

GLOBAL PURCHASING

Supplier Technical Assistance

Phased PPAP

Phased Production Part Approval Process

Phased PPAP

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Supplier Technical Assistance
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Foreword – Phased PPAP

Vision

Partner with suppliers to drive flawless execution in vehicle launch and deliver products that surpass customer expectations.

Teamwork

Ford Motor Company and its suppliers must work together to deliver a quality part, produced on-time, that meets all Ford engineering requirements. To accomplish this goal, Ford and its suppliers must place trust, integrity and accuracy above all else in the Production Part Approval Process.

Supplier Responsibility in Flawless Launch

Supplier delivers a successful launch with no quality or capacity issues that affect the Ford production process.

What Phased PPAP Means to Ford Motor Company

Phased Production Part Approval Process (PPAP) is the process in which the supplier demonstrates they can produce quality parts and provide these parts to Ford at the required volume.

Successful completion of Phased PPAP demonstrates supplier readiness using the production machinery, tooling, and facilities with the intended personnel at the intended production rate that is capable of meeting the Ford required volumes (as specified on the Request for Quotation).

Phased PPAP Introduction

As a result of reviewing industry best practices, Ford has modified PPAP into a 'three phased' approach that will independently verify product quality, production readiness and capacity prior to Job #1. Phased PPAP will provide the launch team with an improved method of risk management and provide a consistent method for a supplier to determine if they meet Ford projected program volumes (See Appendix A).

Phased PPAP ensures that the supplier process has the potential to produce a quality product that consistently meets Ford requirements during an actual production run at the quoted production rate.

Phased PPAP separates the PPAP process into three phases:

- Phase 1 is called 'Quality Verification'
- Phase 2 is called 'Production Verification'
- Phase 3 is called 'Capacity Verification'.

This Phased approach requires the supplier to provide promise dates to Ford for each of the three events, and additionally includes the requirement for the supplier to indicate that Run at Rate has been successfully completed. (Appendix B, Table 1 summarizes these requirements)

Note: For less complex components/commodities/production streams, it is possible to complete multiple phases as a single event.

Phased PPAP Overview

Scope

Phased PPAP redefines both the interpretation and execution of the Production Part Approval Process (PPAP) (including the Part Submission Warrant (PSW)) and is required for the following:

1. A new part or product (i.e., a specific part, material or color not previously supplied to the specific customer).
2. Correction of a discrepancy on a previously submitted part.
3. Product modified by an engineering change to design records, specifications, or materials.
4. Any situations required by Section I.3.1 from the AIAG PPAP Manual, 3rd Ed. (See Appendix C).

These requirements are a minimum; local operations may require additional approvals.

Phased PPAP will eventually be applied globally in the Production Part Approval Process. Suppliers are required to apply the Phased PPAP process, including promise dates, confirmation and event completion for all 'new tooled parts'.

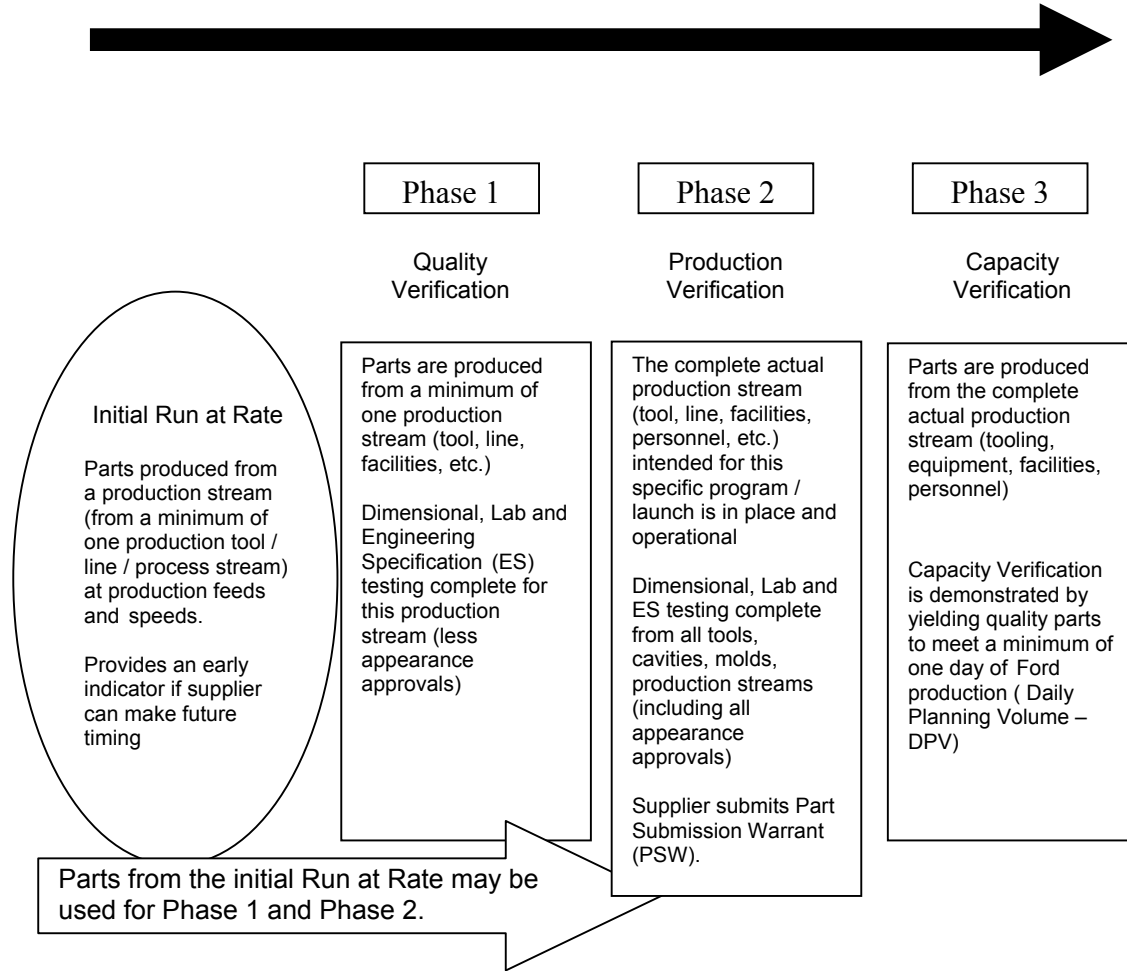
Phased PPAP applies to both new vehicle programs and for vehicles currently in production, i.e. "running changes".

