HOSES by Murray Beale

Manual fire pump dating from around 1720 in use. Note the large branch pipe on the top and the bucket chain water supply. It is thought this picture was taken whilst it was still in service in the 1880s!
(Photo courtesy of the London Fire Brigade)

Fire has always been a threat to mankind, and from prehistoric times water has been used to extinguish it. Probably one of the earliest forms of fire fighting equipment was the bucket, which, when filled with water, could be thrust towards the flames allowing the water to splash onto the fire. Unfortunately, once a fire takes hold, using buckets of water in a confined space, such as inside a room, becomes very dangerous for anyone trying to put the fire out.

In the 1700s fire pumps became available. Hand-operated by several people, these pumps were capable of directing water onto a burning building. They required a constant supply of water, usually carried from the nearest village pump, pond or river, in buckets. Although a major improvement in fire fighting, there was a problem. These early pumps had a ‘branch pipe’ permanently attached to them, which made it necessary to place the pump quite close to the burning building. Although a good stream of water could be played on the

fire, if it was in a part of the building out of range of the fire pump's jet of water, the fire could quickly spread.

Delivery Hose:

Clearly there was a need to get closer to the fire and a Dutch invention solved the problem. Leather hose, when connected to the fire pump, enabled fire fighters to enter a building and attack the fire. Many pumps were converted to be able to supply water to hoses and most new ones, built subsequently, had the fittings built in.

Leather fire hose, dating from the 1890s, showing its construction.

Leather hose changed fire fighting, just at the time when properly organised fire brigades were beginning to be formed. Insurance Company fire brigades, whose purpose was originally intended to protect the properties insured by the various companies, began to develop a more effective way of attacking fires using hose. This type of fire fighting was adopted by the Municipal Fire Brigades, when they started to be formed in the mid 1800s. Brass fittings made it possible to connect several lengths together and branch pipes with tapered nozzles created pressure within the hose and provided good jets of water.

However, leather hose was not without its problems. It was very heavy to handle and once it had been used it had to be cleaned and dried. This made it very stiff and hard to roll up. It had to be treated by rubbing it in with tallow (a type of hard animal fat) to make it supple enough to be rolled up ready for further use. In spite of this, leather hose was used for fire-fighting through to the 1880s, when a new type of hose was invented and brought into service.

Canvas fire hose was a major improvement over leather hose. Developed in the 1880s, it was much more flexible, lighter to handle, easier to maintain and quicker to dry. For many years this type of hose became the standard for fire-fighting. Water could seep through the wall of the hose when it was first charged, but as the fibres of the material became saturated, the weave closed tightly, making the hose water tight. This type of hose was called Percolating Hose. It was in use well into the Second World War.

An improved version of canvas hose began to be seen in the early 1920s, when canvas hose lined with latex rubber came into use. This hose did not leak water through its walls and allowed a smoother flow of water through it. Much higher pump pressures were possible, which, combined with more efficient branches and nozzles allowed water to be projected over great distances towards large fires. A standard length for delivery hose was 75 feet, it is now 23 metres.

Typical rubber lined canvas hose from the World War 2 era, showing how it was rolled, ready for use.

It was essential that canvas hose was cleaned thoroughly after use and then dried before rolling it up for further use, as water left inside the hose could react with the latex lining to form an acid, which could cause the hose to rot. Modern weaving techniques and lighter yarns, including nylon and cotton allowed the weight of delivery hose, as it became known, to be reduced and, as such it continued in use within the fire service into the nineteen seventies and eighties when yet another new development saw plastic hose introduced. Used universally, plastic hose is much stronger than previous types, but is much lighter, not prone to acid rot and far easier to clean. It can be supplied in many different colours. 2 sizes are normally carried, 45mm and 75mm.

Modern 75mm red plastic fire hose. Stowed ready for use.

Hose Reel Tubing:

In the early 1900s another type of hose was brought into service. Initially called ‘First Aid’ hose, it was used to attack small fires as soon as a fire appliance arrived at a fire, particularly in domestic properties. Made of thick rubber tubing, it had a small diameter, allowing long lengths of it to be carried in a comparatively small space.

A Horsed Escape Van of the London Fire Brigade from around 1910, showing the ‘First Aid Hose’ coiled up next to the Coachman’s seat. The water was supplied from the large pressurised copper water tank on the foot-board. (Photo courtesy of the London Fire Brigade).

Supplied from either a hydrant or a water tank, which operated very much like a fire extinguisher, pressurised water could be played onto the fire. Initially the tubing was carried on horse drawn appliances, coiled up on the decking of the appliance. Motor appliances soon arrived in service and the ‘First Aid’ hose was then carried on rotating drums fixed to the vehicles.

An early Merryweather Motor Escape Van, showing the ‘First Aid’ hose reel. The water tank is under the driver’s seat. (Photo courtesy of the London Fire Brigade).

Pumps were adapted to supply the hose, thereby eliminating the need for the tank to be pressurised. Tanks of water were carried on motorised appliances. To begin with they held about 40 gallons (approximately 180 litres) of water. The tubing is still carried on rotating drums on today's modern pumping appliances, although the vehicle's water tank now carries 300 to 400 gallons (Approximately 1,360 to 1,800 litres). Modern pumps can create very high pressure, so specially reinforced 22mm tubing is used. 'Hose Reel Tubing', as it is now known, is used to extinguish the majority of fires attended by the fire service.

A typical 'hose' locker on a modern fire appliance, showing the hose reel tubing on it's rotating drum, ready for use.

Suction Hose:

To enable pumps to draw water directly from an open water supply, a special type of hose was developed. Pumps can create a vacuum to enable water to be lifted from ponds or rivers. To allow this it is necessary to use hose that has the ability to withstand external pressure. Called suction hose, it has a coiled metal internal reinforcement to ensure the vacuum created by the pump does not collapse the hose inwards due to external air pressure. Early suction hose had a leather outer layer, but on modern types a heavy duty plastic is used.

Suction hose, carried on a fire appliance from the 1950s. Modern suction hose differs only slightly from this type of hose.

All photographs used are by M. Beale unless otherwise stated.

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