

**CPC****COOPERATIVE PATENT CLASSIFICATION****B60K**

**ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS; AUXILIARY DRIVES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST, OR FUEL SUPPLY, OF PROPULSION UNITS, IN VEHICLES**

**NOTE**

In this subclass, the following terms or expressions are used with the meanings indicated:

- "conjoint control of drive units" includes such control for vehicles or of general applicability;
- "auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;
- "transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;
- "drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;
- "sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;
- "hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion

Attention is drawn to the Note following the title of class B60

**Arrangement or mounting of propulsion units in vehicles** (of control devices for such units [B60K 26/00](#); elastic mountings per se [F16F](#); propulsion units or their control per se, see the relevant classes)

**B60K 1/00**

**Arrangement or mounting of electrical propulsion units** ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#); electric transmission arrangements [B60K 17/12](#); electric equipment or propulsion of electrically-propelled vehicles per se [B60L](#); current-collectors for power supply lines of electrically-propelled vehicles [B60L 5/00](#))

**B60K 1/02**

- . comprising more than one electric motor

**B60K 1/04**

- . of the electric storage means for propulsion (for auxiliary purposes only [B60R 16/04](#); supplying batteries to, or removing batteries from, vehicles [B60S 5/06](#))

**B60K 3/00**

**Arrangement or mounting of steam or gaseous-pressure propulsion units** ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#); gaseous-pressure transmission

arrangements [B60K 17/10](#))

B60K 3/02 . of piston type

B60K 3/04 . of turbine type

**B60K 5/00** **Arrangement or mounting of internal-combustion or jet-propulsion units** ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#))

B60K 5/02 . with the engine main axis, e.g. crankshaft axis, substantially in or parallel to the longitudinal centre line of the vehicle

B60K 5/04 . with the engine main axis, e.g. crankshaft axis, transversely to the longitudinal centre line of the vehicle

B60K 5/06 . . with the engine main axis substantially vertical

B60K 5/08 . comprising more than one engine

B60K 5/10 . providing for ready detachment of engine

B60K 5/12 . Arrangement of engine supports [(N: Supports comprising both a plastic spring and a fluid damper [F16F 13/06](#))]

B60K 5/1208 . . {Resilient supports (**B60K 15/12C - B60K 15/12L** take precedence)}

B60K 5/1216 . . . {characterised by the location of the supports relative to the motor or to each other ([B60K 5/1225](#) takes precedence)}

B60K 5/1225 . . . {comprising resilient rings surrounding a part of the unit}

B60K 5/1233 . . . {comprising protective elements, e.g. for protecting against heat, dust}

B60K 5/1241 . . {Link-type support ([B60K 5/125](#), [B60K 5/1275](#) take precedence)}

B60K 5/125 . . {Telescopic supports, e.g. telescopic dampers ([B60K 5/1275](#) takes precedence)}

B60K 5/1258 . . {Wire-type supports ([B60K 5/1275](#) takes precedence)}

B60K 5/1266 . . {Supports comprising friction damping devices ([B60K 5/125](#), [B60K 5/1283](#) take precedence)}

B60K 5/1275 . . {Plastically deformable supports}

B60K 5/1283 . . {Adjustable supports, e.g. the mounting or the characteristics being adjustable}

B60K 5/1291 . . {Supports comprising stoppers}

**B60K 6/00** **Arrangement or mounting of plural diverse prime-movers for mutual or common propulsion, e.g. hybrid propulsion systems comprising electric motors and internal combustion engines** { ; Control systems therefor, i.e. systems controlling two or more prime movers, or controlling one of these prime movers and any of the transmission, drive or drive units (arrangement or mounting in vehicles of electrical gearing, in which an electrical machine serves only as reduction gearing and not as the prime mover and in which no electrical storing means are used [B60K 17/12](#); control and regulation of purely electrical prime movers [B60L](#); prime-movers comprising electrical and internal combustion motors in a common engine block or housing per se [F02B 65/00](#); electric motors or motor-generators used for starting the combustion engine [F02N 11/04](#); electric motors for synchronising gearing [F16H 3/12](#))} { Informative references: mechanical

gearings with secondary electric drive [F16H 3/72](#); arrangements for handling mechanical energy structurally associated with the dynamo-electric machine [H02K 7/00](#); machines comprising structurally interrelated motor and generator parts [H02K 51/00](#); dynamo-electric machines not otherwise provided for in H02K see [H02K 57/00](#)

#### **NOTE**

In this subgroup, the following expressions are used, with the meanings indicated :

- "energy storing means" means apparatus for storing propulsive energy and providing stored energy to drive the prime mover or the ultimate propulsive elements
- "hybrid electric vehicle" (HEV) means a vehicle with an electrical prime mover and a combustion engine, in which the electrical prime mover and the combustion engine either singly or in combination, drive the ultimate propulsive elements, e.g. wheels
- "motor-generator" means an electric motor, or an electric generator, or an electrical machine which can be used for both functions, as a motor or a generator
- "prime mover" means a propulsion unit or source of motive power providing a mechanical output, e.g. via a rotating shaft

- B60K 6/08 . Prime-movers comprising combustion engines and mechanical or fluid energy storing means
- B60K 6/10 . . by means of a chargeable mechanical accumulator, e.g. flywheel
- B60K 6/105 . . . {the accumulator being a flywheel}
- B60K 6/12 . . by means of a chargeable fluidic accumulator
- B60K 6/20 . the prime-movers consisting of electric motors and internal combustion engines, e.g. HEVs

#### **NOTE**

When classifying in one of groups [B60K 6/22](#), [B60K 6/42](#) or [B60K 6/50](#), further technical information, which is considered to represent information of interest for search, should also be classified in the other subgroups of main group [B60K 6/00](#) to enable searching using a combination of classification symbols

- B60K 6/22 . . characterised by apparatus, components or means specially adapted for HEVs
- B60K 6/24 . . . characterised by the combustion engines
- B60K 6/26 . . . characterised by the motors or the generators
- B60K 6/28 . . . characterised by the electric energy storing means, e.g. batteries or capacitors
- B60K 6/30 . . . characterised by chargeable mechanical accumulators, e.g. flywheels
- B60K 6/32 . . . characterised by the fuel cells
- B60K 6/34 . . . characterised by the absence of energy storing means
- B60K 6/36 . . . characterised by the transmission gearings
- B60K 6/365 . . . . with the gears having orbital motion
- B60K 6/38 . . . characterised by the driveline clutches (shift clutches within the gearing or transmission [B60K 6/36](#), {[B60K 6/54](#)})

- B60K 6/383 . . . . One-way clutches or freewheel devices
- B60K 6/387 . . . . Actuated clutches, i.e. clutches engaged or disengaged by electric, hydraulic or mechanical actuating means
- B60K 6/40 . . . characterised by the assembly or relative disposition of components
- B60K 6/405 . . . . Housings
- B60K 6/42 . . characterised by the architecture of the hybrid electric vehicle
- B60K 6/44 . . . Series-parallel type
- B60K 6/442 . . . . Series-parallel switching type
- B60K 6/445 . . . . Differential gearing distribution type
- B60K 6/448 . . . . Electrical distribution type
- B60K 6/46 . . . Series type
- B60K 6/48 . . . Parallel type
- B60K 6/485 . . . . Motor-assist type
- B60K 6/50 . . Architecture of the driveline characterised by arrangement or kind of transmission units
- B60K 6/52 . . . Driving a plurality of drive axles, e.g. four-wheel drive
- B60K 6/54 . . . Transmission for changing ratio
- B60K 6/543 . . . . the transmission being a continuously variable transmission
- B60K 6/547 . . . . the transmission being a stepped gearing

**B60K 7/00**      **Disposition of motor in, or adjacent to, traction wheel** ([roller-skate driving mechanisms A63C 17/12](#))

- B60K 7/0007 . {the motor being electric}
- B60K 7/0015 . {the motor being hydraulic}
- B60K 7/0023 . { the motor being pneumatic}

