



communications

Electrodynamics, Inc.

QUALITY MANUAL

Doc. No. 6008725

Revision N

In Compliance with...

ISO 9001:2008 / AS9100C:2009

and

ISO 9001:2000 / AS9100B:2004

— & —

FEDERAL AVIATION ADMINISTRATION

14 CFR, Subpart K – Parts Manufacture Approval (PMA)

and

14 CFR, Subpart O – Technical Standard Order Authorization (TSOA)

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The information contained in this document does not contain "technology" as defined by the General Technology Note in Export Administration Regulations (EAR) Supplement number 2 to Part 744 and is, therefore, considered as publicly released as defined in Part 734.7(4).

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I. Record of Changes

REV.	DESCRIPTION OF CHANGE(S)	PAGE NUMBER	DATE
-	Original Release	All	4/16/01
A	Update to latest configuration and incorporate C/PAR comments from several audits per C.O. #18548.	All	7/23/01
B	Changes to QP-04 per C.O. #18666.	Pages 8, 9, & 10	12/14/01
C	Changes to QP-09 per C.O. #18784.	Page 21	4/11/02
D	Changes to QP-04, QP-05, QP-06, QP-07, QP-09, QP-15, QP-16, QP-20, and Appendix A due to company reorganization per C.O. #19017.	Page 1, 2, 3, 9, 13, 15, 18, 21, 34, 36, 41, 43	11/5/02
E	Complete reissue. Updated to comply with the requirements of ISO9001:2000/AS9100A per C.O. #19339.	All	4/29/03
F	Revised Table 1 to identify all QOPs & AS9100 paras. Updated Table 2 in concert with QOP responsibilities. Added Figure 1 & 3. Revised ISO/AS designation throughout per C.O. #19766.	Pages i, ii, 1 thru 9	1/19/04
G	Revised all references from AS9100:2001 to latest revision AS9100:2004 per C.O. #20665.	Pages i, ii, 1, 4, 5, 9	9/9/05
H	Revised reference to latest Network Path, added terms and definition paragraph, and revised 8.2.2.1 to latest ISO9001/AS9100 revision per C.O. #21560.	Pages "Approvals/ Distribution", ii, 1, 18	4/03/07
J	Revised Figure 5 and Table 2 to reflect latest organizational structure. Added BCP to section 6.0. C.O. #22521.	Pages 8, 9, & 11	7/01/08
K	Revised Figure 5, Table 2 and Approvals and Distribution List to reflect latest organizational structure; updated Table 1 and Figure 4 adding references to new QOPs; updated Table 2 Primary and Contributing Responsibility citations per C.O. #22751.	Pages "Approvals/ Distribution", 5, 6, 8 & 9	11/26/08
L	Revised From: ISO 9001:2000; To: ISO 9001:2008 throughout. Supplemented "regulatory" with "statutory and regulatory" throughout. Added reference to new QOP-03-09 in Table 1 & Fig. 4. 8.5.3 added "effectiveness". Ref. CO 24062.	Title page, ii, 1, 4, 5, 6, 13, 14-16, 18, 20, 21	07/22/10
M	Major changes throughout majority to comply with FAA & AS9100C requirements. Ref. CO #24239	All	11/16/10
N	Numerous non-technical changes. Ref. CO # 24867	1, 2, 3, 8, 13, 14, 18 - 23, 26, 30, 32 - 35, 37, 40 - 42, 44, 46, 50, 51, 54, 55, 64, 68, 69, 71, 73, 75	11/11/11

NOTE: This document is available on L-3 EDI's internet website. Any revisions to this document requires the Quality Manual document residing on our website to be updated.

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II. Approvals and Distribution

L-3 EDI Executive Leadership Team (ELT)	Signature	Date
President	<u>Signed Original on File</u> D. Spetter	11/11/11
Vice President Chief Financial Officer	<u>Signed Original on File</u> D. Parr	11/11/11
Vice President of CPG	<u>Signed Original on File</u> D. Quant	11/11/11
Vice President of Human Resources	<u>Signed Original on File</u> D. Dichter	11/11/11
Vice President of Quality Assurance (Management Representative)	<u>Signed Original on File</u> J. Jasinski	11/11/11
Vice President of Business Development	<u>Signed Original on File</u> J. Stillwell	11/11/11
Vice President of SPG	<u>Signed Original on File</u> G. Butler	11/11/11
Customer and Regulatory	Signature	Date
Authorized FAA Representative	See Appendix A	11/11/11

The latest revisions of L-3 Electrodynamics, Inc. controlled Quality Manual and referenced procedures and forms (collectively referred to as our QMS procedures) can be found at the location shown below. Copies regardless of whether in hard copy (e.g., print) or electronic media forms are uncontrolled.

L-3 EDI Network Location
\\Landers\Company\Released ISO Policies and Procedures

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IV. Introduction

L-3 Communications

Electrodynamics, Inc. (a.k.a. L-3 Communications ElectroDynamics, Inc.) is a wholly-owned subsidiary of L-3 Communications Holdings, Inc. (a.k.a. L-3 Communications Inc.) located in New York, New York. L-3 Communications is a prime contractor in Command, Control and Communications, Intelligence, Surveillance and Reconnaissance (C³ISR), Government Services, Aircraft Modernization and Maintenance (AM&M) and has the broadest base of Specialized Products in the industry. L-3 is also a major provider of homeland defense products and services for a variety of emerging markets. L-3 Communications customers include the U.S. Department of Defense (DoD) and its prime contractors, the U.S. Department of Homeland Security (DHS), U.S. Government intelligence agencies, major aerospace and defense contractors, allied foreign government ministries of defense, commercial customers and certain other U.S. federal, state and local government agencies. See L-3 Communications' contact information below.

L-3 Communications, Inc.	
600 Third Avenue	
New York, NY 10016-1902	
NYSE: LLL	
DUNS No.: 00-889-8884	
Tax ID: 13-3937436	
	Telephone: 212.697.1111
	Facsimile: 212.805.5477
	E-mail: www.L-3Com.com

L-3 Communications ElectroDynamics, Inc. (L-3 EDI)

L-3 Communications ElectroDynamics, Inc. (L-3 EDI) roots date back to the 1940's and Elgin Micronics, a division of Elgin National Watch Company of Elgin, Illinois, where we provided small, precision, high-reliability timing instruments and fuze products in support of the war effort of World War II to the U.S. Department of Defense (DoD) and other pioneering defense companies.



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Up through the 1950's and the 1960's, as a division of General Time, we continued to provide our then-state of the art timing products to the DoD, and to NASA in support of the early days of space exploration. In 1969, the same year in which General Time merged with Talley Industries, most notably L-3 EDI designed, developed, and manufactured the Central Timing Equipment (CTE) in support of the Apollo 8 mission.

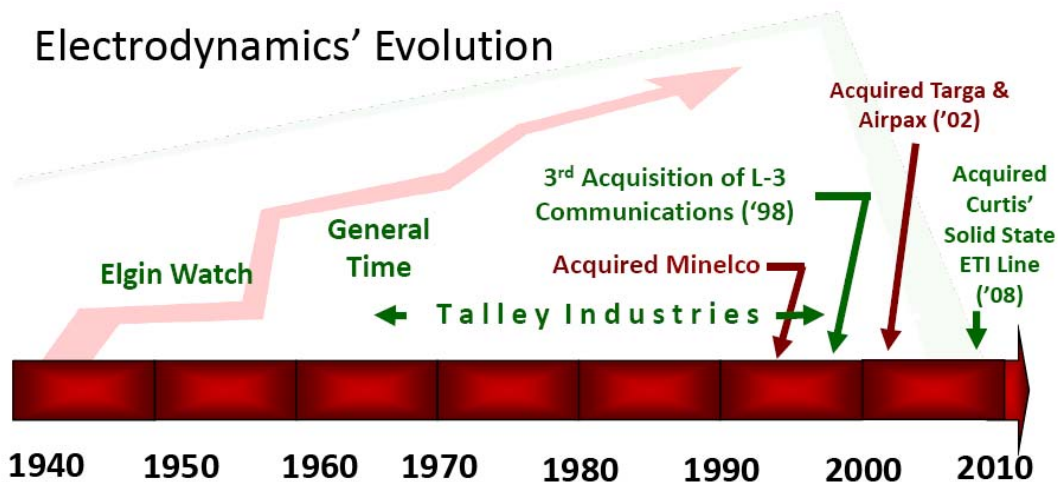
The evolution of L-3 EDI's fuzing products continued into the 1970's and through the early 1980's with the MK339 electromechanical Safe/Arm fuze. The MK339 was used in the MK20 bomb cluster that was launched from an aircraft and designed to initiate the linear-shaped charges in the bomb. The fuze had two selectable time delay settings that could be chosen during flight by the pilot.

In the late 1970's, L-3 EDI under FAA certificate No. 20 for contract DOT-FA78WA-4211 designed and manufactured Data Weather Mappers for the National Weather Service and the FAA.



During the 1980's and 1990's L-3 EDI evolved into other types of solid-state electronics time-based products - Missile Electronic Safe, Arm and Fire Devices (ESAF's/ESAD's); and Flight Data Recorders (FDR's) / Acquisition Signal Data Computer (ASDC).

In 1994, Minelco, Inc., (CAGE Code 07974), a fellow subsidiary of Talley Industries and a designer and manufacturer of fault indicator products (a.k.a. Built-In Test Equipment (BITE) Indicators) and LED indicators, was consolidated into L-3 EDI's Rolling Meadows operations from Thomaston, CT. In 1996, L-3 EDI acquired the fault indicator product line of the Airpax Division of North American Philips, Cheshire, CT (CAGE Code 82227) and followed up in 2002 with the acquisition of the Airpax (a subsidiary of VDO Control Systems) elapsed time indicator and event counter product lines.



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In December 1998, ElectroDynamics became the third acquisition of newly formed L-3 Communications, which has grown from the original 10 divisions and \$600M in revenue in 1998 to over 100 divisions and \$16B in revenue in 2009. L-3 Communications, much like L-3 EDI, continues its growth primarily through internal research and development, as well as, acquisitions. In 2002, L-3 EDI acquired Targa Systems, Ottawa, Canada, a manufacturer of data transfer systems and mass data storage systems, and more recently, in 2008, acquired Curtis Instruments, Mount Kisko, NY (Cage Code 18583) solid state ETI product line.

At our present site since 1964, L-3 EDI has been developing and manufacturing high-quality and high-reliability electronic systems and electromechanical and electromagnetic products and solutions for the military and commercial aviation, aerospace, and defense markets,. Still today, most of L-3 EDI's products are based on our legacy heritage – the element of time. Located in a company-owned 45,000 square-foot facility in Rolling Meadows, Illinois, (a northwest suburb of Chicago) the company has grown from a research center to a fully autonomous engineering and manufacturing operation that has been supplying primarily the aviation and defense markets with high-reliability products for over 60 years since our initial inception.

L-3 EDI is fully staffed to satisfy military and commercial aviation, aerospace, and defense requirements for hardware and software quality, reliability, maintainability, producibility, testability, survivability, system safety, human performance/engineering, integrated logistics support, configuration management, data management, and qualification/environmental testing.

L-3 EDI's systems group core capabilities include electronic system design include contract management, program management, systems engineering and integration, electronic circuit design and engineering, mechanical packaging, software engineering, quality assurance and reliability, and post-delivery service support.

L-3 EDI's components group core capabilities include electromagnetic and electromechanical design, custom design and test of NVIS and infrared secure light filters, mechanical packaging, quality assurance, and post-delivery support.

L-3 EDI current product lines include high-reliability:

- Missile Electronic Safe, Arm and Fire Devices (ESAF's/ESAD's), and
- Flight Data Recorders (FDR's) which go by many different names such as: Accident Data Recorders (ADR's), Cockpit Voice Recorder (CVR), Cockpit Voice Flight Data Recorder (CVFDR), Crash Survivable Memory Units (CSMU's), Digital Flight Data Recorder (DFDR), and colloquially known as "black boxes".
- Elapsed Time Indicators (ETI's),
- Fault / Built-In Test Equipment (BITE) Indicators,
- Event and Subtractive Counters, and
- LED's and Light Panels.

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These products can be readily customized by L-3 EDI as part of our value-added services offerings that we provide to meet our customer-specific applications and environmental survivability requirements.

L-3 EDI products can be found in the most demanding applications:

FDR's / CSMU's Air Vehicle Platforms – Now and The Future	
<ul style="list-style-type: none"> • Rockwell B1 Lancer Strategic Bomber 	<ul style="list-style-type: none"> • Enstrom 480B Helicopter
<ul style="list-style-type: none"> • U.S. Navy / Boeing T-45 Goshawk Naval Trainer 	<ul style="list-style-type: none"> • Lockheed Martin F-22 Raptor Stealth Air-Superiority Fighter
<ul style="list-style-type: none"> • SAAB JAS 39 Gripen & Gripen Next Generation (NG) Multi-Role Fighter 	<ul style="list-style-type: none"> • Lockheed Martin F-35 Lightning II Stealth Multi-Role Fighter
<ul style="list-style-type: none"> • Northrop Grumman Euro Hawk High-Altitude, Long-Endurance (HALE) Unmanned Air Vehicle (UAV) 	<ul style="list-style-type: none"> • Schweizer Manned Combat Surveillance Aircraft (MCSA)
<ul style="list-style-type: none"> • Business & General Aviation, e.g.: Dassault Falcon 7X, General Dynamics Gulfstream G500/G550 & G600 	<ul style="list-style-type: none"> • Northrop Grumman B-2 Spirit Stealth Bomber
ESAF / ESAD Platforms	
<ul style="list-style-type: none"> • FGM-148 Javelin Man-Portable Fire and Forget Anti-Tank Missile 	<ul style="list-style-type: none"> • Lockheed Martin AGM-114 Hellfire II Air-to-Surface and Surface-to-Surface Missile ¹
<ul style="list-style-type: none"> • Thales VT1 Surface-to-Air Short Range Air Defence System (SHORADS) Missile 	<ul style="list-style-type: none"> • BAE Mongoose Rocket-Deployed Explosive Minefield Breacher
Indicators, Meters, Counters, LEDs. Light Panels Platforms	
<ul style="list-style-type: none"> • Military Fixed Wing and Rotary Aircraft (A-10, AV-8, B-1 B-52, C-130, C-135, C-141, E-2C, F-14, F-15, F-16, F/A-18, F-11, AH-1W Super Cobra, AH-64 Apache, HH-53E, MH-53E, SH-60F Seahawk, UH-60 Blackhawk, V-22 Osprey) 	<ul style="list-style-type: none"> • Numerous Military Electronic Equipment (Enhanced Position Location Reporting System (EPLRS); Auxiliary Power Units (APUs); Countermeasures, incl. F-15 & IED (CREW); GFI Relays; Radio; Radar, SPIDER Munition Control Units)
<ul style="list-style-type: none"> • Military Ground Vehicles Commercial, and Missile Systems (Tomahawk, AMRAAM, Patriot) 	<ul style="list-style-type: none"> • Business and General Aviation Aircraft (Boeing 727, 737, 747, 767 & 777, Cessna Citation XL, Gulfstream G450 & G550, Hawker Beechcraft 900XP)
<ul style="list-style-type: none"> • Shipboard Applications (Ticonderoga, Nimitz, Los Angeles, Forrestal, Seawolf, Trident) 	<ul style="list-style-type: none"> • High-Reliability, Rugged Commercial / Industry Applications (Elevators, etc.)

¹ Four variants of the Hellfire II currently exist which are (1) the high-explosive anti-tank (HEAT) AGM-114K missile, which defeats all known and projected armored threats; (2) the AGM-114M blast fragmentation missile, which is effective against primary target sets such as boats, buildings, bunkers and light-armored vehicles; (3) the metal augmented charge missile AGM-114N, which defeats enclosures, caves and enemy personnel housed therein; and (4) the more recently introduced augmented HEAT warhead, AGM-114K-A, which adds blast fragmentation to the HEAT warhead's anti-tank capability.

Our customer base extends across the globe and consists of over two-thousand customers as listed in our modern Enterprise Resource Planning (ERP) system – it is literally a who’s who of the aviation, aerospace and defense premier contractors - and even includes direct sales to numerous agencies of the U.S. Government under approximately 4000 different National Stock Numbers (NSN’s). Below is a small representative sample of some of our major customers.

Major Customers		
• BAE	• Boeing	• DRS Technologies
• General Atomic	• General Electric	• ITT Corp.
• Hamilton Sundstrand	• Honeywell	• L-3 Communications
• Lockheed Martin	• Northrop Grumman	• Raytheon
• Rockwell Collins	• SAAB	• U.S. Government Agencies

Being in the aviation and defense market for as long as we have, we are no strangers to the stringent quality requirements and expectations of our customers that have evolved over time from: MIL-Q-9858, WS 6536 / MIL-STD-2000, MIL-STD-5510 / 50884, MIL-C-28809; to the current day: AS9100, J-STD-001, IPC 2220 / 6010 Series, IPC-A-600 / 610 Series, and regulatory governance facing our industry today - Berry Amendment, RoHS, REACH, Import/Export, Tin Whiskers Risk Mitigation, and Suspect Unapproved Parts / Counterfeit Parts Prevention.




Our product offerings are designed, manufactured, and processed to meet the most demanding and severe reliability, safety, and environmental requirements of our global aviation and defense customers, and, consequently, are either, qualified, designed, manufactured, inspected, or tested to the stringent standards and specifications.



To view a detailed listing of our many current product offerings, a listing of our domestic and international sales offices and distributors, or our current ISO9001/ AS9100 third party registration certificate, please visit our website at www.l-3com.com/edi. Alternatively, if you prefer, please contact our knowledgeable Inside Sales and Application Engineering associates, shown in the following table below, and they will be glad to assist you with one of our standard product offerings, or in the design and development of entirely new products or product variations as part of the value-added services we offer.

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L-3 ElectroDynamics, Inc. Pertinent Information	
ADDRESS	
Main Facility: 1200 Hicks Road, Rolling Meadows, IL 60008-1017 Annex Facility: 607 South Vermont Street, Palatine, IL 60067-6949	
CAGE Code: 10236 (Former Curtis Instrument Cage Code: 18583*) (Former Airpax/VDO Control System Cage Code: 82227) (Former Minelco CAGE Code: 07479) <i>* For Acquired Partial Solid State ETI Product Line Only.</i>	
DUNS No.: 01-200-3349	
State of Incorporation: AZ	
Date Organized: 1964	
Tax ID.: 133937436	
FAA Production Approval Holder: See Appendix A	
<i>ISO9001 / AS9100 Third Party Registered</i> International Aerospace Quality Group (IAQG) Online Aerospace Supplier Information System (OASIS) Identification No. (OIN): 6110689182 (Main Facility) 6129650908 (Annex Facility) See OASIS or L-3 EDI's website for our current ISO9001 / AS9100 Certificate of Registration from our Accredited Certification Body	
SIC Codes : 3483, 3625, 3728, 3812, 3825	
NAICs Codes : 332993, 334511, 334514, 334515, 335314, 336413	
NACE Codes : DK.29.60, DK.30.02, DK.31.50, DK.31.62, DK.33.20, DK.33.50	
ITAR Registered (Objective Evidence Available Upon Request)	
EPA Registry ID: 110001292379	
Contact Information	
	Telephone: 847.660.1750
	Facsimile: 847.660.1751
	E-mail: edi.info@L-3com.com

V. Scope

This quality manual and referenced procedures and forms document the QMS (QMS) of L-3 Communications Electrodynamics, Inc. (herein after referred to as L-3 EDI), a wholly owned subsidiary of L-3 Communications Holdings, Inc. (herein after referred to as L-3 Communications) located in New York, New York. L-3 EDI locations include our main facility, which primarily houses our design, manufacturing, and administration activities, and an annex facility, which primarily machines our fixtures and tooling and performs some minor manufacturing assembly operations.

