

Bauman Machine, Inc.



UNCONTROLLED COPY

Quality Assurance Manual

Bauman Machine Inc.

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Introduction

The Purpose of this Quality Assurance Manual is to provide an effective resource in defining test, inspection, documentation, and associated functions. The fundamental result is to produce a product that either meets or exceeds our customer's expectations. In order to affirm the objective customer quality specifications through the implementation of the Bauman Machine Incorporated Quality Assurance Manual, we revised the aforesaid manual in its entirety.

All Quality Systems established in this manual will be periodically reviewed for their effectiveness. Consequently, the changes made within this revised manual do not affect the objective of Bauman Machine Incorporated; rather, they serve to incorporate superior quality control through updated specifications.

Your comments and suggestions in regard to this Quality Assurance Manual will be welcomed.

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SECTION: 1

1.0 DOCUMENT REVISIONS

REVISION LEVEL

A
B
C
D
E
F
G

DATE

JULY, 9 1995
NOV. 6, 1996
MAR. 10, 2000
SEPT. 21, 2004
SEPT. 12, 2006
AUG. 16, 2007
OCT. 5, 2008

DESCRIPTION

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SECTION: 2

2.0 GENERAL

2.1 SCOPE & QUALITY GOAL

2.1.1 THIS QUALITY ASSURANCE MANUAL DESCRIBES THE CONFORMANCE SYSTEM UTILIZED BY BAUMAN MACHINE, INC. WHEN ENGAGED IN THE BUSINESS OF SUPPLYING MANUFACTURING AND REPAIR SERVICES.

2.1.2 IT IS BAUMAN MACHINE INC. GOAL TO MANUFACTURE PART(S) THAT EITHER MEETS OR EXCEEDS OUR CUSTOMER'S SPECIFICATIONS IN EVERY ASPECT.

2.2 RESPONSIBILITY

2.2.1 THE QUALITY MANAGER IS ASSIGNED THE AUTHORITY FOR IMPLEMENTATION OF THIS QUALITY ASSURANCE MANUAL. THIS MANUAL SHALL BE APPROVED PRIOR TO USE, AMENDMENT OR REVISION BY GENERAL MANAGER AND THE QUALITY MANAGER.

2.2.2 THE QUALITY MANAGER SHALL DEVELOP AND IMPLEMENT THE NECESSARY "HOW TO" WORK LEVEL INSTRUCTIONS TO SUPPORT THIS QUALITY ASSURANCE MANUAL.

2.3 AUTHORITY

2.3.1 THE QUALITY MANAGER IS ASSIGNED THE AUTHORITY OF IMPLEMENTATION AND ADMINISTRATION OF THE QUALITY PROGRAM DESCRIBED BY THIS QUALITY ASSURANCE MANUAL. THIS POSITION IS AUTHORIZED TO RESOLVE ALL CONFLICTS BETWEEN THIS MANUAL, OTHER POLICIES AND PROCEDURES WHICH AFFECT BAUMAN MACHINE, INC.

2.3.2 THE QUALITY MANAGER IS ASSIGNED THE AUTHORITY FOR THE ENFORCEMENT OF THE QUALITY PROGRAM DESCRIBED IN THIS QUALITY ASSURANCE MANUAL. THIS POSITION HAS THE AUTHORITY AND ORGANIZATIONAL FREEDOM TO:

- A) IDENTIFY PROBLEMS AFFECTING QUALITY
- B) RECOMMEND CORRECTIVE ACTION
- C) VERIFY IMPLEMENTATION OF CORRECTIVE ACTION
- D) CONTROL NONCONFORMING PRODUCTS



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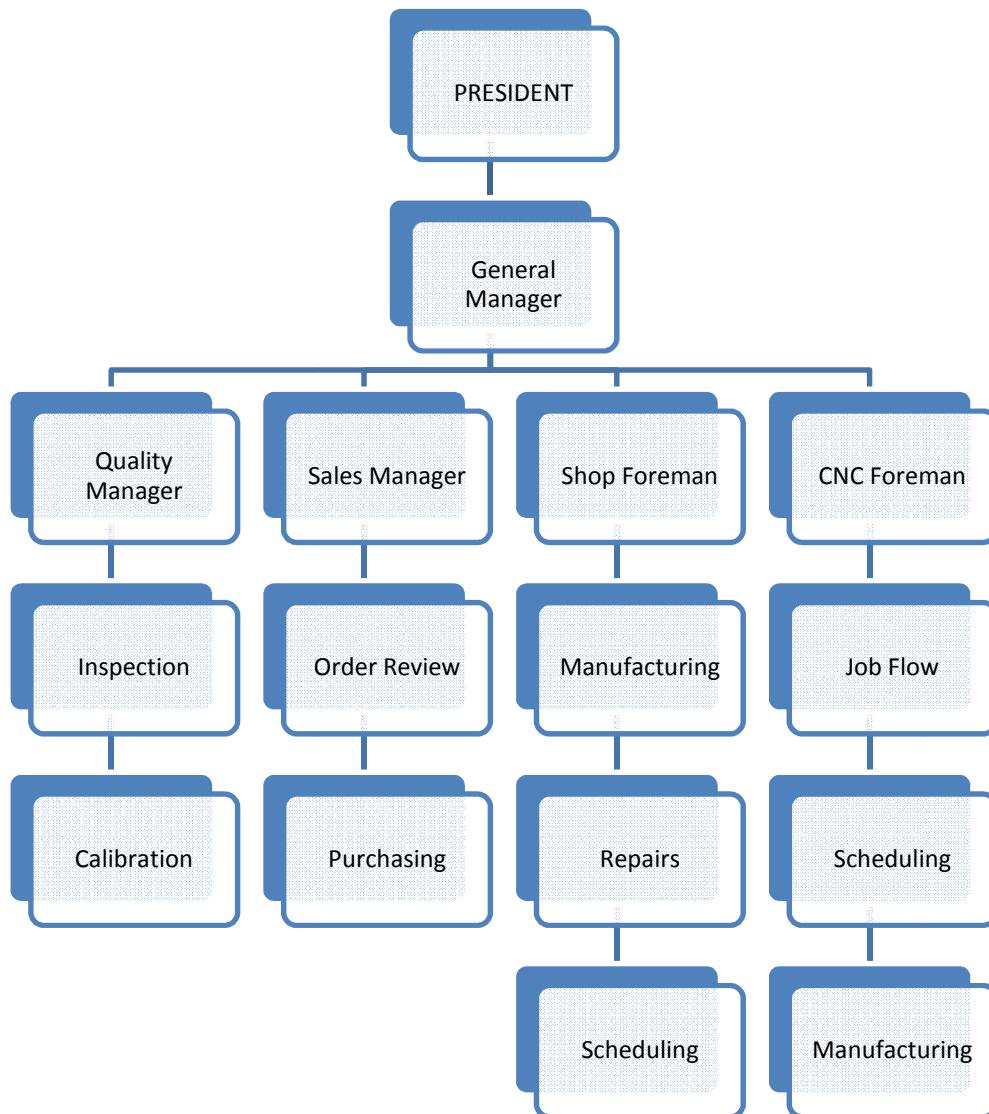
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2.4 ORGANIZATION CHART





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2.5 QUALITY ASSURANCE MANUAL CONTROL

2.5.1 MANUAL ISSUANCE AND REVISION

2.5.1.1 THE QUALITY MANAGER SHALL BE RESPONSIBLE FOR PREPARATION AND ISSUANCE OF ALL COPIES OF THIS QUALITY ASSURANCE MANUAL.

2.5.1.2 CONTROLLED COPIES OF THIS QUALITY ASSURANCE MANUAL MAY BE ISSUED TO BAUMAN MACHINE, INC. EMPLOYEES AND CUSTOMERS.

