

# Detroit Diesel Engines

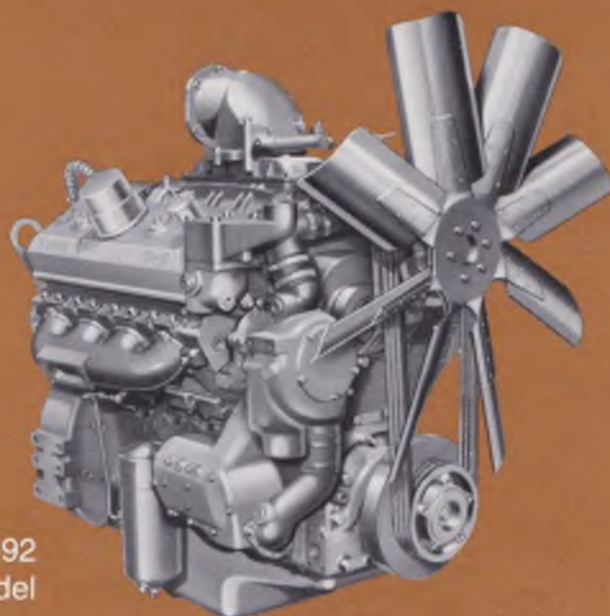
## Fan-to-flywheel models

8V-92

368 hp

8V-92T

430 hp



Typical 8V-92  
Fan-to-Flywheel Model

## specifications

Basic Engine	8V-92 9280 Injectors	8V-92T 9290 Injectors
Model	8083-7000	8083-7300
Engine Type	Two Cycle	Two Cycle
Number of Cylinders	8	8
Bore and Stroke	4.84 in x 5 in (123 mm x 127 mm)	4.84 in x 5 in (123 mm x 127 mm)
Displacement	736 cu in (12.07 litres)	736 cu in (12.07 litres)
Rated Gross Power:		
60°F (15.6°C) and 29.92 in Hg (101.31 kPa) Bar. (Dry)	368 BHP (275 kW) @ 2100 RPM	—
SAE: 85°F (29.4°C) and 29.00 in Hg (98.19 kPa) Bar. (Dry)	360 BHP (269 kW) @ 2100 RPM	430 BHP (321 kW) @ 2100 RPM
Continuous Gross Power:		
SAE: 85°F (29.4°C) and 29.00 in Hg (98.19 kPa) Bar. (Dry)	300 BHP (224 kW) @ 1800 RPM	—
Torque:		
SAE: 85°F (29.4°C) and 29.00 in Hg (98.19 kPa) Bar. (Dry)	983 lb ft (1333 N·m) @ 1400 RPM	1186 lb ft (1608 N·m) @ 1400 RPM
Compression Ratio	19 to 1	17 to 1
Approximate Dimensions:		
Length	48 in (1219 mm)	48 in (1219 mm)
Width	39 in (991 mm)	39 in (991 mm)
Height	51 in (1295 mm)	52 in (1321 mm)
Net Weight (dry)	2345 lbs (1064 kg)	2395 lbs (1086 kg)

For complete dimensional information, refer to installation drawing 2SA394 for Model 8083-7000 and 2SA414 for Model 8083-7300.

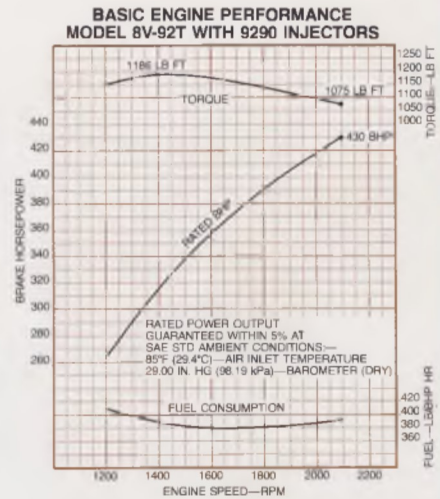
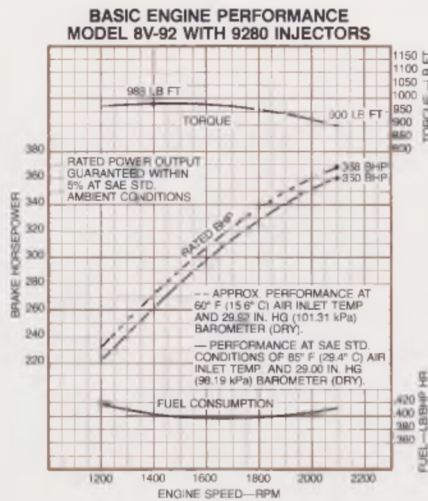
# performance

## Rating Explanation

RATED BHP is the power rating for variable speed and load applications where full power is required intermittently.

