A MANUAL FOR DEVELOPING AND IMPLEMENTING AN AS9100 CERTIFIED QUALITY MANAGEMENT SYSTEM FOR SMALL MACHINE SHOPS

A Project

Presented

to the Faculty of

California State University Dominguez Hills

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

Quality Assurance

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by

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Fall 2014

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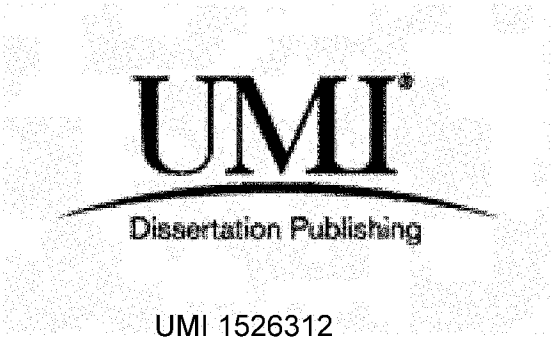

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This project is dedicated to God for never letting me go, through the nights when I thought I could not spend another hour studying, and for giving me the strength to keep going during the illness and then passing of my dear sister.

To my husband Terry and my children Shelby and Cody for their love and support they provided in order for me to complete my study. You are the light of my life.

To my sister Rosa for believing in me and constantly pushing me to do the best that I could. I know that she is watching from Heaven and still providing me with guidance.

TABLE OF CONTENTS

CHAPTER PAGE

LIST OF FIGURES

PAGE

ABSTRACT

Manufacturers, specifically small machine shops, find it difficult to compete with the capabilities of large manufacturers. If these small shops are not certified to a recognized standard such as AS9100, sales become even harder.

Small businesses need assistance in understanding and achieving the certifications requirements for a quality management system (QMS), which requires management's commitment and total buy-in for a proper implementation plan that involves the entire staff.

The objective of this project is to develop a quality manual that outlines the total process for the implementation of an AS9100 QMS. The author has researched various guidance documents that provide an understanding of the requirements, ownership, targets, and steps for applying appropriate resources.

A Gap analysis has been completed to determine the status of the QMS and identify what actions should be taken. Documents and processes have been developed with input from the management team, leading to a successful certification process.

CHAPTER 1

INTRODUCTION

Background

Many Original Equipment Manufacturers (OEMs) that make products for aviation, space, and defense organizations are concerned about product conformity and reliability, including safety and airworthiness. Product performance is affected if the product is not manufactured to specifications, which can potentially lead to defects and product recall. First released by the International Aerospace Quality Group (IAQG) in 1999, the AS9100 standard is at release "C" AS9100:2009 (International Aerospace Quality Group [IAQG], 2009). The OEMs and their supply chain are requiring sub-tier suppliers to become third-party certified and also provide evidence that their processes have been reviewed and is in compliance with the AS9100:2009 requirements.

Becoming certified to AS9100:2009 requires that processes be properly documented, employees be trained, and processes be audited and verified to be effective. The management team is responsible for securing a registrar, which is a third-party organization that comes in and reviews the processes and activities for compliance (IAQG, 2011).

The initial audit, conducted by the registrar, is split in two audits: Stage 1 and Stage 2; thereafter, the registrar conducts surveillance audits on an annual basis (IAQG, 2011). The purpose of the Stage 1 Audit is to evaluate the

company's location and site-specific conditions and to undertake discussions with personnel to determine the preparedness for the Stage 2 Audit. During Stage 1, the registrar completes the following activities (IAQG, 2011):

1. Reviews the requirements of the AS9100 standard, with respect to the identification of key performance or significant aspects, processes, and objectives and to the operation of the management system.
2. Collects necessary information regarding the scope of the management system, processes and locations of the facilities, and related statutory and regulatory compliance.
3. Reviews the allocation of resources for the Stage 2 Audit and agrees with management on details for the Stage 2 Audit.
4. Provides a focus for planning the Stage 2 Audit by gaining a sufficient understanding of the management system and site operations.
5. Evaluates internal audits and management review(s) that are being planned and conducted and ensures that the implementation level of the management system substantiates that the company is ready for the Stage 2 Audit.

The registrar uses output from the Stage 1 Audit to determine if the company is ready for Stage 2. The Stage 2 Audit involves a re-review of the documentation as identified in Stage 1 with an additional review of organizational activities by interviewing employees and verifying the implementation of the processes (IAQG, 2011).

Statement of Problem

Many small businesses are finding it difficult to compete with large organizations on pricing and infrastructure capabilities. The sales process becomes even more difficult if the organization is not certified to a recognized international standard such as AS9100:2009.

Business owners and quality managers in small manufacturing companies find it difficult to understand the requirements of the standard and to make sure that they are properly addressed and implemented. These business owners often attempt to implement a QMS on their own, only to find that several key pieces are missing or have not been properly documented and implemented. Other business owners seek help and may find themselves in the good hands with a consultant who understands the AS9100:2009 standard and how to apply it in order to meet the needs of the organization.

There are many occasions where an organization seeks help with a consultant who may not understand the standard or may not have ample experience, and this can lead to additional costs and potential non-conformances.

Purpose of the Study

The objective of this project was to develop a quality manual that could provide a small machine manufacturer with the guidance for understanding the AS 1900:2009 certification process, the selection of a registrar, and the certification audit (Stage 1 and Stage 2). This guide also would highlight what to expect during the third-party audits and how to prepare for them and would provide assistance in the selection of a consultant. In addition, the manual would highlight the use of the Online Aerospace Supplier Information System (OASIS), developed by the IAGQ (IAGQ, 2009), and methods for documenting procedures,

forms, and measurements for the proper implementation and certification of a QMS with specific emphasis on machine shops.

Limitation of the Study

This project was limited to manufacturers (machine shops) with ten or fewer employees and to the documents as described within this project. The documents would be used as a basis for the documentation of a QMS, but additional research and documentation would be required to make sure that the documentation represented the activities being performed by the organization working on a certification program.

The quality manual provides a simple overview of the organization's scope, exclusions, and references to related procedures and relationship to the AS9100:2009 standard. Additionally, the quality manual includes a quality policy, quality objectives, outsourcing guidelines, process effectiveness, an organizational chart, and process Interactions.

The procedures presented in the manual identify the activities needed to complete the AS9100:2009 certification process, but these procedures are not intended to provide a step-by-step description of the implementation process. The selected forms provide the layout for the record and are part of the process outlined in the Appendix.

Definition of Terms

Terms are defined by AS9100:2009 *Quality Management Systems–Requirements for Aviation, Space, and Defense Organization International Standard* (IAQG, 2009); AS9101:2010 *Quality Management Systems Audit Requirements for Aviation, Space, and Defense Organizations* (IAQG, 2010); and *ISO 9000:2008 Quality Management System–Fundamentals and Vocabulary* (ISO, 2013).

Audit: The audit as it relates to this project is a systematic, independent, and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled (IAQG, 2011).

Containment: This is an action to control and mitigate the impact of nonconformity and protect the customer's operation (stop the problem from getting worse); it includes immediate corrective action, communication, and verification that the nonconforming situation is not going to degrade any further.

Contract: A contract is a binding agreement between a customer and a supplier.

Corrective Action: This is an action taken to eliminate the cause of a detected nonconformity or other undesirable situation.

Critical Items: These are the items (e.g., functions, parts, software, characteristics, processes) that can have a significant effect on product realization and use of that product; this includes safety, performance, form, fit, function, producibility, service life, etc., which require specific actions to ensure they are adequately managed.

Customer: A customer is an organization or person that receives a product or services (Kymal, 2011).

Customer Satisfaction: This term describes a customer's perception of the degree to which the customer's requirements have been fulfilled (Kymal, 2011).

Key Characteristics: These are attributes or features whose variations have a significant effect on product fit, form, function, performance, service life, or producibility, which require specific actions for the purpose of controlling variation.

Major Nonconformity: This term refers to the non-fulfillment of a requirement, which is likely going to result in the failure of the QMS or reduce its ability to assure controlled processes or compliant products or services (IAQG, 2010)

Minor Nonconformity: This is a non-fulfillment of a requirement, which is not likely to result in the failure of the QMS or reduce its ability to assure controlled processes or compliant products or services (IAQG, 2010).

Nonconformity Report (NCR): This is a document stating results and providing objective evidence of nonconformity when measured against audit criteria, which include the following information: containment, correction, root cause, corrective action implementation, and closure (IAQG, 2010).

Objective Evidence Record (OER): A document recording objective evidence of the audit findings, including a reference to the reviewed or observed procedures, records, products, processes, and associated NCRs and opportunities for improvement (IAQG, 2011).

Online Aerospace Supplier Information System (OASIS): This is a web-based IAQG database that contains information on participating IAQG member companies, National Aerospace Industry Associations (NAIAs), National Accreditation Bodies (NABs), accredited CBs, authenticated Aerospace Experience Auditors (AEAs), certified suppliers, certificates, and assessment results (ww.sae.org).

Preventive Action: This is an action taken to eliminate the cause of a potential nonconformity or other undesirable situation.

Procedure: This refers to a specific way to carry out an activity or process.

Process: This term refers to a set of interrelated activities, which transforms inputs into outputs.

Process Effectiveness Assessment Report (PEAR): This report is a document, stating results and providing evidence of determination on the effectiveness of a process.

Product: A product is the result of a process.

Quality Improvement: Quality management is part of quality management and is focused on increasing the ability to fulfill quality requirements.

Quality Manual: This is a document specifying the QMS of an organization.

Quality Objective: The objective is something sought or to be obtained that relates to the quality of a product.

Quality Policy: This policy includes the overall intentions and directions of an organization related to quality as formally expressed by top management.

Record: For the purpose of this project, the record is a document stating results achieved or providing evidence of activities performed.

Risk: This is an undesirable situation or circumstance that has both a likelihood of occurring and a potentially negative consequence.

Special Requirements: These are the requirements identified by the customer or determined by the organization, which have high risks for being achieved, thus requiring their inclusion in the risk management process. Factors used in the determination of special requirements include product or process complexity, past experience, and product or process maturity.

Supplier: The supplier is an organization or person that provides a product or service.

CHAPTER 2

REVIEW OF RELATED LITERATURE

A review of international standards, publications, textbooks, and internet research and interactions with small organizations was used to provide additional information and objective evidence on current practices and requirements.

The main focus for this project is the *SAE Aerospace AS9100:2009 Quality Management System–Requirements for Aviation, Space and Defense Organization* Standard (IAQG, 2009). This standard has many requirements that are crucial to the aerospace OEMs, which maintain a high level of liability for their product standard (SAI Global, 2013). The AS9100:2009 standard is based on the foundation of the *ISO 9001:2008 Quality Management System* international standard (AS/NZS, 2013), but it includes an additional 100 requirements specific to the aerospace industry and focuses on five important points (AS/NZS, 2013):

1. Customer Requirements
2. Supply Chain Management
3. Root Cause and Corrective Action
4. On-time and On-quality Delivery
5. Measurable Objectives

The International Accreditations Forum completed a survey between 2010 and 2011 to capture market feedback as to the value of being certified, and the results were published in *The Value of Accredited Certification* (IAF, 2012), This

survey was conducted using different economies with a total of 4,191 respondents from 41 economies responding (IAF, 2012).

This report indicated that 71 percent of the respondents were from a business that employed fewer than 249 people (IAF, 2012). The majority of the businesses that responded to the survey also were certified to a quality management system (IAF, 2012). Figure 1 shows the type of certifications achieved by these organizations.

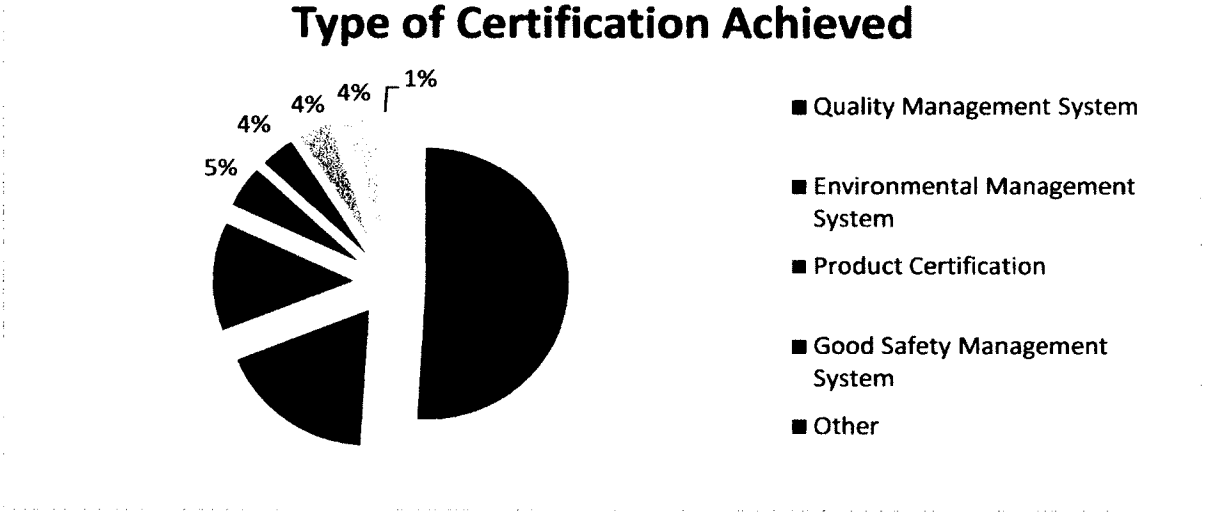

Figure 1. Type of certification achieved. Adapted from *The Value of Accredited Certifications*, by the International Accreditation Forum (IAF), 2012.

Based on the IAF survey report (IAF, 2012), 1,272 (47%) of the respondents indicated that the driving force for selecting certification was to improve the internal business operation and processes. Nine hundred and thirty seven (32%) reported that the reason for selecting certification was a result of

customer requirements, and 380 (13%) stated it was to satisfy a regulatory requirement (IAF, 2012). Figure 2 identifies the driver for seeking certification.

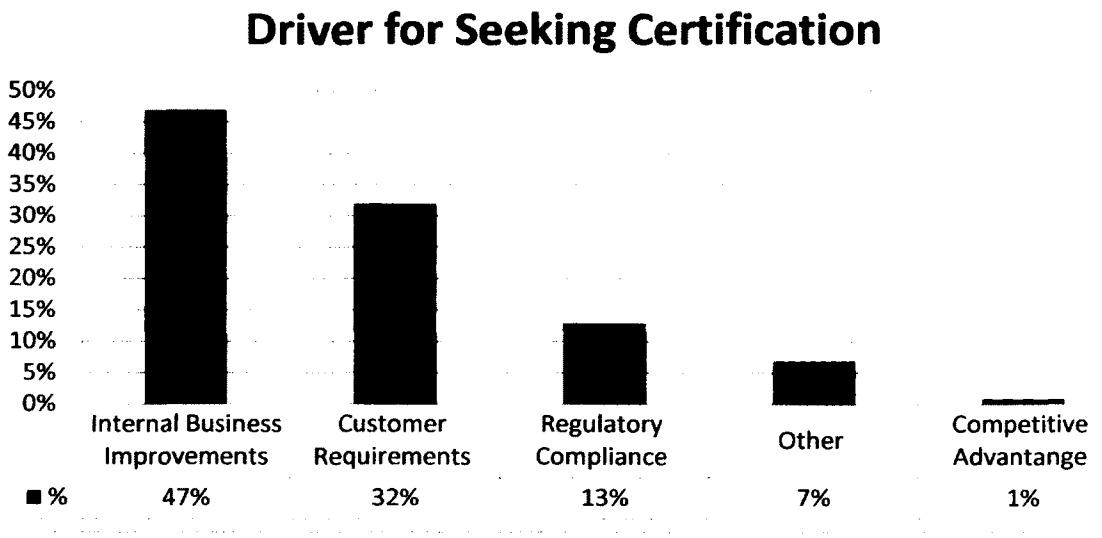

Figure 2. Driver for seeking certification. Adapted from *The Value of Accredited Certifications*, by the IAF, 2012.

In summary, the survey indicated that 83 percent (1,713) of the businesses agreed that the certification process added value to their organization in some way. Seventeen percent of the businesses confirmed that they had experienced a significant increase in sales as a direct result of their certification process (IAF, 2012).

In *Expected Outcomes for Accredited Certification to ISO 9001* (IAF, 2009), the IAF issued a communiqué to provide information to customers about what it meant and what it did not mean to be certified. The main objective for issuing this communiqué was to assure confidence in an organization's QMS by defining the certification requirements and not the product.

Figure 3 provides a summary of what it means to be accredited, according to the IAF (2009); Figure 4 provides a summary of what accredited certification does not mean. Although figures 3 and 4 make reference to the ISO 9001 standard, the communiqué document is also applicable to the AS9100:2009 QMS (IAF, 2009).

What accredited certification to ISO 9001 means

To achieve conforming products, the accredited certification process is expected to provide confidence that the organization has a quality management system that conforms to the applicable requirements of ISO 9001. In particular, it is to be expected that the organization:

A. has established a quality management system that is suitable for its products and processes, and appropriate for its certification scope

B. analyzes and understands customer needs and expectations, as well as the relevant statutory and regulatory requirements related to its products

C. ensures that product characteristics have been specified in order to meet customer and statutory/ regulatory requirements

D. has determined and is managing the processes needed to achieve the expected outcomes (conforming products and enhanced customer satisfaction)

E. has ensured the availability of resources necessary to support the operation and monitoring of these processes

F. monitors and controls the defined product characteristics

G. aims to prevent nonconformities, and has systematic improvement processes in place to:

1. Correct any nonconformities that do occur (including product nonconformities that are detected after delivery)
2. Analyze the cause of nonconformities and take corrective action to avoid their recurrence
3. Address customer complaints

H. has implemented an effective internal audit and management review process

I. is monitoring, measuring and continually improving the effectiveness of its quality management system

Figure 3. What accredited certification to ISO 9001 means. Taken from *Expected Outcome for Accredited Certification to ISO 9001*, by the IAF, 2009.

