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S1000D - Copyright

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Chapter 8.2.5

Maintained SNS - Air vehicle, engines and equipment

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Chap 4.3.3	Data module code - Standard numbering system
Chap 8.2.1	Maintained SNS - Generic

1 General

This SNS, for Air Vehicle, Engines and Equipment (AVEE), is used in this specification as a method to describe the functional and/or physical breakdown of items of the Product. Its position in the data module code and structure is defined in Chap 4.3.3. This SNS will be maintained by the S1000D Steering Committee and is subject to normal CPF action in accordance with Chap 1.5.

2 Air vehicle, engines and equipment SNS

The coding and definitions for the AVEE SNS is appropriate for common and system level information for all Products and is described in Table 2 and shown in Fig 1.

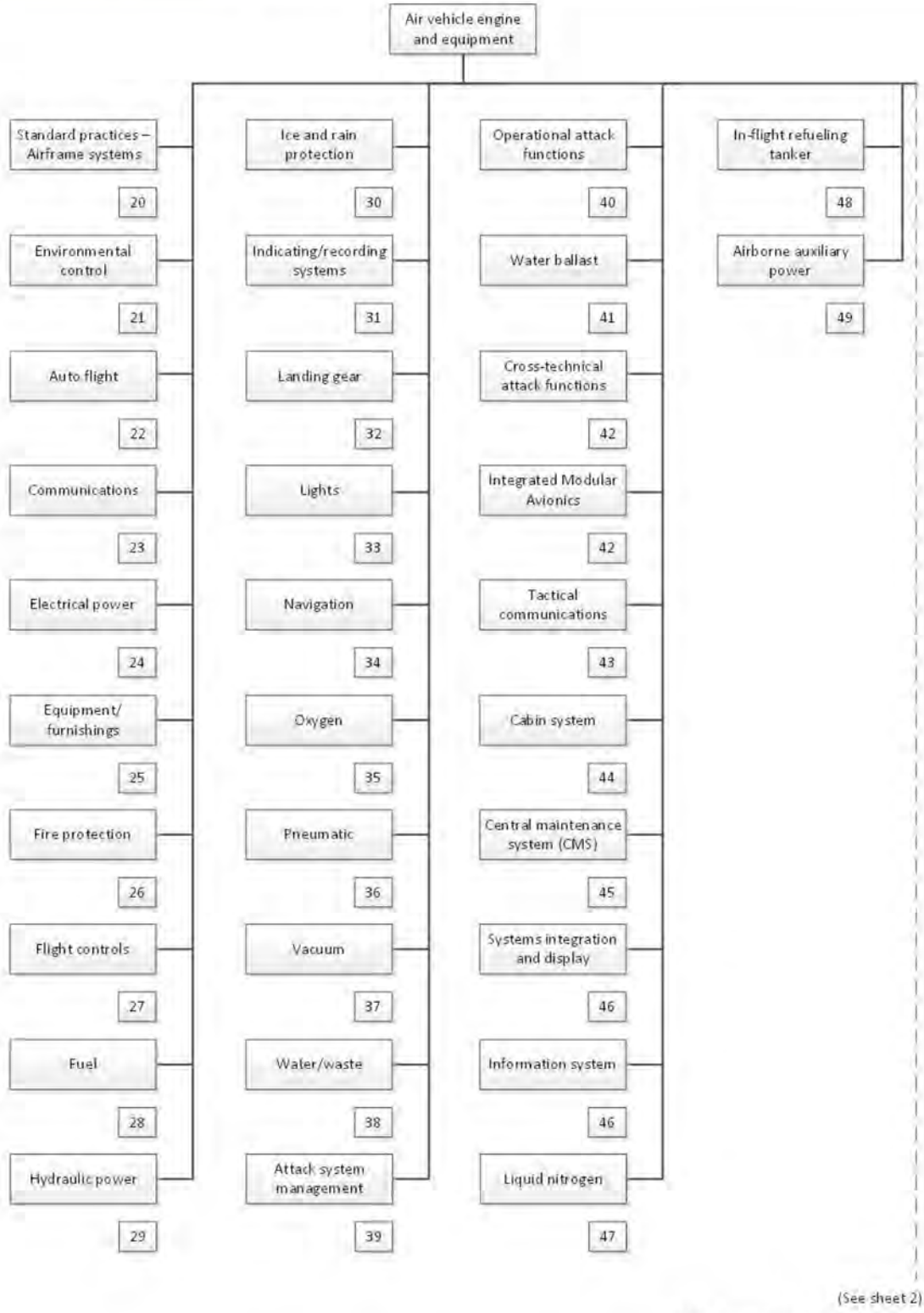

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Fig 1 Top level breakdown for AVEE (Sheet 1 of 3)

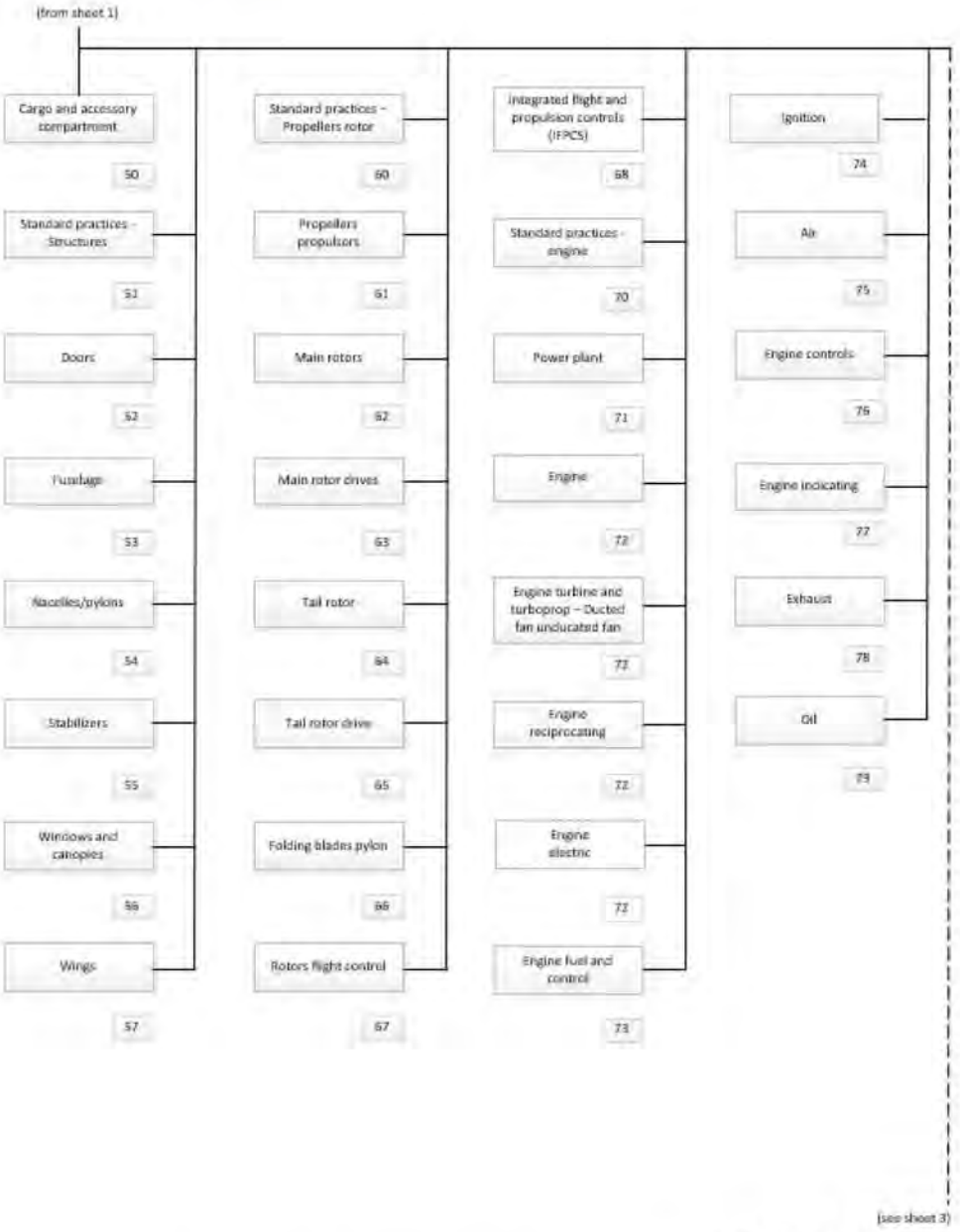

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Fig 1 Top level breakdown for AVEE (Sheet 2 of 3)

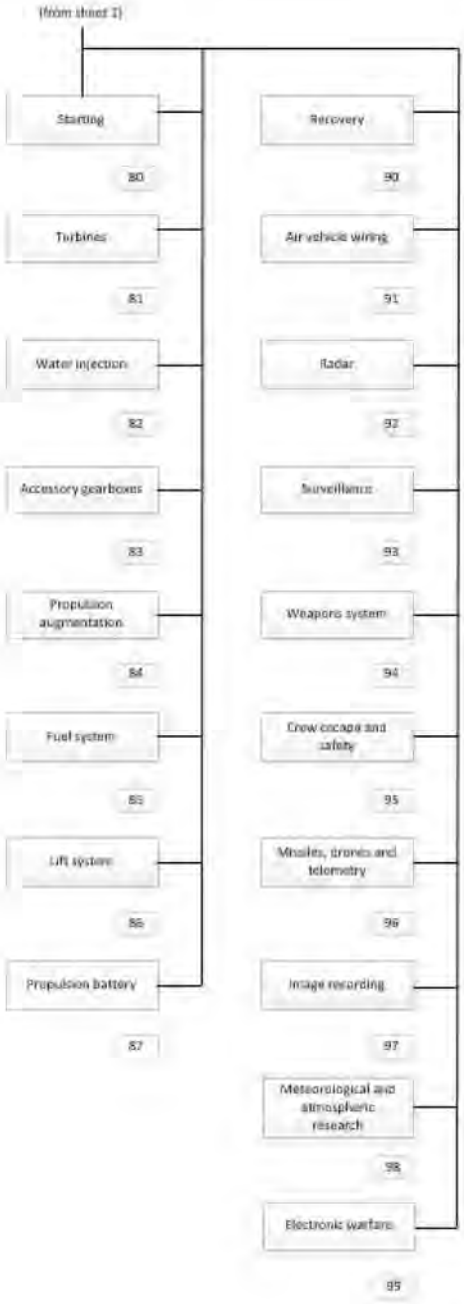

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Fig 1 Top level breakdown for AVEE (Sheet 3 of 3)

2.1 System breakdown

2.1.1 Main systems

This AVEE SNS is divided into 80 main systems.

Table 2 Top level breakdown for AVEE

System	Title
20	Standard practices - Airframe systems
21	Environmental control
22	Auto flight
23	Communications
24	Electrical power
25	Equipment/Furnishings
26	Fire protection
27	Flight controls
28	Fuel
29	Hydraulic power
30	Ice and rain protection
31	Indicating/Recording systems
32	Landing gear
33	Lights
34	Navigation
35	Oxygen
36	Pneumatic
37	Vacuum
38	Water/waste
39	Attack system management
40	Operational attack functions
41	Water ballast
42	Cross-technical attack functions
42	Integrated modular avionics
43	Tactical communications
44	Cabin System
45	Central maintenance system (CMS)
46	Systems integration and display
46	Information system
47	Liquid nitrogen
48	In-flight refueling tanker
49	Airborne auxiliary power
50	Cargo and accessory compartment
51	Standard practices - Structures
52	Doors
53	Fuselage
54	Nacelles/Pylons
55	Stabilizers

Table 2 Top level breakdown for AVEE — Continued

System	Title
56	Windows and canopies
57	Wings
58	Not available for projects
59	Not available for projects
60	Standard practices - Propeller/Rotor
61	Propellers/Propulsors
62	Main rotors
63	Main rotor drives
64	Tail rotor
65	Tail rotor drive
66	Folding blades/pylon
67	Rotors flight control
68	Integrated flight and propulsion controls
69	Not available for projects
70	Standard practices - Engine
71	Power plant
72	Engine
72	Engine turbine/turboprop Ducted fan/Inducted fan
72	Engine reciprocating
72	Engine electric
73	Engine fuel and control
74	Ignition
75	Air
76	Engine controls
77	Engine indicating
78	Exhaust
79	Oil
80	Starting
81	Turbines
82	Water injection
83	Accessory gearboxes
84	Propulsion augmentation
85	Fuel cell system
86	Lift system
87	Propulsion battery
88	Not available for projects
89	Not available for projects
90	Recovery

Table 2 Top level breakdown for AVEE — Continued

System	Title
91	Air vehicle wiring
92	Radar
93	Surveillance
94	Weapons system
95	Crew escape and safety
96	Missiles, drones and telemetry
97	Image recording
98	Meteorological and atmospheric research
99	Electronic warfare

2.1.2 Definitions of systems and subsystems

This SNS is to be supplemented with the generic SNS given at Chap 8.2.1.

2.1.3 System 20 - Standard practices - Airframe systems

Table 3 System 20 - Standard practices - Airframe systems

System	Subsystem	Title	Definition
20		Standard practices - Airframe systems	Standard mechanical and electrical electric/engineering practices applicable to more than one airframe system task that are not covered in System 21 thru System 49. It excludes those practices that are recognized as standard trade practices and also those practices/processes which are only applicable to manufacture. Practices for a particular application must be included in the appropriate airframe system as part of the procedure.
	-00	General	Standard practices applicable to all airframe systems.
	-10 thru -90		Standard practice. The manufacturer or manufacturing partners can assign the subsystem numbers to suit generic standard practices related to more than one airframe system.

2.1.4 System 21 - Environmental control

Table 4 System 21 - Environmental control

System	Subsystem	Title	Definition
21		Environmental control	Units and components that furnish a means of pressurizing, heating, cooling, moisture controlling, filtering and treating the air used to ventilate the areas of the fuselage within the pressure seals. Includes cabin supercharger, equipment cooling, heater, heater fuel system, expansion turbine, valves, scoops, ducts, cabin seals, etc. Also includes such systems as canopy/door seals, anti-g, demisting, waveguide pressurization, etc.

