

TRANSPORTATION



TRANSPORTATION

Jean-Claude **Corbeil**
Ariane **Archambault**

A C K N O W L E D G E M E N T S

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INTRODUCTION

EDITORIAL POLICY

The Visual Dictionary takes an inventory of the physical environment of a person who is part of today's technological age and who knows and uses a large number of specialized terms in a wide variety of fields.

Designed for the general public, it responds to the needs of anyone seeking the precise, correct terms for a wide range of personal or professional reasons: finding an unknown term, checking the meaning of a word, translation, advertising, teaching material, etc.

The target user has guided the choice of contents for *The Visual Dictionary*, which aims to bring together in 12 thematic books the technical terms required to express the contemporary world, in the specialized fields that shape our daily experience.

STRUCTURE

Each tome has three sections: the preliminary pages, including the table of contents; the body of the text (i.e. the detailed treatment of the theme); the index.

Information is presented moving from the most abstract to the most concrete: sub-theme, title, subtitle, illustration, terminology.

TERMINOLOGY

Each word in *The Visual Dictionary* has been carefully selected following examination of high-quality documentation, at the required level of specialization.

There may be cases where different terms are used to name the same item. In such instances, the word most frequently used by the most highly regarded authors has been chosen.

Words are usually referred to in the singular, even if the illustration shows a number of individual examples. The word designates the concept, not the actual illustration.

DEFINITIONS

Within the hierarchical format of *The Visual Dictionary*'s presentation, the definitions fit together like a Russian doll. For example, the information within the definition for the term *insect* at the top of the page does not have to be repeated for each of the insects illustrated. Instead, the text concentrates on defining the distinguishing characteristics of each insect (the *louse* is a parasite, the female *yellow jacket* stings, and so forth).

Since the definition leaves out what is obvious from the illustration, the illustrations and definitions complement one another.

The vast majority of the terms in the *Visual Dictionary* are defined. Terms are not defined when the illustration makes the meaning absolutely clear, or when the illustration suggests the usual meaning of the word (for example, the numerous *handles*).

METHODS OF CONSULTATION

Users may gain access to the contents of *The Visual Dictionary* in a variety of ways:

- From the TABLE OF CONTENTS at the end of the preliminary pages, the user can locate by title the section that is of interest.
- With the INDEX, the user can consult *The Visual Dictionary* from a word, so as to see what it corresponds to, or to verify accuracy by examining the illustration that depicts it.
- The most original aspect of *The Visual Dictionary* is the fact that the illustrations enable the user to find a word even if he or she only has a vague idea of what it is. The dictionary is unique in this feature, as consultation of any other dictionary requires the user first to know the word.

TITLE

Its definition is found below. If the title refers to information that continues over several pages, after the first page it is shown in a shaded tone with no definition.

DEFINITION

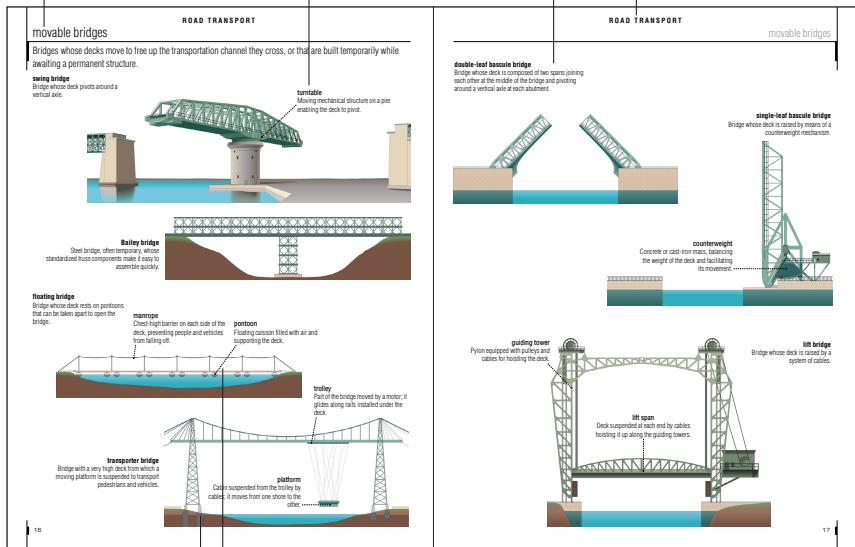
It explains the inherent qualities, function, or characteristics of the element depicted in the illustration.

SUB-THEME

These are shown at the end of the preliminary pages along with their definitions. They are then repeated on each page of a section, but without the definition.

TERM

Each term appears in the index with a reference to the pages on which it appears.



ILLUSTRATION

It is an integral part of the visual definition for each of the terms that refer to it.

NARROW LINES

These link the word to the item indicated. Where too many lines would make reading difficult, they have been replaced by color codes with captions or, in rare cases, by numbers.

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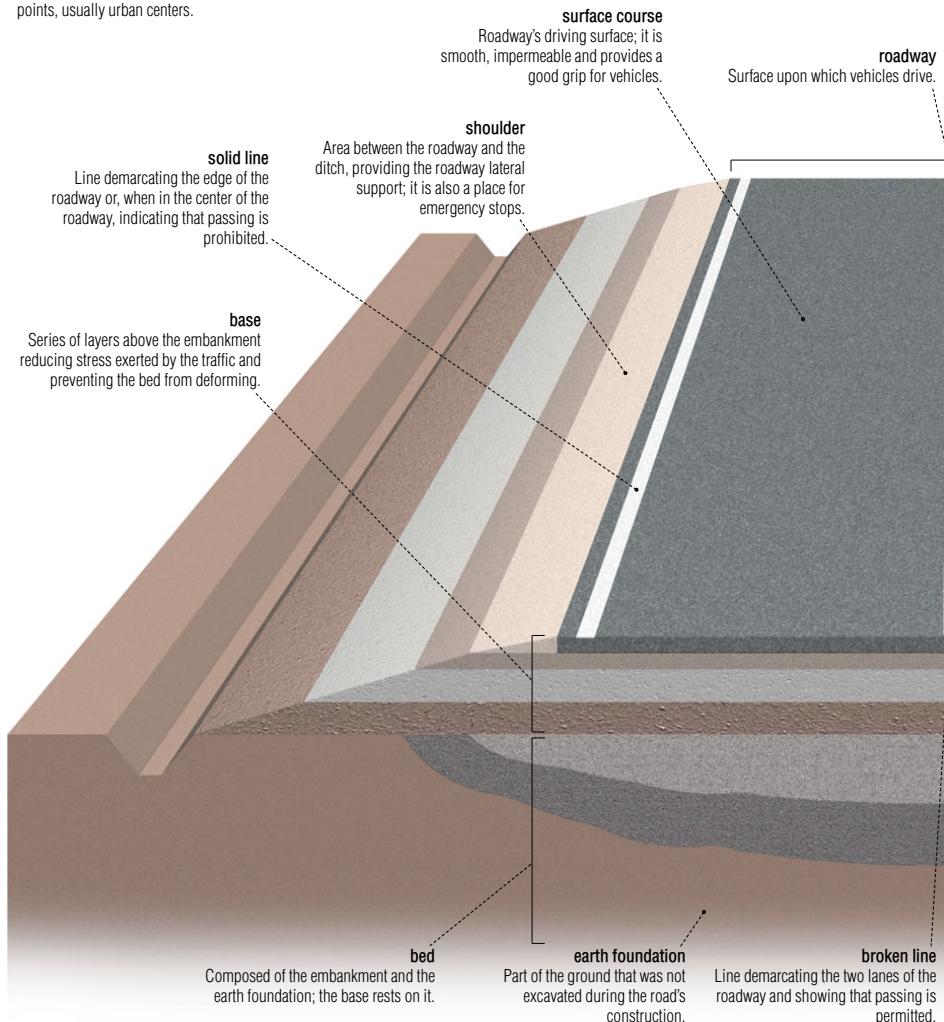
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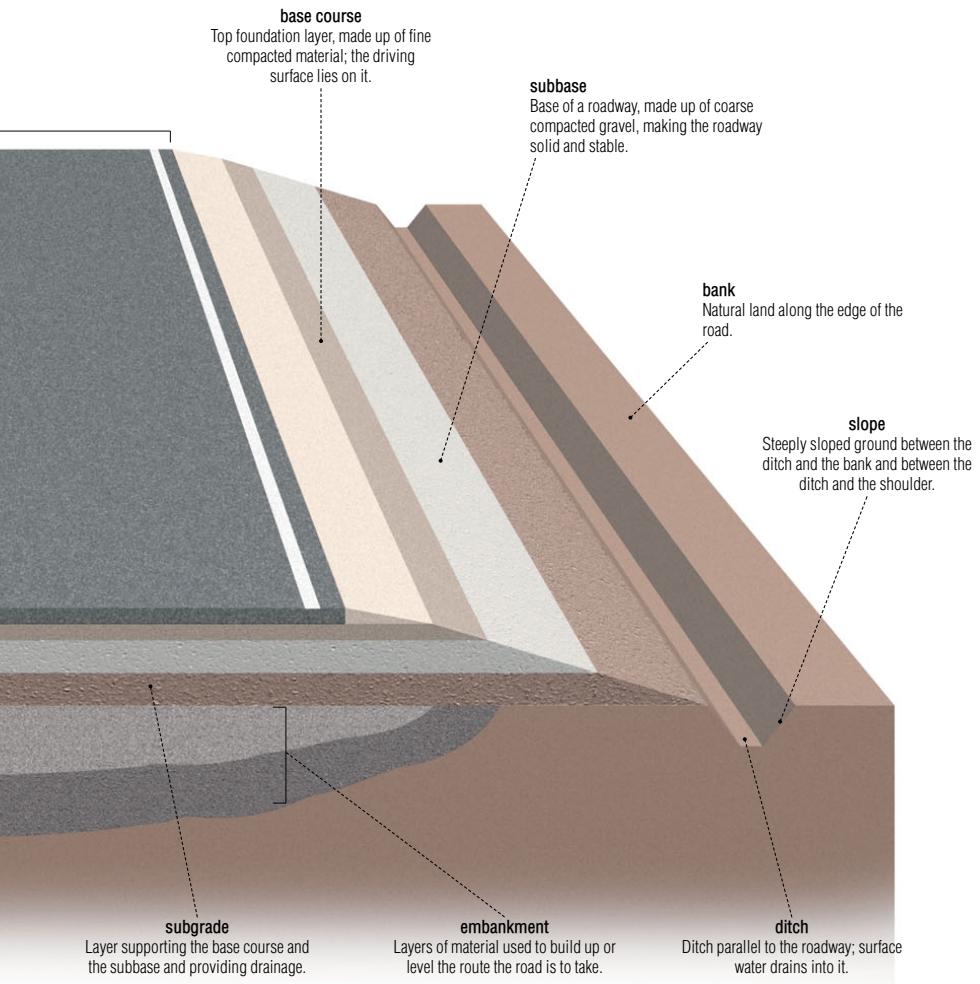
road system

Network of thoroughfares providing for the flow of traffic.

cross section of a road

Road: thoroughfare connecting two geographical points, usually urban centers.

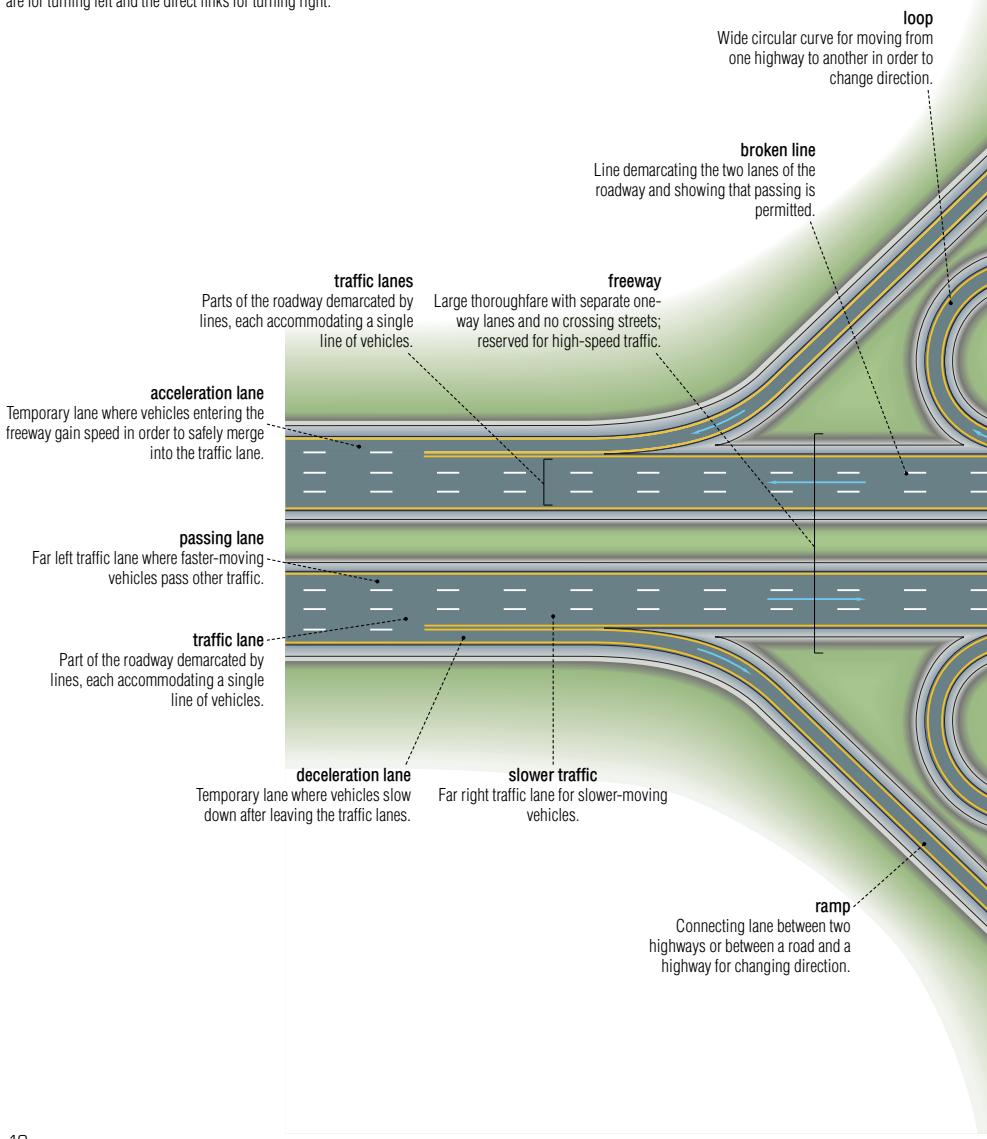


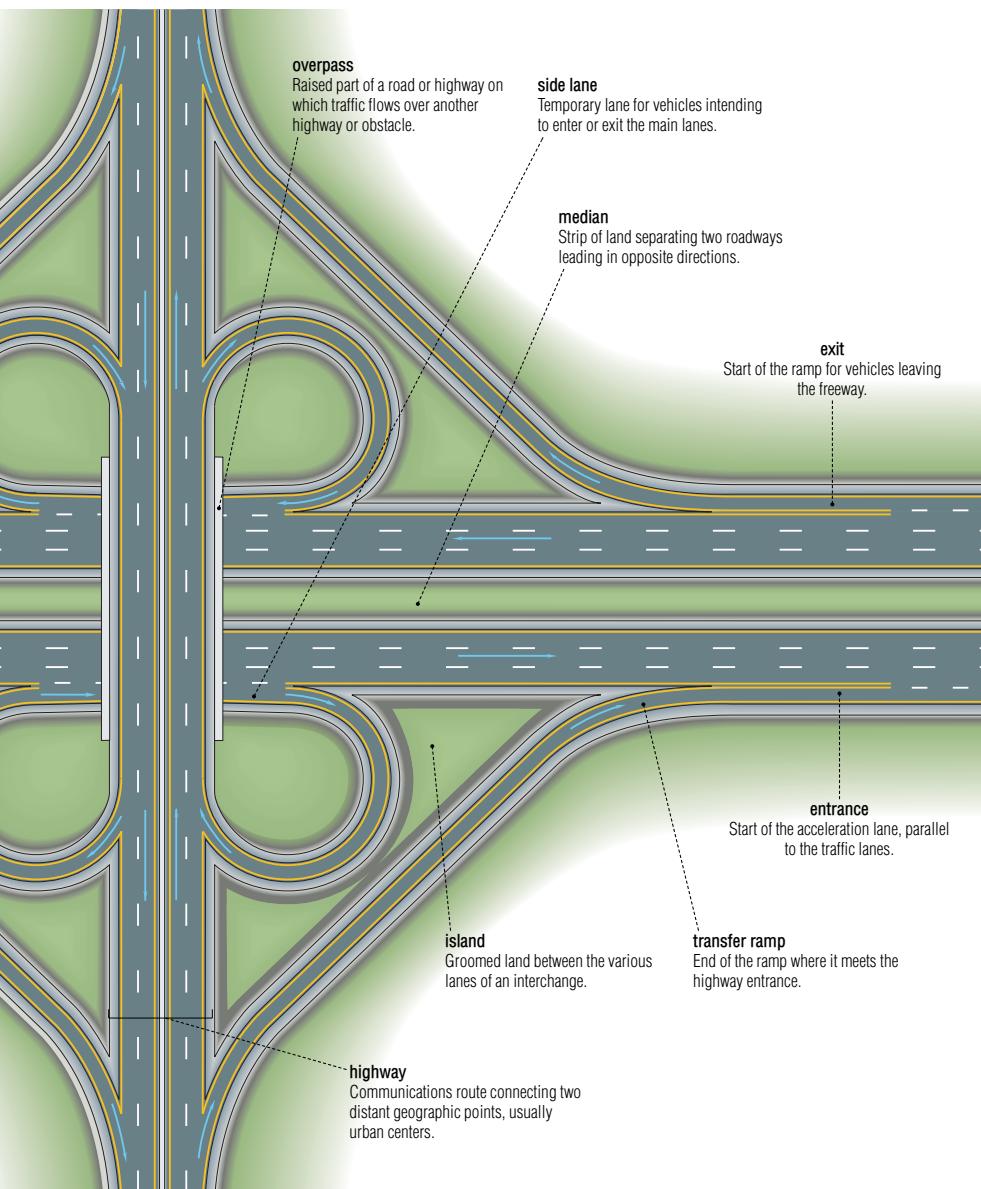


road system

cloverleaf

Interchange with four branches where the inside loops are for turning left and the direct links for turning right.





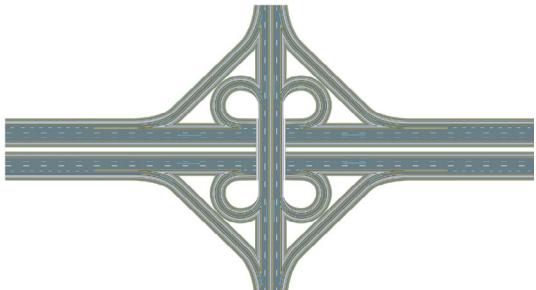
road system

examples of interchanges

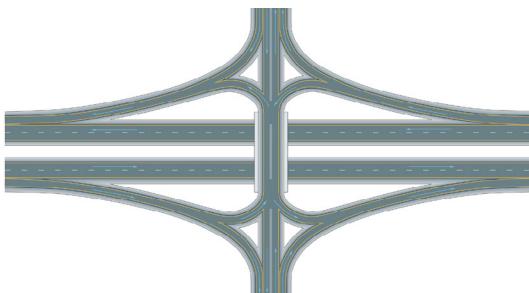
Interchange: structure linking roads or freeways so they do not intersect.

cloverleaf

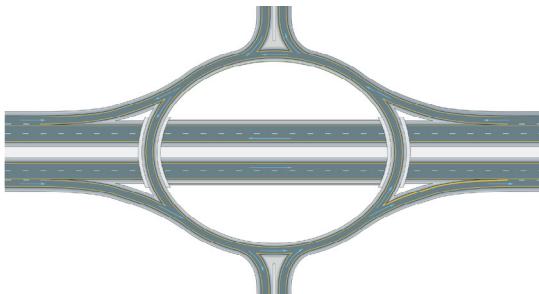
Interchange with four branches where the inside loops are for turning left and the direct links for turning right.

**diamond interchange**

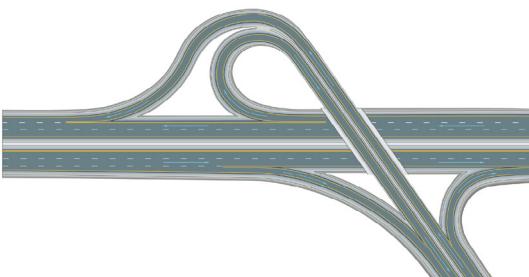
Interchange connecting a road and a freeway, requiring traffic lights for left turns onto and off the road or overpass.

**traffic circle**

Interchange composed of four ramps joining each other to form a circular one-way thoroughfare.

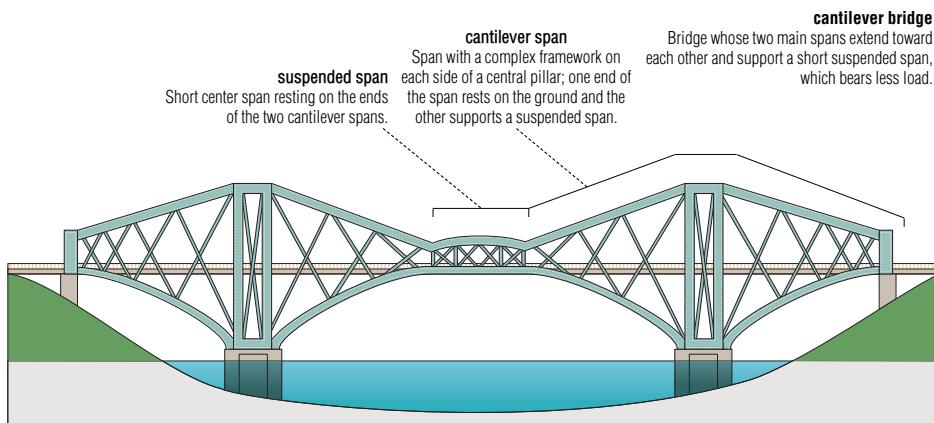
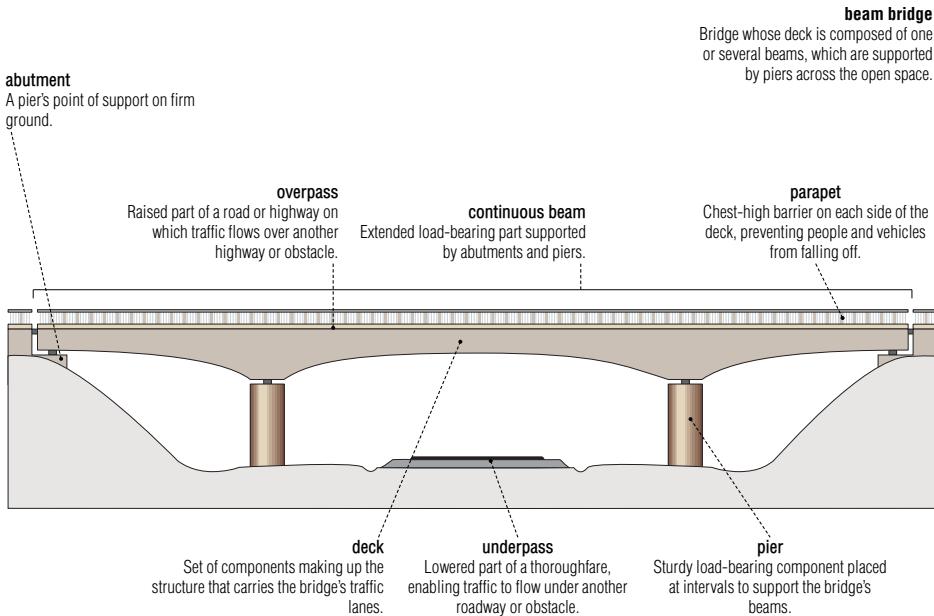
**trumpet interchange**

Interchange connecting a road ending at a freeway, using only one loop.



fixed bridges

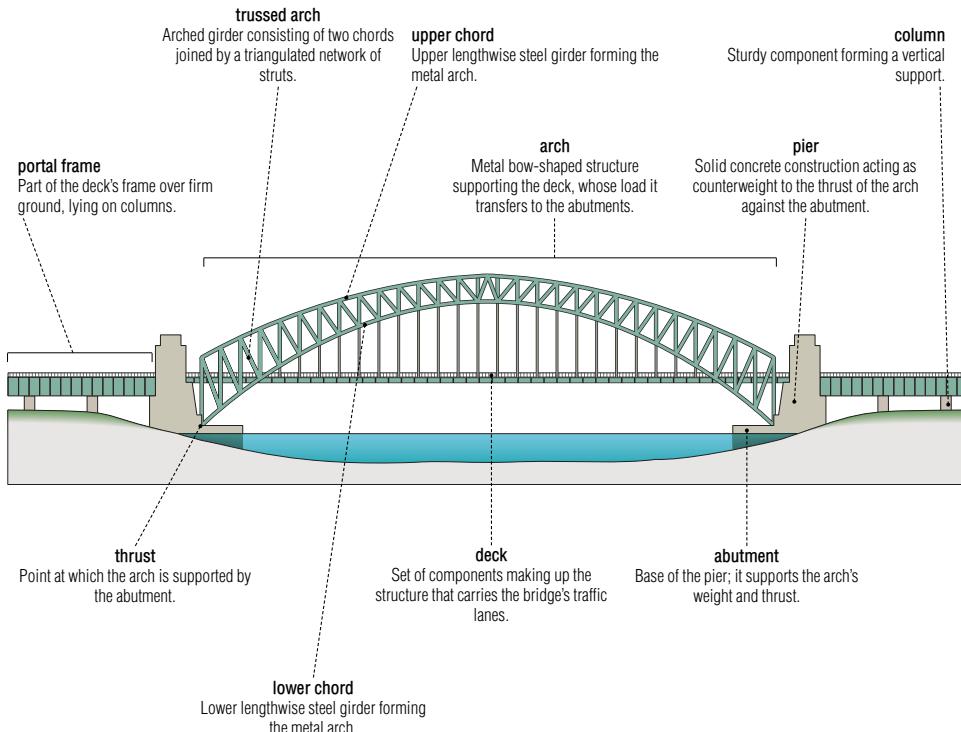
Structures enabling traffic to clear an obstacle, such as a river, gorge or highway.



fixed bridges

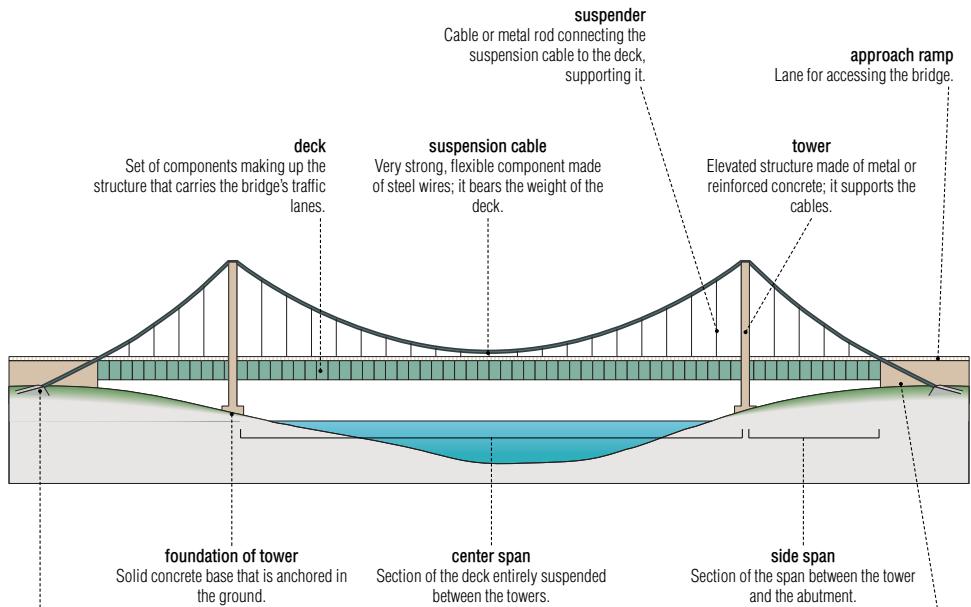
arch bridge

Bridge whose deck is supported by suspenders attached to an arch, which exerts diagonal thrust against the lateral supports.



suspension bridge

Bridge whose long deck is suspended from load-bearing cables, which are supported by the towers and anchored in the ground at both ends of the bridge.

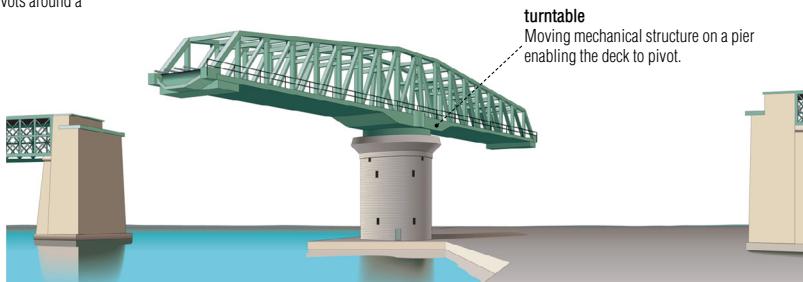


movable bridges

Bridges whose decks move to free up the transportation channel they cross, or that are built temporarily while awaiting a permanent structure.

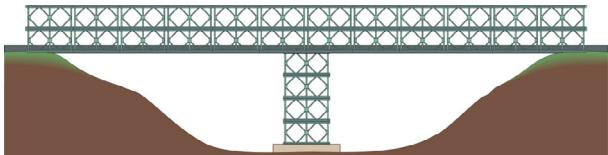
swing bridge

Bridge whose deck pivots around a vertical axle.



Bailey bridge

Steel bridge, often temporary, whose standardized truss components make it easy to assemble quickly.



floating bridge

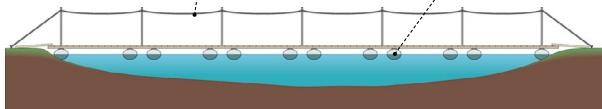
Bridge whose deck rests on pontoons that can be taken apart to open the bridge.

manrope

Chest-high barrier on each side of the deck, preventing people and vehicles from falling off.

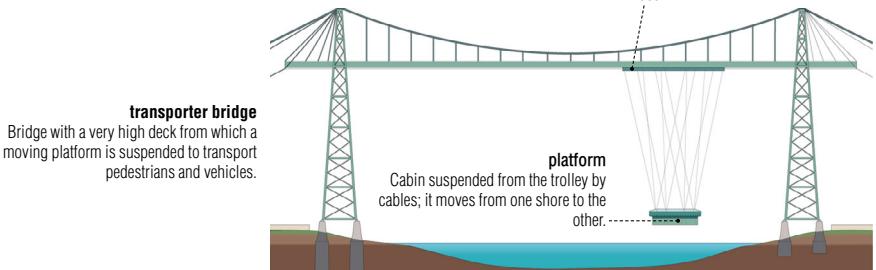
pontoon

Floating caisson filled with air and supporting the deck.



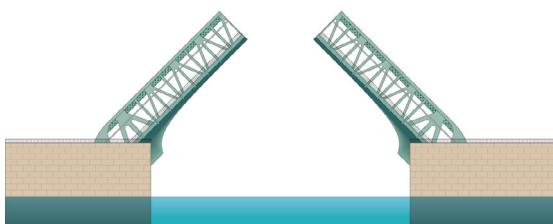
trolley

Part of the bridge moved by a motor; it glides along rails installed under the deck.

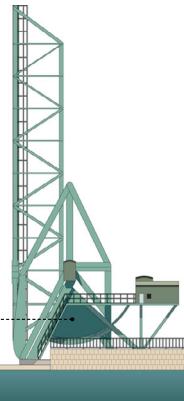


double-leaf bascule bridge

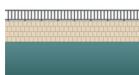
Bridge whose deck is composed of two spans joining each other at the middle of the bridge and pivoting around a vertical axle at each abutment.

**single-leaf bascule bridge**

Bridge whose deck is raised by means of a counterweight mechanism.

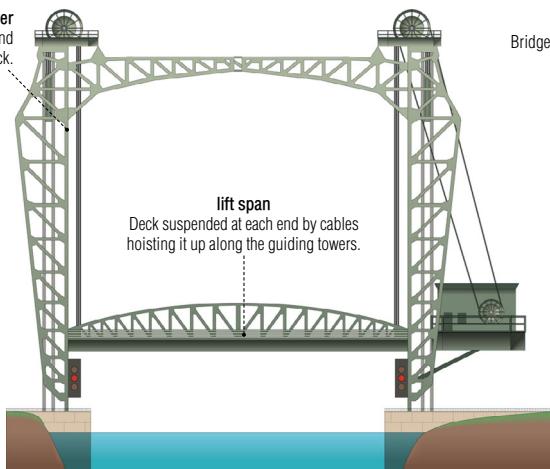
**counterweight**

Concrete or cast-iron mass, balancing the weight of the deck and facilitating its movement.

**lift bridge**

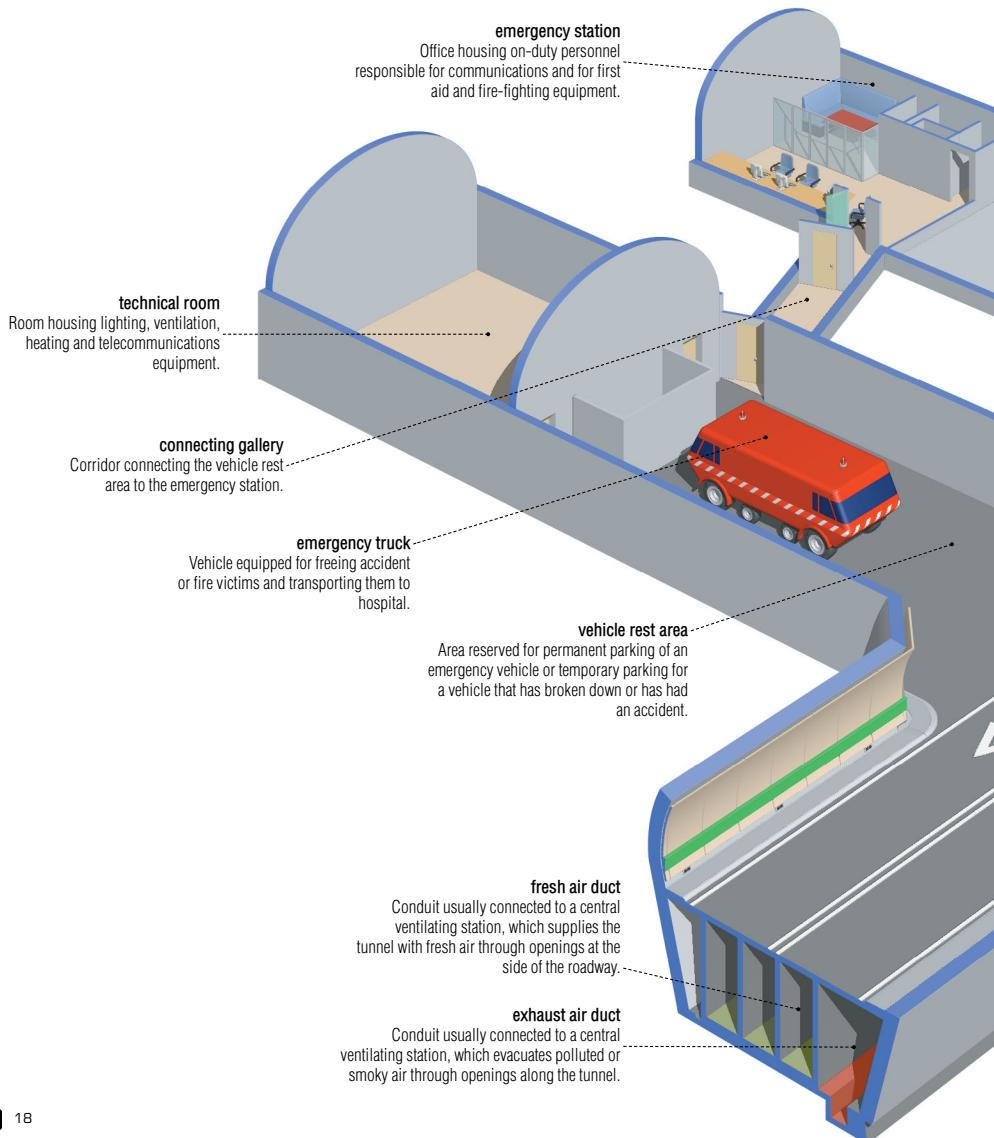
Bridge whose deck is raised by a system of cables.

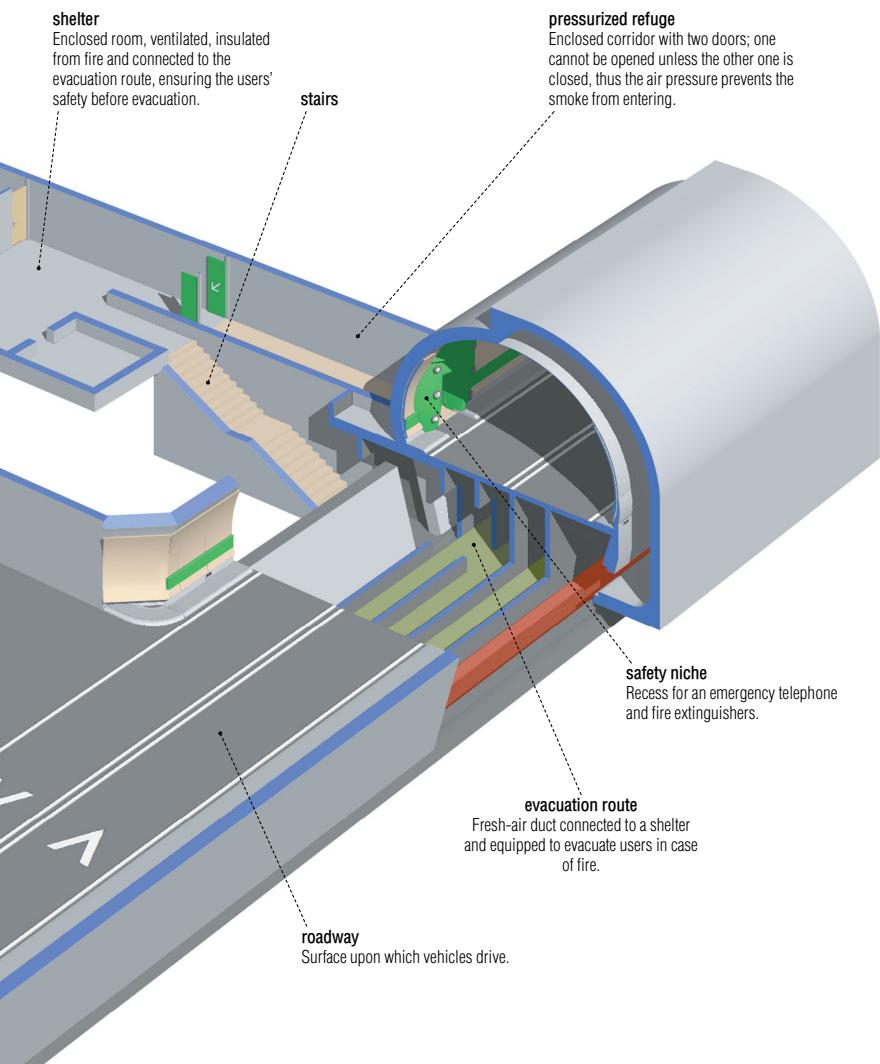
guiding tower
Pylon equipped with pulleys and cables for hoisting the deck.



road tunnel

Underground passage for a road under an obstacle, such as a river or a hill.





service station

gasoline pump

Machine with a pump for refilling vehicles with fuel.

volume display

Screen displaying, in gallons or liters, the volume of fuel pumped.

price per gallon/liter

Screen displaying the price per volume unit (liter or gallon) of the fuel chosen.

display

Surface displaying instructions for customers paying by card.

total sale display

Screen displaying the total price, corresponding to the volume of fuel pumped.

alphanumeric keyboard

Set of buttons for entering numbers, letters and other kinds of information.

card reader slot

The card is inserted into the device, which verifies the customer's personal identification number (PIN) before the transaction can begin.

slip presenter

Slot through which the user is given the payment receipt for the card payment.

8

type of fuel

Choice of available fuels (such as diesel and gasoline) and the price of each per volume unit (liter or gallon).

operating instructions

Set of instructions explaining the steps to follow to use the gasoline pump.

pump nozzle

Gun-shaped spout at the end of the gasoline pump hose and used to pour fuel into the vehicle's tank.

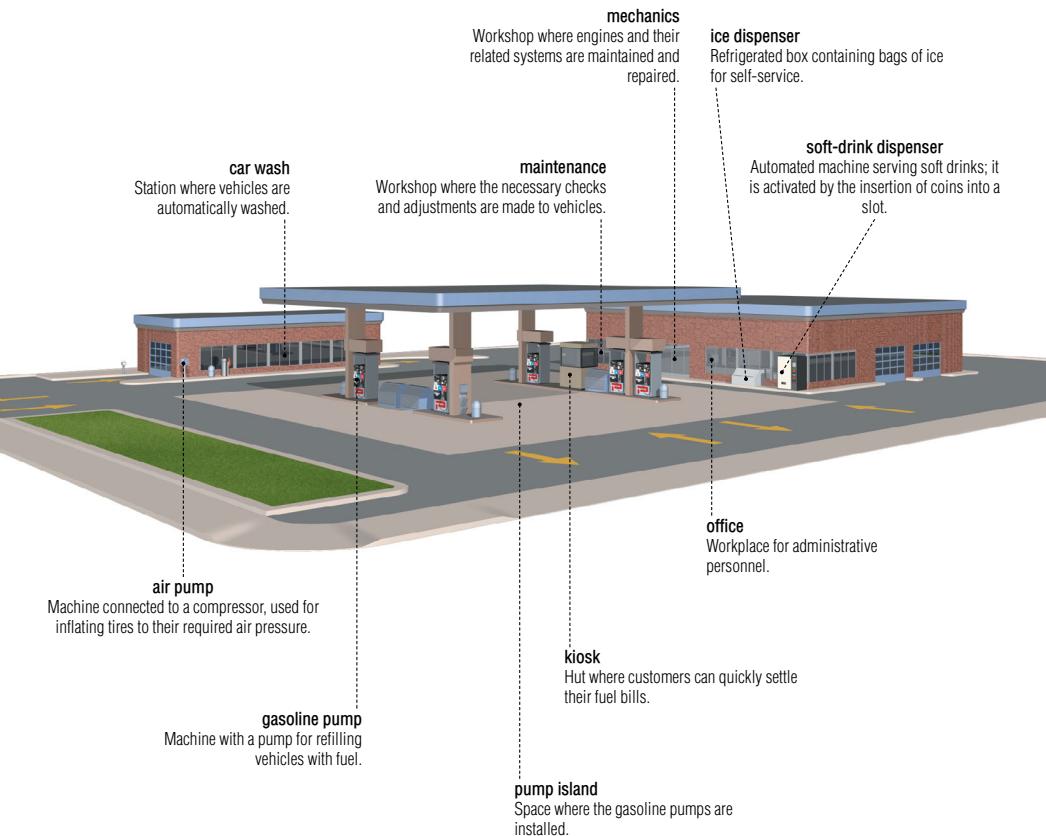
gasoline pump hose

Flexible pipe connected to the pump, maintaining fuel flow.

pump number

service station

Commercial establishment comprising one or several gasoline pumps and carrying out general maintenance of vehicles.



automobile

Motor vehicle comprising four wheels, developed for transporting a small number of people and small loads.

examples of bodies

Styles vary from manufacturer to manufacturer and from year to year but there is little variation in the basic model.



sports car

Automobile with an aerodynamic look comprising two doors, a small trunk separate from the passenger compartment and, sometimes, narrow rear seats.



micro compact car
Very small automobile comprising two seats and integrated cargo area, designed to be driven and parked in large cities.



two-door sedan

Automobile comprising two doors, a trunk separate from the passenger compartment and four places.



hatchback

Automobile comprising two doors and a lift gate, folding front seats granting access to the rear seats, and a cargo area integrated with the passenger compartment.



four-door sedan

Automobile comprising four doors and a trunk separate from the passenger compartment.



convertible

Automobile comprising two or four doors and a soft or hard retractable roof.

**station wagon**

Automobile comprising four doors, a large cargo area integrated with the passenger compartment and folding rear seats for enlarging the cargo area.

**minivan**

Automobile comprising three rows of seats; the last row can be folded down to enlarge the cargo area.

**sport-utility vehicle**

Automobile designed to be driven on any kind of roadway or on rugged terrain.

**pickup truck**

Automobile comprising only one row of seats and an uncovered bed closed off by a gate.

