SHIP WORK BREAKDOWN STRUCTURE (SWBS)

The Ship Work Breakdown Structure (SBWS) is the Navy Standard structure used to value, design, and understand a ship. Note that combat systems, mission packages, and even industry often use different structures. For the SWBS breakdown, a reference to a car is made where applicable. Keep in mind the way you break down a car’s components will be completely different than the manufacturer, repairman, or outside user.

Typically, you see the car as steering wheel, gas, brake, and accessories. The manufacturer will typically break the car down into its production line assembly – so there is stage one assembly, stage 2, stage, 3, and so on. The repair shop will typically view your car as a hierarchy of functional components. For example, you need (what you break the car down as) a new side mirror. The repairperson cannot simply purchase a new mirror as it also has an electronic motor that connects to the battery and to your armrest, thus allowing you to adjust the mirror. For the repairperson, your mirror is a complex subassembly the reaches into the depth of the car. It is important to understand that the breakdown we typically use is not universal and you must be careful when working with other groups, because there is a potential to double count or omit items depending on how each group buckets them. Further, there are many other aspects to a ship outside of SWBS – crew, operating and support costs, training, technical packages, and so on. Provided below is a general breakdown of SWBS, which do not include these other elements. There are more detailed SWBS dictionaries available that provide much greater detail and understanding of a ship, combat system, or mission package.

100 – GENERAL HULL STRUCTURE

The general hull structure is the backbone of the ship. It provides the shell for which the rest of the ship fits into. This is similar to the body of a car – the steel frame, supports, and plastic outer covering.

200 – PROPULSION PLANT

The propulsion plant is what makes the ship “go”. It can be a conventional combustion engine, nuclear propulsion, or a combination of multiple systems. This is similar to the engine in a car.

300 – GENERAL ELECTRIC PLANT

The electric plant provides power to all the systems operating in the ship. This includes lighting, air conditioning, combat systems, and backup generators. This is similar to the battery and alternator in a car.

400 – COMMAND AND SURVEILLANCE

The Command and Surveillance group is what keeps the ship in contact with the rest of the world. It provides satellite, radar, and sonar interfaces to keep the ship updated on what is going on in its surroundings. It allows communication both within the ship and to
outside sources. This is similar to a GPS, cell phone, reverse sensors, and windshield in a car.

500 – AUXILIARY SYSTEM

The auxiliary system provides air conditioning, fresh water, heat, fuel and lubrication, and ship control. Note that many of these systems are more extensive than providing comfort to the crew as many of the ship systems in group 400 are extremely sensitive to heat and outside conditions. This is similar to the air conditioning, cooling system, heater, and steering wheel of a car.

600 – OUTFIT AND FURNISHINGS

Outfit and furnishings provide paint, living spaces, working spaces, stowage, and special purpose areas of a ship. Ships can be at sea for extended periods of time. As such, they must be essentially self sufficient for such long periods. This is similar to the cabin of a car including the seats, arm rests, cup holders, TVs, and other amenities in a car.

700 – ARMAMENT

Armament includes all the systems that provide offensive and defensive capabilities in a ship. This includes guns, missiles, rockets, depth charges, mines, and special purpose systems. The cars with missiles that James Bond always seems to have are a good comparison. In the real world, not many current cars have a parallel to group 700.

800 – INTEGRATION AND ENGINEERING

Group 800 and 900 are slightly different that groups 100-700 as they are not typically part of a ship. Group 800 includes elements like ship drawings, 3D models, quality assurance, certification standards, facilities, and training. This is similar to state inspections, schematics, driver training, and other support efforts that guarantee a car is safe to operate and operated correctly.

900 – SHIP ASSEMBLY AND SUPPORT SERVICES

Group 900 includes all the efforts dockside that are required to build a ship and ensure it is sea worthy. This includes scaffolding to help build, insurance, launching a ship, sea trials, and other elements. This is similar to the car construction plant and driver insurance in a car.

Reference