

TSO Process Improvement Initiatives

Presented to: TSO Workshop

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**Federal Aviation
Administration**



TSO Program Activities

- **International harmonization of TSOs**
 - TSO Workshop – Denver, CO
 - International policy harmonization group for TSOs – regular meetings
- **Tailored certification activity to level of risk via scalable TSO requirements and procedures**
 - Initiated TSO SOC ARC Implementation Team – May 2022
 - New TSO: TSO-C0 (SOC ARC – Initiative 3)
 - Issue TSO Global Revision (SOC ARC – Initiative 3)
 - Draft NTF policy (SOC ARC – Initiative 1)
- **Expedited FAA response time**
 - Issue Order 8150.1D Chg 1 and Order 8150.1SUP (template)
 - Streamline TSO processes for issuance / updates / deviations / feedback
 - Issued FAA Policy Memorandum AIR-600-DM07 for reuse of TSO deviation approvals by CB

Safety Oversight and Certification Aviation Rulemaking Committee (SOC ARC)

- **Tasking in January 2018**
- **Tasked with reviewing all components of the certification and safety oversight system, including:**
 - Changes to regulatory structure and supporting guidance material that may improve the FAA's oversight and certification system
 - Industry processes for meeting standards and ensuring compliance; self monitoring, self-reporting, and self-correcting; implementation of safety management systems
- **FAA and Industry co-chaired activities Jan-Dec 2018**
 - Industry representatives - TSO Holders and Installers
 - Foreign Authorities invited to participate
- **14 Recommendations received December 2018**
- **SOC ARC 2018 Report**

SOC ARC TSO Subteam

- **Tasking in October 2019**
- **Tasked with clarifying recommendations 13 and 14 of the SOC ARC Recommendation Report**
 - TSO Deviations
 - TSO Continued Operational Safety
- **FAA and Industry co-chaired activities Feb-Dec 2020**
 - Industry representatives - TSO Holders and Installers
 - Foreign Authorities invited to participate
- **15 recommendations received December 2020**
- **[SOC ARC TSO Subcommittee 2020 Report](#)**

TSO Subteam Objectives and Recommendations

Objective 1: Incorporate the Safety Continuum into the TSO Program and TSOs

1. Implementation of the Safety Continuum into the TSO process by using a standalone FAA document to provide “Subpart A – General” content.

Objective 2: Facilitate Non-TSO Function (NTF) Integration

1. Resurrect 8110.4C, Change 3 guidance for 14 CFR 21.8(d) approval of NTFs.
2. For Non-TSO Functions, the function needs to be treated in a similar method as TSO with new language in AC 21-50. Supported by data from the 14 CFR 21.8(d) or Special Project. AC 21-50 should be expanded to cover this and should be part of the Objective #3 recommendation.
3. Add language to the Certification Project Notification (CPN) Order to indicate that approved data can be generated at the article level.
4. Incorporate NTF examples into the TSO guidance.

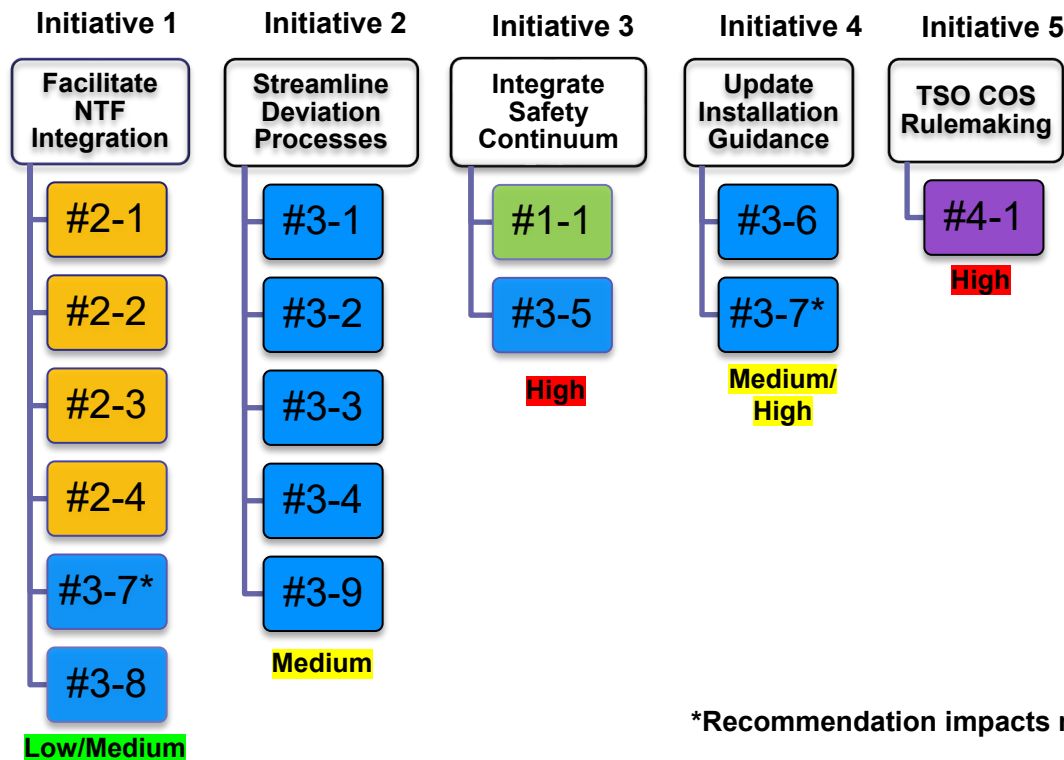
Objective 3: Enhancing TSO Responsiveness to Technical Change

