SUPPLIER REQUIREMENTS AND GUIDELINES MANUAL

A Guide for Suppliers of Direct Materials, Products and Services

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SECTION A – INTRODUCTION

Introduction Statement

The intent of the GT Technologies' Supplier Requirements and Guidelines Manual is to provide requirements and guidelines for suppliers of direct materials. Suppliers are required to comply with the standards described in this manual, but in all cases, purchase orders, contracts, terms and conditions, and other business agreements shall prevail.

GT TECHNOLOGIES' Statement of Purpose

GT Technologies exists as an organization to provide products and services which consistently meet or exceed the requirements and expectations of our customers.

We expect that the continual accomplishment of this very basic premise will enable us to maintain and perpetuate an organization which:

- Promotes an environment of continual improvement for all processes essential to attain product quality, exemplary service and complete customer satisfaction
- Assists in assuring the attainment of the business and personal goals of our customers, our suppliers and employees
- Has a positive impact on the communities in which we operate
- Gains the respect of our customers, suppliers and community through our reputation for industry expertise, personal and business credibility and ethical values

GT TECHNOLOGIES' Company Profile

GT Technologies is a global leader in design, development and supply of performance-critical valve train components for a full range of gas and diesel engines. GT Technologies is committed to providing our customers with superb quality, first-class customer service and leading-edge technology.

List of Commodities & Services Purchased

- Bearing Elements (Axles, Balls, Bushings, Needles, Rollers)
- Bronze bar and components
- Coating
- Cold Formed Steel Components
- Forgings
- Flat Rolled Steel
- Fuel Pump Tappets
- Hardware (Bolts, Clips, Ferrules, Springs, Washers)
- Heat Treatment
- HLA components (Bodies, Plungers, Plunger-Caps)
- Injection Molded Components
- Machined Castings (Steel & Aluminum)
- Machined Steel Forgings
- Machining
- Metal Stampings
- Music Wire
- Plating
- Powdered Metal Components
- Shafts
- Stainless Steel
- Steel Shafts
- Steel Bar
- Steel Coil Wire
- Tubing

Quality Policy

TQP – "Trusted Quality Products"

Meet and Inspire to Exceed Customer Expectations and Requirements

Commit to the Control of Quality and to the Continual Improvement of the Quality Management System

Pledge the Highest Value Engineered Solution to our Customers

Daniel J. Brinker
President
GT Technologies

Basic Supplier Requirements

- Quality Management System shall be certified to ISO 9001 as a minimum, with the ultimate objective of becoming certified to IATF 16949
- Suppliers shall maintain a minimum 'Level Two' performance rating (see Supplier Performance Metrics in section 5.3 for details)
- Suppliers shall maintain a Parts Per Million (PPM) defect rate of no more than 25
- 100% on-time delivery according to GT Technologies' Scheduled Order Releases
- Maintain a minimum Cpk/Ppk value of 1.67 for all drawing characteristics on short term capability studies. A minimum Cpk/Ppk value of 1.33 is required on all characteristics on long term capability studies
- Demonstrate a company culture of continual improvement and Lean thinking
- Use of error-proofing in design and mistake-proofing in manufacturing processes
- Develop and maintain an aggressive warranty reduction program
- Requests for corrective action require an initial response within 24 hours and a final response (including root cause analysis and irreversible corrective action) within 14 days
- Open to audits of financial documents to demonstrate financial stability as a long-term supplier
- Continue the support of automotive service parts demand beyond program end-of-life in accordance with OEM requirements
- Support GT Technologies' efforts to benchmark supplier's performance (cost, quality, delivery, etc.)
- Comply with the AIAG, REACH, IMDS and Conflict Minerals legislation reporting and due diligence requirements

New Supplier Checklist

This checklist may be used as a guideline to assist new suppliers to meet GTT's minimum initial quality requirements.

	Required document	Submission Date	Yes/ No/NA
1	The GT Technologies Supplier Requirements Manual was reviewed by Management and applicable personnel in Sales, Engineering, Quality, Manufacturing, Health and Safety, Shipping and Purchasing Reference: http://www.gttechnologies.com/assets/files/supplier-guide-requirement.pdf		
2	A Non-Disclosure Agreement (NDA) was submitted Reference: http://www.gttechnologies.com/supplier.html		
3	Supplier Self Survey was completed and a copy submitted Reference: http://www.gttechnologies.com/supplier.html		
4	A copy of the facility's QMS certificate was submitted (i.e. ISO 9001; IATF 16949)		
5	A copy of certificate for IEC17025 lab accreditation (if available)		
6	AIAG Feasibility Commitment was submitted for parts/services quoted		
7	Evidence of conformance to AIAG Special Process Standards was submitted (i.e. CQI-09, CQI-11, CQI-12)		
8	A product level Conflict Minerals report was submitted Reference: Section 2.0 and 13.7 of this manual		

1.0 Purpose, Scope, Distribution and Revision Control

1.1 Authority, Purpose and Scope

Authority

This manual is authorized by the highest executive officer of GT Technologies and is written under the direction of the GT Technologies' Supply Chain Management Group.
All questions and recommendations pertaining to this manual should be addressed to plant Quality Management, Corporate Commodity Managers or Supplier Development Engineering.

Purpose and Scope

The intent of this manual is to broaden the scope of IATF 16949 and to include additional requirements of GT Technologies and our customers. GT Technologies requires that every supplier location that manufactures and/or ships production and service parts and materials to our plants, or to our customers' plants, to comply with the standards, guidelines and business practices outlined in this manual.

1.2 Exceptions

GT Technologies' purchase order, contract, or a GT Technologies' Procurement representative may waive or accentuate conformance with some of the requirements described in this manual.

1.3 Supplemental and Supporting Documents

The Automotive Industry Action Group (AIAG) publishes several manuals that define standards required by FCA, Ford, and General Motors. Suppliers are to remain current with these standards.

It is therefore necessary to obtain current editions of the manuals to fully comply with the AIAG requirements and GT Technologies' expectations. Copies of the AIAG manuals can be ordered from AIAG at (248) 358-3003 or via the website at www.aiag.org

The following is a list of mandatory and reference manuals:

Mandatory manuals:

- IATF 16949 Quality Systems Management Standard

- AIAG Production Part Approval Process (PPAP) manual

Reference manuals:

- AIAG Statistical Process Control (SPC) manual
- AIAG Measurement System Analysis (MSA) manual
- AIAG Advanced Product Quality Planning (APQP) & Control Plan manual
- AIAG Potential Failure Mode and Effects Analysis (FMEA) manual
- CQI-9 Special Process: Heat Treat Assessment Manual
- CQI-11 Special Process: Plating System Assessment
- CQI-12 Special Process: Coating Assessment
- MMOG/LE manual

Customer Manuals

GT Technologies may be required to cascade OEM and other customer standards throughout the supply chain. When applicable, GT Technologies will communicate to suppliers the specific standards and the supporting documents required (examples: FCA PSO; Volkswagen VDA)

1.4 Distribution and Revision Control

Distribution

This manual is available to all GT Technologies' suppliers of direct materials and components. Printed copies of the manual are not controlled. The manual will be maintained electronically and is currently accessible on GT Technologies' web-site at www.gttechnologies.com

Revision

This manual is reviewed at regular intervals. Changes are made as required and updated versions are identified by the date shown in the document footer. Suppliers are required to ensure the current issue of the manual is being used and obsolete documents are promptly removed from all points of issue, or otherwise assured against unintended use.

2.0 Supplier Sustainability

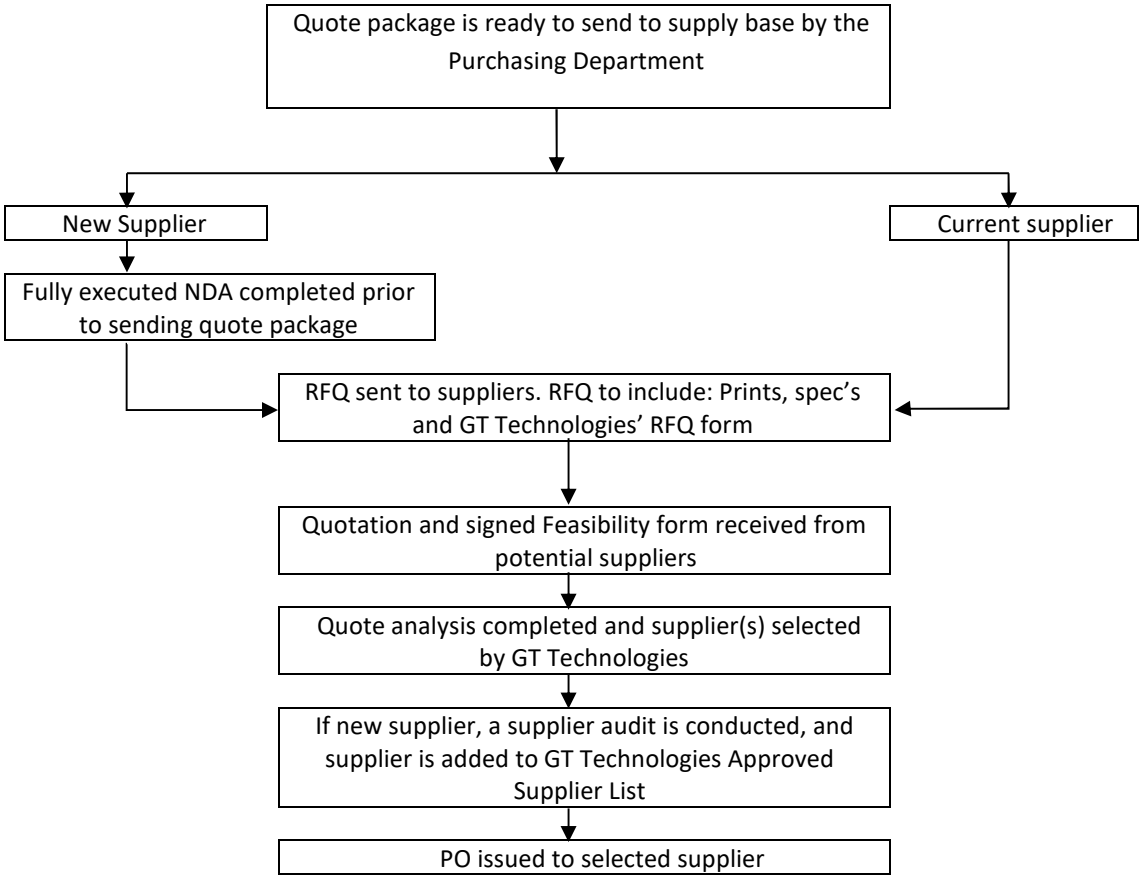
GT Technologies supports developing business relationships that have a positive impact on the environmental, social and economic conditions throughout our global supply chain. As a means of strengthening our collaborative sustainability efforts we request suppliers to develop policies and practices that encompass commonly held global ideals for business ethics, equality, diversity, health and safety. We encourage the completion of the AIAG Supplier Sustainability Self-assessment form to establish your company's baseline sustainability score and better understand potential areas of improvement. A link to the Self-assessment can be found at www.aiag.org.