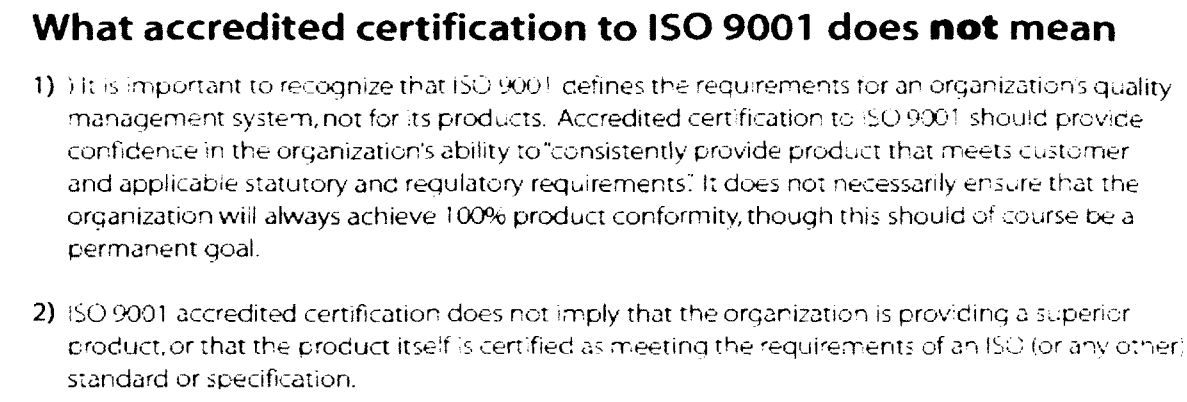

Figure 4. What accredited certification to ISO 9001 does not mean. Taken from *Expected Outcome for Accredited Certification to ISO 9001*, by the IAF, 2009.

The *9100 Auditor Guidance Material: What to Look for–What to Ask* (IAQG, 2011) provided general and potential questions that might be asked by an external auditor during a certification audit. Based on the AS 9101:2010 and AS 9101:2009 international standards (IAQG, 2011), this document was issued to aid auditors in the understanding and application of the AS9100:2009 requirements with specific emphasis on using the process auditing approach.

This reference also provided guidance for each section of AS9100:2009, describing what to look for and what to ask during the certification audit process. The guide was valuable to the third-party auditor, who was required for this process, but also to the organization that is working toward QMS certification.

A Practical Field Guide for AS9100C (Myhberg, Crabtree, & Hacker, 2010) provided the author of this project with a clear description of the requirements for

the AS9100:2009 standard and flowcharts and actions to be used for each requirement.

The purpose of *AS 9101D Auditing for Process Performance: Combining Conformance and Effectiveness to Achieve Customer Satisfaction* (Kymal, 2011) was to explain the use of the QMS audit requirements for aviation, space, and defense organizations, according to AS 9101:2010. This book focused on system audits and provided a step-by-step explanation and instructions for the clauses as defined in AS 9101:2010. Understanding the approach a third party auditor used in an internal audit, as described in this book, could make the experience less stressful, for an organization must be knowledgeable of the requirements and the certification audit process.

Periodic internal audits are required for the certification of a QMS under AS 9101:2010; therefore, if an organization has not completed an internal audit, the third-party auditor may initiate non-conformance documentation (Kymal, 2011). The organization in question also may receive additional non-conformance documentation related to the QMS if the internal audit has been completed but not properly executed and if the auditor does not have a clear understanding of the standard or the internal audit requirement.

Performing an internal audit using the process approach, described by Kymal (2011), provided an opportunity to review several requirements of the standard and the QMS at the same time.

In *Who Stole My Customer: Winning Strategies for Creating and Sustaining Customer Loyalty*, Thompson (2004) noted that issuing surveys to the customer was a common practice, and many organizations used this method to identify the customers' perceptions and to document the results as part of their documentation of customer satisfaction. According to Thompson (2004), however, good feedback on customer surveys didn't necessarily mean that the customers were happy with the performance of various attributes of the product. Surveys often could be designed to provide the type of feedback that an organization wished to receive, leaving several areas of what was important to the customer untouched.

In addition to its focus on customer satisfaction, this book provided methods and insight as to how an organization could and should review the requirements of the AS9100:2009 Standard Clause 8.2.1, applying the appropriate resources and methods for obtaining customer feedback and assuring that the customers' requirements have been met (Thompson, 2004).

Research for this project was conducted using several white papers and having actual interactions with certified organizations, third-party auditors, QMS registrars, and organizations contemplating becoming AS9100:2009 certified. There were several books and publications that provided an explanation and interpretation of the standard; however, it appeared that no one had published a manual to aid small machine shops in the process of achieving certification.

This project may be one of the first documents published that provides a pathway to certification with a completed quality manual that includes procedures, forms, an internal audit, management reviews, an IAQG OASIS overview, and guidance on selecting a registrar and a consultant.

CHAPTER 3

METHODOLOGY

All machine shops that elect to conduct business with an organization requiring AS9100 certification or compliance must follow and be certified or compliant, according to the *Quality Management System: Requirements for Aviation Space and Defense Organization AS9100:2009* standard. This standard uses the methodology known as "Plan–Do– Check–Act" (PDCA), which has been applied to this project.

The PDCA steps followed in this project to assist machine shops in becoming certified were:

1. Prepared a project milestone to become certified.
2. Interviewed process owners to better understand the activities and document the processes.
3. Documented a quality manual.
4. Documented procedures.
5. Developed forms to support the processes and records.
6. Conducted training.
7. Implemented the processes or changes to the existing processes.
8. Conducted a management review.
9. Conducted an internal audit.

Plan

For the planning phase of this project, several interviews were conducted with companies that were in the process of becoming certified and with other companies that were in the process of determining if they wanted to become certified. During the interviews, top management was asked why they chose or were in the process of choosing to become certified, what obstacles they had encountered, and their points of view about the benefits of being certified or becoming certified.

The next step in the planning phase was to prepare a project milestone, identifying different phases of the project and the activities that needed to be completed within a specific time frame. This step was completed during a planning meeting with top management; at which time, managers identified the process owners with contact information, determined the need for a consultant, and began the search for a registrar. Top management also confirmed the need for certification and their commitment to bring the project to completion. Management then was presented with an overview of the AS9100:2009 requirements, including training on management review and data collection and analysis that were required in order to properly implement the QMS.

The third step in the planning phase was to conduct an interview with each process owner to review the method for managing the process. This included identifying responsibilities, the required competency forms and documents to be

used, the measures for determining the current level of performance, training needs, and employee competencies and skills.

Do

The first step in the Do phase of the project was to select a consultant, knowing that this part of the process would not be easy. During the research for this project, it was noted that some of the organizations used consultants, but the overall certification process was not as successful as expected or promised. When selecting a consultant, it was important that the organization obtain references of previous work and results of certifications, for consultants should be held accountable to their promises and results.

The second step in the Do phase was to select a registrar, and the organization had many choices for this step. The IAQG OASIS database (www.sae.org), which could be accessed by any individual (see Figure 5), provided a list of all of the accredited registrars (see Figure 6). It was important to understand that, although the registrar address listed in IAQG Oasis might be out of the state, registrars had satellite offices and local auditors.

Although each registrar is required to follow the requirements of the *SAE AS 9104/1 Requirements for Aviation, Space and Defense Quality Management System Certification Program* (IAQG, 2012), the number of audit days and the cost for the certification may vary from registrar to registrar; therefore, it is important to obtain more than one quote.

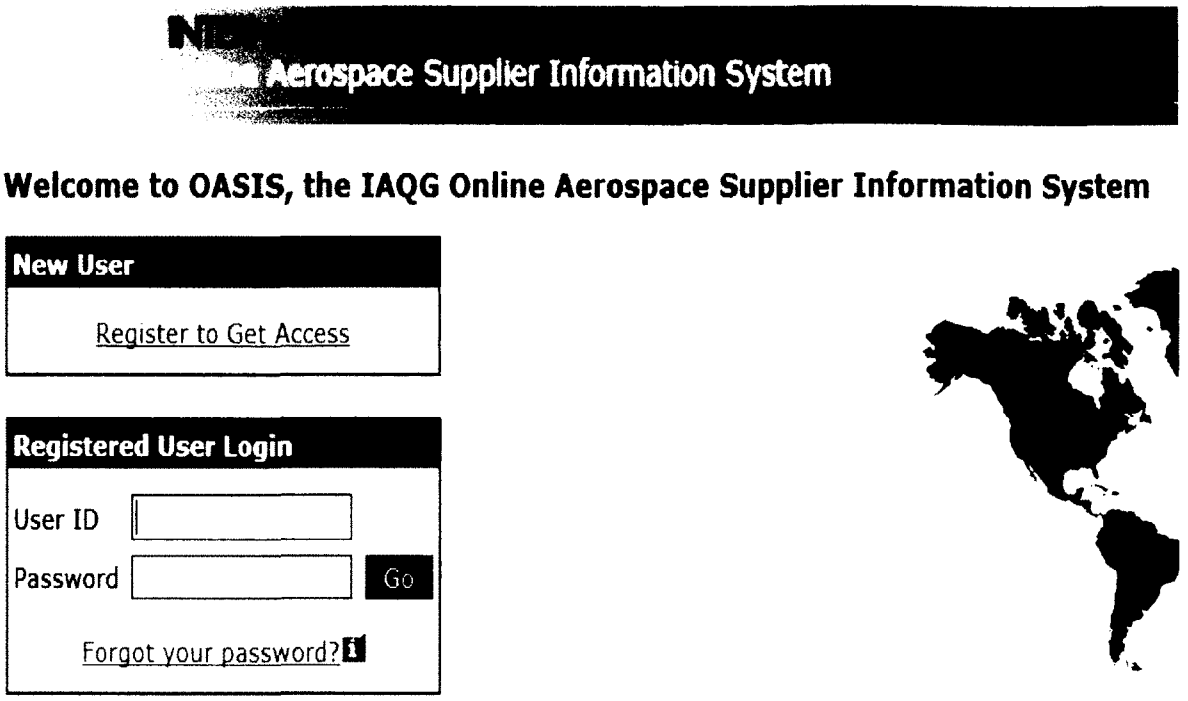

Figure 5. Online aerospace supplier information system (OASIS). Retrieved from www.sae.org

Figure 6. OASIS certification bodies search. Retrieved from www.sae.org

Once a registrar was selected for the project, the organization was given a set of instructions and a link to follow in order to sign up as a certified supplier on the OASIS database. This access led to the completion of the organization's set-up process in OASIS and to obtaining an Organization Identification Number (OIN), which would be used by the auditor during the certification audit.

In addition, it was important to identify forms that currently were in use and applications of these forms to the related process and to develop any missing forms that may be required for the process activities.

The next step in the Do phase was to begin the process for documenting the procedures, which required identifying the following:

1. Title
2. Reference Documents
3. Process Effectiveness
4. Document Review Frequency
5. Procedure
6. Document History

Once the procedures were documented, the next step was to proceed with documenting a quality manual that should include the following parts:

1. Scope
2. Exclusions
3. Reference Documents
4. Quality Policy (Optional)
5. Quality Objective (Optional)
6. Outsourcing Processes (Optional)
7. Process Effectiveness (Optional)
8. Organizational Chart (Optional)
9. Process Interaction

10. Document History

Once the documents were ready, they were reviewed with the process owners to obtain consensus and address any required changes. When consensus was reached, the next step was to conduct training related to new documents and processes. It was important to document the training in order to begin accumulating the required records that then would be reviewed during the audit process that followed. Dates for the completion of the internal audit and management review were scheduled.

Check

The internal audit process was the key to the implementation, improvement, and maintenance of the AS9100:2009 certification system. It was required that the entire certification process be audited by qualified and independent auditors. This internal audit program consisted of the following phases:

1. Initiating the internal audit.
2. Conducting document review.
3. Preparing for the internal audit.
4. Conducting the audit.
5. Preparing an audit report.
6. Following up on action to be taken.

The internal audit plan was developed, documenting the areas to be audited, identifying who would be conducting the audit and dates, and including

additional information as appropriate to the organization. The audit plan was issued to top management and the process owners prior to the start of the audit.

The documentation was reviewed to provide an insight into the organization's processes and to evaluate the conformity of the procedure to the processes and the AS9100:2009 requirements. Additionally, the review of the documentation gave the auditor the ability to prepare some of the questions that could be asked during the audit.

The internal audit was conducted by using the process approach to review the related documents and activities and to verify the requirements for the AS9100:2009 standard. Non-conformances issued during the audit were discussed with the appropriate employee or process owner in an attempt to obtain clarification for and resolution to the identified non-conformances.

During the audit process, the auditor was to focus on asking open-ended questions, which allowed the person being interviewed to explain the process and provide examples to be used as objective evidence.

The results of the audit, including objective evidence of conformances and non-conformances, were documented and given to top management for review. The internal audit was an effective measurement of the processes that had been established, providing a picture of the organization's strengths and weaknesses.

A management review was conducted to review the data that had been collected on the QMS, to receive feedback from the management team, and to establish action items as appropriate for each item being reviewed.

The selected third-party registrar then scheduled the Stage 1 readiness audit. This audit allowed the auditor to review the organization's documents and records related to the Stage 1 requirements. A report was generated to identify the areas that were in compliance and areas requiring improvements. A Stage 2 audit then was scheduled to complete the certification process, and the auditor continued the Stage 2 audit with the review of the documentation, records, and additional requirements and activities related to each process. An audit report was generated with related non-conformances that needed to be addressed before a certification could be issued.

Once the audit was completed and closed, the registrar proceeded with issuing a certificate and updating the OASIS database. The organization was then free to advertise that it had been certified to meet the requirements of the AS9100:2009.

Act

Once the internal audit was completed, the results were reviewed, and non-conformances were processed into the corrective action system with the observations processed as preventive actions. Follow through by the responsible parties ensured that identified documents were properly changed and corrective action was properly addressed.

Upon completion of the registration audit, the auditor documented any non-conformance and proceeded with documenting a response that took into consideration the proper containment and root cause analysis.

Action items from the management review were developed with follow through to assure that the action items were completed and closed.

CHAPTER 4

RESULTS AND DISCUSSION

The documents and processes identified in this project were tested at an actual machine shop that was audited by an independent, third party registrar. The audit was based on new *AS9100:2009 Quality Management System–Requirements for Aviation, Space and, Defense Organizations* certification, including Stage 1 and Stage 2 audits (IAQG, 2009).

The challenge when implementing this project was applying the resources needed to meet the requirements and working with a small organization where time was limited and management was focused on getting orders out the door and billing the client.

During the audit process, the auditor did not have any concerns during the Stage 1 audit; during the Stage 2 audit, however, the auditor identified two minor non-conformances that were related to the manufacturing practices. The non-conformances were noted as per the following:

1. AS9100:2009 Section 7.5.1g: The organization shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable, accountability for all product during production (e.g., parts quantities, split orders, non conforming product).

2. AS9100:2009 Section 7.5.1h: The organization shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable, evidence that all production and inspection/verification operations have been completed as planned, or as otherwise documented and authorized.

The non-conformances were a result of the practices that the employees had in place prior to the system's implementation, and, because the system was still in its infancy, employees failed to properly follow through on some of the orders.

The audit was based on a sample, and several samples reviewed by the auditor were found to be in compliance. The lack of employees following the requirements of the standard on one traveler, however, resulted in two minor non-conformances. The organization closed the non-conformances by providing additional training, implementing special notes on the travelers and package jacket, and conducting random audits for verification of corrective action effectiveness.

The registrar released the certification to the AS9100:2009 standard with a unit certification number that included the date of audit and expiration date. A surveillance audit was to be scheduled within 12 months from the certification audit, surveillance audits were to be conducted annually for two cycles, and the re-certification process was to begin on the third year.

Often organizations do not apply the appropriate resources after the completion of the certification process, allowing the system to go dormant until it is time for the next audit. Taking this approach does not indicate management commitment and is not maintaining the system as required by the standard. Management must look at the certification as an investment that is in need of maintenance and constant review and re-evaluation.

As a result of AS9100:2009 certification, the company has been able to process additional requests for quotes that have led to additional revenue. The monitoring of the internal rejections and customer returns has lead the organization to the processing of corrective actions and improvements and increased customer satisfaction, as shown in Figure 7. Identified continual improvement projects are listed in Figure 8.

INFORMATION MONTH 07-2013

TOTAL VENDOR SCORE POSSIBLE: 100

CURRENT PERIOD VENDOR SCORE EARNED: 97

Y-T-D CUMULATIVE VENDOR SCORE: 85

PERIOD	01-2013	02-2013	03-2013	04-2013	05-2013	06-2013	07-2013	08-2013	09-2013	10-2013	11-2013	12-2013	GOAL	Period	YTD	YTD
[redacted]																
OTTP %:	100.00%	100.00%	100.00%	99.17%	100.00%	99.15%	100.00%						100%	20	99.73%	20
AVRG LT (days):	5.91	7.14	6.56	7.35	6.67	6.50	6.48						<= 5	17	6.66	17
[redacted]																
PPM:	0	0	10,786	0	0	0	0						<= 100	20	2262.34	8
[redacted]																
Payment Terms:	90	90	90	90	90	90	90						>= std	20	90.00	20
Savings	YES	NO	YES	YES	YES	YES	YES						> 0	20	YES	20

Figure 7. Customer scorecard.

1. **Reduce In-House Scrap**
2. **Reduce Cost of Returns**
3. **Reduce Rework Costs**
4. **Reduce Quality Assurance Labor Cost**
5. **Reduce Cost of Quality**

Figure 8. Continual improvement projects.

CHAPTER 5

SUMMARY

The writing of the AS9100 standard began in 1995 with the participation of major OEMS that included Airbus, FAA, Boeing, the Department of Defense, and NASA. The standard was released to the aerospace industries in 1999 and revised three times, including the latest AS9100:2009 revision (IAQG, 2009).

The writing of the latest revision of the standard from AS9100B to AS9100C began in 2005 and was released in 2009. The standard was expanded from just an aerospace standard to a space, aviation, and defense standard. The standard was updated to include several new requirements and the re-alignment of existing requirements (IAQG, 2009).