2.5.1.3 THE QUALITY MANAGER SHALL PERIODICALLY REVIEW THIS QUALITY ASSURANCE MANUAL FOR CHANGES REQUIRED TO MAINTAIN COMPLIANCE WITH INDUSTRY STANDARDS AND CUSTOMER REQUIREMENTS.

2.5.1.4 THE QUALITY MANAGER SHALL BE RESPONSIBLE FOR PREPARING ALL CHANGES IN THIS MANUAL. REVISIONS SHALL BE INDICATED BY A LETTER AND THE DATE IT WAS REVISED.

2.5.1.5 REVISIONS TO THIS MANUAL SHALL BE ISSUED TO HOLDERS OF CONTROLLED COPIES UPON REQUEST.

2.6 EMPLOYEE TRAINING

2.6.1 MANAGEMENT AND QUALITY MANAGER SHALL CONDUCT TRAINING AND INDOCTRINATION FOR PERSONNEL WHOSE ACTIVITIES AFFECT QUALITY TO ASSURE THAT PRODUCT QUALITY IS ACHIEVED AND MAINTAINED.

2.6.2 THE INDOCTRINATION SHALL INCLUDE ON THE JOB TRAINING BY AN EXPERIENCED SUPERVISOR.

2.6.3 EMPLOYEES SHALL BE REQUIRED TO READ AND ACKNOWLEDGE ALL INFORMATION AND GUIDELINES SETFORTH IN THE MACHINIST QUALITY GUIDELINES AND TRAINING MANUAL.

2.7 QUALIFICATION OF EMPLOYEES

2.7.1 MANAGEMENT IS RESPONSIBLE FOR HIRING PERSONNEL WHO ARE QUALIFIED OR CERTIFIED BASED ON EDUCATION, EXPERIENCE, TRAINING, OR EXAMINATION AS REQUIRED/SETFORTH BY IN THE IN JOB DESCRIPTIONS IN THE MACHINIST QUALITY GUIDELINES AND TRAINING MANUAL.



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3.0 DESIGN CONTROL

3.1 ORDER ENTRY

3.1.1 WORK ORDERS ARE PREPARED FOR EVERY JOB AND SHALL REQUIRE THE FOLLOWING:

A) PART NUMBER AND CURRENT REVISION OF PART TO BE MANUFACTURED (IF APPLICABLE).

B) A CUSTOMER'S PURCHASE ORDER NUMBER.

B) A DESCRIPTION OF PART TO BE MANUFACTURED.

C) ANY SPECIAL CUSTOMER REQUIREMENTS.

D) DRAWING(S) OR ANY PERTINENT INFORMATION REQUIRED FOR THE PROCESS OF MANUFACTURING THE PART(S) SHALL BE FURNISHED BY THE CUSTOMER.

3.2 DESIGN

3.2.1 BAUMAN MACHINE, INC. IS IN THE BUSINESS OF SUPPLYING MACHINING AND REPAIR SERVICES AND **DOES NOT** SUPPLY DESIGN SERVICES.



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4.0 DOCUMENT CONTROL

4.1 DRAWINGS

4.1.1 DRAWINGS REPRESENT THE GEOMETRIC CONFIGURATION OF FORGING, CASTING AND STAMPING, OR FINISHED MACHINE PARTS AND ARE IDENTIFIED BY A PART AND/OR DRAWING NUMBER AND REVISION NUMBER.

4.1.2 COPIES OF A DRAWING REQUIRED TO COMPLETE A JOB SHALL BE OBTAINED FROM OUR CUSTOMERS. UPON COMPLETION OF THE JOB, ALL DRAWINGS SHALL BE RETURNED TO THE CUSTOMER UPON REQUEST.

4.1.3 UPON RECEIPT OF AN ORDER, THE REVISION NUMBER ON THE DRAWING OR PRINT SHALL BE CHECKED AGAINST THE REVISION NUMBER ON THE CUSTOMER PURCHASE ORDER.

4.1.4 CUSTOMERS/VENDORS THAT REQUIRE THEIR DRAWINGS TO BE "CONTROLLED" SHALL HAVE THEIR DRAWINGS PLACED IN A SECURE LOCATION AND SHALL BE MAINTAINED BY MANAGEMENT. DURING A REQUIREMENT FOR A "CONTROLLED DRAWING", THE DRAWING SHALL BE MARKED "CONTROLLED DRAWING" AND SHALL ONLY BE RELEASED TO MANUFACTURE THAT PART FOR THE TIME FRAME REQUIRED. ONCE THE JOB IS COMPLETED THE DRAWING SHALL BE RETURNED TO MANAGEMENT FOR SAFE KEEPING. THE FOLLOWING IS A LIST OF CUSTOMERS/VENDORS THAT REQUIRE THEIR DOCUMENTS TO BE CONTROLLED:

A) GRANT PRIDECO

4.2 STANDARDS

4.2.1 STANDARDS ARE WRITTEN INSTRUCTIONS DEFINING REQUIREMENTS FOR MATERIALS, PROCESSES, TESTS, EXAMINATIONS, INSPECTION, ACCEPTANCE CRITERIA, ETC., AND FULLY DESCRIBE HOW THE WORK IS TO BE PERFORMED.

4.2.2 COPIES OF STANDARDS REQUIRED TO COMPLETE A JOB SHALL BE OBTAINED FROM OUR CUSTOMERS. UPON COMPLETION OF THE JOB, ALL STANDARDS SHALL BE RETURNED TO THE CUSTOMER UPON REQUEST.



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5.0 PROCESS CONTROL

5.1 WORK ORDERS

5.1.1 WORK ORDERS ARE PREPARED TO CUSTOMER PURCHASE ORDER AND SPECIFY THE FOLLOWING INFORMATION, AS APPLICABLE:

A) PART AND REVISION NUMBER

B) QUANTITY & DESCRIPTION OF PART TO BE MANUFACTURED OR REPAIRED.

C) ANY SPECIAL CUSTOMER REQUIREMENTS

D) DATE ORDERED AND DATE REQUIRED

E) MATERIAL ORDER NUMBER

F) ANY SPECIAL SHIPPING INSTRUCTIONS

G) CUSTOMER/BUYER

H) CUSTOMER PURCHASE ORDER NUMBER

5.1.2 A SUPERVISOR SHALL PREPARE THE WORK ORDER. IT SHALL BE THE RESPONSIBILITY OF THE SUPERVISOR TO INDICATE ALL SPECIAL REQUIREMENT NOTES OF THE CUSTOMERS PURCHASE ORDER ON THE WORK ORDER.

5.1.3 THE USE OF ALTERNATIVE MATERIALS SHALL BE APPROVED BY OUR CUSTOMERS ENGINEERING OR Q.C. DEPARTMENT.
(REF: DEVIATION/WAIVER REQUEST FORM DWR-001)



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5.2 CONTRACT REVIEW

5.2.1 UPON RECEIPT OF CUSTOMER PURCHASE ORDER, THE FOLLOWING INFORMATION SHALL BE REVIEWED BY THE GENERAL MANAGER.

- A) PART AND REVISION NUMBER
- B) QUANTITY AND DESCRIPTION OF PART
- C) PURCHASE ORDER NUMBER
- D) DATE ORDERED AND DATE REQUIRED
- E) PRICING/COST
- F) ANY SPECIAL INSTRUCTIONS

IF ALL INFORMATION IS ACCEPTABLE, THE CUSTOMER PURCHASE ORDER SHALL BE INITIALED BY THE GENERAL MANAGER.

