

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](#).

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.

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| 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) | 1/0444 | | {comprising vibration or noise absorbing means} |
| | | 1/0447 | | {non-screw fixation, (e.g. snap-in, bayonet-type..)} |
| 1/02 | . Cleaning windscreens, windows or optical devices {(wind deflectors specially adapted for preventing soiling of windows or windscreens B60J 1/2002)} | 1/045 | | {having a pre-attachment device (i.e. to hold elements in position during mounting)} |
| 1/023 | . . {including defroster or demisting means} | 1/0452 | . . . | {Position of the wipers relative to the vehicle} |
| 1/026 | . . . {using electrical means} | 1/0455 | | {Device for lifting the wipers off the screen in its parking position or at extremes of wipe} |
| 1/04 | . . Wipers or the like, e.g. scrapers | 1/0458 | | {Arrangement wherein the windscreen frame cooperates with the wipers} |
| 1/0402 | . . . {completely or partially concealed in a cavity} | 1/0461 | | {Arrangement of the side pillars} |
| 1/0405 | {the cavity being equipped with a movable cover} | 1/0463 | | {Arrangement of the cowl} |
| 1/0408 | . . . {Means for influencing the aerodynamic quality of wipers, e.g. clip-on wind deflectors (B60S 1/32 takes precedence)} | 1/0466 | | {Arrangement of wipers on openable windows} |
| 1/0411 | . . . {the windscreens, windows or optical devices being movable with respect to fixed wipers} | 1/0469 | | {Devices for assisting the wiper positioning on the vehicle} |
| 1/0413 | . . . {Modular wiper assembly} | 1/0472 | | {Arrangement of the wipers on right or left-hand drive vehicles} |
| 1/0416 | {including other vehicle fittings} | 1/0475 | . . . | {Cleaning of wiper blades} |
| 1/0419 | {the support structure being integrally molded} | 1/0477 | | {Arrangement for deicing or for removing debris from wiper blades (heated wiper blade B60S 1/3805)} |
| 1/0422 | {having a separate transverse element} | 1/048 | | {with a heating device for the wiper parking position} |
| 1/0425 | {characterised by the attachment of the wiper shaft holders to the transverse element} | 1/0483 | | {the cleaning device being separate from the vehicle} |
| 1/0427 | {characterised by the attachment of the wiper motor holder to the transverse element} | 1/0486 | | {the cleaning device being integrated with the vehicle} |
| 1/043 | . . . {Attachment of the wiper assembly to the vehicle} | 1/0488 | . . . | {Wiper arrangement for crash protection or impact absorption} |
| 1/0433 | {Attachement of a wiper modular assembly to the vehicle} | 1/0491 | . . . | {Additional elements being fixed on wipers or parts of wipers not otherwise provided for, e.g. covers, antennae or lights} |
| 1/0436 | {Attachement of separate wiper shaft holders to the vehicle (B60S 1/0425 takes precedence)} | 1/0494 | . . . | {Wipers actuated by wind force only} |
| 1/0438 | {Attachement of separate wiper motor assembly to the vehicle} | 1/0497 | . . . | {Wiper units as items separate from vehicle, e.g. for emergency use or retro-fittable} |
| 1/0441 | {characterised by the attachment means} | | | |

