

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64C AEROPLANES; HELICOPTERS

NOTE

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

WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
[B64C 35/02](#) covered by [B64C 35/00](#)
- {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		
1/0009	. {Aerodynamic aspects}		
2001/0018	. {comprising two decks adapted for carrying passengers only}		
2001/0027	. . {arranged one above the other}	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)
2001/0036	. . {arranged side by side at the same level}	1/1407	. . {Doors; surrounding frames}
2001/0045	. {Fuselages characterised by special shapes}	1/1415	. . . {Cargo doors, e.g. incorporating ramps}
2001/0054	. {Fuselage structures substantially made from particular materials}	1/1423	. . . {Passenger doors}
2001/0063	. . {from wood}	1/143	. . . . {of the plug type}
2001/0072	. . {from composite materials}	1/1438	. . . . {of the sliding type}
2001/0081	. . {from metallic materials}	1/1446	. . . {Inspection hatches (for engine cowls B64D 29/08)}
2001/009	. {comprising decompression panels or valves for pressure equalisation in fuselages or floors}	1/1453	. . . {Drain masts}
1/06	. Frames; Stringers; Longerons {; Fuselage sections}	1/1461	. . . {Structures of doors or surrounding frames}
1/061	. . {Frames}	1/1469	. . . {Doors between cockpit and cabin}
1/062	. . . {specially adapted to absorb crash loads}	1/1476	. . {Canopies; Windscreens or similar transparent elements}
1/063	. . . {Folding or collapsing to reduce overall dimensions, e.g. foldable tail booms}	1/1484	. . . {Windows (B64C 1/1492 takes precedence)}
1/064	. . {Stringers; Longerons}	1/1492	. . . {Structure and mounting of the transparent elements in the window or windscreen}
1/065	. . {Spars}	1/16	. specially adapted for mounting power plant
1/066	. . {Interior liners}	1/18	. Floors
1/067	. . . {comprising means for preventing icing or condensation conditions}	1/20	. . specially adapted for freight
1/068	. . {Fuselage sections}	1/22	. Other structures integral with fuselages to facilitate loading {, e.g. cargo bays, cranes}
1/0683	. . . {Nose cones}	1/24	. Steps mounted on, and retractable within, fuselages
1/0685	. . . {Tail cones}	1/26	. Attaching the wing or tail units or stabilising surfaces
1/069	. . . {Joining arrangements therefor}	1/28	. Parts of fuselage relatively movable to improve pilots view
1/08	. . Geodetic or other open-frame structures	1/30	. Parts of fuselage relatively movable to reduce overall dimensions of aircraft
1/10	. . Bulkheads	1/32	. Severable or jettisonable parts of fuselage facilitating emergency escape
1/12	. . Construction or attachment of skin panels	1/34	. comprising inflatable structural components

