TULMAR

ENGINEERED FOR **PROTECTION**

QUALITY MANUAL

President

October 2016

About This Manual

This quality manual defines the Quality Management System (QMS) at Tulmar Safety Systems Inc. (referred to as Tulmar) and includes a description of Our Organization, Our Certifications and Approvals, the policies and processes that support our top level Quality Policy & Objectives and the products & services that we offer. The Quality Assurance Manager is responsible for the maintenance of this manual. This manual is controlled as described in the Quality Procedure, Document Control. When revised, this manual shall be re-issued in its entirety.

Scope of the QMS

The QMS defined within this manual meets the requirements of ISO 9001:2008 and applies to the current operating system at:

Tulmar Safety Systems Inc.
1123 Cameron Street
Hawkesbury, Ontario
Canada K6A 2B8

The processes of the QMS for the products and services provided by Tulmar described within this manual apply to: "The design, manufacture, distribution and maintenance of inflatable safety devices, life support equipment, stowage, mechanical assemblies and military support equipment for aerospace and military market."   Currently, there are no exclusions to the ISO 9001:2008.

Mission

"To be the leading solution provider of value added defence and aviation services."

Quality Policy & Objectives

We believe our goal is 'Total Customer Satisfaction' and nothing short of total commitment will do! Guided by this belief, we are committed to providing products and services of uncompromising quality, delivered on-time and at a reasonable cost. Our product and service offering includes the design, manufacture, distribution and maintenance of inflatable devices, life support equipment, stowage and military support equipment for aerospace, military and industrial markets.

To consistently achieve our goal, we've implemented a 'Quality Management System' (QMS) that's certified and meets the requirements of IS0 9001:2008, Transport Canada's Airworthiness Manual for 'Approved Maintenance Organizations' and the Canadian Aviation Regulations for manufactured aeronautical products. In support of our policy and main goal, our intention is to:

- ✓ Consistently meet or exceed our customer's needs and expectations;
- ✓ Consistently deliver high quality products and services in a cost effective and timely manner; and
- ✓ Continually strive to improve the effectiveness of our business operations and processes through the implementation of a continual improvement process.

Above all, we recognize that our most important resource is our people and by developing and involving our employees in these activities, we will achieve our goal of 'Total Customer Satisfaction'.

Barney E. Bangs
President

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1. Our Organization

1.1 About Us

Tulmar is a fully integrated manufacturer of engineered textile products and mechanical assemblies serving the aerospace, defence and security markets internationally. Our products are diverse in nature ranging from collateral and mechanical equipment for military vehicles to aviation life support equipment, inflatable shelters and tactical flotation. Our strategic partnerships form the basis of our distribution, repair and overhaul business, linking world-class products with our unique service capabilities. From a routine life raft maintenance inspection to the development and certification of a new life support system, Tulmar provides solutions that are **Engineered for Protection**.

1.2 Our History

The origins of Tulmar can be traced back to 1951 when RFD Canada was established in Granby, Quebec to perform repair and overhaul services on marine life rafts. The company was renamed Tul Safety Equipment Ltd and moved to Hawkesbury, Ontario in 1968.

In 1992, Tul Safety Equipment ceased operations. The same year, with management and production personnel from the former company, Tulmar Safety Systems was incorporated. Operations began with manufacturing of stowage equipment and diversified into repair & overhaul and manufacturing of inflatable safety equipment, to the design and development of proprietary defence and aerospace inflatable equipment.

1.3 Design & Development Capabilities

Our expertise in coated fabrics and inflatable technology enables us to develop unique protective solutions for the most demanding applications. Tulmar has developed and certified life support devices to meet FAA, Canadian Coast Guard, UL and SOLAS standards. Our engineering team utilizes 3-D modeling and computer-aided design for rapid pattern development. We will provide customer support during all phases of a product's life from design and development through production and life-cycle management.

1.4 Manufacturing Capabilities

We are a high mix, low volume manufacturer, therefore we are forced to focus on quick set ups, quick change overs, and modified tooling in order to consistently meet Customer demands. Tulmar has expertise in all aspects of manufacturing of inflatable safety devices, coated fabric products, and mechanical assemblies. Employees have extensive training in the bonding of specialty fabrics, radio frequency and heat welding, computerized cutting, screen-printing and sewing with state-of-the-art industrial programmable sewing machines. As a consequence, Tulmar is able to provide customized, complex products of outstanding quality.

1.5 Mechanical Assembly Sub Contracting Capabilities

Tulmar also manages an extensive supply chain network capable of providing complete military assemblies or fabricated parts that will meet all of your technical drawing package (TDP)requirements. We have in house CWB weld inspection capabilities and mechanical inspection equipment, a co-ordinate measuring machine

(CMM) that will verify the geometric tolerances and dimensions (GD&T). We will provide a complete first part inspection package (FPI) that will consist of a dimensional report based on current drawings, verification of all drawing notes, all material certifications, process certifications (CARC, plating, etc.), non-hazardous material declarations, verification that "no change" has occurred during the build with all Suppliers, and a certificate of conformance (CoC) verifying that all of the requirements have been satisfied.

