

Damen 3307 Building tips



Model stand Rostock, october 2017

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The most recent version of this document is kept at:

<https://www.nedsystems.nl/media/kunena/attachments/43/Damen3307manualversionUK2017-10b.pdf>

STAND

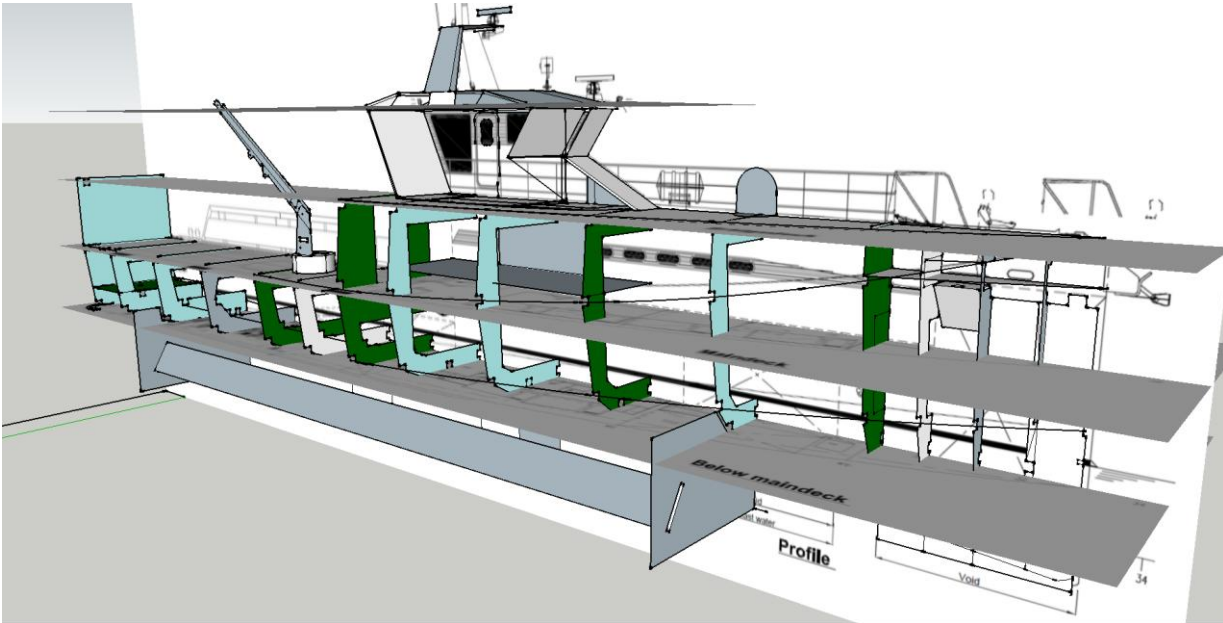
Make a standard for the hull, length between the supports 30cm;

-for the supports use the profile of rafters 04 and 09.

-leave extra bottom space for under the propellers, rudders, trimflaps

=depth under hull at rear support is 30mm, at front support is 15mm

-The decks should then be well horizontal with the hull in the stand.



RAFTERS

Locate the best fit for the rafters. Grind them fit to the hull as the polyester hull has been built by hand lay-up. The space between the rafters is a multiply of meters, which translates to 2 cm at scale 1:50.

The lasercut sheet for the polyester hull contains 5 rafters; indicated here in dark green.

Align the rafters with 4mm woodstraws.

Measures starting from the stern:

-rafter-rudder (horizontal); not too high, leave some space below deck for the steering levers, see: 'Rudders'.

-rafter 04, at 22 cm (or other convenient place to support the engines)

-rafter 06, at 30cm, adjoining the bridgedeck and rear deck; the rear deck corresponds with the underside of the door portals.

-rafter 11, at 46cm, choose a position between two windows.

-rafter 17, at 58cm.

DECKS

Place the decks flush inside the polyester hull, not on the hull. Do not glue before placing engines, electronics and optional bow-thruster.

