Esterline
Control & Communication Systems

46902 Rev E

QUALITY MANUAL

FOR

KORRY ELECTRONICS CO.

Prepared by:
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CAGE 81590

RECORD OF REVIEW AND HISTORY

REV	DESCRIPTION	APPROVED	
		DATE	BY
-	New Release. Supersedes Korry Electronics Company's AS9100 Quality Manual, PO910000 Rev. 12/19/2012. Per ECO0118315.	2013-03-25	JHL
A	Updated sections 2.3, 6.2.2, 7.5.1.4, 7.5.5 to reference current documentation numbers. Figure 1 and 2 were updated. Per ECO0120039.	2014-01-29	JHL
B	Updated sections 1.2, 2.3, 3.5 and 7. Reference ECO0129027	2015-01-15	JHL
C	Updated section 5.6.2. Per ECO0131576.	2015-03-04	JHL
D	Updated section 1.2, 2.3, 5.1, 5.3, 7.4.3. Per ECO0140521.	2016-12-05	JHL
E	Combined PO700001 and rewritten to address ISO 9001:2015 and AS9100 Rev D requirements. Per ECO0143678.	2018-01-16	JHL

See separate ECO for revision approvals.

Initiated by Lada Hekala, Lead Auditor Quality Assurance 2013-01-11

See separate release record for release approvals.

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1. Introduction

This is the Quality Manual for the Korry Electronics Co. Paragraph numbering and organization matches AS9100 revision D as an aid to mapping requirements from the Quality Management Systems standard.

2. Documents

KORRY ELECTRONICS CO.

Refer to D46902-01 through -05 for relevant documents and procedures

COMMERCIAL STANDARDS

AS5553	Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation and Disposition
AS9100 –	Quality Management Systems – Requirements for Aviation, Space and Defense Organizations
AS9102 -	Aerospace First Article Inspection Requirement
AS9103 -	Aerospace Series – Quality Management Systems – Variation Management of Key Characteristics
AS9115 -	Quality Management Systems – Requirements for Aviation, Space and Defense Organizations – Deliverable Software

3. Terms and definitions

For the purposes of this Quality Manual, the terms and definitions given in ISO 9000 apply.

Throughout the text of this Quality Manual, wherever the term “product” occurs, it can also mean “service”.

3.1 Risk

An undesirable situation or circumstance that has both a likelihood of occurring and a potentially negative consequence.

3.2 Special Requirements

Those requirements identified by the customer, or determined by the organization, which have high risks to 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. Examples of special requirements include performance requirements imposed by the customer that are at the limit of the industry's capability, or requirements determined by the organization to be at the limit of its technical or process capabilities.

3.3 Critical Items

Those items (e.g., functions, parts, software, characteristics, processes) having significant effect on the product realization and use of the product; including safety, performance, form, fit, function, produceability, service life, etc.; that require specific actions to ensure they are adequately managed. Examples of critical items include safety critical items, fracture critical items, mission critical items, key characteristics, etc.

3.4 Key Characteristic

An attribute or feature, identified by the customer or organization, whose variation has a significant effect on product fit, form, function, performance, service life or produceability, that requires specific actions for the purpose of controlling variation.

3.5 Product Lifecycle Management (PLM)

Korry's PLM tool is ARAS Innovator which is used to manage the entire lifecycle of a product from its conception, through design and manufacture, to service and disposal. PLM integrates people, data, processes and business systems and provides a product information backbone for company and Korry's extended enterprise.

3.6 Enterprise Resource Management (ERP)

Korry's ERP tool is Infor SyteLine which is used collect financial data, transact contracts with customers and suppliers, track all inventory and plan all productions. It is linked to the PLM for design data.

3.7 Supplier

Throughout the text of this Quality Manual, whenever the term "supplier" occurs it can be construed to mean "external providers of processes, products and services".

3.8 Parts Manufacturing Authorization (PMA) and Technical Standard Order (TSO)

Two different flightworthiness certification programs covered by 14 CFR part 21 for providing spare parts for aftermarket sustainment of commercial aircraft.

4. Context of the organization

4.1 **Understanding the organization and its contexts**

Esterline Corporation is a specialized manufacturing company serving principally aerospace and defense markets. Approximately 80% of total revenues are generated from aerospace/defense markets. The remaining 20% is from the application of these technologies in adjacent markets. Esterline management divides the company's businesses in three segments related to its core competencies: Avionics & Controls, Sensors & Systems, and Advanced Materials. Operations within the Avionics & Controls segment focus on technology interface systems for commercial and military aircraft and similar devices for land- and sea-based military vehicles, cockpit displays and integration systems, flight training and simulation equipment, secure communications systems, specialized medical equipment, and other high-end industrial applications.

Korry Electronics, established in 1937, is part of the Esterline Control & Communications Systems Platform in the Avionics & Controls segment .

Korry produces filters, knobs, indicators, switches, panels, controls and displays used primarily in the commercial and military aerospace markets.

The facility is located in Everett, WA at the following location:

11910 Beverly Park Road
Everett, Washington
98204-3529 USA

Phone: 425-297-9700
Fax: (425) 297-9871

Website: http://www.esterline.com/controlsystems/Korry/KorryHome.aspx

Korry's adheres to the Esterline Operating System:

"*The Esterline Operating System is how we will deliver value to our customers. Our cultural framework – The Esterline Way – merges our values & principles, people philosophy, and operating approach to outline how we will achieve success using both operational excellence and our mission-critical cultural characteristics.*

The Esterline Operating System graphic, illustrates the foundation of our operating approach, includes Teamwork, Culture, and a Safe Work Environment, illustrating how important cultural base elements are to our ability to effectively implement the new system. The pillars, or core operational elements of our operating system, are supported above and below by our constant commitment to Continuous Improvement, Waste Elimination, and Policy Deployment. Carrying these concepts through all of our enterprise improvements will support our ultimate goal: Customer Satisfaction. They provide a roadmap to getting it right the first time, operating within a compliant, respectful and safety-conscious culture, and driving best-in-class standards to deliver superior value to our customers and stakeholders."

Curtis Reusser, Chief Operating Officer, Esterline

Figure 1 The Esterline Operating System

The "Vision" of the Esterline Operating System is to focus on a "one-piece" continuous flow throughout the entire supply chain by level loading the customer demand to create a synchronous and aligned supply chain (internal & external) and producing to the customer takt in the Least Waste Way (LWW). This enables faster reaction times and better on-time delivery which increases Customer Satisfaction. The senior leadership team has established the mission and five key areas of focus shown in figure 2 to ensure we support the needs of Esterline stakeholders – our employees, our customers, our suppliers and our shareholders. Everything we do needs to support these goals.

Figure 2 Esterline Mission and Five Key Areas

Our leaders are committed to our core values of reliability, respect, integrity, and compliance described in the "three circles" of figure 3. They behave according to those principles and drive all aspects of the Esterline Operating System to create the greatest level of improvement and success for all employees and for the future of our company and products.

Figure 3 Esterline Culture & Values

Figure 2 Esterline Mission and Five Key Areas and Figure 3 Esterline Culture & Values inform Korry's management as they conduct strategic planning and policy deployment as described in figures 4 and 5.

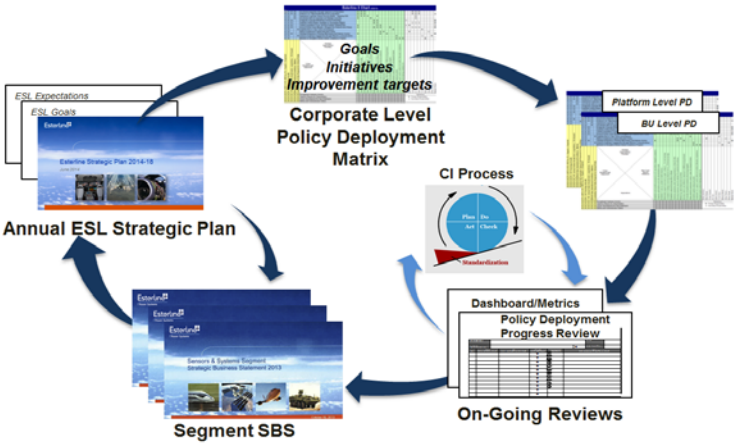

Figure 4 Strategic Planning

Figure 4: Strategic planning

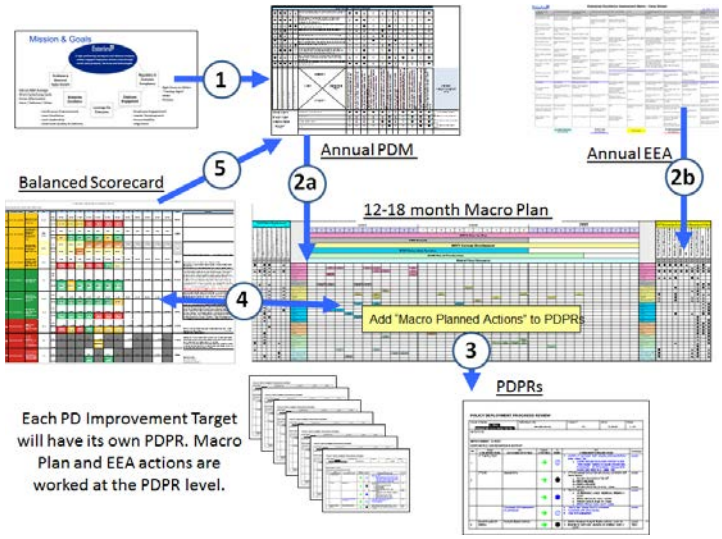

Figure 5 Policy Deployment & Macroplanning

4.2 **Understanding the needs and expectations of interested parties**

Korry has determined the following interested parties and how to monitor and review relevant information:

- **Customers;** (Original Equipment Manufacturers, System integrators, Airlines, Repair & Overhaul organizations); they expect Korry to meet contractual requirements especially those involving quality and delivery. Korry monitors its on-time delivery, and quality escapes, and customer scorecards..

- **Suppliers**; they expect clear requirements and contracts as well as payment within agree-to terms. Korry monitors the performance of key suppliers and send them monthly supplier scorecards covering their delivery and quality performance.

- Government **Regulatory authorities**; they expect Korry to comply with FAA, EASA, CAAC requirements and maintain airworthy products at all times. Korry has established procedures to monitor the airworthiness of its civil certified products and maintains all required certifications.

In addition, they expect Korry to meet all applicable laws about environment, employment, export compliance, health and safety and fiscal responsibilities. Korry performs legal reviews of all environmental requirements at all government levels. •
Esterline shareholders; they expect Korry to create value and meet its financial objectives. Korry establishes yearly budgets that are monitored monthly. Esterline management reviews budgetary performance at a 6-week interval and conducts quarterly investor calls.

- **Employees**; they expect a safe and motivating work place. Korry monitors and ensures its work environment to be safe and appropriate to the nature of the work to be performed. Korry offers training and job opportunities within a continuous improvement framework.

Korry monitors information about these parties and their requirements.

4.3 **Determining the Scope of the Quality Management System**

Korry Electronics Co.developed and implemented a Quality Management System that is continuously maintained for effectiveness and process improvements in accordance with the requirements of ISO 9001, AS9100, AS9115, Nadcap AC7120, and 14CFR21.137. The means to achieve all applicable requirements are documented in this Quality Manual and associated procedures.

Korry Electronics monitors and reviews information about these external and internal issues based on the Esterline Operating System Policy Deployment Review Process.

This Quality Management System Manual applies to all employees, and is the Korry Electronics (Korry) plant wide quality system.

The quality system is also designed to assure conformance to 14 CFR part 21 “Certification Procedures for Products and Articles”, Subpart K Parts Manufacturer Approvals and Subpart L Technical Standard Orders.

The ISO 9001:2015 and AS9100D certification are valid for the following product or service ranges, defined as the organization's scope:

Design, Manufacture, and Repair of Electro-Optical, Control and Display Systems and Components for the Aerospace/Defense Markets.

Exclusions:
Korry does not take any exclusion to the requirements of AS9100D.

This manual is available and maintained as the documented information defining organizational scope of the Quality Management System.

4.4 **Quality Management System (QMS) and Its Processes**

4.4.1 **QMS Processes**

Korry establishes, implements, maintains and continually improves a QMS with key processes as shown in Figure 6 Quality Management System Process Model.

Customer Process: Processes that directly interact with the customer such as Sales, Marketing, Proposals, Customer Service, Aftermarket Support and Program Management.

Engineering Process: Processes that develop and manage design data for the purposes of new product development, and sustaining existing product.

Materials Process: Processes that provide production with planning, purchased materials and parts, and services as well as receiving, inventory management and shipping. Included receiving inspection and supplier quality engineering.

Production Process: Processes that produce and inspect products and services, and provide production infrastructure such as facilities, tooling, and manufacturing engineering.

Management & Support Process: Processes to manage, plan, train and continuously improve. Quality functions such as compliance, audit, calibration, quality engineering and source inspection.

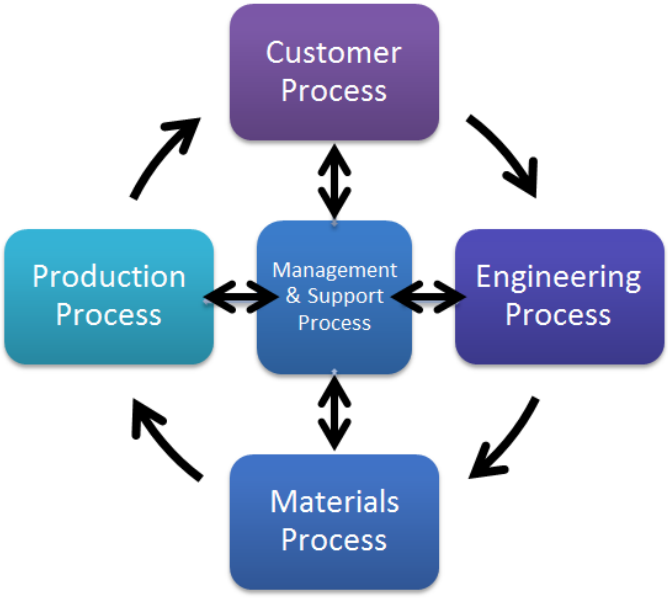

Figure 6 Quality Management System Process Model

a) Inputs and Outputs for the main Korry Processes are recorded in the Quality Process Maps.

b) Sequence and Interaction of Korry Processes are shown in the Quality Management System Process Model

c) Effective operation and control of these processes is determined by the ouputs of each Quality Process Map. Performance Indicators are reviewed during monthly Quality Management System Review (QMSR) meetings and Policy Deployment Reviews meetings .

d) Determination of resources needed for each process is made by the President based on recommendations from the functional leaders.

e) Responsibilities and authorities for each process are assigned by the President and recorded in the Quality Process Maps.

f) Risks and Opportunities are determined by the senior management team in accordance with section 6.1 and section 8.1.1.

g) These processes are regularly evaluated by a combination of Policy Deployment Review.

h) Esterline Policy Deployment Process drives year over year improvement in process results with defined or derived targets.

i) Documentation and systems necessary for FAA Repair Station compliance (RSM).

