STATISTICAL PROCESS CONTROL

"A state of statistical control is not a natural state for a manufacturing process. It is instead an achievement, arrived at by eliminating one by one, by determined effort, the special causes of excessive variation."

W. Edwards Deming

Process control and preliminary process capability must be determined by the supplier prior to PPAP submission for all design and process control characteristics designated as "key". The purpose of this requirement is to determine if the production process is likely to produce product that will meet Harley-Davidson requirements.

Both Harley-Davidson and the supplier are responsible for agreeing upon Key Product Characteristics (KPC), Key Control Characteristics (KCC), and Significant Characteristics (SC). Harley-Davidson defines KPC's and KCC's as follows:

Key Product Characteristics - A product requirement (i.e. features, dimensions, specifications) which if exceeding tolerance or requirement could affect reasonable safe vehicle operation, compliance with applicable regulations or statutory requirements, or could likely result in an inoperable condition due to loss of primary vehicle function.

Key Control Characteristics - Those parameters in the process that ensure the KPC is achieved. Examples of KCC might be speeds, feeds, tooling, or temperature.

Key characteristics are designated on Harley-Davidson drawings by a diamond.

It is the responsibility of the supplier to ensure process capability for all KPC's and KCC's. Process capability shall be measured using Statistical Process Control (SPC) in accordance with AIAG PPAP and SPC guidelines. Other methods considered more appropriate for certain processes or products may be used with prior approval from Harley-Davidson. For processes with "one-sided specifications" or "non-normal distributions" contact Harley-Davidson. The supplier is responsible for demonstrating compliance of this requirement upon request from Harley-Davidson. **All KPC's and KCC's must exhibit >1.67 Cpk**.

Significant Characteristic (SC) is a product feature or process parameter that DOES NOT affect safety or regulatory requirements but can create a warrantable condition. Special controls are applied in manufacturing and assembly**. Significant Characteristics (SC) must exhibit > 1.33Cpk.**

While process capability is an indicator of whether products will meet Harley-Davidson quality requirements, it does not automatically ensure that products will meet our quality requirements. Regardless of process capability results, the supplier is always responsible for providing products that meet Harley-Davidson's quality requirements.

For additional information see *Statistical Process Control (SPC)*, Automotive Industries Action Group, (248)358-3003 or at their internet address at www.aiag.org for additional information.