

Supplier Quality Statement of Requirements

1. Supplier Quality Base Requirements:

- (From General Terms and Conditions) Seller agrees to participate in Buyer's supplier quality and development program(s) and to comply with all quality requirements and procedures specified by Buyer, as revised from time to time, including those applicable to Seller as set forth in Quality System Requirements QS-9000 or **Particular requirements for the applications of ISO 9001:2000 for automotive production and relevant service part organizations ISO/TS 16949**. In addition, Buyer shall have the right to enter Seller's facility at reasonable times to inspect the facility, goods, materials, documents and any property of Buyer covered by this contract. 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.
 - ◆ All suppliers are expected to supply parts to General Motors - **AVTOVAZ** with zero defects. **Parts shall meet all engineering specifications and function with no abnormalities according to intent.**
- Funding is to be identified in the initial quote and subsequent quotes to reflect error occurrence detection (poka yoke, error proofing devices, etc) and defect outflow prevention to customers. Controls implemented at a later date are the financial responsibility of the supplier.

2. ISO/TS 16949 or QS-9000 - Quality System Requirements

- All providers of a) production materials, b) production or service parts, or c) heat treating, plating, painting or other finishing services directly to General Motors - **AVTOVAZ** must be certified to ISO/TS 16949 and have a current certificate available demonstrating compliance to GM supplements. **All suppliers must be certified against ISO/TS 16949.**
- Suppliers not certified to ISO/TS 16949 or QS-9000, or those suppliers constructing or purchasing facilities to manufacture the parts being quoted, must include an outline of their certification attainment plan with their quote for further consideration. **Detailed plan should contain timing schedule achieving certification and should be approved by certification body.**

3. General Motors- **AVTOVAZ** Procedures and Reference Documents

- Suppliers are to adhere to the requirements contained in the following documents:

Advanced Product Quality Planning & Control Plan Reference Manual (AIAG)
Potential Failure Mode and Effects Analysis (FMEA) Reference Manual (AIAG)
Fundamental Statistical Process Control (SPC) Reference Manual (AIAG)
Measurement Systems Analysis (MSA) Reference Manual (AIAG)
Production Part Approval Process (PPAP) Manual (AIAG)
Key Characteristics Designation System (KCDS) GM-1805QN
GP-5 Supplier Quality Processes and Measurements Procedure GM-1746
GP-8 Continuous Improvement Procedure. GM-1747
GP-9 Run @ Rate GM-1960
GP-10 Evaluation and Accreditation of Supplier Test Facilities GM-1796
GP-11 General Procedure for Pre-Prototype and Prototype Material GM-1820
GP-12 Early Production Containment GM-1920
Fixture Standards Requirement GM-1925
GM Global Supplier Quality Manual GM-1927

4. Quality Planning Requirements:

- **APQP:** Suppliers must use an advanced product quality planning process that follows the GM APQP Project Plan (GM1927-1).

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- **Operator Training:** Training plan must address new operators and current operators performing new functions. Training status should be displayed in the area of the manufacturing process.
- **Error Proofing:** Suppliers shall implement error-proofing strategies for the control of materials, processes and labeling for all products provided to GM - AVTOVAZ. Supplier shall implement error proofing techniques to ensure that mistakes are detected and corrected before becoming a defect (i.e. make it impossible to produce defective items even if an error occurs). Implementation of error proofing is to be measured by "% Error Proofed." % Error Proofed is the percent of total steps in the manufacturing process which have been adequately error proofed. The supplier must error proof to a level where it is not possible to ship defective products to GM - AVTOVAZ.
- **Traceability:** A Traceability scheme shall be developed in accordance with regional and divisional requirements. Traceability scheme may include manufacturing date code and lot control. Items to be traced shall be determined in during the APQP process.
- **Verification of Customer Used Features:** Customer-used part features (examples: fit, form, function, mating surfaces, etc.) shall be incorporated in the PFMEA, process control plan, layered audits, and error/mistake proofing. Additional items to be checked shall be defined during the APQP process. These features should be verified at a frequency of 100%.
- **Inspection Fixtures and Gages Requirements:**
 - ◆ Supplier to assume the gage construction orientates the part in vehicle position unless Supplier Quality approves a deviation.
 - ◆ All customer monitored APQP parts shall have gage designs in line with GM - AVTOVAZ gage design and approved by the Supplier Quality Engineer or the appropriate customer gage approval group prior to the start of fixture construction (for your regional requirements, contact your supplier quality engineer). Gage designs shall incorporate approved GD&T datum schemes and gages/fixtures must be capable to dimensionally evaluate parts.
 - ◆ Supplier shall have hand apply fixtures for sub-datum KPC's and openings where assembly plant or sequencer/subassembler will install something that impacts a final vehicle specification (e.g. trim plates, extension panel, grilles, glove box door, etc.).
 - ◆ Supplier shall have the ability to check a completed assembly. Sub-contractors shall also have the ability to check component parts. Any cubing or build fixture shall have the ability to demonstrate fit to adjoining parts and attachments.
 - ◆ Appropriate functional testing and final inspection to ensure product performs as designed under actual vehicle conditions.
 - ◆ Supplier shall ensure that fixtures are procured in a timely manner to meet major program benchmarks (i.e. first shots, GP-11 events, Functional evaluations, and PPAP.) Supplier shall, at a minimum, have a CMM (coordinate measurement machine) holding fixture available for the inspection of first parts off prototype and production tooling (unless otherwise agreed with the customer).

