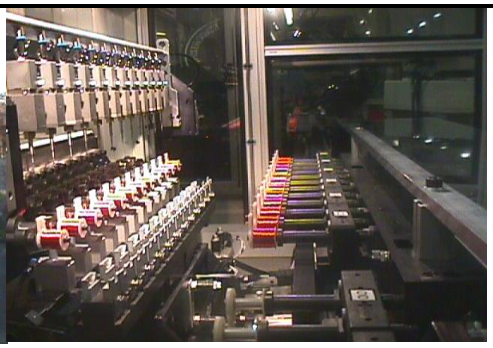


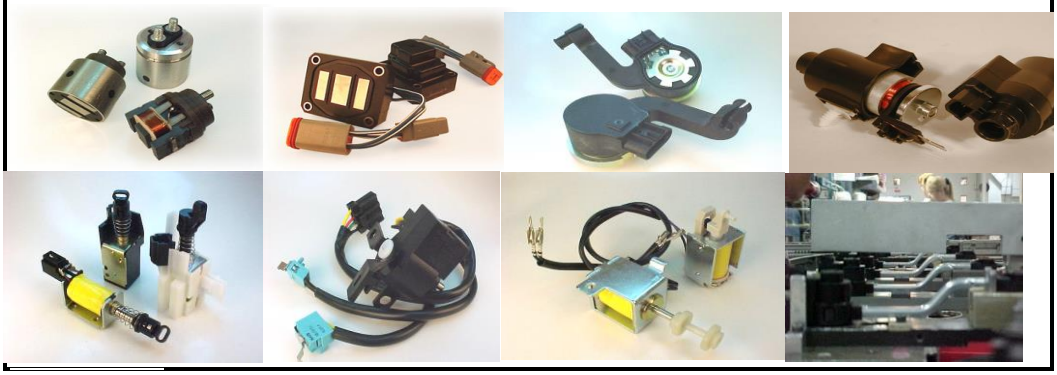
Pontiac Coil

Supplier Requirements Manual

Controlled only when viewed at Pontiac Coil's Website

REVISION K - SEPTEMBER 11, 2017

This manual supersedes all previous revisions of the Pontiac Coil, Inc. Supplier Quality Manual



Preface

This manual has been created to assist our suppliers in understanding the purchasing expectations and quality requirements for products and / or services supplied to Pontiac Coil, Inc. This manual is structured around ISO 9001:2009 and IATF 16949:2016 requirements.

Pontiac Coil, Inc. believes that suppliers who follow the requirements outlined in this manual, will improve the development of their business and manufacturing processes, thereby contributing to mutually enhanced future competitiveness and success.

It is the responsibility of the supplier to understand and ensure compliance with this manual and the quality policies of Pontiac Coil, Inc.

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Section 1: Introduction

1A Mission Statement

To push our creative talents when designing and engineering our electrical coils, solenoids and electromechanical devices
To discover and utilize new and progressive techniques in our manufacturing processes
To operate with the highest quality, best maintained tools and equipment
To be the catalyst that forms real partnerships between our customers, our suppliers and ourselves
To anticipate the needs of our customers and deliver
To lead and encourage personal and professional growth
To work hard, excel and never give up
To be the kind of company customers want to do business with and people want to work for

1B Vision

As Pontiac Coil, Inc. continues to grow, we will create exceptional value for our customers via the following strategies:

1 Best Quality
2 On Time Delivery
3 Competitive Costs
4 Global Reach
5 Innovative Technology

To attain these goals, Pontiac Coil, Inc. will rely heavily on its supply base to achieve the levels of excellence demanded by today's automotive customers. Pontiac Coil cannot succeed without the superior quality, cost, service, and technology offered by its supply base. Pontiac Coil will continue its commitment to continuous improvement through sourcing excellence and cost reductions, while focusing on flawless product launch.

1C Policy

It is the policy of Pontiac Coil, Inc. to attain a distinct competitive advantage over its competitors through excellence in exceeding its customer's wants and needs every time.

It is the vision of Pontiac Coil that suppliers shall:

1 Provide parts and services that meet or exceed Pontiac Coil's expectations
2 Take responsibility for non-conforming product or services
3 Continuously improve products and services for Pontiac Coil and its customers

1D Purpose

The purpose of the Supplier Quality Manual is to specify Pontiac Coil automotive quality system requirements for our suppliers. These requirements extend from supplier qualification, to new product development, to production.

1E Scope

This manual applies to all direct material and service suppliers

1F Responsibility

Suppliers are responsible for meeting all requirements outlined in this manual. Failure to meet these requirements may result in the loss of existing and/or future Pontiac Coil business, in addition to reimbursement of the cost resulting from those failures.

Suppliers shall ensure that their direct material suppliers comply with the requirements of the ISO 9001:2008 and IATF 16949:2016

Suppliers shall adopt the standards of "Zero Defects" and 100% on-time delivery to Pontiac Coil, Inc.

1G Language

Pontiac Coil, Inc. official language is English. Therefore, all official communication with Pontiac Coil, Inc. will be done in English. Documents may display the native language when integrated in parallel translation.

Pontiac Coil, Inc. uses the metric system for all drawings and correspondence. All supplier correspondence must be communicated in metric format.

Section 2: Supplier Requirements

2A Quality System Requirements

Pontiac Coil, Inc. goal for all suppliers of materials and services affecting production material is to demonstrate compliance to ISO 9001:2008 and/or IATF16949:2016. All suppliers and their sub-suppliers must be registered to ISO 9001:2008 at a minimum, while IATF 16949:2016 is preferred.

Pontiac Coil, Inc. requires that its suppliers continue to use the latest AIAG versions of the Advanced Product Quality Planning (APQP) system. Control plan, potential failure mode and effects analysis (PFMEA), measurement system analysis, production part approval process (PPAP), and statistical process control (SPC). For these publications visit http://www.aiag.org.

