B64 AIRCRAFT; AVIATION; COSMONAUTICS

B64B LIGHTER-THAN-AIR AIRCRAFT (ground installations for aircraft in general B64F)

1/00 **Lighter-than-air aircraft**
1/02 . Non-rigid airships (B64B 1/58 takes precedence; balloons B64B 1/40)
1/04 . . the profile being maintained by ties or cords connecting opposite surfaces
1/06 . Rigid airships; Semi-rigid airships (B64B 1/58 takes precedence)
1/08 . . Framework construction
1/10 . . Tail unit construction (B64B 1/12 takes precedence)
1/12 . . Movable control surfaces
1/14 . . Outer covering
1/16 . . . rigid
1/18 . . . Attachment to structure
1/20 . . provided with wings or stabilising surfaces
1/22 . . Arrangement of cabins or gondolas
1/24 . . Arrangement of propulsion plant (B64B 1/34 takes precedence)
1/26 . . . housed in ducts
1/28 . . . housed in nacelles
1/30 . . . Arrangement of propellers
1/32 . . . . surrounding hull
1/34 . . . . of lifting propellers
1/36 . . Arrangement of jet reaction apparatus for propulsion or directional control
1/38 . . Controlling position of centre of gravity
1/40 . Balloons (B64B 1/58 takes precedence; toy balloons A63H 27/10)
1/42 . . Construction or attachment of stabilising surfaces
1/44 . . adapted to maintain predetermined altitude
1/46 . . associated with apparatus to cause bursting
1/48 . . . to enable load to be dropped by parachute
1/50 . . Captive balloons
1/52 . . . attaching trailing entanglements
1/54 . . . connecting two or more balloons in superimposed relationship
1/56 . . . stabilised by rotary motion
1/58 . Arrangements or construction of gas-bags; Filling arrangements (connection of valves to inflatable elastic bodies B60C 29/00)
1/60 . . Gas-bags surrounded by separate containers of inert gas
1/62 . . Controlling gas pressure, heating, cooling, or discharging gas
1/64 . . Gas-valve operating mechanisms
1/66 . Mooring attachments (mooring masts B64F 1/14)
1/68 . Water flotation gear
1/70 . Ballasting arrangements

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. **[3]**

Subclass Index

Aircraft structures or fairings (boundary-layer controls B64C 21/00)

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

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 (arrester 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 . Arrester 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
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]**

B64D EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF POWER PLANTS OR PROPULSION TRANSMISSIONS

Subclass Index

1/00 **Dropping, ejecting, releasing, or receiving articles, liquids, or the like, in flight** (with respect to weapon sights, F41G takes precedence; parachutes B64D 17/00; ejectable seats B64D 25/10; ejectable capsules B64D 25/12; refuelling during flight B64D 39/00; launching apparatus for projecting projectiles or missiles F41F 1/00, F41F 7/00; rocket or torpedo launchers F41F 3/00)

1/02 . Dropping, ejecting, or releasing articles (jettisonable fuel reservoirs B64D 37/12)

1/04 . . the articles being explosive, e.g. bombs (arming or setting bomb fuzes F42C)

1/06 . . . Bomb releasing; Bomb doors

1/08 . . the articles being load-carrying devices

1/10 . . . Stowage arrangements for the devices in aircraft

1/12 . . . Releasing

1/14 . . . Absorbing landing shocks

1/16 . Dropping or releasing powdered, liquid or gaseous matter, e.g. for fire-fighting (jettisoning fuel B64D 37/26) **[5]**

1/18 . . by spraying, e.g. insecticides (spraying apparatus in general B05B)

1/20 . . for sky-writing

1/22 . Taking-up articles from earth's surface

3/00 **Aircraft adaptations to facilitate towing or being towed** (B64D 39/00 takes precedence; ground installations for launching or towing aircraft B64F; towing ropes per se D07B)

3/02 . for towing targets (towed targets per se F41J)

5/00 **Aircraft transported by aircraft, e.g. for release or reberthing during flight** (flying units formed by separate aircraft B64C 37/02)

7/00 **Arrangement of military equipment, e.g. armaments, armament accessories, or military shielding, in aircraft**; **Adaptations of armament mountings for aircraft** (dropping bombs or the like B64D 1/00; armaments or mountings therefor per se F41)