Benefits of Phased PPAP

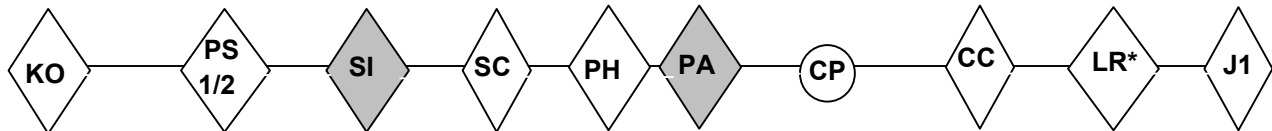
Suppliers and Ford will benefit from the use of Phased PPAP. Phased PPAP:

- Requires planning for launch
- Divides PPAP activities into more manageable segments
- Ensures assessment of supplier ability to handle production volume
- Provides a consistent mechanism to determine capacity verification
- Provides the program team with additional measures to forecast program readiness
- Provides clarity to the existing PPAP process

Phased PPAP Milestones




Reference: Ford Product Development System (FPDS)




**Note: 1PP Build occurs during <LR> Launch Readiness phase of FPDS, which is 4.5 months prior to J1 for an S3 and above program.*

Phased PPAP Process Flow


Parts are released --
supplier is sourced




Supplier receives notification in work queue – supplier is required to provide promise dates for Quality Verification, Production Verification, and Capacity Verification




Supplier completes a minimum of one production stream and performs initial Run-at-Rate – supplier indicates successful Run-at-Rate in system



Supplier completes Quality Verification (Phase 1 PPAP) – (16 of 19 elements of PPAP -- excludes PSW, Appearance Approval and Master Sample) – supplier dispositions in system



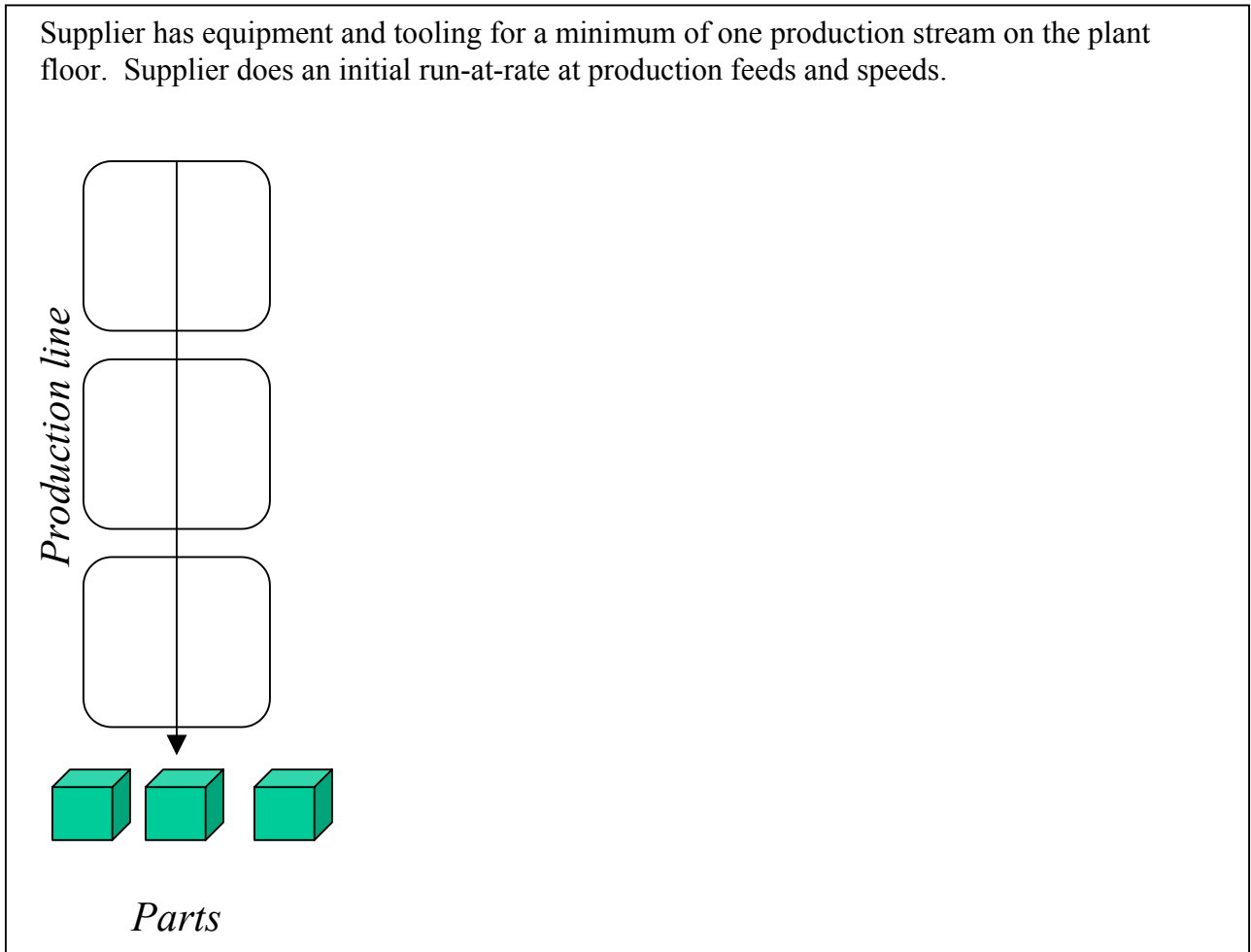
Supplier completes Production Verification (Phase 2 PPAP) for specific program / plant by In Plant Date for 1PP build phase– (all 19 elements of PPAP on parts from actual production streams (tools/cavities/molds/lines/etc.)) – supplier dispositions in system and forwards PSW documentation.



