



# Remy Incorporated Supplier Manual

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## 2.0 PREFACE

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### 2.1 *Forward*

The purpose of this manual is to describe the Remy Inc. Supplier Management procedures and Supplier Quality requirements used to help achieve the quality mission at Remy Inc. Remy Inc. considers its suppliers as being an integral part of the Remy Inc. Quality System.

By selecting only those suppliers which can fulfill the quality requirements set forth in this manual, Remy Inc. can remain confident that the materials and services supplied to Remy Inc. will be world class in Quality, Value, and Responsiveness and help us achieve our fundamental objective of Total Customer Satisfaction.

2.1.1 Inspection – Remy Inc. reserves the right to enter Seller's facility and at reasonable times to inspect the facility, goods, materials and any property of Buyer covered by this order. Buyer's inspection of the goods, whether during manufacture, prior to delivery or within a reasonable time after delivery, shall not constitute acceptance of any work-in-process or finished goods. Additionally, the supplier shall ensure access to any / all sub-contractor facilities used in the manufacture of the product as delivered to Remy Inc..

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### 2.2 *Company Profile*

Remy Inc. designs and manufactures starting motors and alternators for light duty cars and trucks as well as heavy duty trucking applications. Remy Inc. also remanufactures both heavy duty and light duty starting motors and alternators for aftermarket sales.

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### 2.3 *Our Vision*

Our vision is to be the global leader in energy conversion for the transportation and engine industry.

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### 2.4 *Remy Inc. Intent*

Our intent is to be a growing and exciting global organization

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### 2.5 *Remy Inc. Objectives*

**Growth** – Be the leading global supplier for starters, alternators and next generation technologies,

**Quality** – Be the highest quality global supplier in our market segments,

**People** – Be the employer of choice in every global business location,

**Profitability** – Be the lowest cost global supplier of starters and alternators and generate industry leading profits.

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### 2.6 *Remy Inc. Supplier Quality Policy*

The Supplier is ultimately responsible for the quality of the products they deliver to Remy Inc.

- 100% Conforming parts (Zero (0) PPM)
- 100% On-time schedule compliance, every time
- 100% Quantity in full

## 3.0 PROCUREMENT REQUIREMENTS AND INFORMATION

The following sections outline Remy Inc.'s Supplier Management objectives and departmental responsibilities as well as other information related to the procurement process.

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### 3.1 *Purpose, Application, and Scope*

A fundamental objective of Remy Inc., Inc. is to provide high quality, low cost products and services which exceed customer expectations.

It is the intent of Remy Inc. to develop mutually beneficial, long term relationships with suppliers that display a strong dedication to continuous improvement philosophies, support Remy Inc.'s Supplier Management initiatives, and achieve competitive advantages in the areas of quality, price, delivery, and technology.

This manual identifies and outlines Remy Inc.'s Supplier Management function. It also specifies quality system and quality performance requirements that current, as well as, potential suppliers must meet in order to supply Remy Inc. with products and/or services. Additional quality requirements may be specified on Remy Inc. drawings, specifications, and/or purchase orders.

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### 3.2 *Remy Inc. Department Responsibilities*

The main departments associated with the procurement function include Supplier Management and Supplier Quality Assurance, as well as Engineering, Manufacturing, and Materials. Specific departmental responsibilities are outlined in the following five sections.

**3.2.1 Supplier Management** (Commodity Managers/Buyers) – owns the Supplier Selection and Business award process. Commodity Managers assume responsibility for all supplier relationships for the company except as reserved by policy for other departments within Remy Inc.. Along with the principal purchasing responsibilities of cost and delivery, this includes engineering issued design and change control. It also includes joint participation with Quality Assurance and Engineering in administering their responsibilities and policies relating to procurement activities. Supplier Management leads the Global Sourcing Team process which gives final approval concerning the sourcing of parts to outside suppliers.

**3.2.2 Supplier Quality Assurance** – plays a supporting process role in the procurement process. Supplier Quality Assurance participates on all Global Sourcing Teams and establishes all supplier quality requirements. In addition, Supplier Quality Assurance is responsible for establishing and monitoring all product quality submissions (PPAP) as well as supplier performance monitoring. Supplier Quality Assurance is also authorized to prevent the awarding of business with suppliers not in compliance with the minimum quality standards and to restrict the use of nonconforming materials or equipment as appropriate. If a supplier is found to be noncompliant, the Supplier Quality department will request and document supplier corrective action, verify those actions taken by the supplier, and report the above requests and actions to the appropriate corporate departments.

Supplier Quality Engineers are stationed at each manufacturing location to provide reactive supplier quality support. Supplier Development Engineers are located at locations world wide to support efforts to improve the supply base & review PPAP's.

**3.2.3 Engineering** – plays a supporting process role in the procurement process. Engineering represents an integral part of the Global Sourcing Team and is authorized to prevent business from being awarded to suppliers incapable of complying with purchase order and/or engineering specifications. Engineering will review all potential new sources for technological innovations relative to product and process design, prototyping capabilities, use of CAD systems for compatibility with Remy Inc. CAD systems, product development lead times, etc.

Principal engineering responsibilities include product design, development of standards for materials, processes, manufacturing and measurement, as well as maintaining master records of engineering activities relative to the internal notification and distribution of those standards and any associated engineering changes.

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### **3.2 Remy Inc. Department Responsibilities, continued**

**3.2.4 Manufacturing** – Is responsible for day to day operations and product realization. They also are a member of and support the Global Sourcing Team

**3.2.5 PC&L** – Is responsible for scheduling production/rates, procuring / transit of supplier's parts and delivery of finished product to our customers. They are also a team member of the Global Sourcing Team.

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### **3.3 Quotation Guidelines**

Quotations for business must be submitted to a Remy Inc. Commodity Managers/Buyer. Each quotation must include cost, both component & any associated tooling including a complete breakdown of costs, process flow charts, delivery, and quality guarantees. Quality standards are communicated to the supplier through "[Statement of Requirements](#)" which is attached to the initial Request for Quote (RFQ).

It is Remy Inc.'s intent to ensure that purchased and manufactured products are produced at a defect free level. The quotation process is an essential element in achieving this objective. Therefore, during quotations Remy Inc. welcomes recommendations from potential suppliers which will improve PPM performance. Actions and/or recommendations to improve PPM as well as cost may be derived from such activities as feasibility analysis, contract reviews, and value engineering/value analysis activities. These recommendations will be considered based on their ability to achieve QVR objectives relative to quality, delivery, price, and Technology (See Request for Quotation (RFQ) Process).

#### **Request for Quotation (RFQ) Process**

- [RFQ sent to Potential Suppliers](#)
- [Deadline for supplier quote delivery is listed on RFQ](#)
- [Quotation received from supplier.](#)
- [Quotation must include the following at a minimum:](#)
- [Quote \(using Remy Inc. Quote Sheet\)](#)
- [Timing Chart \(MS Project Sheet\)](#)
- [Cost Breakdown on all quotes, including tooling, gages, etc... \(if applicable\)](#)
- [Financial information for Supplier](#)
- [Evaluation of quotations & suppliers](#)
- [Negotiations with prospective suppliers](#)
- [QVR audit\(s\) of potential suppliers](#)
- [Global Sourcing Team review and approval](#)
- [Business Award](#)

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### **3.4 Supplier Self-Evaluation Survey**

All requests for quotations from potential or proposed new suppliers will be sent a "Supplier Self-Assessment Survey" (ref. Appendix C). The potential or proposed new supplier must review, complete, and return a copy of the "QVR Self-Assessment" with the quotation submittal to the applicable Remy Inc. Commodity Managers.

The potential or proposed new supplier must be third-party certified to ISO/TS 16949 by an accredited certification / registration body; a copy of the Certificate of Registration must be submitted with the survey.

Questions regarding clarification of any of the supplier requirements contained within the manual should be directed to the applicable Remy Inc. Commodity Managers.

☞ [Appendix C - Supplier Self-Assessment Survey](#)

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### **3.5 Advance Purchasing**

Remy Inc. will enter into strategic Advance Purchasing agreements with key suppliers. Through such agreements we will utilize the innovative design expertise of our suppliers to create new products faster, with less waste, & at a lower cost. Advance Purchasing permits completing the necessary design-to-production tasks using parallel rather than sequential processing. This will allow design changes to be incorporated into the Remy Inc. drawing stage before production release, thereby eliminating the need for Engineering Change Notices (ECNs) after production release. Advance Purchasing allows the prototype/development source to become the production source (Reference Appendix A for flow diagram). Advance Purchasing achieves QVR objectives through improved quality, reduced cycle times, and increased value to the customer from the resulting lower costs.

