



Form the Future

Supplier Expectation Manual

January 2022

1) Purpose

The purpose of this manual is to define the minimum requirements, processes, and systems for doing business with Advanced Vehicle Assemblies. Our customers' increasingly sophisticated expectations and global competition make it necessary to continuously improve all of our products, services and processes. Customer satisfaction with the quality we offer in all aspects of our activities is the crucial factor determining AIXTRON's success. This manual outlines processes used to ensure Advanced Vehicle Assemblies' supply base is continually improving to prevent quality, delivery disruptions and provide the optimal cost as well as top-level service. Implementation of the processes outlined in this manual will not only reduce risk of supply chain disruptions but will also help Advanced Vehicle Assemblies and its suppliers to increase our competitive industry position and ensure our continued mutual success.

In this manual, the terms "shall" and "must" mean that the described requirement is mandatory, while the term "should" mean that the described requirement is needed and expected with some flexibility in how it is implemented.

The quality and delivery requirements defined in this document are to be considered an addendum to the Contracts, Purchase Order and Terms & Conditions issued to all suppliers of direct material, spare parts, packaging materials and services and do not replace or alter the terms and conditions covered.

Advanced Vehicle Assemblies expects suppliers to manage of their own sub-suppliers of products or services to ensure compliance to the requirements defined in this manual, latest automotive industry standards and any additional customer or local specific requirements.

2) Referenced Documents

Supplier Assessment for Sustainability and Financial Tool

Supplier Assessment for Quality Management Systems

QMS assessment tool

AIAG website

PPAP AIAG

IATF GLOBAL Oversight Website

8D/3L5Y

3) SCOPE

The requirements of this Manual apply to all suppliers of finished goods, production materials (raw or parts), as well as outside processes and services where applicable. This Manual is the quality standard for every AVA supplier worldwide. This common global Manual allows AVA to evaluate all suppliers across all product groups around the world based on common expectations and performance standards. This information applies to all suppliers who have interest in doing business with AVA. Any questions regarding the applicability of the requirements contained in this manual should be directed to your AVA contact(s) for resolution. This Manual supersedes all other prior versions, and this version is the only officially recognized release of this document.

4) Responsibility

It is the responsibility of the supplier to review, understand, and satisfy the requirements of this manual and any other applicable requirements as part of the acceptance of purchase orders from AVA. The supplier should obtain any referenced documents to ensure full compliance with all applicable requirements. AVA will maintain and document changes in the general supplier quality requirements included in this manual. Revisions to the AVA Supplier Quality Manual will be available online or can be obtained through AVA Procurement department.

5) Our Company and Culture

Advanced Vehicle Assemblies is a family-based company with a heritage in technology and customer service. We take pride inventing next generation solutions that play a valuable role in forming the future of mobility.

Safe family environment | More than a team, we are a family of diverse and talented individuals that supports one another in accomplishing our goals and providing a safe work environment.

Customer focused | We are committed to delighting our internal and external customers with extraordinary value and service.

Ownership | As team members and as an organization we are accountable to one-another, delivering on promises, taking ownership, and continuously improving.

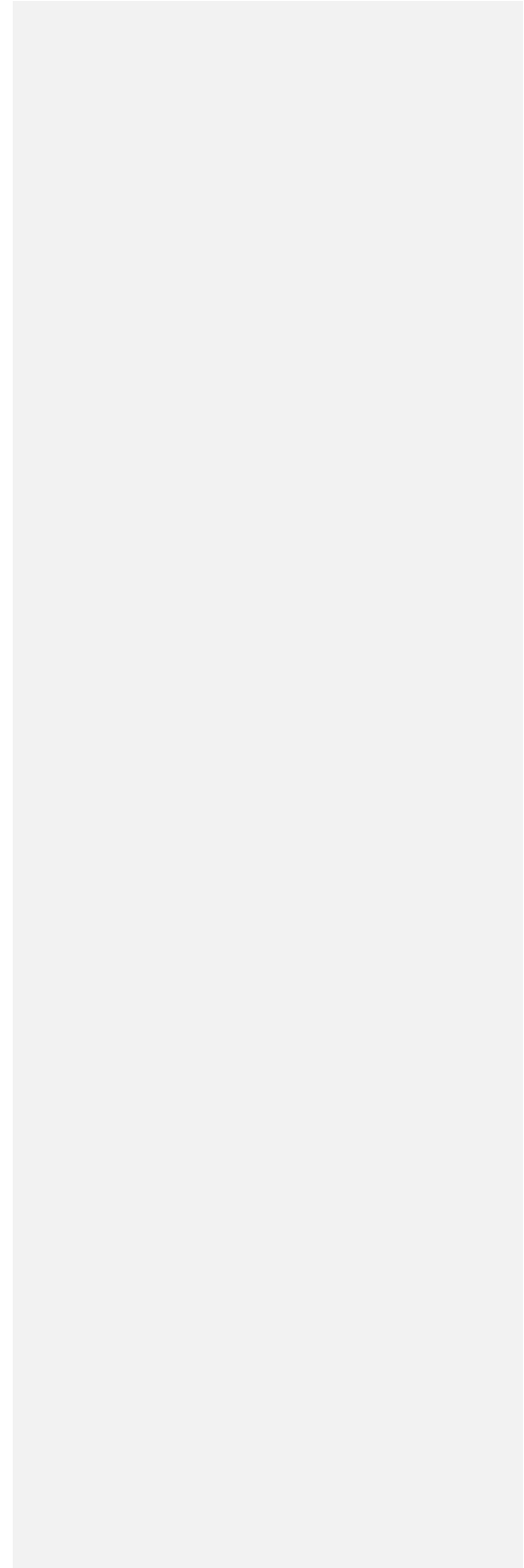
Results Driven | We navigate the path to success, removing roadblocks and assuring that results are achieved.

Excellence | Our teams take pride in building exceptional processes and we champion quality and excellence in every aspect of our business.

