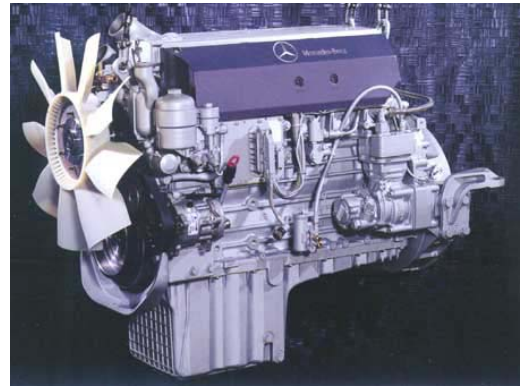


INTERNATIONAL® DT 466

versus Mercedes Benz® MBE 904/906



International® DT 466



Mercedes-Benz® MBE 904/906

-Powers Thomas Built Buses

The International DT 466 is consistently one of the leading diesel engines for school buses with over 1 million produced. For over 25 years continuous improvement has kept it at the top.

The International DT 466 is the only high volume mid-range diesel engine with replaceable wet sleeve architecture. Wet sleeves are the defining features of premium big bore diesels.

The extra life cycle value the International DT 466 can deliver compared to the Mercedes-Benz MBE 904/906 is significant. Details are on the following pages.

International DT 466 Bus Value Advantages

- Wet-sleeve design
- Durability
- In Chassis Rebuild
- Responsive Acceleration-Engine/ Intuitive Shift

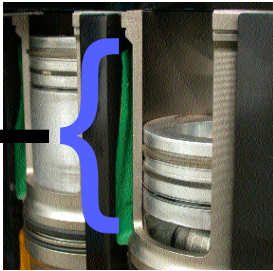
INTERNATIONAL®

DT 466 Durability

versus Mercedes Benz® MBE 904/906

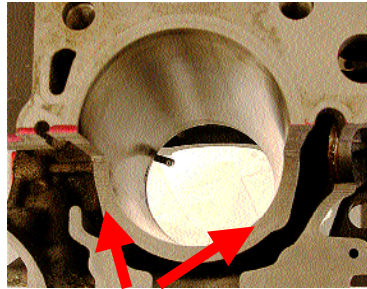
Premium Wet Sleeve Construction

**International® DT 466
(wet Sleeve)**



Premium high value precision machined with uniform cylinder wall thickness - fully induction hardened.

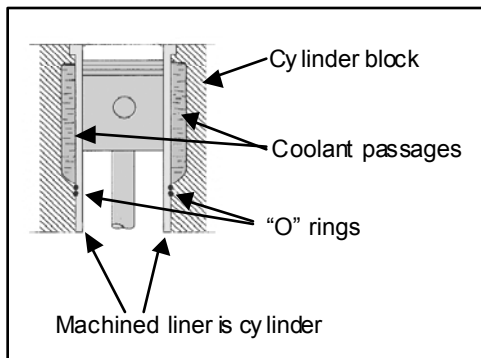
**Mercedes-Benz® MBE 904/906
(hardened parent bore)**



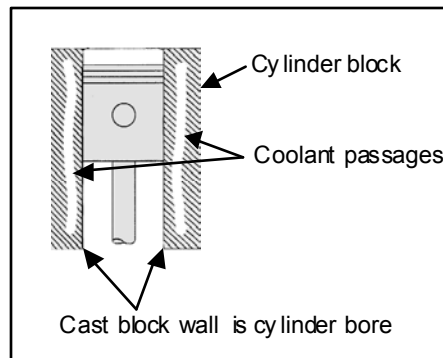
Lower value cast bore in block design. Inconsistent wall thickness - induction hardened only at top of bore.

Value

The International reputation, support network, and the premium features of the DT 466 like wet sleeve design contributes to the durability, reliability, and performance. Buses with less accessible service opportunities may result in jeopardizing those critical school schedules and unexpected costs.



Premium high value machined wet sleeves provide consistent cylinder wall thickness for uniform heat transfer to coolant and minimal cylinder thermal stress. Cylinder is completely surrounded with coolant – no hot spots due to variable thickness cylinder walls. Result is longer power cylinder life.

