CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING
(NOTES omitted)

TRANSPORTING

B60 VEHICLES IN GENERAL
(NOTE omitted)

B60S SERVICING, CLEANING, REPAIRING, SUPPORTING, LIFTING, OR MANOEUVRING OF VEHICLES, NOT OTHERWISE PROVIDED FOR

NOTE

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

1/00 **Cleaning of vehicles** (by apparatus not integral with vehicle B60S 3/00; cleaning in general B08B; de-icing of aircraft B64D; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84)

1/02 . Cleaning windscreens, windows or optical devices {(wind deflectors specially adapted for preventing soiling of windows or windscreens B60J 1/2002)}

1/023 . . {including defroster or demisting means}

1/026 . . . {using electrical means}

1/04 . . Wipers or the like, e.g. scrapers

1/0402 . . . {completely or partially concealed in a cavity}

1/0405 . . . . {the cavity being equipped with a movable cover}

1/0408 . . . {Means for influencing the aerodynamic quality of wipers, e.g. clip-on wind deflectors (B60S 1/32 takes precedence)}

1/0411 . . . {the windscreens, windows or optical devices being movable with respect to fixed wipers}

1/0413 . . . {Modular wiper assembly}

1/0416 . . . . {including other vehicle fittings}

1/0419 . . . . {the support structure being integrally molded}

1/0422 . . . . {having a separate transverse element}

1/0425 . . . . . {characterised by the attachment of the wiper shaft holders to the transverse element}

1/0427 . . . . . {characterised by the attachment of the wiper motor holder to the transverse element}

1/043 . . . {Attachment of the wiper assembly to the vehicle}

1/0433 . . . . {Attachement of a wiper modular assembly to the vehicle}

1/0436 . . . . {Attachement of separate wiper shaft holders to the vehicle (B60S 1/0425 takes precedence)}

1/0438 . . . . {Attachement of separate wiper motor assembly to the vehicle}

1/0441 . . . . {characterised by the attachment means}

1/0444 . . . . . {comprising vibration or noise absorbing means}

1/0447 . . . . . {non-screw fixation, (e.g. snap-in, bayonnet-type..)}

1/045 . . . . . {having a pre-attachment device (i.e. to hold elements in position during mounting)}

1/0452 . . . {Position of the wipers relative to the vehicle}

1/0455 . . . . {Device for lifting the wipers off the screen in its parking position or at extremes of wipe}

1/0458 . . . . {Arrangement wherein the windscreen frame cooperates with the wipers}

1/0461 . . . . . {Arrangement of the side pillars}

1/0463 . . . . . {Arrangement of the cow}

1/0466 . . . . {Arrangement of wipers on openable windows}

1/0469 . . . . {Devices for assisting the wiper positioning on the vehicle}

1/0472 . . . . {Arrangement of the wipers on right or left-hand drive vehicles}

1/0475 . . . {Cleaning of wiper blades}

1/0477 . . . . {Arrangement for deicing or for removing debris from wiper blades (heated wiper blade B60S 1/3805)}

1/048 . . . . . {with a heating device for the wiper parking position}

1/0483 . . . . {the cleaning device being separated from the vehicle (renovating blade rubbers B60S 2001/3846)}

1/0486 . . . . {the cleaning device being integrated with the vehicle}

1/0488 . . . {Wiper arrangement for crash protection or impact absorption}

1/0491 . . . {Additional elements being fixed on wipers or parts of wipers not otherwise provided for, e.g. covers, antennae or lights}

1/0494 . . . {Wipers actuated by wind force only}

1/0497 . . . {Wiper units as items separate from vehicle, e.g. for emergency use or retro-fittable}

1/06 . . . characterised by the drive (producing other than swinging movement B60S 1/44)

