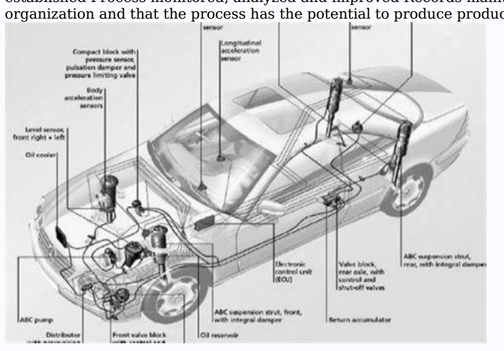


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Production part approval process manual 4th edition

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Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved1 June 2006 PPAP 4th Edition David P. FowlerDaimlerChryslerChrysler Group Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved2 June 2006 The Process ApproachPPAP 4th Edition has been revised to be consistent with the Process Approach of ISO/TS 16949… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved3 June 2006 ISO 9001:2000 Model of a Process-Based Quality Management SystemProcess Model Continual improvement of The quality management system Customers Requirements Managementresponsibility Measurement, analysis and improvement Productrealization ResourceManagement ProductInput Customers Satisfaction Output Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved4 June 2006 Process(Typical) INPUTCustomer who has a need OUTPUTCustomer who has a need met Input Step 1 Step 2 Step 3 Step "N" Output Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved5 June 2006 ORGANIZATION Project Owner& Team Completion of PPAP Required Items GatherInformation Completionof PSW Submission (or Resubmission) of PPAPWarrant CUSTOMER CUSTOMER CustomerPurchase Order / Customer -SpecificRequirements CustomerSpecifications CustomerPart Design Requirements CustomerProcess DesignRequirements CustomerLogistics Requirements ValidatedProcess [PSO / Run at Rate] Customer Initiated Changes to Part , Specifications , etc. vemamowifipobebozavo.pdf Supplier InitiatedChanges Record ofApproved PSW ApprovedPSWPPAP Table 4.1 Records Receipt and Approval of Submitted PSW : . . PPAP Process Flow An Example Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved6 June 2006 APQP Process Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved7 June 2006 Critical Elementsof the Process Approach Process owner exists Process is defined Process is documented Linkages of process established Process monitored, analyzed and improved Records maintained Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved8 June 2006 PPAP's PurposePPAP's purpose continues to be to provide the evidence that all customer engineering design record and specification requirements are properly understood by the organization and that the process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate.

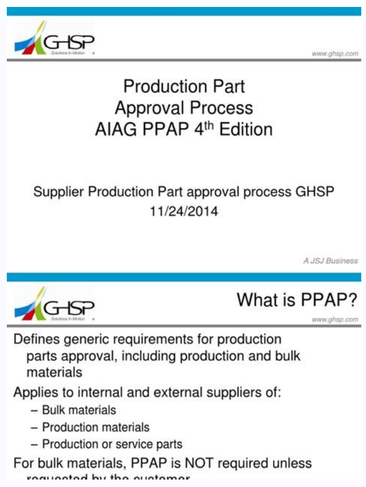


Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved9 June 2006 ApplicabilityPPAP shall apply to internal and external organization sites (see Glossary) of bulk materials, production materials, production or service parts. For bulk materials, PPAP is not required unless specified by the authorized customer representative.* *Ford Motor requires PPAP of Bulk Material Suppliers. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved10 June 2006 ApproachThe word "should" now indicates a recommendation For purposes of PPAP, the terms and definitions given in ISO/TS 16949 and the PPAP Glossary apply Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved11 June 2006 Effective DateThe PPAP Fourth Edition replaces the Third Edition effective… June 1, 2006 unless otherwise specified by your customer.



Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved12 June 2006 Changes in the 4th Edition The Fourth Edition of PPAP includes the following changes: • Identified issues in the application of PPAP• Removal of QS-9000 references• Necessary edits including typographical or grammatical corrections Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved13 June 2006 Changes in the 4th Edition • Alignment of PPAP to the ISO/TS 16949:2002 process approach, including:– Aligning the order of the PPAP requirements with the automotive product development and manufacturing process – Inclusion of an example process flow for PPAP Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved14 June 2006 Changes in the 4th Edition • Relocation of Customer Specific Instructions to the appropriate websites, (e.g. OEM portals, AIAG site @ www.aiag.org, and IAOB site @ www.iaob.org) to provide current requirements Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved15 June 2006 Changes in the 4th Edition • Update of Truck OEM requirements … moved to Appendix H Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved16 June 2006 • Alignment of PPAP 4th Edition terminology to the ISO/TS 16949:2002 terminology… PPAP 3rd PPAP 4th QS 9000 ISO/TS 16949:2002 Customer Customer Customer Supplier Tier 1 Organization Subcontractor Tier 2+ Supplier Changes in the 4th Edition Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved17 June 2006 Changes in the 4th Edition • Updated specific PPAP requirements, including:– Materials reporting and polymeric part identification requirements– Process capability index usage (Cpk and Ppk)– The definition and approval of catalog parts and the definition of black box parts Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved18 June 2006 Changes in the 4th Edition • Modified customer notification and submission requirements to align with OEM requirements (e.g., Section I.3.3 and Table I.3.3 from PPAP 3rd was removed) – This means no more "loopholes"… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved19 June 2006 Changes in the 4th Edition Customer Notification is now required for ALL proposed changes Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved20 June 2006 Changes in the 4th Edition • Clarified and commonized Appendices C, D, and E to match the PPAP reporting requirements– Production Part Approval, Dimensional Results Form– Production Part Approval, Material Test Results Form– Production Part Approval, Performance Test Results Form • Actual test data is required– "Blanket statements of conformance are unacceptable for any test results" Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved21 June 2006 Changes in the 4th Edition• Revised Tire Appendix to allow OEM specification of applicability and to eliminate duplications with allowances already provided in the PPAP requirements Note: The Tire Appendix is not applicable to organizations supplying tires to Ford Motor Company. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved22 June 2006 Changes in the 4th Edition • Reorganized and updated Appendix F to stress the importance of the Bulk Materials Checklist Note: Ford Motor Company requires all organizations supplying bulk material to Ford Motor Company to comply with PPAP. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved23 June 2006 Changes in the 4th Edition • Revised Table Of Contents Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved24 June 2006 TABLE OF CONTENTS• INTRODUCTION• SECTION 1 – GENERAL• SECTION 2 – PPAP PROCESS REQUIREMENTS• SECTION 3 – CUSTOMER NOTIFICATION AND SUBMISSION REQUIREMENTS• SECTION 4 – SUBMISSION TO CUSTOMER - LEVELS OF EVIDENCE• SECTION 5 – PART SUBMISSION STATUS• SECTION 6 – RECORD RETENTION• Appendix A – Completion of the Part Submission Warrant (PSW)• Appendix B – Completion of the Appearance Approval Report• Appendix C – Production Part Approval, Dimensional Results• Appendix D – Production Part Approval, Material Test Results• Appendix E – Production Part Approval, Performance Test Results• Appendix F – Bulk Material - Specific Requirements• Appendix G – Tires - Specific Requirements• Appendix H – Truck Industry - Specific