

Application Report No. A 12-6e Automatic Cleaning in Tunnels

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Status: 12/2007

S.Smets

A customer of ours in Austria received a contract from a large operating company to clean the walls and ceilings of several motorway tunnels. The systems previously in use employed brushes and a low-pressure spraying device. These systems no longer supplied satisfactory cleaning results, as the dirt to be removed was of a greasy nature. So more effective methods of cleaning had to be found.

In a cooperation with a longstanding partner company that concentrates on building special-purpose vehicles, a new type of vehicle was designed and built and sold to the customer in January 2006. Since this time the vehicle has been working extremely effectively in Austria.

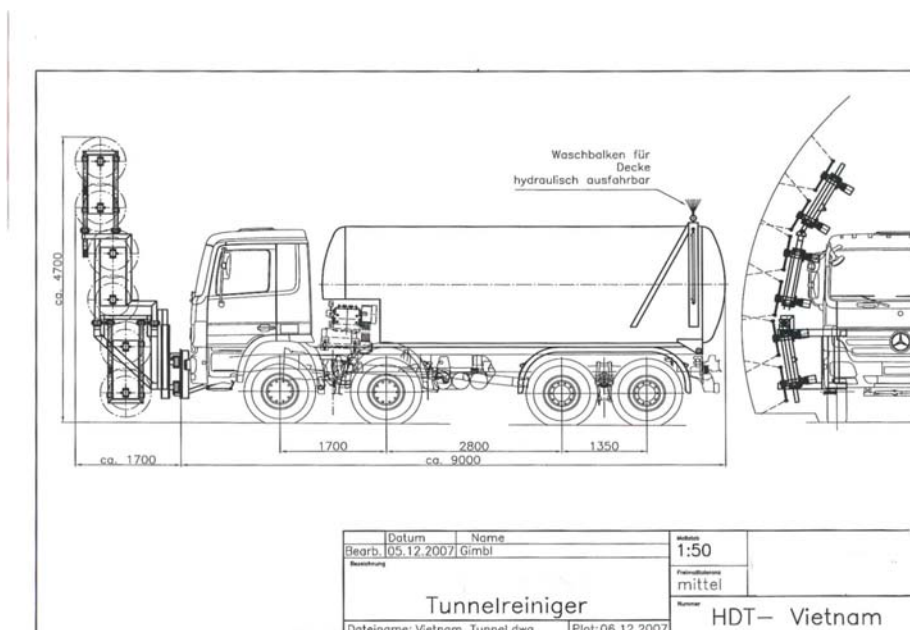


Photo above: The drawing above shows the basic layout of the special-purpose vehicle

Technical Data and Details:

- High pressure pump KAMAT K 25050 MC (400 bar - 318 l/min) - with an independent auxiliary drive system (PTO).
- 8 surface cleaners are fixed to a front plate - this set-up is used for cleaning walls of up to 7.5 m height.
- A nozzle bar equipped with fan jet nozzles is mounted on the rear of the vehicle. This nozzle bar can be extended (telescope extension) and is used for cleaning ceilings at a height of up to 7.5 m.
- The vehicle is driven by means of a hydrostat which allows a stepless adjustment of the driving speed between 0.1 and 6.0 km/h during the cleaning operation..

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Photo above: The purpose-built vehicle TCT 400 H during operation. The nozzle arrangement at the front of the vehicle can be configured hydraulically to match the tunnel profile

All hydraulic circuits are supplied or driven by the vehicle engine.

The separate drive circuits are effected as follows:

- High pressure pump is driven direct by a PTO (independent auxiliary drive)
- Hydraulic circuit I : PTO on vehicle engine (gear-independent = tipper auxiliary drive)
- Hydraulic circuit II : Oil pump flanged direct to the hydrostat
- Hydraulic circuit III : Oil pump flanged direct to the hydrostat

Technical data of the chassis:

- Min. 360 kW engine performance at 1800 rpm
- 4-axle chassis 8 x 4 (both of the front axles are steered; both of the rear axles are driven)
- 2 auxiliary drive systems (PTO) on vehicle gear, one of which is gear-dependent, the other one is gear-independent