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6) AVA Quality Policy

Advanced Vehicle Assemblies' quality management is governed under the following policy and principles:





Quality Management System Policy

Advanced Vehicle Assemblies' quality management is governed under the following policy and principles:

Commitment

- To satisfy customer requirements
- To continual improvement of the quality management systems

Compliance

- Meet applicable legal requirements and compliance obligations

Continual Improvement

- Improve quality through setting objectives and targets that support to eliminate internal as well as external risks
- Drive customer focused programs
- Share best practices
- Achieve a global world class quality management system to support operations and meet customer satisfaction


Dave Peppers, Chief Executive Officer
Craig Barnhart, Chief Financial Officer
Mike Schimings, Chief Operations Officer

01/12/2022

AVA-POL-002

7) AVA Environmental Health and Safety Policy

Advanced Vehicle Assemblies' environmental and energy management is governed under the following policy and principles:



Environmental & Energy Policy

Advanced Vehicle Assemblies' environmental and energy management is governed under the following policy and principles:

Commitment

- To integrate the use of energy into design, consumption and procurement of energy in the most efficient, cost effective and environmentally responsible manner possible
- To protect the environment and prevent pollution
- Provide necessary resources
- To continual improvement of the environmental and energy management systems

Compliance

- Meet applicable legal requirements and compliance obligations

Continual Improvement

- Improve energy efficiency through setting objectives and targets
- Drive energy programs
- Share best practices
- Achieve a global world class energy program to support operations and meet customer satisfaction

Dave Patties, Chief Executive Officer

Craig Barnhart, Chief Financial Officer

Mike Schimings, Chief Operations Officer

8) Advanced Vehicle Assemblies Business Supplier Requirements

It is the responsibility of all Tier II Supplier's to ensure all Tier III and sub-contractors adhere ISO 14001, IATF:2016 and ISO 9001.

Advanced Vehicle Assemblies understands that our businesses are different in nature and in many cases, have unique supplier quality requirements that are market specific. However, the processes and tools represented in

this manual represent the core expectations and requirements of our business. The differences that you will see across our organization will be minimal and will be driven by customer and/or market specific requirements.

9) Specific requirements

The specific requirements of each region / facility, if existing, will be detailed in this Manual of the present manual and AVA Customer Requirements. Those requirements are complementary to the content of this manual and are mandatory compliance for our suppliers.

It is the supplier responsibility to comply with the manual and specific requirements of the Advanced Vehicle Assemblies facility where it is providing parts /services.

The requirements may be related to quality, delivery, customer service, acceptance criteria, processes, environment, and others.

10) Confidentiality

The supplier shall use Confidential Information solely for the purposes of supporting the current business relationship with Advanced Vehicle Assemblies. The supplier shall not disclose Confidential Information to any third party without buyer's express except that the supplier may disclose Confidential Information to its contractors, sub-suppliers, consultants, or agents who have a need to know and have executed confidentiality agreements with the supplier, obligating them to treat such information in a manner consistent with these Terms and Buyer's Non-Disclosure Contract, if any, with supplier.

11) Code of Conduct

Advanced Vehicle Assemblies has a Code of Conduct that details our minimum requirements and expectations regarding workplace and ethical business standards.

The commercial relationship shall be conducted with integrity, fairness, and respect in all countries where we have operations.

This document is part of our requirements, and our suppliers must adhere to this Code.

Attached to the present manual will be the Code of Conduct. This document must be signed by our partners since the beginning of the commercial relationship and / or when for the context of the market and our organization we need an update.

12) Communication – notification of changes

In commercial relationships between Advanced Vehicle Assemblies and our suppliers it is critical we have an open, effective, and proactive communication. The notification of non-conforming product and /or any unauthorized changes related to supply chain that could put Advanced Vehicle Assemblies customer at risk. The communication between Tier II and Advanced Vehicle Assemblies includes all sub-tier suppliers that comprise the overall supply chain.

13) Risk Assessment

To manage this risk effectively, all suppliers must communicate as early as possible the following:

- Any pending or potential issue which the supplier has identified,

- All proposed material and/or process changes (including any change in production process or product safety or critical characteristics).

All proposed changes including:

Manufacturing location change.

Tooling capacity change

Re-commissioning of any inactive tooling for one year

Tooling refurbishment or replacement

Proposed use of new equipment (production process)

Tooling transfer (re-source)

Changes to information technology systems

Any potential manufacturing/quality issues

Any potential supply/or capacity issues

Changes of sub-suppliers of raw material, component, or services

Information Technology that might impact production or shipment to Advanced Vehicle Assemblies

Organizational changes that could impact the production or supply of parts to Advanced Vehicle Assemblies

Changes of ownership structure.

In addition, suppliers will provide all tests, validations, approvals, and submissions required as a result of product/process changes as requested by Advanced Vehicle Assemblies.

14) Risk Management

The supplier must have a process for the identification and management of potential risks to ensure proper supply of parts and materials to Advanced Vehicle Assemblies. This process must include identification, assessment, and prioritization of risks in order to develop and implement countermeasures to avoid not reaching the defined business targets.

Business contingency plans must be completed by suppliers to ensure the continuity of supply in any event of disruption to their operations and/or supply materials because of man-made events, natural disasters, pandemic, logistics, equipment, utility or labor disruptions or any interruption. These contingency plans shall be reviewed on a regular basis with a Advanced Vehicle Assemblies representative such as Supplier Development representative.

Suppliers shall immediately notify Advanced Vehicle Assemblies when they become aware of any potential supply disruption.

The supplier must include the risk assessment for new / re-source tooling to ensure all the topics and lessons learned of previous projects are considered during the new program and suppliers need to review all possible identified operational & strategic risks and include facilities, manufacturing process, economic variables, personnel, and influence from macroeconomic, social, and environmental trends. According with the context of the region.

15) NEW SUPPLIER QUALIFICATION

To be Approved supplier. The topics to consider becoming an Approved Supplier includes:

AVA New Supplier Assessment results

Financial health and Sustainability Assessment

Supplier Performance (in the case of current suppliers)

Any additional situation that could generate a disruption in Advanced Vehicle Assemblies Operations (i.e., Child labor, use of minerals in conflict, dumping, etc.)

Certifications (IATF 16949:2016, ISO 14001:2014, and ISO 9001:2015)

Advanced Vehicle Assemblies Supplier Manual signed

16) Advanced Vehicle Assemblies reserves the right to assess Approved Suppliers in the following situations:

Prior to placement of significant new business

As a result of not meeting required quality, delivery, and customer service performance

A significant change in the nature of the product previously supplied

High Risk Suppliers for at least 12 months

8D/3L5Y are not being completed within a specified time frame

Communication

Customer Satisfaction

17) Advanced Vehicle Assemblies Supplier Business Assessment

Advanced Vehicle Assemblies is committed to improve quality and continuous improvement within our organization. According to this, we have a methodology to evaluate our external suppliers to strengthen our business relationships and both parties can continue to grow and become more successful in our businesses. All new suppliers must be qualified prior to the awarding of new business from Advanced Vehicle Assemblies. Suppliers are qualified based on their ability to meet Advanced Vehicle Assemblies requirements for technical specifications, quality, delivery, price, and service.

