

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B60 VEHICLES IN GENERAL

(NOTE omitted)

B60K ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS IN VEHICLES; AUXILIARY DRIVES FOR VEHICLES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST OR FUEL SUPPLY OF PROPULSION UNITS IN VEHICLES

NOTES

- 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](#)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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](#))

- 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](#))
- 2001/001 . {one motor mounted on a propulsion axle for rotating right and left wheels of this axle}
- 2001/003 . {with means for cooling the electrical propulsion units}
- 2001/005 . . {the electric storage means}
- 2001/006 . . {the electric motors}
- 2001/008 . {with means for heating the electrical propulsion units}

- 1/02 . comprising more than one electric motor

- 1/04 . of the electric storage means for propulsion (exchanging batteries for electric propulsion of vehicles [B60L 53/80](#); for auxiliary purposes only [B60R 16/04](#); supplying batteries to, or removing batteries from, vehicles [B60S 5/06](#))

WARNING

Group [B60K 1/04](#) is impacted by reclassification into group [B60L 53/80](#).

Groups [B60K 1/04](#) and [B60L 53/80](#) should be considered in order to perform a complete search.

- 2001/0405 . . {characterised by their position}
- 2001/0411 . . . {Arrangement in the front part of the vehicle}
- 2001/0416 . . . {Arrangement in the rear part of the vehicle}
- 2001/0422 . . . {Arrangement under the front seats}
- 2001/0427 . . . {Arrangement between the seats}
- 2001/0433 . . . {Arrangement under the rear seats}
- 2001/0438 . . . {Arrangement under the floor}
- 2001/0444 . . . {Arrangement on a trailer}
- 2001/045 . . . {Arrangement in a wheel, e.g. a spare wheel}
- 2001/0455 . . {Removal or replacement of the energy storages}
- 2001/0461 . . . {from the side}
- 2001/0466 . . . {from above}
- 2001/0472 . . . {from below}

- 2001/0477 . . . {from the back}
- 2001/0483 . . . {from the front}
- 2001/0488 . . . {with arrangements for pivoting}
- 2001/0494 . . . {with arrangements for sliding}
- 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](#))
 - 3/02 . of piston type
 - 3/04 . of turbine type
- 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](#))
 - 2005/003 . {the internal combustion or jet propulsion unit is arranged between the front and the rear axle}
 - 2005/006 . {the internal combustion or jet propulsion unit is arranged behind the rear axle}
 - 5/02 . with the engine main axis, e.g. crankshaft axis, substantially in or parallel to the longitudinal centre line of the vehicle
 - 5/04 . with the engine main axis, e.g. crankshaft axis, transversely to the longitudinal centre line of the vehicle
 - 5/06 . . with the engine main axis substantially vertical
 - 5/08 . comprising more than one engine
 - 5/10 . providing for ready detachment of engine
 - 5/12 . Arrangement of engine supports ({supports comprising both a plastic spring and a fluid damper [F16F 13/06](#)})
 - 5/1208 . . {Resilient supports ([B60K 5/1241](#) - [B60K 5/1291](#) take precedence)}
 - 5/1216 . . . {characterised by the location of the supports relative to the motor or to each other ([B60K 5/1225](#) takes precedence)}
 - 5/1225 . . . {comprising resilient rings surrounding a part of the unit}
 - 5/1233 . . . {comprising protective elements, e.g. for protecting against heat, dust}
 - 5/1241 . . {Link-type support ([B60K 5/125](#), [B60K 5/1275](#) take precedence)}
 - 5/125 . . {Telescopic supports, e.g. telescopic dampers ([B60K 5/1275](#) takes precedence)}
 - 5/1258 . . {Wire-type supports ([B60K 5/1275](#) takes precedence)}
 - 5/1266 . . {Supports comprising friction damping devices ([B60K 5/125](#), [B60K 5/1283](#) take precedence)}
 - 5/1275 . . {Plastically deformable supports}
 - 5/1283 . . {Adjustable supports, e.g. the mounting or the characteristics being adjustable}
 - 5/1291 . . {Supports comprising stoppers}

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 99/00](#)**}

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

- 6/08 . Prime-movers comprising combustion engines and mechanical or fluid energy storing means
- 6/10 . . by means of a chargeable mechanical accumulator, e.g. flywheel
 - 6/105 . . . {the accumulator being a flywheel}
 - 6/12 . . by means of a chargeable fluidic accumulator
 - 2006/123 . . . {for driving pneumatic motors}
 - 2006/126 . . . {the hydraulic accumulator starts the engine}
- 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

B60K 6/20

(continued)

group [B60K 6/00](#) to enable searching using a combination of classification symbols

