Electronic Braking Systems for Commercial Trailers

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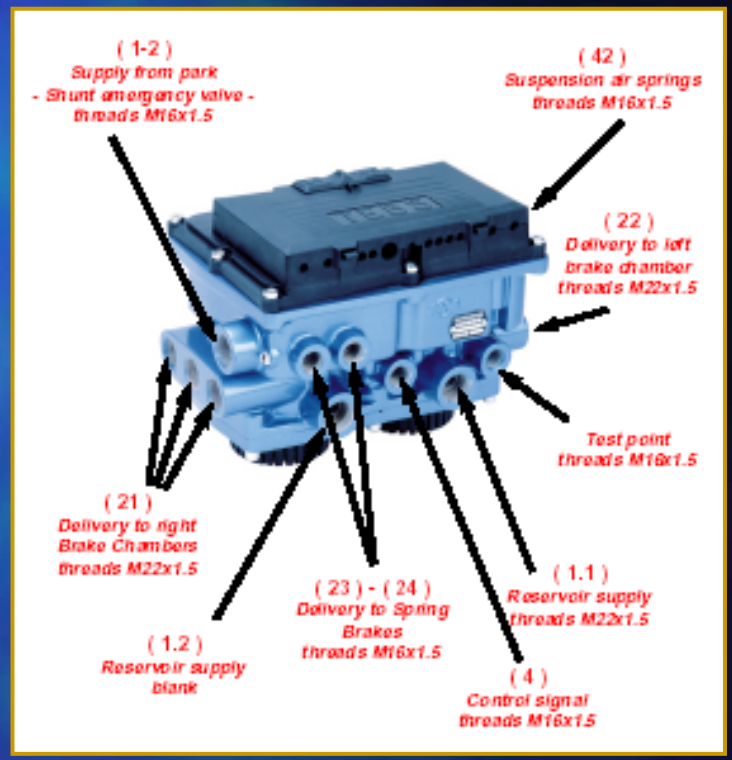
BPW

Trailer EBS

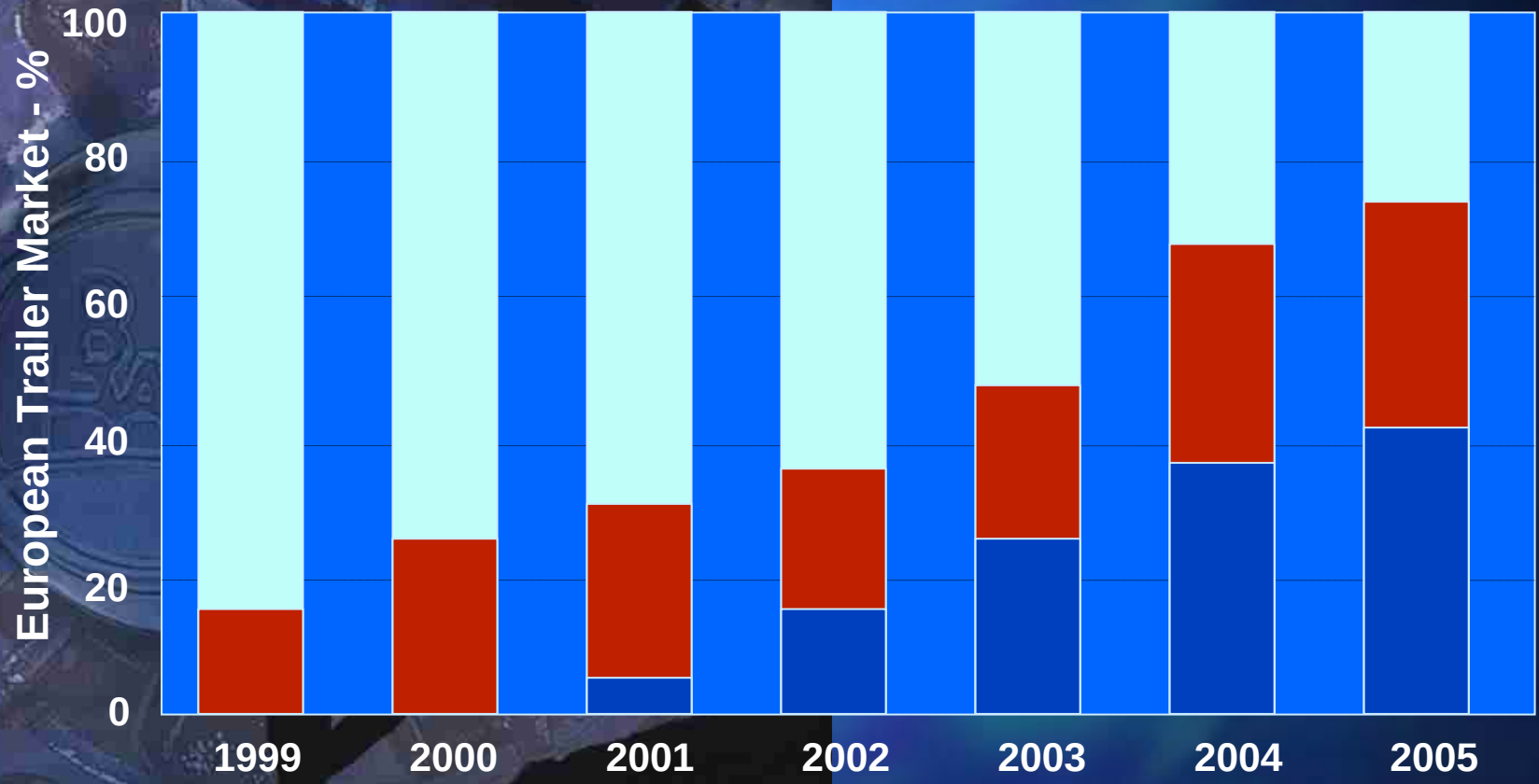
- EBS = Electronic Brake System.
- Conventional pneumatic control system uses AIR to “control” relay valves. EBS uses ELECTRONIC signal to “control” relay valves, enabling faster responding brakes.
- Actual brake force is still provided by compressed air delivered to brake chambers.
- Trailer EBS are 24 Volt systems, which can be powered by 12 Volt prime movers through a trailer mounted voltage inverter.
- Trailer EBS is recommended if the Prime Mover has ABS or EBS output.