#### **3.5.1 Supplier Contact**

Generally, a Remy Inc. Commodity Managers/Buyers will contact approved suppliers, when appropriate, in writing notifying them of Advance Purchasing opportunities. A concept will be provided and suppliers will assist in the development of the related design details based on their experience and available technologies. The objective is to provide a part that meets the performance standards indicated. This methodology provides an opportunity for suppliers to demonstrate their innovative and/or state-of-the-art technical abilities.

Requirements will be communicated by the appropriate Commodity Team to all potential Advance Purchasing partners. Requirements will include, but are not limited to, the following: amount of design assistance required, validation procedures, tooling considerations, estimated volume requirements, timing issues, cost estimates, and confidentiality considerations. If the supplier(s) initially contacted and Remy Inc. can agree on the requirements outlined, a Advance Purchasing supplier will be chosen and development will begin.

Throughout the development process, Remy Inc. Engineering and Supplier Quality Assurance will monitor the supplier's ability to meet the outlined requirements. Should Engineering feel that the requirements are not being met, the supplier will be reviewed by the Commodity Team and corrective actions will be outlined as necessary. Should the supplier fail to satisfactorily complete the corrective actions, the supplier will be removed from the Advance Purchasing project with out any cost being incurred by Remy Inc.. If the supplier meets all requirements outlined, that supplier will be awarded the contract to supply the Advance Purchasing part(s).

The Supplier is **REQUIRED** to have, and maintain, access to the World Wide Web as well as commercial/business grade email. This will be the sole means of transmitting Corrective Action Documents and revised prints (via FTP)

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### **3.6 Idea Submission**

Suppliers are encouraged to frequently submit ideas that will reduce the total cost of their supplied product(s). A "starter sheet" of continuous improvement issues may be given by Remy Purchasing listing several ideas suppliers may wish to consider. All Cost Reduction Proposal ideas should be submitted to the Supplier's Remy Inc. Commodity Manager/Buyer for evaluation and distribution to the applicable commodity team. Use of the "Request for Permit" form shall be used to document the idea(s).

 ["Request for Permit"](#)

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### **3.7 Warranty Reduction**

Warranty reduction is the coordinated responsibility of all areas including design, manufacturing, assembly, service, etc. To meet this responsibility, it is mandatory that Remy Inc. and its suppliers jointly contribute to the design, production, and delivery of defect free parts that will perform beyond the expected life of the final product.

If supplier created problems do occur, as determined jointly by Remy Inc. and a supplier analysis of field data, the supplier must determine the root cause of the problem and implement corrective action in an expeditious manner. In addition, Remy Inc. reserves the right to execute a charge-back for all supplier responsible warranty expenses.

## 4.0 SUPPLIER DEVELOPMENT PROCESS

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### 4.1 *Supplier Evaluation (QVR) Audit*

At Remy's discretion and in conjunction with third-party certification (or second-party verification), a technical assessment of the supplier's capabilities may be requested; with on-site verification by Remy personnel as deemed necessary.

If a Supplier Evaluation is requested, supplier selection is then dependent upon the supplier receiving an "Approved" rating in accordance with the process guidelines (see note below). Records of the results of evaluations, and any necessary actions arising from the evaluations. will be maintained.

Note: "Approved" rating requires: a) overall score of 70% or greater; b) individual section scores no less than 70%; c) no 'Major' (M) element scoring less than seven (7); and d) all applicable elements, scoring less than (<) seven (7) MUST be resolved (closed) prior to sourcing.

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### 4.2 *Quality/Cost/Delivery/Technical Support*

The potential supplier must clearly demonstrate a competitive advantage in the areas of quality, cost, delivery, and technical support that directly improves Remy Inc.'s ability to exceed QVR objectives.

The potential supplier should be able to demonstrate highly stable and capable processes that support exceptional quality and delivery performance for a minimum of one year of volume production of products used in an automotive or equivalent application.

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### 4.3 *Supplier Contract Requirements*

4.3.1 Remy Supplier Manual - in addition to the requirement for third-party certification to ISO/TS16949, suppliers shall be compliance to the requirements set forth within this document.

4.3.2 Ship Schedule Compliance - all production material must be delivered 100% on time to scheduled releases, pulls, etc., and/or as mutually agreed between Remy Inc. and the Supplier. All production material must comply with all specified requirements (e.g. dimensional, functional, performance, process, material, etc.), as defined by the Remy Inc. design record(s).

4.3.3 Production Part Approval - Documentation submitted for the Production Part Approval Process (PPAP) must be submitted 100% on-time to the agreed upon time frame. Any change in submission date requires written agreement from Remy.

During the Production Part Approval Process (PPAP) the Supplier shall submit a packaging plan, including proposed method of identification, to Remy Inc. Supplier Management for approval by Remy Inc. Packaging Engineering.

The supplier shall inspect/test for compliance to all applicable Remy Inc. supplied Remy Inc. drawings and specifications. Remy Inc. Product Engineering and Supplier Quality Assurance, utilizing the PPAP Process, shall approve the frequency, and procedure, of the inspection/test.

4.3.4 Special Characteristic Designations - Remy Inc. uses the (◇) symbol on drawings to indicate key product and/or process characteristics. Any characteristic designated by this symbol is a control item, affecting the functional performance of the product, and requires controls per the "Remy Inc. Supplier Manual".

4.3.5 Deviations or Changes - no deviations or changes from the materials and processes used to produce product verification samples are allowed without prior written approval from Remy Inc. Product Design Engineering and Remy Inc. Supplier Quality Assurance. Requests for temporary changes must be approved using the Remy Inc. ["Request for Permit"](#), i.e., for a one time or temporary change. All long term or permanent changes must be approved using the Remy Inc. ["Supplier Request for drawing Change"](#).

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### 4.3 **Supplier Contract Requirements, continued**

4.3.6 Tooling and/or equipment maintenance - tooling used by the supplier that is owned by Remy Inc., shall have and maintain a current tooling maintenance record. This record shall include (1) number of cycles and (2) scheduled maintenance and (3) unplanned maintenance. The supplier will notify Remy Inc. Purchasing and Supplier Quality immediately in the event of loss or damage. Tooling refurbishments or replacements, as well as applicable PPAP submissions, must be scheduled well in advance of end of tool life to maintain uninterrupted shipments.

4.3.7 Lot traceability - lot traceability must be provided from the point of usage back to the point of manufacture and to raw material usage. Traceability of lot numbers must be maintained with each shipment of production material to Remy Inc..

4.3.8 Remy or Customer-approved sources - the use of Remy Inc. designated or Remy Inc. customer designated subcontractors does not relieve the supplier of the responsibility for insuring the quality of subcontracted parts, materials, and services.

4.3.9 Third-party Inspection - for those suppliers who have major and/or repetitive quality issues, Remy Inc. reserves the right to call in an independent 3<sup>rd</sup> party to assist those suppliers in developing and implementing the required corrective and preventive actions. All 3<sup>rd</sup> party expenses will be the responsibility of the supplier. Major and/or repetitive quality issues are defined as the following:

- Any issues that result in nonconforming material being delivered to a Remy Inc. customer as a result of nonconforming material received from a Remy Inc. supplier.
- Any issues which result in a Remy Inc. or Remy Inc.'s customer manufacturing/assembly plant shutdown.
- Any issues which result in Remy Inc. incurring warranty expenses.
- Any issues which result in a supplier being identified by Remy Inc. Supplier Quality as a top problem supplier

☞ Remy Inc. Purchase Order, terms and conditions

☞ Remy Inc. Supplier Quality – Statement of Requirements

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### 4.4 **Supplier Performance Measurement (SPM) & Rating Model**

Our Supplier Quality Goal is Zero (0) PPM (complete conformance to Remy print requirements) and perfect on-time delivery. All suppliers are expected to achieve this goal.

