Graupner CE

Operating Instructions for the PT-109 model boat, Order No.: 2012

The full-size vessel

The PT-109 is a model of the U.S. Navy Elco PT-103 class high-speed torpedo boat, which became famous the world over because it was commanded by John F. Kennedy, later to become President of the USA. During a mission the PT-109 was rammed and sunk by a Japanese destroyer. For his gallantry in saving the vessel's crew JFK was awarded the Medal of Honor - the American armed forces' highest decoration for outstanding gallantry in wartime.

The model

This boat is a member of the GRAUPNER PREMIUM line, a series of particularly high-quality ready-made models with an unprecedented level of detailing.
The core of this high-quality model is the robust moulded GRP hull, complemented by the superstructure and deck which are constructed from laser-cut ABS parts. Many of the small items are of metal, and almost everything is factory-assembled. The hull, parts of the superstructure, the masts and fittings are spray-finished using semi-matt paints, and the decals are already applied. The many details and scale fittings give the boat an impressive scale appearance.
The large deck opening makes it a simple matter to install the RC components, and the procedure is quickly completed. To prepare the boat for running all you have to do is install the RC components and the drive battery, carry out a little soldering, and the model is ready for the water.

Specification

Length approx.	810 mm
Width approx.	220 mm
Overall height approx.	280 mm
All-up weight including RC approx.	1.6 kg
Scale approx.	1 : 30

Manufacturer's declaration from Graupner GmbH & Co KG

Contents of the manufacturer's declaration:
If material defects or manufacturing faults should arise in a product distributed by us in the Federal Republic of Germany and purchased by a consumer (§ 13 BGB), we, Graupner GmbH & Co. KG, D-73230 Kirchheim/Teck, Germany, acknowledge the obligation to correct those defects within the limitations described below.
The consumer is not entitled to exploit this manufacturer's declaration if the failure in the usability of the product is due to natural wear, use under competition conditions, incompetent or improper use (including incorrect installation) or external influences.
This manufacturer's declaration does not affect the consumer's legal or contractual rights regarding defects arising from the purchase contract between the consumer and the vendor (dealer).

Extent of the guarantee
If a claim is made under guarantee, we undertake at our discretion to repair or replace the defective goods. We will not consider supplementary claims, especially for reimbursement of costs relating to the defect (e.g. installation / removal costs) and compensation for consequent damages unless they are allowed by statute. This does not affect claims based on legal regulations, especially according to product liability law.

Guarantee requirements
The purchaser is required to make the guarantee claim in writing, and must enclose original proof of purchase (e.g. invoice, receipt, delivery note) and this guarantee card. He must send the defective goods to us at his own cost, using the following address:

Gliders
Brunel Drive, Newark, Nottinghamshire, NG242EG

The purchaser should state the material defect or manufacturing fault, or the symptoms of the fault, in as accurate a manner as possible, so that we can check if our guarantee obligation is applicable.
The goods are transported from the consumer to us and from us to the consumer at the risk of the consumer.

Duration of validity
This declaration only applies to claims made to us during the claim period as stated in this declaration. The claim period is 24 months from the date of purchase of the product by the consumer from a dealer in the Federal Republic of Germany (date of purchase). If a defect arises after the end of the claim period, or if the evidence or documents required according to this declaration in order to make the claim valid are not presented until after this period, then the consumer forfeits any rights or claims from this declaration.

Limitation by lapse of time
If we do not acknowledge the validity of a claim based on this declaration within the claim period, all claims based on this declaration are barred by the statute of limitations after six months from the time of implementation; however, this cannot occur before the end of the claim period.

Applicable law
This declaration, and the claims, rights and obligations arising from it, are based exclusively on the pertinent German Law, without the norms of international private law, and excluding UN retail law.

Important safety notes

You have acquired a kit which can be assembled into a fully working RC model when fitted out with suitable accessories. However, we as manufacturers have no control over the way you build and operate your RC model boat, nor how you install, operate and maintain the associated components, and for this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by binding law, the obligation of the GRAUPNER company to pay compensation, regardless of the legal argument employed, is excluded. This includes personal injury, death, damage to buildings, damage due to loss of business or turnover, interruption of business or other direct or indirect consequent damage whose root cause was the operation of the model.
The total liability in all cases is limited to the amount of money which you actually paid for this model.

This model boat is built and operated at the sole and express responsibility of the operator. The only way to avoid injury to persons and damage to property is to handle and operate the model with the greatest care and consideration at all times.

