

B64 AIRCRAFT; AVIATION; COSMONAUTICS**B64B LIGHTER-THAN-AIR AIRCRAFT** (ground installations for aircraft in general B64F)

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

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**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
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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 <i>per se</i> 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 <u>per se</u> 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

B64C

- 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)
- 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

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]
- 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]*

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

Subclass index

FLIGHT ARRANGEMENTS ON AIRCRAFT

- Of power plant and auxiliaries 27/00, 29/00, 33/00, 41/00
- Of power-plant controls and transmissions 31/00, 35/00
- For fuel supply 37/00, 39/00
- Of flying instruments 43/00

USE OF AIRCRAFT

- For military purposes 1/00, 7/00
- For persons or freight 9/00 to 13/00

SAFETY OR EMERGENCY ARRANGEMENTS OR EQUIPMENTS

- For the aircraft
- against icing; against lightning 15/00; 45/02
- for landing 17/80, 45/00

- For jettisoning or other means concerning fuel 37/26, 37/32
- For persons or material
- by holding or ejecting means 25/00
- by parachutes; parachuting 17/00 to 21/00; 23/00
- Other safety, emergency, or protection means 10/00, 25/00, 45/00

EQUIPMENT FOR OPERATIONS PERFORMED DURING FLIGHT

- Releasing or receiving articles, fluent materials, or another aircraft 1/00, 5/00
- Towing, fuel replenishing 3/00, 39/00

