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1 PURPOSE

- 1.1** The purpose of **Product Sustaining** is to ensure that stable products are actively managed and monitored during product life cycle so that any marketing requirements, design, service, cost, and quality issues are resolved.
- 1.1.1** Sustaining Engineering Functions
 - 1.1.2** S.E. issues Management Process
 - 1.1.3** S.E. Governance Process


2 SCOPE – APPLIES TO WHERE & WHEN THE PROCEDURE IS USED

- 2.1** This applies to all current standards products at MTS.
- 2.1.1** Note this will not apply to all products initially and will be phased in over a period of time. See the Sustaining Engineering Manager for a current list of products covered by this process.

3 DEFINITIONS AND ACRONYMS

3.1 Definitions

- 3.1.1** Product – A design that is sold to more than one specific customer.
- 3.1.2** Proactive Product Support – Support done with the intension of finding areas for continuous improvement.
- 3.1.3** Reactive Product Support – Support done after a problem or issue has been identified.
- 3.1.4** Product Report Card – A reporting tool used to illustrate product health
- 3.1.5** Sustaining Engineering – An engineering disciple with the goal of maintaining product health in an efficient and effective way
- 3.1.6** FSE Field Report – A report generated by a Field Service Engineer documenting any issues during the installation and commissioning of a product.

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3.2 Acronyms

- 3.2.1 CE – Continuation Engineering
- 3.2.2 CA – Corrective Action
- 3.2.3 ECN – Engineering Change Notice
- 3.2.4 IPT – Integrated Product Team
- 3.2.5 SE – Sustaining Engineering
- 3.2.6 CR – Cost Reduction
- 3.2.7 DFI – Defect Free Installation

4 GRAPHIC (IF NEEDED)


No Proactive graphic

5 RESPONSIBILITIES


- 5.1 Sustaining Engineer – Responsible for executing this process if a product is moved from Stage 5 to Stage 6.
- 5.2 Product Manager – Responsible for attending meeting, securing CE (Continuation Engineering) funding, and serving as the voice of the customer
- 5.3 FSE – Documenting field issues and opportunities for improvement with the product
- 5.4 IPT – Meets to view all issues and opportunities, discusses solutions with a cross functional and systems view, acts on selected items.
- 5.5 Tech Support – Feeds back product issues and opportunities to the IPT
- 5.6 Assembly Technician - Feeds back product issues and opportunities to the IPT using the QN process
- 5.7 Checkout Technician - Feeds back product issues and opportunities to the IPT using the QN process
- 5.8 Manufacturing Engineer – If assigned is a member of the IPT
- 5.9 Buyer / Sourcing Category Leader - If assigned is a member of the IPT
- 5.10 Supplier – Feedback opportunities and issues through the Buyer / Sourcing Category Leader
- 5.11 Customer - Feedback opportunities and issues through the Product Manager
- 5.12 Application Engineer - Feedback opportunities and issues through the Product Manager
- 5.13 FAM - Feedback opportunities and issues through the Product Manager

6 PROCEDURE

6.1 Stage Gate Handoff (Quality Record)

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- 6.1.1 A Product Score Card shall be established at the beginning of stage 5 and will be the measure of quality, sales volume, cost, lead time, ECN activity, DFI, and customer satisfaction are on target or exceeding target.
- 6.1.2 Sufficient time passage that allows issues to surface and be resolved. Typical Stage 5 duration is 3 to 12 months before moving to Stage 6.
- 6.2 **SE Product Maintenance** – SE is responsible for product engineering maintenance for all standard product.
 - 6.2.1 **Design**
 - 6.2.1.1 New Product Development with new opportunity in ideas input.
 - 6.2.1.2 Resolution of product issues and lessons capturing improvements through E.C.N. process, and Sustaining Engineer Task List.
 - 6.2.2 **Manufacturing**
 - 6.2.2.1 Provide support related to quality issues and review of Q.N.
 - 6.2.2.2 Provide technical support related to performance issues of product throughout the assembly process.
 - 6.2.2.3 Are there any changes that can be done to significantly reduce cost or increase build quality?
 - 6.2.2.4 Are parts / assemblies meeting cost and quality?
 - 6.2.3 **Supply Chain**
 - 6.2.3.1 Product parts cost review.
 - 6.2.3.2 Are parts / assemblies meeting cost and quality?
 - 6.2.3.3 Are there any changes that can be done to significantly reduce cost or increase build quality?
 - 6.2.4 **Obsolescence**
 - 6.2.4.1 Provide alternative options for materials no longer available or compliant.
 - 6.2.5 **Compliance**
 - 6.2.5.1 Review compliance of products to ROHS, REACH, ISO, CE, UL, Machinery Directive, WEEE, and others to be listed.
- 6.3 **CA** Provide technical support related to addressing corrective action issues. Sustaining engineer is to support corrective action as assigned in root cause analysis, action plan, customer communication, verifying the plan, and documentation. See the Corrective Action QMS procedure for additional details on this process.
- 6.4 **SE Sales Support** – Sustaining engineer is to support sales support function.
 - 6.4.1 **Newton release & changes**
 - 6.4.1.1 Create and maintain part numbers as need through the ECN process when Newton additions or charges are requested.
 - 6.4.1.2 Assure part numbers are cleansed (made current and costed), work with product manager for other material attributes based on where used in Newton
 - 6.4.1.3 Work with marketing to assure all needed specifications are provided and

