

HERBERT E. ORR COMPANY

Paulding, Ohio

***SUPPLIER
SUB - CONTRACTOR
QUALITY SYSTEMS
MANUAL***

Controlled Circulation

Copy _____

APPROVAL SIGN OFF RECORD

Position	Signature
Chairman	
President	
Treasurer	
Total Quality Manager	
Plant Manager	
Purchasing Agent	

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01. AMENDMENT RECORD

Distributed to	Copy #
Chairman	1
President	2
Treasurer	3
Plant Manager	4
Purchasing Agent	5
Total Quality Manager	Master Copy

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1.0 MANAGEMENT RESPONSIBILITY

1.1 RESPONSIBILITY

IT IS THE RESPONSIBILITY OF THE HERBERT E. ORR'S SUPPLIERS MANAGEMENT TO DEVELOP A COMPANY-WIDE QUALITY POLICY/ CONTINUOUS IMPROVEMENT PLAN.

THIS POLICY MUST IDENTIFY THE OBJECTIVES OF THE QUALITY PROGRAM, LEVEL OF MANAGEMENT COMMITMENT, WHAT KNOWN STANDARD, (i.e. QS9000, ISO); IF ANY IS BEING USED AND OVERALL GOALS AND OBJECTIVES OF THE COMPANY.

ANY GOALS AND OBJECTIVES MUST BE MEASURABLE AND DOCUMENTED IN THE QUALITY POLICY MANUAL.

IT IS THE RESPONSIBILITY OF THE SUPPLIERS' MANAGEMENT TO ENSURE THIS POLICY IS UNDERSTOOD, IMPLEMENTED AND MAINTAINED AT ALL LEVELS OF THE ORGANIZATION.

1.2 COST REDUCTION

A DETAILED COMPANY-WIDE COST REDUCTION PROGRAM MUST BE IN PLACE WITH DOCUMENTATION TO SHOW WHERE COSTS HAVE BEEN IMPROVED.

PROCEDURES MUST BE IN PLACE DEFINING HOW AND BY WHOM COST SAVINGS PROPOSALS ARE GENERATED, SUBMITTED AND APPROVED.

INVOLVEMENT MUST BE ENCOURAGED AT ALL LEVELS OF THE ORGANIZATION WITH EMPHASIS ON EMPLOYEE INVOLVEMENT. INVOLVEMENT CAN BE ENCOURAGED WITH SUCH THINGS AS SUGGESTION BOXES PLACED IN THE PLANT, MONETARY REWARDS, ETC.

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1.3 ORGANIZATIONAL CHART

AN ORGANIZATIONAL CHART MUST BE PRESENT TO DEMONSTRATE IN CHART FORM, THE DEPARTMENTS AND LEVELS OF MANAGEMENT WITHIN THE COMPANY.

THIS CHART SHOULD STATE THE JOB TITLES OF EACH POSITION AND NAMES. IT IS SUPPLIERS' RESPONSIBILITY TO SUPPLY UPDATED CHARTS AS NECESSARY.

ALL PERSONNEL AFFECTING QUALITY MUST HAVE CLEARLY DEFINED AND DOCUMENTED RESPONSIBILITIES.

MANAGEMENT IS RESPONSIBLE TO ESTABLISH, DEVELOP AND COMMUNICATE THE CONTENTS OF THE BUSINESS PLAN THROUGHOUT THE COMPANY.

COMPANY LEVEL DATA SHOULD BE UTILIZED IN ORDER TO SET AND REACH GOALS, AS WELL AS MEASURING CUSTOMER SATISFACTION. CROSS FUNCTIONAL TEAMS SHOULD BE USED IN THE ADVANCED PRODUCT PLANNING STAGES, IF APPLICABLE.

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1.4 VERIFICATION RESOURCES AND PERSONNEL

MANAGEMENT MUST PROVIDE THE RESOURCES AND PERSONNEL REQUIRED TO ENSURE A QUALITY PRODUCT.

VERIFICATION REQUIREMENTS SHOULD BE CLEARLY DEFINED FOR EQUIPMENT, PRODUCT AND PERSONNEL.

REQUIREMENTS SHOULD BE DOCUMENTED IN THE COMPANY QUALITY POLICY.

MANAGEMENT MUST ENSURE THAT THE REQUIREMENTS ARE DEFINED AND UNDERSTOOD AND THAT THE PERSONNEL PERFORMING THE VERIFICATIONS HAVE BEEN ADEQUATELY TRAINED TO DO SO.

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2.0 QUALITY SYSTEM

2.1 RESPONSIBILITY

IT IS THE RESPONSIBILITY OF MANAGEMENT TO ESTABLISH AND MAINTAIN A DOCUMENT QUALITY SYSTEM. THIS SYSTEM IS TO BE ESTABLISHED AS A MEANS OF ENSURING THAT PRODUCT CONFORMS TO SPECIFIED REQUIREMENTS. THIS SYSTEM IS USUALLY DISPLAYED IN THE FORM OF A **QUALITY MANUAL**.

THE MANUAL MUST BE APPROVED AND SIGNED BY ALL MEMBERS OF SENIOR MANAGEMENT AND MUST INCLUDE THE FOLLOWING:

- a) Supplier's name, address, Quality Policy and Quality objectives.

- b) Responsibility, authority and interrelationship of all personnel affecting quality.
- c) Organizational Charts.
- d) System for the development of Control Plans.
- e) Methods of reviewing, revising and controlling the Manual.

IF THE MANUAL APPLIES TO MORE THAN ONE (1) FACILITY, IT IS IMPORTANT TO STATE WHICH FACILITIES THE MANUAL APPLIES TO.

2.2 PROCEDURES

PROCEDURES MUST INCLUDE THE SCOPE, RESPONSIBILITIES AND DETAILS (HOW, WHAT, WHERE, WHEN) OF ALL ACTIVITIES.

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2.2 PROCEDURES (continued)

PROCEDURES MUST BE DOCUMENTED FOR THE FOLLOWING (WHERE APPLICABLE) AS STATED IN THE QS9000 QUALITY SYSTEM REQUIREMENTS:

- a) MANAGEMENT RESPONSIBILITY
- b) QUALITY SYSTEM
- c) CONTRACT REVIEW
- d) DESIGN CONTROL
- e) DOCUMENT AND DATA CONTROL

- f) PURCHASING
- g) CONTROL OF CUSTOMER SUPPLIED PRODUCT
- h) PRODUCT IDENTIFICATION AND TRACEABILITY
- i) PROCESS CONTROL
- j) INSPECTION AND TESTING
- k) CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT
- l) INSPECTION AND TEST STATUS
- m) CONTROL OF NON-CONFORMING PRODUCT
- n) CORRECTIVE AND PREVENTIVE ACTION
- o) HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY
- p) CONTROL OF QUALITY RECORDS

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2.2 PROCEDURES (continued)

- q) INTERNAL QUALITY AUDITS
- r) TRAINING
- s) SERVICING (if applicable)
- t) STATISTICAL TECHNIQUES

2.3 QUALITY PLANNING

PROCEDURES MUST BE IN PLACE TO OUTLINE THE PLANNING PROCESS

INCLUDING FEASIBILITY IN MEETING REQUIREMENTS, DEVELOPMENT OF FMEA'S , PROCESS FLOW CHARTS, AND CONTROL PLANS.

THE QUALITY MANUAL MUST BE A LIVING DOCUMENT USED AND IMPLEMENTED AT ALL LEVELS OF THE ORGANIZATION.

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3.0 CONTRACT REVIEW

3.1 ACTIVITIES

HERBERT E. ORR'S SUPPLIERS MUST HAVE PROCEDURES IN PLACE FOR INITIAL CONTRACT REVIEW AND AMENDMENT TO CONTRACT ACTIVITIES TO ENSURE THAT ORDER REQUIREMENTS ARE WITHIN THE SUPPLIER'S CAPABILITY.

