



## QUALITY ASSURANCE REQUIREMENTS LIST (QARL)

*(If changes are made, replace on website.)*

### MANDATORY REQUIREMENTS (All Orders)

1. INSPECTION AND TEST. BUYER AND ITS CUSTOMER MAY INSPECT AND/OR TEST MATERIALS, WORK IN PROGRESS, AND COMPLETED SUPPLIES AT ALL REASONABLE TIMES AND PLACES DURING PERFORMANCE OF THE WORK AND PRIOR TO SHIPMENT. REJECTED SUPPLIES SHALL BE CORRECTED OR REPLACED. REJECTED SERVICES SHALL BE REPERFORMED IN AN ACCEPTABLE MANNER. IF INSPECTION AND TEST ARE MADE ON SELLER'S PREMISES, SELLER SHALL, WITHOUT ADDITIONAL CHARGE, PROVIDE REASONABLE FACILITIES AND ASSISTANCE FOR THE SAFETY AND CONVENIENCE OF THE INSPECTORS PERFORMING THESE DUTIES. INSPECTIONS AND TESTS SHALL BE PERFORMED IN SUCH A MANNER AS NOT TO UNDULY DELAY WORK IN PROGRESS. UNLESS OTHERWISE AGREED IN WRITING, ALL SUPPLIES FURNISHED UNDER THIS PURCHASE ORDER ARE SUBJECT TO BUYER'S INSPECTION AND ACCEPTANCE OR REJECTION AT DESTINATION, NOTWITHSTANDING ANY PREVIOUS BUYER OR ITS CUSTOMER'S SOURCE INSPECTION OR TEST. INSPECTION/TEST AT SOURCE OR AT DESTINATION SHALL NOT RELIEVE SELLER OF ITS RESPONSIBILITY TO FURNISH THE SUPPLIES/SERVICES IN STRICT CONFORMANCE WITH THE PURCHASE ORDER REQUIREMENTS. SELLER SHALL MAINTAIN AN INSPECTION AND QUALITY CONTROL SYSTEM ACCEPTABLE TO BUYER AND ITS CUSTOMER. SELLER SHALL FURNISH BUYER THE RECORDS OF INSPECTION/TEST FOR SUPPLIES AND SERVICES FURNISHED HEREUNDER AT ANY TIME DURING THE WARRANTY PERIOD UPON BUYER'S REQUEST.

EXPRESS WRITTEN CONSENT OF THE MICRO CRAFT, BUYER.

**1000A** WHEN SUPPLYING RAW MATERIAL THAT EXCEEDS THE THICKNESS LIMITS OF THE REFERENCED PROCUREMENT SPECIFICATION(S), PROVIDE ADVANCE COPY OF MATERIAL TEST REPORTS TO THE MICRO CRAFT BUYER FOR REVIEW AND ACCEPTANCE OF ACTUAL MECHANICAL PROPERTIES PRIOR TO SHIPMENT.

**1000B** SUPPLIER SHALL CERTIFY AND MAINTAIN DOCUMENTED EVIDENCE THAT DFARS 252.225-7008 RESTRICTION ON ACQUISITION OF SPECIALTY METALS, DFARS 252.225-7009 RESTRICTION ON ACQUISITION OF CERTAIN ARTICLES CONTAINING SPECIALTY METALS AND DFARS 252-225-7016 BALL AND ROLLER BEARINGS, FOR ITEMS CONTAINING SPECIALTY METALS THAT ARE PROCURED.

**1001** CERTIFICATE OF CONFORMANCE REQUIRED.

**1002** MECHANICAL TESTING REQUIRED. ACTUAL MECHANICAL PROPERTIES OF PURCHASED HEAT/LOT SHALL BE RECORDED ON TEST REPORT.

