B60L  PROPELSION OF ELECTRICALLY-PROPELLED VEHICLES (arrangements or mounting of electrical propulsion units or of plural diverse prime-movers for mutual or common propulsion in vehicles B60K 1/00, B60K 6/20; arrangements or mounting of electrical gearing in vehicles B60K 17/12, B60K 17/14; preventing wheel slip by reducing power in rail vehicles B61C 15/08; dynamo-electric machines H02K; control or regulation of electric motors H02P); SUPPLYING ELECTRIC POWER FOR AUXILIARY EQUIPMENT OF ELECTRICALLY-PROPELLED VEHICLES (electric coupling devices combined with mechanical couplings of vehicles B60D 1/64; electric heating for vehicles B60H 1/00); ELECTRODYNAMIC BRAKE SYSTEMS FOR VEHICLES IN GENERAL (control or regulation of electric motors H02P); MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; MONITORING OPERATING VARIABLES OF ELECTRICALLY-PROPELLED VEHICLES; ELECTRIC SAFETY DEVICES FOR ELECTRICALLY-PROPELLED VEHICLES

NOTES
1. This subclass, subject to the above references, covers:
   • feeding of power to auxiliary circuits;
   • current collectors; arrangements thereof on rail or road vehicles or on vehicles in general
   • electrodynamic brake systems;
   • electric propulsion of vehicles; control and regulation therefor
2. In this subclass it is desirable to classify any "additional information" which is of interest for search.

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.

1/00 Supplying electric power to auxiliary equipment of vehicles (circuit arrangements for charging batteries H02J 7/00)
   1/003 . {to auxiliary motors, e.g. for pumps, compressors}
   1/006 . {to power outlets}
   1/02 . to electric heating circuits
   1/04 . . fed by the power supply line
   1/06 . . . using only one supply
   1/08 . . . . Methods and devices for control or regulation
   1/10 . . . with provision for using different supplies
   1/12 . . . . Methods and devices for control or regulation
   1/14 . . to electric lighting circuits
   1/16 . . fed by the power supply line
   1/20 . {Energy regeneration from auxiliary equipment}
Current collectors for power supply lines of electrically-propelled vehicles (current collectors in general H01R 41/00)
7/26  15/005 . . . [for control of propulsion for vehicles propelled by linear motors]
7/28  15/007 . . . [Physical arrangements or structures of drive train converters specially adapted for the propulsion motors of electric vehicles]

8/00  15/002 . . . characterised by the form of the current used in the control circuit
8/003  15/025 . . . [using field orientation; Vector control; Direct Torque Control [DTC]]
8/006  15/04 . . . using dc
9/003  15/06 . . . using substantially sinusoidal ac
13/08  15/08 . . . using pulses
9/10  15/10 . . . for automatic control superimposed on human control to limit the acceleration of the vehicle, e.g. to prevent excessive motor current (electric devices for safety purposes B60L 3/00)
9/22  15/12 . . . with circuits controlled by relays or contactors
9/24  15/14 . . . with main controller driven by a servomotor
9/26  15/16 . . . with main controller driven through a ratchet mechanism (B60L 15/18 takes precedence)
9/28  15/18 . . . without contact making and breaking, e.g. using a transducer
9/30  15/20 . . . for control of the vehicle or its driving motor to achieve a desired performance, e.g. speed, torque, programmed variation of speed
9/32  15/209 . . . [for braking]
13/00  15/209 . . . [for braking on a slope]
13/03  15/2072 . . . [for drive off]
13/05  15/2081 . . . [for drive off on a slope]
13/06  15/2089 . . . [for overtaking]
13/08  15/22 . . . with sequential operation of interdependent switches, e.g. relays, contactors, programme drum
13/09  15/24 . . . with main controller driven by a servomotor
13/10  15/26 . . . with main controller driven through a ratchet mechanism (B60L 15/28 takes precedence)
13/12  15/28 . . . without contact making and breaking, e.g. using a transducer
13/14  15/30 . . . with means to change over to human control
13/16  15/32 . . . Control or regulation of multiple-unit electrically-propelled vehicles
13/18  15/34 . . . with human control of a setting device
13/20  15/36 . . . with automatic control superimposed, e.g. to prevent excessive motor current
13/22  15/38 . . . with automatic control
13/24  15/40 . . . Adaptation of control equipment on vehicle for remote actuation from a stationary place (devices along the route for controlling devices on rail vehicles B60L 3/00; central rail-traffic control systems B60L 27/00)
13/26  15/42 . . . Adaptation of control equipment on vehicle for actuation from alternative parts of the vehicle or from alternative vehicles of the same vehicle train (B60L 15/32 takes precedence)

**WARNING**

Group B60L 9/00 is impacted by reclassification into group B60L 50/53. Groups B60L 9/00 and B60L 50/53 should be considered in order to perform a complete search.