- 6/22 . . characterised by apparatus, components or means specially adapted for HEVs
- 6/24 . . . characterised by the combustion engines
- 6/26 . . . characterised by the motors or the generators
- 2006/262 {the motor or generator are used as clutch, e.g. between engine and driveshaft}
- 2006/264 {with outer rotor and inner stator}
- 2006/266 {with two coaxial motors or generators}
- 2006/268 {Electric drive motor starts the engine, i.e. used as starter motor}
- 6/28 . . . characterised by the electric energy storing means, e.g. batteries or capacitors
- 6/30 . . . characterised by chargeable mechanical accumulators, e.g. flywheels
- 6/32 . . . characterised by the fuel cells
- 6/34 . . . characterised by the absence of energy storing means
- 6/36 . . . characterised by the transmission gearings
- 6/365 with the gears having orbital motion
- 6/38 . . . characterised by the driveline clutches ([shift clutches within the gearing or transmission B60K 6/36](#) {, [B60K 6/54](#)})
- 2006/381 {characterized by driveline brakes ([shift brakes in transmission B60K 6/54](#))}
- 6/383 One-way clutches or freewheel devices
- 6/387 Actuated clutches, i.e. clutches engaged or disengaged by electric, hydraulic or mechanical actuating means
- 6/40 . . . characterised by the assembly or relative disposition of components
- 6/405 Housings
- 6/42 . . characterised by the architecture of the hybrid electric vehicle
- 6/44 . . . Series-parallel type
- 6/442 Series-parallel switching type
- 6/445 Differential gearing distribution type
- 6/448 Electrical distribution type
- 6/46 . . . Series type
- 6/48 . . . Parallel type
- 2006/4808 {Electric machine connected or connectable to gearbox output shaft}
- 2006/4816 {Electric machine connected or connectable to gearbox internal shaft}
- 2006/4825 {Electric machine connected or connectable to gearbox input shaft}
- 2006/4833 {Step up or reduction gearing driving generator, e.g. to operate generator in most efficient speed range}
- 2006/4841 {the gear provides shifting between multiple ratios}
- 6/485 Motor-assist type
- 6/50 . . Architecture of the driveline characterised by arrangement or kind of transmission units
- 6/52 . . . Driving a plurality of drive axles, e.g. four-wheel drive
- 6/54 . . . Transmission for changing ratio
- 2006/541 {without reverse ratio using instead electric reversing}
- 2006/542 {with overdrive ratio}
- 6/543 the transmission being a continuously variable transmission

- 6/547 the transmission being a stepped gearing

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

- 7/0007 . {the motor being electric}
- 7/0015 . {the motor being hydraulic}
- 7/0023 . {the motor being pneumatic}
- 2007/003 . {with two or more motors driving a single wheel}
- 2007/0038 . {the motor moving together with the wheel axle}
- 2007/0046 . {the motor moving together with the vehicle body, i.e. moving independently from the wheel axle}
- 2007/0053 . {the motor moving relative to the vehicle body and to the wheel axle}
- 2007/0061 . {the motor axle being parallel to the wheel axle}
- 2007/0069 . {the motor axle being perpendicular to the wheel axle}
- 2007/0076 . . {the motor axle being horizontal}
- 2007/0084 . . {the motor axle being vertical}
- 2007/0092 . {the motor axle being coaxial to the wheel axle}

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

- 11/00 Arrangement in connection with cooling of propulsion units ([heating the interior space B60H](#); [cooling internal combustion engines per se F01P](#))
- 11/02 . with liquid cooling
- 11/04 . . Arrangement or mounting of radiators, radiator shutters, or radiator blinds ({[B60K 11/085 takes precedence](#)})
- 11/06 . with air cooling
- 11/08 . Air inlets for cooling; Shutters or blinds therefor ({[radiator or grille guards B60R 19/52](#)})
- 11/085 . . {with adjustable shutters or blinds}
- 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](#))
- 13/02 . concerning intake
- 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})
- 13/06 . using structural parts of the vehicle as ducts, e.g. frame parts
- 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](#))
- 15/01 . Arrangement of fuel conduits ([chassis frame forming fluid conduit means B62D 21/17](#))
- 15/013 . . {of gas conduits}

