Truck chassis diagram

Those involved in maintaining, servicing, and repairing semi trucks must understand the systems and components that power, slow, stop, control, direct, support, and stabilize the wheeler. Currently, the main primary source of power for semi trucks is the diesel engine. Some fleets have opted for natural gas sources such as LNG, but it does not have the same level of infrastructure built to accommodate fueling and repairs. There are specific names and terms given to distances between certain parts on a semi-truck. Common term and phrases include;. Without the electrical systems certain features of the truck would not work including the starter, lighting, windshield wiper motors, computer system operation, and the cabin amenities such as a power inverter. Majority of heavy trucks have a push or pull clutch. Some trucks have centrifugal or wet clutches. Trucks with higher torque ratings have a two-plate clutch. The purpose of a two-plate clutch is to increase the friction area and transmit it to the transmission without any slippage. Automated manual transmission equipped trucks have clutches that are managed electronically. Torque converters are found in fully-automatic transmissions such as the ones made by Alison. It is like a clutch for manual trucks but works in a different way. Torque converters are classified as fluid couplings because they use hydrodynamics. Heavy-duty truck transmissions are manual, automated manual, or automatic. Various components of the transmission must provide superior performance for hundreds of thousands of miles. These components of the transmission include the gears, shafts, forks, and bearings. Manual transmissions have two or three countershafts that transmit engine torque from the input to output shaft. The countershafts distribute torque two or three directions, and this results in reduced strain on individual gears. Automated manual transmissions do not have a clutch pedal because the clutch is actuated automatically. The driveshaft is a tube with flanges or end yoke that is attached to the output shaft of the transmission and it helps with maneuverability of the drive axles. Parts of the drive shaft are interconnected with each other and with the transmission with universal joints which allow torque to transmit. Axles give the suspension, wheels, and steering parts a place to be mounted. The drive axles have differential gear shafts which help truckers in the snow prevent their truck from sliding. The front axle is called the steer axle. The rear-two axles are called the drive axles. Two main types of steering systems are found in heavy trucks. They are manual and power steering assist systems. Manual steering systems have worm roller or recirculating ball gears. Power steering assist use a hydraulic pump. Rack and pinion steering are found in newer trucks that provide better control. Air brakes is the most common type of brake system on a heavy truck. Air brakes use a complicated network of pneumatic lines, valves and cylinder that maintain the transfer of compressed air to the brakes. Frame designs vary by manufacturer. Fifth wheel is the part of a semi-tractor that connects to the kingpin of the trailer. The type of connection formed between the coupling of the fifth wheel and kingpin allow the truck to articulate when turning. Fifth wheels can be positioned or slide backward and forward to allow proper distribution of the trailer weight on the drive axles of the tractor. HVAC systems are responsible for climate control of the tractor unit. Some HVAC systems are coupled with auxiliary systems that help balance the in-cabin temperature with engine temperature and engine shutdown features to prevent over-heating. Anti-idling laws are creating an increased need for sophisticated HVAC systems. For example, the development of parking heaters has aided in preventing trucks from idling for extended periods of time. Necessary cookies are absolutely essential for the website to function properly. This category only includes cookies that ensures basic functionalities and security features of the website. These cookies do not store any personal information. Any cookies that may not be particularly necessary for the website to function and is used specifically to collect user personal data via analytics, ads, other embedded contents are termed as non-necessary cookies. It is mandatory to procure user consent prior to running these cookies on your website. Pin 3. Leave a Reply Cancel reply Your email address will not be published. This website uses cookies to improve your experience and to personalise content and adverts, to provide social media features and to analyse traffic. We'll assume you're ok with this, but you can opt-out if you wish. Accept Reject Read More. Close Privacy Overview This website uses cookies to improve your experience while you navigate through the website. Out of these, the cookies that are categorized as necessary are stored on your browser as they are essential for the working of basic functionalities of the website. We also use third-party cookies that help us analyze and understand how you use this website. These cookies will be stored in your browser only with your consent. You also have the option to opt-out of these cookies. But opting out of some of these cookies may affect your browsing experience. Necessary Necessary. Non-necessary Non-necessary. To construct any automobile, chassis is the basic requirement; Chassis is a French term and it was initially used to denote the frame or main structure of a vehicle. It is extensively used in complex vehicles except for the body. A vehicle without a body is called chassis. Chassis is the backbone of the vehicle. The components of the vehicle such