L-3 EDI Facility	Location	Approx. Size (sq. ft)
Main Facility	1200 S. Hicks Road Rolling Meadows, IL 60008-1017	45,000
Annex Facility	607 S. Vermont Street Palatine, IL 60067-6949	5,600

L-3 EDI QMS (QMS) is designed to satisfy the needs and requirements of our customers, who are generally in the military or commercial aviation, aerospace, or defense markets, and to enhance their levels of satisfaction through the effective application of this QMS, including defining processes for continual improvement and the assurance of conformity to customer, and applicable statutory, regulatory, and other stakeholder (e.g., L-3 Communications, L-3 EDI Employees) requirements and needs.

If applicable, this manual would also provide details of and justification for any exclusion to an ISO9001:2008 / AS9100C:2009 Clause 7 requirement. Presently, L-3 EDI does not take any exclusion to these requirements.

As a means to satisfy the needs and requirements of our customers' and stakeholders, and statutory and regulatory requirements, L-3 EDI is committed to achieving high standards of governance, ethics, quality, reliability, and safety, and being environmentally respectful, and has established and documented our QMS to comply with:

- the requirements of the ISO 9001:2000, ISO 9001:2008, AS9100B:2004, and AS9100C:2009, and

NOTE

Sometimes AS9100 is denoted as AS/EN/JISQ 9100, whereas EN9100 is the European version of the American AS9100, and JISQ 9100 is the Japanese version of AS9100. All three documents of corresponding revision levels are technically equivalent. For simplicity, ISO 9001:2008 / AS9100C:2009 is used herein to mean ISO 9001:2000, ISO 9001:2008, AS9100B:2004, and AS9100C:2009.

- the Federal Aviation Administration (FAA) quality system requirements for those products manufactured under a Technical Standard Order Authorization (TSOA) in accordance with Title 14 Code of Federal Regulations (14 CFR) Part 21, Subpart O, (paragraphs 601 - 621 [14 CFR §§ 21.601 - 21.621]); and Parts Manufacturer Approval (PMA) in accordance with 14 CFR Part 21, Subpart K, paragraphs 301 -320 [14 CFR §§

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21.301 - 320], respectively, including the associated FAA companion requirement (i.e., Orders), and, as appropriate, guidance (i.e., Advisory Circulars – AC's) documents:

- For TSOA: [8120.2](#) (Production Approval and Certificate Management Procedures), 8150.1 (Technical Standard Order Program), AC 21-1 (Production Certificates), and AC 21-43 (Production Under 14 CFR Part 21, Subparts, F, G, K, and O)
- For PMA: Orders [8110.42](#) (Parts Manufacturer Approval Procedures), [8120.2](#) (Production Approval and Certificate Management Procedures), and

NOTE

Pursuant to AC21-42 (Transition Document for 14 CFR Parts 1, 21, 43, and 45), L-3 EDI's QMS shall be compliant to the FAA Docket FAA-2006-25877-0114 requirements in the Federal Register as supplemented by AC 21-43 (Production Under 14 CFR Part 21, Subparts F, G, K and O).. See the FAA Docket -2006-25877-0114 and AC21-42 regarding effectivity.

- specific customer-unique or market-driven requirements, such as, but not limited to:
 - lead-free tin whisker risk mitigation based on GEIA standards,
 - counterfeit parts risk mitigation based on SAE AS5553, and
 - Suspected Unapproved Parts (SUP) Program based on FAA Order [8420.16](#) (Processing Reports of Suspected Unapproved Parts) and AC 21-29 (Detecting and Reporting Suspected Unapproved Parts),
- the requirements and [policies](#) of one of our stakeholders, L-3 Communications, including, but not limited to:
 - L-3 Corporate Policy 601 Quality;
 - L-3 Corporate Policy 001 Ethics and Business Conduct and related policies;
 - L-3 Corporate Policy 307 Security and Information Asset Protection;
 - L-3 Corporate Policy 005 Environmental, Health and Safety;
 - L-3 Corporate Policy 310 Ergonomics;
 - L-3 Corporate Material Management policies, specifically including the QMS-related policies: 203 Inter-Division Transactions; 501 Procurement Card, 502 Reallocation of Excess Capital Assets, 503 Socioeconomic Subcontracting Programs, 504 Procurement Policy,
 - L-3 Corporate Legal 700-series policies, specifically including the QMS-related policies: 701 Compliance with the Anti-Kickback Act, 703 Hiring or Using Debarred or Suspended Individuals or Entities; 704 Personal Conflict of Interest; 706 International Consultants, Distributors, Representatives, Sub-Contractors, Joint Ventures & Other Covered Parties 707 Export/Import Compliance; 708 Compliance with U.S. Anti-boycott Law; 709 Compliance with the Foreign

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Corrupt Practices Act & Anti-Corruption Policy; 711 Copyright Compliance, and 712 Organizational Conflict of Interest; and

- L-3 Corporate Business Continuity policy and its associated Business Continuity Plan, which addresses emergency preparedness and disaster recovery,
- numerous federal and local statutory and regulatory requirements, and other stakeholder requirements, including, but not limited to:
 - European Community Directive 2002/95/EC Restriction of Hazardous Substances Directive (RoHS),
 - European Community Directive EC 1907/2006 Registration, Evaluation, Authorization and Restriction of Chemical (REACH),
 - European Community Directive 2002/96/EC Waste Electrical and Electronic Equipment (WEEE),
 - U.S. Environmental Protection Agency (EPA),
 - U.S. Occupational Safety and Health Administration (OSHA),
 - U.S. Toxic Substances Control Act (TSCA),
 - U.S. Clean Air Act,
 - U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF),
 - U.S. Arms Export Control Act (AECA),
 - U.S. International Traffic in Arms Regulations (ITAR), 22 CFR Chapter I, Subchapter M, Parts 120 – 130,
 - U.S. Export Administration Regulations (EAR),
 - U.S. Foreign Corrupt Practices Act (FCPA),
 - U.S. Small Business Administration (SBA) Socioeconomic Subcontracting,
 - U.S. Sarbanes Oxley Act (SOX) of 2002 (Public Law 107 – 204, 116 STAT. 745),
 - U.S. Fair Labor Standards Act (FLSA), and
 - U.S. Equal Employment Opportunity (EEO).

VI. Purpose

This Quality Manual serves several purposes, including, but not limited to:

- providing a definition and description of L-3 EDI's QMS,
- defining the authority and responsibility of those employees supporting our QMS,
- referencing procedures for all activities comprising our QMS,
- presenting our QMS to our customers, statutory and regulatory agencies, and stakeholders, and communicating with them regarding the specific controls, which L-3 EDI has implemented, to assure product and service conformity,
- presenting our quality system to our employees and suppliers so that they will better understand our company's expectations and requirements for product and service conformity, and
- providing a framework and focus for EDI's continual improvement and customer satisfaction efforts.

VII. Format and Application

This Quality Manual, a Tier 1 procedure of L-3 EDI's QMS, is divided into Sections I to XI, where the format of Section X - Policies corresponds directly to the requirement clauses 4 through 8, inclusive, of AS9100C:2009. This formatting is for convenience purposes only and does not diminish L-3 EDI's QMS from complying with all the governing documents cited in Section V – Scope.

Each section starts with a General Policy statement expressing the commitment to implement the basic principles of the quality system clause that is the subject of that section. The General Policy statement is followed by a section, Procedural Policies, which provides in greater detail how the General Policy is carried out.

L-3 EDI has also prepared procedures that describe the processes required to implement the QMS. The range and extent of these procedures is dependent upon such factors as:

- L-3 EDI's organizational or market environment, any changes in that environment, and the risks associated with that environment,
- L-3 EDI's varying needs and particular objectives,
- L-3 EDI's products that we provide,
- L-3 EDI's organizational size and structure,
- L-3 EDI's processes and methods employed, in particular their complexity, variability, and their interaction with other processes, and
- L-3 EDI's employees involved in performing the specific process, in particular their education, training, skills and experience.

These procedures include sections either that (a) describe the activities required to implement the QMS, or (b) describe the sequence and interactive nature of the processes necessary to ensure the conformity of the product including specific instructions related to the operating practice and control of process activities.

This Quality Manual supersedes any reference to a previous version of ISO 9001 or AS9100 in any sub-tier, Tier 2 or Tier 3 documents [i.e., Quality Operating Procedures (QOPs), Work Instructions (WIs), Forms, etc.] that have not yet been updated to reflect the latest version. As those documents are updated, reference to this Quality Manual will replace any reference to the aforementioned revisions of the ISO or SAE specification. Newly released documents shall simply refer to this Quality Manual.

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VIII. Normative References

The following documents are indispensable for the application of this Quality Manual. For references which cite a specific revision or date, only the edition cited shall apply. For references which do not cite a specific revision or date, the latest edition of the referenced document including any amendments, notices, supplements, etc. shall apply.

[Code of Federal Regulations](#)

Title 14, Chapter 1, Subchapter C - Aeronautics and Space, Federal Aviation Administration, Department Of Transportation - Aircraft

- Part 21 Certification Procedures for Products and Parts - Subpart A
General [§§ 21.1 – 9]
 - Subpart D Changes to Type Certificates [§§ 21.91 – 101]
 - Subpart G Production Certificates [§§ 21.131 – 165]
 - Subpart K Approval of Materials, Parts, Processes and Appliances [§§ 21.301 – 320]
 - Subpart L Export Airworthiness Approvals [§§ 21.321 – 339]
 - Subpart O Technical Standard Order Authorizations [§§ 21.601 – 621]

- Part 39 Airworthiness Directives

Title 22, Chapter 1 - Foreign Relations, Department of State

- Subchapter M International Traffic in Arms Regulations [§§ 120 – 130]

[Federal Aviation Administration](#)

Advisory Circulars

- AC 21-1 Production Certificates *Superseded by AC 21-43*
- AC 21-29 Detecting and Reporting Suspected Unapproved Parts
- AC 21-42 Transition Document for 14 CFR Parts 1, 21, 43, and 45
- AC 21-43 Production Under 14 CFR Part 21, Subparts, F, G, K, and O
(*Supersedes AC21-1, Best Practices Internal Quality Audit Plan and Scrap or Salvageable Aircraft Parts and Materials*)

- AC 20-109 Service Difficulty Program – General Aviation

[Best Practices](#)

- Internal Quality Audit Plan (*Superseded by AC 21-43*)
- Scrap or Salvageable Aircraft Parts and Materials (*Superseded by AC 21-43*)

Orders

- [Order 8010.2](#) Flight Standards Service Difficulty Program
- [Order 8020.11](#) Aircraft Accident And Incident Notification, Investigation, and Reporting
- [Order 8040.1](#) Airworthiness Directives (AD)
- [Order 8100.7](#) Aircraft Certification Systems Evaluation Program (ACSEP)
- [Order 8110.42](#) Parts Manufacturer Approval Procedures
- [Order 8110.50](#) Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents
- [Order 8110.100](#) Special Airworthiness Information Bulletin (SAIB)
- [Order 8120.2](#) Production Approval and Certificate Management Procedures
- [Order 8120.11](#) Disposition of Scrap or Salvageable Aircraft Parts and Materials
- [Order 8150.1](#) Technical Standard Order Program
- [Order 8420.16](#) Processing Reports of Suspected Unapproved Parts

[International Aerospace Quality Group \(IAQG\)](#)

[Supply Chain Management Handbook \(SCMH\)](#)

[SAE International](#)

- AS5553 Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- AS9017 Control of Aviation Critical Safety Items
- AS9100C:2009 QMS – Requirements for Aviation, Space and Defense Organizations (a.k.a. AS/EN/JISQ 9100C)
- AS9100B:2004 QMS – Requirements for Aviation, Space and Defense Organizations (a.k.a. AS/EN/JISQ 9100B)
- AS9102 Aerospace First Article Inspection Requirement (AS/EN/JISQ 9102)
- AS9103 Variation Management of Key Characteristics (AS/EN/JISQ 9103)
- ARP9114 Direct Ship Guidance for Aerospace Companies

[International Organization for Standardization](#)

- [ISO/TC176/SC2/N544](#) Concept and Use of the Process Approach for Management Systems
- ISO/TR 10013 Guidelines for QMS Documentation
- ISO 8402:1994 Quality Management and Quality Assurance – Vocabulary
- ISO 9000 QMS – Fundamentals and Vocabulary

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- ISO 9004 Managing for the Sustained Success of an Organization - A Quality Management Approach
- ISO 10005 Quality Management – Guidelines for Quality Plans
- ISO 10007 QMS - Guidelines for Configuration Management
- [ISO 9001:2008](#) QMS – Requirements
- ISO 9001:2000 QMS – Requirements
- ISO 19011 Guidelines for Quality and/or Environmental Management Systems Auditing

L-3 Corporate (Note the following listing is not intended to be all inclusive.)

- [MQOP-001](#) Counterfeit Part Risk Mitigation
- Policy 601 Quality
- Policy 001 Ethics and Business Conduct
- Policy 307 Security and Information Asset Protection;
- Policy 005 Environmental, Health and Safety
- Policy 310 Ergonomics
- Policy 203 Inter-Division Transactions
- Policy 501 Procurement Card
- Policy 502 Reallocation of Excess Capital Assets
- Policy 503 Socioeconomic Subcontracting Programs
- Policy 504 Procurement Policy
- Policy 701 Compliance with the Anti-Kickback Act of 1986
- Policy 703 Hiring/Using Debarred or Suspended Individuals or Entities
- Policy 704 Personal Conflict of Interest
- Policy 706 International Consultants, Distributors, Representatives, Sub-Contractors, Joint Ventures & Other Covered Parties
- Policy 707 Export/Import Controls and Compliance
- Policy 708 Compliance with United States Anti-Boycott Law
- Policy 709 Compliance with the Foreign Corrupt Practices Act and Anti-Corruption Policy
- Policy 711 Copyright Compliance
- Policy 712 Organizational Conflict of Interest

Military

- MIL-STD-1316 Safety Criteria for Fuze Design

Availability

Under agreements with the promulgating or third party organizations, some “AS” and ISO” documents may be available on the [L-3 Corporate Intranet](#). Users are encouraged to first check the [L-3 Corporate Intranet](#) and/or use the L-3 contracted third party service provider therein.

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The majority of the above referenced “AS” and ISO” documents are copyrighted and are available from their promulgating organizations.

Order of Precedence

When not otherwise specified, in the event of conflict the following order of precedence applies: (a) requirement specified in the source requirements document (e.g., parent document) such as the customer, statutory, regulatory, or stakeholder document, (b) requirement specified in the latest revision of L-3 EDI's Quality Manual, 6008725, (c) requirement specified in an L-3 EDI's QMS Tier 1 or Tier 2 document, (d) definition specified in an L-3 EDI's QMS reference document or cited reference document, (e) ISO 9000, (f) AS9100, and (g) Code of Federal Regulations, Title 14, Chapter 1, Part 1. However, in no instance shall this order of precedence be interpreted in such a manner to supersede or supplant a customer, statutory, regulatory, or stakeholder requirement/definition.

IX. Terms and Definitions

For the purpose of this document and its associated referenced documents, unless otherwise specified herein or in another lower tier QMS procedure, the terms and definitions specified in ISO 8402; ISO 9000; AS9100; and Code of Federal Regulations, Title 14, Chapter 1, Part 1 shall apply.

- **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, producibility, 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, etc. (reference: AS9017 Control of Aviation Critical Items and MIL-STD-1316 Safety Criteria for Fuze Design).

For guidance, see International Aerospace Quality Group (IAQG) Special Requirement/Critical Items Guide, included into the [Supply Chain Management Handbook \(SCMH\)](#).

- **Includes**

Means “includes, but is not limited to”.

- **Key Characteristic**

An attribute or feature whose variation has a significant effect on product fit, form, function, performance, service life, or producibility that requires specific actions for the purpose of controlling variation (reference: AS9103 Variation Management of Key Characteristics).

NOTE

Special requirements and critical items are new terms, and, along with key characteristics, are interrelated. Special requirements are identified when determining and reviewing requirements related to the product (see [7.2.1](#) and [7.2.2](#)). Special requirements can require the identification of critical items. Design output (see [7.3.3](#)) can include identification of critical items that require specific actions to ensure they are adequately managed. Some critical items can be further classified as key characteristics because their variation needs to be controlled.

- **May**

Expresses a permissible practice or action.

- **Must**

Same as “shall”. See “shall”.

- **Product**

A result of a process. Four generic product categories exist as follows:

- services (e.g., transport),
- software (e.g., computer program),
- hardware (e.g., physical part), and
- processed material (e.g., lubricant, gasoline).

- **REACH**

REACH is an acronym for **R**egistration, **E**valuation, **A**uthorization and **R**estriction of **C**hemical. It is a European Community Regulation on chemicals and their safe use (EC 1907/2006) that entered into force on 1 June 2007. The aim of REACH is to improve the

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protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances.

- **Risk**
An undesirable situation or circumstance that has both a likelihood of occurring and a potentially negative consequence.
- **RoHS**
RoHS is an acronym for the European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment 2002/95/EC (commonly referred to as the **R**estriction of **H**azardous **S**ubstances Directive), which together with the REACH Directive 2002/96/EC, became European Law in February 2003.
- **Shall**
Expresses mandatory requirements.
- **Should**
Expresses a recommendation or advice on implementing such a requirement (L-3 EDI encourages such recommendations or best practices to be followed).
- **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.

For guidance, see IAQG Special Requirement/Critical Items Guide, included into the [Supply Chain Management Handbook \(SCMH\)](#).

- **WEEE**
WEEE is an acronym for the **W**aste **E**lectrical and **E**lectronic **E**quipment Directive (WEEE Directive), which is an European Community Directive 2002/96/EC regarding electrical and electronic equipment waste, which together with the RoHS Directive 2002/95/EC, became European Law in February 2003, setting collection, recycling and recovery targets for all types of electrical goods. All applicable products in the EU market after August 13, 2006 must pass WEEE compliance and carry what is commonly referred to as the "Wheelie Bin" logo.
- **Will**
Expresses a provision or intention in connection with a requirement.

Order of Precedence

In the event of conflict and when not otherwise specified, the following order of precedence applies: (a) definition specified in the applicable L-3 EDI QMS document, (b) definition specified in an L-3 EDI's QMS reference document or cited therein reference document, (c) ISO 8402, (d) ISO 9000, (e) AS9100, and (f) Code of Federal Regulations, Title 14, Chapter 1, Part 1. However, in no instance shall this order of precedence be interpreted in such a manner to supersede or supplant a customer, statutory, regulatory, or stakeholder definition.

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X. Policies

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4.0 Quality Management System (QMS)

GENERAL POLICY

The Executive Leadership Team (ELT) shall be, and is, committed to operating our QMS according to the requirements specified in section [V. Scope](#). This shall be achieved through L-3 EDI's Mission Statement, Quality Policy, objectives, and the details specified in our QMS documentation. Responsibilities shall be clearly defined in the documentation, and records kept showing evidence of compliance. All appropriate documents and records shall be controlled.

