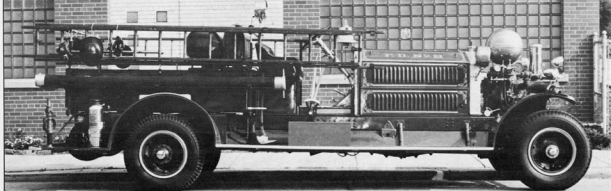


by Ray I. Scroggins



1926 AHRENS-FOX

A Legend Among Fire Engines

WHEN FIRE BUFFS talk about Ahrens-Fox, chances are you'll hear phrases like "the Duesenberg (or Rolls-Royce) of fire engines." In terms of size and strength, ability, durability and unique design, it's an apt comparison. The legendary piston pumpers with the big shiny ball in front look and perform like no other fire engines.

Over the years these big, gutsy pumpers, built by the Cincinnati-based Ahrens-Fox Fire Engine Company, have become as respected among fire buffs who now collect them as they once were by firemen who saw them in action.

Although the Ahrens-Fox name dates only from 1910, the company had its beginnings in the early days of steam fire engines. In recalling the history of the company, Charles H. Fox explained that one of the pioneers in applying steam power to fire engines was Alexander B. "Moses" Latta, who tested his first successful engine in Cincinnati during 1852. Chris Ahrens began as an apprentice with Latta's company and in 1869 took over the business, which had passed through Lane & Bodley Company's ownership in the interim.

The new company, now named C. Ahrens & Company, was owned by

Ahrens and one Fred Hawekotte. In 1875 the firm changed its name to the Ahrens Manufacturing Company, then incorporated in 1877, and in 1891 merged with three other companies to form the American Fire Engine Company, with Chris Ahrens as president. Another merger, in 1903, begat the American-LaFrance Fire Engine Company.

At this point, the 70-year-old Ahrens retired. His sons, John P. and George Fred Ahrens, and his sons-in-law George W. Krapp and Charles H. Fox, who was a former assistant chief of the Cincinnati Fire Department, continued to be active in American-LaFrance until December 9, 1904. Then, all four resigned to form the Cincinnati Engine and Pump Works, which became the Ahrens Fire Engine Co. about July 1905. The company manufactured motor fire engines and a new steamer designed by Mr. Fox named the Continental. This steamer quickly became competitive with Amoskeag, American-LaFrance and Nott, the three major names in the field. Fox became president of the company in 1910 and the name of the firm was changed to Ahrens-Fox Fire Company. The last Continental steamer, the 105th

built, came off the line in 1916. Several additional steamers were converted for use with Christie two-wheel tractors and other mechanical replacements for the original "horse power," but new steamer production ceased in 1916.

During the early years, Ahrens-Fox assumed a leading role in the move to motor-driven fire apparatus, which it started building in 1911. The firm was soon supplying larger cities and smaller communities with the distinctive front-mounted piston pumpers that were to become its trademark, as well as a lesser number of ladder trucks, aerial trucks and "water towers." Ahrens-Fox prestige reached a high point in the late teens, 1920s and 1930s, as the firm's piston pumpers constantly outperformed competing rotary gear-type pumpers in delivering high-pressure streams of water to the ever-growing number of skyscrapers then being built. The news media and company advertisements during 1917 told of an Ahrens-Fox pumper elevating a stream of water to the top of the Woolworth Building in New York, for example.

The year our driveReport subject fire engine was built, 1926, was also the year the company had the only labor



Opposite: The rugged Ahrens-Foxes were an expensive proposition for a fire department, costing well over \$10,000 during the '20s. But they lasted so long that they more than paid for themselves in terms of extended years of service.

Left: Driving the big Fox calls for strong arms and a keen eye. Enormous front overhang calls for a precise line when cornering, steering requires high effort thanks to large concentration of weight up front. **Below:** driveReport engine has four-cylinder double-acting piston pump capable of 800 gallons per minute at 120 pounds per square inch of pressure.

trouble in its history. Hot weather that year caused a delayed epidemic of "spring fever," and a large number of employees were laid off as "loafers." The severe manpower shortage thus created delayed deliveries during the fall and winter, pushing a number of 1926 deliveries into 1927. Ahrens-Fox apparently recovered from the backlog quickly, as 1927 and 1928 were the company's peak years.

