
PPAP Procedure

Date: 02/10/2025

Revision: M

1. Purpose

The purpose of this procedure is to define the system to request, review and approve Production Part Approval Process (PPAP) reports throughout Grayhill. It will also define the level of reporting needed from the supplier as well as the required report supporting data.

2. Scope

This procedure applies to *Grayhill's* **Control of Externally Provided Processes, Products and Services** process and is required for the approval of all new, modified or transferred piece part tooling and covers the first production shipment of product.

3. Definitions

Unless otherwise specified, for Quality management systems terms and definitions used within this document are in accordance with **ISO 9000**.

For PPAP requirements, terms and definitions used within this document are in accordance with the General Guidelines of **AIAG PPAP Manual** (available from www.aiag.org).

For Environmental management systems terms and definitions used within this document are in accordance with **ISO 14001**.

QMS – Quality Management System

EMS – Environmental Management System

4. Responsibilities

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Person	Responsibility
Purchasing / Commodities	– Notify supplier that a PPAP is required on the part through the PO number and open a case in workflow. – Work with the engineer and SQE to define the PPAP submission level, required supporting data, and PPAP production run quantities. – Work with supplier and Grayhill team to obtain missing or incomplete supporting data.
Design Engineer	– Work with Grayhill Team to define the PPAP submission level, required supporting data, and PPAP production run quantities. – Identify missing or incomplete supporting data and work with SQE to obtain from the supplier. – Review and disposition of PPAP report
Supplier Quality Engineer (SQE)	– Identify missing or incomplete supporting data and work with Purchasing/Commodities and the supplier to obtain. – Receive and store retained samples from the supplier. – Review and disposition of PPAP report
Engineering Services	– Process PPAP workflow case and update supporting processes once the case is released by Design Engineer.
Supplier Quality Administrator	– Update SAP and support process, (as they apply to IQC) that are affected by the PPAP. – Receive and store retained samples from the supplier
Supplier	– Produce PPAP parts and gather supporting data utilizing production intended processes. – Submit PPAP report as required. – Submit retain sample parts to Grayhill SQE

5. Applicable Documents, Forms or References

Document Number	Document Type	Document Title
ISO 9001	Standard	Quality management system – Fundamentals and vocabulary
AS9100	Standard	Quality management system – Requirements for aviation, space and defense organizations
QSM-2015	QSM	Quality System Manual
AIAG: PPAP	Standard	Production Part Approval Process Manual
ENG FORM #151	Forms	Grayhill PPAP packet of forms

6. Applicable Records Created

Description of Record (include form number if applicable)	Custodian	Indexing Method, Storage Medium
PPAP Report ENG FORM #151	Corporate QC	Electronic (Workflow)
Signed Part Submission Warrant (PSW)	Corporate QC	Electronic (Workflow)
Master retained sample parts	Corporate QC	Physical storage

7. Procedure

The purpose of the Production Part Approval Process (PPAP) is to determine if all Grayhill Inc. Engineering design records and specification requirements are properly understood by the Supplier and that the process has the potential to produce product that consistently meets these requirements, during an actual production run at the quoted production rate.

The Production Part Approval Process that Grayhill Inc. is deploying is closely modeled after the Automotive Industry Action Group (AIAG) Production Part Approval Process. The Production Part Approval Process Manual defines generic requirements for production part approval, including production and bulk materials.

When required by Grayhill, the supplier shall submit to Grayhill a Production Part Approval Process (PPAP) qualification package. Grayhill will determine at which level the report is to be submitted and the required supporting data. (Table 9.1)

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PPAP PROCEDURE

- 7.1. A PPAP case will be created in Workflow by the responsible Purchasing, Commodities, or Engineering associate and assigned to the supplier. The case will identify the level of PPAP and supporting data to be submitted. (Table 9.1, 9.2)
- 7.2. The supplier will attach the PPAP report and all supporting data to the case and assign it back to Grayhill SQE for review.
- 7.2.1. Master samples are to be retained by the supplier and the sample parts used for the data collection in the report must be sent to the Grayhill SQE /Supplier Quality Administrator for review and retention.
- For multi-cavity tooling, a minimum of one part per cavity must be submitted.
 - Supplier must, at a minimum, identify the sample parts with the following information: Part Number, Revision, Date of Manufacture, Cavity and Sample Number.
 - Sample parts will be identified and stored within Grayhill.
- 7.2.2. PPAP submission and approval requires that supplier submit photographic evidence of all assets (molds, dies, fixtures, etc.) with a purchased value of \$1000 or more (or its equivalent in foreign currency) which Grayhill has placed a purchase order. Photographs shall include overall views of primary tooling along with Grayhill and/or customer affixed asset nameplates. In the case of molds (injection, compression, die cast, etc.), photographs are to include individual views of cavities, cores, interchangeable inserts, etc. with the tool both open and closed. Photographs shall be electronically inserted into the PPAP and need only be included in Level III cases. Photographs are treated as proprietary information, used to document capital, and will only be shared with Grayhill's end customers. Failure to include these can result in a rejected PPAP.
- 7.3. The SQE will initially review the report to verify that all requested elements are present and complete. If the report is incomplete, the SQE will notify the person who submitted the report (supplier/GH Purchasing) and request the missing information in order to process the report. Any concerns the SQE may have regarding the content of the report will be directed to the Design Engineer for clarification before processing further. The SQE, Engineer or IQC associate will verify that the samples received meet all the print requirements.
- 7.4. If the report is complete, it will be reviewed and dispositioned by the SQE according to the approval statuses listed in table 9.3. If samples do not meet print requirements, an NMR will be issued to document non-conformance and resolution.
- 7.5. Approval status may be signed 'electronically' through the case for the electronic PSW or physically signed on the paper PSW then scanned and attached to the case.
- 7.6. Once the SQE has approved the report, they will assign the case to the appropriate Engineer.