Table 4 System 21 - Environmental control — Continued

System	Subsystem	Title	Definition
	-00	General	
	-10	Compression	Subsystem and its controls which supplies compressed air. Includes items such as controls and indicating systems related to the compressors, wiring, etc. Does not include the pressure control and indicating system for the cabin pressurization.
	-20	Distribution	Subsystem used to induct and distribute air. Includes equipment rack cooling, canopy/door seals, anti-g, demisting, waveguide pressurization system and items of such systems like blowers, scoops, ducting, inlets, valves, wiring, etc. Does not include valves that are part of pressurization and temperature control.
	-30	Pressurization control	Subsystem used to control the pressure within the fuselage. Includes control valves, relief valves, indicators, switches, amplifiers, wiring, etc.
	-40	Heating	Subsystem and its controls that supply heated air. Includes heater units, fuel system and control, ignition-indicating systems related to heater operation, wiring, etc. Does not include temperature control and indicating systems.
	-50	Cooling	Subsystem and its controls that supply cooled air. Includes the cooling unit, indicating systems related to the cooler operation, wiring, etc. Does not include temperature control and indicating systems.
	-60	Temperature control	Subsystem used to control the temperature of the air. Includes control valves, thermal sensing devices, switches, indicators, amplifiers, wiring, etc.
	-70	Moisture/air contaminant control	Subsystem used to control moisture in the air, to control ozone concentrations, to filter radioactive debris and chemical/ biological contaminants from conditioned air, and to treat the air with deodorizers, insecticides, etc.
	-80	Liquid/gas coolant	Those components required to supply liquid/gas coolant to an equipment cooling system.
	-90	Integrated Environmental Control System (ECS)	Subsystem that provides integrated functionality for conditioned, cooled, heated, pressurized air, NBC filtration, and emergency ventilation to sustain crew and component operation over wide range of temperatures. Includes avionics (component racks) cooling.

2.1.5 System 22 - Auto flight

Table 5 System 22 - Auto flight

System	Subsystem	Title	Definition
22		Auto flight	Units and components that furnish a means of automatically controlling the flight of the air vehicle. Includes those units and components that control direction, heading, attitude, altitude and speed.
	-00	General	

Table 5 System 22 - Auto flight — Continued

System	Subsystem	Title	Definition
	-10	Autopilot	Subsystem that uses radio/radar signals, directional and vertical references, air data (pitot static), computed flight path data, or manually induced inputs to the system to automatically control the flight path of the air vehicle through adjustment to the pitch/ roll/yaw axis or wing lift characteristics and provide visual cues for flight path guidance (ie, integrated flight director). Includes power source devices, interlocking devices and amplifying, computing, integrating, controlling, actuating, indicating and warning devices such as computers, servos, control panels, indicators, warning lights, etc.
	-20	Speed-attitude correction	Subsystem that automatically maintains safe flight conditions by correcting for effects of speed and out-of-trim conditions by such means as automatic trim, mach trim or speed stability and mach feel Includes sensing, computing, actuating, indicating, internal monitoring, and warning devices, etc.
	-30	Auto throttle	Subsystem that automatically controls the position of the throttles to properly manage engine power during all phases of flight/attitude. Includes engaging, sensing, computing, amplifying, controlling, actuating and warning devices such as amplifiers, computers, servos, limit switches, clutches, gear boxes, warning lights, etc.
	-40	System monitor	Subsystem that provides separate or external monitoring/ remote readout (for maintenance or other purposes) not directly related to the internal system monitoring (for system integrity flight crew warning). Includes sensing, computing, indicating and warning devices, control panels, etc.
	-50	Aerodynamic load alleviating	Subsystem or portion of the system that automatically corrects/ provides for gust loading/ upset, aerodynamic augmentation/ alleviations/ suppression, ride control, etc. Includes sensing, computing, actuating indicating internal monitoring, warning devices, etc.

2.1.6 System 23 - Communications

Table 6 System 23 - Communications

System	Subsystem	Title	Definition
23		Communications	Units and components that furnish a means of communicating from one part of the air vehicle to another and between the air vehicle or ground stations. Includes voice, data C-W communicating components, PA system, intercom and tape reproducers-record player.
	-00	General	

Table 6 System 23 - Communications — Continued

System	Subsystem	Title	Definition
	-10	Speech communication	Subsystem that utilizes voice modulated electromagnetic waves to transmit and/or receive messages from air to air, or air to ground installations. Includes HF, VHF, UHF, etc, in-flight telephone, communication transmitting and receiving equipment.
	-15	SATCOM	Subsystem that utilizes satellite communication systems (SATCOM).
	-20	Data transmission and automatic calling	Subsystem that presents information derived from pulse coded transmissions. Includes Teleprinter, Selcal, Calsel, ACARS, etc.
	-30	Passenger address and entertainment	Subsystem used to address and entertain the passengers. Includes amplifiers, speakers, handsets, reproducers, control panels, etc. Also includes items of audio, video and film equipment.
	-40	Interphone	Subsystem used by flight and ground personnel to communicate between areas on the air vehicle. Includes amplifier, handset, etc. Does not include the interphone system within the flight compartment that is part of the integrating system.
	-50	Audio integrating and voice command systems	Subsystem that controls the output of the communications and navigation receivers into the flight crew headphones and speakers and the output of the flight crew microphones into the communications transmitters. Includes audio selector control panel, microphones, headphones, cockpit loudspeakers, etc. Also includes those items that provide for voice command systems used by the operating crew members. (Not including items that are components of an associated air vehicle system).
	-60	Static discharging	Subsystem used to dissipate static electricity.
	-70	Audio and video monitoring	Installations that record, or monitor crew or passenger conversation or movement for security of safety purposes. Includes voice recorders, television, monitors, etc.
	-80	Integrated automatic tuning	Subsystem that maintains integrated control of the operating frequencies of communication and navigation transmitter/ receivers after either a manually inserted command or a preprogrammed integrated flight system command. Includes integrated frequency selector panels, digital frequency control computers, integrated frequency display panels, etc.

2.1.7 System 24 - Electrical power

Table 7 System 24 - Electrical power

System	Subsystem	Title	Definition
24		Electrical power	Electrical units and components that generate, control and supply AC and/or DC electrical power for other systems, including generators and relays, inverters, batteries etc, through the secondary busses. Also includes those units and components which provide for multiplexing of electrical power and common electrical items such as wiring, switches, connectors, etc.
	-00	General	
	-10	Generator drive	Mechanical devices that drive the generators at a desired RPM. Includes oil system, connecting devices, indicating and warning systems for the drive, ram air turbine, etc.
	-20	AC generation	Subsystem used to generate, regulate, control, and indicate AC electrical power. Includes inverters, AC generators/alternators, control and regulating components, indicating systems etc, all wiring to but not including main busses.
	-30	DC generation	Subsystem used to generate, regulate, control and indicate DC electrical power. Includes generators/alternators, transformers, rectifiers, batteries, control and regulating components, indicating systems etc, all wiring to but not including main busses. Excludes propulsion batteries.
	-40	External power	Subsystem within the air vehicle that connects external electrical power to the air vehicle's electrical system. Includes receptacles, relays, switches, wiring, warning lights, etc. Excludes propulsion battery charging.
	-50	AC electrical load distribution	Subsystem that provides for connection of AC power to using systems. Includes main and secondary busses, main system circuit breakers, power system devices, etc.
	-60	DC electrical load distribution	Subsystem that provides for connection of DC power to using systems. Includes main and secondary busses, main system circuit breakers, power system devices, etc.
	-70	Electrical monitoring and protection	Subsystem used to supply aircraft or ground power to use the ground power switching system, avionics low cooling protection system, essential 28 V DC bus monitoring system and system monitoring. Also includes air vehicle grounding receptacles.
	-80	Electrical power multiplexing	Units or components that provide for multiplexing of electrical power. Includes computers, remote terminals and related interfaces to transmit electrical power control signals.
	-90	Multipurpose equipment	Units or components that are applicable to more than one system or system interfaces, such as junction boxes, relay panels, terminal blocks.

2.1.8 System 25 - Equipment/Furnishings

Table 8 System 25 - Equipment/Furnishings

System	Subsystem	Title	Definition
25		Equipment/furnishings	Removable items of equipment and furnishings contained in the flight and passenger compartments. Includes emergency, buffet and lavatory equipment. Does not include structures of equipment assigned specifically to other systems.
	-00	General	
	-10	Flight compartment	The compartment above the floor and between the forward passenger partition and the forward pressure dome. Includes items such as flight crew seats, tables, pilot checklists and food containers, wardrobes, curtains, manuals, electronic equipment rack, spare bulbs, fuses, etc. Does not include cargo compartments.
	-20	Passenger/operating crew compartment	The areas in which the passengers/operating crew are accommodated. Includes lounges but not dressing rooms. Includes seats, consoles, equipment racks, berths, overhead storage compartments, curtains, wall coverings, carpets, magazine racks, movable partitions, wall type thermometers, spare bulbs, fuses, etc.
	-30	Buffet/galley	The areas in which food and beverages are stored and prepared. Includes removable and fixed cabinets, ovens, refrigerators, garbage containers, dish racks, coffee maker and dispensers, containers, electrical outlets, wiring, etc.
	-40	Lavatories	The toilet and dressing room areas containing wash basins, dressing tables and water closet. Includes mirrors, seats, cabinets, dispensing equipment, electrical outlets, wiring, etc. Wash basins and water closets are included in System 38.
	-50	Additional compartments	Additional compartments for the use of passengers and/or crew. Includes such compartments as crew rest compartments, sleeping compartments etc.
	-60	Emergency	Items of equipment carried for use in emergency procedures. Includes evacuation equipment, life rafts, life jackets, emergency locator transmitters, underwater locator devices, first aid kit, incubators, oxygen tents, medical stretchers, landing and signal flares, drag parachutes, evacuation signaling systems, etc. Does not include fire extinguishers, oxygen equipment or masks.
	-70	Available for projects	
	-80	Insulation and lining	Blankets used for heat and sound insulation. Includes flight compartments, passenger compartment, additional compartment insulation etc.

2.1.9 System 26 - Fire protection

Table 9 System 26 - Fire protection

System	Subsystem	Title	Definition
26		Fire protection	Fixed and portable units and components that detect and indicate fire or smoke and store and distribute fire extinguishing agent to all protected areas of the air vehicle, including bottles, valves, tubing, etc.
	-00	General	
	-10	Detection	Subsystem used to sense and indicate the presence of overheats, smoke or fire.
	-20	Extinguishing	Fixed or portable systems used to extinguish fire.
	-30	Explosion suppression	Subsystem used to sense, indicate and extinguish a flame propagating into the fuel system to prevent an explosion.

2.1.10 System 27 - Flight controls

Table 10 System 27 - Flight controls

System	Subsystem	Title	Definition
27		Flight controls	Units and components that furnish the means of controlling the flight attitude characteristics of the air vehicle. Also includes the functioning and maintenance of the primary and secondary flying control surfaces and lift augmenting systems but not the maintenance of the structure of control surfaces that is covered by the system structures. Includes items such as control stick grips, rudder pedals, gearboxes, control rods and cables, linkages, hydraulic valves, actuators, control units, controls and indicators, computers, transducers, transformers, sensor units, displays, gyros, accelerometers, servos, warning systems and control locking devices. Includes rotorcraft rotor controls which are covered in the rotor systems.
	-00	General	
	-10	Roll control	Subsystem that controls the roll axis of the aircraft. Includes the control wheels, cables, booster, linkages, control surfaces, indicators, etc.
	-20	Yaw control	Subsystem that controls the yaw axis of the aircraft. Includes the rudder pedals, tab control wheel, cables, boosters, linkages, control surfaces, position indicators, etc.
	-30	Pitch control	Subsystem that controls the pitch axis of the aircraft. Includes the control column, stick shaker units, automatic stall recovery devices, tab control wheels, cables, boosters, linkages, control surfaces, position indicators, stall warning systems etc.
	-40	Horizontal stabilizers	Subsystem that controls the position and movement of the horizontal stabilizer/canard. Includes control handle, cables, jackscrews, motors, warning systems, linkages, control surfaces, position indicators, etc.

Table 10 System 27 - Flight controls — Continued

System	Subsystem	Title	Definition
	-50	Flaps	Subsystem that controls the position and movement of the trailing edge flaps. Includes control handles, cables, actuators, warning systems, linkages, control surfaces, position indicators, etc.
	-60	Spoilers, drag devices and variable aerodynamic fairings	Subsystem that controls the position and movement of the spoilers, drag devices and variable aerodynamic fairings. Includes control handles, cables, warning systems, linkages, spoilers, drag devices, position indicators, etc.
	-70	Gust lock and damper	Subsystem that protects the control surfaces from movement by wind while the aircraft is on the ground. Does not include locking the control by means of flight control boost system.
	-80	Lift augmenting	Subsystem that controls the position and movement of variable opening wings slots, leading edge wing flaps and similar auxiliary devices used for increasing aerodynamic lift. Includes control handles, cables, actuators, linkages, warning systems, control surfaces, position indicators, etc. This does not include trailing edge flaps.
	-90	Primary Flight Control System (PFCS)	Subsystem that centralizes all controls and computing means common to multiple primary flying control surfaces. Includes flight control computer, flight data concentrator, side sticks, BUS coupler, rate gyro meter, accelerometer, etc.

2.1.11 System 28 - Fuel

Table 11 System 28 - Fuel

System	Subsystem	Title	Definition
28		Fuel	Units and components that store and deliver fuel to the engine. Includes engine driven fuel pumps for reciprocating engines, includes tanks (bladder), valves, boost pumps etc, and those components that furnish a means of dumping fuel overboard. Includes integral and tip fuel tank leak detection and sealing. Does not include the structure of integral or tip fuel tanks and the fuel cell backing boards that are covered by the system structures, and does not include fuel flow rate sensing, transmitting and/or indicating, which are covered in System 73.
	-00	General	
	-10	Storage	Subsystem that stores fuel. Includes tank sealing, bladder type cells, venting system, drainage provisions for tank pumps, cell and tank inter-connectors, over wing filler necks and caps, etc. Also includes reservoir feed pumping systems and reservoirs within the tanks that are not part of the distribution system.
	-20	Distribution	Subsystem used to distribute fuel from the filler connector to the storage system and from the storage system to and including the power plant fuel quick disconnect. Includes plumbing, pumps, valves, controls, etc.