Supplier completes Capacity Verification (Phase 3 PPAP) – target completion is 4 weeks prior to Job 1 - demonstrating ability to meet Ford required volumes under intended operating pattern – supplier dispositions completion and provides Demonstrated Weekly Capacity numbers in system

Phased PPAP: Detailed Process Flow

INITIAL RUN-AT-RATE



Initial Run-at-Rate

DEFINITION: Once tooling and equipment are in place at the intended supplier production facility for a minimum of one line/tool/cavity/production stream, supplier performs an initial run of the production stream. This run is typically a minimum of one to eight hours and a minimum of 300 pieces. The process must be run at production feeds and speeds based on the yield requirement for that product stream, supporting the latest authorized program volumes (based on the RFQ (Request for Quote)). The initial run may be more or less than 300 pieces, as appropriate for the commodity or part complexity -- requires approval from authorized customer quality representative. For external suppliers, this would be Supplier Technical Assistance (STA).

TIMING: This must be completed in time to support the subsequent completion of Quality Verification (Phase 1).

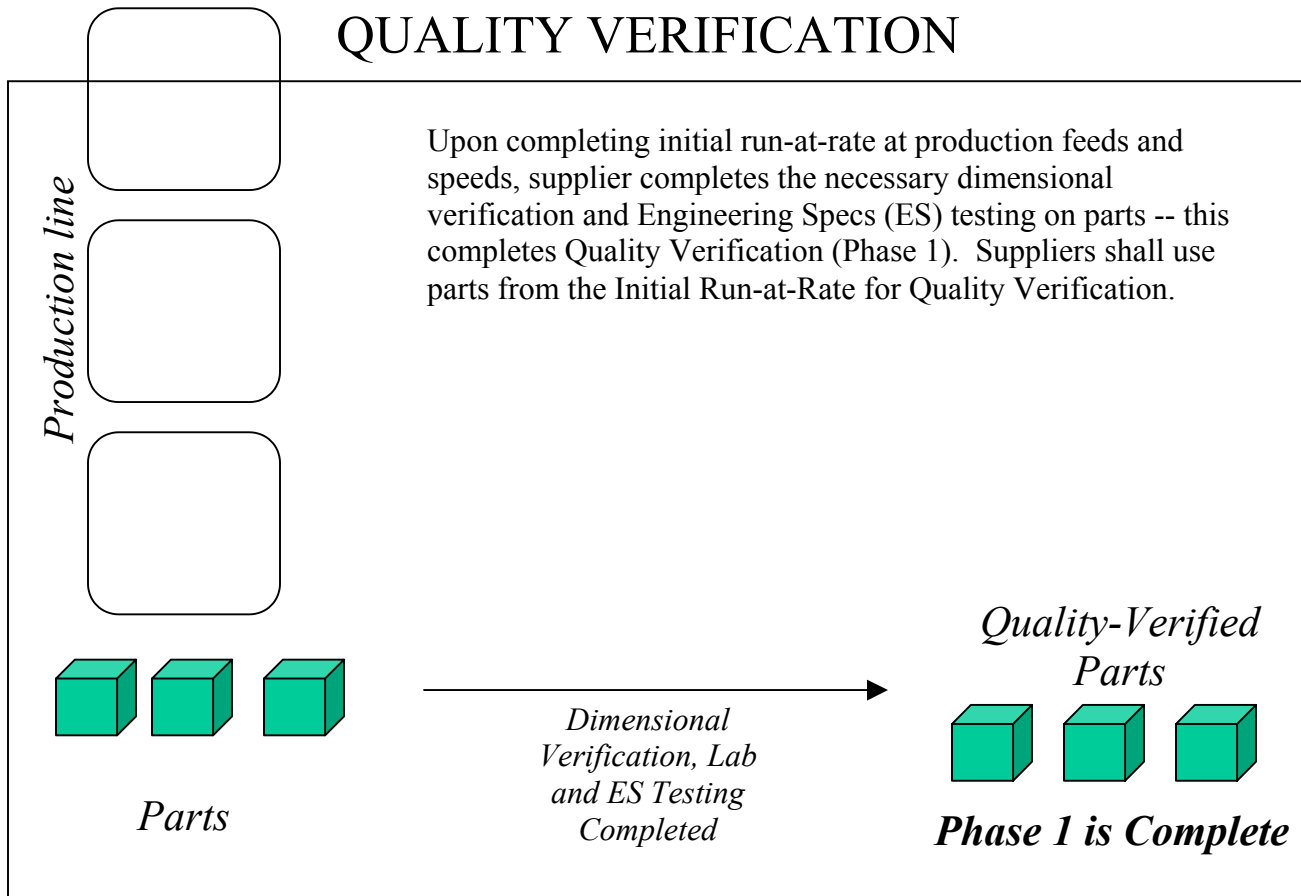
SYSTEM: Upon successful completion, the supplier inputs a 'Y' indicator into the CMMS3 Vehicle Parts Progress screen – this event is date-stamped. System will reflect RACFID as identification of system user.

DOCUMENTATION: No additional documentation required (documented by supplier in system)

STA ROLE: Business practices may vary by region.

Phased PPAP: Detailed Process Flow

QUALITY VERIFICATION



Phase One: Quality Verification

DEFINITION: The supplier must achieve Quality Verification (Phase 1) by completing dimensional verification and ES (engineering specification) testing. Completion of Quality Verification requires 16 of the 19 elements of PPAP as stated in the AIAG PPAP manual, 3rd Edition (See Appendix D) (all items except item (13) PSW, (14) Appearance Approval, and (17) Master Sample). Upon successful completion of the 16 of 19 elements, the supplier has met the Phase 1 requirement.

TIMING: This must be completed in time to permit completion of Production Verification (Phase 2) prior to the In-Plant Date (IPD) for the 1PP vehicle build.

SYSTEM: Upon successful completion of Phase 1, the supplier inputs Ready for Inspection (Y code) into CMMS3 Vehicle Parts Progress Detail Screen. The system then date stamps the completion of the event, and automatically accepts the part as approved (disposition code Q) regardless of PPAP level. STA can override with Approve (A) or Reject (R). System will reflect RACF ID as identification of system user.