The process for documenting, implementing, and maintaining a QMS is not an easy task, and, without the commitment of management, it can become lost. The standard can be interpreted in many different ways, and, without the proper tools, knowledge, or guidance, an organization may take a path that can create additional cost, stress, and unnecessary activity.

The goal for this project was to establish a quality manual to guide small businesses, with emphasis on machine shops, as they develop, implement, and document a QMS that is in compliance with the AS9100:2009 standard. This quality manual, found in the Appendix, was the focus of a project that provided a complete QMS for a small machine manufacturer.

As a result of the processes, forms, and assistance materials, which are provided in the quality manual in the Appendix, the third party auditor's report indicated that the management team, along with the entire staff, provided objective evidence of management commitment and support for meeting customer requirements.

The management team provided the necessary resources to meet the requirements of the standard that included customer expectations. A quality manual was established to document the QMS and provide guidance as to which processes had been documented.

Upon the completion of the audit for this project, the management team indicated that the strength of the QM system would rest in no small way on the assistance and direction that were provided with the use of the QMS package. Obviously, it would take more than one person to manage the system, but the commitment of management was the key to its success.

In conclusion, the processes and actions taken to pursue the AS9100:2009 certification was found to be a benefit to the organization, not only in meeting customer requirements but also in establishing processes and guidelines for the organization's activities.

A step-by-step description of those processes and guidelines can be found in the *Quality Manual for Developing and Implementing an AS9100 Certified Quality Management System for Small Machine Shops* that is provided in the Appendix. It is hoped that this manual may serve as a resource for

business owners and managers of small businesses, such as machine shops, who may be preparing for AS9100-based certification.

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REFERENCES

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APPENDIX

QUALITY MANUAL FOR DEVELOPING AND IMPLEMENTING AN AS9100 CERTIFIED QUALITY MANAGEMENT SYSTEM FOR SMALL MACHINE SHOPS

INTRODUCTION

Many small businesses, such as machine shops, find it difficult to compete with large organizations on pricing and infrastructure capabilities. If these small shops are not certified to a recognized international standard such as AS9100, the competition for sales becomes even harder.

Business owners and quality managers in small manufacturing companies can find it difficult to understand the requirements of the AS9100 standard and to make sure that they are appropriately addressed. These businesses often attempt to implement a Quality Management System (QMS) on their own, only to find that several key pieces are missing or have not been properly documented and implemented.

The objective of this project was to develop an easy-to-understand quality manual that outlines the total process for the implementation of an AS9100-based QMS for a small machine shop. To complete this guide, the author researched various guidance documents that provided an understanding of the requirements, ownership, targets, and steps for applying appropriate resources. A GAP analysis also was completed to determine the status of the QMS and identify the actions that should be taken. Processes and documents were developed with input from the management team that led to a successful certification process.

The *Quality Manual for Developing and Implementing an AS9100 Certified Quality Management System for Small Machine Shops* that resulted from this

project is presented as a resource for business owners and quality managers in similar types of organizations, who may be preparing for AS9100 certification. This guide features seven sections, beginning with Customer Satisfaction, which is the end goal of any QM plan. This section provides a planning overview that highlights management responsibilities, policies, and procedures, QM processes, and document and records control.

Each section in the manual focuses on a different component of the development of the QM implementation plan as shown in the Table of Contents of the Appendix; however, within each section, there are standard areas that are addressed. These areas include: a listing of reference documents for the component being addressed, document manual review and frequency, procedures, a review process, policies, personnel responsibilities, data analysis, customer feedback and satisfaction (where applicable). In addition to these sections, the manual also includes eight attachments that provide forms needed to complete some of the implementations processes. The goal is to give organizations the tools and information they need successfully prepare for AS9100 certification.

QUALITY MANUAL FOR IMPLEMENTING AN AS9100 CERTIFIED QUALITY MANAGEMENT SYSTEM FOR SMALL MACHINE SHOPS

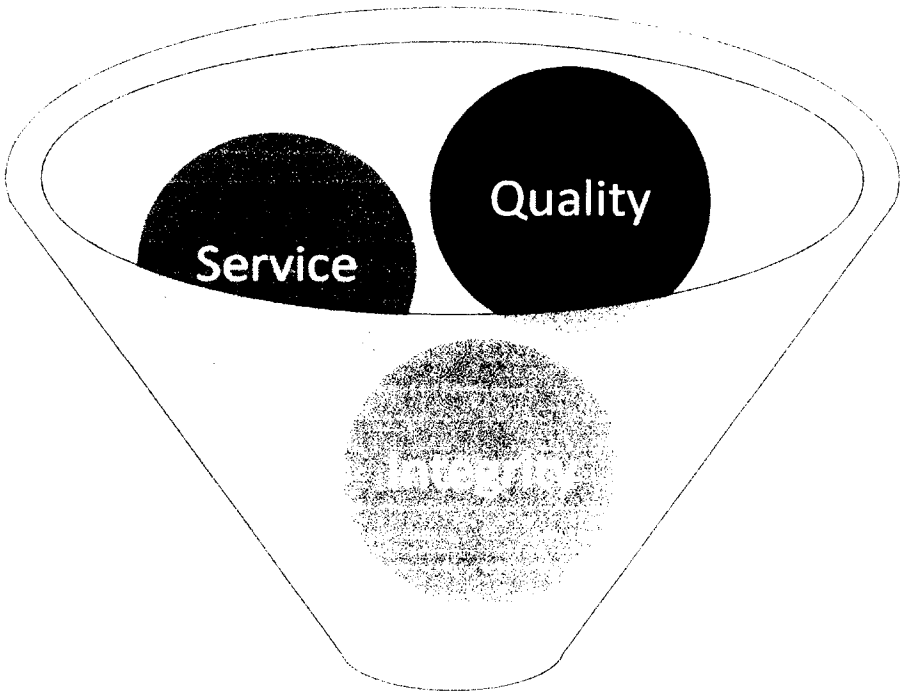
TABLE OF CONTENTS

PAGE

PAGE

QUALITY MANAGEMENT SYSTEM

QUALITY MANUAL



Customer Satisfaction

1.0 SCOPE

- Precision machining manufacturer for aerospace, military and commercial industries.

2.0 EXCLUSION

- Design and Development – Section 7.3. GRS Machine Co. does not perform any design function for its customers and processes the product to the customer specifications based on the drawing.

- Post Delivery – At this time, the only element that is applicable is the actions to taken when a problem is reported or determined. All other sections of 7.5.1.4 are not applicable at this time.

Table 1

Reference Documents

Doc #	Name	AS9100
P001	Control of Documents and Records Process	4.2.3, 4.2.4
P002	Management Responsibility Process	5.1, 5.2, 5.3 5.4, 5.4.1, 5.4.2 5.5, 5.5.1, 5.5.2, 5.5.3 5.6, 5.6.1, 5.6.2, 5.6.3 6.0, 6.2.1, 6.2.2, 6.3, 6.4 8.1, 8.2, 8.2.1
P003	Planning Process	7.1, 7.1.1, 7.1.2, 7.1.3, 7.1.4
P004	Customer Related Process	7.1.2

		7.2, 7.2.1, 7.2.2, 7.2.3 8.2.1
P005	Purchasing Process	7.1.2, 7.4, 7.4.1, 7.4.2, 7.4.3
P006	Manufacturing Process	7.1.2 7.5, 7.5.1, 7.5.1.1, 7.5.1.2, 7.5.1.3, 7.5.1.4, 7.5.2, 7.5.3, 7.5.4, 7.5.5
P007	Calibration Process	7.6
P008	Control of Non Conforming Product Process	8.3
P009	Improvements Process	8.5.1, 8.5.2, 8.5.3
P010	Internal Audit Procedure	8.2.2, 8.2.3

3.0 QUALITY POLICY (FXXX)

- GRS Machine Co. is committed to providing quality and on time products; and services that meet customer requirements while complying with any regulatory and statutory requirements. Top Management and its personnel are committed to the continual improvement of quality management system

4.0 QUALITY OBJECTIVES (FXXX)

- The President of GRS Machine Co. has elected to monitor the following as the quality objectives:
    - Quality of product to the customer
        1. Monitored based on the number of orders processed; Vs. number of rejections reported.

Target – 90 % or better

- Delivery of product to the customer

    1. Monitored based on the number of orders manufactured. Verification of the date shipped to the customer and requested date derived from the customer purchase order.

       Target – 90 % or better

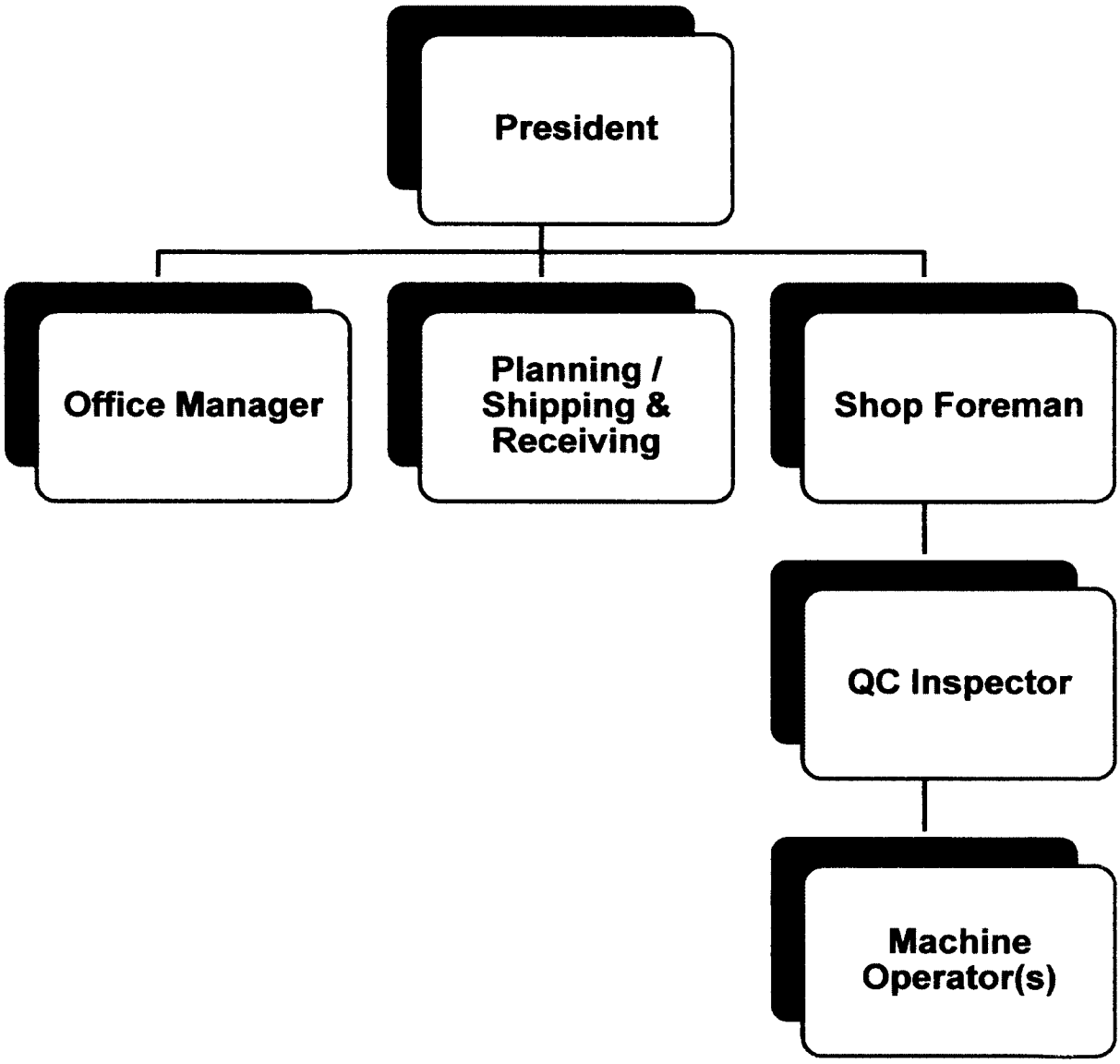
5.0 OUTSOURCING

- The following are some of the activities that are being outsourced:
    - Calibration
    - Testing
    - Internal Audits
    - De-burring
    - Lathe

6.0 PROCESS EFFECTIVENESS (FXXX)

- Process effectiveness is reviewed and documented (F038) on a quarterly basis.

7.0 ORGANIZATIONAL CHART



8.0 PROCESS INTERACTIONS

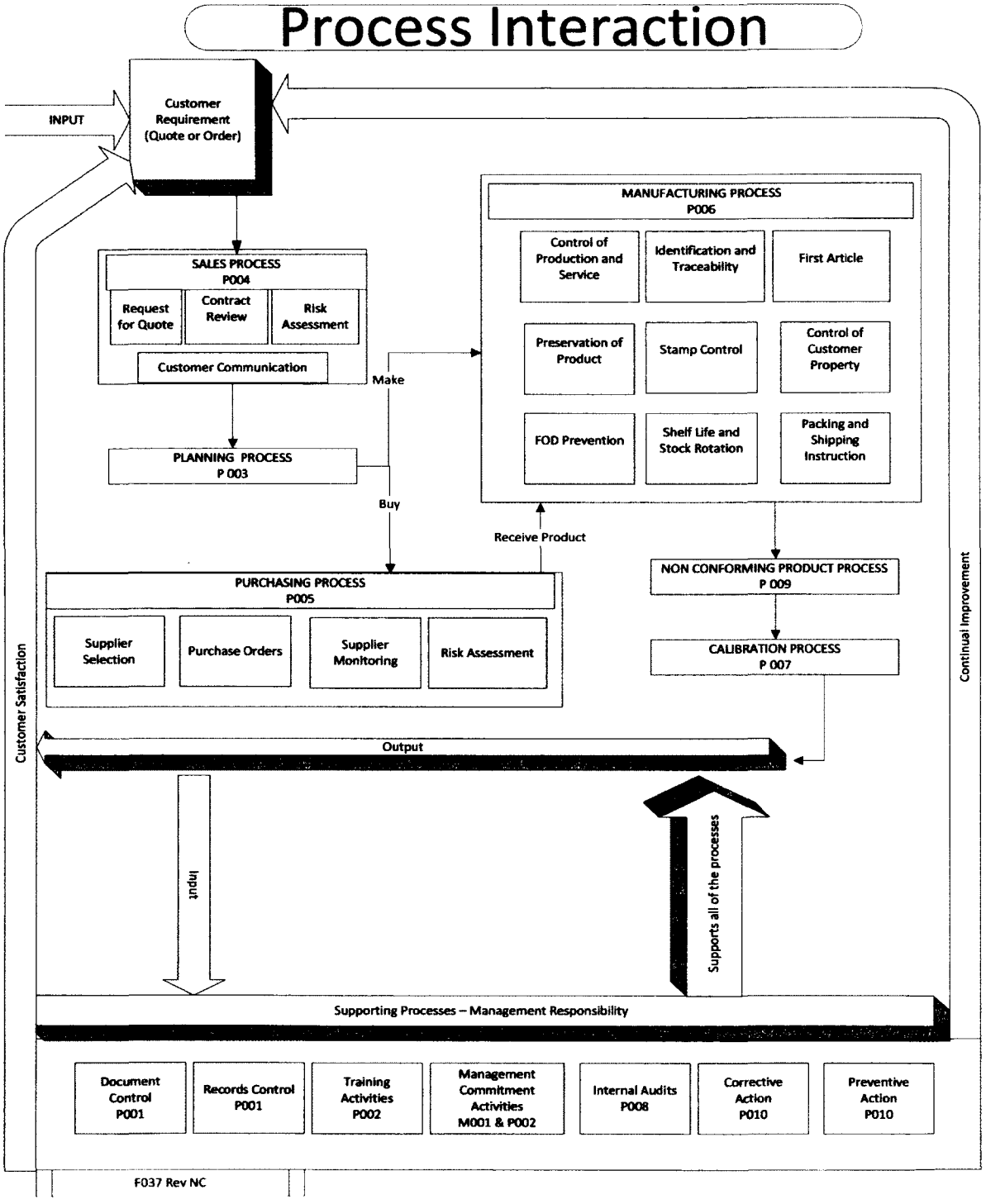


Table 2

Document History

Rev	Date	Description	Approval
00	06/24/2013	New Manual to meet the requirements of the AS9100C	

CONTROL OF DOCUMENTS AND
RECORDS PROCEDURE
P001

Document Control

New Document Request

Document Approval

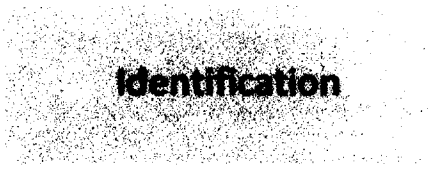
Document Release

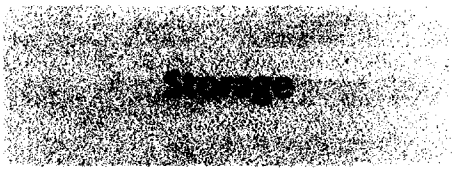
Document Change Request

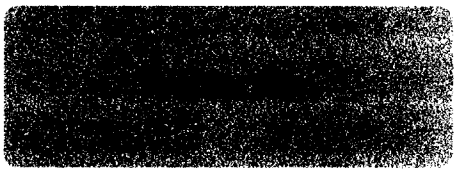
Customer Requirements

Internal Requirements

Records Control







1.0 TITLE

- Control of Documents and Records Procedure
- AS9100 Section 4.2.3 and 4.2.4

2.0 REFERENCE DOCUMENTS

- FXXX_A - Document Control Log
- FXXX_B - Forms Approval Log
- FXXX - Purchase Order Terms & Conditions
- FXXX - Document Change Request
- FXXX - Process Effectiveness
- M001 - Quality Manual

Table 3

Process Effectiveness

Description	Target
Control of all documents	100%
Documents Eligibility	100%
Records - Legibility - Accessibility -	100%

3.0 DOCUMENT REVIEW FREQUENCY

3.1 Annual Review

4.0 PROCEDURE

4.1 Process effectiveness (FXXX) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met.

Control of Documents

4.2 Internal Documents

4.2.1 Documents are established to meet the requirements of the AS9100 standard and customer requirement, as determined by the President.

