E

Automobile Dictionary

E

Abbreviation for **Economy Gear**

E10

(Gasohol) Ethanol/gasoline mixture containing 10% denatured **ethanol** and 90% gasoline, by volume.

E4OD

Abbreviation for ***Electronic 4-Speed Overdrive***

E85

A fuel containing a mixture of 85 percent **ethanol** and 15 percent gasoline

E93

A fuel mixture containing 93% **ethanol**, 5% **methanol** and 2% **Kerosene**, by volume.

E95

A fuel containing a mixture of 95 percent **ethanol** and 5 percent gasoline

EAC

Abbreviation for ***Electronic Air Control*** -- replaced by AIR

EACV

Abbreviation for **Electronic air control valve**. A valve used in fuel-injection system, usually computer controlled, that controls the amount of air bypassing the throttle during idle. The more air that bypasses the throttle, the higher the idle speed

EAC Valve

An abbreviation for **Electric air control valve**. This is the GM version of a diverter air gulp valve, providing three functions in a single valve

- the normal diverter valve function, i.e., it diverts air on rapid increase in manifold vacuum;
- it relieves pressure by diverting air to the air cleaner when the air injection system pressure exceeds a certain set level;
- being solenoid-controlled, it allows air to be diverted under any desired operating mode

See

- **EAS valve**

Eagle

Click image for books on Eagle

A brand of automobile which was a carry-over from the **AMC Eagle** and later produced by Chrysler. It included the following models:

- Wagon (1988)
- Medallion (1988-1989)
- Premier (1988-1992)
- Vista (1988-1992)
- Summit (1989-1996)
- Talon (1990-1998)
- 2000GTX (1991-1992)
- Vision (1993-1997)

EAIR

Abbreviation for ***Electronic Secondary Air Injection***

EAMA

Abbreviation for ***Egyptian Automobile Manufacturers Association***.

Ear

A projection in the shape of an ear, usually as a lug or support for other components such as the brackets which are part of the fork cover and to which the headlight is mounted on a motorcycle. It is also a spoiler behind the rear windows to improve stability in side winds.

See

- **Fork ear**

EAR

Abbreviation for ***estimated additional resources***

Earles forks

Long leading-link motorcycle forks, i.e., front suspension has a pivoting fork controlled by twin shock absorbers. Designed by Ernie Earles, they were used by many manufactures of motorcycles in the 1950s

Early Fuel Evaporation

Used only on carburetor-equipped engines, a system where heat is used to help increase early fuel evaporation of the cold-start air/fuel mixture to achieve more efficient combustion and lower emissions. GM used an electric grid system.

Early fuel evaporation system

(EFE) A system that heats the inlet manifold to provide a warm air/fuel mixture, reducing condensation and improving fuel evaporation, thus improving cold engine operation and reducing exhaust emissions. An EFE system operated by engine exhaust gas responds quicker to engine heat-up than systems heated by engine coolant; some EFE systems use an electric heater in the intake duct

Early termination

A vehicle's depreciation is highest in the first few months after it leaves the dealer's lot. Since a lessee pays for depreciation in equal monthly payments, lessees who end a lease early have almost always used up more of a car's value than they've paid for. Therefore, lease contracts generally include penalties for early termination. Be aware of these penalties before you sign the lease contract and consider your ability to fulfill the contract.

Earnings

See

- **Average weekly earnings**

Ears on

Trucker slang for CB is turned on as in 'Any smokeys out there with their ears on?'

Earth

British term for **ground**

Earth connection

British term for ground connection

Earth electrode

British term for ground electrode

Earthmover

See

- **A-2 tire**

Earth return

British term for **Ground return**

Earth strap

British term for **Ground strap**

Earth wire

British term for **Ground wire**.

Earthwork

Excavating, ditching, trenching, backfilling, embankment construction, grading, leveling, borrow, and other earth-moving work required in the construction of the project.

EAS

Abbreviation for ***Electronic air suspension***. Introduced in the 1993 model year on certain Range Rover models further to enhance standards of road noise insulation, ride and handling, the system substitutes air

bags and a live-line pneumatic system, (i.e., an electrically driven compressor, air pressure reservoir and associated controls) for the steel coil springs used on the rest of the Land Rover model range. Logic-controlled by an electronic control unit, height sensors and driver controls, the system maintains front and rear self-leveling in the five height modes listed below. These notes show the versatility of the system and the purpose for which it was designed. However, for the casual driver, new to the vehicle, no prior knowledge or expertise is required; FAS will cycle automatically through appropriate modes according to prior programming. The driver need not even know EAS is fitted. On engine start-up EAS assumes the last selected ride height.

Easement

Allows another person the right to use private land for a specific purpose. The most usual easements are those granted to public utility companies to run lines on or under private property. Other common easements are for storm drainage pipes and ditches, for walkways, and for access roads.

Ease up on the accelerator

The action of releasing the accelerator partially or completely in order to reduce the amount of fuel entering the engine and thus slow down the speed of the vehicle. Opposite of **Depress the accelerator** or **Step on the accelerator**.

Ease up on the gas pedal

The action of releasing the gas pedal partially or completely in order to reduce the amount of fuel entering the engine and thus slow down the speed of the vehicle. Opposite of **Depress the gas pedal** or **Step on the gas pedal.**.

Ease up on the throttle

The action of releasing the twist-grip or throttle lever partially or completely in order to reduce the amount of fuel entering the engine and thus slow down the speed of the vehicle. Opposite of **Engaging the throttle** or **Cranking on the throttle.**.

Ease up on the throttle pedal

The action of releasing the throttle pedal partially or completely in order to reduce the amount of fuel entering the engine and thus slow down the speed of the vehicle. Opposite of **Depress the throttle pedal** or **Step on the throttle pedal.**.

Easing fluid

Penetrating oil

Eastern hand truck

A device used to transport goods manually with wheels outside the side rails. Compare **Western hand truck**

Easton

American developer of high quality aluminum and carbon fiber **bicycle** products.

East-west layout

Transverse positioning of the engine across the car from left to right, found in many front-wheel drive designs. Also called **Transverse engine**. The opposite is **North-south layout**.

EAS Valve

The valve in an emission control system governing the airflow from the air pump in connection with the EAC valve. When its solenoid is energized, air is directed into the exhaust ports to increase oxidation and **accelerate** catalytic converter heat-up to operating temperature, and when its solenoid is de-energized, it switches airflow between the converter beds to help the oxidizing catalyst to decrease the CO and HC levels

Easy access cab

Easy access cab

A regular cab pickup with an extra fold-out section behind the door to allow you to have access to the things behind the front seat. Unlike an **Extended cab**, there is no seating behind the front seat.

Easy out

A brand name for a **Screw extractor**.

Easy-out

A brand name for a **Screw extractor**.

Eat

To corrode and remove the metal from a body panel which has been subject to excessive rust

Eat away

The effect of excessive rust which has seriously corroded a body panel so that there is almost no original metal left

Eat-em-up

Trucker slang for Truck stop Cafe as in 'It's been so long since I stopped at the eat-em-up that my stomach thinks my throat's been slashed.'

EBCM

Abbreviation for ***Electronic Brake Control Module***

EBD

Abbreviation for ***Electronic brake distribution***-- a system that helps reduce stopping distances by re-proportioning the braking force from rear to front as the vehicle stops and its weight shifts forward.

Ebonite

Hard black rubber compound especially one containing no filler

E box

Any electronic box including **Capacitive discharge** ignition and **computer** controlled devices.

E-box

Any electronic box including **Capacitive discharge** ignition and **computer** controlled devices.

EBP

Abbreviation for ***Exhaust Back Pressure***

E-brake

See

- **Emergency brake**

EBTCM

Abbreviation for ***Electronic Brake T/C Module***

EC

Abbreviation for ***Engine Control***

ECA

Abbreviation for **Electronic control assembly**

ECC

Abbreviation for **Electronic climate control**

Eccentric

1. Two circles, one within the other, neither sharing the same center, i.e., they are off-center.
2. A protrusion on a shaft that rubs against or is connected to another part, such as a cam on a **camshaft**.
3. A part transmitting an eccentric drive, such as a disc with a provision for a drive from its outer part, or an eccentric shaft
4. Off center. A brake drum defect caused by unequal wear, drum distortion, or both

Eccentric bolt

A bolt with centers of head and body on different axis so that one is off-center in relation to the other.

Eccentric drive

A drive from a point not on the axis of the driving shaft, e.g., from the outer part of a disc, so that a reciprocating or up and down motion is transmitted; used in pumps or for a camshaft drive

Eccentric journals

These are used to attach the connecting rods to the crankshaft (also called metal shafts)

Eccentric rotor pump

Rotor-type pump

Eccentric shaft

A shaft transmitting eccentric motion

ECCS

Abbreviation for ***electronic concentrated control system***

ECE test cycle

A 13 minute, three-part test of automotive emissions for compliance with emission standards, adopted by most European countries, simulating urban driving conditions, i.e., involving relatively long idling periods and speeds below 35 mph, emission characteristics at cruising speeds not being considered

Echelon parking

A British term for **Angle parking**

ECI

1. Abbreviation for ***electronic control injection***

2. Abbreviation for ***electronically controlled injection***
3. Abbreviation for ***Extended Compressor at Idle***

ECIT

Abbreviation for ***electronic control ignition timing***

ECL

Abbreviation for ***Engine Coolant Level***

Eclat

A 2+2 Coupe produced by Lotus from 1975 to 1982. This vehicle was the basis for the current Lotus Excel.

E-clip

E-clip

A fastener that is secured to grooves in a shaft.

ECM

1. Abbreviation for **Electronic Control Module** which is the master **computer** responsible for interpreting electrical signals sent by engine **sensors** and for activating automated engine **components** and processes accordingly in order to produce optimum performance.
2. Abbreviation for ***Engine Control Module***

Ecological damage

Damage to the environment, usually in the form of pollution, such as that caused by vehicle emissions

Ecologically harmful

Damaging to the environment automotive exhaust gases are ecologically harmful

Ecology

Science of life balance on earth.

Economical

The determination of how much money or fuel is required to cover a particular distance. Good economy involves driving at a steady rate,

avoiding rapid starts and stops, driving in the highest possible **Gear**, avoiding using power- robbing components (e.g., air conditioning), proper tire inflation, etc.

Economic Life

The output from a program which identifies the number of trips the pallet will make provided it is properly repaired, which maximizes a return on the investment.

Economizer

A device for making a vehicle use less fuel, either by regulating the flow of fuel, or by admitting extra air to the air/fuel mixture -- especially when cruising

Economizer valve

A fuel flow control device within the **carburetor**.

Economy

The ratio between a product or service and its value.

See

- **Corporate Average Fuel Economy**
- **EPA fuel economy**
- **fuel economy**
- **Tuned for economy**

Economy device

See

- **Economizer**

Economy gear

High **Gear** designed for economical cruising often better than 11 ratio like an overdrive.

Economy jet

An additional jet in a carburetor admitting extra air to the air/fuel mixture -- especially when cruising

Economy ratio

An **Overdrive Gear** ratio better then 11 for economical cruising

ECS

1. Abbreviation for ***electronically controlled suspension***.
2. Abbreviation for **Evaporation control system**
3. Abbreviation for ***emission control system***

ECT

1. Abbreviation for **Engine coolant temperature sensor**
2. Abbreviation for ***electronically controlled transmission***

ECU

Abbreviation for **Electronic Control Unit**

Eddy current

An electric current induced within the body of a conductor when that conductor either moves through a nonuniform magnetic field or is in a region where there is a change in magnetic flux.

Eddy currents

1. Induced currents flowing in a core.
2. Localized currents induced in an iron core by alternating magnetic flux. These currents translate into losses (heat), and their minimization is an important factor in lamination design

EDF

Abbreviation for ***Electro-Drive Fan***

Edge

See

- **Abutting edge**
- **Beaded edge**
- **Feather-edge**
- **Leading edge**
- **Trailing edge**
- **Wiring an edge**

Edge binding

Tape for securing the edges of carpets

Edgebrand

A series of codes on the side of a brake lining that identify material, and the friction coefficient of the lining. Only meant for identification and comparison, the edgebrand does not indicate lining quality.

Edge code

A manufacturer's code used to identify friction materials.

Edge guard

Rubber or plastic, U-section strip fitted to panel edges to protect them against chipping, etc.

Edge Energy

See

- **Band Edge Energy**

Edge joint

A joint formed when two pieces of metal are lapped with at least one edge of each at an edge of the other.

Edge protection

Protection of edges against corrosion, e.g.. by weatherstrips

Edge-ride

The tendency of crankshaft main bearings to ride up the radius (rather than seat on the journal) when the radius is too large

Edge tire

See

- **Beaded edge tire**

Edge trim

Rubber or plastic, U-section strip fitted to panel edges to protect them against chipping, etc.

Edging

See

- **Back Edging**

Edgy

A colloquial term used by vehicle salespeople to describe a customer who may or may not be able to get his car financed. He is on the ***edge*** of getting financing.

EDI

Abbreviation for **Electronic Data Interchange**-- The business-to-business interconnection of computers for the rapid exchange of a wide variety of documents, from bills of lading to build tickets at auto plants.

EDIS

Abbreviation for ***Electronic Direct Ignition System*** -- replaced by **EI**

Edison base

A light bulb base that is threaded.

Edison screw

A light bulb base that is threaded

EDM

Abbreviation for ***Electronic Distributor Modulator*** (Ford)

EDR

EDRAbbreviation for ***Event Data Recorder***-- a device which is sometimes called an automobile black box which records fifteen critical functions of the engine and drivetrain.

Edsel

A model of automobile manufactured by Ford

Education Foundation

See

- **National Automotive Technical Education Foundation**

Edwardian car

A car built in Great Britain between 1905 and 1918

EEC

1. Abbreviation for **Electronic engine control** system
2. Abbreviation for **Evaporative emission control system**

EEC-I

Abbreviation for ***Control of Ignition Timing***

EEC-II

Abbreviation for ***Control of Ignition Timing and Fuel Delivery Through a Feed Carburetor System***

EEC-III

Abbreviation for ***Control of Ignition Timing and Fuel Delivery Through a Central Fuel Injection System***

EEC-IV

Abbreviation for ***Control of Ignition Timing and Fuel Delivery Through an Electronic Fuel Injection System***

EECS

Abbreviation for ***evaporative emissions control system***

EEGR

Abbreviation for ***Electronic EGR*** (Solenoid)

EEGR Monitor

Abbreviation for ***Electronic EGR Tester***

EEPROM

Abbreviation for ***Electronically Erasable Programmable Read Only Memory***

EER

Abbreviation for **Energy efficiency ratio**

EESS

Abbreviation for **Evaporative emission shed system**

EEVIR

Abbreviation for **Evaporator equalized valve in receiver**

EFC

1. Abbreviation for ***electronic fuel control***
2. Abbreviation for ***Electronic Feedback Carburetor*** (Chrysler)

EFCA

Abbreviation for ***Electronic Fuel Control Assembly*** (Ford)

EFE

Abbreviation for **Early fuel evaporation system**

EFE system

Abbreviation for ***Early Fuel Evaporation System***

Effect

See

- **Auger Effect**
- **Automatic Steering Effect**
- **Back-porch Effect**
- **Barkhausen Effect**
- **Barrier effect**
- **Buchmann-Meyer Effect**
- **Chimney Effect**
- **Engine braking effect**
- **Ground effect**
- **Hall effect**
- **Joule-Thomson Effect**
- **Kadenacy effect**
- **Liftoff effect**
- **Load alteration effect**
- **Peltier Effect**
- **Quantum Hall Effect**
- **Seebeck Effect**
- **Self-centering effect**
- **Synergetic effect**
- **Synergistic effect**
- **Weight Transfer Effect**

Effective

1. Actual rather than theoretical or potential.
2. Producing an effect.

See

- **Cost-effective**
- **Indicated mean effective pressure**

- **Mean effective pressure**

Effective area

Actual flow area of an air inlet or outlet. Gross area minus area of vanes or grille bars.

Effective deflection

Deflection of a suspension system under a particular load

Effectiveness Buildup

See

- **Brake Effectiveness Buildup**

Effective pedal travel

The portion of brake pedal travel converted to piston movement in the master cylinder.

Effective pressure

See

- **Brake mean effective pressure**
- **Indicated mean effective pressure**
- **Mean effective pressure**

Effective stroke

Working or power stroke in a two-stroke engine

Effective temperature

Overall effect on a human of air temperature, humidity, and air movement.

Efficiency

1. The accomplishment of something with the least amount of effort, energy, or fuel.
2. Output of a device, system, or activity, divided by the input necessary to create the output. In a compressor the efficiency would be the work output, as measured by pressure change, divided by the energy input (usually electrical).
3. The efficiency of an electrical motor is the ratio of mechanical output to electrical input. It represents the effectiveness with which the electrical motor converts electrical energy into mechanical energy

4. A measure (usually a ratio) of the useful energy provided by a dynamic system versus the total energy supplied to it during a specific period of operation.

See

- **Adiabatic Efficiency**
- **Air Standard Efficiency**
- **Ampere-hour Efficiency**
- **Atmospheric dust spot efficiency**
- **Available Power Efficiency**
- **Boiler Efficiency**
- **Brake Efficiency**
- **Brake Thermal Efficiency**
- **Braking efficiency**
- **Catalytic efficiency**
- **Cathode Efficiency**
- **Charging efficiency**
- **Electrical Efficiency**
- **fuel efficiency**
- **Mechanical efficiency**
- **Quantum Efficiency**
- **Thermal efficiency**
- **Trapping efficiency**
- **Volumetric efficiency**

Efficiency Gas Furnace

See

- **High Efficiency Gas Furnace**

Efficiency of a solar cell

The ratio of the electrical power output of a solar cell to the solar power that it intercepts. For example, a solar cell 3 inches (7.6 cm) in diameter intercepts about 2.39 watts of solar power under full sun conditions. If the electrical output of this cell is 0.34 watt, the efficiency will be (0.34/2.39)=0.14, or 14%.

Efficiency Ratio

See

- **Energy Efficiency Ratio**
- **Seasonal Energy Efficiency Ratio**

Efficient Motors

See

- **Energy Efficient Motors**

Effluent

The products of combustion plus the excess air discharged from gas utilization equipment

See

- **Flue Gas**

Effort

The force which is doing work on an object.

See

- **Braking effort**
- **Supplier Cost Reduction Effort**

EFI

(EFi) Abbreviation for **Electronic Fuel Injection**

EFT

Abbreviation for ***Engine Fuel Temperature***

EFV

Abbreviation for ***Early Fuel Evaporation***

EGC

Abbreviation for **Exhaust gas check valve**

Eggcrate grille?

Eggcrate grille

A radiator grille with crisscrossing bars forming gaps which are more or less square. One of the distinctive characteristics of Cadillac cars

EGI

Abbreviation for **Electronic gasoline injection**

E Glass

See

- **Low E Glass**

EGO

Abbreviation for **Exhaust gas oxygen sensor**. The detection device in the exhaust that measures the lean/rich state of the **AFR**. Uses a **closed loop** algorithm to control feedback.

EGOR

Abbreviation for ***EGO Signal Return*** (Ford)

EGR

Abbreviation for **Exhaust-gas recirculation**. Introduces exhaust gas into inlet system to reduce NOx Enhanced. It shows EGRVR percentage engaged.

