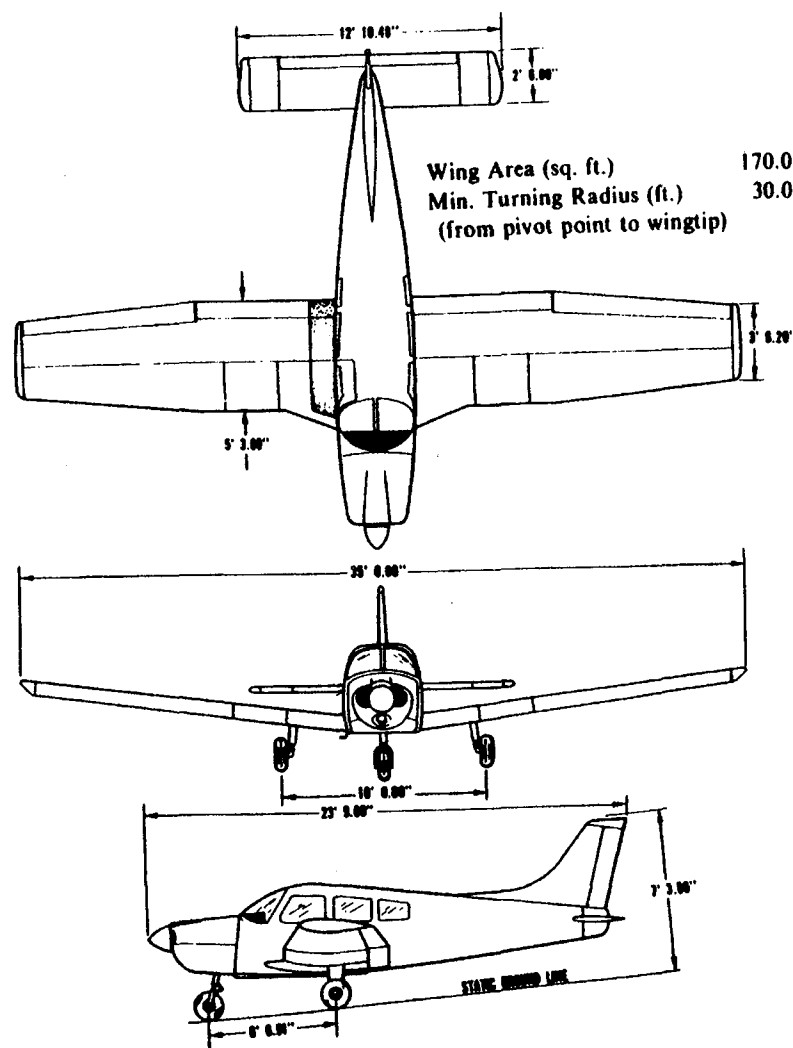




THREE VIEW
Figure 1-1

1.3 ENGINES

(a) Number of Engines	1
(b) Engine Manufacturer	Lycoming
(c) Engine Model Number	O-360-A4M or O-360-A4A
(d) Takeoff Power - 5 Minute Limit (BHP)	180
(e) Takeoff Engine Speed - 5 Minute Limit (RPM)	2700
(f) Maximum Continuous Power (BHP)	178
(g) Maximum Continuous Engine Speed (RPM)	2650
(h) Bore (inches)	5.125
(i) Stroke (inches)	4.375
(j) Displacement (cubic inches)	361.0
(k) Compression Ratio	8.5:1
(l) Engine Type	Four Cylinder, Direct Drive, Horizontally Opposed, Air Cooled

1.5 PROPELLERS

(a) Number of Propellers	1
(b) Propeller Manufacturer	Sensenich
(c) Model	76EM8S5-0-62
(d) Number of Blades	2
(e) Propeller Diameter (inches)	(1) Maximum 76 (2) Minimum 76
(f) Propeller Type	Fixed Pitch

1.7 FUEL

AVGAS ONLY

(a) Fuel Capacity (U.S. gal.) (total)	50
(b) Usable Fuel (U.S. gal.) (total)	48
(c) Fuel	(1) Minimum Octane 100 Green or 100LL Blue Aviation Grade Refer to latest issue of Lycoming Instruction No. 1070.
	(2) Alternate Fuel

2.15 MANEUVER LIMITS

- (a) Normal Category - All acrobatic maneuvers including spins prohibited.
- (b) Utility Category - Approved maneuvers for bank angles exceeding 60°.

	Entry Speed
Steep Turns	113 KIAS
Lazy Eights	113 KIAS
Chandelles	113 KIAS

2.17 FLIGHT LOAD FACTORS

	Normal	Utility
(a) Positive Load Factor (Maximum)	3.8 G	4.4 G
(b) Negative Load Factor (Maximum)	No inverted maneuvers approved	

2.19 TYPES OF OPERATION

The airplane is approved for the following operations when equipped in accordance with FAR 91 or FAR 135.

- (a) Day V.F.R.
- (b) Night V.F.R.
- (c) Day I.F.R.
- (d) Night I.F.R.
- (e) Non Icing

2.21 FUEL LIMITATIONS

(a) Total Capacity	50 U.S. GAL.
(b) Unusable Fuel	2 U.S. GAL.
The unusable fuel for this airplane has been determined as 1.0 gallon in each wing in critical flight attitudes.	
(c) Usable Fuel	48 U.S. GAL.
The usable fuel in this airplane has been determined as 24.0 gallons in each wing.	

2.23 NOISE LEVEL

The noise level of this aircraft is 73.9 d B(A).

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

The above statement notwithstanding the noise level stated above has been verified by and approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36, Noise Standards - Aircraft Type and Airworthiness Certification. This aircraft model is in compliance with all FAR 36 noise standards applicable to this type.

ENGINE POWER LOSS IN FLIGHT

Fuel selector.....switch to tank
containing fuel
Electric fuel pumpON
MixtureRICH
Carburetor heatON
Engine gaugescheck for indication
of cause of power loss
Primer.....check locked
If no fuel pressure is indicated, check tank selector position to be sure it is on a
tank containing fuel.

When power is restored:
Carburetor heatOFF
Electric fuel pump.....OFF
If power is not restored prepare for power off landing.
Trim for 76 KIAS.

POWER OFF LANDING

Locate suitable field.
Establish spiral pattern.
1000 ft. above field at downwind position for normal landing approach.
When field can easily be reached slow to 66 KIAS for shortest landing.

Touchdowns should normally be made at lowest possible airspeed with full
flaps.

When committed to landing:
Ignition.....OFF
Master switch.....OFF
Fuel selector.....OFF
Mixtureidle cut-off
Seat belt and harness.....tight

FIRE IN FLIGHT

Source of firecheck

Electrical fire (smoke in cabin):
Master switch.....OFF
Ventsopen
Cabin heatOFF
Land as soon as practicable.

Engine fire:
Fuel selector.....OFF
ThrottleCLOSED
Mixtureidle cut-off
Electric fuel pumpcheck OFF
Heater and defroster.....OFF
Proceed with power off landing procedure.

LOSS OF OIL PRESSURE

Land as soon as possible and investigate cause.
Prepare for power off landing.

LOSS OF FUEL PRESSURE

Electric fuel pumpON
Fuel selectorcheck on full tank

HIGH OIL TEMPERATURE

Land at nearest airport and investigate the problem.
Prepare for power off landing.

