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1 Purpose


- 1.1 To outline the Design Process of Mechanical Engineers working on Custom/ETO projects for MTS-Test.

2 Scope – *applies to where & when the procedure is used*

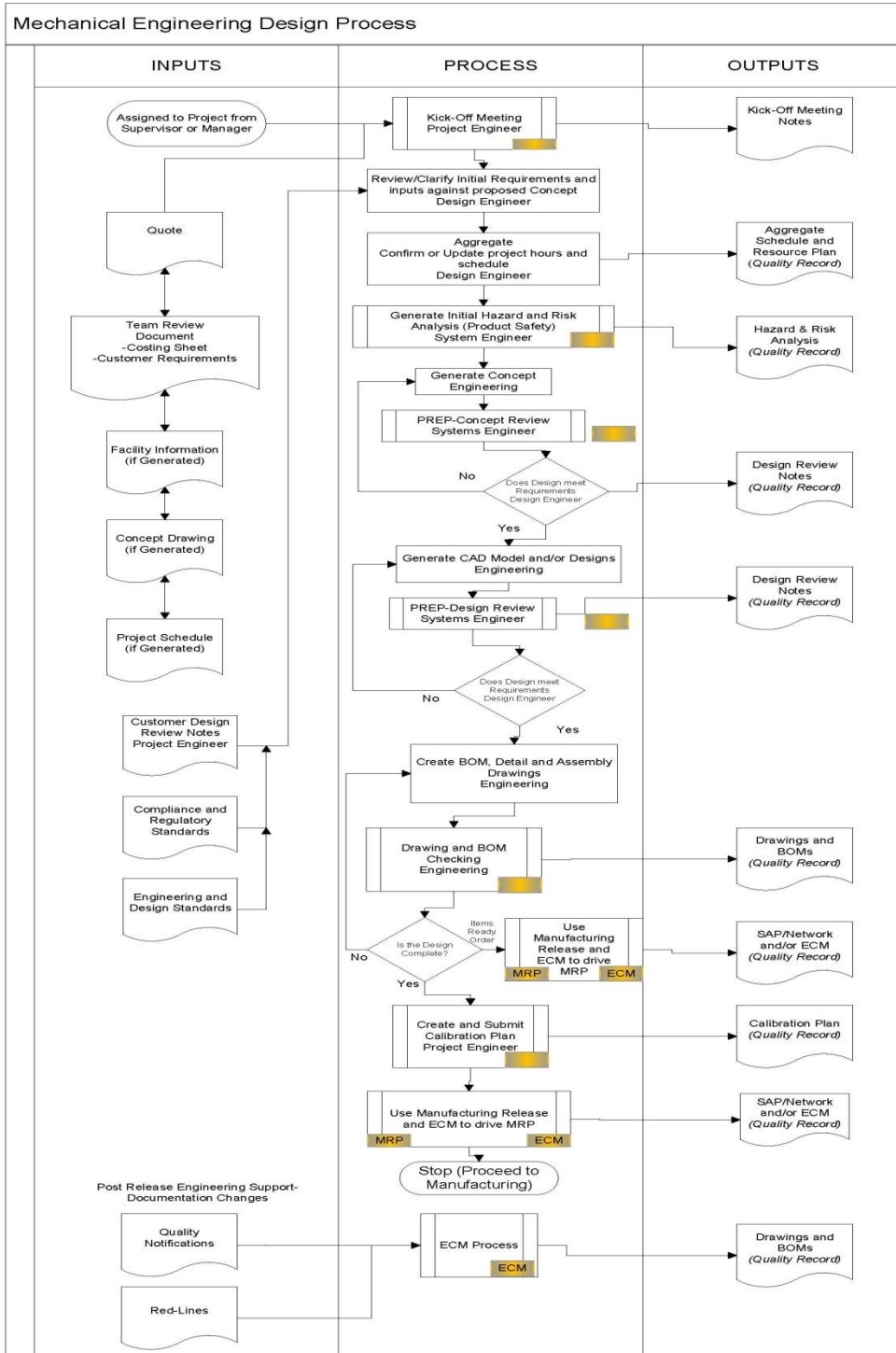
- 2.1 MTS-Test Design Engineers


3 Definitions and Acronyms

- 3.1 Design Engineer- the person assigned to design the specific task or work for a project.
- 3.2 Engineering = Design Engineer and Design/Drafter
- 3.3 CDR = Customer Design Review
- 3.4 PREP = Project Reviews and Execution Plan
- 3.5 POND = Projects ON Demand
- 3.6 BOM = Bill of Material
- 3.7 DoD = Documents on Demand
- 3.8 ECM = Engineering Change Management
- 3.9 QN = Quality Notification
- 3.10 Manufacturing Release process
- 3.11 SAP = Project and Manufacturing Management System

	<h2 style="margin: 0;">QMS Procedure</h2> <h3 style="margin: 0;">MTS Systems Corporation – MTS Test</h3>	Document Number: n/a	Rev.: E
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4 Graphic




