

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)	1/14	• 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)
1/0009	• {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		
	<u>Influencing air-flow over aircraft surfaces, not otherwise provided for</u>		
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}		
23/069	. . . {using one or more wing tip airfoil devices, e.g. winglets, splines, wing tip fences or raked wingtips}		
23/072	. . . . {the wing tip airfoil devices being moveable in their entirety}		
23/076	. . . . {the wing tip airfoil devices comprising one or more separate moveable members thereon affecting the vortices, e.g. flaps}		
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		
25/28	. . . . . with indicating or warning devices		
25/30	. . . . . emergency actuated		
25/32	. characterised by the ground or like engaging elements (arrester hooks B64C 25/68)		
2025/325	. . {specially adapted for helicopters}		
25/34	. . wheeled type, e.g. multi-wheeled bogies		
2025/345	. . . {Multi-wheel bogies having one or more steering axes}		
25/36	. . . Arrangements or adaptations of wheels, tyres, or axles in general (construction of wheels or axles B60B ; construction of tyres in general B60C)		
25/38	. . endless-track type		
25/40	. . the elements being rotated before touch-down		
25/405	. . . {Powered wheels, e.g. for taxiing}		
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)		
25/423	. . . {Braking devices acting by reaction of gaseous medium (B64C 25/426 takes precedence; using rockets B64D 27/023)}		
25/426	. . . {Braking devices providing an automatic sequence of braking}		
25/44	. . . Actuating mechanisms		
25/445	. . . . {Brake regulators for preventing somersaulting}		
25/46	. . . . Brake regulators for preventing skidding or aircraft somersaulting (anti-skidding regulators; electric or electronic controllers therefor B60T 8/1703)		
25/48	. . . . differentially operated for steering purposes		

- 25/50 . . Steerable undercarriages; Shimmy damping
([steering devices applicable to land vehicles B62D](#))
- 25/505 . . . {Shimmy damping}
- 25/52 . . Skis or runners
- 25/54 . . Floats
- 25/56 . . . inflatable ([connection of valves to inflatable elastic bodies B60C 29/00](#))
- 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](#))
- 25/60 . . . Oleo legs
- 25/62 . . . Spring shock-absorbers; Springs
- 25/64 using rubber or like elements
- 25/66 . . Convertible alighting gear; Combinations of different kinds of ground or like engaging elements
- 25/68 . . Arrester hooks ([arresting gear, e.g. on aircraft carriers B64F](#))
- 27/22 . . Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft
- 27/24 . . with rotor blades fixed in flight to act as lifting surfaces
- 27/26 . . characterised by provision of fixed wings
- 27/28 . . with forward-propulsion propellers pivotable to act as lifting rotors
- 27/30 . . with provision for reducing drag of inoperative rotor
- 27/32 . . Rotors ([features common to rotors and propellers B64C 11/00](#))
- 27/322 . . . {Blade travel limiting devices, e.g. droop stops}
- 27/325 . . . {Circulation-control rotors}
- 27/327 . . . {Retention means relieving the stress from the arm, e.g. tie-bars}
- 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}

Aircraft kinds and components not otherwise provided for

- 27/00 Rotorcraft; Rotors peculiar thereto ([alighting gear B64C 25/00](#))**
- 27/001 . . {Vibration damping devices}
- 2027/002 . . {mounted between the rotor drive and the fuselage}
- 2027/003 . . {mounted on rotor hub, e.g. a rotary force generator}
- 2027/004 . . {using actuators, e.g. active systems}
- 2027/005 . . {using suspended masses}
- 27/006 . . {Safety devices}
- 27/007 . . {adapted for detection of blade cracks}
- 27/008 . . {Rotors tracking or balancing devices}
- 27/02 . . Gyroplanes
- 27/021 . . {Rotor or rotor head construction ([for helicopters B64C 27/32](#))}
- 27/022 . . . {Devices for folding or adjusting the blades}
- 27/023 . . . {Construction of the blades; Coating of the blades}
- 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
- 27/06 . . with single rotor
- 27/08 . . with two or more rotors
- 27/10 . . . arranged coaxially
- 27/12 . . Rotor drives
- 2027/125 . . . {including toroidal transmissions, e.g. of the CVT type}
- 27/14 . . . Direct drive between power plant and rotor hub
- 27/16 . . . Drive of rotors by means, e.g. propellers, mounted on rotor blades
- 27/18 the means being jet-reaction apparatus
- 27/20 . . Rotorcraft characterised by having shrouded rotors, e.g. flying platforms