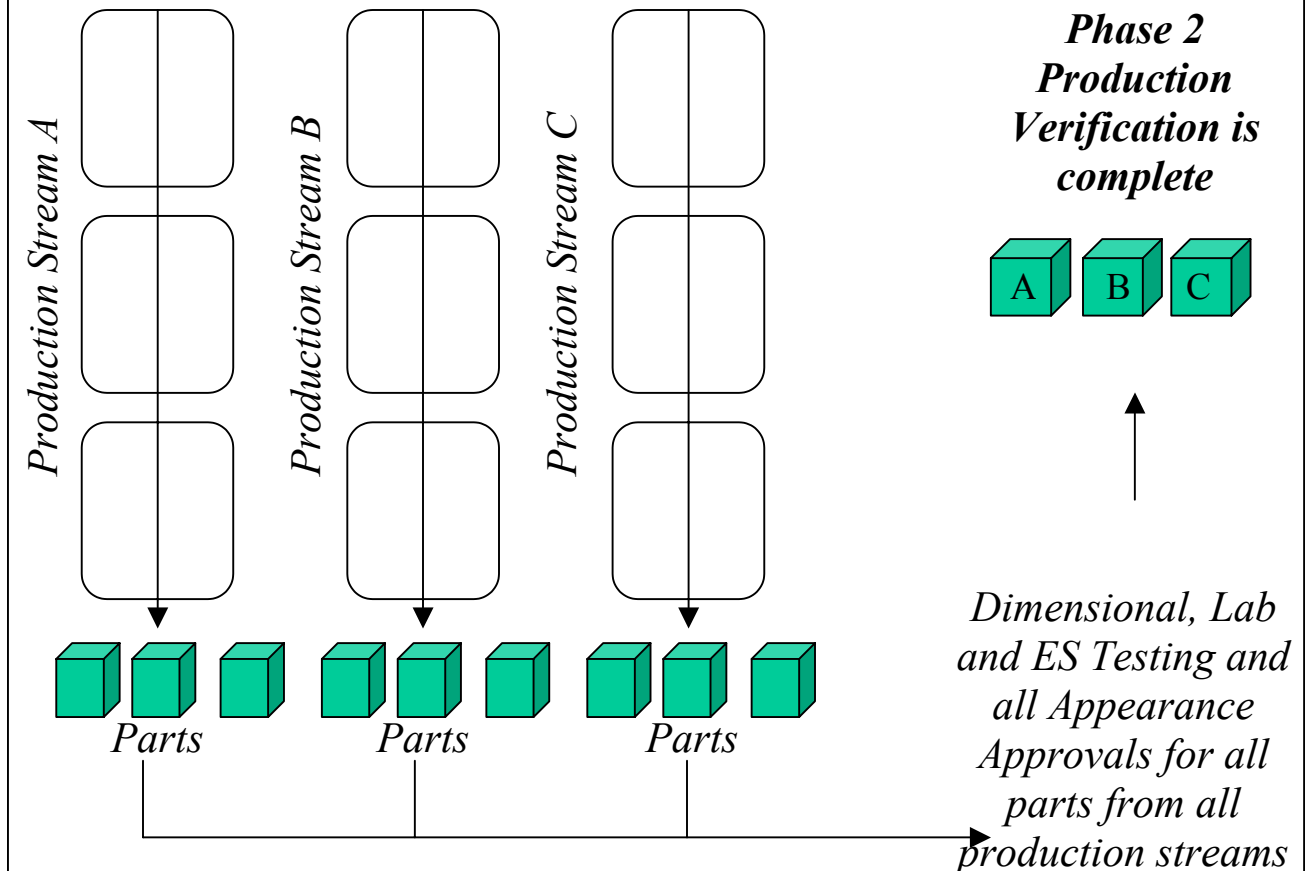
DOCUMENTATION: Supplier shall retain supporting documentation of all 16 elements per QS-9000, ISO/TS-16949 -- and make them readily available to customer if requested.

STA ROLE: STA may verify as necessary, and has the ability to override supplier declaration to disposition the Phase 1 completion using codes for Approval (A) or Reject (R).

Phased PPAP: Detailed Process Flow

PRODUCTION VERIFICATION

Once the supplier has all production streams/tools/cavities in place on the plant floor, the supplier proceeds to achieve all required levels of testing and dimensional verification for all production streams intended for a specific program (lead program or lead plant), including all appearance approvals and completed PSW documentation.



Phase Two: Production Verification

DEFINITION: Once the supplier has completed Phase 1, the supplier should follow the necessary steps to achieve all part testing, verifications and runs-at-rate from all actual production streams (all tools /lines /molds /cavities /facilities etc.) required for a specific program launch. All appearance approvals must be completed (color, graining, surface appearance). **All 19 elements of PPAP must be completed** per AIAG Guidelines (PPAP, 3rd edition). Deficiency in meeting Phase 2 requirements by 1PP IPD and subsequent builds will require an WERS alert and build support plan.

TIMING: This must be completed by the 1PP IPD date (prior to 1PP) to support program build event – as required for this launch (lead program or lead plant).

SYSTEM: Upon successful completion of Phase 2, the supplier inputs Ready for Inspection (Y code) into CMMS3, and system date stamps the completion of the event. System will reflect RACF ID of system user.

