

MARAD WORKSHOP

on

MARITIME ENERGY *and* CLEAN EMISSIONS

WASHINGTON D.C. 29 - 30 JANUARY 2002

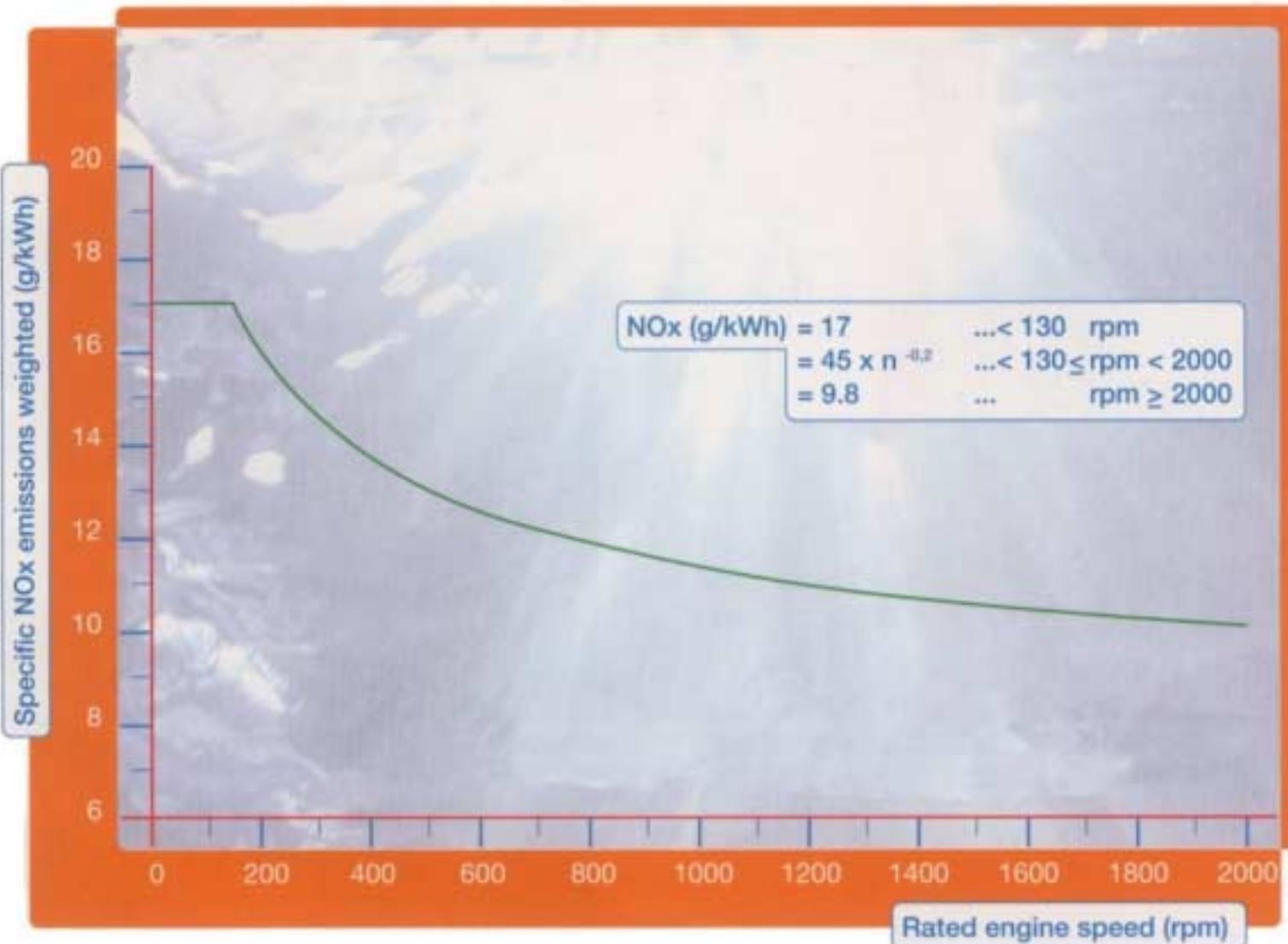
*Fincantieri's experience in low environmental
impact propulsion systems*