**1003** PROVIDE TEST COUPON FROM PURCHASED HEAT/LOT FOR MECHANICAL TESTING TO BE PERFORMED BY MICRO CRAFT.

**1004** ACTUAL CHEMISTRY REQUIRED. ACTUAL CHEMICAL ANALYSIS OF PURCHASED HEAT/LOT SHALL BE RECORDED ON TEST REPORT.

**1005** SAFETY DATA SHEETS (SDS) REQUIRED.

**1006** LIMITED LIFE PRODUCTS SHALL HAVE SHELF LIFE DATA PRINTED ON CONTAINER AND/OR THE CERTIFICATION.

**1007** NO MIXED HEAT/LOT PER LINE ITEM.
2. QUALITY ASSURANCE RECORDS AND RETENTION REQUIREMENTS. SUPPLIER SHALL MAINTAIN QUALITY ASSURANCE RELATED RECORDS AND RETAIN FOR A PERIOD OF NOT LESS THAN SEVEN (7) YEARS.

### MATERIAL REQUIREMENTS [SUPPLIER]

**1000** MATERIAL TEST REPORTS REQUIRED, IN ACCORDANCE WITH REFERENCED SPECIFICATIONS. ORIGINAL MILL TEST REPORTS WITH ACTUAL CHEMICAL ANALYSIS AND MECHANICAL PROPERTIES REQUIRED, TRACEABLE BY HEAT/LOT NUMBER REQUIRED WITH SHIPMENT. HEAT/LOT NUMBER, MATERIAL TYPE AND TEMPER SHALL BE PHYSICALLY MARKED ON ALL MATERIALS. NO MATERIAL SUBSTITUTIONS WITHOUT THE

### [MICRO CRAFT INTERNAL]

- 1100** MATERIAL COUPONS REQUIRED. MICRO CRAFT SHALL CUT COUPONS OF ALL MATERIALS UPON RECEIPT AND SUBMIT TO QUALITY ASSURANCE.
- 1101** INDEPENDENT CHEMICAL ANALYSIS REQUIRED, TO BE PERFORMED BY MICRO CRAFT.
- 1102** MATERIAL SUPPLIER MUST BE ISO CERTIFIED.



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### HARDWARE REQUIREMENTS

#### [SUPPLIER]

**2000** SUPPLIER CERTIFICATE OF COMPLIANCE REQUIRED.

**2000A** MANUFACTURER' CERTIFICATE OF COMPLIANCE REQUIRED.

**2001** LOT TRACEABILITY REQUIRED.

**2001A** MANUFACTURER'S TEST REPORTS, LOT TRACEABILITY AND CERTIFICATE OF COMPLIANCE REQUIRED.

**2002** HIGH STRENGTH FASTENERS

- APPROVED MANUFACTURERS ONLY. (LISTING SUPPLIED)
- FASTENERS MUST BE OF U.S. MANUFACTURE.
- CERTIFIED MILL TEST REPORTS REQUIRED WITH LOT TRACEABILITY.
- CHEMICAL/PHYSICAL FASTENER CERTIFICATION REQUIRED WITH LOT TRACEABILITY.
- MUST CONFORM TO VISUAL AND DIMENSIONAL RECEIVING INSPECTIONS PERFORMED BY MICRO CRAFT UPON RECEIPT.

**2003** NO SUBSTITUTIONS OF PART NUMBER, MATERIAL, OR MANUFACTURER WITHOUT THE EXPRESS WRITTEN CONSENT OF THE MICRO CRAFT BUYER.

**2004**

- FASTENERS MUST BE OF U.S. MANUFACTURE.
- CERTIFIED MILL TEST REPORTS REQUIRED WITH LOT TRACEABILITY.
- CHEMICAL/PHYSICAL FASTENER CERTIFICATION REQUIRED WITH LOT TRACEABILITY.

