



**FOREWORD**.....3

**1. PURPOSE** .....4

1.1 Scope .....4

1.2 General .....4

1.3 Quality System Requirements .....4

**2. QUALITY SYSTEM** .....5

2.1 PPAP Submission.....5

2.2 APQP (Advance Product Quality Planning) .....6

2.3 Special Characteristics .....6

2.4 Capability Analysis .....6

2.5 Lot Traceability .....6

2.6 Process Control .....7

2.7 Receiving and Inspection .....7

2.8 Control of Inspection, Measuring and Test Equipment .....7

2.9 Control of Nonconforming Product .....7

2.10 Corrective Action .....8

2.11 Ship-To-Use.....9

**3. PURCHASING**.....9

3.1 Continuous Improvement and Productivity .....9

3.2 Packaging Plan .....9

3.3 Communications.....9

3.4 Sub-suppliers.....9

3.5 Hazardous Materials .....10

3.6 Payment terms .....10

3.7 Wabash Technologies or Customer Owner Tooling .....10

3.8 Nonconformance Cost .....10

3.9 Proprietary Information.....10

3.10 Business Conduct .....11

3.11 Supplier Code .....11

3.12 Supplier Profile .....11

3.13 Supplier Ratings .....11

3.14 Delivery Requirements.....12

**GLOSSARY** .....12

## **FOREWORD**

An important building block for a successful Supplier-Customer partnership is communication. The guidelines contained within are written with the strict intent of communicating the requirements of Wabash Technologies and its customers. Its purpose is to give our suppliers and potential suppliers the information required for securing business and maintaining a successful Supplier-Customer relationship.

Wabash Technologies requires our suppliers to implement a Quality Management System built on the ISO/TS 16949:2002 and will accept ISO 9001:2000, Quality System Requirements and focusing on:

- Continuous Improvement
- Defect Prevention
- Competitive Pricing
- 100% On-Time Delivery
- Total Cost

Only the continuing support of our suppliers will enable us to consistently fulfill our customers' requirements.

### **Our Supply Chain Management Mission Statement:**

*To exceed, each day, our customer's expectations, we will identify, select, and proactively develop suppliers who provide superior values in quality products and services at the lowest total supply chain cost.*

*We will attract, equip, and develop ethical supply chain professionals who will continuously improve the way we do our work.*

*Continuous improvement will be an expectation from each supplier. We will measure and monitor performance rewarding those suppliers who exceed our expectations.*

**NOTE: This manual contains a brief summary of procedures and requirements that involve our suppliers and sub-suppliers. Refer to the ISO 9001:2000, ISO/TS 16949:2002 Quality System Requirements, including all associated and referenced publications for more information. Suppliers are responsible for obtaining copies of the latest revisions of all ISO 9001:2000, ISO/TS 16949:2002 publications. These publications include Advanced Product Quality Planning (APQP), Statistical Process Control (SPC), Measurement System Analysis (MSA), Failure Mode and Effects Analysis (FMEA), Product Part Approval Process (PPAP). Unless otherwise indicated, use ISO 9001:2000, ISO/TS 16949:2002 forms. Copies of ISO 9001:2000, ISO/TS 16949:2002 publications can be obtained from the Automotive Industry Action Group**

## 1. PURPOSE

This Supplier Quality Manual outlines the minimum quality requirements that Wabash Technologies requires its suppliers and sub-suppliers to meet. This manual will strengthen inter-company relations and improve the communication between Wabash Technologies and its suppliers and sub-suppliers. It provides a concise understanding of Wabash Technologies quality expectations.

Wabash Technologies Global Supplier Development may, at their discretion, waive, amend or add certain requirements, for example where customer specific requirements apply.

### 1.1 Scope

This manual applies to all suppliers (direct, non-production / capital) and sub-suppliers that do business with Wabash Technologies, globally. **This manual does not alter or reduce any other contractual requirements covered by purchasing documents or requirements of engineering drawings or specifications.** This manual describes the minimum requirements expected and is applicable to all (production, non-production) material, capital, and service suppliers whether the products and/or services are provided directly or indirectly through sub-suppliers.