1.6   Maintenance Capabilities

Tulmar is certified as an approved maintenance organization (AMO) by Transport Canada for the manufacture, repair, and overhaul of aeronautical equipment (ref. AMO 67-92). Tulmar also provides non-aeronautical repair and overhaul services for a range of military equipment, from tactical shelters to camouflage nets.

2.   Our Certifications & Approvals

2.1   ISO 9001:2008

Tulmar is ISO 9001:2008 certified for the design, manufacture, distribution and maintenance of inflatable safety devices, life support equipment, stowage and military support equipment for aerospace and military market. To view a copy of our ISO 9001:2008 certificate, please refer to our web site www.tulmar.com, quality assurance for the latest certification.

Refer to Appendix A: QMS Procedure Cross-Reference Matrix to identify where the corresponding requirements are addressed within this manual and the referenced procedures.

2.2   Approved Maintenance Organization (AMO)

Tulmar is certified as a Transport Canada Civil Aviation Approved Maintenance Organization (AMO) by Transport Canada (AMO 67-92). As such, Tulmar is an approved organization for the manufacture, repair and overhaul of aeronautical safety products.

2.3   Other Approvals

In addition, Tulmar manufactures and distributes lifesaving and survival products that have FAA and / or SOLAS approval. To view all of our other certificates please refer to www.tulmar.com, technical resources, certificates.

3.   Our Management Team

3.1   Organizational Chart

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                              │   President   │
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        │   Strategy    │     │    Officer    │     │    Manager    │
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│ Design │ │Manager │ │Control │ │  Manager  │ │Resource│
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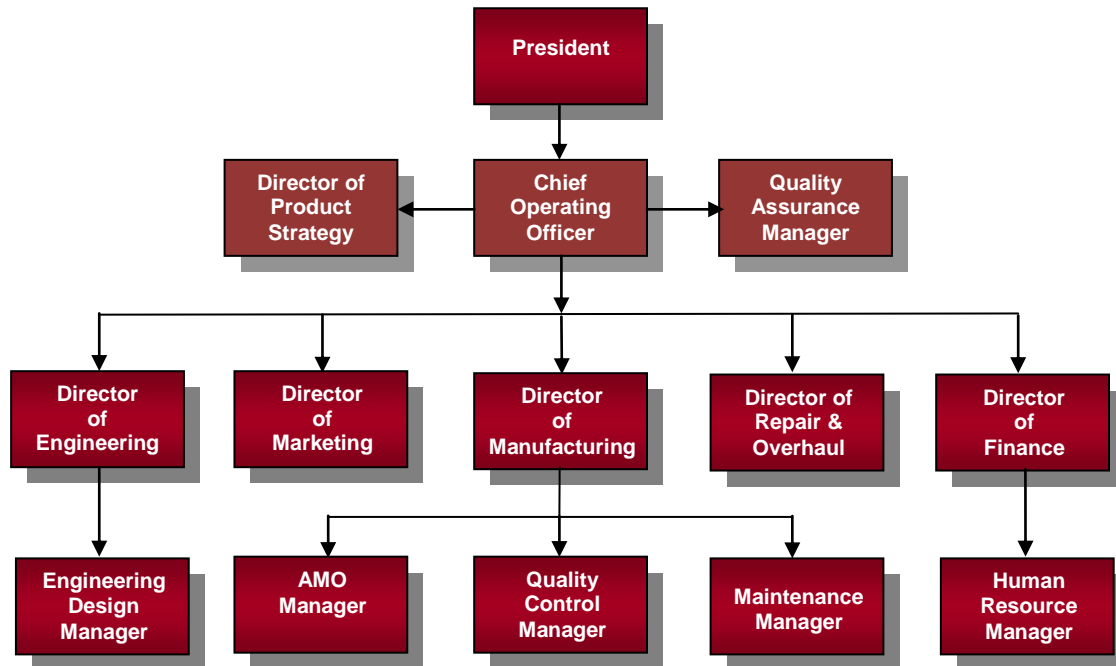
3.2   Roles and Responsibilities

The **President** is responsible for establishing and implementing the overall policies and objectives based on the organizational goals and the financial health of the company.

The **Chief Operating Officer (COO)** reports directly to the President and is responsible for managing the daily operations**.**

The **Director of Product Strategy,** is responsible for determining and managing the product portfolio strategy for new product development (NPD) and coordinate the short and medium range planning for the business unit, focusing on optimizing operational execution, production, and the product's life cycle.

The **Director of Marketing** reports directly to the COO and is responsible to plan and implement marketing and sales strategies that meet the company's targets for retention, growth and profitability.

The **Director of Manufacturing** reports directly the COO, and is responsible for lean manufacturing, equipment maintenance, shipping and receiving, quality control, and the manufacture and maintenance of all aeronautical products (AMO).