See

- **Negative transducer EGR valve**
- **Vacuum modulated EGR**

EGRB

Abbreviation for ***EGR Boost Sensor***

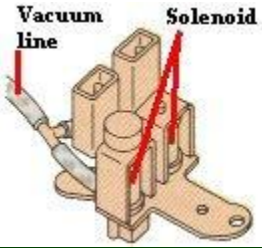
EGRC

Abbreviation for **EGR control solenoid**

EGRC-BPT

Abbreviation for EGR Control Back Pressure Transducer

EGR control solenoid



EGR control solenoid

(EGRC) energizes to allow manifold vacuum to the EGR gas temperature.

EGR cooler assembly

Heat exchanger using engine coolant to reduce exhaust gas temperature

EGR function control

A device which controls or modifies EGR valve position

EGR function sensor

A device that identifies if the EGR system is functioning properly

EGR Monitor

Abbreviation for ***OBDII EGR Test***

EGRPS

Abbreviation for EGR Valve Position Sensor (Mazda)

EGR System

See

- **Spacer Entry Egr System**

EGRT

Abbreviation for ***Exhaust Gas Recirculation Temperature*** -- Replacement term for **EGTS**

EGR TVV

Abbreviation for ***Exhaust Gas Recirculation Thermal Vacuum Valve***

EGRV

1. Abbreviation for **EGR vent solenoid**
2. Abbreviation for ***Exhaust Gas Recirculation Vent Solenoid***

EGR vacuum

A vacuum source above the closed throttle plate; used for control of ported EGR valves. Vacuum is zero at closed throttle

EGR valve

1. A part of an EGR system mounted on or near the inlet manifold and controlled by inlet manifold vacuum, which is usually closed at idle and low speeds, but opens during acceleration, admitting exhaust gas to the inlet manifold. Most EGR valves are of the single diaphragm type, some are dual diaphragm valves connected to two separate vacuum sources to more closely match EGR function to engine loads; for the same purpose, EGR valves are frequently governed by additional regulating devices.
2. A valve used to introduce exhaust gases into the intake air stream. There are several types.

See

- **Integral backpressure transducer EGR valve**

- **Ported EGR valve**
- **Electronic EGR valve**
- **Valve and Transducer assembly**
- **Negative transducer EGR valve**

EGR valve position sensor

(EVP) A potentiometric detection device used in electronically controlled EGR system. Sensor wiper position is proportional to EGR valve pintle position, which allows electronic control assembly to determine actual EGR flow at any point in time

EGR vent solenoid

(EGRV) electrical solenoid that normally vents EGRC vacuum line. When EGRV is energized, EGRC can open the EGR valve

EGR venturi vacuum amplifier

A device that uses a relatively weak venturi vacuum to control a manifold vacuum signal to operate the EGR valve. Contains a check valve and relief valve that open whenever the venturi vacuum signal is equal to or greater than manifold vacuum

EGTS

Abbreviation for ***Exhaust Gas Temperature Switch*** A term replaced by **EGRT**

EH

Abbreviation for ***Electro-Hydraulic***

EHA

Abbreviation for ***Electrohydraulic actuator***, same as **Differential pressure regulator**

EI

Abbreviation for ***Integrated Electronic Ignition System*** a replacement term for **EDIS**

EIA

1. Abbreviation for the ***Energy Information Administration***. An independent agency within the U.S. Department of Energy that develops surveys, collects energy data, and analyzes and models energy issues. The Agency must meet the requests of Congress, other elements within the Department of Energy, Federal Energy Regulatory Commission, the Executive Branch, its own

independent needs, and assist the general public, or other interest groups, without taking a policy position.

2. Abbreviation for ***Electronics Industries Association***.

EICV

Abbreviation for ***electronic idle control valve***. It changes the amount of air bypassing into the intake manifold in response to electric signals sent to the (**ECU**) from a number of components

Eight

Eight-cylinder engine, or a vehicle fitted with one; the cylinders may be in-line (a straight eight) or in a V-layout (a V-8).

See

- **Flat eight**
- **Straight eight**
- **V-eight**

Eighteen wheeler

Colloquial term for a combination vehicle consisting of a three axle tractor pulling a two axle semitrailer or a two axle tractor pulling a three axle semitrailer.

8 trk

Abbreviation for **Eight-track** tape player found in many '60s and some '70s cars.

8-trk

Abbreviation for **Eight-track** tape player found in many '60s and some '70s cars.

Eight track

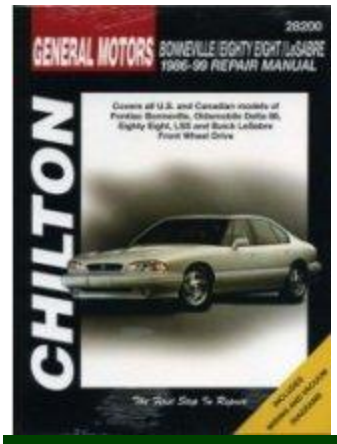
See

- **Eight-track.**

Eight-track

An 8-track tape player found in many '60s and some '70s cars.

Eighty-eight



Click image for books on Oldsmobile 88

A model of automobile produced by **Oldsmobile** from 1941 to 1999. The 1949-50 88 Coupe, Convertible, and Holiday are **milestone cars**.

EIN

Engine Identification Number

EIS

1. Abbreviation for ***electronic ignition system*** which uses a **Reluctor** and a pick up coil along with a module to replace the ignition points and condenser
2. Abbreviation for ***electronic injection system***
3. Abbreviation for ***Environmental Impact Statement***-- an analysis of the environmental impacts of proposed land development and transportation projects; conducted for federally funded or approved projects per **NEPA**. A draft EIS is circulated to the public and agencies with approval authority for comment.

Eject

To push or throw out

Eject button

Button on a cassette player or CD player for taking out the cassette or CD

Ejector

Device which uses high fluid velocity, such as a venturi, to create low pressure or vacuum at its throat to draw in fluid from another source.

See

- **Air Ejector**

E/L

Abbreviation for ***electrical load control unit***

Elan

A two-seater roadster produced by Lotus from 1964 to 1974.

Elapsed time

(ET) The length of time it takes a **Dragster** to complete the one-fourth mile run.

Elasticity

1. The ability to recover the original size and shape after being deformed, especially stretched, forces are released.
2. The property of an adhesive or sealer which enables it to recover its original shape and size when deforming forces are removed. It is the ability to change size or shape repeatedly without breaking the molecular bonds that cause an object to hold its shape.

Elastic limit

1. The point beyond which a deformed piece of metal will no longer return to its original shape.
2. The highest load a part (i.e., chain strand) can sustain without incurring a permanent change in length.

Elastomer

1. A term which includes natural rubber and the many synthetic materials that possess rubber-like properties.
2. An elastic macromolecular material that at room temperature returns rapidly to approximately its initial dimensions and shape after substantial deformation by a weak stress and release of the stress.
3. A classification of rubber-like substances used in the formulation of adhesives, coatings, and sealers without reference to their composition. Also classed as an elastic material that can be stretched repeatedly to at least twice its original length and, upon sudden release of stress, to return with equal force to its approximate original length **Thermoplastic elastomers**

4. An elastic **Polymer**, a springy plastic used commonly as a spring or shock absorber, particularly in suspension forks and similar mechanisms.

See

- **Thermoplastic Elastomers**

ELB

Abbreviation for ***Electronic Lean Burn*** (Chrysler)

Elbow

A pipe or rod with a bend, usually at right angles.

See

- **Mechanic's elbow**

ELC

Electronic level control

El Camino

Click image for books on Chevrolet El Camino

A model of vehicle produced by the **Chevrolet** division of **General Motors** from 1959-87 as a response to Ford's **Ranchero**. It had the front end of a car, but the back end like the open bed of a truck.

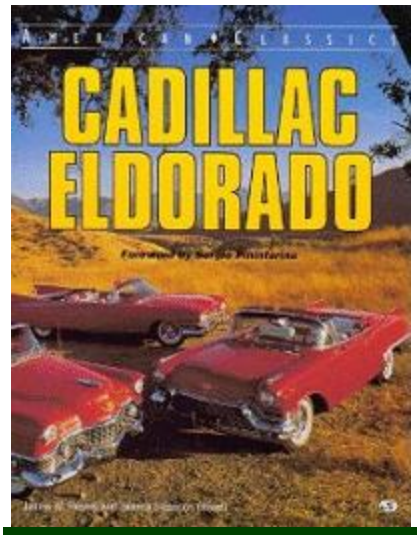
Elcar

A vehicle brand of which the 1925-33 Models: 8-80, 8-81, 8-90, 8-91, 8-92, 120, 130 and 140 are **classic cars**

ELCD

Abbreviation for ***Evaporative Loss Control Device***. A filter canister which is controlled by a signal from the **ECU**, the filter canister traps gaseous hydrocarbons from the fuel tank in its activated charcoal filter for subsequent burning in the engine on purging of the filter. The purging function is dependent on engine load and engine speed.

Eldorado



Click image for books on Cadillac Eldorado

A Cadillac vehicle brand of which the 1953-58, 67-70 Eldorado models are **milestone cars**. The 1957-58 Eldorado Brougham models are **milestone cars**. Also see the history of **Cadillac Eldorado**. Several Cadillac models used the name:

- Eldorado (1953-2002)
- Eldorado Biarritz (1956-64, 1976-91)
- Eldorado Brougham (1957-60)
- Eldorado Seville (1956-60)
- Fleetwood Eldorado (1965-2003)

Electra

BUICK

Click image for books on Buick Electra

A model of automobile manufactured by **Buick Division** of **General Motors** from 1959-90

Electric

Operated by or derived from electricity

See

- **Insulation Electric**
- **Rectifier Electric**

Electric air control valve

The **EAC valve**

Electric air switching valve

EAS valve

Electrical

Relating to electricity

See

- **Potential Electrical**
- **Resistance Electrical**
- **Single Phase Electrical**
- **Three Phase Electrical**

Electrical activation

The process of treating a cathode to increase its rate of reduction.

Electrical arcing

Band of sparks formed when an electrical discharge from a conductor jumps to another conductor

Electrical balance

An atom or an object in which positive and negative charges are equal

Electrical Code

See

- **National Electrical Code**

Electrical conductivity

The ability of a material to conduct electricity. The opposite is resistivity or resistance.

Electrical coupling

When two coils are so situated that some of the flux set up by either coil links some of the turns of the other, they are said to be electrically coupled

Electrical current

The net transfer of electric charge per unit time; expressed as amperes.

Electrical diagram

A drawing or chart showing the connections of the various electric components and the color-coding of the wires used to connect them. Often called **Wiring diagram**

See

- **Schematic Electrical Diagram**
- **Schematic Ladder Form Electrical Diagram**

Electrical efficiency

The ratio of useful electrical real power output to the total electrical power input.

Electrically enabled programmable read only memory

A non-volatile memory that can be used to store information permanently. This device can have all or selected parts of its memory erased electrically and reprogrammed.

Electrical Manufacturers Association

See

- **National Electrical Manufacturers Association**

Electrical potential

Electrical force which moves, or attempts to move, electrons along a conductor or resistance.

Electrical Power

An electric measurement unit of power called a voltampere is equal to the product of 1 volt and 1 ampere. This is equivalent to 1 watt for a direct current system, and a unit of apparent power is separated into real and reactive power. Real power is the work-producing part of apparent power that measures the rate of supply of energy and is denoted as kilowatts (kW). Reactive power is the portion of apparent power that does no work and is referred to as kilovars; this type of power must be supplied to most types of magnetic equipment, such as motors, and is supplied by generator or by electrostatic equipment. Voltamperes are usually divided by 1,000 and called kilovoltamperes (kVA). Energy is denoted by the product of real power and the length of time used; this product is expressed as kilowatthours.

Electrically programmable read only memory

A non-volatile memory that is used to store information permanently. This device can have its contents changed if the entire contents are first 'erased' through exposure to ultraviolet light (providing the device has a means of allowing light to reach the silicon level) used to increase brake application force.

Electrical resistance

The difficulty electrons have moving through a conductor or substance.

Electrical screwdriver

A manual **screwdriver** with an insulated handle and blade for working on electrical circuits. Compare **Electric screwdriver** which is a battery powered screwdriver.

Electrical spanner

A British term for an **Ignition wrench**

Electrical system

The system that generates, stores, and distributes electrical **current** to **Crank** the engine for starting and to keep it running by providing high **voltage** to the **spark plugs**; and to give power to the lights, the **Heater** motor, radio, and other **accessories**. It is made up of the **ignition systemstarter** motor, **batteryAlternatorVoltage regulator** lights, electrical **accessories** and all the wiring, switches, and **Relays**.

Electrical transient

Any voltage or current that deviates from the normal steady-state condition.

Electric Brake

See

- **Annular Electric Brake**
- **Spot Magnetic Electric Brake**

Electric brake system

An electrical or electronic system used to actuate the brakes.

Electric car

A car whose only power source is an electric motor and a number of batteries.

Electric charge

A definite quantity of electricity, which-may be positive, as with protons, or negative, as with electrons.

See

- **Coulomb**

Electric choke

Chokes can be operated by a bimetal spring heated by a solid-state heating unit or by a nichrom-wire resistor. Both types increase temperature just like a coolant-controlled choke as engine warms up

Electric Circuit

See

- **Extra-Low-Voltage Electric Circuit**
- **High-Voltage Electric Circuit**
- **Low-Voltage Electric Circuit**

Electric current

The flow of electricity passing through a conductor. The preferred unit of measure is the ampere.

Electric defrosting

Use of electric resistance heating coils to melt ice and frost off evaporators during defrosting.

Electric energy

The ability of an electric current to produce work, heat, light, or other forms of energy. It is measured in kilowatthours.

Electric fuel pump

Electrically powered gasoline or diesel pump which draws fuel from the tank and delivers it to the **carburetor** or fuel injection system

Electric grid

The electrical system

Electric heating

System in which heat from electrical resistance units is used to heat the building.

Electric hybrid vehicle

An electric vehicle that either

1. operates solely on electricity, but contains an internal combustion motor that generates additional electricity (series hybrid); or
2. contains an electric system and an internal combustion system and is capable of operating on either system (parallel hybrid).

Electrician

See

- **Automotive electrician**

Electric insulation

Substance which has almost no free electrons.

Electricity

Electric current used as a power source. Electricity can be generated from a variety of feedstocks including oil, coal, nuclear, hydro, natural gas, wind, and solar. In electric vehicles, onboard rechargeable batteries power an electric motor.

See

- **Adjusted Electricity**
- **Quantity of electricity**
- **Static electricity**

Electric Load

The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy-consuming equipment of the consumers.

Electric mirror

An external door mirror which is controlled by an electric motor and operated by a switch inside the car

Electric motor

A device which changes electrical energy into rotational motion. In addition to the starter and windshield wiper motors, which were the first electric motors to be added to the automotive electrical system, modern cars include a large number of small motors for driving such items as the electric windows, aerials, **Sunroofs**, mirrors and seat adjustment, central locking and power hoods; electric-powered cars use large motors for their drive.

See

- **Fractional-Horsepower Electric Motor**

Electric motor vehicle

A motor vehicle powered by an electric motor that draws current from rechargeable storage batteries, fuel cells, photovoltaic arrays, or other sources of electric current.

Electric power

The rate at which electric energy is transferred. Electric power is measured by capacity and is commonly expressed in megawatts (MW).

Electric rectifier

Electrical device for converting ac to DC.

Electric screwdriver

Click image to supersize
Electric Screwdriver

A battery-powered tool which can accept screwdriver bits. Some models resemble a flashlight while others resemble a pistol. It is similar to an electric drill.

Electric top

A power convertible roof. The British term is ***power hood***

Electric Vehicle

(EV) A vehicle powered by one or more electric motors rather than by an internal combustion engine. The most common source of electricity is chemical storage batteries, but also provided by photovoltaic cells or a fuel cell.

Electric water valve

Solenoid type (electrically operated) valve used to turn water flow on and off.

Electric welding

Electric welding

Welding by using an electric current to melt both metal (work) and welding rod, or electrode

Electric wheelchair

See **Power wheelchair**

Electric windows

Side windows which are raised and lowered by an electric motor which is operated by a switch. Also called a ***Power window***

Electrified texas gate

See

- **Texas gate**

Electrochemical

Chemical (**battery**) production of electricity.

Electrochemical corrosion

Corrosion involving at least one electrode reaction

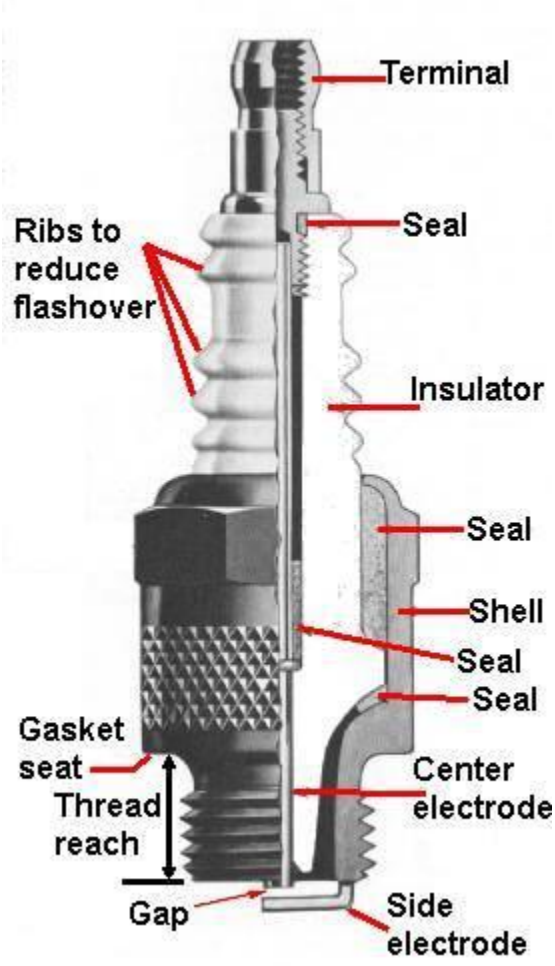
Electrochemical process

The direct process end use in which electricity is used to cause a chemical transformation. Major uses of electrochemical process occur in the aluminum industry in which alumina is reduced to molten aluminum metal and oxygen, and in the alkalies and chlorine industry, in which brine is separated into caustic soda, chlorine, and hydrogen.

Electrocoating

Electrophoretic painting

Electrode



Electrode

1. An electric conductor through which an electric current enters or leaves a medium, whether it be an electrolytic solution, solid, molten mass, gas, or vacuum.
2. In a **spark plug** one electrode (the center electrode) is the center rod passing through the **insulator**. The side electrode is a rod (usually bent) welded to the shell of the **spark plug**. The distance between them is the **spark gap**for an electric arc to start combustion process in an engine.
3. In welding it is the metal rod that is used in **arc welding**. A substance which brings electricity up to the point where the arc is to be formed; in other words it is the material immediately adjacent to the arc proper and the one which carries the current to this point. In electric arc welding the electrode is usually melted and becomes a part of the weld.

