DOWNLOAD PDF MOTOR VEHICLE ENGINE PARTS

Chapter 1 : How to Rebuild an Engine (with Pictures) - wikiHow

The core of the engine is the cylinder, with the piston moving up and down inside the cylinder. Single cylinder engines are typical of most lawn mowers, but usually cars have more than one cylinder (four, six and eight cylinders are common). In a multi-cylinder engine, the cylinders usually are.

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Chapter 2 : Aftermarket, Performance and Add-On Parts

The most basic parts of any car are the engine, fuel system, ignition system, battery, charging system, starting system, cooling system, transmission, steering system and timing belt.

Terminology[edit] The word engine derives from Old French engin , from the Latin ingeniumâ€”the root of the word ingenious. Pre-industrial weapons of war, such as catapults , trebuchets and battering rams , were called siege engines , and knowledge of how to construct them was often treated as a military secret. The word gin, as in cotton gin , is short for engine. Most mechanical devices invented during the industrial revolution were described as enginesâ€”the steam engine being a notable example. However, the original steam engines, such as those by Thomas Savery , were not mechanical engines but pumps. In this manner, a fire engine in its original form was merely a water pump, with the engine being transported to the fire by horses. In modern usage, the term engine typically describes devices, like steam engines and internal combustion engines, that burn or otherwise consume fuel to perform mechanical work by exerting a torque or linear force usually in the form of thrust. Devices converting heat energy into motion are commonly referred to simply as engines. Examples of engines which produce thrust include turbofans and rockets. When the internal combustion engine was invented, the term motor was initially used to distinguish it from the steam engineâ€”which was in wide use at the time, powering locomotives and other vehicles such as steam rollers. The term motor derives from the Latin verb moto which means to set in motion, or maintain motion. Thus a motor is a device that imparts motion. Motor and engine are interchangeable in standard English. A heat engine may also serve as a prime mover â€”a component that transforms the flow or changes in pressure of a fluid into mechanical energy. Another way of looking at it is that a motor receives power from an external source, and then converts it into mechanical energy, while an engine creates power from pressure derived directly from the explosive force of combustion or other chemical reaction, or secondarily from the action of some such force on other substances such as air, water, or steam. More complex engines using human power , animal power , water power , wind power and even steam power date back to antiquity. Human power was focused by the use of simple engines, such as the capstan , windlass or treadmill , and with ropes , pulleys , and block and tackle arrangements; this power was transmitted usually with the forces multiplied and the speed reduced. These were used in cranes and aboard ships in Ancient Greece , as well as in mines , water pumps and siege engines in Ancient Rome. The writers of those times, including Vitruvius , Frontinus and Pliny the Elder , treat these engines as commonplace, so their invention may be more ancient. By the 1st century AD, cattle and horses were used in mills , driving machines similar to those powered by humans in earlier times. According to Strabo , a water powered mill was built in Kaberia of the kingdom of Mithridates during the 1st century BC. Use of water wheels in mills spread throughout the Roman Empire over the next few centuries. Some were quite complex, with aqueducts , dams , and sluices to maintain and channel the water, along with systems of gears , or toothed-wheels made of wood and metal to regulate the speed of rotation. More sophisticated small devices, such as the Antikythera Mechanism used complex trains of gears and dials to act as calendars or predict astronomical events. In a poem by Ausonius in the 4th century AD, he mentions a stone-cutting saw powered by water. Hero of Alexandria is credited with many such wind and steam powered machines in the 1st century AD, including the Aeolipile and the vending machine , often these machines were associated with worship, such as animated altars and automated temple doors. Medieval[edit] Medieval Muslim engineers employed gears in mills and water-raising machines, and used dams as a source of water power to provide additional power to watermills and water-raising machines. In , al-Jazari employed a crank - conrod system for two of his water-raising machines. A rudimentary steam turbine device was described by Taqi al-Din [10] in and by Giovanni Branca [11] in Driven by gunpowder, this simplest form of internal combustion engine was unable to deliver sustained power, but was useful for propelling weaponry at high speeds towards enemies in battle and for fireworks. After invention, this innovation spread throughout Europe. Improving on the design of the Newcomen steam engine , the Watt steam engine, developed sporadically from to , was a great step in the development of the steam engine. It enabled rapid development of efficient semi-automated factories on a

