



## Product Information

100- MACK MP13 VGT ENGINE FAMILY – EPA '24

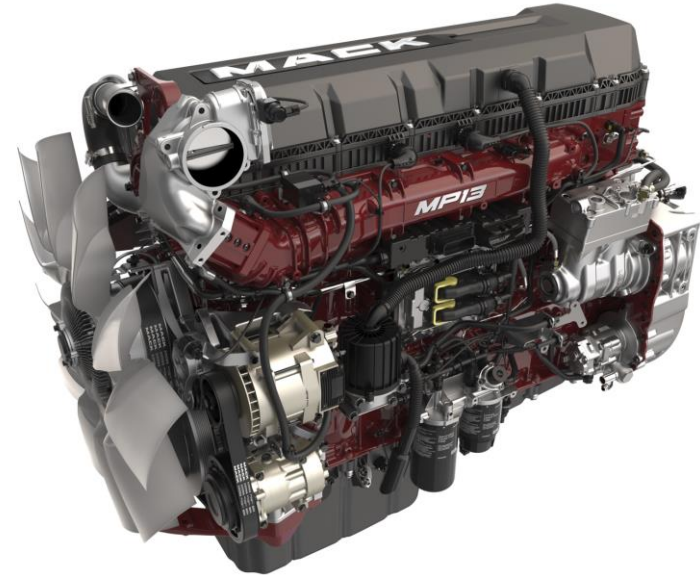
Updated: March 19, 2025

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The new Mack truck platform introduces the Generation 3 MP13 VGT engine with carry-over torque and power ratings from legacy trucks and also introduces new engines for 515 HP at 1850 and 1900 lb. ft. ratings. The new product offering differs from legacy product by introducing updated torque and power maps and allows greater flexibility for using various Powertrain Concepts from the 659 family.

The 3<sup>rd</sup> generation of Mack VGT engines are more functional and efficient than ever with proven fuel efficiency gains over 2<sup>nd</sup> generation engines with small design enhancements that contribute to big improvements. Generation 3 fuel efficiency gains are primarily attributed to:

- **Improved combustion performance:** Mack's patented wave piston design has been further refined with a new 7-wave piston crown and introduces a reduced piston height and a longer connecting rod to further reduce parasitic losses and improve combustion efficiency.
- **Redesigned fuel injectors** with features such as a smaller needle control valve to ensure spray pattern accuracy and combustion efficiency matched to the new 7-wave piston crown.
- **Introduction of a new variable speed oil pump:** The variable speed oil pump will regulate oil flow based on the needs of the engine, further reducing internal friction and improving engine efficiency.





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#### Gearing and Cruise RPM Recommendations for all 13L VGT engines

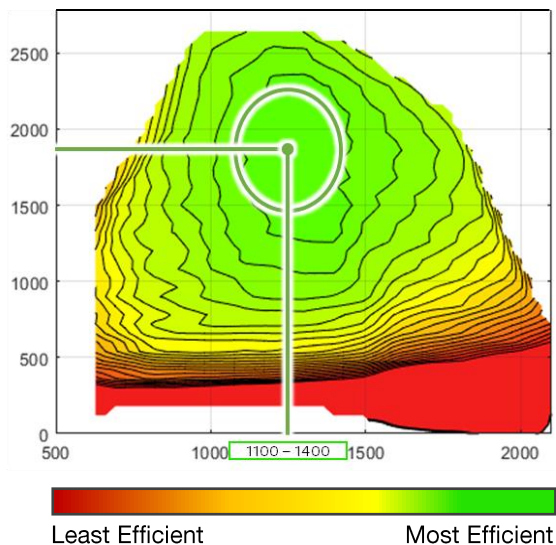
##### **Recommended Cruise RPM: 1100 – 1400 RPM**

Proper gearing is essential to achieve optimum vehicle performance and economy. Vehicle specifications including engine, transmission, axle ratio, and tires should be selected to meet minimum startability and gradeability recommendations while balancing performance and economy with customer requirements. Dealers should refer to the PAWS Performance Predictor in MSS to gauge compliance to vehicle-specific minimum recommendations and adherence to recommended cruise RPM.

#### Interpreting Engine Efficiency Range

The torque and power curves on the following pages are designed to display each engine's peak efficiency operating range, and to identify the engine's sweet spot regarding maximum efficiency and performance.

The efficiency map to the right is shown to illustrate how the engine's sweet spot is directly correlated to the recommendation cruise speeds stated above.



**Base engine specifications (all 13L VGT engines):** Engine specifications are listed for the base engine model and do not include specifications for optional engine equipment.

