

## SQ Sub Tier Supplier Management Statement of Requirements

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### 1. PURPOSE

- 1.1. This document is intended to be used in conjunction with the CG4338 GM 1927 03 Supplier Quality Statement of Requirements.
- 1.2. Supplier requirements for management of Sub Tier suppliers are defined by this SOR supplement. These are a minimum expectation irrespective of implementation of other Sub Tier supplier management systems such as AIAG CQI-19. "Shall" in this document means mandatory; "should" means highly recommended.
- 1.3. All suppliers are expected to provide product that meets General Motors requirements, including fit, form and function associated with Sub Tier purchased material.

### 2. REQUIREMENTS

- 2.1. All areas defined in this document apply to General Motors direct Tier 1 suppliers for the management of Sub Tier suppliers, **including Directed Buy Sub Tier suppliers.**

### 3. REFERENCE DOCUMENTS

- 3.1. CG4338 GM 1927 03 SQ SOR (latest revision)
- 3.2. GM 1927 07a APQP Assessment Sub tier
- 3.3. GM 1927 16 Process Control Plan Audit Form
- 3.4. GM 1927 21 DFMEA PFMEA Gap Analysis Process and Transition Form
- 3.5. GM 1927 25 Subcontractor Status Matrix
- 3.6. GM 1927 33 Early Production Containment Audit
- 3.7. GM 1927 43 Supplier Launch Audit
- 3.8. GM 1927 35 Run at Rate Procedure
- 3.9. GM 1927 28 Early Production Containment (EPC)
- 3.10. GM 1927 30 Quality Management Gap Assessment (recommended tool)
- 3.11. GM 1927 48 PPSR form
- 3.12. CQI-9, CQI-11, CQI-12, CQI-15, CQI-17; CQI-23; CQI-27, CQI -29, CQI-30 and any pertinent AIAG standards

### 4. Supplier Management Organizational Structure

- 4.1. Suppliers with purchased content in their products produced for General Motors shall have a structure in place to manage purchased part suppliers. This structure shall perform all the functions detailed in this SOR to assure purchased parts meet General Motors requirements.
- 4.2. The organization structure should include Supplier Quality/ development engineers that are properly trained in the various processes and systems used for supplier quality management. This includes APQP work, auditing, quality systems expertise and functional expertise for problem resolution. These individuals should also be capable to perform assessments for sourcing of suppliers to assure quality and production requirements can be met.
- 4.3. The supplier shall have a program management structure that acts as a single point for coordination of new product launches with a high level of purchased Sub Tier components. Program management resources shall assist in tracking of Sub Tier APQP compliance as well as supporting problem resolution.

### 5. Supplier Selection and Development

- 5.1. Suppliers shall have a source selection process that comprehends Sub Tier capability to meet requirements for purchased parts. This is including, but not limited to technological capability, manufacturing expertise, financial stability, available capacity, resource availability, etc. This process should include an assessment of their quality system capability, preferably performed by a qualified individual in the supplier management organization. Audits conducted for this purpose should be part of the standardized work and the content should be consistent with automotive industry standards.
- 5.2. Sub Tier Suppliers shall be verified to a quality system standard [similar with IATF 16949](#), or the Tier 1 supplier defined quality system standards. All Sub Tier suppliers shall comply with a quality system standard. The supplier management organization shall have an individual fluent in these standards who is able to train and conduct audits at Sub Tier suppliers.
- 5.3. The supplier management structure resources shall also be skilled in problem resolution and continuous improvement techniques to help drive performance improvement in the Sub Tier supply base.

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### 6. APQP Process Requirements

#### 6.1. Risk Assessment:

6.1.1. Suppliers shall complete the GM 1927 07a APQP Supplier Assessment Sub Tier or equivalent document for all Sub Tier suppliers and determine the risk classification for each. If a supplier has an equivalent document for assessing risk, it shall be reviewed with the GM SQE to be sure it comprehends similar risk categories as the GM 1927 07a APQP Supplier Assessment Sub Tier. Sub Tier suppliers shall be classified as either "Critical" or "Non-Critical" based on the results of the risk assessment. For the GM form, a risk assessment rating of 34 is the recommended threshold for determining which suppliers are classified as "Critical". If the supplier has their own risk assessment process, the criteria for selection for "Critical" suppliers shall be established and reviewed with the GM SQE. In either case, the identification of "Critical" suppliers shall evaluate all factors in making a final designation. As the APQP process progresses and new information becomes available, re-assessments shall be done as applicable to be sure new risks are comprehended and communicated. Risk assessment shall be communicated to cross functional PDT Prior to Production tooling release (TKO) and following reassessment for any additional design or process changes implemented thru start of production.