See

- **Bare Electrodes**
- **Beam-forming Electrode**
- **Bipolar Electrode**
- **Center electrode**
- **Compound center electrode**
- **Compound electrode**
- **Covered electrode**
- **Earth electrode**
- **Ground electrode**
- **Outer electrode**
- **Platinum electrode**
- **Positive electrode**
- **Quinhydrone Electrode**
- **Side electrode**
- **Spark plug electrode**
- **Top electrode**
- **Triangular ground electrode**

Electrode adjusting tool

A British term for a spark plug gap gauge

Electrode assembly

The portion of an automatic ignition system containing the electrode(s) and associated insulators, wire lead terminals, spark gap adjustment means and mounting brackets.

See

- **Membrane Electrode Assembly**

Electrode gap

Spark plug gap

Electrodeposition

A generic term for electrolytic processes in which a metal is deposited at the cathode from a solution of its ions, such as electroplating, or in which paint is deposited in an immersion process by means of electric current

Electrodeposition process

Process in which metallic particles are applied to another metal surface through the use of an electric current.

Electrode spark plug

See

- **Split electrode spark plug**

Electrodynamics

See

- **Quantum Electrodynamics**

Electrogalvanizing

An electroplating coating of zinc on metal that will rust (i.e., iron or steel).

Electrohydraulic actuator

(EHA) An electronically controlled valve which regulates the fuel flow to the lower chamber of the **CIS** fuel distributor

Electro-hydraulic booster

A power booster that uses an electric motor and pump to create hydraulic pressure which is then used to increase brake application force.

Electro-hydraulic pump

An electrically powered hydraulic pump used to create pressure in certain portions of the brake system. Typically found in GM Powermaster brake boosters and in ABS hydraulic control units

Electrolysis

1. A method by which chemical reactions are carried out by passage of electric current through a solution of an electrolyte or through a molten salt.
2. Movement of electricity through a substance which causes a chemical change in the substance or its container.

Electrolyte

1. A non-metallic electrical conductor in which current is carried by the movement of ions.
2. In automotive batteries, it is a sulfuric acid and water solution. It can be any solution (usually an acid) that will conduct **electric current**. The acid reacts with the **battery** plates (usually made of **Lead**) to produce **Direct current** electricity.

Electrolytic

Relating to electrolysis or an electrolyte

Electrolytic cell

A cell consisting of electrodes immersed in an electrolyte solution for carrying out electrolysis

Electrolytic condenser-capacitor

Plate or surface capable of storing small electrical charges.

Electrolytic corrosion

Electrochemical corrosion causing the electrolytic removal of metal

Electrolytic deposition

Electroplating

Electrolytic galvanizing

Electrogalvanizing

Electrolytic process

A process that causes the decomposition of a chemical compound by the use of electricity.

Electrolytic protection

Cathodic protection

Electromagnet

A **magnet** produced by placing a **coil** of wire around a steel or iron bar. When **current** flows through the coil the bar becomes magnetized and will remain so as long as the current continues to flow.

Electromagnet alternator

An alternator which uses electromagnets to produce a magnetic field.

Electromagnetic

Magnetic (**Generator**) production of electricity.

Electromagnetic brake

A brake that is activated by the action of a solenoid which forces a friction disc against a moving component to slow it or bring it to a stop.

Electromagnetic clutch

Any clutch in which a magnetic force is used to hold the drive in engagement, such as that in the compressor drive of an air-conditioning system

Electromagnetic energy

Energy which has both electrical and magnetic characteristics. Solar energy is electromagnetic.

Electromagnetic induction

Voltage is induced in a coil of wire by moving coil through a magnetic field or by keeping coil stationary and moving magnetic field.

Electromagnetic pickup

See

- **Magnetic pick-up**

Electromagnetic Retarder

An axle-mounted electromagnetic device which helps to slow down a vehicle.

See

- **Retarder**

Electromagnetism

The magnetic field around a conductor when a current is flowing through the conductor.

Electromechanical

Any device which uses electrical energy to produce mechanical movement

Electrometer

See

- **Attracted-disk Electrometer**

Electro-Motive Diesel

See

- **EMD**

Electromotive force

(EMF)

- Force that causes electricity to flow because of a difference in potential between two points.
- A source of electrical energy required to produce an electric current, produced by devices such as batteries or generators and measured in volts.

See

- **voltage.**

Electromotive force voltage

(emf) Electrical force which causes current (free electrons) to flow or move in an electrical circuit. Unit of measurement is the volt.

Electron

A negatively charged particle that makes up part of the atom

See

- **Bound electrons**
- **free electrons**

Electron flow

A current produced by the motion of free electrons towards a positive terminal, whose direction is the opposite to that of the current

Electronic

Featuring semiconductors (usually transistors) as an operating medium.

See

- **Automotive Electronics**
- **Fully electronic ignition**
- **High energy ignition system with electronic spark timing**
- **Quantum Electronics**

Electronic advance

Ignition advance controlled by a computer or other solid state controller.

Electronic air control valve

(EACV) A valve used in fuel-injection system, usually computer controlled, that controls the amount of air bypassing the throttle during idle. The more air that bypasses the throttle, the higher the idle speed

Electronically controlled

Most items can be controlled by a mechanical means (squeeze a lever to move something) or by hydraulics (a lever pushes fluid which applies movement to something) or electronically (move a switch and a servo motor moves something)

Electronically controlled transmission

A transmission that relies on sensors, an **Electronic control unit** (ECU), and solenoids to control torque convertor lockup and shift points

Electronically-controlled wastegate

A turbo-charger wastegate that is activated by an electric signal from a computer

Electronic brake control module

(EBCM) GM's term for the **Electronic control unit**

Electronic brake distribution

(EBD) A system that helps reduce stopping distances by re-proportioning the braking force from rear to front as the vehicle stops and its weight shifts forward.

Electronic brake system

An electrical or electronic system used to actuate the brakes.

Electronic climate control

(ECC) An air conditioning system control which determines and maintains the preset temperature in the passenger compartment.

Electronic cluster

A display showing various functions, including speedometer, tachometer, gauges, etc., using LEDs or LCD technology displaying symbols and bar graphs instead of numbers. The opposite is an analog cluster

Electronic control Assembly

ECA A Ford vehicle computer consisting of a calibration assembly containing the computer memory, its control program, and processor assembly (the computer hardware)

Electronic control diagnostics

Trouble codes which may be referenced on an automatic climate control system to diagnose problems.

Electronic control module

(ECM)

1. The master **computer** responsible for interpreting electrical signals sent by engine **sensors** and for activating automated engine **components** and processes accordingly in order to produce optimum performance.
2. A microprocessor that determines the beginning and end of each injection cycle on every cylinder. The ECM determines both fuel metering and injection timing in response to such parameters as engine crankshaft position and rpm, engine coolant and intake air temperature, and absolute intake air boost pressure.
3. A GM term and also a generic term referring to the computer. The ECM is the brain of the engine control system receiving information from various sensors in the engine compartment. The ECM calculates what is required for proper engine operation and controls the different actuators to achieve it. Also called **Electronic control unit**

Electronic control unit

(ECU)

1. A microprocessor and memory with electronic maps, forming the central part of an engine management system or of subsystems such as a fuel injection or ignition system.
2. The ***brain*** of an ABS system. The ECU reads impulses from the wheel speed sensors to determine if anti-lock braking needs to take place. If so, the ECU controls the cycling of the solenoid valves in the hydraulic control unit. Also called ***Electronic Control Module***

Electronic Data Interchange

(EDI)

- The business-to-business interconnection of computers for the rapid exchange of a wide variety of documents, from bills of lading to build tickets at auto plants.
- Computer-to-computer communication between two or more companies that is used to generate documents such as purchase orders and invoices. EDI also enables firms to access the information systems of suppliers, customers and carriers to determine real-time status of shipments and inventory.

Electronic EGR valve

The EGR valve used in engine management system in which the EGR flow is controlled by the computer (usually by means of an EGR valve position sensor attached to the EGR valve). Operating vacuum is supplied by EGR solenoid valve(s)

Electronic engine control

(EEC)

1. The engine management system which controls the ignition system and various other systems, including the exhaust gas recirculation and air-injection systems.
2. Ford's computerized engine control system. There are four versions
    a. EEC-I controls engine timing.
    b. EEC-II controls engine timing and fuel (on engines with an FBC system).
    c. EEC-III-FBC is a refined version of EEC-II. EEC-III-CFI controls engine timing and fuel (on engine with an **EFI** system).
    d. EEC-IV is a refined version of the EEC-III system

Electronic fuel injection

(EFI or EFi) A system that injects fuel into the engine and includes an **Electronic control unit** to time and meter the flow. Fuel is delivered in intermittent pulses by the opening and closing of solenoid-controlled injectors. Also called **Pulsed injection**

See

- **Sequential Electronic Fuel Injection**

Electronic gasoline injection

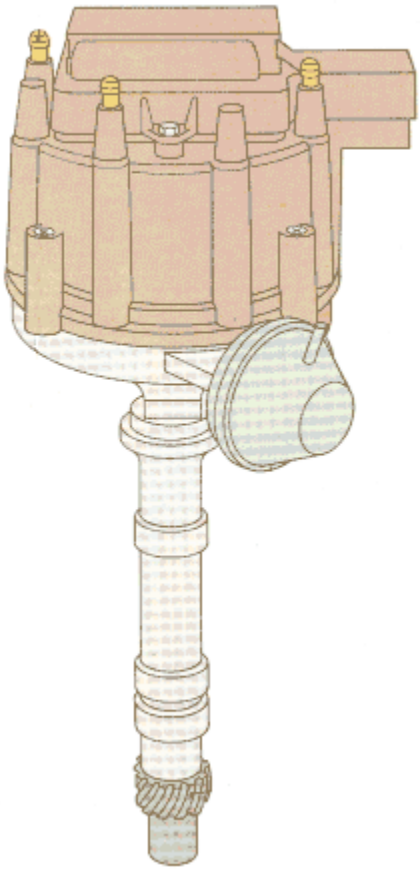
(EGI) Mazda's fuel injection system for the RX-7, RX-7 Turbo, 323, and 626

Electronic ignition

See

- **Electronic ignition system**
- **Fully electronic ignition**

Electronic ignition system



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Electronic Ignition System

An **ignition system** using electronic switching devices to assist or eliminate the mechanical **breaker points**. There are three basic electronic ignitions

1. contact controlled (the **breaker points** are retained but merely serve to trigger a transistor which switches the heavy primary **current**)
2. magnetically controlled (transistors are used as the switching device for the primary **current** and the points are eliminated -- also called ***contactless*** or ***all-electronic***)
3. **capacitor** controlled (also called ***capacitive-discharge system*** and can be either all-electronic or **breaker-point** controlled).

Electronic leak detector

Electronic instrument which measures electronic flow across gas gap. Electronic flow changes indicate presence of **refrigerant** gas molecules.

Electronic navigator

A trip computer which gives estimated time of arrival (ETA), amount of fuel left, average fuel consumption, etc.

Electronic regulator

A solid state device which controls charging system output.

Electronic relay

Electronic switch, such as a triac, which controls a power consuming device.

Electronic ride control

A suspension control system made up of a microprocessor-controlled, electronically adjustable air shock absorbers for automatic selection of the optimum damping characteristics depending on road surface and load conditions

Electronics

Field of science dealing with electron devices and their uses.

See

- **Automotive electronics**

Electronic sensing device

An electronic measuring device for vehicles with **fuel injection**. It detects changes in **speed** and driving conditions and determines the

amount of fuel to be injected into the **combustion chamber** thus eliminating the need for **carburetors**.

Electronic sight glass

Device that sends an audible signal when system is low in **refrigerant**.

Electronic spark

See

- **High energy ignition system with electronic spark timing**

Electronic spark advance

(ESA) the part of an ECU that controls **ignition timing** and dwell angle

Electronic spark control

(ESC) The timing of the ignition by means of an ignition map, either integrated into the mapped ignition systems or available as a separate module to enhance transistorized ignition systems. Also called ***electronic spark timing***.

Electronic spark timing

(EST) The timing of the ignition by means of an ignition map, either integrated into the mapped ignition systems or available as a separate module to enhance transistorized ignition systems. Also called ***electronic spark control***.

See

- **High energy ignition system with electronic spark timing**

Electronic spark timing system

(EST) An ECM-controlled timing of ignition spark. This replaces the vacuum or centrifugal mechanism in the **distributor** and uses the computer to advance or retard the spark timing

Electronic Stability Control

(ESC) When a vehicle strays from the intended travel path or begins to spin out, the ESC automatically brakes individual wheels or reduces throttle to keep the vehicle under control. The system was first introduced by Mercedes Benz in 1994. Although it has been phased in on a number of vehicles (particularly cars and SUVs), it is required on all vehicles in Canada, USA, Australia, and Europe beginning in 2012.

Electronic thermistor

Electrical device that senses temperature change to control an output source

See

- **Thermistor**

Electronic thermostat

Thermostat that uses electronic components to accomplish various sensing, switching, timing, staging, and display functions.

Electronic traction control

(ETC) A system for reducing wheelspin, incorporating wheel sensors. A standard or optional feature, available only on ABS-equipped vehicles. It inhibits wheel-spin by applying the brake to a spinning rear wheel and thus enhances traction on ice, snow, or in severe off-road conditions. It uses ABS sensors for wheel speed determination and brakes the spinning wheel (through the axle differential) to apply torque to the stationary wheel. Like ABS, it is especially effective in maintaining control when one side of the vehicle is on a more slippery surface than the other -- a so-called 'split-μ surface.' An **instrument panel** light illuminates when the system is operating. The function is inhibited above 50 kph, a speed above which unintentional wheel spin is unlikely to occur.

Electronic transmission

A system of controlling the shifting of gears in the transmission by means of electrical pulses sent to solenoids and relays. In mechanical transmissions, the operator moves levers which makes the transmission shift gears.

Electronic transmission control

A system or module for controlling an automatic transmission

Electronic Trip Recorder

A device for recording data on a vehicle's performance, originally designed for monitoring and optimizing engine performance, in recent years GPS systems have been added to enable dispatchers to geo-locate their trucks and many trip recorders maintain HOS data, eliminating the need for driver maintained logbooks.

Electronic voltage regulator

(EVR) a type of regulator that uses all solid state devices to perform the regulatory functions

Electrons

See

- **Bound electrons**
- **free electrons**

Electron theory

The accepted theory of electronics that states that electricity flows from positive to negative.

Electrosomotic drag

The flux of a polar species (H_2O) due to its attraction to a proton (H+) that is transported from the **anode** to the **cathode**.

Electropainting

Electrophoretic painting.

See

- **Cathodic electropainting**

Electropaint tank

A tank in which items are immersed for electrophoretic paint application

Electrophoretic painting

A process used to apply the first coat of paint (**Primer**) to car bodies. The process involves using negatively charged paint particles (anodic electropainting) or positively charged paint particles (cathodic electropainting). The cleaned metal parts to be coated are immersed in a tank of electrodeposition paint, and the current is turned on, so that the paint particles are attracted by the positively charged paint particles

Electrophoretic primer

Paint used to prime car bodies by the electrophoretic process

Electro picker

A device which is electrically operated and is used to open locked car doors. It is available only to automotive locksmiths and the police. It consists basically of a vibrator with an attached steel blade. When the vibrating blade is inserted into a lock, it finds its way past the locating pins which would normally block anything but the original key

Electroplate

The process of depositing gold, silver, chrome, nickel, etc., upon an object by placing the object in a special solution and then passing an **electric current** through the solution. The object forms one terminal, a special **electrode** the other. **Direct current** is used.

Electroplating

The process of electrodeposition of metal or alloys from suitable electrolyte solutions. The articles to be plated are connected to the cathode in an electrolyte solution, and direct current is introduced through the anode of the metal to be deposited.

See

- **Zinc electroplating**

Electroscope

See

- **Quartz-fiber Electroscope**

Electrostatic filter

For cleaning air, a type of filter which gives dust particles an electric charge. This causes particles to be attracted to a plate so they can be removed from air.

Electrostatic painting

A painting method using the particle-attracting property of electrostatic charges, in which a direct current of approximately 100,000 volts is applied to a grid of wires through which the paint is sprayed to charge each particle, and the metal objects to be sprayed are connected to the opposite terminal of the high-voltage circuit, so as to attract the paint particles. Also called ***Electrostatic Spraying***

Electrostatic powder coating

(EPC) A painting process in which the outer parts of the body shell are coated with a powder dispersion by means of cathodic immersion, and in which the cavities are coated with cathodic electropaint

Electrostatic spraying

A painting method using the particle-attracting property of electrostatic charges, in which a direct current of approximately 100,000 volts is applied to a grid of wires through which the paint is sprayed to charge each particle, and the metal objects to be sprayed are connected to the opposite terminal of the high-voltage circuit, so as to attract the paint particles. Also called ***Electrostatic Painting***

Electro vacuum relay

(EVR)A combination solenoid vacuum valve and electrical relay which locks out blower operation and closes the fresh air door in cold weather, and switches the system to the recirculating air mode during maximum system use

Electrovalve

A solenoid valve

Element

A group of plates in a **battery**. Three elements for a six volt and six elements for the twelve volt **battery**. The elements are connected in series.

See

- **Air cleaner element**
- **Air filter element**
- **Catoptric Element**
- **Filter element**
- **Hall element**
- **Hot-wire element**
- **Power Element**
- **Receiver Heating Element**
- **Temperature control element**
- **Thermally-Actuated Element**

Elemental Carbon

(EC) Inorganic carbon, as opposed to carbon in organic compounds, sometimes used as a surrogate measure for diesel particulate matter, especially in occupational health environments. Elemental carbon usually accounts for 40-60% of the total DPM mass.

Element Control

See

- **Remote Power Element Control**

Element filter

A disposable oil or air filter that uses gauze or paper as filtering material.

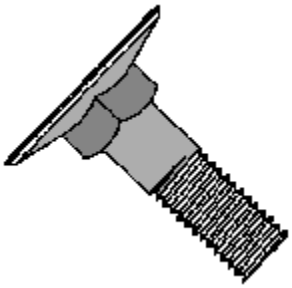
Elevation

As seen in front, rear or side views. A side elevation, for example, is a side view. The plan or top view is not defined as an elevation.

See

- **Angle Elevation**

Elevator bolt



Elevator bolt

Bolt with a wide, countersunk flat head, a shallow conical bearing surface, and integrally-formed square neck under the head (to prevent movement), and a unified thread pitch. Used in conveyor systems.

Elliot

See

- **Elliot axle**
- **Reversed Elliot axle**

Elliot axle

A solid bar front axle on which the ends span or straddle the **steering knuckle**.

See

- **Reversed Elliot axle**

Elliott steering knuckle

Type of axle in which ends of axle beam straddle spindle

See

- **Reverse Elliot Steering Knuckle**

Elliot type axle

See

- **Elliot axle**

Ellipsoidal headlight

A headlight with a reflector which is wider than it is high, and not circular; has replaced the parabolic reflector

Elliptical port shape

Rounded port shape designed to prevent a ring from catching in large ports of a two-stroke engine.

Elongation

1. The percentage increase in the length of a specimen when stressed to its yield strength.
2. Stretching a fastener to the point that it breaks. The percent of elongation at rupture (same as measure of ductility) is determined by dividing the total length after stretching to the original length. Elongation decreases as strength and hardness increases.

ELV

Abbreviation for ***End-of-Life Vehicles***.