2015/016	. . {Fuel conduits having more than one internal passage, e.g. for different types of fuel}	2015/03256	. . {characterised by special valves, the mounting thereof}
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)	2015/03263	. . . {Ball valves}
15/03006	. . {Gas tanks (B60K 15/07 takes precedence)}	2015/03269	. . . {Flap valves}
2015/03013	. . . {Control systems for LPG tanks}	2015/03276	. . . {Valves with membranes}
2015/03019	. . . {Filling of gas tanks}	2015/03282	. . . {Umbrella type valves}
2015/03026	. . . {comprising a valve}	2015/03289	. . . {Float valves; Floats therefor}
2015/03032	. . {Manufacturing of fuel tanks}	2015/03296	. . . {Pressure regulating valves}
2015/03039	. . . {made of a combination of non metallic and metallic materials}	2015/03302	. . . {Electromagnetic valves}
2015/03046	. . . {made from more than one layer}	2015/03309	. . {Tanks specially adapted for particular fuels}
2015/03052	. . . {Fuel tanks made of two balloons, one inside the other}	2015/03315	. . . {for hydrogen}
2015/03059	. . . {Fuel tanks with double shells or more}	2015/03322	. . . {for methanol}
2015/03065	. . . . {with material filled between the walls}	2015/03328	. . {Arrangements or special measures related to fuel tanks or fuel handling}
2015/03072	. . {Arrangements for reducing evaporation}	2015/03335	. . . {for fast filling of fuel tanks, e.g. specific filler pipes for pressurised fuelling}
2015/03078	. . . {Membranes, layers or the like covering the surface of the fuel}	2015/03342	. . . {to allow automatic or robotised filling of the tank}
2015/03085	. . . . {using inflatable bags or bladders in the tanks}	2015/03348	. . . {for supplying additives to fuel}
2015/03092	. . {with latent heat storages to reduce the evaporation of fuel}	2015/03355	. . . {for supplying different types of fuel}
2015/03098	. . {with a device for mixing liquids in the fuel tank, e.g. for mixing oil and fuel}	2015/03361	. . . {for checking the quality or quantity of fuel during filling of fuel tank}
2015/03105	. . {with supplementary interior tanks inside the fuel tank}	2015/03368	. . . {for preventing overfilling of tanks}
2015/03111	. . {Swirl pots}	2015/03375	. . . {to improve security}
2015/03118	. . {Multiple tanks, i.e. two or more separate tanks (supplementary tanks inside the fuel tank B60K 2015/03105)}	2015/03381	. . . {for preventing explosions}
2015/03125	. . . {Suction lines for dual tanks}	2015/03388	. . . {in case of a roll over of the vehicle}
2015/03131	. . . {Systems for filling dual tanks}	2015/03394	. . . {for preventing expulsion of fuel during filling of the tank}
2015/03138	. . . {Pumping means between the compartments}	2015/03401	. . . {for preventing electrostatic charges}
2015/03144	. . . {Fluid connections between the tanks}	2015/03407	. . . {to protect tanks against projectiles}
2015/03151	. . . {Mechanical connection between the tanks}	2015/03414	. . . {associated with the fuel tank for cooling heated fuel}
2015/03157	. . . {for supply different types of fuel to the motor}	2015/03421	. . . {to protect the fuel tank against heat}
2015/03164	. . {Modular concepts for fuel tanks}	2015/03427	. . . {for heating fuel, e.g. to avoiding freezing}
2015/03171	. . {Expansion tanks}	2015/03434	. . . {for preventing theft of fuel (locks for filler caps B60K 15/0409 ; locking of the inlet cover B60K 2015/0561)}
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)}	2015/0344	. . . {comprising baffles}
2015/03184	. . {Exchangeable tanks, i.e. the empty tank is replaced by refilled tank}	2015/03447	. . . {for improving the sealing}
2015/0319	. . {with electronic systems, e.g. for controlling fuelling or venting (for LPG tanks B60K 2015/03013)}	2015/03453	. . . {for fixing or mounting parts of the fuel tank together}
2015/03197	. . . {Systems for exchanging data}	2015/0346	. . . . {by welding}
2015/03203	. . . . {during refueling}	2015/03467	. . . . {by clip or snap fit fittings}
2015/0321	. . {characterised by special sensors, the mounting thereof}	2015/03473	. . . {for draining or emptying a fuel tank}
2015/03217	. . . {Fuel level sensors}	2015/0348	. . . {for returning the fuel from the motor}
2015/03223	. . . . {comprising at least two level fuel sensors}	2015/03486	. . {characterised by the materials the tank or parts thereof are essentially made from}
2015/0323	. . . {Sensors for detecting presence or absence of the filling nozzle}	2015/03493	. . . {made of plastics}
2015/03236	. . {characterised by special filters, the mounting thereof}	15/035	. . characterised by venting means
2015/03243	. . {characterised by special pumps, the mounting thereof}	15/03504	. . . {adapted to avoid loss of fuel or fuel vapour, e.g. with vapour recovery systems}
2015/0325	. . . {Jet pumps}	2015/03509	. . . . {with a droplet separator in the vent line}
		2015/03514	. . . . {with vapor recovery means}
		15/03519	. . . {Valve arrangements in the vent line}
		2015/03523	. . . {Arrangements of the venting tube}
		2015/03528	. . . . {Mounting of venting tubes}
		2015/03533	. . . . {the venting tube being movable with the fuel level}
		2015/03538	. . . . {the venting tube being connected with the filler tube}
		2015/03542	. . . {Mounting of the venting means (mounting of venting tubes B60K 2015/03528)}