2B New Supplier Qualification

For new suppliers who wish to be added to the Pontiac Coil, Inc. approved supplier list, one or more of the following will occur:

1. Be certified at minimum to ISO 9001:2008 and preferably to IATF 16949:2016
2. Complete the supplier questionnaire
3. Comply to all requirements outlined in this manual
4. Meet all commercial and financial requirements of the relevant Pontiac Coil, Inc. product line.
5. Successfully pass a Pontiac Coil New Supplier Audit with a minimum score of 90%.

2C New Supplier Assessment Criteria

Prior to any production award, Pontiac Coil, Inc. may perform a site audit to confirm supplier capability beyond the certification level. The primary focus areas are depicted below. An overall score of 90 or greater is needed to be considered for sourcing. Suppliers that initially do not score acceptably for any area will be allowed to develop action plans and timelines to correct any deficiencies and then request a re-audit to verify implementation. Suppliers who score below 3 points in one area may be asked to submit corrective action prior to new product award.

Site audits will review the following areas:

Cleanliness	Preventative Maintenance
Organization	Traceability
Calibration	1st Article Inspection
Equipment condition	Work Instruction
Operator Skill	Visual Aides
Production Scheduling	Set Up Instructions
Dock Audit Performance	Set Up Verification
Customer Pass-Throughs	APQP Documents
SPC Performance	Company Metrics
Sub-supplier Monitoring System	Continuous Improvement

2D Terms and Conditions

Suppliers must comply with the terms and conditions on Pontiac Coil's purchase order.

Suppliers must comply to the requirements outlined in this Supplier Requirements Manual.

Tooling must be quoted for the life of the program and as the property of Pontiac Coil, Inc. All tooling maintenance and replacement is the responsibility of the supplier and at their cost.

Pontiac Coil, Inc. authorizes 3 weeks fabrication and 5 weeks raw material authorization. Any deviation from this guidelilne without special authorization outlined on the Pontiac Coil, Inc. purchase order or material release is at the financial burden of the supplier.

Tooling payment terms are net 60 days after PPAP approval unless otherwise approved in writing by Pontiac Coil, Inc.

Product payment terms are net 60 days unless otherwise negotiated with Pontiac Coil, Inc.

2E Engineering, Technical and Customer Support

Pontiac Coil, Inc. is committed to manufacturing superior quality products. In order to achieve this objective, Pontiac Coil, Inc. relies on its supply base to provide engineering and technical support to ensure our designs are robust and can be manufactured at the component level. At times, the supplier may be asked to participate in a product review with our customers.

Suppliers are required to supply and maintain a plant contact. This contact should be readily available to assist in solving problems in quality, delivery and other issues.

2F Quality Requirements and Defective Material Chargebacks

Pontiac Coil, Inc. suppliers are required to supply 100% defect free material. All shipments received are subject to inspection. Payment for product does not constitute acceptance.

Whenever there is a question regarding the conformance of products supplied by a supplier or supplied by Pontiac Coil which incorporates supplier products, Pontiac Coil will perform a root cause analysis. If Pontiac Coil determines that the root cause is nonconformance of a supplier's product, the supplier will be charged back all costs incurred, including but not limited to the following:

1 Corrective Action Handling Charge

A charge of $150.00 may be debited for each SCAR involving a supplier responsible failure mode. This handling charge does not apply to distributors or outside services sourced by directly by Pontiac Coil (i.e. plating, washing, brazing).
A new SCAR will be issued if nonconforming material is received which had gone through the containment process or was built after permanent corrective action had been implemented. A SCAR will not be issued when the supplier notifies Pontiac Coil of the presence of suspect material in transit and provides acceptable replacement material (freight paid by supplier) in a timely manner.
A new SCAR will not be issued for nonconforming material, detected at the end customer, which was built prior to the implementation of a previously documented corrective action. However, charge backs will be made to cover failure costs imposed by the customer.

2 Rework, Handling and Production Loss

The supplier may be charged for the entire cost of the subassembly / assembly scrapped if the root cause of the failure is a nonconforming component.

Line Down Charges: The following charge will be applied for any line shutdown caused by late delivery or nonconforming material:

(# of line Operators * Hourly Rate) + (# of hours of downtime) + (# of line operators * overtime hourly rate)*((# of overtime hours needed to be current to our customer's schedule))

Suppliers will also be responsible for their product's expedited freight costs to Pontiac Coil and any expedited freight costs incurred by Pontiac Coil to get our product to our customer resulting from a supplier caused line down situation.

3 Additional charges that may be debited for failures at Pontiac Coil's customer caused by the supplier's nonconforming product
Travel expenses (including air fare, hotel, rental car and food)
Engineering time
Warranty, recall costs and customer penalty charges

4 Supplier Chronic Poor Performance Charges

Travel expenses (including air fare, hotel, rental car and food) in response to chronic quality problems which require visits to the supplier by Pontiac Coil personnel. A supplier is defined as having chronic quality problems if Level 1 or Level 2 containment measures have been imposed.

Pontiac Coil is committed to prompt and equitable resolution of chargebacks with its suppliers. Pontiac Coil will promptly notify a supplier in writing of the amount of all chargebacks for nonconforming material. Supplier will have the opportunity to review these amounts and all appropriate documentation supporting these amounts. If a supplier is not in agreement with the chargeback amounts, the supplier will notify Pontiac Coil in writing of its objections (specifying which items it is objecting to) within 15 days of receipt of Pontiac Coil's notice. Supplier will be deemed to have accepted any chargebacks not specifically objected to in its notice.

Any objections specified in the supplier's notice will be addressed at the working level. If all objections are not resolved within 30 days from the date of the suppliers written objection, the matter will be brought to the Purchasing and Quality Departments for final resolution. Pontiac Coil and the supplier agree that the determination of the amount and chargebacks made by Pontiac Coil's Purchasing and Quality Departments will be binding on both parties.

