

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64C AEROPLANES; HELICOPTERS (air-cushion vehicles [B60V](#))

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](#)
- 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 (boundary-layer controls [B64C 21/00](#))

1/00	Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like (aerodynamical features common to fuselages, wings, stabilising surfaces, and the like B64C 23/00 ; flight-deck installations B64D)		
1/0009	. {Aerodynamic aspects}	1/1407	. . {Doors; surrounding frames}
2001/0018	. {comprising two decks adapted for carrying passengers only}	1/1415	. . . {Cargo doors, e.g. incorporating ramps}
2001/0027	. . {arranged one above the other}	1/1423	. . . {Passenger doors}
2001/0036	. . {arranged side by side at the same level}	1/143	. . . . {of the plug type}
2001/0045	. {Fuselages characterised by special shapes}	1/1438	. . . . {of the sliding type}
2001/0054	. {Fuselage structures substantially made from particular materials}	1/1446	. . . {Inspection hatches (for engine cowls B64D 29/08)}
2001/0063	. . {from wood}	1/1453	. . . {Drain masts}
2001/0072	. . {from composite materials}	1/1461	. . . {Structures of doors or surrounding frames}
2001/0081	. . {from metallic materials}	1/1469	. . . {Doors between cockpit and cabin}
2001/009	. {comprising decompression panels or valves for pressure equalisation in fuselages or floors}	1/1476	. . {Canopies; Windscreens or similar transparent elements}
1/06	. Frames; Stringers; Longerons {; Fuselage sections}	1/1484	. . . {Windows (B64C 1/1492 takes precedence)}
1/061	. . {Frames}	1/1492	. . . {Structure and mounting of the transparent elements in the window or windscreen}
1/062	. . . {specially adapted to absorb crash loads}	1/16	. specially adapted for mounting power plant
1/063	. . . {Folding or collapsing to reduce overall dimensions, e.g. foldable tail booms (folding or collapsing wings B64C 3/56)}	1/18	. Floors
1/064	. . {Stringers; Longerons}	1/20	. . specially adapted for freight
1/065	. . {Spars}	1/22	. Other structures integral with fuselages to facilitate loading {, e.g. cargo bays, cranes (cargo door type ramps B64C 1/1415)}
1/066	. . {Interior liners}	1/24	. Steps mounted on, and retractable within, fuselages (readily removable B64D 9/00)
1/067	. . . {comprising means for preventing icing or condensation conditions}	1/26	. Attaching the wing or tail units or stabilising surfaces
1/068	. . {Fuselage sections}	1/28	. Parts of fuselage relatively movable to improve pilots view
1/069	. . . {Joining arrangements therefor}	1/30	. Parts of fuselage relatively movable to reduce overall size for storage
1/08	. . Geodetic or other open-frame structures		
1/10	. . Bulkheads		
1/12	. . Construction or attachment of skin panels		

