

# CPC COOPERATIVE PATENT CLASSIFICATION

## B60Y INDEXING SCHEME RELATING TO ASPECTS CROSS-CUTTING VEHICLE TECHNOLOGY

<b>2200/00</b>	<b>Type of vehicle (not used; see subgroups)</b>	<b>2200/416</b>	. . . Cranes
2200/10	. Road Vehicles	2200/417	. . . Articulated frame vehicles
2200/11	. . Passenger cars; Automobiles	2200/42	. . Amphibious vehicles
2200/112	. . . City movers, small sized city motor vehicles	2200/43	. . Variable track or wheelbase vehicles
2200/114	. . . Racing vehicles, e.g. Formula one, Karts	2200/44	. . Multi-axle long vehicles, with independently drivable or steerable wheels
2200/116	. . . Ambulances	2200/45	. . Vehicles having steerable wheels mounted on a vertically moving column
2200/12	. . Motorcycles, Trikes; Quads; Scooters	2200/46	. . Arctic-/Extraterrestrial explorers
2200/122	. . . Trikes	2200/47	. . Climbing vehicles, e.g. facade climbing devices
2200/124	. . . Buggies, Quads	2200/48	. . . Stair-climbing vehicles
2200/126	. . . Scooters	2200/49	. . Movable platforms, Load ramps, e.g. working platforms
2200/13	. . Bicycles; Tricycles	2200/50	. Aeroplanes, Helicopters
2200/132	. . . All terrain bikes	2200/51	. . Aeroplanes
2200/134	. . . Racing bikes	2200/52	. . Helicopters
2200/14	. . Trucks; Load vehicles, Busses	2200/60	. Industrial applications, e.g. pipe inspection vehicles
2200/141	. . . Light trucks	2200/62	. . Conveyors, floor conveyors
2200/142	. . . Heavy duty trucks	2200/64	. . Beam Hoists
2200/1422	. . . . Multi-axle trucks	2200/66	. . Containers; Pallets; Skids
2200/143	. . . Busses	2200/80	. Other vehicles not covered by groups <a href="#">B60Y 2200/10</a> - <a href="#">B60Y 2200/60</a>
2200/1432	. . . . Low floor busses	2200/81	. . Toys
2200/144	. . . Garbage trucks, e.g. refuse trucks	2200/83	. . Perambulators; Buggies; Strollers
2200/145	. . . Haulage vehicles, trailing trucks	2200/84	. . Wheelchairs
2200/146	. . . Silo or fluid transporting vehicles	2200/86	. . Carts; Golf carts
2200/147	. . . Trailers, e.g. full trailers or caravans	2200/90	. Vehicles comprising electric prime movers
2200/148	. . . Semi-trailers, articulated vehicles	2200/91	. . Electric vehicles
2200/15	. . Fork lift trucks, Industrial trucks	2200/912	. . . Electric vehicles with power supply external to vehicle, e.g. trolley buses or trams
2200/16	. . Vehicles with lowerable bed or chassis, e.g. to facilitate loading	2200/92	. . Hybrid vehicles
2200/20	. Off-Road Vehicles	<b>2300/00</b>	<b>Purposes or special features of road vehicle drive control systems (for systems using conjoint control of multiple vehicle sub-units <a href="#">B60W 30/00</a>)</b>
2200/22	. . Agricultural vehicles	2300/02	. Control of vehicle driving stability
2200/221	. . . Tractors	2300/022	. . Stability in turns or during cornering
2200/222	. . . Harvesters	2300/0223	. . . related to over-steering
2200/223	. . . Ridable lawn mowers	2300/0227	. . . related to under-steering
2200/224	. . . Boom carrying vehicles, e.g. for irrigation	2300/045	. . Improving turning performance, e.g. agility of a vehicle in a curve
2200/225	. . . Walk behind vehicles, e.g. motorized wheel barrows	2300/0453	. . . about the pitch axis
2200/23	. . Ridable golf cars	2300/0457	. . . about the roll axis
2200/24	. . Military vehicles	2300/06	. Automatic manoeuvring for parking
2200/25	. . Track vehicles	2300/08	. Predicting or avoiding probable or impending collision
2200/252	. . Snowmobiles	2300/085	. . Taking automatic action to adjust vehicle attitude or components thereof in preparation for collision, e.g. adjusting bumpers or wheels or braking for nose dropping
2200/254	. . Tanks	2300/09	. . Taking automatic action to avoid collision, e.g. braking or steering
