|  |
| --- |
| INTERNATIONAL MOTORS |
| Engineering Procedural Standards | *NUMBER:* |
| EPS-158 |
| *TITLE:* | *CURRENT ISSUE DATE:* |
| Visual Component Approval Process (VCAP) | April 2025 |
| *WRITTEN/REVIEWED BY:* | *APPROVED BY:* | *SUPERSEDES ISSUE OF:* |
| J. Siler | L. D. Allendorph | June 2011 |
| PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION |
| ***Change Notice:*** New Release. |

Table of Contents

[Introduction 2](#_Toc282670297)

[Visual Component Approval Process Flow Chart 3](#_Toc282670298)

[Key Process Step Descriptions 4](#_Toc282670299)

[Design Requirements/Supplier Selection 4](#_Toc282670300)

[I.D.E.A.L. Surface Approval 4](#_Toc282670301)

[“First-Shot” Production Parts 4-5](#_Toc282670302)

[Non-Textured Production Part Evaluation / Documentation / Sign-Off 5](#_Toc282670303)

[Pre-Grain Part Evaluation / Documentation / Sign-Off 5-6](#_Toc282670304)

[Tool Texturing Guidelines 6-7](#_Toc282670305)

[Electrical Discharge Machining (EDM) 7](#_Toc282670306)

[Texture Repairs 7](#_Toc282670307)

[Post-Grain Texture Part Evaluation / Documentation /Sign-Off 7-8](#_Toc282670308)

[MSE-Color & Material Mastering Process / Color Identification Documentation / Color Approval 8-10](#_Toc282670309)

[Color Evaluation / Documentation / Sign-Off 10](#_Toc282670310)

[Color Harmony Review 10](#_Toc282670311)

[Special Commodities 11](#_Toc282670312)

[Seats: 11](#_Toc282670313)

[Wheels: 11](#_Toc282670314)

[Ornamentation: 11](#_Toc282670315)

[Graphic Design Approval Process (VCAP/G) 12](#_Toc282670316)

[2-D Graphic Design / Documentation / Appearance Approval / Sign-Off 12](#_Toc282670317)

[Graphics Design Approval Process Flow Chart 13](#_Toc282670318)

[Design Requirements / Process Kick-Off (Graphics Request Form) 14](#_Toc282670319)

[Development Sourcing 14](#_Toc282670320)

[Installation Drawing Requirements 14](#_Toc282670321)

[Graphics Appearance Evaluation Documentation / Sign-Off 14](#_Toc282670322)

[Final Graphics Release / Sign-Off (AAR/G OK-to-Proceed) 14](#_Toc282670323)

[Production Graphics Approval (hard part)-AAR/G Sign-Off 15](#_Toc282670324)

[Attachment 1 – IDEAL Form (EPS-158-FM001) 16](#_Toc282670325)

[Attachment 2 – Appearance Approval Report Form (EPS-158-FM003) 17](#_Toc282670326)

[Attachment 3 – Color/Material/Standards (CMS) Request Form (EPS-158-FM004) 18](#_Toc282670328)

[Attachment 4 – New Product Graphic Request Form (EPS-158-FM005) 19](#_Toc282670329)

[Attachment 5 – Appearance Approval Report-G (Graphics) Form (EPS-158-FM006) 20](#_Toc282670329)

# Introduction

This document outlines the requirements by which designated suppliers of all interior, exterior, and certain under hood visual components (a.k.a. “decorative components”) must comply in order to achieve the appearance sign-off’s described in the Production Part Approval Process (PPAP). A completed and signed Appearance Approval Report (AAR) obtained from this process must be included in the supplier’s PPAP package.

