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## **Beechcraft Bonanza, Debonair, Travel Air, Baron Prebuy Examination—Scope and Detail**

**NOTE:** This is a two-phase checklist. Please perform “Phase 1” items first and report results before proceeding with “Phase 2” items. If there are any high-cost issues noted during Phase 1, we may need to terminate the prebuy examination early.

**NOTE:** Estimated labor hours to complete both phases of this checklist:

- 10-15 hours for single engine airplanes.
- 15-20 hours for twin engine airplanes.

### **PHASE 1**

#### **1.1 Operational and Functional Check**

- 1.1.1 Perform “Airplane Operational and Functional Check” of all systems in accordance with the Airplane Maintenance Manual/Aircraft preflight checklist.

#### **1.2 Engine and Propeller**

- 1.2.1 Check cylinder compressions hot. Report compression readings, master orifice reading, and location of audible air leakage (rings, exhaust valve).
- 1.2.2 Check cylinder heads for cracks. Especially around injector nozzles (fuel injected) and spark plug holes.
- 1.2.3 Check pushrod housing seals, cylinder bases, and rocker covers for oil leaks. 1

- 1.2.4 Borescope examination of all cylinders. For each cylinder, report appearance of exhaust valve (particularly asymmetric appearance indicating hot spots), appearance of barrel (loss of crosshatch, vertical scoring, aluminum smearing at 3 or 9 o'clock position suggesting piston pin plug scuffing, excessive oil in combustion chamber).
- 1.2.5 Spark plug examination. Report any abnormal color or appearance, particularly top spark plugs. Report brand and type of plugs installed.
- 1.2.6 Remove oil filter, cut open and inspect for metal. If significant metal is found, please provide one or more high-resolution photographs of filter media, check with a magnet to determine whether metal is ferrous or non-ferrous, and save filter media in a zip-lock plastic bag in the event we need to send it out to a lab for microscopic examination.
- 1.2.7 Check crankcase for cracks and oil leaks. Check front crankshaft seal for oil leaks.  
If any cracks or leaks are found, please provide high- resolution photographs.
- 1.2.8 Check all fuel and oil lines, wire bundles and ignition harness leads for chafing and security. Check engine transducers (CHT, EGT, etc.) for lead chafing at strain-relief springs.
- 1.2.9 Check carburetor and carburetor heat (non-injected) for security, box for damage, and proper travel of heat door. Evidence of fuel leaks.  
Engine control mounting and security.
- 1.2.10 Check alt air door operation.
- 1.2.11 Check cowl flap attachment and operation. (electric or manual) Note, Barons and Travel Airs check for rubbing between cowl flap and breather lines.
- 1.2.12 Check engine baffles for cracks. Check inter-cylinder baffles for proper position. Check flexible baffle seals for condition and proper orientation.

- 1.2.13 Check engine mount for corrosion, heat signatures, and damage to powder coating/paint.
- 1.2.14 Check firewall for signs of hard landing at engine mount and if applicable, nose gear attach points. Damage to firewall including corrosion, holes, and missing hardware at pass-thru areas. Battery box for corrosion.
- 1.2.15 Exhaust system examination for exhaust leaks, cracks, bulges. For normally aspirated engines, check mufflers (particularly flame cones if applicable) and heat exchanger and shroud. Pressure test for leaks requested. Tail pipe hangers for worn or missing rubber grommets.
- 1.2.16 Check propeller hub for cracks and leaks. Check prop blades for nicks, corrosion, areas of excessive filing. Check propeller spinner and spinner back plate for cracks/unapproved repairs. If prop heat installed, check security of boots, leads/wires and operation for electrical system or Plumbing, slinger ring, and rubber propeller boots for alcohol system.
- 1.2.17 Check cowling for damage and repairs, with concentration on exhaust induced heat damage (inside or outside). Chaffing of baffle/seals/ engine components.
- 1.2.18 Turbo charged engines.
  - 1.2.18.1 Check freedom of rotation and check for damage to compressor. Turbo housing for cracks/damage.
  - 1.2.18.2 Check waste gate and actuator for leaks, both exhaust and oil.
  - 1.2.18.3 Check linkage for condition. Hoses for condition.
  - 1.2.18.4 Check inlet and upper deck ducting and connecting rubber tubes for condition and security.