4.2.2 As a company we have identified the following type of documents as being critical to our organization and our processes

- Quality Manual
- Procedures
- Forms
- Work Instructions (as necessary)

4.3 Quality Manual

4.3.1 The Quality manual document provides an overview of the AS9100 requirements and the list of GRS Machine Co. documents as they relate to the standard.

4.3.2 The Quality manual includes the document history, quality policy, process interactions, outsourcing, Quality management system scope and any exclusion as necessary to our Quality.

4.3.3 The Quality manual is controlled by the President and provides a link to the overall Quality Management System.

4.3.4 Quality manual includes the revision history that includes the Date; Revision; Originated by; Description of Change and Approval.

4.3.5 The Quality manual is reviewed and approved by the President. Once approved the document is uploaded to the server.

4.3.6 The Document Change Request (FXXX) form is completed to document the change.

4.3.7 It is not necessary to make the Quality manual available to the employees. The Quality manual may be provided to the customer as requested.

4.4 Quality Procedures

4.4.1 The quality procedures are documented to provide our employees, customers and external auditors, a document providing an overview of our processes.

4.4.2 The procedures are not intended to provide step-by-step activities for the process, but to provide a general process flow.

4.4.3 The procedures include the revision history containing the Date; Revision; Description of Change and Approval.

4.4.4 Each time a change is made to the document the history table is updated to reflect the latest changes.

4.4.5 The document is submitted to the President and/or process owner for review and approval, prior to release.

4.4.6 In the event that a change needs to be made, the change is made under the new revision and once approved the document is signed off in the history block and released as a controlled documented.

4.4.7 The document is also made available on the server or as hard copy to the employees.

4.4.8 Once the new revision is released the old revision becomes obsolete. The old document is not maintained, as it is no longer needed as part of the Quality Management system.

4.4.9 The document control log (FXXX_A) is updated to include the new revision, and other related information as it pertains to the document.

4.4.10 The procedures make reference to specific documents; hyperlinks have been set up whenever possible to provide the employees links to the appropriate document.

4.5 Forms

4.5.1 Forms are generated and used to document records that are developed as part of the Quality Management System.

4.5.2 Forms are controlled with the form numbers; revision and date as applicable.

4.5.3 The document control log (FXXX_B) is updated to include the new revision and other related information as it pertains to the document.

4.5.4 Obsolete forms may be retained if necessary, once the new form is in place the form is removed from the system, as it is no longer necessary as part of the system.

4.5.5 Any records that were created using the old revision are maintained as part of the records process.

4.6 Work Instructions

4.6.1 Work instructions are created when the absence of such document prevents the employee from properly performing his/her job duty.

4.6.2 Work instructions are documented in such a manner to provide a step-by-step instruction for a specific activity.

4.6.3 The document changes are listed in the document history section of the work instruction.

4.6.4 The document control log (FXXX_A) is updated to include the new revision and other related information as it pertains to the document.

4.6.5 Once the new revision is released the old revision becomes obsolete. The old document is not maintained, as it is no longer needed as part of the Quality Management system.

4.7 Document of External Origin

4.7.1 The following are considered documents of external origin:

- Customer Specifications
- Standards
- Customer Quality Clauses

4.7.2 Customer Specifications - are maintained electronic or hard copies by customer name and/or with the customer purchase order as applicable.

4.7.3 Standards - Maintaining current revisions of the required standards.

4.7.4 Customer Quality Clauses - are either accessible through the customer website and/or filed (Hardcopy or electronically) by Customer name.

4.7.5 Verification - Documents are verified annually to make sure that the documents are still current. In the event that the revision has changed, the old revision is removed and replaced with the new revision.

4.7.6 When the customer provides a reference to a specific document, it is the responsibility of the employee that is reviewing the customer requirements, to verify that the required documents are available and are to the latest revision.

Control of Records

4.8 Control of Records

4.8.1 Once the records are created, they are maintained in such a manner to assure easy access to anyone that is requesting the record; and protection from any deterioration.

4.8.2 Storage - Records are stored in any of the following methods, records can be stored in different methods as appropriate to the record (i.e. by Customer Name; Job #; Supplier Name; PO #; Date)

- File Cabinets
- Storage Boxes
- Electronic

4.8.3 Protection - Records are stored so that they are protected from any deterioration, related to the weather condition, potential fire, or loss. Electronic records are properly backed up to assure the proper protection and accessibility.

4.8.4 Internal Retention - Records are maintained as identified in *Table 2*. If the customer requires a different retention it is addressed accordingly by individual purchase orders.

4.8.5 Supplier Records - Supplier record retention have been defined in the supplier quality clauses (FXXX), retention has been set at 7 years. Supplier quality clauses are flown down with the purchases orders that are issued to the suppliers.

4.8.6 Retrieval - Records can be retrieved by the President and the staff as appropriate.

4.8.7 Disposition - Records are disposed of in any of the following methods. If required customer is contacted to provide direction as to the disposition of records that may be related to a project, or requiring a longer record retention.

- Records that require archiving (Hard Copy or Electronic) may be stored on site or off site
- Records may be deleted if the record is electronic
- Records may be shredded

- Records may be returned to the customer if requested by the customer
- Records may be maintained as a reference, as deemed appropriate by the management team

Table 4

Records Identification

AS9100	QMS	Record	Retention
4.2.3	P001	Document Changes	3 Years
5.6	P002	Management Review	3 Years
6.2.1	P002	Resumes; Job Applications	For the duration of employment
6.2.2	P002	Competency Reviews	For the duration of employment
6.2.2	P002	Training Records	For the duration of employment
6.4	P002	Facility Inspections	3 Years
7.1.2	P003	Risk Assessments	3 Years
7.1.3	P003	Configuration Audit	3 Years
7.2.2	P004	Customer Purchase Orders; Quality Clauses and Requirements; Drawings	7 Years Drawings may be returned to the customer as applicable
7.4.2	P005	Suppliers Purchase Orders	7 Years
7.4.1	P005	Supplier Monitoring Records	7 Years
7.4.3	P005	Supplier Documents (Packing List - Test Reports - C of C)	7 Years

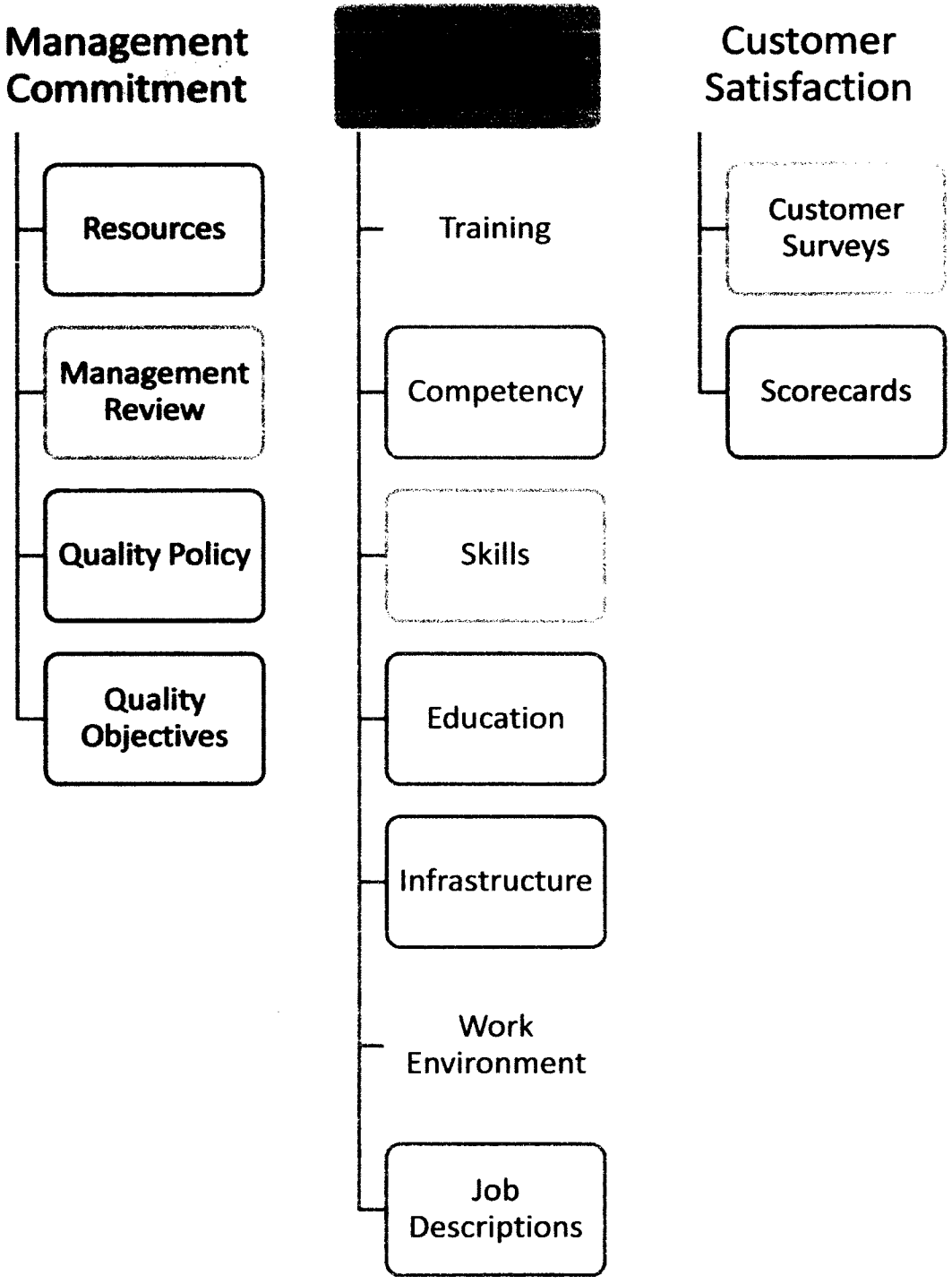
7.5.1	P006	Production Documents related to specific jobs and traceability as applicable	7 Years
7.5.4	P006	Customer Property Related to a specific order and part number	As updated to meet customer requirements
7.5.1.3	P006	Equipment Inspection	3 Years
8.2.4	P006	Certificate of Conformances; Test Reports and Inspection Records (1st articles) including records for release of product to the customer	7 Years
7.6	P007	Calibration/Verification Records	7 Years
8.2.1	P004	Customer Surveys and Scorecards	3 Years
8.2.2	P010	Audit Plan, Schedule, Reports and Records	3 Years
8.3	P008	Non Conforming Product Records and actions taken	7 Years
8.5.2	P009	Corrective Actions	7 Years
8.5.3	P009	Preventive Actions	7 Years

Table 5

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

MANAGEMENT RESPONSIBILITY
PROCEDURE
P002



2.0 TITLE

2.1 Management Responsibility Procedure

2.2 AS9100 Section 5.1, 5.2, 5.3, 5.4, 5.4.1, 5.4.2, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.6, 5.6.1, 5.6.2, 5.6.3, 6.0, 6.2.1, 6.2.2, 6.3, 6.4, 8.1, 8.2, 8.2.1.

3.0 REFERENCE DOCUMENTS

3.1 FXXX – Facility Inspection

3.2 FXXX – Customer Survey

3.3 FXXX – Training Log

3.4 FXXX – Training Record

3.5 FXXX – Quality Policy & Objectives

3.6 FXXX – Competency Review

3.7 FXXX – Management Review

3.8 FXXX - Skill Assessment

3.9 FXXX – Job Descriptions

3.10 FXXX – Machine Maintenance Record

3.11 FXXX – Process Effectiveness

3.12 M001 – Quality Manual

3.13 P010 – Improvements

Table 6

Process Effectiveness

Description	Target
Management Review completed as scheduled	100%
Quality Policy Employee Communication & Comprehension	100%
Quality Objectives - Established - Reviewed as planned	100%
Re-occurring training conducted as scheduled	100%
Facility inspection performed as planned	100%

4.0 DOCUMENT REVIEW FREQUENCY

4.1 Annual Review

5.0 PROCEDURE

5.1 Process effectiveness (FXXX) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met.

5.2 Management Commitment

5.2.1 The President is ultimately responsible for the Quality management system along with communicating to the employees the importance of meeting the requirements of the Customer and AS9100.

5.2.2 Management commitment is demonstrated by the actions that are taken in properly supporting the activities related to improving customer satisfaction, and meeting requirements (AS9100; regulatory; statutory).

5.2.3 Management is responsible for assuring that the proper resources are in place and that all aspects of the customer and Quality management system are properly implemented.

5.2.4 The President has established Quality policy and the quality objectives, as a foundation for the Quality management system.

5.3 Quality Policy

5.3.1 The Quality policy has been established taking into consideration the requirements of the AS9100 standard and the goals and objective established by the President.

5.3.2 The Quality policy is reviewed by the management team no less than once per year; to assure that it still suits the functions of GRS Machine Co. core processes and the Quality Objectives.

5.3.3 Quality policy is communicated to the employees when they are hired and is posted throughout the facility to assure that it is properly communicated and understood.

Quality Policy Statement

GRS Machine Co. is committed to providing quality and on time products; and services that meet customer requirements while complying with any regulatory and statutory requirements. Top Management and its personnel are committed to the continual improvement of quality management system.

5.4 Quality Objectives

5.4.1 The Quality objectives are established taking into consideration the requirements of the AS9100 and in conjunction with the Quality Policy.

5.4.2 The Quality Objectives are identified as part of the Quality Manual (M001).

5.4.3 The Quality Objectives are reviewed monthly and trended quarterly, in order to identify any negative trends and if action items are required.

5.4.4 Corrective actions are issued if the quarterly average target has not been reached (P009).

5.4.5 Quality Objectives are reviewed annually to determine if the objective and targets need to be adjusted or changed.

Quality Objectives

Quality of product to the customer

Monitored based on the number of orders processed;
Vs. number of rejections reported
Target – 90.00 % or better

Delivery of product to the customer

Monitored based on the number of orders manufactured.
Verification of the date shipped to the customer and requested date derived from the customer purchase order
Target – 90.00 % or better

5.5 Management Review

5.5.1 The management review addresses all of the requirements of section 5.6 of the AS9100 standard. The management reviews (FXXX) are conducted no less than twice (2) per year, to make sure that all the elements are addressed and any action items documented.

5.5.2 The goal of the management review is to review the status of the Quality management system, identify areas for improvement and provide input as it relates to the resources and actions needed to address the customer and internal requirements.

5.5.3 It is not necessary for the President to establish a meeting for such reviews due to the size of the company. The management reviews can be documented shared with the employees so that everyone is aware of the requirements, and the actions that need to be taken.

5.5.4 The management review activity is based on gathering all of the required information, preparing the management review

record (FXXX) and communicating the information with the management team.

5.5.5 Management may elect to proceed with a meeting or provide feedback through email communication. Once the Management Review record is completed it is submitted to the management team for review and feedback

5.6 Management Representative

5.6.1 The President has appointed the Office Manager the responsibility of being the management representative and is responsible for assuring that the requirements of the Quality management system are documented and implemented.

5.6.2 The Office Manager has been given un-restricted access to the President, in order to resolve any quality issues (Internal or Customer related).

5.6.3 The Office Manager is responsible for assuring that the internal audits and management reviews are completed as planned; improvements are monitored and actions are taken as necessary.

5.6.4 The Office Manager communicates with the employees the status of the Quality Management System and customer requirements.

5.7 Resource Management

5.7.1 Job descriptions (FXXX) have been established to document the requirements for the position, including the education, skills, training and experience requirements.

5.7.2 Job descriptions are communicated to the employees and used to verify the employee competencies.

5.7.3 Job Descriptions are reviewed annually (12) to determine if any changes are required.

5.7.4 Education, Skills, Experience; and training may be verified using the employee records (Resume or Employment Application). Additional review may be conducted through the review of the on the job training and employee performance.

5.7.5 Skill assessments (FXXX) conducted annually for each employee.

5.7.6 Employee competency (FXXX) is completed once a year to verify that the employee's education, skills, training, and experience match to the requirements of the job descriptions and to verify the employee performance based on the job that is being performed.

5.7.7 Training can be provided to the employee through the following methods:

- On the Job Training
- External Training

5.7.8 The training log (FXXX) is updated to include the training that has been completed for each employee.

5.7.9 Training record (FXXX) is completed for each training that is performed. The training records indicate the following information:

- Employee Name
- Trainer
- Training Topic
- Date
- Verification Requirements (as applicable)

5.7.10 Training verification is only performed as needed, not all of the training requires verification. Verification is conducted on all of the training records that have been identified as requiring verification.

5.7.11 The job descriptions indicate the general training that is required for each position. Additional training requirements are documented as part of the management reviews.

5.7.12 Work Environment is monitored to Facility inspections (FXXX) are completed and no less than once every quarter, to assure that the safety of the employees is properly implemented. Additionally the condition of the product is reviewed to assure that the product is properly maintained and protected from any damage.

5.7.13 Machine Maintenance records (FXXX) are conducted no less than once a quarter; the frequency may be increased based on the usage and management feedback.

5.8 Customer Satisfaction

5.8.1 Customer Satisfaction is measured annually by sending out customer satisfaction surveys (FXXX). Additionally the customers may provide scorecards reflecting the performance of GRS Machine Co. services and product.

5.8.2 The scorecards are reviewed and results documented as part of the measurement processes (analysis of data to identify the quality and delivery that has been reported by the customer). In the event the customer data indicates that the targets have not been met, the customer is contacted to obtain information as to what actions are required. A corrective action may be issued as deemed necessary by management.

5.8.3 Surveys that are issued to the customer are reviewed and the data analyzed. A target of 3.00 has been established for the type of scoring received from the customer if the target is not met, actions may be taken to address the results. A corrective action may be issued as deemed necessary by management.

