


# ***HAMMOND ASSEMBLY SOLUTIONS QUALITY MANUAL***

## **ISO 9001:2008**

Approved by:   
General Manager  
Hammond Assembly Solutions

Date: 12/15/14

Approved by:   
President  
Hammond Electronics

Date: 12/15/14

# Hammond Assembly Solutions Quality Manual

Revision 10; 12/11/14

## Section QM-01

### Company Profile

Hammond Assembly Solutions was founded in 1988 and is located in Orlando, Florida. The company employs highly skilled men and women who operate a state-of-the-art manufacturing facility through their continual commitment to the improvements of the quality system and the assurance of conformity to customer and applicable regulatory requirements.

Hammond Assembly Solutions specializes in the manufacture of wire harnesses and cable assemblies, component modification, and electro-mechanical assembly for original equipment manufacturers across a wide variety of industries. Capabilities include assembly of ribbon cables, discreet wire harnesses; flat flex cables, coaxial cables, filter modification, and LED and LCD modification.

Hammond Assembly Solutions has developed and implemented the Quality System outlined in this Quality Manual to ensure that its products, standards, and services meet or exceed the manufacturing and safety requirements specified by our customers. The Quality System is considered by the management of Hammond Assembly Solutions to be an integral and essential part of all company operations.

### 1.0 Scope

The Quality Manual contains the Quality Management System used by Hammond Assembly Solutions. Its purpose is to provide the controls necessary to:

- a) Achieve the highest possible quality standards for all products manufactured and supplied by HAS.
- b) Determine the needs and expectations of customers and other interested parties.
- c) To recognize and implement all customer, statutory and regulatory requirements.
- d) Motivate and control the management, technical and production human resources that affect and impact on process quality for the purpose of identifying, reducing, and ultimately preventing all quality deficiencies.
- e) Establish the quality policy objectives of the company.
- f) Determine the processes and responsibilities necessary to attain the quality objectives.
- g) Determine and provide the resources necessary to attain the quality objectives.
- h) Establish methods to measure the effectiveness and efficiency of each process.

The Quality System contained in this manual is based on the requirements of ISO 9001: 2008.

## Section QM-02

**2.0 Application** The Quality Management System applies to all work undertaken by Hammond Assembly Solutions. If there is an identified discrepancy between the contents of this manual and any contract or customer specifications, the latter shall generally apply notwithstanding a thorough situation analysis by top management and the Quality Manager.

## Section QM-03

### 3.0 Reference Documents

ISO 9001: 2008 Quality Management Systems Requirement

The final pages of this document contain references of internal documents to this document.

## Section QM-04

### 4 Quality management system

#### 4.1 General requirements

Hammond Assembly Solutions has established, documented, implemented and maintains a quality management system, continually improving the effectiveness in accordance with the requirements in the ISO 9001: 2008 Standards, and has

- a) Determined the processes needed for the quality management system and their application throughout the organization.
- b) Determined the sequence and interaction of these processes.
- c) Determined criteria and methods needed to ensure that both the operation and control of these processes are effective.
- d) Ensured the availability of resources and information necessary to support the operation and monitoring of these processes.
- e) Monitored, measured (where applicable) and analyzed these processes.
- f) Implemented actions necessary to achieve planned results and continual improvement of these processes.

4.1.2 These processes are managed by top management in accordance with the requirements of ISO 9001:2008, which include processes for management activities, provision of resources, product realization and measurement.

4.1.3 Where Hammond Assembly Solutions chooses to outsource any process that affects product conformity to requirements, they shall ensure control over such processes. Control of such outsourced processes shall be defined within the quality management system.

