

MWI 8730.2
REVISION C

EFFECTIVE DATE: September 30, 2004
EXPIRATION DATE: September 30, 2009

MARSHALL WORK INSTRUCTION

QD01

TEMPORARILY INSTALLED HARDWARE CONTROL

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DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		5/14/99	Document converted from MSFC-P10.1-CO3 to a Directive. Previous history retained in system as part of canceled or superseded ISO Document files.
Revision	A	8/18/99	Updated document to reflect new MSFC reorganization.
Revision	B	1/16/02	Correct typographical errors on pages 4 and 6. Delete reference to previous version of red streamer tag and update the reference S&MA organization to contact to obtain the current MSFC TAG 16 in Appendix B on page 10.
Revision	C	9/30/2004	Update font and letter size to Times New Roman, 12. Use shall for all mandatory requirements per HQ Rules Review Action. Change QS to QD. Change MPG's to MPR's. Clarify Applicability statement and Definitions by adding supporting text. Identify actions to Performing Organization and S&MA in paragraphs 6.2 to 6.4. Use "temporarily installed hardware" consistently. Clarify roles in Appendix A.

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1. PURPOSE

To meet the requirements of MPD 1280.1, “Marshall Management Manual” (MMM), for inspection and test to provide traceability in defining requirements for in-house control of temporarily installed hardware items in flight and flight-associated systems, and the subsequent preflight removal of those items.

2. APPLICABILITY

This Instruction shall apply to all personnel responsible for installing or removing temporarily installed hardware defined by engineering documentation with stipulations for pre-flight removal. This system shall be implemented at final assembly of flight article at Marshall Space Flight Center (MSFC) or upon receipt from contractor and shall be maintained at all times while the hardware is within MSFC. In cases where engineering documentation invokes temporarily installed hardware prior to, or subsequent to, final assembly, this Instruction shall apply.

3. APPLICABLE DOCUMENTS

3.1 MPD 1280.1, “Marshall Management Manual”

3.2 MPR 8730.3, “Control of Nonconforming Product”

4. REFERENCES

None

5. DEFINITIONS

5.1 Performing Organizations. Personnel responsible for installation and/or removal of temporarily installed hardware and S&MA personnel responsible for verifying tracking and control procedures established herein.

5.2 Temporarily Installed Hardware. The temporary installation of non-flight hardware prescribed by engineering documentation which are to be removed prior to flight or shipment as defined by engineering. Examples are: hardware that is not per drawing, protective devices, flight dummies for fit-up only, test or handling devices or lens covers. This definition excludes protective connector or quick disconnect covers which are installed during in-process assembly and testing and subsequent removal is assured by further integration and testing at next higher assembly levels.

6. INSTRUCTIONS

6.1 Authority. The performing organization shall authorize all items to be temporarily installed on a work authorizing document (i.e., Test Preparation Sheet [TPS], Work Order, Discrepancy

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Record [DR]). All items to be temporarily installed shall be specifically identified on the work-authorizing document (WAD).

6.2 Temporary Installation Record Initiation and Tagging.

As defined on the WAD, the performing organization shall initiate a Temporary Installation Record (TIR) as required in Appendix A and attach a serialized red streamer(s), shown in Appendix B, to the temporarily installed hardware after its installation. Where possible, the red streamer shall be tied to the hardware and taped. If it is impractical to tie the streamer, both ends shall be taped. The tape used shall be compatible with the surface of the item taped. When the attachment of a red streamer to an item could be detrimental to its function or because of the size or the location of the item is not feasible, the red streamer shall be attached in close proximity to the installed item.

6.3 Documentation. The performing organization shall ensure that the applicable WAD is not closed until the associated TIR entries are completed. S&MA shall monitor all TIR entries to determine when they are complete. The performing organization and S&MA shall stamp and/or sign and date the TIR to signify that the document is acceptable to close and file in the final assembly data package if required. If the temporarily installed hardware item is to be shipped with the final assembly from MSFC, the performing organization shall note this information on the TIR, ensure that the data package includes a copy of the TIR, ensure the data package index identifies the TIR, and ensure the red streamer(s) remains attached to the hardware as shipped. Further follow-up action to locate or have the red streamer returned shall not be necessary unless removal is to be performed by MSFC personnel at a remote location prior to turnover for flight.

6.4 TIR and Red Streamer Maintenance. The performing organizations and S&MA shall maintain an up-to-date status of open TIR's in the data package. Performing and monitoring S&MA personnel shall stamp and/or sign the appropriate blocks when all work is complete. If this closeout function is to be performed at another location other than by MSFC personnel, the process shall be delegated to the applicable organization.

The performing organization and S&MA shall verify accountability of the total number of red streamers supplied to each final assembly. If a red streamer is unaccounted for, a review of the documentation and hardware shall be made to certify that the non-flight hardware identified by the red streamer is not installed. If the temporarily installed hardware is still required to be installed, S&MA shall initiate a DR in accordance with MPR 8730.3, "Control of Nonconforming Product." The DR shall document the search for the missing red streamer, document the cause for its loss, and its subsequent acceptable replacement prior to closure. Lost red streamers shall be replaced with new ones serialized using the next sequential number.

7. NOTES

None

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8. SAFETY PRECAUTIONS AND WARNING NOTES

None

9. RECORDS

The TIR (MSFC Form 4340) shall be maintained by the project engineer maintaining control of the hardware as a record traveling with the hardware until all temporarily installed hardware is removed. Any other record retention requirements for closed out TIR's shall be specified by the project and/or quality plan. In the absence of project specific retention requirements, the closed out TIR shall be discarded.