The **Director of Engineering** reports directly to the COO and is responsible for the design, development, and sourcing of materials for new products, all process procedures, engineering changes, prototyping, approving weld procedures and first piece inspection (FPI) of all metal fabricated parts, as well as Quality and Manufacturing Engineering.

The **Director of Finance** reports directly to the COO and is responsible for the overall financial operation of the company, and Tulmar's supply chain.

The **Director of Repair & Overhaul (R&O)** reports directly to the COO and is responsible for the R&O of all non-aeronautical products.

The **Human Resource Manager** reports directly to the Director of Finance and is responsible for the coordination of training of company personnel, performance management, staffing, and leading the health and safety program.

The **Maintenance Manager** reports directly to the Director of Manufacturing and is responsible for overall maintenance of plant and equipment, fabrication of production tooling and equipment modification, as well as leading Tulmar's "lean manufacturing program".

The **Approved Maintenance Organization Manager (AMO)** (Person Responsible Maintenance, PRM) reports directly to the Director of Manufacturing and is responsible for the repair and overhaul of all aeronautical products.

The **Quality Assurance (QA) Manager** reports directly to the COO and is responsible for all internal audits, Supplier evaluations, source inspections, and the operation of our QMS, including the responsibilities as the Quality Management Representative.

The **Quality Control (QC) Manager** reports directly to the Director of Manufacturing and is responsible for calibration of all equipment, inspection of all incoming materials, processes and final assemblies.

4.0   Our Quality Management System

4.1   Quality Management System - Flowchart

The flow chart below identifies the main processes at Tulmar Safety Systems. Each process is defined in greater detail in the following paragraphs. For a reference to QMS procedures, refer to Appendix A: QMS Procedures Cross-Reference Matrix at the back of this manual.
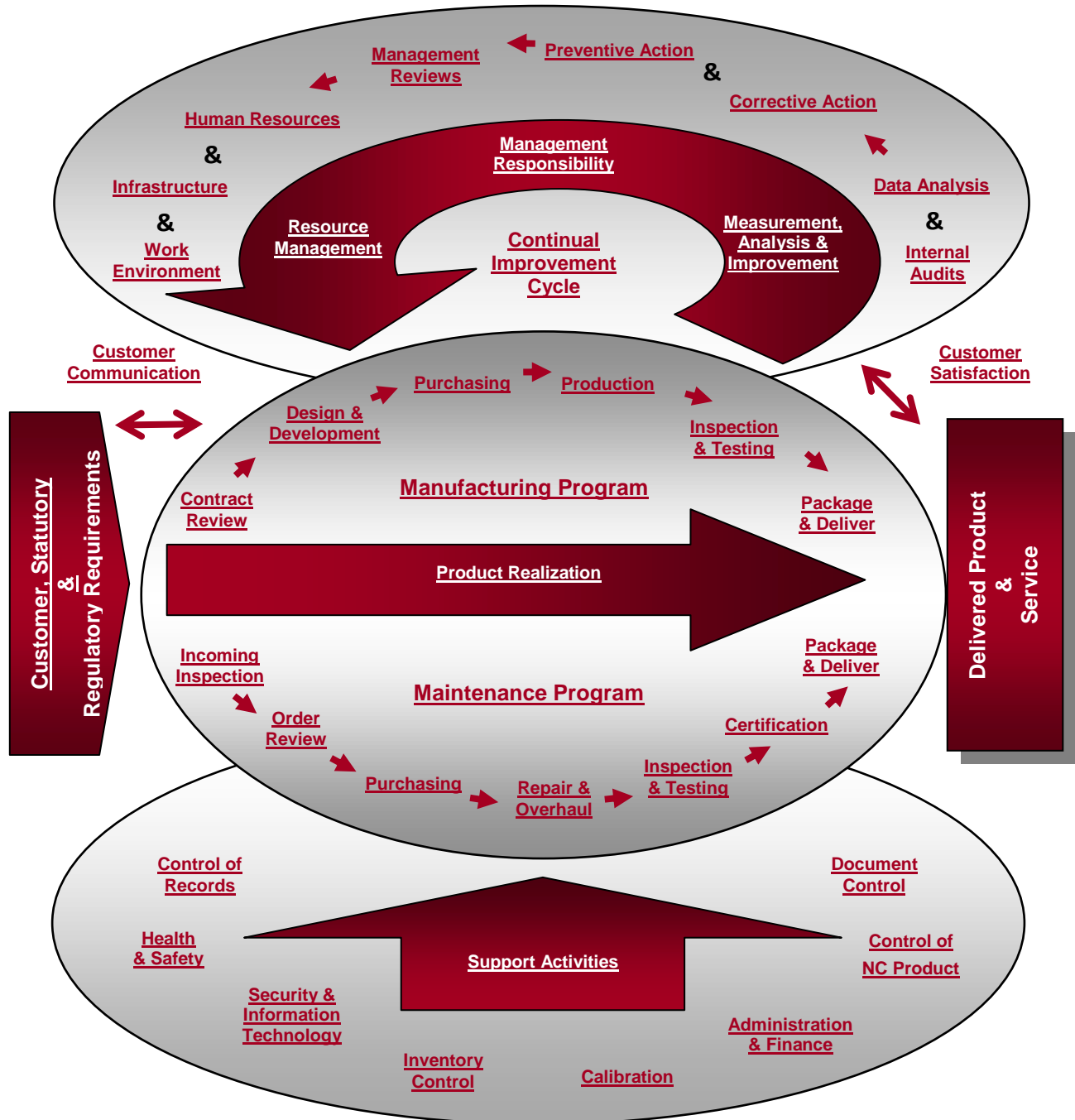
4.2 Quality Management System - Requirements