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IMO NOx EMISSIONS LIMIT

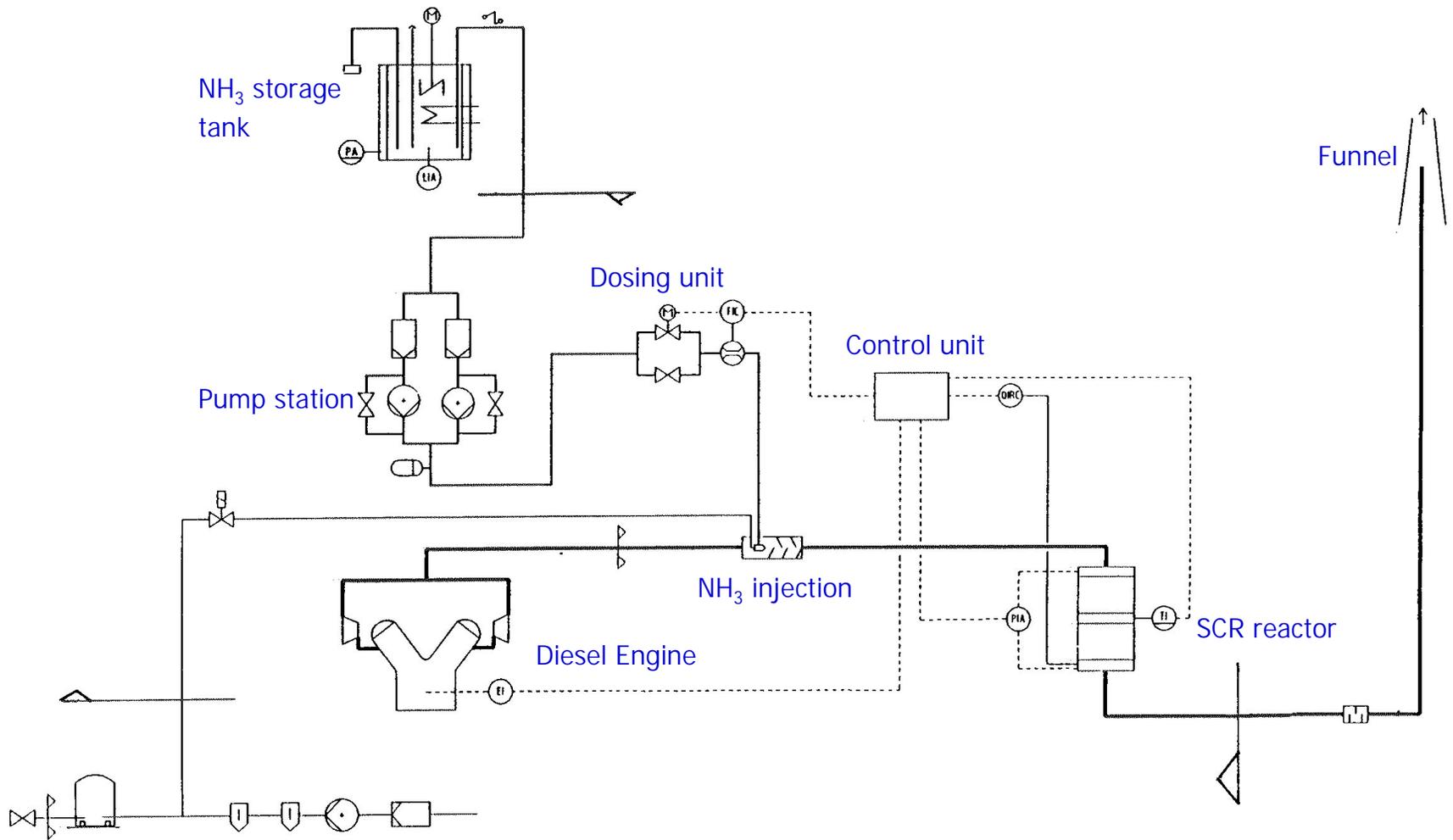


NO_x EMISSIONS

- Typical diesel engines NO_x emissions : 9-12 g/kWh
- Typical aero-derivative gas turbine :
