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|  <p>Supplier Quality General Procedure</p> | <p>Document No.: OSK-P2000</p> |
| <p>Title: Production Part Approval Process</p> | <p>Effective: 05/04/18 Originated: 12/13/10</p> |
| <p>Approved By: Supplier Quality Council</p> | <p>Page 1 of 7</p> |

1. PURPOSE:

- 1.1. This procedure provides guidance on the execution of the Production Part Approval Process (PPAP) which is used by all Oshkosh Corporation Business Segments.

2. SCOPE

- 2.1. This procedure applies to all parts, components, and material purchased by all Oshkosh Corporation Business Segments, which are intended to be assembled into a vehicle/machine.

3. REFERENCE:


- 3.1. Global Supplier Quality Manual
3.2. PPAP Workbook (OSK-F2000)
3.3. Supplier Change Request (OSK-F1000)
3.4. PPAP Requirements (OSK-T2000)
3.5. Oshkosh Supplier Network – Supplier Portal (<http://osn.oshkoshcorp.com/gsq-en.htm>)
3.6. Supplier Standards Guide (SSG) Section J: Supplier Product Labeling and Packaging Instructions (<https://osn.oshkoshcorp.com/docs/ssg/SectJ052016.pdf>)

4. DEFINITIONS:

- 4.1. PPAP: Production Part Approval Process
4.2. GPSC: Global Procurement and Supply Chain
4.3. FTP Site: File Transfer Portal Site (<https://ftp.oshkoshcorp.com/thinclient/Login.aspx>)

5. PROCEDURE:

- 5.1. The Global Procurement and Supply Chain insure that suppliers to Oshkosh Corporation comply with the requirements of this procedure.
- It is the GPSC Buyer's responsibility to ensure that the PO communicates and properly informs the supplier of the PPAP requirements.
 - Purchase orders may contain a note requiring suppliers and subcontractors to comply with the provisions in the Oshkosh Corporation Supplier Standards Guide, Section A – Global Supplier Quality Manual.
 - PPAP workbooks are located at: <http://osn.oshkoshcorp.com/gsq-en.htm>
- 5.2. Reason for PPAP request:
- Initial Submission
 - Engineering Change(s)
 - Tooling: Transfer, Replacement, Refurbishment, or additional
 - Correction of Discrepancy
 - Production Break to Oshkosh Corporation > 1 year
 - Change to Optional Construction or Material
 - Sub-Supplier or Material Source Change
 - Change in Part Processing
 - Parts Produced at Additional Location
 - Other – Please specify
- 5.3. Supplier Change Requests / Deviations
- The Supplier is responsible for communicating to Oshkosh Corporation anytime there is a proposed change to the process or product being supplied to Oshkosh Corporation using the Supplier Change Request Form (OSK-F1000). The change request cannot be implemented without formal authorization from Oshkosh Corporation. Reference the Supplier Change Request Procedure (OSK-P1000).
- 5.4. Submission Requirements can be found in the PPAP Workbook (OSK-F2000) on the red "PPAP Requirements" tab. Oshkosh Corporation has established four levels of PPAP (Level 1, 2, 3, 4). A Level 2 PPAP submission is the default

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PPAP level for all products supplied to Oshkosh Corporation. Please follow segment specific guidelines for levels 1, 2 & 4; when not clearly defined, any questions should be directed to the applicable segment SQE. SQE can request additional PPAP samples and process documentation based on the part criticality. Level 4 PPAPs and Aftermarket PPAP's must be sent with the parts on the first order delivery.

- The default PPAP submission level can be changed by the Oshkosh Corporation Segment Quality Representative. There may be instances when the specific Oshkosh Corporation Segment will require a PPAP submission level greater than or less than Level 2, depending on the specific component being supplied. When a Level 1 PPAP submission is required, it shall be sent to Oshkosh Corporation with the first production order. Oshkosh Corporation provides written approval of the PPAP package via a Part Submission Warrant (PSW).
- When a Level 3 PPAP submission is required it shall be reviewed and approved by an Oshkosh Quality Representative prior to the first production delivery. PPAP parts may be requested to be sent into Oshkosh for review along with the PPAP submission. Oshkosh Corporation provides written approval of the PPAP package via a Part Submission Warrant (PSW). Written approval of the PPAP package is required prior to shipping any production product to any Oshkosh Corporation manufacturing facility.
- **When a Level 3 PPAP submission is required, Suppliers are not authorized to ship production material to Oshkosh Corporation without full or interim PPAP approval.** Interim PPAP approval may be used to permit the supplier to ship material on a limited time or quantity basis in accordance to the Interim Approval Worksheet and Part Submission Warrant
- When a Level 4 PPAP submission is required and utilized for non-production or New Product Development (NPD) submissions, it shall be sent to Oshkosh Corporation with the first order. Oshkosh Corporation provides written approval of the PPAP package via a Part Submission Warrant (PSW).

