

Modifying Graupner's© Wiesel Patrol Boat Kit

Converting to Four Drive Shafts

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Graupner's decision to make a kit of the German Navy's Zobel-class "Schnellboot" was a good one. These boats have a unique design – the classic high speed hull of WW-II torpedo E-Boats with old style open gun turrets combined with an array of modern antennas and radars electronics. Unfortunately, for the modeler looking for a well detailed accurate model, this kit falls short.

Disclaimer

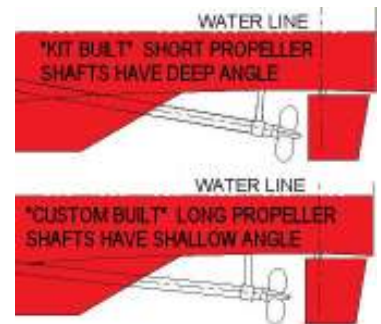
Graupner© is a registered trademark of Graupner GmbH & Co. KG. There is no intent to discredit or abuse the name of this fine company. The only reason for this document is to assist model builders of a Zobel-class schnellboot to build a handsome model. There is very little information available elsewhere.

When I purchased this kit in 1975, Graupner's advertisement in *Model Boats Magazine* stated "Superbly seaworthy & maneuverable – and highly authentic. A true 1/40th scale model." They now (their web site in 2008) call this a "quick build" kit.

Forward

This document was created for the detail modeler wanting to modify the Wiesel kit to provide an accurate model. Herein I have provided documentation to modify the kit. It is up to the builder to use some or all of this information as well as any other information they might have. Finding the information was not easy, and took place over a period of many years. Most of the information came from the internet in the form of pictures, some from other documents. Also note that because sketches for parts were made based on relative sizes taken from photos, accuracy is not guaranteed. Where possible, photos taken from different angles were used to confirm the size, shape, and location of the parts.

Graupner's Wiesel kit (no. 2145) has a number of problems: One of the major faults is the instruction and components to power the model with three motors, shafts, and propellers, and steer the model with three rudders. The original boats had four engines, shafts, and propellers and two rudders. The arrangement is virtually identical to the class 140 and 141 torpedo "schnellboots." Also, the use of longer shafts (replacing the short prop shafts that comes with the kit) allows the shaft angle to be less steep, and combined with the smaller diameter motors (because they drive smaller props) the motors sit lower in the hull. The desired look of appearing to be pushing the water more to the rear rather than down at a steep downward angle is achieved.



The part numbers in the Wiesel kit follow the sequence of assembling the model. I will follow Graupner's use of part numbers as well as their figure numbers (on the photographs) in order to make modifying the kit easier. New parts will be indicated as "new" followed by the name of the part. ...So, let's get started!

New Parts & Materials

I experimented with various materials used to make the new shaft mounts and rudders, and made measurements to determine the correct length propeller shafts and motors. For the shaft mounts I used styrene tubing. For the shaft supports I used brass tubing. For the rudders I used copper sheet and copper tubing. Most of the cements were liquid plastic cement (for the styrene), gel type super glue, and "JB Weld" epoxy. The following parts were used:

Qty	Description
2	Graupner GR1118, 12.2" long prop shaft, 6MM#410/260 (for inner shafts)
2	Graupner GR1117, 10.2" long prop shaft, 6MM#410/260 (for outer shafts)

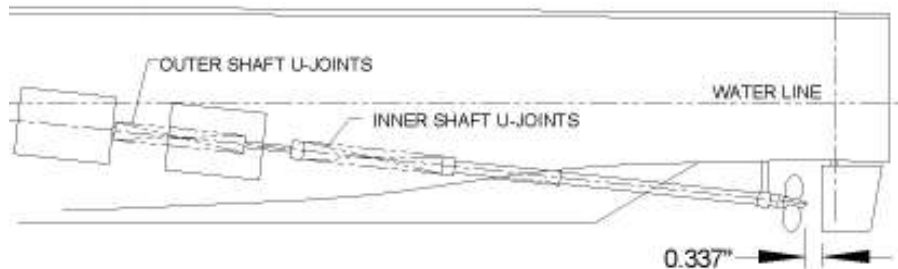
- 2 Graupner GR230830, 3-blade 30MM boat prop, right rotation
- 2 Graupner GR230831, 3-blade 30MM boat prop, left rotation
- 4 Graupner GR354 3 or 4MM to 3.2MM universal joint
- 4 Graupner GR7302, Speed 300 7.2V motor
- 2 HLH8730 3 X 10MM flat head screw kit (10 screws) for motor mountings

Hull Modifications

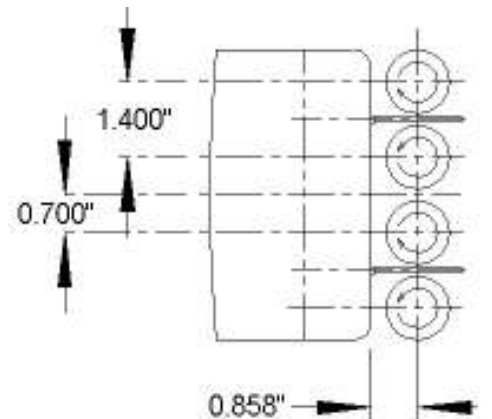
As I had already mounted the three shafts and propellers, I had to do a lot of cutting to get those items out. This required quite a bit of fill pieces and strengthening. The skeg (center keel) was lengthened to well aft of where the center shaft exited the hull. There are two main components to this section: Drive Mechanisms and Rudders.

Drive Mechanisms (motors, shafts, and propellers)

The drawing at the right shows the layout from the side. Just like the original boats, the outer shaft motors are forward of the inner shaft motors. This is because there is more room (beam) further forward and the original engines were too wide to set side by side.



The use of longer shafts (the outer two are 12.2 inches long, and the inner shafts are 10.2 inches long, versus the original kit shafts of 8.9 inches long) allows the placement of the electric motors under the engine house. This places the two center shaft motors 1.3 inches forward of the kits placement, and the outer shaft motors an additional two inches further forward.



The second drawing (looking directly at the transom) shows the rotation on the shafts as well as the side to side locations for the prop shafts and rudders. The use of smaller propellers (30MM versus 45MM) allows for a shallower rudder.



Rudders

The new rudders (two) are located about .700-inch off the centerline (which is between and aft of the props) of the hull axis and the new post is the same distance from the transom as the Graupner post were. The rudder shape is about the same as the Graupner rudders, but not quite as tall. They also have sharp corners as opposed to the rounded Graupner corners. Lastly, they are a lot thinner than the Graupner rudders. The photo at the right compares the larger Graupner rudder with the smaller and thinner “to-scale” rudder.

The size of the rudders is as follows: 1.375-inch high; 1.280-inch long (top edge); 1.038-inch long (bottom edge). The Rudder post is .280-inch back from the front edge of the rudder.

Each rudder is made of two pieces of .010-inch copper sheet with a slight bend at the post (located .280-inch from the forward edge) to allow the front and rear edges to mate when the rudder post (.094-inch OD copper tube) is in between the plates. The rudder post is 3.625-inch long and has a .500-inch section of threaded rod protruding from the top end. The bottom end is flush with the bottom end of the rudder side plates.

The entire assembly (rudder plates, rudder posts) is soldered together. Any voids (including the bottom end of the rudder post) are filled.