Supplier Quality Manual

Edition 12 – July 7, 2016

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Forward/Introduction

The goal of Stanadyne's Supplier Quality Manual is to communicate clearly the conditions for doing business with Stanadyne and to develop systems that drive continual improvement, prevent defects, and reduce variation and waste in the entire supply chain. Information presented in this manual takes precedence, unless officially notified by authorized Stanadyne personnel.

Suppliers are responsible for the quality of their products and services.

Our suppliers are expected to have zero incidents and zero disruptions, provide products with zero defectives, flawless delivery performance and timely responsiveness to issues.

The original of this manual is a controlled document. Copies of the Stanadyne Supplier Quality Manual distributed to suppliers, printed or downloaded are considered uncontrolled and will not be automatically updated.

Suppliers are required to check the website periodically for revisions www.stanadyne.com.

Standard Requirements – Quality

To be a supplier to Stanadyne, all suppliers must meet our requirements for quality.

As an overview, our standard requirements include the following but are more detailed in subsequent pages:

1. Advanced Product Quality Planning (APQP): As requested, the Supplier must have resources available and capable of participating in APQP, including such efforts as Feasibility Reviews, FMEA's, Design Reviews, Prototype Production, and Production Part Approval Process.

2. Hazardous Materials: Suppliers must supply all information related to Hazardous Materials, and satisfy all governmental and safety requirements. Suppliers will be required to submit Safety Data Sheets (SDS) for all identified items. Registration to IMDS is recommended.

3. Managing Change: Suppliers must agree to notify Stanadyne of any intended process change and obtain Stanadyne approval *prior* to implementation. Suppliers must also make this a condition of their own entire supply chain. In some cases, samples and documentation will be required as part of the approval process.

4. Material and Process Specifications: Suppliers must produce Stanadyne products to the specific material and process specifications. In certain cases, we will require approval of Tier 2 suppliers.

5. Engineering Source Approval: When Stanadyne specifies specific material (typically trade name or proprietary) or sources, Stanadyne must approve all material or source changes.

6. Non-Conforming Product: Suppliers must only ship product that meets specification, or obtain a written deviation *prior* to shipment for any non-conforming product.

7. Supplier Cost Recovery and "Charge-back Process": A supplier shall comply with Stanadyne's process to recover costs associated with a supplier's unacceptable performance.

8. Corrective Action: In the event of a quality issue related to a supplier's products, the supplier will be required to provide a written corrective action report, preferably in the 8D format.

9. Quality System: Suppliers must have a documented quality system and agree to on-site assessments. Suppliers must be registered to ISO 9001:2008 or ISO/TS 16949:2009.

10. Records: Suppliers must maintain quality records for defined periods of time.

11. Shipment and Packaging Requirements: Suppliers must comply with specifications for shipping and packaging. This includes labeling specifications or requirements.

12. Supply Chain Management: Suppliers must be willing to identify and manage their own entire supply chain. It is a supplier's responsibility to ensure that its own suppliers meet Stanadyne product requirements.

13. Traceability: Product traceability is a requirement. Suppliers must provide unique identification of product batches/lots as required.

14. Verification of Purchased Product: Suppliers must allow on-site product or process verification by Stanadyne or its customer.

15. The supplier is responsible for ensuring that all material/product delivered to Stanadyne shall be clean and free of contamination from debris, and packaged in such a manner to assure material cleanliness.

1.0 Specific Requirements

1.1 Purpose
The purpose of this document is to communicate Stanadyne LLC ("Stanadyne") requirements for quality systems of companies that provide proto-type, pre-production and production goods or services to Stanadyne. Suppliers to Stanadyne are responsible for periodically checking that they are using the current revision and following this document via the Stanadyne website at **www.stanadyne.com**.

1.2 General
Suppliers should be registered to the latest version of ISO 9001. Certification is a requirement of all suppliers who provide product, components, assemblies and services to our manufacturing, assembly and distribution facilities. In addition, Stanadyne expects suppliers to work toward the goal of achieving compliance to the latest ISO/TS 16949 Standards.

For new suppliers, a self-assessment questionnaire (see 2.2) will be furnished so you can assess yourself then return it to Stanadyne. This self-assessment is normally a precursor to an on-site appraisal.

1.3 Supporting Documents
Page 18 lists the supporting documents referenced in this manual along with their sources. It is the responsibility of all Stanadyne suppliers, both current and prospective, to obtain and maintain a current issue of these documents.

1.4 Additional Requirements
The supplier may expect other specific requirements in addition to the requirements of this Manual. If applicable, these requirements shall be communicated to the supplier through Stanadyne's Purchasing Department.

In the event that a supplier perceives a conflict between the needs of two or more Stanadyne facilities, the supplier shall contact the Stanadyne Purchasing Department and request a determination of the applicable Stanadyne Standard.

2.0 Requirements for Supplier Approval

2.1 Purchasing Contact
All requests to become a supplier to Stanadyne must go through the Purchasing Department. The pertinent Commodity Manager will initially assess any business opportunities that are of mutual interest, and will initiate the approval process within Stanadyne.

2.2 Supplier Quality System Site Self-Assessment

A supplier or potential supplier should have completed the *Supplier Site Assessment Questionnaire* in order to provide Stanadyne with a general understanding of their quality management system. If you have not done so, contact your Stanadyne Supplier Quality Engineer (SQE) for assistance.

2.3 On-Site Quality System Site Assessment

An on-site quality system assessment will be required prior to issuance of any initial purchasing agreement. The assessment will be conducted by a Stanadyne representative(s) and will verify the existence of a quality system and the disciplines necessary to meet Stanadyne's requirements.

Stanadyne reserves the right to re-assess current suppliers prior to placement of new business, as a result of a supplier's overall performance, when there is a change in the supplier's facility or processes, a change in ownership, a significant change in the nature of the product previously supplied, or as part of Stanadyne's Supplier Quality Surveillance Program (also applies to Tier 2 suppliers).