Table 11 System 28 - Fuel — Continued

System	Subsystem	Title	Definition
	-30	Dump	Subsystem used to dump fuel overboard during flight. Includes plumbing, valves, controls, chutes, etc.
	-40	Indicating	Subsystem used to indicate the quantity, temperature and pressure of the fuel. Includes pressure warning systems for pumping systems within the tank, etc. Does not include engine fuel flow or pressure.
	-50	In-flight refueling	Subsystem that provides the means of accepting in-flight refueling. This will include access door controls/actuators, fuel receptor, distribution system to fuel storage or interface with standard fuel distribution system, flow controls and indicators, and audio interconnections with the tanker aircraft. Includes manual transfer and refueling controls but excludes automatic systems based on fuel quantity and c.g. constraints that are covered in Fuel/c.g. Management (Subsystem 28-60) on air vehicles so equipped.
	-60	Fuel/center of gravity management	Subsystem that controls fuel distribution during aerial and ground refueling to maintain a safe c.g. configuration. Utilizes fuel quantity and stores data to compute air vehicle c.g. Includes fuel quantity and c.g. indication for in-flight and ground refueling operations.

2.1.12 System 29 - Hydraulic power

Table 12 System 29 - Hydraulic power

System	Subsystem	Title	Definition
29		Hydraulic power	Units and components that furnish hydraulic fluid under pressure (includes pumps, regulators, lines, valves etc) to a common point (manifold) for redistribution to other defined systems.
	-00	General	
	-10	Main	Subsystem used to store and deliver hydraulic fluid to using systems. Includes tanks, accumulators, valves, pumps, levers, switches, cables, plumbing, wiring, external connectors, etc. Does not include the supply valves to the using systems.
	-20	Auxiliary	Subsystem classified as auxiliary, emergency or standby, and which is used to supplement or take the place of the main hydraulic system. Includes tanks and accumulators which are separate from the main system, hand pumps, auxiliary pumps, ram air turbine, valves, plumbing, wiring, etc.
	-30	Indicating	Subsystem used to indicate the quantity, temperature and pressure of the hydraulic fluid. Includes transmitters, indicators, wiring, warning systems, etc.

2.1.13 System 30 - Ice and rain protection

Table 13 System 30 - Ice and rain protection

System	Subsystem	Title	Definition
30		Ice and rain protection	Units and components that provide a means of preventing or disposing of formation of ice and rain on various parts of the aircraft. Includes alcohol pump, valves, tanks, propeller/rotor anti-icing system, wing heaters, water line heaters, pitot heaters, scoop heaters, windshield wipers and the electrical and heated air portion of windshield ice control. Does not include the basic windshield panel. For turbine type power plants using air as the anti-icing medium, engine anti-icing is contained in System 75.
	-00	General	
	-10	Airfoil	Subsystem used to eliminate or prevent the formation of ice on all airfoil surfaces. Includes wings, airfoil sections of the empennage and pylons.
	-20	Air intakes	Subsystem used to eliminate or prevent the formation of ice in or around air intakes. Includes power plant cowling anti-icing.
	-30	Pitot and static	Subsystem used to eliminate or prevent the formation of ice on the pitot and static systems.
	-40	Windows, windshields, canopies and doors	Subsystem used to eliminate or prevent the formation and accumulation of ice, frost or rain on the windows, windshields, canopies and doors.
	-50	Antennas and radomes	Subsystem used to eliminate or prevent the formation of ice on antennas and radomes.
	-60	Propellers/rotors	Subsystem used to eliminate or prevent the formation of ice on propellers or rotors. Includes all components up to but not including rotating assembly.
	-70	Water lines	Subsystem used to prevent the formation of ice in water supply and drain lines.
	-80	Detection	Subsystem used to detect and indicate the formation of ice.

2.1.14 System 31 - Indicating/Recording systems

Table 14 System 31 - Indicating/Recording systems

System	Subsystem	Title	Definition
31		Indicating/Recording systems	Pictorial coverage of all instruments, instrument panels and controls. Procedural coverage of those systems that give visual or aural warning of conditions in unrelated systems. Includes units that record, store or compute data from unrelated systems and those units/systems that integrate indicating instruments into a central display system and instruments not related to any specific system.
	-00	General	

Table 14 System 31 - Indicating/Recording systems — Continued

System	Subsystem	Title	Definition
	-10	Instrument and control panels	Coverage of all panels fixed or movable with their replaceable components such as instruments, switches, circuit breakers, fuses, etc. Also includes general coverage of instrument panel vibrators and other panel.
	-20	Independent instruments	Instruments, units and components not related to specific systems. Includes inclinometers, clocks, etc.
	-30	Recorders	Subsystems and components used for recording data not related to specific systems. Includes flight recorders, performance or maintenance recorders, VG recorders, etc.
	-40	General computers	Subsystems and components used for computing data from a number of different sources without a preponderance of functions in any one system. Includes Digital Core Avionic System (DCAS), stored checklist, emergency procedures, company regulations etc, for call up on a display, integrated instrument systems such as engine, air vehicle power and central warning indicators when combined into a central display.
	-50	Central warning systems	Subsystems and components that give audible or visual warning of conditions in unrelated systems. Includes master warning or flight warning systems, central instrument warning or caution and warning systems, tone generators, annunciators, etc.
	-60	Display systems	Subsystems and components that give visual display of conditions in unrelated systems.
	-70	Automatic data reporting systems	Subsystems and components used for collating and computing data from unrelated systems and transmitting the same automatically. Includes Aircraft to Satellite Data Relay (ASDAR) systems and components.

2.1.15 System 32 - Landing gear

Table 15 System 32 - Landing gear

System	Subsystem	Title	Definition
32		Landing gear	Units and components that furnish a means of supporting, steering, and maneuvering the air vehicle on the ground or water, and make it possible to retract and store the landing gear in flight. Includes tail skid assembly, arresting hooks, landing assistance equipment, drag chutes, brakes, wheels, floats, skids, skis, doors, shock struts, tires, linkages, position indicating and warning systems, motor, control systems, power supplies or converter. Also includes the functioning and maintenance aspects of the landing gear doors but does not include the structure that is covered in System 52.
	-00	General	

Table 15 System 32 - Landing gear — Continued

System	Subsystem	Title	Definition
	-10	Main gear and doors	Subsystem that provides the major support for the air vehicle while on the ground. Includes shock struts, bogie axles, drag struts, doors, linkages, attach bolts, etc.
	-20	Nose/tail gear and doors	Subsystem that supports the nose/tail of the air vehicle while the air vehicle is on the ground. Includes shock struts, drag struts, doors, linkages, attach bolts, etc.
	-30	Extension and retraction	Subsystem used to extend and retract the landing gear and open and close the landing gear doors. Includes actuating mechanisms, bogie trim, bungees, up and down latches, operating controls, valves and motors, cables, wiring, plumbing, etc.
	-40	Wheels and brakes	Subsystem that provides for rolling and stopping the air vehicle while on the ground and stopping wheel rotation after retraction. Includes bearings, tires, valves, de-boosters, swivel glands, anti-skid devices, pressure indicators, plumbing, etc.
	-50	Steering and maneuvering	Subsystem used to control the direction and the movement of the air vehicle on the ground. Includes actuating cylinders, controls, bogie swivel unlock, motor, control systems, power supplies or converter, etc.
	-60	Position and warning	Subsystem used to indicate and warn of the position of the landing gear/doors. Includes switches, relays, lights, indicators, horns, wiring, etc.
	-70	Supplementary gear	Devices used to stabilize the air vehicle while on the ground and prevent damage by ground contact. Includes shock strut, ski block, wheels, etc.
	-80	Drag chute	Subsystem used to aid in slowing the speed of the air vehicle when landing.
	-90	Arresting hook/ Landing assistance equipment	Subsystem used to extend, retract and indicate the position of an arresting hook. Alternatively, those items providing landing assistance, such as helicopter winch-down systems and Harpoon system.

2.1.16 System 33 - Lights

Table 16 System 33 - Lights

System	Subsystem	Title	Definition
33		Lights	Units and components (electrically powered) which provide for external and internal illumination such as landing lights, taxi lights, position lights, rotating lights, ice lights, master warning lights, passenger reading and cabin dome lights. Includes light fixtures, switches and wiring. Does not include warning lights for individual systems or self-illuminating signs. Does not include lamps/bulbs covered in System 25.

Table 16 System 33 - Lights — Continued

System	Subsystem	Title	Definition
			Note For those aircraft that do not contain passenger compartments, and where the flight compartments can be reasonably divided, Subsystem 33-20 can be used to aid in defining such division.
	-00	General	
	-10	Flight compartment	Lighting subsystems in the compartment above the floor and between the forward passenger partition and the forward pressure dome. Does not include cargo compartment. Includes primary and secondary lighting and lighting control of work areas, panels, instruments, Night Vision Goggles (NVG), lighting mode selection and lamp test operation. Includes master warning light and warning light dimming systems, where not integrated with a central audio or visual system under Subsystem 31-50.
	-20	Passenger compartments	Lighting subsystems in the areas in which the passengers are seated and in buffet/galley, lavatories, lounges and coat rooms. Includes direct and indirect illumination, passenger call system, lighted signs, etc.
	-30	Cargo and service compartments	Lighting subsystems in the compartments for stowage or cargo and the housing of various components of accessories.
	-40	Exterior	Lighting subsystems used to provide illumination outside of the aircraft. Includes lights such as landing, navigation, position indicating, wing illumination, rotating, courtesy, taxi.
	-50	Emergency lighting	Separate and independent subsystems used to provide illumination in case of primary electrical power failure. Includes inertia flashlights, lanterns, etc.

2.1.17 System 34 - Navigation

Table 17 System 34 - Navigation

System	Subsystem	Title	Definition
34		Navigation	Units and components that provide air vehicle navigational information. Includes VOR, pitot, static, ILS, flight director, compasses, indicators, etc.
	-00	General	
	-10	Flight environment data	Subsystem that senses environmental conditions and uses the data to influence navigation. Includes central air data computers, pitot/static systems, air temperature, rate-of-climb, airspeed, high speed warning, altitude, altitude reporting, altimeter correction system, air disturbance detection system, etc.

Table 17 System 34 - Navigation — Continued

System	Subsystem	Title	Definition
	-20	Attitude and direction	Subsystem that uses magnetic or inertia forces to sense and display the direction or attitude of the air vehicle. Includes sensing, computing, indicating and warning devices such as magnetic compasses, vertical and directional references, magnetic heading systems, attitude director systems, symbol generators, turn and bank, rate of turn, amplifiers, indicators. Includes flight director when it is not integral with the auto pilot computation.
	-30	Landing and taxiing aids	Subsystem that provides guidance during approach, landing and taxiing. Includes localizer, glide slope, ILS, markers, para visual director ground guidance systems, etc.
	-40	Independent position determining	Subsystem that provides information to determine position and is mainly independent of ground installations or orbital satellites. Includes inertial guidance systems, weather radar, Doppler, electronic/radar altimeter, proximity warning, collision avoidance, star tracker etc. Also includes sextants/octants, etc.
	-50	Dependent position determining	Subsystem that provides information to determine position and is mainly dependent on ground installations or orbital satellites. Includes Distance Measuring Equipment (DME), transponders, radio compass, LORAN, VOR, ADF, OMEGA, GLOBAL POSITIONING, IFF, etc.
	-60	Flight management computing	Subsystem that combines navigational data to compute or manage the air vehicle's geographical position or theoretical flight path. Includes course computers, flight management computers, performance data computers and associated control display units, warning annunciators, etc.
	-70	Environment surveillance system	Subsystem that integrates dependent and independent position determining, which identifies all kind of hazards external to the aircraft on its potential aircraft flight path and manage the actions to avoid these threads. Includes items that combine surveillance of weather events, windshear, turbulence, airborne collision, collision with terrain, etc. Functions are described under another Subsystem 34-XX when they are managed as a standalone system.

2.1.18 System 35 - Oxygen

Table 18 System 35 - Oxygen

System	Subsystem	Title	Definition
35		Oxygen	Units and components that store, generate, regulate, indicate, deliver and control oxygen to the passengers and crew, including bottles, relief valves, shut-off valves, outlets, regulators, masks, walk-around bottles, etc.
	-00	General	
	-10	Crew	Subsystem that furnishes oxygen to the crew.
	-20	Passenger	Subsystem that furnishes oxygen to the passengers.

Table 18 System 35 - Oxygen — Continued

System	Subsystem	Title	Definition
	-30	Portable	Subsystem that has an independent oxygen supply and which can be transported about the airplane.
	-40	On board oxygen generating system	Subsystem that generates oxygen for distribution in the other subsystems.

2.1.19 System 36 - Pneumatic

Table 19 System 36 - Pneumatic

System	Subsystem	Title	Definition
36		Pneumatic	Units and components (ducts and valves) that deliver large volumes of compressed air from a power source to connecting points for such other systems as air conditioning, pressurization, deicing, etc.
	-00	General	
	-10	Distribution	Subsystem used to distribute high-or low-pressure air to using systems. Includes ducts, valves, actuators, heat exchangers, controls, etc. Does not include the supply valves to the using systems.
	-20	Indicating	Subsystem used to indicate temperature and pressure of the pneumatic system. Includes temperature and pressure warning systems.

2.1.20 System 37 - Vacuum

Table 20 System 37 - Vacuum

System	Subsystem	Title	Definition
37		Vacuum	Units and components used to generate, deliver and regulate negative air pressure, including pumps, regulators, lines etc, through and including the manifold.
	-00	General	
	-10	Distribution	Subsystem used to distribute negative pressure air to using systems.
	-20	Indicating	Subsystem used to indicate pressure. Includes pressure warning system.

2.1.21 System 38 - Water/Waste

Table 21 System 38 - Water/Waste

System	Subsystem	Title	Definition
38		Water/waste	Fixed units and components that store and deliver for use, fresh water, and those fixed components which store and furnish a means of removal of water and waste. Includes wash basins, toilet assemblies, tanks, valves, etc.
	-00	General	
	-10	Potable	Subsystem used to store and deliver fresh drinking water. Includes wash water system if the potable water is also used for washing.
	-20	Wash	Subsystem used to store and deliver wash water which is not potable.
	-30	Waste disposal	Subsystem used for disposal of water and waste. Includes wash basins, water closets, flushing systems, etc.
	-40	Air supply	Subsystem common to more than one subsystem used for pressurizing supply tanks to insure fluid flow.

2.1.22 System 39 - Attack system management

Table 22 System 39 - Attack system management

System	Subsystem	Title	Definition
39		Attack system management	Functions and hardware used for attack system management. That includes digital information networking, crew-machine communication management (including knowledge-based help), stores management etc.
	-00	General	
	-10	Architecture management	General organization and its management depending on missions and their phases.
	-20	Attack system functions	Management of the different functions of the attack system depending on type of the missions and the different phases. In this subsystem, the classification of these functions is indicated with the management of their activity during the missions.
	-30	Attack system resources	Contributing resources of the attack system are listed and their role is presented depending on the missions and their different phases.
	-40	General rules of man-machine communication	Management of the man-machine communication by the system side (including knowledge-based functions).
	-50	Digital networks	Hardware and software related to digital networks (eg, MIL-1553 or STANAG 3810). Management of exchanges by these means is also to be presented.
	-60	Other information networks	Other networks needed in attack systems (network for video signals, network for blanking signals, etc).