SECTION B - PROCUREMENT

3.0 Commercial Requirements and Expectations

3.1 Procurement Process

The following chart illustrates a streamlined version of GT Technologies' procurement process:



3.2 Supplier Financial Stability

Suppliers must be willing and capable of providing proof of financial stability. Potential new suppliers may be required to provide evidence of liquidity before being considered for addition to the GT Technologies' Approved Supplier List. The required financial evidence will be defined by GT Technologies' Commodity Management Group and may vary depending on the region and the scope of the project. Suppliers must be financially viable to be considered for sourcing. Any false or inaccurate information will immediately disqualify a supplier. Suppliers may, in certain circumstances as deemed reasonable by GT Technologies, be required to provide bank guarantees for delivery.

3.3 Terms and Conditions of Sale

For details go to the Supplier Info section at www.gttechnologies.com

3.4 Confidentiality Agreement

The Non-Disclosure Agreement (NDA) form can be found in the Supplier Info section at www.gttechnologies.com

3.5 Pricing

Supplier quotations must include cost breakdown data and feasibility information via GT Technologies' quote form. The price of goods should be quoted complete and include storage, handling, packaging and all other expenses and charges of supply. No surcharges, premiums or other additional charges of any type shall be added without GT Technologies express written consent. Prices are not subject to increase unless specifically stated and the supplier assumes the risk of any event or cause affecting prices, including without limitation, foreign exchange rates, increases in raw material costs, inflation, any decreases in GT Technologies requirements for goods under the order, increases in labor and other production and supply costs, and any other event which impacts the price or availability of materials or supplies. GT Technologies expects pricing from suppliers to be market competitive. GT Technologies will do market tests periodically to confirm pricing from current sources remains competitive.

3.6 Cost Reduction

Suppliers shall actively develop and maintain a continuous list of cost reduction ideas using the Continual Improvement principles outlined in section 10 of this manual.

3.7 Accounting Practices and Payment Terms

GT Technologies' standard payment terms are found in GT Technologies Terms and Conditions.

All material, parts and/or tooling must be received by our Receiving Department and include an accurate packing slip and label affixed to the outside of the master containers. The packing slip must reference the appropriate GT Technologies' Purchase Order Number, Part Number, Item Description and Quantity to ensure proper receipt and serve as proof of delivery. To ensure timely and accurate payment invoices are required for all production components and materials, tooling, prototypes/ samples and all goods and services received at any GT Technologies' facility. Invoices should reference supplier's Packing Slip Number and a valid GT Technologies' Purchase Order Number, Part Number, Item Description, Quantity, Unit Price and Extended Price

Production tooling must be invoiced separately from production components, prototypes, samples or other non-production goods and services

GT Technologies' payment terms for capital equipment are specified on the Purchase Order or contract.

3.8 Service and Replacement

Suppliers will sell GT Technologies goods necessary to fulfill current model service and replacement parts requirements. All suppliers are obligated to provide service component requirements for a minimum period of 15 years following the conclusion of customer production or as otherwise stated in writing by GT

Technologies. Prices during the first five years of the service period will be the same as the prices that were in effect at the conclusion of current model purchases, unless otherwise agreed to with GT Technologies. For the remainder of the service period, prices will be the same as the prices that were in effect at the conclusion of production plus any agreed upon adjustments to compensate for reduced volumes. In no event will service and replacement parts be supplied to GT

Technologies at prices that are not competitive or exceed those charged to other comparable customers of the supplier. Product supplied for service must be produced from original tooling unless otherwise approved by GT Technologies. Suppliers are expected to maintain preventative and predictive maintenance processes on all tooling and must immediately report any concerns with tools, fixtures or other equipment that could cause delay of shipment or quality concerns.

3.9 Warranty

GT Technologies requires production material and component suppliers to adhere to the same warranty requirements specified by the OEM customer. Suppliers of non-production goods and services are expected to honor warranty requirements referenced on the appropriate GT Technologies' Purchase Order or Supply Agreement enacted with your company. Suppliers are required to develop an aggressive warranty cost reduction program.

3.10 Diversity Sourcing

GT Technologies is committed to expanding its relationship with certified minority and woman owned business enterprises to meet both internal diversity sourcing requirements and those of our customers.

GT Technologies provides equal procurement opportunity for all suppliers regardless of the ownership's gender or ethnic background. The final business award is given to the supplier that best demonstrate their ability to meet GT Technologies' requirements and overall program specifications.

3.11 Contingency Planning

Suppliers are required to prepare contingency plans for each facility to assure that maximum up-time is achieved, and GT Technologies' plants and customers receive products and services on-time while meeting quality expectations.

3.12 Tooling and Gaging Responsibilities

The items listed below must be included in tooling quotations unless otherwise specified by GT Technologies.

- Expense breakdown, including fixtures, dies, gauging and other costs as well as tooling design (i.e., number of cavities, material, etc.)
- Capacity of the tool must be clearly defined. Capacity will be calculated on an 8 hour, 3 shifts a day, 5 days a week, 48-week year unless otherwise directed by GT Technologies
- Tool life must be clearly defined
- Cavity replacement must be clearly defined. This should be provided as a per part cost or as a cavity replacement cost
- The quotation must specify lead time breakdowns including design, build, testing and PPAP submission and approval
- Tooling run-off quantities

It is the supplier's responsibility to:

- Ensure the quality and correct function of the machine, tooling, gages or other equipment
- Complete the machine, tooling, gages or other equipment on time and within the agreed upon costs
- Have GT or GT's customer tool identification requirements in place
- Validate the equipment, tryouts, layouts, etc.
- Have fully functioning software as defined in the contract
- Establish, implement and maintain a procedure to verify the acceptability of all
- measurement and test equipment including gages, fixtures, test apparatus and other devices
- The supplier is responsible for maintaining, repairing, refurbishing and replacing tooling in production condition at no cost to GT Technologies and GT Technologies will retain all title and ownership rights for said repaired, refurbished or replaced tooling for the defined lifetime of the tool, unless otherwise agreed to in writing by GT Technologies
- Keep detailed maintenance records for the tooling. The supplier will make these records available to GT Technologies on request
- Monitor tool life and performance to ensure that repair, replacement and maintenance, whether the responsibility of the supplier, are identified and corrected prior to the time that part quality or production capacity are affected. This will include regular dimensional reviews on specific part characteristics. Supplier agrees to make this data available to GT Technologies on request
- Monitor tool life on a regular basis and advise the GT Technologies' Supply

Chain Management Group well in advance of when tooling replacement is necessary
- Ensure that sufficient quantities of components will be in supplier's inventory and available to support GT Technologies' production prior to and during the period that the tooling is being refurbished or replaced
- To dispose of tooling at no cost when directed in writing by GT Technologies
- Adhere to all legal and safety requirements as applicable
- Ensure that its sub-suppliers adhere to the above guidelines

All measurement system devices must be validated in accordance with the AIAG Measurement Systems Analysis. Gage tolerances must be defined by SAE / DIN / ISO standards. The supplier is expected to maintain the integrity of the Measurement System and provide Gage Repeatability and Reproducibility (GR&R) at required intervals.

SECTION C - QUALITY ASSURANCE

4.0 Quality Management System Requirements

4.1 Summary of Requirements

Certification to the ISO 9001 Quality System Management standard is the minimum requirement for suppliers of direct materials. Certification or compliance to the IATF 16949 and ISO 14001 standards is the required target. Compliance to the applicable CQI-09, CQI-11, CQI-12 is required for suppliers that provide special processes.

Suppliers shall notify their certification body/registrar and GT Technologies Supply Chain Management Group in writing within five (5) working days, when a customer changes the status of a site servicing a GT Technologies' facility or customer, to any of the following:

- FCA Quote Hold status
- Ford Q-1 Revocation
- General Motors Level II Containment
- Other customer specific descriptions

GT Technologies reserves the right to add requirements, and may, at its discretion, waive all or part of this requirement. Waivers will be documented in purchase orders, contracts, or other written documents issued by the Supply Chain Management Group.

4.2 Additional GT Technologies Specific Requirements

GT Technologies services customers worldwide and may be required to comply to standards specific to a region or to a customer, and to pass the requirements to its suppliers. When applicable, GT Technologies will communicate to suppliers the specific standards and supporting documents.

5.0 The Supplier Development Process

5.1 Supplier Selection and the Approved Supplier List

GT Technologies evaluates and selects suppliers based upon their ability to meet requirements. This selection process takes place in a cross-functional team environment led by the GT Technologies' Supply Chain Management function. Supply Chain Management maintains an Approved Supplier List. The following are the criteria used to determine the suitability for this list.

One or more of the following is required:

- ISO 9001 certification (minimum)
- Directed by Customer (in these cases, GT Technologies reserves the right to request 3rd party registration for supplier's Quality Management System)
- Successful quality audit performed by GT Technologies' Supplier Development Team
- Grandfathered. In this case, the supplier may be audited for any of the above

Other considerations used to evaluate suppliers:

- Position in industry
- Technology

- Capacity
- Competitiveness
- Responsible for engineering, development and testing
- Warranty commitment
- Full service capabilities (program management and design capable)
- Participation in Cost Reduction Programs
- Progressive culture with continual improvement philosophy
- Quality performance
- Service and support
- Responsiveness to requests for quotes and technical assistance
- Effective problem resolution
- Proactive approach to defect prevention and continual improvement
- Location
- Participation in local warehouse programs
- Logistics in relation to GT Technologies' plants
- Global presence – geographic positioning for future business
- Financial stability
- Acceptable supplier management system assessment

Supplier Management Systems Assessment

All new suppliers are required to successfully complete a supplier survey before being approved (for a copy of the self survey form, go to the Supplier Info section at www.gttechnologies.com). Suppliers who are registered to management systems IATF 16949 or ISO 9001, or who have been audited by a GT Technologies OEM customer may, at the discretion of GT Technologies, have the survey waived. The supplier's Quality Management System certificate shall be presented to GT Technologies' Supply Chain Management and GT Technologies' plant Quality on an annual basis or upon renewal.

Surveys of current suppliers are conducted at a frequency determined by GT Technologies' Supply Chain Management. In most cases, GT Technologies will not audit suppliers who have successfully completed a third-party audit (or an audit from a GT Technologies' OEM customer). Nevertheless, GT Technologies has the right to audit suppliers previously approved.

Maintaining Position on the Approved Supplier List

Suppliers currently on the Approved Supplier List remain in good standing by

providing a high level of service in the areas of quality and delivery performance, as well as commercial and service considerations. The criterion for remaining on the Approved Supplier List is documented in the metrics table found in section 5.3 of this manual.

Suppliers not meeting expectations may be required to follow the Supplier Performance Improvement process (see details in section 5.5 of this manual).

Continued failure to meet the above expectations could result in removal from the Approved Supplier List.

As an alternative to removal, a supplier may be placed on "Quote Hold" status. "Quote Hold" status may be viewed as an interim step toward removal from the Approved Supplier List. It is a means to remove the supplier from new business consideration on a temporary basis until the supplier takes satisfactory corrective action to improve their overall performance.

In all cases, GT Technologies will communicate a change in status to suppliers and to GT Technologies' manufacturing plants.