**B60K 8/00**      **Arrangement or mounting of propulsion units not provided for in one of the preceding main groups**

**Arrangements in connection with cooling, air intake, gas exhaust, fuel supply, or power supply of propulsion units in vehicles**

**B60K 11/00**      **Arrangement in connection with cooling of propulsion units** ([heating the interior space B60H](#); [cooling internal combustion engines per se F01P](#))

- B60K 11/02 . with liquid cooling
- B60K 11/04 . . Arrangement or mounting of radiators, radiator shutters, or radiator blinds [{\(B60K 11/085 takes precedence\)}](#)
- B60K 11/06 . with air cooling
- B60K 11/08 . Air inlets for cooling; Shutters or blinds therefor [{\(radiator or grille guards B60R 19/52\)}](#)

- B60K 11/085 . . {with adjustable shutters or blinds}
- B60K 13/00** **Arrangement in connection with combustion air intake or gas exhaust of propulsion units** (extensions for melting snow or ice on roads or like surfaces [E01H 5/00](#), [E01H 6/00](#); forming part of the engine F01N; supplying combustion engines with combustible mixtures or constituents F02M)
- B60K 13/02 . concerning intake
- B60K 13/04 . concerning exhaust ({collecting exhaust gases with central suction systems not forming part of vehicles, e.g. in workshops or tunnels [B08B 15/002](#), otherwise along carriageways [E01C 1/005](#);} extensions for melting snow on roads [E01H 5/00](#), [E01H 6/00](#); exhaust or silencing apparatus for internal combustion engines per se [F01N](#); {pipes, joints or supports therefor [F16L](#)})
- B60K 13/06 . using structural parts of the vehicle as ducts, e.g. frame parts
- B60K 15/00** **Arrangement in connection with fuel supply of combustion engines** {or other fuel consuming energy converters, e.g. fuel cells}; **Mounting or construction of fuel tanks** (tanks in general [B65D](#), [F17C](#); supplying combustion engines with combustible mixtures or constituents [F02M](#))
- B60K 15/01 . Arrangement of fuel conduits (chassis frame forming fluid conduit means [B62D 21/17](#))
- B60K 15/013 . . {of gas conduits}
- B60K 15/03 . Fuel tanks (chassis frame comprising fluid storage compartment [B62D 21/16](#); { Details of the fuel feeding system related to the fuel tank [F02M 37/0076](#)})
- B60K 15/03006 . . {Gas tanks ([B60K 15/07](#) takes precedence)}
- B60K 15/03177 . . {made of non-metallic material, e.g. plastics, or of a combination of non-metallic and metallic material ([B60K 15/03006](#) takes precedence)}
- B60K 15/035 . . characterised by venting means
- B60K 15/03504 . . . {adapted to avoid loss of fuel or fuel vapour, e.g. with vapour recovery systems}
- B60K 15/03519 . . . {Valve arrangements in the vent line}
- B60K 15/04 . . Tank inlets ([B60K 15/077](#) takes precedence)
- B60K 15/0403 . . . {Anti-siphoning devices}
- B60K 15/0406 . . . {Filler caps for fuel tanks}
- B60K 15/0409 . . . . {Provided with a lock}
- B60K 15/05 . . . Inlet covers
- B60K 15/06 . . characterised by fuel reserve systems
- B60K 15/061 . . . {with level control}
- B60K 15/063 . . Arrangement of tanks
- B60K 15/067 . . . Mounting of tanks
- B60K 15/07 . . . . of gas tanks
- B60K 15/073 . . Tank construction specially adapted to the vehicle ([B60K 15/077](#) takes precedence)
- B60K 15/077 . . with means modifying or controlling distribution or motion of fuel, e.g. to prevent noise, surge, splash or fuel starvation

- B60K 15/10 . concerning gas-producing plants
- B60K 16/00** **Arrangements in connection with power supply from force of nature, e.g. sun, wind** (electric propulsion with power supply from force of nature, e.g. sun, wind, [B60L 8/00](#); effecting propulsion by wind motors driving water-engaging propulsive elements [B63H 13/00](#))
- Arrangement or mounting of transmissions or their control in vehicles** (torque-transmitting axles [B60B](#); combined transmission and steering gear for steering non-deflectable wheels [B62D](#))
- B60K 17/00** **Arrangement or mounting of transmissions in vehicles** (clutches per se, e.g. construction thereof, [F16D](#); gearing per se, e.g. construction thereof, [F16H](#))
- B60K 17/02 . characterised by arrangement, location, or kind of clutch
- B60K 17/04 . characterised by arrangement, location, or kind of gearing (electric equipment or propulsion of electrically-propelled vehicles [B60L](#))
- B60K 17/043 .. {Transmission unit disposed in on near the vehicle wheel, or between the differential gear unit and the wheel}
- B60K 17/046 ... {with planetary gearing having orbital motion}
- B60K 17/06 .. of change-speed gearing ([B60K 17/10](#) to [B60K 17/16](#) take precedence)
- B60K 17/08 ... of mechanical type
- B60K 17/10 .. of fluid gearing (of fluid clutches [B60K 17/02](#))
- B60K 17/105 ... {Units comprising at least a part of the gearing and a torque-transmitting axle, e.g. transaxles ([B60K 17/14](#) takes precedence)}
- B60K 17/12 .. of electric gearing (of electrically-actuated clutches [B60K 17/02](#))
- B60K 17/14 .. the motor of fluid or electric gearing being disposed in or adjacent to traction wheel ([B60K 7/00](#) takes precedence)
- B60K 17/145 ... {the electric gearing being disposed in or adjacent to traction wheel}
- B60K 17/16 .. of differential gearing
- B60K 17/165 ... {provided between independent half axles ([B60K 17/18](#), [B60K 17/20](#) take precedence)}
- B60K 17/18 ... in which the differential movement is obtained by resilient means
- B60K 17/20 ... in which the differential movement is limited
- B60K 17/22 . characterised by arrangement, location, or type of main drive shafting, e.g. cardan shaft
- B60K 17/24 .. Arrangements of mountings for shafting
- B60K 17/26 . characterised by arrangement, location, of type of freewheel device
- B60K 17/28 . characterised by arrangement, location, or type of power take-off
- B60K 17/30 . the ultimate propulsive elements, e.g. ground wheels, being steerable
- B60K 17/303 .. {with a gearwheel on the steering knuckle or kingpin axis}

- B60K 17/306 .. {with a universal joint in the axis of the steering knuckle}
- B60K 17/32 . the ultimate propulsive elements, e.g. ground wheels, being rockable about a horizontal pivot
- B60K 17/34 . for driving both front and rear wheels, e.g. four wheel drive vehicles ([arrangement or mounting of control devices for changing number of driven wheels B60K 23/08](#))
- B60K 17/342 .. having a longitudinal, endless element, e.g. belt or chain, for transmitting drive to wheels
- B60K 17/344 .. having a transfer gear
- B60K 17/346 ... the transfer gear being a differential gear
- B60K 17/3462 .... {with means for changing distribution of torque between front and rear wheels}
- B60K 17/3465 ..... {self-actuated means, e.g. differential locked automatically by difference of speed}
- B60K 17/3467 .... {combined with a change speed gearing, e.g. range gear}
- B60K 17/348 .. having differential means for driving one set of wheels, e.g. the front, at one speed and the other set, e.g. the rear, at a different speed ([B60K 17/346 takes precedence](#))
- B60K 17/35 ... including arrangements for suppressing or influencing the power transfer, e.g. viscous clutches ([differential gearing with locking devices {F16H 1/44}](#))
- B60K 17/3505 .... {with self-actuated means, e.g. by difference of speed}
- B60K 17/351 ..... {comprising a viscous clutch}
- B60K 17/3515 .... {with a clutch adjacent to traction wheel, e.g. automatic wheel hub}
- B60K 17/352 .... manually operated
- B60K 17/354 .. having separate mechanical assemblies for transmitting drive to the front or to the rear wheels or set of wheels
- B60K 17/356 .. having fluid or electric motor, for driving one or more wheels ([disposition of motor in, or adjacent to, traction wheel B60K 7/00](#))
- B60K 17/358 .. all driven wheels being steerable
- B60K 17/36 . for driving tandem wheels