9/005 . . . [Interference suppression]
9/02 . . . using dc motors
9/04 . . . fed from dc supply lines
9/06 . . . with conversion by metadyne
9/08 . . . fed from ac supply lines
9/10 . . . with rotary converters
9/12 . . . with static converters
9/14 . . . fed from different kinds of power-supply lines
9/16 . . . using ac induction motors
9/18 . . . fed from dc supply lines
9/20 . . . single-phase motors
9/22 . . . polyphase motors
9/24 . . . fed from ac supply lines
9/26 . . . single-phase motors
9/28 . . . polyphase motors
9/30 . . . fed from different kinds of power-supply lines
9/32 . . . using ac brush displacement motors

**B60L**

Electric propulsion with power supply from forces of nature, e.g. sun or wind

8/00 . . . {Converting light into electric energy, e.g. by using photo-voltaic systems}
8/003 . . . {Converting flow of air into electric energy, e.g. by using wind turbines}

Electric propulsion with power supply from forces of nature, e.g. sun or wind

9/00 Electric propulsion with power supply external to the vehicle (electric propulsion for monorail vehicles, suspension vehicles or rack railways B60L 13/00; in combination with batteries or fuel cells within the vehicle B60L 50/53)

**9/005 . . . [Interference suppression]**
9/02 . . . using dc motors
9/04 . . . fed from dc supply lines
9/06 . . . with conversion by metadyne
9/08 . . . fed from ac supply lines
9/10 . . . with rotary converters
9/12 . . . with static converters
9/14 . . . fed from different kinds of power-supply lines
9/16 . . . using ac induction motors
9/18 . . . fed from dc supply lines
9/20 . . . single-phase motors
9/22 . . . polyphase motors
9/24 . . . fed from ac supply lines
9/26 . . . single-phase motors
9/28 . . . polyphase motors
9/30 . . . fed from different kinds of power-supply lines
9/32 . . . using ac brush displacement motors

**13/00 Electric propulsion for monorail vehicles, suspension vehicles or rack railways; Magnetic suspension or levitation for vehicles ([tracks for Maglev-type trains E01B 25/30]; electromagnets per se H01F 7/06; linear motors per se H02K 41/00)**

13/003 . . . [Crossings; Points]
13/005 . . . (Electric propulsion adapted for monorail vehicles, suspension vehicles or rack railways (B60L 13/03 takes precedence))
13/006 . . . (Electric propulsion adapted for monorail vehicles, suspension vehicles or rack railways (B60L 13/03 takes precedence))
13/03 . . . Electric propulsion by linear motors
13/035 . . . [Suspension of the vehicle-borne motorparts]
13/04 . . . Magnetic suspension or levitation for vehicles
13/06 . . . Means to sense or control vehicle position or attitude with respect to railway
13/08 . . . for the lateral position
13/10 . . . Combination of electric propulsion and magnetic suspension or levitation

**15/00 Methods, circuits, or devices for controlling the traction-motor speed of electrically-propelled vehicles**

15/002 . . . [for control of propulsion for monorail vehicles, suspension vehicles or rack railways; for control of magnetic suspension or levitation for vehicles for propulsion purposes]
Electric propulsion with power supplied within the vehicle (with power supply from force of nature, e.g. sun or wind, B60L 8/00; for monorail vehicles, suspension vehicles or rack railways B60L 13/00)

- using propulsion power supplied by engine-driven generators, e.g. generators driven by combustion engines
- using DC generators and DC motors
- using AC generators and DC motors
- using AC generators and AC motors
- with additional electric power supply (with capacitors charged by engine-driven generators B60L 50/40; with batteries charged by engine-driven generators B60L 50/61)
- with provision for separate direct mechanical propulsion
- using propulsion power generated by humans or animals
- using propulsion power stored mechanically, e.g. in fly-wheels
- using propulsion power supplied by capacitors
- using propulsion power supplied by batteries or fuel cells

**WARNING**

Group B60L 50/50 is impacted by reclassification into groups B60L 50/60, B60L 50/64, B60L 50/70, and B60L 50/75.