PROCEDURAL POLICIES

4.1 General Requirements

L-3 EDI shall have an established, documented, implemented, and maintained QMS designed to continually improve its effectiveness in accordance with the requirements of ISO 9001:2008 / AS9100C:2009. To this end, L-3 EDI has adopted the ISO 9001:2008 / AS9100C:2009 process-based QMS model shown in [Figure 1](#). This process and risk-based approach QMS illustrates the process linkages presented in ISO 9001:2008 / AS9100C:2009 Clauses 4 through 8, inclusive, and correlates to the structure of section [X. Policies](#) herein. This model illustrates the significant role of the customer in defining requirements as inputs, how monitoring customer satisfaction requires the evaluation of information relating to customer perception as to whether L-3 EDI has met the customer requirements, and how this process and risk-based approach model drives L-3 EDI's continual improvement efforts.

Complimenting the model illustrated in [Figure 1](#), is a simple tool that is available for use and is commonly known as "Plan-Do-Check-Act" (PDCA) which can be applied to all processes to improve process performance. The PDCA process is graphically illustrated in [Figure 2](#).

L-3 EDI has determined the processes needed for our QMS, and their application throughout L-3 EDI, and has determined their sequence and interaction of these processes. In addition, criteria and methods needed to ensure that both the operation and control of these processes are effective, and to ensure the availability of resources and information necessary to support the operation and monitoring of these processes have been determined. These processes shall be monitored and measured, where applicable, and analyzed. Finally, necessary actions to achieve planned results and continual improvement of these processes shall be implemented.

These processes shall be managed by L-3 EDI to be in compliance with the associated requirements specified in [V. Scope](#).

As such...

- For customer, statutory, regulatory, and stakeholder unique and complex process requirements, posing greater risk, and/or special requirements, L-3 EDI will generally elect to (a) develop a specific QMS (e.g., WI-02-01-<XX>) or program-specific Quality Plan, (b) adopt the second/third party unique process as a best practice and develop a new complimenting L-3 EDI QMS document, and/or (3) incorporate the specifics into the relevant existing L-3 EDI QMS document. As a case in point, to address the complex and unique FAA regulatory requirements, L-3 EDI has developed WI-02-01-03 (Federal Aviation Administration (FAA) Regulatory Compliance Plan).

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- L-3 EDI shall fully support [L-3 Corporate Policy 601](#) (Quality) by leveraging the tools and services described therein to their maximum practicality, and by actively engaging in various L-3 [teams](#) to foster the sharing of knowledge, lessons learned, and best practices, to advance our own, as well as others, organizational effectiveness and efficiencies in the spirit of continual improvement ([8.5.1](#)).
- Where L-3 EDI chooses to outsource any process that affects product conformity to requirements, we shall ensure control over such processes. This includes processes for management activities, provision of resources, product realization, measurement, analysis, inspection and test, and improvement. The type and extent of control of such outsourced processes shall be defined within our QMS and may be influenced by such factors as:
 - the potential impact of the outsourced process on our ability to provide product that conforms to the customer requirements,
 - the degree to which the control of the process is shared,
 - the capability of achieving the necessary control through the application of [7.4](#) (Purchasing).

An “outsourced process” shall be a process that the organization needs for its QMS and which the organization chooses to have performed by an external party.

For guidance purposes, ISO/TC 176/SC2/N544 (Concept and Use of the Process Approach for Management Systems), and ISO 9004 (Managing for the Sustained Success of an Organization -- A Quality Management Approach) may be consulted.

4.2 Documentation Requirements

4.2.1 General

L-3 EDI’s QMS documentation shall be in the English language, as a minimum, and may be translated to any other language as needed in support of our employee’s cultural diversity, and shall include:

- documented statements of a Quality Policy (see [4.2.1.1](#)), a Mission Statement (see [4.2.1.2](#)), and quality objectives (see [4.2.1.3](#)),
- a quality manual,
- documented procedures and records required by section [V. Scope](#),
- documents, including records, determined by L-3 EDI to be necessary to ensure the effective risk-based planning, operation, and control of our processes, and
- quality system requirements imposed by regulatory and statutory authorities, customers, and applicable stakeholders determined by L-3 EDI to be necessary to ensure the effective planning, operation and control of our processes.

Where the term “documented procedure” appears herein, this means that a procedure shall be established, documented, implemented and maintained. A single document may address the requirements for one or more procedures. A requirement for a documented procedure may be covered by more than one document.

The extent of the QMS documentation may differ from one L-3 EDI functional department to another due to such factors as:

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- the size of organization and type of activities,
- the level of complexity and associated risks of processes and their interactions, and
- the competence of personnel.

The documentation may be in any form or type of medium.

For guidance purposes, ISO/TR 10013 (Guidelines for Quality Management Systems Documentation) should be consulted.

The structure of our QMS documentation shall be shown in [Figure 3](#) and [Figure 4](#). L-3 EDI shall ensure that our employees have access to QMS documentation and are aware of relevant QMS procedures and their changes. Our QMS documentation shall be available to customer, regulatory and statutory authorities, and applicable stakeholder representatives.

Our commitment to quality does not stop with our customers. It shall be a way of life within L-3 EDI and is demonstrated in the way we treat each other as individuals and the respect we have for each other's rights and dignity, and our commitment to ethical behavior.

When required, changes to the Quality Manual, or its Tier 2 or Tier 3 related procedure (see [Figure 3](#)) shall be processed as specified in [5.4.2.1](#).

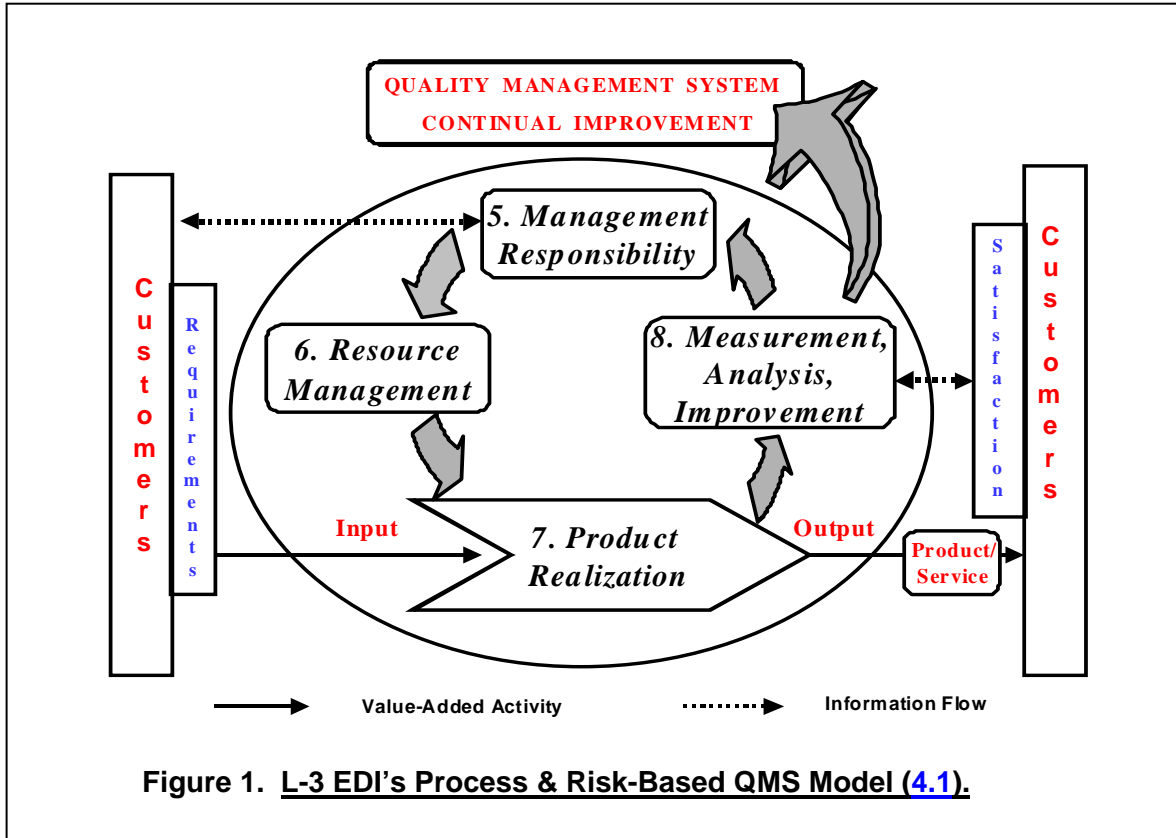
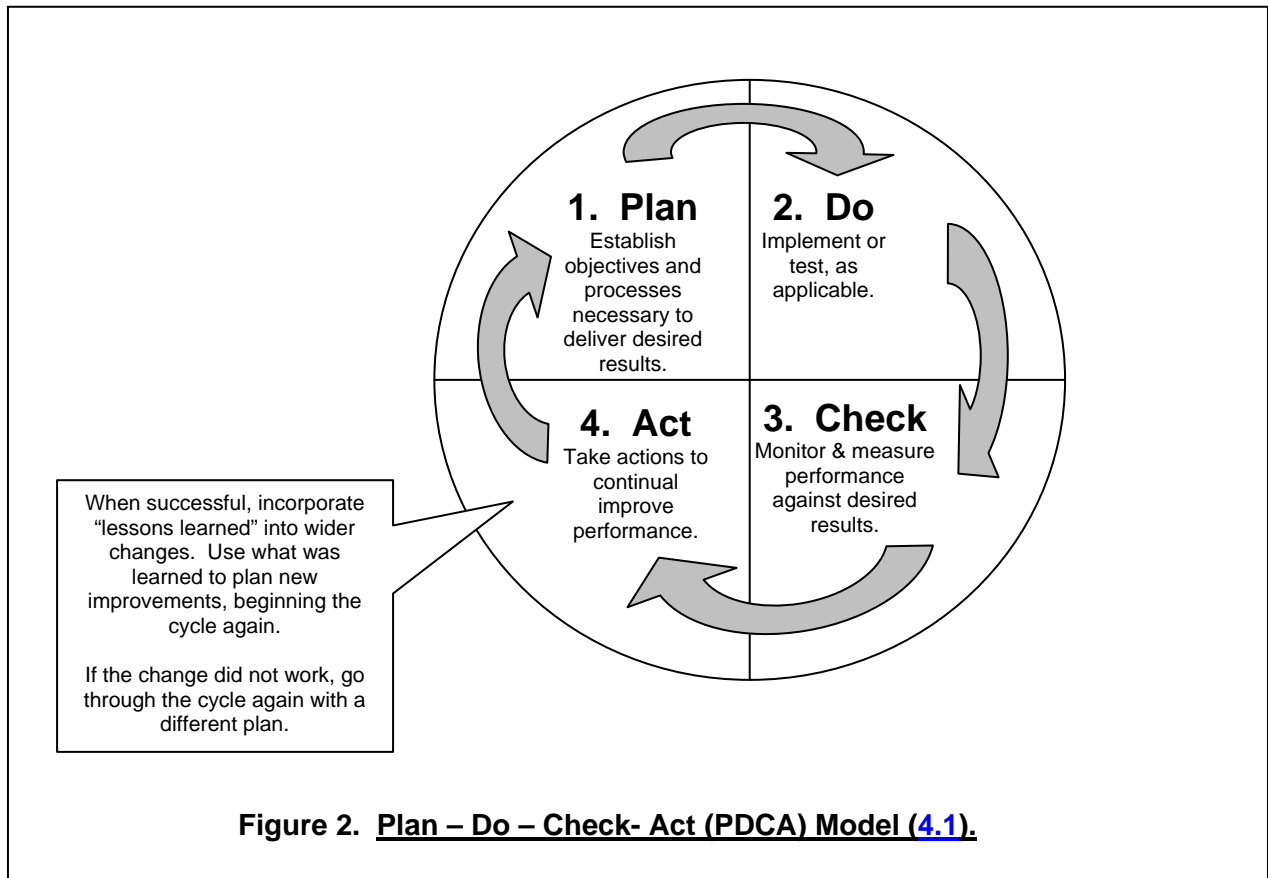
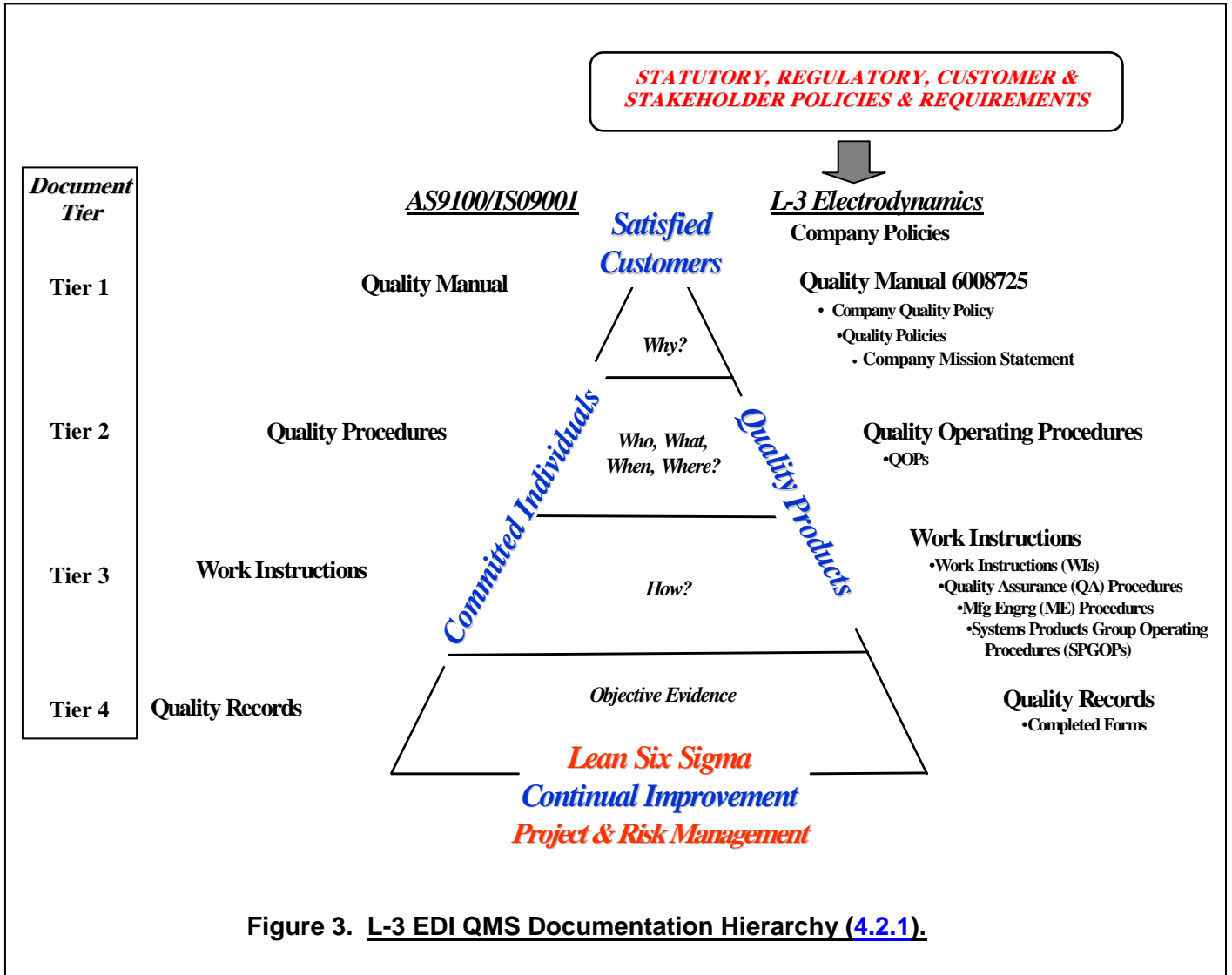


Figure 1. L-3 EDI's Process & Risk-Based QMS Model (4.1).

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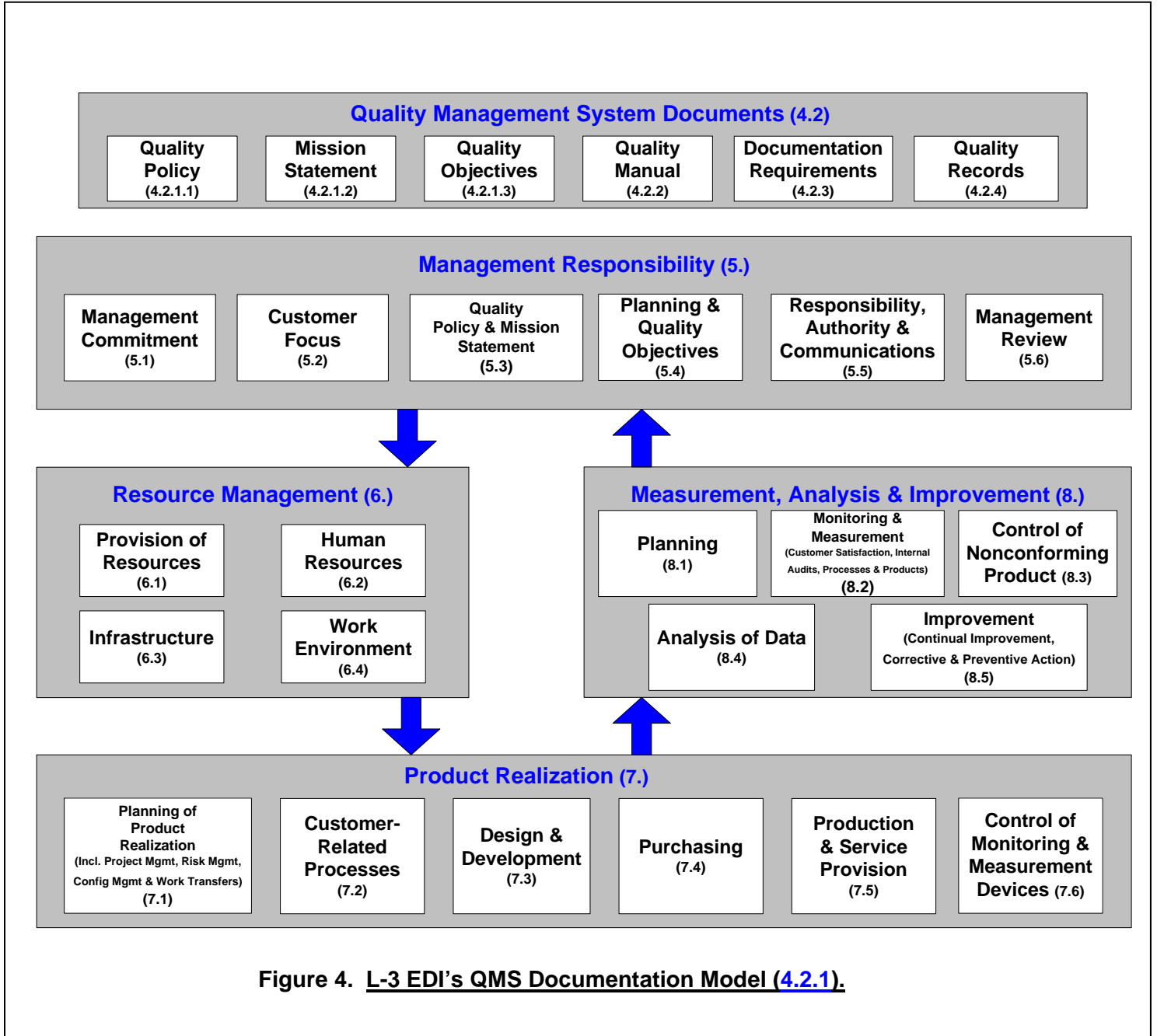