AVA new business assessment will allow us to clearly understand their capabilities. This assessment is fully aligned with the process audit standards such as ISO 9001, IATF 16949, ISO 14001 and requirements in our Advanced Vehicle Assemblies Operating System (AOS) latest version, as an holistic overview of the systems we request to our supply chain.

Regardless of the result obtained the purpose of this assessment is to determine if there are areas within your business that require attention as you go forward with a continuous improvement process in your organization.

18) Self-Assessment

A self-assessment will be required to be completed and returned, along with relevant information to evaluate the supplier ability to meet AVA requirements.

This information will be reviewed by Advanced Vehicle Assemblies representative to verify the existence of quality systems and practices necessary to meet Advanced Vehicle Assemblies requirements. This assessment will also include sustainability, EHS, QMS, and Customer Satisfaction.

Supplier will be required to develop and complete countermeasures according with all the gaps detected during the AVA assessment process as a part of the requirements to becoming an approved supplier.

19) Countermeasure follows up

After the new business assessment is performed, a countermeasure may be required if:

EHS and Sustainability Assessment – 70 % or Less

Business Assessment – High Risk

QMS Assessment – 70 % or Less

The corrective actions are required to have root cause analysis with countermeasures identified within 15 calendar days and closure with Advanced Vehicle Assemblies approval within 90 calendar days. Any deviation from this plan must be approved by the Supplier Development team on site. For action closure, validation on site as needed (according to the type of discrepancy).

The countermeasures will be detailed in the format provided by Advanced Vehicle Assemblies facility.

Commented [TD2]: Do we have a document for this we already use?

20) Re-validation

After the Supplier qualification sub-process has been conducted and the supplier is approved for production, the monitoring and revalidation cycle begins.

During the Supplier qualification sub-process, a full AVA ASSESEMENT which includes the following: a systemic approach, review of the production capacity, technical and financial health will be developed.

In the serial life (risk management), the supplier must monitor the available capacities of their processes to fulfill with the releases and aligned with the information received from Advanced Vehicle Assemblies (see Chapter 5.2)

The systemic evaluation (AVA ASSESEMENT) will be conducted by Advanced Vehicle Assemblies according to the risk that each supplier represents in the supply chain or in the case of assign new business (production capacity available). The AVA ASSESEMENT may be done as a self-assessment, remote or on-site evaluation. In the case of current suppliers, Advanced Vehicle Assemblies will define the frequency to conduct the AVA ASSESEMENT on- site or remote as a revalidation based on supplier performance (quality, delivery, and customer service topics), complexity of the parts/process and risk level (low, moderate, high, or critical) to Advanced Vehicle Assemblies operations.

The AVA ASSESEMENT will be performed by an Advanced Vehicle Assemblies representative as needed based on KPI Scorecard and Customer Satisfaction.

Commented [TD3]: Do we do this? Should we add to it?

21) Management systems required for new suppliers

Quality

As a part of the automotive industry all suppliers of production materials and services that directly affect the production parts supplied must have a quality management system implemented and must be certified to a minimum with ISO 9001 latest version and preferable become certified to IATF 16949.

Suppliers must demonstrate compliance to the requirements of IATF 16949 latest version. IATF 16949 and AIAG tools must be applied on our suppliers independently on their Quality Management System certification.

Suppliers certified in ISO 9001 latest version may be subject to an annual management system audit by a Advanced Vehicle Assemblies representative using some tools, but not limited to Advanced Vehicle Assemblies Supplier Business Assessment (AVA ASSESEMENT), any other determined by the Advanced Vehicle Assemblies facility or by 3rd party auditor.

Additionally, the Purpose of this Manual, Advanced Vehicle Assemblies expects of its suppliers manage their own sub-suppliers of products or services to ensure compliance with the Minimum Automotive Quality Management System requirements for sub-tier suppliers.

For more information visit <https://www.iatfglobaloversight.org>

22) Environment

Advanced Vehicle Assemblies is committed to being environmental responsible and has different programs designed to protect our environment and manage critical resources such as sustain and replenish these resources for future generations.

Having an internal Environmental Management System based on ISO 14001 latest version principles and applications, is mandatory for our suppliers, certification is not a must unless otherwise required by each Advanced Vehicle Assemblies facility. The certification of ISO 14001 latest version will be considered as a plus prior to assigning new business to our suppliers. Also, our suppliers must be aligned with us and with our environmental policy. As a part of the automotive supply chain, it's important that each one of the members of this chain have and share the same vision about environmental practices to erase or minimize the impact of our activities. Companies should perform different activities to reduce the usage of clean water, virgin materials and fossil fuels and demonstrate continuous reduction of emissions to water, land, and air

Also, our Advanced Vehicle Assemblies Supplier Business Assessment (AVA ASSESEMENT) which is our supplier evaluation and revalidation tool for current and potential suppliers consider environmental items and impact, so that our suppliers are and will be evaluated considering this matter.

23) Health and Safety

Suppliers shall demonstrate the implementation and follow up of an internal Safety Management System, that verifies and ensures safe working conditions.

Also, Advanced Vehicle Assemblies the supplier assessment considers H&S practices, so that our suppliers are and will be evaluated considering this matter.

24) Government Regulatory Compliance

Suppliers shall comply with all applicable governmental regulations. These regulations relate to the health and safety of the workers, environment protection, toxic and hazardous materials, and free trade. Suppliers should recognize that the applicable government regulations might include those in the country of manufacture, as well the country of sale. Registration to ISO14001 is strongly recommended.

25) Quality Management Systems Supplier Requirements

The purpose of a quality system is to provide the direction, action plans and measurements needed to accomplish the suppliers' stated objectives and plans. To this end, suppliers shall use some form of systematic planning and review for new products and product changes. Quality development and control activities require planning to be effective and economical. The quality planning process shall emphasize problem prevention rather than detection, that supports a continuous quality improvement philosophy.

When quality planning is properly performed, waste, scrap, rework, and customer complaints are reduced while productivity, efficiency, and profits are increased. Advanced Vehicle Assemblies requires that its suppliers plan for quality. Information on quality planning may be found in the Advanced Product Quality Planning and Control Plan (APQP) Reference Manual, published by AIAG. The quality planning activity shall be a regularly scheduled, cross-functional process, involving all departments with goals and objectives supporting the quality system.

Each supplier is responsible for the quality of its own products. The supplier's failure to provide Advanced Vehicle Assemblies quality goods may result in a formal claim (according with the report used by the region) for assembly, sorting and/or administrative costs due to poor quality, late delivery, and other non-conforming conditions.