7/02 . the armaments being firearms

7/04 . . fixedly mounted

7/06 . . movably mounted

7/08 . Arrangement of rocket launchers (rocket launchers per se, e.g. rocket pods, F41F 3/06)

9/00 **Equipment for handling freight**; **Equipment for facilitating passenger embarkation or the like** (emergency equipment B64D 17/00, B64D 19/00, B64D 25/00; structures integral with fuselage to facilitate loading, fuselage floors specially adapted for freight, steps mounted on, and retractable within, aircraft B64C; ground installations B64F)

10/00 **Flying suits** (helmets in general A42B 3/00; breathing helmets A62B 18/00) **[3]**

11/00 **Passenger or crew accommodation**; **Flight-deck installations not otherwise provided for**

11/02 . Toilet fittings (of general application A47K)

11/04 . Galleys

11/06 . Arrangements or adaptations of seats (seat constructions for emergency purposes B64D 25/04)

13/00 **Arrangements or adaptations of air-treatment apparatus for aircraft crew or passengers, or freight space** (treatment rooms with artificial climate for medical purposes A61G 10/02; respiratory apparatus in general A62B; for vehicles in general B60H)

13/02 . the air being pressurised

13/04 . . Automatic control of pressure

13/06 . the air being conditioned (pressurising B64D 13/02)
13/08 . . the air being heated or cooled

15/00 De-icing or preventing icing on exterior surfaces of aircraft (motor vehicles specially adapted for carrying de-icing equipment B60P)
15/02 . by ducted hot gas or liquid
15/04 . . Hot gas application
15/06 . . Liquid application (in general B05)
15/08 . . . exuded from surface
15/10 . . . sprayed over surface
15/12 . by electric heating (H05B 3/84 takes precedence; electric heating elements in general H05B) **[5]**
15/14 . . controlled cyclically along length of surface
15/16 . by mechanical means, e.g. pulsating mats or shoes attached to, or built into, surface
15/18 . . the surface being an aerofoil, rotor, or propeller
15/20 . Means for detecting icing or initiating de-icing
15/22 . . Automatic initiation by icing detector

17/00 Parachutes (non-canopied parachutes B64D 19/00)
17/02 . Canopy arrangement or construction
17/04 . . formed with two or more canopies arranged about a common axis
17/06 . . formed with two or more canopies arranged in a cluster
17/08 . . Secondary or shock-absorbing canopies attached to load line
17/10 . . Ribbon construction or the like
17/12 . . constructed to provide variable or non-uniform porosity over area of canopy
17/14 . . with skirt or air-deflecting panels
17/16 . . . secured to hem of main canopy
17/18 . . Vent arrangement or construction
17/20 . . . variable in area
17/22 . Load suspension
17/24 . . Rigging lines
17/26 . . . attached to hem of canopy
17/28 . . . attached to apex of canopy
17/30 . . Harnesses **[4]**
17/32 . . . Construction of quick-release box
17/34 . . adapted to control direction or rate of descent
17/36 . . incorporating friction devices or frangible connections to reduce shock loading of canopy
17/38 . . Releasable fastening devices between parachute and load or pack
17/40 . Packs
17/42 . . rigid
17/44 . . . forming part of load
17/46 . . Closing means
17/48 . . with separate pack for extractor of auxiliary parachute
17/50 . . formed with separate compartments for main canopy, rigging lines, or auxiliary parachute
17/52 . . Opening, e.g. manual
17/54 . . . automatic
17/56 . . . . responsive to barometric pressure
17/58 . . . . responsive to time-delay mechanism
17/60 . . . . by static line
17/62 . Deployment
17/64 . . by extractor parachute
17/66 . . . attached to hem of main canopy
17/68 . . . attached to apex of main canopy
17/70 . . by springs
17/72 . . by explosive or inflatable means (connection of valves to inflatable elastic bodies B60C 29/00)
17/74 . . Sequential deployment of a plurality of canopies
17/76 . . facilitated by method of folding or packing
17/78 . in association with other load-retarding apparatus
17/80 . in association with aircraft, e.g. for braking thereof