5.9 Analysis of Data

5.9.1 GRS Machine Co. measures Quality (conformity to the product requirements) to the Customer every month and attempts to maintain a goal of 90.00%. If the target is not met, actions may be taken by management.

5.9.2 As necessary and determined by management, additional measurements may be processed to identify trends on the reason for the rejections.

5.9.3 GRS Machine Co. measures Delivery to the Customers and attempts to maintain a goal of 90.00%. If the target is not met, actions may be taken by management.

5.9.4 GRS Machine Co. measures Vendor's Quality every month and attempts to maintain a target of 90.00%. If the target is not met, actions may be taken by management.

5.9.5 GRS Machine Co. measures the Vendor's Delivery every month and attempts to maintain a target of 90.00%. If the goal is not met, actions may be taken by management.

5.9.6 Process performance is monitored and results documented (F038) on a quarterly basis.

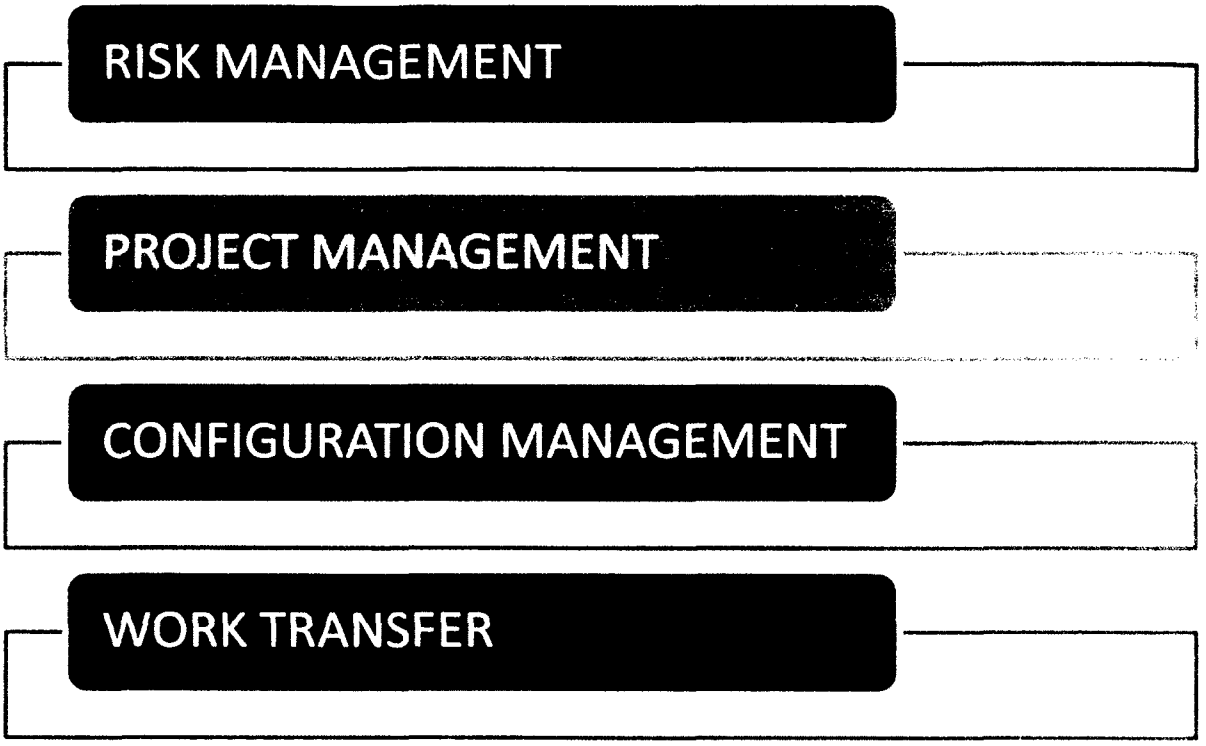
5.9.7 Corrective and preventive actions are reviewed to identify trends and document actions to be taken as part of the quarterly or management review.

Table 7

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

PLANNING PROCEDURE
P003



1.0 TITLE

- Planning Procedure
- AS9100 Section 7.0, 7.1, 7.1.1, 7.1.2, 7.1.3, 7.1.4

2.0 REFERENCE DOCUMENTS

- FXXX - Purchase Order Review
- FXXX - Risk Assessment - Human Resources
- FXXX - Risk Assessment - IT
- FXXX - Risk Assessment - Purchasing
- FXXX - Risk Assessment - Production
- FXXX – Configuration Audit
- FXXX - Process Effectiveness

Table 8

Process Effectiveness

Description	Target
Risk Assessment	2.00 or Less
Configuration Audits	2/Year

3.0 DOCUMENT REVIEW FREQUENCY

- Annual Review

4.0 PROCEDURE

4.1 Planning of Product Realization

4.1.1 Product is planned to use the customer purchase order requirements, and the Production Operation Traveler (FXXX).

4.1.2 When the job is planned, consideration is taken to make sure that the product can be delivered on time without any non conformances, while meeting the customer requirements for on time delivery and quality.

4.1.3 Risk is reviewed during the review of the customer request for quote and/or purchase order.

4.1.4 Verification of customer PO product description, including revision level is part of the planning process.

4.1.5 Process effectiveness (FXXX) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Project Management

4.2.1 Each order that is processed is considered a project. No special process is required to meet this section of the AS9100 Standard.

4.3 Risk Management

4.3.1 Risk assessment is processed when customer orders are reviewed (FXXX) and when suppliers are reviewed as part of the selection process (FXXX). The risk related to the supplier usage is monitored using the supplier performance and targets that have been established for each supplier that provides product or services affecting the product.

4.3.2 Risk is also reviewed for specific processes associated with the manufacturing of the product (Processing Customer Orders - Manufacturing - Purchasing).

4.4 Configuration Management

4.4.1 Configuration management audit (FXXX) is processed no less than twice a year. The customer product description, part #, specifications and revision is verified against the

purchase order to make sure that the product is manufactured as requested.

4.5 Work transfer

4.5.1 Work transfers are managed as documented in procedure P005

Table 9

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

CUSTOMER-RELATED PROCESSES PROCEDURE
P004

1.0 TITLE

- Customer Related Processes Procedure
- AS9100 Section 7.1.2, 7.2, 7.2.1, 7.2.2, 7.2.3, 8.2.1

2.0 REFERENCE DOCUMENTS

- FXXX - Customer Survey
- FXXX – Purchase Order Review
- FXXX – Customer Order Review
- FXXX - Process Effectiveness

Table 10

Process Effectiveness

Description	Target
Process Risk Assessment	2.00 or less
Customer Satisfaction Scorecards (Quality and Delivery)	90.00%
Customer Surveys	3 or better
Quality to the Customer	90.00%
Delivery to the Customer	90.00%

3.0 DOCUMENT REVIEW FREQUENCY

- Annual Review

4.0 PROCEDURE

4.1 Process effectiveness (FXXX) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Quotes

4.2.1 A customer request for quote is reviewed by the President to determine if the customer request can be processed.

4.2.2 If the quote cannot be processed, the President or designated person communicates with the customer the results of the review.

4.2.3 Based on the conversation with the customer if the quote cannot be processed, the request is closed and no further action is required.

4.2.4 If the quote can be processed, the customer request is reviewed to assure of the following:

- Resources are available (People and Equipment)
- Material Availability
- Supplier Base is in place
- Delivery date can be met
- Product Quality is acceptable

4.2.5 A quote is prepared (Email or formal quote) and issued to the customer.

4.2.6 Request for quote is filed pending the customer acceptance and issuance of a purchase order.

4.3 Customer Purchase Orders

4.3.1 When a customer request for quote is received, it is reviewed; the Customer Purchase Orders are received and processed for review.

4.3.2 The review of the customer purchase orders includes the following as appropriate:

- Product Description (Quantity; Description; Part #; Price).
- Customer quality clauses are reviewed to determine if they can be met. If the quality clauses are pulled from the customer website, no specific document control is required.
- If the clauses are pulled from a file that is stored by GRS Machine Co.; verification of documents is completed to assure that the latest revision of the document is being used.
- Statutory or regulatory requirements (i.e., ITAR or DFAR) are reviewed based on the customer Purchase Order and the type of product (as applicable).
- Should there be any specific product requirements that have not been identified by the customer, but known by GRS Machine Co., based on the type of product or process; it is the responsibility of the person reviewing the customer purchase order to disclose such requirements and assure that the customer is advised and GRS Machine Co. is able to meet the requirements.
- Risk associated with the product process is reviewed and documented. In the event a risk is identified, appropriate actions are taken to mitigate the risk.

4.3.3 Once the order review has been completed (FXXX), a decision is made to determine if the customer requirements can be met.

4.3.4 If the customer requirements cannot be met, hence creating a risk, the customer is contacted and details provided to determine the actions to be taken.

4.3.5 If an agreement cannot be reached between the customer and GRS Machine Co., management may elect to decline to accept the order.

4.3.6 If the discrepancies can be resolved, records are documented as to the order processed FXXX).

4.3.7 If the purchase order can be released and processed meeting the customer requirement, the review is completed (FXXX) and processed through the planning of the job.

4.3.8 The order can either be processed to purchase material or to be processed for production.

4.4 Customer Feedback

4.4.1 Customer feedback can be obtained using any of the following methods:

1. Customer Surveys

- Customer surveys (FXXX) are issued to the customer semi-annually.
- The management team is responsible for the selection of the customer that will be issued a survey (Selection may be based on usage or type of account).
- Scorecards feedback that is received with a ranking of less than 90.00% or surveys with a rating less than 3 requires an action to be taken (Contacting the customer and processing corrective action as appropriate).

2. Customer Scorecards

- Customer scorecards are based on the customer frequency.
- Scorecards are reviewed to determine if the customer's targets have been met (Typically delivery and quality).

3. Evaluation of Customer product acceptance

- The product acceptance is reviewed through the customer's rejections; product rejected vs. product accepted.

- The quality acceptance rating has been established at - 90.00%.

4. Evaluation of Corrective action

- Corrective actions as a result of the customer issued corrective actions.

4.4.2 Data is collected and analyzed to determine if there is evidence of any negative trends and determine if any action is required.

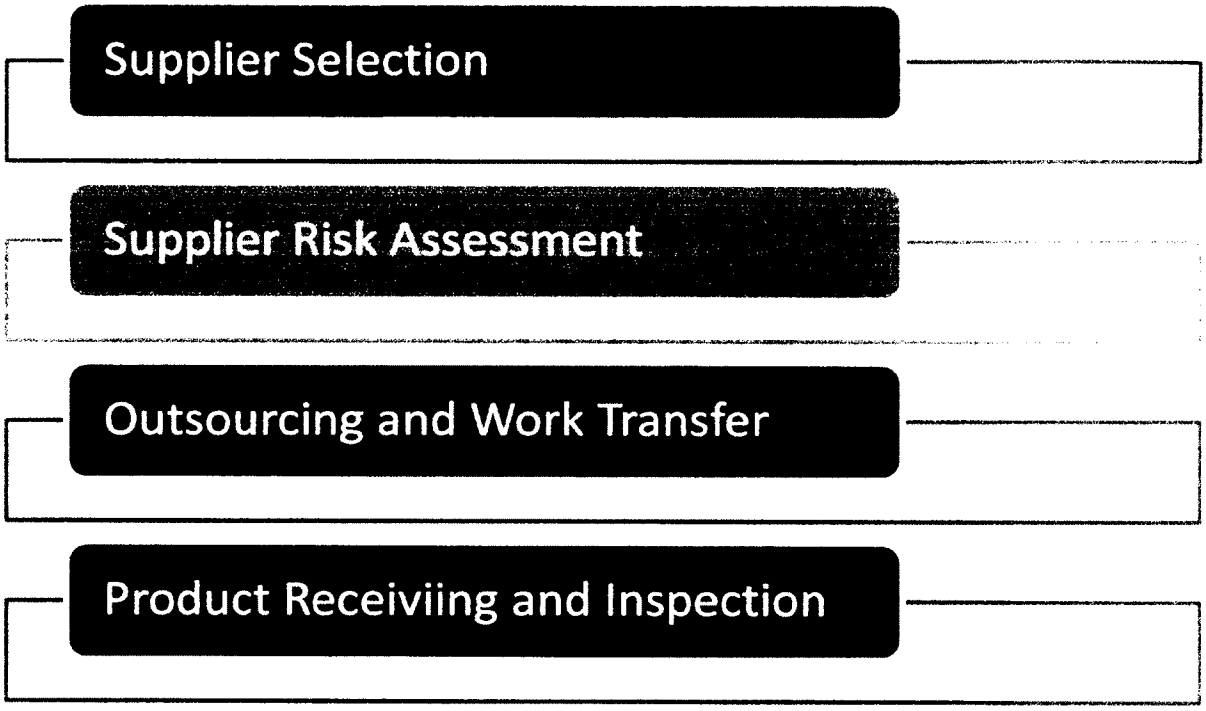
4.4.3 Corrective actions may be issued as deemed appropriate and may be provided to the customer or issued internally.

Table 11

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

PURCHASING PROCEDURE
P005



1.0 TITLE

- Purchasing Process Procedure
- AS9100 Section 7.1.2, 7.1.4, 7.4, 7.4.1, 7.4.2, 7.4.3

2.0 REFERENCE DOCUMENTS

- FXXX – Supplier Survey
- FXXX - Non Conforming product
- FXXX - Purchasing Process Risk Assessment
- FXXX – Approved Supplier Listing
- FXXX - Quality Clauses Flow downs
- FXXX – Supplier Risk Assessment
- FXXX - Process Effectiveness
- FXXX - Receiving Inspection

Table 12

Process Effectiveness

Description	Target
Risk Assessment	3.00 or less
Supplier Delivery	90.00%
Supplier Quality	90.00%
Purchasing process Risk Assessment	3.00 or Less
Approved Vendor listing	100%
All Approved vendors include a survey or certificates	100%

3.0 DOCUMENT REVIEW FREQUENCY

- Annual Review

4.0 PROCEDURE

4.1 Process effectiveness (FXXX) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Work transfer is processed through the use of the purchasing process, issuing purchase orders and maintaining control over the suppliers as defined in this procedure.
Supplier Selection - Evaluation - Re-Evaluation - Process Purchase Orders

4.3 Grandfather Clause and Purchasing Process

4.3.1 Suppliers that have been used by GRS Machine Co. since before June 2013; have been selected through the previous methods (prior to AS9100). Such suppliers are considered to be grandfathered into the Quality Management System and do not require the process of a new supplier survey.

4.3.2 The purchasing process is reviewed annually for any potential risk; records of such review are documented (FXXX).

4.4 Supplier Selection

4.4.1 Suppliers that are selected after November 2013 will be selected using the supplier survey (FXXX). The suppliers may elect to process such request, using their own format which point it is the responsibility of President or designated employee to complete the survey (FXXX) based on the information provided.

4.4.2 Supplier risk assessment is reviewed at the time of the selection process; record of such review is documented (FXXX). Supplier risk level target is to maintain a 3 or less.

4.4.3 If the supplier is AS9100; AS9110; AS9120 or NADCAP, the certificates may be reviewed on line through OASIS and NADCAP. Copies are not required. OASIS may be set up to provide alerts as to the status of the Certificate as a method of controls.

4.4.4 Suppliers may also be selected based on using customer sources as directed by the customer purchase orders and/or contracts.

4.4.5 The supplier documentation (Survey; 3rd party certifications) is reviewed; evidence of such review is provided by having the President or designated employee initial and/or dates the documents.

4.5 Approved Supplier Listing

4.5.1 Any supplier, which provides a product or service that affects the product is identified on the approved supplier listing (FXXX).

4.5.2 All other products used for machine or facility maintenance are considered COTS (Commercial over the Shelf); the suppliers used for COTS do not require monitoring and will not be added to the approved supplier listing. These suppliers do not require monitoring.

4.5.3 The approved supplier list (FXXX) contains the following information:

- Supplier Name
- Scope
- Supplier Survey (FXXX) date
- 3rd Party certification type and expiration date
- Status of the vendor (Approved - Conditional - Not Approved)
- Risk Assessment (Based on survey)
- Customer Source
- Sole Supplier

4.5.4 The President or a designated employee; who has been approved by the President has the responsibility and authority to add and remove suppliers from the approved supplier listing, based on the supplier performance, survey feedback and customer input.

4.6 Supplier Performance

4.6.1 Once the suppliers are added to the approved supplier listing (FXXX) the evaluation is conducted using the monthly data (Delivery and Quality).

4.6.2 Supplier re-evaluation is conducted annually by reviewing the supplier overall performance.

4.6.3 Suppliers are required to maintain a quality and delivery rating of 90% based on the monthly/quarterly review.

4.6.4 In the event the suppliers are not maintaining the performance to meet the established requirements, supplier status is reviewed to determine if a corrective action is required.

4.6.5 Suppliers not meeting GRS Machine Co. requirements may be placed on a conditional use and if necessary removed from the approved supplier listing.

4.6.6 In the event that the supplier is a customer source or a sole source, it is not possible to remove the supplier from the approved supplier listing, but the supplier will be monitored and feedback provided to the supplier and customer as appropriate.

4.6.7 Overall supplier's risk is evaluated annually to determine the risk associated with the supplier, the risk is based on the supplier performance. Actions are taken if the supplier risk is found to be high. The risk is documented on the approved supplier listing (FXXX), which include the selection risk assessment and the usage risk assessment.

4.6.8 Supplier risk assessment ratings are reviewed and documented annually. Risk is reviewed based on the supplier Quality and Delivery.

Table 13

Risk Ranking

Rating	Risk	Action
90.00% or Higher	0	None
80.00% - 89.00%	1	Monitor for improvements
70.00% - 79.00%	2	Communicate with Supplier
Below 70.00%	3	Issue Supplier Corrective Action

4.7 Processing Purchase Orders

4.7.1 Once it is determined that a product needs to be purchased, a purchase order is generated to the appropriate supplier (Product, services, including outsourcing and delegation).

4.7.2 It is the responsibility of the President or Designated Employee to review the approved supplier listing (FXXX) and verity that the supplier has been approved and is in good standing prior to processing the order.

