

# **QUALITY ASSURANCE MANUAL**

***MIL-STD-45208A***

## RELATED DOCUMENTS

MIL-STD-45662X  
CALIBRATION SYSTEM REQUIREMENTS

### REVISIONS:

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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 of the highest quality consistent with the contractual requirements of the end article. In order to affirm the objective of relevant customer quality specifications through the implementation of the Alco Machine Corporation Quality Assurance Manual, we have revised the aforesaid manual in its entirety.

All Quality Systems established in accordance with the provisions of MIL-I-45208A must be periodically and systematically reviewed to ensure their effectiveness. Consequently, the changes made within this revised manual do not affect the objectives of Alco Machine Corporation; rather, they serve to incorporate superior quality control through updated specifications.

Customers who presently have active contracts and/or purchase orders with Alco Machine Corporation may, at their option, request that either the original manual remain in effect or the new revision be instituted. Customers who do not have active contracts or purchase orders are requested to return the original manual and replace it with the new revision.

Your comments and suggestions in regard to the Alco Machine Corporation Quality Assurance Manual will be welcomed.

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## SECTION 1

### Scope

- 1.1 The Quality Assurance system encompasses the receipt of parts and material, identification, stocking and issuance of parts and material, the entire process of fabrication and manufacturing, packaging, storage, and shipping. The general organization chart of Alco Machine Corporation is shown in Appendix A
- 1.2 The system is designed to assure that parts manufactured or services performed at Alco Machine Corporation supplier facilities are subject to adequate control of quality, in order to ensure customer satisfaction. This system is designed to provide for early detection of discrepancies and positive corrective action.
- 1.3 Written inspection and test procedures are prepared to supplement applicable drawings and other specifications to the extent necessary to assure quality.
- 1.4 Alco Machine Corporation executive management will review the Quality Assurance Manual a minimum of once per year to ensure its continuing suitability, adequacy and effectiveness. If revisions are made, customers will be notified. If a customer requests a copy of the revised manual, one will be sent.
- 1.5 All Alco Machine Corporation employees will be required to review any revision to the Quality Assurance Manual.

## SECTION 2

### Responsibility

- 2.1 The Manager of Quality Assurance reports directly to the President.
- 2.2 The Quality Assurance Manager's responsibilities shall encompass the following:
  - 2.2.1 Interpretation of conformance to customer quality requirements.
  - 2.2.2 Review of customer drawings and specifications.
  - 2.2.3 Determination of necessary inspection points.
  - 2.2.4 Determination of necessary inspection and test instructions
    - 2.2.4.1 Establish a change control procedure for such documents
  - 2.2.5 Planning, developing, coordinating, implementing, and maintaining the most effective and efficient procedures for optimum quality assurance.
  - 2.2.6 Maintenance of adequate quality assurance records.
  - 2.2.7 Review of quality assurance records and internal corrective action follow-up.
  - 2.2.8 Vendor quality assurance and corrective action follow-up.
  - 2.2.9 Original and continuing periodic inspection of all special and standard gauges, test equipment, and tooling used to manufacture products.
  - 2.2.10 Coordinate in-plant corrective action on items rejected by the customer, notify customer of the action taken and evaluate the action for effectiveness.
  - 2.2.11 Assure that inspection personnel are capable of rendering an unbiased decision to accept or reject any material inspected.
  - 2.2.12 Review of Engineering process sheets, prior to issue to production, for compliance with all customer quality and technical requirements including inspection and recording of hidden dimensions during manufacturing.

## **SECTION 3**

### **Purchase Order Control**

- 3.1 All purchase orders (Appendix B) to suppliers of Alco Machine Corporation require authorization by the Q.A. Manager or his authorized representative. To assure that all pertinent technical and quality requirements, including authorized changes, are incorporated in the order.
- 3.2 Upon the release of a purchase order, the buyer will furnish Alco Machine Corporation with all required drawings, specifications, and necessary customer requirements, such as material or process certification, physical and chemical analysis, or Government or Alco Machine Corporation Source Inspection, with the purchase order.
- 3.3 In the event of a drawing or specification change, the buyer will issue a Purchase Order Change, incorporating the latest engineering change and latest drawings or other specifications.
- 3.4 Copies of all purchase orders are on file and available for review by Alco Machine Corporation customers.
- 3.5 If Government Source Inspection (GSI) is determined to be required, the local Government representative will be contacted for approval. Obtaining such approval is the responsibility of the Manager of Quality Assurance.

