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Maintenance

GUIDE FOR INTEGRATING LOGISTICS ISSUES AND ENGINEERING TECHNICAL CHANGE REVIEWS

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The purpose of this pamphlet is to provide guidance on technical changes that may impact logistics support and/or funding. The guidance is to ensure proposed technical changes are supportable and funded before issuing a formal change, except in cases of safety considerations. It is applicable to OC-ALC and 448 SCMW organizations located at Tinker AFB that have engineering or technical authority to review depot/user/contractor reported problems and implement improvement recommendations. It does not apply to the Air Force Reserve and Air National Guard units, except where noted otherwise. All records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located at **https://www.my.af.mil/gcss-af61a/afrims/afrims** Refer recommended changes and questions about this publication to the Office of Primary Responsibility using AF IMT 847, *Recommendation for Change of Publication*; route AF IMT 847s through the appropriate chain of command to OC-ALC/ENSP.

SUMMARY OF CHANGES

This document is revised to update guidance references. Several of the previous reference documents have been cancelled and replaced by newer publications. Additionally, this document has been changed from an OC-ALC Pamphlet to a Tinker Pamphlet because this guidance applies to both OC-ALC and the 848 SCMG.

1. General Information: This pamphlet contains guidance and a sample checklist to provide minimum information to be considered when providing technical changes in response to a support request or process/product review. Primary technical guidance is provided in other sources. The sample checklist is provided in attachment 3. It is recommended organizations incorporate the considerations identified in the attached checklist into their processes to reduce the possibility of unforeseen impacts to cost, schedule, or supportability. Organizations using automated systems to process technical changes should review their systems to ensure the elements of this pamphlet are incorporated in the automated process. Automated and manual processes should ensure logistics planning and execution personnel are informed of technical changes that may result in changes to costs, parts supportability, or other factors. Additional elements may be added to address needs of particular organizations and the order or sequence of review of the items may be applied as appropriate.

2. Technical Change:

2.1. Definition: Any form of guidance that directs an action either on a one-time basis, or permanently, that differs from published technical order instructions or configuration control documents. In accordance with the role of the chief/lead engineer in the Systems Engineering Plan, the chief/lead engineer or designee will be the final authority to determine that an action constitutes a technical change.

2.2. A subset of technical change is an engineering disposition. It is the guidance or recommendation produced as a result of engineering review of a problem or issue. It normally refers to a decision on a technical issue.

2.3. Technical changes may result directly, or as a follow-up action from the processing or evaluation of any of a wide variety of tasks and activities. These activities will not always produce a technical change, but are identified at attachment 2 as those most likely to include a technical change as part of the final resolution.

3. Guidance:

3.1. Each organization with authority to make technical changes in support of depot or other maintenance activities should ensure that both technical and logistics considerations have been satisfied. Changes to technical orders should not be issued without ensuring changes are materially supportable, funded, and coordinated with the source of supply/repair; except in cases required to correct safety deficiencies. This responsibility should include maintaining acceptable product quality in resolution of issues associated with resolution of Product Quality Deficiency Reports in accordance with Center's quality policy, OC-ALC Manual 90-107.

3.1.1. The responsibility of the technical staff is to ensure technical issues are considered and properly accounted for in the disposition or recommendation to preserve the operational safety, suitability, and effectiveness (OSS&E) of the system. The technical staff, which includes engineers, scientists, and equipment specialists, identifies the requirement for technical changes to maintain OSS&E of the system, product, or item. However, the implementation of a change that requires additional funding for ongoing or future support should be coordinated with the logistics community. The logistics community includes the organization's own item managers, production managers, logistics/materiel managers, and equipment specialists; as well as those of other

organizations that may be affected by the technical change, to include the planning and financial resource managers in the maintenance activities or appropriate contract managers.

3.1.2. Logistics considerations of parts shortages, parts supportability, cost, or schedule; should be taken into account to arrive at a workable solution to the issue addressed by a proposed technical change. The logistics issues below are some of the critical problems associated with implementation of technical change. These questions will usually be generated when field or depot maintenance organizations request technical support. Negotiations may be needed between the technical staff and the corresponding logistics community to ensure change is implemented according to a supportable schedule. Such negotiations may not be possible with time sensitive or safety critical requirements. An example would be work stoppages in depot maintenance. Even if time constraints are imposed, organizations should provide for timely follow-up and review of technical changes to identify and properly manage any impacts to logistics supportability.

3.1.2.1. Supply Shortages: If a proposed technical change will alter (increase/decrease) the usage rate of one or more parts, the recommendation should be coordinated with the appropriate logistics management function for action as required. When prompt responses are required to meet time sensitive criteria, logistics planning actions can be accomplished after-the-fact. Logistics planning must also allow for renegotiation as needed to ensure continued supportability of the item, product, or system. Existing supply shortage problems will be referred to the appropriate logistics function for research.