previously unimaginable scale in places where waterpower was not available. Later development led to steam locomotives and great expansion of railway transportation. They were theoretically advanced by Carnot in Automobiles[edit] The first commercially successful automobile, created by Karl Benz , added to the interest in light and powerful engines. The lightweight petrol internal combustion engine, operating on a four-stroke Otto cycle, has been the most successful for light automobiles, while the more efficient Diesel engine is used for trucks and buses. However, in recent years, turbo Diesel engines have become increasingly popular, especially outside of the United States, even for quite small cars. Horizontally opposed pistons[edit] In , Karl Benz was granted a patent for his design of the first engine with horizontally opposed pistons. His design created an engine in which the corresponding pistons move in horizontal cylinders and reach top dead center simultaneously, thus automatically balancing each other with respect to their individual momentum. Engines of this design are often referred to as flat engines because of their shape and lower profile. Advancement[edit] Continuance of the use of the internal combustion engine for automobiles is partly due to the improvement of engine control systems onboard computers providing engine management processes, and electronically controlled fuel injection. Forced air induction by turbocharging and supercharging have increased power outputs and engine efficiencies. Similar changes have been applied to smaller diesel engines giving them almost the same power characteristics as petrol engines. This is especially evident with the popularity of smaller diesel engine propelled cars in Europe. Larger diesel engines are still often used in trucks and heavy machinery, although they require special machining not available in most factories. Diesel engines produce lower hydrocarbon and CO2 emissions, but greater particulate and NOx pollution, than gasoline engines. The higher forces and pressures created by these changes created engine vibration and size problems that led to stiffer, more compact engines with V and opposed cylinder layouts replacing longer straight-line arrangements. Combustion efficiency[edit] The design principles favoured in Europe, because of economic and other restraints such as smaller and twistier roads, leant toward smaller cars and corresponding to the design principles that concentrated on increasing the combustion efficiency of smaller engines. Engines have ranged from 1- to cylinder designs with corresponding differences in overall size, weight, engine displacement , and cylinder bores. Several three-cylinder, two-stroke-cycle models were built while most engines had straight or in-line cylinders. There were several V-type models and horizontally opposed two- and four-cylinder makes too. Overhead camshafts were frequently employed. The smaller engines were commonly air-cooled and located at the rear of the vehicle; compression ratios were relatively low. The s and s saw an increased interest in improved fuel economy , which caused a return to smaller V-6 and four-cylinder layouts, with as many as five valves per cylinder to improve efficiency. The Bugatti Veyron Types[edit] An engine can be put into a category according to two criteria:

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Chapter 3 : motor vehicle engine - China HS code & import tariff for motor vehicle engine, page 1

A person who deals in used motor vehicles, motor vehicle salvage or the component parts of motor vehicles who purchases major motor vehicle component parts out of State shall identify the parts in the manner to be determined by the Chief Administrator.

While most modern cars contain computerized systems that are beyond the understanding of all but the most specialized technicians, knowing the basic parts of a car and how they function makes it easier to spot problems, perform basic repairs and drive more responsibly. The Engine Every car is powered by an engine, and most cars use an internal combustion engine that runs on gasoline. Gas, along with air, is drawn into a combustion chamber where it is compressed and ignited by a spark. The resulting combustion provides a power stroke that, when repeated rapidly, powers the car. Engines are often referred to by the number of cylinders they have, and each cylinder contains its own combustion chamber. The Drive Line The drive line is a series of components that connect the motion produced by the engine to the wheels of the car to provide forward or backward motion. The engine is connected to a drive shaft a rigid metal shaft via the transmission. Whether a car uses an automatic or manual transmission, the function is the same: Additional gears transmit power from the drive shaft to the wheels themselves. The battery is used to start the car, providing the initial motion of the engine and powering items such as the fuel pump and starter. Most cars also have additional uses for the electrical system such as power automatic windows or door locks. All of these electrical items are wired to the battery with a series of fuses ensuring that the electrical system can continue to function even if one part fails. Brakes and Wheels Various types of wheels and tires are useful for driving under specific conditions. All-season tires, for example, have the versatility of being used throughout the year, even if severe conditions occur. Disc brakes use a spinning disc, which is pinched between brake pads mounted on calipers to slow the motion of the car. Drum brakes use shoes that push outward to contact the inside of a spinning cylinder, or drum. Some cars contain both types of brakes one type for the front wheels, another for the rear wheels to take advantage of the best each type of braking system has to offer. Dashboard Instruments One of the most visible parts of a car is its instrumentation. Most drivers are aware of the speedometer and fuel gauge, but other dashboard instruments are equally important. A tachometer, which displays engine speed in rotations per minute RPM , indicates how hard the engine is working. An oil pressure gauge or engine temperature gauge can be useful in diagnosing common problems, such as a leak of oil or engine coolant respectively. Stopping a car when oil pressure begins to drop or temperature begins to rise can avoid catastrophic engine failure. References Auto Parts Warehouse About the Author This article was written by the It Still Runs team, copy edited and fact checked through a multi-point auditing system, in efforts to ensure our readers only receive the best information. To submit your questions or ideas, or to simply learn more about It Still Runs, contact us.

