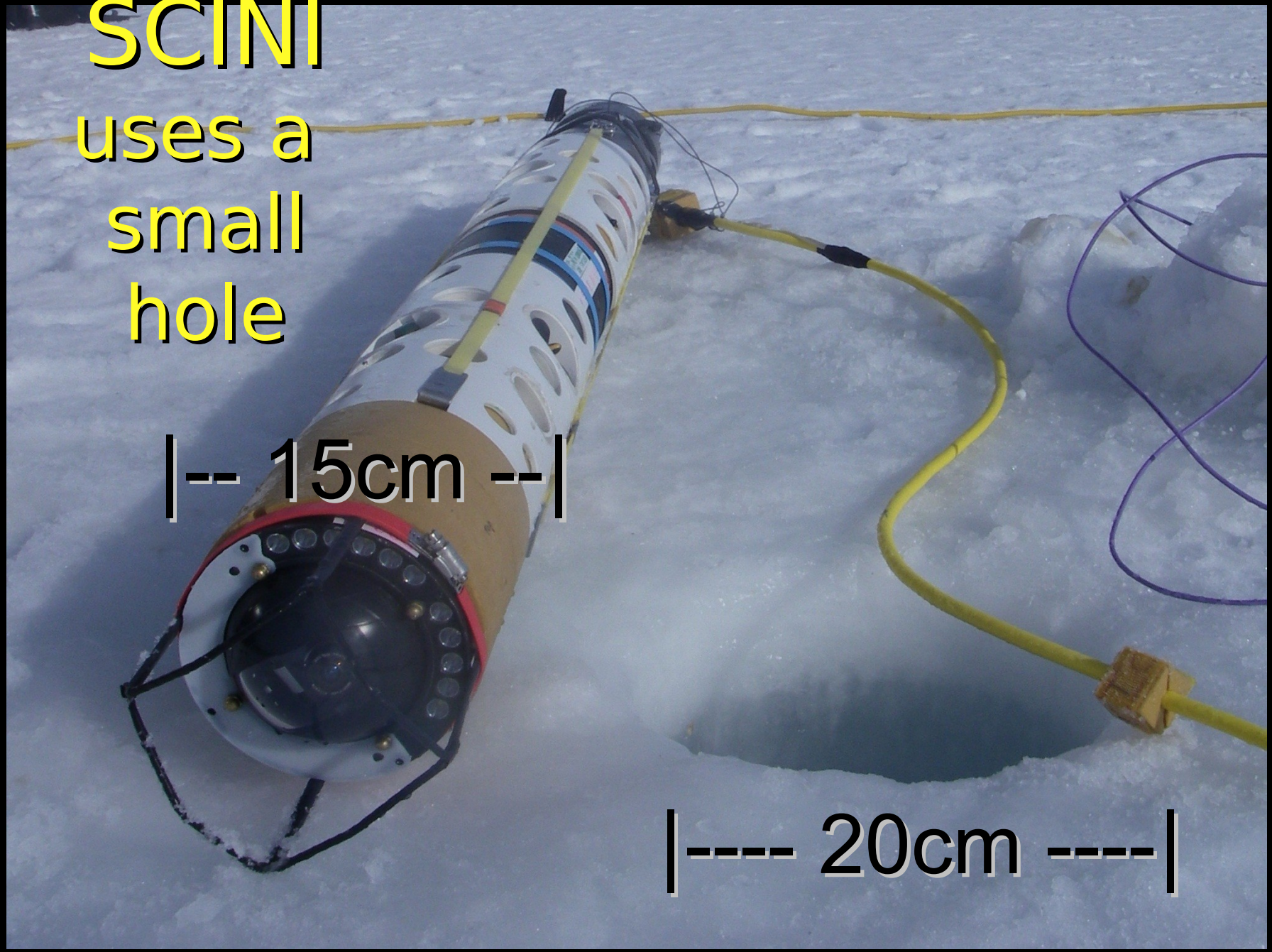

Project SCINI
NASA
NSF
Deploying an ROV at the Grounding Zone

The History of SCINI

- 2007 Classic SCINI
- 2010 Andrill SCINI
- 2014 Deep SCINI


Classic
S. C. I. N.
I.
S.ubmersible
C.apable of Under
I.ce
N.avigation and
I.maging
NSF


SCINI
uses a
small
hole
|-- 15cm --|
|---- 20cm ----|

5ft

SCINI

Jiffy Drilling

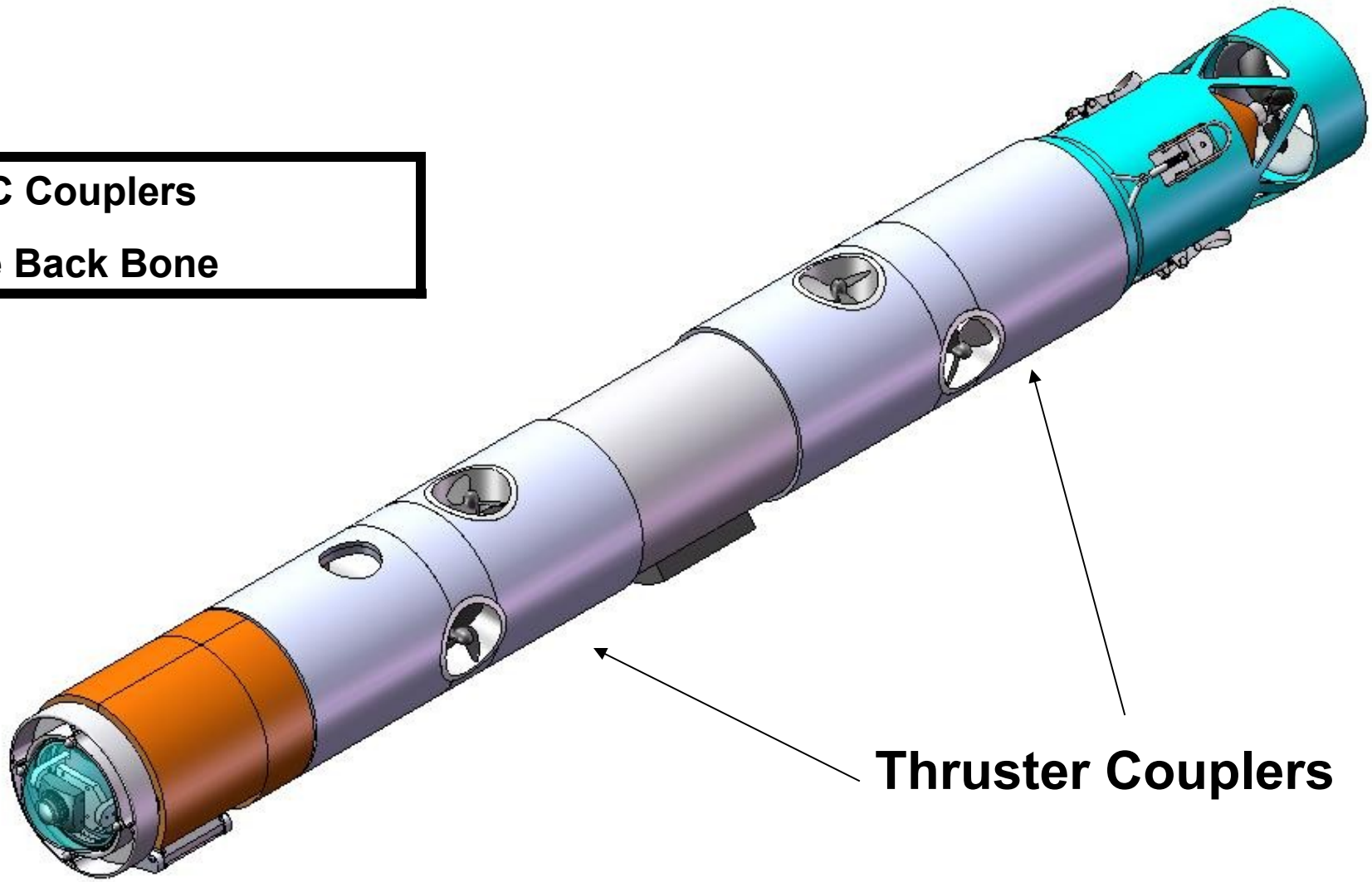
2 people can drill through 7m of ice in about 20 min