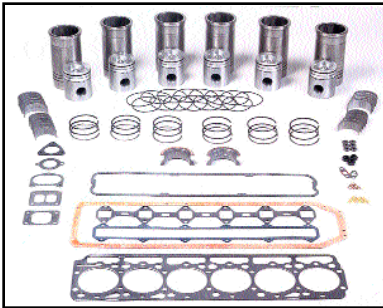


Lower value parent bore cylinder wall thickness is not as consistent as machined sleeve due to casting irregularities. Coolant does not completely surround the cylinder because of necessary internal cast webbing. Cylinder wall cooling is not as consistent. Hot spots expand and increase wear.

INTERNATIONAL® DT 466 Reliability / Durability

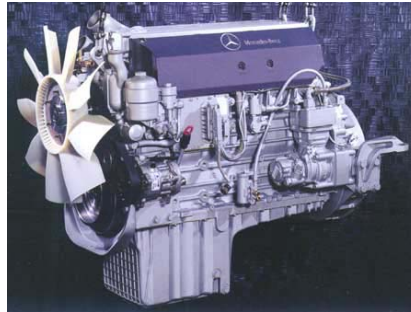
versus Mercedes Benz® MBE 904/906

Overhaul Cost



International® DT 466

Premium high value wet sleeve engines are designed to be overhauled "in-frame" by replacing wear components with an International® Works Kit™. The "Works Kit" is priced at \$1,300 plus \$1,720 labor to install at \$80/hour labor. Add \$1,300 for a cylinder head rebuild and you've got an "as new" engine without ever removing it from the chassis. Total cost \$4,320.



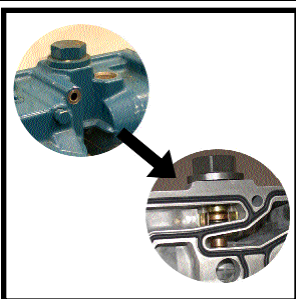
Mercedes-Benz® MBE 904/906

No Mercedes remanufactured units are currently available. The only alternative is a new replacement engine which costs \$14,660 plus \$1,300 labor to install, total cost is \$15,960. Will the low volume Mercedes-Benz engine support a remanufacturing program?

Value

International DT 466 engine overhaul cost is \$11,673 less than typical parent bore engines like the Mercedes-Benz MBE 904/906.

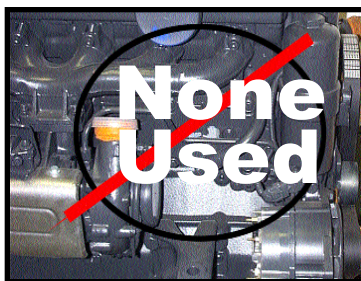
Oil cooler thermostat



International® DT 466

Premium high value thermostat channels oil past the oil cooler until it reaches operating temperature. This assists faster oil warm up and better flow of lubricant.

DT 466vsMBE.ppt



Mercedes-Benz® MBE 904/906

Lower value approach with no oil cooler thermostat

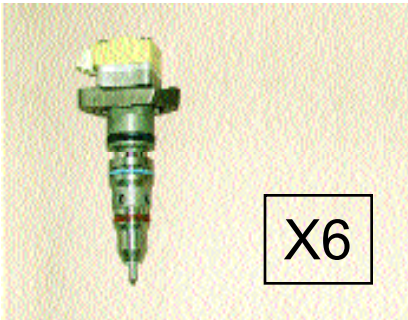
Value

Premium features of the DT 466 like the oil thermostat contribute to the value International products are noted for.

INTERNATIONAL® DT 466 Maintainability

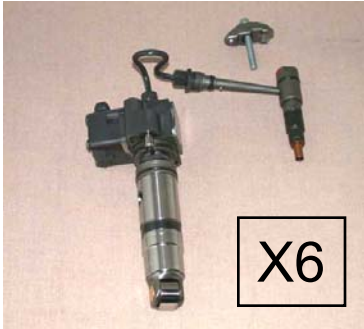
versus Mercedes Benz® MBE 904/906

Fuel System (side-by-side)



International® DT 466

Electro-hydraulic injector - one per cylinder. The International fuel system uses internal fuel passages and lube oil passages to supply high pressure fuel. The system is far less complex than Mercedes. Replacement costs: \$665 /injector, including an allocated portion of the system pressure pump.



