

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.

WARNING

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](#)

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	1/32	. Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats B64D 25/10)
1/10	. . Bulkheads		
1/12	. . Construction or attachment of skin panels		

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

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

27/625	. . . . including rotating masses or servo rotors	29/005	. . . {the motors being fixed relative to the fuselage}
27/635	. . . . specially for controlling lag-lead movements of blades	29/0058	. . . {with vertical jet}
27/64	. . . . using fluid pressure	29/0066	. . . {with horizontal jet and jet deflector}
27/68	. . . . using electrical energy	29/0075	. . . {the motors being tiltable relative to the fuselage}
27/72	. . Means acting on blades	29/0083	. . {the lift during taking-off being created by several motors of different type}
2027/7205	. . . {on each blade individually, e.g. individual blade control [IBC]}	29/0091	. {Accessories not provided for elsewhere}
2027/7211	. . . . {without flaps}	29/02	. having its flight directional axis vertical when grounded
2027/7216	. . . . . {using one actuator per blade}	29/04	. . characterised by jet-reaction propulsion
2027/7222	. . . . . {using airfoil deformation}	30/00	Supersonic-type aircraft
2027/7227	. . . . . {using blowing slots actuated by piezoelectric actuators}	31/00	Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft
2027/7233	. . . . . {using higher-harmonic control [HHC]}	31/02	. Gliders, e.g. sailplanes (hang-gliders B64C 31/028)
2027/7238	. . . . . {by controlling existing swash plate actuators}	31/024	. . with auxiliary power plant
2027/7244	. . . . . {by using dedicated actuators}	31/028	. Hang-glider-type aircraft; Microlight-type aircraft
2027/725	. . . . . {using jets controlled by piezoelectric actuators}	31/0285	. . {Safety devices}
2027/7255	. . . . . {using one or more swash plates}	31/032	. . having delta shaped wing
2027/7261	. . . . . {with flaps}	31/036	. . having parachute-type wing (parachutes B64D 17/00)
2027/7266	. . . . . {actuated by actuators}	31/04	. Man-powered aircraft (ornithopters B64C 33/00)
2027/7272	. . . . . {of the electro-hydraulic 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)
2027/7277	. . . . . {of the magnetostrictive type}	2031/065	. . {of inflatable wing type}
2027/7283	. . . . . {of the piezoelectric type}	33/00	Ornithopters
2027/7288	. . . . . {of the memory shape type}	33/02	. Wings; Actuating mechanisms therefor
2027/7294	. . . . . {actuated mechanically, e.g. by means of linkages}	33/025	. . {the entire wing moving either up or down}
27/78	. . in association with pitch adjustment of blades of anti-torque rotor	35/00	Flying-boats; Seaplanes (alighting gear B64C 25/00)
27/80	. . for differential adjustment of blade pitch between two or more lifting rotors	35/001	. {with means for increasing stability on the water}
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	35/002	. . {using adjustable auxiliary floats}
2027/8209	. . {Electrically driven tail rotors}	35/003	. . {using auxiliary floats at the wing tips}
2027/8218	. . {wherein the rotor or the jet axis is inclined with respect to the longitudinal horizontal or vertical plane of the helicopter}	35/005	. {with propellers, rudders or brakes acting in the water}
2027/8227	. . {comprising more than one rotor}	35/006	. {with lift generating devices}
2027/8236	. . {including pusher propellers}	35/007	. {Specific control surfaces therefor}
2027/8245	. . {using air jets}	35/008	. {Amphibious sea planes}
2027/8254	. . {Shrouded tail rotors, e.g. "Fenestron" fans}	37/00	Convertible aircraft (vehicles capable of travelling in or on different media B60F)
2027/8263	. . {comprising in addition rudders, tails, fins, or the like}	37/02	. Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft B64D)
2027/8272	. . . {comprising fins, or movable rudders}	39/00	Aircraft not otherwise provided for
2027/8281	. . . {comprising horizontal tail planes}	39/001	. {Flying saucers}
2027/829	. . . {comprising a V-tail units}	39/003	. {with wings, paddle wheels, bladed wheels, moving or rotating in relation to the fuselage (rotorcraft B64C 27/00 , ornithopters B64C 33/00)}
29/00	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)	39/005	. . {about a horizontal transversal axis}
29/0008	. {having its flight directional axis horizontal when grounded}	39/006	. . {about a vertical axis}
29/0016	. . {the lift during taking-off being created by free or ducted propellers or by blowers}	39/008	. . {about a longitudinal axis}
29/0025	. . . {the propellers being fixed relative to the fuselage}	39/02	. characterised by special use
29/0033	. . . {the propellers being tiltable relative to the fuselage}	39/022	. . {Tethered aircraft}
29/0041	. . {the lift during taking-off being created by jet motors}	39/024	. . {of the remote controlled vehicle type, i.e. RPV}
		39/026	. . {for use as personal propulsion unit}
		39/028	. . {Microsized aircraft}