## **SECTION 4**

### **Drawing and Specification Change Control**

- 4.1 Alco Machine Corporation fabricates and manufactures to the customer drawings and/or specifications, which are filed in job number folders in the Production Control files.
- 4.2 Production Control is responsible for the charging out and controlling issuance of drawings and specifications.
- 4.3 The Sales Department receives engineering changes, drawings, and specification changes from Alco Machine Corporation customers, and is responsible for immediately forwarding customer changes to Production Control
- 4.4 Production Control is responsible for issuing the latest Engineering changes, drawings, and specifications to the appropriate departments and voiding outdated engineering changes, drawings, and specifications.

## **SECTION 5**

### **Incoming Material Processing / Procedure**

#### **5.1 Purpose**

To ensure the identification and verification of purchased material.

#### **5.2 Responsibilities**

- 5.2.1 Shipping / Receiving: Verifies incoming material and packing list for correct purchase order number, correct quantities and material type/alloy or part number. Ensures all necessary material certification is supplied. Contacts vendors and/or customers with any discrepancies.
- 5.2.2 Quality Department: Inspects all material for correct type and dimensions, and verifies that material matches supplied certifications and print/job requirements. Contacts vendors and/or customers immediately with any discrepancies.

#### **5.3 Procedure Raw Material**

- 5.3.1 Upon Receipt of an incoming lot of raw material, the shipper/receiver removes the supplier's packing list and obtains the corresponding Alco Machine Corporation purchase order.
- 5.3.2 The shipper/receiver reviews the purchase order for specific requirements and verifies that all requirements have been met, i.e. quantities match packing list quantities as well as order quantities, material type on packing list matches material type ordered, required certifications have been supplied, correct delivery date, etc.
  - 5.3.2.1 If any discrepancies are found, the material shall be quarantined and the vendor contacted immediately. Material Rejection Report (MRR) Form number QC-004 must be completed by inspection (Ref. Section 5.7) and the vendor notified for corrective action.
- 5.4 The shipper/receiver marks material with the purchase order number and material type on the Material Identification Tag (Appendix E, Exhibit A) and places the tag with the material.
  - 5.4.1 All remaining paperwork will be sent to the office manager for processing.

#### **5.5 Quality Inspector performs material inspection to include:**

- 5.5.1 Dimensions and type of material to match purchase order, packing list specifications.
- 5.5.2 Certifications to match material received as well as purchase order and production print specifications.
- 5.5.3 Raw material is correctly marked and easily identified.
- 5.5.4 Inspection will sign or stamp acceptance and mark the date of acceptance on the Material Identification Tag (Appendix E, Exhibit A) and an MRR QC-004 form is filled out and processed per Section 11.
- 5.6 Inspected materials that are accepted will be put into the hold area pending the release of the job. Once released, the Production Run Packet is given to the Production Control Department to be matched up with the tagged material. The normal machining process will now take effect.

## **SECTION 5 (CONT.)**

- 5.7 Unacceptable materials are moved to the MRB rack or suitable location, tagged with a red reject tag (Appendix E, Exhibit C) and an MRR QC-004 form is filled out and processed per Section 11.
- 5.7.1 Supplier will be contacted regarding discrepancy.

### **5.8 Procedure for Customer Supplied Material**

- 5.8.1 All material received by Alco Machine Corporation will be reviewed for conformance to the purchase order, drawings or other related documentation regardless of where the material originated.
- 5.8.2 Material such as castings, bar or sheet stock will be subjected to the incoming material verification procedures per the NONCONFORMING MATERIAL CONTROL PROCESS.
- 5.8.3 Any tooling, jigs or fixturing supplied to manufacture a part or assembly will be permanently identified with the customer part number and Alco Machine Corporation customer I.D. number or tool identification number.
- 5.8.4 If customer supplied jigs or fixtures are used for part qualification and acceptance, Alco Machine Corporation reserves the right to request a customer generated inspection procedure detailing how the supplied items are to be used. This procedure will be referenced on the shop traveler and any inspection records that may be generated.
- 5.8.5 If any tools, fixtures or jigs are found to be sub-standard, the issuer will be notified by telephone and in writing, and the items will be quarantined until notification is received by the issuer. Further processing of the order will immediately stop and the material will be removed from the shop floor, identified, labeled accordingly and quarantined.
- 5.8.6 Should the issuer request that Alco Machine Corporation rework or repair their material, it will be done so in writing or by written purchase order.