**The supplier is required to have a business grade email system and access to the web. Further the supplier is required to utilize the Remy SCAR/ SPM web system to document corrective actions and obtain and monitor their SPM Monthly Score.**

<https://www.remyinc.com/APPsupplierquality/LogIn.aspx>

Remy Inc. will apply this common approach to monitor supplier performance for all suppliers related to Remy Inc. internal or external customers. Our Supplier Quality Assurance team will provide a monthly SPM score based on weighted measures of all Remy Inc. suppliers. The plant resident Supplier Quality Engineer, SQE, will issue a Supplier Corrective Action Request (SCAR) to a supplier providing non-conforming product & require a immediate containment and 24 hour interim corrective action. This process will help us identify our value-added suppliers for future sourcing decisions. At the plant level, we will measure, track, & report supplier performance in the following terms:

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#### 4.4 **Supplier Performance Measurement (SPM) & Rating Model, continued**

##### 4.4.1 SPM Calculation

$(PPM\ SCORE + DOWNTIME + DELIVERY + SORT/REWORK + \# SCARs) \times RESPONSE\ RATING \times DISCOVERY\ LOCATION = SPM$

##### 4.4.2 Definitions

Delivery	- Number of occurrences for late, over, under, or early
Downtime	- Actual downtime labor/man hours
PPM	- Parts Per Million (Number of non-conforming parts ÷ Number of parts delivered) x 1MM
PPM Score	- Parts Per Million (PPM) X 0.10
Response Rating	- Allow SQE to input their perspective on Suppliers responsiveness
S.C.A.R.	- Actual number of Supplier Corrective Action Requests (SCAR) issued
Sort/Rework	- Labor man/hours for sort/rework
Discovery Location	- the location within the Remy manufacturing process at which the defect was discovered (e.g.: before point of use, during manufacturing, final test, at customer, warranty)

##### 4.4.3 Response Rating

###### **RESPONSE RATING**

- 0.5
  - A) Pro-active in following Remy Inc. procedures
  - B) Communicates non-conformities prior to problem arriving at Remy Inc. internal and/or external customer facility
  - C) Meets timing requirements on or before target dates
  
- 1.0
  - D) Meets Remy Inc. procedures when requested
  - E) Initiates containment once discrepancy is discovered
  - F) Meet timing commitments
  - G) Provides on-site support when required
  
- 1.5
  - H) Fails to meet Remy Inc. procedures
  - I) Slow to acknowledge non-conformities & requires excessive communication to initiate actions
  - J) Fails to meet timing commitments
  - K) Supplier is placed in Controlled Shipment Level 2
  
- 2.0
  - L) Supplier continuously fails to assume containment of non-conforming materials within 24 (local)/48 (international) hours
  - M) Supplier is on New Business Hold

##### 4.4.4 Discovery Location

###### **DISCOVERY LOCATION**

- 1.5 Before point of use
- 2.0 During manufacturing
- 3.0 Final test
- 4.0 At customer
- 5.0 Warranty claim

Supplier Performance Measurement monthly results will be available on the web beginning in third quarter 2004. The supplier is responsible for obtaining these reports and taking corrective actions. SPM monthly data will be available for examination by the supplier on the 10<sup>th</sup> day of the next month.

## 5.0 SUPPLIER QUALITY MANAGEMENT SYSTEM

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### 5.1 Requirements

Remy Inc. requires suppliers of direct parts, material, or services to have a quality management system that conforms with the elements of the ISO/TS 16949 standard (ref. Remy Supplier Manual). Verification of conformity may be demonstrated by a valid certification by an accredited third-party certification/registration body, or through a qualified second-party audit process.

Note: excludes suppliers to aftermarket remanufacturing operations, bulk materials, brokers, warehouses, distribution centers (where no value is added to product). Packaging, labeling, sorting, sequencing, or inspection, are not included as value-added processes.

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### 5.2 Quality Records

The supplier's quality system shall be documented through the use of quality records. Records shall be kept for the following reasons:

- To provide assurance that the quality requirements for the product/service were satisfied.
  - To show the degree of implementation and success of the quality system.
  - To provide a basis for measurement and feedback essential for continuous improvement.
- 

### 5.3 Policy

The supplier shall have the following policies regarding quality records:

- Records shall be clearly identified and traceable to either the product or service involved, or to the quality system activity that they document.
  - Records shall be filed, indexed, and maintained in a manner that provides for safe storage and ready access.
  - Records shall be an accurate and truthful representation of actual events, documented in a timely manner.
  - Records shall be dated and initialed or signed by personnel responsible for the documented outcome or activity.
  - Personnel involved in collecting data for records should be provided with instructions and training to the degree necessary to ensure that the records are generated correctly and are legible.
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### 5.4 Product Documentation

The following documents, where applicable, must be retained for a minimum period of the length of time that the part is active for production and service requirements plus one year:

- PPAP submissions; which includes, but is not limited to: Control Plans, Failure Mode Effects & Analysis (FMEA's), Material Certifications (Traceable to Specific Lots of Material), Processing Certifications, i.e., Heat Treat, Plating, etc., Inspection Reports (Receiving, In-process, and Final Audit), Statistical Quality Data, Test Results
- Rejection Notices
- Analysis of Returns and Corrective Action
- Returned Product PPM Levels
- Problem Corrective Action Reports
- Sub-supplier Quality Data

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## **5.5 Statistical Techniques**

### Application

The Supplier shall use the statistical methods outlined in the AIAG Guidelines and TS16949 to foster process control & defect prevention, to assess machine capabilities & levels of quality, and to identify areas for quality improvement. ISO9004 may be used as a reference by suppliers wishing to achieve the highest level of quality system effectiveness.

The use of statistical techniques is required for all print items designated with the Remy Inc. symbol ◇ occurs beside a feature, specification or note. Using 100% inspection does not relieve the supplier from monitoring and maintaining process control for the item(s) with ◇.

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## **5.6 Customer-specific (Remy Inc.) requirement(s):**

### 5.6.1 Scrap of set-up and first piece inspection parts

Remy Inc. will no longer allow any supplier to mix set-up or first piece samples from any operation into normal production parts. This practice has led to many quality spills in the past, causing Remy Inc. and our suppliers, to sort and contain parts and whole product. As a result, Remy Inc. has lost countless hours, wasted time, and money trying to contain an issue caused by a supplier including an unfinished or improperly finished set-up or first piece sample. We will no longer accept this practice. All suppliers are required to have a procedure in place and adhere to this practice.

### 5.6.2 Special System Requirement:

Set-up samples and first piece inspection samples from each operation (ie manufacturing process step) are to be retained until the product is completely finished and passed final inspection. At such time as the production parts are deemed approved for shipment to Delco Remy, the set-up and first piece inspection samples are to be scrapped. They may never be shipped to Delco Remy.

## 6.0 PART PRINT AND SPECIFICATION MAINTENANCE

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### 6.1 *Award of Business*

It is the responsibility of Remy Inc. Purchasing personnel to provide to the supplier the most current, approved, and released design record(s) for the product or material to be provided upon award of business.

Upon receipt of the business 'Award Letter' the supplier shall confirm with Remy Inc. Purchasing that they have the most current approved and released design record(s) (e.g. print, specification, etc.) for the product or material to be provided.

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### 6.2 *Current Revision*

All suppliers are required to keep and maintain an accurate and current file of all the latest applicable Remy Inc. drawings and specifications received from Remy Inc. for each current production part or raw material supplied to Remy Inc.. Applicable specification requirements include, but are not limited to, the following:

- Part prints
- Test specifications
- Process specifications
- Material specifications
- Purchasing specifications
- Packaging specifications

Remy Inc. may periodically monitor adherence to this requirement during supplier visits and/or audits.

#### 6.2.1 Engineering Change(s)

It is the responsibility of the Remy Supplier Quality organization to distribute the latest released revision of products and/or materials, for direct-materials purchased externally to the organization. The supplier will receive formal notification of engineering changes from Remy; which will include PPAP resubmission requirements (submission level and date submission is required).

The supplier is required to acknowledge receipt of the change notification and communicate their PPAP submission commitment date back to the responsible Supplier Development Engineer (SDE) shown on the notification. A copy of the Engineering Change Notification shall be included in the PPAP submission documentation.

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### 6.3 *Industry Standards*

It is the supplier's responsibility to obtain and maintain the current revision of any and all standard industry specifications (e.g.: ASTM, SAE, AISI, IEC, NEMA, JIS, ISO, etc.). Customer-specific (Remy) specifications will be provided by Remy Inc.

## 7.0 ADVANCE PRODUCT QUALITY PLANNING (APQP) REQUIREMENTS

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### 7.1 **Advanced Quality Planning**

Advanced quality planning is required on all new or changed products. Advanced quality planning must include a review of all Remy Inc. drawings and applicable specifications as well as other Remy Inc. supplied documentation to assure products are designed for manufacturability and assembly at a defect free level and to assure that these same products meet quality and reliability requirements. Elements contained in advance quality planning activities shall include but not be limited to:

- Key product/process characteristics
- Feasibility studies
- Process flow diagrams
- FMEA
- Control plans
- Packaging plans

Suppliers are encouraged to refer to the AIAG Advanced Quality Planning & Control Plan Reference Manual for instruction, guidelines, and forms to be used when developing the Advanced Quality Planning.