1/08 . . . . electrically driven {(conjoint control of windscreen wiper motor and liquid supply of windscreen washer B60S 1/482; conjoint control of windscreen wiper motor and means for cleaning parts o parts other than windscreens or front windows B60S 1/56, B60S 1/58, B60S 1/606)}
1/0803 . . . . . {Intermittent control circuits}
1/0807 . . . . . {using electronic control means, e.g. tubes, semiconductors (B60S 1/0818, B60S 1/0896 take precedence)}
1/0811 . . . . . {combined with mechanical control means, e.g. thermal relays}
1/0814 . . . . . {using several drive motors; motor synchronisation circuits}
1/0818 . . . . . {including control systems responsive to external conditions, e.g. by detection of moisture, dirt or the like}
1/0822 . . . . . {characterized by the arrangement or type of detection means}
1/0825 . . . . . {Capacitive rain sensor}
1/0829 . . . . . {Oscillator-resonator rain sensor}
1/0833 . . . . . {Optical rain sensor}
1/0837 . . . . . {with a particular arrangement of the optical elements}
1/084 . . . . . {including a hologram}
1/0844 . . . . . {including a camera}
1/0848 . . . . . {Cleaning devices for cameras on vehicle}
1/0851 . . . . . {Resistive rain sensor}
1/0855 . . . . . {Ultrasonic rain sensor}
1/0859 . . . . . {Other types of detection of rain, e.g. by measuring friction or rain drop impact}
1/0862 . . . . . {including additional sensors (vehicle speed sensors B60S 1/0896)}
1/0866 . . . . . {including a temperature sensor (heating devices for windshield B60H)}
1/087 . . . . . {including an ambient light sensor (control of vehicle lights B60Q)}
1/0874 . . . . . {characterized by the position of the sensor on the windshield}
1/0877 . . . . . {at least part of the sensor being positioned between layers of the windshield}
1/0881 . . . . . {characterized by the attachment means on the windshield}
1/0885 . . . . . {the sensor being integrated in a rear-view mirror module}
1/0888 . . . . . {characterized by the attachment of the elements in a unit}
1/0892 . . . . . {Testing and production of rain sensors}
1/0896 . . . . . {including control systems responsive to a vehicle driving condition, e.g. speed}
1/10 . . . . pneumatically driven
1/105 . . . . . {with means for stopping or setting the wipers at their limit of movement}
1/12 . . . . hydraulically driven
1/125 . . . . . {with means for stopping or setting the wipers at their limit of movement}
1/14 . . . . personally driven
1/16 . . . . Means for transmitting drive
1/163 . . . . . {with means for stopping or setting the wipers at their limit of movement}
1/166 . . . . . {characterised by the combination of a motor-reduction unit and a mechanism for converting rotary into oscillatory movement}
1/18 . . . . . mechanically {(B60S 1/166 takes precedence)}
1/185 . . . . . {with means for stopping or setting the wipers at their limit of movement}
1/20 . . . . . by cable drives; by flexible shafts
1/22 . . . . . by rotary cams
1/24 . . . . . by rotary cranks
1/245 . . . . . {with particular rod arrangements between the motor driven axle and the wiper arm axle}
1/26 . . . . . by toothed gearing
1/28 . . . characterised by a plurality of wipers (B60S 1/06 takes precedence)
1/30 . . . . arranged both outside and inside
1/32 . . . characterised by constructional features of wiper blade arms {or blades}
1/34 . . . . Wiper arms; Mountings therefor {(wiper arms provided with liquid spreading means B60S 1/522; with gas spreading means B60S 1/544)}
1/3402 . . . . . {with means for obtaining particular wiping patterns (by varying the effective length of the angularly oscillating arm B60S 1/365)}
1/3404 . . . . . {the wiper blades being moved substantially parallel with themselves}
1/3406 . . . . . {the wiper blades being rotated with respect to the wiper arms around an axis perpendicular to the wiped field (B60S 1/3404 takes precedence)}
1/3409 . . . . . {the wiper arms consisting of two or more articulated elements}
1/3411 . . . . . {with means for varying wiper-blade pressure on windshield during operation}
1/3413 . . . . . {with means for holding the arm off the glass in an intermediate position between the working position and the fully folded back position}
1/3415 . . . . . {with means for supplying cleaning fluid to windscreen cleaners, e.g. washers (arrangement of nozzles B60S 1/52)}
1/3418 . . . . . {with means for additionally adjusting the wiper arm working position with respect to the surface to be wiped}
1/342 . . . . . {with means for temporarily uncoupling the wiper arm from the drive}
1/3422 . . . . . {Means arranged in the wiper structure to lift the arm at extremes of wipe (means arranged on the vehicle body B60S 1/0455)}
1/3425 . . . . . {Constructional aspects of the arm}
1/3427 . . . . . {Arm piece, link piece and mounting head formed as one element}
1/3429 . . . . . {Arm pieces}
1/3431 . . . . . {Link pieces}
1/3434 . . . . . {Manufacturing details thereof}
1/3436 . . . . . {Mounting heads}
1/3438 . . . . . {Manufacturing details thereof}