1/32	• Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats B64D 25/10)	3/38	• Adjustment of complete wings or parts thereof
1/34	• comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)	3/385	• • { Variable incidence wings }
1/36	• adapted to receive antennas or radomes (antennas or radomes per se H01Q)	3/40	• • Varying angle of sweep
1/38	• Constructions adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow B64D 13/006)}	3/42	• • Adjusting about chordwise axes
1/40	• Sound or heat insulation {, e.g. using insulation blankets (insulating elements for vehicles, in general B60R 13/08)}	3/44	• • Varying camber
1/403	• • {Arrangement of fasteners specially adapted therefor, e.g. of clips (in vehicles in general B60R 13/0206)}	2003/445	• • • { by changing shape according to the speed, e.g. by morphing }
1/406	• • • {in combination with supports for lines, e.g. for pipes or cables (arrangement of elements of electric or fluid circuits specially adapted for vehicles, in general B60R 16/00 ; supports for pipes, cables or protective tubing F16L 3/00 ; installations of electric cables or lines in vehicles H02G 3/00)}	3/46	• • • by inflatable elements (connection of valves to inflatable elastic bodies B60C 29/00)
3/00	Wings (stabilising surfaces B64C 5/00 ; ornithopter wings B64C 33/02)	3/48	• • • by relatively-movable parts of wing structures
3/10	• Shape of wings	3/50	• • • by leading or trailing edge flaps (ailerons B64C 9/00)
3/14	• • Aerofoil profile	3/52	• • Warping
3/141	• • • { Circulation Control Airfoils }	3/54	• • Varying in area (flaps extendable to increase camber B64C 3/44)
2003/142	• • • { with variable camber along the airfoil chord }	2003/543	• • • { by changing shape according to the speed, e.g. by morphing }
2003/143	• • • { comprising interior channels }	3/546	• • • { by foldable elements }
2003/144	• • • { including a flat surface on either the extrados or intrados }	3/56	• • Folding or collapsing to reduce overall dimensions of aircraft
2003/145	• • • { comprising 'Gurney' flaps }	3/58	• provided with fences or spoilers (adjustable for control purposes B64C 9/00)
2003/146	• • • { comprising leading edges of particular shape }	5/00	Stabilising surfaces (attaching stabilising surfaces to fuselage B64C 1/26)
2003/147	• • • { comprising trailing edges of particular shape }	5/02	• Tailplanes (fins B64C 5/06)
2003/148	• • • { comprising protuberances, e.g. for modifying boundary layer flow }	5/04	• Noseplanes
2003/149	• • • { for supercritical or transonic flow }	5/06	• Fins (specially for wings B64C 5/08)
3/16	• • Frontal aspect	5/08	• mounted on or supported by wings
3/18	• Spars; Ribs; Stringers (attaching wing unit to fuselage B64C 1/26)	5/10	• adjustable
3/182	• • { Stringers, longerons }	5/12	• • for retraction against or within fuselage or nacelle
3/185	• • { Spars }	5/14	• • Varying angle of sweep
3/187	• • { Ribs }	5/16	• • about spanwise axes
3/20	• Integral or sandwich constructions (layered products or sandwich constructions in general B32B)	5/18	• • in area (attaching stabilising surfaces to fuselage B64C 1/26)
3/22	• Geodetic or other open-frame structures	7/00	Structures or fairings not otherwise provided for
3/24	• Moulded or cast structures	7/02	• Nacelles
3/26	• Construction, shape, or attachment of separate skins, e.g. panels	9/00	Adjustable control surfaces or members, e.g. rudders (trimming stabilising surfaces B64C 5/10)
3/28	• Leading or trailing edges attached to primary structures, e.g. forming fixed slots	2009/005	• { Ailerons }
3/30	• comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)	9/02	• Mounting or supporting thereof
3/32	• specially adapted for mounting power plant	9/04	• with compound dependent movements
3/34	• Integrally-constructed tanks, e.g. for fuel (other aircraft fuel tanks or fuel systems B64D)	9/06	• with two or more independent movements
3/36	• Structures adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow B64D 13/006)}	9/08	• bodily displaceable (varying camber of wings B64C 3/44)
		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 (boundary-layer control B64C 21/00)
		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 ([braking by parachutes B64D 17/80](#))
- 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 ([rotors specially adapted for rotorcraft B64C 27/32](#))

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 ([for rotorcraft B64C 27/001](#))}
- 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

WARNING

Group [B64C 13/04](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

- 13/042 . . . {operated by hand}

WARNING

Groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), and [B64C 13/0427](#) are incomplete pending reclassification of documents from groups [B64C 13/04](#), [B64C 13/06](#), [B64C 13/08](#), [B64C 13/10](#), [B64C 13/12](#), and [B64C 13/14](#).

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

- 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}

WARNING

Group [B64C 13/044](#) is incomplete pending reclassification of documents from groups [B64C 13/04](#), [B64C 13/06](#), [B64C 13/08](#), [B64C 13/10](#), [B64C 13/12](#), and [B64C 13/14](#).

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

13/06 . . . adjustable to suit individual persons

WARNING

Group [B64C 13/06](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

13/08 . . . Trimming zero positions

WARNING

Group [B64C 13/08](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

13/10 . . . comprising warning devices

WARNING

Group [B64C 13/10](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

13/12 . . . Dual control apparatus

WARNING

Group [B64C 13/12](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

13/14 . . . lockable (locking in position to suit individual persons [B64C 13/06](#))

WARNING

Group [B64C 13/14](#) is impacted by reclassification into groups [B64C 13/042](#), [B64C 13/0421](#), [B64C 13/0423](#), [B64C 13/0425](#), [B64C 13/0427](#), and [B64C 13/044](#).

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

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

WARNING

Groups [B64C 13/28](#), [B64C 13/30](#), [B64C 13/32](#), and [B64C 13/34](#) are impacted by reclassification into groups [B64C 13/341](#), [B64C 13/343](#), and [B64C 13/345](#).