## SECTION 6

### **Raw Material Control**

- 6.1 Raw material, bar stock, sheet stock, and castings are identified to the proper certification and are stored in an area apart from the normal flow of in-process material.
- 6.2 Copies of all certifications are filed in the job number folder and are available for review at the customer's request.
- 6.3 Only material accepted by Inspection is released for production.
- 6.4 Certified stock is issued from the raw material storage area to comply with the job number requirements.
- 6.5 Verification of suppliers certifications are accomplished by Independent Testing Laboratories when deemed necessary for Quality Department or Alco Machine Corporation customer purchase order requirements.
- 6.6 All certifications will be identifiable to the applicable purchase order, date of receipt of the material, and the inspector who inspected the material.
- 6.7 Material and test certifications will be checked to the material or test requirements to assure results are within the prescribed limitations.

## **SECTION 7**

### **Description: First Article Inspection / Procedures**

#### **7.1 Purpose**

To ensure that all First Piece Inspections are performed and recorded effectively.

#### **7.2 Procedure**

- 7.2.1 The Office Manager attaches a copy of form QC-002 to the Production Run Packet.
- 7.2.2 All shop floor personnel will perform their First Piece Inspection on the QC-002 Form.
- 7.2.3 The part and all associated paper work are dropped off at the Inspection Department.
- 7.2.4 Quality Control performs inspection and completes the QC-003 Form

#### **7.3 Accepted Parts**

- 7.3.1 Parts and paperwork are returned to the appropriate workstation for completion of the operation. The Operation and Routing Sheet (SOP-001) will be initialed by Quality Control, in the appropriate box.

#### **7.4 Rejected Parts**

- 7.4.1 The operator and supervisor are informed of the details of the rejection.
  - 7.4.2 Rejected part(s) will follow the NONCONFORMING MATERIAL CONTROL PROCESS procedures per Section 11.
  - 7.4.3 Corrections are discussed and implemented immediately.
  - 7.4.4 Corrected parts are re-inspected for the same operation after corrections have been made, following Sections 7.2.2 and 7.2.3
- 7.5 Form QC-002 will stay with the Production Run Packet. When the job is completed, Form QC-002 will be filed by the Office Manager in the Purchase Order Folder.
- 7.6 Quality Control maintains QC-003 forms in the Quality Department, and files them by customer name and part number.

## **SECTION 8**

### **Description: In-Process Inspection / Procedures**

- 8.1 Quality Control will attach a blank copy of Form QC-001 (In-Process Inspection Report) to the Production Run Packet after a First Piece Inspection has been approved for each operation.
- 8.2 In-Process Inspection will be performed by the operators and recorded on Form QC-001.
- 8.2 Quality Control and The Production Manager for each operation will determine the frequency of the In-Process Inspection.
  - 8.2.1 Determination of the frequency will be dependent on the type of part, cycle time and quantity of parts to be machined.
  - 8.2.2 Characteristics to be inspected will be determined by Quality Control and the Production Manager for each operation. The type of part, cycle time and quantity of parts will aid in this determination.
- 8.3 All In-Process Forms for each operation will be attached to the Production Run Packet.
  - 8.3.1 Once the job is complete and sent to Final Inspection, all In-Process Inspection Reports will stay with the Production Run Packet for filing by the Office Manager, in the Purchase Order Folder.
- 8.5 In the event of a reject during any in-process machining, the rejected part(s) will be clearly identified by a red tag (Appendix E, Exhibit C) and moved to an area separated from the normal flow of the In-Process Materials.
- 8.6 Rejected part(s) will follow the NONCONFORMING MATERIAL CONTROLS PROCESS per Section 11

## **SECTION 9**

### **Assembly Inspection and/or Functional Test**

- 9.1 Assembly inspection and any necessary functional testing is performed, as required by production personnel.
- 9.2 The Quality Department performs inspection of the functional tests in accordance with a specified sampling procedure.
- 9.3 Inspection records are maintained by Quality Department personnel.
- 9.4 Inspection records are filed by customer and job number and will be available for customer review on request.
- 9.5 All nonconforming assemblies are identified and segregated to preclude any chance of them being used accidentally and will be subject to the Non Conformance Material Control Process per section 10.
- 9.6 Obtaining corrective action and performing follow-up action to prevent recurrence of discrepant material is the responsibility of Quality Department.
- 9.7 Inspection records will include the number accepted, number rejected, date of inspection, and positive identification of the inspector.
- 9.8 The government representative servicing this plant will be notified 3 days in advance of the assembly and functional testing. Inspection records will be submitted to this representative for designation of mandatory government inspection characteristics.
- 9.9 If we should elect to use any inspection equipment or procedure other than those specified or referenced in the customer contract:
  1. The customer will be notified of intent by a written proposal, submitted by Alco Machine Corporation
  2. The effectiveness of the proposal will be demonstrated to the customer.
  3. The alternative procedure and equipment will be equal or better to those specified in the customer contract.
  4. Original procedures and equipment will be used until approval is received from the customer for the proposed procedure or equipment change.