#### 7.1.1 APQP Status Report

Regular reporting to SQA is required at intervals specified by the assigned Supplier Quality Engineer or Supplier Development Engineer. Suppliers are required to use the Remy Inc. Supplier APQP Status Report form. Items shall be delivered for review as directed by the APQP Status Report form.

- [“APQP Status Report form”](#)

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### 7.2 **Feasibility Study**

Feasibility studies shall be conducted by suppliers on Remy Inc.'s new and/or changed products to assure design, manufacturing, and assembly feasibility. These studies consist of a thorough review of Remy Inc. drawings and purchase order specifications to determine the actions necessary to prevent the manufacture of nonconforming products, assure the products will be delivered on time at the specified quantities and cost, and to assure the products will be reliable. Remy Inc. expects and encourages suppliers to make recommendations for changes that will assure the highest product feasibility.

A study that achieves a design of high feasibility should be based on the following:

- Available technologies that can achieve 5 sigma process capability ( $Cpk = 1.67$ ).
- Enables competitive pricing.
- Allows conformance to all engineering requirements at forecast production schedules.

Feasibility evaluations and recommendations for improvement should be based on historical data from relevant processes and the availability of current and/or emerging technologies.

All recommendations from suppliers for improvements should be submitted to the applicable Remy Inc. Commodity Managers to obtain engineering concurrence and revision to Remy Inc. documents prior to submission of quotes and/or samples for production part approval.

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## 7.2 Feasibility Study, continued

### 7.2.1 Process Mapping & Team Feasibility

- Upon receipt of a 'Request For Quote' (RFQ) from the customer, the Supplier must assemble their Supplier New Product Team (SNPT).
- The SNPT reviews the Remy Inc. print & requirements
- The SNPT develops a list of concerns based on previous like projects & experience
- SNPT develops a "Preliminary Process Map" showing key process steps & identifying any gaps in process capability or gaging
- SNPT determines if the project is feasible & completes the APQP Team Feasibility Sheet
- Team Feasibility Analysis & signoff must be accomplished during RFQ. The Supplier's organization must be confident that the project is viable & within the capability of organization
- Supplier returns completed quotation to Remy Inc. with concerns or exceptions noted on the quotation
- If no concerns or exceptions are noted, the supplier is expected to fully meet quality, print & delivery requirements.

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## 7.3 Preliminary Process FMEA

- When the supplier is awarded the project, an APQP tracking mechanism must be initiated (see [Appendix F: APQP Status Report form](#)).
- The supplier should have a copy of the DFMEA from the customer detailing the design concerns and functions. This is used to derive key PFMEA elements.
- The Supplier New Product Team (SNPT) must develop a "Preliminary PFMEA" to guide design and control of the component manufacturing process. The Preliminary PFMEA shall be delivered as directed on the Remy Inc. Status Report form. PFMEA becomes the living document delivered at PPAP.

### 7.3.1 Preliminary and Final PFMEA Key Questions for the Team:

- What can go wrong?
- What has gone wrong in the past?
- How severe were the problems?
- How often did the problem occur?
- What are the high-risk operations?
- Is there past experience?
- Is the process "unknown territory"?
- What can be done to prevent, minimize or eliminate the risk?
- Can the failure be detected thru inspection? Is gaging capable?
- Is mixing of like product possible?
- Are there error-proofing possibilities?
- Is traceability and identification fail-safe?
- What new items / processes are necessary to produce the product or assure its' quality?
- Have all steps of the process been reviewed by the PFMEA?
- NOTE: Some programs will require the supplier to deliver a Preliminary PFMEA to Remy Inc. for review.
- Use of the AIAG PFMEA Manual 3<sup>rd</sup> Edition and scoring criteria is required.

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#### **7.4 Process Failure Mode and Effects Analysis (PFMEA)**

The PFMEA is developed from a process flow diagram which lists all of the process steps beginning with the receipt of raw material to packaging and shipment of material to Remy Inc.. The PFMEA is to be used to determine and identify where potential failures in a product and/or process could occur, the effects of those failures, the actions necessary to eliminate or reduce the probability of the potential failures from occurring, and to provide documentation of the failure identification and failure elimination process.

Suppliers are encouraged to refer to the AIAG Potential Failure Mode and Effects Analysis Manual for instructions, guidelines, and forms to be used when completing and submitting FMEA's.

For Remy Inc.parts, PFMEA RPN's of greater than "125" require a corrective action to be initiated.

Use of the AIAG PFMEA Manual 3<sup>rd</sup> Edition and scoring criteria is required.

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#### **7.5 Process Development**

- Supplier New Product Team (SNPT) develops the new process using the Preliminary Flow and PFMEA.
- Pre-Launch Control Plan is developed using the prelim Flow and PFMEA.
- Process is refined during trial runs and Flow, PFMEA, GP12 and Control Plan are amended as weaknesses are found and corrected.
- If uncorrectable / incapable items are found, submit a request for Print change at this time.
- Preliminary (short run) capability is monitored and processes improved or control plan amended.

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#### **7.6 Process Finalization**

- Once the process is stable, the process may be considered for full PPAP run
- Process Flow is production intent
- PFMEA is ready and high RPN's over 125 are assessed and corrected
- GP12 and Production Control Plan are verified as effective
- PPAP run is made with a minimum of 300 pieces
- Check and audit for Control Plan details
- Perform necessary inspections and capability studies
- Records of tests and inspections are available and maintained

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#### **7.7 PPAP Submission**

- Gather all inspection reports, lab reports, capability studies that were made during the run.
- Gather the APQP documents (Flow, PFMEA, GP12, and Production Control Plan).
- Prepare the Warrant, Request for Interim Approval (if necessary) and group with above to submit PPAP
- Suppliers are required to use the Remy Inc. PPAP Checklist to assure all documents and items are submitted.
- ["Remy Inc. PPAP Checklist"](#)

## 8.0 PRODUCTION PART APPROVAL PROCESS (PPAP)

PRODUCTION APPROVAL ON THE FIRST SUBMISSION ON OR BEFORE THE COMMITTED DATE!!

PRODUCTION APPROVAL ON THE FIRST SUBMISSION AND ON TIME!!

Production part approval from Remy Inc. will be required for new and/or changed parts and processes prior to volume production. Submissions to Remy Inc. are to be made in accordance with the Automotive Industry Action Group (AIAG) guidelines contained in the AIAG Production Part Approval Process (PPAP) manual. All Remy Inc. production material suppliers will be required to obtain a copy of the AIAG PPAP manual from the AIAG.

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### 8.1 *Parts Requiring PPAP*

PPAP submissions will be required for all OE and Service parts tooled for Remy Inc. or parts tooled by a Remy Inc. customer for use by Remy Inc. prior to first production shipment of product to the using Remy Inc. facility.

PPAP submissions will also be required for any commercial part specifically modified to conform to a Remy Inc. part number description and any part, process, material, or special requirements if specified by a Remy Inc. purchase order.

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### 8.2 *Parts Not Requiring PPAP*

- Non-manufacturing materials or materials used to support the manufacturing process which are not part of the user's end item, i.e., packaging materials, blank labels, etc.
- Parts and/or materials, which are controlled by industry specifications (i.e., Military Standards (Mil-specs), Underwriters Laboratories, etc.). Certificates of conformance may be required for verification of compliance to specifications.
- Off the shelf parts which are parts that are purchased from Remy Inc. drawings and specifications that are controlled by the supplier, i.e., source control Remy Inc. drawings in which the design is controlled by the supplier. Certificates of conformance may be required for verification of compliance to specifications.
- Chemicals and Adhesives. These may require certificates of conformance for verification of compliance to specifications upon delivery to Remy Inc. facilities.

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### 8.3 *Submission Levels and Timing*

#### 8.3.1 Documentation Requirements

All PPAP submission documentation packages, except for level 5, are to be submitted to the Remy Inc. Supplier Quality Assurance PPAP Coordinator. Suppliers may contact their Remy Inc. Commodity Managers or the Remy Inc. Supplier Quality Assurance Director to obtain information on where to submit the completed PPAP documentation. The types of documentation required, which will vary depending on the submission level, are listed below.

- The Warrant Form (CFG-1001) found in the AIAG PPAP manual or a computer generated exact facsimile must be used for all submissions.
- Material, Performance, and Durability test results, when required, must be submitted with the PPAP submission. Data should be less than 6 months old and should be obtained from an accredited laboratory or by a laboratory previously approved by Remy Inc.. Remy Inc. will automatically accept data from suppliers that use accredited laboratories. Recognized accreditation agencies include the American Association for Laboratory Accreditation (A2LA), and the Standards Council of Canada.
- Dimensional layout data should be provided for 3 parts for **every** dimension, specification and note on the Remy Inc. print. If more than one cavity, a complete dimensional layout is required on one part from each cavity. The parts must be randomly selected from a minimum production run of at least 300 consecutive pieces.