2G On-Time Delivery Requirements

Pontiac Coil, Inc. requires 100% on-time delivery from suppliers. Suppliers are responsible for accounting for transit time when sending their shipments. Monitoring of performance levels is on-going and will be reported quarterly in our supplier report cards (see section 3). Unauthorized early or late deliveries or partial or over shipments are unacceptable. The quantity shipped per order or release cannot vary from specified quantity without the written consent of the production buyer.

If a problem arises and delivery commitments cannot be met, it is the supplier's responsibility to notify and work with the production buyer. Notification should initially be verbal and followed by the supplier submitting a delivery alert that will show the material flow system with corresponding delivery dates (P024). For a copy of this form, contact your buyer.

If a production line is shut down due to late delivery or incorrect quantity on any shipment, the supplier will be responsible for any costs incurred, including downtime and expediting charges. (see 2F-2).

2H Transportation Policy

Suppliers are responsible for sending materials as directed by the Purchasing Department. For shipments under 70 lbs, use UPS Collect. For shipments over 70 LBS, contact Universal Traffic, our third party broker, at 800-879-4505 and indicate that you need shipping instructions for Pontiac Coil, Inc.

If premium freight is requested by any personnel at Pontiac Coil, the supplier must contact their production buyer for an authorization number. Any expedited freight shipped collect or prepaid and added to the invoice that does not reference Pontiac Coil's authorization number will be debited to the supplier.

Repeat Violations to Pontiac Coil's transportation policy
A $250 administrative charge may be debited along with the cost of the freight for repeated violations to Pontiac Coil's freight policy. Violations include the following:

1. Uses Pontiac Coil's UPS / Fed Ex account code for expedited freight that has not been authorized by the Pontiac Coil buyer with an assigned authorization number
2. Does not follow Pontiac Coil's transportation policy and fails to use Pontiac Coil's approved freight source
3. Freight sent prepaid and shipping charges added to the supplier's invoice.

2I Product Packaging

Suppliers must use packaging that will isolate the product from any damage that could be caused in transit.

Carton weight is not to exceed 35 LBS.

Standard pack quantities must be approved in writing by the Pontiac Coil Purchasing Department.

The standard pack quantity cannot be changed throughout the life of the program unless written authorization approving the change is given by Pontiac Coil Buyer. If a supplier must ship a partial box quantity to avoid a line shutdown then the supplier must attached a 4X4 label in the upper right corner on two sides of the box that reads "Partial Box Quantity".

Production Labels

Production labels must follow AIAG requirements. Each carton must have a production label. Each label must include the following information:

1. Destination address (Pontiac Coil, Inc.)
2. Supplier name and address
3. Pontiac Coil, Inc. part number
4. Pontiac Coil, Inc. current revision level
5. Description of product
6. Quantity (standard pack quantity)
7. Lot code

Pre-Production or Engineering Samples

Parts that are shipped prior to PPAP approval (new revisions or engineering samples) must be identified with a blue information label in addition to the shipping label. The blue label should be attached to the carton that has the packing slip attached. An orange new revision label must be attached to each carton of the shipment. Please contact your buyer if you need the blue and/or orange labels. All cartons must have the suppliers standard shipping label.

2I **Product Packaging (Cont.)**

Packing Slips

Packing slips must include the following information:

1 Supplier name and address
2 Pontiac Coil, Inc. purchase order number
3 Pontiac Coil, Inc. part number
4 Pontiac Coil, Inc. current revision level
5 Description of product
6 Quantity (standard pack quantity)
7 Lot Code

Product that is not labeled correctly or does not include a packing slip that includes the information above may result in delayed payment, supplier performance deductions and/or a non-conformance.

2J **e-Business Capabilities**

Suppliers shall have email, internet access and internet browser as a minimum for eBusiness capability. This is required to receive performance reports and view supplier related topics on our website.

Suppliers are responsible for maintaining accurate contact information with their buyer. These contacts include top management representatives, and the required information includes phone numbers and email addresses. Additionally, suppliers shall, at minimum, maintain and update their certification status, once per year. Any change in certification or status must immediately be communicated to the Purchasing and Quality Departments.

2K **Rights of Verification of Products / Services / Tooling**

Pontiac Coil, Inc. reserves the right to verify the products / services on the suppliers premises by a Pontiac Coil, Inc. representative and our customer.

2L **Government Regulatory Compliance**

Suppliers shall comply with all applicable governmental regulations. These regulations relate to the health and safety of the workers, environment protection, toxic and hazardous materials, and free trade. Suppliers should recognize that the applicable government regulations might include those in the country of manufacture, as well as the country of sale. Registration to ISO14001 is recommended.

Section 3: Supplier Performance

3A **Supplier Monitoring**

Pontiac Coil, Inc. supplier monitoring system was implemented to identify suppliers who consistently meet our requirements and should be considered for future opportunities. It is also used to drive improvement from suppliers who have recently had a quality spill or delivery issue. Poor performance will be reviewed and could lead to removal from the Approved Supplier List and permanent resourcing.

Supplier performance is monitored and reported quarterly. Criteria for evaluation and selection of suppliers for placement on Pontiac Coil, Inc. Approved Supplier List is based on the suppliers ability to consistently deliver defect free products and / or services, meet or exceed our delivery requirements, be cost competitive and responsive to our needs.

Pontiac Coil, Inc. monitors supplier performance in quality, delivery, and documentation. Supplier will receive report cards via e-mail each quarter. Pontiac Coil, Inc. requires 0 PPM and 100% on-time delivery.

Quality (50 Points)

Suppliers are monitored on PPM performance and the number of past due 8Ds.