Before you run the model for the first time please check that your private third-party insurance covers the operation of model boats of this kind. If in doubt, take out a special insurance policy designed to cover modelling risks.
These safety notes should be kept in a safe place. If you ever dispose of the model, be sure to pass them on to the new owner.

The following points are important and must be observed at all times:

- This model is not suitable for young persons under 14 years of age.
- The projecting parts of the model may be sharp, and the aerials and masts could cause eye injuries.
- Bear in mind that tools can be dangerous; always be careful when handling them.
- ***Never*** operate the model when there are persons or animals in the water, as its high speed constitutes a considerable injury hazard.
- Never run your model in protected sites, animal or plant sanctuaries or sites of special scientific interest (SSSIs). Check with your local authority that the stretch of water you wish to use is suitable for model boats.
- ***Never*** run the boat in salt water.
- ***Never*** run the boat in adverse conditions, e.g. rain, storm, strong wind, choppy water or strong currents.
- Read the instructions provided with your radio control system and accessories, and observe the recommendations.
- Before you run the model check that the radio control system is working reliably, and that all connections are secure.
- Dry batteries must never be recharged. Only batteries marked as “rechargeable” are safe to recharge.

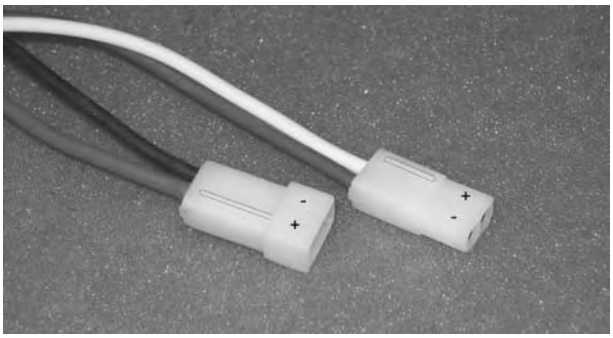
- Check the range of the radio control system before each session: ask a friend to walk about 100 m away from the model carrying the transmitter. Your friend will be able to tell you whether all the working functions operate correctly at this range.
- Ensure that the frequency you intend to use is not already in use by other modellers. Never run your boat if you are not certain that your channel is free.
- Bear in mind that other radio equipment and transmitting stations can cause serious interference to the model. Ensure that no equipment of this type is being used in the vicinity while you are operating the model.
- Do not carry out any work on the drive train unless you have disconnected and removed the battery.
- When the drive battery is connected, keep well clear of the area around the propellers, and make sure any spectators do the same.
- Do not be tempted to exceed the recommended operating voltage. Higher voltages may cause the motors or speed controller to overheat, and the electrical cables may even melt. If this should happen, the model could easily be ruined.
- Check that all the drive train components work smoothly and freely. This applies in particular when the boat is running, as leaves and other debris may get caught in the power system components. The motor and speed controller could then be ruined by overloading.
- Dry cells and rechargeable batteries must never be short-circuited. Do not allow them to come into direct contact with water.
- Remove the rechargeable battery and the dry cells in the transmitter and receiver pack if the model is to be transported, or will not be used for a long period.
- Do not subject the model boat to high levels of humidity, heat, cold or dirt.
- Secure the model and your RC equipment carefully when transporting them. They may be seriously damaged if they are free to slide about.
- ***Never*** operate the boat in moving water (e.g. a river), as its low speed may result in the model drifting off downstream.
- If you have to ***salvage*** the model, take care ***not to risk your own life or that of others.***
- Take particular care to ensure that the boat is completely watertight, as it will sink if too much water enters the hull. Check the model for damage before every run, and ensure that water cannot penetrate through the shaft bearings.
- Allow the boat to dry out thoroughly after each session.
- Be sure to check repeatedly during the first run that the shaft system is watertight. If water enters the hull through the shaft tubes, remove the shafts and lubricate the tubes with plenty of grease, Order No. 570.
- **NOTE**: the model has been designed to constitute a good compromise between long running times and reasonably high speed. If you wish to obtain higher speeds, it is also possible - at your own discretion – to use 8-cell packs consisting of sub-C cells (e.g. Order No. 2490.8).
- **NOTE:** in the interests of safety the boat has a slight excess of power. This means that it is **NOT** permissible to run the vessel continuously at full power if the recommended batteries are fitted, as the drive motors will overheat and could be damaged or even ruined.