OTHER ARRANGEMENTS OR EQUIPMENT 47/00

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	37/00	Arrangements in connection with fuel supply for power plant (refuelling during flight B64D 39/00)
27/20	. . . within, or attached to, fuselage	37/02	. Tanks (tanks constructed integrally with aircraft wings B64C; tanks in general B65D)
27/22	. . using atomic energy	37/04	. . . Arrangement thereof in or on aircraft
27/24	. . using steam, electricity, or spring force (B64D 27/16 takes precedence)	37/06	. . . Constructional adaptations thereof
27/26	. Aircraft characterised by construction of power-plant mounting	37/08	. . . Internal partitioning
29/00	Power-plant nacelles, fairings, or cowlings (nacelles not otherwise provided for B64C)	37/10	. . . to facilitate fuel pressurisation
29/02	. associated with wings (wings adapted for mounting power plant B64C)	37/12	. . . jettisonable
29/04	. associated with fuselages	37/14	. . Filling or emptying (transferring fuels to adjust aircraft trim B64C)
29/06	. Attaching of nacelles, fairings, or cowlings	37/16	. . . Filling systems (ground installations for fuelling aircraft B64F)
29/08	. Inspection panels for power plants	37/18	. . . . Conditioning fuel during filling
31/00	Power plant control; Arrangement thereof (flying controls, conjoint control of power plant and propeller B64C)	37/20	. . . . Emptying systems
31/02	. Initiating means	37/22	. . . . facilitating emptying in any position of tank
31/04	. . actuated personally	37/24	. . . . using gas pressure
31/06	. . actuated automatically	37/26	. . . . Jettisoning of fuel
31/08	. . . for keeping cruising speed constant	37/28	. . . . Control thereof
31/10	. . . for preventing asymmetric thrust upon failure of one power plant	37/30	. Fuel systems for specific fuels
31/12	. . . for equalising or synchronising power plants	37/32	. Safety measures not otherwise provided for, e.g. preventing explosive conditions (extinguishing or preventing fires in aircraft A62C)
31/14	. Transmitting means between initiating means and power plants	37/34	. Conditioning fuel, e.g. heating (during filling B64D 37/18)
33/00	Arrangement in aircraft of power plant parts or auxiliaries not otherwise provided for	39/00	Refuelling during flight (filling or emptying fuel tanks B64D 37/14)
33/02	. of combustion air intakes (air intakes for gas-turbine plants or jet-propulsion plants <u>per se</u> F02C 7/04; air intakes for combustion engines in general F02M 35/00)	39/02	. Means for paying-in or out hose
33/04	. of exhaust outlets or jet pipes (exhaust outlets for combustion engines in general F01N; jet pipes or nozzles for jet-propulsion plants <u>per se</u> F02K; plants characterised by the form or arrangement of the jet pipe or nozzle F02K) [3]	39/04	. Adaptations of hose construction (pipes in general F16L)
33/08	. of power plant cooling systems (cooling of internal-combustion engines <u>per se</u> F01P; cooling of gas-turbine plants or jet-propulsion plants <u>per se</u> F02C, F02K)	39/06	. Connecting hose to aircraft; Disconnecting hose therefrom
33/10	. . Radiator arrangement	41/00	Power installations for auxiliary purposes
33/12	. . . of retractable type	43/00	Arrangements or adaptations of instruments (arrangements of cameras B64D 47/08; aeronautical measuring instruments <u>per se</u> G01C)
35/00	Transmitting power from power plant to propellers or rotors; Arrangements of transmissions (propellers or rotors <u>per se</u> , helicopter transmissions B64C)	43/02	. for indicating aircraft speed or stalling conditions
35/02	. characterised by the type of power plant	45/00	Aircraft indicators or protectors not otherwise provided for (camouflage F41H 3/00)
35/04	. characterised by the transmission driving a plurality of propellers or rotors	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)
35/06	. . the propellers or rotors being counter-rotating	45/04	. Landing aids; Safety measures to prevent collision with earth's surface
35/08	. characterised by the transmission being driven by a plurality of power plants	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)	1/28	• Liquid-handling installations specially adapted for fuelling stationary aircraft (liquid handling in general B67)
1/02	• Arresting gear; Liquid barriers	1/30	• for embarking or disembarking passengers
1/04	• Launching or towing gear (railway aspects B61; aircraft towing aircraft B64D 3/00; ammunition launching gear F41F)	1/305	• • Bridges extending between terminal building and aircraft, e.g. telescopic, vertically adjustable [3]
1/06	• • using catapults	1/31	• • Passenger vehicles specially adapted to co-operate, e.g. dock, with aircraft or terminal buildings [3]
1/08	• • using winches	1/315	• • Mobile stairs (movable stairways in general E04F 11/04) [3]
1/10	• • using self-propelled vehicles	1/32	• for handling freight
1/12	• Anchoring	1/34	• for starting propulsion plant
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)	1/36	• Other airport installations (construction of, or surfacing for, airfields E01C)
1/16	• • Pickets or ground anchors; Wheel chocks	3/00	Ground installations specially adapted for captive aircraft (railway aspects B61)
1/18	• Visual or acoustic landing aids (optical or acoustic signalling in general G08)	3/02	• with means for supplying electricity to aircraft during flight
1/20	• • Arrangement of optical beacons	5/00	Designing, manufacturing, assembling, cleaning, maintaining, or repairing aircraft, not otherwise provided for
1/22	• installed for handling aircraft		
1/24	• • Adaptations of turntables		
1/26	• for reducing engine or jet noise; Protecting airports from jet erosion		

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

- (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]	1/26	• • • using jets [3]
1/10	• Artificial satellites; Systems of such satellites; Interplanetary vehicles (space shuttles B64G 1/14; radio transmission systems using satellites H04B 7/185)	1/28	• • • using inertia or gyro effect [3]
1/12	• • manned [3]	1/32	• • • using earth’s magnetic field [3]
1/14	• Space shuttles [3]	1/34	• • • using gravity gradient [3]
1/16	• Extraterrestrial cars (land vehicle aspects B60 to B62) [3]	1/36	• • • using sensors, e.g. sun-sensors, horizon sensors [3]
1/22	• Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles [3]	1/38	• • • damping of oscillations, e.g. nutation dampers [3]
1/24	• • Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants F02K; navigation or navigational instruments, <u>see</u> the relevant subclasses, e.g. G01C; automatic pilots G05D 1/00) [3]	1/40	• • Arrangements or adaptations of propulsion systems (B64G 1/26 takes precedence; propulsion plants <u>per se</u> , <u>see</u> the relevant subclasses, e.g. F02K, F03H) [3]
		1/42	• • Arrangements or adaptations of power supply systems (power supply systems <u>per se</u> , <u>see</u> 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. aerals 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)
- 99/00 Subject matter not provided for in other groups of this subclass** [2009.01]