CHEROKEE WARRIOR II

INFORMATION MANUAL

Cherokee Warrior II

PA-28-161

HANDBOOK PART NO. 761-649

APPENDIX 1 TO SECTION B
OF
SCHOOL OPERATIONS MANUAL

HANDLING NOTES
PIPER PA-28 – 161 CHEROKEE WARRIOR II

CONTENTS

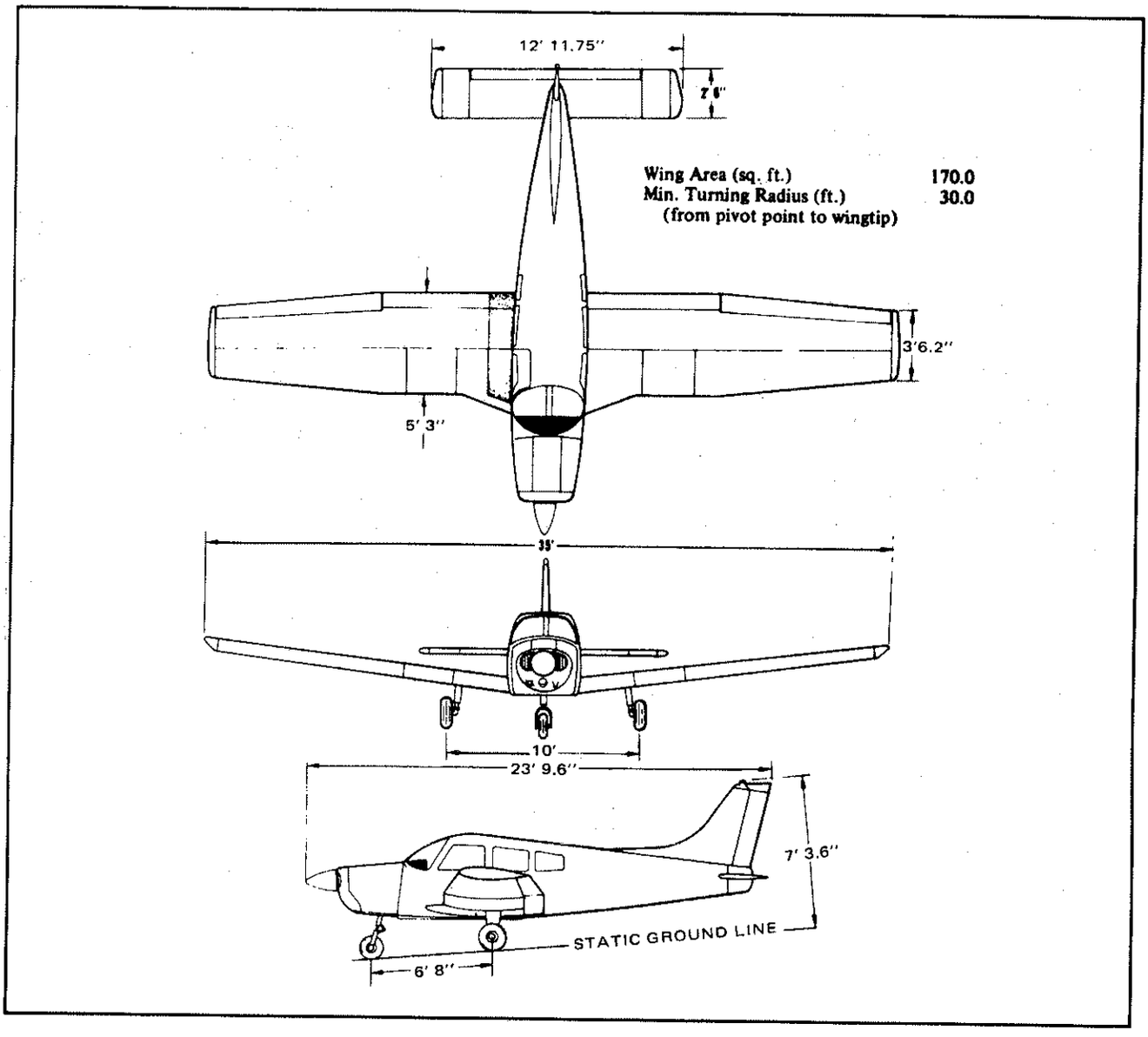
These notes have been produced to meet the requirements of, and are approved by, the Department of Transport, and are for the guidance of all pilots using the Piper PA-28 – 161 Cherokee Warrior II.

The Flight Manual issued by D.O.T. and contained in the aircraft is to be used in conjunction with these Handling Notes.

Recommendations for amendment made in the light of experience gained under various operating conditions will be welcomed and given every consideration.

AMENDMENTS

AMENDMENT No.	DATE OF AMENDMENT	DATE OF INSERTION	SIGNATURE



SECTION 1 – DESCRIPTION

NOTE: THIS AIRCRAFT TYPE IS FITTED WITH AN "EASILOK" DOOR CLOSING SYSTEM. THE DOOR MUST **NEVER** BE SLAMMED.

1. GENERAL SPECIFICATIONS

(i) The Warrior is a two/four seat, low wing monoplane, with a fixed tricycle undercarriage. The all metal airframe structure is of aluminium alloy. The wing airfoil section is a laminar flow type, incorporating a semi tapered design.

(ii) The engine fitted is a Lycoming 0-320-D3G, rated at 160 H.P. @ 2700 R.P.M.

(iii) A 74 inch diameter Sensenich two blade, fixed pitch propeller of aluminium alloy construction is fitted.

(iv) The principal dimensions are:—
Wingspan . . . . . 35 feet.
Length . . . . . 23 feet 9.6 inches.
Height . . . . . 7 feet 3.6 inches.

(v) All aircraft are fitted with an approved V.H.F. radio. Additional Radio Navigation equipment may be fitted.

2. FUEL SYSTEM

(i) The fuel supply is carried in two removable tanks located in the leading edge of each wing.

The capacity of each tank is 20.8 imperial gallons, with .8 gallons in each tank unusable, giving a total usable fuel capacity in each tank of 20 imperial gallons (91 litres or 24 U.S. gallons) A total usable fuel, both tanks, of **40 imperial gallons (288 lbs).**
A visual measuring "tab" below the filler neck allows each tank to be filled to 14 imperial gallons (101 lbs), the normal level for general operations with four adult persons on board.
MINIMUM GRADE AVIATION FUEL OCTANE = 100/130

(iii) Fuel is fed from each tank to a fuel selector valve, located on the left hand side wall of the cabin, then through a strainer to an auxiliary electric "booster" pump, then to the engine-driven fuel pump and to the carburettor. The two fuel pumps are connected in series.

2. FUEL SYSTEM (Contd.)

(iv) The electrically operated auxiliary fuel pump is provided in case of failure of the engine-driven fuel pump. The electric pump should be "on" for all take-offs and landings and when switching tanks and for flights such as low level or forced landing practice. Where the possible failure of the engine-driven pump would cause some embarrassment in terms of actual, partial or complete engine failure.

(v) The fuel selector valve has three positions, "off", "left" and "right". To select fuel from the on (left or right) position to "off" a button must be depressed to allow selector to complete travel. The button self-releases when fuel is selected "on" and is a safety device to prevent inadvertent selection of the fuel system to the "off" position in flight.

(vi) Each fuel tank is fitted with a sump drain located under the wing in line with each main wheel.

(vii) The strainer drain is located on the front lower left of the fire wall. To drain the strainer the fuel selector must be "ON".

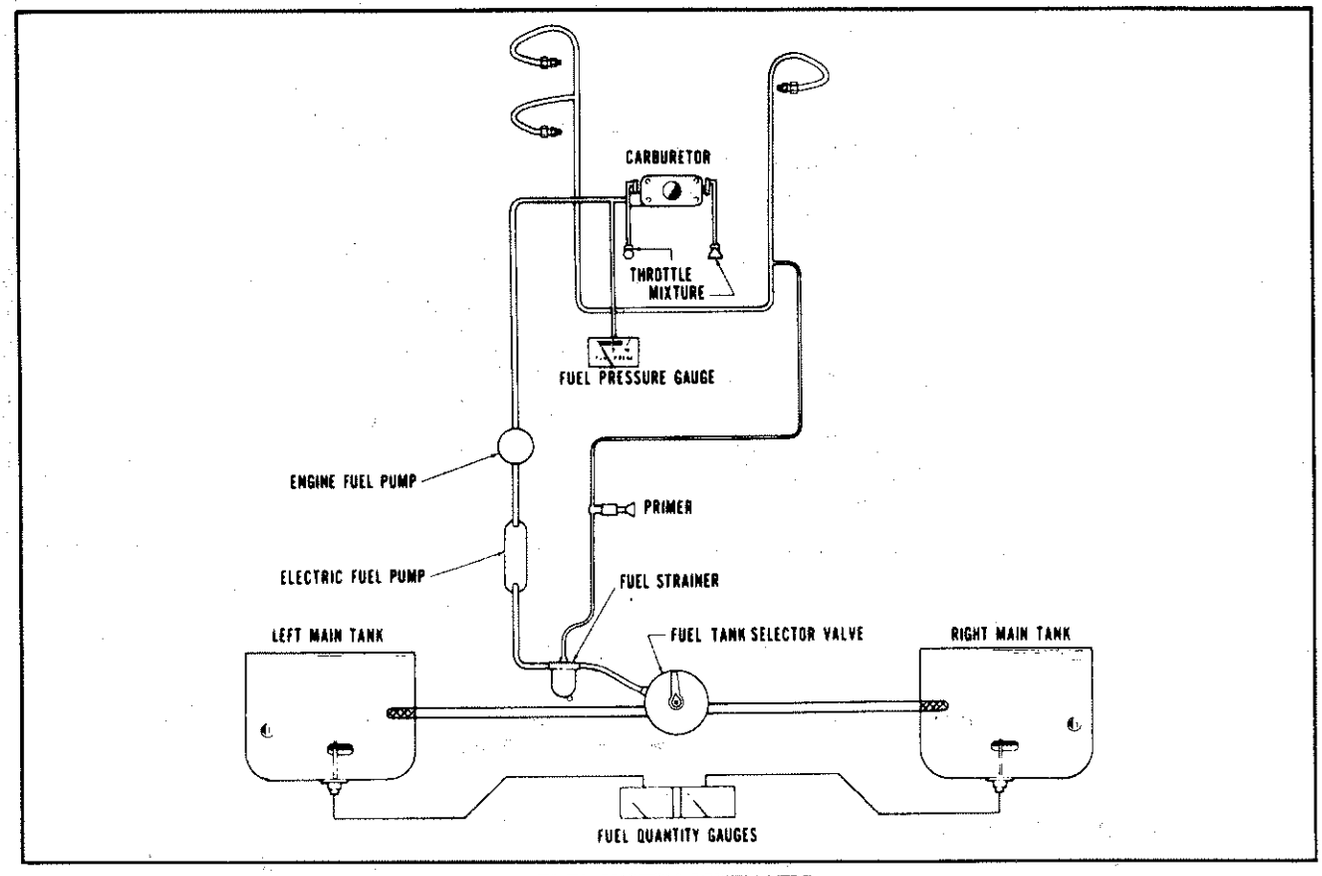
(viii) The fuel tank caps are located on the upper surface of each wing.