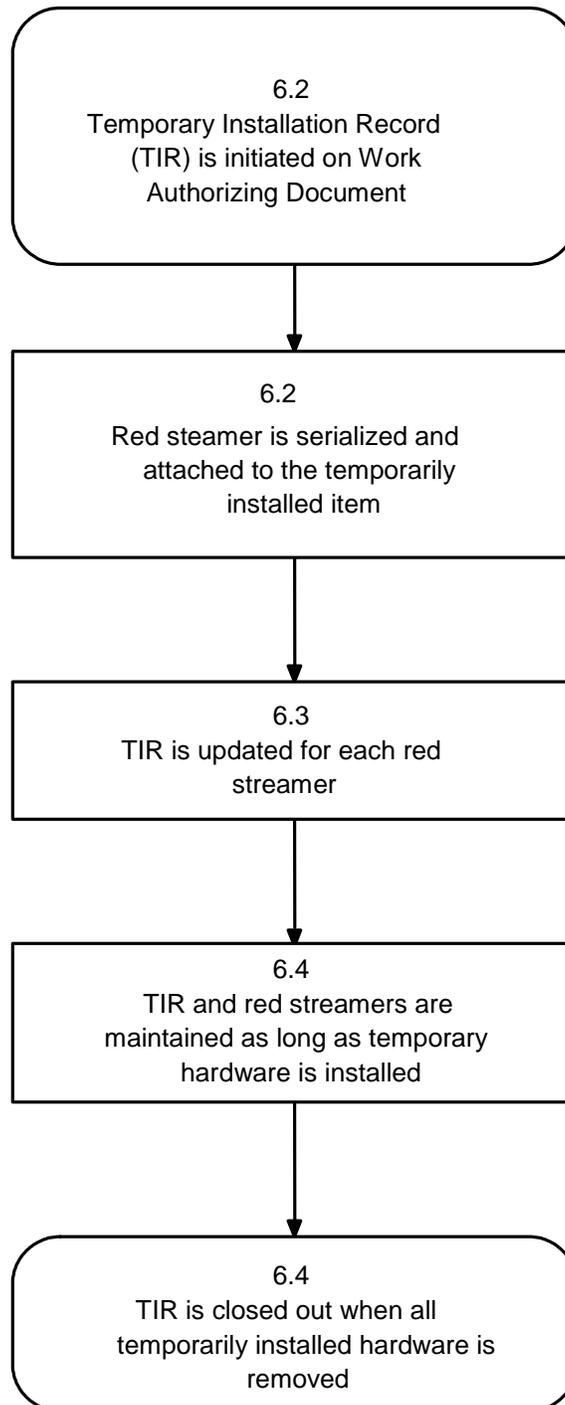
10. PERSONNEL TRAINING AND CERTIFICATION

None

11. FLOW DIAGRAM

See following page.

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12. CANCELLATION

MWI 8730.2B dated January 16, 2002

Original signed by
Robin N. Henderson for

David A. King
Director

Appendix A Temporary Installation Record (TIR) Instructions

Appendix B Red Streamer Instructions and Tag

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APPENDIX A

TEMPORARY INSTALLATION RECORD (TIR) INSTRUCTIONS

The TIR (MSFC Form 4340) is a record for the accountability of temporarily installed hardware that shall be removed at a specified time, prior to flight or shipment. The TIR form shall be located with the work authorizing document and, as applicable, the data package. The TIR form shall be initiated by the responsible organization and completed as follows:

<u>Block No.</u>	<u>Entry Description</u>
1.	Enter name, part number, and serial number of the final assembly.
2.	Enter part name, part number, and serial number of the item to be installed.
3.	Enter document name and number that authorized installation.
4.	Enter red streamer serial number.
5.	Installer enters name and date to signify completion of installation.
6.	S&MA stamps and dates, noting temporary installation when work is acceptable.
7.	Enter document name and number that authorized removal.
8.	Remover enters name and date to signify removal of temporary installation.
9.	S&MA stamps and dates indicating temporary installation removal.

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TEMPORARY INSTALLATION RECORD (TIR)

		TEMPORARY HARDWARE INSTALLATION						TEMPORARY HARDWARE REMOVAL		
1.	2.	3.	4.	5.	6.	7.	8.	9.		
NAME P/N & S/N OF FINAL ASSEMBLY	NAME P/N & S/N OF TEMPORARY ITEM	NAME AND WORK AUTHORIZING DOCUMENT NUMBER	RED STREAMER SERIAL NUMBER	INSTALLER NAME AND DATE	RESPONSIBLE ORGANIZATION STAMP/SIGN/DATE	NAME AND WORK AUTHORIZING DOCUMENT NUMBER	INSTALLER NAME AND DATE	RESPONSIBLE ORGANIZATION STAMP/SIGN/DATE		

MSFC Form 4340 (February 1998)

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APPENDIX B

RED STREAMER INSTRUCTIONS AND TAG

B.1 Each streamer (MSFC Tag 16) shall be serialized prior to installation using a permanent marker, color black. Serial numbers shall be alpha-numeric starting with A001 for each final assembly element tagged with streamers noting temporary hardware installation. When multiple assemblies are tagged and are located adjacent to each other, or are in the general area, the first character of the serial numbers used for each assembly shall have different alphabetic letters starting with A, continuing with B, C, etc., as required.

B.2 Streamers shall be red in color, with black print, weather resistant, flexible, with approximate dimensions of 2 inches wide by 12 inches long.

B.3 Performing organizations shall contact the assigned Safety and Mission Assurance (S&MA) inspection team representative to obtain red streamers (MSFC Tag 16).

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○

REMOVE

BEFORE FLIGHT

SERIAL NUMBER

MSFC-Tag-16 (February 1998)

NOTE: See Appendix B.1.

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