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| 1/06 | . . . characterised by the drive (producing other than swinging movement B60S 1/44) | 1/14 | personally driven |
| 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 }) | 1/16 | Means for transmitting drive |
| 1/0803 | {Intermittent control circuits} | 1/163 | {with means for stopping or setting the wipers at their limit of movement} |
| 1/0807 | {using electronic control means, e.g. tubes, semiconductors (B60S 1/0818, B60S 1/0896 take precedence)} | 1/166 | {characterised by the combination of a motor-reduction unit and a mechanism for converting rotary into oscillatory movement} |
| 1/0811 | {combined with mechanical control means, e.g. thermal relays} | 1/18 | mechanically ({ B60S 1/166 takes precedence }) |
| 1/0814 | {using several drive motors; motor synchronisation circuits} | 1/185 | {with means for stopping or setting the wipers at their limit of movement} |
| 1/0818 | {including control systems responsive to external conditions, e.g. by detection of moisture, dirt or the like} | 1/20 | by cable drives; by flexible shafts |
| 1/0822 | {characterized by the arrangement or type of detection means} | 1/22 | by rotary cams |
| 1/0825 | {Capacitive rain sensor} | 1/24 | by rotary cranks |
| 1/0829 | {Oscillator-resonator rain sensor} | 1/245 | {with particular rod arrangements between the motor driven axle and the wiper arm axle} |
| 1/0833 | {Optical rain sensor} | 1/26 | by toothed gearing |
| 1/0837 | {with a particular arrangement of the optical elements} | 1/28 | . . . characterised by a plurality of wipers (B60S 1/06 takes precedence) |
| 1/084 | {including a hologram} | 1/30 | arranged both outside and inside |
| 1/0844 | {including a camera} | 1/32 | . . . characterised by constructional features of wiper blade arms {or blades} |
| 1/0848 | {Cleaning devices for cameras on vehicle} | 1/34 | Wiper arms; Mountings therefor ({ wiper arms provided with liquid spreading means B60S 1/522 ; with gas spreading means B60S 1/544 }) |
| 1/0851 | {Resistive rain sensor} | 1/3402 | {with means for obtaining particular wiping patterns (by varying the effective length of the angularly oscillating arm B60S 1/365)} |
| 1/0855 | {Ultrasonic rain sensor} | 1/3404 | {the wiper blades being moved substantially parallel with themselves} |
| 1/0859 | {Other types of detection of rain, e.g. by measuring friction or rain drop impact} | 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)} |
| 1/0862 | {including additional sensors (vehicle speed sensors B60S 1/0896)} | 1/3409 | {the wiper arms consisting of two or more articulated elements} |
| 1/0866 | {including a temperature sensor (heating devices for windshield B60H)} | 1/3411 | {with means for varying wiper-blade pressure on windshield during operation} |
| 1/087 | {including an ambient light sensor (control of vehicle lights B60Q)} | 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} |
| 1/0874 | {characterized by the position of the sensor on the windshield} | 1/3415 | {with means for supplying cleaning fluid to windscreen cleaners, e.g. washers (arrangement of nozzles B60S 1/52)} |
| 1/0877 | {at least part of the sensor being positioned between layers of the windshield} | 1/3418 | {with means for additionally adjusting the wiper arm working position with respect to the surface to be wiped} |
| 1/0881 | {characterized by the attachment means on the windshield} | 1/342 | {with means for temporarily uncoupling the wiper arm from the drive} |
| 1/0885 | {the sensor being integrated in a rear-view mirror module} | 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)} |
| 1/0888 | {characterized by the attachment of the elements in a unit} | 1/3425 | {Constructional aspects of the arm} |
| 1/0892 | {Testing and production of rain sensors} | 1/3427 | {Arm piece, link piece and mounting head formed as one element} |
| 1/0896 | {including control systems responsive to a vehicle driving condition, e.g. speed} | 1/3429 | {Arm pieces} |
| 1/10 | pneumatically driven | 1/3431 | {Link pieces} |
| 1/105 | {with means for stopping or setting the wipers at their limit of movement} | 1/3434 | {Manufacturing details thereof} |
| 1/12 | hydraulically driven | | |
| 1/125 | {with means for stopping or setting the wipers at their limit of movement} | | |