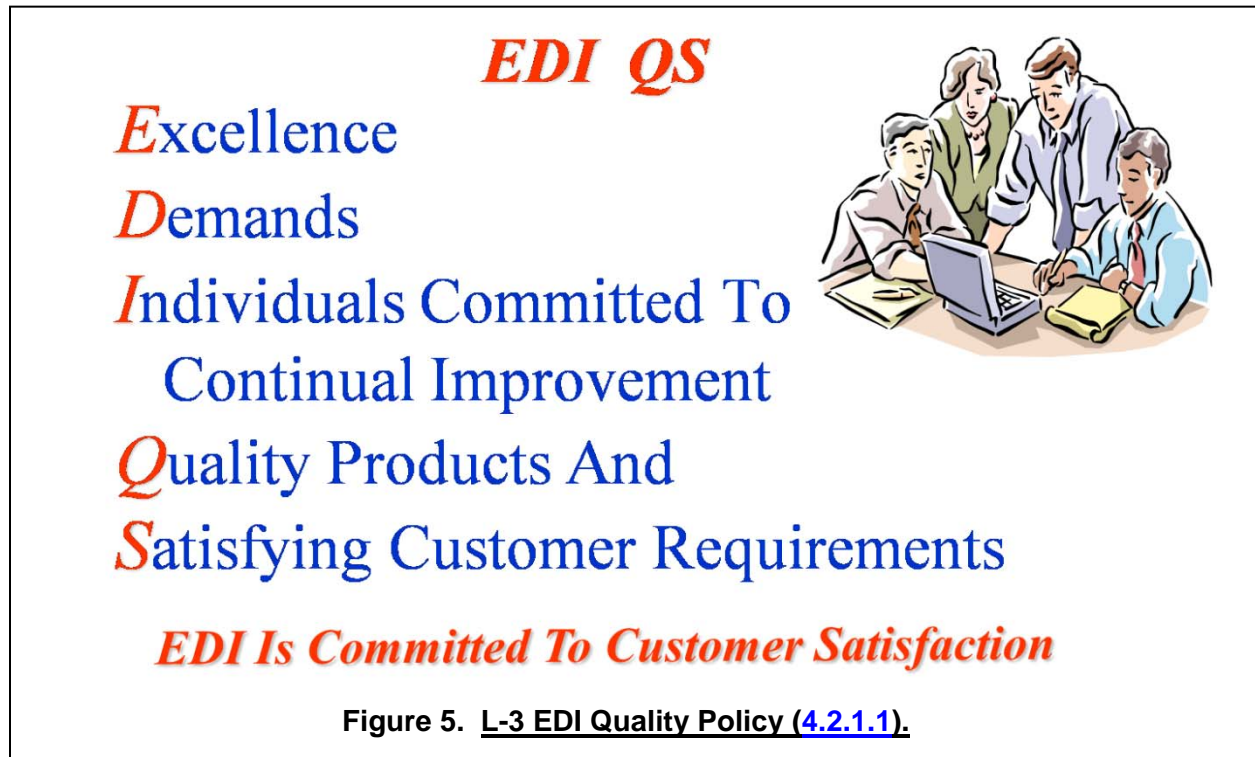
Figure 4. L-3 EDI's QMS Documentation Model (4.2.1).

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4.2.1.1 Quality Policy

L-3 EDI's Quality Policy as required by paragraph [4.2.1](#) shall be as shown in [Figure 5](#) below. L-3 EDI's ELT shall be, and is, committed to making this policy understood, implemented and followed throughout the company.



4.2.1.2 Mission Statement

L-3 EDI's Mission Statement as required by paragraph [4.2.1](#) shall be as shown in [Figure 6](#) below.

L-3 Electrodynamics provides engineered solutions and manufactures rugged environment data acquisition, storage, and input/output products for aerospace, military and government customers, who demand high-levels of customer satisfaction as measured by quality, cost, on-time delivery and exacting technical requirements.

We create value by partnering with our customers and suppliers, employing a highly trained and dedicated workforce, complying with an internationally recognized QMS, and meeting established performance objectives.

This ability to effectively manage our resources enables us to not only achieve the financial goals of our shareholders, but also provides a competitive advantage in our markets offering us the opportunity to grow into the future.

Figure 6. L-3 EDI MissionStatement (4.2.1.2).

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4.2.1.3 Quality Objectives

L-3 EDI's Quality Objectives as required by paragraph [4.2.1](#) shall be determined on an annual basis as part of our strategic planning and annual budgeting process (see [5.4](#)).

4.2.2 Quality Manual

L-3 EDI has established and shall maintain this Quality Manual, the responsibility of which lies with our Management Representative, the Vice President of Quality Assurance. Changes to this manual shall be approved by those specified in Section II, which includes L-3 EDI's ELT and an authorized FAA Representative prior to distribution.

The scope of our QMS shall be as described in [Section V](#). If applicable, this manual would also provide details of and justification for any exclusion to an ISO9001:2008 / AS9100C:2009 Clause 7 requirement. Presently, L-3 EDI does not take any exclusion to these requirements. L-3 EDI's documented procedures that have been established for our QMS shall be as shown in [Table 1](#). The relationship and interaction between L-3 EDI's processes and procedures in support of our QMS shall be as depicted in a flow chart format in [Figure 7](#).

4.2.3 Control of Documents

Documents required by the QMS shall be controlled. The latest revisions of L-3 Electroynamics, Inc. controlled Quality Manual and referenced procedures and forms (collectively referred to as our QMS procedures) shall be found at the designated location in section [Section II](#) (Approvals and Distribution). Copies regardless of whether in hard copy (e.g., in print) or electronic media forms shall be considered as uncontrolled.

A documented procedure shall define the controls needed to approve documents for adequacy prior to issue, to review and update as necessary and re-approve documents, and to ensure that changes and the current revision status of documents are identified.

The procedure shall also ensure that: relevant versions of applicable documents are available at the necessary points of use, they remain legible and readily identifiable, and documents of external origin determined by L-3 EDI to be necessary for the planning and operation of the QMS shall be identified and their distribution controlled. Document controls also prevent the unintended use of obsolete documents, and apply suitable identification to them when they are retained for any purpose. L-3 EDI shall coordinate document changes with customers and regulatory authorities in accordance with contract and regulatory requirements.

4.2.4 Control of Records

Quality records shall be established to provide evidence of conformity to requirements and of the effective operation of the QMS, and shall be controlled. A documented procedure has been established which defines the controls needed for the identification, storage, protection, retrieval, retention time and disposition of quality records. The procedure shall also define the method for controlling records that are created by and/or retained by suppliers.

Records shall be available for review by customers and regulatory authorities in accordance with contract and regulatory requirements. Quality records shall remain legible, and readily identifiable and retrievable.

Table 1. Index of Procedures (Ref. AS9100 Clause 4.2.2b).

FAA 14 CFR 21.137 per Docket No. FAA-2006- 25877-0114 (AC 21-43)	AS9100C: 2009 Clause	Former AS9100B: 2004 Clause	L-3 EDI Tier 2 Quality Operating Procedure (QOP)	
			Document No.	Document Title
b (2-4), d (2-6)	4.2.3	4.2.3	QOP-05-01	Document and Data Control
k (2-13)	4.2.4	4.2.4	QOP-16-01	Control of Quality Records
	5.2	5.2	QOP-01-01 QOP-03-01 QOP-03-02 QOP-03-06 QOP-14-02	Management Review Contract Review – Component Product Lines Contract Review – Systems Products Group Customer Satisfaction Customer Complaints and Compliments
	5.3, 5.4, 5.5, 5.6, 6.1	5.3, 5.4, 5.5 5.6, 6.1	QOP-01-01	Management Review
	6.1	6.1	QOP-15-02 QOP-01-01	Scheduling and Shipping Management Review
	6.2	6.2	QOP-18-01	Training
	6.3	6.3	QOP-09-03	Infrastructure
	6.4	6.4	QOP-09-02 QOP-09-04 QOP-15-01	Foreign Object Damage Work Environment Handling, Storage, Packaging, Preservation & Delivery
	7.1, 7.1.1 & 7.1.2	7.1	QOP-02-01	Development of Quality Plans
		7.2.1 & 7.2.2	QOP-03-01 QOP-03-02 QOP-03-03 QOP-04-01 QOP-04-02	Contract Review – Component Product Lines Contract Review – Systems Products Group Program Management Design Control Internal Research and Development – SPG <i>(Continued on next page)</i>

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Table 1. Index of Procedures (Ref. AS9100 Clause 4.2.2b) – CONT'D.

FAA 14 CFR 21.137 per Docket No. FAA- 2006-25877-0114 (AC 21-43)	AS9100C: 2009 Clause	Former AS9100B: 2004 Clause	L-3 EDI Tier 2 Quality Operating Procedure (QOP)	
			Document No.	Document Title
			QOP-04-05 QOP-06-01 QOP-06-02 QOP-09-01 QOP-09-04 QOP-14-01 QOP-17-01 QOP-20-01	<i>(Continued from previous page)</i> Internal Research and Development - CPG Supplier Selection, Approval and Monitoring Purchase Order Generation Process Control Work Environment Corrective and Preventive Action (FMEA/FMECA) Internal Quality Audits Statistical Techniques (Risk Analysis Tool)
a (2-3), b (2-4)	7.1 & 7.1.3	4.3	QOP-02-02	Configuration Management Plan Requirements
	7.1 & 7.1.4	7.5.1.4	QOP-06-01 QOP-06-02 QOP-09-01 QOP-10-01 QOP-12-01	Supplier Selection, Approval and Monitoring Purchase Order Generation Process Control Inspection and Test Inspection and Test Status
	7.2.1, 7.2.2 & 7.2.3	7.2.1, 7.2.2 & 7.2.3	QOP-03-01 QOP-03-02 QOP-03-03 QOP-03-04 QOP-03-05 QOP-03-06 QOP-03-07 QOP-03-08	Contract Review – Component Product Lines Contract Review – Systems Products Group Program Management Registration Mark Procedures Export/Import Customer Satisfaction Restricted Party Screening Procedure Program Directives <i>(Continued on next page)</i>

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FAA 14 CFR 21.137 per Docket No. FAA- 2006-25877-0114 (AC 21-43)	AS9100C: 2009 Clause	Former AS9100B: 2004 Clause	L-3 EDI Tier 2 Quality Operating Procedure (QOP)	
			Document No.	Document Title
			QOP-04-04 QOP-09-01 QOP-14-02 QOP-15-02	<i>(Continued from previous page)</i> Sustaining Engineering Process Control Customer Complaints and Compliments Scheduling and Shipping
a (2-3)	7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.4, 7.3.5, 7.3.6 & 7.3.7	7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.4, 7.3.5, 7.3.6 & 7.3.7	QOP-02-02 QOP-04-01 QOP-04-02 QOP-04-03 QOP-04-04 QOP-04-05	Configuration Management Plan Requirements Design Control Internal Research and Development - SPG Standard Build-to-Order Component-Product Sustaining Engineering Internal Research and Development - CPG
c (2-5, 3), e (2.7)	7.4.1, 7.4.2 & 7.4.3	7.4.1, 7.4.2 & 7.4.3	QOP-06-01 QOP-06-02 QOP-06-03 QOP-10-01	Supplier Selection, Approval and Monitoring Purchase Order Generation Utilization of Customer Approved Special Process Suppliers Inspection and Test
d (2-6), e (2-7)	7.5.1, 7.5.1.1, 7.5.1.2, 7.5.1.3, 7.5.2	7.5.1, 7.5.1.1, 7.5.1.2, 7.5.1.3, 7.5.2	QOP-09-01 QOP-09-02 QOP-10-01 QOP-15-02	Process Control Foreign Object Damage Inspection and Test Scheduling and Shipping
m (2-15)	7.5.1 & 7.5.1.4	7.5.1 & 7.5.1.4	QOP-02-02 QOP-04-04 QOP-19-01 QOP-14-02	Configuration Management Plan Requirements Sustaining Engineering Warranty Customer Complaints and Compliments

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Table 1. Index of Procedures (Ref. AS9100 Clause 4.2.2b) – CONT'D.

FAA 14 CFR 21.137 per Docket No. FAA- 2006-25877-0114 (AC 21-43)	AS9100C: 2009 Clause	Former AS9100B: 2004 Clause	L-3 EDI Tier 2 Quality Operating Procedure (QOP)	
			Document No	Document Title
g (2-9)	7.5.3	7.5.3	QOP-02-02 QOP-08-01 QOP-12-01	Configuration Management Plan Requirements Product Identification and Traceability Inspection and Test Status
	7.5.4	7.5.4	QOP-07-01	Control of Customer-Supplied Materials
j (2-12)	7.5.5	7.5.5	QOP-09-02 QOP-15-01	Foreign Object Damage Handling, Storage, Packaging, Preservation and Delivery
f (2-8)	7.6 & 8.1	7.6 & 8.1	QOP-11-01 QOP-11-02 QOP-11-03	Control of Inspection, Measurement & Test Equipment Variable Gage Repeatability and Reproducibility Attribute Gage Repeatability and Reproducibility
m (2-15)	8.1, 8.2.1	8.1, 8.2.1	QOP-01-01 QOP-03-06 QOP-20-01 QOP-14-01 QOP-14-02	Management Review Customer Satisfaction Statistical Techniques Corrective and Preventive Action (FMEA/FMECA) Customer Complaints and Compliments
	8.1, 8.2.2, 8.2.3 & 8.2.4	8.1, 8.2.2, 8.2.3 & 8.2.4	QOP-03-08	Program Directives
l (2-14)			QOP-09-01 QOP-10-01 QOP-13-01 QOP-14-03 QOP-17-01	Process Control Inspection and Testing Control of Nonconforming Product Continual Improvement Internal Quality Audit
h (2-10), n(2-16)	8.3	8.3	QOP-13-01	Control of Nonconforming Product
	8.4	8.4	QOP-20-02	Data Analysis
	8.5.1	8.5.1	QOP-14-03	Continual Improvement
i (2-11), n(2-16)	8.5.2 & 8.5.3	8.5.2 & 8.5.3	QOP-14-01	Corrective and Preventive Action

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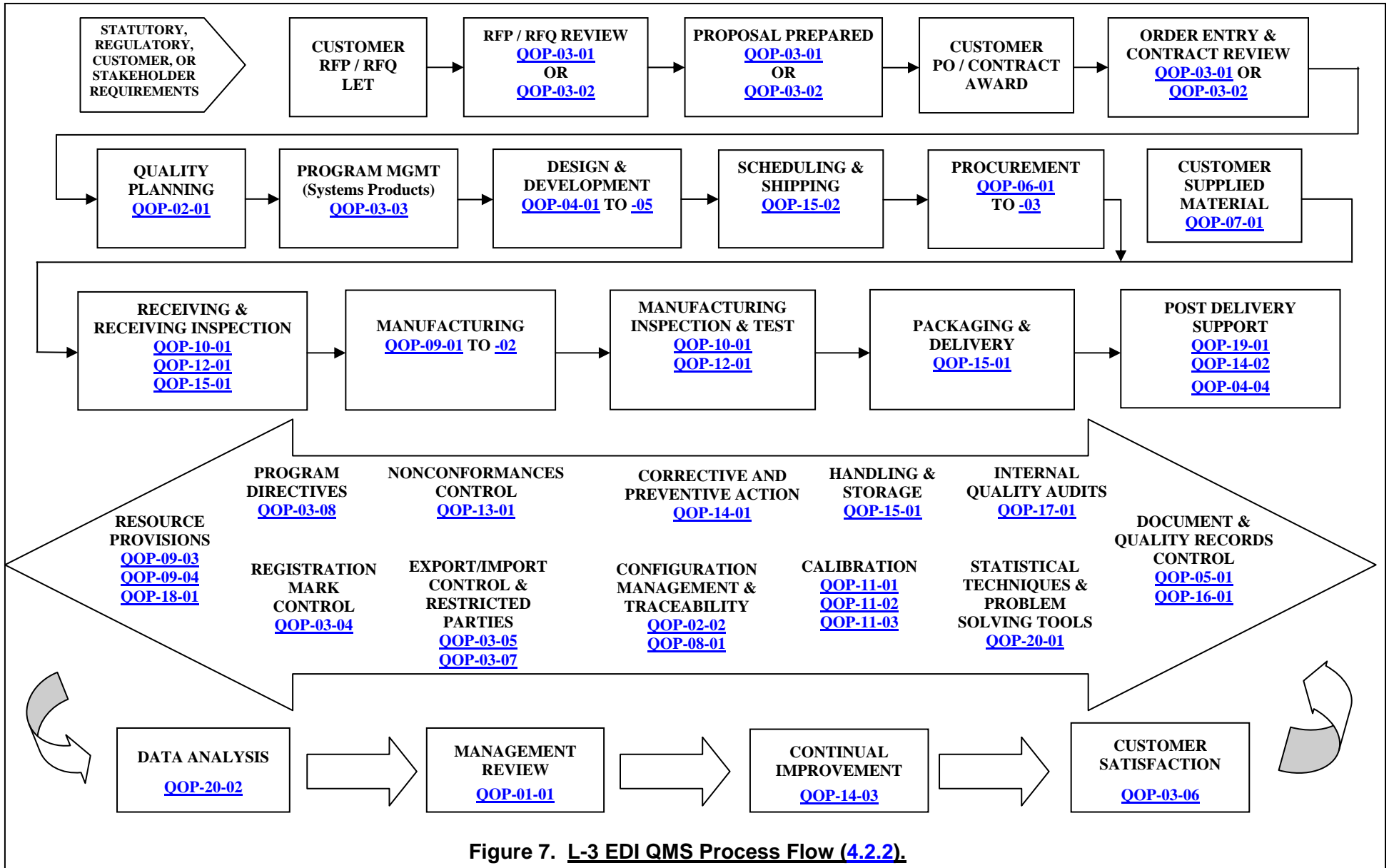


Figure 7. L-3 EDI QMS Process Flow (4.2.2).

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5.0 MANAGEMENT RESPONSIBILITY

GENERAL POLICY

The ELT shall be, and is, committed to satisfying customer requirements in all areas of L-3 EDI. All customer requirements shall be addressed. Quality planning shall be a formal part of this commitment. Responsibilities shall be clearly defined in the documentation, and records shall be kept showing evidence of compliance. The ELT shall formally review the operation of the QMS to ensure it continues to be suitable to meet the needs of the company and the customer. Improvements in all areas of the company shall be initiated as required.

PROCEDURAL POLICIES

5.1 Management Commitment

The ELT provides evidence of its commitment to the development and implementation of the QMS and continually improving its effectiveness. This shall be accomplished by communicating the importance of meeting customer as well as statutory and regulatory requirements, establishing the Quality Policy and Mission Statement, ensuring that quality objectives are established, conducting management reviews, and ensuring the availability of resources.

5.2 Customer Focus

The ELT shall ensure that customer requirements are determined and fulfilled with the aim of enhancing customer satisfaction (see [7.2.1](#) and [8.2.1](#)).

The ELT shall also ensure that product conformity and on-time delivery performance are measured and that appropriate action is taken if planned results are not, or will not be, achieved.

5.3 Quality Policy and Mission Statement

The ELT shall ensure that our Quality Policy and Mission Statement is appropriate to the purpose of L-3 EDI, includes a commitment to comply with customer requirements and continually improve the effectiveness of our QMS, and provides a framework for establishing and reviewing quality objectives. The Quality Policy and Mission Statement shall be communicated and understood within L-3 EDI, and reviewed for continuing suitability as part of the Management Review process.