The following steps cover the International Visual Component Approval Process (VCAP), See also the VCAP Flow Chart on the following page:

* Design Requirements/Supplier Selection
* IDEAL Surface Approval (Appearance sign-off for Tooling)
* Pre-Texture Evaluation Documentation / Sign-Off (AAR)
* Post texture Evaluation Documentation / Sign-Off (AAR)
* Color Evaluation Documentation / Final component AAR Sign-Off

Components must be resubmitted for appearance evaluation and PPAP approval, per guidelines noted in the latest AIAG PPAP manual. Examples include:

* Material change or material source change
* Re-sourcing of part to another supplier (includes Tier 2, 3, etc.)
* Re-location to another manufacturing facility
* Manufacturing process change that affects appearance
* Design change that affects appearance
* Restoration or repair made to the tool
* Capacity tooling

NOTE:

Under certain circumstances, the AAR resubmission can be waived. Upon request of supplier, International Industrial Design /Craftsmanship will determine this on a case-by-case basis.

# Visual Component Approval Process Flow Chart



# Key Process Step Descriptions

# Design Requirements/Supplier Selection

Major appearance requirements are outlined in both International’s Engineering Concept Sheet and Design Requirements Document (DRD).

The areas covered include:

* Color, Texture, Gloss
* Texture wash-out (if required)
* Parting line location and part line/flash Acceptance Standards.
* General Sink/Flow/”Blush” appearance standards for class A, B, and C surfaces.
* Paint Appearance Standards (for Class A, B, and C surfaces)
* Gap, Margin, and Assembly Tolerances for PIA (Part-In-Assembly) component groups.

This document is co-owned by International Industrial Design and International Engineering and tracks all appearance items for a given program, communicating to the supply base International expectations for appearance quality.

# I.D.E.A.L. Surface Approval

International Industrial Design is responsible for the approval of all decorative/visual components and any additional components that contribute to the appearance of International products.

International Industrial Design/ Craftsmanship personnel are responsible for the approval of all surface data and tooling aids related to visible components. All models (both electronic and physical) will be reviewed for adherence to design intent, surface continuity, and fit to mating parts

The Industrial Design Evaluation and Approval Log (IDEAL) starts the VCAP process and represents OK-to-Tool for appearance.

 **A signed IDEAL form (shown on page 16) *must* accompany the tooling release data for any component designated as an appearance item.**

For more information on the IDEAL review process, see the [*Industrial Design Process Overview*](http://evalue.internationaldelivers.com/supplier/documentation/supplier_quality/supplier_quality_general.asp), available on the International Supplier Site.

# “First-Shot” Production Parts

INTERNATIONAL requires that suppliers of visual / decorative components submit “First Shot” production parts to Industrial Design Craftsmanship for initial surface review and direction. These parts include all visual components manufactured at any facility from production tools. Industrial Design Studio or Craftsmanship personnel will review parts for design intent (i.e. surface, finish, parting lines, flow lines and gate locations). The parts will be marked up, indicating any required improvements. Studio or Craftsmanship will document this direction using the International Appearance Approval Report Form (shown on page 17). Rejected parts must be included in the next Approval Review.

# Non-Textured Production Part Evaluation / Documentation / Sign-Off

The following procedures outline the appearance evaluation/sign-off process for non-textured (mold-in-color, painted/plated/hydrographically finished) parts:

* Supplier submits at least one (1) part from each tool cavity in black or the darkest production color, with a completed Appearance Approval Report (AAR-att. 2.1).
* The appropriate Industrial Design Studio Designer or Craftsmanship representative reviews all parts for design intent (surface, finish, parting lines, flow lines and gate location). If necessary, Studio and / or Craftsmanship personnel will give direction by marking areas on the part requiring improvement, photo-documenting this direction.
	+ Parts will be signed-off using the AAR form, and assigned one of three possible designations:
	+ APPROVED - Supplier may immediately proceed to paint/plate/finish parts for AAR review.
	+ CORRECT AND PROCEED - Supplier must correct all deficiencies noted and then proceed to paint/plate/finish parts for AAR review.
	+ CORRECT AND RESUBMIT - Supplier must correct all deficiencies and resubmit parts for approval.

**NOTE:** Non-textured components that are molded-in-color or painted by the supplier must be AAR approved for color and/or paint quality. Please refer to Color Evaluation / Documentation / Sign-Off on page 10 of this document. Components that are sent to an International facility for painting are still required to meet Quality of Appearance standards, but the supplier’s appearance responsibility is limited to the paint-ready surface of the part, as defined by TMS/CEMS Requirements.

