

# 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:  

<a href="#">B64C 35/02</a>	covered by	<a href="#">B64C 35/00</a>
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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
	<b>WARNING</b>		<b>WARNING</b>
	Group <a href="#">B64C 1/069</a> is impacted by reclassification into groups <a href="#">B64U 10/00</a> - <a href="#">B64U 10/80</a> , <a href="#">B64U 20/00</a> - <a href="#">B64U 20/98</a> , <a href="#">B64U 30/00</a> - <a href="#">B64U 30/40</a> , <a href="#">B64U 40/00</a> - <a href="#">B64U 40/20</a> , <a href="#">B64U 50/00</a> - <a href="#">B64U 50/39</a> , <a href="#">B64U 60/00</a> - <a href="#">B64U 60/70</a> , <a href="#">B64U 70/00</a> - <a href="#">B64U 70/99</a> and <a href="#">B64U 80/00</a> - <a href="#">B64U 80/86</a> .		Group <a href="#">B64C 1/30</a> is impacted by reclassification into group <a href="#">B64U 20/50</a> .
	All groups listed in this Warning should be considered in order to perform a complete search.		Groups <a href="#">B64C 1/30</a> and <a href="#">B64U 20/50</a> 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 <a href="#">B64C 25/16</a> ; bomb doors <a href="#">B64D 1/06</a> }	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}		
1/143	. . . . {of the plug type}	<b>3/00</b>	<b>Wings (ornithopter wings <a href="#">B64C 33/02</a>)</b>
1/1438	. . . . {of the sliding type}	3/10	. Shape of wings
1/1446	. . . {Inspection hatches (for engine cowls <a href="#">B64D 29/08</a> )}	3/14	. . Aerofoil profile
1/1453	. . . {Drain masts}	3/141	. . . {Circulation Control Airfoils}
1/1461	. . . {Structures of doors or surrounding frames}	2003/142	. . . {with variable camber along the airfoil chord}
1/1469	. . . {Doors between cockpit and cabin}	2003/143	. . . {comprising interior channels}
1/1476	. . {Canopies; Windscreens or similar transparent elements}	2003/144	. . . {including a flat surface on either the extrados or intrados}
1/1484	. . . {Windows ( <a href="#">B64C 1/1492</a> takes precedence)}	2003/145	. . . {comprising 'Gurney' flaps}
1/1492	. . . {Structure and mounting of the transparent elements in the window or windscreen}	2003/146	. . . {comprising leading edges of particular shape}
1/16	. specially adapted for mounting power plant	2003/147	. . . {comprising trailing edges of particular shape}
1/18	. Floors	2003/148	. . . {comprising protuberances, e.g. for modifying boundary layer flow}
1/20	. . specially adapted for freight	2003/149	. . . {for supercritical or transonic flow}
1/22	. Other structures integral with fuselages to facilitate loading {, e.g. cargo bays, cranes}	3/16	. . Frontal aspect
1/24	. Steps mounted on, and retractable within, fuselages	3/18	. Spars; Ribs; Stringers
1/26	. Attaching the wing or tail units or stabilising surfaces	3/182	. . {Stringers, longerons}
	<b>WARNING</b>	3/185	. . {Spars}
	Group <a href="#">B64C 1/26</a> is impacted by reclassification into groups <a href="#">B64U 20/50</a> and <a href="#">B64U 30/12</a> - <a href="#">B64U 30/16</a> .	3/187	. . {Ribs}
	Groups <a href="#">B64C 1/26</a> , <a href="#">B64U 20/50</a> and <a href="#">B64U 30/12</a> - <a href="#">B64U 30/16</a> should be considered in order to perform a complete search.	3/20	. Integral or sandwich constructions
1/28	. Parts of fuselage relatively movable to improve pilots view	3/22	. Geodetic or other open-frame structures