5.5. Level 1 PPAP:


- Part Submission Warrant (PSW); *Defense Integrated Product Support requires Material Certification along with warrant

5.6. Level 2 PPAP:

- Part Submission Warrant (PSW)
- Dimensional Results – 1 piece → This includes 1 piece Dimensional Results for any subcomponents outlined on the drawing part number being purchased. This requirement of subcomponent dimensional may be changed by the Oshkosh SQE.
- Design Records (Bubble Print)
- PPAP Samples – First production order / upon request prior to production order
- Print Notes (Attach copy of Raw Material Certification / Performance Test Report / Surface Finish / Labeling, Paint Process, Welding Documentation such as WPS/PQRs/Welder Certs)
- Supplier Change Request (OSK-F1000) – if applicable

5.7. Level 3 PPAP:

- Part Submission Warrant (PSW)
- Dimensional Results – 3 piece → This includes 1 piece Dimensional Results for any subcomponents outlined on the drawing part number being purchased; This requirement of subcomponent dimensional may be changed by the Oshkosh SQE.
- Design Records (Bubble Print)
- PPAP Samples – First production order / upon request prior to production order
- Print Notes (Attach copy of Raw Material Certification / Certificate of Compliance / Performance Test Report / Surface Finish / Labeling, Paint Process, Welding Documentation such as WPS/PQRs/Welder Certs)
 - If a Purchase Part (Parent) Oshkosh Drawing contains a Subcomponent (Child) with an Oshkosh Drawing, a 1 piece Dimensional Results, Design Record (Bubble Print), Print Notes (Raw Material Certification, Certificate of Compliance, Performance Test Reports, Surface Finish, Labeling, Paint Process, Welding Documentation such as WPS/PQRs/Welder Certs), and Supplier Change Request (If Applicable) is required. Grandchild (subcomponent within a subcomponent) on an Oshkosh Drawing does not require PPAP documentation to be submitted, but Suppliers are still responsible for 100% compliance to the Oshkosh Drawing.
- Supplier Change Request (OSK-F1000) – if applicable

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- Design Failure Mode and Effects Analysis (DFMEA) → Required when Supplier is design responsible
- Process Flow Diagram (PFD)
- Process Failure Mode and Effects Analysis (PFMEA)
- Initial Process Capability → Required when Critical Characteristics are called out on the drawing; The Oshkosh Corporation SQE may change this requirement depending on the component.
- Measurement System Analysis (MSA) → Required when performing Process Capability; The Oshkosh Corporation SQE may require MSA additional measurement methods. • Process Control Plan
- Appearance Approval Report (AAR) → If applicable the SQE will request
- Checking Aids (Fixture, gage, template, etc)
- Records of Compliance with Customer Specific Requirements → If applicable the SQE will request.
- Master Sample Photo Documentation of PPAP parts
- Tooling Photo Documentation → Required when manufactured with Oshkosh Corporation owned tooling


5.8. Level 4 PPAP:

- Part Submission Warrant (PSW) → Confirmation of conformance to all Print Notes on PSW
- Dimensional Results – 1 piece (Only includes the purchased part level drawing dimensional results)
- Design record (Bubble Print)
- PPAP samples

5.9. Production parts shall meet all customer engineering Design Record and specification requirements to include all safety and regulatory requirements. Production parts not received at an Oshkosh Corporation facility within a 12 month period require a PPAP re-submission.