If sufficient altitude has been gained to attempt a restart, maintain a safe airspeed and switch the fuel selector to another tank containing fuel. Check the electric fuel pump to insure that it is ON and that the mixture is RICH. The carburetor heat should be ON and the primer checked to insure that it is locked.

If engine failure was caused by fuel exhaustion, power will not be regained after switching fuel tanks until the empty fuel lines are filled. This may require up to ten seconds.

If power is not regained, proceed with the Power Off Landing procedure (refer to the emergency check list and Paragraph 3.13).

3.11 ENGINE POWER LOSS IN FLIGHT

Complete engine power loss is usually caused by fuel flow interruption and power will be restored shortly after fuel flow is restored. If power loss occurs at a low altitude, the first step is to prepare for an emergency landing (refer to Paragraph 3.13). An airspeed of at least 76 KIAS should be maintained.

If altitude permits, switch the fuel selector to another tank containing fuel and turn the electric fuel pump ON. Move the mixture control to RICH and the carburetor heat to ON. Check the engine gauges for an indication of the cause of the power loss. Check to insure the primer is locked. If no fuel pressure is indicated, check the tank selector position to be sure it is on a tank containing fuel.

When power is restored move the carburetor heat to the OFF position and turn OFF the electric fuel pump.

If the preceding steps do not restore power, prepare for an emergency landing.

If time permits, turn the ignition switch to L then to R then back to BOTH. Move the throttle and mixture control levers to different settings. This may restore power if the problem is too rich or too lean a mixture or if there is a partial fuel system restriction. Try other fuel tanks. Water in the fuel could take some time to be used up, and allowing the engine to windmill may restore power. If power loss is due to water, fuel pressure indications will be normal.

If engine failure was caused by fuel exhaustion, power will not be restored after switching fuel tanks until the empty fuel lines are filled. This may require up to ten seconds.

If power is not regained, proceed with the Power Off Landing procedure (refer to the emergency check list and Paragraph 3.13).

3.13 POWER OFF LANDING

If loss of power occurs at altitude, trim the aircraft for best gliding angle 76 KIAS (Air Cond. off) and look for a suitable field. If measures taken to restore power are not effective, and if time permits, check your charts for airports in the immediate vicinity; it may be possible to land at one if you have sufficient altitude. If possible, notify the FAA by radio of your difficulty and intentions. If another pilot or passenger is aboard, let him help.

When you have located a suitable field, establish a spiral pattern around this field. Try to be at 1000 feet above the field at the downwind position, to make a normal landing approach. When the field can easily be reached, slow to 66 KIAS with flaps down for the shortest landing. Excess altitude may be lost by widening your pattern, using flaps or slipping, or a combination of these.

Touchdown should normally be made at the lowest possible airspeed.

When committed to a landing, close the throttle control and shut OFF the master and ignition switches. Flaps may be used as desired. Turn the fuel selector valve to OFF and move the mixture to idle cut-off. The seat belts and shoulder harness (if installed) should be tightened. Touchdown should be normally made at the lowest possible airspeed.

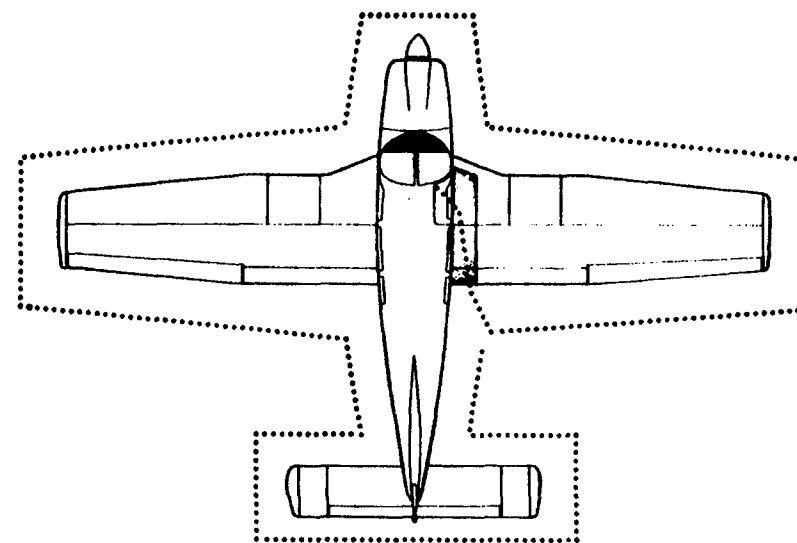
3.15 FIRE IN FLIGHT

The presence of fire is noted through smoke, smell and heat in the cabin. It is essential that the source of the fire be promptly identified through instrument readings, character of the smoke, or other indications since the action to be taken differs somewhat in each case.

Check for the source of the fire first.

Performance for a specific airplane may vary from published figures depending upon the equipment installed, the condition of the engine, airplane and equipment, atmospheric conditions and piloting technique.

(a) Best Rate of Climb Speed	76 KIAS
(b) Best Angle of Climb Speed	64 KIAS
(c) Turbulent Air Operating Speed (See Subsection 2.3)	113 KIAS
(d) Maximum Flap Speed	102 KIAS
(e) Landing Final Approach Speed (Flaps 40)	66 KIAS
(f) Maximum Demonstrated Crosswind Velocity	17 KTS



WALK-AROUND

Figure 4-1

4.5 NORMAL PROCEDURES CHECK LIST PREFLIGHT CHECK

Control wheel	release belts
Avionics	OFF
Master switch	ON
Fuel quantity gauges	check
Master switch	OFF
Ignition	OFF
Exterior	check for damage
Control surfaces	check for interference - free of ice, snow, frost
Hinges	check for interference
Wings	free of ice, snow, frost
Stall warning	check
Fuel tanks	check supply visually - secure caps

SECTION 4
NORMAL PROCEDURES

PIPER AIRCRAFT CORPORATION
PA-28-181, ARCHER II

Fuel tank sumpsdrain and check for
water sediment and proper fuel
Fuel ventsopen
Main gear strutsproper inflation (4.50 in.)
Tirescheck
Brake blockscheck
Pitot headremove cover - holes clear
Windshieldclean
Propeller and spinnercheck
Fuel and oilcheck for leaks
Oilcheck level
Dipstickproperly seated
Cowlingsecure
Inspection coverssecure
Nose wheel tirecheck
Nose gear strutproper inflation (3.25 in.)
Air inletsclear
Alternator beltcheck tension
Tow bar and control locksstow
Baggagestowed properly - secure
Baggage doorclose and secure
Fuel strainerdrain and check for
water sediment and proper fuel
Primary flight controlsproper operation
Cabin doorclose and secure
Required paperson board
Seat belts and harnessfasten/adjust-
check inertia reel

BEFORE STARTING ENGINE

Brakesset
Carburetor heatfull COLD
Fuel selectordesired tank
RadiosOFF

STARTING ENGINE WHEN COLD

Throttle1/4" open
Master switchON
Electric fuel pumpON
Mixturefull RICH

PIPER AIRCRAFT CORPORATION
PA-28-181, ARCHER II

SECTION 4
NORMAL PROCEDURES

Starterengage
Throttleadjust
Oil pressurecheck

If engine does not start within 10 sec. prime and repeat starting procedure.