2200/30	. Railway vehicles	2300/095	. . Predicting travel path or likelihood of collision
2200/31	. . Locomotives	2300/0952	. . . the prediction being responsive to vehicle dynamic parameters
2200/33	. . Rail cars; Wagons		
2200/34	. . Monorails		
2200/37	. . Roller coasters		
2200/39	. . having track following mechanism for lateral stability		
2200/40	. Special vehicles		
2200/41	. . Construction vehicles, e.g. graders, excavators		
2200/411	. . . Bulldozers, Graders		
2200/412	. . . Excavators		
2200/413	. . . Compactors		
2200/414	. . . Pavers		
2200/415	. . . Wheel loaders		

2300/0954	. . . the prediction being responsive to traffic or environmental parameters	2300/19	. . Improvement of gear change, e.g. synchronisation or smoothing gear shift
2300/097	. . Vehicle operation after collision	2300/192	. . Power-up or power-down of the driveline, e.g. start up of a cold engine
2300/10	. Path keeping	2300/194	. . . related to low temperature conditions, e.g. high viscosity of hydraulic fluid
2300/12	. . Lane keeping	2300/20	. . Reducing vibrations in the driveline
2300/14	. Cruise control	2300/202	. . . related or induced by the clutch
2300/143	. . Speed control	2300/205	. . . related or induced by the engine
2300/146	. . . Speed limiting	2300/207	. . . related to drive shaft torsion, e.g. driveline oscillations
2300/16	. . Control of distance between vehicles, e.g. keeping a distance to preceding vehicle	2300/22	. . Reducing road induced vibrations, suppressing road noise
2300/162	. . . Speed limiting therefor	2300/24	. . Adaptation to external conditions, e.g. road surface conditions
2300/165	. . . Automatically following the path of a preceding lead vehicle, e.g. "electronic tow-bar"	2300/244	. . . Adaptation to traffic conditions
2300/17	. . . with provision for special action when the preceding vehicle comes to a halt, e.g. stop-and-go	2300/26	. . Dangerous conditions
2300/18	. Propelling the vehicle	2300/28	. related to towing or towed situations
2300/18008	. . related to particular drive situations	2300/30	. related to stationary vehicle situations, e.g. parked vehicles
2300/18016	. . . Start-stop drive, e.g. in a traffic jam	2300/301	. . Kneeling, e.g. for letting passengers on or off
2300/18025	. . . Drive off, accelerating from standstill	2300/303	. . Lowering or adjusting the floor for loading or unloading
2300/18033	. . . Reversing	2300/305	. . . Adjusting floor height to loading ramp level
2300/18041	. . . . Rocking, i.e. fast change between forward and reverse	2300/306	. . . Mechanism to lock the height
2300/1805	. . . at stand still, e.g. engine in idling state	2300/308	. . Jacking-up for changing tyre or for vehicle inspection
2300/18058	. . . Creeping	2300/42	. Control of clutches
2300/18066	. . . Coasting	2300/421	. . Control of lock-up type clutches, e.g. in a torque converter
2300/18075	. . . . with torque flow from driveshaft to engine, i.e. engine being driven by vehicle	2300/423	. . Control of power take-off clutches
2300/18083	. . . . without torque flow between driveshaft and engine, e.g. with clutch disengaged or transmission in neutral	2300/424	. . Control of freewheel clutches
2300/18091	. . . Preparing for stopping	2300/425	. . Control of clutches to regulate engine speed or torque
2300/181	. . . Hill climbing or descending	2300/426	. . Reducing engagement shocks in main clutch
2300/18108	. . . Braking	2300/427	. . Control of clutch touch point, e.g. kiss point
2300/18116	. . . . Hill holding	2300/428	. . Reducing clutch wear
2300/18125	. . . . Regenerative braking	2300/429	. . Control of secondary clutches in drivelines
2300/18133	. . . . Engine braking	2300/43	. Control of engines
2300/18141	. . . . Braking for parking	2300/431	. . Control of engine air-fuel ratio
