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	

INDEX

0.0 GENERAL

0.1 AMENDMENT RECORD

THE MASTER COPY OF THE SUPPLIER / SUB CONTRACTOR QUALITY SYSTEMS MANUAL AND CONTROLLED COPY CIRCULATION LIST IS

RETAINED BY THE TOTAL QUALITY MANAGER.

DATE OF REVISION	REVISION #	SECTION #	DETAILS OF CHANGE
DECEMBER 15, 1995	0	ALL	INITIAL RELEASE
APRIL 30, 2013	1	ALL	ADDED NEW SECTIONS

0.2 CONTROLLED CIRCULATION LIST - INTERNAL

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

1.0 PURPOSE

THE PURPOSE OF THE HERBERT E. ORR SUPPLIER QUALITY ASSURANCE MANUAL IS TO DEFINE THE PROCESS FOR ENSURING MATERIALS ENTERING OUR MANUFACTURING SYSTEMS ARE CAPABLE OF SATISFYING THE NEEDS OF OUR INTERNAL PROCESSES, AND MEETING CUSTOMER REQUIREMENTS RELATIVE TO FIT, FORM, FUNCTION, COST, AND CONTINUAL IMPROVEMENT. IT IS OUR DESIRE TO ENCOURAGE AND DEVELOP A PARTNERSHIP ATMOSHERE THAT ENSURES A STRONG CUSTOMER-SUPPLIER RELATIONSHIP WITH AN EMPHASIS ON PRODUCING QUALITY PARTS, ON TIME, AT COMPETITIVE PRICES, WITH AN UNENDING DRIVE FOR CONTINUOUS IMPROVEMENT. IMPLEMENTATION OF THE PROCESSESOULINED IN THIS MANUAL WILL NOT ONLY REDUCE THE RISK OF SUPPLY CHAIN DISRUPTIONS, BUT ALSO ENHANCE OUR COMPETITIVE INDUSTRY POSITION AND ENSURE OUR CONTINUED SUCCESS IN THE MARKETPLACE.

2.0 SCOPE

THE REQUIREMENTS OF THIS MANUAL APPLY TO ALL SUPPLIERS OF FINISHED GOODS, PRODUCTION MATERIALS (RAW OR COMPONENTS), AS WELL AS OUTSIDE PROCESSES WHERE APPLICABLE. THIS MANUAL DOES NOT REPLACE OR MODIFY IN ANY WAY THE REQUIREMENTS CONTAINED IN TS16949 OR ANY AIAG MANUAL.

3.0 MANAGEMENT RESPONSIBILITY

3.1 RESPONSIBILITY

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

THE QUALITY POLICY / CONTINUOUS IMPROVEMENT PLAN SHALL IDENTIFY THE OBJECTIVES OF THE QUALITY PROGRAM, LEVEL OF

MANAGEMENT COMMITMENT, WHAT KNOWN STANDARD, (i.e.ISO9001:2008); IF ANY IS BEING USED AND OVERALL GOALS AND OBJECTIVES OF THE COMPANY.

NOTE: ALL SUPPLIERS SHALL, AT A MINIMUM, ARE EXPECTED TO ADHERE TO THE ISO9001:2008 STANDARD

ANY GOALS AND OBJECTIVES SHALL 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.

3.2 COST REDUCTION

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

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

INVOLVEMENT WILL 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.

3.3 ORGANIZATIONAL CHART

AN ORGANIZATIONAL CHART WILL 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 WILL 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.

3.4 VERIFICATION RESOURCES AND PERSONNEL

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

VERIFICATION REQUIREMENTS SHALL BE CLEARLY DEFINED FOR

EQUIPMENT, PRODUCT AND PERSONNEL.

REQUIREMENTS SHOULD BE DOCUMENTED IN THE COMPANY QUALITY POLICY.

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

4.0 QUALITY SYSTEM

4.1 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 SHALL BE APPROVED AND SIGNED BY ALL MEMBERS OF SENIOR MANAGEMENT AND SHALL 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.

4.2 PROCEDURES

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

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
q) INTERNAL QUALITY AUDITS

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r) TRAINING
s) SERVICING (if applicable)
t) STATISTICAL TECHNIQUES

4.3 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.

5.0 COMMUNICATION

EFFECTIVE COMMUNICATION IS CRITICAL TO THE SUCCESS OF BOTH H.E.ORR AND THEIR SUPPLIERS. EACH SUPPLIER IS EXPECTED TO COMMUNICATE ELECTRONICALLY BY MEANS OF E-MAIL, INTERNET, TELEPHONE, FAX, ETC. EACH SUPPLIER SHALL RESPOND TO THE H.E.ORR INQUIRES IN A TIMELY MANNER (WITHIN 24 HOURS) TO ENSURE ANY ISSUES RELATED TO PART QUALITY, DELIVERY, PRODUCTION DEMAND, ETC., ARE ADDRESSED TIMELY AND EFFICIENTLY. SUPPLIER SHALL NOTIFY H.E.ORR IMMEDIATELY IF THEY RECEIVE A MAJOR NONCONFORMANCE IN A TS16949 OR ISO9001:2008 AUDIT, OR ANY STATUS CHANGE RELATIVE TO THE REQUIREMENTS SET FORTH BY TS16949/ISO9001:2008. SUPPLIER SHALL NOTIFY H.E.ORR OF ANY EVENT WITHIN THE ORGANIZATION THAT MAY AFFECT PART QUALITY, DELIVERY, OR THE FINANCIAL VIABILITY OF THE SUPPLIER.

6.0 SUPPLIER SELECTION AND APPROVAL

6.1 ACTIVITES

H.E. ORR USES A CROSS FUNCTIONAL PROCESS TO SELECT AND APPROVE SUPPLIERS. DURING THE PROCESS, H.E. ORR LOOKS FOR SUPPLIERS THAT SHOW STRONG QUALITY PROCESSES, ARE FINANCIALLY VIABLE, PROVIDE EXCEPTIONAL CUSTOMER SERVICE, AND

IS COST COMPETITIVE.

DURING THE SELECTION PROCESS, H.E.ORR ***MAY REQUIRE*** THE FOLLOWING:

1. EVIDENCE OF THIRD PARTY CERTIFICATION TO TS16949 (ISO9001:2008 AS A MINIMUM)
2. EVIDENCE OF FINANCIAL VIABILITY THROUGH CREDIT CHECK
3. SIGNED MUTUAL CONFIDENTIALITY AGREEMENT AND PURCHASE ORDER TERMS AND AGREEMENTS
4. REQUEST FOR QUOTE
5. SUPPLIER SELF/ON-SITE QUALITY ASSESSMENT (QAV)
6. NAFTA DOCUMENTATIONAS REQUIRED
7. MSDS/IMDS DOCUMENTATIONAS REQUIRED
8. OTHER DOCUMENTATION AS DEEMED NECESSARY

6.2 PRE-AWARD SURVEY

PRIOR TO ISSUING A PURCHASE ORDER TO A NEW SUPPLIER A SUPPLIER/SUB CONTRACTOR PRE-AWARD SURVEY SHALL BE CONDUCTED AT THE SUPPLIER'S FACILITY BY PURCHASING AND/OR QUALITY ASSURANCE AND/OR ENGINEERING REPRESENTATIVES

A PURCHASE ORDER WILL NOT BE ISSUED UNTIL SUCH TIME THAT PURCHASING, QUALITY ASSURANCE AND ENGINEERING APPROVE NEW SOURCE.

6.3 CONTRACT REVIEW

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.

6.4 CONFIDENTIALITY AGREEMENT

ALL PRODECTS ISSUED BY H.E. ORR ARE TO BE CONSIDERED CONFIDENTIAL. IT IS THE RESPONSIBILITY OF THE SUPPLIER TO IMPLEMENT AND MAINTAIN SYSTEMS THAT ENSURE THE CONFIDENTIALITY, PROTECTION AND SECURITY OF EACH PROJECT. THE
SUPPLIER WILL COMMUNICATE THIS REQUIREMENT TO THEIR EMPLOYEES AND SUB-CONTRACTORS.

6.5 REQUEST FOR QUOTE (RFQ)

PRIOR TO AWARD OF BUSINESS, THE SUPPLIER SHALL COMPLETE A RFQ.

RFQ'S WILL TYPICALLY CONTAIN ALL THE NECESSARY DOCUMENTS FOR
FULL QUOTATION, INCLUDING:

- ENGINEERING DRAWINGS

- TECHNICAL SPECIFICATIONS
- PPAP SUBMISSION REQUIREMENTS
- PHYSICAL SAMPLES (WHEN AVAILABLE)

FOR ANY REASON THE INFORMATION IN THE RFQ IS UNCLEAR, THE SUPPLIER WILL CONTACT H.E. ORR'S PURCHASING OR PROJECT ENGINEER FOR CLARIFICATION

7.0 PURCHASING

7.1 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.

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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.

7.2 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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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.

7.3 PURCHASE ORDER (PO)

PRODUCT SPECIFIC REQUIREMENTS MAY ALSO BE COMMUNICATED ON PO'S. EACH PO SHOULD BE FOLLOWED BY AN ACKNOWLEDGEMENT FROM THE SUPPLIER CONFIRMING EACH PART NUMBER, THE PRICE AGREED, QUANTITY AND DELIVERY DATE. ACCEPTANCE OF THE PO IS AN ACCEPTANCE OF THE STANDARD TERMS AND CONDITIONS OF THE PO AND THE REQUIREMENTS WITHIN THIS MANUAL.

