



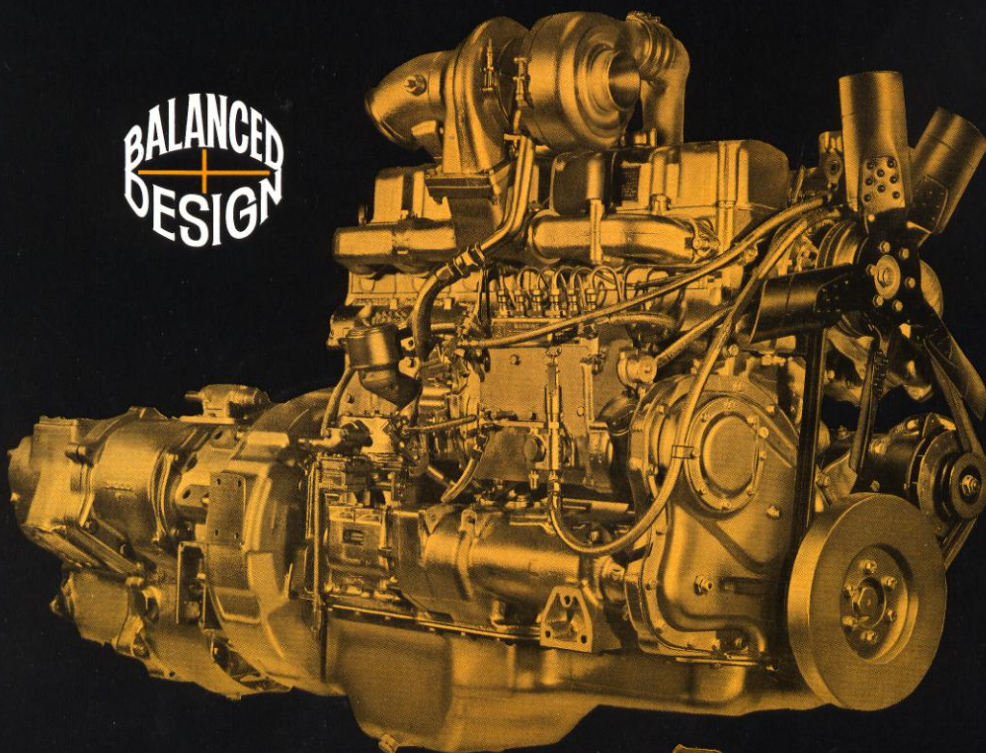
# **maxidyne<sup>®</sup>**

**ENDT 675 ENGINE AND**

# **maxitorque<sup>®</sup>**

**TRL 107 SERIES TRANSMISSION**

**BALANCED  
DESIGN**



SIX CYLINDER  
FOUR CYCLE DIESEL

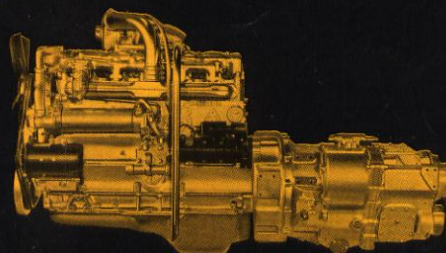
CONSTANT HORSEPOWER  
OVER A WIDE RANGE OF  
ENGINE & ROAD SPEEDS

ULTIMATE TURBOCHARGER  
CHARACTERISTICS

● REDUCED SHIFTING  
REQUIREMENTS

● INCREASED ALL-AROUND  
OPERATING EFFICIENCY

● LOWER INTERNAL  
TEMPERATURES



**MACK TRUCKS, INC.**



# maxidyne

## ENDT 675 ENGINE

A new relationship between the operation of an exhaust gas-driven turbocharger and a fuel supply control characterizes the new Mack Maxidyne Engine, ENDT675. A substantially constant horsepower output is available throughout the operating speed range.

Unlike conventionally turbocharged engines, the Maxidyne has the ability to increase both the fuel charge and air supply when the engine speed is decreasing. As the engine speed in the operating range is increased the amount of air supplied and fuel injected decreases per revolution. It is this feature which brings about the constant horsepower output.