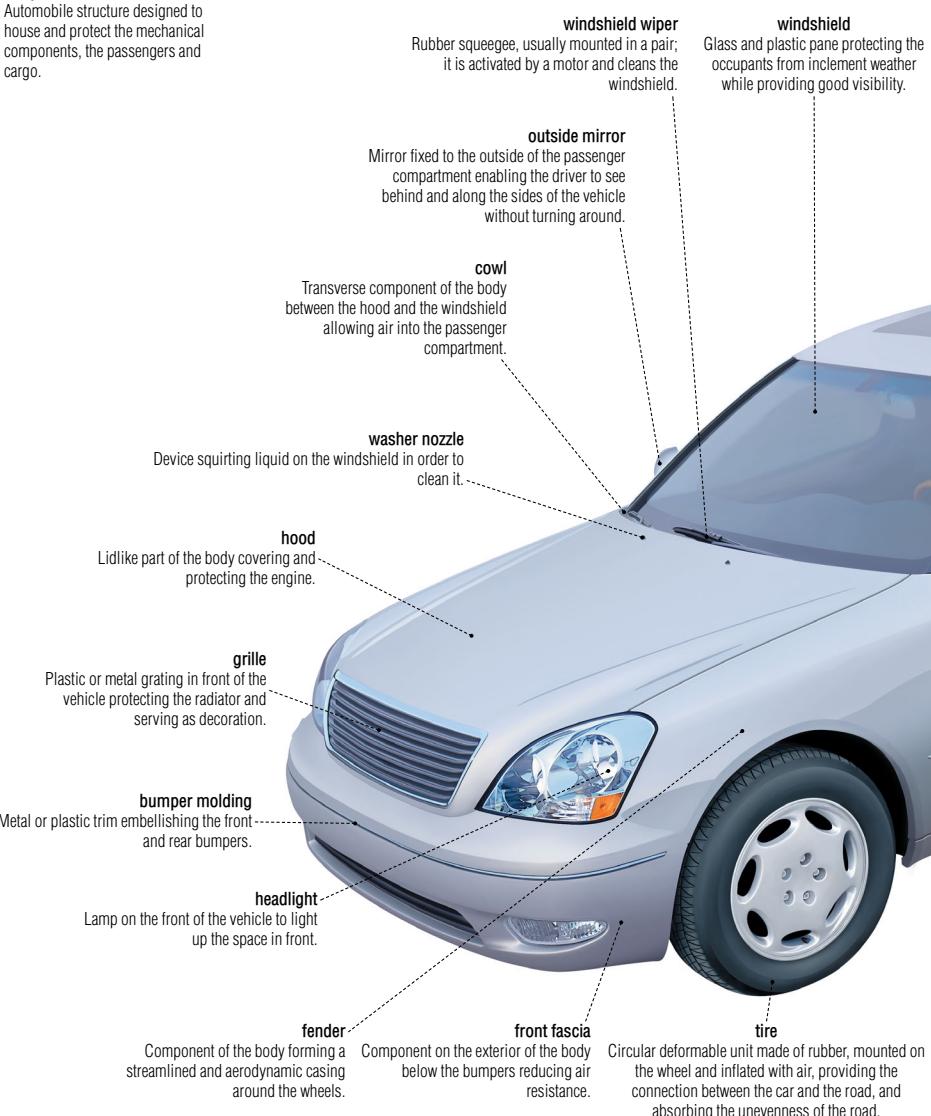
**limousine**

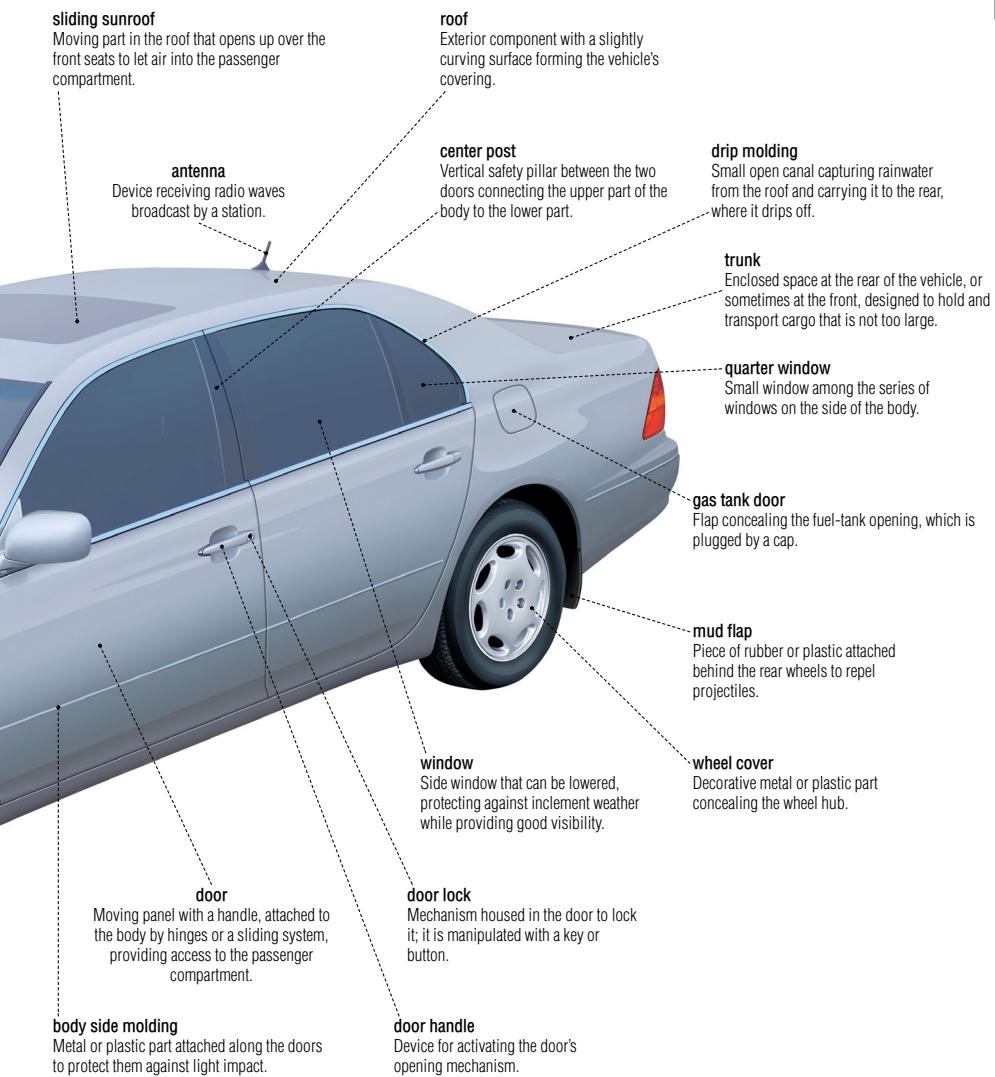
Spacious deluxe sedan comprising four or more doors; the passenger area is separated from the chauffeur's.

automobile

body

Automobile structure designed to house and protect the mechanical components, the passengers and cargo.





automobile

headlights

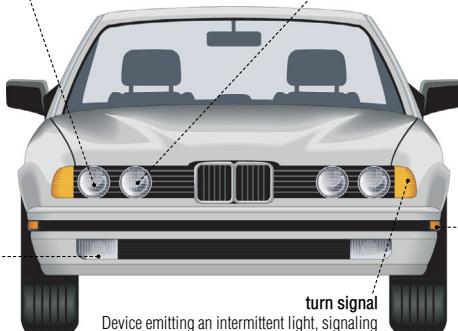
Set of regulation luminous devices placed on the front of a vehicle for illuminating and signaling.

low beam

Lamp illuminating the road at short distances (30 yards), used instead of high beam to avoid blinding drivers coming in the opposite direction.

high beam

Lamp illuminating the road over a long distance (100 yards), used outside urban areas.



fog light
Lamp whose light rays are directed toward the roadway and illuminate the road shoulder, by which the driver navigates in the event of fog.

turn signal
Device emitting an intermittent light, signaling a change of the vehicle's direction or a temporary hazard to other vehicles.

side marker light

Colored light demarcating the width of the vehicle.

taillights

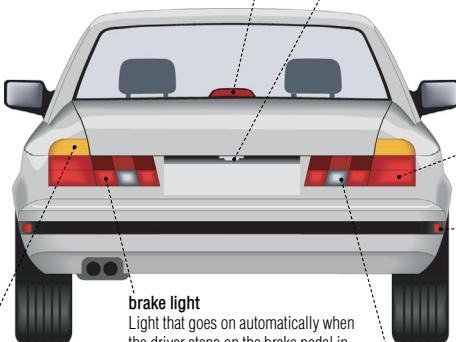
Set of regulation lighting devices placed at the rear of a vehicle and used for signaling.

brake light

Light that goes on automatically when the driver steps on the brake pedal in order to warn the vehicles following it.

license plate light

Lighting device for a vehicle's license plate, making it visible in darkness.

**turn signal**

Device emitting an intermittent light, signaling a change of the vehicle's direction or a temporary hazard to other vehicles.

brake light

Light that goes on automatically when the driver steps on the brake pedal in order to warn the vehicles following it.

reverse light

White lamp that turns on automatically to warn motorists and pedestrians when the driver puts the car in reverse.

door

Moving panel with a handle, attached to the body by hinges or a sliding system, providing access to the passenger compartment.

outside mirror control

Lever for adjusting the position of the outside mirror from the inside.

window regulator handle

Handily placed lever that turns to activate the mechanism raising and lowering the window.

assist grip

Handle allowing the passenger to pull the door inward in order to close it.

**hinge**

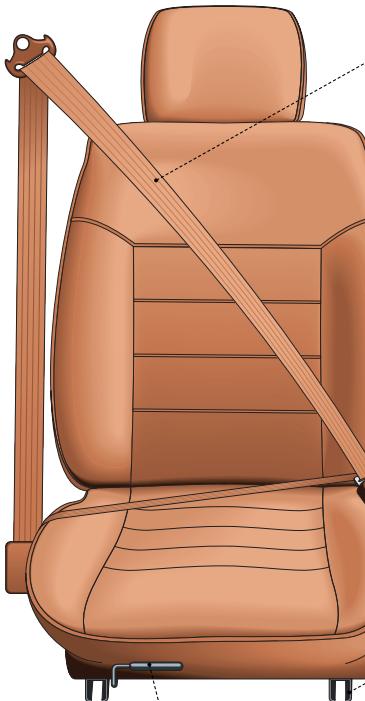
Articulating mechanism supporting the door and enabling it to pivot while it is being opened and closed.

interior door handle

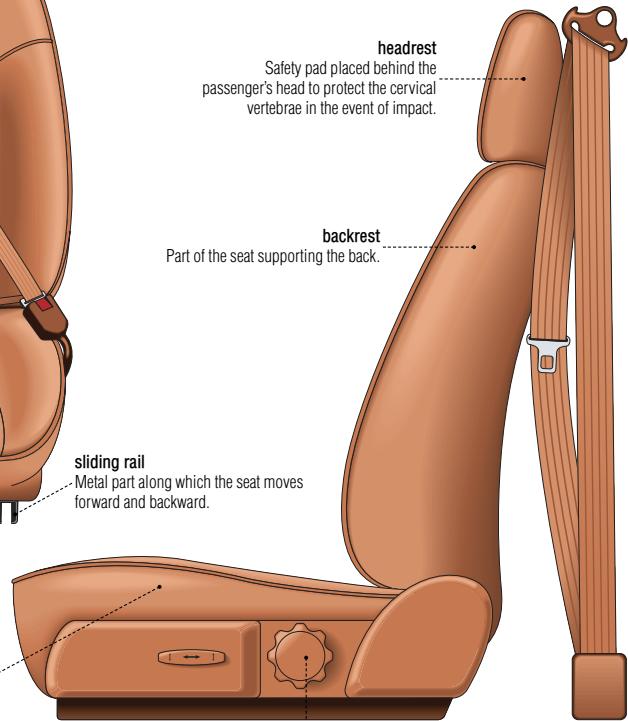
Mechanism for opening the door from the inside of the vehicle.

bucket seat: front view

Bucket seat: upholstered and adjustable seat that envelopes the occupant's body, keeping it in place during turns and providing greater comfort.

**shoulder belt**

Strap crossing in front of the passenger's thorax, from the shoulder to the hip.

bucket seat: side view**headrest**

Safety pad placed behind the passenger's head to protect the cervical vertebrae in the event of impact.

backrest

Part of the seat supporting the back.

sliding rail

Metal part along which the seat moves forward and backward.

seat

Horizontal unit for a passenger to sit on.

adjustment knob

The seat's regulating mechanism, for changing the angle of the backrest to an almost horizontal position.

seat belt

Safety device fitted with sliding straps, keeping the passenger in the seat in the event of an accident.

rear seat

Bench containing several spaces installed in the rear of the passenger compartment and occupying its full width.

armrest

Folding support in the middle of the rear seat, for resting the forearm.

**webbing**

Center belt in the rear seat, strapping in the passenger's pelvis and restraining only the lower part of the body in the event of impact.

bench seat

Horizontal unit for sitting on, providing up to three spaces.

buckle

Clasp keeping the seat belt around the passenger and released by pressing with the finger.

dashboard

Component in the passenger compartment comprising the instrument panel, the manual controls, storage and other accessories.

wiper switch

Electric mechanism for switching on the windshield wipers, controlling their speed and activating the windshield washer fluid.

cruise control

Mechanism enabling the driver to maintain a cruising speed for the vehicle.

ignition switch

Switch activated by a contact key allowing a current from the battery to flow to the starter.

headlight/turn signal

Lever having several positions that control the turn signals and the low and high beams.

horn

Device emitting a loud sound that the driver can use to attract the attention of a pedestrian or other user of the road.

steering wheel

Circular instrument used by the driver for steering the guide wheels.

clutch pedal

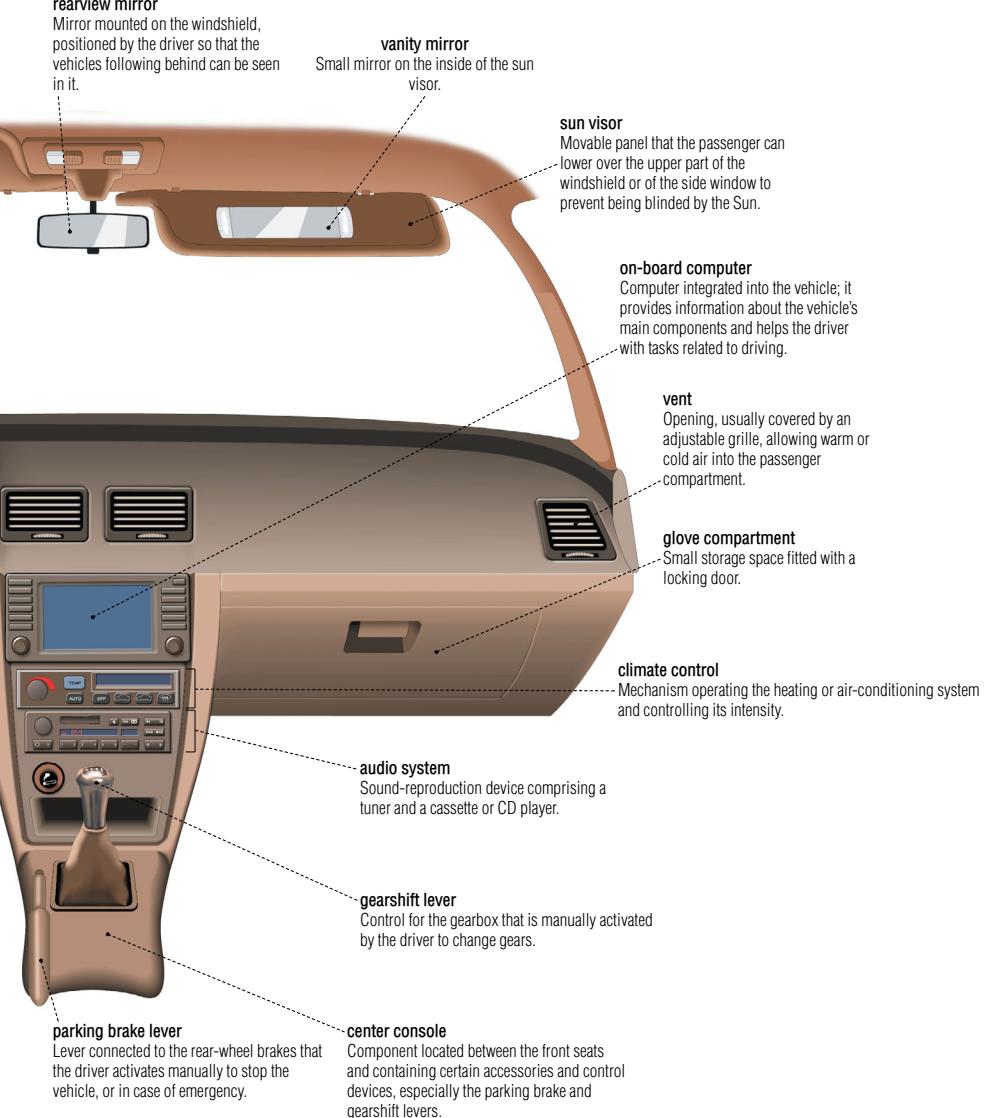
Pedal pushed to change gears.

brake pedal

Lever that the driver presses with the foot to activate the brake system.

gas pedal

Unit controlled by the foot to increase, maintain or decrease the vehicle's speed.



instrument panel

Set of dials and warning lights within the driver's view that report on the vehicle's functioning.

temperature indicator

Dial showing the temperature of the engine's coolant.

oil warning light

Warning light showing that the engine's oil level is lower than the minimum required.

fuel indicator

Dial whose needle is connected to a float in the gas tank; it shows the level of fuel still available.

alternator warning light

Warning light showing that the battery needs recharging.

low fuel warning light

Warning light showing that the gas tank is almost empty.

high beam indicator light

Light showing that the high beams are on.

turn signal indicator

Intermittent light, often accompanied by a sound, showing that a turn signal is in use.

**tachometer**

Dial showing the engine's rotation speed in revolutions per minute.

trip odometer

Mechanism measuring partial distances traveled by the vehicle in kilometers or miles; it can be reset to zero.

odometer

Mechanism measuring, in kilometers or miles, the total distance traveled by the vehicle since it left the factory.

speedometer

Dial showing the speed at which the vehicle is moving, in kilometers or miles per hour.

air bag restraint system

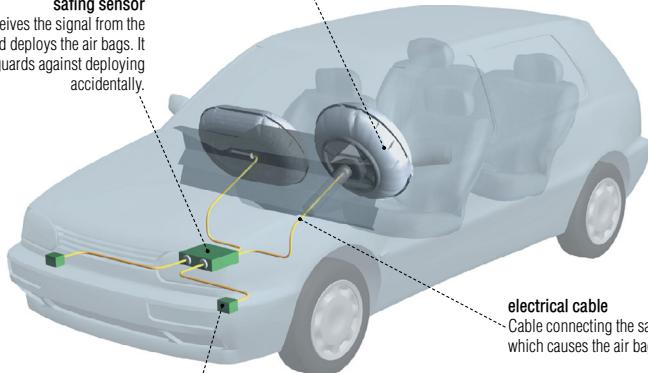
Automatic safety device containing air bags that, in the event of impact, instantly come between the occupants and the dashboard.

air bag

Flexible envelope encased in the dashboard, the steering wheel or the doors, which inflates with pressurized gas when it receives the signal from the safing sensor.

safing sensor

Device that receives the signal from the primary sensor and deploys the air bags. It has safeguards against deploying accidentally.

**electrical cable**

Cable connecting the safing sensor, which causes the air bags to deploy.

primary crash sensor

Device located at the front of the vehicle, which, in the event of collision, transmits the pulse it receives to the safing sensor.

windshield wiper

Rubber squeegee, usually mounted in a pair; it is activated by a motor and cleans the windshield.

windshield wiper blade

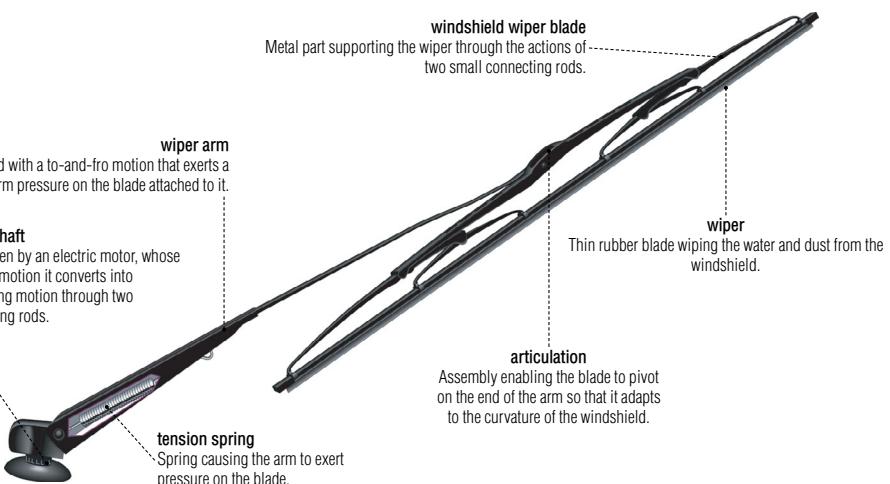
Metal part supporting the wiper through the actions of two small connecting rods.

wiper arm

Metal rod with a to-and-fro motion that exerts a uniform pressure on the blade attached to it.

fluted shaft

Part driven by an electric motor, whose rotating motion it converts into alternating motion through two connecting rods.

**articulation**

Assembly enabling the blade to pivot on the end of the arm so that it adapts to the curvature of the windshield.

accessories

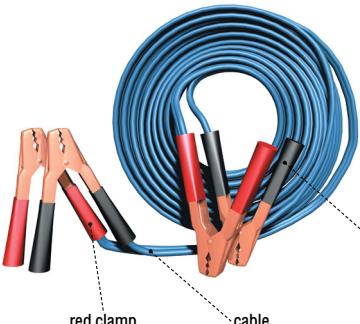
Secondary components of a vehicle, used for its maintenance, safety and such.

roller shade

Shade with a roller containing a spring that causes the shade cloth to roll up; it is usually placed on a side window.

**jumper cables**

Cables fitted with alligator clips for connecting an emergency battery to a discharged one.



A red clamp is fitted on the positive terminal of both batteries.

black clamp

A black clamp is fitted on the negative terminal of the emergency battery; the other is attached to a metal part of the other car.

**snow brush with scraper**

Small broom with one end for removing snow from the vehicle and the other for scraping ice off the windows.

**ski rack**

Support placed on the vehicle's roof, for mounting and transporting skis.

Support placed on the roof or the rear of the vehicle, on which one or more bicycles can be mounted and transported.

**bike carrier**

jack

Mechanism activated by a handle, for raising the vehicle.

**handle**

Lever comprising two right-angle bends, for activating the jack mechanism to raise and lower it.

hitch ball

Device for hooking up a trailer or caravan to a vehicle.

**ball mount**

Part attached under the rear of the vehicle, with a hitch ball on one end; the trailer's or caravan's hitch articulates with it.

four-way lug wrench

Wrench for tightening and loosening the wheel nuts; it is made up of two crossed rods with each end having a different size.

**child safety seat**

Chair adapted to the size of a child; it is equipped with a safety harness for keeping the child seated and attached to the rear seat by the seat belt.

**sun visor**

Screen placed inside the windshield of a parked vehicle to protect the passenger compartment from the Sun's rays.

**car cover**

Flexible casing for covering and protecting the vehicle from the sun, dust and inclement weather.

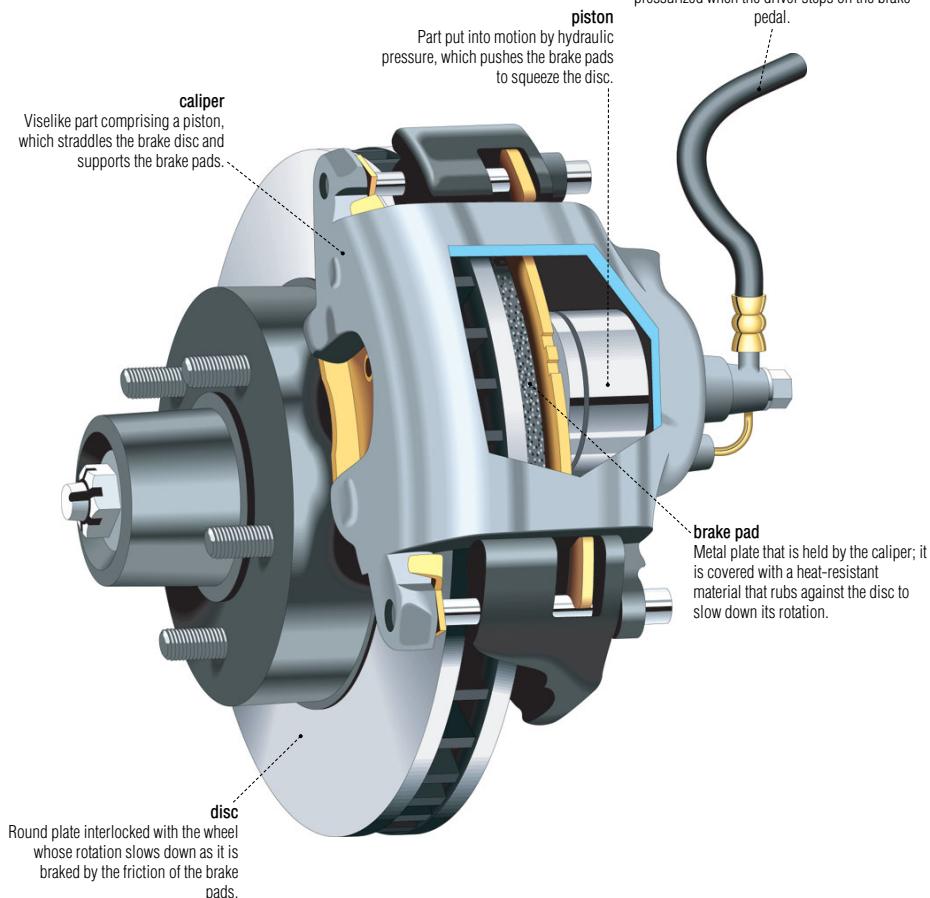


brakes

Units slowing down or stopping the vehicle's wheels.

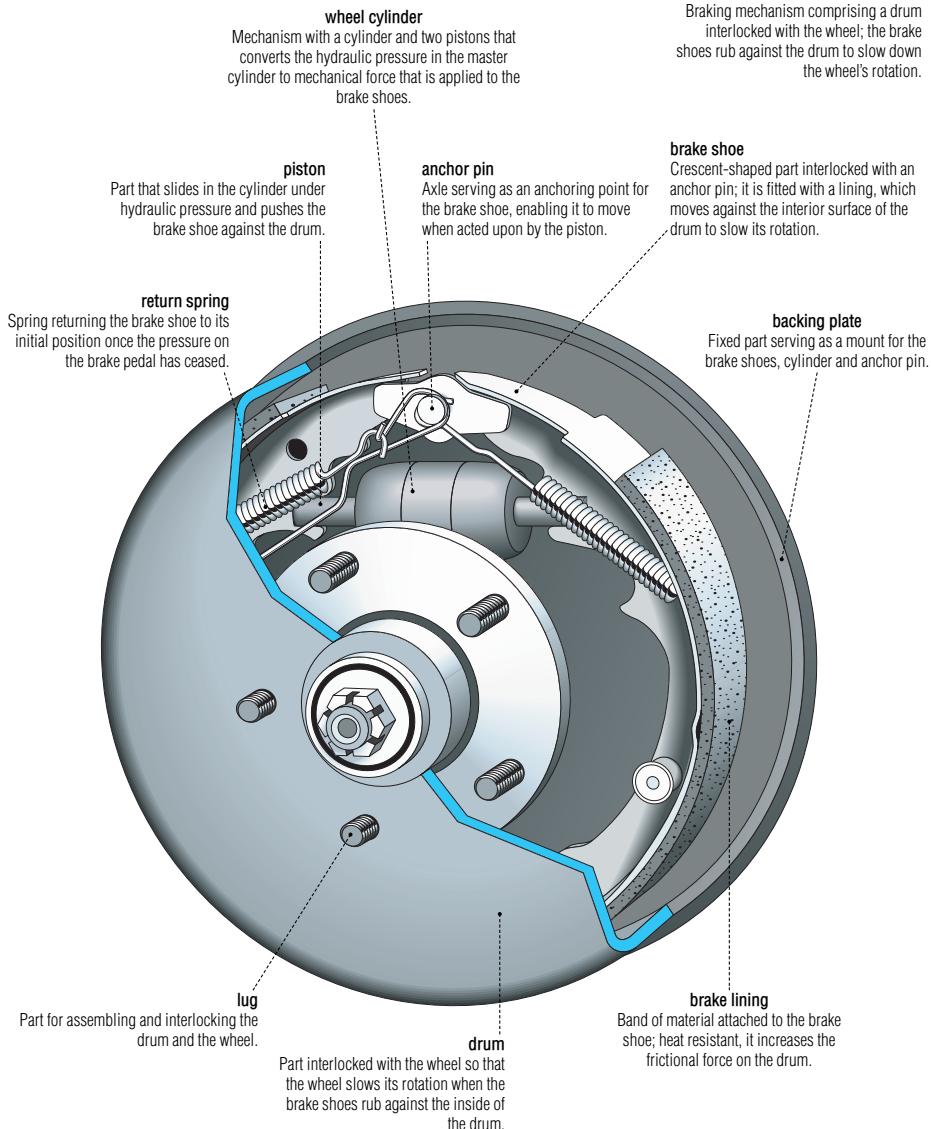
disc brake

Braking mechanism comprising a disc attached to the wheel, whose rotation is slowed down when the brake pads exert friction on it.



drum brake

Braking mechanism comprising a drum interlocked with the wheel; the brake shoes rub against the drum to slow down the wheel's rotation.



brakes

antilock braking system (ABS)

Electronic device controlling the hydraulic pressure in the braking circuit, to prevent the wheels from locking.

brake fluid reservoir

Reservoir supplying the master cylinder with the fluid that transmits pressure to the brakes after the driver presses the brake pedal.

brake booster

Mechanism amplifying the force exerted by the driver on the brake pedal.

master cylinder

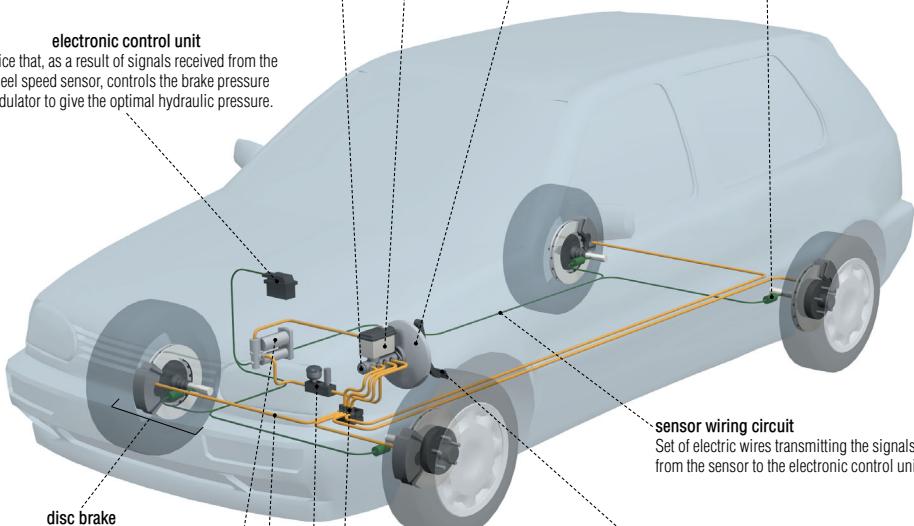
Mechanism composed of a cylinder and pistons that converts the mechanical force of the brake pedal into hydraulic pressure that is transmitted to the brakes.

wheel speed sensor

Device sensing the rotation speed of a wheel and transmitting that information to the control unit.

electronic control unit

Device that, as a result of signals received from the wheel speed sensor, controls the brake pressure modulator to give the optimal hydraulic pressure.

**disc brake**

Braking mechanism comprising a disc attached to the wheel, whose rotation is slowed down when the brake pads exert friction on it.

sensor wiring circuit

Set of electric wires transmitting the signals from the sensor to the electronic control unit.

pump and motor assembly

Pump driven by an electric motor, circulating the brake fluid from the accumulator to the master cylinder.

brake pedal

Lever that the driver presses with the foot to activate the brake system.

brake pressure modulator

Hydraulic unit fitted with electric valves that, depending on the signals received from the electronic control unit, adjusts the pressure in each wheel cylinder.

braking circuit

System of tubes containing a fluid that activates the brakes when they come under pressure from the pedal.

accumulator

Device temporarily holding the hydraulic brake fluid while the modulator lowers the pressure.

Circular deformable unit made of rubber, mounted on the wheel and inflated with air, providing the connection between the car and the road, and absorbing the unevenness of the road.

**rim**

Metal circle constituting the wheel's circumference and on which the tire is mounted.

wheel

Circular unit turning around an axle; it supports the weight of the vehicle and transmits the thrust, steering and braking actions.

rim flange

Edge of the rim providing lateral support to the tire bead so that it adheres solidly to it.

technical specifications

Alphanumeric code molded onto the side of the tire, showing its characteristics.

disk
A part of the rim that is fixed at its center on the wheel's axle.

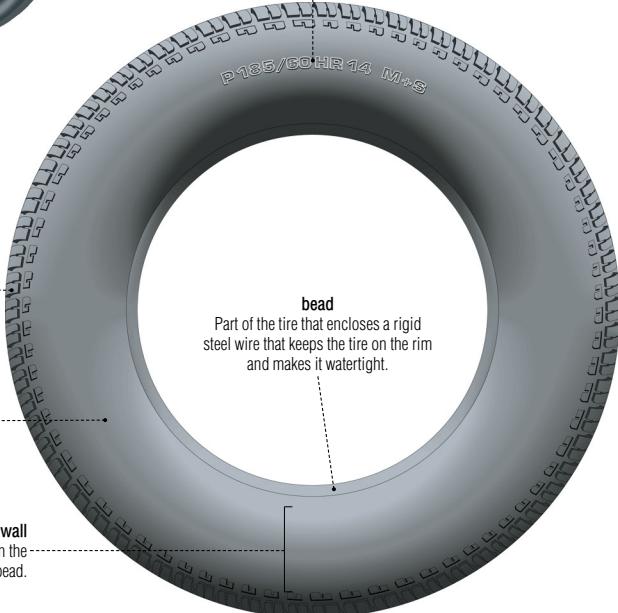
tread design

Raised part of the tire tread that improves traction for various usage conditions.

rubbing strip

Round protrusion of the rubber wall, protecting it from side impact and wear.

rubber wall
Part of the tire located between the tread and the bead.

**bead**

Part of the tire that encloses a rigid steel wire that keeps the tire on the rim and makes it watertight.

tire

examples of tires

Depending on the intended conditions and uses, tire construction (e.g., type of rubber, tread design, width) varies widely.

**performance tire**

Wide tire that withstands particularly high temperatures and offers superior performance in holding the road and handling turns.

**all-season tire**

Tire designed for driving on roads that are dry, wet or slightly snow-covered.

**winter tire**

Tire characterized by ridges providing a good grip on snow- and ice-covered roads.

**touring tire**

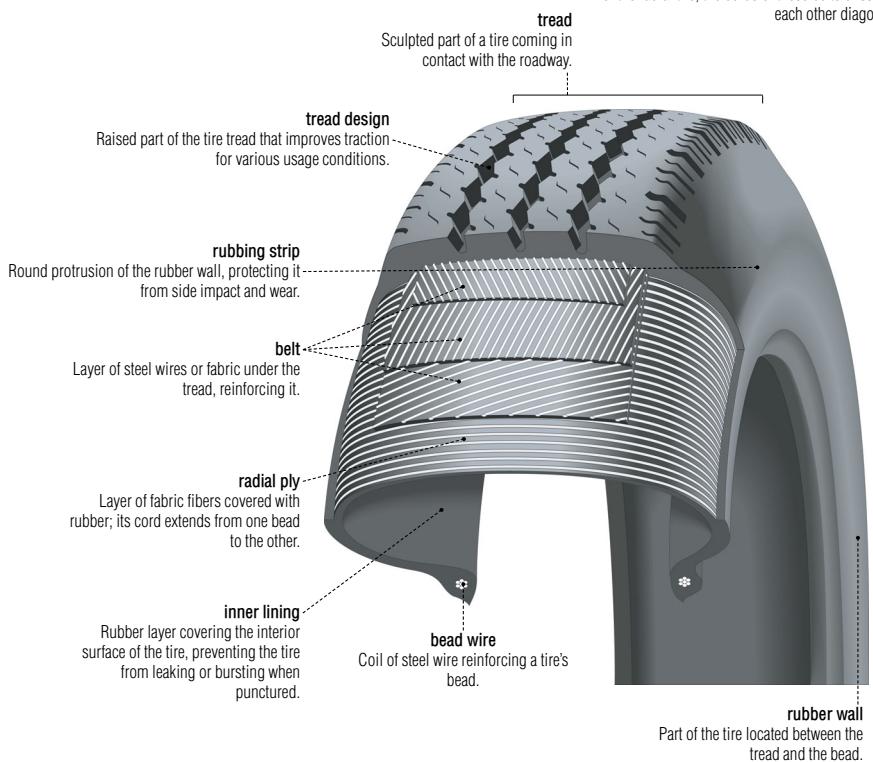
Tire designed for driving on dry or wet roads, but not recommended for snow or ice.

**studded tire**

Tire whose tread is fitted with metal studs, which provide a good grip on icy roads.

steel belted radial tire

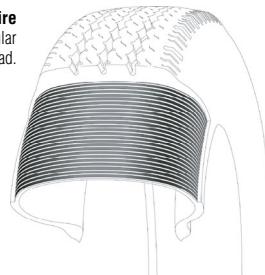
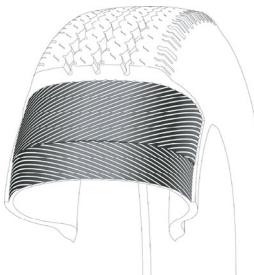
Hybrid tire with addition belts laid on top of the plies of the radial tire; the cords of these belts crisscross each other diagonally.

**radial tire**

Tire with plies whose cords are perpendicular to the direction of the tread.

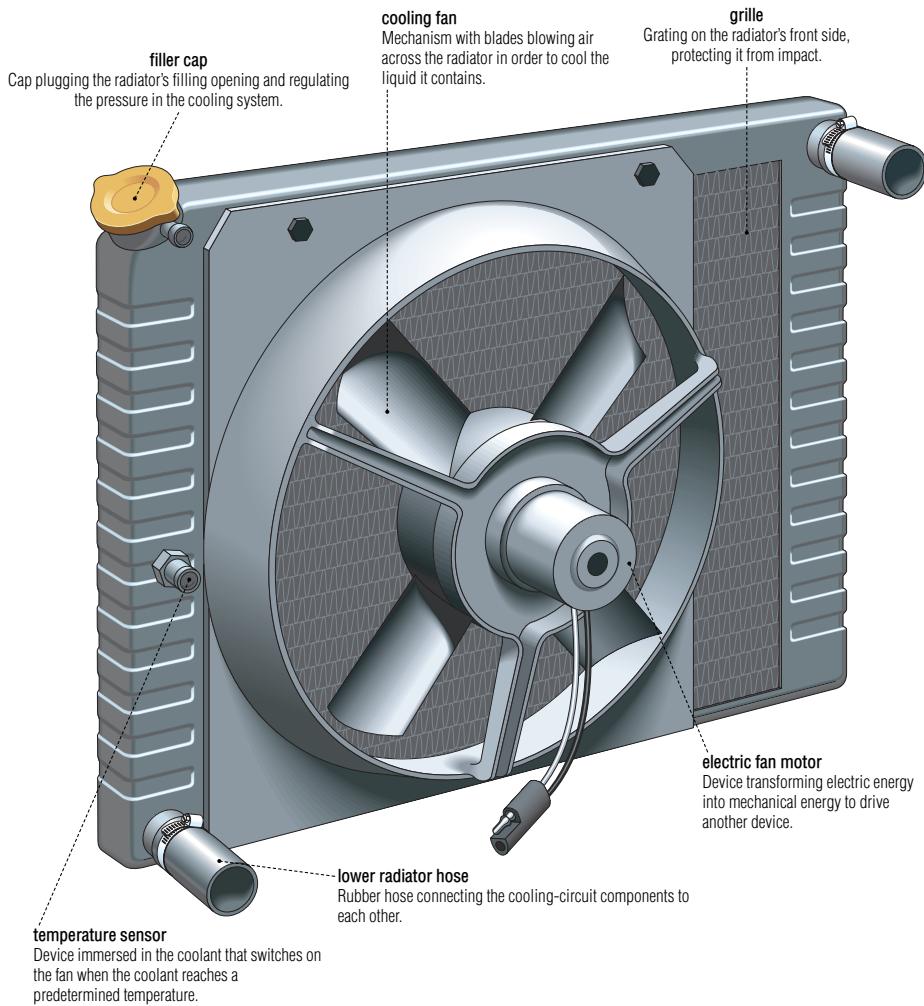
bias-ply tire

Tire with plies whose cords cross each other and are diagonal to the direction of the tread.

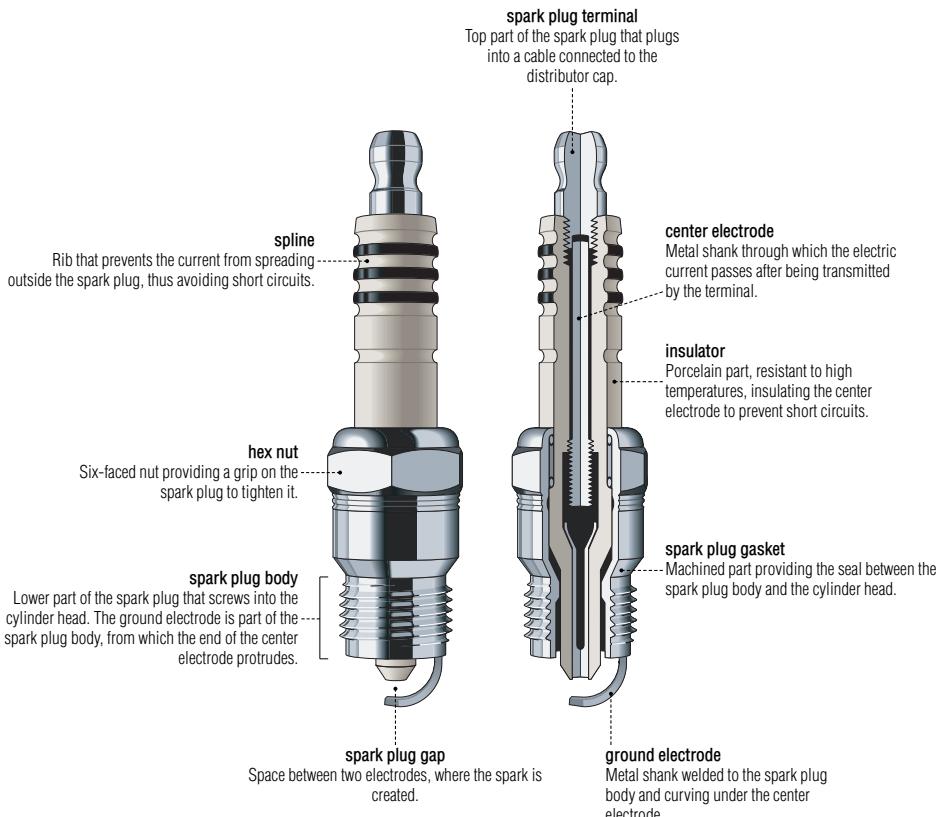


radiator

Vessel in which the coolant, which circulates around the engine, is cooled by means of flowing air.

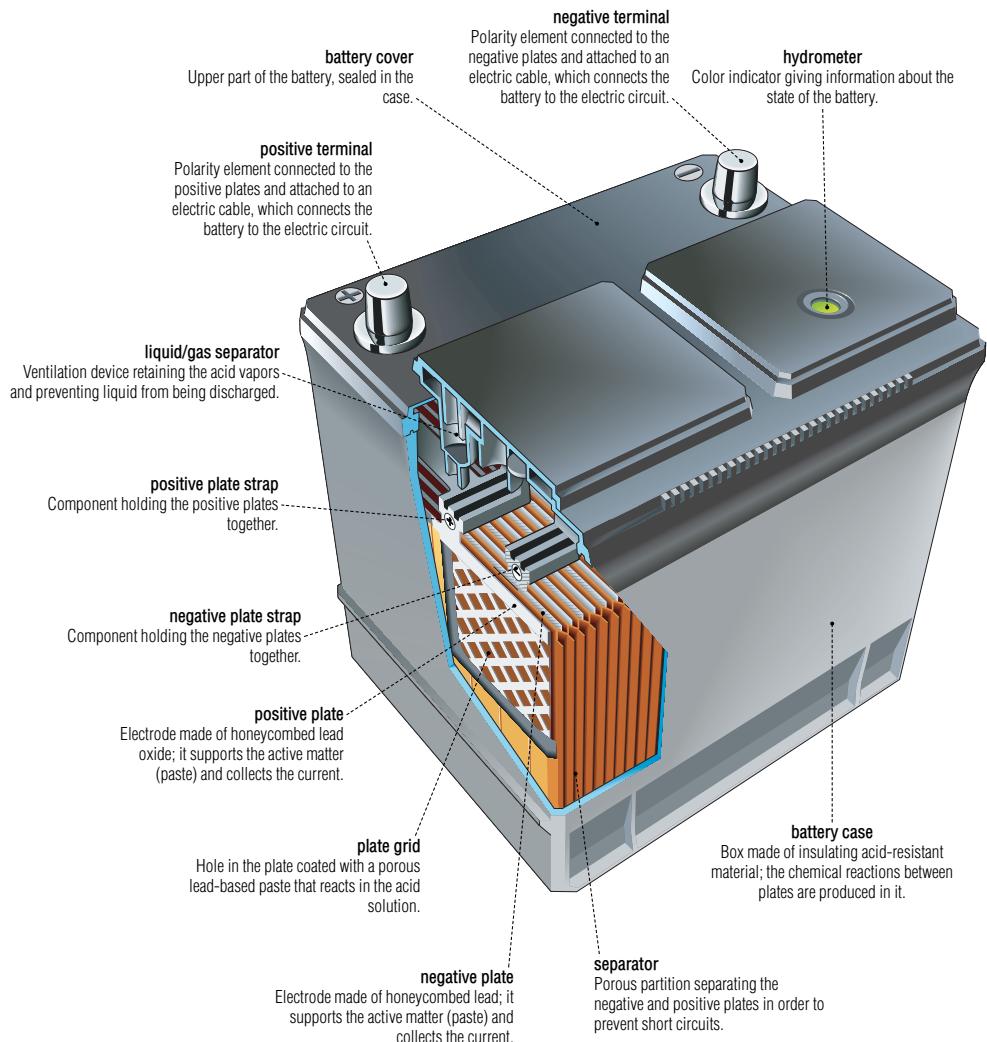


Electric device whose two electrodes produce the spark necessary to ignite the air/gasoline mixture in the cylinder.

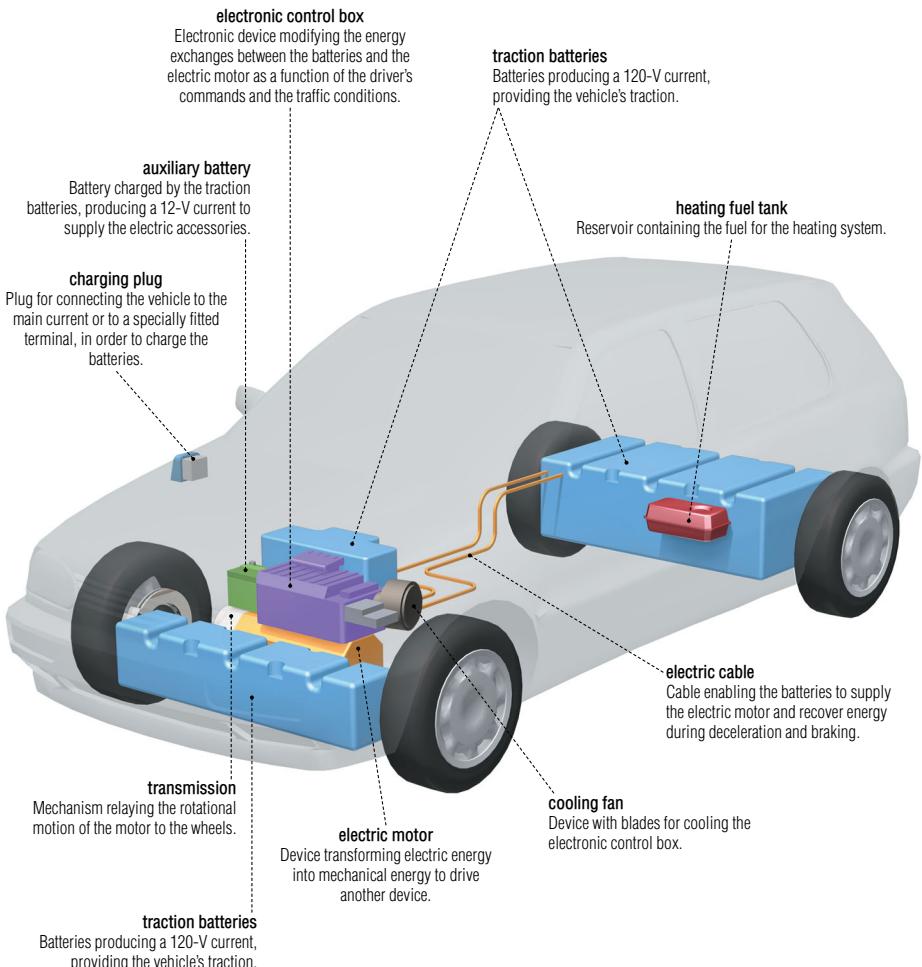


battery

Unit storing the electricity produced by the alternator and releasing it to supply the vehicle's electric system.

