

# U.S. Government Revises Shot Peening Specification

U.S. Government Specification MIL-S-13165 "Shot Peening -f Metal Parts" has been revised to Version C. This culminates a three-year project by the U.S. Army Laboratory Command, Materials Testing Laboratory, the custodian of this document. Revision B had been in effect since December, 1966.

The revised specification clarifies several areas that were ambiguous and updates the requirement to reflect current shot peening technology. The most notable area includes an option for computer controlled shot peening with extensive process control capability available for:

- a) man flight vehicle components
- b) components where shot peening is used as part of the design strength of the component

c) components which are considered critical to system success

Other enhancements include definitions of terms, requirement for correlation of tracer removal rate and coverage, more definitive test records for all Almen strip specimens showing machine setting (cycle time, air pressure, flow rate) and additional tables for media sizes.

The outline of the specification is shown below. For a complete copy of MIL-S-13165C: circle Bingo No. 3

MI

L-S-13165C

MILITARY SPECIFICATION

SHOT PEENING OF METAL PARTS

1. SCOPE
  - 1.1 SCOPE
2. APPLICABLE DOCUMENTS
  - 2.1 GOVERNMENT DOCUMENTS
    - 2.1.1 SPECIFICATIONS, STANDARDS, AND HANDBOOKS
  - 2.2 NON-GOVERNMENT PUBLICATIONS
  - 2.3 ORDER OF PRECEDENCE
3. REQUIREMENTS
  - 3.1 SHOT
    - 3.1.1 MATERIAL
    - 3.1.2 SIZE
    - 3.1.3 SHAPE
  - 3.2 EQUIPMENT
    - 3.2.1 AUTOMATIC SHOT PEENING
    - 3.2.2 COMPUTER-CONTROLLED SHOT PEENING
  - 3.3 PROCEDURE
    - 3.3.1 DIMENSIONS AND CONDITION OF PARTS
    - 3.3.2 PRECLEANING
    - 3.3.3 MASKING
    - 3.3.4 MAGNETIC PARTICLE OR PENETRANT INSPECTION
    - 3.3.5 LOADING 73
    - 3.3.6 PEENING INTENSITY
    - 3.3.7 COVERAGE
      - 3.3.7.1 BOUNDARY VARIATION
      - 3.3.7.2 FILLETS AND SHIELDED AREAS
    - 3.3.8 MINIMUM SHOT SIZE FOR PEENING MATERIALS
    - 3.3.9 SHOT MAINTENANCE
    - 3.3.10 POST TREATMENTS
      - 3.3.10.1 RESIDUAL SHOT REMOVAL
      - 3.3.10.2 CLEANING
      - 3.3.10.3 PROTECTION FROM CORROSION
4. QUALITY ASSURANCE PROVISIONS
  - 4.1 RESPONSIBILITY FOR INSPECTION
    - 4.1.1 RESPONSIBILITY FOR COMPLIANCE
  - 4.2 SHOT PEENING INTENSITY
    - 4.2.1 SAMPLING
    - 4.2.2 TEST STRIP SPECIMENS
    - 4.2.3 SATURATION CURVE
    - 4.2.4 TEST PROCEDURE
    - 4.2.5 TEST RECORDS
    - 4.2.6 COMPUTER-CONTROLLED SHOT PEENING
  - 4.3 SHOT SIZE AND UNIFORMITY
    - 4.3.1 SAMPLING
    - 4.3.2 TEST PROCEDURE



Shot Peening Control Technology

By Electronics Inc.

1520 N. Main Street • Mishawaka, IN 46545 • U.S.A. (219) 258-5001

Continued on Page 6...

- 4.3.3 VISUAL EXAMINATION (SAMPLE SIZE)
- 4.4 INSPECTION OF SHOT PEENED ARTICLES
  - 4.4.1 COVERAGE
  - 4.4.2 CORROSION PROTECTION
- 5. PACKAGING
- 6. NOTES
  - 6.1 INTENDED USE
  - 6.2 ACQUISITION REQUIREMENTS
  - 6.3 EFFECTIVE PEENING
  - 6.4 SPECIAL PEENING PROCEDURE
  - 6.5 ADDITIONAL PEENING
  - 6.6 PEENING THIN SECTIONS
  - 6.7 SHOT SIZE SELECTION
  - 6.8 COMPUTER-CONTROLLED SHOT PEENING SELECTION
  - 6.9 PROCESS PARAMETERS
  - 6.10 INTENSITY COMPARISONS
  - 6.11 COVERAGE
  - 6.12 INTENSITY
  - 6.13 PROCESS TEMPERATURES
  - 6.14 MULTIPLE EXPOSURE TIMES
  - 6.15 CONDITION OF MATERIAL BEFORE PEENING
  - 6.16 EXAMINATION OF SHOT SAMPLE
  - 6.17 DEFINITIONS
    - 6.17.1 BURNISHING
    - 6.17.2 CONTRACTOR
    - 6.17.3 CRITICAL
    - 6.17.4 LIQUID TRACER SYSTEM
    - 6.17.5 PROCURING ACTIVITY
    - 6.17.6 STANDOFF
  - 6.18 SUBJECT TERM (KEYWORD) LISTING