The development of the new Mack triple countershaft TRL107 Maxitorque Series transmission for use with the Maxidyne is in keeping with Mack's long-standing balanced design concept. The Maxitorque is smaller, lighter and simpler to operate than multi-speed transmissions of equal capacity. The combined power train results in 65% less shifting for the driver in most over-the-road operations.

### DETAIL SPECIFICATIONS:

#### MAXIDYNE:

Make	MACK
Type	Turbocharged open chamber
Number of Cylinders	Six
Bore & Stroke	4 7/8" x 6"
Piston Displacement	672 cu. in.
Compression Ratio	14.86:1
A.M.A. Horsepower	57
Brake Horsepower	
@ 1200 R.P.M.	206
@ 1700 R.P.M.	237
@ 2100 R.P.M.	235
Maximum Torque	
@ 1200 R.P.M.	(lb.-ft.) 906

#### CYLINDER BLOCK:

Cylinder Block	Chromium-nickel-copper alloy iron
Cylinder Liners	Centrifugally cast alloy iron
Type	Dry
Cylinder Heads Cast In	Threes

#### PISTONS:

Pistons, Material	Aluminum Alloy
Piston Rings, Compression	Three Chrome Plated
Oil Control	One Chrome Plated
Wristpin, Type	Full-floating
Diameter	2"
Retention	Retaining Rings

#### CONNECTING RODS:

Type	Drop-forged I-Beam
Cap Angle	35°
Length, Center to Center	10-11/16"

#### CRANKSHAFT:

Type	Eight Counterweights
Material	Drop forged Medium Carbon Steel, Elotherm Hardened Journals and Fillets
Weight	204 lbs.
Vibration Damper	Viscous Type, Torsional
Main Bearings, Material	Copper-lead, Steel Back with Babbitt Overlay
Number & Diameter	Seven, 4"
Total Length	11-55/64"

#### CAMSHAFT:

Bearings	Seven
Timing Drive	Drop-forged, Medium Carbon, Hobbled, Shaved, Martempered & Honed Gears

#### VALVES:

Location	In Cylinder Head
<b>INLET:</b>	
Type	Poppet, With Positive Rotators
Material	Chromium-silicon Steel Stellite Faced (Chromium Plated Stem)
Lift	0.56"
<b>EXHAUST:</b>	
Type	Poppet, With Positive Rotators
Material	Face, Stellite; Head & Adjacent End of Stem, Inconel, Upper End of Stem, Silicon-Chromium High Strength Alloy
Lift	0.56"

#### CLEAR. DIAMETER OF PORTS:

Inlet	2-3/64", 30° Seats
Exhaust	1-11/16", 30° Seats

#### FIRING ORDER:

	1-5-3-6-2-4
Fuel Injection Pump, Make	American Bosch, APE6-BB
Type	Multiple Unit, Flange Mounted
Transfer Pump, Type	Plunger
Nozzles, Type	Five-Hole Spray
Fuel Filters	Screw On, Throw Away
Governor, Make	American Bosch
Type	Mechanical
Model	GVB

#### TURBOCHARGER:

Type	Exhaust Gas Driven, Centrifugal
Lubrication & Cooling	From Engine (Oil)

#### AIR SUPPLY:

Air Compressor, (Gear Driven)	Tu-Flo 500 (12 cu. ft.)
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#### COOLING SYSTEM:

Thermostat, To Open	170°
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#### LUBRICATING SYSTEM:

Lubrication, Oil Filter:	
Make & Model	WGB, WB-5
Type	Combination Full-Flow By-pass
Capacity	12 qts. (Filter Only)
Oil Capacity	34.3 qts. (incl. Filters)