FUEL CONSUMPTION CURVE shows fuel used in pounds per brake horsepower hour.

THESE RATINGS do not include power requirements for accessory and standard equipment.



## standard equipment

**Air Box Drain Tubes**

**Air Inlet Housing**

**Alternator—24V, 65 amp**

**Cast Aluminum Rocker Covers**

**Crankshaft Pulley**

**Engine Mounts**

**Exhaust Manifold**

**Fan—34 in (864 mm), 8 blades, suction**

**Flywheel—SAE #1**

**Flywheel Housing—SAE #1**

**Fuel Filters—Spin-on**

**Governor—Limiting Speed**

**Injectors—Cam operated, unit type, clean tip**

**Lube Oil Cooler**

**Lube Oil Filter—Full flow**

**Oil Pan—Stamped pan for 17° inclination angle, rear sump**

**Starting Motor—24 volt**

**Turbocharger—Model 8083-7300 only**

**Vibration Damper—Thick, heavy, viscous**

For a complete listing of standard and optional equipment, consult your authorized Detroit Diesel Allison Representative.

Specifications subject to change without notice



**Detroit Diesel Allison**  
Division of General Motors Corporation

13400 West Outer Drive Detroit, Michigan 48228

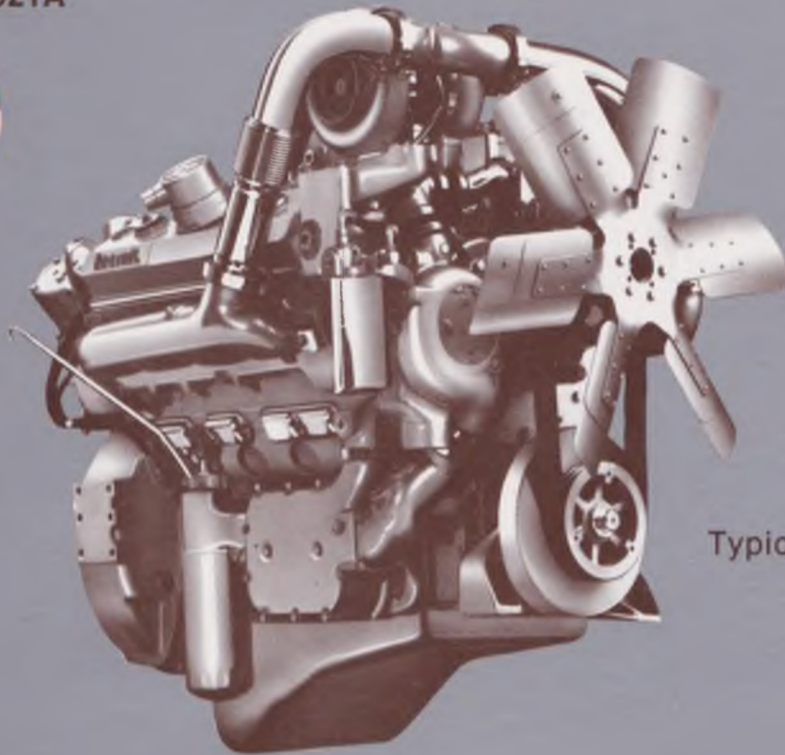
In Canada: Diesel Division, General Motors of Canada Limited London Ontario



# Detroit Diesel Engines

## INDUSTRIAL MODELS

8V-92T 8V-92TA



Typical 8V-92TA

## GENERAL SPECIFICATIONS

Basic Engine	8V-92T	8V-92TA
Model	8083-7300	8083-7400
Number of Cylinders	8	8
Bore and Stroke	4.84 in × 5 in (123 mm × 127 mm)	4.84 in × 5 in (123 mm × 127 mm)
Displacement	736 cu in (12.1 liters)	736 cu in (12.1 liters)
Compression Ratio	17 to 1	17 to 1
Lube Oil System Capacity•	Low—17 qts (16.1 liters) High—23 qts (21.8 liters)	Low—19 qts (18.0 liters) High—25 qts (23.7 liters)
Coolant Capacity (engine only)	29 qts (27.4 liters)	29 qts (27.4 liters)
Length	44 in (1118 mm)	44 in (1118 mm)
Width	38 in (965 mm)	38 in (965 mm)
Height	50 in (1270 mm)	50 in (1270 mm)
Weight (dry)	2400 lbs (1091 kg)	2420 lbs (1100 kg)

