CPC  COOPERATIVE PATENT CLASSIFICATION

B  PERFORMING OPERATIONS; TRANSPORTING

( NOTES omitted)

TRANSPORTING

B60  VEHICLES IN GENERAL

( NOTE omitted)

B60Y  INDEXING SCHEME RELATING TO ASPECTS CROSS-CUTTING VEHICLE TECHNOLOGY

<table>
<thead>
<tr>
<th>2200/00</th>
<th>Type of vehicle</th>
<th>2200/39</th>
<th>having track following mechanism for lateral stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2200/10</td>
<td>Road Vehicles</td>
<td>2200/40</td>
<td>Special vehicles</td>
</tr>
<tr>
<td>2200/11</td>
<td>Passenger cars; Automobiles</td>
<td>2200/41</td>
<td>Construction vehicles, e.g. graders, excavators</td>
</tr>
<tr>
<td>2200/12</td>
<td>City movers, small sized city motor vehicles</td>
<td>2200/411</td>
<td>Bulldozers, Graders</td>
</tr>
<tr>
<td>2200/14</td>
<td>Racing vehicles, e.g. Formula one, Karts</td>
<td>2200/412</td>
<td>Excavators</td>
</tr>
<tr>
<td>2200/16</td>
<td>Ambulances</td>
<td>2200/413</td>
<td>Compactors</td>
</tr>
<tr>
<td>2200/18</td>
<td>Motorcycles, Trikes; Quads; Scooters</td>
<td>2200/414</td>
<td>Pavers</td>
</tr>
<tr>
<td>2200/19</td>
<td>Buggies, Quads</td>
<td>2200/415</td>
<td>Wheel loaders</td>
</tr>
<tr>
<td>2200/22</td>
<td>Scooters</td>
<td>2200/416</td>
<td>Cranes</td>
</tr>
<tr>
<td>2200/23</td>
<td>Bicycles; Tricycles</td>
<td>2200/417</td>
<td>Articulated frame vehicles</td>
</tr>
<tr>
<td>2200/24</td>
<td>All terrain bikes</td>
<td>2200/42</td>
<td>Amphibious vehicles</td>
</tr>
<tr>
<td>2200/25</td>
<td>Racing bikes</td>
<td>2200/43</td>
<td>Variable track or wheelbase vehicles</td>
</tr>
<tr>
<td>2200/26</td>
<td>Trucks; Load vehicles, Busses</td>
<td>2200/44</td>
<td>Multi-axle long vehicles, with independently drivable or steerable wheels</td>
</tr>
<tr>
<td>2200/27</td>
<td>Light trucks</td>
<td>2200/45</td>
<td>Vehicles having steerable wheels mounted on a vertically moving column</td>
</tr>
<tr>
<td>2200/28</td>
<td>Heavy duty trucks</td>
<td>2200/46</td>
<td>Arctic-/Extraterrestrial explorers</td>
</tr>
<tr>
<td>2200/29</td>
<td>Multi-axle trucks</td>
<td>2200/47</td>
<td>Climbing vehicles, e.g. facade climbing devices</td>
</tr>
<tr>
<td>2200/30</td>
<td>Busses</td>
<td>2200/48</td>
<td>Stair-climbing vehicles</td>
</tr>
<tr>
<td>2200/31</td>
<td>Low floor busses</td>
<td>2200/49</td>
<td>Movable platforms, Load ramps, e.g. working platforms</td>
</tr>
<tr>
<td>2200/32</td>
<td>Garbage trucks, e.g. refuse trucks</td>
<td>2200/50</td>