Table 22 System 39 - Attack system management — Continued

System	Subsystem	Title	Definition
	-70	Stores management	Hardware and software within the air vehicle itself used for stores management.

2.1.23 System 40 - Operational attack functions

Table 23 System 40 - Operational attack functions

System	Subsystem	Title	Definition
40		Operational attack functions	Functions and hardware used for attack system operational aim. Links of these functions with technical functions are included.
	-00	General	
	-10	Navigational functions	Localization (with updating), flight management, approach and landing management etc.
	-20	Nap of the earth flight	Terrain following and obstacle avoidance management.
	-30	Self-protection	Defensive maneuvers and tactics elaboration against threats.
	-40	Information exchange and cooperation	Elaboration of pieces of information to be exchanged for cooperation with other air vehicles including Airborne Warning And Control System (AWACS) type air vehicles and ground or surface weapons systems.
	-50	Identification	Aerial and surface objects identification based on autonomous but also external (available through cooperation) identification means.
	-60	Air-to-air functions	Fire control functions related to air-to-air attacks. This subsystem can be divided as required to deal with bullet gun firing, short-range missiles, medium range or beyond visual range missiles firing (for single or multiple targets attack). These functions are generally spread between weapons seekers and computers and aircraft sensors, computers, etc. Also includes air-to-air management after weapon launch (to guide or help the weapon for the target hitting).
	-70	Air-to-surface functions	Fire control functions related to air-to-surface attacks. This subsystem can be divided as required to deal with bombs delivery, rockets or missiles firing (either short range, medium range or of fire and forget type). These weapons can be guided or not. These functions are generally spread between weapons seekers, computers, and aircraft sensors, computers, etc. Management of guidance when made onboard is also to consider in these subsystems.

2.1.24 System 41 - Water ballast

Table 24 System 41 - Water ballast

System	Subsystem	Title	Definition
41		Water ballast	Units and components provided for the storage, balancing, control, filling, discharge and dumping of water ballast. Does not include units or components covered in System 38.
	-00	General	
	-10	Storage	Subsystem which stores water solely for the purpose of providing airship ballast. Includes removable tanks (bladder cells), interconnecting balance pipes, filler valves, etc.
	-20	Dump	Subsystem used to dump water ballast during flight. Includes valves (remote/direct) manual/automatic controls, etc.
	-30	Indication	Subsystem used to indicate quantity, condition and relative distribution of the water ballast.

2.1.25 System 42 - Cross-technical attack functions

Table 25 System 42 - Cross-technical attack functions

System	Subsystem	Title	Definition
42		Cross-technical attack functions	Functions and hardware used for attacks execution. These technical functions considered in this system are common to many attack system operational functions, and therefore within the "crossroad" of the attack system.
	-00	General	
	-10	Mission system control and management	Functions in charge of scheduling and deciding about planned actions, priority management for resources consumption, etc.
	-20	Trajectory management	Functions dealing with trajectory constraints given by execution of operational functions and in charge of determination of the exact trajectory to follow (by autopilot) or to indicate (to the pilot).
	-30	Attack system compatibilities management	Function in charge of all the aspects related to electromagnetic compatibility between all the transmitters and receivers (including radios, ECM, radars, external stores, lasers, etc).
	-40	Tactical situation awareness	Functions in charge of establishing knowledge about tactical environment and its distribution to other functions (eg, fire control). The tactical situation awareness is based on information received from aircraft sensors, weapons seekers, cooperation, etc.
	-50	Mission preparation	Embedded functions dedicated to deal with data given before flight and dispatch them to the other attack functions.
	-60	Mission restitution	Embedded functions dedicated to take care of all the data needed to replay the whole or part of the mission later on.

Table 25 System 42 - Cross-technical attack functions — Continued

System	Subsystem	Title	Definition
	-70	Warnings and cautions management	Functions in charge of telling crew or ground personnel bad events. Here is to consider only the result of each system warning and caution activity and mainly the filtering process (including knowledge-based filters) to provide crew only with accurate messages depending on mission phases or aircraft status.

2.1.26 System 42 - Integrated modular avionics

Note

For this system the material item category code must be used in accordance with Chap 4.3.3.

Table 26 System 42 - Integrated modular avionics

System	Subsystem	Title	Definition
42		Integrated modular avionics	Generalize computing devices that can host software applications for system functions that had traditionally been implemented in dedicated hardware. The actual system functions are covered in their respective systems.
	-00	General	
	-20	Core system	
	-30	Network components	

2.1.27 System 43 - Tactical communications

Table 27 System 43 - Tactical communications

System	Subsystem	Title	Definition
43		Tactical communications	Units and components that furnish the crew with a means of communicating within the air vehicle, one air vehicle to another, and from the air vehicle to ground stations. Includes voice, C-W communicating components, PA system, intercom and recorder/record player.
	-00	General	
	-10	Ultra, super and extra high frequencies (UHF/SHF/EHF)	Subsystem used for communications utilizing UHF/SHF/EHF carriers. Includes transmitters, receivers, control panel, selcal decoder, antenna, etc.
	-20	Very high frequency (VHF)	Subsystem used for communications utilizing VHF carriers. Includes transmitters, receivers, control panel, selcal decoder, antenna, etc.
	-30	High frequency (HF)	Subsystem used for communications utilizing HF carriers. Includes transmitters, receivers, power supply, control panel, antenna, coupler, etc.

Table 27 System 43 - Tactical communications — Continued

System	Subsystem	Title	Definition
	-40	Low and very low frequency (LF/ VLF)	Subsystem used for communications utilizing LF/VLF carriers. Includes transmitters, receivers, power supply, control panel, antenna, coupler, etc.
	-50	Audio integrating	Subsystem that controls the output of the communications and navigation receivers into the crews' headphones and speakers and the output of the crews' microphones into the communications transmitter. Includes audio selector control panel, microphones, headphones, loudspeakers, etc.
	-60	Digital	Subsystem used for air vehicle to air vehicle or air vehicle to ground stations utilizing C-W. Includes teletypewriters, modems, keyers, encryption devices, etc.
	-70	Multiplex and audio switching	Subsystem used for telephone communications between air vehicles or ground stations. Includes items such as telephones and multiplexing equipment.
	-80	Interphone and passenger address	Subsystem used to address the passengers and used by the crew to communicate between areas of the air vehicle. Includes items such as amplifiers, speakers, handsets, control panels, audio, video and film equipment. Does not include the interphone system within the flight compartment that is part of the integrating system.
	-90	Satellite communications	Subsystem used for air vehicle to satellite communications. Includes receivers, transmitters, modems, amplifiers, etc.

2.1.28 System 44 - Cabin systems

Table 28 System 44 - Cabin systems

System	Subsystem	Title	Definition
44		Cabin systems	Units and components that furnish a means of entertaining the passengers and providing communication within the aircraft and between the aircraft cabin and ground stations. Includes voice, data, music and video transmissions. Does not include SATCOM, HF, VHF, UHF, and all transmitting/receiving equipment, antennas, etc, which are covered in System 23 or System 46.
	-00	General	
	-10	Cabin core system	Subsystem used to accomplish the integrated functional control, operation, testing and monitoring of cabin systems and the increase cabin comfort (such as active noise control). Includes controllers, cabin control panels, handsets, signs, loudspeakers, etc.
	-20	Inflight entertainment system	Subsystem used to entertain the passengers with music, video, information, games, etc. Includes items such as controllers, cabin control panels, audio and video equipment.

Table 28 System 44 - Cabin systems — Continued

System	Subsystem	Title	Definition
	-30	External communication system	Subsystem used by passengers and cabin crew to transmit and/or receive data/messages from air to air or from air to ground installations. Includes telephones, telefaxes, modems, AM/FM radio units, etc.
	-40	Cabin mass memory system	Subsystem used to store and process cabin related data, such as systems configuration data, multimedia programs, etc. Includes controllers, terminals, keyboards, disk drives, printers, modems, etc.
	-50	Cabin monitoring system	Subsystem used to monitor parts of the cabin area. Includes items such as surveillance cameras, monitors, etc. Does not include external anti-hijack devices or external video monitoring which are covered in System 23.
	-60	Miscellaneous cabin system	Subsystem used to support miscellaneous cabin functions.

2.1.29 System 45 - Central maintenance system (CMS)

Table 29 System 45 - Central maintenance system (CMS)

System	Subsystem	Title	Definition
45		Central maintenance system (CMS)	Units, components and associated system that interfaces with multiple air vehicle systems. Contains checkout and fault isolation procedures using a central computer complex and/or standard fault isolation procedures to locate a single system or component malfunction.
	-00	General	
	-04 thru -19	CMS/Air vehicle general	CMS interfaces with general air vehicle systems and identification of maintenance functions related to air vehicles.
	-20 thru -44 and -46 thru -49	CMS/Airframe systems	CMS interfaces with airframe systems and identification of maintenance functions related to airframe systems.
	-45	Central maintenance system	Subsystem that interfaces with other airplane systems, flight line mechanics and radio communications. Includes computers, storage devices, control and display devices.
	-50 thru -59	CMS/Structures	CMS interfaces with structures and identification of maintenance functions related to structures.
	-60 thru -69	CMS/Propellers	CMS interfaces with propeller and identification of maintenance functions related to propellers.
	-70 thru -89	CMS/Power plant	CMS interfaces with power plant and identification of maintenance functions related to power plant.

Table 29 System 45 - Central maintenance system (CMS) — Continued

System	Subsystem	Title	Definition
	-91 thru -99	CMS/Military systems	CMS interfaces with military systems and identification of maintenance functions related to military systems. **Note** Subsystem code is selected to match applicable system interface. For example, 4521-XX identifies all air conditioning monitoring and testing provided by the CMS and provides directions for using the CMS to execute those maintenance functions. Detailed testing not capable of coverage in System 45 is appropriately cross referenced and provided in System 21. Similarly, 45-32-XX identifies landing gear monitoring and testing provided by the CMS. 45-45-XX identifies the CMS itself.

2.1.30 System 46 - Systems integration and display

Table 30 System 46 - Systems integration and display

System	Subsystem	Title	Definition
46		Systems integration and display	The primary air vehicle system used to provide central acquisition, processing and display of data from multiple sources such as flight controls, navigation computation, air data computation, warnings, engine parameters, etc.
	-00	General	
	-10	Acquisition	Units and components used to acquire data for integration and processing. Excludes components covered by the system dealing with the system/subsystem from which the data is being obtained.
	-20	Processing and integration	Units and components used to integrate and process data acquired from a variety of sources and output signals to display or warning devices. Includes such items as interfaces, central processing units, data bus controls.
	-30	Display	Units which display data warning units, remote displays, etc.
	-40 thru -79	Systems integration, software packages	Information about those software packages that are applicable to more than one system of the air vehicle and can be classified as multi-system applicable software. This can be taken to mean software for computers that, in the event of failure of the computers in another system, assume responsibility for the management of that system and thus provides backup to the failed systems, even though the computer that is providing backup normally has no connection with the system for which it is the backup.

2.1.31 System 46 - Information system

Note

For this system the material item category code must be used in accordance with Chap 4.3.3.

Table 31 System 46 - Information system

System	Subsystem	Title	Definition
46		Information system	Units and components, that furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm, or microfiche. Includes units that are dedicated to the information storage and retrieval function such as an electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.
	-00	General	
	-10	Airplane general information systems	
	-20	Flight deck information systems	Onboard information system supporting the flight deck systems, flight deck crew and flight operations.
	-30	Maintenance information systems	Onboard flight information system supporting all onboard maintenance system functions, maintenance technicians, and any ground-based maintenance activity.
	-40	Passenger cabin information systems	Onboard information system supporting the passenger cabin, cabin operations, and flight attendants.
	-50	Miscellaneous information systems	Onboard information system supporting other functions, as defined by the user that cannot be related to the flight deck, passenger cabin, or maintenance.

2.1.32 System 47 - Liquid nitrogen

Table 32 System 47 - Liquid nitrogen

System	Subsystem	Title	Definition
47		Liquid nitrogen	Units and components used to generate, store, deliver and regulate liquid nitrogen to two or more using systems. Includes regulators, lines, manifolds, etc. Does not include liquid nitrogen handling components of the using system (ie, Subsystem 21-80).
	-00	General	
	-10	Generation/storage	Subsystem that generates and/or stores nitrogen. Includes tanks, cells reservoirs, accumulators, etc. Does not include plumbing, pumps, valves, controls, etc.
	-20	Distribution	Subsystem used to distribute nitrogen to the using systems. Includes plumbing, pumps, valves, regulators, etc.

Table 32 System 47 - Liquid nitrogen — Continued

System	Subsystem	Title	Definition
	-30	Controlling	The nitrogen controls that meter the nitrogen to the distribution components and into the using systems. Includes levers, switches, cables, etc.
	-40	Indicating	Subsystem used to indicate the flow rate, temperature and pressure of the nitrogen. Includes transmitters, indicators, etc.

2.1.33 System 48 - In-flight refueling tanker

Table 33 System 48 - In-flight refueling tanker

System	Subsystem	Title	Definition
48		In-flight refueling tanker	Units and components that store and deliver fuel to a receiver vehicle while in flight. Includes fuel storage units, distribution system, controls, sensors, etc, specifically used for in-flight refueling supply. Includes interfaces with other systems but does not include any dual-purpose item that is identified with another system. **Note** When systems and components serve both the operational and refueling system they are identified with the operational fuel system (Subsystem 28-00).
	-00	General	
	-10	Storage	Subsystem which stores fuel specifically for the purpose of in-flight refueling. Includes tank sealing, bladder type cells, ventilating system, cell and tank inter-connectors, over wing filler necks and caps, etc. Also includes reservoir feed pumping systems and reservoirs within the tanks that are not part of the distribution system.
	-20	Distribution	Subsystem used to distribute fuel from the filler connector to the storage system and from the storage system to and including the interface with the vehicle to vehicle transfer system. Includes plumbing, pumps, valves, controls, etc.
	-30	Delivery	Subsystem that accepts the fuel from the distribution portion and conducts it to the receiving vehicle. Includes refueling boom and nozzle or hose and drogue, boom control surfaces, actuators and hoist and stowage system. Does not include operator controls.
	-40	Controls	Subsystem used to control the transfer of fuel from tanker to receiving vehicle. Includes operator controls, indicators, inter vehicle communications.
	-50	Indicating	Subsystem used to indicate fuel quantity, temperature and pressure. Includes pressure warning systems for pumping within the storage and distribution areas.

