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SECTION 4

NORMAL PROCEDURES

SECTION 4

NORMAL PROCEDURES

4.1 GENERAL

This section describes the recommended procedures for the conduct of normal operations for the Lance II. All of the required (FAA regulations) procedures and those necessary for operation of the airplane as determined by the operating and design features of the airplane are presented.

Normal procedures associated with those optional systems and equipment which require handbook supplements are provided in Section 9 (Supplements).

These procedures are provided to present a source of reference and review and to supply information on procedures which are not the same for all aircraft. Pilots should familiarize themselves with the procedures given in this section in order to become proficient in the normal operations of the airplane.

The first portion of this section consists of a short form check list which supplies an action sequence for normal operations with little emphasis on the operation of the systems.

The remainder of the section is devoted to amplified normal procedures which provide detailed information and explanations of the procedures and how to perform them. This portion of the section is not intended for use as an in-flight reference due to the lengthly explanations. The short form check list should be used for this purpose.

4.3 AIRSPEEDS FOR SAFE OPERATIONS

The following airspeeds are those which are significant to the operation of the airplane. These figures are for standard airplanes flown at gross weight under standard conditions at sea level.

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	
	gear up, flaps up	92 KIAS
	gear down, flaps up	87 KIAS
(b)	Best Angle of Climb Speed	
	gear up, flaps up	87 KIAS
	gear down, flaps up	68 KIAS
(c)	Turbulent Air Operating Speed (See Subsection 2.3)	132 KIAS
(d)	Maximum Flap Speed	109 KIAS
(e)	Landing Final Approach Speed (Full Flaps)	75 KIAS
(f)	Maximum Demonstrated Crosswind Velocity	17 KTS

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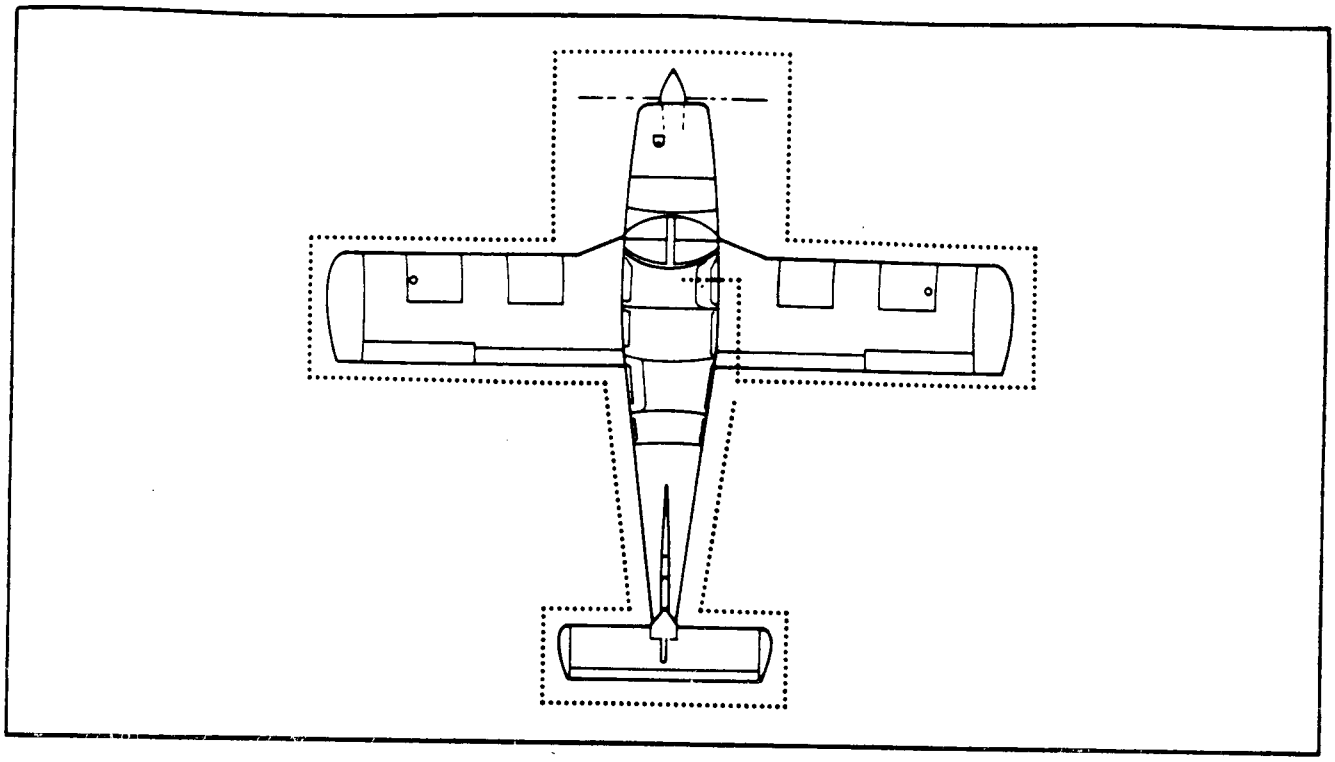