4.4.2 **Quality Management System Documented Information**

a. Documented Information is maintained as:

- ECO controlled documents stored in the PLM
- Signature controlled documents stored in department document folders
- Records retained automatically in the ERP
- Records stored/saved in digital folders
- Paper records staged locally then archived in a remote safe storage site

ISO9001:2015 / AS9100D Requirement Reference	**Korry Document**
4.4.1 QMS Processes	D46902
7.5 Documented Information	D33924, D49620, D49628
5.2.1 Quality Policy	D46902
7.1.5 Measurement Traceability	D3.300
8.1 Transfer of Work	D51759
8.1.1 Risk Management	CI200
8.1.2 Configuration Management	D33924
8.1.3 Product Safety	EHS010
8.1.4 Counterfeit Prevention	D48055
8.3.1 Design and Development	D51166
9.2.2 Audit Program	D49682
10.2 Corrective Action	D49631
10.3 Continual Improvement	CI100

Figure 7 Level Two Quality Procedures

The Quality System Documentation consists of four levels;

1. Quality Manual with Policy Statement (level one),
2. Standard Quality Procedures (level two),
3. Work Instructions (level three), and
4. Records (level four).

Supplemental to these documents are the Inspection and Test Plans and quality system requirements from applicable regulatory authorities.

Customer and/or regulatory authority's representatives are granted access to all Quality Management System documentation. During customer audits, customers are shielded from other customer's proprietary data.

b. Documented information is retained in accordance with the Record Control Procedure – D49628. With the exception of temporary process control records, records are retained for over ten years.

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4.5 **Responsibilities as a PMA and TSO Product Approval Holder**

The FAA has designated Korry as a product approval holder for both Parts Manufacturing Authority (PMA) and Technical Standard Order (TSO) articles. With this designation, Korry has the following responsibilities:

a. Amend the PO700001-organization document as necessary to reflect changes in the organization and provide these amendments to the FAA;
b. Maintain the quality system in compliance with the data and procedures approved for the PMA and TSO authorization – see section 7.5
c. Ensure that each PMA and TSO article is in a condition for safe operation. Make sure that PMA articles conform to their approved design. Make sure TSO articles meet their TSO – see section 8.7
d. Mark the PMA article for which an approval has been issued – see section 8.5.2.1.1
   Mark the TSO article for which an approval has been issued – see section 8.5.2.1.2
e. PMA Marking must be in accordance with part 45.11, including any critical parts – see section 8.5.2.1.1
f. Identify any portion of the PMA and TSO article (e.g., sub-assemblies, component parts, or replacement articles) that leave the manufacturer's facility as FAA approved with the manufacturer's part number and name, trademark, symbol, or other FAA approved manufacturer's identification – see section 8.5.2.1.1 and 8.5.2.1.2
g. Have access to design data necessary to determine conformity and airworthiness for each article produced under the PMA or TSO – see section 8.3.5 for design data, and see 8.6.1 for release of PMA and TSO articles.
h. Retain each document granting PMA or TSO authorization and make it available to the FAA upon request; and
i. Make available to the FAA information regarding all delegation of authority to suppliers.

5. LEADERSHIP

5.1 Leadership Commitment

5.1.1 General

a. Leadership is accountable for the Quality Management System (QMS).

b. Leadership uses this Quality Manual to establish the Quality Policy and provides the framework for setting Quality Objectives via the Esterline Operating System Policy Deployment Process. Figure 8 – Esterline Culture and Values is a high level summary of this framework. Section 6.2 details the quality objective process.

c. Leadership uses the Esterline Operating System, this Quality Manual, documented procedures and work instructions, training and direct supervision to integrate QMS requirements into Korry Electronics Co. business processes.

d. Leadership uses and promotes the use of risk-based thinking. This is defined further in sections 6.1 and 8.1.1.

e. Leadership ensures the resources needed for the quality management system are available. Resources are assigned to meet regulatory and customer contractual requirements and in accordance with risk.

f. Communication and importance of meeting requirements are accomplished by management review meetings, department meeting, along with Quality Policy development.

g. Leadership ensures that the QMS achieves desired results by periodic management review (see section 9.3), actions to address risks and opportunities (see section 6.1), and through the process of improvement (see section 10).

h. Leadership engages, directs and supports persons contributing to the effectiveness of the quality management system, promotes improvement, supports other relevant management roles as it applies to their areas of responsibility.

i. Leadership committs to the core values of reliability, respect, integrity, and compliance. They behave according to those principles and support driving all aspects of the Esterline Operating System to create the greatest level of improvement and success for all employees and for the future of our company and products.

j. Leadership commitment is essential to driving sustainable change. The Leadership Team role is to drive and support the Esterline through the change process. They have in-depth knowledge of the Esterline Operating System and are fully committed to the journey by:

Principles –

- Demonstrate commitment to highest standards of ethics and compliance
- Always ensure a safe and heathy working environment
- Communicate and reinforce the “Three Circles” and employment engagement to drive ever improving value for our customer, shareholders and employees

Tactics-

- Communicate and reinforce the Esterline Operating System
- Effectively use Policy Deployment to drive Continuous Improvement in all areas of business
- Effectively use the Esterline Operating System and appropriate metrics
- Create a culture where training and development are the norm

Behaviors-

- Be visible and lead by example
- Demonstrate open, two-way communication to foster an environment of mutual respect and trust
- Display and expect accountability and ownership
- Lead/coach employees on the Esterline Operating System
- Reward, recognize and celebrate success.

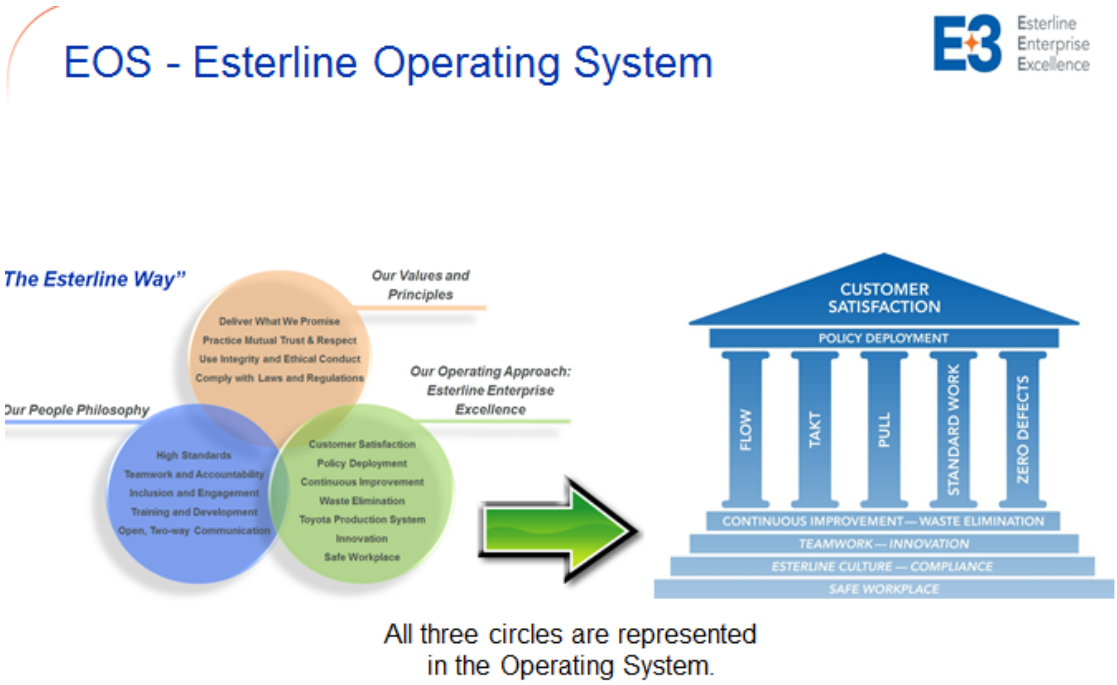

Figure 8 – Esterline Culture and Values

5.1.2 **Customer Focus**

Korry establishes, implements and maintains documented procedures for contract review and for the coordination of related activities.

Requirements are determined and met with the aim of enhancing customer satisfaction.

It is the responsibility of the Korry Sales Department to review all tenders and contract offerings.

Customer quotations, inquiries, orders and contracts are reviewed to ensure customer and applicable statutory and regulatory requirements are adequately defined and documented.

Any changes or amendments to the contract are reviewed according to the procedures established by Sales, Marketing and Customer Service.

Management determines and addresses the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction.

Management reviews product service conformity and on-time delivery performance during daily walk-arounds and during regularly scheduled Policy Deployment Reviews and actions are taken when planned results are not achieved or when there is significant risk they will not be achieved.

A primary goal for all Korry activity is to achieve “customer delight”.

5.2 **Policy**

5.2.1 **Establishing the Quality Policy**

Korry defines and documents its Policy for Quality, which provides the overall objectives for an effective Quality Management System. The Korry Policy is relevant to the Korry goals and the expectations of its customers.

The Korry Quality Policy is approved by the Director of Quality.

As an Aerospace parts supplier, Korry is committed to meet customer requirements and continually improve our Quality Management System consistent with AS9100 .

Our policy of Market Quality Products expresses our recognition of the importance and critical nature of our product application, primarily aircraft products.

Customer Satisfaction is meeting the customer’s requirements and expectations, with the associated improvement of repeat business.

Continual Improvement is our on-going process of meeting continuously changing customer needs and self-monitoring ourselves against improvement metrics, strategic plans, and goals.

On Time delivery is part of our policy as it is a primary customer desire and good business practice for Korry to manufacture more efficiently in today’s lean environment.

Korry Quality Policy is

> **“It is our goal as one Esterline team to meet our customer and regulatory requirements, to continuously improve our effectiveness for delivering on time in full while never compromising on the quality of our goods and services.”**

5.2.2 **Communicating the Quality Policy**

The quality policy is integrated into this Quality Manual and is available on QMS webpage to all employees.

The quality policy is posted prominently within the facility as a continuous reminder to the employees.

The quality policy is made available to non-employee interested parties by posting on the Esterline corporate website and upon request.

The quality policy is used by the employees as a guiding principle when making daily decisions and in evaluating if actions are appropriate and effective.

Korry employees and management are committed to assuring that this policy implemented, understood and maintained at all levels of the organization.

5.3 **Organizational Roles, Responsibilities, and Authorities**

The Accountable Manager ensures that responsibilities and authorities for relevent roles are assigned, communicated, and understood within the organization.

Specific assignments and structure are defined in a separate document, PO700001-Organization for clarity and ease-of-maintenance.

PO700001-Organization identifies the specific leader assigned as Accountabile Manager. The FAA / EASA Accountable Manager is responsible for the overall activities associated with the manufacturing process of parts, in compliance with applicable sections of the US Code of Federal Regulations. The Accountable Manager or Designee is the primary contact with the FAA.

a. The Accountable Manager has assigned responsibility and authority to the Management Representative to ensure that the QMS conforms to the requirements of the AS9100 quality standard.

The Management Representative is responsible for assuring that the Quality Management System is implemented at all levels of the organization. The Management Representative is a member of the management team with the necessary authority required to accomplish implementation.

b. The Accountable Manager assigns responsibility to their subordinates to ensure that their specific processes deliver intended outputs. The Management representative is responsible for assuring the processes conform to AS9100, but specific department leaders are responsible for ensuring that their departments meet Quality Objectives.c. Korry Top Management ensures that the responsibilities and authorities for relevant roles are assigned, communicated and understood within the organization.

d. The Korry Management Representative communicates, promotes and insures awareness of customer requirements to all employees throughout the organization and has the organizational freedom to resolve all matters pertaining to quality.

e. The Accountable Manager ensures that the integrity of the QMS is maintained when changes are planned and implemented by the use of planning (section 6), and controls on documents (section 7.5.3), review (section 9.3) and improvement (section 10).

f. PMA Program Coordinator:
The PMA Program Coordinator is responsible for review and approval of all PMA Data as required by the individual PMA. The Coordinator is responsible for all interfaces with the Type Certificate Holder and the FAA and for assigning the appropriate resources to support the PMA effort.

g. TSO Program Coordinator
The TSO Program Coordinator is responsible for review and acceptance of all TSO Data as required by the individual TSO. The Coordinator is responsible for all interface with the FAA and for assigning the appropriate resources to support the TSO effort.

h. Subject Matter Experts
In general, Designated Engineering Representatives are used as S**ubject Matter Experts** for review of the certification process and the artifacts generated to support certification. The criteria for selecting the subject matter expert, is that the individual has at least two projects completed at or above the design assurance level of the planned project. Any deviations to this would be specified in a project specific certification plan for the TSO effort and agreed to by the FAA.

6. PLANNING

6.1 Actions to Address Risks and Opportunities

6.1.1 Determine Risks and Opportunities

Korry Management determines the internal and external issues and the relevant requirements of their interested parties and how this may impact on our Quality Management System.

This is in order to provide confidence that the quality management system can

- Achieve its intended outcomes.
- Enhance desirable effects.
- Prevent, or reduce , undesired effects.
- Achieve improvement.