NO_x emissions (with conventional
combustion systems) 6-8 g/kWh
- Typical diesel engines NO_x emissions
with Selective Catalytic Reduction (SCR)
system 0,5-2 g/kWh

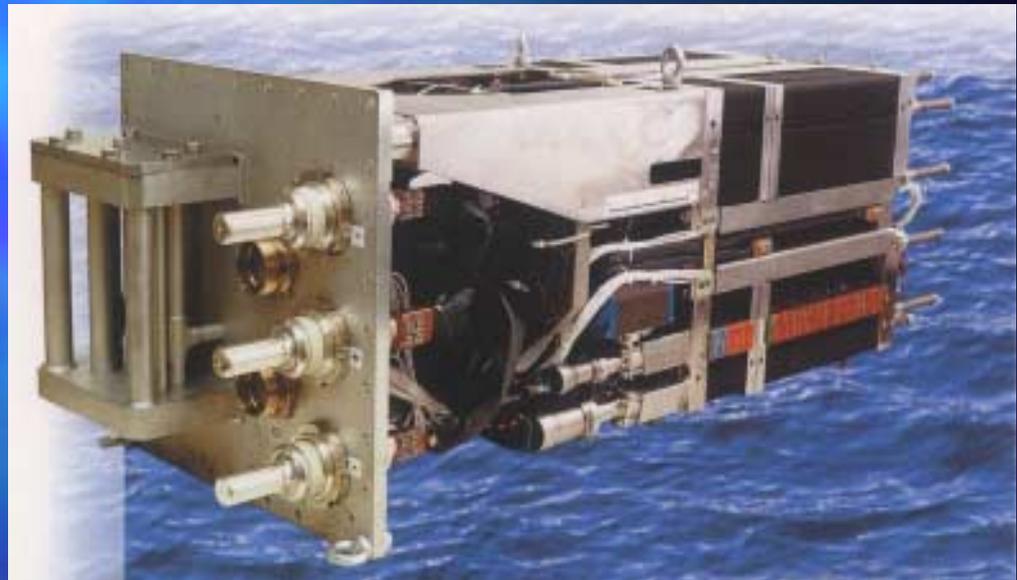
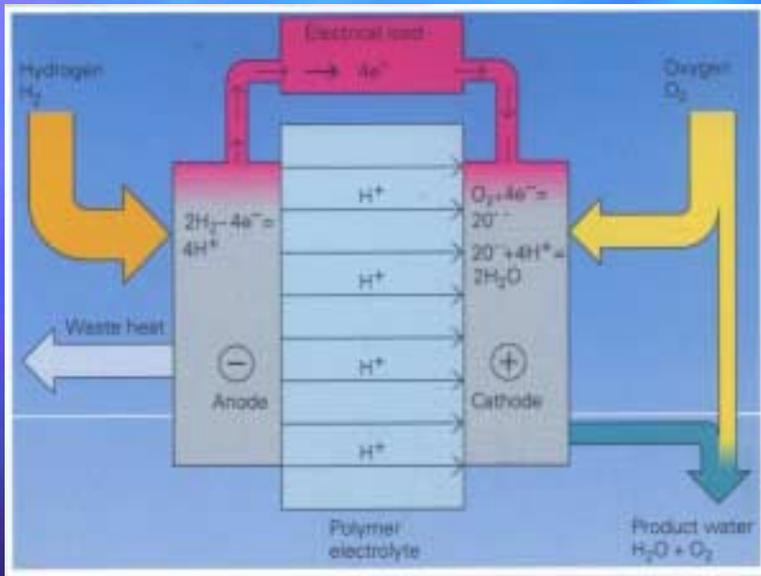