2027/7227	. . . . . {using blowing slots actuated by piezoelectric actuators}	29/04	. . characterised by jet-reaction propulsion
2027/7233	. . . . . {using higher-harmonic control [HHC]}	30/00	Supersonic-type aircraft
2027/7238	. . . . . {by controlling existing swash plate actuators}	31/00	Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft
2027/7244	. . . . . {by using dedicated actuators}	31/02	. Gliders, e.g. sailplanes (hang-gliders B64C 31/028)
2027/725	. . . . . {using jets controlled by piezoelectric actuators}	31/024	. . with auxiliary power plant
2027/7255	. . . . . {using one or more swash plates}	31/028	. Hang-glider-type aircraft; Microlight-type aircraft
2027/7261	. . . . . {with flaps}	31/0285	. . {Safety devices}
2027/7266	. . . . . {actuated by actuators}	31/032	. . having delta shaped wing
2027/7272	. . . . . {of the electro-hydraulic type}	31/036	. . having parachute-type wing (parachutes B64D 17/00)
2027/7277	. . . . . {of the magnetostrictive type}	31/04	. Man-powered aircraft (ornithopters B64C 33/00)
2027/7283	. . . . . {of the piezoelectric type}	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 })
2027/7288	. . . . . {of the memory shape type}	2031/065	. . {of inflatable wing type}
2027/7294	. . . . . {actuated mechanically, e.g. by means of linkages}	33/00	Ornithopters
27/78	. . in association with pitch adjustment of blades of anti-torque rotor	33/02	. Wings; Actuating mechanisms therefor
27/80	. . for differential adjustment of blade pitch between two or more lifting rotors	33/025	. . {the entire wing moving either up or down}
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	35/00	Flying-boats; Seaplanes (alighting gear B64C 25/00)
2027/8209	. . {Electrically driven tail rotors}	35/001	. {with means for increasing stability on the water}
2027/8218	. . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}	35/002	. . {using adjustable auxiliary floats}
2027/8227	. . {comprising more than one rotor}	35/003	. . {using auxiliary floats at the wing tips}
2027/8236	. . {including pusher propellers}	35/005	. {with propellers, rudders or brakes acting in the water}
2027/8245	. . {using air jets}	35/006	. {with lift generating devices}
2027/8254	. . {Shrouded tail rotors, e.g. "Fenestron" fans}	35/007	. {Specific control surfaces therefor}
2027/8263	. . {comprising in addition rudders, tails, fins, or the like}	35/008	. {Amphibious sea planes}
2027/8272	. . . {comprising fins, or movable rudders}	37/00	Convertible aircraft (vehicles capable of travelling in or on different media B60F)
2027/8281	. . . {comprising horizontal tail planes}	37/02	. Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft B64D)
2027/829	. . . {comprising a V-tail units}	39/00	Aircraft not otherwise provided for
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)	39/001	. {Flying saucers}
29/0008	. {having its flight directional axis horizontal when grounded}	39/003	. {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage (rotorcraft B64C 27/00, ornithopters B64C 33/00)}
29/0016	. . {the lift during taking-off being created by free or ducted propellers or by blowers}	39/005	. . {about a horizontal transversal axis}
29/0025	. . . {the propellers being fixed relative to the fuselage}	39/006	. . {about a vertical axis}
29/0033	. . . {the propellers being tiltable relative to the fuselage}	39/008	. . {about a longitudinal axis}
29/0041	. . {the lift during taking-off being created by jet motors}	39/02	. characterised by special use
29/005	. . . {the motors being fixed relative to the fuselage}	39/022	. . {Tethered aircraft}
29/0058	. . . {with vertical jet}	39/024	. . {of the remote controlled vehicle type, i.e. RPV}
29/0066	. . . {with horizontal jet and jet deflector}	39/026	. . {for use as personal propulsion unit}
29/0075	. . . {the motors being tiltable relative to the fuselage}	39/028	. . {Microsized aircraft}
29/0083	. . {the lift during taking-off being created by several motors of different type}	39/04	. having multiple fuselages or tail booms
29/0091	. {Accessories not provided for elsewhere}	39/06	. having disc- or ring-shaped wings (B64C 39/001 takes precedence)
29/02	. having its flight directional axis vertical when grounded	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 (B64C 39/06 takes precedence)
		39/10	. All-wing aircraft (B64C 39/001 takes precedence)
		2039/105	. {of blended wing body type}