5.10. Filling in the PPAP Paperwork

- **Part Submission Warrant (PSW)** - The Supplier shall complete the Part Submission Warrant after all PPAP elements are verified and conform to all requirements. Oshkosh Corporation requires that Suppliers only submit one part number on a Part Submission Warrant (PSW).
- **Design Failure Modes and Effects Analysis (Design FMEA)** *if the Supplier is product design-responsible* - Oshkosh Corporation requires suppliers to develop a Design FMEA in accordance with, and compliant to, Oshkosh Corporation requirements if design-responsible. The Supplier shall use their own format for the DFMEA.
- **Engineering Change Notice (ECN)** - The Supplier shall maintain copies of any authorized engineering change documents for those changes not yet recorded in the Design Record but incorporated in the product, part or tooling. All marked drawings from Oshkosh Defense must be signed and approved by engineering. Marked drawings are acceptable for PPAP submission if a released or Advanced Drawing is not available due to timeline constraints in the interim ONLY with an approved F1000 and CN number.
- **Process Flow Diagrams (PFD)** -The Supplier shall have a process flow diagram outlining the process steps to manufacture the quoted product. Process flow diagrams for “families” of similar parts are acceptable if the new parts have been reviewed for commonality by the Supplier. The PFD must represent the process flow of material from receipt of raw material to finished goods at the dock for shipment.
- **Process Failure Mode and Effects Analysis (Process FMEA)** - Oshkosh Corporation requires the Supplier to develop and maintain a Process FMEA in accordance with the requirements outlined in the PPAP Workbook (OSKF2000) The Supplier shall conduct the MFMEA – Machinery Failure Modes & Effects Analysis at the discretion of the SQA person assigned to the Supplier for APQP activities.
- **Initial Sample Inspection Report (ISIR)** - The Supplier shall provide evidence of dimensional verification as required by the Design Record and the Control Plan proving compliance with specified requirements. The Supplier shall have dimensional results for each unique manufacturing process, e.g., cells or production lines and all cavities, molds, patterns or dies. The Supplier shall record actual results for all dimensions, characteristics, and specifications as noted on the Design Record and Control Plan.
- **Records of Material / Performance Test Results** - The Supplier shall have records of material and/or performance test results for tests specified on the Design Record or Control Plan and adhere to the retention requirements.
- **Material Test Results** - The Supplier shall perform all chemical, physical, metallurgical, or mechanical property tests for all parts and product materials when chemical, physical, metallurgical or mechanical property

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requirements are specified by the Design Record or Control Plan. Material Test Results shall indicate and include the following:

- The Design Record change level of the parts tested.
 - Any authorized engineering change documents that have not yet been incorporated in the Design Record.
 - The number, date, and change level of the specifications to which the part was tested.
 - The date on which the testing took place.
 - The quantity tested.
 - The specified results.
 - The material Supplier's name and vendor code.
 - The Supplier shall use the PPAP workbook material template to report the above information
- **Performance Test Results** - The Supplier shall perform tests for all part(s) or product material(s) when performance or functional requirements are specified by the Design Record or Control Plan. A performance test (unlike in-process checks, which do not require qualified laboratory documentation) is the process of verifying the functionality of the Product (Finished Part) when exposed to the conditions that they will be used in. The Supplier shall use the performance testing template within the PPAP workbook to document and submit the performance test results.
Performance test results shall indicate and include the following:
 - The Design Record change level of the parts tested.
 - Any authorized engineering change documents that have not yet been incorporated in the Design Record
 - The number, date, and change level of the specifications to which the part was tested.
 - The date on which the testing took place.
 - The quantity tested.
 - The specified results.
 - **Measurement System Analysis (MSA)** - The Supplier shall have applicable Measurement System Analysis (MSA) studies, such as gage R&R, for all new or modified gages, measurement, and test equipment.
 - **Initial Process Studies (Capability)** The level of initial process capability or performance shall be a minimum Cpk value of 1.33 for all variable Major or Critical characteristics. The Supplier shall perform MSA to understand how measurement error affects the study measurements. Where no Major or Critical characteristics are identified, Oshkosh Corporation reserves the right to require demonstration of initial process capability on other characteristics. On-going statistical monitoring of all Major or Critical Product Characteristics is required by the Supplier. The Supplier shall ensure that the process sustains a stable process with a minimum Cpk value of 1.33.
 - **Laboratory Documentation** - The inspection and applicable testing for PPAP shall be performed by a "qualified laboratory" (internal or external to the Supplier organization). The laboratory must have a legitimate business license, scope of business, and all documentation proving that the laboratory is qualified for the specific type of inspection and testing performed on any sample part/component.
 - **Process Control Plan** - The Supplier shall have a Control Plan to define all methods used for process control. The Supplier shall use the Process Flow Diagram and FMEA to verify line of sight to the Control Plan. The Control Plan must include all Critical Product Characteristics and process controls driven by the FMEA process.
 - **Master Sample** – It is at the Oshkosh Quality Representative's discretion to require the Supplier retain a Master Sample for all parts/components at the supplier location. This will be noted on the Part Submission Warrant. The Master Sample must be appropriately labeled with traceability. The Supplier is responsible to ensure appropriate preservation of the master sample.
 - **Checking Aids** - All instruments, templates, attribute and variable gages, fixtures, or jigs that are used to determine acceptance/rejection of a product characteristic shall be on a calibration program. The Supplier shall also certify that all checking aid characteristics align with the part/component dimensional requirements. In the event that the checking aid is used to verify a "Major" or critical product characteristic, the Supplier shall conduct the appropriate MSA activities including Gage R&R. The Supplier shall ensure that all "custom" checking aids have the customer part number and revision level.
 - **Submission Samples** – If a sample is required for PPAP submission, the Supplier shall ensure that the "PPAP Parts Label" is filled out and attached appropriately to the outside of the sample container. For production parts