2300/1815	. . . Cornering	2300/432	. . Control of engine fuel injection
2300/18158	. . . Approaching intersection	2300/433	. . Control of engine throttle
2300/18166	. . . Overtaking, changing lanes	2300/434	. . Control of engine inlet air duct by secondary means
2300/18175	. . Preventing, or responsive to skidding of wheels	2300/435	. . Control of engine cylinder cut-off
2300/18183	. . Propulsion control with common controlling member for different functions	2300/436	. . Control of engine ignition
2300/18191	. . Propulsion control with control means using analogue circuits, relays or mechanical links	2300/437	. . Control of engine valves
2300/182	. . Selecting between different operative modes, e.g. comfort and performance modes	2300/44	. Control of engine at idle speed
2300/184	. . Preventing damage resulting from overload or excessive wear of the driveline	2300/45	. Engine shutdown at standstill
2300/1845	. . . Preventing of breakage of drive line components, e.g. parts of the gearing	2300/46	. Engine injection cut at coasting
2300/186	. . . Excessive wear or burn out of friction elements, e.g. clutches	2300/47	. Engine emissions
2300/1865	. . . . Overheating of driveline components	2300/472	. . Catalyst reactivation
2300/188	. . Controlling power parameters of the driveline, e.g. determining the required power	2300/474	. . Catalyst warm up
2300/1882	. . . characterised by the working point of the engine, e.g. by using engine output chart	2300/476	. . Regeneration of particle filters
2300/1884	. . . Avoiding stall or over-speed of the engine	2300/48	. Engine direct start by injecting fuel and fire
2300/1886	. . . Controlling power supply to auxiliary devices	2300/49	. Engine push start or restart by use of vehicle kinetic energy
2300/1888	. . . . Control of power take off [PTO]	2300/50	. Engine start by use of flywheel kinetic energy
		2300/51	. Driving or powering of engine accessories
		2300/52	. Engine fuel consumption
		2300/525	. . by reducing drag torque, e.g. by closing valves to reduce pumping

2300/53	• Engine over-speed	2304/078	• • by interchangeable parts, e.g. new part adapting to old design
2300/54	• Engine overload, high loads on engine	2304/09	• Testing or calibrating during manufacturing
2300/55	• Engine low load mode	<b>2306/00</b>	<b>Other features of vehicle sub-units</b>
2300/56	• Engine stall prevention	2306/01	• Reducing damages in case of crash, e.g. by improving battery protection
2300/57	• Engine torque resume after shifting	2306/03	• Lubrication
2300/58	• Engine torque vibration dampers, e.g. flywheels, dual-mass-springs	2306/05	• Cooling
2300/60	• Control of electric machines, e.g. problems related to electric motors or generators	2306/07	• Heating of passenger cabins
2300/61	• • Inductive lock-up	2306/09	• Reducing noise
2300/62	• • Mechanical lock-up, e.g. using brake to immobilise the rotor	2306/11	• Noise generation, e.g. drive noise to warn pedestrians that an electric vehicle is approaching
2300/63	• • Starter motor mode	2306/13	• Failsafe arrangements
2300/64	• • Drag run or drag torque compensation, e.g. motor to drive engine with drag torque or engine speed is brought to start speed before injection and firing	2306/15	• Failure diagnostics
2300/65	• • Reduce shocks on mode change, e.g. during engine shutdown	<b>2400/00</b>	<b>Special features of vehicle units</b>
2300/66	• • Control for gear shift synchronisation	2400/10	• Energy storage devices
2300/67	• • High load on electric machines, e.g. overheating	2400/102	• • for hydrogen fuel
2300/68	• • Over-speed of electric machines	2400/104	• • for liquid petrol gas
2300/69	• • Motor boost, e.g. short time overpower	2400/106	• • for gasoil