6.1.2 Planning for Risks and Opportunities

a. Leadership plans actions to address risks and opportunies via the EOS Policy Deployment Process. Specific actions are recorded as either macro plan elements, and actions listed on Policy Deployment Progress Review sheets for one-time events or as documented process changes for repetitive events.

Pursuit of new customer programs and authorizations for new product development or research and development are forms of repetitive risk taking and each have their own authorization and control processes (see appropriate QMS process sections).b. Leadership integrates and implements actions into the QMS and evaluates the effectiveness of these actions via controlled changes (7.5.3), review (9.3) and improvement (10).

Details of the risk management process are covered in section 8.1.1.

6.2 Quality Objectives and Planning to Achieve Them

6.2.1 Quality Objectives

The Korry President and the Senior Staff ensure quality objectives, including those needed to meet requirements for our products, are established at the appropriate departmental levels. Korry documents quality objectives, assures that they are measurable, and consistent with the Korry Quality Policy and Esterline Operation System business management process expectations that are communicated through Policy Deployment objectives. Figure 5 Policy Deployment & Macroplanning illustrates how these objectives are deteremined.

Korry quality objectives are identified as the Policy Deployment Level 2 Improvement Targets.

The Quality Objectives are recorded in the Esterline Operating System Policy Deployment process and are determined, deployed, communicated, and adjusted as part of the Policy Deployment Review process (PDR). The PDR is presented in the form of a summary scorecard with detailed charts showing specific goals and results for each objective.

6.2.2 **Planning to Achieve Quality Objectives**

Senior management ensures that the Quality Objectives, consistent with the policies, are flowed down through the organization and that the results against these objectives are measured and communicated to the organization. The results are reviewed at the Management Reviews (see section 9.3 Management Review) and actions determined as needed per established targets. The PDR_Deck (Policy Deployment Review Deck) contains the key process indicators and objectives are refreshed at least at the beginning of each new fiscal year. These objectives may be broken down into sub-objectives and communicated to the appropriate level of the organization. In the absence of any overriding contractual requirements, the safety and reliability of the product has been considered and addressed. Again, reference Figure 5 Policy Deployment & Macroplanning for details of this process.

6.3 **Planning of changes**

Korry's Quality Management System is documented and designed in order to guarantee that all products and processes meet all the requirements of our customers.

Satisfaction of specified requirements is achieved through the effective implementation of all processes and related Quality Management System Procedures and work instructions in day-to-day activities. The Quality System documentation is designed to achieve quality in the definition of the needs of the customer, in the planning and design of product realization, in the conformance to the product design and in the support throughout the product life cycle.

Quality Management System reviewing or planning is performed prior to the addition of significant changes that have an impact on the organization's quality management system in order to minimize the risk of negative effects. The required changes are discussed and documented in the monthly Quality Management System Review (QMSR) meetings to ensure the integrity of the systems and the availability of resources. The allocation or reallocation of responsibilities and authorities can be discussed during the QMSR meeting, President's staff meeting or at the time the procedures (level 1 to 3) are updated.

7. SUPPORT

7.1 Resources

7.1.1 General

Korry President is responsible for determining the appropriate resource requirements and providing adequate resources for the organization. This includes, assigning trained personnel to implement and maintain the Quality Management System and continually improve its effectiveness in regards to customer satisfaction and customer requirements. Korry defines “appropriate resources” as either meeting requirements or when requirements are not met, sufficient resources to make progress in closing the gap.

7.1.2 People

Korry personnel are assigned as necessary to meet appropriate resource levels and defined above.

7.1.3 Infrastructure

Korry determines the needs for each new project or significant change to an existing project. Consideration is given to the following:

a. Facilities and transportation services associated with the workspace

b. Equipment – hardware, software and back-up

c. Workspace

d. Information Technology services.

The Infrastructure is determined and maintained to achieve conformity to product and development requirements.

7.1.4 Environment for the Operation of Processes

Korry establishes and maintains the appropriate work environment needed to achieve product quality requirements.

Korry determines, provides and maintains the necessary infrastructure for the operation of its processes to achieve conformity of products and services.

Infrastructure includes:

a) Social (non-discriminatory, calm, non-confrontational)

b) Psychological (stress –reducing, burnout prevention, emotionally protective)

c) Physical (temperature, heat, humidity, light, airflow, hygiene, noise)

Support and related documentation: EH&S Department Documents.

7.1.5 **Monitoring and Measuring Resources**

7.1.5.1 **General**

The Calibration System is maintained to ensure that inspection, measuring and test equipment and test software that can affect product quality are adequate to demonstrate conformance of product to specified requirements.

The calibration system defines the extent and frequency of calibration to ensure that all measuring and test equipment, and measurement standards used for determining the conformity of production parts have the necessary controls and accuracy to perform the required measurements.

Equipment requiring calibration is identified and tracked through periodic recall and calibrated using documented procedures against certified equipment having a known valid relationship to National or International Standards. Safeguards are used to prevent adjustments and modifications that would invalidate the calibration settings.

Korry defines the calibration process in procedure D3.300.

Korry retains records of fitness for purpose of monitoring and measuring equipment as defined in CAL010 – Calibration Work Instruction.

7.1.5.2 **Measurement Traceability**

Measurement traceability is required for all monitoring and measuring equipment used to accept product and services.

a. Equipment is calibrated or verified at specified intervals. Measurement standards are traceable to NIST. Measurement devices are calibrated and verified per D3.300.

b. Equipment is numbered with a K# per CAL010 for identification in the measurement traceability system.

c. Anti-tamper seals are used to prevent unauthorized adjustment. Damage and deterioration are prevented by good work practices and operator examination of the equipment prior to use.

D3.300 – General Calibration Procedure establishes, implements and maintains the process for recall monitoring and measuring equipment requiring calibration or verification.

The register of monitoring and measuring equipment is a database. This database is described in CAL010. The database records equipment type, K# (unique identification), owning department (location), and the calibration or verification method, frequency and acceptance criteria.

Equipment is utilized in environmental conditions suitable for the calibration, inspections, measurements and tests being carried out and in a manner consistent with required measurement capability. Handling, transporting and storing of measuring equipment is done in a manner so as to prevent abuse, misuse, damage or change in dimensional or functional characteristics.

When monitoring and measuring equipment equipment is found unfit for intended purpose and Out-of-Tolerance (OOT) case is created in the calibration database. Administration of the OOT case determines the validity of previous measurement results, takes appropriate corrective action and notifies any affected customers. This process is summarized in D3.300 with detailed instructions in CAL030.

7.1.6 **Organizational Knowledge**

Korry Electronics over our 80+ year history has determined the knowledge necessary for the operation of its processes and to make conforming products and provide conforming services.

This knowledge is maintained by our staff where a significant proportion has worked here 20+ years. Knowledge is made available through the process described in the Korry Training Process – D51760.

Korry Electronics:

a) Determines and maintains the knowledge necessary for the operation of the organization's processes and to achieve conformity of products and services.

- Intellectual property
- Knowledge gained from experience
- Lessons learned from failures and successful projects
- Capturing and sharing undocumented knowledge and experience
- Results of improvements in processes, products and services

b) Safeguards the organization from loss of knowledge through:

- Specialized training,
- Documentation of processes and job sharing,

- Having the older and more experienced workers serve as mentors and trainers,
- Enlist the assistance of retirees to serve as mentors

c) Acquire new knowledge to address changing needs and trends by:

- Monitoring changes in the market or technology and analyze the extent to which they influence the knowledge the organization requires,
- Sending employees to external training
- Hiring new employees with the needed know-how
- Get training from a client or vendor on changes affecting products.
- Newsletters, industry magazines, memberships in trade associations.
- Benchmarking against the best organizations in our industry
- Prepare new leaders – Esterline Leaders for Tomorrow Program

7.2 **Competence**

a. The necessary competence for each person is defined by requirements for education, skills, training and experience. These are found in the job descriptions maintained by the Human Resources department.

b. Korry Esterline ensures employees are competent through education, skill, training and experience as necessary, in order to effectively implement the Quality Assurance System Management requirements.

c. Necessary competence is acquired by either training current staff or by hiring of new staff that already have the necessary competence. Cases triggering the need to acquire competence include: insertion of a new process or new subsystems into an existing process, and loss of competent staff. Management evaluates the effectiveness (whether the staff is competent) based on the results produced, and takes action including restraining and reassignment when quality objectives cannot be met as part of the spectrum of corrective action activity.

d. Formal training records are maintained by the Human Resources Department, including proof of certification for special processes, as applicable. Additional documented education and experience records are maintained in the employee personnel files.

The needs for training of personnel are identified, and documented procedures for providing that training are established and maintained. Appropriate training is provided to all levels of personnel within Korry performing activities affecting quality. All employees are aware of the importance of their activities and how they contribute to achieving quality objectives and conformity to product. The qualifications of personnel performing specialized operations, processes, tests or inspections are evaluated and documented.

Details of the process of managing competence are found in the Training Process - D51760. Competence to perform on-the-job training tasks are handled a Skills Matrix. Competence to perform soldering and soldering inspection, government and customer source inspection are handled by specialized training and certification. Competence to execute company systems and to meet general compliance requirements are administered through HR Information System.

7.3 **Awareness**

a. Korry personnel are made aware of the Quality Policy by multiple channels including annual refresher training, prominent posting on the quality web page and as signage within the facility.

b. Korry personnel are made aware of the Quality Objectives by multiple channels including visit to Obeya Room and review of Policy Deployment Improvement Targets, monthly flowdown of targets and results from the Management Business Review meetings, and company Performance Share pay tied to select objectives (such as on time delivery).

c. Korry personnel are made aware of the benefits improving performance in general and their contribution in particular by the company Performance Share process and by an annual exercise conducted with their supervisor where each employee identifies specific Improvement Targets that they directly affect (such as cost, delivery, quality, and regulatory compliance).

d. Korry personnel are aware of the impact of failure to perform results in loss of Performance Share pay, and results in extra corrective action work.

e. Korry employees are made aware of the QMS through training during the on-boarding process. Employees are made aware of QMS changes as documented in QA020 and QA030.

f. Korry provides training to all employees who have an impact on the product quality and how to report any non-conformity.

g. Korry also trains employees on how to report any escape or potential escape, the quality engineer evaluates thiese reports when reviewing MRB and RMA activity and convenes a Failure Review board including Reliability Engineering if flight safety is affected.

h. Korry employees are trained by annually regarding ethical behavior and the Esterline Code of Ethics. There is a hot line and on-site ombudsmen to report any non-ethical behavior.

7.4 **Communication**

Korry Electronics develops the annual communication plan based on requirements from the Esterline Operating System's Esterline Effectiveness Assessment matrix. This matrix has two columns dedicated to deployment of the policy deployment and communcations. The communications plan addresses what, when, with whom, how, and who communicates for intenral communications.

Korry Electronics determines external communications plans based on regulatory and contractual requirements. See other sections of this manual for specific requirements for notification of change and nonconformity.

For routine external communication Korry uses external web site where Quality Manual, all applicable certificates and a document containing information usually requested by many customers.

The primary means used to communicate internal and external feedback relevant to the QMS is by the Management Review (see section 9.3).

7.5 **Documented information**

7.5.1 **General**

The Korry Electronics Co. QMS includes the following documented information:

a. Documented information required by AS9100 includes this manual and the documents specified by the Process Maps for each key Korry process (Customer, Engineering, Materials, Production, and Management & Support).

b. Documented information in support of regulatory and customer requirements is also included in this manual and in referenced procedures and work instructions. Examples include:

- FAA requirements from 14 CFR part 21 for PMA and TSO programs. (14CFR21.137).
- DoD requirements from MIL-PRF-22885 for QPL products.

- Customer specific supplier quality programs

7.5.2 **Creating and Updating**

a. Documented information has identification/description in the form of title, date, author or reference number.

b. Documented information is recorded in English or as numeric data. The approved version of documented procedures and work instructions is the electronic one stored in the designated location. The approved version of records is defined by D49628 and may be either electronic or paper. If paper versions are later scanned then the scanned version becomes the official archive version.

c. Review and approval for suitability depends on the type of documented information:

- Company-wide procedures and drawings are reviewed and approved by the appropriate individuals per D49620 – ECO procedure.
- Department-specific work instructions and forms are reviewed and approved by the department manager per QA050.
- Records are reviewed and approved as defined by their controlling procedures and work instructions. Depending on the type of record they may be "self approving" (records that are system generated), creator approved, or require separate approval by a qualified authority (such as a final inspector or a source inspector when product conformity is being determined).

d. In accordance with 14CFR21.308, and .608 this manual must be approved by the FAA. In accordance with 14CFR21.307 and .607, all items listed in PO700001-Addendum must be submitted to the FAA for review when changed.

7.5.3 **Control of Documented Information (DI)**

7.5.3.1 **Documented Information required outcomes**

Required DI is controlled to:
a. Assure availability for use.
b. Assure DI is protected from loss, misuse or impairment.
c. Control the released version by D33924 and QA050
d. Retain and dispose per D49628 (Note: retention is typically more than 10 years but depends on the specific record type.)
e. Prevent unintended use by controls on paper copies (electronic versions are controlled automatically by the system).

DI of external origin is maintained and controlled by Data Management.
DI evidence of conformity is protected per D49628

DI in electronic form is managed per D49628
DI control authority is defined by D33974

7.5.3.2 Documented Information required subprocesses

While controlling DI, Korry addresses the following DI processes:

a. Distribution, Access, Retrieval and Use are handled
   i. by the PLM for DI controlled by D33924 and
   ii. by Department Documents folders by DI controlled by QA050
b. Version control is handled
   i. by the ECO process (D49620) for DI controlled by D33924 and
   ii. by Manager approval for DI controlled by QA050
c. Retention and disposition is controlled
   i. by D49628 for quality records
   ii. by the ECO process (D49620) for DI controlled by D33924 and
   iii. by Manager archival of obsolete DI if controlled by QA050
d. Prevention of unintended use and controlled paper copies
   i. Normally paper copies (if used at all) are only valid on the day printed.
   ii. In special cases, controlled paper copies are allowed to meet the needs of the organization (example, system is isolated from network for IT systems and cut off from PLM).
   iii. When controlled paper copies are used the following additional requirements apply:
      (a) The copy must have written approval by the work area Manufacturing Engineer.
      (b) The copy must have the revision verified prior to use each day in the PLM (up to the point when the document is removed from use).