RUDDERS

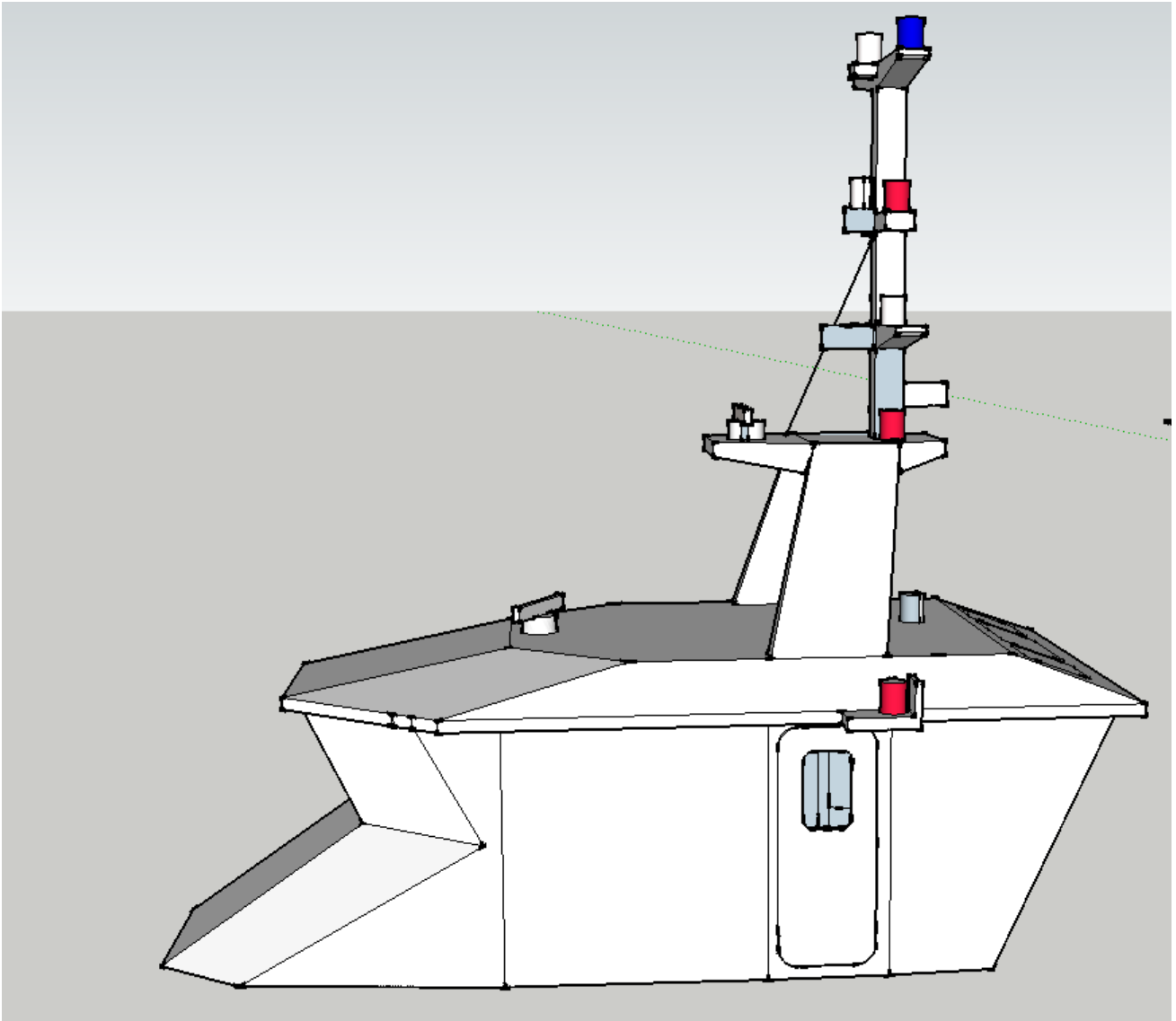
Place the rudder shafts (4mm) vertically through the hull some 2-3 mm off the centre of the propellor axles. A propellor axle (3mm) can thus be removed with a clear pass alongside the rudder axle (3mm) for maintenance without removing the rudder first.

Extend the rudder shafts well above the waterline while keeping space for the rudder levers under the main deck. Interconnect the rudder-levers. Connect the rudder servo (9G) to one of the rudder levers.

CABIN AND MAST

File the glue at the right tenon.

Cut the windows to choice; either the military version or the non-military.



Place the support for the radar motor from the forward position to the backward position
De radar-axe now aligns with the hole in the roof.

