

But the nagging problem of liability continues to crop up and causes significant concern among OEMs. The question they rightfully ask is why should they be held accountable for the reliability of their product if parts made by someone over whom they have no control are used in the product's maintenance or repair.

The PMA Approval Process

There is a two-step process required to get PMA approval. First, there is design approval, also known as data approval. This is obtained through the FAA Engineering Aircraft Certification Office (ACO). There are three methods of accomplishing design approval: identity, licensing agreement with the OEM, or by designing and building your own substitute part.

Identity Method

In the identity method, the manufacturer requesting PMA approval must prove to the FAA that the part is identical in every way to the OEMs. This is done by submitting drawings and specifications to the FAA for its review. According to many OEMs, this is where the problem comes in. They argue that these specifications are obtained through reverse engineering. The prospective manufacturer buys the original part, studies it, measures it, and develops a set of drawings and specifications. The expense of initial research and development being paid by the OEM, the new manufacturer now can sell the part for less.

Reverse engineering does take place, but when the FAA says the drawing and specifications must match the OEMs, they mean match. Any deviation at all is cause for immediate rejection, and because the specification is being compared to proprietary information the FAA cannot indicate what area or areas are unacceptable. Many things in the manufacturing process, such as hardening processes and heat treatments, are not readily discernible simply by looking at the part. Acceptance by identity means the part will be an exact duplicate in every way.

Licensing Approval

The second method of getting design approval, a licensing agreement, is very straightforward, with drawing and specifications supplied by the OEM. This practice is common, especially for airframe manufacturers who may have a difficult time keeping up with normal production schedules, let alone spare parts.

Designing a Substitute Part

The third method of getting design approval is for the new manufacturer to design and build the substitute part from scratch. It would have to run its own tests, subjecting the part to loads, pressure, and environmental stresses to substantiate to the FAA that the new part is of equivalent strength, durability, and safety. This method also implies that the part is as good as the original.

After acceptance by one of the three methods, final approval must be made by one of the FAA's manufacturing inspection district offices (MIDO). These are not engineers; rather they are individuals who know the manufacturing processes and techniques necessary to produce the part. Their task is to evaluate the company's ability to produce the