Table 33 System 48 - In-flight refueling tanker — Continued

System	Subsystem	Title	Definition
	-60	Dump	Subsystem used to dump fuel overboard during flight. When the tanker vehicle dump system (Subsystem 28-30) is used, the interface with it is identified in this system. Includes plumbing, controls, indicators, chutes, etc.

2.1.34 System 49 - Airborne auxiliary power

Table 34 System 49 - Airborne auxiliary power

System	Subsystem	Title	Definition
49		Airborne auxiliary power	Airborne power plants (engines) installed on the air vehicle for the purpose of generating and supplying a single type or combination of auxiliary electric, hydraulic, pneumatic or other power. Includes power and drive section, fuel, ignition and control systems. Also wiring, indicators, plumbing, valves and ducts up to the power unit. Does not include generators, alternators, hydraulic pumps etc, or their connecting systems that supply and deliver power to their respective air vehicle systems.
	-00	General	
	-10	Power plant	For definitions, refer to System 71.
	-20	Engine	For definitions, refer to System 72.
	-30	Engine fuel and control	For definitions, refer to System 73.
	-40	Ignition/starting	For definitions, refer to System 74 and System 80.
	-50	Air	For definitions, refer to System 75.
	-60	Engine controls	For definitions, refer to System 76.
	-70	Engine indicating	For definitions, refer to System 77.
	-80	Exhaust	For definitions, refer to System 78.
	-90	Oil	For definitions, refer to System 79.

2.1.35 System 50 - Cargo and accessory compartment

Table 35 System 50 - Cargo and accessory compartment

System	Subsystem	Title	Definition
50		Cargo and accessory compartment	Compartments for storage of cargo and various components and accessories. Includes those systems used to load/unload cargo and other cargo related systems. Does not include aircraft structure that is in System 53.
	-00	General	
	-10	Cargo compartments	Compartments for storage of cargo.

Table 35 System 50 - Cargo and accessory compartment — Continued

System	Subsystem	Title	Definition
	-20	Cargo loading systems	Subsystems that have components that are or can be mounted on the aircraft and used to load/unload, restrain, guide or service cargo. Includes drive systems rollers, latches, restraint nets, etc.
	-30	Cargo related systems	Subsystems related to loading/unloading of cargo. Includes aircraft leveling, loader alignment systems etc. Does not include cargo loading systems.
	-40	Aerial delivery	Items required for air drop of cargo or personnel. Includes platforms, parachutes and drogue chutes, load release mechanisms and load transfer devices, anchor cables, static lines, retrieval winches, jump lines, etc.
	-50	Accessory compartments	Compartments used for the housing of various components and accessories. Includes wheel wells, tell-hydraulic-electrical/ electronic equipment racks, main battery structure, etc.
	-60	Insulation	Insulation blankets used for heat and sound insulation. Includes cargo compartments and accessory compartments, insulation, etc.

2.1.36 System 51 - Standard practices - Structures

Table 36 System 51 - Standard practices - Structures

System	Subsystem	Title	Definition
51		Standard practices - Structures	Standard practices, general procedures and typical repairs applicable to more than one structural task not specifically covered in System 52 thru System 57. Excludes those standard practices recognized as standard trade practices, also those practices/processes which are only applicable to manufacture. Practices for a particular application are included in the appropriate structural system as part of the procedure.
	-00	General	Standard practices applicable to all structural systems. Air vehicle major structural breakdown and primary and secondary structure diagrams. Principal area and dimensional data. Restricted area diagram. Zoning diagram. Access door and panel identification. Glossary.
	-10	Investigation, cleanup and aerodynamic smoothness	Definition of damage classifications. Cleanup of dents, cracks, scratches, corrosion, etc. Aerodynamic smoothness requirements for the airplane, and permissible contour variations, gaps and mismatch data.
	-20	Processes	Special processes for use in the repair of the airplane. It does not include general engineering practices unless specific deviations are required. Unique processes such as welding specifications, relative to a single repair are to be incorporated in the repair and only referenced here.

Table 36 System 51 - Standard practices - Structures — Continued

System	Subsystem	Title	Definition
	-30	Materials	Description of materials (metallic and non-metallic) including extrusions, formed sections, sheet, sealants, adhesives, and special materials used in airplane repair. Where possible, permissible substitutes and sources of supply will be given.
	-40	Fasteners	Description of fastener types, materials, and sizes. Procedures for fastener installation and removal including hole preparation. Fastener strength values and substitution data.
	-50	Support of airplane for repair and alignment check procedures	Procedure for supporting the airplane to relieve loads during repairs. Includes location for supports and contour dimensions for required support equipment.
	-60	Control-surface balancing	Procedures for adjusting the mass balance of control surfaces after repair. Where applicable, individual repairs will contain their own balancing instructions.
	-70	Repairs	Typical repairs suited for general use, not limited to one S1000D System
	-80	Electrical bonding	Topics concerning the electrical bonding of aircraft structures as well as electrical bonding of subsystems to aircraft structure.

2.1.37 System 52 - Doors

Table 37 System 52 - Doors

System	Subsystem	Title	Definition
52		Doors	Removable units used for entrance or exit and for enclosing other structure contained within the fuselage. Includes passenger and crew doors, cargo doors, emergency exits, etc. Electrical and hydraulic systems associated with door control are included as appropriate.
	-00	General	
	-10	Passenger/Crew	Doors used for entrance and exit of the passengers and crew to and from the air vehicle. Includes structure, latching mechanisms, handles, insulation, lining, controls, integral steps, ramps, handrails, attach/attached fittings, etc.
	-20	Emergency exit	Exit doors used to facilitate evacuation that are normally used for exit. Includes structure, latching mechanisms, handles, insulation, lining, controls, attach/attached fittings, etc.
	-30	Cargo	Exterior doors used primarily to gain access to cargo compartments. Includes structure, latching mechanisms, handles, insulation, lining, controls, integral steps, ramps, handrails, attach/attached fittings, etc.
	-40	Service and miscellaneous	Exterior doors used primarily to gain access for servicing air vehicle systems and equipment. Includes structure, latching mechanisms, handles, insulation, lining, controls, integral steps, handrails, attach/attached fittings, etc.

Table 37 System 52 - Doors — Continued

System	Subsystem	Title	Definition
	-50	Fixed interior	Doors inside the fuselage installed in fixed partitions. Includes structure, latching mechanisms, handles, lining, attach/attached fittings, etc. Does not include doors installed in movable partitions covered in System 25.
	-60	Entrance stairs	Stairs that operate in conjunction with but are not an integral part of entrance doors. Stairs whose primary structure is a door are covered under the appropriate topic. Includes structure, actuating mechanisms and controls, handrails, attach/attached fittings, etc.
	-70	Door warning	Subsystem used to indicate whether the doors are closed and properly latched. Includes switches, lights, bells, horns, etc. Does not include landing gear door warning that is covered in System 32.
	-80	Landing gear	Structure of the doors used to enclose the landing gear compartments. Includes structure, latching mechanisms, handles, insulation, lining, controls, attach/attached fittings, etc.

2.1.38 System 53 - Fuselage

Table 38 System 53 - Fuselage

System	Subsystem	Title	Definition
53		Fuselage	Structural units and associated components and members that make up the compartments for equipment, passengers, crew, cargo, plus the structure of the envelope and gondola of airships. Includes skins, belt frames, stringers, floor beams, floor, pressure dome, scuppers, tail cone, fuselage-to-wing-and-empennage fillets, attach/attached fittings, load curtains, cables, ballonets, etc. Also includes structural and removable pylons used for the carriage of external stores. Does not cover those pylons used for weapons covered in Subsystem 94-30.
	-00	General	
	-10 thru -90	Fuselage sections	Skins, main structure, secondary structure and fairings of the complete fuselage with any structural differences grouped together and highlighted by fuselage section location. The section locations are defined by manufacturing joints or other suitable demarcations in sequence from front to rear. Does not include movable partitions covered in System 25 nor the functional and maintenance aspects of variable aerodynamic fairings covered in System 27.

2.1.39 System 54 - Nacelles/pylons

Table 39 System 54 - Nacelles/Pylons

System	Subsystem	Title	Definition
54		Nacelles/Pylons	Structural units and associated components and members that furnish a means of mounting and housing the power plant or rotor assembly. Includes skins, longerons, belt frames, stringers, clamshells, scuppers, doors, nacelle fillets, attach/attached fittings, etc. Also includes the structure of power plant cowling inclusive of the structural portion of the inlet whether or not integral with the air vehicle. Structural portions of the exhaust systems are excluded where they are not integral with the airframe.
	-00	General	
	-10 thru -40	Nacelle section	Skins, primary structure, secondary structure, fillets and fairings of a complete nacelle with any structural differences grouped together and highlighted by specific nacelle designator. The section locations are defined by manufacturing joints or other suitable demarcations in a logical sequence.
	-50 thru -80	Pylon	Skins, primary structure, secondary structure, fillets and fairings of a complete pylon with any structure differences grouped together and highlighted by specific pylon designator. The section locations are defined by manufacturing joints or other suitable demarcations in a logical sequence.
	-90	Air management	Components which regulate and direct inlet air flow and/or provide engine air particle separation (EAPS).

2.1.40 System 55 - Stabilizers

Table 40 System 55 - Stabilizers

System	Subsystem	Title	Definition
55		Stabilizers	Horizontal and vertical stabilizers. Includes the structure of the elevator, rudder, auxiliary stabilizers and strakes.
	-00	General	
	-10	Horizontal stabilizer or canard	The horizontal airfoil of the tail or nose section to which an elevator can be attached. Includes spars, ribs, stringers, skins, access covers, tips, attach/attached fittings, etc.
	-20	Elevator	Removable airfoil attached to the horizontal stabilizer or canard and used for pitch control. Includes spars, ribs, stringers, skins, access covers, tabs, balance devices, attach/attached fittings, etc.
	-30	Vertical stabilizer	Vertical airfoil to which the rudder is attached. Includes, ribs, stringers, skins, access covers, tips, attach/attached fittings, etc.
	-40	Rudder	Removable airfoil attached to the vertical stabilizer and used for yaw control. Includes spars, ribs, stringers, skins, access covers, tabs, balance devices, attach/attached fitting, etc.

Table 40 System 55 - Stabilizers — Continued

System	Subsystem	Title	Definition
	-50	Auxiliary stabilizers and strakes	Fuselage mounted auxiliary stabilizers and strakes includes items such as spars, ribs, stringers, skins, access covers.

2.1.41 System 56 - Windows and canopies

Table 41 System 56 - Windows and canopies

System	Subsystem	Title	Definition
56		Windows and canopies	Fuselage and crew compartment windows and canopies, inclusive of windshield and those windows installed in doors. Associated electrical/hydraulic/pneumatic actuation systems are to be included.
	-00	General	
	-10	Flight compartment	Compartment in which the crew fly the aircraft. Includes the transparent material and its frame of movable and fixed windows, windshields and canopies, handles, latching mechanisms and associated electrical/hydraulic/pneumatic actuation systems, etc. Does not include doors or inspection/ observation windows.
	-20	Fuselage compartment	Compartment used for passengers/tactical crew/cargo, etc. Includes lounges, lavatories, buffets/galleys and coatrooms. Includes transparent material, its frame, frost shield, etc.
	-30	Door	Doors in the flight and fuselage compartments. Includes transparent material, its frame, etc. Does not include emergency exit windows.
	-40	Inspection and observation	Windows used for examining compartments and equipment in and about the air vehicle, astrodomes used for celestial navigation, and in-flight refueling operator's windows. Includes transparent material, its frame, etc.

2.1.42 System 57 - Wings

Table 42 System 57 - Wings

System	Subsystem	Title	Definition
57		Wings	Center wing and outer wing structural units and associated components and members that support the air vehicle in flight. Includes spars, skins, ribs, stringers, clamshells, scuppers etc, and integral fuel tank structure of the flaps, slats, ailerons or elevons (complete with tabs) and spoilers. Also includes structural and removable pylons used for carriage of external stores. Does not cover those pylons used for weapons that are covered in Subsystem 94-30.
	-00	General	

Table 42 System 57 - Wings — Continued

System	Subsystem	Title	Definition
	-10	Center wing	Skins, primary structure, fillets and fairings of the center wing and attach/attached fittings.
	-20	Outer wing	Skins, primary structure, fillets and fairings of the outer wing and attach/attached fittings.
	-30	Wing tip	Skins and structure of the wing tip and attached fittings.
	-40	Leading edge and leading edge devices	Skins and structure of the wing leading edge and removable leading edge airfoils such as flaps, slats, attach/attached fittings, etc.
	-50	Trailing edge and trailing edge devices	Skins and structure of the wing trailing edge and removable trailing edge ailerons such as flaps and attach/attached fittings.
	-60	Ailerons, elevons and flaperons	Skins and structure of ailerons, elevons, flaperons and tabs including balancing devices and attach/attached fittings, etc.
	-70	Spoilers	Skins and structure of wing-mounted spoilers, airbrakes, lift dumpers, attach/attached fittings, etc.
	-80	Wing folding	Subsystem that controls the on-ground movement of any portion of the main wing structure. Includes mechanisms linkages, actuators, locks, indicating/warning systems, etc. **Note** This represents the wing stow system and is not to be confused with System 66 Folding blades/pylon.

2.1.43 System 60 - Standard practices - Propeller/Rotor

Table 43 System 60 - Standard practices - Propeller/Rotor

System	Subsystem	Title	Definition
60		Standard practices - Propeller/Rotor	Standard mechanical and electrical/electronic engineering practices applicable to more than one propeller/rotor that are not covered in System 61 thru System 69. It excludes those practices that are recognized as standard trade practices, also those practices/processes which are only applicable to manufacture. Practices for a particular application are included in the appropriate propeller/rotor system as part of the procedure.
	-00	General	Standard practices applicable to all propeller/rotor systems.
	-10 thru -90		Subsystem 60-10 thru Subsystem 60-90 are used to describe standard practices. The manufacturer or manufacturing partners can assign the subsystem numbers to suit generic standard practices related to more than one propeller or rotor system.