2015/03547	. . . .	{the venting means are integrated in the fuel cap or inlet cover}	2015/0493	. . . .	{Means for checking absence or presence of closure cap}
2015/03552	. . . .	{the venting means are integrated into the fuel filler pipe}	2015/0496	. . . .	{the fuel inlet being arranged on the top of the fuel tank}
2015/03557	. . . .	{comprising elements of the venting device integrated in the fuel tank, e.g. vapor recovery means}	15/05	. . . .	Inlet covers
2015/03561	. . . .	{Venting means working at specific times}	2015/0507	. . . .	{Arrangements for adjusting the inlet cover}
2015/03566	. . . .	{comprising means for stopping the venting of fuel vapor, e.g. during refueling or engine stop}	2015/0515	. . . .	{Arrangements for closing or opening of inlet cover (locking means B60K 2015/0561)}
2015/03571	. . . .	{Venting during driving}	2015/0523	. . . .	{with sliding connection to the vehicle body}
2015/03576	. . . .	{Venting during filling the reservoir}	2015/053	. . . .	{with hinged connection to the vehicle body}
2015/0358	. . . .	{the venting is actuated by specific signals or positions of particular parts}	2015/0538	. . . .	{with open or close mechanism automatically actuated}
2015/03585	. . . .	{by gas pressure}	2015/0546	. . . .	{Arrangements for checking the position of the inlet cover}
2015/0359	. . . .	{by filler cap or inlet cover position}	2015/0553	. . . .	{Details concerning the inlet box or bowl in the vehicle car body panel}
2015/03595	. . . .	{by filler nozzle}	2015/0561	. . . .	{Locking means for the inlet cover}
15/04	. . . .	Tank inlets (B60K 15/077 takes precedence)	2015/0569	. . . .	{with actuator fixed to the inlet cover}
15/0403	. . . .	{Anti-siphoning devices}	2015/0576	. . . .	{with actuator fixed to the vehicle body}
15/0406	. . . .	{Filler caps for fuel tanks}	2015/0584	. . . .	{the locking bolt is linearly moved to lock or unlock}
15/0409	. . . .	{Provided with a lock}	2015/0592	. . . .	{with storage means for the cap}
2015/0412	. . . .	{the key can only be withdrawn when the cap is placed on the filler neck}	15/06	. . . .	characterised by fuel reserve systems
2015/0416	. . . .	{electrically actuated}	15/061	. . . .	{with level control}
2015/0419	. . . .	{Self-sealing closure caps, e.g. that don't have to be removed manually}	2015/062	. . . .	{Arrangement for filling the fuel reserve systems}
2015/0422	. . . .	{actuated by the inlet cover}	15/063	. . . .	Arrangement of tanks
2015/0425	. . . .	{actuated by a motor}	2015/0631	. . . .	{the fuel tank forming at least part of the vehicle floor}
2015/0429	. . . .	{actuated by the nozzle}	2015/0632	. . . .	{the fuel tank is arranged below the front seat}
2015/0432	. . . .	{having a specific connection between the cap and the vehicle or tank opening}	2015/0633	. . . .	{the fuel tank is arranged below the rear seat}
2015/0435	. . . .	{using a sliding connection}	2015/0634	. . . .	{the fuel tank is arranged below the vehicle floor}
2015/0438	. . . .	{using screw or bayonet}	2015/0635	. . . .	{the fuel tank is arranged between the seats}
2015/0441	. . . .	{with torque control}	2015/0636	. . . .	{the fuel tank being part of the chassis or frame}
2015/0445	. . . .	{using hinges}	2015/0637	. . . .	{the fuel tank is arranged in the front of the vehicle}
2015/0448	. . . .	{comprising spherical valve type closures}	2015/0638	. . . .	{the fuel tank is arranged in the rear of the vehicle}
2015/0451	. . . .	{Sealing means in the closure cap}	2015/0639	. . . .	{the fuel tank is arranged near or in the roof}
2015/0454	. . . .	{combined closing of the fuel inlet and bodywork inlet by one element which is visible from outside}	15/067	. . . .	Mounting of tanks
2015/0458	. . . .	{Details of the tank inlet}	2015/0675	. . . .	{allowing deflection movements of the tank in case of a crash}
2015/0461	. . . .	{comprising a filler pipe shutter, e.g. trap, door or flap for fuel inlet}	15/07	. . . .	of gas tanks
2015/0464	. . . .	{comprising a flexible or extendable filler pipes, e.g. corrugated, foldable or with bellows}	15/073	. . . .	Tank construction specially adapted to the vehicle (B60K 15/077 takes precedence)
2015/0467	. . . .	{Fuel tanks with more than one filler pipe}	15/077	. . . .	with means modifying or controlling distribution or motion of fuel, e.g. to prevent noise, surge, splash or fuel starvation
2015/047	. . . .	{Manufacturing of the fuel inlet or connecting elements to fuel inlet, e.g. pipes or venting tubes}	2015/0772	. . . .	{Floats in the fuel tank (float valves B60K 2015/03289)}
2015/0474	. . . .	{Arrangement of fuel filler pipes in relation to vehicle body}	2015/0775	. . . .	{for reducing movement or slash noise of fuel}
2015/0477	. . . .	{Details of the filler neck tank side}	2015/0777	. . . .	{in-tank reservoirs or baffles integrally manufactured with the fuel Tank}
2015/048	. . . .	{Arrangements for sealing the fuel inlet during filling}	15/10	. . . .	concerning gas-producing plants
2015/0483	. . . .	{Means to inhibit the introduction of too small or too big filler nozzles}			
2015/0487	. . . .	{Means to shield vehicle bodywork from fuel, e.g. during filling}			
2015/049	. . . .	{Means for determining the position of the filler nozzle in the filler pipe}			

16/00 Arrangements in connection with power supply of propulsion units in vehicles from forces of nature, e.g. sun or wind (electric propulsion with power supply from forces of nature, e.g. sun or wind [B60L 8/00](#); marine propulsion by wind motors driving water-engaging propulsive elements [B63H 13/00](#); wind motors specially adapted for installation on vehicles [F03D 9/32](#))

NOTE

When classifying in this group, details of sail or rigging arrangements which are suited for marine wind propulsion are also classified in the relevant groups of subclass [B63H](#), e.g. in groups [B63H 8/00](#), [B63H 9/04](#).