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

- characterised by AC-motors
- characterised by DC-motors
- in combination with an external power supply, e.g. from overhead contact lines

**WARNING**

Group B60L 50/53 is incomplete pending reclassification of documents from group B60L 9/00.

Groups B60L 9/00 and B60L 50/53 should be considered in order to perform a complete search.

- using power supplied by batteries (in combination with fuel cells B60L 50/75)

**WARNING**

Group B60L 50/60 is incomplete pending reclassification from group B60L 50/50.

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

- using power supplied by both fuel cells and batteries

**WARNING**

Group B60L 50/75 is incomplete pending reclassification from groups B60L 50/50 and B60L 58/40.

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

- using propulsion power supplied by specific means not covered by groups B60L 50/10 - B60L 50/50, e.g. by direct conversion of thermal nuclear energy into electricity
Methods of charging batteries, specially adapted for electric vehicles; Charging stations or on-board charging equipment therefor; Exchange of energy storage elements in electric vehicles

**WARNING**

Group B60L 53/00 is impacted by reclassification into groups B60L 53/50, B60L 53/51, B60L 53/52, B60L 53/53, B60L 53/54, B60L 53/55, B60L 53/56, B60L 53/57, B60L 53/67, and B60L 53/68. All groups listed in this Warning should be considered in order to perform a complete search.

53/10 . . characterised by the energy transfer between the charging station and the vehicle

**WARNING**

Group B60L 53/10 is incomplete pending reclassification of documents from group B60L 53/60. Groups B60L 53/60 and B60L 53/10 should be considered in order to perform a complete search.

53/11 . . [DC charging controlled by the charging station, e.g. mode 4]

53/12 . . Inductive energy transfer

**WARNING**

Group B60L 53/12 is impacted by reclassification into groups B60L 53/122, B60L 53/124, and B60L 53/126. All groups listed in this Warning should be considered in order to perform a complete search.

53/122 . . . Circuits or methods for driving the primary coil, e.g. supplying electric power to the coil

**WARNING**

Group B60L 53/122 is incomplete pending reclassification of documents from group B60L 53/12. Groups B60L 53/12 and B60L 53/122 should be considered in order to perform a complete search.

53/124 . . . Detection or removal of foreign bodies

**WARNING**

Group B60L 53/124 is incomplete pending reclassification of documents from group B60L 53/12. Groups B60L 53/12 and B60L 53/124 should be considered in order to perform a complete search.

53/126 . . . Methods for pairing a vehicle and a charging station, e.g. establishing a one-to-one relation between a wireless power transmitter and a wireless power receiver

**WARNING**

Group B60L 53/126 is incomplete pending reclassification of documents from group B60L 53/12. Groups B60L 53/12 and B60L 53/126 should be considered in order to perform a complete search.

53/14 . . . Conductive energy transfer

**WARNING**

Group B60L 53/14 is impacted by reclassification into group B60L 53/18. Groups B60L 53/14 and B60L 53/18 should be considered in order to perform a complete search.

53/16 . . . Connectors, e.g. plugs or sockets, specially adapted for charging electric vehicles

53/18 . . . Cables specially adapted for charging electric vehicles

**WARNING**

Group B60L 53/18 is incomplete pending reclassification of documents from group B60L 53/14. Groups B60L 53/14 and B60L 53/18 should be considered in order to perform a complete search.

53/20 . . . characterised by converters located in the vehicle

53/22 . . . Constructional details or arrangements of charging converters specially adapted for charging electric vehicles

53/24 . . . Using the vehicle's propulsion converter for charging

53/30 . . Constructional details of charging stations

**WARNING**

Group B60L 53/30 is impacted by reclassification into groups B60L 53/302, B60L 53/305, B60L 53/34, B60L 53/67, and B60L 53/68. Groups B60L 53/30, B60L 53/302, B60L 53/305, B60L 53/34, B60L 53/67, and B60L 53/68 should be considered in order to perform a complete search.

53/302 . . . Cooling of charging equipment

**WARNING**

Group B60L 53/302 is incomplete pending reclassification of documents from group B60L 53/30. Groups B60L 53/30 and B60L 53/302 should be considered in order to perform a complete search.
53/305 . . [Communication interfaces]

**WARNING**

Group B60L 53/305 is incomplete pending reclassification of documents from group B60L 53/30.

