

## 1.0 PURPOSE

To define minimum workmanship standards for cartons and related items produced by Warneke Paper Box Company.

## 2.0 SCOPE

Applies to all items produced by Warneke Paper Box Company.

## 3.0 RESPONSIBILITY

It is the responsibility of all Production and Quality personnel to follow this procedure.

## 4.0 PROCEDURE

### 4.1 Surface zones and Acceptance Criteria

4.1.1 Surface Zones - Acceptance guidelines refer to carton surface zone classification defined by location:

- **Front and Top of carton/Logo** - Areas including name or logo, product name or image, and area extending ½” (12.7mm) around these product identifiers.
- **Front and Top of carton/Non-Logo** - Remaining areas without logo.
- **Bottom, Back, Sides, and Inside Flaps/Logo**– Areas including name or logo, product name or image, and area extending ½” (12.7mm) around these product identifiers.
- **Bottom, Back, Sides, and Inside Flaps/Non-Logo** – Remaining areas without logo.

4.1.2 Acceptance Criteria (Inspect at arms-length under daylight or color corrected artificial light)

### 4.2 Carton Quality requirements

All acceptance criteria inspected at arms-length under daylight or color corrected artificial light.

	Front and Top of carton/Logo	Front and Top of carton/non-Logo	Bottom, Back, Sides, and Inside Flaps/Logo	Bottom, Back, Sides, and Inside Flaps/non-Logo
	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed
<b>Copy Clarity</b> – When ink density is applied properly, type will be clear. Small type should be solid with no feathering on the sides of the letters.	<b>Unacceptable</b> - Any surface shows the clarity inconsistent with the approved press proof/sheet, OR Any surface consists of illegible, missing, or broken characters.			
<b>Registration</b> – Inks and images positioned correctly on the substrate in relationship to each other and the edges of the paper.	<b>Unacceptable</b> - Any surface indicates registration varying more than 1 row of dots for a 150 line screen in any one direction.			

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	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed
<b>Skew</b> – When an image is cut or converted out of compliance with the specified edge trim at an irregular or diagonal direction.	<p><b>Unacceptable</b> - Any surface has skew of larger than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Major</b> - Any surface has skew not larger than <math>\frac{1}{16}</math>" (1.6mm) but larger than <math>\frac{1}{32}</math>" (1.6mm).</p> <p><b>Minor</b> - Any surface has skew not larger than <math>\frac{1}{32}</math>" (0.8mm).</p>			
<b>Trapping</b> – The ability to print a wet ink film over previously printed ink.	<p><b>Unacceptable</b> - Any surface consists of registration problems due to ink trapping, OR Any surface contains a visible, non-uniform outline.</p> <p><b>Major</b> - Any surface contains a visible, uniform outline.</p>			
<b>Spots/Ink Picks</b> – Spots (Press Spots): spotted images on the printed surface not on customer's artwork. Spots can be the result of ink or attached/embedded contaminates, or ink picking. Ink picks: when another surface is set against wet ink and pulled away removing parts of the ink image or caused to flake off the substrate.	<p><b>Unacceptable</b> - Any side has a visible spot larger than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Major</b> - Visible spot larger than <math>\frac{1}{32}</math>" (0.8mm) but not larger than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> - Visible spot not larger than <math>\frac{1}{32}</math>" (0.8mm).</p>		<p><b>Unacceptable</b> - Any side has a visible spot larger than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Major</b> - Visible spot larger than <math>\frac{1}{32}</math>" (0.8mm) but not larger than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> – Not applicable.</p>	
<b>Scratches</b> – Scratched image on the press sheet that was not on the customer's artwork. This could be a mark that penetrates the surface ink or coating causing the underlying color or stock to show.	<p><b>Unacceptable</b> - Scratch wider than <math>\frac{1}{32}</math>" (0.8mm) and longer than <math>\frac{1}{8}</math>" (3.2mm).</p> <p><b>Major</b> - Scratch wider than <math>\frac{1}{64}</math>" (0.4mm) and longer than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> – Visible scratch not wider than <math>\frac{1}{64}</math>" (0.4mm) and not longer than <math>\frac{1}{16}</math>" (1.6mm).</p>		<p><b>Unacceptable</b> - Scratch wider than <math>\frac{1}{32}</math>" (0.8mm) and longer than <math>\frac{1}{8}</math>" (3.2mm).</p> <p><b>Major</b> - Scratch wider than <math>\frac{1}{32}</math>" (0.8mm) and longer than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> – Visible scratch not wider than <math>\frac{1}{32}</math>" (0.8mm) and not longer than <math>\frac{1}{16}</math>" (1.6mm).</p>	
<b>Ghosting</b> – When an unplanned image appears within areas of heavy ink coverage.	<p><b>Unacceptable</b> - Any visible ghosting.</p>			