2.1.44 System 61 - Propellers/Propulsors

Table 44 System 61 - Propellers/Propulsors

System	Subsystem	Title	Definition
61		Propellers/Propulsors	The complete mechanical or electrical propeller, pumps, motors, governor, alternators and those units and components external to or integral with the engine used to control the propeller blade angle. Includes propeller spinner synchronizers. Also includes propulsor duct assemblies, including aerodynamic fairing of mechanical components, stators, vectoring systems, etc.
	-00	General	
	-10	Propeller assembly	Subsystem that rotates except the engine propeller shaft. Includes blades, dome, hub, spinner, slip ring, deicer boot, distributor valve, etc.
	-20	Controlling	Subsystem that controls the pitch of the propeller blades. Includes items such as governor synchronizers, switches, wiring, cables, levers, etc. Does not include any parts that rotate with the propeller assembly. Also includes all those units and components provided for the propulsor vector drive system. Includes flight deck control, drive motors, gearboxes, drive shafts, synchronizing shafts, etc.
	-30	Braking	Subsystem used to decrease run-down time or stop propeller rotation during engine power-off conditions. Includes brake mechanisms, levers, pulleys, cables, switches, wiring, plumbing, etc.
	-40	Indicating	Subsystem used to indicate operation or activation of propeller/propulsor systems. Includes light, switches, wiring, etc.
	-50	Propulsor duct	The complete duct assembly including vector drive attachment, fairings, stators, gearbox covers, etc.

2.1.45 System 62 - Main rotors

Table 45 System 62 - Main rotors

System	Subsystem	Title	Definition
62		Main rotors	Rotor head assemblies and rotor blades, including the swash plate assemblies and the rotor shaft units if not an integral part of the gearboxes. Does not include the rotor anti-icing system that is dealt with in System 30, Ice and rain protection.
	-00	General	
	-10	Rotor blades	Rotor blade assemblies, including the heating mat (electrical resistors) for anti-icing.

Table 45 System 62 - Main rotors — Continued

System	Subsystem	Title	Definition
	-20	Rotor heads	Complete rotor heads, including blade folding systems. Includes sleeves, spindles, dampers, rotor head fairings as well as rotor shafts and swash plates if the rotor head and shaft constitute a non-dissociable assembly.
	-30	Rotating controls, rotor shafts/swash plate assemblies	Pitch change rods and swash plate assemblies if not included in Subsystem 62-20.
	-40	Indicating	Subsystem that indicates operation or activation of rotor systems. Includes lights, gauges, switches, wiring, etc.

2.1.46 System 63 - Main rotor drives

Table 46 System 63 - Main rotor drives

System	Subsystem	Title	Definition
63		Main rotor drives	Components transmitting power to the rotors: engine coupling components, drive shafts, clutch and free wheel units, gearboxes, it's (their) components, systems and securing elements.
	-00	General	
	-10	Engine/Gearbox couplings	Drive shafts between engines and main gearboxes, gearbox to gearbox, and, if applicable, clutch and free wheel units.
	-20	Gearboxes	Subsystem driving the rotors. Includes the mechanical power take-offs and accessory drives but does not include the accessories themselves (alternators, hydraulic pumps etc). Includes the gearbox lubricating systems and the rotor brakes if the latter forms part of the gearboxes.
	-30	Mounts and attachments	Suspension bars, vibration damping system providing attachment of the gearboxes to the airframe.
	-40	Indicating	Subsystem that indicates operation or activation of rotor systems. Includes lights, gauges, switches, wiring, etc.

2.1.47 System 64 - Tail rotor

Table 47 System 64 - Tail rotor

System	Subsystem	Title	Definition
64		Tail rotor	Assembly that rotates in a plane nearly parallel to the symmetry plane and delivers a thrust opposing to the main rotor torque thus ensuring yaw control. Includes the rotor blades and rotor head. Does not include the rotor anti-icing system that is dealt with in System 30, Ice and rain protection.
	-00	General	

Table 47 System 64 - Tail rotor — Continued

System	Subsystem	Title	Definition
	-10	Rotor blades	Blade assemblies, including the heating mats (electrical resistors) for anti-icing. **Note** For an integral unit, only one subsystem will be used.
	-20	Rotor head	Tail rotor head **Note** For an integral unit, only one subsystem will be used.
	-30	Rotating controls	Pitch control beams, links and associated components.
	-40	Indicating	Subsystem that indicates operation or activation of rotor systems. Includes lights, gauges, switches, wiring, etc. **Note** For an integral unit, only one subsystem will be used.

2.1.48 System 65 - Tail rotor drive

Table 48 System 65 - Tail rotor drive

System	Subsystem	Title	Definition
65		Tail rotor drive	Includes all the components transmitting power to the tail rotor: drive shafts, bearings, gearboxes.
	-00	General	
	-10	Shafts	Drive shafts, bearings, flexible couplings.
	-20	Gearboxes	Intermediate gearbox. Tail gearbox.
	-30	Not available for projects	
	-40	Indicating	Subsystem that indicates operation or activation of rotor system. Includes lights, gauges, switches, wiring, etc.

2.1.49 System 66 - Folding blades/pylon

Table 49 System 66 - Folding blades/Pylon

System	Subsystem	Title	Definition
66		Folding blades/ Pylon	The whole of the system that provides automatic or manual folding and spreading of the rotor blades and/or tail pylon. **Note** Procedures produced in accordance with this system can also affect the components described by other systems.
	-00	General	

Table 49 System 66 - Folding blades/Pylon — Continued

System	Subsystem	Title	Definition
	-10	Rotor blades	Subsystem ensuring rotor blade folding and spreading. Includes the mechanical, hydraulic and electrical means permanently fitted on the air vehicle.
	-20	Tail pylon	Subsystem ensuring tail pylon folding and spreading. Includes mechanical, hydraulic and electrical means permanently fitted on the air vehicle.
	-30	Controls and indicating	Subsystem intended for controlling folding/spreading sequences and for indicating the system operation. Includes the control units, caption lights, indicator, wiring, etc.

2.1.50 System 67 - Rotors flight control

Table 50 System 67 - Rotors flight control

System	Subsystem	Title	Definition
67		Rotors flight control	The system that provides means of manually controlling the flight attitude of the helicopter. Includes items such as control linkage and control cables for collective pitch, cyclic pitch, directional control, servo-controls and corresponding system. The trim system and the indicating and monitoring system. **Note** This system includes the complete rigging of rotor control including the associated items not described under this system, such as auto-pilot, servo-control unit, automatic trim (System 22), blade pitch change rods, beams and swash plates (System 62 and System 64).
	-00	General	
	-10	Rotor control	Subsystem that controls the attitude by the angle of attack of the rotor blades. Includes items such as collective pitch lever, cyclic pitch stick and corresponding linkage and cable controls, coupling and mixing units and artificial feel unit systems. Also includes the control position indicating system.
	-20	Anti-torque rotor control (yaw control)	Subsystem that controls the direction of the helicopter (yaw control). Includes items such as tail rotor control pedals, relevant linkage and cable controls, bell cranks constituting the yaw control channel and the control position indicating system.
	-30	Servo-control system	Subsystem that from a power source ensures distribution to the rotor servo-control system. Includes items such as pressure relief valves, electro valves, check valves, accumulators and equipment needed for the operation of the servo-control system, the servo-controls, the systems used for monitoring and indicating the operation of the servo-control system.

2.1.51 System 68 - Integrated flight and propulsion controls

Table 51 System 68 - Integrated flight and propulsion controls

System	Subsystem	Title	Definition
68		Integrated flight and propulsion controls (IFPCS)	Integrated flight and propulsion control that combines all computing, controls, flight data information and effectors to analyze and control the aircraft in all phases of flight. The subsystems are a provisional breakdown and could be revised in a future S1000D issue to account for emerging Distributed Electric Propulsion standards.
	-00	General	
	-10	Pilot inceptors	Those portions of the system that transmit pilot inputs to the flight control computer.
	-20	Flight sensors	The portion of the system that provides environmental and flight information. This can include pitot/static, air temperature, rate-of climb, airspeed, altitude, attitude and directional data. Alternatively, this subsystem can be found in 34-10.
	-30	Processing and communications	The portion of the system that combines sensor data, pilot inputs and flight environment to process and transmit signals to control the aircraft in a safe and effetive manner.
	-40	Control surface effectors	That portion of the system that controls the position and movement of ailerons, rudders, elevators, ruddervators, flaps and spoilers.
	-50	Static propulsion effectors	That portion of the system that controls a propulsion station that does not change orientation, geometry, or position during operation.
	-60	Dynamic propulsion effectors	That portion of the system that controls a propulsion station whose orientation, geometry or position changes in response to commands from the integrated flight control computer to alter the direction of flight.
	-90	Primary flight and propulsion control system (PFPCS)	That portion of the system, which centralizes all controls and computing means common to multiple primary flying control surfaces and propulsion units. This includes items such as flight/propulsion control computer, flight data concentrator, side sticks, BUS coupler, rate gyro meter, accelerometer, etc.

2.1.52 System 70 - Standard practices - Engine

Table 52 System 70 - Standard practices - Engine

System	Subsystem	Title	Definition
70		Standard practices - Engine	Standard mechanical, electrical, electronic etc, engineering practices applicable to more than one engine task which are not covered in System 71 thru System 84. It excludes those practices that are recognized as standard trade practices, also those practices/processes which are only applicable to manufacture. Practices for a particular application are included in the appropriate engine system as part of the procedure.

Table 52 System 70 - Standard practices - Engine — Continued

System	Subsystem	Title	Definition
	-00	General	Standard practices applicable to all engine and associated systems.
	-10	Marking and masking	Marking and masking processes and any required test of process and/or product.
	-20	Cleaning and coating removal	Chemical and mechanical cleaning procedures, removal of coating by chemical or mechanical processes.
	-30	Inspection	Inspection processes such as hardness measurement, fluorescent penetrant, eddy current. Includes any required test of process and/or product.
	-40	Repair principles	Various processes applicable to repair engine parts (eg, riveting, machining, heat treatment). Includes any required test of process and/or product.
	-50	Surface preparation	Processes to prepare a surface of a part before coating application (eg, abrasive blast etching) or to modify the surface hardness (eg, glass bead peening) Includes any required test of process and/or product.
	-60	Coating application	Processes to apply a coating on engine parts such as nickel plating, oxide film, lubricants, paints. Includes any required test of process and/or product.
	-70	Assembly	Processes applied during engine assembly such as locking method. Includes any required test of process and/or product.
	-80	Disassembly	Processes applied during engine disassembly such as requirements for installing blanks and special inspections.

2.1.53 System 71 - Power plant

Table 53 System 71 - Power plant

System	Subsystem	Title	Definition
71		Power plant	The overall power package including engine, air intake, mount, cowling, scoops, cowl flaps.
	-00	General	General information, limits and procedures. This subsystem also covers subjects such as engine changes, run-up, externally-mounted spare power plants, etc. This subsystem also covers subjects such as power plant build-up, teardown, etc.
	-10	Cowling	Removable coverings that extend over and around the power plant assembly. Includes the functioning and maintenance aspects of items such as accessory section cowls, cowl flaps, cowling supports and attach and locking mechanisms, etc. Does not include the structure integral with the airframe that is covered by the applicable system structure.
	-20	Mounts	The framework, either of build-up construction or forgings which support the engine and attach it to the nacelle or pylon. Includes engine mounts, vibration dampeners, support links, mounting bolts, etc.

Table 53 System 71 - Power plant — Continued

System	Subsystem	Title	Definition
	-30	Fire seals	Fire-resistant partitions and seals mounted on or about the power package for the purpose of isolating areas subject to fire. Does not include those fire walls which are included in System 54.
	-40	Attach fittings	Fittings and brackets used for the support of equipment in and about the power package.
	-50	Electrical harness	Electrical cables, conduits, plugs, sockets etc, which serve several power plant systems, but which are banded together to facilitate removal and installation of the power plant. Does not include the wiring that is specifically covered under another system.
	-60	Air intakes	Power plant system that directs and can or cannot vary the mass air flow to the engine. Includes nose ring cowls, scoops, compressor fan cowls, buried engine ducts, vortex generators, actuators, control handles, cables, wiring, plumbing, linkages, doors, warning systems, position indicators, etc. This does not include integral structure with the airframe, which are included in the applicable system structure.
	-70	Engine drains	Components and manifold assemblies used to drain off excess fluids from the power plant and its accessories. Includes drain lines, manifolds, tanks, flame arrestors, vents and their supporting brackets, etc. Also includes components that are an integral part of or fitted to the power plant cowling.
	-80	Engine ancillary systems	Components and manifold assemblies used to deliver compressor wash fluids to the engine. Includes plumbing, valves, controls, air supply lines for closing compressor bleeds etc.

2.1.54 System 72 - Engine

Table 54 System 72 - Engine

System	Subsystem	Title	Definition
72		Engine	Units and components used to induce and convert fuel-air mixture into power. Includes for the basic turbine engine: air inlet, compressor, diffuser, combustion chambers, turbine, exhaust, etc. Includes for the reciprocating engine: blower and clutch, clutch control valve, cylinders, cylinder baffles, intake pipes, crankshaft assembly, etc. Used to transmit power to the propeller shaft, if any, and accessory drives. Includes reduction gearing, gear trains, extension shaft and torque meter.

Table 54 System 72 - Engine — Continued

System	Subsystem	Title	Definition
			Within the profile of the basic engine, used to supplement the functioning of other defined systems external to the engine. Includes accessory drive, mechanical portion of the spark advance mechanism, oil transfer tubes from the propeller governor pad to the propeller shaft, Break Mean Effective Pressure (BMEP) section, etc.
			Used to control and direct the flow of lubrication through the engine from the inlet fitting to the outlet fitting. Includes engine pumps (pressure and scavenger), pressure relief valves, screens, oil lines (internal and external), etc.