WALK-AROUND
Figure 4-1

4.5 NORMAL PROCEDURES CHECK LIST

PREFLIGHT CHECK

Control wheel ..... release belts
Parking brake ..... set
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
Navigation lights.....check
Fuel tanks ..... check supply visually - secure caps
Fuel tank sumps ..... drain and check for water, sediment and proper fuel
Fuel vents..... open
Main gear struts .....proper inflation (4.0 in.)
Tires .....check
Brake blocks .....check
Pitot head .....remove cover - holes clear
Windshield ..... clean
Propeller and spinner.....check
Fuel and oil ..... check for leaks
Oil ..... check level
Dipstick ..... properly seated
Cowling ..... secure
Inspection covers ..... secure
Nose wheel tire .....check
Nose gear strut .....proper inflation (2.60 in.)
Air inlets ..... clear
Alternator belt.....check tension
Tow bar and control locks .....stow
Baggage .....stowed properly - secure
Baggage door..... close and secure
Fuel strainer .....drain and check for water, sediment and proper fuel
Primary flight controls.....proper operation
Cabin doors..... close and secure
Required papers .....on board
Seat belts and harness .....fastened - check inertia reel

BEFORE STARTING ENGINE

Parking brake ..... set
Propeller ..... full INCREASE rpm
Fuel selector ..... desired tank

STARTING ENGINE WHEN COLD

Throttle ..... 1/2" open
Master switch ..... ON
Electric fuel pump ..... ON
Mixture ..... prime - then idle cut-off
Starter ..... engage
Mixture ..... full RICH
Throttle ..... adjust
Oil pressure ..... check

STARTING ENGINE WHEN HOT

Throttle ..... 1/2" open
Master switch ..... ON
Electric fuel pump ..... ON
Mixture ..... idle cut-off
Starter ..... engage
Mixture ..... advance
Throttle ..... adjust
Oil pressure ..... check

STARTING ENGINE WHEN FLOODED

Throttle ..... open full
Master switch ..... ON
Electric fuel pump ..... OFF
Mixture ..... idle cut-off
Starter ..... engage
Mixture ..... advance
Throttle ..... retard
Oil pressure ..... check

STARTING WITH EXTERNAL POWER SOURCE

Master switch ..... OFF
All electrical equipment ..... OFF
Terminals ..... connect
External power plug ..... insert in fuselage
Proceed with normal start
Throttle ..... lowest possible RPM
External power plug ..... disconnect from fuselage
Master switch ..... ON - check ammeter
Oil pressure ..... check

WARM-UP

Throttle ..... 1000 to 1200 RPM

TAXIING

Chocks ..... removed
Parking brake ..... release
Taxi area ..... clear
Throttle ..... apply slowly
Prop ..... high RPM
Brakes ..... check
Steering ..... check