# SAE DIESEL ENGINE TEST CODE

Curve Sheet DD-4

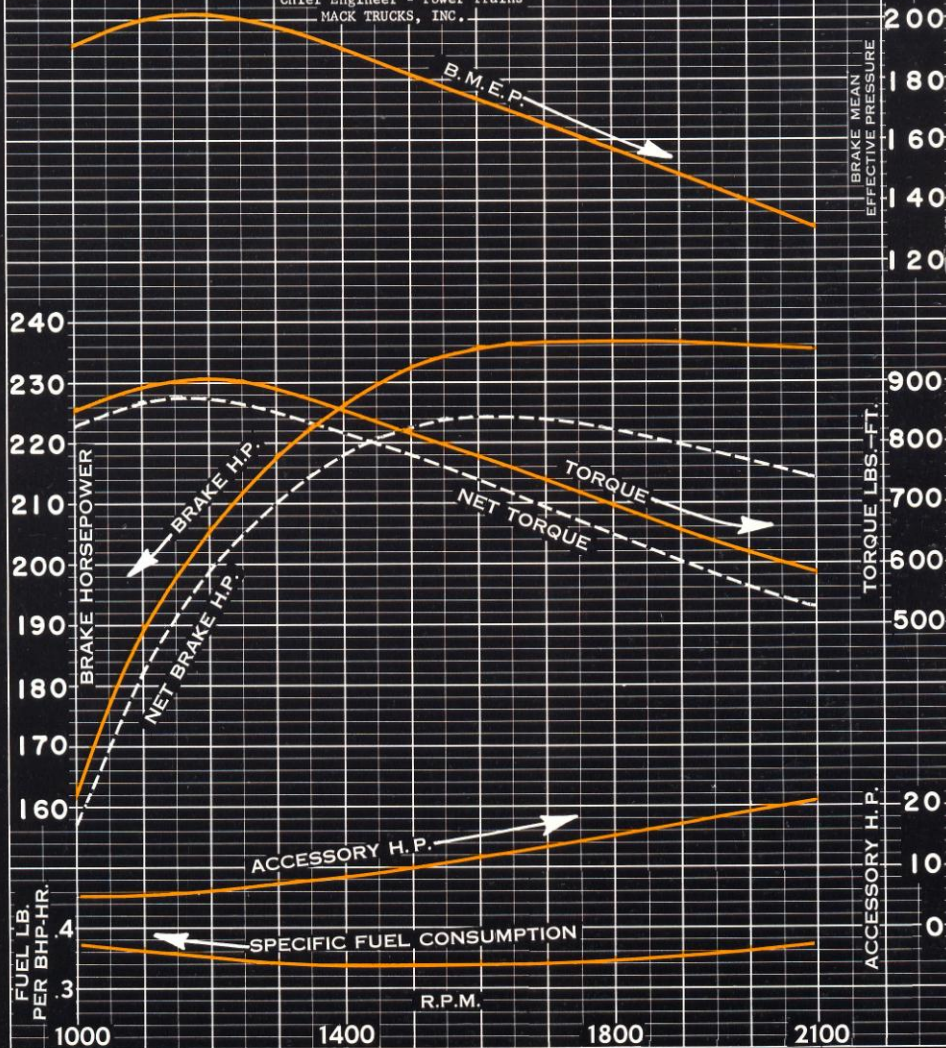
Eng. Mfr. **MACK** Model **ENDT675** Serial No. \_\_\_\_\_ Date \_\_\_\_\_  
 No. Cyl. **6** Bore **4 7/8** Stroke **6"** Displacement **672 CU. IN.**  
 Fuel **DIESEL** For Details see Mech. Inform. Sheet **ENDT675-70** and Log Sheet **T-2B-1**

## MAXIDYNE

CERTIFIED AS TRUE PERFORMANCE WITHIN 5% ENC273

PER: *W. J. Pelizzoni*

Chief Engineer - Power Trains  
 MACK TRUCKS, INC.