		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 (<a href="#">BLI propulsion B64C 21/01</a>)</p> <p><b>WARNING</b></p> <p>Group <a href="#">B64C 21/06</a> is incomplete pending reclassification of documents from group <a href="#">B64C 21/08</a>.</p> <p>Group <a href="#">B64C 21/06</a> is also impacted by reclassification into group <a href="#">B64C 21/01</a>.</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><b>WARNING</b></p> <p>Group <a href="#">B64C 21/08</a> is impacted by reclassification into group <a href="#">B64C 21/04</a>, <a href="#">B64C 21/06</a> and <a href="#">B64C 21/01</a>.</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><b>23/00 Influencing air flow over aircraft surfaces, not otherwise provided for</b></p> <p>23/005 . {by other means not covered by groups <a href="#">B64C 23/02</a> - <a href="#">B64C 23/08</a>, 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><b>25/00 Alighting gear (air-cushion alighting gear <a href="#">B60V 3/08</a>)</b></p> <p>25/001 . {Devices not provided for in the groups <a href="#">B64C 25/02</a> - <a href="#">B64C 25/68</a> }</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 (<a href="#">arrester hooks B64C 25/68</a>)</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 (<a href="#">shimmy-dampers B64C 25/50</a>)</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><b><u>Aircraft kinds or components not otherwise provided for</u></b></p> <p><b>27/00 Rotorcraft; Rotors peculiar thereto</b></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)}		<b>WARNING</b>
27/022	. . . {Devices for folding or adjusting the blades}		Group <a href="#">B64C 27/20</a> is impacted by reclassification into groups <a href="#">B64U 10/00</a> - <a href="#">B64U 10/80</a> , <a href="#">B64U 20/00</a> - <a href="#">B64U 20/98</a> , <a href="#">B64U 30/00</a> - <a href="#">B64U 30/40</a> , <a href="#">B64U 40/00</a> - <a href="#">B64U 40/20</a> , <a href="#">B64U 50/00</a> - <a href="#">B64U 50/39</a> , <a href="#">B64U 60/00</a> - <a href="#">B64U 60/70</a> , <a href="#">B64U 70/00</a> - <a href="#">B64U 70/99</a> and <a href="#">B64U 80/00</a> - <a href="#">B64U 80/86</a> .
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
	<b>WARNING</b>	27/28	. . with forward-propulsion propellers pivotable to act as lifting rotors
	Group <a href="#">B64C 27/08</a> is impacted by reclassification into groups <a href="#">B64U 10/00</a> - <a href="#">B64U 10/80</a> , <a href="#">B64U 20/00</a> - <a href="#">B64U 20/98</a> , <a href="#">B64U 30/00</a> - <a href="#">B64U 30/40</a> , <a href="#">B64U 40/00</a> - <a href="#">B64U 40/20</a> , <a href="#">B64U 50/00</a> - <a href="#">B64U 50/39</a> , <a href="#">B64U 60/00</a> - <a href="#">B64U 60/70</a> , <a href="#">B64U 70/00</a> - <a href="#">B64U 70/99</a> and <a href="#">B64U 80/00</a> - <a href="#">B64U 80/86</a> .	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}
	<b>WARNING</b>	27/325	. . {Circulation-control rotors}
	Group <a href="#">B64C 27/10</a> is impacted by reclassification into groups <a href="#">B64U 10/00</a> - <a href="#">B64U 10/80</a> , <a href="#">B64U 20/00</a> - <a href="#">B64U 20/98</a> , <a href="#">B64U 30/00</a> - <a href="#">B64U 30/40</a> , <a href="#">B64U 40/00</a> - <a href="#">B64U 40/20</a> , <a href="#">B64U 50/00</a> - <a href="#">B64U 50/39</a> , <a href="#">B64U 60/00</a> - <a href="#">B64U 60/70</a> , <a href="#">B64U 70/00</a> - <a href="#">B64U 70/99</a> and <a href="#">B64U 80/00</a> - <a href="#">B64U 80/86</a> .	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 <a href="#">B64C 27/43</a> )
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 <a href="#">B64C 27/72</a> )

- 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

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<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
<b>2203/00</b>	<b>Flying model aircraft, flying toy aircraft</b>
<b>2211/00</b>	<b>Modular constructions of airplanes or helicopters</b>
<b>2220/00</b>	<b>Active noise reduction systems</b>
<b>2230/00</b>	<b>Boundary layer controls</b>
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, O <sub>2</sub> 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