued Airworthiness

Maintenance of the tailBeacon is "on condition" only. For regulatory periodic functional checks, refer to the approved aircraft maintenance manuals or manual supplements. The aircraft must be returned to service in a means acceptable to the appropriate aviation authority.

The rear position light is designed with 2 white LEDs. If any single LED fails, the unit must be repaired or replaced.

Note: Use dark glasses or cover the device to ensure eye safety during LED inspection.

5.10 System Limitations

Installation

This article meets the minimum performance and quality control standards required by a technical standard order (TSO). If you are installing this article on or in a specific type or class of aircraft, you must obtain separate approval for installation.

TCAS/ACAS System

tailBeacon does not support installation on aircraft with an active Airborne Collision Avoidance System (ACAS) with Resolution Advisory capability, such as TCAS II or ACAS X.

SatCom

The tailBeacon GPS has not been demonstrated as compatible with SatCom equipment and should not be installed on SatCom equipped aircraft.

Transponder

A companion altitude-reporting transponder is required to be installed for 14 CFR 91.225 and 91.227 compliance, unless installed on an aircraft excepted from the requirements of 14 CFR 91.215 and 91.225.

Location

tailBeacon must be installed at least 3 feet from any operating transponder antenna.

Rotorcraft Installations

tailBeacon will broadcast that it is in an airborne state at all times when the emitter category is set to "Rotorcraft". Therefore, for rotorcraft installations to meet the performance requirements of TSO-C154c, this equipment may only be installed on rotorcraft that do not have a means of automatically determining air-ground status.

6 System Specifications

6.1 System Functionality

tailBeacon is a tail mounted unit that contains a 978 MHz transmitter, power line transponder monitor, GPS/SBAS receiver, barometric pressure sensor and altitude encoder, and LED position light. This device transmits ownship Automatic Dependent Surveillance-Broadcast (ADS-B) data through the UAT data link. It monitors an installed transponder, through the aircraft power wiring, for Mode A/C replies. tailBeacon includes an internal GPS/SBAS receiver. This receiver allows the unit to function as its own position source.

6.2 Altitude Encoder with Continuous Calibration™

The integrated altitude encoder does not require connection to the aircraft static pressure system. Instead, tailBeacon benefits from being mounted in an ideal altitude sensing location, and contains Continuous Calibration™ technology. This patent pending technology automatically and continuously calibrates the integrated altitude encoder for correspondence with the aircraft transponder's altitude encoder, allowing compliant operations in remote and challenging environments.

6.3 Power Line Transponder Monitor

tailBeacon utilizes uAvionix's Power Transcoder to ensure proper synchronization of data elements between Secondary Surveillance Radar (SSR) replies and ADS-B transmissions. These elements include Mode A squawk and IDENT status. In remote areas where you may not be interrogated by SSR, these data elements may at times be unavailable. The Power Transcoder additionally serves to provide Continuous Calibration™ data to the altitude encoder.

6.4 Anonymous Mode

In anonymous mode, tailBeacon transmits a randomized temporary address instead of the aircraft's assigned ICAO address code, and a non-identifying Call Sign. The temporary address and Call Sign are disabled if the operator selects a non-1200 squawk code on the transponder. When enabled, the operator will not be eligible to receive ATC services.

Anonymous mode must not be enabled when tailBeacon is installed on an aircraft with a Mode S transponder. Doing so will present an ICAO code mismatch to ATC.

6.5 Wi-Fi

Wi-Fi is intended for on-ground configuration. It is disabled five minutes after startup, or when airborne, whichever occurs first. Connecting the skyBeacon Installer app to the device will prevent the five-minute shutdown from occurring.

To restore Wi-Fi functionality after flight, power to the device must be cycled.

6.6 Call Sign

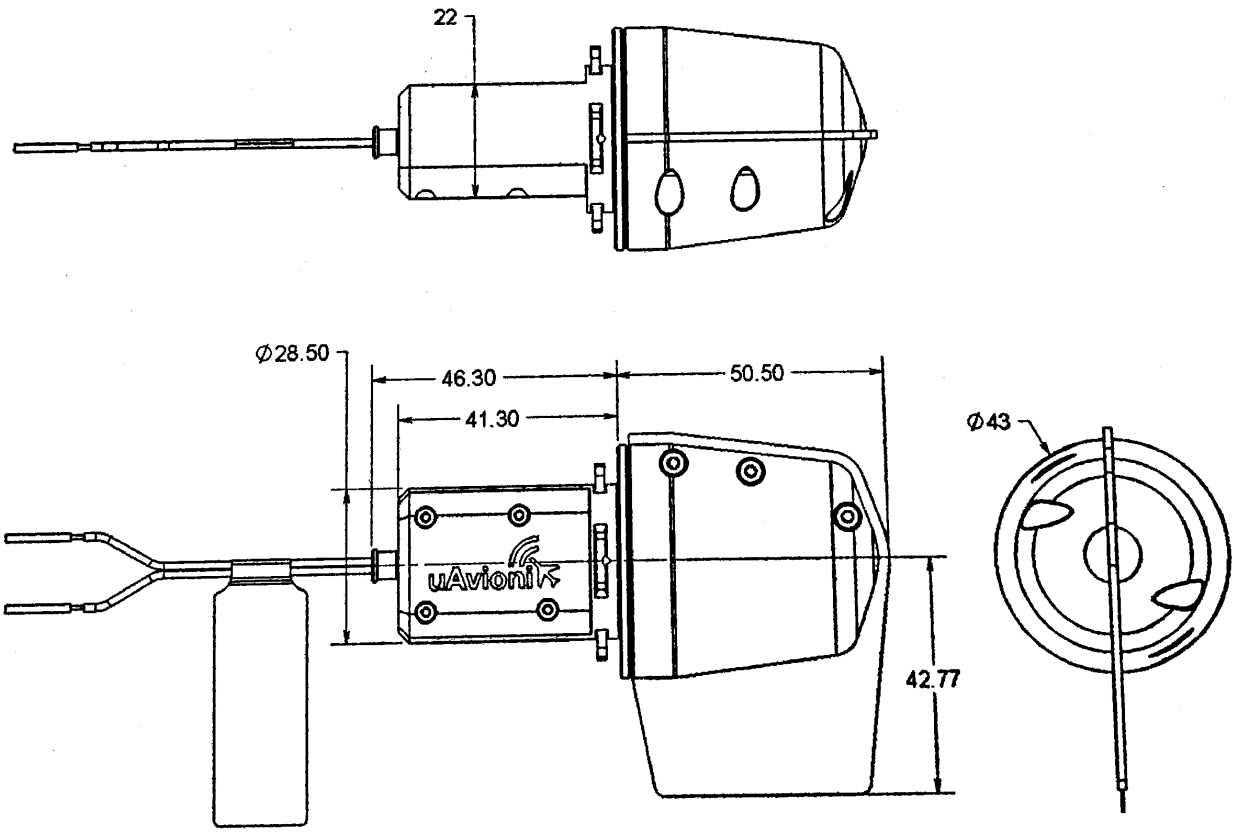
Your call sign may be adjusted on the ground using the skyBeacon Installer app. It may not be adjusted in-flight. This allows your call sign to be configured to correspond with ATC communications and flight plans, for use during commercial, medical, or volunteer flight operations. When changing the call sign ensure no other installation parameters are adjusted. For typical operations, the call sign should be set to the aircraft registration (N-number), including the leading "N".

