

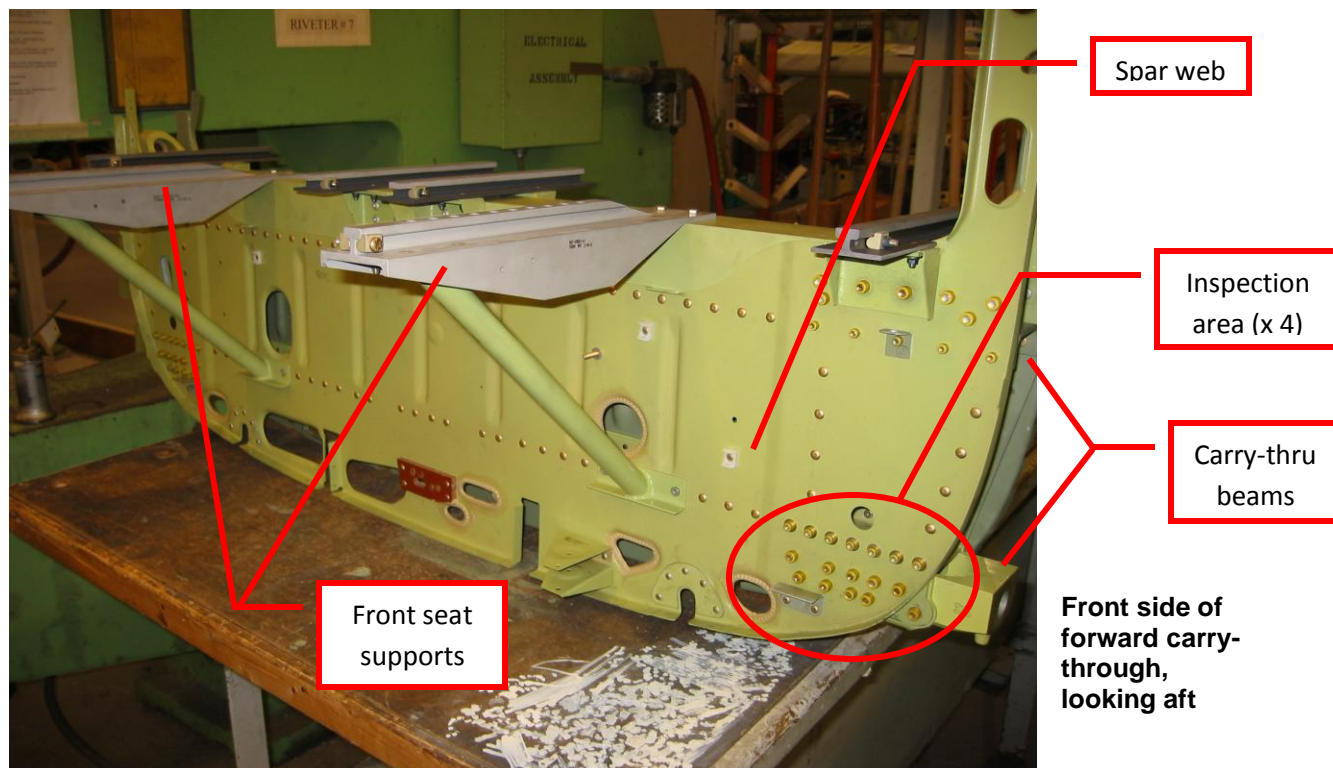


# AD 90-08-14/95-04-03

ABS Air Safety Foundation Spar Web Investigation  
Overview Information  
August 17, 2010

## What is a spar web?

Visualize two I-beams, one above the other. Bolt a thin, flat piece of metal on the front and back of each I-beam, so all together the beams and flat plates form a box. The I-beams are the main wing spar structure as it goes through the airplane's center section. The flat plates are the spar web.