(ix) Contents of each tank are shown in **U.S. gallons** on electric gauges included in the engine gauge cluster unit fitted to the right of the control column below the instrument panel. The battery switch must be "ON" before the gauges will operate. The fuel pressure gauge is located in the centre of the engine gauge cluster.

(x) The fuel tanks are vented by –
(a) A vent located in each tank cap and
(b) A fuel tank overflow line.

(xi) Fuel specification – Aviation grade fuel only must be used. Minimum octane rating 100/130 (Green).

(xii) In an emergency higher octane fuels may be used. Motor spirits are strictly prohibited.



FUEL SYSTEM SCHEMATIC

3. OIL SYSTEM

(i) The Lycoming engine uses a wet sump oil system with control of oil temperature and circulation automatic. The system capacity is 8 U.S. quarts.

(ii) The oil filler neck is located on the rear right of the crankcase. The contents dip stick is attached to the filler neck cap and is graduated in U.S. quarts.

(iii) Oil specification – the recommended oil to be used is Mobil-Aero 100 and when not available B.P. 100 or Aeroshell W 100 may be used. (Observe placard on cowl adjacent to the oil filler cap).

(iv) The minimum oil quantity is 4 U.S. quarts. Top up when quantity falls to 6 U.S. quarts.

4. ELECTRICAL SYSTEM

The electrical system includes a 14 volt, 60 ampere alternator, voltage regulator, overvoltage relay, master switch relay, ammeter, battery contactor and a standard 12 volt, 35 ampere hour battery.

(i) The alternator is located on the lower right front of the engine and is driven by a cogged rubber belt which can be inspected through the right side of the engine air intake. The 14 volt 60 ampere alternator provides full electrical power at any engine speed and improves the performance of radio and electrical equipment and prolongs the life of the battery. The alternator produces an alternating current which is converted by a rectifier system to direct current. The direct current feed through a voltage regulator to recharge the battery and

4. ELECTRICAL SYSTEM (Contd.)

operate the various electrical components without drain from the battery since the alternator output is automatically increased as each component is switched on.

(ii) The 12 volt 35 ampere hour battery and master switch relay are located under the rear right-hand seat. Access for service or inspection is obtained by undoing the press studs that hold the rear seat platform and tilting the rear platform back.

(iii) The regulator and overvoltage relay are located on the forward left side of the fuselage behind the instrument panel.

(iv) The ammeter is located to the right-hand side of the throttle quadrant. This shows total load rather than the older charge and discharge display.

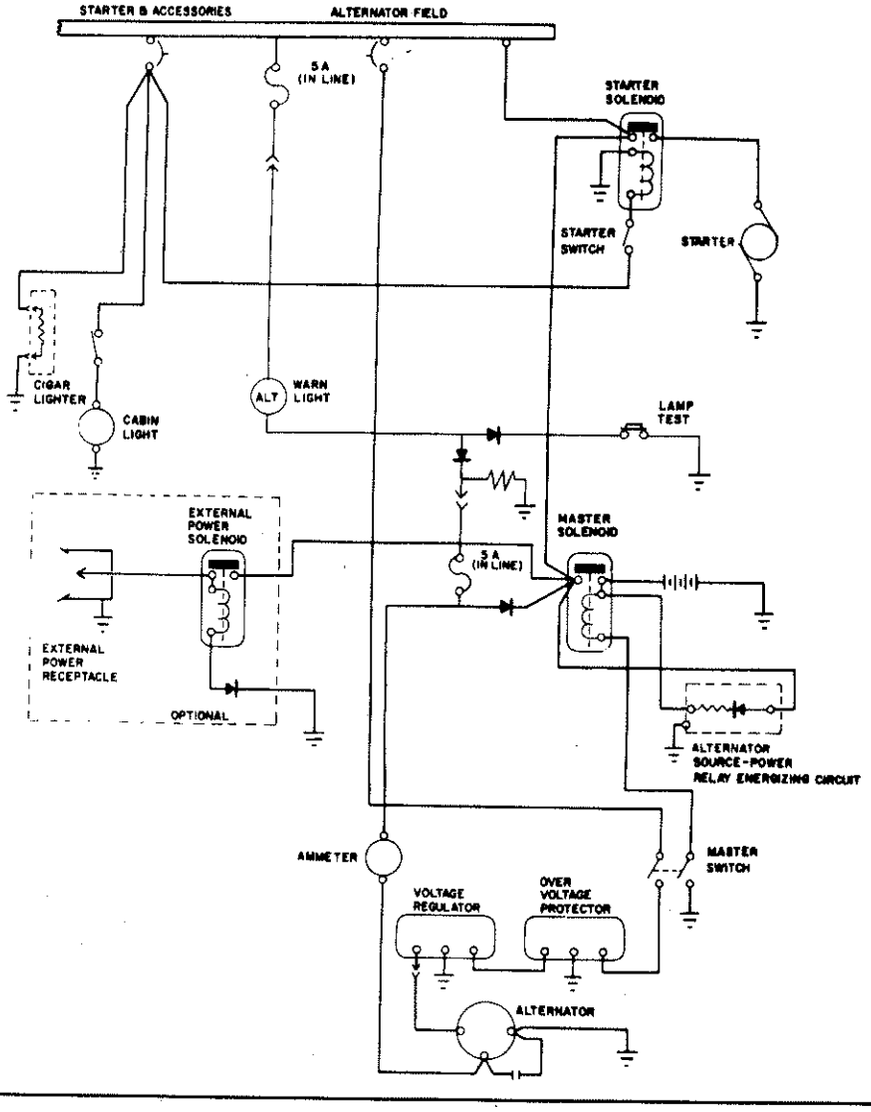
(v) Rocker switches located to the right of the engine gauge cluster are provided for the battery, alternator, fuel booster pump, landing light, anti collision light (rotating beacon) and pitot heat. A rheostat switch on the left side of the switch panel controls the navigation lights and the intensity of the radio lighting and the one on the right of the switch panel controls the intensity of the instrument panel lighting.

(vi) Standard electrical accessories include Starter, Electric fuel pump, stall warning indicator, cigar lighter, ammeter, navigation lights, anti-collision light, landing light and instrument panel lighting and an annunicator warning panel.

(vii) The annunicator panel includes alternator, low oil pressure and low vacuum indicator lights. The annunciator panel lights are provided only as a warning to the pilot that a system may not be operating properly, and that he should check and monitor the applicable system gauge to determine when or if any necessary action is required. A small button is provided to test the serviceability of the warning lights.

(viii) Circuit protection for all services is provided by means of circuit breakers located on the lower right-hand side of the instrument panel.

(ix) **Operation of the Master and Alternator Switches**
The master switch is a split switch with the left half operating the master relay and the right half energising the alternator. The switch is interlocked so that the alternator cannot be operated without the battery. For normal operation be sure that both halves are turned "ON". If no alternator output is indicated on the ammeter during flight, reduce the electrical load by turning off all the unnecessary electrical



ALTERNATOR AND STARTER SCHEMATIC

4. ELECTRICAL SYSTEM (Contd.)

equipment. Check both the 5 ampere field breaker and the 60 ampere output breaker and reset if open. Should neither circuit breaker be open, turn off the "ALT" switch for 30 seconds to reset the overvoltage relay. If ammeter continues to indicate no output, turn off the "ALT" switch, maintain minimum electrical load and terminate flight as soon as practical.

(x) A minimum of 3 volts output from the battery is necessary to excite the alternator.

5. FLIGHT CONTROL SYSTEM

(i) Dual controls are provided and consist of a conventional control wheel and rudder pedals with a cable system between the controls and the surface. The aileron and rudder surfaces are normal, but the elevator system is an all flying tail-plane (stabilator) with a full length anti-servo tab attached to the trailing edge. The combination of a stabilator and anti-servo trim tab improves stability and control along the longitudinal axis with less size, weight and drag than conventional tail surfaces.

(ii) **Trim Controls**
The rudder bias is operated by spring tension and is actuated by a screw-jack located on the cockpit floor, between the sets of rudder pedals incorporating a position indicator. To remove right rudder pressure the screw-jack is rotated clockwise. The longitudinal trim is operated by a control wheel on the cockpit floor between the front seats. This wheel adjusts the anti-servo tab in the normal manner for an elevator trim on a conventional tail plane. Move the wheel rearwards for "nose up" trim and forward for "nose down" trim. The trim setting is shown on an indicator on the console near the actuating wheel. Care must be taken not to overwind the trim past the limits.

(iii) The flaps are manually operated by a control lever located on the cockpit floor between the front seats. There are four positions "retracted", "10° down", "25° down", and "40° down". To lower the flaps the lever is pulled up against the return spring pressure, and at each position the detent button clicks into a lock slot. The maximum flap extension speed is 103 kts. The right hand flap may be used as a step provided the flaps are fully retracted. To retract the flaps, slight back pressure is applied to the lever to take up the air load, the detent button is held in and the lever lowered to the floor.
Caution: Care should be taken to raise the flaps **one stage at a time**. To do this the detent button should be depressed **only sufficiently** to release the flap lever from that stage. This pattern can be repeated until flaps are fully retracted. To lower flaps the detent button **should not** be depressed.

6. UNDERCARRIAGE AND BRAKES

(i) Each Cleveland main wheel hub is fitted with a 600 x 6 4 ply tubed tyre and mounted on an air oil strut. The nose wheel is fitted with a 500 x 5 x 4 ply tyre.

(ii) The nose wheel strut is attached to the fire wall. The correct extension is 3.25 inches and correct tyre pressure is 30 p.s.i.

(iii) The nose wheel is steerable through a 60° arc (30° either side of centre) by use of the rudder pedals. A spring device is incorporated in the rudder pedal torque tube assembly to aid in rudder centring, and provide rudder trim. The nose gear steering mechanism also incorporates an hydraulic shimmy damper.

(iv) A two hole bracket is attached to the nose wheel yoke for attachment of the tow bar for manual handling on the ground.

(v) The main wheel strut normal extension is 4½ inches and tyre pressure is 24 p.s.i.

(vi) Each main wheel is fitted with Cleveland single disc hydraulic brake assemblies. Differential braking is obtained by the use of toe brakes fitted to the rudder pedals. Care must be exercised to avoid applying pressure to toe brake pedals during take-off.

(vii) A parking brake handle is located below the throttle quadrant. To park the brakes pull the handle back, depress the thumb catch, then release the handle while keeping the thumb catch depressed. To release the brakes, pull back the handle (without touching the thumb catch), and allow the handle to move fully forward.

(viii) The toe brakes and the parking brake have their own master cylinders, but they both use a common reservoir.

(ix) The brake reservoir is located on the top left-hand side of the fire wall.