Ironically, the quality built into the Ahrens-Fox engines was also the cause of some hard times for the company in the depression-ridden 1930s. Cities all over the country discovered that the rugged engines would continue to operate efficiently well beyond their normal life expectancy, making it possible to cut back municipal budgets for new equipment. Production dropped so low that only four new rigs were built in 1934. During this difficult period a few good-sized orders from the New York Fire Department were all that saved the company from complete collapse. Development costs of a new centrifugal pumper introduced in 1935 also brought the company close to the brink.

Le Blond-Schacht, a Cincinnati commercial truck dealer, gained control of Ahrens-Fox in 1936. The new owners soon found that high-quality fire apparatus could not be built and sold the same way as the commercial trucks they were familiar with, and Schacht folded in 1939. Harold Le Blond of Le Blond-Schacht then took over the helm of a reorganized Ahrens-Fox.

Except for a pumper made for Harrison, New Jersey, in 1942 from parts in stock and a 1930 pumper rebuilt in 1943, no Ahrens-Foxes were built after 1940 until 1946. In 1940 the firm also delivered its last aerial ladder trucks. During World War II, instead of fire engines the factory made lathes for boring holes in battleship guns.

However, after the war, from 1946 to 1951, over 100 Ahrens-Foxes were built at the company's new location in Norwood, Ohio. In 1951 GM truck dealer General Truck Sales of Cincinnati took over and made an effort to market fire apparatus on commercial truck chassis.

The last piston pumper was built in 1952 for Tarrytown, New York, 40 years after the company's first piston pumper had been delivered. By 1953 Ahrens-Fox was bankrupt, and Richard "Curt" Nepper bought out the company. Bus manufacturer, C. D. Beck Company of Sidney, Ohio, was hired as a subcontractor to complete the apparatus on order. Never one to give up, Ahrens-Fox preserved its reputation as an

innovator even on its deathbed by introducing a new line of cab-forward models in 1956. A few were built by Beck. In 1957 Beck finished building its last A-F pumper and sold out to Mack Trucks. The A-F cab-forward design thus became the first line of Mack's cab-forward apparatus.

However, A-F historian Ed Hass points out that Mack did not buy Ahrens-Fox, which already belonged to Curt Nepper. Nepper apparently did buy the remaining parts stock that Mack picked up with the Beck deal, around 1961, giving rise to the rumor that Mack had somehow owned A-F.

Nepper was a long-time employee who joined Ahrens-Fox as an apprentice in 1928. He showed a lot of promise, so



AHRENS-FOX

continued

management kept moving him from job to job until he knew enough to build a fire engine single-handedly. He was one of the few employees kept on the payroll throughout the depression years, and after serving with the Seabees in World War II he returned to eventually become the last surviving member of the firm.

Following his purchase of the remaining Ahrens-Fox parts stock from Mack in 1961, Nepper continued to service fire apparatus for 55 fire departments in the area around his Cincinnati shop. He also built a new fire engine during 1956 to 1958, and supplied parts to Ahrens-Fox owners all over the United States. In 1969 Nepper began building a modern pumper on a Ford chassis, which he delivered to Southern Campbell, Kentucky, in 1977—the last Ahrens-Fox made. Today, at age 69, Nepper is still active in providing parts and service to Ahrens-Fox owners.

Ahrens-Fox fire engines inspired a good deal of pride among the fire departments that owned them, even as they inspire pride in the collectors that have since preserved them. Although they were better suited to the fire fighting problems encountered in larger cities with tall buildings, quite a number of small towns also bought one or two, probably out of civic pride.

In recent years several small-town New Jersey volunteer fire departments conducted a drill at a large textile mill with an adjacent pond. After several newer centrifugal pumpers squirted away to pump streams of water from the pond to the upper floors of the factory, the host department's reserve engine, a 1924 Ahrens-Fox, was brought to the site. With a seeming disdain for its newer rivals, the old engine put a stream completely over the mill's roof.