1. Develop a FAA process to review TSOs that have approved deviations.
2. Provide delegation to ACOs for approving similar deviations to TSOs to reduce deviation approval cycle time without revising the FAA Order.
3. Create a public deviation process for TSO.
4. Develop a process for the FAA to address the applicant's ability to reuse previously granted deviations without resubmittal.
5. Follow recommendations of Objective #1 to incorporate safety continuum.
6. FAA to issue a policy memo to clarify the requirements for submission of furnished data to installers.
7. FAA to revise AC 21-50 to further clarify the usage of TSOA-approved data in installation approvals.
8. Implement FAA approval of new and novel design features/technology at the TSO level utilizing FAA Special Projects or the IP process.
9. Develop criteria for triggering different level of TSO changes or revisions.

Objective 4: TSO Continued Operational Safety

1. Amend 14 CFR 45.10 and 14 CFR 21.616 to allow for continued production and delivery in accordance with an FAA-accepted corrective action plan for design deficiencies that constitute TSO noncompliance and do not result in an unsafe condition.

Proposed Initiatives



*Recommendation impacts multiple initiatives

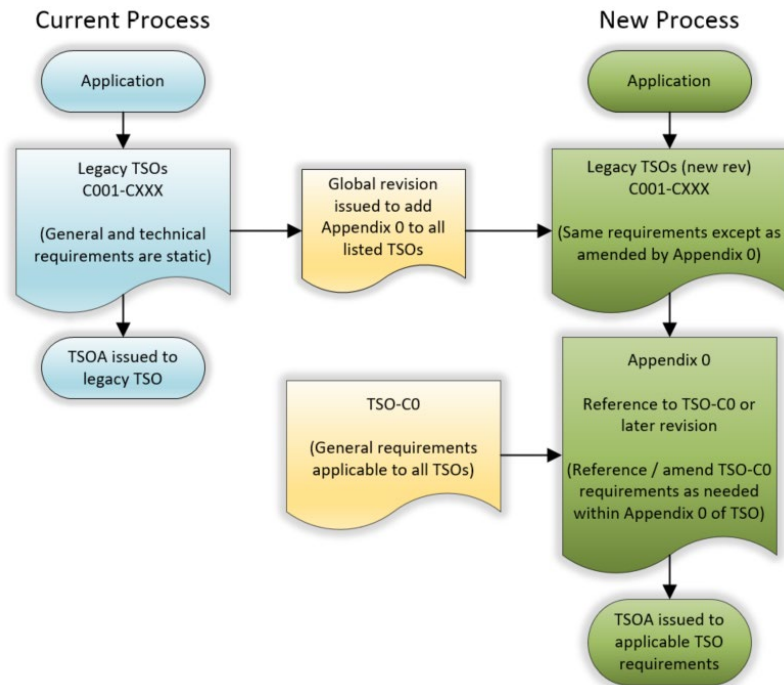
Initiative 3: Integrate the Safety Continuum

Strategy:

Enable use of the TSO process for approval of safety enhancing equipment across a variety of product-types and update TSO structure/requirements to enable ease of technical updates

Goals:

- Establish general TSO requirements scalable for all TSOs commensurate to the level of risk
 - Safety continuum principles
- Implement changes to multiple TSOs directly without requiring individual revisions to each TSO
 - Broadly apply updates to consensus standards referenced in multiple TSOs
 - Ability to apply new processes or standards to outdated TSOs



Initiative 3: Integrate the Safety Continuum

Strategy:

Enable use of the TSO process for approval of safety enhancing equipment across a variety of product-types and update TSO structure/requirements to enable ease of technical updates.

