

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64C AEROPLANES; HELICOPTERS

NOTE

As far as possible, classification is made according to constructional features; classification according to particular kinds of aircraft is normally regarded as being of secondary importance, except in cases where this is considered to be the characteristic feature.

WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

B64C 35/02	covered by	B64C 35/00
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- {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.}

Aircraft structures or fairings

1/00 Fuselages; Constructional features common to fuselages, wings, stabilising surfaces or the like

WARNING

Group [B64C 1/00](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/0009 . {Aerodynamic aspects}

WARNING

Group [B64C 1/0009](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

- | | |
|-----------|---|
| 2001/0018 | . {comprising two decks adapted for carrying passengers only} |
| 2001/0027 | . . {arranged one above the other} |
| 2001/0036 | . . {arranged side by side at the same level} |

- | | |
|-----------|--|
| 2001/0045 | . {Fuselages characterised by special shapes} |
| 2001/0054 | . {Fuselage structures substantially made from particular materials} |
| 2001/0063 | . . {from wood} |
| 2001/0072 | . . {from composite materials} |
| 2001/0081 | . . {from metallic materials} |
| 2001/009 | . {comprising decompression panels or valves for pressure equalisation in fuselages or floors} |
| 1/06 | . Frames; Stringers; Longerons {; Fuselage sections} |

WARNING

Group [B64C 1/06](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/061 . . . {Frames}

WARNING

Group [B64C 1/061](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#)-[B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#)-[B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/062 . . . {specially adapted to absorb crash loads}

WARNING

Group [B64C 1/062](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#)-[B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/063 . . . {Folding or collapsing to reduce overall dimensions, e.g. foldable tail booms}

WARNING

Group [B64C 1/063](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/064 . . . {Stringers; Longerons}

WARNING

Group [B64C 1/064](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/065 . . . {Spars}

WARNING

Group [B64C 1/065](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/066 . . . {Interior liners}

1/067 . . . {comprising means for preventing icing or condensation conditions}

1/068 . . . {Fuselage sections}

WARNING

Group [B64C 1/068](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#) - [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