5.3 CHANGES/ERRORS

5.3.1 UPON FINDING A CHANGE/ERROR ON AN APPROVED DOCUMENT DEFINED BY THIS PROGRAM THE CHANGE/ERROR MAY BE CORRECTED BY DRAWING A SINGLE LINE THROUGH THE CHANGE/ERROR AND INSERTING THE CORRECT INFORMATION BY AN INDIVIDUAL WITHIN THE ORGANIZATION RESPONSIBLE FOR APPROVAL OF THE DOCUMENT OR BY RETRIEVING ALL AFFECTED DOCUMENTS AND REPLACING THEM WITH CORRECTED INFORMATION AND/OR CHANGES.

5.3.2 WHEN MULTIPLE COPIES OF A DOCUMENT HAVE BEEN ISSUED, ALL COPIES MUST BE RETRIEVED FOR CORRECTION PER 4.3.1.

5.3.3 THE CHANGE/ERROR SHALL BE INITIALED AND DATED.

5.3.4 THE PRODUCTION MANAGER SHALL BE RESPONSIBLE FOR IMPLEMENTING ANY CHANGES/CORRECTIONS THAT WILL EFFECT MANUFACTURING.

5.3.5 THE CUSTOMER SHALL BE INFORMED IF DEEMED NECESSARY.



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6.0 PROCUREMENT CONTROL

6.1 PURCHASE ORDER PREPARATION AND ISSUANCE

6.1.1 THE PROCUREMENT OF PRODUCT RELATED MATERIAL AND/OR SERVICE SHALL BE CONTROLLED TO ASSURE CONFORMANCE TO REQUIREMENTS. THE PROCUREMENT DOCUMENTS SHALL INCLUDE OR REFERENCE INSTRUCTIONS, PROCEDURES, SPECIFICATIONS AND DRAWINGS AS APPLICABLE.

6.1.2 PURCHASING SHALL PREPARE AND ISSUE A PURCHASE ORDER WHICH DETAILS THE FOLLOWING AS APPLICABLE:
A) SUPPLIER'S NAME
B) QUANTITY
C) DESCRIPTION AND/OR SPECIFICATIONS PERTAINING TO THE ITEM(S) ORDERED. (EX. ALLOY, HEAT TREATMENT, HARDNESS, DIMENSIONS, ETC.)
D) A REFERENCE TO THE JOB NUMBER THAT THE ITEM(S) WERE ORDERED FOR.

6.1.3 REVISION NUMBERS FOR PART NUMBER, STANDARD NUMBER, AND DRAWING NUMBER, WILL BE SPECIFIED BY CUSTOMER'S P.O.

6.1.4 THE PURCHASE ORDER SHALL ONLY BE ISSUED TO A QUALIFIED SUPPLIER ON THE APPROVED VENDORS LIST. SUPPLIERS SHALL BE QUALIFIED AS DESCRIBED IN SECTION 6.3.

6.1.5 PURCHASE ORDERS SHALL BE REVIEWED AND APPROVED BY THE PURCHASING DEPARTMENT, TO ASSURE COMPLIANCE WITH THE CUSTOMER'S PURCHASE ORDER REQUIREMENTS.

6.2 SUPPLIER PERFORMANCE EVALUATION

6.2.1 PURCHASING SHALL ANALYZE SUPPLIER NONCONFORMANCE DATA PERIODICALLY. IN THE EVENT THERE IS A REPETITIVE NONCONFORMANCE, THE GENERAL MANAGER OR THE QUALITY MANAGER SHALL INITIATE A CORRECTIVE ACTION REQUEST BY MEANS OF THE CORRECTIVE ACTION REQUEST PROCEDURE OUTLINED IN SECTION 13.0.

6.2.2 SUPPLIERS FAILING TO SATISFY CORRECTIVE ACTION REQUEST SHALL BE SUBJECT TO REMOVAL FROM APPROVED VENDORS LIST, OR AS DETERMINED BY THE GENERAL MANAGER



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6.3 SUPPLIER QUALIFICATION

6.3.1 SUPPLIERS SHALL BE INITIALLY APPROVED IN ACCORDANCE WITH THE REQUIREMENTS AS STIPULATED BY OUR CUSTOMERS.

6.4 APPROVED VENDORS LIST

6.4.1 PURCHASING SHALL DEVELOP & MAINTAIN A LIST OF APPROVED SUPPLIERS.

6.4.2 PURCHASING SHALL CONDUCT AN EVALUATION AND REVIEW OF "KEY" VENDORS ONCE PER YEAR USING FORM SUPPLIER-01. THE VENDOR WILL BE EVALUATED ON THE FOLLOWING CRITERIA:

- (A) QUALITY PERFORMANCE
- (B) PRICE PERFORMANCE
- (C) DELIVERY PERFORMANCE

IF THE VENDOR'S EVALUATION SCORE IS CONSIDERED TO BE UNSATISFACTORY, THEN THAT VENDOR SHALL BE PLACED ON PROBATION AND NOTIFIED BY PURCHASING OF THAT STATUS. THE VENDOR THEN SHALL BE RE-EVALUATED AFTER A PERIOD OF 3 MONTHS. IF THE VENDOR'S PERFORMANCE HAS NOT IMPROVED THEN THAT VENDOR SHALL BE REMOVED FROM THE APPROVED VENDORS LIST.

6.5 RECEIVING INSPECTION

6.5.1 PURCHASE ORDERS SHALL BE ISSUED WITH THE CLEAR UNDERSTANDING THAT COMPANY PERSONNEL HAVE THE RIGHT TO INSPECT MATERIALS AND/OR SERVICES AT THE SUPPLIERS FACILITY PRIOR TO SHIPMENT TO BAUMAN MACHINE, INC.

6.5.2 UPON RECEIPT OF MATERIAL, RECEIVING SHALL RETRIEVE AND REVIEW A COPY OF THE PURCHASE ORDER. RECEIVING SHALL DETERMINE IF ALL DOCUMENTATION SPECIFIED ON THE PURCHASE ORDER HAS BEEN FURNISHED AND SHALL REVIEW AND APPROVE DOCUMENTATION TO ASSURE COMPLIANCE WITH PURCHASE ORDER REQUIREMENTS.

6.5.3 RECEIVING SHALL PERFORM A RECEIVING INSPECTION USING PROCUREMENT DOCUMENTS. RECEIVING SHALL DOCUMENT THE RECEIVING INSPECTION RESULTS ON THE PURCHASE ORDER AND SIGN-OFF ON THE PURCHASE ORDER TO INDICATE ACCEPTANCE OF MATERIAL AND DOCUMENTS.



