

Typical 8V-71TT
Truck Model

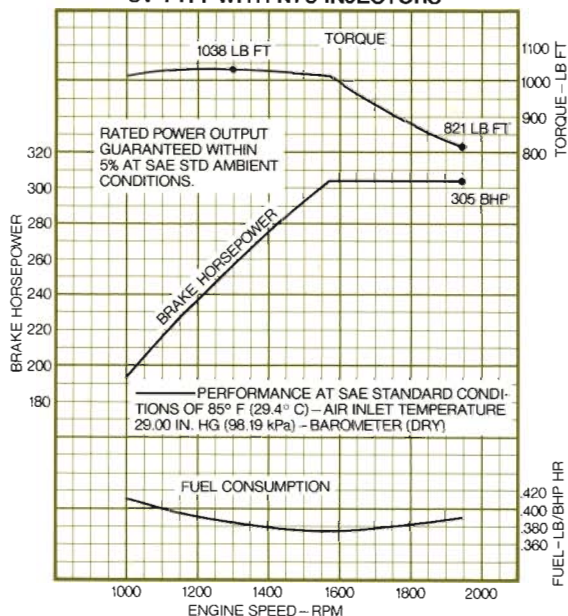


specifications

Basic Engine	8V-71 TT N75 Injectors
Model	7087-7340
Engine Type	Two Cycle
Number of Cylinders	8
Bore & Stroke	4.25 in x 5 in (108mm x 127mm)
Displacement	568 cu in (9.32 litres)
Rated Power: SAE: 85°F (29.4°C) and 500 ft (152.4m)	305 BHP (228 kW) @ 1950 RPM
Torque: SAE: 85°F (29.4°C) and 500 ft (152.4m)	1038 lb ft (1407 N·m) @ 1300 RPM
Compression Ratio	17 to 1
Approximate Dimensions:	
Length	51 in (1295 mm)
Width	37 in (940 mm)
Height	49 in (1245 mm)
Net Weight (dry)	2395 lbs (1086 kg)

For complete dimensional information, refer to installation drawing 2SA 377.

BASIC ENGINE PERFORMANCE 8V-71TT WITH N75 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.

The curve illustrates that horsepower is constant from approximately 1600 RPM to 1950 RPM (full-load governed speed). Torque rise is 26.4% overall, with a rate of rise of 6.4% per 100 RPM in the constant horsepower segment.

standard equipment

Air Compressor—12 CFM, (.34m³/min)

Alternator—12 volt, 65 amp,

Fan—Not supplied by DDA (clutch fan recommended)

Flywheel—SAE #1 for 15½ in (394 mm) clutch

Fuel Distribution System—Disposable spin-on filter and strainer, flexible fuel lines

Governor—Limiting speed, double weight with TT fuel input control

Injectors—Unit type, Clean Tip

Lube Oil Filter—Full flow, mounted

Mounts—Front trunnion

Oil Pan and Distribution System—for 17° operation, rear sump

Starting Motor—12 volt, high-output

Specifications subject to change without notice.

special "FUEL SQUEEZER" advantages

The "FUEL SQUEEZER"

- has shown improved fuel economy of 10-20% over standard engines
- provides 26.4% torque rise for high average speeds and low trip time
- offers power to handle hills, headwinds, and extra loads

- can utilize relatively low cost transmissions
- offers long engine and powertrain life
- receives outstanding driver acceptance
- is a light, compact engine
- provides low noise characteristics through turbocharging, a clutch type fan and a top rated speed of 1950 RPM.

THE RIGHT POWER CHOICE PAYS OFF

purpose of the "fuel squeezer"

The 8V-71TT is a new high-torque-rise truck engine designed to increase fuel economy, while

providing load-carrying performance and gradeability. The 8V-71TT is rated at 305 BHP so that it can easily

handle loads up to 80,000 lbs. GCW at 60 MPH.

how the 8V-71TT achieves fuel economy

Fuel economy is maximized by the right choice of many factors.

■ The Right Horsepower

305 BHP is adequate and fuel-efficient for most line-haul trucking jobs. Controlling fuel input to pro-

duce 305 hp at 1950 RPM instead of maximum output at 2100 RPM saves approximately 14.8% in fuel.

■ Lower Governed Engine Speed (RPM)

Diesel engines are more fuel efficient at reduced engine RPM and increased load factors.