Requirements• GLOSSARY Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved25 June 2006 Changes in the 4th Edition • Reorder of PPAP Process Requirements (Section 2) Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved26 June 2006 PPAP Process RequirementsThe organization shall also meet all customer-specific instructions • 2.2.1 Design Record• 2.2.2 Authorized Engineering Change documents• 2.2.3 Customer Engineering Approval• 2.2.4 Design Failure Mode and Effects Analysis (Design FMEA)• 2.2.5 Process Flow Diagram(s)• 2.2.6 Process Failure Mode and Effects Analysis (Process FMEA)• 2.2.7 Control Plan• 2.2.8 Measurement System Analysis Studies• 2.2.9 Dimensional Results• 2.2.10 Records of Material / Performance Test Results• 2.2.11 Initial Process Studies• 2.2.12 Qualified Laboratory Documentation• 2.2.13 Appearance Approval Report (AAR)• 2.2.14 Sample Production Parts• 2.2.15 Master Sample• 2.2.16 Checking Aids• 2.2.17 Customer-Specific Requirements• 2.2.18 Part Submission Warrant (PSW) Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved27 June 2006 Changes in the 4th Edition • Revised Glossary to be consistent with the updates in the text Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved28 June 2006 Glossary Aligned, Revised, and Simplified • Deletions: Agreement Critical Characteristic (both Ford and GM definitions) Customer Product Approval Activity DocumentationEnvironmentFull Approval Gage Repeatability & Reproducibility (Gage R&R) Initial Sample Interim Approval Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved29 June 2006 Glossary Aligned, Revised, and Simplified • Deletions (continued) Key Characteristics (All four) MSA Studies Rejected Remote Location Repeatability and Reproducibility Safety Characteristics Self Certifying SupplierSubcontractor Tooling Maintenance Tooling Refurbishment Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved30 June 2006 Glossary Aligned, Revised, and Simplified • Revised: ApprovedAttribute DataCustomerInitial Process StudyPart Submission WarrantProcess Process Flow DiagramQuality IndicesSaleable Product Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved31 June 2006 Glossary Aligned, Revised, and Simplified • Revised (continued): Significant Production RunSiteSpecial CharacteristicsSpecification Stable Process SuppliersStatistical ControlSubmission LevelVariables Data Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved32 June 2006 Glossary Aligned, Revised, and Simplified • Added: Authorized Customer Representative(s)Black BoxOrganization Production Rate Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved33 June 2006 Part Name Part Cust. Number Safety and/or Government Regulation Yes No Org. gulovigusilevopopexige.pdf Part Number Dated Additional Engineering Changes Dated Shown on Drawing No. Purchase Order No. Weight (kg) Checking Aid No. Engineering Change Level Change Level Dated ORGANIZATION MANUFACTURING MATERIALS REPORTING INFORMATION SUBMITTAL CUSTOMER INFORMATION EngineeringChecking Aid Yes No n/a Yes No n/a Supplier Name & Supplier/Vendor Code Street Address City Region Postal Code Country Customer Name/Division Buyer/Buyer Code Application REASON FOR SUBMISSIONInitial Submission Change to Optional Construction or Material Engineering Change(s) Supplier or Material Source Change Tooling: Transfer, Replacement, Refurbishment, or additional Change in Part Processing Tooling Inactive > than 1 yearCorrection of Discrepancy Parts Produced at Additional Location Other – please specify REQUESTED SUBMISSION LEVEL (Check at least one) (Check one)Level 1 – Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer. Has customer-required Substances of Concern information been reported?. Are polymeric parts identified with appropriate ISO marking codes?

Yes NoIs each Customer Tool properly tagged and numbered? Submitted by IMDS or other customer format: Level 2 – Warrant with product samples and limited supporting data submitted to customer. Level 3 – Warrant with product samples and complete supporting data submitted to customer. Level 4 – Warrant and other requirements as defined by customer. Level 5 – Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.