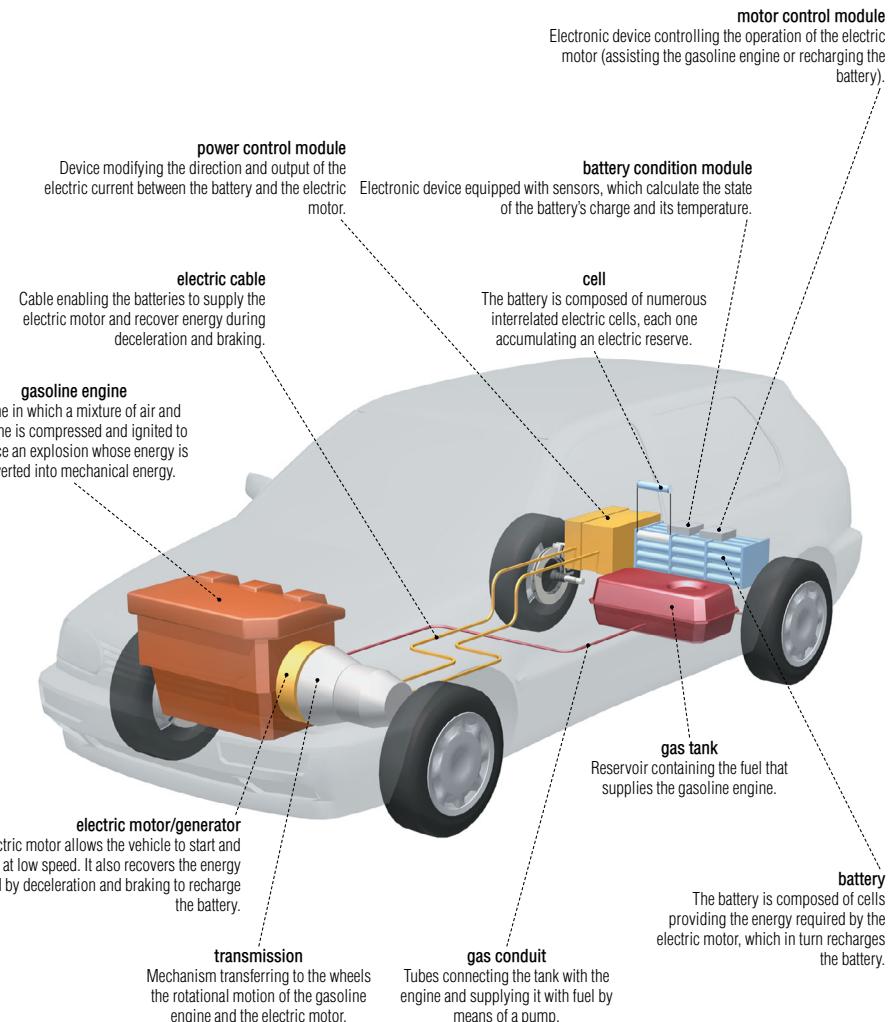


Car propelled by an electric motor whose energy is provided by a battery.

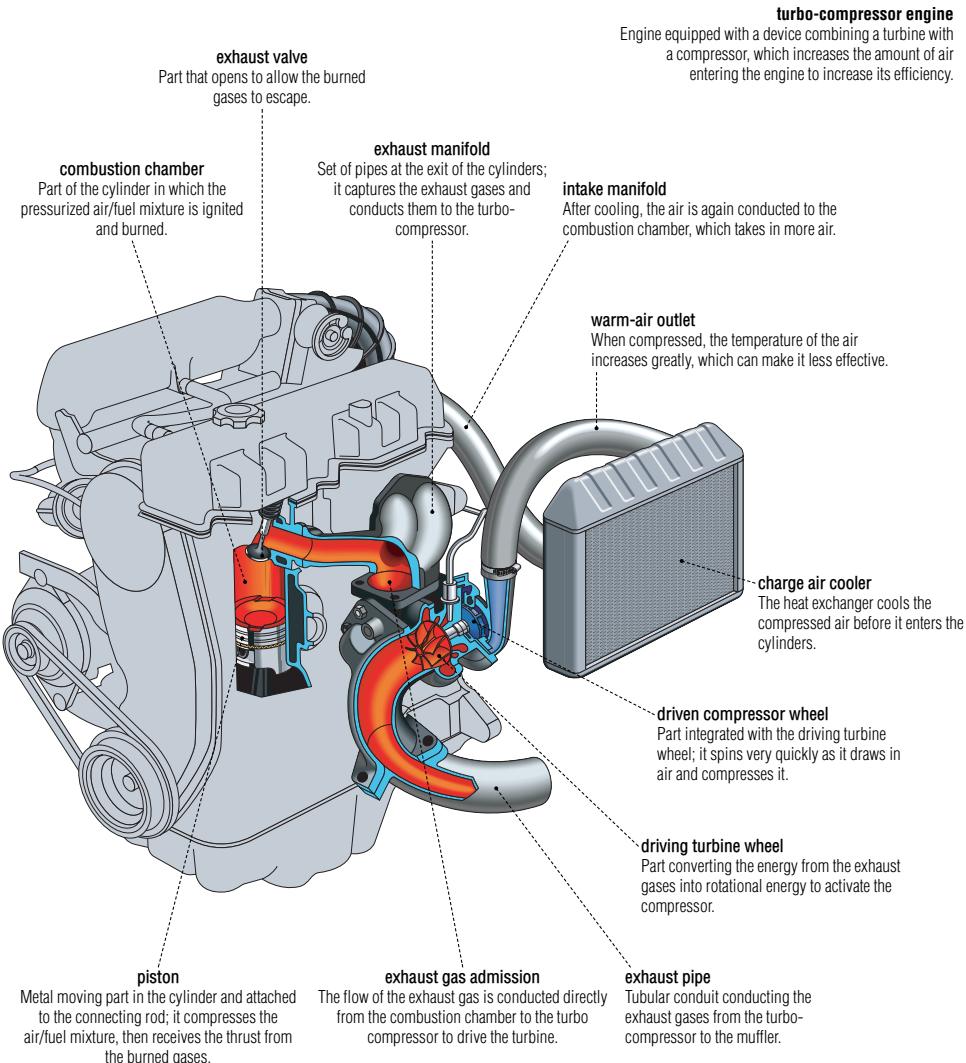


hybrid automobile

Car powered by an internal combustion engine and an electric motor, reducing gasoline consumption and polluting emissions.



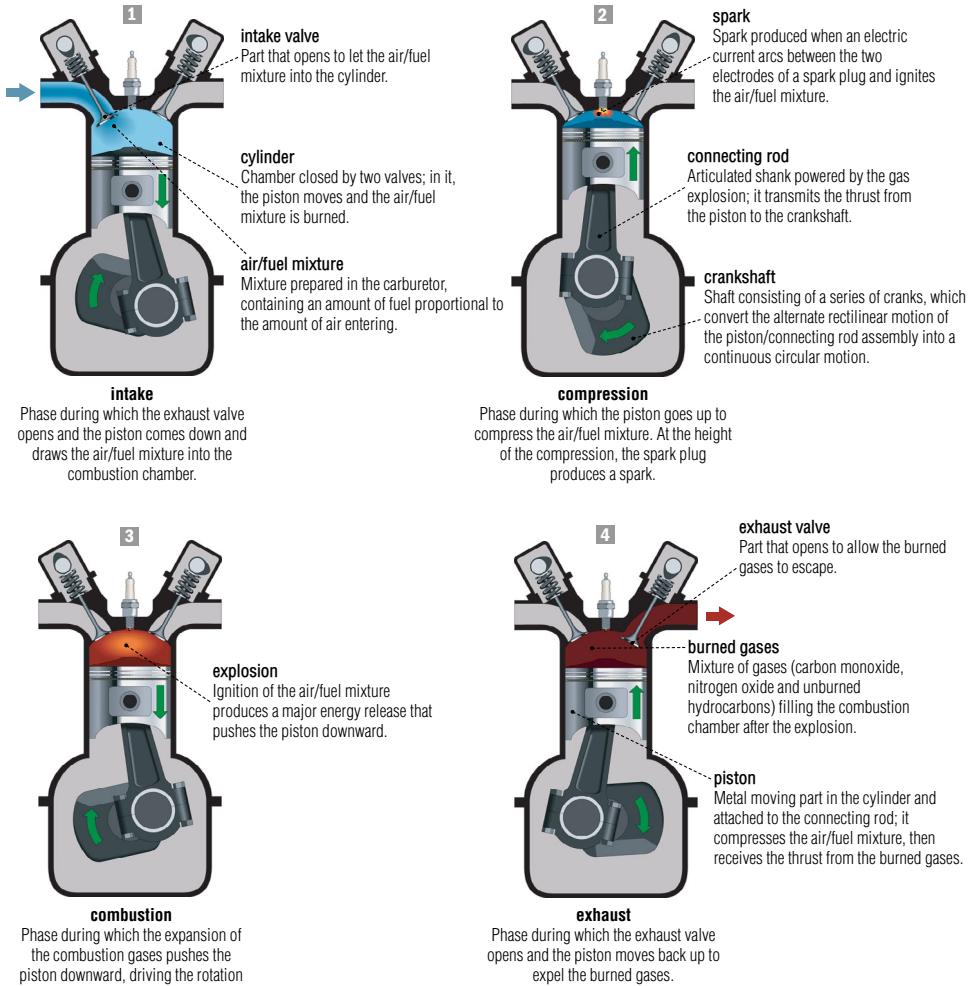
Engines: machines that convert the combustion of an air/fuel mixture into mechanical energy.



types of engines

four-stroke-cycle engine

Combustion engine whose cycle (intake, compression, combustion, exhaust) requires two up-and-down movements of the piston.

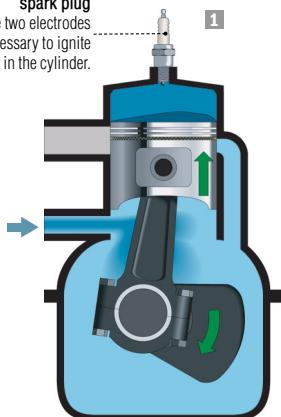


two-stroke-cycle engine cycle

Two-stroke engine: combustion engine whose cycle (intake, compression, combustion and exhaust) requires one up-and-down movement of the piston.

spark plug

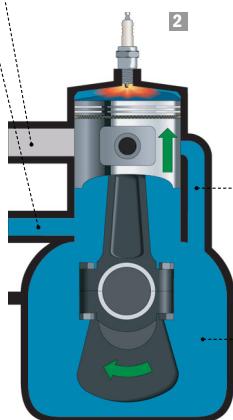
Electric device whose two electrodes produce the spark necessary to ignite the air/fuel mixture in the cylinder.

**intake port**

Conduit through which the air/fuel mixture enters the crankcase.

exhaust port

Conduit through which the burned gases are expelled from the combustion chamber.

**compression/intake**

Beginning of the first stroke during which the piston moves up, drawing the air/fuel mixture into the crankcase and compressing the mixture in the cylinder.

transfer port

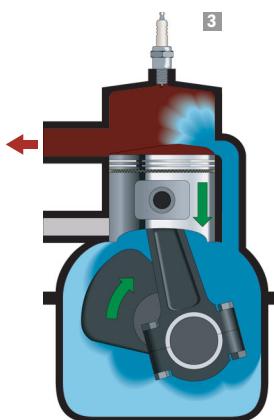
Conduit conducting the air/fuel mixture from the crankcase to the cylinder.

crankcase

Sealed enclosure where the air/fuel mixture enters and the piston/connecting rod moves.

combustion

End of the first stroke during which a spark ignites the air/fuel mixture.

**exhaust/scavaging**

Second stroke during which the piston is pushed back by the expansion of the burned gases, which are then expelled and replaced by the mixture coming from the crankcase.

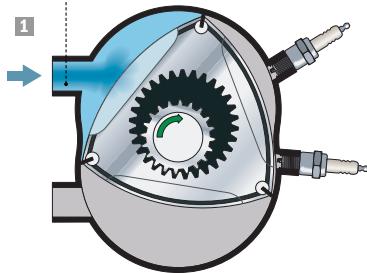
types of engines

rotary engine cycle

Rotary engine: combustion engine in which the combustion chamber is divided by a rotor into three turning parts of unequal volume.

intake manifold

Passages through which the air/fuel mixture enters the cylinder.

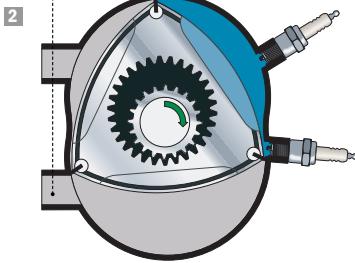


intake

The air/fuel mixture enters the cylinder through the intake manifold; the rotor's motion forces it into the next chamber.

exhaust manifold

Pipe through which the burned gases are expelled from the cylinder.

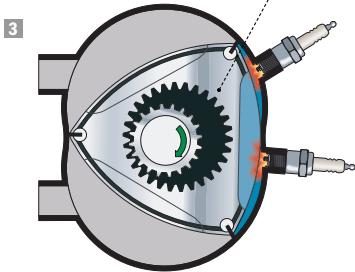


compression

The rotor's rotation reduces the volume in the chamber and compresses the mixture.

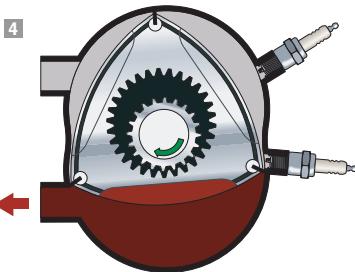
rotor

Triangular piston turning eccentrically around an axle and transmitting a rotational motion directly to the crankshaft.



power

When the compression level is reached, the spark plugs produce sparks that ignite the air/fuel mixture.



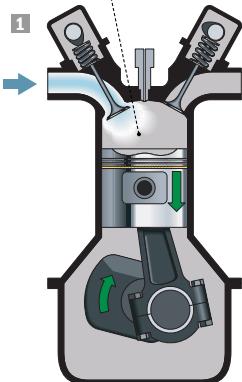
exhaust

In the passage before the exhaust manifold, the burned gases are expelled by the rotor.

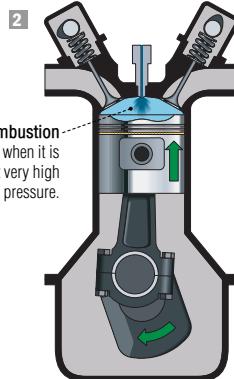
diesel engine cycle

Diesel engine: combustion engine in which the compressed air becomes sufficiently hot to ignite the injected fuel.

air
Air enters the combustion chamber.

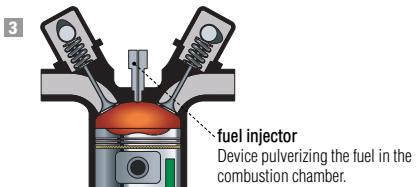


intake
Phase during which the exhaust valve opens and the piston comes down and draws the air/fuel mixture into the combustion chamber.

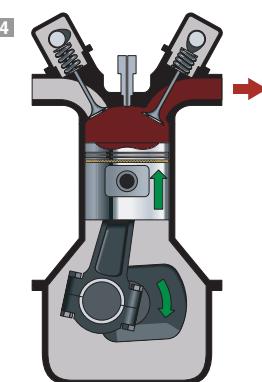


injection/combustion
Fuel ignites immediately when it is injected into the hot air at very high pressure.

compression
Stroke during which the piston rises, compressing the air, which becomes heated under the pressure.



power
Stroke during which the expansion of the burning gases pushes the piston downward.



exhaust
Phase during which the piston moves up and forces the burned gases toward the exhaust valve.

types of engines

gasoline engine

Engine in which a mixture of air and gasoline is compressed and ignited to produce an explosion whose energy is converted into mechanical energy.

combustion chamber
Part of the cylinder in which the pressurized air/fuel mixture is ignited and burned.

piston ring
Circular ring mounted on the piston providing a seal between it and the cylinder.

piston skirt
Side surface of a piston guiding it along the inside of the cylinder.

connecting rod
Articulated shank powered by the gas explosion; it transmits the thrust from the piston to the crankshaft.

alternator
Current generator driven by the engine, which recharges the battery to supply the electric system.

cooling fan
Mechanism with blades blowing air across the radiator in order to cool the liquid it contains.

pulley
Part attached to a shaft, whose rotational movement it transmits by means of a belt.

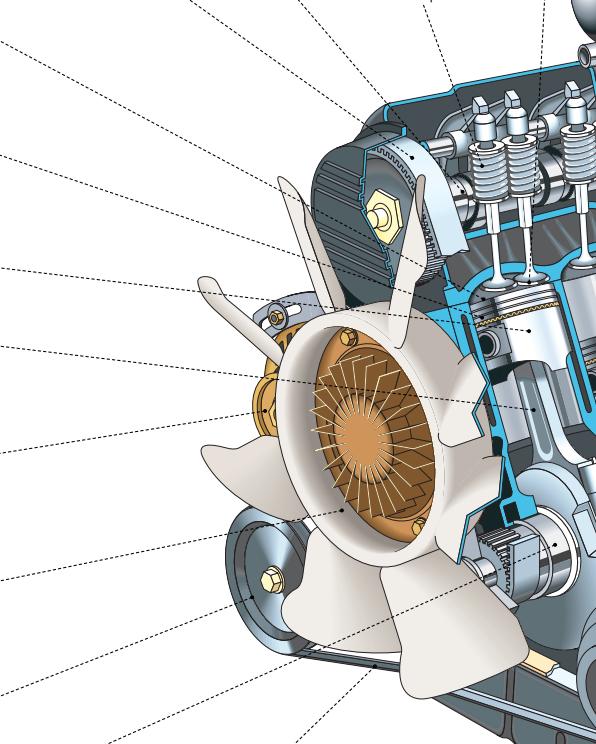
crankshaft
Shaft consisting of a series of cranks, which convert the alternate rectilinear motion of the piston/connecting-rod assembly into a continuous circular motion.

camshaft
Axle driven by a belt, a chain or gears connected to the crankshaft, controlling the opening and closing of the valves.

timing belt
Strap connecting the crankshaft to the camshaft.

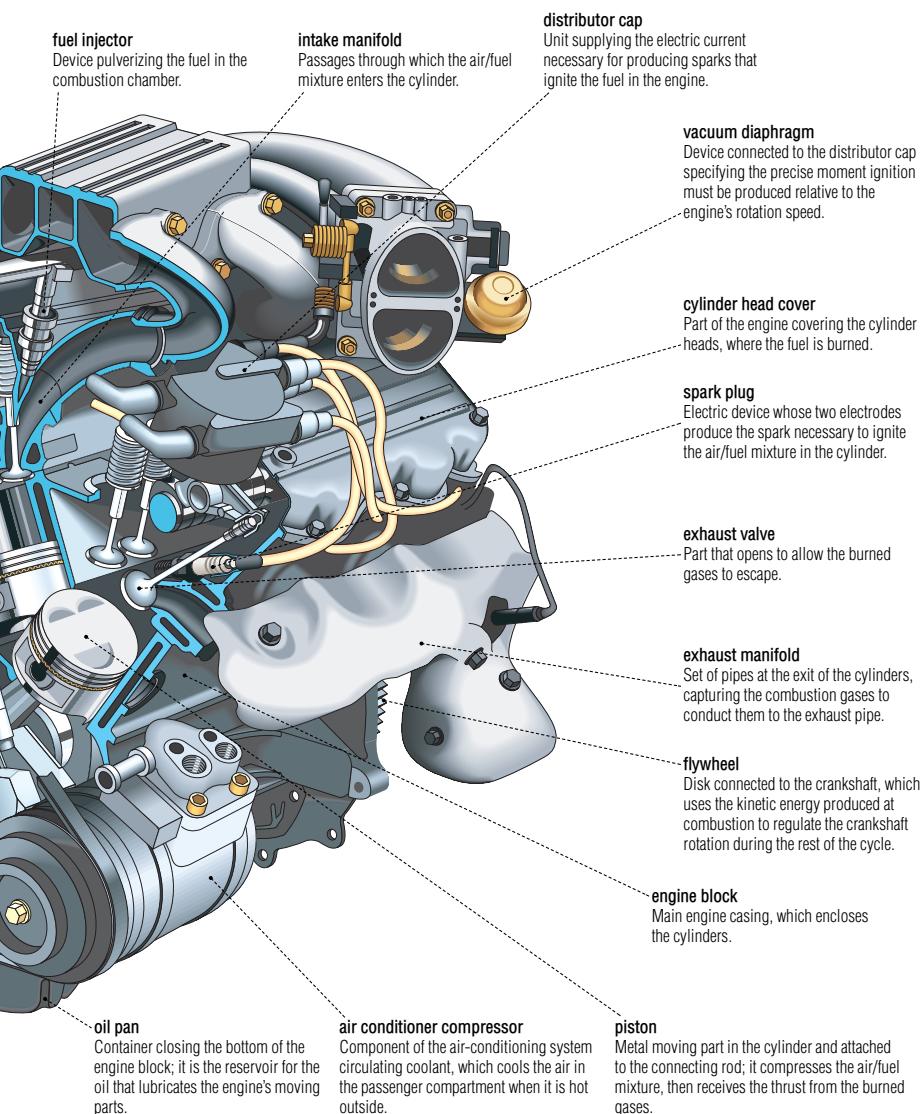
inlet valve
Part that opens to let the air/fuel mixture into the cylinder.

valve spring
Spring that brings the valve back into the closed position.



fan belt
Rubberized bands mounted on a pulley and linked to the engine, driving the fan and the alternator.

oil drain plug
Plug closing the hole at the bottom of the oil pan through which used oil is evacuated.

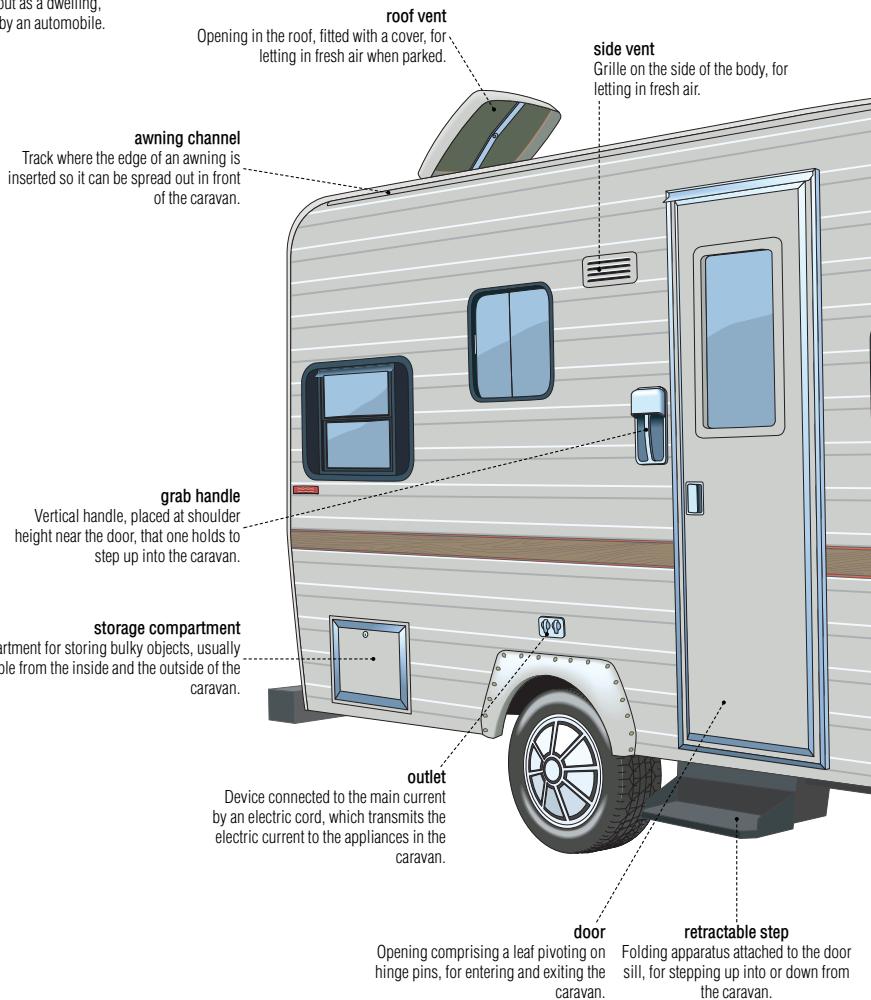


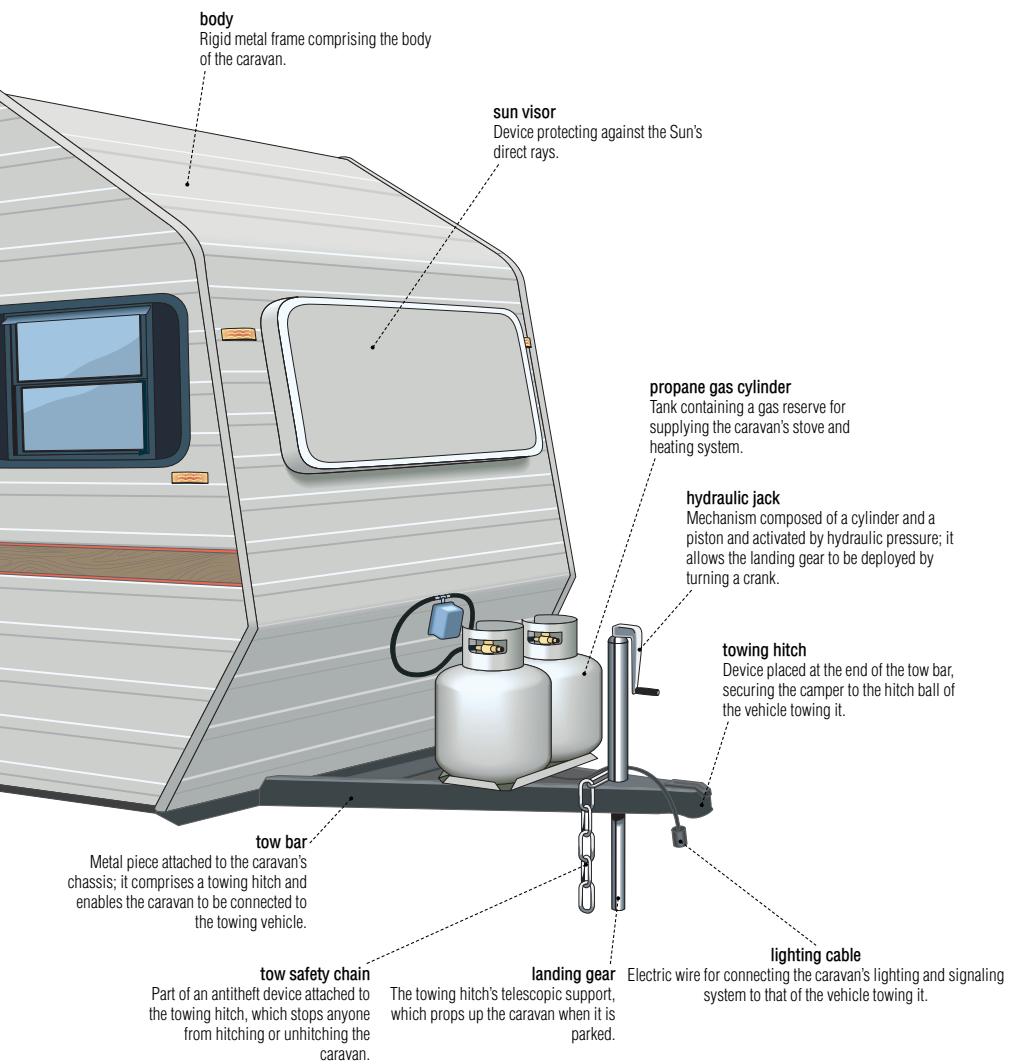
caravan

Motorized or towed vehicle fitted out as a dwelling.

trailer

Caravan fitted out as a dwelling, usually pulled by an automobile.

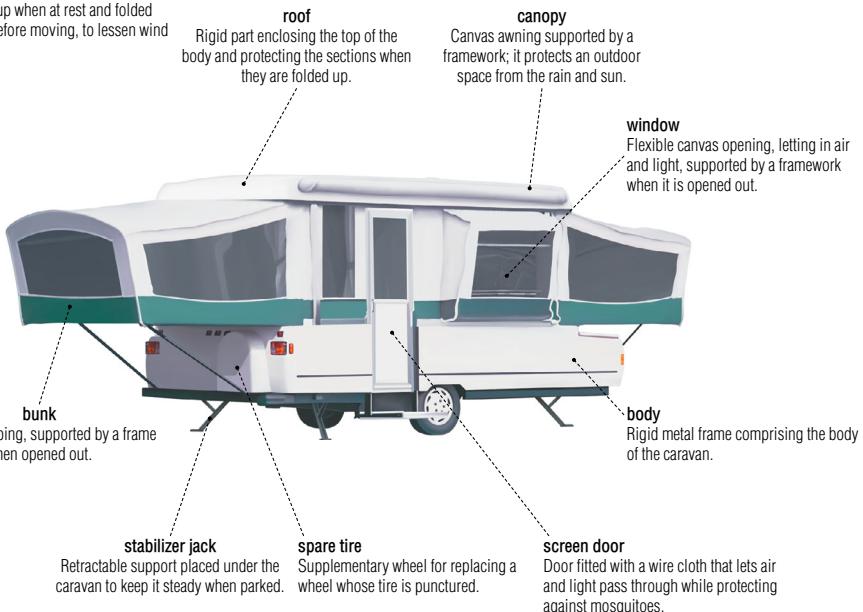




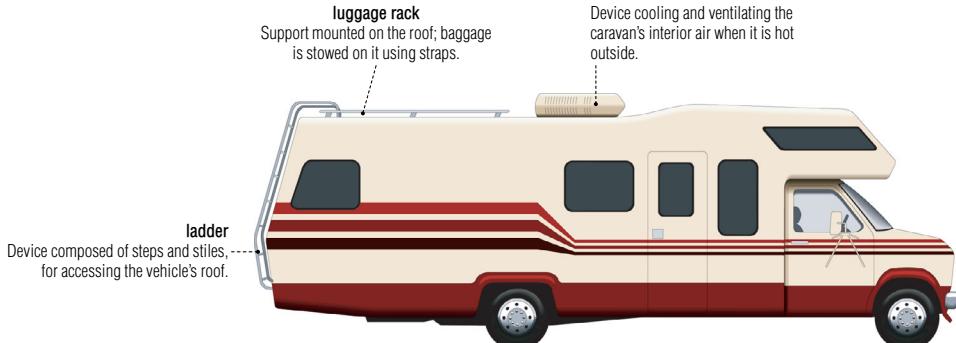
caravan

tent trailer

Caravan with a collapsible section that is opened up when at rest and folded up again before moving, to lessen wind resistance.

**motor home**

Van whose passenger compartment is fitted out as a dwelling.



Motorized vehicle for city or intercity transportation of passengers who are standing or seated.



double-deck bus

Bus equipped with two superimposed compartments, connected by stairs.

route sign

Screen usually on the front, rear and right side of the vehicle, displaying the number of the bus's route.



school bus

Motorized vehicle for transporting schoolchildren and equipped with specialized safety devices.

blinking lights

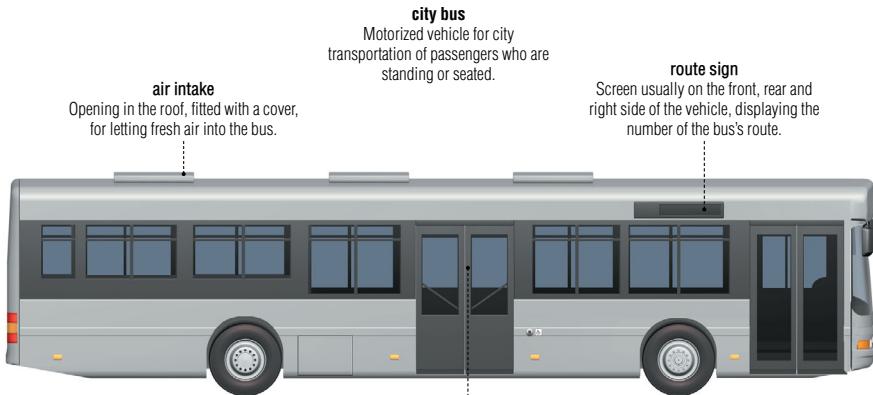
Flashing red lights at the front and rear of the bus that the driver activates at each stop to signal other vehicles to stop.

Pivoting rod deployed at each stop so that the schoolchildren stay in the driver's field of vision while passing in front of the bus.

crossover mirror

Convex mirror allowing the driver to see the front of the bus.

bus

**city bus**

Motorized vehicle for city transportation of passengers who are standing or seated.

air intake

Opening in the roof, fitted with a cover, for letting fresh air into the bus.

route sign

Screen usually on the front, rear and right side of the vehicle, displaying the number of the bus's route.

two-leaf door

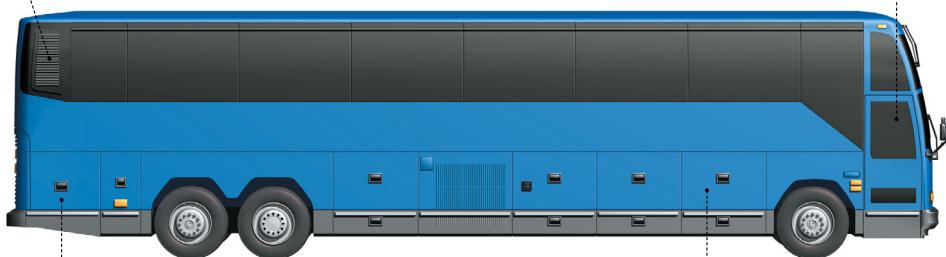
Wide door divided into two movable parts, which double back to each side to allow several people to pass through at once.

coach

Motorized vehicle for intercity transportation of seated passengers over medium and long distances.

engine air intake

Opening through which outside air enters the vehicle's engine.

entrance door**engine compartment**

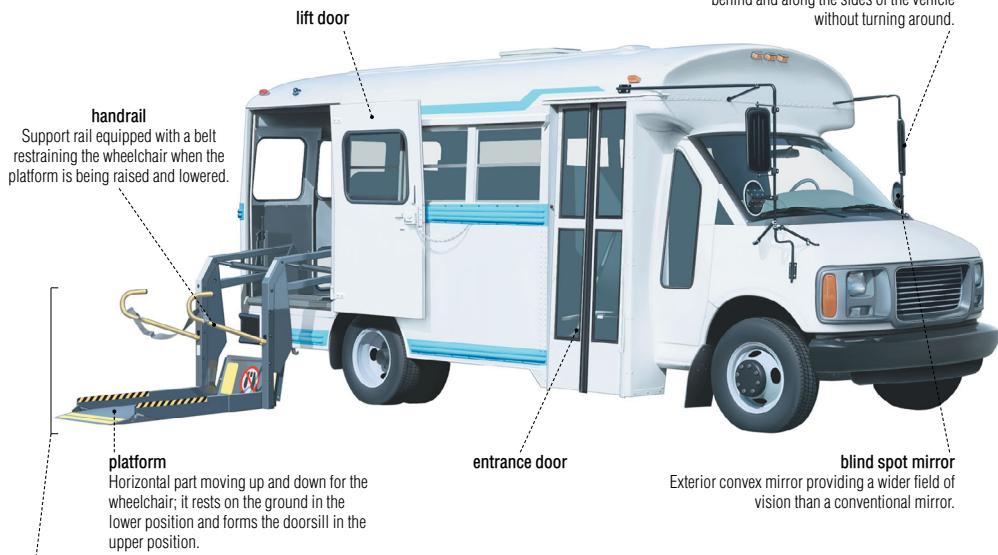
Housing for the engine under the vehicle's chassis, accessible by a door.

baggage compartment

Large compartment beneath the vehicle's floor, fitted with side doors, in which passengers' baggage is deposited.

minibus

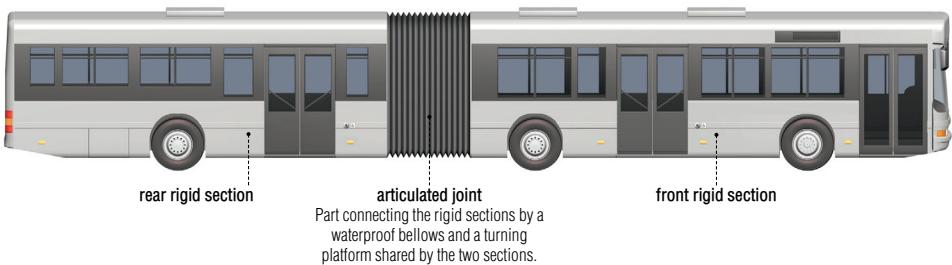
Motorized vehicle for transporting about 10 passengers, sometimes equipped with a lift for wheelchairs.

**wheelchair lift**

Electric lifting device deployed so that a person in a wheelchair can be raised into and lowered from a minibus.

articulated bus

Bus with two aligned compartments, connected by an articulated joint.

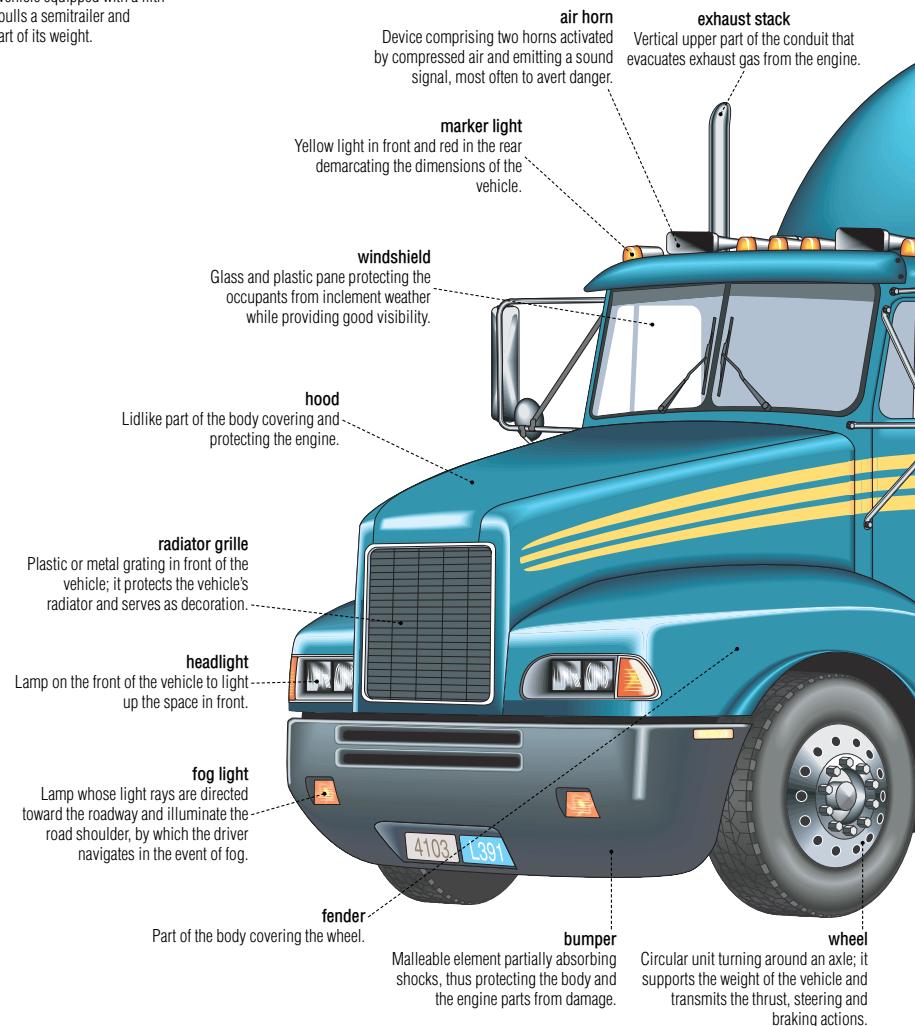


truck

Transportation of cargo by truck.

truck tractor

Motorized vehicle equipped with a fifth wheel that pulls a semitrailer and supports part of its weight.



wind deflector

Aerodynamic device mounted on the tractor's roof to reduce the semitrailer's wind resistance.

West Coast mirror

Mirror fixed to the outside of the passenger compartment enabling the driver to see behind and along the sides of the vehicle without turning around.

sleeper-cab

Part behind the cab fitted out with a bed or bunk beds and storage space.

grab handle

Vertical handle placed at shoulder height near the door, for gripping while climbing up to or down from the cab.

storage compartment

Compartment for storing bulky objects, usually accessible from the inside and outside of the cab.

fifth wheel

Coupling device enabling the tractor to be connected to the semitrailer and supporting its front portion.

tire

Circular deformable unit made of rubber, mounted on the wheel and inflated with air, providing the connection between the truck tractor and the road, and absorbing the unevenness of the road.

step

Tread or set of treads built into the body for climbing up to or down from the cab.

fuel tank

Reservoir containing the diesel fuel that makes the vehicle self-sufficient.

filler cap

Part screwed into the fuel filler neck to close it.

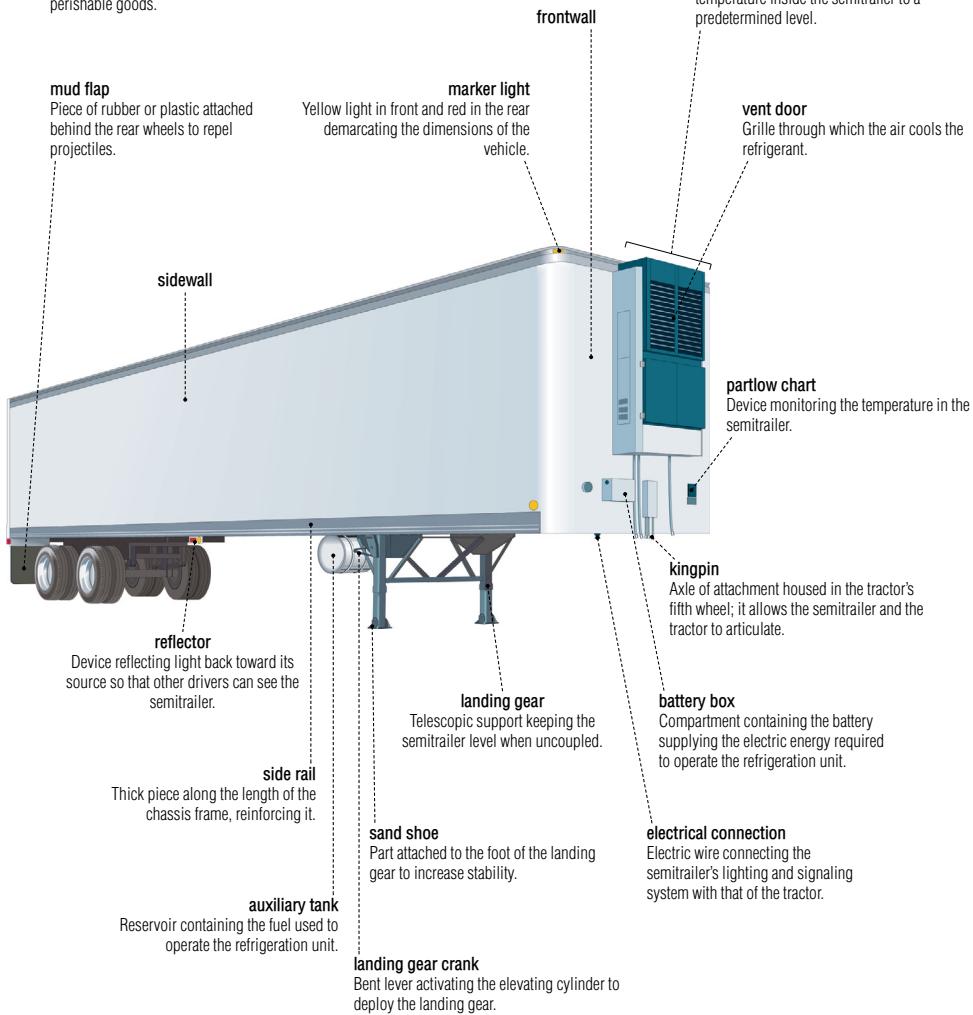
mud flap

Piece of rubber or plastic attached behind the rear wheels to repel projectiles.

truckling

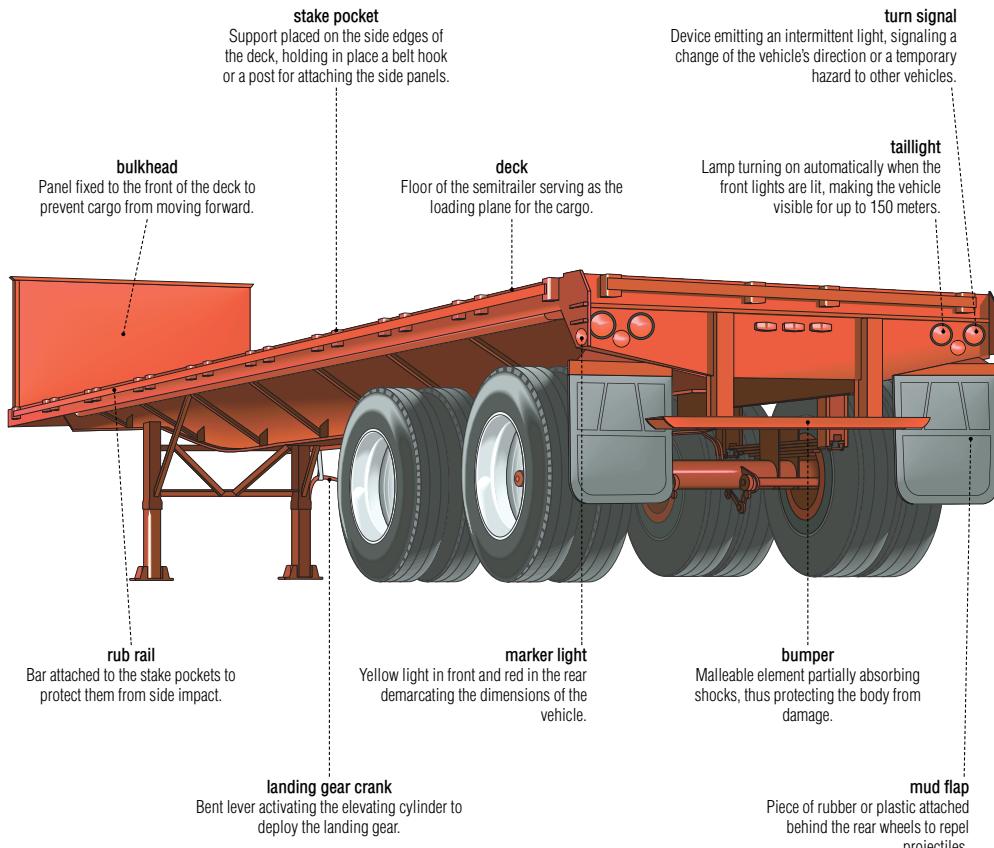
refrigerated semitrailer

Semitrailer equipped with a refrigeration unit and an insulated compartment for transporting perishable goods.



flatbed semitrailer

Semitrailer composed of a platform around which detachable side panels can be placed.



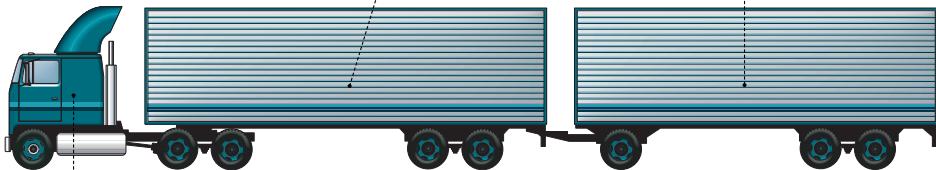
truckling

examples of semitrailers

Semitrailers: trailers whose front portion is equipped with a kingpin for coupling them to a tractor.

tandem tractor trailer

Set of vehicles comprising a tractor, a semitrailer and a trailer.

**truck tractor**

Motorized vehicle equipped with a fifth wheel that pulls a semitrailer and supports part of its weight.

semitrailer

Trailer whose front part is equipped with a kingpin for coupling it to the tractor.

truck trailer

Motorless vehicle for transporting cargo and connected by a coupling bar to the vehicle towing it.

tank trailer

Semitrailer for transporting bulk products in liquid, powder or gas form.

**container semitrailer**

Semitrailer comprising only a chassis; containers of standard sizes are loaded on it to transport cargo.

**twist lock**

Locking mechanism housed in each bottom corner of the container to secure it to the semitrailer.

double drop lowbed semitrailer

Semitrailer for transporting heavy machinery.