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illustrations are complete and accurate.

6.4.1.4 Assist modelers with logic and testing to assure final output of the configurator is the desired result.

6.4.1.5 Use the Defined Offer Team SharePoint site to submit and respond to Newton related issues.

6.4.2 Request for support by sales, AE, service, or FSE

6.4.2.1 Review request and determine if it falls in the scope of sustaining engineering. If not, forward request to the proper manager or engineer.

6.4.2.2 If information provided is not complete, request additional input from requestor or other involved parties. When needed information is provided, make agreement on deliverables, both content and timing.

6.4.2.3 Load request into the SE Tasks SharePoint page and complete by agreed upon date. Deliver requested support and close task in SharePoint.

6.5 SE Initiatives – Sustaining engineer is to lead or support various initiatives towards improving cost and quality.

6.5.1 Cost Reduction

6.5.1.1 Design for more efficient Manufacturability on parts and assemblies

6.5.1.2 Determine if “Make/Buy” status could be changed from one to the other to save cost

6.5.1.3 Work with purchasing to reduce cost by: Sourcing lower cost suppliers on parts & assemblies

6.5.2 DFI

6.5.2.1 A recurring meeting with a cross-functional team is scheduled to review non-conforming materials that occur at installation. The team reviews the issue, analyzes the project information and determines the cause of the error.

6.5.2.2 A cause code is assigned to each issue.

6.5.2.3 Each issue becomes a Quality Notification, which is categorized by the cause code.

6.5.2.4 Each cause code correlates to a process owner who is responsible for addressing the issues.

6.5.3 Quality Documentation - SE Group will work with the Quality Department to provide them information that will assist with the following items when needed:


6.5.3.1 Verifying that Calibration Plans are entered

6.5.3.2 Verifying that Checkout Plans for floor space and required labor are entered

6.5.3.3 Inspecting received items (purchased parts, outside manufactured parts and assembly's) for reasons such as: Non-conforming materials (defective and/or not-to-print parts) Process Inspection Errors such as Critical To Quality part inspections

6.5.3.4 Verifying PE information in POND for accuracy and consistency

6.5.3.5 Inspecting Job Packet for accuracy and as a part of this: Verify BOM's are complete and correct. Verify Drawings are available & correct

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6.6 PPI – Sustaining engineer to lead Planned Product Improvements projects in execution.

6.6.1 Establish a prioritized list and schedule of Planned Product Improvements

6.6.1.1 Collaborate with product managers to establish a list of all planned product improvements.

6.6.1.2 Work to establish budget and schedule for Individual Planned Product improvements.

6.6.1.3 Coordinate with sustaining engineering and the product group to determine resource availability.

6.6.2 Concept design phase

6.6.2.1 Establish a preliminary BOM and 3D model, if necessary.

6.6.2.2 Write up a test plan(s) for proof of concept, if necessary.

6.6.2.3 Establish a schedule for prototypes, if necessary.

6.6.2.4 Review the concept, plan, and schedule with subject matter experts, if necessary.

6.6.3 Test phase

6.6.3.1 Build prototypes and conduct tests.

6.6.3.2 Verify that the concept works.

6.6.4 Product design phase

6.6.4.1 Work to complete documentation for production (schematics and drawings).

6.6.4.2 Work with Newton team to load PPI into Newton, if necessary. Establish the manufacturing BOM and work to ensure that all items are costed and routed. Support marketing with helper and quote text.