•with standard oil pan

Approximate dimensions shown. For complete dimensional information, refer to installation drawing.

For complete coolant specifications, see publication 7SE298. For complete fuel and lubricating oil specifications, see publication 7SE270.

## HORSEPOWER VERSATILITY

Basic Engine	8V-92T	8V-92TA
Injector	9E95	9E95
Rated Gross Power	465 BHP (347 kW) @ 2100 RPM	480 BHP (358 kW) @ 2100 RPM
Peak Torque	1285 lb ft (1742 N•m) @ 1300 RPM	1330 lb ft (1803 N•m) @ 1300 RPM
Injector	9G85	9G85
Rated Gross Power	440 BHP (328 kW) @ 2100 RPM	450 BHP (336 kW) @ 2100 RPM
Peak Torque	1215 lb ft (1648 N•m) @ 1300 RPM	1250 lb ft (1695 N•m) @ 1300 RPM
Injector	9A85	9A85
Rated Gross Power	415 BHP (306 kW) @ 2100 RPM	425 BHP (317 kW) @ 2100 RPM
Peak Torque	1150 lb ft (1563 N•m) @ 1300 RPM	1175 lb ft (1593 N•m) @ 1300 RPM
-----		
<i>(Continuous Rating)</i>		
Injector	9280	9A80
Rated Gross Power	340 BHP (254 kW) @ 1800 RPM	365 BHP (272 kW) @ 1800 RPM

Rating conditions of SAE: 77°F (25°C) and 29.31 in Hg (99 kPa) Barometer (Dry)  
These ratings are subject to change without notice or obligation.