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	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed
<b>Streaks</b> – Streaked images on the press sheet that was not on the customer’s artwork. This could be a line or band of different color or texture on the product.	<b>Unacceptable</b> - Streak wider than $\frac{1}{32}$ " (0.8mm) and longer than $\frac{1}{8}$ " (3.2mm).  <b>Major</b> - Streak wider than $\frac{1}{64}$ " (0.4mm) and longer than $\frac{1}{16}$ " (1.6mm).  <b>Minor</b> – Visible streak not wider than $\frac{1}{64}$ " (0.4mm) wide and not longer than $\frac{1}{16}$ " (1.6mm).	<b>Unacceptable</b> - Streak wider than $\frac{1}{32}$ " (0.8mm) and longer than $\frac{1}{8}$ " (3.2mm).  <b>Major</b> - Streak wider than $\frac{1}{32}$ " (0.8mm) and longer than $\frac{1}{16}$ " (1.6mm).  <b>Minor</b> – Visible streak not wider than $\frac{1}{32}$ " (0.8mm) and not longer than $\frac{1}{16}$ " (1.6mm).		
<b>Ink Color</b> – As specified on the ink specification and artwork/film supplied. Please reference quality workmanship document.	<b>Unacceptable</b> - Color is outside the tolerances of color standards approved by customer in the form of: <ul style="list-style-type: none"> <li>• Color swatches supplied by customer,</li> <li>• Pantone Matching System (PMS) color(s),</li> <li>• Press proof/sheet</li> </ul> OR Fails rub test.			
<b>Ink Density</b> – A gradient degree of ink film thickness applied to the substrate.	<b>Unacceptable</b> - If there is non-uniform film thickness across the sheet, OR Any surface is not within +/- 7 densitometer points of approved film proof, OR If it does not visibly match the color proof supplied.			
<b>Coating</b> – Must comply with the component print specification and must be applied evenly as indicated in print specification or in the artwork supplied.	<b>Unacceptable</b> -Any coated surface shows visible abrasion marks in ink during transport, due to inadequate coating.  <b>Major</b> -Any coated surface is cracked, wrinkled, blistered or peeling, OR Any coated surface is visibly non-uniform or grainy.			
<b>Moire</b> – Undesirable wavelike or checkered effect caused by incorrect screen angles.	<b>Unacceptable</b> - Any surface contains visible screen pattern.			
<b>Trim</b> – Area of a press sheet that does not have the product printed image. Once the image has been die-cut out of the press sheet, the trim area (waste) is discarded.	<b>Unacceptable</b> - Any surface has any visible remaining trim.			

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	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed
<b>Die-Cuts</b> – Carton must be cut to match the die-line as specified in the engineering specification drawing.	<b>Unacceptable</b> – Any noticeable variation between die cut and printing, or die cut flash, or cutouts not removed visible with naked eye.		<b>Unacceptable</b> – Variation between die cut and printing greater than $\frac{1}{16}$ " (1.6mm), or die cut flash longer than $\frac{1}{16}$ " (1.6mm).  <b>Major</b> - Variation between die cut and printing larger than $\frac{1}{32}$ " (0.8mm) but not larger than $\frac{1}{16}$ " (1.6mm), or has more than one quarter of the die cut with flashing greater than $\frac{1}{32}$ " (0.8mm) but not larger than $\frac{1}{16}$ " (1.6mm) in length.  <b>Minor</b> - Variation between die cut and printing visible but not larger than $\frac{1}{32}$ " (0.8mm), or any incomplete die cut, or cutouts not removed, or has more than one quarter of the die cut length with flashing less than $\frac{1}{32}$ " (0.8mm) in length.	
<b>Functional Requirements</b>	<b>Unacceptable</b> – Carton will not erect properly or self-lock (where applicable) OR Carton out of square more than 5 degrees when erect			
<b>Creases/False Scoring</b> – A non-specified bend, fold, or crease (i.e. mechanical mark, blade mark, pressure mark) in the printed material substrate (i.e. crease can be in any orientation) or parallel to the flute direction of the printed substrate (i.e. false scoring).	<b>Unacceptable</b> – Any crease or false score the entire length of the panel. OR Crease or false score is longer than half of the panel length.  <b>Major</b> – Crease or false score longer than one quarter and but not larger than half of the panel length.  <b>Minor</b> – Crease or false score not longer than one quarter of the panel length.		<b>Unacceptable</b> - Any crease or false score the entire length of the panel. OR Crease or false score is longer than three quarters of the panel length.  <b>Major</b> – Crease or false score longer than half or but not larger than three quarters of the panel length.  <b>Minor</b> – Crease or false score not longer than half of the panel length.	
<b>Indentations</b> – Dent in the carton substrate; punctures, roller and gear marks, etc.	<b>Unacceptable</b> - Any surface has a puncture that breaks through the lamination, OR Visible indentation larger than $\frac{3}{16}$ " (4.8mm) in any dimension.  <b>Major</b> - Indentation larger than $\frac{1}{16}$ " (1.6mm) in any dimension.  <b>Minor</b> - Indentation not larger than $\frac{1}{16}$ " (1.6mm) in any dimension.		<b>Unacceptable</b> - Any surface has a puncture that breaks through the lamination, OR Visible indentation larger than $\frac{3}{16}$ " (4.8mm) in any dimension.  <b>Major</b> - Indentation larger than $\frac{1}{8}$ " (3.2mm) in any dimension.  <b>Minor</b> - Indentation not larger than $\frac{1}{8}$ " (1.6mm) in any dimension.	