RECORDS OF REVIEWS SHOULD BE MAINTAINED.

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4.0 DESIGN CONTROL

4.1 ACTIVITIES

DESIGN CONTROL IS REQUIRED TO ESTABLISH AND MAINTAIN PROCEDURES THAT WILL CONTROL AND VERIFY THE DESIGN OF A PRODUCT TO SPECIFIED REQUIREMENTS.

THE SOLE RESPONSIBILITY OF DESIGN CONTROL LIES WITHIN THE ENGINEERING DEPARTMENT TO DEVELOP THESE PROCEDURES. DESIGN CONTROL CAN BE DIVIDED INTO FIVE (5) AREAS. THESE AREAS ARE AS FOLLOWS:

4.2 DESIGN AND DEVELOPMENT PLANNING

PLANS MUST BE DOCUMENTED AND IN PLACE TO IDENTIFY THE RESPONSIBILITY FOR EACH DESIGN AND DEVELOPMENT ACTIVITY.

RESPONSIBILITY MUST BE ASSIGNED TO QUALIFIED PERSONNEL WITH ADEQUATE RESOURCES AT THE PLANNING STAGE OF THE DESIGN AND

DEVELOPMENT ACTIVITY.

PLANS MUST BE IDENTIFIED BY A PROJECT NUMBER, ETC. AND MUST BE REVIEWED AND UPDATED AT REGULAR INTERVALS AS THE DESIGN EVOLVES.

PROCEDURES MUST BE IN PLACE TO DEFINE WHAT PLANNING TECHNIQUES ARE USED, HOW PLANS ARE UPDATED AND BY WHOM.

4.3 DESIGN INPUT

ALL REQUIREMENTS MUST BE IDENTIFIED, DOCUMENTED AND REVIEWED FOR ERRORS. IT IS AT THIS TIME THAT ALL DRAWINGS, SPECIFICATIONS, ETC. MUST BE REVIEWED FOR ADEQUACY.

PROCEDURES MUST BE IN PLACE TO IDENTIFY WHO IS RESPONSIBLE FOR THE REVIEW OF THESE DOCUMENTS.

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4.4 DESIGN OUTPUT

DESIGN OUTPUT MUST MEET THE REQUIREMENTS DEFINED IN DESIGN INPUT. CHARACTERISTICS CRUCIAL TO THE SAFE OPERATION AND PROPER FUNCTION OF THE PRODUCT MUST BE IDENTIFIED

4.5 DESIGN VERIFICATION

A SYSTEM MUST BE IN PLACE TO ENSURE THE DESIGN OUTPUT MEETS THE REQUIREMENTS OUTLINED IN THE DESIGN INPUT.

ALL VERIFICATION MUST BE CONDUCTED BY QUALIFIED PERSONNEL. VERIFICATION TESTING MUST BE CLEARLY DEFINED AND CARRIED OUT THROUGHOUT VARIOUS STAGES OF THE DESIGN.

PROCEDURES MUST BE IN PLACE TO IDENTIFY WHO IS RESPONSIBLE FOR SUCH VERIFICATIONS.

4.6 DESIGN CHANGES

PROCEDURES MUST BE IN PLACE FOR THE PROPER IDENTIFICATION,

DOCUMENTATION, REVIEW AND APPROVAL OF ALL CHANGES AND MODIFICATIONS.

THE RESPONSIBILITY OF DESIGN CHANGES MUST BE DELEGATED TO ONE (1) PERSON WHO IS RESPONSIBLE FOR APPROVING ALL CHANGES.

DESIGN CHANGES REQUIRE WRITTEN APPROVAL OR WAIVER BY HERBERT E. ORR CO.

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5.0 DOCUMENT AND DATA CONTROL

5.1 DOCUMENT APPROVAL AND ISSUE

NEW AND REVISED DOCUMENTS MUST BE REVIEWED WITH A WRITTEN SIGN OFF DATE FOR APPROVAL. SUCH DOCUMENTS WOULD INCLUDE:

- a) QUALITY MANUALS AND SYSTEM PROCEDURES
- b) DESIGN DOCUMENTS
- c) PURCHASING DOCUMENTS
- d) QUALITY PLANS
- e) PROCESS CONTROL DOCUMENTS
- f) AUDIT DOCUMENTS

DOCUMENTS MUST BE ACCESSIBLE WHERE USED.

PROCEDURES MUST BE IN PLACE TO ENSURE THE TIMELY REVIEW, DISTRIBUTION AND IMPLEMENTATION OF CUSTOMER ENGINEERING STANDARDS

AND/OR SPECIFICATIONS, AND FOR THE PROMPT REMOVAL AND DISPOSITION OF ALL OBSOLETE DOCUMENTS.

ALL REFERENCE DOCUMENTS (STANDARDS, SPECIFICATIONS, etc.) MUST BE AVAILABLE ON SITE. PROCESS CONTROL DOCUMENTS MUST IDENTIFY SIGNIFICANT CHARACTERISTICS.

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5.2 DOCUMENT CHANGES / MODIFICATIONS

REVISED DOCUMENTS MUST BE REVIEWED AND APPROVED BY THE SAME DEPARTMENT /PERSON WHO ORIGINALLY REVIEWED AND APPROVED THE DOCUMENT.

WHERE EVER POSSIBLE, THE NATURE OF THE CHANGE SHOULD BE IDENTIFIED. A MASTER LIST MUST BE MAINTAINED DEFINING CURRENT DOCUMENTS AND REVISION STATUS. THIS WILL HELP PREVENT INADVERTENT USE OF OBSOLETE DOCUMENTS.

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6.0 PURCHASING

6.1 ASSESSMENT OF SUB-CONTRACTORS / SUPPLIERS

A SYSTEM MUST BE IN PLACE FOR THE SELECTION AND MONITORING OF SUB-SUPPLIER PERFORMANCE BASED ON THEIR ABILITY TO MEET SPECIFIED REQUIREMENTS.

IN THE ASSESSMENT OF SUPPLIERS / SUB-CONTRACTORS HERBERT E. ORR CO. MAY CHOOSE TO VERIFY YOUR SUB/CONTRACTOR QUALITY ON SITE.

HERBERT E. ORR CO. OR HERBERT E. ORR CO.'S CUSTOMERS MAY CHOOSE TO VERIFY HERBERT E. ORR CO.'S SUPPLIERS QUALITY ON SITE.

SELECTION:

A PRE-AWARDED SURVEY MUST BE PERFORMED PRIOR TO PLACING BUSINESS WITH A NEW SUPPLIER.

AREAS IN WHICH A SUB-SUPPLIER SHOULD BE RATED ARE AS FOLLOWS:

- a) ON SITE SURVEY OF SUPPLIER'S FACILITIES.
- b) EVALUATION OF PRODUCT SAMPLES
- c) CERTIFICATION WITH A KNOWN STANDARD, (ISO OR QS-9000)

- d) INCOMING INSPECTION RESULTS.
- e) DELIVERY
- f) ENGINEERING SUPPORT
- g) COST REDUCTION / CONTINUOUS IMPROVEMENT

A LIST SHOULD BE ESTABLISHED AND MAINTAINED DEFINING ACCEPTABLE SUPPLIER / SUB CONTRACTORS.

PROCEDURES SHOULD BE IN PLACE DEFINING HOW YOUR SUPPLIERS ARE SELECTED, RATED, MONITORED, etc.

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6.2 PURCHASING DATA

ALL PURCHASING DOCUMENTS ISSUED TO SUB- SUPPLIERS SHOULD CLEARLY STATE THE FOLLOWING:

- a) PRODUCT ORDERED.
- b) TYPE, CLASS, STYLE, GRADE, etc.
- c) PROPER NAME; IDENTIFICATION OF PRODUCT
- d) PACKAGING SPECIFICATIONS

ALL PRODUCT SHIPPED TO HERBERT E. ORR CO. REQUIRES A CERTIFICATE OF COMPLIANCE TO ACCOMPANY EACH NEW LOT AND MUST CLEARLY STATE THE FOLLOWING INFORMATION, UNLESS SPECIFICALLY WAIVED BY HERBERT E. ORR CO. IN WRITING.