## EQUIPMENT SPECIFICATIONS

**Aftercooler**—8V-92TA only

**Alternator**—24 volt, 65 amp

**Blower**—With bypass valve

**Camshaft**—Drop forged with induction hardened polished lobes

**Connecting Rod**—Rifle drilled, drop forging

**Crankshaft**—Drop forged, dynamically and statically balanced, induction hardened journals and fillets

**Crankshaft Pulley**

**Cylinder Block**—Cast iron alloy replaceable cylinder liners

**Cylinder Head**—Cast iron alloy, 4 exhaust valves per cylinder, replaceable valve seats

**Engine Lifter Brackets**

**Fan**—36 in (914 mm), 8 blade suction

**Flywheel**—SAE #1

**Flywheel Housing**—SAE #1

**Fuel Filters**—Spin-on type, includes both primary and secondary filter

**Governor**—Limiting speed

**Injectors**—Cam operated, unit type, clean tip

**Lube Oil Cooler**—Thermatic plate type

**Lube Oil Filter**—Spin-on, full-flow, no bypass filter required

**Oil Pan**—17° rear sump

**Piston**—Crosshead design, cast iron alloy

**Starting Motor**—24 volt, with sprag overrunning clutch

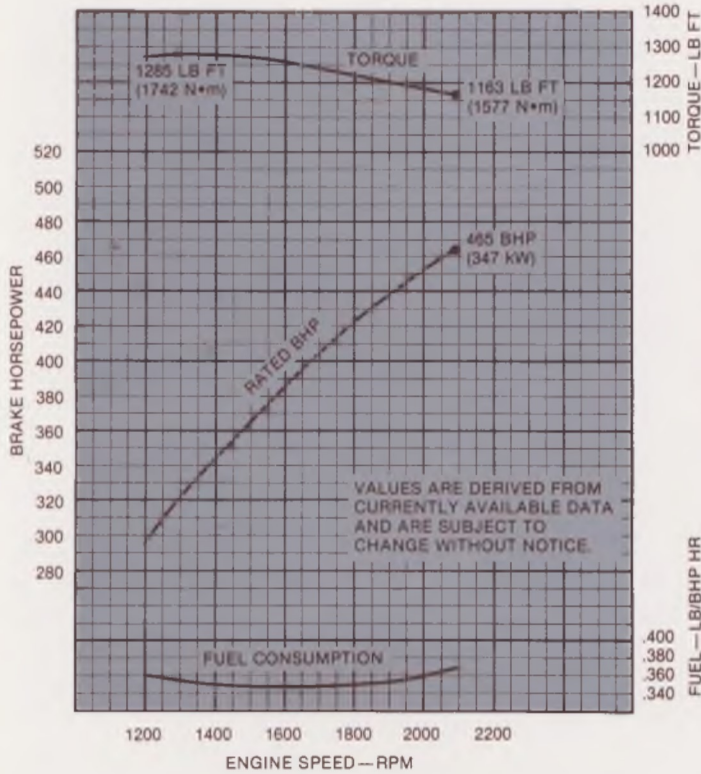
**Turbocharger**—Improved design, high efficiency model TV8511, 1.39 A/R

**Water Pump**—Impeller type with ceramic seal

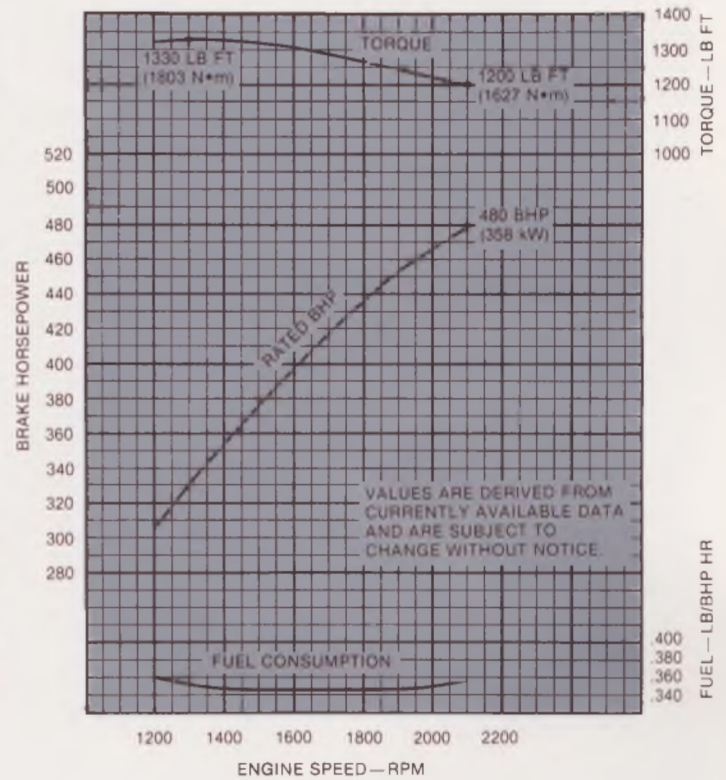
Additional options are also available for most of these items. For a complete listing of standard and optional equipment, consult your authorized Detroit Diesel Allison representative.

# PERFORMANCE CURVES

**BASIC ENGINE PERFORMANCE  
MODEL 8V-92T WITH 9E95 INJECTORS†**



**BASIC ENGINE PERFORMANCE  
MODEL 8V-92TA WITH 9E95 INJECTORS†**



## Rating Explanation

RATED BHP is the power rating for variable speed and load applications where full power is required intermittently.

FUEL CONSUMPTION CURVE shows fuel used in pounds per brake horsepower hour.

POWER OUTPUT guaranteed within 5% at standard ambient conditions.

THIS RATING does not include power requirements for accessory and standard equipment. For complete engine specifications for your particular requirements, see your distributor or authorized Detroit Diesel Allison representative.

†Rating conditions of SAE: 77°F (25°C) and 29.31 in Hg (99 kPa) Barometer (Dry)

**BDC**



# DESIGN FEATURES AND BENEFITS

## Unit Injector Fuel System

The main components of this system are the simple and efficient Needle Valve Injectors that precisely meter the fuel individually to each cylinder.

The injector creates the high pressure needed for efficient combustion . . . meters and injects the fuel in the exact amount required at the correct time . . . and atomizes it for proper burning with the air in the combustion chamber.

The injectors in the Silver 92 engines aid combustion efficiency with modified plunger and bushing timing and improved spray tips.