Selective Catalytic Reduction (SCR) diagram

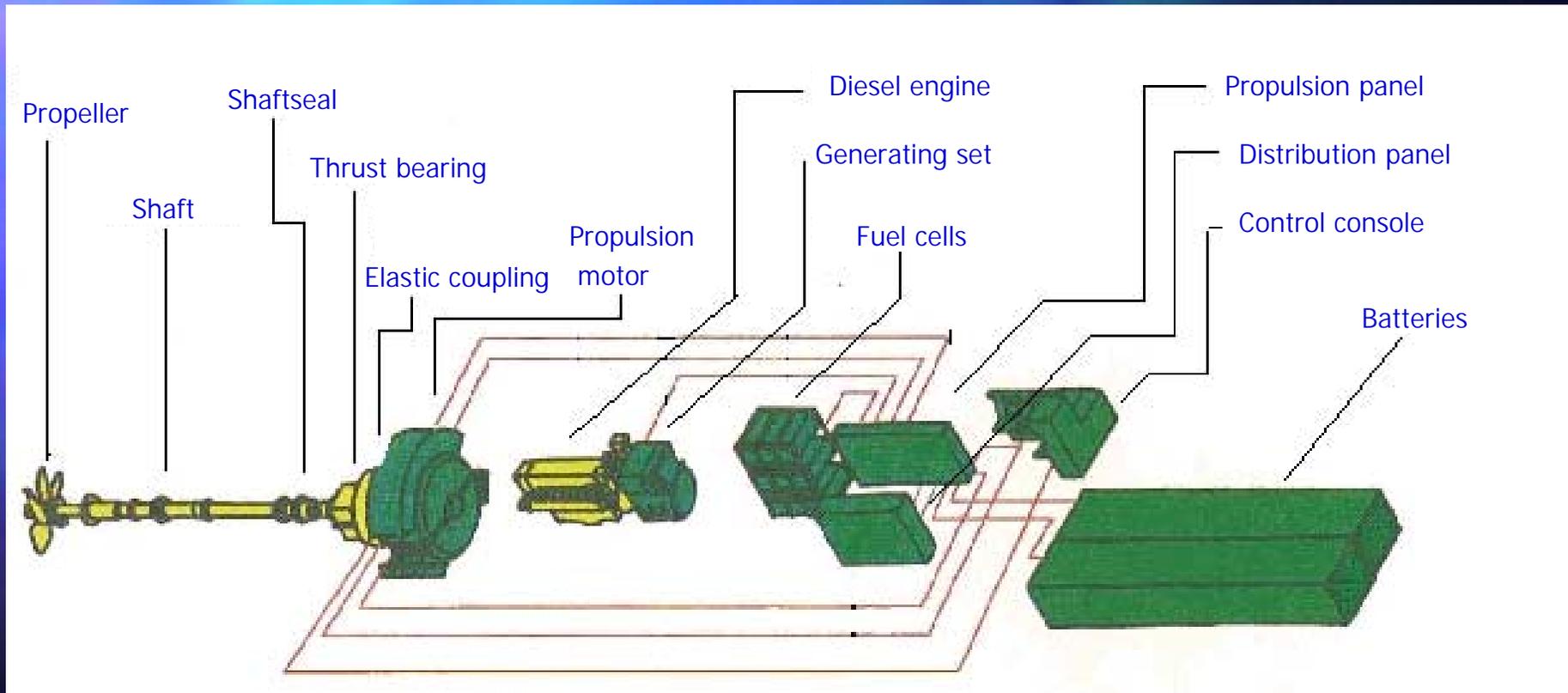




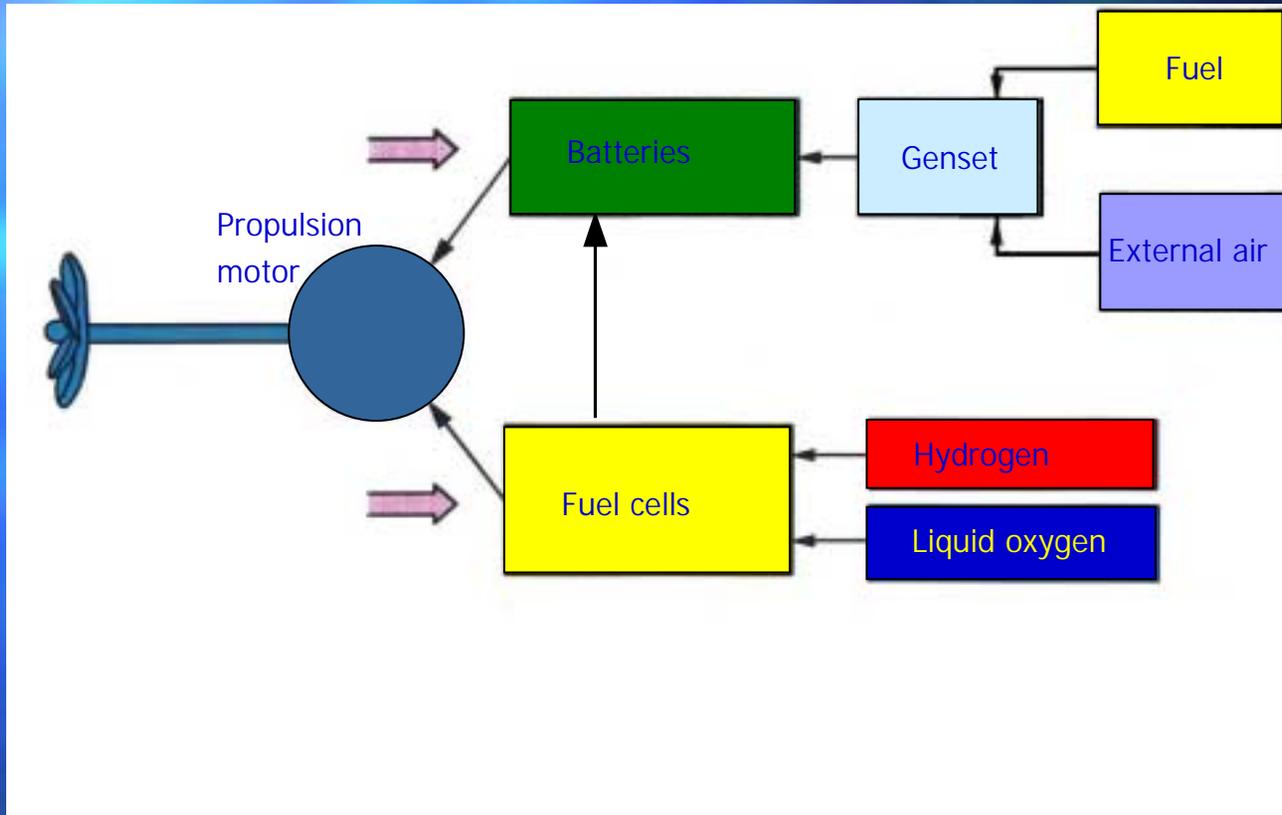