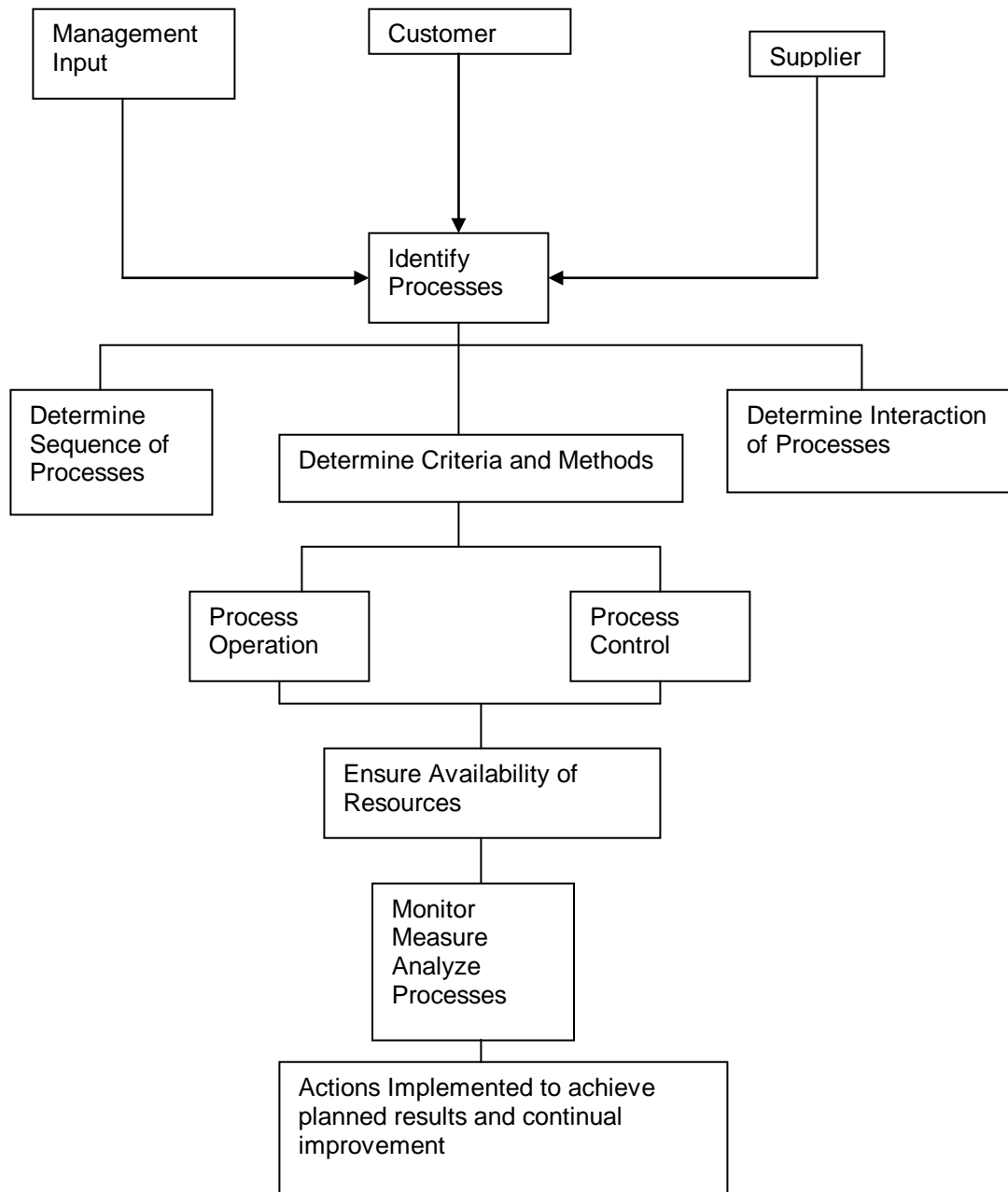
#### 4.2 Documentation requirements

##### 4.2.1 General

The quality management system documentation includes

- a) Documented statements of a quality policy and quality objectives.
- b) A quality manual.
- c) Documented procedures and records as required by the ISO 9001:2008 standard.
- d) Documents including records, determined by the organization to be necessary to ensure effective planning, operation and control of processes.
- e) Records as required by the ISO 9001:2008 standard.

## Hammond Assembly Solutions Management System



### 4.2.2 Quality manual

Hammond Assembly Solutions has established and maintains a quality manual that includes

- a) The scope of the quality management system, including justifications for any exclusion.
- b) The documented procedures established for the quality management system, or reference to them.
- c) A description of the interaction between the processes of the quality management system.

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## 4.2.3 Control of documents

4.2.3.1 The concise and accurate documentation of all Quality Assurance procedures is essential to the effectiveness of the company quality management system. Document and Data control procedures are necessary to provide efficient information management at all levels. The Quality System Procedures Manual (QS) contains specific details on the control of essential documents and data. The purpose of this section is to provide an overview of information management principles and policy.

4.2.3.2 Documents and data are defined as any and all relevant information generated by the company or issued by a customer or other external organization in either hard copy or electronic storage media. The term "Document" in both manuals refers to information in printed form and/or in computer files.

### 4.2.3.3 Document approval and issue

- a) The Quality Assurance Manager and the Appropriate Department Manager prior to issue approve documents. Master copies of controlled documents are maintained by the Quality Assurance Manager to prevent the use of invalid or obsolete procedures. Documentation shall remain legible and readily identifiable.
- b) Current issues of all relevant versions of applicable controlled documents are to be made available at each point of use. Area Supervisors are required to ensure that employees are aware of current procedure status at all times.
- c) Documents shall be reviewed and updated by the applicable manager as necessary and re-approved as required. Changes and current revision status of documents shall be identified ensuring the changes have been met and the changes have been approved.
- d) Superseded, invalid and/or expired documents are to be removed from all issued locations or, if needed for process reference purposes, clearly marked as no longer valid and/or expired.
- e) Withdrawn, obsolete and/or superseded documents may be kept if necessary for legal, research or other legitimate purpose provided the document and/or data is suitably identified.
- f) Documents that come into the company from an outside source, determined by the organization to be necessary for the planning and operation of the quality management system, must be identified and controlled, including the distribution of such documentation.

### 4.2.3.5 Document changes

Any proposed changes to a quality control document must be reviewed and approved prior to issuance. Any function or outside organization are to be included in the review process and briefed on the reason(s) for the proposed change. When approved, the changes are to be clearly identified in the new document.

## 4.2.4 Control of records

4.2.4.1 Effectiveness of the Quality Management System depends on established and maintained record keeping. Records may be stored as hard (paper) media or electronically by the use of computer software. Control of "records" is applicable to both storage media. Secure retrieval protocols and the integrity of stored information are critical for either method.

4.2.4.2 Quality records are defined as any records of contract review, internal audit reports, quality plans, training records, calibration records, sub-contractor approval and oversight documents, management reviews, corrective and preventive action records, and all routine product procedure quality or conformance documents. Quality procedure documents include, but are not limited to, inspection records, design records, drawings, material certificates, product nonconformance and disposal records.

4.2.4.3 All records must be, legible, and readily identifiable and retrievable to all employees.

4.2.4.4 Documented procedures have been established in the Quality System Procedures Manual that defines the controls needed for the identification, storage, protection, retrieval and disposition of records.

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4.2.4.5 The Quality Assurance Manager is responsible for maintaining an accurate list of all records and shall establish specific record locations and document retention cycles. The retention times are to be established after consideration of potential product liability, litigious limitation of civil statutes and statutory requirements.

4.2.4.6 Proprietary records are usually not supplied to any customer, or the customer's representative, only if such disclosure is a contractual requirement. The company may, however, and at its sole discretion, release such information on a case-by-case basis and as needed condition.

## Section QM-05

5.0 Management responsibility

5.1 Management commitment

5.1.1 Top management shall provide documented evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by: Leading the company through the quality management system to build and develop trust from within.

Communicating to the company through the quality management system shows the importance of meeting customer as well as statutory and regulatory requirements.

Establishing and approving the quality policy.

Continually ensuring that quality objectives are established and followed.

Conducting periodic management reviews.

Ensuring the availability of resources to employees and customers, as required.

Creating an environment that encourages the involvement and development of people.

5.1.2 In order to determine whether planned objectives have been achieved; methods of measurement shall be defined by top management. The company's performance assessment encompasses a broad discipline, which may include:

Financial measurement;

Measurement of process performance throughout the company.

External measurement, such as bench marking or third party evaluation.

Assessments of satisfied customers, company personnel and other interested parties.

Assessment of the customer perceptions and performance of products provided.

Measurement of success factors identified by management.

Derived input-considered as input to the management review meeting, which collectively evaluates the quality management system effectiveness and identifies verification for continual improvement.

5.2 Customer focus

5.2.1 Top management shall ensure that customer requirements are determined and fulfilled with the aim of enhancing customer satisfaction through determination of requirements related to the product and customer satisfaction. This is typically done through any of the following:

a) Determining the requirements specified by the customer, including the requirements for delivery and post delivery activities through past history, experience and/or customer needs.

b) Determining the requirements not stated by the customer but necessary for specified use or known and intended use through past history, experience and/or customer needs.

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- c) Determining the statutory and regulatory requirements related to the product.
- d) Monitoring information relating to customer perception as to whether the company has fulfilled customer requirements through customer satisfaction, trend analysis, rejections, performance, on-time delivery, etc.
- e) Understanding current and future customer needs and expectations.
- f) Promoting continual learning and training skills to employees for quality management system awareness.
- g) Identifying the customers and maintain a balanced response to their needs.
- h) Translating identified needs and expectations into requirements.
- i) Communicate the requirements throughout the company.
- j) Focusing on process improvement, ensuring value.
- k) Determining key product characteristics for customers.
- l) Identifying and assessing the competition.
- m) Identifying marketing opportunities, weaknesses, future growth, and advantages.