## Centrifugally Cast Liners

Closely controlled metallurgical and heat treatment specifications allow for precise machining. Liner working surfaces are processed to insure proper piston ring lubrication. Our heat treating method assures the liner has proper strength and geometry that promotes long piston and liner life.

In addition, the height and shape of the liner ports have been modified for optimum air inlet timing and maximum air swirl in the combustion chamber in conjunction with the newly timed camshaft.

## Crosshead Piston

A key durability improvement is the use of crosshead pistons in all Silver 92 engines. This patented design features separate crown and skirt components that work independently of each other: the crown absorbs combustion forces while the skirt absorbs thrust loads. Proven in larger Detroit Diesel engines, crosshead pistons extend ring life and reduce cylinder bore wear.

## New Piston Ring Designs

New, longer-wearing compression rings feature barrel-faced grooveless compression rings with hard molybdenum coating replacing conventional chrome rings. This new design extends ring life from 30-50%. The new rings reduce friction, thereby helping to improve fuel economy. Reduced oil consumption is an additional benefit.

## Air Induction System

The Silver 92 air induction system, which incorporates a blower bypass valve and passage, reduces pumping losses and provides a savings of up to 7 horsepower. The design is essentially a spring loaded poppet type bypass valve in the blower end plate. At suitable engine speed and load, the valve opens, allowing air box pressure to equalize with blower inlet pressure, thus reducing pumping horsepower requirements. This optimizes thermal efficiency through improved air-fuel ratio control.

## High-Efficiency Turbocharger

Silver 92 engines feature a new, more efficient family of turbochargers that more closely meet the air delivery requirements of the specific engine and its application. This improvement aids combustion efficiency, fuel economy, smoke control, and engine response.

## Parts Interchangeability

Silver 92 engines offer up to 70% moving parts interchangeability. In addition, much of the external, optional equipment, such as starting systems, air compressors, and alternators, are also interchangeable throughout the Series. Your current engine can also be upgraded to Silver without major investment. As an owner you benefit four ways: 1) Reduced Parts Inventory, 2) Low Parts Cost, 3) Good Parts Availability, 4) Ease of Service.



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## Detroit Diesel Allison

Division of General Motors

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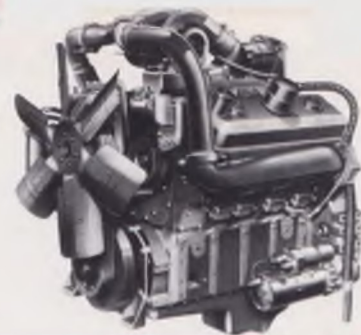
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# Detroit Diesel Engines

BDC



## 8V-92TA TRUCK ENGINE

SILVER 355 HP

SILVER 365 HP

SILVER 445 HP

### GENERAL SPECIFICATIONS

#### General Specifications

Number of Cylinders	8
Bore and Stroke	4.84 in x 5 in (123 mm x 127 mm)
Displacement	736 cu in (12.1 liters)
Compression Ratio	17:1
Injectors	355: 7G75 365: 9A90 445: 9A90
Brake Horsepower*	355 BHP (265 kW) @ 1800 RPM 365 BHP (272 kW) @ 1950 RPM 365 BHP (272 kW) @ 2100 RPM** 445 BHP (332 kW) @ 2100 RPM
Peak Torque*	355: 1150 lb ft (1559 N·m) @ 1200 RPM 365: 1250 lb ft (1695 N·m) @ 1300 RPM 445: 1250 lb ft (1695 N·m) @ 1300 RPM
Dimensions: (approx.)	
Length	44 in (1118 mm)
Width	38 in (965 mm)
Height	50 in (1270 mm)
Weight (dry)	2415 lbs (1095 kg)

\*Rating Conditions of 85°F (29.4°C) and 29.00 in Hg (98.19 kPa) Barometer (dry)

\*\*Recommended for on off highway applications

For complete dimensional information, refer to installation drawing 2SA422.

