

EDINA MODEL YACHT CLUB

SAIL & SCALE NEWSLETTER

FEBRUARY 2014

VOLUME 23, NUMBER 2

USCGC Ice-breaker Polar Star

By Bill Hamelink

The recent drama of the Russian research ship, the Akademik Shokalsky, getting iced in by a sudden storm on the coast of Antarctica and of the ice-breakers trying to help her, has brought ice breaking ships to the public

eye, or at least to the boat enthusiasts eye, this winter.

This little adventure starts with the Akademik Shokalsky carrying a group of 52 scientists, researchers, and tourists plus the crew to Antarctica for the 100th anniversary of a trip by explorer Sir Douglas Mawson to the same spot. A sudden storm came up and the Akademik Shokalsky got stuck in the blown in ice. Help was requested and the Chinese ice-breaker



Russian research ship Akademik Shokalsky

(Continued on Page 4)

SCHEDULE OF EVENTS:

February 18, Tuesday7:00 p.m- 9:00 p.m.	Membership Meeting
March 18, Tuesday7:00 p.m- 9:00 p.m.	Membership Meeting
April 15, Tuesday7:00 p.m- 9:00 p.m.	Membership Meeting

COMMODORE'S CORNER



By **John Bertelsen**

This is the time of winter that I am really missing, and anticipating, getting back

to the ponds and back on a motorcycle. You can tell the sun is giving more exposure and that no matter what the weather we have turned the corner to spring. So with spring creeping into our thoughts Terry and I went to the motorcycle show at the auditorium and last weekend we went to see "All is Lost" at the theater. Robert Redford stars as a seasoned sailboat sailor on his own who runs into trouble (literally) on the ocean and has to survive using his wits and equipment. What I liked most about the movie was that it did not rely on the main character doing something stupid to create suspense. This movie is highly recommended, and will be out on DVD on Feb. 11. Other nautical disasters on a personal level were wonderfully covered by the "I shouldn't be alive" television series. Episodes are available on-line and I recommend watching the "Shark Survivor" episode, which is our favorite. As usual I am getting nothing done on any model boat projects, but to help us all learn model building skills and taking advantage of the

immense talent pool in the club, we will emphasize model building for the up coming meetings. If you did not find inspiration in Dwight Gronlund's newly finished boat at the last meeting, you weren't there. Jaw dropping is an understatement in every facet of this boat, and the finished product demonstrated club collaboration by several members at its best! Model building 101 will start at the next meeting with a presentation by Dave Bros on glues/cement/adhesives and clamps - or other creative devices used to hold parts together while the sticky stuff is setting up. Bring your own favorites and any models in process to show how model building gets started. Actually, bring whatever you are working on to any meeting so we can all watch the progress and learn along the way. Also at the meeting I will have a sheet of paper on which I would appreciate your name and expertise in model building, and/or if you would be willing to set up a presentation for the group or otherwise help out on a particular aspect of building. Since I am a novice in the building department, we really need others to pull these programs together. --John Bertelsen

RICHFIELD 612-866-9575	LITTLE CANADA 651-490-1675
 HUB HOBBY CENTER	
<small>OPEN...MON-FRI, 10:00-9:00...SAT, 9:30-5:30...SUN, 12:00-5:00</small>	
SHOW YOUR EMYC CLUB CARD AND RECEIVE 10% OFF ON ALL NON-DISCOUNTED ITEMS!	
<small>*Richfield*</small> 6416 Penn Ave. S. Richfield, Mn 55423 (1 blk S of LUNDS)	
	<small>*Little Canada*</small> 82 Minnesota Ave. Little Canada, Mn 55117 (Hwy 36 & Rice St.)

Special Thanks...To members that contributed their time & talents to this issue: Bill Hamelink, John Bishop, John Bertelsen, Larry Wheeler, & Dale Johnson

Thank You to David S. Holman's law office for free newsletter printing.. David specializes in Estate planning, Business, Real Estate & Creditor Representation, located in Burnsville, Minn.

EMYC INCOME AND EXPENSES 2013

Bank Bal Jan 1, 2013 \$413.38

INCOME 2013

Dues	\$2,490.00
Newsletter Ads	\$400.00
Donations	\$30.00
Poster Sales	\$10.00
River Cruise	\$505.00
Dock Party sur charge	\$220.00

Total Income \$3,655.00

EXPENSES 2013

Newsletter	\$21.43
Web Site	\$143.40
Parade of Boats	\$147.01
River Cruise	\$504.00
Boat Battery	\$85.81
Dock Party	\$1,202.70

Misc

Total Expense \$2,104.35

Balance 12-31-13 \$1,964.03

Respectfully Submitted Larry Wheeler Treasurer



AT THE JANUARY EMYC MEETING..