6.7 tailBeacon Specifications

6.7.1 Physical Specifications

Characteristics	Specifications
Width	1.71 in (44mm)
Height	2.63 in (67 mm)
Depth	3.82 in (97 mm)
Weight	3.0 oz (85 g)
Operating Temperature Range	-45°C to +70°C
Maximum Pressure Altitude [1]	18,000 ft
Input Voltage Range	9 to 33 VDC
14V Current	0.5A Max
28V Current	0.25A Max

[1] UAT usage is restricted to below 18,000 feet MSL (§91.225).



SHOWN HERE WITHOUT INSTALLATION KIT, REQUIRED FOR MOUNTING

6.7.2 GPS/SBAS Specifications

Characteristics	Specifications
Number of Channels	15 (12 GPS and 3 GPS/SBAS)
Frequency	1575.42 MHz L1, C/A code
Sensitivity Tracking Reacquisition Cold Start Hot Start	 -166dBm -160dBm -148dBm -160dBm
Horizontal position accuracy	6 m RMS with SBAS
Velocity accuracy	0.05 m/s
Heading accuracy	0.3 degrees
TTFF (Time to First Fix)	58 seconds typical with current almanac and position
Reacquisition	1 second typical
Position update interval	0.2 second (5Hz)
Time Mark	±20 nSec of UTC
Datum	WGS-84

6.7.3 Altitude Encoder Specifications

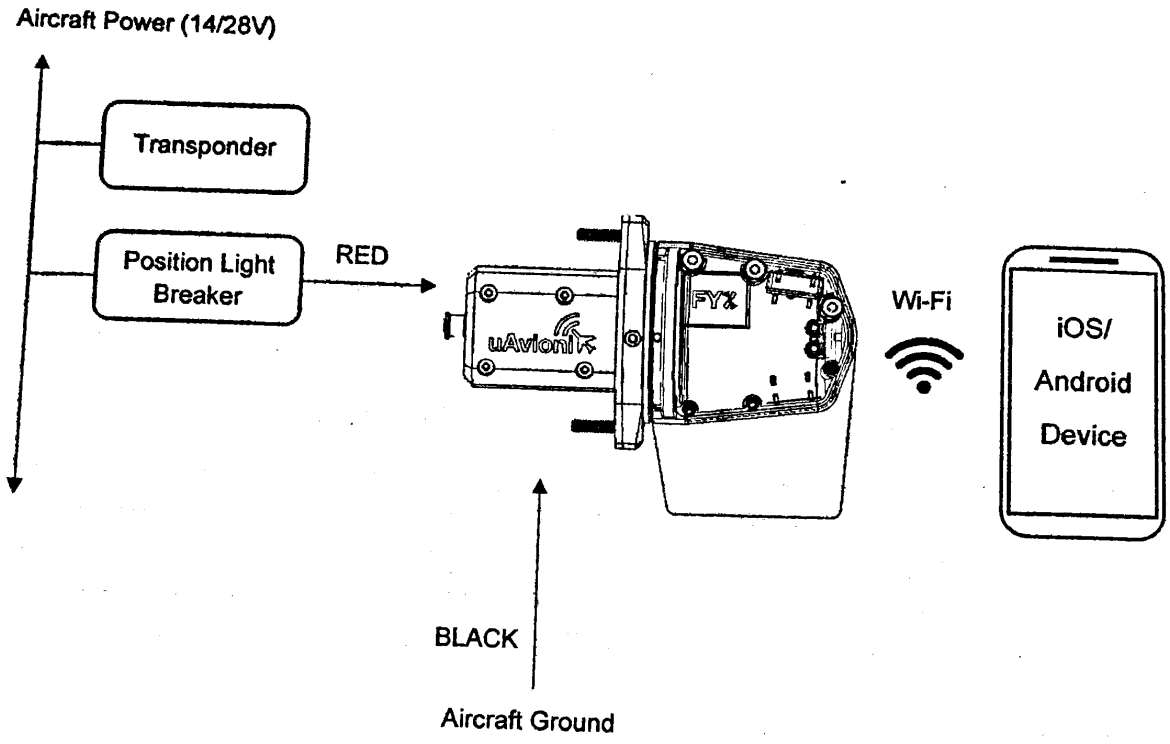
Characteristics	Specifications
Altitude Range [1]	-1,000 to 18,500 feet

[1] UAT usage is restricted to below 18,000 feet MSL (§91.225).

6.7.4 978MHz UAT Specifications

Characteristics	Specifications
Frequency	978.00 MHz
Transmit Power	44dBm (25 W)
Frequency Tolerance	±10 PPM
Modulation	Continuous phase FSK, h = 0.6, raised cosine, a = 0.5
Data Rate	1.041667 Mbps
99% Power Bandwidth	1.3 MHz
60dB bandwidth	3.3 MHz

6.7.5 System Interfaces



WARNING: Do not connect the power wire to a Xenon strobe power pack. This can damage the light and voids the warranty.

7 Installation

7.1 Unpacking and Inspecting

Carefully unpack the device and make a visual inspection of the unit for evidence of any damage incurred during shipment. If the unit is damaged, notify the shipping company to file a claim for the damage. To justify your claim, save the original shipping container and all packing materials.

7.2 Wiring

tailBeacon is designed to use existing position light wiring. If new wiring is required, refer to AC 43.13-1B Chapter 11 for guidance. The wiring should present an impedance of less than 0.5ohm. The following table provides guidance for typical aircraft hook-up wire.

Gauge	ohm/km	Maximum Length for 0.5ohm
20 AWG	35	14.2m
22 AWG	64	7.8m

Changes to the existing position light circuit breaker rating are not required.