1/36	. adapted to receive antennas or radomes	5/02	. Tailplanes
1/38	. Constructions adapted to reduce effects of aerodynamic or other external heating	5/04	. Noseplanes
1/40	. Sound or heat insulation {, e.g. using insulation blankets}	5/06	. Fins (B64C 5/08 takes precedence)
1/403	. . {Arrangement of fasteners specially adapted therefor, e.g. of clips}	5/08	. mounted on, or supported by, wings
1/406	. . . {in combination with supports for lines, e.g. for pipes or cables}	5/10	. adjustable
3/00	Wings (ornithopter wings B64C 33/02)	5/12	. . for retraction against or within fuselage or nacelle
3/10	. Shape of wings	5/14	. . Varying angle of sweep
3/14	. . Aerofoil profile	5/16	. . about spanwise axes
3/141	. . . {Circulation Control Airfoils}	5/18	. . in area
2003/142	. . . {with variable camber along the airfoil chord}	7/00	Structures or fairings not otherwise provided for
2003/143	. . . {comprising interior channels}	7/02	. Nacelles
2003/144	. . . {including a flat surface on either the extrados or intrados}		
2003/145	. . . {comprising 'Gurney' flaps}	9/00	Adjustable control surfaces or members, e.g. rudders (trimming stabilising surfaces B64C 5/10)
2003/146	. . . {comprising leading edges of particular shape}	2009/005	. {Ailerons}
2003/147	. . . {comprising trailing edges of particular shape}	9/02	. Mounting or supporting thereof
2003/148	. . . {comprising protuberances, e.g. for modifying boundary layer flow}	9/04	. with compound dependent movements
2003/149	. . . {for supercritical or transonic flow}	9/06	. with two or more independent movements
3/16	. . Frontal aspect	9/08	. bodily displaceable
3/18	. Spars; Ribs; Stringers	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)
3/182	. . {Stringers, longerons}	9/12	. surfaces of different type or function being simultaneously adjusted
3/185	. . {Spars}	9/14	. forming slots
3/187	. . {Ribs}	2009/143	. . {comprising independently adjustable elements for closing or opening the slot between the main wing and leading or trailing edge flaps}
3/20	. Integral or sandwich constructions	9/146	. . {at an other wing location than the rear or the front (wings provided with fixed fences or spoilers B64C 3/58)}
3/22	. Geodetic or other open-frame structures	9/16	. . at the rear of the wing
3/24	. Moulded or cast structures	9/18	. . . by single flaps
3/26	. Construction, shape, or attachment of separate skins, e.g. panels	9/20	. . . by multiple flaps
3/28	. Leading or trailing edges attached to primary structures, e.g. forming fixed slots	9/22	. . at the front of the wing
3/30	. comprising inflatable structural components	9/24	. . . by single flap
3/32	. specially adapted for mounting power plant	9/26	. . . by multiple flaps
3/34	. Tanks constructed integrally with wings, e.g. for fuel or water	9/28	. . by flaps at both the front and rear of the wing operating in unison
3/36	. Structures adapted to reduce effects of aerodynamic or other external heating	9/30	. Balancing hinged surfaces, e.g. dynamically
3/38	. Adjustment of complete wings or parts thereof	9/32	. Air braking surfaces
3/385	. . {Variable incidence wings}	9/323	. . {associated with wings}
3/40	. . Varying angle of sweep	9/326	. . {associated with fuselages}
3/42	. . Adjusting about chordwise axes	9/34	. collapsing or retracting against or within other surfaces or other members
3/44	. . Varying camber	9/36	. . the members being fuselages or nacelles
2003/445	. . . {by changing shape according to the speed, e.g. by morphing}	9/38	. Jet flaps
3/46	. . . by inflatable elements	11/00	Propellers, e.g. of ducted type; Features common to propellers and rotors for rotorcraft
3/48	. . . by relatively-movable parts of wing structures		NOTE
3/50	. . . by leading or trailing edge flaps		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
3/52	. . Warping	11/001	. {Shrouded propellers}
3/54	. . Varying in area	11/002	. {Braking propellers, e.g. for measuring the power output of an engine}
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		
3/58	. provided with fences or spoilers (adjustable for control purposes B64C 9/00)		
5/00	Stabilising surfaces		