- a) SUPPLIER / SUB-CONTRACTOR NAME
- b) DATE
- c) MATERIAL SPECIFICATIONS
- d) MATERIAL IDENTIFICATION
- e) QUANTITY SHIPPED

- f) ACTUAL TEST RESULTS
- g) LOT TRACEABILITY

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6.2 PURCHASING DATA continued

IN SOME CASES, IT WILL BE THE RESPONSIBILITY OF THE SUPPLIER TO HAVE ALL RAW MATERIAL VERIFIED BY AN AUTOMOTIVE APPROVED INDEPENDENT LABORATORY ONCE PER YEAR, WITH A COPY OF THE REPORT SUBMITTED TO ORR FOR APPROVAL.

6.3 RECORDS

RECORDS OF SUB-SUPPLIER PERFORMANCE MUST BE RETAINED AND USED TO EVALUATE THEIR PERFORMANCE.

SUB- SUPPLIER / SUB - CONTRACTOR DEVELOPMENT SHOULD BE CONDUCTED USING ISO 9000 OR QS 9000 AS THE FUNDAMENTAL QUALITY SYSTEM REQUIREMENT.

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7.0 CONTROL OF CUSTOMER SUPPLIED PRODUCT

7.1 ACTIVITIES

PROCEDURES MUST BE DEVELOPED TO ENSURE MATERIAL IS EXAMINED UPON RECEIPT FOR QUANTITY, IDENTITY AND TRANSIT DAMAGE.

MATERIAL SHOULD BE INSPECTED PERIODICALLY TO DETECT SIGNS OF DETERIORATION, PROPER CONDITIONS AND STORAGE TIME LIMITATIONS.

RECORDS OF PRODUCT THAT IS LOST, DAMAGED OR UNSUITABLE FOR USE SHOULD BE MAINTAINED AND REPORTED TO HERBERT E. ORR CO.

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8.1 ACTIVITIES

ALL PRODUCT MUST BE IDENTIFIED FROM RECEIPT (RAW MATERIAL) THROUGH ALL STAGES OF PRODUCTION TO SHIPMENT. TRACEABILITY MUST ALSO BE IN PLACE TO ENSURE THAT ALL PRODUCT CAN BE TRACED BACK FROM THE CUSTOMER TO THE ACTUAL RAW MATERIAL USED.

IDENTIFICATION METHOD (i.e. part number, type, etc.) MUST BE STATED IN THE QUALITY MANUAL.

PRODUCT MUST BE IDENTIFIED AND TRACED WHEN SENT OUT FOR OUTSIDE PROCESSING SUCH AS PLATING, HEAT TREATING, ETC.

THE QUALITY MANUAL MUST DEFINE LOT CONTROL TRACEABILITY SYSTEM UTILIZED BY THE SUPPLIER. HERBERT E. ORR CO. REQUIRES THE PRODUCT TO BE IDENTIFIED BY LOT CONTROL NUMBER AND HERBERT E. ORR PART NUMBER. THESE ITEMS MUST BE CLEARLY DEFINED AND LEGIBLE ON ALL TAGS, LABELS, ETC.

TAGS AND/OR LABELS MUST BE SECURELY ADHERED TO THE CONTAINER TO PREVENT REMOVAL DURING TRANSIT. PRODUCT RECEIVED AT HERBERT E. ORR CO. WITHOUT THE PROPER IDENTIFICATION WILL BE REJECTED AND QUARANTINED UNTIL THE INFORMATION IS PROVIDED FROM THE SUPPLIER.

PROCEDURES SHOULD BE IN PLACE DEFINING HOW IDENTIFICATION IS ACHIEVED AND MAINTAINED, WHO IS RESPONSIBLE, WHAT TAGS ARE USED FOR IDENTIFICATION AND WHAT CONSTITUTES A LOT OR BATCH. THE ACTUAL TAGS, LABELS, ETC. MUST BE INCLUDED IN THE PROCEDURES.

9.0 PROCESS CONTROL

9.1 ACTIVITIES

PROCESSES THAT DIRECTLY AFFECT QUALITY MUST BE CONTROLLED. THE FOLLOWING MUST BE IMPLEMENTED IN ORDER TO MAINTAIN THIS CONTROL:

- a) DOCUMENTED WORK INSTRUCTIONS MUST BE AVAILABLE AT THE PROCESS. SUCH INSTRUCTIONS MUST DESCRIBE HOW THE OPERATOR MUST PERFORM THE JOB FUNCTION; SAFE AND PROPER USE OF EQUIPMENT, ETC. THESE WORK INSTRUCTIONS SHOULD REFERENCE ANY QUALITY PLANS, etc. AND BE ACCESSIBLY AT THE WORK STATION TO WHICH THEY APPLY.
- b) SIGNIFICANT CHARACTERISTICS MUST BE MONITORED AND CONTROLLED DURING THE PRODUCTION RUN. THESE CHARACTERISTICS COULD BE EITHER A PROCESS CHARACTERISTIC (AIR PRESSURE OF A PRESS) OR A PRODUCT CHARACTERISTIC (LENGTH, DIAMETER, etc.) THE METHOD OF CONTROL SHALL BE DEFINED IN THE CONTROL PLAN AND AGREED TO BY HERBERT E. ORR CO.
- c) PROCESS CAPABILITY STUDIES MUST BE CONDUCTED ON EQUIPMENT PRIOR TO RELEASE TO PRODUCTION TO ENSURE THAT THE EQUIPMENT IS CAPABLE OF PRODUCING OUTPUT CONFORMING TO PRODUCT SPECIFICATION. STUDIES SHOULD BE REPEATED AT SPECIFIED FREQUENCIES TO MAINTAIN CONTROL OVER THE PROCESS.
- d) QUALITY PROCEDURES MUST BE IN PLACE AND CAN BE IN THE FORM OF A WRITTEN DOCUMENT OR ACTUAL BOUNDARY SAMPLES. THESE ARE MEANT TO BE USED AS A QUALITY GUIDELINE FOR THE PERSONNEL PERFORMING THE JOB FUNCTION.

ENGINEERING CHANGE LEVELS MUST BE EVIDENT ON ALL PROCESS CONTROL

TYPE DOCUMENTS.

WHEN SELECTING CHARACTERISTICS TO MONITOR, IT IS IMPORTANT TO KEEP IN MIND THAT THE MAIN OBJECTIVE IS TO SELECT CHARACTERISTICS THAT WILL CONTROL THE PROCESS / PRODUCT; WITH AN EMPHASIS ON DEFECT PREVENTION.

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9.2 PREVENTIVE MAINTENANCE

A PREVENTIVE MAINTENANCE PROGRAM MUST BE IN PLACE DEFINING KEY PROCESS EQUIPMENT, MACHINERY AND TOOLING INVOLVED IN SUCH A PROGRAM.

A LOG MUST BE KEPT TO DOCUMENT AND TRACK ALL EQUIPMENT REPAIRS, LUBES, INSPECTIONS AND ADJUSTMENTS. A TIMETABLE MUST BE ESTABLISHED DOCUMENTING PRE-SCHEDULED ACTIVITIES FOR EACH PROCESS.

ANY REPAIRS CONDUCTED THAT ARE NOT SCHEDULED ON THE TIMETABLE (UNEXPECTED REPAIRS, ADJUSTMENTS) MUST INCLUDE A ROOT CAUSE ANALYSIS AND DOCUMENTED CORRECTIVE ACTION.