7.5.3.3 Design Data Control for PMA and TSO Approvals

A current copy of all drawings for FAA-approved articles, products, and parts are controlled and made available to manufacturing and inspection personnel, and made available upon request to the FAA.

During product development, all design data and documents are generated, reviewed and approved per the Korry Configuration Management Process Plan D33924. This plan defines the processes necessary to ensure documentation is identified, controlled, released, and captured for traceability. All changes resulting in new product versions are tracked for approval and incorporation.

Korry uses the ARAS Innovator PLM tool to implement these processes and workflows. The ARAS Innovator PLM tool provides a strictly controlled workflow environment that ensures design traceability and ensures design data integrity is maintained. The ARAS Innovator PLM tool provides archival, retrieval, and release functions for design data while protecting against inadvertent changes.

Korry has a Document Center department that administers control over the configuration management process and ARAS Innovator PLM tool functions.

Released documents and data are made available to personnel through ARAS Innovator PLM tool with limited permissions, and electronic distribution of digital copies. Maintenance and protection of design data is according to established and documented practices for the backup and preservation of electronic files.

Design changes can result in a change to existing documentation or the generation of new documentation. Design change documentation is reviewed, approved, controlled, recorded and released in accordance with the Korry Configuration Management Process Plan 33924 using the ARAS Innovator PLM tool. Controlled documents, which include drawings, test procedures, engineering change orders (ECOs), etc., are reviewed and approved prior to their initial release or revision. Changes to documents are coordinated with customer and/or regulatory authorities when required by contract or regulatory requirements. Configuration management procedures are consistent with the following guidelines governing FAA PMA or TSO articles, products, and parts.

7.5.3.3.1 PMA Changes

A ‘‘minor change’’ to the design of an article, product, and part produced under a PMA is one that change has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, other characteristics affecting the airworthiness or effect on the approval basis.

A ‘‘major change’’ to the design of an article, product, and part produced under a PMA is any change that is not minor.

Korry has obtained approval means by either indenticality per 14 CFR § 21.303, licensing agreement between Korry Electronics and with the Type Certificate (TC) or Supplemental Type Certificate (STC) holder, or by means of Test reports and computations necessary to show that the design of the part meets the airworthiness requirements of the Federal Aviation Regulations applicable to the product on which the part is to be installed.

For changes to a products that has PMA approval means by indenticality via licensing agreement with the Type Certificate holder Korry must obtain approval of the change from the Type Certificate holder. This approval is maintained with the engineering change orders documentation. Korry must obtain the TC holder approval before including it in the design of an article produced under a PMA.

For changes to a PMA products or design documentation that has approval means by Test reports and computations Korry must obtain FAA approval of any changes before including it in the design of an article produced under a PMA.

In all cases, for minor changes Korry will provide substantiation showing that the changes have no effect on the weight, balance, structural strength, reliability, operational characteristics, and other characteristics affecting the airworthiness or effect on the approval basis.

7.5.3.3.2 TSO Design Changes

Korry shall determine Major/Minor classification of changes per Korry Document D52469 "TSO Change Classification Procedure". This document defines the process and procedures developed in collaboration with the Seattle Aircraft Certification Office (SACO) for determining Major/Minor change classification.

Korry may incorporate minor design changes without further approval by the FAA, as defined by 14 CFR 21.619 (a). In this case, the new article keeps the original model number (part numbers may be used to identify minor changes). For minor design changes, Korry will submit any necessary revised data to the SACO within 180 days after release or as specified in the applicable TSO authorization letter.

For a major design change which requires a substantially complete investigation to determine compliance with a TSO, Korry must assign a new type or model designation to the article and apply for a new authorization under 14 CFR 21.603.OPERATION

8. OPERATION

8.1 **Planning and Control**

Korry plans, implements and controls the processes needed to meet the requirements of the QMS and to implement the actions necessary to minimize risks and maximize success in pursuit of opportunities.

a. Korry determines the requirements for products and services while considering the following:

- Personal and product safety;
- Produceability and product safety;
- Reliability, availability and maintainability;
- Suitability of parts and materials used in the product;
- Selection and development of embedded software;
- Product obsolescence;
- Prevention, detection, and removal of foreign objects;
- Handling, packaging and preservation;
- Recycling or final disposal of the product at the end of its life.

Requirements are addressed as part of the proposal and bid process. Often some requirements remain undetermined at the time of contract win, these are resolved jointly between Korry and the customer during the product development process.

When mature products are reordered, customer service identifies new requirements associated with the order and has them reviewed and actioned by the affected departments as part of the order acceptance process.

b. Korry establishes criteria planned requirements:

1. Process requirements are determined Design Engineering and updated by Sustaining Engineering when customer requirements evolve or when Manufacturing Engineering introduces new equipment.

2. Product and Service acceptance requirements are determined by Quality Engineering.

- Design verification is accomplished by development of qualification test plans.
- Process control is accomplished by a mixture of statistical process control, quality control inspection and testing. These are defined in inspection checklists, quality control plans and acceptance test procedures.

- Quality Engineering may also impose Inspection Alerts to add additional temporary acceptance requirements during problem investigations and correction.

c. Resources needed to achieve conformity and meet on time delivery requirements are determined by the SIOP (sales inventory operations planning) process. SIOP is administered by Planning as an element of the broader Materials Process.
SIOP is also used to determine the resources needed to address after-market requirements and to determine the supply chain resource requirements.

d. Processes are controlled by “MP” procedures developed by Manufacturing Engineering and by the tooling and equipment they select and deploy.

e. Korry determines, maintains, and retains documented information:

1. Statistical Process Control and sample inspection are used to verify that processes are operating as intended. Records of SPC data are retained in analytical databases. Sample inspection records are retained by Receiving and Fabrication Inspection files. Other processes are verified to have been carried out based on the completed steps in production routers.

2. Visual, photometric and electrical test data is used to demonstrate conformity. Records are retained with product job orders.

f. When critical processes and controls are needed (such as to control Key Characteristics or to manage NADCAP certified processes), they are controlled by either addition of specific datasheets to measure and record results or by setting up a database with an associated measurement process.

g. and h.: see c.

i.Products and services obtained from external providers are determined based on several factors including design requirements, strategic sourcing planning and management make/buy decisions.

j.Controls to prevent delivery of nonconforming products and services are established by Quality Engineering as part of product development and sustainment.

The Program Management function assures suitability of operations by coordinating the other functions. Changes are controlled as described in the Risk Management section (8.1.1). Externally provided processes are controlled (8.4). Work transfer is controlled (8.4 and 8.5).

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8.1.1 **Operational Risk Management**

Korry plans, implements, and control a process for managing operational risks to the achievement of applicable requirements, which includes as appropriate to the organization and the products and services:

a. assignment of responsibilities for operational risk management;

b. definition of risk assessment criteria (e.g., likelihood, consequences, risk acceptance);

c. identification, assessment, and communication of risks throughout operations;

d. identification, implementation, and management of actions to mitigate risks that exceed the defined risk acceptance criteria;

e. acceptance of risks remaining after implementation of mitigating actions.

Risk Management is addressed as described in CI200 – L2 Risk Management Matrix.

8.1.2 **Configuration Management**

Korry maintains a configuration management process that identifies and controls the physical and functional attributes throughout the product lifecycle to include:

a) configuration management planning,
b) product identity, traceability to requirements, including the implementation of identified changes.
c) ensures the document information is consistent with the actual attributes of the products and services.

8.1.3 **Product Safety**

Due to acknowledgement of increased safety requirements, Korry plans, implements, and control the processes needed to assure product safety during the entire product life cycle, as appropriate to the organization and the product.

NOTES:

Product Design examples of these processes include:

- assessment of hazards and management of associated risks;
- management of safety critical items;
- analysis and reporting of occurred events affecting safety;
- communication of these events and training of persons.

Environmental Health and Safety examples include:

- assessment and elimination, if possible, of high risk materials (raw material, coatings, plating….)
- review and approval before use of all new materials (raw material, paints, adhesives…)
- review and approval before use of all new manufacturing and assembly processes
- review and approval before use of all new machinery

8.1.4 **Prevention of Counterfeit Parts**

Korry has established a Counterfeit Parts Control Plan and Obsolescent Management Plan to prevent the use of counterfeit or suspect counterfeit parts and obsolete parts in our product. These plans include:

a) training of appropriate persons in the awareness and prevention of counterfeit parts;
b) application of a part obsolescent monitoring program
c) controls for acquiring externally provided product from original or authorized manufacturers, authorized distributors, or other approved sources;
d) requirements for assuring traceability of parts and components to their original or authorized manufacturers;
e) verification and test methodologies to detect counterfeit parts;
f) monitoring of counterfeit parts reporting from external sources;
g) quarantine and reporting of suspect or detected counterfeit parts.

The process to prevent the use of counterfeit parts is compliant to AS6174 and AS5553.

8.2 **Requirements for Products and Services**

8.2.1 **Customer Communication**

Korry's communication with customers includes:

a. providing information relating to products and services;

b. handling enquiries, contracts, or orders, including changes;

c. obtaining customer feedback relating to products and services, including customer complaints;

d. handling or controlling customer property;

e. establishing specific requirements for contingency actions, when relevant.

8.2.2 **Determining the Requirements for Products and Services**

When determining the requirements for the products and services to be offered to customers, Korry ensures that:

a. the requirements for the products and services are defined, including:

1. any applicable statutory and regulatory requirements;
2. those considered necessary by the organization;

b. the organization can meet the claims for the products and services it offers;

c. special requirements of the products and services are determined;

d. operational risks (e.g., new technology, ability and capacity to provide, short delivery time frame) have been identified.

Initially new product and service discussions with customers are initiated by the Proposals team. If a customer accepts the Korry bid then they are handed off to Contracts to negotiate detailed requirements. Returning customers operating under existing contracts work directly with Customer Service to place new orders.

8.2.3 **Review of the Requirements for Products and Services**

Korry ensures that it has the ability to meet the requirements for products and services to be offered to customers. Korry conducts a review before committing to supply products and services to the customer, to include:

a. requirements specified by the customer, including the requirements for delivery and post-delivery activities;

b. requirements not stated by the customer, but necessary for the specified or intended use, when known;

c. requirements specified by the organization;

d. statutory and regulatory requirements applicable to the products and services;

e. contract or order requirements differing from those previously expressed.

This review is conducted by Contracts or Customer Service using a Purchase Order Checklist. The review is coordinated with applicable functions at Korry by using a Technical Document Review form as required for new or changed requirements.

If upon review Korry determines that some customer requirements cannot be met or can only partially be met, Korry will negotiate a mutually acceptable requirement with the customer.

Korry ensures that contract or order requirements differing from those previously defined are resolved.

The customer requirements are confirmed by Korry before acceptance, when the customer does not provide a documented statement of their requirements.

NOTE: In some situations, such as internet sales, a formal review is impractical for each order. Instead, the review can cover relevant product information, such as catalogues.

Korry retains documented information, as applicable:

a. on the results of the review;

b. on any new requirements for the products and services.

The scope of the work and all customer requirements and associated risks are fully understood by applicable functions of the organization and if necessary, clarified with the customer as part of the tender submission process. Any discrepancies between the contract and the related tender are completely negotiated and resolved before acceptance of a contract.

Amendments to contracts are reviewed in the same manner as the original contract with all affected and concerned parties.

Evidence of tender and contract reviews and associated documents, correspondence and forms are maintained and controlled.

8.2.4 **Changes to Requirements for Products and Services**

Korry ensure that relevant documented information is amended, and that relevant persons are made aware of the changed requirements, when the requirements for products and services are changed.

8.3 **Design and Development of Products and Services**

8.3.1 **General**

Korry establishes, implement, and maintain a design and development process that is appropriate to ensure the subsequent provision of products and services.

The essential steps in product realization from planning through design and development are shown in below:

Figure 9 – Product Realization Process

8.3.2 **Design and Development Planning**

Depending on the scope of a product's development, individual project plans may be created to that vary in scope or complexity.

For new programs, Korry plans and controls the design and development of product per the Product Development Process for full scale developments and configurable development

For full scale developments during design and development, the design team determines:

a) The design and development stages,

b) Where appropriate, Korry divides the design and development effort into distinct activities and, for each activity, defines the tasks, necessary resources, responsibilities, design content, input and output data and planning constraints. Due to complexity, planning may give consideration to the following activities:

   a. Structuring the design effort into significant elements based on the safety and functional objectives for the product in accordance with the customer, statutory, and regulatory requirements; and

   b. For each element, analyzing the tasks and the necessary resources for design and development. This analysis does consider an identified responsible person, design content, input data, planning constraints, and performance conditions. The input data specific to each element is reviewed to ensure consistency with requirements.

c) The review, verification, and validation, appropriate to each design and development stage.

d) The responsibilities and authorities for design and development.

e) The ability to produce, inspect, test, and maintain the product.

Development plans are maintained and updated as needed throughout the design and development process.

Interfaces between different groups are managed through design team staffing plan. For full-scale development, project engineers have authority to assign responsibility within the project team. For configurable, responsibilities are systematized and documented in the work cells procedures.

Planning output is updated by the project team or project team leadership, as appropriate, as the design and development progresses. This is seldom necessary for configurable.

For configurable the planning is done per the Engineering Service Request (ESR) Process.

8.3.3 **Design and Development Inputs**

The design input requirements are defined either by the customer's Statement of Work, the customer's product specification, military and other governing specifications, and internal product specifications in the case of development projects, and/or the contract.

The documents identify characteristics such as function, performance, reliability, physical constraints, spare capacity and safety. Requirements are defined so that their achievement can be verified to ensure customer satisfaction. The design input is reviewed for adequacy. Any conflicting, incomplete, or ambiguous requirements are escalated to the Project/Program Manager for resolution and, where necessary, discussed with the customer.

Template documents supporting requirements capture are defined in the PDP. For full-scale development requirements are captured as defined in the PDP. For configurables, captured requirements are documented per work cell procedures.