PPM Calculations (Quantity Rejected / Quantity Received) x 1,000,000

Points	Performance
40	0 PPM - 75 PPM
30	76 PPM - 550 PPM
20	551 PPM - 2000 PPM
10	2001 PPM - 5000 PPM
0	= or > 5001 PPM

It is the responsibility of the supplier to request adjustments to PPM levels. As an example, 50,000 pcs are rejected and returned to the supplier. Upon further inspection and/or sorting, the supplier finds 25 defective pieces. Sort results must be communicated on the supplier's 8D. With concurrence from Pontiac Coil's Quality Department, the supplier returns the remaining acceptable product and the PPM level is adjusted from a 50,000 piece PPM rejection level to a 25 piece rejection PPM level.

Past Due 8Ds (CARs)

Once a supplier is notified of a non-conformance, the supplier must respond with within 24 hours (D1-D3). 8Ds must be closed in 10 business days. A supplier is considered late if the 8D (CAR) is not closed in 10 business days. (The only exception is when the Pontiac Coil Quality Department has approved an extension request from the supplier.)

You may lose up to 10 points for late response. Suppliers who are unresponsive to requests for 8D's can be placed on new business hold.

Delivery (40 Points)

Suppliers are responsible for meeting the MRP schedule due dates. Suppliers who are past due will lose performance points.

Points	Performance
35	90% - 100%
25	80% - 89%
15	70% - 79%
5	60% - 69%
0	< 60%

Suppliers are also rated on premium freight occurrences. Suppliers that have a premium freight occurrence in the current quarter will lose 5 points.

Documentation (10 Points)

Pontiac Coil, Inc. monitors supplier performance in documentation. Each shipment must have packing slips and labels that meet our requirements. Properly marked shipments will ensure product moves to our production line quickly to avoid shutdowns. Pontiac Coil is not monitoring PSW slippages at this time.

Points	# of occurrences
10	0
8	1
6	2
4	3
2	4
0	>4

Bonus Points

Pontiac Coil, Inc. will award bonus points for unsolicited cost reductions, unsolicited process improvements, and extraordinary supplier support (10 points possible).

Demerit Points

Pontiac Coil, Inc. will deduct additional points for downtime hours, a significant quality event, refusal to support supplier caused debit or premium freight, non-responsive to past due 8D's (CARs), and a quality issue recurrence (10 points possible).

Overall Score

From these categories and overall score will be calculated. Pontiac Coil, Inc. uses a Green, Yellow, and Red category system to show top performers (green), below average performers (yellow) and unacceptable performing suppliers (red).

Points	Category
90 - 100	Green
70 - 89	Yellow
< 70	Red

Green Performance:

Supplier is performing at the required levels in quality, delivery and documentation. Suppliers categorized as a green supplier will be given opportunities to quote and work on new business.

Yellow Performance:

Pontiac Coil, Inc. requires any supplier with three (3) consecutive quarters in “Yellow” status and/or yellow status due to solely to delivery, to submit an action plan addressing the root cause of the problem and action items with due dates and the person responsible for the item. This status will be communicated to the supplier in the “Action Plan Required” area on the Supplier’s quarterly performance report. This action plan is different than an 8D. It will require an audit of the overall system to expose weakness that led to poor performance and what action will be taken to solve the identified items.

If your score is due to a quality issue, Pontiac Coil is to determine level of containment:

Level 1: Increased containment: Pontiac Coil will inspect a larger sample size of raw material.

Level 2: 100% sort. **This sort is to be paid for by the supplier**.

A lack of response to this notification is not acceptable and indicates to Pontiac Coil that there is an increased risk for additional performance problems and could result in removal from the approved supplier list. Two consecutive quarters with overall performance classed as “Yellow” could result in new business hold.

Red Performance

Pontiac Coil, Inc. requires any supplier with two (2) consecutive quarters in “Red” status, three (3) quality occurrences in one quarter, and/or “Red” status due solely to delivery, to submit an action plan addressing the root cause of the problem and action items with due dates and the person responsible for the item. This status will be communicated to the supplier in the “Action Plan Required” area on the supplier’s quarterly performance report. This action plan is different than an 8D. It will require an audit of the overall system to expose the weakness that led to poor performance and what action will be taken to solve the identified items.

If your score is due to a quality issue, Pontiac Coil is to determine level of containment:

Level 1: Increased containment: Pontiac Coil will inspect a larger sample size of raw material.

Level 2: 100% sort. **This sort is to be paid for by the supplier**.

Administrative Charge: Space rental of $500/day for all local sorting activities. One time charge of $450 for internal management fee of sorting process setup.

Effective immediately, your company is listed as “On Probation.” “Probationary” status indicates that a supplier cannot be considered for new business until performance is improved and Pontiac Coil, Inc. feels the supplier has identified and solved their issues.

3C Poor Performance Presentations

If a supplier has consistent poor quarterly performance scores, Pontiac Coil will request the supplier to make a presentation to Pontiac Coil's management team on the system improvements that will be put into place to prevent Pontiac Coil from receiving defective material or to correct delivery issues. This presentation should identify the system issues that caused the defective product to escape the suppliers facility or the system issue that caused the poor delivery performance. All processes involved in manufacturing and in the administrative process should be audited. The presentation must also include the audit findings with the associated corrective actions and due dates. The presentation should not be a regurgitation of an 8D. Suppliers who fail to make a presentation with an action item list may be placed on new business hold or may be resourced.

It is the supplier's responsibility to update the Pontiac Coil Quality Department on all action items until the corrective actions have all been implemented.

3D Continuous Improvement

Suppliers are expected to have quality systems in place which proactively communicate to Pontiac Coil alternative methods to improve processes, improve product quality and facilitate cost savings. These systems include Value Analysis (VA) and mistake proofing methods to further reduce defects, part variability and processing costs.

For Pontiac Coil to achieve the next level of quality excellence, we will continue to raise expectations from ourselves and our suppliers to ensure we are competitive with anyone in today's global marketplace. Pontiac Coil has implemented the following continuous improvement actions:

- ► Pontiac Coil performs 100% layouts of all supplier PPAP submissions.