NOTE: Remy Inc. Supplier Quality Engineer must agree to any quality less than 300 pieces and any arrangement that deviates from any of the above requirements.

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### **8.3 Submission Levels and Timing, continued**

#### 8.3.1 Documentation Requirements, continued

- PFMEA's and Control Plans (reference AIAG Manuals on these topics).
- Process Capability Studies must be submitted for each Remy Inc. designated key product characteristic having a  $\diamond$  symbol. Process capability data must be taken from a minimum production run of 300 consecutive pieces. Short term studies using X-bar and R charts, per AIAG guidelines, should be based on 25 or more subgroups of data containing a minimum of 100 individual readings (use AIAG PPAP manual, section V, part D, page 8 , for  $P_{pk}$  index information relative to process performance acceptability requirements).
- Measurement system variation studies (Gage R & R) must also be submitted for each Remy Inc. (  $\diamond$  ) designated product characteristic (see the AIAG Measurement Systems Analysis reference manual).
- Engineering Change Notification: when re-submitting PPAP documentation due to a change in the design record revision level, a copy of the Engineering Change Notification document must accompany the PPAP submission documentation.

#### 8.3.2 Sample Parts

For a level 2 or 3 submission, each submission will require three sample parts (from each cavity for a multiple cavity tool) unless otherwise specified by a Remy Inc. Supplier Quality representative. All sample parts are to be visibly tagged and identified correctly as being "SAMPLE PARTS" using a bright orange tag firmly adhered to the container. The supplier name, part number, engineering change level, and traceable lot number should be visibly identified on the container label.

All PPAP sample parts are to be sent to the attention of the Remy Inc. PPAP Coordinator for verification.

➤ ["Sample Parts Shipping Labels"](#)

#### 8.3.3 Remy Inc. Verification at Supplier

Remy Inc. reserves the right to verify purchased product at the supplier's manufacturing location. When this occurs, Remy Inc. will utilize the level 5 PPAP for on-site PPAP approval.

#### 8.3.4 Customer Verification of Subcontracted Product

When required by Remy Inc.'s customer by contract, Remy Inc. will permit its customers to participate in verification of product from suppliers to Remy Inc.. Again Remy Inc. will utilize the level 5 PPAP for on-site PPAP approval.

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### **8.4 Submission Requirements**

In general all new parts will be submitted to level 3 (AIAG guidelines). All parts being submitted, after the initial PPAP approval, to document and approve process changes required to correct identified part problems and/or process problems found by the supplier, Remy Inc., or its customers should also be submitted to level 3.

Level 5 submissions, (on-site verification and approval at the supplier's manufacturing location by Remy Inc. personnel, i.e., Supplier Quality Assurance Engineer and/or engineering representative) must be requested well in advance of the required submission. Inspection, data analysis, and acceptance of the PPAP package must be completed by the supplier's personnel prior to the on-site visit.

The Commodity Managers will determine the date of PPAP submission and its associated level in consultation with the supplier, Remy Inc. Engineering, Remy Inc. Supplier Quality Assurance Engineer, and Remy Inc. Sales representative. These dates are to be planned in accordance with Remy Inc. new model development cycles, customer requirements, and supplier quoted lead times.

ALL submissions will be documented in English using AIAG forms for all items.

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### 8.5 **PPAP Expectations**

- The supplier shall be trained and understand the scope, definition, and purpose of the Production Part Approval Process, according to Remy Inc. requirements. **All forms used shall be AIAG approved and the PPAP shall be available in electronic media and documented in English.**
- The supplier will provide Remy Inc. with a completed; Level 3 PPAP, which complies with AIAG and this manual
- The supplier shall understand and deliver the requirements for the Interim Recovery Worksheet. The supplier shall understand they are responsible for expired interim dates, and resubmitting before that expiration date. Suppliers failing to submit prior to the expiration date will be scored negatively for SPM responsiveness and the PPAP will count as a “reject” for tracking and SPM.
- The supplier shall understand and deliver to the requirements for labeling, shipping and packaging
- Suppliers with multiple rejected PPAP’s will be placed on New Business Hold status

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### 8.6 **Comments on PPAP Submissions to Remy Inc.**

- Parts must have Full or Interim Approval prior to shipping to Remy Inc.. Under no circumstance should non-approved parts be shipped to Remy Inc.
- The interim recovery worksheet must be submitted to Remy Inc. with the PPAP submission.
- **“Interim Recovery Worksheet”**
- The interim recovery worksheet must identify all incomplete PPAP requirements, in detail. Blanket statements of non-conformance are unacceptable.
- Interim submission must include all PPAP requirements, except the non-conformance noted on the interim recovery worksheet.

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### 8.7 **Definitions of Remy Inc. PPAP Status Codes**

- **F** = Full approval. Supplier is authorized to ship production quantities.
- **LT** = Interim, pending Plant Trial Run (PTR) results. Upon completion of a successful PTR Supplier can only ship material to meet production requirements on a limited time and/or on a piece basis.
- **L** = Interim, pending PPAP documentation. This will also include “Class” identification. Supplier can only ship material to meet production requirements on a limited time and/or on a piece basis. Correction of PPAP issues is required or as specified in Remy Inc. Permit
- **R** = Rejected. No shipments allowed. Resubmission of PPAP required by date indicated on the notification.

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### 8.8 **Interim Approval Explanation of “Class”**

- **CLASS ‘A’** Parts are produced using 100% production tooling and meet Remy Inc. design record specification. However, not all production approval requirements have been met.
- **CLASS ‘B’** Parts are produced using 100% production tooling and require rework to meet Remy Inc. design specifications. Request for permit must be included for this interim classification.
- **CLASS ‘C’** Parts are produced using non-production (prototype) tooling and/or process, but meet Remy Inc. design specifications. Request for permit must be included for this interim classification.
- **CLASS ‘D’** Parts do not meet Remy Inc. design specifications. Request for permit must be included for this interim classification.
- **CLASS ‘E’** This class of interim is for the life of the tool. Request for permit must be included for this interim classification. (This class is Remy Inc. specific)
- Extension of interim approval – If an extension of time is required, the interim recovery worksheet must be re-issued, along with a new warrant, for the interim date to change.

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### 8.9 **Remy Inc. Supplier Notification of Part / Material Status**

- **“Supplier Notification of Part Status”**

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## 8.10 Interim Recovery Worksheet

### 8.10.1 Completion of the Interim Recovery Worksheet

Detailed instructions for completion of interim recovery worksheet (see [Interim Recovery Worksheet](#) )

- **Supplier name:** Name of supplier on the Remy Inc. purchase order
- **Supplier code:** N/A for Remy Inc.
- **Resubmission date:** New promise date or PPAP re-submission date. The supplier's commitment date to have the corrective action plan items completed and resubmitted to the Remy Inc. PPAP coordinator.
- **Interim expire date:** To be completed by Remy Inc. supplier quality
- **Application:** N/A for Remy Inc.
- **Part name:** Part name according to the Remy Inc. Remy Inc. drawing
- **Part number:** Part number according to the Remy Inc. Remy Inc. drawing, part number being submitted.
- **EWO#:** Engineering change number submitted, per Remy Inc. the Remy Inc. drawing
- **ECL:** Engineering change level submitted, per Remy Inc. the Remy Inc. drawing
- **ECL date:** Date of the engineering change level submitted, per the Remy Inc. Remy Inc. drawing.
- **Submission level:** Submission level 1 – 5 (on the warrant). Enter submission level determined by Remy Inc..
- **Kg wt.:** Enter the actual weight in kilograms, to three decimal places.
- **Sample number:** Number of samples received
- **Inspector/SDE/SQE:** Remy Inc. use only
- **Additional sample:** Additional samples required for lab
- **Pkg #:** Remy Inc. use only
- **Interim #:** Remy Inc. use only
- **Interim class:** Type interim class or circle the appropriate interim class, A, B, C, D, or E

**Status:** Enter the appropriate letter (A=Approved, I=Interim, N=Not applicable) for the reason for the interim

**Brief reasons:** Provide a brief reason for requesting an interim approval. Where applicable, specify if tooling modifications or other modifications were made.

**Issues/action plan (s):** List all issues applicable, and use additional sheets if necessary. Provide a corrective action plan with date of completion, when requesting for approval.

**GP-12:** Describe how early production containment will be used to document countermeasures offsetting interim issued listing on the interim recovery worksheet). If GP-12 is not used to document countermeasures, an explanation is required.

**Supplier:** Required supplier authorized signature. Also, print name and title, include telephone number and fax number.