8.3.4 **Design and Development Controls**

8.3.4.1 **Design and Development reviews**

Project / Program leadership (Project Engineer, Project / Program Manager) ensures that formal hardware and/or software design reviews are conducted for each program. Reviews are supported by independent design review expertise as required to ensure adequacy of the design to satisfy the contractual, quality and productivity requirements of the end product. The design reviews identify problems and proposed necessary actions, and authorize progression to the next stage.

Participants in such reviews include representatives of functions concerned with the design and development stage(s) being reviewed.

Records of the results of the reviews and any necessary actions are maintained in project folders, project data vault, or project server, depending on the need of the program; or per work cell procedures.

8.3.4.2 **Design and Development Verification**

Designs are verified to meet product/program (input) requirements through the design output documents preparation and approval process. The approval and release of the documents is the evidence that the design meets the requirements of the specification. As an integral part of design verification, designs are verified through analysis, alternative calculations, test, demonstration, and design similarity analysis.

The documented information (records) of the results of the verification is reviewed before being released and is maintained.

8.3.4.3 **Design and Development Validation**

Product function and performance are validated in accordance with the customer or internal SOW or product specification. These activities typically include standard and environmental condition tests, reliability and maintainability demonstrations, formal qualification testing and acceptance testing.

The documented information (records) of the results of validation is maintained.

Note:

- Design and/or development validation follows successful design and/or verification.
- Validation is normally performed under defined operating conditions.
- Validation is normally performed on the final product, but may be necessary in earlier stages prior to product completion.
- Multiple validations may be performed if there are different intended uses.

At the completion of design and development, the organization ensures that reports, calculations, test results, etc., demonstrate that the product definition meets the specification requirements for all identified operational conditions Design and/or Development Verification and Validation Testing.

Where tests are necessary for verification and validation, these tests are planned, controlled, reviewed, and documented to ensure and prove the following:

a) Test plans or specifications identify the product being tested and the resources being used, defined test objectives and conditions, parameters to be recorded, and relevant acceptance criteria;

b) Test procedures describe the method of operation, the performance of the test, and the recording of the results;

c) The correct configuration standard of the product is submitted for the test;

d) The requirement of the test plan and the test procedures are observed;

e) The acceptance criteria are met.

8.3.4.4 **Controlling Design and Development Monitoring and Measurement Devices**

Monitoring and measuring devices used in Development activities are controlled per section 7.1.5.

8.3.5 **Design and Development Outputs**

The outputs of design and development are provided in a form suitable for verification against the design and development input and are approved prior to release.

Design and development outputs:

a) meet the input requirements for design and development,
b) provide appropriate information for purchasing, production and for service provision,
c) contain or reference product acceptance criteria,
d) specify the characteristics of the product that are essential for its safe and proper use, and
e) specify, as applicable, any critical items, including key characteristics, and specific actions to be taken for these items.

Korry defines the data required to allow the product to be identified, manufactured, inspected, used, and maintained; including:

a) the drawings, parts lists and specifications necessary to define the configuration and design features of the product, and
b) the material, processes, manufacturing and assembly data needed to ensure conformity of the product.

The PDP defines common design outputs for Korry programs. For configurables, design outputs are standardized and described in work cell procedures.

NOTE: Information for production and service provision can include details for the preservation of product.

8.3.6 **Control of Design and Development Changes**

Design changes can result in a change to existing documentation or the generation of new documentation. Design change documentation is reviewed, approved, controlled, recorded and issued in accordance with established configuration management procedures by the same functions involved in the original issue. Controlled documents, which include drawings, test procedures, enterprise change orders (ECOs), etc., are reviewed and approved prior to their initial release or revision.

Changes to controlled documents are approved by either the same functions that reviewed and approved the original document or functions that authorized to approve the changes as defined in the configuration management plan.

The change control process provides for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement.

Design and development changes are identified and records maintained. The changes are reviewed, verified and validated, as appropriate and approved before implementation. The review of design and development changes includes evaluation of the effect of the changes on the constituent parts and product already delivered.

The documented information (records) is maintained on:

- design and development changes,
- the results of reviews;
- the authorization of the changes;
- the actions taken to prevent adverse impacts.

Design and development changes are controlled in accordance with the configuration management process.

8.4 **Control of Externally Provided Processes, Products and Services**

8.4.1 **General**

Korry ensures that externally provided processes, products and services conform to requirements.

Korry is responsible for the conformity of all products, sub-contracted processes and services purchased from suppliers, including product from sources defined by the customer.

Korry uses customer designated/approved providers when required. This includes special process providers.

The supplier's quality and delivery performance are reviewed at intervals consistent with the nature of the product and the supplier's demonstrated performance and risk evaluation.

Korry ensures that suppliers apply appropriate controls to supply base including sub-tiers to ensure that requirements are met. Korry determines the controls applied when the supplier's products and services are incorporated in Korry products, when the products and services are resold to Korry customers, and when a customer uses a supplier at Korry's direction.

Korry uses third party QMS registration (AS9100 or ISO9001) and NADCAP accreditation as primary indicators of supplier suitability. Financial review based on ratings agency reports, site survey based on google maps, business licensing are additional qualifiers. Key commodity suppliers are audited on site prior to approval.

8.4.1.1 **Korry does the following:**

a. Korry defines the process responsibilities and authority for approval status, and change of status decisions of suppliers in the Supplier Evaluation, Approval and Maintenance work instruction - SQE030.

b. Korry maintains a register of its suppliers that includes approval status (e.g., approved, conditional, disapproved) and the scope of the approval (e.g., product type, process family); This register is explained in D49628-017, the register itself is part of the ERP system data.

c. Results of supplier performance are documented and maintained. Results shall include the Incoming Inspection results, supplier surveys, evaluation of samples, first article inspections and source inspections. The Supply Chain team maintains a supplier rating system covering all pertinent aspects of supplier performance.

d. SQE030 and the Nonconforming Material Procedure – D49629, define the necessary actions to take with a supplier that does not meet requirements.

e. Documented Information created and/or retained by suppliers is controlled by Supplier Quality notes – SQE010 note Q1.

8.4.2 **Type and Extent of Control**

Korry ensures that suppliers do not adversely affect its ability to consistently deliver conforming products and services to its customers.

a. Korry ensures that externally provided processes are controlled by the Korry QMS,

b. Korry defines both controls on the supplier as well as the product or service output.

c. Korry takes into consideration:

1. The impact of supplier's processes, products and services on Korry's ability to consistently meet customer, statutory and regulatory requirements.

2. The effective of the controls applied by the supplier.

3. The results of periodic review of supplier performance (8.4.1.1.c)

d. Korry determines the verification and other activities necessary to ensure that the supplier meets requirements.

Verification activities for suppliers are based on the risks identified in SQE030.
The majority of suppliers are verified based on periodic testing and inspection per the Receiving Inspection procedure – D50350.
Select suppliers qualify for the Supplier Delegated Source program – D50118.
Specific delegations are recorded in the ERP system and in records maintained in accordance with the Stamp Control work instruction STMP010.
Supplies obtained through paths deemed at risk of counterfeit (example: sourcing from distributors not authorized by the manufacturer) are handled in accordance with the Counterfeit Parts Control Plan – D48055, and approved by management in accordance with the Purchase of Parts from non-Franchised or Authorized Distributors work instruction – SQE080.
Supplier audits are conducted per D53594.
First Article Inspections are conducted per D51758

It is understood that customer verification activities does not absolve Korry from providing conforming products and services.

Supplier products released to production pending completion are identified to allow recall and replacement if subsequently found not to meet requirements. This is the Positive Recall process – PLAN130.

Delegated verification activities are defined by Supplier Delegated Source Program – D50118.

Material data reports for raw plastics and metals are used to accept supplier products. Reports are periodically validated through audit testing per Receiving_Inspection_Plan – RI090.

8.4.3 **Information for External Providers**

Korry shall ensure the adequacy of requirements prior to their communication to the External Provider. Adequacy is assured by control of technical requirements per the Enterprise Change Order (ECO) Process – D49620, and by the ERP process which calculates quantity and need dates.

Korry shall communicate to external providers its requirements for:

a. the processes, products, and services to be provided including the identification of relevant technical data (e.g., specifications, drawings, process requirements, work instructions);

b. the approval of:

1. products and services;
2. methods, processes, and equipment;

3. the release of products and services;

c) competence, including any required qualification of persons;

d) the external providers' interactions with the organization;

e) control and monitoring of the external providers' performance to be applied by the organization;

f) verification or validation activities that the organization, or its customer, intends to perform at the external providers' premises;

g) design and development control;

h) special requirements, critical items, or key characteristics;

i) test, inspection, and verification (including production process verification);

j) the use of statistical techniques for product acceptance and related instructions for acceptance by the organization;

k) the need to:

1 implement a quality management system;

2 use customer-designated or approved external providers, including process sources (e.g., special processes);

3 notify the organization of nonconforming processes, products, or services and obtain approval for their disposition;

4 prevent the use of counterfeit parts (see 8.1.4);

5 notify the organization of changes to processes, products, or services, including changes of their external providers or location of manufacture, and obtain the organization's approval;

6 flow down to external providers applicable requirements including customer requirements;

7 provide test specimens for design approval, inspection/verification, investigation, or auditing;

8 retain documented information, including retention periods and disposition requirements;

l) the right of access by the organization, their customer, and regulatory authorities to the applicable areas of facilities and to applicable documented information, at any level of the supply chain;

m) ensuring that persons are aware of:

1 their contribution to product or service conformity;

2 their contribution to product safety;

3 the importance of ethical behavior.

Requirements are communicated to suppliers via purchase orders, long term agreements and contracts. These documents site technical requirements and include terms and conditions and quality notes.

ECMP requirements flowed down per Subcontractor Assembly Facility Requirements Flow-Down per Electronic Component Management Plan.

Support documentation:

SQE010 Korry PO Quality Notes

Purchase Order Terms and Conditions – Commercial Contracts

35524-001 Subcontractor Assembly Facility Requirements Flow-down per ECMP Requirements

8.5 **Production and Service Provision**

8.5.1 **Control of Production and Service Provision**

Korry plans and carries out production and service provision under controlled conditions. Controlled conditions do include, as applicable:

a. the availability of documented information that defines:

1. the characteristics of the products to be produced, the services to be provided, or the activities to be performed.

   The information that describes the characteristics of the product is provided through the Job Orders (JO). The JO package includes the customer order information, customer specific special instructions, the quantity and schedule, routing and a job Bill of Material (BOM). Supporting product definition information such as documents and instructions including the product drawing, Manufacturing Processes (MP), Assembly Instructions/Inspection record (AIR), General Test Procedure (GTP) or Acceptance Test Procedure (ATP) is accessed from the PLM system.

2. the results to be achieved;

b. the availability and use of suitable monitoring and measuring resources;

The monitoring and measuring equipment are listed in the Acceptance Test Procedure (ATP).

c. the implementation of monitoring and measurement activities at appropriate stages to verify that criteria for control of processes or outputs, and acceptance criteria for products and services, have been met;

Acceptance Test Procedures and inspection work instructions identify the appropriate inspection, measuring and test equipment to be used to be consistent with the required measurement accuracy and the type of measurement to be made.

Monitoring and measuring are maintained through General Calibration Procedure for Measurement and Test Equipment - D3.300.

1. ensuring that documented information for monitoring and measurement activity for product acceptance includes:
    - criteria for acceptance and rejection;
    - where in the sequence verification operations are to be performed;
    - measurement results to be retained (at a minimum an indication of acceptance or rejection);
    - any specific monitoring and measurement equipment required and instructions associated with their use;
2. ensuring that when sampling is used as a means of product acceptance, the sampling plan is justified on the basis of recognized statistical principles and appropriate for use (i.e., matching the sampling plan to the criticality of the product and to the process capability).

d. the use of suitable infrastructure and environment for the operation of processes;

Suitable infrastructure of the operation of processes is defined in the A.I.R. for products and in setup sheets for fabricated components.

e. the appointment of competent persons, including any required qualification;

Competency if determined by supervision and jobs are assigned accordingly. The Training Matrix (see section 7.2) is used as a guide to assess competence.

f. the validation, and periodic revalidation, of the ability to achieve planned results of the processes for production and service provision, where the resulting output cannot be verified by subsequent monitoring or measurement;

These processes are referred to as special processes (see 8.5.1.2).

g. the implementation of actions to prevent human error;

Actions taken including poke yoke design of tooling and specific work instructions including illustrations/pictures in the A.I.R.

h. the implementation of release, delivery, and post-delivery activities;

Job Orders are statused in stages by routing operation and inspection step completion. Evidence of Operation step completion is identified by Operator sign off and date. Evidence of QC acceptance and status is identified with a QC acceptance stamp impression placed on the job order next to the inspection step. Post Delivery is supported per section 8.5.5.

i. the establishment of criteria for workmanship (e.g., written standards, representative samples, illustrations);

Korry Workmanship Standards (KWS), Manufacturing Processes (MP), Assembly Inspection Records (AIR), General Test Procedures GTP, and Acceptance Test Procedures (ATP) all provide the criteria for workmanship.

Planning does consider as appropriate,

- establishing, implementing and maintaining appropriate processes to manage critical items, including process controls where key characteristics have been identified,

The control of production and service provision is documented during the design & development of new program & design development phases.

Where possible, established processes are used. Process Control instructions are developed by Manufacturing Engineering or designee and are validated and approved for release. Once they are approved they are added to the applicable BOM or Department Process instructions and are revision and configuration controlled. Manufacturing Engineering uses different methods for creating process instructions:

Manufacturing Processes (MP) are written to support a specific process or special process instructions. If needed they can be referenced on an Item Master, on a Routing or in an Assembly Inspection / Instruction record (AIR) to provide process controls and specific controlled instructions that support the product build plan.

Assembly Inspection/Instruction Records (AIR) are created to provide specific step by step instructions to clearly show how to build a final or sub assembly in easy to follow steps. The AIR defines the equipment and can include specified customer instructions and process verification steps. AIRs are referenced on the Item Master of the product. The AIR is the process instructions that are performed when an Assembly step is listed on a job order routing.

j. the accountability for all products during production (e.g., parts quantities, split orders, nonconforming product);

Each item made or purchased is identified by a part number and a supporting order number. The order number is determined by the type of order. Types of orders are the job order, sales order and line item, purchase order and line item and/or a receiver number.