STARTING ENGINE WHEN HOT

Throttle1/2 open
Master switchON
Electric fuel pumpON
Mixturefull RICH
Starterengage
Throttleadjust
Oil pressurecheck

STARTING ENGINE WHEN FLOODED

Throttleopen full
Master switchON
Electric fuel pumpOFF
Mixtureidle cut-off
Starterengage
Mixtureadvance
Throttleretard
Oil pressurecheck

STARTING WITH EXTERNAL POWER SOURCE

Master switchOFF
All electrical equipmentOFF
Terminalsconnect
External power pluginsert in fuselage

Proceed with normal start

Throttlelowest possible RPM
External power plugdisconnect from fuselage
Master switchON - check ammeter
Oil pressurecheck

WARM-UP

Throttle800 to 1200 RPM

TAXIING

Chocksremoved
Taxi areaclear
Throttleapply slowly
Brakescheck
Steeringcheck

GROUND CHECK

Parking brakeset
Throttle2000 RPM
Magnetosmax. drop 175 RPM -
max. diff. 50 RPM
Vacuum5.0" Hg. $\pm$.1
Oil tempcheck
Oil pressurecheck
Air conditionercheck
Annunciator panelpress-to-test
Carburetor heatcheck
Engine is warm for takeoff when throttle can be opened without engine
faltering.
Electric fuel pumpOFF
Fuel pressurecheck
Throttleretard

BEFORE TAKEOFF

Master switchON
Flight instrumentscheck
Fuel selectorproper tank
Electric fuel pumpON
Engine gaugescheck
Carburetor heatOFF
Seat backserect
Mixtureset
Primerlocked

Belts/harnessfastened/adjusted
Empty seatsseat belts snugly fastened
Flapsset
Trim tabset
Controlsfree
Doorslatched
Air conditionerOFF

TAKEOFF

NORMAL

Flapsset
Tabset
Accelerate to 52 to 65 KIAS
Control wheelback pressure to rotate
to climb attitude

SHORT FIELD, OBSTACLE CLEARANCE

Flaps25 (second notch)
Accelerate to 41 to 49 KIAS depending on aircraft weight.
Control wheelback pressure to rotate
to climb attitude
After breaking ground, accelerate to 45 to 54 KIAS depending on aircraft
weight.
Accelerate to best flaps up angle of climb speed - 64 KIAS, slowly retract
the flaps and climb past the obstacle.
Accelerate to best flaps up rate of climb speed - 76 KIAS.

SOFT FIELD

Flaps25 (second notch)
Accelerate to 41 to 49 KIAS depending on aircraft weight.
Control wheelback pressure to rotate
to climb attitude
After breaking ground, accelerate to 45 to 54 KIAS depending on aircraft
weight.
Accelerate to best flaps up rate of climb speed 76 KIAS.
Flapsretract slowly

SECTION 4
NORMAL PROCEDURES

PIPER AIRCRAFT CORPORATION
PA-28-181, ARCHER II

CLIMB

Best rate (flaps up) 76 KIAS
Best angle (flaps up) 64 KIAS
En route 87 KIAS
Electric fuel pump OFF at desired altitude

CRUISING

Reference performance charts and Avco-Lycoming Operator's Manual.
Normal max. power 75%
Power set per power table
Mixture adjust

DESCENT

NORMAL 2500 rpm
Throttle 122 KIAS
Airspeed RICH
Mixture ON if required
Carburetor heat ON if required

POWER OFF

Carburetor heat ON if required
Throttle closed
Airspeed as required
Mixture as required
Power verify with throttle
every 30 seconds

APPROACH AND LANDING

Fuel selector proper tank
Seat backs erect
Belts/harness fasten/adjust
Electric fuel pump ON
Mixture set

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ISSUED: JULY 2, 1979
REVISED: NOVEMBER 16, 1981

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SECTION 4
NORMAL PROCEDURES

Flaps set - 102 KIAS max
Air conditioner OFF
Trim to 75 KIAS.
Final approach speed (flaps 40°) 66 KIAS

STOPPING ENGINE

Flaps retract
Electric fuel pump OFF
Air conditioner OFF
Radios full aft
Throttle idle cut-off
Mixture OFF
Magnetos OFF
Master switch OFF

PARKING

Parking brake set
Control wheel secured with belts
Flaps full up
Wheel chocks in place
Tie downs secure

ISSUED: JULY 2, 1979

REPORT: VB-1120
4-9

4.7 AMPLIFIED NORMAL PROCEDURES (GENERAL)

The following paragraphs are provided to supply detailed information and explanations of the normal procedures necessary for the safe operation of the airplane.

4.9 PREFLIGHT CHECK

The airplane should be given a thorough preflight and walk-around check. The preflight should include a check of the airplane's operational status, computation of weight and C.G. limits, takeoff distance and in-flight performance. A weather briefing should be obtained for the intended flight path, and any other factors relating to a safe flight should be checked before takeoff.

CAUTION

The flap position should be noted before boarding the aircraft. The flaps must be placed in the UP position before they will lock and support weight on the step.

Upon entering the cockpit, release the seat belts securing the control wheel. Turn OFF all avionics equipment. Turn ON the master switch and check the fuel quantity gauges for sufficient fuel. After the fuel quantity check is made turn the master switch OFF and check that the ignition switch is OFF.

To begin the exterior walk-around, check for external damage and operational interference of the control surfaces or hinges. Insure that the wings and control surfaces are free of snow, ice, frost or any other foreign materials.

An operational check of the stall warning system should now be made. Turn the master switch ON. Lift the detector while checking to determine if the horn is actuated. The master switch should be returned to the OFF position after the check is complete.

A visual check of the fuel tank quantity should be performed. Remove the filler cap from each tank and visually check the supply and color. Be sure to secure the caps properly after the check is complete.

The fuel system sumps and strainer should be drained daily prior to the first flight and after refueling. Check for proper fuel and the accumulation of contaminants such as water or sediment. Each fuel tank is equipped with an individual quick drain located at the lower inboard rear corner of the tank. The fuel strainer is equipped with a quick drain located on the front lower corner of the firewall. Each of the fuel tank sumps should be drained first. Then the fuel strainer should be drained twice, once with the fuel selector valve on each tank. Each time fuel is drained, sufficient fuel should be allowed to flow to ensure removal of contaminants. This fuel should be collected in a suitable container, examined for contaminants, and then discarded.

CAUTION

When draining any amount of fuel, care should be taken to ensure that no fire hazard exists before starting the engine.

Each quick drain should be checked after closing it to make sure it has closed completely and is not leaking.

Check all of the fuel tank vents to make sure they are open.

Next, complete a check of the landing gear. Check the main gear shock struts for proper inflation. There should be 4.50 inches of strut exposure under a normal static load. The nose gear should be checked for 3.25 inches of strut exposure. Check all tires for cuts and wear and insure proper inflation. Make a visual check of the brake blocks for wear or damage.

Remove the cover from the pitot head on the underside of the left wing. Check the pitot head to make sure the holes are open and clear of obstructions.

Don't forget to clean and check the windshield.

The propeller and spinner should be checked for defects or nicks.

Lift the cowlings and check for any obvious fuel or oil leaks. Check the oil level. Make sure that the dipstick has properly seated after checking. Secure the cowlings and check the inspection covers.

Check the air inlets for foreign matter and the alternator belt for proper tension.

