MACK

T-313LR MAXITORQUE ES

THIRTEEN SPEED TRANSMISSION

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

The T-313LR is an excellent choice for high performance and heavy haul applications. For applications which require backing control, the LR model features a slow 28.98:1 reverse ratio. The lower gears have easily shiftable 40% steps while the upper gears can be split at 18% steps to maximize highway control. A 23.13:1 overall ratio gives it the versatility to handle a wide variety of tasks on or on/off highway. The low forward ratio is 16.42:1 and top gear is .71:1 overdrive for highway cruising. PTOs can be driven from both fixed and speed dependent mounts on all models.

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 and 'splits' via a thumb rocker switch.

- **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. Rear mounts on any of the three countershafts are also available.

  Additionally, the T-313LR offers gear dependent 6 and 8 bolt mounts on the right and left side of the compound case respectively. An optional, neutralizing range air cylinder permits operation of these multi-speed PTOs while the vehicle is stationary.

Mack Trucks, Inc., Allentown, Pennsylvania
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T-313LR
MAXITORQUE ES

• TYPE	13 SPEED OVERDRIVE, TRIPLE COUNTERSHAFT
• LENGTH*	36.44" [925 mm]
• WEIGHT (DRY)	781 [354 kg]
• OIL CAPACITY	30 PINTS [14.20 l]
• TORQUE RATING	1800 LB. FT. [2 440 N•m]
• NUMBER OF SPEEDS	
FORWARD	THIRTEEN
REVERSE	TWO
OVERALL TRANSMISSION RANGE	23.13:1
• 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
REAR PTO DRIVE	70% OF ENGINE RPM

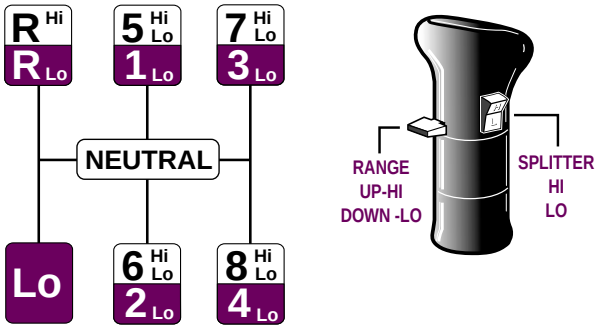
* From Bell Housing mounting flange to forward seating surface of companion flange or yoke.

Power Take-Off Compound Case

Left Side — Standard SAE 8 Bolt
Right Side — Standard SAE 6 Bolt

SPEED, % OF ENGINE (RPM) (Gear Dependent Selection)	T313LR
Lo	-14.3%
1st	-26.7%
2nd	-37.4%
3rd	-51.9%
4th	-72.9%
Rev	8.1%

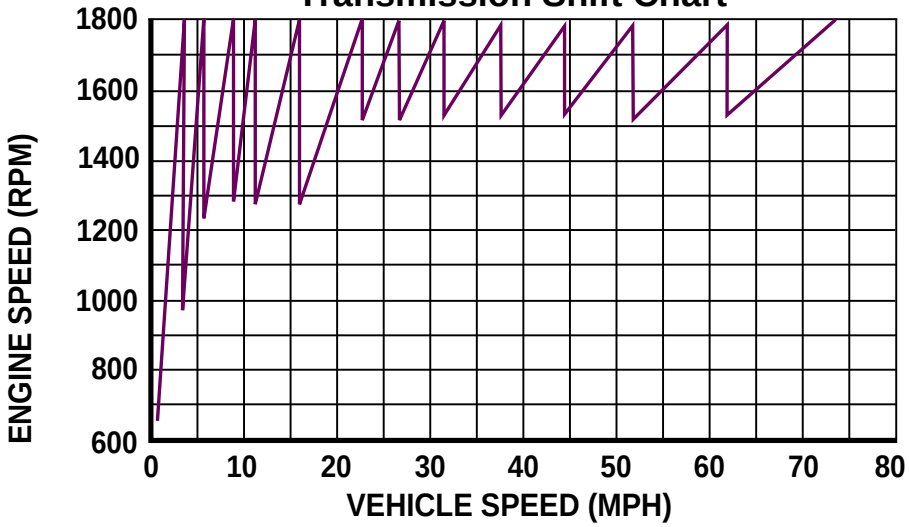
Shift Pattern and Shift Lever



Gear Ratios

GEAR	RANGE SELECTOR	SPLITTER SELECTOR	LEVER POSITION	RATIO	% STEP
1st	Lo	Lo	Lo	16.42	
2nd	Lo	Lo	1st	8.78	87
3rd	Lo	Lo	2nd	6.28	40
4th	Lo	Lo	3rd	4.52	39
5th	Lo	Lo	4th	3.22	40
6th	Hi	Lo	5th	2.29	41
7th	Hi	Hi	5th	1.94	18
8th	Hi	Lo	6th	1.64	18
9th	Hi	Hi	6th	1.39	18
10th	Hi	Lo	7th	1.18	18
11th	Hi	Hi	7th	1.00	18
12th	Hi	Lo	8th	.84	19
13th	Hi	Hi	8th	.71	18
Rev 1	Lo	Lo	Rev	28.98	
Rev 2	Hi	Hi	Rev	6.41	

Transmission Shift Chart



T-313LR w/1800 RPM ENGINE, REAR RATIO 4.17 AND 11R22.5 TIRES (BASED ON 504 TIRE REVS PER MILE)

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