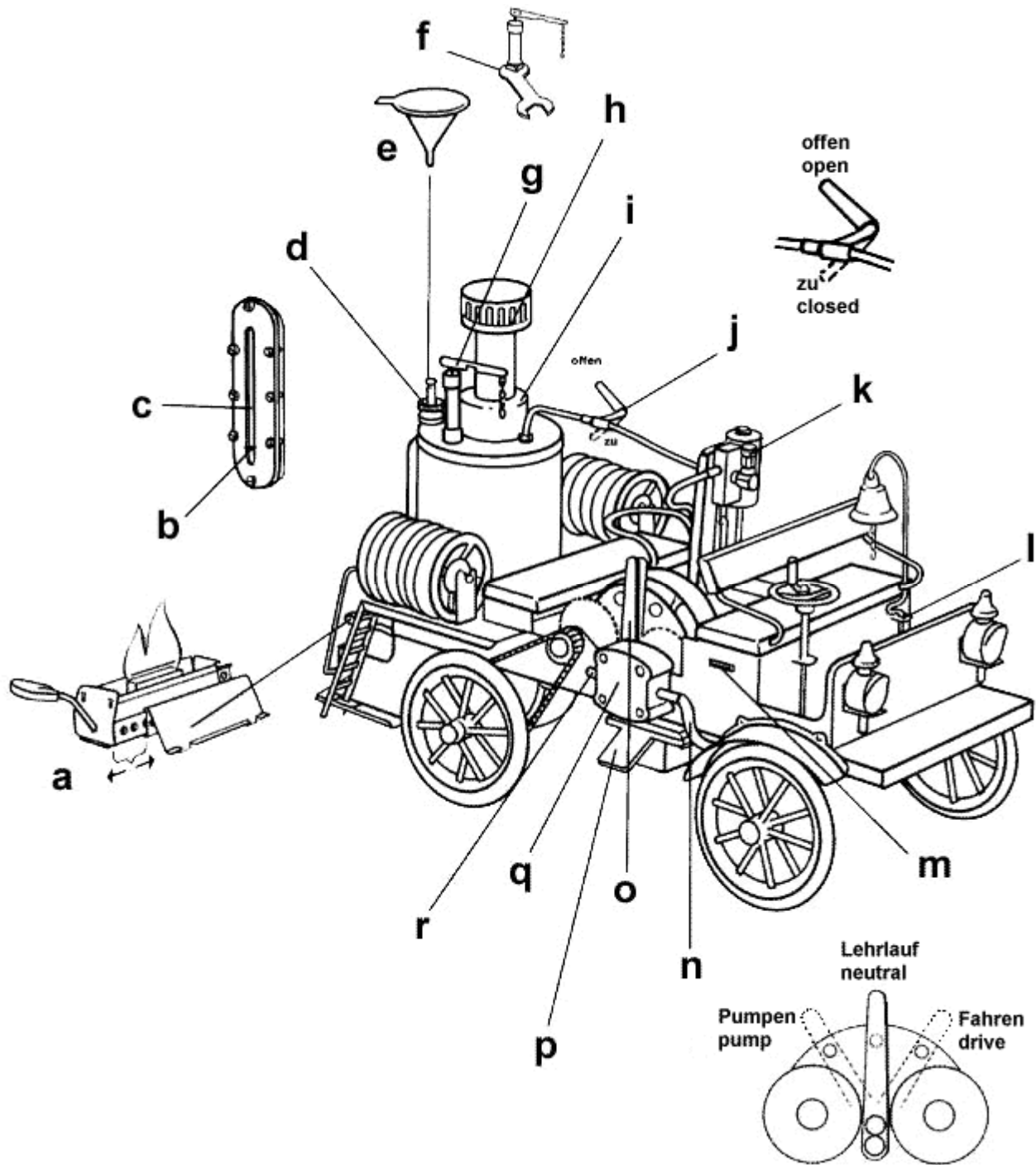


# Wilesco D 305 Fire Truck



- a) Burner slide
- b) Minimum water level
- c) Sight glass
- d) Safety valve (filter cap)
- e) Funnel
- f) Only tighten with spanner

