Normal Procedures

Chapter 4

SAFE OPERATING AIRSPEEDS

All airspeeds in this section are indicated airspeeds (IAS) and assume zero instrument error. Max Demonstrated x-WIND Component is 20 kts

Take-off Speeds

Flaps:		10° Down
Rotation:		76 Mph
Best Angle of Climb -	V_X	105 Mph
Best Rate of Climb -	V_Y	120 Mph
Cruise Climb -		140 Mph

Landing Approach

Flaps DOWN -	100 Mph
Landing	80 Mph

PREFLIGHT INSPECTION COCKPIT - (Checklist)

ITEM	CONDITION
1. Ignition Switch	**OFF**
2. Mixture	**IDLE CUT-OFF**
3. Landing Gear Switch	**DOWN**
4. Master Switch	**ON**
5. Landing Gear Position Indicators	**3-GREEN**
6. Fuel Quantity	**CHECKED**
7. All Switches	**OFF**
8. Master Switch	**OFF**

WALK AROUND INSPECTION – (Checklist)

Start at left wing

ITEM	CONDITION
1. Left Flap Attachments	**SECURE**
2. Left Aileron	**TRIM TAB PIN - SAFETIED**
Control Hinge	**SECURE, NO LOOSE SCREWS**
Motion	**FREE**
Span Edges	**NO CONTACT WITH TIP OF FLAP**
3. Wing Tip	**NO DAMAGE, CRACKED PAINT, • SECURE**
4. Left Wing Up'r/Lwr surrace	**SIGHT- SMOOTH, no buckling/distortion**
Leading Edge	**FEEL SMOOTH, NO DAMAGE, • CLEAN**

Fuel Quantity **VISUAL INSPECTION, ADEQUATE FOR FLIGHT**

Fuel Cap • **SECURED**

Pitot head **NO OBSTRUCTIONS**

5. Left Main Gear

Tire **CONDITION/TREAD**

Chocks **REMOVED**

Brake Pads Plaquettes **CONDITION**

Brake Line **NO CHAFING**

Springs Ressorts **SECURE**

Gear Doors **NO CRACKS, LINKAGE SECURE, FREE**

Tank Sump **DRAINED**

6. Left Nose Area

Tank Sump **DRAIN, CHECK FOR CONTAMINATION**

Tire Pneu **CONDITION/TREAD**

Chocks Cales **REMOVED**

Strut Amortis **3 TO 4 INCHES EXTENSION**

Cowling Capot **SECURE**

Cooling intakes **NO OBSTRUCTIONS, BIRD NESTS, ETC.**

Tow Bar **REMOVED**

WARNING

Always assume the propeller is "Hot" and the engine ready to start when handling the propeller regardless of magneto switch position.

CAUTION *

See Propeller manufacturers instructions for nick and damage treatments and limitations. Damaged propellers are dangerous – failures can be catastrophic.

7. Propeller*/Spinner

Spinner **Secure, no cracks at attach screws**

Blades Ok **LE smooth, no nicks (dress as required)**

8. Right Nose Area

Oil Quantity **6 QUARTS MINIMUM**

Dip Stick	**SECURE**
Inspection Door	**CLOSED/SECURE**

9. Right Main Gear

Tire	**CONDITION/TREAD**
Chocks	**REMOVE**
Brake Pads	**CONDITION**
Brake Line	**NO CHAFING**
Springs	**SECURE**
Gear Doors	**NO CRACKS**
	LINKAGE SECURE BUT FREE
Tank Sump	**DRAINED**

10. Right Wing

Upper/Lower surface	**SIGHT- SMOOTH,**
	NO BUCKLING/DISTORTION
Leading Edge	**FEEL- SMOOTH, NO DAMAGE,**
CLEAN	
Fuel Quantity	**VISUAL INSPECTION,**
ADEQUATE FOR FLIGHT	
Fuel Cap	**SECURED**

11. Wing Tip — **NO DAMAGE,** **CRACKED PAINT, SECURE**

12. Right Aileron

Control Hinge	**SECURE, NO LOOSE SCREWS**
Motion	**FREE**
Span Edges	**NO CONTACT WITH TIP**
	OR FLAP

13. Right Flap

Attach Points	**CHECK SECURE**

14. Right Fuselage

Static Port	**CLEAN, NO OBSTRUCTIONS**

15. Tail Assembly

Horizontal Stabilizer	**NO LEADING EDGE DAMAGE**
Vertical Stabilizer	**NO LEADING EDGE DAMAGE**
Elevator / Rudder	**FREE MOTION, NO RUBBING**
Hinges	**SECURE**
Rudder cables	**SECURE, NO BENDING OF CABLE TO FITTING**