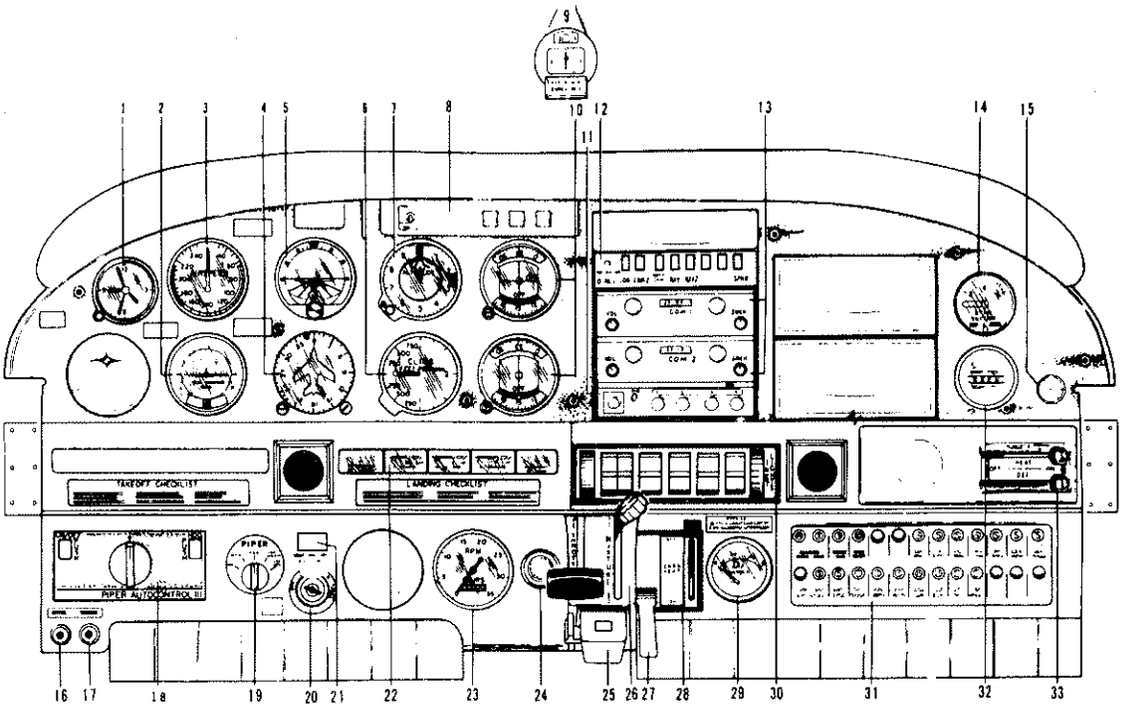
7. ENGINE CONTROLS

(i) An engine control quadrant located in the lower centre of the instrument panel contains the throttle and mixture controls. The carburettor heat control is to the right of the throttle quadrant.

(ii) The throttle moves forward to increase the R.P.M. and back to decrease R.P.M. R.P.M. increase and decrease is shown on the tachometer located to the left of the throttle quadrant.

(iii) The mixture control is to the right of the throttle on the quadrant and it has a red knob on the end of the lever. The lever in the forward position is in the "FULLY RICH" position. Moving the lever back leans the fuel air mixture, the fully back position stops the engine by operating the idle cut off. The control is used to maintain the correct fuel air ratio at higher altitude where the air is less dense. The lever is normally in the "FULLY RICH" position for starting and take-off, and leaned for maximum R.P.M. during cruise at altitude. Maximum performance take-offs from high elevation fields may be made with the mixture leaned out for maximum R.P.M.

(iv) The carburettor heat control in the up "COLD" position provides the carburettor with cold filtered air for maximum power. In the down "HOT" position hot unfiltered air from around the exhaust system is provided for the carburettor to prevent ice from forming in the venturi, or to clear ice that has already formed. A drop in R.P.M. will be indicated when "HOT" air is used. This is due to the less dense air giving a richer mixture and less efficiency. The control should always be in the "COLD" position on the ground, to prevent dust ingestion, except when checking that the engine is clear of ice before take-off.



1. CLOCK
2. TURN INDICATOR
3. AIRSPEED INDICATOR
4. DIRECTIONAL GYRO
5. ATTITUDE GYRO
6. VERTICAL SPEED INDICATOR
7. ALTIMETER
8. ANNUNCIATOR PANEL
9. COMPASS
10. OMNI AND GLIDE SLOPE INDICATOR
11. TRANSPONDER
12. AUDIO SELECTOR PANEL
13. VHF TRANSCEIVERS
14. SUCTION GAUGE
15. CIGAR LIGHTER
16. MIKE JACK
17. PHONE JACK
18. AUTOPILOT
19. OMNI COUPLER
20. MAGNETO/STARTER SWITCH
21. ELECTRIC TRIM SWITCH
22. ENGINE GAUGES
23. TACHOMETER
24. PRIMER
25. MICROPHONE
26. THROTTLE QUADRANT
27. FRICTION LOCK
28. CARBURETOR
29. AMMETER GAUGE
30. INSTRUMENT PANEL LIGHTS
31. CIRCUIT BREAKER PANEL
32. ENGINE HOUR METER
33. HEAT AND DEFROSTER CONTROLS

INSTRUMENT PANEL

7. ENGINE CONTROLS (Contd.)

(v) An engine primer is located to the left of the throttle quadrant. The primer injects fuel directly into the cylinders for ease of starting. Check that the primer is locked prior to starting.

(vi) The magneto switch is of the "KEY" type and is located below the left control column. The key lock has five positions – "OFF", "LEFT" magneto, "RIGHT" magneto, "BOTH" magnets and "START". To engage the starter, turn the key to the start position and push in. When the engine fires, release the key and it will return to the "BOTH" position. An Impulse type magneto is fitted and hand swinging of the propeller for starting is practical should the battery be flat. Extreme caution is necessary in hand swinging of a propeller

(vii) The impulse spring system provides a "hot" spark for starting and is fitted only to the left hand magneto. Should hand-swinging of the propellor be necessary for starting the engine, care should be taken to ensure that the magneto switch is selected to the left hand magneto only. Once engine is running, then the "both" magnetos position may be selected. The reason for this is that the left hand magneto (with impulse) is specifically retarded for starting, whereas the right hand magneto is not. Should the both magnetos be selected for starting, there is a distinct possibility, however remote, that the engine may elect to fire in timing with the normally advanced right hand magneto, which may cause the engine to back fire with possible damage to starter ring gear and possible injury to person hand swinging.
In normal starting the right hand magneto is automatically isolated when the key is selected to "start" position.

8. INSTRUMENTS

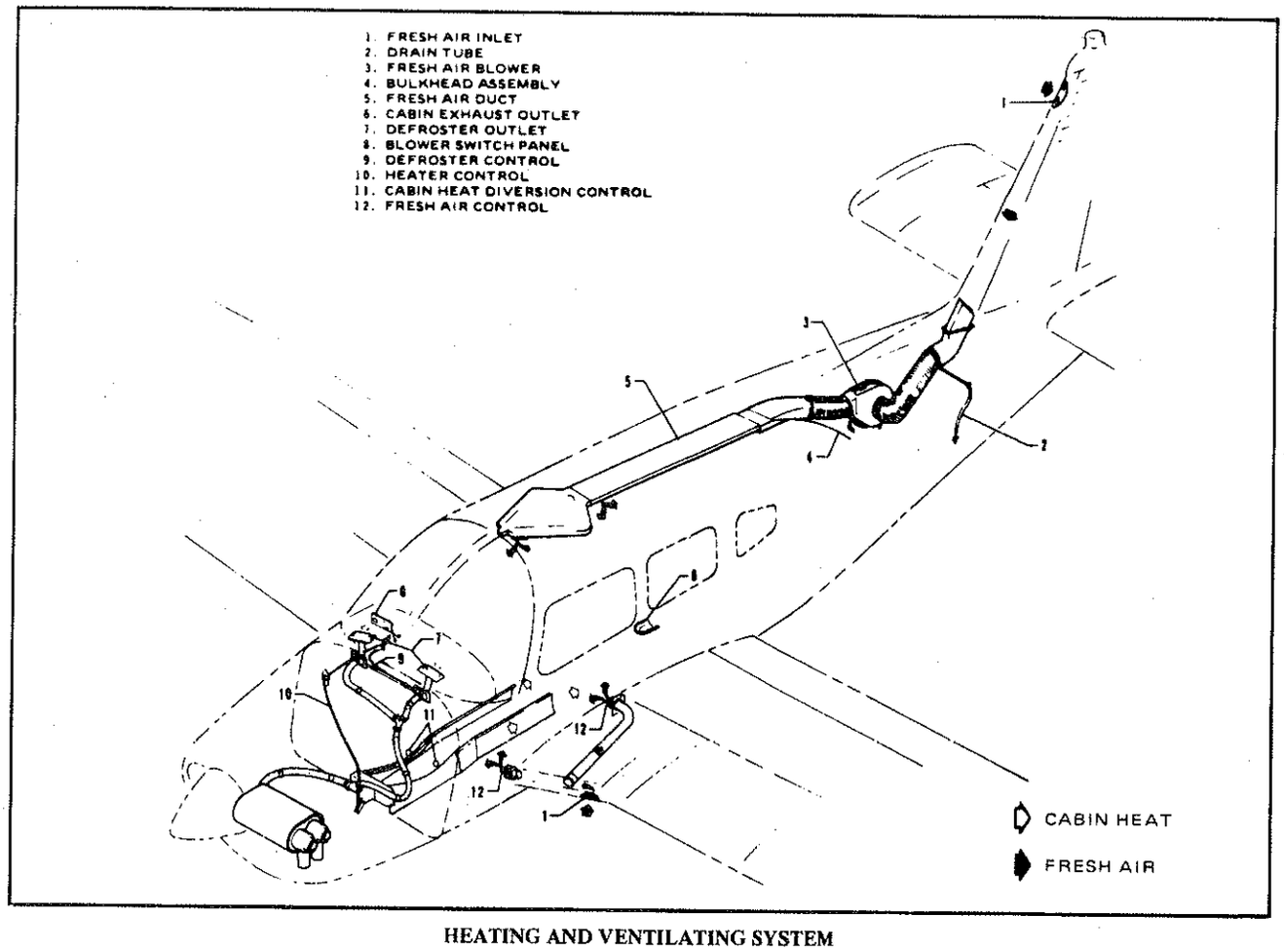
(i) The standard flight instruments are grouped on the left side of the main panel for easy viewing from the pilot's seat. The compass is on the top of the instrument panel in a central position, and the outside air temperature gauge is in the top of the windshield.

(ii) Engine instruments are in a "cluster" to the right of the control column below the flight instrument panel and the engine R.P.M. indicator is located on the sub-panel below the "cluster".

(iii) Pitot pressure for the A.S.I. is picked up by a pitot/static head located under the left wing.

(iv) Static pressure for the A.S.I., V.S.I. and altimeter is picked up from the same pitot/static head under the left wing.

(v) Vacuum for the A.H. and D.G. is provided by a regulated engine driven vacuum pump. The "suction" gauge is on the extreme right-hand side of the instrument panel.



HEATING AND VENTILATING SYSTEM

8. INSTRUMENTS (Contd.)

(vi) An annuciator warning panel for vacuum alternator and oil pressure is mounted central top of instrument panel.

(vii) The turn indicator is electrically powered when the Battery Master Switch is "ON".

(viii) For lighting of the instruments for night flying see paragraph 4(v).