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5 Responsibilities by Function

- 5.1 Mechanical Engineers – to follow the procedure
- 5.2 Mechanical Engineering Manager or Supervisor – to enforce the procedure

6 Procedure

- 6.1 Upon being assigned a new project
 - 6.1.1 Attend Kick-off Meeting
 - 6.1.1.1 Invite Designer and other persons as required
 - 6.1.2 Review pre-sale documentation populated in POND
 - 6.1.2.1 Ask for missing information and/or clarifying questions
 - 6.1.3 Review pre-sale documentation vs. quote and customer requirements.
 - 6.1.4 Use the Aggregate Process to Negotiate with Project Engineer and Design team each item below
 - 6.1.4.1 Add/Delete any activities as needed.
 - 6.1.4.2 Release Dates for each assigned activity
 - 6.1.4.3 Estimated Design Hours for each assigned activity
 - 6.1.4.4 Estimated Designer Hours for each assigned activity
 - 6.1.4.5 Change Responsibilities as required
 - 6.1.4.6 Ensure that sub-jobs are coordinated and complete
- 6.2 During the project
 - 6.2.1 Ensure workmanship standards are being applied
 - 6.2.2 Update Aggregate (schedule and hours) for any changes during design process until completion of tasks.
 - 6.2.3 Participate in Customer Design Reviews (CDR) as required.
 - 6.2.4 Generate/review Hazard and Risk Analysis (Initial Creation)
 - 6.2.5 Generate Concept to meet customer requirements
 - 6.2.5.1 Follow the PREP process

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- 6.2.5.1.1 Concept Review-Present Concept
- 6.2.5.1.2 Provide Updates to Concept Review notes as required
- 6.2.5.1.3 Provide Updates to Hazard Analysis as required

6.2.6 Generate Design

6.2.6.1 Follow the PREP process

- 6.2.6.1.1 Design Review-Present Design
- 6.2.6.1.2 Provide Updates to Design Review notes as required
- 6.2.6.1.3 Provide Updates to Hazard Analysis as required

6.2.7 Create Detailed Drawings and BOM's as needed

6.2.8 Use Check Drawing and BOM Process

6.2.9 Verify results of sub-jobs within assigned work tasks

6.2.10 Collect data sheets and certificates for safety critical components as required to document compliance

6.2.11 Identify if any chemical substances will be used or any hazardous waste is generated by the design per the Management of Change process (EHS-200-132).

6.2.12 Collect data sheets and certificates for safety critical components as required to document compliance

6.3 Releasing Materials to Manufacturing

6.3.1 If transducers are on the BOM, ensure Calibration Plan is submitted to POND before releasing to manufacturing.

6.3.2 Use Engineering Change Management (ECM) procedure and Manufacturing Release process to release materials to drive MRP activities.

6.3.3 Confirm Activities when complete in SAP.


6.4 Manufacturing, Assembly, Checkout and Installation Support

6.4.1 Support and answer any questions that arise during the remainder of the project.

6.4.2 If QNs or As-Built's are generated, use ECM process to update Drawings and BOM's and Workmanship Standards

7 Associated Quality Records – as stated in the Quality Records List

Required Record

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Defined in other documents

8 Reference Forms / Templates / Documents

Form / Template / Document Title	Location
Kick off Meeting Work Instructions	Engineering & Project Quality web
Hazard and Risk Analysis	Engineering & Project Quality web
Aggregate	Engineering & Project Quality web
PREP	Engineering & Project Quality web
Drawing and BOM Checking	Engineering & Project Quality web
Calibration Plan	Engineering & Project Quality web
Manufacturing Release process	Engineering & Project Quality web
Engineering Change Management procedure	Engineering & Project Quality web
Management of Change process (EHS-200-132)	Environmental Health & Safety Quality web
As-Built Process	Engineering & Project Quality web
Workmanship Standards that relate to MTS-Test	QMS Quality – Workmanship Standards


9 Current Revision's Training Requirements

Training requirements are determined by the document owner – either awareness or formal.

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

10 Revision History & Approval

REVISION HISTORY			
Rev	Description of Change	Author	Effective Date

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A	Initial Release	Tom C. Owens	6/11/2010
B	Added 6.1.4.6, 6.2.8, and 6.2.9	Matt Sauer	1/1/2012
C	Removed ref to ATB process, Added ECM & Manufacturing Release. Added 6.2.10. Updated Flow Diagram, Added EH&S Link	Bob Haapala	6/13/2012
D	Added references to workmanship standards library	P.Allan	12/19/2012
E	Changed Environmental Impact Evaluation procedure to Management of Change Process in Section 6.2.11 and Section 8	M. Westermann	8/28/2014

APPROVAL OF CURRENT REVISION		
Name / Function	Signature	Date
Marvin Westermann, Solutions Engineering Manager	Marvin Westermann	28-Aug-2014