19/00 Non-canopied parachutes
19/02 . Rotary-wing parachutes

21/00 Testing of parachutes

23/00 Training of parachutists

25/00 Emergency apparatus or devices, not otherwise provided for (parachutes B64D 17/00, B64D 19/00; jettisoning of fuel tanks or fuel B64D 37/00; safety belts or body harnesses in general A62B 35/00; safety belts or body harnesses for land vehicles B60R 22/00; severable or jettisonable parts of fuselage facilitating emergency escape B64C) **[4]**
25/02 . Supports or holding means for living bodies (for ejector seats B64D 25/115) **[5]**
25/04 . . Seat modifications
25/06 . . Harnessing **[4]**
25/08 . Ejecting or escaping means (escape apertures B64C)
25/10 . . Ejector seats
25/102 . . . Propelling means, e.g. by a combination of catapult and rocket means (B64D 25/11, B64D 25/112 take precedence) **[5]**
25/105 . . . . by catapult means only **[5]**
25/108 . . . . by rocket means only **[5]**
25/11 . . . Controlling attitude or direction of ejector seat or associated mechanism prior to ejection **[5]**
25/112 . . . Controlling attitude or direction of ejector seat after ejection **[5]**
25/115 . . . Occupant restraining, positioning or protecting devices **[5]**
25/118 . . . Separation of occupant from seat after ejection **[5]**
25/12 . . Ejectable capsules
25/14 . . Inflatable escape chutes (connection of valves to inflatable elastic bodies B60C 29/00)
25/16 . . Dinghy stowage
25/18 . . Flotation gear (aircraft alighting gear B64C)
25/20 . . Releasing of crash-position indicators

27/00 Arrangement or mounting of power plant in aircraft; **Aircraft characterised thereby** (attitude, flight-direction, or altitude control of aircraft by jet reaction B64C)
27/02 . Aircraft characterised by the type or position of power plant (fuselages or wings adapted for mounting power plant B64C)
27/04 . . of piston type
27/06 . . . within, or attached to, wing
27/08 . . . within, or attached to, fuselage
27/10 . . of gas-turbine type (B64D 27/16 takes precedence)
27/12 . . . within, or attached to, wing
27/14 . . . within, or attached to, fuselage
27/16 . . of jet type
27/18 . . . within, or attached to, wing
27/20 . . . within, or attached to, fuselage
27/22 . . using atomic energy

27/24 . . using steam, electricity, or spring force (B64D 27/16 takes precedence)
27/26 . Aircraft characterised by construction of power-plant mounting

29/00 Power-plant nacelles, fairings, or cowlings (nacelles not otherwise provided for B64C)
29/02 . associated with wings (wings adapted for mounting power plant B64C)
29/04 . associated with fuselages
29/06 . Attaching of nacelles, fairings, or cowlings
29/08 . Inspection panels for power plants

31/00 Power plant control; **Arrangement thereof** (flying controls, conjoint control of power plant and propeller B64C)
31/02 . Initiating means
31/04 . . actuated personally
31/06 . . actuated automatically
31/08 . . . for keeping cruising speed constant
31/10 . . . for preventing asymmetric thrust upon failure of one power plant
31/12 . . . for equalising or synchronising power plants
31/14 . Transmitting means between initiating means and power plants

33/00 Arrangement in aircraft of power plant parts or auxiliaries not otherwise provided for
33/02 . of combustion air intakes (air intakes for gas-turbine plants or jet-propulsion plants per se F02C 7/04; air intakes for combustion engines in general F02M 35/00)
33/04 . of exhaust outlets or jet pipes (exhaust outlets for combustion engines in general F01N; jet pipes or nozzles for jet-propulsion plants per se F02K; plants characterised by the form or arrangement of the jet pipe or nozzle F02K) **[3]**
33/08 . of power plant cooling systems (cooling of internal-combustion engines per se F01P; cooling of gas-turbine plants or jet-propulsion plants per se F02C, F02K)
33/10 . . Radiator arrangement
33/12 . . . of retractable type

35/00 Transmitting power from power plant to propellers or rotors; **Arrangements of transmissions** (propellers or rotors per se, helicopter transmissions B64C)
35/02 . characterised by the type of power plant
35/04 . characterised by the transmission driving a plurality of propellers or rotors
35/06 . . the propellers or rotors being counter-rotating
35/08 . characterised by the transmission being driven by a plurality of power plants