1/0683 . . . {Nose cones}

1/0685 . . . {Tail cones}

1/069	. . . {Joining arrangements therefor}	1/30	. Parts of fuselage relatively movable to reduce overall dimensions of aircraft
	WARNING		WARNING
	Group B64C 1/069 is impacted by reclassification into groups B64U 10/00 - B64U 10/80 , B64U 20/00 - B64U 20/98 , B64U 30/00 - B64U 30/40 , B64U 40/00 - B64U 40/20 , B64U 50/00 - B64U 50/39 , B64U 60/00 - B64U 60/70 , B64U 70/00 - B64U 70/99 and B64U 80/00 - B64U 80/86 .		Group B64C 1/30 is impacted by reclassification into group B64U 20/50 .
	All groups listed in this Warning should be considered in order to perform a complete search.		Groups B64C 1/30 and B64U 20/50 should be considered in order to perform a complete search.
1/08	. . Geodetic or other open-frame structures	1/32	. Severable or jettisonable parts of fuselage facilitating emergency escape
1/10	. . Bulkheads	1/34	. comprising inflatable structural components
1/12	. . Construction or attachment of skin panels	1/36	. adapted to receive antennas or radomes
1/14	. Windows; Doors; Hatch covers or access panels; Surrounding frame structures; Canopies; Windscreens {accessories therefor, e.g. pressure sensors, water deflectors, hinges, seals, handles, latches, windscreen wipers}{fairings movable in conjunction with undercarriage elements B64C 25/16 ; bomb doors B64D 1/06 }	1/38	. Constructions adapted to reduce effects of aerodynamic or other external heating
		1/40	. Sound or heat insulation {, e.g. using insulation blankets}
1/1407	. . {Doors; surrounding frames}	1/403	. . {Arrangement of fasteners specially adapted therefor, e.g. of clips}
1/1415	. . . {Cargo doors, e.g. incorporating ramps}	1/406	. . . {in combination with supports for lines, e.g. for pipes or cables}
1/1423	. . . {Passenger doors}		3/00 Wings (ornithopter wings B64C 33/02)
1/143	. . . . {of the plug type}	3/10	. Shape of wings
1/1438	. . . . {of the sliding type}	3/14	. . Aerofoil profile
1/1446	. . . {Inspection hatches (for engine cowls B64D 29/08)}	3/141	. . . {Circulation Control Airfoils}
1/1453	. . . {Drain masts}	2003/142	. . . {with variable camber along the airfoil chord}
1/1461	. . . {Structures of doors or surrounding frames}	2003/143	. . . {comprising interior channels}
1/1469	. . . {Doors between cockpit and cabin}	2003/144	. . . {including a flat surface on either the extrados or intrados}
1/1476	. . {Canopies; Windscreens or similar transparent elements}	2003/145	. . . {comprising 'Gurney' flaps}
1/1484	. . . {Windows (B64C 1/1492 takes precedence)}	2003/146	. . . {comprising leading edges of particular shape}
1/1492	. . . {Structure and mounting of the transparent elements in the window or windscreen}	2003/147	. . . {comprising trailing edges of particular shape}
1/16	. specially adapted for mounting power plant	2003/148	. . . {comprising protuberances, e.g. for modifying boundary layer flow}
1/18	. Floors	2003/149	. . . {for supercritical or transonic flow}
1/20	. . specially adapted for freight	3/16	. . Frontal aspect
1/22	. Other structures integral with fuselages to facilitate loading {, e.g. cargo bays, cranes}	3/18	. Spars; Ribs; Stringers
1/24	. Steps mounted on, and retractable within, fuselages	3/182	. . {Stringers, longerons}
1/26	. Attaching the wing or tail units or stabilising surfaces	3/185	. . {Spars}
	WARNING	3/187	. . {Ribs}
	Group B64C 1/26 is impacted by reclassification into groups B64U 20/50 and B64U 30/12 - B64U 30/16 .	3/20	. Integral or sandwich constructions
	Groups B64C 1/26 , B64U 20/50 and B64U 30/12 - B64U 30/16 should be considered in order to perform a complete search.	3/22	. Geodetic or other open-frame structures
1/28	. Parts of fuselage relatively movable to improve pilots view	3/24	. Moulded or cast structures
		3/26	. Construction, shape, or attachment of separate skins, e.g. panels
		3/28	. Leading or trailing edges attached to primary structures, e.g. forming fixed slots
		3/30	. comprising inflatable structural components
		3/32	. specially adapted for mounting power plant
		3/34	. Tanks constructed integrally with wings, e.g. for fuel or water
		3/36	. Structures adapted to reduce effects of aerodynamic or other external heating
		3/38	. Adjustment of complete wings or parts thereof
		3/385	. . {Variable incidence wings}
		3/40	. . Varying angle of sweep
		3/42	. . Adjusting about chordwise axes
		3/44	. . Varying camber
		2003/445	. . . {by changing shape according to the speed, e.g. by morphing}
		3/46	. . . by inflatable elements
		3/48	. . . by relatively-movable parts of wing structures

- 3/50 . . . by leading or trailing edge flaps
- 3/52 . . Warping
- 3/54 . . Varying in area
- 2003/543 . . . {by changing shape according to the speed, e.g. by morphing}
- 3/546 . . . {by foldable elements}
- 3/56 . . Folding or collapsing to reduce overall dimensions of aircraft

WARNING

Group [B64C 3/56](#) is impacted by reclassification into groups [B64U 20/50](#) and [B64U 30/12](#) - [B64U 30/16](#).

Groups [B64C 3/56](#), [B64U 20/50](#) and [B64U 30/12](#) - [B64U 30/16](#) should be considered in order to perform a complete search.

- 3/58 . . provided with fences or spoilers ([adjustable for control purposes B64C 9/00](#))

5/00 Stabilising surfaces

- 5/02 . Tailplanes
- 5/04 . Noseplanes
- 5/06 . Fins ([B64C 5/08 takes precedence](#))
- 5/08 . mounted on, or supported by, wings
- 5/10 . adjustable
- 5/12 . . for retraction against or within fuselage or nacelle
- 5/14 . . Varying angle of sweep
- 5/16 . . about spanwise axes
- 5/18 . . in area

7/00 Structures or fairings not otherwise provided for

- 7/02 . Nacelles

9/00 Adjustable control surfaces or members, e.g. rudders ([trimming stabilising surfaces B64C 5/10](#))