All plated / finished components shall be submitted for full appearance approval and will be reviewed using the approved MSE “styling master” as reference. Specific appearance parameters for plated parts can be obtained from the International Supplier website.

# Pre-Grain Part Evaluation / Documentation / Sign-Off

The following procedures outline the pre-grain appearance evaluation/sign-off process:

* Supplier submits at least one (1) part from each tool cavity in black or the darkest production color, with a completed Appearance Approval Report.
* The appropriate Industrial Design Studio Designer or Craftsmanship representative reviews all parts for design intent (surface, finish, parting lines, flow lines and gate location). If necessary, Studio and / or Craftsmanship personnel will give direction by marking areas on the part requiring improvement, photo-documenting this direction.
* Parts will be signed-off using the AAR form, and assigned one of three possible designations:
	+ APPROVED TO TEXTURE - Supplier may immediately proceed to texture the tool (pending International Engineering Fit & Function, if required).
	+ CORRECT AND PROCEED - Supplier must correct all deficiencies noted and then proceed to texture the tool.
	+ CORRECT AND RESUBMIT - Supplier must correct all deficiencies and resubmit parts for “ OK-to-Grain” approval

The supplier must retain the pre-grain Appearance Approval Report form and return it with any marked-up pre-grained parts when submitting for post–grain appearance evaluation/sign-off. *Rejected / Marked-Up parts must be available upon request for the next Approval Review.*

**PLEASE NOTE:**

* ALL visible components must be approved prior to respective assembly/system reviews (e.g. I/P components, door trim panel components, etc.)
* This sign-off designates Appearance pre-grain approval only. Fit & Function Sign-Off may be required by International Engineering. Supplier is not authorized to texture a tool until Industrial Design and (when required) International Engineering have validated the part as “OK-to-Texture”. Texture suppliers are not authorized to texture any visual component tool without International AAR authorization. The signed AAR form must accompany the tool to the approved texture source. Communicate with the appropriate representative for approved texture suppliers.

# Tool Texturing Guidelines

International Industrial Design-Color and Trim has the following responsibilities for textures:

* Development of new textures.
* Establishment of master texture standards.
* Approval of tool texture sources by specific texture pattern.
* Approval of grain roller textures
* Distribution of master texture standards.

The following guidelines should be followed to assure the best quality results:

* All texturing (except EDM) is to be performed by International-approved texture sources.
* International Industrial Design / Color and Materials will recommend the texture source for each vehicle program. In the case of large / complex programs, texture sourcing may be split among texture sources by texture plan and capability.
* International Craftsmanship has the authority to make any necessary changes or alterations to a texture surface.
* The original texture source should be used for capacity or replacement tools unless an agreement is reached with International Industrial Design Craftsmanship.

# Electrical Discharge Machining (EDM)

International Industrial Design will not specify any EDM source for texturing. Suppliers interested in using this process for texturing (Stipple patterns only) are required to adhere to the following guidelines:

* Acquire a “Master Stipple Standard” from International Industrial Design Color and Trim.
* International Industrial Design Craftsmanship must approve final burn electrodes. The Engineering Release information must accompany this submission. Please contact the International Industrial Design Craftsmanship representative for further details.

# Texture Repairs

Surface damage to a tool may require repairs to the texture of that tool and a subsequent surface approval by International Industrial Design / Craftsmanship.

* Welding
* Inserting
* Hand benching

The following two steps must occur to receive IDC approval:

* Submission of part showing surface repair before re-texturing (In some cases, digital photographs may suffice).
* Submission of part after grain repair.

# Post-Grain Texture Part Evaluation / Documentation /Sign-Off

The process for review and sign-off of post-grain and non-textured parts is as follows:

* Submit parts from each cavity run on production tooling, process and Job1 intended manufacturing location, in a program color, to the appropriate Industrial Design Studio /Craftsmanship representative. The number of parts submitted depends on the number of parts the supplier needs “identified” for design intent. International Craftsmanship may choose to retain one (1) submission of each part number.