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| 1/3436 | | {Mounting heads} | 1/381 | | {Spoilers mounted on the squeegee or on the vertebra} |
| 1/3438 | | {Manufacturing details thereof} | 2001/3812 | | {Means of supporting or holding the squeegee or blade rubber} |
| 1/344 | | {Flat-type mounting heads} | 2001/3813 | | {characterised by a support harness consisting of several articulated elements} |
| 1/3443 | | {Wiper shafts} | 2001/3815 | | {characterised by the joint between elements} |
| 1/3445 | | {Joints between elements} | 2001/3817 | | {characterised by a backing strip to aid mounting of squeegee in support} |
| 1/3447 | | {the elements being an arm piece and a link piece} | 2001/3818 | | {the backing strip being a channel-like element, e.g. not continuous} |
| 1/345 | | {the elements being a link piece and a mounting head} | 2001/382 | | {the backing strip being an essentially planar reinforcing strip, e.g. vertebra} |
| 1/3452 | | {the joint being a snap fit pivot joint} | 2001/3822 | | {characterised by additional means to prevent longitudinal sliding of squeegee in support, e.g. clips} |
| 1/3454 | | {the joint being at end of mounting head furthest away from blade} | 2001/3824 | | {the blade or squeegee pivoting about an axis parallel to blade longitudinal axis} |
| 1/3456 | | {Locks or stays for holding arms in fully folded back position} | 2001/3825 | | {the squeegee mounted directly to or in wiper blade arm} |
| 1/3459 | | {the element being a mounting head and a shaft} | 2001/3827 | | {characterised by the squeegee or blade rubber or wiping element} |
| 1/3461 | | {with means to adjust the orientation of the head relative to shaft} | 2001/3829 | | {characterised by the material of the squeegee or coating thereof} |
| 1/3463 | | {Means to press blade onto screen} | 2001/3831 | | {cleaning by scrubbing or abrasive action} |
| 1/3465 | | {with coil springs} | 2001/3832 | | {cleaning by rigid or semi-rigid scraping elements, e.g. for removing ice} |
| 1/3468 | | {Mountings therefor} | 2001/3834 | | {equipped with brush-like elements} |
| 1/347 | | {with adjustment means to adjust wiping pressure (during wiping B60S 1/3411)} | 2001/3836 | | {characterised by cross-sectional shape} |
| 1/3472 | | {with adjustment means to keep wiping pressure constant (varying wiping pressure B60S 1/3411)} | 2001/3837 | | {with more than one wiping edge or lip} |
| 1/3475 | | {with blade or leaf springs} | 2001/3839 | | {with longitudinally split squeegee, with squeegee parts} |
| 1/3477 | | {with elastomeric or rubber springs} | 2001/3841 | | {Squeegee modifications to prevent longitudinally sliding of squeegee in support structure} |
| 1/3479 | | {Means to cover the wiper parts} | 2001/3843 | | {equipped with removable cover or protective elements} |
| 1/3481 | | {for mounting head} | 2001/3844 | | {equipped with means to indicate wear or usage of blade} |
| 1/3484 | | {integral with arm or link piece} | 2001/3846 | | {Devices for renewing or renovating blade wiping edges, e.g. cutters} |
| 1/3486 | | {Means to allow blade to follow curvature of the screen (i.e. rotation along longitudinal axis of the arm)} | 1/3848 | | {Flat-type wiper blade, i.e. without harness} |
| 1/3488 | | {Means for mounting wiper arms onto the vehicle} | 1/3849 | | {Connectors therefor; Connection to wiper arm; Attached to blade} |
| 1/349 | | {Means for mounting the wiper bearing to the vehicle body} | 1/3851 | | {Mounting of connector to blade assembly} |
| 1/3493 | | {Means for mounting the wiper shaft in the wiper bearing} | 1/3853 | | {Snap-fit, e.g. elastic connection} |
| 1/3495 | | {Means for mounting the drive mechanism to the wiper shaft} | 1/3855 | | {by welding, gluing or the like} |
| 1/3497 | | {Additional means for guiding the blade other than the arm or blade joint} | 1/3856 | | {Gripping the blade} |
| 1/36 | | Variable-length arms | 1/3858 | | {with protrusions cooperating with holes} |
| 1/365 | | {the effective length being automatically varied during angular oscillation of the arm} | 1/386 | | {made in two halves} |
| 1/38 | | Wiper blades {(provided with liquid spreading means B60S 1/524 ; provided with gas spreading means B60S 1/546)} | 1/3862 | | {Transport of liquid there through} |
| 1/3801 | | {characterised by a blade support harness consisting of several articulated elements (B60S 1/3803 , B60S 1/3806 take precedence)} | 1/3863 | | {Connectors having a spoiler} |
| 1/3803 | | {heated wiper blades} | 1/3865 | | {Connectors having an integral pivot pin for connection with the wiper arm} |
| 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} | | | |

