

Condition Inspection Checklist

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Aircraft: _____
Serial Number: _____ Registration Number: _____

Aircraft Owner: _____
Date of Inspection: _____ Location of Inspection: _____

Total Airframe Hours:	
Total Engine Hours:	
Total Propeller Hours:	

Inspection Performed By: _____ Certificate: _____

Preparation — Inspection Consumables

Oil	8 qts AeroShell W 100 Plus
Oil filter	Champion CH48110-1 or Tempest AA48110-2
Oil sample kit	Blackstone Laboratories
Spark plugs	Champion REM38E or Tempest UREM38E (as needed)
Spark plug gaskets	8 copper gaskets
Alternator belt	
Air filter recharge kit	K&N 99-5000
Brakes	Brake lining replacement kit (Rapco RA66-106); Mobil 1 Synthetic ATF
Tires/tubes	2 - 5:00x5-6 ply, as needed; TBD (nose)
Wheel bearing grease	Mobil SHC 100
Cotter pins	Misc. sizes, including gear nut size
Gasket lube	Dow DC-4
Gaskets	Fuel injection inlet, oil screen
Light lubricant	LPS-2 or comparable light lubricant for rod end bearings
Greases	Aeroshell Grease 6 (prop), Mobil SHC 100 (wheels), heavy-duty general purpose (nose fork)
Safety Wire	.020, .032, .040

Preparation — Expendables

Absorbent Materials	Paper towels, microfiber clothes
Solvents	Hoppe's 9, mineral spirits, MEK, denatured alcohol, Mouse Milk, Brake Kleen, Anti-seize
Cleaners	Detailing spray, wipes, etc.

Time-limited items

Item	Last change	Next due
ELT batteries (replace every 2 years)		
ELT remote battery (replace every 8 years)		
Altitude encoder & transponder certification		
O2 Tank Hydro test		
CO Detector		

Tools

Oil filter torque wrench	
Compression tester	
Spark plug cleaner	
Spark plug gap tool	
Spark plug socket	
Magneto timing box	
Torque wrenches	
Flashlight	
Inspection mirror	
Steel wire brush	
Buckets/pans	

Preparation

Assemble all necessary tools, supplies, processes, manufacturer's instructions, *etc.*, prior to beginning any task.

Review service instructions or maintenance documents for the item(s) or assemblies being serviced; confirm fluid levels, torque values, parts orientations, *etc.*

Clean parts to like-new condition before reassembly

When in doubt, **CHECK the manuals, instructions, plans or AC 43-13**

DO NOT HURRY!

Engine Group

Service items:

- _____ 1) Fly/run engine to operating temperatures
- _____ 2) Remove upper engine cowl
- _____ 3) Remove top spark plugs noting current installed location
- _____ 4) Perform leakdown compression test, note compression:
#1 _____ #2 _____ #3 _____ #4 _____ (note if engine cold)
- _____ 5) Remove nosegear fairings, lower engine cowl
(Steps 6-10 if w/in 10 hours of 50-hour oil change)
- _____ 6) Drain engine oil, collect oil sample for analysis
- _____ 7) Remove spin-on oil filter, replace and safety wire
- _____ 8) Remove, inspect, clean and reinstall oil suction screen (use new copper crush gasket)
- _____ 9) Refill engine oil per lubrication chart
- _____ 10) Cut open oil filter, inspect for particles
- _____ 11) Remove bottom plugs noting current installed location
- _____ 12) Inspect spark plug conditions, clean, re-gap to .016-.022"
- _____ 13) Remove harness cap and inspect distributor cap area (Slick SB1-15A)
- _____ 14) Conduct magneto timing check
- _____ 15) Inspect all cylinders and valves with borescope
- _____ 16) Reinstall spark plugs rotating top to bottom and 1↔4, 2↔3: apply anti-seize paste, use new copper gaskets, torque plug to 400 in.-lbs., ignition lead to 1/8-1/6 rotation past finger-tight
- _____ 17) Reinstall baffle plug screws/Tinnerman washers/nuts
- _____ 18) Service K&N air filter element (every 24 months or as needed)
- _____ 19) IRAN fuel injectors (60 in-lb for seat, 50 in-lb for restrictor) (CAUTION: Keep components together as sets; reinstall in cylinders from which they came)
- _____ 20) Remove, clean and reinstall fuel injection servo inlet strainer using new O-ring (65-70 in-lb fitting, 270-300 in-lb B-nut) if/as needed
- _____ 21) Verify fuel injection servo mounting nuts secure
- _____ 22) Check exhaust system and mounting brackets for cracks, lubricate ball joints
- _____ 23) Re-torque exhaust mounting nuts

Inspection items:

- _____ 24) Accessories on rear engine and firewall for security and leaks including:
 - (a) oil temp sender,
 - (b) oil pressure sender,
 - (c) magnetos,
 - (d) fuel pump,
 - (e) fuel pressure sender,
 - (f) vacuum pump pad,
 - (g) oil lines & fittings,
 - (h) crankcase breather
- _____ 25) Oil cooler condition including fins for damage or blocking, lines for leaks and/or chafing
- _____ 26) Ignition harness, springs and insulators for condition
- _____ 27) Baffle attach bolts/screws
- _____ 28) Sniffle valve fittings and hoses
- _____ 29) Fuel pump overflow fittings and hoses
- _____ 30) Smoke system fittings and hoses
- _____ 31) Starter pinion & ring gears, mounts, wiring connections
- _____ 32) Alternator mounts, lead connections, belt condition and tension
- _____ 33) Baffles for damage and air leaks
- _____ 34) Engine mount system for damage and attachment security
- _____ 35) Firewall penetration seals
- _____ 36) Fuel lines for condition, chafing, and signs of leaks
- _____ 37) Battery, cables, contactors, shunt
- _____ 38) Wire bundles for security and chafing
- _____ 39) All lines, hoses, and clamps for leaks, improper condition, looseness, and chafing
- _____ 40) Engine controls for proper movement and security (throttle, prop, mixture, oil cooler, alternate air, cabin heat)
- _____ 41) Cowling interior for cracks, distortion, loose/missing fasteners, heat damage

Propeller Group

- _____ 42) Remove spinner (note orientation for replacement)
- _____ 43) Inspect spinner and backplate for cracks, damage, missing rivets
- _____ 44) Inspect prop hub for cracks or leaks
- _____ 45) Inspect crankcase nose seal for oil leaks
- _____ 46) Inspect propeller blades for nicks, cracks and/or surface erosion
- _____ 47) Service prop hub with Aeroshell Grease 6 (6 pumps MAX)
- _____ 48) Re-install spinner

Empennage & Rear Fuselage Group

- _____ 49) Remove empennage fairing, empennage access covers
- _____ 50) Inspect vertical and horizontal stabilizer spar attach points
- _____ 51) Inspect ELT antenna
- _____ 52) Inspect aft elevator pushrod, lubricate rod end bearings
- _____ 53) Inspect elevator horns and attachments
- _____ 54) Inspect all empennage structures for corrosion and condition
- _____ 55) Inspect all empennage attach bearings for condition/security
- _____ 56) Lubricate all bearings
- _____ 57) Inspect rudder control stops and cable attachments for security and cotter pins
- _____ 58) Inspect tail pos/strobe light wire for chafing
- _____ 59) Inspect elevator trim tab, arm, and actuator rod
- _____ 60) Inspect trim motor wiring for chafing
- _____ 61) Inspect trim motor mount for security
- _____ 62) Inspect static ports, verify clear

Landing Gear Group

- _____ 63) Remove wheel pants,
- _____ 64) Inspect wheel pants and fairings for cracks, wear, loose or missing fasteners
- _____ 65) Remove nosegear, repack bearings (Mobil SHC 100), if/as needed
- _____ 66) Service fork with grease (General-purpose, heavy duty)
- _____ 67) Reinstall nosegear

- ___ 68) Inspect tires for wear and cracks, rotate if indicated, replace if necessary
- ___ 69) Check brake cylinders for condition/leaks, brake lines for security and chafing
- ___ 70) Inspect brake linings for wear and condition, replace as necessary
- ___ 71) Re-pack wheel bearings (Mobil SHC 100 grease) if/as needed
- ___ 72) Rotate, flip or replace tires and tubes if/as needed
- ___ 73) Bleed brakes (Mobil 1 Synthetic ATF) if/as needed
- ___ 74) Check/set tire air pressure: 28-34 psi (main), 40 psi (nose)
- ___ 75) Inspect gear/fuselage weldment attach bolts for security and tightness

Wing Group

(L / R)

- ___ 76) Remove gear leg fairings, upper intersection fairings, wing root fairings, wing access panels
- ___ 77) Inspect fuel vent ports for security and condition
- ___ 78) Inspect fuel drain ports for security, condition and leaks
- ___ 79) Inspect pitot tube and plumbing for security and blockage; Inspect wiring
- ___ 80) Inspect roll servo for security; Inspect wiring
- ___ 81) Inspect wing root area including electrical connections and plumbing
- ___ 82) Inspect fuel cap and O ring condition
- ___ 83) Inspect strobe/nav lights for security and operation
- ___ 84) Inspect landing lights for security and operation
- ___ 85) Inspect entire wing structure internally for cracks and corrosion including fuel tank attach bolts, special attention to main spar
- ___ 86) Inspect aileron control mechanism (push tubes, rod end bearings, bellcrank) for condition/security
- ___ 87) Lubricate rod end bearings
- ___ 88) Inspect aileron attach bolts/brackets for security
- ___ 89) Lubricate bearings
- ___ 90) Inspect aileron stops (internal) for cracking or wear
- ___ 91) Extend flaps, inspect flap actuator rods and attachment hinge for operation and security
- ___ 92) Lubricate rod end bearings

