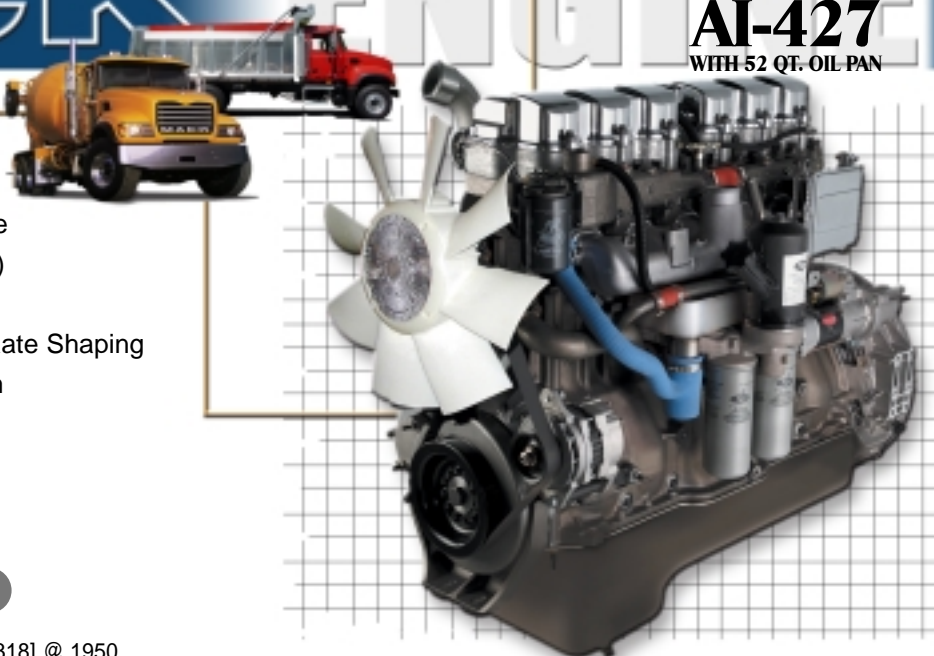


MACK ENGINE

AI-427
WITH 52 QT. OIL PAN

FEATURES

- High Torque ECONODYNE™ Diesel Engine
- Internal Exhaust Gas Recirculation (IEGR)
- Maximum Horsepower 427 BHP [318 kW]
- Electronic Unit Pump Fuel Injection with Rate Shaping
- V-MAC III Total Vehicle Electronics System
- Wide Operating Range 1300-1950 RPM
- Chassis Mounted Charge Air Cooled
- 52 Quart Oil Pan



SPECIFICATIONS

HP [kW] @ Governed RPM 427 [318] @ 1950
 Peak HP (kW) @ RPM 427 [318] @ 1600-1950
 Max. Torque lb. ft. [N•m] @ RPM 1,460 [1 979] @ 1300

Type Direct Injection Diesel
 Number of Cylinders 6, In-Line
 Bore & Stroke, in. [mm] 4.875 x 6.5 [124 x 165]
 Displacement, in.³ [L] 728 [12]
 Compression Ratio 16:1
 Firing Order 1-5-3-6-2-4
 Torque Rise 27%
 Clutch Engagement 625 lb. ft. [847 N•m] @ 800 RPM
 Idle Speeds:
 Low Adjustable; 650 RPM
 High Adjustable; 2100 RPM
 Mack PowerLeash Engine Brake Retarding Power
 420 HP [293 kW] @ 2100 RPM
 Weight, Dry: (Approx.) 2,216 lbs. [1 005 kg]
 (With air compressor, but no oil, water, starter, fan, alternator, or clutch)

V-MAC III® FUNCTIONS

Electronic Vehicle Management and Control System

OVER 200 PROGRAMMABLE FEATURES

V-MAC III ENGINE CONTROLS:

- | | |
|---------------------------|------------------------------|
| Electronic Fuel Control | Programmable: |
| Electronic Timing Control | — Governor Type |
| “Smart Fan” Drive | — Low Idle Speed |
| Engine Brake Control | — High Idle Speed |
| Engine Protection | — Electronic Torque Limiting |