- g) Steam whistle
- h) Smoke stack
- i) Steam dome
- j) Cutout valve
- k) Oil cap
- l) Bell support

- m) Seat clip
- n) Pump feed pipe
- o) Clutch lever
- p) Condensing cup
- q) Pump
- r) Pump nipple

**Important:** Never operate the machine without safety valve!

### Instructions for WILESCO Fire Engine D305

Congratulations! You are now the proud owner of a WILESCO fire engine. We have taken great care in the production, because for us at WILESCO, Made in Germany · is still a symbol of quality. The original of this fully operational steam-driven fire engine, was mainly built by Magirus, in Germany, at the beginning of this century. Further details can be found in a 1903 catalogue, Automobile Magirus Dampfspritze ·

These steam driven fire engines were also found in England and the USA.

Before your give the order, full steam ahead · please read and take careful note of the operating instructions.

Mistakes made through improper use, quickly lead to damaged parts.


1. Screw the safety valve/filler cap out and insert the funnel. Fill the boiler approximately  $\frac{1}{2}$  full (to the middle of the sight glass) with warm water. It is better if the steam whistle is screwed into the boiler, after filling with water, so that the air inside can escape through this opening. The funnel should be slightly raised when refilling with water, so that the air can escape. If possible, use boiled or rain water.
2. Now screw-on the safety valve/filler cap and the steam whistle. **Important:** Tighten the whistle, only with the enclosed spanner. Do not use the lever at the side to turn the whistle, as this could cause damage. After the whistle has been screwed-in, the lever with the chain should point outwards (use washers of different thickness if necessary), to avoid touching the boiler when using the whistle. The whistle is operated by pulling the chain **gently**.
3. After the steam whistle has been fitted, the steam dome and the smoke stack have to be mounted onto the boiler flue. The smoke stack has a two-layered top. This is important to cool down smoke.
4. Close the steam valve/cut out on the steam pipe. The lever has to point diagonally to the rear (downwards-approx. 5 O'clock). The valve is opened with the lever pointing to the rear (upwards-approx. 1 O'clock). See illustration, unscrew the oil cap and fill with WILESCO steam engine oil. Whilst doing this, turn the flywheel several times to make sure the oil is evenly distributed. To avoid the piston seizing, it should be lubricated each time the fire engine is used. **For safety reasons the steam valve must be closed when lubricating and there must be no steam pressure in the boiler.** All bearings and joints should be lubricated with thin engine oil.
5. Place WILESCO Esbit fuel tablets in two layers into the burner tray and light them. The intensity of the flame can be regulated by adjusting the burner tray with the oxygen-supply holes in the sides (see illustration). **Before recharging with Esbit tablets the water level should be refilled to avoid damaging the boiler.** When operating the WILESCO steam engine, the burner tray must be pushed completely into the burner slide. If this is not done, there is the danger of open flames damaging the soldered ring around the sight glass.  
**Important:** Always remove the burner tray out of the burner slide, after heating and whilst still hot, otherwise the burner tray may stick to the burner slide.
6. First put the engine into operation, without driving the rear axle or the pump. The clutch lever should be in the vertical position (neutral), see fig. Open the steam valve/cut out when the water is seen to be boiling (see fig.). Start-up the flywheel manually, in either direction, to remove any condensed water from the cylinder. The steam engine is now operational. The steam engine can be stopped by turning off the steam supply to the cylinder at the steam valve/cut out.
7. The exhaust steam (condensed water) is fed through a pipe into a condensation tray, which is located underneath the chassis. Push the tray into the slide until it clicks into place. Now the tray cannot slide-out during operation. The tray should be emptied several times when using the steam