5.2 Initial Program Risk Evaluation and the 'High Impact Supplier' Process

An initial evaluation is performed at the planning stage of each new program to estimate the level of risk or 'impact' on the success of the program associated with each supplied product or material. The evaluation is based on the supplier's past quality and delivery performance as well as the supplier's familiarity with the technology, process and product.

When the risk level in any of these areas is higher than is normally expected, the supplier may be assigned "High Impact Supplier" status. "High Impact Suppliers" are expected to participate as active members of the GT Technologies' program planning process, which may include participation in design reviews, APQP reviews, launch readiness reviews and/or on-site PPAP reviews.

Listed below are typical considerations used to evaluate the risk level of supplied product:

- Is the supplier current or new to GT Technologies?

- Has the supplier's manufacturing plant ever shipped to a GT Technologies' plant?
- Is the process required to manufacture the part new or existing?
- Is the design new or carry-over from another program?
- Will risks due to part complexity jeopardize timing and/or quality?
- Is there any other aspect of the program that may jeopardize timing and/or quality?
- Does the program represent a significant share of the supplier's base business?

High Impact suppliers will be notified of their status and an initial APQP meeting will be scheduled to establish requirements.

5.3 Supplier Performance Metrics

Supplier performance metrics are summarized in the table below:

METRIC	FORMULA or SCALE	MAX POINTS
QUALITY (Total Points = 50)		
• PPM	= [Max points – (PPM x 0.01)]; 0 -25 PPM = Max points; Minimum points = 0;	20
• Quality Mgt. System	IATF 16949 = Max points; ISO 9001 = 12 points or max points; Not CQI-9 compliant = 5 point demerit (where applicable)	15
• Quality Incidents	No NCRs issued = Max points; One NCR issued = 5 points; Two NCRs issued = 0 points	10
• Critical Quality Status	No incidents = Max points; One or more incidents = 0 points	5
Delivery (Total Points = 30)		
• On-time Delivery	= [Max points x (on-time del/total releases)]	20

• Shipping Incidents	No NCRs issued = Max points; One NCR or one occurrence of premium freight = 5 pts; 2 or more incidents (NCRs + premium freight) = 0 pts	10
Commercial and Service (Total Points = 20)		
• Continuous Cost Improvement	Price reduction in last 12 months = Max points; Cost Reduction/Avoidance measures actively being pursued = 8 points; No cost variance in last 12 months = 6 points; Cost increase in last 12 months = 0 pts	10
• Responsiveness	Max points for exceptional response to PPAP, RFQ, Conflict Mineral reporting and Corrective Action requests	10
TOTAL POINTS = 100		

Supplier Performance Levels are detailed below.

Level	Total Points	
Level One	90 to 100	GTT will seek out areas to grow with supplier. Supplier has opportunity to quote all new business opportunities within capability.
Level Two	80 to 89	Supplier in good standing with GTT. Potential for growth opportunities.
Level Three	60 to 79	Performance improvement required. Limited opportunity for growth with GTT
Level Four	< 60	Improvement required to sustain current business

5.4 The Supplier Scorecard

Supplier performance is summarized on scorecards for selected suppliers and issued regularly. Suppliers may contact the GT Technologies' Commodity Manager or Supplier Development Engineering for scorecard information.

Suppliers are requested to review performance data for accuracy, and report discrepancies no later than 30 days after receipt of the original data.

5.5 *The Supplier Performance Improvement Process*

The Supplier Performance Improvement Process was developed to monitor deficient suppliers and to assist these suppliers to become self-reliant.

The process is driven by the supplier's quality, delivery, commercial and service performance (see section 5.3 of this manual for details). Data is collected and summarized in a Supplier Scorecard for selected suppliers (see section 5.4 of this manual). A minimum Level Two is required to maintain good standing on the GT Technologies Approved Supplier List.

GT Technologies' Supply Chain Management will work closely with suppliers that chronically fail to meet minimum requirements to correct the issues and improve performance. The Supplier Performance Improvement Process is key to maintaining good standing and should therefore receive support from the supplier's top management.

Suppliers that continue to perform below expectations or do not show appreciable improvement may be placed on "Containment Status" (see section 8.4) or "Quote Hold Status". When further action is required due to quality or delivery risk, suppliers may lose business or may be removed from the GT Technologies' Approved Supplier List (see section 5.1 of this manual).

6.0 Production Planning Readiness

6.1 *APQP (Advanced Product Quality Planning)*

Suppliers are required to use the planning procedures and techniques provided in the most current *AIAG Advanced Product Quality Planning and Control Plan* reference manual for all new product launches and for all design, process and material changes.

Suppliers are required to establish a timing plan that captures all APQP activities, and to monitor progress. Issues that may jeopardize program timing or program quality shall be identified, and recovery plans shall be documented. APQP status summaries shall be updated using the Supplier Production Planning Readiness forms and shall be made available to GT Technologies upon request (For a copy of the forms, go to the Supplier Info section at www.gttechnologies.com). Additionally, suppliers may be required

to perform any of the following:

- Submit regular APQP status reports
- Meet regularly with GT Technologies to review APQP status
- Participate in GT Technologies APQP and design review meetings

6.2 Prototype

Prototype dimensional and material verification requirements are described in GT Technologies' Prototype Inspection and Verification Requirement (For details, go to the Supplier Info section at www.gttechnologies.com).

Suppliers shall develop prototype process control plans that document the inspection and tests required at each operation in the Process Flow to ensure process/product control is maintained and parts conform to the specifications on the design documents.

Suppliers are responsible for maintaining a controlled master sample in addition to the master samples provided to GT Technologies.

6.3 PPAP

PPAP's are required for all new parts or products and for all changes to existing products. The GT Technologies standard for PPAP is described in the AIAG Production Part Approval Process manual. Unless otherwise directed, Level 3 is the default for supplier PPAP.

The following shall also apply:

- Sample sizes for dimensional verification of product and for initial capability shall be agreed upon by GT Technologies' Plant Quality Management or Corporate Supplier Development Engineering
- Sample sizes for verification of specified material and for performance test requirements shall be agreed upon by GT Technologies' Engineering
- Dimensional results shall be summarized on an appropriate form (see form in the AIAG PPAP manual), but original CMM, profilometer, shadow graph, etc., printouts shall be made available upon request.

- Dimensional results shall accompany all submissions of sample product. Measured product shall be identified to allow traceability to the dimensional report
- Initial Capability shall be demonstrated on all PPAP submissions. Where there are no Special Characteristics identified on the design documents, suitable characteristics shall be selected and agreed upon during the APQP stage of development. Exceptions to Initial Capability Requirements:
    - **Heat Treat:** Supplier to provide 9-Point (Basket) / 5-Point (Conveyor) data to show process meets Heat Treat specification requirements. At least one part from each sampling point must be selected for measurement of Heat Treat characteristics. Sampling method and locations shall be agreed by GT Technologies and will depend on Heat Treat process. Results must be summarized on the Dimensional Layout Report as specified above.
    - **Plating:** The supplier is required to provide data from 30 parts for all plating characteristics (from specification) including but not limited to: Plating Thickness, Adhesion, and other visual Characteristics. Certification to accompany every shipment. Salt Spray testing to be performed at PPAP and on an Annual basis. Results must be summarized on the Dimensional Layout Report as specified above. Data should be provided from a Certified lab (Internal or External) showing compliance to Plating specification.
    - **Coating:** Supplier is required to provide certification at PPAP and for every subsequent shipment showing compliance to specification.

Note: Special circumstances, as defined by GT Technologies, may require additional measures for the above processes, and will be addressed on a case by case basis.

- Initial Process capability data shall be summarized using acceptable statistical methods (See AIAG SPC manual). Original control charts shall be made available upon request
- Packaging labels shall be verified by the receiving GT Technologies' plant and samples shall be included in the PPAP submission
- Capacity verification is required for PPAP approval. Typical capacity demonstration runs are 300 pieces per process stream or a minimum of 2 hours. Suppliers will be evaluated on their ability to produce parts at the rate or volume specified on the Purchase Order. If this figure is not the

same as the quoted quantity, the Supply Chain Commodity Manager shall be notified

- Electronic PPAP submissions (via email or on CD ROM) are preferred but hard copies are acceptable. However, at no time shall hard copies be shipped with product. Master samples must be delivered separately from regular shipments via courier (e.g.: FEDEX, UPS, etc.)
- Supplier completed, signed and dated PSW's shall accompany all PPAP submissions
- Product or samples shipped prior to PPAP approval shall be identified with appropriate labeling. Product that is not identified appropriately is subject to rejection
- Design will be considered 'frozen' during the launch phase of new or modified programs. Therefore, supplier-initiated Product/Process changes will not be approved during the first 120 days after Launch

6.4 Safe Launch

A safe-launch control plan must be developed for all products requiring a PPAP submission and will remain in place for a minimum of 90 days after the start of production or an agreed quantity with GTT Supplier Quality. At least 3 set-ups, or changeovers if tooling or equipment is shared with another part, must occur during this 90-day period. Otherwise the period will be extended to include these events. For products shipped in bulk quantities (i.e. fasteners, washers, needles, axles, etc.) the safe-launch control plan will be in place for a minimum of three consecutive releases in addition to the above requirements. Also, for products shipped in bulk, a random sample of 10% must be selected from each release lot for inspection. Data from these samples must be included with each shipment.

- The purpose of the safe-launch control plan is to define and document enhanced inspection and data collection techniques to ensure discrepant product is not produced. It is also intended to prove long term capability

- The safe-launch control plan must be approved by the GT Technologies Supplier Development Engineer and the Quality Manager of the receiving plant prior to implementation. During the approval process the supplier and GT Technologies will agree on safe-launch control plan content as well as the exit criteria

- In addition to the information found in the production control plan the

safe-launch control plan must contain the following as a minimum:

1) Selected characteristics for enhanced inspection and measurement
2) Enhanced visual inspection methods (magnification, lighting, special instructions, etc.)
3) Increased visual inspection frequencies
4) Increased measurement frequencies
5) Verification audits and dimensional/visual quality checks on the production line by Quality Department personnel
6) Added audits by Quality Department personnel on the production lines reviewing work instructions and operator check sheets looking for 100% compliance
7) Instructions for inspection and measurement data sheets

- If an issue is found, the team will treat the issue as if the non-conforming product escaped and was found by the customer. Accordingly, an 8D will be required and the matter will be addressed as defined in the GT Technologies Supplier Manual. The period in which the safe-launch control plan is in effect will also start over

- Additionally, each box must be clearly Identified with a "Green" Label on all four sides with the following information:

Safe Launch Process
Parts 100% OK Quality Manager Signature: Date:

6.5 Lessons Learned

Lessons learned from the APQP, prototype, and launch phases shall be documented. Lessons Learned are documented or incorporated in FMEAs, Control Plans, Best Practices data bases, Engineering Standards or other applicable records.

7.0 Post Launch Production Requirements

The supplier shall conduct audits to assure the Quality Management System is followed

and that the standards and requirements documented in approved Control Plans, Maintenance Plans and training plans are strictly adhered to. This can be accomplished with Layered Process Audits.

Material Certification

The supplier will provide a material certificate of conformance for each lot/batch or shipment to the receiving GT Technologies facility. The specific items to be reported on the certificate are found on the appropriate material specification (MTL) issued by GT Technologies Material Engineering. Other items identified on the drawing or Purchase Order, including dimensional characteristics, may also be required.