### STANDARD EQUIPMENT

**Air Compressor**—12 CFM, can be used with flange mounted alternator

**Alternator**—12 volt, 65 amp, includes self-contained regulator

**Camshaft**—Honed with Thielenhous process

**Connecting Rod**—Rifle drilled, drop forging

**Crankshaft**—Drop forged, dynamically and statically balanced, rolled fillets, induction hardened journals

**Crankshaft Pulley**—3 grooves, provides .82 to 1 ratio with 9.12 inch diameter fan pulley

**Cylinder Block**—.95 liner, aftercooler, 25° port angle liner

**Cylinder Head**—Cast iron alloy, trapezoidal arrangement of exhaust valves

**Engine Lifter Bracket**

**Engine Mounts**—Trunnion mount, includes support and cap

**Flywheel**—SAE #1 for 15½", 2-plate clutch

**Flywheel Housing**—SAE #1, cast iron

**Fuel Filters**—Spin-on type, includes both primary and secondary filter

**Governor**—Double weight, limiting speed, used with yield link

**Injectors**—Unit injector, clean tip, 9 holes

**Lube Oil Cooler**—24 plate

**Lube Oil Filter**—Single cannister, full flow, spin-on; no bypass filter required

**Oil Distribution System**—Oil pan: 17° inclination angle, rear sump; oil pump: right hand rotation, wide gears

**Piston**—Crosshead design, cast iron alloy

**Starting Motor**—24 volt, right hand rotation, includes insulated sprag overrunning clutch

**Turbocharger**

**Vibration Damper**—Viscous

**Water Pump**

## 8V-92TA OPERATING DATA

Airflow	Silver 355: 1115 CFM (31.58 m <sup>3</sup> /min) Silver 365: 1200 CFM (34.0 m <sup>3</sup> /min) (1950 RPM) Silver 365: 1270 CFM (35.97 m <sup>3</sup> /min) (2100 RPM) Silver 445: 1400 CFM (39.65 m <sup>3</sup> /min)
Air Intake Restriction (Dry type air cleaner) full load—dirty —clean	20.0 in H <sub>2</sub> O (5.0 kPa) 12.0 in H <sub>2</sub> O (3.0 kPa)
Coolant Capacity	28½ quarts (27.4 liters) (does not include radiator)
Coolant Flow	Silver 355: 160 GPM (606 liter/minute) Silver 365: 160 GPM (606 liter/minute) (1950 RPM) Silver 365: 179 GPM (678 liter/minute) (2100 RPM) Silver 445: 187 GPM (708 liter/minute)
Coolant Normal Operating Temperature	170°F-195°F (77°C-91°C)
Exhaust Flow	Silver 355: 2265 CFM (64.1 m <sup>3</sup> /min) Silver 365: 2445 CFM (69.2 m <sup>3</sup> /min) (1950 RPM) Silver 365: 2575 CFM (72.9 m <sup>3</sup> /min) (2100 RPM) Silver 445: 3079 CFM (87.2 m <sup>3</sup> /min)
Exhaust Back Pressure (full load)	3.0 in Hg (10.2 kPa)
Heat Rejection	Silver 355: 9500 BTU/min Silver 365: 9725 BTU/min (1950 RPM) Silver 365: 9725 BTU/min (2100 RPM) Silver 445: 13,525 BTU/min
Idle Range—normal idle —long idle	500 RPM 800—1000 RPM
Lubricating Oil Capacity	25 quarts (23.66 liters) (includes one full flow filter)
Lubricating Oil Pressure—normal —at idle	49-70 PSI (338-483 kPa) (α 1800-2100 RPM nominal)
Lubricating Oil Temperature—in pan	200°F-250°F (93°C-121°C)

For complete coolant specifications, see publication 7SE298.

For complete fuel and lubricating oil specifications, see publication 7SE270.

## HORSEPOWER FLEXIBILITY

### 445 HP @ 2100 RPM

On-highway and on/off-highway applications:

- 70,000—150,000 lbs GCW
- 80,000 lbs\* at 42 MPH maximum on 3% grade
- 130,000 lbs\* GCW at 27 MPH maximum on 3% grade
- 130,000 lbs\* GCW at 64 MPH maximum on 0% grade

#### Fuel Economy Recommendations

- A. In on-highway applications gear vehicle to attain maximum desired cruising speed between 1600-1800 RPM for best fuel economy with 2100 RPM available for hill climbing.
- B. For on/off highway applications select transmission and axle ratios to attain needed off-road gradeability in low transmission ratio and optimum on-highway economy in high transmission ratio.
- C. Requires driver cooperation to maximize fuel economy.