7.4 PURCHASE ORDER TERMS AND AGREEMENTS

UPON ACCEPTING AN H.E. ORR, THE SUPPLIER IS RESPONSIBLE FOR COMPLIANCE TO ALL REQUIREMENTS WITHIN THAT PURCHASE ORDER. ALL DOCUMENTS, DRAWINGS AND SPECIFICATIONS, REGARDLESS OF ORIGIN, ARE APPLICABLE TO THE SUPPLIER WHEN SPECIFIED IN THE PURCHASE ORDER, AND ARE REQUIRED TO BE USED AT ALL LEVELS OF THE SUPPLY CHAIN.

7.5 RECORDS

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

SUB- SUPPLIER / SUB - CONTRACTOR DEVELOPMENT SHOULD BE CONDUCTED USING IS0 9000 OR QS 9000 AS THE FUNDAMENTAL QUALITY SYSTEM REQUIREMENT.

8.0 <u>SUB-CONTRACTOR MANAGEMENT</u>

SUPPLIER MAY NOT ENGAGE AND SUBCONTRACTOR WITHOUT THE PRIOR

WRITTEN AUTHORIZATION OF H.E. ORR. IT IS THE RESPONSIBILITY OF THE SUPPLIER TO MANAGE THE QUALITY OF ALL SUB-CONTRACTOR OPERATIONS. ALL DOCUMENTS, REGISTERS, AND AUDIT REPORTS FOR SUB-SUPPLIERS MUST BE KEPT AVAILABLE AND SUBMITTED FOR H.E. ORR
WHEN REQUIRED.

9.0 DESIGN CONTROL

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:

9.1 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.

9.2 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.

9.3 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

9.4 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.

9.5 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.

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

10.0 DOCUMENT AND DATA CONTROL

10.1 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.

10.2 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.

11.0 ADVANCED PRODUCT QUALITY PLANNING (APQP)

11.1 ACTIVITIES

H.E. ORR REQUIRES ALL SUPPLIERS TO UTILIZE THE APQP PROCESS OUTLINED IN THE AIAG ADAVANCE PRODUCT QUALITY PLANNING MANUAL TO ENSURE PRODUCTS MEET CUSTOMER SPECIFICATIONS AND REQUIREMENTS.

THE APQP GUIDELINES ARE DESIGNED TO PRODUCE A PRODUCT QUALITY PLAN WHICH WILL SUPPORT THE DEVELOPMENT OF A PRODUCT OR SERVICE THAT WILL SATISFY THE CUSTOMER.

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THE PURPOSE OF USING THE APQP TOOLS IS TO REDUCE THE COMPLEXITY OF QUALITY PLANNING FOR THE CUSTOMERS AND SUPPLIERS. IT IS ALSO A MEANS FOR SUPPLIERS TO EASILY COMMUNICATE PRODUCT PLANNING REQUIREMENTS TO SUBCONTRACTORS.

11.2 ELEMENTS OF APQP

THE GOAL OF PRODUCT QUALITY PLANNING IS TO FACILITATE COMMUNICATION WITH EVERYONE INVOLVED TO ASSURE THAT ALL REQUIRED STEPS ARE COMPLETED ON TIME. THE APQP MANUAL HAS 8 KEY ELEMENTS LISTED IN THIS SECTIONTHAT IS A STRUCTURED METHOD OF DEFINING AND ESTABLISHING THE NECESSARY STEPS TO ASSURE THAT A PRODUCT SATISFIES THE CUSTOMER.

1. DEFINE THE SCOPE
2. PLAN AND DEFINE
3. PRODUCT DESIGN AND DEVELOPMENT
4. FEASIBILITY
5. PROCESS DESIGN AND DEVELOPMENT
6. PRODUCT AND PROCESS VALIDATION
7. FEEDBACK, ASSESSMENT AND CORRECTIVE ACTION
8. CONTROL PLAN METHODOLOGY

EFFECTIVE PRODUCT QUALITY PLANNING DEPENDS ON THE SUPPLIERS TOP MANAGEMENT COMMITMENT TO THE EFFORT REQUIRED IN ACHIEVING CUSTOMER SATISFACTION.

12.0 PPAP REQUIREMENTS

H.E. ORR REQUIRES ALL SUPPLIERS TO CONFORM TO THE GENERAL REQUIREMENTS LISTED IN THE AIAG PPAP MANUAL. ALL SUPPLIERS ARE

REQUIRED TO SUBMIT LEVEL III PPAP DOCUMENTATION AND A SAMPLE QUANITITY OF 10 PIECES UNLESS OTHERWISE AGREED UPON. REQUESTS TO RECEIVE LEVEL III PPAP SUBMISSIONS FROM LOWER TIER SUB-SUPPLIERS MAY ALSO BE REQUIRED. IF REJECTED, THE SUPPLIER SHALL TAKE THE NECESSARY ACTIONS TO CORRECT THE NONCONFORMANCE AND REISSUE THE PPAP. ANY DELAYS CREATED BY THE REJECTION OF THE PPAP SHALL BE THE RESPONSIBILITY OF THE SUPPLIER. THE SUPPLIER IS RESPONSIBLE TO COMMUNICATE WITH H.E. ORR IMMEDIALTELY OF ANY ISSUES THAT MAY DELAY PPAP SUBMISSION. H.E. ORR ENCOURAGES AND PARTICIPATES IN DESIGN REVIEW AND LAUNCH FOLLOW-UP MEETINGS TO ENSURE UNDERSTANDING OF REQUIREMENTS.

SUPPLIERS ARE EXPECTED TO SUBMIT COMPLETED PPAP'S TO H.E.ORR'S SUPPLIER QUALITY ENGINEER OR DESIGNATE BEFORE THE AGREED UPON DATE. ALL SUBMITTED PARTS FOR PPAP SHOULD BE CLEARLY IDENTIFIED AND MARKED PER RESPECTIVE PPAP DOCUMENTATION.

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H.E. ORR WILL REVIEW THE SUBMISSION AND GIVE ONE OF THREE STATUSES:

1. *FULL APPROVAL* – INDICATES THE PART OR MATERIAL MEETS ALL SPECIFICATIONS AND REQUIREMENTS. THE SUPPLIER IS AUTHORIZED TO SHIP PRODUCT.
2. *INTERIM APPROVAL* – PERMITS SHIPMENT OF PARTS FOR PRODUCTION REQUIREMENTS ON A LIMITED TIME OR PIECE QUANTITY BASIS. THE SUPPLIER MUST SUBMIT, AT THE TIME OF PPAP, AN ACTION PLAN TO ADDRESS THE ISSUES PREVENTING THE PPAP FROM OBTAINING FULL APPROVAL.
3. *REJECT* – SUBMISSION DOES NOT MEET THE SPECIFICATIONS AND/OR REQUIREMENTS. H.E. ORR WILL STATE THE REASON(S) THE SUBMISSION WAS REJECTED ON THE PPAP WARRANT AND RETURN THE WARRANT TO THE SUPPLIER. PPAP MUST BE RE-SUBMITTED AND RECEIVE "FULL" OR "INTERIM" APPROVAL BEFORE SHIPPING PARTS TO H.E. ORR

IF THE NEED ARISES TO CORRECT ANY DIMENSIONAL, TEST AND/OR MATERIAL DISCREPANCIES, AN ACTION PLAN MUST BE CREATED AND SUBMITTED TO H.E. ORR PRIOR TO PPAP. UPON COMPLIANCE WITH ALL SPECIFICATIONS, THE SUPPLIER SHALL ENTER THE REQUIRED INFORMATION ON THE WARRANT. A SEPARATE PART SUBMISSION WARRANT IS USED FOR EACH ASSIGNED PART NUMBER. THE PART SUBMISSION WARRANT IS SIGNED BY THE TOTAL QUALITY MANAGER OR DESIGNATED AUTHORITY TO CERTIFY THAT ALL MEASUREMENTS AND

TEST RESULTS CONFORM TO H.E. ORR REQUIREMENTS.

ALL PPAP DOCUMENTATION MUSTBE FORWARDED TO THE H.E. ORR SUPPLIER QUALITY ENGINEER OR DESIGNATE FOR REVIEW AND APPROVAL. A H.E. ORR APPROVAL SIGNATURE IS REQUIRED ON THE PSW TO AUTHORIZE THE SUPPLIER TO SHIP MATERIAL.

12.1 PPAP RESUBMISSIONS

PROCESS OR PRODUCT CHANGES WILL REQUIRE A RESUBMISSION FOR APPROVAL. PROCESS OR PRODUCT CHANGES ARE DEFINED AS CHANGES IN THE PROCESS OR PRODUCT THAT COULD AFFECT ITS CAPABILITY TO MEET DESIGN REQUIREMENTS OR THE DURABILITY AND

RELIABILITY OF THE PRODUCT, INCLUDING:

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1. USE OF MATERIAL OTHER THAN WHAT WAS USED IN THE PREVIOUSLY APPROVED PPAP.
2. PRODUCTION FROM NEW OR MODIFIED TOOLING, DIES, MOLDS, ETC.
3. PRODUCTION FOLLOWING ANY REFURBISHMENT/REBUILD OF AN EXISTING TOOL, DIE, MOLD, ETC.
4. PRODUCTION FROM MACHINERY OR TOOLING TRANSFERRED TO OR FROM ANOTHER FACILITY.
5. CHANGE OF A SUB-SUPPLIER.
6. PRODUCT PRODUCED AFTER TOOLING HAS BEEN INACTIVE GREATER THAN ONE YEAR. UNLESS IT IS A SERVICE PART.