In some cases, the supplier may be asked to participate in "pre-certification" approval processes prior to actual shipment.

The certificate may be faxed/emailed or included with the shipping documentation and addressed to the attention of the appropriate plant personnel.

Prior approval is required for any rust preventative (RP) measures necessary to preserve product during transportation and storage. An MSDS sheet for the proposed RP must be submitted and approved before shipping material to a GT Technologies' facility.

Yearly Product/Material Verification

Suppliers shall perform yearly verification of product, processes and materials. The verification shall follow the PPAP requirements described in the AIAG PPAP manual and section 6.3 of this manual. The yearly verification shall include material, dimensional, capability, capacity and performance requirements (where applicable) specified on the design documents and P.O. Yearly verification data shall be made available to GT Technologies upon request.

8.0 Supplier Problem Communication

8.1 Notice of Defective Material

General

Suppliers are required to maintain a log of customer complaints. The log should include at minimum, the NCR number if issued, or a suitable serial number; date of complaint and issuing plant; description of issue; and problem resolution status. The log should also identify recurring issues and concerns that impacted GT Technologies' customers. Use of existing logs to satisfy this requirement is acceptable.

A Nonconforming Report will be issued when a supplier's nonconforming product is identified at a GT Technologies or customer's facility. A copy of a blank NCR report may be found in the Supplier Info section at www.gttechnologies.com

GT Technologies will request authorization to sort, scrap, rework, repair, or to return parts at the supplier's expense prior to undertaking these activities. However, GT Technologies reserves the right to proceed without prior authorization to protect customer build or due to lack of storage space
The issuing GT Technologies representative shall email the NCR to the supplier. The supplier shall immediately carry out the following actions and provide an Initial Response within 24 hours of notification.

- Establish effective containment actions to ensure that no additional discrepant product will be shipped. This will include inspection of all inventory as well as product in transit, at the GT Technologies' plant or at our customer's location
- Communicate issue to all concerned parties and post copies of the NCR details at the appropriate supplier receiving, warehousing, production, quality and shipping locations
- Implement immediate corrective action to eliminate the discrepancy or implement an effective containment system which will remain in place until root cause is identified and corrective action is verified (see section 5.5 of this manual for more details)

Initial Response:

- Report interim actions, provide disposition and authorization
- Report details of 'dirty point' to allow disposition of nonconforming material outside the supplier's facility
- Report details of 'clean point' delivery (timing, trailer number, labeling, special marking, etc)
- Report name and contact information of supplier personnel providing the

initial response

GT Technologies offers the following solutions to remedy the situation in order of priority:

- Return the material to the supplier immediately at their cost for replacement with good, "Certified Material"
- The supplier to contact a local/regional 3rd party to sort the suspect/rejected material found at the GT Technologies plant, OEM's plant or any other sorting/warehousing facility location. This option requires the supplier to coordinate directly with the GT Technologies receiving facility. In some cases, arrangements must be made to sort product at a place other than the GT manufacturing facility. If sorting is allowed at a GT Technologies location the supplier will be required to follow all applicable plant safety and general operating procedures.
- Should a 3rd party be chosen, the supplier is responsible to make the necessary arrangements including purchasing agreements to start product certification within 24 hours of notification
- All gages, tooling or other aids needed to verify material shall be provided by the supplier
- A timeline or other acceptable documentation shall be submitted to the applicable GT Technologies facility within 24 hours explaining when certified material will be shipped
- The supplier may provide its own resources to the appropriate GT Technologies location to pick-out/sort suspect/rejected material. (Note: this option shall require coordination with the appropriate GT Technologies' plant personnel and supplier must agree to follow all safety and plant guidelines/requirements as applicable)
- Should a supplier require defective samples returned for verification/confirmation, a request shall be made to the appropriate GT Technologies' representative. The supplier shall provide that representative their preferred method of shipment and the applicable shipping account number for payment of shipping charges
- Note: GT Technologies' preferred small parcel carrier is FEDEX for the return of small quantities of defective/suspect samples

Supplier liability for sort, rework/repair, scrap, freight, customer charges, GT Technologies' administrative charges, etc., will be communicated to the supplier. See section 8.3 of this manual for guidelines.

If sort and/or rework of non-conforming, supplied product are required at a GT Technologies or customer facility, the supplier may choose to subcontract the work. However, the subcontractor must be approved by the GT Technologies' manufacturing plant, or the GT Technologies liaison at the customer's plant. This approval must be received prior to the commencement of work.

All rework and inspection procedures necessary to contain or correct quality problems require approval from the Quality Department of the receiving plant.

8.2 Corrective Action and Lessons Learned

GT Technologies requires suppliers to follow a detailed problem-solving approach for all corrective action requests.

The form used to report Corrective Action is optional provided the report meets the basic requirements detailed below:

- Detailed description of the problem
- Containment actions and the status of material in the pipeline
- Root cause analysis: an in-depth analysis of the reported problem shall be conducted to determine the true underlying cause(s) and or reason for the nonconformance and the cause of non-detection
- Irreversible corrective action: long term action taken to ensure that the problem will not recur. Methods that may be used are mistake-proofing systems; training; process changes, or tool changes
- Verification: objective evidence that the problem has been solved, including statistical capability studies where applicable.
- Documentation and Read Across of Lessons Learned (see below)
- Preventive actions
- Name and contact information of supplier personnel responding to the complaint

Other Requirements

- The completed corrective action plan is due to the GT Technologies' plant within 14 days of notification. If actions cannot be completed in 14 days, the supplier shall submit the report with completion dates
- When requested, the supplier shall provide on-site support personnel at GT Technologies' and or its customers facilities

- Maintain contact with the issuing plant to ensure all requirements are met and that the issue is closed

Lessons Learned and Read across

Lessons learned from problem investigations shall be documented. Suppliers are required to analyze similar products or processes that may benefit from the new Lessons Learned and to implement actions where applicable. Lessons Learned are documented in applicable FMEAs, Control Plans, Best Practices, Engineering Standards or other standards.

8.3 Standard Supplier Cost Recovery

General

When quality or delivery discrepancies require action on behalf of supplier, costs associated with such actions are subject to recovery.

GT Technologies will require reimbursement from a supplier when performance related issues cause significant costs to be incurred. Examples include, but are not limited to:

- Quality defect(s) identified with a supplier's product at GT Technologies or customer's facility that result in a suspect or defective condition requiring formal corrective action by the supplier
- Expedited shipments to a GT Technologies' manufacturing facility or customer, caused by late delivery or defective product from the supplier
- Production downtime at a GT Technologies' manufacturing facility or customer caused by late delivery or defective product
- Internal or external storage costs incurred because defective or suspect supplied product

Notification and resolution of cost recovery to a supplier:

- The GT Technologies' manufacturing plant notifies supplier of impending charges and requests acknowledgement within 5 business days
- Supplier acknowledges or contests charges
- Final resolution is reached between GT Technologies and the supplier

8.4 Containment and Controlled Shipping

General

The standard guidelines for implementation of controlled shipping take into consideration one or more of the following:

- Inadequate containment and/or resolution of nonconformance via corrective actions
- Late or inadequate response to quality issues
- Repeat occurrence of quality issues
- Incapable processes
- GT Technologies' customer quality rejection due to a supplied component

Containment

Implementation of an effective product containment system is essential for the issues noted above. The Product Containment System Guidelines (found in the Supplier Info section at www.gttechnologies.com) defines the requirements of an effective system. The guidelines provide recommendations for implementing an effective containment system and may also be used as an audit tool to assure the system is maintained.

Controlled Shipping

Two levels of controlled shipping exist:

Level 1 Controlled shipping is defined as an additional 100% inspection process performed after and separate from the normal inspection process. Level 1 Containment may take place at the supplier's facility and may be performed by the supplier's inspectors. The objective of Level 1 Containment is to ensure GT Technologies does not receive nonconforming parts/material. Containment results must be communicated to GT Technologies daily.

Level 2 Controlled shipping is defined as an inspection process performed in addition to Level 1 Containment. Level 2 Containment may be required at any point in the supply chain and must be performed by an impartial third-party sorting or inspection company approved by GT Technologies. Suppliers are liable for all costs for third party sorting, including travel costs.

Level 2 Containment status may be communicated to the supplier's quality system registrar with a request for a re-audit of the supplier's quality systems.

Suppliers placed on customer special status (e.g., GM CSII, Ford Q-1 revocation) for quality or delivery issues are required to notify GT Technologies' plant Quality department or Supply Chain Management Group.

The Containment Inspection Checklist

When placed on controlled shipping status, suppliers are required to summarize required inspection and tests on an inspection check list. All items on the checklist shall Have detailed inspection instructions. Inspection checklists and instructions must be submitted to GT Technologies' plant Quality Department. Boundary or acceptance samples shall likewise be reviewed.

Exit Criteria

Exit criteria shall be established for each item on the inspection checklist. Criteria shall be measurable and requires approval by GT Technologies' plant Quality Department. Time based exit criteria is acceptable only after capability is demonstrated or when corrective action is implemented and verified.

9.0 Supplier Product/Process Specification Change Management

Suppliers are required to notify GT Technologies of all planned design, process, material or sourcing changes using the Supplier Request for Product/Process Change form. (Refer to Section 3 – Customer Notification and Submission Requirements of the AIAG PPAP manual for guidelines). In addition to the standard form, requests shall include a detailed timing plan. Depending on the complexity of the change, GT Technologies may require additional information to ensure a successful transition after the change is approved. A copy of the GT Technologies Request for Process/Product Change may be found in the Supplier Info section at www.gttechnologies.com

GT Technologies shall be notified a minimum of 90 days prior to the supplier's planned implementation date. This is necessary to allow adequate time to review the change and to get approval from GT Technologies' customers if required.

At no time shall a supplier implement a product/process change without written

authorization from GT Technologies' Engineering and Supply Chain Management. Please note that authorization to proceed with a requested change is not approval for the change. Approvals are obtained through the PPAP process. The GT Technologies' authorized representative will respond to the request with a decision, and if authorized, will include requirements for approval. Changes can be implemented only after full approval is granted.

10.0 Continual Improvement

Suppliers shall develop an annual Continual Improvement plan, which establishes improvement goals, implementation dates and responsible personnel, and is approved and periodically reviewed by the supplier's upper management.

Listed below are basic principles to help achieve continual improvement goals. GT Technologies expects all suppliers to incorporate these principles into the normal planning and improvement process.

Lean Principles

Suppliers are expected to develop and drive yearly Lean Implementation Plans. Plans shall include metrics to measure progress against carefully set targets.

Error/Mistake-Proofing

Error/Mistake-proofing provide an effective means to achieve the industry standard of 'zero defects'. Error proofing is used in product designs and mistake-proofing in manufacturing processes. GT Technologies requires suppliers to adopt error/mistake proofing methodology in their design of products and processes as a fundamental responsibility of doing business.

Quality Operating System (QOS)

It is GT Technologies' expectation that suppliers adopt and implement a visual QOS to involve all employees in driving Continual Improvement activity throughout all work areas. It is expected that QOS, a measurement-based Continual Improvement methodology, be utilized to help prioritize and focus company resources on improving the most important aspects of the business in key areas such as safety, quality, cost, delivery and people.