4.2.1 General Requirements

Tulmar has established, documented and implemented a QMS by:
   a) Determining the processes needed for the QMS as defined within this manual;
   b) Determining the sequence (4. QMS Flowchart) and interaction of the needed processes;
   c) Determining and documenting the criteria and methods needed for effective control and operation of processes as defined within the QMS procedures;
   d) Ensuring the availability of resources and information necessary to support the operation and monitoring of processes;
   e) Defining the processes that monitors, measures and where applicable analyses the results of the QMS; and
   f) Implementing the actions needed to achieve planned results and continual improvement.

4.2.2 Document Requirements

4.2.2.1 General

Tulmar's QMS documentation includes, but is not limited:
   a) The quality policy and objectives;
   b) This quality manual;
   c) Documented procedures and records required to satisfy the requirements of the Canadian Aviation Regulations (CAR) 573 for Approved Maintenance Organizations and CAR 561 for the Manufacture of Aeronautical Products, and ISO 9001:2008;
   d) Documents, including records, necessary to ensure the effective planning, operation and control of processes; and
   e) The quality records identified within this manual and Quality Procedure, Control of Records that demonstrates products and services have been produced in accordance with specified procedures and meets requirements.

4.2.2.2 Quality Manual

This manual includes, but is not limited to:
   a) The scope of the QMS including details of and justification for any exclusions;
   b) References to related documented procedures (refer to Appendix A), or where appropriate, other needed documentation;
   c) A description of the interaction between the process of Tulmar's QMS including those necessary to addresses the requirements of the ISO 9001:2008, AWM 561 - manufacture of aeronautical products and Transport Canada Airworthiness Manual for approved Maintenance Organizations and Chapter 573, Part 5 subchapter 10;
   d) The Tulmar quality policy and objectives;
   e) Tulmar's approvals and certifications; and
   f) A description of the Tulmar organization including roles and responsibilities.

4.2.2.3 Control of Documents

Documents required by the QMS and those required by ISO 9001:2008 shall be controlled as defined in Quality Procedure, Document Control. Control of documents shall include, but are not limited to:

a) Approving documents for adequacy prior to issue;
b) Reviewing and updating documents as needed and re-approving documents;
c) Identifying changes and showing the revision status;
d) Ensuring that applicable documents are available where needed;
e) Ensuring that documents remain legible, identifiable and retrievable;
f) Ensuring that external origin documents determined necessary for the planning and operation of the QMS are identified and their distribution controlled; and
g) Preventing obsolete documents from unintended use and identifying if retained.

4.2.2.4 Control of Records

Records (i.e. contractual, technical and quality related) that are retained by Tulmar to provide evidence of conformance to requirements and effective operation of the QMS shall be controlled to ensure that they are legible, readily identifiable and retrievable. Where specified in the contract, specific records shall be available for evaluation by the customer. Where records are required for retention, they shall be identified within each section of this manual. Quality Procedure, Control of Records defines the controls needed for the identification, storage, retrieval, protection, retention time and disposition of quality records.

4.3 Management Responsibility

4.3.1 Management Commitment

Tulmar management demonstrates its commitment to the development and implementation of the QMS and continual improvement by:

a) Communicating the importance of meeting requirements;
b) Establishing the quality policy and objectives;
c) Performing management reviews; and
d) Ensure availability of resources.

4.3.2 Customer Focus

Tulmar management ensures that the customer's requirements are determined and met with the aim of enhancing customer satisfaction.

4.3.3 Quality Policy

Management has documented its quality policy ensuring it:

a) Is appropriate to the Tulmar operations;
b) Includes commitment to meeting requirements and continual improvement of the QMS effectiveness;
c) Provides a framework for establishing and reviewing quality objectives;
d) Is communicated by posting on company's 'Quality Bulletin Board' and understood by Tulmar employees;
e) Is reviewed during management reviews for continuing suitability; and

f)   Is controlled by the QA Manager as a quality document and approved by the President.

4.3.4   Planning

4.3.4.1   Quality Objectives

The overall quality objectives have been defined within the quality policy.   Tulmar management ensures that its objectives are;
a)   Established at relevant functions and levels in the organization as discussed and developed by management and approved and signed by the President;
b)   Included for those needed to meet product/service requirements;
c)   Measurable;
d)   Consistent with Tulmar quality policy and continual improvement;
e)   Posted on company's 'Quality Bulletin Board'; and
f)   Reviewed at Management Review meetings.