## SECTION 10

### Description: Final Inspection

#### 10.1 Purpose

To provide an effective means of ensuring the quality of the products at final inspection, prior to shipment to customer.

#### 10.2 Associated Tools and Materials

Inspection Plan	-Conforms to ANSI / ASQC Z-1.4 & ISO 2859-1
AQL	-Accepted Quality Level used is 1.5
Level	-Inspection Level used is Level II
Sampling Plan	-Per AQL Inspection Manual Standard: Tightened, Normal, Reduced
AQL Inspection Manual	
Inspector's Rule	-AQL Inspector's Rule
Job History Log	-QC-006
Final Inspection Report	-QC-005

#### 10.3 Responsibilities

Inspection/QC – Responsible for initial creation and maintenance of Job History Log.  
Quality shall inspect all jobs using guidelines provided herein.

Production Manager – Responsible for the disposition of rejected materials.

#### 10.4 Procedure

10.4.1 Inspection shall pull Job History Log (QC-006) from the Job History File and fill in required information. First run jobs will have new logs and folders created.

##### 10.4.2 Sampling Plan – Switching Procedures

Normal inspection will be used at the start of inspection unless otherwise directed by the responsible authority. Once normal, tightened or reduced inspection has been executed, it shall continue unchanged for each class of defects or defectives on successive lots or batches except where the switching procedures given below require a change. The switching procedures shall be applied to each class of defects or defectives independently.

##### **Normal To Tightened**

When normal inspection is in effect, tightened inspection shall be instituted when two out of five consecutive lots or batches have been rejected on original inspection (i.e. ignoring re-submitted lots or batches for this procedure).

##### **Tightened To Normal**

When tightened inspection is in effect, reduced inspection shall be instituted when five consecutive lots or batches have been considered acceptable on original inspection.

##### **Normal To Reduced**

When normal inspection is in effect, reduced inspection shall be instituted providing that all of the following conditions are satisfied.

## SECTION 10 (CONT.)

- a. The preceding ten lots or batches (or more) have been on normal inspection and none has been rejected on original inspection; and
- b. The total number of defectives (or defects) in the samples from the preceding ten lots or batches (or such other number as was used for condition "a" above) is equal to or less than the applicable number calculated. If double or multiple sampling is in use, all samples inspected should be included, not "first" samples only; and
- c. Production is at a steady rate; and
- d. Reduced inspection is considered by the responsible authority.

### **Reduced To Normal**

When reduced inspection is in effect, normal inspection shall be instituted if any of the following occur on original inspection:

- a. A lot or batch is rejected; or
- b. A lot or batch is considered acceptable without either acceptance or rejection criteria having been met. Normal inspection will be reinstated starting with the next lot or batch. Under reduced inspection, the sampling procedure may terminate without either acceptance or rejection criteria having been met; or
- c. Production becomes irregular or delayed; or
- d. Other conditions warrant that normal inspection shall be instituted.

### **Discontinuation of Inspection**

In the event that ten consecutive lots or batches remain on tightened inspection (or such other number as may be designated by the responsible authority) inspection under the provisions of this document should be discontinued pending action to improve the quality of submitted material.

- 10.4.3 Inspection/QC will only inspect critical dimensions that are +/- .005 in. or less (except as specified by the customer) and all threads as well as a complete visual inspection for orientation, nicks, etc., on the sample size.
  - 10.4.3.1 All characteristics will be recorded on form QC-005, FINAL INSPECTION.
- 10.4.4 Nonconforming material or parts will not be shipped and will be subject to the NONCONFORMING MATERIAL PROCESS per Section 11.
- 10.4.5 Once the job has been inspected and accepted, a blue Accepted Tag (Appendix E, Exhibit B) will be attached. The required information will be put on forms QC-005 and QC-006, the completed forms are to be returned to the Q.C. folder and the parts continue through normal shipping process.