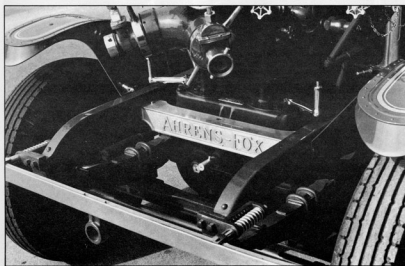
One chief cited Ahrens-Fox dependability and performance as a source of departmental pride. He gave an example of an engine that pumped for two uninterrupted weeks in order to assure his city of a water supply while a broken main was repaired. His department, in Paterson, New Jersey, had many Ahrens-Fox pumpers over the years, but kept no reserve pumpers. As he put it, "the tough Fox engines were their own spares."

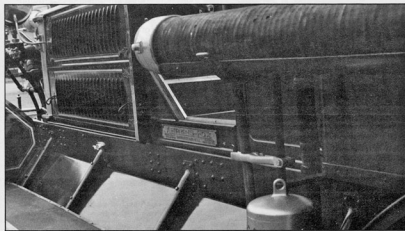
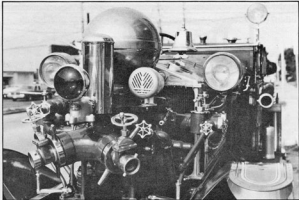
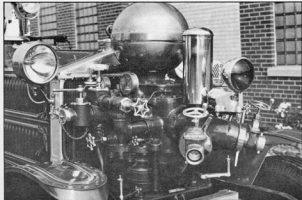
The pride generated by these fire engines was born out of their construction and built-in by the factory. During the firm's heyday it built four and six-cylinder "motors" (engines) of its own design, as well as pumps, axles, clutches, bodies and transmissions—almost everything except chemical tanks. The company took pride in the fact that every piece of brass and bronze on an Ahrens-Fox was hand-turned.



Above: Hefty Ahrens-Fox six displaces 997.85 cubic inches, pumps 110 bhp. It's fired by dual 12 volt system, has a bore and stroke of 5½ x 7.

Right: Driver's-eye view shows what a huge piece of machinery the Fox is. Literally everything is larger than life: even the steering wheel has five spokes rather than the usual four. **Below:** It's easy to understand why the Fox weights in at six tons when you examine the chassis construction. Front bumper is spring-loaded, rebounds after a whack.





Above: Piston pump is festooned with siren and red light. After 1923, pressure sphere became two-piece with a band to hold the pieces together. Prior to that, they had been handmade by beating out a single piece of metal. The pump and sphere's location tends to give these Foxes cooling problems in over-the-road driving, but the big engine is happy to idle away for days if necessary pumping water at fires. **Left:** A plethora of hood louvers helps engine heat escape. Even the runningboard braces look strong enough to hold up a skyscraper.

The Silver Sphere

The most noticeable feature of an Ahrens-Fox piston pumper was the shiny sphere that was atop every front-mounted piston pump. Understanding the purpose of the big ball requires an understanding of the mechanics of the piston pump. In simple terms, the use of pistons to pump a stream of water required converting the reciprocating, pulsating action of the pump into a steady stream of water directed at the fire. This was done through the correct pump rpm and often through multiple piston pumps. Dual piston pumps were common, and Ahrens-Fox offered piston pumps with up to six cylinders. These could move 1500 gallons per minute at 120 pounds with pressure to 800 psi.

In its advertising, the company claimed, "The piston...pump is the most efficient throughout the complete range of requirements of performance, and 'slip' remains practically the same—a minimum—regardless of volume or pressure."

The characteristics of a piston pump called for a pressure equalizer or surge tank, which took the form of the A-F "silver sphere." Not as noticeable as the big shiny ball is a long cylindrical tank, also on the front of the big piston pumps. This is a surge tank that equalizes the pressure on the hose side when the pump is shut down quickly. The round tank, according

to at least one former fire engine mechanic, simply serves the same equalizing function on the pump side of the system.

