SECTION 4

NORMAL PROCEDURES

4.1 GENERAL

This section describes the recommended procedures for the conduct of normal operations for the Turbo 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 by 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 safe 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 down, flaps up (T.O. power)	89 KIAS
	gear up, flaps up (T.O. power)	93 KIAS
	gear up, flaps up (Max. continuous power)	95 KIAS
(b)	Best Angle of Climb Speed	
	gear down, flaps up (T.O. power)	77 KIAS
	gear up, flaps up, (T.O. power)	80 KIAS
	gear up, flaps up (Max. continuous power)	82 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)	95 KIAS
(f)	Maximum Demonstrated Crosswind Velocity	17 KTS

GROUND CHECK

Parking brakes.....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 flow.....check
Throttle.....retard
Manifold pressure line.....drain

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
Cowl flaps.....open
Mixture.....set
Prop.....set
Belt/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.....set
Tab.....set
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 65 to 69 KIAS depending on aircraft weight
Control wheel.....back pressure to rotate to climb attitude
After breaking ground, accelerate to 65 to 70 KIAS depending on aircraft weight
Gear (Override Engaged) (aircraft equipped with backup gear extender).....UP
Accelerate to climb speed.
Flaps.....retract slowly

CLIMB

Best Rate (3600 lb) (gear down)
(flaps up) (T.O. power).....89 KIAS
Best Rate (3600 lb) (gear up)
(flaps up) (T.O. power).....93 KIAS
Best Rate (3600 lb) (gear up)
(flaps up) (Max. cont. power).....95 KIAS
Best Angle (3600 lb) (gear down)
(flaps up) (T.O. power).....77 KIAS
Best Angle (3600 lb) (gear up)
(flaps up) (T.O. power).....80 KIAS
Best Angle (3600 lb) (gear up)
(flaps up) (Max. Cont. power).....82 KIAS
En Route.....105 KIAS
Mixture.....RICH
Electric Fuel Pump.....OFF at a safe altitude (ON above 14000 ft)

CRUISING

Reference performance charts, Avco Lycoming Operator's Manual and power setting table.
Normal max power.....81%
Power.....set per power table
Mixture.....adjust
Cowl flaps.....set

DESCENT

Mixture.....above 1350 ° F EGT
Throttle.....above 15 in. Hg.
Propeller.....cruise setting
Oxygen.....OFF below 10,000 ft

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, after takeoff, if the gear selector switch is placed in the gear up position 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 62 to 72 KIAS, depending on weight, and apply back pressure to rotate for lift off. When clear of obstacles, increase the climb speed to that desired.

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 65-69 KIAS depending on weight, and apply back pressure to rotate for lift off. After breaking ground, accelerate to 65-70 KIAS depending on weight, and select gear UP*. Continue to climb while accelerating to the flaps up best rate-of-climb speed, 93 KIAS (at T.O. power), if no obstacle is present, or to the flaps up best angle-of-climb speed, 80 KIAS (at T.O. power), if obstacle clearance is a consideration. Slowly retract the flaps while climbing out.

4.25 CLIMB

The best rate of climb at gross weight and maximum continuous power will be obtained at 95 KIAS. The best angle of climb may be obtained at 82 KIAS. At lighter than gross weight these speeds are reduced somewhat. For climbing enroute, a speed of 105 KIAS is recommended. This will produce better forward speed and increased visibility over the nose during the climb. Monitor the cylinder head temperature during climbs and adjust the cowl flaps as required.

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.

Upon reaching a safe altitude, the electric fuel pump may be turned off.

NOTE

The electric fuel pump must be “ON” during climbs above 14,000 ft.

*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.