

The Naval Combat Survivability Testbed (NCST) was developed through the support of Naval Sea Systems Command for the purpose of validating new approaches to design, control, modeling, and simulation of the next generation of naval power distribution and propulsion systems. The NCST is a scaled version of a future naval power distribution and propulsion concept. A one-line diagram of the NCST facility appears below. Therein, blue interconnections/busses represent ac portions of the system; red interconnections/busses represent dc portions of the system, green interconnections are mechanical linkages, and cyan interconnections are signal paths. In the upper (ac) portion of the system the SM is a synchronous machine that produces the bulk of the power. The IM denotes the induction machine used as a propulsion motor, and HF is a harmonic filter. The system includes a pulsed load of the type appropriate for rail gun applications. At the bottom of the diagram, the external ac bus represents a second high-power ac bus. In an actual Navy system this would be another high power ac bus. The central part of the diagram represents the dc distribution system. The two PS (power supply) units each supply a dc bus; ship service converter modules (SSCM's) reduce the voltage level and provide fault protection. The SSCMs supply the ship service inverter modules (SSIMs) which in turn feed low-voltage ac load banks (LBs). The SSCMs also supply a motor controller (MC), and a constant power load (CPL).

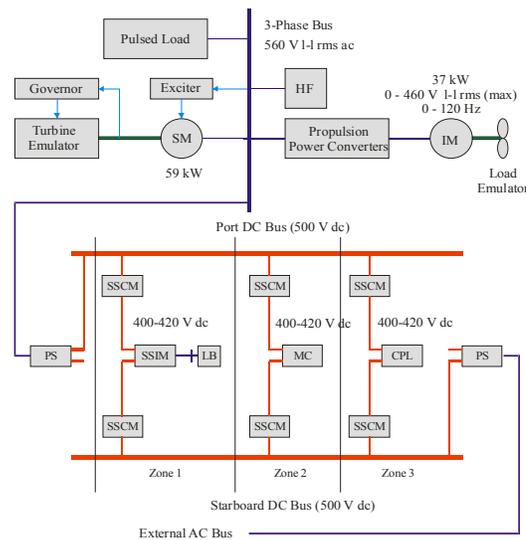


Figure 04-L.28

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