FSTD Guidance Bulletin 08-01

Missing, Malfunctioning, or Inoperative (MMI) Component Reporting

Purpose:

The information contained herein provides sponsor guidance for notifying the FAA that an MMI component will exceed the 30-day "Repair/Replace-by time frame identified in 14 CFR Part 60 for Missing, Malfunctioning, or Inoperative (MMI) Components.

Scope:

This Guidance Bulletin provides an acceptable means, but not the only means of compliance with Title 14 Code of Federal Regulations (CFR) Part 60 pertaining to the Evaluation and Qualification of Flight Simulation Training Devices (FSTD) for use in FAA Approved Flight Training Programs. If an applicant chooses to utilize the approach described within this Guidance Bulletin, that applicant must adhere to all methods, procedures, and standards herein. Should an applicant desire to use another means, a proposal must be submitted to the National Simulator Program Manager (NSPM) for review and approval prior to implementation. This Guidance Bulletin does not change regulatory requirements or create additional ones, and does not authorize changes in, or deviations from, regulatory requirements.

Approval: Harlan G. Sparrow III
National Simulator Program Manager

REVISION HISTORY		
Rev	**Description of Change**	**Effective Date**
0	Original	12/16/2008
1	Added Attachment A.	11/30/2009
2	Attachment A enhanced for additional clarity (sound). Convert document to revised format.	04/12/2010
3	Update email address for Duty Officer In-box	05/17/2010
4	Modified Attachment A to include reference to Part 60 information concerning task restrictions with MMI components.	06/23/2010
5	Attachment A enhanced for additional clarity (motion).	08/12/2010
6	Remove instructions pertaining to Part 60 transition. Simplify instruction with regard to intermittent CND issues. Discuss training limitations in conjunction with posting MMI notification to FSTD users. Clarify use of attachment A in response to industry comment.	12/14/2011
7	Remove requirement for MMI extension. Clarify criteria for granting authorization and sponsor responsibilities. Address requirement for sponsors operating under a DPS.	07/14/2013

Background: 14 CFR Part 60 requires the correction of MMI components within a 30 day period unless otherwise authorized by the NSPM. The requirement may be found in §60.25, and is applicable to all Flight Simulator Training Devices (FSTDs), regardless of original qualification criteria or date of qualification.

MMI Definition: As defined in §60.25, an MMI component is a Missing, Malfunctioning, or Inoperative component of the FSTD that is "Required to be present and correctly operate for the satisfactory completion of that maneuver, procedure, or task". In determining if a particular FSTD discrepancy is an MMI component reportable to the NSP in accordance with 14 CFR Part 60, the following tests should be applied:

- Does the discrepancy affect or require a change to the FSTD Statement of Qualification (SOQ)? See Attachment A for information concerning inoperative FSTD components and equivalent FSTD levels.
- Does the discrepancy affect the performance or handling qualities of the FSTD? This condition includes the reporting of out-of-tolerance Qualification Test Guide (QTG) validation tests conducted to meet FSTD evaluation requirements of 14 CFR 60 paragraph 60.19 (a)(1).
- Does the discrepancy affect the accomplishment of tasks (as defined in Appendix A, Table A1B, Appendix B, Table B1B, Appendix C, Table C1B or Appendix D, Table D1B as applicable) for training, checking, or testing in the FSTD in accordance with the FAA approved training program(s) being conducted in the FSTD? This determination should be made by appropriate flight training personnel (see Part 60, Appendix A, paragraph 18) associated with or otherwise knowledgeable of the training programs being conducted in the FSTD.

If the answer is yes to any of the above, the subject discrepancy should be considered an MMI component. If correction of that MMI component will exceed 30 days, the subject discrepancy must be reported to the NSPM for authorization to operate the FSTD. It is noted that MMI components may include FSTD non-aircraft specific items such as IOS components, features and/or observer facilities (as defined in Appendix A, Table A1C, Appendix B, Table B1C, Appendix C, Table C1C or Appendix D, Table D1C as applicable). "MMI components" may also infer hardware or software FSTD components.

Several categories of FSTD discrepancies have been interpreted by the NSP as not subject to MMI component reporting criteria at this time:

- Airport visual model database discrepancies that do not completely prevent the use of an airport model listed on the FSTD Statement of Qualification (SOQ).
- Minor FSTD versus aircraft configuration item differences that do not adversely affect training, testing, checking tasks.

Intermittent or "Could Not Duplicate" (CND) Problems: The Sponsor is expected to use reasonable judgment in determining whether or not an intermittent interruption in FSTD service constitutes a discrepancy. While a one time "glitch" may not constitute a basis for an MMI, multiple occurrences may.

MMI Reporting Process: §60.25 requires all MMI components to be repaired or replaced within 30 days unless otherwise authorized by the NSPM. In response, a standardized MMI component reporting and authorization request procedure has been developed by the NSP. A basic requirement of the reporting/authorization process requires the sponsor to provide a readily available list of current MMI components adjacent to the FSTD for review by users of the device. It is further expected that appropriate training, testing and checking restrictions shall be imposed upon discovery and posted adjacent to the FSTD by the FSTD sponsor and/or users to prevent training, testing and checking impacted by an MMI component in accordance with the sponsor's Simulation Quality Management System (SQMS).