- 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**

<u>Aircraft kinds or components not otherwise provided for</u>	
27/00	Rotorcraft; Rotors peculiar thereto
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}	27/57	. . . automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust
27/026	. . . {Devices for converting a fixed wing into an autorotation rotor and viceversa}	27/58	. . Transmitting means, e.g. interrelated with initiating means or means acting on blades (means acting on blades B64C 27/72)
27/027	. . {Control devices using other means than the rotor}	27/59	. . . mechanical
27/028	. . {Other constructional elements; Rotor balancing}	27/605	. . . . including swash plate, spider or cam mechanisms
27/04	. Helicopters	27/615	. . . . including flaps mounted on blades
27/06	. . with single rotor	27/625	. . . . including rotating masses or servo rotors
27/08	. . with two or more rotors	27/635	. . . . specially for controlling lag-lead movements of blades
27/10	. . . arranged coaxially	27/64	. . . using fluid pressure, e.g. having fluid power amplification
27/12	. . Rotor drives	27/68	. . . using electrical energy, e.g. having electrical power amplification
2027/125	. . . {including toroidal transmissions, e.g. of the CVT type}	27/72	. . Means acting on blades
27/14	. . . Direct drive between power plant and rotor hub	2027/7205	. . . {on each blade individually, e.g. individual blade control [IBC]}
27/16	. . . Drive of rotors by means, e.g. propellers, mounted on rotor blades	2027/7211	. . . . {without flaps}
27/18	. . . . the means being jet-reaction apparatus	2027/7216	. . . . . {using one actuator per blade}
27/20	. Rotorcraft characterised by having shrouded rotors, e.g. flying platforms	2027/7222	. . . . . {using airfoil deformation}
27/22	. Compound rotorcraft, i.e. aircraft using in flight the features of both aeroplane and rotorcraft	2027/7227	. . . . . {using blowing slots actuated by piezoelectric actuators}
27/24	. . with rotor blades fixed in flight to act as lifting surfaces	2027/7233	. . . . . {using higher-harmonic control [HHC]}
27/26	. . characterised by provision of fixed wings	2027/7238	. . . . . {by controlling existing swash plate actuators}
27/28	. . with forward-propulsion propellers pivotable to act as lifting rotors	2027/7244	. . . . . {by using dedicated actuators}
27/30	. . with provision for reducing drag of inoperative rotor	2027/725	. . . . . {using jets controlled by piezoelectric actuators}
27/32	. Rotors	2027/7255	. . . . . {using one or more swash plates}
27/322	. . {Blade travel limiting devices, e.g. droop stops}	2027/7261	. . . . . {with flaps}
27/325	. . {Circulation-control rotors}	2027/7266	. . . . . {actuated by actuators}
27/327	. . {Retention means relieving the stress from the arm, e.g. tie-bars}	2027/7272	. . . . . {of the electro-hydraulic type}
27/33	. . having flexing arms	2027/7277	. . . . . {of the magnetostrictive type}
27/35	. . having elastomeric joints	2027/7283	. . . . . {of the piezoelectric type}
27/37	. . having articulated joints	2027/7288	. . . . . {of the memory shape type}
27/39	. . . with individually articulated blades, i.e. with flapping or drag hinges	2027/7294	. . . . . {actuated mechanically, e.g. by means of linkages}
27/41	. . . with flapping hinge or universal joint, common to the blades	27/78	. . in association with pitch adjustment of blades of anti-torque rotor
27/43	. . . . see-saw type, i.e. two-bladed rotor	27/80	. . for differential adjustment of blade pitch between two or more lifting rotors
27/45	. . . with a feathering hinge only	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
27/46	. . Blades	2027/8209	. . {Electrically driven tail rotors}
27/463	. . . {Blade tips}	2027/8218	. . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}
27/467	. . . Aerodynamic features	2027/8227	. . {comprising more than one rotor}
27/473	. . . Constructional features	2027/8236	. . {including pusher propellers}
2027/4733	. . . . {Rotor blades substantially made from particular materials}	2027/8245	. . {using air jets}
2027/4736	. . . . . {from composite materials}	2027/8254	. . {Shrouded tail rotors, e.g. "Fenestron" fans}
27/48	. . . . Root attachment to rotor head	2027/8263	. . {comprising in addition rudders, tails, fins, or the like}
27/50	. . . . Blades foldable to facilitate stowage of aircraft	2027/8272	. . . {comprising fins, or movable rudders}
27/51	. Damping of blade movements	2027/8281	. . . {comprising horizontal tail planes}
27/52	. Tilting of rotor bodily relative to fuselage (of see-saw type construction B64C 27/43)	2027/829	. . . {comprising a V-tail units}
27/54	. Mechanisms for controlling blade adjustment or movement relative to rotor head, e.g. lag-lead movement	29/00	Aircraft capable of landing or taking-off vertically, e.g. vertical take-off and landing [VTOL] aircraft (rotorcraft B64C 27/00)
27/56	. . characterised by the control initiating means, e.g. manually actuated		

CPC - 2026.05