GROUND CHECK

Parking brake ..... set
Propeller ..... full INCREASE
Throttle ..... 2000 RPM
Magnetos ..... max. drop 175 RPM - max. diff. 50 RPM
Vacuum ..... 5.0" Hg. ± .1
Oil temp ..... check
Oil pressure ..... check
Air conditioner ..... check
Annunciator panel ..... press-to-test
Propeller ..... exercise - then full INCREASE
Alternate air ..... check
Engine is warm for takeoff when throttle can be opened without engine faltering.
Electric fuel pump ..... OFF
Fuel pressure ..... check
Throttle ..... retard

BEFORE TAKEOFF

Master switch ..... ON
Flight instruments ..... check
Fuel selector ..... proper tank
Electric fuel pump ..... ON
Engine gauges ..... check
Alternate air ..... CLOSED
Seat backs ..... erect
Mixture ..... set
Prop ..... set
Belts/harness ..... fastened
Empty seats ..... seat belts snugly fastened
Flaps ..... set
Trim tab ..... set
Controls ..... free
Doors ..... latched
Air conditioner ..... OFF
Parking brake ..... release

TAKEOFF

NORMAL

Flaps ..... retracted
Trim ..... slightly aft of neutral
Accelerate to 75 to 85 KIAS
Control wheel ..... back pressure to rotate to climb attitude

SHORT OR SOFT FIELD, OBSTACLE CLEARANCE

Flaps ..... second notch
Trim ..... slightly aft of neutral
Throttle ..... full power prior to brake release
Accelerate to 66 to 70 KIAS (depending on weight).
Control wheel ..... back pressure to rotate to climb attitude
After breaking ground, accelerate to 68 to 74 KIAS (depending on weight).
Gear (Override Engaged) (aircraft equipped with the backup gear extender) ..... UP
Accelerate to climb speed.
Flaps ..... retract slowly

CLIMB

Best rate (3600 lb) (gear up) (flaps up) ..... 92 KIAS
Best rate (3600 lb) (gear down) (flaps up) ..... 87 KIAS
Best angle (3600 lb) (gear up) (flaps up) ..... 87 KIAS
Best angle (3600 lb) (gear down) (flaps up) ..... 68 KIAS
En route ..... 104 KIAS
Electric fuel pump ..... OFF at desired altitude

CRUISING

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

APPROACH AND LANDING

Fuel selector ..... proper tank
Seat backs ..... erect
Belts/harness ..... fasten
Electric fuel pump ..... ON
Mixture ..... set
Propeller ..... set
Gear ..... down - 129 KIAS max.
Flaps ..... set - 109 KIAS max.
Air conditioner ..... OFF

NORMAL TECHNIQUE

Flaps ..... as required
Trim ..... 95 KIAS
Throttle ..... as required

SHORT FIELD TECHNIQUE

Flaps ..... third notch
Trim ..... 75 KIAS
Throttle ..... as required

GO-AROUND

Throttle . . . . . full forward
Control wheel . . . . . back pressure to rotate to climb attitude
Gear . . . . . UP
Flaps . . . . . retract slowly
Trim . . . . . as required

STOPPING ENGINE

Flaps . . . . . retract
Electric fuel pump . . . . . OFF
Air conditioner . . . . . OFF
Radios . . . . . OFF
Propeller . . . . . full INCREASE
Throttle . . . . . full aft
Mixture . . . . . idle cut-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

4.7 AMPLIFIED NORMAL PROCEDURES (GENERAL)

The following paragraphs are provided to supply detailed information and explanations of the normal procedures necessary for the 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 and set the parking brake. 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 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 and navigation lights should now be made. Turn the master switch "ON." Lift the detector while checking to determine if the horn is actuated and check that the navigation lights are illuminated. The master switch should be returned to the "OFF" position after the checks are complete.

A visual check of the fuel tank quantity should be performed. Remove the filler cap from each tank and visually check the supply. Be sure to secure the caps properly after the check is complete. Each inboard tank is furnished with an external fuel quantity indicator to assist the pilot in determining fuel quantities of less than 25 gallons. A visual check of this indicator should also be made.