FUEL CELLS FOR SUBMARINES



HYBRID PROPULSION SYSTEM OF U212A SUBMARINES

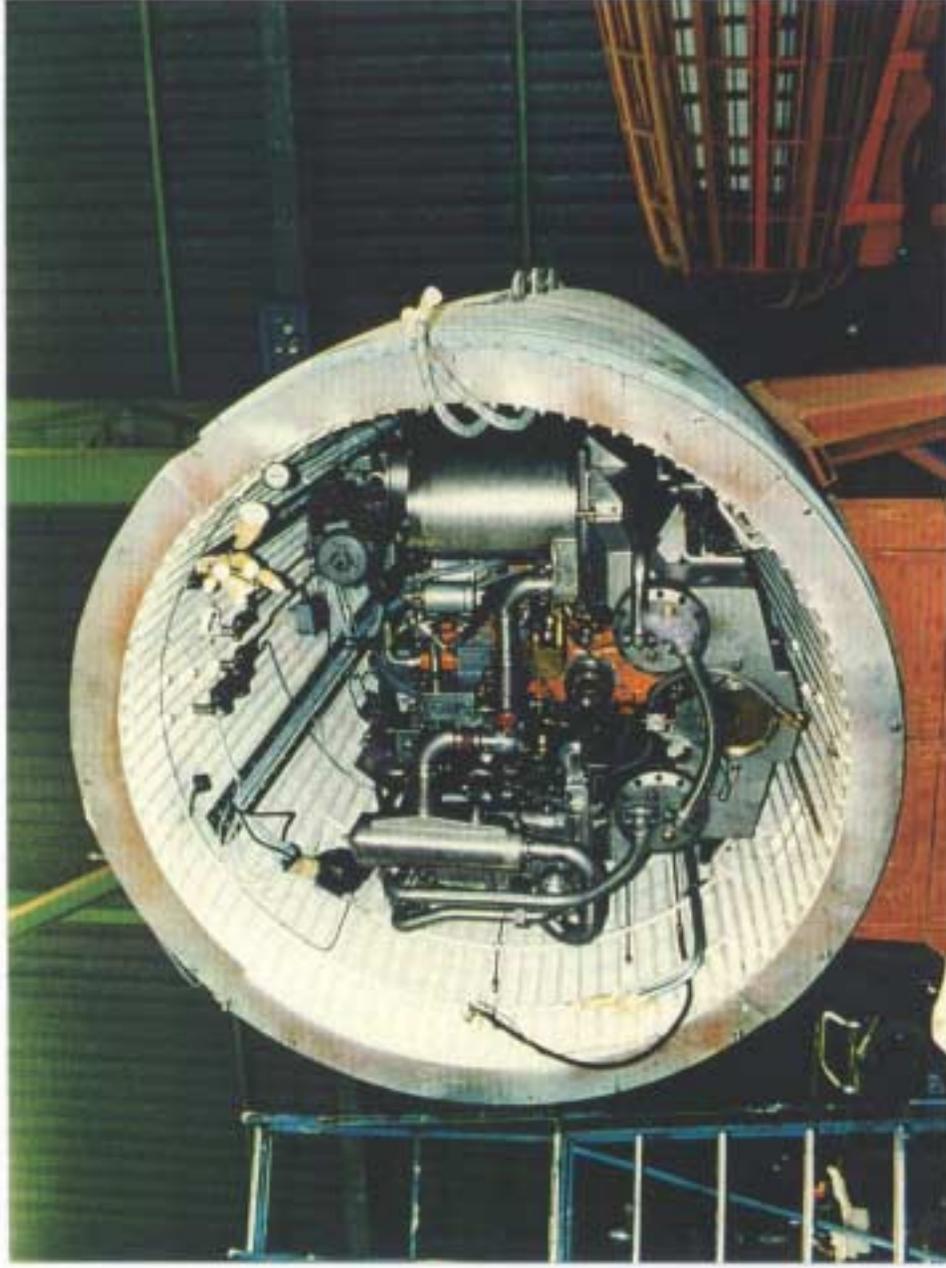


SIMPLIFIED PROPULSION CONFIGURATION