Working around Icebergs

SCINI External Anatomy

PVC Couplers

The Back Bone

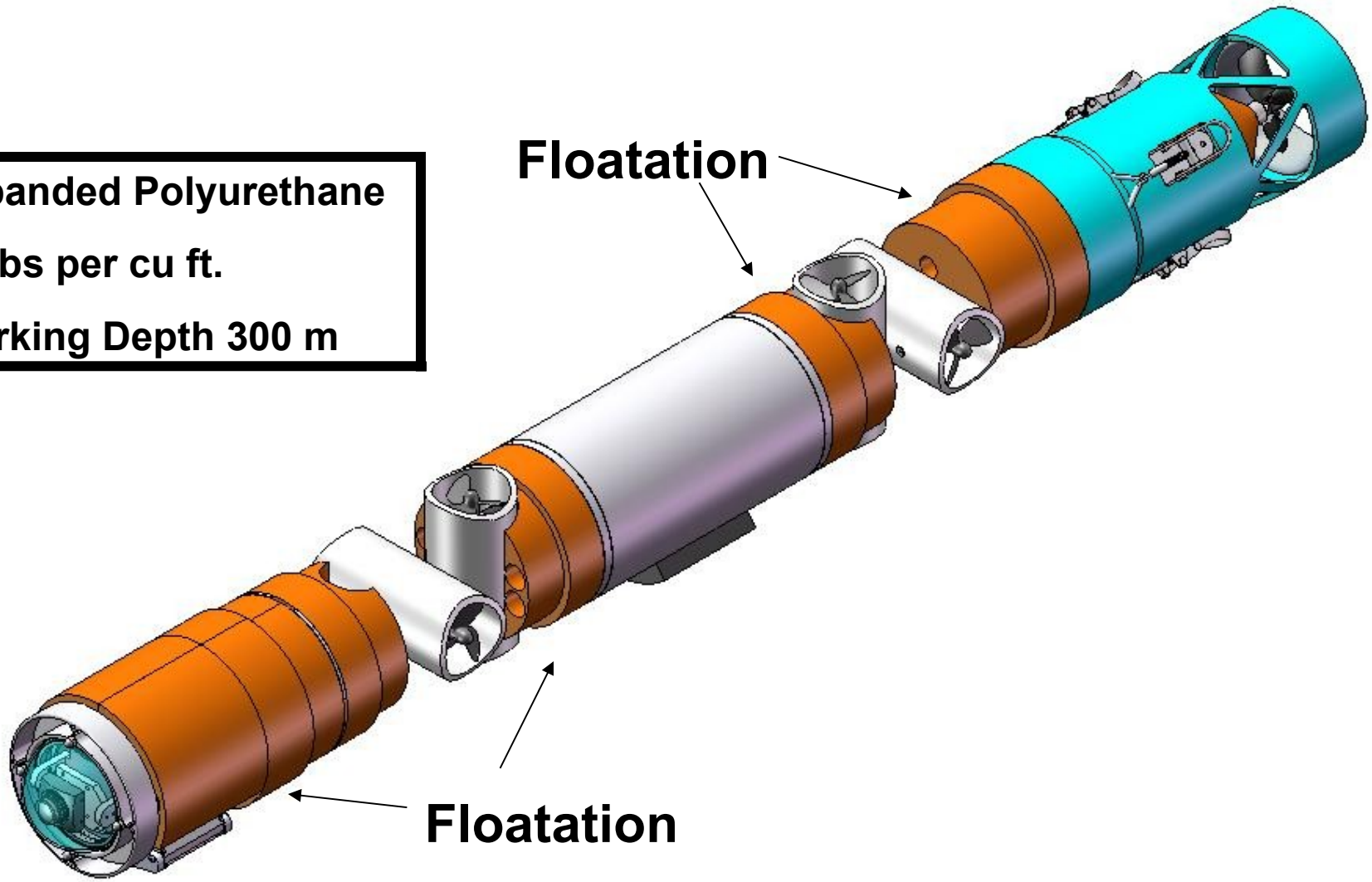


SCINI External Anatomy

Expanded Polyurethane

18 lbs per cu ft.

