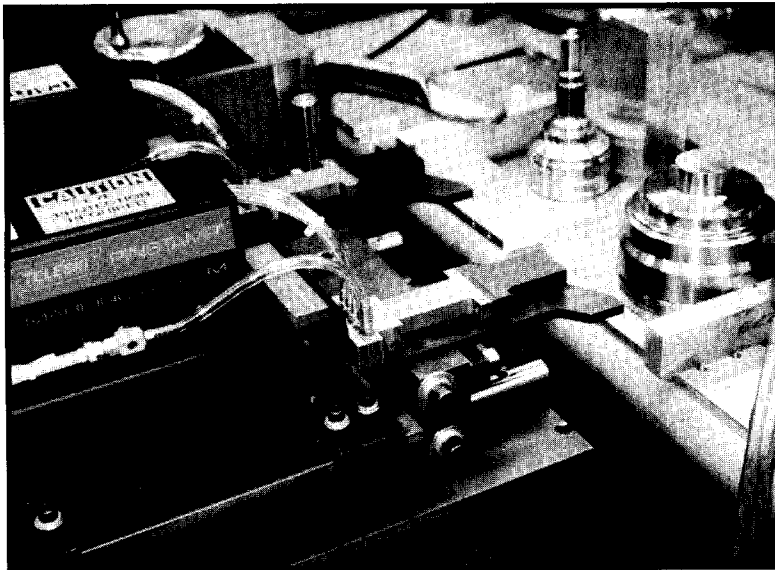


TELESIS
TECHNOLOGIES, INC.

Industrial Identification/
Traceability Equipment

Dual Head TMM2525 Marking System Integrated to Mark Constant Velocity Joints

A company that manufactures steel constant velocity joints (CVJs) for the driveshafts of automobiles and light trucks needed a better way to mark date codes on their products for traceability. They have four manufacturing lines on which they produce the CVJs in sizes from 2.5" to 4.5" in diameter. The company was using hydraulic press-type markers that induce high stresses and make poor quality marks. They wanted to replace the hydraulic markers, but the new markers would have to be retrofitted to the conveyor system and fit into the available space, and the marking had to be done with minimal operator intervention.



Two TMM2525 PINSTAMP® Matrix Marking Heads, mounted side-by-side, mark date codes on constant velocity joints.

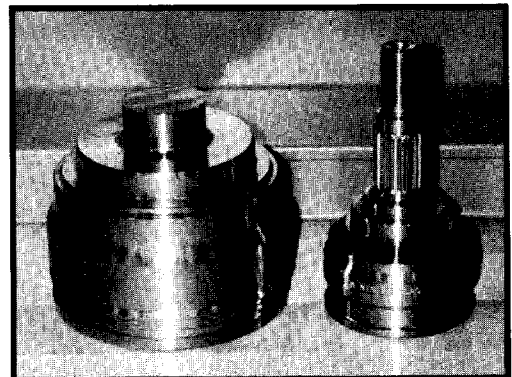
ity switches to indicate when the CVJs are secured in the clamping mechanism. Two compact TMM2525 PINSTAMP® Matrix Marking Heads, each with 4 carbide pins, are attached to the slide mechanisms and custom support structure. All controls are housed in a single, convenient, space saving, NEMA-rated enclosure. For manual mode operation, the operator may access the system through a portable data entry terminal.

The CVJs are imprinted with five-character date codes. The the 5 x 7 dot matrix characters are 0.083" high. The code consists of a leading character, A or B, to indicate which marking head made the mark,

The fixture had to be easily and quickly adjustable to accommodate the various sizes of CVJs. Up to 500 CVJs are produced on a line per hour.

Telesis' patented "floating pin" marking technology solved the marking quality problem. Then, Telesis' expert Applications Engineering Team customized the system to meet the demands for speed and versatility in a small space.

They designed a fixture with a horizontal pneumatic slide, manually adjustable vertical positioning and fiber optic proxim-



Constant Velocity Joints from 2.5" to 4.5" in diameter are marked by a single automated marking system.

followed by a letter from A to L indicating the month (A=January, etc.), followed by a single digit representing the last digit of the year (6=1996) and then two digits giving the day of the month. So, a CVJ marked AD626 was marked by the left hand marker on April 26, 1996.

A fixed backing block was attached to the customer's conveyor to hold the joints in place during marking. The marking heads and mechanisms to move them, in tandem, both horizontally and vertically, are mounted on a custom designed support structure.

The marking time for a pair of CVJs is 3.6 seconds, well under the required 5 seconds. Placing, clamping, marking and removing two CVJs requires about 6 seconds. With future part size and shape modifications in mind, Telesis Engineers designed the system to allow marking height variations over a 5" range, 10 times the range required for current models.

Automatic Mode Operation:

Before beginning a run, the operator manually sets the marking head height by turning the hand crank on the vertical slide mechanism. At the beginning of the marking cycle, the customer's robotic mechanism places two unmarked CVJs on the stopped conveyor in front of the backing block. The customer's system then sends a "PART PRESENT" signal to the marking system. Then the two TMM2525 marking heads with

V-blocks automatically extend horizontally toward the CVJs. At this point the CVJs are securely positioned between the backing block attached to the conveyor system, and the V-blocks attached to the marking heads.

When the fiber optic proximity switches on the marking head V-block assemblies sense that the two CVJs have been secured in marking position, the print cycle begins. After printing, the slide mechanism retracts the marking heads to the home position.

When a proximity switch on the horizontal slide mechanism senses the CVJs have been released, the Telesis system sends a "DONE" signal to the customer's conveyor system. The conveyor then moves the marked CVJs down the line and stops again so that the robotic mechanism can place two more unmarked CVJs in front of the marking heads. The marking process is then repeated.

This customer demanded quick, high quality, easily adjustable, on-line marking in limited space. Telesis took these requirements and designed a marking system that uniquely suits the application. Telesis' Applications Engineering Team is the industry expert in marking system customization. This expertise, coupled with Telesis' proven line of quality marking equipment, provided the solution to the customer's complex marking requirements.