### 1.2 General

Wabash Technologies increasingly makes use of items from suppliers in the manufacture of its products. The condition and reliability of these items crucially influence the quality of the products we provide to our customers. Supplier quality capabilities are therefore essential criteria in any purchasing decision reached by Wabash Technologies.

Wabash Technologies expects that suppliers will focus on:

- Continuous Improvement in Quality, Delivery, and Price
- Delivery of defect free products (zero defect target) and 100% on time
- Assumption of full responsibility of suppliers for the quality of their supplied products and the consequences due to the lack of meeting quality expectations as defined by specifications, prints, standards, etc.
- Third party registered to ISO/TS16949: 2002 will accept ISO 9001:2000
- Consistent application of preventive quality assurance methods in order to avoid and eliminate sources of defects.
- Low total cost of ownership based on quality and delivery.

This manual is based on the TS 16949:2002 Quality System Requirements and is considered an integral and **legally binding part of the Wabash Technologies Purchase Order**. It shall be read and understood by the supplier.

### 1.3 Quality System Requirements

It is a requirement that all suppliers to Wabash Technologies shall maintain a certified QM-System according to: TS16949, or ISO 9001:2000. Suppliers not in compliance with these requirements should contact Supplier Development at Wabash Technologies. Certified suppliers shall notify Wabash Technologies within 10 working days if their Certificate of Registration is put on suspension. The supplier shall forward a new copy of its certificate if it has expired. Note that the words "will", "shall" and "must" indicate mandatory actions, and the word "should" indicates a recommendation.

## 2. QUALITY SYSTEM

### 2.1 PPAP Submission – (direct material)

Production Part Approval Process (PPAP), (refer to AIAG requirements manual) is used to determine whether all Wabash Technologies engineering design and specification requirements are properly understood by the supplier and that the process has the potential to produce products meeting these requirements during an actual production run at the quoted requirements. A complete PPAP submission as well as additional Wabash Technologies requirements is required for the initial component qualification and for any changes **to the PPAP approved process / product** unless waived by Wabash Technologies. Note: There may be additional requirements from Wabash Technologies customers which will be included with the PPAP request form.

The default submission level will be Level 3. Suppliers must ensure that all drawing clarifications are resolved before production tooling is finalized and production parts made. PPAP requirements will be specified on the Supplier PPAP Request form.

Product shipped to Wabash Technologies without PPAP approval or an approved deviation form will be rejected. The Supplier Deviation Form is a form that the supplier explains in detail the deviation from the current released print, or PPAP approved process, with identification of the root cause. Either the Supplier's deviation form or the Wabash Technologies Supplier Deviation form should be forwarded to the appropriate Wabash Technologies Supplier Development personnel to obtain approval. When a deviation has been granted, all containers must be clearly identified on the packaging exterior with a copy of the deviation. Absence of this identification is grounds for rejection.

Suppliers will submit a *Supplier Request for Engineer Approval (SREA)* form to propose or request permanent changes to the process and/or product.

Such changes may include but are not limited to:

- Tooling
- Process
- Sub-Supplier
- Manufacturing Location
- Product, etc.

The supplier should send the request to Wabash Technologies Supplier Development for approval by the Review Team. Wabash Technologies will communicate in writing, approval or rejection of the SREA or a request for additional data or parts needed for evaluation. The supplier shall not be permitted to make any changes to product and/or processes without prior written approval from Wabash Technologies.

For attribute characteristics, all parts run in the significant production run (300 pieces or amount agreed upon by Wabash Technologies) shall be checked, and shall contain zero defects.

Supplier will be required to re-submit a Level III PPAP upon request from Wabash Technologies. Wabash Technologies does not pay any charges for PPAP's.

