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(54) Title: AMPHIBIOUS VEHICLE WITH AIR AND LIQUID COOLING

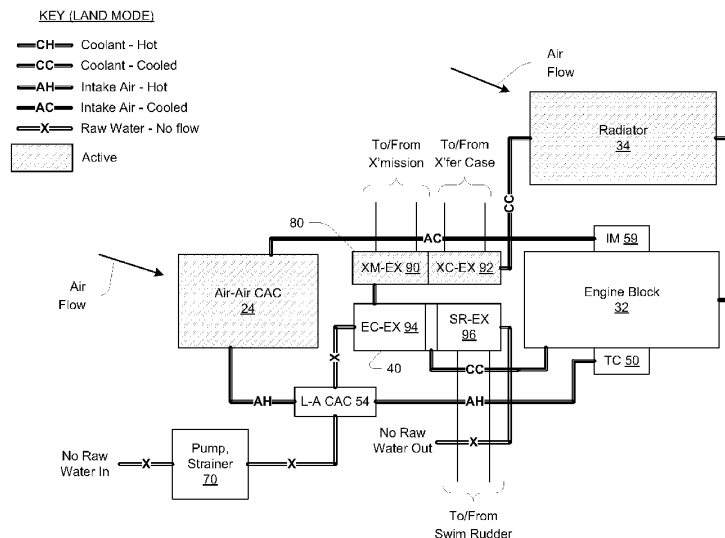


Fig. 11

(57) Abstract: An amphibious vehicle has a dual-mode cooling system to cool heat-generating components (e.g., engine, turbocharger) in both land and water operating modes, using air-cooling components (forced flow of ambient air) and liquid-cooling components (forced flow of ambient water) in the land and water modes respectively. The air-cooling components provide cooling of engine coolant and compressed intake air by (i) a radiator in a first loop carrying the engine coolant and (ii) an air-air charge air cooler (CAC) in a second loop carrying the compressed intake air, and the liquid-cooling components provide cooling of engine coolant and compressed intake air by (iii) a liquid-liquid heat exchanger in series with the radiator in the first loop and (iv) a liquid-air CAC in series with the air-air CAC in the second loop. Additional heat exchangers may be used for cooling a swim rudder, transmission and transfer case.

[Continued on next page]

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