Dwight Gronlund (background)
and his incredible Artesania
Amsterdam model boat



Please visit us at our new store location at
5260 Independence Street - Maple Plain, Minn

USCGC Ice-breaker Polar Star (cont.)

Xue Long responded; and got stuck in the ice. Passengers from the Akademik Shokalsky were offloaded by the Xue Long helicopters to the Australian ship Aurora Australis which was standing-by in clear waters.

The call went out to the USCG Polar Star to rescue the two iced in ships with their crews, and the Polar Star headed to Antarctic for the rescue. This rescue was called off as the two ships freed themselves.

However, this created a good reason (excuse) for us to find out a little about the Polar Star.

The U.S. has two classes of polar ice-breakers, medium-class and heavyweight class. The Coast Guard operates the medium-class Healy and the heavyweight class Polar Star, both based in Seattle. We'll concentrate on the Polar Star.



The Chinese ice-breaker Xue Long

The Polar Star was built by Lockheed Shipbuilding and Construction in Seattle and was commissioned in 1976. She is 399 feet long, 83.5 feet of beam and has a draft of 31 feet. This gives her a standard displacement of 11,076 tons.



The USCGC Ice-breaker Polar Star

USCGC Ice-breaker Polar Star (cont.)

For power she has 6-3000 hp diesel engines and 3-25000 HP gas turbines. These power 3 shafts, each having a six foot diameter controlled pitch propeller. She has a forward speed of 18 knots in clear water and 3 knots in 6-foot ice. In the ramming mode she crushes ice 21 feet thick. Her range is rated at 16,000 nautical miles at 18 knots and 28,275 miles at 13 knots.

She can carry 2 HH-65A Dolphin helicopters, has a crew of 142 USCG personnel, 33 scientists, and a 12 person helicopter group.

These ships crush thick ice by riding up on the ice shelf until the sheer weight of the ship causes the ice to fail. To accomplish this, the bow is built with a curve that will allow this maneuver. Internally she is heavily reinforced in the bow and the stern, having 1-3/4" thick plates of special cold temperature steel while it is 1-1/4" thick amidships. Another enhancement for ice crushing (not currently in service) is the presence of 35,000 gallon liquid tanks in the port and starboard sides of the bow. A pump could transfer the liquid from one side to the other in 50 seconds and thus rock the ship and prevent ice seizure. This system was a maintenance problem.

The ramming procedure can be a touchy affair as the backing operation must not be allowed to damage the propellers or the rudder. Also, the 16 foot propellers are quite capable of tossing large pieces of ice.

These ships can be on cruises of up to 8 months and the stress of this on the crew is taken into account on the Polar Star by providing many items of relaxation and of communication. It is adequately provided with lounges, a library, a gymnasium, a post office, a computer lounge, etc.

So what does our ice-breaker fleet do when they are not rescuing iced-in ships? One primary job for the Polar Star is to



Russian nuclear powered Yamal

resupply and refuel the US Antarctic program's McMurdo Station.

Our ice-breaker ships have assignments to aid in polar exploration and seas mapping as well as rescue duties, aid to shipping, aid to polar coastal populations, and some policing duties in the polar areas. A word is in order regarding the Russian ice-breaker fleet, a very formidable fleet including nuclear powered ice-breakers with more in process. Their fleet is built to aid shipping on their Northern Sea Route and to aid scientific expeditions in the Arctic and to support tourism to the Arctic. The fleet consists of 9 ships, with in-service dates from 1959 to 2007, some are now decommissioned. Due to their particular assignment they do not have the really thick ice breaking capabilities of the Polar Star.

In Memory Of Marilyn M. Lundholm



We mourn the loss of our dear friend Marilyn Lundholm, who passed away on Jan. 28, 2014. Wife of EMYC member Bill Lundholm for 50 years, our caring thoughts go to Bill and his family through the difficult times ahead. She will live on through all the fond memories of her supportive role in

the club. She will stay in our hearts forever. A Mass of Christian Burial will be on Sunday, Feb. 16 at 4:00 PM at St. Edward's Catholic Church, 9401 Nesbitt Ave., Bloomington. Visitation one hour prior to Mass at the church. Our prayers are with you Bill. -Todd & Julia Moen on behalf of the Edina Model Yacht Club.