- engine. When carrying out this operation, the cut out valve must be closed and the engine must not be running.
8. By using the clutch lever, the steam engine can now drive the fire engine or self-priming pump. If the fire engine is to be driven, the clutch lever should be moved (from the vertical/central position), diagonally forward (see fig.). Open the cut out valve and start-up the flywheel in the required direction (forward or backwards). The fire engine will start moving and the speed can be regulated by means of the cut out valve.
  9. a) If the pump is to be operated, then the clutch lever should be moved diagonally backwards until it slots-in. Always stop the engine before putting into gear, to avoid wear on the gears.  
b) There is a water tank under the front seat, which is clamped onto the chassis by two spring/loaded clips, one each side. To remove the seat, press the clip on one side and lift (see fig.). The seat can now be removed to fill up the water tank. Once the tank has been filled, the seat can be replaced.  
c) Before extinguishing · squirting · the hoses have to be rolled off the reels. One of the hoses is fitted with a coupling; the other is fitted with a water jet. One or both of the hoses (they can be joined), can be connected to the pump via the nipple on the left hand side. Now, as explained earlier, put the pump into operation.  
**Important:** The flywheel must be turned anti-clockwise (towards the boiler), to make sure the water is pumped-out of the tank. If the flywheel is rotated in the wrong direction, water cannot be pumped out and air is pumped into the tank.  
d) As the water supply from under the seat is limited, water can be pumped from another water supply. To do this, the hose between the pump and the tank under the seat has to be replaced at the pump end, by one of the larger hoses. Now water can be pumped whilst the other hose (with the jet) can be used for extinguishing ·
  10. The bell support rod should be fitted on the left side of the front seat and the brass bell can then be attached.
  11. The fire engine should be checked after use and the boiler should be emptied. To do this, unscrew the safety valve, remove all loose parts and then turn the engine upside down. Water left in the boiler will not do any harm but it could leave marks on the water gauge glass.  
**Remember, the boiler may still contain hot water.** The formation of lampblack on the bottom of the boiler can be removed with a brush. Finally, wipe the engine dry.
  12. Various brass parts of the WILESCO fire engine, e.g. the boiler, are protected against tarnishing with a coat of clear lacquer. However, after using a few times the lacquer on the fire engine may deteriorate. We suggest polishing and applying fresh lacquer to these parts for further protection.



**Important general advise and safety precautions:**

1. For safety reasons, children under 10 years of age should not be allowed to operate the fire engine without adult supervision.

2.  **Danger when operating without sufficient water.**  
Never use the fire engine without sufficient water. Never continue heating the boiler, without re-checking the water level. Water must be at least visible at the lower level of the water gauge glass. If this rule is not observed the boiler will be damaged and the soldered seams will crack. Any claim, damage or consequential damage arising from misuse, cannot be accepted. In the case of water or steam escaping from the boiler, or any other fittings, the fire engine must be stopped immediately and the burner tray removed. Any necessary repairs should only be carried out by the WILESCO distributor.

3. **Safety precautions:** When operating the fire engine, it must be insured that children do not put their fingers into moving machine parts (flywheel, gears, chains etc.).



4. **Be careful! Excessive temperatures on several parts.**

Due to the nature of operation, the burner tray, boiler, safety valve, whistle and steam pipes will get very hot. **Do not touch.**

5. The fire engine as well as other WILESCO steam engines conform to all safety standards and current relevant government regulations. The boiler has undergone a hydraulic/bursting strain test before leaving the factory.  
Boiler capacity 470 ccm  
Operating pressure 1.5 bar