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| 1/3867 | | {pin formed on the interior of side walls} | 2001/4051 | | {the intermediate element engaging the side walls of the arm} |
| 1/3868 | | {pin formed on the exterior of side walls} | 2001/4054 | | {the intermediate element engaging the back part of the arm} |
| 1/387 | | {the connector being suitable for receiving different types of adapter} | 2001/4058 | | {comprising a separate locking element, e.g. in addition to an intermediate element} |
| 1/3872 | | {without connector, e.g. connection to wiper arm via squeegee or vertebra} | 2001/4061 | | {covered by a removable cover mounted on the blade} |
| 1/3874 | | {with a reinforcing vertebra} | 1/4064 | | {the channel-shaped end being provided with protrusions on, or holes in, the side walls to create a pivot} |
| 1/3875 | | {rectangular section} | 1/4067 | | {for arms provided with a side pin} |
| 1/3877 | | {embedded in the squeegee} | 1/407 | | {with means provided on the arm for locking the side pin} |
| 1/3879 | | {placed in side grooves in the squeegee} | 1/4074 | | {with means provided on the blade for locking the side pin} |
| 1/3881 | | {in additional element, e.g. spoiler} | 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)} |
| 1/3882 | | {C-shape section} | 2001/408 | | {the connecting part or the intermediate element being provided with holes for different diameters of pivoting pin} |
| 1/3884 | | {Wire-shaped section} | 1/4083 | | {for arms provided with a flat end} |
| 1/3886 | | {End caps} | 1/4087 | | {the end being provided with protrusions or holes} |
| 1/3887 | | {Mounting of end caps} | 2001/409 | | {characterised by the arm or connecting part mounted on the arm presenting a shaped opening for bearing the pivot axis} |
| 1/3889 | | {cooperating with holes in the vertebra} | 2001/4093 | | {characterised by the mounting of the pivot on the main yoke of the blade} |
| 1/3891 | | {with locking device} | 2001/4096 | | {Connections between arm and blade not using a cylindrical pivot axis on the blade} |
| 1/3893 | | {cooperating with holes in the squeegee} | 1/42 | | resilient |
| 1/3894 | | {having a particular shape} | 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)} |
| 1/3896 | | {with openings at the longitudinal extremities} | 1/46 | | using liquid; Windscreen washers |
| 2001/3898 | | {method for manufacturing wiper blades} | 1/48 | | Liquid supply therefor |
| 1/40 | | Connections between blades and arms | 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)} |
| 1/4003 | | {Multi-purpose connections for two or more kinds of arm ends} | 1/482 | | {combined with the operation of windscreen wipers} |
| 1/4006 | | {for arms provided with a hook-shaped end} | 1/483 | | {using a supply pump driven by the windscreen-wiper motor} |
| 1/4009 | | {comprising a detachable intermediate element mounted on the hook-shaped end} | 1/485 | | {including control systems responsive to external conditions, e.g. by detection of moisture, dirt or the like} |
| 2001/4012 | | {the element being provided with bearing surfaces on its side walls} | 1/486 | | {including control systems responsive to a vehicle driving condition, e.g. speed} |
| 1/4016 | | {the element being provided with retention means co-operating with the hook-shaped end of the arm} | 1/487 | | {the liquid being heated (nozzles provided with heating means B60S 1/52)} |
| 1/4019 | | {the retention means being protrusions or holes} | 1/488 | | {electrically} |
| 2001/4022 | | {the element being provided with a locking element movable thereon} | 1/50 | | Arrangement of reservoir |
| 2001/4025 | | {the element being able to receive pivot pins of different diameters} | 1/52 | | Arrangement of nozzles; {Liquid spreading means} (nozzles per se B05B) |
| 2001/4029 | | {the element being able to receive arms of different widths} | 1/522 | | {moving liquid spreading means, e.g. arranged in wiper arms} |
| 2001/4032 | | {the element being able to receive arms with hooks of different radiuses} | 1/524 | | {arranged in wiper blades} |
| 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} | | | |