5.4 Planning

L-3 EDI's Business Planning Process relative to our QMS shall be as illustrated in [Figure 8](#).

5.4.1 Quality Objectives

The ELT shall ensure that quality objectives (see [4.2.1.3](#)), including those needed to meet product conformity and customer requirements, are established at relevant functions and levels within L-3 EDI during our annual Business Planning Process, and that the quality objectives are measurable and consistent with the Quality Policy and Mission Statement with the collective aim of enhancing stakeholder and customer satisfaction (see [5.2](#) and [8.2.1](#)). Performance against the established quality objectives shall be reviewed as part of the Management Review process (see [5.6](#)).

5.4.2 QMS (QMS) Planning

The ELT shall ensure that the planning of the QMS is carried out in order to meet the requirements of [4.1](#), as well as that of our Quality Policy, Mission Statement, and quality objectives, and when changes are planned and implemented, the integrity of our QMS is maintained.

The QMS, conceived to implement our Quality Policy and Mission Statement, shall be designed to satisfy the requirements specified in our Scope, [Section V](#).

Quality plans should be developed using ISO 10005 (Quality Management – Guidelines for Quality Plans) as a guideline.



5.4.2.1 QMS (QMS) Changes and Notifications

As required by a contract, statutory or regulatory requirement, the applicable customer, statutory or regulatory agency, or stakeholder shall be notified of changes to the QMS,

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or the inspection, test, conformity, reliability, maintainability, safety, airworthiness, balance, and/or weight (if a factor) of products produced there under, including but not limited to:

- QMS certification status adverse changes (e.g., expired, withdrawn, suspended, downgraded AS9100 third party certificate),
- ELT, QA and Product Assurance Management, or quality control staff changes (see [6.1](#)),
- Management Representative changes (see [5.5.2](#)),
- QMS procedure changes, including nonconformance procedure(s) and Material Review Board Membership personnel changes (see [4.2.1](#) and [8.3](#)),
- facility changes, including company name, address and ownership (see [6.3](#)),
- product design changes (see [7.1.3.1.1](#) and [7.3.7](#)),
- manufacturing / production changes, including expansions and relocations, and significant curtailment/discontinuance of product manufacturing (see [7.5.1.2](#)),
- purchased product source (e.g., suppliers, subcontractors) changes, and sourcing decisions that pose increased levels of risk and/or fall under “special requirements” (e.g., international sourcing of constituent items under the purview of an FAA PAH end-item, direct shipments) requiring risk mitigation coordination with the customer or regulatory authority (see [7.1.4](#) and [7.4](#)) and
- those events specified in L-3 Corporate Policy 601 Quality.

Unless otherwise specified or required, this notification should be initiated by the President, Vice President of Quality Assurance, or the assigned responsible quality assurance (QA) personnel for the product line, project, or program. Customer or regulatory design change approvals shall be initiated via L-3 EDI's established Configuration Management process. Customer or regulatory data submissions should occur via L-3 EDI's established Data Management process.

5.5 Responsibility, Authority and Communication.

5.5.1 Responsibility and Authority

Along with the responsibilities specified in L-3 EDI's QMS procedures (e.g., Quality Manual, QOP's and WI's), organizational charts and job descriptions maintained by the Vice President of Human Resources shall define the responsibilities, authority, and interrelation of personnel who manage, perform, validate, and verify conformity to product or service requirements.

NOTE

Throughout all tiers of L-3 EDI's QMS (inclusive of forms) the following shall apply. Wherever the title of Director is used and if that position is not filled, then in lieu of Director, the title of Vice President shall apply.

5.5.2 Management Representative

The ELT shall ensure that the responsibilities, authorities and their interrelation are defined and communicated within L-3 EDI. The functional organization/responsibility

chart shown in [Figure 9](#) and the responsibility matrix provided in [Table 2](#) combine to describe the relationship of our ELT to each other and the QMS.

The President shall be responsible for the appointment of the Vice President of Quality Assurance and the Management Representative. Irrespective of any other responsibilities, the Management Representative shall ensure that the processes needed to support the QMS are established, implemented, and maintained; reports to the ELT on the performance of the QMS and any need for improvement; and ensures the promotion of awareness of customer requirements throughout the organization. The Management Representative shall have the organizational freedom and unrestricted access to the President to resolve quality issues.

When required, Management Representative personnel changes shall be processed as specified in [5.4.2.1](#).

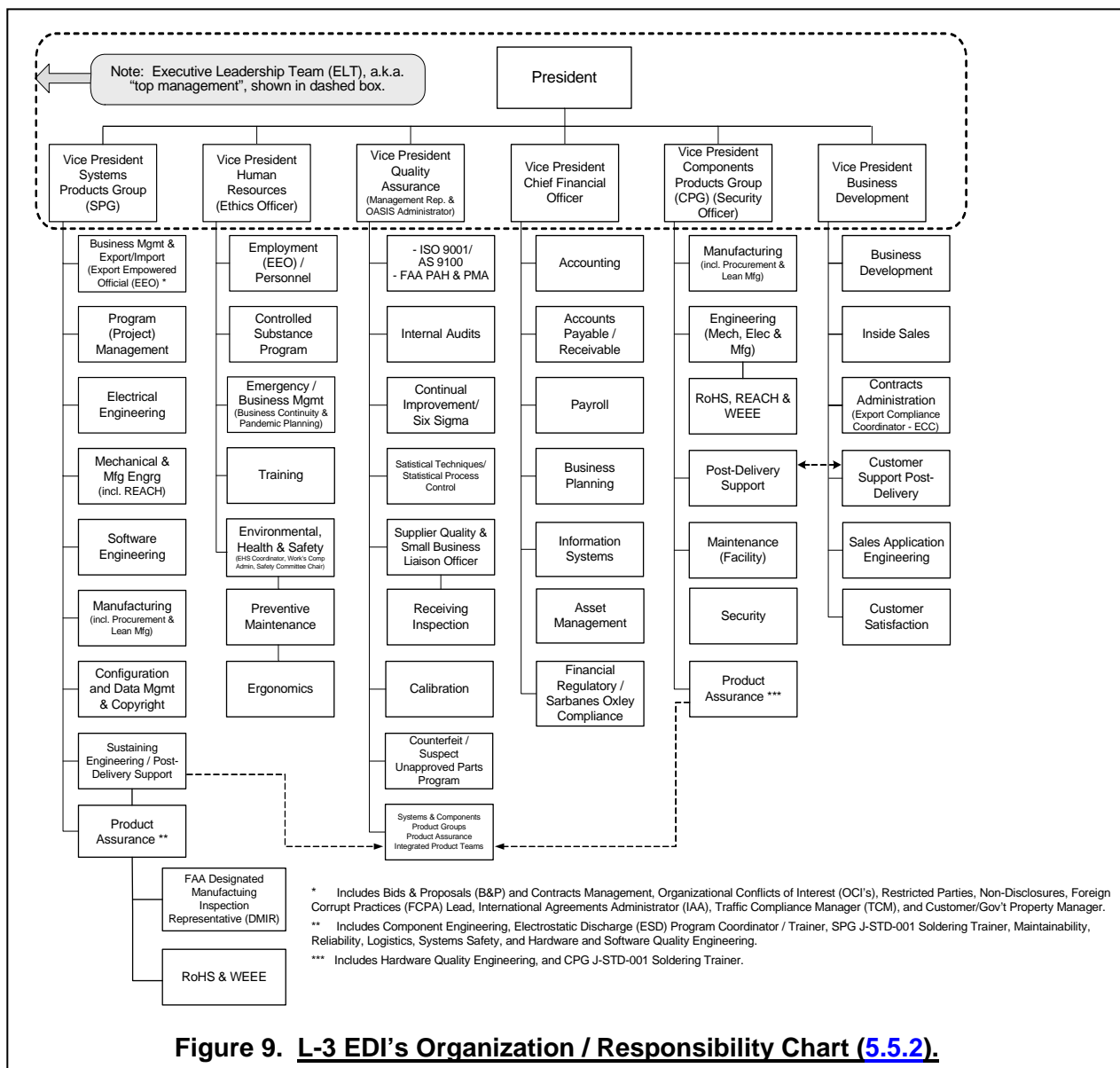


Figure 9. L-3 EDI's Organization / Responsibility Chart (5.5.2).

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5.5.3 Internal Communication

The ELT shall ensure that appropriate communication processes are established within L-3 EDI and that communication takes place regarding the effectiveness of the QMS.

Table 2. Responsibility Matrix (5.5.2).

AS 9001C:2009 Process		President	VP Quality Assurance	VP Business Devlpmt	VP Systems Products Group (SPG)	VP Components Products Group (CPG)	VP Human Resources	VP Chief Financial Officer
<u>LEGEND</u> <i>P = Primary Responsibility</i> <i>C = Contributing Responsibility</i>								
4.2.1	QMS Documentation	C	P	C	C	C	C	C
4.2.2	Quality Manual Documentation		P		C			
4.2.3	Control of Documents		C	C	P	C	C	C
4.2.4	Control of Records		C	C	P	C	C	C
5.1	Management Commitment	P	C	C	C	C	C	C
5.2	Customer Focus		C	P				
5.3	Quality Policy	P	C					
5.4	Planning	P	P	C	C	C	C	C
5.5	Responsibility, Authority & Communication	P	C	C	C	C	P	C
5.6	Management Review	P	P	C	P	P	C	C
6.1	Provision of Resources	P	C	C	C	C	C	C
6.2	Human Resources	C	C	C	C	C	P	C
6.3	Infrastructure				P	P	P	P
6.4	Work Environment				P	P	P	P
7.1	Planning of Product Realization	C	C	P	P	P	C	C
7.1.1	Project Management	C	C	C	P	P	C	C
7.1.2	Risk Management	C	C	C	P	P	C	C
7.1.3	Configuration Management		C		P	C		
7.1.4	Control of Work Transfers		P		P	P		
7.2	Customer Related Processes	C	C	P	P	C		C
7.2.3	Customer Complaints		C	C	C	C		
7.3	Design and Development				P	P		
7.4	Purchasing		P		P	P		
7.5	Production & Servicing Provision		C	C	P	P		
7.5.4	Customer Property				P	C		
7.6	Control of Monitoring & Measuring Equipment		P		C	C		
8.2.1	Customer Satisfaction		C	P	C	C		
8.2.2	Internal Audit		P		C			
8.2.3 & 8.2.4	Monitoring and Measurement of Processes & Products		P		P	P		
8.3	Control of Nonconforming Product		P		C	C		
8.4	Analysis of Data	C	P	C	C	C	C	C
8.5.1 & 8.5.3	Continual Improvement & Preventive Action	C	P	C	C	C	C	C
8.5.2	Corrective Action	C	P	C	C	C	C	C

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5.6 Management Review

5.6.1 General

The ELT shall review L-3 EDI's QMS, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the QMS, including the quality policy, mission statement, and quality objectives. Records from management reviews shall be maintained.

5.6.2 Review Input

The input to management review shall include information on results of audits, customer feedback, process performance and product conformity, status of preventive and corrective actions, follow-up actions from previous management reviews, planned changes that could affect the QMS, and recommendations for improvement.

5.6.3 Review Output

The output from the management review shall include decisions and actions related to improvement of the effectiveness of the QMS and its processes, improvement of product related to customer requirements, and resource needs.

6.0 RESOURCE MANAGEMENT

GENERAL POLICY

The ELT shall ensure that all resources needed to implement and maintain the activities of the QMS are available when needed. Only qualified people shall be assigned duties within this system. Adequate facilities and work environments shall also be included as part of this commitment.

PROCEDURAL POLICIES

6.1 Provision of Resources

L-3 EDI shall determine and provide the resources needed to implement and maintain the QMS and continually improve its effectiveness, and to enhance customer satisfaction by meeting customer requirements.

Our commitment and customer focus is demonstrated via L-3 Corporate's [Wellness](#) and [Pandemic Preparedness](#) Intranet Websites, which, respectively, promotes employee healthy lifestyles, and provides pandemic planning and preparation materials both for business unit pandemic coordinators and for all employees and their families, and L-3 EDI's Business Continuity Plan (BCP), Crisis Management Plan (CMP), and Pandemic Plan, which are risk mitigation plans developed by L-3 EDI with the intention of enabling L-3 EDI to (a) better manage serious disruptive crisis situations in a controlled and structured manner, and (b) facilitate continued supply-chain services and shipments to our customers in such an event. L-3 EDI's Business Continuity and Pandemic Plans shall be maintained and administered by Human Resources, periodically reviewed for currency by the appropriate committee(s), and tested, as may be applicable.

When required, ELT, Vice President of Quality Assurance, Management Representative, or Product Assurance Management personnel changes shall be processed as specified in [5.4.2.1](#).

6.2 Human Resources

6.2.1 General

Quality is fundamentally based on ethical decision making. One of the most important factors in our company's long-term success is the way we conduct ourselves with our suppliers, customers, co-workers, and competitors, as well as in our communities. To this end L-3 EDI takes ethics and business integrity very seriously and has a well established ethics training program setting high ethical expectations of our associates.

From a social responsibility perspective, L-3 EDI is committed to being a good corporate citizen obeying applicable laws and regulations, practicing environmental responsibility, and creating an inclusive work environment that is focused on a common purpose valuing the diversity in our associates and promoting positive involvement in the community.

Personnel performing work affecting conformity to product or service requirements shall be competent on the basis of appropriate education, training, skills and experience.

Human Resources shall use job applications and/or resumes, position descriptions, and an organization chart or equivalent to determine whether an applicant is suitably qualified and to establish the reporting relationships for a given position.

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Conformity to product requirements may be affected directly or indirectly by personnel performing any task or activity within the QMS.

6.2.2 Competence, Training and Awareness

L-3 EDI shall determine the necessary competence for personnel performing work affecting conformity to product requirements, and, where applicable, provides training or takes other actions to achieve the necessary competence. The effectiveness of the actions taken shall be evaluated, and all personnel shall be aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives. Appropriate records of education, training, skills and experience shall be maintained.

If as a result of customer, statutory, or regulatory requirements delegated quality activities (e.g., surveillance, inspection, etc.) are required by L-3 EDI, delegation shall be based on an individual's training, skills and experience, and their competency. It shall be the responsibility of the applicable supervisor/manager of the delegate to determine, based on the demonstrated competency, whether additional training shall be required, and to take such action.

6.3 Infrastructure

L-3 EDI shall determine, manage, provide, and maintain the infrastructure needed to achieve conformity to product or service requirements, including buildings, workspace associated utilities, process equipment, both hardware and software, and supporting services such as transport, communication, or information systems.

See [Figure 10](#) and [Figure 11](#) for a depiction of L-3 EDI's Main Facility Layout and Annex Facility Layout, respectively, including location, and type of inspection and test areas/stations for our flight data recorder products.

When required, facility changes shall be processed as specified in [5.4.2.1](#)

6.4 Work Environment

The term "work environment" relates to those conditions under which work is performed including physical, environmental, and other factors such as, but not limited to: personnel wellness (e.g., pandemic planning), noise, temperature, humidity, lighting, weather, foreign object debris/damage (FOD) prevention, and electrostatic discharge prevention.

L-3 EDI shall determine and manage the work environment needed to achieve conformity to product requirements, employee health and safety, and L-3 Corporate [Code of Ethics and Business Conduct](#).

L-3 EDI holds these as important core values and supports a culture committed to providing our customers a quality product on-time, conducting our operations and activities in a manner that provides and promotes ethical, healthful and safe working conditions, protects the environment, and preserves natural resources.

L-3 EDI shall take the necessary steps to appropriately manage our Environment Health and Safety (EHS) program, which shall include, but not be limited to:

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- Comply with applicable customer, statutory, and regulatory requirements,
- Assign EHS responsibility and accountability, and enforce our EHS policies and programs,
- Integrate EHS into the strategic business decision making process, engineering design, procurement, facilities management, and production,
- Operate facilities in a compliant, responsible manner that protects the health and safety of employees, surrounding communities, and the environment,
- Proactively seek opportunities to improve the environment, health, and safety,
- Provide a climate that promotes EHS training which continually improves the level and depth of knowledge of our employees,
- Review our EHS programs on a routine basis and communicate EHS performance to employees and management, as appropriate,
- Recognize and respond to employee, community, statutory and regulatory agency concerns regarding potential EHS impact from the Company's operations, and
- Periodically Chair Safety and Ethics Committees.



As part of L-3 EDI's Lean Six Sigma continual improvement initiative (see [8.5.1](#)), we have established a 5S Program to facilitate the execution of our FOD Prevention program.



Do Your Part to Prevent FOD...



- *Clean As You Go - Keep Your Work Space Clean and Free of Debris / Clutter*
- *Put Items Back in Their Proper Place When Done*
- *Control Cuttings / Trimmings*
- *Practice the 5S's -
1. Sort, 2. Simplify, 3. Sweep,
4. Standardize, 5. Sustain*

... Per QOP-09-02

Electrodynamics, Inc.