The changes listed above are intended to further improve supplier performance and reduce defects for our customers.

Section 4: Product Launch Requirements

4A Introduction

New product launch initiates at design concept and runs through production launch of a new component. Supplier participation will vary at each stage. Pontiac Coil, Inc. requires suppliers to use a disciplined launch and APQP process to ensure overall success.

4B Requests for Quotation

Suppliers are responsible for providing production quotations on Pontiac Coil's RFQ form. Suppliers must adhere to all requirements outlined on the RFQ, in this manual and adhere to Pontiac Coil's terms and conditions on Pontiac Coil's purchase order (contact the Purchasing Department for a copy).

4C Prototype Fabrication

For the production of prototype or pre-production parts, suppliers shall imitate the planned production process as closely as feasible. Pontiac Coil, Inc. requires the following information to be submitted with each shipment of prototype parts.

1. 3 piece full dimensional layout (Including measurement technique for each dimension)
2. Layout for KPCs and SCs on 10% of the order (300 pcs ordered, then 30 pc layout for KPC and SC dimensions)
3. Material Certification
4. Any additional information requested on the purchase order
5. Prototype Warrant (Level 4)

4D Pre-Launch Requirements

This pre-launch phase is to verify that the supplier is aware and will conform to the requirements outlined in this manual. These requirements include but are not limited to EPC procedure, terms and conditions, transportation terms, packaging and labeling requirements, PPAP requirements and have an understanding of our supplier rating system.

Deliverables for this phase will include the following:

W-9 Form (for new suppliers)
Completed Supplier Questionnaire (for new suppliers)
Completed Detailed RFQ sheet
Preliminary Design Review Questionnaire
Quality System Certificate is current and available on the suppliier website

4E Design Phase Requirements

This is the kick-off phase. It begins with the award of work to the supplier. Key deliverables for this phase are as follows:

Design Review with Pontiac Coil, Inc.
Open Issues List
Initial Timeline (must be updated every two weeks)
Preliminary APQP documents
List of top five defects associated with similar product (PFMEA must address the identified defects)
Packaging information
Standard pack quantity (approval from the Purchasing Department)
For injection molded parts, gate, parting line and ejector pin location requires written approval from Pontiac Coil's design engineer prior to any tool work. The supplier must send a marked drawing showing these locations to Pontiac Coil's Purchasing Department.
Mold Flow and Warpage Analysis for injection molded parts

4F Tooling Requirements

This is the tool completion and PPAP submission phase. Key deliverables for this phase are as follows:

Tool drawing
Tooling information sheet
Digital pictures of tools (see tool information sheet for views required)
Process set up sheet
Sample parts
Level 3 PPAP
IMDS information
EPC: Pareto Chart

4G IMDS Requirements

The end-of-life vehicle (ELV) Directive, 2000/53, was enacted by the European Commission to minimize the impact of end-of-life vehicles on the environment. The use of lead, mercury, cadmium, and hexavalent chromium are prohibited in vehicles and their components, except for certain exemptions published in Annex II of the Directive. This is a mandated requirement for European Union Member States and also required by North American and some Japanese vehicle manufacturers.

To ensure compliance with the various legal and customer requirements, Pontiac Coil, Inc. requires its suppliers to report information on materials within their respective components. The International Material Data System (IMDS) has been developed by vehicle manufacturers to collect and manage this data.

Suppliers shall submit the required ELV data to Pontiac Coil, Inc. as soon as possible upon award of new business and must be submitted prior to PPAP submission. The supplier, as part of the PPAP submission, shall provide confirmation to Pontiac Coil of their acceptance of the ELV data. Refer to section 4G - PPAP Requirements for further explanation of the submission requirements. Suppliers of current product may also be requested to submit IMDS data.

Pontiac Coil, Inc. accepts two formats for suppliers to submit ELV data:

1 Direct entry into IMDS via the internet (www.sdsystem.com) - Preferred
2 Spreadsheet providing the required IMDS information

PPAP requirements apply to all suppliers who provide Pontiac Coil, Inc. with direct materials or components used for production. Any time a change is approved, a PPAP will be required prior to production start-up. Level 3 submission is required unless otherwise specified by Pontiac Coil, Inc. Please refer to the (latest released) AIAG Production Part Approval Process guidelines for further information regarding the requirements for submission.

A Quality System Requirements

Any supplier that does not have their TS/ISO certifications, must have their material testing done at an independent accredited laboratory (A2LA, ISO/IEC Guide 25 or equivalent). When submitting PPAP, material certifications need to have a copy of the certificate of registration that confirms the company providing the material certification is TS/ISO certified or is an accredited laboratory.

B Conformance Plan

When a supplier PPAP submission is not in compliance to requirements, dimensional discrepancy, incomplete, or documentation, the supplier must complete and submit a Supplier PPAP Conformance Plan (ENG002) with their PPAP submission in order to be considered for interim approval.

C Control Plans

One of the key documents in the PPAP submission is the supplier's control plan. Control plans are written descriptions of the process controls. The control plan should describe each step of the manufacturing process, including receiving, in-process operations, inspection, testing and shipping. All significant / key process parameters and product characteristics must be addressed in the control plan. The supplier's control plan must be approved by Pontiac Coil, Inc. prior to production start-up.

D Process Capability

Suppliers must demonstrate statistical capability to all key / significant characteristics with supporting data. Short term capability required is a Ppk > 1.67. 25 subgroups of 4 (minimum) of data are required to evaluate initial capability and control. This may be modified where there are multiple cavities requiring study. (Customer approval required)

E Measurement System Analysis

Measurement and test equipment that is measuring key / significant characteristics must have gage studies performed and included in the PPAP submission. Gage studies are to be performed according to the Chrysler/GM/Ford Measurement System Analysis Reference Manual. Gage variation is calculated as a percentage of specification. Note: 4th edition requires that a gage R&R be submitted for all measuring/test equipment referenced in the control plan. (Supplier must submit a gage R&R for EACH controlled dimension on the control plan)

All gages that are identified in the control plan (even those that are not connected to doing SPC) must have gage studies performed to determine the variation in the measurement system. These studies must be completed using the techniques as specified in the AIAG Measurement Systems Analysis Guidelines. If the percent of variation exceeds 20%, the supplier must obtain approval from the Pontiac Coil Quality Department.