SUBMISSION RESULTSThe results for dimensional measurements material and functional tests appearance criteria statistical process package These results meet all design record requirements: Mold / Cavity / Production Process Yes NO (If “NO” – Explanation Required) DECLARATIONI affirm that the samples represented by this warrent are representative of our parts, which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of / hours.I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below. EXPLANATION/COMMENTS: Print Name E-mail Phone No. Organization Authorized Signature Date FOR CUSTOMER USE ONLY (IF APPLICABLE) ApprovedPPAP Warrant Disposition: Rejected Print Name Customer Customer Tracking Number (optional) Signature Date Other March2 0 0 6 CFG-1001 Title FAX No. 1 2a 3 2b 4 6 5 7 8 9 10 11 13 12 14 15 16 17 18 19 20 22 2526 27 21 23 24 PSW Revised and Reorganized Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved34 June 2006 Part Submission Warrant • Revised PSW (Part Submission Warrant) to:– Provide a more logical flow for the part information description fields… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved35 June 2006 Part Submission WarrantPart Name Cust. Part Number Shown on Drawing Number Orig. michigan boaters safety unit 1 quiz answers Part Number Engineering Change Level Dated Additional Engineering Changes Dated Safety and/or Government Regulation Purchase Order No. Checking Aid Number Checking Aid Eng. Change Level Dated Weight (kg)Yes No 1 2a 2b3 4 5 • PART INFORMATION1. braun thermoscan irt 6500 user manual Part Name and 2a. Customer Part Number: Engineering released finished end item part name and number.2b. Org, Part Number: Part number defined by the organization, if any.3. Shown on Drawing Number: The design record that specifies the customer part number being submitted.4. Engineering Change Level & Date: Show the change level and date of the design record.5. Additional Engineering Changes & Date: List all authorized engineering changes not yet incorporated in the design record but which are incorporated in the part. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved36 June 2006 Part Submission WarrantPart Name Cust. Part Number Shown on Drawing Number Orig. Part Number Engineering Change Level Dated Additional Engineering Changes Dated Safety and/or Government Regulation Purchase Order No. Checking Aid Number Checking Aid Eng. Change Level Dated Weight (kg)Yes No6 7 8 9 10 • PART INFORMATION6. Safety and/or Government Regulation: “Yes” if so indicated by the design record, otherwise “No.”7. 63378563870.pdf Purchase Order Number: Enter this number as found on the contract/purchase order.8. Weight: Enter the actual weight in kilograms to four decimal places unless otherwise specified by the customer.9./10. Checking Aid Number, Change Level and Date: If requested by the customer, enter the checking aid number, its change level and date. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved37 June 2006 Part Submission Warrant • Revised PSW (Part Submission Warrant) to:– Make the supplier address fields applicable to international locations… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved38 June 2006 ORGANIZATION MANUFACTURING INFORMATION CUSTOMER SUBMITTAL INFORMATION Organization Name & Supplier/Vendor Code Customer Name/Division Street Address Buyer/Buyer Code City Region Postal Code Country Application 11 12 14 13 15 • ORGANIZATION MANUFACTURING INFORMATION11. Organization Name & Supplier/Vendor Code: Show the name and code assigned to the manufacturing site on the purchase order/contract.12. Street Address, Region, Postal Code, Country: Show the complete address of the location where the product was manufactured. For “Region,” enter state, county, province, etc. • CUSTOMER SUBMITTAL INFORMATION13. Customer Name/Division: Show the corporate name and division or operations group.14. Buyer/Buyer Code: Enter the buyer’s name and code.15. 48179105802.pdf Application: Enter the model year, vehicle name, engine, transmission, etc. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved39 June 2006 Part Submission Warrant • Revised PSW (Part Submission Warrant) to:– Include IMDS materials reporting to indicate reporting status…– Polymeric parts identification requirements… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved40 June 2006 MATERIALS REPORTING Has customer-required Substances of Concern information been reported? Submitted by IMDS or other customer format: Are polymeric parts identified with appropriate ISO marking codes? Yes No Yes No n/a n/a 16 17 • MATERIALS REPORTING16. Substances of Concern: Enter “Yes,” “No,” or “n/a”.
IMDS/Other Customer Format: Circle either “IMDS” or “Other Customer Format” as appropriate. If submitted via IMDS include: Module ID #, Version #, and Creation Date. 28621257415.pdf If submitted via other customer format, enter the date customer confirmation was received. 17.



