

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64C AEROPLANES; HELICOPTERS (air-cushion vehicles B60V)

Note(s)

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.

Subclass index

STRUCTURES, FAIRINGS

- Features common to different elements.....1/00
- Fuselages; wings; stabilising surfaces.....1/00, 3/00, 5/00
- Other structural elements.....7/00

PROPELLERS, FLIGHT CONTROL

- Propellers.....11/00
- Adjustable control surfaces or members; control systems.....9/00, 13/00
- Control by jet reaction.....15/00
- Stabilisation and controls not otherwise provided for.....17/00, 19/00

MODIFYING LIFT BY ACTION ON AIR-FLOW.....13/00, 21/00, 23/00

ALIGHTING GEAR.....25/00

AIRCRAFT KINDS AND THEIR COMPONENTS NOT OTHERWISE PROVIDED FOR

- Supersonic.....30/00
- Seaplanes.....35/00
- Aircraft intended to be sustained without power plant; powered hand-glider-type aircraft; microlight aircraft.....31/00
- Convertible aircraft.....37/00
- Vertical-take-off or landing aircraft.....29/00
- Rotorcraft; ornithopters.....27/00, 33/00
- Others.....39/00

Aircraft structures or fairings

1/00 Fuselages; Constructional features common to fuselages, wings, stabilising surfaces, or the like

- (aerodynamical features common to fuselages, wings, stabilising surfaces, or the like B64C 23/00; flight-deck installations B64D)
- 1/06 • Frames; Stringers; Longerons
- 1/08 • • Geodetic or other open-frame structures
- 1/10 • • Bulkheads
- 1/12 • • Construction or attachment of skin panels
- 1/14 • Windows; Doors; Hatch covers or access panels; Surrounding frame structures; Canopies; Windscreens (fairings movable in conjunction with undercarriage elements B64C 25/16; bomb doors B64D 1/06)
- 1/16 • specially adapted for mounting power plant
- 1/18 • Floors
- 1/20 • • specially adapted for freight
- 1/22 • Other structures integral with fuselages to facilitate loading
- 1/24 • Steps mounted on, and retractable within, fuselages (readily removable B64D 9/00)
- 1/26 • Attaching the wing or tail units or stabilising surfaces

- 1/28 • Parts of fuselage relatively movable to improve pilots view
- 1/30 • Parts of fuselage relatively movable to reduce overall dimensions of aircraft
- 1/32 • Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats B64D 25/10)
- 1/34 • comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)
- 1/36 • adapted to receive aerials or radomes (aerials or radomes per se H01Q)
- 1/38 • Constructions adapted to reduce effects of aerodynamic or other external heating
- 1/40 • Sound or heat insulation
- 3/00 Wings** (stabilising surfaces B64C 5/00; ornithopter wings B64C 33/02)
- 3/10 • Shape of wings
- 3/14 • • Aerofoil profile
- 3/16 • • Frontal aspect
- 3/18 • Spars; Ribs; Stringers (attaching wing unit to fuselage B64C 1/26)
- 3/20 • Integral or sandwich constructions (layered products or sandwich constructions in general B32B)

- 3/22 • Geodetic or other open-frame structures
- 3/24 • Moulded or cast structures
- 3/26 • Construction, shape, or attachment of separate skins, e.g. panels
- 3/28 • Leading or trailing edges attached to primary structures, e.g. forming fixed slots
- 3/30 • comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)
- 3/32 • specially adapted for mounting power plant
- 3/34 • Integrally-constructed tanks, e.g. for fuel (other aircraft fuel tanks or fuel systems B64D)
- 3/36 • Structures adapted to reduce effects of aerodynamic or other external heating
- 3/38 • Adjustment of complete wings or parts thereof
- 3/40 • • Varying angle of sweep
- 3/42 • • Adjusting about chordwise axes
- 3/44 • • Varying camber
- 3/46 • • • by inflatable elements (connection of valves to inflatable elastic bodies B60C 29/00)
- 3/48 • • • by relatively-movable parts of wing structures
- 3/50 • • • by leading or trailing edge flaps (ailerons B64C 9/00)
- 3/52 • • Warping
- 3/54 • • Varying in area (flaps extendable to increase camber B64C 3/44)
- 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** (attaching stabilising surfaces to fuselage B64C 1/26)
- 5/02 • Tailplanes (fins B64C 5/06)
- 5/04 • Noseplanes
- 5/06 • Fins (specially for wings B64C 5/08)
- 5/08 • mounted on, or supported by, wings
- 5/10 • adjustable
- 5/12 • • for retraction against or within fuselage or nacelle
- 5/14 • • Varying angle of sweep
- 5/16 • • about spanwise axes
- 5/18 • • in area

- 7/00 Structures or fairings not otherwise provided for**
- 7/02 • Nacelles

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- 9/00 Adjustable control surfaces or members, e.g. rudders** (trimming stabilising surfaces B64C 5/10; systems for actuating flying-control surfaces B64C 13/00)
 - 9/02 • Mounting or supporting thereof
 - 9/04 • with compound dependent movements
 - 9/06 • with two or more independent movements
 - 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)
 - 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)
- 9/34 • 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)
- 11/02 • Hub construction
- 11/04 • • Blade mountings
- 11/06 • • • for variable-pitch blades
- 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
- 11/22 • • • Solid blades
- 11/24 • • • Hollow blades
- 11/26 • • • Fabricated blades
- 11/28 • • • Collapsible or foldable blades
- 11/30 • Blade pitch-changing mechanisms
- 11/32 • • mechanical
- 11/34 • • • automatic
- 11/36 • • • non-automatic
- 11/38 • • fluid, e.g. hydraulic
- 11/40 • • • automatic
- 11/42 • • • non-automatic
- 11/44 • • electric
- 11/46 • Arrangements of, or constructional features peculiar to, multiple propellers
- 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
- 13/06 • • • adjustable to suit individual persons
- 13/08 • • • Trimming zero positions
- 13/10 • • • comprising warning devices
- 13/12 • • • Dual control apparatus
- 13/14 • • • lockable (locking in position to suit individual persons B64C 13/06)
- 13/16 • • actuated automatically, e.g. responsive to gust detectors
- 13/18 • • • using automatic pilot (automatic pilots per se G05D 1/00)
- 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
- 13/36 • • • 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