## SECTION 11

### Nonconforming Material / Control Process

- 11.1 All nonconforming supplies, parts and/or material are to be placed in a segregated area. The items will be clearly identified with job number, part number, lot size, discrepant characteristic, inspector's name, and other classifications, as required. In the event a customer requests corrective action on parts that are to be returned for repair/replacement or used-as-is, the cause and corrective action on the Material Rejection Report (MRR) form QC-004, will be filled out. Once filled out and a disposition completed, the MRR form will be filed with the P.O. Folder.
  - 11.1.1 A Material Rejection Report (MRR) form QC-004, will be generated and filled out listing all nonconforming characteristic(s).
  - 11.1.2 The Production Manager will be notified of the nonconforming material and a copy of the MRR will be issued to the Production Manager. The original will be kept with the material or parts.
  - 11.1.3 The Material Review Board will make a disposition regarding the nonconforming material within five days after the MRR has been generated.
  - 11.1.4 The cause and corrective action on the MRR form must be filled out in order to prevent any re-occurrences.
  - 11.1.5 Once the disposition is completed, the original MRR will be filed by Quality Control in the customer folder in the Quality dept., and a copy will be attached to the Production Run Packet.
- 11.2 The nonconforming characteristic(s) are clearly indicated on a red Rejected Tag (Appendix E, Exhibit C), attached to each part or container.
- 11.3 No one is authorized to remove nonconforming items from a segregated area until a material review board consisting of the plant manager, a production representative, and a Quality Department representative, completes a review. When there is a requirement for Government or Customer Source Inspection, the applicable representative must be part of the review committee when the discrepancy is likely to affect form, fit, function or safety.
- 11.4 Nonconforming material will not be shipped until concurrence from the customer's buyer is received.
  - 11.4.1 All nonconforming material shipped to the customer with the buyer's concurrence shall have the discrepancy clearly indicated on the shipping documents.
- 11.5 The integrity of all lots submitted for inspection is maintained under the control of the Quality Department at all times, and will be segregated from the normal material flow.
- 11.6 During the processing of material, a system will be used to assure proper sequence and completion of production and inspection activities.
- 11.7 A system of inspection status will be used to identify the condition of inspected material.
- 11.8 Unidentified material is segregated from the normal flow of production material until conformance of the material to all specifications is established.

## **SECTION 11 (Cont.)**

11.9 Rework material is segregated from other material until Quality Department establishes the conformance of the material to all specifications. Rework material is identified with a green Repairable or Rework Tag (Appendix E, Exhibit D).

11.10 Items determined to be scrap would be mutilated prior to disposal.

## SECTION 12

### Tool and Gage Control

- 12.1 All special tools, jigs, fixtures, gages, and measuring equipment shall be identified.
- 12.2 Each new or reworked tool, jig, fixture, gage and measuring instrument is inspected prior to issue for use.
- 12.3 All gages, measuring and test equipment are checked to standards, which are calibrated by standards traceable to National Bureau of Standards.
- 12.4 A written schedule of frequencies for calibrating gages, measuring and test equipment is maintained and is strictly adhered to. The schedule is based on type, purpose, and severity of usage.
- 12.5 A restricted area is maintained for storage and calibration of gages, measuring and test equipment.
  - 12.5.1 A system to control the issue and return of this equipment is maintained.
- 12.6 Correlation of special gaging supplied by Alco Machine Corporation customers is inspected in accordance with the schedule supplied by the customer. If no schedule is supplied, a schedule will be assigned, based on type, purpose, and severity of usage.
- 12.7 Obsolete or out-of-service tools and gages are identified with tags and placed in a locked cabinet.
- 12.8 Calibration stickers shall be applied to tools & gages indicating due date of next calibration, and will be controlled by serial number, month and due date.
- 12.9 The calibration of personal, as well as company owned production and inspection tools, are strongly enforced.
- 12.10 Tolerances for gaging, tools, fixtures or instruments are as stated in approved standards. They include, but are not limited to Mil-S- 120, Mil-S-H28, manufacturer recommendations or blue print tolerances. All standards used to calibrate gaging are calibrated to standards that bear a known valid relationship to national standards.
- 12.11 Jigs, fixtures, tools and mating parts, when used to control the acceptance of a characteristic on finished parts, are maintained on a calibration schedule.

## **SECTION 13**

### **Overrun Stock Control**

- 13.1 The Quality Department shall have the responsibility for the control of any overrun stock.
- 13.2 The Quality Department will assure that any overrun parts, conferred for stock, are properly identified as to inspection status (acceptance), part number, drawing number and revision level, date of inspection acceptance, job number and quantity. In addition, it shall be the responsibility of the Quality Department to make sure that the parts are acceptably packaged to prevent deterioration or damage during storage.
- 13.3 No overrun parts are shipped to a customer until re-inspection is accomplished to assure that they are in acceptable condition and meet all the specifications of the latest drawing revision.