## 5.3 Quality policy

The Quality Policy developed by Hammond Assembly Solutions is posted in the front of this Quality manual and throughout the facility. The policy

- a) Is appropriate to the purpose of Hammond Assembly Solutions
- b) Includes the commitment to comply with requirements and continually improve the effectiveness of the quality system.
- c) Provides a framework for establishing and reviewing quality objectives.
- d) Is communicated within the organization.
- e) Is reviewed for continued suitability.

## 5.4 Planning

### 5.4.1 Quality objectives

5.4.1.1 Top management shall ensure that quality objectives, including those needed to meet requirements for product are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy and shall include the planning of product realization to include the quality objectives and requirements for the product.

5.4.1.2 When objectives are being established, management considers the following:  
Current and future needs of the company and industry.

Relevant findings from management review meetings.

Product and process performance.

Levels of satisfaction, internal and external.  
Assessment results.

Competitor analysis, bench marking, new opportunities for improvement.

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Continually sourcing new resources needed to fulfill quality objectives.

5.4.1.3 Top management shall delegate, as appropriate, the personnel that will contribute to the achievement of the quality objectives through documented corrective action forms, memos, nonconformance reports, audit reports or any other documentation that is pertinent.

5.4.1.4 Objectives are systematically reviewed and revised, as necessary.

## 5.4.2 Quality management system planning

5.4.2.1 Top management shall ensure that the planning of the quality management system is carried out in order to meet the general requirements of the ISO 9001:2008 guidelines as well as the quality objectives, and that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented. The purpose of this manual is to establish, document, implement and maintain an ongoing and practical ISO 9001:2008 Quality Management System so that products and processes continue to meet specified and/or agreed requirements. The documentation of this commitment to quality management is contained in three levels:

### 5.4.2.2 Quality Manual (QM)

The Quality Manual (designated as QM) is the first-level company document. It contains company Quality policy and establishes responsibilities. It also provides organizational structure and details how each company department or function is to meet its quality objectives.

### 5.4.2.3 Quality System Procedures Manual (QS)

The Quality System Procedures Manual (designated throughout as QS) is the second-level company document. It contains detailed information on specific quality control procedures including the purpose and scope of the procedure; individual responsibilities; method and resources to be deployed; and instructions on required documentation.

### 5.4.2.4 Quality Plans and other Level 3 Documentation

The company's third Level of quality control system includes, but is not limited to, any and all work documentation including quality plans, work orders, specific procedures, records, and inspection reports. Such routine documentation is used to analyze results and performance of processes and production for the purpose of meeting or exceeding predetermined quality control goals. Generally, any documented policy or procedure not contained in the Quality Manual (QM) or the Quality System Procedures Manual (QS) is classified as a third-level document.

### 5.4.2.5 Manual use & cross referencing

The company recognizes that it is impractical to initially document every new work procedure. Where a specific task or situation arises that is not covered by the Quality Systems Procedure Manual (QS), a controlled draft shall be prepared to control the activities effecting quality. The draft shall be reviewed and approved with an expiration or time limit. If necessary, a new procedure is to be developed and included in the next manual update. If no procedure is necessary, termination of the procedure with an explanation shall be required.

## 5.5 Responsibility, authority and communication

### 5.5.1 Responsibility and authority

#### 5.5.1.1 Top management

a) It is the eminent responsibility of top management to ensure that the responsibilities, authorities and their interrelation are defined, implemented, communicated and dynamically supervised within the organization. The delegation of specific quality processes in no way reduces or mitigates this responsibility. Effective quality control is not a task-specific line function; it is an integral part of all management activity and process planning.



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b) The President/CEO has issued Hammond Assembly Solutions' Quality Policy contained in this manual. The intent and the spirit of this statement are to be part of the day-to-day decision-making processes in the company's operations. Management is required to act in such a manner so that the Quality Policy is clearly understood, acted upon and reinforced at all levels of the company.

c) The responsibility of management includes but is not limited to:  
The introduction of all personnel to the Quality Management System.

The display of the Quality Policy at prominent workplace locations.

Regular audits of quality procedures.

### 5.5.1.2 Personnel

a) The General Manager is required to define the specific quality responsibilities of personnel as necessary. These responsibilities are to be defined through a controlled organization chart. These personnel have the authority and procedures to stop or modify work process on nonconforming product or services. The level of responsibility and authority for quality control need not necessarily be by an individual; where appropriate, it may be defined by position and/or task level.

b) The Quality Assurance Manager will, in their absence, delegate the quality responsibility to another employee provided that the employee has received the appropriate training.

c) The relevant sections contained in this manual, together with the Job Descriptions and Specifications document, define the individual responsibility and authority of personnel for all immediate quality control remedial action. A nominated employee may:  
Initiate action to prevent the occurrence of quality nonconformance relating to the product, process of the quality management system.

Identify and record any product, process and/or quality assurance or quality system problems.

Initiate, suggest, recommend or provide solutions through specified channels.

Verify the implementation of proposed solutions.

Continue to control the process of nonconforming product until designated quality standards are fully restored.

### 5.5.2 Management representative

5.5.2.1 Top management has appointed a member of Hammond's management as Management Representative. The Quality Manager has been designated as the Management Representative. The Management Representative shall have responsibility and authority that include:

a) Ensuring that processes needed for the quality management system are established, implemented and maintained, including any additional or supplementary standards contained or promulgated in ISO 9001:2008.

b) Reporting to top management on the performance, effectiveness and any deficiencies in the quality management system and any need for improvement. A formal report shall be submitted annually or more frequently if the Quality Assurance Manager determines such reports are necessary.

c) Ensuring the promotion of awareness of customer requirements throughout the organization through coordination with department managers, supervisors and other personnel as necessary to achieve and maintain the quality control objectives contained in the policy statement.

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5.5.2.2 The primary responsibility of the Management Representative is to monitor and coordinate the Quality Assurance program by providing advice and pertinent input to the management and supervisory functions. The implementation, supervision and day-to-day quality control activities is a management responsibility and this responsibility is in no way reduced or alleviated by the function of the Quality Assurance Manager.

5.5.2.3 The Management Representative, or the nominated representative during his or her absence, reports directly to the General Manager.

5.5.2.4 The Management Representative has the delegated authority to stop, review and/or reject any production or service process that does not conform to the specific quality control standards contained in this manual or, in his or her judgment, does not conform to the intent of the quality control statement.