9. RADIO AND NAVIGATION EQUIPMENT

(i) All aircraft are fitted with an approved V.H.F. Radio located to the right of the flight instrument panel.

(ii) The cabin speaker is mounted centrally in the cabin roof above the pilot's seat.

(iii) The microphone is clipped into a bracket under the throttle quadrant.

(iv) Additional radio and navigational equipment may be installed in some aircraft.

10. HEATING AND VENTILATION

(i) Heat for the cabin interior and the defrost system is provided by a heater muff attached to the engine exhaust system. The amount of heat desired can be regulated with the controls on the lower right-hand side of the instrument panel. If unusual odors are noticed, the heat should be shut off and the system inspected for leaks.

(ii) Fresh air inlets are located in the leading edge of the wing at the intersection of the straight and tapered sections. Large adjustable outlets are located on the side of the cabin near the floor at each seat location. Adjustable overhead outlets are also positioned at each seat location. Cabin air is exhausted through an outlet located below the rear seat floor panel.

(iii) An electric fan is fitted to improve air flow on the ground.

11. MISCELLANEOUS

(i) The front seats are adjustable fore and aft by means of a bar located under the seat. Vertical adjustment is by a handle also located under the seat. The backrests of the front seats move forward for ease of entry to the rear seats, and are adjustable for rake.

(ii) The cabin door has two catches, both of which must be locked before take-off. The door is **NEVER** to be slammed. Simply, gently close and then move main latch to lock position and then top latch to lock.

(iii) Stall warning is by means of an audible alarm located behind the instrument panel. A sensing vane on the leading edge of the left wing will bring on the warning alarm approximately 5–10 knots before the stall is reached, and will remain on until the angle of attack is reduced to de-activate the sensing vane.

(iv) The luggage compartment behind the rear seats has a maximum load capacity of 200 lbs. and an area of 24 cubic feet. Access is by a 20" x 22" door and the area has tie down straps.

(v) Windows are made of Plexiglass and must not be wiped with a dry cloth. If the windows are dirty, clean with a clean wet cloth.

(vi) If the tow bar is not available, pushing of the aircraft should be confined to the leading edge of the wing inboard of the main wheels.

(vii) Some models will be fitted with an external power plug.

(viii) **Special Instruction**
Never attempt to raise the nose wheel off the ground by pushing down on the tail plane.

Note: Small variations may occur in different year models of the PA28 - 161 Warrior II range with respect to instrument and control layout.

SECTION 2 – HANDLING

1. AUTHORISATION

Before commencement of any flight, the Pilot in Command is to satisfy the requirements of the [illegible] Flying School Operations Manual, [illegible]. Also he must ensure a daily inspection has been carried out by an authorised person (CPL or LAME) in accordance with A.N.O. 100.5.1 Appendix 4, and certified on the Maintenance Release.

2. PREPARATION FOR FLIGHT (Daily Inspection)

Note A check of the aircraft documents should be made prior to any flight, whether or not a daily inspection is required.

The aircraft documents include:–

The aeroplane flight manual (stowed in right hand map pocket) and its associated certificate of airworthiness. The certificate of registration may or may not be carried in aircraft. The aircraft flight manual and certificate of airworthiness and maintenance release must accompany the aircraft on all flights.

The flight manual should be checked for any amendments made since pilot last flew the aircraft. The maintenance release should be studied and checked for validity, and that it is issued for that particular aircraft. Also to ensure that all scheduled maintenance has been completed and that no serious defects are listed that would render the aircraft unserviceable.

CAUTION The absence of a valid maintenance release would indicate that aircraft is unserviceable.

(i) Turn on the battery master switch and check contents shown on fuel gauge.

(ii) Ensure no loose articles are in the aircraft – fire extinguisher secure.

(iii) Check the stall warning indicator for correct functioning.

(iv) Turn off battery master switch and check ignition switches "OFF".

(v) Check around the aircraft commencing at any suitable point as follows:–

(a) Condition of starboard main plane, flap and aileron.

(b) Inspect wing tip, navigation light and strobes if fitted.

(c) Check undercarriage for security, condition of tyres, inflation, and condition of brake assembly.

(d) Check tank contents visually (compare with gauge), resecure cap, check tank vent is clear of any obstruction.

(e) Check engine oil level, plug security, general cleanliness and security of accessories, security of cowls and freedom from cracking.

(f) Check condition of propeller and spinner, turn propeller backwards at least four compressions before first flight of the day.

(g) Check nose wheel security, tyre condition, and inflation.

(h) Check port main plane, aileron, flap etc. as in steps (a) to (d) above.

(i) Check pitot/static head clear. Also check drain points inside aircraft (i.e. on wall left of pilot's seat).

(j) Check fuselage for condition.

(k) Check security and condition of empennage and control surfaces, checking stabilator and tab pivot points for excessive wear.

(l) After refuel and before first flight of the day, check a sample of the fuel from each tank and strainer drain point.

Note: To drain the strainer the fuel selector must be "ON".

3. BEFORE STARTING UP

(i) Ensure that the aircraft is parked in a suitable position, preferably into wind and over firm ground or grass, free of loose stones.

(ii) Adjust the seat for comfortable height and for reach of the rudder pedals and ensure that the seat is securely locked.

(iii) Check and fasten safety harness.

(iv) Set parking brake.

(v) Check all circuit breakers in and all unnecessary switches are off.

(vi) Check full free and correct movement of controls.

(vii) Check flaps up.

(viii) Trim – neutral.

(ix) Check all instruments.

(x) Turn on battery master switch.

4. STARTING THE ENGINE

Normal Cold Start:

(i) Select desired fuel tank (preferably fullest).

(ii) Check brakes "parked".

(iii) Check mixture fully "rich". Quadrant friction lever loose.

(iv) Check carburettor air heat selected "off". Check instrument indications.

(v) Turn on master switch (battery and alternator).

(vi) Note instrument indications e.g.

(a) Fuel gauges
(b) Temperature gauges
(c) Power source lamp for turn gyro
(d) Operation "flag" absence for turn gyro
(e) Annunciator panel lights.

(vii) Turn booster pump switch "on". Note press.

(viii) Prime the engine (4–5 strokes of primer). Ensure primer is left locked.

(ix) Set throttle ¼ inch open.

(x) Check all clear of the propeller and engage the starter by rotating the magneto switch clockwise and pressing in.

(xi) When engine fires, release the ignition switch which will automatically return to "both" magneto position.

(xii) Adjust throttle, if required, to idle engine at 1000–1200 rpm and note rise in oil pressure (should the oil pressure remain below 25 p.s.i. for 30 seconds, stop the engine). Check ammeter for charge rate. Check vacuum gauge for suction. Check annunciator panel for lack of warning lights.

4. STARTING THE ENGINE (Contd.)

Hot Start:

(i) Select desired fuel tank (preferably fullest).

(ii) Check brakes "parked".

(iii) Check mixture fully rich.

(iv) Check quadrant friction lever loose.

(v) Check carburettor air heat selected "off".

(vi) Check instrument indications.

(vii) Select master switch on. Note instrument indications.

(viii) Turn fuel booster pump "on". Check operation and pressure.

(ix) Set throttle ¼ inch open. (One full stroke of throttle lever may enhance starting).

(x) Engage starter and when engine fires adjust throttle to maintain approx 1000 r.p.m. Note rise in oil pressure (should the oil pressure remain below 25 p.s.i. for 30 seconds, stop engine).

(xi) When engine is idling smoothly, turn off fuel booster pump and check pressure is holding. Check ammeter, vacuum gauge and annunciator warning panel.

CAUTION! Never engage the starter while the propeller is turning.

5. TAXIING

Before taxiing, check radio "ON" and correct channel selected.

(i) Throttle back and release the parking brake.

(ii) Apply throttle to get the aircraft moving, check brakes for operation, then use minimum throttle and brake to control the taxiing speed at a safe pace.

(iii) Use the rudder pedals to turn the aircraft on the ground.

(iv) When taxiing down wind keep speed and power low.

(v) When taxiing over rough ground keep low cautious forward speed.

(vi) Taxiing over cinders or loose stones should be done at low engine R.P.M. to avoid damage to the propeller.

Use minimum speed, power and brakes, no excuse can be accepted for a taxi accident.

6. WARMING UP

(i) It is desirable to avoid excessive ground running with these engines, consequently the warm-up period should be limited to approximately 2–4 minutes.

NOTE: Normal taxiing will usually satisfy the above requirements.

7. TAKE-OFF – NORMAL

(i) Pre take-off checks or **DRILL OF VITAL ACTIONS.** Brakes **parked on.** Throttle set 1000–1200 rpm.

T. Trim and Throttle.
Elevator trim set.
Rudder trim set.
Throttle set.
Throttle friction adjusted firm.

M. Mixture – rich.

P. Pitch – propeller set fixed.
Primer – locked.

F. Fuel – selection, contents, press and pump
Flaps – exercised through range and set as required.

I. Instruments – checked left to right.

S. Switches – where appropriate selected on, others off. Radios selected "on" correct frequency. Circuit breakers all in.

C. Controls – for, full, free and correct movement.

H. Hatches, harness and seats all secure.

(ii) RUNNING UP

The run-up should be carried out as a separate item to the pre-take-off checks, but in conjunction with them, e.g. prior to (preferably) the pre-take-off checks or immediately after them. It should be conducted prior to aircraft's first flight of the day or the pilot's first flight in that particular aircraft if the engine performance is suspect or if the pilot in command considers the check desirable to confirm engine ignition performance satisfactory.

A full throttle static run-up may be conducted also upon pilot's direction in accordance with Section .1. of the aircraft's approved flight manual. Prior to commencing a run-up the pilot should ensure that the aircraft is positioned facing directly into wind, for additional cooling, avoidance of dust induction and additional stability. The area should be free of loose stones and gravel and preferably be a clean grassed area. During run-up the aircraft should be positioned so as to avoid being a nuisance or danger to other aircraft, persons, and buildings.

(a) Check each magneto to ensure dead cut.

(b) Open throttle to give 1700 rpm and check carburettor hot air control. A definite drop in rpm should be observed when carburettor hot air is selected, this establishes that the control is functioning. When the control is returned to "cold" or off position, the rpm should return to that previously set (1700 rpm).

(c) Each magneto should be checked individually. The engine should run smoothly and the rpm drop must not exceed 125 rpm with a maximum difference between magnetos of 50 rpm.

(d) Note: Oil pressure normal
Alternator charging
Vacuum approx 5" HG

(e) Apply carburettor air to hot, then smoothly close throttle fully and check slow idle. Engine should idle between 600–750 rpm. Note oil pressure still normal.

(f) Re-select carburettor hot air control to off or cold position. Check carburettor air temperature gauge. Adjust throttle to idle at 1000 rpm.

(iii) Take-off Procedures: Check all clear, obtain clearance, and line up allowing sufficient forward travel to straighten the nose wheel.

(a) Smoothly apply full throttle, keeping straight with rudder.

(b) As the aircraft gathers speed, apply slight backward pressure to the control column and relieve nose wheel load.

(c) When flying speed is reached (approximately 55 knots) lift the aircraft smoothly off the ground with a firm backward movement of the control column.

7. TAKE-OFF – NORMAL (Contd.)

(d) Fly the aircraft level with the ground to gain initial climb speed of 60 kts. before entering the climb.