**2005** NO MIXED HEAT/LOTS PER LINE ITEM.

#### [MICRO CRAFT INTERNAL]

**2100** INDEPENDENT MECHANICAL TESTING OF FASTENERS REQUIRED. (TO BE PERFORMED BY MICRO CRAFT)

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### SPECIAL PROCESSING

#### [SUPPLIER]

**3000** CERTIFICATE OF COMPLIANCE REQUIRED, TO MEET ALL PURCHASE ORDER REQUIREMENTS. COC MUST SPECIFY ALL REQUIREMENTS AND SPECIFICATIONS AS STATED ON PURCHASE ORDER.

**3001** HEAT TREAT CERTIFICATIONS AND FURNACE CHARTS REQUIRED. RECORD HARDNESS VALUE ON CERTIFICATION. HARDNESS VALUE MUST BE WITHIN SPECIFIED RANGE.

**3002** WELDING PROCEDURE AND WELDER PERFORMANCE QUALIFICATIONS REQUIRED IN ACCORDANCE WITH REFERENCED SPECIFICATION.

**3003** SUBMIT WELDING PROCEDURE AND WELDER PERFORMANCE QUALIFICATION DOCUMENTS PRIOR TO PERFORMANCE OF WELDING.

**3004** SUBMIT WELDING PROCEDURE AND WELDER PERFORMANCE QUALIFICATION DOCUMENTS WITH FINAL SHIPMENT.

**3005** WELDER QUALIFICATION REQUIRED IN ACCORDANCE WITH REFERENCED SPECIFICATION.

**3006** SUBMIT WELDER QUALIFICATION DOCUMENTS PRIOR TO PERFORMANCE OF WELDING.

**3007** SUBMIT WELDER QUALIFICATION DOCUMENTS WITH FINAL SHIPMENT.

**3008** TYPICAL CHEMICAL CERTIFICATION IS REQUIRED FOR ALL WELD FILLER MATERIAL.

**3009** ACTUAL CHEMICAL AND PHYSICAL CERTIFICATIONS REQUIRED FOR ALL WELD FILLER MATERIAL.

#### [MICRO CRAFT INTERNAL]

**3100** CUSTOMER APPROVED VENDORS ONLY.

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### NONDESTRUCTIVE EXAMINATION (NDE)/ DESTRUCTIVE TESTING

#### [SUPPLIER]

**4000 - 4009** RESERVED

**4010** DESTRUCTIVE TESTING. WHEN MINIMUM REQUIREMENTS ARE NOT MET THE SUPPLIER SHALL DOCUMENT "REJECT" ON THE TEST REPORT IN BOLD FONT IN RED COLOR.



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**4011** ULTRASONIC INSPECT RAW MATERIAL IN ACCORDANCE WITH MIL-STD-2154, MIL-I-8950B, BAC 5439, BS 7055, OR EQUIVALENT, CLASS A.

**4012** VISUAL INSPECTION OF WELDMENTS BY AWS CERTIFIED WELD INSPECTOR REQUIRED. SUBMIT AWS-CWI CERTIFICATION WITH SHIPMENT.

**4013** NDE PERSONNEL SHALL BE CERTIFIED LEVEL II OR LEVEL III IN ACCORDANCE WITH MIL-STD-410 LATEST REV.

**4014** NDE PERSONNEL SHALL BE CERTIFIED LEVEL II OR LEVEL III IN ACCORDANCE WITH SNT-TC-1A, LATEST REV.

**4015** NDE PERSONNEL QUALIFICATION DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PERFORMANCE OF TESTING.

**4016** NDE PERSONNEL QUALIFICATION DOCUMENTS REQUIRED WITH SHIPMENT.

**4017** TEST REPORTS REQUIRED. ALL RELEVANT INDICATIONS SHALL BE NOTED AND MAPPED ON TEST REPORTS.

**4018** TEST REPORTS REQUIRED WITH DETAILED CHEMICAL AND/OR PHYSICAL TEST RESULTS REPORTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS.