Chapter 4 : Importing Vehicles and Engines into the United States | US EPA

This is a list of automotive parts mostly for vehicles using internal combustion engines which are manufactured components of automobiles.

For example, a truck engine would be different as compared to the engine of a regular car due to the amount of power required. Today, many vehicles make use of the internal combustion engine, however with slight variations according to vehicle types, having some added features or components. Developed in the 19th century, this type of engine still remains a popular choice and it continues to benefit from the technological advances in engineering. With advances come several components which all work together to allow the engine to perform the required tasks. In order to be able to understand how an engine works, it is important to understand what the different engine parts are. Many of the automotive engines used in the industry today are four-stroke internal combustion engine that use either gasoline or diesel as a fuel. Being the first phase, fuel and air are taken into the combustion chamber, earning this phase the name; intake phase. A piston is then used to compress the fuel in the next phase. Thereafter a spark is used to ignite the fuel to cause a controlled explosion. This explosion provides the engine with the energy required to drive the car forward. The ignition of the fuel varies in diesel powered engines and gasoline powered engines. Gasoline powered engines make use of a spark to ignite the fuel. The spark is generated through electrical components. On the other hand, the fuel in a diesel engine is ignited through compression and does not require an extra electrical component. After the ignition phase, the final part in the four-stroke phase is the exhaust phase. During which, the unused fuel and carbon emissions are let out of the combustion chamber to allow new fuel and gas to enter the space, allowing the process to start over again. The core component of an engine is the cylinder that houses the pistons. In a regular car engine, it can have anywhere from four to eight cylinders. The arrangement of the cylinder can pose different advantages and disadvantages. Depending on the size and type of vehicle, manufacturers opt for differing number of cylinders to match the requirements of the vehicle. The movements of the pistons in the cylinders provide the engine with power for the vehicle to function. Components of an Engine Spark Plug As mentioned earlier, gasoline engines make use of a spark to ignite the fuel and cause a controlled explosion in the engine. The spark plug in these engines supplies the spark that is required to ignite the air and fuel mixture. Valves These engine parts allow for fuel and air to enter the combustion chamber and later let the exhaust out. They remain sealed during the combustion process and only open when required. Piston rings are located between the piston and the cylinder in which the piston is located in. They provide a sealing edge between the exterior of the piston and the interior of the cylinder. The purpose of these engine parts is to seal the space and prevent the fuel and air mixture on one side of the piston from leaking into the sump during the combustion or compression process and also prevent the oil in the sump from leaking into the combustion area as it would get burnt and lost, deterring the movement of the piston. Connecting rod and Crankshaft The connecting rod connects the piston to the crankshaft. As the piston moves up and down due to the controlled explosions, it causes the connecting rod to move. This then cause the crankshaft to move as well as it is connected to the connecting rod, in a circular motion due to the configuration of the piston, connecting rod and crankshaft. Surrounding the crankshaft, the sump contains some amount of oil.

Chapter 5 : Basic Engine Parts | HowStuffWorks

Engines can come in several different varieties, with various parts depending on the type of vehicle it is. For example, a truck engine would be different as compared to the engine of a regular car due to the amount of power required.