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that are produced from more than one die, mold, tooling, pattern, cavity or production process, the Supplier shall complete a full layout to all characteristics.

- **Appearance Approval Report** - If the part/component has appearance requirements specified, the Supplier shall provide an Appearance Approval Report for each part or family of parts.
- **Shipping Labeling Requirements** – The supplier shall ensure that the Shipping Label (Figure 9: Label Specifications from SSG, Section J) is filled in correctly
 - Part Number
 - Revision
 - Quantity
 - PO
 - Supplier Name
 - Supplier Part Number (when applicable)
 - Serial Number (when applicable)
 - Mfg Date
 - Ship Date
 - Country of Origin

5.11. PPAP Approval Process

- **Approved*** – The Supplier will receive a signed and approved PSW via email to the email address provided on the PSW submitted with the PPAP package.
- **Interim Approved*** – The Supplier is authorized to ship material for production requirements on a limited time or piece part quantity basis. Interim approval is only permitted when the Supplier has clearly defined the discrepancies preventing full approval and has an action plan to resolve such discrepancies.
- **Reject*** – A rejected PSW is sent to the Supplier in the event that the PPAP submission does not meet Oshkosh Corporation requirements. In the event of a PPAP rejection, the Supplier shall take all action necessary to expediently correct the non-conformances.


***NOTE: If supplier is on Oshkosh Reliance NO signed PSW will be provided. Reliance software will show status of PPAP, (i.e. approved, rejection, interim approved, approve with an SCR). Supplier will also receive email when a PPAP is rejected or interim approved along with rejection codes, new due date and comments.**

5.12. PPAP Approval Status

- **Approved** – An Approved PPAP is when the PPAP has been reviewed by Oshkosh Corporation Quality Representative and it has been determined that the PPAP has met all the requirements that has been requested of the supplier.
- **Interim Approved** – An Interim Approved PPAP is when the PPAP has been reviewed by an Oshkosh Corporation Quality Representative and it has been determined that the PPAP submission has met all the requirements to allow the Supplier to ship product and use on vehicles / machines. However, there are still additional actions that are needed of the Supplier to become a Fully Approved PPAP.
- **Not Approved** – When a PPAP is Not Approved that means the PPAP either has not been reviewed, submitted, or it has been rejected by Oshkosh Corporation Quality Representative. The Supplier is not authorized to ship product for the use on Vehicles / Machines intended for sale to a Customer.

5.13. PPAP Submission Process:

- The documented path forward may be communicated through an Interim Approval Worksheet and/or a Part Submission Warrant.
- PO generates and communicates PPAP requirements.
- When the PPAP requires sample parts send them to the location on the Purchase Order. The container & parts must be marked with the PPAP Sample Parts Label that can be found in the PPAP Workbook.
- The Supplier is required to submit the PPAP paperwork to the FTP server for all Defense related documentation unless they are on the Reliance system, in which case Reliance software is **required** for PPAP submissions regardless of segment. For all other segments (not using Reliance software yet), the Supplier emails PPAP documentation to the appropriate Oshkosh Corporation Quality Representative. The Supplier is also required to submit a paper copy of the PPAP documents and part submission checklist with samples (if samples are

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requested). Samples must be identified and labeled as PPAP samples with label provided within the PPAP workbook