1/344 . . . . . {Flat-type mounting heads}
1/3443 . . . . . {Wiper shafts}
1/3445 . . . . . {Joints between elements}
1/3447 . . . . . {the elements being an arm piece and a link piece}
1/345 . . . . . {the elements being a link piece and a mounting head}
1/3452 . . . . . {the joint being a snap fit pivot joint}
1/3454 . . . . . {the joint being at end of mounting head furthest away from blade}
1/3456 . . . . . {Locks or stays for holding arms in fully folded back position}
1/3459 . . . . . {the element being a mounting head and a shaft}
1/3461 . . . . . {with means to adjust the orientation of the head relative to shaft}
1/3463 . . . . {Means to press blade onto screen}
1/3465 . . . . . {with coil springs}
1/3468 . . . . . {Mountings therefor}
1/347 . . . . . {with adjustment means to adjust wiping pressure (during wiping B60S 1/3411)}
1/3472 . . . . . {with adjustment means to keep wiping pressure constant (varying wiping pressure B60S 1/3411)}
1/3475 . . . . . {with blade or leaf springs}
1/3477 . . . . . {with elastomeric or rubber springs}
1/3479 . . . . {Means to cover the wiper parts}
1/3481 . . . . . {for mounting head}
1/3484 . . . . . {integral with arm or link piece}
1/3486 . . . . {Means to allow blade to follow curvature of the screen (i.e. rotation along longitudinal axis of the arm)}
1/3488 . . . . {Means for mounting wiper arms onto the vehicle}
1/349 . . . . . {Means for mounting the wiper bearing to the vehicle body}
1/3493 . . . . . {Means for mounting the wiper shaft in the wiper bearing}
1/3495 . . . . . {Means for mounting the drive mechanism to the wiper shaft}
1/3497 . . . . {Additional means for guiding the blade other than the arm or blade joint}
1/36 . . . . Variable-length arms
1/365 . . . . . {the effective length being automatically varied during angular oscillation of the arm}
1/38 . . . Wiper blades {(provided with liquid spreading means B60S 1/524; provided with gas spreading means B60S 1/546)}
1/3801 . . . . {characterised by a blade support harness consisting of several articulated elements (B60S 1/3803, B60S 1/3806 take precedence)}
1/3803 . . . . {heated wiper blades}
1/3805 . . . . . {electrically}
1/3806 . . . . {Means, or measures taken, for influencing the aerodynamic quality of the wiper blades}
1/3808 . . . . . {Spoiler integral with the squeegee}
1/381 . . . . . {Spoilers mounted on the squeegee or on the vertebra}