4.21 BEFORE TAKEOFF

All aspects of each particular takeoff should be considered prior to executing the takeoff procedure.

Turn ON the master switch and check and set all of the flight instruments as required. Check the fuel selector to make sure it is on the proper tank (fullest). Turn ON the electric fuel pump and check the engine gauges. The carburetor heat should be in the OFF position.

All seat backs should be erect.

The mixture should be set and the primer checked to insure that it is locked. The seat belts and shoulder harness should be fastened and adjusted. Fasten the seat belts snugly around the empty seats.

NOTE

If the fixed shoulder harness (non-inertia reel type) is installed, it must be connected to the seat belt and adjusted to allow proper accessibility to all controls, including fuel selector, flaps, trim, etc., while maintaining adequate restraint for the occupant.

If the inertia reel type shoulder harness is installed, a pull test of its locking restraint feature should be performed.

Exercise and set the flaps and trim tab. Insure proper flight control movement and response.

All doors should be properly secured and latched.

On air conditioned models, the air conditioner must be OFF to insure normal takeoff performance.

4.23 TAKEOFF

The normal takeoff technique is conventional for the Archer II. The tab should be set slightly aft of neutral, with the exact setting determined by the loading of the airplane. Allow the airplane to accelerate to 48 to 53 KIAS depending on the weight of the aircraft and ease back on the control wheel to rotate to climb attitude.

The procedure used for a short field takeoff with an obstacle clearance or a soft field takeoff differs slightly from the normal technique. The flaps should be lowered to 25 (second notch). Allow the aircraft to accelerate to 41 to 49 KIAS depending on the aircraft weight and rotate the aircraft to climb attitude. After breaking ground, accelerate to 45 to 54 KIAS, depending on aircraft weight. Continue to climb while accelerating to the flaps-up rate of climb speed, 76 KIAS if no obstacle is present or 64 KIAS if obstacle clearance is a consideration. Slowly retract the flaps while climbing out.

4.25 CLIMB

The best rate of climb at gross weight will be obtained at 76 KIAS. The best angle of climb may be obtained at 64 KIAS. At lighter than gross weight these speeds are reduced somewhat. For climbing en route, a speed of 87 KIAS is recommended. This will produce better forward speed and increased visibility over the nose during the climb.

When reaching the desired altitude, the electric fuel pump may be turned off.

4.27 CRUISING

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

The normal maximum cruising power is 75% of the rated horsepower of the engine. Airspeeds which may be obtained at various altitudes and power settings can be determined from the performance graphs provided by Section 5.

Use of the mixture control in cruising flight reduces fuel consumption significantly, especially at higher altitudes. The mixture should be leaned during cruising operation above 5000 ft. altitude and at pilot's discretion at lower altitudes when 75% power or less is being used. If any doubt exists as to the amount of power being used, the mixture should be in the full RICH position for all operations under 5000 feet.

To lean the mixture, disengage the lock and pull the mixture control until the engine becomes rough, indicating that the lean mixture limit has been reached in the leaner cylinders. Then enrich the mixture by pushing the control towards the instrument panel until engine operation becomes smooth.

If the airplane is equipped with the optional exhaust gas temperature (EGT) gauge, a more accurate means of leaning is available to the pilot. Best economy mixture is obtained by moving the mixture control aft until peak EGT is reached. Best power mixture is obtained by leaning to peak EGT and then enriching until the EGT is 100F. rich of the peak value. Under some conditions of altitude and throttle position, the engine may exhibit roughness before peak EGT is reached. If this occurs, the EGT corresponding to the onset of engine roughness should be used as the peak reference value.

Always remember that the electric fuel pump should be turned ON before switching tanks, and should be left on for a short period thereafter. 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 be used for one hour after takeoff, then the other tank be used for two hours; then return to the first tank, which will have approximately one and one half hours of fuel remaining if the tanks were full at takeoff. The second tank will contain approximately one half hour of fuel. Do not run tanks completely dry in flight. The electric fuel pump should be normally OFF so that any malfunction of the engine driven fuel pump is immediately apparent. If signs of fuel starvation should occur at any time during flight, fuel exhaustion should be suspected, at which time the fuel selector should be immediately positioned to the other tank and the electric fuel pump switched to the ON position.

4.29 DESCENT

NORMAL

To achieve the performance on Figure 5-29 the power on descent must be used. The throttle should be set for 2500 RPM, mixture full rich and maintain an airspeed of 122 KIAS. In case carburetor ice is encountered apply full carburetor heat.

POWER OFF

If a prolonged power off descent is to be made, apply full carburetor heat prior to power reduction if icing conditions are suspected. Throttle should be retarded and mixture control leaned as required. Power response should be verified approximately every 30 seconds by partially opening and then closing the throttle (clearing the engine). When leveling off enrich mixture, set power as required and select carburetor heat off unless carburetor icing conditions are suspected.

4.31 APPROACH AND LANDING

Check to insure the fuel selector is on the proper (fullest) tank and that the seat backs are erect. The seat belts and shoulder harness should be fastened and adjusted and the inertia reel checked.

NOTE

If the fixed shoulder harness (non-inertia reel type) is installed, it must be connected to the seat belt and adjusted to allow proper accessibility to all controls, including fuel selector, flaps, trim, etc., while maintaining adequate restraint for the occupant.

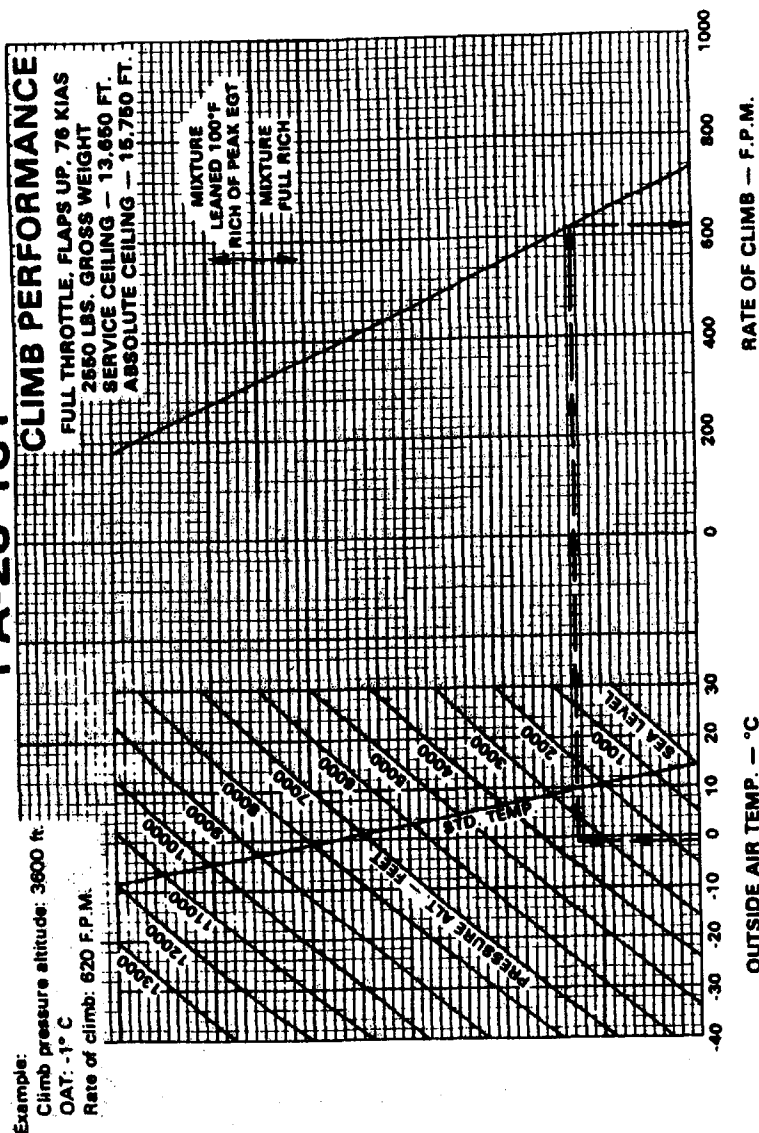
If the inertia reel type shoulder harness is installed, a pull test of its locking restraint feature should be performed.