12.2 PPAP ANNUAL RE-VALIDATIONS

WHEN REQUIRED, THE ANNUAL PPAP SUBMISSION SHALL INCLUDE, BUT

1. WARRANT SHEET STATING ANNUAL RE-VALIDATION AS REASON FOR SUBMISSION.
2. (5) PIECE LAYOUT OR AS SPECIFIED BY THE H.E. ORR SQE.
3. CURRENT REVISION DRAWING
4. MATERIAL CERTIFICATION
5. CAPABILITY DATA ON CRITICAL/SPECIAL CHARACTERISTICS
6. FUNCTIONAL TESTING RESULTS AS APPLICABLE

12.3 DESIGN RECORD

THE SUPPLIER SHALL HAVE CURRENT DESIGN RECORD AS SPECIFIED

ON THE PURCHASE ORDER.

12.4 PROCESS FLOW DIAGRAM

THE SUPPLIER SHALL DEVELOP AND MAINTAIN A PROCESS FLOW DIAGRAM REPRESENTING THE COMPLETE FLOW OF PART FROM RAW MATERIAL TO SHIPMENT OF FINISHED PARTS, PER AIAG PPAP MANUAL.

12.5 FAILURE MODE AND EFFECTS ANALYSIS (FMEA)

ALL SUPPLIERS ARE EXPECTED TO DEVELOP A PROCESS FMEA. H.E. ORR EXPECTS SUPPLIERS TO VIEW THE PFMEA AS A LIVING TOOL. REGULAR REVIEWS AND UPDATES WILL ENSURE THE PFMEA REFLECTS THE LATEST AIAG REVISION LEVEL AS WELL AS THE LATEST RELEVANT ACTIONS DOCUMENTED IN THE PFMEA.

12.6 MEASUREMENT SYSTEMS ANALYSIS (MSA)

H.E. ORR SHALL DETERMINE CASE BY CASE TO PURCHASE AND/OR DEVELOP GAGES AND STANDARDS FOR MEASUREMENT AND VERIFICATION OF PARTS TO SPECIFICATION.

FOR GAGES THAT IS PROVIDED TO THE SUPPLIER BY H.E. ORR, H.E. ORR SHALL PERFORM MSA STUDIES FOR ALL NEW OR MODIFIED GAGES, MEASUREMENTS, AND TEST EQUIPMENT PER THE AIAG MSA MANUAL. *SEE SECTION 21.3 FOR ADDITIONAL INFORMATION.*

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H.E. ORR MAY REQUEST THE SUPPLIER TO PARTICIPATE IN CORRELATION STUDIES TO COMPARE SUPPLIER MEASUREMENT RESULTS OBTAINED BY H.E. ORR GAUGING METHODS.

12.7 CONTROL PLAN

THE SUPPLIER SHALL HAVE A DOCUMENTED CONTROL PLAN THAT DEFINES ALL METHODS USED FOR PROCESS MONITORING AND CONTROL OF SPECIAL PRODUCT/PROCESS CHARACTERISTICS, AND IS REFLECTIVE OF THE CURRENT FMEA. A SINGLE CONTROL PLAN MAY APPLY TO A GROUP OR FAMILY OF PRODUCTS THAT ARE PRODUCED BY THE SAME PROCESS.

H.E. ORR ENCOURAGES SUPPLIERS TO UTILIZE THE LATEST VERSION OF THE AIAG APQP MANUAL FOR DEVELOPMENT OF THE PRE-LAUNCH AND PRODUCTION CONTROL PLANS AS APPLICABLE.

SUPPLIERS ARE REQUIRED TO PROVIDE THE VARIOUS LEVELS OF CONTROL PLANS BASED ON THE STAGE IN THE PROGRAM BUILD PROCESS. CONTROL PLANS ARE SUBJECT TO REVIEW AND APPROVAL BY H.E. ORR.

12.7.1 PRE-LAUNCH CONTROL PLAN

THE PRE-LAUNCH PLAN PHASE OF THE PRODUCT QUALITY PLANNING PERIOD IS TO EFFECTIVELY ASSESS THE PROCESS DESIGN AND DEVELOPMENT FOR MEETING ALL THE CUSTOMER REQUIREMENTS FOR FIT, FORM, FUNCTION, APPEARANCE, AND

DURABILITY. THE FOCUS WILL BE ON THE ENTIRE PROCESS STREAM, WITH AN INCREASED LEVEL OF INSPECTION AND PERFORMANCE TESTING (INCLUDING DATA ANALYSIS) PUT IN PLACE TO VERIFY THE EFFECTIVENESS OF THE PROCESS TO PRODUCE ZERO DEFECTS. THE CONTROL ITEMS TO BE MANAGED AND REPORTED THROUGH THE LAUNCH CONTAINMENT PROCESS NEED TO BE AGREED UPON WITH THE H.E. ORR SUPPLIER QUALITY ENGINEER OR DESIGNATE.

THE PRE-LAUNCH CONTROL PLAN REMAINS IN PLACE UNTIL LAUNCH CONTAINMENT HAS VERIFIED EFFECTIVIENESS OF THE PRODUCTION CONTROL SYSTEM. THE DURATION OF THIS CONTROL PLAN WILL BE DETERMINED BASED ON THE CAPABILITY OF THE SUPPLIER TO ACHIEVE THE EXPECTED QUALITY REQUIREMENTS FOR THE PRODUCT BEING SUPPLIED. RELEASE FROM THE PRE-LAUNCH CONTROL PLAN CAN ONLY BE AUTHORIZED BY THE H.E. ORR SQE OR DESIGNATE.

12.7.2 PRODUCTION CONTROL PLAN

THE PRODUCTION CONTROL PLAN IS AN EXTENSION OF THE PRE-LAUNCH CONTROL PLAN INCORPORATING LESSONS LEARNED FROM THE LAUNCH. IT DEFINES THE INSPECTION AND TESTING SYSTEMS REQUIRED TO MEET H.E. ORR REQUIREMENTS FOR PRODUCTION.

12.8 PROCESS CAPABILITY

A CPK OF 1.33 OR GREATER IS REQUIRED FOR THE PROCESS TO BE CONSIDERED ACCEPTABLE. WHEN A PROCESS IS FOUND TO BE UNSTABLE, OUT OF CONTROL, OR HAVING AN UNACCEPTABLE CPK, THE SUPPLIER MUST HAVE A WRITTEN PROCEDURE IN PLACE TO IDENTIFY ACTIONS NEEDED TO CORRECT AND IMPROVE THE PROCESS. A MINIMUM OF CONTAINMENT ACTION, ASSIGNABLE CAUSE, INTERIM CONTROLS, AND CORRECTIVE ACTION REQUIRED.

12.9 CERTIFICATION AND TEST REPORTS

THE SUPPLIER SHALL PROVIDE EVIDENCE THAT THE FOLLOWING VERIFICATIONS HAVE BEEN COMPLETED, AND ALL TEST RESULTS INDICATE COMPLIANCE WITH SPECIFICATIONS AND REQUIREMENTS.

1. DIMENSIONAL RESULTS – RECORD OF DIMENSIONAL RESULTS FOR ANY RELEVANT MANUFACTURING PROCESS.
2. MATERIAL AND PERFORMANCE TEST RESULTS – FOR ANY PARTS/MATERIALS WITH SPECIFIC PERFORMANCE REQUIREMENTS (e.g. CHEMICAL, PHYSICAL, METALLURGICAL AND FUNCTIONAL)
3. QUALIFIED LABORATORY DOCUMENTATION – DOCUMENTATION SHOWING QUALIFICATIONS OF LABORATORY USED PER REQUIREMENTS AND THE STANDARD(S) QUALIFIED TO.

4. SAMPLE PRODUCT – ACTUAL SAMPLES REQUIRED PER THE H.E. ORR PO
5. MASTER SAMPLE – SUPPLIER TO RETAIN A MASTER SAMPLE AND PROVIDE TO H.E. ORR UPON REQUEST
6. CHECKING AIDS – SUBMIT CHECKING AIDS AS REQUIRED PER THE H.E. ORR PO
7. RECORDS OF COMPLIANCE – COPIES OF RECORDS SHOWING COMPLIANCE TO ALL APPLICABLE SPECIFICATION AND REQUIREMENTS

12.10 PART SUBMISSION WARRANT

UOPN SUCCESSFUL COMPLETION OF ALL PPAP REQUIREMENTS, THE SUPPLIER WILL COMPLETE THE PART SUBMISSION WARRANT (PSW)

12.11 MSDS / IMDS / NAFTA

SUPPLIERS ARE REQUIRED TO FURNISH MSDS (MATERIAL SAFETY DATA SHEETS), IMDS (INTERNATIONAL MATERIAL DATA SYSTEM), NAFTA (NORTH AMERICAN FREE TRADE AGREEMENT), AND OTHER DOCUMENTATION WHERE APPLICABLE.