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

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}

WARNING

Group [B64C 13/341](#) is incomplete pending reclassification of documents from groups [B64C 13/28](#), [B64C 13/30](#), [B64C 13/32](#), [B64C 13/34](#), [B64C 13/42](#), [B64C 13/44](#), and [B64C 13/46](#).

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

13/343 {overriding of personal controls; with automatic return to inoperative position}

WARNING

Group [B64C 13/343](#) is incomplete pending reclassification of documents from groups [B64C 13/28](#), [B64C 13/30](#), [B64C 13/32](#), [B64C 13/34](#), [B64C 13/42](#), [B64C 13/44](#), and [B64C 13/46](#).

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

13/345 {with artificial feel}

WARNING

Group [B64C 13/345](#) is incomplete pending reclassification of documents from groups [B64C 13/28](#), [B64C 13/30](#), [B64C 13/32](#), [B64C 13/34](#), [B64C 13/42](#), [B64C 13/44](#), and [B64C 13/46](#).

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

13/36 . . . fluid

13/38 . . with power amplification

13/40 . . . using fluid pressure

WARNING

Group [B64C 13/40](#) is impacted by reclassification into groups [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/42 having duplication or stand-by provisions

WARNING

Group [B64C 13/42](#) is impacted by reclassification into groups [B64C 13/341](#), [B64C 13/343](#), [B64C 13/345](#), [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/44 overriding of personal controls; with automatic return to inoperative position

WARNING

Group [B64C 13/44](#) is impacted by reclassification into groups [B64C 13/341](#), [B64C 13/343](#), [B64C 13/345](#), [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/46 with artificial feel

WARNING

Group [B64C 13/46](#) is impacted by reclassification into groups [B64C 13/341](#), [B64C 13/343](#), [B64C 13/345](#), [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/48 characterised by the fluid being gaseous

13/50 . . . using electrical energy

WARNING

Group [B64C 13/50](#) is impacted by reclassification into groups [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/503 {Fly-by-Wire}

WARNING

Group [B64C 13/503](#) is impacted by reclassification into groups [B64C 13/504](#), [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/504 {using electro-hydrostatic actuators [EHA's]}

WARNING

Group [B64C 13/504](#) is incomplete pending reclassification of documents from groups [B64C 13/40](#), [B64C 13/42](#), [B64C 13/44](#), [B64C 13/46](#), [B64C 13/50](#), and [B64C 13/503](#). Group [B64C 13/504](#) is also impacted by reclassification into groups [B64C 13/505](#), [B64C 13/506](#), and [B64C 13/507](#).

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

13/505 {having duplication or stand-by provisions}

WARNING

Group [B64C 13/505](#) is incomplete pending reclassification of documents from groups [B64C 13/40](#), [B64C 13/42](#), [B64C 13/44](#), [B64C 13/46](#), [B64C 13/50](#), and [B64C 13/503](#).

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

13/506 {overriding of personal controls; with automatic return to inoperative position}

WARNING

Group [B64C 13/506](#) is incomplete pending reclassification of documents from groups [B64C 13/40](#), [B64C 13/42](#), [B64C 13/44](#), [B64C 13/46](#), [B64C 13/50](#), and [B64C 13/503](#).

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

13/507 {with artificial feel}

WARNING

Group [B64C 13/507](#) is incomplete pending reclassification of documents from groups [B64C 13/40](#), [B64C 13/42](#), [B64C 13/44](#), [B64C 13/46](#), [B64C 13/50](#), and [B64C 13/503](#).

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

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 ([automatic pilot control B64C 13/18](#))
- 17/08 . by ballast supply or discharge ([for lighter-than-air aircraft B64B](#))
- 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 ([boundary-layer control in general F15D](#))

- 21/02 . by use of slot, ducts, porous areas, or the like
- 21/025 . . {for simultaneous blowing and sucking}
- 21/04 . . for blowing ([B64C 21/08 takes precedence](#))
- 21/06 . . for sucking ([B64C 21/08 takes precedence](#))
- 21/08 . . adjustable
- 21/10 . using other surface properties, e.g. roughness

23/00 Influencing air-flow over aircraft surfaces, not otherwise provided for

- 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}
- 23/02 . by means of rotating members of cylindrical or similar form
- 23/04 . by generating shock waves
- 23/06 . by generating vortices
- 23/065 . . {at the wing tips}

WARNING

Group [B64C 23/065](#) is impacted by reclassification into groups [B64C 23/069](#), [B64C 23/072](#), [B64C 23/076](#).