PLEASE NOTE:

* + - GRAPHICS - Any part which contains graphics shall be accompanied by a 1:1 color-correct print of the final art for verification to design intent.
		- The Appearance Approval Report (AAR) showing pre-grain approval and all marked-up, pre-grained parts must be available for review with parts submitted for post-grain approval.
* Parts not providing a sufficient standard of appearance quality may be given direction for improvement, as noted on the Appearance Approval Report. This same document must accompany submitted parts after appearance direction has been followed.
* Unless previously agreed, rejected parts must be included in the next approval review.
* The Industrial Design / Industrial Design Craftsmanship representative who reviews the post-grain appearance evaluation submissions will again sign the AAR form reflecting minimum appearance standard for the part (assuming full resolution of all issues).
* The parts approved for appearance will be identified with the Minimum Appearance Standard label (below). These parts must be retained by the supplier for their production and service life, and will be made available for review, upon request, by International. At the assembly plant’s discretion, an approved part will be retained by the assembly plant.



# MSE-Color & Material Mastering Process / Color Identification Documentation / Color Approval

International Industrial Design-Color and Trim is responsible for the appearance finishes on all commercial (non-military) products produced by International, including but not limited to:

* Fabrics and Carpet
* Leather and Vinyl
* Applied finishes
* Mold-In-Color Plastic Colorant
* Hydrographic and In-Mold Decorated patterns and finishes
* All textures associated with visual components, regardless of manufacturing method
* Graphics, Labels and Badges

The process of color/material development and implementation of design intent has several aspects. The following is a brief chronological listing of events that occur to achieve successful color sign-off of production parts.

PRE-C.A. (Pre-Charter Approval) Design Color & Trim presents color and material proposals to International Industrial Design management for review and recommendation. Appearance items are identified by program and appearance direction is formulated.

 C.A. (Charter Approval) Design and Craftsmanship direction is established, including the development of new colors, materials, and finishes. This milestone is the kick-off for mastering any new appearance materials and finishes, and the tracking document for this process is the MSE (Material Styling Evaluation) form# NTSQ-0008. Similar in protocol to the AAR process, MSE (att.4) approval is required for all finishes/materials/textures to achieve AAR sign-off.

At the discretion of International Design Management, a Color Harmony Team is established. These teams are formed to proactively drive color, texture, gloss and finish requirements into the product. All International personnel and suppliers having equity in appearance items meet regularly to ensure the NPD Color Harmony Process is successfully accomplished. The Color Harmony Team objectives are to provide a communications link between Program Management, Studio, Engineering, Vehicle Operations, and Suppliers relating to appearance parts (Color, Texture, Gloss); Provide color, texture, and gloss decisions that meet vehicle objectives for appearance, cost and timing; Provide a clear assessment of cost, quality and timing trade-offs at key decision points. Provide system and component level color, texture and gloss verification to design intent.

International Industrial Design establishes Color and Trim Tracking documents, consisting of images of each component / system with color-texture-gloss callouts. These images provide interactive direction for the Color Harmony Team, and the Industrial Design Requirements Document, which is jointly owned by International Industrial Design and International Engineering.

MSE SIGN-OFF: Chosen suppliers must submit samples of all new finish materials (color, texture, gloss, finish, etc.) to International Industrial Design-Color and Trim, for visual mastering approval. Once visual mastering has been established, test data and samples are sent to International-Material’s Engineering, for evaluation against all appropriate materials specifications. Proof of successful compliance with all International materials specs should be noted on the appropriate MSE form, with date of certification. Proof of compliance is required for successful AAR sign-off and PPAP completion.

MASTERS DISTRIBUTION: When applicable, interior raw material suppliers produce masters in multiples and ship them to International. All interior masters can be obtained through International Design or International Materials Engineering. The Color/Material/Standards (CMS) Request Form (Attachment 4 on page 19) may be faxed or sent via email to the appropriate Master Distribution contact. Exterior paint masters can be purchased from International paint supplier. Refer to International Supplier Website for up-to-date distribution contact information.