**B60K 20/00** **Arrangement or mounting of change-speed gearing control devices in vehicles** ([movable cabs having special adaptations of vehicle control devices B62D 33/06](#); such control devices per se F16H)

- B60K 20/02 . of initiating means ([control mechanisms in general G05G](#))
- B60K 20/04 .. floor mounted
- B60K 20/06 .. mounted on steering column or the like
- B60K 20/08 .. Dashboard means

**WARNING**

The groups [F16H 59/00](#) to [F16H 63/00](#) were introduced on 1 May, 1988. These groups include the subject matter of [B60K 20/14](#), which from this date is no longer used for the classification of new documents

Documents from the backlog of group [B60K 20/14](#) are in the process of being

systematically transferred to groups [F16H 59/00](#) to [F16H 63/00](#)

- B60K 20/14 . . fluid
- B60K 23/00** **Arrangement or mounting of control devices for vehicle transmissions, or parts thereof, not otherwise provided for** (movable cabs having special adaptations of vehicle control devices [B62D 33/06](#); such control devices per se F16D, F16H)
- B60K 23/02 . for main transmission clutches
- B60K 23/04 . for differential gearing
- B60K 23/06 . for freewheel devices
- B60K 23/08 . for changing number of driven wheels, {for switching from driving one axle to driving two or more axles ([B60K 17/3515](#) takes precedence)}
- B60K 23/0808 . . {for varying torque distribution between driven axles, e.g. by transfer clutch}
- B60K 25/00** **Auxiliary drives** ([B60K 16/00](#) takes precedence; arrangements of tyre-inflating pumps mounted on vehicles [B60C 23/10](#); driving tyre-inflating pumps [B60C](#); driving engine auxiliaries [F02B](#))
- B60K 25/02 . directly from an engine shaft
- B60K 25/04 . from static or dynamic pressure or vacuum, developed by the engine
- B60K 25/06 . from the transmission power take-off (transmissions having power-take-off [B60K 17/28](#))
- B60K 25/08 . from a ground wheel, e.g. engaging the wheel tread or rim
- B60K 25/10 . directly from oscillating movements due to vehicle running motion, e.g. suspension movement (resilient suspensions having dampers accumulating utilisable energy, e.g. compressing air, [B60G 13/14](#))
- B60K 26/00** **Arrangements or mounting of propulsion unit control devices in vehicles**
- B60K 26/02 . of initiating means or elements
- B60K 26/021 . . {with means for providing feel, e.g. by changing pedal force characteristics}
- B60K 26/04 . of means connecting initiating means or elements to propulsion unit
- B60K 28/00** **Safety devices for propulsion-unit control, specially adapted for, or arranged in, vehicles, e.g. preventing fuel supply or ignition in the event of potentially dangerous conditions** (for electrically-propelled vehicles [B60L 3/00](#); road vehicle drive control systems for purposes not related to the control of a particular sub-units [B60W 30/00](#))
- B60K 28/02 . responsive to conditions relating to the driver {(see provisionally also [B60K 28/00](#))}

- B60K 28/04 . . responsive to presence or absence of the driver, e.g. to weight or lack thereof
- B60K 28/06 . . responsive to incapacity of driver
- B60K 28/063 . . . {preventing starting of vehicles}
- B60K 28/066 . . . {actuating a signalling device ([B60K 28/063](#) takes precedence)}
  
- B60K 28/08 . responsive to conditions relating to the cargo, e.g. overload {(see provisionally also [B60K 28/00](#))}
  
- B60K 28/10 . responsive to conditions relating to the vehicle {(see provisionally also [B60K 28/00](#))}
- B60K 28/12 . . responsive to conditions relating to doors or doors locks, e.g. open door {(see provisionally also [B60K 28/00](#))}
  
- B60K 28/14 . . responsive to accident or emergency, e.g. deceleration, tilt of vehicle
- B60K 28/16 . . responsive to, or preventing, skidding of wheels (brake control systems for vehicle drive stability [B60T 8/1755](#); arrangements responsive to a speed condition for adjusting wheel braking force [B60T 8/32](#); control of vehicle driving stability otherwise than by controlling the propulsion unit only [B60W 30/02](#); preventing wheel slippage by reducing power in rail vehicles [B61C 15/00](#))
  
- B60K 28/165 . . . {acting on elements of the vehicle drive train other than the propulsion unit and brakes, e.g. transmission, clutch, differential ([acting on brakes B60T 8/17](#))}

**B60K 31/00** **Vehicle fittings, acting on a single sub-unit only, for automatically controlling, i.e. preventing speed from exceeding an arbitrarily established velocity or maintaining speed at a particular velocity, as selected by the vehicle operator** (fittings acting on two or more sub-units [B60W 30/14](#); propulsion unit control in general, see the relevant classes or subclasses, e.g. F02D; speedometers G01P; systems or devices for controlling speed in general [G05D 13/00](#)); { in traffic anti-collision system for road vehicles [G08G 1/16](#)}

#### **NOTE**

In this group:

- the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle, e.g. the throttle;
- a means for preventing a vehicle from exceeding a particular speed is often referred to as a "governor", whereas a means for maintaining the vehicle within a relatively narrow speed range is generally designated as "speed control". Since these two functions are frequently interrelated, no attempt has been made to identify such means as being particularly adapted to perform only one, or the other of the functions.

- B60K 31/0008 . {including means for detecting potential obstacles in vehicle path}
  
- B60K 31/0058 . {responsive to externally generated signalling}
  
- B60K 31/0066 . {responsive to vehicle path curvature}
- B60K 31/0075 . . {responsive to vehicle steering angle}
- B60K 31/0083 . . {responsive to centrifugal force acting on vehicle due to the path it is following}
  
- B60K 31/02 . including electrically actuated servomechanism {including an electric control system or

- a servomechanism in which the vehicle velocity affecting element is actuated electrically}
- B60K 31/04 . . and means for comparing one electrical quantity, e.g. voltage, pulse, waveform, flux, or the like, with another quantity of a like kind, which comparison means is involved in the development of an electrical signal which is fed into the controlling means
- B60K 31/042 . . . {where at least one electrical quantity is set by the vehicle operator}
- B60K 31/045 . . . . {in a memory, e.g. a capacitor}
- B60K 31/047 . . . . . [N. the memory being digital]
- B60K 31/06 . including fluid pressure actuated servomechanism {in which the vehicle velocity affecting element is actuated by fluid pressure}
- B60K 31/08 . . and one or more electrical components for establishing or regulating input pressure
- B60K 31/10 . . and means for comparing one electrical quantity, e.g. voltage, pulse, waveform, flux, or the like, with another quantity of a like kind, which comparison means is involved in the development of a pressure which is fed into the controlling means
- B60K 31/102 . . . {where at least one electrical quantity is set by the vehicle operator}
- B60K 31/105 . . . . {in a memory, e.g. a capacitor}
- B60K 31/107 . . . . . {the memory being digital}
- B60K 31/12 . including a device responsive to centrifugal forces {(centrifugal force acting on the vehicle due to the path it is following [B60K 31/0083](#), motor speed limiting by governors [G05D 13/10](#))}
- B60K 31/14 . . having an electrical switch which is caused to function by the centrifugal force
- B60K 31/16 . having means to prevent or discourage unauthorised use or adjusting of the controlling means {(vehicle theft prevention in general [B60R 25/00](#))}
- B60K 31/18 . including a device to audibly, visibly, or otherwise signal the existence of unusual or unintended speed {to the driver of the vehicle (devices primarily intended for indicating speed to other traffic [B60Q 1/54](#))}
- B60K 31/185 . . {connected to the speedometer display, e.g. by sensors or switches responsive to the position of the indicator needle (arrangement of pointers in automobile speedometers for indicating predetermined speeds by the detection of the position of the indicator needle [G01P 1/11](#))}