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

23/069 {using one or more wing tip airfoil devices, e.g. winglets, splines, wing tip fences or raked wingtips}

WARNING

Group [B64C 23/069](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

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

23/072 {the wing tip airfoil devices being moveable in their entirety}

WARNING

Group [B64C 23/072](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

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

23/076 {the wing tip airfoil devices comprising one or more separate moveable members thereon affecting the vortices, e.g. flaps}

WARNING

Group [B64C 23/076](#) is incomplete pending reclassification of documents from group [B64C 23/065](#).

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

23/08 . using Magnus effect

25/00 Alighting gear ([air-cushion alighting gear B60V 3/08](#))

- 25/001 . {Devices not provided for in the groups [B64C 25/02](#) - [B64C 25/68](#)}
- 2025/003 . . {Means for reducing landing gear noise, or turbulent flow around it, e.g. landing gear doors used as deflectors}
- 2025/005 . . {Tail skids for fuselage tail strike protection on tricycle landing gear aircraft}
- 2025/006 . . {Landing gear legs comprising torque arms}
- 2025/008 . . {Comprising means for modifying their length, e.g. for kneeling, for jumping, or for leveling the aircraft}
- 25/02 . Undercarriages
- 25/04 . . Arrangement or disposition on aircraft
- 25/06 . . fixed
- 25/08 . . non-fixed, e.g. jettisonable
- 25/10 . . . retractable, foldable, or the like
- 25/12 sideways
- 2025/125 {into the fuselage, e.g. main landing gear pivotally retracting into or extending out of the fuselage}
- 25/14 fore-and-aft
- 25/16 Fairings movable in conjunction with undercarriage elements
- 25/18 Operating mechanisms
- 25/20 mechanical
- 25/22 fluid
- 25/24 electric