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- 6.5.4 UPON RECEIPT AND ACCEPTANCE OF RAW MATERIAL, RECEIVING SHALL WRITE HEAT NUMBER(S) OR MILL CERTIFICATION NUMBER ON THE PURCHASE ORDER FOR PURPOSE OF TRACEABILITY
- 6.5.5 AFTER ACCEPTANCE RECEIVING SHALL MARK MATERIAL AS FOLLOWS:
1. IF MATERIAL IS ORDERED FOR A SPECIFIC JOB, THE MATERIAL WILL BE MARKED WITH A WHITE PAINT PEN WITH THE CORRESPONDING JOB NUMBER.
 2. IF MATERIAL IS FOR STOCK, FOR FUTURE ORDERS AND IS NOT BE IMMEDIATELY USED, THE SIZE, ALLOY TYPE, AND PURCHASE ORDER NUMBER SHALL BE WRITTEN ON THE MATERIAL WITH WHITE PAINT MARKER.
- 6.5.6 UNACCEPTABLE PARTS SHALL BE CONTROLLED IN ACCORDANCE WITH THE NONCONFORMANCE PROCEDURE OUTLINED IN SECTION 12.0.
- 6.6 PROCEDURE FOR CUSTOMER SUPPLIED MATERIAL, GAUGES, TOOLING**
- 6.6.1 ALL MATERIAL RECEIVED BY BAUMAN MACHINE INC, THAT IS FURNISHED BY THE CUSTOMER SHALL BE REVIEWED FOR CONFORMANCE TO THE PURCHASE ORDER, DRAWINGS, OR OTHER RELATED DOCUMENTATION REGARDLESS OF WHERE THE MATERIAL ORIGINATED. AFTER REVIEW THE MATERIAL SHALL BE MARKED WITH THE CORRESPONDING JOB NUMBER WITH A WHITE PAINT PEN.
- 6.6.2 ANY TOOLING, GAUGES, JIGS, OR FIXTURING SUPPLIED TO MANUFACTURE A PART OR ASSEMBLY WILL BE IDENTIFIED WITH THE CUSTOMER'S PART NUMBER, CUSTOMER'S NAME, AND THE CORRESPONDING JOB NUMBER.
- 6.6.3 IF CUSTOMER SUPPLIES JIGS, FIXTURES, OR GAUGES TO BE USED FOR PART QUALIFICATION AND ACCEPTANCE, BAUMAN MACHINE INC, RESERVES THE RIGHT TO REQUEST A CUSTOMER GENERATED INSPECTION PROCEDURE DETAILING HOW SUPPLIED ITMES ARE TO BE USED. THIS PROCEDURE WILL BE REFERENCED ON THE JOB TRAVELER AND ANY INSPECTION RECORDS THAT MAY BE GENERATED.
- 6.6.4 IF ANY TOOLS, GAUGES, JIGS, OR FIXTURES ARE FOUND TO BE SUB-STANDARD OR OUT OF CALIBRATION, THE ISSUER WILL BE NOTIFIED AND THE ITEMS WILL BE QUARANTINED UNTIL PROPER NOTIFICATION HAS BEEN RECEIVED BY THE ISSUER. FURTHER PROCESSING OF THE ORDER WILL IMMEDIATELY HALT UNTIL THE PROBLEM HAS BE RESOLVED.



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7.0 IDENTIFICATION & TRACEABILITY

7.1 MATERIAL/PART IDENTIFICATION

7.1.1 MATERIAL AND PARTS SHALL BE IDENTIFIED & TRACEABLE THROUGHOUT THE ENTIRE MANUFACTURING STAGES, UNTIL SHIPPED. WITH A UNIQUE JOB NUMBER THAT CROSS REFERENCES TO THE CUSTOMER'S PURCHASE ORDER NUMBER, AND MATERIAL PURCHASE ORDER NUMBER.

NOTE: WHEN SIZE, CONFIGURATION, OR SURFACE OF THE PART WILL NOT PERMIT PROPER IDENTIFICATION, THE PART MAY BE A TAGGED, OR PUT INTO A PROPERLY MARKED CONTAINER .

7.1.2 HEAT TRACEABLE PARTS SHALL BE IDENTIFIED WITH THE BAUMAN MACHINE, INC. PURCHASE ORDER NUMBER WHICH CORRELATES TO THE RAW MATERIAL PROCUREMENT.

7.1.3 WHEN MATERIAL IS PURCHASED FOR A SPECIFIC PART, THE MATERIAL SHALL BE MARKED WITH THE CORRESPONDING JOB NUMBER.

7.1.4 WHEN IDENTIFICATION MARKING IS REMOVED DURING PROCESSING, IT SHALL BE RE-MARKED IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK ORDER/JOB NUMBER, AS APPLICABLE.

7.2 COMPONENT/ASSEMBLY IDENTIFICATION

7.2.1 COMPONENTS OF ASSEMBLIES SHALL BE IDENTIFIED WITH THEIR ORIGINAL PURCHASE ORDER NUMBER UNTIL THEY ARE ASSEMBLED. AFTER ASSEMBLY, THE PURCHASE ORDER WILL THEN BE REMOVED AND THE PART WILL THEN BE MARKED WITH THE CORRESPONDING JOB NUMBER.

7.3 STEEL STAMPING

7.3.1 WHEN STEEL STAMPS ARE USED TO APPLY IDENTIFICATION DATA, THEY SHALL BE OF THE LOW STRESS TYPE UNLESS SPECIFIED BY CUSTOMER.



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7.4 CUSTOMER MARKING REQUIREMENTS

- 7.4.1 WHEN REQUIRED BY A CUSTOMER, THEY MAY FURNISH A SERIAL NUMBER, LOT NUMBER, HEAT NUMBER OR PURCHASE ORDER NUMBER, THAT WILL IDENTIFY MATERIALS AND WILL BE APPLIED TO THEIR SPECIFICATION(S) TO THE FINISHED GOOD(S) AND BAUMAN MACHINE INC, INTERNAL IDENTIFICATION NUMBER WILL BE REMOVED.



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8.0 INSPECTION

8.1 FIRST ARTICLE INSPECTION

8.1.1 THE FIRST ARTICLE OF EACH OPERATION SHALL BE 100% INSPECTED AND DOCUMENTED BY QUALIFIED INDIVIDUAL USING CALIBRATED EQUIPMENT.

8.1.2 AFTER FIRST ARTICLE HAS BEEN PERFORMED IT SHALL BE VERIFIED BY ANOTHER INDIVIDUAL AND SIGNED OFF ON THE JOB TRAVELER.

8.2 IN-PROCESS INSPECTION/PROCEDURES

8.2.1 IN PROCESS INSPECTION SHALL BE PERFORMED BY THE OPERATOR(S)/MACHINIST.

8.2.2 IN PROCESS INSPECTION SHALL BE RECORDED ON JOB TRAVELER.

8.2.3 THE SAMPLE SIZE WILL BE BASED ON ANSI ASQ Z1.4.

8.2.3.1 DETERMINATION OF THE INSPECTION REQUIREMENTS WILL BE DEPENDENT ON THE TYPE OF PART, CYCLE TIME AND THE QUANTITY OF THE PARTS TO BE MACHINED.

8.2.3.2 CHARACTERISTICS TO BE INSPECTED WILL BE DETERMINED BY THE QUALITY CONTROL AND PRODUCTION MANAGER FOR EACH OPERATION. THE TYPE OF PART, CYCLE TIME AND QUANTITY WILL AID IN THIS DETERMINATION.

8.2.4 IN THE EVENT OF A REJECTION DURING ANY IN-PROCESS MACHINING, THE REJECTED PART(S) WILL BE CLEARLY IDENTIFIED BY RED PAINT AND MARKED WITH THE DISCREPANCY.

8.2.5 REJECTED PART(S) WILL FOLLOW THE NONCONFORMANCE PROCEDURE AS DESCRIBED IN SECTION 12.0



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8.3 FINAL INSPECTION

- 8.3.1 PRODUCTS SHALL BE REVIEWED TO VERIFY CONFORMANCE TO CUSTOMER REQUIREMENTS.
- 8.3.2 INSPECTION FOR ACCEPTANCE SHALL BE PERFORMED BY THE MACHINE OPERATOR USING EMPLOYEE OWNED EQUIPMENT THAT HAS BEEN CALIBRATED PER PARAGRAPH 9.1.4, OR CALIBRATED BMI EQUIPMENT.
- 8.3.3 UNACCEPTABLE PARTS SHALL BE PROCESSED IN ACCORDANCE WITH THE NONCONFORMANCE PROCEDURE DESCRIBED IN SECTION 12.0. REWORKED/REPAIRED PARTS SHALL BE RE-INSPECTED.