**Customer approvals:** Remy Inc. use only

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## 8.11 Supplier Request for Remy Inc. Drawing Change

### 8.11.1 Remy Inc. Directed Changes

Remy Inc. suppliers will be notified by Remy Inc. Commodity Managers in writing of all Remy Inc. requested changes. Requests will be in the form of an official Remy Inc. documented request for quote, engineering change notice, and/or a revised Remy Inc. drawing.

Responses from suppliers must include impact on cost, delivery, tooling, quality (PPM), as well as any other items of importance. All responses will be evaluated to ensure that a mutually acceptable plan for

implementation is negotiated. A new or revised purchase order will be issued which will formally authorize implementation of the change. Suppliers are not to implement changes into production until formal written authorization has been obtained by Remy Inc. purchasing and, if required, PPAP approval has been granted.

#### 8.11.2 Supplier Requested Changes

Suppliers are not to incorporate any changes into production without prior written authorization by Remy Inc. Supplier Quality. Suppliers contemplating changes to design, manufacturing processes, materials, subcontractors, methods, procedures, and/or control methods are required to notify Remy Inc. Commodity Managers in sufficient time prior to implementation so that a plan can be developed and implemented for requalification.

Suppliers found implementing changes that have not been authorized by Remy Inc. Supplier Quality are subject to disqualification as a supplier and product rejection.

#### 8.11.3 Remy Inc. drawing Change Requests

Requested changes to Remy Inc. Remy Inc. drawings must be submitted to Remy Inc. Commodity Managers using the "Supplier Request for Remy Inc. drawing Change" (available at <http://www.delcoremy.com>). This form may be submitted in the event that it has been determined, with adequate supporting data, that the required process capability can not be achieved under the specified dimension(s), tolerance(s), or performance requirement(s). The supplier is responsible for completing the form, attaching the supporting data, and obtaining the necessary signatures for approval, i.e., the Remy Inc. Purchasing, Product Design Responsible Engineering, and Quality Engineering representatives. The form must be completed well in advance of the PPAP sample submission. Once the supplier's request for change has been approved, the form must be attached to the PPAP sample submission package at the time of submission to avoid rejection.

**["Supplier Request for Print Change"](#)**

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## 8.12 Requests For Permit

Suppliers requesting temporary relief from Remy Inc. Remy Inc. drawings, specifications, and/or procedures must submit to the Remy Inc. Commodity Managers a "Request for Permit" (available at <http://www.delcoremy.com>). The supplier is responsible for completing the form, attaching the supporting data, and obtaining the necessary signatures for approval, i.e., the Remy Inc. Product Design Responsible Engineering, Quality Engineering, and Supplier Quality representatives prior to PPAP approval and/or shipment of product.

### "Supplier Request For Permit"

#### 8.12.1 Procedure Permit Requests

Prior to PPAP submission, if a supplier deems it necessary to deviate from any of the PPAP procedures, i.e., 300 piece minimum production quantity, 1 piece dimensional layout from each cavity, etc., a "Request for Permit" form must be submitted for approval.

Suppliers will receive a copy of the original procedural "Request for Permit" form with Remy Inc. signatures as evidence of approval and authorization to proceed. The form must be attached to the PPAP submission package at the time of submission to avoid rejection.

#### 8.12.2 Part Permit Requests

If prior to PPAP submission, the supplier detects a minor discrepancy with the part or material, relative to full compliance with a Remy Inc. Remy Inc. drawing or specification, and the discrepancy does not affect part integrity (form, fit, function, appearance, or reliability), a "Request for Permit" form must be submitted for approval. The "Request for permit" form, in this case, is to be used to permit the supplier to obtain interim PPAP approval in the event that it has been determined, with adequate supporting data, that the required process capability cannot be achieved under the specified dimension(s), tolerance(s), or performance requirement(s) in the time required to obtain PPAP approval prior to start of production. A "Request for Permit" form shall only be used when there is high confidence that the required process capability can be obtained in a short time thereafter, and must be accompanied by a written corrective action plan.

The "Request for Permit" form may also be used to avoid lot rejections for parts already PPAP sample approved and in production if a minor discrepancy to a Remy Inc. Remy Inc. drawing or specification is detected during its manufacture by the supplier. As described above, a minor discrepancy is defined as a discrepancy that does not affect form, fit, function, appearance, or reliability of the part.

#### 8.12.3 Process Permit Requests

If the need arises to incorporate a change in manufacturing process prior to PPAP submission and approval, a formal request must be submitted to Remy Inc. Commodity Managers using the "Request For Permit" (available at <http://www.delcoremy.com>). The form is to be submitted with the box "Process" checked off. These types of changes are as follows:

- Materials
- Subcontractors
- Methods
- Procedures for cleaning, washing, de-burring, or other types of processing
- Control methods
- Use of new equipment
- Process design
- Tooling including relocation, refurbishments, etc.

Suppliers will receive a copy of the electronic "Request for Permit" form with Remy Inc. Permit number and approval date as evidence of approval and authorization to proceed. A new or revised PPAP submission will be required to obtain full approval of the requested change in the event that the change will be permanent. The form must be attached to the PPAP submission package at the time of submission for future reference.

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## **8.12 Requests For Permit**

### 8.12.3 Process Permit Requests, continued

Requests for permits are by exception only and must be followed up with a written corrective action plan. The supplier must specify lot, quantity, and/or time duration. Requests for permits that expire, i.e., exceed lot, quantity, and/or time duration limits will be cause for product rejection.

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## **8.13 Design Failure Mode and Effects Analysis (DFMEA)**

DFMEA's are not required for Remy Inc. PPAP Submissions, unless the supplier is design responsible.

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## **8.14 Process Flow Diagrams**

This is the diagrammatic depiction of the process, decision and inspection points. All processes and operations must be shown.

***Use of special operations, rework and/or salvage must be documented and approved during the PPAP process***

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## **8.15 Process Failure Mode and Effects Analysis (PFMEA)**

Analytical technique utilized by a manufacturing responsible engineer/team as a means to assure that potential fail modes and their associated causes/mechanisms have been considered and addressed.

Parallels and formalizes the mental discipline that an engineer normally goes through in any manufacturing planning process.

Required for all part numbers and components of assemblies.

Corrective Action is REQUIRED for RPN's greater than 125

***Use of special operations, rework and/or salvage must be documented and approved during the PPAP process.***

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## **8.16 Dimensional Results**

Must be performed on production parts with dimensional requirements to determine conformance with all relevant Remy Inc. design record specifications.

Remy Inc. requires three samples checked 100% dimensionally, with two samples to be submitted with the PPAP to Remy Inc., and the other sample to be retained by the supplier as a master sample.

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## **8.17 Material / Test Results**

- Report the summary of the results using the standard AIAG forms
- The tests must have been conducted within 30 days of the PPAP
- Inspection, Material, and/or Performance Standards must be included
- Include other evidence as necessary, e.g. micrographic photos, Remy Inc. drawings, actual raw test data, automated test data

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**8.18 Process Capability Study**

- Process Capability data must be taken from a significant production run of minimum of 300 consecutive pieces (PTR run)
- Any delay in the capability study, the explanation must be included on the request for interim recovery worksheet.
- If the study reflects that the part is not capable, the interim recovery worksheet must also be included with the PPAP
- Acceptance criteria is Cpk greater than 1.67 or Ppk greater than 2.00
- Ppk = Short term capability index (standard deviation is calculated using the individual values)
- Cpk = Long term. Process performance index (standard deviation is given one degree of freedom (n-1))
- Refer to the AIAG Statistical Process Control – SPC Manual for more information on evaluating stability

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**8.19 Key Product & Process Characteristic Requirements**

The diamond symbol (◇) is used by Remy Inc. on Remy Inc. drawings to indicate key product or process characteristics. Key product and process characteristics are defined as attributes of a component, material, manufacturing, and/or assembly operation which have been designated by Remy Inc. Engineering as being significant to part function relative to quality, reliability, and durability performance. Items identified or called out by key characteristics must be proven stable, capable, and with a short term process capability index (Ppk) of 2.00 or better. Proven process capability requires statistical evidence of a long term process capability index (CpK) of 1.67, unless otherwise specified.

Short term process capability studies (process potential studies) must be conducted prior to the start of production. These characteristics will be measured for Production Part Approval (PPAP) per AIAG guidelines. Special attention must be placed on these items in the Process Failure Modes and Effects Analysis (PFMEA), process control plan, and process instructions to ensure compliance to specifications and process controls. Quality records relating to these items with these symbols must be retained for a minimum period of 1 year after production ceases for all original equipment and original equipment service orders .