**\*Late PPAP's and rejected PPAP's will be treated as a nonconformance and will be subject to nonconformance charges. (See section 3.8)**

## 2.2 APQP (Advance Product Quality Planning)

Wabash Technologies may require a detailed development plan from the supplier, based on the criticality of the part, quality history, etc. Wabash Technologies recognizes that communication between suppliers and Wabash Technologies during the APQP process is critical. Therefore, frequent meetings between the supplier and Wabash Technologies are highly recommended and will be scheduled to review the supplier's APQP progress. The supplier should schedule these meetings through Wabash Technologies Purchasing. Any issues that affect the program must immediately be brought to the attention of the proper Wabash Technologies Purchasing Representative. Advanced quality planning must include a review of all drawings; applicable specifications as well as other Wabash Technologies supplied documentation. This is to assure products are designed for manufacturability and assembly at a defect free level and to assure that these same products meet quality and reliability requirements.

Wabash Technologies may ask the supplier to provide and review associated APQP and PPAP documentation before PPAP submission if meeting is not scheduled.

## 2.3 Special Characteristics

Special Characteristics are significant for fit, form, appearance, function, reliability, durability (as it affects the customer), and the ability to process or assemble a product. Special Characteristic's shall be denoted on Wabash Technologies drawings by a diamond. The supplier shall identify these characteristics in all relevant documentation (FMEA's, Control Plans, Process Flowcharts, etc.). Short-term process capability studies must be conducted prior to the start of production. Demonstration of long-term capability throughout the life of the production process is required ( $Cpk > 1.33$ ).  $Cpk < 1.33$  requires 100% inspection. Wabash Technologies may require non-special characteristics to be on the control plan. Non-special characteristics will be identified by a star symbol. A capability study will not be required, but needs to be on the control plan to ensure the product meets specification.

Release Process - the initial samples have to be taken from the first lot of the series production. This lot contains a minimum of 300 parts or the minimum quantity of parts produced in one day of production. The first series production has to be manufactured under series conditions with complete documentation (process steps and test steps).

## 2.4 Capability Analysis

Capability analysis of product supplied to Wabash Technologies shall be in accordance with current revisions of the AIAG PPAP and SPC manual. Sample sizes for capability analysis should be from 100 consecutive pieces unless agreed otherwise by Wabash Global Supplier Development. All Characteristics must meet the tolerances and other requirements noted on the released print and other documents from Wabash Technologies. Special Characteristics must meet a minimum Cpk of 1.67, with a 2.0 Cpk preferred for PPAP.

## 2.5 Lot Traceability

Suppliers must monitor and track lot traceability throughout entire production process. Supplier must be able to demonstrate lot traceability from final product back to raw materials when requested by Wabash Technologies Supplier Development during Pre-Runs' and PPAP runs. The supplier must employ a system in order to track lots, batches, and serial numbers when specified by Wabash Technologies. Traceability records must be readily available (3 days maximum) after the product is shipped to Wabash Technologies. Records of traceability must be retained archiving a minimum of 2 years.

## 2.6 Process Control

Each supplier is to control their processes such that the quality of the components produced meets all Wabash Technologies requirements. Suppliers must track process capability on Special Characteristics on an ongoing basis. Capability indices must be kept on file for a minimum of two years. Evidence of statistical process control documentation must be available upon Wabash Technologies' request. Wabash Technologies may require the supplier to submit SPC summary reports monthly or per shipment for these characteristics. Specific means of controlling the process must be detailed on the Control Plan.

## 2.7 Receiving and Inspection

Material certifications must be maintained at the supplier location for the life of the program plus one-year unless otherwise approved by Wabash Technologies. Evidence of such must be available upon Wabash Technologies request.

Shelf life of incoming material must be a minimum of 6 months or 75% of original life remaining.

A certificate of analysis, dimensional and functional report as specified in the Supplier Control Plan and/or SPC data may be required with each shipment of specified components or materials. The certificate of analysis must contain the actual results of physical testing or measurements as specified by the contract or amendments of the contract.

## 2.8 Control of Inspection, Measuring and Test Equipment

All Wabash Technologies funded gauges must receive Wabash Technologies design approval prior to construction or the supplier will be held accountable for changes. All modifications of gauges must receive prior approval from Wabash Technologies. Gauge studies must be repeated if modifications are made or gauge integrity is in question.