8.4 ASSEMBLY AND TESTING PROGRAM

- 8.4.1 PRODUCTS SHALL BE ASSEMBLED AND TESTED IN ACCORDANCE WITH WRITTEN INSTRUCTIONS CONFORMING TO THE APPLICABLE CUSTOMER'S ENGINEERING SPECIFICATIONS.
- 8.4.2 EACH COMPONENT OR ASSEMBLY SHALL BE SUBJECTED TO A FUNCTIONAL TEST AS APPLICABLE. THE FUNCTIONAL TEST SHALL VERIFY PROPER ASSEMBLY AND OPERATION.
- 8.4.3 THE ACCEPTANCE OF TESTING SHALL BE CONTROLLED BY PERSONS OTHER THAN THOSE WHO MANUFACTURED THE ITEM BEING TESTED.
- 8.4.4 ALL NONCONFORMING ASSEMBLIES ARE IDENTIFIED AND SEGREGATED TO PRECLUDE ANY CHANCES OF THEM BEING USED ACCIDENTALLY AND WILL BE SUBJECT TO THE NONCONFORMANCE PROCESS PER SECTION 12.0.



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9.0 MEASURING AND TEST EQUIPMENT

9.1 CALIBRATION PROGRAM

- 9.1.1 MEASURING AND TEST EQUIPMENT USED FOR ACCEPTANCE SHALL BE CALIBRATED IN ACCORDANCE WITH INDUSTRY RECOGNIZED STANDARDS AND SHALL BE SUITABLE FOR ITS INTENDED USE. GAGES AND EQUIPMENT SHALL BE IDENTIFIED FOR CALIBRATION WITH A CALIBRATION LABEL, INDICATING CALIBRATION DATE AND THE DUE DATE. CALIBRATION FREQUENCY AND PROCEDURES SHALL BE PERFORMED TO BAUMAN MACHINE CALIBRATION PROCEDURE MANUAL.
- 9.1.2 MEASURING AND TEST EQUIPMENT FOUND TO BE OUT OF CALIBRATION SHALL BE EVALUATED TO DETERMINE IMPACT ON PRODUCTS ACCEPTED WITH THE DISCREPANT MEASURING AND TEST EQUIPMENT.
- 9.1.3 CALIBRATION SHALL BE TRACEABLE TO NATIONAL STANDARDS WHERE SUCH EXIST OR TO ACCEPTED VALUES OF PHYSICAL CONSTANTS WHERE NATIONAL STANDARDS DO NOT EXIST.
- 9.1.4 PRIOR TO START OF EACH JOB, EMPLOYEE OWNED MEASURING EQUIPMENT THAT IS TO BE USED, SHALL BE CHECKED WITH CALIBRATED STANDARDS THAT ARE MAINTAINED BY THE QUALITY MANAGER.
- 9.1.5 ITEMS NOT REQUIRING CALIBRATION SHALL BE CLEARLY MARKED "FOR REFERENCE USE ONLY."
- 9.1.6 GAUGES WITHOUT THE PROPER CALIBRATION LABEL SHALL BE CONSIDERED OUT OF CALIBRATION AND NOT AUTHORIZED FOR USE.
- 9.1.7 WHEN GAUGES ARE FOUND TO BE WORN OR DAMAGED AT ANY TIME, THEY WILL BE IMMEDIATELY CORRECTED OR REPLACED AND NOTED IN THE MASTER CALIBRATION LOG.



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9.2 INACTIVE INSPECTION EQUIPMENT

9.2.1 DUE TO THE NATURE OF OUR BUSINESS, SOME ITEMS OF INSPECTION EQUIPMENT, FOR EXAMPLE, A NON-STANDARD THREAD GAUGE, IS USED FOR ONE SPECIFIC PART OR COMPANY AND MAY BE INACTIVE FOR A LONG PERIOD, PENDING REORDER OF THAT PART. WHEN IT IS EXPEDIENT TO WITHDRAW SUCH INACTIVE EQUIPMENT FROM CALIBRATION CONTROL TO AVOID NEEDLESS CALIBRATION EXPENSES, THE ITEM WILL BE CLEARLY IDENTIFIED BY A TAG OR LABEL READING "CALIBRATE BEFORE USE" AND WILL BE SEGREGATED FROM CALIBRATED ITEMS TO PREVENT INADVERTENT USE. WHEN THE INACTIVE ITEM IS REPLACED INTO USE, IT SHALL BE RECALIBRATED.

9.3 ACCURACY

9.3.1 THE ACCURACY OF MEASURING AND TEST EQUIPMENT SHALL MEET THE REQUIREMENTS OF APPLICABLE INDUSTRY STANDARD. WHEN ACCURACY IS NOT SPECIFICALLY SPECIFIED, ACCURACY WILL MEET THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS OR OTHER INDUSTRY RECOGNIZED STANDARDS.

9.4 IDENTIFICATION

9.4.1 MEASURING AND TEST EQUIPMENT MAINTAINED BY THE QUALITY MANAGER SHALL BE IDENTIFIED WITH A UNIQUE NUMBER FOR TRACEABILITY TO CALIBRATION RECORDS AND STATUS.

9.4.2 CALIBRATED STATUS SHALL BE IDENTIFIED ON THE MEASURING AND TEST EQUIPMENT MAINTAINED BY THE QUALITY MANAGER.

9.5 RECORDS

9.5.1 CALIBRATION HISTORY SHALL BE MAINTAINED AND INCLUDE AS A MINIMUM:

- A) DATE CALIBRATED
- B) EQUIPMENT SERIAL NUMBER
- C) INDIVIDUAL WHO PERFORMED THE CALIBRATION
- D) NEXT CALIBRATION DUE DATE
- E) RECORDED CALIBRATION



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10.0 HANDLING AND SHIPPING

10.1 HANDLING

10.1.1 MATERIAL AND PRODUCTS WILL BE PROTECTED FROM DAMAGE DURING HANDLING OR MOVEMENT. ANY SPECIAL HANDLING REQUIRED BY THE CUSTOMER WILL BE REFERENCED ON THE JOB TRAVELER.

10.2 SHIPPING

10.2.1 THE MODE OF TRANSPORTATION SHALL BE CONSISTENT WITH THE PROTECTION REQUIRED DURING TRANSIT, OR AS REFERENCED ON THE JOB TRAVELER.

10.2.2 PACKING LIST SHALL BE ISSUED AS SHIPPING TICKETS AND SHALL INDICATE THE PURCHASING COMPANY NAME, THE PURCHASING AGENT, AND A DESCRIPTION OF THE EQUIPMENT OR PART CONTAINED AND/OR DELIVERED.

10.3 PACKAGING

10.3.1 ALL FINISHED UNITS SHALL BE MARKED AND PACKAGED ACCORDING TO THE CUSTOMERS SPECIFICATION(S).

10.4 CLEANING

10.4.1 ALL ASSEMBLIES SHALL BE THOROUGHLY CLEANED OF DIRT, CUTTING OIL, METAL CHIPS AND OTHER CONTAMINATES. ANY SPECIAL CLEANING REQUIRED BY THE CUSTOMER WILL BE REFERENCED ON THE JOB TRAVELER.

10.5 STORAGE

10.5.1 ALL CERTIFIED RAW MATERIALS SHALL BE KEPT SEPARATE FROM UNIDENTIFIED MATERIAL.

10.5.2 EXTRA COMPONENTS OR PARTS SHALL BE TAGGED/MARKED WITH THE CUSTOMERS NAME, PART NUMBER, AND ORIGINAL MATERIAL PURCHASE ORDER NUMBER (IF APPLICABLE) AS DESCRIBED IN SECTION 14.0.



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11.0 ACCEPTANCE STATUS

11.1 STATUS INDICATORS

11.1.1 THE FOLLOWING STATUS INDICATORS ARE USED BY BAUMAN MACHINE, INC., AS APPLICABLE:

- A) PAINT MARKING
- B) TAGS
- C) STEEL STAMPING
- D) SIGN-OFF ON PROCESSING DOCUMENTATION
- E) SERIALIZATION



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12.0 NONCONFORMANCE

12.1 CONTROL OF NONCONFORMING PARTS, MATERIALS, SERVICES AND/OR ACTIVITIES

12.1.1 PARTS, MATERIALS, SERVICES AND/OR ACTIVITIES WHICH ARE DETERMINED TO BE UNACCEPTABLE OR UNDETERMINED DURING INSPECTION OR TESTING, SHALL BE CLASSIFIED AS DISCREPANT ITEMS.