4.7.3 In the event that the customer requires verification of product, it is the responsibility of the President or Designated Employee to communicate with the supplier and make the appropriate arrangements for the customer to be on site at the supplier for product verification.

4.7.4 Once the review has been completed and Approved supplier listing (FXXX) has been verified, the order is processed with the following information:

1. Supplier Name
2. Supplier Address
3. Product Description including Part # as appropriate
4. Quantity ordered
5. Product Specifications requirements as appropriate
6. Quality Clauses flow down (FXXX)

7. Product Due Date

8. Reference to customer order or requirements as appropriate.

4.7.5 Suppliers are issued the quality clauses flow down document (FXXX) each January. The document may be issued with specific purchase orders as appropriate. Should the quality clauses document be revised the suppliers are re-issued the document (FXXX) once it has been properly approved and released.

4.7.6 The purchase order may be electronically or hard copy printed and approved by the President or Designated Employee. The approval of the purchase order indicates that the contents of the document, has been reviewed, and the information is accurate.

4.7.7 Once the order has been approved and verified it is processed and issued to the supplier. Order confirmation may be received to assure that the supplier has received and will process the order as appropriate.

4.7.8 A copy of the purchase order is issued to receiving, to be used during the receiving of the product.

4.7.9 GRS Machine Co. does not delegate any inspection authority; all of the products that are purchased are verified by GRS Machine Co., during the receiving inspection.

4.7.10 When a purchase order is issued for services, the verification is completed using the documents provided by the supplier.

4.8 Receiving a Product

4.8.1 Receiving is provided with a copy of the purchase order, to verify the purchased product to the requirements of the purchase order.

4.8.2 Receiving has been given a copy of the Quality Clauses (FXXX) to be verified against the purchase order and product.

4.8.3 Once the product is received the documents (packing slips; certificate of conformance; testing) are reviewed and verified to the purchase order. The product is inspected to the documentation and the purchase order to assure that the correct product was received.

4.8.4 If necessary additional assistance may be requested if the documentation provided and the purchase order requirements, may need additional interpretation or understanding.

4.8.5 When inspecting a product to a given specification, the supplier certificate of conformance and/or testing records may be used as a method for product inspection.

4.8.6 It is not required for the person receiving the product to be familiar with the specific details of the specification as long as the supplier is verifying and complying with such requirements.

4.8.7 The product may be inspected either through a visual or physical dimensions. The records of the product inspections are documented (FXXX).

4.8.8 Acceptable Product - Once the product is found to be acceptable the documentation (FXXX) is signed off and product released to the next step.

4.8.9 Not Acceptable Product - Should the product not be found acceptable, the documentation (FXXX) is completed to indicate a rejection a nonconforming product form (FXXX) is completed and product properly tagged with a RED rejection tag to prevent the use.

4.8.10 No product shall be released for production, shipping or stock without the proper inspection process being completed.

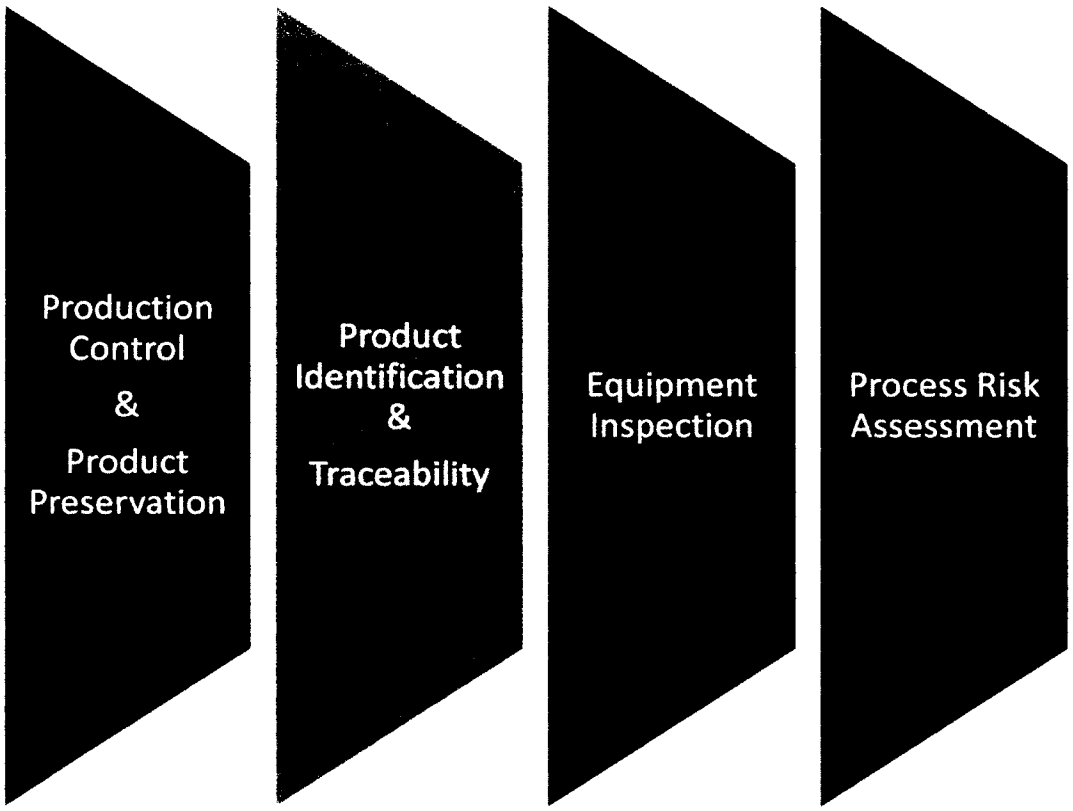
4.8.11 In the event that the customer requests to complete an inspection of the product, at the supplier; GRS Machine is still responsible for inspecting the product, to assure that the product meets customer requirement.

Table 14

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

MANUFACTURING PROCEDURE
P006



1.0 TITLE

- Manufacturing Process
- AS9100 Section 7.1.2; 7.5, 7.5.1, 7.5.1.1, 7.5.1.2, 7.5.1.3, 7.5.1.4, 7.5.2, 7.5.3, 7.5.4, 7.5.5

2.0 REFERENCE DOCUMENTS

- FXXX – Production Operation Traveler
- FXXX - Material Control Sheet
- FXXX - Machine Log
- FXXX - Certificate of Conformance
- FXXX - First Article and Final Inspection
- FXXX - Delivery Schedule List
- FXXX – Shelf Life Log
- FXXX - Non Conforming Product
- FXXX - Manufacturing Process Risk Assessment
- FXXX - Equipment Log
- FXXX - Machine Maintenance
- FXXX - Configuration Audits
- FXXX - Process Effectiveness
- FXXX - Customer Product
- FXXX - FOD Program
- FXXX – Stamp & Initials Agreement
- P008 – Non-Conforming Product Process

- P003 - Planning Process
- P007 - Calibration

Table 15

Process Effectiveness

Description	Target
Delivery to the customer	90.00%
Quality to the customer	90.00%
Process Risk Assessment	3.00 or less
Machine inspection as scheduled	100%
Stamp Media Control	100%
Control of Shelf Life Product	100%

3.0 DOCUMENT REVIEW FREQUENCY

- Annual Review

4.0 PROCEDURE

4.1 Production Control

4.1.1 The production process is planned to take into consideration the customer requirements and any machine and resource capabilities as identified by the President.

4.1.2 The review of resources and capabilities include but are not limited to our production equipment; measurement equipment; the need for any work instructions as applicable.

4.1.3 In the event that it is determined that appropriate resources or capabilities, are not available, actions are taken to communicate with the customer. Management is responsible

for resolving the issue and work towards meeting the customer requirements.

4.1.4 The Production Operation traveler (FXXX) is prepared with the information provided from the customer purchase order and any additional information as needed.

4.1.5 The traveler (FXXX) is the document that is used to keep control over the product, including accountability for parts quantity, split orders and nonconforming product.

4.1.6 As each operation is completed, the operator/inspector is responsible for completing the operation (initialing or stamping) before releasing the product and moving to the next operation.

4.1.7 No operation should be completed unless the previous operation has been completed, and parts properly accounted for.

4.1.8 In the event there are any special requirements as to workmanship (Skills or certification), such requirement will be added to the traveler (FXXX).

4.1.9 The operator/inspector is provided with the traveler and any related documents (Drawing, specifications, and work instructions) as necessary to proceed with the production and inspection of the product.

4.1.10 Operators are responsible for completing the material control sheet (FXXX) and the machine log (FXXX) that is available at each machine.

4.1.11 The delivery schedule record (FXXX) is maintained to keep track of the orders and assure the orders are shipped as planned.

4.1.12 Manufacturing process risk assessment (FXXX) is reviewed and documented annually; actions are taken as necessary to mitigate the risk.

4.1.13 Process effectiveness (FXXX) is updated quarterly to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Product Inspection

4.2.1 The product is inspected at different stages of the process:

1. 1st Piece Inspection

   - A 1st piece inspection is normally performed when a machine is set up (e.g., 1st or 2nd operation). This process is used to validate the machine capabilities and software program as applicable; assuring the output (1st piece) meets the input (Traveler FXXX, drawing and instruction requirements).

   - A 1st piece inspection is conducted using calibrated equipment and is properly documented (FXXX) to indicate the acceptance or rejection of the product.

2. In-process Inspection

   - In-process inspection may be completed by the operator or inspector at any time during the production process.

   - In-process inspection is used as a point of reference and does not require the measurement equipment to be calibrated, as the product is not being accepted as a 1st article or final product.

   - In-process inspection may be documented on the traveler or using form FXXX.

3. 1st Article Inspection

   - 1st article inspection is completed and documented (FXXX) or the actual AS9102 latest revision document when requested by the customer.

   - 1st article inspection (FXXX) is performed as part of a sample during the 1st production run or when

there is a change to the product characteristics; change in supplier; change in machines or when requested by the customer.

- 1st article inspection is performed using calibrated measurement equipment as it represents acceptance of product.

4. Final Inspection

   - Final inspection is completed documented (FXXX) documented on the traveler (FXXX).

   - Final inspection is performed using calibrated measurement equipment as it represents acceptance of product.

5. Configuration Audit Inspection

   - Configuration audits are performed at random on a quarterly basis and documented (FXXX).

   - Configuration audits are performed to assure that the customer requirements have been met, including the review of the appropriate documentation as it relates to the product.

6. Product Acceptance

   - The product is released only after it has been reviewed and it was found to be conforming to customer requirements.

   - In the event that the product is deemed un-acceptable; the product is rejected, and the reason for the rejection documented (FXXX); nonconforming product is processed as per process P008.

4.3 Production Changes

4.3.1 Changes related to production documents are controlled as per the following:

1. Traveler (FXXX)

    - Operators can make changes and correct an entry that was made in error.

    - President and Planning can update the contents of the traveler and any related information (Including adding and omitting operations) to meet customer requirements.

    - Inspector can update the contents related to the product inspection to meet the customer requirements (Drawing) as appropriate.

2. Drawings

    - Customer drawings cannot be changed, only the customer can provide changes to drawings that have been submitted as part of an order.

3. Certificate of Conformance, Test Records, Calibration Records

    - Documents related to suppliers certificate of conformance or test reports cannot be altered, as they are records that have not been created by GRS Machine Co.

    - Any issues identified on any of these documents must be reported to President, and supplier contacted to provide corrected documents.

    - Customer may be provided a certificate of conformance (FXXX) if requested by the customer or determined by GRS Machine Co. Machine.

4. Inspection Records

    - Inspector can update the contents related to the product inspection to meet the customer requirements (Drawing) as appropriate.

4.4 Equipment - Tools and Software

4.4.1 Equipment is inspected and records (FXXX) maintained.

4.4.2 Any tooling that is identified as required for the manufacturing of a product is properly controlled and inspected. Records of tooling location and inspection are properly maintained (FXXX).

4.4.3 Tooling that is specific to a customer part number and is required to shape the product is controlled with the customer part number and revision level. Tooling that is used as an aid to the support the parts during production may indicate a part number or machine number but identification is not required, as the tooling is interchangeable.

4.4.4 Tooling that is used for production is inspected before and after use to confirm that there is no damage that can affect the product output.

4.4.5 Any software that is used as part of the programs on any of the manufacturing process is controlled by Planning and controlled by the Part Number and Revision. Verification of the software is conducted using the 1st piece inspection process.

4.4.6 The programmer writes the machine code, and the operators retrieve the program from the main computer and upload to the machine. If the program is new, it is verified by the President prior to use via the 1st piece inspection process.

4.5 Special Processes

4.5.1 At this time, there are no special processes that are related to the activities performed for our customers.

4.6 Product Identification and Traceability
Traceability

4.6.1 None of the products provided by GRS Machine Co. required traceability.

4.6.2 In the event that the customer requires product traceability, the customer requirements are reviewed and the traveler (FXXX) properly updated to include the traceability requirements.

4.6.3 The product shall be identified and tagged as required by the customer purchase order instructions.

Identification

4.6.4 Product is identified by using any of the following methods

1. Raw Material

   - Purchase order; Heat #(as appropriate); Material Type(as appropriate)

2. Product In Process

   - Job traveler (Document or Traveler #); Customer PO (as appropriate)

3. Finished Product

   - Job traveler (Document or Traveler #); Customer PO (as appropriate)

4. Non-conforming Product

   - Rejection Tag; Job Traveler(as appropriate)

4.7 Stamp/Initial Control

4.7.1 Controls are maintained on employee stamps and initials as appropriate.

4.7.2 Record of employees' stamps and/or initials is documented (FXXX) on the stamp/Initial agreement.

4.7.3 Training is completed for all employees that are in possession of a stamp to assure that the employees are aware of responsibility and controls required.

4.8 Customer Property

4.8.1 When customer property is received (Raw Material, parts, software) product is identified as customer property and documented on the customer property form (FXXX).

4.8.2 In the event that the customer property is found to be unsuitable and/or is lost, customer is contacted and actions are taken as directed by the customer.

4.9 Product Preservation and Delivery

4.9.1 The product is controlled and protected throughout the production and inspection process.

4.9.2 Product is packaged in such a manner to prevent damage and potential loss.

4.9.3 A FOD program (FXXX) has been established, and employees are trained on the understanding of FOD and how to prevent it.

4.9.4 Product requiring shelf life control is documented (FXXX) and the storage controlled based on the manufacturer requirements or requirements established by GRS Machine Co.

4.9.5 The product that is manufactured is not hazardous and does not require special handling.

4.9.6 Any product requiring special handling as a result of customer requirements or type of product (e.g., ESD, cleaning, hazardous material) is properly controlled, and, if required, work instructions are documented to address such requirements.

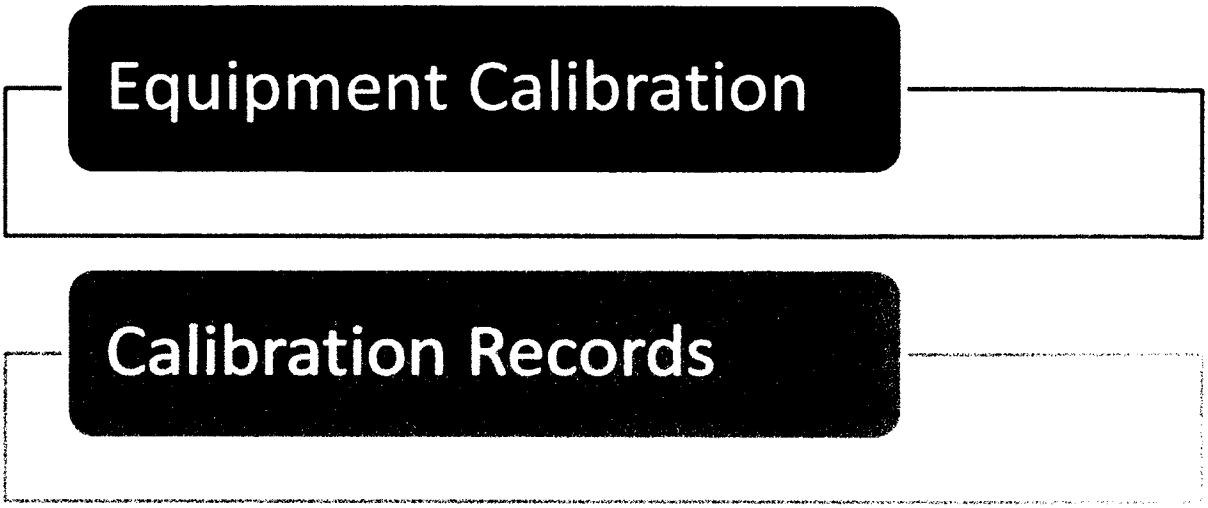
4.9.7 Product requiring a shelf life control is documented (FXXX) to monitor the shelf life and assure that no expired product is used and/or that any product coming up for expiration is used as a first priority.

Table 16

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

CALIBRATION PROCEDURE
P007



1.0 TITLE

- Calibration Procedure
- AS9100 Section 7.6.

2.0 REFERENCE DOCUMENTS

- FXXX - Approved Supplier Listing
- FXXX - Process Effectiveness
- FXXX and FXXX A– Calibration Log
- FXXX – Out of Tolerance Record
- FXXX - Internal Calibration Record

Table 17

Process Effectiveness

Description	Target
Calibrated Tool	100%

3.0 DOCUMENT REVIEW FREQUENCY

- Annual Review

4.0 PROCEDURE

4.1 When equipment is ordered, it is either ordered already calibrated and/or requiring calibration.

4.2 Equipment that is used for acceptance of product, such as 1st piece inspection; 1st article and final inspection must be calibrated; reference equipment cannot be used.

4.3 If the equipment is purchased calibrated, the equipment is added to the calibration log (FXXX and FXXX A).

4.4 If the equipment is not calibrated and requires calibration, it is issued to an approved supplier for calibration.

4.5 Process effectiveness (FXXX) is updated quarterly to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.6 External Calibration

4.6.1 When selecting the calibration suppliers, it is necessary to select from the approved supplier listing, as indicated in the Purchasing section of this procedure.