All key product and process characteristics are to be monitored. The method for monitoring these characteristics must be described and specified in the supplier's control plan. Variable characteristics will be measured by the supplier with both Cpk and attribute data being tracked on an ongoing basis. This data is to be available for review by a Remy Inc. representative upon request.

The use of key product and process characteristics is in no way intended to minimize the importance of other requirements. The supplier is expected to develop a complete quality system for all parts and characteristics, regardless of significance.

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**8.20 Gage R & R (Measurement System Variation)**

Reference the AIAG Measurement System Analysis Reference Manual for proper Method of analyzing the measurement system

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**8.21 Qualified Lab Documentation**

To be supplied when performance or material testing by an outside source is required

Outside lab must be accredited by a Third Party or Government agency

The supplier must supply a copy of the third party or Governmental Accreditation

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## 8.22 Control Plans (GP12)

- 'Early Production Containment (GP-12)' and 'Production' Control Plans are REQUIRED with each Level 3 initial submission. PPAP 's lacking the REQUIRED GP12 plan will be REJECTED.
  - Use the GP12 instructions to formulate the Early Containment Plan
  - Exit from GP12 to the Production control is defined in the procedure. All SCAR's must be closed prior to self-exit.
- [Early Production Containment](#)

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## 8.23 Control Plans (Production)

- The Production Control Plan is a living document & should be updated to reflect the addition/Deletion of controls bases on experience gained by producing parts
- A Production Control Plan is REQUIRED for all part numbers, including all components & finishes
- Refer to the AIAG Manual for examples of the Production Control Plan
- **A yearly 100% dimensional layout is required** to be performed and documented on the control plan. The results are to be available at anytime to Remy Inc. personnel. Any non-conformances found (other than those previously permitted) shall be reported immediately to Remy Inc. Supplier Quality.

### 8.23.1 Production Control Plan (general)

The product control plan is developed using information obtained from the PFMEA, feasibility studies, Remy Inc. drawings and/or specifications, etc. It is a written description of the systems and processes that have been developed and implemented to prevent the production of nonconforming material. Suppliers are required to identify the methods and controls used to monitor all Remy Inc. designated key product and/or process characteristics (◇) in their control plans. A single control plan may be developed for a family of parts produced by the same process provided that all unique characteristics are identified.

Suppliers are encouraged to refer to the AIAG Advanced Product Quality Planning and Control Plan Reference Manual for instructions, guidelines, and forms to be used when completing and submitting a product control plan.

### 8.23.2 Special Processes

Any special operation, process, salvage or rework processes must be shown, controls listed and documented within the process flow, PFMEA and control plans. **The use of unapproved special operations, processes, rework or salvage operations is PROHIBITED.**

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## 8.24 Product Submission Warrant (PSW)

- [Reference AIAG PPAP manual for the proper form](#)
- Include the standard PPAP warrant sheet (forms available from AIAG)
  - All information fields must be completed, including weight & special gage information
  - Warrant must be signed & dated by the supplier's authorized representative
  - Warrants & PPAP's for supplier-approved components of assemblies supplied to Remy Inc. are to be included
  - All supplier-performed operations are to be PPAP'd to Remy Inc.
  - The submission results must be completed & if non-conforming an explanation given, a request for interim approval, & recovery plan supplied
  - Declaration section must also be completed (se specific instructions)

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**8.25 Appearance Approval Report (AAR)**

If this is not applicable to your components, sign the reports & indicate "N/A" in the comments section

If applicable, complete the entire report, sign & date. Submit the completed form with the PPAP

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**8.26 Bulk Material Requirements Checklist**

As directed by Remy Inc. Supplier Quality

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**8.27 Sample Product**

- Remy Inc. requires the supplier to completely verify 3 PPAP samples & report the results
- The exception to 3 pieces is multi-cavity (more than 6 cavities) molds & dies in which case 1 piece from each cavity must be completely verified
- Each PPAP sample is to be identified (either by tag or PERMANENT marking) so that it may be linked to the specific layout & test report supplied with the PPAP
- Retain the MASTER & deliver the remaining as PPAP Samples

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**8.28 PPAP Master Sample**

- The supplier is to retain ONE of the pieces as the PPAP MASTER SAMPLE & deliver the remaining with the PPAP documentation
- For multi-cavity tools per direction from Remy Inc. Supplier Quality Engineer

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**8.29 Checking Aids**

- If special gages or fixtures are used to verify quality these must be documented in this section
- REQUIRED documentation consists of an engineering Remy Inc. drawing(s) of the gage or fixture & proof of calibration within the last month prior to PPAP
- Use of special purpose gages and/or fixtures must also be noted on the Product Submission Warrant (PSW) in the "Checking Aid No." field (see items 9 & 10 in the Warrant instructions)

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**8.30 Record of Compliance**

Remy Inc. recognizes and accepts the Global Automotive Declarable Substance List (GADSL), developed by the Global Automotive Stakeholders Group (GASG), as the defining authority for identification and definition of restricted and/or reportable substances that expected to be present in a material or part that remains in a vehicle at the point of sale. The supplier is responsible to obtain the current listing; it can be found at: <http://www.gadsl.org/>

- Reporting of any of restricted and/or reportable substances listed is MANDATORY; and is to be done via the International Material Data System (IMDS), at [www.mdssystem.com/index.jsp](http://www.mdssystem.com/index.jsp), which is a repository for this information. A hard-copy of the data input is to be included with each PPAP submission.
- 8.30.1 The General Motors specification GMW3059, and used by Remy Inc., also sanctions the GADSL specification; however also incorporates a customer-specific table for a limited number of substances. Within the IMDS application it is possible to specify the specification to which the material is to be evaluated against. In cases where the delivered product is intended for a GM facility, Remy Inc. reserves the right to require that the any restricted and/or reportable (declarable) substances be evaluated per the GMW3059 thresholds.
- Failure to report any /all restricted and/or reportable substances via IMDS will lead to immediate PPAP rejection.

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**8.31 Packaging / Identification Requirements for Production Parts**

Available on the web at <http://www.delcoremy.com>

ALL containers shall have labeling that complies with [Remy Label Standard](#)

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**8.32 Packaging Plan**

A packaging plan describing the method and type of packaging to be used to assure products can be handled, shipped, and arrive undamaged for productive use at the intended destination must be submitted to Remy Inc. packaging engineering. Packaging plans must be submitted to the Remy Inc. Commodity Managers for review and approval by Remy Inc. packaging engineer. Packaging plan submittal should be done prior to PPAP submittal.

Contact your Commodity Manager for detailed planning materials

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**8.33 PPAP / PTR Labels**

- These labels (PSDQSF-26) are to be used when submitting PPAP documentation that will fit into an envelope. [PPAP Shipping labels](#)
  - These labels (PSDQSF-22) are to be used when submitting PPAP documentation/samples that are in boxes, containers, or cartons [PPAP Sample Labels](#)
  - These labels (PSDQSF-20) are to be used when submitting Production Trial Run parts in boxes, containers, or cartons. ["PTR Shipping Labels"](#)
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**8.34 Remy Inc. Check list**

The form is a checklist that Remy Inc. uses to verify that all required information is contained in the PPAP as delivered from the supplier. All Suppliers are required to utilize this form and include a copy with the PPAP submission.

["PPAP Delivery Check List"](#)

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**8.35 Engineering Validation Disposition request**

The supplier is required to submit a request for Engineering Validation Disposition, using the corresponding form, to the Product Design Responsible Engineer (PDRE) to their review and disposition prior to PPAP submission. A copy of the completed form, dispositioned by the PDRE is to be included with the PPAP submission documentation.