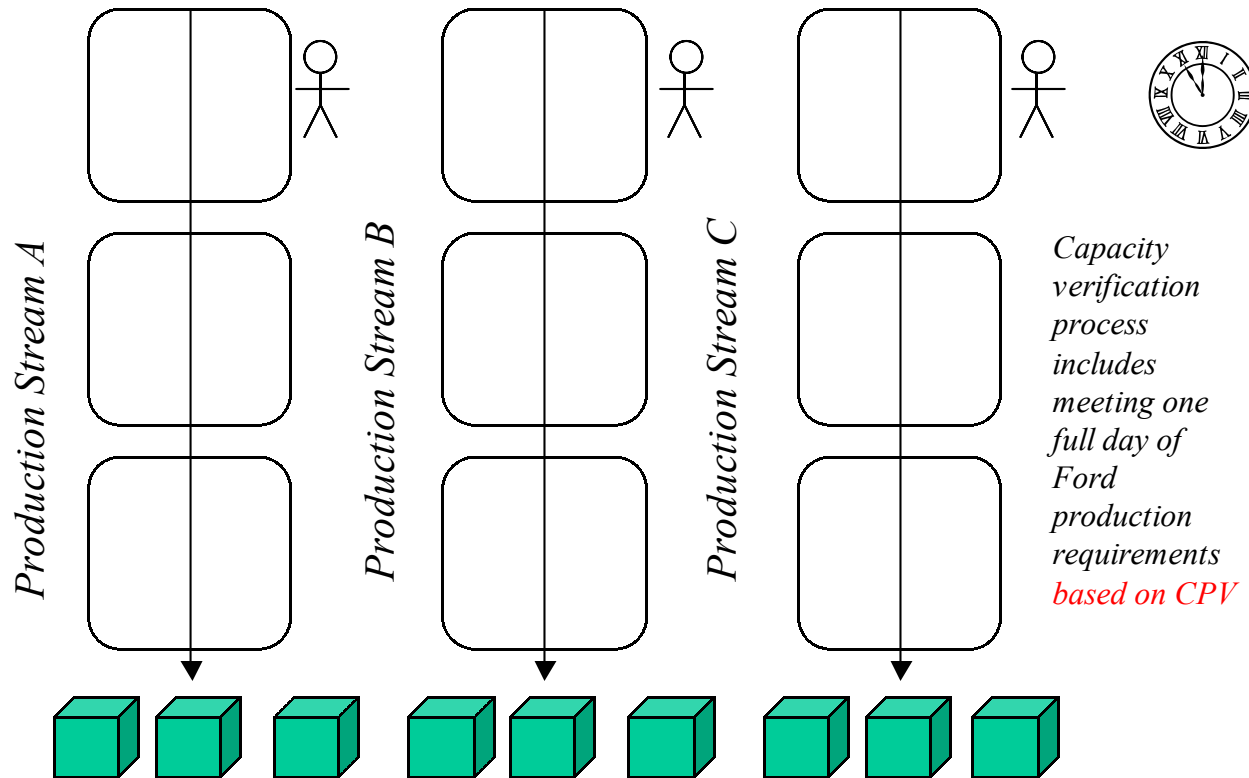
DOCUMENTATION: Supplier must complete all 19 elements of PPAP including PSW submission and maintain supporting documentation. See AIAG PPAP Manual Table I.4.1 for submission requirements.

STA ROLE: STA will disposition Production Verification (Phase 2) completion for PPAP level 2-5 suppliers, and has ability to override PPAP level 1 supplier declaration, with Approve (A) or Reject (R). STA tracks supplier performance in Supplier Improvement Metrics (SIM).

Phased PPAP: Detailed Process Flow

CAPACITY VERIFICATION

Supplier performs Capacity Verification for all production streams, typically by four weeks prior to Job 1, to ensure ability to meet or exceed Ford volumes.



*Supplier Demonstrates the Ability to Meet or Exceed Ford Required Volume with Quality Parts – **Phase 3 Capacity Verification is Complete***

Phase Three: Capacity Verification

DEFINITION: Once the supplier has completed Phase 2, supplier may proceed to the Capacity Verification event (typically by 4 weeks prior to Job 1). Capacity Verification (CV) requires the supplier to demonstrate the supplier's process, including facilities, tooling, machinery, supply chain, and personnel can support the required Ford volumes (including other business commitments). CV is demonstrated by producing quality parts to meet a minimum of one day of Ford daily production volume (DPV). CV shall be performed over multiple shifts (as required) with intended standard operating pattern and schedule. These parts must have successfully completed Quality and Production Verification - Phases 1 and 2. Supplier fills out the required CV form as determined by region/program (North America -- Reference PP-S-F042, Appendix A, Attachment B) for submission to STA.

TIMING: This should be completed no later than four weeks prior to Job 1. For sequenced parts (e.g. ILVS), Capacity Verification can be completed later than four weeks prior to Job 1, as approved by authorized quality representative (STA for external suppliers) and as documented in CMMS3 support plan.

SYSTEM: Supplier declares successful completion of CV by indicating Ready for Inspection (Y code) in CMMS3 – automatically converts to approval (code Q). Supplier must also input the Actual Demonstrated Weekly Capacity into CMMS3 based on results from capacity verification event (Form PP-S-F042 page 3).

DOCUMENTATION: Supplier must maintain CV Forms and provide to STA as requested.

STA ROLE: STA may override supplier Phase 3 self-approval in CMMS3 using Approval (A) and Reject (R).

Capacity Verification: Phase 3 PPAP Requirements – Detail

Capacity Verification forms and requirements may vary by region and program. The following describes how to complete Phase 3 documentation (Capacity Verification) for North America. The supplier will input Weekly Demonstrated Capacity into CMMS3.

Prepare for Capacity Verification -Form PP-S-F041 (Attachment A)

Suppliers must verify Production Readiness by completing [Form PP-S-F041, Capacity Verification](#). This worksheet will assess if a supplier has a ‘true production environment’ in place and has adequately prepared their organization and sub-suppliers for the start of production and ramp-up.

1. The supplier is to input production plan variables on Form PP-S-F041 and determine if the Potential Capacity Forecast meets Ford Motor Company’s Capacity Planning Volume (CPV).
2. The supplier must complete the Shared Capacity Analysis section on Form PP-S-F041 and determine if capacity or production hours are oversold.
3. The supplier must complete the Production Readiness Questionnaire.
4. The supplier then summarizes their results and determines if they can proceed to Perform Capacity Verification (Form PP-S-F042).

Perform Capacity Verification -Form PP-S-F042 (Attachment B)

Suppliers must Perform Capacity Verification by completing [Form PP-S-F042](#). This worksheet will determine if a supplier can produce quality parts at production feeds and speeds in the necessary production environment.