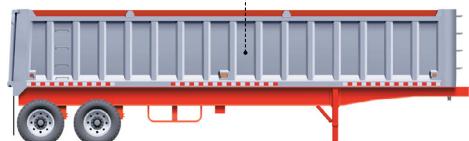


**automobile transport semitrailer**

Semitrailer equipped with several sloped platforms for transporting vehicles.

dump body

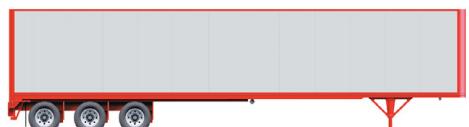
Open or closed container; when raised by the elevation cylinder, it discharges its bulk material.

**dump semitrailer**

Semitrailer equipped with a dump body for transporting in bulk.

**chip van**

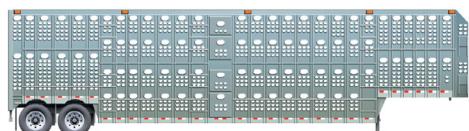
Semitrailer designed to transport wood in chip form.

**van body semitrailer**

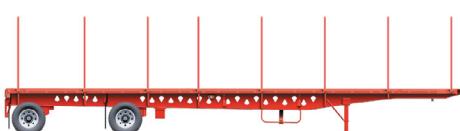
Semitrailer comprising a closed box, rigid or made of thick fabric (tarpaulin and sliding curtains).

**refrigerated semitrailer**

Semitrailer equipped with a refrigeration unit and an insulated compartment for transporting perishable goods.

**possum-belly body semitrailer**

Semitrailer designed to transport livestock; it comprises several perforated compartments.

**log semitrailer**

Semitrailer with folding side posts for transporting tree trunks.

truckling

examples of trucks

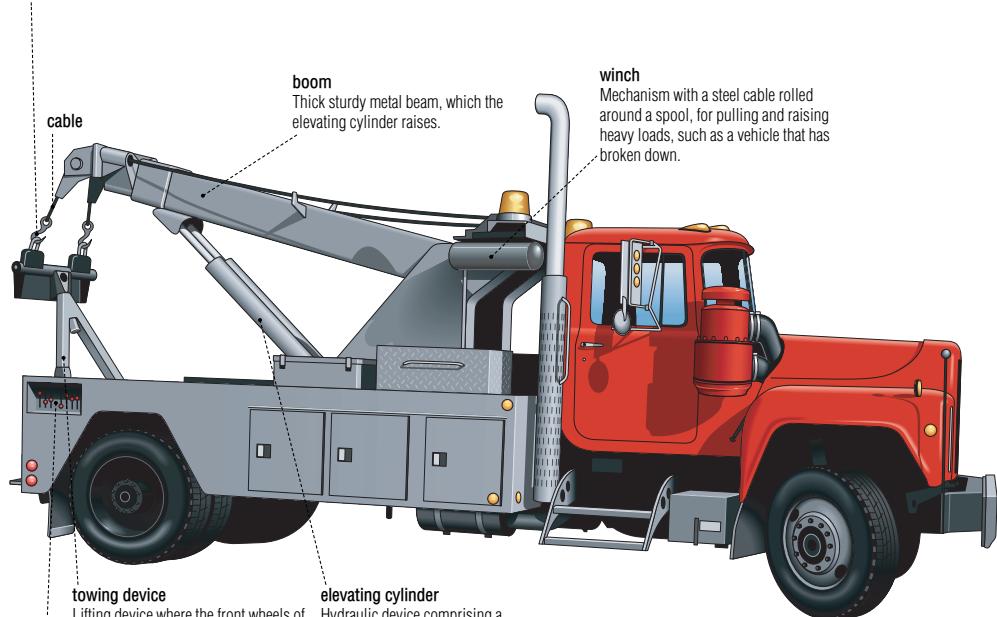
Trucks: motorized vehicles for transporting cargo and providing maintenance and safety.

tow truck

Truck for towing vehicles that have broken down.

hook

Part that is detached from the towing device while the vehicle's front wheels are placed in position, then reattached to raise it.



**van straight truck**

Truck whose box is rigid and closed.

**dump body**

Open or closed container; when raised by the elevation cylinder it discharges its bulk material.

dump truck

Truck equipped with a dump body; it is used for bulk transport.

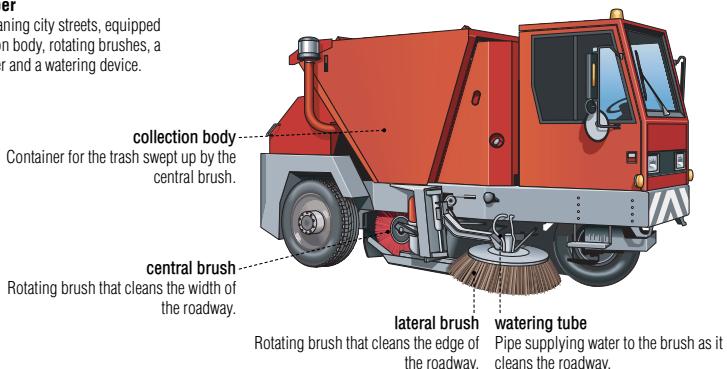
**cesspit emptier**

Truck equipped with a tank, a pump and a long pipe, for emptying septic tanks and other pipes.

truckling

street sweeper

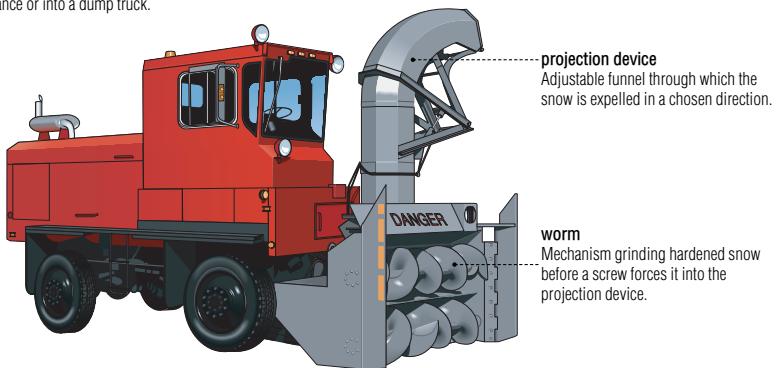
Vehicle for cleaning city streets, equipped with a collection body, rotating brushes, a vacuum cleaner and a watering device.

**detachable body**

Truck for transporting containers, which it loads and unloads using a mechanical arm.

**snowblower**

Vehicle with a mechanism that draws up snow from the road and projects it some distance or into a dump truck.



loading hopper

Large reservoir that takes the trash bags and then feeds them to the packer body.

packer body

Bin equipped with a hydraulic system that compresses household trash.

collection truck

Dump truck for collecting household trash.

**tank body**

Closed tank divided into several compartments of various sizes.

tank truck

Truck for transporting bulk products in liquid, powder or gas form.

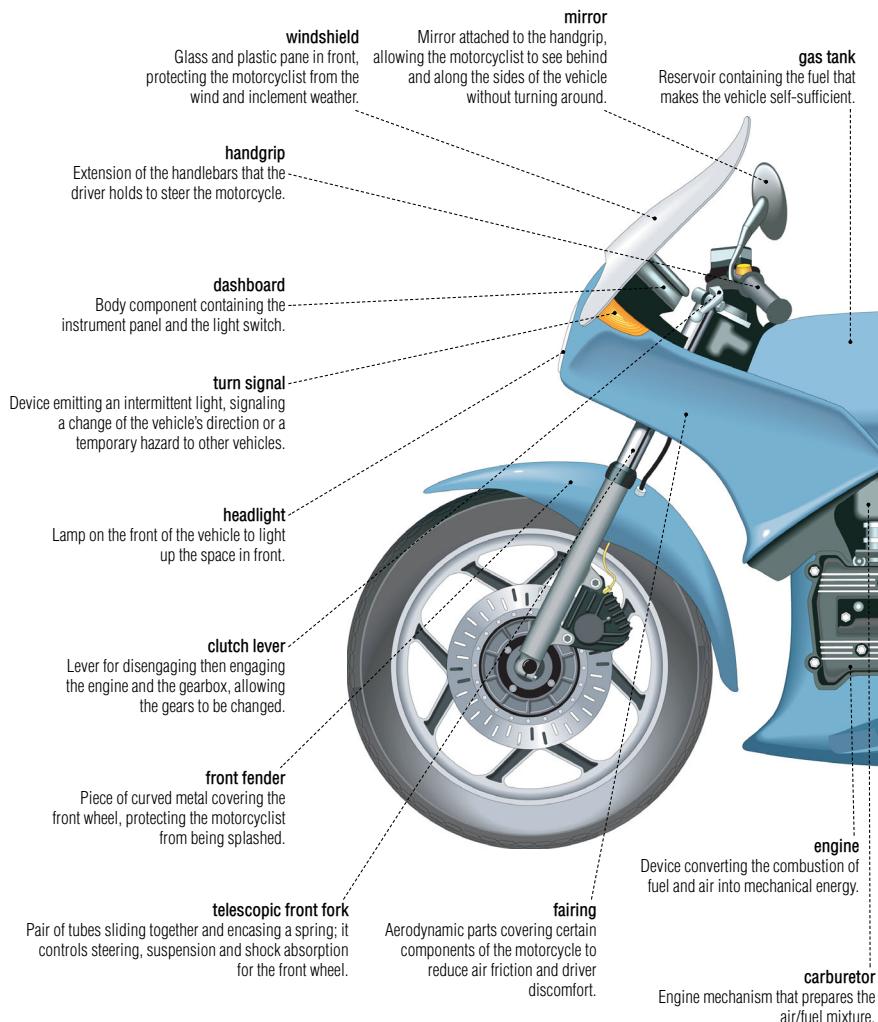
**concrete mixer truck**

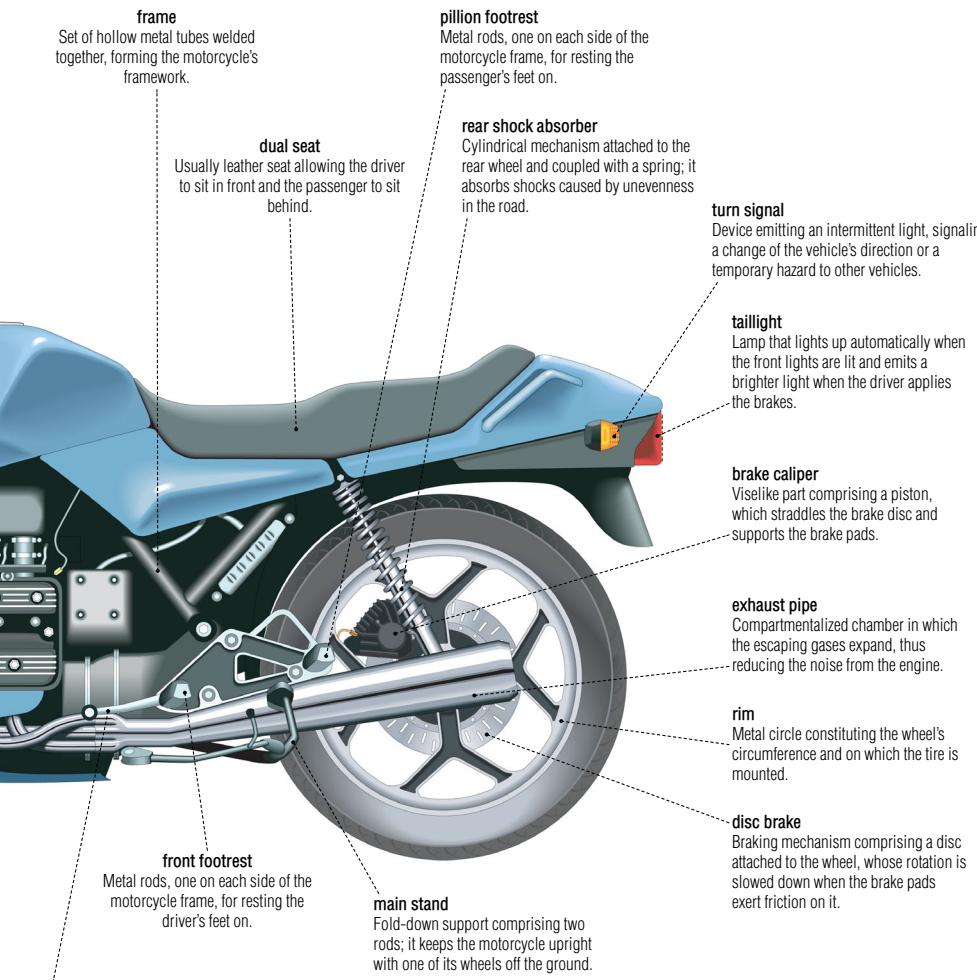
Truck equipped with a rotating tub, for transporting fresh cement, which it pours out down a chute.



motorcycle

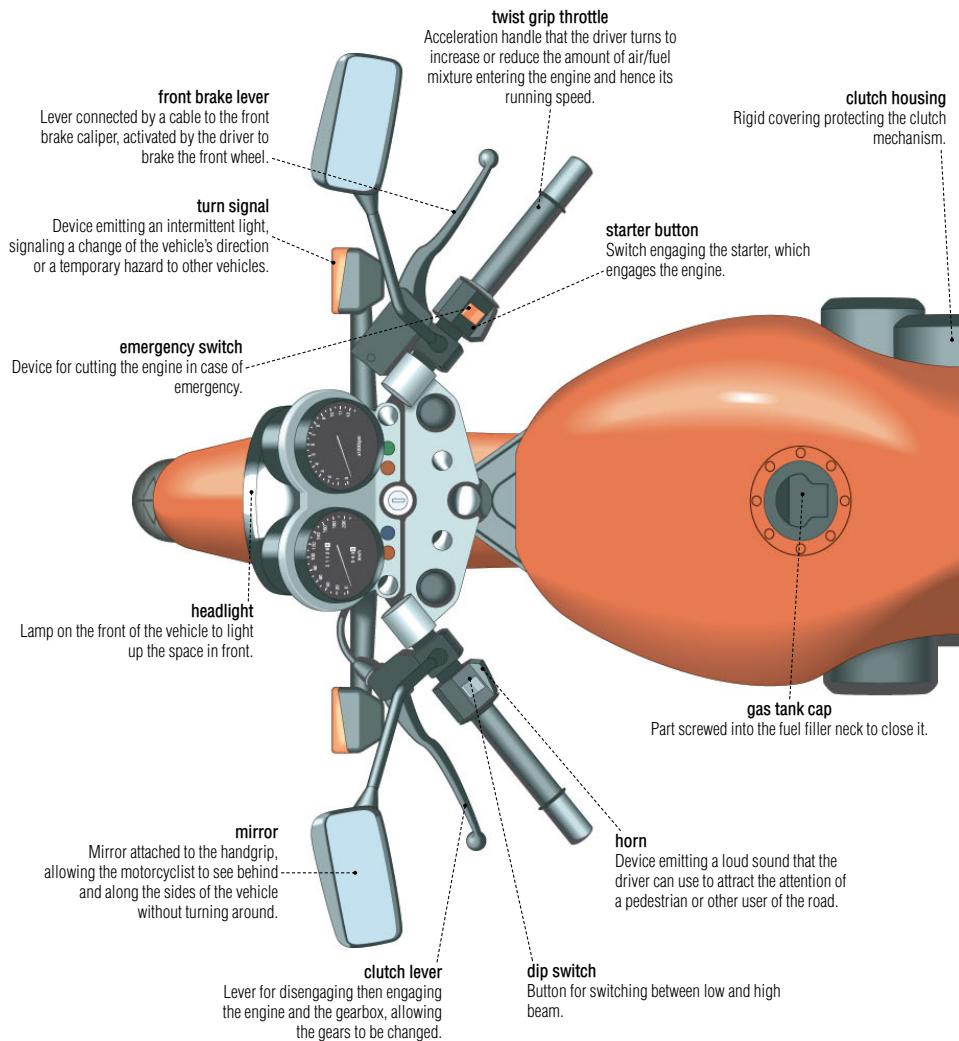
Two-wheeled motorized vehicle whose engine cylinder is larger than 125 cubic centimeters.

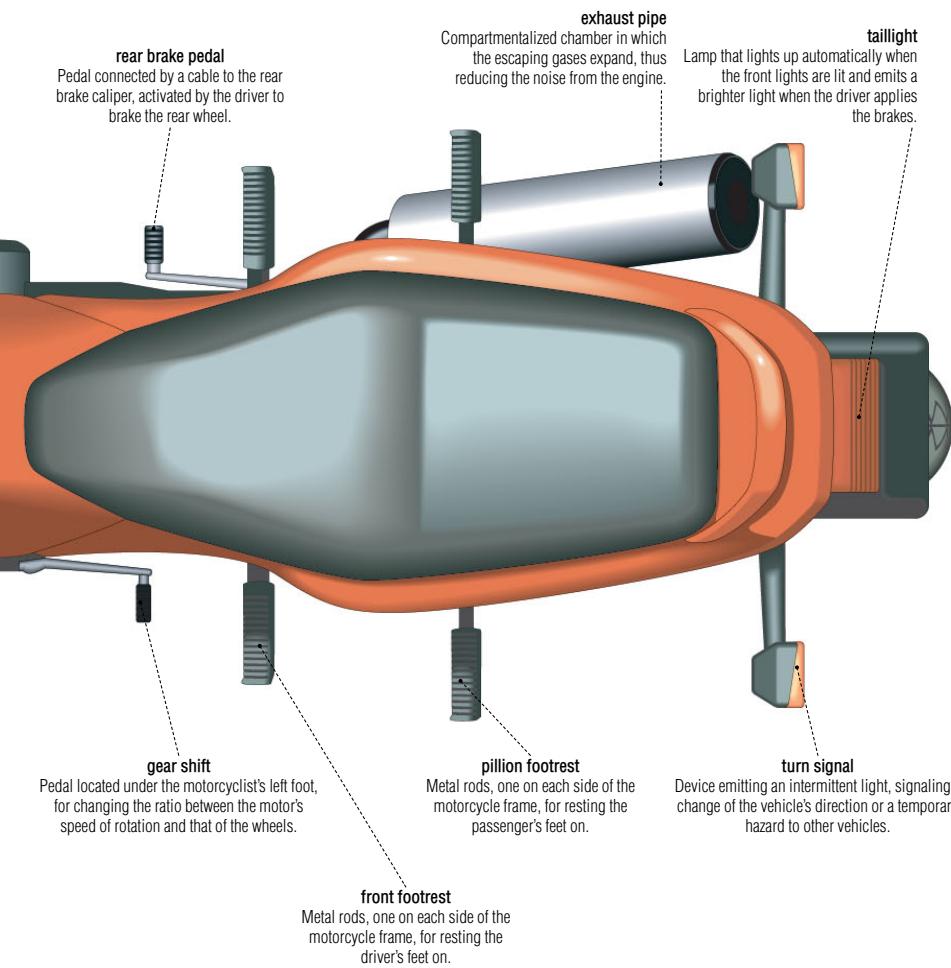




motorcycle

motorcycle: view from above





motorcycle**protective helmet**

Rigid headgear covering the head to protect it in the event of accident.

bubble

Exterior surface made of durable materials (thermoplastic or composite materials) that absorb shocks.

**motorcycle dashboard**

Body component containing the instrument panel and the ignition switch.

high beam warning indicator

Light showing that the high beam is lit.

tachometer

Dial showing the engine's rotation speed in revolutions per minute.

speedometer

Dial showing the speed at which the vehicle is moving, in kilometers or miles per hour.

**oil pressure warning indicator**

Light showing that the oil pressure in the engine's lubrication system is below the minimum necessary.

neutral indicator

Light showing that none of the gears is engaged; that is, the engine's rotation is not being transmitted to the wheels.

ignition switch

Switch activated by a contact key allowing a current from the battery to flow to the starter.

turn signal indicator

Intermittent light, often accompanied by a sound, showing that a turn signal is in use.

examples of motorcycles

off-road motorcycle

Motorcycle designed for traveling over rough terrain, with features such as a raised engine, extended suspension, elevated muffler and tires with studs.

**knobby tread tire**

Tire whose tread is fitted with blocks of rubber, providing better traction on rough terrain.

windshield

Glass and plastic pane in front, protecting the motorcyclist from the wind and inclement weather.

touring motorcycle

Motorcycle providing comfort for the driver and the passenger, with features such as wide fairing, extended handgrips and footrests for stretching the legs.

**saddlebag**

Usually rigid and waterproof luggage, attached to each side of the passenger seat.

driver seat

Usually leather, individual seat, sometimes equipped with a back, for the driver to sit.

motorcycle**motor scooter**

Motorized vehicle with two small wheels, embellished with fairing, characterized by an open frame and a flat floor.

**moped**

Vehicle designed like a bicycle, but equipped with an engine whose cylinder is no larger than 50 cubic centimeters.



Four-wheeled all-terrain vehicle (ATV) for traversing most kinds of terrain, equipped with a motorcycle engine.

rear fender

Piece of curved metal covering the rear wheel, for protecting the motorcyclist from being splashed.

rear cargo rack

Support at the rear of the vehicle, for attaching a trunk or for lashing down luggage using straps.

gas tank
Reservoir containing the fuel that makes the vehicle self-sufficient.**handgrip**

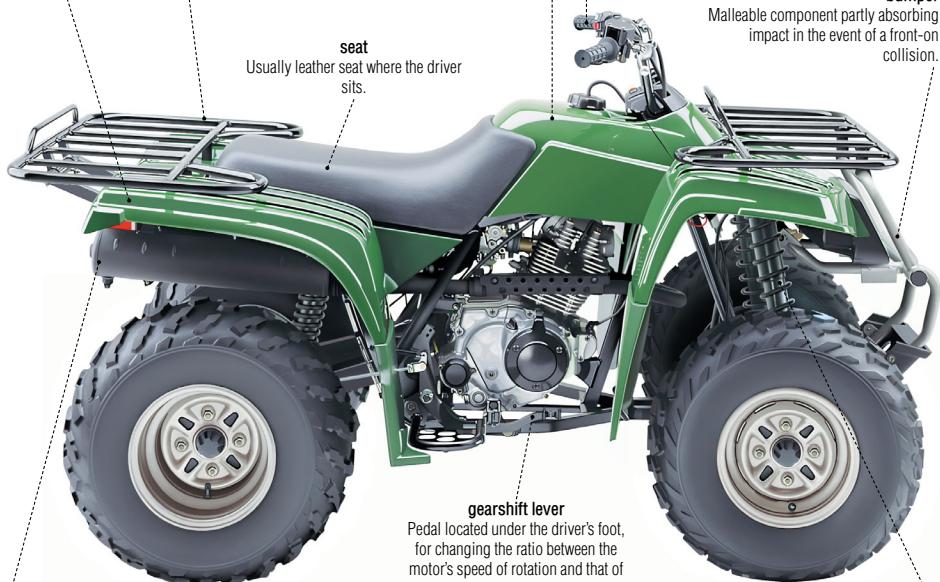
Extension of the handlebars used for steering the ATV.

bumper

Malleable component partly absorbing impact in the event of a front-on collision.

seat

Usually leather seat where the driver sits.

**muffler**

Compartmentalized chamber in which the escaping gases expand, thus reducing the noise from the engine.

gearshift lever

Pedal located under the driver's foot, for changing the ratio between the motor's speed of rotation and that of the wheels.

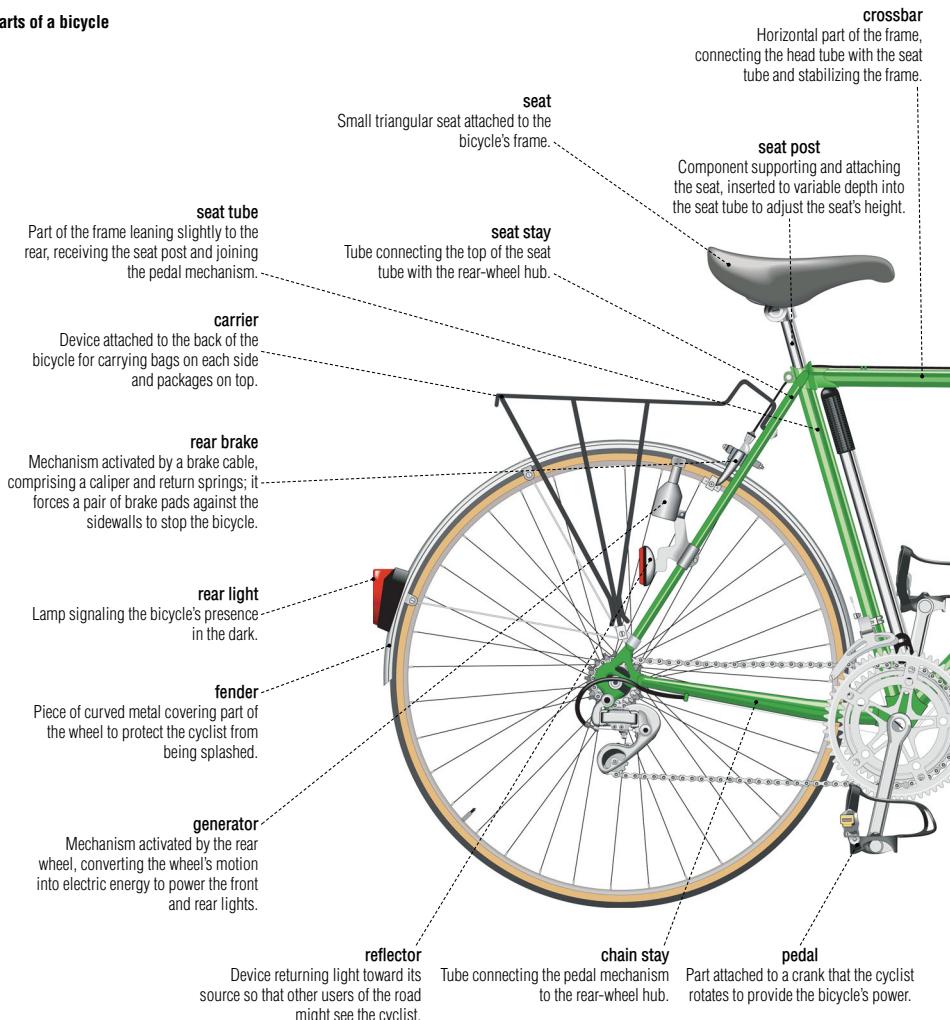
front shock absorber

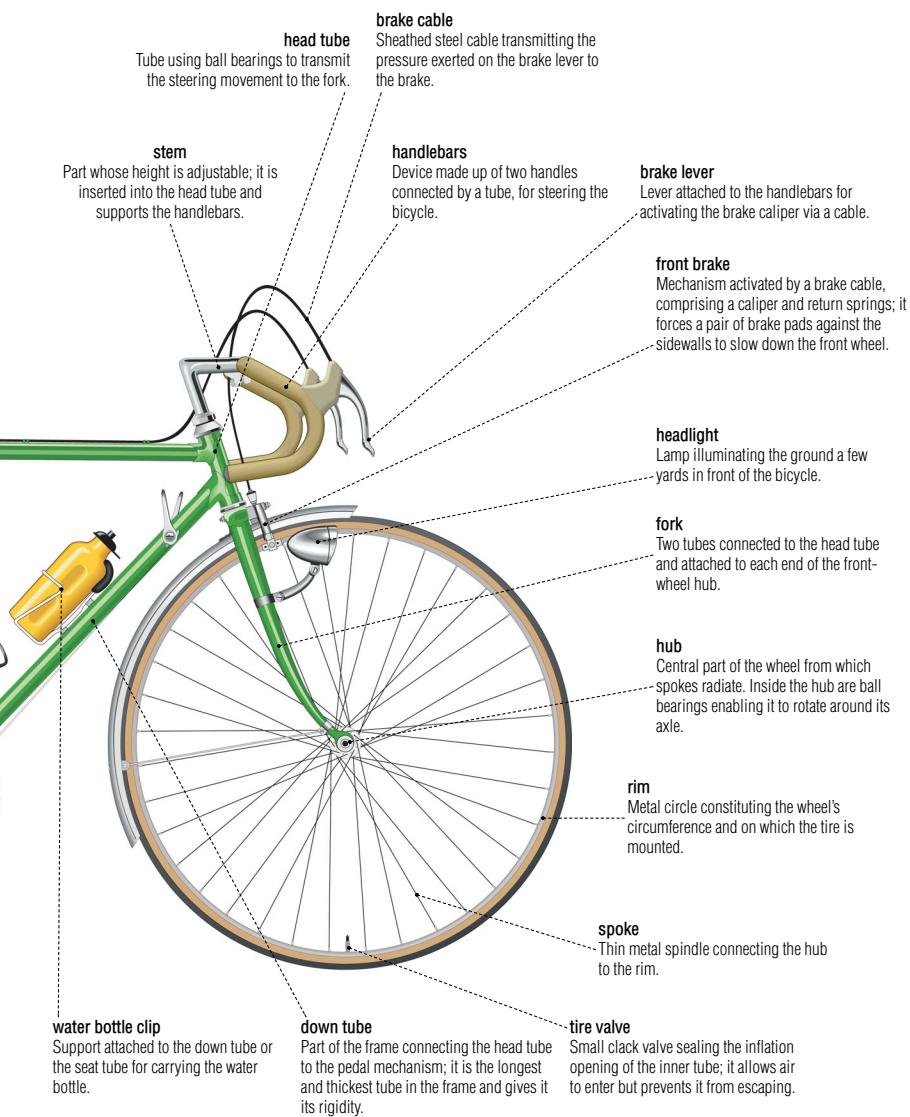
Cylindrical mechanism attached to the front wheel and coupled with a spring; it absorbs shocks caused by unevenness in the road.

bicycle

Frame vehicle steered by the front wheel and propelled by the rear wheel, which in turn is driven, via a chain, by a pedal mechanism.

parts of a bicycle





bicycle

power train

Set of parts (axle, chain wheel, cranks and pedals) transmitting the force exerted by the cyclist on the pedals to the rear wheel.

chain guide

Part of the derailleur moving the chain from one chain wheel to the other.

front derailleur

Mechanism for changing the front gears by lifting the chain from one chain wheel to another; it allows the cyclist to adapt to road conditions.

shifter

Lever for changing gears via a cable moving the derailleur.

freewheel

Mechanism attached to the rear-wheel hub allowing it to continue turning when the cyclist stops pedaling.

chain

Set of metal links meshing with the sprockets on the chain wheel and gear wheel to transmit the pedaling motion to the rear wheel.

toe clip

Metal device attached to the pedals that covers the front of the feet, keeping the foot in the proper position and increasing pedaling power.

control cable

Wire made of steel strands transmitting the action exerted on the shifter to each derailleur.

chain wheel A

Larger wheel with sprockets that, in combination with the rear gear wheels, increases the distance of one rotation of the pedal, and therefore the speed of the bicycle.

bottom bracket axle

Tube to which the crank is attached at each end so that one end is up when the other is down.

chain wheel B

Smaller wheel with sprockets that, in combination with the rear gear wheels, decreases the distance of one rotation of the pedal.

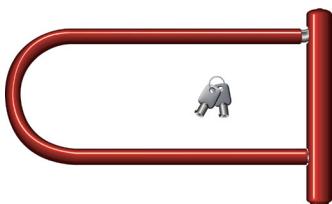
pedal**rear derailleur**

Mechanism for changing the rear gears by lifting the chain from one gear wheel to another; it allows the cyclist to adapt to road conditions.

Part attached to a crank that the cyclist rotates to provide the bicycle's power.

crank

Metal part bent at a right angle, supporting a pedal and providing a rotational movement around the pedal's axle.

**lock**

Antitheft system made up of two metal shanks, one inserted into the other and fitted with a lock, for locking the bicycle to a fixed object.

**protective helmet**

Rigid headgear covering the head to protect it in the event of accident.

**bicycle bag**

Bag that can be attached to the handlebars or the carrier.

**tool kit**

Set of tools for simple repairs and adjustments, such as fixing a flat tire, replacing spokes or adjusting brakes.

**child carrier**

Seat attached to the frame or the carrier, comprising a harness and footrests, for transporting a child.

bicycle

examples of bicycles



Dutch bicycle
City bicycle designed for comfort and in such a way that the cyclist sits upright; its features include a built-in chain guard and a drop-down fender.



BMX bike
Strong small bicycle, for acrobatics and competitions on bumpy tracks.



city bicycle
Bicycle designed for comfort and safety while taking short trips on city streets.



mountain bike
Bicycle with large wheels with treads with studs, a strong frame, numerous gears and powerful brakes, for navigating all kinds of terrain.

**road bicycle**

Bicycle with narrow tires, lightweight frame and handlebars that position the cyclist for optimum aerodynamics, designed for road racing.

touring bicycle

Intermediate bicycle between a road bicycle and a city bicycle, designed for traveling long distances in comfort.

**child's tricycle**

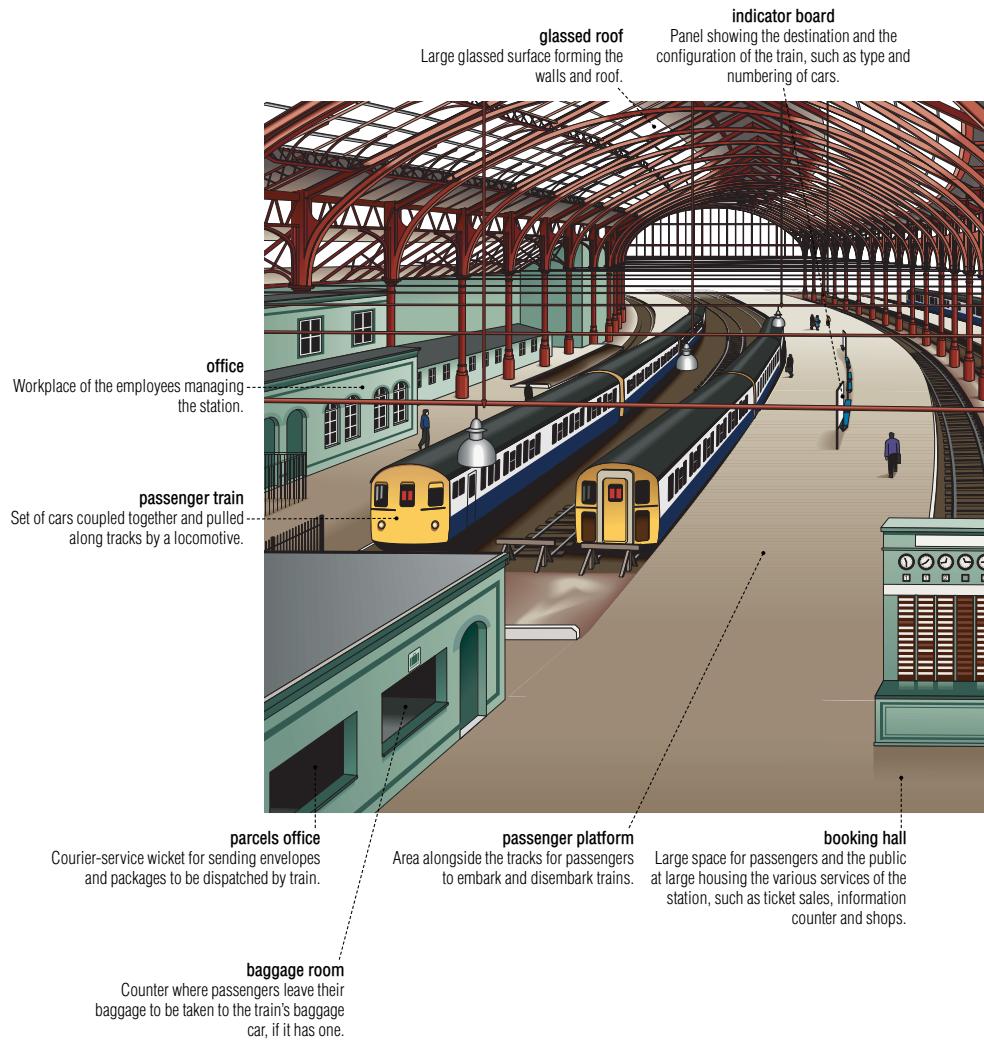
Very stable three-wheeled vehicle with pedals driving either the front wheel or the rear wheels, for the use of young children.

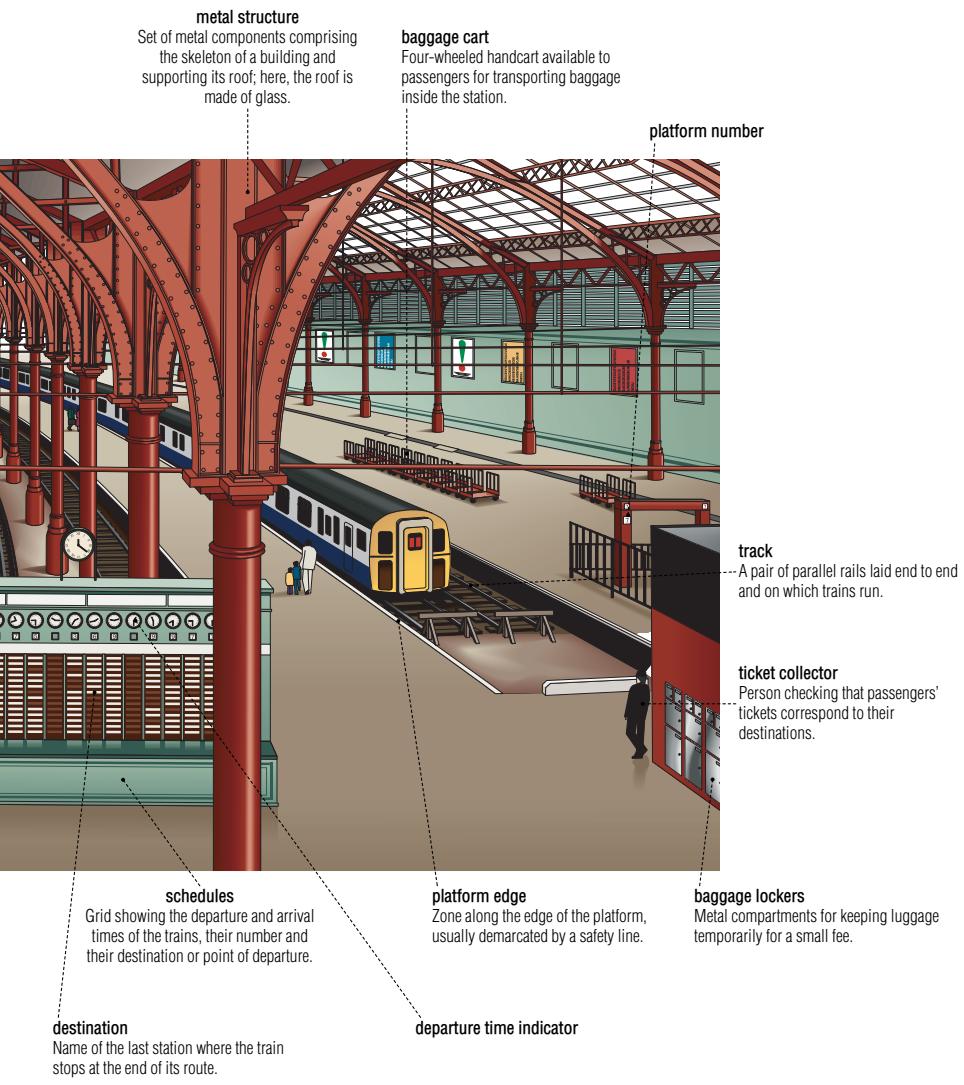
**tandem bicycle**

Bicycle with two places; both cyclists pedal simultaneously but only the person in front steers.

passenger station

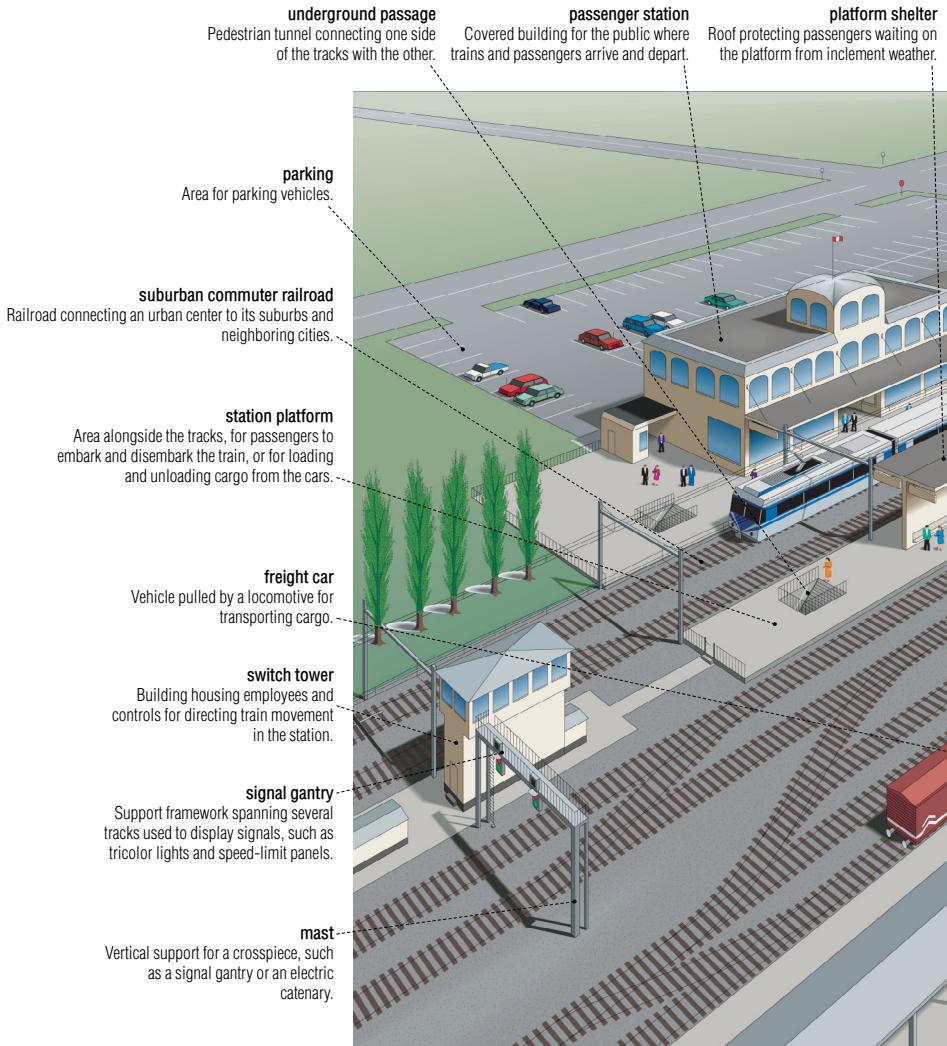
Covered building for the public where trains and passengers arrive and depart.