EM

Abbreviation for ***Engine Modification***

EMB

Abbreviation for ***Electromagnetic Brakes***

Emblem

An object which is attached to a vehicle to identify it. In contrast, a **decal** is as thin as paper while an emblem is like a medallion.

See

- **Wheel trim emblem**

Embrittlement

A reduced toughness or ductility in plastic or metal caused by age, temperature, chemicals, or rough use.

See

- **Caustic Embrittlement**
- **Hydrogen embrittlement**

EMD

Abbreviation for ***Electro-Motive Diesel*** formerly the ***Electro-Motive Division of General Motors*** -- the world's largest builder of diesel-electric locomotives for all commercial railroad applications. EMD is also a global provider of diesel power engines for marine propulsion, offshore and land based oil well drilling rigs, and stationary power generation. It was developed by GM in the 1930's and taken over by GE in the 1980's.

Emergency

A sudden, unexpected occurrence, such as a breakdown or the failure of some part, which may be dangerous and demands immediate action.

Emergency brake

A braking system which is independent of the main **hydraulic** system. It can be used to slow or stop the vehicle if the primary brakes fail, or to hold the vehicle stationary though the **brake pedal** is not depressed. It usually consists of a foot pedal or hand lever that actuates either front or rear brakes mechanically through a series of cables and **linkages**. It is also called the **Parking brake** or ***E-brake***.

Emergency flotation pressure

Very low tire pressure (about 60% of normal road pressures) for traveling on soft ground (e.g., loose sand or snow) at very low speeds (e.g., 20 kmh. Low speed is necessary because the low pressure causes the tire's sidewall to flex excessively. Also called ***emergency soft***.

Emergency inflator

An aerosol can which inflates a punctured tire and injects sealing compound to provide at least a temporary repair

Emergency Order

A shipment request that is placed and shipped immediately, ahead of all other orders. Also called ***expedited order***

Emergency soft

See

- **emergency flotation tire pressure**

Emergency transmitter

A transmitter no larger than a car radio, fitted inside the vehicle which enables a driver to radio for help from the security of his own car

Emergency valve

A unit under the control of the driver which, when actuated, will activate the emergency brake system

See

- **Relay Emergency Valve**

Emergency windshield

A sheet of clear plastic fitted in place of a broken windshield

Emery cloth

A cloth coated in emery crystals like fine sandpaper for use as an **abrasive** on metals

EMF

Abbreviation for ***electromotive force***

See

- **Back Emf**
- **voltage**

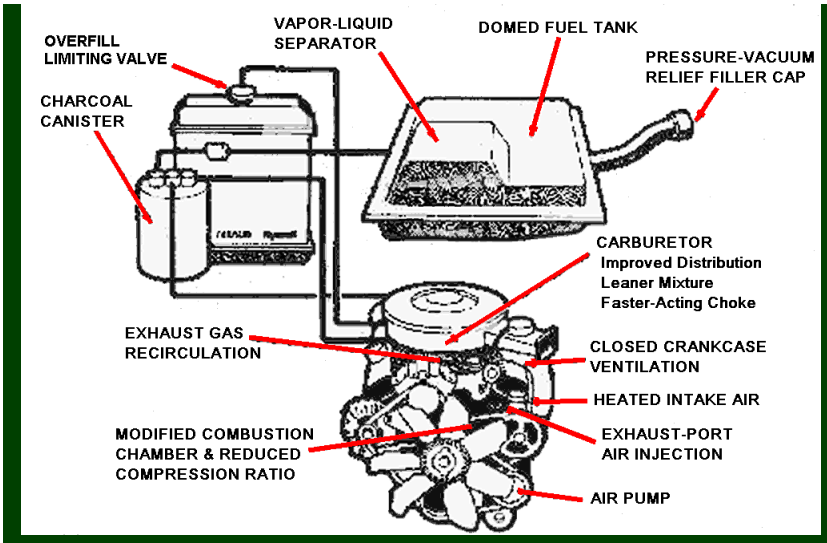
EMI

Abbreviation for ***Electromagnetic Interference***

Emily

An affectionate name for the RollsRoyce radiator mascot, the ***Spirit of Ecstasy***

Emission:



Click to supersize
Emission Control System

1. The passing of gases and other toxic substances into the atmosphere.
2. Anthropogenic releases of gases to the atmosphere. In the context of global climate change, they consist of radiatively important greenhouse gases (e.g., the release of carbon dioxide during fuel combustion).

See

- **Automotive emissions**
- **Back Emission**
- **Crankcase emissions**
- **Evaporative emission control system**
- **Evaporative emissions**
- **Exhaust emission controls**
- **Exhaust emissions**
- **Low-emission**
- **Low Emission Vehicle Standards**
- **Particulate emission limit**
- **Particulate emission**
- **Refueling Emissions**
- **Toxic Emission**

Emission control:

A system for restricting the amount of noxious emissions. There are two standards for emission controls: level E for Europe and the more stringent level U for the United States.

See

- **Evaporative emission control system**

Emission Control Information

See

- **Vehicle Emission Control Information**

Emission controls

See

- **Exhaust Emission Controls**

Emission control system

See

- **Evaporative emission control system**
- **Exhaust emission control system**

Emission coefficient

A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., pounds of carbon dioxide emitted per Btu of fossil fuel consumed).

Emission levels

Amounts of toxic substances passed into the atmosphere by motor vehicles

Emission limit

See

- **Particulate emission limit**

Emissions

Gases and other pollutants as well as noise coming from a vehicle with an internal combustion engine.

See

- **Emission**

Emissions equipment

Government and environment requirement to keep a vehicle's exhaust emissions to a minimum. Emissions equipment includes catalytic converter, air pump, and oxygen sensor.

Emission Shed System

See

- **Evaporative Emission Shed System**

Emission standards

Specified maximum emission levels permitted from different classes of motor vehicle in different countries

Emission Vehicle

See

- **Low Emission Vehicle Standards**
- **Ultra-Low Emission Vehicle**

Emission Vehicle Standards

See

- **Low Emission Vehicle Standards**
- **Ultra Low Emission Vehicle Standards**

Emitter

The lead of a transistor shown using an arrow with a head on it.

See

- **Bright Emitter**

Emitting Diode

See

- **Light Emitting Diode**

Employment

Total employment in each manufacturing facility, including total manufacturing employees, total support staff, and total engineering/R&D staff. Average number of workers employed by an establishment during the year. Production workers relate to the average number actually engaged in the manufacturing process. Administrative

and non-manufacturing includes employees at head offices and sales offices.

Employee benefits

The provision of direct (salary, bonuses, etc.) indirect (vacation leave, medical and dental plans, etc.) and deferred employee compensation (pensions, etc.).

Empty

A trailer that contains no freight.

EMR

1. Abbreviation for ***emission maintenance reminder***
2. Abbreviation for ***Electronic Module Retard***

EMS

Abbreviation for ***Engine Management System***

Emulsification

The process of making an emulsion

Emulsion

A mixture of two liquids which do not fully mix, such as oil and water, or specifically of gasoline and air in a **carburetor** before it is discharged and fully atomized. Water-in-oil emulsions have water as the internal phase and oil as the external, while oil-in-water have oil as the internal phase and water as the external.

Emulsion tube

Part of a fixed jet **carburetor**, in which air is introduced into the mixture through holes to help atomize it and correct excessive richness at higher engine speeds. A perforated tube which extends from an air bleed in the top of the air horn down into the main well. Admits air from the air bleed into the main well to emulsify the fuel in the main well. Improves idle response and stability when the engine is hot and prevents fuel percolation and general hot-starting problems. Also improves response in the main metering circuit during part throttle conditions. Also called **Main-well tube**

EMW

Abbreviation for ***emission maintenance warning***

EN

Abbreviation for ***Generator or Alternator***

Enable

A microcomputer decision that results in an engine management system being activated and permitted to operate

Enabled Programmable Read Only Memory

See

- **Electrically Enabled Programmable Read Only Memory**

Enabling Criteria

Each **Monitor** in an OBD system is designed to test and monitor the operation of a specific part of the vehicle's emissions system: (EGR system, oxygen sensor, catalytic converter, etc.). A specific set of 'conditions' or 'driving procedures' must be met before the computer can command a Monitor to run tests on its related system. These 'conditions' are known as 'Enabling Criteria.' The requirements and procedures vary for each Monitor. Some Monitors only require the ignition key to be turned 'On' for them to run and complete their diagnostic testing. Others may require a set of complex procedures, such as, starting the vehicle when cold, bringing it to operating temperature, and driving the vehicle under specific conditions before the Monitor can run and complete its diagnostic testing.

Enamel

Type of paint that dries to a smooth, **GlossyFinish**. It is easier to apply than cellulose. If cellulose is applied over it, the cellulose will lift (i.e., peel off).

See

- **Finishing enamel**
- **Porcelain enamel**
- **Vitreous enamel**

Enameling

See

- **Vitreous enameling**

EN block

See

- **EN-block.**

EN-block

One piece -- such as an engine **Cylinder block cast** in one piece.

Encapsulated winding

An electrical motor that has its windings structured completely coated with an insulating resin (such as epoxy). This construction type is more designed for exposure to severe atmospheric conditions than is the normal varnished windings.

ENCL

Abbreviation for an electric motor enclosure

Enclave

A model of automobile manufactured by **Buick Division** of **General Motors** from 2008-current

Enclosed

See

- **Totally Enclosed**

Enclosed Fan-Cooled Enclosure

See

- **Totally Enclosed Fan-Cooled Enclosure**

Enclosed Non-Ventilated Enclosure

See

- **Totally Enclosed Non-Ventilated Enclosure**

Enclosure

(ENCL) The term used to describe the electrical motor housing as one of the following types

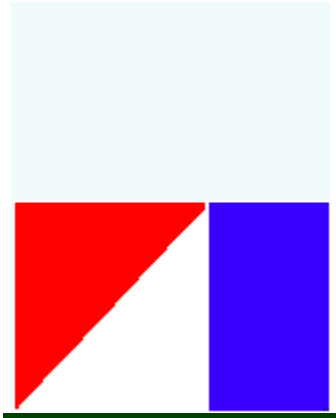
1. **Drip-proof enclosure**,
2. **Open drip-proof enclosure**,
3. **Explosion-proof enclosure**,
4. **Fan cooled enclosure**,
5. **Nonventilated enclosure**,
6. **Open enclosure**,
7. **Totally enclosed enclosure**

See

- **Fan-Cooled Enclosure**
- **Nonventilated Enclosure**
- **Open Drip-Proof Enclosure**

- **Open Enclosure**
- **Speaker enclosure**
- **Totally Enclosed Fan-Cooled Enclosure**
- **Totally Enclosed Non-Ventilated Enclosure**

Encore



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An automobile manufactured by AMC

End

See

- **Anchor End**
- **Back End**
- **Bar Ends**
- **Belt end**
- **Big end**
- **Bitter end**
- **Bolt end**
- **Bottom end**
- **Cable End**
- **Dead End**
- **Drive end**
- **Drive end bracket**
- **Female end**
- **Firing end**
- **Front end**
- **Front end alignment**
- **Gudgeon pin end**
- **Heavy-duty end cutting pliers**
- **High leverage end cutting pliers**

- **Light Ends**
- **Little end**
- **Male end**
- **Nut end**
- **Open end lease**
- **Piston pin end**
- **Piston ring end gap**
- **Rear end**
- **Rear end lift**
- **Small end**
- **Stud end**
- **Tie rod ends**
- **Top end**
- **Wedge end**
- **Wrist Pin End**

End alignment

See

- **Front end alignment**

End bearing

See

- **Small end bearing**

End bell

End structure of plate of electric motor which usually holds motor bearings.

End bracket

The cover containing a bearing at each end of a generator or alternator. Also called ***end cover***, **End shield**, ***end bell***, or ***end cover plate***.

See

- **Drive end bracket**
- **Slip-ring end bracket**
- **Small End Bearing**

End cap

The cap covering the end of a piece of trim or of a barrel fuse

End Construction

A road sign indicating that you have reached the end of road works.

End cover

The cover containing a bearing at each end of a generator or alternator. Also called ***end bracket*** or ***end cover plate***

End cover plate

The cover containing a bearing at each end of a generator or alternator. Also called ***end cover*** or ***end bracket***

End cutters

British term for **Side cutters**

End cutting

See

- **Heavy-duty end cutting pliers**
- **High leverage end cutting pliers**

End cutting pliers

British term for **Side cutters**

See

- **Heavy-duty end cutting pliers**
- **High leverage end cutting pliers**

End dump

A term used to describe various dump trucks or trailers that tilt to unload at the rear.

End float

See

- **End play**

End form

Any type of connector at the end of a hose or pipe.

End Frame

See

- **Stack End Frame**

End gap

See

- **Piston ring end gap**

End gas

The last part of the **fuel-air mixture** that has been introduced into the **cylinder** but has not yet been consumed in the normal **Flame-front** reaction.

End Gasket Kit

See

- **Bottom End Gasket Kit**
- **Top End Gasket Kit**

End gear

See

- **Axle end gears.**

End gears

See

- **Axle end gears.**

End hexagon screwdriver

See

- **Ball end hexagon screwdriver**

Ending Inventory

Inventory levels at the end of a specified period.

End lease

See

- **Closed end lease**
- **Open end lease**

Endless chain

A **roller chain** without a **master link** for connection of ends. All pin links are permanently riveted.

End lift

See

- **Rear end lift**

Endo

(Short form for ***end-over-end***). The maneuver of flying unexpectedly over the **handlebars**, thus being forcibly ejected from the bike as in 'If you hit that log you'll go endo.'

End-of-lease purchase price

If there is a purchase option in the lease contract or agreement, this will be the agreed upon price for the purchase of the vehicle at the end of the lease-the stated residual value. This price may also include additional fees.

End-of term interest rate

See

- **Buy at end-of term interest rate**

End-of-the-line terminal

(EOL) A local terminal which handles the pick-up and delivery of the customer's freight (as opposed to a consolidation center). Also referred to as a ***satellite terminal*** or ***group terminal***.

Endoscope

An instrument used to see into the interior of hollow cavities such as box sections

Endothermal

Chemical reaction in which heat is absorbed.

End piece

See

- **Sill end piece**

End Plate

See

- **Armature End Plate**

End play

1. The looseness in bearing clearance in an axial direction.
2. Slight movement of shaft along its center line.
3. Amount of lengthwise movement between two parts.

See

- **Camshaft end play**

End plug

The caps that fit onto or into the ends of the handlebars

End shield

That part of the electrical motor housing which supports the bearings and acts as a protective guard to the electrical and rotating parts inside the motor. This part is frequently called the ***end bracket*** or ***end bell***.

End Shifter

See

- **Bar End Shifter**

End speed

See

- **top end speed**

End stud

See

- **Double end stud**

Endurance Limit

The maximum stress that a metal will withstand without failure during a specified large number of cycles of stress.

Endurance test

A test of a material or system over a long period to determine when it will fail

Enduro

Off-road competition against the clock and usually over long distances

Enduro bike

A mountain bicycle for cross-country endurance races; generally lightweight, mid-travel (3 to 4 inches), dual suspension designs to balance performance and long-ride comfort

Energize

To activate (a **Solenoid**, **Relay**, etc.) by providing sufficient energy

Energizing

See

- **Self-energizing**

Energy

Capacity (actual or potential) for doing work. It is measured in joules or kilowatt-hours.

See

- **Band Edge Energy**
- **Beta Disintegration Energy**
- **Binding Energy**
- **Electric Energy**
- **Electromagnetic Energy**
- **Helmhotz Free Energy**
- **High energy battery**
- **High energy coil**
- **High energy ignition system with electronic spark timing**
- **High energy ignition system**
- **Kinetic energy**
- **Potential energy**
- **Radiant Energy**
- **Renewable Energy**
- **Solar Energy**
- **U.S. Department Of Energy**
- **Wind Energy**

Energy-absorbing

The ability to absorb impact forces

Energy absorbing bumper

See

- **bumper system.**

Energy-absorbing bumper

See

- **bumper system.**

Energy absorbing steering column

A **Steering column** which collapses when the vehicle is involved in a crash.

Energy audit

Process of accurately determining the current energy consumption for a given area.

Energy battery

See

- **High energy battery**

Energy coil

See

- **High energy coil**

Energy conservation

Process, upon reviewing the calculations for determining head loads, of instituting changes that will result in energy savings.

Energy conversion

The changing of one form of energy into another or into work, such as that in the combustion process, the heat of which is used to turn the engine and thus create motion

Energy efficient motors

Virtually interchangeable with standard motors, but differences in construction make them more energy efficient. Are also known as ***high-efficiency motors*** and ***premium motors***.

Energy efficiency ratio

(EER) The ratio of the rated cooling capacity in BTU per hour divided by the amount of electrical power used in watts.

See

- **Seasonal Energy Efficiency Ratio**

Energy ignition

See

- **High energy ignition system with electronic spark timing**
- **High energy ignition system**

Energy ignition system

See

- **High energy ignition system**
- **High energy ignition system with electronic spark timing**

Energy ignition system with electronic spark timing

See

- **High energy ignition system with electronic spark timing**

Energy Information Administration

(EIA) An independent agency within the U.S. Department of Energy that develops surveys, collects energy data, and does analytical and modeling analyses of energy issues. The Agency must satisfy the requests of Congress, other elements within the Department of Energy, Federal Energy Regulatory Commission, the Executive Branch, its own independent needs, and assist the general public, or other interest groups, without taking a policy position.

Energy Management

See

- **Total Energy Management**

Energy management control system

Controllers used in a system which optimizes total energy usage in a building or residence.

Energy Policy Act of 1992

(EPACT) This U.S. legislation created a new class of power generators, exempt wholesale generators, that are exempt from the provisions of the Public Holding Company Act of 1935 and grants the authority to the Federal Energy Regulatory Commission to order and condition access by eligible parties to the interconnected transmission grid. It deals with alternative transportation fuels. It **accelerates** the purchase requirements for AFVs by the federal fleet, proposes eliminating the cap on CAFE credits that manufacturers can earn by producing dual- and flexible-fuel vehicles and requires fleets in large urban areas to purchase AFVs. Establishes tax incentives for purchasing AFVs, converting conventional gasoline vehicles to operate on alternative fuels and installing refueling or recharging facilities by the private sector.

EnergyProtection Agency

See

- **EPA estimates.**

Energy retarder

See

- **Engine brake.**

Energy source

Any substance or natural phenomenon that can be consumed or transformed to supply heat or power. Examples include petroleum, coal, natural gas, nuclear, biomass, electricity, wind, sunlight, geothermal, water movement, and hydrogen in fuel cells.

Energy Systems

See

- **Solar Energy Systems**

Energy utilization index

(EUI) A number which is used to compare energy usages for different areas. It is calculated by dividing the energy consumption (in BTUs) by the square footage of the conditioned area.

Engage

1. To come into contact and be locked together (with another part).
2. To bring (a part) into contact with another so that it is locked to it

Engagement

The result of bringing into locking contact (e.g., of the **clutch**), or selection of a **Gear**

Engaging the throttle

The action of causing the throttle linkage to move so that more fuel enters the engine to increase the speed of the vehicle.