Working Depth 300 m

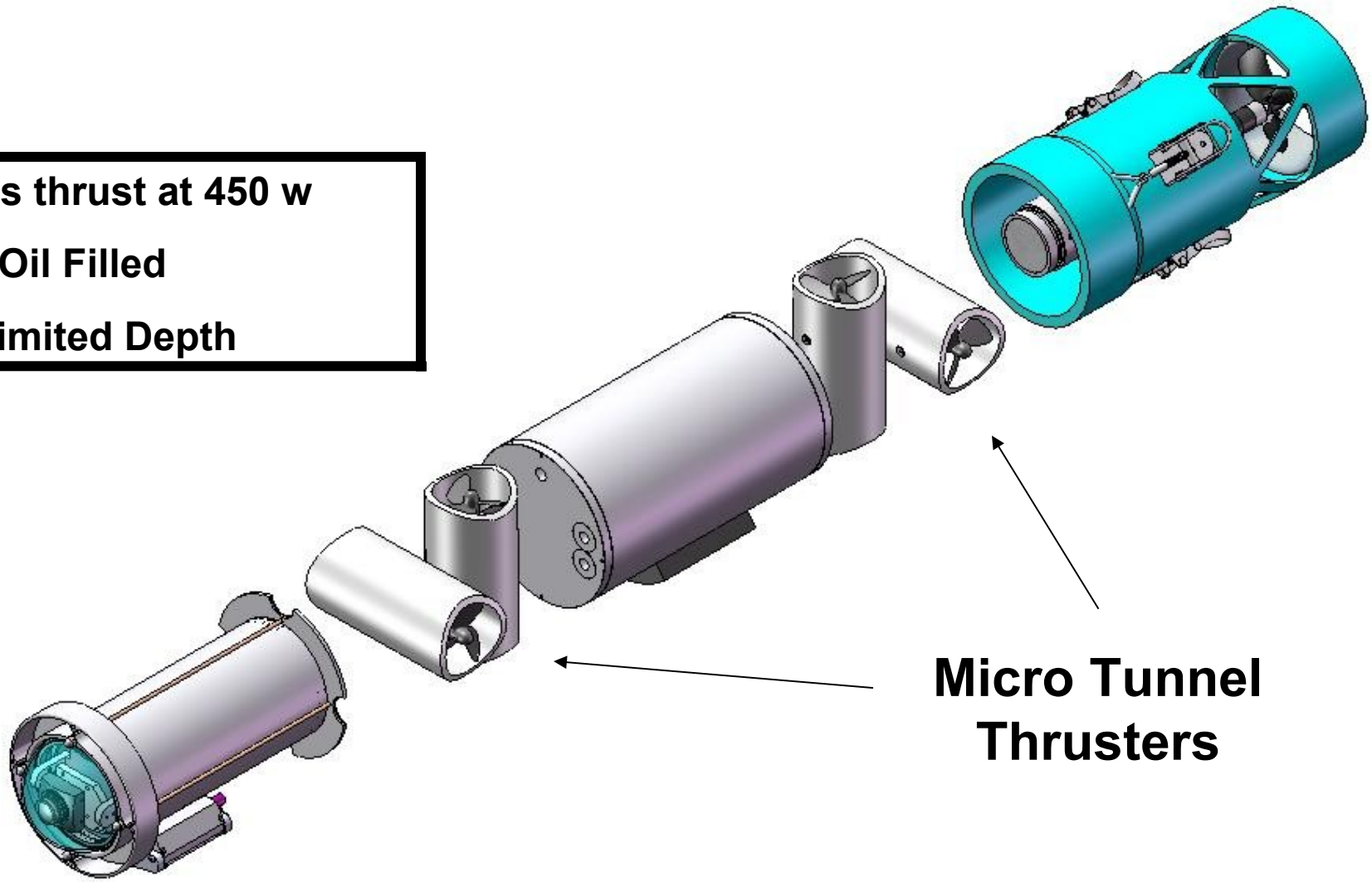


SCINI External Anatomy

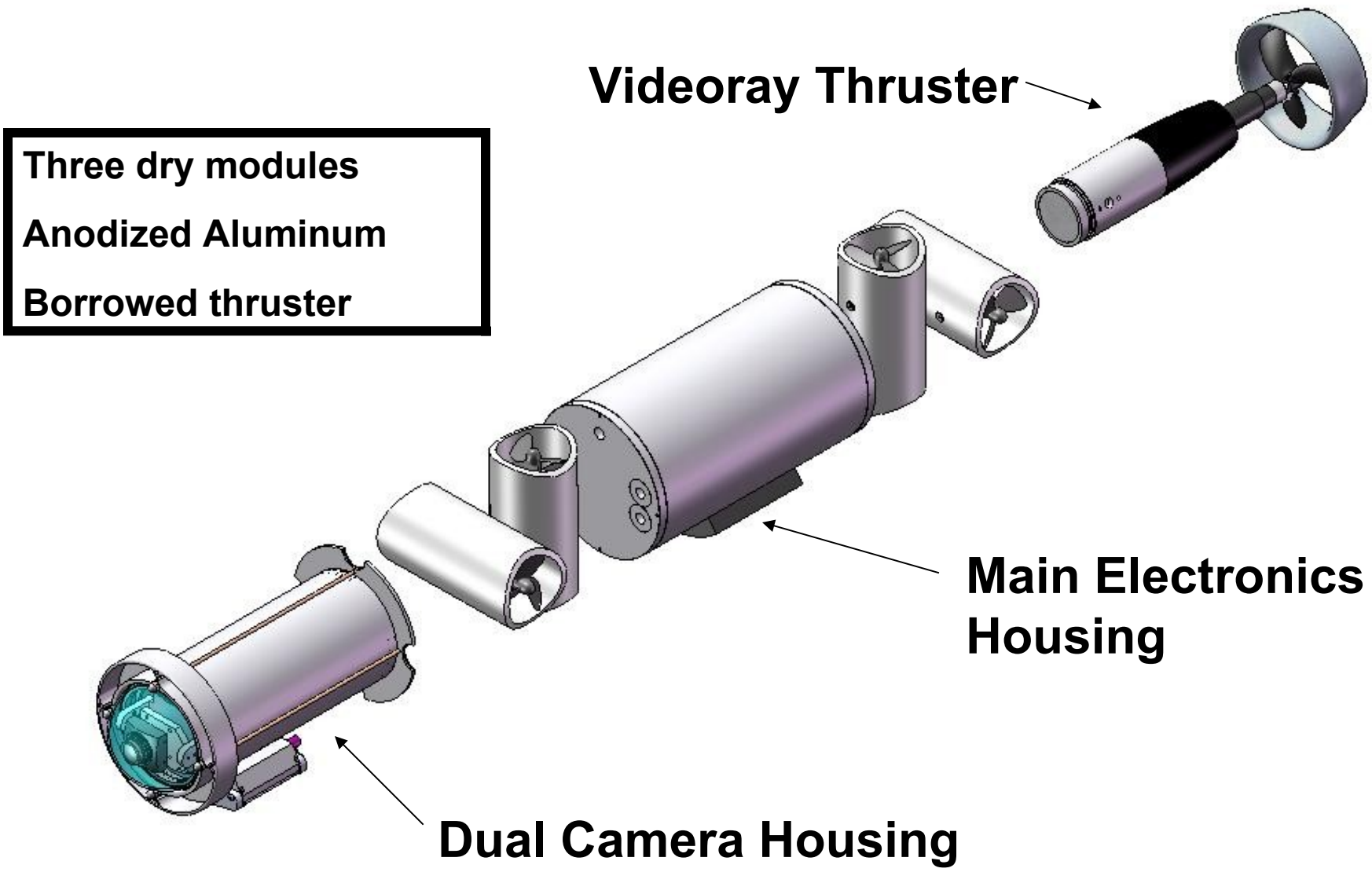
7 lbs thrust at 450 w

PC Oil Filled

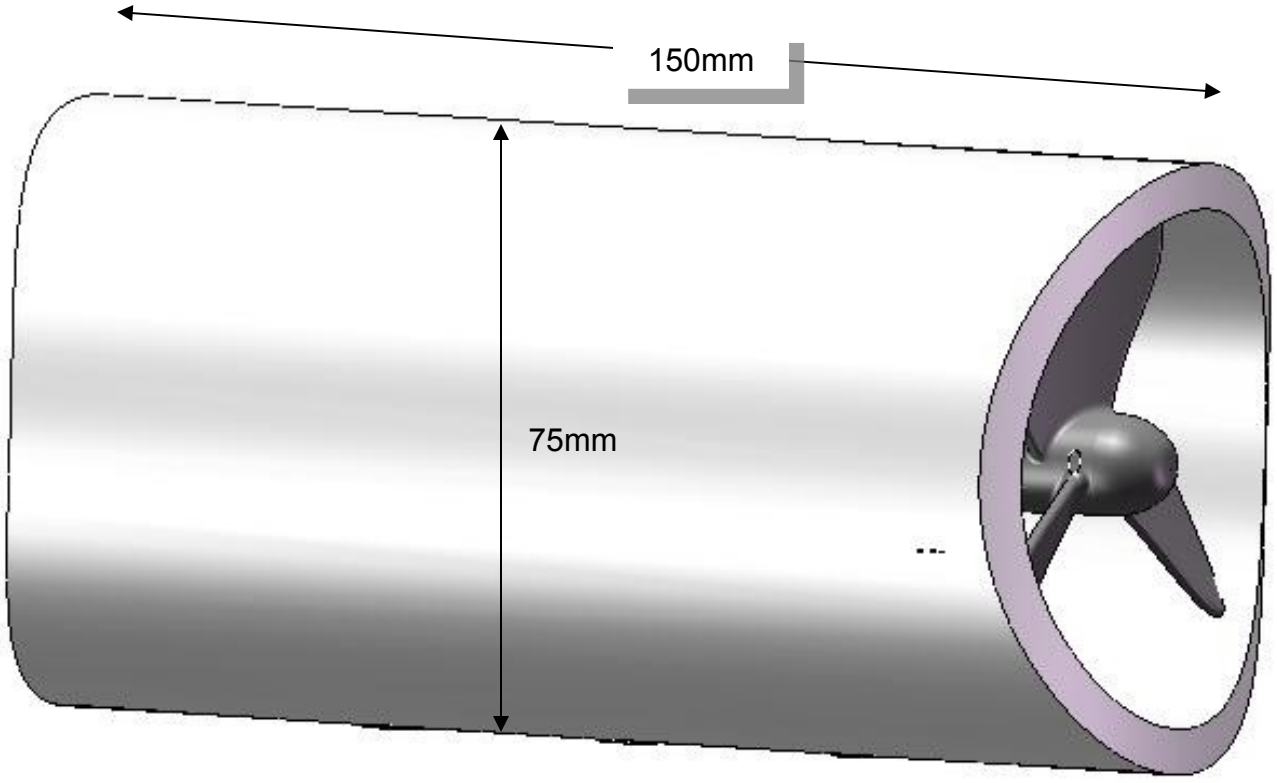
Unlimited Depth



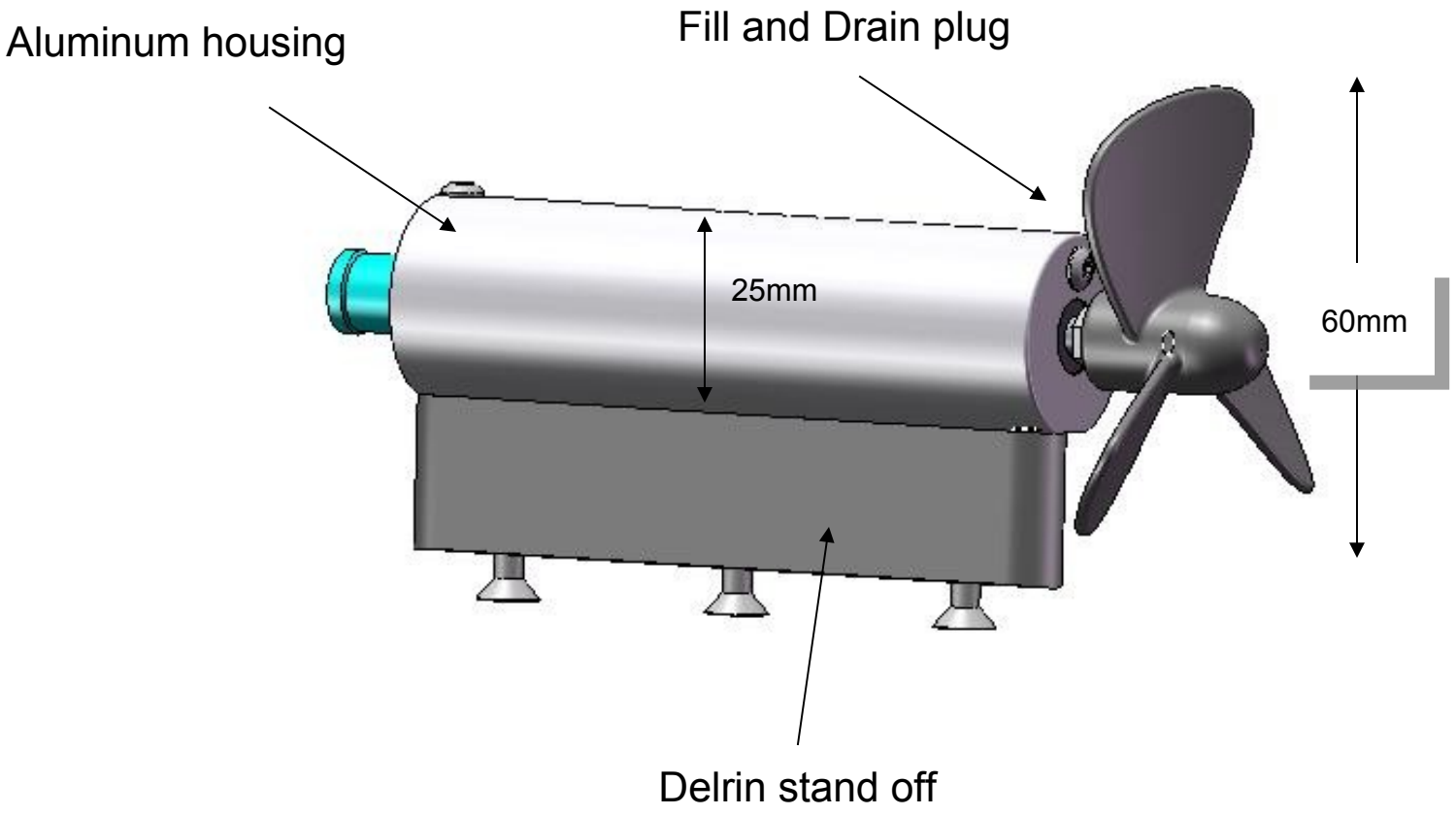
SCINI External Anatomy



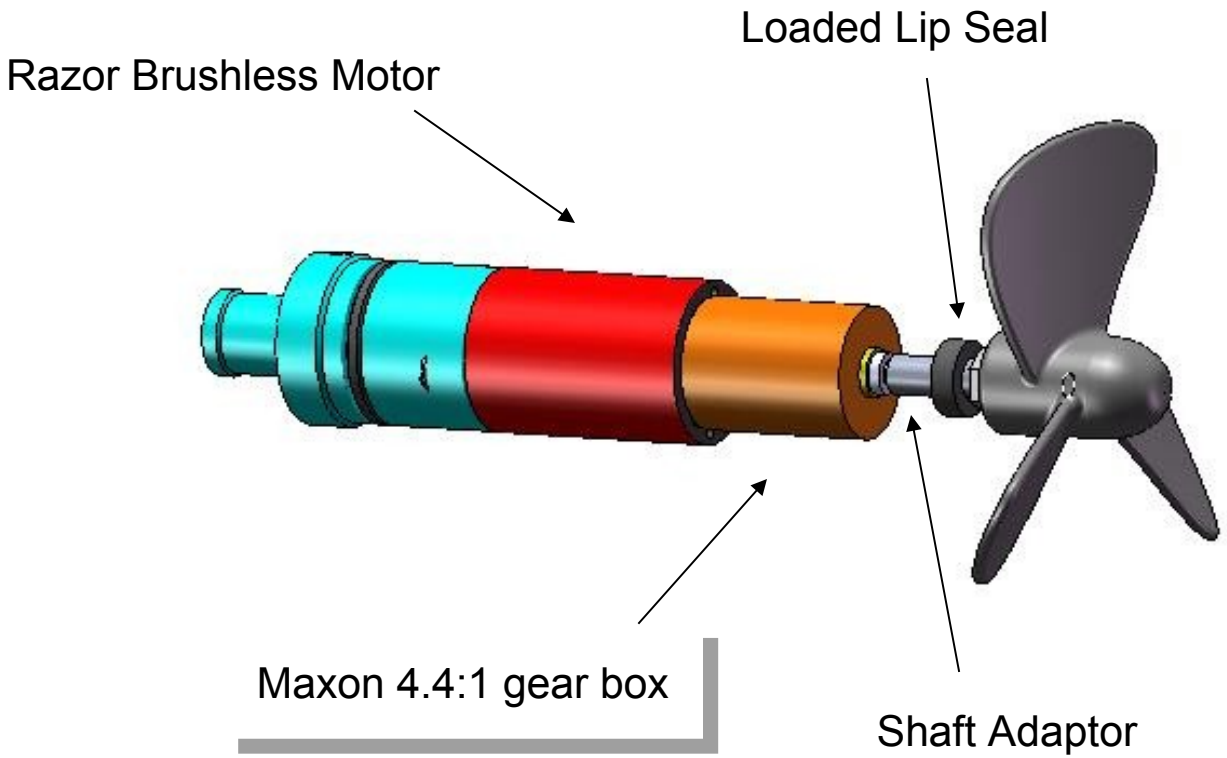
Micro Tunnel Thrusters



Model Boat Props

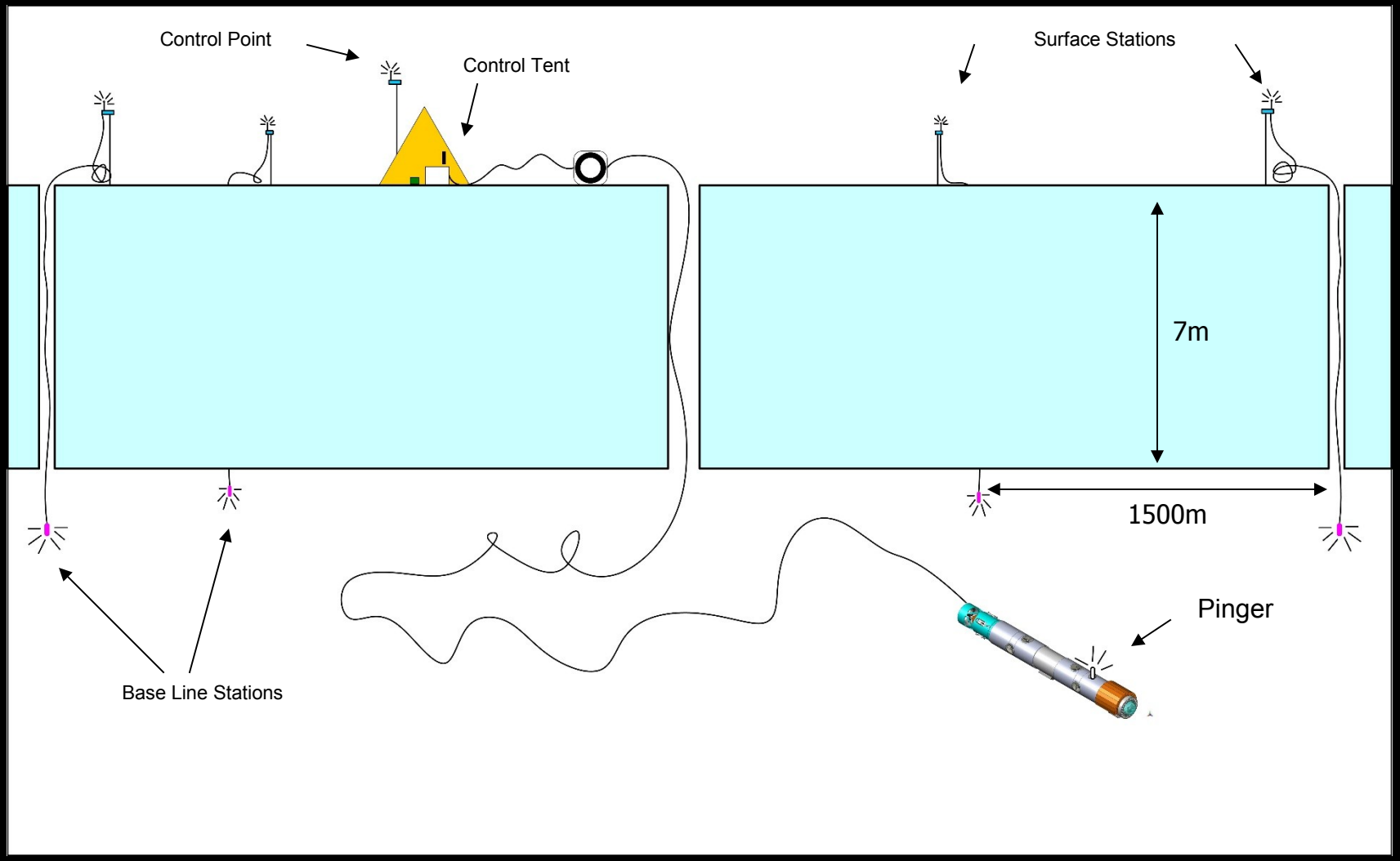


Model Helicopter Motors



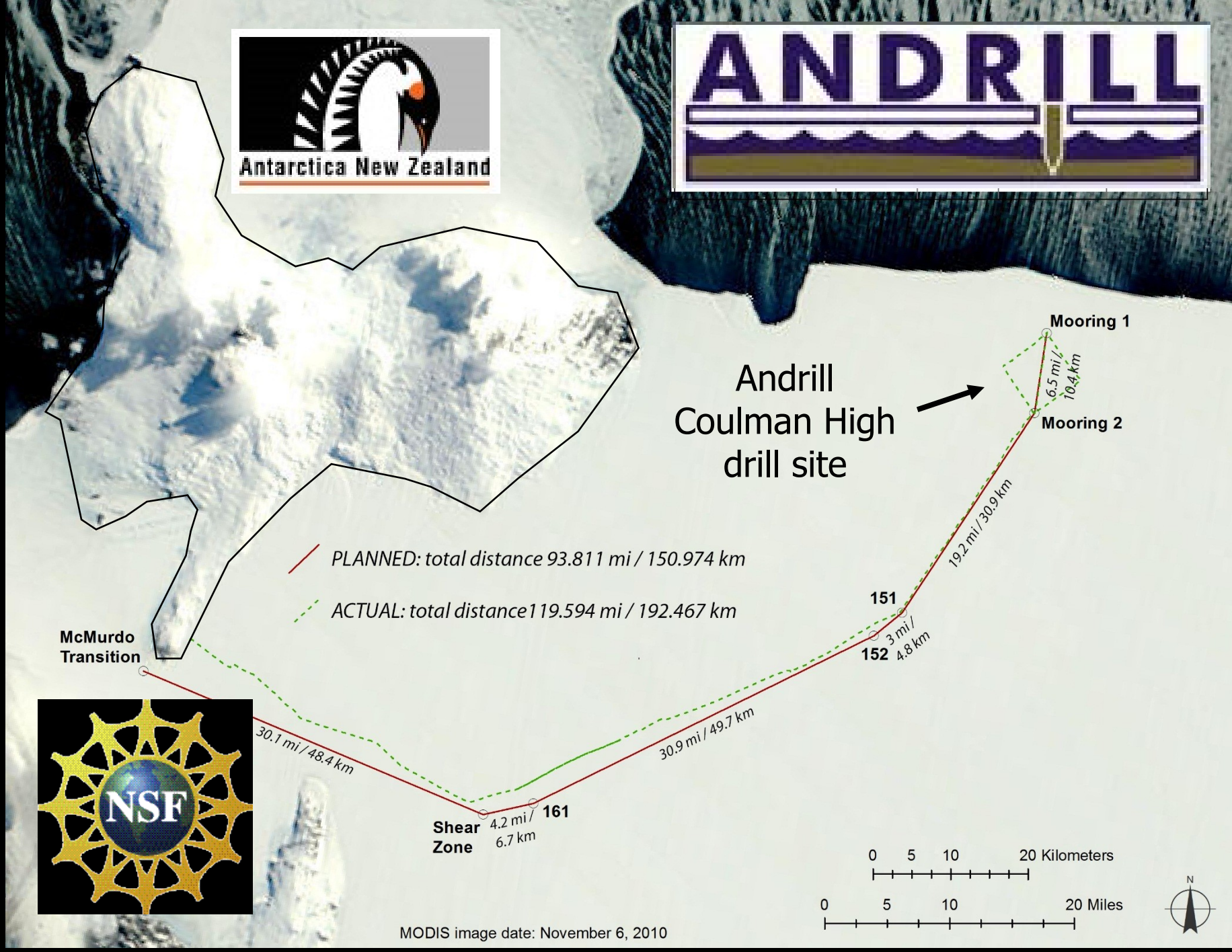
4.4 : 1 Gear Box

Long Base Line Navigation

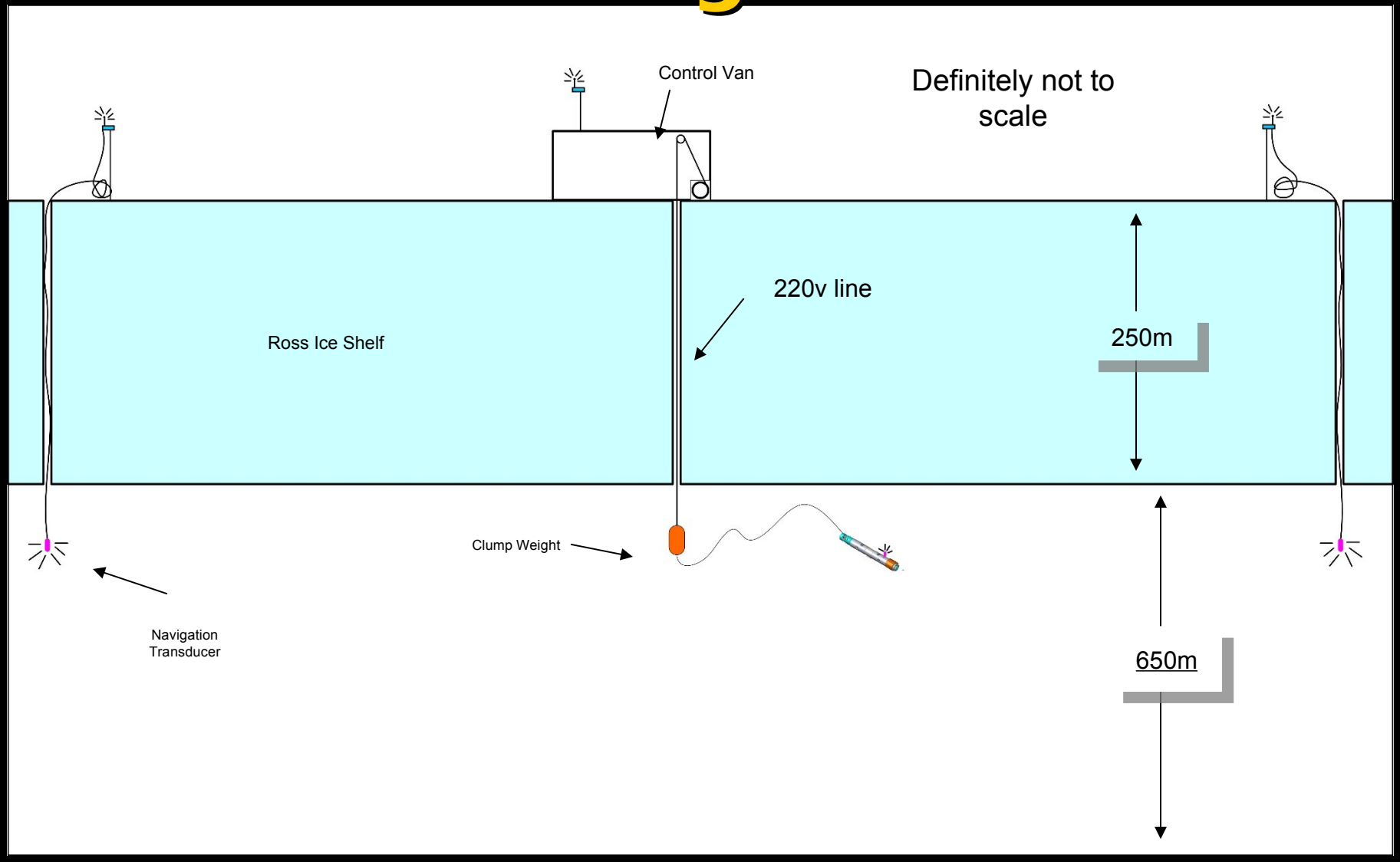


Performance

3 Complete units.
312 m Maximum depth reached.
8.5 h max dive time, 672 h total.
Penetrated 11 m of sea ice.