(iv) After Take-off: At a safe height (approximately 200 feet), flaps up, increase speed to 90 kts., reduce power to 2500 R.P.M., turn fuel booster pump "OFF" and check fuel pressure, oil pressure and temperatures. TRIM accurately.

8. SHORT FIELD TAKE-OFF

(i) Carry out all standard pre take-off vital actions and ensure that 25° of flap is selected.

(ii) Hold the aircraft on the brakes and apply full throttle (stone free area only) then release the brakes.

(iii) When a speed of 52 kts. is indicated, apply firm back pressure on the control column and lift the aircraft clear of the ground.

(iv) Maintain initial climb speed of 52 kts.

(v) At a safe height select flaps up allowing speed to increase and resume normal climb.

9. CROSS WIND TAKE-OFF

(i) Carry out standard pre take-off vital actions and ensure 25° flap.

(ii) Smoothly apply full throttle, keep the aircraft straight and use sufficient aileron into wind to maintain lateral level.

(iii) Lift the aircraft cleanly off the ground to prevent any possibility of settling back while drifting.

(iv) Yaw the nose sufficiently into wind to counteract drift and enter normal climb.

10. CLIMBING

(i) Normal climb	90 kts.	2500 R.P.M.
(ii) Cruise climb	90 kts.	2500 R.P.M.
(iii) Obstacle clearing Climb 25° flap	52 kts.	Full power

(iv) Best rate:– Best rate of climb is in a clean condition, full throttle, and varies in speed according to height and weight.
e.g. Gross weight at sea level–79 kts. Full power

11. CRUISING

(i) Normal circuit	100 kts.	2300 R.P.M.
Cross Country & NAVX		65% Power

(ii) Mixture control to be used to give maximum R.P.M. for throttle setting.

(iii) Cruising Range:

(a) Total usable fuel 40.0 Imperial Gallons. (181 Litres).

(b) Fuel consumption for flight planning purposes:– 7 G.P.H. (Imperial). (31.5 Litres).

(c) Safe endurance (45 minutes) reserve = 300 + 45 = 345 minutes.

12. DESCENDING

Mixture control must be moved to "FULL RICH" for descent.

(i) Cruise descent is carried out at 110 kts and 2000 R.P.M. Carby heat must be used should icing conditions exist or whenever in doubt.

(ii) Descent:– Flap up, throttle closed, carby air "HOT", airspeed 70 kts. This configuration will normally be used to obtain maximum gliding range in still air.
Flap down, throttle closed, carby air "HOT", airspeed 63 kts.

(iii) Powered descent:– Same speeds as above with power controlling rate of descent.

(iv) Descent, precautionary power on, **flaps selected 25, 60 kts. I.A.S.**

These figures above are for an aircraft at the maximum all up weight.

NOTE: During any descent, or exercise, where the throttle is closed or power is reduced substantially (below 2000 R.P.M.), the carburettor heat control should be selected to hot. **This should be done PRIOR to the power reduction.**

13. STALLING

(i) Before engaging in stalling, carry out a pre-aerobatic type check as follows:–

H. Height. Sufficient to recover by 3,000 feet above terrain.

A. Area. Not over a built up area.

S. Security. No loose articles in the cabin. Harness secure.

E. Engine. Check fuel selection, contents, mixture, rich, carby heat, engine instruments.

L. Look out. Turn through 360° checking all clear around and below, and after each stall, turn through 90° to check all clear.

(ii) Stalling speeds in level flight with power off at gross weight are:–

Flaps up	49 knots I.A.S.
Flaps fully extended	43 knots I.A.S.

(iii) Loadings below A.U.W. and the introduction of power will result in considerably lower indicated speeds. The stall warning horn will come on approximately 5–10 kts. above the stall speed, and continue until recovery is effected.
With flaps retracted the stall is extremely gentle, with mushing as the typical condition and no tendency for a wing drop. With full flap down a slight nose drop usually occurs with a slight tendency for the left wing to drop.
In all instances recovery is rapid on release of back pressure on the control column. The use of power will minimise the height loss during recovery, and any yaw caused by wing drop is corrected with opposite rudder.

14. AEROBATICS AND SPINNING

Aerobatics of any category and spinning are not permitted in this aircraft.

15. FORCED LANDINGS

(i) **Immediately the Engine Fails**

(a) Gain height with excess speed (if any), close the throttle, apply carby heat. Trim for glide at 70 kts.

(b) Emergency fuel check – change to the other tank, turn on fuel booster pump. (In practice leave fuel selector on fullest tank). Mixture rich.

(c) With due consideration of wind velocity, select a field within safe gliding distance and **plan** the forced landing pattern of approach.

(ii) **If sufficient altitude permits, carry out a trouble check as follows to ascertain cause of engine failure.**

(a) F. Fuel:– Check tank selection, contents and pressure. Boost Pump "ON". Primer Pump locked.

15. FORCED LANDINGS (Contd.)

(b) M. Mixture:– Check mixture control fully "RICH". Carburettor heat on.

(c) S. Switches:– Check magneto switches and return to "BOTH".

(d) T. Throttle:– Check throttle throughout range for possible response. (In practice take this opportunity to clear the engine during descent. Repeat at 500 feet intervals during prolonged descent).

(iii) **If unable to rectify engine failure and committed to forced landing, radio "Mayday" call and carry out safety check as follows:**

(a) B. BRAKES:– Check for pressure and off.

(b) U. Unlock the door, both catches. (Leave secure in practice).

(c) S. All switches and fuel "OFF". (Check on in practice).

(d) H. Harness secure and instruct passengers to brace prior to touchdown.
Use flap as required to adjust the approach path into the selected field.

16. PRECAUTIONARY LOW FLYING

For precautionary low flying in conditions of low cloud and poor visibility.

(i) Check harness secure.

(ii) Chech fuel selection and contents. Booster pump "ON".

(iii) With flaps set to 25° use sufficient power to maintain 70 kts. (Approximately 2000 R.P.M.)

17. APPROACH AND LANDING – NORMAL

Pre-landing checks: Normally conducted on the down-wind leg. (The inclusion of "under-carriage" in the check list gives a check that is suitable for all aircraft types).

(a) On Down-wind Leg:–
(i) C. Carburettor Heat – ON.
(ii) B. Brakes checked for pressure and parking brake – OFF.
(iii) U. Undercarriage down and locked.
(iv) M. Mixture – RICH.
(v) F. Fuel – selection, contents and pressure – CHECKED. Fuel Booster pump – ON.
(vi) H. Harness secure.

(b) On Base Leg:–
(i) CHECK that carburettor heat is selected – ON.
(ii) Reduce power.
(iii) Select flap to 25° (two notches) when speed has reduced to below 100 kts.
(iv) Adopt attitude to maintain 80 kts. (IAS.), and trim.

(c) On Final:–
1. Select full flap speed 70 kts.
2. Adjust rate of descent with power.
3. At approximately 200 feet, carby air to "COLD".

Speed may be reduced to 60 kts. over the boundary and the aircraft held off gently for as long as possible to give a tail down landing on the main wheels, after touch-down use gentle braking to bring the aircraft to a stop in a straight line.

NOTE: With reference to Section 2, Paras. "7" and "17", the take-off and landing lengths required must be calculated from the performance charts contained in the aircraft Flight Manual.

18. APPROACH AND LANDING – PRECAUTIONARY

Precautionary (short field) landings are carried out in the conventional manner. Commence with a normal powered, full flap approach, and when on final at 200–300 feet commence a gradual reduction in speed with the elevator, to reduce the speed to 50 kts. at the threshold. Control the rate of descent with the power and air speed with the elevator in the normal manner to bring the aircraft to a close brief hold-off, cut the power and lower the nose wheel on to the ground after touchdown, raise the flaps and use brakes as required.

NOTE: The final selected air speed will depend on conditions prevailing.

19. APPROACH AND LANDING – CROSSWIND

Carry out a normal powered approach with flap as required. Lay off drift on the approach to track along the desired path. Just prior to touchdown rudder off drift. During the landing run use rudder and brakes as required to keep straight, and apply aileron progressively into wind. Use of a gentle side slip to overcome drift on approach and hold-off is permitted, and is a desirable aid to the normal yaw method.

NOTE: Maximum crosswind component is 17 kts.

20. OVERSHOOT (Going Round)

With full flap:– open throttle smoothly to full power, allow speed to develop to at least 60 kts, raise 3rd stage of flap promptly after climb established. Allow speed and climb to develop and raise remainder of flap smoothly at safe height and continue with normal climb out (90 kts. ias) Power 2500 rpm, fuel booster pump off, check on gauges and re-trimming.

The above procedure may be applied to a touch and go landing.
NO ATTEMPT SHOULD BE MADE TO ADJUST FLAP DURING TAKE-OFF ROLL UNLESS FULL ATTENTION CAN BE GIVEN TO AIRCRAFT CONTROL.

21. AFTER LANDING

1. Vacate the active landing area as soon as possible.
2. Flaps up.
3. Trim – Neutral.
4. Booster pump "OFF".
5. Check carby air in "COLD".
6. All unnecessary avionics "OFF".

22. RUNNING DOWN AND STOPPING

(i) Park the aircraft – parking brake "on".

(ii) Idle the engine at 1000 rpm to allow even cooling.

(iii) Turn all avionics off (radio off).

(iv) Turn all unnecessary switches (electrics) off.

(v) Check engine instruments and circuit breakers.

(vi) Check ignition (magneto switches) for a dead cut.

22. RUNNING DOWN AND STOPPING (Contd.)

(vii) Stop the engine by moving mixture control lever to the idle cut off position.

(viii) As the engine dies, close the throttle right off.

(ix) When the engine has stopped, turn the magnetos "off" and remove key and place same in prominent, visible, position. Do not remove keys from aircraft unless the intention is to secure same for remainder of day.

(x) Turn off all services and master switch.

(xi) Turn off fuel.

(xii) Parking brake "off".

NOTE: Parking brake may be left lightly applied for short term parking – use chocks whenever available.

23. EMERGENCY PROCEDURES

(a) **Engine Failure After Take-off**

If the engine should fail just on, or immediately after, take-off:–

(i) Immediately lower the nose of the aircraft to the gliding attitude (to maintain air speed).

(ii) Select flap as required to execute a landing on the most suitable area immediately ahead of the aircraft. **Do not attempt to RAISE flap.**

(iii) Avoid any STEEP turn. (Keep turns moderate – note I.A.S.).

(iv) If time permits, conduct a trouble check: fuel, mixture, carburettor heat.

(v) Where practicable, before landing, turn off fuel and MASTER switch.

NOTE: Never attempt to turn back to the airfield.

(b) **Restarting the Engine in Flight**

Should the propeller cease to rotate during any manoeuvre procedures must be followed:–

(i) Where the starter is operative, place the aircraft in a normal glide attitude and check:–

(a) Fuel selection and contents, booster pump "ON".

(b) Mixture "RICH".

(c) Throttle closed.

(d) Operate starter until the engine commences to rotate.

(e) When the engine fires, adjust power, check rise in oil pressure, and resume normal flight.

(f) Turn the booster pump "OFF".