Optionally wire for 4 groups:

- decklights
- top light, heck light
- navigational lights PS, SB
- alarm signal

These are 4 sets 40 mA connections on the optional Arduino module.
Every led receives 20-40 mA 3.3V, no resistors are necessary.

ELECTRONICS SET LIGHT, SOUND AND RADAR MOTOR

The separate electronics set is a kit with an Arduino microcomputer for lights and radar motor.

Choose a convenient place in the model for your radio receiver and this Arduino set near the cabin in order to prepare the wiring to the correct length.

The extension cord from the rudder servo to the receiver is included in the electronics set.

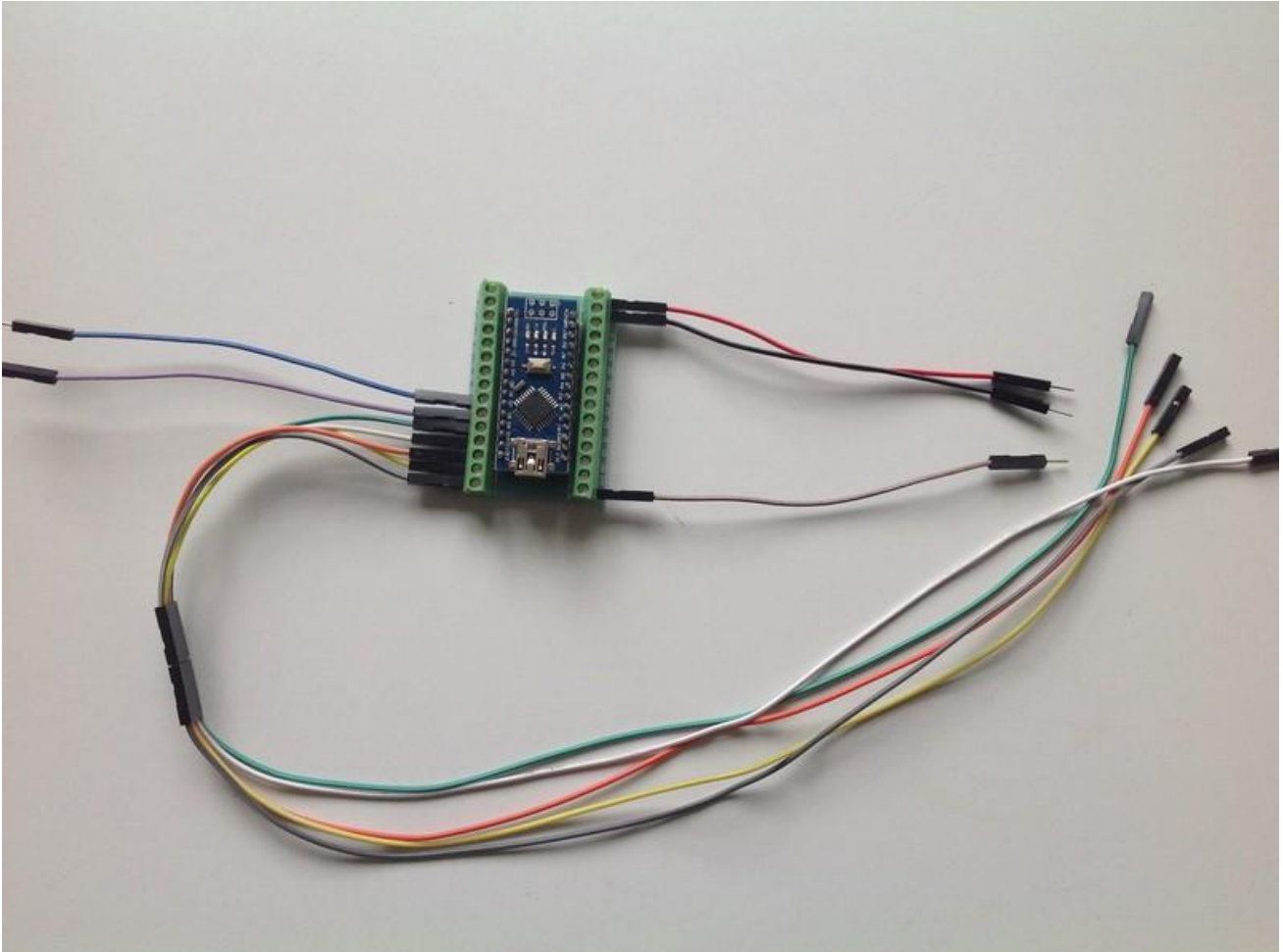
There are two types of Arduino sets.