F Statistical Methods

Statistical methods must be used by suppliers to first establish initial capability (Ppk), or process potential, and then on-going, to measure process performance (Cpk) over time.

Both process potential and on-going capability are determined using data from control charts. The control chart must demonstrate statistical control before capability can be calculated. In addition to control charts, histograms may also be used to evaluate the distribution of the process. Once analysis of the data reveals a stable process, the capability index (Ppk / Cpk) can be calculated. Suppliers should consult the Statistical Process Control reference manual distributed by AIAG for more information.

G Critical / Key Product/Process Characteristics (KPC) Including ***"Product Safety"*** related Products and Manufacturing Processes

Denotes Key Safety Characteristic to be addressed in Control Plan, FMEA's and Standard Work/Operator Instructions. Key Safety Characteristics require 100% inspection or demonstration of ongoing process capability per requirements outlined in the PCI Supplier Quality Manual.

Denotes Key Product Characteristic, Statistical Process Control is required as outlined in the PCI Supplier Quality Manual

Denotes Significant Characteristic to be addressed in Control Plan, Initial Process Capability to be demonstrated and evidence of continued compliance (Capability Study(ies)) may be requested per requirements outlined in the PCI Supplier Quality Manual.

Denotes features to be checked by appropriate measurement practices and must be addressed in Control Plan.

I Tooling / Equipment Qualification

Suppliers are responsible for providing a qualification plan for all production equipment used to produce product for Pontiac Coil, Inc. All equipment, including fixed machinery, fixtures, jigs, dies, molds and gages must be proven out prior to production start-up and PPAP submission. Qualification must include: run at rate, capability studies, Gage R&R studies, preventive maintenance plan, operator instructions, inspection procedures, and other pertinent information and data.

J Process Controls

Suppliers must plan their manufacturing processes and carry out production in a controlled environment. This is demonstrated using:

Process Flow
Equipment Layout
Operator Instructions
Documented Procedures
Workmanship Criteria
Early Production Containment

Experience tells us that no matter how much planning we do, or how carefully we attempt to prevent problems, we can always expect the unexpected. There is no place where this is more true than in the production environment. With customer expectations higher than ever, it is essential that we protect our customer from the unexpected. This is what Early Production Containment (EPC) is all about. Protecting customers while we validate the process and the effectiveness of our controls. EPC requires putting additional controls in place, temporarily, while we ensure zero defects.

EPC is to be used for all pre-production and production requirements that require the PPAP approval process.

EPC is defined as : Extraordinary efforts to ensure "zero defects" during the launch of a new product or process until exit criteria has been satisfied. Focus is on high RPNs on the PFMEA….redundancy in detection while collecting process data to establish effectiveness of process controls. The purpose of EPC is to document the supplier's efforts to gain control of its processes during start-up and acceleration, so that any quality issues that arise are quickly identified and corrected at the supplier's location and not at Pontiac Coil's manufacturing location.

Supplier Responsibility: (The supplier must perform the following)

A Establish a containment process that includes the following:

1 Identification of the person responsible for the containment process

2 Development of a pre-launch control plan consisting of additional controls, inspections, audits and testing to identify non-conformances during the production process. Depending on the dominant factor and the production process (set-up, machinery, fixture, tooling, operator, material/components, preventive maintenance, climate), additional controls include:

a Increased frequency/sample size of receiving, process and/or shipping instructions, including KPCs, SCs and high RPN numbers.
b Mandated sub-supplier containment and/or sub-supplier support/audits
c Addition of inspection/control items
d Enhancement of process controls, such as error proofing
e Increased involvement and visibility of top management
f Off-line containment area

3 Prompt implementation of containment/corrective action when non-conformances are discovered.

B Document the pre-launch control plan, including functional testing and error proofing, using the control plan format referenced in the Advanced Product Quality Planning (APQP) reference manual. The development and documentation of the pre-launch control plan is expected to occur during the APQP process. The pre-launch control plan is not a substitute for the production control plan, but is above and beyond the production control plan and is used to validate it.

C Utilize the EPC plan for all pre-production requirements (e.g., pilot run) for the production ship quantity or duration specified by Pontiac Coil, Inc. Typically, the specified production quantity or duration is intended to reflect the customer's ramp-up plan to full production rate.

D To indicate compliance with EPC requirements, attach to each shipping label, a green dot signed by a designated management representative (typically highest level manager at the production facility). The green dot should have a diameter of 1.25 to 2 inches.

Exit Criteria

Supplier will be eligible to exit EPC after meeting the criteria listed below:

1 Must obtain Pontiac Coil (SQA) approval to exit EPC. Self-exit is not allowed.
2 A minimum of 5 production set-up runs must be completed to ensure enough data to validate production set-up process is stable and will not contribute to future spills.
3 A minimum of 5000 pcs must go through EPC activity
4 Off-line sort must yield zero defects before supplier will be eligible to exit EPC.
5 Must submit pareto analysis to Pontiac Coil Quality Department weekly to validate EPC activities.

4J Process Sign Off

New suppliers, new products and/or new processes may require suppliers to participate in a Process Sign Off (PSO). This is to ensure that the production process is in place as documented in the PPAP, and is capable of meeting production requirements. The PSO will generally be conducted with a team from Pontiac Coil, Inc. at the supplier's facility and is lead by a member of the Quality Department. The team will review the process, controls, documentation, and witness a production run. Prior to the scheduling of the PSO, the supplier needs to use the Process Sign Off Checklist to perform a self-assessment. Any deficiencies found during the PSO will require documented corrective action.