12.12 INITIAL SAMPLES

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

CONTINUE 12.12 ON PAGE 21

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 SAMPLES 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.

13.0 PRODUCT IDENTIFICATION AND TRACEABILITY

13.1 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 TRACEBILITY 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.

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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.

14.0 <u>CHANGE MANAGEMENT</u>

H.E. ORR PROVIDES A SUPPLIER CHANGE MANAGEMENT FORM, WHICH MUST BE USED FOR ALL SUPPLIER CHANGE REQUESTS OR DEVIATION REQUESTS. FORM MUST BE COMPLETELY FILLED OUT AND FORWARDED

TO THE H.E. ORR SUPPLIER QUALITY ENGINEER OR DESIGNATE. SUPPLIER MAY BE REQUIRED TO SUBMIT A PPAP FOR THE CHANGE DEPENDING ON THE TYPE OF CHANGE REQUESTED.

IT IS H.E. ORR'S POLICY TO REJECT MATERIAL THAT DOES NOT MEET REQUIREMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS. IN THE EVENT A DEVIATION IS REQUIRED, SUPPLIER MUST DOCUMENT ON THE SUPPLIER CHANGE MANAGEMENT FORM. H.E. ORR WILL REVIEW THE DEVIATION AND DETERMINE AFFECT TO FORM, FIT, FUNCTION, AND DURABILITY. THE REQUEST MUST BE MADE AND APPROVED PRIOR TO THE SHIPMENT OF DISCREPANT MATERIAL. ALL DEVIATED PRODUCT

MUST BE CLEARLY IDENTIFIED. IF THE DEVIATION IS NOT APPROVED, THE SUPPLIER MAY NOT RELEASE THE PRODUCT.

THE SUPPLIER CHANGE MANAGEMENT FORM WILL ALSO BE USED FOR COMMUNICATION OF H.E. ORR MANDATED CHANGES TO THE SUPPLIER.

15.0 BOUNDARY SAMPLES

WHEN COSMETIC OR NOT DESIRED PRODUCT CONDITIONS ARISE THAT CANNOT BE ADDRESSED BY USE OF THE “MASTER SAMPLES,” THE SUPPLIER IS RESPONSIBLE FOR ESTABLISHING BOUNDARY SAMPLES (APPROVED BY H.E. ORR) PRIOR TO SHIPPING QUESTIONABLE PRODUCT.

PPAP SAMPLES SHALL SERVE AS THE “MASTER” FOR COMPARISON PURPOSES. ALL “MAX PASS” BOUNDARY SAMPLES REQUIRE H.E. ORR SUPPLIER QUALITY ENGINEER OR TOTAL QUALITY MANAGER APPROVAL PRIOR TO IMPLEMENTATION.

16.0 CONTINGENCY PLANNING

SUPPLIERS ARE REQUIRED TO HAVE CONTINGENCY PLANS IN PLACE TO ENSURE MINIMAL DISRUPTION TO CRITICAL PROCESSES, MACHINERY, AND THE BUSINESS AS A WHOLE. RISK MANAGEMENT IS A FORWARD THINKING ACTIVITY THAT IS NECESSARY TO PREVENT EXCESSIVE COSTS IN MAINTAINING FLOW OF QUALITY PARTS THROUGHOUT THE SUPPLY CHAIN. EACH ELEMENT OF THE CRITICAL PATH MUST HAVE A CONTINGENCY PLAN DOCUMENTED AND IN PLACE SO THAT KNOWN AND PROVEN OPTIONS ARE AVAILABLE FOR MAINTAINING PRODUCTION.

17.0 PROCESS CONTROL

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.

17.1 SPECIAL CHARACTERISTICS

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.

17.2 ERROR PROOFING

THE SUPPLIER SHOULD IMPLEMENT ERROR PROOFING DEVICES THROUGHOUT THE PROCESS AS APPROPRIATE FOR CONTROLLING CRITICAL CHARACTERISTICS AND/OR PROTECTING DOWNSTREAM PROCESSES.

ALL PRODUCTS AND PROCESSES WILL BE REVIEWED WITH H.E. ORR FOR THE USE OF ERROR PROOFING / POKA-YOKE DEVICES. ALL ATTRIBUTES SHOULD BE STUDIED FOR IMPLEMENTATION OF POKA-YOKE PROCESSES. KEY ATTRIBUTES SHOULD BE REVIEWED TO DETERMINE WHETHER POKA-YOKE IS MANDATORY BASED ON THE DETECTION AND SEVERITY OF THE FAILURE MODE.

17.3 WORK INSTRUCTIONS

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.

17.4 CONTROL OF MEASURING DEVICES

THE SUPPLIER AND H.E. ORR PER CASE BY CASE SHALL COLLECTIVELY

DECIDE THE MONITORING AND MEASUREMENT DEVICES REQUIRED TO PROVIDE EVIDENCE OF CONFORMANCE TO SPECIFICATIONS.

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MEASUREMENT EQUIPMENT SHALL BE CALIBRATED OR VERIFIED AT SPECIFIED INTERVALS AND PRIOR TO USE, AGAINST STANDARDS TRACEABLE TO INTERNATIONAL OR NATIONAL MEASUREMENT STANDARDS. WHERE NO SUCH STANDARDS EXIST, THE BASIS USED FOR CALIBRATION OR VERIFICATION SHALL BE DOCUMENTED; FOR DETERMINING STATUS OF EQUIPMENT/DEVICES.

17.5 STATISTICAL PROCESS CONTROL (SPC)

STATISTICAL PROCESS CONTROL MUST BE AN INTEGRAL PART OF THE SUPPLIER'S MANUFACTURING PROCESS IN ORDER TO IMPROVE AND MAINTAIN QUALITY PERFORMANCE. THE PURPOSE OF SPC IS TO IDENTIFY AREAS OF VARIATION SO THAT ACTIONS CAN BE IMPLEMENTED TO IMPROVE THE PROCESS. STATISTICAL PROCESS CONTROL IS MANDATORY FOR ALL PROCESS PARAMETERS AND

CHARACTERISTICS THAT ARE DEEMED SIGNIFICANT. IN ADDITION, IT IS THE SUPPLIER'S RESPONSIBILITY, BASED ON THEIR EXPERTISE AND

PROCESS KNOWLEDGE, TO DETERMINE ADDITIONAL CHARACTERISTICS REQUIRING LONG-TERM AND SHORT TERM STATISITICAL PROCESS CONTROL.

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 FORM 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.

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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.

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 CpK AND THE Cp 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.).

IF AT ANY TIME ACCEPTABLE CAPABILITY (Cpk > 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.

17.6 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.

17.7 QUALIFICATIONS OF ASSOCIATES (TRAINING)

THE SUPPLIER'S QUALITY SYSTEM SHALL PROVIDE FOR THE QUALIFICATION AND CERTIFICATION OF PERSONNEL PERFORMING INSPECTION AND PRODUCTION OPERATIONS. OPERATOR TRAINING RECORDS ARE TO BE MADE AVAILABLE UPON REQUEST BY H.E. ORR.

18.0 MATERIAL COMPLIANCE

H.E. ORR REQUIRES SUPPLIERS TO UNDERSTAND AND VERIFY THE COMPOSITION OF THEIR RAW MATERIALS. IF THE SUPPLIER DOES NOT HAVE THE ABILITY TO TEST MATERIALS IN-HOUSE, AN ACCREDITED EXTERNAL THIRD PARTY SOURCE WITH CAPABILITY OF MATERIAL COMPLIANCE ANALYSIS FOR EACH SPECIFIC RAW MATERIAL MUST BE USED. ALL SUPPLIERS MUST HAVE THE ABILITY TO PROVIDE EVIDENCE OF MATERIAL COMPLIANCE, AND WHEN EXTERNAL TESTING IS PERFORMED, THIRD PARTY ACCEDITATION. AT ANY TIME H.E. ORR RESERVES THE RIGHT TO REQUEST RAW MATERIAL CONFIRMATION ON ANY SUPPLIED PRODUCT. THE SUPPLIER SHOULD BE ABLE TO PROVIDE A CERTIFICATE OF ACCEPTANCE (COA) REPORT FOR VERIFICATION THAT THE RAW MATERIALS MEET SPECIFICATIONS.

19.0 CUSTOMER OWNED ASSETS

1. THE SUPPLIER SHALL HAVE A SYSTEM TO TRACK AND IDENTIFY ALL TOOLS, GAUGES AND EQUIPMENT (E.G. DUNNAGE), OWNED AND SUPPLIED BY H.E. ORR.

2. ALL H.E. ORR OWNED ASSETS SHALL BE PERMANENTLY MARKED SO THAT THE OWNERSHIP OF EACH ITEM IS VISUALLY APPARENT.

3. H.E. ORR OWNED TOOLING IS TO BE USED SOLELY FOR THE PRODUCTION OF H.E. ORR PARTS.

4. SUPPLIER MUST HAVE WRITTEN APPROVAL FROM H.E. ORR PRIOR TO MAKING MODIFICATIONS OR CHANGES TO GAUGES, TEST EQUIPMENT OR TOOLING.