Groups B60L 53/30 and B60L 53/305 should be considered in order to perform a complete search.

53/31 . . Charging columns specially adapted for electric vehicles

53/32 . . [by charging in short intervals along the itinerary, e.g. during short stops]

53/34 . . Plug-like or socket-like devices specially adapted for contactless inductive charging of electric vehicles (positioning means for charging devices using inductive energy transfer B60L 53/38)

**WARNING**

Group B60L 53/34 is incomplete pending reclassification of documents from group B60L 53/30.

Groups B60L 53/30 and B60L 53/34 should be considered in order to perform a complete search.

53/35 . . Means for automatic or assisted adjustment of the relative position of charging devices and vehicles

53/36 . . by positioning the vehicle

53/37 . . using optical position determination, e.g. using cameras

53/38 . . specially adapted for charging by inductive energy transfer

53/39 . . with position-responsive activation of primary coils

53/50 . . Charging stations characterised by energy-storage or power-generation means

**WARNING**

Groups B60L 53/50 - B60L 53/57 are incomplete pending reclassification of documents from group B60L 53/00.

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

53/51 . . Photovoltaic means

53/52 . . Wind-driven generators

53/53 . . Batteries

53/54 . . Fuel cells

53/55 . . Capacitors

53/56 . . Mechanical storage means, e.g. fly wheels

53/57 . . Charging stations without connection to power networks

53/60 . . Monitoring or controlling charging stations

**WARNING**

Group B60L 53/60 is impacted by reclassification into groups B60L 53/10, B60L 53/62, B60L 53/66, B60L 53/67, and B60L 53/68.

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

53/62 . . in response to charging parameters, e.g. current, voltage or electrical charge

**WARNING**

Group B60L 53/62 is incomplete pending reclassification of documents from groups B60L 53/60.

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

53/63 . . in response to network capacity

53/64 . . Optimising energy costs, e.g. responding to electricity rates

53/65 . . involving identification of vehicles or their battery types

53/66 . . Data transfer between charging stations and vehicles

**WARNING**

Group B60L 53/66 is incomplete pending reclassification of documents from group B60L 53/60.

Groups B60L 53/60 and B60L 53/66 should be considered in order to perform a complete search.

53/665 . . [Methods related to measuring, billing or payment]

53/67 . . Controlling two or more charging stations

**WARNING**

Group B60L 53/67 is incomplete pending reclassification of documents from groups B60L 53/00, B60L 53/30, and B60L 53/60.

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

53/68 . . Off-site monitoring or control, e.g. remote control

**WARNING**

Group B60L 53/68 is incomplete pending reclassification of documents from groups B60L 53/00, B60L 53/30, and B60L 53/60.

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

53/80 . . Exchanging energy storage elements, e.g. removable batteries

**WARNING**

Group B60L 53/80 is incomplete pending reclassification of documents from groups B60K 1/04 and B60S 5/06.

Groups B60K 1/04, B60S 5/06, and B60L 53/80 should be considered in order to perform a complete search.

55/00 Arrangements for supplying energy stored within a vehicle to a power network, i.e. vehicle-to-grid [V2G] arrangements
Methods or circuit arrangements for monitoring or controlling batteries or fuel cells, specially adapted for electric vehicles

**NOTE**
This group covers the monitoring of the operating state of batteries or fuel cells in combination with controlling the propulsion in response to the detected variables of the state.

**WARNING**
Group B60L 58/00 is incomplete pending reclassification of documents from groups B60L 3/00, B60L 3/0046, B60L 3/0053, B60L 50/60, and B60L 50/70. All groups listed in this Warning should be considered in order to perform a complete search.

58/10 . . for monitoring or controlling batteries

**WARNING**
Group B60L 58/10 is incomplete pending reclassification of documents from groups B60L 3/00, B60L 3/0046, and B60L 50/60. All groups listed in this Warning should be considered in order to perform a complete search.

58/12 . . responding to state of charge [SoC]

**WARNING**
Group B60L 58/12 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. Group B60L 58/12 is also impacted by reclassification into group B60L 58/15. All groups listed in this Warning should be considered in order to perform a complete search.

58/13 . . Maintaining the SoC within a determined range

**WARNING**
Group B60L 58/13 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. Group B60L 58/13 is also impacted by reclassification into group B60L 58/15. All groups listed in this Warning should be considered in order to perform a complete search.