<td>Aeroplanes, Helicopters</td>
</tr>
<tr>
<td>2200/33</td>
<td>Haulage vehicles, trailing trucks</td>
<td>2200/51</td>
<td>Aeroplanes</td>
</tr>
<tr>
<td>2200/34</td>
<td>Silo or fluid transporting vehicles</td>
<td>2200/52</td>
<td>Helicopters</td>
</tr>
<tr>
<td>2200/35</td>
<td>Trailers, e.g. full trailers or caravans</td>
<td>2200/60</td>
<td>Industrial applications, e.g. pipe inspection vehicles</td>
</tr>
<tr>
<td>2200/36</td>
<td>Semi-trailers, articulated vehicles</td>
<td>2200/62</td>
<td>Conveyors, floor conveyors</td>
</tr>
<tr>
<td>2200/37</td>
<td>Fork lift trucks, Industrial trucks</td>
<td>2200/64</td>
<td>Beam Hoists</td>
</tr>
<tr>
<td>2200/38</td>
<td>Vehicles with lowerable bed or chassis, e.g. to facilitate loading</td>
<td>2200/66</td>
<td>Containers; Pallets; Skids</td>
</tr>
<tr>
<td>2200/39</td>
<td>Off-Road Vehicles</td>
<td>2200/80</td>
<td>Other vehicles not covered by groups</td>
</tr>
<tr>
<td>2200/40</td>
<td>Agricultural vehicles</td>
<td><strong>B60Y 2200/10 - B60Y 2200/60</strong></td>
<td></td>
</tr>
<tr>
<td>2200/41</td>
<td>Tractors</td>
<td>2200/81</td>
<td>Toys</td>
</tr>
<tr>
<td>2200/42</td>
<td>Harvesters</td>
<td>2200/83</td>
<td>Perambulators; Buggies; Strollers</td>
</tr>
<tr>
<td>2200/43</td>
<td>Ridable lawn mowers</td>
<td>2200/84</td>
<td>Wheelchairs</td>
</tr>
<tr>
<td>2200/44</td>
<td>Boom carrying vehicles, e.g. for irrigation</td>
<td>2200/86</td>
<td>Carts; Golf carts</td>
</tr>
<tr>
<td>2200/45</td>
<td>Walk behind vehicles, e.g. motorized wheel barrows</td>
<td>2200/90</td>
<td>Vehicles comprising electric prime movers</td>
</tr>
<tr>
<td>2200/46</td>
<td>Ridable golf cars</td>
<td>2200/91</td>
<td>Electric vehicles</td>
</tr>
<tr>
<td>2200/47</td>
<td>Military vehicles</td>
<td>2200/92</td>
<td>Electric vehicles with power supply external to vehicle, e.g. trolley buses or trams</td>
</tr>
</tbody>
</table>
| 2200/48 | Track vehicles | 2300/00 | Purposes or special features of road vehicle drive control systems (for systems using conjoint control of multiple vehicle sub-units **B60W 30/00**)
| 2200/49 | Snowmobiles | 2300/02 | Control of vehicle driving stability |
| 2200/50 | Tanks | 2300/022 | Stability in turns or during cornering |
| 2200/51 | Railway vehicles | 2300/023 | |
| 2200/52 | Locomotives | 2300/024 | |
| 2200/53 | Rail cars; Waggons | 2300/025 | |
| 2200/54 | Monorails | 2300/026 | |
| 2200/55 | Roller coasters | 2300/027 | |