3.1.2.2. Impacts to Cost, Schedule, or Depot Flow Days: Technical changes will not normally be forwarded without agreement on funding and scheduling. The only exceptions will be for safety issues or other time sensitive reviews. Organizations responsible to provide cost estimates in support of logistics management planning will reply promptly to allow most current cost information to be used for planning purposes. Timeliness will be determined by each organization's internal processes.

3.1.2.3. Parts Supportability:

3.1.2.3.1. Maximum use of existing stock listed, available material should be made. For example, when a maintenance activity reports a technical problem, the first approach must always be to recommend a solution using parts or material known to be stock listed, if feasible. In any case where a new development may be considered to resolve a long-term supportability problem, commercial-off-the-shelf solutions will be used to the maximum extent possible. Note: For commercial derivative aircraft, refer to AFPD62-6, USAF Airworthiness and AFI62-601, USAF Airworthiness.

3.1.2.3.2. If emergency buys must be made, the management organization should ensure appropriate Service (typically AF) and/or DLA systems have been updated to reflect altered requirements. This includes updating parts/material usage in management systems or stock listing actions for new items.

3.2. Sample Checklist:

3.2.1. The sample checklist at attachment 3 has been prepared to assist organizations in their efforts to ensure adequate review of technical changes. Individual organizations may have specific requirements that can be accommodated by tailoring the checklist. For example, systems maintained to Federal Aviation Administration commercial standards will use substantially different processes in obtaining required replacement parts. Any checklist developed for a specific process based on this sample will normally remain with the records of the management office directing the change. If desired, it may be provided to the maintenance organization performing the technical change upon request, or when incorporated into a specific process.

3.2.2. The sample checklist indicates a number of conditions that should be considered as possibilities by the organization reviewing the technical change. The elements of this checklist should lead the reviewer to consider, in sufficient detail, the potential logistics impacts of the technical change; and to contact the appropriate office(s) so that any actual or potential impact can be managed and mitigated as appropriate.

3.2.3. Each likely solution must be weighed against known trade-offs in cost and schedule. These trade-offs may involve both near-term and long-term impacts of the technical change. As specified in the Systems Engineering Plan, the system chief/lead engineer is ultimately responsible to the program manager for the technical aspects of system performance. The chief/lead engineer may delegate decision authority which is usually accomplished through a Performance Based Agreement with the supplier. The person receiving the authority delegation will be knowledgeable about the system, and exercise professional judgment and discretion to ensure the chief/lead engineer is kept informed of significant negative performance impacts.

Robert D. LaBrutta Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD63-1\AFPD20-1, *Acquisition and Sustainment Life Cycle Management*

AFI 63-1201, *Life Cycle Systems Engineering*

AFMCI 63-1201, *Implementing Operational Safety, Suitability, and Effectiveness and Life Cycle Systems Engineering*

AFPD 62-6, *Developmental Engineering*

MIL-HDBK-61A, *Configuration Management Guidance*

OC-ALC Manual 90-107, *OC-ALC Quality Manual*

Adopted Forms

AF IMT 847, *Recommendation for Change of Publication*

Attachment 2

ACTIVITIES MOST LIKELY TO GENERATE TECHNICAL CHANGES

(with related major instructional documents noted for reference)
Note: These are only typical technical change forms and documents from the AF. There are also additional equivalent forms and documents from other services.

AFMC Form 202**,** Nonconforming Technical Assistance Request and Reply
AFMC Manual 21-1, *Air Force Materiel Command Technical Order System Procedures*

AFTO Form 22, Technical Manual Improvement Report and Reply
TO 00-5-1, Air Force Technical Order System
AFMC Manual 21-1, *Air Force Materiel Command Technical Order System Procedures*

AFTO Form 252, Technical Order Publication Change Request
AFTO Form 27, Preliminary Technical Order (PTO) Publication Change Request (PCR)/TO Verification Record/Approval
TO 00-5-1, Air Force Technical Order System
AFMC Manual 21-1, *Air Force Materiel Command Technical Order System Procedures*

AF Form 3925, Engineering Order, (formerly AF Form 2600) and associated continuation sheets or parts lists
AFI 21-402, *Engineering Drawing System*

AF Form 1067, Modification Proposal

Time Compliance Technical Orders (TCTOs)
AFMC Manual 21-1, *Air Force Materiel Command Technical Order System Procedures*
TO 00-5-15, *Air Force Time Compliance Technical Order System*

Repair Enhancement Process and Materiel Control
AFMCI 21-129, *Depot Maintenance Management, Depot Repair Enhancement Process (DREP)*
AFMCI 21-130, *Depot Maintenance Materiel Control*

MISHAP Investigation
AFMC Manual 21-1, *Air Force Materiel Command Technical Order System Procedures*

Material Improvement Projects/ Deficiency Reports (MIP/DR)
TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution*
AFMCI 63-510, *Deficiency Reporting, Investigation and Resolution*
AFI 91-204, *Safety Investigations and Reports*

