Splitter Transmission Mode Diagram



Overview

how splitter gearbox works Fundamentally, a splitter transmission incorporates 2 unique areas into a single unit: the primary gearbox and the splitter comp.

Key Takeaways

A splitter transmission diagram shows the gear layout and shifting positions, illustrating how each primary gear is split into multiple ratios for finer control.

Overview of Splitter Transmission

A splitter transmission is a specialized manual gearbox used in heavy-duty trucks to increase the number of available gear ratios without enlarging the transmission size or complexity. It combines a primary gearbox (typically 4–6 forward gears) with a splitter section, which acts as a two-speed multiplier. Each gear in the primary box can be split into two separate ratios, effectively doubling the number of forward gears (e.g., a 5-speed primary gearbox becomes a 10-speed transmission) through a hydraulically or pneumatically actuated dog clutch that selects either a direct drive or a reduction/overdrive path.

Diagram Structure

Splitter transmission diagrams, such as the Eaton Fuller 13-speed, typically use a double H pattern: Top section: Six primary gearsBottom section: Seven primary gearsSplitter button: Engages the split gear for each primary gearRange selector: Changes between low and high ranges The diagram visually maps upshifting and downshifting sequences, showing which gear lever positions correspond to each combination of range and split gears. This ensures drivers can shift efficiently and maintain optimal engine RPM and torque distribution.

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Operational Example

Select primary gear using the gearshift lever. Engage splitter by pressing the splitter button to choose the higher or lower split ratio. Shift ranges if the transmission has a range selector, effectively moving between low and high gear sets.

This allows precise control over engine speed, fuel efficiency, and load handling, especially on inclines or with heavy trailers.

Twin Splitter and Multi-

Speed Variants

Some transmissions, like twin-splitter 12-speed systems, use two splitter stages, further increasing the number of available ratios. These diagrams show multiple gates and positions for each split, often requiring careful sequencing to avoid over-revving or mechanical stress.

Key Benefits

Finer control over torque and speedImproved fuel efficiencyEnhanced drivability under varying loads and terrainExtended transmission life by reducing engine strain By referencing a splitter transmission mode diagram, drivers can visualize gear positions, understand the interaction between primary and split gears, and follow correct shifting sequences for smooth operation and optimal performance.

Article Content

how splitter gearbox works

Fundamentally, a splitter transmission incorporates 2 unique areas into a single unit: the primary gearbox and the splitter complementary section.

Eaton Twin Splitter Transmission Manual | PDF | Motor Oil ...

It contains 7 sections that cover general information, the air system, shifting controls, the main transmission, changing the input shaft, the upshift brake, and PTO installation.

General Information, Eaton Fuller Splitter and Range-Shift ...

Each transmission consists of a 5-speed front section and a 3-speed auxiliary section. The auxiliary section contains low- and high-range ratios, plus a splitter gear.

Eaton Fuller 13-Speed and 18-Speed Splitter and Range-Shift ...

Chapter 15: Manual Transmissions and Hydraulic Clutch 15.1 Eaton Fuller 13-Speed and 18-Speed Splitter and Range-Shift Transmissions 15.1.1 General Information, Eaton Fuller Splitter

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Twin Splitter Transmission (12 Speed)

Referring to the air circuit diagram it will be seen that with air pressure to the supply port ''S'' only, all six indicators on the three logic valve units should be able to be pushed in.

Connection network of FTTH using a passive splitter III

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Power dividers and directional couplers

Power dividers (also power splitters and, when used in reverse, power combiners) and directional couplers are passive devices used mostly in the field of radio technology.

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MECHANICAL GEARBOX CONTROL 1.1 GENERAL V300382 Within the entire CF65/75/85 vehicle series many gearbox variations as well as the accompanying controls are possible, both mechanical

Example of a power-split transmission design with power paths....

A new dynamic model for a two-input two-path split torque transmission system which considers meshing error, time-varying meshing stiffness, and meshing-in impact is proposed.

Study and Analysis of a Multi-Mode Power Split Hybrid Transmission

A two-motor power-split dedicated hybrid transmission (DHT) with two planetary gears is proposed for the applications of a hybrid electric vehicle (HEV) and plug-in HEV (PHEV). The

Lecture9: Thelosslessbeamsplitter Lec

where, in principle, the transmission and reflection coefficients for light impinging onto the beam splitter from the light or right could be different. We see from Eqs. (9.2) and (9.3) that the mode functions A(k

Design and analysis of 2D one-way splitter waveguide based on

By eliminating rows and columns of rods, we calculate the transmission at the outputs, revealing resonating modes in the middle of the structure with spatial symmetry.

Comprehensive Guide to Optical Splitters

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A PLC (Planar Lightwave Circuit) splitter is a type of single-mode splitter that can evenly distribute the optical signal from one input fiber to multiple

Understanding the split valve operation in Eaton Fuller

Understanding the diagram of this valve is crucial for mechanics and drivers who need to troubleshoot or repair transmission issues. The diagram of the Eaton

Powertrain configuration design for two mode power split hybrid ...

This paper presents a new method to design the configuration of two mode power split hybrid transmission using the combination of the simple planetary gear trains (PGT).

Wilkinson Theory

This new configuration allows us to split the original diagram into two separate circuits as shown in the figure. We can see why even-odd mode analysis is useful because when circuits have symmetry, we

RF Power Splitter Design: A Wilkinson Circuit Approach

The figure shows both the geometry layout and the transmission line equivalent circuit of the power splitter. The figure above depicts a Wilkinson 2-way power splitter circuit used for simulation using

Eaton Fuller Roadranger Gearbox: Splitting Gears & Using the Splitter ...

RANGE SELECTOR and SPLITTER EXPLAINEDLuke Watson explains how the splitter works and how to split gears on a truck with a roadranger gearbox. Road Rangers m...

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