**CPC - 2020.08**
Cruise control
Path keeping
Predicting or avoiding probable or impending collision
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
Taking automatic action to avoid collision, e.g. braking or steering
Predicting travel path or likelihood of collision
the prediction being responsive to vehicle dynamic parameters
the prediction being responsive to traffic or environmental parameters
Vehicle operation after collision
Path keeping
Lane keeping
Cruise control
Speed control
Speed limiting
Control of distance between vehicles, e.g. keeping a distance to preceding vehicle
Speed limiting therefor
Automatically following the path of a preceding lead vehicle, e.g. "electronic tow-bar"
with provision for special action when the preceding vehicle comes to a halt, e.g. stop-and-go
Propelling the vehicle
related to particular drive situations
Start-stop drive, e.g. in a traffic jam
Drive off, accelerating from standstill
Reversing
Rocking, i.e. fast change between forward and reverse
at stand still, e.g. engine in idling state
Creeeping
Coasting
with torque flow from driveshaft to engine, i.e. engine being driven by vehicle
without torque flow between driveshaft and engine, e.g. with clutch disengaged or transmission in neutral
Preparing for stopping
Hill climbing or descending
Braking
Hill holding
Regenerative braking
Engine braking
Braking for parking
Cornering
Approaching intersection
Overtaking, changing lanes
Preventing, or responsive to skidding of wheels
Propulsion control with common controlling member for different functions
Propulsion control with control means using analogue circuits, relays or mechanical links
Selecting between different operative modes, e.g. comfort and performance modes
Preventing damage resulting from overload or excessive wear of the driveline
Preventing of breakage of drive line components, e.g. parts of the gearing
Excessive wear or burn out of friction elements, e.g. clutches
Overheating of driveline components
Controlling power parameters of the driveline, e.g. determining the required power
characterised by the working point of the engine, e.g. by using engine output chart
Avoiding stall or over-speed of the engine
Controlling power supply to auxiliary devices
Control of power take off [PTO]
Improvement of gear change, e.g. synchronisation or smoothing gear shift
Power-up or power-down of the driveline, e.g. start up of a cold engine
related to low temperature conditions, e.g. high viscosity of hydraulic fluid
Reducing vibrations in the driveline
related or induced by the clutch
related or induced by the engine
related to drive shaft torsion, e.g. driveline oscillations
Reducing road induced vibrations, suppressing road noise
Adaptation to external conditions, e.g. road surface conditions
Adaptation to traffic conditions
Dangerous conditions
related to towing or towed situations
related to stationary vehicle situations, e.g. parked vehicles
Kneeling, e.g. for letting passengers on or off
Lowering or adjusting the floor for loading or unloading
Adjusting floor height to loading ramp level
Mechanism to lock the height
Jacking-up for changing tyre or for vehicle inspection
Control of clutches
Control of lock-up type clutches, e.g. in a torque converter
Control of power take-off clutches
Control of freewheel clutches
Control of clutches to regulate engine speed or torque
Reducing engagement shocks in main clutch
Control of clutch touch point, e.g. kiss point
Reducing clutch wear
Control of secondary clutches in drivelines
Control of engines
Control of engine air-fuel ratio
Control of engine fuel injection
Control of engine throttle
Control of engine inlet air duct by secondary means
Control of engine cylinder cut-off
2300/436 . . Control of engine ignition
2300/437 . . Control of engine valves
2300/44 . . Control of engine at idle speed
2300/45 . . Engine shutdown at standstill
2300/46 . . Engine injection cut at coasting
2300/47 . . Engine emissions
2300/472 . . Catalyst reactivation
2300/474 . . Catalyst warm up
2300/476 . . Regeneration of particle filters
2300/48 . . Engine direct start by injecting fuel and fire
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
2300/54 . . Engine overload, high loads on engine
2300/55 . . Engine load mode
2300/56 . . Engine stall prevention
2300/57 . . Engine torque resume after shifting
2300/58 . . Engine torque vibration dampers, e.g. flywheels, dual-mass-springs
2300/60 . . Control of electric machines, e.g. problems related to electric motors or generators
2300/61 . . Inductive lock-up
2300/62 . . Mechanical lock-up, e.g. using brake to immobilise the rotor
2300/63 . . Starter motor mode
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
2300/65 . . Reduce shocks on mode change, e.g. during engine shutdown
2300/66 . . Control for gear shift synchronisation
2300/67 . . High load on electric machines, e.g. overheating
2300/68 . . Over-speed of electric machines
2300/69 . . Motor boost, e.g. short time overpower
2300/70 . . Control of gearings
2300/71 . . Limiting transmission input torque
2300/72 . . Facilitate disengaging of gears, e.g. by inducing a torque reversal
2300/73 . . Synchronisation of shaft speeds
2300/74 . . Reducing shift shocks
2300/75 . . Dither torque, e.g. to remove tooth butting
2300/77 . . Torque reversal, e.g. avoid clunks when changing between driving and coasting
2300/78 . . Power split
2300/785 . . Geared neutral
2300/80 . . Control of differentials
2300/82 . . Torque vectoring
2300/84 . . Differential locking
2300/88 . . Reducing brake wear
2300/89 . . Repartition of braking force, e.g. friction braking versus regenerative braking
2300/90 . . Releasing parking brake at start
2300/91 . . Battery charging
2300/92 . . Battery protection from overload or overcharge