12.1.2 THE QUALITY MANAGER OR SHOP FOREMAN SHALL EITHER PAINT NON-CONFORMING PARTS RED OR SEGREGATE THE ITEMS FROM THOSE ITEMS WHICH ARE ACCEPTABLE FROM THOSE THAT ARE UNACCEPTABLE.

12.1.3 NO ONE IS AUTHORIZED TO REMOVE NON-CONFORMING ITEMS FROM A SEGREGATED AREA UNTIL EITHER THE QC MANAGER, OR THE PRODUCTION MANAGER PERFORMS A REVIEW ON THE PART AND MAKES A DETERMINATION AS DESCRIBED IN SECTION 12.2.

12.2 FINAL DISPOSITION OF DISCREPANT PARTS, MATERIAL AND SERVICES

12.2.1 THE GENERAL MANAGER, SHOP FOREMAN OR QUALITY MANAGER SHALL DETERMINE THE FINAL DISPOSITION OF DEFECTIVE ITEMS.

A) **AUTHORIZED DEVIATION**-THE QUALITY MANAGER SHALL UTILIZE THIS DISPOSITION ONLY AFTER CUSTOMER AUTHORIZATION (REF: DEVIATION/WAIVER REQUEST FORM DWR-001 AND ONLY UNDER THE FOLLOWING CONDITIONS:

- 1) DISPOSITION CAN BE SUPPORTED TECHNICALLY AND DOES NOT COMPROMISE THE PERFORMANCE, INTERCHANGEABILITY, OR SAFETY OF THE PRODUCT.
- 2) CHARACTERISTICS CONTROLLED UNDER THE JURISDICTION OF INDUSTRY STANDARDS OR CUSTOMER SPECIFICATIONS ARE NOT SUBJECT TO CONCESSION.

B) **REWORK**-THE REWORK DISPOSITION IS APPLICABLE TO PARTS THAT CAN BE RESTORED TO SPECIFICATION WITHOUT THE USE OF SPECIAL PROCESSES.

C) **REPAIR**-THE REPAIR DISPOSITION IS APPLICABLE WHEN SPECIAL PROCESSES SUCH AS WELDING AND/OR HEAT TREATING IS REQUIRED TO RESTORE THE ITEM TO IT ORIGINAL SPECIFICATION(S).



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D) SCRAP-THE QUALITY MANAGER SHALL AUTHORIZE THIS DISPOSITION UNDER THE FOLLOWING CONDITIONS:

1) ITEM CANNOT BE RESTORED TO SPECIFICATION AND IS NOT SUITABLE FOR AN “ AUTHORIZED DEVIATION”.

2) REWORK/REPAIR REQUIRED TO RESTORE ITEM TO SPECIFICATION CANNOT BE ECONOMICALLY JUSTIFIED.

NOTE: NON CONFORMANCE PARTS SHALL BE SEGRATED FROM CONFORMING PARTS OR PAINTED RED IMMEDIATELY FOR USE AS A TEST PIECE.



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13.0 CORRECTIVE ACTION

13.1 CORRECTIVE ACTION REQUEST

- 13.1.1 WHEN ANY CONDITION ADVERSE TO QUALITY IS IDENTIFIED, THE QUALITY MANAGER SHALL BE NOTIFIED. THE GENERAL MANAGER OR THE QUALITY MANAGER SHALL, AT THEIR DISCRETION, PREPARE AND ISSUE A CORRECTIVE ACTION REQUEST TO THE INDIVIDUAL OR COMPANY RESPONSIBLE FOR THE NONCOMPLIANCE.
- 13.1.2 THE RECIPIENT SHALL DOCUMENT THE CAUSE OF THE NONCOMPLIANCE, CORRECTIVE ACTION TAKEN AND ACTION TAKEN TO MINIMIZE RECURRENCE.
- 13.1.3 A COPY OF ALL CORRECTIVE ACTION REQUEST SHALL BE FORWARDED TO THE GENERAL MANAGER UPON COMPLETION.



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14.0 OVERRUN STOCK CONTROL

- 14.1 THE QC MANAGER OR THE PRODUCTION MANAGER SHALL HAVE THE RESPONSIBILITY FOR THE CONTROL OF ANY JOB OVERRUN STOCK.
- 14.2 THE PART(S) REFERRED FOR STOCK WILL BE PROPERLY IDENTIFIED AS TO INSPECTION STATUS (ACCEPTED) PART NUMBER, DRAWING NUMBER, REVISION LEVEL, MANUFACTURED DATE, JOB NUMBER, AND QUANTITY. IN ADDITION, IT SHALL BE THE RESPONSIBILITY OF THE QC MANAGER OR PRODUCTION MANAGER TO ENSURE THE PARTS ARE ACCEPTABLY PACKAGED TO PREVENT DETERIORATION OR DAMAGE DURING STORAGE.



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15.0 RECORDS

15.1 IDENTIFICATION OF APPLICABLE RECORDS

<u>RECORD</u>	<u>DEPARTMENT</u>	<u>PERIOD</u>
QUALIFICATION RECORDS	QUALITY	5 YEARS
PROCESS ROUTINGS	QUALITY	5 YEARS
PROCUREMENT DOCUMENTS	QUALITY	5 YEARS
TRACEABILITY RECORDS	QUALITY	5 YEARS
INSPECTION RECORDS	QUALITY	5 YEARS
CALIBRATION RECORDS	QUALITY	5 YEARS
NONCONFORMANCE DATA	QUALITY	5 YEARS
CORRECTIVE ACTIONS	QUALITY	5 YEARS
DEVIATION/WAIVER REQUEST	QUALITY	5 YEARS
DISCREPANT MATERIAL REPORT	QUALITY	5 YEARS

15.2 RECORD STORAGE

15.2.1 RECORDS SHALL BE COMPILED AND MAINTAINED TO PROVIDE OBJECTIVE EVIDENCE THAT PRODUCTS CONFORM TO THIS PROGRAM. THESE RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF FIVE (5) YEARS IN A RETRIEVABLE MANNER AND PROTECTED AGAINST DAMAGE OR LOSS.

15.2.2 WHERE NATIONAL, INDUSTRY, OR PRODUCT STANDARDS REQUIRE RECORD RETENTION IN EXCESS OF FIVE (5) YEARS, THEN APPLICABLE STANDARDS SHALL PREVAIL.



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16.0 EXHIBITS INDEX

<u>NUMBER</u>	<u>DESCRIPTION</u>
16.1	REPAIR WORK ORDER
16.2	JOB TRAVELER
16.3	ORDER ACKNOWLEDGMENT
16.4	PURCHASE ORDER
16.5	CORRECTIVE ACTION REQUEST FORM
16.6	DEVIATION/WAIVER REQUEST FORM

APPENDIX A

DEFINITIONS

ACCEPTANCE CRITERIA-DEFINED LIMITS PLACED ON CHARACTERISTICS OF MATERIALS, PRODUCTS OR SERVICES.

APPROVAL-AN ACT OF ENDORSING OR ADDING POSITIVE AUTHORIZATION OR BOTH.

ASSEMBLY-A COMBINATION OF COMPONENTS ASSEMBLED TOGETHER TO FORM A UNIT.

AUDIT-A DOCUMENTED INVESTIGATION CONDUCTED BY THE MANUFACTURER TO VERIFY THAT APPLICABLE REQUIREMENTS ARE BEING IMPLEMENTED.

CALIBRATION-COMPARISON AND ADJUSTMENT TO A STANDARD OF KNOWN ACCURACY.