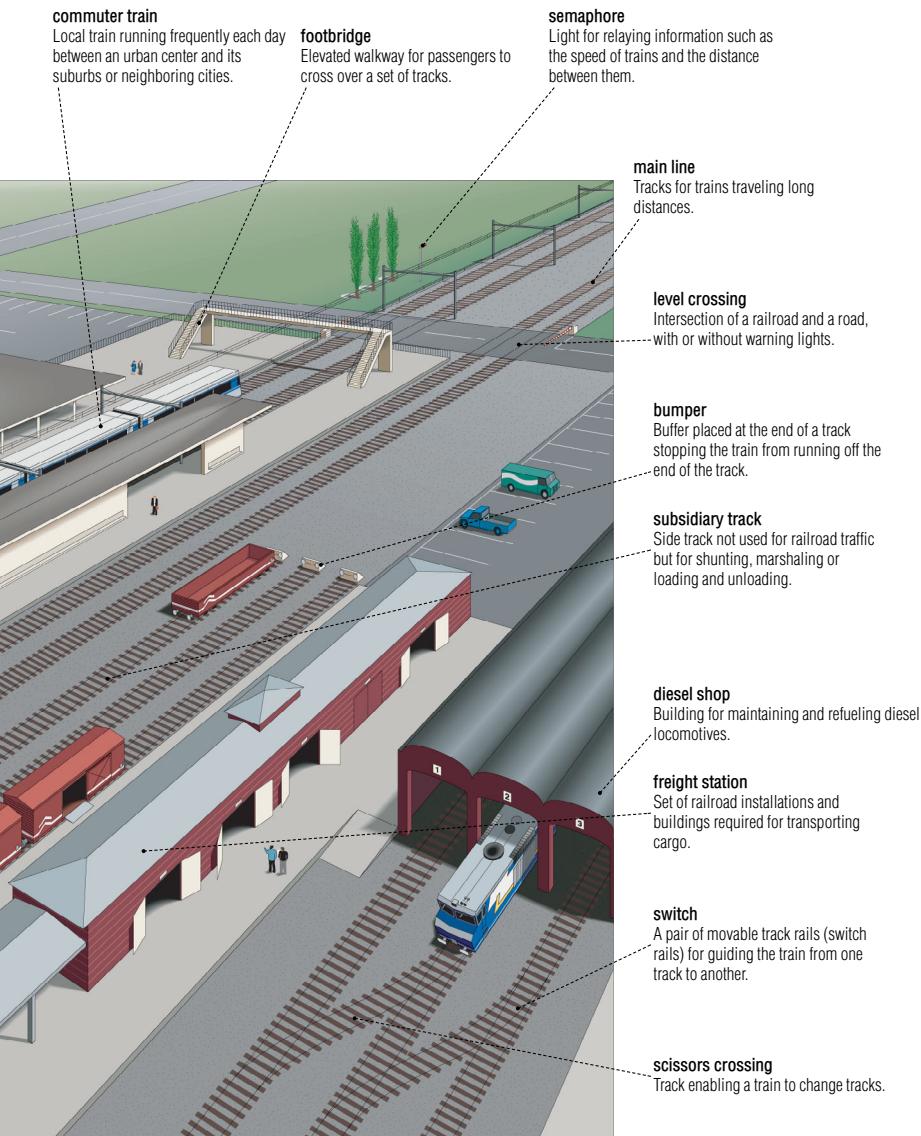




railroad station

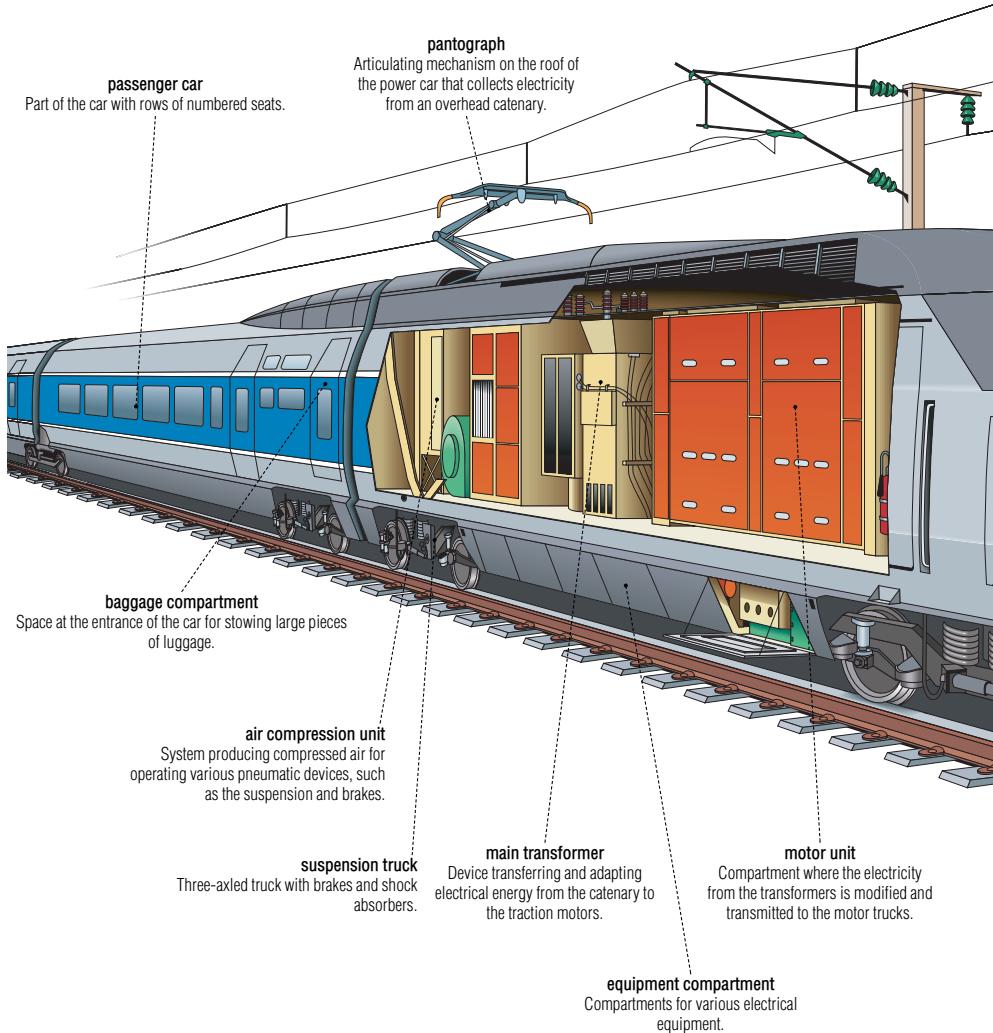
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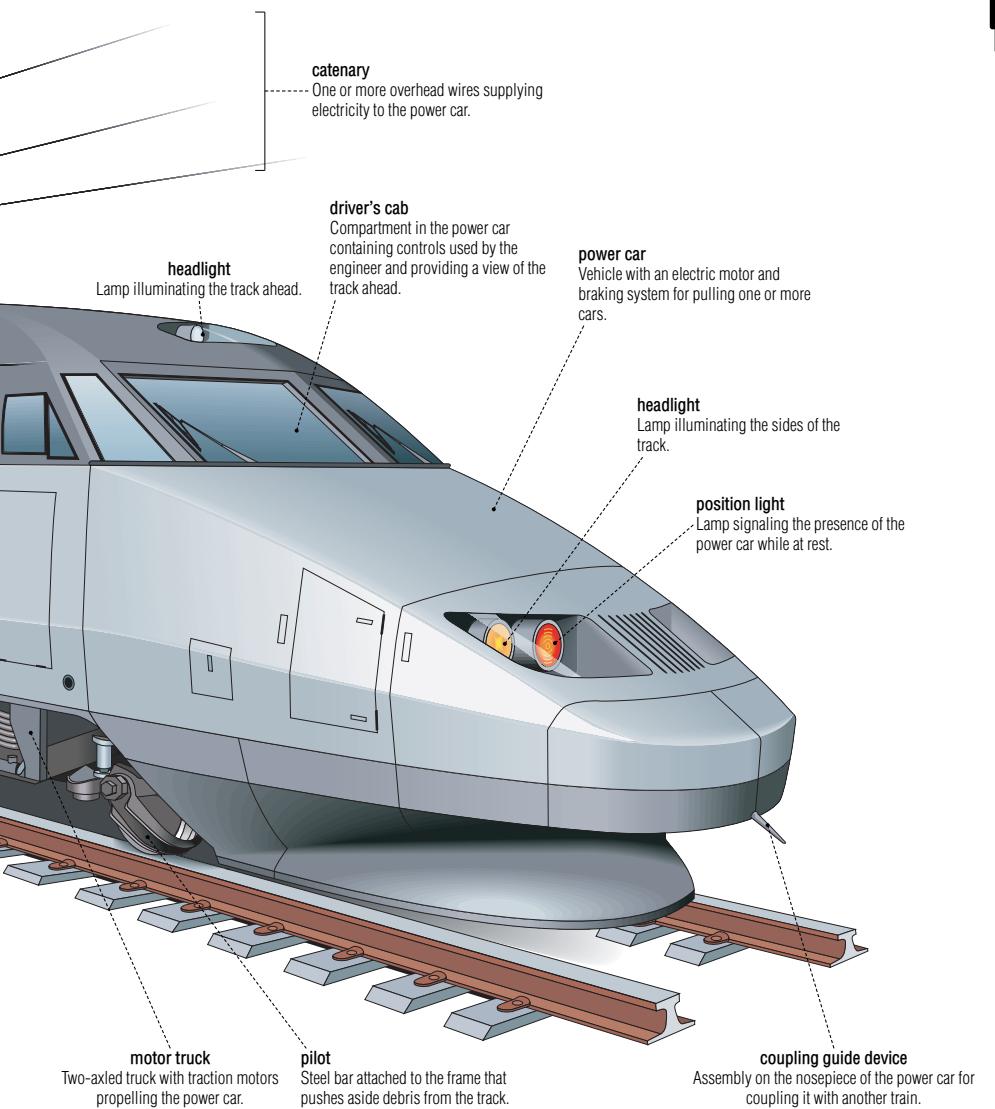




high-speed train

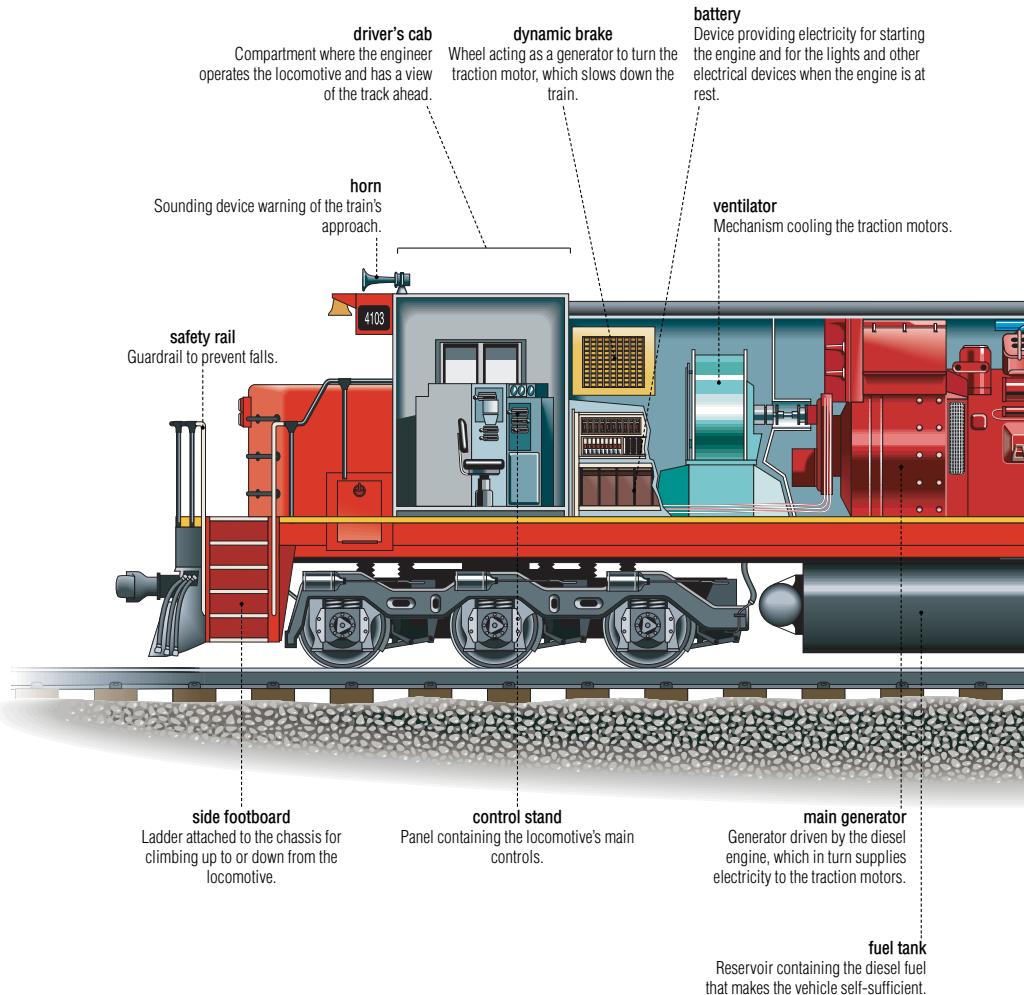
High-speed passenger train (between 135 and 190 mph) powered by electricity, with a power car at each end and a limited number of cars in between.

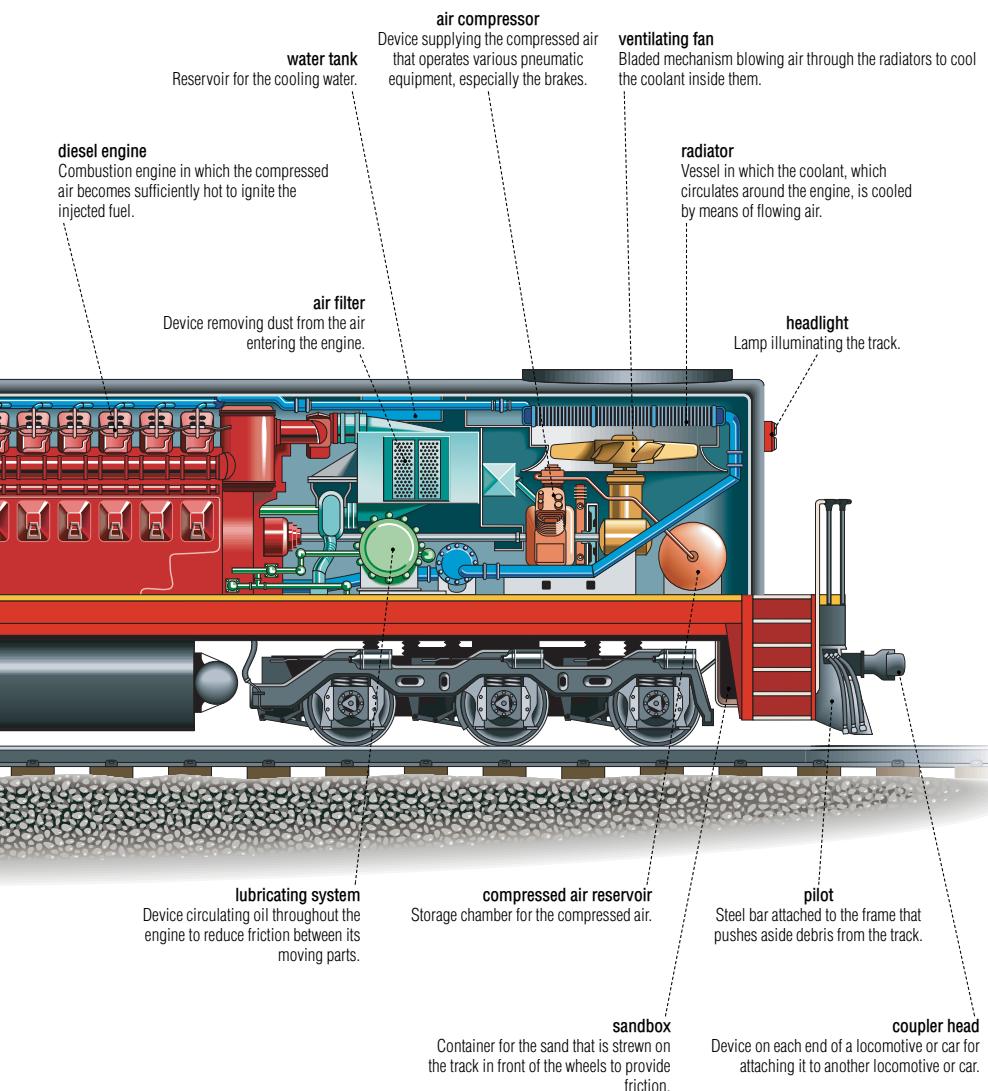




diesel-electric locomotive

Vehicle with a diesel engine turning a generator that in turn powers the electric traction motors.





diesel-electric locomotive

truck

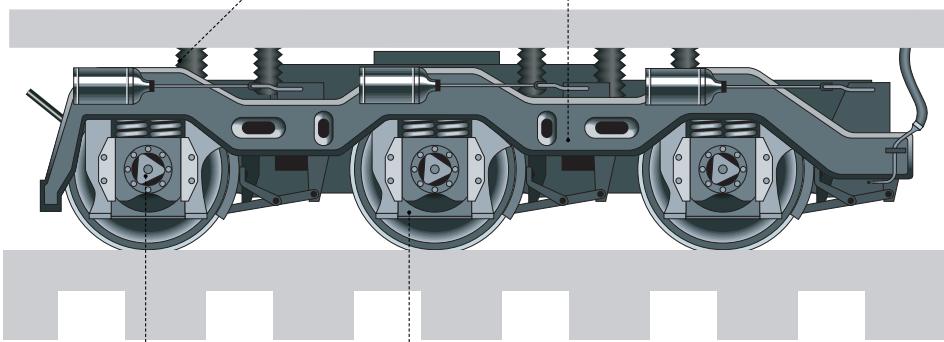
Two- or three-axed carriage whose wheels are guided by the track; it supports a locomotive or a car.

spring

Part absorbing vibrations caused by the wheels as they move along the track.

truck frame

Framework supporting the axles, suspension, brakes and traction motors.

**axle**

Transversal part under a vehicle passing through the hubs of the wheels, which support it.

journal box

Part connecting the axle to the truck frame.

types of passenger cars

Cars: vehicles with various layouts that are pulled by locomotives, for transporting and providing services to passengers.

coach car

Car with two rows of benches or seats for transporting passengers in the seated position.

**adjustable seat**

Seat whose back can be changed from a sitting position to a reclining position.

center aisle

Walkway between the two rows of benches or seats, for going from one end of the car to the other.

luggage rack

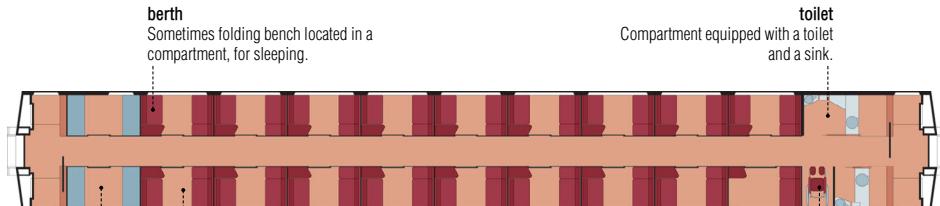
Space at the entrance of the car for stowing large pieces of luggage.

vestibule

Entrance compartment of the car.

sleeping car

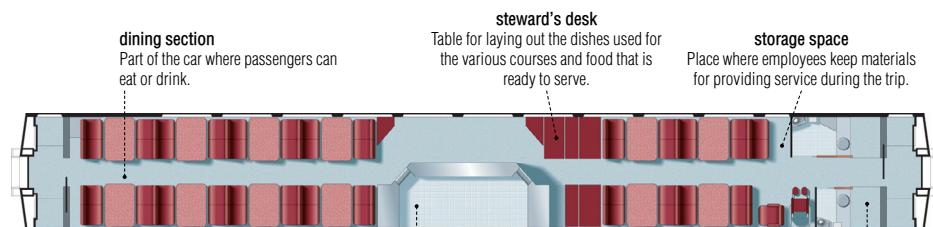
Car with compartments laid out as small bedrooms.

**linen**

Storage for linens needed for the trip, such as towels and sheets.

dining car

Car laid out for serving meals.



kitchen
Room where meals are prepared.

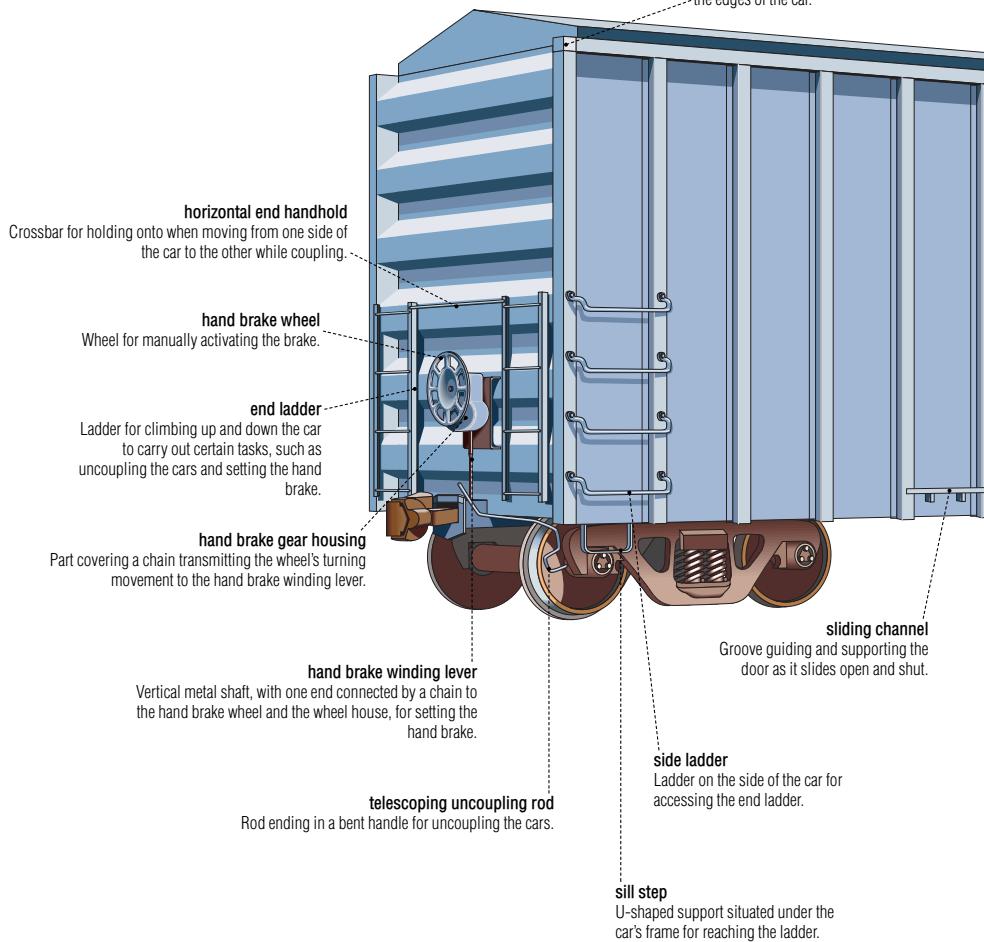
crew's locker
Compartment at the entrance where personnel can store their coats and other personal effects.

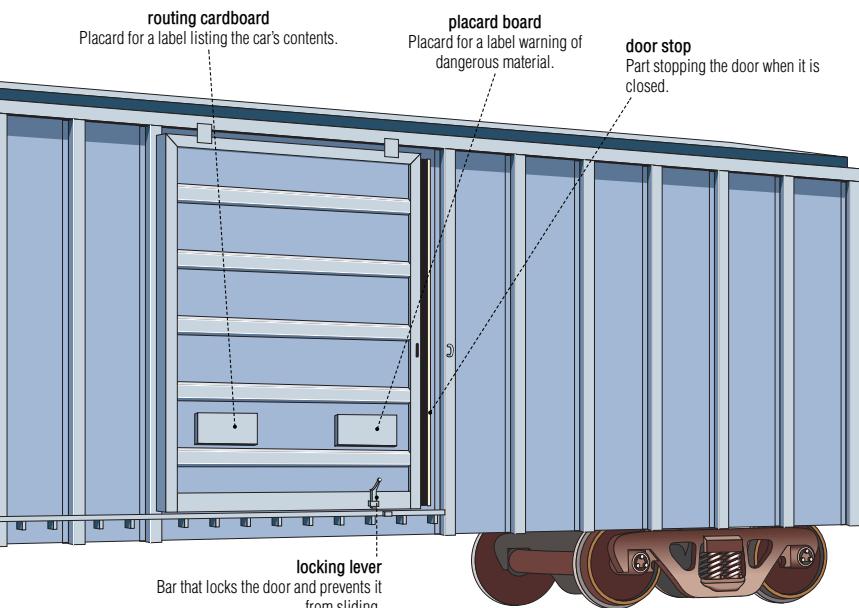
car

Vehicle pulled by a locomotive for transporting cargo.

box car

Car covered with a waterproof casing and having sliding side doors, for transporting cargo that must be protected from the weather and theft.





automatic coupler
Device on each end of a locomotive or car for attaching it to another locomotive or car.

car

examples of freight cars

The shape of the cars varies depending on the type of cargo being transported.

**flat car**

Car with a simple wooden deck for carrying large objects, such as pipes, logs and heavy machinery.

**bulkhead flat car**

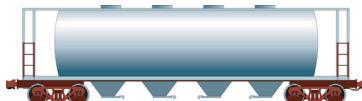
Flat car with sturdy plates at each end for carrying loose cargo (usually logs).

**depressed-center flat car**

Car with two extra trucks and a lowered deck for carrying heavy equipment.

**intermodal car**

Flat car for carrying semitrailers.

**hopper car**

Car for carrying bulk cargo; it has dump doors on the bottom for unloading the cargo.

**gondola car**

Open-top car for carrying heavy bulk material, such as scrap metal and construction material.

**hopper ore car**

Usually open-top hopper car of limited capacity for carrying minerals.

**wood chip car**

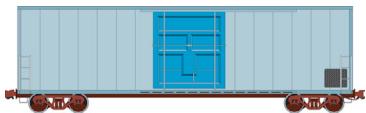
Open-top gondola car with a large compartment for carrying wood chips.

**hard top gondola**

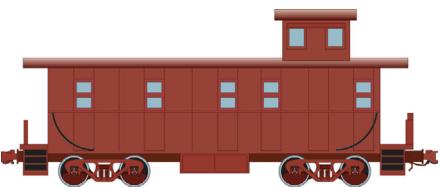
Gondola with a retractable metal roof for carrying bulk cargo.

**tank car**

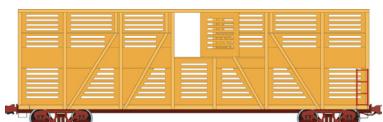
Car with a sealed reservoir for carrying liquids and gases.



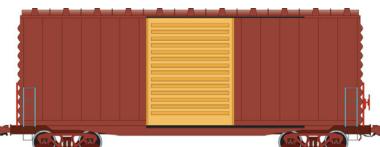
refrigerator car
Closed-box insulated car with a refrigeration unit for carrying perishable foodstuffs.



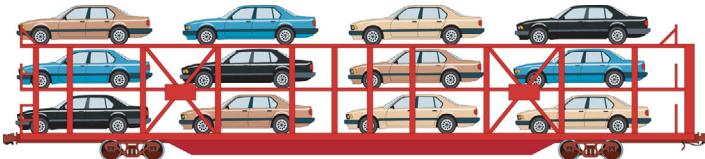
caboose
Car that is usually at the end of the train; it houses personnel, provisions and tools.



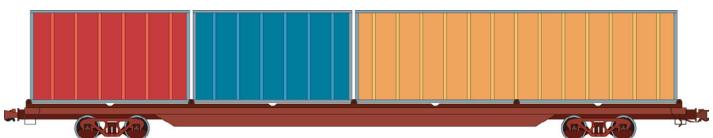
livestock car
Car with slatted sides for carrying livestock; it sometimes has two decks.



box car
Car covered with a waterproof casing and having sliding side doors, for transporting cargo that must be protected from the weather and theft.



automobile car
Multilevel car for carrying vehicles, which are strapped down.



container car
Flat car for carrying standard-size shipping boxes.

yard

Set of tracks where freight trains are reconfigured to contain cargo cars with the same destination and then dispatched.

classification yard
Set of tracks where cars are hitched together to form trains with the same destination.

outbound track
Track that leads trains out of the yard.

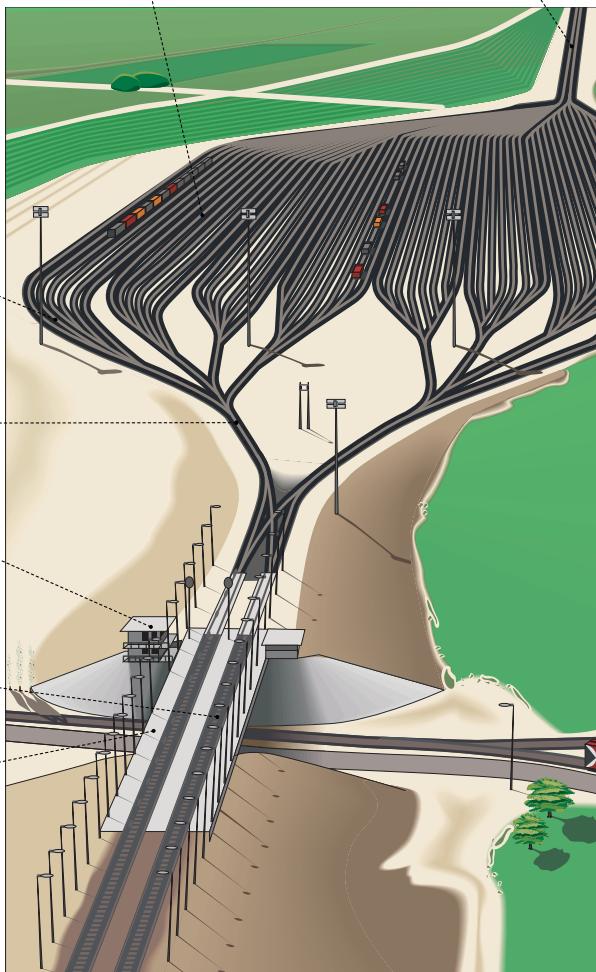
second classification track
Track where cars of known destination are assembled.

first classification track
Track where cars for the second classification track are switched.

hump office
Office where train formations are programmed and car shunting is controlled.

hump lead
Track where cars are released to coast onto other tracks for switching onto outbound trains.

hump
Sloped part of the track where cars are pushed up a hill (hump) by a locomotive.



car cleaning yard

Set of tracks where cars are cleansed of any cargo residue before going back into circulation.

water tower

Elevated reservoir containing potable water.

repair shop

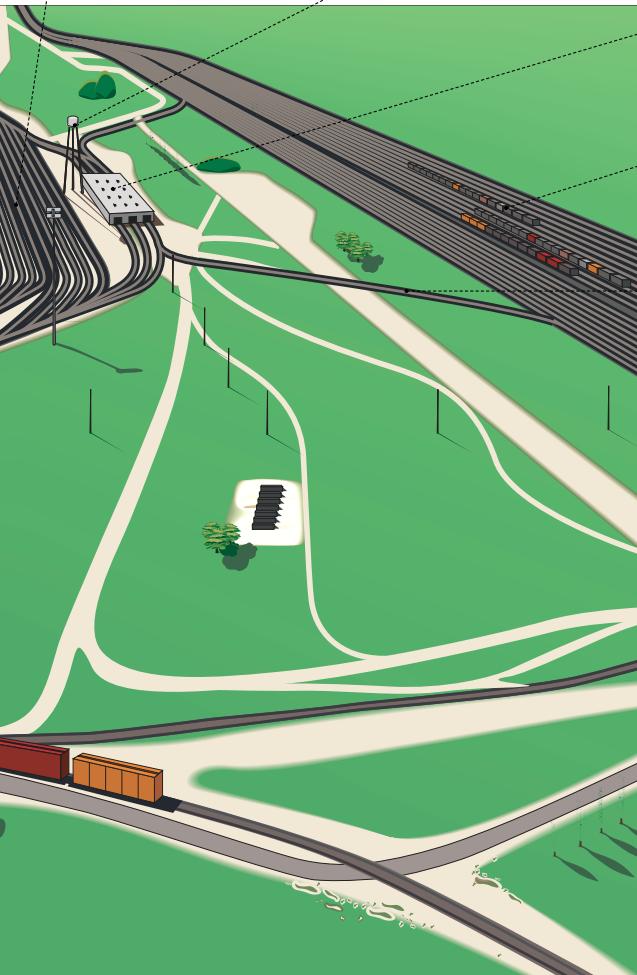
Structure for repairing and maintaining locomotives and cars.

receiving yard

Set of tracks where arriving trains park and are unhitched from their locomotives.

locomotive track

Track that leads locomotives to the shop for maintenance.



railroad track

A pair of parallel rails laid end to end and on which trains run.

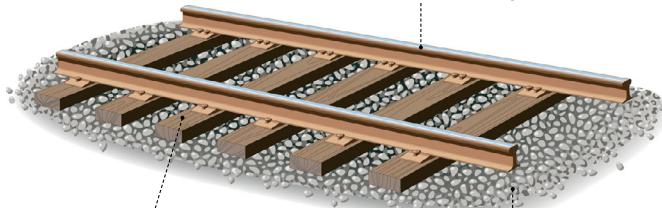
railroad track

A pair of parallel rails laid end to end and on which trains run.

rail

Steel bar of a set gauge that is attached to ties; the train's wheels roll along it.

rail section



Piece of wood or concrete that is set in ballast and supports the rails to distribute the train's load and keep the rails parallel.

ballast

Bed of gravel that serves as the foundation for the tracks and provides drainage.

head

Upper horizontal part of the rail on which the wheels roll.

web

Narrow vertical part of the rail to which the fishplates are attached.

base

Lower horizontal part of the rail; it rests on and is attached to the ties.

remote-controlled switch

Device operated from a distance for opening and closing a pair of movable track rails (switch points) to guide a train from one track to another.

switch rod

Metal part located between two ties that maintains the distance between two switch points.

switch point

Movable rail that is machine-tapered at the end and connected to a parallel and similarly machined switch point.

pull rod

Metal part connected to the power switch machine that opens and closes the switch points.

power switch machine

Remote-controlled motor that provides the mechanical force for opening and closing the switch.

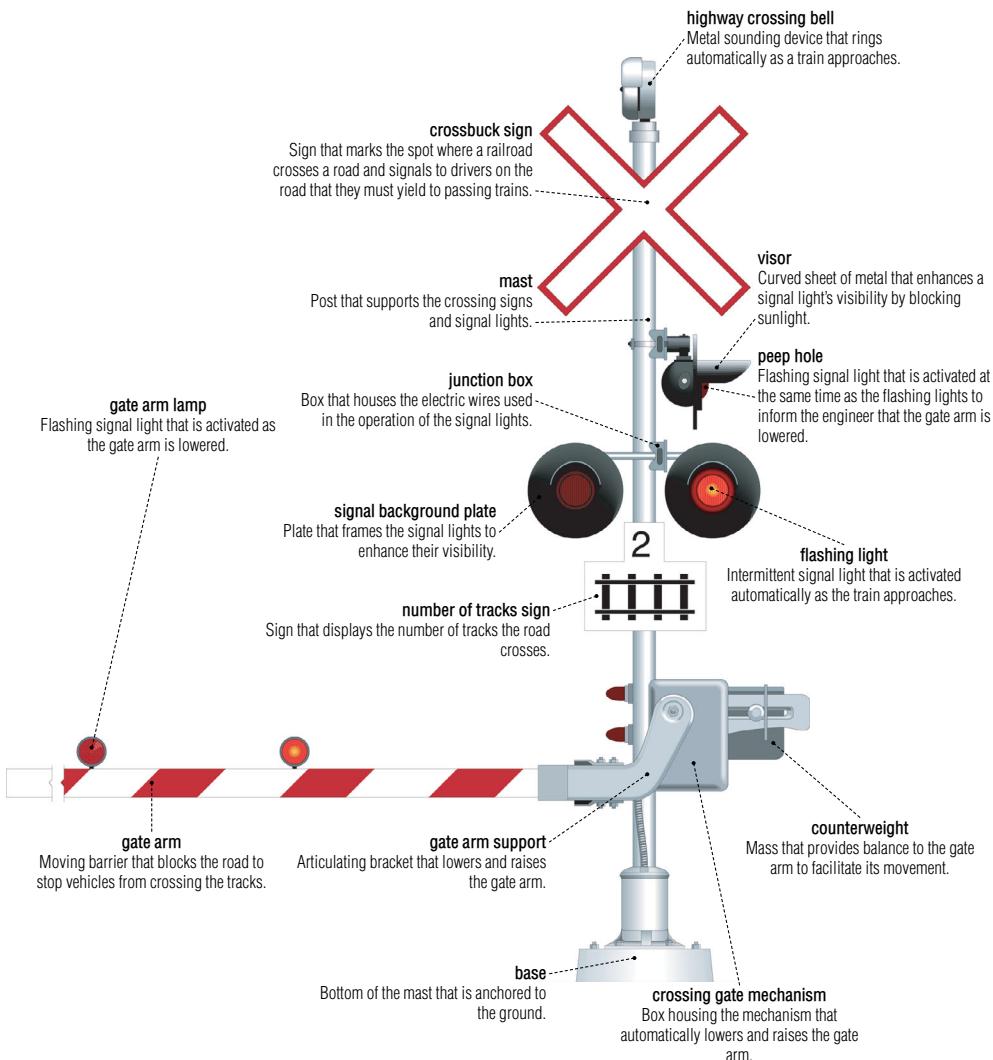
point wire

Wire that connects the power switch machine to levers in the switch house.

closure rail

Two fixed rails located between a switch point and a frog.

Intersection of a railroad and a road, with or without warning lights.

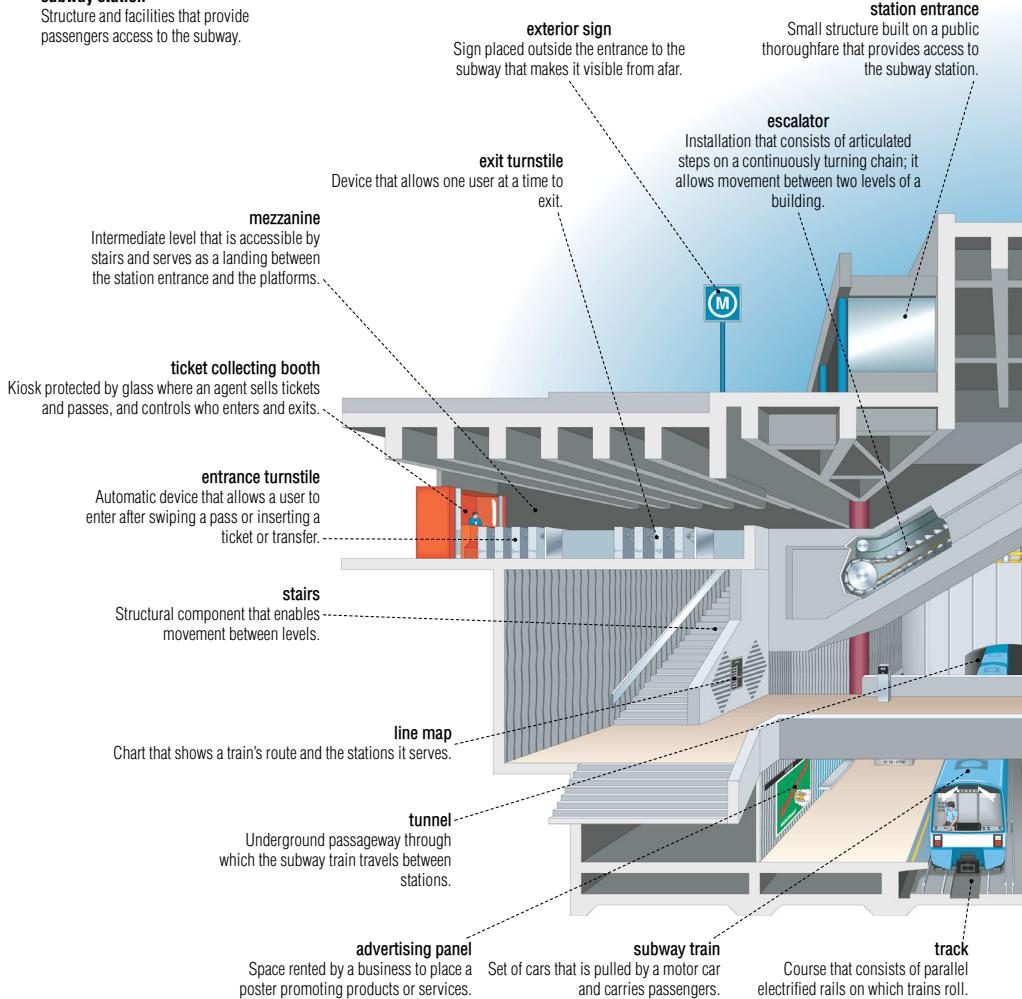


subway

Electrified urban railroad built mainly underground for transporting passengers at frequent intervals.

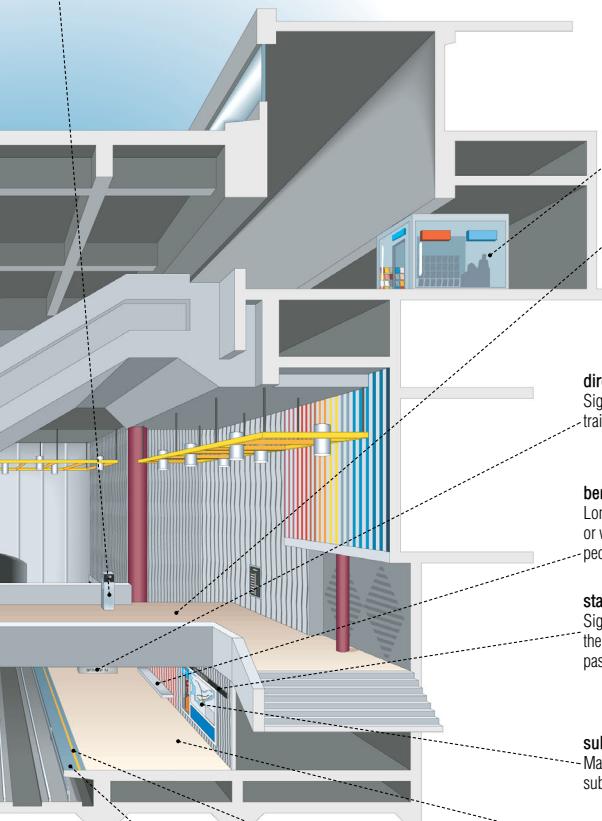
subway station

Structure and facilities that provide passengers access to the subway.



transfer dispensing machine

Device that dispenses tickets entitling the user to subsequently board another means of transportation linked with the subway system, such as a bus, streetcar or train.

**kiosk**

Small store in the halls or the entrance of the station that sells newspapers and refreshments.

footbridge

Bridge that spans the tracks and provides access to both platforms.

directional sign

Sign that indicates the terminus of the train arriving at that platform.

bench

Long narrow upholstered seat with or without a back, seating several people.

station name

Sign on the platform wall that shows the name of the station so that passengers in the train can see it.

subway map

Map that shows the entire subway system; each subway line is illustrated in a different color.

platform

Area adjacent to the tracks where passengers board and exit trains; it is at the same level as the floor of the trains.

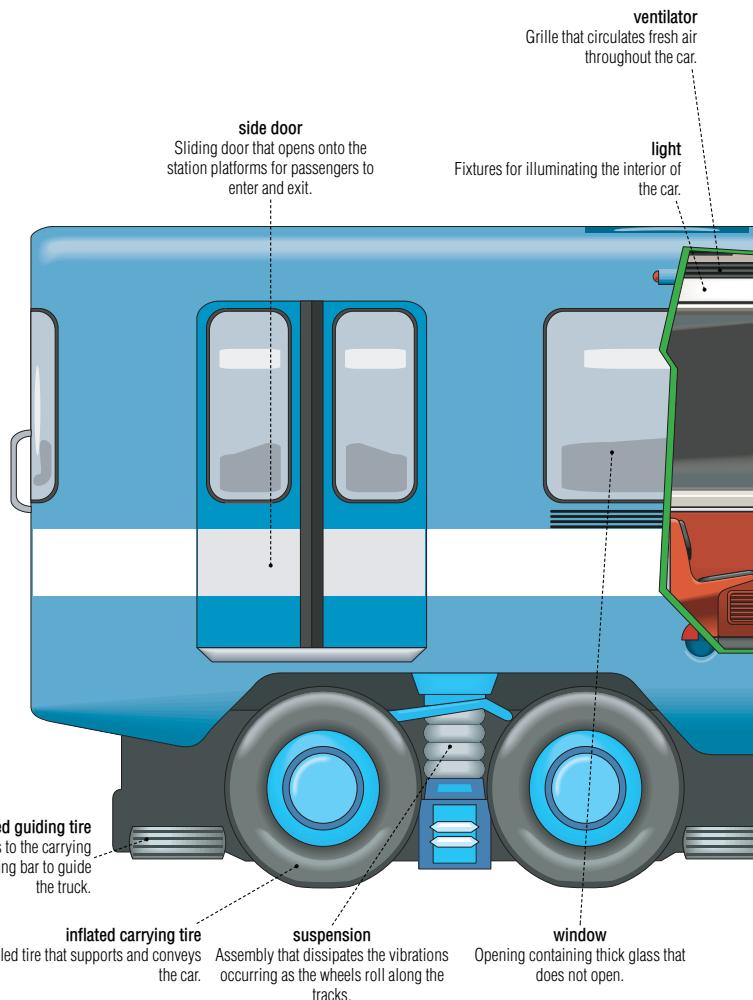
platform edge
Zone along the edge of the platform, usually demarcated by a safety line.

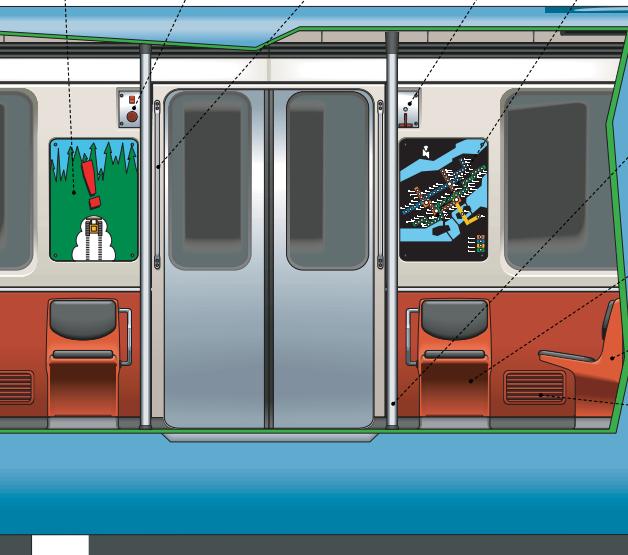
safety line
Visible or textured line warning passengers of the margin of safety.

subway

passenger car

Vehicle that rolls along subway tracks and transports passengers.



**advertising sign**

Poster on a space rented by a business that promotes products or services.

side handrail

Handle on the wall next to the door for passengers to hold onto while the train is in motion.

emergency brake

Device that stops the train; it is available to users in case of emergency.

communication set

Loudspeaker phone used for talking to the train driver.

subway map

Map that shows the entire subway system; each subway line is illustrated in a different color.

handrail

Floor-to-ceiling pole in the middle of the aisle for passengers to hold onto while the train is in motion.

single seat

Seat for one passenger.

double seat

Bench with space for two passengers.

heating grille

Grating through which warm air is forced to heat the car interior.

subway train

Set of cars that is pulled by a motor car and carries passengers.

motor car

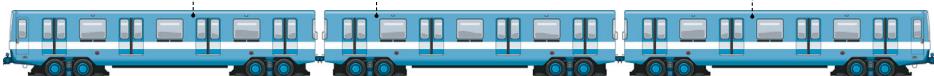
Vehicle with an electric motor and braking system for pulling one or more cars.

trailer car

Freewheeling car pulled by a motor car.

motor car

Vehicle with an electric motor and braking system for pulling one or more cars.



subway

truck and track

The most up-to-date subway trucks ride on tires, which provide fast acceleration and little noise or vibration.

guiding and current bar

Metal bar against which the guiding tire rolls; it also supplies the traction current.

sliding block

Shoe taking the current from the guiding and current bar.

steel safety wheel

Auxiliary regular train wheel that comes in contact with the running rail in the event the tire deflates and during switching.

inflated guiding tire

Tire mounted at right angles to the carrying tire; it rolls against the guiding bar to guide the truck.

inflated carrying tire

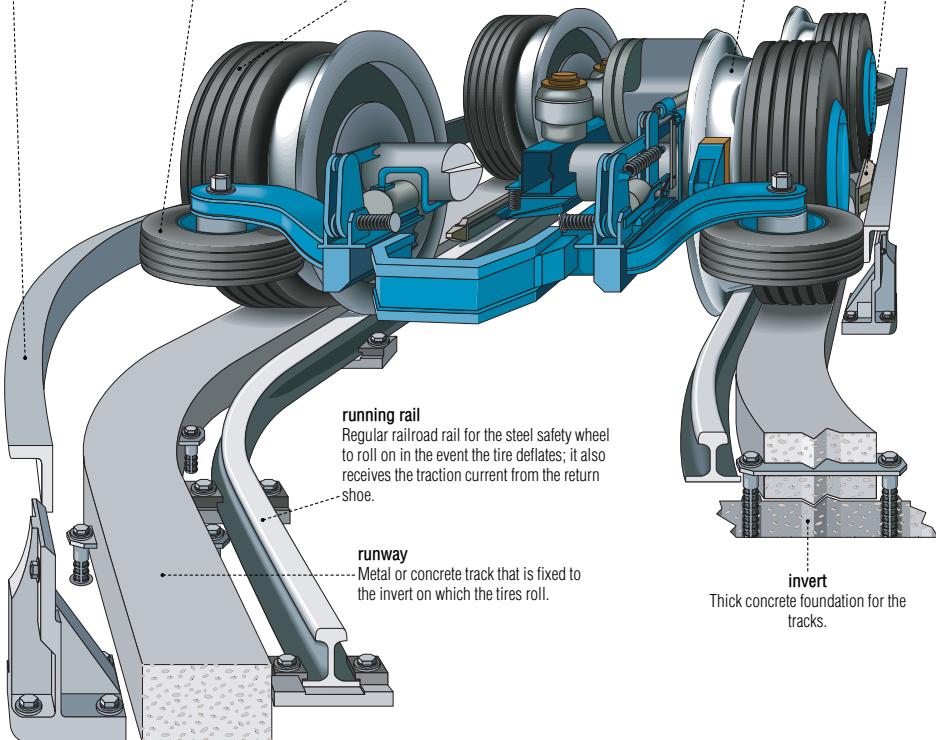
Nitrogen-filled tire that supports and conveys the car.

running rail

Regular railroad rail for the steel safety wheel to roll on in the event the tire deflates; it also receives the traction current from the return shoe.

runway

Metal or concrete track that is fixed to the invert on which the tires roll.



Electrically powered vehicle for transporting people; it rolls on tracks embedded in city streets and on the edge of roadways.

pantograph

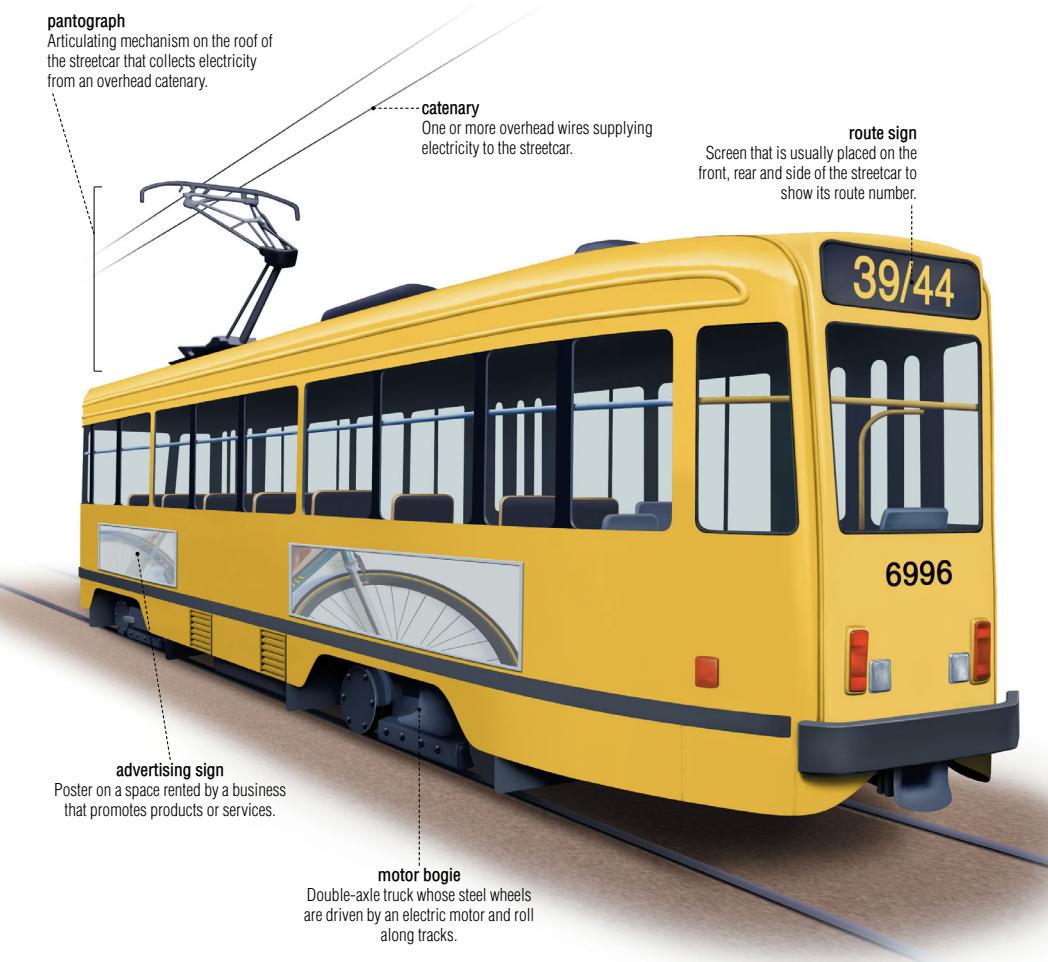
Articulating mechanism on the roof of the streetcar that collects electricity from an overhead catenary.

catenary

One or more overhead wires supplying electricity to the streetcar.

route sign

Screen that is usually placed on the front, rear and side of the streetcar to show its route number.