And 50 m glacier ice "crack access".
Located lost experiments.
Documented iceberg scours.
Transects at 20+ sites at 5+ depths ea.
Discovered Shallow Octacoral.
Chased by 2 Antarctic Cod.
90 pilots in training "open house"

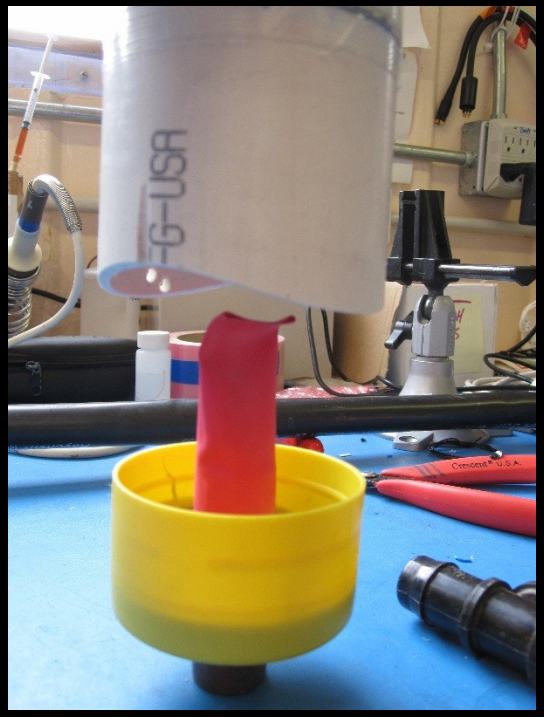

Antarctica New Zealand
ANDRILL
Andrill
Coulman High
drill site
Mooring 1
Mooring 2
6.5 mi / 10.4 km
19.2 mi / 30.9 km
PLANNED: total distance 93.811 mi / 150.974 km
ACTUAL: total distance119.594 mi / 192.467 km
McMurdo
Transition
30.1 mi / 48.4 km
Shear
Zone
4.2 mi / 6.7 km
161
30.9 mi / 49.7 km
151
3 mi / 4.8 km
152
NSF
0 5 10 20 Kilometers
0 5 10 20 Miles
N
MODIS image date: November 6, 2010

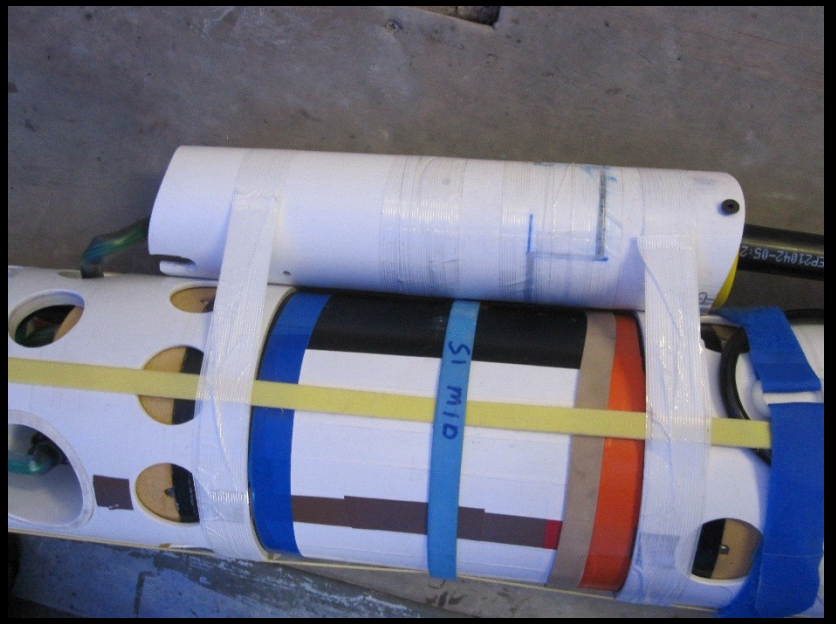
