



Just a Little Tweak Here and There ...

One of the great things about working in an environment of safety and aviation enthusiasts is that, invariably, every conversation will wind its way to the subject of flying or airplanes. Or, in my case — aviation maintenance. My colleagues love chatting about their respective (and prospective) aircraft, and someone is always pitching the latest in technology. Nothing is safe with these guys. From avionics and instruments to full engine modifications — they are always ready for the next big soup up. And by “soup up,” I mean *more power* (cue simian-like grunts *here*).

For me, the affable banter often brings to mind the character Tim “the Toolman” Taylor, the star in the popular 1990s television show *Home Improvement*. His attempts at juicing up even the most mundane electrical appliances tended to end in spectacular fashion (disaster). It was very likely because, quite frankly, no one was helping him or monitoring his attempts at “upgrades.”

Rest assured the guys I work with are consummate professionals and, although one or two of them might be known to dream big on occasion, when it does come time to get the work done, they rely on skilled, A&P certificated technicians or repair facilities. They assure the parts they use are procured from reputable manufacturing companies who adhere to FAA regulatory standards for airworthiness. In addition, other subject matter experts weigh in on what is about to be attempted. The way this happens is through the FAA Form 337 for Major Repair and Alterations.

This form is used for airframe, powerplant, propeller, and appliance major repairs and/or alterations. Say you want to switch your factory-installed piston-driven engine out for a turboprop. No small job, right? According to 14 CFR Part 43, Appendix A; “[a] conversion of an aircraft engine from one approved model to another ...,” and “changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer ...,” are major alterations and therefore require a Form 337.

That is a lot to take in. A good first step is to check out the job aid produced by the FAA’s Aviation Maintenance Division. This handy document can be found here <http://go.usa.gov/DT2G>. It has a wealth of information that can guide you through the Form 337 process from start to finish. Next, you need to find a knowledgeable, FAA-approved mechanic and contact an aviation safety inspector

(ASI) from your local FSDO, or a designated airworthiness representative (DAR) who can approve the work. To find a DAR near you, you can go here, <http://av-info.faa.gov/designeesearch.asp>.

Typically the person performing the maintenance will prepare the form. Most of the information required is pretty straightforward, with some parts calling for a bit more time and effort such as the drawings, design, and specifications of the procedure. Once you have the required data, the drill is to submit it to an ASI or DAR. That individual can hand off or ask another ASI for help, go out for an engineering assist, approve the package, or deny it. If it should be denied, the reasons for that decision will be provided in writing.

If the denial indicates the need for a supplemental type certificate (STC) that means the action is beyond field-level approval. The requester will have to file for a STC or an amended TC (<http://go.usa.gov/DbYR>). Engineering assists usually occur when the request involves something that has rarely been tried or is unique in concept. Such cases may require additional coordination with a designated engineering representative (DER) in order to ensure that the end design does not render the aircraft unsafe. The package can also go out for evaluation, meaning the procedure does not automatically qualify for a field approval and that it will require further data to review.

If approved, your Form 337 will return with the appropriate signatures (blocks 3, 6 and 7) indicating everything has been (will be) done in accordance with the regulation and the aircraft is approved for return to service. That last part might require a field inspection or a check flight, but once accomplished, the rest is just filing the paperwork. This is done in duplicate, with one signed copy going to the aircraft logs and the other copy heading to the Aircraft Registration Branch of the FAA. This submission should be done within 48 hours of the aircraft being returned to service.

Evolving — little tweaks here and there that make things better, easier, or less time consuming — is a fundamental part of what makes humans human. By taking steps to make sure we don’t inadvertently put ourselves or others in peril in the interim, we prove that our safety conscious has evolved as well. Cue simian-like grunts for that.