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906 W. GORE ST. ORLANDO, FL 32805
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Aluminum Case

Triple Countershaft

Reliable and Durable

On/Off Highway Applications

Versatile Power Take-Off Capabilities

Air Shifted Multi-Speed Reverse

An excellent choice for general vocational use, the versatile T310M features an overall ratio of 23.77:1. The 17.35:1 low ratio gives it superior low speed maneuverability while the .73:1 overdrive ratio in top gear allows it to easily cruise at highway speeds to and from the job site. The 40% steps make it easy to shift and compatible with the Mack Econodyne as well as the Maxidyne engines. The T310M also has the Mack exclusive shiftable multi-speed reverse as well as both fixed and speed dependent PTO options. If you need an optional ratio rear PTO use the T-310ME.

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 assure 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 specified.

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 specified 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 counter-shaft 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 agility.

Countershafts (Continued)

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.

Shiftable Multi-Speed Reverse

The Mack exclusive shiftable multispeed reverse is invaluable in applications operating in reverse for extended time periods or over long distances. After selecting 'reverse' via a rocker-type air switch on the knob, operators can follow the same shift pattern as the forward gears and progressively shift through different reverse speeds. The resulting flexibility and control reduces cycle time and gives the T-310M wide ranging versatility in reverse.

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-310M 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.
- Type: 10 Speed Overdrive, Triple Countershaft
- Length*: 35.44" [925 mm]
- Weight (Dry): 775 lb [352 kg]
- Oil Capacity: 30 pints [14.20 l]
- Torque Rating: 1800 lb-ft [2400 N•m]
- Number of Speeds: Forward Ten, Reverse (Air Shifted) Six, Overall Transmission Range 23.77:1
- 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, Right Side—Standard SAE 6 Bolt, 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

**Transmission Shift Chart**

- T-310M w/1800 RPM ENGINE, REAR RATIO 4.42 AND 11R22.5 TIRES (BASED ON 498 TIRE REVs PER MILE)

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.

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