2302/00 Responses or measures related to driver conditions
(for propulsion units B60K 28/02, related to driving style B60W 40/09)
2302/01 . . Preventing starting of the vehicle
2302/03 . . Actuating a signal or alarm device
2302/05 . . Leading to automatic stopping of the vehicle
2302/07 . . Disabling particular vehicle functions, e.g. to affect the driving style
2302/09 . . Reducing the workload of driver

2304/00 Optimising design; Manufacturing; Testing
2304/01 . . Minimizing space with more compact designs or arrangements
2304/03 . . Reducing weight
2304/05 . . Reducing production costs, e.g. by redesign
2304/07 . . Facilitating assembling or mounting
2304/072 . . by preassembled subunits
2304/074 . . by improved accessibility
2304/076 . . by add-on parts, e.g. retrofit
2304/078 . . by interchangeable parts, e.g. new part adapting to old design
2304/09 . . Testing or calibrating during manufacturing

2306/00 Other features of vehicle sub-units
2306/01 . . Reducing damages in case of crash, e.g. by improving battery protection
2306/03 . . Lubrication
2306/05 . . Cooling
2306/07 . . Heating of passenger cabins
2306/09 . . Reducing noise
2306/11 . . Noise generation, e.g. drive noise to warn pedestrians that an electric vehicle is approaching
2306/13 . . Failsafe arrangements
2306/15 . . Failure diagnostics

2400/00 Special features of vehicle units
2400/10 . . Energy storage devices
2400/102 . . for hydrogen fuel
2400/104 . . for liquid petrol gas
2400/106 . . for gasoil
2400/11 . . Electric energy storages
2400/112 . . Batteries
2400/114 . . Super-capacities
2400/14 . . Hydraulic energy storages, e.g. hydraulic accumulators
2400/15 . . Pneumatic energy storages, e.g. pressure air tanks
2400/16 . . Mechanic energy storages
2400/162 . . Flywheels
2400/164 . . Springs
2400/20 . . Energy converters
2400/202 . . Fuel cells
2400/204 . . Generator sets, engine and generator as one unit
2400/206 . . Thermo-electric generators
2400/208 . . Pelletier or Thomson elements for cooling or heating
2400/209 . . Piezo-electric elements
2400/21 . . External power supplies
2400/212 . . by power from overhead cables using trolleys
2400/214 . . by power from domestic supply, e.g. plug in supplies
2400/216 . . by solar panels
2400/30 . . Sensors
2400/301 . . for position or displacement
2400/3012 . . using Hall effect
2400/3015 . . . Optical cameras
2400/3017 . . . Radars
2400/3018 . . . Flow-meters
2400/3019 . . . Fluid level sensors
2400/302 . . . Temperature sensors
2400/303 . . . Speed sensors
2400/3032 . . . Wheel speed sensors
2400/304 . . . Acceleration sensors
2400/3042 . . . Collision sensors
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
2400/4024 . . . with adjustable positions
2400/4026 . . . providing feel, e.g. with feedback force
2400/404 . . . Electro-magnetic actuators, e.g. with an electromagnet not rotating for moving a clutching member
2400/4045 . . . Electro-magnetic valves, i.e. solenoids
2400/405 . . . Electric motors actuators
2400/406 . . . Hydraulic actuators
2400/408 . . . Pneumatic actuators
2400/41 . . . Mechanical transmissions for actuators
2400/411 . . . Bowden cables or linkages
2400/4115 . . . Lost motion linkages
2400/4117 . . . Slack adjustments
2400/412 . . . Screw-nut mechanisms
2400/414 . . . Ramp or cam mechanisms
2400/416 . . . Centrifugal actuators
2400/418 . . . Power assistance, e.g. servo-motors
2400/4185 . . . Mechanical assistance, i.e. using springs or accumulators without feedback control
2400/4187 . . . Servo-motors, e.g. electric or fluidic with feedback control
2400/42 . . . Clutches or brakes
2400/421 . . . Dog type clutches or brakes
2400/422 . . . Synchromesh type clutches or brakes
2400/423 . . . Electromagnetic clutches, e.g. powder type clutches
2400/424 . . . Friction clutches
2400/4242 . . . of dry type
2400/4244 . . . of wet type, e.g. using multiple lamellae
2400/425 . . . Viscous couplings
2400/426 . . . Hydrodynamic couplings, e.g. torque converters
2400/427 . . . One-way clutches
2400/428 . . . Double clutch arrangements; Dual clutches
2400/43 . . . Engines
2400/431 . . . Gas turbine engines
2400/432 . . . Diesel Engines
2400/433 . . . Gas Engines, e.g. using LPG, natural gas or gasifiers
2400/434 . . . Hydrogen fuel engines
2400/435 . . . Supercharger or turbochargers
2400/436 . . . Electromagnetic engines valves
2400/44 . . . Exhaust turbines driving generators
2400/442 . . . Exhaust gas recirculation [EGR]