7.3 Part Numbers

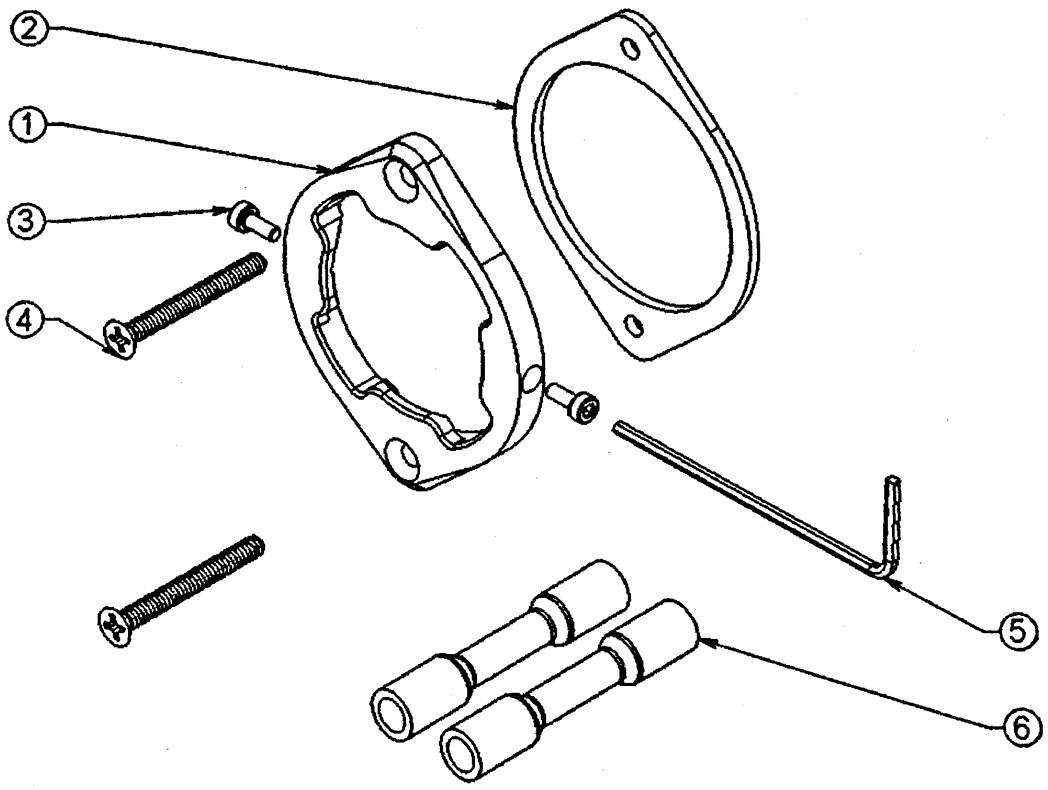
Item	P/N
tailBeacon	UAV-1002183-( )

tailBeacon TSO Installation Kits:

Item	P/N
Installation Kit for #4-40 screw mounting	UAV-1003202-001
Installation Kit for #6-32 screw mounting	UAV-1003202-002
Installation Kit for Ercoupe style mounting	UAV-1003202-003

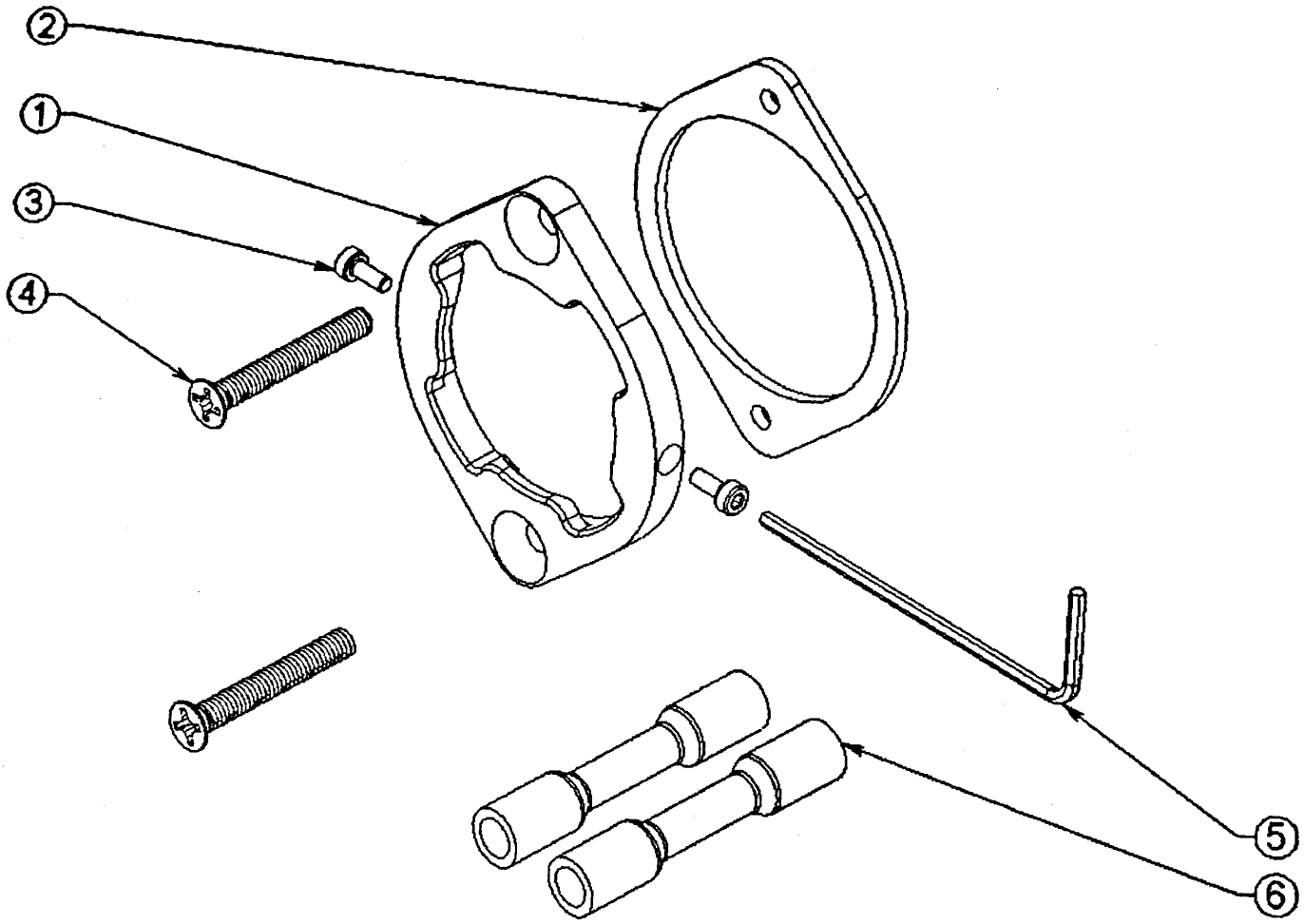
7.3.1 tailBeacon TSO Installation Kit UAV-1003202-001 for #4-40 screw mounting

