

STC Compatibility with Previous Modifications

Not all Supplemental Type Certificate (STC) modifications are compatible with each other.

Listed are some items that might not be compatible.

- Installation of floats and a gross weight increase—
Insufficient structural strength and buoyancy
- Installation of satellite communications system and GPS/WAAS navigator—
Loss of navigation during IFR flight
- Installation of floats and an increase in horsepower—
Insufficient aircraft stability
- Installation of skis and a propeller with increased diameter—Insufficient propeller clearance



Airplanes modified for off airport operations



Cessna 170B modified with Lycoming O-360 engine, constant speed propeller, STOL Wing, heavy duty landing gear, and avionics upgrades



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How Do I Determine Supplemental Type Certificate (STC) Compatibility?



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STC Compatibility

When you purchase a Supplemental Type Certificate (STC) to modify your aircraft, it states in the limitations section of the STC that it is the responsibility of the installer to determine STC compatibility with previous aircraft modifications.



Airplane modified with wheel penetration skis

What does this mean? Is it the responsibility of the installer to determine compatibility? Didn't the FAA do that when they approved the STC? Is this something that I really need to be concerned about? This pamphlet will provide some

answers to those questions; point out some of the hazards associated with not properly determining compatibility of the aircraft modification and what to do if the modifier is having difficulty determining the compatibility of the aircraft modification.



Piper PA-22 modified with floats and STOL wing

Who is responsible for determining compatibility of all my airplane modifications?

When modifying an aircraft, the installer has the responsibility to determine if this modification is compatible with all the other modifications on the aircraft. This responsibility lies with the installer of the STC and not the FAA. By signing off the installation, the installer is stating that this modification is compatible with all other modifications on the aircraft. This can only be determined on an aircraft-by-aircraft basis.

When the FAA approves an STC modification, only the modification specified on the STC is evaluated. For example: STC SA00299NY approves an increase in gross weight for the DeHavilland DHC-2 Mk. 1 to 5,500 pounds when the aircraft is equipped with EDO 4930 floats. This STC also has provisions for window strengthening for airplanes previously equipped with enlarged rear windows. Before the STC was issued, it was found that all these modifications were compatible with each other. Since it has been identified in the STC documentation that the aircraft can be operated at 5,500 pounds with EDO 4930 floats and enlarged aft windows, the installer knows that all these modifications are compatible. However, if the installer adds an increased baggage area STC, the installer will need to determine if this STC is compatible with the gross weight STC and other previous modifications. This can be very difficult for highly modified



Piper PA-18 modified with belly pod and large tires

aircraft or for aircraft that incorporate complex changes. For modifications that are difficult to determine compatibility, the aircraft modifier should contact their local Flight Standards District Office or Aircraft Certification Office.

How do I determine compatibility?

For some modifications, the means for determining compatibility has been included in the installation instructions. A good example is the installation of a GPS/WAAS navigation system. The installation instructions provide the installer with instructions on how to verify that the GPS is not susceptible to Electro Magnetic Interference (EMI). If this compatibility check is not completed, the GPS system can become unreliable during IFR navigation.

Most STC installation instructions do not provide information on determining compatibility with previous modifications. Because of this, it is more difficult for the installer to determine compatibility. Answering the following questions should help.

- Does the modification change aircraft limitations? Airspeeds? Center of Gravity? Gross weight?
- Does the modification effect the aircraft structure and or aerodynamics?
- Does the modification change an area that was previously changed by STC, Field Approval or Service Bulletin?
- Does the modification change the EMI characteristics? Are you changing wire routing? Adding communication systems (Ground based or Satellite)? TIG welding?

Answering yes to any of these questions would require further investigation to determine if your installation is going to be compatible with the previous modifications.