The following quality planning methods and documentation are suggested: Process Flow Chart, Process Failure Mode and Effects Analysis (PFMEA), Control Plans (Prototype, Pre-launch, and Production) where applicable such as: Measurement System Analysis for all applicable equipment specified in the control plan. Manufacturing

Feasibility Reviews. Key product/process characteristics. Packaging Plans. PTR's (Production Line Trials) R@R (Line Speed Demonstration Trials), and PPAP submission with a (PPAP Part Specification Warrant)

26) The Advanced Product Quality Planning (APQP) Process

On each new business with Advanced Vehicle Assemblies, the supplier must follow the APQP manual (AIAG) guidelines latest version. APQP fulfillment and follow up will be supplier's responsibility and must be available upon request on any time of the new launch and/ or serial life.

The objective of the Advanced Vehicle Assemblies Advanced Product Quality Planning (APQP) process is to provide an overview of the AIAG APQP requirements and to track the supplier APQP activities in support of the Advanced Vehicle Assemblies Customer Specific requirements.

The APQP/PPAP document enables Advanced Vehicle Assemblies to determine the readiness of supplier activities. In the cases where the supplier already has their own APQP tracking document addressing the focus areas as defined in the Advanced Vehicle Assemblies APQP document, they may continue to utilize this method and Advanced Vehicle Assemblies' template need to be completed (according with the form provided by the Advanced Vehicle Assemblies facility).

When implemented the APQP Readiness Tracking Document is to be submitted to Advanced Vehicle Assemblies for review upon request.

When the supplier populates the document or comparable document it is the tool that focuses on key components of supply activity from the start initiation of commercial activity through the submission of the PPAP documentation to Advanced Vehicle Assemblies.

On site Supplier Development along with Plant Quality can review these documents on scheduled intervals throughout the APQP process when submitted for review or during On Site Evaluations with the suppliers.

Documented APQP PPAP activity through effective management of the supplier is the key to a successful launch.

Suppliers shall fully comply with all requirements in the AIAG Production Part Approval Process Manual when doing business with Advanced Vehicle Assemblies. Before making a shipment to an Advanced Vehicle Assemblies facility the supplier must meet all the purchase order requirements and must ensure that all parts conform to Advanced Vehicle Assemblies engineering and quality specifications. This includes the submission of a PPAP with PSW, unless it is waived in writing. Conditions requiring submission can be found in the AIAG PPAP Manual, Section 2.

27) Standardized Work

Operator instructions and visual standards Operators shall use the most current work instructions. The organization shall ensure that work instructions contain reaction plans for non-conformances showing the specific required steps.

28) Measurement System Analysis (MSA)

Suppliers will develop or obtain gauges, standards, and instrumentation to control their processes and to determine product conformance to specifications. Variable gauges and measurements are preferred. The Supplier will perform MSA for all new/ modified gauges, measurement, and test equipment. A reference that can be used for MSA studies is the Automotive Industry Action group (AIAG) MSA Requirements document. Web information can be found going to www.aiag.org

29) PPAP

Commented [TD4]: I am not that familiar with our APQP process. Can we have the process owner review this and edit as needed?
Process Map?
Standard Document?
Do we have a procedure?

For production parts and approval of components from sub-tier suppliers, the organization shall comply with the AIAG Production Part Approval Process (PPAP) and must be submitted to AVA for the following reasons. A new part or product.

Product changes/corrections: design, materials, supply, and function.

Process changes/corrections: method, tools, location, and inspection criteria.

Inactive tooling for more than one year.

PPAP Record Retention

Suppliers are responsible for retaining a complete record of all PPAP submissions. The records shall show conformance to all dimensional, chemical, metallurgical, physical, performance and other test specifications. The following will be kept on file: Inspection results accompanied by customer's engineering approved design record for all dimensional requirements. Laboratory test reports covering all chemical, metallurgical, physical and performance tests along with the laboratory scope Preliminary process performance results for all critical and significant characteristics. Measurement systems analysis (Gage R&R) results, process flow diagrams, process failure mode and effects analysis, control plans, preliminary process performance evaluations, subcontracted supplier warrants and supporting documentation, appearance approvals and master samples.

Commented [TD5]: Do we want to make a PPAP manual? Or we can meet the requirements by simply stating that the supplier must follow the standards in AIAG PPAP Manual?

30) Material Certifications

The supplier shall ensure that the product supplied to Advanced Vehicle Assemblies is following all material specifications on the product drawing and/or purchase order. Material certifications Traceability, unless otherwise agreed to, the supplier shall have a process and maintain the ability to trace the product from the lot identification as shipped to Advanced Vehicle Assemblies back through their manufacturing system to the raw material source. Material and process certifications must be available upon request or alignment to agree upon frequency.

31) Restricted Substances

Advanced Vehicle Assemblies is concerned for the safety of its employees and customers. Suppliers must assure compliance with all governmental and safety requirements on restricted, toxic, and hazardous substances used in the manufacture of products delivered to us. Our suppliers are required to have a correct chemical storage to assure a safety environment as well as a compatibility chart required to identify which chemicals can be stored in the same room.

When applicable, Material Safety Data Sheets, (MSDS) are to be sent to the attention of the user plant prior to the first production shipment and upon request.

Suppliers are required to report any hazardous materials contained in any part of the product shipped (including coatings, etc.) to Advanced Vehicle Assemblies.

The supplier is responsible for creating the IMDS module on every part that is supplied to Advanced Vehicle Assemblies. The IMDS module must be submitted via the IMDS website (www.mdssystem.com) to the Advanced Vehicle Assemblies recipient code ----- (this code depends on the plant that will receive the part, for clarification, contact the responsible on place).

It is the responsibility of all suppliers to submit the necessary information into the IMDS database. As a result, the supplier must require their sub suppliers to submit IMDS to their appropriate recipient code. The supplier is required to review their sub supplier IMDS submission for compliance.

For easy management of the IMDS numbers must be followed according with IMDS:

Any questions regarding IMDS submission, please contact the Advanced Vehicle Assemblies representative for assistance. www.aiag.org

32) Inspection and Measuring Equipment

Statistical and analytical techniques may be used by the supplier to measure and improve process capability, efficiency, and quality of the product. Some of these techniques widely used are:

- (a) DOE
- (b) X&R charts
- (c) P, C, U, NP charts
- (d) Histograms
- (e) FMEA
- (f) Pareto analysis
- (g) Ishikawa or Fishbone diagrams

The supplier must develop a system which documents responsibilities, involvement, plans and criteria for implementing statistical and analytical methods. (AIAG Statistical Process Control Manual IATFGLOBALOVERSIGT.ORG)

The supplier is responsible for ensuring that tooling, equipment, and processes used to demonstrate the capability to consistently produce quality parts with minimum variation. The special characteristics identified on customer prints and/or Advanced Vehicle Assemblies process data sheet documents will require a minimum of 1.67 Cpk (pre-production). Process Performance Index (Ppk) basically tries to verify if the sample that you have generated from the process is capable to meet customer specific requirements. Advanced Vehicle Assemblies manufacturing facilities may request additional requirements for statistical control and process capability. For specific requirements of each facility, refer to specific requirements annex depending on the Advanced Vehicle Assemblies facility involved.