1. The supplier must determine the number of parts to be produced for Capacity Verification. The quantity must be sufficient to validate that the process performs in a manner sufficient to support the required Ford Capacity Planning Volume. The supplier is required to support the Ford Motor Company standard operating pattern and schedule: based on 5 days, 100 hours, 2 shifts (North America) or 3 shifts (Europe). The minimum required length of the Capacity Verification is one day of the Ford’s daily production requirement at production feeds and speeds. To demonstrate process robustness, the production run shall be performed over all applicable shifts, unless otherwise approved by the STA Engineer.

2. The supplier must enter planned values into Form PP-S-F042 and run the process at production feeds and speeds. Record values for Total Good Parts, Scrap/Off-Line Rework Parts, Downtime, Breaks, and Changeover Time.
3. Indicate the percent (above or below) the daily planned volume produced.
4. Determine Overall Equipment Effectiveness (OEE). This is calculated from the actual production data.
5. Determine Weekly Production Volume from your process run.
6. Summarize the results and determine if you meet Ford Motor Company requirements.
7. Input Demonstrated Capacity Number into CMMS3 system (Weekly Production Volume).
8. Upon completion of the above, external suppliers shall maintain records of the Capacity Verification worksheets per QS-9000 / TS-16949 requirements, and provide a copy of the completed Capacity Verification worksheets to STA Engineers as requested.

Customer Disposition of Phased PPAP

Approval

- Successful completion of Phase 2 with no Worldwide Engineering Release Alert (WERS) alert.
- Meets all 19 elements of PPAP (See Appendix D). The part meets **all** customer specifications and requirements for all molds, tools, cavities, lines etc. and the part has been manufactured under production conditions.

Rejected

- Does not meet one or more of the 19 elements of PPAP – must have an approved WERS engineering alert to authorize shipment.

What PPAP is Not

An approved PPAP part is not:

- A part produced somewhere other than the actual production source (e.g. parts manufactured from tools located at a tool shop)
- A part manufactured off prototype tools
- A part with an alert
- Parts produced from process other than the intended production process

Expectations

Sub-Supplier

Per Q1 2002, sub-suppliers are required to meet all PPAP requirements. Tier 1 Suppliers shipping to Ford must use a PPAP process for their sub-suppliers. Additionally, it is recommended that suppliers require their sub-suppliers to verify they can meet required volumes at the required time - suppliers and/or sub-suppliers may use the Ford Capacity Verification documentation.

Phased PPAP Application.

- Suppliers are able to view / update data related to their own unique supplier locations
- Phased PPAP now requires suppliers to enter three promise dates, each having their associated 'indicator field', 'slip code field' to indicate explanation of PSW slips, and 'remarks field'. Suppliers must enter all three PPAP promise dates within one full working day once the part appears in the supplier work queue.
- Phased PPAP requires a supplier to enter a (Y/N) indicating that they successfully completed the Run at Rate event.
- Suppliers can update a single part or perform group update for selected parts.
- Phase 2 Approval indicates that the part or material meets all customer specifications and requirements.
- Ford product engineering is required to approve alerts before supplier can ship parts that do not meet Phase 2 requirements for applicable builds. Support plans require: WERS Alert #, support plan code, salability indicator, start date, end date, remarks.
- Internal Ford users can view PPAP information.
- All suppliers of all PPAP levels must indicate Ready For Inspection (Y code) for all three phases of Phased PPAP. Paperwork submission requirements for Phase 2 may vary by supplier PPAP level.

Appendix A – Capacity Verification Documentation



Shaded Cells are Calculated

PSW - 003
PP-S-F041

Attachment A

Verify Production Readiness

1 Supplier / Part Information		
Date		
Supplier Name		
Supplier Mfg. Code		
Ford Part Name		
Ford Part Number		
Model Year & Name		
Prior Capacity Verification Date		
Production Plan to Meet CPV		
Capacity Forecast Input Variables	Plan	
Ford Capacity Planning Vol. (A) Ford Parts Volume (parts per week). As documented on the RFQ.		
Supplier Production Hours (D) Scheduled production hours per week for part produced.		
Supplier Cycle Time (F) Cycle time in minutes per part		
Scrap Rate - % (H) Percent of parts scrapped per hour (e.g. 0.05 for 5% scrap)		
Downtime Hours per Week (J) Planned downtime / maintenance time		
Average Changeover Time (L) Average time per changeover (hours)		
Number of Changeovers per Week (M) Number of changeovers per week		
Breaks Hours per Week (N) Total breaks and lunches (hours) per week		
Potential Capacity Forecast (Calculated from Above Input Variables)		
Description	Formula	Result
CPV Parts / Week (A)	A	
CPV Parts / Hour (C)	C = A / D	
Planned Parts / Hour (E)	E = 60 / F	
Potential Net Parts / Hour (G)	G = E x (1 - H)	
Planned Downtime / Week (J)	J	
Changeover Time / Week (K)	K = L x M	
Planned Breaktime / Week (N)	N	
Available Hours / Week (P)	P = D - J - K - N	
Planned Number of Parts / Week (Q)	Q = P x G	
Potential Capacity (R)	R = Q / A x 100	
If Potential Capacity (R) < 100% then indicate "Not Ready for Capacity Verification" and contact your STA Manager, otherwise indicate "Ready for Capacity Verification."	Ready for Capacity Verification	Not Ready for Capacity Verification

2

3

Shared Capacity Analysis

	Volume	Production Hours
1. All Ford / Part(s)	CPV / Week	Hours / Week Dedicated to Part
A. (Include program being assessed)		
B. (All other Ford Parts)		
2. Non-Ford Part(s) - OEM name not required		
3. Calculated Capacity or Time Sold		
4. Capacity or Time Actually Available (Total Available per Week)		
Calculated Capacity or Time Oversold. Negative Number = Oversold.		
Capacity or Time Oversold?		
If Capacity Oversold or Production Hours Oversold then indicate "Not Ready for Capacity Verification", otherwise indicate "Ready for Capacity Verification."	Ready for Capacity Verification?	Ready for Capacity Verification?