WARNING

Group [B60K 16/00](#) is impacted by reclassification into groups [B63H 8/00](#) - [B63H 8/70](#), [B63H 9/04](#), [B63H 9/06](#), [B63H 9/061](#), [B63H 9/065](#), [B63H 9/067](#) and [B63H 9/068](#) - [B63H 9/072](#).

All groups listed in this Warning should be considered in order to perform a complete search.

2016/003 . {solar power driven}

2016/006 . {wind power driven}

WARNING

Group [B60K 2016/006](#) is impacted by reclassification into groups [B63H 8/00](#) - [B63H 8/70](#), [B63H 9/04](#), [B63H 9/06](#), [B63H 9/061](#), [B63H 9/065](#), [B63H 9/067](#) and [B63H 9/068](#) - [B63H 9/072](#).

All groups listed in this Warning should be considered in order to perform a complete search.

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](#))

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](#))

17/02 . characterised by arrangement, location, or kind of clutch

17/04 . characterised by arrangement, location, or kind of gearing (electric equipment or propulsion of electrically-propelled vehicles [B60L](#))

17/043 . . {Transmission unit disposed in on near the vehicle wheel, or between the differential gear unit and the wheel}

17/046 . . . {with planetary gearing having orbital motion}

17/06 . . of change-speed gearing ([B60K 17/10](#) - [B60K 17/16](#) take precedence)

17/08 . . . of mechanical type

17/10 . . of fluid gearing (of fluid clutches [B60K 17/02](#))

17/105 . . . {Units comprising at least a part of the gearing and a torque-transmitting axle, e.g. transaxles ([B60K 17/14](#) takes precedence)}

17/12 . . of electric gearing (of electrically-actuated clutches [B60K 17/02](#))

17/14 . . the motor of fluid or electric gearing being disposed in or adjacent to traction wheel ([B60K 7/00](#) takes precedence)

17/145 . . . {the electric gearing being disposed in or adjacent to traction wheel}

17/16 . . of differential gearing

17/165 . . . {provided between independent half axles ([B60K 17/18](#), [B60K 17/20](#) take precedence)}

17/18 . . . {in which the differential movement is obtained by resilient means}

17/20 . . . {in which the differential movement is limited}

17/22 . characterised by arrangement, location, or type of main drive shafting, e.g. cardan shaft

17/24 . . Arrangements of mountings for shafting

17/26 . characterised by arrangement, location, of type of freewheel device

17/28 . characterised by arrangement, location, or type of power take-off

17/30 . the ultimate propulsive elements, e.g. ground wheels, being steerable

17/303 . . {with a gearwheel on the steering knuckle or kingpin axis}

17/306 . . {with a universal joint in the axis of the steering knuckle}

17/32 . the ultimate propulsive elements, e.g. ground wheels, being rockable about a horizontal pivot

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](#))

17/342 . . having a longitudinal, endless element, e.g. belt or chain, for transmitting drive to wheels

17/344 . . having a transfer gear

17/346 . . . the transfer gear being a differential gear

17/3462 {with means for changing distribution of torque between front and rear wheels}

17/3465 {self-actuated means, e.g. differential locked automatically by difference of speed}

17/3467 {combined with a change speed gearing, e.g. range gear}

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)

17/35 . . . including arrangements for suppressing or influencing the power transfer, e.g. viscous clutches (differential gearing with locking devices {[F16H 48/20](#)})

17/3505 {with self-actuated means, e.g. by difference of speed}

17/351 {comprising a viscous clutch}

17/3515 {with a clutch adjacent to traction wheel, e.g. automatic wheel hub}

17/352 {manually operated}

17/354 . . having separate mechanical assemblies for transmitting drive to the front or to the rear wheels or set of wheels

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](#))