All dimensions on the drawing must demonstrate statistical process control at time of PPAP, unless otherwise agreed upon by Advanced Vehicle Assemblies.

Commented [TD6]: 1.67 CPK?

33) Calibration

The supplier shall establish a calibration system that will track and account for each gauge and measuring instrument individually. Established calibration intervals shall be documented, and each instrument shall be traceable to its last calibration date. Documentation shall include the actual quantitative measurements taken during the calibration, to monitor long term performance.

All gages used in evaluating process potential must be in compliance with Quality System requirements and the AIAG Measurement System Analysis Manual before proceeding with the process potential study. Copies of the GR&R study data and results must accompany the process potential study information. Information on conducting GR&R studies may be found in Measurement Systems Analysis Reference Manual, published by AIAG.

All calibration must be traceable to an industry recognized standards/accreditation authority. These calibration records shall be retained for verification purposes

Employees involved in using calibration equipment should have documented training on the instruments they use. Documentation of training records shall be retained for verification purposes.

34) Gauge R&R

The supplier shall conduct GR&R studies upon receipt of new or repaired measuring equipment. Documented action plans shall be in place for completion of GR&R studies on existing equipment. After the initial studies, established intervals for repeat verification, GR&R studies must be documented and be traceable to the last date of evaluation. The study shall include all significant study information. These repeat studies are necessary on a regular basis to assure continued suitability to the application. GR&R studies shall be conducted under actual operating conditions

Advanced Vehicle Assemblies requires a GR&R analysis of all measurement systems identified in Control Plan. The minimum requirements for Advanced Vehicle Assemblies suppliers are:

- % R&R should be at 10% or less for KPCs / KCCs

- Marginal gages (between 10% and 30%) need an action plan to address and improve the method of measurement. Gages with R&R above 30% cannot be used.

- Visual Inspections

- High turnover

35) Notification of and Control of Nonconforming Material

All suspect material must be properly contained at the supplier's facility. All suspect non-conforming material must be quarantined in a segregated area, designated for that purpose only. An effective system is required for proper identification and timely disposition of non-conforming material. The supplier is responsible for maintaining and analyzing data for those non-conformances.

Advanced Vehicle Assemblies shall be notified immediately if suspect stock has been shipped to our facility. Disposition decisions to "use as is" or "repair" will require technical justification, customer approval, and documentation of the actual condition to ensure product performance will not be adversely affected. In cases where Advanced Vehicle Assemblies has determined that it has received non-conforming material, the supplier will be contacted to secure a return authorization or other possible remedy. Replacement of non-conforming material must occur in a timely manner to ensure the continued supply of product. AVA reserves the right to require the use of an independent third party inspector to ensure that the organization only ships compliant product to Ford facilities.

The following are actions that AVA may use to deal with a supplier nonconformance:

- Only request that the supplier only replace or repair the items or redo the service

- Request the supplier to complete one of the following:

- 8D/3L5Y

- A supplier corrective action request

- A corrective and preventive action

36) Preventative/Corrective Action and Problem Resolution (See 8D/3L5Y document)

The supplier shall establish systems to document and track corrective actions. Corrective actions could be referred to as Non-conforming Material Reports (NCMRs), Corrective Action Reports (CARs), Defective Material Reports (DMRs), Quality Alerts (QA's). Results must be traceable to the initial reason for the corrective action request. The format used must drive towards root cause analysis and results of those actions taken shall verify the effectiveness of the solution. The suggested documented problem-solving form is the 8D's, A3, but other formats may be used.

Commented [TD7]: Add to 8D/3L/5Y

Incidents involving product shipped to AVA facilities, require specific response times and trigger charges. Suppliers need to provide containment activities and corrective action process to AVA facility as following:

- i) 4 hours
- ii) Immediate response from the supplier.
- iii) Suppliers confirm who start the inspection on site (3rd party company selected by supplier), otherwise, AVA apply the inspection of suspicious parts and apply the chargeback to the supplier (3rd party company or AVA workforce)
- iv) 24 hours

Containment actions

Method of containment (batch/lot) – specific inspection techniques -, how new product is identified and containment plan for product on transit to or on site at AVA facility

3 days

Permanent corrective actions Root cause(s) analysis and action plan (includes verification, activities, dates and responsible) to correct & prevent the defects

15 days Closed out

All corrective action responses are to be closed out in a timely and expeditious manner (maximum target closure of 15 calendar days) unless there is a reasonable justification

30 Day Clean Point Verification

Closure of 30 calendar Day Clean Point

Corrective action requiring more than 15 calendar days requires written approval by the appropriate facility quality contact.

The supplier's system shall contain a mechanism for escalating unresolved problems to the supplier's executive management to ensure action is taken and to enable an understanding of any strategic implications.

The supplier shall develop a method for assessing the responsiveness and effectiveness of their problem resolution process.

During specific instances a AVA supplier may be requested to attend an Incoming Quality meeting. These meetings will include AVA plant personnel and the divisional supplier development and purchasing representatives. A targeted supplier may be one with a high PPM or one with chronic repetitiveness defective components or packaging or delivery incidents. Suppliers who are unable to control non-conforming material from shipping to a AVA facility are subject to 3rd party audits of EMS and QMS, charge backs or loss of business.

37) Chargebacks

The following charges will apply for all non-conforming material. The supplier will receive a formal notification describing the non-confirming material. An administration fee could be charged per each notification issued.

Sorting internally and externally

Customer Disruptions (Downtime and Delivery)

Scrap

Rework

Containment Actions

The initial response to a notification failure must be received within 2 hours (start the inspection of suspicious material). It will show action when certified stock arrives and how it will be labeled. Failure to comply will result in a deduction to your monthly Production Performance Scorecard.

*Note 1: For cases, where Advanced Vehicle Assemblies establish a bi-directional supply with some business partners (customer-supplier/supplier-customer), chargebacks will be determinate in same conditions (\$USD) for both parts and according with original contract.