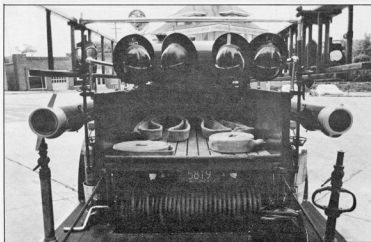
Although the front-mounted piston pump is what makes an Ahrens-Fox easily identifiable, it was developed and built that way for practical reasons rather than from a desire to be distinctive. Mechanically, it was easy to drive the pump off the front of the engine crankshaft, through an appropriate gear reduction box. Mounting the pump outside the body gave easier accessibility as well. In operation, the front pump location made it easier for the driver to spot the engine quickly at the hydrant or in front of the fire. A similar rationale can be noted today in the fairly recent move in some parts of the country to front-discharge ready mix trucks. The ability to drive an Ahrens-Fox up to the most inaccessible hydrant and hook up quickly probably saved more than a few buildings.

While the piston pump was the most identifiable feature of almost all Ahrens-Fox engines, the fact that the company put all its eggs in this one basket was at least partially responsible for its eventual demise. Although the company reluctantly offered rotary gear pumps while other manufacturers were already phasing out their piston pump lines in the 1920s and belatedly brought out a centrifugal type in the late

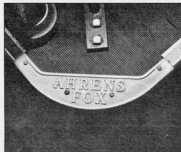
1930s, it continued to live off the piston pump's earlier reputation and performance. Ironically, Ahrens-Fox did market centrifugal pumps in 1913-14, and built a rotary gear pumper in 1918, but these were too far ahead of their time to be popular, and the decision was made to stick with the reliable piston pump.

A 1925 American-LaFrance catalog effectively stated the case against the piston pumps, in addition to gear-type and centrifugal models. The catalog pointed out that, while a steam-driven piston could be connected to a pump plunger, a gasoline engine's higher speed and the extreme variations in pressure on the piston required gearing the drive down to 1/3 to 1/6 of the engine speed. This usually entailed a double train of reduction gears, extra crankshafts, connecting rods and other reciprocating or rotating parts, which demanded that vibration be minimized and excellent lubrication be provided. In addition, the piston pump had hundreds of parts that required periodic replacement, including rubber valves, valve springs, valve stems, valve seats, pistons and plungers.

So while nobody could fault the performance of a piston pump as it spewed prodigious streams of water for long periods, its bulk and its complicated mechanisms were no match for the centrifugal pump that put it out of business.



Above: Hoses and other firefighting equipment are carried in box-like compartment. There's room for four firemen to ride on the rear platform. **Right:** A-F l.d. is stamped into rear platform corner trim.



AHRENS-FOX

continued

An interesting sequel to the company's "build it all" policy is that several other varieties of "motor" were used to power the vehicles before 1914 and starting again in 1927. The earliest of the firm's Model A gasoline pumpers were propelled by six-cylinder Herschell-Spillman power plants. After Ahrens-Fox perfected its own design in late 1914, it supplied all apparatus manufactured until 1927 with its own four and six-cylinder motors, in several different bores and strokes. Things started to change in 1927, when Continental Motors Corporation of Muskegon, Michigan, began supplying motors for the company's chemical rigs. Within a few years Ahrens-Fox was offering all sorts of power plant options, including Hercules, Waukesha and Continental.

The company's pride is reflected today in the reverence members of the Ahrens-Fox Fire Buffs Association have toward these machines. While all fire buffs seem to have a certain respect for an Ahrens-Fox, over 300 members of this organization worldwide are

especially dedicated to preserving these engines and the history and literature about them. Under the care of Ed Hass (17 Laramie Rd., Plainfield, NJ 07060), the group has accumulated tens of thousands of Ahrens-Fox photos, as well as dozens of catalogs and items of memorabilia. Topping off the organization's collection is an actual Ahrens-Fox, a 1953 ex-New Milford, New Jersey, pumper.