Benchmarking

It is GT Technologies' expectation that suppliers establish benchmarking facilities and activities to develop and maintain a database of information on competitor parts and materials. This information shall be fed into all current and new programs.

Value Analysis / Value Engineering

It is GT Technologies' expectation that suppliers utilize VA/VE workshops at key pre- and post-launch junctures to continually improve product value to the customer. These workshops shall target total cost (Design, Process, Policy, and Tier 3), not just the traditionally targeted product design. Records shall be maintained with appropriate ideas being fed into all current and new programs.

SECTION D - ENGINEERING AND TOOLING

11.0 Product Development / Engineering and Design

General

This section describes the expectations and requirements in six major areas:

- Design and development capabilities
- Computer-aided design and engineering resources
- Dimensional management resources
- Error-proofing
- Program management
- Engineering Change Management

11.1 Product Design and Development Capabilities

Suppliers with design responsibility are expected to have the technical and personnel resources to support all phases of design, development, and engineering. Suppliers shall design and manufacture their products and issue

periodic progress reports in accordance with the GT Technologies' APQP requirements.

Design Schedule Review and Involvement

Suppliers will demonstrate the ability to participate in early design activities from concept through prototype and production. They shall have the ability to provide the necessary information and data according to GT Technologies' APQP unless otherwise specified.

Design schedule review and approval data, including provisions for written GT Technologies' approval, shall be planned. Frequency and scheduling of progress reporting will be agreed upon by GT Technologies and the supplier.

Supplier Capability

Suppliers shall dedicate appropriate resources and facilities to support design and development processes. Supplier capabilities should include:

- Use of such studies as Quality Function Deployment (QFD), Design of Experiments (DOE), and Design Failure Mode & Effects Analysis (DFMEA)
- Identification and documentation of key characteristics based on material function, design intent, and other factors that could cause non-conformances with product safety requirements or non-compliance with government regulations or could adversely affect how customer requirements are met
- Performance/cost/risk trade-off studies

11.2 Computer Aided Design and Engineering Resources

Suppliers are expected to have CAD/CAE capability, experienced personnel, and appropriate facilities to perform design and engineering analysis. If CAD/CAE is subcontracted, the supplier shall lead and manage the project (e.g. engineering, monitor key events and timing, etc.).

Computer Aided Design (CAD)

The preferred CAD software for GT Technologies is Solidworks. The supplier may submit CAD files in STEP. Unless otherwise specified, the following items apply to all programs / projects:

- CAD (math) data shall be provided to GT Technologies in the OEM Customer's CAD Native form. (e.g. Solidworks and STEP)
- Design responsible suppliers shall work in the latest CAD version utilized by GT Technologies. In addition, all release data shall follow GT Technologies' technical specifications and standards unless otherwise specified

11.3 Dimensional Management and Resources

Suppliers are expected to have the dimensional management personnel and graphical documentation (via CAD) capabilities to support the GT Technologies' dimensional management process in accordance with GT Technologies APQP. Suppliers should be able to demonstrate the following:

Dimensional Management Personnel Involvement

Suppliers shall demonstrate the ability to participate in early dimensional management activities, from concept through prototype and production. Suppliers are expected to track their key events and timing using the Dimensional Management Plan (DMP) established with GT Technologies. Supplier capabilities shall include the following dimensional management activities:

- Identify customer fit objectives (Fit, Function and Reliability nominals & tolerances, product Key Characteristics, etc.)
- Direct and optimize the Geometric Dimensioning and Tolerancing (GD&T) (establishing Datums, Geometric Characteristics and Tolerances, etc.) to achieve Fit, Function and Reliability Objectives
- Perform complex Statistical Analyses (Worst-Case SGT Tasks, RMS Calculations, etc.) and graphical Variation Simulation Analysis (VSA) to proveout / validate Objectives, and/or GD&T
- Identify and direct the development of dimensional verification points on components, sub-assemblies, and/or systems
- Review Check fixture design & build, GR and GR&R results for conformance to Fit, Function and Reliability Objectives
- Perform dimensional capability studies at the development and production stages using the AIAG SPC Manual as a standard

Graphical Documentation Capabilities

Suppliers shall demonstrate the ability to graphically document (via CAD) the following dimensional management activities throughout the product development cycle:

- Fit, function and Reliability Objectives & Variations
- Datum schemes (components & sub-assemblies)
- Geometric Characteristics and Tolerances
- Dimensional Verification Point

11.4 Error Proofing

Suppliers who have design responsibility or are participating with GT Technologies in developing new products are expected to demonstrate the use of error-proofing methods for making improvements and to minimize the total cost of producing the product. The suppliers participating in GT Technologies' product development activities are required to provide input using DFMEA and historical quality and warranty data as a base.

Error-Proofing is defined as the use of techniques during the design phase of a product to ensure the product will function as intended for the useful life of the product, and that the product can only be manufactured or assembled per the design intent with the least risk for an error to occur during processing.

11.5 Program Management

Irrespective of design responsibility, it is GT Technologies' expectation that suppliers will use a multi-disciplinary approach for decision making and a documented program tracking system which includes key events and "target versus actual" timing. Suppliers shall identify people involved in decision making by name, title or responsibility and telephone numbers. Designated individuals are required for evaluating quality, reliability, health, safety, environmental issues, product service, and cost reduction.

Suppliers shall maintain a manufacturing and construction flow chart covering the entire project from purchase of raw materials through finished product customer approval and depicting all operations, inspection design and build reviews, tests, checks, prove-outs, etc., along with milestone dates. All significant / critical / dimensional characteristics and tolerance will be approved by GT Technology along with desired capability data.

11.6 Engineering Change Management System

Engineering changes initiated by GT Technologies or GT Technologies' customers will be documented on Engineering released drawings and communicated on the applicable Purchase Order. Supplier requests for product/process changes shall be initiated on the SRPPC form (see section 9.0 of this manual)

12.0 Primary & Secondary Tools, Gages and Fixtures

General

This section will present the GT Technologies' requirements, exceptions, and deliverables, for primary, secondary tool gages, and fixtures. The items described below are in addition to the requirements and expectations defined in previous sections. GT Technologies has an ever-increasing commitment to continual improvement in the areas of quality, technology, customer satisfaction, and market share. Success in obtaining these goals will require an increasing reliance on our suppliers and their sub contractors.

The following definitions will be used with in this section:

- Primary tools: injection molds, die casts, forging tools, stamping dies
- Secondary tools: assembly machines, etc. (all product specific tooling that is necessary to produce, assemble and test the product as shipped to the GT Technologies' customer)
- Gages and fixtures: check fixtures, CMM holding fixtures, attribute fixtures, environmental fixtures, quality assurance fixtures (QAF), hand apply fixtures

12.1 *Supplier Design Capability*

Suppliers shall have a proven record of design and technical expertise relative to the specific area of responsibility. Suppliers are expected to provide all technical staff and facilities required to support all phases of production and prototype design, development, construction and certification of all primary, secondary, tools, gages and fixtures as required by the product development team. The supplier is expected to provide all technical and support staff necessary to provide contracted services as described within the GT

Technologies' Purchase Order.

12.2 *Design, Development, Financial Responsibility and Construction*

Design Schedule

Supplier shall be responsible for providing and adhering to a schedule that provides for the successful completion of tools, gages and fixtures on time as stated on the Purchase Order. This schedule shall be maintained in Microsoft Project or other formats as determined acceptable by GT Technologies

Engineering, Supply Chain Management and plant representatives (product development team). The schedule shall be supplied in written and / or electronic form at the minimum agreed frequency, and design reviews shall be held at regular intervals.

Note: Design shall not be considered complete until formally approved by GT Technologies' responsible Engineering, Supply Chain Management and Manufacturing Representatives.

Construction Phase

Prior to quotation and / or pre-sourcing agreement, GT Technologies will provide specifications and program assumptions including current Bill of Materials (BOM), SOW, BOT and applicable standards. All modifications and additions to these standards and requirements shall be agreed upon in writing and authorized by Purchase Order.

Tool Management

Suppliers shall have an established and proven system to ensure effective and efficient tool management that includes the following minimum requirements:

- Complete and maintain all applicable feasibility studies, design and construction checklists, tryout notices, issues, and tool history records are documented
- Proper and adequate storage for all models, tooling aids, CAD data, tool designs, product data files, master mandrels, master controls programming, and all additional real and intellectual properties required to support the

program

- Provide necessary program management personal to support all phases of feasibility, design, construction, launch support, and plant production volume support as deemed necessary by the product development team and GT Technologies' Plant Manager
- The supplier shall maintain and staff an appropriate facility for engineering change, preventive maintenance and repair of all tooling
- Assure compliance with all Federal, State, Provincial, local, and corporate safety standards
- Written operation instructions and recommended procedures and frequencies for preventive maintenance and complete list including sources of recommended spare parts to be maintained at a GT Technologies' facility
- Prior to tool acceptance, all primary and secondary tools shall demonstrate the ability to provide a "Tool to Print" at the acceptable quality levels at the quoted cycle times. The supplier shall participate as a member of the GT Technologies' development team to achieve "part to print"
- Prior to acceptance, all gages or fixtures shall have a proven ability to inspect or check all inspection points as described by the development team and GD&T within the ranges described by industry standards, currently defined in the AIAG MSA manual

Financial Responsibility

Tool suppliers to GT Technologies are to assume full financial responsibility for all phases of program support beginning at Product and Process feasibility through and including production "run at rate". Supplier is to assume all financing costs incurred through the payment date as described in the GT Technologies' Purchase Order. The costs shall include, but not be limited to,

- All costs of transportation of primary, secondary tools, gages and fixtures as required to support engineering changes or tool corrections required to receive "Tool Approval"
- Costs of all "fine-tuning" that may be required to achieve acceptable fixture and/or gage GR&R as described in the SOW

Dimensional Control

The supplier shall provide proven and appropriate facilities and resources to perform complete and full dimensional layout and inspection of all injection molds, foam tools, skin tools, secondary tooling, CMM fixtures, attribute

fixtures, etc. Inspection and layout shall include both CAD surfaces and GD&T features as the product is used and installed in the application. The GT Technologies' production development team shall provide and / or approve a group of principal inspection points that will be used to determine product dimensional integrity. Dimensional inspection reports shall be provided in body position with all expansion values removed (no shrink dimensions).

Change Control and Authorization

All proposed changes whether driven by product engineering, tool feasibility, or process requirements shall be documented in writing. Changes shall not be implemented without authorization from GT Technologies' Engineering and Supplier Development functions. Cost and timing to make authorized changes shall be approved by GT Technologies' Supply Chain Management Group. Approvals shall be confirmed in writing (See section 9.0 of this manual)

Prototype

Prototype tooling is defined as tooling that does not meet the final production tooling specifications. Similarly, prototype processes are defined as processes that do not meet the final production process specifications or processes that have not been validated. Typically, prototype tooling and processes are used to produce parts to verify function, fit & finish, process capability, etc.

To ensure an efficient transition from the prototype to production, it is recommended that prototype and production tooling be designed and fabricated by the same tool source.

