

National Aerospace and Defense Contractors Accreditation Program
Requirements for Laser Beam Machining (LBM)

RATIONALE

AS7116/4A is being cancelled and superseded by PRI AC7116/4. The requirements in the document have not changed.

CANCELLATION NOTICE

This document has been declared "CANCELLED" as of July 2008 and has been superseded by PRI AC7116/4. By this action, this document will remain listed in the Numerical Section of the Aerospace Standards Index noting that it is superseded by PRI AC7116/4. Cancelled specifications are available from SAE.

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1. SCOPE:

This Aerospace Standard (AS) is to be used to supplement AS7116. In addition to the requirements contained in AS7116, the requirements contained herein shall apply to suppliers seeking NADCAP accreditation for laser beam machining (LBM). The LBM requirements contained herein address the drilling, cutting and marking LBM process methods.

2. REFERENCES:

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15086-0001.

- AS7101/4 National Aerospace and Defense Contractors Accreditation Program (NADCAP) – Requirements for Material Testing Laboratories – Metallography and Microhardness
- AS7108 National Aerospace and Defense Contractors Accreditation Program (NADCAP) – Audit Criteria for Chemical Processing
- AS7116 National Aerospace and Defense Contractors Accreditation Program (NADCAP) – Requirements for Nonconventional Machining.

2.2 PRI Documents:

Available from Performance Review Institute, 161 Thornhill Road, Warrendale, PA 15086-7527.

- AC7116/4 National Aerospace and Defense Contractors Accreditation Program (NADCAP) – Audit Criteria for Laser Beam Machining (LBM)

2.3 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428

ASTM E3 Methods of Preparation of Metallographic Specimens

2.4 Applicable customer specifications shall be available at the facility.

3. EQUIPMENT:

3.1 Maintenance:

3.1.1 A laser maintenance plan shall exist and include the following, where applicable:

- a. High voltage power supply
- b. Optical to mechanical alignment
- c. Laser cooling equipment
- d. Filter replacement schedule
- e. Verification of pulse format
- f. Flash lamp replacement schedule

3.2 Laser Power Output Monitoring:

3.2.1 A plan shall exist that meets customer requirements for checking laser output power using calibrated power meters that are external to the laser cavity.

3.2.2 The plan shall require an annual calibration of laser power meters.

3.3 Laser Alignment:

3.3.1 A laser alignment plan shall exist that addresses the alignment after a machine crash or after an optical element has been changed.

4. WORK INSTRUCTION REQUIREMENTS:

4.1 Laser Equipment:

4.1.1 The workstation instructions shall list the laser machine model or machine number.

4.2 Tooling and Support Material:

4.2.1 Fixtures/Tooling:

4.2.1.1 The tool fixture shall be listed by tool number and/or description when no tool number is available.

4.2.1.2 Any additional tools and production aids shall be listed by tool number and/or description when no tool number is available.