The fuel system tank sumps and strainer should be drained daily prior to the first flight and after refueling to check for water, sediment and proper fuel. Each fuel tank is equipped with an individual quick drain located at the lower inboard rear corner of the tank. The fuel strainer and a system quick drain valve are located in the fuselage at the lowest point of the fuel system. It is important that the fuel system be drained properly.

Drain each tank through its individual quick drain located at the lower inboard rear corner of the tank, making sure that enough fuel has been drained to insure that all water and sediment is removed.

Next, place a container under the fuel strainer drain outlet located under the fuselage.

Now drain the fuel strainer by pressing down on the lever located on the right hand side of the cabin below the forward edge of the rear seat. The fuel selector should be positioned in the following sequence while draining the strainer: "OFF," "LEFT," "RIGHT." This is done to insure that the fuel lines between each tank outlet and fuel strainer are drained as well as the strainer. When the fuel tanks are full, it will take approximately six seconds to drain all the fuel in one of the lines from a tank to the fuel strainer. When the fuel tanks are less than full, it will take a few seconds longer.

Examine the contents of the container placed under the fuel strainer drain outlet for water, sediment and proper fuel and dispose of the contents.

CAUTION

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

After using the under-seat quick drain, it should be checked from outside 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 4.0 inches of strut exposure under a normal static load. The nose gear should be checked for 2.60 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 cowling 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 cowling and check the inspection covers.

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

Stow the tow bar and check the baggage for proper storage and security. The baggage compartment doors should be closed and secure.

Upon entering the aircraft, ascertain that all primary flight controls operate properly. Close and secure the fore and aft cabin doors and check that all the required papers are in order and in the airplane.

Fasten the seat belts and shoulder harness and check the function of the inertia reel by pulling sharply on the strap. Fasten seat belts on empty seats.

4.11 BEFORE STARTING ENGINE

Before starting the engine the parking brake should be set "ON" and the propeller lever moved to full "INCREASE" rpm position. The fuel selector should then be moved to the desired tank.

4.13 STARTING ENGINE

(a) Starting Engine When Cold

Open the throttle lever approximately 1/2 inch. Turn "ON" the master switch and the electric fuel pump. Move the mixture control to full "RICH" until an indication is noted on the fuel flow meter. The engine is now primed.

Move the mixture control to idle cut-off and engage the starter by rotating the magneto switch clockwise. When the engine fires, release the magneto switch, advance the mixture control to full "RICH" and move the throttle to the desired setting.

If the engine does not fire within five to ten seconds, disengage the starter and reprime.

(b) Starting Engine When Hot

Open the throttle approximately 1/2 inch. Turn "ON" the master switch and the electric fuel pump. Move the mixture control lever to idle cut-off and engage the starter by rotating the magneto switch clockwise. When the engine fires, release the magneto switch, advance the mixture and move the throttle to the desired setting.

(c) Starting Engine When Flooded

The throttle lever should be full "OPEN." Turn "ON" the master switch and turn "OFF" the emergency fuel pump. Move the mixture control lever to idle cut-off and engage the starter by rotating the magneto switch clockwise. When the engine fires, release the magneto switch, advance the mixture and retard the throttle.

(d) Starting Engine With External Power Source

An optional feature called the Piper External Power (PEP) allows the operator to use an external battery to crank the engine without having to gain access to the airplane's battery.

Turn the master switch OFF and turn all electrical equipment OFF. Connect the RED lead of the PEP kit jumper cable to the POSITIVE (+) terminal of an external 12-volt battery and the BLACK lead to the NEGATIVE (-) terminal. Insert the plug of the jumper cable into the socket located on the fuselage. Note that when the plug is inserted, the electrical system is ON. Proceed with the normal starting technique.

After the engine has started, reduce power to the lowest possible RPM, to reduce sparking, and disconnect the jumper cable from the aircraft. Turn the master switch ON and check the alternator ammeter for an indication of output. DO NOT ATTEMPT FLIGHT IF THERE IS NO INDICATION OF ALTERNATOR OUTPUT.