6.6.4.3 Support the creation of installation guides and manuals.

6.6.4.4 Support production for building kits and/or assemblies.

6.6.5 Implementation phase

6.6.5.1 Support any issues during the production build.

6.6.5.2 Support issues from the field.

6.6.5.3 Resolve issues and update documentation.

6.7 Sustaining Engineer Issues Management Process

6.7.1 SharePoint Issue Input

6.7.1.1 All issues addressed by an SE should be entered into the Sustaining Engineer SharePoint task list. Issues can be added by anyone.


6.7.2 SharePoint Categorization and Prioritization Input Fields

6.7.2.1 Title

6.7.2.2 Description

6.7.2.3 Product Model

6.7.2.4 Part Number

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- 6.7.2.5 Category - Selection defines original source of task request. Examples include PPI, CA, DFI/QN, Sales Request/Newton, Compliance, Cost Reduction, Supplier, Manufacturing Process or Design Engineering.
- 6.7.2.6 Status - Adjusted over time by SE team as tasks are addressed.
- 6.7.2.7 Request Date – Set automatically when task if first created.
- 6.7.2.8 Start Date – When action formally begins.
- 6.7.2.9 Due Date – When task completion is required.
- 6.7.2.10 Priority – set by SE team with feedback from other product team members.
- 6.7.2.11 Assigned to – Owners of task
- 6.7.2.12 Contributors – People who assist the assigned to personnel on ask.
- 6.7.2.13 Product Group – Selection categorizes tasks into the different branches of company product portfolio.
- 6.7.2.14 Close Date – When task is completed or canceled.
- 6.7.2.15 Comments

6.7.3 SharePoint Issues Resolution

- 6.7.3.1 Tasks listed in the SharePoint Issue list are resolved in a variety of ways, depending on scenario. See Sustaining Engineering Functions listed above for more detail.
- 6.7.3.2 If a task is chosen not to be pursued, it will be set to a cancelled status.
- 6.7.3.3 When a task is complete, the completed date will be entered and the task status will be set to complete.

6.8 Sustaining Engineering Governance Process – Led by product manager with sustaining engineer support.


6.8.1 Integrated Product Team (IPT)

6.8.2 Reactive Support RAIL

- 6.8.2.1 A RAIL will be created at the beginning of stage 5 to track all reactive product support issues and opportunities. The Reactive Support RAIL template shall be used and maintained through the duration of stage 5.
- 6.8.2.2 All issues and opportunities that come in through the reactive support channel shall be placed on the RAIL.
- 6.8.2.3 All issues and opportunities that come in through the proactive support channel shall be placed on the RAIL.
- 6.8.2.4 The stage 5 team shall meet in order to ensure issues on the RAIL are being address in a timely manner
- 6.8.2.5 The RAIL shall be kept up to date and posted within MTS Test.

6 ASSOCIATED QUALITY RECORDS – AS STATED IN THE QUALITY RECORDS LIST

Required Record

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7 REFERENCE FORMS / TEMPLATES / DOCUMENTS

Form / Template / Document Title	Location

8 CURRENT REVISION'S TRAINING REQUIREMENTS


Training requirements are determined by the document owner.

1. Select Awareness **and/or** Formal training requirements.
2. List (below) the functions or groups that require the training.

Select (mark X)	Training Type	Training Definition
	Awareness	Awareness training is conducted by communication, which is sent/delivered by the approver/author/owner of the document to the affected employees/groups.
	Formal	Formal training requires the approver/author/owner to collect/store evidence that the affected employees/groups were trained.

Functions/Groups that require Awareness to this procedure:

- Awareness: List here the function(s) or group(s) that require Awareness training.
- Formal: List here the function(s) or group(s) that require Formal training.

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9 REVISION HISTORY & APPROVAL

Revision History			
Rev	Description of Change	Author	Effective Date
A	Initial Release	S. Firman	11-20-2015

Approval of Current Revision		
Name / Function	Signature	Date
Scott Firman, Director of Solutions Engineering		