Care and maintenance

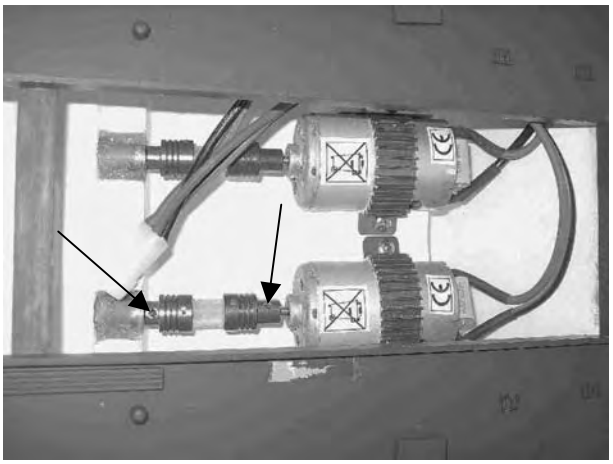
- Clean the model carefully after every run, and remove any water which penetrates the hull. If water gets into the RC components, dry them out carefully and send them to your nearest GRAUPNER Service Centre for checking.
- Clean the model and transmitter using suitable cleaning agents only. All you need is a lint-free cloth. ***Never*** use chemical cleaners, solvents, methylated spirits, white spirit or similar.
- Lubricate the propeller shafts at regular intervals by applying a small drop of oil to the bearings. Use a type of oil which does not soil or contaminate water, e.g. Order No. 206. At the end of the season we recommend that you remove the propeller shaft and re-lubricate it using water-neutral grease, Order No. 570.

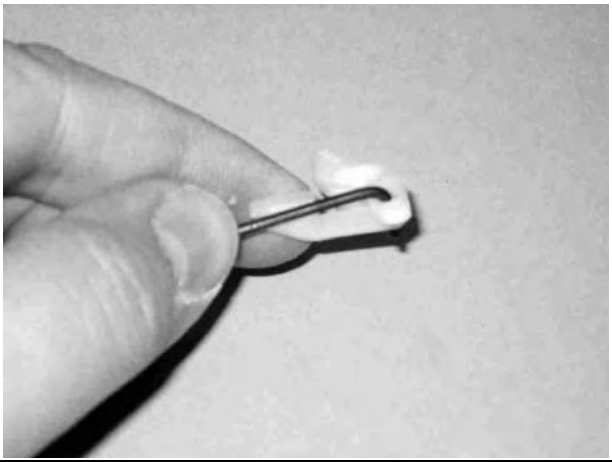
Assembling the model

- Carefully unpack the model, the separately packed radio aerial and the boatstand.
- Carefully lift off the superstructure to open the deck, so that the receiving system can be installed; take care not to break off any fittings. Locate the hatch which provides access to the rudder system for maintenance, and press it out carefully from the inside; it is only secured with double-sided adhesive tape.
- Solder G2 plugs to the wires attached to the motors, which are wired in parallel, and rotate in opposite directions (contra-rotating propellers). Ensure that the motors spin in the correct directions: when the battery is connected, the propellers should rotate in such a direction that the model would be propelled forward. **NOTE**: the raised lug on the plastic housing of all G2 connectors should always be the positive terminal (red wire). If you keep consistently to this principle, your batteries and speed controllers will be interchangeable, and the system will be protected against accidental reversed polarity.

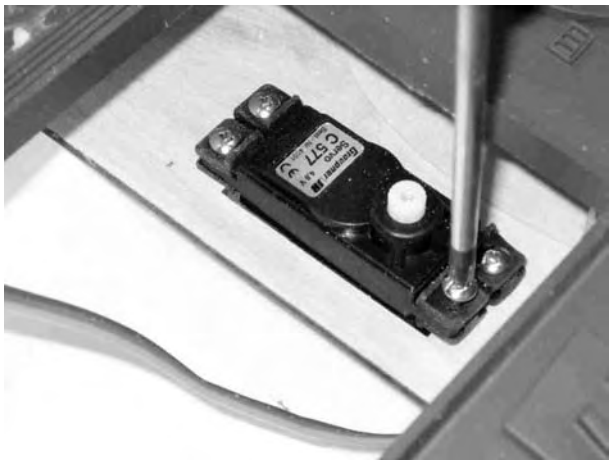


- Check that the propellers and the screws in the shaft couplings (arrow) are tight, as they may have come loose in transit; re-tighten them carefully if necessary. **IMPORTANT:** if the grubscrews are loose, apply a drop of thread-lock fluid to them, e.g. UHU schraubensicher, Order No. 952, as vibration could cause them to work loose again while the boat is running.
- Drill out the centre hole in the double-ended servo output lever to 2 mm Ø, and connect the end of the rudder pushrod to it. Fit the retaining clip to keep the pushrod in place. Don't fit the output lever on the servo at this stage.