25/26	. . . . . Control or locking systems therefor	2027/004	. . {using actuators, e.g. active systems}
25/28	. . . . . with indicating or warning devices	2027/005	. . {using suspended masses}
25/30	. . . . . emergency actuated	27/006	. {Safety devices}
25/32	. characterised by the ground or like engaging elements (arrestor hooks B64C 25/68)	27/007	. . {adapted for detection of blade cracks}
2025/325	. . {specially adapted for helicopters}	27/008	. {Rotors tracking or balancing devices}
25/34	. . wheeled type, e.g. multi-wheeled bogies	27/02	. Gyroplanes
2025/345	. . . {Multi-wheel bogies having one or more steering axes}	27/021	. . {Rotor or rotor head construction (for helicopters B64C 27/32)}
25/36	. . . Arrangements or adaptations of wheels, tyres, or axles in general (construction of wheels or axles B60B ; construction of tyres in general B60C)	27/022	. . . {Devices for folding or adjusting the blades}
25/38	. . endless-track type	27/023	. . . {Construction of the blades; Coating of the blades}
25/40	. . the elements being rotated before touch-down	27/024	. . . {Devices for shifting the rotor axis}
25/405	. . . {Powered wheels, e.g. for taxiing}	27/025	. . . {Rotor drives, in particular for taking off; Combination of autorotation rotors and driven rotors}
25/42	. . Arrangements or adaptations of brakes (the ground braking force being regulated, at least in part, by a speed condition, e.g. acceleration or deceleration of the ground engaging alighting gear, B60T 8/32)	27/026	. . . {Devices for converting a fixed wing into an autorotation rotor and viceversa}
25/423	. . . {Braking devices acting by reaction of gaseous medium (B64C 25/426 takes precedence; using rockets B64D 27/023)}	27/027	. . {Control devices using other means than the rotor}
25/426	. . . {Braking devices providing an automatic sequence of braking}	27/028	. . {Other constructional elements; Rotor balancing}
25/44	. . . Actuating mechanisms	27/04	. Helicopters
25/445	. . . . {Brake regulators for preventing somersaulting}	27/06	. . with single rotor
25/46	. . . . Brake regulators for preventing skidding or aircraft somersaulting ((anti-skidding regulators; electric or electronic controllers therefor B60T 8/1703))	27/08	. . with two or more rotors
25/48	. . . . differentially operated for steering purposes	27/10	. . . arranged coaxially
25/50	. . Steerable undercarriages; Shimmy damping (steering devices applicable to land vehicles B62D)	27/12	. . Rotor drives
25/505	. . . {Shimmy damping}	2027/125	. . . {including toroidal transmissions, e.g. of the CVT type}
25/52	. . Skis or runners	27/14	. . . Direct drive between power plant and rotor hub
25/54	. . Floats	27/16	. . . Drive of rotors by means, e.g. propellers, mounted on rotor blades
25/56	. . . inflatable (connection of valves to inflatable elastic bodies B60C 29/00)	27/18	. . . . the means being jet-reaction apparatus
25/58	. . Arrangements or adaptations of shock-absorbers or springs (shimmy dampers B64C 25/50 ; vehicle suspension arrangements in general B60G ; shock absorber per se F16F)	27/20	. Rotorcraft characterised by having shrouded rotors, e.g. flying platforms
25/60	. . . Oleo legs	27/22	. Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft
25/62	. . . Spring shock-absorbers; Springs	27/24	. . with rotor blades fixed in flight to act as lifting surfaces
25/64	. . . . using rubber or like elements	27/26	. . characterised by provision of fixed wings
25/66	. . Convertible alighting gear; Combinations of different kinds of ground or like engaging elements	27/28	. . with forward-propulsion propellers pivotable to act as lifting rotors
25/68	. Arrestor hooks (arresting gear, e.g. on aircraft carriers B64F)	27/30	. . with provision for reducing drag of inoperative rotor
<u>Aircraft kinds and components not otherwise provided for</u>		27/32	. Rotors (features common to rotors and propellers B64C 11/00)
27/00	Rotorcraft; Rotors peculiar thereto (alighting gear B64C 25/00)	27/322	. . {Blade travel limiting devices, e.g. droop stops}
27/001	. {Vibration damping devices}	27/325	. . {Circulation-control rotors}
2027/002	. . {mounted between the rotor drive and the fuselage}	27/327	. . {Retention means relieving the stress from the arm, e.g. tie-bars}
2027/003	. . {mounted on rotor hub, e.g. a rotary force generator}	27/33	. . having flexing arms
		27/35	. . having elastomeric joints
		27/37	. . having articulated joints (B64C 27/33 , B64C 27/35 take precedence)
		27/39	. . . with individually articulated blades, i.e. with flapping or drag hinges
		27/41	. . . with flapping 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 ((B64C 27/463 takes precedence))

