

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B64 AIRCRAFT; AVIATION; COSMONAUTICS

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

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

#### 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

##### ALIGNING 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**

<b>1/00 Fuselages; Constructional features common to fuselages, wings, stabilising surfaces, or the like</b> (aerodynamical features common to fuselages, wings, stabilising surfaces, or the like B64C 23/00; flight-deck installations B64D)	3/36	• Structures adapted to reduce effects of aerodynamic or other external heating
1/06 • Frames; Stringers; Longerons	3/38	• Adjustment of complete wings or parts thereof
1/08 • • Geodetic or other open-frame structures	3/40	• • Varying angle of sweep
1/10 • • Bulkheads	3/42	• • Adjusting about chordwise axes
1/12 • • Construction or attachment of skin panels	3/44	• • Varying camber
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)	3/46	• • • by inflatable elements (connection of valves to inflatable elastic bodies B60C 29/00)
1/16 • specially adapted for mounting power plant	3/48	• • • by relatively-movable parts of wing structures
1/18 • Floors	3/50	• • • by leading or trailing edge flaps (ailerons B64C 9/00)
1/20 • • specially adapted for freight	3/52	• • Warping
1/22 • Other structures integral with fuselages to facilitate loading	3/54	• • Varying in area (flaps extendable to increase camber B64C 3/44)
1/24 • Steps mounted on, and retractable within, fuselages (readily removable B64D 9/00)	3/56	• • Folding or collapsing to reduce overall dimensions of aircraft
1/26 • Attaching the wing or tail units or stabilising surfaces	3/58	• provided with fences or spoilers (adjustable for control purposes B64C 9/00)
1/28 • Parts of fuselage relatively movable to improve pilots view	<b>5/00 Stabilising surfaces</b> (attaching stabilising surfaces to fuselage B64C 1/26)	
1/30 • Parts of fuselage relatively movable to reduce overall dimensions of aircraft	5/02 • Tailplanes (fins B64C 5/06)	
1/32 • Severable or jettisonable parts of fuselage facilitating emergency escape (ejector seats B64D 25/10)	5/04 • Noseplanes	
1/34 • comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)	5/06 • Fins (specially for wings B64C 5/08)	
1/36 • adapted to receive aerials or radomes (aerials or radomes <u>per se</u> H01Q)	5/08 • mounted on, or supported by, wings	
1/38 • Constructions adapted to reduce effects of aerodynamic or other external heating	5/10 • adjustable	
1/40 • Sound or heat insulation	5/12 • • for retraction against or within fuselage or nacelle	
<b>3/00 Wings</b> (stabilising surfaces B64C 5/00; ornithopter wings B64C 33/02)	5/14 • • Varying angle of sweep	
3/10 • Shape of wings	5/16 • • about spanwise axes	
3/14 • • Aerofoil profile	5/18 • • in area	
3/16 • • Frontal aspect	<b>7/00 Structures or fairings not otherwise provided for</b>	
3/18 • Spars; Ribs; Stringers (attaching wing unit to fuselage B64C 1/26)	7/02 • Nacelles	
3/20 • Integral or sandwich constructions (layered products or sandwich constructions in general B32B)		
3/22 • Geodetic or other open-frame structures	<b>9/00 Adjustable control surfaces or members, e.g. rudders</b> (trimming stabilising surfaces B64C 5/10; systems for actuating flying-control surfaces B64C 13/00)	
3/24 • Moulded or cast structures	9/02 • Mounting or supporting thereof	
3/26 • Construction, shape, or attachment of separate skins, e.g. panels	9/04 • with compound dependent movements	
3/28 • Leading or trailing edges attached to primary structures, e.g. forming fixed slots	9/06 • with two or more independent movements	
3/30 • comprising inflatable structural components (connection of valves to inflatable elastic bodies B60C 29/00)	9/08 • bodily displaceable (varying camber of wings B64C 3/44)	
3/32 • specially adapted for mounting power plant	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)	
3/34 • Integrally-constructed tanks, e.g. for fuel (other aircraft fuel tanks or fuel systems B64D)	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	



## B64C

- 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)
- 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

### 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)
- 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]	37/02	• Flying units formed by separate aircraft (towing, air-refuelling, or aircraft-carrying aircraft B64D)
31/032	• • having delta shaped wing [6]		
31/036	• • having parachute-type wing (parachutes B64D 17/00) [6]	<b>39/00</b>	<b>Aircraft not otherwise provided for</b>
31/04	• Man-powered aircraft (ornithopters B64C 33/00)	39/02	• characterised by special use
31/06	• Kites (hang-gliders B64C 31/028; toy aspects A63H 27/08; towed targets F41J)	39/04	• having multiple fuselages or tail booms [3]
		39/06	• having disc- or ring-shaped wings [3]
		39/08	• having multiple wings [3]
<b>33/00</b>	<b>Ornithopters</b>	39/10	• All-wing aircraft [3]
33/02	• Wings; Actuating mechanisms therefor	39/12	• Canard-type aircraft [3]
<b>35/00</b>	<b>Flying-boats; Seaplanes</b> (alighting gear B64C 25/00)		
35/02	• Flying-boat hulls [3]		
<b>37/00</b>	<b>Convertible aircraft</b> (vehicles capable of travelling in or on different media B60F)	<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass [2010.01]</b>

## 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.....	9/00-13/00

#### 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.....	17/00-21/00, 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

<b>1/00</b>	<b>Dropping, ejecting, releasing, or receiving articles, liquids, or the like, in flight</b> (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)	1/18	• • by spraying, e.g. insecticides (spraying apparatus in general B05B)
1/02	• Dropping, ejecting, or releasing articles (jettisonable fuel reservoirs B64D 37/12)	1/20	• • for sky-writing
1/04	• • the articles being explosive, e.g. bombs (arming or setting bomb fuzes F42C)	1/22	• Taking-up articles from earth's surface
1/06	• • • Bomb releasing; Bomb doors	<b>3/00</b>	<b>Aircraft adaptations to facilitate towing or being towed</b> (B64D 39/00 takes precedence; ground installations for launching or towing aircraft B64F; towing ropes <u>per se</u> D07B)
1/08	• • the articles being load-carrying devices	3/02	• for towing targets (towed targets <u>per se</u> F41J)
1/10	• • • Stowage arrangements for the devices in aircraft	<b>5/00</b>	<b>Aircraft transported by aircraft, e.g. for release or reberthing during flight</b> (flying units formed by separate aircraft B64C 37/02)
1/12	• • • Releasing	<b>7/00</b>	<b>Arrangement of military equipment, e.g. armaments, armament accessories, or military shielding, in aircraft; Adaptations of armament mountings for aircraft</b> (dropping bombs or the like B64D 1/00; armaments or mountings therefor <u>per se</u> F41)
1/14	• • • Absorbing landing shocks	7/02	• the armaments being firearms
1/16	• Dropping or releasing powdered, liquid or gaseous matter, e.g. for fire-fighting (jettisoning fuel B64D 37/26) [5]		

## B64D

- 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

## B64D

- 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(s)

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.

- 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)

### Note(s)

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-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)
- 99/00 Subject matter not provided for in other groups of this subclass** [2009.01]