Driving Impressions

The 1926 Ahrens-Fox shown in this driveReport is owned by Walter Wilde, a Milwaukee-area advertising agency principal and fire buff. His office is decorated with such fire regalia as a lamp with a fire extinguisher base, a model horse-drawn steam pumper and many other mementos. He owns four other later model engines; a 1948 Mack, a 1942 Ford, a 1928 Pirsch and a 1941 White, but his pride is the "Fox."

Wilde's engine is a Model M-S-4, carrying serial number 1708 and motor number 2033. Shipped from the Cincinnati factory on January 9, 1926, it served originally as a demonstrator for James E. Carell, Jr., of Nashville, Tennessee, who was the southern representative for the firm. He sold it to

Ahrens-Fox Model Designations

Ahrens-Fox model numbers were designated by a combination of letters and numbers that told quite a bit about the construction of the engine. Noted Ahrens-Fox historian Ed Hass explains them as follows: Seven basic combinations of motor and pump were offered: J, K, L, M, N, P, and R-K. Chain or shaft drive could be ordered, with an S added to the model for the more unusual shaft drive. Numbers were used to specify combinations that included "1"—pumper, no hose or booster tank; "2"—pumper and hose, no tank; "3"—pumper and hose with chemical tank; "4"—pumper with hose and booster tank; "5"—chassis only; "6" and "17"—tractor for ladder truck, etc., for a total of 20 combinations. Add this to the motor/pump combinations above and almost 2000 combinations were theoretically possible.

Thus, a Model J-M-3 would indicate a J motor with M pump in a combination pumper that also included hose and chemical tank. Wilde's M-S-4 is, as explained elsewhere in the text, an M Motor/pump combination with shaft drive, in a pumper with hose and booster tank. The numbering system obviously had its own variations and idiosyncrasies.

Naturally, few of the possible 2000 model combinations were ever ordered. In the 66 years from its formation in 1911 to its total demise in 1977, the proud Ahrens-Fox nameplate was affixed to just over 1500 motorized fire engines.

Biltmore, North Carolina, on July 1 the same year.

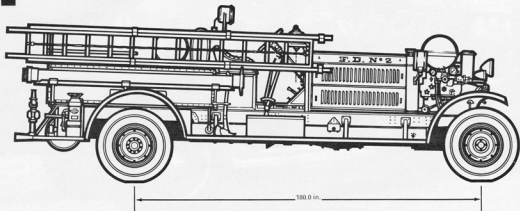
As part of a test prior to its acceptance by Biltmore, the engine put a stream of water over the top of a 15-story building in downtown Asheville—a height of over 180 feet including the roof, based on the 12-foot ceilings of the period.

Biltmore, later annexed to Asheville, was originally developed by George W. Vanderbilt, with the Biltmore firehouse becoming Asheville Fire Station No. 5. As late as 1954, the roster of the city's equipment included Wilde's pumper, which was shown at the reserve unit at Station No. 4, just north of the main business district, where it was teamed with a 1927 American-LaFrance. Used in active firefighting service until sometime in the 1960s, the Ahrens-Fox was then sold to Mr. R. L. Roller of Nashville, who sold it to Wilde about two years ago.

The model designation, M-S-4, indicates some details about the engine, with "M" representing a basic model with motor and pump as explained above, "S" indicating shaft drive and "4" standing for the vehicle's layout of pumper with hose and booster tank.

Ahrens-Fox was reportedly the first manufacturer to use shaft drive on fire

specifications



1926 Ahrens-Fox Piston Pumper

Price when new Approx. \$12,000-\$13,000.
Standard Equipment Each engine was equipped to suit the needs of the department that ordered it. Little was standard, as even a windshield was extra.
Optional Equipment See above. Test engine has optional booster tank.

ENGINE
 Type Ahrens-Fox six cylinder.
 Bore & stroke 5½-in. x 7-in.
 Displacement 997.85 cu. in.
 Max. bhp 72.6 (SAE rating), 110 bhp.
 Exhaust system Straight pipe.
 Electrical system 12 volt.

TRANSMISSION
 Type Three-speed manual with outboard shift lever on right runningboard. Dry plate friction clutch.

STEERING
 Type Worm gear-type, right hand drive.