#### 6.2. APQP Tracking:

6.2.1. All Sub Tier suppliers shall require APQP tracking during their product development cycle. The GM 1927 25 Subcontractor Status Matrix or equivalent shall be used for this purpose. Additional or more frequent tracking shall occur for suppliers identified as "Critical". On-site audits of APQP activity should be conducted to assure Sub Tier suppliers are complying with program timing requirements and milestone events.

6.2.2. The GM SQE may also request on-site Sub Tier supplier visits during the APQP process and conduct audits along with reviews of program status. Control plan audits, launch audits and GM 1927 33 Early Production Containment audit should be used as appropriate and at the discretion of the GM SQE. These visits should include product engineering and other support resources as needed and shall be coordinated through the Tier 1's supplier management structure.

#### 6.3. Design Reviews:

6.3.1. Design reviews shall be conducted with the General Motors Design Release Engineer and the Sub Tier supplier to be sure that all product requirements, special characteristics, customer used (pass thru) features, etc. are well understood and comprehended in production process planning. The review of appropriate engineering documents (DFMEAs, drawings, etc.) will help assure that proper controls are established in the Sub Tier suppliers manufacturing process with robust PFMEAs and Control Plans. This activity shall be focused on "Critical" suppliers with the intent of completed reviews for all purchased parts. Appropriate controls shall be implemented for special characteristics to assure capability indices are maintained and attribute quality characteristics are 100% verified.

#### 6.4. PPAP:

6.4.1. All Sub Tier suppliers shall achieve successful completion of Full PPAP before Full PPAP approval can be issued to the Tier 1 supplier. PPAP approvals should be conducted on site at all Sub Tier suppliers identified as "Critical". Audits of Sub Tier PPAP submissions (warrants, dimensional data, materials information, etc.) may be requested by the GM SQE at any time.

#### 6.5. Capacity Verification GM 1927 35 Run @ Rate:

6.5.1. Capacity verification shall occur at all Sub Tier suppliers. GM 1927 35 Run @ Rate Procedure should be used for this verification. The workbook in this procedure should be completed as early as possible in the APQP process for capacity planning and updated throughout the program as progress is made toward full capacity installation. On-site capacity verification shall occur for "Critical" Sub Tier suppliers.

6.5.2. Sub Tier suppliers may be exempt from capacity verification (non-critical components like simple discrete electronic components – as identified in **CG4209 GM 1927 3a Electrical & Electronic Modules and Assemblies-**, or stock fasteners), however shall confirm ample capacity is

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available to meet GM requirements. Rationale for exempting capacity verification of Sub Tiers should be reviewed with the responsible GM SQE.

**7. GM 1927 28 Early Production Containment (EPC):**

- 7.1. Sub Tier suppliers shall implement a pre-launch control plan which is a significant enhancement to the production control plan for the purpose of Early Production Containment. All elements of GM 1927 28 EPC apply to Sub Tiers as they do to Tier 1 suppliers. GM Supplier Quality Engineers may request and participate in GM 1927 33 EPC audits of select Sub Tier suppliers based on risk. EPC inspection area evaluations should include:
  - 7.1.1. Proper layout, including necessary workstations, benches, and tables.
  - 7.1.2. Sufficient lighting
  - 7.1.3. Proper staging areas for the parts (Green (OK), Red (NOK), Yellow (waiting for inspection))
  - 7.1.4. Clear understandable visual standards with boundary samples
  - 7.1.5. Gauges
  - 7.1.6. Standardized work instructions
  - 7.1.7. Recording sheets/data acquisition equipment
- 7.2. GM 1927 28 Early Production Containment exit criteria shall be made clear to Sub Tier and require approval from the Tier 1 before doing so. Exits from GM 1927 28 Early Production Containment shall be documented with formal request and approvals. GM 1927 28 Early Production Containment should be extended for those Sub Tier suppliers who have not demonstrated control with their production process control plans.

**8. Process Control and Audit**

- 8.1. Sub Tier suppliers Process Control Plan Audits shall be completed at appropriate times prior to launch and on an ongoing basis for monitoring of Sub Tier suppliers' compliance to process controls and continuous improvement. Individuals in the supplier management structure shall be trained to audit and follow accepted practices for review of documentation and records. The GM SQE and other GM personnel may periodically request to join in audits of Sub Tier supplier process controls.
- 8.2. Tier 1 shall provide evidence that all sub tiers have risk mitigated failure modes in their Process Control Plan prior to production tooling release (TKO) and following reassessment for any additional design or process changes implemented thru start of production.

**9. Problem Communication and Resolution**

- 9.1. A problem communication process (Escalation Process) shall be established to provide for resolution of issues with Sub Tier suppliers. Problems communicated shall require the Sub Tier to initiate immediate containment and provide certified material to support ongoing production. Sub Tier suppliers shall follow an effective problem-solving process for issues brought to their attention and corrective actions shall be verified as required by the supplier management organization.