as power plants, transmission systems, axles, wheels and tires, suspension, controlling systems such as braking, steering, etc. It is the main mounting of all components including the body. So, it is also called a carrying unit. Frame 2. Front suspension 3. Steering mechanism 4. Engine, clutch and gearbox 5. Radiator 6. Propeller shaft 7. Wheels 8. Rear and front springs and shock absorber 9. Differential unit Universal joint Brakes and braking systems Storage battery Fuel tank Electrical systems Silencer Shock absorbers, fuel tank, petrol, and hydraulics pipe cables, and some means of mounting these components. The chassis can be classified into different types on the following basis. According to the fitting of the engine:. In full-forward chassis, the engine is fitted outside the driver cabin or seat. Example: Cars and Mahindra jeeps. Example: Tata SE series of vehicles. In bus chassis, the total engine is fitted in the driver cabin. It provides an increased floor area in the vehicle. The driver seat is just above the front wheel. Example: Busses and trucks. In most of vehicles, the engine is fitted at the front portion of chassis. The drive is only given to the front wheels. Example: Matador vehicles. In some vehicles, the engine is fitted at the back portion of the chassis. Example: Volkswagen cars, Leyland bus of England. In some vehicles, the engine may be fitted at the centre of the chassis. Example: Royal tiger world master buses of Delhi transport. According to the number of wheels fitted in the vehicles and the number of driving wheels:. Full forward chassis:. This type of chassis consists of an engine fitted in front of the driver seat or driver cabin. It is commonly used in cars and old models of TATA trucks. The driver cannot see the road just in front of the front tires because he sits behind the engine quite far off from the front axle. To help the driver to see as close to the wheels as possible, the slope is provided at the mudguard. Moreover, passengers or goods cannot be carried in a portion of the chassis where the engine is fitted. Semi-forward chassis:. This chassis, the engine is mounted in such a way that half of it is placed in the driver compartment and half out of the driver compartment. These extra passengers or luggage can be placed in the portion of chassis thus saved. Semi forward chassis are used in standard Bedford pick-ups and Tata-Mercedez trucks. Bus Chassis:. To allow the driver to see the road just in front of the front wheels as well as to make driving easier and trouble-free especially in the congested areas, full forward chassis was modified by mounting the engine completely inside the driver cabin. In addition to providing an extra clear view of the road in front of the front wheels, it provided an increased floor area to accommodate three extra seats. Engine at front chassis:. This chassis is used in most of the heavy vehicles is of three common types. In this chassis, the engine is fitted at the rear of the vehicle thus saving a lot of space at the front eliminating long propeller shafts and providing a clear view of the road at the front. This system is used in popular vehicles like Renault, Daulphine, and Volkswagen. The engine is also mounted at the rear end of the chassis in imported Leyland Double Decker Buses. In this chassis fix up of controls like gear shift lever, oil, and fuel gauge, the accelerated linkage is very complicated. Moreover natural draft of air to the radiator due to forward motion of the vehicle is also missing. In this chassis, the engine is fitted in the centre its centre under the chassis to remove defects of the engine fitted at the rear chassis and to use the complete floor of the space. Standard truck chassis are used for making trucks and to permit the truck to carry the exact weight for which they are designed, the load is piled up. But in case of bus chassis, seats are fixed and distance between each seat is fixed as per Motor Vehicle Rules, therefore the vehicle will be running with less weight as less number of passengers can travel in it. To accommodate more passengers and to carry more weight, bus chassis are provided with a longer wheelbase i. In order to increase the floor space to accommodate more goods and passengers, a certain length of the chassis is extended after the rear axle rear overhang and after the front axle front overhang. It is an improved form of chassis used in flat of Padmani cars. In this chassis half-frame bolted to the floor of the vehicle is fixed at the front end, where the engine gearbox and front suspension is fixed. The rear portion of the floor functions as a frame for the vehicle body. Currently, he is working in the sheet metal industry as a designer. Additionally, he has interested in Product Design, Animation, and Project design. He also likes to write articles related to the mechanical engineering field and tries to motivate other mechanical engineering students by his innovative project ideas, design, models and videos. Your email address will not be published. Save my name and email in this browser for the next time I comment. This site uses Akismet to reduce spam. Learn how your comment data is processed. Introduction to Seals : Oil under pressure is moving in every hydraulic circuit. This leakage of Introduction to Slotting Machine : The slotter or slotting machine is also a reciprocating type of machine tool similar to a shaper. It may be considered as a vertical shaper. The machine operates Skip to content. Table of Contents. Leave a Reply Cancel reply Your email address will not be published. Continue Reading.