2300/70	• Control of gearings	2400/11	• Electric energy storages
2300/71	• • Limiting transmission input torque	2400/112	• • Batteries
2300/72	• • Facilitate disengaging of gears, e.g. by inducing a torque reversal	2400/114	• • Super-capacities
2300/73	• • Synchronisation of shaft speeds	2400/14	• Hydraulic energy storages, e.g. hydraulic accumulators
2300/74	• • Reducing shift shocks	2400/15	• Pneumatic energy storages, e.g. pressure air tanks
2300/75	• • Dither torque, e.g. to remove tooth butting	2400/16	• Mechanic energy storages
2300/77	• • Torque reversal, e.g. avoid clunks when changing between driving and coasting	2400/162	• • Flywheels
2300/78	• • Power split	2400/164	• • Springs
2300/785	• • • Geared neutral	2400/20	• Energy converters
2300/80	• Control of differentials	2400/202	• • Fuel cells
2300/82	• • Torque vectoring	2400/204	• • Generator sets, engine and generator as one unit
2300/84	• • Differential locking	2400/206	• • Thermo-electric generators
2300/88	• Reducing brake wear	2400/208	• • Peltier or Thomson elements for cooling or heating
2300/89	• Repartition of braking force, e.g. friction braking versus regenerative braking	2400/209	• • Piezo-electric elements
2300/90	• Releasing parking brake at start	2400/21	• External power supplies
2300/91	• Battery charging	2400/212	• • by power from overhead cables using trolleys
2300/92	• Battery protection from overload or overcharge	2400/214	• • by power from domestic supply, e.g. plug in supplies
<b>2302/00</b>	<b>Responses or measures related to driver conditions</b> (for propulsion units <a href="#">B60K 28/02</a> , related to driving style <a href="#">B60W 40/09</a> )	2400/216	• • by solar panels
2302/01	• Preventing starting of the vehicle	2400/30	• Sensors
2302/03	• Actuating a signal or alarm device	2400/301	• • for position or displacement
2302/05	• Leading to automatic stopping of the vehicle	2400/3012	• • • using Hall effect
2302/07	• Disabling particular vehicle functions, e.g. to affect the driving style	2400/3015	• • • Optical cameras
2302/09	• Reducing the workload of driver	2400/3017	• • • Radars
<b>2304/00</b>	<b>Optimising design; Manufacturing; Testing</b>	2400/3018	• • Flow-meters
2304/01	• Minimizing space with more compact designs or arrangements	2400/3019	• • Fluid level sensors
2304/03	• Reducing weight	2400/302	• • Temperature sensors
2304/05	• Reducing production costs, e.g. by redesign	2400/303	• • Speed sensors
2304/07	• Facilitating assembling or mounting	2400/3032	• • • Wheel speed sensors
2304/072	• • by preassembled subunits	2400/304	• • Acceleration sensors
2304/074	• • by improved accessibility	2400/3042	• • • Collision sensors
2304/076	• • by add-on parts, e.g. retrofit	2400/3044	• • • Vibration sensors
		2400/305	• • Force sensors
		2400/306	• • Pressure sensors
		2400/307	• • Torque sensors
		2400/308	• • Electric sensors
		2400/3084	• • • Electric currents sensors
		2400/3086	• • • Electric voltages sensors
		2400/40	• Actuators for moving a controlled member

2400/402	. . Manual actuators, i.e. input levers or linkages therefor	2400/732	. . . with intermeshing planetary gears, e.g. Ravigneaux
2400/4024	. . . with adjustable positions	2400/74	. . Shaft brakes, e.g. input shaft brakes
2400/4026	. . . providing feel, e.g. with feedback force	2400/75	. . Power shifting, e.g. without interruption of drive torque
2400/404	. . Electro-magnetic actuators, e.g. with an electromagnet not rotating for moving a clutching member	2400/76	. . Automatic gearshift to neutral
2400/4045	. . . Electro-magnetic valves, i.e. solenoids	2400/77	. . Gearshift position determination, e.g. check of neutral position
2400/405	. . Electric motors actuators	2400/78	. . Pumps, e.g. jet type