### [MICRO CRAFT INTERNAL]

**4103** MICRO CRAFT TO ULTRASONIC INSPECT UPON RECEIPT IN ACCORDANCE WITH REFERENCED SPECIFICATION.

**4104** MICRO CRAFT TO LIQUID PENETRANT INSPECT ARTICLES UPON RECEIPT IN ACCORDANCE WITH REFERENCED SPECIFICATION.

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### INSPECTION REQUIREMENTS

#### [SUPPLIER]

**5000** FINAL INSPECTION AND ACCEPTANCE BY MICRO CRAFT QUALITY ASSURANCE UPON RECEIPT.

**5001** FINAL INSPECTION AND ACCEPTANCE BY MICRO CRAFT QUALITY AND/OR THE CUSTOMER AT SUPPLIER'S FACILITY PRIOR TO SHIPMENT.

**5002** SUPPLIER TO PROVIDE EVIDENCE OF INSPECTION AND ACCEPTANCE IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS.

**5003** 100% DIMENSIONAL INSPECTION REQUIRED TO BE PERFORMED BY SUPPLIER.

**5004** DIMENSIONAL INSPECTION REQUIRED BY SUPPLIER. SUBMIT SAMPLING PLAN TO MICRO CRAFT FOR APPROVAL PRIOR TO PERFORMANCE.

**5005** DIMENSIONAL INSPECTION OF MANDATORY INSPECTION POINTS (MIP'S) AS DEFINED BY MICRO CRAFT REQUIRED.

**5006** FIRST ARTICLE INSPECTION BY SUPPLIER REQUIRED.

**5007** FIRST ARTICLE INSPECTION BY MICRO CRAFT AND/OR THE CUSTOMER REQUIRED.

**5008** SUPPLIER MUST MAINTAIN AN MICRO CRAFT-APPROVED QUALITY SYSTEM. QUALITY SYSTEM APPROVAL REQUIRED PRIOR TO PERFORMANCE OF WORK.

**5009** SUPPLIER MUST MAINTAIN A QUALITY ASSURANCE SYSTEM COMPLIANT WITH ANSI/ASQC Q9001 (ISO 9001).

**5009A** SUPPLIER MUST MAINTAIN AN ANSI/ASQC Q9001 (ISO 9001) REGISTERED QUALITY SYSTEM. EVIDENCE OF THIRD PARTY REGISTRATION SHALL BE SUBMITTED TO MICRO CRAFT QUALITY ASSURANCE WITHIN TWO (2) WEEKS OF RECEIPT OF PURCHASE ORDER.

**5010** SUPPLIER MUST SUBMIT A QUALITY ASSURANCE PLAN TO MICRO CRAFT FOR APPROVAL PRIOR TO PERFORMANCE.

**5011** GOVERNMENT SOURCE INSPECTION REQUIRED. ALL WORK ON THIS ORDER IS SUBJECT TO INSPECTION AND TEST BY THE GOVERNMENT AT ANY TIME AND PLACE. THE GOVERNMENT QUALITY REPRESENTATIVE WHO HAS BEEN DELEGATED NASA QUALITY ASSURANCE FUNCTIONS ON THIS PROCUREMENT SHALL BE NOTIFIED IMMEDIATELY UPON RECEIPT OF THIS ORDER. THE GOVERNMENT REPRESENTATIVE SHALL ALSO BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME ARTICLES OR MATERIALS ARE READY FOR INSPECTION OR TEST.

**5012** CERTIFICATE OF CONFORMANCE REQUIRED.

**5013** INSPECTION REPORTS REQUIRED.

**5014** SUPPLIER TO MEET CONFORMANCE TO WI-QA-10-12 ATTACHED.

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### [MICRO CRAFT INTERNAL]

**5100** IDENTIFIED COMPONENTS REQUIRE TECHNICAL RECEIVING INSPECTION BY ELECTRONICS LAB PERSONNEL.

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### NONCONFORMANCE REQUIREMENTS

#### [SUPPLIER]

**6000** SUBMIT ALL NONCONFORMANCES TO MICRO CRAFT ON SUPPLIER'S STANDARD NONCONFORMANCE FORM FOR CUSTOMER DISPOSITION. EVIDENCE OF CORRECTIVE ACTION SHALL BE PROVIDED.