39/44

6996

advertising sign

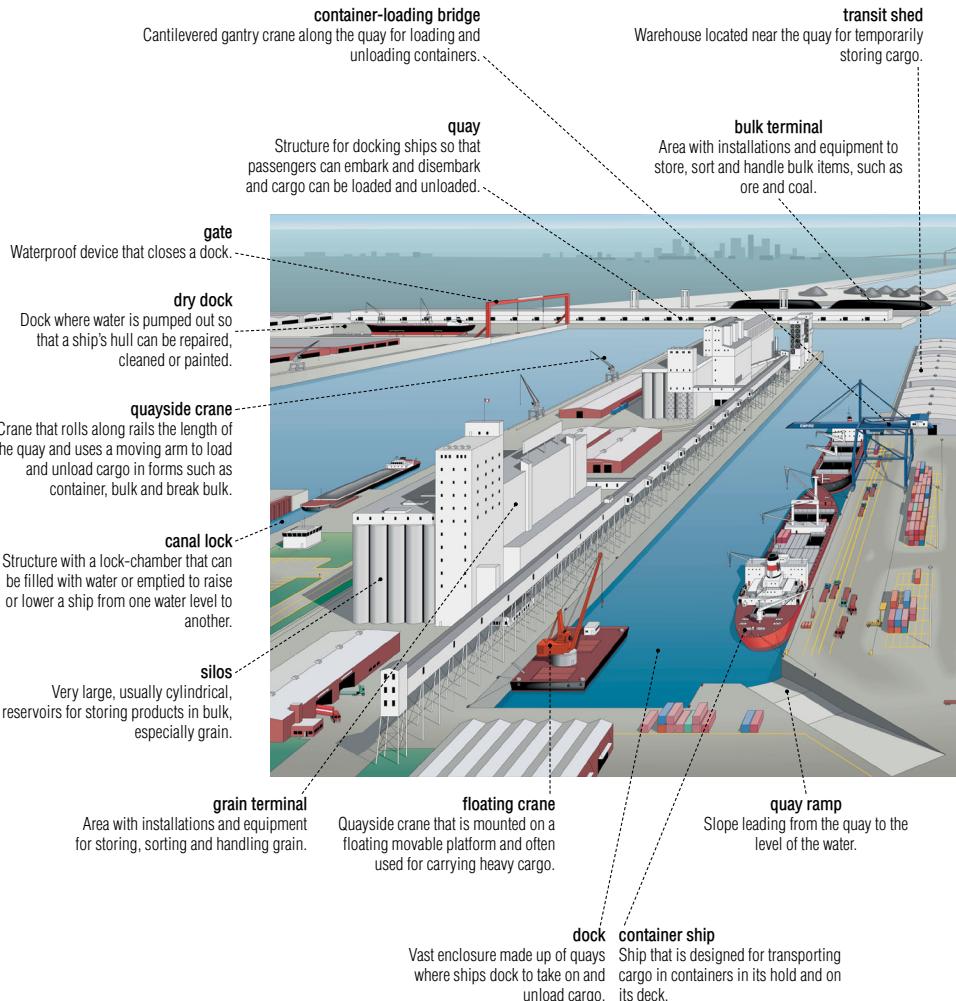
Poster on a space rented by a business that promotes products or services.

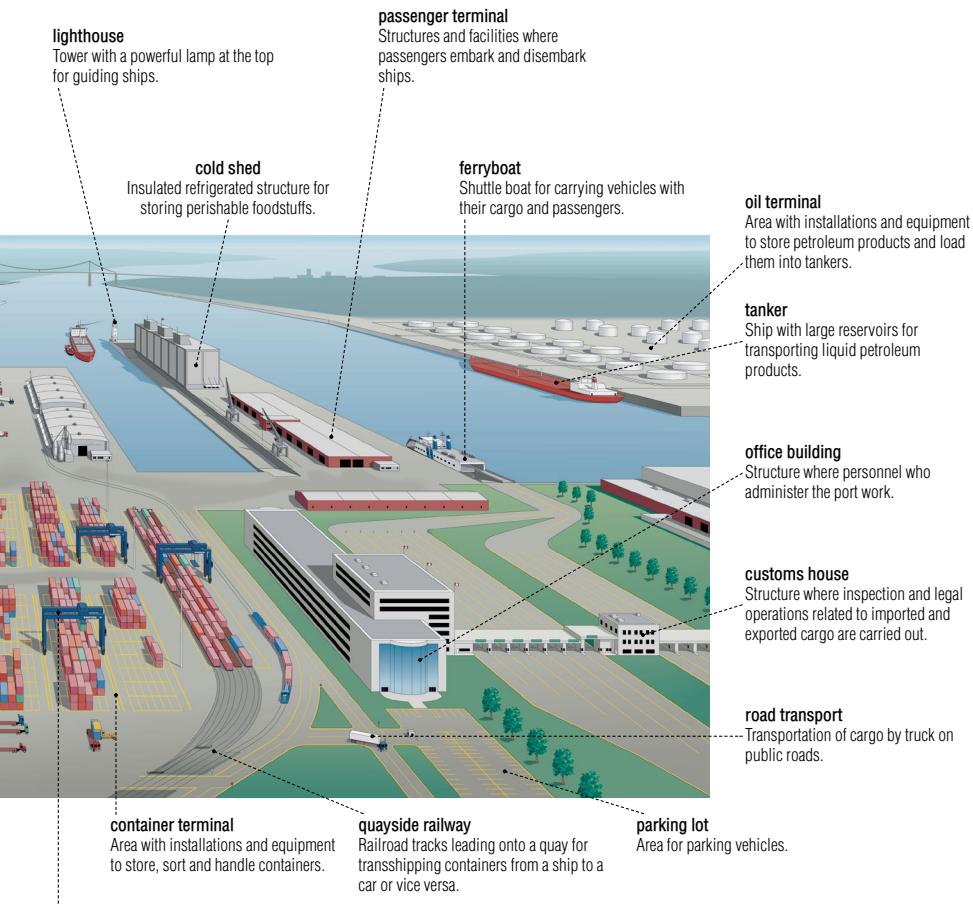
motor bogie

Double-axle truck whose steel wheels are driven by an electric motor and roll along tracks.

harbor

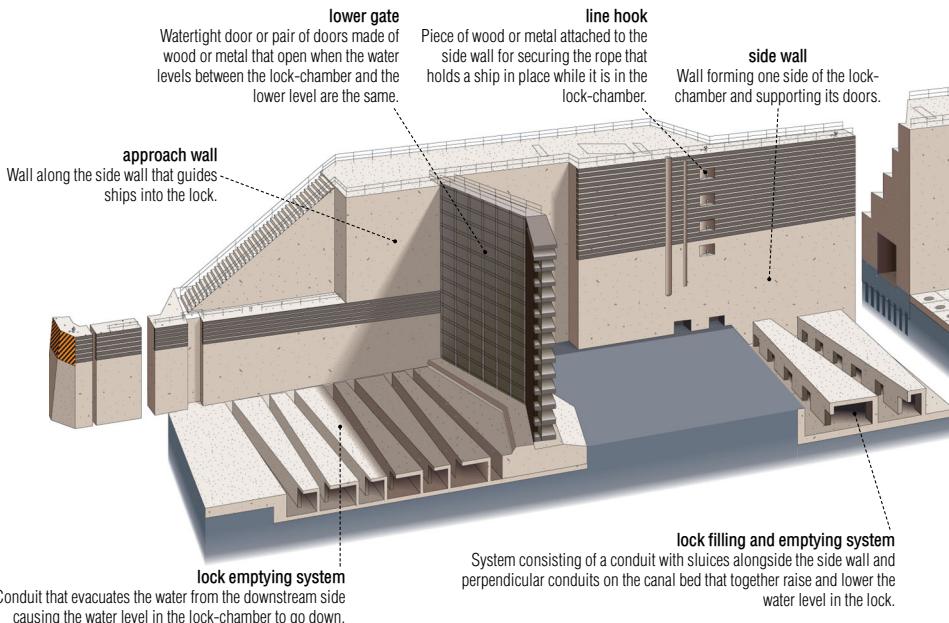
Site for refueling and repairing ships, loading and unloading cargo and embarking and disembarking passengers.



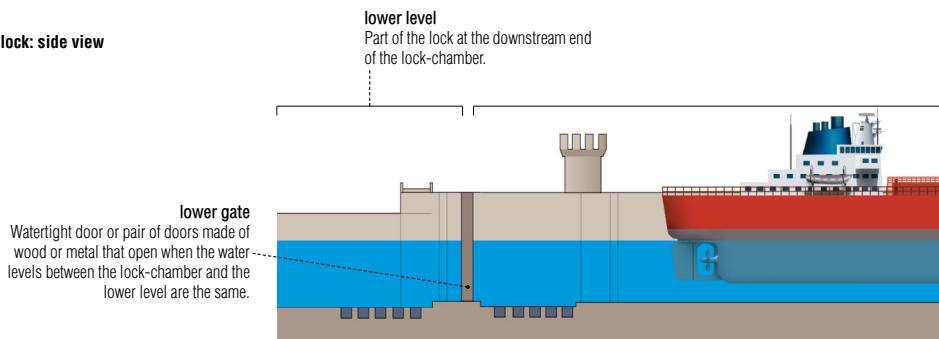


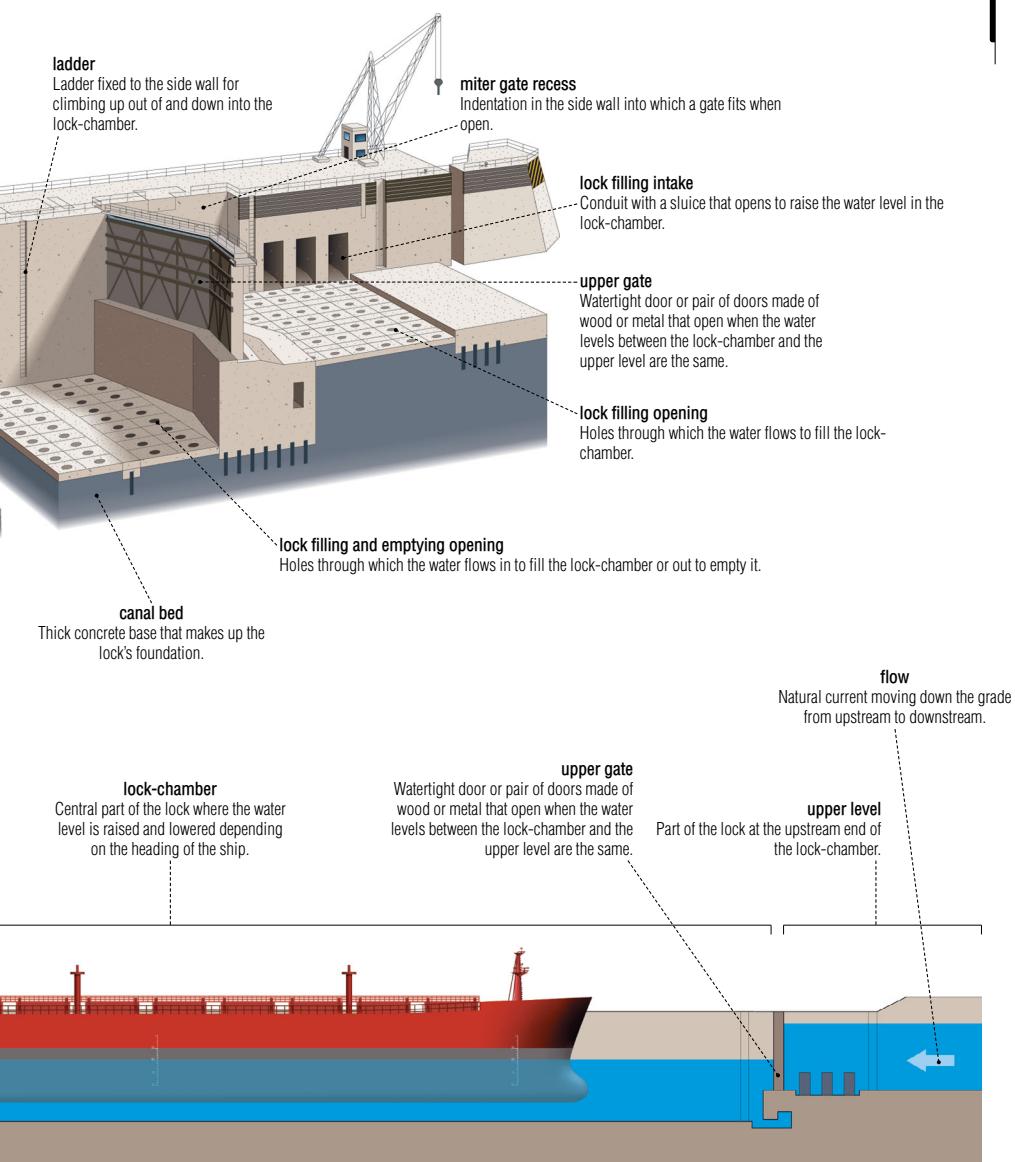
canal lock

Structure with a lock-chamber that can be filled with water or emptied to raise or lower a ship from one water level to another.



canal lock: side view



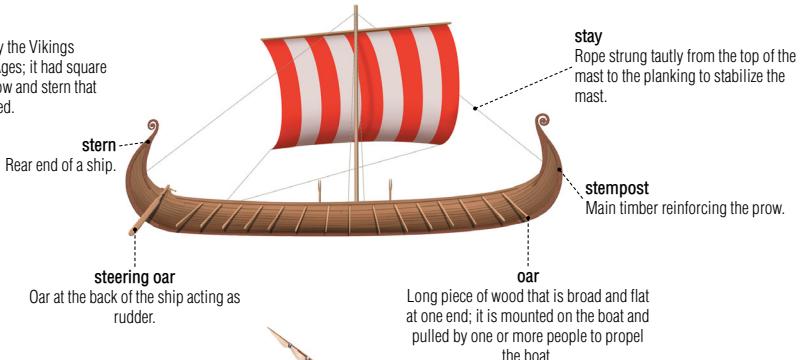


ancient ships

Over the course of history, navigation has played a key role in discovering new lands and in developing trade between peoples.

longship

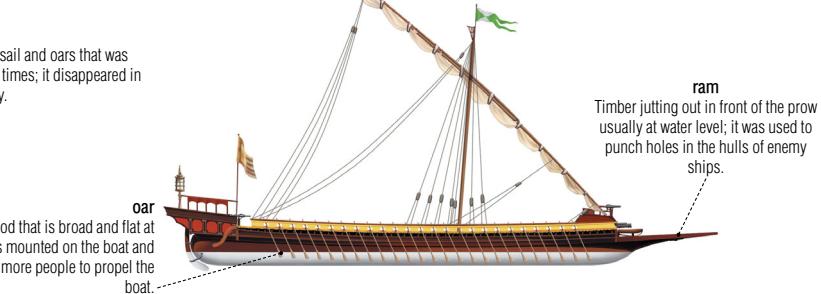
Sailing ship used by the Vikings during the Middle Ages; it had square sails, oars and a prow and stern that were usually sculpted.



galley

Warship with a sail and oars that was used in ancient times; it disappeared in the 18th century.

Long piece of wood that is broad and flat at one end; it is mounted on the boat and pulled by one or more people to propel the boat.



trireme

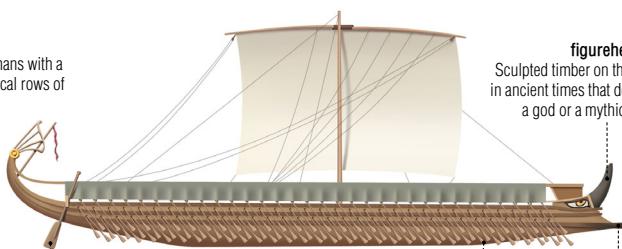
Warship used by the Romans with a ram, a sail and three vertical rows of oars.

Steering oar
Oar at the back of the ship acting as rudder.

Oar
Long piece of wood that is broad and flat at one end; it is mounted on the boat and pulled by one or more people to propel the boat.

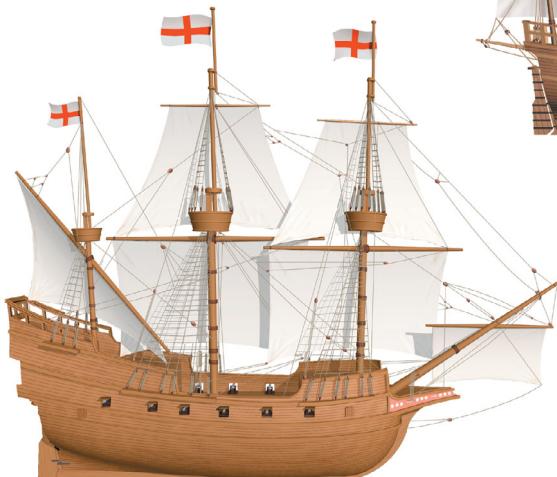
figurehead
Sculpted timber on the prow of a ship in ancient times that depicted a human, a god or a mythical creature.

ram
Timber jutting out in front of the prow usually at water level; it was used to punch holes in the hulls of enemy ships.



galleon

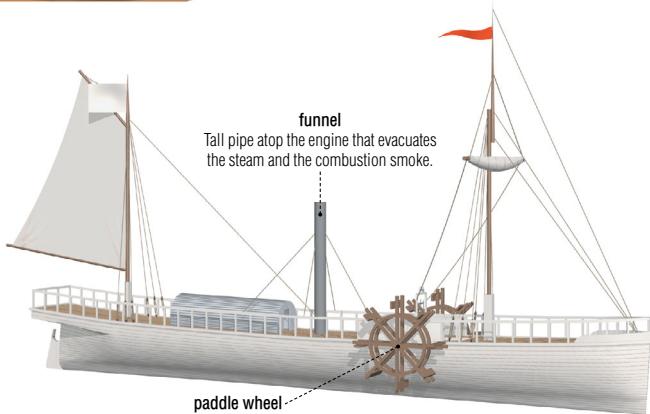
Large warship with sails that was used by the Spanish in the 17th and 18th centuries for trading with the colonies.

**caravel**

Fast ship with three or four masts; it was used especially in the 15th and 16th centuries for exploration.

side-wheeler

Ship used in the 19th century that was propelled by steam, which turned two paddle wheels.

**funnel**

Tall pipe atop the engine that evacuates the steam and the combustion smoke.

paddle wheel

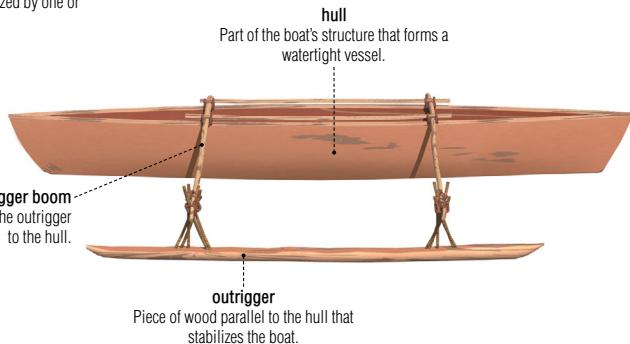
Wheel with blades that propels the boat; it is driven by a steam engine.

traditional ships

Boats characteristic of various parts of the world for a number of generations; they are used as a means of transportation, for fishing, commerce and exploration.

outrigger canoe

Dugout canoe that is stabilized by one or two outriggers.



gondola

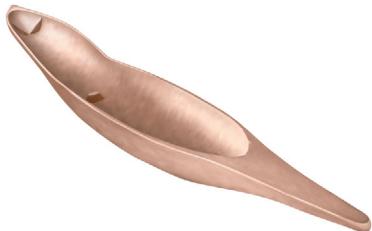
Venetian boat characterized by raised curved ends and steered by an oar.

prow ornament
The iron prow is characteristic of gondolas; it symbolizes the pointed caps of the doges and the districts of Venice.



dugout canoe

Light boat used in Africa and Oceania that is made from one piece of wood and is propelled by a paddle or a sail.



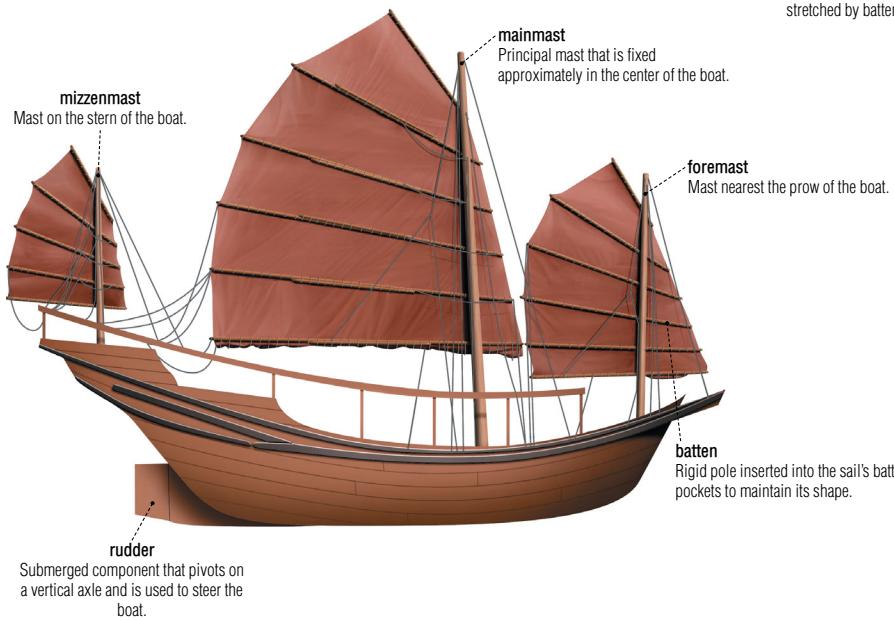
canoe

Light boat used by Native Americans; it is propelled by a paddle and is used for transporting people and cargo.





felucca
A Mediterranean boat of ancient times that was propelled by a sail or an oar; it is still found today on the Nile.



junk
Boat used in the Far East for fishing and transporting cargo; its sails are made of matting or canvas and are stretched by battens.

four-masted bark

Sailboat with four masts and square sails except for the jiggermast, which carries a gaff sail.

masting and rigging

Masting: masts, yards, ropes and other movable sailing equipment that support and manipulate the rigging.

mizzenmast

One of the principal masts of the ship; it is located aft of the mainmast between the ship's center of gravity and its rudder.

mainmast

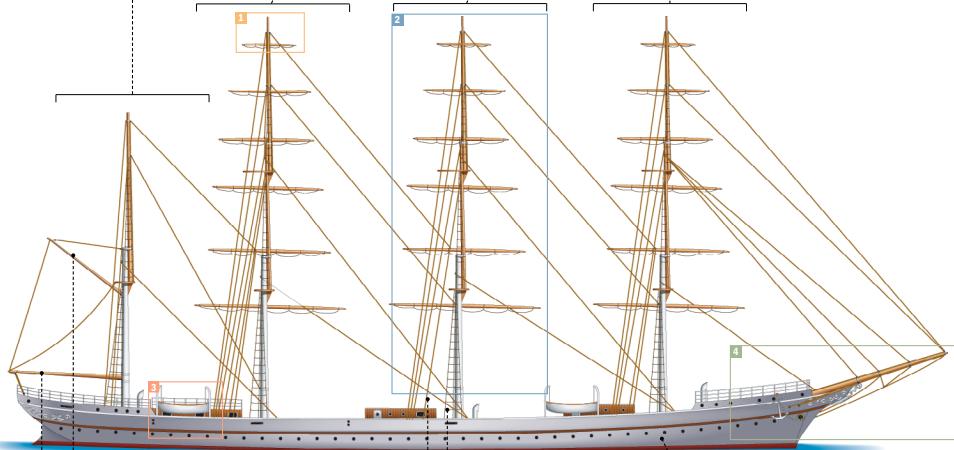
One of the principal parts of the ship; it is located closest to the center of gravity.

foremast

Mast nearest the prow of the boat.

jiggermast

Mast located aft on the four-masted bark.



gaff

Diagonal yard aft of a mast and supporting the top part of a gaff sail.

gaff sail boom

Horizontal yard articulating on a mast; it keeps the bottom edge of a sail taut.

shroud

Heavy taut rope between a mast and the side of the ship; it secures and supports the mast on the sides.

side

Longitudinal surface of the ship.

backstay

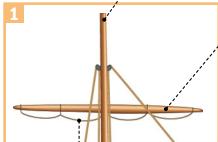
Long taut rope between the mast and the deck; it secures and supports the mast athwartships and aft.

pole

Tapered top end of a mast.

yard

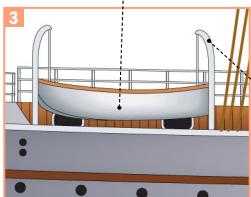
Long pole that is supported by the mast and holds up the edge of a sail.

**footrope**

Rope hanging along the entire length of a yard that is used by sailors to trim the sails.

lifeboat

Boat for transporting passengers and crew in the event of shipwreck.

**davit**

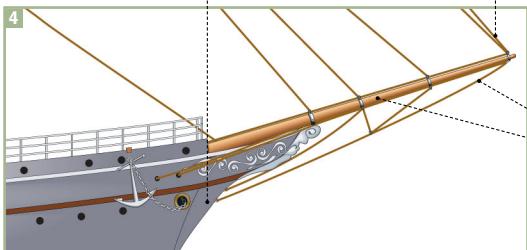
Skid hanging over the edge of the ship that supports a boat and is used to lower and raise it.

stem

Main timber reinforcing the prow.

stay

Taut rope between a mast and another point on the masting; it secures and supports the mast fore of it.

**bobstay**

Rope counterbalancing the tension caused by the stays and the staysail—stays on the bowsprit.

bowsprit

Mast extending before the stem; additional jibs can be attached to it.

fore-royal mast

Mast above the fore-topgallant mast that carries a royal sail.

fore-topgallant mast

Mast above the fore-topmast that carries a topgallant sail.

masthead

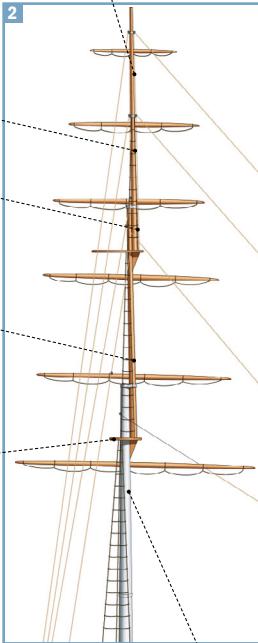
Masthead section of a mast that is sometimes doubled with the lower section of the mast supporting it; the stays and shrouds are attached to it.

fore-topmast

Mast that is immediately above a lower mast and carries a topsail.

top

Platform at the top of the lower mast from which the upper rigging can be manipulated.

**lower mast**

Bottom section of a mast that is solid and thick so it can support the upper sections.

four-masted bark

sails

A sailboat's sails that are rigged on the bowsprit, the foremast, the main masts, the jiggermast and between these masts.

mizzen royal staysail

Triangular sail rigged on the stay supporting the aft fore-royal mast.

mizzen royal brace

Rope that causes the yard supporting the royal sail to pivot around the mizzenmast.

mizzen topgallant staysail

Triangular sail on the stay supporting the aft fore-topgallant mast.

jigger topgallant staysail

Highest triangular sail among the sails rigged between the mizzenmast and the jiggermast.

gaff topsail

Sail above a gaff sail and between the gaff and the top of the mast.

jigger topmast staysail

Triangular sail below the jigger topgallant staysail.

spanker

Gaff sail for the mizzenmast.

halyard

Rope for hoisting a sail or a yard.

sheet

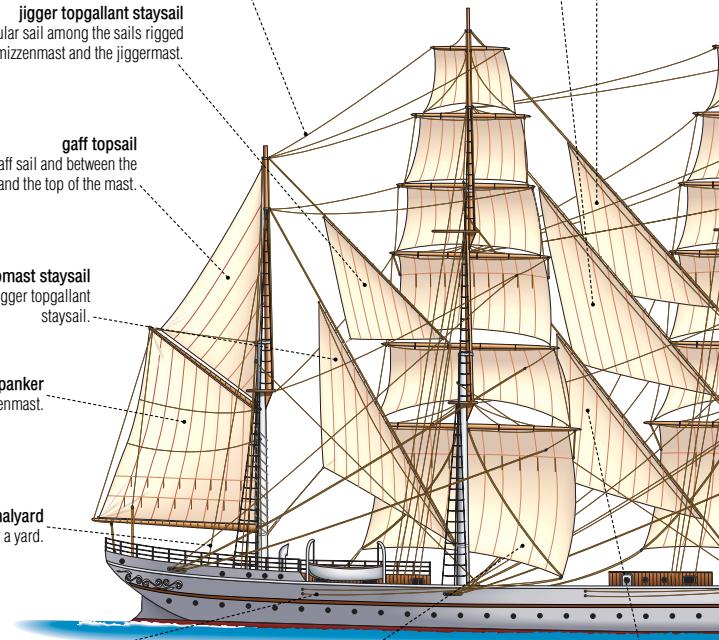
Rope extending from the lower corner of a sail for trimming it with respect to the wind direction.

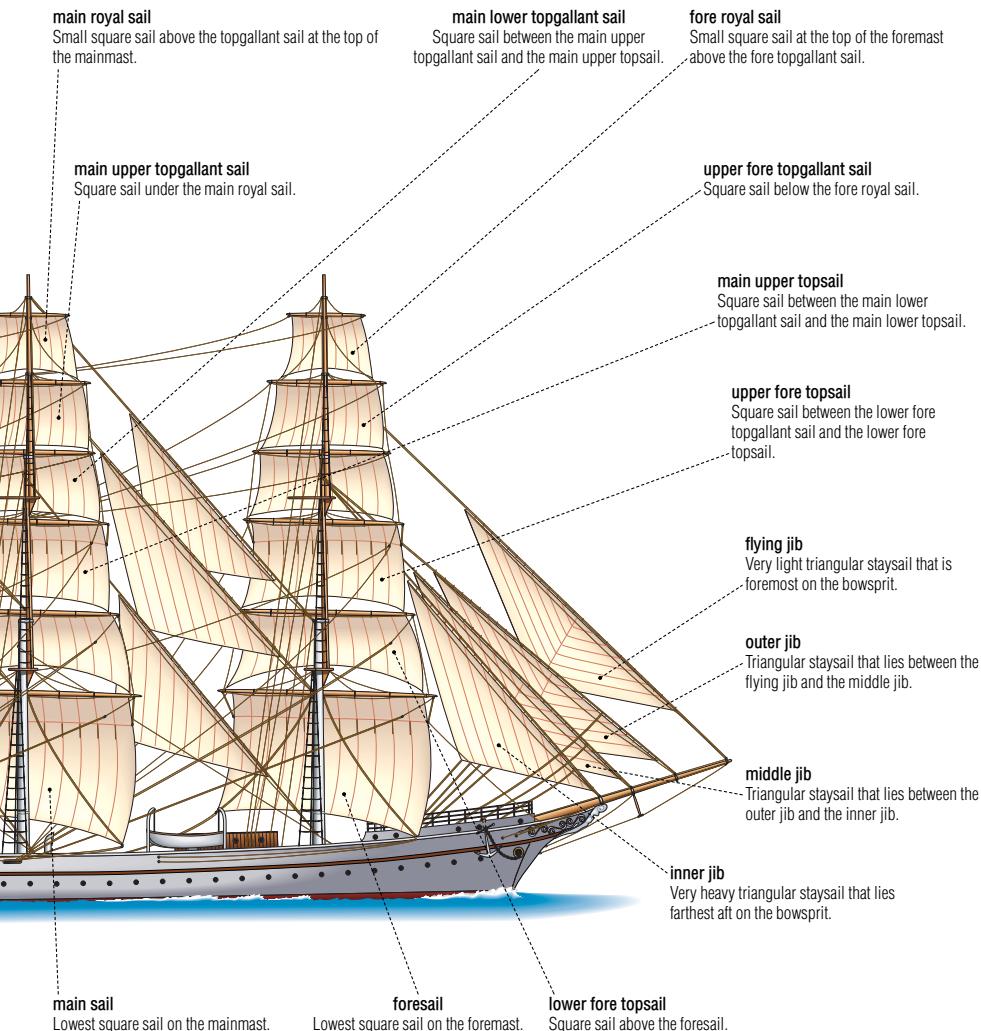
mizzen sail

The lowest square sail supported by the mizzenmast.

mizzen topmast staysail

Triangular sail on the stay supporting the aft fore-topmast.





examples of boats and ships

Boats and ships: floating structures for underwater exploration and transporting passengers and cargo across water.

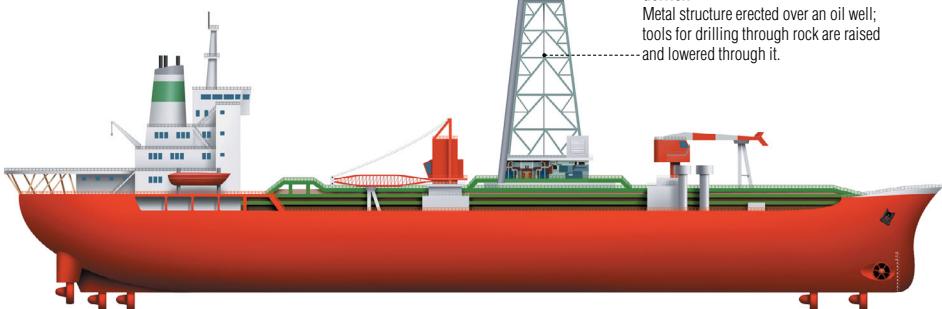
trawler

Fishing boat that tows a large funnel-shaped net (trawl).



drill ship

Ship for drilling for oil in deep water (1,000 m and more); it is more mobile but less stable than a drilling rig.

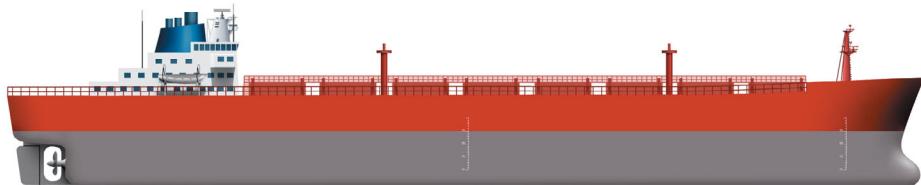


derrick

Metal structure erected over an oil well; tools for drilling through rock are raised and lowered through it.

bulk carrier

Ship for transporting raw dry materials, such as grain, coal and ore.



tug

Boat propelled by powerful engines that is used to tow boats and other floating craft to help them maneuver or to rescue them.

**rudder blade**

Part of the rudder that receives the thrust from the propeller in order to steer the boat.

propeller

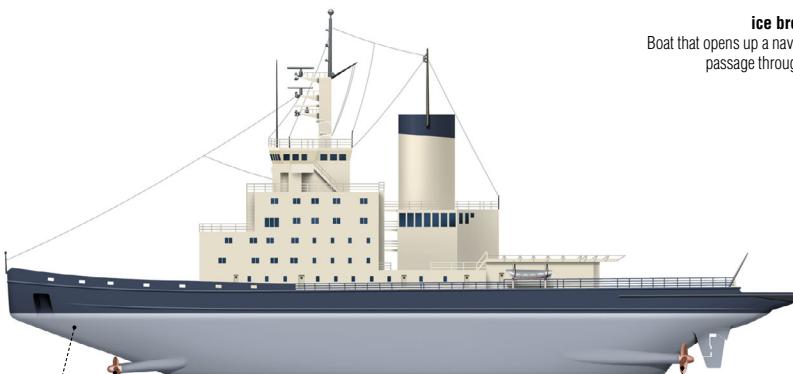
Device with blades integrated onto a shaft that is driven by the engine to provide thrust and thus impel the ship.

wheelhouse

Cabin that houses the pilot and the navigation instruments.

ice breaker

Boat that opens up a navigable passage through ice.

**stem**

Reinforced part of the boat's prow that crushes the ice with its weight and then pushes it aside to open a channel.

stem propeller

Screw that pulls up water from under the ice sheet to weaken its support thus making it easier to break and move.

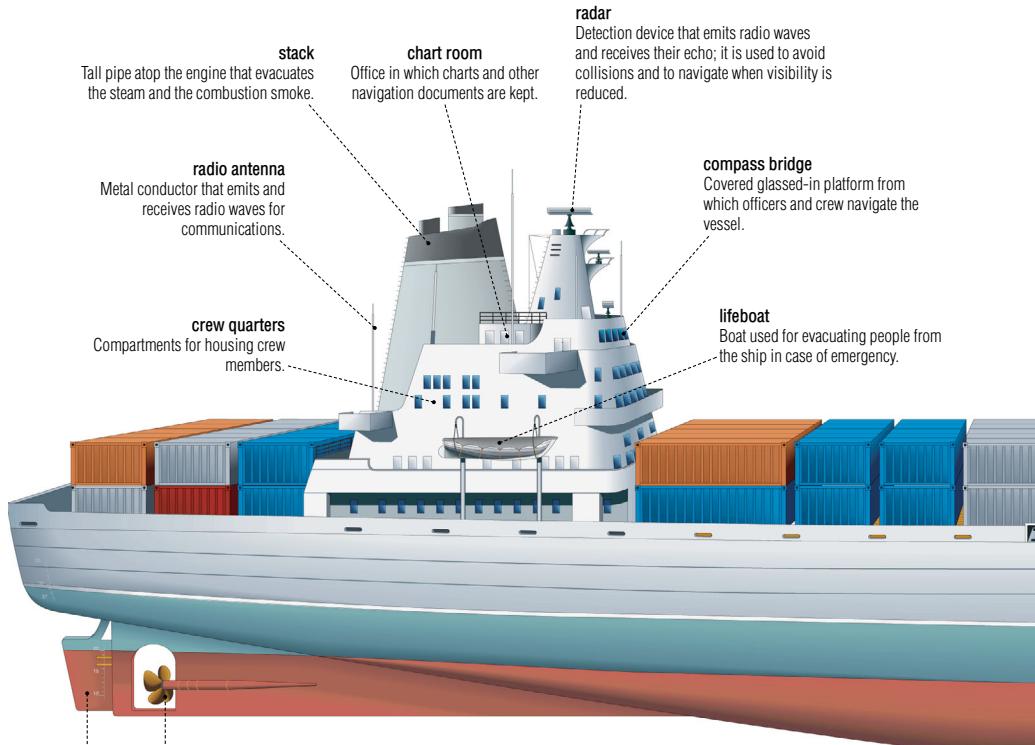
rear propeller

Screw driven by a powerful engine to propel the ice breaker.

examples of boats and ships

container ship

Ship that is designed for transporting cargo in containers in its hold and on its deck.

**stack**

Tall pipe atop the engine that evacuates the steam and the combustion smoke.

chart room

Office in which charts and other navigation documents are kept.

radar

Detection device that emits radio waves and receives their echo; it is used to avoid collisions and to navigate when visibility is reduced.

radio antenna

Metal conductor that emits and receives radio waves for communications.

crew quarters

Compartments for housing crew members.

compass bridge

Covered glassed-in platform from which officers and crew navigate the vessel.

lifeboat

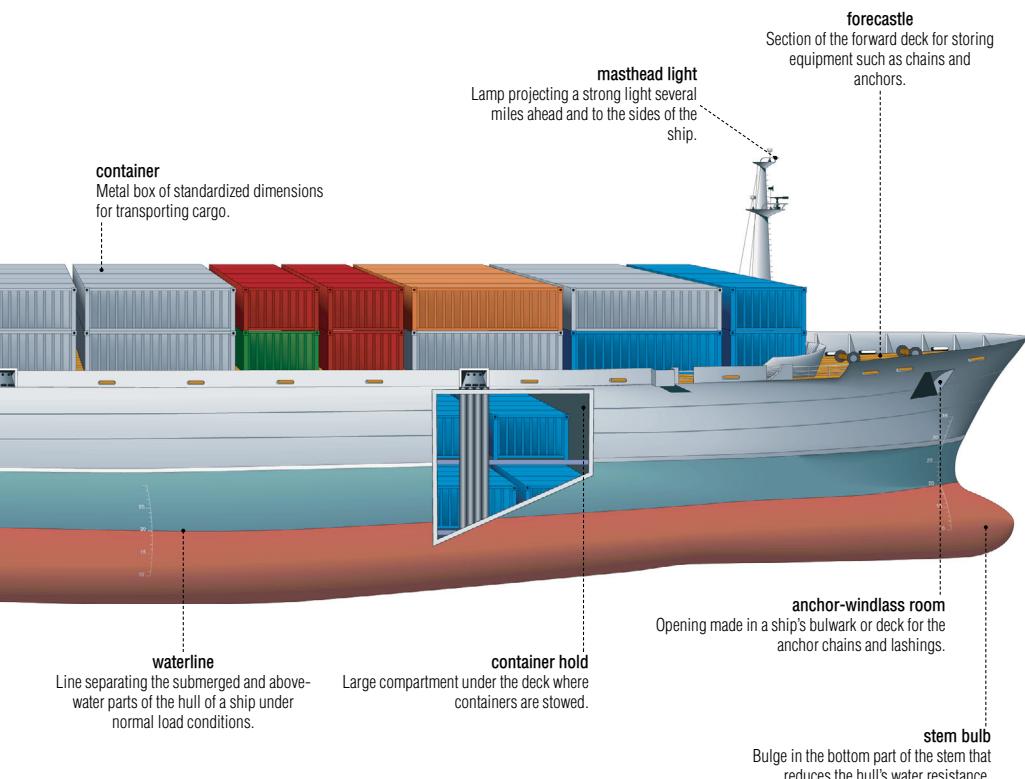
Boat used for evacuating people from the ship in case of emergency.

propeller

Device with blades integrated onto a shaft that is driven by the engine to provide thrust and thus impel the ship.

rudder

Submerged component that pivots on a vertical axle and is used to steer the boat.



examples of boats and ships

hovercraft

Propeller vehicle that moves above water (or land) by gliding on a cushion of air it creates by blowing downward.

rudder

Pivoting part behind the propeller blast for steering the hovercraft.

propeller duct

Metal part that surrounds the propeller and increases its power by concentrating its air intake.

dynamics propeller

Device that is made up of blades integrated with a shaft; it pushes air behind the hovercraft thus causing a forward movement.

control deck

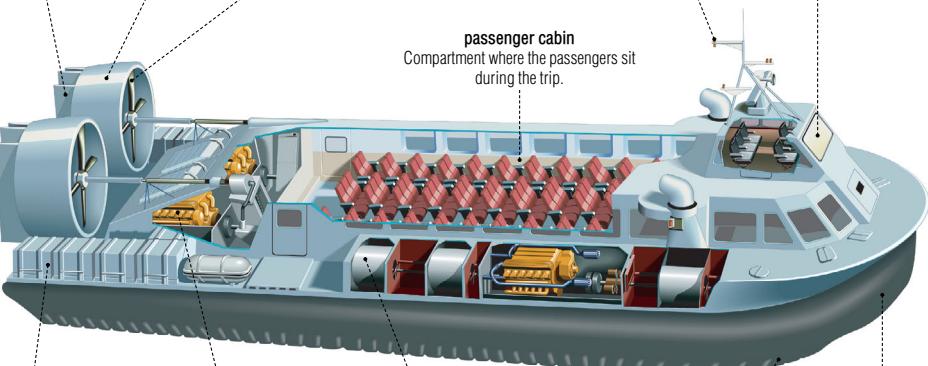
Compartment from which the pilots operate the hovercraft.

navigation light

Lamp that is visible from afar to signal the hovercraft's presence.

passenger cabin

Compartment where the passengers sit during the trip.

**baggage racks**

Compartment for storing luggage.

diesel propulsion engine

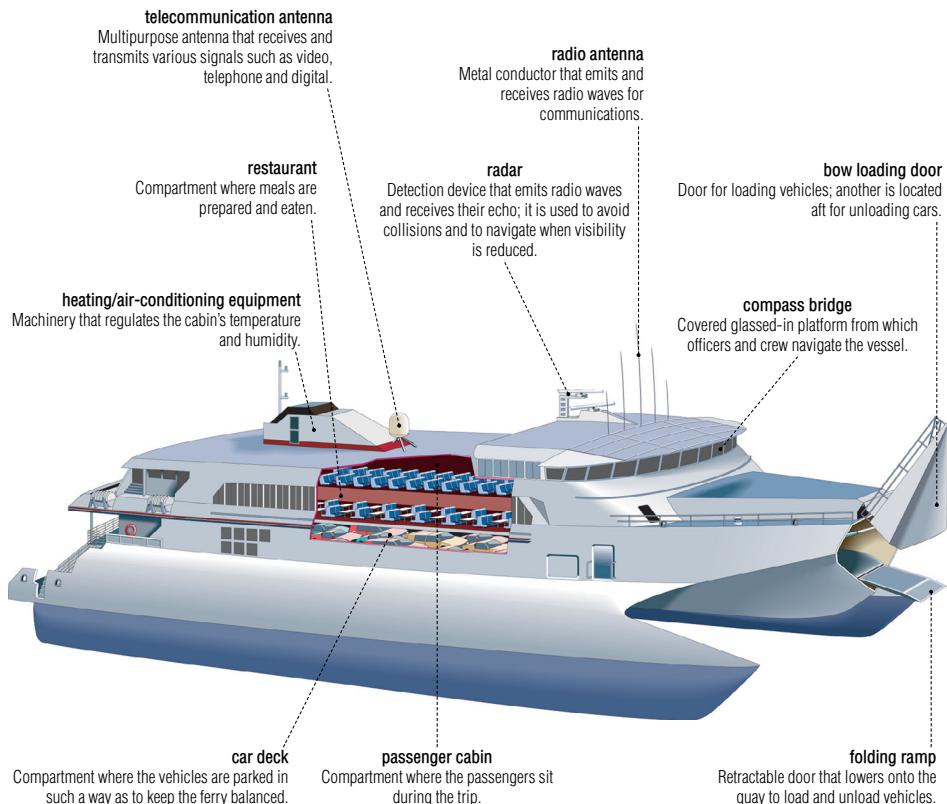
Power source using the combustion of an air/fuel mixture to drive the propellers.

flexible skirt

Rubber flexible side that surrounds the edge of the hull to trap the air blown down by the lift fan; this increases pressure, which in turn causes lift.

ferry boat

Shuttle boat for carrying vehicles with their cargo and passengers.



examples of boats and ships

runabout

Pleasure boat with an outboard engine for cruising and waterskiing on inland waterways.