Suppliers shall perform Gauge R & R studies on all gauges, test equipment and measuring instruments used to measure special characteristics. Wabash Technologies would prefer to have Gauge R & R studies performed on all gauges called out on the control plan. The recommended method to be used is the industry established "Long Method". Other methods defined in the AIAG MSA Reference Manual may be used.

Gauge R&R  $\leq$  10% Acceptable – Special Characteristic

Gauge R&R  $>$  10% and  $\leq$  30% Acceptable depending on the type of measurement being made

Gauge R&R  $\geq$  30% Unacceptable. Corrective actions must be implemented to improve the gauge. If the gauge cannot be improved contact Wabash Technologies Supplier Development for additional direction.

## 2.9 Control of Nonconforming Product

Suppliers to Wabash Technologies shall have necessary inspections in place to ensure that 100% conforming product is being shipped. Wabash Technologies reserves the right to perform random audits on material received from suppliers. When nonconforming product from a supplier is found at Wabash Technologies, the suppliers outgoing inspection shall be increased until corrective action has been implemented with favorable results. Outgoing inspection shall return to normal upon verification of permanent corrective action.

Nonconforming product found at Wabash Technologies will be rejected and quarantined. A Discrepant Material Report will be issued to the supplier. The method of notification will be either electronic or verbal. If the nonconforming material is required to continue production, it will be sorted or reworked by Wabash Technologies personnel (or a designated source) at the supplier's expense. All costs associated with the nonconforming material will be charged back to the supplier when nonconforming product is determined to be the liability of the supplier. **Wabash Technologies reserves the right to charge up to \$500.00 for the nonconformance in addition to the returned material charges.**

When requested by the Incoming Quality Representative, a qualified supplier representative will be present at Wabash Technologies within 24 hrs of notification to verify the nonconforming material and coordinate any required sorting or rework activities.

The supplier must initiate containment action immediately. Containment actions required to maintain production at Wabash Technologies are the responsibility of the supplier. All arrangements required for sorting, rework, etc. must be made by the supplier and communicated to Wabash Technologies Incoming Quality Representative. All documentation associated with the concern shall reference the Wabash Technologies DMR Number and be included with the Corrective Action Report.

The supplier will replace any returned material with certified stock in accordance with Wabash Technologies' requirements. Subsequent shipments must be certified according to the guidelines specified by your Incoming Quality Representative. Certification must continue until the Wabash Technologies Incoming Quality Representative is satisfied with Corrective Action Report. Certified stock is to be identified with appropriate labeling as defined by the Incoming Quality Representative. A concise statement stating the reason for the certification must be included on a separate label. Wabash Technologies Quality may request specific supplier data be sent to Wabash Technologies for review. At Wabash Technologies discretion, additional containment actions may be implemented at supplier's expense to ensure 100% conforming material.

Nonconforming or suspect nonconforming material found at the supplier's location must be quarantined to ensure it is not shipped to Wabash Technologies. Shipment of this product must not be made unless it is sorted, reworked or deviated. Each container that has been certified must be identified with a placard that indicates the DMR number, description of the issue that was sorted for, and the initials of a quality representative responsible for certification. Rework processes must be approved in advance by Wabash Technologies using a deviation request form. Material in transit should be recalled at the discretion of the Wabash Technologies Incoming Quality Representative.

**Wabash Technologies may require the supplier to be on CS1 containment if the supplier cannot effectively contain defective material at their facility. CS1 is defined as 100% sort at the supplier with their own people on every shipment prior to being shipped to Wabash Technologies. The sort is on specified features only.**

**If CS1 does not prove to be effective then CS2 may also be required. CS2 is in addition to CS1. CS2 is defined as 100% sort by a third party company at the expense of the supplier. The sort has to be done on every shipment prior to being shipped to Wabash Technologies. The sort is on specified features only. Wabash Technologies may require the supplier's registrar to be notified of their CS2 containment activities.**

## 2.10 Corrective Action

Suppliers should use the Global 8D Corrective Action Report format for all corrective actions. Wabash Technologies is expecting a zero-defect strategy. The supplier must provide an initial response to the 8D request within 24 hours or close of the next business day. The method of response must be either by fax or electronically and consist of an 8D report detailing the initial response. Completion of the first three sections of the 8D is required in the initial response. The sections consist of definition of the problem, formation of the team, and the immediate containment action plan. The 8D must reference the Wabash Technologies DMR number.