#	Item	P/N
1	tailBeacon Mounting Plate, #4	UAV-1001383-001
2	tailBeacon Mounting Gasket	UAV-1001756-001
3	M2 x 5mm Cap Head Screw (2)	UAV-1002820-001
4	#4 1" Screw (2)	UAV-1002184-001
5	Hex L Wrench, 1.5mm	UAV-1002817-001
6	Wire Splice (2)	UAV-1001487-001



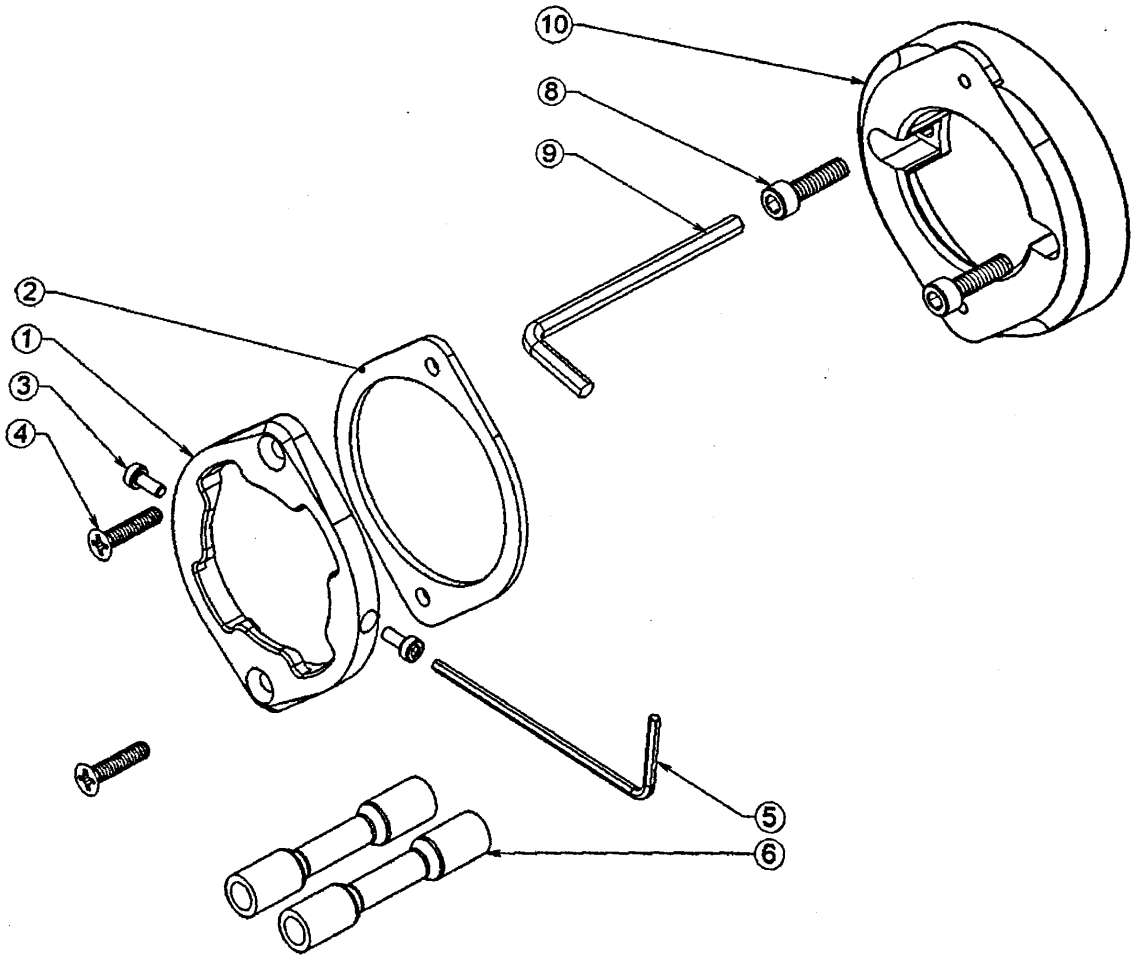
7.3.2 tailBeacon TSO Installation Kit UAV-1003202-002 for #6-32 screw mounting

#	Item	P/N
1	tailBeacon Mounting Plate, #6	UAV-1001383-002
2	tailBeacon Mounting Gasket	UAV-1001756-001
3	M2 x 5mm Cap Head Screw (2)	UAV-1002820-001
4	#6 1" Screw (2)	UAV-1003563-001
5	Hex L Wrench, 1.5mm	UAV-1002817-001
6	Wire Splice (2)	UAV-1001487-001



7.3.3 tailBeacon TSO Installation Kit UAV-1003202-003 for Ercoupe style mounting

#	Item	P/N
1	tailBeacon Mounting Plate, #4	UAV-1001383-001
2	tailBeacon Mounting Gasket	UAV-1001756-001
3	M2 x 5mm Cap Head Screw (2)	UAV-1002820-001
4	#4 0.625" Screw (2)	UAV-1002184-003
5	Hex L Wrench, 1.5mm	UAV-1002817-001
6	Wire Splice (2)	UAV-1001487-001
8	6-32 x 0.5in, SHCS, Stainless	UAV-1003564-001
9	Hex L Wrench, 7/64in	UAV-1003565-001
10	Mounting Plate, Ercoupe	UAV-1002252-001



7.4 Mounting

tailBeacon is a rear, aft position light. Ensure that when mounted, the fin and top of the assembly are free from obstructions. tailBeacon requires a clear view of the sky for optimal GPS performance. It may not be suitable for installation on aircraft where aircraft elevators or other structures would block visibility to the sky.