### Accessories for the WILESCO Fire Engine:

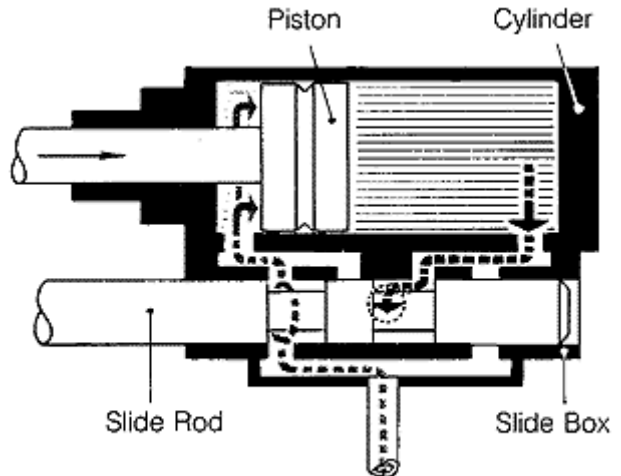
1. The accessory pack with the WILESCO fire engine contains 4 Esbit dry fuel tablets and a small tube of oil.  
Further Esbit tablets (No. Z81) or steam engine oil (No. Z83) are available at your WILESCO dealer.
2. A remote control is a very practical addition for steering the fire engine. This remote control (a flexible bound wire with a spring at one end and a steering wheel at the other), red-approx. 110 cm long clamps onto fire engine steering wheel.
3. Miniature firemen are available for the WILESCO fire engine, dressed in historical uniforms with black or gold helmets. These 13 cm flexible figures can be placed onto the fire engine, or used as action figures, holding the water hoses.  
No. Z311 Fireman with black helmet  
No. Z312 Fireman with gold helmet
4. **Your Guarantee.**  
All WILESCO steam models are carefully tested and checked before leaving the factory. However, should a fault occur, we will assist and undertake any necessary repair, immediately. We are sure you will understand, that a fired/used model cannot be exchanged for a new one. We undertake to correct any manufacturer 癩 fault immediately, if the model is returned to our distributor, via your dealer.

The above information should be studied, before using the WILESCO fire engine. Finally some more interesting facts about the principal of the steam engine together with information (German text only) on vintage steam fire engines.

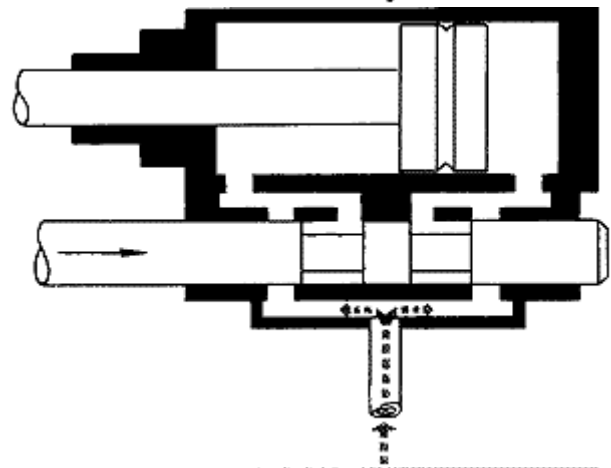
### The Energy Transformation in the Cylinder

**The following diagrams show what actually happens inside the power converting system (piston and cylinder) when 吐 ire and water   are brought together to produce mechanical energy, energy to drive a drilling machine, a saw, locomotive or steam roller.**

In the first diagram the steam can be seen passing to the left side of the piston, pushing the piston to the right. At the same time the exhaust steam from the previous stroke is directed, by the other port on the slide valve, out into the atmosphere, having done its useful work.



Just before the piston reaches the end of its travel, on the extreme right, the slide valve cuts off the steam from the boiler. This is the point, where the crank is at the limit of its movement and is known as top-dead-centre or bottom-dead-centre referring to the two possible geometric positions. The flywheel carries the crank over this critical position by the energy it has stored from previous power strokes.



The slide valve continues to move in the same direction this time opening the inlet port to admit steam to the right hand side of the piston, again pushing the piston but now to the left, exhausting the steam through the left hand port. The whole cycle being repeated when the dead centre is reached once more.

