



Federal Aviation Administration

Memorandum

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From: David W. Hempe, Manager, Aircraft Engineering Division, AIR-100

DHempe

To: SEE DISTRIBUTION

Subject: Questions and answers pertaining to the modification of Technical Standard Order (TSO) Articles via the Supplemental Type Certificate (STC) process.

The policy contained in this memorandum provides guidance to all Aircraft Certification Offices (ACOs), the Engine Certification Office (ECO), all Manufacturing Inspection District Offices (MIDOs), all Manufacturing Inspection Satellite Offices (MISOs), the Flight Standards Aircraft Maintenance Division (AFS-300), and all Flight Standard District Offices (FSDOs) when evaluating STC projects that include the modification of a TSO'd article.

The information contained in this memorandum highlights and clarifies the guidance contained in the current orders and advisory circulars that are dedicated to the subject of evaluating and issuing TSO Authorizations (TSOAs) and STCs.

Any questions on the information in this memorandum can be forwarded to Mr. Renton Bean, Aircraft Engineering Division by email: renton.bean@faa.gov.

(1) **Can a third party modify an article approved via a technical standard order authorization (TSOA) using the supplemental type certificate (STC) process?**

FAA Order 8110.4C, Type Certification, Paragraph 4-10(c), When Will the FAA Not Issue an STC?, states in relevant part that “[T]he FAA will **not** issue an STC to do the following: c. Approve design changes to TSO articles.” (*Unless as part of a design change for the product, see Order 8110.4C, Paragraph 4-9.c.*)

However, guidance addressing when the FAA will issue an STC can be found in FAA Order 8110.4C, Paragraph 4-9.c., which states: “The FAA will issue an STC for the installation of an article approved by a TSO, when the addition of the TSO-approved article is a major change in type design for the product on which it is being installed. Persons other than the TSO

authorization holder may get approval for design changes to the TSO article as part of the approval for a change to the TC'd product under 14 CFR part 43 **or** under the applicable airworthiness regulations. In any case, the STC must address installation requirements of the changed TSO article on the certificated product.” (*Emphases added.*)

(2) **If someone is installing something in accordance with data approved under an STC, do they need to have a limited avionics repair station rating?**

The approval of avionics equipment in aircraft may be accomplished by any of the following means:

- Anyone, including a licensed airframe and power plant mechanic may perform the work, but an IA rated mechanic must sign the work that was accomplished and return the aircraft to service.
- A manufacturer, under Title 14 of the Code of Federal Regulations (14 CFR) § 43.3(j).
- A properly rated repair station.
- An Air Carrier with an approved maintenance program.

(3) **If the TSO'd article is altered by simply externally bonding a filter to the display portion of the article, has the TSO'd article been modified?**

Yes. The article has been modified, such that the display readability requirements must be re-evaluated to determine its suitability for safe flight operations per the requirements of the STC.¹ Please note also that the original evaluation for installation is also done via the STC process, as the TSO authorization is a design and production approval only. Note also that the modification nullifies the design associated with the TSO authority.

As stated above, the filtered lens that modified the TSO'd article, must be re-evaluated, via the STC process, to ensure that it continues to meet the TSO'd usability requirements. During the STC ground and flight evaluation, the modified TSO article is re-evaluated to ensure the usability requirements and documentation of the modification are uncompromised. Success is evident by virtue of making the TSO'd article as being modified by STC xxxxx, so that in the event the original TSO article manufacturer receives the article for warranty work, they will know the event of the modified article.

If it cannot be shown that a modified TSO article continues to perform under its TSO approval, then the TSO markings must be removed from the article. This is not the case, as the modified article has been re-evaluated and does perform its original TSO functions. However, in this case, the modified article must be marked as being modified by STC xxxxx.

¹ This usability requirement might be part of the industry consensus standard, upon which the TSO is based, and a specific value of luminosity and brilliance may not be specified.

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