7.4.1 Direct Mounting

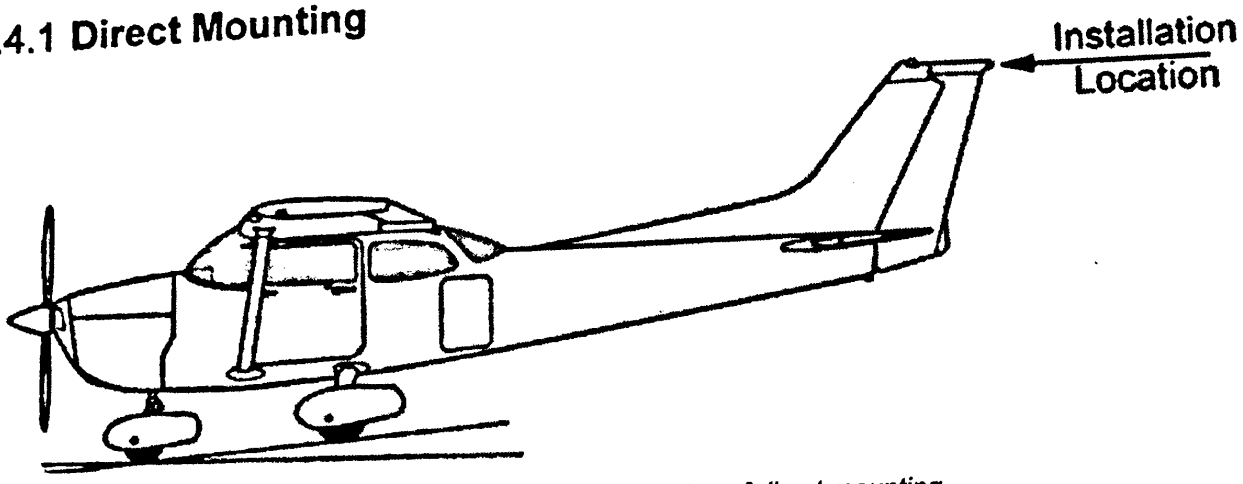
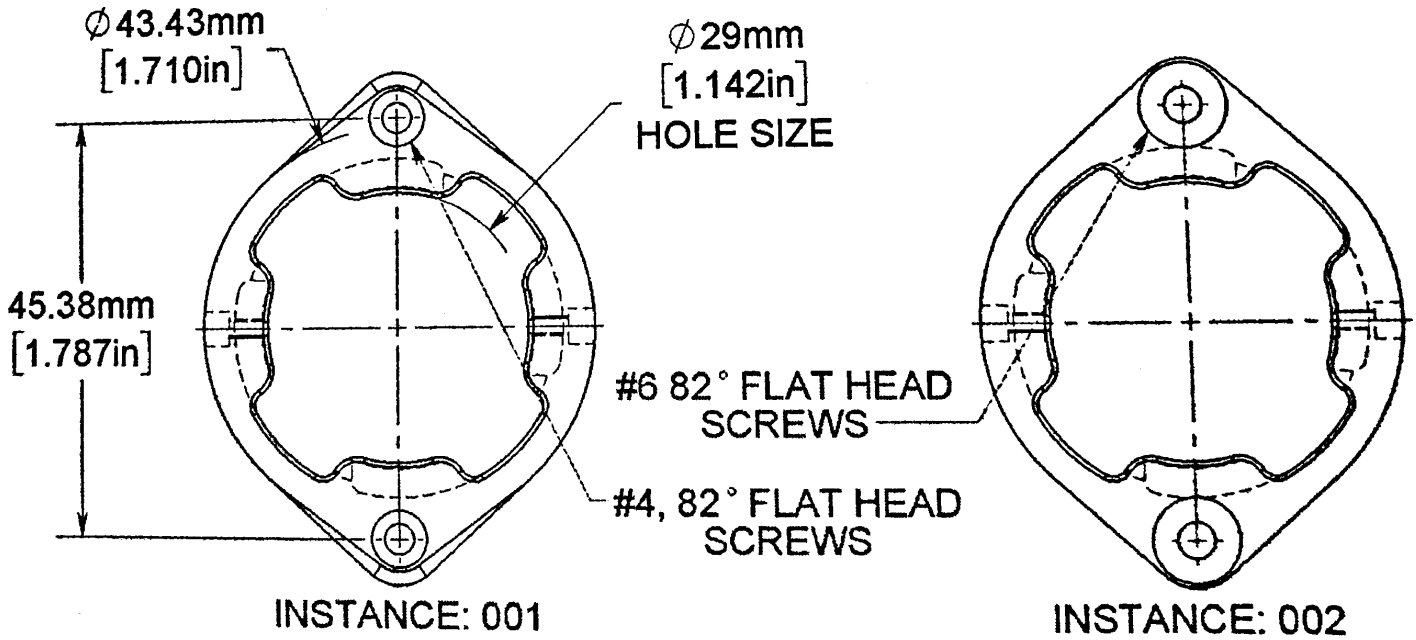


Figure 1: Generic representation of direct mounting.

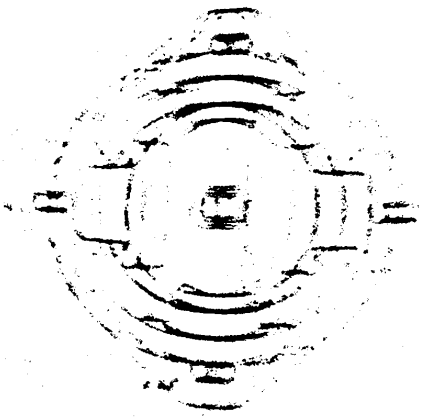
7.4.1.1 Direct Mounting Dimensions

Direct mounting plates shown, UAV-1001383-001 and UAV-1001383-002.

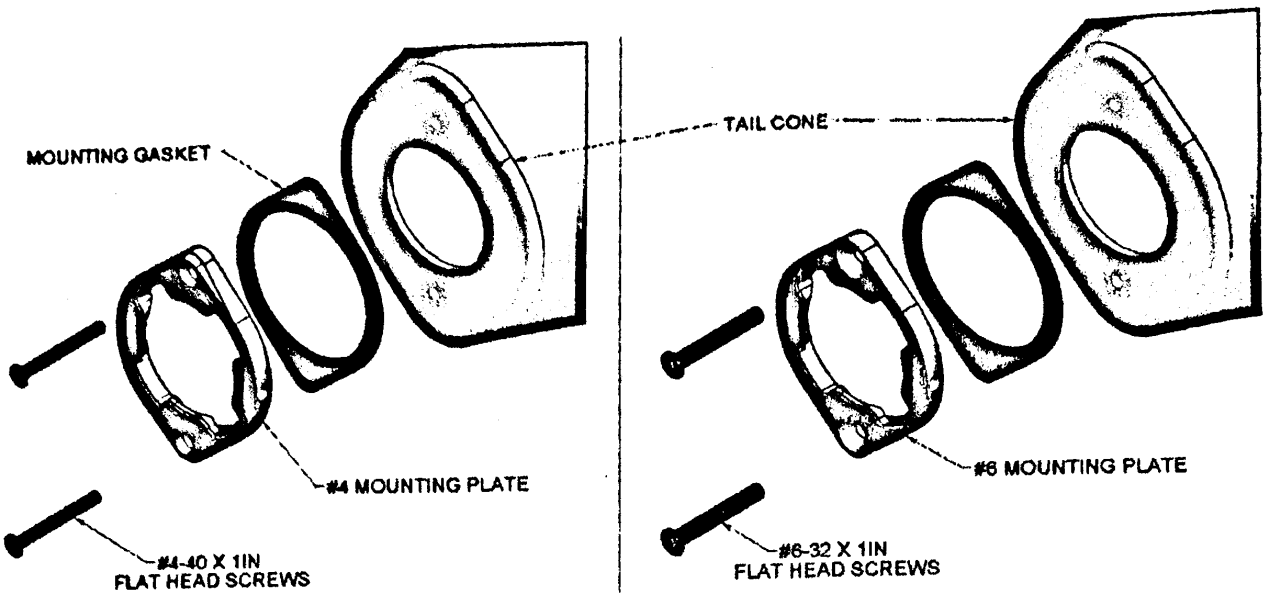


MOUNTING RING CAN BE INSTALLED WITH SCREWS
IN HORIZONTAL OR VERTICAL ORIENTATION
(SCREW AXES APPROXIMATELY PARALLEL TO THE GROUND).