COMPONENT-A PIECE OF EQUIPMENT WHICH WILL BE COMBINED WITH OTHER COMPONENTS TO FORM AN ASSEMBLY.

CONFORMANCE-COMPLIANCE WITH SPECIAL REQUIREMENTS.

CONTROL FEATURE-A DOCUMENTED ACTIVITY TO ENSURE CONFORMANCE WITH SPECIFIC REQUIREMENTS.

CORRECTIVE ACTION-MEASURES TAKEN TO RECTIFY CONDITIONS ADVERSE TO QUALITY AND TO MINIMIZE RECURRENCE.

DOCUMENTATION-WRITTEN OR GRAPHIC EVIDENCE THAT AN ACTIVITY, PROCESS, PRODUCT OR SERVICE MEETS ALL SPECIFIED REQUIREMENTS.

DESIGN-A DETAILED PLAN FOR A PRODUCT.

EQUIPMENT-ANY SINGLE COMPLETED UNIT THAT CAN BE USED FOR ITS INTENDED PURPOSE WITHOUT FURTHER PROCESSING OR ASSEMBLY.

FINDING-SURVEY ORIGINATED OBJECTIVE EVIDENCE THAT A CONTROL FEATURE OF THE APPROVED PROGRAM WAS NOT IMPLEMENTED WITH AN ACCEPTABLE LEVEL OF RELIABILITY.

INSPECTION-A PHASE OF QUALITY WHICH BY MEANS OF EXAMINATION, OBSERVATION OR MEASUREMENT DETERMINES THE CONFORMANCE OF MATERIALS, PARTS, COMPONENTS OR ASSEMBLIES TO PREDETERMINED REQUIREMENTS.

NATIONAL STANDARDS-THOSE STANDARDS WHICH ARE RECOGNIZED OR ACCEPTED BY GOVERNMENTS OR POLITICAL SUBDIVISIONS HAVING STATED VALUES AND ESTABLISHED AS RULES.

NONCONFORMANCE-ANY DEVIATION FROM SPECIFIED REQUIREMENTS.

OBJECTIVE EVIDENCE-FACTS WHICH ARE OBSERVED AND DOCUMENTED.

PART-INDIVIDUAL PIECES USED IN THE ASSEMBLY OF SINGLE EQUIPMENT UNITS.

PROCEDURE-A DOCUMENT THAT SPECIFIES OR DESCRIBES HOW ACTIVITY IS TO BE PERFORMED. IT MAY INCLUDE METHODS TO BE EMPLOYED, EQUIPMENT OR MATERIALS TO BE USED AND SEQUENCE OF OPERATIONS.

QUALIFIED PART-A PART MANUFACTURED IN ACCORDANCE WITH INDUSTRY REQUIREMENTS AND PRODUCED TO MEET OR EXCEED THE PERFORMANCE OF THE ORIGINAL PART.

QUALITY-CONFORMANCE TO SPECIFIED REQUIREMENTS.

QUALITY ASSURANCE-THOSE PLANNED, SYSTEMATIC AND PREVENTIVE ACTIONS WHICH ARE REQUIRED TO ENSURE THAT MATERIAL, PRODUCTS AND SERVICES WILL MEET SPECIFIED REQUIREMENTS.

QUALITY CONTROL-INSPECTION, TEST OR EXAMINATION TO ENSURE THAT MATERIAL, PRODUCTS OR SERVICES CONFORM TO SPECIFIED REQUIREMENTS.

QUALITY PROGRAM-AN ESTABLISHED CONFORMANCE SYSTEM TO ENSURE QUALITY.

REPORTS-A DOCUMENTED SUMMARY.

REPAIR-TO RETURN TO GOOD CONDITION.

RESPONSIBLE-ALL RESPONSIBILITIES FOR THIS QUALITY PROGRAM ARE ASSIGNED TO MANAGEMENT PERSONNEL. THIS ASSURES ACCOUNTABILITY AND FULL INVOLVEMENT OF EACH MANAGEMENT LEVEL. DELEGATION OF AUTHORITY, BUT NOT RESPONSIBILITY, IS PERMISSIBLE AND EXPECTED.

REVIEW-THE PROCESS OF EXAMINING DOCUMENTATION OR PROCESS TO ASSURE CONFORMANCE WITHOUT AUTHENTICATION.

SAMPLING-SAMPLING INSPECTION OR TESTS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PRODUCT SPECIFICATION OR CUSTOMER REQUIREMENTS AS APPLICABLE.

SOURCE EVALUATION-AN ON-SITE REVIEW OF A SUPPLIER'S FACILITY TO ASSURE CONFORMANCE TO THE SUPPLIERS QUALITY PROGRAM.

SUPPLIER-ANY INDIVIDUAL OR ORGANIZATION WHO FURNISHES MATERIALS, PRODUCTS OR SERVICES TO THE MANUFACTURER.

SPECIFICATION-A CONCISE STATEMENT OF A SET OF REQUIREMENTS TO BE SATISFIED BY A PRODUCT, A MATERIAL OR PROCESS INDICATING, WHENEVER APPROPRIATE, THE PROCEDURE BY MEANS OF WHICH IT MAY BE DETERMINED WHETHER THE REQUIREMENTS GIVEN ARE SATISFIED.

SPECIAL PROCESS-WELDING, HEAT TREATMENT AND NDE EXAMINATION ARE DEFINED AS SPECIAL PROCESS.

STANDARD-THE RESULT OF A PARTICULAR STANDARDIZATION EFFORT APPROVED BY A RECOGNIZED AUTHORITY.

SURVEY-A DOCUMENTED INVESTIGATION, INCLUDING EXAMINATION OF OBJECTIVE EVIDENCE.

TESTING-THE DETERMINATION OF VERIFICATION OF THE CAPABILITY OF PRODUCTS TO MEET SPECIFIED REQUIREMENTS BY SUBJECTING THE PRODUCTS TO A SET OF PHYSICAL, CHEMICAL, ENVIRONMENTAL OR OPERATION CONDITIONS.

TRACEABILITY-THE ABILITY TO DETERMINE THE ORIGINATION OF A COMPONENT OR ASSEMBLY BY DOCUMENTATION.

TRACEABILITY JOB LOT-THE ABILITY FOR PARTS TO BE IDENTIFIED AS ORIGINATING FROM A JOB LOT WHICH IDENTIFIES THE INCLUDED HEAT NUMBERS.

VERIFY-TO DETERMINE CONFORMANCE TO SPECIFIED REQUIREMENTS.

VISUAL EXAMINATION-EXAMINATION OF PARTS AND EQUIPMENT FOR VISIBLE DEFECTS IN WORKMANSHIP.

APPENDIX B
BAUMAN MACHINE INC.
APPROVED VENDORS LIST

SUPPLIER NAME:

MATERIAL/SERVICE

A&A DRY STRIP
2905 NE 71ST ST.
OKLAHOMA CITY, OK 73111
405-478-8880

SHOP PEENING

ACCURATE LAB
1613 SE 66TH
OKLAHOMA CITY, OK 73149
405-670-1388

CALIBRATION SERVICES

ALLIED BEARING
P.O. BOX 3263
TULSA, OK. 74101
405-947-1770

BEARINGS

APPLIED INDUSTRIAL MACHINING
1930 S.E. 29TH
OKLAHOMA CITY, OK 73129
405-672-2222

SUB CONTRACTOR

A.S.A.P. STEEL, INC.
6515 S.W. 57TH STREET
OKLAHOMA CITY, OK 73179
405-745-3993

FLAME CUTTING,
FORMING & SHEARING

B & W METALS
P.O. BOX 19042
HOUSTON, TX 77224-9042

TUNGSTEN CARBIDE

BODYCOTE HINDERLITER
THERMAL PROCESSING
6924 S. EASTERN
OKLAHOMA CITY, OK 73149
405-670-5710

NORMALIZING,
TEMPERING/STRESS
RELIEVING &
CARBURIZING

BODYCOTE HINDERLITER
THERMAL PROCESSING
P.O. BOX 4830

NORMALIZING,
TEMPERING/ STRESS
RELIEVING &

TULSA, OK 74159-4830
918-834-0855
BODYCOTE HINDERLITER
THERMAL PROCESSING
2005 MONTGOMERY STREET
FORT WORTH, TX 736107-4012
713-472-7360