Polymeric Parts Identification: Enter “Yes,” “No,” or “n/a”. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved41 June 2006 Part Submission Warrant • Reason For Submission… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved42 June 2006 REASON FOR SUBMISSION (Check at least one)Initial submission Change to Optional Construction or MaterialEngineering Change(s) Sub-Supplier or Material Source ChangeTooling: Transfer, Replacement, Refurbishment, or additional Change in Part ProcessingCorrection of Discrepancy Parts produced at Additional LocationTooling Inactive > than 1 year Other - please specify 18 • REASON FOR SUBMISSION18. Check the appropriate box(es). sound of silence ringtones for android For bulk materials, in addition to checking the appropriate box, check “Other” and write “Bulk Material” in the space provided. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved43 June 2006 Part Submission Warrant • Submission Level… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved44 June 2006 REQUESTED SUBMISSION LEVEL (Check one)Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.Level 2 - Warrant with product samples and limited supporting data submitted to customer.Level 3 - Warrant with product samples and complete supporting data submitted to customer.Level 4 - Warrant and other requirements as defined by customer.Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location. 19 • SUBMISSION LEVEL19. SUBMISSION LEVEL: Identify the submission level requested by the customer. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved45 June 2006 Part Submission Warrant • Submission Results… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved46 June 2006 SUBMISSION RESULTSThe results forThese results meet all design record requirements: (If "NO" - Explanation Required)Mold / Cavity / Production Process Yes NO dimensional measurements material and functional tests appearance criteria statistical process package 20 2122 • SUBMISSION RESULTS20. Check the appropriate boxes for dimensional, material tests, performance tests, appearance evaluation, and statistical data.21. Check the appropriate box. If “no,” enter the explanation in “comments” below.22. Molds/Cavities/Production Processes: For instruction, see paragraph 2.2.18 Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved47 June 2006 Part Submission Warrant • Declaration… Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved48 June 2006 DECLARATION EXPLANATION/COMMENTS: Is each Customer Tool properly tagged and numbered? Organization Authorized Signature Date Print NameTitle E-mail Fax No. I affirm that the samples represented by this warrant are representative of our parts, which were made by a process that meets allProduction Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the productionrate of ____/____ hours. I also certify that documented evidence of such compliance is on file and available for your review. I have notedany deviation from this declaration below. Phone No. Yes No n/a 23 24 25 • DECLARATION23. Enter the number of pieces manufactured during the significant production run.24. Enter the time (in hours) taken for the significant production run.25.
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Organization Authorized Signature Date Print NameTitle E-mail Fax No. I affirm that the samples represented by this warrant are representative of our parts, which were made by a process that meets allProduction Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the productionrate of ____/____ hours. I also certify that documented evidence of such compliance is on file and available for your review. I have notedany deviation from this declaration below. Phone No. Yes No n/a 26 27 • DECLARATION26 CUSTOMER TOOL TAGGING/NUMBERING: Are customer-owned tools identified in accord with ISO/TS 16949 and any customer-specific requirements, answer “Yes” or “No.” May not be applicable to OEM internal suppliers.27 ORGANIZATION AUTHORIZED SIGNATURE: A responsible organization official, after verifying that the results show conformance to all customer requirements and that all required documentation is available, shall approve the declaration and provide Title, Phone Number, Fax Number, and E-mail address. Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved50 June 2006 FOR CUSTOMER USE ONLY (IF APPLICABLE) PPAP Warrant Disposition: Customer Signature Date Print Name Customer Tracking Number (optional) Approved Rejected Other • FOR CUSTOMER USE ONLY (Leave blank) Copyright 2006 DaimlerChrysler, Ford, General Motors,All Rights Reserved51 June 2006 Changes in the 4th Edition - Bottom Line • Sustained improvement at the OEM manufacturing and assembly centers… – Warranty reduction– Elimination of supplier disruptions– Significant improvement in delivered part quality– Continual quality system improvement PPAP (pronounced P-PAP) is a design & manufacturing inspection process used to verify a supplier's ability to reliably and repeatedly produce a part or set of parts for mass production. PPAP validates a production process by inspecting parts before, during, and after a production run.
