



Ladder Trucks

Another essential apparatus for the fire department is the ladder truck, often used by hook and ladder companies. While the pumper is responsible for directly attacking the fire with water, the hook and ladder company enters the building to ventilate the structure and perform rescue and salvage operations. To do this, hook and ladder companies use a variety of tools including ladders, axes, hooks, shovels, picks, etc.

The use of these tools dates back to Rome, when firefighters carried a sledge hammer and two fire hooks alongside their hand pumps and buckets. These tools varied depending on location and time period, however, the basic concept of using a large hooked pole to tear down burning buildings and create a fire break lasted until the first volunteer hook and ladder companies were formed. These companies also carried long hooked pulls and used them to pull burning roofing materials from the top of the structure.

Ladders have existed since Native Americans in the southwest used them to get in and out of their cliff dwellings. During Colonial times, ladders were often mounted on the outside of buildings along with buckets in case of a fire. As buildings became taller and longer ladders were needed, ladder trucks became necessary to carry the longer and heavier ladders.

The first ladder truck was basically a hand pulled wagon designed to carry the types of tools the Hook and Ladder Company would need at the fire, such as Denver's first hand-pulled hook and ladder truck, which was donated in 1866 by Colonel Howard. The truck was very heavy and was therefore exchanged in 1873 after a lighter, more maneuverable truck was purchased for \$1392. Once paid fire departments became typical, horses were used to pull the trucks and by 1880, Denver had upgraded their fleet by purchasing their first horse drawn apparatus. While the earlier trucks still required the firefighters to run alongside, by the time they reached the fire, they were often tired and needed a rest before beginning their duties. As a result, the introduction of "running boards," or platforms on which the firefighters could stand to ride on the truck, occurred in the 1860s.

In 1868, Daniel Hayes patented the first aerial ladder, or a ladder that can be raised from the bed of the truck to reach higher parts of the building. This first aerial ladder was made of wood and was raised and lowered using a series of gears and pulleys. Denver became the proud owner of one of these new aerial trucks in 1887. Soon trucks were becoming longer to accommodate increasingly longer ladders. This in turn made ladder trucks difficult to steer and the tiller position, seated below the aerial ladder to steer the truck's rear wheels, was developed. In 1902, Seagraves, now a popular manufacturer of fire apparatus, developed a spring assisted raising mechanism for the aerial ladder which allowed it to be raised more quickly. In 1906, a German company called Magirus again improved the aerial ladder by creating a gas powered 75 ft telescopic turntable ladder that could be raised, rotated 360 degrees, and extended. Various other improvements were developed to raise the ladder more quickly and efficiently including air hoists and motorized mechanisms. By 1931, Pirsch developed a hydraulic mechanical aerial ladder. This motor made the ladder so efficient that all of the functions, raising, lowering, and rotating, could be performed by a single man. This development also allowed for longer aerial ladders, such as the 100 foot three section Pirsch ladder with handrails developed in 1935. The three section set-up made for inconvenient storage however, as the tillerman had to disassemble his seat, windshield, and steering equipment before being able to raise the ladder. American LaFrance, another popular fire apparatus manufacturer, solved this problem by breaking the 100 foot ladder into four sections for easy storage. By 1952, the aerial ladder had changed positions, and was now available in a rear mounted version. In 1972, the ladder was fitted with an elevating platform basket mounted to the tip to allow firemen easier access to the structure.



By the 1900s the ladder truck was impacted by the race for motorization. The first motorized fire apparatus was actually a ladder truck produced by the Merryweather company in London. Denver acquired its first motorized ladder truck, a front wheel drive truck with right hand steering designated Truck No. 4, in 1917. Horse drawn ladder trucks were often motorized using tractors to pull the old apparatus, so that by the 1920s, virtually all ladder trucks had been motorized in one way or another. The 1924 American LaFrance engine pictured here is an example of an already motorized vehicle used to transform older equipment into something workable. Originally a tractor, the engine was shipped to Denver from Elmira, New York in order to upgrade a Seagraves 85 foot tillered aerial truck. It was damaged after Wagon 3 collided with it in a 1938 crash which killed two firemen. While the crash completely incapacitated the truck, the tractor was salvaged and made into an engine at the Denver Fire Department Shops. It was then put into service as a pumper with a new centrifugal pump and a hose bed mounted to the frame. The engine served as a reserve until it was retired in 1961.

The trucks used by Denver today are large motorized vehicles which carry an aerial ladder made of aluminum or fiberglass, as well as various tools such as shovels, picks, battering rams, power saws, hooks, wrenches, heavy duty jacks, and resuscitators.

The featured podcast is an interview with retired Denver firefighter Dan Day about the 1924 American LaFrance on display and detailing how it was transformed from a ladder truck into a pumper.