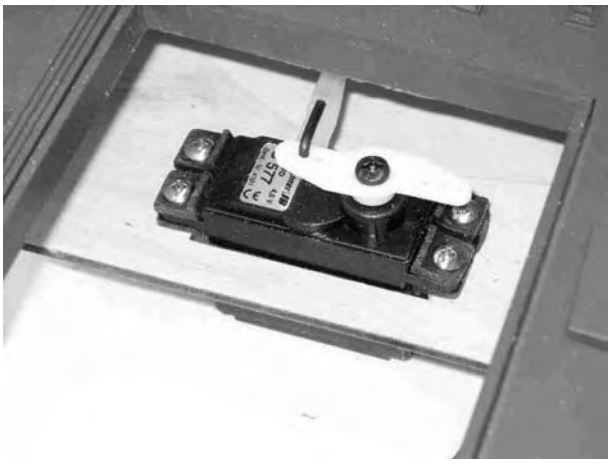




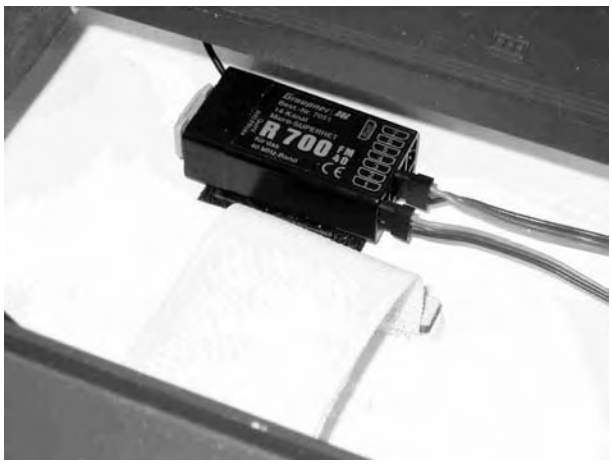
- Press the rubber grommets into the mounting lugs of the rudder servo, and push the brass sleeves through them from the underside. Fit the servo in the opening in the hardwood servo plate, and secure it with the retaining screws supplied. **IMPORTANT:** take care not to damage the servo lead when you fit the screws.



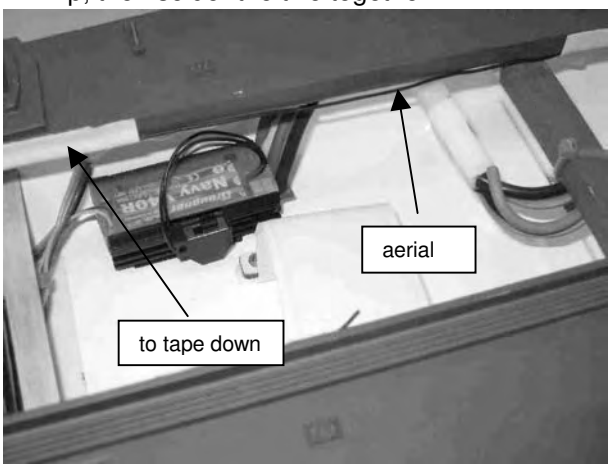
- Remove the hatch over the rudders, and set both blades to the “straight ahead” position. The output lever should now be fitted to the rudder servo, exactly at right-angles to the pushrod. Tighten the output screw to retain the output lever.