BRAKES
 Type Contracting foot brake operating on driveshaft. Outboard emergency brake with quadrant and lever on right runningboard.

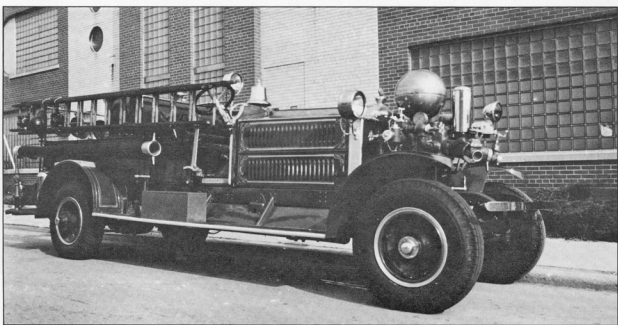
CHASSIS & BODY
 Frame Straight steel, I-beam style.
 Body construction Steel, except wooden firewall.
 Body style Open truck cab, without windshield or top.

PUMP
 Type Four-cylinder, double-acting piston pump mounted ahead of engine. Rated at 800 gpm at 120 psi pressure.

SUSPENSION
 Front Semi-elliptic leaf springs.
 Rear Semi-elliptic leaf springs.
 Tires 9:00 x 20.
 Wheels Disc wheels.

WEIGHTS & MEASURES
 Curb weight Estimated 12,000 lbs.
 Wheelbase 100.0 in.





AHRENS-FOX

continued

engines, beginning in 1919, as most others then used chain drive. Another Ahrens-Fox first was the booster tank, which made its debut in 1913. This replaced the old soda-and-acid chemical tanks, which had contained dangerous sulphuric acid and were expensive to refill. The booster tank was eventually adopted by other fire apparatus builders.

Wilde's Ahrens-Fox sports a six-cylinder Ahrens-Fox engine (generally called a "motor" by fire buffs to avoid confusion with the term "engine," used alternately with "apparatus" for the entire vehicle). Rated at 72.6 SAE horsepower, it has a 5½-inch bore and 7-inch stroke. Its four-cylinder double-acting piston pump carries an Underwriter's rating of 800 gallons per minute (gpm) at 120 pounds per square inch (psi) pressure. The two pistons on the major or volume side are 4¾-inch bore x 6-inch stroke, while the minor or pressure side pistons are 4-inch bore x 6-inch stroke.

Starting up the "Fox" is much like starting any late-1920's vehicle, particularly a truck. Switch ignition and magneto on, set choke, set spark, then turn it over. Wilde says you hope it turns over with the electric starter, as there is a crank socket, but it is right off the end of the crankshaft with no gear reduction. On a big engine like the Ahrens-Fox, which displaces a bit under 1000 cubic inches, it takes the proverbial two men and a boy to crank it over fast enough to start.

Steering is about the same story, especially when parking or maneuvering slowly. Exact weight distribution is unknown, but that big engine plus a heavy piston pump over the front wheels makes it all one man can do to turn the wheel when backing it into the "firehouse."

Once under way, the A-F runs along smoothly with a firm but not bone-jarring ride. There is a continuing oscillation as you drive over city streets, but it is about what you would expect from a truck of this vintage. Cornering is slow, due to the steering effort required at low speeds, but the rig is not unstable. With all that iron up front, it tends to plow through the turns like a locomotive. A large diameter wheel and bench seat make a straight-arm driving position a necessity. Unusual but standard on most A-F engines of the period is the right-hand drive.

Gears are shifted through the three forward speeds via a lever on the outside of the body, at the driver's right. Without benefit of synchromesh, gear changing is slow, with double-clutching a necessity, both up and down.

Cooling the big A-F presents some problems, but ironically only when the rig is being driven a long distance. Apparently, the big chrome ball blocks enough of the radiator to cause overheating when being driven to a show. Cooling is no problem when the engine is parked and idling, which is what it was designed to do for hours at a fire. Likewise, parades are not usually a problem, Wilde notes, because of the slower speed involved. In fact, he says, fire engines are generally good parade vehicles because they are made to run

long periods of time at relatively slow (idle) speeds. During the photo session which lasted about two hours, it was never shut off, and it never overheated. Usually, when idling them for longer periods, fire departments would open the hood side panels for extra cooling.