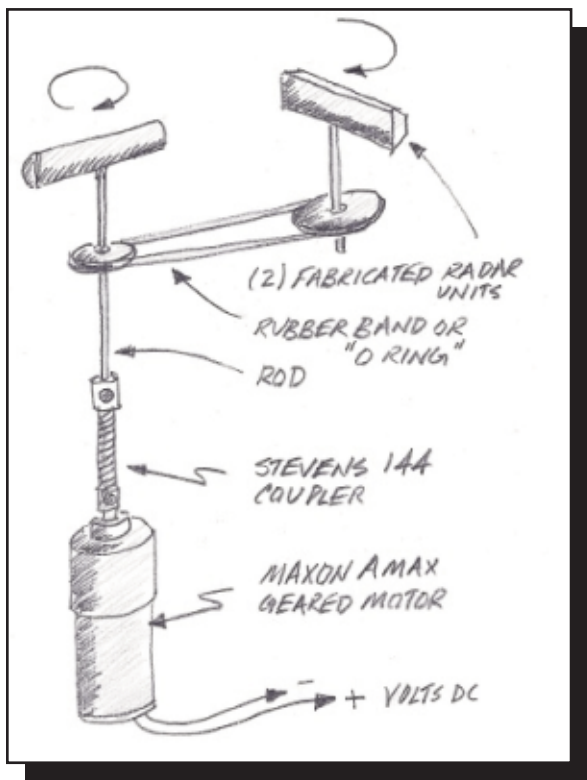
BUILDER'S CORNER



**GEARED
MOTOR**

by John
Bishop

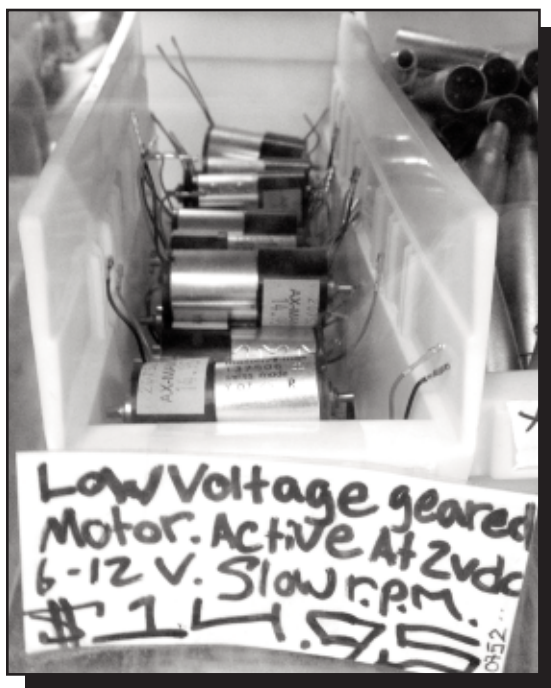
I was helping Dwight Gronlund wire a few things on his Artesania Amsterdam model boat. We were working with a modified servo that was to be used to power a set of rotating radar units.



Dwight Gronlund's Radar Setup

I noticed that the servo needed a high threshold of voltage to spin the desired units and gave it a somewhat fast and unrealistic rotation speed. On a recent trip to Ax-Man I decided to see if there were any nice little geared motors that might be a good substitute power source to spin the radar units. At the St. Paul store; search, search, search. I found a few other things that I really didn't need, but great things to add to the drawers that come in real handy when scratch building. It wasn't until I went to the checkout counter that I noticed a display case full of geared electric motors. I spotted one that looked promising for the radar units. It tested well in the store and seemed to be very powerful. I figured if it wasn't perfect, I would add it to the 20+ spare little motors I have that someday I might need.

Long story short- this one was perfect. So much so, that I believe this is one of the nicest little motors I have ever purchased.



I went back a week later and bought two more.

Details: A Swiss made Maxon A Max 137506 64.4:1 geared 3-36 Volt DC electric motor. The motor is of excellent quality. The geared unit is a planetary type. The output shaft is perfectly centered with the main shaft of

the electric motor. I tested the unit unloaded at various voltages from 0-12 volts. In all cases it drew about .01 Amps (10 Milliamps). Not much current at all. Under a load, it should not draw much more because of the gear reduction. This is so strong that if you pinch the output shaft with your fingers you will not be able to stop it. You might be able to stop it with a pair of pliers, but you would most likely damage something if you tried that. It stalls at .4 volts DC. For reference sake, at .4 volts the output shaft rotated at 1 RPM,

BUILDER'S CORNER (CONT.)