5. SUPPLIER MUST MAINAIN, PROTECT AND PRESERVE TOOLING, TEST EQUIPMENT, AND GAUGES.

6. TOOLING AND GAUGING SUPPLIED BY H.E. ORR SHALL BE MAINTAINED BY H.E. ORR.

7. H.E. ORR MUST BE NOTIFIED PRIOR TO ANY TRANSFER OF TOOLING, GAUGES, OR TESTING EQUIPMENT TO ANOTHER SUPPLIER FACILITY.

8. SUPPLIED GAGES, TEST EQUIPMENT OR TOOLING THAT BECOME EXCESSIVE TO THE PURCHASE ORDER REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF H.E. ORR.

9. SUPPLIER MUST OBTAIN WRITTEN APPROVAL FROM H.E. ORRBEFORE THE DISPOSAL OR DESTRUCTION OF SUPPLIED GAUGES, TEST EQUIPMENT OR TOOLING.

10. SUPPLIER MUST REPORT ANY CASE OF LOST OR DAMAGED ASSETS TO H.E. ORRWITHIN 72 HOURS.

20.0 INSPECTION AND TESTING STATUS

20.1 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.

20.2 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

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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.

20.3 CONTROL OF CUSTOMER SUPPLIED PRODUCT

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.

20.4 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.

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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.

20.5 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.

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.

20.6 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.

20.7 RECORDS

ADEQUATE RECORDS OF ALL INSPECTION AND TESTING MUST BE MAINTAINED.

21.0 CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT

21.1 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.

21.2 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.

21.3 MEASUREMENT SYSTEM ANALYSIS (MSA)

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.

21.4 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.

22.0 CONTROL OF NON - CONFORMING PRODUCT

22.1 ACTIVITIES

THE SUPPLIER MUST HAVE A SYSTEM IMPLEMENTED TO ENSURE NONCONFORMING PARTS ARE IDENTIFIED AND QUARANTINED TO PREVENT SHIPMENT TO H.E. ORR.

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.

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

22.2 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.

22.3 NON-CONFORMING MATERIAL

UPON ANY OCCURRENCE OF NONCONFORMING MATERIAL RECEIVED AT H.E. ORR, THE SUPPLIER SHALL RESPOND WITHIN 24 HOURS WITH A CONTAINMENT PLAN. UPON NOTIFICATION AND RECEIVING A CORRECTIVE ACTION REQUEST FROM H.E. ORR, SUPPLIERS ARE REQUIRED TO IMMEDIATELY 100% CERTIFY ALL SUSPECT PRODUCT, INCLUDING PARTS AT THE SUPPLIER LOCATION, IN WAREHOUSES, IN TRANSIT, AND AT H.E. ORR. ALL CERTIFIED PRODUCT MUST BE LABELED AS CERTIFIED FOR THE SPECIFIC DEFECT OR DEFECTS UNTIL CORRECTIVE ACTIONS HAVE BEEN VERIFIED AS EFFECTIVE.

DEPENDING ON THE H.E. ORR INVENTORY AND PRODUCTION DEMAND SITUATION (TO BE DETERMINED BY H.E. ORR), THE FOLLOWING MAY OCCUR:

1. *HIGH INVENTORY* – SUPPLIER MAY CHOOSE TO HAVE PRODUCT RETURNED, OR SUPPLIER MAY SORT AT H.E. ORR

2. *NORMAL INVENTORY* – SUPPLIER MAY COME ON SITE TO SORT OR ARRANGE FOR CERTIFIED 3RD PARTY SORT COMPANY FOR SORTING (H.E. ORR SHALL DETERMINE THE 3RD PARTY SORT COMPANY) IT IS THE RESPONSIBILITY OF THE SUPPLIER TO CONTACT THIS SORT COMPANY AND MAKE THE ARRANGEMENTS.

3. *LOW INVENTORY* – H.E. ORR WILL SORT PARTS AS REQUIRED TO ENSURE PRODUCTION REQUIREMENTS ARE MET, THEN DEBIT SUPPLIER'S ACCOUNT THROUGH "CHARGEBACK".

WHEN PARTS ARE CONTAINED AT H.E. ORR, ONE OF THE FOLLOWING STANDARD DISPOSITIONS WILL BE MADE:

1. SORT/REWORK: SUPPLIER WILL BE CHARGED A STANDARD SORT FEE WITH TOTAL SORT HOURS BEING "CHARGEBACK" TO SUPPLIER; DEFECTIVE PIECES FOUND WILL BE COUNTED AGAINST PPM TOTAL.

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2. SCRAP: REMOVAL OF NON-CONFORMING MATERIAL WILL BE THE RESPONSIBILITY OF THE SUPPLIER. ANY RELATED SHIPPING COSTS FOR RETURN WILL BE CHARGED TO SUPPLIER. NON-CONFORMING MATERIAL REMAINING AT H.E. ORR OVER 48 HOURS WILL BE SCRAPPED AND ANY RELATED SCRAP COSTS WILL BE "CHARGED BACK" TO THE SUPPLIER.

WHEN SUSPECT OR SCRAP MATERIAL IS TO BE RETURNED TO THE SUPPLIER, H.E. ORR WILL CONTACT THE SUPPLIER FOR AUTHORIZATION TO RETURN THE MATERIAL AT THE SUPPLIER'S EXPENSE. DEFECTIVE PARTS RETURNED TO SUPPLIER CANNOT BE REWORKED UNLESS PRIOR WRITTEN CONSENT IS GIVEN BY H.E. ORR SQE OR DESIGNATE. WHEN POSSIBLE, A DIGITAL PHOTO OF

THE DEFECT AND LOT TRACEABILITY WILL BE ATTACHED TO THE "CORRECTIVE ACTION REPORT" PRIOR TO SENDING TO THE SUPPLIER. A SAMPLE OF THE DEFECT WILL BE SENT TO THE SUPPLIER UPON REQUEST.

IN ANY CASE WHERE A SUPPLIER HAS FAILED TO DELIVER PRODUCT IN ACCORDANCE WITH THE SPECIFICATIONS AND TERMS OF THE H.E. ORR COMPANY PURCHASE ORDER, DESIGN DRAWING, AND/OR REQUIRED SPECIFICATIONS, ALL COST THAT ARE INCURRED BY H.E. ORR AND/OR ITS CUSTOMERS WILL BE THE SOLE RESPONSIBILITY OF THE SUPPLIER.

23.0 CORRECTIVE AND PREVENTIVE ACTION

23.1 ACTIVITIES

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

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 REPORT. THE 5 WHY PROCESS SHALL BEGIN IMMEDIATELY AT THE SUPPLIER LOCATION AND DOCUMENTED ON THE H.E. ORR "CORRECTIVE ACTION REPORT" FORM.

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ROOT CAUSE AND CORRECTIVE ACTION MUST BE IDENTIFIED AND IMPLEMENTED WITHIN 15 DAYS. ANY DEVIATION FROM THIS REQUIREMENT MUST BE AGREED TO BY THE H.E. ORR SQE OR DESIGNATE.

VERIFICATION OF CORRECTIVE ACTIONS MUST BE SUBMITTED TO H.E.

ORR 30 DAYS AFTER COMPLETION OF CORRECTIVE ACTION(S). SUPPLIER WILL REMAIN IN CONTAINMENT UNTIL VERIFICATION OF CORRECTIVE ACTIONS IS COMPLETE. IN THE EVENT CORRECTIVE ACTIONS ARE NOT VERIFIED AS EFFECTIVE, THE SUPPLIER WILL NOTIFY THE H.E. ORR SQE, THEN CONTINUE THE 5 WHY PROCESS AND

CONTAINMENT UNTIL CORRECTIVE ACTIONS HAVE BEEN VERIFIED AS EFFECTIVE.

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

24.0 SUPPLIER CHARGEBACK

NONCONFORMING PRODUCT SUPPLIED TO H.E. ORR CAN HAVE A SIGNIFICANT IMPACT ON CUSTOMER ON-TIME DELIVERY AND PRODUCT PERFORMANCE. IN THE CASE OF A NONCONFORMANCE, IT IS THE RESPONSIBILITY OF THE SUPPLIER TO ENSURE ADEQUATE CONFORMING PARTS OR MATERIAL ARE DDELIVERED TO H.E. ORR IN SUFFICIENT TIME TO PREVENT ANY LINE STOPPAGE SITUATIONS. THIS WILL BE ACCOMPLISHED BY ONE OF THE FOLLOWING:

1. EXPEDITE SHIPPING OF CONFORMING / CERTIFIED PARTS SO THEY ARRIVE BEFORE LINE STOPPAGES OCCUR.

2. PROVIDE SORTING, REPAIR, OR REWORK RESOURCES AT H.E. ORR IN A TIMELY MANNER TO PREVENT LINE STOPPAGE.

3. IF 1 AND/OR 2 CANNOT BE ACCOMPLISHED IN A TIMELY MANNER TO PREVENT LINE STOPPAGE, H.E. ORR RESERVES THE RIGHT TO SORT AND/OR REWORK THE NON-CONFORMING MATERIAL AT THE SUPPLIERS EXPENSE OF **$35.00 PER HOUR** IN ORDER TO ASSURE ACCEPTABLE PARTS ARE UTILIZED AND PRODUCTION REQUIREMNTS ARE MET.