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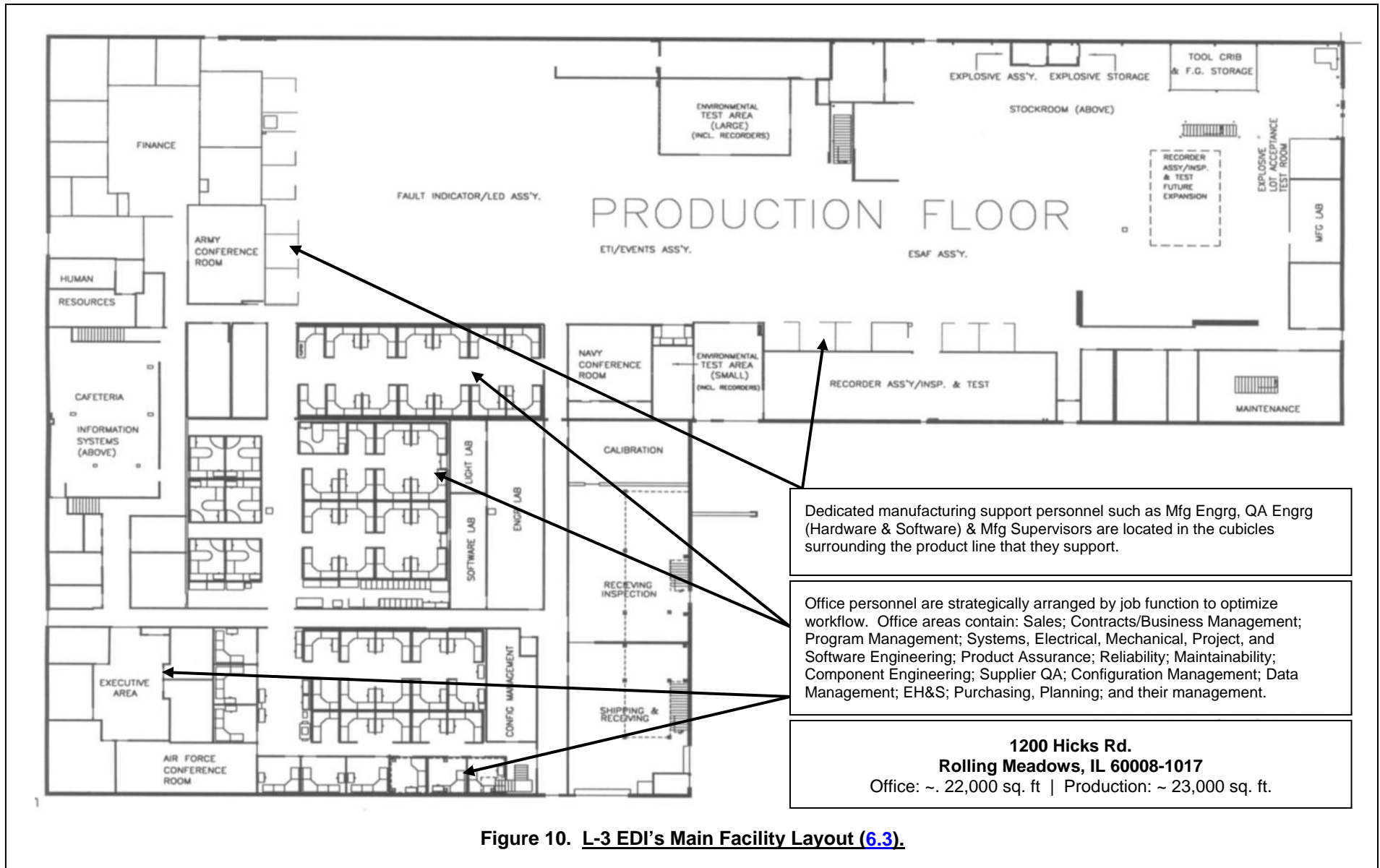
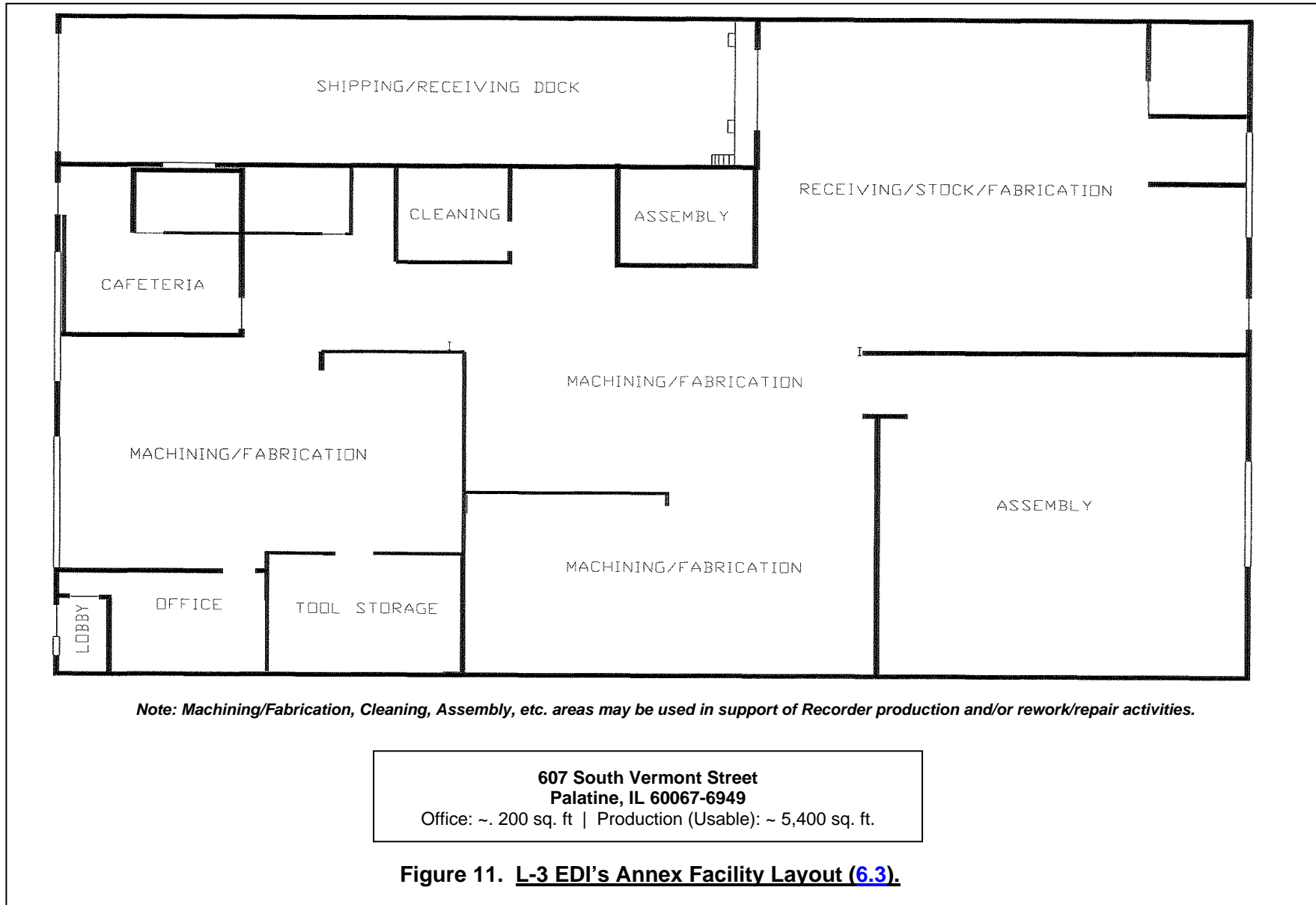


Figure 10. L-3 EDI's Main Facility Layout (6.3).

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7.0 PRODUCT REALIZATION

GENERAL POLICY

The individual activities comprising the product realization processes shall be planned and managed with the objective to eliminate or mitigate risk, especially risk associated with special requirements and special processes which typically demand additional control methodologies. Appropriate controls shall be established, implemented and maintained to ensure conformance with customer, statutory, regulatory and stakeholder requirements. Customer requirements shall be understood and accepted before committing to an order or contract. Design and development, and production activities shall be formally planned and controlled, including changes. Purchasing activities shall be designed to facilitate the selection of suppliers that are capable of delivering products meeting conformity requirements. Additional controls shall be used for identification, handling and protection of all products and measuring equipment, including those owned by the customer.

PROCEDURAL POLICIES

7.1 Planning of Product Realization

L-3 EDI shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the QMS system.

In planning product realization, L-3 EDI shall determine, as appropriate,

- quality objectives and requirements for the product, such as, but not limited to:
 - product and personnel safety,
 - reliability, availability, and maintainability,
 - producibility and inspectability,
 - suitability of parts and materials used in the product,
 - selection and development of embedded software, and
 - recycling or disposal of the product or constituent elements thereof during the product realization process or at the end of the end item product's life.
- the need to establish processes and documents, and to provide resources specific to the product,
- the required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance,
- the records needed to provide evidence that the realization processes and resulting product fulfill requirements (see [4.2.4](#)),
- the configuration management appropriate to the product (see [7.1.3](#)), and
- the resources to support the operation and maintenance, and post-delivery support (see [7.5.1.4](#)) including, but not limited to our continued technical data compliance, airworthiness, and safety of our products as demonstrated by L-3 EDI's

commitment in being actively engaged, as appropriate, in the following FAA Aircraft Certifications Service's Continued Operational Support (COS) program elements:

- Aircraft Certification Systems Evaluation Program (ACSEP) pursuant to Order [8100.7](#),
- [Airworthiness Directives](#) (AD'd) Process:
 - o notifying the FAA when L-3 EDI becomes aware of any failure, malfunction, or defect in any product, part, process, or article manufactured by them (14 CFR § [21.3](#)),
 - o developing appropriate design changes to correct the unsafe condition (14 CFR § [21.99\(a\)](#)), and,
 - o incorporating any necessary corrective action in future production of the product to ensure the product is in condition for safe operation (14 CFR § [21.165](#)).

NOTE

AD's are legally enforceable rules issued by the FAA in accordance with 14 CFR [Part 39](#) to correct an unsafe condition in a product (i.e., aircraft, aircraft engine, propeller, or appliance). See Order [8040.1](#) (Airworthiness Directives) for more information regarding Airworthiness Directives (AD).

- Approval and issuance of L-3 EDI Technical Directives (e.g., Service Bulletins/Letters) to notify applicable affected entities, such as known customers, users, operators, and regulatory authorities (domestic and foreign), of L-3 EDI's product news, changes or modifications for products which we have provided under the purview of our FAA-authorized Production Approval Holder (PAH) status.
- Instructions for Continued Airworthiness (ICA's) process by providing, when applicable, an ICA, including any changes thereto, to each aircraft owner and any other person required by 14 CFR Chapter I, Subchapter C - Aircraft, to comply with those instructions,

NOTE

See Order [8110.50](#) (Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents) for more information regarding the FAA's responsibilities, requirements, and content for instructions for continued airworthiness instructions (ICA's) as required by 14 CFR § 21.50 and, as applicable, the TSO.

- Design Approval Holder unique obligations dependent upon the design approval type held (e.g., TSO Authorization holder requirements),
- post-delivery on-site and off-site (e.g., field service) service support (see [7.5.1.4](#)) , including maintenance activities, service problems/difficulty and

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malfunction/failure support, and FAA compliant product reworks, repairs, refurbishments, retrofits, and

- Special Airworthiness Information Bulletins (SAIB's).

NOTE

An SAIB is an information tool that alerts, educates, and makes recommendations to the aviation community, and contains non-regulatory information and guidance that does not meet the criteria for an Airworthiness Directive (AD). See Order [8110.100](#) (Special Airworthiness Information Bulletin).

L-3 EDI's model for product realization planning model, including project and risk management, shall be as illustrated in [Figure 12](#).

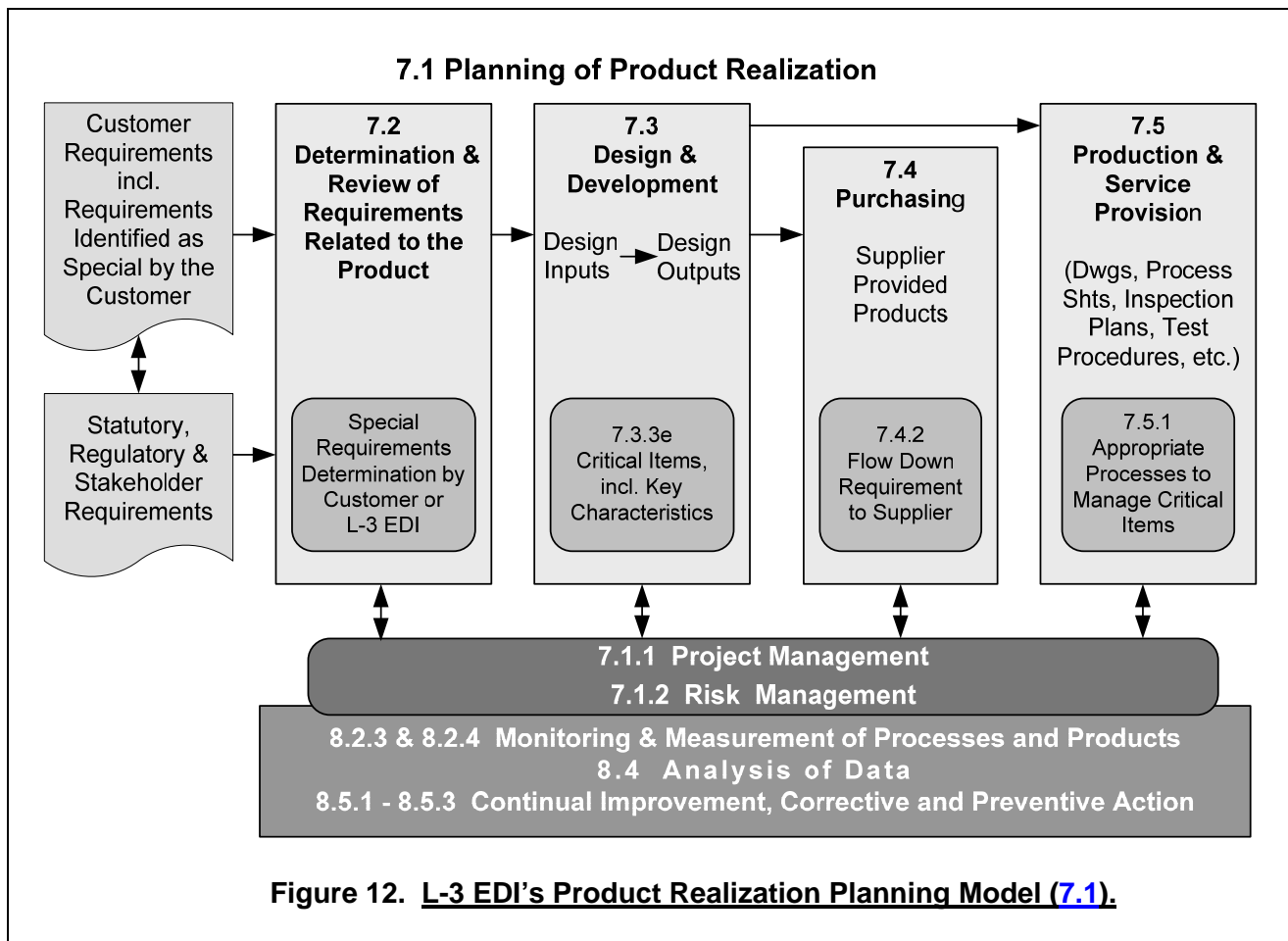


Figure 12. L-3 EDI's Product Realization Planning Model (7.1).

7.1.1 Project Management

As appropriate to L-3 EDI and the product, L-3 EDI shall plan and manage product realization in a structured and controlled manner to meet requirements at acceptable risk, within resource and schedule constraints.

7.1.2 Risk Management

L-3 EDI shall establish, implement and maintain a process(es) for managing the risk to achieve applicable requirements, that includes as appropriate to the organization and the product:

- assignment of responsibilities for risk management,
- definition of risk criteria (e.g., likelihood, consequences, risk acceptance),
- identification, assessment, and communication of risks throughout the product realization process,
- identification, implementation and management of actions to mitigate risks that exceed the defined risk acceptance criteria, and
- acceptance of risks remaining after implementation of mitigating actions.

The planning output shall be in a form suitable for L-3 EDI's method of operations.

7.1.3 Configuration Management

L-3 EDI shall establish, document, implement, and maintain a configuration management process appropriate to our products, including where applicable, any specific customer, statutory, regulatory, or stakeholder requirements.

This shall include, as appropriate to the product:

- configuration management planning,
- configuration identification,
- change control,
- configuration status accounting, and
- configuration audit

L-3 EDI's configuration management practices shall be based on such consensus standards as ISO 10007 (Quality Management Systems - Guidelines for Configuration Management).

L-3 EDI's configuration management system shall include the following noteworthy items:

- the identification and documentation of critical items, including key characteristics (ref: AS9103 Variation Management of Key Characteristics), and special processes, where applicable,
- the identification and documentation of tin whisker compliance/risk mitigation methodologies, RoHS-compliant items, where applicable, and
- the documentation of post-delivery support documents (e.g., installation and operation manuals, field service manuals).

7.1.3.1 Federal Aviation Administration (FAA) Configuration Management

L-3 EDI shall maintain a documented configuration management system that is appropriate to the product governed by our PAH status. In addition, the document and data control system provides for compliance to FAA requirements as they pertain to applications for:

- Supplemental Type Certificate (STC),
- Part Manufacturer Approval (PMA), and
- Technical Standard Order Authorization (TSOA).

Reference 14 CFR Part 21, Subparts D (Changes to Type Certificates) and E (Supplemental Type Certificates); Subpart K (Approval of Materials, Parts, Processes and Appliances); and Subpart O (Technical Standard Order Authorizations, respectively.

Reference associated FAA companion Orders [8110.4](#) (Type Certification), [8110.42](#) (Parts Manufacturer Approval Procedures), [8120.2](#) (Production Approval and Certificate Management Procedures), and [8150.1](#) (Technical Standard Order Program).

See [Table 1](#) for a listing of the relevant Tier 2 quality operating procedures (QOP's), and [Figure 7](#) regarding their interrelationship relative to L-3 EDI's QMS procedures.

See [Table 2](#) for a listing of the relevant L-3 EDI responsibilities, and [Figure 9](#) regarding their interrelationship relative to L-3 EDI's organizational structure.

Any component part, system, appliance, process or material developed for use on civil aircraft shall be accepted by the FAA under the provisions of 14 CFR prior to utilization as may be required.

Applications for STC, PMA, and TSOA, and interfacing with FAA authorities regarding respective document control methodologies, including FAA approval when required, shall be performed in accordance with applicable FAA regulatory requirements.

L-3 EDI technical drawings and specifications, including supporting technical documentation, such as but not limited to: installation and maintenance manuals, and instructions for continued airworthiness, shall be kept current.

See L-3 EDI's work instruction, WI-02-01-03 (Federal Aviation Administration (FAA) Regulatory Compliance Plan) for further details.

7.1.3.1.1 FAA Notification of Product Changes

- Major design changes affecting FAA STC's and PMA/TSO authorized commercial products require:
 - a new type or model number designation, or
 - submission of applicable substantiating data to and written approval of the appropriate FAA office prior to incorporation into the production.

Minor design changes against STC's and PMA/TSO commercial products do not require prior FAA approval, but shall be submitted periodically, as required, to the appropriate FAA office for review in accordance with the governing requirements.

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7.1.4 Control of Work Transfers

L-3 EDI shall establish, implement and maintain a process to plan and control the temporary or permanent transfer of work (e.g., from one organization facility to another, from the organization to a supplier, from one supplier to another supplier) and to verify the conformity of the work to requirements as this activity shall be accomplished via L-3 EDI's established purchasing process (see [7.4](#)), production control process (see [7.5](#)), or per L-3 Corporate Policy 203 Inter-Division Transactions, as applicable.

7.2. Customer-Related Processes

7.2.1 Determination of Requirements Related to the Product

L-3 EDI shall determine requirements specified by the customer, including the requirements for delivery and post-delivery activities; requirements not stated by the customer, but necessary for specified use or known and intended use, where known; statutory and regulatory requirements applicable to the product; and any additional requirements considered necessary by L-3 EDI, including special requirements. Post-delivery activities (see [7.5.1.4](#)) may include for example actions under warranty provisions, contractual obligations such as maintenance services and supplementary services such as recycling or final disposal.

7.2.2 Review of Requirements Related to the Product

L-3 EDI shall review the requirements related to the product prior to L-3 EDI's commitment to supply a product to the customer during requests for quotations (RFQ's); acceptance of contracts or orders; and acceptance of RFQ, contract or order changes. L-3 EDI shall ensure that product requirements are defined, and contract or order requirements differing from those previously expressed are resolved. Additionally, that L-3 EDI has the ability to meet the defined requirements, special requirements of the product are determined, and risks such as new technology or short delivery time scale have been identified and evaluated (see [7.1.2](#)).

Records of the results of the review and actions arising from the review shall be maintained. Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed before acceptance. Where product requirements are changed, L-3 EDI shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

7.2.3 Customer and Regulatory Communication

L-3 EDI shall determine and implement effective arrangements for communicating with customers and regulatory authorities, such as the FAA, in relation to product information; inquiries, contracts or order handling, including amendments; and customer feedback, including customer complaints.

7.3 Design and Development

7.3.1 Design and Development Planning

L-3 EDI shall plan and control the design and development of product. During design and development planning, L-3 EDI shall determine the design and development stages (in respect to the organization, task sequence, mandatory steps, significant stages, and configuration control methods); the review, verification and validation that are appropriate

to each design and development stage; and the responsibilities and authorities for design and development.