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| 1/526 | {according to vehicle movement characteristics, e.g. speed, or climatic conditions, e.g. wind} | 3/048 | . . . {with rotary or vibratory bodies contacting the vehicle} |
| 1/528 | {the spreading means being moved between a rest position and a working position (B60S 1/526 takes precedence)} | 3/06 | . . with rotary bodies contacting the vehicle {(hand-held B60S 3/048)} |
| 1/54 | . . using gas, e.g. hot air | 3/063 | . . . {the axis of rotation being approximately vertical} |
| 1/542 | . . . {using wiping devices} | 3/066 | . . . {the axis of rotation being approximately horizontal} |
| 1/544 | . . . {moving gas spreading means, e.g. arranged in wiper arms} | 5/00 | Servicing, maintaining, repairing, or refitting of vehicles (vehicles adapted to carry a workshop for servicing or maintenance B60P 3/14; servicing rail locomotives B61K) |
| 1/546 | {arranged in wiper blades} | 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) |
| 1/548 | . . . {according to vehicle movement characteristics, e.g. speed, or climatic conditions, e.g. wind} | 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) |
| 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)} | 5/043 | . . {characterised by the inflation control means or the drive of the air pressure system} |
| 1/563 | . . . {for registration, licensing or like devices} | 5/046 | . . . {using electrical or electronical means} |
| 1/566 | . . . {including wiping devices (B60S 1/563 , B60S 1/583 take precedence)} | 5/06 | . Supplying batteries to, or removing batteries from, vehicles (exchanging batteries for electric propulsion of vehicles B60L 53/80) |
| 1/58 | . . . for rear windows | 9/00 | Ground-engaging vehicle fittings for supporting, lifting, or manoeuvring the vehicle, wholly or in part, e.g. built-in jacks (lifting devices in general B66F; supports in general F16M) |
| 1/583 | {including wiping devices} | 9/02 | . for only lifting or supporting |
| 1/586 | {including defroster or demisting means} | 9/04 | . . mechanically |
| 1/60 | . . . for signalling devices, e.g. reflectors | 9/06 | . . . of screw-and-nut type |
| 1/603 | {the operation of at least a part of the cleaning means being controlled by electric means} | 9/08 | the screw axis being substantially vertical |
| 1/606 | {combined with the operation of windscreen or front window cleaning means} | 9/10 | . . by fluid pressure |
| 1/62 | . Other vehicle fittings for cleaning | 9/12 | . . . of telescopic type |
| 1/64 | . . for cleaning vehicle interiors, e.g. built-in vacuum cleaners | 9/14 | . for both lifting and manoeuvring |
| 1/66 | . . for cleaning vehicle exterior | 9/16 | . . for operating only on one end of vehicle (B60S 9/205 takes precedence) |
| 1/68 | . . . for freeing wheels or tyres from foreign matter, e.g. wheel scrapers | 9/18 | . . . mechanically |
| 1/685 | {for two-wheeled vehicles} | 9/20 | . . . with fluid-pressure lift |
| 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) | 9/205 | . . Power driven manoeuvring fittings, e.g. reciprocally driven steppers or rotatably driven cams (vehicles with ground-engaging propulsion means, e.g. walking members, B62D 57/02) |
| 3/002 | . {Vehicle drying apparatus} | 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) |
| 3/004 | . {Conveyors for vehicle cleaning apparatus} | 9/215 | driven by an auxiliary motor |
| 3/006 | . {specially adapted for railway vehicles (B60S 3/008 takes precedence)} | 9/22 | . Means for attaching lifting, supporting, or manoeuvring devices to vehicles (for separate devices B60S 11/00) |
| 3/008 | . {for interiors of land vehicles} | 11/00 | Vehicle modifications for receiving separate lifting, supporting, or manoeuvring devices |
| 3/04 | . for exteriors of land vehicles {(B60S 3/002 , B60S 3/004 take precedence; specially adapted for railway vehicles B60S 3/006)} | 13/00 | Vehicle-manoevring devices separate from the vehicle (vehicle lifting {, e.g. liftable turntables} or pushing devices B66F; {workshop equipment B25H}) |
| 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 <i>per se</i> A46B)} | | |
| 3/047 | . . . {using liquid or gas distributing means (B60S 3/048 takes precedence)} | | |

B60S

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