- 2009/005 . {[Ailerons](#)}
- 9/02 . Mounting or supporting thereof
- 9/04 . with compound dependent movements
- 9/06 . with two or more independent movements
- 9/08 . bodily displaceable
- 9/10 . one surface adjusted by movement of another, e.g. servo tabs ([B64C 9/04 takes precedence; adjusting surfaces of different type or function B64C 9/12](#))
- 9/12 . surfaces of different type or function being simultaneously adjusted
- 9/14 . forming slots
- 2009/143 . . {[comprising independently adjustable elements for closing or opening the slot between the main wing and leading or trailing edge flaps](#)}
- 9/146 . . {[at an other wing location than the rear or the front \(wings provided with fixed fences or spoilers B64C 3/58\)](#)}
- 9/16 . . at the rear of the wing
- 9/18 . . . by single flaps
- 9/20 . . . by multiple flaps
- 9/22 . . at the front of the wing
- 9/24 . . . by single flap
- 9/26 . . . by multiple flaps
- 9/28 . . by flaps at both the front and rear of the wing operating in unison
- 9/30 . Balancing hinged surfaces, e.g. dynamically

- 9/32 . Air braking surfaces
- 9/323 . . {[associated with wings](#)}
- 9/326 . . {[associated with fuselages](#)}
- 9/34 . collapsing or retracting against or within other surfaces or other members
- 9/36 . . the members being fuselages or nacelles
- 9/38 . Jet flaps

11/00 Propellers, e.g. of ducted type; Features common to propellers and rotors for rotorcraft**NOTE**

Documents classified in [B64C 11/001](#) - [B64C 11/008](#) which also contain relevant information, covered by other subgroups of [B64C 11/00](#), are also classified in the appropriate subgroup of [B64C 11/00](#)

- 11/001 . {[Shrouded propellers](#)}
- 11/002 . {[Braking propellers, e.g. for measuring the power output of an engine](#)}
- 11/003 . {[Variable-diameter propellers; Mechanisms therefor](#)}
- 11/005 . {[Spiral-shaped propellers](#)}
- 11/006 . {[Paddle wheels](#)}
- 11/007 . {[Propulsive discs, i.e. discs having the surface specially adapted for propulsion purposes](#)}
- 11/008 . {[characterised by vibration absorbing or balancing means](#)}
- 11/02 . Hub construction
- 11/04 . . Blade mountings
- 11/06 . . . for variable-pitch blades
- 11/065 {[variable only when stationary](#)}
- 11/08 . . . for non-adjustable blades
- 11/10 rigid
- 11/12 flexible
- 11/14 . . Spinners
- 11/16 . Blades
- 11/18 . . Aerodynamic features
- 11/20 . . Constructional features
- 11/205 . . . {[for protecting blades, e.g. coating](#)}
- 11/22 . . . Solid blades
- 11/24 . . . Hollow blades
- 11/26 . . . Fabricated blades
- 11/28 . . . Collapsible or foldable blades
- 11/30 . Blade pitch-changing mechanisms

NOTE

Groups [B64C 11/301](#), [B64C 11/303](#), [B64C 11/305](#) and [B64C 11/306](#) take precedence over [B64C 11/32](#), [B64C 11/38](#) and [B64C 11/44](#)

- 11/301 . . {[characterised by blade position indicating means](#)}
- 11/303 . . {[characterised by comprising a governor](#)}
- 11/305 . . {[characterised by being influenced by other control systems, e.g. fuel supply](#)}
- 11/306 . . {[specially adapted for contrarotating propellers](#)}
- 11/308 . . . {[automatic](#)}
- 11/32 . . mechanical
- 11/325 . . . {[comprising feathering, braking or stopping systems](#)}
- 11/34 . . . automatic
- 11/343 {[actuated by the centrifugal force or the aerodynamic drag acting on the blades](#)}