2.1.55 System 72 - Engine turbine/turboprop Ducted fan/Inducted fan

Table 55 System 72 - Engine turbine/turboprop Ducted fan/Inducted fan

System	Subsystem	Title	Definition
72		Engine turbine/ turboprop Ducted fan/inducted fan	
	-00	General	Subsystem covering general information, limits and procedures. In the engine manual it includes subjects as tear down, cleaning, inspection, assembly, testing, etc.
	-10	Reduction gear, shaft section (turboprop and/or front mounted gear driven propulsor)	Subsystem containing the propeller shafts and reduction gears. Includes items such as drives for hose mounted accessories, etc. If applicable, the section of the engine that uses mechanical force, through a gear-driven system, to drive front mounted propulsors which provide the majority of the energy generated. Includes propulsor blades, actuation systems, reduction gears, drive-shafts, etc.
	-20	Air inlet section	Subsystem through which the air enters the compressor. Includes guide vanes, shrouds, cases, etc.
	-30	Compressor section	Subsystem in which the air is compressed. Includes cases, vanes, shrouds, rotors, diffusers, etc. Also includes the maintenance of stator blades but not the operation of variable stator blades that is covered under Subsystem 75-30. Does not include compressor bleed system.
	-40	Combustion section	Subsystem in which the air and fuel are combined and burned. Includes burner cans, cases, etc.
	-50	Turbine section	Subsystem containing the turbines. Includes turbine nozzles, turbine rotors, cases, etc.
	-60	Accessory drives	The mechanical power take-offs to drive accessories. Includes engine mounted gear boxes, gears, seals, pumps, etc. Does not include remotely installed gear boxes which are covered in System 83.

Table 55 System 72 - Engine turbine/turboprop Ducted fan/Inducted fan — Continued

System	Subsystem	Title	Definition
	-70	By-pass section	Subsystem that by-passes a portion of the normal engine airflow (either ram or compressed air) for the prime purpose of adding to engine thrust or reducing specific fuel consumption.
	-80	Propulsor section (rear mounted)	Subsystem that contains a propulsors and provides the majority of the energy generated. The propulsor can be turbine driven or gear driven. Includes such items as propulsor turbines, propulsor blades, blade actuation, and frames (rotating and/or stationary).
	-90	Multi-system hardware	Subsystem of the engine made up of more than one of the above given subsystems (eg, gas generator, core engine).

2.1.56 System 72 - Engine reciprocating

Table 56 System 72 - Engine reciprocating

System	Subsystem	Title	Definition
72		Engine reciprocating	
	-00	General	Subsystem covering general information, limits and procedures. Includes subjects as tear down cleaning, inspection, assembly, testing, etc.
	-10	Front section	Subsystem that contains the propeller shafts and reduction gears. Includes drives for nose mounted accessories, etc.
	-20	Power section	Subsystem that contains the crankshaft, master and link rod assemblies, cams, cam drive gears, tappet guides, rollers, carriers, etc.
	-30	Cylinder section	Subsystem that contains the cylinders, valves, pistons, push rods, intake pipes, baffles, etc. Also includes rocker arm assembly, valve springs, etc.
	-40	Supercharger section	Subsystem that contains cases, shroud plates, PRT coupling and gearing, impeller and drives, accessory drives, bushings, etc.
	-50	Lubrication	Units and components used to distribute oil throughout the engine. Includes front and rear pressure and scavenger pumps, sumps, strainers, valves, etc. Also includes those oil lines not included in System 79. Does not include those items that form integral passages within the engine.

2.1.57 System 72 - Engine electric

Table 57 System 72 - Engine electric

System	Subsystem	Title	Definition
72		Engine electric	

Table 57 System 72 - Engine electric — Continued

System	Subsystem	Title	Definition
	-00	General	This section is intended to cover general information, limits, and procedures. In the engine manual it includes such subjects as tear down, cleaning, inspection, assembly, testing, etc.
	-10	Motor	The section of the engine that converts electrical energy into mechanical energy. Includes items such as drives, shafts, inverter, wiring, etc.
	-20	Controlling	That section of the engine which provides a means of control or to govern operation of the engine.
	-30	Gearbox	If applicable, the section of the engine which uses mechanical force, through a gear-driven system, from the motor to the propulsor. Includes items such as propulsor blades, actuation systems, reduction gears, drive-shafts, etc.
	-40	Cooling	Those units and components which are used to provide and control thermal management. Includes items such as tubes, heat exchanger, coolants, etc.
	-50	Lubrication	Those units and components which are used to provide and distribute lubricant to the applicable components. Includes items such as pumps, sumps, strainers, valves, etc.

2.1.58 System 73 - Engine fuel and control

Table 58 System 73 - Engine fuel and control

System	Subsystem	Title	Definition
73		Engine fuel and control	For turbine engines, those units and components and associated mechanical systems or electrical circuits that furnish or control fuel to the engine beyond the main fuel quick disconnect and thrust augmenter, fuel flow rate sensing, transmitting and/or indicating units whether the units are before or beyond the quick disconnect. It includes coordinator or equivalent, engine driven fuel pump and filter assembly, main and thrust augmenter fuel controls, electronic temperature datum control, temperature datum valve, fuel manifold, fuel nozzles, fuel enrichment system, speed sensitive switch, relay box assembly, solenoid drip valve, burner drain valve, etc. For reciprocating engines, those units and components which deliver metered fuel and air to the engine. The fuel portion includes the carburetor/master control from the inlet side to the discharge nozzle, injection pumps, carburetor, injection nozzles and fuel primer. The air portion includes units from the scoop inlet to the vapor vent return and the impeller chamber.
	-00	General	

Table 58 System 73 - Engine fuel and control — Continued

System	Subsystem	Title	Definition
	-10	Distribution	Subsystem from the main quick disconnect to the engine, which distributes fuel to the engine burner section and the thrust augmenter. Includes plumbing, pumps, temperature regulators, valves, filters, manifold, nozzles, etc. Does not include the main or thrust augmenter fuel control.
	-20	Controlling	Main fuel control that meters fuel to the engine and to the thrust augmenter. Includes hydro mechanical or electronic fuel control, levers, actuators, cables, pulleys, linkages, sensors, valves, etc, which are components of the fuel control units.
	-30	Indicating	Subsystem used to indicate the flow rate, temperature and pressure of the fuel. Includes transmitters, indicators, wiring, etc. Does not include indication, if indication is accomplished as part of an integrated engine instrument system (Subsystem 77-40).

2.1.59 System 74 - Ignition

Table 59 System 74 - Ignition

System	Subsystem	Title	Definition
74		Ignition	Units and components that generate, control, furnish, or distribute an electrical current to ignite the fuel air mixture in the cylinders of reciprocating engines or in the combustion chambers or thrust augmenters of turbine engines. Includes induction vibrators, magnetos, switches, lead filters, distributors, harnesses, plugs, ignition relays, exciters and the electrical portion of spark advance.
	-00	General	
	-10	Electrical power supply	Subsystem that generates electrical current for the purpose of igniting the fuel mixture in the combustion chambers and thrust augmenters. Includes magnetos, distributors, booster coils, exciters, transformers, storage capacitors and compositors, etc.
	-20	Distribution	Subsystem that conducts high or low voltage electricity from the electrical power supply to the spark plugs, or igniters. Includes wiring between magneto and distributor in those systems where they are separate units. Includes items such as ignition harness, high tension leads, coils as used in low tension systems, spark plugs, igniters, etc.
	-30	Switching	Subsystem that provides a means of rendering the electrical power supply inoperative. Includes ignition switches, wiring, connectors, etc.

2.1.60 System 75 - Air

Table 60 System 75 - Air

System	Subsystem	Title	Definition
75		Air	For turbine engines, those external units and components and integral basic engine parts that go together to conduct air to various portions of the engine and the extension shaft and torque-meter assembly, if any. Includes compressor bleed systems used to control flow of air through the engine, cooling air systems and heated air systems for engine anti-icing. Does not include aircraft anti-icing, engine starting systems, nor exhaust supplementary air systems.
	-00	General	
	-10	Engine anti-icing	Subsystem used to eliminate and prevent the formation of ice by bleed air in all parts of the engine, excluding power plant cowling which is covered under System 30. Includes valves, plumbing, wiring, regulators, etc. Electrical anti-icing is covered in System 30.
	-20	Cooling	Subsystem used to ventilate the engine and accessories. Includes valves, plumbing, wiring, jet pumps, vortex spoilers, etc.
	-30	Compressor control	Subsystem used to control the flow of air through the engine. Includes governors, valves, actuators, linkages, etc. Also includes the operation of variable stator blades, but not the maintenance that is covered under Subsystem 72-30.
	-40	Indicating	Subsystem used to indicate temperature, pressure, control positions etc, of the air systems. Includes transmitters, indicators, wiring, etc.
	-50	Air intake foreign object removal	Subsystem used to remove foreign objects from the engine air intake.

2.1.61 System 76 - Engine controls

Table 61 System 76 - Engine controls

System	Subsystem	Title	Definition
76		Engine controls	Controls that govern operation of the engine. Includes units and components that are interconnected for emergency shutdown. For turbo-prop engines, includes linkages and controls to the coordinator or equivalent and from the coordinator or equivalent to the propeller governor, fuel control unit or other units being controlled. For reciprocating engines, includes controls for blowers. Does not include units or components that are specifically included in other systems.
	-00	General	

Table 61 System 76 - Engine controls — Continued

System	Subsystem	Title	Definition
	-10	Power control	Subsystem that furnishes a means of controlling the main fuel control or coordinator. Includes controls to the propeller regulator on turbo-prop engines. Includes linkages, cables, levers, pulleys, switches, wiring, etc. Does not include the units themselves.
	-20	Emergency shutdown	Subsystem that furnishes a means of controlling the flow of fluids to and from the engine during emergency procedures. Includes levers, cables, pulleys, linkages, switches, wiring, etc. Does not include the units themselves.

2.1.62 System 77 - Engine indicating

Table 62 System 77 - Engine indicating

System	Subsystem	Title	Definition
77		Engine indicating	Units, components and associated systems that indicate engine operation. Includes indicators, transmitters, analyzers, etc. For turbo-prop engines includes phase detectors. Does not include systems or items that are specifically included in other systems except when indication is accomplished as part of an integrated engine instrument system (Subsystem 77-40).
	-00	General	
	-10	Power	Subsystem that directly or indirectly indicates power or thrust. Includes BMEP, pressure ratio, RPM, etc.
	-20	Temperature	Subsystem that indicates temperatures in the engine. Includes cylinder head, exhaust (turbine inlet), etc.
	-30	Analyzers	Subsystem used to analyze engine performance or condition by means of instruments or devices such as oscilloscopes, etc. Includes generators, wiring, amplifiers, oscilloscopes, etc.
	-40	Integrated engine instrument systems	Subsystem that, as an integrated concept, receives several/all engine operating parameters and then transmits this to a central processor for crew presentation. Includes display units, transmitters, receivers, computers, etc.

2.1.63 System 78 - Exhaust

Table 63 System 78 - Exhaust

System	Subsystem	Title	Definition
78		Exhaust	Units and components that direct the engine exhaust gases overboard. For turbine engines, includes units external to the basic engine such as thrust reverser and noise suppressor. For reciprocating engines, includes augmenters, stacks, clamps, etc. Excludes exhaust driven turbines.

Table 63 System 78 - Exhaust — Continued

System	Subsystem	Title	Definition
	-00	General	
	-10	Collector/Nozzle	Subsystem that collects the exhaust gases from the cylinders or turbines. Includes item such as collector rings, exhaust ducts, variable nozzles, actuators, plumbing, linkages, wiring, position indicators, warning systems, etc. Does not include power recovery turbines, turbo-superchargers etc, nor noise suppressors or thrust reversers where they are not an integral part of the nozzle system.
	-20	Noise suppressor	Subsystem that reduces the noise generated by the exhaust gases. Includes pipes, baffles, shields, actuators, plumbing linkages, wiring, position indicators, warning systems, etc. Use Subsystem 78-10 where integral part of nozzle system.
	-30	Thrust reverser	Subsystem used to change the direction of the exhaust gases for reverse thrust. Includes clamshells, linkages, levers, actuators, plumbing, wiring, indicators, warning systems, etc. Use Subsystem 78-10 where integral part of nozzle system.
	-40	Supplementary air	Subsystem that varies and controls supplementary air flow of the exhaust system. Includes tertiary air doors, actuators, linkages, springs, plumbing, wiring, position indicators, warning systems, etc.
	-50	Augmenter	Subsystem that provides additional thrust for takeoff and in-flight at the command of the pilot. Includes liners, rings, actuators, linkages, wiring, indicators, warning systems, etc. Does not include augmentation external to the power plant covered in System 84 Propulsion augmentation.
	-60	Dissipation/Deflection	Subsystem that dilutes and/or redirects engine exhaust away from the aircraft for the purpose of reducing infrared (IR) signature and decreasing exhaust temperatures.

2.1.64 System 79 - Oil

Table 64 System 79 - Oil

System	Subsystem	Title	Definition
79		Oil	Units and components external to the engine concerned with storing and delivering lubricating oil to and from the engine. Covers all units and components from the lubricating oil engine outlet to the inlet, including the inlet and outlet fittings, tank, radiator, by-pass valve etc, and auxiliary oil systems.

Table 64 System 79 - Oil — Continued

System	Subsystem	Title	Definition
	-00	General	
	-10	Storage	Subsystem used for storage of oil. Includes tanks, filling systems, internal hoppers, baffles, tank sump and drain, etc. Does not include tanks that are an integral portion of the engine.
	-20	Distribution	Subsystem used to conduct oil from and to the engine. Includes plumbing, valves, temperature regulator, control systems, etc.
	-30	Indicating	Subsystem used to indicate the quantity, temperature and pressure of the oil. Includes transmitters, indicators, wiring, warning systems, etc. Does not include indication if indication is accomplished as part of an integrated engine instrument system (Subsystem 77-40).

2.1.65 System 80 - Starting

Table 65 System 80 - Starting

System	Subsystem	Title	Definition
80		Starting	Units, components and associated systems used for starting the engine. Includes electrical, inertia air or other starter systems. Does not include ignition systems that are covered in System 74.
	-00	General	
	-10	Cranking	Subsystem used to perform the cranking portion of the starting operation. Includes plumbing, valves, wiring, starters, switches, relays, etc.

2.1.66 System 81 - Turbines

Table 66 System 81 - Turbines

System	Subsystem	Title	Definition
81		Turbines	For reciprocating engines only. Includes power recovery turbine assembly and turbo-supercharger unit when external to the engine.
	-00	General	
	-10	Power recovery	Turbines that extract energy from the exhaust gases and are coupled to the crankshaft.
	-20	Turbo-supercharger	Turbines that extract energy from the exhaust gases and drive an air compressor.