The first 3 sections of the Corrective Action report are to be received within 3 calendar days of the DMR notification. Failure to complete and return this section of the 8D's/3L5Y may result in a deduction to your monthly Quality Performance Scorecard.

These (3) sections include:

Problem statement

Team members with champion,

Interim C/A for containment and containment verification.

Root cause identification

38) Within 15 calendar days of receipt of the DMR the supplier is to complete the final 8D's/3L5Y:

Chosen / Implemented corrective action,

Validation of corrective action,

Preventive action taken to prevent recurrence,

Systemic action taken to ensure similar operations have been reviewed, PFMEA, Control Plans and Work Instructions (WI's) have been updated.

If the Supplier determines the root cause(s), interim and permanent corrective action cannot be completed within 15 working days, the supplier must communicate with the Quality Representative of Advanced Vehicle Assemblies facility issuing the DMR and get written approval to exceed the 15- day closure requirement. Agreed timing for closure will need to be provided to the Advanced Vehicle Assemblies Quality Representative.

All costs related to the notification failure incurred by Advanced Vehicle Assemblies at a Advanced Vehicle Assemblies supplied manufacturing facility will also be charged back to the supplier. These costs may include (see topic Chargeback of this manual):

Down time

Containment

Sorting

Scrap

Supervision (administration fee for activities related to manage all document administration)

Rework

Premium Freight

39) Supplier Development

Once per month, Advanced Vehicle Assemblies will review the results from the criteria set in and communicate to suppliers which are considered high risk based upon the risk rating defined in Appendix A. When a supplier sustains high risk for more than 12 months, this may result in an on-site audit of operations, or a self-assessment followed up by Corrective Actions. High Risk suppliers will be closely monitored, and other activities may result if the supplier risk level cannot be reduced within a specified time that will be provided by a Advanced Vehicle Assemblies representative. Previous submitted 8d/3L5Y and the corrective actions submitted to AVA will be evaluated for effectiveness.

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QUALITY						
FREQUENCY IN ONE MONTH	CRITERIA					
	Issue Resulted In Line Stop, Yard Hold, Major Disruption at Customer or AVA	Critical Quality Issues	Supplier Quality Issues Found by AVA's Customer or End User	Safe Launch Issue Resulting in Non-Conforming Material	Downtime	Repeat Issue
0	LOW	LOW	LOW	LOW	LOW	LOW
1	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
2 or More	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH

DELIVERY				
FREQUENCY IN ONE MONTH	CRITERIA			
	Customer Disruptions at Receiving Plant Including Yard Hold & Stop Ships	On Time Delivery	Premium Freight Occurrence	Special Status Customer Notifications Related Delivery Issues
0 Occurrence	LOW - 1 -	LOW - 1 -	LOW - 1 -	LOW - 1 -
1 or More Occurrences	HIGH - 9 -	MEDIUM - 4 -	MEDIUM - 4 -	MEDIUM - 4 -
		HIGH - 9 -	HIGH - 9 -	HIGH - 9 -

SUSTAINABILITY						
SECTION	CRITERIA					
Human Rights	Environment	Compliance & Ethics	Diversity	Health & Safety	General	Quality Certificate
LOW	LOW	LOW	LOW	LOW	LOW	LOW Supplied
MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	
HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH Not Supplied

SCORE	FINANCIAL	
	Experian	
	Stability Risk	Business Credit
	LOW	LOW
	MEDIUM	MEDIUM
	HIGH	HIGH

40) Supplier Performance Evaluation - KPI's

KPI's measured to evaluate each supplier performance will be related to quality, logistics and customer service (includes project management, corrective action response on time, as well as other quality metrics and it depends on the requirement by facility).

41) Environmental Management System Supplier Requirements

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Based in a typical Plan-Do-Check-Act (PDCA) process, it establishes the framework that helps an organization achieve the environmental goals, through the review, evaluation, and improvement of its environmental performance. The most recognized EMS is ISO 14001, which is integrated by different components that include the next topics:

- Observe Legal Compliance and records keeping.
- Consideration of the scope and context of the organization
- Leadership commitment
- High level organizational structure
- Full organization participation
- Environmental Management integration in Business Strategy
- Planning on a Life Cycle approach and considering Risk management
- Support from complete organization
- Environmental internal assessments and walkthroughs
- Integral operation knowledge and observation, over complete value chain
- Performance monitoring and evaluation
- System evaluation and revision
- Proved continuous improvement
- Communication and involvement of stakeholders
- Flexibility and adaptation to environmental context

Advanced Vehicle Assemblies expects that its suppliers to set policies and goals oriented to proactively protect the environment and systematically reduce its impacts to it. For that, the following considerations are considered:

- Identify the environmental aspects and environmental risks associated to operations and set actions plans to reduce or eliminate such risks
- Perform periodic audits for evaluation of the effectiveness of the Environmental Management System and related programs.
- Train employees on the procedures to be followed to protect the environment and to identify the environmental aspects of your site and how to reduce the impacts associated.
- Management should lead the projects and activities oriented to improve environmental performance and ensure that environmental objectives are aligned to business objectives, under a protective and preventive approach.
- Company should provide enough resources to ensure that environmental impacts of the operations are minimized to the minimal possible.

Full staff should share common environmental objectives, oriented to improve the environmental goals of the company.

Measure and monitor environmental performance, by the establishment of Key Performance Indicators (KPI). Both, lag, and leading indicators should be considered. Lag indicators refer to emissions to air, land, and water; leading indicators are oriented to prevent from origin those emissions, by reducing the number of resources used to operate.

Maintain accurate and up-to-date compliance records. Revise the local Environmental related regulations and perform a verification process to ensure full compliance. It is highly recommend performing periodical third party Legal Compliance audits in site.

Communicate to key stakeholders how the environmental performance of the company is going and what is it being done to improve.

At Advanced Vehicle Assemblies, we are committed to perform our operations with a focus on the prevention of pollution to protect the environment through the efficient use of resources and the continuous improvement of our overall environmental performance.

We observe the fulfillment of all our compliance obligations as required by our stakeholders.

Objectives are oriented to systematically reduce our usage of energy, fuels, water, and materials, mitigating the associated environmental impacts. Environmental targets and standards are reviewed periodically to align current and future actions.

We engage employees at all levels of the organization to support all applicable Management Systems by linking environmental initiatives to business targets and involving our value chain in the achievement of common goals.

42) Environmental Policy for Suppliers

Advanced Vehicle Assemblies suppliers shall not only comply with Governmental Laws and Regulations, we encourage the supplier to be ISO 14001 certified or equivalent and to have a robust EH&S program to minimize and constantly reduce all the impact of their products or services. The certification of both ISO 14001 and ISO 45001 or OHSAS 18001 will be considered as a plus prior to assigning new business to our suppliers.