Dive Configuration Coulman High

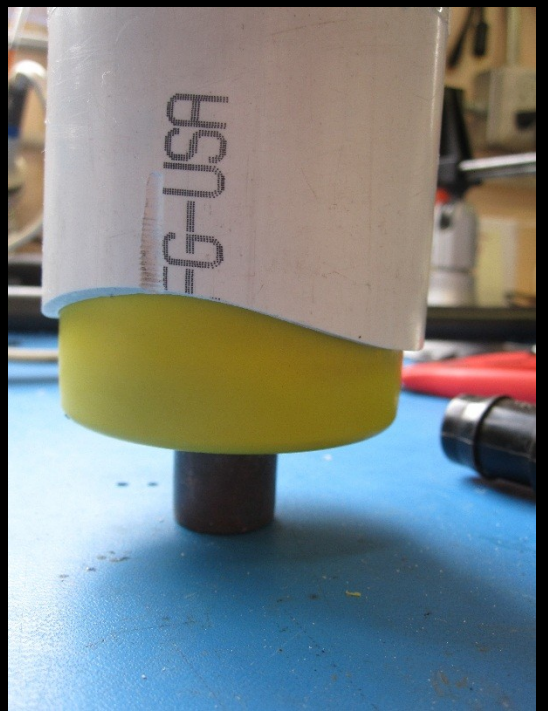


What Did We Find ?????

Samples !!


-G-USA

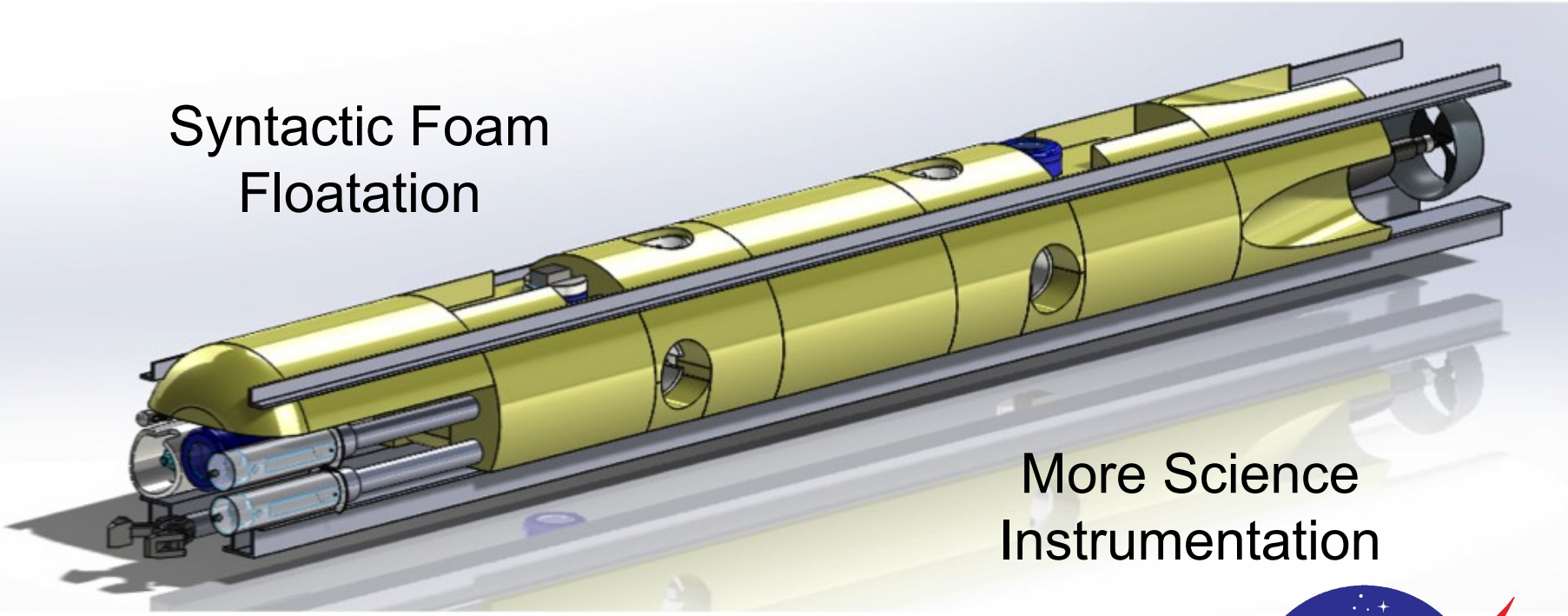



-G-USA

SCINI Remotely Operated Vehicle (ROV) Team

The Future of SCINI

Deep-SCINI (Initial Full Prototype)



Diameter = 23 centimeters (~9 inches in diameter)

Total length = 2 meters (~6 feet long)

Forward, Up and Down facing cameras

Reconfigurable tooling bay with larger payload capacity than SCINI

The Goals Of Deep SCINI

Maximum depth 2km
Launch and recover through 1.5km Ice Shelf.
Launch via a 20cm hole.
Carry payloads up to 5kg.
Fiber optics replaces copper communications.
Utilize next generation VideoRay components.