4.6.2 If the supplier that needs to be used is not on the approved supplier listing (FXXX), actions need to be taken to qualify the supplier.

4.6.3 Once it is determine who the supplier is and what tools need to be calibrated, a purchase order is issued to provide the supplier with an order.

4.6.4 The measurement equipment can either be calibrated in house or sent to the supplier. When shipping the equipment, the employee performing this task is responsible for assuring that the equipment is protected to prevent any damage.

4.6.5 Once the equipment has been calibrated and certificate of calibration received, it is the responsibility of President and/or the QC Inspector to assure that the equipment reflects the proper information as per the calibration certificate (Cal Due Date; Cert # (as applicable); Cal Date; Equipment Unique Identification #).

4.6.6 The equipment is added to the calibration log (FXXX).

4.6.7 In the event that a discrepancy is noted, the calibration supplier shall be contacted to address the discrepancy; the

equipment shall be tagged with a RED rejection Tag until the issue is resolved.

4.6.8 The certificates are reviewed to verify the following:

1. Equipment Number
2. Calibration Due Date
3. Found and Released Conditions
4. Traceability to NIST

4.6.9 The certificates are either initialed and/or stamped by the employee completing the review.

4.6.10 In the event the equipment was reported as out of tolerance on the found condition, a record (FXXX) is maintained; additional review is conducted to determine if any product was affected.

4.6.11 If the equipment is returned as out of tolerance, the equipment is properly disposed of to prevent the use of such equipment, and the out of tolerance record (FXXX) is updated).

4.7 Internal Calibration

4.7.1 Tools calibrated internally are inspected using calibrated tools verified by an outside supplier who is traceable to N.I.S.T.

4.7.2 In the event the equipment was reported as out of tolerance on the found condition, a record (FXXX) is maintained, and additional review is conducted to determine if any product was affected.

4.7.3 Tool shall be held in a controlled area for **one hour** in order that all portions of the gauge may attain the same temperature as the room and the equipment used for calibration. Although this is not a calibration facility, the

internal calibration process does not require control over the environment.

4.7.4 The equipment calibration records are documented (FXXX) and calibration record updated (FXXX).

4.7.5 General Calibration Process:

1. Clean and wipe with light oil any moving parts and/or bare steel, visually check for damage, broken parts, abuse, etc.

2. Check for wear on the micrometer lead screw by pushing the thimble forward and aft in the direction of the lead screw axis. If there is any shake, the lead screw adjustment shall be tightened. Care shall be taken not to tighten the adjustment so that the lead screw binds. The thimble of the micrometer/caliper shall turn normally in any position along the lead screw areas.

3. With the use of gage blocks, check the micrometers at a minimum of three places (low, middle, high) over the full range. (Accuracy and repeatability must be within the micrometer accuracy).

4. If tool checks within (1) increment of tool accuracy, record acceptance on calibration record (FXXX) and apply calibration label. If not, red-tag and remove from service until repaired or replaced.

4.8 Reference Only Equipment

4.8.1 Equipment that is identified as a reference only is not required to be calibrated or verified.

4.8.2 Such equipment shall not be used for product acceptance such as 1st article, final inspection and 1st piece inspection.

4.9 Equipment Identification

4.9.1 Equipment is identified as either calibrated or reference only.

4.9.2 Calibrated equipment shall include a calibration label, or tag, and unique identification number.

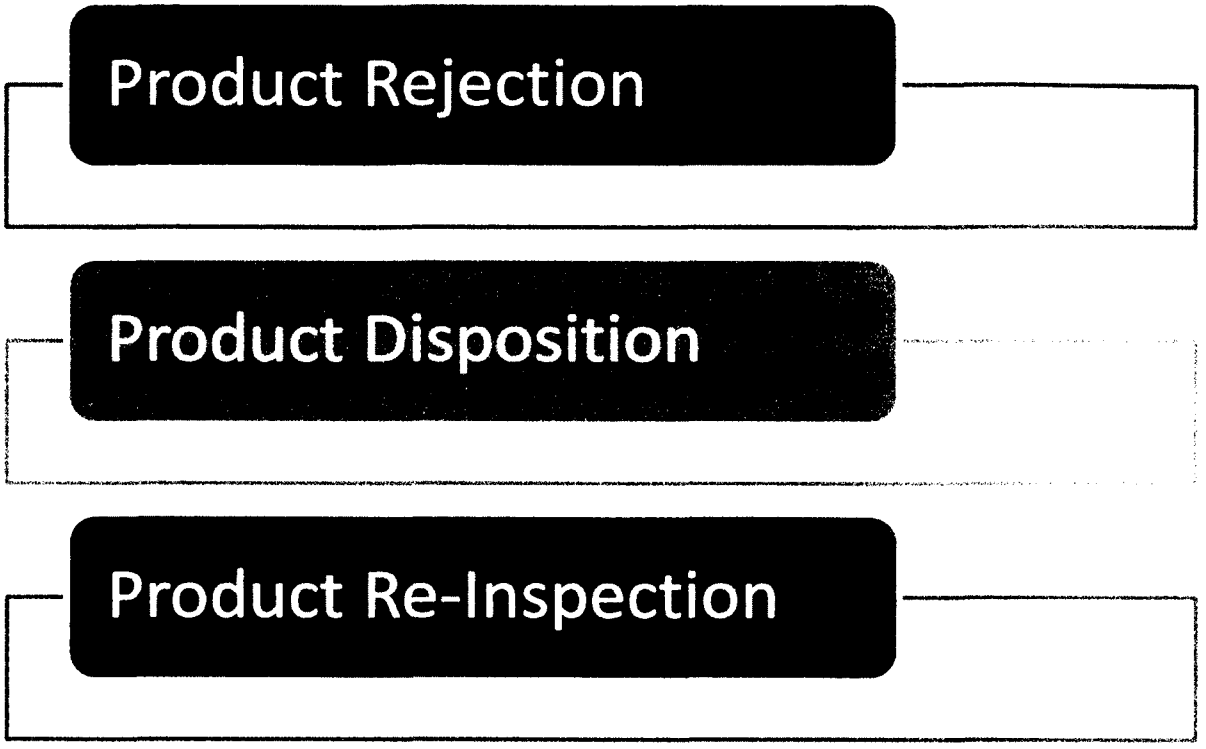
4.9.3 In the event that the equipment is in a condition where it is not possible to label or tag the equipment, the unique identification number can be used to trace the status of the equipment.

Table 18

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

CONTROL OF NON-CONFORMING PRODUCT PROCEDURE
P008



1.0 TITLE

- Control of Non-conforming Product Procedure
- AS9100 Section 8.3

2.0 REFERENCE DOCUMENTS

- FXXX – Non-conforming Product Log
- FXXX – Non-conforming Product Report
- FXXX - Process Effectiveness
- FXXX - Improvement process

Table 19

Process Effectiveness

Description	Target
Quality to the Customer	90.00%

3.0 DOCUMENT REVIEW FREQUENCY

3.1 Annual Review

4.0 PROCEDURE

4.1 Process effectiveness (FXXX) is updated quarterly to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Non-conforming Product

4.2.1 Product is rejected when it is determined that the product cannot meet the customer or GRS Machine Co. requirements.

4.2.2 Non-conforming product may be identified at different stages throughout the production, inspection, or receiving process.

4.2.3 Non-conforming product can also be identified as a customer rejection.

4.2.4 Once the product is determined to be non-conforming, the product is segregated and properly identified as non-conforming using red tags.

4.2.5 The non-conformance report (FXXX) is completed and Non-conforming Product Log (FXXX) updated as appropriate.

4.2.6 The product is inspected to determine the cause of the non-conformance and to identify what action should be taken.

4.2.7 Through the investigation process, the designated person determines if the non-conformance is related to any other products or if it is associated with any other processes.

4.2.8 In the event it is determined that a product is found to be not conforming once shipped to the customer, it is the responsibility of the President and/or Inspector to communicate such a non-conformance to the customer, and take actions as directed by the customer.

4.2.9 Actions are taken based on the results of the investigation including corrective actions if necessary.

4.2.10 It is not necessary to address a root cause and corrective action with each rejection. It is however necessary to identify and properly segregate the product and review any other products to determine if anything else has been affected.

4.2.11 Review and disposition authority has been designated by the President and/or Inspector. The authority has been released based on the employee's skills, experience, and history with the organization.

Table 20

Disposition Authority

Job Function	Disposition Authority

President	• Scrap • Return to Vendor • Return to Customer • Re-Work • Repair (Customer Approval) • Use as is (Customer Approval)
Planning / Shipping & Receiving	• Scrap • Return to Vendor • Return to Customer • Re-Work • Repair (Customer Approval) • Use as is (Customer Approval)
Shop Foreman	• Scrap • Return to Vendor • Return to Customer • Re-Work • Repair (Customer Approval) • Use as is (Customer Approval)
QC Inspector	• Scrap • Return to Vendor • Return to Customer • Re-Work • Repair (Customer Approval) • Use as is (Customer Approval)

4.3 Product Disposition

4.3.1 GRS Machine Co. does not have the authority to disposition any customer property. Disposition is to be delegated to the customer and any actions documented.

4.3.2 The product can be disposed in any of the following methods.

1. Scrap

- Only product that has been purchased by GRS Machine Co. and not customer material.

- Product is permanently marked to prevent the use of non-conforming product.

- Customer material that has been deemed non-conforming is returned to the customer with the balance of the order.

2. Use as Is

   - Only product that has been purchased by GRS Machine Co. and not customer material

3. Repair

   - No repair can be completed on the product unless approved by the customer. Once the product is disposition as "repair", it must be re-inspected.

4. Return to Vendor

   - Only applicable to GRS Machine Co.-purchased material if the non-conformance is caused by the Supplier.

5. Re-Work

   - If the product requires re-work once it has been completed it is re-inspected and records maintained

4.4 Non-conforming Product Analysis of Data

4.4.1 An official corrective action is not required for each non-conformance that is recorded.

4.4.2 If the President or the customer determines that a corrective action is required, the request is processed as defined in P010.

4.4.3 Corrective actions may be issued based on trends, by reviewing the causes of the non-conformances on an annual basis and determining which areas are in need of improvement.

4.4.4 Once a product is identified as non-conforming, it is the responsibility of the employee working on the non-

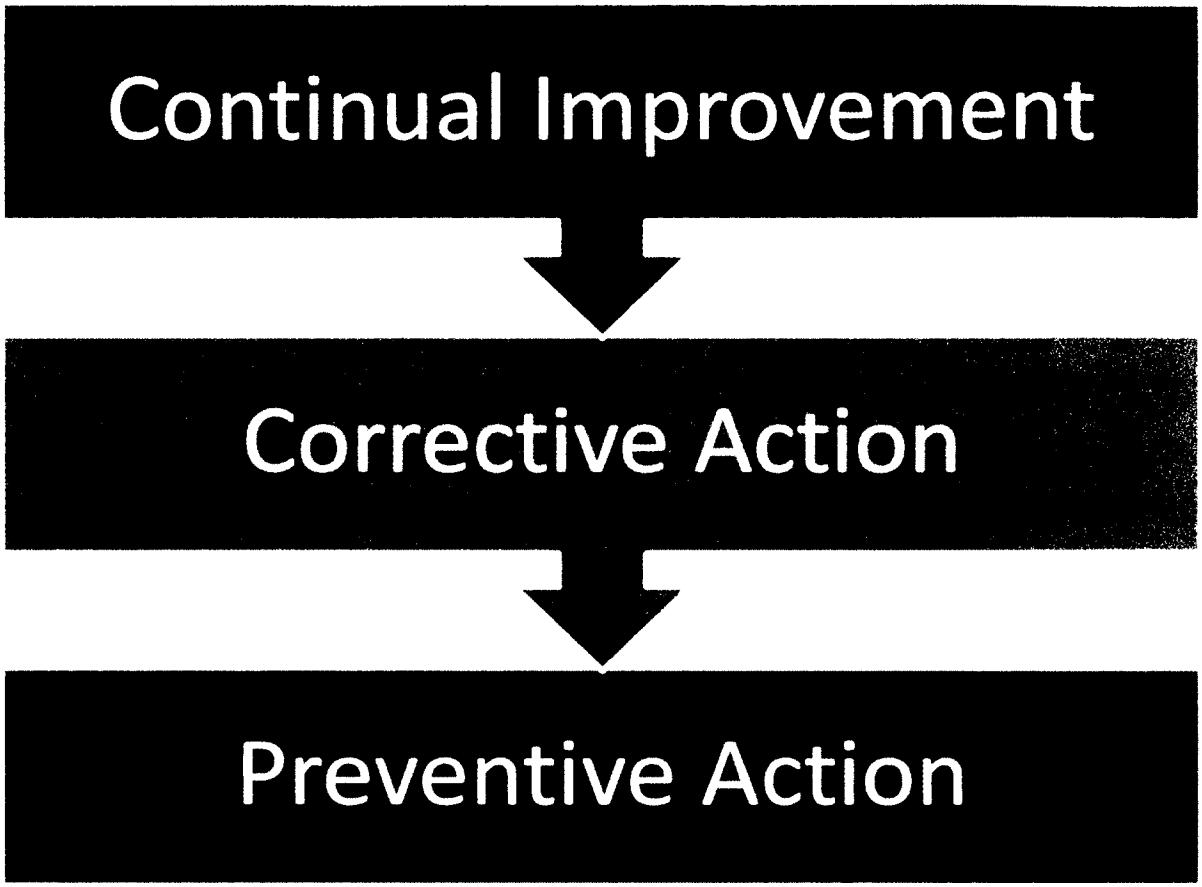
conformance to determine if there is any other product or process that may have been affected by the rejection.

Table 21

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

CONTINUAL IMPROVEMENT PROCEDURE
P009



1.0 TITLE

- Improvements Procedure
- AS9100 Sections 8.5.1, 8.5.2, 8.5.3

2.0 REFERENCE DOCUMENTS

- FXXX - Preventive Action Log
- FXXX - Corrective Action
- FXXX - Process Effectiveness
- FXXX – Corrective Action Log
- FXXX - Preventive Action

Table 22

Process Effectiveness

Description	Target
Corrective Actions - Past due	0%
Preventive Actions	4 or more per year

3.0 DOCUMENT REVIEW FREQUENCY

3.1 Annual Review

4.0 PROCEDURE

4.1 Process effectiveness (FXXX) is updated quarterly to provide evidence of the process effectiveness and actions required if the goal has not been met.

4.2 Continual Improvement

4.2.1 The President along with any of the employees within the organization is responsible for identifying any existing or potential problems.

4.2.2 The President is responsible for evaluating and correcting (if applicable) issues and for documenting reported problems.

4.2.3 The actions taken to resolve an existing or potential problem is based on extent of the problem and any potential risks.

4.2.4 Continual improvements may be documented in the Management Review and/or the corrective and preventive action system.

4.3 Corrective Action

4.3.1 Not every issue ranging from a customer complaint or non-conformance requires a corrective action. The President determines if a corrective action is required.

4.3.2 Once it is determined that a corrective action is appropriate, the corrective action form (FXXX) is completed the corrective action added to the corrective action log (FXXX).

4.3.3 The corrective action is addressed by the President or designated employee or issued to the supplier; during the review of the corrective action, the President may take into consideration the following:

1. Identify ways to eliminate the causes to prevent recurrence.

2. Implement any changes as necessary.

3. If there is reoccurrence of the non-conformance additional research may be required to identify the causes of such re-occurrence.

4.3.4 The timeframe for addressing the responses is based on the date that has been established for each corrective action and listed on the Corrective & Preventive Action Log (FXXX). If additional time is required, the President can extend the completion date and document the reason for such request.

4.3.5 When investigating the root cause for the non-conformance, consideration is taken to determine if any other processes or products have been affected by the non-conformance.

4.3.6 In the event that other processes or products were affected, the Corrective Action is updated to reflect which part number or process was affected and actions taken to address the non-conformance.

4.4 Supplier Corrective Actions

4.4.1 Supplier corrective actions are issued using the corrective action form (FXXX) and corrective action added to the corrective action log (FXXX). The record is assigned to a specific supplier along with a requested due date.

4.4.2 Any documentation received in response to such corrective action, is maintained as a record.

4.4.3 It is acceptable to use the supplier's forms when processing the supplier's responses.

4.4.4 The Office Manager is responsible for following up with the suppliers in the event that the corrective action becomes past due.

4.5 Corrective Action Closure

4.5.1 Corrective actions should not be closed until the action taken has been verified and deemed effective. Verification may require the review of future production runs, analysis of data, and verification of documentation changes and training, as required.

4.5.2 In the event that the verification cannot be completed due to the lack of objective evidence, the record may be kept open or closed and followed up at a later time.

4.5.3 The corrective action shall reflect a verification due date. Once the corrective action has been verified, the record of what was reviewed is documented on the Corrective Action form (FXXX) and corrective action log (FXXX) updated.

4.5.4 If the corrective action was found to be effective, the corrective action is then closed.

4.5.5 In the event the corrective action is deemed to be ineffective, the record remains open and it is forwarded to the appropriate supplier or addressed by the President to further address the issue.

4.5.6 In the event that a corrective action has not been properly addressed in a timely manner (or has not been effectively verified for effectiveness), it shall be addressed by the President, and, if necessary, the assistance of additional management team shall be requested.

4.6 Corrective Action Data Analysis

4.6.1 Reports are generated from the corrective action data to determine trends; actions are documented to address the negative trends.

4.7 Preventive Actions

4.7.1 Preventive actions are identified at different stages as it relates to the product and processes.

4.7.2 Once a preventive action is identified, it is documented in the corrective and preventive action form (FXXX) and preventive action log (FXXX) updated.

4.7.3 The preventive action record reflects the potential non-conformance and the action taken to prevent the occurrence of such non-conformance.

4.8 Preventive Action Closure

4.8.1 Preventive actions may not be closed until they are verified as being effective. The verification may require the review of future production runs, analysis of data, and verification of documentation changes with training as required.