Where appropriate, due to such factors like complexity, L-3 EDI shall give consideration to dividing the design and development effort into distinct activities, and for each activity, defining the tasks, necessary resources, responsibilities, design content, input and output data, and planning constraints, and development.

The different design and development tasks to be carried out shall be based on the safety and functional objectives of the product in accordance with customer, statutory and regulatory requirements.

Design and development planning considers our ability to produce, inspect, test and maintain the product.

L-3 EDI shall manage the interfaces between different groups involved in the design and development effort to ensure effective communication and clear assignment of responsibility. Planning output shall be updated, as appropriate, as the design and development progresses.

Design and development review, verification, and validation have distinct purposes. They may be conducted and recorded separately or in any combination as suitable for L-3 EDI and the product.

7.3.2 Design and Development Inputs

Inputs relating to product requirements shall be determined and records maintained. These include functional and performance requirements, applicable statutory and regulatory requirements, where applicable, information derived from previous similar designs, and other requirements essential for design and development. The inputs shall be reviewed for adequacy including that requirements are complete, unambiguous and not in conflict with each other.

7.3.3 Design and Development Outputs

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

Design and development outputs shall meet the input requirements for design and development. Such outputs include appropriate information for purchasing, production and service provision; contain or reference product acceptance criteria; specification of the characteristics of the product that are essential for its safe and proper use; and specification, as applicable, any critical items, including any key characteristics, and specific actions to be taken for these items.

All pertinent data required to allow the product to be identified, manufactured, inspected, tested, used, and maintained shall be defined by L3 EDI and its currency maintained. Such data shall include drawings, part lists, and specifications necessary to define the configuration and product design features; data on material, processes, manufacturing, assembly, inspections and tests, including nondestructive inspections/tests, needed to ensure product conformity; and other technical documents required for installation, maintenance, instructions for continued airworthiness, or other post-delivery support

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documentation or activities (see [7.5.1.4](#)). Information for production and service provision may include details for the preservation of product.

7.3.4 Design and Development Review

At suitable stages, systematic reviews of design and development shall be conducted with planned arrangements (see [7.3.1](#)) to evaluate the ability of the results of design and development to fulfill requirements, to identify any problems and propose necessary actions, and to 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 shall be maintained (see [4.2.4](#)).

7.3.5 Design and Development Verification

Verification shall be performed in accordance with planned arrangements (see [7.3.1](#)) to ensure that the design and development outputs have satisfied the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained (see [4.2.4](#)).

7.3.6 Design and Development Validation

Design and development validation shall be performed in accordance with planned arrangements (see [7.3.1](#)) to ensure that the resulting product is capable of fulfilling the requirements for the specified or known intended use or application. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained (see [4.2.4](#)).

7.3.6.1 Design and Development Verification and Validation Testing

Where tests are necessary for verification and validation, the tests shall be planned, controlled, reviewed, and documented to ensure and prove that:

- a. test plans or specifications identify the product being tested and the resources being used; and define 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 of the product is submitted for the test;
- d. the requirements of the test plan and test procedures are observed, and;
- e. the acceptance criteria are met.

7.3.6.2 Design and Development Verification and Validation Documentation

At the completion of design and/or development, L-3 EDI shall ensure that reports, calculations, test results, etc., demonstrate that the product definition meets the specification requirements for all identified operational conditions.

7.3.7 Control of Design and Development Changes

Design and development changes shall be identified and records shall be maintained. The changes shall be 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 constituent parts and delivered product.

Design and development changes shall be controlled in accordance with the configuration management process (see [7.1.3](#)).

Records of the results of the review of changes and any necessary actions shall be maintained (see [4.2.4](#)).

L-3 EDI's change control process shall provide for customer, statutory and regulatory authority approval of changes where required by contract, statutory or regulatory requirement (see [7.1.3.1.1](#) and [5.4.2.1](#)).

7.4 Purchasing

To mitigate the risk of procuring and receiving used (i.e., not new), unapproved, or counterfeit parts, and suspect-used, suspect-unapproved, or suspect-counterfeit parts, L-3 EDI shall establish and document a Counterfeit Parts Risk Mitigation Program; based on AS5553 (Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition), L-3 Corporate [MQOP-001](#) (Counterfeit Part Risk Mitigation), FAA Order [8420.16](#) (Processing Reports of Suspected Unapproved Parts), and AC 21-29 (Detecting and Reporting Suspected Unapproved Parts); and other unique customer requirements, as applicable.



7.4.1 Purchasing Process

L-3 EDI shall ensure that purchased product conforms to specified purchase requirements. L-3 EDI shall be responsible for the quality of all products purchased from suppliers, including customer-designated sources, and those authorized to direct ship or delegated the authority to make major inspections. The type and extent of control applied to the supplier and the purchased product, and the resulting procurement risk mitigation methodologies employed shall be dependent upon the effect of the purchased product on subsequent product realization or the final product. Factors which shall be considered include, but not limited to: the robustness of the supplier's QMS, the supplier's performance history (e.g., quality and delivery); and whether the purchased product falls under special requirements, contains/is a special process, is a sole-source item, or is a critical item.

SAE ARP9114 (Direct Ship Guidance for Aerospace Companies) provides acceptable guidance and should be used for benchmarking purposes when establishing direct shipment arrangements

L-3 EDI shall be responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer.

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L-3 EDI shall evaluate and select suppliers based on their ability to supply product in accordance with L-3 EDI requirements, according to established and documented selection, evaluation, and re-evaluation criteria. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained (see [4.2.4](#)).

Factors that may be used during supplier selection and evaluation shall be: the supplier's quality manual or survey data, or the supplier's quality data from objective and reliable external sources (e.g., information from accredited QMS or process certification bodies, approvals from government authorities, or other L-3 division approvals and supplier performance data), evaluated by L-3 EDI. The use of such data shall only be one component of L-3 EDI's supplier control process, and L-3 EDI shall remain responsible for verifying that purchased product meets specified purchase requirements.

L-3 EDI shall maintain a register of its suppliers that includes: approval status (e.g., approved, conditional, disapproved), scope of the approval (e.g., product type, purchase authorization level); and periodically reviews supplier performance, in which the results of these reviews shall be used as a basis for establishing the level of controls to be implemented. In addition, L-3 EDI shall define the necessary actions to take when dealing with suppliers that do not meet established requirements. L-3 EDI shall ensure, where required, that both L-3 EDI and all our suppliers use customer-approved special process sources.

L-3 EDI shall define the process, responsibilities and authority for the approval status decision, changes of the approval status, and conditions for a controlled use of suppliers depending on their approval status, and determines and manages the risk when selecting and using suppliers (see [7.1.2](#)).

7.4.2 Purchasing Information

Regardless whether the procurement is from a domestic or international supplier, L-3 EDI's purchasing information shall fully describe the product to be purchased, including the applicable requirements, and the commensurate risk mitigation methodologies especially when the purchased product falls under special requirements, contains/is a special process, is a sole-source item, or is a critical item, where appropriate:

- a. requirements for approval of product, procedures, processes, and equipment,
- b. requirements for qualification of personnel,
- c. QMS requirements,
- d. the identification and revision status of specifications, drawings, process requirements, inspection/verification instructions and other relevant technical data, including technical design and quality data on electronic media (e.g., software, electronic models or artwork), electronically transmitted,
- e. requirements for design, test, inspection, verification (including production process verification), use of statistical techniques for product acceptance, and related instructions for acceptance by the organization, and, as applicable, special process controls and critical items, including key characteristics,

- f. requirements for test specimens (e.g., production method, number, storage conditions) for design approval, inspection/verification, investigation or auditing,
- g. requirements regarding the need for the supplier to:
 - i. notify L-3 EDI of nonconforming product,
 - ii. obtain L-3 EDI approval for nonconforming product disposition,
 - iii. notify L-3 EDI of changes in product and/or process; changes of suppliers; changes of manufacturing facility location; changes of company ownership, name or location; changes in senior management; and where required; obtain organization approval, and
 - iv. flow down to the supply chain the applicable requirements including customer, statutory, regulatory and stakeholder requirements,
- h. records retention requirements, and,
- i. right of access by L-3 EDI, our customers and regulatory authorities to the applicable areas of all facilities, at any level of the supply chain involved in the order and to applicable records.

For those items being procured in support of of an end-item whereas L-3 EDI is an FAA PAH, L-3 EDI purchasing shall initiate the written FAA notification process ([5.4.2.1](#)), when:

- L-3 EDI plans on delegating the authority to suppliers to make major inspections of parts or assemblies for which L-3 EDI is responsible,
- L-3 EDI plans on authorizing a supplier to direct ship, or
- L-3 EDI plans on using a new supplier located in another country. Notification should include the estimated receipt date of first articles produced by the supplier.

Purchase documents shall clearly describe the necessary requirements, including acceptance criteria for any delegated major inspection(s), and the requirements for direct shipments.

L-3 EDI shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier. The Product Groups' Quality Assurance shall be responsible for the assignment of supplier quality flow down requirements.

Since proper communication of requirements and expectations is critical in any customer-supplier relationship, L-3 EDI has established a supplier [website](#) to facilitate the flow down and communication of L-3 EDI's quality requirements, and Terms and Conditions.

7.4.3 Verification of Purchased Product

L-3 EDI shall establish and implement the inspections or other activities necessary for ensuring that purchased product meets specified purchase requirements. Verification activities may include obtaining objective evidence of the conformity of the product from the supplier (e.g., accompanying documentation, certificate of conformity, test records, statistical records, and process control records); inspection and audit at supplier's premises; review of required documentation; inspection of the products upon receipt, and delegation of verification to the supplier, or supplier certification.

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L-3 EDI shall maintain a system that ensures received material awaiting inspection, is segregated, identified and not inadvertently used.

Where purchased product is released for production use pending completion of all required verification activities, it shall be identified and recorded to allow recall and replacement, if subsequently found that the product does not meet requirements.

Where L-3 EDI delegates verification activities to a supplier, the requirements for delegation shall be defined and a register of delegations maintained. At the time of this quality manual revision release, subcontracting of inspection activities is not performed.

Where L-3 EDI or its customer intends to perform verification at the supplier's premises, L-3 EDI shall state the intended verification arrangements and method of product release in the purchasing information.

Where specified in the contract or regulatory policy and pursuant to L-3 EDI's flow down requirements of such to our supplier or subcontractor, the customer, regulatory agency or their representatives shall be afforded the right to verify at the supplier's premises and L-3 EDI's premises that the subcontracted product conforms to specified requirements.

7.5 Production and Service Provision

7.5.1 Control of Production and Service Provision

L-3 EDI shall plan and carry out production and service provisions under controlled conditions. Controlled conditions shall include, as applicable:

- a. the availability of information that describes the characteristics of the product,

NOTE

This information may include drawings, parts lists, materials, and process specifications.

- b. the availability of work instructions, as necessary,

NOTE

Work instructions may include process flow charts, production documents (e.g., manufacturing plans, travelers, routers, work orders, process cards, and inspection and test documents).

- c. the use of suitable equipment,

NOTE

Suitability may include ease of use, "mistake proofness", resistance to wear or corrosion, accuracy, repeatability and reproducibility, availability. Suitable equipment may include product specific tools (e.g., jigs, fixtures, molds), inspection equipment (e.g. destructive and nondestructive), and software programs.

- d. the availability and use of monitoring and measuring equipment,
- e. the implementation of monitoring and measurement,

- f. the implementation of product release, delivery, and post-delivery activities (see [7.5.1.4](#)),
- g. accountability for all product during production (e.g., parts quantities, split orders, and traceable items (see [7.5.3](#)), and nonconforming product (see [8.3](#))),
- h. evidence that all production and inspection/verification operations have been completed as planned, or otherwise documented and authorized,
- i. provision for the prevention, detection, and removal of foreign objects,
- j. monitoring and control of utilities and supplies, such as water, compressed air, electricity, and chemical products, to the extent they affect conformity to product requirements, and
- k. criteria for workmanship, specified in the clearest, most practical manner, such as written standards, representative samples, or illustrations.

NOTE

Representative samples shall be identified in a permanent manner that can readily preclude their introduction into the production process.

Planning shall consider, as applicable:

- the establishment, implementation, and maintenance of appropriate processes to manage critical items, including process controls where key characteristics have been identified; the design, manufacture and use of tooling to measure variable data; development of control plans where key characteristics have been identified (ref.: AS9103 Variation Management of Key Characteristics);
- the identification of in-process inspection/verification points when adequate verification of conformance cannot be performed at later stages of realization measurements can be taken, particularly for key characteristics; and
- the special provisions for nondestructive inspections/tests (NDI/NDT) and special processes (see [7.5.2](#)).

Inspection activities required by the FAA, such as Conformity Inspections, Airworthiness Approval, and Export Airworthiness Approvals pursuant to 14 CFR 21, Subpart L (Export Airworthiness Approvals), shall be performed by company individuals specifically designated by the FAA in accordance with 14 CFR Part 183.

When requested by our customer, government, statutory, regulatory, or stakeholder representatives, L-3 EDI shall provide the use of our facilities and equipment in order for them to perform source inspection, surveillance, audit or other verification activities to determine product conformity and/or compliance to order/contract requirements.

7.5.1.1 Production Process Verification

L-3 EDI shall use 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 capable of producing parts and assemblies that meet requirements. This process shall be repeated when changes occur that invalidate the original results (e.g., engineering changes, manufacturing process changes, tooling changes). This activity is referred to as

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first article inspection (FAI). L-3 EDI's FAI process shall be based on AS9102 (First Article Inspection).

7.5.1.2 Control of Production Process Changes

Personnel authorized to approve changes to production process shall be identified. L-3 EDI shall identify and obtain acceptance of changes that require customer and/or regulatory authority approval in accordance with contract or regulatory requirements. Changes affecting processes, production equipment, tools, or software programs shall be controlled and documented. Procedures shall be available to control their implementation. The results of changes to production processes shall be assessed to confirm that the desired affect has been achieved without adverse effects to product conformity.

When required, production process changes shall be processed as specified in [5.4.2.1](#).

7.5.1.3 Control of Production Equipment, Tools, and Software Programs

Production equipment, tools, and software programs used to automate and control/monitor product realization processes shall be validated prior to release for production and maintained. Validation prior to production release can be accomplished by verification of the first article produced to the design data/specification using AS9102 (First Article Inspection), process capability studies (e.g., Cpk), equipment calibration (see [7.6](#)), or gage repeatability and reproducibility (Gage R&R) studies. Storage requirements including periodic preservation / condition checks shall be defined for production equipment or tooling in storage.

7.5.1.4 Post-Delivery Support

L-3 EDI shall conduct post-delivery support, as applicable, for:

- a. the collection and analysis of in-service (a.k.a. in-warranty) data,
- b. the actions needed to be taken, including investigation and reporting, and, as applicable, nonconformance processing, correction, containment; and corrective ([8.5.2](#)), preventive ([8.5.3](#)), or continual improvement ([8.5.1](#)) actions, when problems detected after delivery, including, but not limited to L-3 EDI's participation in:
 - FAA conducted accident and incident investigations pursuant to FAA Order [8020.11](#) (Aircraft Accident And Incident Notification, Investigation, and Reporting),
 - FAA Service Difficulty Program, as may be required, pursuant to FAA Order [8010.2](#) (Flight Standards Service Difficulty Program) and AC 20-109 (Service Difficulty Program – General Aviation), and
 - Reporting of Safety Related Failures, Malfunctions, and Defects pursuant to 14 CFR § 21.3, FAA Order [8150.1](#) (Technical Standard Order Program), and AC 21-9 (Manufacturers Reporting Failures, Malfunctions, or Defects).
- c. the control, issuance, and updating of technical documentation (e.g., engineering drawings, installation and operation manuals, instructions for continued airworthiness, field service manuals, Service Bulletins (SB's), Service Letters

- (SL's)), including their coordination and/or approval by regulatory authorities as may be required,
- d. the approval, control, and use of rework, repair ,refurbishment, or retrofit schemes, including appropriate verification activities, regardless of whether performed on-site or off-site (e.g., field service support),
 - e. the controls required for off-site work (e.g., L-3 EDI's work undertaken at the customer's facilities or at point-of-use).

7.5.2 Validation of Processes for Production and Service Provision

L-3 EDI shall validate any processes for production and service provision where subsequent monitoring or measurement cannot verify the resulting output, and, as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered. L-3 EDI, like many in industry, refers to these processes as "special processes". Typically "special processes" encompass nondestructive inspections/tests (NDI's/NDT's). Validation shall demonstrate the ability of these special processes to achieve planned results, and, as appropriate, may include equipment calibration (see [7.6](#)) or gage repeatability and reproducibility studies.

L-3 EDI shall establish arrangements for these special processes, including, as applicable:

- a. defined criteria for review and approval of the special processes,
- b. approval of equipment and qualification of personnel,
- c. use of specific methods and procedures (e.g., defined controls of the significant operations and parameters of special processes in accordance with documented process specifications and changes thereto, actions to be taken to correct a special process that is found to be out of control (see [8.2.3](#))),
- d. requirements for records (see [4.2.4](#)), and
- e. revalidation.

7.5.3 Identification and Traceability

Where appropriate, L-3 EDI shall identify the product by suitable means, and identifies the product status (a.k.a. inspection or acceptance status) with respect to monitoring and measurement requirements throughout product realization. L-3 EDI shall maintain the identification of the product configuration in order to identify any differences between the actual configuration and the agreed configuration. When acceptance authority media are used (e.g., stamps, electronic signatures, passwords), L-3 EDI shall have established appropriate controls for the media. Where traceability is a requirement, L-3 EDI shall control the unique identification of the product and maintain records (see [4.2.4](#)).

According to the level of traceability required by contract, statutory, regulatory, or other established requirements, L-3 EDI's QMS shall provide for the following, as applicable:

- a. identification to be maintained throughout the product's life;
- b. the ability to trace all the products manufactured from the same batch of raw material, or from the same manufacturing batch, to the destination (e.g., delivery, scrap, split lots);

- c. for an assembly, the ability to trace its components to the assembly and then to the next higher assembly;
- d. for a given product, a sequential record of its production (e.g., manufacture, assembly, inspection/verification, test) to be retrievable; and
- e. The positive control of all end-item nameplates reflecting FAA authorization (e.g., TSOA or PMA).

7.5.4 Customer Property

L-3 EDI shall exercise care with customer property while it is under our control or usage. Customer property provided for use or incorporation into the product shall be properly identified, verified, protected and safeguarded. If any customer property is lost, damaged or otherwise found to be unsuitable for use, L-3 EDI shall report such to the customer and maintains adequate records (see [4.2.4](#)). Customer property may include such items as intellectual property and personal data.

7.5.5 Preservation of Product

L-3 EDI shall preserve the product during internal processing and delivery to the intended destination in order to maintain conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.

Preservation also includes, where applicable in accordance with product specifications and/or applicable statutory and regulatory requirements, provisions for cleaning; prevention, detection and removal of foreign objects; special handling of sensitive products; marking and labeling, including safety warnings; shelf life control and stock rotation; and special handling of hazardous materials.

7.6 Control of Monitoring and Measuring Equipment

L-3 EDI shall determine the monitoring and measurement to be undertaken, and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements.

L-3 EDI shall maintain a register of monitoring and measuring equipment, and defines the processes employed for their calibration/verification, or both, including details of equipment type, unique identification, location, frequency of checks, check method, and acceptance criteria.