NOTE

For all normal operations using the PEP jumper cables, the master switch should be OFF, but it is possible to use the ships battery in parallel by turning the master switch ON. This will give longer cranking capabilities, but will not increase the amperage. CAUTION: Care should be exercised because if the ships battery has been depleted, the external power supply can be reduced to the level of the ships battery. This can be tested by turning the master switch ON momentarily while the starter is engaged. If cranking speed increases, the ships battery is at a higher level than the external power supply.

When the engine is firing evenly, advance the throttle to 800 RPM. If oil pressure is not indicated within thirty seconds, stop the engine and determine the trouble. In cold weather it will take a few seconds longer to get an oil pressure indication. If the engine has failed to start, refer to the Lycoming Operating Handbook, Engine Troubles and Their Remedies.

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

4.15 WARM-UP

Warm-up the engine at 1000 to 1200 RPM. Avoid prolonged idling at low RPM, as this practice may result in fouled spark plugs.

Takeoff may be made as soon as the ground check is completed, provided that the throttle may be opened fully without backfiring or skipping, and without a reduction in engine oil pressure.

Do not operate the engine at high RPM when running up or taxiing over ground containing loose stones, gravel or any loose material that may cause damage to the propeller blades.

4.17 TAXIING

Before attempting to taxi the airplane, ground personnel should be instructed and approved by a qualified person authorized by the owner. Ascertain that the wheel chocks and propeller back blast and taxi areas are clear. Release the parking brake.

Power should be applied slowly to start the taxi roll. Taxi a few feet forward and apply the brakes to determine their effectiveness. Taxi with the propeller set in low pitch, high RPM setting. While taxiing, make slight turns to ascertain the effectiveness of the steering.

Observe wing clearances when taxiing near buildings or other stationary objects. If possible, station an observer outside the airplane.

Avoid holes and ruts when taxiing over uneven ground.

Do not operate the engine at high RPM when running up or taxiing over ground containing loose stones, gravel or any loose material that may cause damage to the propeller blades.

4.19 GROUND CHECK

Set the parking brake. The magnetos should be checked at 2000 RPM with the propeller set at high RPM. Drop off on either magneto should not exceed 175 RPM and the difference between the magnetos should not exceed 50 RPM. Operation on one magneto should not exceed 10 seconds.

Check the vacuum gauge; the indicator should read 5.0" ± .1" Hg at 2000 RPM.

Check the annunciator panel lights with the press-to-test button. Also check the air conditioner and the alternate air.

The propeller control should be moved through its complete range to check for proper operation, and then placed in full "INCREASE" rpm for takeoff. To obtain maximum rpm, push the pedestal mounted control fully forward on the instrument panel. Do not allow a drop of more than 500 RPM during this check. In cold weather the propeller control should be cycled from high to low RPM at least three times before takeoff to make sure that warm engine oil has circulated.

The electric fuel pump should be turned "OFF" after starting or during warm-up to make sure that the engine driven pump is operating. Prior to takeoff the electric pump should be turned ON again to prevent loss of power during takeoff should the engine driven pump fail. Check both oil temperature and oil pressure. The temperature may be low for some time if the engine is being run for the first time of the day. The engine is warm enough for takeoff when the throttle can be opened without the engine faltering.

4.21 BEFORE TAKEOFF

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

On aircraft equipped with the backup gear extender, if the gear selector switch is placed in the gear up position after takeoff, before reaching the airspeed at which the system no longer commands gear down*, the gear will not retract. For obstacle clearance on takeoff and for takeoffs from high altitude airports, the landing gear can be retracted after lift-off at the pilot's discretion by placing the gear selector switch in the UP position and the latching the emergency gear lever in the OVERRIDE ENGAGED position. If desired, the OVERRIDE ENGAGED position can be selected and latched before takeoff, and the gear will then retract as soon as the gear selector switch is placed in the UP position. Care should always be taken not to retract the gear prematurely, or the aircraft could settle back onto the runway. If the override lock is used for takeoff, it should be disengaged as soon as sufficient airspeed and terrain clearance are obtained, to return the gear system to normal operation. For normal operation, the pilot should extend and retract the gear with the gear selector switch located on the instrument panel, just as he would if the backup gear extender system were not installed.