- The PPAP submitted to the appropriate Oshkosh Corporation Segment designee.
- Defense Production:
 1. Do not email PPAP's due to ITAR restriction**drawings cannot be emailed or sent with product**
 2. Level 1, 2 PPAPs upload to FTP Site: <https://ftp.oshkoshcorp.com/thinclient/>
 3. Level 1, 2 PPAPs Email to PPAP@defense.oshkoshcorp.com indicating the PPAP is loaded to the FTP Site
 4. Level 1 PPAPs must be sent in with the first Purchase Order parts requiring PPAP.
 5. Level 3 PPAPs upload to FTP Site <https://ftp.oshkoshcorp.com/thinclient/>
 6. Level 3 Email to SQE that is assigned to the part indicating the PPAP is loaded to the FTP Site 7. Level 4 PPAPs must be sent with the parts on the first order delivery.
 8. For Level 3 PPAP's the supplier must not ship production quantities until PPAP Interim or Full approval is obtained.
- Defense Integrated Product Support (IPS):
 1. Do not email PPAP's due to ITAR restriction**drawings cannot be emailed or sent with product**
 2. All PPAPs upload to FTP Site: <https://ftp.oshkoshcorp.com/thinclient/>
 3. All PPAPs must be sent in with the first Purchase Order parts requiring PPAP.
- Access (JLG):
 1. Email and submit PPAPs to: ppap@jlg.com, ppapchina@jlg.com, ppapeame@jlg.com, ppapbrazil@jlg.com when PPAP has been completed.
 2. For Level 3 PPAP's the supplier must not ship production quantities until PPAP Interim or Full approval is obtained
- Fire and Emergency (Pierce):
 1. Do not email PPAP's due to size constraints.
 2. Level 1, 2 PPAPs upload to FTP Site: <https://ftp.oshkoshcorp.com/thinclient/>
 3. Level 1, 2 PPAPs Email to PPAP@piercemfg.com indicating the PPAP is loaded to the FTP Site
 4. Level 1, 2 PPAPs must be sent in with the first Purchase Order parts requiring PPAP.
 5. Level 3 PPAPs upload to FTP Site <https://ftp.oshkoshcorp.com/thinclient/>
 6. Level 3 Email to SQE that is assigned to the part indicating the PPAP is loaded to the FTP Site 7. Level 4 PPAPs must be sent with the parts on the first order delivery.
 8. For Level 3 PPAP's the supplier must not ship production quantities until PPAP Interim or Full approval is obtained.
- Commercial (McNeilus):
 1. Email: PPAP@mcneilusco.com when PPAP has been completed.
 2. All PPAPs sent to PPAP@mcneilusco.com
 3. For Level 3 PPAP's the supplier must not ship production quantities until PPAP Interim or Full approval is obtained. The PPAP is reviewed by the Oshkosh Corporation Segment Designee

If supplier is on the Reliance system, Reliance software is **required for PPAP submissions regardless of segment and these steps are not to be followed*

5.14. The PPAP Part Submission Warrant (PSW) approval and rejection is communicated back to the Supplier via an email from the Oshkosh Corporation Segment Designee, with the exception of Defense Business Segment, whereas the FTP site is utilized.

**NOTE: If supplier is on Oshkosh Reliance NO signed PSW will be provided. Reliance software will show status of PPAP, (i.e. approved, rejection, interim approved, approve with an SCR). Supplier will also receive email when a PPAP is rejected or interim approved along with rejection codes, new due date and comments.*

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ADDENDUMS

Access: PPAP submissions and approvals are required prior to shipment of parts to Access facilities. **Commercial:** None

Defense: None

Fire & Emergency: None

Revision History

| Date | Revised by | Revision Details |
|----------|---------------|--|
| 12/13/10 | B. Heim | Original Release |
| 11/1/12 | A. Krueger | Include more detail within the submission requirements |
| 9/1/14 | A. Krueger | Moved the PPAP details from the GSQM into the P2000 procedure; added F&E detail for submission |
| 5/31/15 | A. Krueger | Added ADDENDUMS & revision history |
| 03/31/17 | A. Krueger | Added Section J: Labeling information |
| 03/31/17 | A. Krueger | Added Reliance information / requirements into 5.11, 5.13-5.14 |
| 05/04/18 | Omar Alvarado | Added requirements (5.7) for sub components (child, grandchild) Added requirements (5.10) for performance testing |