Further information Overview Use the online UK Trade Tariff tool to find commodity codes for classifying goods for imports and exports. Vehicles classed as dual-use goods may require an export licence. For most cars, engine size and whether the car is new or used will dictate their classification within heading The exception is for all terrain vehicles ATVs and quad bikes - see Classifying all terrain vehicles. Cars to transport less than 10 passengers including the driver are classified under heading and include: Motorised vehicles specially designed for disabled persons heading are different from vehicles of heading , mainly because they have all of the following features: Classifying goods vehicles Including chassis fitted with engines, bodies and cabs Goods vehicles include chassis fitted with engines, bodies - including cabs - and multi-purpose vehicles that can transport both persons and goods. For most goods vehicles, their gross weight, engine size, the type of fuel they use and whether the vehicle is new or used will dictate their classification under Pickup style vehicles of classification heading or Single row of seat pickup vehicles are classified under heading Double row of seats pickup vehicles are classified under heading or - see below. Tractors are classified under heading or The following are classified under heading Their classification under heading primarily depends on whether they are being used for agriculture or forestry, their engine power and whether the tractor is new or used. Road tractors for semi-trailers are classified according to whether they are new subheading or used subheading Machines and working tools designed for fitting to tractors of heading as interchangeable equipment remain classified in their respective headings even if they are presented with a tractor, and whether or not they are mounted on it. The ruling removed the requirement for such vehicles to have a power take off or hydraulic lifting device or a permanently attached winch to be classified as agricultural or forestry tractors. To be classified as a tractor under heading , ATVs must meet all of the following characteristics: If they do not meet the above characteristics, the ATVs are classified under heading Classifying special purpose motor vehicles Special purpose motor vehicles, other than those mainly designed for the transport of persons or goods, are classified under heading They are classified as follows:

Chapter 6 : Auto Parts - Replacement & Aftermarket Parts

Establishments primarily engaged in manufacturing motor vehicle parts and accessories, but not engaged in manufacturing complete motor vehicles or passenger car bodies. Establishments primarily engaged in manufacturing or assembling complete automobiles and trucks are classified in Industry

The cylinders are arranged in a line in a single bank. HowStuffWorks The core of the engine is the cylinder, with the piston moving up and down inside the cylinder. Single cylinder engines are typical of most lawn mowers, but usually cars have more than one cylinder four, six and eight cylinders are common. In a multi-cylinder engine, the cylinders usually are arranged in one of three ways: So that inline four we mentioned at the beginning is an engine with four cylinders arranged in a line. Different configurations have different advantages and disadvantages in terms of smoothness, manufacturing cost and shape characteristics. These advantages and disadvantages make them more suitable for certain vehicles. The cylinders are arranged in two banks set at an angle to one another. The cylinders are arranged in two banks on opposite sides of the engine. The spark must happen at just the right moment for things to work properly. Valves The intake and exhaust valves open at the proper time to let in air and fuel and to let out exhaust. Note that both valves are closed during compression and combustion so that the combustion chamber is sealed. Piston A piston is a cylindrical piece of metal that moves up and down inside the cylinder. Piston Rings Piston rings provide a sliding seal between the outer edge of the piston and the inner edge of the cylinder. The rings serve two purposes: They keep oil in the sump from leaking into the combustion area, where it would be burned and lost. Most cars that "burn oil" and have to have a quart added every 1, miles are burning it because the engine is old and the rings no longer seal things properly. Many modern vehicles use more advance materials for piston rings. Connecting rod The connecting rod connects the piston to the crankshaft. It can rotate at both ends so that its angle can change as the piston moves and the crankshaft rotates. Sump The sump surrounds the crankshaft. It contains some amount of oil , which collects in the bottom of the sump the oil pan.

Chapter 7 : Buy Auto Parts & Accessories | eBay

A car's overall power is a function of the size of the engine as well as factors such as the timing of the combustion and the type of transmission used. The Drive Line The drive line is a series of components that connect the motion produced by the engine to the wheels of the car to provide forward (or backward) motion.

Chapter 8 : Can You Identify The Car Parts? - ProProfs Quiz

Engines & Components: Choose parts for the motor, such as motor mounts, timing components, belts, and gaskets. This category also includes complete engines and engine rebuilding kits. This category also includes complete engines and engine rebuilding kits.

Chapter 9 : List of auto parts - Wikipedia

Simply Identify the car part in the picture. If you score Expert by answering over 80% correct you will be issued a Certificate Of Achievement Note: 2 or 3 of the answers you have to choose between have a option that may not be actual car part.