58/14 . . Preventing excessive discharging

**WARNING**
Group B60L 58/14 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. Group B60L 58/14 is also impacted by reclassification into group B60L 58/15. All groups listed in this Warning should be considered in order to perform a complete search.

58/15 . . Preventing overcharging

**WARNING**
Group B60L 58/15 is incomplete pending reclassification of documents from groups B60L 3/00, B60L 3/0046, B60L 58/12, B60L 58/13, and B60L 58/14. All groups listed in this Warning should be considered in order to perform a complete search.

58/16 . . responding to battery ageing, e.g. to the number of charging cycles or the state of health [SoH]

**WARNING**
Group B60L 58/16 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. All groups listed in this Warning should be considered in order to perform a complete search.

58/18 . . of two or more battery modules

**WARNING**
Group B60L 58/18 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. All groups listed in this Warning should be considered in order to perform a complete search.

58/19 . . Switching between serial connection and parallel connection of battery modules

**WARNING**
Group B60L 58/19 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. All groups listed in this Warning should be considered in order to perform a complete search.

58/20 . . having different nominal voltages

**WARNING**
Group B60L 58/20 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. All groups listed in this Warning should be considered in order to perform a complete search.

58/21 . . having the same nominal voltage

**WARNING**
Group B60L 58/21 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046. All groups listed in this Warning should be considered in order to perform a complete search.
Balancing the charge of battery modules

**WARNING**

Group B60L 58/22 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046.

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

---

58/24 . . for controlling the temperature of batteries

**WARNING**

Group B60L 58/24 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046.

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

---

58/25 . . by controlling the electric load

**WARNING**

Group B60L 58/25 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046.

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

---

58/26 . . by cooling

**WARNING**

Group B60L 58/26 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046.

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

---

58/27 . . by heating

**WARNING**

Group B60L 58/27 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0046.

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

---

58/30 . . for monitoring or controlling fuel cells

**WARNING**

Group B60L 58/30 is incomplete pending reclassification of documents from groups B60L 3/00, B60L 3/0053, and B60L 5/0/70.

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

---

58/31 . . for starting of fuel cells

**WARNING**

Group B60L 58/31 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0053.

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

---

58/32 . . for controlling the temperature of fuel cells, e.g. by controlling the electric load

**WARNING**

Group B60L 58/32 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0053.

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

---

58/33 . . by cooling

**WARNING**

Group B60L 58/33 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0053.

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

---

58/34 . . by heating

**WARNING**

Group B60L 58/34 is incomplete pending reclassification of documents from groups B60L 3/00 and B60L 3/0053.

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

---

58/40 . . for controlling a combination of batteries and fuel cells

**WARNING**

Group B60L 58/40 is incomplete pending reclassification of documents from groups B60L 3/00, B60L 3/0046, B60L 3/0053.

Group B60L 58/40 is also impacted by reclassification into group B60L 5/0/75.

All groups listed in this Warning should be considered in order to perform a complete search.
2200/30 . Trolleys
2200/32 . Waterborne vessels
2200/34 . Wheel chairs
2200/36 . Vehicles designed to transport cargo, e.g. trucks
2200/40 . Working vehicles
2200/42 . Fork lift trucks
2200/44 . Industrial trucks or floor conveyors
2200/46 . Vehicles with auxiliary ad-on propulsions, e.g. add-on electric motor kits for bicycles

2210/00 Converter types
2210/10 . DC to DC converters
2210/12 . Buck converters
2210/14 . Boost converters
2210/20 . AC to AC converters
2210/22 . without intermediate conversion to DC
2210/30 . AC to DC converters
2210/40 . DC to AC converters
2210/42 . Voltage source inverters
2210/44 . Current source inverters
2210/46 . with more than three phases

2220/00 Electrical machine types; Structures or applications thereof
2220/10 . Electrical machine types
2220/12 . Induction machines
2220/14 . Synchronous machines
2220/16 . DC brushless machines
2220/18 . Reluctance machines
2220/20 . DC electrical machines
2220/30 . Universal machines
2220/40 . Electrical machine applications
2220/42 . with use of more than one motor
2220/44 . Wheel Hub motors, i.e. integrated in the wheel hub
2220/46 . Wheel motors, i.e. motor connected to only one wheel
2220/50 . Structural details of electrical machines
2220/52 . Clutch motors
2220/54 . Windings for different functions
2220/56 . with switched windings
2220/58 . with more than three phases