Turn ON the electric fuel pump and turn OFF the air conditioner. The mixture should be set in the full RICH position.

The airplane should be trimmed to an initial approach speed of about 75 KIAS with a final approach speed of 66 KIAS with flaps extended. The flaps can be lowered at speeds up to 102 KIAS, if desired.

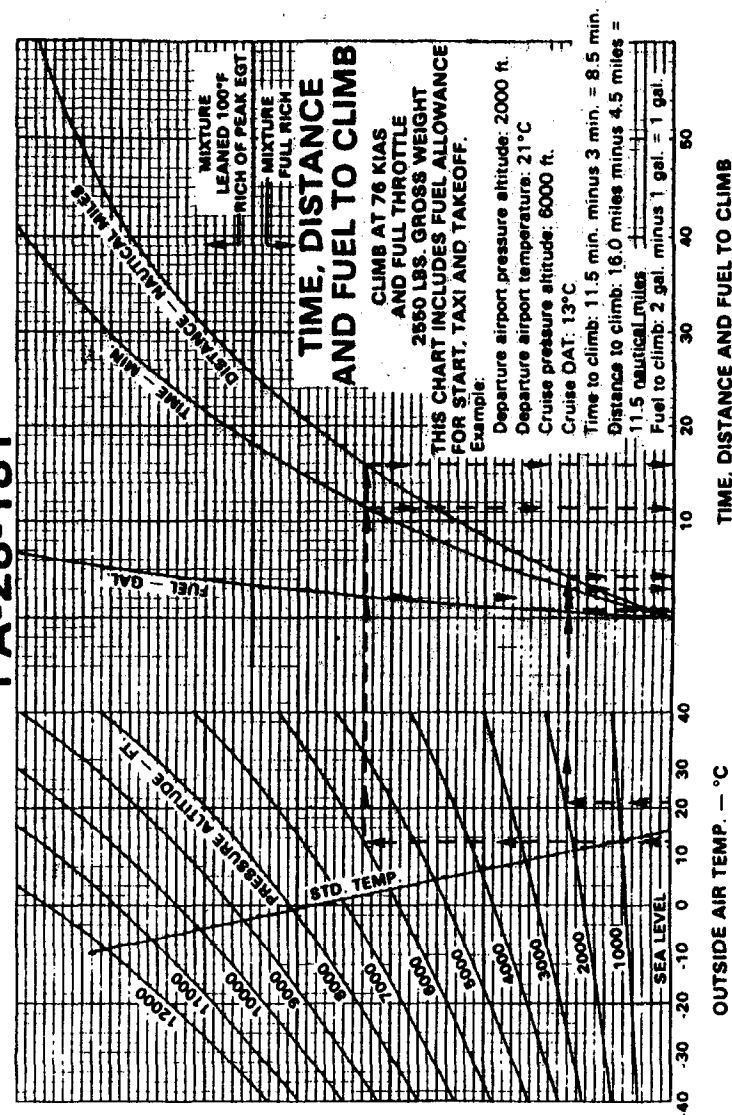
The mixture control should be kept in full RICH position to insure maximum acceleration if it should be necessary to open the throttle again. Carburetor heat should not be applied unless there is an indication of carburetor icing, since the use of carburetor heat causes a reduction in power which may be critical in case of a go-around. Full throttle operation with carburetor heat on can cause detonation.

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CLIMB PERFORMANCE
Figure 5-15

PA-28-181



TIME, DISTANCE AND FUEL TO CLIMB
Figure 5-17

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ENGINE PERFORMANCE

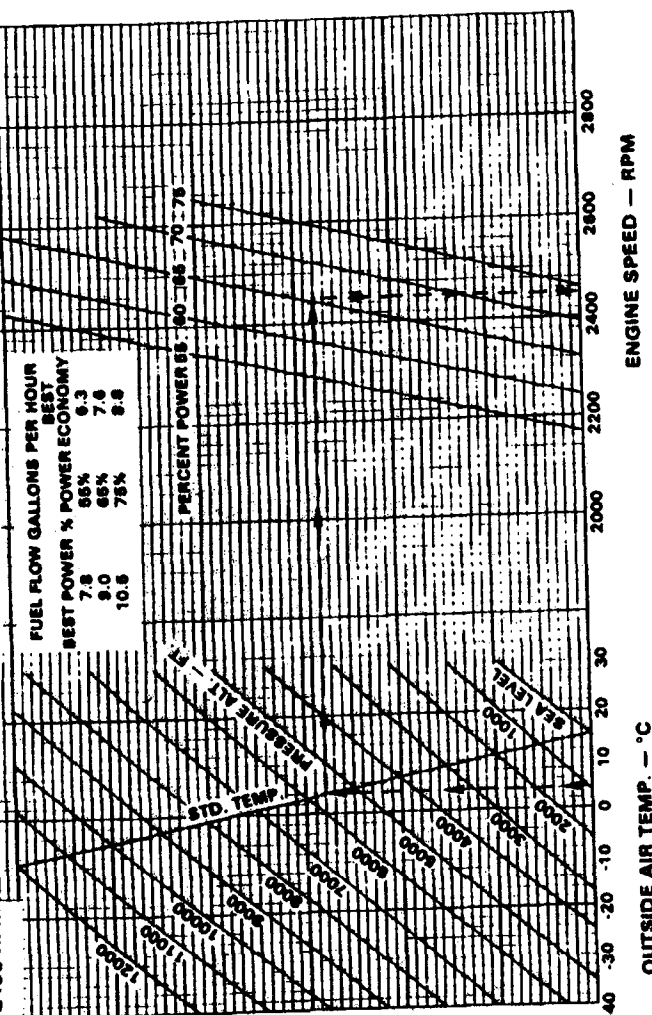
Example:
Cruise pressure altitude: 5500 ft.
Cruise OAT: 4°C
Percent power: 65%
Engine RPM: 2450 RPM

BEST POWER MIXTURE
(MIXTURE LEANED TO 100° F RICH OF PEAK EGT)

FUEL FLOW GALLONS PER HOUR
BEST
BEST POWER % POWER ECONOMY

7.8	65%	6.3
8.0	68%	7.6
10.6	75%	8.8

PERCENT POWER 55 60 65 70 75



ENGINE PERFORMANCE

Figure 5-19

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SPEED POWER - PERFORMANCE CRUISE