4.3.4.2   QMS Planning

Tulmar ensures that planning of the QMS is done to:
a)   Meet the requirements of 4.2.1 General Requirements of this manual and the quality objectives; and
b)   Ensure that the integrity of the QMS is maintained when changes are implemented.

4.3.5   Responsibility, Authority, Communication

4.3.5.1   Responsibility and Authority

The responsibilities, authorities and their interrelation for personnel are defined and communicated within the organization.

4.3.5.2   Management Representative

Tulmar has appointed the QA Manager who has the responsibility and authority to:
a)   Ensure that the QMS is established and maintained;
b)   Report to senior management on the performance of the QMS, including the needs for improvement; and
c)   Ensure the awareness of customer requirements is promoted throughout the organization.

4.3.5.3   Internal Communication

Appropriate processes for communication have been established within the organization and regular communication takes place on the effectiveness of the QMS.   Methods of communication include, but are not limited to:
a)   Daily team meetings with management, managers, and employees;
b)   Management Review meetings;\
c)   Quarterly reviews with all employees.

4.3.6   Management Review

4.3.6.1   General

Management reviews Tulmar's QMS at regularly scheduled meetings;

a) To ensure its continuing suitability, adequacy and effectiveness;
b) To evaluate opportunities for improvement; and
c) To evaluate the need for changes to the QMS, including policy and objectives.

Minutes of the management reviews are maintained as defined in this manual, 4.2.2.4 Control of Records.

4.3.6.2 Review Input

Input to the Management Review includes, but is not limited to, performance and improvement opportunities related to:
a) Results of audits;
b) Customer feedback;
c) On time delivery (OTD);
d) Process conformity;
e) Product/service conformity;
f) Preventive and corrective actions;
g) Actions from earlier management meetings;
h) Planned changes that could affect the quality system; and
i) Improvement recommendations.

4.3.6.3 Review Output

The Management Review outputs include, but are not limited to, decisions and actions related to:
a) Improvement of the effectiveness of the QMS and its processes;
b) Improvement of products and services relating to requirements; and
c) Resource needs.

4.4   Resource Management

4.4.1   Provision of Resources

Tulmar determines and provides the resources needed to:
a) Implement, maintain and continually improve the effectiveness of the QMS's; and
b) To enhance customer satisfaction by meeting customer requirements.

4.4.2   Human Resources

4.4.2.1   General

Tulmar personnel performing work affecting the conformity to product quality requirements shall be competent, based on appropriate education, training, skills, and experience.

4.4.2.2   Competence, Training & Awareness

Tulmar ensures that all staff are provided with appropriate training, such that it assures the competence of the person in the areas for which the person is responsible as defined in the Quality Procedure, Training. Tulmar encourages all employees to improve their knowledge and skill by undertaking personal study on their own initiative. Tulmar shall:
a) Determine the competency needs of personnel performing work affecting conformity to product requirements;

b) Where applicable, provide the needed training (i.e. initial or updated) or take alternative actions to achieve the necessary competence;
c) Evaluate the effectiveness of training or alternative actions taken;
d) Ensure employees are aware of the importance of their activities and how they contribute to achievement of the quality objectives; and
e) Maintain records of education, training, skills and experience as defined in this manual, 4.2.2.4 Control of Records.

4.4.3   Infrastructure

Tulmar determines, provides and maintains the infrastructure required to satisfy product requirements. This includes; but is not limited to:
a) Buildings, workspace and utilities;
b) Equipment, hardware, and software; and
c) Supporting services.

4.4.4   Work Environment

Tulmar determines and manages the work environment needed to achieve conformity to roduct requirements.

4.5   Product & Service Realization

4.5.1   Planning of Product Realization

Tulmar plans and develops the processes needed for product realization.   The planning is documented in a form suited to the Tulmar method of operation and will comply with all applicable QMS requirements. In planning the development and/or the delivery of products and service, Tulmar shall define, as appropriate:
a) Quality objectives and the requirements for the product/service;
b) Processes including the methods of work, resources, facilities and documentation specific to the product/service;
c) Verification, validation, monitoring, , measurement, inspection and test activities specific to product and the criteria for acceptance; and
d) Records to provide evidence of conformity as defined in this manual, 4.2.2.4 Control of Records.

4.5.2   Customer-Related Processes

4.5.2.1   Determination of Requirements Related to the Product

Tulmar shall determine the requirements relating to the production or maintenance of product including, but are not limited to:
a) Customer specified requirements;
b) Requirements not specified by the customer but necessary for its specified or intended use;
c) Delivery and post-delivery requirements; and
d) Statutory and regulatory requirements applicable to the product and/or service; and
e) Any additional necessary requirements.

4.5.2.2 Review of Requirements Related to the Product

Prior to a commitment to supply a product or service, Tulmar reviews the contract/order's requirements to ensure that:

a) Product and/or service (i.e. maintenance) requirements are defined;
b) Requirements differing from those previously communicated are resolved;
c) Tulmar can meet the requirements; and
d) Results of reviews and actions shall be recorded as defined in 4.2.2.4 Control of Records.