At about four mpg, the Ahrens-Fox isn't anything Wilde wants to drive every day. However, it is guaranteed to attract attention whenever it is driven. Shock absorbing bumpers are the most noticeable feature held in common with today's cars. Unlike the modern variety, however, the Ahrens-Fox bumpers are not as kind to their opponent in a collision. Pete Cordie, a retired Wauwatosa, Wisconsin, fire department mechanic who used to work on the A-F owned by the city of Wauwatosa, recalls the time the city's 1923 model missed a turn and opened up the side of a car as effectively as a can opener.

Cordie recalls another time the unit he worked on was being demonstrated in a local park when the chrome ball blew off the pump, flying about 60 feet high before digging itself two feet into the ground. Fortunately, the same problem has never occurred with Wilde's engine. Because the 1923 unit he was familiar with was almost identical to Wilde's A-F, Cordie puts in quite a bit of spare time helping Wilde keep the Fox running the way it should.

And when it's running, it is an interesting thing to watch. The big six-cylinder power plant keeps ticking over, while the external valve gear beats out a steady rhythm. With rocker arms and pushrods exposed, the "motor" makes an intriguing study in mechanical transmission of motion.

Fire trucks are, by and large, well-

**Left:**

During the late '30s, A-F, like a number of other fire engine firms, economized on construction costs for the voguish closed cab designs by using roof and door structures from cars. This handsome brute, delivered to the Neversink Engine Co. of Port Jervis, N.Y., in 1939 used what appears to be a grafted cab and doors from a Cadillac Fleetwood.

Below: The business end of the Ahrens-Fox. Distinctive pressure sphere here was a Fox trademark used on all its piston pumps. Some of these pumps could move as much as 1500 gallons per minute. Up-front location of pump made it easy to hook up at inconveniently placed hydrants.

maintained, require minimal restoration, and make excellent vehicles for a collector. However, there are always problems to contend with despite their generally good condition. Pete Cordie related one incident that happened after Wilde received his truck. It was delivered on a big flatbed and, once backed off, started right up. However, it also promptly died. Several attempts at keeping it running were futile, until it was discovered that the delivery ride had apparently jostled and scale loose in the gas tank and clogged the carburetor when the fuel pump pulled the sediment through the line. Several attempts at cleaning ended by boiling the tank out with a mixture of Oxydol. It was then put in the sun to "cook" until all loose scale was removed. A chemical treatment to kill the rust and seal it has

prevented a recurrence of the problem to date.

Riding in the open cab of the Ahrens-Fox gives an overall impression of the engine's massiveness, as it threads through city streets towering over cars alongside. Because of the open cab and lack of windshield, the feeling is quite different from being in a modern-day 18-wheeler. However, there is no mistaking the fact that it is big and heavy.

After Wilde finished struggling with the rig to back it into its garage, he pointed out that, in the driver's seat, he has to duck his head when going through the 7'6" doorway. And if seeing him struggle with the steering as he backs in doesn't convince you that this is a heavy piece of iron, he'll recall for you that the rig is so heavy that it broke the ramps on the first truck he sent to pick it up.

Acknowledgements and Bibliography

Primary sources: Ahrens-Fox—A Pictorial Tribute to a Great Name in Fire Apparatus, by Robert Sams and John F. Sytsma, 1971; American Fire Engines Since 1900, by Walter P. McCall, Crestline Publishing, 1976; Pete Cordie, Ed Hass; Walter Wilde, Secondary sources: Fire Engines in Color, by Arthur Ingram and Denis Bishop, Macmillan Publishing Co., 1973; Fire Protection magazine, April 1936; Fire! The Story of the Fire Engine, by Simon Goodenough, Chartwell Books, 1978; Harold S. Walker, Special thanks to Walter Wilde for the use of his Ahrens-Fox engine and material from his library, and to Ed Hass of the Ahrens-Fox Fire Buffs Association for his help with historical and background material.