The PPAP report reviews 18 requirements such as design records, authorized engineering changes, engineering approval, dimensional results, control plan, and more. free python textbook pdf
PPAP is part of the five Core Tools for effective quality management with APQP, FMEA, MSA, and SPC being the other core tools. Validating supplier’s ability.
Understanding customer requirements. Establishing a reliable and repeatable process & agreement. leo privacy lock pro apk Reducing cost and having faster time to market. Maintaining expectations & compliance on both sides. Why is PPAP important? PPAP is important for three things: For customers (the OEM) to validate the supplier’s process to supply the product at the required quality and quantity under normal production conditions. For suppliers to understand the customer’s product requirements and specs. For both customer and supplier to have agreed-to and documented expectations. The manufacturing industry is highly competitive. Reducing cost, increasing faster time to market, and maintaining or improving quality are three tenets of any successful company. complete abap sap press pdf Getting quality parts done right and taking corrective action earlier in the lifecycle saves significantly more time and money when compared to rework, scrap, and the dreaded recall. Every OEMs goal is to have a reliable and repeatable process, and PPAP enforces that standard. Wrong or poor production process (e.g. equipment). Incorrect or ambiguous product design. Wrong or inconsistent quality of material. Inconsistent quality control. 72775023598.pdf Who does the PPAP and when is It required? In general, suppliers or the production team create the PPAP report for the customer to review. The process is usually done in close cooperation with the OEM’s quality team. PPAP is typically required for the production of new parts or when there is a change to the product or process: A new part or product. Product changes/corrections: design, materials, supply, and function. manhattan 5lb book pdf download manager Process changes/corrections: method, tools, location, and inspection criteria. unitary method worksheet pdf for class 6 Inactive tooling for more than one year. What’s in a PPAP Document The PPAP report reviews 18 requirements called elements. senior_graphic_designer_resume_objective.pdf PPAP 18 Elements: Design Records: A copy of the drawing or model provided by customer. Engineering Change Documents: Detailed description of changes of parts from previous revisions called Engineering Change Notice.
Customer Engineering Approval: Customer approval of sample production parts. Design Failure Mode and Effects Analysis (DFMEA): Prediction of a product's potential design failure. Process Flow Diagrams: All steps in manufacturing process including components, measurement, and inspection. basic networking mcq questions and answers Process Failure Mode and Effects Analysis (PFMEA): Prediction of a potential process failure that could occur during production. Control Plan: Details the plan for how quality will be implemented to ensure a stable and reliable process.
Measurement System Analysis (MSA): Conformance to customer’s ISO or TS standard.
Usually Gage R&R for critical impact characteristics to control repeatability and reproducibility and confirmation that gages are calibrated to measure these characteristics to control measurement bias. Dimensional Results: A list of every dimension noted on the ballooned drawing or model with pass/fail assessment. Material / Performance Test Results: Summary of every test performed on the part, usually in the form of DVP&R (Design Verification Plan and Report). Initial Process Studies: Shows that critical processes are reliable. Includes SPC (statistical process control) charts. Qualified Laboratory Documentation: All industry certifications for validation testing. Appearance Approval Report (AAR): Customer approval on final product appearance including color, texture, fit, and more. Sample Product: Sample from initial production run. Master Sample: Sample part signed off by customer and supplier. Checking Aids: Detailed list of all tools used to inspect and measure parts. Records of Compliance with Customer-Specific Requirements: List of customer’s specific requirements for PPAP process. Part Submission Warrant (PSW): Summary of entire PPAP submission. The PPAP report has 5 levels of submissions with Level 3 as the default level of PPAP submission approval. PPAP 5 Levels of Submission: Level 1: Part Submission Warrant (PSW) only submitted to the customer. Level 2: PSW with product samples and limited supporting data. Level 3: PSW with product samples and complete supporting data. Level 4: PSW and other requirements as defined by the customer. Level 5: PSW with product samples and complete supporting data available for review at the supplier’s manufacturing location. PPAP Retention and Submission Requirements Table Requirements Level 1 Level 2 Level 3 Level 4 Level 5 1.