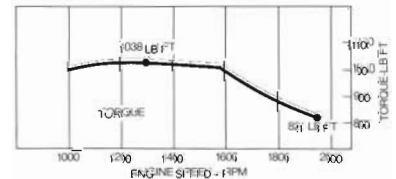
The 8V-71TT is governed at 1950 RPM instead of 2100 RPM which, at a rating of 305 hp, lowers

brake specific fuel consumption by 2%.

■ High Torque Rise and Constant Horsepower

A high rate of torque rise provides essentially constant horsepower over a wide range. This gives a 'feeling' of an engine with much greater power than 305 hp. For instance, when a grade is encountered, and engine RPM begins

to drop, the torque increases rapidly, minimizing the need to shift. This effect encourages the driver to operate in the more efficient, lower RPM/higher load-factor mode.



■ Proper Component Selection

To achieve the most efficient operation of a 8V-71TT, components should be selected to provide

maximum fuel economy. These components include: fan, transmission, rear axle (ratio and drive)

and tire size. The following are recommendations for most efficient component selection.

component selections

1. Fan

A clutch fan is recommended. This reduces parasitic horsepower

requirements at highway speeds without causing any reduction in

cooling efficiency. Noise reduction is also realized by using this fan.

2. Transmission

A six speed manual transmission or a 4 speed automatic, such as an Allison HT740FS, can be used instead of a ten speed manual or a 5 speed automatic. The high torque rise of the 8V-71TT and the constant

horsepower over a wide RPM range keeps the vehicle from fading on hills. Fewer top gear ranges are needed to provide the hill climbing power required. A six-speed manual or the four-speed automatic offers

a minimum number of splits for best fuel economy. Each can also reduce the total initial cost of the vehicle.

3. Rear Axle Ratio and Tire Size

The lower the numerical rear axle ratio, the better the fuel economy. This must be tempered by applica-

tion requirements such as reasonable and legal road speeds, loads, grades and the type of hauling . . .

city, highway or on and off highway. Tire size, of course, affects highway speed just as the axle ratio does.

Recommended Axle Ratio	Tire Size	Max. Speed @ 1950 RPM
4.11	10 x 22 or 11 x 24.5 (tubeless)	59.3 mph
3.70	10 x 20 or 11 x 22.5 (tubeless)	62.7 mph

4. Miscellaneous Components

Additional fuel conserving devices we recommend are: steel belted radial tires, cab-mounted air

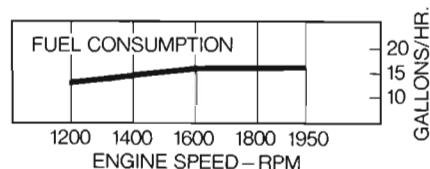
deflectors, light weight components such as aluminum hubs and drums, aluminum wheels and plastic or

aluminum components in the cab and van.

results

Fuel Consumption

This chart illustrates fuel consumption of the 8V-71TT in gallons per hour at full load.

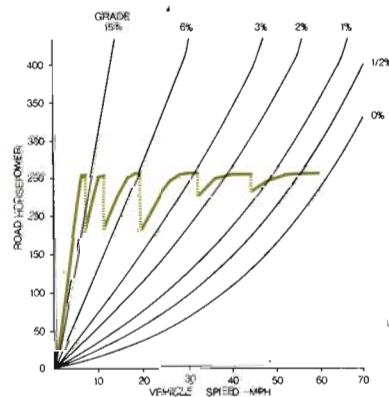


Performance and Gradeability

This is a typical Vehicle Performance Requirement (VPR) chart of a 8V-71TT "Fuel Squeezer" engine with a 6 speed transmission and a 4.11:1 rear axle ratio with 10 x 22 tires. GCW is 73,280 lbs. with a 13½' x 8' van freight combination.

You will notice that it will move the vehicle in top gear at 59.3 MPH on flat terrain and that you

can stay in top gear on almost a 1% grade, because the torque increases rapidly as engine RPM decreases. Gradeability in each gear range is substantially improved which means less shifting and a lot less fade on the hills. Trip times are improved and so is fuel economy as the engine is operating in its most efficient fuel consumption ranges.



PRep Specification Assistance

Detroit Diesel Allison Distributors offer PRep (Predicted Equipment performance) to help you get the most efficient engine transmission package.

Stop in to see your local distributor and find out how the 8V-71TT will perform in your truck. If you are specing a truck, PRep will choose the best drive-line application.



Detroit Diesel Allison
Division of General Motors Corporation

13400 West Outer Drive Detroit, Michigan 48228

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