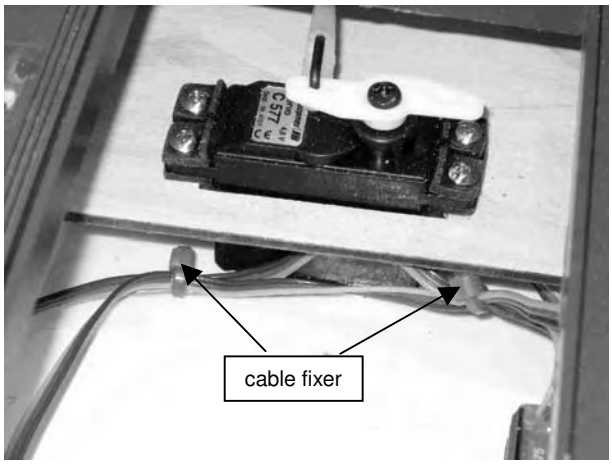


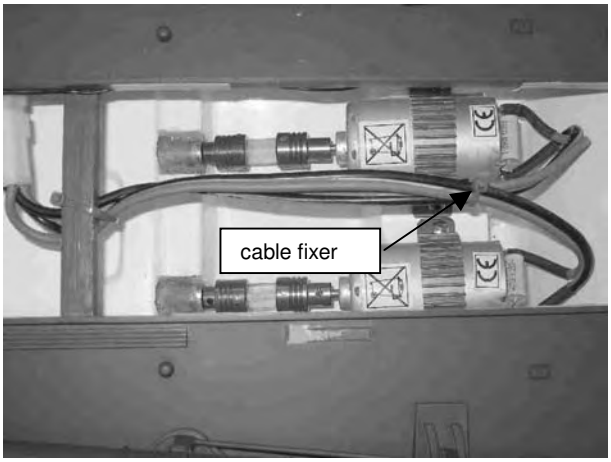
- Attach Velcro (hook-and-loop) tape or double-sided foam tape to the speed controller and the receiver; install the controller on the RC plate close to the motors, and the receiver in the hull.



- Connect the rudder servo and the speed controller to the receiver, and secure the cables neatly in the hull using cable ties or Velcro tape.
- Deploy the receiver aerial under the deck support flange inside the hull, and tape it in place securely (arrows). **IMPORTANT**: to ensure reliable reception, the aerial wire must be as high as possible above the waterline, and should run in a broad curve round the hull; the GRP hull only has a very slight adverse effect on radio reception. If you prefer, you can install a vertical whip aerial made of thin wire. If you do this, shorten the flexible aerial attached to the receiver by the same length as the whip, then solder the two together.

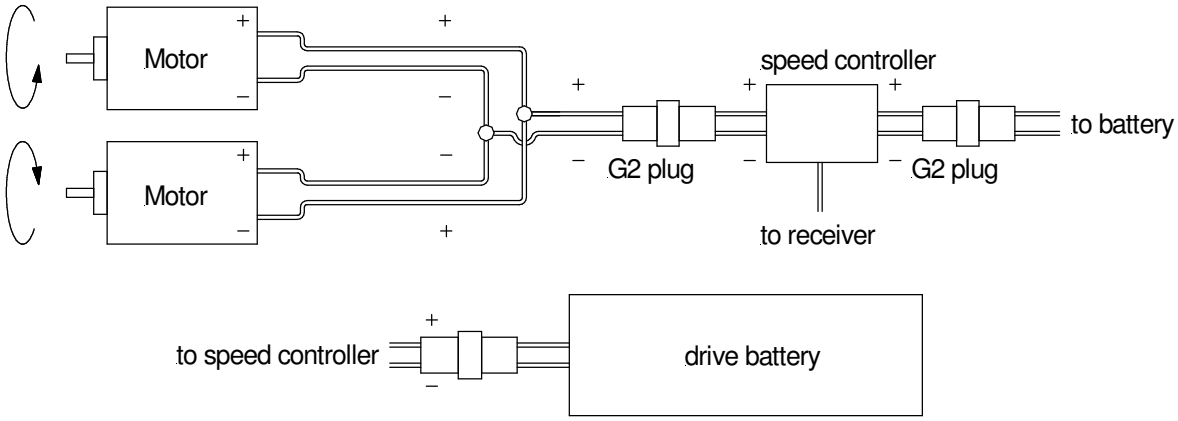






- Place the battery in the model and check the working systems. The battery must be fixed securely, so that it cannot slip out of position when the boat is running - tighten the Velcro tape well. **TIP:** it is a good idea to attach a scrap piece of Velcro tape (used to secure the RC components) to the battery; this will help to prevent it shifting.
- Glue the radio aerial on the left-hand side, close to the bridge, using cyano (see also the overall view of the finished model on the next page).

Wiring diagram



Maiden run

Charge up all the batteries and test the model's working systems one by one. Check that all the parts which are not permanently attached are firmly seated. Now you are ready for the boat's maiden run. Keep the boat's speed low at first, and give yourself plenty of time to become familiar with its handling. The model is fairly fast, and therefore needs to be operated on a large stretch of water. Don't allow the boat to get too far away from the bank.

We hope you have many hours of pleasure running your PT-109.

Note

The original PT-109 was fitted with three screws. For technical reasons the model features a twin-screw power system driven by powerful SPEED 600 motors, as they provide better handling at speed.

Replacement parts

Order No. 2012.6	Replacement propeller set

You will also need the following items (not included in the set)

Order No. 4709	X-306 ECO-SPORT-SYSTEM FM RC set
Order No. 2875	NAVY V40R speed controller
Order No. 2490.6	Drive battery: GM Power Pack 3600 6N-3600 NiMH 7.2V / 3.6 Ah
Order No. 2989	G2 connector system for connecting the speed controller and drive battery
Order No. 3368.1	Velcro tape

Overall view