- 11/346 {actuated by the centrifugal force or the aerodynamic drag acting on auxiliary masses or surfaces}
- 11/36 . . . non-automatic
- 11/38 . . fluid, e.g. hydraulic
- 11/385 . . . {comprising feathering, braking or stopping systems}
- 11/40 . . . automatic
- 11/42 . . . non-automatic
- 11/44 . . electric
- 11/46 . Arrangements of, or constructional features peculiar to, multiple propellers {(B64C 11/306 takes precedence)}
- 11/48 . . Units of two or more coaxial propellers
- 11/50 . . Phase synchronisation between multiple propellers
- 13/00 Control systems or transmitting systems for actuating flying-control surfaces, lift-increasing flaps, air brakes, or spoilers**
- 13/02 . Initiating means
- 13/04 . . actuated personally
- 13/042 . . . {operated by hand}
- 13/0421 {control sticks for primary flight controls}
- 13/0423 {yokes or steering wheels for primary flight controls}
- 13/0425 {for actuating trailing or leading edge flaps, air brakes or spoilers}
- 13/0427 {for actuating trim}
- 13/044 . . . {operated by feet, e.g. pedals}
- 13/06 . . . adjustable to suit individual persons
- 13/08 . . . Trimming zero positions
- 13/10 . . . comprising warning devices
- 13/12 . . . Dual control apparatus
- 13/14 . . . lockable
- 13/16 . . actuated automatically, e.g. responsive to gust detectors
- 13/18 . . . using automatic pilot
- 13/20 . . . using radiated signals
- 13/22 . . . readily revertible to personal control
- 13/24 . Transmitting means
- 13/26 . . without power amplification or where power amplification is irrelevant
- 13/28 . . . mechanical
- 13/30 using cable, chain, or rod mechanisms
- 13/32 using cam mechanisms
- 13/34 using toothed gearing
- 13/341 {having duplication or stand-by provisions}
- 13/343 {overriding of personal controls; with automatic return to inoperative position}
- 13/345 {with artificial feel}
- 13/36 . . . fluid
- 13/38 . . with power amplification
- 13/40 . . . using fluid pressure
- 13/42 having duplication or stand-by provisions
- 13/44 overriding of personal controls; with automatic return to inoperative position
- 13/46 with artificial feel
- 13/48 characterised by the fluid being gaseous
- 13/50 . . . using electrical energy
- 13/503 {Fly-by-Wire}
- 13/504 {using electro-hydrostatic actuators [EHA's]}
- 13/505 {having duplication or stand-by provisions}
- 13/506 {overriding of personal controls; with automatic return to inoperative position}
- 13/507 {with artificial feel}
- 15/00 Attitude, flight direction, or altitude control by jet reaction**
- 15/02 . the jets being propulsion jets
- 15/12 . . the power plant being tiltable
- 15/14 . the jets being other than main propulsion jets (jet flaps B64C 9/38)
- 17/00 Aircraft stabilisation not otherwise provided for**
- 17/02 . by gravity or inertia-actuated apparatus
- 17/04 . . by pendular bodies
- 17/06 . . by gyroscopic apparatus
- 17/08 . by ballast supply or discharge
- 17/10 . Transferring fuel to adjust trim
- 19/00 Aircraft control not otherwise provided for**
- 19/02 . Conjoint controls
- Influencing air flow over aircraft surfaces, not otherwise provided for**
- 21/00 Influencing air flow over aircraft surfaces by affecting boundary layer flow**
- WARNING**
- Group B64C 21/00 is impacted by reclassification into group B64C 21/01.
- Groups B64C 21/00 and B64C 21/01 should be considered in order to perform a complete search.
- 21/01 . Boundary layer ingestion [BLI] propulsion
- WARNING**
- Group B64C 21/01 is incomplete pending reclassification of documents from groups B64C 21/00, B64C 21/025, B64C 21/04, B64C 21/06 and B64C 21/08.
- All groups listed in this Warning should be considered in order to perform a complete search.
- 21/02 . by use of slot, ducts, porous areas or the like
- 21/025 . . {for simultaneous blowing and sucking}
- WARNING**
- Group B64C 21/025 is impacted by reclassification into group B64C 21/01.
- All groups listed in this Warning should be considered in order to perform a complete search.
- 21/04 . . for blowing
- WARNING**
- Group B64C 21/04 is incomplete pending reclassification of documents from group B64C 21/08.
- Group B64C 21/04 is also impacted by reclassification into group B64C 21/01.
- All groups listed in this Warning should be considered in order to perform a complete search.