2400/406	. . Hydraulic actuators	2400/785	. . . Pump drives
2400/408	. . Pneumatic actuators	2400/79	. . Drive shafts, output shafts or propeller shafts
2400/41	. . Mechanical transmissions for actuators	2400/795	. . . Power take off
2400/411	. . . Bowden cables or linkages	2400/80	. Differentials
2400/4115	. . . . Lost motion linkages	2400/802	. . Differential locking systems
2400/4117	. . . . Slack adjustments	2400/804	. . Torque vectoring arrangements
2400/412	. . . Screw-nut mechanisms	2400/81	. Braking systems
2400/414	. . . Ramp or cam mechanisms	2400/82	. Four wheel drive systems
2400/416	. . . Centrifugal actuators	2400/83	. Steering input members
2400/418	. . Power assistance, e.g. servo-motors	2400/84	. Rear wheel steering; All wheel steerings
2400/4185	. . . Mechanical assistance, i.e. using springs or accumulators without feedback control	2400/85	. Skid-steer systems, e.g. for tracked vehicles
2400/4187	. . . Servo-motors, e.g. electric or fluidic with feedback control	2400/86	. Suspension systems
2400/42	. Clutches or brakes	2400/87	. Auxiliary drives
2400/421	. . Dog type clutches or brakes	2400/88	. . Air conditioners, e.g. compressor drives
2400/422	. . Synchromesh type clutches or brakes	2400/89	. . Cooling systems, e.g. fan drives
2400/423	. . Electromagnetic clutches, e.g. powder type clutches	2400/90	. Driver alarms
2400/424	. . Friction clutches	2400/902	. . giving haptic or tactile signals
2400/4242	. . . of dry type	2400/92	. Driver displays
2400/4244	. . . of wet type, e.g. using multiple lamellae		
2400/425	. . Viscous couplings	<b>2410/00</b>	<b>Constructional features of vehicle sub-units</b>
2400/426	. . Hydrodynamic couplings, e.g. torque converters	2410/10	. Housings
2400/427	. . One-way clutches	2410/102	. Shaft arrangements; Shaft supports, e.g. bearings
2400/428	. . Double clutch arrangements; Dual clutches	2410/1022	. . Concentric shaft arrangements
2400/43	. Engines	2410/104	. Hydraulic valves
2400/431	. . Gas turbine engines	2410/105	. Valve bodies; Mounting of hydraulic controllers
2400/432	. . Diesel Engines	2410/111	. Aggregate identification or specification, e.g. using RFID
2400/433	. . Gas Engines, e.g. using LPG, natural gas or gasifiers	2410/113	. Mount clips, snap-fit, e.g. quick fit with elastic members
2400/434	. . Hydrogen fuel engines	2410/114	. Shields, e.g. for heat protection
2400/435	. . Supercharger or turbochargers	2410/115	. Electric wiring; Electric connectors
2400/436	. . Electromagnetic engines valves	2410/12	. Production or manufacturing of vehicle parts
2400/44	. . Exhaust turbines driving generators	2410/121	. . Metal parts manufactured by moulding
2400/442	. . Exhaust gas recirculation [EGR]	2410/122	. . Plastic parts manufactured by moulding
2400/446	. . Exhaust gas reformers, e.g. treated by fuel cells	2410/123	. . Over-moulded parts
2400/46	. Engine start hydraulic or electric motors	2410/124	. . Welded parts
2400/47	. Starter generator drive systems	2410/125	. . Bounded parts
2400/48	. Vibration dampers, e.g. dual mass flywheels	2410/13	. Materials or fluids with special properties
2400/60	. Electric Machines, e.g. motors or generators	2410/132	. . Magnetic, e.g. permanent magnets
2400/602	. . DC Machines	2410/134	. . Rheological, magneto- or electro- fluids
2400/604	. . AC Machines, e.g. asynchronous motors	2410/136	. . Memory alloys
2400/607	. . Axial flux machines		
2400/608	. . Clutch motors, i.e. having rotating stators		
2400/61	. Arrangements of controllers for electric machines, e.g. inverters		
2400/70	. Gearings		
2400/702	. . Worm gearings		
2400/71	. . Manual or semi-automatic, e.g. automated manual transmissions		
2400/72	. . Continuous variable transmissions [CVT]		
2400/73	. . Planetary gearings		