#### Arrangement of adaptations of instruments specially for vehicles; Dashboards

- B60K 35/00** Arrangement of adaptations of instruments (arrangements on dashboard [B60K 37/02](#))
- B60K 37/00** Dashboards (as road-vehicle superstructure sub-unit [B62D](#))
- B60K 37/02 . Arrangement of instruments (devices for lighting dashboard [B60Q](#))
- B60K 37/04 . Arrangement of fittings on dashboard (of instruments [B60K 37/02](#))
- B60K 37/06 . . of control, e.g. control knobs

**B60K 41/00**

**Conjoint control of drive units; Conjoint control of at least two sub-units thereof**  
(arrangement of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#))

**NOTE**

The control of a single sub-unit is classified in the relevant class for the sub-unit. Where a single sub-unit is controlled by means of signals or commands from other sub-units the control of this single sub-unit is classified in the relevant class for this sub-unit. For instance, the control of variable-ratio gearing by means of signals from the engine or { from another sub-unit influenced by} the accelerator is classified in subclass F16H

Conjoint control of drive units, e.g. propulsion units, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is classified in subclass F16H

**WARNING**

This group and its subgroups are no longer used for the classification of new documents as from January 1st, 2006. The backlog of these groups is being continuously reclassified to the relevant groups of B60W.

- B60K 41/002 . {Changing foot controls into hand controls, e.g. for invalid people}
- B60K 41/004 . {using electrical means}
- B60K 41/006 .. {with analogue circuits, relays and switches}
- B60K 41/008 . {using hydraulic or pneumatic means}
- B60K 41/02 . of propulsion unit and clutch
- B60K 41/022 .. {using electrical means}
- B60K 41/025 ... {with analogue circuits, relays and switches}
- B60K 41/027 .. {using hydraulic or pneumatic means}
- B60K 41/04 . of propulsion unit and gearing
- B60K 41/042 .. {using electrical means}
- B60K 41/045 ... {with analogue circuits, relays and switches}
- B60K 41/047 .. {using hydraulic or pneumatic means}
- B60K 41/06 .. the gearing being stepped
- B60K 41/062 ... {using electrical means}
- B60K 41/065 .... {with analogue circuits, relays and switches}
- B60K 41/067 ... {using hydraulic or pneumatic means}
- B60K 41/08 ... with interruption of the drive
- B60K 41/082 .... {using electrical means}
- B60K 41/085 ..... {with analogue circuits, relays and switches}
- B60K 41/087 .... {using hydraulic or pneumatic means}
- B60K 41/10 ... without interruption of the drive
- B60K 41/102 .... {using electrical means}

- B60K 41/105 . . . . . {with analogue circuits, relays and switches}
- B60K 41/107 . . . . . {using hydraulic or pneumatic means}
- B60K 41/12 .. the gearing being infinitely variable
- B60K 41/14 . . . . . of mechanical type
- B60K 41/142 . . . . . {using electrical means}
- B60K 41/145 . . . . . {with analogue circuits, relays and switches}
- B60K 41/147 . . . . . {using hydraulic or pneumatic means}
- B60K 41/16 . . . . . of fluid type
- B60K 41/162 . . . . . {using electrical means}
- B60K 41/165 . . . . . {with analogue circuits, relays and switches}
- B60K 41/167 . . . . . {using hydraulic or pneumatic means}
- B60K 41/18 . . . . . of electric type, e.g. electromagnetic
  
- B60K 41/20 . . . of propulsion unit and brake system
- B60K 41/202 . . . {using electrical means}
- B60K 41/205 . . . {with analogue circuits, relays and switches}
- B60K 41/207 . . . {using hydraulic or pneumatic means}
  
- B60K 41/22 . . . of clutch and gearing (control of torque converter lock-up clutches [F16H61/14](#))
- B60K 41/222 . . . {using electrical means}
- B60K 41/225 . . . {with analogue circuits, relays and switches}
- B60K 41/227 . . . {using hydraulic or pneumatic means}
  
- B60K 41/24 . . . of clutch and brake system
- B60K 41/242 . . . {using electrical means}
- B60K 41/245 . . . {with analogue circuits, relays and switches}
- B60K 41/247 . . . {using hydraulic or pneumatic means}
  
- B60K 41/26 . . . of gearing and brake system
- B60K 41/262 . . . {using electrical means}
- B60K 41/265 . . . {with analogue circuits, relays and switches}
- B60K 41/267 . . . {using hydraulic or pneumatic means}
  
- B60K 41/28 . . . of three or more sub-units
- B60K 41/282 . . . {using electrical means}
- B60K 41/284 . . . {the sub-units being engine, clutch and gearing}
- B60K 41/286 . . . {with analogue circuits, relays and switches}
- B60K 41/288 . . . {using hydraulic or pneumatic means}

**B60K 2001/00** **Arrangement or mounting of electrical propulsion units** ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#); electric transmission arrangements [B60K 17/12](#); electric equipment or propulsion of electrically-propelled vehicles per se [B60L](#); current-collectors

for power supply lines of electrically-propelled vehicles [B60L 5/00](#))

- B60K 2001/001 . one motor mounted on a propulsion axle for rotating right and left wheels of this axle
- B60K 2001/003 . with means for cooling the electrical propulsion units
- B60K 2001/005 .. the electric storage means
- B60K 2001/006 .. the electric motors
- B60K 2001/008 . with means for heating the electrical propulsion units
- B60K 2001/04 . of the electric storage means for propulsion (for auxiliary purposes only [B60R 16/04](#); supplying batteries to, or removing batteries from, vehicles [B60S 5/06](#))
- B60K 2001/0405 .. characterised by their position
- B60K 2001/0411 ... Arrangement in the front part of the vehicle
- B60K 2001/0416 ... Arrangement in the rear part of the vehicle
- B60K 2001/0422 ... Arrangement under the front seats
- B60K 2001/0427 ... Arrangement between the seats
- B60K 2001/0433 ... Arrangement under the rear seats
- B60K 2001/0438 ... Arrangement under the floor
- B60K 2001/0444 ... Arrangement on a trailer
- B60K 2001/045 .. Arrangement in a wheel, e.g. a spare wheel
- B60K 2001/0455 .. Removal or replacement of the energy storages
- B60K 2001/0461 ... from the side
- B60K 2001/0466 ... from above
- B60K 2001/0472 ... from below
- B60K 2001/0477 ... from the back
- B60K 2001/0483 ... from the front
- B60K 2001/0488 ... with arrangements for pivoting
- B60K 2001/0494 ... with arrangements for sliding
- B60K 2005/00** **Arrangement or mounting of internal-combustion or jet-propulsion units** ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#))
- B60K 2005/003 . the internal combustion or jet propulsion unit is arranged between the front and the rear axle
- B60K 2005/006 . the internal combustion or jet propulsion unit is arranged behind the rear axle
- B60K 2006/00** **Arrangement or mounting of plural diverse prime-movers for mutual or common propulsion, e.g. hybrid propulsion systems comprising electric motors and internal combustion engines** { ; Control systems therefor, i.e. systems controlling two or more prime movers, or controlling one of these prime movers and any of the transmission, drive or drive units (arrangement or mounting in vehicles of electrical gearing, in which an electrical machine serves only as reduction gearing and not as the prime mover and in

which no electrical storing means are used [B60K 17/12](#); control and regulation of purely electrical prime movers [B60L](#); prime-movers comprising electrical and internal combustion motors in a common engine block or housing per se [F02B 65/00](#); electric motors or motor-generators used for starting the combustion engine [F02N 11/04](#); electric motors for synchronising gearing [F16H 3/12](#))}{ Informative references: mechanical gearings with secondary electric drive [F16H 3/72](#); arrangements for handling mechanical energy structurally associated with the dynamo-electric machine [H02K 7/00](#); machines comprising structurally interrelated motor and generator parts [H02K 51/00](#); dynamo-electric machines not otherwise provided for in [H02K](#) see [H02K 57/00](#)}

#### **NOTE**

In this subgroup, the following expressions are used, with the meanings indicated :