(ii) Where the starter motor is inoperative:–

(a) Carry out checks (a), (b) and (c) as in 23 (b) - (i).

(b) Magneto switch to "BOTH".

(c) Place the aircraft in a steep dive until the propeller rotates or a speed of 125 kts. is reached, when a gentle pull out must be made during which the propeller will normally turn over.

(ii) (d) Continue with (e) and (f) as in 23 (b) - (i).

NOTE 1: In the event of a stoppage in flight notify the School of the circumstances leading up to the failure.

NOTE 2: If either of the above procedures fails, continue for a forced landing as in 15. Under no circumstances is a dive start to be attempted below 2000 feet above terrain.

(c) **Engine Fire In Flight**

If an engine fire is present, carry out the following action:

(i) Switch the fuel selector to 'OFF' and close throttle.
(ii) Move the mixture control to idle cut-off.
(iii) Turn the electric fuel pump 'OFF'.
(iv) In all cases the heater and defroster should be 'OFF'.
(v) Radio 'MAYDAY' then,
(vi) Turn master switch 'OFF'.
(vii) Select a suitable field and carry out a forced landing.

(d) **Electrical Fire In Flight**

(i) Master Switch and all electrical services – OFF.
(ii) Employ fire extinguisher with CAUTION.
(iii) Providing the fire has been extinguished, ventilate cabin after use of fire extinguisher.
(iv) Land promptly at the first available opportunity and report circumstances.

(e) **Flight Through Rough Air**

The important problem of flight through rough air is choosing the best air speed for safe operation with due consideration of aircraft weight and gust severity. Do not overcontrol. Make all turns shallow to cut "G" forces to a minimum. At maximum all up weight use a maximum speed of 111 kts. and a minimum speed of 90 kts. Avoid too low an airspeed as an inadvertent stall may result during gusts.

24. TIEING DOWN

(i) Choose a suitable area for parking, utilising any available means of weather protection e.g. in the lee of a building.

(ii) Park the aircraft into the wind and secure the controls with the seat belt.

(iii) Chock the main wheels fore and aft.

(iv) Secure the wings with tie down ropes at the lugs provided.

(v) Secure the tail using the tail skid loop.

(vi) Where possible additional safety is obtained by securing the nose wheel.

SECTION 3 – OPERATING LIMITATIONS

1. OPERATING SPEEDS AND LIMITS

Maximum Speed (never exceed)		160 kts.
Maximum Manoeuvre	At 2325 AUW	111 kts.
	At 1531 AUW	88 kts.
Normal Cruise (Local and Training Area) 2300 R.P.M.		100–105 kts.
Normal Cruise (Cross Country and Nav's) 65% Power		105–110 kts.
Precautionary Cruise 2000 R.P.M.		70 kts. – 25° of Flap.
Normal Climb 2500 R.P.M.		90 kts.
Cruise Climb 2500 R.P.M.		90 kts.
Maximum Angle Climb – Full Power		52 kts. – 25° of Flap.
Maximum Rate Climb – Full Power		79 kts.
Maximum Flap Extension		103 kts.
Glide Descent – Flap Up		70 kts.
Glide Descent – Flap Down		63 kts.
Approach – Full Flap		60–70 kts.
Approach – Full Flap (Precautionary)		50 kts. (Dependent on conditions)
Overshoot – Full Flap, Full Throttle		60 kts.
Cross-wind Component – Maximum		17 kts.

2. ENGINE OPERATING LIMITS

Maximum Permissable R.P.M.	2700 R.P.M.
Normal R.P.M.	2200–2450 R.P.M.
Maximum Oil Pressure	90 P.S.I.
Minimum Oil Pressure	25 P.S.I.
Normal Operation Oil Pressure	60–90 P.S.I.
Maximum Oil Temperature	245° F.
Normal Oil Temperature	120–245° F.
Fuel Pressure Minimum	½ P.S.I.
Fuel Pressure Maximum	8 P.S.I.
Fuel Pressure Normal	½–8 P.S.I.

3. WEIGHT AND LOADING

The responsibility for maintaining the aircraft within the correct weight and centre of gravity limits rests entirely with the pilot-in-command.

To assist the pilot, the information presented in this section on weight and balance details, is provided. This must be read in conjunction with the aircraft Flight Manual.

(a) **General Information**

(i)	Maximum Take-off Weight (normal category)	2325 lbs. (1050 kg.)
(ii)	Maximum Take-off Weight (utility category)	1950 lbs. (884 kg.)
(iii)	Maximum Landing Weight	2325 lbs. (1050 kg.)
(iv)	Maximum Baggage behind rear seat	200 lbs. (90.7 kg.)
(v)	Maximum Baggage rear cabin area	340 lbs. (154 kg.)

(vi) Datum: 78.4 inches forward of the wing leading edge at the intersection of the straight and tapered section.

Note: The weight of passengers occupying the third and/or fourth seat will be restricted only by aeroplane gross weight and C of G limitations. Baggage capacity is limited to the stated values by tie-down requirements.

(b) **Fuel**

All fuel weight figures are to be calculated at 7.2 lbs.(3.2 kg.) per Imperial Gallon.

(c) **Oil**

The useable oil quantity of 6.7 Imperial Quarts weighs 15 lbs. (6.8 kg.) and has a moment of .488 lbs. inches/1000.

(d) **Computing Procedure**

(i) Record the certified empty weight and moment from the load data sheet or aircraft Flight Manual.

(ii) Record the weight and corresponding moment of each useful load item to be carried. These values are found on the Useful Load Weights and Moments Tables. (Fuel, oil, pilot, passengers and baggage.)

(iii) Total the weight column and moment column. The total weight must not exceed the maximum allowable gross weight for take-off, and the total moment must be within the minimum and maximum moments shown on the Gross Weight Moment Limits Table.

The aeroplane must be loaded properly throughout the flight; therefore the loading must be checked for zero fuel.

The moment for this zero fuel weight must be within the minimum and maximum moments shown on Gross Weight Moment Limit Table for the nearest weight. If the total moment is less than the minimum moment allowed, useful load items must be shifted aft, or forward load items must be reduced. If the quantity or locating of load items are changed, the calculations must be revised and the moments rechecked.

3. WEIGHT AND LOADING (Contd.)

(e) **Example 1 –**
Loading Calculation – Normal Category

Item	Weight (lbs.)	Moment/1000
Basic Empty Weight	1486.7	129.328
Pilot and Front Passenger	340.0	27.370
Passengers (Rear)	340.0	40.154
TOTALS (Less Fuel)	2166.7	196.852
Check weight-moment limits – within tolerance		
ADD:		
Fuel (22 Imp. Gallons)	158.3	15.039
TOTAL WEIGHT AND MOMENT (WITH FUEL)	2325.0	211.891

From the above table it is obvious that the aircraft at the calculated all up weight is not in excess of the maximum and that the total moment falls within the maximum and minimum limits.

NOTE: To establish CG Position, divide Total Weight into Total Moment.

* Basic Weight includes Full Oil.

3. WEIGHT AND LOADING (Contd.)

(e) **Example 2 –**
Loading Calculation – Utility Category

Item	Weight (lbs.)	Moment/1000
Basic Empty Weight	1486.7	129.328
Pilot Passenger (Front)	340.0	27.370
TOTALS (Less Fuel)	1826.7	156.698
Check weight-moment limits – within tolerance		
ADD:		
Fuel (16 Imp. Gallons)	115.2	11.900
TOTAL WEIGHT AND MOMENT (WITH FUEL)	1941.9	168.598

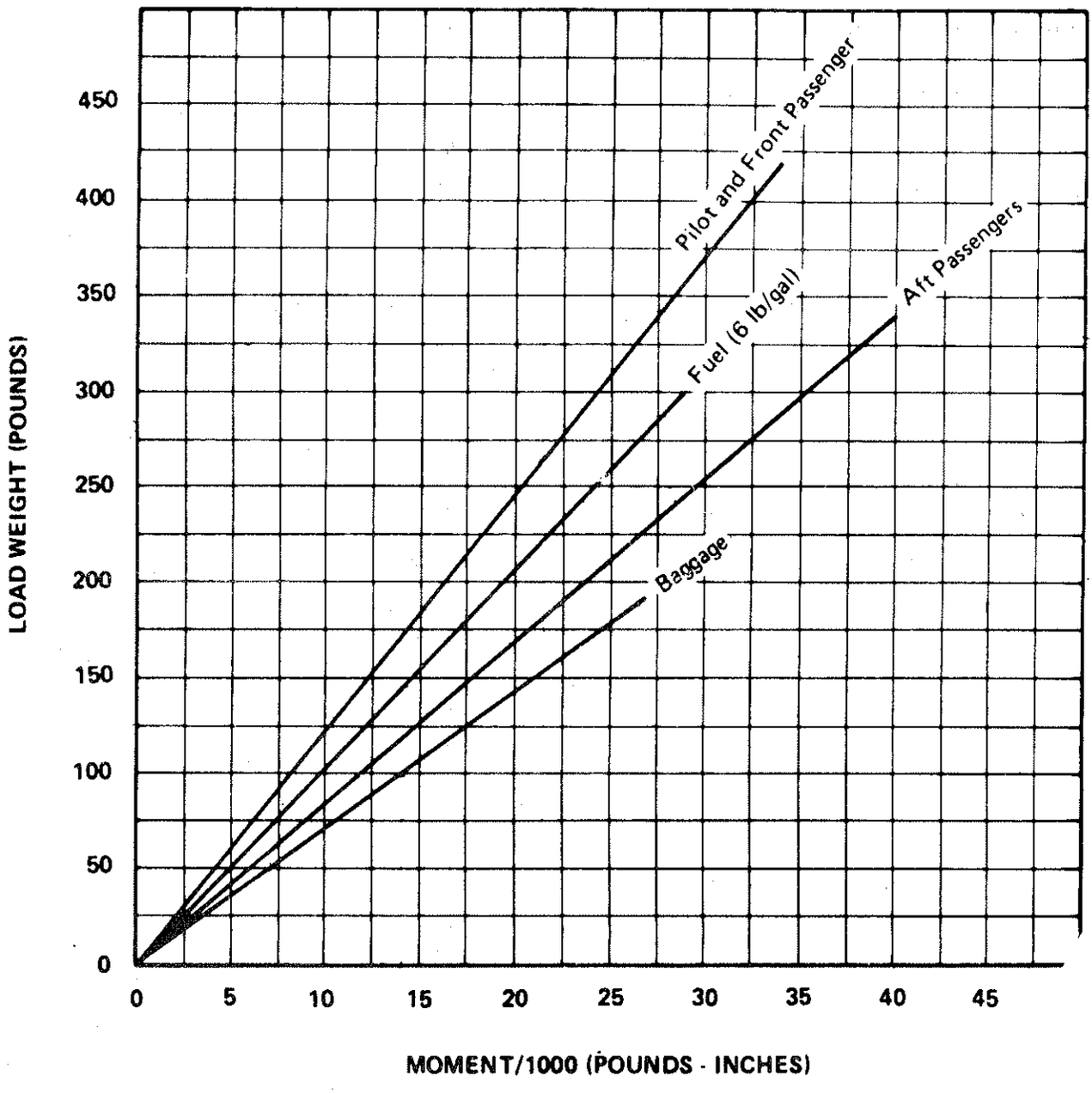
WITHIN LIMITS: Interpolation of the weight and moment figures between 1940 lbs. and 1950 lbs. is necessary to confirm the above table is correct.