Monitoring and measuring equipment shall include, but shall not be limited to: inspection and test devices, test software, automated test equipment (ATE) and plotters used to produce inspection data. It also shall include any personally-owned equipment, special process equipment, and customer-supplied equipment (see [7.5.4](#)) used to provide evidence of product conformity.

L-3 EDI shall establish processes to ensure that monitoring and measuring equipment can be carried out, and is carried out in a manner that is consistent with the monitoring and measurement requirements.

L-3 EDI shall ensure the environmental conditions are suitable for the calibrations, inspections, measurements, and tests being carried out.

Where necessary to ensure valid results, monitoring and measuring equipment shall be calibrated or verified, or both, at specified intervals or prior to use, against measurement standards traceable to international or national measurement standards, and shall be identified to enable its calibration status to be determined. Where no such standards exist, the basis used for calibration or verification shall be recorded (see [4.2.4](#)). Where necessary, monitoring and measuring equipment shall be adjusted or re-adjusted; shall be safeguarded from adjustments that would invalidate the measurement result; shall be protected from damage and deterioration during handling, maintenance and storage; and shall be recalled to an established, implemented, and maintained process when requiring calibration or verification.

L-3 EDI personnel using calibrated or verified monitoring and measuring equipment shall be responsible to ensure that it displays a valid calibration/verification identification prior to use.

In addition, L-3 EDI shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. L-3 EDI shall take appropriate action on the equipment and any product affected. Records of the results of calibration and verification shall be maintained (see [4.2.4](#)).

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application shall be confirmed prior to initial use, and is reconfirmed as necessary. The confirmation of the ability of computer software to satisfy the intended application may typically include its verification and configuration management to maintain its suitability for use.

8.0 MEASUREMENT, ANALYSIS AND IMPROVEMENT

GENERAL POLICY

Formal systems, including internal audits, shall be used to measure quality system, process, and product performance and conformance, as well as customer satisfaction. Control and review of nonconforming product is an important input to these measurements. The information from these measures shall be used to drive problem solving and continual improvement.

PROCEDURAL POLICIES

8.1 General

L-3 EDI shall plan and implement the monitoring, measurement, analysis and improvement processes needed to demonstrate conformity to product requirements, to ensure conformity of the QMS, and to continually improve the effectiveness of the QMS.

This includes determination of applicable methods, including statistical techniques, and the extent of their use.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction

As one of the measurements of the performance of the QMS, L-3 EDI shall monitor information relating to customer perception as to whether L-3 EDI has fulfilled customer requirements. The methods for obtaining and using this information shall be determined.

Information to be monitored and used for the evaluation of customer satisfaction include, but shall not be limited to, product conformity, on-time delivery performance, customer complaints, compliments, and corrective action requests. L-3 EDI shall develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.

Monitoring customer perception may include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, compliments, warranty claims, and dealer reports.

8.2.2 Internal Audit

L-3 EDI shall conduct internal audits at planned intervals to determine whether the QMS: conforms (1) to the planned arrangements (see [7.1](#)) including customer, statutory, regulatory, and stakeholder requirements; (2) to the requirements of ISO 9001:2008 / AS9100C:2009, (3) to any delegated quality activities undertaken by L-3 EDI, and (4) to L-3 EDI's QMS requirements; and is effectively implemented and maintained.

An audit program shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. The selection process for auditors conducting the audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work.

The responsibilities and requirements for planning and conducting audits, establishing records, and for reporting results and maintaining records (see [4.2.4](#)) shall be defined in an established documented procedure, which is based on the guidance provided in ISO 19011, FAA [Best Practice: Internal Quality Audit Plan](#), and [AC 21-43](#) (Production Under 14 CFR Part 21, Subparts, F, G, K, and O).

The management responsible for the area being audited shall ensure 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 (see [8.5.2](#)).

8.2.3 Monitoring and Measurement of Processes

L-3 EDI shall apply suitable methods for monitoring, and, where applicable, measurement of the QMS processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

When determining suitable methods, the type and extent of monitoring or measurement appropriate to each of its processes, in relation to their impact on the conformity to product requirements and on the effectiveness of the QMS, shall be considered.

In the event of nonconformity, L-3 EDI shall take appropriate action to correct the nonconforming process, evaluate whether the process nonconformity has resulted in product nonconformity, determine if the process nonconformity is limited to a specific case or whether it could have affected other processes or products, and identifies and controls the nonconforming product (see [8.3](#)).

8.2.4 Monitoring and Measurement of Product

L-3 EDI shall monitor and measure the characteristics of product to verify that product requirements are fulfilled. This shall be carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see [7.1](#)). Evidence of conformity with the acceptance criteria shall be maintained.

Measurement requirements for product acceptance shall be documented and shall include:

- a. criteria for acceptance and/or rejection,
- b. where in the sequence measurement and testing operations are performed,
- c. required records of the measurement results (at a minimum, indication of acceptance or rejection), and
- d. any specific measurement instruments required and any specific instructions associated with their use.

When critical items, including key characteristics, have been identified L-3 EDI shall ensure they are controlled and monitored in accordance with the established processes.

When L-3 EDI uses sampling inspection as a means of product acceptance, the sampling plan shall be justified on the basis of recognized statistical principles and its appropriateness for use (i.e., matching the sampling plan to the criticality of the product and to the process capability). Statistical sampling plans shall be based on recognized industry / military consensus standards. The usage of statistical sampling plans permitting the acceptance of defective (a.k.a. nonconforming) product shall be prohibited. Unless otherwise mutually agreed with the customer, lot rejection shall be based on the determination of a single defective unit (e.g., $Re = 1$), this is often referred to as zero acceptance number (e.g., $Ac = 0$) or accept on zero (AOZ) sampling.

Where product is released for production use pending completion of all required measurement and monitoring activities, it shall be identified and recorded to allow recall and replacement if it is subsequently found that the product does not meet requirements.

Records shall indicate the person(s) authorizing release of product for delivery to the customer (see [4.2.4](#)).

Where required to demonstrate product qualification, or FAA airworthiness (inclusive of export airworthiness requirements), L-3 EDI shall ensure that records provide evidence that the product meets the defined requirements.

The release of product and delivery of service to the customer does not proceed until all the planned arrangements (see [7.1](#)) have been satisfactorily completed, unless otherwise approved by a relevant authority, and, where applicable, by the customer or regulatory authority.

L-3 EDI shall ensure that all documents required to accompany the product are present at delivery.

8.3 Control of Nonconforming Product

L-3 EDI shall ensure that products which do not conform to product requirements including quality, reliability, or safety, are identified and controlled to prevent their unintended use or delivery. The controls and related responsibilities and authorities for dealing with nonconforming product shall be defined in an established documented procedure.

L-3 EDI's nonconforming process shall cover the full-spectrum of nonconformances: supplier-responsible nonconformances (i.e., notifications of suspected problems with previously delivered products and supplier-provided nonconforming products), L-3 EDI-responsible product, process, and measuring equipment nonconformances, and products returned by a customer that has been verified by L-3 EDI to be our responsibility.

L-3 EDI's procedure shall define the responsibility and authority for the review and disposition of nonconforming product, and the process for approving personnel making

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these decisions. Material Review Board (MRB) Representatives, including representatives having delegated authority from the design organization (e.g., customer) or regulatory authority shall be approved by L-3 EDI's Vice President of Quality Assurance in accordance with defined requirements. Upon approval by the Vice President of Quality Assurance, design authority, and/or regulatory authority, as applicable, the authorized MRB Representative shall be listed on L-3 EDI's MRB Membership Listing.

When required, L-3 EDI's nonconformance procedure and/or Material Review Board Membership personnel changes shall be processed as specified in [5.4.2.1](#).

Where applicable, L-3 EDI shall process nonconforming product by one or more of the following ways:

- a. by taking action to eliminate the detected nonconformity,
- b. by authorizing its use, release or acceptance under concession by a relevant authority, and, where applicable, by the customer or regulatory authority,
- c. by taking action to preclude its original intended use or application,
- d. by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started. L-3 EDI's nonconforming product procedure shall provide for timely reporting of delivered nonconforming product. Unless otherwise specified, notification shall include a clear description of the nonconformity, which includes as necessary, and to the maximum extent possible, the following pertinent affected data: part number(s), customer(s), quantity, purchase order/contract number(s), and date(s) delivered,

Parties requiring notification of nonconforming product may include suppliers, internal organizations, customers, distributors, dealers, operators, service agencies, special interest groups, and regulatory authorities, and

- f. by taking actions necessary to contain the effect of the nonconformity on other processes or products.

Nonconforming product shall be held in designated segregated areas, when appropriate, and standard protocol dictates for it not to reside in stores (e.g., stock room).

Dispositions of "use-as-is" or "repair" shall only be used after approval by an authorized representative of the organization responsible for design of the nonconforming design characteristic.

If the nonconformity results in a departure from the customer contract or order requirements, L-3 EDI shall not use dispositions of "use-as-is" or "repair", unless specifically authorized by the customer. The disposition of "regrade" shall be not used.

When the product is produced to a customer design and the nonconformity results in a departure from the contract requirements, including, but not limited to: quality, reliability,

maintainability, safety, balance and weight (if a factor), L-3 EDI shall not use dispositions of “use-as-is” or “repair”, unless specifically authorized by the customer or regulatory authority.

The review of nonconforming material shall include determining if the documented nonconformance constitutes a major or minor change to the FAA-approved design (see [7.1.3.1.1](#)).

Used, unapproved, or counterfeit parts, and suspect-used, suspect-unapproved, or suspect-counterfeit parts, shall be handled as nonconforming material. The appropriate customers, statutory and regulatory authorities, and stakeholders shall be notified in accordance with L-3 EDI’s QMS, and applicable customer, statutory and regulatory authorities, and stakeholder requirements such as, but not limited to:

- SAE AS5553 (Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition),
- FAA Order [8420.16](#) (Processing Reports of Suspected Unapproved Parts) and AC21-29 (Detecting and Reporting Suspected Unapproved Parts), and
- L-3 Corporate [MQOP-001](#) (Counterfeit Part Risk Mitigation).

Nonconforming product dispositioned for scrap shall be conspicuously and permanently marked, or positively controlled until physically rendered unusable. As applicable, FAA-approved articles (14 CFR 21 § 21.305) and constituent items thereof, shall be dispositioned pursuant to FAA Order [8120.11](#) (Disposition of Scrap or Salvageable Aircraft Parts and Material) embodying the best practices specified in FAA document, [Best Practice: Scrap or Salvageable Aircraft Parts and Materials](#), and [AC 21-43](#) (Production Under 14 CFR Part 21, Subparts, F, G, K, and O).

When nonconforming product is corrected, it shall be subject to re-verification (e.g., inspection and/or test) to demonstrate conformity to the requirements.

Records of the nature of nonconformities; any subsequent actions taken, including concessions obtained; customer or regulatory notifications or approval, as applicable, of material review board representative delegates and nonconformance procedures or their changes shall be maintained (see [4.2.4](#)).

For those products manufactured as an FAA PAH, L-3 EDI shall establish and document a process for participation in the FAA’s Service Difficulty Program, that shall include their prompt investigation and corrective action (see [8.5.2](#)), and FAA or user notification of field problems and reporting (including the need for any recall as may be deemed necessary for suspect or known nonconformances) of safety related failures, malfunctions, and defects in accordance with 14 CFR § 21.3, FAA Order [8150.1](#) (Technical Standard Order Program), and AC 20-109 (Service Difficulty Program (General Aviation)).

8.4 Analysis of Data

L-3 EDI shall determine, collect, and analyze appropriate data to demonstrate the suitability and effectiveness of the QMS, and to evaluate where continual improvement of the QMS can be made. This includes data generated as a result of monitoring and measurement, and from other relevant sources.

The analysis of data shall provide information relating to customer satisfaction (see [8.2.1](#)), conformity to product requirements (see [8.2.4](#)), characteristics and trends of processes and products, including opportunities for preventive action (see [8.2.3](#) and [8.2.4](#)), and suppliers (see [7.4](#)).

8.5 Improvement

8.5.1 Continual improvement

L-3 EDI shall continually improve the effectiveness of the QMS through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review. In addition, L-3 EDI shall have an established and documented Lean Six Sigma continual improvement initiative.



Continual improvement (CI) opportunities can result from most everything we do – as perfection is seldom obtained the first time. Some common ways for CI opportunities to present themselves are from conducting lessons learned, brainstorming sessions, problem resolutions, and benchmarking best practices. Numerous public sources regarding best practices or process excellence exist and may be used, including, but not limited to: [FAA Best Practices](#), [Best Manufacturing Practices Center of Excellence \(BMP COE\)](#), [International Aerospace Quality Group Supply Chain Management Handbook \(SCMH\)](#), and L-3 Corporate Quality and Material Management intranet [websites](#).

In alignment with [L-3 Corporate Policy 601](#) (Quality), L-3 EDI promotes synergy across L-3's various divisions to facilitate increased effectiveness and efficiencies. To this end, L-3 EDI shall fully support the applicable activities and actively engage in various L-3 Corporate [teams](#) to create a community which fosters the sharing of lessons learned, and leveraging best practices to advance our own organization and other participating divisions in the spirit of continual improvement.

L-3 EDI's Continual Improvement Model shall be as illustrated in [Figure 13](#).

For guidance purposes, ISO 9004 (Managing for the Sustained Success of an Organization -- A Quality Management Approach) may be consulted.

8.5.2 Corrective Action

L-3 EDI shall take actions to eliminate the causes of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered.

A documented procedure shall exist defining the requirements for:

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- a. reviewing nonconformities (including customer complaints),
- b. determining the causes of nonconformities,
- c. evaluating the need for action to ensure that nonconformities do not recur,
- d. determining and implementing action needed,
- e. records of the results of action taken (see [4.2.4](#)),
- f. reviewing the effectiveness of the corrective action taken,
- g. flowing down corrective action requirements to a supplier, when it is determined that the supplier is responsible for the nonconformity,
- h. taking specific actions where timely or effective corrective actions are not achieved, and
- i. determining if additional nonconforming product exists based on the causes of the nonconformities and taking further action when required.

8.5.3 Preventive Action

L-3 EDI shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.

A documented procedure shall define requirements for:

- a. determining potential nonconformities and their causes,
- b. evaluating the need for action to prevent occurrence of nonconformities,
- c. determining and implementing actions needed,
- d. recording of results of action taken (see [4.2.4](#)), and
- e. reviewing the effectiveness of the preventive action taken.

Preventive action opportunities may include risk management; error proofing; failure mode and effect analysis (FMEA) / failure mode, effect and criticality analysis (FMECA); and information on product problems reported by external sources.

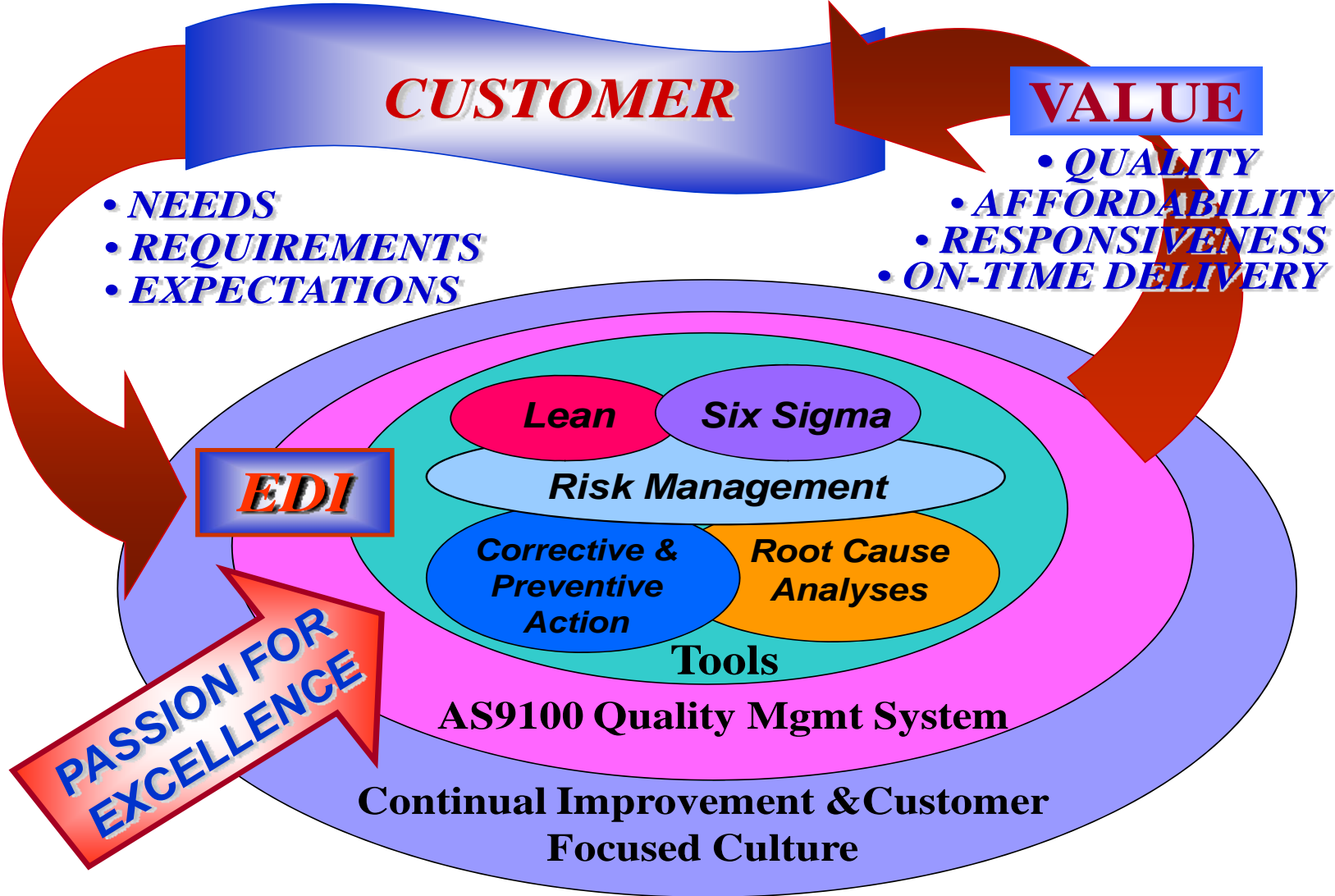


Figure 13. L-3 EDI Continual Improvement Model (8.5.1).

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APPENDICES

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APPENDIX A

Authorized FAA Quality Manual Approval Record



U.S. Department
of Transportation
**Federal Aviation
Administration**

Chicago Mfg. Inspection
Satellite Office (MISO)
2300 E Devon Ave. Room 105
Des Plaines, IL 60018
T: 847-294-7188
F: 847-294-7826

November 11, 2011

Mr. James Jasinski
L3 communications Electroynamics, Inc.
1200 Hicks Road
Rolling Meadows, IL 60008

Dear Mr. Jasinski:

We have completed our review of your quality manual and found it meets the new requirements of CFR §21.608. The FAA approves the submitted manual with an effective date of November 9, 2011. The FAA reserves the right to require changes, additions, or clarifications that may become necessary as a result of subsequent inspections and/or evaluations.

The FAA will validate the submitted quality manual for compliance to the new requirements at your facility's next scheduled certificate management activity.

Please retain this notification on file as evidence of FAA's approval of your quality manual.

Document Name: Quality Manual

Document Number: 6008725

Revision Number: N

Date: 11/11/2011

Should you have any questions or concerns, please contact the undersigned.

Sincerely,

Ray Kist
Aviation Safety Inspector
Chicago MISO

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