27/473	. . .	Constructional features { (B64C 27/463 takes precedence) }
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
27/51	. .	Damping of blade movements
27/52	. .	Tilting of rotor bodily relative to fuselage (of see-saw type construction B64C 27/43)
27/54	. .	Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement
27/56	. .	Initiating means, e.g. actuated personally
27/57	. . .	automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust
27/58	. .	Transmitting means
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
27/68	. . . .	using electrical energy
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 (attitude, flight direction, or altitude control by jet reaction B64C 15/00 ; rotorcraft B64C 27/00 ; air-cushion vehicles B60V)
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 (parachutes B64D 17/00)
31/04	. .	Man-powered aircraft (ornithopters B64C 33/00)
31/06	. .	Kites (hang-gliders B64C 31/028 ; toy aspects A63H 27/08 ; towed targets F41J {; for propelling boats B63H 9/0685 ; for propelling wind driven boards, control means and harnesses therefor B63B 35/7976)
2031/065	. .	{of inflatable wing type}
33/00		Ornithopters
33/02	. .	Wings; Actuating mechanisms therefor
33/025	. .	{the entire wing moving either up or down}
35/00		Flying-boats; Seaplanes (alighting gear B64C 25/00)
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}	2201/10	. characterised by the lift producing means
35/007	. {Specific control surfaces therefor}	2201/101	. . Lifting aerostatically, e.g. using lighter-than-air gases in chambers
35/008	. {Amphibious sea planes}	2201/102	. . Deployable wings, e.g. foldable or morphing wings
37/00	Convertible aircraft (vehicles capable of travelling in or on different media B60F)	2201/104	. . Fixed wings
37/02	. Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft B64D)	2201/105	. . Inflatable wings
39/00	Aircraft not otherwise provided for	2201/107	. . Parachutes; Parasails; Kites; Membranes
39/001	. {Flying saucers}	2201/108	. . using rotors, or propellers
39/003	. {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage (rotorcraft B64C 27/00 , ornithopters B64C 33/00)}	2201/12	. adapted for particular use
39/005	. . {about a horizontal transversal axis}	2201/121	. . for dropping bombs; for electronic warfare; Flying bombs
39/006	. . {about a vertical axis}	2201/122	. . as communication relays, e.g. high altitude platforms
39/008	. . {about a longitudinal axis}	2201/123	. . for imaging, or topography
39/02	. characterised by special use	2201/125	. . for meteorology
39/022	. . {Tethered aircraft}	2201/126	. . adapted for performing different kinds of missions, e.g. multipurpose use
39/024	. . {of the remote controlled vehicle type, i.e. RPV}	2201/127	. . for photography, or video recording, e.g. by using cameras
39/026	. . {for use as personal propulsion unit}	2201/128	. . for transporting goods other than bombs
39/028	. . {Microsized aircraft}	2201/14	. characterised by flight control
39/04	. having multiple fuselages or tail booms	2201/141	. . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
39/06	. having disc- or ring-shaped wings (B64C 39/001 takes precedence)	2201/143	. . . adapted for flying in formations
39/062	. . {having annular wings}	2201/145	. . . using satellite radio beacon positioning systems, e.g. GPS
39/064	. . . {with radial airflow}	2201/146	. . Remote controls
39/066	. . {having channel wings}	2201/148	. . . using tethers for connecting to ground station
39/068	. . {having multiple wings joined at the tips}	2201/16	. characterised by type of propulsion unit
39/08	. having multiple wings (B64C 39/06 takes precedence)	2201/162	. . using ducted fans or propellers
39/10	. All-wing aircraft (B64C 39/001 takes precedence)	2201/165	. . using unducted propellers
2039/105	. {of blended wing body type}	2201/167	. . using rockets, ramjets, pulse jets, plasma, or the like
39/12	. Canard-type aircraft	2201/18	. characterised by landing method
2201/00	Unmanned aerial vehicles; Equipment therefor	2201/182	. . by being caught in mid-air, or next to the ground, e.g. using a net
2201/02	. characterized by type of aircraft	2201/185	. . by deploying parachutes, or the like
2201/021	. . Airplanes, i.e. having wings and tail planes	2201/187	. . by landing horizontally, e.g. on a runway
2201/022	. . Balloons, blimps or airships	2201/20	. Methods for transport, or storage of unmanned aerial vehicles
2201/024	. . Helicopters, or autogiros	2201/201	. . in containers
2201/025	. . Ornithopters, i.e. generating lift and propulsion by flapping wings or insect like means	2201/203	. . in rucksacks, or bags to be carried by persons
2201/027	. . Flying platforms	2201/205	. . by waterborne vehicles, e.g. ships or submarines or by hovercraft
2201/028	. . of all-wing types	2201/206	. . by airborne vehicles, e.g. airplanes or helicopters
2201/04	. characterised by type of power plant	2201/208	. . by landborne vehicles, e.g. trucks, lorries, tanks or cars
2201/042	. . by electric motors; Electric power sources therefor, e.g. fuel cells, solar panels or batteries	2201/22	. having stealth characteristics
2201/044	. . by internal combustion engines, e.g. oscillating piston or rotary piston engines	2203/00	Flying model aircraft, flying toy aircraft
2201/046	. . by rocket engines, ramjets, or pulse-reactors	2211/00	Modular constructions of airplanes or helicopters
2201/048	. . by jet turbines, or turbofans	2220/00	Active noise reduction systems
2201/06	. characterised by in-flight supply of energy	2230/00	Boundary layer controls
2201/063	. . by refueling	2230/02	. by using acoustic waves generated by transducers
2201/066	. . by recharging of batteries, e.g. by induction	2230/04	. by actively generating fluid flow
2201/08	. characterised by the launching method	2230/06	. by explicitly adjusting fluid flow, e.g. by using valves, variable aperture or slot areas, variable pump action or variable fluid pressure
2201/082	. . Released from other aircraft	2230/08	. by influencing fluid flow by means of surface cavities, i.e. net fluid flow is null
2201/084	. . using catapults		
2201/086	. . by taking-off horizontally by own power, e.g. from a runway		
2201/088	. . Vertical take-off using special means (for helicopters B64C 2201/024 ; for balloons B64C 2201/022)		

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- 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