2400/446 . . . . Exhaust gas reformers, e.g. treated by fuel cells
2400/46 . . . Engine start hydraulic or electric motors
2400/47 . . . Starter generator drive systems
2400/48 . . . Vibration dampers, e.g. dual mass flywheels
2400/60 . . . Electric Machines, e.g. motors or generators
2400/602 . . . DC Machines
2400/604 . . . AC Machines, e.g. asynchronous motors
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
2400/732 . . . with intermeshing planetary gears, e.g. Ravignaux
2400/74 . . . Shaft brakes, e.g. input shaft brakes
2400/75 . . . Power shifting, e.g. without interruption of drive torque
2400/76 . . . Automatic gearshift to neutral
2400/77 . . . Gearshift position determination, e.g. check of neutral position
2400/78 . . . Pumps, e.g. jet type
2400/785 . . . Pump drives
2400/79 . . . Drive shafts, output shafts or propeller shafts
2400/795 . . . Power take off
2400/80 . . . Differentials
2400/802 . . . Differential locking systems
2400/804 . . . Torque vectoring arrangements
2400/81 . . . Braking systems
2400/82 . . . Four wheel drive systems
2400/83 . . . Steering input members
2400/84 . . . Rear wheel steering; All wheel steerings
2400/85 . . . Skid-steer systems, e.g. for tracked vehicles
2400/86 . . . Suspension systems
2400/87 . . . Auxiliary drives
2400/88 . . . Air conditioners, e.g. compressor drives
2400/89 . . . Cooling systems, e.g. fan drives
2400/90 . . . Driver alarms
2400/902 . . . giving haptic or tactile signals
2400/92 . . . Driver displays

2410/00 Constructional features of vehicle sub-units
2410/10 . . . Housings
2410/102 . . . Shaft arrangements; Shaft supports, e.g. bearings
2410/202 . . . Concentric shaft arrangements
2410/4 . . . Hydraulic valves
2410/105 . . . Valve bodies; Mounting of hydraulic controllers
2410/111 . . . Aggregate identification or specification, e.g. using RFID
2410/113 . . . Mount clips, snap-fit, e.g. quick fit with elastic members
2410/114 . . . Shields, e.g. for heat protection
2410/115 . . . Electric wiring; Electric connectors
2410/12 . . . Production or manufacturing of vehicle parts
2410/121 . . . Metal parts manufactured by moulding
2410/122 . . . Plastic parts manufactured by moulding
2410/123 . . . Over-moulded parts
2410/124 . . . Welded parts
<table>
<thead>
<tr>
<th>Class</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B60Y</td>
<td>2410/125</td>
<td>Bounded parts</td>
</tr>
<tr>
<td></td>
<td>2410/13</td>
<td>Materials or fluids with special properties</td>
</tr>
<tr>
<td></td>
<td>2410/132</td>
<td>Magnetic, e.g. permanent magnets</td>
</tr>
<tr>
<td></td>
<td>2410/134</td>
<td>Rheological, magneto- or electro- fluids</td>
</tr>
<tr>
<td></td>
<td>2410/136</td>
<td>Memory alloys</td>
</tr>
</tbody>
</table>