IN THE EVENT THAT NON-CONFORMING PARTS OR MATERIAL RESULTS IN COSTS TO H.E. ORR (e.g. CHARGES RELATED TO SORT, REWORK, REPAIR, SCRAP, PRODUCTION DOWNTIME, CUSTOMER IMPOSED CHARGES, WARRANTY OR RECALL COSTS, SHIPPING, ADMINISTRATIVE SUPPORT, ETC.), H.E. ORR RESERVES THE RIGHT TO CHARGE (DEBT ACCOUNT) THE SUPPLIER FOR ALL REASONABLE ASSOCIATED COSTS. H.E. ORR WILL NOTIFY THE SUPPLIER AT ITS EARLIEST CONVENIENCE WHEN SUCH CONDITIONS ARISE.

25.0 CONTROL OF QUALITY RECORDS

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. 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

26.0 RECORD RETENTION REQUIREMENTS

PRODUCTION PART APPROVALS, TOOLING RECORDS, PURCHASE ORDERS AND AMENDMENTS SHALL BE MAINTAINED FOR THE LENGTH OF TIME THE PART, OR FAMILY OF PARTS ARE ACTIVE FOR PRODUCTION AND SERVICE REQUIREMENTS PLUS ONE CALANDAR YEAR, OR PER ISO9001/TS16949 REQUIREMENT, WHICH EVER GREATER.

QUALITY PERFORMANCE RECORDS (e.g. CONTROL CHARTS, INSPECTION AND TEST RESULTS) SHALL BE RETAINED FOR AT LEAST ONE CALENDAR YEAR IN WHICH THEY WERE CREATED, OR PER ISO9001/TS16949, WHICH EVER IS GREATER.

27.0 INTERNAL QUALITY AUDITS

27.1 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.

28.0 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

28.1 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.

28.2 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.

28.3 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.

28.4 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.

28.5 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.

28.6 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.

29.0 LABELING

ALL MATERIAL SHIPPED BY THE SUPPLIER SHALL BE IDENTIFIED WITH A LABEL THAT WILL ENSURE PRODUCT IDENTIFICATION AND TRACEABILITY THROUGHOUT ALL STAGES OF PRODUCTION. EACH SHIPMENT SHALL BE MARKED WITH THE H.E. ORR PART NUMBER, QUANTITY, LOT NUMBER, H.E. ORR ADDRESS, AND ANY OTHER SPECIFIED REQUIREMENTS AS APPLICABLE. SUPPLIER SHALL IDENTIFY ITEM(S), AND/OR PACKAGE(S) CONTAINER(S) OF SHELF-LIFE MATERIAL WITH THE MANUFACTURE DATE OR THE EXPIRATION DATE ALONG WITH ANY SPECIAL STORAGE AND HANDLING CONDITIONS, IN ADDITION TO THE NORMAL IDENTIFICATION REQUIREMENTS. ALL CARTONS/CONTAINERS/RACKS SHALL BE IDENTIFIED. A MASTER LABEL IS REQUIRED FOR MULTIPLE CONTAINERS OF THE SAME PART NUMBER ON A SINGLE PALLET. THE SUPPLIER WILL SHIP ONE PART NUMBER PER SKID UNLESS APPROVED OTHERWISE BY H.E. ORR. DEFECTS IN LABELING WILL BE TREATED THE SAME AS DEFECTIVE PRODUCT, AND RESULT IN A CAR TO THE SUPPLIER.

30.0 SERVICING

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

31.0 HAZARDOUS MATERIALS

IF ANY HAZARDS APPLY TO THE SUPPLIED PRODUCT, THE SUPPLIER SHALL SUBMIT A MATERIAL SAFETY DATA SHEET WITH EACH SHIPMENT AND LABEL THE PRODUCT CONTAINERS ACCORDINGLY. MSDS DOCUMENTS FOR HAZARDOUS MATERIAL SUPPLIED TO H.E. ORR SHALL ALSO BE MAINTAINED AT THE SUPPLIER'S SITE.

32.0 SUPPLIER PERFORMANCE AND DEVELOPMENT

32.1 PERFORMANCE SCORECARD

PERFORMANCE WILL BE MONITORED ON A PRE-DETERMINED FREQUENCY AND FEEDBACK PROVIDED TO THE SUPPLIER AS PER REQUIRED PER H.E. ORR QUALITY CONTROL. SUPPLIER PERFORMANCE REPORTING AND FEEDBACK WILL BE DEPENDENT UPON:

1. PART TYPE
2. PART CRITICALITY TO PROCESS / END PRODUCT
3. SUPPLIER'S HISTORICAL QUALITY METRICS
4. RECENT NEGATIVE TRENDS IN QUALITY METRICS

KEY QUALITY METRICS FOR WHICH SELECT SUPPLIERS WILL BE MEASURED ARE:

1. DEFECTIVE PARTS PER MILLION (PPM)
2. ON TIME DELIVERY (OTD)
3. EFFECTIVENESS OF CONTAINMENT AND CORRECTIVE ACTION TAKEN (e.g. REPEAT QUALITY ISSUES)

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.

32.2 REQUESTS FOR SCORECARD CORRECTION

UPPLIERS ARE ELIGIBLE TO APPEAL THE SCORECARD RATING IF THE RATING IS DISPUTED BY CONTACTING THE H.E. ORR SQE OR DESIGNATE. ONLY APPEALS THAT CONTAIN QUANTIFIABLE AND VERIFIABLE DATAREGARDING SUPPLIER PERFORMANCE FOR KEY METRICS WILL BE CONSIDERED. IF A SUPPLIER IS ABLE TO SATISFACTORILY PROVIDE REQUIRED SUPPORTING INFORMATION, THE SUPPLIER SCORECARD RATING WILL BE MODIFIED ACCORDINGLY.

DURING THE SOURCING AND QUOTING PROCESS FOR FURTHER POTENTIAL BUSINESS, SUPPLIER PERFORMANCE RATINGS WILL BE CONSIDERED AS PART OF THE REVIEW.

32.3 PARTS PER MILLION (PPM) RATING

ONE OF THE MEASUREMENTS OF QUALITY PERFORMANCE OF SUPPLIERS IS DEFECTIVE PARTS PER MILLION (PPM). THE EXPECTATION FOR SUPPLIER PERFORMANCE IS 0 PPM (ZERO DEFECTS). PRODUCT RECEIVED INTO THE H.E. ORR FACILITY THAT DOES NOT CONFORM TO THE DRAWING, SPECIFICATIONS AND/OR AGREED UPON STANDARDS WILL BE COUNTED AGAINST A SUPPLIER'S PPM RECORD. QUANTITES WILL BE REPORTED IN THE UNITS OF MEASURE IN WHICH THEY ARE PURCHASED. THIS APPLIES TO PRODUCTION PARTS AND MATERIALS.

OCCASIONS THAT WOULD IMPACT PPM;

1. PRODUCTION PARTS WHICH DO NOT MEET DRAWING SPECIFICATIONS, DIMENSIONAL, FUNCTIONAL, OR APPEARANCE STANDARDS AS CALLED OUT IN THE SPECIFICATIONS OR FROM AGREED-UPON BOUNDARY SAMPLE.
2. OUT-OF-SPEC PARTS THAT REQUIRE REWORK/REPAIR IN ORDERTO BE USED.
3. PRODUCTION PARTS DAMAGED FROM INADEQUATE PACKAGING OR TRANSPORTATION FOR WHICH THE SUPPLIER IS RESPONSIBLE.
4. IN CASES WHERE THE SUPPLIER MAY BE SHIPPING PRIOR TO PPAP WITH AN APPROVED CUSTOMER DEVIATION, ANY DEFECTS OUTSIDE THE BOUNDARIES DEFINED WITHOUT AN APPROVED DEVIATION.
5. OUT-OF-SPEC PARTS SHIPPED PRIOR TO PPAP APPROVAL WITHOUT AN APPROVED DEVIATION.
6. SHIPMENTS THAT ARE RECEIVED WITH MIXED PARTS THAT ARE THE WRONG REVISION LEVEL (PPM ASSIGNED FOR THE QUANTITY OF INCORRECT PARTS ONLY).
7. SHIPMENTS THAT ARE RECEIVED WITH MISLABELED CONTAINERS ARE CONSIDERED PPM ASSIGNABLE. THE REJECT QUANITITY SHALL REFLECT THE TOTAL NUMBER OF CONTAINERS WITH INCORRECT LABELS. IN CASES WHERE EACH INDIVIDUAL PART REQUIRES IDENTIFICATION, THE TOTAL NUMBER OF INCORRECTLY LABELED PARTS WILL BE COUNTED TOWARD PPM. IF MISLABELED PRODUCTS ARE USED INCORRECTLY IN PRODUCTION OPERATIONS, THE TOTAL NUMBER OF INCORRECT ASSEMBLIES WILL BE COUNTED AGAINST THE SUPPLIER'S REJECT QUANTITY.

ALL APPROVED SUPPLIERS SHALL BE SUBJECT TO QUALITY AUDIT VERIFICATION (QAV) BY A H.E. ORR REPRESENTATIVE EVERY 3 YEARS

UNLESS POOR PERFORMANCE WARRANTS MORE FREQUENT AUDITS.

