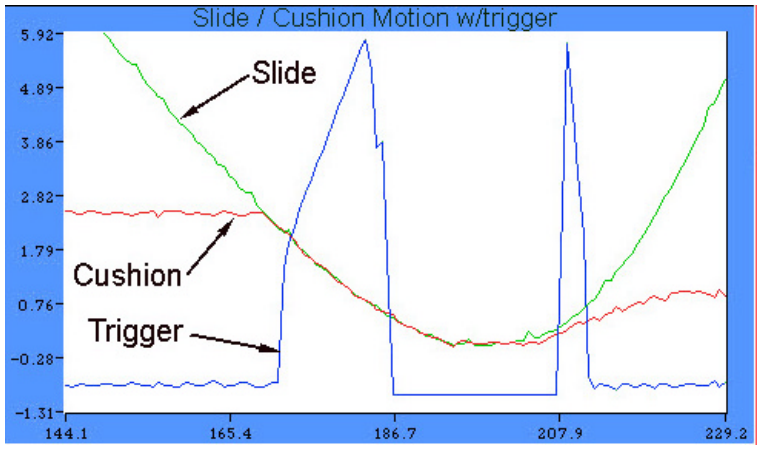
A Problem Solver Application Bulletin

Monitoring of Programmable Draw Cushion

Using the **Signature Technologies SA-2000** Statistical Analysis Module **(SAM).**

Signature Technologies has developed a variation of their standard "signatureACE™" system configured to provide analysis of the hydraulic draw cushion installation on the Schuler Crossbar machines (or other presses so equipped). The system monitors:

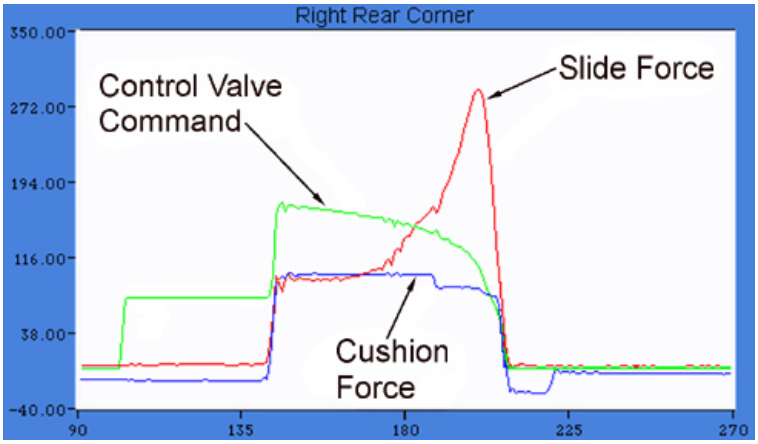
1) Slide force on each corner.
2) Cushion resistance force on each corner
3) Slide motion - in inches from bottom.
4) Cushion motion - In the same units.
5) Command - to the cushion control valves.
6) Timing - cushion pre-accelerate command.



The cushion monitor system is set up to completely monitor all the forces and motions of the draw press, and it's cushion, and presents the information in easy to understand graphical fashion.

The signals can be overplayed in the screen in any fashion that communicates the greatest benefit to the operators of the machine. The valve signal monitoring feature gives the machine repair a quick way to diagnose and localize component failure in case of system malfunction. The slide/cushion motion screen is shown in the **Upper illustrations**. Note the clear indication of the late timing of the pre-accelerate trigger in relation to the closure point of the Slide and cushion.

The **lower illustration** shows the graphs of the significant monitored signals from one press corner. Note the concurrence between the cushion force, and the slide force at the beginning of the cycle.



The **SAM™** module can handle measurement inputs in groups of 8 up to 56 total points.

Signature technologies can supply a wide variety of solutions to various manufacturing process problems dealing with measurement, verification of properties, tool condition, and machine health. We can also "close the loop" by performing process adjustments in response to specific variations in force, location, or shape of the work piece, as well as more simple controls which can track and reject specific parts which don't meet specific quality criteria.

Signature Technologies, Inc. reserves the right to make changes at anytime without notice. Portions of this product and related software are protected under US Copyright and US Patents 4,987,528 and 5,491,647. Other US and Foreign patents pending. Signature Technologies®, signatureACE®, Statistical Process Controller® are registered trademarks of Signature Technologies, Inc. ARCNET® is a registered trademark of Datapoint. ©1997-2001 Signature Technologies, Inc., Dallas, TX USA - All Rights Reserved.

SIGNATURE TECHNOLOGIES

APPLICATION BULLETIN: **B-041701-13-1**

SIGNATURE TECHNOLOGIES
13375 N. Stemmons Frwy., Ste. 320 - Dallas, TX USA 75234
Phone: 972-488-9777 - FAX: 972-488-2924
www.signaturetechnologies.com

A Problem Solver Application Bulletin

Monitoring of Programmable Draw Cushion

Signature Technologies, Inc. reserves the right to make changes at anytime without notice. Portions of this product and related software are protected under US Copyright and US Patents 4,987,528 and 5,491,647. Other US and Foreign patents pending. Signature Technologies®, signatureACE®, Statistical Process Controller® are registered trademarks of Signature Technologies, Inc. ARCNET® is a registered trademark of Datapoint. ©1997-2001 Signature Technologies, Inc., Dallas, TX USA - All Rights Reserved.

SIGNATURE TECHNOLOGIES

SIGNATURE TECHNOLOGIES
13375 N. Stemmons Frwy., Ste. 320 - Dallas, TX USA 75234
Phone: 972-488-9777 - FAX: 972-488-2924
www.signaturetechnologies.com