THE APPROPRIATE PERSONNEL (SET-UP, MAINTENANCE PERSONNEL) MUST BE TRAINED IN: THE USE OF THE PREVENTIVE MAINTENANCE SCHEDULE, DOCUMENTATION OF MACHINE REPAIRS, ADJUSTMENTS, PERFORMING CORRECTIVE ACTION ANALYSIS FOR UNSCHEDULED DOWN TIME.

PREVENTIVE MAINTENANCE INFORMATION SHOULD BE USED FOR PREDICTING REPAIRS OF EQUIPMENT. HISTORICAL DATA SUCH AS REPAIRS, ADJUSTMENTS, TOOL LIFE STUDIES, ETC. SHOULD BE USED TO MINIMIZE TOOLING COSTS, DOWN TIME, ETC. THE OBJECTIVE BEHIND SUCH A PROGRAM IS THAT BY SCHEDULING MAINTENANCE ACTIVITIES, EQUIPMENT SHOULD NOT GET TO A POINT WHERE IT HAS TO BREAK DOWN BEFORE REPAIRS ARE MADE, THUS CAUSING COSTLY AND UNTIMELY DOWN TIME.

10.0 INSPECTION AND TESTING

10.1 RECEIVING (INCOMING) INSPECTION

INCOMING MATERIAL SHALL NOT BE USED UNTIL VERIFICATION HAS BEEN COMPLETED. MATERIAL SHOULD BE VERIFIED FOR CONFORMANCE TO SPECIFIED REQUIREMENTS, SPECIFICATION IN ACCORDANCE WITH THE QUALITY PLAN, OR OTHER DOCUMENTED PROCEDURES. QUALITY IMPROVEMENT PLANS SHOULD INCLUDE SELF-CERTIFICATION OF ALL SUPPLIERS.

DESIGNATED AREAS MUST BE AVAILABLE FOR BOTH MATERIAL PRIOR TO INSPECTION AND MATERIAL APPROVED FOR PRODUCTION.

CONTROL METHODS MUST BE IDENTIFIED TO SUB-SUPPLIERS AND DOCUMENTATION THAT METHODS ARE BEING CONDUCTED SHOULD BE SUBMITTED, AS REQUIRED.

APPROVED MATERIAL MUST BE IDENTIFIED AS SUCH WITH TAGS, STICKERS, ETC.

PROCEDURES SHOULD INCLUDE; WHO PERFORMS INSPECTION, WHAT IS ACCEPTABLE/UNACCEPTABLE, WHERE RECORDS ARE RETAINED, ETC.

GOALS SHOULD BE IN PLACE TO REDUCE THE AMOUNT OF RECEIVING INSPECTION CONDUCTED. THIS GOAL CAN ONLY BE ACHIEVED BY WORKING TOGETHER WITH YOUR SUPPLIER/SUB-SUPPLIER TO IMPROVE PRODUCT QUALITY.

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10.2 IN-PROCESS INSPECTION

ALL IN-PROCESS MATERIAL MUST BE INSPECTED/TESTED IN ACCORDANCE WITH REQUIREMENTS STATED IN THE QUALITY PLAN.

INSPECTION SHOULD BE CARRIED OUT AT VARIOUS STAGES OF THE PROCESS TO ENSURE PRODUCT CONFORMITY.

PRODUCT VERIFICATION WOULD INCLUDE; SET-UP/FIRST PIECE INSPECTION, INSPECTION BY INSPECTOR/OPERATOR AND ANY TEST REQUIREMENTS SPECIFIED.

A SYSTEM SHOULD BE IN PLACE TO ENSURE PRODUCT IS HELD UNTIL THE REQUIRED INSPECTION AND TESTS ARE PERFORMED.

WRITTEN AND/OR VISUAL INSPECTION INSTRUCTIONS FOR PERSONNEL MONITORING SIGNIFICATION CHARACTERISTICS MUST BE DOCUMENTED AND AVAILABLE TO THE PERSONNEL PERFORMING THE OPERATION.

PROCEDURES SHOULD BE IN PLACE DEFINING; WHO IS RESPONSIBLE FOR INSPECTION AND MONITORING, HOW PRODUCTS ARE HELD PRIOR TO INSPECTION, WHO IS RESPONSIBLE, WHAT PROCEDURES ARE FOLLOWED WHEN A PRODUCT IS FOUND TO BE IN A NON-CONFORMING CONDITION, ETC.

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10.3 FINAL INSPECTION

ALL PRODUCT IS TO BE INSPECTED/TESTED IN ACCORDANCE WITH THE REQUIREMENTS STATED IN THE QUALITY PLAN OR OTHER DOCUMENTED PROCEDURES PRIOR TO RELEASE FOR SHIPMENT. REQUIREMENTS SHOULD BE DOCUMENTED FOR THE PURPOSES OF ESTABLISHING EVIDENCE THE PRODUCT IS IN CONFORMANCE.

THE PROCEDURES SHOULD BE IN PLACE DEFINING; WHO IS RESPONSIBLE FOR THE RELEASE OF FINISHED PRODUCT, WHAT CRITERIA IS USED TO BASE THIS DECISION, HAVE ALL REQUIREMENTS STATED IN THE QUALITY PLAN BEEN CARRIED OUT, ETC.

FINAL INSPECTION SHOULD ALSO INCLUDE A REVIEW OF COMPLIANCE TO PACKAGING, LABELING, ETC. AN OVERALL VISUAL INSPECTION SHOULD BE PERFORMED ON ALL PRODUCT PRIOR TO SHIPMENT.

10.4 LAYOUT AND FUNCTIONAL INSPECTION AND TESTING

LAYOUT AND FUNCTIONAL TESTING MUST BE CONDUCTED AT SPECIFIED FREQUENCIES AND AS OUTLINED IN THE QUALITY PLAN.

SUPPLIERS MAY BE REQUIRED TO HAVE TESTING CONDUCTED BY ACCREDITED LABORATORIES WHEN REQUESTED BY HERBERT E. ORR COMPANY.

10.5 RECORDS

ADEQUATE RECORDS OF ALL INSPECTION AND TESTING MUST BE MAINTAINED.

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11.0 CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT

11.1 CONTROL PROCEDURE

A SYSTEM MUST BE IN PLACE TO CONTROL, CALIBRATE AND MAINTAIN ALL INSPECTION, MEASURING AND TEST EQUIPMENT TO DEMONSTRATE CONFORMANCE TO SPECIFIED REQUIREMENTS. THIS SYSTEM MUST INCLUDE ALL EQUIPMENT WHETHER OWNED BY THE COMPANY, OPERATOR OR CUSTOMER.

ANY PIECE OF EQUIPMENT THAT WOULD AFFECT THE SPECIFIED REQUIREMENTS OF THE PRODUCT, PROCESS OR SERVICES MUST BE CONTROLLED. THIS WOULD INCLUDE JIGS, FIXTURES, ETC.

THE MEASUREMENTS TO BE MADE AND ACCURACY REQUIRED, MUST BE DOCUMENTED AND RESULTS MAINTAINED FOR EACH PIECE OF EQUIPMENT. THE ACCEPTABLE TOLERANCE FOR THE ACCURACY OF THE EQUIPMENT MUST BE STATED.

11.2 PROCEDURES

PROCEDURES MUST BE IN PLACE TO ENSURE THE ADEQUATE HANDLING, PRESERVATION AND STORAGE OF MEASURING AND TEST EQUIPMENT. SUCH PROCEDURES WOULD DEFINE WHERE EQUIPMENT IS STORED WHEN NOT IN USE, THE HANDLING OF THE EQUIPMENT WHEN TRANSPORTED FROM ONE LOCATION TO ANOTHER, ETC.

PROCEDURES DEFINING THE PROPER USAGE OF MEASURING AND TEST EQUIPMENT SHOULD BE MADE AVAILABLE TO THE PERSONNEL OPERATING THE EQUIPMENT. THESE DOCUMENTS ARE MOST EFFICIENT WHEN PICTURES ARE USED WHERE EVER POSSIBLE.