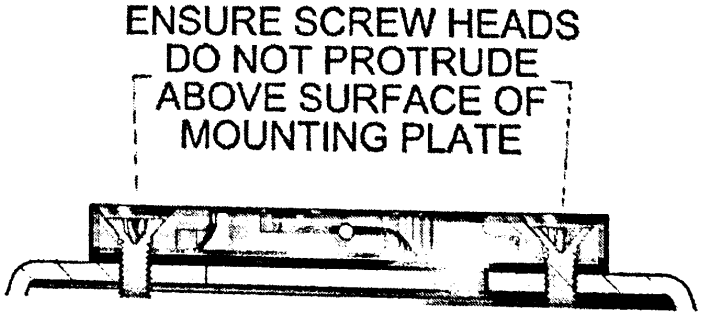
[redacted]



[redacted]



1. Remove the existing aft position light.
2. Detach the power wire(s) and protect them from damage
3. Ensure the thru-hole in the tail cone is at least 29mm in diameter and allows straight passage of the tailBeacon main body.
4. Peel the backing from the Mounting Gasket and affix to the Mounting Plate.
5. Install the Mounting Plate, in the appropriate orientation for your aircraft, using either the supplied #4 or #6 hardware, or as defined below.
    a. If the included hardware does not match the thread type of your aircraft, it is acceptable to use the hardware compatible with the thread types required, only if when installed, the screw heads do not protrude from the surface of the mounting plate as shown below.



Note: Installation of the tailBeacon must be in accordance with AC 43.13-2B, Chapter 1.

7.4.2 Adapter Mounting

In addition to the direct mounting plate UAV-1001383-001, an adaptive mounting plate is required for fitment on some tail cone installations such as used on Ercoupes. The Ercoupe adapter serves as an interface between the aircraft structure and the tailBeacon direct mounting plate.

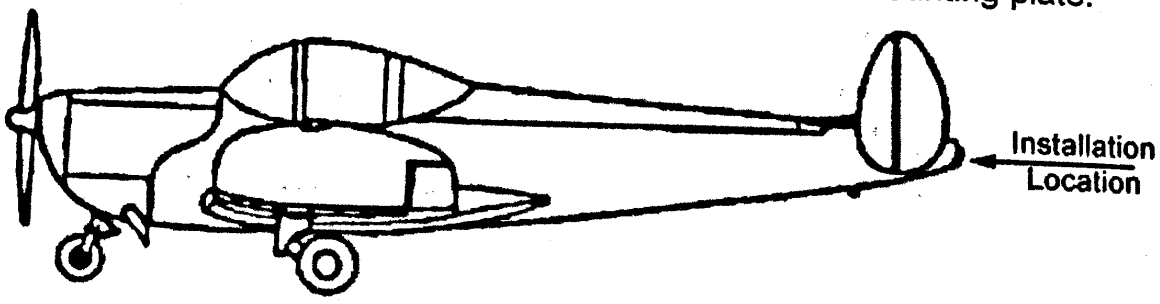
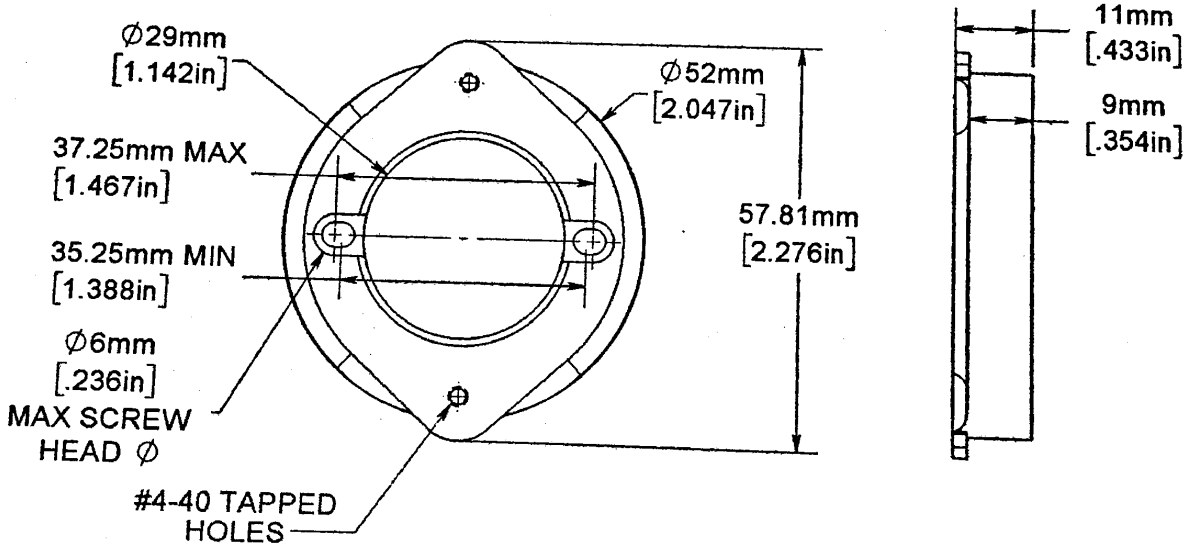


Figure 2: Generic representation of adapter style mounting.

