

HybriDrive™

PROPULSION SYSTEMS

A cleaner, more efficient way to go!



BAE SYSTEMS

HybriDrive™ propulsion systems

Tougher emission controls and rising operating costs

With government standards relating to air quality becoming more restrictive and subsequent operating costs getting higher, fleet owners and operators are faced with an increasingly difficult challenge.

A solution that deals with both issues

Hybrid Electric Vehicles (HEV) meet the demands of harsh duty cycles and pay for themselves through extraordinary emissions control and significantly reduced operating costs.

HybriDrive™ propulsion systems*

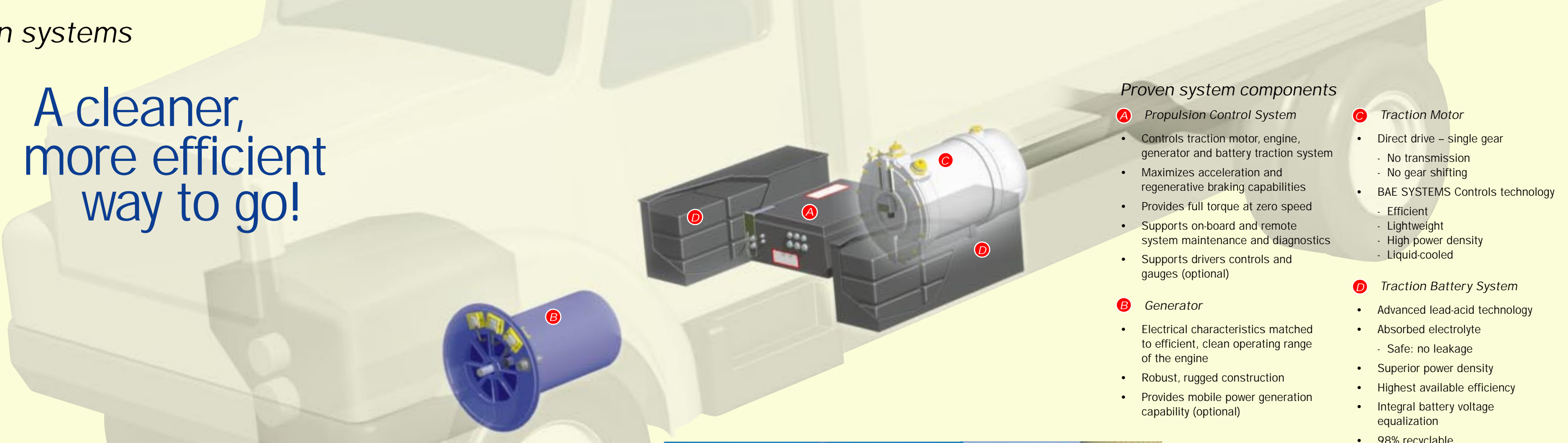
HybriDrive propulsion systems from BAE SYSTEMS Controls combine traditional power sources with high-efficiency electronic drives to provide a truly integrated vehicle drive train solution.

Unlike conventional drive trains, which transfer engine power to the wheels through a transmission, the HybriDrive system integrates the vehicle's energy with electric motors, generators and battery modules to provide a total system solution. Vehicle emissions are significantly reduced and fuel economy is improved by up to 50%. This unique implementation allows the vehicle to capture braking energy rather than lose it as useless heat, reducing brake wear by one-third.

Flexible design

HybriDrive systems allow vehicle drive characteristics to be selected or modified by operators to fit specific needs. HybriDrive systems use engines powered by a variety of available fuels such as diesel, gasoline or compressed natural gas. As future power sources are developed, such as fuel cells, they can be integrated into the system, extending the vehicle's value to operators.

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Proven system components

- A Propulsion Control System**
 - Controls traction motor, engine, generator and battery traction system
 - Maximizes acceleration and regenerative braking capabilities
 - Provides full torque at zero speed
 - Supports on-board and remote system maintenance and diagnostics
 - Supports drivers controls and gauges (optional)
- B Generator**
 - Electrical characteristics matched to efficient, clean operating range of the engine
 - Robust, rugged construction
 - Provides mobile power generation capability (optional)
- C Traction Motor**
 - Direct drive – single gear
 - No transmission
 - No gear shifting
 - BAE SYSTEMS Controls technology
 - Efficient
 - Lightweight
 - High power density
 - Liquid-cooled
- D Traction Battery System**
 - Advanced lead-acid technology
 - Absorbed electrolyte
 - Safe: no leakage
 - Superior power density
 - Highest available efficiency
 - Integral battery voltage equalization
 - 98% recyclable



Delivery trucks



Transit buses



School buses



Military vehicles

HybriDrive™ systems applications

HybriDrive propulsion systems from BAE SYSTEMS Controls benefit a variety of vehicles with diverse purposes. Transit buses, delivery vans and trucks, and any other vehicle involved with multiple stop routes or urban traffic can now be quieter and cleaner than traditionally powered vehicles.

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Operating Advantages

- Up to 50% improved fuel economy
- Low emissions
 - Clean-fuel capability
- Turnkey system
 - Trouble-free performance
 - Fully integrated
 - In-depth support available to vehicle builders
- Superior drivability
- Intuitive driver interface
 - Drives like a conventional vehicle
 - Minimal operator training required
- Optimum battery management
 - Long life
 - Maintenance-free
- Advanced motor control
 - Smooth, shift-free
 - Superior energy efficiency
 - Highly reliable
- Integrated diagnostics & data logging
 - Maximizes vehicle availability
 - Useful for efficiency profiling

Maintenance Advantages

- Reduced brake wear
- No transmission
- No clutch
- No transfer case
- Reduced engine maintenance
 - HybriDrive systems operating cycle reduces engine wear; extends oil change intervals
- Control system limits willful abuse
- Integrated diagnostics
 - Serial interface provides access via PC-based equipment
 - Simple to use
 - Inexpensive
 - Clear, intuitive, graphic user interface™

HybriDrive™

BAE SYSTEMS

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