UNFAVORABLE TRENDS IN SUPPLIER PERFORMANCE RATINGS OVER 2 CALENDAR QUARTERS SHALL BE CAUSE TO RE-EVALUATE THE SUPPLIER BY PERFORMING QUALITY AUDIT VERIFICATION.

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THE SUPPLIER WILL BE NOTIFIED BY THE H.E. ORR SQE OR DESIGNATE OF THE QAV DATE.

32.4 MANUFACTURING CAPABILITIES

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.

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.

32.5 CONTINUOUS IMPROVEMENT

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.

Honda Acronyms and Definitions

Term	Definition
"A" Surface	High critical appearance areas
4KOQ	Four keys to outstanding quality
5P	5 Principles for Problem Solving – a problem cause analysis form used by Honda
5S	A visual workplace management term – sort, set in order, shine, standardize, and sustain
AIAG	Automotive Industry Action Group
Approved Supplier	A supplier that has completed the Purchasing Division requirements for Honda suppliers and is listed on the Purchasing Division list of approved suppliers
A-rank	Those problems that could lead to sudden loss of functions such as cannot turn, stop, go or safety features
ASN	Advance Shipping Notice
Associate	Generic term used for an employee. Applies to all levels of responsibility including production, support, and management.
ASTM	American Society for Testing and Materials
BOM	Bill of Materials
B-rank	Those functional items other than A or G rank that could impair the performance of products.
C/M	Countermeasure
CCP	Critical Control Points
CFR	Code of Federal Regulations
Class 1, 2, or 3	A method Honda uses to measure supplier quality performance
CMM	Coordinate Measuring Machine
CMVSS	Canadian Motor Vehicle Safety Standard
Containment	The act of identifying and controlling suspect parts / nonconforming, materials, or products
Controlled Documents/Data	Documents or data that convey approved, current quality system information to a defined set of users
COP	Conformity of Production (European Regulations)
Countermeasure (C/M)	The set of actions to analyze, identify and permanently eliminate the root cause(s) of a non-compliance or non-conformance
CPCS	Change Point Control System (a portal application for IPPAAR/IPP)
CPG	Cost Planning Group / Cost Procurement Group
C-rank	Those items other than A,G, B, P, or R rank
CRF	Countermeasure Request Form
Critical Process	A process that if not performed according to the operation standard, could result in an A-rank problem
D/C	Design Change or Engineering Change
D/T	Down Time
D0/D1	R & D evaluation events
DCR	Design Change Request (see CRF)
DDV	Durability Data Vehicles
DFMEA	Design Failure Mode Effect Analysis
Direct Supplier	The supplier that ships directly to Honda

DPMO	Defects per Million (solder) Opportunities
DSPS	Domestic Supply Parts Supplier – a DSPS part is purchased by Honda from one supplier and supplied to another supplier for assembly and shipment to Honda
DTR	Domestic Trouble Report or Delivery Trouble Report
EC Regulations	European Community Regulations
EDI Label	The standard computer generated label required by Honda on all part containers
ESD	Electro Static Discharge
Field/Market Actions	Actions taken in the market to countermeasure problems with Honda products
FIFO	First In First Out
First Lot	The initial group of parts manufactured after a change in the part or production process
First Lot Producer	The original manufacturer of the changing part
FMC	Full Model Change
FMEA	Failure Mode Effects Analysis
FMVSS	Federal Motor Vehicle Safety Standard
FTZ	Federal Trade Zone
Geba	CRF evaluation meeting (uchi = internal, soto = external)
Go 1-1	Honda PH's authorization for the supplier to begin tool design
Go 1-2	Honda PH's authorization for the supplier to purchase long lead raw material for a tool OR to begin rough cutting
Go 2-2	Honda PH's authorization for the supplier to begin tool manufacture
Go Release	Honda's authorization, to suppliers, to begin specific NM related activities
GPCS	Global Production Control System
G-rank	Those problems that create a non-compliance to government regulations
HAM	Honda of America Mfg. Inc.
HCM	Honda of Canada Mfg. Inc.
HDM	Honda de Mexico Mfg., Inc.
HES	Honda Engineering Standards – issued by Honda R&D that prescribe attributes of the products
HMA	Honda Manufacturing of Alabama, Inc.
HMIN/HMI	Honda Manufacturing of Indiana, Inc.
HTR	Honda Trouble Report
HTR Reply	Honda Trouble Report Reply
IDPS (IPS)	International Domestic Parts Supply (International Parts Supply)
Importance Rank	Evaluates the problem severity
Index	A measure of supplier quality performance based on the severity of part problems and their impact on Honda and Honda customers (Importance Rank + Nuisance Value)
In-Process Parts	Parts ordered for Material Service's in-process cage (safety stock)
Inspection Fixture	Device that measures or inspects part dimensional accuracy
Inspection Standard	A written document that describes the characteristics to check, the check method and check frequency
IPP	Initial Production Parts
IPP Tag	The form used to document initial production parts control
IPPAAR	Initial Production Parts Advance Approval Request
IQS	Initial Quality Survey
ISO	International Organization for Standardization
ITR	International Trouble Report (same as HTR)

JIS	Japanese Industrial Standard
JSPS	Japan Supplied Parts Supplier
KD	Knock Down – Japan Supplied Parts
LCNF	Lot Control Notification Form
LNDD	Lot Number Display Detail
Lot	A group of parts manufactured under the same conditions, and with the same sub-components and materials
Lot Control/Traceability	Tracking parts by creating lots, identifying the parts with lot number identification, shipping and using the lots in sequence and linking lot numbers to a VIN, EIN, PSN (product serial number)
LOTO	Lock Out Tag Out
Maker Layout	The assignment of a Honda product part to a selected supplier
Manufacturing Instruction (M/I)	Formal, numerically controlled document that allows the manufacturing plant to create product structures or processes unique to its operation. Also, formal method to communicate plant BOM changes
MAP	Marysville Auto Plant
MIR	Market Impact Report
MP	Mass Production
MPR	Minimum Process Requirements
MPR Checksheet	Form used to verify MPR's are part of manufacturing processes
MQ	Market Quality
MQS	Manufacturing Quality Standard – sometimes referred to as Manufacturing Quality Requirement
MS	Material Standard
MSD	Moisture Sensitive Devices
MTOC	Model Type Option Color
NACP	North American Cost Procurement
NAP	North American Purchasing
Nariyuki	Step by step breakdown that shows results of individual activities leading to the total effect
NARS	North America Reporting System
NAT	North American Technical Group
National Standards	The primary reference standards kept by the US Bureau of Standards that serve as the basis for calibration of equipment, measuring instruments and test devices
NDR	New Model Delivery Trouble Report
NIST	National Institute of Standards and Technology – the body that maintains highly sensitive equipment to calibrate weights and measures
NM	New Model
NMC	New Model Center
NMD	New Model Department
NMR	New Model Review
NMS	New Model Section
NMTG	New Model Technical Group
NPP	Not A Parts Problem
NQR	New Model Quality Trouble Report
NTF	No Trouble Found
Nuisance Value	Denotes problem impact to the plant by accumulating one point per Honda hour

	to contain or repair the problem
OEE	Operation Equipment Efficiency
OEM	Original Equipment Manufacturer (parts that have a Honda part number and stay with the completed unit)
P/C/M	Permanent Countermeasure
P/L	Project Leader
PACT	Process Assurance Capability Tracking
PC	Production Control Department
PCB	Printed Circuit Board
PDCA	Plan Do Check Act
PDF	Process Display Form
PDI	Pre-delivery Inspection
PEDD	Product Engineering Development Department
PETD	Product Engineering Test Department
PFMEA	Process Failure Mode Effect Analysis
PH NM	Purchasing New Model
PH or PUR	Purchasing
PI	Production Instruction – document used to control and communicate product build schedules, lot size, model, type, color (MTC), and / or special instructions
PIS	Process Inspection Standard
Planned SVR	A supplier Visit Report based on an annual plan
PLC	Programmable Logic Controller
PM	Preventive Maintenance or Parts Maturation
PO	Purchase Order – Purchasing Division document used to communicate product amounts, price, specifications, and timing to suppliers
Poka-Yoke or Error-Proof Device	In the process sensors or confirmation devices that examine all parts produced by the process, for a specific characteristic (e.g. to detect missing or mis-installed components)
PP	Parts Procurement or Pre-Production
PPA	Potential Problem Analysis – sheet to communicate and document potential problems to suppliers for countermeasure / preventive activity
PPE	Personal Protective Equipment
PPH	Past Problem History
PPHU	Problems Per Hundred Units
PPS (PPMD)	Parts Procurement
PQ	Parts Quality / Purchasing Quality (PM and PP at HCM)
PQCT (Control Plan)	Process Quality Control Table – defines control methods for manufacturing conditions and quality characteristics for each item requiring quality control from material receiving to manufacturing and shipping
PQS	Part Quality Standard – Parts Quality Section – Product Quality Survey
P-rank	Pre-notification of a problem
PSN	Product Serial Number
PTC	Problem Tracking Chart
QAN#	Quality Assurance Notification Number
QAV	Quality Assurance Visit
QC	Quality Control
QCD	Quality – Cost Delivery
QPL	Quality Project Leader