Set A contains clamp connections. Set B contains Dupont plug connections. There are no operational differences. The set contents may vary as some parts may be out of stock or out of production.



ARDUINO CONNECTION AND PROGRAM

The Arduino supplies 3.3 volts 40mA per port. This is sufficient for two leds. No resistors are necessary..



De Arduino, set A: above-right the 5v power input port (for example a BEC connection of your receiver) and minus terminal. Below right: Arduino active signal. Middle left: 2 switchwires. The cable-boom contains 1x decklights, 2x navigational lights, searchlights, alarm light. these wires are bundled into a 5-fold Dupont connector and extended with the supplied wires.

GATES ARDUINO

PIN A0 RESERVED (potmeter)
PIN A1 RESERVED
PIN A2 RESERVED
PIN A3 RESERVED
PIN A4 radarmotor
PIN A5 RESERVED
PIN A6 RESERVED
PIN A7 RESERVED

PIN D3 PWM receiverchannel; menu choice with transmitter switch.
PIN D4 speaker connection
PIN D5 PWM servomotor searchlight, sweep signal for search light servo (optional).
PIN D6 choice switch A; menu choice 'down' with a switch on the boat
PIN D7 choice switch B; menu choice 'up' with a switch on the boat
PIN D8 LEDS GROEP 1 decklights
PIN D9 LEDS GROEP 2 toplight
PIN D10 LEDS GROEP 2 navigational lanterns
PIN D11 LEDS GROEP 3 searchlights
PIN D12 LEDS GROEP 3 flashing light blue or orange (self-flashing led)
PIN D13 Arduino I/O led.

MENU SELECTIONS

The Arduino is pre-programmed for this kit and offers a menu. The menu-choice can be changed up or down.

menu 01: LEDS GROUP 1 ON
menu02: LEDS GROUP 2 ON
menu03: LEDS GROUP 2 ON, LEDS GROUP 3 ON
menu04: LEDS GROUP 2 ON, LEDS GROUP 3 ON, LEDS GROUP 4 ON, ALARMSIGNAL SPEAKER ON

UPDATES

please keep the Arduino retractable or at least keep the usb port within reach for a cable connection.

A coming update may include extra options for the analog ports in order to extend the number of possible led connections.

MOTORS

Brushless engines A2212 1000KV do fit well in the hull and supply enough propulsion. De prijs at AliExpress is about eur 3,50 per motor.

AXLES

Hobby King has 3mm axles and 5-blade propellers in 20mm en 25mm.

COUPLINGS

Flexible shaft couplings need a substantial corner to perform well. The test with fixed couplings performed excellent. With fixed couplings the motors need to be free-hanging with only a fix for body rotation.

ESC

Many ESC's are not suitable as they do not have a reverse function. These ESC's from Hobby King suffice:
Turnigy Trackstar 25A SKU TTS-18A, price about eur 14,50 a piece.

Only one ESC should supply the BEC 5v power.

RECEIVER

A simple flysky 2,4 Ghz transmitter with 4 channel receiver costs about eur 50,00

Please see to it that both throttle sticks have forward, backward and a neutral centre position
Some transmitters must be opened to make the spring active. Not all transmitters support the function.

With a 4 channel receiver the following functions can be selected::

- motor port side
- motor starboard
- rudder servo
- Arduino keuzemenu

BATTERY

There are positive experiences with the 2 cell 7,4 volt 25C accu via Ali Express:

<https://nl.aliexpress.com/item/2pcs-Taotuo-Lipo-Battery-7-4v-2500mah-25C-For-Syma-X8C-X8W-X8G-RC-Helicopter-Airplane/32693870109.html?spm=2114.01010208.0.729.Ag1AmR>

The price is circa eur 24,00 per 2 pieces. However one battery will suffice for both motors.

BOWTHRUSTER

The smallest standard bow thruster available will fit into the hull with a little 'cheating'.
<https://www.modelbouwdekombuis.nl/Raboesch-Boegschroef-108/20-Boegschroeven.html>

The Raboesch 10x12x92 was succesfully placed by one of the builders fully in front of the hull and was sanded to size. It is just below the waterline.