43) Hazmat

Hazmat stands for "Hazardous Material" which is any substance that can be dangerous for health or the environment.

These materials can be toxic chemicals, waste products, biological, chemical, and radiological agents and can come as liquids, solids, gases, or a combination of those three.

According to the Globally Harmonized System (GHS), every container with chemicals should include a chemical label and material safety data sheets (MSDS) linked. Supplier commits to have identified under GHS (or similar) all the substances used in their process and to deliver to Advanced Vehicle Assemblies the corresponding MSDS of the provided product.

Suppliers should train their employees to know the labeling system, material handling, how to interpretate the MSDS and what to do in case of spillages or contact with Hazardous Materials and to know the potential safety or environmental disaster.

44) Environmental footprint

Advanced Vehicle Assemblies is committed to reduce its value chain environmental footprint. Reducing supplier's carbon, hydric and land footprint is necessary to minimize the impacts associated to the production of our products.

Advanced Vehicle Assemblies reports to Carbon Disclosure Project (CDP) and the upstream and downstream impacts are part of it and as the environmental policy states, we involve the full value chain to achieve common goals on environmental footprint reduction.

Suppliers should perform reduction activities to minimize the resources (energy, water, materials) used for the operation of the company and thus, improve its own environmental footprint.

Advanced Vehicle Assemblies may request to selected supplier providing information about their carbon, water, and land emissions, so the supplier should be ready to provide next data, allocated to Advanced Vehicle Assemblies:

- Total amount of equivalent carbon dioxide emissions to atmosphere.

- Total amount of clean water used for operations, by source.

- Total amount of water discharges, by quality and destination.

- Total weight of waste generated by production process, by quality and destination.

- Total weight of materials entering to production process, by type.

Suppliers should then, control their own environmental footprint, with the main objective of constantly and systematically reduce their environmental footprint, and as second benefit, to be prepared to provide such information to Advanced Vehicle Assemblies.

Projects to reduce the logistics environmental impacts should be pursued, mainly the delivery related footprint and product packaging.

45) Air Quality

Advanced Vehicle Assemblies looks to protect our environment that's why we care for the condition in the air that surrounds us. Air Quality should be addressed in suppliers' Environmental policies including procedures and standards on how to monitor, treat and control their Scope 1 and 2 emissions. Scope 1 referring to Manufacturing generated emissions and Scope 2 referring to Purchased electricity emissions.

46) Health & Safety

People are the most important asset of a Company and should be the #1 priority in our industrial life as in daily life.

Having a safe and healthy environmental for working is a basic human and labor right which warranties physical and mental wellness of employees.

Avoiding safety and health recommendations is costly and dangerous not only for the employee but for the company and the community.

Auto Industry guidance states that workers shall have a safe and healthy working environment that meets or exceeds applicable standards for safety and occupational health.

Suppliers' Safety Management System should consider rules that protect employees from accidents related to:

- General facility conditions

- Fire events

- Machine, robotic and automation safety (guards or light curtains)

- Working at heights

Electrical safety

Body protection (usage of personal protective equipment)

To Ensure Compliance you should:

- i) Inspect the facility and equipment on a regular basis to identify and address at-risk conditions and at-risk behaviors
- ii) Audit the effectiveness of your health and safety management system and technical programs
- iii) Provide correct Personal Protection Equipment (PPE) to employees free of charge, replace when worn, and train on the use thereof
- iv) Management shall ensure that PPE is correctly used with no exceptions, and clear rules in case of violations should be known by all personnel, including top management
- v) Appoint and train health and safety committee which has regular, documented meetings
- vi) Measure and monitor safety performance, by the establishment of Key Performance Indicators (KPI). It is highly recommended to include both lag and lead indicators. Suggested lag indicators are, but not limited to: Lost Time Rate and Total Incidents Rate; leading indicators could be, but not limited to: Safety training hours, Safety audits closed observations. Trend analysis of such indicators is crucial to understand safety situation of the operation.
- vii) Performed health and safety training Total safety related training hours should be part of the overall training programs and it is suggested to keep periodical training of employees and annual refreshments for core safety aspects in the operations. Put more attention on the high priority Safety Risks identified by Job Safety Analysis and reinforce those that present a negative trend of the safety indicators
- viii) Maintain accurate and up-to-date compliance records. Revise the local Safe and Healthy related regulations and perform a verification process to ensure full compliance. It is highly recommend performing periodical third party Legal Compliance audits in site.
- ix) Communicate to all employees how the safety performance of the company is going and what is it being done to improve the performance.

An effective occupational safety and health program must include the following four elements:

Management commitment and employee involvement, Worksite analysis (Job safety analysis), Hazard's prevention and control, Risk Assessment.

Safety and health training

47) SOCIAL SUSTAINABILITY

Additionally, to what is stated in the Global Compact Principles, Advanced Vehicle Assemblies expects the suppliers to have Social Sustainability Management System, which includes verification and improvement of processes related to:

48) Working conditions

Observe physical psychological conditions that ensure healthy and safe development of activities in the company and that promote a healthy Life- Work balance.

Equity, diversity, and inclusion: Create policies and processes that support the creation of equal opportunities, balance of circumstances of all talent, regardless of personal differences (as gender, ethnicity, age, skin color, body form, sexual orientation, gender identity, religion, marital status, etc.) and that promote the inclusion of persons of minority or typically undervalued groups.

Human Rights: Internal processes that ensure that there are not violations to universal human rights, in the influence of company activities.

Labor Rights: Internal process to verify that there is no child labor, forced or compulsory labor, collective bargains, freedom of association,

Talent Development: Train personnel as for technical skills needed to perform their job and improve their life. Create growth process and improve the talent retention of the company.

Community Development/Involvement: Involve the community, supports its development, and minimize or reduce impacts to community from company activities.

Wages and benefits fairness: Wages should go according to the activity performed, local macro and microeconomic circumstances to balance company needs and employees acquisition power, the average industry wages and always comply with legal requirements

Advanced Vehicle Assemblies may subject its suppliers to Social Sustainability Assessment, to ensure that the previous aspects are being observed inside the company, and that there are no risks associated.

49) Conflict Minerals

Conflict Minerals refers to raw materials that come from a particular part of the world where armed conflicts are occurring. The conflicts are financed by selling specific products which violate human and environmental rights in the production process.