### 5.5.3 Internal communication

5.5.3.1 Top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.

5.5.3.2 This is achieved through internal auditing, training, meetings, nonconformance reports, management reviews, and any other tools that may be developed and implemented to monitor the effectiveness of the quality system or employ continual improvements. The communication documentation may include any of the following:

- a) Auditing reports, analysis of data, design planning, employee training.
- b) Management communication in working areas.
- c) Documented, structured meetings.
- d) Bulletin boards, reports, etc.
- e) E-mail, Internet, web sites.
- f) Employee surveys.

5.5.3.3 Various levels of communication are retained for a specified time period, when they have an impact on the final delivered product. Top management encourages and expects personnel to continually be aware and involved in their surroundings, providing input, as appropriate.

## 5.6 Management review

### 5.6.1 General

Top management shall review the organization's quality management system, at least once per year, to ensure its continuing suitability, adequacy and effectiveness. More frequent reviews shall be made if determined necessary. The review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and policy objectives.

### 5.6.2 Review input

The input to management review shall include information on:

Results of audits.

Customer feedback.

Process performance and product conformity, (including trend data if available).

Status of preventive and corrective actions.

Follow-up actions from previous management review.

Planned changes that could affect the quality management system.

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Recommendations for improvement.

## 5.6.3 Review output

5.6.3.1 The output from the management review shall include any decisions and actions related to: Improvement of the effectiveness of the quality management system and its processes.

Improvement of product related to customer requirements.

Resource needs.

In addition the output can include

Developed conclusions that address suitability and adequacy of the Quality Policy, Quality System, and top quality issues.

Planning objectives and action requirements.

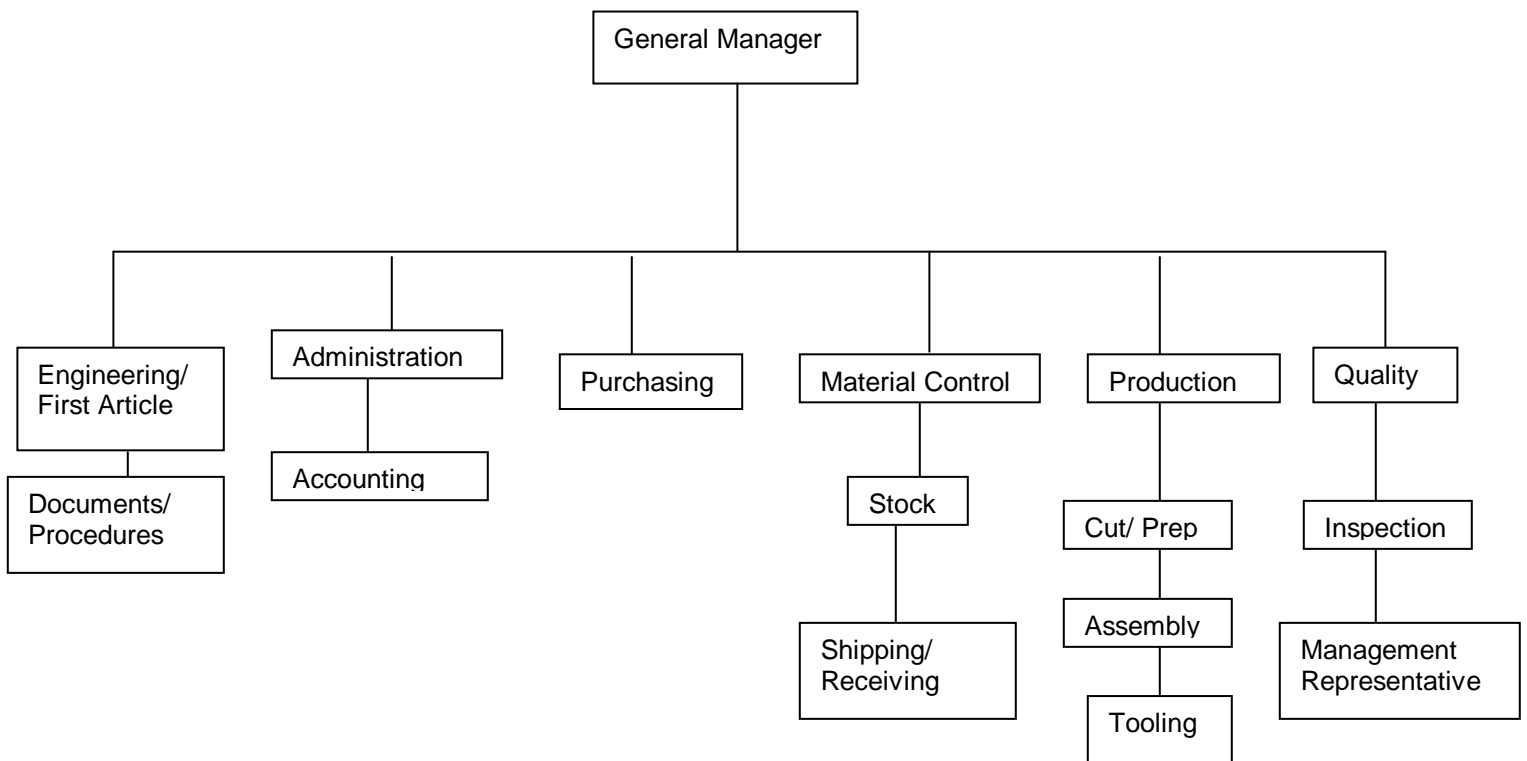
Status and effectiveness of training.

5.6.3.2 The Management Review is to be chaired by the Quality Manager and attended by the General Manager and all department managers and other senior personnel as appropriate.

5.6.3.3 The results, findings and decisions of the review are to be documented and circulated to all members of the review team. Each is responsible for implementing remedial or corrective action in areas under his or her control.

5.6.3.4 Records of management review shall be maintained per paragraph 4.2.4, Control of Records.

## Hammond Assembly Solutions Organization Chart



## Section QM-06

### 6.0 Resource management

#### 6.1 Provision of resources

6.1.1 Hammond Assembly Solutions has determined and provided the resources needed to implement and maintain the quality management system, continually improve its effectiveness, and to enhance customer satisfaction by meeting customer requirements. These resources are outlined throughout the Quality Manual and defined in the Quality System Procedures Manual.

#### 6.2 Human resources

##### General

It is the policy of Hammond Assembly Solutions to provide adequate training for all employees, or take other actions to satisfy these needs. Personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience.

##### 6.2.2 Competence, awareness, and training.

6.2.2.1 The training program is designed to clearly determine the competence of personnel performing work affecting conformity to product requirements. Department Managers and the Area Supervisors identify and organize training for their respective employees.

