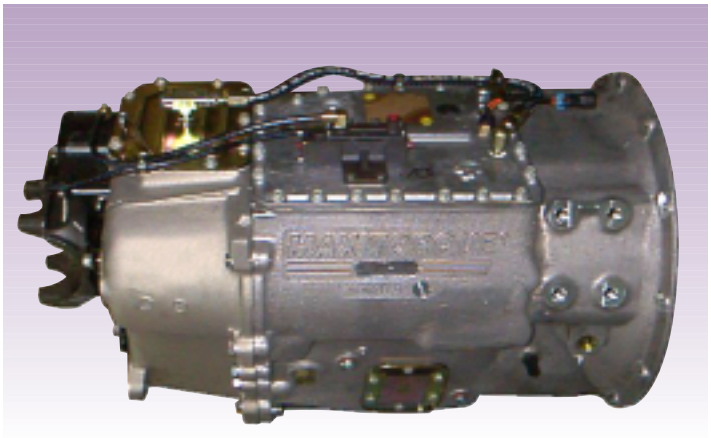
MACK

T-310
MAXITORQUE® ES

TEN SPEED TRANSMISSION

- **Aluminum Case**
- **Triple Countershaft**
- **Reliable and Durable**
- **On/Off Highway Applications**
- **Versatile Power Take-Off Capabilities**



The Mack T310 is an excellent general purpose transmission suited for on-highway as well as on/off highway applications. The 39% steps make it easy to shift and compatible with any of the Mack engines. First gear is 13.81:1 while top gear is .73:1 overdrive resulting in an overall range of 19.04:1.

FEATURES

- **Gearing**
  All the T300 gearing uses a spur type design for maximum efficiency and minimum friction. Gear blanks are designed with the aid of computers to optimize the balance between weight and strength. Teeth are cut to a precise geometry to insure quiet, uniform rotating motion and then carburized to assure the intended loads can be carried without breaking or wearing. In top gears, dovetail clutch teeth maintain engagement under varying loads.

  Top gear in all T300 transmissions is an overdrive. The overdrive allows required highway speeds to be met at the recommended engine speed with lower driveline torques. Because driveline torques are lower, lighter, less expensive shafts and slower, more durable rear axles carriers can be speced.

- **Lubrication**
  Splash lubrication is standard for the T300. Gears and bearings receive lubrication from the lower countershaft dipping and spinning in oil. For extreme operating conditions or unusually high loads, a pump can be speced to assure lubricant flow to critical areas. Magnetic drain plugs are also standard as is a main case magnetic chip trap to remove metallic contaminants from circulation.

- **Case**
  The T300 case is a permanent mold, high strength, aluminum alloy casting . An SAE #1 bell housing is cast integral with the case to form a one-piece, light weight component with maximum rigidity and no misalignment. Within the case, iron bearing retainers support countershaft and mainshaft bearings to provide rigidity and fit integrity throughout the life of the transmission.

  Because of the excellent heat transfer properties of aluminum, T300s naturally run cool and have less requirement for auxiliary transmission oil coolers. For those applications which do require additional cooling, oil-to-air and oil-to-water systems are available.

- **Countershafts**
  The hallmark of the T300 is its triple countershaft design. Spreading the load over three shafts rather than just two lowers the stress on components and increases life. The layout of the three shafts gives the T300 a compact design and results in shorter transmission which improves driveline angularity.

  The countershafts are forged alloy steel with both integral and pressed-on gears. Tapered roller bearings, which have the highest load carrying capacity in the smallest envelope, insure a smooth, long operating life.

- **Improved Shift Quality**
  All of the T300 transmissions are based on an 'H' shift pattern and feature improvements to make the operation easier and more comfortable. The shift rail profile and springs have been redesigned to smooth transitions in and out of neutral with each up and down shift. Additionally, fine pitch sliding clutches permit quicker, smoother shifts as well as improved durability. Shift levers have also been revised for a tighter, more ergonomic shift pattern and isolated to reduce vibration.

  Range shifts are executed after toggling a selector on the front of the shift knob.

- **Power Take-Off Capabilities**
  As the leader in vocational applications, all the T300 transmissions offer as standard main case, speed dependent SAE 6 and 8 bolt PTO mounts on the right and left sides, respectively.

