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# Drive Words

*Automotive Terms across Borders*



## CONTENTS

PREFACE .....	7
ENGLISH .....	9
FRENCH .....	69
GERMAN .....	119
ROMANIAN .....	169
BIBLIOGRAPHY .....	237

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**ENGLISH**

## A

**Advanced Driver Assistance Systems (ADAS)**

In-vehicle technologies designed to enhance vehicle safety and assist the driver in better controlling the vehicle. These systems do this by alerting the driver to potential problems or taking over specific driving tasks. The primary beneficiaries of ADAS are drivers, passengers and pedestrians. Driver assistance systems work to reduce the number of collisions, thereby increasing overall road safety.

<https://www.geotab.com/>

*ADAS offerings have improved significantly over the past few decades, to the point that many features come standard on most new vehicles.*

<https://www.geotab.com/>

**Air conditioning**

The automotive air conditioning system provides necessary heating, ventilation, and air conditioning to ensure a comfortable environment in the driving cabin and enough visibility (defogging and deicing) for purposes of driving safety [154–158].

<https://www.sciencedirect.com/>

*Air conditioning was initially slow to grow in popularity but by 1970, almost half of all new cars produced had air conditioning.*

<https://www.autobutler.co.uk/>

**Air fuel ratio**

Thermal engines use fuel and oxygen (from air) to produce energy through combustion. To guarantee the combustion process, certain quantities of fuel and air need to be supplied in the combustion chamber. A complete combustion

takes place when all the fuel is burned, in the exhaust gas there will be no quantities of unburned fuel. Air-fuel ratio (AF or AFR) is the ratio between the mass of air  $m_a$  and mass fuel  $m_f$ , used by the engine when running

<https://x-engineer.org>

*Exhaust gas composition is measured for determination of **air-fuel ratio** and pollutant production.*

<https://www.longdom.org>

## Alternator

A generator of electric power in a car and is a major component of the vehicle's charging system. All cars with an internal combustion engine except for some hybrids have an alternator. When an engine is running, the alternator charges the battery and supplies additional electric power for the vehicle's electrical systems.

<https://www.samarins.com/glossary>

*An **alternator** is a maintenance-free unit. In some cars, it can last for up to 10-15 years without any repairs. If an alternator fails, the car may still run for a short time on battery power. However, the engine will stall as soon as the battery charge is depleted. Replacing an alternator with a new OEM part is expensive, but there are alternatives.*

<https://www.samarins.com/glossary>

## Automatic transmission/gearbox

Arrangement of gears, brakes, clutches, a fluid drive, and governing devices that automatically changes the speed ratio between the engine and the wheels of an automobile.

<https://www.britannica.com/>

*If you have ever driven a car with an **automatic transmission**, then you know that there are two big differences between an automatic transmission and a manual transmission: There is no clutch pedal in an automatic transmission*

*car. There is no gear shift in an automatic transmission car. Once you put the transmission into drive, everything else is automatic.*

<https://auto.howstuffworks.com/>

## Automobile

A usually four-wheeled vehicle designed primarily for passenger transportation and commonly propelled by an internal-combustion engine using a volatile fuel.

<https://www.britannica.com/>

*Unlike many other major inventions, the original idea of the **automobile** cannot be attributed to a single individual.*

<https://www.britannica.com/>

## Axial compression

A type of force or pressure exerted on a body causing it to experience shear stress and bending. Axial compression is produced by axial compressors so that natural gas can be pressurized continuously making it easy to flow over long distances in the interstate or intrastate pipelines. Axial compression technology is also used to compress certain liquids so as to keep them pressurized.

<https://www.petropedia.com>

*Bending stresses appear due to eccentricities, crankshaft, case wall deformation, and rotational mass force. Therefore, the engine mechanism must be capable of transmitting axial tension, **axial compression**, and bending stresses caused by the thrust and pull on the piston and by centrifugal force.*

<https://www.longdom.org>

## **Axial tension**

The force acting on a body in axial direction. It is the stress applied to a body to elongate the body in linear direction. This axial tension stress is purely opposite to the compressive stress. It is the pulling force applied in the positive direction and therefore, body tends to get stretched by some amount of change.

<https://www.chegg.com>

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<https://www.longdom.org>

## B

### Battery

The most common source of DC voltage is a battery. A battery is a collection of cells. A cell is the basic unit of voltage generation that creates electricity by chemical action. A battery is made up of two or more cells connected together. The chemical interaction between the metal electrodes and the electrolyte produces a separation of charges. This separation of charges results in an excess of electrons on one electrode (the – terminal of the cell) and a shortage of electrons on the other electrode (the + terminal of the cell). If a conductor is connected externally between the terminals, electrons will flow from – to +.

<https://www.sciencedirect.com/>

*The **battery** stores energy for starting the engine and powering components when the vehicle is off, while the alternator replenishes the battery charge and supplies electrical energy while the engine runs.*

<https://autorepairsandrecovery.co.uk/>

### Battery bank

Group of batteries connected together using series or parallel wiring. This allows more power to be stored than using a single battery. A battery bank allows you to store electricity generated by solar PV system for use at any time.

<http://www.solarmango.com>

*Evaluating and comparing the power demand and the drive cycle of the golf car with the fuel cell stack and **battery bank** output power profile, it is apparent that the fuel cell electric powertrain is agile to deliver adequate traction power effectively.*

<https://www.longdom.org>

## Bearing

A connector (usually a support) that permits the connected members to rotate or to move in a straight line relative to one another. Often one of the members is fixed, and the bearing acts as support for the moving member.

<https://www.britannica.com/>

*To minimize friction, the contacting surfaces in a **bearing** may be partially or completely separated by a film of liquid (usually oil) or gas; these are sliding bearings, and the part of the shaft that turns in the bearing is the journal.*

<https://www.britannica.com/>

## Bearing force

forces acting on the hole a bolt goes through. A bearing test is to determine if there might be any deformation of the hole. Preloading will reduce bearing forces, but not all bolted joints are preloaded. To calculate bearing stress, divide the force over the contact area between the fastener and hole. Theoretically, it is often the simple area of the bearing surface.

<https://www.machinedesign.com>

*Crankshafts are one of the most important parts of a reciprocating engine. It basically connects driveline system to the pistons which gives the motion. Main aim of Crankshaft systems designs are to have lower **bearing forces**, lower torsional vibrations and higher fatigue strength. But, due to complexity of the geometry, lack of manufacturing quality and nonlinear forces, it is hard to analyze the characteristics of the crankshaft.*

<https://www.longdom.org>

## Bearing shell/plain bearing

The connecting part between the sliding bearing and shaft, Tegalur design and smooth finishing is one of the important features. Generally, it is made of