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**Plum Brook Station
Work Instruction No.**

GRC-W7030.026

Revision

C

Plum Brook Station Work Instruction

Critical Torque Requirements

APPROVED

Approved by Plum Brook Management Office/7030:

**NASA - Glenn Research Center
Cleveland, OH 44135**

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Page 1 of 5

Glenn Research Center Plum Brook Station Work Instruction	Title: Critical Torque Requirements	
	Document No.: GRC-W7030.026	Rev.: C

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Change Record

Rev.	Effective Date	Description
Initial	1/13/99	Initial Release
Initial Release 1	7/12/99	CR 1999-50, multiple formatting & editorial changes
A	8/11/00	CR 2000-54, in section 2.0 change the document number for the Glenn Research Center (GRC) Safety Manual from "LeR-M0530.001" to "LeR-P0530.001".
A1	10/27/2000	CR 2000-115 Update Approving Authority to match current list.
B	8/10/01	CR 2001-34, Add "Critical" to title; modify section 1.0; delete "GRC-P7030.043 Control of Nonconformance" from section 2.0; modify sections 4.0 & 5.0; add "critical" before "torque requirements" in sections 6.3 and 6.4; delete section 6.8; and update section 7.0 accordingly.
C	5/13/03	CR 2003-24, Removed deleted procedures and modified document numbers and title in Section 2.0, replaced deleted procedure in Sections 6.8 and 7.0.

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1.0 PURPOSE

This work instruction gives direction for critical torque requirements as applicable to mechanical installations at Plum Brook. Its purpose is to provide uniform standards Station-wide, which are in compliance with the Glenn Safety Manual. These standards apply as directed by engineering.

2.0 REFERENCES

Document Number	Document Title
Internal	Audel, <u>Millwrights and Mechanics Guide</u> , 4 th Edition, pg. 375-378
LeR-P0530.001	Glenn Safety Manual, Section 7.22 Appendix B, Fastener Toque Table, pg. 7-63,7-64
Internal	Tips on Torque, F.J. Allen, Jr., Engineering Consultant, N-S-W Corp., Houston
LeR-P0530.001	Glenn Safety Manual, pg. 14-9,14-10, & 14-11
GRC-P7030.020	Building, Activating, & Validating ElectroMechanical Systems
GRC-P7030.026	Control of Inspection, Measurement, and Test Equipment

3.0 SAFETY PRECAUTIONS

1. Wear proper Personal Protective Equipment (Reference Task Hazard Assessment).
2. Inspect parts.
3. Do not over-torque!

4.0 TOOLS, EQUIPMENT AND MATERIALS

All torque wrenches shall be re-calibrated and properly tagged before critical use. Use only the type of wrench that is required for the specific job.

5.0 PERSONNEL TRAINING AND/OR CERTIFICATION

Use only qualified journeypersons or supervised technicians to perform task.

- Personnel must be familiar with this Work Instruction.

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	Document No.: GRC-W7030.026	Rev.: C

6.0 INSTRUCTIONS

- 6.1 Receive work order from engineering.
- 6.2 Does work order specify critical torque requirements such as those required while installing flight hardware or highly loaded structures?
- 6.3 If work order does not specify critical torque requirements, complete work as specified using standard torque values found in Section 7.22 Appendix B of the Glenn Safety Manual. Proceed with work order to complete task.
- 6.4 If work order does specify critical torque requirements, are all of required fasteners and tools available?
- 6.5 Are properly calibrated torque wrenches etc. available?
- 6.6 Follow engineering instructions contained in work order and perform required torque activities in accordance with the documents referenced in section 2.0 of this work instruction.
- 6.7 Verify proper torque on applicable fasteners.
- 6.8 If proper torque is established, indicate so on work order and proceed with GRC-P7030.020 “**Building, Activating, & Validating ElectroMechanical Systems**”.

7.0 FLOW DIAGRAMS

