

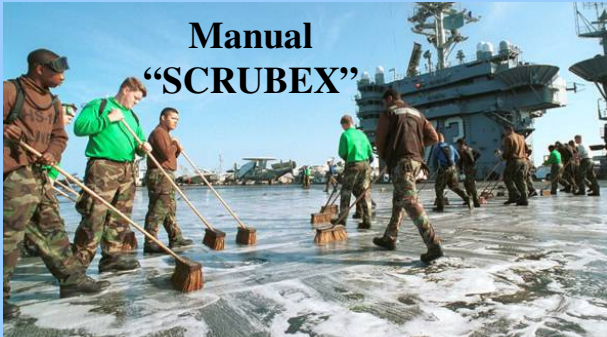
Navy MCRRS

Mobile Cleaning Reclaim Recycle System

by:  TRIVERUS

The MCRRS primary role is to restore the coefficient of friction on Aircraft Carrier Non-Skid coated surfaces. Cleaning effectiveness has exceeded existing methods by picking up and containing contaminants from the flight

decks not recovered on a routine basis. The MCRRS can drastically reduce waste water generation and disposal foot print compared with the manual labor intensive SCRUBEX (Shown below).



Manual
"SCRUBEX"

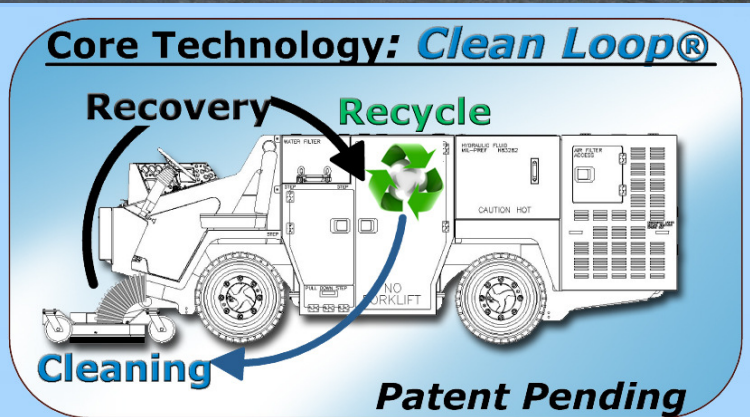


Cleaned Using
MCRRS

Cleaned Using
Current Methods



Restoration
Cleaning CVN 72
At Sea



The Clean Loop® process is used to prolong water use for continued cleaning. It uses a pressurized water spray to clean surfaces. Material is recovered and a series of solids classification is done to remove solids from the influent and produce process water for continued cleaning.

COF Performance		
Non Skid LOC + Condition	COF Before	COF After
USS BATAAN: Deteriorated + Oil/Grease Stained Non Skid	0.47	0.74
LAB: Hydraulic Oil Spill Overnight	0.304	1.146

¹ Deteriorated + Oxidized Non Skid LOC B Field Evaluation CVN 69 Norfolk, Virginia August 21-28, 2006. ² COF on Oil and Grease Stained Area ³ Overnight Hydraulic Oil Spill

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The Naval Sea Systems Command (NAVSEA) has developed a flight deck cleaning vehicle for CVN, and L-Class ships. The cleaning system was developed to address cleaning performance issues with current methods and improve the environmental footprint of flight deck maintenance. It reduces water use by reusing it for an entire cleaning shift. It also produces more concentrated waste streams for reduced disposal volume.



Pad Eye: Before

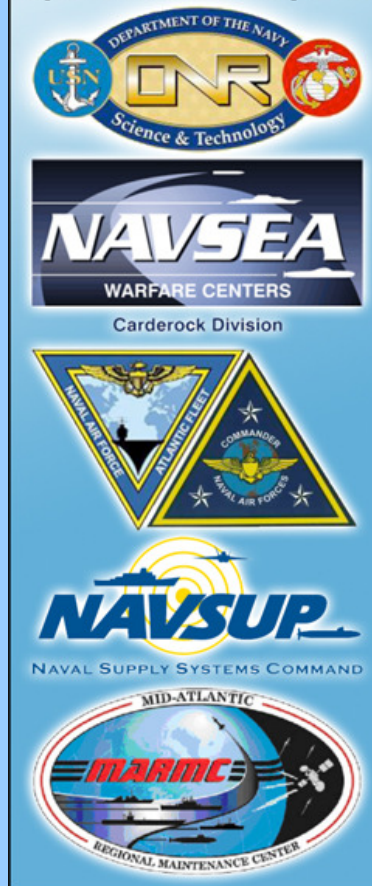


Pad Eye: After

TECHNICAL SPECIFICATIONS

Cleaning Rate	5,000-20,000 ft ² /hr
Primary Water Process	Triverus Clean Loop® technology
Solids Capacity	1/4" - 5μ (nominal)
Platform	Triverus MVP-10k
Wheelbase	74"
Turning Radius	14'
GVWR	14,530 lbs
ENGINE	Cummins QSB4.5
Fuel	Diesel, JP5, BioDiesel B5
Emissions	EPA TIER III
Output (@2200 rpm)	165hp, 460 ft-lb torque
Fuel Capacity	45 Gallons US
Speed Range	0-1mph / 0- 10mph
Hydraulics	Sauer Danfoss
Electrical System	24v 70A

Sponsors/Participants



Key Improvements

- Complete Single Pass Pad-Eye Evacuation
- High Percentage of free solids removal
- FOD effective, solids, magnetic material, Pad-eye contaminates
- Quick Engine Change (QEC) allows true plug and play power plant redundancy
- Designed with long-lifecycle conventions versus COTS (durable construction, stainless components, high factors of safety.)
- Integrated Lifting Points
- Eliminates need for SCRUBEX