

ULEV-TAP 2

Ultra Low Emission Vehicle - Transport using Advanced Propulsion 2

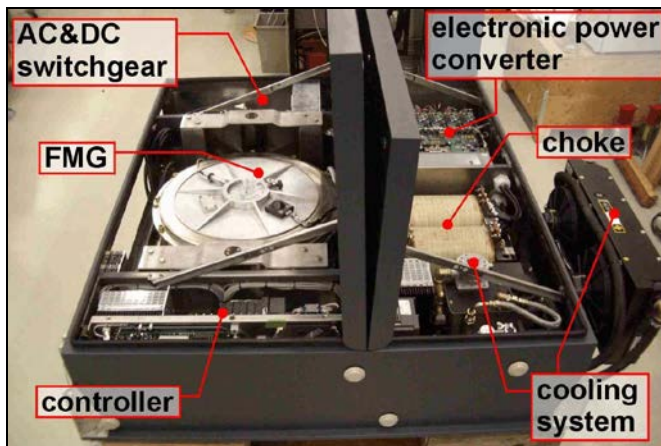


Research

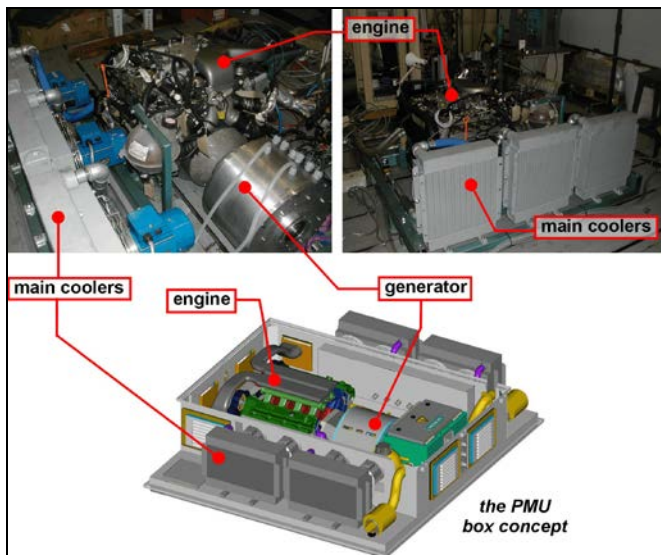
Client: EU

Partners: Siemens TS, Imperial College of London, Vossloh Kiepe, Centre for Concepts in Mechatronics

End: 2005



Premium Power Unit – flywheel as energy storage



Prime Mover Unit – automotive diesel engine with innovative generator



Supervisory Control Unit – central control element

Environmentally friendly regional passenger transport systems are under consideration world-wide. Because of the high cost of electrification, diesel powered vehicles are in many cases the only alternative. Frequent stop/start cycles result in high levels of emissions and reduced energy efficiency (e.g. wastage of braking energy), rendering the diesel engine unattractive for much of the commuter transport. It is therefore clear that the solution to these short-comings is a clean and efficient prime mover unit augmented with an energy storage unit in a hybrid configuration as a replacement to the diesel electric vehicle.

ULEV-TAP II transfers the technical expertise from ULEV-TAP I (where the hybrid technology was successfully demonstrated with an old Karlsruhe service tram) to a modern light rail vehicle – the Siemens AVANTO.

The envisaged demonstration of a refitted AVANTO was abandoned due to serious budget cuts by the EU. Instead all components were built to meet the restrictions of an implementation on an AVANTO:

- Flywheel as energy storage unit (Premium Power Unit),
- A light modern automotive diesel as Prime Mover Unit and
- Central control element (supervisory control unit) for intelligent energy management between all components.

After the project's end all components are ready for implementation. They meet the defined specifications concerning size and weight. Performance and reliability of all components have been proved. Fuel consumption was reduced by 42 % compared to a conventional diesel-electric vehicle

For further information see www.ulev-tap-org.