- "energy storing means" means apparatus for storing propulsive energy and providing stored energy to drive the prime mover or the ultimate propulsive elements
- "hybrid electric vehicle" (HEV) means a vehicle with an electrical prime mover and a combustion engine, in which the electrical prime mover and the combustion engine either singly or in combination, drive the ultimate propulsive elements, e.g. wheels
- "motor-generator" means an electric motor, or an electric generator, or an electrical machine which can be used for both functions, as a motor or a generator
- "prime mover" means a propulsion unit or source of motive power providing a mechanical output, e.g. via a rotating shaft

- B60K 2006/08 . Prime-movers comprising combustion engines and mechanical or fluid energy storing means
- B60K 2006/12 .. by means of a chargeable fluidic accumulator
- [B60K 2006/123](#) ... for driving pneumatic motors
- [B60K 2006/126](#) ... the hydraulic accumulator starts the engine
- B60K 2006/20 . the prime-movers consisting of electric motors and internal combustion engines, e.g. HEVs

#### **NOTE**

When classifying in one of groups [B60K 6/22](#), [B60K 6/42](#) or [B60K 6/50](#), further technical information, which is considered to represent information of interest for search, should also be classified in the other subgroups of main group [B60K 6/00](#) to enable searching using a combination of classification symbols

- B60K 2006/22 .. characterised by apparatus, components or means specially adapted for HEVs
- B60K 2006/26 ... characterised by the motors or the generators
- [B60K 2006/262](#) .... the motor or generator are used as clutch, e.g. between engine and driveshaft
- [B60K 2006/264](#) .... with outer rotor and inner stator
- [B60K 2006/266](#) .... with two coaxial motors or generators
- [B60K 2006/268](#) .... Electric drive motor starts the engine, i.e. used as starter motor
- B60K 2006/38 ... characterised by the driveline clutches ([shift clutches within the gearing or](#)

- [transmission B60K 6/36](#), {[B60K 6/54](#)}
- [B60K 2006/381](#) . . . . characterized by driveline brakes ([shift brakes in transmission B60K 6/54](#))
- [B60K 2006/42](#) . . characterized by the architecture of the hybrid electric vehicle
- [B60K 2006/48](#) . . . Parallel type
- [B60K 2006/4808](#) . . . . Electric machine connected or connectable to gearbox output shaft
- [B60K 2006/4816](#) . . . . Electric machine connected or connectable to gearbox internal shaft
- [B60K 2006/4825](#) . . . . Electric machine connected or connectable to gearbox input shaft
- [B60K 2006/4833](#) . . . . Step up or reduction gearing driving generator, e.g. to operate generator in most efficient speed range
- [B60K 2006/4841](#) . . . . . the gear provides shifting between multiple ratios
- [B60K 2006/50](#) . . Architecture of the driveline characterised by arrangement or kind of transmission units
- [B60K 2006/54](#) . . . Transmission for changing ratio
- [B60K 2006/541](#) . . . . without reverse ratio using instead electric reversing
- [B60K 2006/542](#) . . . . with overdrive ratio
- B60K 2007/00** **Disposition of motor in, or adjacent to, traction wheel** ([roller-skate driving mechanisms A63C 17/12](#))
- [B60K 2007/003](#) . with two or more motors driving a single wheel
- [B60K 2007/0038](#) . the motor moving together with the wheel axle
- [B60K 2007/0046](#) . the motor moving together with the vehicle body, i.e. moving independently from the wheel axle
- [B60K 2007/0053](#) . the motor moving relative to the vehicle body and to the wheel axle
- [B60K 2007/0061](#) . the motor axle being parallel to the wheel axle
- [B60K 2007/0069](#) . the motor axle being perpendicular to the wheel axle
- [B60K 2007/0076](#) . . the motor axle being horizontal
- [B60K 2007/0084](#) . . the motor axle being vertical
- [B60K 2007/0092](#) . the motor axle being coaxial to the wheel axle
- B60K 2015/00** **Arrangement in connection with fuel supply of combustion engines** {[or other fuel consuming energy converters, e.g. fuel cells](#)}; **Mounting or construction of fuel tanks** (tanks in general [B65D](#), [F17C](#); supplying combustion engines with combustible mixtures or constituents [F02M](#))
- [B60K 2015/01](#) . Arrangement of fuel conduits ([chassis frame forming fluid conduit means B62D 21/17](#))
- [B60K 2015/016](#) . . Fuel conduits having more than one internal passage, e.g. for different types of fuel
- [B60K 2015/03](#) . Fuel tanks ([chassis frame comprising fluid storage compartment B62D 21/16](#); { [Details of the fuel feeding system related to the fuel tank F02M 37/0076](#)})
- [B60K 2015/03006](#) . . {[Gas tanks \(B60K 15/07 takes precedence\)](#)}

- B60K 2015/03013 ... Control systems for LPG tanks
- B60K 2015/03019 ... Filling of gas tanks
- B60K 2015/03026 ... comprising a valve
- B60K 2015/03032 .. Manufacturing of fuel tanks
- B60K 2015/03039 ... made of a combination of non metallic and metallic materials
- B60K 2015/03046 ... made from more than one layer
- B60K 2015/03052 ... Fuel tanks made of two balloons, one inside the other
- B60K 2015/03059 ... Fuel tanks with double shells or more
- B60K 2015/03065 .... with material filled between the walls
- B60K 2015/03072 .. Arrangements for reducing evaporation
- B60K 2015/03078 ... Membranes, layers or the like covering the surface of the fuel
- B60K 2015/03085 .... using inflatable bags or bladders in the tanks
- B60K 2015/03092 .. with latent heat storages to reduce the evaporation of fuel
- B60K 2015/03098 .. with a device for mixing liquids in the fuel tank, e.g. for mixing oil and fuel
- B60K 2015/03105 .. with supplementary interior tanks inside the fuel tank
- B60K 2015/03111 .. Swirl pots
- B60K 2015/03118 .. Multiple tanks, i.e. two or more separate tanks ([supplementary tanks inside the fuel tank B60K 2015/03105](#))
- B60K 2015/03125 ... Suction lines for dual tanks
- B60K 2015/03131 ... Systems for filling dual tanks
- B60K 2015/03138 ... Pumping means between the compartments
- B60K 2015/03144 ... Fluid connections between the tanks
- B60K 2015/03151 ... Mechanical connection between the tanks
- B60K 2015/03157 ... for supply different types of fuel to the motor
- B60K 2015/03164 .. Modular concepts for fuel tanks
- B60K 2015/03171 .. Expansion tanks
- B60K 2015/03184 .. Exchangeable tanks, i.e. the empty tank is replaced by refilled tank
- B60K 2015/0319 .. with electronic systems, e.g. for controlling fuelling or venting ([for LPG tanks B60K 2015/03013](#))
- B60K 2015/03197 ... Systems for exchanging data
- B60K 2015/03203 .... during refueling
- B60K 2015/0321 .. characterised by special sensors, the mounting thereof
- B60K 2015/03217 ... Fuel level sensors
- B60K 2015/03223 .... comprising at least two level fuel sensors
- B60K 2015/0323 ... Sensors for detecting presence or absence of the filling nozzle
- B60K 2015/03236 .. characterised by special filters, the mounting thereof
- B60K 2015/03243 .. characterised by special pumps, the mounting thereof
- B60K 2015/0325 ... Jet pumps
- B60K 2015/03256 .. characterised by special valves, the mounting thereof
- B60K 2015/03263 ... Ball valves
- B60K 2015/03269 ... Flap valves
- B60K 2015/03276 ... Valves with membranes