### 365 HP @ 1950 RPM

On-highway applications:

- 2100 RPM setting available for on/off-highway applications

- 70,000—130,000 lbs GCW
- 80,000 lbs\* GCW at 35 MPH maximum on 3% grade
- 80,000 lbs\* GCW at 67 MPH maximum on 0% grade

#### Fuel Economy Recommendations

- A. Gear vehicle to attain maximum desired cruising speed between 1600-1800 RPM for best fuel economy
- B. Requires some driver cooperation for maximum fuel economy

### 355 HP @ 1800 RPM

On-highway applications:

- 70,000—120,000 lbs GCW
- 80,000 lbs\* GCW at 34 MPH maximum on 3% grade
- 80,000 lbs\* GCW at 66 MPH maximum on 0% grade

#### Fuel Economy Recommendations

- A. Gear vehicle to attain maximum desired cruising speed between 1600-1800 RPM for best fuel economy.
- B. Limits maximum engine RPM to more fuel efficient RPM range.

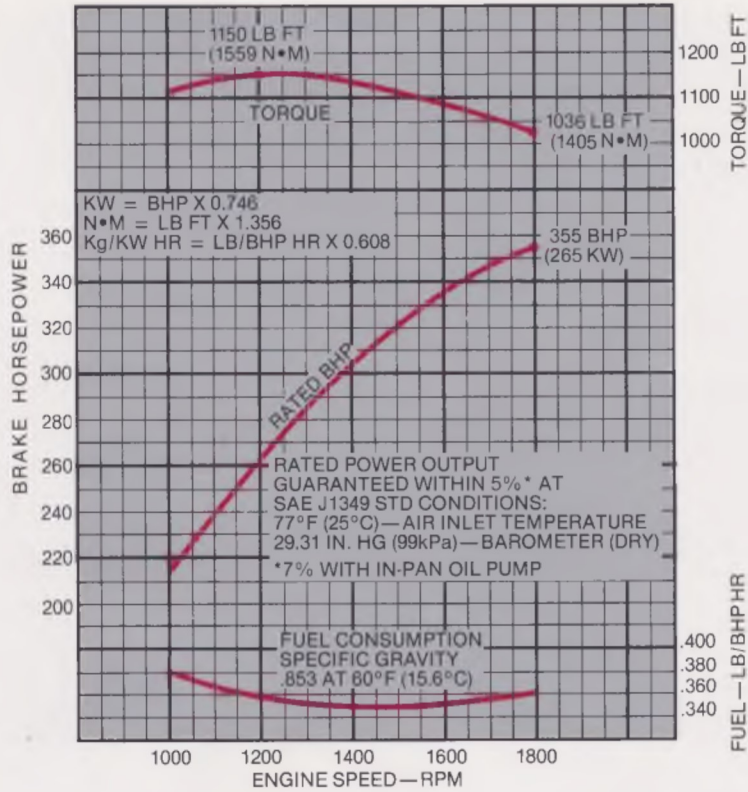
\*Based on 13½' x 8' frontal area, bias tires, tandem axle, and clutch fan. The use of radial tires, air deflector, single axle, and/or smaller frontal area will allow higher speeds  
Speeds shown are vehicle capabilities