4.8.2 The preventive action reflects a verification due date once the preventive action has been verified. The record of what was reviewed is documented on the Corrective and Preventive Action form (FXXX) and preventive action log

(FXXX) updated. Once the preventive action is found to be effective, the preventive action is considered to be closed.

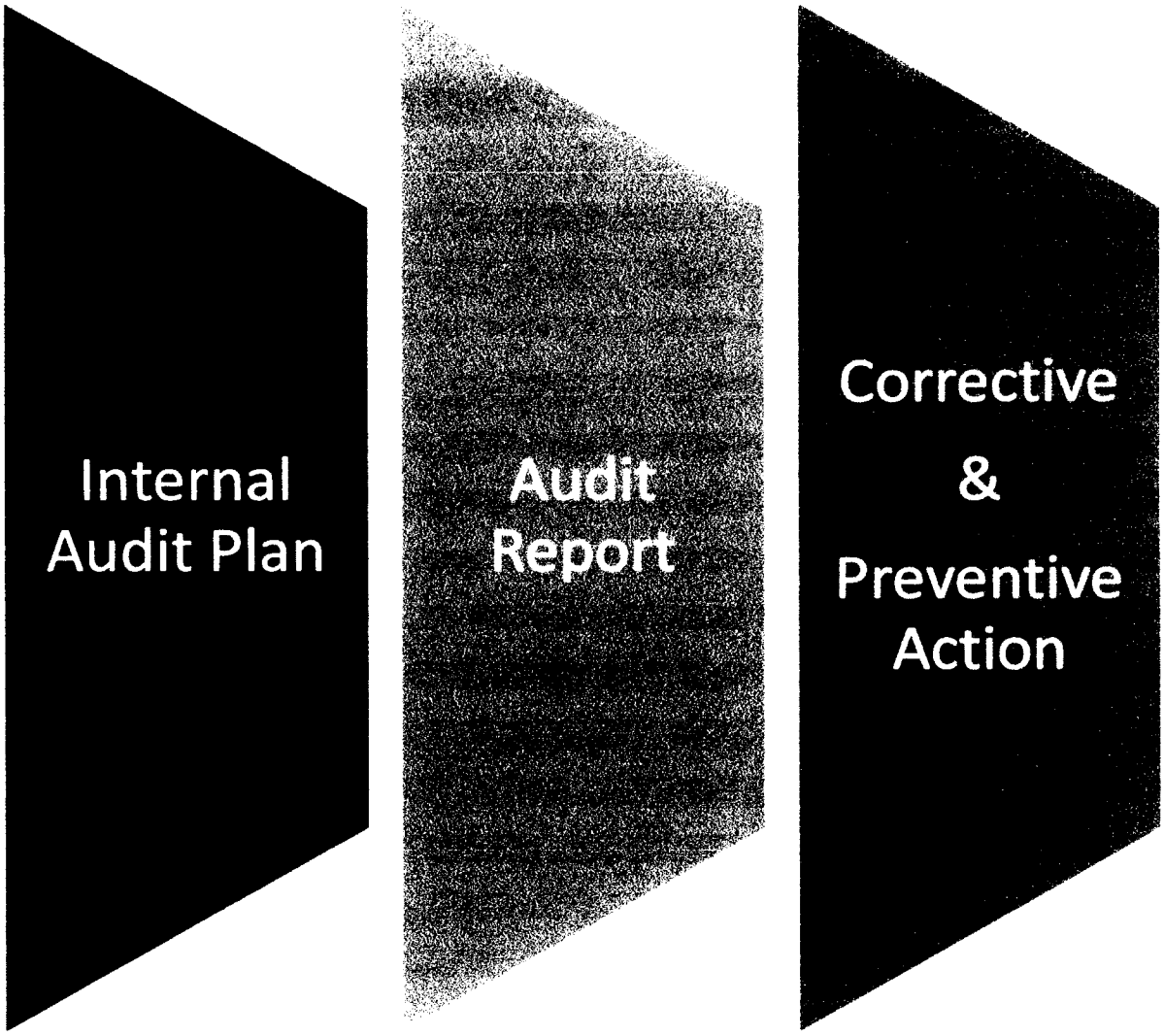
4.8.3 In the event that the preventive action is deemed to be ineffective, the record remains open and it is the responsibility of the President to address the issue.

Table 23

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

INTERNAL AUDIT PROCEDURE
P010



1.0 TITLE

1.1. Internal Audit Procedure

1.2. AS9100 Section 8.2.2

2.0 REFERENCE DOCUMENTS

2.1. FXXX - Preventive Actions

2.2. FXXX - Corrective Action

2.3. FXXX - Process Effectiveness

2.4. FXXX - Audit Plan

2.5. FXXX - Audit Schedule

2.6. AS9100C - Standard

2.7. AS9101D - Standard

2.8. P009- Improvement Process

Table 24

Process Effectiveness

Description	Target
Audits Completed as scheduled	100%

3.0 DOCUMENT REVIEW FREQUENCY

3.1. Annual Review

4.0 PROCEDURE

4.1. Process effectiveness (F038) is updated quarterly, to provide evidence of the process effectiveness and actions required if the goal has not been met

4.2. Internal Audit Planning

4.2.1. An audit schedule (FXXX) is developed to identify when the audits shall be conducted.

4.2.2. The President may elect to subcontract the audit to an external firm. Such firms shall be qualified and records of training or certification is maintained.

4.2.3. The planning of the audit shall be conducted taking into consideration the following:

- Customer Requirements
- Internal Requirements
- Statutory and Regulatory Requirements
- Auditor's independence from the processes
- Status and Importance

4.2.4. Audit Frequency

4.2.4.1. Audits are conducted no less than twice (2) per year covering all sections of the standard within the one year period.

4.2.4.2. The audit schedule (FXXX) is developed to provide the months of such audits

4.2.4.3. In the event that the audit cannot be completed as planned, records are maintained to indicate the reason for the delay.

4.2.5. Audit Plan

4.2.5.1. The following is identified on the Audit plan (FXXX).

- Scope
- Criteria

- Methods
- Auditors
- Procedures
- AS9100 Related Sections
- Status and Importance

4.2.6. Determining status and importance

4.2.6.1. Status and importance are applied to the audit based on the results of customer complaints, corrective actions, previous audit results, trends and management decisions.

4.2.7. Scheduling

4.2.7.1. A copy of the audit plan (FXXX) is prepared and shared with the process owners.

4.3. Conducting the Internal Audit

4.3.1. Documentation

4.3.1.1. Audit Record - Process audit documents that provide details as to what was audited, including objective evidence.

4.3.1.2. Audit Plan (FXXX) – Provides information as to who will be conducting the audit, the date, and what will be audited.

4.3.1.3. Audit Schedule (FXXX) – Provides the schedule for the audit.

4.3.1.4. Audit Report - Provides a summary of the audit results.

4.3.2. Approach

4.3.2.1. The internal audits are conducted using the process approach; reviewing the process activities, inputs,

outputs and the sequence of interactions within the processes. The audit records reflect the results of the audit including any objective evidence.

4.4. Reporting on the Internal Audit

4.4.1. The internal audit is completed in such a manner to provide objective evidence of what is found to be conforming and non – conforming.

4.4.2. The audit is based on a sample that is reviewed at the time of the process audits.

4.4.3. Pictures may be taken to provide additional objective evidence of what was reviewed during the audit.

4.4.4. Once the internal audit is complete the lead auditor completes the audit package, which includes the following documents:

- Audit Report
    - Audit Summary
    - Corrective actions
    - Preventive actions
    - Opportunity for improvement
        - Audit Schedule
        - Audit Plan
        - Audit Records (objective evidence)
        - PEARS
        - Process Interaction
        - Copies of any supporting documents

- Auditors certifications or training records

4.4.5. Corrective actions (FXXX) are issued for any findings that were documented during the audit.

4.4.6. Follow up activities are implemented to assure that any corrective actions have been properly addressed.

4.4.7. Preventive actions (FXXX) are documented for any observations that were documented during the audit.

Table 25

Document History

Rev	Date	Description	Approval
00	06/24/13	New procedure to meet the requirements of the AS9100C	

ATTACHMENT 1

Document Change Request

Document or Change Request	☐ New	☐ Change
Document Name:		
Document #	Change #	
Previous Rev	New Rev	
Requestor:	Date:	

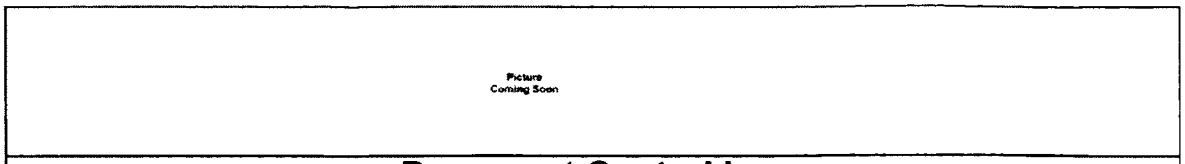
Changed Requested

Reason For Change

Training Required?	☐ Yes	☐ No

Approval	
Management Signature	Date

ATTACHMENT 2

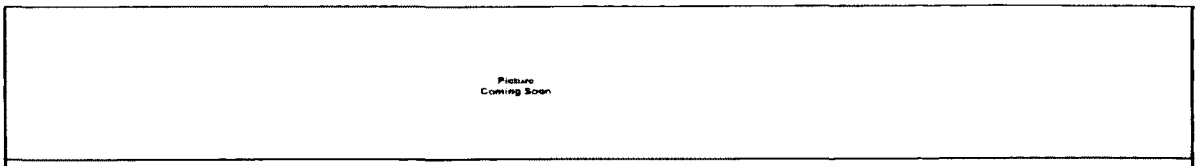


Document Control Log

DOC #	Name	Rev	Date	Change#
MANUALS				
PROCEDURES				
FORMS				
WORK INSTRUCTIONS				
DOCUMENTS OF EXTERNAL ORIGIN				

Management Approval _____ Date _____

ATTACHMENT 3



Forms Approval Log

Change#	DOC#	Change	New Rev	Old Rev	Date	Approved By	Training Required?
0001							
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ATTACHMENT 4

Performed By	Process Effectiveness Review	Date

Name			Doc #		Owner
Document & Record Control			P001		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
All Documents Controlled	100.00%	Internal Audit	Internal Audit		
All Records Controlled	100.00%	Internal Audit	Internal Audit		

Name			Doc #		Owner
Management & Resource			P002		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Management Review	100.00%	FXXX	Every 6 Months		
Quality Policy Awareness	100.00%	Internal Audit	Internal Audit		
Quality Objectives Awareness	100.00%	Internal Audit	Internal Audit		
Training Closed/Verified Correctly	100.00%	Internal Audit	Internal Audit		
Facility Inspections	100.00%	FXXX	Quarterly		
Process Risk Assessments	3 or Lower	FXXX	Annual		

Name			Doc #		Owner
Customer Related Processes			P003		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Customer Surveys	3 or Better	FXXX	Every 6 Months		
Customer Risk Assessments	3 or Lower	FXXX	Annual		
Quality to Customer	95.00%	Management	Monthly		
Delivery to Customer	95.00%	Management	Monthly		
Risk Review performed per Order	100.00%	FXXX	Per Form		

Name			Doc #		Owner
Purchasing			P004		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Supplier Quality	90.00%	Management	Monthly		
Supplier Delivery	90.00%	Management	Monthly		
Approved Supplier List Accuracy	100.00%	Internal Audit	Internal Audit		
Supplier 3rd Party Certs	100.00%	Management	Per Form		
Supplier Surveys	100.00%	FXXX	Every 2 Years		
Supplier Risk Assessments	3 or Lower	FXXX	Annual		

Name			Doc #		Owner
Production			P005		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Machine Maintenance	100.00%	FXXX	Per Form		
Configuration Audit	100.00%	FXXX	Quarterly		
Stamp/ID Controls	100.00%	FXXX	Per Form		
Shelf Life Control	100.00%	FXXX	Per Form		

Name			Doc #		Owner
Calibration			P006		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
All Inspection Tools Calibrated	100.00%	FXXX	Per Form		
All Tools properly Identified	100.00%	Internal Audit	Internal Audit		
All Tools on Calibration Log	100.00%	Internal Audit	Internal Audit		
3rd Party Cert Records Up to Date	100.00%	Internal Audit	Internal Audit		

Name			Doc #		Owner
Monitoring & Measurement			P007		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Internal Audits performed	100.00%	Audit Schedule/Plan	Per Form		

Name			Doc #		Owner
Nonconforming Product			P008		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
Nonconforming Product records	100.00%	FXXX	Per Form		
All NCP is on Log	100.00%	Internal Audit	Internal Audit		

Name			Doc #		Owner
Improvements			P009		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**
CARs follow their schedule	100.00%	FXXX	Per Form		
CARs on the CAR Log	100.00%	Internal Audit	Internal Audit		
PARs follow their schedule	100.00%	FXXX	Per Form		
PARs on the PAR Log	100.00%	Internal Audit	Internal Audit		

Name			Doc #		Owner
Design			P010		
Key Process Indicator	**Goal**	**Method**	**Frequency**	**Actual**	**Action Item**

ATTACHMENT 5

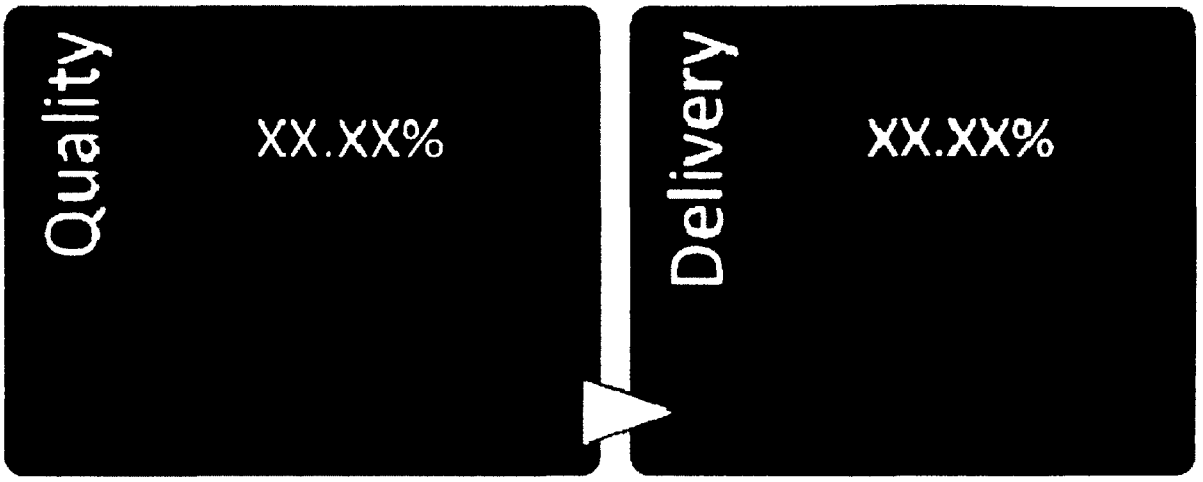
Quality Management System Process Interactions

QUALITY MANAGEMENT SYSTEM / PROCESS	Quality Manual	Control Of Documents	Control Of Records	Management Commitment	Customer Focus	Quality Policy	Quality Objectives	QMS Planning	Responsibility & Authority	Management Representative	Internal Communication	Management Review	Provision Of Resources	Human Resources	Competence, Training & Awareness	Infrastructure	Work Environment	Planning of Product Realization	Project Management	Risk Management	Configuration Management	Control of Work Transfers	Customer Related Processes	Design & Development	Purchasing
Management Orientated Processes																									
PXXX - Document & Record Control Procedure																									
PXXX - Management & Resource Procedure																									
Customer Orientated Processes																									
PXXX - Customer Related Processes Procedure																									
PXXX - Design Procedure																									
PXXX - Purchasing Procedure																									
PXXX - Production Procedure																									
PXXX - Nonconforming Product Procedure																									
Support Orientated Processes																									
PXXX - Calibration Procedure																									
PXXX - Monitoring & Measurement Procedure																									
PXXX - Improvements Procedure																									

ATTACHMENT 6

Position	
Reports to	
Revised Date	
Responsibilities	o
Qualifications	o
Skills	✓ Computer skills required for maintenance of records and logs, and basic analysis of data (e.g., Excel spreadsheet). ✓ Good problem solving skills and high level of attention to detail. ✓ Good interpersonal, oral and written communication skills
Education	
Experience	
Authority	✓ Has the authority to initiate action to prevent the occurrence of any non-conformity relating to product, process, and quality system. ✓ To identify and record any problems relating to the product, process, and quality system. ✓ To initiate, recommend, or provide solutions through designated channels. ✓ To verify the implementation of solutions and control further processing or delivery of nonconforming product until the deficiency or unsatisfactory condition has been corrected.
Required Training	o Intro to (insert standard) o Quality Policy o Quality Objectives

ATTACHMENT 7



January	XX.XX%	XX.XX%	XX.XX%	XX.XX%
February	XX.XX%		XX.XX%	
March	XX.XX%		XX.XX%	
April	XX.XX%	XX.XX%	XX.XX%	XX.XX%
May	XX.XX%		XX.XX%	
June	XX.XX%		XX.XX%	
July	XX.XX%	XX.XX%	XX.XX%	XX.XX%
August	XX.XX%		XX.XX%	
September	XX.XX%		XX.XX%	
October	XX.XX%	XX.XX%	XX.XX%	XX.XX%
November	XX.XX%		XX.XX%	
December	XX.XX%		XX.XX%	
		XXX.XX%		XXX.XX%

ATTACHMENT 8

Picture
Coming Soon

TOP MANAGEMENT AND THE EMPLOYEES OF XXXX ARE COMMITTED TO PROVIDING THE HIGHEST QUALITY PRODUCTS AND SERVICES TO OUR CUSTOMERS BY:

1. CONSISTENTLY MEETING OR EXCEEDING OUR CUSTOMER'S EXPECTATIONS FOR PRODUCT QUALITY AND PERFORMANCE;

2. TIMELY DELIVERY OF PRODUCTS AND SERVICES TO MEET OUR CUSTOMER'S REQUIREMENTS;