**10. Performance Tracking**

- 10.1. Suppliers shall monitor Sub Tier suppliers' performance against expectations. Performance monitoring should be connected with the sourcing process and be used as means to prioritize resources for audits and other continuous improvement activities. Performance monitoring may include problem reporting, discrepant part counts, PPM, program management performance, etc. and should be tracked over time.
- 10.2. **Continuous improvement activities** expected for Sub Tier suppliers should drive reductions in the number of problems reported, read across of corrective actions to like products / facilities and RISK ANALYSIS with improved process controls.

**11. Change Management**

- 11.1. Suppliers shall have a process to manage Sub Tier suppliers' changes. Any Sub Tier changes that may affect fit, form or function of the GM purchased part requires notification to GM and approval prior to executing the change. Suppliers shall have a process to track Sub Tier changes and breakpoints. Change management procedures should (at a minimum) include the following in scope:
  - 11.1.1. Change in Sub Tier supplier or manufacturing location.

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- 11.1.2. Manufacturing process change
- 11.1.3. Change in Sub Tier component design or material.
- 11.1.4. Change in Sub Tier tooling.
- 11.1.5. Read across of new lessons learned.

**12. Sub Tier Supplier Management**

- 12.1. Suppliers to GM shall drive similar requirements as contained in this CG to their suppliers (Sub Tiers)
- 12.2. The Tier 1 supplier shall require their suppliers (Sub Tiers) to audit specific manufacturing processes (CQIs) annually to determine their effectiveness. Applicability and effectiveness of these processes shall be determined utilizing the most current version AIAG CQI standards. The effectiveness evaluation shall include the organization's self-assessment, actions taken, and that the records are maintained.

**Responsibility RASIC**

<b>Task</b>	<b>Tier 1 Supplier</b>	<b>General Motors</b>
<b>1. Risk Evaluation of Sub Tier Suppliers</b>	R	S
<b>2. Conduct Quality System Assessment at Sub Tier Supplier</b>	R	N/A
<b>3. Conduct Sub Tier Supplier On Site Audit(s)</b>	R	S
<b>4. Sub Tier Supplier APQP Tracking</b>	R	N/A
<b>5. Provide Sub Tier Supplier Updates at Valve Reviews</b>	R	N/A
<b>6. Verify Capacity of Sub Tier Supplier</b>	R	N/A
<b>7. Approve PPQP and PPAP documentation from Sub Tier Suppliers (except for specific directed buy contracts)</b>	R	N/A
<b>8. Introduce Sub Tier Supplier Change Requests to GM</b>	R	N/A
<b>9. Approve Sub Tier Supplier GM 1927 28 Containment Plan</b>	R	N/A

**R is Responsible**  
**S is Support**  
**N/A is Non-Applicable**

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**Appendix A – Revision History**

GDM Change History				
Date	Version	Change Summary	Approver	Approving Organization
Jan 4 2016	1	BIQS implementation to replace QSB+	Global Business Process Team	Supplier Quality and Development
Oct 5 2017	2	Added CQI-27 and change RPN reduction to Risk Analysis	Global Business Process Team	Supplier Quality and Development
Aug 1 2018	3	Added correct header and formatted document per CG requirements	Global Business Process Team	Supplier Quality and Development
April 9 2019	4.0	6.3.1 Changed "should" to "shall"	Global Business Process Team	Supplier Quality and Development
December 15 2019	5.0	3. Replaced all GP references with the GM1927 document number GP 9 = GM 1927 35 GP 12 = GM 1927 28 5.2 revised 9.1 Added (Escalation Process)	Global Business Process Team	Supplier Quality and Development
January 14, 2020	6.0	6.1.1 Added "Risk assessment shall be communicated to cross functional PDT Prior to Production tooling release (TKO) and following reassessment for any additional design or process changes implemented thru start of production." 8.2 NEW 10.1.5 NEW "Read across of new lessons learned"	Global Business Process Team	Supplier Quality and Development
March 30, 2022	7.0	Updated referenced documents file names. Deleted 3.13 which was duplicate to 3.5. Added CQI-29 to 3. Referenced documents.	Global Business Process Team	Supplier Quality and Development
October 15, 2022	8.0	3.13 Removed CQI-10 3.13 Added CQI-30 3.12 Added GM 1927 48	Global Business Process Team	Supplier Quality and Development
January 2024	9.0	6.1.1; 8.1; 9.1 replaced should with shall 3. Deleted GM 1927 16b Sub tier Supplier Process Audit reference. 5.2 Replaced TS16949 with IATF16949 requirements. 6.5.2 Updated – included reference to CG4209 GM 1927 03a SQ - Electrical & Electronic Modules & Assemblies 11.1 Added (at minimum) 12.2 Newly added paragraph - CQI requirements for Sub Tiers.	Global Business Process Team	Supplier Quality and Development