GROUND AND COCKPIT CHECK

1. Aircraft Logbook	**CHECKED**
2. Master switch	**ON**
3. Fuel quantity	**ALL TANKS CHECKED**
4. Master switch	**OFF**
5. Outside check according to manual	**DONE**
6. Tow bar	**REMOVED**
7. Weight and Balance	**CHECKED**

BEFORE STARTING ENGINE

1. Canopy	**CLOSED**
2. Rudder Pedals	**ADJUSTED / LOCKED**
3. Seatbelts	**ADJUSTED**
4. All Switches	**OFF**
5. Gear switch	**DOWN**
6. Master Switch	**ON**
7. Gear lights	**CHECKED three greens**
8. Fuses	**CHECKED**
9. Fuel Selector	**OPEN position**

STARTING ENGINE

1. Propeller area	**FREE**
2. Alternate Air	**Set to "OFF" position**
3. Propeller	**RPM 2700**
4. Throttle	slightly **pushed (1/4")**
5. Mixture	**FULL RICH**
6. Boost Pump	**ON**
7. Primer: Cold start:	**3 pumps**
Warm start	**1 pump**
8. Starter	**ENGAGE**

When engine fires immediately

9. Magneto Switch	**RELEASE to BOTH**
10. Boost Pump	**OFF**
11. Oil Pressure	**CHECK minimum pressure reached within 30 sec.if minimum oil pressure is not indicated within 30 sec., stop engine and check trouble.**

COLD WEATHER STARTING

During extreme cold weather it may be necessary to preheat the engine and oil before starting.

GROUND RUNNING AND WARM-UP

This engine is air-pressure cooled and depends on the forward speed of the aircraft to maintain proper cooling. Particular care is necessary, therefore, when operating these engines on the ground. To prevent overheating, it is recommended that the following precautions be observed.

1. Head aircraft into the wind.
2. Leave mixture in "FULL RICH"
3. Operate only with the propeller in minimum blade angle setting.
4. Warm-up at approximately 1000-1200 RPM. Avoid prolonged idling and do not exceed 2200 RPM on the ground.
5. Engine is warm enough for take-off when the throttle can be opened without the engine faltering.

BEFORE TAXIING

1. Artificial Horizon	**SET**
2. Altimeter	**SET**
3. Radio and Navaids	**SET**
4. ATIS and Clearance	**CHECKED**
5. EFIS	**ON**
6. Taxi area	**CLEAR**
7. Flaps	**UP**
8. Brakes / Gyro	**CHECKED / SET**

TAXI CHECK

1. Brakes	**CHECKED**
2. Artificial Horizon / Compas	
Turn Coord. / Gyro	**CORRECT INDICATIONS**

POWER-CHECK

2.	Break	**HOLD**
4.	Oil temp	**GREEN**
5.	Throttle	**2000 RPM**
5.	Magnetos	**Max. drop 175 rmp,**
		Max.diff. 50rpm
5.	Propeller	1700 RPM then **2700 RPM**

6.	Mixture	**Check for operation / RICH**
7.	Fuel pressure light	**CHECKED OFF**
8.	Engine Instruments	**NORMAL**
9.	Amper meter	**CHECK LOADING**
10.	Throttle	**1000 / 1200 RPM**

CHECK BEFORE TAKE-OFF

1.	Master switch	**ON**
2.	Alternator	**ON**
3.	Boost pump	**ON**
4.	Fuel quantity	**CHECKED**
5.	Fuel selector	**OPEN**
6.	Fuel Transfer Pumps	**CHECKED - OFF**
7.	Magneto	**BOTH**
8.	Mixture	**FULL RICH**
9.	Engine Instruments	**CHECKED**
10.	Avionics all	**SET**
11.	Altimeter	**QNH SET**
12.	Controls	**FREE**
13.	Flap- Set	**SET to take-off position, 10°**
14.	Trim: Elevator	**FOR TAKE OFF**
15.	Canopy	**CHECK LATCHED**
16.	Seatbelts	**FASTENED**

TAKE-OFF

1. Time Check
2. Full-Power
3. Lift Nose at Vr
4. Increase speed
5. Apply wheel brakes ?
6. Gear-Up
7. Increase speed IF 15m obstacle PASSED, Flaps UP (IAS min 100 Mph).
8. Booster Pump OFF if safe Alt.
9. Fuel Pressure light CHECKED OFF

CLIMB BEST ANGLE V_x

1. Power
2. Mixture
3. Airspeed

Climb Best Rate V_y

1. Power
2. Mixture
3. Airspeed

Climb Cruise

1. Propeller (2500 RPM)
2. Power
3. Mixture
4. Airspeed

CRUISE

1. Power Set
2. Trim
3. Mixture
4. Fuel Quantity

DESCENT

1. Altimeter
2. Mixer
3. Airspeed

CHECK FOR APPROACH

1. Altimeter	**SET QNH**
2. Boost Pump	**ON**
3. Fuel-pressure light	**OFF**
4. Fuel Quantity in Header Tank	**CHECKED, Min 20 L**
	If less, TRANSFER PUMPS ON
	until 20 L in Header Tank.
	For landing:
5. Transfer Pumps	**OFF**
6. Mixture	**FULL RICH**
7. Gear-Down (max 140 Mph)	**THREE GREEN CHECKED**
8. Flaps 10°	**DOWN BELOW 115 Mph**

FINAL CHECK

1. Flaps	**AS REQUIRED**
1. Speed initially	**100 Mph**
2. Gear-Down	**THREE GREEN**
3. Mixture	**FULL RICH**
4. Prop High RPM	**2700 RPM (Green light ON)**
5. Runway	**CHECKED**
6. Final Approach Speed	**90 Mph IAS (2 crew)**
	85 Mph IAS (1 crew)

AFTER LANDING

1. Boost Pump	**OFF**
2. Flap	**UP**
3. Transponder	**STANDBY**

GO-AROUND

1. **FULL POWER**
2. **CHECK CORRECT ATTITUDE FOR CLIMB, BALL CENTERED, WINGS LEVEL**
3. **CHECK HIGH RPM**
4. **CHECK MIXTURE RICH**
5. **GEAR UP**
6. **FLAPS UP AT 100 MPH**

ENGINE SHUTDOWN

1. All avionic	**OFF**
2. Flaps for Parking-Position	**DOWN**
3. Mixer	**Full LEAN**
3. Ignition	**OFF**
6. Master-Switch	**OFF**

HEATING & VENTILATION

Cooling air

The Lancair have on the FWD LH and RH side two-air intake scoops for cabin ventilation.

COLD WEATHER OPERATIONS

PREFLIGHT INSPECTIONS

Winter preflight inspections of the aircraft need to account for the accumulation of frost or ice on the exterior of the aircraft. The Lancair with their extraordinary smoothness can suffer markedly from the effects of such accumulations as they utilize laminar flow airfoils. These effects result in significantly higher drag of the airframe and wings as well as reduced lift and increased weight of the accumulation. Once these deposits have been removed (preferably by warming in a hangar) the preflight should include special emphasis and freedom of control movements.

ENGINE CONSIDERATIONS

Very cold temperatures require extra considerations for engine starting and operations. The engine oil will be significantly more viscous resulting in higher oil pressures, slower indication upon starting, increased engine wear, tappet noise (if equipped with hydraulic lifters) poor battery performance, etc.

During extreme cold weather it may be necessary to preheat the engine, oil and battery before starting. Since the engines are cooled by pressurized air created in flight, ground operations must be minimized at high ambient temperatures and conducted with care at all times.

Engine operations should be into the wind when possible. The mixture should be RICH. Avoid prolonged idling and do not exceed 2200 rpm and the ground. Warm up should be at 1000-1200 rpm.

The engine is warm enough for take-off when the throttle can be opened without faltering. Excessive oil pressure can cause over boost and consequent engine damage.

ICING CONDITIONS

Flight in icing conditions is prohibited.

NOISE CHARACTERIZE AND NOISE MEASUREMENT

The Aircraft is measured according to the VEL Chapter10 (Of according to the regulation of emission from the aviation)

The Lancair 320 is approved to the classification of Class C according ICAO annex10 Chapter10.

Noise-Restriction:

The HB-YFR has with this classification no noise restriction.

Silencer:

On the Lancair HB-YFR is an ERNI 01 silencer installed.

NOISE

All approaches and departures should be made with noise con-siderations.

NOTE

The above suggestions are recommended where they do not conflict with weather conditions, ATC clearances or instructions, or where in the judgment of the pilot, they can be complied with safely.

NOTES