## **SECTION 14**

### **Packaging and Shipping**

- 14.1 No order will be shipped to a customer until all shipping papers are identified by the Final Inspector's acceptance stamp, or inspector's signature and Date of Inspection Acceptance.
- 14.2 No material will be shipped until all required certifications, test reports, special samples, etc., have been packed with the material in accordance with Alco Machine Corporation customer's requirements.
- 14.3 All items shall be packaged in a manner that prevents damage, deterioration, or substitution.
- 14.4 Adequate marking will be applied on all the packaging, or as otherwise necessary to provide positive identification to the applicable customer.
- 14.5 The Quality Dept. will control any special packaging required, as specified by the applicable Alco Machine Corporation customer.
- 14.6 Quality Control will inspect all packaging to assure the proper preservation and shipping of Customer's orders.

## **SECTION 15**

### **Identification**

15.1 A basic part number will identify all materials and articles.

15.2 When required by customer, a serial number, lot number or heat number as directed, will identify materials or articles.

## **SECTION 16**

### **Government Furnished Material**

16.1 When material is furnished by the Government, the contractor's procedures shall include the following:

16.1.1 Packages will be opened in the presence of the government quality assurance representative, when practical, to detect damage in transit.

16.1.2 Inspection for completeness and proper type of material will be conducted.

16.1.3 Periodic inspection and precautions will be implemented to assure adequate storage conditions and to guard against damage from handling as well as deterioration during storage.

16.1.4 Functional testing will be undertaken, prior to or after installation, or both, as required by contract, to determine satisfactory operation.

16.1.5 Identification and protection from improper use or disposition.

16.1.6 Verification of quantity.

## SECTION 17

### Calibration of Equipment

#### 17.1 Purpose:

To set forth the responsibilities and requirements governing the calibration of the electronic, mechanical and electro-mechanical measuring and test equipment.

#### 17.2 Definition:

Calibration is a process by which an instrument or standard of a given accuracy is checked against a standard of higher accuracy and adjusted as necessary to ensure that the lower accuracy instrument or standard is within the manufacturer's rated accuracy. The instrument being checked is not to exceed twenty five percent of the manufacturer's specifications. Any gage exceeding the twenty five percent accuracy level will constitute a significant out of tolerance condition and the user will be notified. The gage will then be reworked or replaced as soon as possible.

##### 17.2.1 Corrective Action or Recall

It is the responsibility of Quality Control to evaluate the consequences of any equipment found to be beyond calibration limits and to initiate corrective action and/or recall as warranted. The customer will be notified when any material has been shipped that was inspected and/or tested using equipment found to be beyond calibration limits. The possible consequences will be noted and corrective action will be recommended. All material that has not been shipped to the customer and that was inspected and/or tested using equipment found to be beyond calibration limits will be segregated and tagged until such time as re-inspection and/or retesting has been accomplished.

#### 17.3 Calibration Period Identification:

17.3.1 Gages and Equipment shall be identified for calibration with a "CALIBRATED" label, indicating calibration date, serial number, due date for next calibration, and the initials of the person whom performed the calibration. Items with a valid "CALIBRATED" label shall be authorized for use during the Specific Period Indicated.

17.3.2 "CALIBRATED" labels shall be directly attached to the items storage container or case.

17.3.3 Items not requiring calibration shall be clearly marked: "FOR REFERENCE USE ONLY".

17.3.4 Gages without proper "CALIBRATED" labels shall be considered Out of Calibration, and not authorized for use.

17.3.5 When gages or test equipment is found to be worn or damaged at any time, they are immediately corrected or replaced and noted in the Master Calibration List Log.

17.3.6 The Master Calibration List Log will be maintained and controlled in the Quality Dept.

#### 17.4 Responsibilities For Calibration

17.4.1 Alco Machine Corporation will not perform any calibration in-house.

## **SECTION 17 (CONT.)**

- 17.4.2 Alco Machine Corporation will only choose a qualified ISO certified facility to provide calibration service, Certificate(s) of Compliance (C of C's) and any related document(s) for each instrument
- 17.4.3 All electrical, electronic, test equipment, gages and other measuring devices will be calibrated.
- 17.4.4 The Quality Dept. will maintain and control all required documents provided by the calibration facility, for each instrument.
- 17.4.5 Alco Machine Corporation will send a company representative to the calibration facility to make sure they are in compliance with relevant ISO standards, and to declare the requirements of Alco Machine Corporation. The aforementioned is not limited to calibration facilities only. Alco Machine Corporation can, if necessary, visit suppliers and vendors to make sure they have a quality system in place and understand the quality system requirements of Alco Machine Corporation, as well as to discuss any quality issues.