1. For each FSTD, an NSP Evaluation Report (Form T002) is originated by the NSP at an initial or continuing qualification evaluation and updated throughout the evaluation cycle with discrepancy closure/extension and MMI concerns. This form contains a dedicated MMI component reporting section. No later than thirty days after an MMI component discrepancy has been recorded in the sponsor's FSTD discrepancy log or electronic log system, the sponsor must submit a copy of the evaluation report from the most recent FSTD evaluation updated with any new reportable MMI component(s). The form should be submitted to the NSP duty officer via email at **9-aso-avs-sim-team@faa.gov**. Note that the reporting requirement is only applicable to MMI component discrepancies that will remain uncorrected beyond thirty days of being recorded in the sponsor's FSTD discrepancy log or electronic log system.

2. The FAA should respond to the sponsors MMI notification within five business days. During that time, the sponsor retains implied authorization from the FAA to continue operating the FSTD. In granting authorization to operate the FSTD with an MMI condition, the FAA will consider the impact on FSTD operation, the training, checking, and testing restrictions imposed by the sponsor or the rationale for not imposing such restrictions.
3. After authorization is granted, it is expected that the sponsor will track progress of the MMI discrepancy within their own discrepancy logging system. Upon correction, the sponsor may close the discrepancy in accordance with the sponsor's SQMS without further notification to the FAA. The NSP may periodically conduct inspections or inquiries to review the status of these discrepancies at any time.

Effective Date: 14 CFR Part 60 became effective on May 30, 2008, only those MMI components that have been logged in the FSTD as a discrepancy on or after May 30, 2008, will be considered an MMI component in accordance with §60.25.

Discrepancy Prioritization System: Sponsors operating under an NSPM-Authorized/Accepted Discrepancy Prioritization System (DPS) are granted relief from the 30-day MMI reporting requirement in §60.25. However, under D4.9.e.5 in Table D8 (DPS Requirements), the sponsor is required to maintain specific records with regard to MMIs and make them available to the NSPM upon request in a timely manner. DPS requirements are found at: http://www.faa.gov/about/initiatives/nsp/sqms/sqms_more/

Process Flow Chart:

None

Attachment A:

In accordance with Part 60, Appendix A, 18(b), it is the responsibility of the instructor, check airman, or representative of the administrator conducting training, testing, or checking, to exercise reasonable and prudent judgment to determine if any MMI component is necessary for the satisfactory completion of a specific maneuver, procedure, or task. At the request of industry, the following sample table has been provided as one means to assist a sponsor's organization in limiting training tasks as a consequence of an MMI condition. In using this aid, sponsors are urged, however, to acknowledge that the MMI requirement as defined in Part 60.25 is a task oriented concept.

The criteria in this particular table were originally conceived as a point of comparison in determining if an FSTD will qualify at a specific device level during an initial or upgrade evaluation in accordance with (AC)120-40B, (AC)120-40C, (AC)120-45A or Part 60 Appendices A or B. While the table provides minimum FSTD capabilities in the most fundamental sense, not all MMI situations are fundamental. Further, the limited number of situations presented pale in comparison to the number of possible MMI and training task combinations.

The resolution of certain MMI situations is obviously more complex than others. If the visual system fails entirely, for example, a level C FSTD is then limited to level 6 FSTD training capabilities. If the captain's side window visual fails, circling approaches flown by the captain in training should be restricted to maintaining required visual contact though use of the forward visual system, but other training tasks normally performed on a level C device could still be performed even though the side window visual is required for level C qualification. Other situations require a more thoughtful understanding of the training task intent. For example, it may be inappropriate to execute a LOFT training exercise or a Check Ride while a certain MMI condition exists. It may be perfectly acceptable, however, to train individual maneuvers like a takeoff or landing that are normally accomplished within the LOFT or Check Ride scenario. These criteria, then, are not intended to downgrade an FSTD in a unilateral fashion, but are intended to provide a means to standardize restrictions to FSTD use based on existing,

temporary MMI conditions. In providing this table as a reference, the NSP encourages its use as a point of departure in the sponsor's decision process.

In summation, strict adherence to the criteria in the attached table will usually provide adequate insurance that the sponsor is not conducting a training task which should be restricted due to an MMI condition. The consideration of additional factors may be appropriate, however, in determining prudent and appropriate training limitations. In developing policies regarding such limitations, sponsors may wish to seek the assistance of their Training Program Approval Authority (TPAA).

	Sample Major Component Inoperative (or malfunctioning) & Resulting Level of Training & Checking Authorizations							
FSTD Level	Motion Sys	Motion Special Effects	Fwd Visual	Side Visual	Control Loading (Flt Controls)	A/C Sounds	Pilot to Pilot/IOS Comm System	Aural Warnings
Level D FFS	Level 6	Per Task	Level 6	Level B	Level 4	Per Task	Per Task	Per Task
Level C FFS	Level 6		Level 6	Level B	Level 4	Per Task	Per Task	Per Task
Level B FFS	Level 6		Level 6		Level 4	Per Task	Per Task	Per Task
Level A FFS	Level 6		Level 6		Level 4	Per Task	Per Task	Per Task
Level 6 FTD					Level 4	Per Task	Per Task	Per Task
Level 5 FTD					Level 4			Per Task
Level 4 FTD								Per Task
		40B	40B	40B	45A	45A	45A	
(AC)120-4xX Ref.	40B Appx.1 (3a&d)	Appx.1 (3e)	Appx.1 (4a)	Appx.1 (4b)	Appx. 1 (2n)	Appx. 1 (2o)	Appx.1 (2i)	
Part 60 Ref.	60A1A(5ad)	60 A1A(5e)	60 A1A(6a)	60 A1A(6b)	60 B1A(3f)	60 B1A(7a)	60 B1A(3b)	

Note: Attachment A is applicable only to Airplane (fixed wing) FSTDs. Sponsors should contact the NSP for appropriate guidance relative to any specific MMI situation regarding Helicopter FSTDs.