	Front and Top of carton/Logo	Front and Top of carton/non-Logo	Bottom, Back, Sides, and Inside Flaps/Logo	Bottom, Back, Sides, and Inside Flaps/non-Logo
	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed	1 minor defect allowed	1 major defect allowed OR 2 minor defect allowed
<b>Cracked Folds</b> – Surface cracking of the printed ink along folds/scores of the printed or non-printed substrate.	<p><b>Unacceptable</b> - Any Surface has cracked folds the entire length of the panel and/or broken through the ink.</p> <p><b>Major</b> - Cracked fold longer than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> - Cracked fold longer than <math>\frac{1}{32}</math>" (0.8mm) but not longer than <math>\frac{1}{16}</math>" (1.6mm). OR Any surface has less than <math>\frac{1}{3}</math> of the fold length with visible fold cracks not longer than <math>\frac{1}{32}</math>" (0.8mm) in length.</p>		<p><b>Unacceptable</b> - Any Surface has cracked folds the entire length of the panel and/or broken through the ink.</p> <p><b>Major</b> - Cracked fold longer than <math>\frac{1}{8}</math>" (3.2mm) but not longer than <math>\frac{1}{4}</math>" (6.4mm).</p> <p><b>Minor</b> - Cracked fold longer than <math>\frac{1}{32}</math>" (0.8mm) but not longer than <math>\frac{1}{8}</math>" (3.2mm) OR Any surface has less than <math>\frac{1}{3}</math> of the fold length with visible fold cracks not longer than <math>\frac{1}{32}</math>" (0.8mm) in length.</p>	
<b>Glue Joints</b> – Areas of the carton that overlap where adhesive must be applied. Carton must have correct adhesive covering 75% of glue joint area.		<p><b>Unacceptable</b> - Visible gap between two glued surfaces more than <math>\frac{1}{16}</math>" (1.6mm) OR Visible gap between two glued surfaces more than <math>\frac{1}{16}</math>" (1.6mm) deep from the edge of the surfaces. OR Any visible glue extending beyond any joint on external surfaces.</p>	<p><b>Unacceptable</b> - Visible gap between two glued surfaces more than <math>\frac{1}{16}</math>" (1.6mm) OR Visible gap between two glued surfaces more than <math>\frac{1}{16}</math>" (1.6mm) deep from the edge of the surfaces. OR Any glue extending more than <math>\frac{1}{8}</math>" (3.2mm) beyond any internal or external joint surface.</p> <p><b>Major</b> - Glue extending more than <math>\frac{1}{16}</math>" (1.6mm) but not more than <math>\frac{1}{8}</math>" (3.2mm) beyond any internal or external joint surface.</p> <p><b>Minor</b> – Glue extending not more than <math>\frac{1}{16}</math>" (1.6mm) beyond any internal or external joint surface.</p>	
<b>Tears</b>		<p><b>Unacceptable</b> – Any surface has tears longer than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Major</b> – Any surface has tears longer than <math>\frac{1}{32}</math>" (0.8mm) but not longer than <math>\frac{1}{16}</math>" (1.6mm).</p> <p><b>Minor</b> – Any surface has visible tears not longer than <math>\frac{1}{32}</math>".</p>		