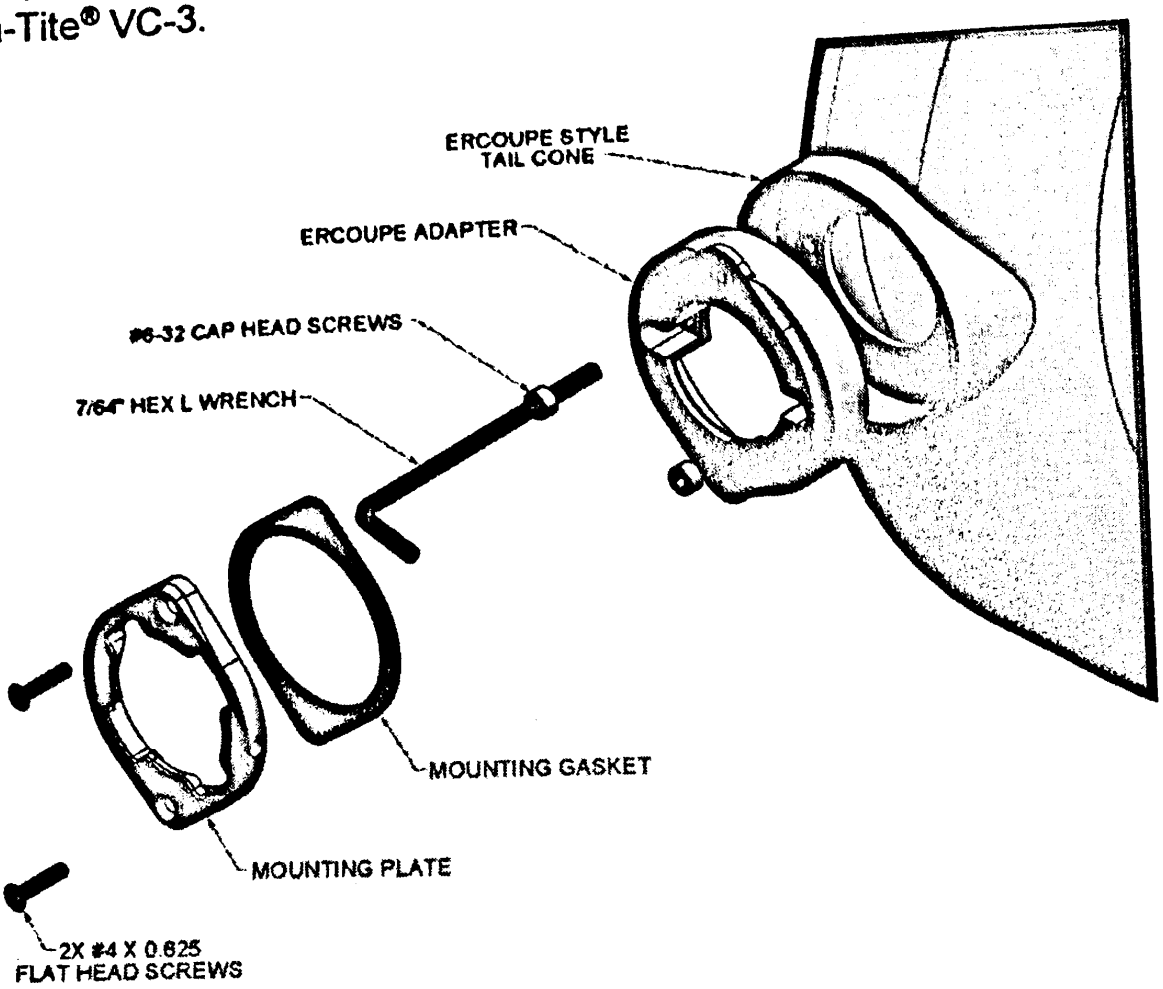
7.4.2.1 Adapter Mounting Dimensions



7.4.2.2 Adapter Installation

The adapter installation kit is supplied with two #6-32 Socket Head Cap Screws to support typical mounting hardware for securing the adapter to the tail cone. Once the adapter is installed, the tailBeacon Mounting Plate installation is identical to a Direct Mount with the only change being the length of the #4 screws, and the thread lock required on them. Ensure a thread locking compound is on the end of the screw. If you need to

add/replace thread locking compound on the screws, we recommend using Vibra-Tite® VC-3.