37/00 Arrangements in connection with fuel supply for power plant (refuelling during flight B64D 39/00)
37/02 . Tanks (tanks constructed integrally with aircraft wings B64C; tanks in general B65D)
37/04 . . Arrangement thereof in or on aircraft
37/06 . . Constructional adaptations thereof
37/08 . . . Internal partitioning
37/10 . . . to facilitate fuel pressurisation
37/12 . . . jettisonable
37/14 . . Filling or emptying (transferring fuels to adjust aircraft trim B64C)
37/16 . . . Filling systems (ground installations for fuelling aircraft B64F)
37/18 . . . . Conditioning fuel during filling
37/20 . . . Emptying systems
37/22 . . . . facilitating emptying in any position of tank
37/24 . . . . using gas pressure
37/26 . . . . Jettisoning of fuel
37/28 . . . . Control thereof
37/30 . Fuel systems for specific fuels
37/32 . Safety measures not otherwise provided for, e.g. preventing explosive conditions (extinguishing or preventing fires in aircraft A62C)
37/34 . Conditioning fuel, e.g. heating (during filling B64D 37/18)

39/00 Refuelling during flight (filling or emptying fuel tanks B64D 37/14)
39/02 . Means for paying-in or out hose
39/04 . Adaptations of hose construction (pipes in general F16L)
39/06 . Connecting hose to aircraft; Disconnecting hose therefrom

41/00 Power installations for auxiliary purposes

43/00 Arrangements or adaptations of instruments (arrangements of cameras B64D 47/08; aeronautical measuring instruments per se G01C)
43/02 . for indicating aircraft speed or stalling conditions

45/00 Aircraft indicators or protectors not otherwise provided for (camouflage F41H 3/00)
45/02 . Lightning protectors (lightning arrestors H01C 7/12, H01C 8/04, H01G 9/18, H01T; circuit arrangements therefor H02H); Static dischargers (in general H05F 3/00)
45/04 . Landing aids; Safety measures to prevent collision with earth's surface
45/06 . . mechanical
45/08 . . optical

47/00 Equipment not otherwise provided for
47/02 . Arrangements or adaptations of signal or lighting devices
47/04 . . the lighting devices being primarily intended to illuminate the way ahead
47/06 . . for indicating aircraft presence
47/08 . Arrangements of cameras

B64F GROUND OR AIRCRAFT-CARRIER-DECK INSTALLATIONS

Note

In this subclass, the following terms or expressions are used with the meanings indicated:
– "installations" embraces equipment, including mobile equipment, peculiar to use in connection with aircraft and not fitted thereto;
– "ground installations" embraces waterborne installations. **[3]**

1/00 **Ground or aircraft-carrier-deck installations** (specially adapted for captive aircraft B64F 3/00; aircraft-carriers B63; fog-dispersal installations E01H; wind tunnels G01M; grounded flight trainers G09B)

1/02 . Arresting gear; Liquid barriers

1/04 . Launching or towing gear (railway aspects B61; aircraft towing aircraft B64D 3/00; ammunition launching gear F41F)

1/06 . . using catapults

1/08 . . using winches

1/10 . . using self-propelled vehicles

1/12 . Anchoring

1/14 . . Towers or masts for mooring airships or balloons (mooring attachments of lighter-than-air aircraft B64B 1/66; building aspects E04H 6/00, E04H 12/00)

1/16 . . Pickets or ground anchors; Wheel chocks

1/18 . Visual or acoustic landing aids (optical or acoustic signalling in general G08)

1/20 . . Arrangement of optical beacons

1/22 . installed for handling aircraft

1/24 . . Adaptations of turntables

1/26 . for reducing engine or jet noise; Protecting airports from jet erosion

1/28 . Liquid-handling installations specially adapted for fuelling stationary aircraft (liquid handling in general B67)

1/30 . for embarking or disembarking passengers

1/305 . . Bridges extending between terminal building and aircraft, e.g. telescopic, vertically adjustable **[3]**

1/31 . . Passenger vehicles specially adapted to co-operate, e.g. dock, with aircraft or terminal buildings **[3]**