Section 5: Supplier System Requirements

5A Document Control

Suppliers must maintain a system to control the release, change, and use of documents defining engineering and quality requirements. Suppliers must also employ a system to ensure that all appropriate personnel are made aware of the customer requirements.

All supporting documents must be updated when changes are made to drawings and/or specifications. This includes:

Control Plans
Work Instructions
Inspection Instructions
FMEA(s)

5B Quality Records

Suppliers must maintain a system for control of quality records. Records must be legible, dated and easily retrievable. Quality records must be retained according to the guidelines defined in the IATF 16949

5C Supplier Quality and Monitoring

Pontiac Coil requires suppliers to establish a system for selecting and monitoring all tiers in their supply chain, based upon those suppliers ability to meet Pontiac Coil quality requirements. Pontiac Coil reserves the right to approve subcontracted services. Subcontractor facilities shall not be used as a shipping point without prior written authorization from Pontiac Coil.

5D FIFO

Suppliers are responsible to ship materials on a first-in-first-out basis. An inventory system must be in place that assures proper stock rotation. The supplier must provide suitable storage for all materials. The supplier must maintain a minimum of two days of finished goods on hand at their facility.

5E Lot Control and Traceability

All suppliers to Pontiac Coil shall have an effective lot definition and traceability procedure. The lot number will be a unique identifier that allows traceability of the delivered product down to the raw material. The lot definition shall reflect all significant processes influencing the component/material. Suppliers shall ensure that their lot traceability system maintains its integrity throughout the entire extended supply chain, including not only raw material, but also purchased components and processes.

Lots must only be assigned one lot number. Lot numbers must be printed on the carton label: failure to do so can result in a rejection and affect the suppliers PPM performance.

5F Operation Standards

Suppliers must maintain a documented system of operating standards that define the method of work, and establish quality requirements/criteria in the clearest possible manner.

5G Non-Conforming Material

Supplied material found to be defective at Pontiac Coil will be returned to the supplier at their expense. All rework and sorting resulting from the defective material will also be performed at the supplier's expense. Pontiac Coil will issue a Nonconforming Material Report (NMR) when product is received that does not meet specification. The supplier is required to submit corrective action in the 8D format, within 10 business days.

Initial response and containment action must be communicated within 24 hours. (D1-D3) All corrective action responses (CARS) must be submitted using Pontiac Coil's CAR form. This form will be e-mailed to the supplier any time a rejection occurs.

In the event that a nonconformance, attributed to the supplier, causes interruption of production, line shutdown, or a product recall, the supplier shall be responsible for the costs associated with the effects of the nonconformance in which such items have been assembled.

5H Receiving Inspection

Suppliers shall have a process in place to ensure material that is used in their production process is not used or processed until it is verified as conforming to specified requirements. One or more of the following methods can be used:

Receipt and evaluation of statistical data
Receiving inspection and / or testing
Second or third party assessments or audits of subcontractor sites
Part evaluation by an accredited laboratory
Subcontractor warrant or certification (must include test results and be used in combination with one or more of the other methods).

5I In-Process Inspection

Suppliers are responsible for verification of their product, typically by inspection and testing, at appropriate points in the process to validate conformity to specifications. Location and frequency will depend on the importance of the characteristics and ease of verification during processing. Consideration should be given to:

Set-up, start-up and first piece inspection
Operator inspection on-line
Automated inspection
Poka-Yoke (mistake proofing)
Fixed inspection stations at intervals throughout the process
Statistical monitoring of processes via SPC

In-process verification must be planned and documented in the control plan, and include the equipment used to perform the inspection/test. If verification of the product in-process is not physically possible, economically practical, or feasible, then verification must be done on the final product.

5J Final Inspection

Final inspection shall be planned and conducted according to the control plan and verify that the finished product meets Pontiac Coil's specifications. When acceptance sampling is used to determine acceptability of product, the supplier must use a C=0 Sampling Plan. If a non-conformance is found during the sampling inspection, the supplier must sort the lot 100% prior to shipment.

5K **Dock To Stock Suppliers**

Dock to Stock is a term used to describe suppliers whose product **(Part number specific)** is consistently shipped to Pontiac Coil defect free. Pontiac Coil does not perform incoming inspection on parts qualified for Dock to Stock status. Achievement of this status should be the primary goal of all Pontiac Coil suppliers. Once your organization has been notified they have obtained **Dock to Stock** status **(Part number specific),** the supplier must affix labels to each carton/container/reel of that part number stating "Dock to Stock" prior to shipping. The label must be positioned directly below or next to the carton label that displays the suppliers part number and lot traceability information. This ensures that Pontiac Coil shipping/receiving personnel can move these parts directly to the production line without staging them for incoming inspection. **(Failure to comply with our labeling requirement may result in a SCAR. See section 5G in this manual.)**

Occasionally, a supplier may have a quality issue that disqualifies them from remaining on Dock to Stock status. Disqualification from Dock to Stock status will occur once a supplier receives a formal Supplier Corrective Action Request (SCAR) from Pontiac Coil. When a supplier SCAR is issued, the supplier must start the requalification process from the beginning and immediately **STOP** labeling their product **(Part number specific**) with "Dock to Stock" labels.

5L **Training**

Suppliers must have a documented training program implemented that addresses the training needs and requirements of all personnel who perform tasks that affect quality.

Training is essential for the achievement of quality objectives. The supplier should plan for the following:

Identification of individual training needs and verification of training
Procedures for establishing that personnel have received adequate training
Training in process control, data collection, problem identification, and improvement

Training should be given to technical personnel to enhance their contribution to the success of the quality management system. Attention should be given to the following:

Process capability
Statistical sampling
Data collection and analysis
Problem solving techniques
8D type processes

Section 6: Corrective Action Reporting (CAR)

Pontiac Coil has developed a corrective action report (CAR) that is to be used by suppliers when a rejection has occurred. The CAR will be e-mailed to suppliers as notification corrective action is required.