2.4 Special or Key Characteristics

Special or Key Characteristics are shown on current drawings using symbols that identify the importance level. Pages 25- 26 identify these symbols and their significance. It is the supplier's responsibility to incorporate these Characteristics into the Control Plans, PFMEA's, and Work Instructions of all products supplied to Stanadyne. Other important characteristics shall be conveyed by the receiving plant's Quality Manager or the Purchasing Department.

Suppliers are expected to have their key processes under statistical control consistent with the guidelines of the current ISO 9001:2008 Standard and related reference manuals (results to be supplied to Stanadyne quarterly).

2.5 Advanced Product Quality Planning (APQP)

Suppliers are required to have a fully implemented APQP process as defined by the Stanadyne SQE based on component complexity and criticality. This assures new products or processes for prototype, pre-production and production achieve the intended results by a date agreed upon with Stanadyne.

NOTE: See Page 16, Prototype Components

2.6 Production Part Approval Process (PPAP)

Level 3 PPAP is required for all submissions unless specified otherwise by the Supplier Quality Assurance Department for the facility accepting delivery of the material or as otherwise identified on the purchase order. PPAP's are to be submitted directly to the Supplier Quality Assurance Department of the receiving plant or as shown on the purchase order. A Part/Process Approval Checklist (Page 15) will supplement the Purchase Order. The review of PPAP submissions from Tier 2 suppliers may also be required.

NOTE: PPAP should be submitted in accordance with the AIAG manual. Additional requirements may be specified by Stanadyne SQE.

2.6.1 Enhanced Launch Control Plan (GP-12)

For major new product launches Stanadyne implements an enhanced launch control plan as an extra precaution to insure there are no issues during a major production launch. The length of time and specific details are developed in conjunction with our customer. Stanadyne expects that our suppliers also implement an enhanced launch control plan for the same length of time that is required by our customer. Our SQE will work with you on the specific details.

2.7 Label Identification Requirements – 1st Production Shipment and PPAP

The initial PPAP submission to Stanadyne shall be clearly identified on **all four sides** of the shipping container using the label found on the Stanadyne web site or a reasonable facsimile. Any deviations to this requirement must be approved by your SQE. Page 24 shows an example of the label. To view and download this label, go to www.stanadyne.com. Find it under Quality/ISO then documents.

NOTE: Any shipment of first production lots shall be preceded by a PPAP submittal and approval. Any deviation to this requirement must be approved by your SQE.

2.8 Material/Product Deviation

The supplier shall not deviate from Stanadyne engineering drawings, specifications or other Stanadyne requirements without written approval and/or deviation authorization from Product Engineering.

The supplier is responsible for the quality level of all material and/or product delivered to Stanadyne. If the supplier detects a non-conforming condition, he must immediately contain all non-conforming material and not allow it into the value stream. If the supplier feels the non-conformance will not affect form, fit or function of the final assembly, they may submit a Vendor Request for Deviation (VRD) for review of product acceptance. Pages 21 - 22 show an example of a Vendor Request for Deviation form and Instructions. To view and download this form, go to www.stanadyne.com. The written request shall be submitted through the Stanadyne Supplier Quality Assurance Department of the receiving facility along with the following information:

- Part number and latest engineering change letter
- Quantity of parts affected
- Specification(s) involved
- Statistical analysis of the non-conforming characteristic(s), as applicable
- A statement of the requested deviation
- The containment plan to be implemented
- Corrective/preventative action to be taken along with the time line for implementation which shall include the date and or lot number for the completed actions.

A Non-Conformance Report (NCR) or Product Deviation will be issued. Reference to the NCR or Product Deviation shall be clearly noted on the documentation of the non-conforming shipment.

2.9 Traceability
Product traceability is a Stanadyne and customer requirement. Suppliers must provide unique identification of batches/lots or individual component parts as required. In most instances components should be traceable to the raw material.

2.10 Supplier Evaluations
Stanadyne maintains records in order to evaluate suppliers. Consideration for the continuation, expansion or termination of business is based on these evaluations. Examples of such records are:

- PPM of non-conforming material (The Goal is 0 PPM)
- Non-Conforming Material Reports (NCR's)
- Stop shipment due to quality concerns
- Supplier responsiveness to quality issues
- Effectiveness of Corrective Action
- Warranty Performance
- 100% on-time delivery with required quantities
- Cost reduction proposals
- Competitiveness and ability to meet marketplace pricing

Key suppliers shall be issued monthly scorecards. Written corrective actions shall be required if a supplier's performance fails to meet expectations for both quality and delivery. Supplier and/or sub-supplier audits may be conducted by Stanadyne to re-evaluate their status as approved suppliers to Stanadyne.

2.11 Cleanliness Requirements
Stanadyne requires that all material shall be clean and free of contamination including debris adhered through residual magnetism. The supplier is responsible for ensuring that all material/product delivered to Stanadyne shall be clean and free of contamination from debris, and packaged in such a manner to assure material cleanliness. Cleanliness requirements shall be communicated through engineering specifications, normally 70402 for purchased component cleanliness, 70360 for component flaws and 70445 for non-metallic components. Other drawings and/or Purchase Order requirements may apply at times.

2.12 Packaging Requirements
Stanadyne requires that all suppliers provide packaging that is adequate to protect material/product from damage and contamination. Stanadyne reserves the right to require specific packaging practices such as, packing materials, bag-in-bag packaging and restrictions on packaging size. These requirements shall be communicated through engineering specifications, drawings and/or purchase order requirements. A comprehensive Stanadyne packaging manual is available at www.stanadyne.com (please see Quality/ISO tab) to define both Stanadyne's parameters and the suppliers' responsibilities. There is a supplier Packaging Information form on Page 30 that should be used with any quotation.

2.13 Raw Material Requirements – Applies Only To Raw Material Suppliers
These requirements are applicable only for raw material that is procured for the purpose of manufacturing components within Stanadyne.

This does not apply to component suppliers. Component suppliers will reference the component part drawing for material requirements.

Stanadyne requirements for raw materials are conveyed to the supplier with the Request for Quote through Raw Material Specification Drawing “RXXX” where “X” represents a numeric character. The drawing includes but is not limited to information relating to scope, composition, hardness, size & tolerances, heat treat response, certification and bundle identification.