2001/3812 . . . . {Means of supporting or holding the squeegee or blade rubber}
2001/3813 . . . . . {chacterised by a support harness consisting of several articulated elements}
2001/3815 . . . . . {chacterised by the joint between elements}
2001/3817 . . . . . {chacterised by a backing strip to aid mounting of squeegee in support}
2001/3818 . . . . . {the backing strip being a channel-like element, e.g. not continuous}
2001/382 . . . . . {the backing strip being an essentially planar reinforcing strip, e.g. vertebra}
2001/3822 . . . . . {characterised by additional means to prevent longitudinal sliding of squeegee in support, e.g. clips}
2001/3824 . . . . . {the blade or squeegee pivoting about an axis parallel to blade longitudinal axis}
2001/3825 . . . . . {the squeegee mounted directly to or in wiper blade arm}
2001/3827 . . . . {characterised by the squeegee or blade rubber or wiping element}
2001/3829 . . . . . {characterised by the material of the squeegee or coating thereof}
2001/3831 . . . . . {cleaning by scrubbing or abrasive action}
2001/3832 . . . . . {cleaning by rigid or semi-rigid scraping elements, e.g. for removing ice}
2001/3834 . . . . . {equipped with brush-like elements}
2001/3836 . . . . . {characterised by cross-sectional shape}
2001/3837 . . . . . {with more than one wiping edge or lip}
2001/3839 . . . . . {with longitudinally split squeegee, with squeegee parts}
2001/3841 . . . . . {Squeegee modifications to prevent longitudinally sliding of squeegee in support structure}
2001/3843 . . . . {equipped with removable cover or protective elements}
2001/3844 . . . . {equipped with means to indicate wear or usage of blade}
2001/3846 . . . . {Devices for renewing or renovating blade wiping edges, e.g. cutters}
1/3848 . . . . {Flat-type wiper blade, i.e. without harness}
1/3849 . . . . . {Connectors therefor; Connection to wiper arm; Attached to blade}
1/3851 . . . . . {Mounting of connector to blade assembly}
1/3853 . . . . . {Snap-fit, e.g. elastic connection}
1/3855 . . . . . {by welding, gluing or the like}
1/3856 . . . . . {Gripping the blade}
1/3858 . . . . . {with protrusions cooperating with holes}
1/386 . . . . . {made in two halves}
1/3862 . . . . . {Transport of liquid there through}
1/3863 . . . . . {Connectors having a spoiler}
1/3865 . . . . . {Connectors having an integral pivot pin for connection with the wiper arm}
1/3867 . . . . . {pin formed on the interior of side walls}

1/3868 . . . . . {pin formed on the exterior of side walls}
1/387 . . . . . {the connector being suitable for receiving different types of adapter}
1/3872 . . . . . {without connector, e.g. connection to wiper arm via squeegee or vertebra}
1/3874 . . . . . {with a reinforcing vertebra}
1/3875 . . . . . {rectangular section}
1/3877 . . . . . {embedded in the squeegee}
1/3879 . . . . . {placed in side grooves in the squeegee}
1/3881 . . . . . {in additional element, e.g. spoiler}
1/3882 . . . . . {C-shape section}
1/3884 . . . . . {Wire-shaped section}
1/3886 . . . . . {End caps}
1/3887 . . . . . {Mounting of end caps}
1/3889 . . . . . {cooperating with holes in the vertebra}
1/3891 . . . . . {with locking device}
1/3893 . . . . . {cooperating with holes in the squeegee}
1/3894 . . . . . {having a particular shape}
1/3896 . . . . . {with openings at the longitudinal extremities}
2001/3898 . . . . . {method for manufacturing wiper blades}
1/40 . . . . Connections between blades and arms
1/4003 . . . . . {Multi-purpose connections for two or more kinds of arm ends}

NOTE

Multi-aspect classification is applied for technical subjects relating to the arms and covered by subgroups B60S 1/4006 - B60S 1/4083