17/358 . . {all driven wheels being steerable}

17/36 . for driving tandem wheels

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)		
20/02	. of initiating means (control mechanisms in general G05G)	25/02	. directly from an engine shaft
20/04	. . floor mounted	2025/022	. . {by a mechanical transmission}
20/06	. . mounted on steering column or the like	2025/024	. . . {with variable ratio}
20/08	. . Dashboard means	2025/026	. . {by a hydraulic transmission}
	WARNINGS	2025/028	. . {by a pneumatic transmission}
	1. The groups F16H 59/00 - 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	25/04	. from static or dynamic pressure or vacuum, developed by the engine
	2. Documents from the backlog of group B60K 20/14 are in the process of being systematically transferred to groups F16H 59/00 - F16H 63/00	25/06	. from the transmission power take-off (transmissions having power-take-off B60K 17/28)
20/14	. . {fluid}	2025/065	. . {the transmission being fluidic, e.g. hydraulic}
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)	25/08	. from a ground wheel, e.g. engaging the wheel tread or rim
2023/005	. {Adjusting multiple pedals, e.g. for their initial position}	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)
23/02	. for main transmission clutches	2025/103	. . {by electric means}
2023/025	. . {Adjusting of clutch pedal positions (clutch adjustment for removing slack F16D 13/75)}	2025/106	. . {by fluid means}
23/04	. for differential gearing	26/00	Arrangements or mounting of propulsion unit control devices in vehicles
2023/043	. . {Control means for varying left-right torque distribution, e.g. torque vectoring}	26/02	. of initiating means or elements
2023/046	. . {Axle differential locking means}	26/021	. . {with means for providing feel, e.g. by changing pedal force characteristics}
23/06	. for freewheel devices	2026/022	. . . {with tactile feedback from a controller, e.g. vibrations}
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)}	2026/023	. . . {with electrical means to generate counter force or torque}
23/0808	. . {for varying torque distribution between driven axles, e.g. by transfer clutch}	2026/024	. . {Adjustable consoles, e.g. for changing position of mounting casings}
2023/0816	. . . {for varying front-rear torque distribution with a central differential}	2026/025	. . {Input devices for controlling electric drive motors}
2023/0825	. . . . {for adding torque to the front wheels}	2026/026	. . {Adjusting of accelerator pedal positions}
2023/0833	. . . . {for adding torque to the rear wheels}	2026/027	. . {Acceleration input members mounted on a seat}
2023/0841	. . . {for locking a central differential, e.g. by using a lock-up clutch}	2026/028	. . {Acceleration input members mounted on steering wheel or column}
2023/085	. . {automatically actuated}	2026/029	. . {Joystick type control devices for acceleration}
2023/0858	. . . {with electric means, e.g. electro-hydraulic means}	26/04	. of means connecting initiating means or elements to propulsion unit
2023/0866	. . . {with hydraulic means only}	2026/043	. . {with mechanical gearings}
2023/0875	. . . {with mechanical means only}	2026/046	. . {with electrical transmission means}
2023/0883	. . {manually actuated}	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-unit B60W 30/00; drive control systems specially adapted for autonomous road vehicles B60W 60/00)
2023/0891	. . . {with actuator levers, e.g. shift levers or linkage for changing two-wheel to four-wheel drive}		WARNING
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)		Groups B60K 28/00 - B60K 28/165 are impacted by reclassification into groups B60W 60/00 - B60W 60/007 , B60W 2300/00 - B60W 2530/213 , B60W 2540/041 - B60W 2540/049 , B60W 2552/00 - B60W 2556/65 , B60W 2710/00 - B60W 2720/406 , and B60W 2754/00 - B60W 2900/00 .
2025/005	. {driven by electric motors forming part of the propulsion unit}		All groups listed in this Warning should be considered in order to perform a complete search.

2028/003	• {inhibiting the starter motor, e.g. by controlling ignition or park lock circuits}	2031/0033	• • {Detecting longitudinal speed or acceleration of target vehicle}
2028/006	• {disconnecting the electric power supply, e.g. the vehicle battery}	2031/0041	• • {Detecting lateral speed of target vehicle}
28/02	• responsive to conditions relating to the driver	2031/005	• • {Selecting more than one target vehicle, e.g. using several preceding vehicles as target}
28/04	• • responsive to presence or absence of the driver, e.g. to weight or lack thereof	31/0058	• {responsive to externally generated signalling}
28/06	• • responsive to incapacity of driver	31/0066	• {responsive to vehicle path curvature}
28/063	• • • {preventing starting of vehicles}	31/0075	• • {responsive to vehicle steering angle}
28/066	• • • {actuating a signalling device (B60K 28/063 takes precedence)}	31/0083	• • {responsive to centrifugal force acting on vehicle due to the path it is following}
28/08	• responsive to conditions relating to the cargo, e.g. overload	2031/0091	• {Speed limiters or speed cutters}
28/10	• responsive to conditions relating to the vehicle	31/02	• including electrically actuated servomechanism {including an electric control system or a servomechanism in which the vehicle velocity affecting element is actuated electrically}
28/12	• • responsive to conditions relating to doors or doors locks, e.g. open door	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
28/14	• • responsive to accident or emergency, e.g. deceleration, tilt of vehicle	31/042	• • • {where at least one electrical quantity is set by the vehicle operator}
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)	31/045	• • • • {in a memory, e.g. a capacitor}
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)}	31/047	• • • • {the memory being digital}
31/00	Vehicle fittings, acting on a single sub-unit only, for automatically controlling vehicle speed, 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})	31/06	• including fluid pressure actuated servomechanism {in which the vehicle velocity affecting element is actuated by fluid pressure}
	NOTE	31/08	• • and one or more electrical components for establishing or regulating input pressure
	In this group:	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
	• the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle, e.g. the throttle;	31/102	• • • {where at least one electrical quantity is set by the vehicle operator}
	• 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.	31/105	• • • • {in a memory, e.g. a capacitor}
31/0008	• {including means for detecting potential obstacles in vehicle path}	31/107	• • • • {the memory being digital}
2031/0016	• • {Identification of obstacles; Selection of a target vehicle}	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)}
2031/0025	• • {Detecting position of target vehicle, e.g. vehicle driving ahead from host vehicle}	31/14	• • having an electrical switch which is caused to function by the centrifugal force
		31/16	• having means to prevent or discourage unauthorised use or adjusting of the controlling means {(vehicle theft prevention in general B60R 25/00)}
		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)}
		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

