

## **Cirrus SR2x 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:

- 8 hours for normally aspirated airplanes
- 10 hours for turbocharged airplanes.

### **PHASE 1**

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

1.1.1 Perform “Airplane Operational and Functional Check” in accordance with Cirrus Airplane Maintenance Manual Section 05-30.

#### **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, with concentration on the area between the fuel injector nozzle boss and the top spark plug boss. If a suspected crack is found, verify with dye penetrant and please provide a high-resolution photograph of the results.

1.2.3 Check pushrod housing seals, cylinder bases, and rocker covers for oil leaks.

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.

- 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. Check all Molex connectors to ensure that they have blue weather seals.
- 1.2.9 Check engine baffles for cracks, particularly the side baffles. Check inter-cylinder baffles for proper position. Check flexible baffle seals for condition and proper orientation.
- 1.2.10 Check forward induction duct for chafing on the top of the engine case, and for excessive wear at the induction air filter attachment.
- 1.2.11 Check engine mount for corrosion, heat signatures, damage to powder coating.
- 1.2.12 Check alternate air door assembly for cracking. Check bellcrank for wear.
- 1.2.13 Exhaust system examination for exhaust leaks, cracks, bulges. For normally aspirated engines, check mufflers (particularly flame cones) and heat exchanger.
- 1.2.14 For TAT-turbonormalized engines, check the following items:
  - 1.2.14.1 Has wastegate interconnect been upgraded to cable linkage?
  - 1.2.14.2 Remove slave wastegate clevis pin and check it for wear.
  - 1.2.14.3 Check V-band clamps for condition and security. (NOTE: These clamps are life-limited at 350-450 hours per the Airworthiness Limitations section of the TAT ICA.)
  - 1.2.14.4 Check intercooler mount flanges for cracks.
  - 1.2.14.5 Check turbo support rods, bolts and attach brackets for wear.
  - 1.2.14.6 Check turbo return check valves for chafing against heat shields.
  - 1.2.14.7 Check tailpipe safety support brackets for cracks.

- 1.2.14.8 Check exhaust plumbing for cracks, particularly at the reinforcement tabs welded to the upper manifold/collector.
- 1.2.14.9 Check breather tube junction to tailpipe for coking.
- 1.2.15 If air conditioning is installed, check a/c drive grommets for wear. (When you move the a/c pulley, there should be no movement of the isolator bushings.)
- 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 backplate for cracks. If TKS installed, check security of boots, tubes and brackets, and check spinner for chafing from TKS tubes.
- 1.2.17 Check cowling for damage and repairs, with concentration on exhaust-induced heat damage (inside or outside).

### 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 in ICA for Tornado Alley Turbo turbonormalizer and Precise Flight oxygen system. 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, particularly flexible fuel, oil, and brake hoses. Report any items for which compliance with recommended overhaul/replacement times is not well-documented.
- 1.3.6 Report due date of CAPS rocket/canopy, CAPS reefing line cutters, and (if installed) AmSafe airbag restraint system.
- 1.3.7 Verify date of most recent 91.411/91.413 biennial certifications (static system, altimeter/encoder, transponder).

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

## PHASE 2

### 1.4 Landing Gear, Wheels, Brakes

- 1.4.1 Check NLG pivot bushings for play, rebound bumpers for cracking (or missing), pucks for bulges or cracks. (Jack aircraft or weight tail for these checks.)
- 1.4.2 Check NLG strut for cracks.
- 1.4.3 Check MLG strut grommets for splits, migration.
- 1.4.4 Check MLG and NLG fairings for cracks, security, and overall condition.
- 1.4.5 Check tires for condition.
- 1.4.6 Check brake calipers for leaks and overheating (sticker color).
- 1.4.7 Check brake hoses for chafing, condition, date codes.

### 1.5 Cabin

- 1.5.1 Check brake master cylinders and parking brake valve for leaks.
- 1.5.2 Check windows for security. (Check from outside by pressing around edges looking for loose bonds or sealant.)
- 1.5.3 Check PFD, MFD and GPS screens for condition (scratches, etc.) Check revision status of PFD and MFD. Check Garmin 430s for memory battery error messages.
- 1.5.4 Check engine controls for smooth operation and adequate cushion. If throttle is stiff at detent, disconnect prop cable at prop governor and re-check. (If prop governor bellcrank does not spring back readily, suspect old-style plastic cap on governor that will need to be replaced with new-style metal cap.)
- 1.5.5 Check all interior lights (including instrument lighting) for proper operation.
- 1.5.6 Check fuel quantity indicators for proper operation. (Functional check only; please do not defuel the aircraft for this check.)
- 1.5.7 Check headliner for evidence of leaks at door or rear window.
- 1.5.8 If S-Tec autopilot installed, check backlighting.
- 1.5.9 If Sandel EHSI installed, power up and check lamp life annunciation. (Lamp should be replaced at 200 hours.)

- 1.5.10 ELT, remove batteries, look for leaks and corrosion. Perform functional check.
- 1.5.11 Fire extinguishers, check for proper weight.
- 1.5.12 If TKS installed, check for leaks under aft seats and under floor near TKS pump.

## **1.6 Airframe**

- 1.6.1 Check entire exterior of airframe for significant cosmetic flaws (e.g. cracks, missing or discolored paint), belly burns in exhaust trail area, antenna base cracks.
- 1.6.2 Check tail tiedown and aft vertical spar for evidence of tail strike damage. Check whether black tail skid plate is installed.
- 1.6.3 Check underside of wings for evidence of fuel leaks, with concentration at fuel quantity senders.
- 1.6.4 Check pitot heat for proper operation.
- 1.6.5 Check wing root fairings for security.
- 1.6.6 Check wing flaps for excessive chafing.
- 1.6.7 Check wing walk areas for condition.
- 1.6.8 Remove LH aileron and check the hinges. (This aileron is supposed to be removed during annual inspection, which is why we sometimes find damage here.)
- 1.6.9 Use an ohmmeter to check the resistance from the tailpipes to the fuel caps. (Should not exceed 100 ohms.)
- 1.6.10 If TKS is installed, check for proper operation and panel saturation over the full length of all panels.
- 1.6.11 Verify that aircraft cabin contains airworthiness certificate, registration certificate, POH, current W&B, applicable avionics operating manuals, hand microphone, and egress hammer.

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