# Color Evaluation / Documentation / Sign-Off

In addition to surface appearance evaluation approval, all components that are in color (including black) require color evaluation approval. The International Appearance Approval Report (AAR) is the same as that used for surface appearance evaluation approval but is filled specifically for color.

* All parts submitted for color evaluation must have surface appearance AAR approval.
* Parts that require color evaluation approval:
	+ New parts in all program colors
	+ Carry-over parts in new colors
	+ Material change or material source change
* Submissions shall be produced from Job1-intended production tooling, process and manufacturing location. Submissions must include proof of Material Color and Durability from International Material Engineering (see International MSE Handbook).
* Part suppliers must make an appointment with the appropriate Industrial Design Studio /Industrial Design Craftsmanship personnel (Refer to International Supplier Website for contact list)
* Parts approved for color PSW evaluation will be tagged with the Minimum Appearance Standard label. These parts will be retained by the supplier for their active life and will be made available to International upon request. Rejected parts must be included in the next Approval Review.

# Color Harmony Review

Interior and exterior color harmony reviews will also be conducted to ensure overall vehicle harmony. Suppliers may be required to adjust (post-AAR sign-off) their component color at the discretion of the Industrial Design Studio or Industrial Design Craftsmanship representative, based on Color Harmony Team vehicle harmony review results.

Minor color adjustments are allowable without International Materials Engineering approval, provided formulas remain unchanged, except for minor ratio changes. These actions may be required to improve the overall color harmony of the vehicle.

Color Harmony Reviews are conducted as both tabletop / system reviews, as well as fully assembled environment reviews.

#

# Special Commodities

## Seats:

* Seat manufacturers are required to establish a Seat Appearance Boundary Book for each vehicle program. This Seat Boundary Book shall include (but is not limited to) pictures of the approved seat assembly in multiple views, close-ups identifying both acceptable and unacceptable conditions identified during the sign-off process, and any other area as requested by the International Design or Craftsmanship Representative. The seat Appearance boundary Book for leather seats should reference a Natural Markings Document, established by the leather supplier, for the specific grain used in their particular program. Agreement must be achieved between the Seat Supplier, Industrial Design Studio or Craftsmanship Representative, International Engineering, International Supplier Development Manager (SDM), and International Incoming Quality. When agreement is met, all parties will sign the seat.
* The manufacturer will then be required to retain this photo catalog for the life of the program. Seat manufacturers with a signed-off Boundary Book are *not* required by International Industrial Design/Craftsmanship to retain seat assemblies for the active life of the program.
* All visible subcomponents must be approved prior to full assembly reviews (e.g. side shields, switches, latches, etc.) The end-item supplier must make all appearance-approved subcomponents available upon request for full assembly reviews.

## Wheels:

* Reference International Wheel Appearance Guidelines on the Supplier Website for defect criteria.
* One sample only is required for appearance approval of multiple cavity cast wheels with a machined surface finish. All subsequent cavities are required to meet the standard established by the approved cavity.

## Ornamentation:

* Appearance approval of all ornamentation components for surface quality and image clarity will be obtained by the supplier from International Design / Industrial Design Craftsmanship. Typical components include:
	+ Exterior body side moldings
	+ Nomenclature (3-Dimensional nameplates, and badges)
	+ Instrument cluster assemblies
	+ Vinyl graphics (i.e. decorative stripes)
* Appearance approval for the above items will follow the same procedures outlined for interior / exterior components.

#

# Graphic Design Approval Process (VCAP/G)

# 2-D Graphic Design / Documentation / Appearance Approval / Sign-Off

International Industrial Design-Graphics is responsible for the appearance and finish of all commercial (non-military) two-dimensional graphics produced by International, including but not limited to:

* Exterior Labels
* Interior Labels
* Graphic communication (i.e. Instrument Cluster faceplates, HVAC controls, Switchgear graphics, etc.)
* Under hood and Chassis Labels, per International Under hood Craftsmanship initiative of 2009/2010.