Click image to supersize engine

Engine

1. A machine for changing one form of energy (such as fuel energy, thermal energy, chemical energy, or electrical energy) into mechanical energy to produce force or motion. The term applies to the primary source of power generation. In Britain there is a desire to make a clear distinction between ***engine*** and ***motor*** so that ***motor*** refers only to electric power units (e.g., starter motor) and ***engine*** for gasoline or diesel powered units. However, even in Britain, combustion driven vehicles are called ***motor cars*** and ***motorcycles***. In the U.S.A. the term ***motor*** can apply to both types.
2. A mechanical appliance such as a **fire engine**.
3. A mechanical tool such as an instrument or machine of war or an instrument of torture
4. As a verb: to equip with an engine.

See

- **Adiabatic engine**
- **Air cooled engine**
- **Air Engine**
- **All-alloy engine**
- **Atmospheric Engine**
- **Axial Engine**
- **Balanced engine**
- **Big-block engine**
- **Blowing Engine**
- **Blown Engine**
- **Boxer engine**
- **Carburetor engine**
- **CIH engine**
- **Clip-on Engine**
- **Crate motor**
- **Cubic inch engine**
- **diesel engine**
- **Dual Fuel Engine**
- **Electronic engine control**
- **Engine types**
- **Exchange engine**
- **External combustion engine**
- **F-head engine**
- **Federal engine**
- **Fire engine**
- **Flat engine**
- **Flooded engine**

- **Four-cylinder engine**
- **Four-stroke cycle engine**
- **Front engine**
- **Fuel-injected engine**
- **Fuel injection engine**
- **HC engine**
- **Horizontally opposed engine**
- **Hydrocarbon engine**
- **I-head engine**
- **IC engine**
- **In-line engine**
- **Inclined engine**
- **Indirect injection engine**
- **Inlet over exhaust engine**
- **Inline engine**
- **Intake over exhaust engine**
- **internal combustion engine**
- **L-head engine**
- **Lean-burn engine**
- **Long block engine**
- **Longitudinal engine**
- **Long stroke engine**
- **L-twin Engine**
- **Lugging The Engine**
- **mid-engine**
- **Naturally aspirated engine**
- **Normally aspirated engine**
- **OHV engine**
- **Over square engine**
- **Pancake engine**
- **Parallel-twin Engine**
- **Piston-valve engine**
- **Piston engine**
- **Plastic engine**
- **Pre-combustion engine**
- **Pushrod engine**
- **Quad-cam engine**
- **Quadruple-expansion Engine**
- **Radial engine**
- **Rankine Cycle Engine**
- **Rear engine**
- **Rebuilt engine**
- **Reciprocating engine**
- **Reconditioned engine**
- **Rotary engine**
- **Short block engine**

- **Short engine**
- **Short stroke engine**
- **Side-valve engine**
- **SI engine**
- **Single-cylinder engine**
- **Six-cylinder engine**
- **Sixteen valve engine**
- **Slant engine**
- **Small-block engine**
- **Spark ignition engine**
- **Square-four engine**
- **Square engine**
- **Steam engine**
- **Stirling engine**
- **stratified charge engine**
- **Supercharged Engine**
- **T-head engine**
- **Three-port engine**
- **Three-valve engine**
- **Traction engine**
- **Transverse engine**
- **Turbine engine**
- **Turbocharged engine**
- **Twelve-cylinder engine**
- **Twelve-valve engine**
- **Twin-piston engine**
- **Twin cam engine**
- **Twin camshaft engine**
- **Two-stroke cycle engine**
- **Two-valve engine**
- **Under-square engine**
- **Under square engine**
- **Unit engine**
- **Valve-in-head engine**
- **Vee engine**
- **V-eight engine**
- **V-four engine**
- **VR engine**
- **V-six engine**
- **V-sixteen engine**
- **V-ten engine**
- **V-twelve engine**
- **V-type engine**
- **V-X engine**
- **W-engine**
- **Wankel engine**

- **Winding the engine**
- **X-engine**
- **X Litre Engine**

Engine accessory

An extra piece of equipment that runs directly off the engine's power to supply energy or a fluid to another part of the car. Engine accessories include the alternator, power steering pump, air pump, air conditioning compressor, as well as many others.

Engine adapter

A unit that allows a different engine to be installed in a vehicle and still bolt up to the original **transmission**.

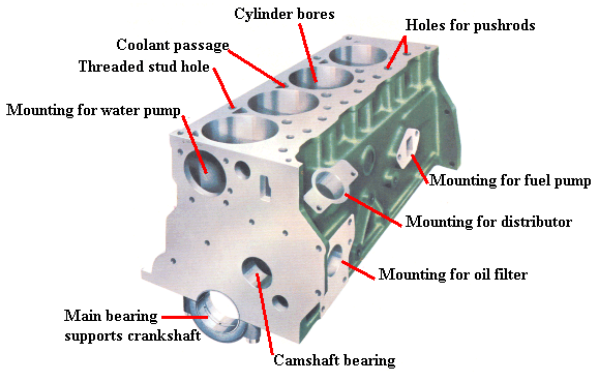
Engine analyzer

An electronic engine testing device which (because of its size) used to be placed in a cabinet or a movable stand. The modern units are often hand-held and are connected to the vehicle's diagnostic socket (as in the case of the diagnostic read-out box), which provides data on all aspects of the engine's state of tune

Engine bay

The engine compartment.

Engine block



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Engine Block

The **cylinder block**. The place where the cylinders and pistons reside. The block is the strongest part of the engine and withstands tremendous pressures while the engine is operating.

Engine block heater

See

- **Block heater**

Engine brake

A system that is independent of the conventional braking systems which assists in the slowing of a vehicle. A driver would normally down-shift to slow his descent down a hill, using engine compression. The engine brake increases the effectiveness of this retarding force. The most common type is called a **'Jake Brake'** because the predominant manufacturer is Jacobs Vehicle Equipment Co. Other types of retarders include exhaust retarders, transmission-mounted hydraulic retarders and axle-mounted electromagnetic retarders. Also called **Energy retarder**, or simply **Retarder**.

Engine braking

Vehicle retardation derived from engaging a low gear and taking your foot off the throttle:.

Engine braking effect

A retarding effect of an engine when the vehicle is in gear with the throttle closed. Also called a ***jake brake***

Engine calibration unit

An electronic component which can be specifically programmed to the design of each car model to control the **M/C solenoid**. Plugs into the **ECM**. Also called a **PROM**.

Engine capacity

The **Swept volume** of an engine

Engine compartment

The space where the engine is mounted. Also called the ***engine bay***.

See

- **Cluttered engine compartment**
- **Crowded engine compartment**

Engine control

See

- **Electronic engine control**
- **Engine control module**

Engine control module

(ECM) An advanced electronic computer which monitors engine conditions and then controls engine settings to optimize the combustion of the air/fuel mixture.

Engine control system

See

- **Engine-control system**

Engine-control system

A **computer** that regulates the operation of the engine by monitoring certain engine characteristics (rpm, **coolant** temperature, **Intake** airflow, etc.) through a network of **Sensors** and then controlling key variables (fuel metering, spark **timing** EGR, etc.) according to pre-programmed schedules.

Engine coolant

Antifreeze liquid used in the engine's cooling system

Engine coolant temperature sensor

(ECT)

1. The **Thermistor** detection device that provides coolant temperature information to the computer. Used to alter spark advance and EGR flow during warm-up or an overheating condition
2. A detection device which provides an electrical output proportional to the engine coolant temperature.

Engine cover

The **panel** which conceals the engine in a **mid-engine** car. Also called **access panel**.

See

- **hood (British *bonnet*) which covers the engine only in a front-mounted engine.**

Engine damage

Breakage, deformation, or scoring of the internal parts of an engine due to running at very high rpms for an extended period of time or with insufficient lubrication. A rod could break off and drive a hole into the cases; a valve could break off or imbed itself into the top of a piston; the piston could heat and expand and thus seize against the cylinder walls; or other types of damage could occur.

Engine depression

Low pressure on the engine side of the throttle caused by piston suction in the inlet manifold

Engine de-rating

Reducing the standard horsepower and speed ratings on an engine because of the kind of service it performs. For example, an intermittent rating will be higher than a continuous rating on an engine.

Engine diagnostic connector

The electrical connector for plugging in the engine analyzer, forming an interface between the engine electronic controls and diagnostic unit, and used to read the engine data as well as any fault codes stored in the memory of the engine controller

Engine displacement

1. To determine, multiply the **volume** of the space through which the **head of the piston** moves in the full length of its stroke by the number of **cylinders** in the engine. The result is given in cubic inches or liters.
2. Sum of the volumes swept by an engine's pistons as they travel up and down in their cylinders. Based upon the area of the bore (diameter of cylinder) and the length of the stroke (distance traveled by piston). Expressed in liters or cubic inches.
3. Formula: $ED=(B/2)^2 \times \pi \times S \times C$, where ED is Engine displacement, B is bore, S is stroke, C is number of cylinders. (The bore is the diameter, so half the bore is the radius which needs to be squared times π to get the area.)
    - For example a 4-cyl. engine has a bore of 84.5mm and a stroke of 88mm. $ED=(84.5/2)^2 \times \pi \times 88 \times 4 = 197399$ cubic millimetres = 1.974 liters which the manufacturer calls a 2-liter engine.
    - Second example: an 8-cyl engine has a bore of 4.082' and stroke of 4.06'. The $ED= (4.082/2)^2 \times \pi \times 4.06 \times 8 = 425.06$ cubic inches.
    - To convert from cubic inches to liters, multiply by $(2.54)^3$, thus the 425 cubic inches equates to 6.966 liters (advertised as 7 liters).
    - Likewise to convert from liters to cubic inches, divide by $(2.54)^3$, thus the 1.975 engine in the first example works out to 120.46 cubic inches.

Engineer

The person who operates and 'runs' the **railroad locomotive**.

Engineering

See

- **Automotive engineering**
- **Badge engineering**
- **Production engineering**

Engineers

See

- **Society Of Automotive Engineers**

Engine flywheel

A spinning plate located at the end of the **crankshaft** that engages the clutch disk, causing the engine and the transmission to turn at the same rate of speed. The flywheel is also designed to dampen engine vibration caused by the firing of pistons.

See

- **Flywheel.**

Engine hoist

Small crane for lifting an engine out of a motor vehicle, formerly incorporating a block and tackle, but now usually hydraulically operated.

See

- **Gantry**

Engine identification number

(EIN) A number stamped on the engine which may or may not match the number on the vehicle identification plate. Also called ***engine number***

Engine knock

When the engine is operating, an audible noise may be heard when the fuel in the cylinders is ignited too early and/or spontaneously, resulting in colliding flame fronts and shock waves which cause high thermal and mechanical stress, and can severely damage the engine.

Engine layout

1. The type of engine, with reference to the arrangement of its cylinders and their number (as in a flat four, V-twin, or straight eight).
2. The location of the engine in the vehicle (as in a front mount, mid-mount, or rear engine).

3. The placement of the engine in the engine compartment e.g., a **Transverse** or **In-line engine**

Engine Light

See

- **Check Engine Light**

Engine management system

(EMS) An electronic engine control system which covers at least the functioning of the fuel injection and ignition, but may also include emission controls and self-diagnostics

Engine map

As an engine speeds up, the timing needs to be advanced. On older vehicles, this is accomplished mechanically with a counterweight advance in the **distributor**. In modern vehicles, the timing can be advanced progressively by means of a computer chip which is programmed to provide the ideal timing. It also provides other factors in some engines such as the opening and closing of valves, etc.

See

- **Characteristic map.**

Engine misfire

See

- **Misfire**

Engine modifications

Alterations to the specification of the engine to increase power output, improve economy, reduce emissions, etc.

Engine mount

One of two or more supports that connect the transmission and engine to the vehicle's chassis. Composed of rubber and steel, the engine mounts absorb the motion (twisting, vibrating, etc.) produced by the operation of the engine and transmission. They also assist in reducing the noise and motion transmitted to the passenger compartment. The most efficient recently developed mounts are hydraulic, in some cases electronically-controlled.

Engine mounting

A flexible support for the engine in which an elastic medium, usually rubber, is interposed between the lugs on the engine and the frame of the vehicle

Engine noise

The amount of noise produced by the engine when it is running. Engine noise is more noticeable with a diesel at lower speeds

Engine number

(EIN) A number stamped on the engine which may or may not match the number on the vehicle identification plate. Also called ***engine identification number***

Engine oil

Oil within the engine used to lubricate the moving components. At one time the oil was a single grade, but modern engines use **Multi-viscosity oil**.

See

- **Synthetic engine oil**

Engine oil classification

The API classification system for the designation of gasoline and diesel engine oils, which reflects the quality, performance, and suitability of the oils for various engines. The ***S*** classification was for gasoline engines while the ***C*** classification was for diesel engines.

See

- **SA**
- **SB**
- **SC**
- **SD**
- **SE**
- **SF**
- **SG**
- **SH**
- **SJ**
- **SL**
- **SM**
- **CA**
- **CB**
- **CC**
- **CD**
- **CD-II**
- **CE**
- **CF-4**

- **CF**
- **CF-2**
- **CG-4**
- **CH-4**
- **CI-4**
- **CI-4 Plus**

Engine oil gallery

A series of passages, usually drilled, through which oil circulates to key sections of the engine and to the crankshaft

Engine oil pan

See

- **Oil pan.**

Engine oil level warning light

A light on the **instrument panel** which comes on when the oil in the **sump** falls below a certain level

Engine overhaul

When an old engine burns too much oil and loses power, it is dismantled and restored to the manufacturer's original tolerances by replacement of worn parts, reboring the cylinders, regrinding the crankshaft, etc.

Engine overheating

A condition that occurs when the coolant in the cooling system is so hot the metals in the engine are at a temperature that may cause damage to them. In addition, the engine runs poorly and usually stalls.

See

- **Overheat**

Engine parameters

A term used in the context of emission controls for those engine characteristics sensitive to engine performance, such as power/bhp, general engine performance, and fuel economy

Engine performance tester

An engine analyzer

Engine sequence test

The test which determines how well oil will prevent engine rusting, corrosion, scuffing, wear, and the formation of **Sludge** and **Varnish**.

Engine size

The engine displacement or capacity. The total volume within all cylinders of an engine when pistons are at their lowest positions. The engine is usually measured in liters or cubic inches of displacement (CID). Generally, larger engines result in greater engine power, but less fuel efficiency. There are 61.024 cubic inches in a liter.

Engine speed

The number of revolutions per minute (rpm) at which the engine **crankshaft** turns. The vehicle itself may be stationary or in motion.

Engine speed limiter

A device which acts as a governor which cuts the power when a certain number of rpm is reached

Engine speed sensor

In most cases, a **Magnetic pick-up** that scans the **Flywheel** teeth and produces one output signal per scanned tooth, or a **Hall generator** in the **distributor**, whose signals are passed to the **Electronic control unit**

Engine subframe

A separate frame in which the engine is mounted

Engine temperature sender

The engine temperature switch and sending unit measure the temperature of the engine's coolant. They send this information to the engine temperature warning light and engine temperature gauge, respectively. Compare to **coolant temperature sensor** (CTS) which transmits the coolant temperature to the computer, and the radiator fan switch which engages the radiator's cooling fan.

Enginetemperature sensor

A detection device used to monitor the temperature of the engine

Engine timing

1. The point of time when the spark ignites the air/fuel mixture (**ignition timing**)
2. The setting of the valves when they open or close (**Valve timing**)

Engine tune-up

A procedure for inspecting, testing, and adjusting an engine, and replacing any worn parts, to restore the engine to its best performance

Engine type

Over the years of engine development, several types or configurations have been made. All of them relate to the position of the valves and the **camshaft(s)** that operates them.

- **Air cooled engine** -- An engine which is not cooled by antifreeze but by passing air beside external fins.
- **diesel engine** -- An engine with high compression that pressurizes the diesel oil fuel and fires the charge through compression not by a **spark plug**.
- **DOHC** -- **Double overhead camshafts**
- **F-head** -- Side **exhaust valve** and overhead **intake valve**.
- **Flat engine**
- **Four-stroke cycle engine**
- **Hemi or hemi-head** -- Engine using **hemispherical**-shaped (half of a globe or sphere) combustion chambers.
- **Horizontally opposed engine**
- **Hydrocarbon engine**
- **I-head** -- Both valves located directly over the **piston**. Also called valve-in-head or overhead valve engine.
- **In-line engine**
- **internal combustion engine**
- **L-head** -- Both valves on one side of the **cylinder**
- **Oversquare engine**
- **Pancake engine**
- **Radial engine**
- **Rotary engine**
- **Slant engine**
- **SOHC** -- Single overhead camshaft.
- **Square engine**
- **Steam engine**
- **Stirling engine**
- **stratified charge engine**
- **Straight engine**
- **T-head** -- **exhaust valve** on one side and intake valve on the other side of the **cylinder** and found on twin-camshaft engines.
- **Traction engine**
- **Transverse engine**
- **Turbine engine**
- **Two-stoke cycle engine**
- **Undersquare engine**
- **V-type** -- Two sets of cylinders set apart in a V-formation like a V-8 or V-6
- **Valve-in-head engine**
- **Wankel engine**
- **X-type**

Engine warning light

See

- **Check engine warning light**

Engler viscosity

A viscosity obtained by dividing the out-flow time in seconds for 200 ml. of the material being tested, by the time in seconds for 200 ml. of water at 20°C to flow out of an Engler viscosimeter.

Enrichment

Making the air/fuel mixture richer, i.e., increasing the fuel content.

See

- **Acceleration enrichment**
- **After-start enrichment**
- **Cold start enrichment**
- **Full load enrichment**
- **Hot start enrichment**
- **Part-load Enrichment**
- **Warm-up enrichment**

Enrichment circuit

A carburetor system with a plunger to open and close an air-fuel circuit which discharges a rich mixture into the throat of the carburetor for cold starting.

Enrichment device

A circuit in a **carburetor** providing a richer mixture, operated by engine vacuum

Enrichment system

On a carburetor, any device or system which richens the air/fuel mixture for starting, warm-up or acceleration. Also, in some turbocharged systems, an auxiliary fuel injection system designed to add extra fuel to the intake mixture only under boost conditions.

Enrichment unit

A circuit in a **carburetor** providing a richer mixture, operated by engine vacuum

Enrichner

A fuel plunger which is used in a **carburetor** in place of a **Choke**. By activating the plunger more gas is permitted into the **Intake** area to enrichen the **fuel-air mixture** for easier starting.

See

- **Choke**

Entertainment

See

- **In-car entertainment**

Enthalpy

Total amount of heat in one pound of a substance calculated from accepted temperature base. Temperature of 0°C is the accepted base for water vapor calculation. For refrigerator calculations, the accepted base is -40°C.

Entrain

to add or suspend bubbles or particles in a moving fluid

Entrepreneur

One who undertakes ownership of a business or enterprise

Entrepreneurship

A person's ability to organize, manage, and assume risks of operating a business

Entropy

Mathematical factor used in engineering calculations. Energy in a system.

Entry

See

- **Illuminated entry system**
- **Keyless entry system**
- **Remote keyless entry**

Entry EGR System

See

- **Spacer Entry EGR System**

Entry-level version

Basic model suitable as someone's first car

Entry model

Basic model suitable as someone's first car

Entry system

See

- **Illuminated entry system**
- **Keyless entry system**

Envelope

1. A thin rubber wrapper that surrounds the tread, sidewall and is tucked inside the curing rim during the pre-cured cold process retreading. It protects bonding materials from humidity within the chamber.
2. A cover enclosing something entirely, such as the glass of a lamp bulb.