### 1.3 Maintenance Records

- 1.3.1 Check for complete airframe, engine and propeller logbooks.
- 1.3.2 Provide AD compliance list. Report any applicable ADs for which compliance is not well-documented.
- 1.3.3 Provide SB compliance list. Report any applicable SBs for which compliance is not well-documented, and identify whether mandatory, recommended or optional.
- 1.3.4 Check for compliance with all Airworthiness Limitations in Section 4 of AMM. If applicable, check for compliance with Airworthiness Limitations on any installed STC's or major alterations. Report any Airworthiness Limitations for which compliance is not well-documented.
- 1.3.5 Check for compliance with overhaul/replacement schedule in Section 5 of AMM, report any items for which compliance with recommended overhaul/replacement times is not well-documented. (Mags, alts, vac pumps, etc) Note, Barons certified into known ice must have dry air pumps replaced at 600 hours to retain certification. Report time of last magneto 500 hour.
- 1.3.6 Verify date of most recent 91.411/91.413 biennial certifications (static system, altimeter/encoder, and transponder).
- 1.3.7 Confirm that aircraft is equipped as shown in equipment list.

**IMPORTANT: Please report your Phase 1 findings to Safety and obtain authorization to proceed with Phase 2.**

## PHASE 2

### 2.1 Landing Gear, Wheels, Brakes

- 2.1.1 Check NLG gear for leaks, visible corrosion or rust on the gear strut. Check for looseness in the mounting, piston, or barrel.
- 2.1.2 Check shimmy damper for security and bends or leaks. Tow pin for area for damage.
- 2.1.3 Check NLG retract linkage and steering linkage/boots.
  - 2.1.4 Check MLG gear for leaks, visible corrosion or rust on the gear strut. Check for looseness in the mounting, piston, or barrel.
- 2.1.5 Check MLG retract linkage.
- 2.1.6 Check wheels for heavy pitting corrosion on exterior.
- 2.1.7 Check MLG and NLG fairings for cracks, security, and overall condition.
- 2.1.8 Check tires for condition.
- 2.1.9 Check brake calipers for leaks, brake disc/pads for obvious excessive wear. 2.1.10 Check brake hoses for chafing, condition, date codes.
- 2.1.11 Gear doors for damage, loose hardware, cracks, and proper fit.
- 2.1.12 Gear retract test.
  - 2.1.12.1 Conduct full gear retract test.

2.1.12.2 Check gear rigging tolerances, including down tensions, free play in the gearbox, up lock clearances and any sign of bent extension arms.

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2.1.12.3 Check for looseness in lift leg joints or pivots when gear is at mid travel.

2.1.12.4 Gear in transit speed. (14v 11-13 seconds, 28V 4-8 seconds with proper power cart applied)

2.1.12.5 Emergency extension system test.

## **2.2 Cabin**

2.2.1 General condition of seats, seat belts, and interior panels.

2.2.2 Check brake master cylinders for leaks. Hoses for age and condition. 2.2.3

Check windows for security and clarity and free of cracks.

2.2.4 Check engine controls for smooth operation and adequate cushion.

2.2.5 Check all interior lights (including instrument lighting) for proper operation.

2.2.6 If installed, oxygen bottle for life limit and hydrostatic date.

2.2.7 Check fuel quantity indicators for proper operation. (Functional checks only; please do not defuel the aircraft for this check.) Fuel selector valves move freely.

2.2.8 Check headliner for evidence of leaks at doors or windows.

2.2.9 Fire extinguishers, check for proper weight if installed.

2.2.10 Verify that aircraft cabin contains airworthiness certificate, registration certificate, POH, current W&B, applicable avionics operating manuals, and hand

microphone.

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## **2.3 Airframe**

- 2.3.1 Check entire exterior of airframe for significant cosmetic flaws (e.g. cracks, missing or discolored paint), corrosion in exhaust trail area, antenna base cracks.
- 2.3.2 Check tail tie down and aft vertical spar for evidence of tail strike damage.
- 2.3.3 Check wing tips are correct for model of airplane. If equipped with tip tanks, check for dents, leaks, delimitation of fiberglass, proper fit and condition of fuel caps, proper venting, and opaqueness of visual fuel level indicator windows.
- 2.3.4 Check underside of wings for evidence of fuel leaks, with concentration at fuel quantity senders, access panels, and drains.
- 2.3.5 Check pitot heat for proper operation. Stall vane heat if equipped as well as static port heat if equipped.
- 2.3.6 Check wing flaps for excessive chafing. Flap bearings/hinges for excessive wear. Flap skins for cracks.
- 2.3.7 Check flight controls for freedom of movement including trim systems.
- 2.3.8 Check wing bolt bath tub fittings for corrosion and signs of proper draining.
- 2.3.9 Check for required placards

2.3.10 Check vertical and horizontal attach points for damage. Removal of tail cone panels required.

2.3.11 V-tails, check ruddervator trim cables for corrosion, proper tension, and installation.

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2.3.12 Report any obvious modifications or repairs to the airframe. If so, are there corresponding 337's.

2.3.13 If G1000 equipped, is software current?

2.3.14 Check areas of any major repairs noted in logs for quality of work and correctly repaired.

2.3.15 If equipped with engine data monitor, download data from unit and send data to Savvy.

**—END—**