35/00	Arrangement of adaptations of instruments (arrangements on dashboard B60K 37/02)
37/00	Dashboards (as road-vehicle superstructure sub-unit B62D)
37/02	• Arrangement of instruments (arrangement of lighting devices for dashboards B60Q 3/10)
37/04	• Arrangement of fittings on dashboard (of instruments B60K 37/02)
37/06	• . . of controls, e.g. controls knobs

2310/00	Arrangements, adaptations or methods for cruise controls
2310/20	• Operator actuated switches or levers for cruise control or speed limiting systems
2310/22	• Displays for target speed
2310/24	• Speed setting methods
2310/242	• . . setting initial target speed, e.g. initial algorithms
2310/244	• . . changing target speed or setting a new target speed, e.g. changing algorithms
2310/246	• . . releasing speed control, e.g. inhibiting speed control if a brake pedal is depressed
2310/248	• . . resuming speed control, e.g. returning to old target speed
2310/26	• Distance setting methods, e.g. determining target distance to target vehicle
2310/262	• . . setting initial distance to preceding vehicle, e.g. initial algorithms
2310/264	• . . changing distance, e.g. reducing the distance for overtaking
2310/266	• . . releasing distance control, e.g. inhibiting control if target vehicle lost or changing lane
2310/268	• . . resuming distance control, e.g. changing target vehicle
2310/28	• Following time setting methods, e.g. elapsed delay between preceding and host vehicle
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 \[F16F\]\(#\)](#); propulsion units or their control [per se, see the relevant classes](#))

2370/00	Details of arrangements or adaptations of instruments specially adapted for vehicles, not covered by groups B60K 35/00, B60K 37/00
2370/10	• Input devices or features thereof
2370/11	• . . Graphical user interfaces or menu aspects
2370/111	• . . . for controlling multiple devices
2370/113	• . . . Scrolling through menu items
2370/115	• . . . Selection of menu items
2370/117	• . . . Cursors
2370/119	• . . . Icons
2370/12	• . . Input devices or input features
2370/122	• . . . with reconfigurable control functions, e.g. reconfigurable menus
2370/126	• . . . Rotatable input devices
2370/128	• . . . Axially displaceable input devices
2370/131	• . . . Pivotal input devices
2370/133	• . . . Multidirectional input devices

2370/135	• . . . Joysticks
2370/137	• . . . Jog-dials
2370/139	• . . Clusters of input devices
2370/141	• . . Activation by approaching fingers or pens
2370/143	• . . Touch sensitive input devices
2370/1434	• . . . Touch panels
2370/1438	• . . . Touch screens
2370/1442	• Emulation of input devices
2370/1446	• . . . Touch switches
2370/145	• . . Input by combination of touch screen and hardware input devices
2370/146	• . . Input by gesture
2370/1464	• . . . 3D-gesture
2370/1468	• . . . Touch gesture
2370/1472	• Multi-touch gesture
2370/1476	• Handwriting
2370/148	• . . Input by voice
2370/149	• . . Input by detecting viewing direction
2370/15	• Output devices or features thereof
2370/151	• . Reconfigurable output
2370/1515	• . . Reconfigurable dials
2370/152	• . Displays
2370/1523	• . . Matrix displays
2370/1526	• . . Dual-view displays
2370/1529	• . . Head-up displays
2370/1531	• . . Three-dimensional displays
2370/1533	• . . Flexible displays
2370/1534	• . . Simultaneous multiple use of display matrix, e.g. to display information and to illuminate pointer
2370/1537	• . . Displays on a manual operation element
2370/154	• . Combined instruments with analogue meters and additional displays
2370/155	• . Virtual instruments
2370/156	• . Variable gauge scales
2370/157	• . Acoustic output
2370/1575	• . . Voice
2370/158	• . Haptic output
2370/16	• Type of information
2370/161	• . Explanation of functions, e.g. instructions
2370/162	• . Visual feedback on control action
2370/163	• . Language
2370/164	• . Infotainment
2370/165	• . Videos and animations
2370/166	• . Navigation
2370/167	• . Vehicle dynamics information
2370/168	• . Target or limit values
2370/169	• . Remaining operating distance or charge
2370/171	• . Vehicle or relevant part thereof displayed
2370/172	• . Driving mode indication
2370/173	• . Reversing assist
2370/174	• . Economic driving
2370/175	• . Autonomous driving
2370/176	• . Camera images
2370/177	• . Augmented reality
2370/178	• . Warnings
2370/179	• . Distances to obstacles or vehicles
2370/18	• Information management
2370/182	• . Distributing information between displays
2370/184	• . Displaying the same information on different displays
2370/186	• . Displaying Information according to relevancy