### **17.5 Inactive Inspection Equipment**

Due to the nature of our business, some items of inspection equipment, for example, a non-standard thread gage, 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 cycling, the item will be clearly identified by a tag or label reading: "Calibrate Before Using" and will be segregated from other calibrated items to prevent inadvertent usage. When the inactive item is removed from storage, it shall be calibrated before being returned to use.

### **17.6 Control of Gages and Test Equipment Furnished To Subcontractors**

- 17.6.1 Subcontractors check and maintain repairs and control of loaned gages of the contractor, unless otherwise previously agreed that there will be a periodical return of said gages to contractor for this service.
- 17.6.2 Contractor is in a position to adequately assure functional and dimensional accuracy of loaned gages in a subcontractor's possession, so long as the job may run by the following method:
  - 17.6.2.1 A periodic visit to the subcontractor's plant for surveillance of inspection systems, control of measuring equipment and the certification of the aforementioned will be instated.
  - 17.6.2.2 In accordance with standard gage control requirements, we will periodically issue replacement (certified gages) to the subcontractor and require return of gages in use to be calibrated and re-certified. This will occur only when the gages are property of the company.
  - 16.6.2.3 During the length of contract, receiving inspection reports and discrepant material reports will be used to evaluate the necessity for detailed investigation of subcontractor's gage control system.
- 17.6.3 The prime contractor requires the subcontractor to maintain a satisfactory tool and gage control system.
- 17.6.4 Where necessary and required, standards are furnished to the subcontractor.

## **SECTION 18**

### **Customer Related Processes Procedure**

#### **18.1 Purpose**

Determination of requirements related to the product

#### **18.2 Responsibility and Authority (R&A)**

The responsibility and authority for establishing, documenting and maintaining the quality assurance system activities in this regard is assigned to the President and Customer Service. This responsibility may be delegated where appropriate or required.

#### **18.3 Customer Related Process Procedure**

18.3.1 The Contract Review Process at Alco Machine Corporation follows the ensuing sequence of events:

Inquiries are received verbally and/or in writing. Written inquiries may be received electronically or via mail. All inquiries are referred to the president for a proposal. Proposals are then forwarded to the customer for approval. Approved proposals are considered as intent to purchase and a written contract is generated.

The President, or designee, verifies that a contract can be met in the event it is accepted. A pending proposal (i.e., a proposal still in negotiation) process involves an interface with Production and Purchasing to verify the ability of Alco Machine Corporation to meet customer requirements.

Upon formal approval by all parties, the contract is accepted by Alco Machine Corporation. The President or designee verifies the contract and, as appropriate, notifies the customer. The order is then entered into the system.

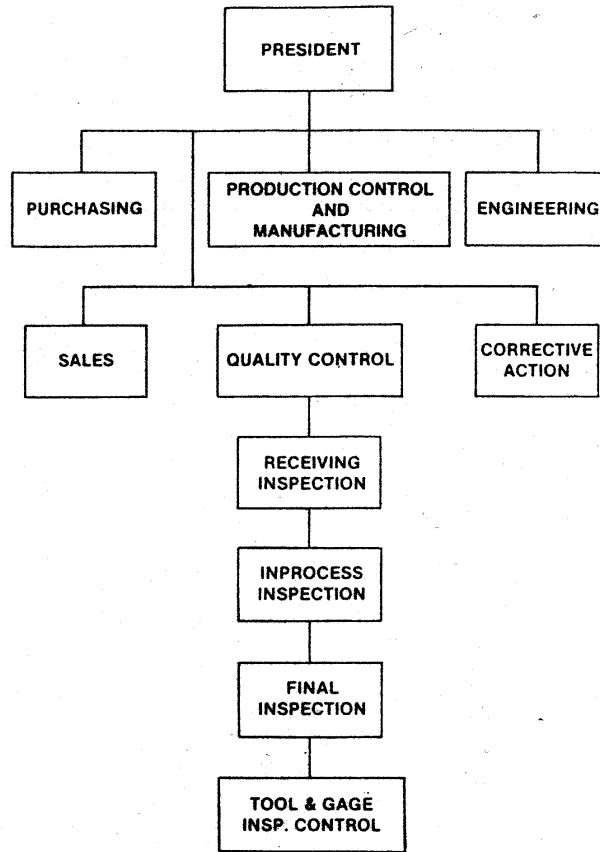
18.3.2 All Customer Contracts shall include the minimum following information:

- Customer Name
- Customer Address and Shipping Address, if different
- Description of Product
- Product Part Number(s) and Revision
- Price
- Estimated Delivery Date
- Freight Terms

18.4 If the contract is amended due to a change in design specification, quantity, or delivery date, it shall be adjusted in the Purchasing Folder and the affected functionaries notified. Corrections may also be marked as approved by the customer and attached to the original order. These changes are processed in the same manner as any other order

# APPENDIX A

## APPENDIX A













## APPENDIX E

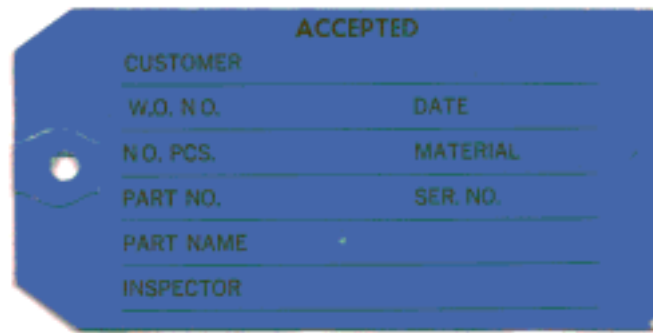
EXHIBIT A



A yellow tag with a hole on the left side. The word "RECEIVING" is printed at the top. Below it are fields for "JOB", "P.O.", "P/N", "QUANTITY", "DATE", "INSP.", and "STAMP". The word "MATERIAL" is printed vertically on the left side.

YELLOW

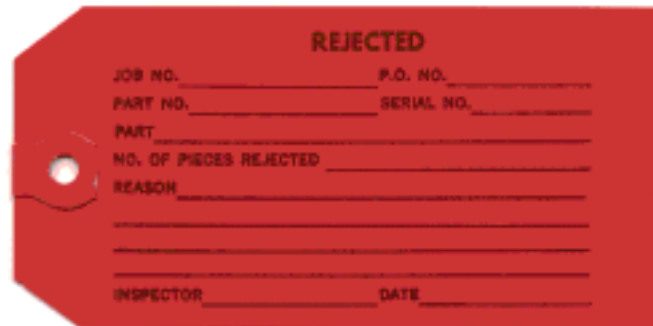
EXHIBIT B



A blue tag with a hole on the left side. The word "ACCEPTED" is printed at the top. Below it are fields for "CUSTOMER", "W.O. N.O.", "DATE", "N.O. PCS.", "MATERIAL", "PART NO.", "SER. NO.", "PART NAME", and "INSPECTOR".

BLUE

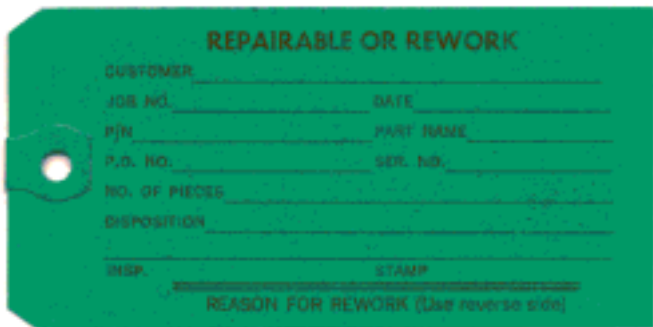
EXHIBIT C



A red tag with a hole on the left side. The word "REJECTED" is printed at the top. Below it are fields for "JOB NO.", "P.O. NO.", "PART NO.", "SERIAL NO.", "PART", "NO. OF PIECES REJECTED", "REASON", "INSPECTOR", and "DATE".

RED

EXHIBIT D



A green tag with a hole on the left side. The words "REPAIRABLE OR REWORK" are printed at the top. Below it are fields for "CUSTOMER", "JOB NO.", "DATE", "P/N", "PART NAME", "P.O. NO.", "SER. NO.", "NO. OF PIECES", "DISPOSITION", "INSP.", "STAMP", and "REASON FOR REWORK (Use reverse side)".

GREEN







**CONTROL NUMBER** \_\_\_\_\_

**THIS QUALITY CONTROL MANUAL HAS BEEN ISSUED TO:**

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