Where product requirements are changed, Tulmar ensures that relevant documentation has been amended and relevant personnel are made aware of changes.

4.5.2.3 Customer Communication

Tulmar has implemented effective arrangements for communication with customers relating to:

a) Product/service information;
b) Enquiry and contract administration including changes to the customer's requirements; and
c) Customer feedback including complaints.

4.5.3 Design and Development

4.5.3.1 Design and Development Planning

Tulmar plans and controls design activities, including:

a) Stages of design and development projects;
b) Review, verification and validation activities;
c) Responsibilities and authorities for activities; and
d) Update of planning as design/ development progresses.

Tulmar manages interfaces between different groups to ensure effective communication and clarity of responsibilities.

4.5.3.2 Design and Development Inputs

Inputs to product/service requirements are documented and records maintained. The inputs include:

a) Functional and performance requirements;
b) Applicable regulatory and legal requirements;
c) Applicable information derived from previous designs; and
d) Any other requirements needed.

The inputs are reviewed for adequacy to ensure requirements are complete, unambiguous and do not conflict.

4.5.3.3 Design and Development Outputs

The outputs shall be provided in a form suitable for verification against the input requirements. The outputs shall:

a) Meet input requirements;
b) Provide appropriate information for purchasing, production and service activities;
c) Define acceptance criteria; and

      d)   Define characteristics essential to safe and proper use.

Output documents are approved prior to release.

4.5.3.4   Design and Development Review

Systematic reviews are conducted to:
      a)   Evaluate the ability of Tulmar to meet requirements; and
      b)   Identify problems and propose actions.

Representatives of functions concerned with the stage being reviewed are included. Results of reviews and actions are recorded.

4.5.3.5   Design and Development Verification

Verification shall be performed to ensure that the outputs meet the input requirements. Records of the results of the verification and any necessary actions shall be maintained.

4.5.3.6   Design and Development Validation

Validations are conducted in accordance with the design/project plan to ensure that the products/services are capable of meeting requirements for their specified application or intended use. Where possible, validations are completed prior to delivery or implementation of the product. Results of the validation and subsequent actions shall be recorded.

4.5.3.7   Control of Design and Development Changes

All design changes shall be identified and recorded. The changes shall be reviewed, verified and validated (where practical), and approved before implementation. The review of changes shall include evaluation of the effect of the changes on parts and product already delivered. The review of changes and any necessary actions shall be recorded and maintained as defined in 4.2.2.4 Control of Records.

4.5.4   Purchasing

4.5.4.1   Purchasing Process

Tulmar controls purchasing processes to ensure purchased products and/or services conform to requirements. Control is dependent upon the effect on process and product and/or service quality.

Tulmar evaluates and selects suppliers on their ability to supply material, products or services in accordance with the specified requirements.   Criteria for selection and evaluation is defined in Quality Procedure, Purchasing.   Results of evaluations and any necessary actions are recorded as defined in 4.2.2.4 Control of Records.

Whenever Tulmar makes arrangements with other organizations for the performance of maintenance, it shall ensure controls are implemented as defined in Quality Procedures, Purchasing and Inspection and Testing.

4.5.4.2   Purchasing Information

Purchasing documents submitted to suppliers contain as appropriate:
      a)   Product/service, process, procedure and equipment requirements needed for approval;

b)   Requirements for qualification of personnel; and

c)   Quality system requirements.

The adequacy of requirements in purchasing documents is ensured prior to release. Any purchase orders or contracts issued to contracting maintenance organizations by Tulmar shall specify, as appropriate, the work to be performed, the standards of work and will include wording that will reserve the right for Tulmar to audit their premises. As well, it may include that the contractor be required to conduct a self-audit or audits conducted by Tulmar, and record provision or access to premises to supervise work-in-process.

4.5.4.3   Product Verification / Incoming Inspection

Activities necessary for verification of purchased product are implemented as defined in Quality Procedure, Inspection & Testing. Where verification activities are to be performed at the supplier's premises, arrangements and method of product release are specified in purchasing documents. Where product is rejected upon incoming inspection, the rejection is recorded and processed as defined in 4.6.3 Control of Nonconforming Product.

4.5.5   Production and Service Operations

4.5.5.1   Control of Production and Service Provision

Tulmar plans and carries out our manufacturing and maintenance programs under controlled conditions as defined in our manufacturing and maintenance manuals and/or procedures. Controlled conditions shall include, but are not limited to:

a)   Available information specifying product/service characteristics;

b)   Availability of instructions and standards;

c)   Use of suitable equipment including special tooling, and measuring devices;

d)   Suitable monitoring activities; and

e)   Suitable processes for release of product, delivery and post-delivery activities.

4.5.5.2   Validation of Processes for Production and Service Provision

Tulmar validates any process where output cannot be verified to demonstrate ability to achieve planned results. Arrangements for validation are defined and include, as applicable:

a)   Criteria for review and approval of processes;

b)   Qualification of personnel, processes, equipment and personnel;

c)   Use of methods and procedures;

d)   Required records; and

e)   Revalidation.