Mercedes-Benz® MBE 904/906

Separate mechanical pump, line, transfer tube, and nozzle for each cylinder. The MBE 904/906 uses external high pressure lines and many connections, which are potential leak points. Replacement costs: \$933 /injector

Value

The International design eliminates the potential of external high pressure fuel leaks, with high pressure fuel occurring only at the point of injection. Replacing an International injector \$268 less than Mercedes-Benz MBE 904/906.

Dealer support



International® DT 466

The Industry Leader In Support and Service. Nearly 1,000 dealer locations provide award winning service.



Mercedes-Benz® MBE 904/906

An engine dealer network of about 176 Detroit Diesel distributors and a small number of Freightliner dealers.

Value

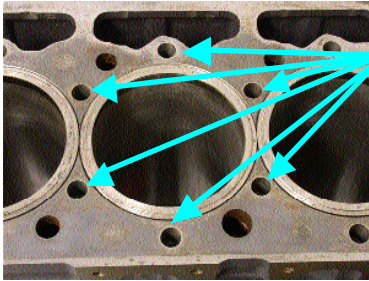
Superior service availability could save you a day or more on downtime per year. Buses with less accessible service opportunities may result in jeopardizing those critical school schedules and unexpected costs.

INTERNATIONAL®

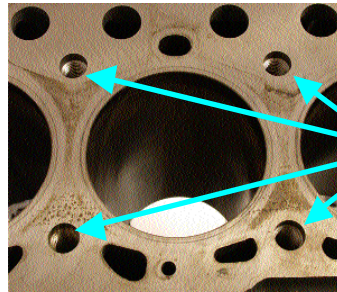
DT 466 Resale Value

versus Mercedes Benz® MBE 904/906

Headbolts



6 bolts



4 bolts

International® DT 466

Premium high value head clamping with 6 bolts per cylinder provides even distribution of clamping force to assure head gasket integrity

Mercedes-Benz® MBE 904/906

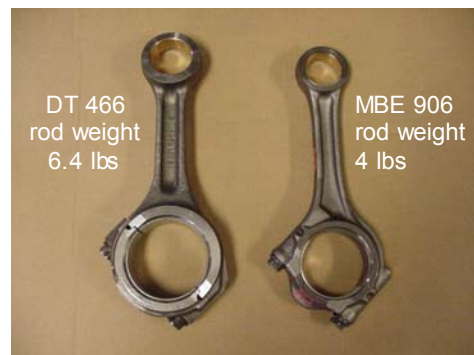
Lower value, 4 bolts per cylinder

Value

The International reputation, support network, and the premium features of the DT 466 like 6 head bolts per cylinder and robust connecting rods contribute to the value International products are noted for. Buses with less durability may result in jeopardizing those critical school schedules and unexpected costs.

Engine Durability

The DT 466 is a larger and heavier engine than the MBE 904/906. Consequently, the MBE operates under greater stress with higher horsepower per liter of displacement. Compare the connecting rods in the photo at right for an example of the DT 466 robust construction.



DT 466
rod weight
6.4 lbs

MBE 906
rod weight
4 lbs

INTERNATIONAL®

DT 466 Resale Value

versus Mercedes Benz® MBE 904/906

Roller Followers



International® DT 466

Premium high value roller followers provide lower rolling friction between follower and camshaft to minimize tappet face to camshaft wear. Tappet adjustment not required until 120,000 miles - twice the interval of the MBE 904/906.



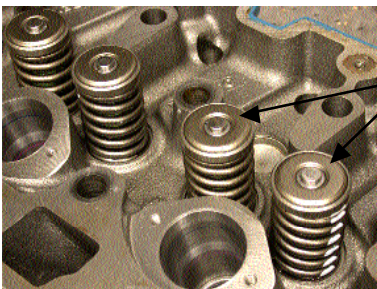
Mercedes-Benz® MBE 904/906

Lower value flat face followers increase friction and wear between the follower and camshaft. Tappet inspection and adjustment required at every 60,000 miles on MBE 904/906.