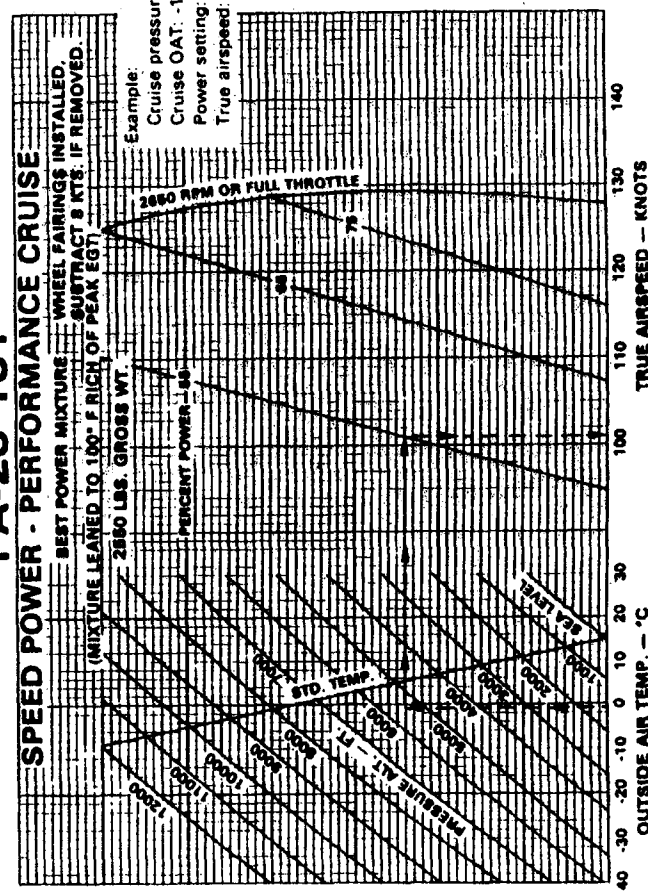
BEST POWER MIXTURE
(MIXTURE LEANED TO 100° F RICH OF PEAK EGT)
WHEEL FAIRINGS INSTALLED.
SUBTRACT 8 KTS. IF REMOVED.

2800 LBS. GROSS WT.

PERCENT POWER 100

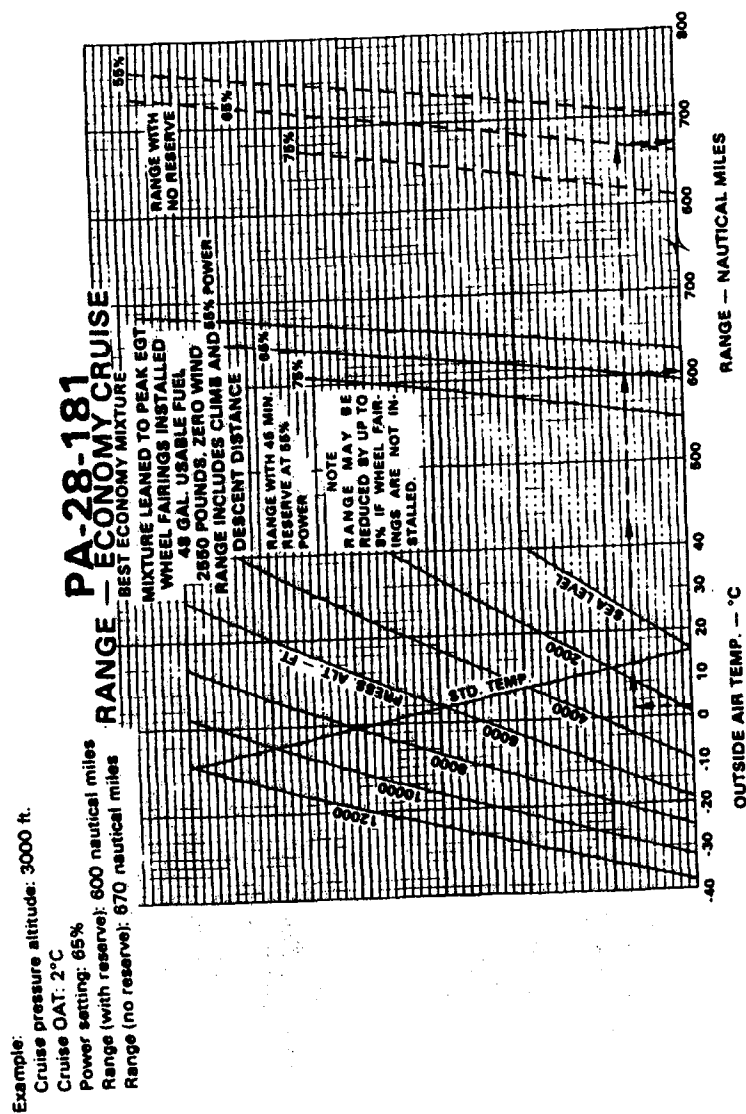
Example:

Cruise pressure altitude: 5500 ft.
Cruise OAT: -1°C
Power setting: 55%
True airspeed: 101 knots