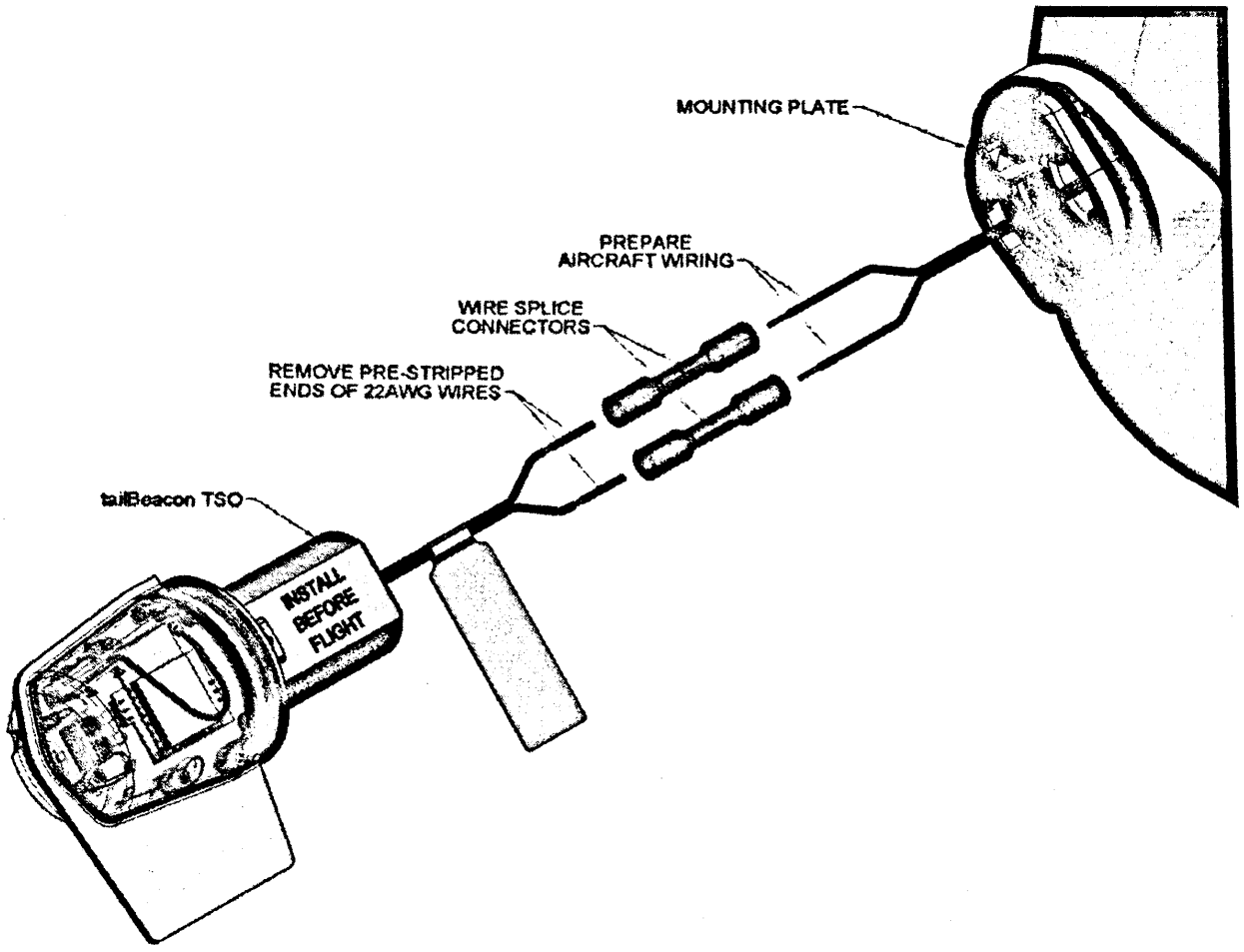


1. Remove the existing aft position light and mount.
2. Detach the power wire(s) and protect them from damage.
3. Ensure the thru-hole in the tail cone is at least 29mm in diameter and allows straight passage of the tailBeacon main body with adapter in place.
4. Install the Ercoupe Adapter into the tail cone and secure with two #6-32 cap head screws, utilizing included 7/64" Hex driver.
5. Peel the backing from the Mounting Gasket and affix to the Mounting Plate.
6. Install the Mounting Plate, in the appropriate orientation for your aircraft, using the two supplied #4 screws. Ensure there is thread locking compound applied to the #4 screws when installing the mounting ring onto the adapter.

NOTE: Installation of the tailBeacon must be in accordance with AC 43.13-2B, Chapter 1.

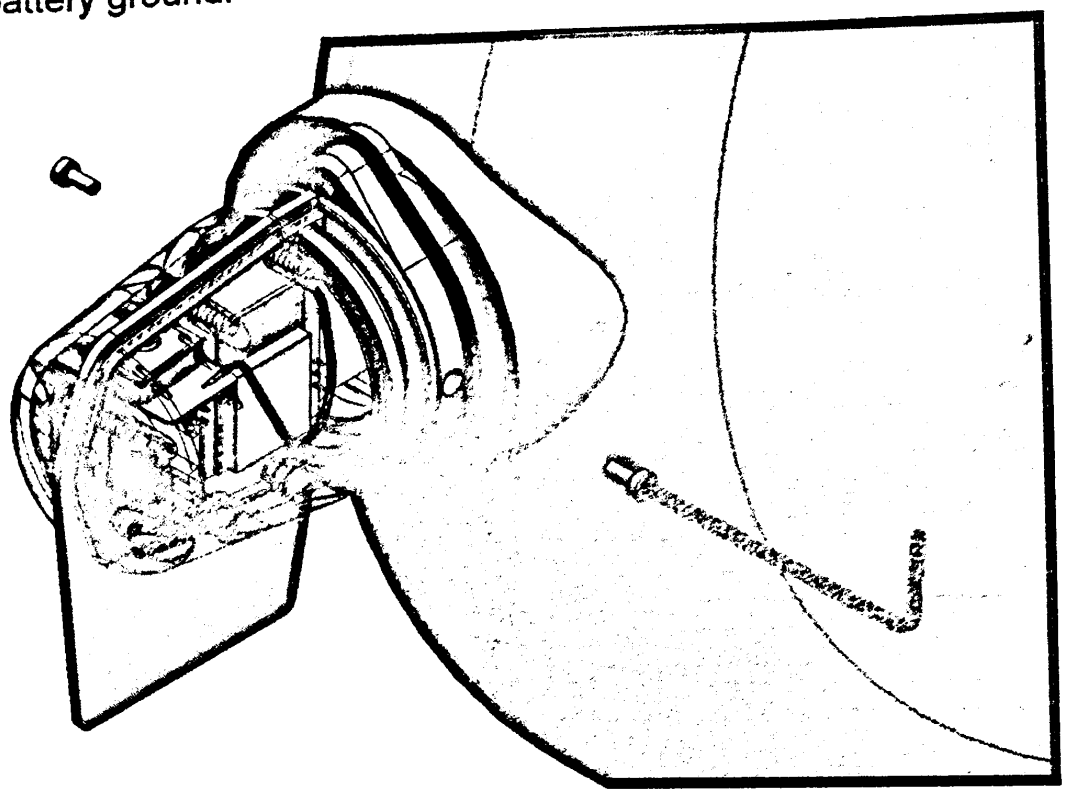
7.4.3 Unit Installation

The tailBeacon unit must be electrically connected, then installed into the Mounting Plate by aligning the mounting tabs on the tailBeacon with the cut-outs in the Mounting Plate. This requires you to rotate the unit 45deg from vertical before inserting. Once inserted fully, rotate Clockwise to vertical and secure with M2 anti-rotation screws.



1. Prepare the aircraft wiring for connection.
2. Connect the red wire to the switched position light power wire using environmental splices or equivalent. Environmental splices require heating after install to activate the sealant.

3. tailBeacon may be grounded to the aircraft structure via the mounting screws. However, it is recommended to connect the black wire to the battery ground.



NOTE: THE UNIT SHOULD NOT REQUIRE MUCH FORCE TO ROTATE; IF YOU FEEL RESISTANCE WHEN ATTEMPTING TO ROTATE, STOP AND CONTACT SUPPORT. DO NOT INSTALL OR START THE ANTI-ROTATION SCREWS UNTIL AFTER THE UNIT IS INSTALLED AND ROTATED INTO POSITION.

4. Insert tailBeacon into the Mounting Plate and twist clockwise to the vertical position, ensuring that the tailBeacon is oriented with the fin facing directly downward.
5. Secure the tailBeacon to the Mounting Plate using the two supplied M2 anti-rotation screws and a 1.5mm hex driver.

To ensure performance of the integrated altitude encoder, the wire bundle exiting the tailBeacon enclosure must not be sealed. This area functions as the static pressure sensing port.

NOTE: Installation of the tailBeacon must be in accordance with AC 43.13-2B, Chapter 1.

8 Maintenance

The tailBeacon is not a user serviceable product. All service must be performed either by uAvionix or an authorized uAvionix repair center.

9 Care and Cautions

The tailBeacon should be regularly cleaned with warm soapy water and a soft cloth micro-fiber rag. Use of chemical cleaners and degreasers should be avoided. If the tailBeacon is exposed to cleaning chemicals, you should promptly wash off all residue.

DO NOT wax, buff, paint or attempt to polish any part of the tailBeacon assembly. Doing so may damage the housing. Avoid any contact with abrasive materials including scrubbing pads.

Never hit, tap on or flex the fin portion of a properly mounted tailBeacon assembly. Doing so will cause undue stress on the assembly and could void your warranty.

10 System Configuration

Download the "uAvionix skyBeacon Installer" app from the iOS App Store or Google Play Store. Note: DO NOT use the "uAvionix Ping Installer" or "uAvionix Echo Installer" apps. The app will guide you through the configuration process.