3.0 Supplier Support Procedures

3.1 Engineering Change Request

There shall be no change to the Engineering Specifications, Part Drawings and Purchase Order Requirements or to the Process without written approval from Stanadyne.

If the supplier has an improvement or concern that can only be resolved with Engineering's assistance, a Supplier Change Request containing a complete description of the change with the reason accompanied by supporting documentation, should be submitted to the Stanadyne Purchasing Department. Pages 19 - 20 show an example of a Supplier Change Request form and Instructions. To view and download this form, go to www.stanadyne.com.

3.2 Non-Conforming Product

If product is found to be non-conforming at Stanadyne, the supplier is expected to provide the resources necessary to contain, evaluate, sort and/or scrap the non-conforming product. Costs associated with processing an NCR/SCAR for confirmed nonconforming product will be debited to the supplier's account ($150.00 USD).

A Non-Conformance Report (NCR) and Supplier Corrective Action Request (SCAR) shall be issued to the supplier when a Stanadyne facility detects non-conforming product. **The supplier's initial response including containment plan, shall be provided to Stanadyne SQA within 24 hours (one working day) from the date the supplier receives notification of the non-conformance.**

Stanadyne and the supplier shall determine if the product can be inspected to remove defects from the "lot" that has been contained. It will be determined whether product is sorted on site or returned to the supplier. If time does not allow the supplier's personnel time to sort, then the supplier must contract with a 3rd party inspection service. If it is determined that inspection alone cannot detect the defect, the product will be returned to the supplier or scrapped as agreed. Listed below are third party providers Stanadyne used with satisfaction:

The PIC Group, www.thepicgroup.com (N. Carolina presence)
Asia Inspection, www.asiainspection.com (Asia presence)

If the purchased product is needed for urgent production at a Stanadyne facility, the supplier shall provide a rapid inspection team to Stanadyne's production facility for inspection, or provide a third party inspection service with the cost of service being assumed by the supplier. The use of a third party to sort defective product does not relieve the supplier of their responsibility for the quality or delivery of product.

A written preliminary corrective action must be sent to the Stanadyne Supplier Quality Assurance Department within ten (10) days identifying the root cause. Final resolution of the corrective action should be made within thirty (30) days of the supplier's submittal. A Corrective Action Report must be furnished that outlines the problem using a formal problem resolution method, such as an 8D.

Any request for additional time should be directed to the appropriate Supplier Quality Engineer in writing. The written request shall include the action plan and time line for implementation. If the supplier fails to fulfill the requirements for complaint responsiveness and effectiveness of problem resolution they may have Controlled Shipping invoked and be put on new business hold until resolved.

3.3 Controlled Shipping

Controlled Shipping Level 1 (CS1) - Controlled Shipping CS1 is a demand by Stanadyne that a supplier put in place a redundant inspection process at the supplying location to 100% sort for a specific and specified nonconformance to isolate Stanadyne from receipt of nonconforming parts/material. The redundant inspection must be in addition to the normal process controls.

Implementation criteria for Controlled Shipping Level 1:

- Repetitive issue
- Suppliers current controls are not sufficient to ensure conformance to requirements
- Duration, quality, and/or severity of the concern
- Major disruptions
- Quality concern at OEM and/or in the field

Exit criteria for Controlled Shipping:

- Twenty working days of data (from implementation of corrective action) verifying that the normal production controls are effective for controlling the discrepancy identified in the Controlled Shipping activity. Note: Volume to be determined by Stanadyne where suppliers use batch processes.
- Stanadyne Supplier Quality has the option to alter the timeframe.
- Documentation showing root cause was identified and verified.
- Documentation indicating that corrective action was implemented and validated.
- Copies of all documentation revised as required (Control Plan, PFMEA, operator instructions, etc.)
- Request exit from Controlled Shipping Level 1 and provide supporting documentation and assessments on performance and corrective actions to the appropriate Customer representative.

Controlled Shipping Level 2 (CS2) - Controlled Shipping CS2 is a demand by Stanadyne that a supplier put in place a 3rd party redundant inspection process to sort for a specific nonconformance, while maintaining Controlled Shipping Level 1, and implementing a root-cause problem solving process. The redundant inspection is in addition to normal controls and Controlled Shipping Level 1.

Implementation criteria for Controlled Shipping 2 (CS2):

- Repeat Non-Conformances
- Controlled Shipping Level 1 failures
- Suppliers current controls are not sufficient to ensure conformance to requirements
- Duration, quality, and/or severity of the concern
- Major disruptions
- Quality concern at OEM and/or in the field

Exit criteria for Controlled Shipping Level 2:

- Meet the defined exit criteria established by Stanadyne Supplier Quality
- Documentation showing root cause was identified and verified.
- Documentation indicating that corrective action was implemented and validated.
- Copies of all documentation revised as required (Control Plan, PFMEA, operator instructions, etc.)
- Request exit from Controlled Shipping Level 1 and provide supporting documentation and assessments on performance and corrective actions to the appropriate Customer representative.

Note: Stanadyne approval must be given prior to supplier stopping Controlled Shipping. An audit by Stanadyne may be required prior to approval.

3.4 Supplier Cost Recovery Process

If non-conforming products enter into Stanadyne or become a warranty problem, it shall be the supplier's responsibility to aid Stanadyne in evaluating and correcting the problem. Stanadyne shall be entitled to recover from the supplier all costs and expenses reasonably incurred in taking corrective action.

3.5 Error – Proofing

Stanadyne's expectation is zero defects.

Achieving this level of quality requires capable processes combined with statistical process control techniques and the utilization of error-proofing methodology.

When causes of non-conformance are determined, the supplier shall employ solutions in the process to prevent or detect these non-conformances. These solutions shall be independent of operator's actions.

Solutions shall be designed and installed integral to the process to prevent or detect defects.

3.6 Continuous Improvement Process

The supplier should promote and implement a continuous improvement philosophy applying proven methodology and processes.