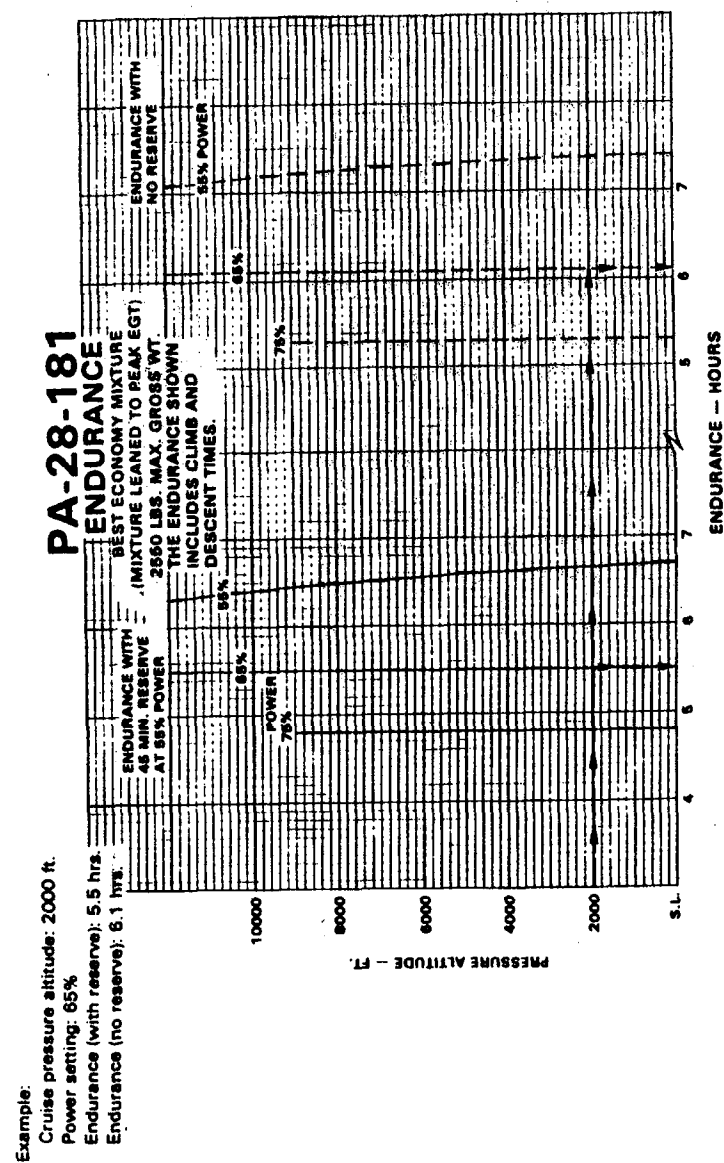


SPEED POWER - PERFORMANCE CRUISE

Figure 5-21



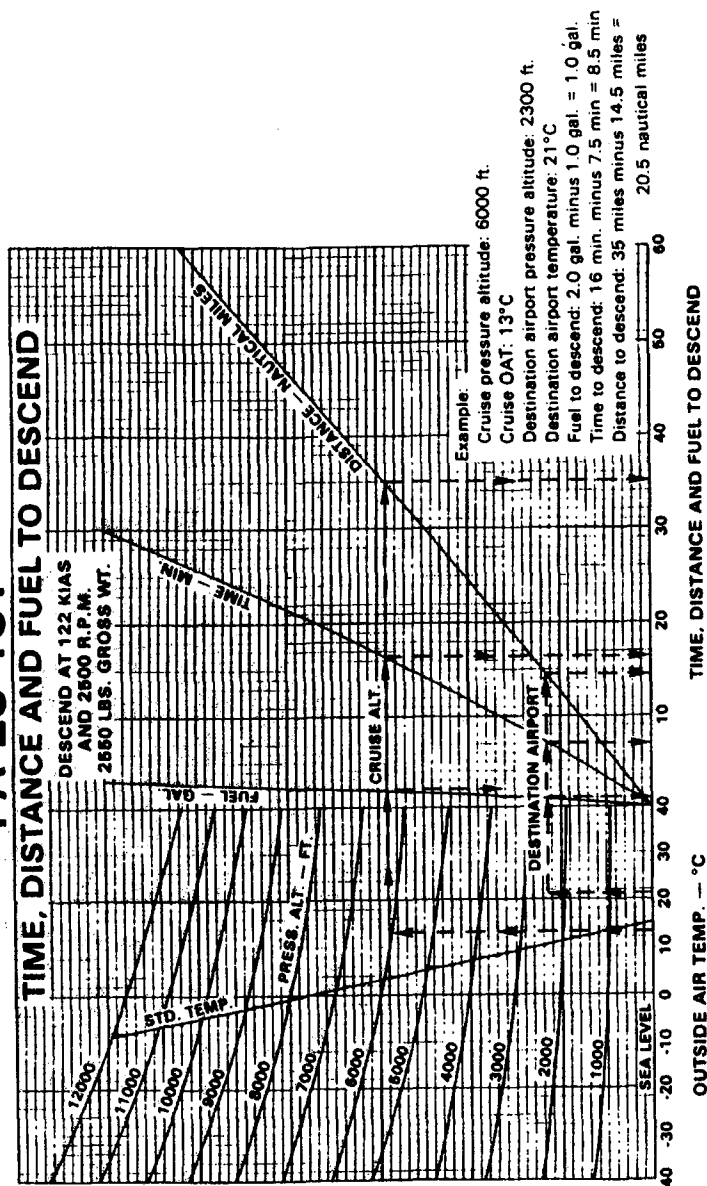
BEST ECONOMY MIXTURE RANGE
Figure 5-27



ENDURANCE

Figure 5-29

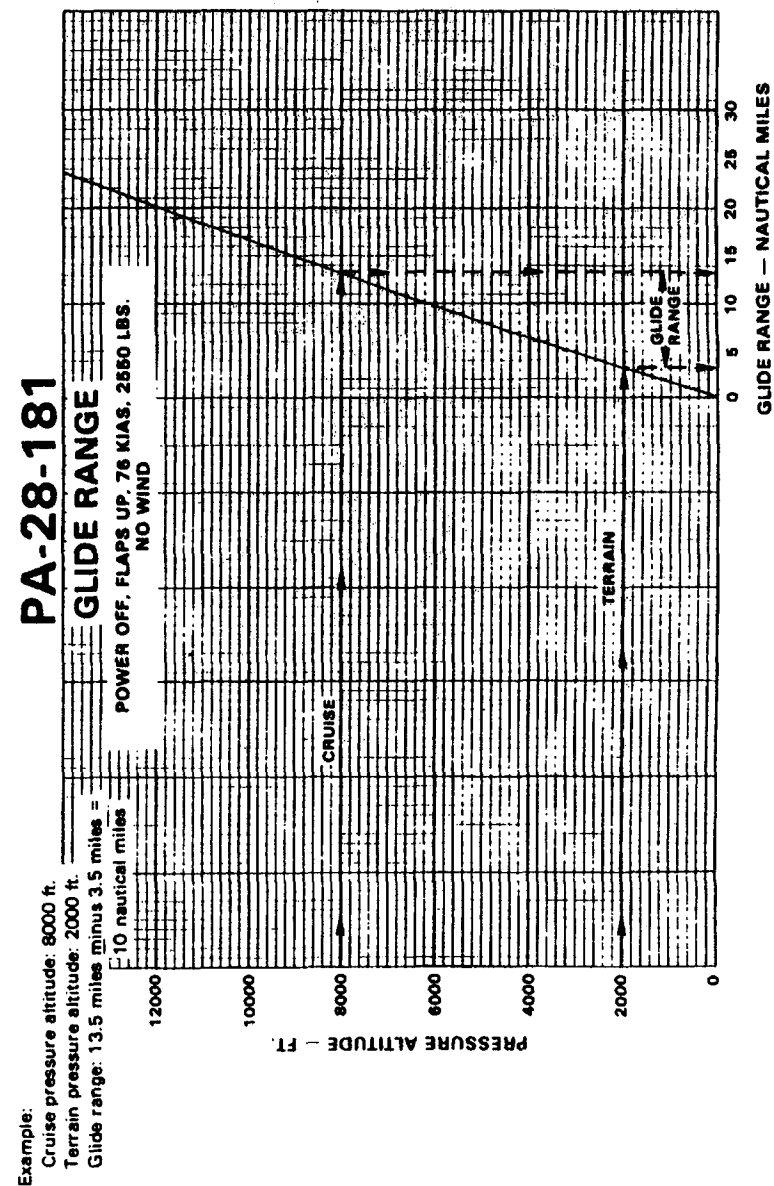
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TIME, DISTANCE AND FUEL TO DESCEND