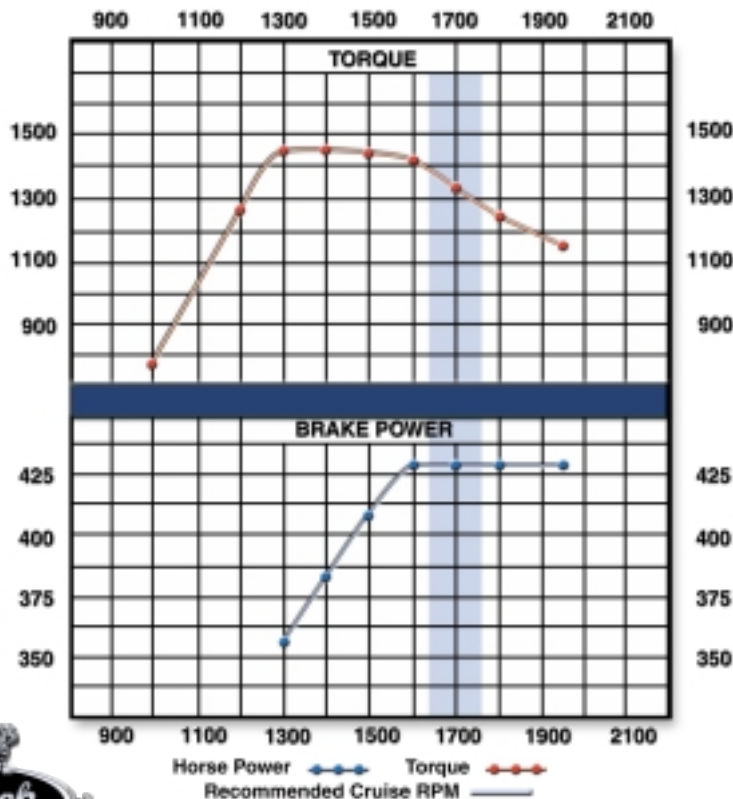
V-MAC III VEHICLE CONTROLS:

- | | |
|----------------------------------|--------------------------------|
| Vehicle Speed Control | Idle Shutdown |
| — Road Speed Limiting (RSL) | Accessory Relay Control |
| — Lower Gear RSL | Security Controls |
| — Full Featured Cruise Control | — MPH Sensor Tamper Resistance |
| Engine Speed Control | — Engine Sleep Mode |
| — Electronic Hand Throttle (EHT) | — Theft Deterrence (Opt.) |
| — Multiple PTO Control | |
- IDLE COOLDOWN

V-MAC III ADDITIONAL FEATURES/AND DATA MAX:

- | | |
|-------------------------|---------------------------------------|
| DataMax Trip Recorder | Service Features |
| — Trip/Life Recorder | — Integrated Diagnostics |
| — Driver Event Log | — Password Protection |
| — Histograms | — Field Programmable Software |
| — Incident Log | — GuardDog Maintenance Monitor (Opt.) |
| — Maintenance Monitor | |
| VIP DASH DISPLAY (Opt.) | |
| Serial Communications | |
| — J1587 | |
| — J1939 (CAN) | |