Single Camera Bottle

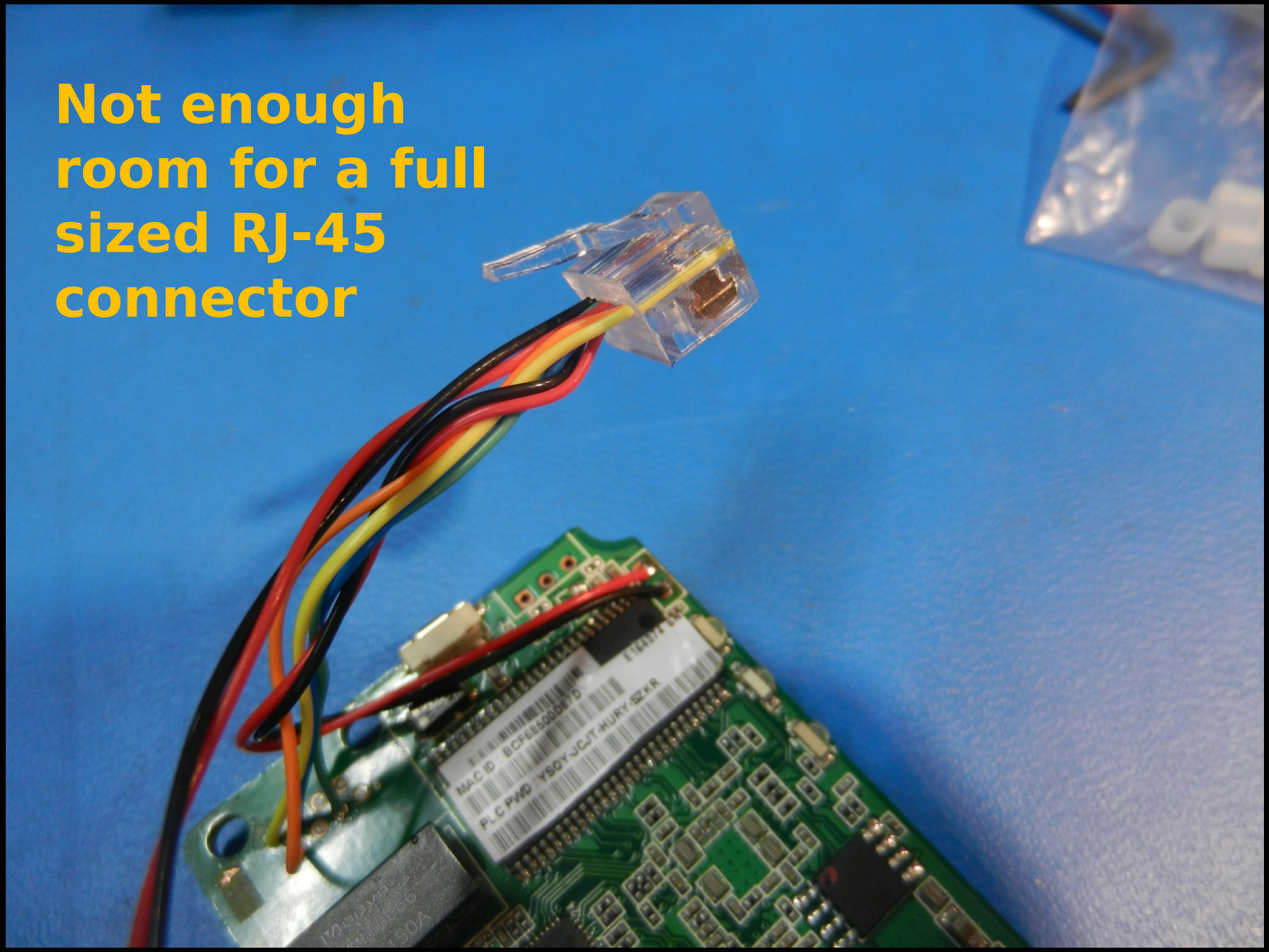
Sapphire window

Elphel 5mp camera

2km 6000ft Deep

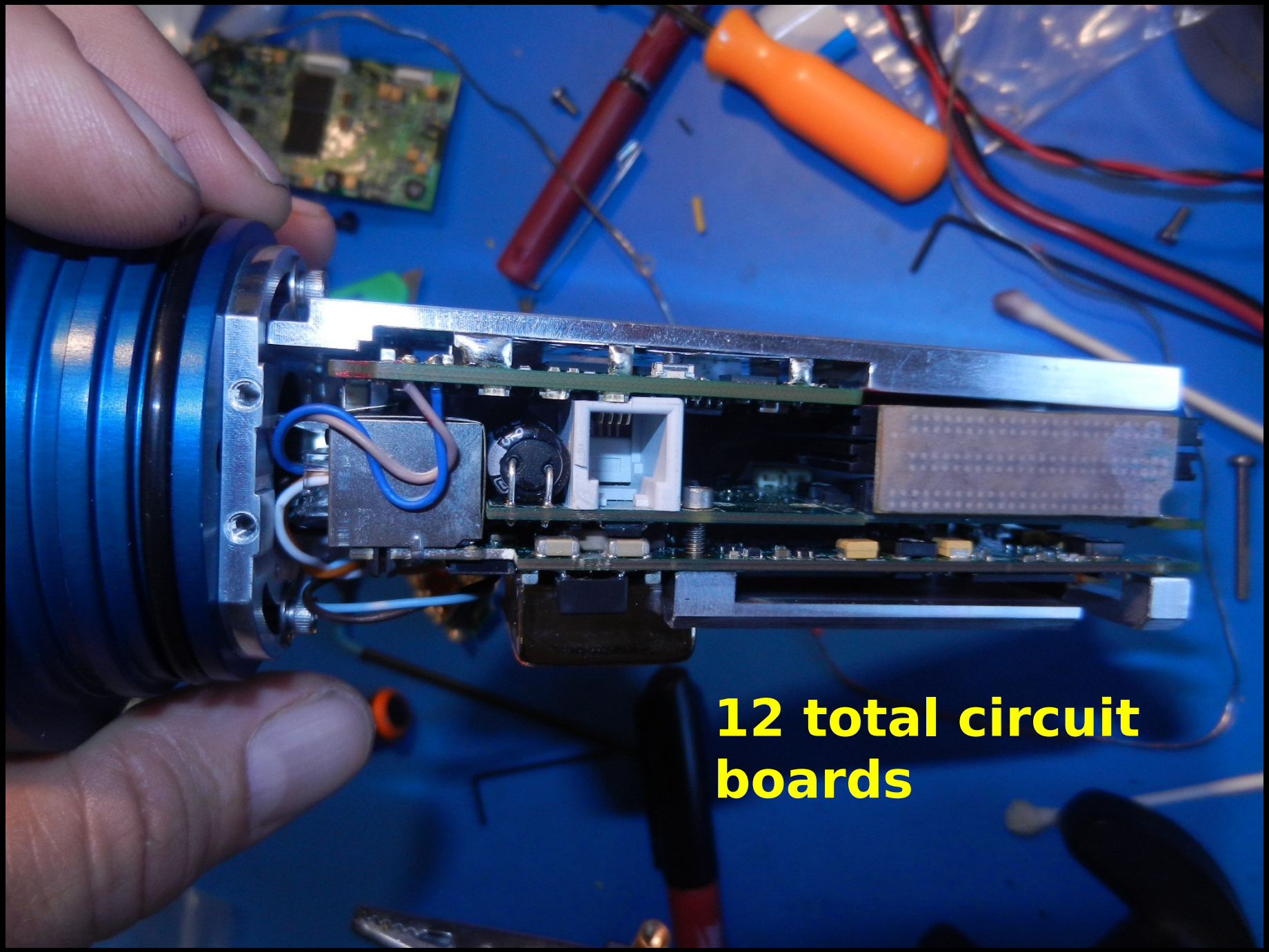
3000psi 2.5in

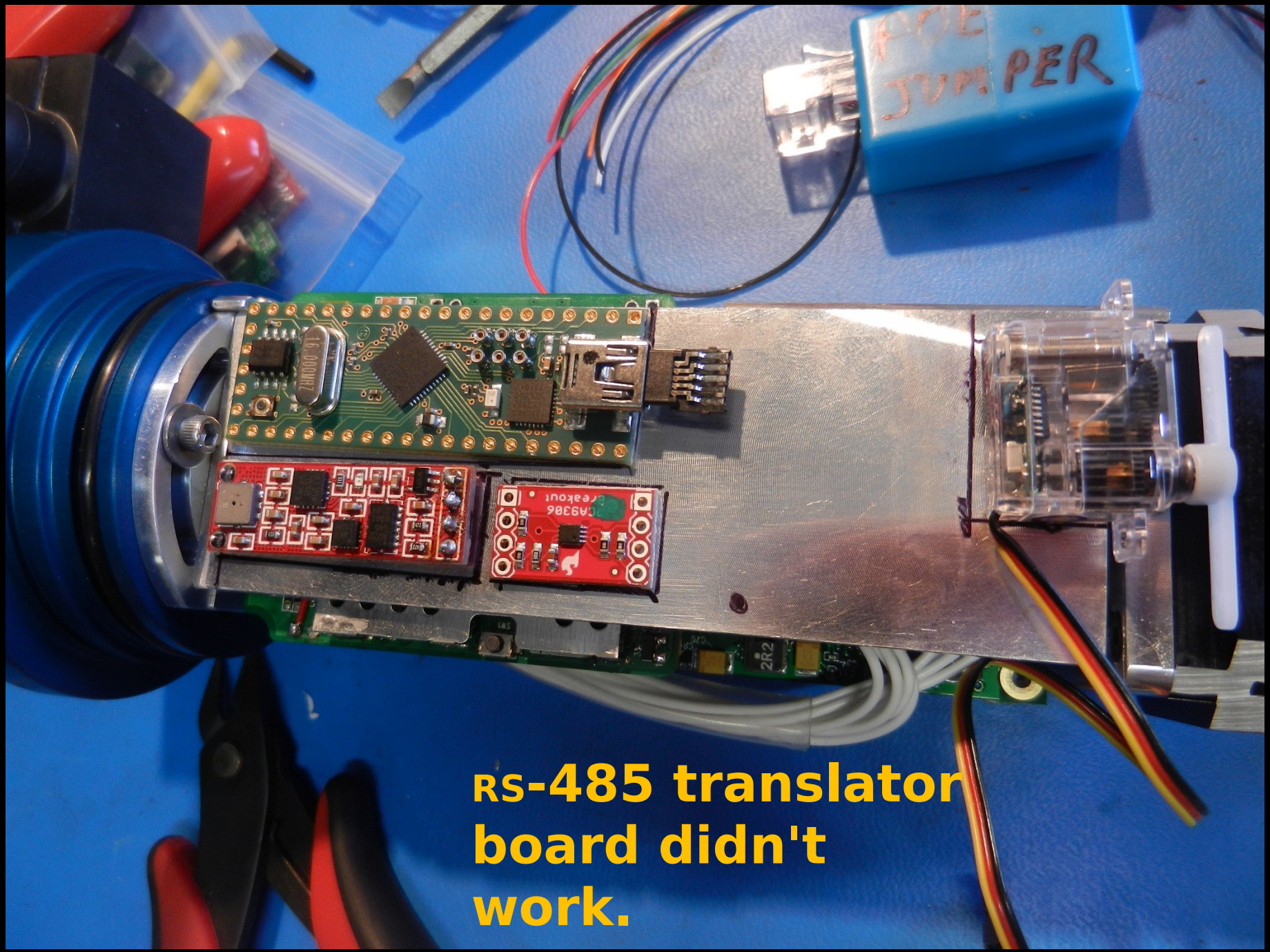

Homeplug AV200
EtherNet Over
Power
ENOP


Not enough
room for a full
sized RJ-45
connector

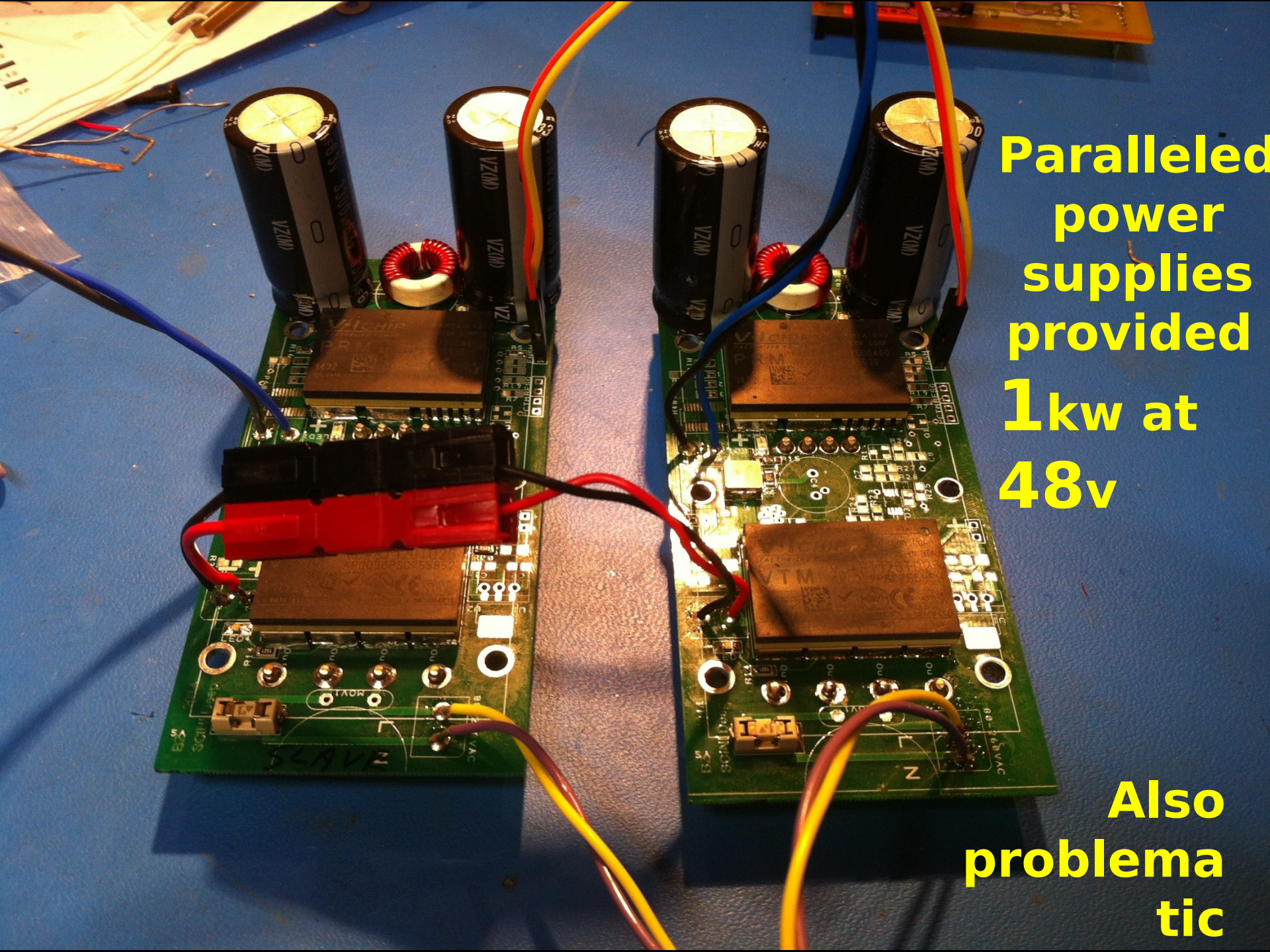

MAXIMUM DEPTH
FEET
6564
METERS
2000