5. Quality Control Requirements

- **Layered Audits:** A documented layered audit plan shall exist with a minimum frequency of once per shift (unless otherwise agreed with the customer). Non-conformities shall be addressed immediately and corrective action shall be documented. Audit plan shall include multiple levels of management. Site leadership shall verify compliance to the documented plan.
- **Containment:** All non-conforming and suspect material must be controlled. Method must be clearly defined. Visual controls should be implemented. All non-conforming material must be segregated and identified. GP12 shall be implemented during launch. Upon request of GM - AVTOVAZ additional levels of proactive containment may be required. Should a problem occur, suppliers are required to implement effective and immediate spill containment and comply fully with GP-5 requirements and the controlled shipping that may result.
- **Quality Performance Metrics:** Each Supplier's Senior Management shall commit to maintain and continuously improve quality. GQTS (Global Quality Tracking System) monitors performance data for PPM, PRRs, Controlled Shipping Level I and II, Major Assembly Plant Disruptions, and QS-9000, ISO/TS16949 and ISO14001 Certifications. Suppliers shall monitor their quality performance, on-line, through GQTS. (Until GQTS is not implemented at GM-AVTOVAZ all the metrics are maintained manually by Supplier Quality personnel) All GM – AVTOVAZ suppliers are required to have access to GQTS.
- **Production Quality:**
 - ◆ All suppliers are required to have effective manufacturing practices and procedures to ensure a continuous flow of defect free parts into GM - AVTOVAZ production facilities.

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- **Current Product Improvement Process (CPIP):** Suppliers shall actively participate in the timely resolution of problems identified by GM - AVTOVAZ's CPIP. Suppliers shall provide appropriate corrective action documentation and project status updates as requested.
- 6. Advance Problem Solving Requirements:**
- Suppliers are required to demonstrate their capability to solve complex problems using advanced problem solving techniques such as the "Red X" system at GM - AVTOVAZ.
- 7. Production Support Requirements:**
- **On-Site support during pre-production and launch:** Upon request of SQ or GM - AVTOVAZ Plant, Supplier will provide on-site support during all pre-production build phases and production launch activities.
 - **Supplier contacts for all shifts:** Supplier shall designate a specific supplier representative that will support each of the GM - AVTOVAZ Plant's shifts. At a minimum the supplier designate should have the responsibility to:
 - ◆ Implement immediate countermeasure to contain discrepant parts and to confirm that defective parts are not shipped to GM - AVTOVAZ Plant.
 - ◆ Approve GM - AVTOVAZ Plant's/SQE's requests for rework and sort.
 - ◆ Coordinate and provide resources to rework and sort parts.
 - ◆ Provide sub-assemblies / components for required repair, related to quality issues.
 - ◆ Provide clear information regarding any defective parts in-route to GM - AVTOVAZ Plant (how to identify defect, disposition guidelines).
 - ◆ Coordinate special delivery of certified OK parts.
 - **Quality data:** Supplier must provide quality-related data (e.g. historic inspection, first time quality, reject data) to GM - AVTOVAZ upon request. This data may be required to determine trends and to root cause quality problems at the GM - AVTOVAZ Manufacturing or Assembly Plant.
- 8. Tier 1 Responsibilities (including suppliers of complex systems/sub-assemblies)**
- 8.1** The tier one supplier is responsible for implementing and adhering to AIAG and GM - AVTOVAZ requirements (see section 3)
- for all components of the assembly including directed buy parts unless otherwise specified by the procuring division (Details see table 'directed buy RASIC chart' attached). GM - AVTOVAZ may, at their discretion, assign an SQE to work with the tier one's SQE for the purposes of learning, inputting, and concurring on component related issues.