- 39/12 . Canard-type aircraft
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- 2201/00 Unmanned aerial vehicles; Equipment therefor**
- 2201/02 . characterized by type of aircraft
- 2201/021 . . Airplanes, i.e. having wings and tail planes
- 2201/022 . . Balloons, blimps or airships
- 2201/024 . . Helicopters, or autogiros
- 2201/025 . . Ornithopters, i.e. generating lift and propulsion by flapping wings or insect like means
- 2201/027 . . Flying platforms
- 2201/028 . . of all-wing types
- 2201/04 . characterised by type of power plant
- 2201/042 . . by electric motors; Electric power sources therefor, e.g. fuel cells, solar panels or batteries
- 2201/044 . . by internal combustion engines, e.g. oscillating piston or rotary piston engines
- 2201/046 . . by rocket engines, ramjets, or pulse-reactors
- 2201/048 . . by jet turbines, or turbofans
- 2201/06 . characterised by in-flight supply of energy
- 2201/063 . . by refueling
- 2201/066 . . by recharging of batteries, e.g. by induction
- 2201/08 . characterised by the launching method
- 2201/082 . . Released from other aircraft
- 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](#))
- 2201/10 . characterised by the lift producing means
- 2201/101 . . Lifting aerostatically, e.g. using lighter-than-air gases in chambers
- 2201/102 . . Deployable wings, e.g. foldable or morphing wings
- 2201/104 . . Fixed wings
- 2201/105 . . Inflatable wings
- 2201/107 . . Parachutes; Parasails; Kites; Membranes
- 2201/108 . . using rotors, or propellers
- 2201/12 . adapted for particular use
- 2201/121 . . for dropping bombs; for electronic warfare; Flying bombs
- 2201/122 . . as communication relays, e.g. high altitude platforms
- 2201/123 . . for imaging, or topography
- 2201/125 . . for meteorology
- 2201/126 . . adapted for performing different kinds of missions, e.g. multipurpose use
- 2201/127 . . for photography, or video recording, e.g. by using cameras
- 2201/128 . . for transporting goods other than bombs
- 2201/14 . characterised by flight control
- 2201/141 . . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
- 2201/143 . . . adapted for flying in formations
- 2201/145 . . . using satellite radio beacon positioning systems, e.g. GPS
- 2201/146 . . Remote controls
- 2201/148 . . . using tethers for connecting to ground station
- 2201/16 . characterised by type of propulsion unit
- 2201/162 . . using ducted fans or propellers
- 2201/165 . . using unducted propellers
- 2201/167 . . using rockets, ramjets, pulse jets, plasma, or the like
- 2201/18 . characterised by landing method
- 2201/182 . . by being caught in mid-air, or next to the ground, e.g. using a net
- 2201/185 . . by deploying parachutes, or the like
- 2201/187 . . by landing horizontally, e.g. on a runway
- 2201/20 . Methods for transport, or storage of unmanned aerial vehicles
- 2201/201 . . in containers
- 2201/203 . . in rucksacks, or bags to be carried by persons
- 2201/205 . . by waterborne vehicles, e.g. ships or submarines or by hovercraft
- 2201/206 . . by airborne vehicles, e.g. airplanes or helicopters
- 2201/208 . . by landborne vehicles, e.g. trucks, lorries, tanks or cars
- 2201/22 . having stealth characteristics
- 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