If the airplane is to be operated with the rear cabin door removed, it is recommended that all passengers wear parachutes.

After all aspects of the takeoff are considered, a pretakeoff check procedure must be performed.

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 alternate air should be in the CLOSED position.

All seat backs should be erect.

Open the cowl flaps. The mixture and propeller control levers should be set and the seat belts and shoulder harness fastened. Fasten the seat belts snugly around the empty seats.

Exercise and set the flaps and trim tab. Ensure 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 ensure normal takeoff performance.

Release the parking brake.

4.23 TAKEOFF

NORMAL TECHNIQUE (No Performance Chart Furnished)

When the available runway length is well in excess of that required and obstacle clearance is no factor, the normal takeoff technique may be used. The flaps should be set in the retracted position and the pitch trim set slightly aft of neutral. Align the airplane with the runway, apply full power, and accelerate to 75 to 85 KIAS. Apply back pressure to the control wheel to lift off, then control pitch attitude as required to attain the desired climb speed. Retract the landing gear when a straight-ahead landing on the runway is no longer possible. Since takeoff distances with this technique will vary, performance charts are not furnished.

*Approximately 81 KIAS at sea lever to approximately 100 KIAS at 10,000 ft with a straight line variation between.

MAXIMUM PERFORMANCE WITH FLAPS RETRACTED (See Chart, Section 5)

Align the airplane with the runway, set the brakes, adjust the pitch trim slightly aft of neutral, and advance the throttle to full power. Release the brakes and allow the airplane to accelerate to 66 to 70 KIAS, depending on weight, and apply back pressure to rotate for lift off. After breaking ground, accelerate to 68 to 74 KIAS and retract gear**. When clear of obstacles, increase the climb speed to that desired.

Achievement of the charted performance requires strict adherence to the associated speeds, and familiarity with the airplane's flight characteristics. Note that takeoff distances are increased for center of gravity locations forward of the 85 inch datum (see chart, Section 5).

SHORT FIELD TECHNIQUE (See Chart, Section 5)

For short or soft field takeoff, flaps should be lowered to the second notch, and the pitch trim set slightly aft of neutral. Align the airplane with the runway, set the brakes, and advance the throttle to full power.

Release the brakes, allow the airplane to accelerate to 64 KIAS, and apply back pressure to rotate for lift off. After breaking ground, accelerate to 66 KIAS and retract the gear**. Slowly retract the flaps while continuing to accelerate to the desired climb speed.

Achievement of the charted performance requires strict adherence to the associated speeds, and familiarity with the airplane's flight characteristics. Note that takeoff distances are increased for center of gravity locations forward of the 85 inch datum (see chart, Section 5).

4.25 CLIMB

The best rate of climb at gross weight will be obtained at 92 KIAS. The best angle of climb may be obtained at 87 KIAS. At lighter than gross weight these speeds are reduced somewhat*. For climbing enroute, a speed of 104 KIAS is recommended.

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

NOTE

On aircraft equipped with the backup gear extender, to prevent the landing gear from extending automatically during climbs at best *angle* of climb speed at any altitude, or best *rate* of climb speed above approximately 15,000 feet *density* altitude, it may be necessary to select OVERRIDE ENGAGED. This altitude decreases with reduced climb power and increases with increased climb speed.

*To obtain the performance presented in the Performance Section of this handbook, full power (full throttle and 2700 rpm) must be used

**If desired, on aircraft equipped with backup gear extender, the OVERRIDE ENGAGED position can be selected and latched before takeoff. The gear will now retract as soon as the gear selector switch is placed in the UP position. Care should be taken not to retract the gear prematurely, in event aircraft should settle back onto the runway. If the override lock is used for takeoff, disengage as soon as sufficient terrain and obstacle clearance is obtained, to return the gear system to normal operation.