4.5.5.3   Identification and Traceability

Tulmar identifies the product/service by suitable means through all stages of operations. Tulmar identifies the status of product/service with respect to measurement/monitoring requirements.   Where traceability is a requirement, the unique identification of the product/service is controlled and recorded.

4.5.5.4   Customer Property

Tulmar exercises care with customer property (including confidential intellectual customer information), to be incorporated into the product or service, while it is under their control. Customer property is identified, verified, protected (e.g. stored in a controlled and secure

area), maintained and safeguarded. Customer property that is lost, damaged or otherwise unsuitable is recorded and reported to the customer and records maintained.

4.5.5.5   Preservation of Product

Tulmar preserves conformity of all product including applicable sub-products, services and salvaged parts from its reception of raw materials through to delivery in order to maintain conformity to requirements. The preservation for the conformity of product includes, inventory control, identification, handling, packaging, storage and protection of product as defined in Quality Procedure, Receiving, Storage, Packaging & Delivery.

4.5.6   Control of Monitoring and Measuring Devices

Tulmar determines the monitoring and measurements to be made and the devices required to assure conformance of product/service to determined requirements. Tulmar has established processes as defined in Quality Procedure, Control of Inspection, Measuring & Test Equipment to ensure that monitoring and measurement activities are carried out in a consistent manner with requirements. Where necessary, to ensure valid results, measuring equipment shall be:

a)   Calibrated or verified at specified intervals, or prior to use, traceable to international or national standards (where no such standards exist, the basis for calibration is recorded);

b)   Adjusted or re-adjusted as required;

c)   Identified to ensure that calibration status is clear;

d)   Safeguarded from adjustments that would invalidate the calibration; and

e)   Protected from damage and deterioration during handling, maintenance and storage.

Records of equipment calibration or verification shall be maintained. Tulmar shall assess and record validity of previous results when equipment is found to be out of calibration and takes the appropriate action on products/services affected.

4.6   Measurement, Analysis and Improvement

4.6.1   General

Tulmar plans and implements the monitoring and measurement activities needed to:

a)   Demonstrate conformity to product requirements;

b)   Ensure conformity of the QMS; and

c)   Continually improve the effectiveness of the QMS.

This includes the use of statistical techniques and the extent of their use.

4.6.2   Monitoring and Measurement

4.6.2.1   Customer Satisfaction

Tulmar monitors information relating to customer perception as to whether Tulmar has met the customer's requirements. The methods for obtaining and utilizing this information shall be defined in Quality Procedure, Data Analysis.

4.6.2.2   Internal Audit

Tulmar conducts internal audits at planned intervals to determine whether the QMS;

a) Conforms to the requirements defined in the Canadian Aviation Regulations (CAR) 573.09 for Approved Maintenance Organizations and CAR 561.109 for the Manufacture of Aeronautical Products and ISO 9001:2008;

b) Conforms to the QMS requirements defined in this manual; and

c) Is effectively implemented and maintained.

All audits are planned, taking into consideration the status and importance of activities and the results of previous audits. Planning defines the audit scope, frequency, criteria and methods used. As a minimum, audits shall be conducted to cover all of QMS departments, processes and requirements annually. Audits are conducted using auditors who are selected to ensure objectivity and impartiality (e.g. must not audit their own work). Quality Procedure, Internal Audits defines the process, responsibilities and requirements for:

d) Audit planning;

e) Conducting the audit (e.g. use of questioning and checklists);

f) Record and reporting the audit results to management.

Management ensures that where necessary, corrections and corrective actions are taken without undue delay to eliminate the detected nonconformities and their causes as defined in 4.6.5.2 Corrective Action. Follow-up activities verify the effective implementation of the corrective action and the reporting of the results.

4.6.2.3 Monitoring and Measurement of Processes

Tulmar applies suitable methods for monitoring and where applicable, measurement of QMS processes. Monitoring and measuring of our processes demonstrates the ability of processes to achieve planned results. Appropriate actions shall be taken on process deficiencies where planned results are not achieved.

4.6.2.4 Monitoring and Measurement of Product

Tulmar measures and monitors (i.e. inspects & tests) the characteristics of the product to verify that product requirements are met. Measurement and monitoring is conducted at appropriate stages of the production process to achieve planned results. Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate the person(s) authorizing release of the product for delivery to the customer. Release of the product or delivery of the service does not proceed until all the specified activities have been satisfactorily completed, unless approved by the customer or relevant authority. All inspection and test activities shall be carried out as defined in Quality Procedure, Inspection &Test.

4.6.3 Control of Nonconforming Product

Tulmar ensures that product that does not conform to the product requirements is identified and controlled to prevent its unintended use or delivery. The controls and related responsibilities and authorities shall be defined in Quality Procedure, Control of Nonconforming Product. Tulmar shall deal with nonconforming product by one or more of the following ways;

a) By taking action to eliminate the detected nonconformity;

b) By authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
c) By taking action to preclude its original intended use or application; and
d) By taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started.