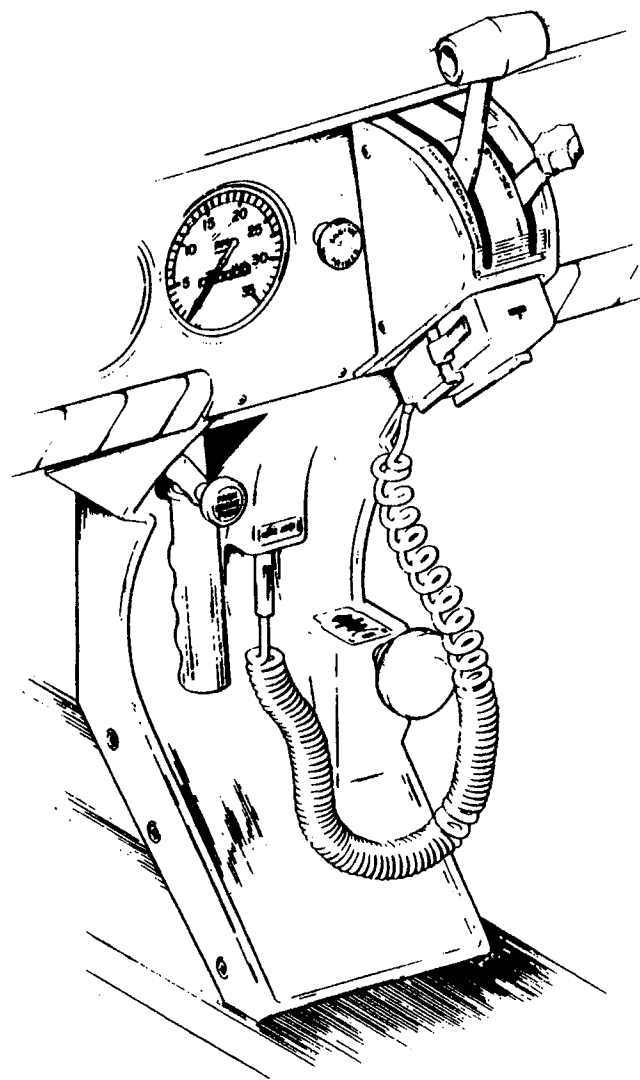
Figure 5-31

PA-28-181



GLIDE RANGE

Figure 5-33



CONTROL QUADRANT AND CONSOLE

Figure 7-5

7.11 ENGINE CONTROLS

Engine controls consist of a throttle control and a mixture control lever. These controls are located on the control quadrant on the lower center of the instrument panel (Figure 7-5) where they are accessible to both the pilot and the copilot. The controls utilize teflon-lined control cables to reduce friction and binding.

The throttle lever is used to adjust engine RPM. The mixture control lever is used to adjust the air to fuel ratio. The engine is shut down by the placing of the mixture control lever in the full lean position. For information on the leaning procedure, see Section 4.27 of this Handbook.

The friction adjustment lever on the right side of the control quadrant may be adjusted to increase or decrease the friction holding the throttle and mixture controls or to lock the controls in a selected position.

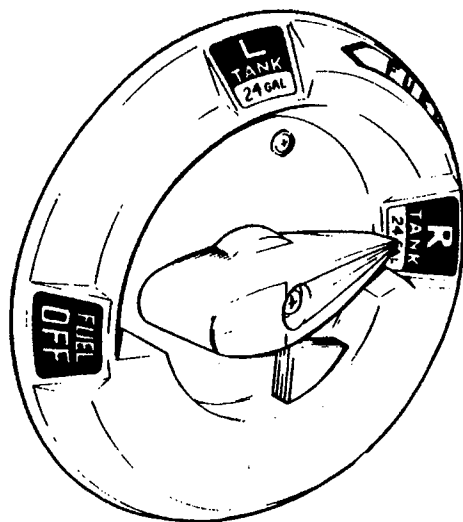
The carburetor heat control lever is located to the right of the control quadrant on the instrument panel. The control is placarded with two positions: "ON" (down), "OFF" (up).

7.13 FUEL SYSTEM

Fuel is stored in two twenty-five gallon (24 gallons usable) tanks which are secured to the leading edge structure of each wing by screws and nut plates. Each tank is equipped with a filler neck indicator tab to aid in determining fuel remaining when the tanks are not full. Usable capacity to the bottom of the indicator tab is 17 gallons.

The fuel selector control (Figure 7-7) is located on the left side-panel, forward of the pilot's seat. The button on the selector cover must be depressed and held while the handle is moved to the OFF position. The button releases automatically when the handle is moved back into the ON position.

An auxiliary electric fuel pump is provided in case of failure of the engine driven pump. The electric pump should be on for all takeoffs and landings, and when switching tanks. The pump switch is located in the switch panel above the throttle quadrant.



FUEL SELECTOR

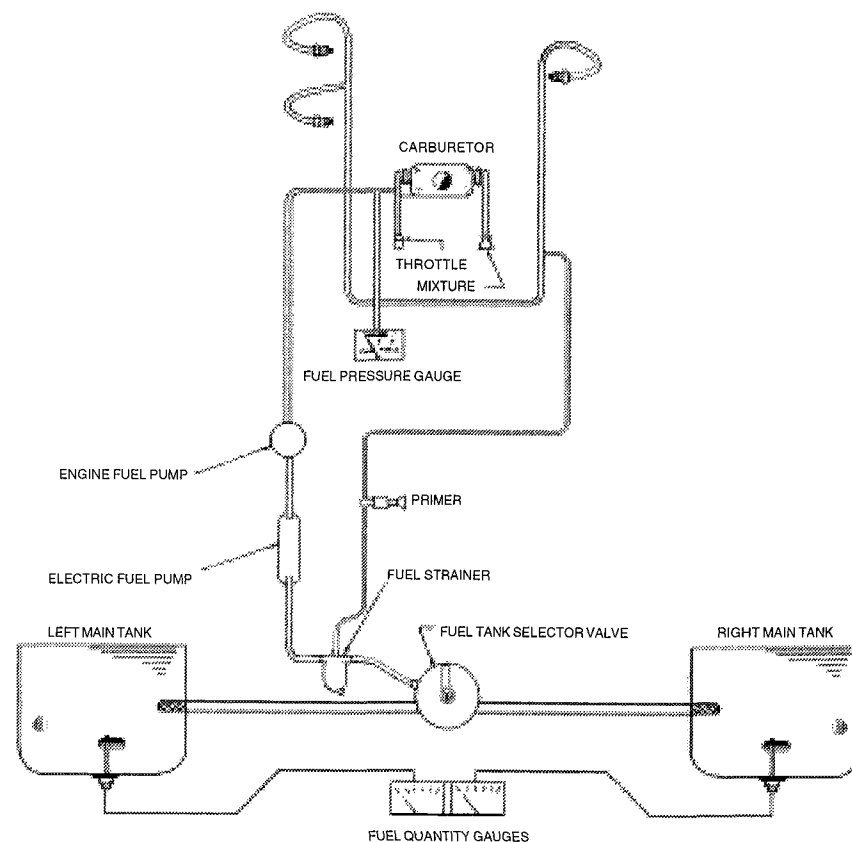
Figure 7-7

The fuel drains should be opened daily prior to first flight to check for water or sediment and proper fuel. Each tank has an individual drain at the bottom, inboard rear corner.

A fuel strainer, located on the lower left front of the fire wall, has a drain which is accessible from outside the nose section. The strainer should also be drained before the first flight of the day. Refer to paragraph 8.21 for the complete fuel draining procedure.

Fuel quantity and pressure are indicated on gauges located in a cluster on the left side of the instrument panel.

An engine priming system is provided to facilitate starting. The primer pump is located to the immediate left of the throttle quadrant (refer to Figure 7-5).



FUEL SYSTEM SCHEMATIC

Figure 7-9

7.15 ELECTRICAL SYSTEM

The electrical system includes a 14-volt, 60 amp alternator, a 12-volt battery, a voltage regulator, an overvoltage relay and a master switch relay (Figure 7-11). The battery is mounted in a plastic box immediately aft of the baggage compartment. The regulator and overvoltage relay are located on the forward left side of the fuselage behind the instrument panel.