6.2.2.2 All employees are to receive thorough orientation and be properly trained in the tasks and functions they are expected to perform. It is a management responsibility to ensure personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and to provide or arrange training to achieve the necessary competence.

6.2.2.3 All new employees will undergo an orientation session. The purpose of this session is to generate an awareness of the company's total commitment to quality management, including its Quality Policy and Procedures, and to indoctrinate new employees in the benefits of working within the quality system.

6.2.2.4 Employees recruited to specific and skilled task-oriented functions must be suitably qualified and/or experienced.

6.2.2.5 Training records, including education, skills and experience are maintained on all permanent employees as well as contract and temporary employees who are hired for long-term or significant assignments. All actions taken pertaining to training records are evaluated for effectiveness.

#### 6.3 Infrastructure

6.3.1 Top management shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. The Infrastructure includes:

Buildings, workspace and associated utilities.

Process equipment, both hardware and software.

Supporting services (such as transport, communication or information systems)

6.3.2 The process to define the infrastructure necessary for achieving effective and efficient product realization may include any of the following:

Provision of an infrastructure, defined in terms such as objectives, function, performance, availability, cost, safety, security and renewal;

Development and implementation of maintenance methods to ensure that the infrastructure continues to meet the organizations needs, these methods should consider the type and frequency of maintenance and verification of operation of each infrastructure element, based on its criticality and usage;

Evaluation of the infrastructure against the needs and expectations of interested parties;

Consideration of environmental issues associated with infrastructure, such as conservation, pollution, waste and recycling.

6.3.3 Natural occurrences that cannot be controlled can impact the infrastructure. The plan for the infrastructure should consider the identification and mitigation of associated risks and should include strategies to protect the interests of all interested parties.

## 6.4 Work environment

6.4.1 Management shall determine and manage the work environment needed to achieve conformity to product requirements.

NOTE: The term “work environment” relates to those conditions under which work is performed including physical, environmental and other factors (such as noise, temperature, humidity, lighting or weather).

6.4.2 The determination of the work environment may be determined by any of the following:

- a) Processes set up in that location.
- b) Level of skill.
- c) Amount of employees set up in that location.
- d) Type of environment, heat humidity, light, and air.
- e) Cost of equipment.
- f) Safety factors associated with process or equipment.
- g) Level of supervision.
- h) Ergonomics.

6.4.3 Department managers and personnel are expected to be aware of the environments of their work areas. If the areas are found unsuitable or have changed in any way that is considered unsuitable, the area shall be corrected immediately and restored back to the intended use and level of functioning.

## Section QM-07

### 7.0 Product realization

#### 7.1 Planning of product realization

7.1.1 Top management shall plan and develop the processes needed for product realization. Planning or product realization shall be consistent with the requirement of the other processes of the quality management system.

7.1.2 When planning product realization, Hammond Assembly Solutions shall determine the following as appropriate:

- a) Quality objectives and requirements for the product.
- b) The need to establish processes and documents and to provide resources specific to the product.

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c) Required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance.

d) Records needed to provide evidence that the realization processes and resulting product meet requirements.

7.1.3 The output of this planning shall be in a documented form suitable for the company's method of operations, and controlled through the documentation requirements.

NOTE 1 A document specifying the process of the quality management system (including the product realization process) and the resources to be applied to a specific product, project or contract can be referred to as a quality plan.

NOTE 2 The organization may also apply the requirements given in 7.3 to the development of product realization processes.

7.2 Customer related processes.

7.2.1 Determination of requirements related to the product.

7.2.1.1 Top management shall determine:

a) Requirements specified by the customer, can be met, which may include the requirements for delivery and post-delivery activities.

b) Requirements not stated by the customer but necessary for specified use or known and intended use to the final product, can be met.

c) Statutory and regulatory requirements applicable to the product can be met.

d) Additional requirements considered necessary by the Hammond Assembly Solutions based on experience, knowledge and history of the product.

NOTE: Post-delivery activities 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.

7.2.2.1 The purpose of the contract review procedure is to define and document customer requirements in order to identify and resolve any differences between the customer's expectations and the company's actual product. It is also to guarantee that the company has the resources to meet the contract or order specifications. Top management shall review the technical and quality requirements related to the product.

7.2.2.2 The contracts review team (members designated by the General Manager) is responsible for the contract review process for all incoming orders. Work orders are generated based on the accepted orders and then forwarded to production for processing.

7.2.2.3 All proposals and contracts shall be reviewed prior to the submission of the organization's commitment to supply a product to the customer and shall ensure that:  
Product requirements are defined and accepted, including special requirements.

Contract or order requirements differing from those previously expressed are resolved and accepted.

The organization has the ability to meet the defined requirements.

The delivery schedule and pricing has been agreed to.

Any use of subcontractors has been pre-approved.

Any special skills or training of personnel have been identified.

7.2.2.4 Where the customer provides no documented statement of requirements, the customer

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requirements shall be confirmed by management and the customer, as necessary before accepting the order.

7.2.2.5 Any contract change, order amendments, specification changes, product requirements, or delivery variations to an existing order or contract, are to be subjected to the contract review above. The changes received from the customer are to be clearly identified, documented and formally amended. Once all of the documentation has been formally approved, copies are immediately forwarded to the respective department(s) and/or sub-contractors.

7.2.2.6 Records of the results of the review and actions arising from the review shall be maintained per paragraph 4.2.4, Control of Records.

## 7.2.3 Customer communication

7.2.3.1 Management shall determine and implement effective arrangements for communicating with customers throughout their documented system in relation to:

Product information.

Inquiries, contracts or order handling, including amendments.

Customer expectations, special requirements or arrangements that may be necessary.

Customer feedback, including customer complaints.

7.2.3.2 Customer communication is generated by authorized personnel so as not to stop production, delay delivery schedules, or for any other unforeseen purpose. Communication is also generated to keep the customer informed on special projects, approval, and delivery status, etc.

7.2.3.3 Communication with customers is documented as required; these communications become part of the records. Communications requiring documentation are those requiring a change to product, procedures, corrective action or scheduling changes.

## 7.3 Design and development

Hammond Assembly Solutions (HAS) provides design assistance to its customers and as such is limited in responsibility for development of product.

### 7.3.1 Design and development planning

Hammond Assembly Solutions (HAS) plans and controls the design and development of product. During the design and development process HAS determines:

- a. The design and development stages (in respect to organization, task sequence, mandatory steps, significant stages and method of configuration control;
- b. The review, verification and validation that are appropriate to each design and development stage, and;
- c. The responsibilities and authorities for design and development.

HAS manages the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.

Planning output is updated, as appropriate, as the design and development progresses.