Cabin Group

- ___ 93) Remove interior carpets/seats/panels
- ___ 94) Remove fire extinguisher
- ___ 95) Remove baggage bulkhead, flap pushrod covers, flap motor cover, fuel pump housing, forward seat floor panels, tunnel cover, forward spar covers
- ___ 96) Inspect rear fuselage interior: check skin/bulkheads for cracking, damage, or corrosion, inspect all wiring & plumbing, clean as necessary
- ___ 97) Inspect ELT, ADS-B, ADAHRS and XPDR for security, wiring, antennae
- ___ 98) Check/change ELT batteries, verify operation, set to "armed"
- ___ 99) Inspect midship elevator bellcrank assembly
- ___ 100) Lubricate rod end bearings
- ___ 101) Inspect pitch servo for security and wiring
- ___ 102) Lubricate rod end bearings
- ___ 103) Inspect flap motor mechanism & wiring for damage and proper operation, lubricate rod end bearing; IRAN safety wire
- ___ 104) Inspect condition of seat harnesses, mounts, and attachments
- ___ 105) Inspect mid-cabin area including spar bolts, antennas, wing wiring connections
- ___ 106) Inspect mid-cabin console area including: fuel selector valve, fittings, fuel lines, trim servo and linkage
- ___ 107) Inspect flight control mechanism, lubricate all bearings
- ___ 108) Inspect roll trim servo for security, connection to flight controls
- ___ 109) Inspect interior of gear weldments for leaks or chafing
- ___ 110) Check general condition under panel for loose wires, chafing, etc.
- ___ 111) Check all avionics, instruments, switches and plugs/sockets for mounting security
- ___ 112) Check cabin heater and controls
- ___ 113) Check rudder pedals and brake cylinders for security, operation and leaks
- ___ 114) Inspect forward footwell area: auxiliary fuel pump, firewall penetrations, wire bundles, fuel lines, brake lines
- ___ 115) Remove, clean and reinstall boost pump fuel filter if/as needed
- ___ 116) Inspect canopy structure and mechanism for security and wear

- _____ 117) Inspect canopy and rear window for cracks
- _____ 118) Check fire extinguisher condition; verify refill date
- _____ 119) Check oxygen system, including mounting bolts/brackets; verify hydrostatic test date
- _____ 120) Check smoke system lines, wires, tank, etc.
- _____ 121) Verify spare fuses available in pilot storage bin
- _____ 122) Conduct Skyview backup battery test
- _____ 123) Conduct Skyview ZERO AIRSPEED recalibration

Operational Inspection

- _____ 124) Clean and vacuum all interior portions; inspect entire aircraft for FOD
- Reinstall:
 - _____ 125) Empennage fairings and access panels
 - _____ 126) Wing access panels, wing root fairings
 - _____ 127) Baggage bulkhead panels, flap actuator covers, floor panels, forward covers, fuel pump housing, interior carpets, panels and seats
 - _____ 128) Verify all inspection panels and fairings secure
 - _____ 129) Brake system check

Test run engine:

- _____ 130) Normal engine start
- _____ 131) Check oil pressure/temperature within limits
- _____ 132) Check aux fuel pump for proper fuel pressure
- _____ 133) Check fuel gauges for operation
- _____ 134) Check static run up
- _____ 135) Magneto check
- _____ 136) Check for proper idle RPM
- _____ 137) Check RPM rise upon leaning mixture (idle mixture)
- _____ 138) Check idle cut-off

After shutdown:

- _____ 139) Inspect firewall-forward area for fuel, oil, and hydraulic systems leaks
- _____ 140) Inspect brakes for leaks
- _____ 141) Reinstall cowling and nosegear fairings
- _____ 142) Reinstall gear leg fairings, wheelpants, intersection fairings
- _____ 143) Inspect, clean, replace if/as necessary all emergency and travel supplies, tools, parts, batteries, etc.

Documentation

- _____ 144) Verify equipment list up to date
- _____ 145) Verify Registration, Airworthiness Certificate, and Operating Limitations are current and in aircraft
- _____ 146) Verify external data plate secure and installed
- _____ 147) Verify EXPERIMENTAL placard installed in cockpit
- _____ 148) Verify PASSENGER WARNING placard installed in cockpit
- _____ 149) Verify cockpit checklists in aircraft
- _____ 150) Verify all databases current
- _____ 151) Verify flying shoes in airplane
- _____ 152) Review Airworthiness Directives for applicability and compliance
- _____ 153) Review Service Bulletins/Letters for compliance
- _____ 154) Check altitude encoder & transponder certification (every 24 months)
- _____ 155) Document Condition Inspection and record maintenance performed, lab results, test results, etc., in airframe, engine and propeller logs and maintenance records

AD/SB/SI/SL Compliances: _____

Van's SB 14-01-31 Horizontal Stabilizer Cracks inspection_____

Van's SB 16-03-29 Wing aft spar cracks at aileron hinge bracket inspection_____

Van's SB 14-02-25 Cracks in elevator spar inspection_____

Slick SB 1-15A Distributor gear electrode wear_____

NOTES:_____