1/4006 . . . . . {for arms provided with a hook-shaped end}
1/4009 . . . . . {comprising a detachable intermediate element mounted on the hook-shaped end}
2001/4012 . . . . . {the element being provided with bearing surfaces on its side walls}
1/4016 . . . . . {the element being provided with retention means co-operating with the hook-shaped end of the arm}
1/4019 . . . . . {the retention means being protrusions or holes}
2001/4022 . . . . . {the element being provided with a locking element movable thereon}
2001/4025 . . . . . {the element being able to receive pivot pins of different diameters}
2001/4029 . . . . . {the element being able to receive arms of different widths}
2001/4032 . . . . . {the element being able to receive arms with hooks of different radiuses}
2001/4035 . . . . . {the connection being covered by a removable cover mounted on the blade}
1/4038 . . . . . {for arms provided with a channel-shaped end}
1/4041 . . . . . {the channel-shaped end comprising a pivot pin mounted between the side walls}
1/4045 . . . . . {comprising a detachable intermediate element mounted on the channel-shaped end}
1/4048 . . . . . {the element being provided with retention means co-operating with the channel-shaped end of the arm}
2001/4051 . . . . . {the intermediate element engaging the side walls of the arm}
2001/4054 . . . . . {the intermediate element engaging the back part of the arm}
2001/4058 . . . . . {comprising a separate locking element, e.g. in addition to an intermediate element}
2001/4061 . . . . . {covered by a removable cover mounted on the blade}
1/4064 . . . . . {the channel-shaped end being provided with protrusions on, or holes in, the side walls to create a pivot}
1/4067 . . . . . {for arms provided with a side pin}
1/407 . . . . . {with means provided on the arm for locking the side pin}
1/4074 . . . . . {with means provided on the blade for locking the side pin}
1/4077 . . . . . {characterised by the connecting part of, or an intermediate element mounted on, the wiper blade (means for locking the side pin B60S 1/4074)}
2001/408 . . . . . {the connecting part or the intermediate element being provided with holes for different diameters of pivoting pin}
1/4083 . . . . . {for arms provided with a flat end}
1/4087 . . . . . {the end being provided with protrusions or holes}
2001/409 . . . . . {characterised by the arm or connecting part mounted on the arm presenting a shaped opening for bearing the pivot axis}
2001/4093 . . . . . {characterised by the mounting of the pivot on the main yoke of the blade}
2001/4096 . . . . . {Connections between arm and blade not using a cylindrical pivot axis on the blade}
1/42 . . . . resilient
1/44 . . . the wiper blades having other than swinging movement, e.g. rotary {(the wiper blade support member, e.g. arm, having a swinging movement B60S 1/32)}
1/46 . . using liquid; Windscreen washers
1/48 . . . Liquid supply therefor
1/481 . . . . {the operation of at least part of the liquid supply being controlled by electric means (electrical washing liquid warming-up means B60S 1/488)}
1/482 . . . . . {combined with the operation of windscreen wipers}
1/483 . . . . . {using a supply pump driven by the windscreen-wiper motor}
1/485 . . . . . {including control systems responsive to external conditions, e.g. by detection of moisture, dirt or the like}
1/486 . . . . . {including control systems responsive to a vehicle driving condition, e.g. speed}
1/487 . . . . {the liquid being heated (nozzles provided with heating means B60S 1/52)}
1/488 . . . . . {electrically}

1/50 . . . . Arrangement of reservoir
1/52 . . . . Arrangement of nozzles; {Liquid spreading means} (nozzles per se B05B)
1/522 . . . . . {moving liquid spreading means, e.g. arranged in wiper arms}
1/524 . . . . . {arranged in wiper blades}
1/526 . . . . . {according to vehicle movement characteristics, e.g. speed, or climatic conditions, e.g. wind}
1/528 . . . . . {the spreading means being moved between a rest position and a working position (B60S 1/526 takes precedence)}
1/54 . . using gas, e.g. hot air
1/542 . . . {using wiping devices}
1/544 . . . {moving gas spreading means, e.g. arranged in wiper arms}
1/546 . . . . {arranged in wiper blades}
1/548 . . . . {according to vehicle movement characteristics, e.g. speed, or climatic conditions, e.g. wind}
1/56 . . specially adapted for cleaning other parts or devices than front windows or windscreens {(rear-view mirror arrangements mounted on vehicle exterior including cleaning devices B60R 1/0602)}
1/563 . . . {for registration, licensing or like devices}
1/566 . . . {including wiping devices (B60S 1/563, B60S 1/583 take precedence)}
1/58 . . . for rear windows
1/583 . . . . {including wiping devices}
1/586 . . . . {including defroster or demisting means}
1/60 . . . for signalling devices, e.g. reflectors
1/603 . . . . {the operation of at least a part of the cleaning means being controlled by electric means}
1/606 . . . . . {combined with the operation of windscreen or front window cleaning means}
1/62 . Other vehicle fittings for cleaning
1/64 . . for cleaning vehicle interiors, e.g. built-in vacuum cleaners
1/66 . . for cleaning vehicle exterior
1/68 . . . for freeing wheels or tyres from foreign matter, e.g. wheel scrapers
1/685 . . . . {for two-wheeled vehicles}