15/00 Attitude, flight direction, or altitude control by jet reaction (details of jet-engine plants, e.g. of nozzles or jet pipes, F02K) [3]

- 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
- 21/04 • • 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

- 23/02 • by means of rotating members of cylindrical or similar form
- 23/04 • by generating shock waves
- 23/06 • by generating vortices
- 23/08 • using Magnus effect

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

- 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
- 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 elements which contact the ground or similar surface (arrestor hooks B64C 25/68)
- 25/34 • • wheeled type, e.g. multi-wheeled bogies
- 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
- 25/42 • • Arrangement or adaptation 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) [4]
- 25/44 • • • Actuating mechanisms
- 25/46 • • • • Brake regulators for preventing skidding or aircraft somersaulting
- 25/48 • • • • differentially operated for steering purposes
- 25/50 • • Steerable undercarriages; Shimmy-damping (steering devices applicable to land vehicles B62D)
- 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-absorbers *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 • Arrestor hooks (arresting gear, e.g. on aircraft carriers, B64F)

Aircraft kinds or components not otherwise provided for

- 27/00 Rotorcraft; Rotors peculiar thereto** (alighting gear B64C 25/00)
- 27/02 • Gyroplanes
- 27/04 • Helicopters
- 27/06 • • with single rotor
- 27/08 • • with two or more rotors
- 27/10 • • • arranged coaxially
- 27/12 • • Rotor drives
- 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

B64C

- 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)
- 27/33
 - • having flexing arms [3]
- 27/35
 - • having elastomeric joints [3]
- 27/37
 - • having articulated joints (B64C 27/33, B64C 27/35 take precedence) [3]
- 27/39
 - • • with individually articulated blades, i.e. with flapping or drag hinges [3]
- 27/41
 - • • with flapping hinge or universal joint, common to the blades [3]
- 27/43
 - • • • see-saw type, i.e. two-bladed rotor [3]
- 27/45
 - • • with a feathering hinge only [3]
- 27/46
 - • Blades
- 27/467
 - • • Aerodynamic features [6]
- 27/473
 - • • Constructional features [6]
- 27/48
 - • • • Root attachment to rotor head
- 27/50
 - • • • Blades foldable to facilitate stowage of aircraft
- 27/51
 - Damping of blade movements [3]
- 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
 - • characterised by the control initiating means, e.g. manually actuated (B64C 27/58 takes precedence)
- 27/57
 - • • automatic or condition responsive, e.g. responsive to rotor speed, torque or thrust [3]
- 27/58
 - • Transmitting means, e.g. interrelated with initiating means or means acting on blades (initiating means B64C 27/56; means acting on blades B64C 27/72)
- 27/59
 - • • mechanical [3]
- 27/605
 - • • • including swash plate, spider or cam mechanisms [3]
- 27/615
 - • • • including flaps mounted on blades [3]
- 27/625
 - • • • including rotating masses or servo rotors [3]
- 27/635
 - • • • specially for controlling lag-lead movements of blades [3]
- 27/64
 - • • using fluid pressure, e.g. having fluid power amplification [3]
- 27/68
 - • • using electrical energy, e.g. having electrical power amplification [3]
- 27/72
 - • Means acting on blades
- 27/78
 - • in association with pitch adjustment of blades of anti-torque rotor

- 27/80
 - • for differential adjustment of blade pitch between two or more lifting rotors
- 27/82
 - characterised by the provision of an auxiliary rotor or fluid-jet device for counter-balancing lifting-rotor torque or changing direction of rotorcraft
- 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; details of jet-engine plants, e.g. of nozzles or jet pipes, F02K)
- 29/02
 - having its flight directional axis vertical when grounded
- 29/04
 - • characterised by jet-reaction propulsion
- 30/00
 - **Supersonic type aircraft [3]**
- 31/00
 - **Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft**
- 31/02
 - Gliders, e.g. sailplanes (hang-gliders B64C 31/028) [6]
- 31/024
 - • with auxiliary power plant [6]
- 31/028
 - Hang-glider-type aircraft; Microlight-type aircraft [6]
- 31/032
 - • having delta shaped wing [6]
- 31/036
 - • having parachute-type wing (parachutes B64D 17/00) [6]
- 31/04
 - Man-powered aircraft (ornithopters B64C 33/00)
- 31/06
 - Kites (hang-gliders B64C 31/028; toy aspects A63H 27/08; towed targets F41J)
- 33/00
 - **Ornithopters**
- 33/02
 - Wings; Actuating mechanisms therefor
- 35/00
 - **Flying-boats; Seaplanes** (alighting gear B64C 25/00)
- 35/02
 - Flying-boat hulls [3]
- 37/00
 - **Convertible aircraft** (vehicles capable of travelling in or on different media B60F)
- 37/02
 - Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft B64D)
- 39/00
 - **Aircraft not otherwise provided for**
- 39/02
 - characterised by special use
- 39/04
 - having multiple fuselages or tail booms [3]
- 39/06
 - having disc- or ring-shaped wings [3]
- 39/08
 - having multiple wings [3]
- 39/10
 - All-wing aircraft [3]
- 39/12
 - Canard-type aircraft [3]

99/00 Subject matter not provided for in other groups of this subclass [2010.01]