Special Operations Forces Industry Conference

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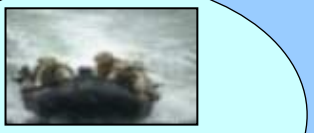
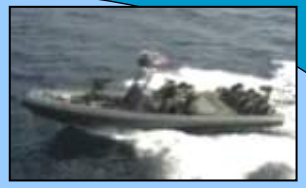
Advanced Surface Craft Power Systems

Maritime Systems

Surface Mobility Systems



Combat Rubber Raiding Craft (CRRC)

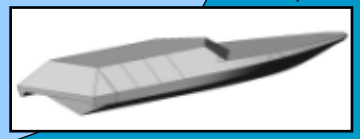


Naval Special Warfare Rigid Inflatable Boat (NSW RIB)

MK V Special Operations Craft (MK V SOC)

- Amphibious Ships
- Maritime Support Vessel
- Joint High Speed Vessel
- Littoral Combat Ship

Conceptual



Combatant Craft Medium

Non-gasoline Burning Outboard Engine (NBOE)

Special Operations Craft Riverine (SOCR)

ROSAM

CCFLIR

Maritime Systems

Technology Areas of Interest

- Advanced Surface Craft Power Systems
- Lightweight, Submersible, Multi-Fuel Outboard Engine

Maritime Systems

Advanced Surface Craft Power Systems

- Current Status:
  - SOF combatant craft require advanced power systems that provide significantly better power/weight ratios (e.g., maximum hp/lb) at top speed and significantly better fuel efficiency (e.g., (lb/hp-h)) at the most efficient speed (cruise speed).
  - Current craft engines have a power/weight ratio of approximately 0.38 hp/lb at maximum speed and a specific fuel consumption of 0.35 lb/hp-h at cruise speed.

Maritime Systems

Advanced Surface Craft Power Systems

- Where We Want to Be:
  - Power/weight ratio of 1.0 hp/lb and/or a fuel efficiency of 0.1 lb/hp-h at cruise speed.
    - 2000 hours between overhauls
  - Burn High Sulfur Fuel.

Lightweight, Submersible Multi-Fuel Outboard Engine

- Current Status:
  - Combat swimmers currently use lightweight, submersible 30 hp Improved Military Amphibious Reconnaissance System (IMARS) gasoline outboard engines.
    - The IMARS is projected to become obsolete due to parts unavailability
    - DOD has directed the phase out of gasoline fueled engines from all shipboard operations to improve shipboard safety and simplify logistics
  - Currently fielded 55 hp multi-fuel engine weighs 250 lbs

Lightweight, Submersible Multi-Fuel Outboard Engine

- Where We Want to Be:
  - SOF has a requirement for a 30 hp multi-fuel engine that will:
    - Operate on JP5, JP8, kerosene, and as an emergency fuel, marine diesel.
    - Weigh no more than 150 lbs.
    - Fit through a 30-inch diameter circular hatch.
    - Be capable of being submerged to a minimum depth of 66 feet seawater for a period of 18 hours, then brought to the surface and started within 10 minutes.

Maritime Systems