PROCEDURES MUST EXIST DEFINING RE-EVALUATION OF GAUGES FOLLOWING ENGINEERING CHANGES.

11.3 MEASUREMENT SYSTEM ANALYSIS

GAGE REPEATABILITY AND REPRODUCIBILITY (R & R) STUDIES MUST BE CONDUCTED IN THE FOLLOWING SITUATIONS:

- a) NEW EQUIPMENT PRIOR TO USE.
- b) ANY PIECES OF EQUIPMENT TO BE USED FOR S.P.C.
- c) AFTER REPAIRS; PRIOR TO RE IMPLEMENTATION INTO THE SYSTEM.

ACCEPTANCE OF MEASURING EQUIPMENT SHOULD BE BASED ON THE GUIDELINES OF THE MEASUREMENT SYSTEM ANALYSIS MANUAL.

11.4 RECORDS

RECORDS MUST BE IN PLACE DOCUMENTING THE PRESCRIBED FREQUENCY OF CALIBRATION FOR EACH PIECE OF EQUIPMENT AGAINST A KNOWN STANDARD (STATE STANDARD). THESE RECORDS SHOULD INCLUDE THE ADEQUATE IDENTIFICATION INFORMATION SUCH AS EQUIPMENT TYPE, LOCATION, FREQUENCY OF CHECK, CHECK METHOD, ACCEPTANCE CRITERIA AND ACTION TO BE TAKEN WHEN RESULTS ARE NOT ACCEPTABLE.

NEW GAGES, MEASURING EQUIPMENT ARE REQUIRED TO BE TESTED FOR CONFORMANCE PRIOR TO RELEASE.

SYSTEMS MUST BE IN PLACE TO ALLOW THE ASSESSMENT AND DOCUMENTATION OF THE VALIDITY OF PREVIOUS INSPECTION AND TEST RESULTS WHEN EQUIPMENT IS FOUND TO BE OUT OF CALIBRATION. STEPS SHOULD BE TAKEN FOR THE IDENTIFICATION AND DISPOSITION OF PRODUCT PROCESSED DURING THE TIME THE MEASURING/TEST EQUIPMENT WAS OUT OF CALIBRATION.

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12.0 INSPECTION AND TEST STATUS

12.1 ACTIVITIES

PROCEDURES MUST EXIST DESCRIBING THE SYSTEM USED TO CLEARLY IDENTIFY INSPECTION AND TEST STATUS THROUGHOUT THE PRODUCTION PROCESS.

WHERE SPECIFIED BY HERBERT E. ORR CO., ADDITIONAL VERIFICATION REQUIREMENTS MAY BE NECESSARY FOR THE LAUNCH OF NEW PRODUCT.

13.0 CONTROL OF NON - CONFORMING PRODUCT

13.1 ACTIVITIES

PROCEDURES MUST BE IN PLACE TO PREVENT NON CONFORMING PRODUCT FROM USE OR FURTHER PROCESSING.

NON CONFORMING MATERIAL MUST BE IDENTIFIED TO DISTINGUISH FROM MATERIAL APPROVED FOR USE. A COMMON PRACTICE IS TO USE A RED COLORED "HOLD" OR "REJECT" TAG. THIS TAG SHOULD INCLUDE ALL THE APPROPRIATE IDENTIFICATION INCLUDING A DESCRIPTION OF THE NON-CONFORMANCE.

AN AREA MUST BE SEGREGATED AWAY FROM PRODUCTION TO HOLD ALL NON-CONFORMING PRODUCT UNTIL REVIEW AND DISPOSITION CAN BE CARRIED OUT. DISPOSITION CAN BE ONE OF THE FOLLOWING; REWORK TO SPECIFICATION, ACCEPT AS IS, RE-GRADE, REJECT OR SCRAP. ANY PRODUCT WHICH IS REPAIRED OR REWORKED MUST BE SUBJECT TO RE-INSPECTION PRIOR TO RELEASE. PROCEDURES MUST BE IN PLACE TO ENSURE ADEQUATE REWORK INSTRUCTION AND RE-INSPECTION OF THIS MATERIAL.

PROCEDURES FOR THE CONTROL OF NON-CONFORMING PRODUCT SHOULD STATE WHO IS RESPONSIBLE AND HAS THE AUTHORITY TO HOLD/PROVIDE DISPOSITION OF NON-CONFORMING PRODUCT. HOW THE NON-CONFORMING PRODUCT IS HELD AND HOW DISPOSITION IS DECIDED MUST ALSO BE CLEARLY DEFINED.

DOCUMENTED RECORDS MUST BE MAINTAINED ON THE DISPOSITION OF ALL REJECTED MATERIAL.

NON-CONFORMANCES MUST BE RECORDED IN SUCH A MANNER TO ALLOW DEFECT ANALYSIS.

13.2 ENGINEERING APPROVED PRODUCT AUTHORIZATION

HERBERT E. ORR COMPANY MUST AUTHORIZE ANY SHIPMENT OF NON CONFORMING MATERIAL. ALL PRODUCT SHIPPED UNDER AN ENGINEERING APPROVED PRODUCT AUTHORIZATION MUST BE CLEARLY IDENTIFIED AS SUCH.

RECORDS OF ENGINEERING APPROVED PRODUCT AUTHORIZATION MUST BE RETAINED INCLUDING QUANTITIES, EXPIRATION DATES, PART NUMBERS, ETC.

14.0 CORRECTIVE AND PREVENTIVE ACTION

14.1 ACTIVITIES

CORRECTIVE ACTION PROCEDURES MUST BE IN PLACE FOR THE INVESTIGATION OF NON-CONFORMANCES AND DETERMINATION OF A PERMANENT SOLUTION TO PREVENT RECURRENCE.

A FORMAL SYSTEM OF DOCUMENTATION OF CORRECTIVE ACTION MUST BE ESTABLISHED. EXAMPLES OF SUCH SYSTEMS WOULD BE THE FORD MOTOR COMPANY'S EIGHT (8) DISCIPLINE APPROACH TO PROBLEM SOLVING (8-D). VARIOUS LEVELS WITHIN THE ORGANIZATION SHOULD BE INVOLVED WHEN ANALYZING PROBLEMS WITH HEAVY EMPHASIS ON SENIOR MANAGEMENT INVOLVEMENT.

PROCEDURES SHOULD OUTLINE WHO IS RESPONSIBLE FOR INITIATING CORRECTIVE ACTION AS WELL AS WHO IS RESPONSIBLE FOR THE IMPLEMENTATION OF THE CORRECTIVE ACTION.

DOCUMENTATION SHOULD ALSO INCLUDE ALL MINUTES OF MEETINGS CONDUCTED, SPECIFIC CONTROLS THAT HAVE BEEN IMPLEMENTED TO ENSURE THE CORRECTIVE ACTION IS TAKEN AND IS EFFECTIVE AS WELL AS ANY CHANGES THAT WERE MADE TO PROCEDURES, JOB INSTRUCTIONS, ETC., AS A RESULT OF THE CORRECTIVE ACTION TAKEN.

IN THE EVENT A NON-CONFORMANCE TO SPECIFICATION IS DETECTED AT THE HERBERT E. ORR COMPANY, THE SUPPLIER/SUB-CONTRACTOR WILL BE REQUESTED TO COMPLETE THE HERBERT E. ORR COMPANY'S CORRECTIVE AND PREVENTIVE ACTION REPORT. THE SUPPLIER/SUB-CONTRACTOR SHALL HAVE TWO (2) WEEKS TO REPLY TO THIS REPORT DEFINING WHAT CONTAINMENT ACTION, VERIFICATION THAT WAS TAKEN AS WELL AS ROOT CAUSE. THIRTY (30) DAYS FROM THE INITIATION DATE OF THE REPORT, THE SUPPLIER/SUB CONTRACTOR MUST COMPLETE THE VERIFICATION OF THE DEFINED ROOT CAUSE.