CARBURIZING
HEAT TREATING SERVICES

BORING SPECIALTIES
P.O. BOX 4346 DEPT. 118
HOUSTON, TX 77210-4346
713-449-0319

SUB CONTRACTOR

C4, INCORPORATED
4100 WILL ROGERS PARKWAY
SUITE 950
OKLAHOMA CITY, OK 73137
405-942-0900

INDUSTRIAL SUPPLIES
INSERTS & TOOLING

CHROMIUM PLATING
412 N. CHEYENNE
TULSA, OK 74101
918-583-4118

SUB CONTRACTOR

COATINGS, INC.
1217 W. RENO
OKLAHOMA CITY, OK 73106
405-232-4348

INDUSTRIAL COATINGS

CROWL MACHINE, INC.
1632 N.W. 5TH
OKLAHOMA CITY, OK 73106
405-236-1831

SUB CONTRACTOR

CUTTING TOOLS, INC.
5050 ASHLEY COURT
HOUSTON, TX 77041
800-475-8665

INDUSTRIAL SUPPLIES
INSERTS & TOOLING

DIAMOND METALS, INC.
4051 HOLLISTER
HOUSTON, TX 77080
713-460-5332

TUNGSTEN CARBIDE

DAGWELL DIXIE, CO
816 W. MAIN ST.
OKLAHOMA CITY, OK

INTERNAL KEYWAYS

405-232-7671

DIVERSIFIED PLATING
2109 W. SHERIDAN
OKLAHOMA CITY, OK 73107
405-236-0545

SUB CONTRACTOR

DUNCAN EQUIPMENT
3709 W. RENO
OKLAHOMA CITY, OK 73107
405-947-0931

INDUSTRIAL SUPPLIES,
INSERTS & TOOLING

DURA-CHROME, INC.
5716 N.W. 4TH
OKLAHOMA CITY, OK 73127
405-947-2863

SUB CONTRACTOR

DXP ENTERPRISES INC
1401 SE 29TH ST.
OKLAHOMA CITY, OK 73129
405-670-4491

INSERTS AND TOOLING

EMJ
3116 E. 31ST STREET NORTH
TULSA, OK 74110
918-835-7070

BARSTOCK & TUBING

ENERGY ALLOYS
1888 N. 109 EAST AVE.
TULSA, OK 74112
918-838-9821

BAR STOCK, TUBING,
ALL TYPES MATERIALS

FIVE STAR METALS, INC.
8811 EMMOTT ROAD
HOUSTON, TX 77040
713-466-1491

BAR STOCK, TUBING,

FLECK BEARING COMPANY
1801 W. MAIN STREET
OKLAHOMA CITY, OK 73106
405-236-0594

BEARING & BRASS
SLEEVE STOCK

FUNDOM ENTERPRISES, INC.
3401 N.W. 25TH
OKLAHOMA CITY, OK 73107
405-557-0296

SUB CONTRACTOR

GAGEMAKER, INC.
P.O. BOX 87709
HOUSTON, TX 77287-7709
713-472-7360

MEASURING EQUIPMENT

GRANT PRIDECO
MILLER INDUSTRIAL PARK #1
FM 1227
NAVASOTA, TX 77868
800-460-1839

HT THREADING SERVICES
AND GAUGE RENTAL.

HEMCO CORPORATION
455 DOUGLAS AVE
HOLLAND, MI 49424
616-396-4604

GAUGE SUPPLIER

HENKEL CORPORATION
32100 STEPHENSON HWY
MADISON HEIGHTS, MI 48071
800-521-1355

PARCO LUBRITE PHOSPHATE

HOLBERT STEEL
105 KAISER DRIVE
LAFAYETTE, LA 70508
337-837-7947

FORGINGS AND STEEL SUPPLIER

HOUSTON PLATINGS AND COATINGS
1315 GEORGIA
HOUSTON, TX 77587
713-946-8920

COATING AND PLATING
SERVICES

INDUSTRIAL OILS
PO BOX 3066
TULSA, OK 74101
918-583-1155

LUBRICANTS, OILS

INDUSTRIAL WELDING & TOOLS
P.O. BOX 82005
OKLAHOMA CITY, OK 73179
405-235-7944

WELDING SUPPLIES

J & D GEARING
P.O. BOX 95134
OKLAHOMA CITY, OK 73143
405-677-6674

GEAR MACHINING

J & E SUPPLY & FASTENER CO.
1930 S.E. 59TH
OKLAHOMA CITY, OK 73144
405-670-1234

BOLTS & NUTS

KP SUPPLY, INC.
P.O. BOX 686
OKLAHOMA CITY, OK 73101
405-235-2621

INDUSTRIAL SUPPLIES
INSERTS & TOOLING

LMS PRODUCTS
6500 INDEPENDENCE
PERRY, OK 73077
580-336-3555

GUNDRILLING

MCMASTER-CARR SUPPLY
PO BOX 7690
CHICAGO, IL 60680
630-833-0300

GENERAL SUPPLIER OF
MACHINING GOODS

METAL CUTTING
8405 GATEWAY TERR
OKLAHOMA CITY, OK 73149
405-616-0048

MACHINE SHOP SUPPLIES

MSC
PALATINE, IL 60678
800-645-7270

INDUSTRIAL SUPPLIER

PONDEROSA PRECISION PLASTICS
1514 W. MAIN
LA PORTE, TX 77571
713-471-3221

THREAD PROTECTORS

POWER EQUIPMENT & ENGINEERING
1739 W. MAIN
OKLAHOMA CITY, OK 73106
405-235-0531

MECHANICAL SUPPLIES,
"V" BOLTS, CHAINS AND
SPROCKETS

PRECISE TOOL & MACHINE
8214 S. W. 8TH
OKLAHOMA CITY, OK 73128
405-495-2002

SUB CONTRACTOR

RHW METALS

BARSTOCK & TUBING

P.O. BOX 3489
LONGVIEW, TX 75606
903-758-5450
REX SUPPLY
P.O. BOX 299487
HOUSTON, TX 77299-0487
713-222-2251

SHOP SUPPLIES

SCHONWALD SUPPLY
P.O. BOX 95756
OKLAHOMA CITY, OK 73143-5756
405-670-1708

CASING & TUBING

SPECIAL METALS, INC.
P.O. BOX 891206
OKLAHOMA CITY, OK 73189
405-677-7700

BARSTOCK, TUBING
1018,1045,4140

STANDARD STEEL
P.O. BOX 82579
OKLAHOMA CITY, OK 73148
405-631-1551

BARSTOCK, TUBING
STRUCTURAL STEEL

SUPERIOR HONING & GRINDING
P.O. BOX 581251
TULSA, OK 74158
918-627-6968

HONING & GRINDING

VARICAST, INC.
P.O. BOX 17216
PORTLAND, OREGON 97217
503-283-4102

CASTINGS

WW GRANGER, INC.
4314 WILL ROGERS PARKWAY
OKLAHOMA CITY, OK 73108
405-943-9631

MOTORS, ELECTRICAL
SUPPLIES & INDUSTRIAL

WASHITA VALLEY, INC.
P.O. BOX 26524
OKLAHOMA CITY, OK 73106
405-670-5338

CASING & TUBING

WHOLESALE TOOL
P.O. BOX 68
WARREN, MI 48090

INDUSTRIAL SUPPLIES

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