3 volts-12 RPM, 6 volts-24 RPM, 9 volts-36 RPM, and 12 volts-48RPM. Hooking up the red and black motor leads to positive and negative battery terminals respectively causes clockwise rotation, which is the correct rotation for a radar unit. This motor is reversible as well. The motor and gearing is almost completely silent. You would not hear this running when mounted internal to a model boat. The output shaft has a machined flat spot. Note: If you wanted to install something like this in a model boat project with a 12 Volt DC system but thought the rotation speed was too fast at 48 RPM, you could simply step down the voltage to the geared motor by using a fixed resistor or variable resistor (potentiometer) to obtain any desired rate of rotation.

Dimensions: Overall length 2 1/4". Case length is 2". Overall diameter is 15/16", the same size as the diameter of the quarter pictured for relative size comparison. Output shaft is 3mm in



diameter . length of the output shaft is slightly more than 1/8", and just long enough to grab onto with a small universal coupler, tight fitting tubing, heat shrink, etc. The coupler we used is shown in the photo; it is a Stevens 144 model boat part from Hub Hobby for \$3.50. Weight: 2.7 oz Availability: \$14.95 from Ax-Man's St. Paul location, 1639 University Avenue, [REDACTED]. The orange price sticker from the store reads "20752 AX-MAN 14.95". Its in the store is at the checkout counter near the entrance door, electric geared motors display case, middleshelf, far left side, yellow

bin. On 1-22-14 they had at least 20 in stock. I did not check other Ax-Man locations but a stock number of 20752 with a telephone call may locate it at their other three stores.

A Google search of "Maxon A Max 137506" (second listing in results) lead to an Amazon listing for the exact same motor at \$14.95 as well. An easy way to get it for those that like things to come to the doorstep.

A few notes about Dwight's operating radar units. This was basically a fabricated assembly and was not purchased as an operating unit. The radar heads were made from wood. The shafts are basic metal rods. A rubber band was used to drive the secondary radar shaft. Ax-Man had some nice rubber o rings that would have worked equally well, if not better, than the rubber band. I saw a nice assortment of rubber o rings at the St. Paul location along the east wall, about midpoint, at waist height. Any well-stocked hardware store will have a nice assortment too.

The pulley sheaves are of different sizes. The smaller is on the primary shaft, the larger on the secondary shaft. This will cause the secondary radar unit to rotate at a slower rate than the primary- a very nice and realistic scaled effect. Two radar units rotating at the same speed may look a little distracting.

This geared motor assembly is perfect for getting things to spin at a slow and realistic speed, with plenty of torque- in our case rotating radars units. There was some friction in the pulleys and belt setup to make two radar units spin from one motor unit, but the strength of the gear reduction didn't even feel this as a load in the operation of the motor.

What a great little geared motor! -
John Bishop



EDINA MODEL YACHT CLUB

Centennial Lakes
Hughes Pavilion
7499 France Avenue South
Edina, Minnesota 55435
www.emyc.org



FEBRUARY MEETING

TUESDAY, FEBRUARY 18, 2014 7:00 P.M.
CENTENNIAL LAKES GARAGE BAND ROOM

AGENDA:

- Dave Bros - glues/cement/adhesives and clamps
- Show and Tell of Boat Projects

Special Interest Contacts:

Scale Boating:

To Be Determined (Anybody Interested?)

Sail Boating:

Tony Johnson [REDACTED]

Fast Electric:

Dan Proulx [REDACTED]

2014 Board Members

Commodore: John Bertelsen [REDACTED]
Vice Commodore: Paul Olsen [REDACTED]
Vice Commodore: Joe Steele [REDACTED]
Vice Commodore: Mike Ross [REDACTED]
Vice Commodore: Kevin Waldo [REDACTED]

Secretary: To Be Determined [REDACTED]
Treasurer: Larry Wheeler [REDACTED]

The Edina Model Yacht Club Sail & Scale Newsletter is published monthly except for December.

Newsletter Editor: Todd Moen [REDACTED]

Webmaster: Dale Johnson [REDACTED]

Please send articles by email to:

[REDACTED]

Deadline for articles to be considered for the March publication will be Friday February 28, 2014