The order number is the unique lot number for the product or material and quantity on order. The configuration of the product on order is verified and listed on the order. All material/product is identified with a specific lot number, quantity, date code and part configuration which is all listed on the job order. Quality Acceptance is recorded on the job order and on the QC accept tags. Inventory transactions and procedures maintain the lot traceability throughout manufacturing. Any Nonconforming conditions are processed and recorded per Non Conforming Material Procedure D49629 and is recorded on the order and on a Rework or Discrepancy Report form which is also recorded on the job order. Job Order status is maintained in the material planning operating system by electronic transactions, see Job_Order_Process – PLAN140.

k. the control and monitoring of identified critical items, including key characteristics, in accordance with established processes;

Key Characteristics can be flowed down from the customer or Engineering and can be set up and implemented by Manufacturing or Quality Engineering. When a Key Characteristic is required by the Customer or Korry Engineering it is added on the drawing with a key flag and is supported by a Key Characteristics Control Plan (KCCP). When it is implemented by ME or QE it may not be listed on the drawing but will have a supporting KCCP. When specified, Statistical Process Control (SPC) processes are developed to support the requirements.

- designing, manufacturing and using tooling to measure variable data,

The instructions list the tools and equipment to be used for the specific process. Equipment used to measure Key Characteristics is calibrated per General Calibration Procedure for Measurement and Test Equipment D3.300. Korry's Key Characteristics' plans are developed per Variation Reduction / Statistical Process Control (SPC) / Key Characteristic Control Plan (KCCP).

- identifying in-process inspection/verification points when adequate verification of conformance cannot be performed at a later stage of realization, and

The identification of in-process verification points can be instructed and accomplished using a few methods. A step may be listed on the routing as a Reduced Inspection Operation Step. The inspector checks the SPC charts and verifies the data is current and the process is stable and capable showing no evidence of the process being beyond the established control limits and uses a QC or CPK stamp to record the verification on the job order next to the operation step.

l. the determination of methods to measure variable data (e.g., tooling, on-machine probing, inspection equipment);

These methods are defined in ATPs and GTPs.

m. the identification of in-process inspection/verification points when adequate verification of conformity cannot be performed at later stages;

These points are recorded on EOS standard work instructions, in inspection plan checklists and as sub-steps on job orders.

n. the availability of evidence that all production and inspection/verification operations have been completed as planned, or as otherwise documented and authorized;

Evidence of completed steps is documented in D49628-027.

o. the provision for the prevention, detection, and removal of foreign objects;

Foreign Object Debris (FOD) Prevention D49926 procedure details the prevention, detection and the removal of foreign objects which all employees are trained to. Specific processes, such as the Cleanroom are also supported by MP248.

p. the control and monitoring of utilities and supplies (e.g., water, compressed air, electricity, chemical products) to the extent they affect conformity to product requirements (see 7.1.3);

These are processes controlled by the EH&S department because of safety considerations and but statutory and regulatory considerations.

q. the identification and recording of products released for subsequent production use pending completion of all required measuring and monitoring activities, to allow recall and replacement if it is later found that the product does not meet requirements.

Provision to manage products released at risk is handled by the Positive Recall process – PLAN130.

8.5.1.1 **Control of Production Equipment, Tools and Software Programs**

Production equipment, tools and software programs used to automate and control/monitor product realization processes, are validated prior to release for production and are maintained. They are also maintained and inspected periodically according to documented procedures.

Storage requirements, including preservation/condition checks, are be established for production equipment or tooling in storage.

Control of Production Equipment, Tools and Numerical Control (NC) Machine Programs: Production equipment, tools and programs are validated prior to use and maintained and inspected periodically. Validation prior to production use includes verification of the first article produced to the design data/specification. These are controlled by MP documents and by setup sheets.

8.5.1.2 **Validation and Control of Special Processes**

For processes where the resulting output cannot be verified by subsequent monitoring or measurement, the organization shall establish arrangements for these processes including, as applicable:

a. definition of criteria for the review and approval of the processes;

b. determination of conditions to maintain the approval;

c. approval of facilities and equipment;

d. qualification of persons;

e. use of specific methods and procedures for implementation and monitoring the processes;

f. requirements for documented information to be retained.

Special processes are controlled by MP documents. Additional records for NADCAP certified processes are recorded on process-specific work instructions (see for example Paint Supplemental Tracking Sheet Instructions – IP-0038).

Korry Special Processes	
Process	Validation Method
Laser Welding	MP237
Welding	MP151
J-STD Soldering	Korry Workmanship Standard (KWS) 03 (KWS03)
ESD Handling	Korry Document 50274 (ESD Handling Procedure)
Painting	MP287 KWS09-1: Cosmetic Inspection of Paint Class 1 KWS09-2: Cosmetic Inspection of Paint Class 2 KWS09-3: Cosmetic Inspection of Paint Class 3

Supporting documentation:

50322 Development of Special Processes

8.5.1.3 **Production Process Verification**

Korry implements production process verification activities to ensure the production process is able to produce products that meet requirements.

Korry uses a representative item from the first production run of a new part or assembly to verify that the production processes, production documentation, and tooling are able to produce parts and assemblies that meet requirements. This activity shall be repeated when changes occur that invalidate the original results (e.g., engineering changes, production process changes, tooling changes).

The documented information on the results of production process verification is maintained.

The First article Inspection, compliant to AS9102, is performed in accordance with FAI Procedure - D51758

A Process failure Mode and Effect Analysis is performed for all new process and major changes to existing processes in order to identify and mitigate risks. Where appropriate, the outcome of risk assessment is documented in control plans.

8.5.2 **Identification and Traceability**

Korry uses configuration management as a means by which identification and traceability are maintained.

8.5.2.1 **Identification**

Korry maintains the identification of the configuration of the product in order to identify any differences between the actual configuration and the specified configuration.

Reference the Standard Configuration Management Plan – D33924, to determine the as-designed configuration. See Evidence of Completed Steps – D49628-027, for how as-built configuration is documented.

The identification of inspection and test status of products is maintained throughout receiving, production, installation and servicing to ensure that only products having passed the required inspections and tests are released, used or installed.

The inspection and status of the product is identified using suitable means in order to clearly distinguish between conforming and nonconforming products.

The indication of inspection and test status is traceable to the authorized individuals responsible for the verification of the product.
These records form a segment of the Job Order packet for each product produced.

8.5.2.1.1 PMA Article Part Marking

PMA articles: Korry will mark all PMA articles permanently and legibly with the following:

- Korry's name, trademark, symbol, or other FAA approved identification.
- Part number.
- The letters ''FAA–PMA''. (include on separate tag if part too small to mark)

8.5.2.1.2 TSO Article Part Marking

TSO articles: Korry will mark all TSO articles permanently and legibly with the following:

- Korry's name, trademark, symbol, or other FAA approved identification
- Part number

- The TSO number and letter of designation (include on separate tag if part too small to mark)
- All markings specifically required by the applicable TSO
- The serial number or the date of manufacture of the article or both.

8.5.2.2 **Traceability**

The methods of product identification and serialization are established during the design stage, or as specified in the contract or regulatory requirements. Every assembly, sub-assembly and component is identified by a unique part number, which is maintained during all stages of production, delivery and installation.

Traceability is maintained by the use of serial and/or line numbers, batch number or date codes, in order to establish the configuration status of the delivered product, and the source of the material used to build the product.

Appropriate records are retained in accordance in order to document the traceability of the delivered products. Modifications to the product subsequent to the original delivery are documented when incorporated by Korry and the configuration records are updated accordingly.

Korry shall control the unique identification of the outputs when traceability is a requirement, and shall retain the documented information necessary to enable traceability.

NOTE: Traceability requirements can include:

1 the identification to be maintained throughout the product life;

2 the ability to trace all products manufactured from the same batch of raw material, or from the same manufacturing batch, to the destination (e.g., delivery, scrap);

3 for an assembly, the ability to trace its components to the assembly and then to the next higher assembly;

4 for a product, a sequential record of its production (manufacture, assembly, inspection/verification) to be retrievable.

All parts are issued with a lot number. Lot numbers are stored with incoming receipts. First In/First Out (FIFO) is adhered to for all parts except where noted.

Work instructions Job_Order_Process – PLAN140, and Serialization_for_Job_Orders – PLAN080 document how Planning managed traceability. The work instruction series SR-XXX documents how Stores manages traceability.

8.5.3 **Property Belonging to Customers or External Providers**

Korry exercise care with property belonging to customers or external providers while it is under its control or being used by the organization.

Customers' or external providers' property provided for use or incorporation into the products and services is identified, verified, protected, and safeguarded.

When the property of a customer or external provider is lost, damaged, or otherwise found to be unsuitable for use, Korry has provisions in place to report this to the customer or external provider and retain documented information on what has occurred.

Supporting documentation:
49628-037 Customer/Government Property

8.5.4 **Preservation**

Korry preserves the outputs during production and service provision, to the extent necessary to ensure conformity to requirements. Preservation includes identification, handling, contamination control, packaging, storage, transmission or transportation, and protection.

Preservation of outputs includes, when applicable in accordance with specifications and applicable statutory and regulatory requirements, provisions for:

a. cleaning; Cleaning applies to fabricated components to remove burrs, fines and oils, and to circuit card assemblies after flux and solder operations. This process is controlled by the applicable MP.

b. prevention, detection, and removal of foreign objects; Foreign Object Debris (FOD) Prevention is defined in Korry document D49926.Which details the prevention, detection and the removal of foreign objects which all employees are trained to.

c. special handling and storage for sensitive products; Korry created and maintains specific processes for the handling of sensitive products, such as the ESD Handling Procedure defined in Korry document D50274.

d. marking and labeling, including safety warnings and cautions; Marking and labeling is conducted per drawing notes and MPs.

e. shelf life control and stock rotation;

Shelf life material is assigned to the shelf life location. The expiration date of the material shall be clearly visible on the container either on the label or on the container itself. The Supervisor/Manager of each area where shelf life materials are used in the production, servicing, rework of a Korry product, assigns an employee under their supervision to function as a Shelf Life Monitor who is responsible for:

- monitoring shelf life material expiration dates in their assigned areas.
- materials are stored in a manner to ensure the oldest stock on hand is used first (i.e., first in/first out).

Supervisors shall ensure that all expired shelf life materials are immediately turned in to MRB along with a listing of the materials.

Production Operators responsible for:

- verifying that any shelf life material they are using has not exceeded shelf life.
- shelf life materials transferred from their original containers into applicators such as syringes shall remain at the point of use and shall be used within the manufacturer's prescribed time frame and shall be discarded within the work shift.
- turning in unused materials transferred into applicators to the shelf life monitor at the end of their work shift.

Reference Shelf life Control Policy and Procedures – SR-008.

f. special handling and storage for hazardous materials. Hazardous chemical are handled per Korry's safety polices Chemical Hazard Communication Plan and Fire Prevention Plan. Korry also follows Federal and Washington State law requirements.

Korry ensures that documents required by the contract/order to accompany the product, are present at delivery and are protected against loss and deterioration.

Material Manager ensures that:

- Inventory is maintained and controlled for use in production.
- Parts are received from outside vendors, internal production, and inspection requiring special handling are identified and stored according to the special handling requirements in the Product Master file.
- All parts are cycle counted according to their ABC classification.
- Parts are issued upon receipt of required documentation.
- All parts are issued with a lot number. Lot numbers are stored with incoming receipts. First In/First Out (FIFO) is adhered to for all parts except where noted.
- Final product is shipped according to specifications.

Where applicable, special preservation methods are used to protect material during storage.

Packaging methods are documented to ensure the protection of the product for delivery and transportation. These documents shall include specified packing, preservation and marking (including materials used) in accordance with contractual requirements.

Delivery methods and carriers are selected to ensure damage free shipments and on-time delivery per contract specifications.

8.5.5 **Post- Delivery Activities**

The Product Support department provides post- delivery activities considering:

a) statutory and regulatory requirements. (Reference Repair Station Manual – D49887 for compliance with FAA requirements, and Product Support Reference Manual – PSO001 for compliance with import/export and technical data transfer requirements).

b) potential undesired consequences associated with the products and services. Deficiencies are noted in the FRACAS system and addressed appropriately.

c) The nature, use and intended lifetime of its products and services. Actual and Predicated failure rate data is recorded and deficiencies addressed through the FRACAS system.

d) customer requirements. Customer requirements are determined by Product Support Agreements,Returned Material Requests and Customer Purchase Orders.

e) customer feedback. Customer feedback is captured in the FRACAS system.

f) collection and analysis of in-service data (e.g., performance, reliability, lessons learned); Data and analysis is addressed in the FRACAS system.

g) control, updating, and provision of technical documentation relating to product use, maintenance, repair, and overhaul; Documented Information is managed by Sustaining Engineering.

h) controls required for work undertaken external to the organization (e.g., off-site work); External work undertakings are controlled by the Contract Maintenance Provider List.

i) product/customer support (e.g., queries, training, warranties, maintenance, replacement parts, resources, obsolescence).

j) Product Support activity includes a review to assist the design approval holder of PMA and TSO certified articles if any changes are necessary to the Instructions for Continued Airworthiness.

When problems are detected after delivery, the organization shall take appropriate action including investigation and reporting.

NOTE: Post-delivery activities can include actions under warranty provisions, contractual obligations such as maintenance services, and supplementary services such as recycling or final disposal.

Return Merchandise Authorization (RMA): A customer may request an RMA before returning product or an RMA will be generated upon receipt of returned product.

Customer Communication: The Customer Returns Administrator follows section 7.2.

Teardown: Product is issued for Teardown and analyzed for warranty. If the product qualifies for warranty it is repaired, inspected, and returned to the customer. If the product does not qualify, a repair quote is sent.

Failure analysis: A failure analysis is performed when requested by the customer or at the discretion of the quality engineer (QE).

FAA Repair Station: All Federal Aviation Administration (FAA) Parts Manufacturer Approval (PMA) FAA-PMA or Technical Standard Order (TSO) products are processed per FAA requirements as defined in the Repair Station Manual D49887 or the European Aviation Safety Agency (EASA) Supplemental Reference D49901, and Operation Specifications as applicable.