Directed Buy RASIC Chart:

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	GM - AVTOVAZ	Tier 1	Tier 2 & Directed Supplier
Specifications	R System Spec.	R Detail Spec.	-
Sourcing	R (Tier 1 & Select Tier 2 Components)	I/R (Tier X subsupplier)	
Contract	R (Tier 1)	R (Tier X)	
Quality	A	R	
Warranty		R	
Product Liability	R (Vehicle System)	R (Subsystem)	S
Testing / Validation	R (Vehicle System)	R (Subsystem)	
Logistics / Scheduling Responsibility	R (Tier 1)	R (Tier X)	
Payment	R (Tier 1)	R (Tier X)	
APQP Responsibility	A	R	S
Packaging Responsibility	R (Tier 1)	R (Tier X)	
PPAP Responsibility	A (Tier 1)	R (incl. Tier X)	S
Run @ Rate Responsibility	A (Tier 1)	R (incl. Tier X)	S
Engineering Change Coordination	A	R	S
Support Build and Launch at Assembly Plant		R	S

R: Responsibility
A: Approve
S: Support
I: Inform
C: Chart

8.2 Minimum Quality Requirements FOR MODULE SUPPLIERS

8.2.1 Capacity Management

1. Assembly / Module supplier(s) will own responsibility to manage capacity of tiered sub

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suppliers (incl. directed buy) between (including GM - AVTOVAZ service part requirements), including the management of bottlenecks. This requires that the Assembly / Module supplier(s) will together agree on, daily, weekly, monthly capacity of tiered suppliers of total Buyer business scope for all build requirements.

2. Assembly / Module supplier(s) must manage all tiered suppliers (incl. directed buy), component parts availability required in assembly to meet Buyer schedules for vehicle assembly plant build requirements.

8.2.2 Quality

3. Assembly / Module supplier is responsible for the quality and management of tiered sub suppliers (incl. directed buy), and has to ensure the implementation of related part specific SQ-SOR's.
4. Assembly / Module supplier(s) shall conform to all Buyer Quality procedures, process and performance targets notified in writing, which at the date hereof includes QS 9000, ISO/TS 16949.
5. Buyer may inform the assembly/module supplier of any deficiency in the assembly services. The assembly/module supplier must remedy any deficiency in the assembly service at its own cost.
6. If, during Assembly or quality control, the Buyer finds assemblies delivered are not of appropriate quality or have been mis-sequenced, the Buyer will inform assembly/module supplier promptly about it. Assembly/Module supplier shall immediately ensure replacement of assemblies to a location at the Plant specified by the Buyer, so as to prevent any production delays.
Assembly/module supplier shall store assemblies of inappropriate quality separately.
7. The Buyer will use the GP-5, Problem Reporting and Resolution Process set out in GQTS/VDDP for coordinating issues with assembly/module supplier who shall abide by the Outcome following said GP-5 process.
8. APQP information for Module and Tiered suppliers (incl. directed buy) like APQP timing, open issue sheet and validation plan have to be communicated to GM - AVTOVAZ.

8.2.3 Warranty

9. Assembly / Module supplier is responsible for warranty of tiered sub suppliers (incl. directed buy).
10. Assembly / Module supplier(s) is to be totally responsible for warranty of complete assembly/module per agreed upon Warranty targets.
11. Warranty Vendor Cost Recovery will be handled as specified in RFQ or **Contract Terms and Conditions**.
12. Assembly / Module supplier agrees to establish immediate containment, perform root cause analysis, to identify root cause, to establish timely corrective action plan and implement breakpoint for introduction into supplier process controls and vehicle assembly plants for assembly/module warranty issues.
13. Assembly / Module supplier agrees to work with tiered sub suppliers (incl. directed buy) to resolve warranty issues on the assembly where joint problem resolution is required from tiered suppliers (incl. directed buy) to solve issues.
14. Assembly / Module supplier agrees to drive the resolution of warranty issues that are

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specific to the component, subsystem or system design. This may require involvement of tiered suppliers (incl. directed buy) and/or GM - AVTOVAZ customer engineering.

