



NEWS FROM THE WORLD OF FORD

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Following is the text of remarks by Owen C. Zidar, Stamping and Assembly Engineering manager, Body and Assembly Operations, Ford Motor Company, at a program commemorating the 75th anniversary of the moving assembly line, held at Wayne (Michigan) Assembly Plant on October 7, 1988:

THE MOVING ASSEMBLY LINE: 1913 TO TODAY

The conveyor evolution, as you just heard, began as a rope tied to a chain used to pull cars along a line of employees. It has evolved into a highly sophisticated, electrically controlled necessity of modern production systems.

For the 75 years since Henry Ford first introduced its use in the automotive industry, the conveyor system has been undergoing continuous change. Motivation for such change has come from many directions. Conveyors, like all progressive devices, require major crisis to inspire advancement. So it was just before the first great war of 1914 that the drag line conveyor and the gravity rolls conveyor came into their own. Initially, the need for increased productivity for the war effort, as well as expanding capacity requirements, caused innovation and development of the conveyor system. The desire to automate the assembly process created more stringent reliability and accuracy requirements. More recently, the accuracy required to ensure the production of high quality vehicles, as well as our need to address the assembly line employees' well-being, has been a motivator of many changes.

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In 1913, a giant stride into the modern world was initiated at the Ford Highland Park plant not more than 20 miles from here. The newly evolved moving assembly line began spewing forth Model T's in unimagined numbers.

"It's wonderful, wonderful!" exclaimed ex-President William Howard Taft. "I am amazed at the magnitude of the establishment."

Since Taft made that observation, the conveyor has become the workhorse of the moving assembly line. It carries parts and car bodies to employees in a finely timed and orchestrated process. It has removed much of the heavy labor of building automobiles and provided a coordinated flow of parts to employees to ensure that cars are built to the customers' specifications.

For a good portion of the 75 years, the application of conveyors was expanded almost boundlessly in the number of ways they could be used, adapted, modified and even automated. In fact, the automating of these workhorse mechanisms has been a key ingredient over the years in improving productivity. Conveyor systems continue to improve, as the competition for productivity improvements intensifies, keeping pace with advances in electronics and mechanical automation by using PLC's (programmable logic controllers), air logic, solid-state circuitry, photo cells, lasers, etc. This mating of reliable mechanical systems with high-tech electronics has provided an ever-increasing scope of additional applications.

Today, electrified monorail systems or inverted asynchronous systems precisely position bodies and components so that robots can achieve their potential of precision quality and

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improved productivity. Free running automatic guided vehicles prowl the plant floor following computer instructions to deliver material to the point of use.

The modern conveyor has been adapted so that it presents the vehicle body to the employee in such a manner as to minimize physical stress on the human body. The field of ergonomics, the study of the employee and how he relates to his environment, has been applied to conveyor systems so that bending, lifting, stooping, and overhead work can be minimized. It is not uncommon to see a car being assembled on its side, or rolled at an angle, so that the employees have easier access to the vehicles and therefore less strain when performing their jobs.

Although there have been many technological advancements in the conveyor system over the years, at Ford the most important is the philosophical approach to the operation of the assembly line. The operator has the authority to stop the line when the assembly is not right. This has produced significant quality improvements.

Have we done it all -- achieved everything a conveyor system can be? I doubt it. I think the direction of change has been set: In the years to come, we'll see more applications of sophisticated control technology to guide, steer, power and position the parts and vehicles. Application of computers to control, coordinate and assist us in the maintenance of the systems. And further adaptations to ensure the production line employees can produce quality vehicles that meet the customers' quality requirements.

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