B60K 2015/03282	...	Umbrella type valves
B60K 2015/03289	...	Float valves; Floats therefor
B60K 2015/03296	...	Pressure regulating valves
B60K 2015/03302	...	Electromagnetic valves
B60K 2015/03309	..	Tanks specially adapted for particular fuels
B60K 2015/03315	...	for hydrogen
B60K 2015/03322	...	for methanol
B60K 2015/03328	..	Arrangements or special measures related to fuel tanks or fuel handling
B60K 2015/03335	...	for fast filling of fuel tanks, e.g. specific filler pipes for pressurised fuelling
B60K 2015/03342	...	to allow automatic or robotised filling of the tank
B60K 2015/03348	...	for supplying additives to fuel
B60K 2015/03355	...	for supplying different types of fuel
B60K 2015/03361	...	for checking the quality or quantity of fuel during filling of fuel tank
B60K 2015/03368	...	for preventing overfilling of tanks
B60K 2015/03375	...	to improve security
B60K 2015/03381	...	for preventing explosions
B60K 2015/03388	...	in case of a roll over of the vehicle
B60K 2015/03394	...	for preventing expulsion of fuel during filling of the tank
B60K 2015/03401	...	for preventing electrostatic charges
B60K 2015/03407	...	to protect tanks against projectiles
B60K 2015/03414	...	associated with the fuel tank for cooling heated fuel
B60K 2015/03421	...	to protect the fuel tank against heat
B60K 2015/03427	...	for heating fuel, e.g. to avoiding freezing
B60K 2015/03434	...	for preventing theft of fuel ( <a href="#">locks for filler caps B60K 15/0409</a> ; <a href="#">locking of the inlet cover B60K 2015/0561</a> )
B60K 2015/0344	...	comprising baffles
B60K 2015/03447	...	for improving the sealing
B60K 2015/03453	...	for fixing or mounting parts of the fuel tank together
B60K 2015/0346	....	by welding
B60K 2015/03467	....	by clip or snap fit fittings
B60K 2015/03473	...	for draining or emptying a fuel tank
B60K 2015/0348	...	for returning the fuel from the motor
B60K 2015/03486	..	characterised by the materials the tank or parts thereof are essentially made from
B60K 2015/03493	...	made of plastics
B60K 2015/035	..	characterised by venting means
B60K 2015/03504	...	{adapted to avoid loss of fuel or fuel vapour, e.g. with vapour recovery systems}
B60K 2015/03509	....	with a droplet separator in the vent line
B60K 2015/03514	....	with vapor recovery means
B60K 2015/03523	...	Arrangements of the venting tube
B60K 2015/03528	....	Mounting of venting tubes
B60K 2015/03533	....	the venting tube being movable with the fuel level
B60K 2015/03538	....	the venting tube being connected with the filler tube

B60K 2015/03542	...	Mounting of the venting means ( <a href="#">mounting of venting tubes B60K 2015/03528</a> )
B60K 2015/03547	....	the venting means are integrated in the fuel cap or inlet cover
B60K 2015/03552	....	the venting means are integrated into the fuel filler pipe
B60K 2015/03557	....	comprising elements of the venting device integrated in the fuel tank, e.g. vapor recovery means
B60K 2015/03561	...	Venting means working at specific times
B60K 2015/03566	....	comprising means for stopping the venting of fuel vapor, e.g. during refueling or engine stop
B60K 2015/03571	....	Venting during driving
B60K 2015/03576	....	Venting during filling the reservoir
B60K 2015/0358	...	the venting is actuated by specific signals or positions of particular parts
B60K 2015/03585	....	by gas pressure
B60K 2015/0359	....	by filler cap or inlet cover position
B60K 2015/03595	....	by filler nozzle
B60K 2015/04	..	Tank inlets ( <a href="#">B60K 15/077 takes precedence</a> )
B60K 2015/0406	...	{ <a href="#">Filler caps for fuel tanks</a> }
B60K 2015/0409	....	{ <a href="#">Provided with a lock</a> }
B60K 2015/0412	.....	the key can only be withdrawn when the cap is placed on the filler neck
B60K 2015/0416	.....	electrically actuated
B60K 2015/0419	....	Self sealing closure caps, e.g. means that the cap have to be removed manually
B60K 2015/0422	.....	actuated by the inlet cover
B60K 2015/0425	.....	actuated by a motor
B60K 2015/0429	.....	actuated by the nozzle
B60K 2015/0432	....	having a specific connection between the cap and the vehicle or tank opening
B60K 2015/0435	.....	using a sliding connection
B60K 2015/0438	.....	using screw or bayonet
B60K 2015/0441	.....	with torque control
B60K 2015/0445	.....	using hinges
B60K 2015/0448	....	comprising spherical valve type closures
B60K 2015/0451	....	Sealing means in the closure cap
B60K 2015/0454	....	combined closing of the fuel inlet and bodywork inlet by one element which is visible from outside
B60K 2015/0458	...	Details of the tank inlet
B60K 2015/0461	....	comprising a filler pipe shutter, e.g. trap, door or flap for fuel inlet
B60K 2015/0464	....	comprising a flexible or extendable filler pipes, e.g. corrugated, foldable or with bellows
B60K 2015/0467	....	Fuel tanks with more than one filler pipe
B60K 2015/047	....	Manufacturing of the fuel inlet or connecting elements to fuel inlet, e.g. pipes or venting tubes
B60K 2015/0474	....	Arrangement of fuel filler pipes in relation to vehicle body
B60K 2015/0477	....	Details of the filler neck tank side
B60K 2015/048	....	Arrangements for sealing the fuel inlet during filling

B60K 2015/0483	....	Means to inhibit the introduction of too small or too big filler nozzles
B60K 2015/0487	....	Means to shield vehicle bodywork from fuel, e.g. during filling
B60K 2015/049	....	Means for determining the position of the filler nozzle in the filler pipe
B60K 2015/0493	....	Means for checking absence or presence of closure cap
B60K 2015/0496	....	the fuel inlet being arranged on the top of the fuel tank
B60K 2015/05	...	Inlet covers
B60K 2015/0507	....	Arrangements for adjusting the inlet cover
B60K 2015/0515	....	Arrangements for closing or opening of inlet cover ( <a href="#">locking means B60K 2015/0561</a> )
B60K 2015/0523	.....	with sliding connection to the vehicle body
B60K 2015/053	.....	with hinged connection to the vehicle body
B60K 2015/0538	.....	with open or close mechanism automatically actuated
B60K 2015/0546	....	Arrangements for checking the position of the inlet cover
B60K 2015/0553	....	Details concerning the inlet box or bowl in the vehicle car body panel
B60K 2015/0561	....	Locking means for the inlet cover
B60K 2015/0569	.....	with actuator fixed to the inlet cover
B60K 2015/0576	.....	with actuator fixed to the vehicle body
B60K 2015/0584	.....	the locking bolt is linearly moved to lock or unlock
B60K 2015/0592	....	with storage means for the cap
B60K 2015/06	..	characterised by fuel reserve systems
B60K 2015/061	...	<a href="#">{with level control}</a>
B60K 2015/062	....	Arrangement for filling the fuel reserve systems
B60K 2015/063	..	Arrangement of tanks
B60K 2015/0631	...	the fuel tank forming at least part of the vehicle floor
B60K 2015/0632	...	the fuel tank is arranged below the front seat
B60K 2015/0633	...	the fuel tank is arranged below the rear seat
B60K 2015/0634	...	the fuel tank is arranged below the vehicle floor
B60K 2015/0635	...	the fuel tank is arranged between the seats
B60K 2015/0636	...	the fuel tank being part of the chassis or frame
B60K 2015/0637	...	the fuel tank is arranged in the front of the vehicle
B60K 2015/0638	...	the fuel tank is arranged in the rear of the vehicle
B60K 2015/0639	...	the fuel tank is arranged near or in the roof
B60K 2015/067	...	Mounting of tanks
B60K 2015/0675	....	allowing deflection movements of the tank in case of a crash
B60K 2015/077	..	with means modifying or controlling distribution or motion of fuel, e.g. to prevent noise, surge, splash or fuel starvation
B60K 2015/0772	...	Floats in the fuel tank ( <a href="#">float valves B60K 2015/03289</a> )
B60K 2015/0775	...	for reducing movement or slash noise of fuel
B60K 2015/0777	...	in-tank reservoirs or baffles integrally manufactured with the fuel Tank
<b>B60K 2016/00</b>		<b>Arrangements in connection with power supply from force of nature, e.g. sun, wind</b> ( <a href="#">electric propulsion with power supply from force of nature, e.g. sun, wind, B60L 8/00</a> ; <a href="#">effecting propulsion by wind motors driving water-engaging propulsive elements</a> )