**\* Late 8D's and rejected 8D's will be treated as a nonconformance and will be subject to nonconformance charges. (See section 3.8)**

Weekly updates are required until closed. Wabash Technologies will notify the supplier when the 8D is closed.

The supplier may be asked to present the Corrective Action Report at Wabash Technologies or a Wabash Technologies team may visit the supplier to review the Corrective Action Report and associated activities.

A supplier Corrective Action Report will stay open until a Wabash Technologies incoming quality representative has verified the corrective actions. Process FMEA's and control plans must be revised when new defects are found. These documents must be provided or available for review with the final Corrective Action Report.

### **2.11 Ship-to-Use (STU)**

Ship-to-Use is a program that reduces incoming inspection and allows product to go straight to the manufacturing floor. Suppliers are responsible for the quality of their products whether it is inspected by Wabash Technologies' incoming inspection or on STU. All associated costs for defective product may be the responsibility of the supplier; including but not limited to work-in-process, final product, and line down charges.

## **3. PURCHASING**

### **3.1 Continuous Improvement and Productivity**

Wabash Technologies purchases goods and services from suppliers who are leaders in their field and who incorporate a spirit of continuous improvement throughout their organization and encourages a long-term partnership with that supplier. Wabash Technologies expects suppliers to participate actively in continuous improvement programs. The supplier shall communicate to Wabash Technologies all opportunities for improvements in the areas of Product Reliability, Quality, Process, Delivery, Costs and Packaging. The Supplier Request for Engineering Approval (SREA) form will be used to propose these changes.

### **3.2 Packaging Plan**

The method and type of packaging to be used to assure products can be handled, shipped, and arrive undamaged at the intended destination must be agreed upon between the supplier and Wabash Technologies.

### **3.3 Communications**

Wabash Technologies believes in, and encourages, early and active supplier involvement. As the manager of the supplier relationship, Supply Chain will coordinate both technical and commercial communications. Suppliers should not hesitate to request assistance from Wabash Technologies Supply Chain. Suppliers are required to inform their buyers of results of all meetings and copy them on all correspondence.

### **3.4 Sub-suppliers**

Each supplier is fully responsible for the control and continuous improvement efforts of their sub-suppliers. Sub-suppliers that furnish products with Special Characteristics must implement appropriate documented controls as specified in this manual. Suppliers should require their sub-suppliers to conform to the requirements specified herein. Any sub-supplier change requires immediate notification to Wabash Technologies.

Wabash Technologies reserves the right to verify and approve purchased products at the supplier and sub-supplier's premises to ensure that contracted products conform to specified requirements.

### 3.5 Hazardous Materials

If any hazards apply to the supplied product, the supplier shall submit a Material Safety Data Sheet with each shipment and label the product containers accordingly. Any MSDS's submitted must bear a new/revised date of no more than three years from the current calendar date of submission.

### 3.6 Payment terms

Suppliers are expected to quote and accept the payment terms of the location to which they will sell product. Standard terms for Wabash Technologies are Net 60. If the supplier can offer significant price advantage through alternate payment terms, this must be presented in the quotation.

### 3.7 Wabash Technologies or Customer Owned Tooling

The supplier is expected to maintain Wabash Technologies-owned and customer-owned assets located at the supplier's facility. The supplier will receive asset numbers from Wabash Technologies to be placed on the assets. It is the supplier's responsibility to track and identify Wabash Technologies tooling in their facility, and the supplier must tag the tooling "property of Wabash Technologies". These assets are to be used solely for the production of Wabash Technologies products. When there is no future need for these assets, the supplier must request direction for disposition.