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- 7.7. The Engineer will review the report and supporting data and disposition the PPAP report. As with the SQE, if any additional information is needed, or corrections required, the Engineer will communicate these concerns to the SQE and work with them to resolve the concerns with the supplier.
- 7.8. Approval status by the Engineer is indicated by signing (electronic or paper) the same PSW as the SQE and attaching it to the case.
- The supplier will be notified by the SQE and/or Purchasing of the concerns and/or issues that result in a Rejected case.
- 7.9. Once both parties have approved the report, the Engineer can release the drawing at their discretion.
- 7.10. If the parts require qualification or additional testing, the engineer may hold on to the case until all test reports are complete.
- 7.11. The Engineer is responsible for sending the case and supporting information to Engineering Services for processing.
- 7.12. Engineering Services will process the ECN associated with the case and update any supporting processes as necessary. They will close the PPAP case.
- 7.13. When the case is closed, the Supplier Quality Administrator is notified and will update the ERP system in the areas that relate to IQC.
- 7.14. The supplier shall not ship any production parts until Full Approval is received unless authorized by Grayhill Business Unit Leader and Director of Corporate Quality.

8. Documented Change Record

Rev	Date	ECN #	Description of change	Approver
A	07/03/1997	318246	Original	07/07/1997
B	10/23/97	318259	Added document to SOP Manual. Assigned a section #. Added revision block.	K.H. 10/23/1997
C	10/28/1999	327086	Fixed the title below the header.	K.H. 10/28/1999
D	01/14/2004	350023	A few minor corrections – but necessary.	K.H. 01/14/2004
E	03/06/2009	375432	Revised to Add Levels and additional PPAP requirements.	KHH 03/30/2009



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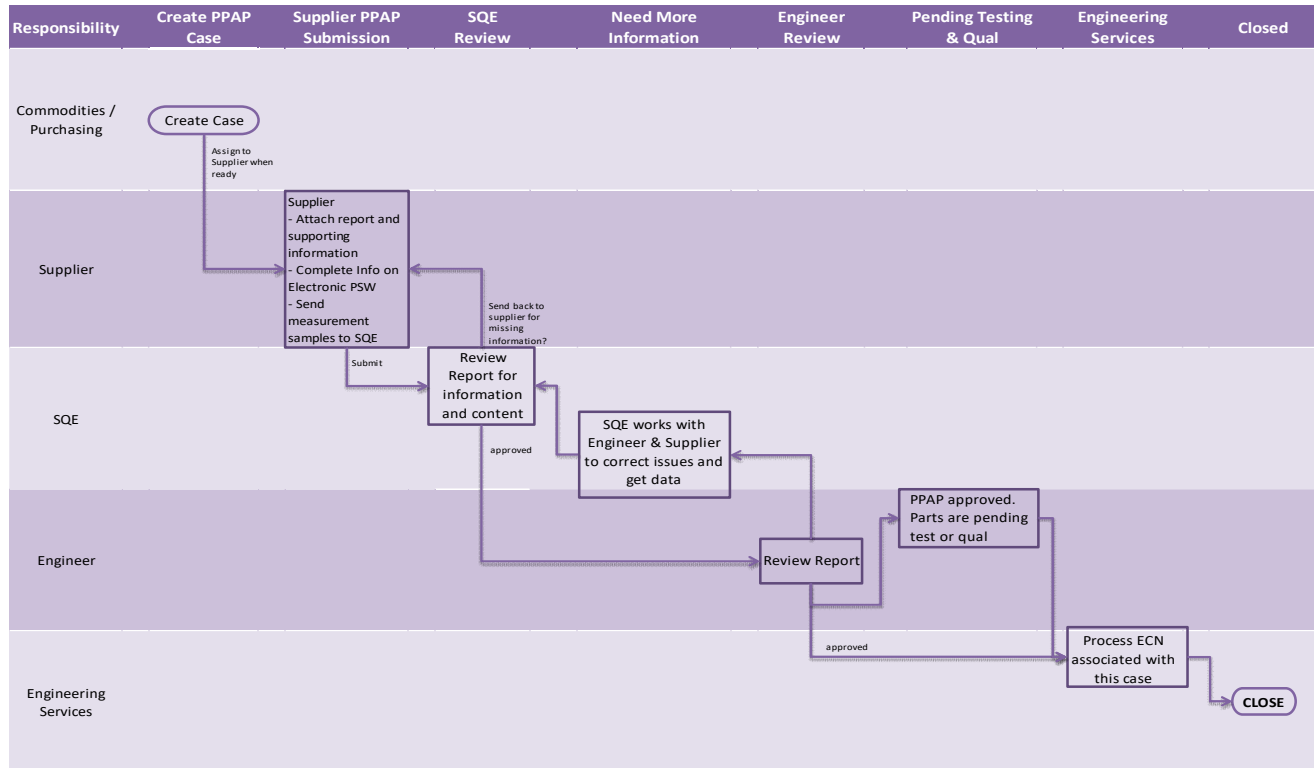
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F	06/10/2010	380043	Revised Design, Active, and Inactive Process for print revisions. Clarifications on the PPAP process. Added flowchart.	KHH 06/06/2010
G	10/14/2010	380058	Added PPAP directories for approval and inbox for submission.	KHH 10/13/2010
H	04/27/2011	384458	Revised Capability Studies for tooling with more than four cavities. And for compression molded rubber product.	KHH 05/11/2011
J	02/12/2013	391001	Clarified Page 2 for Blank Shafts	KHH 02/12/2013
K	10/29/2018	416103	Review and update content	C.Renis 10/29/2018
L	02/02/2024	509337	MAPICS to SAP reference updates General grammatical and spelling updates	H. Dahir 02/09/2024
M	02/10/2025	507066	Add Section 7.2.2. General grammatical and spelling updates	H. Dahir 05/23/2025