Currently, Conflict Minerals only refers to compounds of gold, tin, tantalum, and tungsten (and cobalt before long) the armed conflict in Democratic Republic of the Congo. Armed groups in that area earn hundreds of millions of dollars every year by trading conflict minerals and their derivatives. These minerals are products of slavery, pillaging, extortion, violence, among other inhuman acts, that the armed groups exert all over this region. Nevertheless, as in the case of

Child labor, stopping the support will move the violence to other activities and can worsen the social and economic situation of the region creating other problems.

Conflict Mineral initiatives, require for the metal processing industry to make an extensive investigation of the smelters they source from and try to trace the metal ore up to the extraction point. The objective is to make sure it was done in a fully compliant and humane manner.

Most of the automakers, request their suppliers to perform the due diligence on a yearly basis and encourage the avoidance of such materials. This customer requirement for the Tier 1 supplier means 100% compliance in the processes of the complete supply chain.

Materials suppliers must provide yearly the last released version of Conflict Minerals Reporting Template (CMRT), verifying that the contained information is accurate and up to date. By supplying your CMRT to Advanced Vehicle Assemblies. Those suppliers which are directly involved in the metal processing industry,

For more information about Conflict Minerals reporting, please access
<http://www.conflictreesmelter.org/cfshome.htm>

AIAG has developed procedures and checklist documents to facilitate the reporting of Conflict Minerals. AIAG offers program training related to this topic. It is highly recommended that suppliers follow the recommendations of AIAG for Conflict Mineral reporting.

50) Advanced Vehicle Assemblies Conflict Minerals Policy

Advanced Vehicle Assemblies, as a global company with a sustainability model that promotes supply chain engagement, aims to comply with the reporting obligation set out by the Security Exchange Commission (SEC). In support of this policy Advanced Vehicle Assemblies will:

Make a reasonable effort to ensure our products are free of conflict minerals from the Democratic Republic of Congo (DRC)

Adopt relevant policies, due diligence frameworks and management systems to support the reporting and disclosure requirements related to Conflict Minerals.

Provide resources to comply with our reporting obligations.

Disclose to our stakeholder's relevant information regarding Conflict Minerals in our products

Cooperate with Conflict Minerals due diligence processes across the supply chain.

Require our suppliers to comply with reporting and disclosure requirements related to Conflict Minerals.

Implement and communicate to our personnel and suppliers our Conflict Minerals Policy.

Advanced Vehicle Assemblies understands the importance of this issue, and as part of its commitment to sustainability we encourage all our suppliers to support efforts that work towards a DRC Conflict Free supply chain.

Additional information can be found on <http://www.aiag.org> or <http://www.conflict-minerals.com>

51) Sustainability Disclosure

Public disclosure of sustainability performance is highly encouraged, though not mandatory yet by Advanced Vehicle Assemblies. Those suppliers who perform Sustainability Report may be subjected to acquire extra consideration in the sourcing processes.

Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC), Sustainability Accounting Standards Board (SASB) or any other international standard for sustainability reporting can be used as a methodology to report full sustainability performance. Supplier can choose the methodology that best fits their business needs and circumstances.

52) Sustainable Sourcing

As part of the efforts to improve environmental and social performance, suppliers should revise their own supply chain to find opportunities to improve it.

Suppliers that show that they chose their own suppliers according to the best balance between price, quality, delivery time, financial stability, environmental footprint, and labor practices of suppliers. Advanced Vehicle Assemblies encourages the usage of different tools to evaluate the sustainability of suppliers and those with the lowest supply chain disruption.

Advanced Vehicle Assemblies may request supply chain diversity information to key suppliers as:

- Country and plant of origin of raw material

- Ownership status of suppliers

- Applicable Environmental, Social or Quality Certifications (as ISO 14001, ISO TS, etc.)

For this, it is highly recommended that suppliers set a procedure for selection of their own supply chain, that includes different variables beyond cost, similarly as Advanced Vehicle Assemblies is requesting to its suppliers.

53) MATERIALS AND DELIVERY EXPECTATIONS

Delivery

For production and prototype orders, 100% on-time (“0” tolerance) delivery performance, which includes correct quantity shipped to release or order, is mandatory. Advanced Vehicle Assemblies will monitor supplier delivery performance. Suppliers not meeting the performance level must submit a corrective action response (See Preventative/Corrective Action and Problem Resolution). Failing to meet the delivery requirements may result in a charge- back to the supplier with the associated premium freight and any out-of-pocket cost incurred by Advanced Vehicle Assemblies. Advanced Vehicle Assemblies monitors premium freight. A few examples of delivery non-conformances resulting in premium freight are listed below.

Supplier is behind schedule (past due)

Supplier missed designated ship date, or excessive carrier waiting time.

More than authorized number of shipments per week or month

Extra shipment due to rejects or supplier discrepancy or returns

Incorrect quantity shipped to release or order.

Suppliers should refer to Advanced Vehicle Assemblies’ purchase order and/or release, for quantities, dates, shipping method, engineering specification, revision level, etc.

54) Materials Management System

Suppliers are encouraged to use the AIAG’s M-7; Materials Management Operations Guideline (MMOG/LG) as the basis for a robust materials management system. The MMOG/LG is a collaborative effort between automotive companies and the supplier community to establish the essential components of a materials management system and drive continuous improvement activity within the materials management process.

55) FIFO (first in / first out)

The suppliers must ensure that no obsolete material is shipped to Advanced Vehicle Assemblies. The suppliers shall use first in/first out (FIFO) inventory management practices. This means all material should be used and manufactured in the order it was received.

56) Packaging/Labeling

All suppliers shall comply with Advanced Vehicle Assemblies’ Supplier Packaging/Labeling Standard, including bar code labeling requirements. The supplier will obtain Packaging Standard specifications and receive approval for supplier proposed packaging concepts (as required) from Advanced Vehicle Assemblies and must be part of the sample submission package.

Suppliers must ensure that all returnable packaging utilized is maintained clean, free of contamination/debris and the effects of the environment (i.e., snow, ice, water), including free of effluence, and infectivity, to sustain product quality for the supply of materials, and the health and safety of people who may encounter them.

Suppliers should look for alternatives to reduce the packaging materials, increase the reuse of it or substitute nonbiodegradable materials for degradable ones.

57) Wooden Packaging

All solid wood packaging/pallets and crates must comply with the International Standards for Phytosanitary Measures No. 15 (ISPM 15) developed by the International Plant Protection Convention (IPPC).

58) The ISPM-15 is available on the International Phytosanitary Portal (IPP) at <https://www.ippc.int/core-activities/standards-setting/ispm5>

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Revision No.	Summary of Revision	Revised By	Date of Revision	approved by:
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