Customer Returns Database: The results of each return are entered into the Customer Returns database.

A corrective action is issued for each warranty issue per the Corrective Action Procedure D49631.

Supporting and Relating Documentation:

D49887	Repair Station Manual
D49901	EASA Supplemental
D49817	Training Program
D49631	Corrective Action Procedure

8.5.6 **Control of Changes**

Production or service provision changes are controlled, documented and approved by the authorized person and when applicable by the regulatory authority or the customer.

Results of these changes are assessed to confirm that the desired effect has been achieved without adverse effect on product conformity.

Changes to Manufacturing Processes (MP) and Assembly Inspection Records (AIR), Routings affecting processes are controlled per the configuration management process (see 8.1.2)

Changes to Routings on released job orders for rework or change incorporation are documented in the Process Planner training manual instructions. The instructions define the required signatures for the specific type of change. Changes to item routings are controlled by ECO in the PLM. Records of changes are kept.

The results of changes to production processes are assessed to confirm that the desired effect has been achieved without adverse effects to product conformity.

Manufacturing Engineering can use the design validation and verification methods and shall follow AS9102 FAI requirements when making changes to processes. Testing requirements for processes are detailed in the specific Manufacturing Process (MP) to assure changes do not have an adverse effect on product or quality compliance requirements.

Design changes can result in a change to existing documentation or the generation of new documentation. Design change documentation is reviewed, approved, controlled, recorded and issued in accordance with established configuration management procedures by the same functions involved in the original issue. Controlled documents, which include drawings, test procedures, engineering change orders (ECOs), etc., are reviewed and approved prior to their initial release or revision.

Changes to controlled documents are approved by the same authorized functions/organizations that reviewed and approved the original document, unless specifically authorized otherwise by those functions/organizations, in accordance with the configuration management process (see 8.1.2).

The change control process provides for customer and/or regulatory authority approval of changes, when required by contract or regulatory requirement.

Korry retains documented information describing the results of the review of changes, the person authorizing the change, and necessary actions from the review.

Change Notification:

Change notification for this Quality Manual and for key Quality Procedures is per the following cases.

1. FAA – obtain acknowledgement prior to approving changes to documents listed on PO700001-Addendum
2. Key customers – notify of Quality Manual changes as specified by contract.

8.6 **Release of Products and Services**

Korry implements planned arrangements, at appropriate stages, to verify that the product and service requirements have been met.

The release of products and services to the customer shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, as applicable, by the customer.

Korry retains documented information on the release of products and services. The documented information includes:

a. evidence of conformity with the acceptance criteria;

b. traceability to the person(s) authorizing the release.

When required to demonstrate product qualification, Korry ensures that retained documented information provides evidence that the products and services meet the defined requirements.

Korry ensures that all documented information required to accompany the products and services are present at delivery. This information is recorded and retained as part of the Job Order packet.

Product is released by a Shipper/Certificate of Conformance. These documents are generated per the Standard Steps for Shipping SH-002, and records are maintained per D49628-040.

Special provisions are made for articles requiring Source Inspection (which may be conducted by a customer representative, a third party or delegated to Korry inspectors).

8.6.1 **Special Release Provisions for PMA and TSO approved articles**

8.6.1.1 **Special Qualifications for Inspectors Certified to Prepare and Sign FAA Form 8130-3**

This procedure establishes under 14 CFR 21.137(o) how personnel at Korry Electronics Co. are qualified to issue 8130-3 tags.

Inspectors empowered to prepare and approve 8130-3 tags are given the title of Flightworthiness Inspectors.

The subsections below detail how Korry Electronics Co. evaluates the individual's qualifications. The evaluation includes an assessment of their knowledge, background, experience, and training. Qualification as a Flightworthiness Inspector is commensurate with the complexity and type of article.

8.6.1.1.1 Selection

Inspectors currently certified by the FAA as DMIRs are automatically granted the title Flightworthiness Inspector per the Korry QMS.

Other inspectors may be selected for Flightworthiness Inspector if they meet the following requirements:

- More than one year of experience performing final and first article inspections.
- Recommended for selection by an existing Flightworthiness Inspector.

8.6.1.1.2 Appointment

Flightworthiness Inspectors are appointed by the Quality Director via the following steps:

- Complete selection and training requirements.
- Complete an interview with the Quality Director.
- The Quality Director designates each Flightworthiness Inspector with a letter of appointment.

8.6.1.1.3 Training

Prospective Flightworthiness Inspectors must complete the following training steps:

- Complete and pass the FAA online training course: Issuance of 8130-3 for Domestic and Export Approvals of Engines, Propellers, & Articles Only.
- Prepare 20 separate 8130-3 tags under the supervision of an approved Flightworthiness Inspector.

Approved Flightworthiness Inspectors must complete the following recurrent training every 36 calendar months beginning from the date of completion of their last initial/recurrent training:

- Complete and pass the FAA online training course: Issuance of 8130-3 for Domestic and Export Approvals of Engines, Propellers, & Articles Only.

8.6.1.1.4 Management

The Quality Director monitors performance of approved flightworthiness inspectors on a continuous basis. The specific inspection assignments and assurance of adequate time for each inspection are the responsibility of the Quality Director. Day-to-day operations are typically delegated to an experienced inspector in the work cell designated as the "Lead". The Lead Inspector keeps the Quality Director apprised of any issues that may develop which impact inspector performance or indicate discipline issues are developing.

8.6.1.1.5 Removal

Quality Director reviews the approved Flightworthiness Inspectors on an annual basis and determines if each individual continues to meet all requirements and if their special status continues to meet the needs of the company.

If activity rates are low and sufficient back-up inspectors are available the Quality Director will prune the list of approved Flightworthiness Inspectors. Inspectors removed from the approved list for reason of low activity can be immediately reinstated if company needs change and they still meet the training requirements. If the interval of removal is greater than one year they must first complete the training requirements required for Approved Flightworthiness Inspectors.

The Quality Director will review on an ongoing basis inspection effectiveness and employee discipline and will remove the approval status from any Flightworthiness Inspector if problems arise. Inspectors whose approval is removed for performance reasons will not be reinstated unless they first complete a formal Performance Improvement Plan (Human Resources process).

8.6.1.2 **Procedures and Requirements to Prepare and Sign 8130-3 Tags**

8130-3 tags are prepared and authorized under the requirements of 14 CFR 21.137(o) and pursuant to 14 CFR 43.3(j), and may only be performed at the Korry Electronics Company address of 11910 Beverly Park Road, Everett, Washington, 98204.

The Flightworthiness Inspector shall complete the FAA form 8130-3 tags per chapters 1, 2, and 4 of FAA Order 8130.21 (Procedures for Completion and Use of the Authorized Release Certificate, Airworthiness Approval Tag). The FAA AC-21-43A appendix E provides additional guidance on issuing authorized release documents for articles.

When the 8130-3 tag is prepared for export purposes, the Flightworthiness Inspector shall ensure compliance with the applicable bilateral agreement. In addition, per 14 CFR 21.137(o), the Flightworthiness Inspector will verify compliance of the following:

- Rules for new and used articles as specified in 14 CFR 21.331
- Responsibilities for exporters as specified in 14 CFR 21.335.
- Compliance with guidance in FAA AC 21-2 (Complying with the Requirements for Importing Countries or Jurisdictions When Exporting U.S. Products, Articles, or Parts).
- Compliance with guidance in FAA AC 21-44 (Issuing of Export Airworthiness Approvals under 14 CFR part 21 subpart L).

8.7 **Control of Nonconforming Outputs**

8.7.1 **Control of Nonconforming Outputs to prevent unintended delivery**

Korry ensures that outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery.

NOTE: The term “nonconforming outputs” includes nonconforming product or service generated internally, received from an external provider, or identified by a customer.

Korry takes appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services. This shall also apply to nonconforming products and services detected after delivery of products, during or after the provision of services.

Korry’s nonconformity control process is maintained as documented information and includes provisions for:

- defining the responsibility and authority for the review and disposition of nonconforming outputs and the process for approving persons making these decisions;
- taking actions necessary to contain the effect of the nonconformity on other processes, products, or services;
- timely reporting of nonconformities affecting delivered products and services to the customer and to relevant interested parties. These are termed ‘escapes’;
- defining corrective actions for nonconforming outputs detected after delivery as appropriate to their impacts (see 10.2).

NOTE: Interested parties requiring notification of nonconforming products and services can include external providers, internal organizations, customers, distributors, and regulatory authorities.

Korry shall deal with nonconforming outputs in one or more of the following ways:

a. correction;

b. segregation, containment, return, or suspension of provision of products and services;

c. informing the customer;

d. obtaining authorization for acceptance under concession by a relevant authority and, when applicable, by the customer.

Dispositions of use-as-is or repair for the acceptance of nonconforming products shall only be implemented:

- after approval by an authorized representative of Korry responsible for design or by persons having delegated authority from the design organization;
- after authorization by the customer, if the nonconformity results in a departure from the contract requirements.

Product dispositioned for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.

Counterfeit, or suspect counterfeit, parts shall be controlled to prevent reentry into the supply chain.

Conformity to the requirements shall be verified when nonconforming outputs are corrected.This process is documented in the Nonconforming Material Procedure – D49629. Records are maintained in a database and materials positively controlled in an MRB area administered per NC010.

8.7.2 **Documented Information pertaining to nonconformance**

a. The nonconformity is recorded in the nonconformance database per D49620

b. The actions for containment, disposition and correction are recorded in the database.

c. Concessions obtained are recorded in the based when applicable.

d. The authority for deciding the action in respect of the conformity is per D49620. Administrative details are addressed in NC010.

8.7.3 **Reporting of Escapes**

Escapes are defined as any scenario where nonconforming material is inadvertently released to a customer. Scenarios defined as escapes include

- Defects not detected by inspection or test
- Latent reliability problems discovered after product shipped
- Designs that are determined to not meet requirements

Customers typically expect near-immediate reporting of escapes (most set a limit of 24 hours). See D49629 for specific instructions.

8.7.3.1 **FAA requirement to report failures, malfunctions and defects**

In accordance with 14 CFR 21.3:

a. The holder of a PMA or a TSO authorization must report any failure, malfunction, or defect in any product or article manufactured by it that it determines has caused anything listed in paragraph (c) of this section.

b. The holder a PMA or a TSO authorization must report any defect in any product or article manufactured by it that has left its quality system and that it determines could cause anything listed in paragraph (c) of this section.

c. The following occurrences must be reported to the FAA:

(1) Fires caused by a system or equipment failure, malfunction, or defect.

(2) The accumulation or circulation of toxic or noxious gases in the crew compartment or passenger cabin.

(3) Any abnormal vibration or buffeting caused by a structural or system malfunction, defect, or failure.

(4) Any structural or flight control system malfunction, defect, or failure which causes an interference with normal control of the aircraft or which derogates the flying qualities.

(5) A complete loss of more than one electrical power generating system or hydraulic power system during a given operation of the aircraft.

(6) A failure or malfunction of more than one attitude, airspeed, or altitude instrument during a given operation of the aircraft.

d. The requirements of paragraph (a) of this section do not apply to--

(1) Failures, malfunctions, or defects that the holder of a PMA, TSO authorization determines--

(i) Were caused by improper maintenance or use;

(ii) Were already reported to the FAA or the NTSB

e. Each report required by this section--

(1) Must be made to the Seattle Aircraft Certification Office within 24 hours or next business day after it has determined that a paragraph c. event has occurred.

(2) Must be transmitted in a manner and form acceptable to the FAA and by the most expeditious method available; and

(3) Must include as much of the following information as is available and applicable:

(i) Aircraft serial number.

(ii) If associated with an article approved under a TSO authorization, the article serial number and model designation.

f. If an accident investigation or service difficulty report shows that a product or article manufactured under this part is unsafe because of a manufacturing or design data defect, Korry will, report to the FAA the results of its investigation and any action taken or proposed Korry to correct that defect. If action is required to correct the defect in an existing article, Korry must send the data necessary for issuing an appropriate airworthiness directive to the Seattle aircraft certification office.

9. PERFORMANCE EVALUATION

9.1 **Monitoring, Measurement, Analysis, and Evaluation**

9.1.1 **General**

Korry shall determine:

a. what needs to be monitored and measured;

b. the methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results;

Korry product quality plans are used, when necessary, for planning and defining the necessary monitoring and measurement techniques, including statistical techniques (reference sections 8.1, quality plan, statistical techniques and determining process capability). Implementation occurs according to the defined plans, the resulting data is analyzed and improvements are pursued (reference sections 9.1.3).

c. when the monitoring and measuring shall be performed;

At all times production travelers are established and they document all the required steps including test and inspection. The records of all inspection and test steps are maintained in a database. Process trends are analyzed, when applicable, at failure review CAB meetings.

The processes are monitored in order to ensure their continuing ability to achieve the planned results. Conformity is also monitored toward the legal requirements and other requirements applicable to the company.

d. when the results from monitoring and measurement shall be analyzed and evaluated.

.

If the planned results are not achieved, correction and corrective action are taken.

In the event of process nonconformity, appropriate actions are taken to correct the nonconforming process, evaluate whether the process nonconformity has resulted in product nonconformity, and determine if the process nonconformity is limited to a specific case or whether it could have affected other processes or products. If product nonconformity has resulted this product is identified.

Korry establishes the monitoring and measurement process to be applied to the realization processes necessary to achieve customer requirements such as Internal Quality Audit (see section 9.2) and Statistical Techniques (see section 9.1.3).

Korry retains appropriate documented information as evidence of the results.

9.1.2 **Customer Satisfaction**

The success in meeting customer's requirements and in achieving a high level of customer satisfaction with the Korry's products and services is evaluated on a regular basis, at least annually. This is done using, but is not limited to, on-time delivery performance, warranty analysis, in-service performance monitoring, customer complaint analysis, annual customer satisfaction surveys, and other appropriate means.

Korry has developed and implemented plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.

An efficient method of handling customer inquiries is established to provide a rapid response to Korry's customers who have an urgent need for assistance or a complaint, which would adversely affect customer satisfaction.

The customer satisfaction results are summarized for discussion at monthly Quality Management System Review (QMSR) meetings.