ENGINE PERFORMANCE



ENGINE SPECIFICATIONS

- Flywheel Housing Aluminum
- Cylinder Block:
 - Material Alloyed Grey Cast Iron
 - Bores Torque Plate Honed
- Cylinder Liners:
 - Type Wet/Dry (Replaceable)
 - Surface Finish Peak Honed
- Cylinder Head Assembly:
 - Type 3 Cyls/Head (2 Heads)
 - Configuration 4 Valves/Cyl., OHV
 - Valve Type Poppet w/Positive Rotators
 - Valve/Insert Material Super Alloy (Serviceable)
- Pistons & Rings:
 - Piston Type 2 Piece Articulated, Re-entrant Cavity
 - Piston Material Alloy Steel Crown, Aluminum Skirt
 - Pin Diameter 2.25" [57 mm]
 - Rings 2 Compression, 1 Oil Control
- Crankshaft:
 - Material Forged, Carbon Steel
 - Heat Treatment Induction-Hardened Journals/Fillets
 - Main Bearing Diameter 4.5" [114 mm]
 - Rod Bearings Deltawall, 3.25" [83 mm] Diameter
- Valve Lifters Ceramic Roller/Follower
w/Hardened Steel Pin
- Charge Air Cooling Chassis Mounted, Air-To-Air
- Fuel System:
 - Electronic Unit Pump Bosch PLD 20
with Rate Shaping
 - Injection Nozzles Bosch VCO, 22 mm
No leakoff, Centered Holder
 - Supply Pump Bosch, Gear Type
 - Filter Spin On, Disposable Primary and Secondary
- Lubrication System:
 - Type Full Pressure, Wet Sump
 - Oil Filters 2 Spin-On Full Flow Disposable,
1 Centri-Max *Ultra* Centrifugal
 - Total Oil Capacity 56 qts. [52.9 L] (Incl's. Filters)
 - Drain Plug Magnetic
- Cooling System:
 - Capacity 13 qts. [12.3 L]
 - Thermostats Twin, wax element barrel
type 180°F [82°C] opening
 - Hose Material Gates Blue Stripe
- Air Compressor:
 - Type Meritor WABCO
 - Standard Capacity 18.7 cfm [8.9L/s]
- Turbocharger Borg Warner S300
- Accessory Belt 10 Rib, Poly-V

GEARING RECOMMENDATIONS

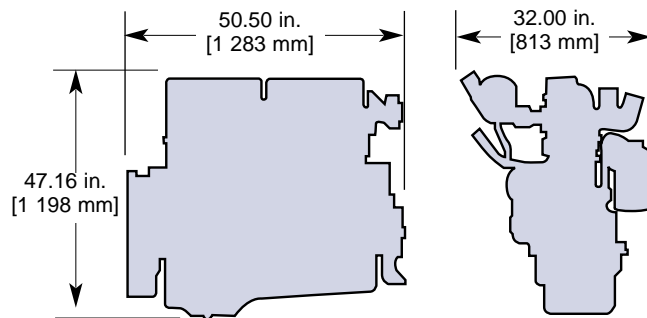
Proper gearing is necessary to achieve optimum vehicle performance and fuel economy. Vehicle specifications, including engine, transmission, axle ratio, and tire selection, should generally be selected to meet the following criteria:

Startability	Highway Applications	≥ 10%
	On-Off Highway Applications	≥ 16%
Gradeability	@ Cruise Max. MPH	≥ 0.5%
	@ Peak Torque, Top Gear	≥ 1.5%
Cruise RPM		1700 ± 50 RPM*

*Cruise RPM = Engine speed in top gear @ Cruise Max. MPH setting. Limited to 65 MPH. At higher speeds gear truck to obtain above RPM @ 65 MPH.

Refer to the MACKTRAQ® electronic sales tool to obtain startability, gradeability and cruise RPM results for specific vehicle specifications. Special service applications, road surfaces, high GCW's or other factors may require different gearing considerations.

DIMENSIONS



OIL/FILTER SERVICE INTERVALS

Refer to the latest version of Mack Maintenance & Lubrication Manual TS494.

OPTIONAL EQUIPMENT*

- Higher Capacity Air Compressor available.
- Ether Injection Cold Start Systems
- J-Tech Engine Brake
- Engine Block Heater (120 or 240 volts)
- Viscous & On-Off Fan Drive Options
- Iron Flywheel Housing
- High Capacity Alternators
- Fuel Heaters/Fuel-Water Separators

* Availability may be chassis model dependent.

The information in this brochure was accurate as of the day of publication. Mack Trucks, Inc. reserves the right to make changes in specifications, equipment or design, or to discontinue models or options without notice at any time.