4

Production Readiness

	Are Conditions Met? Place an "X" in Box	Yes	No
PPAP Requirements			
Did you complete a 300 piece run (or equivalent) at actual production feeds and speeds according to PPAP 3rd edition? Are all requirements as specified in the AIAG PPAP manual including Ford specific requirements (less run-at-rate requirements which will be qualified through Capacity Verification methodology) being met?			
Tier 2 Readiness			
Have you cascaded Capacity Verification methods to your sub-tier suppliers and verified capacity is available?			
Production Representation			
Is the product being manufactured at the production site in the production environment? (I.e. using the production tooling, gaging, process, materials, operators, environment, and performed at the required production speed)			
Does the actual process flow agree with the process flow diagram? Ensure it represents the entire process from receiving through shipping.			
Quality Systems			
Is all in-process documentation, such as SPC and work instructions in place?			
Has the process been 'fail-safed' by operation to prevent defective product from moving to the next operation?			
Does the actual process agree with the process control plan?			
Are permanent production operators trained to perform the production operation, part checks and statistical monitoring as outlined on the process control plan?			
Are customer approved accept / reject master samples available?			
Is the incoming / outgoing material qualification / certification plan in place and sufficient?			
Are preventative maintenance plans (with planned downtime) in place?			
Are repair and maintenance parts available or readily obtainable so as not to present a risk to production (e.g. key equipment spare parts)?			
Are all production checking fixtures complete, with acceptable measurement system studies (i.e. gage R&R) performed?			
Are all processes conforming to the production control plan specifications?			

Full Speed Production Readiness		
Has a packaging trial (with customer plant approval) been completed, and is an approved form 1121 (or equivalent) available? Reference the <u>Ford Packaging Guidelines For Production Parts</u> manual.		
Has the supplier demonstrated that the parts manufactured in the 300 pc run were produced from capable processes? Are Significant and Critical Characteristics (part and/or process) monitored?		
Do the parts produced meet Ford Specifications and do individual cavities have acceptable dimensional capability?		
Is the production acceleration plan sufficient to meet requirements of VO/PTO acceleration plan?		
If any of the above questions are answered "No" then indicate "Not Ready for Capacity Verification," otherwise indicate "Ready for Capacity Verification."	Ready for Capacity Verification	Not Ready for Capacity Verification

5 SUMMARY OF RESULTS	
Section	Circle Appropriate Response
Potential Capacity Forecast	Ready / Not Ready
Shared Capacity Analysis (Capacity or Time Oversold)	Ready / Not Ready
Production Readiness	Ready / Not Ready
6 Planned Number of Parts per Week (Q)	
<i>I affirm that the information stated on this form accurately represents the production conditions that provide the basis to assure a true assessment of production capacity.</i>	
Supplier Authorized Signature	Date
Name (Printed)	Title
	Phone

AUTHORIZATION TO PROCEED
If summary results are satisfactory then proceed to Form PP-S-F042 and perform Capacity Verification.

Revision date 8/29/02



PSW - 003
PP-S-F042

Attachment B

Shaded Cells are Calculated

Capacity Verification (Check One)	
Overall Operation	
Single Process	

Process Description

Perform Capacity Verification

1 Determine Customer Requirements										
Weekly Capacity Demand (From PP-S-F041)										
Parts Required per 8 Hour Shift										
<p><i>The default length of the capacity verification event is one day of the customer's daily production requirement. At a minimum, the production run shall be performed over one full shift, unless otherwise approved by the STA Manager. Overtime hours should not be included in the capacity verification planning. Any deviation from these requirements must have concurrence from the STA Manager.</i></p>										
2 Line Speed Demonstration (Actual Production Run)										
Hour	Total Good Parts Produced (Parts/Hr)		Scrap/ Off-Line Rework Parts (Parts/Hr)		Downtime (Min.)		Breaks (Min.)		Changeover Time (Min.)	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
Total										
Shift Average										
CAPACITY VERIFICATION SUMMARY OF RESULTS										
If the number of good parts produced is less than the number of parts required, place a mark under "FAIL," otherwise mark "PASS."							PASS		FAIL	

Percent (above/below) Daily Planned Volume (8 Hr Shift)	
$\frac{\text{(Total Good Parts Produced / Parts Required / 8)}}{\text{(Parts Required / 8)}} \times 100$	%

Determine Daily Production Volume	Number of good parts per day
Determine the daily actual production volume from the above production volume by multiplying the total number of good parts hour shift by the number of	

Determine Weekly Production Volume (Demonstrated Capacity Into CMMS3 System)	Number of good parts per week
Determine the weekly actual production volume from the above data. production volume by multiplying the total number of good parts hour shift by the number of shifts	

3 Overall Equipment Effectiveness (Calculated from Production Run)		
Description	Formula	Data
Availability		
Total Scheduled Time (Min.) (A)	A	
Contractually Required Downtime i.e. Lunches, Breaks (Min.) (B)	B	
Net Available Time (Min.) (A-B)	$C = A - B$	
Unscheduled Downtime i.e. Breakdown, Setup, Adjustment, Tooling etc. (Min.)	D (Requires Input)	
Operating Time (Min.) (C-D)	$E = C - D$	
Availability (E/C)	$F = E / C$	
Performance Efficiency		
Total Parts Run (Pcs.)	G	
Ideal Cycle Time (Min. per part)	H	
Performance Efficiency ((G * H) / E)	$I = (G * H) / E$	
Quality		
Total Rejected Parts (Pcs.)	J	
Quality Rate ((G - J) / G)	$K = (G - J) / G$	
OEE = (F * I * K)		

4 OVERALL SUMMARY OF RESULTS	
Section	Result
Capacity Verification (Based on the above data, does the actual number of good parts per day exceed the planned number of good parts per day)	
Daily Production Volume (DPV) (Based on the above data, state the actual number of good parts per day)	
5 Weekly Production Volume (WPV) (Based on the above data, state the actual number of good parts per week) Enter into CMMS3.	
OEE (Based on the above data, OEE should exceed the industry benchmark of 85%)	
<i>I declare (the supplier) can meet the customer's capacity requirement. A Capacity Verification has been performed under production conditions resulting in a satisfactory level of Overall Equipment Effectiveness. OEE results will vary by industry and commodity.</i>	
Supplier Authorized Signature	Date:
Name	Title
	Phone:

Revision date 8/29/02

Appendix B

	Run at Rate	Quality Verification	Production Verification	Capacity Verification
What	Initial Run at Rate is performed from a minimum of one production tool / line / process stream. Tracked by completion and date in CMMS3	Parts produced from a minimum of one production stream (tool, line, cavity, etc.) Parts for QV are produced from the Run – at- Rate event. Part ES testing, Lab and Dimensional Verification is complete for this production stream. 16 of 19 PPAP elements completed.	All intended production streams are operational. All appearance approval items are required to be complete. Part produced from all production streams include all 19 elements of PPAP, including PSW submission.	All intended production streams are operational and can meet Ford volume requirements.
Why	Serves as an 'early warning' indicator for Ford Motor Company	Shows parts meet specifications – and indicates progress towards full PPAP.	Shows supplier readiness to produce quality parts from production lines.	Confirmation that the supplier can meet all customer required volumes from this plant.
Who	Supplier has primary responsibility. Data can be tracked as required.	Supplier has primary responsibility (all PPAP levels). STA tracks data as required.	PPAP level 1 suppliers are self-approved. PPAP level 2-5 suppliers are dispositioned by STA.	Supplier has primary responsibility (all PPAP levels). STA tracks data as required.
Where	Job #1 intended Supplier Production Facility	Job #1 intended Supplier Production Facility	Job #1 intended Supplier Production Facility	Job #1 intended Supplier Production Facility
When	In time to support Phase 1 PPAP	In time to permit completion of Phase 2 PPAP before 1PP	Completed by to support 1PP IPD	No later than four weeks before Job #1 (ILVS components may vary)
System	Entered by supplier as Y/N indicator, system date stamps	Requires promise date from supplier, and supplier inputs ready for inspection upon completion. Part is automatically. Override capability by STA available.	Requires promise date from supplier, Supplier indicates ready for inspection upon completion. indicator and STA to disposition PPAP for PPAP levels 2-5.	Requires promise date from supplier, and supplier inputs ready for inspection upon completion. Part is automatically. Override capability by STA available.

Appendix C

Table I.3.1 – PPAP Manual 3rd Edition

Requirement	Clarification or examples
1. Use of other construction or material than was used in the previously approved part or product.	For example, other construction as documented on a deviation (permit) or included as a note on the design record and not covered by an engineering change as described in Table I.3.2.#3.
2. Production from new or modified tools (except perishable tools), dies, molds, patterns, etc., including additional or replacement tooling.	This requirement only applies to tools which due to their unique form or function, can be expected to influence the integrity of the final product. It is not meant to describe standard tools (new or repaired), such as standard measuring devices, drivers (manual or power), etc.
3. Production following refurbishment or rearrangement of existing tooling or equipment.	<p>Refurbishment means the reconstruction and/or modification of a tool or machine or to increase the capacity, performance, or change its existing function. This is not meant to be confused with normal maintenance, repair or replacement of parts, etc., for which no change in performance is to be expected and post repair verification methods have been established.</p> <p>Rearrangement is defined as activity which changes the sequence of product/process flow from that documented in the process flow diagram (including the addition of a new process).</p> <p>Minor adjustments of production equipment may be required to meet safety requirements such as, installation of protective covers, elimination of potential ESD risks, etc. These changes can be made without customer approval unless the process flow is changed as a result of this adjustment.</p>
4. Production from tooling and equipment transferred to a different plant location or from an additional plant location.	Production process tooling and/or equipment transferred between buildings or facilities in one or more locations.
5. Change of subcontractor for parts, non-equivalent materials, or services (e.g.: heat-treating, plating) that affect customer fit, form, function, durability, or performance requirements.	Suppliers are responsible for approval of subcontracted material and services that do not affect customer fit, form, function, durability, or performance requirements.
6. Product produced after the tooling has been inactive for volume production for twelve months or more.	For product that has been produced after tooling has been inactive for twelve months or more. Notification is required when the part has had no active purchase order and the existing tooling has been inactive for volume production for twelve months or more. The only exception is when the part has low volume, e.g. service or specialty vehicles. However, a customer may specify certain PPAP requirements for service parts.
7. Product and process changes related to components of the	Any change that affects customer requirements for fit, form, function,

<p>production product manufactured internally or manufactured by subcontractors that impact fit, form, function, performance, and/or durability of the salable product. Additionally, the supplier shall concur with any requests by a subcontractor before submission to the customer.</p>	<p>performance, and/or durability requires notification to the customer.</p> <p>NOTE: The fit, form, function, performance, and/or durability requirements should be part of customer specifications as agreed on during contract review.</p>
<p>8. For bulk materials only:</p> <p>New source of raw material with special characteristics from new or existing subcontractor.</p> <p>Change in product appearance attributes where there is no appearance specification.</p> <p>Revised parameters in the same process (outside PFMEA parameters of the approved product, includes packaging)</p> <p>Change outside of DFMEA (product composition, ingredient levels) of the approved product.</p>	<p>These changes would normally be expected to have an effect on the performance of the product.</p>
<p>9. Change in test/inspection method – new technique (no effect on acceptance criteria)</p>	<p>For change in test method, supplier should have evidence that the new method provides results equivalent to the old method.</p>

Appendix D

Retention / Submission Requirements (Table I.4.1 from ALAG PPAP Manual, 3rd ed.)

1. Design Records of Salable Product
2. Engineering Change Documents, if any
3. Customer Engineering Approval, if required
4. DFMEA
5. Process Flow Diagrams
6. PFMEA
7. Dimensional Results
8. Material, Performance Test Results
9. Initial Process Study
10. Measurement System Analysis Studies
11. Qualified Laboratory Documentation
12. Control Plan
13. → Part Submission Warrant (PSW)
14. → Appearance Approval Report, (AAR) if applicable
15. Bulk Material Requirements Checklist (for bulk material PPAP only)
16. Sample Product
17. → Master Sample
18. Checking Aids
19. Records of Compliance With Customer Specific Requirements