www.thesextonco.com
String latching mechanism utilizing weed eater string


1” Sapphire window


12 total circuit boards

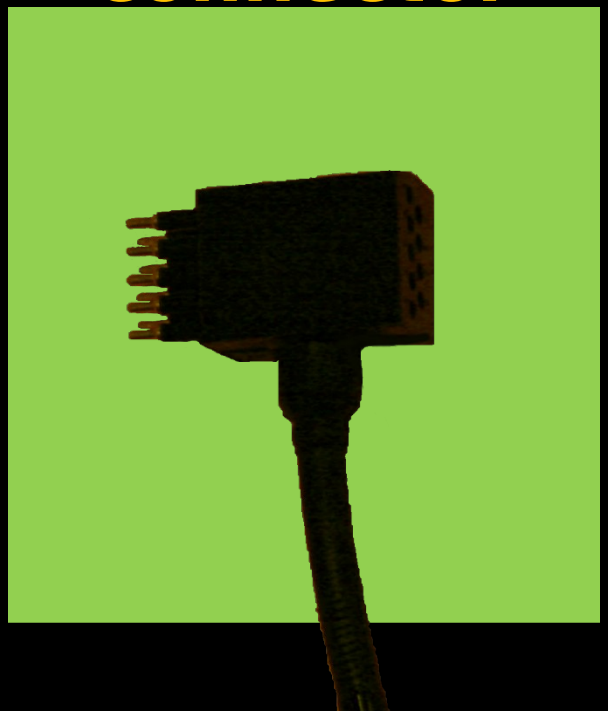


RS-485 translator board didn't work.


Paralleled
power
supplies
provided
1kw at
48v
Also
problema
tic

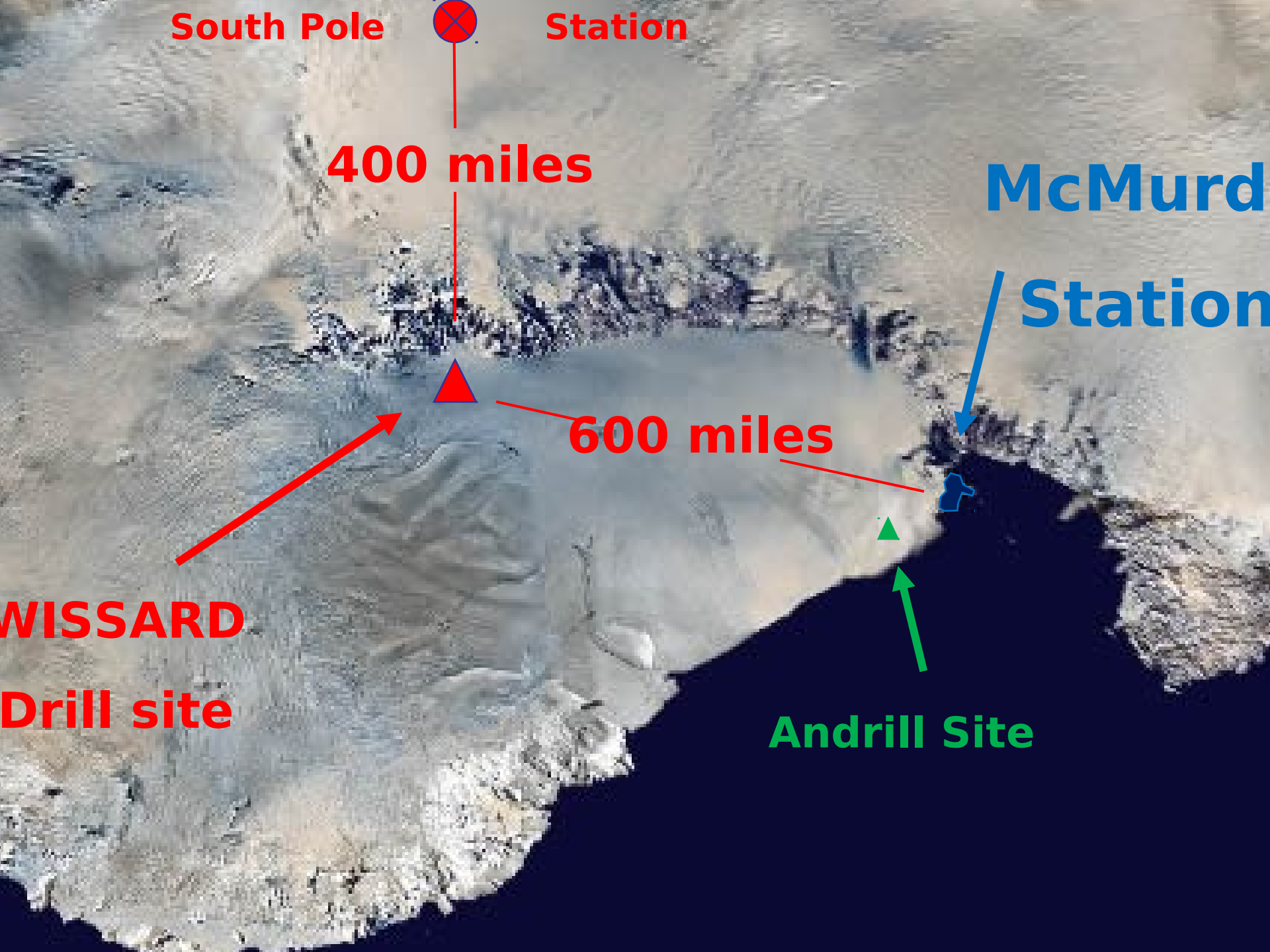
140cc Syringe water sampler converted to fit our standard motor unit.