<b>Number of cylinders &amp; firing order</b>	- 6, In-Line: 1 – 5 – 3 – 6 – 2 – 4
<b>Turbocharger</b>	- Variable geometry with water-cooled actuator
<b>Weight, dry (approximate) lbs. [kg]</b>	- 2650 [1202]
<b>Bore and stroke, inches [mm]</b>	- 5.16 X 6.22 [131 X 158]
<b>Displacement, cubic inches [L]</b>	- 780 [13]
<b>Compression ratio</b>	- 18:1
<b>Idle speeds:</b>	
Low	- 550 RPM (adjustable)
High	- 2150 RPM
<b>Fuel system:</b>	- High pressure F3 common rail
Fuel supply pump	- Positive displacement gear pump
Maximum rail pressure	- 2400 BAR
Fuel filter	1) Cartridge 1st stage 2) Spin-on or cartridge 2nd stage
<b>Lubrication system:</b>	
Type	- Variable pressure, wet sump
Oil Specification	- Mack VDS-5, 5W-30
Oil filters	- 2 Spin-on full flow, or 2 cartridge full flow
Oil cooler	- Stainless steel plate
Total oil capacity, includes filters	- Dry fill 39.5L; Oil change w/filters volume 35L
Drain plug	- Magnetic
Oil drain intervals	- Refer to Mack Service At A Glance Brochure



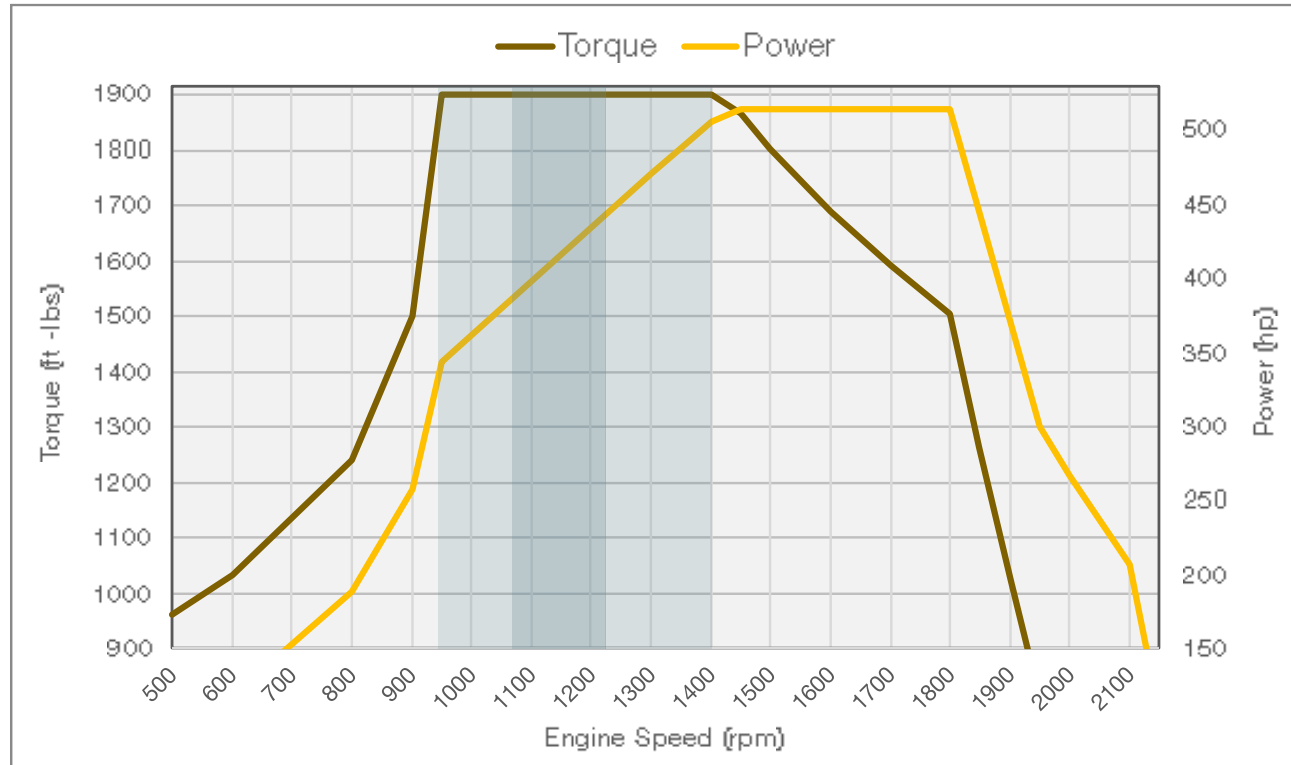
## Product Information

1001932 MP13 515 HP @ 1900 LB FT, US24

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Sales Code	Description	PEAK HP [kW]	HP [kW] @ GOVERNED RPM	PEAK TORQUE LB FT [Nm]	ENGINE BRAKE RETARDING HP [kW]	CLUTCH ENGAGEMENT LB FT [Nm]	OPERATING RANGE RPM
1001932	MP13-515 MACK 515HP 1900LB FT	515 [384] @ 1450-1800RPM	211 [158] @ 2150RPM	1900 [2576] @ 950-1400RPM	434 [323.9 kW] @ 2100 RPM 505 [376.4] @ 2400 RPM	802 [1088] @ 800 RPM	550 - 2150



### MP13 515 HP 1900 LB-FT, US24