Software Deficiency Reporting
AFI 91-204, *Safety Investigations and Reports*
TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution*

Engineering Change Proposal (ECP)

MIL-HDBK-61A, *Configuration Management Guidance*

Product Improvement Initiative

AFI 21-118, *Improving Air and Space Equipment Reliability and Maintainability*

AFMCI 23-121, *AFMC Improved Item Replacement Program (IIRP) Guidance and Demand Reduction Imitative (DRI) Guidance and Procedures*

AFMC Form 562, *Improved Item Replacement Program (IIRP) Operating Command(s) and HQ AFMC Pre-Approval*

AFMC Form 563, *Operating Command(s) Improved Item Replacement Program (IIRP) Formal Package Approval*

AFMC Form 565, *Improved Item Replacement Program Effectiveness Indicators*

Source Maintenance, and Recoverability Code Change Report

TO 00-25-195, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipments*

Test Equipment Update

AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*

Deviations/Clarifications/Waivers

AFMCI 23-102, *Purchase Request/Military Interdepartmental Purchase Request (PR/MIPR) Operations*

DLA Forms 339, Request for Engineering Support

DLAI 3200.1/PAM 715.13/NAVSUPINST 4120.30A/AFI 21-408/MCO 4000.18, *Engineering Support for Items Supplied by Defense Logistics Agency and General Services Administration*

IDEA Program

AFI 38-401, *The Air Force Innovative Development Through Employee Awareness (IDEA) Program*

Source Approval

Oklahoma City Air Logistics, *Source Approval Information Booklet*

AFMC Form 343, *Quality Assurance Assessment*

AFMCI 23-113, *Pre-Award Qualification of new or Additional Parts Sources and the use of the Source Approval Request (SAR)*

AFMC Form 761, *AMC/AMSC Screening Analysis Worksheet (including engineering data list, engineering instructions, and support documents)*

AFMC Form 762, *Contract Repair Screening Analysis Worksheet*

AFI 23-105, *Spares Breakout Program*

Attachment 3

TECHNICAL CHANGE LOGISTICS SUPPORTABILITY CHECKLIST (SAMPLE)

To the extent possible, these issues will be resolved prior to implementation of the technical change. Action on issues identified in this checklist should be accomplished by the appropriate logistics specialist. In certain cases a critical safety or maintenance support issue will require response in a very short time. At a minimum, potential impacts to cost, schedule, or other logistics supportability issues should be identified and reviewed shortly after the initial technical change to make necessary adjustments to logistics planning or cost figures.

Parts Shortage/Availability Issues:

1. Verify current parts shortage with prime item manager or data system(s).

2. Check delivery schedule and quantities to determine if further action is required.

3. Check for local purchase availability with approved part numbers and sources.

4. Check local surplus material availability with approved part numbers and Commercial and Government Entity (CAGE) codes.

5. Can item be locally manufactured prior to delivery of needed parts?

6. If cost effective and no known alternatives will satisfy the requirement, can part/material be obtained through emergency buy procedures (other than local purchase)?

7. Determine replacement percent for incoming and in shop assets.

   7a. If replacement percent is low enough, get with the item manager/production management specialist for funded cannibalization action.

   7b. If replacement percent is low enough and part is utilized on other end items, get with item manager/production management specialist for possible funded cannibalization action on other applications.

8. Check applications, programs, and indentures (API) for other affected next higher assemblies (NHAs) and provide other equipment specialists with info copy with their NHAs identified.

9. Update to management systems to reflect changes in parts replacement percentage for future supportability.

10. Will technical change force additional maintenance man-hour usage or increase material costs in any other ways than part usage changes?

11. Will technical change require purchase of additional equipment to complete the task? If new equipment is required, acquisition and installation will be coordinated with engineers and resource managers in the affected maintenance activity.

NOTE: *The following options (12-16) may involve use of parts or materials not specifically identified in existing technical guidance and could pose the potential for performance degradation. For this reason use of any of these options will be evaluated by engineering personnel. The chief/lead engineer is ultimately responsible for technical aspects of system performance in accordance with the Systems Engineering Plan necessary to maintain product quality standards. Organizations will ensure their processes keep the chief/lead engineer informed of technical changes that may significantly impact performance to allow the chief/lead engineer to influence the outcome of the technical change. As with other considerations, time constraints may force this to occur as soon after the initial technical change as possible. Sound judgement must be exercised to decide which cases should be delayed for actual approval by the chief/lead engineer or a designated alternate.*

12. Can part be utilized "as is" during parts shortage on a one time authority with special inspection/deviation (or permanently with an AFTO Form 252)?

13. Can new rework instructions be utilized on a one time authority with special instructions (or permanently with an AFTO Form 252)?

14. Can a substitute part be utilized on a one time authority with part number and National Stock Number identified (or permanently with an AFTO Form 252)?

15. If need is great enough, determine if part or end item can be obtained from Aerospace Maintenance and Regeneration Group.

16. Is check and test of end item feasible until part becomes available?