2.1.67 System 82 - Water injection

Table 67 System 82 - Water injection

System	Subsystem	Title	Definition
82		Water injection	Units and components which furnish, meter and inject water or water mixtures into the induction system, includes tanks, pumps, regulators, etc.
	-00	General	
	-10	Storage	Subsystem used for the storage of water or water mixtures. Includes tank sealing, attachment of bladder type cells, ventilating system, cell and tank interconnections, filling systems, etc.
	-20	Distribution	Subsystem used to conduct water or water mixtures from the tanks or cells to the engine. Includes plumbing, cross feed system, pumps, valves, controls, etc.
	-30	Dumping and purging	Subsystem used to dump injection water and to purge the system. Includes plumbing, valves, controls, etc.
	-40	Indicating	Subsystem used to indicate the quantity, temperature and pressure of the water or water mixtures. Includes transmitters, indicators, wiring, etc.

2.1.68 System 83 - Accessory gearboxes

Table 68 System 83 - Accessory gearboxes

System	Subsystem	Title	Definition
83		Accessory gearboxes	Units and components that are remotely installed and connected to the engine by a drive shaft and which drive multiple types of accessories. Does not include those accessory drives bolted to and are immediately adjacent to the engine. The latter item is covered under System 72.
	-00	General	
	-10	Drive shaft section	Subsystem used to conduct power from the engine to the gearbox. Includes drive shaft, adapters, seals, etc.
	-20	Gearbox section	Case that contains the gear trains and shafts. Includes gears, shafts, seals, oil pumps, coolers, etc.

2.1.69 System 84 - Propulsion augmentation

Table 69 System 84 - Propulsion augmentation

System	Subsystem	Title	Definition
84		Propulsion augmentation	Units and components that, independent of the primary propulsion system, furnish additional thrust of short duration. Includes solid or liquid propellants, controls, indicators, etc.
	-00	General	

Table 69 System 84 - Propulsion augmentation — Continued

System	Subsystem	Title	Definition
	-10	Jet assist takeoff	Units or components dedicated to jet assist takeoff systems.

2.1.70 System 85 - Fuel cell system

Table 70 System 85 - Fuel cell system

System	Subsystem	Title	Definition
85		Fuel cell system	Units and components using an electrochemical conversion process to produce electricity from a fuel (on the anode side) and an oxidant (on the cathode side). It includes reactants and reaction products supply/exhaust devices, fuel cell stacks, electric power output devices, cooling and/or heating devices and a centralized control and monitoring subsystem.
	-00	General	Subsystem covering general information, limits and procedures applicable for the complete system not only subsystems. It also includes the system control and indication. It does not include subsystem controls that are covered by each individual subsystem.
	-10	Fuel cell stack	Fuel cell system achieving electrochemical conversion of fuel and oxidant into electrical energy, thermal energy and exhaust gas. It includes fuel cell housing, fitting, wiring and all devices allowing the connection to other fuel cell subsystems.
	-20	Fuel storage and supply	Units and components storing and/or delivering fuel to the fuel cell stacks.
	-30	Oxidant storage and supply	Those units and components storing and/or delivering oxygen/air to the fuel cell stacks.
	-40	Thermal management	Subsystem used to cool or heat the fuel cell stacks, the power electronics and accessories. It includes cooler, blower, heating devices, valves, etc.
	-50	Power conditioning	Units and components used to provide the electrical power in the condition needed by the aircraft network and the fuel cell system itself. It includes converter, contactor, filter, etc.
	-60	Exhaust conditioning	Units and components necessary to process the exhaust for further use. It includes condenser, dryer, valves, etc.
	-70	Interface	Units and components used to connect the system to the rest of the aircraft: structure, the environment and other systems. It includes mounts, electrical harness, air intake/ exhaust and drain, etc.

2.1.71 System 86 - Lift system

Table 71 System 86 - Lift system

System	Subsystem	Title	Definition
86		Lift system	Units and components, which together with the primary propulsion system furnish vector able vertical thrust allowing the aircraft to achieve Short Take-Off and Vertical Landing (STOVL). Also includes those units and components that provide the means for stabilizing the aircraft when in the STOVL mode.
	-00	General	
	-10	Fan	Subsystem that provides lift for the aircraft when operating in a STOVL flight condition. It includes gearboxes, clutches and accessories.
	-20	Drive shaft	Subsystem that provides a means of transmitting power from the engine to the STOVL lift system.
	-30	Variable area nozzle	Subsystem that controls and ducts STOVL fan outlet air to provide aircraft STOVL lift.
	-40	Roll control	Subsystem that ducts and controls main engine generated air for the control of aircraft roll attitude when in a STOVL flight configuration.

2.1.72 System 87 - Propulsion battery

Table 72 System 87 - Propulsion battery

System	Subsystem	Title	Definition
87		Propulsion battery	A battery or a set of batteries intended to provide electrical power to the electric engines of the Electric/Hybrid propulsion System (EHPS). In addition, propulsion batteries can be used to provide electrical power to other EHPS sub-systems or to systems of the intended aircraft application.
	-00	General	
	-10	Storage	Those portions of the system which comprise a battery unit or assembly.
	-20	Distribution	Those portions of the system which distribute AC and DC loads within and between individual batteries. This can also include the distribution of electrical power to the electric engine. This includes systems not covered in Chapter 24.
	-30	Containing and venting	That portion of the system which includes containment and ventilation batteries which physically segregate or control the adverse effects of battery malfunction.
	-40	Indicating	The portion of the system dedicated to indicating the attributes of the battery or battery system.
	-50	Charging	That portion of the system that facilitates and controls the charging of the battery system, either on ground or during flight.

Table 72 System 87 - Propulsion battery — Continued

System	Subsystem	Title	Definition
	-60	Management (battery and thermal)	That portion of the system which provides monitoring, protection, control, and communications or other attributes for the battery system which ensure operation as designed.

2.1.73 System 90 - Recovery

Table 73 System 90 - Recovery

System	Subsystem	Title	Definition
90		Recovery	Systems, units and components used to recover air vehicles and equipment.
	-00	General	
	-10	Parachute recovery system	Subsystem that uses a parachute and its deployment devices to recover an air vehicle and equipment from flight. Includes items such as main-and drogue parachute container, ejection assembly, initiation assembly, deployment assembly and release assembly.
	-20	Impact attenuation system	Subsystem that provides a shock for the air vehicle to absorb shock/attenuation. Includes items such as crushable impact attenuators, air bags, retrorocket landing attenuation systems, initiation assembly, deployment assembly and attenuator container.
	-30	Sequencing system	Subsystem that provides the sequencing for the recovery. Includes items such as computer, interfaces, transmitter, electrical signal etc.
	-40	Location system	Subsystem that provides information on the location of the aircraft after landing. Includes computer, transmitter, antenna, etc.

2.1.74 System 91 - Air vehicle wiring

Table 74 System 91 - Air vehicle wiring

System	Subsystem	Title	Definition
91		Air vehicle wiring	Miscellaneous charts, diagrams and/or lists applicable to more than one system, or to system interfaces, such as wiring charts, spare wire charts, junction boxes charts, disconnect plug charts, conduit and wire routing charts, rigid tube charts, flexible hose charts, system integration diagrams, reusable hose component lists, control cable lists, multi-system consumables lists.

2.1.75 System 92 - Radar

Table 75 System 92 - Radar

System	Subsystem	Title	Definition
92		Radar	Units and components that comprise multifunction radar systems used on fighters (generally nose-mounted), on maritime patrol air vehicles, on AWACS-type air vehicles, etc.
	-00	General	
	-10	Frequency generation	Subsystem that gives the original signals used as references (micro-waves, clock signals, etc).
	-20	Transmission	Subsystem acting for waves output.
	-30	Reception	Subsystem that collects electro-magnetic signals, transposes the frequencies of collected signals or generates video-frequencies signals.
	-40	Processing	Computing resources used for signals processing, data processing, radar system management or I/O exchanges of information with other air vehicle systems processing functions.
	-50	Beam control	Subsystem that points the beam in any direction of space. This device can be based on mechanical or electronic steering.
	-60	Power supply and safety	Subsystem in charge of the setting of electrical power and all the safety functions concerning the starting phase and the current functioning states (eg, cut-off).
	-70	Conditioning	Subsystem in charge of cooling and pressurization for the different modules.
	-80	Built-in tests	Subsystem devoted to failures detection and states reporting. These subsystems has to be determined in connection with Subsystem 45-92.

2.1.76 System 93 - Surveillance

Table 76 System 93 - Surveillance

System	Subsystem	Title	Definition
93		Surveillance	Units and components that furnish a means of sensing the surrounding environment, and then process, display and record the resulting information.
	-00	General	
	-10	Data processing	Subsystem that provides computation, switching and storage of signals acquired.
	-20	Data display	Subsystem that provides the data display of information acquired by sensors.
	-30	Recording	Subsystem that provides recording of information acquired by sensors.
	-40	Identification	Subsystem that provides identification of information acquired by sensors.

Table 76 System 93 - Surveillance — Continued

System	Subsystem	Title	Definition
	-50	Infrared sensors	Subsystem that uses heat sensing devices such as infra-red scanners, infra-red image and detection to acquire information.
	-60	Laser sensors	Subsystem that uses laser devices to acquire information for distance measuring, identification, etc.
	-70	Surveillance radar	Subsystem that uses radar for surveillance or mapping purposes. It includes devices such as antennas, receivers, transmitters, indicators, etc. **Note** Subsystem 93-70 is to be used for surveillance-oriented radars (eg, weather radar on transport aircraft). For large multifunction radars use System 92.
	-80	Magnetic sensors	Subsystem that senses magnetic anomalies. It includes devices such as magnetometers, amplifiers, computers, indicators, etc.
	-90	Sonar sensors	Subsystem that senses objects underwater. It includes devices such as modulators, computers, transducers, indicators, etc.

2.1.77 System 94 - Weapons system

Table 77 System 94 - Weapons system

System	Subsystem	Title	Definition
94		Weapons system	Units and components that furnish a means of acquiring a target and releasing stores.
	-00	General	
	-10	Weapon release	Equipment required to release, fire and/or jettison stores. Includes computers, displays, controls, stores management, etc.
	-20	Available for projects	
	-30	Weapon suspension	Interconnecting equipment to transport and release/fire weapons. Includes multipurpose pylons if used for any weapon mounting role, specialist pylons, ejection racks, launchers, etc.
	-40	Available for projects	
	-50	Gunnery	Guns and equipment necessary to fire guns.
	-60	Available for projects	
	-70	Weapon control	Units and components that furnish a means of designating and acquiring a target. Includes radar, computers, displays etc, necessary to provide weapon release decision (aiming cues).

2.1.78 System 95 - Crew escape and safety

Table 78 System 95 - Crew escape and safety

System	Subsystem	Title	Definition
95		Crew escape and safety	Units and components that furnish a means of ejecting or jettisoning seats, hatches, canopies, capsules etc, from the airframe also includes safety and survival equipment.
	-00	General	
	-10	Ejection seats	Subsystem used to eject flight crew or passenger seats individually from the airframe.
	-20	Escape hatches/ canopy	Hatches and canopies including miniature detonating cord. Does not include the canopy and its actuating mechanisms that are covered in System 56.
	-30	Capsule ejection	The protective environment to the flight crew after separation from the airframe.
	-40	Available for projects	
	-50	Global survival kits	Subsystem that insures flight crew survivability and/or after unplanned separation landing.
	-60	Impact protection and floatation	Subsystem providing protection to personnel/equipment after impact.
	-70	Capsule flight	Subsystem used to control attitude and direction of the capsule or container after ejecting or jettisoning from the airframe.

2.1.79 System 96 - Missiles, drones and telemetry

Table 79 System 96 - Missiles, drones and telemetry

System	Subsystem	Title	Definition
96		Missiles, drones and telemetry	Units and components that furnish a means of launching and controlling drones.
	-00	General	
	-10	Surface to surface missiles	Subsystem used for launching and controlling surface to surface missiles.
	-20	Surface to air missiles	Subsystem used for launching and controlling surface to air missiles.
	-30	Drones	Subsystem used for launching and controlling drones.
	-40	Telemetry	Subsystem used for telemetry, for applications other than missile, drone or decoy usage.

2.1.80 System 97 - Image recording

Table 80 System 97 - Image recording

System	Subsystem	Title	Definition
97		Image recording	Units and components that furnish a means of recording events on film, video, disc or tape, etc. Does not cover recording systems which are part of any other system or subsystem.
	-00	General	
	-10	Strike camera	Subsystem used for recording the results of an air strike.
	-20	Bomb bay system camera	Subsystem used for recording instruments and the dropping of bombs.
	-30	Fire control camera system	Subsystem used for recording rocket or gunfire.
	-40	Instrumentation camera system	Subsystem used for recording meters, dials, CRT display, etc.
	-50	Range camera system	Subsystem used for range camera. Includes installation such as forward and oblique camera systems.
	-60	Reconnaissance camera system	Subsystem used for reconnaissance.
	-70	Image recorder	Subsystem used for storing the images on disc, tape (such as VCR), etc.

2.1.81 System 98 - Meteorological and atmospheric research

Table 81 System 98 - Meteorological and atmospheric research

System	Subsystem	Title	Definition
98		Meteorological and atmospheric research	Units and components that furnish a means of providing and recording measurement of natural or man-made atmospheric, gravitation and magnetic phenomena.
	-00	General	
	-10	Weather	Subsystem used to measure and record moisture, temperature, cloudiness, wind, etc.
	-20	Clear air turbulence	Subsystem used to detect, measure and record clear air turbulence.
	-30	Pollutants	Subsystem used to detect, measure and record contaminated particles.
	-40	Magnetic/gravitational	Subsystem used to detect measure and record the earth's magnetic and gravitational force.

2.1.82 System 99 - Electronic warfare

Table 82 System 99 - Electronic warfare

System	Subsystem	Title	Definition
99		Electronic warfare	Units and components that furnish a means of detecting, analyzing, jamming, or nullifying the effectiveness of defensive detection devices and communication links (tactical or not).
	-00	General	
	-10	Active, electro-magnetic	Subsystem operating in the electro-magnetic range of 1 Hz to 100 GHz. This subsystem can have the capability of receiving, analyzing, transmitting, etc.
	-20	Available for projects	
	-30	Passive, electro-magnetic	Subsystem operating in the electro-magnetic field that has no active or radiating elements (eg, chaff).
	-40	Available for projects	
	-50	Elint (Electronic intelligence)	Subsystem tasked with the gathering of electronic information and can include receivers, processors/analyzers and recorders.
	-60	Available for projects	
	-70	Infrared (IR)	Subsystem operating in the IR range/field and can have the capability of receiving, analyzing and transmitting.
	-80	Laser	Subsystem operating in the laser range/field and can have the capability of receiving, analyzing and transmitting.