The following steps cover the International Graphic Design Approval Process (VCAP/G) for 2D graphics. See also the Graphic Design Approval Process Flow Chart on the following page:

* Design Requirements / Process Kick-Off (Graphics Request Form)
* Development Sourcing
* Installation Drawing Requirements
* Graphics Appearance Evaluation Documentation / Sign-Off
* Final Graphics Release / Sign-Off (AAR/G OK-to-Proceed)
* Production Graphics Approval (hard part)-AAR/G Sign-Off

# Graphics Design Approval Process Flow Chart



# Design Requirements / Process Kick-Off (Graphics Request Form)

A New Product Graphic Request Form (Attachment 5 on page 20) shall be generated by International personnel (Customer Service, Marketing, Engineering, etc.). This form initiates the design process and contains the following information:

* Part Number
* Program Number and Program Manager
* Controlling / Releasing Engineer,
* Due Date (Production/Shipping timelines considered)
* Installation information (see below).

Note: The Controlling Engineer shall be responsible for providing all label information content, and compliance with all necessary intents and regulations.

# Development Sourcing

New product graphic artwork shall be created by International Industrial Design (ID), or an approved designated supplier. The design of the graphic shall be in accordance with the guidelines stated in EPS-145, and in the case of outsourced design, are subject to International Industrial Design approval for appearance (see below).

# Installation Drawing Requirements

All graphic requests are to be accompanied by installation information (placement drawing and /or photographs), showing Engineering / Design Intent for physical location of the product, unless specifically exempt and noted on the Graphic Request Form.

# Graphics Appearance Evaluation Documentation / Sign-Off

Artwork for new product graphics generated by sources other than International Industrial Design:

* Shall be reviewed for design intent and cohesion, by International Craftsmanship Group.
* Will be submitted to International in a Vector Art format (non-rasterized) (PDF file).
* Shall include specifications on all typeface(s), color(s) and sizes(s) utilized in the design.

Note: Regardless of the source generating the artwork, all graphics proposals are subject to review and content approval by the designated International Controlling Engineer.

# Final Graphics Release / Sign-Off (AAR/G OK-to-Proceed)

Upon Appearance / Content approval by International, final graphic artwork and an Appearance Approval Report (Attachment 2 on page 17) with “OK to Proceed” sign-off, are released electronically to the designated supplier. Additionally, a “UG” compliant file of the new graphic shall be submitted to the Controlling Engineer for International print updates.

#

# Production Graphics Approval (hard part)-AAR/G Sign-Off

The process for review and sign-off of production labels, and other 2D graphic products is as follows:

* Submit parts from a run on production tooling, process and Job1 intended manufacturing location, to International Industrial Design/Craftsmanship. The number of parts submitted depends on the number of parts the supplier needs “identified” for design intent, but a minimum of three (3) is required. International Industrial Design may choose to retain one (1) submission of each part number.
* Include the AAR/G form (Attachment 6 on page 21), showing authorization to proceed, with this submission.

Submissions will be evaluated for the following appearance criteria:

* + - Accuracy of the final product to design intent (Released Drawing).
		- Craftsmanship of product:
			* Registration
			* Clarity of printing
			* Color match to master swatches
			* Die cut accuracy and consistency, when applicable
* Parts not providing a sufficient standard of appearance quality may be given direction for improvement, as noted on the Appearance Approval Report. This same document must accompany submitted parts after appearance direction has been followed.
* Unless previously agreed, rejected parts must be included in the next approval review.
* The International Industrial Design Craftsmanship representative who reviews the production appearance submissions will again sign the AAR form reflecting minimum appearance standard for the part (assuming full resolution of all issues).
* The parts approved for appearance will be identified with the Minimum Appearance Standard label. These parts must be retained by the supplier for their production and service life, and will be made available for review, upon request by International. At the assembly plant’s discretion, an approved part will be retained by the assembly plant.

# Attachment 1 – IDEAL Form (EPS-158-FM001)



# Attachment 2 – Appearance Approval Report Form (EPS-158-FM003)



# Attachment 3 – Color/Material/Standards (CMS) Request Form (EPS-158-FM004)



# Attachment 4 – New Product Graphic Request Form (EPS-158-FM005)



#

# Attachment 5 - Production Graphics Approval (hard part) AAR-G Form (EPS-158-FM006)