These methods and processes shall be used throughout the Supplier organization to continually improve the quality, delivery, cost and service of supplier products.

Recommended tools of the continuous improvement process are:

• Benchmarking	• Brainstorming	• Pareto Analysis
• 5-Way Analysis	• Decision Tree Charts	• Cost Benefit Analysis
• Cause and Effect	• Process Capability/Performance	• Process Mapping, etc.

3.7 Statistical Techniques

Suppliers shall monitor process performance using the appropriate statistical techniques in accordance with *AIAG Statistical Process Control* manual. The determination of need is based on the ability to control and verify the process capability and product characteristics. Statistical monitoring (SPC) shall be used for any key characteristics on the drawing and submitted to your Stanadyne SQE. The use of quality planning tools such as Design Failure Mode and Effects Analysis (DFMEA) and/or Process Failure Mode and Effects Analysis (PFMEA) is essential.

Supplier is encouraged to use statistical techniques including:

- Gauge R&R Study
- Defect Analysis
- Predictive Maintenance
- Sampling and Process Analysis
- Process Analysis with Control Charting Methods
- And other Graphical Methods

3.7.1 Cp/Cpk Information

Stanadyne will monitor Cp/Cpk indices for all Major, Significant and Critical characteristics on our drawings. All key characteristics should be under statistical process control.

3.7.2 Annual Part Layout

Stanadyne may require an annual layout for each part number that you make. If there is a family of parts then only one part from that family requires layout.

3.8 Packaging and Shipping Identification

Products are to be packaged in such a manner to provide adequate protection against subsequent product degradation and contamination. Each container shall be clearly marked and identified as outlined in Stanadyne's "Labeling Standards for Inbound Shipments" manual. A copy of this manual is located at www.stanadyne.com (please find under the Quality – ISO tab.)

3.9 Record Retention Guidelines

All quality records should be retained a minimum of three years unless otherwise specified in the suppliers quality manual and agreed to by Stanadyne. These records shall be stored in an environment that does not allow document deterioration and are readily accessible upon request by a Stanadyne representative. It is also expected that the supply chains records pertaining to Stanadyne products shall be retained in the same manner. Page 23 lists examples of typical records.

3.10 Cost Reduction and Continuous Improvement

Cost reductions are viewed as an essential aspect of maintaining a competitive position for both the supplier and Stanadyne. The supplier shall endeavor to provide cost reduction and continuous improvement suggestions to Stanadyne. All proposals shall be submitted to the Purchasing Department. A supplier may be asked to provide a commercial review for a cost or continuous improvement proposal. See also 3.6.

3.11 Governmental and Safety Constraints

All materials and products must satisfy current governmental and safety constraints. This shall include, as a minimum, certification of material content. It is required that suppliers be compliant to the following:

- IMDS (International Material Data System)
  - Since 2000, the International Material Data System (IMDS) is a collective, computer-based material data system used primarily by automotive OEM's to manage environmentally relevant aspects of the different parts used in vehicles. It has been adopted as the global standard for reporting material content in the automotive industry.
    Link: http://www.mdsystem.com/
- REACh (Registration, Evaluation Authorization and Restriction of Chemicals)
  - The main aims of REACH are to ensure a high level of protection of human health and the environment from the risks that can be posed by chemicals, the promotion of alternative test methods, and the free circulation of substances on the internal market and enhancing competitiveness and innovation. It entered into force on June 1, 2007.
  - Link: http//ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm
- RoHS (Restriction of the Use of Certain Hazardous Substances)
  - The restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (SI 2012 No. 3032), ("the RoHS Regulations 2012") will implement the provisions of European Parliament and Council Directive on the Restrictions of the use of certain Hazardous Substances in electrical and electronic equipment (2011/65/EU5 ("RoHS 2"). The original RoHS Regulations have restricted the placing on the UK market of new Electrical and Electronic Equipment (EEE) containing more than the permitted levels of lead, cadmium, mercury, hexavalent chromium and both polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants in certain products since July 1, 2006.
  - Link: http://ec.europa.eu/environment/waste/rohs_eee/
- Conflict Minerals
  - Under Dodd-Frank, SEC-registered companies are required to report annually to the SEC on (a) their worldwide use of conflict minerals in products they manufacture or contract to manufacture, and (b) the cooperation of their supply chains in identifying the use of conflict minerals; identifying the country of origin for any tantalum, tin, tungsten, and gold; and determining whether conflict minerals from the DCR region are "conflict free" (that is, they do not directly or indirectly finance armed groups through mining or mineral trading in the DCR region).
  - Link:
    http://www.sec.gov/spotlight/dodd-frank/speccorpdisclosure.html

- ELV (END of Life Vehicles)
  - The European Commission adopted a Proposal for a Directive which aims at making vehicle dismantling and recycling more environmentally friendly, sets clear quantified targets for reuse, recycling and recovery of vehicles also with a view to their recyclability.
  - Link: http://ec.europa.eu/environment/waste/elv_index.htm
- Packaging & Waste Materials
  - This directive harmonized actions taken by EU nations to promote reuse and recycling and to manage packaging and packaging wastes. The 1994 Packaging Directive focuses on prevention, reuse, recycling, and other forms of recovery, and also establishes the rudiments of extended producer responsibility principles. These principles require manufacturers to play a role in mitigating the post-consumer environmental impacts of products from which they profit.
  - Link: http://www.epa.gov/oswer/international/factsheets/200610-packaging-directives.htm

Stanadyne

Stanadyne PPAP Approval Checklist

Submit by Email

Part Information

Part Number: _____ Revision: _____ Revision Date: _____

Description: _____ P.O. No.: _____

Contact Information

Supplier Name: _____

Quality (Name): _____ E-mail Address: _____

Purchasing (Name): _____ E-mail Address: _____

Stanadyne Contacts

Quality (Name): _____

E-mail Address: _____

Purchasing (Name): _____

E-mail Address: _____

PPAP Requirements

PPAP Submission Level

_____ Due Date: _____

Reason for Submission

_____ **Other:** _____

		Required	Quantity of Parts Required	AIAG Forms	Comments
1.	Part Submission Warrant (PSW)	☐		☐	
2.	Numbered Print	☐			
3.	Engineering Change Documents	☐			
4.	Complete Dimensional Layout	☐		☐	
5.	Material Certs (& others if applicable)	☐			
6.	Performance Test Results	☐			
7.	Process flow Diagram (PFD)	☐		☐	
8.	PFMEA	☐		☐	
9.	Pre-Launch Control Plan (PLCP)	☐		☐	
10.	Production Control Plan (PCP)	☐			
11.	Process Capability Studies (PCS)	☐			
12.	Gage R & R Studies	☐			
13.	Packaging Label (sample)	☐			
14.	IMDS (or equivalent) Approval	☐			
15.	Send Parts with PPAP Package	☐			
16.	Appearance Approval Report	☐			
17.	Capacity Planning	☐			
18.	Feasibility Form	☐		☐	
19.	TS/ISO Certifications	☐			
20.	Supplier QA Manual	☐			
21.	Other Requirements	☐			
	Stanadyne Supplied				
1.	DFMEA and/or Assembly Drawing Available (If Yes, please provide.)	☐ Yes		☐ No	

Ship PPAP Package To:

Additional Comments / Special Requirements

Signed: _____ Date: _____

Prototype Components

Prototype components serve a critical function towards qualifying products for the market. Manufacturing components from a process similar to the intended production process and having documentation of that process will affect the success of a program. At minimum, a prototype supplier should have in place a Process Flow Chart and Control Plan to support Advanced Product Quality Planning. The AIAG Control Plan works best. The supplier is not restricted to using the forms that are found in the AIAG manuals. A supplier may, at their discretion, use any suitable means to document their processes used to produce a prototype part or assembly, provided it has been reviewed and approved by Stanadyne SQE. Page 17 shows an example of a Control Plan Worksheet. To view and download this form, go to www.stanadyne.com.

A PROTOTYPE Control Plan should consider at minimum, the following:

- Characteristics - Process characteristics determined by the supplier or product characteristics as defined on the Stanadyne drawing.
- Special Characteristics - Classification such as Critical, Major, Significant Process Significant or High Impact - (see Section 2.4 and Pages 24-25).
- Evaluation & Measurement Technique – Identify the measurement system being used. Gauge type and accuracy of gauge for the tolerance being measured.
- Gauges and test equipment identified on the Control Plan.
- Sample size and frequency of taking measurements.
- Plan policy should state re-work or repair requires Stanadyne approval.
- Stanadyne may request the opportunity to approve the prototype-build Control Plan.

Process Flow Charts serve to identify strategic functions and sequence of operations within the process flow. A process flow chart should be submitted with the first sample of prototype parts.

After producing components, the supplier shall provide a **Sample Inspection Report** which lists all of the characteristics identified on the Stanadyne print. Page 27 shows an example of a Sample Inspection Report. To view and download this form, go to www.stanadyne.com. All documentation supplied to Stanadyne should reference “Prototype Parts” in the header. The supplier must utilize the balloon numbering assigned to dimensions by Stanadyne if they apply. If the Stanadyne print does not relate the dimensions with balloons then the supplier shall do so and submit a copy of that ballooned print along with the matching first article inspection results to Stanadyne. A copy of the inspection results must be submitted with the parts shipment regardless of the quantity. In addition to the above, each supplier of prototype product shall be required to provide certification for material and any special processes, (heat treat, coating, etc.) when it is applicable.

Stanadyne

Control Plan

☐ Prototype	☐ Pre-Launch	☐ Production	
Control Plan Number	Key Contact / Phone Number	Date (Original)	Date (Revised)
Part Number / Latest Change Level	Core Team		Customer Engineering Approval / Date (if required)
Part Name / Description	Organization / Plant Approval / Date		Customer Quality Approval / Date (if required)
Organization / Plant	Organization Code	Other Approval / Date (if required)	Other Approval / Date (if required)

	Part / Process Number	Process Name / Operation Description	Machine, Device, Jig, Tools for Mfg.	---------- Characteristics ----------			Special Char. Class	Methods		---- Sample ----			Reaction Plan
				No.	Product	Process		Production / Process Specification / Tolerance	Evaluation Measurement Technique	Size	Freq.	Control Method	
Add													
Delete													

Supporting Documents

The supplier must have the current editions of the following documents and any other reference documents available for review at all appropriate manufacturing locations.

Supporting documents are requirements of ISO/TS 16949 and contain information referenced in this Manual:

- Quality Management System Requirements (ISO/TS 16949)
- Advanced Product Quality Planning (APQP) and Control Plan Manual
- Production Part Approval Process (PPAP) Manual
- Failure Mode and Effects Analysis (FMEA) Manual
- Measurement Systems Analysis (MSA) Reference Manual
- Statistical Process Control (SPC) Reference Manual

These documents are available from the Automotive Industry Action Group ("AIAG") and may be purchased from:

Automotive Industry Action Group
26200 Lahser Road, Suite 200
Southfield, Michigan 48034
Phone: (248) 358-3570
Fax: (248) 358-3253
Internet: www.aiag.org

Supplier Change Request (SCR)

INSTRUCTIONS

SECTION 1 - T0 BE FILLED OUT BY THE SUPPLIER:

This form is only to request permanent change.

General

Supplier Information: Supplier name, location where component is manufactured and contact information for originator (phone number, fax number and e-mail address). Supplier Tracking Number is an optional field for internal tracking by the Supplier.

Section 1 - Change Request

1. **Request Type:** Check the appropriate box to denote the change being requested.

2. **Part Number:** Only one SRC should be submitted per part number/family. Include: part number, revision level and part description (from Stanadyne drawing).

3. **Part Description:** Name of the part as it appears on the Stanadyne drawing.

   - List the Stanadyne Asset Number(s), for Stanadyne or OEM-owned tooling, and the cavity numbers affected by the change (for multiple cavity tools/dies) if applicable.

4. **Description of Current Process or Specification:** Describe what the customer (Stanadyne) currently expects.

5. **Reason for Change and Description of Proposed Process or Specification:** Provide a detailed description of the requested change. Provide attachments if necessary.

   - **Identify impact of the proposed change**:

     > Does this change affect the part cost (reduction)? If yes, document the estimated cost benefit to Stanadyne. The Supplier is responsible to contact the Stanadyne Commodity Team.

     > Is there a packaging change?

     > Will a new / revised PPAP be required? Stanadyne is the final authority for determining PPAP requirements for for all changes.

     > Will an inventory of banked parts be required? Stanadyne inventory bank quantities must be coordinated through, and approved by Stanadyne. The supplier shall not calculate bank quantities based solely on Stanadyne releases.

     > Effectivity Date: What is the proposed timing of change? When will the change be complete?

       * **Note**: Change approval may take an extended period of time when Stanadyne customer approval is required. **Changes shall not be implemented prior to the receipt of written approval from Stanadyne.**

6. **Qualification Plan with Target Date:** For Process Changes, enter the Supplier's proposed Qualification Plan and PPAP target date. The proposed Qualification Plan may be submitted as an attachment to the SCR.

7. **Proposed Change Effectivity Date:** Indicate the date that you would like to see the change take place.
   * **Note: Change approval may take an extended period of time when Stanadyne customer approval is required.** Changes shall not be implemented prior to the receipt of written approval from Stanadyne.)

If you have any questions regarding the use of this form, please contact Stanadyne Supplier Quality.

SECTION 2 - TO BE COMPLETED BY STANADYNE

The responsible Stanadyne Supplier Quality, Engineering, Production and Purchasing Manager will review this SCR to provide disposition. All rejections must provide comments.

Supplier Change Request (SCR)

General

Supplier: _____ **Requestor:** _____

Address: _____ **Phone Number:** _____

_____ **Fax Number:** _____

Date of Request: _____ **Supplier Tracking No.:** _____ **E-Mail:** _____

Section 1 - Change Request

1. Request Type: ☐ Drawing Change ☐ Manufacturing Change - location, process, tooling, etc. (please specify)
☐ Supplier Change ☐ Other

2. Part Number: _____ **Revision:** _____

Tool Asset #(s) _____

Part Description: _____ **Cavity(s) #** _____

3. Description of Current Process or Specification:

4. Reason for Change and Description of Process or Specification:

5. Qualification Plan with Target Date:

6. Proposed Change Effectivity Date *(**NOTE:** Change approval may take an extended period of time when Stanadyne customer approval is required. **Changes shall not** be implemented prior to the receipt of written approval from **Stanadyne.**):* Date: _____

Section 2 - To Be Completed By Stanadyne (* If approved, indicate data required from Supplier.)

SCR/ECN #

Supplier Quality: _____ (Signature) _____ (Date) ☐ Approved ☐ Rejected

Comments:

If Approved Indicate Data Required From Supplier

☐ PPAP Required **Level:** _____ **Submit Due Date** _____
☐ None
☐ Other **Comments:** _____

*** Note: All data required must have a copy of the completed SCR Form.**

10/2014 **** THIS FORM IS NOT STANADYNE'S AUTHORIZATION FOR SUPPLIER TO PROCEED WITH REQUEST **** Page 2 of 2

Vendor Request for Deviation (VRD)

SECTION 1 - TO BE FILLED OUT BY THE SUPPLIER:
This form is only to request a Deviation. **The Stanadyne SQE will process the request and reply to the supplier**.

General

1. **Supplier Information:** Supplier name, location where component is manufactured and contact information for Originator (phone number, fax number and e-mail address). Supplier Reference Number is an optional field for internal tracking by the supplier.

Section 1 - Deviation Request

2. **Part Number** - Only one VRD should be submitted per part number/family. Include: part number, revision level (from Stanadyne drawing) and part quantity affected by the deviation.

3. **Description of the affected part number**.

4. **Inventory Status** - Are the parts already produced or is the deviation for future product?

5. **Description of Current Process or Specification** - Explain the reason for deviation.

6. **Reason for Deviation and Description of Proposed Process or Specification** - Provide a General Description of the requested deviation.

   - **Consider and identify impact of the proposed change**:

     * Does this deviation affect the part (form, fit or function)? - Stanadyne SQE to process this request within Stanadyne.
     * Is there a packaging change?
     * Will an inventory of banked parts be required?

   Note: Change approval may take an extended period of time when Stanadyne customer approval is required. Deviations shall not be implemented prior to the receipt of written approval from Stanadyne.

7. **Target Exit Date** - When will the deviation expire and what activity will prevent reoccurrence (if temporary)?

8. **Proposed Deviation Effectivity Date** - What is the proposed timing of the deviation?

   Note: Deviation approval may take an extended period of time when Stanadyne customer approval is required. Deviations shall not be implemented prior to the receipt of written approval from Stanadyne.

   * If you have any questions regarding the use of this form, please contact Stanadyne Supplier Quality.

SECTION 2 - TO BE COMPLETED BY STANADYNE
The responsible Stanadyne Supplier Quality Engineer will review the VRD to provide disposition. All rejections must provide comments. Additional information may be required for the supplier, such as capturing starting or ending serial identification, lot numbers, special component identification, special packaging identification, error proofing, etc.

**** THIS FORM IS NOT STANADYNE'S AUTHORIZATION FOR SUPPLIER TO PROCEED WITH REQUEST ****

Vendor Request for Deviation (VRD)

SECTION 1 - TO BE COMPLETED BY SUPPLIER

Supplier:		Requestor:	
Address:		Phone Number:	
		Fax Number:	
Date of Request:		E-Mail:	

2. Part Number: _____ **Revision:** _____ **Quantity:** _____

3. Part Description: _____

4. Inventory Status: ☐ Existing Inventory ☐ Components Not Yet Produced

5. Description of Current Process or Specification:

6. Reason for Deviation and Description of Proposed Process or Specification:

7. Target Exit Date and Corrective Action:

8. Proposed Deviation Effectivity Date: *(**Note:** Deviation approval may take and extended period of time when Stanadyne customer approval is required. **Changes shall not be implemented prior to the receipt of written approval from Stanadyne.**)*:

_____

SECTION 2 - TO BE COMPLETED BY STANADYNE

* If approved, indicate data required from Supplier such as capturing starting or ending serial numbers, lot numbers, special component identification, special packaging identification, error proofing, etc.

SC Deviation #: _____

Supplier Quality Signature	Date	Approved	Rejected	Comments

Comments:

Record Retention

Examples of records for retention may include, but are not limited to:

- Measurement Data
- Measurement System Analysis Data
- Gauge Calibration and Maintenance Records
- Capability and SPC Data
- Heat Treatment Processing Data
- Destructive and Non-Destructive Testing Data
- Functional and Performance Test Data
- Quality Rejections and Disposition Records
- Corrective Action Requests and Responses
- Major Process Change data
- Production Lot Control Data
    - Product ID / Traceability
- Initial Sample Inspection Report

Stanadyne

Print Form

Attention Quality Department !

☐ PPAP Submission ☐ First Production Shipment Notification

Part Number: _____ Revision Level: _____

Quantity: _____

Starting Serial #: _____ Deviation #: _____

Part Name: _____

Ship Date: _____

Supplier: _____

Contact (Name/Phone): _____

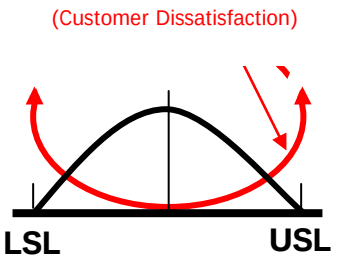
Comments:

10/2014

1. **Special Characteristics:** Features or properties (dimensional, visual, functional, electrical, mechanical, or material) which are designated to communicate to either manufacturing operations or suppliers the significance of these characteristics and the need to ensure the production process has inherent capability or sufficient control for meeting the specification / tolerance limits.

    a. **Critical** is a characteristic where reasonable anticipated variation may affect safe vehicle or product function. This designation will require due diligence and be regarded in the same manner as a *Significant* characteristic.

    b. **Major** is a variable characteristic where the reasonably anticipated variation within specification (target or tolerance) would significantly affect customer satisfaction with a product. In the instance where a Major characteristic can only be evaluate with attribute data, continuous improvement is not required since all products must be conforming.



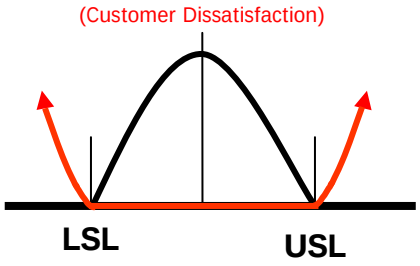
Action Plan

Control target nominal with SPC, process control plans and quality procedures or 100% variable inspection.

Process Capability

≥ 1.67 Cpk targeting nominal in a bilateral case.

    c. **Significant** is a characteristic in which the customer is equally satisfied across the entire specification, with high customer dissatisfaction immediately outside of the specification.



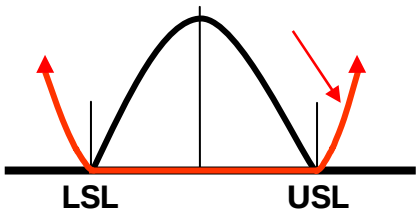
Action Plan

Maintain tolerance through appropriate process control plans and quality procedures.

Initial Process Capability

≥ 1.67 Ppk
Note: between 1.33 -1.67 must be monitored with SPC until a Cpk > 1.33 has been established over time. Ppk < 1.33 will require 100% inspection until process capability is established.

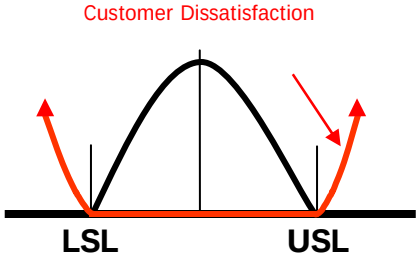
d. **High Impact (HI) –** is to be used on a characteristic, test specification or process parameter where assessing process capability is not feasible but additional process controls will be required to assure compliance to the drawing.



Action Plan

Maintain tolerance through the use of enhanced process control plans and quality procedures.

e. Significant-**Process** is only used on process drawings when a deviation may affect process control at a subsequent operation(s).



Action Plan

Maintain tolerance through appropriate process control plans and quality procedures

Initial Process Capability

≥ 1.67 Ppk
Note: between 1.33 - 1.67 must be monitored with SPC until a CpK > 1.33 has been demonstrated over time. PpK < 1.33 will require 100% inspection until process capability is established.

f. All print features not designated as special characteristics are as well required to meet print tolerance taking into account gauge R&R.

2. Characteristics deemed critical, major, significant, or significant-process will be annotated on the drawing with the appropriate symbol pointing to that characteristic:

- CRITICAL

* 

- SIGNIFICANT

* Note: 

Major on older drawings will carry the same weight as the current Significant designation.

- MAJOR

- SIGNIFICANT – PROCESS

- HIGH IMPACT

Stanadyne

Print Form

Sheet _____ of _____

Initial Sample Inspection Report (ISIR)

Part No.	Part Name	P.O. No.
B/P Rev.	Supplier	N.C.R. No.

Item #	B/P Specification	Gaging Method	Key Char	Final Results					Rej

Notes/Comments

Inspector	Disposition	Date

H-773-100 01/2016

Stanadyne

March 7, 2016

Dear Supplier,

Topic: Non-Conforming Material (NCM)

This letter is to remind you of the process and procedures Stanadyne is implementing to handle non-conforming material at Stanadyne when there is an urgent need for the product. A non-conformance can be discovered at incoming inspection, or, during our production build process. In either case we are defining the process and steps Stanadyne expects you will take to remedy the situation. They are in order of priority:

1. A Stanadyne plant Supplier Quality Engineer will advise the supplier of the non-conformance and request containment and quarantine of non-conforming product as the first steps of the 8D corrective action.

2. Supplier will have the choice within 24 hours of notification, unless the product is needed sooner, to:
   - Immediately replace non-conforming material of the same quantity with certified conforming material
   - Immediately sort the non-conforming material by supplier's experienced employee(s)
   - Immediately contract with a qualified third party sorting company to begin the sort

3. In the case where written communication is not received from the supplier identifying the steps to be taken in # 2 above, within the needed timeframe, then Stanadyne will sort product. The supplier will be responsible for all charges related to the NCM.

These efforts are necessary to keep Stanadyne facilities running at rates to satisfy our customers.

This process will become a part of the "Supplier Quality Manual" which is available on our website www.stanadyne.com.

Listed below are third party providers we have used with satisfaction:

The PIC Group, www.thepicgroup.com (N. Carolina presence)
Asia Inspection, www.asiainspection.com (Asia presence)

C = 0 Sampling Plans
Index Values
Associated AQL

Lot Size	.010	0.015	0.025	0.40	0.065	.10	.15	.25	.40	.65	1.0	1.5	2.5	4.0	6.5	10.0
	Sample Size															
2 to 8	*	*	*	*	*	*	*	*	*	*	*	*	5	3	2	2
9 to 15	*	*	*	*	*	*	*	*	*	*	13	8	5	3	2	2
16 to 25	*	*	*	*	*	*	*	*	*	20	13	8	5	3	3	2
26 to 50	*	*	*	*	*	*	*	*	32	20	13	8	5	5	5	3
51 to 90	*	*	*	*	*	*	80	50	32	20	13	8	7	6	5	4
91 to 150	*	*	*	*	*	125	80	50	32	20	13	12	11	7	6	5
151 to 280	*	*	*	*	200	125	80	50	32	20	20	19	13	10	7	6
281 to 500	*	*	*	315	200	125	80	50	48	47	29	21	16	11	9	7
501 to 1,200	*	800	500	315	200	125	80	75	73	47	34	27	19	15	11	8
1,201 to 3,200	1,250	800	500	315	200	125	120	116	73	53	42	35	23	18	13	9
3,201 to 10,000	1,250	800	500	315	200	192	189	116	86	68	50	38	29	22	15	9
10,001 to 35,000	1,250	800	500	315	300	294	189	135	108	77	60	46	35	29	15	9
35,001 to 150,000	1,250	800	500	490	476	294	218	170	123	96	74	56	40	29	15	9
150,001 to 500,000	1,250	800	750	715	476	345	270	200	156	119	90	64	40	29	15	9
500,001 and Over	1,250	1,200	1,112	715	556	435	303	244	189	143	102	64	40	29	15	9

*** Indicates entire lot must be inspected**
Note: The Acceptance Number in all cases is ZERO.

SUPPLIER PACKAGING INFORMATION

The supplier will provide packaging information to Stanadyne in the Supplier Provided Information areas listed below.

Important Notice:

The supplier will use the Stanadyne Supplier Packaging and Shipping Manual to develop proposed packaging. This manual is available from Purchasing.

Note that the manual includes a Decision Process for Container Rightsizing which assists the supplier in the selection of the right container for use when it has not been defined by Stanadyne.

If the supplier has alternative packaging suggestions that fall outside the scope of the model, they must submit the proposed changes when they return this Supplier Packaging Information form.

STANADYNE PROVIDED INFORMATION:

☐ Initial Submission ☐ Change

STANADYNE CONTACT NAME	CONTACT PHONE NUMBER	E-MAIL	DATE SUBMITTED

RFQ (or QRF)	STANADYNE REQUIRED CONTAINER	EST STD PACK QTY	PACK OPTION
	Select One		☐ Expendable ☐ Returnable ☐ Ret & Exp

SPECIAL PACKAGING REQUIREMENTS

ADDITIONAL COMMENTS	PART WEIGHT	
		☐ Additional Rqmts Atttached

EXPENDABLE PACK REQUESTED: Provide INFORMATION for Expendable packaging and PRICES for BOTH Expendable and Returnable Pack Options

SUPPLIER PROVIDED INFORMATION:

☐ Initial Submission ☐ Change

SUPPLIER COMPANY NAME	CONTACT NAME	CONTACT PHONE NUMBER	EMAIL	DATE

COMPANY ADDRESS	SHIPPING ADDRESS (IF DIFFERENT)	DUNS NUMBER

PROGRAM / MODEL YEAR	PART DESCRIPTION	PART L x W x H

PART NUMBER (S)	VOLUME PER YEAR	SHIP FREQ
		☐ Daily ☐ Other

RETURNABLE PACK INFORMATION

RETURNABLE MATERIAL COST PER PIECE (USD)

	ID #	LWH	TARE WT	MATERIAL
PRIMARY CONTAINER TYPE				
Select One				Select One
DUNNAGE TYPE				
Select One				Select One
DUNNAGE TYPE				
Select One				Select One
SECONDARY CONTAINER TYPE				
Select One				Select One

STANDARD PACK QUANTITY	NO. OF PRIMARY CONTAINERS/LAYER	NO. OF LAYERS ON/IN SECONDARY CONTAINER

PART WEIGHT	PRIMARY CONT GROSS WEIGHT	SECONDARY CONT GROSS WEIGHT	METHOD TO SECURE LOAD	MATERIAL
			Select One	Select One

EXPENDABLE PACK INFORMATION

EXPENDABLE MATERIAL COST PER PIECE (USD)

	ID #	LWH	TARE WT	MATERIAL
PRIMARY CONTAINER TYPE				
Select One				Select One
DUNNAGE TYPE				
Select One				Select One
DUNNAGE TYPE				
Select One				Select One
SECONDARY CONTAINER TYPE				
Select One				Select One

STANDARD PACK QUANTITY	NO. OF PRIMARY CONTAINERS/LAYER	NO. OF LAYERS ON/IN SECONDARY CONTAINER

PART WEIGHT	PRIMARY CONT GROSS WEIGHT	SECONDARY CONT GROSS WEIGHT	METHOD TO SECURE LOAD	MATERIAL
			Select One	Select One

COMMENTS/APPROVALS