ALL NON-CONFORMANCES, ENGINEERING APPROVED PRODUCT AUTHORIZATIONS, AUDIT RESULTS, ETC., SHOULD BE USED TO DEVELOP PREVENTIVE ACTIONS THROUGHOUT THE SYSTEM.

CORRECTIVE AND PREVENTIVE ACTION REPORT

NON CONFORMING #

REPORT COMPLETED BY: _____ DATE: _____

PART # _____ PART DESCRIPTION: _____

DEFECT: _____

INVESTIGATING QUESTIONS:

	YES	NO	N/A
1. Is Char. identified on Op. instruction ?			
2. Can Defect Happened Again ?			
3. Has Defect Occurred Before ?			
4. Is The Set-up POI Issued?			
5. Does Set-up Proc. State Concern?			
6. Was Process Set-up Correctly?			
7. Defect Intermittent, Difficult To Detect?			
8. Was Defect Due To Non Authorized Deviation?			
9. Was defect due to Authorization deviation			
10. Was die or tooling Equipment at Fault			
11. Were Gauges/measuring Equip. Used ?			
13. P. M. Program On Tooling?			
14. Problem Detected During Internal Audit?			
15. Inspection Results Acceptable?			
16. Previous Customer Complaint?			

DEFINE ROOT CAUSE OF DEFECT:

ACTIONS AND FOLLOW-UP VERIFICATION REQUIRED TO PREVENT RECURRENCE:

	RESPONSIBLE	DUE DATE	COMPLETED	VERIFIED
1. UPDATE DFMEA	_____	_____	_____	_____
2. UPDATE PFMEA	_____	_____	_____	_____
3. UPDATE QPSI/QPOI	_____	_____	_____	_____
4. BOUNDARY SAMPLES	_____	_____	_____	_____
5. TRAINING	_____	_____	_____	_____
6. TOOLING REPAIR	_____	_____	_____	_____
7. DEFECT INTERMITTENT DIFFICULT TO DETECT?	_____	_____	_____	_____
8. WAS DEFECT DUE TO NON- AUTHORIZED DEVIATION?	_____	_____	_____	_____

MEETING MINUTES

ATTENDEES: _____

OTHER LOCATIONS THIS CORRECTIVE AND PREVENTIVE ACTION SHALL BE IMPLEMENTED?

ONE MONTH CLOSE OUT VERIFICATION:

15.0 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

15.1 ACTIVITIES

PROCEDURES MUST BE IN PLACE TO ENSURE THE PROPER HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY OF ALL PRODUCT. WHO IS RESPONSIBLE FOR MATERIAL HANDLING, WHO SPECIFIES METHODS OF PACKAGING/ HANDLING, WHO IS RESPONSIBLE FOR THE IDENTIFICATION OF PACKAGES AND WHO IS RESPONSIBLE FOR THE ASSESSMENT OF STOCK FOR EVIDENCE OF DETERIORATION MUST BE SPECIFIED WITHIN THE PROCEDURES.

15.2 HANDLING

SUFFICIENT MEASURES MUST BE TAKEN TO PREVENT DAMAGE AND OR DETERIORATION OF PRODUCT. HANDLING INCLUDES RAW MATERIALS THROUGH TRANSIT TO THE END DESTINATION; THE CUSTOMER. PACKAGING MUST BE DESIGNED TO PROVIDE A SAFE MEANS OF STORING PRODUCT.

15.3 STORAGE

STORAGE AREAS SHOULD BE CLEARLY IDENTIFIED. LINES COULD BE PAINTED ON THE FLOOR, RACKING CAN BE ASSEMBLED, etc. AREAS SHOULD BE CLEARLY MARKED AS TO WHAT MATERIAL/ PRODUCT BELONGS IN WHICH ROW, SHELF, etc.

STORAGE AREAS MUST BE ENVIRONMENT CONTROLLED WHERE NEEDED. FOR INSTANCE, A BARE METAL PRODUCT WHICH DOES NOT HAVE ANY TYPE OF OIL (RUST INHIBITOR) APPLIED, SHOULD NOT BE STORED IN A HUMID/DAMP AREA. STORAGE AREAS SHOULD BE APPROPRIATE FOR PREVENTING, DAMAGE OR DETERIORATION OF PRODUCT.

A STOCK ROTATION SYSTEM (FIRST IN FIRST OUT) MUST BE IN PLACE TO PREVENT DETERIORATION OF THE PRODUCT.

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15.4 PACKAGING

PACKAGING REQUIREMENTS MUST BE READILY AVAILABLE TO THE PERSONNEL RESPONSIBLE FOR PERFORMING THE PACKAGING FUNCTION. THESE REQUIREMENTS SHOULD SPECIFY ALL PERTINENT INFORMATION SUCH AS QUANTITIES, LABELING, PACK METHOD, MAXIMUM WEIGHT, ETC.

IDENTIFICATION LABELS MUST BE LARGE AND LEGIBLE. THE USE OF BAR CODE LABELING IS ENCOURAGED WHERE POSSIBLE.

WHEN PRODUCT IS PACKAGED IN SMALL CONTAINERS AND STACKED ON A SKID FOR SHIPMENT, IDENTIFICATION LABELS SHOULD BE ADHERED TO EACH CONTAINER AND ON A SIDE OF THE CONTAINER THAT IS CLEARLY VISIBLE WITHOUT HAVING TO REMOVE EACH CONTAINER FROM THE SKID.

THE HERBERT E. ORR CO. SHALL IDENTIFY ALL PACKAGING REQUIREMENTS AT THE QUOTE STAGE OF BUSINESS. DEVIATION FROM THESE REQUIREMENTS WITHOUT THE APPROVAL OF THE HERBERT E. ORR CO., WILL RESULT IN REJECTION AND RETURN OF THE MATERIAL.

15.5 PRESERVATION

APPROPRIATE METHODS SHOULD BE USED FOR THE PRESERVATION OF THE PRODUCT.

WHERE CONTRACTUALLY REQUIRED THE SUPPLIER MAY BE REQUIRED TO ARRANGE FOR THE PROTECTION OF PRODUCT QUALITY THROUGH TO THE DELIVERY AT THE HERBERT E. ORR COMPANY.

15.6 DELIVERY

IN ORDER FOR THE HERBERT E. ORR CO. TO MEET THEIR PRODUCTION GOALS, ZERO TOLERANCE IS GIVEN FOR LATE OR SHORT SHIPMENTS FROM SUPPLIERS/SUB CONTRACTORS. IN ORDER FOR A SUPPLIER/SUB CONTRACTOR TO CONSISTENTLY MEET DELIVERY DEADLINES, THERE MUST BE EFFECTIVE UTILIZATION OF RESOURCES AS WELL AS THE IMPLEMENTATION OF INTERNAL SCHEDULING AND COMMUNICATION SYSTEMS.

THE SUPPLIER/SUB-CONTRACTOR MANUFACTURING CAPACITY MUST BE SUCH THAT IT ALLOWS A VOLUME INCREASE IF REQUESTED THE HERBERT E. ORR CO. LEAD TIMES MUST BE ESTABLISHED FOR CURRENT PRODUCTION AND A SYSTEM IN PLACE TO MONITOR, EVALUATE AND CONTROL THE ADHERENCE TO THESE REQUIREMENTS.

A PRODUCTION CONTROLLING, SCHEDULING PROGRAM MUST BE IN PLACE TO HANDLE THE HERBERT E. ORR CO. PURCHASE ORDER REQUIREMENTS. SUCH A PROGRAM SHOULD ALLOW PRODUCTION TO BE BASED ON SHIPMENT REQUIREMENTS TO PREVENT AN EXCESSIVE AMOUNT OF INVENTORY.