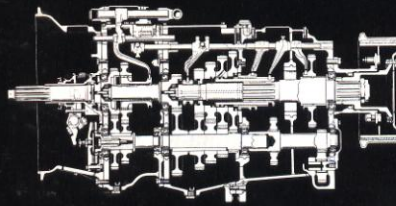
# MACK MAXITORQUE® TRL 107 TRDXL 107

## 5 SPEED AND LOW RANGE TRIPLE-COUNTERSHAFT TRANSMISSIONS



**TRL 107**

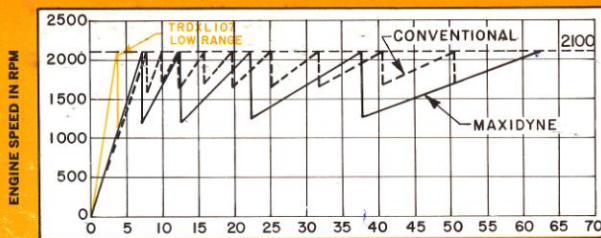
REV	2ND	4TH	RATIOS:	
○	○	○	SPEED	RATIO
○	○	○	First	8.59
○	○	○	Second	4.99
○	○	○	Third	2.83
○	○	○	Fourth	1.66
○	○	○	Fifth	1.00
○	○	○	Reverse	8.13



**TRDXL 107**

LO-LO	REV	2ND	4TH	RATIOS:		LOW RANGE
○	○	○	○	SPEED	MAIN BOX	
○	○	○	○	First	8.59	14.43
○	○	○	○	Second	4.99	—
○	○	○	○	Third	2.83	—
○	○	○	○	Fourth	1.66	—
○	○	○	○	Fifth	1.00	—
○	○	○	○	Reverse	8.81	14.82

**SHIFT COMPARISON**



The adjacent shift chart compares an average ten-speed transmission with the new Mack "Maxitorque". Note the TRL107 has five evenly spaced steps to cover the same speed range and takes full advantage of the horsepower and torque of the "Maxidyne". Far less shifts are required to accomplish the same purpose.

Model	TRL 107
Make	Mack (3 Countershafts)
Number of Speeds:	
Forward	Five
Reverse	One
Case, Material	Aluminum
Face of Gears & Type:	
Fifth (Countershaft Drive Gear)	1.375" Spur
Fourth	1.312" Spur
Third	1.406" Spur
Second	1.375" Spur
First	1.125" Spur
Reverse	1.125" Spur
Control	Hand Lever
Bearings:	
Main Drive Pinion	Radial, single-row ball
Spigot	Cylindrical roller, single-row
Main Shaft, Rear	Radial, single-row ball
Countershaft, Front	Radial, single-row ball (3)
Middle	Cylindrical roller, single-row (3)
Rear	Radial, single-row ball (3)
Reverse, Idler	Cylindrical roller, single row (3)
Mainshaft:	
Dia. over Maximum, Spline	3.677"
Dia. at root of Minimum, Spline	1.729"
Countershaft:	
Minimum Diameter	1.875"
Shift Type:	
First, Second, Third, Fourth & Fifth	External Clutch
Reverse	Sliding Gear
Lubrication: Pump fed through rifle drilled passages in main shaft to free running gears.	
Shaft Centers	6.2500"
Power Take-Off Openings:	
Left Side	Std. SAE 8-hole
Right Side	Std. SAE 6-hole

Model	TRDXL 107
Make	Mack (3 Countershafts)
Number of Speeds:	
Forward	Six
Reverse	Two
Case, Material	Aluminum
Face of Gears & Type:	
Main, Fifth (Countershaft Drive Gear)	1.375" Spur
Fourth	1.312" Spur
Third	1.406" Spur
Second	1.375" Spur
First	1.125" Spur
Reverse	1.125" Spur
Low Range; Countershaft Gears	1.000" Spur
Lo	1.000" Spur
Control	Hand Lever
Bearings:	
Main and Low Range Drive Pinion	Radial, single-row ball
Spigot (Main & Low Range)	Cylindrical roller, single-row
Main Shaft, Rear	Radial, single-row ball
Countershaft, Front	Radial, single-row ball (3)
Middle	Cylindrical roller, single-row (3)
Rear	Radial, single-row ball (3)
Reverse, Idler	Cylindrical roller, single row (3)
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**MACK TRUCKS, INC.** Allentown, Pa. Truck Capital of the World