<p>21/06 . . for sucking (BLI propulsion B64C 21/01)</p> <p>WARNING</p> <p>Group B64C 21/06 is incomplete pending reclassification of documents from group B64C 21/08.</p> <p>Group B64C 21/06 is also impacted by reclassification into group B64C 21/01.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p> <p>21/08 . . adjustable</p> <p>WARNING</p> <p>Group B64C 21/08 is impacted by reclassification into group B64C 21/04, B64C 21/06 and B64C 21/01.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p> <p>21/10 . . using other surface properties, e.g. roughness</p> <p>23/00 Influencing air flow over aircraft surfaces, not otherwise provided for</p> <p>23/005 . {by other means not covered by groups B64C 23/02 - B64C 23/08, e.g. by electric charges, magnetic panels, piezoelectric elements, static charges or ultrasounds }</p> <p>23/02 . by means of rotating members of cylindrical or similar form</p> <p>23/04 . by generating shock waves</p> <p>23/06 . by generating vortices</p> <p>23/065 . . {at the wing tips }</p> <p>23/069 . . . {using one or more wing tip airfoil devices, e.g. winglets, splines, wing tip fences or raked wingtips }</p> <p>23/072 {the wing tip airfoil devices being moveable in their entirety }</p> <p>23/076 {the wing tip airfoil devices comprising one or more separate moveable members thereon affecting the vortices, e.g. flaps }</p> <p>23/08 . using Magnus effect</p> <hr/> <p>25/00 Alighting gear (air-cushion alighting gear B60V 3/08)</p> <p>25/001 . {Devices not provided for in the groups B64C 25/02 - B64C 25/68 }</p> <p>2025/003 . . {Means for reducing landing gear noise, or turbulent flow around it, e.g. landing gear doors used as deflectors }</p> <p>2025/005 . . {Tail skids for fuselage tail strike protection on tricycle landing gear aircraft }</p> <p>2025/006 . . {Landing gear legs comprising torque arms }</p> <p>2025/008 . . {Comprising means for modifying their length, e.g. for kneeling, for jumping, or for leveling the aircraft }</p> <p>25/02 . Undercarriages</p> <p>25/04 . . Arrangement or disposition on aircraft</p> <p>25/06 . . fixed</p> <p>25/08 . . non-fixed, e.g. jettisonable</p> <p>25/10 . . . retractable, foldable, or the like</p>	<p>25/12 sideways</p> <p>2025/125 {into the fuselage, e.g. main landing gear pivotally retracting into or extending out of the fuselage }</p> <p>25/14 fore-and-aft</p> <p>25/16 Fairings movable in conjunction with undercarriage elements</p> <p>25/18 Operating mechanisms</p> <p>25/20 mechanical</p> <p>25/22 fluid</p> <p>25/24 electric</p> <p>25/26 Control or locking systems therefor</p> <p>25/28 with indicating or warning devices</p> <p>25/30 emergency actuated</p> <p>25/32 . characterised by elements which contact the ground or similar surface (arrester hooks B64C 25/68)</p> <p>2025/325 . . {specially adapted for helicopters }</p> <p>25/34 . . wheeled type, e.g. multi-wheeled bogies</p> <p>2025/345 . . . {Multi-wheel bogies having one or more steering axes }</p> <p>25/36 . . . Arrangements or adaptations of wheels, tyres or axles in general</p> <p>25/38 . . endless-track type</p> <p>25/40 . . the elements being rotated before touch-down</p> <p>25/405 . . {Powered wheels, e.g. for taxiing }</p> <p>25/42 . . Arrangement or adaptation of brakes</p> <p>25/423 . . . {Braking devices acting by reaction of gaseous medium }</p> <p>25/426 . . . {Braking devices providing an automatic sequence of braking }</p> <p>25/44 . . . Actuating mechanisms</p> <p>25/445 {Brake regulators for preventing somersaulting }</p> <p>25/46 Brake regulators for preventing skidding or aircraft somersaulting</p> <p>25/48 differentially operated for steering purposes</p> <p>25/50 . . Steerable undercarriages; Shimmy-damping</p> <p>25/505 . . . {Shimmy damping }</p> <p>25/52 . . Skis or runners</p> <p>25/54 . . Floats</p> <p>25/56 . . . inflatable</p> <p>25/58 . . Arrangements or adaptations of shock-absorbers or springs (shimmy-dampers B64C 25/50)</p> <p>25/60 . . . Oleo legs</p> <p>25/62 . . . Spring shock-absorbers; Springs</p> <p>25/64 using rubber or like elements</p> <p>25/66 . . Convertible alighting gear; Combinations of different kinds of ground or like engaging elements</p> <p>25/68 . . Arrester hooks</p> <p><u>Aircraft kinds or components not otherwise provided for</u></p> <p>27/00 Rotorcraft; Rotors peculiar thereto</p> <p>27/001 . {Vibration damping devices }</p> <p>2027/002 . . {mounted between the rotor drive and the fuselage }</p> <p>2027/003 . . {mounted on rotor hub, e.g. a rotary force generator }</p> <p>2027/004 . . {using actuators, e.g. active systems }</p> <p>2027/005 . . {using suspended masses }</p> <p>27/006 . {Safety devices }</p> <p>27/007 . . {adapted for detection of blade cracks }</p>