A SYSTEM SHOULD BE IN PLACE TO DOCUMENT AND MONITOR PREMIUM FREIGHT; WITH THE GOAL OF ELIMINATING THIS COMPLETELY. DELIVERY PERFORMANCE TO PRODUCTION AND SERVICE REQUIREMENTS SHOULD ALSO BE TRACKED.

AN INVENTORY MANAGEMENT SYSTEM SHOULD BE IN PLACE TO OPTIMIZE INVENTORY TURNS AND STOCK ROTATION.

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16.0 CONTROL OF QUALITY RECORDS

16.1 ACTIVITIES

THE SUPPLIER MUST ESTABLISH AND MAINTAIN PROCEDURES FOR THE IDENTIFICATION, COLLECTION, INDEXING, ACCESSING, FILING, STORING, MAINTAINING, AND DISPOSING OF QUALITY RECORDS.

QUALITY RECORDS ENTAIL ANY WRITTEN EVIDENCE THAT THE QUALITY PROGRAM IS FUNCTIONING AS PLANNED, AND IF THE PROGRAM IS EFFECTIVE.

A PROCEDURE MUST BE IN PLACE TO DEFINE WHAT DOCUMENTS ARE TO BE CONSIDERED "QUALITY RECORDS".

EACH DEPARTMENT SHALL MAINTAIN THEIR OWN QUALITY RECORDS.

QUALITY RECORDS MUST BE COLLECTED AND FILES MUST BE LEGIBLE AND IDENTIFIABLE TO THE PRODUCT. THESE RECORDS SHOULD BE STORED IN AN ENVIRONMENT TO PREVENT DETERIORATION AND AT THE SAME TIME, EASILY RETRIEVED.

RECORD RETENTION TIMES MUST BE ESTABLISHED, DOCUMENTED AND APPROVED BY THE HERBERT E. ORR COMPANY.

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16.1 ACTIVITIES continued

THE FOLLOWING ARE SOME EXAMPLES OF RECORDS THAT SHOULD BE CLASSIFIED AS "QUALITY RECORDS".

- a) QUALITY MANUAL AND SYSTEMS PROCEDURES.
- b) MANAGEMENT REVIEW RECORDS.
- c) INTERNAL QUALITY AUDIT RECORDS
- d) DESIGN CONTROL RECORDS.
- e) SUB - CONTRACTORS/SUB- SUPPLIER RECORDS
- f) INSPECTION, MEASURING AND TEST EQUIPMENT RECORDS.
- g) CORRECTIVE ACTION RECORDS.
- h) TRAINING RECORDS.
- i) NON-CONFORMANCE RECORDS.
- j) PRODUCT RECORDS, AS REQUIRED.
- k) PRODUCTION PART APPROVAL RECORDS.
- l) CONTROL CHARTS
- m) FMEA'S

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17.0 INTERNAL QUALITY AUDITS

17.1 ACTIVITIES

INTERNAL QUALITY AUDITS ARE A TOOL USED TO DETERMINE WHETHER THE QUALITY SYSTEM PROCEDURES/POLICIES ARE BEING ADHERED TO WITHIN THE ORGANIZATION.

THESE AUDITS ARE USUALLY CONDUCTED BY (1) PERSON FROM SENIOR MANAGEMENT (USUALLY QUALITY ASSURANCE MANAGER AND PERSONNEL INDEPENDENT OF THE FUNCTION BEING AUDITED) AND ARE CONDUCTED IN EVERY DEPARTMENT.

INTERNAL AUDITS SHOULD BE TREATED IN THE SAME MANNER AS AN EXTERNAL AUDIT CONDUCTED BY THE HERBERT E. ORR CO. THE AUDITS ARE PRE-SCHEDULED AND ARE CONDUCTED AGAINST A CHECKLIST.

THE AUDITOR WOULD CONDUCT THE AUDIT FOR EACH DEPARTMENT AS IF EACH DEPARTMENT WAS A SEPARATE COMPANY. NON-CONFORMANCES DETECTED DURING THE AUDIT ARE DOCUMENTED AND REPORTED TO EACH DEPARTMENT MANAGER.

CORRECTIVE ACTIONS MUST BE TIMELY, RECORDED AND EVALUATED FOR EFFECTIVENESS.

AUDITS SHOULD INCLUDE THE EVALUATION OF WORK ENVIRONMENT AND GENERAL HOUSEKEEPING.

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18.0 TRAINING

18.1 ACTIVITIES

SUFFICIENT TRAINING PROGRAMS MUST BE IN PLACE AT ALL LEVELS OF THE ORGANIZATION.

QUALIFIED PERSONNEL SHOULD BE RESPONSIBLE TO IDENTIFY TRAINING NEEDS FOR ALL PERSONNEL FROM THE SHOP FLOOR TO SENIOR MANAGEMENT. THE PERSONNEL DESIGNATED TO IDENTIFY THESE NEEDS WOULD ALSO BE RESPONSIBLE TO PROVIDE THE REQUIRED TRAINING. THIS TRAINING MAY BE CONDUCTED WITHIN THE ORGANIZATION OR AT AN OUTSIDE SOURCE.

RECORDS MUST BE DOCUMENTED AND MAINTAINED OF ALL TRAINING CONDUCTED.

EFFECTIVENESS OF TRAINING SHOULD BE PERIODICALLY EVALUATED.

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19.0 SERVICING

THIS SECTION IS NOT APPLICABLE TO THE HERBERT E. ORR CO. SUPPLIER

RELATIONSHIP

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20.0 STATISTICAL TECHNIQUES

20.1 ACTIVITIES

STATISTICAL PROCESS CONTROL IS THE USE OF STATISTICAL TOOLS

TO CONTROL AND MONITOR PROCESSES OR TO VERIFY PRODUCT CHARACTERISTICS.

PROCESS POTENTIAL STUDIES MUST BE CONDUCTED ON NEW OR REVISED PRODUCTS OR PROCESSES. THIS IS A MEANS OF DETERMINING WHETHER OR NOT THE PROCESS IS ABLE TO PRODUCE A PRODUCT WITHIN SPECIFIED REQUIREMENTS (SPECIFICATIONS) ON A CONSISTENT BASIS.

PROCESS POTENTIAL STUDIES ARE CONDUCTED ONCE ALL SPECIAL CAUSES OF VARIATION HAVE BEEN DEFINED AND ELIMINATED. A SAMPLE LOT OF THREE HUNDRED (300) PIECES MINIMUM IS THEN RUN WITH THE PROCESS SET AT THE SPECIFICATION NOMINAL. THE SAMPLE LOT MUST BE RUN WITHOUT ANY CHANGES MADE TO THE PROCESS, MATERIALS OR OPERATOR.

RESULTS FROM THE PROCESS POTENTIAL STUDY ARE THEN RECORDED ON A CONTROL CHART (X-BAR & R). USING THE DATA, CONTROL LIMITS ARE ESTABLISHED AND DOCUMENTED ON THE CONTROL CHART.

THE CHART IS THEN ANALYZED FOR TRENDS AND POINTS OUT OF THE CONTROL LIMITS. IF THE PROCESS DOES NOT DEMONSTRATE CONTROL (TRENDS, ETC. PRESENT) THEN CORRECTIVE ACTION MUST BE TAKEN AND THE STUDY RE-CONDUCTED. IF HOWEVER, THE CHART DOES NOT DISPLAY ANY OUT-OF-CONTROL SIGNALS, THEN CAPABILITY CAN BE DETERMINED (CpK, Cp).