(f) **General Loading Information**

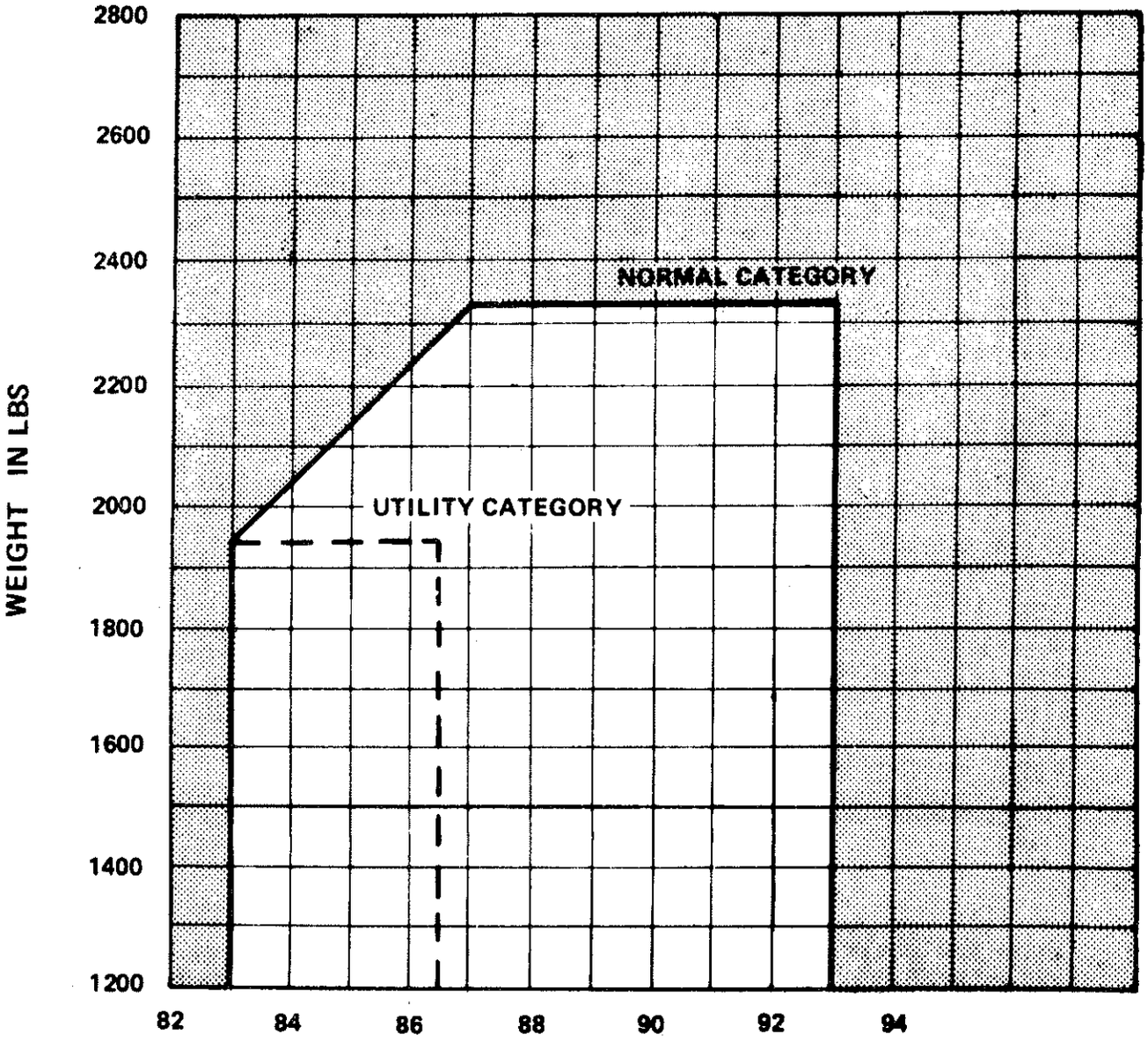
(a) With full tanks (40 gallons) and pilot can carry 2 passengers and 40 lbs. Baggage.

(b) With 22 gallons of fuel and pilot can carry 3 passengers and **NO BAGGAGE.**

(c) With 31 gallons of fuel and pilot can carry 2 passengers and 100 lbs. of Baggage.



LOADING GRAPH



C. G. RANGE AND WEIGHT

SECTION 4 – PERFORMANCE

1. PERFORMANCE CHARTS

The charts in this Section contain data establishing weight limitations for take-off and landing in accordance with Air Navigation Orders Section 20.7.4.

Extrapolation outside the boundaries of the performance charts is not permitted. When the outside air temperature and/or pressure height is below the lowest range scheduled on the charts, the aeroplane performance shall be assumed to be no better than that appropriate to this lowest range. The performance information is not valid when the outside air temperature and/or pressure height exceed the maximum values for which this information is scheduled.

2. TAKE-OFF

The gross weight of the aeroplane for take-off shall not exceed the lesser of:

(i) the maximum take-off weight specified in Section 2 of this Manual; and

(ii) the gross weight for take-off determined from the take-off weight chart of this Section.

The take-off chart is based on factored take-off distances from rest to a height of 50 feet with the engine operating at take-off power. The surface corrections on the chart are based on standard factors related to strips with a firm surface. Soft ground and unusually long and/or wet grass will increase the take-off distance over that scheduled and the pilot should therefore ensure that adequate strip length is available to cover these conditions.

For sealed and gravel surfaces, the gross weight for take-off shall be determined as for a short dry grass surface.

The technique used in establishing the take-off distance is such that the aeroplane is held on or close to the ground until the appropriate take-off safety speed is approached, and the climb away then commenced so that this speed is achieved and maintained at or before the 50 foot height point.

When included on the take-off weight chart, the climb weight limitation graph provides for a weight restriction to ensure that the aeroplane achieves the required 6 percent climb gradient at take off. This graph is based on a climb at the take off safety speed using take off power.

3. LANDING

The gross weight of the aeroplane for landing shall not exceed the lesser of:–

(i) the maximum landing weight specified in Section 2 of this Manual; and

(ii) the gross weight for landing determined from the landing weight chart of this Section.

The landing weight chart is based on factored landing distances on a short dry grass surface from a height of 50 feet to stop. The chart is also applicable to sealed and gravel strips. Wet and/or slippery surfaces will increase the landing distance over that scheduled and the pilot should therefore ensure that adequate strip length is available to cover these conditions.

The technique used in establishing the landing distance is such that the aeroplane approaches at the given approach speed in a glide through the 50 foot height point at the strip threshold. After touchdown, maximum wheel braking is used to bring the aeroplane to a stop.

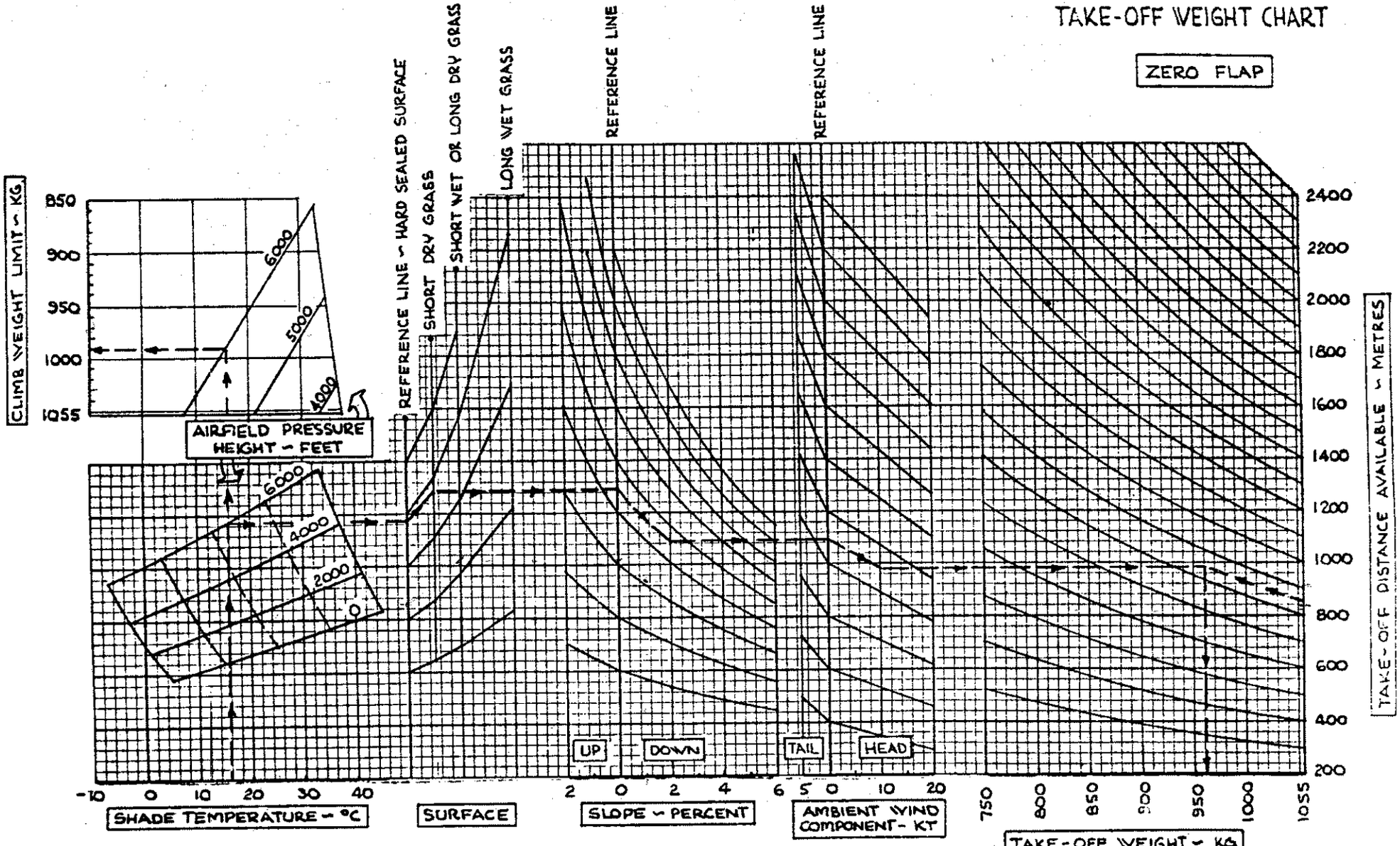
When included on the landing weight chart, the climb weight limitation graph provides for a weight restriction to ensure that the aeroplane achieves the required 3.2 percent climb gradient during a baulked landing. This graph is based on a climb after accelerating to 63 KTS IAS and using take-off power.

In determining the gross weight for landing from the landing weight chart of this Section for Night V.M.C. operations, the distance applied to the landing weight chart shall be the actual distance available reduced by 20 percent.