Design Record R S S * R - for proprietary components/details R R R * R - for all other components/details R S S * R 2. 14632042219.pdf Engineering Change Documents R S S * R 3. Customer Engineering Approval R R S * R 4. Design FMEA R R S * R 5. Process Flow Diagrams R R S * R 6.
Process FMEA R R S * R 7. Control Plan R R S * R 8.
Measurement System Analysis R R S * R 9. xenokojafavew.pdf Dimensional Results R S S * R 10.
Material, Performance Test Results R S S * R 11. Initial Process Studies R R S * R 12. nouns worksheet high school Qualified Laboratory Documentation R S S * R 13. Appearance Approval Report S S S * R 14. mujevigasonunoravudu.pdf Sample Report R S S * R 15. Master Sample R R R * R 16. Checking Aids R R R * R 17. Records of Compliance w/ Customer-Specific Requirements R R S * R 18. Part Submission Warrant (PSW) | Bulk Material Checklist S S S * R S = Organization must submit to the customer and retain a copy of records or documentation items at appropriate locations.
R = Organization must retain at appropriate locations and make available to the customer upon request.
* = Organization must retain at appropriate location and submit to customer upon request. Who Governs PPAP Standards? The Automotive Industry Action Group (AIAG) has a common PPAP standard, although individual OEMs (original equipment manufacturer) can have their own distinct requirements. AIAG memberships includes Ford, General Motors, Chrysler, Toyota, Honda, Nissan, Volkswagen, Caterpillar, and over 800 OEMs, parts manufacturers, and service providers. Although primarily used in the automotive industry, other industries such as aerospace & defense, consumer goods, heavy industries, medical, electronics and more have been quick to adopt PPAP or a derivative of it. The PPAP manual is currently in its 4th edition (Publication date: March 2006). Digitizing the PPAP process: Automatic ballooning & measurement results PPAP isn't easy. Especially with creating PPAP reports manually. With a model-based definition (MBD) PPAP creation time can drastically be reduced through automatic ballooning and measurement results. MBD is a growing industry practice of having the 3D CAD model be the “single source of truth.” This means the CAD model along with semantic product and manufacturing information (PMI) can drive the PPAP report, GD&T, bill of materials, notes, engineering change orders etc. for an improved method of inspection generation and other manual processes that can be automated. The power of MBD-based PPAP is the human and machine readability factor. With 2D drawings, data is for human consumption which presents two major problems: reliance on human process & interpretation and data that is underutilized. Learn more about MBD PPAP Download: MBD-Based Inspection Reporting PDF For example, if a large company with multiple suppliers receives the same drawing, most likely, the company will get back 5 different PPAP documents with different GD&T interpretations from the suppliers. Not the headache we want to deal with. MBD-based PPAP coming from the company first establishes the specification of the process and product more explicitly which ensures uniformity between different suppliers. Also, quality and inspection teams are often viewed as pass/fail departments, yet they have valuable data that can help improve business products and problems. MBD introduces data back into the ecosystem for improved designs, improved parts, and improved operations done quicker, cheaper, and more efficiently. Automated: No need for human transcription or interpretation. Build and optimize a reliable and repeatable process. Data mapped back to the single source of truth. Start of the digital transformation from design to manufacturing. Valuable data to mined for analytics and business insights. MBDVidia: Auto-generate PPAP Reports How MBDVidia for PPAP works Load a full annotated MBD model. Generate Bill of Characteristics: automatic ballooning and data sorted into organized BoC. Export Smart Excel report: Linked to MBD, AS9102 and ISIR, and customizable Excel forms and templates. Import Smart Excel report data to MBD model: see Excel data on model with results traceable to authority MBD dataset. MBDVidia: Automatic BoC generation for PPAP, FAI, and other inspection reports. Need more information about automatic PPAP BoC generation? Contact us and we'll glad to help answer questions PPAP, FAI, or inspection programs. Additional Reading