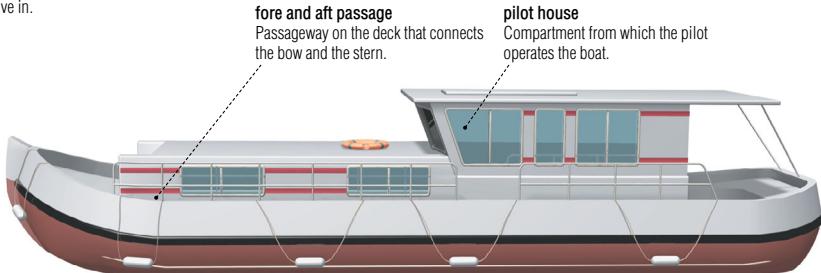
motor yacht

Pleasure boat of various sizes and speeds with a cabin fit to live in; it can navigate the sea and inland waterways.



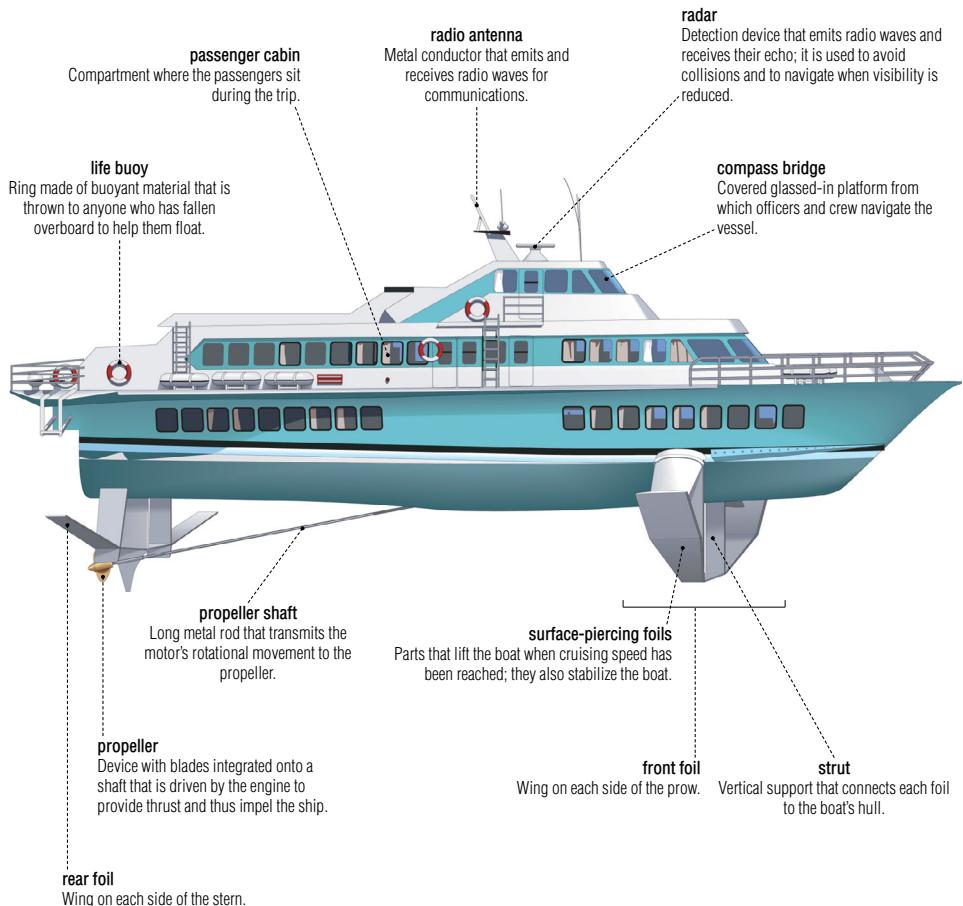
houseboat

Motorized pleasure boat for navigating inland waterways; it is characterized by a long deck and a cabin fit to live in.



hydrofoil boat

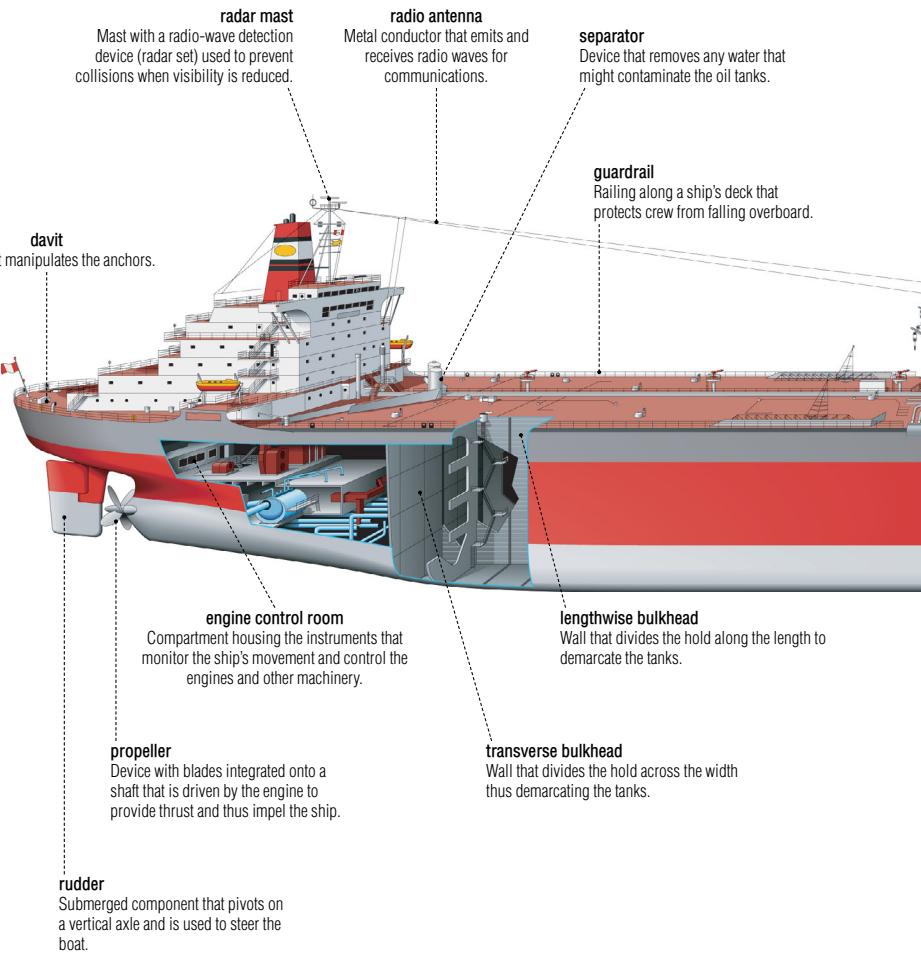
Fast boat with foils, which lift and support the hull above water when cruising speed is reached.

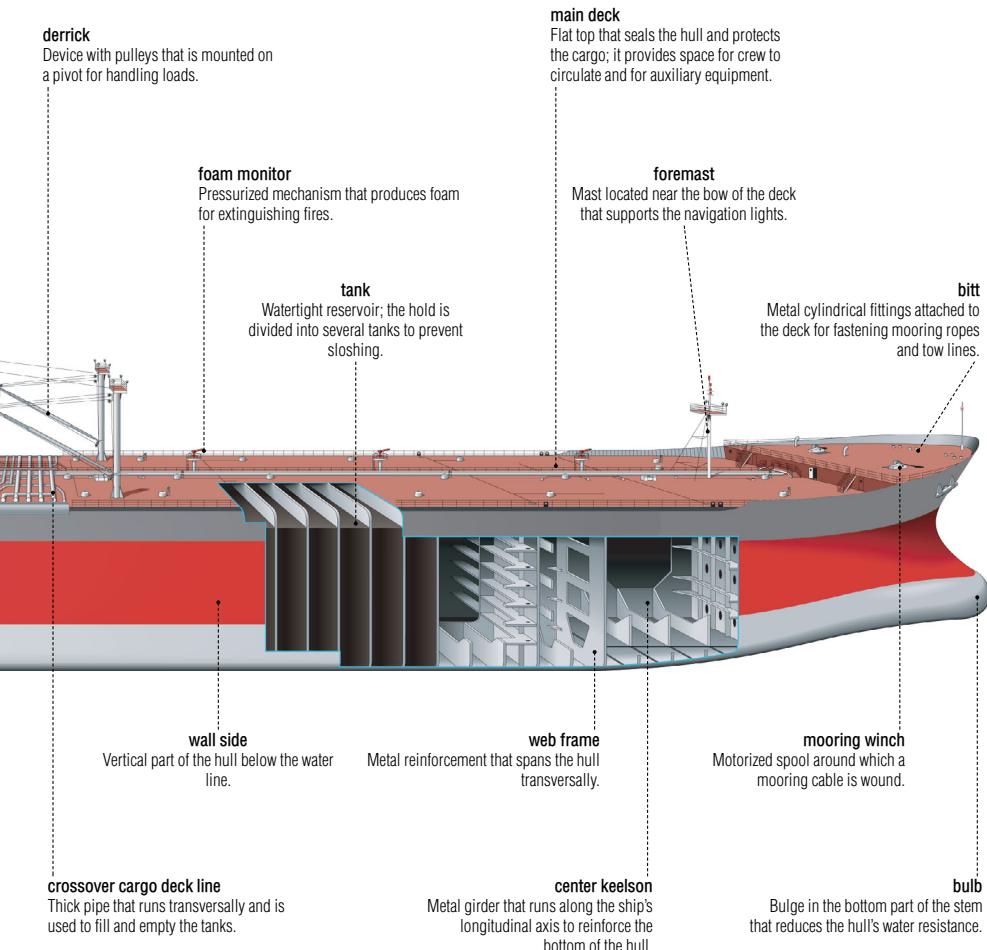


examples of boats and ships

tanker

Ship with large reservoirs for transporting liquid petroleum products.

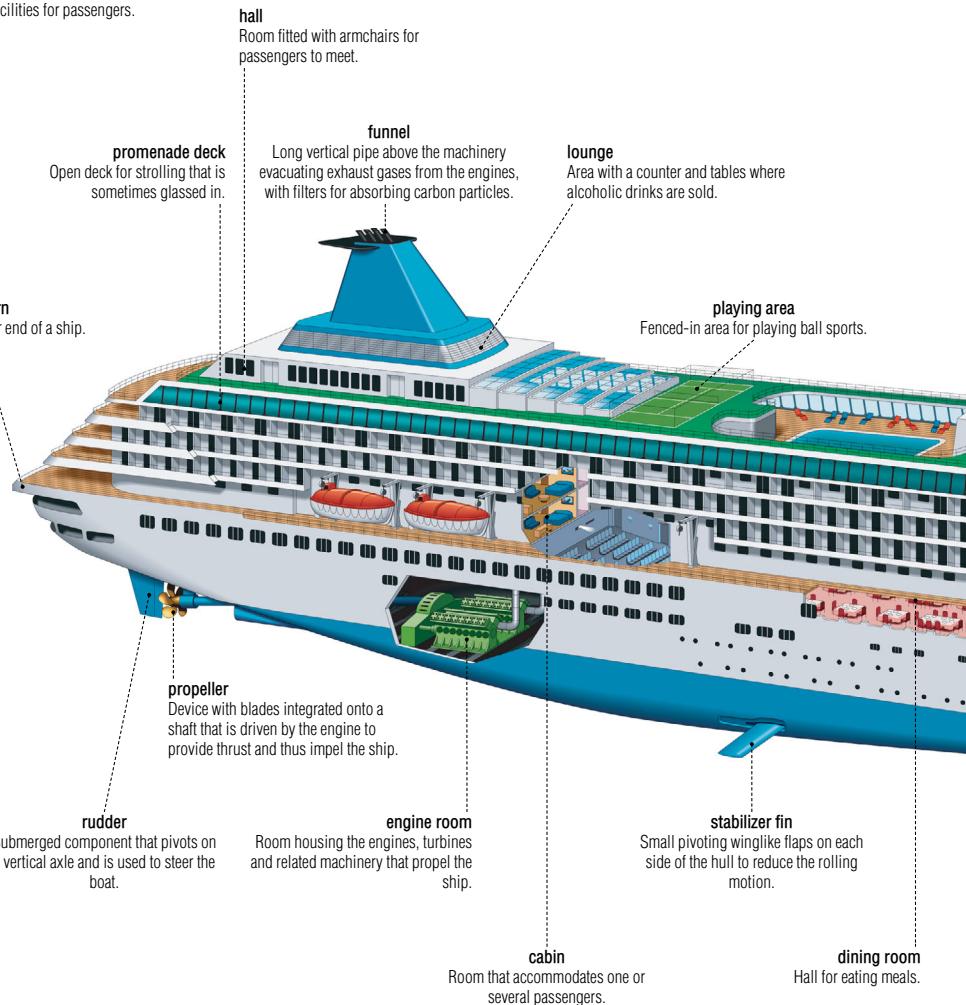


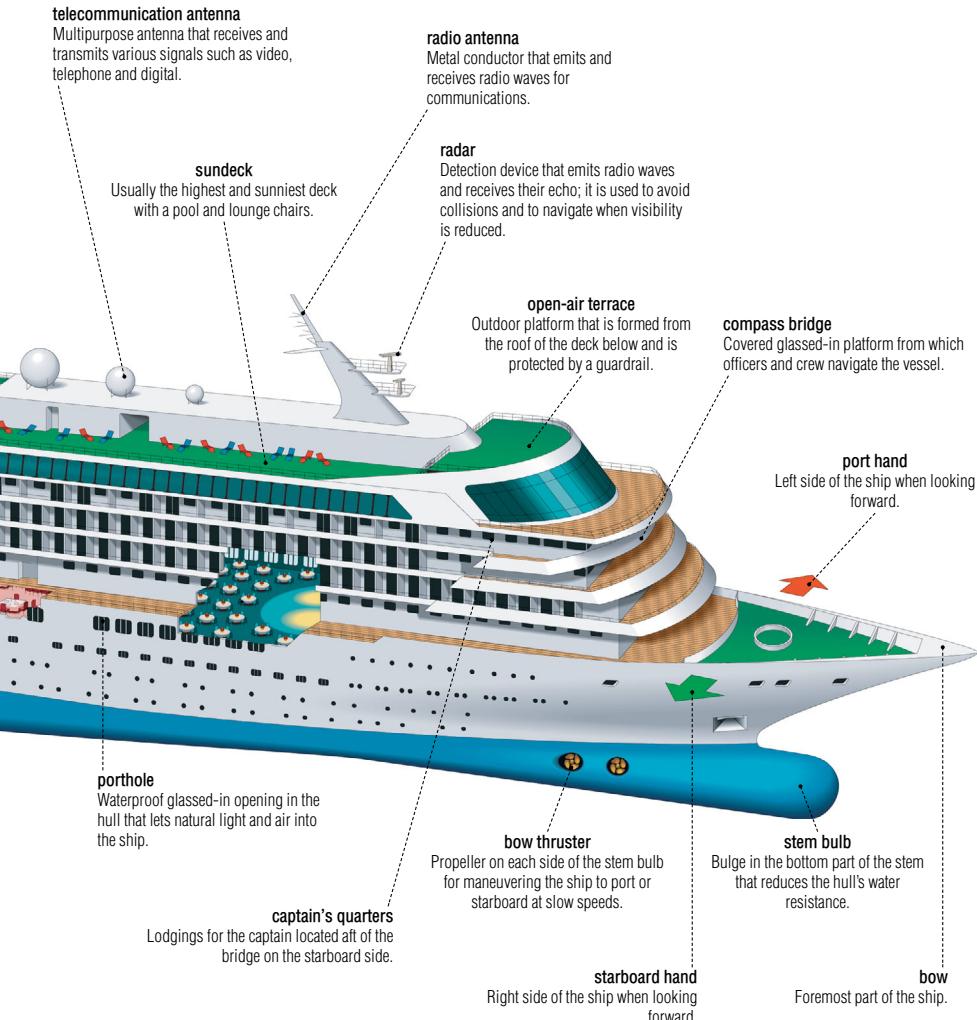


examples of boats and ships

passenger liner

Large cruise ship, fitted like a luxury hotel and with diverse recreation facilities for passengers.



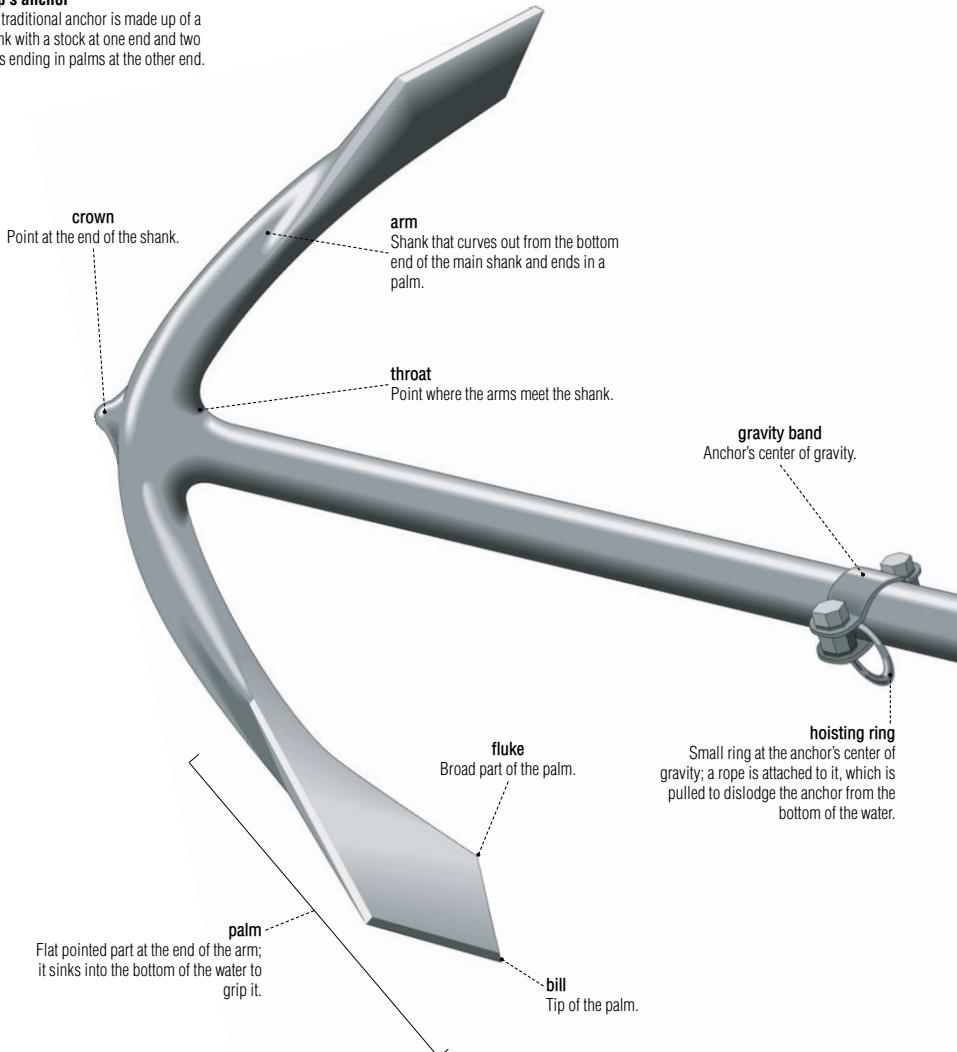


anchor

Usually steel part that is attached to a chain or cable; it hooks onto the bottom of a body of water to keep the boat from moving.

ship's anchor

The traditional anchor is made up of a shank with a stock at one end and two arms ending in palms at the other end.



**plow anchor**

Anchor with a plow-shaped arm that pivots on the shank and hooks onto most bottoms.

**stockless anchor**

Relatively light anchor with a pair of pivoting palms that fold along the shank.

**stocked anchor**

Relatively heavy and bulky anchor with a stock and two arms ending in palms.

**grapnel**

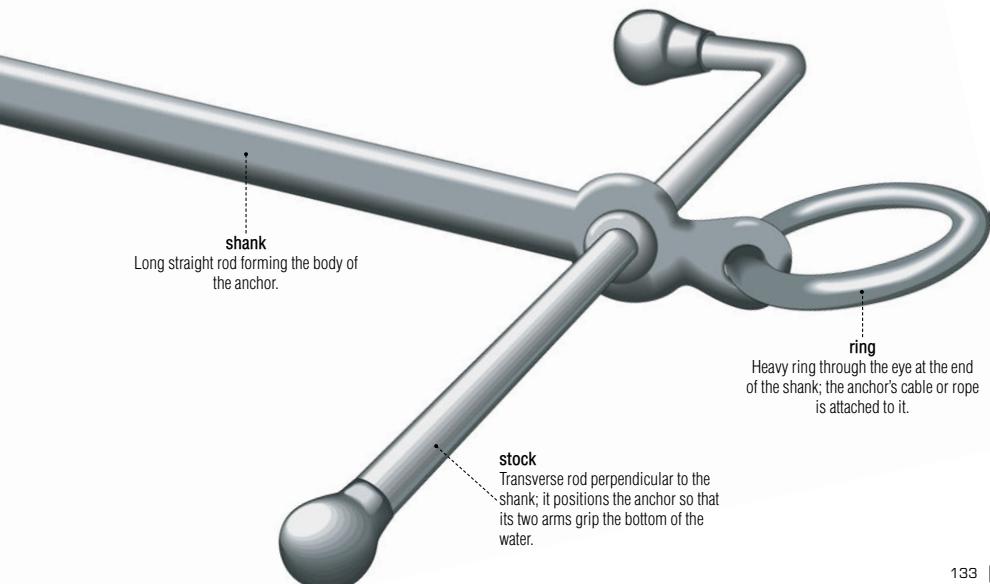
Small anchor with four, sometimes folding, cruciform arms.

**sea anchor**

Solid cone-shaped canvas sack that is dragged behind a boat to counter heaving and strong winds.

**mushroom anchor**

Anchor with a large crown instead of arms.



life-saving equipment

Instruments and equipment for signaling a boat's presence and for saving people from drowning.

life raft

Inflatable boat where passengers can take refuge in case of emergency.



fog horn

Instrument that makes a regulation sound when visibility is reduced to indicate the presence of a boat.



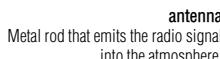
trumpet

Bell mouth that amplifies the sound emitted by a diaphragm when compressed air passes over it.



canister

Small container of compressed air.



distress beacon

Device that automatically transmits a radio distress signal giving its precise position.



strobe

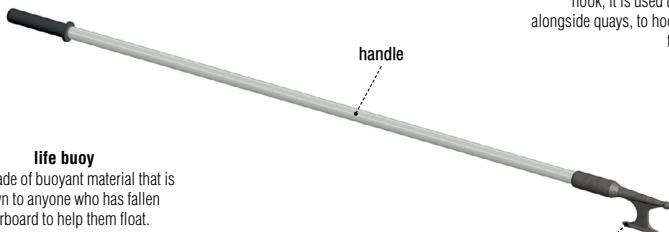
Lamp that produces an intense light from a gas, which glows between two electrodes.

life jacket

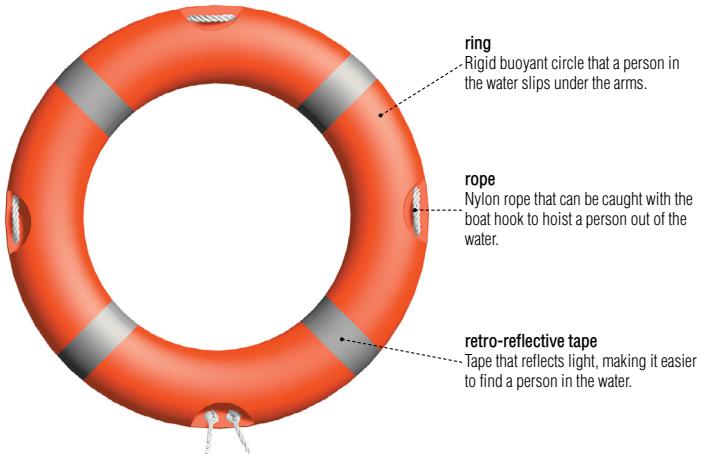
Buoyant vest filled with air or plastic foam that is used to keep a person afloat.

**boat hook**

Usually telescopic pole with a tip and a hook; it is used to maneuver a boat alongside quays, to hook an object and to fathom the bottom.

**life buoy**

Ring made of buoyant material that is thrown to anyone who has fallen overboard to help them float.



navigation devices

Examples of instruments that are used on a ship to determine its position and to chart and stay a course.

sextant

Optical instrument for measuring the angle between a heavenly body and the horizon to determine the ship's position.

index mirror

Mirror integrated with the index arm that is positioned so that the Sun reflects on the horizon mirror.

horizon mirror

Fixed mirror in front of the telescope; it is aimed at the horizon and the image of the Sun is projected on it.

index arm

Moving arm on the sextant that measures the displacement angle on the graduated arc to determine the height of the observed heavenly body.

telescope

Optical instrument that magnifies an observed object.

horizon shade

Colored glass that blocks certain rays in the light spectrum to filter out ambient light.

graduated arc

Arc graduated in degrees; the observed angle measurement is read from it.

drum

Thumbnail for turning the micrometer screw.

Index

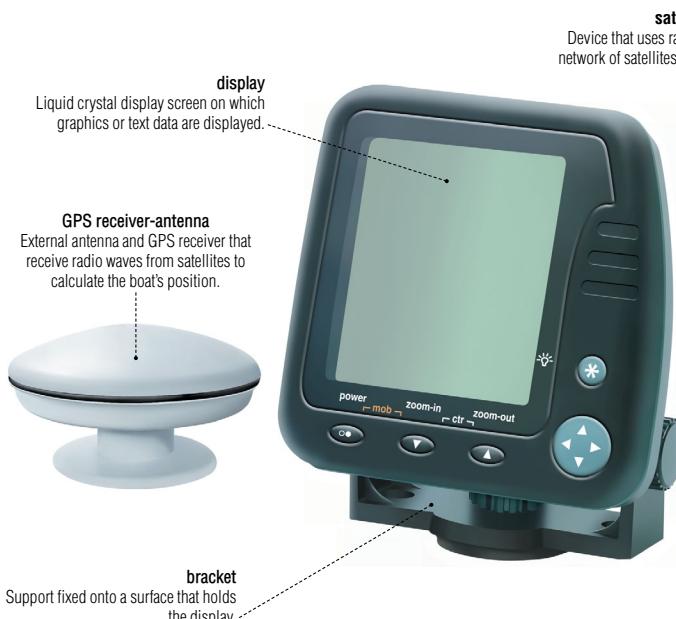
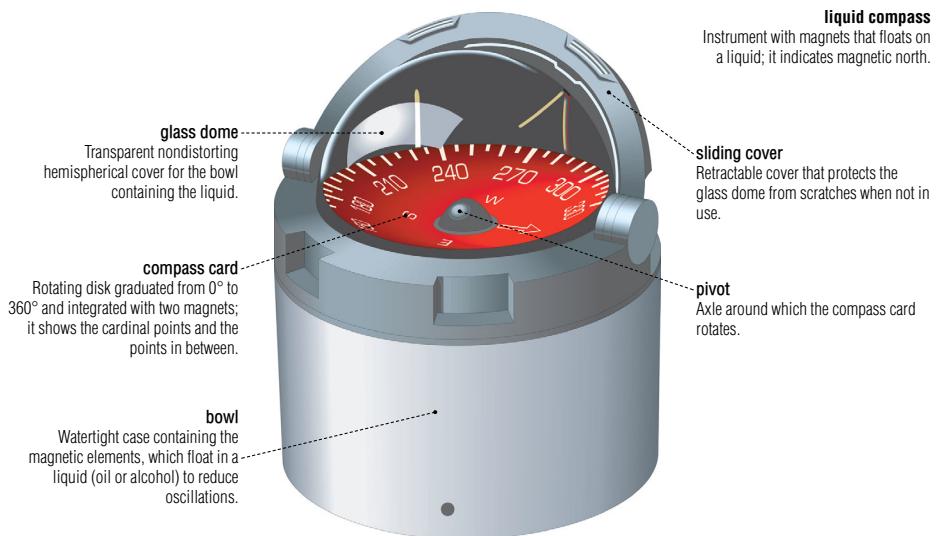
Guide mark that helps to read the graduation marks on the arc.

micrometer screw

Screw with a head graduated in minutes that is turned to set the index arm precisely.

vernier scale

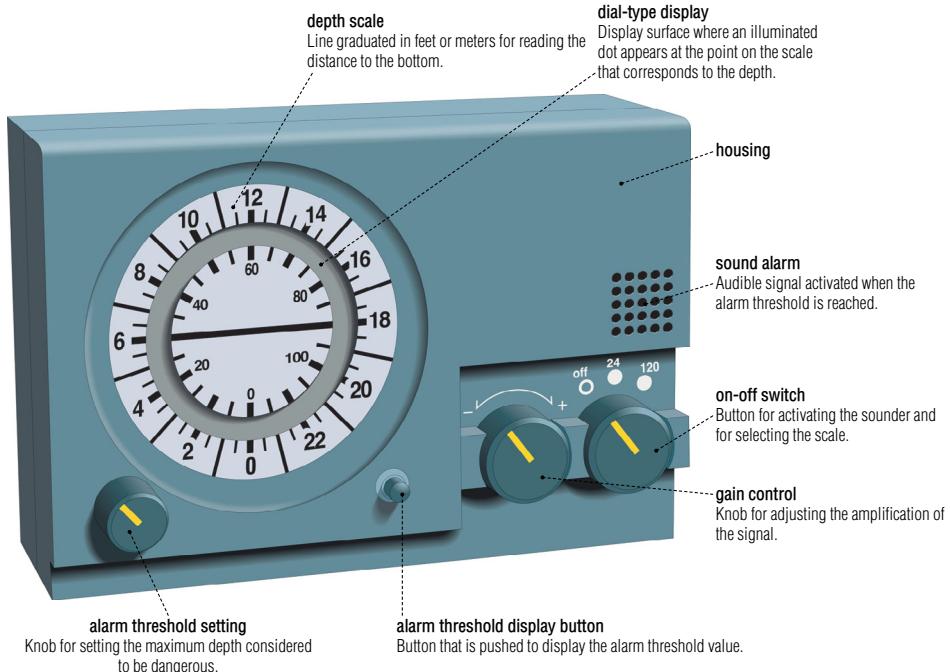
Small graduated rule that slides along the ruler and is used to read very precise measurements.



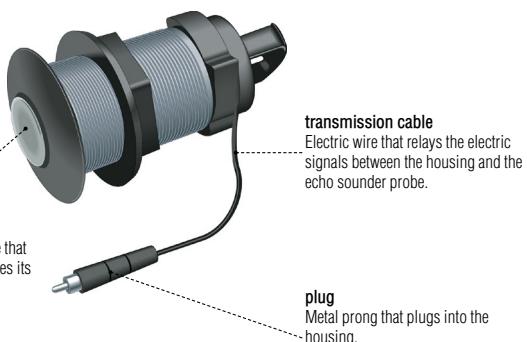
navigation devices

echo sounder

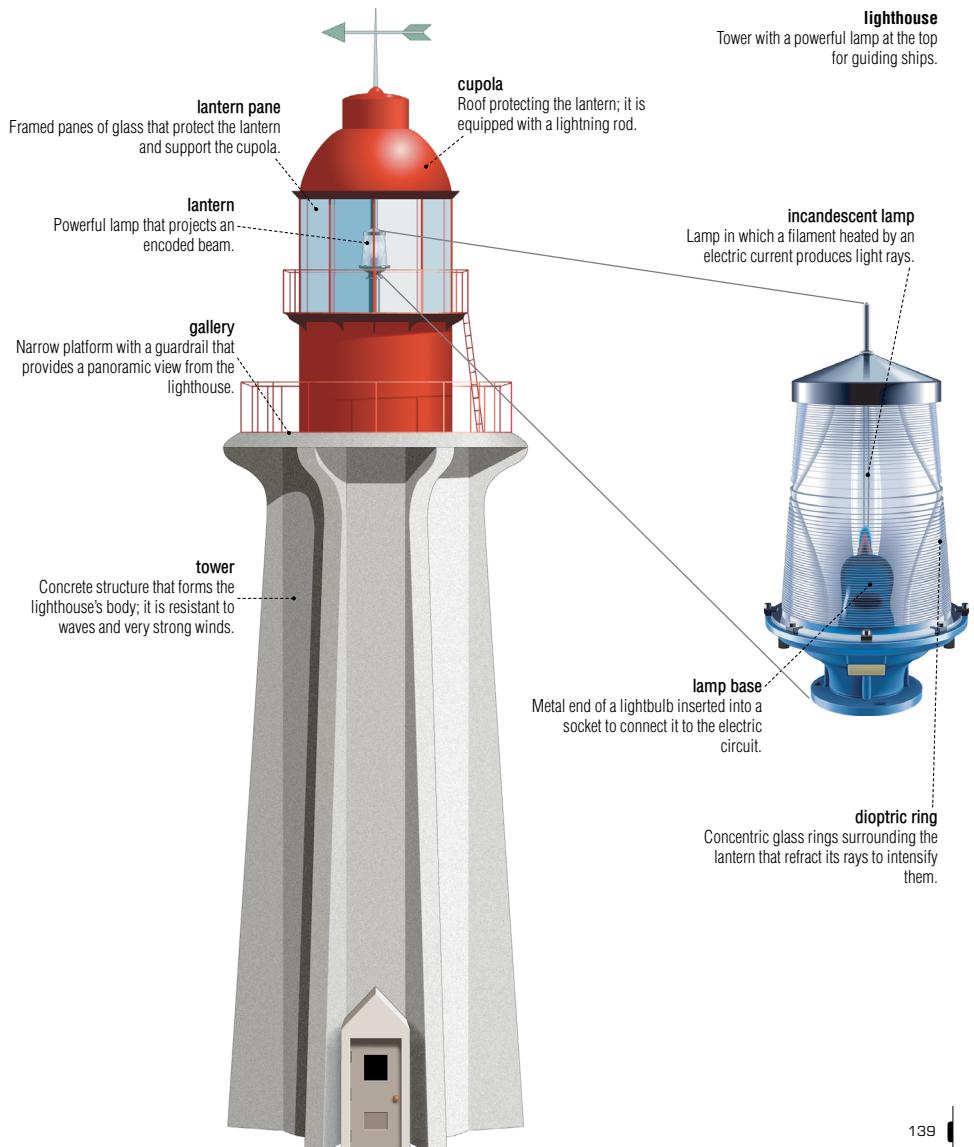
Device that uses ultrasound to measure the depth of the water below the boat.

**echo sounder probe**

Part of the sounder that is submerged to send the ultrasound to the bottom; it receives the echo and converts it into sound.



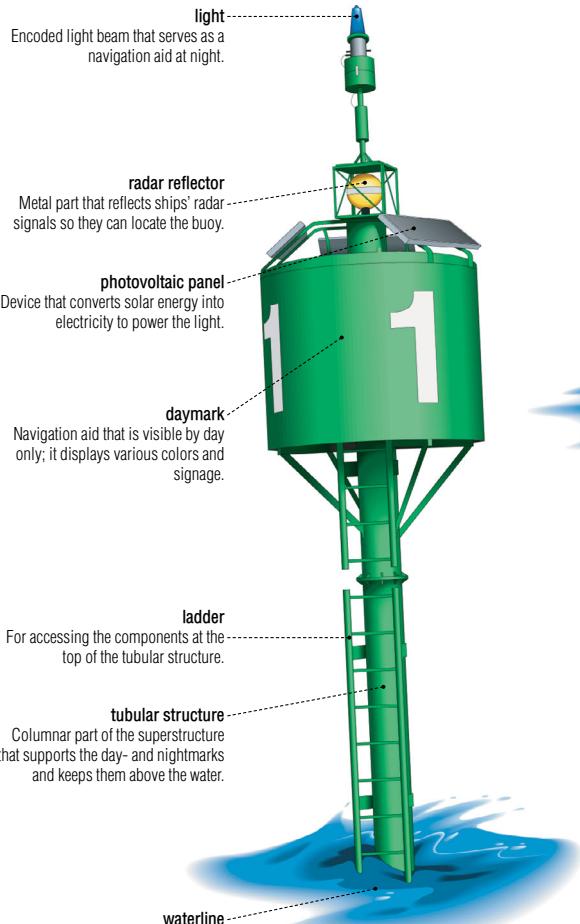
Beacons and devices located on the sea, coasts and waterways that emit light, sound and radio waves to aid navigation.



maritime signals

high focal plane buoy

Floating beacon whose light is especially high above the surface of the water.

**pillar buoy**

Floating beacon with a pylon-shaped superstructure.

**conical buoy**

Floating beacon with a cone-shaped superstructure.



cylindrical buoy

Floating beacon with a cylindrical superstructure.

topmark
Metal cone-shaped part atop a buoy that serves as a navigation aid during the day; its position signifies various meanings.

light
Encoded light beam that serves as a navigation aid at night.

photovoltaic panel
Device that converts solar energy into electricity to power the light.

daymark
Navigation aid that is visible by day only; it displays various colors and signage.

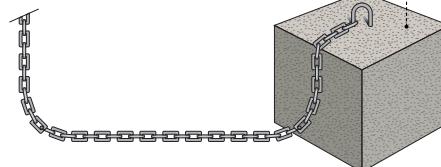
superstructure
Metal frame that forms the buoy's body and contains all its elements.

flotation section
Lightweight base that keeps the buoy afloat and upright.

bridle assembly
Two chains that link the flotation section to the mooring chain.

mooring chain
Long, very sturdy chain that links the buoy to the sinker.

sinker
Heavy object often made of concrete; it rests on the bottom of the waterway to keep the buoy in place.

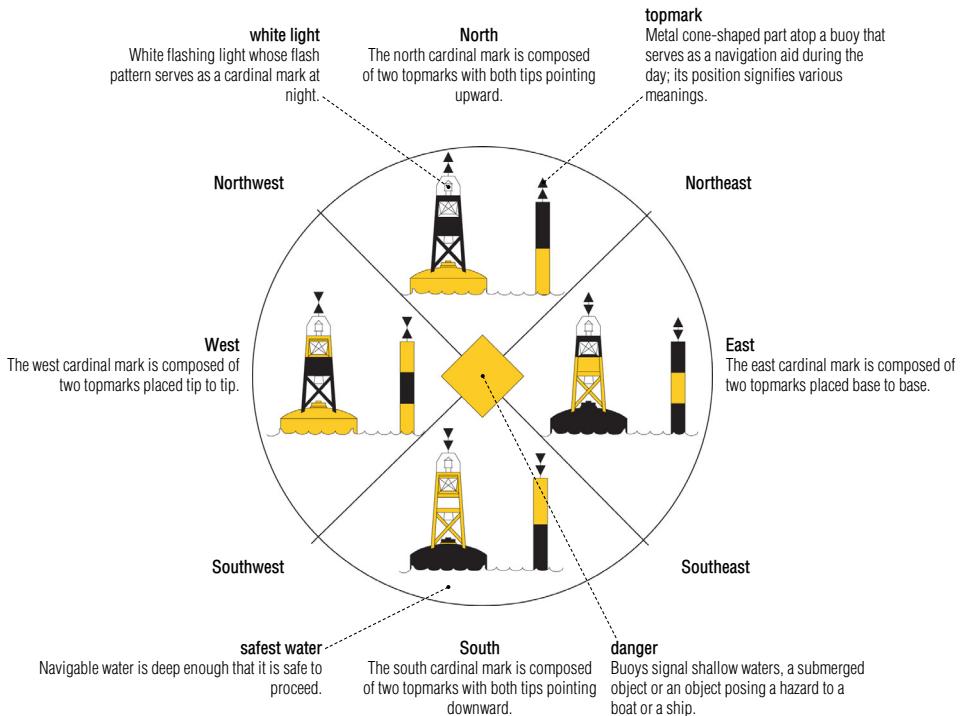


maritime buoyage system

Buoys, beacons and lights located along coasts and waterways to guide ships and boats.

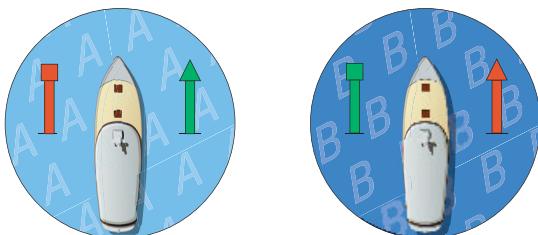
cardinal marks

Buoys of standardized colors, topmarks and lights whose placement alone or in a pattern corresponds to the divisions of a compass.



buoyage regions

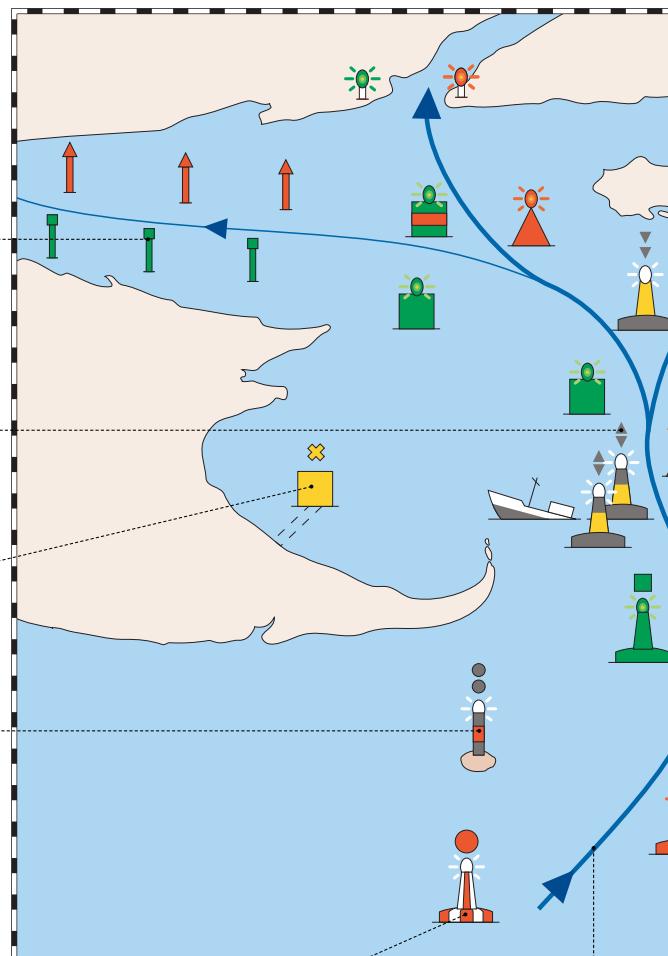
The color of the buoys that indicate starboard and port is the opposite in various parts of the world.



maritime buoy system

daymarks (region B)

System B combines lateral and cardinal marks. It is the opposite of system A, in which starboard marks are red and port marks are green.



spar buoy
Long tubular buoy used in harbors and in waters that have no tides.

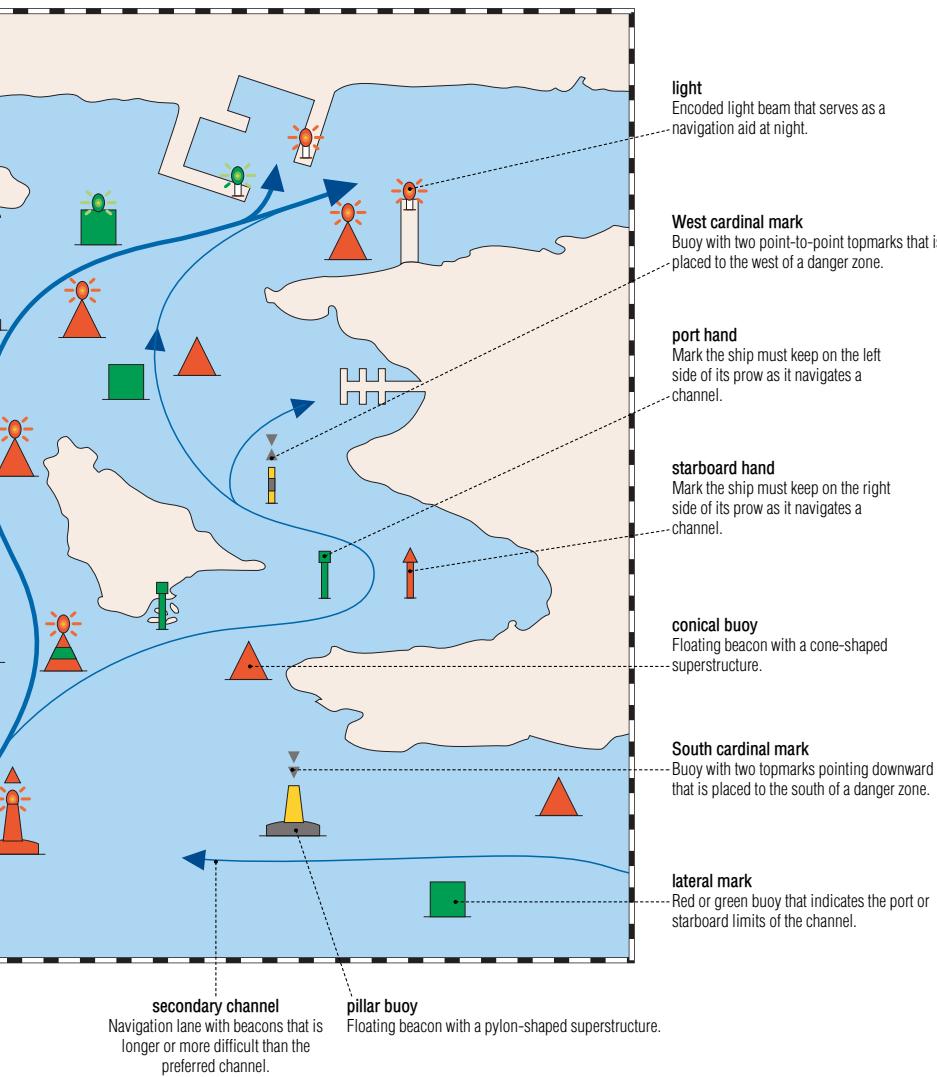
East cardinal mark
Buoy with two base-to-base topmarks that is placed to the east of a danger zone.

special mark
Buoy marking an area that is regulated for a specific use (such as military exercises or fishing) or contains submerged obstacles (such as cables or pipelines).

isolated danger mark
Buoy marking an isolated danger zone beyond which the waters are navigable.

safe water mark
Buoy signaling that the water is navigable.

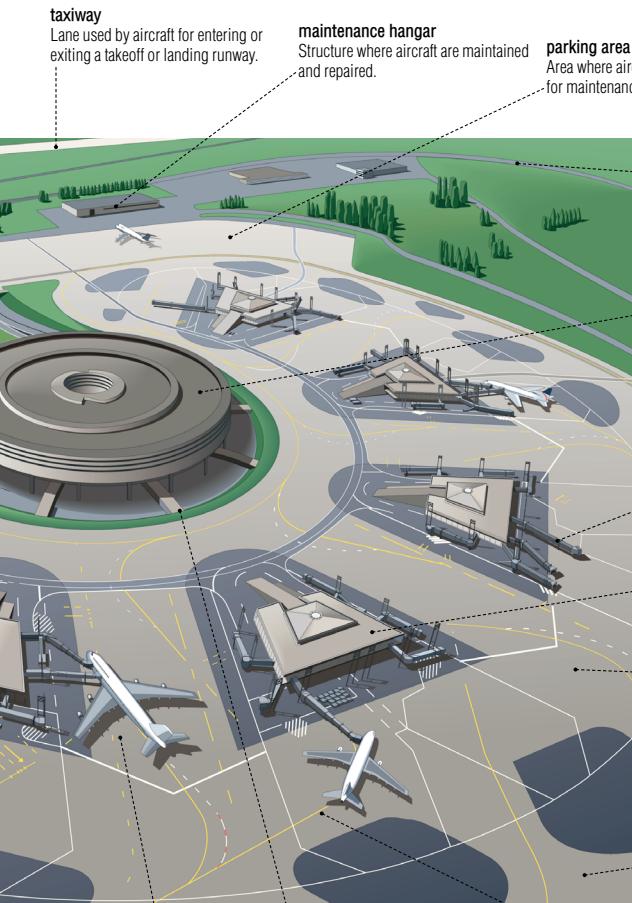
preferred channel
Navigation lane with beacons; it is the shortest and safest way to a harbor or for navigating near a coast or through a waterway.



airport

Location that contains all the technical and commercial facilities needed to support air traffic.