3/00 Vehicle cleaning apparatus not integral with vehicles (cleaning in general B08B; cleaning peculiar to waterborne vessels B63B 57/00, B63B 59/00; ground equipment for cleaning aircraft B64F 5/30)
3/002 . {Vehicle drying apparatus}
3/004 . {Conveyors for vehicle cleaning apparatus}
3/006 . {specially adapted for railway vehicles (B60S 3/008 takes precedence)}
3/008 . {for interiors of land vehicles}
3/04 . for exteriors of land vehicles {(B60S 3/002, B60S 3/004 take precedence; specially adapted for railway vehicles B60S 3/006)}
3/041 . . {specially adapted for two-wheeled vehicles}
3/042 . . {Wheel cleaning devices (integral with vehicle B60S 1/00)}
3/044 . . {Hand-held cleaning arrangements with liquid or gas distributing means (B60S 3/045 takes precedence)}
3/045 . . {Other hand-held cleaning arrangements, e.g. with sponges, brushes, scrapers or the like (brushes per se A46B)}
3/047 . . . {using liquid or gas distributing means (B60S 3/048 takes precedence)}
3/048 . . . {with rotary or vibratory bodies contacting the vehicle}
3/06 . . with rotary bodies contacting the vehicle {(hand-held B60S 3/048)}
3/063 . . . {the axis of rotation being approximately vertical}
3/066 . . . {the axis of rotation being approximately horizontal}

5/00 Servicing, maintaining, repairing or refitting of vehicles ({collecting or removing exhaust gases in workshops B08B 15/002; straightening vehicle body parts B21D 1/12, B21D 1/14}; vehicles adapted to carry a workshop for servicing or maintenance B60P 3/14; servicing rail locomotives B61K; {registering or indicating the working of vehicles G07C 5/00: testing of vehicles G01M 17/00; arrangements for electrical testing G01R 31/00; devices for monitoring or checking brake systems B60T 17/22; filling or draining lubricant F01M 11/04; means for collecting, retaining, or draining-off lubricant F16N 31/00; draining of lubricant from gearing F16H 57/0406; assembly or repair of springs or dampers F16F 9/3271; tool, instrument or work supports or storage means used in association with vehicles B25H 5/00})
5/02 . Supplying fuel to vehicles; General disposition of plant in filling stations (apparatus for transferring measured quantities of petrol, oil, or the like from storage space to vehicles B67D)
5/04 . Supplying air for tyre inflation (arrangement of tyre inflating devices on vehicles B60C 23/00; tyre pressure gauges G01L 17/00{; pumps actuated by muscle power F04B 33/00})
5/043 . . {characterised by the inflation control means or the drive of the air pressure system}
5/046 . . . {using electrical or electronical means}
5/06 . Supplying batteries to, or removing batteries from, vehicles (circuit arrangements for charging batteries H02J 7/00)

9/00 Ground-engaging vehicle fittings for supporting, lifting, or manoeuvring the vehicle, wholly or in part, e.g. built-in jacks ({props for vehicle draw bars B60D 1/66; anti-theft devices acting on vehicle jacking means B60R 25/001}; lifting devices in general B66F, supports in general F16M)
9/02 . for only lifting or supporting
9/04 . . mechanically
9/06 . . . of screw-and-nut type
9/08 . . . . the screw axis being substantially vertical
9/10 . . by fluid pressure
9/12 . . . of telescopic type
9/14 . for both lifting and manoeuvring
9/16 . . for operating only on one end of vehicle (B60S 9/205 takes precedence)
9/18 . . . mechanically

9/20 . . . with fluid-pressure lift

9/205 . . Power driven manoeuvring fittings, e.g. reciprocably driven steppers or rotatably driven cams (vehicles with ground-engaging propulsion means, e.g. walking members, B62D 57/02)

9/21 . . . comprising a rotatably driven auxiliary wheel or endless track, e.g. driven by ground wheel (track vehicles with additional or alternative ground wheels B62D 55/02, B62D 55/04; auxiliary drives from a ground wheel B60K 25/08)

9/215 . . . . driven by an auxiliary motor

9/22 . Means for attaching lifting, supporting, or manoeuvring devices to vehicles (for separate devices B60S 11/00)

11/00 Vehicle modifications for receiving separate lifting, supporting, or manoeuvring devices

13/00 Vehicle-manoeuvring devices separate from the vehicle (vehicle lifting {, e.g. liftable turntables} or pushing devices B66F; {workshop equipment B25H})

13/02 . Turntables; Traversers (incorporated in vehicle-storing garages E04H{; rotary display stands A47F 5/02})