## 9.0 CONTAINMENT AND CORRECTIVE ACTION

We are **requiring** from our supplier base, **increased responsiveness to nonconformance situations**:

1. That the Supplier arrange to have an authorized representative at our location within 24 hours to examine, help understand the nonconforming issue, and help develop a containment plan for our suspect stock locations. International suppliers (suppliers outside of the country where our plant resides) will have 48 hours to arrange to have a representative at our location if a local one is not assigned or available. During the time it takes for a representative to arrive at our facility, we will screen materials 100% (if necessary) to maintain production and deliver to our customer. *The cost of screening in Mexico will be \$4.60 USD/hr. These costs will be charged back to the supplier.*
2. After the 24/48-hour period, the supplier is responsible for setting up screening activities to maintain our production and delivery to our customers. Based on input from the SQA Team, Remy Inc. Materials Team and Remy Inc. Plant Management, the supplier may need to utilize any or all of the following options so that Remy Inc. maintains production and delivery to our customers.
  - a. Express shipment of 100% screened parts from the supplier's facilities.
  - b. Issue a purchase order to a localized screening company to continue screening parts. It is highly recommended the supplier supervise this activity with at least one of their own personnel so that defect items and rates may be directly communicated back to the plant of origin (Remy Inc. PERSONNEL WILL NOT ADMINISTER THIS SORTING FOR THE SUPPLIER). (The supplier may wish to utilize the company we have contracted for \$4.60 USD/Hr. This same rate will be extended to suppliers screening parts for Remy Inc. facilities. The supplier is responsible for issuing a PO to this company to continue the screening operations.)
  - c. Screen parts utilizing their own manpower.
3. That the Supplier help us to immediately identify and contain all suspect stock at Remy Inc. locations by identifying batch, serial or lot numbers affected so that we may quarantine and return the suspect material for 100% inspection by the supplier.
4. That the Supplier immediately identifies and contains all in-transit suspect stock BEFORE delivery to Remy Inc. locations. Screen this stock 100% for conformance and mark conforming parts and containers.
5. That the Supplier immediately identify and contain all stock on hand at the supplier location and screen this stock 100% for conformance marking conforming parts and containers.
6. That the Supplier will as soon as possible, deliver to Remy Inc. plants, 100% screened material to locations as directed by Remy Inc. Materials and Logistics personnel so that screenings operations at our facilities may be discontinued and non-conforming stock returned.
7. That the Supplier will within 24 hours provide initial Corrective Action Report and Return Material Authorization (RMA) with shipping instructions to Remy Inc. SQA. The RMA will be utilized to return all non-conforming or suspect material. Suppliers failing to provide the necessary RMA authorization after repeated calls and elevation to your plant management (we will elevate the issue to plant management (or owner) and our Purchasing Team in Anderson after the 24 hour time) will have materials returned via the Non-Conforming Material Notification and Corrective Action Request Number.
8. That the Supplier will remain in containment for 90 days following accepted proof of 7D irreversible corrective action.
9. Failure to effectively contain a quality issue will result in Controlled Shipment Level 2 containment actions or New Business Hold Status.
10. If the determination is made by both Remy Inc. and the Supplier that the parts are conforming Remy Inc. will not charge for any sorting or transportation costs.

We believe that this policy and action plan will greatly reduce Remy Inc. Production Downtime, back charges of Remy Inc. Production Downtime to the supplier, delays in material return (and debits to the supplier), mixing of non-conforming material, and re-occurrences of the non-conforming issue.

Our Plant Supplier Quality Engineers will be directly contacting each supplier by telephone to inform you of the non-conforming issue and it's relevance to our production quality. The SCAR will then be emailed (or faxed if the supplier's email is temporarily not working)

11. The supplier will be held responsible for any costs associated with they poor quality, including but not limited to:
- Sorting fee's to keep our production lines running
  - Containment and teardown of already built products
  - Scrap of productive parts as a result of teardown
  - Return of product from our customer
  - Customer charge-backs
  - Field campaigns to retrieve product already in use

### **Supplier Corrective Action Request (SCAR) Instructions**

**The supplier is required to have a business grade email system and access to the web. Further the supplier is required to utilize the Remy SCAR/ SPM web system to document corrective actions and obtain and monitor their SPM Monthly Score.**

<https://www.remyinc.com/SupplierQuality/>

## 10.0 MATERIAL FORECAST AND PULL PROCESS

Remy operates in a "PULL" environment. Our practice is to provide the following information to our suppliers:

- **Long Term Forecast:**  
Generally, this is the expected annual requirements. This serves the purpose of providing information for long-range resource and capacity planning.
- **Release (Forecast):**  
This information normally covers a four-month window, considering the first month as "firm" (defined as authorization to manufacture product), and the following three months as "forecast" (defined as authorization to procure raw material necessary for production). This serves the purpose of providing information necessary for shorter term, immediate manufacturing and resource planning. Some Remy locations provide this in monthly increments, and some provide it in weekly increments.
- **Pull Signal:**  
The pull signal is the only authorization to ship material. This pull signal is sent on either a daily, multi-daily, or weekly basis. The pull signal serves the purpose of providing immediate shipment instructions, including any shipment routing and/or special instructions.

Attached are samples of a Release / Forecast, and a sample Pull Signal form.

## 11.0 VENDOR OWNED MATERIAL PROGRAM

Remy is also providing a Vendor Owned Material (VOM) program for handling material with certain key vendors at our Mexico operations. (Note: This process will be expanded to other locations over time). For this process, we have provided a warehouse near to our Mexico manufacturing plants. Supplier store their material in this warehouse per terms negotiated with our purchasing department, and a third party logistics provider manages this warehouse and is responsible for inventory and transactional accuracy. Material in this warehouse remains the property of the Vendor, until it is pulled into the manufacturing plants.

For scheduling information within this program, the following information is provided:

- **Long Term Forecast:**  
Generally, the expected annual requirements. This serves the purpose of providing information for long-range resource and capacity planning.
- **Release / Forecast:**  
Not provided directly. Instead, we provide suppliers with a web site, where they have the ability to view, at any time, our expected requirements for their part number. In some cases, this will provide more visibility than in the standard process, as suppliers will be able to see all of the orders that are in our system, regardless of timing. This serves the purpose of providing information necessary for shorter term, immediate manufacturing and resource planning.
- **Pull Signal:**  
Again, not provided directly, instead, suppliers will also be able to see their inventory at the warehouse on the same web site, available at any time. The expectation is that the supplier will manage their inventory levels, within pre-determined ranges, using the information that is available on the web site. Supplier will also have visibility to the daily pulls of material to the plant, from the warehouse.

In addition, the supplier will have available contacts at Remy to discuss any issues that may arise.

[Forecast Example](#)

[Pull Example](#)

## 12.0 APPENDICES / FILES

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- Appendix A:** [Supplier Quality Statement of Requirements](#)
- Appendix B:** [Supplier Evaluation \(QVR\)](#)
- Appendix C:** [Supplier Self-Assessment Survey](#)
- Appendix D:** [Supplier Request for Permit](#)
- Appendix E:** [Purchase Order Terms & Conditions](#)
- Appendix F:** [APQP Status Report Form](#)
- Appendix G:** [PPAP Checklist](#)
- Appendix H:** [PPAP Document /Sample Labels](#)
- Appendix I:** [Plant Trial Run \(PTR\) Parts Label](#)
- Appendix J:** [Supplier Notification of Part Status](#)
- Appendix K:** [Corrective and Preventive Action Request Instructions](#)
- Appendix L:** [Interim Recovery Worksheet](#)
- Appendix M:** [Request for Drawing Change Form](#)
- Appendix N:** [Forecast Example](#)
- Appendix O:** [Pull Example](#)
- Appendix P:** [Engineering Validation Disposition request](#)
- Appendix Q:** [Early Production Containment \(GP-12\)](#)
- Appendix R:** [Run at Rate](#)
- Appendix S:** [Engineering Change Notification & Request for PPAP](#)
- Appendix T:** *ISO14001 Requirement for Plating, Heat-treat, and Coating*
- Appendix U:** *Declarable Substances (10505000) specification*
- Appendix V:** *Remy Packaging & Containerization*
- Appendix W:** *Remy Container Label formats*
- Appendix X:** *Remy IMDS Guidelines for Suppliers*
- Appendix Y:** *not used*
- Appendix Z:** *not used*

## CHANGE HISTORY

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<b>DATE</b>	<b>REVISION</b>	<b>DESCRIPTION</b>	<b>APPROVER</b>
<i>01-Aug-1997</i>	<i>1, August 1997</i>	<i>Supplier Handbook (initial release)</i>	
<i>21-Oct-2005</i>	<i>2, May 2005</i>	<i>Renamed Remy Inc. Supplier Manual (formerly 'Supplier Handbook')</i>	<i>J. Kingston</i>
<i>14-Oct-2009</i>	<i>3, March 2006</i>	<i>Revised and reformatted from 2005 Edition. Also loaded into Centric for document change control</i>	<i>J. Kingston</i>
<i>21-Dec-2009</i>	<i>4, November 2009</i>	<i>Revised to reflect requirement for sub-tier suppliers to be conforming to ISO/TS 16949 (ref. Sec. 5.1)</i>	<i>J. Kingston</i>
<i>21-Apr-2010</i>	<i>5, April 2010</i>	<i>Revised to reflect requirement for all applicable issues identified during Supplier Evaluation to be resolved prior to sourcing (ref. Sec. 4.1)</i>	<i>J. Kingston</i>
<i>08-Jun-2010</i>	<i>6, June 2010</i>	<i>Revised to reflect current threshold for RPN corrective action values (from 40 to 125)</i>	<i>J. Kingston</i>