See

- **Outer envelope**

Envelope body

A car body whose sides have no visual or actual side-surface interruptions or breaks.

Envelope separator

A porous plastic separator used in maintenance-free batteries to enclose the individual plates completely

Enveloping body

See

- **All-enveloping body**

Environment

The surrounding conditions.

Environmental assessment

(EA) The study of the impact on wildlife, wetlands, cultural resources, farmland, water and air quality and other environmental issues.

Environmental Impact Statement

(EIS)

1. An analysis of the environmental impacts of proposed land development and transportation projects; conducted for federally funded or approved projects per **NEPA**. A draft EIS is circulated to the public and agencies with approval authority for comment.
2. A report that documents the information required to evaluate the environmental impact of a project. It informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the environment.

Environmentally aware

An awareness of the dangers and threats to the environment caused by vehicle use and the taking of appropriate action to avoid them

Environmentally friendly

Something that is harmless to the environment, or causing as little harm as possible

Environmental Policy Act

See

- **National Environmental Policy Act**

Environmental Protection Act

See

- **Canadian Environmental Protection Act**

Environmental Protection Agency

(EPA) A U.S. federal agency charged with protecting the natural resources on the nation.

See

- **U.S. Environmental Protection Agency**

Environmental Protection Agency certification files

Computer files produced by the EPA for analysis purposes. For each vehicle make, model and year, the files contain the EPA test MPGs (city, highway, and 55/45 composite). These MPG's are associated with various combinations of engine and drive-train technologies (e.g., number of cylinders, engine size, gasoline or diesel fuel, and automatic or manual transmission). These files also contain information similar to that in the DOE/EPA Gas Mileage Guide, although the MPGs in that publication are adjusted for shortfall.

Environment-conscious

An awareness of the dangers and threats to the environment caused by vehicle use and the taking of appropriate action to avoid them

Enzyme

Complex organic substance, originating from living cells, that speeds up chemical changes in foods. Enzyme action is slowed by cooling.

EOC

Abbreviation for ***Emergency Operations Center***

EOL

Abbreviation for **End-of-the-line terminal**. A local terminal which handles the pick-up and delivery of the customer's freight (as opposed to a consolidation center). Also referred to as a ***satellite terminal*** or ***group terminal***.

EOR

Abbreviation for ***enhanced oil recovery***

EOBD

Abbreviation for ***European On Board Diagnostics***

EOP

Abbreviation for ***Engine Oil Pressure***

EOS

Abbreviation for ***Exhaust Oxygen Sensor***

EOT

Abbreviation for ***Engine Oil Temperature***

EP

1. Abbreviation for ***Exhaust Pressure***
2. Abbreviation for ***Extended Protection*** as extra warranty esp. on car rental
3. Abbreviation for ***Extra Protection*** as extra warranty esp. on car rental

EPA

1. Abbreviation for ***Energy Protection Agency***.

   See

   - **EPA fuel economy.**
2. Abbreviation for the U.S. federal ***Environmental Protection Agency*** which is responsible for recommending environmental legislation and in the automotive sphere produces test cycles and estimates fuel economy. It is also charged with protecting the natural resources on the nation.

EPA composite MPG

The harmonic mean of the EPA city and highway MPG, weighted under the assumption of 55 percent city driving and 45 percent highway driving.

EPACT

Abbreviation for ***Energy Policy Act of 1992*** Comprehensive energy legislation that is expected to expand natural gas use by reforming **PUHCA** restrictions, allowing wholesale electric transmission access and providing incentives to developers of clean fuel vehicles.

EPA estimate

An American organization (Energy Protection Agency) which determines the fuel consumption of various vehicles. It takes into account city and highway driving. These figures may be helpful in comparing one vehicle against another. Your vehicle can greatly exceed these estimates with sensible driving, the use of **cruise control** obeying the **Speed limits** avoiding rapid starts, **coasting** long before a stop light or sign.

See

- **EPA fuel economy**

EPA estimates

An American organization (Energy Protection Agency) which determines the fuel consumption of various vehicles. It takes into account city and highway driving. These figures may be helpful in comparing one vehicle against another. Your vehicle can greatly exceed these estimates with sensible driving, the use of **cruise control** obeying the **Speed limits** avoiding rapid starts, **coasting** long before a stop light or sign.

See

- **EPA fuel economy**

EPA fuel economy

Laboratory **fuel economy** tests administered by the Environmental Protection Agency (EPA) using simulated weight and **Drag** to re-create real driving conditions. The city fuel-economy test, also used to test emissions **Compliance** is based on a drive through typical Los Angeles urban traffic of the 1980s. Such conditions in LA are no longer present. The highway test uses a higher, steadier **speed** averaging79.5 kph (49.4 mph).

EPC

1. Abbreviation for ***Electrostatic Powder Coating***
2. Abbreviation for ***Electronic Pressure Control*** -- controls line pressure in the auto transmission

EPFC

Abbreviation for **Explosion-proof** fan-cooled' electric motor housing

EP gear oil

An extreme pressure gear oil preventing metal-to-metal contact, used mainly in **Gearboxes** and final drive units. Also called ***EP lubricant***

Epic

A colloquial bicycle term for a remarkable mountain bike ride for either length, elevation gain, or spectacular views

Epicyclic

See

- **Epicyclic gearbox.**

Epicyclic gear

A **Gear** that operates around the circumference of another

Epicyclic gearbox

A form of gear used by Benz in which small **Pinions** revolve around a central or **Sun gear** and mesh with an outer **Ring gear** called the annulus. Type used in the **Ford Model T**. Also called **Planetary gearset**, ***planetary transmission***, or ***sun-and-planet gears***.

Epitrochoid

A geometric path followed by a specific point located in a generating circle which is rolled around the **Periphery** of a **Base circle**.

Epitrochoidal

A part of a circle which is not on the circumference of another circle around which it turns

EP lubricant

See

- **Extreme pressure lubricant.**

EPNV

Abbreviation for **Explosion-proof** non-ventilated' electric motor housing

EPOS

Abbreviation for ***EGR Valve Position Sensor*** (Ford)

Epoxy

Synthetic plastic adhesive.

Epoxy adhesive

Adhesives which offer a combination of high room temperature strength with good load bearing properties. These adhesives have exceptional adhesion to metal surfaces

Epoxy resin

A thermosetting resin based on ethylene oxide or similar materials or derivatives, used in adhesives, fillers, and **Primers** and other finishes

EPR

1. Abbreviation for **Evaporator pressure regulator valve**.
2. Abbreviation for **Exhaust pressure regulator**

EPROM

Abbreviation for ***Erasable Programmable Read Only Memory***

EPR system

Abbreviation for **Evaporator pressure regulator**

EPS

Abbreviation for ***electronically controlled power steering***. EPS is used in more expensive models, such as the BMW Servotronic system where the assistance provided alters according to the speed at which the car is traveling

EPT

Abbreviation for ***EGR Pressure Transducer*** -- replaced by PFE

Equalized Valve In Receiver

See

- **Evaporator Equalized Valve In Receiver**

Equalizer

A bracket or cable connector which balances tension equally on the cables to the parking brakes.

See

- **Compensator**
- **External Equalizer**
- **Graphic equalizer**
- **Parking-brake Equalizer**

Equalizer line

In air conditioner system, a line or connection used to operate certain control valves. Little or no **refrigerant** flows through the line

Equal length header

An **exhaust manifold** where the runners from each cylinder are of equal length. Such a system allows exhaust pulses to meet at the collector or single pipe in a controlled sequence, thus enhancing cylinder evacuation and gas flow.

Equal power distribution

A system in four-wheel drive vehicles which ensures that an equal amount of power is passed to the front and rear wheels

Equal power split

A system in four-wheel drive vehicles which ensures that an equal amount of power is passed to the front and rear wheels

Equation

See

- **Nernst Equation**
- **Quadratic Equation**
- **Quartic Equation**
- **Quintic Equation**

Equilibrium

See

- **Thermal equilibrium**

Equilibrium reflux boiling point

(ERBP) The boiling point of a brake fluid as determined by a special test procedure. Both dry and wet ERBPs are used in evaluating brake fluids.

Equipment

Devices and systems fitted to a vehicle which are either essential or optional, and either fitted by the manufacturer (**Original equipment**) or subsequently by the owner (**Aftermarket equipment**).

See

- **Aftermarket equipment**
- **Automatic Tap-changing Equipment**
- **Automatic Test Equipment**
- **Integral equipment**
- **Low-bake equipment**
- **Optional equipment**

- **Original equipment**
- **Recovery recycling Equipment**
- **Standard equipment**

Equipment daily inspection and condition report

The pre-trip inspection form used by drivers to perform equipment inspections on their tractors and trailers.

Equipment dump

Equipment hauling flatbed trucks. Also called ***equipment loader***.

Equipment Loader

Equipment hauling flatbed trucks. Also called ***equipment dump***.

Equipment Manufacturer

See

- **Original Equipment Manufacturer**

Equipment Manufacturer Vehicle

See

- **Original Equipment Manufacturer Vehicle**

Equipment package

A combination of equipment provided by the manufacturer

Equity

See

- **Negative Equity**

Equivalence ratio

(ER) The ratio of the **Stoichiometric** oxidizer to fuel ratio (O/F) of a particular oxidizer and fuel to the actual oxidizer to fuel ratio at which the unit is operating. This is a measure of the ***fuel rich*** condition of a system (***ER more than 1*** is fuel rich while ***ER less than 1*** is fuel lean). For example, in a pure oxygen and hydrogen system, the stoichiometric O/F is 8:1. Therefore, a unit operating at a ratio of 4:1 has an equivalence ratio of 2.0 (fuel rich).

Equivalent

See

- **Ice Melting Equivalent**

Equivalent braking force

See

- **Braking force ratio**

Equivalent Unit

See

- **Twenty Foot Equivalent Unit**

ER

1. Abbreviation for **Equivalence ratio**
2. Abbreviation for an ***ellipsoidal reflector*** lamp

ERBP

Abbreviation for **Equilibrium reflux boiling point**

Erecting

The process of hoisting into place and bolting the various parts of a ship's hull.

Erg

The **cgs** unit of energy or work equal to the work done by a force of one **dyne** acting over a distance of one centimetre.

Ergonomics

[Gr. lit The law of work] Technically, it means the biotechnology study of how human beings relate to their surroundings and how efficiently they perform in that environment. However, the meaning has also come to be used in a qualitative sense so that a vehicle has good or bad ergonomics meaning that the controls, switches, instruments, seats, pedals, and **steering wheel** suit the human driver.

Ergopower shifter

Campagnolo's integrated **bicycle** brake levers/shifter levers which provides the ability to shift gears without taking your hands off the **handlebars**.

Erode

To remove a surface layer (by chemical action or by rubbing)

Eroded crown

A condition of the top of a piston caused by detonation or preignition where temperatures are raised so high that part of the piston crown is melted away.

Eroded piston

A condition caused by detonation or preignition where temperatures are raised so high that part of the piston crown is melted away.

Erosion

A reduction in size of an object because of a liquid or gas impact on the object.

Erosion control

Protecting the exposed surfaces of roadway slopes from harmful effects of runoff water and rain.

Error

See

- **Barometric Error**
- **Driver error**
- **Lead error**

Error Ratio

See

- **Bit Error Ratio**

ESA

Abbreviation for ***Electronic Spark Advance***

ESC

Abbreviation for ***Electronic Spark Control***

Abbreviation for ***Electronic Stability Control***. When a vehicle strays from the intended travel path or begins to spin out, the ESC automatically brakes individual wheels or reduces throttle to keep the vehicle under control. The system was first introduced by Mercedes Benz in 1994. Although it has been phased in on a number of vehicles (particularly cars and SUVs), it is required on all vehicles in Canada, USA, Australia, and Europe beginning in 2012.

Escalade

Click image for books on Cadillac Escalade

A model of automobile manufactured by the **Cadillac** division of **General Motors** from 1999-current. It also includes the Escalade ESV and Escalade EXT

Escape Ramp

See

- **Runaway Truck Ramp**

Escape trunk

A vertical trunk fitted with a ladder to permit personnel to escape if trapped

Escort

Click image for books on Escort

A model of automobile manufactured by Ford

Escutcheon

A panel or part used to hide or protect another part. For instance a window handle may reveal its attaching bolt and the hole in the door panel, so an escutcheon disc is used to cover the hole. Some are decorative as well as functional.

Escutcheon Pin

A piece generally used to join a plate or shield, to cover or protect softer or more delicate materials or actions.

ESD

Abbreviation for ***Electrostatic Discharge***

ESFR

Abbreviation for ***Early Suppression, Fast Response***. A ceiling-mounted sprinkler systems that started being used in warehouses around 1990 as an alternative to rack-mounted sprinkler systems. ESFR heads detect fire faster and are reported to start spraying with more speed than conventional sprinkler heads. They also output water at higher volumes (approximately 100 gallons per minute). Droplet size is typically bigger which delivers more water, with greater speed, to the fire source. ESFR systems reportedly extinguish fires faster and more effectively with less damage to product than in-rack systems.

ESM

Abbreviation for Chrysler's ***electronic shift module*** -- part of transmission shifter assembly

ESR

Abbreviation for ***electric Sunroof***

ESS

1. Abbreviation for ***engine speed sensor***
2. Abbreviation for ***Electronic Spark Selection*** (Cadillac)

EST

Abbreviation for**Electronic spark timing system**

Establishment

Smallest operating entity producing a homogenous set of goods and services and is capable of reporting full range of production account variables to calculate ***value added***.

See

- **Manufacturing Establishment**

Estate car

A British term for a **station wagon**, or four-door, four passenger car with an extended roof line plus a gate or hatch in the rear for increased cargo capacity.

Ester

An organic compound formed by reacting an acid with an alcohol, always resulting in the elimination of water.

See

- **Methyl Ester**

Estimate

See

- **Estimates.**

Estimates

A guess on the part of a service department with respect to the nature of a vehicle's problem and cost of repairing it. Although most shops will stand by their estimate, there is also the situation where the problem is caused by something which will be more expensive to repair or may be less expensive. In the case where other **components** are also faulty (but the estimate did not include them), the shop may contact the**Customer** with a revised estimate saying, 'We can repair what we thought was the faulty part, but we found another defective part which also contributed to the problem once we took things apart. Now the cost will be more. Do you want us to go ahead and repair that **component** too?' In the case where a lesser solution repaired the problem, good shops will give you a bill that is much less than the estimate with an explanation like, 'We thought we had to replace the expensive control box, but we found that one of its plugs had come loose'.

See

- **EPA estimates**

ESV

Abbreviation for **Experimental Safety Vehicle**

ET

Abbreviation for **Elapsed time**. The length of time it takes a**Dragster** to complete the one-fourth mile run.

ETA

Abbreviation for ***expected time of arrival***.

ETBE

Abbreviation for ***ethyl tertiary butyl ether*** $(CH_3)3COC_2H$. An **oxygenate** blend stock formed by the catalytic etherification of **isobutylene** with **ethanol**

ETC

1. Abbreviation for **Electronic Traction Control**
2. Abbreviation for ***Electronic Temperature Control***

Etcher

See

- **Barrel Etcher**

Etching

1. A roughening or disintegration of the paint surface, which can occur on small patches or over a wide area, through attack from bird droppings, soap deposits, industrial fallout, etc. Also called ***lifting***.
2. The removal of soil or the natural oxide film from an aluminum surface, giving a roughened surface which improves adhesion of the subsequent paint layer, or removal of the actual metal.
3. A system of marking car windows with the registration number so as to deter thieves.

See

- **Cathodic Etching**
- **Caustic etching**
- **Window etching**

Etching primer

A **Primer** for aluminum which has an etching effect to improve adhesion

Etch primer

A **Primer** for aluminum which has an etching effect to improve adhesion

Ethane

(C2H6) A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -88.6°C. It is extracted from

natural gas and refinery gas streams. It is a **refrigerant** (R-170) sometimes added to other refrigerants to improve **Oil circulation**.

Ethanol

(CH3-CH2OH) A clear, colorless, flammable oxygenated hydrocarbon. Ethanol is typically produced chemically from ethylene, or biologically from fermentation of various sugars from carbohydrates found in agricultural crops and cellulosic residues from crops or wood. It is used in the United States as a gasoline octane enhancer and oxygenate (blended up to 10 percent concentration). Ethanol can also be used in high concentrations (E85) in vehicles designed for its use. The lower heating value, equal to 76,000 Btu per gallon, is assumed for estimates in the Renewables Energy Annual report. Also known as ***Ethyl Alcohol*** or ***Grain Alcohol***

See

- **Fuel ethanol**
- **E85**

Ether

A generic term applied to a group of organic chemical compounds composed of carbon, hydrogen, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., methyl tertiary butyl ether).

See

- **Dimethyl Ether**
- **Methyl Tertiary Butyl Ether**
- **Tertiary Amyl Ethyl Ether**
- **Tertiary Amyl Methyl Ether**

Etherification

Oxygenation of an **Olefin** by methanol or ethanol. For example, MTBE is formed from the chemical reaction of **isobutylene** and **methanol**

Ethyl acrylate

A **Polymer** used in toughening rubber

Ethyl Alcohol

See

- **ethanol**

Ethylene

An **Olefinic** hydrocarbon recovered from refinery processes or petrochemical processes. Ethylene is used as a petrochemical feedstock

for numerous chemical applications and the production of consumer goods.

Ethylene dichloride

A colorless, oily liquid used as a solvent and fumigant for organic synthesis, and for ore flotation.

Ethylene glycol

A chemical solution added to the **cooling system** to protect against freezing.

See

- **Antifreeze.**

Ethyl Ester

A fatty **Ester** formed when organically derived oils are combined with **ethanol** in the presence of a **catalyst**. After water washing, vacuum drying, and filtration, the resulting ethyl ester has characteristics similar to petroleum-based diesel motor fuels.

See

- **Tertiary Amyl Ethyl Ether**

Ethyl gasoline

gasoline to which ethyl fluid (**Tetraethyl lead** ethylene dibromide, ethylene dichloride, or another octane improver) has been added to improve the gasoline's **resistance** to **knocking**. It slows down the burning rate thereby creating a smooth pressure curve that will allow the gasoline to be used in high **compression** engines. It is a generic term describing premium or high-octane fuel. It was first sold in 1924.

Ethyl Tertiary Butyl Ether

(ETBE) An **Aliphaticether** similar to MTBE. This fuel oxygenate is manufactured by reacting **isobutylene** with ethanol. Having high octane and low volatility characteristics, ETBE can be added to gasoline up to a level of approximately 17% by volume. ETBE is not yet commercially available.

ETP

Abbreviation for ***EGR Pressure Transducer***

ETR

1. Abbreviation for **Evaporator temperature regulator** valve
2. Abbreviation for ***Electronically Tuned Receiver***
3. Abbreviation for ***Emergency Transportation Route***

ETRTO

Abbreviation for ***European Tyre and Rim Technical Organisation***.

EU

Abbreviation for ***European Union***

EUI

Abbreviation for**Energy utilization index**

Euromix formula

The basis for a standard test cycle covering both town driving and driving on the open road. In North America a similar is called the ***Town and Country Formula***

Eurostar

Organization operating rail passenger services from Europe to mainland UK.