NOTE: Design and development review, verification and validation have distinct purposes. They may be conducted and recorded separately or in any combination as suitable for the product and the organization.

### 7.3.2 Design and development inputs.

Inputs relating to product requirements are determined and records maintained.

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These inputs include:

- a. Functional and performance requirements.
- b. Applicable statutory and regulatory requirements.
- c. Where applicable, information derived from previous similar designs; and
- d. Other requirements essential for design and development.

The inputs shall be reviewed for adequacy. Requirements are complete, unambiguous and not in conflict with one another.

## 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 is approved prior to release. Design and development outputs:

- a. Meet the input requirements for design and development;
- b. Provide appropriate information for purchasing, production and service provision;
- c. Contain reference product acceptance criteria; and
- d. Specify the characteristics of the product that are essential for its safe and proper use.

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

## 7.3.4 Design and development reviews

At suitable stages, systematic reviews of design and development are performed in accordance with planned arrangements:

- a. To evaluate the ability of design and development to meet requirements; and
- b. To identify any problems and propose necessary actions.

## 7.3.5 Design and development verification

Verification is performed in accordance with planned arrangements to ensure that the design and development outputs have met the design and development inputs requirements. Records of the results of the verification are maintained.

## 7.3.6 Design and development validation

Design and development validation is performed in accordance with planned arrangements to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation is completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary action are maintained.

## 7.3.7 Design and development changes

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

Results of the review and necessary actions are maintained.

## 7.4 Purchasing

### 7.4.1 Purchasing process



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7.4.1.1 Hammond Assembly Solutions shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization of the final product.

7.4.1.2 The Operations Manager and the Quality Assurance Manager shall monitor and evaluate suppliers. Criteria for selection, evaluation and re-evaluation shall be established by our end Customer's Quality requirements. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained per paragraph 4.2.4, Control of Records.

## 7.4.2 Purchasing Information

7.4.2.1 Purchasing information shall describe the product to be purchased, including where appropriate:

- a) Requirements for approval of product, procedures, processes and equipment.  
Engineering/Production Support will define the requirements.
- b) Requirements for qualification of personnel.  
Engineering/Production Support will define the requirements.
- c) Quality management system requirements.  
As required by customer these requirements will be stated in the purchasing documentation.

7.4.2.2 Purchase orders are to be reviewed and approved by the purchasing agent prior to transmission. The purpose of this review is to establish that all information is correct to ensure the adequacy of specified purchase requirements. The purchasing agent is authorized to approve inventoried material at any dollar amount; non-inventoried material \$1000 or less is approved by the Purchasing Agent, over \$1000 requires approval of the General Manager (may be written or verbal).

## 7.4.3 Verification of purchased product

7.4.3.1 The Quality Assurance Manager shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.

7.4.3.2 The need for on-site inspection is to be determined before the purchase order is placed with the supplier. The requirement for any on-site inspection must be clearly stated, with details of frequency and inspection notification, in the purchase order.

7.4.3.3 The method of product release, and its delivery to the company or to the customer, must also be contained in the purchase order.

### 7.4.3.4 Sub-contractor & vendor evaluation

The ability of suppliers to meet approved quality requirements is essential. The evaluation and selection of any supplier or vendor of outside sourced materials and services must include a thorough review of that company's internal quality control performance and standards to ensure consistency and full compliance with the intent and procedures of the company's quality control systems.

## 7.5 Production and service provision

### 7.5.1 Control of product and service provision

It is essential to control all processes that directly or indirectly affect product quality. Hammond Assembly Solutions shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable:

- a) The availability, with current revisions, where applicable, of documented information that describes the characteristics of the product.
- b) The availability of work instructions and procedures as defined in the Quality Manual and Quality System

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- c) The use of suitable and safe equipment.
- d) The availability and use of monitoring and measuring equipment.
- e) The implementation of monitoring and measurement of the product delivery standards.
- f) Clear and unambiguous workmanship standards for all production process personnel.
- g) The implementation of product release, delivery and post-delivery activities, (this includes servicing).

7.5.1.1 The requirement for establishing controlled conditions includes any associated equipment, process or personnel that interface with the production process.

## 7.5.2 Validation of processes for production and service provision

Hammond Assembly Solutions shall validate any processes or 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.

7.5.2.1 Validation shall demonstrate the ability of these processes to achieve planned results.

7.5.2.2 Hammond Assembly Solutions shall establish arrangements for the following processes as applicable, which shall include:

- a) Defined criteria for review and approval of the processes.
- b) Approval of equipment and qualification of personnel.
- c) Use of specific methods and procedures.
- d) Full compliance with all relevant statutory standards and codes.
- e) Planned maintenance scheduling for all equipment used in the production processes.
- f) Requirements for records following paragraph 4.2.4, Control of Records.
- g) Revalidation.

7.5.2.3 Process results that cannot be fully verified by routine inspection and testing are classified as "Special Processes" and require additional pre-qualification inspection of process and materials. Typically, special processes are monitored in accordance with the above criteria, but with special procedural attention to ensure that all process specifications and other exceptional monitoring and compliance requirements are fully met.

## 7.5.3 Identification and traceability

7.5.3.1 The purpose of the identification and traceability process is to provide clear and unambiguous identification of each product, and its component parts, through all stages of the production process under the control of Hammond. This requirement includes all relevant drawings and specifications, materials inventory and final product delivery.

### 7.5.3.2 Identification

All products must be clearly identified by a unique customer part number or a job number or lot number. All documentation is to be cross-referenced as required to provide positive identification of materials acquisition and/or at all stages of process production and delivery.

### 7.5.3.3 Product Traceability

The purpose of a product tracing system is to provide the controls necessary to utilize product identification

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as a dynamic process tool. Identification is essentially a passive quality control measure; product traceability is a system through which product identification can be translated into an ongoing process of identifying process quality failures and tracing those failures, if necessary, to their point of origin. A formal traceability system is used only if required by a relevant Standard, Inspecting Authority or as a contractual condition, i.e. serialization, heat or lot number, etc.

7.5.3.4 Management shall control and record the unique identification of the product following paragraph 4.2.4, Control of Records.

### 7.5.4 Customer property

7.5.4.1 Hammond Assembly Solutions shall exercise care with customer property, including intellectual property, while it is under the control or being used by the company

7.5.4.2 The Operations Manager and the Quality Assurance Manager shall identify, verify, protect and safeguard customer property provided for use or incorporation into the product.

7.5.4.3 Customer property is to be treated as any other outside sourced (sub-contractor or vendor) product or materials and all standard documented quality control review and procedures apply.