Details of processes (equipment, tools, fixtures, materials, method and inspection) used to produce prototype parts shall be documented. Prototype parts shall be identified to allow traceability to the specific process used, and to inspection reports (see section 6.2 for prototype dimensional and material verification requirements).

See also PRI111 'Supplier Requirements for GT Owned Tooling'.

SECTION E - MATERIALS MANAGEMENT

13.0 Materials Management

13.1 Releases and Electronic Communication

Electronic Data Interchange (EDI):

GT Technologies participates in many Extended Enterprises initiatives with our customers. Therefore, our suppliers are also requested to become part of our Extended Enterprise team.

GT Technologies transmits releases via EDI or email at the discretion of the releasing specialist. Releases are typically sent to the supply base on a bi-weekly basis.

For any questions regarding EDI or the release schedule, contact the Materials Manager at the Receiving plant.

Electronic ASN's may be submitted at https://www.myedx.com. For access information and training, contact the Material Manager at the receiving plant.

Planning Review Schedule

- Twelve weeks of planned requirements are transmitted in net quantities due via either EDI or email. All shipment quantities should be based on accumulative totals. Releases will also show an additional three months of planning numbers and are provided in the same net and cumulative format
- All suppliers are required to verify cumulative totals upon receipt of each release to assure correct shipment of product. Shipments per a new release schedule are required 24 hours after receipt of release
- All shipments are due in-house on the release schedule date, unless specified by the GT Technologies' plant Releasing department.
- GT Technologies is a Just-In-Time (JIT) supplier and is required to maintain production and shipping capabilities whenever our customers require it. In turn, GT Technologies' supply base is also required to maintain production and shipping capabilities whenever required which includes weekends and holidays without exception

- GT Technologies receives authorization levels for finished product and raw material from our customers. These authorization levels are passed straight through to our supply base. Most authorization levels are as follows: For North American suppliers, fabrication cumulative authorization is two (2) weeks and raw material cumulative authorization is an additional four (4) weeks for a total of six (6) weeks combined authorization. For overseas suppliers, fabrication cumulative authorization is six (6) weeks to include in-transit orders and raw material cumulative authorization is an additional four (4) weeks for a total of ten (10) weeks combined authorization. Exceptions to these authorizations should be discussed with the specific GT Technologies' Plant releasing department
- Suppliers are responsible for the accurate and timely shipment of required product, supported with accurate billing information per established routing and window times as directed by GT Technologies
- Supplier schedules shall be maintained to support GT Technologies' schedules and requirements, unless other arrangements have been previously made with our releasing department
- All rejected material is expected to be replaced and available at GT Technologies as directed by the Materials Group
- Suppliers will ensure material is shipped to schedule during their downtime.
- All suppliers are required to maintain an appropriate amount of supplied finished product at their facility to avoid any potential shortages due to release fluctuations and/or rejected material
- Excess transportation charges are the supplier's responsibility when past due.
- All milk run windows, if applicable, shall be adhered to and maintained without exception
- Over-shipments are not acceptable unless agreed upon by the scheduling specialist. Suppliers will be held responsible for any return freight carrier charges, and/or other plant costs because of an over-shipment
- Any shortages, problems or concerns shall be communicated to your plant releasing contact immediately
- It is the responsibility of each supplier to ensure that all shipments are always in predetermined standard pack quantities. The only exception to this requirement will be when making the last shipment on a discontinued product.
- Capacity problems and any other extenuating circumstances requiring extended downtime that will limit the supplier's ability to meet the

required ship schedule shall be communicated immediately to GT Technologies Supply Chain and plant Materials management Groups
- GT Technologies requires suppliers using EDI to send ASN's immediately after carrier departure
- Suppliers shall have AIAG standard labels on all material sent to GT Technologies for scanning the material to the ASN

13.2 Packing Slips and Master Bills of Lading

Packing slips and master bills of lading, whether direct shipments or shipment moving through a consolidation point, shall be submitted with every shipment.

Direct Shipments

Direct shipments move directly from a shipping plant to a destination plant. Packing slips shall be prepared in duplicate. One copy of the packing slip is to be firmly attached to the outside of one of the containers in the shipment. The second copy of the packing slip should be tendered to the carrier.

Packing Slips

Packing slip format shall allow for multiple part number, quantity information and show the GT Technologies' assigned part number. Packing Slip number scheme shall also be the supplier's invoice number.

The information to be included on all packing slips is as follows:

Supplier Information:

- Supplier name and address. (ship point not billing office)
- Supplier Code (I.D.) number
- Packing slip number
- Date shipped
- Carrier name

Shipping Information:

- Ship To: GT Technologies plant address
- Bill To: GT Technologies plant address

- Gross, tare and net (material) weight
- Shipped via (routing as instructed by GT Technologies' Plant Releasing department)
- Freight terms (FOB point, collect/prepaid, etc)
- Authorized excess transportation charge to be included whenever movement of material deviates in any way from the normal supplier routing instructions

Packaging Information:

- Number of unit loads: pallets – containers – cartons, etc.
- Pieces per unit load
- Unit of measure – if other than pieces per unit load

Part or Material Information:

- GT Technologies' Purchase Order Number
- Quantity shipped
- GT Technologies' part number (listed in sequential order)
- GT Technologies' part description
- Invoice number shall be referenced
- If product is shipped to an individual, include their name(s) on an attention line

Master Bill of Lading

When routing instructions direct you to make a shipment for multiple plants or docks into a single facility, a Master Bill of Lading is required to combine shipments. The master will be consigned to the distribution center. An individual shipper identification number shall identify each ultimate destination shipment included in the master.

Supplier Responsibility

- Reconciliation of accumulative year-to-date quantity shipped from the supplier for each part number
- Packing slip format shall allow for multiple part numbers, shipped quantities and show the GT Technologies' assigned part number. One packing slip must be designated for each load shipped

- Packing slip number schemes shall also be the supplier's invoice number

13.3 Consigned Materials

Suppliers holding GT Technologies' consigned material are required to submit a copy of the packing list and quality documents upon receipt via fax or email; and to supply inventory of material being held monthly at minimum.

13.4 Packaging and Identification Labels

Supplier's are responsible to maintain a sufficient inventory of suitable expendable packaging that may be used for premium shipments, production pilot programs, service orders, or to avoid container shortages.

Packaging & Labeling Mistake-Proofing

Labeling shall comply with the Automotive Industry Action Group (AIAG) Shipping/Parts Identification Label Standard. Returnable containers require two Kennedy label holders or Teflon impregnated labels permanently affixed, for ease in the removal of bar code labels upon product consumption. The affected GT Technologies' Plant must approve, on an individual basis, the use of any "pockets" or "holders" which deviate from the standard.

"Mixed Load" labels shall be on all mixed pallet loads and clearly identified.

Determination of Packaging Types

Suppliers of production parts and materials are to be held responsible for packaging their products in pre-approved packaging and in accordance with the instructions contained herein. All pack size, packaging, container or pallet dimensions and or type shall be pre-approved by the appropriate GT Technologies' facility.

It should be noted that burlap or cloth bags, barrels, drums, kegs, cans or pails are not acceptable as shipping containers for other than granular or liquid materials; generally, they are inefficient and difficult to handle, and do not conform to the integrated handling systems employed at the GT Technologies' facility.

Selection of a Method

Packaging type and specification will be determined specifically for each part and will consider type of part or material, the method of transportation and the method of handling required by the receiver. However, other factors require consideration. Hand handled packages are typically subject to rougher handling than those handled mechanically. Package size, strength and type shall be selected to provide protection and to fit the mode of transportation, applicable carrier regulations, and distance of transit.

Other considerations for packaging selection and design are as follows:

- Handling labor
- Transportation cost (optimum cube utilization)
- Floor space availability
- Direct labor
- Recyclability, disposal or return
- Design shall follow 'best practices' criteria

GT Technologies has the option of reviewing all supplier-packaging designs and rejecting those designs which are not compatible or adequate to GT Technologies' systems. Additionally, suppliers are to review their packaging on an on-going basis to improve deliverable part quality, part presentation, and continual minimization of costs.

The specific packaging type and design should be chosen to best fulfill the requisites of good packaging practice.

Shipments of sufficient volume to warrant palletization must be loaded on a pallet or packaged as a unit load and secured.

More than one part number packaged in any container is not allowed unless specifically directed by the GT Technologies' receiving plant.

All expendable containers should be loaded to cubic capacity to maintain load density, package integrity, and obtain optimum freight rates.

All containers should have a manufacturer's certificate with bursting or puncture test visible on the assembled container.

All standard pack densities and unit load quantities shall be approved by GT Technologies' receiving plant.

Handheld Packages

To permit efficient handling and ergonomically safe containers; the following conditions will apply:

- These packages shall not exceed 35 lbs. / 15.91 kg. gross weight and should be shaped so that one person can easily handle them
- The recommended three main pallet footprints are a four-way, 48" x 45", 36" x 32" and 32" x 30" footprint. All containers shall be modular to these three footprints and shall not have overhang. Use unique pallets only when product characteristics dictate. Furthermore, the plant specific, material storage systems may dictate one specified footprint
- The minimum burst strength shall be designated to adequately withstand the conditions of warehousing and transportation. Less than 275 pounds per square inch will require authorization from the GT Technologies' Materials Management department
- Whenever possible and as volume permits, hand handled packages may be utilized so they can be handled mechanically as a single load by fork lift trucks. One full level layer of cartons on a pallet is sufficient volume to require that parts be palletized

Mechanically Handled Loads

To ensure that mechanically handled expendable loads will allow proper handling by available equipment, and will be shipped without damage to permit efficient unloading from the carrier, the following conditions will apply:

- All mechanically handled loads shall have four-way entry with flush cut top and bottom boards
- Minimum of 3 ½-inches fork clearance and 28-inches lateral clearance shall be maintained, where possible
- Gross weight shall not exceed 2,500 pounds without prior approval by GT Technologies
- All loads shall be firmly secured to the pallet. Non-metallic strapping (at least two bands lengthwise and two bands widthwise), stretch wrap or shrink-wrap are acceptable methods to maintain the integrity of the load
- When stretch wrap or shrink-wrap is used, a single wing style pallet is mandatory (A minimum ¾-inch wing is mandatory on all four sides)
- All drums shall be palletized and firmly secured

- All stretch wrapped loads shall be wrapped at least four times at the bottom and top of the load, and two wraps in the middle. The bottom wrap shall start below the wings on a wing style pallet. This will secure the container to the pallet. Stretch wrap shall be transparent to allow the bar code to be read. Preferred stretch films: LLDPE (linear low-density polyethylene), LDPE (low-density polyethylene) EVA (Ethyl vinyl acetate 12 % min.)
- All packages shall be strong enough to permit stacking a minimum of eight feet high in-transit through point of use
- The container shall be designed to withstand the constant handling required by our Just-In-Time operation

Internal Expendable / Returnable Dunnage

All material / dunnage used in shipping containers shall have a minimum burst test strength and wall thickness to adequately withstand the test of usage from the point of manufacture to the receiving location without failure. When applicable and appropriate, dunnage should be permanently affixed to the primary container. Returnable dunnage shall follow the same cleanliness procedure outlined for primary containers.