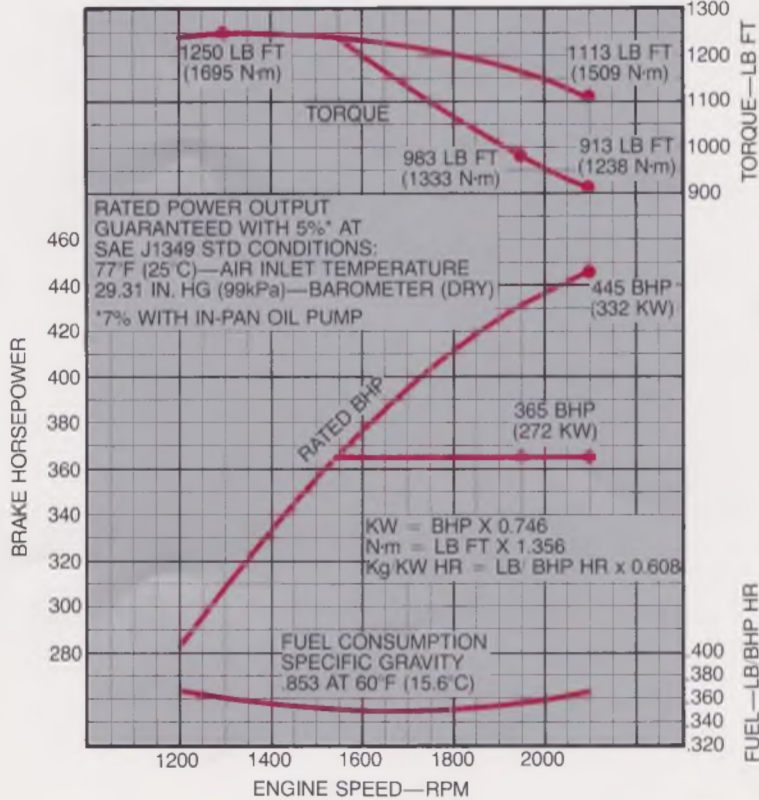
**SILVER  
355**

**BASIC ENGINE PERFORMANCE  
8V-92TA TRUCK ENGINE WITH 7G75 INJECTORS**



**SILVER  
365  
and  
SILVER  
445**

**BASIC ENGINE PERFORMANCE  
8V-92TA TRUCK ENGINE WITH 9A90 INJECTORS**



**Rating Explanation**

RATED BHP is the power rating for variable speed and load applications where full power is required intermittently.

FUEL CONSUMPTION CURVE shows fuel used in pounds per brake horsepower hour.

THIS RATING does not include power requirements for accessory and standard equipment.

For complete engine specifications for your particular vehicle requirements, see your truck dealer or authorized Detroit Diesel Allison representative.

# PERFORMANCE CAPABILITY

Governed RPM	Tire Size	Rear Axle	Full Load Governed Geared Road Speed	Vehicle Potential Speed Capability
8V-92TA @ 1800 RPM	10 x 20 11 x 22.5 (495 Revs/mile)	4.11 3.90 3.70 3.55	53.1 MPH 55.9 MPH 59.0 MPH 61.5 MPH	56 MPH 59 MPH 62 MPH 65 MPH
	10 x 22 11 x 24.5 (474 Revs/mile)	4.33 4.11 3.90	52.6 MPH 55.4 MPH 58.4 MPH	55 MPH 58 MPH 62 MPH
8V-92TA @ 1950 RPM	10 x 20 11 x 22.5 (495 Revs/mile)	4.33 4.11 3.90	54.6 MPH 57.5 MPH 60.6 MPH	57 MPH 60 MPH 64 MPH
	10 x 22 11 x 24.5 (474 Revs/mile)	4.44 4.33 4.11 3.90	55.6 MPH 57.0 MPH 60.0 MPH 63.3 MPH	58 MPH 60 MPH 63 MPH 67 MPH

- Engine Governor characteristics permit a vehicle speed in excess of the full load governed geared road speed — provided sufficient horsepower is available. <sup>①</sup>
- Use "Vehicle Potential Speed Capability" column to select maximum desired cruise speed in order to limit engine RPM to a more fuel efficient maximum RPM.
- Check with truck dealer for exact tire revolutions per mile for your particular brand, model, and tire size.
- Full load governed Geared Road Speed =  $\frac{\text{Governed RPM} \times 60}{\text{Tire Revs/mile} \times \text{Rear axle ratio}} = \frac{\text{Top drive ratio}}{\text{Top drive ratio}} = \text{MPH}^{\text{①}}$
- Vehicle Potential =  $\frac{(\text{Governed RPM} + 100) \times 60}{\text{Tire Revs/mile} \times \text{Rear axle ratio}} = \frac{\text{Top drive ratio}}{\text{Top drive ratio}} = \text{MPH}^{\text{①}}$

① Check wheel HP chart

VEHICLE MPH	0.00%	0.50%	1.00%	3.00%	6.00%
25.0	50 HP	76 HP	103 HP	210 HP	369 HP
35.0	85	122	160	309	532
45.0	134	182	230	422	
55.0	200	259	318	533	
60.0	241	305	369		
65.0	287	357	426		

Horsepower requirements are shown with bias ply tires and no air deflector in a line haul truck.  
\*Check with truck manufacturer or dealer to determine driveline and accessory efficiency.

Specifications subject to change without notice.

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