# USAP Rigid-Hulled Inflatable Boat (RHIB)



Operated for the National Science Foundation Office of Polar Programs by



TIC SUPPORT CONTR





In 2016, two Rigid Hull Inflatable Boats (RHIBs) were built for the National Science Foundation for use at Palmer Station, Antarctica. The RHIBs were purpose built to increase boating and sampling safety, expand the Palmer boating area, and enhance other scientific capabilities at Palmer Station.

Highlights include: rigid aluminum hull with a hybrid inflatable collar and integrated foam floatation; heated house for protection from inclement weather/seas; safety rated and hydraulically driven overboarding systems with both J-frame and A-frame; dive ladders; sonar well; full navigation suite; keel coolers for engine coolant; and low-speed docking control.

Each craft has redundant engines, electrical systems, and hydraulic systems for added safety and to allow the vessel to operate for a full 12 hours while retaining a sufficient fuel safety reserve.

The two RHIBs are named following the naming convention for small boats at Palmer Station: southern hemisphere navigational stars. *RIGIL* (Hull #1) is also known as Alpha Centauri and is the 3<sup>rd</sup> brightest star in the entire sky. *HADAR* (Hull #2) is also known as Beta Centauri, is the 10<sup>th</sup> brightest star in the sky, and is actually a pair of twin B-class stars. Both stars are part of the Centaurus constellation and together point to the Southern Cross.



RHIB Principal Features and Technical Information				
	General		P	ropulsi
Owner	National Science Foundation		Engines	2ea Volvo
Builder	Willard Marine, Inc.		Crank Horsepower	450 hp / 3
Commissioned	2016		Prop Horsepower	430 hp / 3
Hull	Aluminum		Propellers	2 each cou
Collar	Hybrid Inflatable		Drive Type	Volvo Pent
Build Classification	ISO 12215-5:2008		Fine Control System	Volvo Pent
Dringing Dimensions			Fuel Type	Diesel

Princi	ensions

Length Overall	33.5 ft		
Breadth	10 ft		
Draft	2.32 ft		
Displacement	14,500 lbs		
Light Ship Weight	12,490 lbs		
Weight on Trailer	16,000 lbs		

Propulsion			
Engines	2ea Volvo Penta D4 -225/DP		
Crank Horsepower	450 hp / 330 kW		
Prop Horsepower	430 hp / 316 kW		
Propellers	2 each counter rotating sets		
Drive Type	Volvo Penta Stern I/O Drive		
Fine Control System	Volvo Penta IPS Docking		
Fuel Type	Diesel		
Number of Tanks	2		
Total Fuel Capacity	200 Gallons		

## Accommodation

Crew	1
Passengers	7 (3+1 crew inside wheelhouse)
Cargo Capacity max	1,600 lbs



### **RHIB** Principal Features and Technical Information

## **Heating and Cooling**

Cabin Heat	Diesel fuel heaters and window defogger	
Engine Cooling	Flush mounted keel coolers	
Hydraulic Cooling	Flush mounted keel coolers	
Fluid Heating Systems	In-line heating for fuel, coolant and hydraulic systems	

#### **Over-the-Side Equipment**

A-Frame	1,600 lb SWL	
J-Frame movable	Hydraulic cat head winch; deploys port or starboard; 500 lb capacity	
<i>RIGIL</i> Research Winch	InterOcean winch with 1,100m of .312" mechanical cable (Dyneema), 1,000 lb capacity	
<i>HADAR</i> Capstan Winch	Sound Ocean Systems Pedestal Capstan 1,600 lb SWL	
Power for Winches	Redundant, switchable hydraulic pumps driven by main engines	

#### Additional

Swim step extending over stern drives		Electrical service 120 VAC and 12 VDC	
Antiskid deck		Back deck flood lights	
Tow bollards fore and aft		Search lights	
Crane lifting points		Depth display	
Cabin storage and deck storage		Integrated navigation AIS and radar display	
Independent engine compartments and full redundancy		Dive ladder for starboard and port side boarding	
Sonar			
Transducer Well (Both boats)	In hull 21" x 24" window with Zelux® windows		
Sonar ( <i>RIGIL</i> only)	Simrad EK-80 Wide Band 120 kHz split beam		



RHIB Principal Features and Technical Information			
Operations		Scientific Deployments Possible	
Max range from Palmer Station or other RHIB	20 nautical miles	via A-Frame / J-Frame	
Maximum cruising speed	25 knots	Six Bottle CTD (SBE55 ECODeployment / Recovery ofRosette) (USAP provided)Small Fish Traps	
Required training	Competent crew,	Light Bottom Trawls Light Benthic Grabs	
Required ASC operator	1	Shallow Tow-Body Support Net Tows: Plankton, Bongo	
Survival gear	Mustang Ocean Commander	Wheelhouse	
Launch and recovery	Via Trailer and IT-28	Seating for four passengers Folding worktable	
Electrica	l Service	Electrical outlets for laptops and deck boxesInternal storage for scientific gearwith pass through to	
2 ea 15 Amp 120 VAC circuits with outlets in wheelhouse and on deck	1 ea 30 Amp 12 VDC circuit to wheelhouse	transducer well	
1 ea 20 Amp 12 VDC circuit to back deck with 4 outlets	1 ea 20 Amp 12 VDC circuit to wheelhouse with 4 outlets		









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