**taxiway**

Lane used by aircraft for entering or exiting a takeoff or landing runway.

maintenance hanger

Structure where aircraft are maintained and repaired.

parking area

Area where aircraft park between flights for maintenance or overhaul.

access road

Part of the network of roads serving the airport.

passenger terminal

Structure through which passengers pass before or after their flight to pick up or leave their baggage and to go through customs.

telescopic corridor

Mobile corridor connecting the passenger loading area with the aircraft.

radial passenger loading area

Pavilion for passengers to reach aircraft that is linked by an underground corridor or by vehicles with the main terminal.

maneuvering area

Area crossed by an aircraft to enter or exit a parking spot.

apron

Lane used by aircraft for entering or exiting the maneuvering area.

taxiway line

Yellow line painted on the ground that shows aircraft the route to follow on the apron or the maneuvering area.

service area

Area around an aircraft that is reserved for service vehicles and ground crew attending to arriving or departing aircraft.

boarding walkway

Underground corridor linking the main terminal with a radial passenger loading area.

airport

passenger terminal

Structure through which passengers pass before or after their flight to pick up or leave their baggage and to go through customs.

lobby

Large entrance hall of the terminal for passengers and the people accompanying them.

automatically controlled door

Door automatically opening and closing for people to go through.

ticket counter

Desk where an airline or travel agent sells tickets for flights.

parking lot

Area for parking vehicles.

baggage claim area

Area where the baggage conveyor belt emerges for passengers to pick up their luggage.

baggage check-in counter

Desk where an employee checks and weighs passengers' baggage and issues boarding passes.

**conveyor belt**

Mechanized rubber belts transporting luggage from the reception area to the baggage claim area.

railroad shuttle service

Train that runs frequently between the terminal and the city or the nearest station.

platform

Area bordering the track for passengers to enter or exit the railroad shuttle service.

security check

Mandatory checkpoint for passengers before boarding where their identification and luggage are inspected.

observation deck

Mezzanine that is open to the public and overlooks the departure and arrival area and the runways.

passport control

Booth where passengers show their passports before entering or leaving the boarding room.

duty-free shop

Store located near the boarding room where tax-free goods are sold (e.g., perfume, alcohol, leather goods).

flight information board

Panel listing and updating all the airport's arrivals and departures as well as the flight departure gate numbers.

boarding room

Room where passengers wait before boarding.

customs control

Booth where passengers from international flights show their passports upon arriving and declare any imported merchandise.

freight expedition

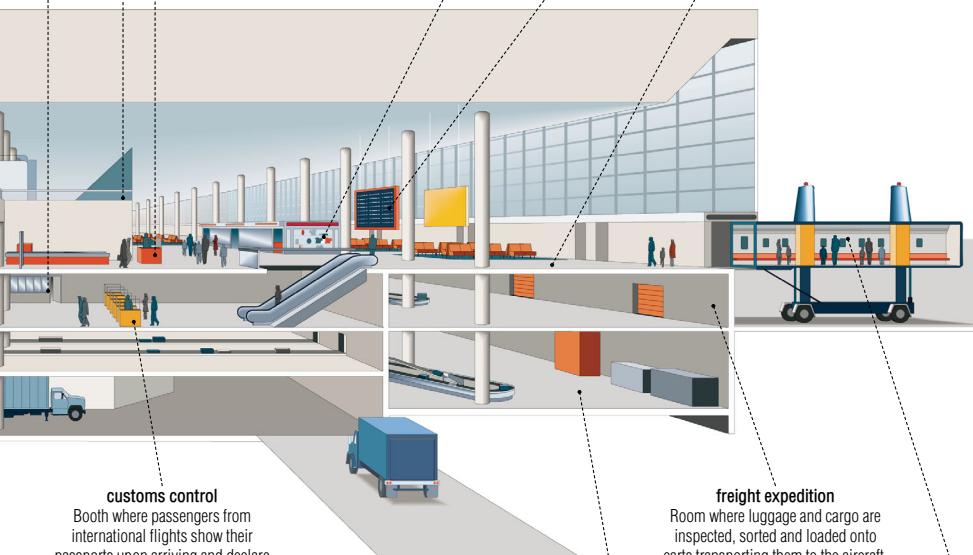
Room where luggage and cargo are inspected, sorted and loaded onto carts transporting them to the aircraft.

freight reception

Room where luggage and cargo that have been unloaded from the cargo hold are transferred to the conveyor belt, which in turn moves them to the baggage claim area.

passenger transfer vehicle

Vertically adjustable vehicle with a cabin for transporting passengers between the aircraft and the terminal.



airport**runway**

Strip of land on which an aircraft speeds up before takeoff or brakes after landing.

runway center line markings

Wide broken white line that shows the center of the runway.

holding area marking

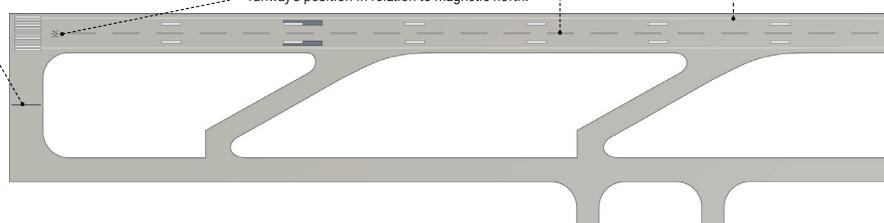
Line that shows an aircraft where to wait for clearance from the control tower before entering the runway for takeoff.

runway designation marking

Number that, when multiplied by 10, shows the runway's position in relation to magnetic north.

runway side stripe markings

Wide solid white line that marks the edges of the runway.

**ground airport equipment**

Equipment and materials for preparing an aircraft for its next flight; this includes cleaning, performing checks, refueling and boarding.

**air start unit**

Vehicle that is equipped with an air compressor driven by a gas turbine; it pumps air into the aircraft's jet engines to start them.

**jet refueler**

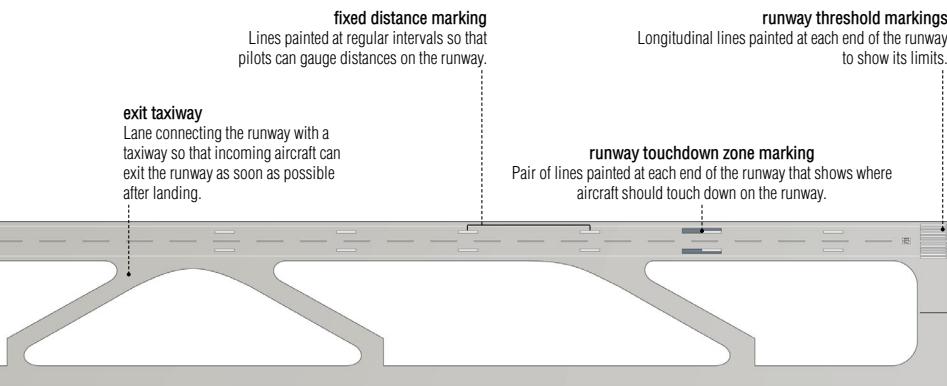
Truck that pumps fuel from underground tanks into the aircraft's tanks.

**potable water truck**

Truck that fills the aircraft's water tanks with drinking water.

**electrical power unit**

Vehicle that is equipped with a transformer to provide electricity to the aircraft when its auxiliary generator set is at rest.

**ground air conditioner**

Truck that contains a device for treating the aircraft's interior air (ventilation and cooling or heating) when the aircraft is at rest.

**lavatory truck**

Truck that empties and cleans the aircraft's toilets.

**tow bar**

Device that connects the tow tractor to the aircraft's front landing gear.

**tow tractor**

Very heavy vehicle that pulls or pushes an aircraft onto the maneuvering area or the parking area.

airport

**wheel chock**

Object that is placed against the landing gear's wheels to keep the aircraft stationary when on the ground.

**universal step**

Mobile staircase that is positioned manually at an aircraft door to allow passengers to enter or exit.

**tripod tail support**

Adjustable tripod that supports part of the aircraft (the tail or a wing) when maintenance or repairs are carried out.

**aircraft maintenance truck**

Vehicle that is used by technical maintenance crew when servicing an aircraft.

**container/pallet loader**

Vehicle whose articulated arms raise and lower a level platform for loading and unloading heavy cargo such as containers and cargo on pallets.

**mobile passenger stairs**

Truck that carries a telescopic staircase, which is positioned at an aircraft door to allow passengers to enter or exit.

**boom truck**

Vehicle that is equipped with a bucket at the end of an articulating pivoting arm; technicians stand in it to work on aircraft.

**baggage trailer**

Flat trailer or cart that carries containers in which baggage is transported from the terminal to the aircraft.

**tow tractor**

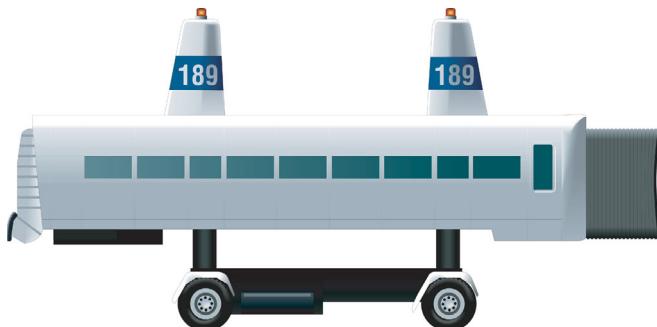
Vehicle that pulls the baggage trailer.

**baggage conveyor**

Conveyor belt of adjustable height for loading and unloading baggage and cargo.

**catering vehicle**

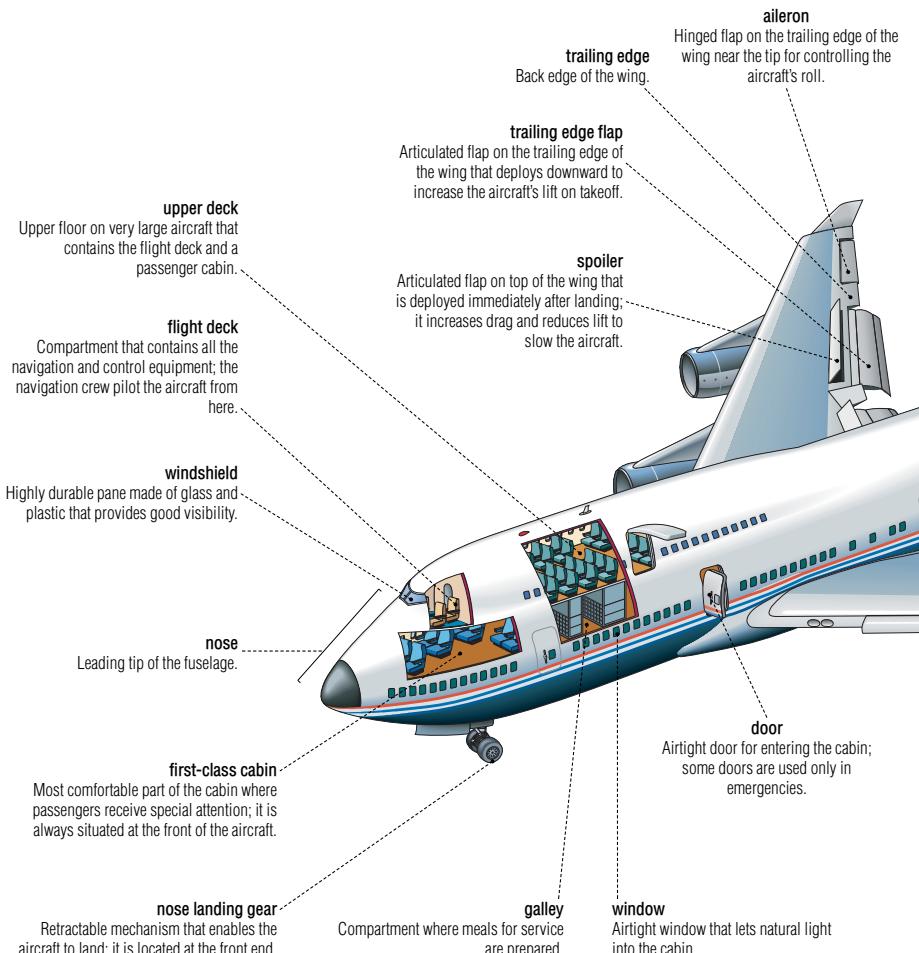
Truck whose box can be lifted up to the aircraft; it delivers the food and drink to be served to passengers.

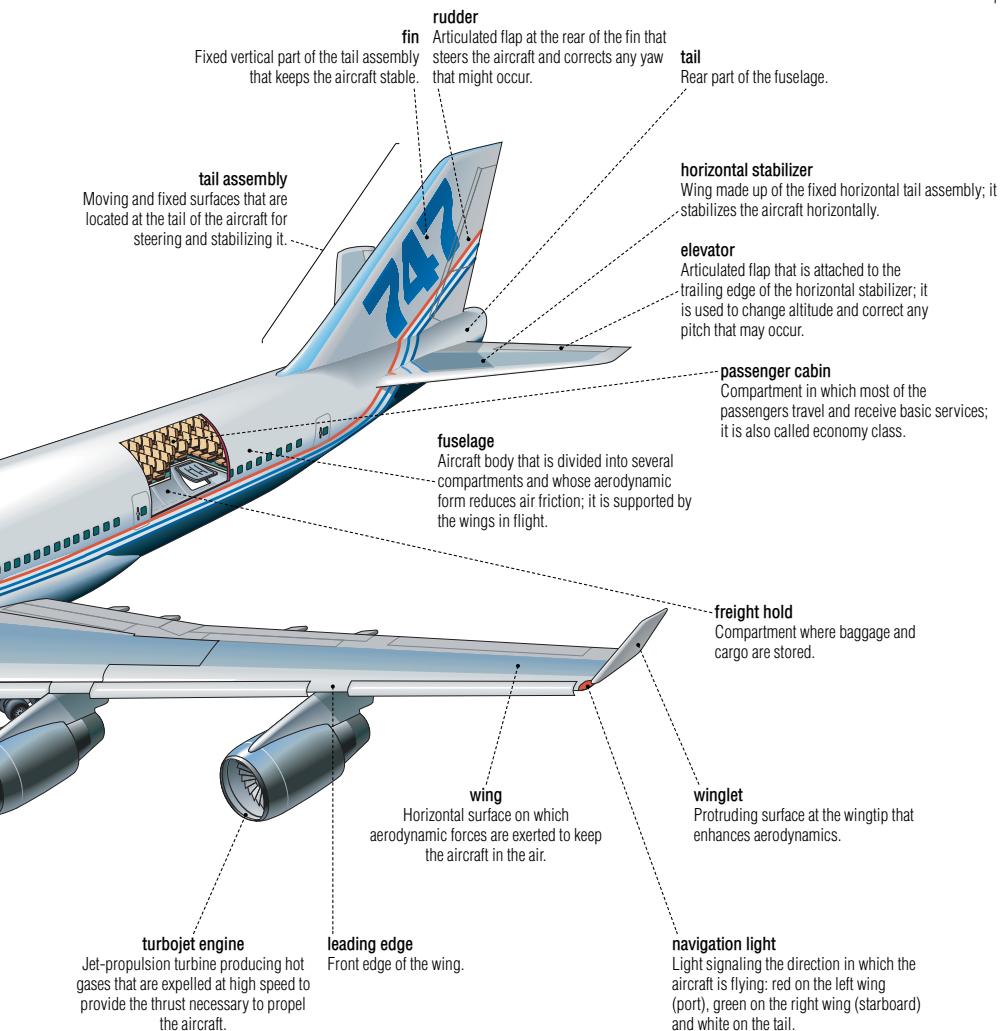
**passenger transfer vehicle**

Vertically adjustable vehicle with a cabin for transporting passengers between the aircraft and the terminal.

long-range jet

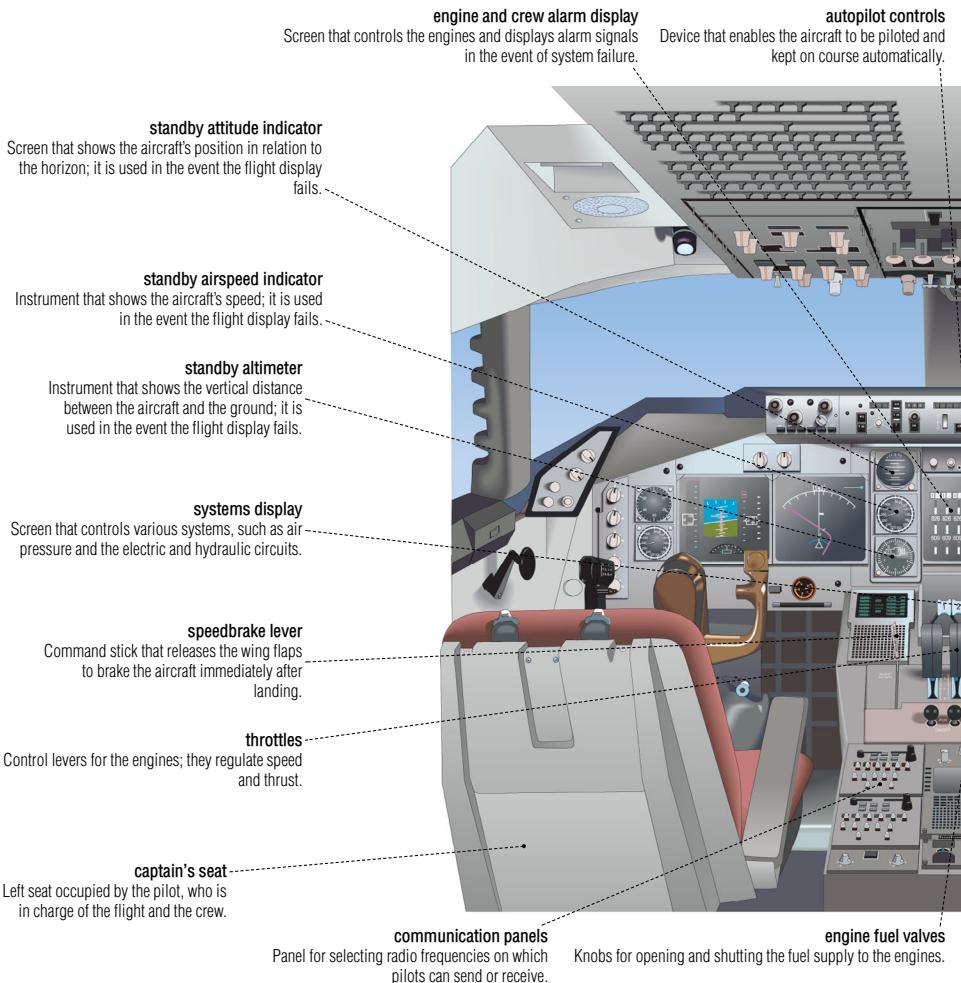
Aircraft that transports passengers and cargo traveling long distances at high altitudes (between 30,000 and 40,000 ft).

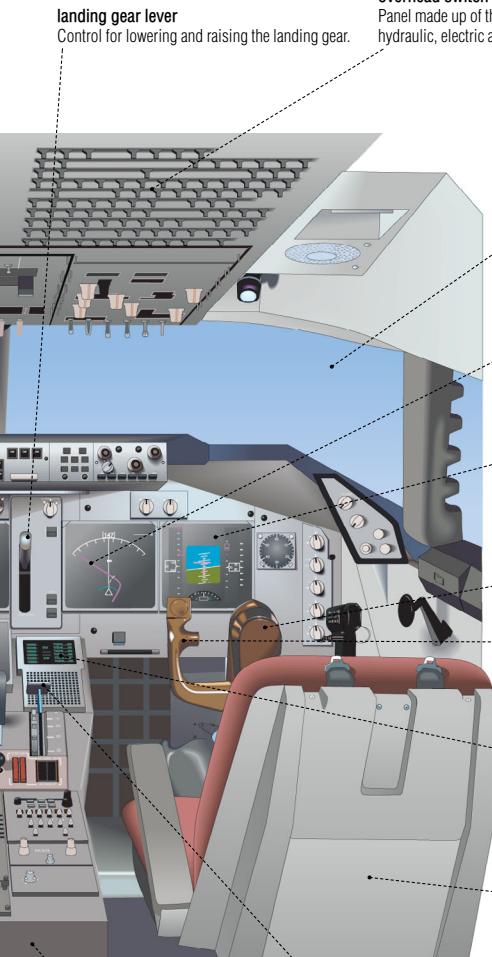




flight deck

Compartment that contains navigation equipment and controls and from which the crew pilots the aircraft.



**landing gear lever**

Control for lowering and raising the landing gear.

overhead switch panel

Panel made up of the switches that cut the hydraulic, electric and fuel circuits.

windshield

Highly durable pane made of glass and plastic that provides good visibility.

navigation display

Screen that shows the aircraft's position and flight plan and weather conditions.

primary flight display

Screen that shows the main parameters necessary for piloting (aircraft's position in relation to the horizon, altitude and course).

control column

Steering component that causes an aircraft to bank to the left or to the right and to ascend or descend.

control wheel

Lever that activates the control column from back to front and from side to side.

transponder

Instruments that, with the autopilot, control the engine power and guide the aircraft on its course.

first officer's seat

Right seat occupied by the copilot, who is second in command.

control console

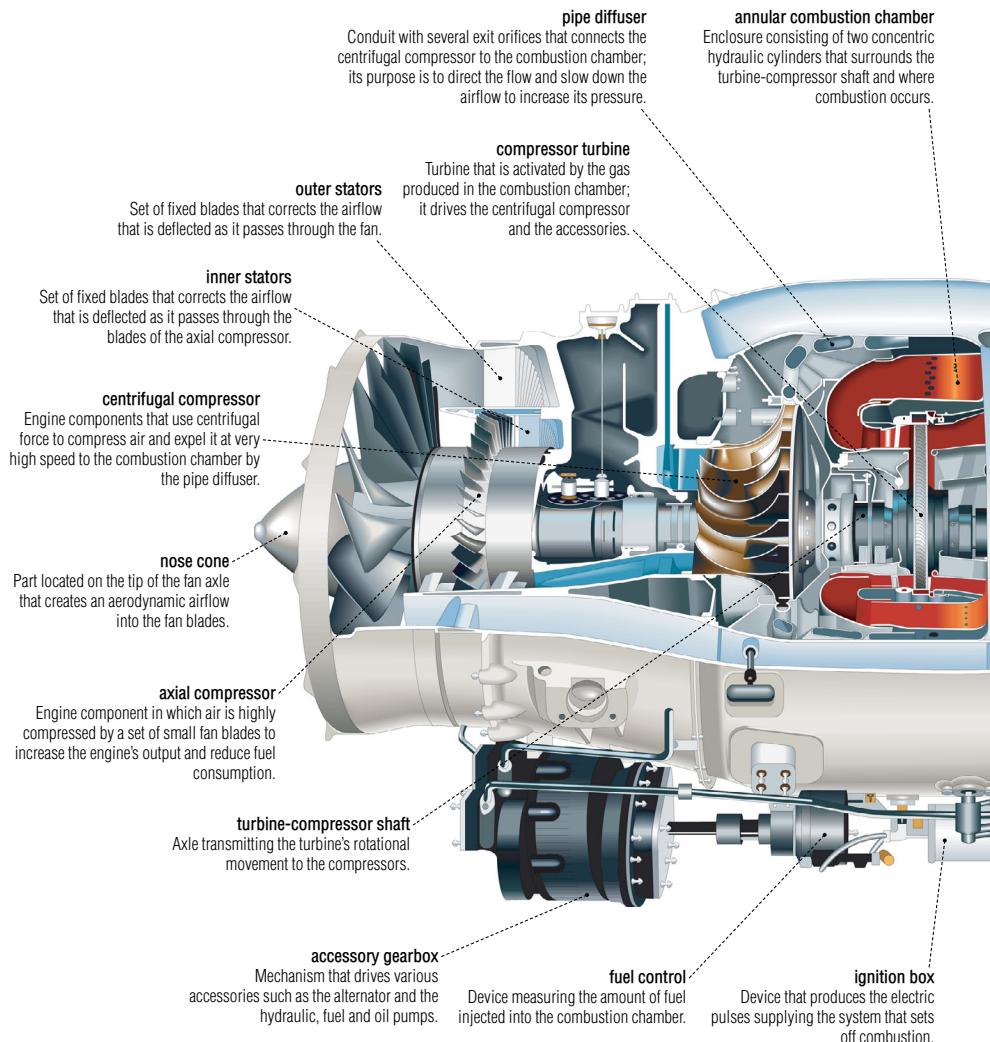
Component located between the two seats that contains part of the instrumentation.

flap lever

Control stick that activates the wing slats and the trailing edge flaps.

turbofan engine

Jet engine with a fan and two airflows; one airflow passes through the combustion chamber and the other bypasses it.

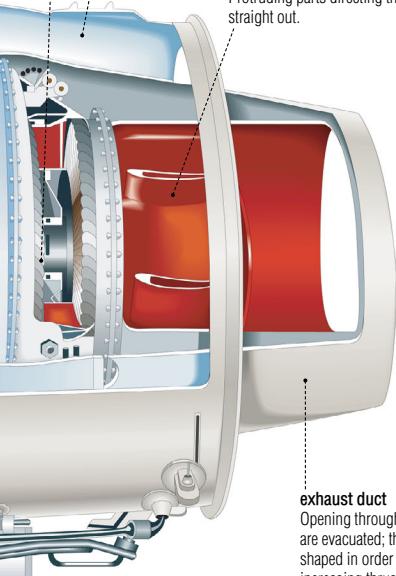


power turbine

Turbine that is driven by the gases expelled by the combustion chamber; it drives the axial compressor and the fan. It is independent of the compressor turbine.

bypass duct

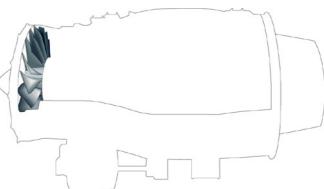
Channel that conducts some of the air sucked in by the fan, which contributes to the engine's thrust.

**exhaust guide vanes**

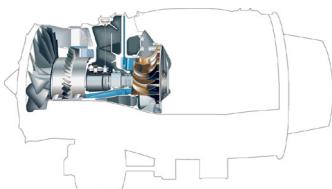
Protruding parts directing the exhaust gases straight out.

fan

Blower sucking air into the turbofan engine.

**compression**

Phase during which some of the air flowing through the engine is compressed before it enters the combustion chamber.

**combustion**

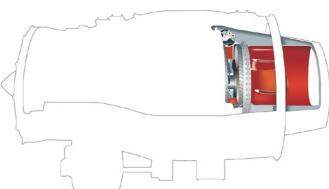
Phase during which the compressed air enters the combustion chamber, where it is mixed with fuel and ignited.

**exhaust duct**

Opening through which the exhaust gases are evacuated; the duct is usually cone-shaped in order to narrow the gas flow, thus increasing thrust.

exhaust

Phase during which the air expands and produces a thrust that activates the turbines and propels the turbofan engine.

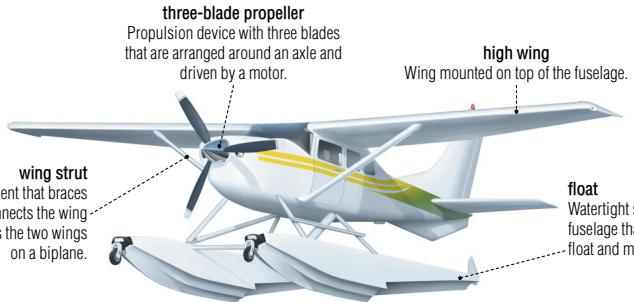


examples of airplanes

Ever since the first airplane, Éole, in 1890, the shape of aircraft has evolved constantly as new aerodynamic discoveries were made and engine power increased.

float seaplane

Airplane designed to take off from and land on water.



biplane
Rigid or flexible component that braces an airplane's wing and connects the wing to the fuselage or connects the two wings on a biplane.



light aircraft

Airplane that usually has a single engine and cruises between 90 and 150 mph; it is used for recreation and traveling short distances.

high frequency antenna cable
Wire enabling radio communication for the aircraft.

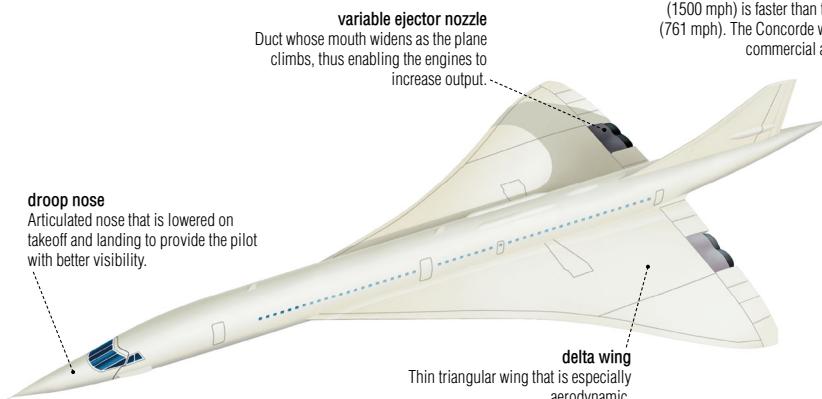
canopy
Glassed covering over the cockpit.

two-blade propeller
Propulsion device with two blades that are arranged around an axle and driven by a motor.

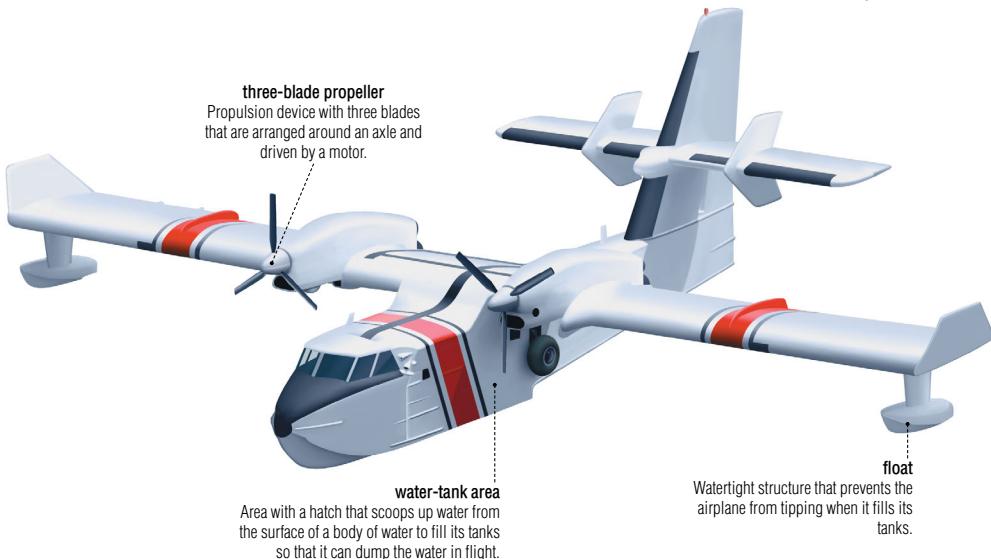


supersonic jetliner

Passenger aircraft whose cruising speed (1500 mph) is faster than the speed of sound (761 mph). The Concorde was the best known commercial aircraft of this type.

**amphibious fire-fighting aircraft**

Airplane with large water tanks; it is used to fight forest fires.



examples of airplanes

business aircraft

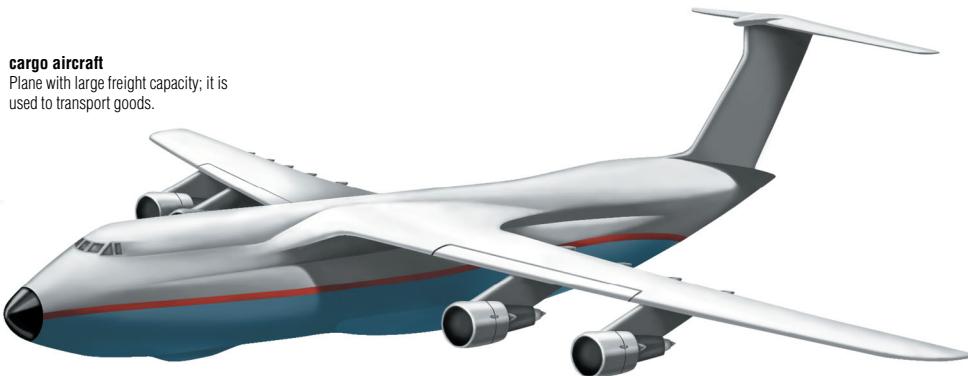
Airplane with a limited number of seats; it is usually used by heads of corporations for business trips.

**winglet**

Protruding surface at the wingtip that enhances aerodynamics.

cargo aircraft

Plane with large freight capacity; it is used to transport goods.

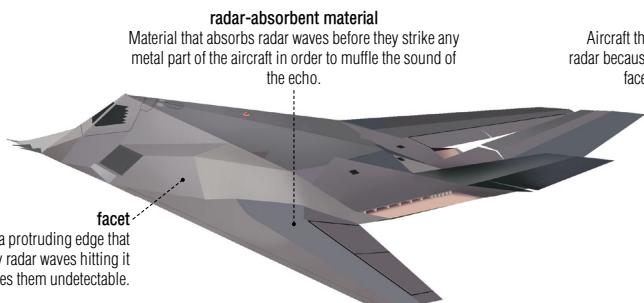
**superjumbo jet**

Airplane that can transport a large number of passengers (more than 500).

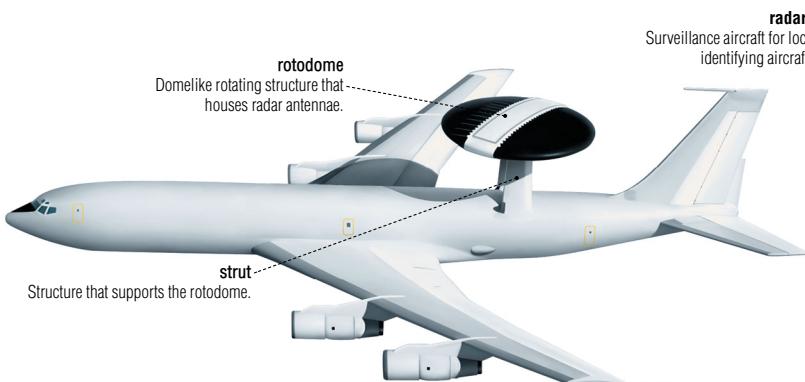




vertical take-off and landing aircraft
Airplane that can move vertically in order to take off from and land on short runways; it is usually used in combat.



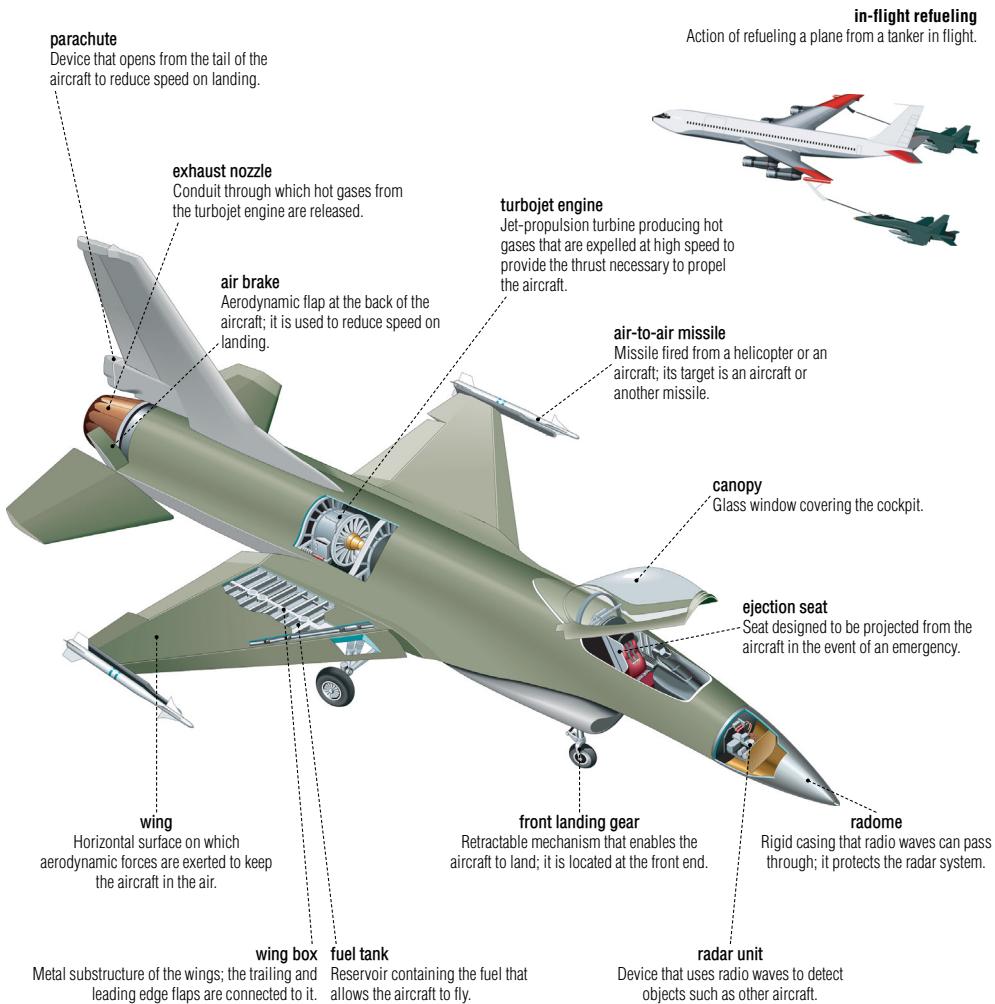
stealth aircraft
Aircraft that cannot be detected by radar because of the radar-absorbing facets covering its fuselage.



radar aircraft
Surveillance aircraft for locating and identifying aircraft in flight.

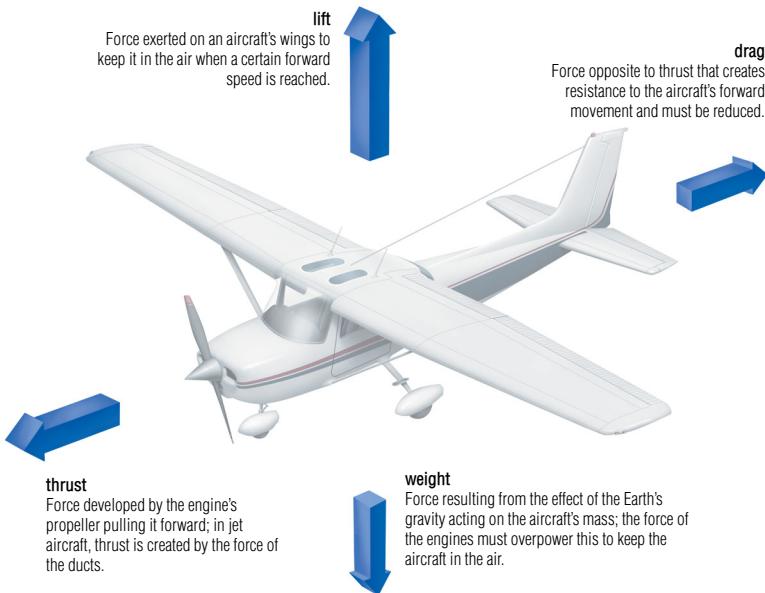
combat aircraft

Military aircraft used for attack purposes.



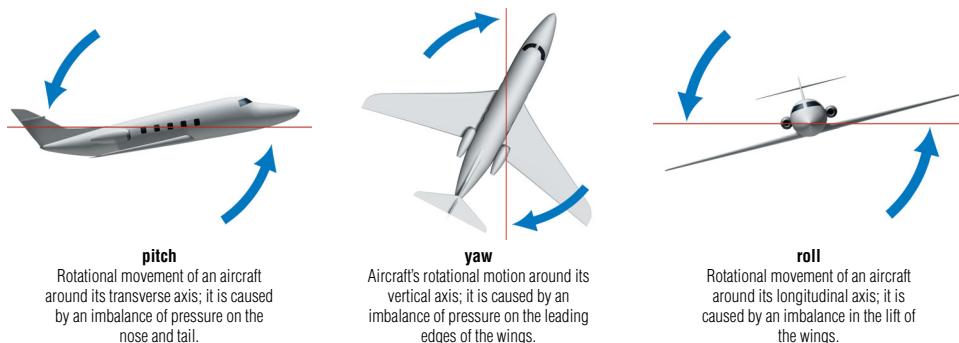
forces acting on an airplane

Physical phenomena that affect the movement of an aircraft in flight.



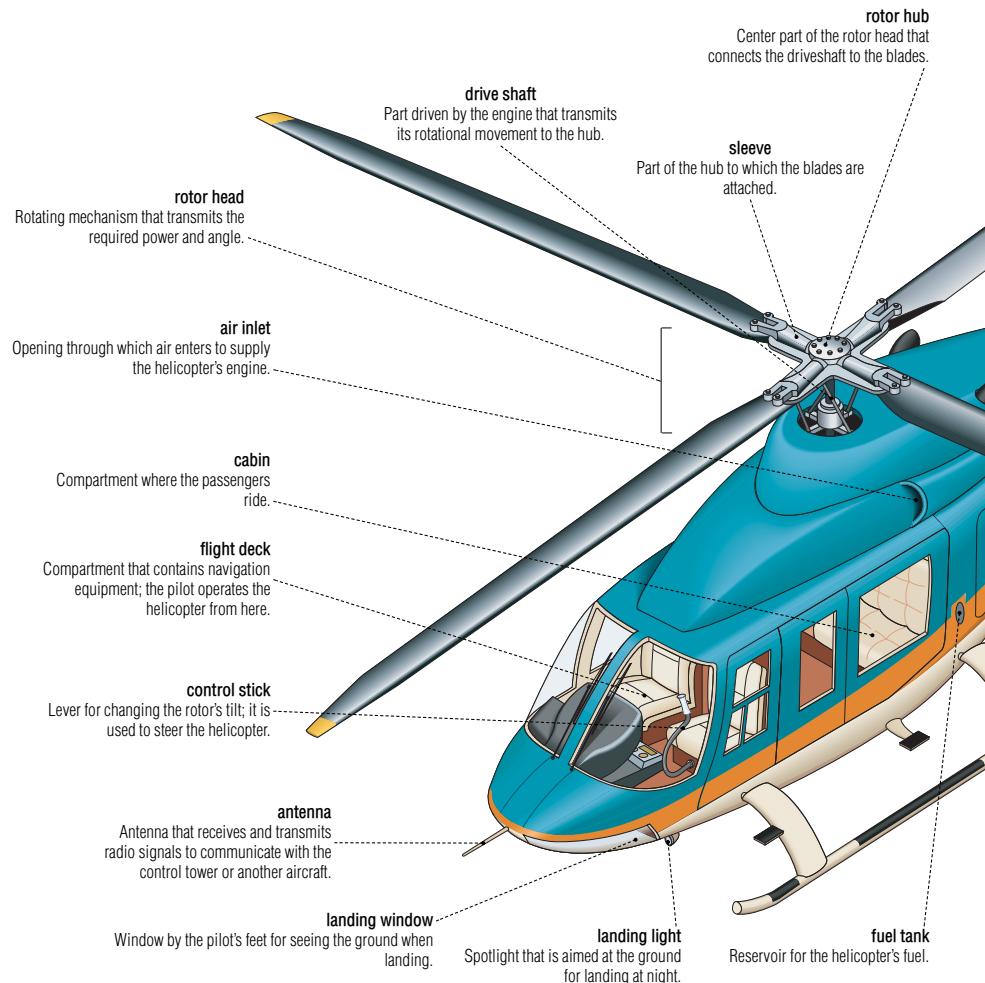
movements of an airplane

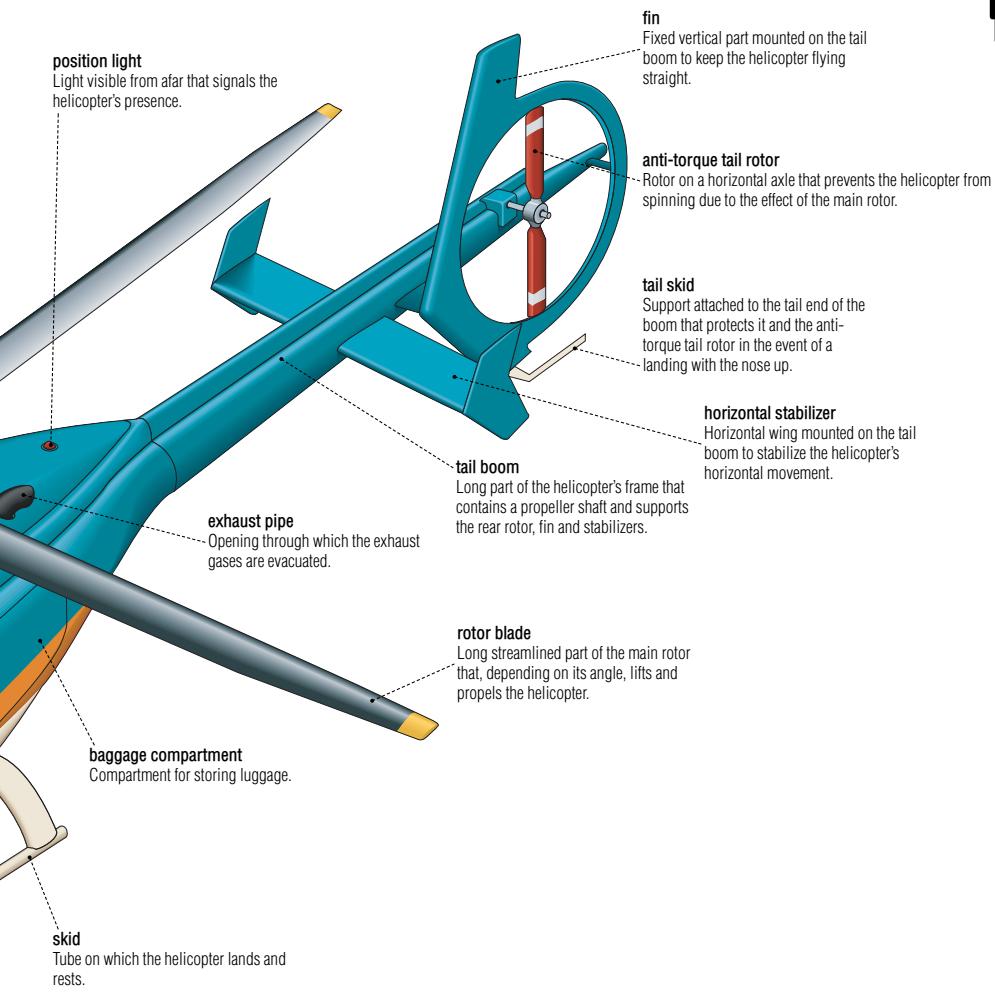
Changes exerted on an aircraft in flight that affect its behavior; a pilot must know how to correct them.



helicopter

Aircraft whose lift agent is a rotor on a vertical axle.





examples of helicopters

Because they can take off and land vertically, helicopters are more effective than airplanes in certain situations.

tactical transport helicopter

Armed military helicopter for transporting troops, small combat vehicles and various objects.



water bomber helicopter

Helicopter with a water tank that is used to fight forest fires.



belly tank

Tank filled with water by a long pipe hanging underneath; it uses a hatch to empty the water in flight.

ambulance helicopter

Helicopter for transporting the sick and injured and providing medical assistance.



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TRANSPORTATION



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