ADVANCED PRODUCT QUALITY PLANNING SHOULD BE USED TO DETERMINE APPROPRIATE STATISTICAL TECHNIQUES

STATISTICAL TECHNIQUES SHOULD BE IN PLACE FOR ALL SIGNIFICANT CHARACTERISTICS. SUCH CHARACTERISTICS ARE ANY CHARACTERISTIC THAT IS CRITICAL TO THE FUNCTION OF THE PRODUCT, CHARACTERISTICS THAT ARE VITAL TO THE OPERATION OF THE PROCESS (AIR PRESSURE, ETC.) OR HERBERT E. ORR CO. DESIGNATED CHARACTERISTICS.

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20.1 ACTIVITIES CONTINUED

PROCEDURES MUST BE ESTABLISHED AND MAINTAINED TO CONTROL STATISTICAL TECHNIQUES, INCLUDING DETECTION AND REACTION TO OUT-OF-CONTROL SITUATIONS. OUT-OF-CONTROL SITUATIONS ALERT THAT A CHANGE IN THE PROCESS HAS OCCURRED AND IF NOT CORRECTED AND DOCUMENTED PROPERLY, THE CONDITION MAY REOCCUR.

PROCESS PERFORMANCE STUDIES SHOULD BE CONDUCTED AND TRACKED TO MONITOR CONTINUOUS IMPROVEMENT. THESE STUDIES INVOLVE TAKING THE DATA FROM A COMPLETED CONTROL CHART, ANALYZING FOR CONTROL LIMITS AND DETERMINING THE CAPABILITY. THESE STUDIES CAN BE CONDUCTED AT A FREQUENCY MOST SUITED TO THE PROCESS. FREQUENCIES MAY BE MONTHLY, EVERY COMPLETED CONTROL CHART, AFTER EACH RUN, ETC. BY TRACKING AND DOCUMENTING THE C_pK AND THE C_p OF THESE STUDIES, IT WILL GIVE A CLEAR PICTURE AS TO THE STATUS OF THE PROCESS; WHETHER OR NOT IMPROVEMENT HAS TAKEN PLACE.

STATISTICAL PROBLEM SOLVING TECHNIQUES SUCH AS PARETO ANALYSIS, CAUSE AND EFFECT DIAGRAMS, 8-D ROOT CAUSE ANALYSIS, DESIGN OF EXPERIMENTS, ETC. ARE USEFUL TOOLS IN SOLVING PROBLEMS AND THEIR USAGE SHOULD BE ENCOURAGED AT ALL LEVELS OF THE ORGANIZATION.

WHERE POSSIBLE, THE USE OF STATISTICAL TECHNIQUES SHOULD BE ENCOURAGED WITH ALL SUB-SUPPLIERS/SUB CONTRACTORS.

HERBERT E. ORR CO. WILL IDENTIFY TO THEIR SUPPLIERS/SUB-CONTRACTORS THE SIGNIFICANT CHARACTERISTICS TO BE MONITORED ON SELECTED PRODUCTS THROUGH STATISTICAL METHODS (X-BAR & R, P CHART, etc.).

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20.1 ACTIVITIES continued

IF AT ANY TIME ACCEPTABLE CAPABILITY ($C_{pk} > 1.67$) CANNOT BE DEMONSTRATED, THE PROCESS OF REDUCING THE AMOUNT OF SIGNIFICANT CHARACTERISTIC DATA WILL BEGIN AGAIN.

DATA SHALL BE MAINTAINED BY THE SUPPLIER/SUB CONTRACTOR, BUT SHALL BE AVAILABLE FOR THE HERBERT E. ORR CO. REVIEW AT ANY TIME UPON REQUEST.

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21.0 INITIAL SAMPLES

21.1 ACTIVITIES

SAMPLE SUBMISSION FROM THE HERBERT E. ORRS' SUPPLIERS/SUB CONTRACTORS IS REQRUED AS OUTLINED IN THE PRODUCTION PART APPROVAL PROCESS MANUAL PUBLISHED BY THE AIAG.

THE SUPPLIER/SUB CONTRACTOR WILL BE REQUIRED TO SUBMIT A LEVEL III PPAP SUBMISSION FOR THE HERBERT E. ORR CO. EVALUATION, UNLESS OTHERWISE SPECIFIED. THESE SAMPLES MUST BE PRODUCED FROM

PRODUCTION TOOLING.

ONCE THE SMAPLES HAVE BEEN RECEIVED, HERBERT E. ORR CO. WILL CONDUCT BOTH DIMENSIONAL AND LABORATORY TESTING FOR CONFORMANCE TO SPECIFICATIONS.

FOR ANY RESTIRCTED SUBSTANCES SUBMITTED TO ORR, THE SUPPLIER SHALL IDENTIFY AND SUBMIT THE APPROPRIATE MATERIAL SAFETY DATA SHEETS WITH THE INITIAL SUBMISSION.

THE FINAL DECISSION ON THE QUALITY AND DISPOSITION OF THE SAMPLES SHALL BE MADE B Y THE TOTAL QUALITY MANAGER, ONCE HERBERT E. ORR CO. EVALUATION OF BOTH THE ACTUAL SAMPLES AND THE SUBMISSION PAPERWORK HAVE BEEN EVALUATED.

FOR COMPLETE DETAILS ON INITIAL SAMPLES, REFER TO THE AIAG PRODUCTION PART APPROVAL PROCESS MANUAL.

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24.0 CONTINUOUS IMPROVEMENT

24.1 ACTIVITIES

THE SUPPLIER/SUB-CONTRACTOR'S MANAGEMENT TEAM SHALL BE RESPONSIBLE TO PROVIDE A CONTINUOUS IMPROVEMENT PHILOSOPHY THROUGHOUT THE ORGANIZATION.

CONTINUOUS IMPROVEMENT AND SPECIFIC ACTION PLANS FOR CONTINUOUS IMPROVEMENT MUST BE DEVELOPED, IMPLEMENTED AND MEASURED FOR IMPROVEMENTS.

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25.0 MANUFACTURING CAPABILITIES

25.1 ACTIVITIES

CROSS FUNCTIONAL TEAMS SHOULD BE USED FOR DEVELOPING FACILITIES, PROCESSES AND EQUIPMENT PLANS.

THE CROSS FUNCTIONAL TEAMS SHOULD IDENTIFY POTENTIAL SOURCES OF NON-CONFORMING PRODUCT AND ADDRESS THESE SOURCES USING MISTAKE-PROOFING METHODOLOGY DURING THE PLANNING PROCESS.

TECHNICAL RESOURCES FOR TOOL DESIGN, FABRICATION, MAINTENANCE, REPAIR AND FULL DIMENSIONAL INSPECTION SHOULD BE PROVIDED. ALL SUB-CONTRACTED TOOL DESIGN AND FABRICATION SHOULD BE TRACKED AND FOLLOWED-UP. ALL ORR OWNED TOOLS OR EQUIPMENT SHOULD BE PERMANENTLY MARKED SO THAT OWNERSHIP IS

VISUALLY APPARENT.

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23.0 PERFORMANCE AND RATING SYSTEM

23.1 ACTIVITIES

SUPPLIERS/SUB-CONTRACTORS QUALITY AND DELIVERY PERFORMANCE SHALL BE TRACKED AND REPORTED ON A MONTHLY BASIS. QUALITY PERFORMANCE SHALL BE REPORTED AS PPM DEFECTIVE FOR THE MONTH AND YEAR-TO-DATE AND DELIVERY SHALL BE REPORTED AS % OF ON-TIME DELIVERIES.

ADDITIONALLY, ON AN ANNUAL BASIS, SUPPLIERS/SUBCONTRACTORS SHALL BE GIVEN A RATING NUMBER FROM ONE (1) TO FIVE (5). A RATING OF ONE (1) IS BEST AND A RATING OF FIVE IS WORST. AREAS TO BE RATED ARE:

1. DELIVERY PERFORMANCE
2. ENGINEERING SUPPORT
3. PRICE REDUCTION
4. QUALITY PERFORMANCE

METHOD OF RATING EACH AREA WILL BE INCLUDED WITH REPORT.

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