



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.
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

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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.

[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.

HARDWARE REQUIREMENTS

[SUPPLIER]



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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)

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.

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.

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



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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.

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.

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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.

[MICRO CRAFT INTERNAL]

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

NONCONFORMANCE REQUIREMENTS



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[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.

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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7006 HSF STATEMENT

HUMAN SPACE FLIGHT STATEMENT

THE FOLLOWING STATEMENT APPLIES TO THE SELLER AND SHALL BE INCLUDED IN ALL SUBCONTRACTS AND PURCHASE ORDERS PLACED BY IT IN SUPPORT OF THIS CONTRACT, WITHOUT EXCEPTION AS TO AMOUNT OR SUBCONTRACT LEVEL:

"FOR USE IN HUMAN SPACE FLIGHT; MATERIALS, MANUFACTURING, AND

WORKMANSHIP OF HIGHEST QUALITY STANDARDS ARE ESSENTIAL TO

ASTRONAUT SAFETY. IF YOU ARE ABLE TO SUPPLY THE DESIRED ITEM WITH A

HIGHER QUALITY THAN THAT OF THE ITEMS SPECIFIED OR PROPOSED, YOU ARE

REQUESTED TO BRING THIS FACT TO THE IMMEDIATE ATTENTION OF THE

PURCHASER."

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.

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.