2370/1868	. . . according to driving situations	2370/592	. . . External database involved
2370/1876	. . . according to vehicle situations	2370/595	. . . Internal database involved
2370/188	. . Displaying information using colour changes	2370/60	. Structural details of dashboards or instruments
2370/191	. . Highlight information	2370/61	. . Specially adapted for utility vehicles
2370/193	. . for improving awareness	2370/62	. . Anti-theft arrangements
2370/194	. . . by directing line of sight	2370/63	. . Crash protection features
2370/195	. . Blocking or enabling display functions	2370/65	. . Features of dashboards
2370/197	. . Blocking or enabling of input functions	2370/654	. . . Dashboard panels
2370/199	. . for avoiding maloperation	2370/658	. . . Dashboard parts used as air ducts
2370/20	. Optical features of instruments	2370/66	. . Projection screens or combiners
2370/21	. . using cameras	2370/67	. . Foldable or movable displays
2370/23	. . using reflectors	2370/68	. . Features of instruments
2370/25	. . using filters	2370/682	. . . Arrangements to cover or hide instruments
2370/27	. . using semi-transparent optical elements	2370/685	. . . Instruments movable with steering column
2370/28	. . . for instruments which are not visible when inactive	2370/688	. . . Frames or decorative parts
2370/29	. . Holographic features	2370/691	. . . Housings
2370/31	. . Virtual images	2370/692	. . . Sealings
2370/33	. . Illumination features	2370/693	. . . Cover plate features
2370/331	. . . Electroluminescent elements	2370/695	. . . Dial features
2370/332	. . . Light emitting diodes	2370/698	. . . Pointers of combined instruments
2370/333	. . . Lasers	2370/6985	. . . . with only part of pointer being visible
2370/334	. . . Projection means	2370/6992	. . . . Light conducting pointers
2370/336	. . . Light guides	2370/70	. Arrangements of instruments in the vehicle
2370/338	. . . Light strips	2370/73	. . with special adaptation to the user or to the vehicle
2370/339	. . . Translucent dashboard skins	2370/731	. . . user programmable systems
2370/34	. . . Backlit symbols	2370/733	. . . Left or right steering
2370/341	. . . Illumination of dials	2370/736	. . . the user being the driver
2370/343	. . . Illumination of matrix displays	2370/739	. . . the user being the passenger
2370/345	. . . Illumination of controls	2370/741	. . . User detection
2370/347	. . . Optical elements for superposition of display information	2370/744	. . . Position adjustable by user
2370/349	. . . Adjustment of brightness	2370/77	. . characterised by locations other than the dashboard
2370/35	. . Fogging prevention	2370/771	. . . on the ceiling
2370/37	. . Glare prevention	2370/774	. . . on or in the centre console
2370/39	. . Anti-reflection arrangements	2370/777	. . . on or in sun visors
2370/40	. Hardware adaptations for dashboards or instruments	2370/779	. . . on or in rear view mirrors
2370/42	. . Circuit board features	2370/782	. . . on the steering wheel
2370/44	. . Wiring harness	2370/785	. . . on or in relation to the windshield or windows
2370/46	. . Electrical connections	2370/788	. . . on or in side pillars
2370/47	. . . using wireless power transfer or transmission.	2370/791	. . . on or in the transmission tunnel or parking brake lever
2370/48	. . Sensors	2370/794	. . . on or in doors
2370/50	. Control arrangements; Data network features	2370/797	. . . At the vehicle exterior
2370/52	. . Control of displays	2370/80	. Mounting or fastening arrangements; Mounting or fastening processes
2370/55	. . Remote controls	2370/81	. . Fastening of instruments, e.g. to dashboard
2370/56	. . . using mobile devices	2370/816	. . . Fastening of displays or touch screens
2370/563	. . . . Vehicle displaying mobile device information	2370/822	. . . Adjustment of instruments during mounting
2370/566	. . . . Mobile devices displaying vehicle information	2370/828	. . . Exchangeable modules
2370/569	. . . . Vehicle controlling mobile device functions	2370/834	. . . Docking
2370/573	. . . . Mobile devices controlling vehicle functions	2370/84	. . Mounting of dashboard components
2370/577	. . . . Mirror link with mobile devices	2370/87	. . Fixation of dashboard to vehicle structure
2370/58	. . Data transfers	2370/90	. Calibration, testing or manufacturing aspects
2370/583	. . . between instruments	2370/91	. . Assembly of instruments
2370/586	. . . Wired data transfers	2370/92	. . Calibration of instruments
2370/589	. . . Wireless	2370/95	. . Testing of instruments
2370/5894	. . . . SIM cards	2370/98	. . Manufacturing of instruments
2370/5899	. . . . Internet		
2370/5905	. . . . Wi-fi	2700/00	Control mechanisms and elements applying a mechanical movement
2370/5911	. . . . Bluetooth		
2370/5915	. . . . Inter vehicle communication		

- 2700/02 . regulating mechanisms combined with non-mechanical transmissions
- 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**
 - 2702/02 . Automatic transmission with toothed gearing
 - 2702/04 . . Control dependent on speed
 - 2702/06 . . Control dependent on torque
 - 2702/08 . Semi-automatic or non-automatic transmission with toothed gearing
 - 2702/10 . . without a preselection system
 - 2702/12 . . . the control being mechanical
 - 2702/14 . . . the control being hydraulic or pneumatic
 - 2702/16 . . . the control being electric
 - 2702/18 . . with a preselection system, e.g. semi-automatic
 - 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
- 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**
 - 2704/02 . without preselection system, the control being mechanical
 - 2704/04 . with preselection system, e.g. for semi-automatic transmission