Packaging Closure

The acceptable closure for packages is adhesive carton sealing tape or fiber reinforced paper tape. Staples and glue are not permitted.

Returnable Containers

This method of packaging is intended for multiple shipments. The containers are to be controlled and returned to the supplier for reuse.

"Returnable" pertains to either supplier owned, or GT Technologies owned containers such as plastic or metal bins, racks, pallets, trays, separators and/or loose components.

- All returnable containers and internal dunnage shall be pre-approved by GT Technologies
- These packages shall not exceed 35 lbs. / 15.91 kg. gross weight and should be shaped so that one person can easily handle them
- Packaging shall fit on either a 36 x 32 or a 45 x 48 four-way entry pallet. The packaging cannot exceed 32" or 40" high respectively, including the pallet

- The container shall be designed to withstand the constant handling required by our Just-In-Time operation
- Consideration shall be given to the wide range of temperatures the container will be exposed to
- Whenever possible and as volume permits, hand handled returnable packages shall be utilized so they can be handled mechanically as a single load by fork lift trucks.

Supplier Responsibilities

Maintain a sufficient inventory of suitable expendable packaging that may be used for premium shipments, production pilot programs, alleviating container shortages, and service orders.

Suppliers who ship in returnable containers shall identify the contents with an adhesive AIAG shipping parts identification label that will remain affixed during inbound transit move and handling in our plant but be easily removed by hand. Two container labels shall be clearly visible on adjoining surfaces of a returnable container. Ensure that containers are clean of old labels to eliminate miss-identification.

During the life of the program for which the returnable containers were designed, it is the responsibility of the supplier to ensure that each container is maintained and ready for reuse.

Inspect all containers prior to loading and segregate damaged equipment.

If a damaged container is received that is not usable the container shall be removed from circulation and replaced.

All returnable containers shall be visibly labeled with GT Technologies' plant address.

Packaging Specification Submission and Approval Requirements

All suppliers are required to complete and submit a "Packaging Specifications" form to GT Technologies' plant designated packaging support personnel (see the Supplier Info section at www.gttechnologies.com for details). If the documented data is approved, the supplier(s) will be contacted for the submission of the sample packaging for review.

Upon internal approval, the “Packaging Specifications” form will have all necessary internal approval signatures, and a copy will be returned to the supplier as the official signoff and authorization to proceed.

All packaging, whether new or changed, shall have written approval from the designated plant packaging support personnel before parts are shipped.

Returnable Container Maintenance

The use of clean, damage-free containers perpetuates a commitment to quality. When returnable containers are selected all suppliers are responsible for container maintenance including, but not limited to, the following:

- To avoid possible confusion regarding the status of empty containers, suppliers shall remove all obsolete labels and tags from empty received back from GT Technologies

- As part of the cleaning process, dunnage and trash shall be removed from containers. It is recommended that dunnage/trash removal should occur as soon as practical after the removal of exterior identification bar code labels. This will help avoid damage during collapsing/nesting. Collapsing or nesting empty containers as early as possible will prevent the accumulation of trash, and optimize floor space requirements

- Under certain conditions it may be necessary to wash the containers to remove any residue of former contents. The type of wash will vary by the contents and desired results. A high-pressure soap and water spray may produce the desired results in some cases while a chemical bath may be needed

- Part damage caused by moisture can be avoided by allowing for proper drainage after washing.

Inspection for Damage

During the overall cleaning process, each container should be inspected for damage. The inspection should check both appearance and functionality. A damaged container will not perform at the desired level required nor provide proper part protection during transport, use, and storage.

Repair

Damaged containers shall be repaired before they are re-introduced into the system. The use of damaged containers can damage contents or may become a safety hazard.

Storage

After containers have been cleaned and are ready to be returned into the system, storage space for empty containers is to be provided. This space should be where the clean containers can be protected from contaminants, i.e. dirt, weather, etc.

13.5 Transportation and Delivery

- Suppliers shall use specified transportation methods and specified carriers in compliance with shipping instructions provided by GT Technologies
- Milk-run window times shall be adhered to and maintained without exception
- Suppliers shall have the material available for shipment at the designated pickup time
- Suppliers will take all necessary action to avoid premium transportation shipment
- Excess transportation charges are the supplier's responsibility when in a past due status
- Authorization for excess transportation charges shall be obtained from GT Technologies whenever movement of material is by other than the normal mode of transportation and routing
- Premium disputes shall be submitted in writing to the specific plant releasing contact within 30 days or they will not be honored

Receiving Hours

Contact the applicable GT Technologies' receiving plant for local receiving hours and for off-hour deliveries.

Communication

Effective and productive communication regarding all information that may affect the timely delivery of material(s) to support our daily production builds is mandatory.

GT Technologies' Plants require daytime contact names and phone numbers and after hour emergency contact names and phone numbers. Any changes within your organization shall be communicated immediately with an updated contact list.

Suppliers shall immediately communicate any unexpected downtime that adversely affects your ability to support schedule requirements to the appropriate Release Specialist.

The supplier shall properly communicate internally between shifts and among departments regarding the following information:

- Engineering changes
- Production and Service parts schedule and volume changes
- Quality problems/rejected rates
- Build problems
- Critical material shipments

Suppliers are responsible to provide the names and phone numbers of contact people who are knowledgeable and qualified in the areas of:

- Material follow-up, including systems, shipping and traffic
- JIT schedules
- Engineering changes
- Purchase orders

Suppliers are responsible for the maintenance and communication of addresses, telephone numbers, and fax numbers listings of their personnel to GT Technologies contacts.

GT Technologies will provide a monthly forecast to all suppliers. This forecast is not a binding commitment to purchase but is a tool to assist the suppliers' planning process. GT Technologies' Holiday calendar will also be provided.

Suppliers are responsible to report delays or errors in both transmitting and receiving electronic communications immediately and initiate corrective action. Suppliers are also responsible to notify the GT Technologies' receiving contact when a release is not received.

Suppliers shall immediately communicate any unexpected downtime that may adversely affect their ability to support schedule requirements to the Release

Specialist at the GT Technologies' receiving plant. Communication shall continue internally between shifts and among departments. Suppliers will provide the following information to the specified Releasing Specialist contact in the event of a missed shipment:

- When the Supplier can ship and what quantity?
- What caused the missed shipment?
- What is being done to correct the problem (action plan)?
- What is being done to ensure the problem does not reoccur (irreversible corrective action)?
- Confirmation that the supplier is prepared to put the action plan in writing, if requested

Instructions for Completing the Statement of Charges Resulting from Cancellation/Change

Before you begin completing your supplier claim, please ensure that your claim meets the following criteria:

- All claims shall be submitted within fourteen (14) calendar days, unless specified otherwise, from the last day of shipment to file your claim. If your claim is not submitted within this window, it will not be honored
- Any claim submitted for less than five hundred dollars ($500.00) will not be honored
- All suppliers will ship the scheduled quantity to the nearest standard pack until the last shipment(s) are made. Non-carryover, end of the model year and interim engineering change material will be shipped to the piece based on the current schedule. Material shipped over authorized schedule requirements will become the supplier's financial responsibility

Please keep the following requirements in mind as the Supplier Claim is being completed.

- Any amount of material claimed more than GT Technologies' high release commitment (as reflected in the material shipping and fabrication release) will be deducted from the supplier claim. Exception to this will be granted only if the claim is accompanied by written correspondence from GT Technologies' releasing department, Procurement agent, or designated GT Technologies' representative. Third party buys for material above authorization will not be honored

- The claim shall reference the release program number used as the authorization for your last material purchase. Keep in mind that this figure cannot exceed GT Technologies' high commitment
- The claim shall reference all PCN numbers that affect the part and caused the change or cancellation
- Suppliers will be responsible for providing end of model year material requirements for service parts on non-carryover items. OEM's require all suppliers to make parts for Service and Warranty for an extended period. GT Technologies also requires its suppliers to remain in compliance per the OEM's requirements
- More than one canceled part may be submitted on a single claim form provided they are canceled for the same reason and were shipped to the same GT Technologies' plant.
- If your claim submission includes in-process material, provide an estimated cost for completion. This should be on a per piece basis and will be used by GT Technologies Material Management department in the evaluation process
- All claim submissions will require proof of all costs as well as physical verification of all material(s) upon request
- Material termination claim forms will be submitted as stated within fourteen (14) days from the effective date of termination in accordance with GT Technologies' instructions. Only completely cancelled parts will be reported on a material termination claim
- The supplier will hold all claim item(s) until final disposition authorization is obtained from GT Technologies. All claim items shall be stored to preserve the production condition

13.6 NAFTA Regulatory Content Reporting (Applies to North America only)

For information regarding NAFTA and Certificates of Origin visit *www.ustr.gov/trade-agreements/free-trade-agreements/north-american-free-trade-agreement-nafta*

13.7 Conflict Minerals

The Dodd-Frank Act Section 1502 concerning Conflict Minerals restricts the mining source of Gold, Tin, Tantalum and Tungsten (3Ts&G). The intention of Section 1502 is to eliminate the political and/or human rights conflict in the DRC (Democratic Republic of the Congo) and surrounding countries. The new law imposes requirements regarding Conflict Minerals for certain manufacturing companies. (Details can be found in the

Corporate Responsibility section at www.aiag.org)

It is GT Technologies' goal to become conflict minerals free in the products supplied to our customers and to support the conflict minerals initiative together with our supply base by complying with all the reporting requirements; and by implementing due diligence processes in accordance with a nationally or internationally recognized framework.

To ensure compliance to the Conflict Minerals requirements, it is important for suppliers of production and service materials/components to undertake the following actions:

- Send contact information for a designated Conflict Minerals representative to conflictminerals@gttechnologies.com
- Complete a product level Conflict Minerals report on the standard Conflict Minerals reporting Template (CMRT) and submit a copy to conflictminerals@gttechnologies.com. Only reports on the standard form will be accepted. PDF copies are not acceptable. The template can be found at www.responsiblemineralsinitiative.org/conflict-minerals-reporting-template/. Updates are required when requested
- Document all steps taken to collect and report conflict minerals information and preserve that documentation for a period of not less than three years
- GT Technologies' suppliers are required to implement due diligence processes according to nationally or internationally recognized guidelines

SECTION F – DEFINITIONS

Definitions and Acronyms

AIAG (Automotive Industry Action Group): Organization of component suppliers and automotive manufactures, which looks at ways to standardize processes/procedures between the groups.

ASN (Advanced Shipping Notice): An EDI transaction (856) that contains information

regarding the shipment of parts/materials.

APQP (Advanced Product Quality Planning): A structured approach to planning and execution of the activities and milestones associated with the design and validation of products and processes.

Bar Code: A series of alternating bars and spaces printed or stamped on parts, containers, labels, or other media, representing encoded information that can be read by electronic readers. A barcode is used to facilitate timely and accurate input of data to a computer system.

Bar Coding: A method of encoding data using bar code for fast and accurate readability.

Batch (volume or lot): an identifiable collection of products, or quantity of material, of a single type, grade, class, size or composition produced in the same facility under Continual controlled conditions for a period not to exceed 8 Continual hours.

BOL (Bill of Lading): A document which indicates content of shipment and ownership of material.