## Why are there two Airworthiness Directives?

Spar web cracks were first found in Barons. AD 90-08-14 provides requirements for inspecting for and repairing spar web cracks in Barons and Travel Airs. Similar cracks were later found in Bonanzas. AD 95-04-03 requires the same inspections and repairs to Bonanzas and Debonairs.

## Which models of Beechcraft are affected?

The ADs apply to H35 – V35B Bonanzas, all Debonairs, Model 33 and 36 Bonanzas through 1987 models, all Travel Airs and Model 55 and 56 Barons, and Model 58 Barons through 1987 except 58TCs and 58Ps. See the Airworthiness Directives for specific serial number effectivity.

## Where do the Beech Mandatory Service Bulletins come in?

Airworthiness Directives generally refer to manufacturer's data to direct compliance methods. The current ADs refer to Beech Mandatory Service Bulletin (MSB) 2269 rev. 1 (Barons and Travel Airs) and MSB 2360 (Bonanzas and Debonairs), respectively.

### **Didn't the MSBs change?**

Yes. In mid-2004 Beech updated MSB 2269 rev. 1 to MSB 53-2269, and MSB 2360 to MSB 53-2360. These revisions were made, according to Beechcraft, at the request of the FAA in anticipation of changing the Airworthiness Directives to remove the option of recurrent inspections of some spar web cracks. The ADs themselves, however, have not been changed (at least not yet), and still refer to the pre-2004 MSBs for compliance requirements.

### **So what do the current Airworthiness Directives require?**

Affected airplanes must receive dye penetrant inspections for cracks in the four lower, outboard areas of the forward carry-thru spar web (two areas each on the forward and aft side of the carry-thru) following this schedule in accordance with MSBs 2269 rev. 1 and 2360:

- The first required inspection occurs at 1500 hours Time in Service (TIS).
- The inspection must be repeated every 500 hours TIS thereafter if no spar web cracks are found.
- If cracks below certain lengths and not meeting other criteria are found, the areas(s) with those cracks must be reinspected every 200 hours TIS thereafter. Non-cracked areas remain on the 500 hour TIS inspection cycle.
- Longer cracks or cracks meeting certain other criteria require repair using a doubler as part of a Beechcraft kit. The area with the doubler does not have a required inspection until 1500 hours TIS after doubler installation. Other areas where the doubler is not installed remain on their individual 200- or 500-hour TIS inspection cycles as required.

### **What may change?**

If the Airworthiness Directives are changed, the only change is that they will refer to MSBs 53-2269 and 53-2360 for Barons/Travel Airs and Bonanzas/Debonairs, respectively. This will require installation of the Beech repair doubler for spar web cracks of any size.

### **Why is this an issue?**

There has never been an accident or incident attributed to failure of the spar web. The spar web doubler is very challenging to install. Even mechanics expert at its installation say great care must be taken to avoid damaging the critical structure beneath the spar web during doubler installation, and to maintain airplane rig and alignment when removing and reinstalling Huck bolts that hold the carry-thru structure together as is required during doubler installation. ABS-ASF hopes to maintain the existing AD compliance requirements to limit the installation of spar web doublers to only those airplanes that may actually need repair.

### **Why is the FAA considering this change?**

In 1996 FAA adopted a policy letter that prevents flight with known cracks in load-bearing structure in all types of airplanes. This is sometimes referred to as FAA's "no cracks" policy. The proposed AD changes are meant to bring these requirements into conformity with FAA guidance for other types of airplanes.

### **Then why would an investigation help?**

FAA permits exceptions to its "no cracks" policy if the cracked structure can be proven to carry design flight loads without a reduction in load-carrying capability.

**For more background see the Technical Resources pages of [www.bonanza.org](http://www.bonanza.org), and:**

- [Spar web background and by-model survey results](#). This Powerpoint is an excerpt from a presentation ABS-ASF made to the FAA in July 2009. Read the Speakers Notes boxes for details.
- [ABS-ASF spar web survey results](#). Crack reports and related data from over 1800 member airplanes.