Records of the nature of nonconformance and any subsequent action taken, including concessions obtained, are maintained. Nonconforming product that has been corrected shall be subject to re-verification to demonstrate conformity to the requirements. When nonconforming product is detected after delivery, Tulmar takes action appropriate to the effects, or the potential effects, of the product. Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained.

4.6.4 Analysis of Data

Tulmar determines, collects and analyses data to:
a) Demonstrate the suitability and effectiveness of the quality system; and
b) Identify where continual improvements of the effectiveness of the QMS can be made.

The analysis of data provides information relating to:
c) Customer satisfaction/dissatisfaction;
d) Conformity to product/service requirements;
e) Characteristics and trends of processes and products, including opportunities for preventive action;
f) Opportunities for improvement and preventive actions; and
g) Suppliers, and
h) On time delivery (OTD);

Data generated by monitoring and measurement activities are included.

4.6.5 Improvement

4.6.5.1 Continual Improvement

Tulmar shall continually strive to improve the effectiveness of the quality system through the use of quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management reviews.

4.6.5.2 Corrective Action

Tulmar takes actions to eliminate the causes of nonconformity and prevent recurrence. Actions are appropriate to the impact of the problems encountered. Quality Procedure, Corrective & Preventive Action defines the process and requirement for;
a) Review of nonconformities (including customer complaints);
b) Determining the cause of nonconformities;
c) Evaluating the need for actions to ensure nonconformities do not recur;
d) Determining and implementing corrective action needed to preventive reoccurrence;
e) Recording of results of the action taken; and
f) Review of the effectiveness of the corrective actions taken.

4.6.5.3 Preventive Action

Tulmar identifies actions to eliminate the causes of potential nonconformities and prevent their occurrence. Actions taken are appropriate to the impact of potential problems encountered. Quality Procedure, Corrective & Preventive Action defines the process and requirement for;

a) Determining potential nonconformities and their causes;
b) Evaluating the need for action to prevent occurrence of the potential nonconformities;
c) Determining and implementing the action needed;
d) Recording the results of the action taken; and
e) Review of the effectiveness of the preventive actions taken.

4.7 Support Activities

4.7.1 Health & Safety

At Tulmar, our employees are an integral component in the delivery of our products and services and therefore their health and safety is a top priority. To ensure health and safety policies and practices are adhered to, training is provided to Tulmar personnel relating to health and safety policies and documents and records related to health and safety practices are controlled as defined within this manual.

4.7.2 Finance

As orders are completed and product is shipped to the customer, invoices are prepared and forwarded. Confidential information pertaining to the customer shall be controlled for confidentiality as defined within this manual.

4.7.3 Administration

People are encouraged to contact us and/or welcome to visit our plant. Prior to their visit, all people are advised of our security and safety policies and practices prior to entering the working areas.

Appendix A: QMS Procedure Cross-Reference Matrix

This matrix provides a cross-reference between the various functions within the organization and the applicable QMS procedures.

Manufacturing Program		Function	Maintenance Program	
Regulated Requirements (TC CAR 560) Procedures	Un-regulated Requirements Procedures		Regulated Requirements (TC CAR 573) Procedures	Un-regulated Requirements Procedures
• Contract Review	• Contract Review	Marketing & Sales	• Contract Review	• Repair & Return
• Design & Development • Production Engineering	• Design & Development • Production Engineering	Design & Engineering	• N/A	• Repair & Return • Production Engineering
• Manufacturing Policy Manual	• Purchasing • Receiving, Storage, Packaging & Delivery • Maintenance of Equipment	Production	• Maintenance Policy Manual	• Repair & Return • Purchasing • Receiving, Storage, Packaging & Delivery • Maintenance of Equipment • Control of Inspection Measuring & Test Equipment
• Manufacturing Policy Manual	• Document Control • Control of Records • Management Reviews • Internal Audits • Data Analysis • Corrective & Preventive Action • Inspection & Testing • Control of Nonconforming Product	Quality Assurance	• Maintenance Policy Manual	• Document Control • Control of Records • Management Reviews • Internal Audits • Data Analysis • Corrective & Preventive Action • Inspection & Testing • Control of Nonconforming Product
• Implementing New or Modified Equipment & Processes	• Implementing New or Modified Equipment & Processes	Health & Safety	• Implementing New or Modified Equipment & Processes	• Implementing New or Modified Equipment & Processes
• Security Plan • Security Classified • Controlled Goods Security Plan • Card Assess System • IT Manual	• Security Plan • Security Classified • Controlled Goods Security Plan • Card Assess System • IT Manual	Security & Information Technology	• Security Plan • Security Classified • Controlled Goods Security Plan • Card Assess System • IT Manual	• Security Plan • Security Classified • Controlled Goods Security Plan • Card Assess System • IT Manual
• Training • Employee Handbook	• Training • Employee Handbook	Human Resources	• Maintenance Policy Manual	• Training • Employee Handbook