QS	Quality System
QSS	Quality Stabilization Sheet
Quality Standards	Written criteria beyond design specifications that are used to judge acceptability. A quality standard contains information that supplements the part drawing in order to define certain required control characteristics.
Rank	To assign severity to a product problem
Repair	Action taken on a non-conforming product so that it will fulfill the intended usage requirements, although it may not conform to the originally specified requirements
Rework	Action taken on a non-conforming product so that it will fulfill the specified requirements
RFI	Request for Information
RFQ	Request for Quote
RFS	Regardless of Feature Size
RH	Relative Humidity
R-rank	Used for rejections of castings or forgings at the machining source
SA	Situation Analysis
SAP	Specified Action Plan
SD	Supplier Development Group
SPR	Supplier Performance Report
SPS	Supplier Part Schedule
SQCDM	Safety – Quality – Cost – Delivery – Morale
SQM	Supplier Quality Manual
SST	Supplier Support Team
Straight Ship	A unit that is OK to send to shipping directly off the production line
Sub-supplier	Any supplier at a lower tier than the supplier being considered
Sudden Loss of Function	Any situation where the customer may lose a safety function of their vehicle without prior awareness or warning of a problem
SVR	Supplier Visit Report
T/C/M	Temporary Countermeasure
TDS	Technical Data Sheet
Traceability	The ability to link a measurement to a national or international standard. Also, the ability to link a lot of material or parts to a finished product
VA	Value added or cost down activity
VIN	Vehicle Identification Number – a unique number assigned by the manufacturer to a vehicle for registration and identification
VQD	Vehicle Quality Department
W/B	White Body – welded assembly of body components
WIP	Work In Progress
WRP	Warranty Recovery Program
YTD	Year To Date

Toyota Acronyms & Definitions

Acronym	Initial Description
AIAG	Automotive Industry Action Group
C/M	Countermeasure
CAPTIN	Canadian Autoparts Toyota Inc.
CPS	Centralized Purchasing System
CSP	Controlled Self Procurement
DFMEA	Design Failure Mode and Effects Analysis
DRBFM	Design Review Based on Failure Modes
ECI	Engineering Change Instruction
ECR	Engineering Change Request
FA	Final Approval
FQPR	Field Quality Problem Report
GRR	Gage Repeatability and Reproducibility
HVPT	High Volume Production Trial
ICF	Inspection Control Function
I/S	Part Inspection Standard
ISO	International Organization for Standardization
MQC	Manufacturing Quality Chart
MVSS	Motor Vehicle Safety Standard
NAMC	(Toyota) North American Manufacturing Company
OEM	Original Equipment Manufacturer
PA	Part Approval
PCR	Process Change Request
PFMEA	Process Failure Mode and Effects Analysis
PFS	Problem Follow Sheet
PRC	Process Readiness Request
PRCC	Production Readiness Confirmation Checksheet System
QCMS	Quality Chain Management System
QC/QE	Quality Control / Quality Engineering
QCS	Quality Confirmation Stage
QIR	Quality Improvement Request
QPR	Quality Problem Report
QRC	Quality Readiness Checksheet
QS 9000/TS16949	Quality System (AIAG – Automotive Industry Specific Requirements)
QTR	Quality Tuning Request
SE	Simultaneous Engineering
SEPM	Supplier Enhancement Project Management
SOP	Start of Production
SPMP	Supplier Parts Master Plan
SQAM	Supplier Quality Assurance Manual
SQCS	Supplier Quality Confirmation Stage
TABC	Toyota Auto Body Inc.
TCI	Toyota Canada Inc.
TEMA	Toyota Motor Engineering and Manufacturing North America
TEMA QD	Toyota Motor Engineering and Manufacturing North America Quality Division
TTC	Toyota Technical Center

TOC	Toyota Operations Center
TPC	Toyota Planning Center
TMC	Toyota Motor Corporation
TMMAL	Toyota Motor Manufacturing, Alabama, Inc.
TMMBC	Toyota Motor Manufacturing, de Baja California, S. de R. L. de C.V.
TMMC	Toyota Motor Manufacturing Canada
TMMI	Toyota Motor Manufacturing Indiana
TMMK	Toyota Motor Manufacturing Kentucky, Inc.
TMMMS	Toyota Motor Manufacturing Mississippi
TMMTX	Toyota Motor Manufacturing Texas
TMMWV	Toyota Motor Manufacturing West Virginia
TMS	Toyota Motor Sales
TPMS	Toyota Parts master Schedule

Boundary Sample: Mass production representative parts which establish a sensory standard when the characteristic is difficult to define or communicate by any other method.

Checking Fixture (C/F): A device used to verify the dimensional integrity of a finished product.

Control Chart: A graphic representation of a measured (attribute or variable) characteristic showing process-generated control limits and data values as plotted points.

Coordinating Manufacturer: The Toyota manufacturing company quality department responsible to facilitate supplier quality assurance activities when a common part is provided to more than one Toyota facility.

Countermeasure Execution Promotion Function (CEPF): A function within the exporting region that assumes responsibility to perform quality problem handling, including promotion of countermeasures for nonconforming parts.

Designated Control Characteristic [Pc]: Part Characteristics that have a significant effect on performance, fit, function, or workability on the completed vehicle, and therefore require application of statistical for capability assessment and control.

Failure Mode and Effects Analysis (FMEA): An analytical tool to assess the overall risks of potential failures in design and manufacturing.

Field Quality Problem Report (FQPR): A written notice issued to the supplier upon discovery of nonconforming parts on vehicles already shipped.

Final Approval (FA): Acknowledgement that supplier has provided acceptable quality parts under mass production conditions for a minimum of 90 days from SOP.

Finalized Process: A part made with production tooling under mass production conditions (e.g., personnel, material, method, machine, etc.).

High Volume Production Trial (HVPT): Parts trials to verify capability to produce quality parts under mass production conditions.

Initial Stage Control: Initial Stage Control is a series of special quality assurance activities to ensure no supplier flow-out of nonconforming products as their production processes become stable.

Inspection Control Function (ICF): A term sometimes used synonymously with coordinating manufacturer by Toyota.

In-Process Check Fixture (GAGE): A device used to verify the dimensional integrity of parts in-process (i.e., used to check sub-assembly vs. final assembly.

Inspection Standard (I/S): A document that defines the methods and frequencies for inspection of a subset of part drawing characteristics.

Life of the Part: From supplier start of production through OEM build-out requirements, including service parts.

Manufacturing Quality Chart (MQC): A document that details the process parameters and part characteristics which must be controlled to assure output quality.

Mass Production Parts: Parts manufactured from finalized methods, machines, materials, and personnel that have achieved both PA and PRCC approval.

Mass Production Equivalent Process: Process with no perceived difference for parts that will be manufactured from projected mass production process (i.e. similar machinery, equipment, manpower, process parameters, and control characteristics).

NAMC QC/QE Department: The group at the vehicle and unit plants responsible for implementing and administering SQAM requirements to suppliers.

Nonconformance (Nonconformance Part): Product or material that does not meet specified requirements (e.g., I/S, Toyota Technical Drawing Standard, Boundary Sample, etc.).

Part Approval (PA): Approval signifying a supplier has demonstrated the capability to produce limited volume parts, which meet specified quality requirements, from production tooling and a mass production equivalent process.

Part Evaluation Plan (PEP): Supplier plan for testing and verifying parts/components meet all drawing and I/S requirements.

Pass-Through Part: A part routed through the tier 1 supplier who does not perform any further manufacturing or assembly.

Poka-yoke: A mistake proofing system or device that utilizes methods which prevent defects from being made and/or passed to the next process.

Problem Flow Sheet (PFS): A recorded log of quality problems, countermeasures, and follow-up items.

Process Capability: The level of conformity a process is capable of producing for a specified characteristic (e.g., dimension, color, weight, etc.).

Process Change Request (PCR): A documented supplier request to make any change to their manufacturing process or sub-supplier after achievement of Quality Readiness Checksheet (QRC) approval.

Process Control: Preventing the manufacture of nonconforming products through data collection, analysis and feedback to the process.

Process Flow Diagram: A diagram that depicts the flow of materials through the process, including any rework, repair, and audit operations.

Production Tooling: Tooling capable of manufacturing parts that meet production drawing and I/S requirements at mass production volumes.

Quality Improvement Request (QIR): The tool used to communicate nonconformance that does not meet QPR criteria, or to request investigation of a problem when the responsibility is unclear.

Quality Problem Report (QPR): The tool used for reporting quality nonconformance above the threshold of a QIR, where immediate countermeasure information is necessary from suppliers.

Quality Tuning Request (QTR): The tool used to tune a part within the specification to improve fit, function, or workability. It is oftentimes used to advance the implementation of a forthcoming ECI.

Quality Resident Engineer (QRE): A supplier's technical representative assigned to work at a NAMC.

Supplier Quality Confirmation Stage (SQCS): SQCS is equivalent to supplier SOP, and is defined as the first parts or components that will be assembled on a NAMC saleable vehicle.

Supply Chain Map: A supplement to the process flow chart which indicates the point of control for all critical characteristics (down to the lowest tier supplier level).

Tuning: Minor part modifications to ensure acceptable fitting for trim parts. Tuning is also performed to improve workability.

Warranty Return Parts: The actual parts returned by the dealer from a warranty claim.