[B63H 13/00](#)

[B60K 2016/003](#) . solar power driven

[B60K 2016/006](#) . wind power driven

**B60K 2023/00** **Arrangement or mounting of control devices for vehicle transmissions, or parts thereof, not otherwise provided for** ([movable cabs having special adaptations of vehicle control devices B62D 33/06](#); such control devices per se [F16D](#), [F16H](#))

[B60K 2023/005](#) . Adjusting multiple pedals, e.g. for their initial position

[B60K 2023/02](#) . for main transmission clutches

[B60K 2023/025](#) .. Adjusting of clutch pedal positions ([clutch adjustment for removing slack F16D 13/75](#))

[B60K 2023/04](#) . for differential gearing

[B60K 2023/043](#) .. Control means for varying left-right torque distribution, e.g. torque vectoring

[B60K 2023/046](#) .. Axle differential locking means

[B60K 2023/08](#) . for changing number of driven wheels, {[for switching from driving one axle to driving two or more axles \(B60K 17/3515 takes precedence\)](#)}

[B60K 2023/0808](#) .. {[for varying torque distribution between driven axles, e.g. by transfer clutch](#)}

[B60K 2023/0816](#) ... for varying front-rear torque distribution with a central differential

[B60K 2023/0825](#) .... for adding torque to the front wheels

[B60K 2023/0833](#) .... for adding torque to the rear wheels

[B60K 2023/0841](#) ... for locking a central differential , e.g. by using a lock-up clutch

[B60K 2023/085](#) .. automatically actuated

[B60K 2023/0858](#) ... with electric means, e.g. electro-hydraulic means

[B60K 2023/0866](#) ... with hydraulic means only

[B60K 2023/0875](#) ... with mechanical means only

[B60K 2023/0883](#) .. manually actuated

[B60K 2023/0891](#) ... with actuator levers, e.g. shift levers or linkage for changing two-wheel to four-wheel drive

**B60K 2025/00** **Auxiliary drives** ([B60K 16/00 takes precedence](#); arrangements of tyre-inflating pumps mounted on vehicles [B60C 23/10](#); driving tyre-inflating pumps [B60C](#); driving engine auxiliaries [F02B](#))

[B60K 2025/005](#) . driven by electric motors forming part of the propulsion unit

[B60K 2025/02](#) . directly from an engine shaft

[B60K 2025/022](#) .. by a mechanical transmission

[B60K 2025/024](#) ... with variable ratio

[B60K 2025/026](#) .. by a hydraulic transmission

- B60K 2025/028 . . . by a pneumatic transmission
- B60K 2025/06 . . . from the transmission power take-off ([transmissions having power-take-off B60K 17/28](#))
- B60K 2025/065 . . . the transmission being fluidic, e.g. hydraulic
- B60K 2025/10 . . . directly from oscillating movements due to vehicle running motion, e.g. suspension movement ([resilient suspensions having dampers accumulating utilisable energy, e.g. compressing air, B60G 13/14](#))
- B60K 2025/103 . . . by electric means
- B60K 2025/106 . . . by fluid means

#### **B60K 2026/00 Arrangements or mounting of propulsion unit control devices in vehicles**

- B60K 2026/02 . . . of initiating means or elements
- B60K 2026/021 . . . {with means for providing feel, e.g. by changing pedal force characteristics}
- B60K 2026/022 . . . with tactile feedback from a controller, e.g. vibrations
- B60K 2026/023 . . . with electrical means to generate counter force or torque
- B60K 2026/024 . . . Adjustable consoles, e.g. for changing position of mounting casings
- B60K 2026/025 . . . Input devices for controlling electric drive motors
- B60K 2026/026 . . . Adjusting of accelerator pedal positions
- B60K 2026/027 . . . Acceleration input members mounted on a seat
- B60K 2026/028 . . . Acceleration input members mounted on steering wheel or column
- B60K 2026/029 . . . Joystick type control devices for acceleration
- B60K 2026/04 . . . of means connecting initiating means or elements to propulsion unit
- B60K 2026/043 . . . with mechanical gearings
- B60K 2026/046 . . . with electrical transmission means

#### **B60K 2028/00 Safety devices for propulsion-unit control, specially adapted for, or arranged in, vehicles, e.g. preventing fuel supply or ignition in the event of potentially dangerous conditions ([for electrically-propelled vehicles B60L 3/00](#); [road vehicle drive control systems for purposes not related to the control of a particular sub-units B60W 30/00](#))**

- B60K 2028/003 . . . inhibiting the starter motor, e.g. by controlling ignition or park lock circuits
- B60K 2028/006 . . . disconnecting the electric power supply, e.g. the vehicle battery

#### **B60K 2031/00 Vehicle fittings, acting on a single sub-unit only, for automatically controlling, i.e. preventing speed from exceeding an arbitrarily established velocity or maintaining speed at a particular velocity, as selected by the vehicle operator ([fittings acting on two or more sub-units B60W 30/14](#); [propulsion unit control in general, see the relevant classes or subclasses, e.g. F02D](#); [speedometers G01P](#); [systems or devices for controlling speed in general G05D 13/00](#)); { [in traffic anti-collision system for road vehicles G08G 1/16](#)}**

#### **NOTE**

In this group:

- the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle, e.g. the throttle;
- a means for preventing a vehicle from exceeding a particular speed is often referred to as a "governor", whereas a means for maintaining the vehicle within a relatively narrow speed range is generally designated as "speed control". Since these two functions are frequently interrelated, no attempt has been made to identify such means as being particularly adapted to perform only one, or the other of the functions.

- B60K 2031/0008 . {including means for detecting potential obstacles in vehicle path}
- B60K 2031/0016 .. Identification of obstacles; Selection of a target vehicle
- B60K 2031/0025 .. Detecting position of target vehicle, e.g. vehicle driving ahead from host vehicle
- B60K 2031/0033 .. Detecting longitudinal speed or acceleration of target vehicle
- B60K 2031/0041 .. Detecting lateral speed of target vehicle
- B60K 2031/005 .. Selecting more than one target vehicle, e.g. using several preceding vehicles as target
  
- B60K 2031/0091 . Speed limiters or speed cutters

**B60K 2310/00 Arrangements, adaptations or methods for cruise controls**

- B60K 2310/20 . Operator actuated switches or levers for cruise control or speed limiting systems
- B60K 2310/22 . Displays for target speed
- B60K 2310/24 . Speed setting methods
  - B60K 2310/242 .. setting initial target speed, e.g. initial algorithms
  - B60K 2310/244 .. changing target speed or setting a new target speed, e.g. changing algorithms
  - B60K 2310/246 .. releasing speed control, e.g. inhibiting speed control if a brake pedal is depressed
  - B60K 2310/248 .. resuming speed control, e.g. returning to old target speed
- B60K 2310/26 . Distance setting methods, e.g. determining target distance to target vehicle
  - B60K 2310/262 .. setting initial distance to preceding vehicle, e.g. initial algorithms
  - B60K 2310/264 .. changing distance, e.g. reducing the distance for overtaking
  - B60K 2310/266 .. releasing distance control, e.g. inhibiting control if target vehicle lost or changing lane
  - B60K 2310/268 .. resuming distance control, e.g. changing target vehicle
- B60K 2310/28 . Following time setting methods, e.g. elapsed delay between preceding and host vehicle

- B60K 2310/30 . Mode switching, e.g. changing from one cruise control mode to another

**Arrangement or mounting of propulsion units in vehicles** (of control devices for such units [B60K 26/00](#); elastic mountings per se [F16E](#); propulsion units or their control per se, see the relevant classes)