Tasks:

- Form internal FAA team to identify requirements that will be included in TSO-C0
- Coordinate with industry to identify requirements
- Develop new TSO – TSO-C0
 - TSO-C0 will include scalable requirements for all TSOs
- Issue a global revision to all active TSOs to add an “Appendix 0” making reference to TSO-C0
- Draft related updates to 8150.1D and AC 21-46A
- Develop webinar to aid FAA and industry transition to new TSO framework
- Draft new AC 21-56 to create compliance assurance system framework for TSOA holders

Industry Engagement:

- Safety Oversight and Certification Advisory Committee (SOCAC) or similar

Next Steps:

- Draft TSO-C0
- Draft global revision to TSOs
- Draft revision to existing policy
- Draft new AC 21-56

Initiative 2: Streamline TSO Deviation Processes

Strategy:

Improve efficiency in TSO deviation approvals and use FAA-resources most appropriately

Tasks:

- Separate TSO Template from Order 8150.1D
- Develop deviation to 8150.1 to allow an applicant to reuse previously approved TSO deviations in their subsequent applications
 - Issued deviation memo *AIR-600-DM07* on July 12, 2023
- Process improvements to TSO revision process
 - Streamlined/expedited administrative change process
- Measure TSO deviation activity
 - Develop metrics/criteria that will trigger a TSO revision
 - Account for approvals granted by both AIR-600 and -700
- Improvements to existing TSO change process
 - Internal system to streamline TSO deviations within AIR
 - Process improvements to streamline TSO revision process
 - Leverage TSO-C0 framework established in Initiative #3

Next Steps:

- Issuance of new Order 8150.1SUP / 8150.1D, Chg. 1
- Metrics Development and Implementation

Reuse of Deviations: Policy Memo AIR-600-DM07

Purpose:

Delegate the authority to approve TSO deviation requests to AIR-700 (if certain conditions are met) to reduce TSO deviation approval cycle time

- Currently AIR-600 approves all TSO deviation requests with some exceptions
 - Exceptions are detailed in 8150.1D, Chapter 7 and Appendix H
- Deviation to Order 8150.1D
 - Addresses TSO SOC ARC Subcommittee report recommendation 4.2.1.4(1)

Policy:

- Previously granted deviations may be “reused” by AIR-700 as justification for granting TSO deviation requests in subsequent projects directly without going back to AIR-600 for approval
 - AIR-700 must recommend the deviation to be approved for reuse
 - AIR-600 must approve the deviation to be reused
- All conditions must be met for the CB to be able to approve the TSO deviation request:
 - Same TSO and revision level;
 - Same TSO requirements;
 - Proposed compensating factors or features to establish an ELOS are the same or AIR-700 determines that they are sufficiently similar to the previously approved design; and
 - Same applicant is requesting the deviation

Initiative 1: NTF Integration

Strategy:

Ensure an appropriate level of safety is applied when incorporating NTFs into TSO articles

Tasks:

- Clarify application of IP draft Order 8110.112 for TSOA projects
- Modify CPN draft Order 8110.115 to add relevant clarifications
- Develop new policy to standardize and enable approval of NTF data
- Clarify existing policy for installation of TSO articles to address approved NTF data (AC 21-50, AC 21-46, Order 8150.1)

Next Steps:

- Draft new policy
- Order 8110.115 currently in draft
- Issue revisions to existing policy

Initiative 4: Update Installation Guidance

Strategy:

Provide clarification on the use of TSO furnished data and proper use of TSO approved data to show compliance with airworthiness requirements.

Tasks:

- Update AC 21-50 to align with the implementation of the Initiatives 1 and 3 for NTF guidance and Safety Continuum
- Issue policy memo to clarify the usage of furnished data for installers

Associated Activities:

- Initiatives 1 and 3 for NTF and Safety Continuum

Next Steps:

- Draft revisions to existing policy

Initiative 5: TSO COS Rulemaking

Strategy:

Apply risk-based decision making within the TSO process to allow for continued production and delivery of TSO articles for certain TSO noncompliances.

Tasks:

- AIR-600 has proposed this as a proposed rulemaking project
- Amended rule language drafted
 - No further action is planned until the rulemaking effort is approved

Next Steps:

- Dependent on rulemaking opportunities

Contact Information

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