8.2.4 APQP/PPAP/R@R/Launch/GP12

15. All suppliers have to use the QQTS APQP-module, or interim customer support system to track APQP **steps and activities** (mandatory).
16. Assembly / Module supplier is responsible for applying GM1927 APQP procedures (APQP, GP 11, PPAP, and R@R and GP12) as well for tiered sub suppliers (incl. directed buy).
17. Assembly / Module supplier can ask for support from responsible ASQ&R local unit and Buyer engineering, if deficiencies and corrective actions are required on directed buy tiered components.
18. Assembly / Module supplier must establish project management according to APQP guideline in order to meet due dates & to secure successful launch. This includes consolidation of GP 11 / PPAP documentation of tiered suppliers (incl. directed buy).
19. In order to support the launch of a new vehicle the assembly/module supplier shall undertake the following:
 - (i) planning and reporting according to the Product Launch Process;
 - (ii) supporting the PPVB, MVB and SSF builds on site and provide liaison to Buyer
 - (iii) immediately implements corrective action to resolve launch problems as problem analysis, containment, implementation of solution as well as needed additional operations, rework or one way packaging

8.2.5 Change Management

20. Assembly / Module supplier(s) to notify the Supplier Quality Organization of any planned process changes or changes as well at their tiered sub suppliers (incl. directed buy) product or process.

8.2.6 Communication

21. Assembly / Module supplier(s) must establish robust communication process and contractual agreement to ensure effective management of joint activities required with tiered suppliers (incl. directed buy). This is critical to the success of all 4 subjects mentioned above. (capacity management, quality, warranty, APQP/PPAP/R@R, change management).

9. Powertrain Suppliers:

- Powertrain suppliers must adhere to the Supplier Quality Statement of Requirements Powertrain Addendum

10. Systems and Procedures Access

- Suppliers shall have Internet access to effectively communicate with General Motors - AVTOVAZ. GM - AVTOVAZ Supplier Quality procedures and systems can be accessed through the GM SupplyPower web page (www.gmsupplypower.com).
- Suppliers shall use the QQTS APQP-module or interim customer support system to communicate/collaborate with GM - AVTOVAZ on Advanced Product Quality Planning projects.
- Suppliers shall have access to the regional warranty reporting system as appropriate (e.g. GMNA -QWIK, GME – WARP)

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- Automotive Industry Action Group (AIAG) documents can be obtained by contacting AIAG at 01-248-358-3003. Documents can also be ordered at www.aiag.org. To obtain these documents in Europe, contact Carwin Ltd. at 44-1708-861333. In Brazil, contact IQA at 5511-5533-4545 or www.iqa.org.br. "

11. Software-APQP:

- For all Components with Software Content (Electrical, Chemical, Metal Purchasing area) the following is mandatory: **Software-APQP: The SW-APQP is described in the link [SW-APQP SQ SOR SW Parts 2005 01.doc](#) and shall be used and filled out together with ASQ&R and GM SW&C-Q and returned signed.** Corresponding documents are named in this file.

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Powertrain Addendum

1. Requirements

For Key Product Characteristics (KPCs) and Product Quality Characteristics (PQCs).
Reference GM 1805 and AIAG PPAP Manual. clauses 1.2.2.9

CHARACTERISTIC	6 σ Requirement	
	PPAP	On- going Production
KPC Special Characteristics / Extra Care	Cp & Pp \geq 2.0 Cpk & Ppk \geq 1.5	Cp & Pp \geq 2.0 Cpk & Ppk \geq 1.5 & <i>Continuous Improvement</i>
PQC Special Characteristics / Extra Care	Cp & Pp \geq 2.0 Cpk & Ppk \geq 1.5	Cp & Pp \geq 2.0 Cpk & Ppk \geq 1.5
Standard Product Characteristics	One Sample checked	Pp \geq 1.33 Ppk \geq 1.33 (For Control Plan & Oper. Instruction Characteristics being Regularly Monitored)

If during Product / Process development you believe there will be difficulty meeting the above capability, you MUST immediately notify your Supplier Quality Engineer (SQE) and develop a plan to assure compliance and/or obtain formal written approval to deviate from the capability requirements.

2. Process Failure Mode and Effects Analysis (PFMEA)

- As a general rule, RPNs should be 40 or below. Processes showing RPNs over 40 must obtain formal written approval from your GM - AVTOVAZ SQE.
- GM Powertrain PFMEA ranking charts (reference APQP manual GM1927-28) shall be used.

3. Cleanliness Requirements: Part and process cleanliness shall be considered during the development of the PFMEA. Appropriate actions shall be taken during the APQP process as driven by the PFMEA RPNs.

Revision History – April 13, 2005 Changes

Section Number	Section Description	Change
11	Software-APQP	Requirement to use Software-APQP added

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Supplier Acknowledgement

Hereby we confirm that our company understands the above requirements, incorporates into its procedures and quality system and acts in accordance with that.

Supplier Signature

Supplier Name:

Position: