

Condition Inspection Items-N437RP

Date: 9-1-2016

Remove all inspection panels and aircraft interior prior to starting inspection

- Cabin side panels (4),
- Pressure controller in rear seat bottom,
- Baggage compartment panels (6),
- Two inspection panels and two flap actuator cover panels on each wing.
- Trim servo panels optional if servo tests OK
- Winglets (contain wiring and fuel connections)
- Airworthiness Directives
- Lancair Service Bulletins
- Oxygen bottle pressure & masks serviceable (4); check regulator and flow
- Halon fire extinguisher-Underside/back of copilot seat-charged and serviceable
- Emergency cockpit lighting functional (flashlight, hand-held, instrument panel stick-on)
- Gear extension, down-lock & door closing; test-on jacks
- MLG door nylon sliders for wear/delamination
- Winglet fuel vents-functional
- Fuselage drain holes (3), rudder (2), wings/speed brakes (1 each wing)
- Emergency survival gear and critical spares in baggage compartment
- Emergency door opening tools in glove compartment

Propeller

- Run-out and balance
- Bearing wear & grease seals

Critical fasteners re-torqued

- Fuselage motor mount bolts (5) (40'/lb)
- Engine mount bolts (4) (40'/lb) –not checked in 2013
- Propeller nuts (6) (80-85'/lb)
- Wing spar bolts (2/2) (40'/lb//30'/lb)

Flight Controls

- Control system binding/travel limits & stops
- Continuity, lubrication and excess free play—each connector/each pivot; end to end
- Autopilot servo attachments /assembly bolts & screws/over-center lockouts

Hydraulic Systems

- Hydraulic reservoir
- Accumulator pre-charge
- Brake reservoir
- MLG, nose gear and flap actuators for leaks, binding
- MLG actuator area for security of hidden bolts/fasteners (mirror required!)
- MLG mechanical down locks for proper functioning of lockdown pins
- All hoses & tubing fitting ends, especially under rear seat bottom and wheel well area in general
- Hydraulic system filter (front side of right wheel bulkhead)

Lubrication:

- Wheel bearings-repack & adjust bearing pre-load
- MLG rack & pinion gears/steel sliders
- Gear door hinges
- Nose gear operating linkage
- Cabin door hinges & latches

Flight control pivots-check also for tightness and wear

- All control system linkage-aileron, elevator, rudder pivots
- Flap operating linkage
- Flap tracks

Electrical System

- Bus Tie functions
- Emergency Power relay
- #1 & #2 battery load tests
- #2 charging system regulator set 0.2 volts below #1 system to "load" the primary system
- Battery replacement (one set in 2014 to #1 system); #2 battery set load checked good
- Exterior position lighting/strobes
- Landing and taxi lights
- Cockpit/instrument lighting
- Replace 9 volt emergency glare shield light battery (top side of fuse panel; above copilot knees)
- Glare shield lighting
- Caution and warning lights (6)-lamp test and proper operation of each
- Cockpit emergency lights: flashlight between seats/mini on glare shield/hand-held in glove box
- Pitot heat and "on" indicator light
- Speed brake operation (pilot position only)
- Trim-elevator, aileron and rudder all drive to limits/reverse/operate from both sticks

Fuel System

- Gascolator cleaned
- Fuel tank caps for function and sealing
- Wing fuel sumps checked (4)
- Selector valve-detents noticeable/off position stops gas flow

Tires & Wheels

- Tire tread-reverse/replace tires/tubes
- Tires serviced to 65/45/65 PSI
- Brake pads-within wear limits
- Brake line weep hole in MLG strut clear and clean (no brake fluid leaks)
- Nose strut extension: 3" min of polished strut showing (service to 300 PSI, nitrogen, fully extended)
- Panel/skin delamination; cracks anywhere (rear fuselage & tail; around pressure vessel)
- Windows-cracks or delamination from mounting surfaces

Engine Compartment

- All SCEET for cracks & tears
- Function of alternate air door and cockpit indicator light
- Condition of induction air flex tubes (2)
- Condition of wiring & hoses behind engine (multiple opportunities for mischief here!)

Engine checks:

- Lubricate operating controls-all
- Oil cooler air door for proper operation
- Engine mount for cracks...especially at welds (critical item)
- Shim motor mounts to raise engine spinner (as required)
- Compression/80: #1- __; #2- __; #3- __; #4- __; #5- __; #6- __
- Sparkplugs-clean/replace or re-gap (30-36 #/ft tightening torque)
- Fuel Injectors-clean (new o-rings, rubber washer, copper washer, rubber bushing for ea)
- Oil & Filter-replace
- Fuel system calibration IAW SID97-03F
- Boost pump (high/low)
- Replace or overhaul mags @ 500 hours
- Slick Mag inspection -- Slick Service Bulletin SB3-08
- Magneto Timing: each at 24 degrees BTDC (Must use protractor on prop spinner)
- Magnetos grounding check (L & R)
- Oil lines-condition/leaks/chafing; find the source of ANY oil leaks-fix
- Air seals around upper cowling
- Intake manifold gaskets for leaks
- All intake and turbo feed hose clamps tightened
- Exhaust system-condition & leaks (inc V clamps per SAIB CE-13-45)
- Engine air inlet bypass for free operation and warning light
- Air filter- replace
- Pitot & Static system leak check (last: 11/2014)
- Transponder check (every two years) last: 11/2014
- Radios & Intercom –all functional
 - Rear seat intercoms
- ELT-Functional Check/Battery replace as required (next: 2018) (inside tail access panel)
- Chelton and Garmin data systems-functional, with current data loads

Cabin Air System

- Cabin door pressure seal-no leaks/holds pressure
- Cabin pressurization controller –operation & filter replacement
- Cabin heat, defroster & dump controls

Air Conditioner

- Condenser fans, exhaust scoop and airflow sequencing valves
- Water drain
- Refrigerant leaks, especially rear fuselage area
- Operating pressure check (min of 120 psi, normal day, not running)
- Cabin seat belts/shoulder harness/attach points-all functional, good condition

Ground checks (engine running)

- Engine and aircraft instrument controls (operation and limits)

- Magneto Grounding (engine shut down using ignition switch)
- Fuel selector Shut-Off (engine shut down using fuel selector-Off)
- Compass headings (Chelton and Dynon)
- Taxi straight ahead/brakes steer aircraft easily

Flight Checks

- Engine gauges (operation and limits)
- Prop governor operation
- @ Take Off power (DA ____'; Temp __F): RPM: ____, MP: ____, FF: ____, Fuel Press: ____ PSI
- In-flight Mags check (L & R) under high power setting
- Emergency nose gear extension speed: ____ KIAS (130 KIAS min)
- Gear manual extension: 18 strokes w/hand pump
- Chelton "fast erect" in-flight
- Autopilot tracking, stability and dampening checks
- Cabin pressure monitoring and alerting system (should alarm at 10,000')
- Fuel pump warning system (should flag the boost pump not on above 14,000')
- AOA warning system

Paperwork

- Airworthiness certificate
- Operating limitations letter
- Aircraft data plate (fuselage near tail)
- Registration certificate
- Log book entries for proper documentation
- Compass correction card-on instrument panel
- Weight & Balance-available & conforms to equipment installed