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27/008	. {Rotors tracking or balancing devices}	27/20	. Rotorcraft characterised by having shrouded rotors, e.g. flying platforms
27/02	. Gyroplanes		
27/021	. . {Rotor or rotor head construction (for helicopters B64C 27/32)}		WARNING
27/022	. . . {Devices for folding or adjusting the blades}		Group B64C 27/20 is impacted by reclassification into groups B64U 10/00 - B64U 10/80 , B64U 20/00 - B64U 20/98 , B64U 30/00 - B64U 30/40 , B64U 40/00 - B64U 40/20 , B64U 50/00 - B64U 50/39 , B64U 60/00 - B64U 60/70 , B64U 70/00 - B64U 70/99 and B64U 80/00 - B64U 80/86 .
27/023	. . . {Construction of the blades; Coating of the blades}		All groups listed in this Warning should be considered in order to perform a complete search.
27/024	. . . {Devices for shifting the rotor axis}		
27/025	. . . {Rotor drives, in particular for taking off; Combination of autorotation rotors and driven rotors}		
27/026	. . . {Devices for converting a fixed wing into an autorotation rotor and viceversa}		
27/027	. . {Control devices using other means than the rotor}		
27/028	. . {Other constructional elements; Rotor balancing}		
27/04	. Helicopters	27/22	. Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft
27/06	. . with single rotor	27/24	. . with rotor blades fixed in flight to act as lifting surfaces
27/08	. . with two or more rotors	27/26	. . characterised by provision of fixed wings
	WARNING	27/28	. . with forward-propulsion propellers pivotable to act as lifting rotors
	Group B64C 27/08 is impacted by reclassification into groups B64U 10/00 - B64U 10/80 , B64U 20/00 - B64U 20/98 , B64U 30/00 - B64U 30/40 , B64U 40/00 - B64U 40/20 , B64U 50/00 - B64U 50/39 , B64U 60/00 - B64U 60/70 , B64U 70/00 - B64U 70/99 and B64U 80/00 - B64U 80/86 .	27/30	. . with provision for reducing drag of inoperative rotor
	All groups listed in this Warning should be considered in order to perform a complete search.	27/32	. Rotors
27/10	. . . arranged coaxially	27/322	. . {Blade travel limiting devices, e.g. droop stops}
	WARNING	27/325	. . {Circulation-control rotors}
	Group B64C 27/10 is impacted by reclassification into groups B64U 10/00 - B64U 10/80 , B64U 20/00 - B64U 20/98 , B64U 30/00 - B64U 30/40 , B64U 40/00 - B64U 40/20 , B64U 50/00 - B64U 50/39 , B64U 60/00 - B64U 60/70 , B64U 70/00 - B64U 70/99 and B64U 80/00 - B64U 80/86 .	27/327	. . {Retention means relieving the stress from the arm, e.g. tie-bars}
	All groups listed in this Warning should be considered in order to perform a complete search.	27/33	. . having flexing arms
		27/35	. . having elastomeric joints
		27/37	. . having articulated joints
		27/39	. . . with individually articulated blades, i.e. with flapping or drag hinges
		27/41	. . . with flapping hinge or universal joint, common to the blades
		27/43	. . . . see-saw type, i.e. two-bladed rotor
		27/45	. . . with a feathering hinge only
		27/46	. . Blades
		27/463	. . . {Blade tips}
		27/467	. . . Aerodynamic features
		27/473	. . . Constructional features
		2027/4733	. . . . {Rotor blades substantially made from particular materials}
		2027/4736	. . . . {from composite materials}
		27/48	. . . . Root attachment to rotor head
		27/50	. . . . Blades foldable to facilitate stowage of aircraft
27/12	. . Rotor drives	27/51	. Damping of blade movements
2027/125	. . . {including toroidal transmissions, e.g. of the CVT type}	27/52	. Tilting of rotor bodily relative to fuselage (of see-saw type construction B64C 27/43)
27/14	. . . Direct drive between power plant and rotor hub	27/54	. Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement
27/16	. . . Drive of rotors by means, e.g. propellers, mounted on rotor blades	27/56	. . characterised by the control initiating means, e.g. manually actuated
27/18	. . . . the means being jet-reaction apparatus	27/57	. . . automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust
		27/58	. . Transmitting means, e.g. interrelated with initiating means or means acting on blades (means acting on blades B64C 27/72)