9pin stacking connector



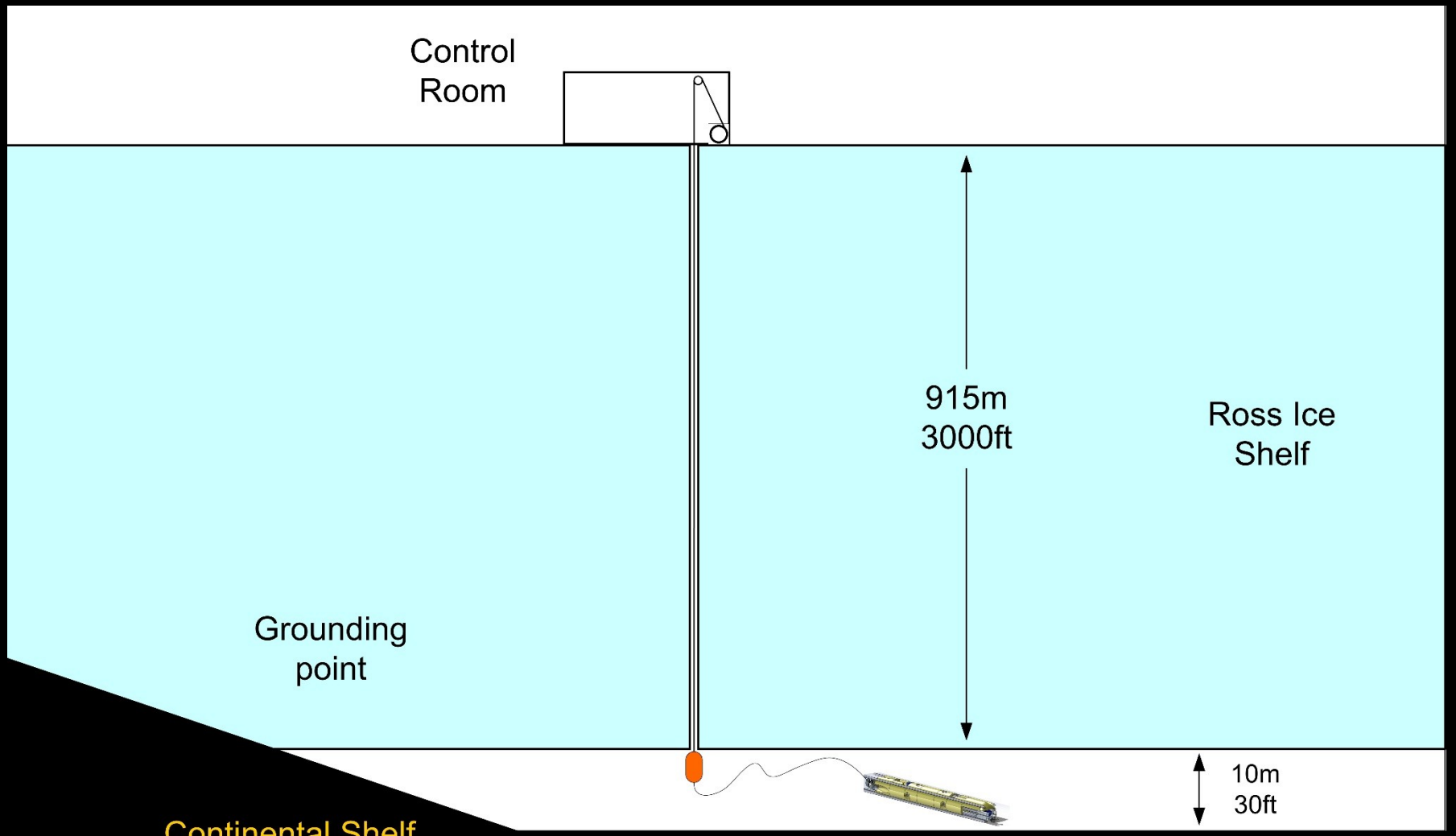

Oil Filled LED
48v 100w


Variable Trim
750g lead
Brushless
motor
1m long


South Pole
Station
400 miles
McMurd
Station
600 miles
WISSARD
Drill site
Andrill Site

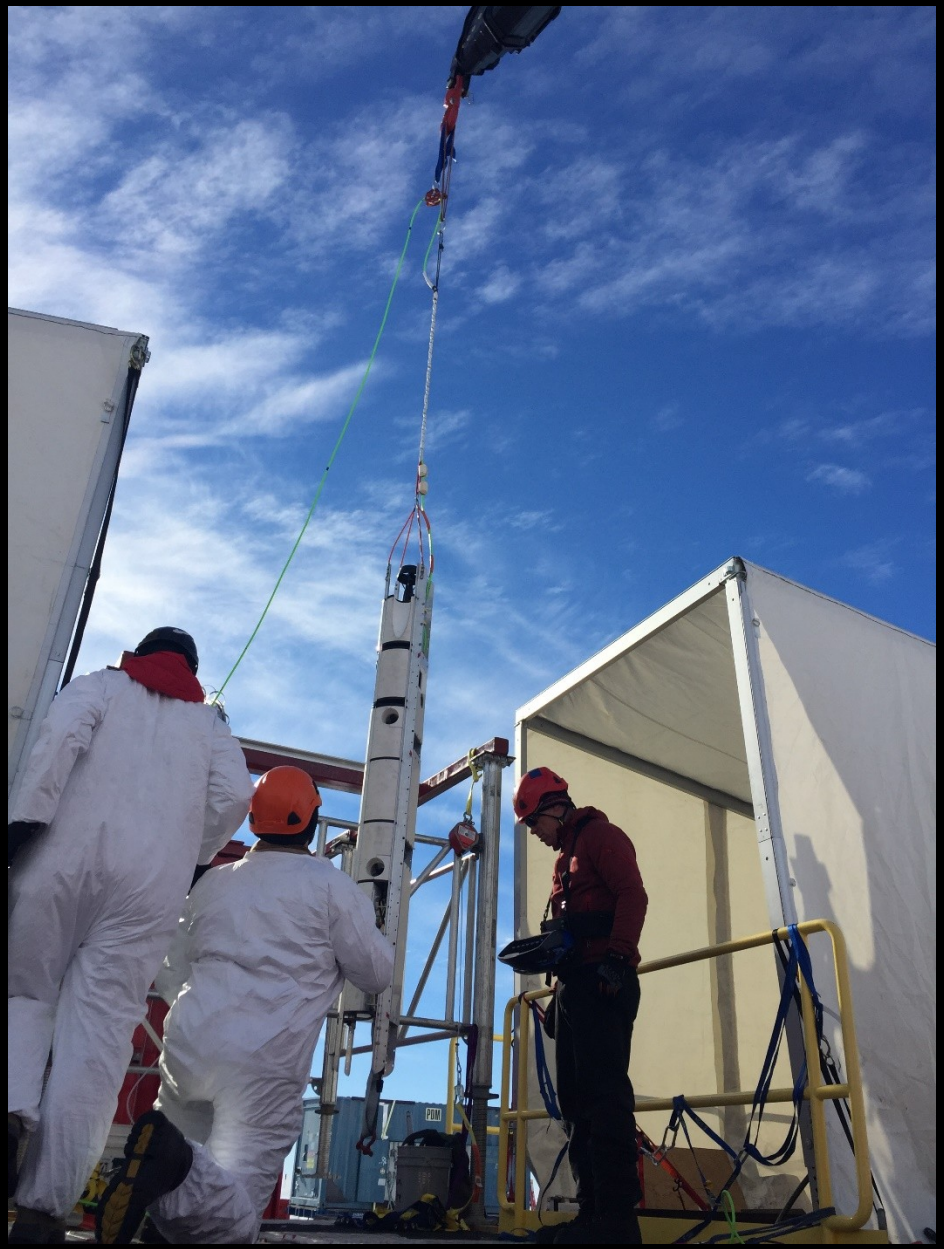
Whillans Ice Stream Subglacial Access Research Drilling (WISSARD)

SCINI Deep WISSARD




Long Right Short Left
USAP-ZCM
DRI
RACK
C-524
DNF


Depth:
Tilt:
Lights:
DELL
Save
SubSet
Start
XPS



The Marine Cavity Exploration


THE END