7.5.4.4 It is essential that customer property be inspected as soon as practical by designated personnel. Customer property shall be tagged for identification, verified for quantity, and condition, and placed in a protected environment while under the control of the company. If any customer property is lost, damaged or otherwise found to be unsuitable for use, this shall be immediately reported to the customer for disposition. When customer property and materials satisfy all requirements they become part of the product or process materials stream.

7.5.4.5 Records shall be maintained per paragraph 4.2.4, Control of Records.

### 7.5.5 Preservation of product

7.5.5.1 Hammond Assembly Solutions shall preserve the conformity of 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. The exact method of handling, storage, packaging, preservation (and other special requirements) and delivery for each product is defined in the relevant process documentation.

#### 7.5.5.2 Product handling

All product is handled from receiving to delivery, by methods that effectively prevent any damage or deterioration in accordance with written procedures. Process equipment, i.e. cranes or forklifts and other special product handling tools, are regularly inspected and maintained to prevent any product damage. Electrostatic Discharge (ESD) controls and special container are to be utilized as necessary.

#### 7.5.5.3 Product storage

Product is stored in designated areas with proper access and environmental controls to prevent loss and deterioration for all materials and product. The receiving and the dispatch of product are controlled by process documentation. Storage areas must clearly separate materials and product by process use and status. Product in long-term storage, or perishable product, is regularly assessed and/or tested for deterioration. Special procedures are developed for any hazardous or high value materials and product.

#### 7.5.5.4 Product packaging

Product packaging labels or tags must contain product identification, date of manufacture, and any other information to satisfy the established quality system requirements, be protective and conform to specification of contract if applicable.

#### 7.5.5.5 Product preservation

Products requiring special preservation conditions are stored separately. The method of preservation and separation is controlled by process documentation, i.e. limited life control items.

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## 7.5.5.6 Protection

Product, equipment and component parts shall be protected with packaging, containers, environment and other suitable means, while under the control of the company.

## 7.5.5.7 Product delivery

Hammond Assembly Solutions is responsible for the product after final inspection and testing, unless otherwise specified by the customer. Any special method or product delivery requested by the customer shall be specified in their purchase order and agreed upon in the contract review stage. Unless otherwise specified by the customer, product is packaged and shipped by regular commercial practices determined by Hammond Assembly Solutions.

Extended product protection (by warranty, service contract or other methods), is controlled by special documentation.

## 7.6 Control of monitoring and measuring equipment

7.6.1 Hammond Assembly Solutions 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 following paragraph 7.2.1, Determination of Requirements Related to the Product.

7.6.2 Hammond Assembly Solutions shall establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements.

7.6.3 Where necessary to ensure valid results, measuring equipment shall:

- a) Be calibrated or verified or both at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded. (see 4.2.4)
- b) Be adjusted or re-adjusted as necessary.
- c) Have identification in order to determine its calibration status.
- d) Be safeguarded from adjustments that would invalidate the measurement result.
- e) Be protected from damage and deterioration during handling, maintenance and storage.

7.6.4 In addition, management shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. Management shall take appropriate action on the equipment and any product affected. Records of the results of calibration and verification shall be maintained per paragraph 4.2.4, Control of Records.

**NOTE Confirmation of the ability of computer software to satisfy the intended application would typically include its verification and configuration management to maintain its suitability for use.**  
**NOTE Confirmation of the ability of computer software to satisfy the intended application would typically include its verification and configuration management to maintain its suitability for use.**

## Section QM-08

### 8.0 Measurement, analysis and improvement

#### 8.1 General

Hammond Assembly Solutions shall plan and implement the monitoring, measurement, analysis and improvement processes needed to:

- a) Demonstrate conformity to product requirements.
- b) Ensure conformity of the quality management system.
- c) Continually improve the effectiveness of the quality management system.

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8.1.1 This shall include determination of applicable methods, including statistical techniques, and the extent of their use. Performance is continually monitored through the quality management system with reports submitted for management reviews.

8.1.2 Records are maintained per paragraph 4.2.4, Control of Records.

## 8.2 Monitoring and measurement

### 8.2.1 Customer Satisfaction

8.2.1.1 Measurement of customer perception as to whether Hammond has demonstrated conformity to customer requirements.

8.2.1.2 Customer information is collected, analyzed, and evaluated for necessary changes, resolution, customer satisfaction, etc. Customer related information is collected from any of the following, but not limited to:

a) Customer surveys.

b) Customer feedback, verbally or through documentation.

c) Customer requirements, as defined in the contract.

d) Delivery schedules being met.

e) Customer satisfaction, coming from information such as complaints, direct communication, writing or verbal, various types of reports submitted or generated (quality ratings, nonconforming, etc.).

8.2.1.3 The methods for obtaining and using this information shall be determined by management. Any method used is maintained per paragraph 4.2.4, Control of Records.

### 8.2.2 Internal Audit

A documented procedure has been established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results.

8.2.2.1 Hammond Assembly Solutions shall conduct internal audits at planned intervals to determine whether the quality management system:

a) Conforms to the planned arrangements following paragraph 7.1, Planning of Product Realization, to the requirements of the ISO 9001:2008 International Standard and to the quality management system requirements established by the organization.

b) Is effectively implemented and maintained.

8.2.2.2 Internal Audits are necessary to verify the implementation and measure the effectiveness of the company's total quality performance. The General Manager and the Quality Assurance Manager select and train the Auditors. The intent of an audit is to verify that actual procedures and results comply with the company's quality policies and procedures and the established processes produce the desired result.

8.2.2.3 All elements of the quality system are audited regularly (as a minimum annually), in accordance with documented procedures. The audit criteria, scope, frequency and methods shall be defined. The complexity and importance of the audited function, as well as previous audits, determine the actual frequency of each audit.

8.2.2.5 The results of any audit are documented and distributed to top management, department management and the Quality Assurance Manager. Significant quality failures and/or immediate remedial action are the responsibility of the top member of management in the audited department to plan and initiate corrective action in a timely fashion.

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8.2.2.6 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).

8.2.2.7 Records of the audits shall be maintained (see 4.2.4).

### 8.2.3 Monitoring and measurement of processes

8.2.3.1 The Hammond Assembly Solutions shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system 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.

8.2.3.2 Examples of measurement may include any of the following, but not limited to:  
Capabilities.

Dependability (measurable points).

Yield of production.

Effectiveness and efficiency of personnel.

Technology, usage and knowledge.

Conscious efforts of waste and cost reduction.

8.2.3.3 Monitoring and measurement methods may be scheduled with records documented and monitored per paragraph 4.2.4, Control of Records.

NOTE When determining suitable methods, it is advisable that the organization consider 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 quality management system.