4.27 CRUISING

The cruising speed of the Lance 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. When selecting cruising RPM below 2300, limiting manifold pressure for continuous operation, as specified by the appropriate "Avco-Lycoming Operator's Manual," should be observed.

To obtain the desired power, set the manifold pressure and RPM according to the power setting table in this manual.

Use of the mixture control in cruising flight reduces fuel consumption significantly, especially at higher altitudes. The mixture should be leaned during cruising operation 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. The fuel flow meter will give a close approximation of the fuel being consumed. The low side of the power setting, as shown on the fuel flow meter, indicates best economy for that percent of power while the high side indicates best power.

If the airplane is equipped with the optional exhaust gas temperature (EGT) gauge, a more accurate means of leaning is available to the pilot. For this procedure, refer to the "Avco-Lycoming Operator's Manual."

In order to keep the airplane in best lateral trim during cruise flight, the fuel should be used alternately from each tank at one hour intervals.

Always remember that the electric fuel pump should be turned "ON" before switching tanks, and should be left on for a short period thereafter. To preclude making a hasty selection, and to provide continuity of flow, the selector should be changed to another tank before fuel is exhausted from the tank in use. 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 a full tank and the electric fuel pump switched to the "ON" position.

4.29 APPROACH AND LANDING

Accomplish the Landing Check List early in the landing approach. Depending on field length and other factors the following procedures are appropriate:

NORMAL TECHNIQUE (No Performance Chart Furnished)

When available runway length is in excess of required runway length, a normal approach and landing technique may be utilized. The aircraft should be flown down the final approach course at 95 KIAS with power required to maintain the desired approach angle. The amount of flap used during approach and landing and the speed of the aircraft at contact with the runway should be varied according to the landing surface, conditions of wind and aircraft loading. It is generally good practice to contact the ground at the minimum possible safe speed consistent with existing conditions. As landing distances with this technique will vary, performance charts are not furnished.

SHORT FIELD LANDING APPROACH POWER OFF (See Chart, Section 5)

When available runway length is minimal or obstacle clearance to landing is of major concern, this approach/landing technique may be employed. The aircraft should be flown on the final approach at 75 KIAS with full flaps, gear down and idle power. The glide path should be stabilized as early as possible. Reduce the speed slightly during landing flareout and contact the ground close to stall speed. After ground contact, retract the flaps and apply full aft travel on the control wheel and maximum braking consistent with existing conditions.

SHORT FIELD LANDING APPROACH POWER ON (No Performance Chart Furnished)

It may sometimes be advantageous to use this approach technique when obstacle clearance during landing is of concern. The aircraft should be flown with full flaps, gear down and power sufficient for an approach path that will clear the obstacle. When obstacle clearance is assured, reduce the power and assume the 75 KIAS approach speed to landing flare. After ground contact, close the throttle, retract the flaps, apply full aft travel on the control wheel and maximum braking consistent with existing conditions. As landing distances with this technique will vary, performance charts are not furnished.

4.31 GO-AROUND

To initiate a go-around from a landing approach, the throttle should be advanced to maximum power while the pitch attitude is increased. Allow the airplane to accelerate to the best angle of climb speed (87 KIAS) for obstacle clearance or to the best rate of climb speed (92 KIAS) if obstacles are not a factor. Retract the landing gear and slowly retract the flaps when a positive climb is established. Reset the longitudinal trim as required.

NOTE

When power is advanced for a go-around from a low power, full flap approach, a nose down pitch will occur which must be countered with an aft control input.

4.33 STOPPING ENGINE

At the pilot's discretion, the flaps should be raised and the electric fuel pump turned "OFF."

NOTE

The flaps must be placed in the "UP" position for the flap step to support weight. Passengers should be cautioned accordingly.

The air conditioner and radios should be turned "OFF," the propeller set in the full "INCREASE" position, and the engine stopped by disengaging the mixture control lock and pulling the mixture control back to idle cut-off. The throttle should be left full aft to avoid engine vibration while stopping. Then the magneto and master switches must be turned "OFF."

