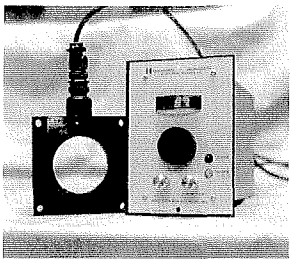
From the Desk of... Jack Champaigne

1999107

○ **Hey Jack. Didn't you used to work at Wheelabrator?**

Boy, if I had a nickel for every time I heard that question. No I didn't. However, it is basically because of Wheelabrator that I'm here today. Here's the story. I worked for John Brickley at X-Cel Controls during my college days at Purdue University (W. Lafayette, IN) and then full time in 1969. During that period X-Cel worked with Wheelabrator, then in Mishawaka, as a supplier of electrical control panels and specialty electrical items. Harvey VanFossen was in the research department at Wheelabrator and had developed a magnetic valve, which he called the EM-50 valve. It was controlled by an adjustable transformer and had no feedback for amperage maintenance. It basically was a novel replacement of the conventional dipper valve, sometimes called "clam-shell" valve. The valve was in production during the mid- 60's until the late 80's when the company making the magnets went out of business.



The first shot flow sensor/ alarm. September, 1981.

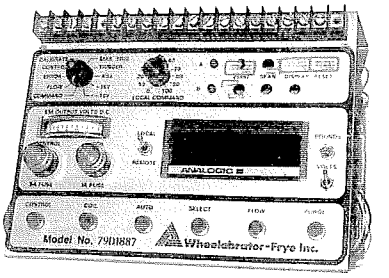
I left X-Cel in 1974 to form Electronics Inc. and in 1978 was invited by Jim Evans, Wheelabrator's chief electrical engineer, to work on a project for the Boeing Company. They were going to pass wing skins through a special Wheelabrator 12-wheel monorail machine to form the compound curvature and Electronics Incorporated was invited to work on the control system. We co-developed a method to measure the shot flow rate and regulate the EM-50 valve so that the machine could provide just the right amount of shot for peen forming. The machine is still in use at Boeing in Auburn, WA.

Several years later, (probably 1983?) we developed an early prototype magnetic valve for use in air blast shot peening and we named it the MagnaValve. Acceptance of the valve was slow so we turned to the wheel-blast market. We looked at a new design that would replace the Wheelabrator EM-50 (production was hindered by lack of magnets) with a new type of rare-earth magnet. After numerous trials we developed the model 25 and model 50 MagnaValve which regulated the shot in response to the wheel motor amperage and later the models 250 and 500 which had integral flow rate sensing. Then, as Boeing needed more machines in the late 80's, Wheelabrator placed the new MagnaValve into service and that's what convinced us to focus on the shot peening and blast cleaning industries.

No, I didn't work at Wheelabrator, but I might as well have since I spent so much time there. If they hadn't supported me in the early days I wouldn't be here now. Thank you, Wheelabrator, all of us at Electronics Inc. and *The Shot Peener* appreciate your support.

○ **The very first magnetic valve controller**

It powered a Wheelabrator EM Valve, not a MagnaValve. The number was from the Wheelabrator drawing documentation plan, the 79 represents 1979, the d represents d-size drawing paper, and the 1887 represents a sequence number. The digital display could be used to show various controller conditions and voltages. A local command pot was available to operate the control during startup or maintenance. The computer used to command the controller did not have a 120Vac "enable" signal so a "kill" relay was employed to detect a minimum analog input which represented zero flow rate thus disabling the output. Sensor response to shot flow rate varied with shot size so a selector switch was used to calibrate two shot sizes. The unit in the photo was sent back to EI to be placed into the "MagnaValve Museum".



○ **SAE to Evaluate Computer Generated Almen Saturation Curves**

The Surface Enhancement Division of SAE Fatigue Design and Evaluation Committee has established a task group headed by Dale Lombardo to review and recommend a standard procedure for computer programs designed to show the Almen saturation curve and determine the "intensity" of the shot peening treatment. Several companies are cooperating with this project: British Aerospace, Boeing Commercial Airplane, General Electric Aircraft Jet Engines, Progressive Technologies, Baiker, Metal Improvement and Electronics Incorporated. For more information contact Dale Lombardo at: dale.lombardo@ae.ge.com or phone 1-513-243-9316.