9.1.3 **Analysis and Evaluation**

Korry analyzes and evaluates appropriate data and information arising from monitoring and measurement.

NOTE: Appropriate data can include information on product and service problems reported by external sources (e.g., government/industry alerts, advisories).

The results of analysis is used to evaluate:

a. conformity of products and services;

b. the degree of customer satisfaction;

c. the performance and effectiveness of the quality management system;

d. if planning has been implemented effectively;

e. the effectiveness of actions taken to address risks and opportunities;

f. the performance of external providers;

g. the need for improvements to the quality management system.

NOTE: Methods to analyze data can include statistical techniques.

Analysis and evaluation is done as part of the Policy Deployment Review Process.

9.2 **Internal Audit**

9.2.1 **Internal audits are conducted at planned intervals to provide information on whether the QMS:**

a. conforms to:

1. the organization's own requirements for its quality management system; These include customer and applicable statutory and regulatory quality management system requirements.
2. the requirements of AS9100 standard;

b. is effectively implemented and maintained.

NOTE: When conducting internal audits, performance indicators can be evaluated to determine whether the quality management system is effectively implemented and maintained.

9.2.2 **Korry shall:**

a. plan, establish, implement, and maintain an audit program(s) including the frequency, methods, responsibilities, planning requirements, and reporting, which shall take into consideration the importance of the processes concerned, changes affecting the organization, and the results of previous audits;

b. define the audit criteria and scope for each audit;

c. select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;

d. ensure that the results of the audits are reported to relevant management;

e. take appropriate correction and corrective actions without undue delay;

f. retain documented information as evidence of the implementation of the audit program and the audit results.

NOTE: See ISO 19011 for guidance.

The internal audits assess compliance with processes and related procedures, approach and deployment, identify any non-conformances, opportunities for improvements, and initiate preventive and corrective action where required. The internal audit process is reviewed as required to ensure that it is effective and that all contractual and regulatory requirements are met.

The internal audits are conducted according to an established schedule. An audit plan is maintained to ensure that all aspects of the Quality Management System are properly addressed and to define the audit criteria and scope. The frequency and scope of the audits take into consideration the significance of the process and results of previous audits. The process is documented into procedure D49682 Audits.

The auditors are selected to ensure objectivity and impartiality of the audit process. This is achieved by selecting a team of auditors from cross-functional departments who have received the appropriate training in the auditing process.

The audit is conducted according to a documented Internal Audit procedure and to ensure that timely corrective actions are implemented to correct any deficiencies found. The results of the audits are recorded and distributed to the personnel having responsibility in the area audited and management. Audit results become part of the quality records

The results of the internal quality audits are reviewed during monthly QMSR meetings.

The tools and techniques used are detailed in D49682 Audits procedure.

The Management responsible for the area being audited ensures that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes. Follow-up activities shall include the verification of the actions taken and the reporting of verification results.

9.3 **Management Review**

9.3.1 **General**

Korry Senior Leader Management reviews the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy, effectiveness, and alignment with the strategic direction of the organization. Management Reviews are held on a monthly basis.

9.3.2 **Management Review Inputs**

The management review is planned and carried out taking into consideration:

a. the status of actions from previous management reviews;
b. changes in external and internal issues that are relevant to the quality management system;

c. information on the performance and effectiveness of the quality management system, including trends in:

1. customer satisfaction and feedback from relevant interested parties;

2. the extent to which quality objectives have been met;

3. process performance and conformity of products and services;
4. nonconformities and corrective actions;
5. monitoring and measurement results;
6. audit results;
7. the performance of external providers;
8. on-time delivery performance;

d. the adequacy of resources;

e. the effectiveness of actions taken to address risks and opportunities (see 6.1);

f. opportunities for improvement.

9.3.3 **Management Review Outputs**

The outputs of the management review include decisions and actions related to:

a. opportunities for improvement;
b. any need for changes to the quality management system;
c. resource needs;
d. risks identified.

Korry retains documented information as evidence of the results of management reviews.

The QMS review is conducted at least annually. Normally it occurs on a monthly basis and reviews the prior month's performance. This review is an internal management and while participation of senior management is desirable it is not mandatory.

The Policy Deployment Review occurs every six weeks. This is an Esterline corporate, segment and platform level review. Senior management participation is mandatory.

10. IMPROVEMENT

10.1 **General**

Korry determines and select opportunities for improvement and implement any necessary actions to meet customer requirements and enhance customer satisfaction.

These includes:

a. improving products and services to meet requirements as well as to address future needs and expectations;

b. correcting, preventing, or reducing undesired effects;

c. improving the performance and effectiveness of the quality management system.

NOTE: Examples of improvement can include correction, corrective action, continual improvement, breakthrough change, innovation, and re-organization.

Korry is committed to continuous improvement. Lean is deployed following the Esterline Operating System. At Korry continuous improvement is:

- A part of the quality policy
- Reflected in the quality objectives
- A part of the actions taken upon audit results
- Driven by opportunities surfacing from data analysis
- A result of corrective action when the action taken corrects a new problem
- Reducing undesired effects
- A result of kaizen events
- A required output from management review
- Innovation
- Re-organization

Korry uses mainly the Lean and Lean/Six Sigma methodology for continuous improvements, to monitor the implementation of improvement activities and evaluate the effectiveness of the results. Lean is deployed following the Esterline Operating System.

10.2 **Nonconformity and Corrective Action**

10.2.1 **Korry shall:**

a. react to the nonconformity and, as applicable:

1. take action to control and correct it;
2. deal with the consequences;

b. evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:

1. by reviewing and analyzing the nonconformity
2. determining the causes of the nonconformity, including as applicable, those related to human factors
3. determining if similar nonconformities exist, or could potentially occur

c. implement any action needed;

d. review the effectiveness of any corrective action taken;

e. update risks and opportunities determined during planning, if necessary;

f. make changes to the quality management system, if necessary;

g. flow down corrective action requirements to an external provider when it is determined that the external provider is responsible for the nonconformity;

h. take specific actions when timely and effective corrective actions are not achieved.

Corrective actions are appropriate to the effects of the nonconformities encountered.

Korry maintains documented information that defines the nonconformity and corrective action management processes.

Records, clearly identifying the product, the nature and extent of nonconformance, the approved disposition and corrective action taken are maintained per the Corrective Action Procedure D49631

When required, non-conformities are flowed down to external providers and the need for corrective actions is determined based on the severity and the occurrence of the non-conformity.

Corrective action trends are reviewed at weekly CAB and regular QMSR meetings.

10.3 **Continual Improvement**

Korry continually improve the suitability, adequacy, effectiveness of its Quality Assurance Management System through the various processes described in previous sections such as, but not limited to; Quality Management System Review (QMSR), Policy Deployment Reviews (PD Reviews) , Lean Transformation (EEA reviews) , Corrective Actions, Kaizen Events .

Non-conformances are analyzed to determine the preventive actions needed, a review of the effectiveness is performed to avoid their occurrence. The analysis may include the review of the dispositions taken on nonconforming products, observations during internal and customer audits, trends in rejection reports and product returns, and customer complaints.

Lean Transformation is a main focus within the Esterline Enterprise. The lean transformation is a multi-phase endeavor that starts off very focused in a specific area and builds momentum as people are exposed to it. It will continuously evolve and improve as it becomes woven into the Esterline Culture.

The Eight Success Factors (figure 10) build the framework to ensure a successful transformation towards the next level of operational excellence

Figure 10 – CI's Eight Success Factors

Continuous Improvement (CI) – Continual elimination of waste and variation from all aspects of our business

To stay competitive, Esterline must be able to provide customers the highest quality and lowest cost product when the customer requires the product or service.

Lean process improvement (figure 11) emphasizes not only the prevention of waste but the elimination of existing waste.

Rather than adding processes, or trying to manage existing processes, you have to first reduce waste.

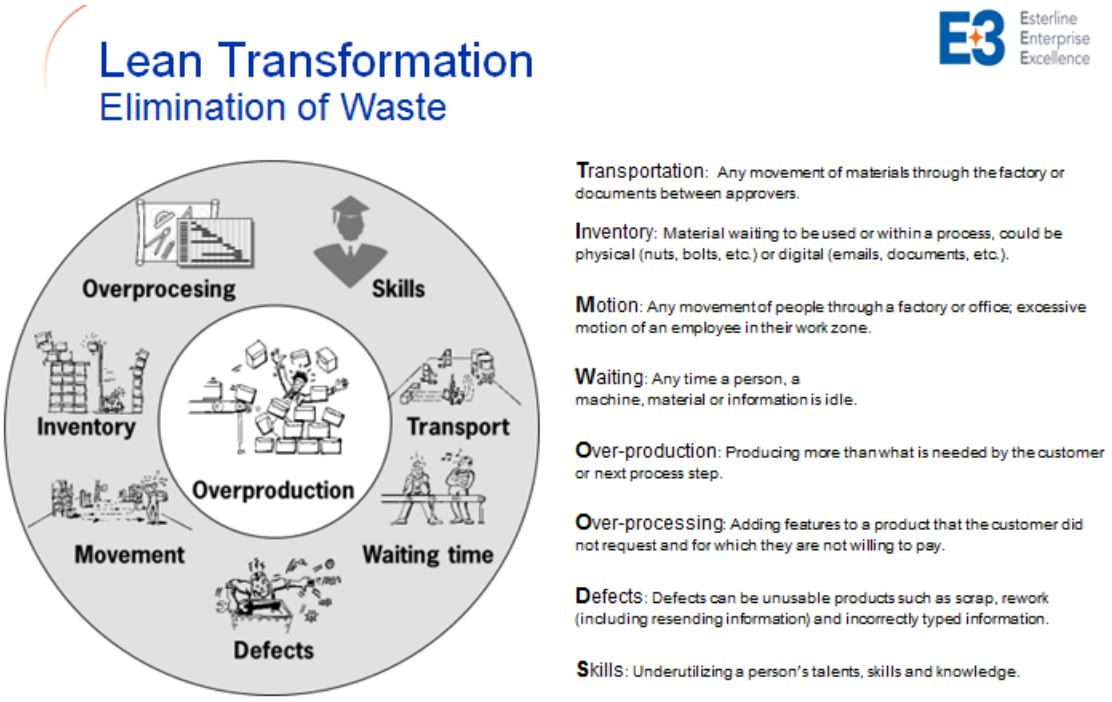

Figure 11 – Lean Transformation

By achieving a Lean Business Process Korry will improve the Quality of its products and services, eliminates wasteful activities that eat up time and resources but provide no value to the organization or the customer, reduce lead times, reduce total cost, factors that will help maintaining Korry competitive on the aerospace and defense market.

Korry considers the continual improvement as the drive to achieve the highest levels of customer satisfaction while achieving superior business results or Operational Excellence.

APPENDIX A – FAA Requirements Mapping

Figure 12 - Quality System Mapping from 14 CFR 21.137 to Korry Quality Manual, and Figure 13 – Quality System Mapping of PMA/TSO-specific information locate the specific language in this manual that defines the compliance schema with FAA requirements.

Requirement from 14 CFR §21.137 Quality System	**D46902 QM paragraph**	**Comment**	**Responsibility**
(a) *Design data control.*	7.5.3.3	7.5.3.3 has FAA-specific controls	Central Eng Manager
(b) *Document control.*	7.5.2.c		Quality Director
(c) *Supplier control.* Procedures that—	8.4		Supply Chain Manager
(1) supplier-provided product, article, or service conforms	8.4.1		Supply Chain Manager
(2) supplier-reporting process for products, articles, or services that have been found not to conform.	8.4.1.1		Supply Chain Manager
(d) *Manufacturing process control.*	8.5	Reference 8.5.1.a, c, i, k and 8.5.1.2 and 8.5.1.3	Operations Director
(e) *Inspecting and testing.* :	9.1.1		Quality Director
(1) A flight test of each aircraft produced	n/a	---	---
(2) A functional test of each aircraft engine and each propeller produced.	n/a	---	---
(f) *Inspection, measuring, and test equipment control.*	8.5.1.c, k		Quality Director
(g) *Inspection and test status.*	8.5.1.j		Quality Director
(h) *Nonconforming product and article control.*	8.7		Quality Director
(1) identification, documentation, evaluation, segregation, and disposition of nonconforming products and articles. Only authorized individuals may make disposition determinations.	8.7.1, 8.7.2		Quality Director
(2) ensure that discarded articles are rendered unusable.	8.7.1		EH&S Manager
(i) *Corrective and preventive actions.*	10.2	Reference D49631	Quality Director
(j) *Handling and storage.*	8.5.4	Reference D49926, D51757	Materials Manager

(k) *Control of quality records.*	7.5.3.1	Reference D49628	Quality Director
(l) *Internal audits.*	9.2	Reference D49682	Quality Director
(m) *In-service feedback.*	8.5.5		Product Support Manager
(1) Address any in-service problem involving design changes; and	8.5.5	Also 7.5.4 for design data change approval.	Product Support Manager
(2) Determine if any changes to the Instructions for Continued Airworthiness are necessary.	8.5.5.j		Product Support Manager
(n) *Quality escapes.*	8.7.1	Reference D49629	Quality Director
(o) *Issuing authorized release documents*	8.6.1	Includes process to certify inspectors to issue 8130-3 Airworthiness Approval Tags	Quality Director

Figure 12 - Quality System Mapping from 14 CFR 21.137 to Korry Quality Manual

21.305, 605 Organization	5	Reference PO700001-Organization	President
21.307, 607 Quality System	4.4		Quality Director
21.308, 608 Quality Manual	all		Quality Director
21. 309, 609 Location or manufacturing process change notification	8.5.6		Quality Director
21.310, 610 FAA access to Inspections, Tests and Records	8.4.3.1		Quality Director
21.316, 616 Responsibility of the holder	4.5		Quality Director
21.319, 619 Design changes	8.3.6		Engineering VP
21.320, 620 QMS changes	8.5.6		Quality Director
21.3 Reporting of failures…	8.3.7.1		Quality Director
45.15 PMA & TSO Article Part Marking	8.5.2.1		Quality Director

Figure 13 – Quality System Mapping of PMA/TSO-specific information