Major Benefits of Trailer EBS

- Electronic actuation of the trailer brakes.
- Anti-Lock Function (ABS).
- Integrated electronic load sensing
  - Actual load is detected by sensors
  - Brake pressure depends upon the load; between laden and unladen vehicle.
- Roll Stability Program (RSP).
- Trailer Information Module (TIM).

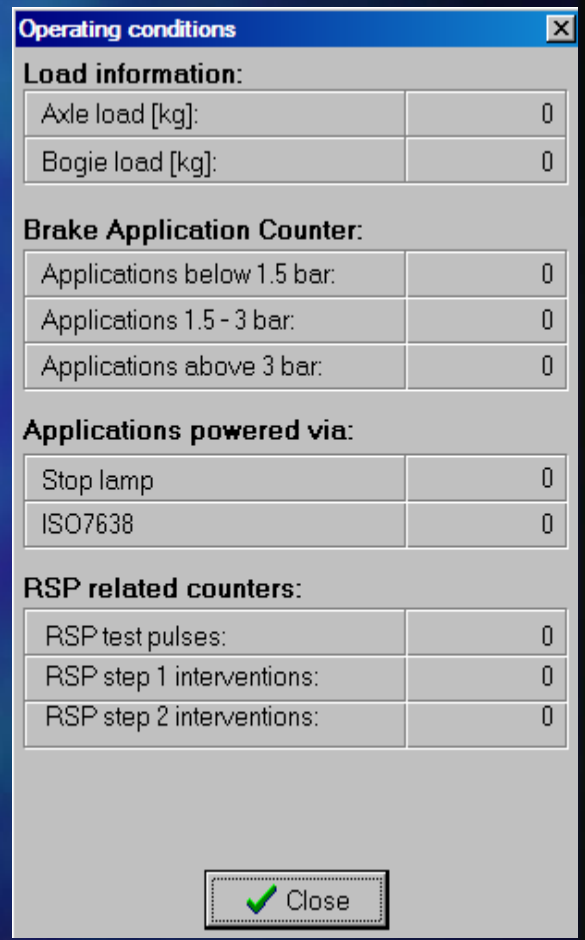


European Trailer Market - EBS Specification



Enhancements since Series Production in January 2001

- Roll Stability Program
- Load sensing via stop lamps
- Trailer Information Module (TIM)
- ES2041 – dedicated 2S/2M configuration
- Auxiliary Design Language (ADL)
- Brake wear monitoring
- 4S/3M for draw bar and semi-trailers
- RSP for draw bar trailers
- Increased number of auxiliary outputs and inputs
- Offset ECU
- Record of trailer operating conditions



Current Developments

NEW “521” VERSION OF TEBS 4

- Allows flash memory updates.
- Allows use on mechanical suspensions.
- Can “talk” to GPS through 5 Volt CAN (ISO J 1939 protocol)

Example: Vehicle speed
Trailer bogie weight
Brake system pressure
Distance to next service
Roll stability interventions
System failure alert.

Future Developments

- “Step 3” interventions, applies brakes when EBS valve detects sinusoidal movement of trailer (fishtailing).
- Battery packs to power EBS valves in multi vehicle combinations (roadtrains).
- Use of EBS Roll Stability Program for SRT compliance.

EBS is undergoing continuous development

It already offers safe braking

In the future will offer features that we can only imagine now, and features that we have not even thought of !