

RST Kits, the FAA, and You

RST Applications Note AN-1
p/n 81331



RST ENGINEERING

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The installation and operation of pilot-crafted products onto the pilot's own certificated aircraft has been a source of confusion to mechanics, inspectors, FAA general aviation offices -- as well as to the pilot. Perhaps it might be easiest to clear up the confusion by reference to three FAA documents that bear directly upon the question:

1. "Aircraft Alterations", a booklet published by the FAA Western Region
2. Advisory Circular 20-62C dated 26 Sep 76
3. 14CFR21. "FAR part 21" -- "Certification Procedures For Products and Parts"

The bottom line of all these references is that there are as many interpretations of what makes a part "legal" as there are persons interpreting the regulations. There is, however, one overriding theme throughout the pages and pages of documentation, and that is the first person in the installation approval chain -- the *installing certificated mechanic* (A&P) -- that makes the initial determination as to the type of installation (major or minor) and the paperwork necessary to make an approved installation.

FAA reference (1) above specifically states that it is the installing mechanic that determines whether an installation is major or minor. The document gives two examples -- a simple radio installation in a light single-engine aircraft (minor) and a complete radio package including exterior skin drilling for a pressurized turbojet (major). The comment is then made that most installations fall somewhere between these two extremes and it is the EXPERTISE of the *installing mechanic* that determines whether a simple logbook entry (minor) or major paperwork blizzard (form 337) will be required.

The worst possible scenario occurs when the *installing mechanic* is not skilled in minor radio installations and asks for help from the Airworthiness Inspector, who in turn calls the local FAA district office for guidance, who refers it to the Engineering Branch, who passes the question on to Oklahoma City, who bucks it up the ladder to Washington for a policy decision...while you wait and wait for an answer. And the whole thing could have been avoided in the first place by selecting a mechanic who specializes in simple radio installations instead of one who specializes in paperwork nightmares.

Fortunately, you have the option of choosing your *installing mechanic*. If your normal mechanic isn't skilled in minor radio installations, you will find it to your **great** time and money advantage to locate a skilled mechanic to perform the installation, perhaps as a consultant to your regular mechanic.

We cannot emphasize too strongly the importance of utilizing the services of a mechanic skilled in minor installations and not major bureaucratic paperwork hassles.

The basic FAR that allows you, the pilot, to build your own avionics is 21.303 (b)(2). To comply with the letter and the spirit of that law, RST kits were designed to be built *only* by the operator or the owner of the aircraft upon which they will be installed. If you enjoy the thrill of assembling and using your own craftsmanship while

flying, then you are our kind of people. If, on the other hand, you plan on taking this kit to your local electronics shop for assembly, then you are in direct contradiction with both the FAA and RST's interpretation of part 21.

Although FAR 21 allows owner-pilots to manufacture avionics for their own aircraft without having to go through the PMA/STC/TSO process, somewhere along the line that radio is going to have to be inspected for airworthiness. The Advisory Circular (2) above says that the kits should be inspected:

“...by properly certificated or authorized persons to assure that the parts meet all applicable airworthiness for use on aircraft...”

The best interpretation of this policy guidance we can offer is that your *installing mechanic* should be on this project from the get-go. We have absolutely no idea what your mechanic's requirements for inspection are going to be, so a short discussion with the mechanic **before** you begin construction will pay dividends at the conclusion of your project. We do **not** recommend bringing the finished, sealed radio to your mechanic and asking for a blessing sight unseen.

RST is very grateful to those of you in the aviation community -- pilots, mechanics, and FAA folks alike -- that believe that by working together in a spirit of cooperation that flying can be made safe and more fun for all of us.

Thanks,

Jim Weir
VP Engineering, RST

AIRCRAFT LOGBOOK

VOR	#	#	MAINTENANCE	DATE	ENTER HERE DETAILS OF WORK PERFORMED WITH
CHECK	1	2	PERFORMED	19 <u>94</u>	NAME OF CERTIFICATING MECHANIC AND SIGNATURES.
			<i>Install audio panel</i>	<i>25 Mar</i>	<i>Installed RST-504 Audio Selector Panel s/n 14-963 in center radio stack top of panel using 4-40 hardware and locking nuts. All work performed in accordance with manufacturer's recommendations, AC-43-13-1A and 43-13-2. Fused with 1 ampere fuse. Aircraft must be test-flown before actual IFR flight. Performance is in accordance with FAR 21.303(b)(2) and FAR 23 New EW -- 1422.8 New EWCG -- 34.6 aft datum New Useful 724.2 James P. Weir Jr. 1750867 A&P</i>
SAC VOT	3		-2	Test flight audio panel	27 March Test flown on
SAC ILS.				Operation of audio panel and marker beacon normal. All audio switching functions normal and test OK. All radios check OK for futher flight.	
					Gail Lathrop 2722203 Commercial Owner - Pilot