- 27/59 . . . mechanical
- 27/605 . . . including swash plate, spider or cam mechanisms
- 27/615 . . . including flaps mounted on blades
- 27/625 . . . including rotating masses or servo rotors
- 27/635 . . . specially for controlling lag-lead movements of blades
- 27/64 . . . using fluid pressure, e.g. having fluid power amplification
- 27/68 . . . using electrical energy, e.g. having electrical power amplification
- 27/72 . . Means acting on blades
- 2027/7205 . . . {on each blade individually, e.g. individual blade control [IBC]}
- 2027/7211 {without flaps}
- 2027/7216 {using one actuator per blade}
- 2027/7222 {using airfoil deformation}
- 2027/7227 {using blowing slots actuated by piezoelectric actuators}
- 2027/7233 {using higher-harmonic control [HHC]}
- 2027/7238 {by controlling existing swash plate actuators}
- 2027/7244 {by using dedicated actuators}
- 2027/725 {using jets controlled by piezoelectric actuators}
- 2027/7255 {using one or more swash plates}
- 2027/7261 {with flaps}
- 2027/7266 {actuated by actuators}
- 2027/7272 {of the electro-hydraulic type}
- 2027/7277 {of the magnetostrictive type}
- 2027/7283 {of the piezoelectric type}
- 2027/7288 {of the memory shape type}
- 2027/7294 {actuated mechanically, e.g. by means of linkages}
- 27/78 . . in association with pitch adjustment of blades of anti-torque rotor
- 27/80 . . for differential adjustment of blade pitch between two or more lifting rotors
- 27/82 . . characterised by the provision of an auxiliary rotor or fluid-jet device for counter-balancing lifting rotor torque or changing direction of rotorcraft
- 2027/8209 . . {Electrically driven tail rotors}
- 2027/8218 . . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}
- 2027/8227 . . {comprising more than one rotor}
- 2027/8236 . . {including pusher propellers}
- 2027/8245 . . {using air jets}
- 2027/8254 . . {Shrouded tail rotors, e.g. "Fenestron" fans}
- 2027/8263 . . {comprising in addition rudders, tails, fins, or the like}
- 2027/8272 {comprising fins, or movable rudders}
- 2027/8281 {comprising horizontal tail planes}
- 2027/829 {comprising a V-tail units}
- 29/00 Aircraft capable of landing or taking-off vertically, e.g. vertical take-off and landing [VTOL] aircraft (rotorcraft B64C 27/00)**
- 29/0008 . . {having its flight directional axis horizontal when grounded}
- 29/0016 . . {the lift during taking-off being created by free or ducted propellers or by blowers}
- 29/0025 {the propellers being fixed relative to the fuselage}
- 29/0033 {the propellers being tiltable relative to the fuselage}
- 29/0041 . . . {the lift during taking-off being created by jet motors}
- 29/005 {the motors being fixed relative to the fuselage}
- 29/0058 {with vertical jet}
- 29/0066 {with horizontal jet and jet deflector}
- 29/0075 {the motors being tiltable relative to the fuselage}
- 29/0083 . . . {the lift during taking-off being created by several motors of different type}
- 29/0091 . . {Accessories not provided for elsewhere}
- 29/02 . . having its flight directional axis vertical when grounded
- 29/04 . . characterised by jet-reaction propulsion
- 30/00 Supersonic type aircraft**
- 31/00 Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft**
- 31/02 . . Gliders, e.g. sailplanes ([hang-gliders B64C 31/028](#))
- 31/024 . . with auxiliary power plant
- 31/028 . . Hang-glider-type aircraft; Microlight-type aircraft
- 31/0285 . . {Safety devices}
- 31/032 . . having delta shaped wing
- 31/036 . . having parachute-type wing
- 31/04 . . Man-powered aircraft
- 31/06 . . Kites ([toy aspects A63H 27/08](#); [airborne towed targets, e.g. kites F41J 9/10](#))
- 2031/065 . . {of inflatable wing type}
- 33/00 Ornithopters**
- WARNING**
- Group [B64C 33/00](#) is impacted by reclassification into group [B64U 10/40](#).
- Groups [B64C 33/00](#) and [B64U 10/40](#) should be considered in order to perform a complete search.
- 33/02 . . Wings; Actuating mechanisms therefor
- 33/025 . . . {the entire wing moving either up or down}
- 35/00 Flying-boats; Seaplanes**
- 35/001 . . {with means for increasing stability on the water}
- 35/002 . . . {using adjustable auxiliary floats}
- 35/003 . . . {using auxiliary floats at the wing tips}
- 35/005 . . {with propellers, rudders or brakes acting in the water}
- 35/006 . . {with lift generating devices}
- 35/007 . . {Specific control surfaces therefor}
- 35/008 . . {Amphibious sea planes}
- 37/00 Convertible aircraft**
- 37/02 . . Flying units formed by separate aircraft ([towing B64D 3/00](#); [aircraft transported by aircraft B64D 5/00](#); [air-refuelling B64D 39/00](#))