Balance Out: This term is applied to the termination of the use of a part, or the production of vehicles (primarily at the end of a model year).

Behind Schedule: A quantity of material which has not been shipped by the supplier in accordance with the specified timing as authorized by the current or prior Material Releases.

Blanket Order: A purchase order issued for a period – (Example: one year with an automatic year extension) allowing periodic releases of the item(s) specified. The purchase order does not designate the number of Parts to be released, but rather the percent of business the supplier is entitled to supply.

BOM (Bill of Material): A list of the materials that are required to manufacture a product.

BOT (Bill of Tooling): A list of primary and secondary tooling required to manufacture a product.

CAD (Computer Aided Design): Computer software used to aid the design function.

CAM (Computer Aided Manufacturing): Computer simulation software used to aid the

design and verification of manufacturing systems.

Calibration: Comparing two instruments, measuring devices or standards, one of which is of known accuracy. To detect, correlate, report or eliminate by adjustment any variation in accuracy of the instrument or measuring device of unknown accuracy.

CAR (Corrective Action Request): A request for a corrective action to contain and to prevent the reoccurrence of a product or system failure.

Carry-over: Any material that is currently being used and that is planned to be used for the next model year also, a period of downtime between model years production required to make necessary facility and tooling changes as well as material relocations to facilitate the new model program.

Change-over: A period of downtime between model years of production required to make necessary facility and tooling changes as well as material relocations to facilitate the new model program.

Characteristic: Any distinct property or attribute of a product, process or service that can be described or measured to determine conformance and nonconformance to specified requirements.

Charge-back: A cost recovery charge typically assessed to suppliers for cost incurred due to nonconforming, supplied material.

Claim Material: Unsold fabricated and/or raw materials authorized by GT Technologies' Operations that remain unshipped at the supplier's location.

CMM (Coordinate Measuring Machine): A three coordinate dimensional measuring device.

Containment: Actions taken to ensure nonconforming material is not passed to the next operation or shipping point. Containment actions are implemented when actions to correct cause for nonconformance have not been implemented or validated.

Conflict Minerals: The term 'Conflict Minerals' means Columbite-tantalite (coltan), cassiterite, gold, wolframite, or their derivatives; or any other, material or its derivatives determined by the Secretary of State to be financing conflict in the Democratic Republic of the Congo or an adjoining country.

Corrective Action Plan: a detailed supplier problem resolution plan which confirms the root

cause of a nonconformance and the specific corrective and preventive actions implemented to prevent recurrence. The plan also references corresponding updates to quality control documentation, such as PFMEA's and Control Plans, for corrective measures that require manufacturing and/or quality control process changes.

Control Plans: Written descriptions of the systems for controlling parts and processes. They are written to address the important characteristics and engineering requirements of the product. Each part shall have a control plan, but "family" control plans can cover several parts produced using a common process.

Cp: This is a capability index. See the AIAG SPC manual.

CpK: This is a capability index. See AIAG SPC manual.

Critical Characteristic: Product or process characteristic identified as important due to the safety risk associated with a failure to meet the standard**.**

Delivery Schedule: The required or agreed time or rate of delivery of goods or services purchased for a future period.

DFMEA (Design Failure Mode and Effects Analysis): A planning document used to evaluate, prioritize and manage risk in the design process.

Dispose: An engineering change stock disposition; when a part is unfit for use and rework is impossible or not desired. (Note: Suppliers shall contact their GT Technologies' Operations Obsolescence coordinator for specific disposal instructions).

Disposition: An action to determine how a nonconformance is to be resolved.

Diversity Supplier: A diversity owned business is a company that is at least fifty-one percent owned, managed and controlled by one or more diversity persons. For the purposes of this definition, a diversity person is a Black American, Hispanic-American, Native American or Asian-American. The term "Native American" includes American Indians, American Eskimos, American Aleuts, and Native Hawaiians. The term "Asian Pacific American" includes United States citizens whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, and Guam, the U.S. Trust territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan. The term "Asian Indian American" includes United States citizens whose origins are in India, Pakistan and Bangladesh.

DOE (Design of Experiments): design of experiments or experimental design is the design of

information-gathering exercises where variation is present.

DVP&R (Design Verification, Plan & Report): Documents testing activities during each phase of the product development process, including Engineering Development (ED) testing, Design Verification (DV) testing, Production Validation (PV) testing, and Continuing Conformance (CC) testing.

ECL (Engineering Change Level): A revision to a blueprint or design released by engineering to modify or correct a part.

EDI (Electronic Data Interchange): Method of communicating information by using computers to transmit coded data.

Error: An error is a condition or state that is wrong or omitted from what we intended to do. The product design has allowed for a condition to exist that may prohibit successful processing.

Error-Proofing: Error-Proofing is the use of techniques during the design phase of a product to ensure the product will function as intended for the useful life of the product and that the product can only be assembled or manufactured per design intent with the least risk for an error to occur during processing.

Evaluation: An appraisal to determine if production processes and quality assurance programs can produce a quality product or providing a quality service and generating evidence that supports decisions of acceptability.

Excess Material: The material, at any given point in time, which by using agreed upon parameters and is over the normal inventory requirements at any specific location.

Expendable Containers: All shipping devices such as drums, skids, pallets, reels, boxes, racks, bags, etc., not requested to be returned.

F.O.B. (Free on Board): The abbreviation implies loading on a conveyance at the designated point. After these letters, it is usually designated where title and control of the good pass to the buyer.

GD&T (Geometric Design and Tolerancing): is a system for defining and communicating engineering tolerances. It uses a symbolic language on engineering drawings and computer-generated three-dimensional solid models that specify nominal geometry and its allowable variation.

GR (Gage Repeatability): The variation in measurement obtained with one measurement instrument when used several times by one appraiser while measuring the same characteristic.

GR&R (Gage Repeatability and Reproducibility): The variation in measurement obtained with one measurement instrument when used several times by two or three appraisers while measuring the same characteristic.

TS (International Automotive Task Force): This standard, coupled with the applicable customer-specific requirements, defines the quality management system requirements for automotive production, service and/or accessory parts. *IATF 16949* is an autonomous QMS standard.

Inspection: The examination, measurement, and testing of characteristics of processes, products or services to determine acceptability and the recording of resulting data.

JIT (Just in Time): A philosophy of manufacturing based on planned elimination of all waste and Continual improvement of productivity. The primary elements of Just-In-Time are to have only the required inventory when needed; to improve quality to zero defects; to reduce lead times by reducing setup times, queue lengths, and lot sizes; to incrementally revise the operations themselves.

Label: A card, strip of paper, etc. marked and attached to identify an object and to convey other information.

LTL (Less Than Truckload): A description for shipping, defining a partially filled trailer.

Manufacturing Lead-Time: Defined as the elapsed time from receiving a material requirement to having the specified material and quantity available for shipment.

Master: A known standard with the precision to enable it to verify the accuracy of a standard gage.

Master Label: A label used to identify and summarize the contents of a multiple pack of common items.

Mistake: A mistake is the manufacture or assembly of a product outside defined process requirements.

Mistake-Proofing: Mistake-Proofing is the use of 100% effective techniques, methods, and devices that prevent mistakes (primary) or detect mistakes (secondary) at the source or as near the source as feasible and prevents the movement of products with mistakes to the next steps in the process.

MSDS (Material Safety Data Sheet or product safety data sheet): A report detailing the contents and properties of a substance. The report is intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner.

MTL: Prefix used to designate GT Technologies material specifications.

Multiple Pack: A pack containing smaller packages (sub-packs) or items.

NAFTA (North American Free Trade Agreement): A trilateral trade partnership in North America based on an agreement signed by Canada, Mexico, and the United States.

NCR (Nonconforming Material Report): A report summarizing a product(s) non-fulfillment of a specified requirement(s).

Nonconformance: A deficiency in characteristic, documentation or procedure, which renders the quality of a product or service unacceptable or indeterminate. Examples of non-conformances are: physical defects, test failures, inadequate documentation, and deviations from prescribed processing or from any other part of the program.

Normal Mode: Method of transportation designated by GT Technologies' receiving facility to be used for all regularly scheduled shipments under that transportation mode.

Pack or Load: A unit that provides protection and containment of items plus ease of handling by manual or mechanical means. Examples of containers or packs that normally are disposable include bags, unit that provides protection and containment of items plus ease of handling by manual or mechanical means. Examples of containers or packs that normally are disposable include bags, cartons, and cartons on pallets and pallet boxes. Examples of containers or packs which are returnable/reusable include bins (with mesh or solid sides and ends), racks (plain or with special dunnage).

Past Due: The portion of the previous week's schedule that the supplier failed to ship to meet plant requirements.

PPAP (Production Part Approval Process): A structured process defined in the AIAG PPAP

manual to verify products and processes meet requirements.

Pilot: A program that is intended to build saleable vehicles on line to validate assembly tooling, assembly processes, training, process documentation, material systems and information systems with sample approved parts.

Premium Disputes: Disagreement between the supplier and GT Technologies over which party is responsible for the excess transportation costs involved in a premium shipment.

Procedure: A document that specifies, as applicable, the purpose and scope of an activity, what shall be done and by whom, when, where and how it shall be done, what materials, equipment and documentation shall be used and how it shall be controlled.

Repair: Action taken on nonconforming product so that it will function as intended but not meet specified requirements (Not allowed without written authorization)

Rework: Action taken on nonconforming product so that it will meet specified requirements.

RFQ (Request for Quote): A formal request to a vendor to provide cost and timing for a given product and/or service.

RMS (Root Mean Square): A statistical measure of the magnitude of a varying quantity.

RP (Rust Preventive) Typically used to refer to rust preventive oil or other materials.

Shipping/Parts Identification Label: A label used to identify the contents of a shipping pack.

Significant Characteristics: Product or process characteristic identified by the design team or during APQP for its importance to fit, function and reliability of the material or product.

SPC (Statistical Process Control): A group of analytical tools and methodologies that can be used to understand, improve, predict and control process behavior. SPC is the quality tool that most directly addresses the study and control or process variation.

Special Characteristic: Includes Critical and Significant characteristics.

Standard Pack: The smallest full container with a constant quantity and size in which parts are packaged for shipment.

Surveillance: The continuing evaluation, analysis and verification of a supplier's records, methods, procedures, products and services to assure that requirements are met.

Tag: A label that is hung from an object.

Termination Claim: Procedure in which suppliers, who have claim material, request reimbursement for cost of claimed material.

Unit Loads: The number of pieces in the primary container multiplied by the number of primary containers in/on the secondary container.

VA/VE (Value Analysis/Value Engineering): A systematic and organized decision-making process used to increase the value of products and/or services.
Verification: Independently reviewing, inspecting, examining, measuring, testing, checking, witnessing, monitoring or otherwise establishing and documenting that products, processes, services and documents conform to specified requirements.

Weights:

Gross Weight: Total weight of parts and tare weight (net + tare).

Net Weight: Weight of parts only.

Tare Weight: Includes the weight of primary and secondary containers, dunnage, bandage, a plastic and excludes weight of parts (gross – net).

Window: A determined pickup and/or delivery period during which shipment shall be released from the supplier or arrive at the receiving location.