Once the CAR has been issued, suppliers must respond with D1 through D3 within 24 hours.

A completed CAR is required within (10) ten business days. Note: In instances where Pontiac Coil's customer has been affected by a non-conformance, the window to provide a completed CAR may be significantly reduced.

Suppliers must provide "electronic" copies of all documents that were updated as a result of the CAR exercise. (Generally all documents listed in the "prevention" section of the CAR.) Closure to the CAR will not be considered until all documents are provided (e.g. PFMEA, control plan, operator instructions, etc.).

Section 7: Glossary

Active Part: A part currently being supplied to Pontiac Coil, Inc. The part remains active until tooling scrap authorization is given.

Control Plan: reference AIAG, Advanced Product Quality Planning Manual

Early Production Containment (EPC): sometimes referred to as safe launch, EPC requires suppliers to employ additional or increased controls or increased detection during the launch of a new product or a significant change in the supplier's process.

FMEA: Failure Mode and Effect Analysis: An analytical technique utilized early in the design process to recognize and evaluate the potential failure of a product or process in order to prioritize improvement actions. FMEAs are used for both the product design and process development.

Key / Significant Process Characteristics (KPC): Product and process characteristics designated by the customer or selected by the supplier through knowledge of the product or process. KPC's are generally designated using a special symbol or other distinctive written identification. KPC's identify specific critical characteristics that are process driven or controlled and therefore require SPC to measure process stability, capability, and control for which quality planning actions shall be included in the control plan.

PPAP: Production Part Approval Process: (reference AIAG Reference Manual 4th Edition) Submissions made to the customer based upon small quantities of parts taken from a normal production process and cycle time. Minimum run is generally 300 parts, unless otherwise specified by Pontiac Coil. PPAP must be approved by Pontiac Coil, prior to production start-up. *PPAP is required on all new products / processes, and when a change is made to an existing product or process.*

Process Change: Any change in the process that could alter its capability to meet design requirements. This includes new, different, relocated, or rehabilitated production tools or equipment. Other types of process changes include: any change in subcontracted products or services, changes to rework methods, any change in sequence of operation, and any change in materials.

Process Flow Chart: A picture of the flow of materials through the sequence of steps required to make, move, store and inspect it.

Special Characteristic (SC): An SC designates a dimension or feature that impacts form, fit or function. All SC designated characteristics must be included in the control plan and show an initial process capability Ppk > 1.67. Unless a supplier is certified (dock-to-stock), all KPCs and SC are checked at incoming inspection.

Corrective Action Report (CAR): Formerly known as "8D", is a system used to document all steps taken to correct a non-conformance found by either Pontiac Coil or one of its customers.

Important Characteristic (G): The " G " (inside an octagon) designates a dimension or feature that impacts form, fit, or function. All G designated characteristics must be included in the control plan, but do not require initial capability studies.

Section 8: Document History

Rev Level	Rev Date	Description
F	4/7/2006	PPAP Requirements (pg 14) - Revised paragraph G, Critical/Key Characteristics
		Glossary (pg. 18) - Revised Special Characteristic (SC); Added Important Characteristic (G)
G	8/28/2006	3B, Supplier Rating System, Past Due 8Ds (CARs) (pg. 8) - Revised to add "(The only exception is when the Pontiac Coil SQA has approved an extension request by the supplier)" and to add "You may lose up to 10 points for late response. Suppliers who are unresponsive to requests for 8Ds can be placed on new business hold."
		3B, Supplier Rating System, Demerit Points (pg. 9) - Revised to add "non-responsive to past due 8Ds (CARs)"
H	1/18/2007	**Section 2, Supplier Requirements** Pg 5 - Revised 2B, New Supplier Qualification (changed "shall" to "one or more of the following will occur") Pg 5 - Revised 2C, New Supplier Assessment Criteria (changed "will perform a site audit" to "may perform a site audit") (removed "suppliers who score below 3 points in one area may be asked to submit corrective action prior to new product award") (changed "supplier monitoring system" to sub-supplier monitoring system")
		Section 3, Supplier Performance Pg. 9 - Revised 3B, Supplier Rating System - Delivery (changed "rated on communication to production buyers" to "rated on premium freight occurrences") (added "suppliers that have a premium freight occurrence in the current quarter will lose 5 points")
		Section 4, Product Launch Requirements Pg 11 - Revised 4C, Pre-Launch Requirements (removed "signed EPC on file at Pontiac Coil, Inc.") Pg 12 - Revised 4F, IMDS Requirements (changed "electronic submissions via AIAG End-of-Life Reporting Tool" to "spreadsheet providing the required IMDS information" Pg 13 - Revised 4G, PPAP Requirements, paragraph E, Measurement System Analysis (changed "3rd edition" to "4th edition")
I	4/22/2008	**Section 2, Supplier Requirements** Pg 5 - Revised 2B, New Supplier Qualification Pg 5 - Revised 2D, Terms and Conditions Pg 6 - Revised 2F, Quality Requirements and Defective Material Chargebacks Pg 7 - Revised 2H, Transportation Policy
		Section 3, Supplier Performance Pg. 11 - Revised 3C, Poor Performance Presentations Pg. 11 - Revised 3D, Continuous Improvement
		Section 4, Product Launch Requirements Pg 11 - Added 4B, Requests for Quotation Pg 11 - Revised 4C, Prototype Fabrication Pg 12 - Revised 4E, Design Phase Requirements Pg 12 - Revised 4F, Tooling Requirements
		Section 5, Supplier System Requirements Pg 18 - Added 5K, Dock to Stock Suppliers
J	**7/29/2015**	**Administrative Charge:** Space rental of $500/day for all in-house sorting activities. One time charge of $450 for internal management fee of sorting process setup.
K	**9/11/2017**	**Update to meet IATF 16949:2016**