Eutectic

That certain mixture of two substances providing lowest melting temperature of all the various mixes of the two substances.

Eutectic alloy

A mixture of metals which has a melting point lower than that of any of the metals in the mixture, or of any other mixture of these metals.

Eutectic point

Freezing temperature for eutectic solutions.

EV

Abbreviation for ***Electric Vehicle*** -- A vehicle powered by one or more electric motors rather than by an internal combustion engine. The most common source of electricity is chemical storage batteries.

Evacuate

1. To remove by pushing out.
2. To create a vacuum in an air conditioning system to remove all traces of air and moisture.
3. To pump the air, moisture and foreign material out of the system with a vacuum pump. Also called **Pump down**

Evacuated-tube collector

A collector in which solar thermal heat is captured by use of a collector fluid that flows through an absorber tube contained inside an evacuated glass tube.

Evacuation

Removal of air (gas) and moisture from a refrigeration or air conditioning system.

Evaluation

See

- **Driver evaluation**

EVAP

Abbreviation for **Evaporative emission control system** -- Prevents the escape of fuel vapor to the atmosphere

EVAP CP

Abbreviation for ***Evaporative Canister Purge***

EVAP CV

Abbreviation for ***Evaporative Emissions System Canister Vent***

Evaporate

To turn into a vapor

Evaporation

The process of changing from a liquid to a vapor, such as boiling water to produce steam; evaporation is the opposite of **Condensation**. Heat is absorbed in this process of evaporation. Evaporation can occur at various temps, depending on the liquid and the pressure. Also refers to **Solvents** in the paint escaping to the air.

See

- **Early fuel evaporation system**
- **Latent Heat Of Evaporation**

Evaporation control system

(EVAP or ECS) A system for reducing evaporative emissions by means of a sealed fuel tank, a vapor-liquid separator, a three-way valve, an activated carbon filter, and a network of interconnecting hoses. A system used to prevent the escape of gasoline vapors to the atmosphere from the fuel tank and **carburetor**. Also called 'evaporative Emission Control system'

Evaporation system

See

- **Early fuel evaporation system**

Evaporative condenser

Device which uses open spray or spill water to cool a condenser. Evaporation of some of the water cools the condenser water and reduces water consumption.

Evaporative emissions canister

See

- **Activated carbon canister**

Evaporative emission control system

(EVAP or EEC) A system for reducing evaporative emissions (fuel vapor escaping into the atmosphere) by means of a sealed fuel tank, a vapor-liquid separator, a three-way valve, an activated carbon filter, and a network of interconnecting hoses. Also called ***evaporation control system***

Evaporative emissions

Vapors or fumes not emitted by the exhaust system, but escaping from the fuel tank, **carburetor** and **crankcase**, and accounting for about 40% of hydrocarbon emissions released by a gasoline engine without emission controls

Evaporative emission shed system

(EESS) a Ford evaporative emission control system introduced in 1978

Evaporative losses

Vapors or fumes not emitted by the exhaust system, but escaping from the fuel tank, **carburetor** and **crankcase**, and accounting for about 40% of hydrocarbon emissions released by a gasoline engine without emission controls

Evaporator

The unit in an air conditioning system used to transform **refrigerant** from a liquid to a gas. It is at this point that cooling takes place as heat is removed from the air. An air conditioning system component through which cool, liquid **refrigerant** is pumped at a reduced pressure. When heated by the warm passenger compartment air being forced through the evaporator, the **refrigerant** evaporates, drawing heat from the air as it passes over the cooling fins. Opposite to ***condenser***.

See

- **Defrosting Type Evaporator**
- **Direct Expansion Evaporator**
- **Dry Type Evaporator**
- **Flooded Evaporator**
- **Frosting Type Evaporator**
- **Nonfrosting Evaporator**

- **Pressure Regulator Evaporator**
- **Shell-and-tube Flooded Evaporators**

Evaporator, dry type

Evaporator in which the **refrigerant** is in the liquid droplet form.

Evaporator equalized valve in receiver

(EEVIR) A unit similar in design to a valve-in-receiver type, except that it has an equalizer port of the expansion valve that allows for faster reaction time

Evaporator fan

Fan which increases airflow over the heat exchange surface of evaporators.

Evaporator, flooded

Evaporator containing liquid **refrigerant** at all times.

Evaporator pressure regulator

(EPR) Automatic pressure regulating valve mounted in suction line between evaporator outlet and compressor inlet. Purpose is to maintain a predetermined pressure and temperature in the evaporator.

Evaporator pressure regulator valve

(EPR) An evaporator temperature control device regulated by back pressure.Used on an older Chrysler Corp. system. Located in the compressor inlet. A system using this device is referred to as an EPR system

Evaporator temperature regulator valve

(ETR) A temperature-regulated evaporator temperature control device used on some early model Chrysler Corp. systems

EVAP system

Abbreviation for Evaporative Emission Control System

EVC

Abbreviation for **Exhaust Valve Closes**

Even keel

A ship at even keel is when the keel is horizontal or parallel to the surface of the water.

Event Data Recorder

(EDR) A device which is sometimes called an automobile black box which records a number of critical functions of the engine and drivetrain.

EVIC

Abbreviation for ***Electronic Vehicle Information Center***

Evil Kenivel

Trucker slang for a motorcycle policeman as in 'There's an Evil Kenivel taking pictures at the 38.'

EVO

1. Abbreviation for **Exhaust Valve Opens**
2. Abbreviation for ***Electronic Vehicle Orifice***

Evolution

(Evo) When Harley-Davidson began using aluminum to build its cylinder jugs, it called this new engine the Evolution

EVP

Abbreviation for **EGR valve position sensor**

EVR

1. Abbreviation for **Electronic voltage regulator**
2. Abbreviation for ***EGR Vacuum Regulator***
3. Abbreviation for ***Electronic Vacuum Regulator***

EVRV

Electronic vacuum regulator valve

EVT

Abbreviation for ***Electromagnetic Valve Train***.

EW

Abbreviation for ***electric windows***

Examination

See

- **Metallographic examination**

Exc

Abbreviation for ***excellent***, as in *exc condition*.

Excalibur

A vehicle brand of which the 1965-69 model II Series I are **milestone cars**.

Excavation

Removal of excess earth from roadway in preparation for new vertical and horizontal alignments.

Exception

1. A shortage, overage, or damage to a shipment.
2. A notation of such conditions on a freight bill, bill of lading or unloading checksheet.

Excess air

Air which passes through the combustion chamber and any flues in excess of that which is theoretically required for complete combustion.

Exchange

See

- **California Power Exchange**

Exchange engine

A replacement engine which is provided in exchange for a worn engine while the original engine is being rebuilt

Exchange Membrane

See

- **Proton Exchange Membrane**

Exchange Membrane Fuel Cell

See

- **Proton Exchange Membrane Fuel Cell**

Exchange Pallet

A pallet intended for use among a designated group of shippers and receivers where ownership of the pallet is transferable with the ownership of the unit load; common pool pallet.

Exchange process

See

- **Charge exchange process**

Exchanger

See

- **Heat exchanger.**

Excelsior

The 1925-1948 models with required application are **classic cars**.

Excitation current

The electric current in the shunt field of an electric motor resulting from voltage applied across the field

Excitation winding

See

- **Field winding**

Excite

To pass an **electric current** through a unit such as the **Field coils** in the **Generator**.

Exciter coil

A primary **coil** which provides stepped up **voltage** to a second **coil**.

Exciter winding

See

- **Field winding**

Excluder

See

- **Draught excluder**

Ex-demonstrator

A vehicle which had been used as a **Demonstrator** and is now available for sale

Exducer

The outermost section of a **Turbine wheel**, used to purge the turbine of exhaust gases

Executive car

A large, powerful luxury car considered suitable for a business executive

Executive Orders 12759 and 12844

Two Presidential orders which establish requirements for federal agencies to purchase **AFVs**. Order 12844 **accelerates** agency acquisitions by 50% beyond requirements contained in Section 303 of the Energy Policy Act for fiscal years 1993-1995, subject to the availability of funds.

Exempt Carrier

A company which transports commodities exempted from Interstate Commerce Commission (ICC) economic regulation.

Exempt Commodity

One that may be transported in interstate commerce without operating authority or published rates.

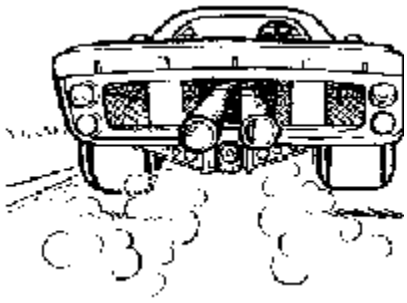
Exfiltration

Slow flow of air from the building to the outdoors.

EXH

Abbreviation for ***Exhaust***

Exhaust



Exhaust

1. To expel spent fumes.
2. The spent fuel after **combustion** takes place in an **internal combustion engine**. Sometimes it refers to the **exhaust system**.

See

- **Dual exhaust system**
- **Intake over exhaust engine**
- **Raw exhaust gas**
- **Residual exhaust gases**
- **Tuned exhaust**
- **Tuning the exhaust**

Exhaust air

Air removed from a space and not reused.

Exhaust back pressure

Any pressure holding back the flow of the gases in an exhaust system. Pressure exerted in exhaust system in reverse direction. Also called **back pressure**

Exhaust back pressure transducer valve

(BPV or BPS) a device used to sense exhaust pressure changes and control vacuum to the EGR valve in response to these changes

Exhaust Brake

An engine device which changes exhaust pressure to assist in slowing down a vehicle. Also called an exhaust retarder

Exhaust cam

A separate camshaft controlling the opening and closing of the exhaust valves used in twin overhead camshaft engines

Exhaust camshaft

A separate camshaft controlling the opening and closing of the exhaust valves used in twin overhead camshaft engines

Exhaust chamber

Part of the two-stroke exhaust system designed to maintain a specified back pressure

Exhaust Control System

See

- **Thermactor Exhaust Control System**

Exhaust cutout

A Y-shaped device that is placed in the **exhaust pipe** ahead of the **muffler**. The driver may **channel** the **exhaust** through the muffler or out the other leg of the ***Y*** where the exhaust passes out without going through the muffler.

See

- **Cutout**

Exhaust donuts

The small rubber hangers used to suspend the exhaust system from the chassis pan

Exhaust emission

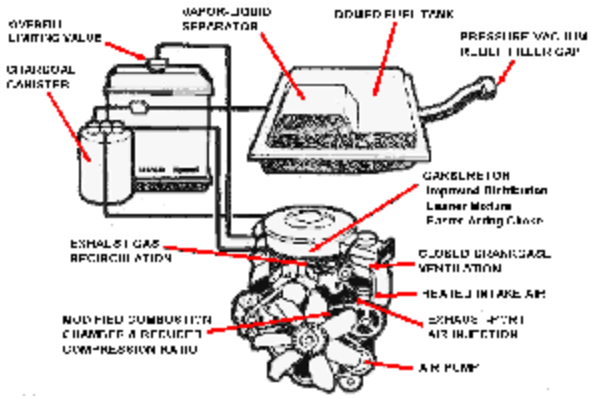
See

- **Exhaust emissions.**

Exhaust emission control

See

- **Exhaust emission controls**



Click to supersize Emission Controls

Exhaust emission controls

Systems or adjustments designed to limit noxious gases in an engine's **exhaust**. Such controls can be grouped into two broad categories those designed to reduce or eliminate the formation of harmful pollutants in the engine itself (e.g., **retardedspark** setting) and those designed to destroy or otherwise alter the pollutants after they have been formed (e.g., **Air injection**, **Thermal reactors**, and **Catalytic converters**). Evaporative emission controls prevent **gasoline** vapors from escaping into the atmosphere from the **fuel tank** and **carburetor** and **crankcase** controls recycle fumes from the **crankcase** through the engine.

See

- **Aftertreatment devices**

Exhaust emission control system

A general term for any system that reduces the harmful exhaust emissions of a motor vehicle, including one or all of the following systems catalytic converter (with or without oxygen sensor air/fuel control), exhaust gas recirculation, secondary air injection or induction, and positive crankcase ventilation

Exhaust emissions

The unburned **Hydrocarbons**, **Carbon monoxide**, **Oxides** of nitrogen, and other noxious gases emitted when **gasoline** is burned in an engine.

Exhaust engine

See

- **Inlet Over Exhaust Engine**
- **Intake over exhaust engine**

Exhauster

See

- **Air Exhauster**

Exhaust gas

Gas which is the product of the combustion process and which is passed out of the cylinder through the exhaust valve or port into the exhaust system.

See

- **exhaust gases**
- **Raw exhaust gas**
- **Residual exhaust gases**

Exhaust gas aftertreatment

See

- **Aftertreatment devices**

Exhaust gas analyzer

An instrument for determining efficiency with which an engine is burning fuel. It determines the exact amounts of hydrocarbons and carbon monoxide in the exhaust.

See

- **Exhaust-gas analyzer.**

Exhaust-gas analyzer

An instrument used to measure the **exhaust gases** (in parts per million, percent, grams per kilometre, or grams per mile) to determine both **combustionefficiency** and the amount of pollutants in the **exhaust**.

Exhaust gas check valve

(EGC) a device that allows air injection system air to enter the exhaust manifold, but prevents a reverse flow in the event of improper operation of other components

Exhaust gases

The burned and unburned gases which are expelled out of the **exhaust system** after **combustion** takes place.

See

- **Exhaust emissions**

Exhaust gas oxygen sensor

(EGO) a detection device that changes its output voltage as the exhaust gas oxygen content changes when compared to the oxygen content of the atmosphere. This constantly changing voltage signal is sent to the processor for analysis and adjustment to the air/fuel ratio.

See

- **Heated Exhaust Gas Oxygen Sensor**

Exhaust gas purification system

An emission control system for diesel engines, which may consist of an **Exhaust scrubber**, a diesel exhaust filter, and/or a catalytic converter

Exhaust gas recirculation

See

- **Exhaust-gas recirculation.**

Exhaust-gas recirculation

(EGR) An **emission control** system where some of the **exhaust gases** are rerouted from the **exhaust manifold** into the **combustion chamber** to make sure that all fuel is burned before entering the atmosphere. The process lowers the **combustion** temperature and reduces the formation of oxides of nitrogen (NOx) in the **exhaust**.

Exhaust gas recirculation system

(EGR) a system used to control oxides of nitrogen (NOx) the exhaust gases are recirculated, lowering the engine combustion temperature, thereby reducing engine pollutants

Exhaust gas recirculation valve

A valve which admits exhaust to the incoming air/fuel mixture

Exhaust header

Steel tubing connecting pipes between the **exhaust ports** and the **exhaust pipe**. Usually a **header** has been **polished** to allow for better flow of the **exhaust**.

See

- **exhaust manifold**

Exhaust heat

Waste heat produced by a mechanical, chemical, or electrochemical process.

Exhaust heat control valve

(HCV) a valve which routes hot exhaust gases to the intake manifold heat riser during cold engine operation. Valve can be thermostatically controlled, vacuum operated or computer controlled

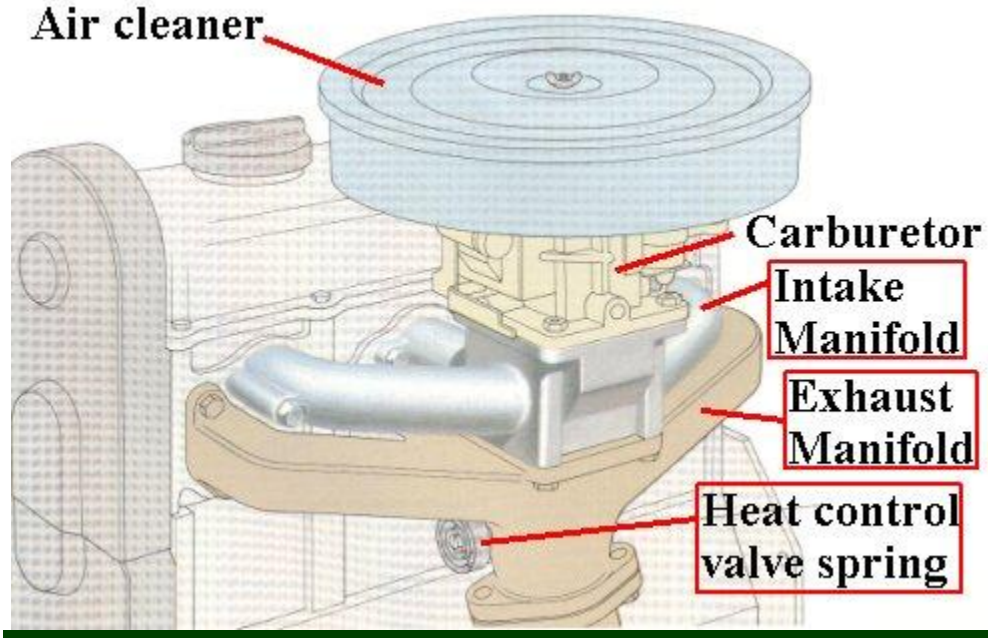
See

- **Vacuum Operated Exhaust Heat Control Valve**

Exhaust heat recovery

The use of by-product heat as a source of energy.

Exhaust manifold



Exhaust Manifold

1. The connecting pipes between the **exhaust ports** of each **cylinder** and the **exhaust pipe**. It is usually made of cast iron. Sometimes called the **Exhaust header** but it is usually made of steel tubing.
2. A set of pipes or a casting connected to the combustion chamber that carry exhaust gases from the engine to the exhaust system and out of the car through the tailpipe.

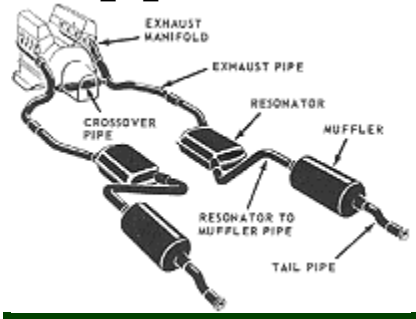
Exhaust note

The sound coming from the end of the exhaust pipe. It is usually described as pleasant, loud, throaty, or sporty.

Exhaust oxygen sensor

A detection device that monitors the amount of oxygen in the exhaust stream and sends that information the ECM. Also called an **oxygen sensor** or an **O2 sensor**

Exhaust pipe



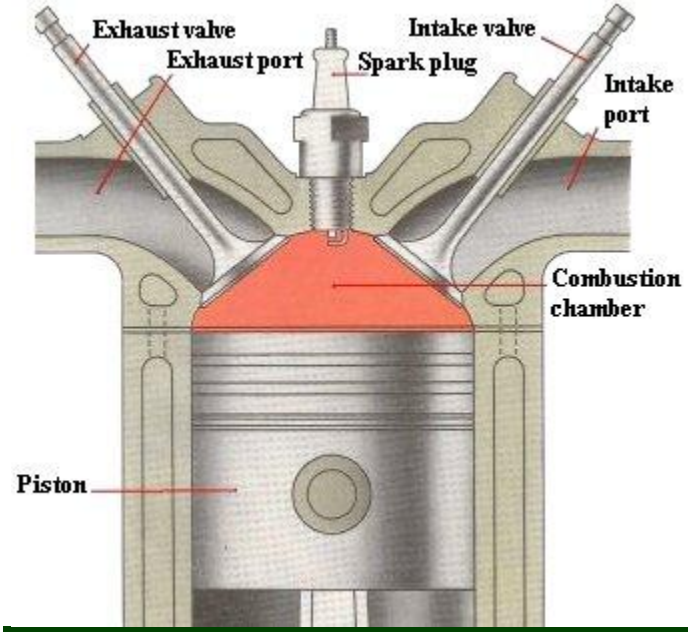
Exhaust pipe

Pipe connecting **exhaust manifold** or **header** to the **muffler**.