## B60K 2350/00

### Arrangements or adaptations of instruments; Dashboards

- B60K 2350/10 . Input/output devices or features thereof
- B60K 2350/1004 .. Graphical user interfaces or menu aspects
- B60K 2350/1008 .. Input devices or features thereof
- B60K 2350/1012 ... Controls by an approaching finger
- B60K 2350/1016 ... with reconfigurable control functions
- B60K 2350/102 ... Rotary controllers
- B60K 2350/1024 ... Touch sensitive control means or buttons
- B60K 2350/1028 .... Touch screens
- B60K 2350/1032 ..... Emulation of control buttons
- B60K 2350/1036 .... Touch switches
- B60K 2350/104 ... Input by combination of touch screen and control button
- B60K 2350/1044 ... Input by voice
- B60K 2350/1048 ... Joysticks
- B60K 2350/1052 ... Input by gesture
- B60K 2350/1056 .. Output devices of features thereof
- B60K 2350/106 ... Video screens
- B60K 2350/1064 ... Combined instruments with analogue meters and additional displays
- B60K 2350/1068 ... the same information is available on different displays
- B60K 2350/1072 ... Virtual instruments
- B60K 2350/1076 .. Type of information
- B60K 2350/108 ... Explanation of functions
- B60K 2350/1084 ... Distance to obstacles or vehicles
- B60K 2350/1088 ... Reversing assist
- B60K 2350/1092 ... Economic driving
- B60K 2350/1096 ... Information displayed according to relevancy
- B60K 2350/20 . Optical features of instruments
- B60K 2350/2004 .. Displays on a manual operation element
- B60K 2350/2008 .. using color changes
- B60K 2350/2013 .. using a camera
- B60K 2350/2017 .. Three-dimensional displays
- B60K 2350/2021 .. using a filter
- B60K 2350/2026 .. Holographic features
- B60K 2350/203 .. Illumination features

- B60K 2350/2034 . . . Electroluminescent elements
- B60K 2350/2039 . . . Backlit symbols
- B60K 2350/2043 . . . Translucent dashboard skins
- B60K 2350/2047 . . using a laser
- B60K 2350/2052 . . using projection means
- B60K 2350/2056 . . Optical elements for superposition of display information
- B60K 2350/206 . . Optical elements in front of, or behind a dial
- B60K 2350/2065 . . using real or virtual images of components
- B60K 2350/2069 . . Adjustment of brightness
- B60K 2350/2073 . . Fogging prevention
- B60K 2350/2078 . . Glare prevention
- B60K 2350/2082 . . Anti-reflection means
- B60K 2350/2086 . . Instrument cover plate features
- B60K 2350/2091 . . . for instruments which should not be visible
- B60K 2350/2095 . . Semi-transparent optical elements
  
- B60K 2350/30 . Hardware adaptations for dashboards
- B60K 2350/302 . . Circuit board features
- B60K 2350/305 . . Wiring harness
- B60K 2350/307 . . Electrical connections
  
- B60K 2350/35 . Control system arrangements
- B60K 2350/352 . . Control of displays
- B60K 2350/355 . . Remote controls
- B60K 2350/357 . . Wireless data transfers
  
- B60K 2350/40 . Structural details of dashboards
- B60K 2350/401 . . Dashboard parts used as air ducts
- B60K 2350/402 . . Instrument dial features
- B60K 2350/403 . . . with several available dial configurations
- B60K 2350/405 . . Foldable or movable screens
- B60K 2350/406 . . Means to cover or hide instruments
- B60K 2350/407 . . Instruments movable with steering column
- B60K 2350/408 . . Pointers of combined instruments
  
- B60K 2350/90 . Problems related to user adaptation
- B60K 2350/901 . . the user is the driver
- B60K 2350/903 . . the user is the passenger
- B60K 2350/905 . . Adaptation to left or right steering
- B60K 2350/906 . . Disabling of display functions
- B60K 2350/908 . . Manual selection of display features
  
- B60K 2350/92 . Mounting positions or locations
- B60K 2350/921 . . characterised by locations other than the dashboard

- B60K 2350/922 . . . on the ceiling
- B60K 2350/924 . . . at vehicle exterior
- B60K 2350/925 . . . on or in the centre console
- B60K 2350/927 . . . on sun visor or rear view mirror
- B60K 2350/928 . . . on the steering wheel
  
- B60K 2350/94 . . Mounting process, Fixation means
- B60K 2350/941 . . . Fixation of instruments to dashboard
- B60K 2350/943 . . . Fixation of dashboard to vehicle structure
- B60K 2350/945 . . . using exchangeable modules
- B60K 2350/946 . . . using inserts
- B60K 2350/948 . . . with pluggable connections
  
- B60K 2350/96 . . Perception or visibility of information
- B60K 2350/962 . . . Perception adaptable to driving situations
- B60K 2350/965 . . . Means for improving awareness
- B60K 2350/967 . . . Blocking display functions
  
- B60K 2700/00           Control mechanisms and elements applying a mechanical movement**
  
- B60K 2700/02 . . . regulating mechanisms combined with non-mechanical transmissions
  
- B60K 2702/00           Control devices wherein the control is combined with or essentially influenced by the engine or coupling, e.g. in an internal combustion engine, the control device is coupled with a carburettor control device or influenced by carburettor depression**
  
- B60K 2702/02 . . . Automatic transmission with toothed gearing
- B60K 2702/04 . . . Control dependent on speed
- B60K 2702/06 . . . Control dependent on torque
  
- B60K 2702/08 . . . Semi-automatic or non-automatic transmission with toothed gearing
- B60K 2702/10 . . . without a preselection system
- B60K 2702/12 . . . . the control being mechanical
- B60K 2702/14 . . . . the control being hydraulic or pneumatic
- B60K 2702/16 . . . . the control being electric
- B60K 2702/18 . . . with a preselection system, e.g. semi-automatic
- B60K 2702/20 . . . using different control members for preselection and actuating, e.g. shift actuation is initiated by clutch pedal with elastic connection for energy accumulation
  
- B60K 2704/00           Control devices, wherein the control is combined with or mainly influenced by the working of the engine or the main coupling, e.g. control device is linked to the carburettor control and is influenced by depression of pedal, for semi-automatic or non-automatic transmission having toothed wheels**

- B60K 2704/02 . without preselection system, the control being mechanical
- B60K 2704/04 . with preselection system, e.g. for semi-automatic transmission

**B60K 2741/00** **Conjoint control of drive units; Conjoint control of at least two sub-units thereof**  
**Note: These groups are created for temporary back-up of former group [B60K 41/00](#) which will be replaced by B60W**

- B60K 2741/003 . Changing foot controls into hand controls, e.g. for invalid people
- B60K 2741/006 . using electrical means
- B60K 2741/02 . of propulsion unit and clutch
- B60K 2741/025 .. using electrical means
- B60K 2741/04 . of propulsion unit and gearing
- B60K 2741/045 .. using electrical means
- B60K 2741/06 .. the gearing being stepped
- B60K 2741/065 ... using electrical means
- B60K 2741/08 ... with interruption of the drive
- B60K 2741/085 .... using electrical means
- B60K 2741/10 ... without interruption of the drive
- B60K 2741/105 .... using electrical means
- B60K 2741/12 .. the gearing being infinitely variable
- B60K 2741/14 ... of mechanical type
- B60K 2741/145 .... using electrical means
- B60K 2741/16 ... of fluid type
- B60K 2741/165 .... using electrical means
- B60K 2741/18 ... of electric type, e.g. electromagnetic
- B60K 2741/20 . of propulsion unit and brake system
- B60K 2741/205 .. using electrical means
- B60K 2741/22 . of clutch and gearing
- B60K 2741/225 .. using electrical means
- B60K 2741/24 . of clutch and brake system
- B60K 2741/245 .. using electrical means
- B60K 2741/26 . of gearing and brake system
- B60K 2741/265 .. using electrical means
- B60K 2741/28 . of three or more sub-units
- B60K 2741/283 .. using electrical means

[B60K 2741/286](#) . . . the sub-units being engine, clutch and gearing