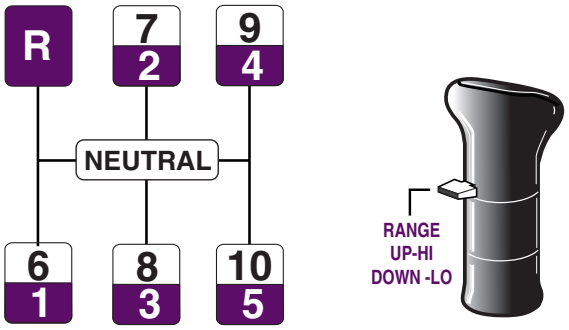
Mack Trucks, Inc., Allentown, Pennsylvania
www.macktrucks.com

T-310
MAXITORQUE® ES

• TYPE	10 SPEED OVERDRIVE, TRIPLE COUNTERSHAFT
• LENGTH*	31.40" [798 mm]
• WEIGHT (DRY)	665 LB [302 kg]
• OIL CAPACITY	24 PINTS [11.36 l]
• TORQUE RATING	1800 LB. FT. [2 440 N•m]
• NUMBER OF SPEEDS	
FORWARD	TEN
REVERSE	TWO
OVERALL TRANSMISSION RANGE	19.04:1
• CASE, BELL HOUSING	
MATERIAL	ONE-PIECE HEAT-TREATED ALUMINUM
BELL HOUSING TYPE	SAE#1
• TYPE OF GEARS	SPUR
• CONTROL	SHIFT LEVER WITH AIR SHIFT RANGE SELECTOR
• LUBRICATION	SPLASH
• DRAIN PLUG	MAGNETIC
• POWER TAKE-OFF OPENINGS	
LEFT SIDE-STANDARD SAE 8 BOLT	70% OF ENGINE RPM
RIGHT SIDE-STANDARD SAE 6 BOLT	70% OF ENGINE RPM

* From Bell Housing mounting flange to forward seating surface of companion flange or yoke.

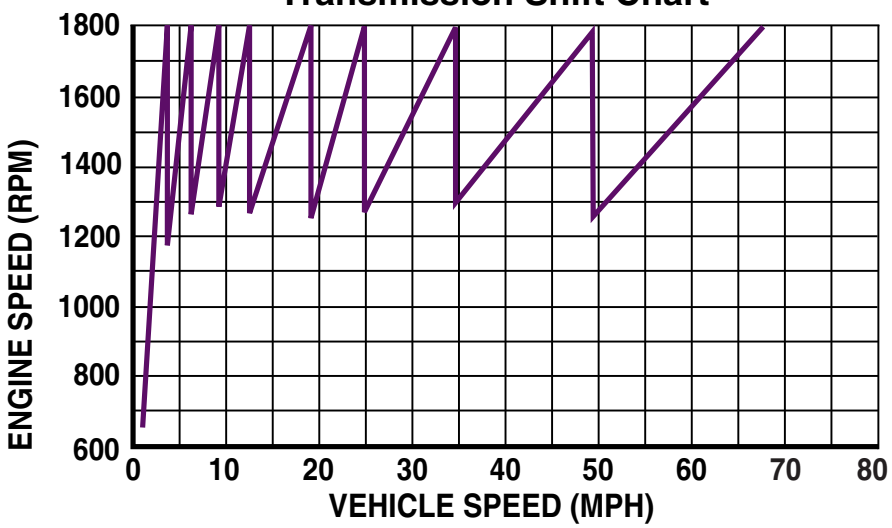
Shift Pattern and Shift Lever



Gear Ratios

GEAR	RATIO	% STEP
1st	13.81	
2nd	10.05	37
3rd	7.18	40
4th	5.17	39
5th	3.75	38
6th	2.67	41
7th	1.94	38
8th	1.39	40
9th	1.00	39
10th	.73	38
REV Lo	14.73	
REV Hi	2.85	

Transmission Shift Chart



T-310 w/1800 RPM ENGINE, REAR RATIO 3.86 AND 11R22.5 TIRES (BASED ON 504 TIRE REVS PER MILE)

A SALES ENGINEERING PUBLICATION

TRA069 136 1326 11/2002 (11/19/02)

Printed in U.S.A.