39/04	. having multiple fuselages or tail booms	2201/14	. characterised by flight control
39/06	. having disc- or ring-shaped wings {(B64C 39/001 takes precedence)}	2201/141	. . autonomous, i.e. by navigating independently from ground or air stations, e.g. by using inertial navigation systems [INS]
39/062	. . {having annular wings}	2201/143	. . . adapted for flying in formations
39/064	. . . {with radial airflow}	2201/145	. . . using satellite radio beacon positioning systems, e.g. GPS
39/066	. . {having channel wings}	2201/146	. . Remote controls
39/068	. . {having multiple wings joined at the tips}	2201/148	. . . using tethers for connecting to ground station
39/08	. having multiple wings {(B64C 39/06 takes precedence)}	2201/16	. characterised by type of propulsion unit
39/10	. All-wing aircraft {(B64C 39/001 takes precedence)}	2201/162	. . using ducted fans or propellers
2039/105	. {of blended wing body type}	2201/165	. . using unducted propellers
39/12	. Canard-type aircraft	2201/167	. . using rockets, ramjets, pulse jets, plasma, or the like
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2201/00	Unmanned aerial vehicles; Equipment therefor	2201/18	. characterised by landing method
2201/02	. characterized by type of aircraft	2201/182	. . by being caught in mid-air, or next to the ground, e.g. using a net
2201/021	. . Airplanes, i.e. having wings and tail planes	2201/185	. . by deploying parachutes, or the like
2201/022	. . Balloons, blimps or airships	2201/187	. . by landing horizontally, e.g. on a runway
2201/024	. . Helicopters, or autogiros	2201/20	. Methods for transport, or storage of unmanned aerial vehicles
2201/025	. . Ornithopters, i.e. generating lift and propulsion by flapping wings or insect like means	2201/201	. . in containers
2201/027	. . Flying platforms	2201/203	. . in rucksacks, or bags to be carried by persons
2201/028	. . of all-wing types	2201/205	. . by waterborne vehicles, e.g. ships or submarines or by hovercraft
2201/04	. characterised by type of power plant	2201/206	. . by airborne vehicles, e.g. airplanes or helicopters
2201/042	. . by electric motors; Electric power sources therefor, e.g. fuel cells, solar panels or batteries	2201/208	. . by landborne vehicles, e.g. trucks, lorries, tanks or cars
2201/044	. . by internal combustion engines, e.g. oscillating piston or rotary piston engines	2201/22	. having stealth characteristics
2201/046	. . by rocket engines, ramjets, or pulse-reactors	2203/00	Flying model aircraft, flying toy aircraft
2201/048	. . by jet turbines, or turbofans	2211/00	Modular constructions of airplanes or helicopters
2201/06	. characterised by in-flight supply of energy	2220/00	Active noise reduction systems
2201/063	. . by refueling	2230/00	Boundary layer controls
2201/066	. . by recharging of batteries, e.g. by induction	2230/02	. by using acoustic waves generated by transducers
2201/08	. characterised by the launching method	2230/04	. by actively generating fluid flow
2201/082	. . Released from other aircraft	2230/06	. by explicitly adjusting fluid flow, e.g. by using valves, variable aperture or slot areas, variable pump action or variable fluid pressure
2201/084	. . using catapults	2230/08	. by influencing fluid flow by means of surface cavities, i.e. net fluid flow is null
2201/086	. . by taking-off horizontally by own power, e.g. from a runway	2230/10	. by influencing fluid flow by heating using other means than combustion
2201/088	. . Vertical take-off using special means (for helicopters B64C 2201/024; for balloons B64C 2201/022)	2230/12	. by using electromagnetic tiles, fluid ionizers, static charges or plasma
2201/10	. characterised by the lift producing means	2230/14	. achieving noise reductions
2201/101	. . Lifting aerostatically, e.g. using lighter-than-air gases in chambers	2230/16	. by blowing other fluids over the surface than air, e.g. He, H, O ₂ or exhaust gases
2201/102	. . Deployable wings, e.g. foldable or morphing wings	2230/18	. by using small jets that make the fluid flow oscillate
2201/104	. . Fixed wings	2230/20	. by passively inducing fluid flow, e.g. by means of a pressure difference between both ends of a slot or duct
2201/105	. . Inflatable wings	2230/22	. by using a surface having multiple apertures of relatively small openings other than slots
2201/107	. . Parachutes; Parasails; Kites; Membranes	2230/24	. by using passive resonance cavities, e.g. without transducers
2201/108	. . using rotors, or propellers	2230/26	. by using rib lets or hydrophobic surfaces
2201/12	. adapted for particular use	2230/28	. at propeller or rotor blades
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		