### 8.2.4 Monitoring and measurement of product

8.2.4.1 Hammond Assembly Solutions shall monitor and measure the characteristics of the product to verify that product requirements are fulfilled. This shall be carried out at appropriate stages of the product realization process in accordance with planned arrangements following paragraph 7.1, Planning of Product Realization.

8.2.4.2 Inspection and testing is carried out at all process stages to verify that the product meets or exceeds the specified requirements. The exact method of testing and inspection, and the records to be kept detailing the results of such inspections and tests, are to be specified in all relevant process documentation, including but not limited to, quality plans, work orders, purchase orders, drawings and procedures.

8.2.4.3 Any nonconforming product identified by inspection and testing is to be separated and clearly identified with red tags. The exact cause of the failure to meet the specified requirements is to be investigated and corrected. Nonconforming product may only be reprocessed or corrected in accordance with documented procedures.

#### 8.2.4.9 Inspection and Test Records

a) Inspection and test records shall clearly indicate the pass or fail status of each process, including the name of the final inspector or inspecting authority. The release of product and delivery of service to the customer shall not proceed until ALL the planned arrangements following paragraph 7.1, Planning of Product Realization have been satisfactorily completed, unless otherwise approved by a relevant authority, and where applicable by the customer.

b) Evidence of conformity with the acceptance criteria shall be maintained.

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

## 8.3 Control of nonconforming product

8.3.1 Hammond Assembly Solutions shall ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure has been established to define the controls and related responsibilities and authorities for

8.3.2 The controls and responsibility for identifying nonconforming product, and the authority to order its disposal, are contained in the QS Procedures Manual. Where nonconforming product is sourced from a sub-contractor, then its disposal and/or rework, and any further corrective action for future material orders, shall be mutually agreed between the company's authorized representative and the sub-contractor.

### 8.3.3 Nonconformity review and disposition

a) Nonconforming product may be identified at any inspection stage of the process and, when identified, is held, recorded, re-inspected and disposed of in an approved manner. The disposal method may be one of the following:

Rework the product to conform to specifications.

Repair the product or equipment to meet requirements for intended use.

Return to Supplier (RTS).

Reject and/or scrap.

b) Any proposed modification or repair of product or materials shall be, when required under contract, reported to the customer or its representative before such use.

c) Any reworked and/or repaired product or materials are to be re-inspected and re-tested in accordance with the quality plan and/or other documented procedures before reintroduction into the production process. A clear and concise description of the nonconforming product or material characteristics, with a record of its acceptance, acceptance details, and final disposal, is required.

d) Any product or materials that are classified as unacceptable for rework or repair is to be disposed of in an approved manner. Its disposal, including the nature and the extent of the reasons, is to be documented.

e) When nonconforming product is detected after delivery or use has started, the organization shall take action appropriate to the effects, or potential effects, of the conformity.

Records are to be maintained of all inspection and testing of nonconforming product and materials, and all subsequent re-inspection or test results, and are to detail the exact occurrence, nature, extent, and disposal of the quality failure shall be maintained per paragraph 4.2.4, Control of Records.

## 8.4 Analysis of data

8.4.1 Hammond Assembly Solutions shall determine, collect and analyze appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources.

8.4.2 The analysis of data shall provide information relating to customer satisfaction following paragraph 8.2.1, Customer Satisfaction,

a) Customer satisfaction (see 8.2.1)

b) Conformity to product requirements (see 8.2.4)

c) Characteristics and trends of processes and products including opportunities for preventive action. (see 8.2.3 and 8.2.4)

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## d) Suppliers. (see 7.4)

### 8.5 Improvement

#### 8.5.1 Continual Improvement

8.5.1.1 Hammond Assembly Solutions shall continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review. Every employee within the company is empowered to submit suggestions, ideas and bring forth any other information that will help improve areas within the company.

#### 8.5.2 Corrective Action

8.5.2.1 Hammond shall take action to eliminate the causes of nonconformities in order to prevent recurrence.

8.5.2.2A documented procedure has been developed to define the requirements for

- 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.

#### 8.5.3 Preventive action

8.5.3.1 Hammond Assembly Solutions 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.

8.5.3.2 A documented procedure has been established to define the requirements for

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



## Document Reference

### Quality Manual

4.2.3 Control of documents  
4.2.4 Control of records  
5.4.2 Quality management system planning  
5.6 Management review  
6.2.2 Competence, awareness and training  
  
6.3 Infrastructure  
  
7.2 Customer related processes  
  
7.3 Design and development  
  
7.4 Purchasing Process  
  
7.5.1 Control of production and service provision  
  
7.5.3 Identification and traceability  
  
7.5.4 Customer property  
7.5.5 Preservation of product  
7.6 Control of monitoring and measuring devices  
  
8.2.2 Internal Audit  
8.2.3 Monitoring and measurement of processes  
8.2.4 Monitoring and measurement of product

### Procedures

QS-4.2.3 Control of documents  
QS-4.2.4 Control of Quality Records  
QS-5.4.2 Quality Management System Planning  
QS-5.6 Management review  
QS-6.2.2 Competence, Awareness and Training  
622001 R-CAM Operator Training  
622003 CLS IV Operator Training  
622004 Bench Top Cut/Strip Operator Training  
622005 Set Up and Use of Mini Applicators  
  
630001 Preventive Maintenance  
Disaster Recovery Plan  
  
QS-7.2 Customer Related Processes  
720001 First Article Procedure  
720002 Customer Document Control  
720003 Build Document Control  
  
QS-7.3 Design and development  
  
QS-7.4 Purchasing  
740001 Purchase Order Processing  
740002 Receiving and Receiving Inspection  
  
QS-7.5 Production and Service Provision  
750003 Packaging and Shipping  
750002 Process Control  
750004 Stocking and Handling  
750005 Pulling and Handling  
  
QS-7.5.3 Identification and traceability  
753001 Work Order Numbering  
  
QS-7.5.4 Customer Property  
750001 Customer Supplied Material and Tooling  
QS-7.5.5 Preservation of Product  
  
QS-7.6 Control of Monitoring and Measuring Devices  
  
QS-8.2.2 Internal Audit  
QS-8.2.3 Monitoring and Measurement of Processes  
QS-8.2.4 Monitoring and Measurement of Product  
800001 Inspection

## Document Reference

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8.3 Control of nonconforming product

8.4 Analysis of data

8.5.1 Continual improvement

8.5.2 Corrective action

8.5.3 Preventive action

### Procedures

QS-8.3 Control of Nonconforming Product  
830001 Nonconforming Material

QS-8.4 Analysis of Data

QS-8.5.1 Continual Improvement

QS-8.5.2 Corrective Action

QS-8.5.3 Preventive Action