1/315 . . Mobile stairs (movable stairways in general E04F 11/04) **[3]**

1/32 . for handling freight

1/34 . for starting propulsion plant

1/36 . Other airport installations (construction of, or surfacing for, airfields E01C)

3/00 **Ground installations specially adapted for captive aircraft** (railway aspects B61)

3/02 . with means for supplying electricity to aircraft during flight

5/00 **Designing, manufacturing, assembling, cleaning, maintaining, or repairing aircraft, not otherwise provided for**

B64G COSMONAUTICS; VEHICLES OR EQUIPMENT THEREFOR (apparatus for, or methods of, winning materials from extraterrestrial sources E21C 51/00)

Notes

(1) This subclass covers only vehicles, equipment or the like, which are specially adapted for cosmonautics.
(2) This subclass does not cover vehicles and equipment applicable to both cosmonautics and aeronautics, which are covered by the appropriate aeronautical subclasses of class B64.
(3) In this subclass, the following term is used with the meaning indicated:
– "cosmonautics" includes all transport outside the earth's atmosphere, and thus includes artificial earth satellites, and interplanetary and interstellar travel.

1/00 **Cosmonautic vehicles [3]**

1/10 . Artificial satellites; Systems of such satellites; Interplanetary vehicles (space shuttles B64G 1/14; radio transmission systems using satellites H04B 7/185)

1/12 . . manned **[3]**

1/14 . Space shuttles **[3]**

1/16 . Extraterrestrial cars (land vehicle aspects B60 to B62) **[3]**

1/22 . Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles **[3]**

1/24 . . Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants F02K; navigation or navigational instruments, see the relevant subclasses, e.g. G01C; automatic pilots G05D 1/00) **[3]**

1/26 . . . using jets **[3]**

1/28 . . . using inertia or gyro effect **[3]**

1/32 . . . using earth's magnetic field **[3]**

1/34 . . . using gravity gradient **[3]**

1/36 . . . using sensors, e.g. sun-sensors, horizon sensors **[3]**

1/38 . . . damping of oscillations, e.g. nutation dampers **[3]**

1/40 . . Arrangements or adaptations of propulsion systems (B64G 1/26 takes precedence; propulsion plants per se, see the relevant subclasses, e.g. F02K, F03H) **[3]**

1/42 . . Arrangements or adaptations of power supply systems (power supply systems per se, see the relevant subclasses) **[3]**

1/44 . . . using radiation, e.g. deployable solar arrays (solar cells per se H01L 31/00) **[3]**

1/46 . . Arrangements or adaptations of devices for control of environment or living conditions (space suits B64G 6/00) **[3]**

1/48 . . . for treatment of the atmosphere (B64G 1/50 takes precedence; air conditioning in general F24F) **[3]**

1/50 . . . for temperature control (temperature control in general G05D 23/00) **[3]**

1/52 . . Protection, safety or emergency devices; Survival aids (life-saving in general A62) **[3]**

1/54 . . . Protection against radiation (against radiation in general G21F) **[3]**

1/56 . . . Protection against meteorites (meteorite detectors B64G 1/68) **[3]**

1/58 . . . Thermal protection, e.g. heat shields (thermal insulation in general F16L 59/00; chemical aspects, see the relevant classes) **[3]**

1/60 . . Crew or passenger accommodations **[3]**

1/62 . . Systems for re-entry into the earth's atmosphere; Retarding or landing devices **[3]**

1/64 . . Systems for coupling or separating cosmonautic vehicles or parts thereof, e.g. docking arrangements **[3]**

1/66 . . Arrangements or adaptations of apparatus or instruments, not otherwise provided for (instruments per se, see the relevant classes, e.g. aerials for use in satellites H01Q 1/28) **[3]**

1/68 . . . of meteorite detectors **[3]**

3/00 Observing or tracking cosmonautic vehicles (radio or other waves systems for navigation or tracking G01S)

4/00 Tools specially adapted for use in space [3]

5/00 Ground equipment for vehicles, e.g. starting towers, fuelling arrangements (B64G 3/00 takes precedence)

6/00 Space suits [3]

7/00 Simulating cosmonautic conditions, e.g. for conditioning crews (simulators for teaching or training purposes G09B 9/00)

9/00 Cosmonautics not otherwise provided for