2240/00 Control parameters of input or output; Target parameters
2240/10 . Vehicle control parameters
2240/12 . Speed
2240/14 . Acceleration
2240/16 . longitudinal
2240/18 . lateral
2240/20 . angular
2240/22 . Yaw angle
2240/24 . Steering angle
2240/26 . Vehicle weight
2240/28 . Door position
2240/30 . Parking brake position
2240/32 . Driving direction
2240/34 . Cabin temperature
2240/36 . Temperature of vehicle components or parts
2240/40 . Drive Train control parameters
2240/42 . related to electric machines
2240/421 . Speed
2240/423 . Torque
2240/425 . . . Temperature
2240/427 . . . Voltage
2240/429 . . . Current
2240/44 . . . related to combustion engines
2240/441 . . . Speed
2240/443 . . . Torque
2240/445 . . . Temperature
2240/46 . . . related to wheels
2240/461 . . . Speed
2240/463 . . . Torque
2240/465 . . . Slip
2240/48 . . . related to transmissions
2240/485 . . . Temperature
2240/486 . . . Operating parameters
2240/50 . . . related to clutches
2240/507 . . . Operating parameters
2240/52 . . . related to converters
2240/525 . . . Temperature of converter or components thereof
2240/526 . . . Operating parameters
2240/527 . . . Voltage
2240/59 . . . Current
2240/54 . . . related to batteries
2240/545 . . . Temperature
2240/547 . . . Voltage
2240/549 . . . Current
2240/60 . . . Navigation input
2240/62 . . . Vehicle position
2240/622 . . . by satellite navigation
2240/625 . . . by GSM
2240/627 . . . by WLAN
2240/64 . . . Road conditions
2240/642 . . . Slope of road
2240/645 . . . Type of road
2240/647 . . . Surface situation of road, e.g. type of paving
2240/66 . . . Ambient conditions
2240/662 . . . Temperature
2240/665 . . . Light intensity
2240/667 . . . Precipitation
2240/68 . . . Traffic data
2240/70 . . . Interactions with external data bases, e.g. traffic centres
2240/72 . . . Charging station selection relying on external data
2240/80 . . . Time limits

2250/00 Driver interactions
2250/10 . by alarm
2250/12 . by confirmation, e.g. of the input
2250/14 . by input of vehicle departure time
2250/16 . by display
2250/18 . by enquiring driving style
2250/20 . by driver identification
2250/22 . by presence detection
2250/24 . by lever actuation
2250/26 . by pedal actuation
2250/28 . . . Accelerator pedal thresholds
2250/30 . . . by voice

2260/00 Operating Modes
2260/10 . Temporary overload
2260/12 . . . of combustion engines
2260/14 . of transmissions
2260/16 . of electrical drive trains
2260/162 . of electrical cells or capacitors
2260/165 . of converters
2260/167 . of motors or generators
2260/20 . Drive modes; Transition between modes
2260/22 . Standstill, e.g. zero speed
2260/24 . Coasting mode
2260/26 . Transition between different drive modes
2260/28 . Four wheel or all wheel drive
2260/30 . Engine braking emulation
2260/32 . Auto pilot mode
2260/34 . Stabilising upright position of vehicles, e.g. of single axle vehicles
2260/40 . Control modes
2260/42 . by adaptive correction
2260/44 . by parameter estimation
2260/46 . by self learning
2260/48 . by fuzzy logic
2260/50 . by future state prediction
2260/52 . drive range estimation, e.g. of estimation of available travel distance
2260/54 . Energy consumption estimation
2260/56 . Temperature prediction, e.g. for pre-cooling
2260/58 . Departure time prediction

2270/00 Problem solutions or means not otherwise provided for
2270/10 . Emission reduction
2270/12 . of exhaust
2270/14 . of noise
2270/142 . acoustic
2270/145 . Structure borne vibrations
2270/147 . electro magnetic [EMI]
2270/20 . Inrush current reduction, i.e. avoiding high currents when connecting the battery
2270/30 . Preventing theft during charging
2270/32 . of electricity
2270/34 . of parts
2270/36 . of vehicles
2270/38 . of data
2270/40 . related to technical updates when adding new parts or software
2270/42 . Means to improve acoustic vehicle detection by humans
2270/44 . Heat storages, e.g. for cabin heating
2270/46 . Heat pumps, e.g. for cabin heating