39/00 Aircraft not otherwise provided for**WARNING**

Group [B64C 39/00](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

39/001 . . {Flying saucers}**WARNING**

Group [B64C 39/001](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

39/003 . . {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage (rotorcraft [B64C 27/00](#); ornithopters [B64C 33/00](#))}**WARNING**

Group [B64C 39/003](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

39/005 . . {about a horizontal transversal axis}**WARNING**

Group [B64C 39/005](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

39/006 . . {about a vertical axis}**WARNING**

Group [B64C 39/006](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

39/008 . . {about a longitudinal axis}**WARNING**

Group [B64C 39/008](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

- 39/02 . characterised by special use

WARNING

Group [B64C 39/02](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

- 39/022 . . {Tethered aircraft}

WARNING

Group [B64C 39/022](#) is impacted by reclassification into group [B64U 10/60](#).

Groups [B64C 39/022](#) and [B64U 10/60](#) should be considered in order to perform a complete search.

- 39/024 . . {of the remote controlled vehicle type, i.e. RPV}

WARNING

Group [B64C 39/024](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

- 39/026 . . {for use as personal propulsion unit}

- 39/028 . . {Micro-sized aircraft}

WARNING

Group [B64C 39/028](#) is impacted by reclassification into group [B64U 10/80](#).

Groups [B64C 39/028](#) and [B64U 10/80](#) should be considered in order to perform a complete search.

- 39/029 . {Asymmetrical aircraft}

WARNING

Group [B64C 39/029](#) is impacted by reclassification into groups [B64U 10/00](#) - [B64U 10/80](#), [B64U 20/00](#) - [B64U 20/98](#), [B64U 30/00](#), [B64U 30/10](#)-[B64U 30/16](#), [B64U 30/20](#)-[B64U 30/299](#), [B64U 30/30](#), [B64U 30/40](#), [B64U 40/00](#) - [B64U 40/20](#), [B64U 50/00](#) - [B64U 50/39](#), [B64U 60/00](#) - [B64U 60/70](#), [B64U 70/00](#) - [B64U 70/99](#) and [B64U 80/00](#) - [B64U 80/86](#).

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

- 39/04 . having multiple fuselages or tail booms
 39/06 . having disc- or ring-shaped wings
 39/062 . . {having annular wings}
 39/064 . . . {with radial airflow}
 39/066 . . {having channel wings}
 39/068 . . {having multiple wings joined at the tips}
 39/08 . having multiple wings
 39/10 . All-wing aircraft
 2039/105 . . {of blended wing body type}
 39/12 . Canard-type aircraft

99/00 Subject matter not provided for in other groups of this subclass

2203/00 Flying model aircraft, flying toy aircraft

2211/00 Modular constructions of airplanes or helicopters

2220/00 Active noise reduction systems

2230/00 Boundary layer controls

- 2230/02 . by using acoustic waves generated by transducers
 2230/04 . by actively generating fluid flow
 2230/06 . by explicitly adjusting fluid flow, e.g. by using valves, variable aperture or slot areas, variable pump action or variable fluid pressure
 2230/08 . by influencing fluid flow by means of surface cavities, i.e. net fluid flow is null
 2230/10 . by influencing fluid flow by heating using other means than combustion
 2230/12 . by using electromagnetic tiles, fluid ionizers, static charges or plasma
 2230/14 . achieving noise reductions
 2230/16 . by blowing other fluids over the surface than air, e.g. He, H, O₂ or exhaust gases
 2230/18 . by using small jets that make the fluid flow oscillate
 2230/20 . by passively inducing fluid flow, e.g. by means of a pressure difference between both ends of a slot or duct
 2230/22 . by using a surface having multiple apertures of relatively small openings other than slots
 2230/24 . by using passive resonance cavities, e.g. without transducers
 2230/26 . by using rib lets or hydrophobic surfaces
 2230/28 . at propeller or rotor blades