AND PROPULSION MODES

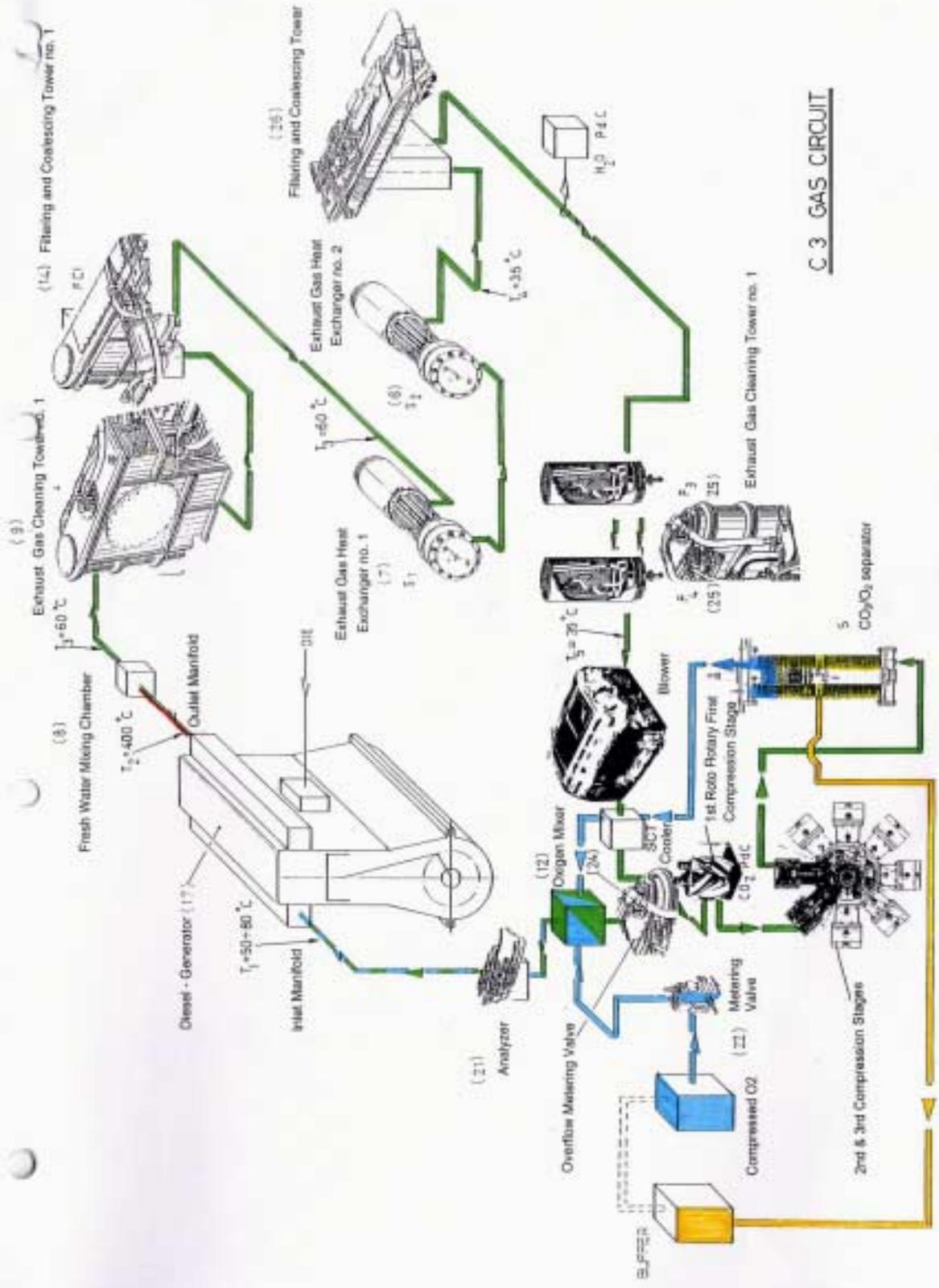


MODES:

- Conventional Energy from batteries
- Fuel Cells stand alone Energy from fuel cells only
- Hybrid Energy from batteries and by fuel cells



Existing Fincantieri A.I.P. Diesel Generator



C.3 GAS CIRCUIT