### 3.8 Nonconformance Costs

Suppliers are liable for expenses incurred by Wabash Technologies due to nonconformance, per terms of the Purchase Order or Scheduling Agreement. Including, but not limited to:

- transport and handling costs for returning nonconforming material
- expedited freight (from the supplier and to the end customer)
- premium time incurred for having to work holidays and weekends
- expenses associated with unscheduled shutdowns or changeovers due to lack of quality parts
- administrative costs incurred for non-compliance to Wabash Technologies packaging and labeling requirements
- administrative costs for processing quality documents
- scrap and/or rework costs of all associated material, subassemblies and finished product affected by the supplier's nonconforming material
- travel expense incurred by Wabash Technologies employees due to product issues
- additional costs associated with non-conformity found at customers
- sort and rework time required to continue regular production

If containment activities are required at the suppliers locations in order to ensure delivery of defect free products to Wabash Technologies, the supplier may be required to pay for a third party agency to implement this activity. **Wabash Technologies reserves the right to charge up to \$500.00 for the nonconformance** in addition to any sort and/or rework charges as detailed in Section 2.9 Control of Nonconforming Product.

### 3.9 Proprietary Information

Suppliers will frequently have access to information that is of proprietary nature. It is expected that suppliers will not discuss Wabash Technologies products, processes and programs outside the Wabash Technologies supplier relationship. In certain circumstances suppliers will be required to sign non-disclosure agreements.

### 3.10 Business Conduct

Wabash Technologies expects their employees and suppliers to maintain business practices that ensure all source selections are based on sound business criteria.

Wabash Technologies maintains a strict code of business ethics addressing relationships with suppliers and their employees. For further information, please contact a Purchasing representative.

### 3.11 Supplier Code

A supplier code will be created for every supplier. The supplier code will be used to track supplier delivery performance and premium freight charges.

### 3.12 Supplier Profile

All suppliers **must** provide a current Contact List to Wabash Technologies Supply Chain.

### 3.13 Supplier Ratings

All suppliers are evaluated at a minimum in areas of quality and delivery on a quarterly basis. Suppliers may be evaluated in the following five areas:

- Quality
- Delivery (including incidences of premium freight)
- Price/Cost
- Technology
- Administration/Attitude

Suppliers are expected to achieve a minimum of a “B” average in all evaluated areas. Suppliers who achieve lower than a “B” may be required to develop an action plan to correct the deficiency. The grade scale is as follows:

- Quality:**
  - A = 0 PPM
  - B = less than 1000 PPM
  - C = between 1001 and 2500 PPM
  - D = between 2501 and 5000 PPM
  - F = greater than 5000 PPM
  
- Delivery:**
  - A = 100% on-time delivery
  - B = 90 to 99% on-time delivery
  - C = 80 to 89% on-time delivery
  - D = 70 to 79% on-time delivery
  - F = less than 70% on-time delivery
  
- Price:** Suppliers will be compared to other suppliers within a commodity.
  
- Technology:** Suppliers will be compared to other suppliers within a commodity.
  
- Administration/ Attitude:** The Commodity Leader, Buyer, Planner, Incoming Quality Representative, and Supplier Development will grade suppliers.

All suppliers should receive a Quality (PPM) and Delivery report quarterly. Long Term Agreement suppliers should receive a Report Card review either in person at Wabash Technologies, the supplier’s location, or by teleconference on a quarterly basis. Overall ratings may be reviewed at any time during the year.

Suppliers may request a PPM/Delivery report at any time by contacting Wabash Technologies Supplier Development.

### 3.14 Delivery Requirements

Suppliers will be required to adhere to the conditions set forth in the Wabash Technologies Material Transportation Routing Guides. Suppliers who do not follow the requirements set forth in the Routing guide may be subject to Nonconformance fee of \$250.00 U.S.D. **(See section 3.8)**

### GLOSSARY

AIAG	Automotive Industry Action Group
APQP	Advanced Product Quality Planning
STU	Ship-To-Use
FMEA	Failure Mode and Effects Analysis
GR&R	Gauge Repeatability and Reproducibility
PPAP	Production Part Approval Process
SPC	Statistical Process Control
SREA	Supplier Request for Engineering Approval
8D	Disciplined problem solving document
DMR	Discrepant Material Report
Cpk	Long term process capability index
Cp	Potential capability index
PPM	Parts per million
TS 16949	Quality System requirement (automotive standard)
ISO 9001	Quality System requirement

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