Appendices

9. Process Flow



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9.1 PPAP Submission Level Requirements

Submission Level	Contents	Application Examples
Level III (default level)	- Part Submission Warrant - Product Samples - Complete supporting data	- Required when tooling is created, modified, replaced. - Required when new revision A prints are released. - Change of Vendors or Tooling is relocated. - When machining or assembly processes are established for new production piece parts.
Level II	- Part Submission Warrant - Product Samples - Limited supporting data	Where a previous level 3 PPAP has been submitted and changes are made to the following. - Required when there is a major process change (i.e., different materials, equipment or method of mfg.). - When print changes affect critical or functional dimensions. - Major rework or modification of tooling. - Following a Customer Corrective Action requesting to suspend shipment due to a supplier quality concern. - Changing from Inactive "I" Status back to Active/Release "A" status. The PSW (FORM PPAP0101) may be used to change the piece part status by attaching the ECN number to the top of the Warrant form.
Level I	- Part Submission Warrant - Appearance Approval Report (for designated appearance items)	- Required when there is a cosmetic or appearance change. - When parts are purchased off a TQPL document. - Minor Changes not affecting critical dimensions.

PPAPs are NOT required in the following situations

Minor print corrections to change grammar, spelling, typos, or similar errors.

Piece part is a standard supplier catalog item.

Dimensional Changes that are being made to match an existing PPAP.

Dimensional Changes that are being made based on findings at incoming inspection on Legacy parts.

Toolroom modification to Blanks/Standard parts (shafts, studs, plugs, detent rotors, support plates and bushings). This is provided that a control plan is set up for each new blank, and data is taken in process. In addition, the blank or master part must be at released status.

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9.2 Identification of PPAP Supporting Data (as defined in the *AIAG PPAP Manual*)**Design Records****Engineering Change Documents: Print/ Engineering Questions (EQ)****Engineering Approval****Design Failure Mode and Effects Analysis (DFMEA)****Process Flow Diagram****Process Failure Mode and Effects Analysis (PFMEA)****Dimensional results**

A minimum of 1 part per cavity must be included in the report.

Material Test Records**Performance Test Records****Initial Process Study**

A process Cpk greater than 1.33 is considered acceptable. Anything less than 1.33 requires modification of the process or discussion with Grayhill Engineering

Measurement System Analysis Study (MSA)**Qualified Lab Documents****Control Plan****Part Submission Warrant (PSW)****Appearance Approval Report****Sample Production Parts****Master Sample****Checking Aids****Customer Specific Requirements**

The asset ID (when applicable) shall be included on the PSW. A photo of the asset tag may be included in the report.

PPAP supporting data may be submitted in any document format but shall contain the information required per the guidelines of the *AIAG PPAP Manual*.

9.3 PPAP Approval Status

Approved – the product or service meets all specifications and requirements and the supplier is authorized to ship production quantities.

Rejected - the submission, production lot used for the report, and accompanying documentation fails to meet the requirements and the supplier is not authorized to ship the product or service. The correct product and documentation must be submitted and approved before production quantities may be shipped.

Other – Conditional approvals for quantity, PO# or any other exceptions.