**6001** SUBMIT ALL NONCONFORMANCES TO MICRO CRAFT ON (SUPPLIED) MICRO CRAFT "DISCREPANCY REPORT FORM" FOR CUSTOMER DISPOSITION. EVIDENCE OF CORRECTIVE ACTION SHALL BE PROVIDED. OUT OF TOLERANCE PARTS MAY NOT BE SHIPPED WITHOUT THE WRITTEN CONSENT OF MICRO CRAFT'S QUALITY DEPARTMENT.

**6002** SUBMIT ALL NONCONFORMANCES TO MICRO CRAFT ON (SUPPLIED) CUSTOMER NONCONFORMANCE FORM FOR CUSTOMER DISPOSITION. EVIDENCE OF CORRECTIVE ACTION SHALL BE PROVIDED. NONCONFORMING PARTS MAY NOT SHIP UNTIL NONCONFORMANCE HAS BEEN RESOLVED BY MICRO CRAFT'S ENGINEERING AND QUALITY.

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### GENERAL

**7000** THIS ORDER CONTAINS CRITICAL SPACE FLIGHT HARDWARE! HANDLE WITH EXTREME CARE!

**7001** THIS ORDER CONTAINS FRACTURE CRITICAL SPACE FLIGHT HARDWARE. HANDLE WITH EXTREME CARE!

**7002** THIS ORDER CONTAINS FRACTURE CRITICAL HARDWARE. ITEMS DENOTED WITH AN ASTERISK (\*) ARE DEFINED AS "FRACTURE CRITICAL".

**7004** SUPPLIER SHALL MAINTAIN QUALITY ASSURANCE RELATED RECORDS AND RETAIN FOR A PERIOD OF NOT LESS THAN TEN (10) YEARS. WHEN INVOKED, THIS CLAUSE TAKES PRECEDENCE OVER MANDATORY REQUIREMENTS CLAUSE 2.

**7005** DPD / MBD: DIGITAL PRODUCT DEFINITION / MODEL BASE DEFINITION

SUPPLIERS PERFORMING PROCESS OPERATIONS THAT INCLUDE DIGITAL PRODUCT DEFINITION AND/OR MODEL BASE DEFINITION FROM DATASETS SUPPLIED BY (MCI) MICRO CRAFT INC., SHALL HAVE PROCESS CONTROLS THAT MEET THE REQUIREMENTS OF BOEING D6-51991. THE SUPPLIER SHALL HAVE A DOCUMENTED QUALITY PLAN FOR DPD / MBD PROCESS CONTROLS. THE SUPPLIER QUALITY PLAN WILL BE REVIEWED AND APPROVED, OR DISAPPROVED, BY MCI QA PRIOR TO ANY ORDER PLACEMENT.

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### CALIBRATION

**8000** CALIBRATE ENCLOSED ARTICLES IN ACCORDANCE WITH ANSI Z540.1 AND/OR ISO 10012-1, LATEST REV., TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST). CALIBRATION CERTIFICATES REQUIRED.

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### SHIPPING, PACKAGING, AND HANDLING

**9000** THIS ORDER CONTAINS PARTS THAT SHIPPED IN MICRO CRAFT, INC. RETURNABLE CONTAINER. SUPPLIER SHALL RE-PACKAGE AND RETURN PARTS IN MICRO CRAFT RETURNABLE CONTAINER TO PREVENT SHIPPING DAMAGE. SHIPMENT SHALL INCLUDE SUFFICIENT CUSHIONING AND/ OR PARTITIONING MATERIAL TO PREVENT ITEM TO ITEM CONTACT WITHIN THE CONTAINER DURING TRANSPORTATION.

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