4.35 PARKING

If necessary, the airplane should be moved on the ground with the aid of the nose wheel tow bar provided with each airplane and secured behind the rear seats. The aileron and stabilator controls should be secured by looping the safety belt through the control wheel and pulling it snug. The flaps are locked when in the "UP" position and should be left retracted.

Tie downs can be secured to rings provided under each wing and to the tail skid. The rudder is held in position by its connections to the nose wheel steering and normally does not have to be secured.

4.37 STALLS

The stall characteristics of the Lance II are conventional. An approaching stall is indicated by a stall warning horn which is activated between five and ten knots above stall speed. Mild airframe buffeting and gentle pitching may also precede the stall.

The gross weight stalling speed with power off and full flaps is 52 KIAS. With the flaps up this speed is increased 1 KT. Loss of altitude during stalls can be as great as 550 feet, depending on configuration and power.

NOTE

The stall warning system is inoperative with the master switch "OFF."

During preflight, the stall warning system should be checked by turning the master switch "ON," lifting the detector and checking to determine if the horn is actuated. The master switch should be returned to the "OFF" position after the check is complete.

4.39 TURBULENT AIR OPERATION

In keeping with good operating practice used in all aircraft, it is recommended that when turbulent air is encountered or expected, the airspeed be reduced to maneuvering speed to reduce the structural loads caused by gusts and to allow for inadvertent speed build-ups which may occur as a result of the turbulence or of distractions caused by the conditions.

4.41 LANDING GEAR

Some aircraft are equipped with an airspeed - power sensing system (backup gear extender) which extends the landing gear under low airspeed - power conditions* even though the pilot may not have selected gear down. This system will also prevent retraction of the landing gear by normal means when the airspeed - power values are below a predetermined minimum. To override this system or to hold the emergency gear lever in the OVERRIDE ENGAGED position without maintaining manual pressure on the emergency gear lever, pull the lever full up and push the latch down. To release the override, pull lever up to disengage the latch, then release lever. For normal operation, the pilot should extend and retract the gear with the gear selector switch located on the instrument panel, just as he would if the backup gear extender system were not installed.

The pilot should become familiar with the function and significance of the landing gear position indicators and warning lights.

The red gear warning light on the instrument panel and the horn operate simultaneously in flight when the throttle is reduced to where the manifold pressure is approximately 14 inches of mercury or below, and the gear selector is not in the DOWN position. On aircraft equipped with the backup gear extender, this warning will also occur during flight when the system has lowered the landing gear and the gear selector switch is not in the DOWN position and the throttle is not full OPEN.

The red gear warning light on the instrument panel and the horn will also operate simultaneously on the ground when the master switch is ON and the gear selector switch is in the UP position.

WARNING

Radio lights' dimmer switch must be off to obtain gear lights full intensity during daytime flying. When aircraft is operated at night and radio lights' dimmer switch is turned on, gear lights will automatically dim.

The three green lights on the instrument panel operate individually as each associated gear is locked in the extended position.

On aircraft equipped with the backup gear extender, the yellow AUTO EXT OFF light immediately below the gear selector switch flashes whenever the emergency gear lever is in the OVERRIDE ENGAGED position.

When the Emergency Landing Gear Extension Procedure (Paragraph 3.27) is performed for training purposes, the following changes must be made to the procedure in order to prevent the hydraulic pump from activating during the procedure. On aircraft equipped with the backup gear extender, the landing gear selector must be left in the UP position until all gear position indicators are green. On aircraft which do NOT have the backup gear extender, a pull type LANDING GEAR PUMP circuit breaker is installed and must be pulled prior to executing the emergency extension procedure. The circuit breaker must be reset after the completion of the procedure to allow normal gear system operation.

4.43 WEIGHT AND BALANCE

It is the responsibility of the owner and pilot to determine that the airplane remains within the allowable weight vs. center of gravity envelope while in flight.

For weight and balance data, refer to Section 6 (Weight and Balance).

*Approximately 103 KIAS at any altitude, power off.