PIPER MODEL PA-28-161

TAKE-OFF WEIGHT CHART

ZERO FLAP



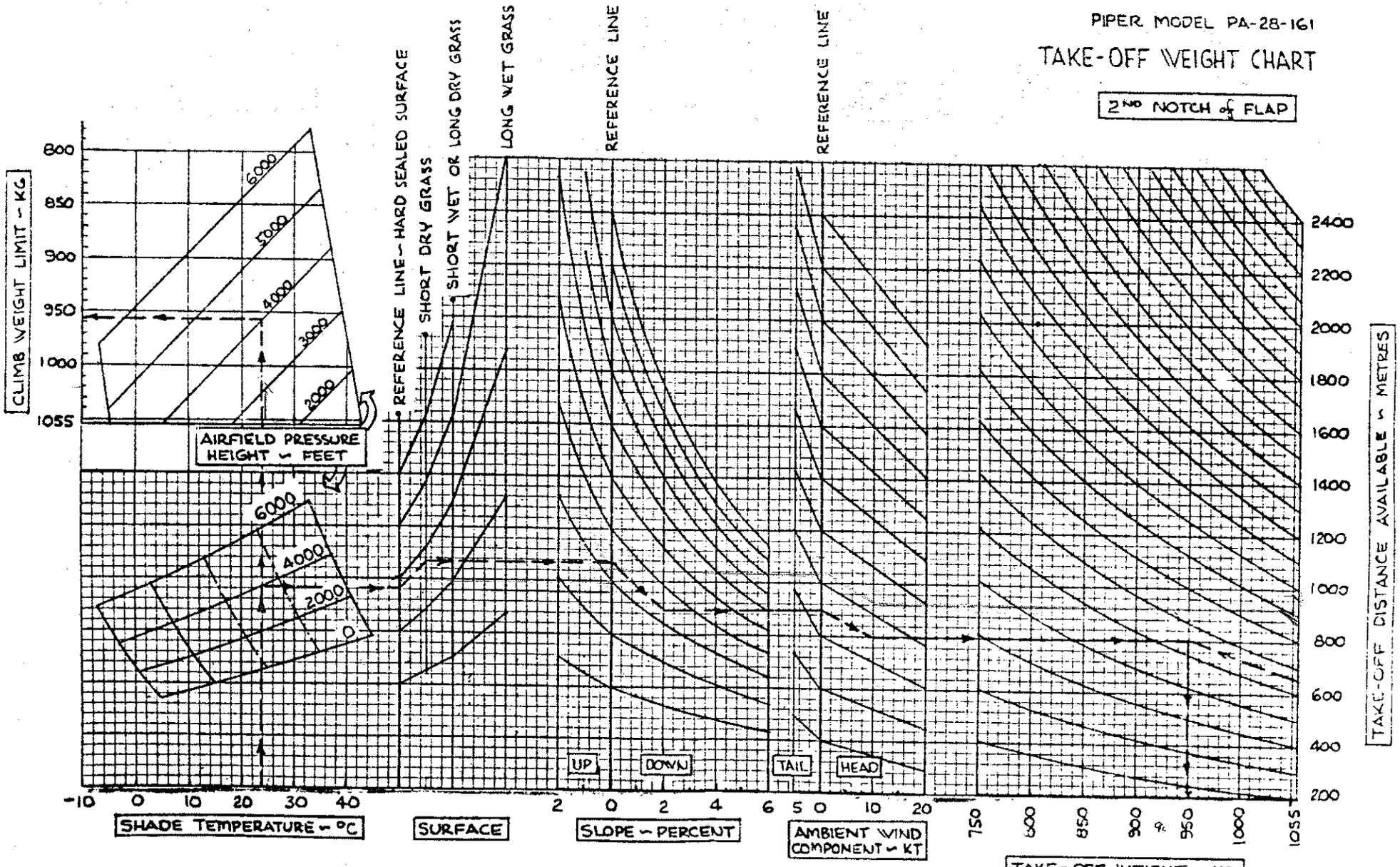
FLAP SETTING ~ ZERO
TAKE-OFF SAFETY SPEED 64 KT IAS
POWER SETTING ~ FULL THROTTLE
RPM ~ NOT LESS THAN 2350
CHART DISTANCE FACTOR 1·15

NOTE : TAKE-OFF WEIGHT MUST NOT EXCEED CLIMB WEIGHT LIMIT ABOVE

PIPER MODEL PA-28-161

TAKE-OFF WEIGHT CHART

2ND NOTCH of FLAP

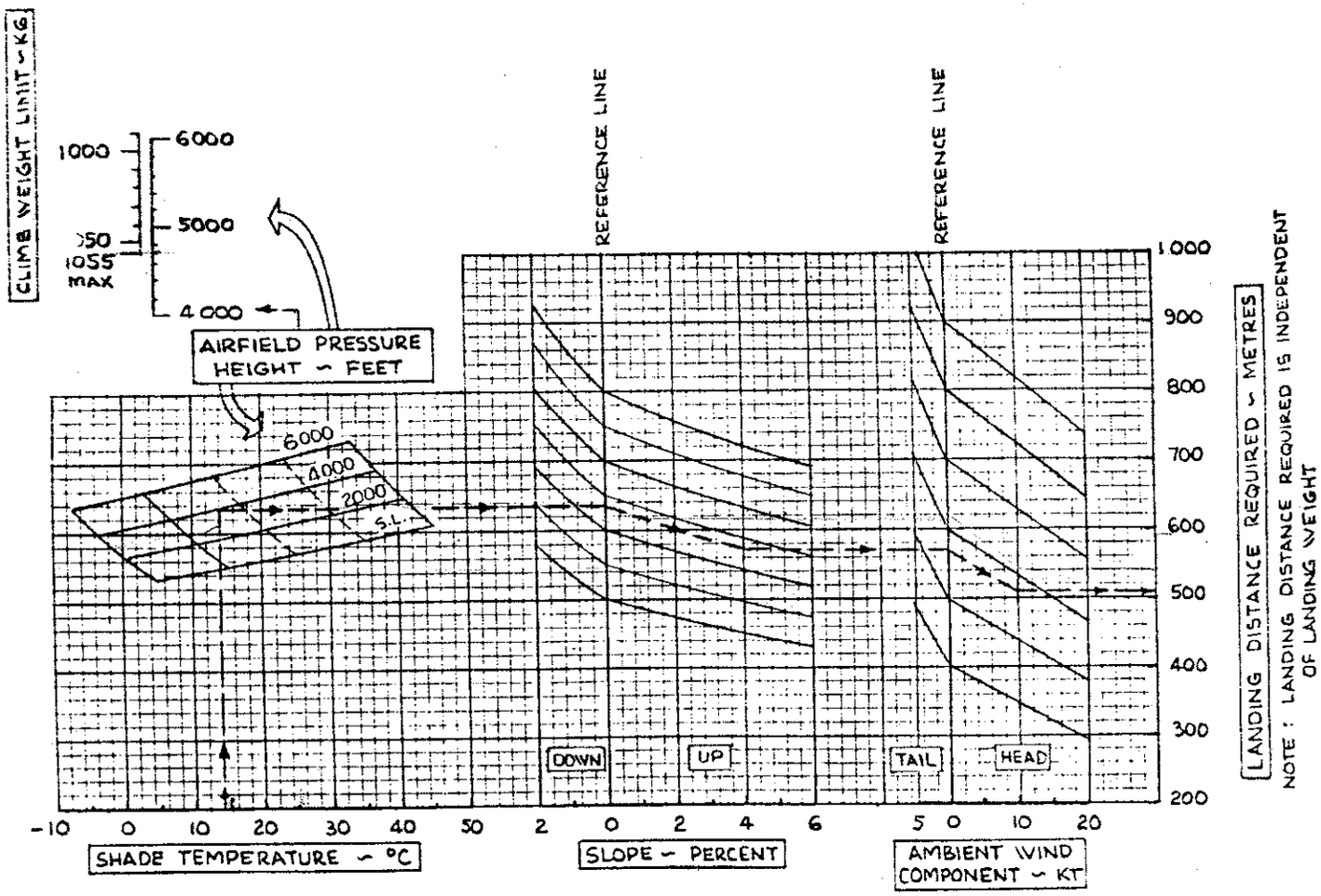


FLAP SETTING ~ 2ND NOTCH
TAKE-OFF SAFETY SPEED 58 KIAS
POWER SETTING ~ FULL THROTTLE
RPM ~ NOT LESS THAN 2350
CHART DISTANCE FACTOR 1·15

NOTE: TAKE-OFF WEIGHT MUST NOT EXCEED CLIMB WEIGHT LIMIT ABOVE

PIPER MODEL PA-28-161

LANDING DISTANCE CHART



FLAP SETTING 40°

APPROACH SPEED 65 KT IAS

LANDING DISTANCE FACTOR 1·15

NOTE:

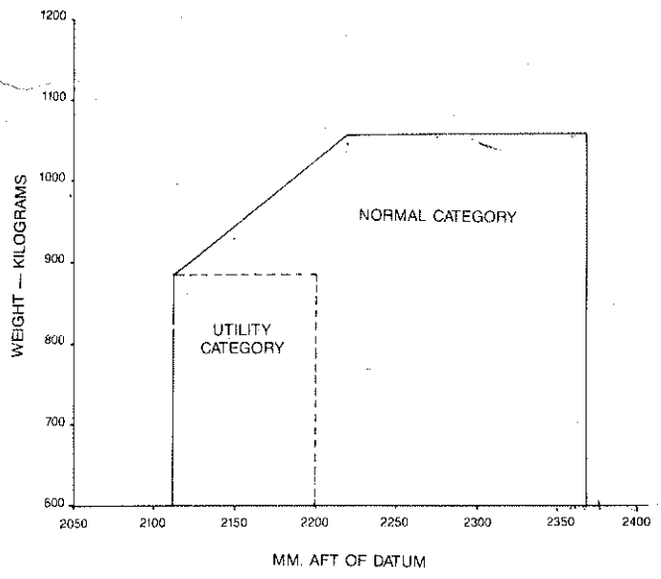
LANDING WEIGHT MUST NOT EXCEED CLIMB WEIGHT LIMIT ABOVE

NOTES

CONVERSIONS

INS. x 2.54	=	CM.
FEET x .3048	=	METRES
IMP. GALS. x 1.201	=	U.S. GALS.
LITRES x .22	=	IMP. GALS.
IMP. GALS. x 4.546	=	LITRES
KILOS x 2.205	=	LBS.
METRES x 3.281	=	FEET
LBS/SQ.INS. x 6.85	=	KPa
3.77 LITRES	=	1 U.S. GALLON
.94 LITRES	=	1 U.S. QUART

FOR METRIC WEIGHT AND LOADING
SEE FLIGHT MANUAL



PIPER WARRIOR (PA-28-161)

	WEIGHT (KG)	ARM (MM)	MOMENT (KG/MM)
Basic Empty	★ Refer To	Aircraft	Flight Manual
Front Seats		2044.7	
Rear Seats		2999.7	
Fuel		2413.0	
Baggage		3627.1	
Total			

Fuel 181 Litres - 130.32 Kg

Baggage Compartment - Max Load 90 Kg

M.T.O.W. - 1055 Kg

M.L.W. - 1055 Kg

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