Exhaust pollutants

Exhaust emissions

Exhaust port



Exhaust port

1. The passage in the **cylinder head** which connects the **exhaust valve** and the **exhaust manifold**. The **exhaust gases** pass through the port to the exhaust manifold or **header**.

2. On **two-stroke** engines the exhaust port is cut into the **cylinder wall** because it does not have valves.
3. That opening which carries the fluid to the downstream pressure of a fluid system.
4. The opening from which the burnt gases leave the combustion chamber.

See

- **Adjustable variable exhaust port**
- **Variable exhaust port**

Exhaust port timing

The amount of time a two-stroke engine exhaust port is open, expressed in crankshaft degrees or piston travel. Also called ***Exhaust timing***.

Exhaust pressure regulator

(EPR) a device for increasing exhaust backpressure at specific times to increase exhaust flow to the EGR valve

Exhaust pyrometer

An instrument used to measure the temperature of exhaust gases.

Exhaust Retarder

An engine device which changes exhaust pressure to assist in slowing down a vehicle. Also called an exhaust brake

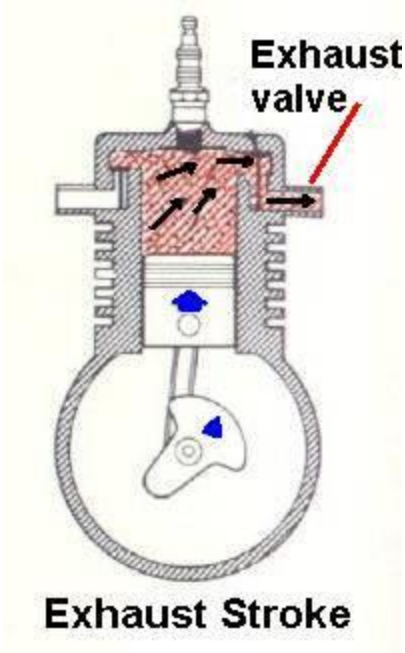
Exhaust scrubber

A diesel exhaust gas purification system which cools the exhaust and separates nitrogen oxide and oil vapors from the gas stream

Exhaust side

The side of the engine where the exhaust valves and **exhaust manifold** are located

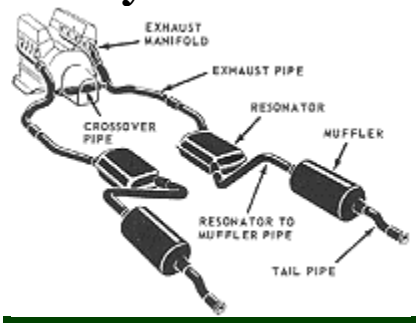
Exhaust stroke



Exhaust stroke

The fourth stroke of a **Four-stroke cycle** where the **piston** moves upward from **Bottom dead center** to **Top dead center** and pushes the burned **exhaust gases** out of the **cylinder**.

Exhaust system



Exhaust System

The exhaust port, exhaust valve, exhaust pipe, **resonator**, catalytic converter, and **muffler** that carry the **exhaust gases** from the **exhaust manifold** out into the atmosphere.

See

- **Dual exhaust system**
- **Stainless-steel exhaust system**
- **Twin exhaust system**

Exhaust timing

1. Exhaust control system developed especially for two-stroke motorcycle engines in order to enhance low and mid-range power
2. The amount of time a two-stroke engine exhaust port is open, expressed in crankshaft degrees or piston travel. Also called ***Exhaust port timing***.

Exhaust treatment

Any measures taken to reduce the pollutant concentrations in the exhaust of an internal combustion engine released into the atmosphere

Exhaust tuning

Cutting the **exhaust pipe** to a length that provides maximum **efficiency**.

Exhaust turbocharging

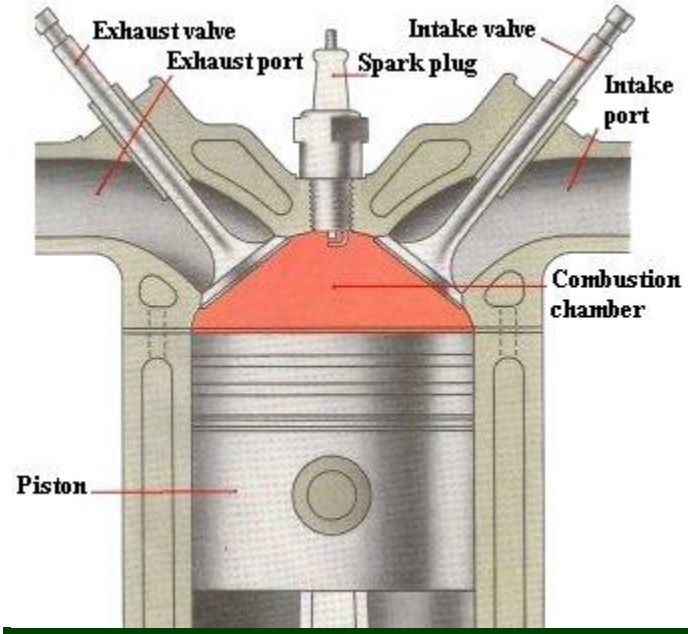
See

- **Turbocharging**

Exhaust ultimate power valve

(EXPV) A valve used with an exhaust arrangement that uses a computer which varies the exhaust tube diameter according to engine rpm.

Exhaust valve



Exhaust valve

1. The valve through which the burned fuel charge passes on its way from the **cylinder** to the **exhaust manifold**. It is driven by the **camshaft**. When comparing an exhaust valve with an **intake valve** in the same engine, the part of the exhaust valve that seats into the **head** (i.e., not the stem) will have a smaller diameter than the **intake valve**.
2. A movable port which provides an outlet for the cylinder gases in a compressor or engine.

See

- **Sodium-cooled exhaust valve**

Exhaust valve closes

(EVC) A mark on a valve-timing diagram

Exhaust valve opens

(EVO) A mark on a valve-timing diagram

Exit

Freeway or expressway junction. Almost all exits also allow vehicles to join the freeway or expressway. Exits are numbered in both the USA and Canada.

Exothermal

Chemical reaction in which heat is released.

Exotic car

Expensive, low production, rare vehicles with striking shape, size, body construction, engine, etc. Over the years the following vehicles have been called exotic: Aston Martin, DeLorean, DeTomaso Pantera, Dodge Viper, Ferrari, Ford GT, Jaguar, Lamborghini, Lotus, Maserati, Plymouth Prowler, Porsche, and Rolls Royce.

Expandable

Flatbed or pole trailers that can be expanded beyond its regular length to carry larger shipments.

Expander

1. A ring placed under a **piston ring** to increase ring pressure on the **cylinder walls**. For instance an **Oil control ring** may have an expander ring to assist the oil-control ring to scrape oil off the **cylinder wall** and provide further sealing.

See

- **Piston ring expander.**

2. A device in a drum brake system (either hydraulic or mechanical) which forces the shoes apart into contact with the drum.
3. A disc used in a wheel cylinder which helps to seal the fit between the cup lips and cylinder walls when there is no pressure in the system.

See

- **Bead expander**
- **Cup Expanders**
- **Piston Ring Expander**
- **Piston skirt expander**
- **Ring expander**
- **Skirt expander**
- **Tailpipe expander**
- **Wedge expander**

Expander Ring

A tension ring located under the piston ring that pushes the piston ring out from the piston in order to increase ring pressure on the walls of the cylinder.

Expander spacer

See

- **Expander ring**

Expanding

See

- **Piston skirt expanding**
- **Skirt Expanding**

Expansion

An increase in size, for example when a metal rod is heated, it increases in length and perhaps also in diameter. Expansion is the opposite of **contraction**.

See

- **Automatic Volume Expansion**
- **Piston expansion**
- **Shell expansion**
- **Valve Expansion**

Expansion And Contraction

See

- **Isothermal Expansion And Contraction**

Expansion Bolt

A combination of a **lag bolt** and an internally threaded split sleeve, designed for fastening to stone or concrete by inserting a sleeve into a hole in the concrete and expanding to a tight fit in the hole by turning the lag both with a wrench.

Expansion chamber

A two-stroke engine exhaust system that consists of a header pipe, the first cone, chamber, rear cone, stinger, and silencer.

Expansion Evaporator

See

- **Direct Expansion Evaporator**

Expansion joint

Device in piping designed to allow movement of the pipe caused by the pipe's expansion and contraction.

Expansion plug

A steel plug, slightly dished or cup-shaped. When driven into place it flattens to fit tightly in its seat. In an engine block, expansion plugs (also called freeze plugs or core-hole plugs) are inserted into the holes in the casting through which core was removed when casting was formed. They open into cooling passages and thus provide pressure relief should the engine coolant freeze and expand.

See

- **Core plugs.**

Expansion stroke

See

- **Power stroke**

Expansion tank

When the engine is heated, the **coolant** expands to fill any available space (usually in the **radiator**). Before the introduction of **coolant** expansion tanks, the excess **coolant** was forced out of a vent tube and

on the ground. The expansion tank collects the **coolant** so that when the engine cools off, the resultant **vacuum** sucks the **coolant** from the tank back into the **radiator**.

Expansion Trunk

Raised portion of a tank used on some oil tankers to allow for the expansion of oil when temperature changes.

Expansion tube

A device that converts high pressure liquid **refrigerant** into low pressure liquid **refrigerant** (thus lowering its boiling point) before it passes through the evaporator. The expansion valve replaces the thermostatic expansion valve. It is also referred to as a **Fixed orifice tube**

Expansion valve

A part of an air-conditioning system, located between the **condenser** and the **evaporator** that regulates the flow of liquid **refrigerant** to the vaporator. If cooling needs are low, the valve is almost closed; as additional cooling is required, the valve opens wider so that more liquid **refrigerant** flows to the evaporator. It reduces the pressure from the high side to the low side and is operated by pressure. Also called an **automatic expansion valve** (AEV) or **thermostatic expansion valve**.

See

- **Automatic Expansion Valve**
- **Thermostatic Expansion Valve**

Expansivity

See

- **Coefficient of expansion**

Expected residual value

This is the projected or expected value of the vehicle at the end of the lease. Residual value is a measure of the vehicle's expected depreciation.

Expendable refrigerant system

System which discards the **refrigerant** after it has evaporated.

Expedited Order

See **Emergency order**

Expediting

Moving shipments through regular channels at an accelerated rate.

Expendable Pallet

A pallet intended for a series of handlings during a single trip from shipper to receiver; it is then disposed. see **shipping pallet**.

Expenditures

See

- **Capital expenditures**
- **Vehicle Fuel Expenditures**

Experiment

See

- **Faraday Experiment**
- **Windsor experiment**

Experimental Development Program

See

- **Scientific Research and Experimental Development Program**

Experimental Safety Vehicle

(ESV) A special vehicle built for research into and testing of safety features; (compare **SID)**

Expiration Date

Date when merchandise is no longer able to be shipped.

Exploded view

A drawing of a mechanism or structure which shows the parts separately but approximately in the position they occupy when assembled

Exploratory well

A hole drilled: a) to find and produce oil or gas in an area previously considered unproductive area; b) to find a new reservoir in a known field, i.e., one previously producing oil and gas from another reservoir, or c) to extend the limit of a known oil or gas reservoir.

Explosion

A rapid disintegration of an object.

See

- **Clutch explosion.**

Explosion-proof enclosure

(EXP-PRF) A special enclosed electrical motor housing designed to withstand an internal explosion of specified gases or vapors and allow

the internal flame or explosion to escape, usually used in smaller ratings below 1/3 hp if nonventilated (EPNV) and in fan-cooled (EPFC) in larger ratings

Explosive Limit

See

- **Lower Explosive Limit**

Explosive rivet

A blind rivet with a hollow shank holding a charge of explosive material. When the rivet is inserted, the shank explodes when you strike the rivet with a hammer thus securing the rivet in place.

Export Letter Of Credit

When an importer has arranged with a bank for letter-of-credit financing of purchases, he applies for issuance of individual letters of credit to cover purchase contracts as made.

Export Restraint

See

- **Voluntary Export Restraint**

Exposure

See

- **Automatic Exposure**

Express Van

A model of full-size van produced by the **Chevrolet** division of **General Motors** from 1996 to 2008

Expressway

A US multilane highway road with limited access to be used for rapid travel with few interchanges.

EXPV

Abbreviation for **Exhaust ultimate power valve**

Ext

Abbreviation for ***exterior***.

Extended Cab

Extended Cab

A type of pickup truck (by GM) which has a second row of seating; but unlike a crew cab (which has four full size doors) it has a ***half-door*** that can be opened only after the main door is opened. The seating is usually a little more cramped than in a crew cab. Also called Club Cab, King Cab, XtraCab, Access Cab, SuperCab, or Cab Plus.

Extension

1. A part which is inserted between a ratchet and a socket to provide access to nuts or bolts which are deeply inset or hard to reach. Also called ***extension bar*** or ***extension piece***.
2. The return or stretching outward of suspension components (after compression) caused by spring pressure.
3. Longer blades that are used on forklifts when the standard blades are inadequate.

See

- **Arch Extension**
- **Brake extension**
- **Fender extension**
- **Floor Extension**

- **Load floor extension**
- **Park brake extension**
- **Piston extension screw**
- **Receiver Extension**
- **Valve extension**
- **Wheel arch extension**
- **Wing extension**

Extension bar

See

- **Extension**
- **Wobble extension bar**

Extension housing

See

- **Transmission extension housing**

Extension piece

See

- **Extension**

Extensions

Longer blades that are used on forklifts when the standard blades are inadequate.

Extension screw

See

- **Piston extension screw**

Extension spring

Extension spring

A closed-coiled **Helical** spring that offers **resistance** to a pulling force.

Exterior mirror

The mirror that is usually mounted on the door. In Japan (and other countries) it was mounted on the front **Fender**s. Also called ***external mirror***.

External combustion engine

An engine that burns its fuel outside the engine. A **Steam engine** is an external combustion engine.

External diameter

The outside diameter of a cylinder, tube, or washer

External drive

Term used to indicate a compressor driven directly from the shaft or by a belt using an external motor. Compressor and motor are serviceable separately.

External drive compressor

See

- **Open-type Compressor**

External equalizer

Tube connected to low-pressure side of a thermostatic expansion valve diaphragm and to exit end of evaporator.

See

- **Equalizer line**

Externally-balanced crankshaft

A crankshaft that requires external balancing weight, usually on the vibration damper of the **Flywheel**, for balance

External micrometer

A micrometer for measuring external diameters

External mirror

The mirror that is usually mounted on the door. In Japan (and other countries) it was mounted on the front **Fender**s. Also called ***exterior mirror***.

External mix air cap

A special type of air cap for spray guns. Air and fluid are mixed in the space outside the air cap, directly in front of the nozzle the most common type of air cap.

See

- **Internal mix air cap**

External reforming

The production of hydrogen from a hydrocarbon fuel (methanol, gasoline, natural gas, propane, etc.) prior to entry to the fuel cell or stack.

External snap ring

A split ring held in place by its own tension within the grooves cut around a shaft. Compare **Internal snap ring**.

External thread

Thread consisting of projecting ridges on the outside of a part such as a bolt or screw (which fits into the corresponding internal thread of a nut). Also called male thread

External tooth lock washer

External tooth lock washer

A hardened circular **lock washer** with a series of twisted prongs or 'teeth' which extend out from the outer edge of the washer. In application, these teeth bite into the nut, bolt, or material to prevent the nut from easily backing out. Compare **internal tooth lock washer**

External vane pump

A pump with either an elliptic rotating piston or an eccentrically mounted circular rotor

Extinguisher

See

- **Fire extinguisher**

Extractor

A device for removing some object (e.g., bearing, bushing, sleeve, bolt, stud, etc.).

See

- **Oil and water extractor**
- **Screw extractor**
- **Stud extractor**

- **Water Extractor**

Extra-Low-Voltage electric circuit

A circuit operating at a voltage up to and including 30 volts.

Extras

Optional items either supplied by the manufacturer at the buyer's request, or added later by the owner. Usually they are things like seat covers, floor mats, additional lights, **Sunroof**, glass tinting, CD changers, etc.

Extreme-pressure lubricant

(EP lubricant) A **Lubricant** designed and compounded to withstand very heavy loads imposed on gear teeth.

Extrude

To form or shape a tube or rod by forcing hot or soft metal, rubber, or plastic through an aperture

Extruder

A machine that shapes a rubber compound into a usable form. Uncured rubber is heated to soften and forced through dies having the desired shape and dimensions.

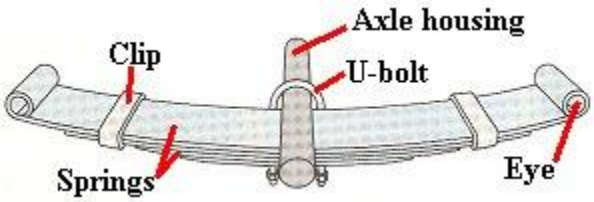
Extrusion

A part, like a molding, formed by forcing or extruding the material through a shaped orifice.

EXW

Abbreviation for ***Ex Works*** which represents the minimum risk and cost for the supplier and the maximum risk and cost for the buyer. The seller's only responsibility is to make the goods available at his premises. He is not responsible for loading the goods on the vehicle provided by the buyer, unless otherwise agreed.

Eye



Eye

A circular opening or hole, such as that at the end of a leaf spring or that formed at the end of a cable.

See

- **Anchor Eyes**
- **Fish eye**
- **Impeller eye**
- **Pad Eye**
- **Spring eye**
- **Towing eye**

Eye baller

A flashy looking, bright colored, usually a sporty type automobile.

Eyebolt

1. A bolt with a ring-like top in place of a head, through which a cable can be passed, e.g. for lifting purposes
2. A bolt having a head in the form of an open or closed anchor ring, or of a flattened and pierced section, with or without a collar or shoulder under the head.

Eyebrow

A partial round area for vehicle turnaround located adjacent to the serving road that provides access to lots and serves as a vehicle turnaround.

Eye envelope

The oval area on an instrument-panel drawing that theoretically shows the range of human vision. The idea is to keep controls and gauges within the eye envelope.

Eyelet

A frame attachment that allows you to mount racks or **Fender**s to the **bicycle**.

Eyelet connector

A connector for electrical connections which is attached to a wire and has its ring-shaped end pushed onto a round post or threaded terminal

Eyelet pliers

Eyelet pliers

Pliers for punching small holes, with a round stud in one jaw and a hole in the other

EZK

Abbreviation for ***elektrische Zundkontrolle***, German for ***electronically controlled ignition***

E-Z Lok

E-Z LOK®

An insert for damaged threads. It differs from coil inserts which are steel wires coiled in a spring-like design. E-Z LOK threaded inserts are screw machined out of solid steel.

Your's

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