

# MAXXFORCE

A NAVISTAR COMPANY

## Company Heritage

Navistar has a long history in the engine business, dating back more than 110 years. It began with Cyrus McCormick and the McCormick Harvesting Company in the late 1800s, producing its first gasoline engine in 1889. Shortly after the turn of the century, McCormick Harvesting Company joined with four others to create International Harvester. As business continued to improve, the company began experimenting with diesel engines in 1916.

In 1933 International Harvester produced its first diesel engine, the D-40 — a four-cylinder, four-cycle 4-3/4 x 6-1/2 overhead valve, pre-combustion, full diesel engine — for use in its tractors. Three years later the company released its first six-cylinder diesel engine, the D-80, for production, and produced the first diesel-powered truck one year later in 1937.

In the 1940s production was on the move. International Harvester reported sales of \$275 million in 1940 and produced its one-millionth truck in 1941. However, production shifted to military applications until around 1945 in support of World War II. In 1946, International Harvester purchased Melrose Park Works, which was built by the U.S. Defense Plant Corporation and operated by the Buick Division of General Motors, to begin building diesel engines.

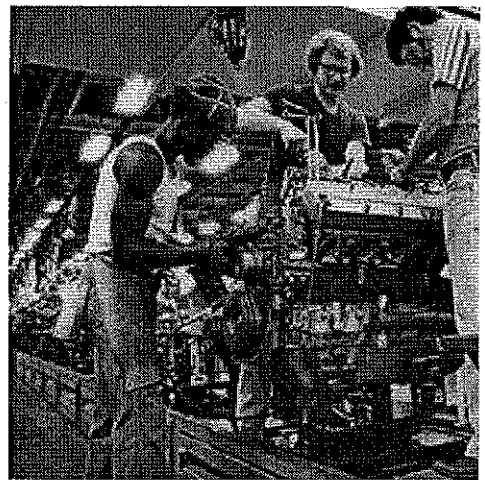
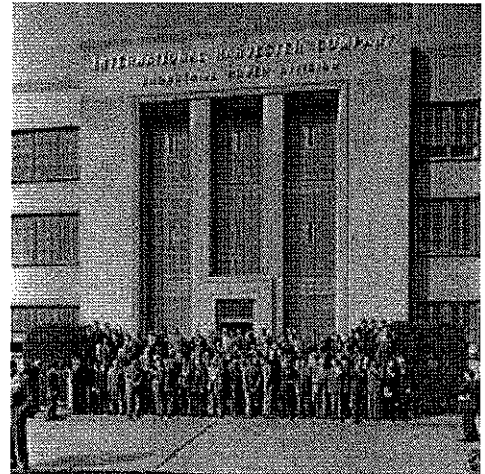
After the war, modern engine development transitioned from gasoline-start diesels to direct-start for agricultural equipment, construction equipment and on-highway trucks. The interstate highway system also brought the long-distance trucking industry into a boom time and diesel-powered trucks surged in popularity.

The advantages of diesel were readily apparent. Diesel fuel improved fuel economy by more than 20 percent, and it was less expensive and safer than gasoline. From 1954 to 1964, total U.S. factory sales of diesel-equipped trucks jumped from 10,000 to nearly 65,000 units. During the same period, International diesel-powered truck sales climbed from more than 1,000 to 15,000 — representing 22.8 percent of industry sales, a larger share than any other truck manufacturer.

In 1960, International Harvester designed its own diesel engine for use in trucks. The engine was used in B-160 medium duty trucks recommended for city pick-up, delivery work and other applications not carrying extreme loads or running at high speeds. In 2002, the company produced its two millionth V-8 diesel engine at its Indianapolis Engine Plant.

The 1970s brought continued growth and improvement across all of International Harvester's principle markets — trucks, agricultural equipment and construction, and in 1975 International Harvester introduced what would become its legendary medium duty diesel engine, the DT 466. Now referred to as the MaxxForce DT, the DT 466 was the first rebuildable, in-chassis diesel engine. With a record net income of \$427 million in 1979 business was good for International Harvester but a six-month long United Auto Workers strike in November 1979 took its toll and the company settled into a deep recession.

To remain viable, International Harvester's management took action and refinanced the company's debt in 1980, sold its Solar



turbine engine business in 1981, sold its construction business in 1982, sold its agricultural equipment business to J.I. Case and discontinued gasoline engine production to focus on producing diesel-powered trucks at its assembly plants in 1984.

Though the company was divesting of a number of its assets, it continued to introduce new products, as well as announce a new partnership. In 1982, International Harvester debuted a new 6.9-liter, indirect injection, naturally aspirated V-8 diesel and announced its partnership with Ford Motor Company to provide them with the 6.9-liter diesel engines for its pickup trucks and vans.

In 1986 International Harvester changed its name to Navistar International Corporation, reflecting the divestiture of its agricultural business and focus on the commercial truck market. In 1989, Navistar International Corporation unveiled the first smokeless diesel engine, which was five years ahead of EPA requirements.