Value

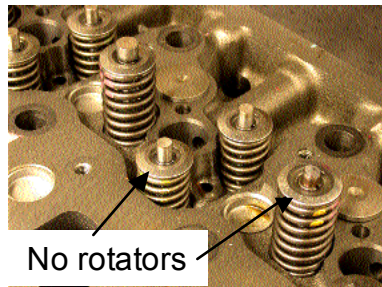
The International reputation, support network, and the premium features of the DT 466 like roller followers and valve rotators contribute to the durability International buses are noted for. Buses with less durability may result in jeopardizing those critical school schedules and unexpected costs.

Valve rotators



International® DT 466

Premium high value positive valve rotators - are used on intake and exhaust valves. Each time a valve closes, the valve rotator turns the valve slightly. Rotation improves the efficiency of heat transfer, and minimizes seat wear thus extending the life of the valve face and the valve seat.



Mercedes-Benz® MBE 904/906

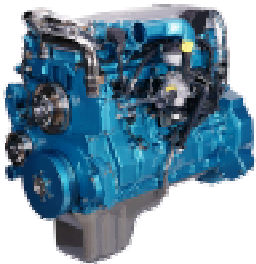
Lower value valve approach does not include rotators. Valve life is longer with rotators.

INTERNATIONAL® DT 466 Reliability / Durability

versus Mercedes Benz® MBE 904/906

Value

After looking at the photos and reading the description of premium International DT 466 features, we think you'll know why it could be expected to have a significantly longer B-life than parent bore engines like the MBE 906.



International® DT 466

B10 life for the DT 466 is 300,000 miles (90% of engines still running) with B50 life at 450,000 miles (50% of engines running) under normal operating conditions.



Mercedes-Benz® MBE 904/906

Mercedes-Benz claims the MBE 904/906 will have similar service life as the DT 466. Is this reasonable now that you have seen the features? The MBE does not have the premium features inherent in the DT 466.

International DT 466 Bus Value Advantages

- Wet-sleeve design
- Durability
- In Chassis Rebuild
- Responsive Acceleration-Engine/ Intuitive Shift

INTERNATIONAL® DT 466 Performance

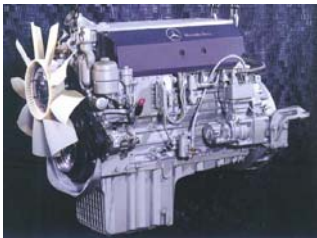
versus Mercedes Benz® MBE 904/906



International DT 466

International DT 466 - 7.6L – weight: 1480 lbs

<u>Rated/ Peak HP @ RPM</u>	<u>HP/Liter</u>	<u>Rated Peak Torque @ RPM</u>
210 HP @ 2300 RPM	25.6	520 lb-ft @ 1400 RPM
220 HP @ 2300 RPM	28.2	540 lb-ft @ 1400 RPM
225 HP @ 2300 RPM	28.2	560 lb-ft @ 1400 RPM
245 HP @ 2300 RPM	28.2	620 lb-ft @ 1400 RPM
245 HP @ 2300 RPM	30.2	660 lb-ft @ 1400 RPM
260 HP @ 2300 RPM	30.2	800 lb-ft @ 1400 RPM



**Mercedes-Benz
MBE 904/906**

Mercedes-Benz® MBE 904/906 – 4.3/6.3L – weight: 1168 lbs

<u>Rated HP @ RPM</u>	<u>HP/Liter</u>	<u>Rated Peak Torque @ RPM</u>
150 HP @ 2300 RPM	34.8	380 lb-ft @ 1400 RPM
170 HP @ 2300 RPM	39.5	420 lb-ft @ 1200 RPM
190 HP @ 2300 RPM	29.6	520 lb-ft @ 1200 RPM
210 HP @ 2300 RPM	32.8	520 lb-ft @ 1200 RPM
210 HP @ 2300 RPM	32.8	605 lb-ft @ 1200 RPM
230 HP @ 2300 RPM	35.9	660 lb-ft @ 1200 RPM
250 HP @ 2300 RPM	39.4	660 lb-ft @ 1200 RPM
260 HP @ 2300 RPM	40.6	700 lb-ft @ 1200 RPM
280 HP @ 2300 RPM	43.7	800 lb-ft @ 1250 RPM
300* HP @ 2300 RPM	46.8	860 lb-ft @ 1400 RPM

* RV, Fire and Emergency applications

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