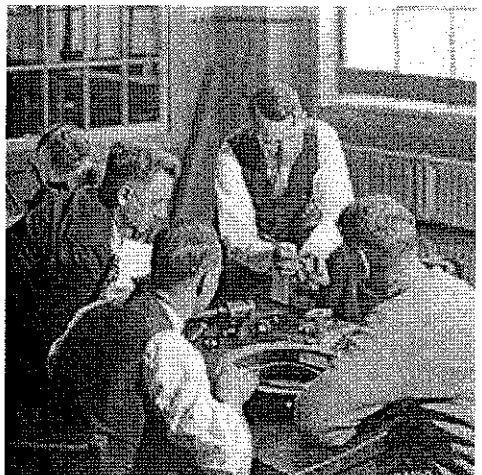
Through the 1990s Navistar International showed its focus on diesel engine leadership with advancements like its award winning HEUI fuel system technology, which was introduced in 1990. 1992 marked the production of the company's one-millionth V-8 diesel engine and the introduction of the 7.3-liter upgrade of its 6.9-liter V-8. In 1995, Navistar's Melrose Park Engine Plant produced its one-millionth in-line six-cylinder diesel engine and celebrated its 50th year of continuous production one year later in 1996. Navistar International also introduced its Engine Diamond Logic system, became the first manufacturer to offer electronics across its entire mid-range engine line as well as demonstrate Green Diesel Technology.

In the late 90s, the engine group grew from being a captive internal supplier to the truck group to a major supplier for Ford Motor Company, producing diesel engines for use in Ford's heavy pickup trucks, vans and SUVs. In 1999, Navistar's Indianapolis plant produced more than 300,000 diesel engines, working around the clock, seven days a week. Also in 1999, Navistar broke ground for a new high-tech engine plant in Huntsville, Alabama, and established a joint venture with Brazil's largest diesel engine producer.

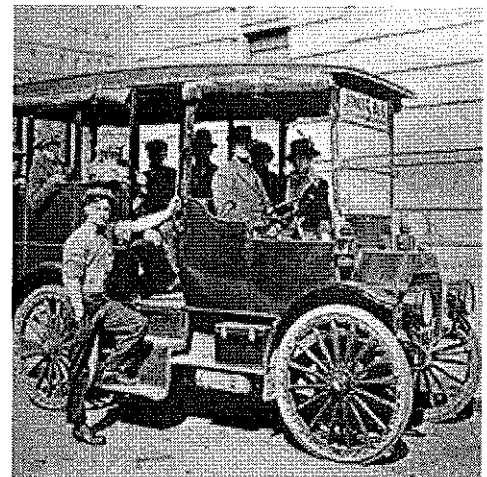
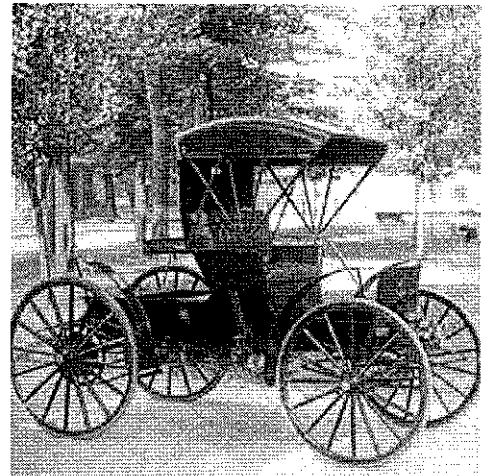
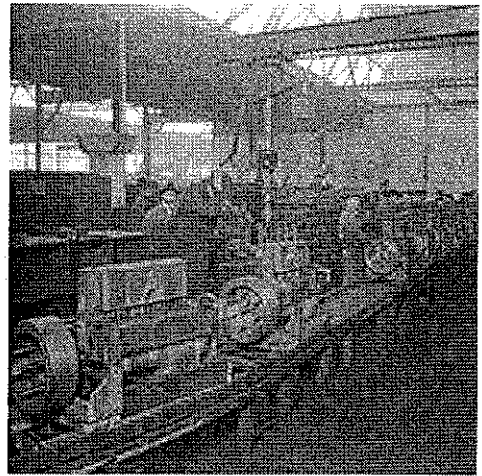
In 2000, Navistar International demonstrated a camless engine that controlled the engine's valves with electronics and hydraulics, eliminating the camshaft, and provided a better mix of air and fuel to improve fuel efficiency. In 2003, this engine was the only diesel named one of the year's 10 best engines by Ward's Auto World.

International's partnership with Ford Motor Company was strengthened further in 2001 when plans were announced for the largest joint venture in International's history. The two companies joined forces to create Blue Diamond Truck Company, LLC. The 50/50 venture builds medium commercial trucks and furnishes truck and diesel engine service parts. The first major Blue Diamond product was a V-6 diesel engine launched in 2005.

In 2002, Navistar International introduced the first U.S. EPA 2004 emissions capable diesel engine. In 2005 the company expanded its diesel engine offerings, acquiring MWM in South America and announcing its entry into the Class 8 market with 11- and 13-liter engines. In 2006 Navistar launched its new brand, MaxxForce International Diesel Power, for its line of commercial diesel engines, built its three-millionth V-8 diesel engine and launched a brand new 6.4-liter V-8 platform featuring



a high-pressure common rail fuel system with piezo-actuated injectors. Following the successful launch of its 2007 EPA emissions compliant line up of MaxxForce diesel engines, Navistar produced its 15-millionth engine in December 2007, a significant milestone that provides testament to the depth of the company's history and leadership in engine production.



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