

# PRO BOAT™

## Pro Boat AM Radio System

- PB-2S AM 27MHz  
2-Stick, 2-Channel
- Digital Proportional  
Radio Control System



This article corresponds to the EU-regulations  
and can be sold in all EU-countries.



**HORIZON**  
H O B B Y

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## INTRODUCTION

Congratulations on your purchase of the Pro Boat™ PB-2S AM 27MHz 2-Stick, 2-Channel Radio Control System that has been manufactured and assembled with the greatest care.

We are confident that by following our simple instructions you will be delighted with your purchase. Please read the instructions thoroughly, noting all points for before use, in order to avoid mistakes in handling and operation.

## RC SAFETY PRECAUTIONS

For safe and reliable performance of your RC model, please carefully read and follow these guidelines:

1. Radio control models are not toys. They are capable of inflicting serious injury to people and property. Use caution at all times when operating your model.
2. You are responsible for the safe operation of your RC model. You must properly install, test and operate your model with a clear sense of that responsibility. Do not take risks that might endanger yourself or others.
3. When running an RC boat, keep it away from any swimmers, full-size boats or wildlife. Also, watch carefully for fishing lines that can entangle the propeller.
4. Before operating your model, make sure your frequency is clear. If someone else is operating on the same frequency, both models will go out of control, possibly causing damage to the models as well as others.
5. If at any time while operating your RC model you sense abnormal model functioning, end your operation immediately. Do not operate your model again until you are certain the problem has been corrected.

**CAUTION:** Control of your model is impossible without sufficient voltage for the transmitter and receiver. A weak transmitter battery will decrease your range of operation and a weak receiver battery will slow servo movement and decrease your range of operation. Check your receiver pack voltage often to avoid losing control of your model. When using a model that operates both the electric motor and the receiver from the same battery (Battery Eliminating Circuitry or B.E.C.), you should discontinue use when the top speed sharply decreases or you will quickly lose control of your model.

## CONTENTS OF PRO BOAT PB-2S AM RADIO SYSTEM

Transmitter.....	PB-2S AM
2-Channel Receiver.....	AMR-2/27
Servo.....	AMS-16
Accessories.....	B.E.C. Switch Harness and Servo Accessories

**NOTE:** It is important to learn the proper sequence for switching on/off your radio system:

**BEFORE OPERATION:** Switch on the transmitter, then the receiver.  
**AFTER OPERATION:** Switch off the receiver, then the transmitter.

This ensures that you will always have a signal to the receiver, and your RC model will not operate out of control when you turn off the transmitter.

## FEATURES OF THE PRO BOAT PB-2S AM RADIO SYSTEM

### PB-2S Transmitter

- \* The Pro Boat™ PB-2S transmitter is a highly efficient 2-stick radio that delivers solid control and reliability.
- \* 6 interchangeable 27MHz crystals are available to easily change the frequency (see figure 1 and 2).
- \* The transmitter has servo reversing switches that allow you to change the direction of the servos to fit many different applications (see figure 3).
- \* Trim adjustments allow fine-tuning without the need to change the servo linkage lengths.
- \* The Neutral Pre-set lever allows you to change the ratio of throttle angle from 50%–50% to 70%–30%.
- \* The 3 LED Battery Charge Indicator informs you of low battery power. When all LEDs are lit, the batteries are fully charged. Yellow and Red only indicates caution and Red only warns the user to change/charge the batteries.

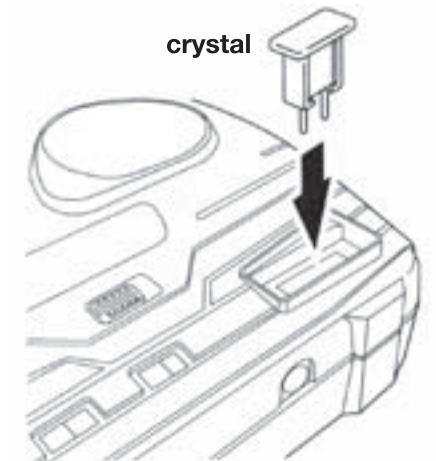


Figure 1

### AMR-2/27 RECEIVER

Your AMR-2/27 receiver has Battery Eliminator Circuitry (B.E.C.). The receiver gets its power from the model's Ni-Cd battery pack, thus saving the weight of an additional receiver battery. Ni-Cd batteries from 4.8V–8.4V (4–7 cells) can be used safely. Higher voltage packs may damage the receiver and servos.

**ATTENTION:** Make sure the male and female connectors have the correct polarity (+/–) before connecting. The servo lead and receiver case are molded so that the lead can only be inserted with the proper polarity. **NOTE:** The yellow wire orients toward the inside of the receiver.

You may use a separate battery to power the receiver. A Ni-Cd pack plugged into the BATT socket on your receiver will operate your receiver. You may also use alkaline batteries with a battery holder (PRB8028).

If you use a mechanical speed controller, please ensure that it has the correct connector for a B.E.C. system (red connector). See FIGURE 4 for a typical setup. Most electronic speed controllers are set up for B.E.C. operation and plug directly into your receiver (Function 2). Check your speed controller's manual for correct installation.

You should use the black rubber servo cushions whenever possible to decrease your servo's sensitivity to vibration.

### AM S-16 SERVO

- \* The sturdy (replaceable) gears have been designed to stand up to considerable shocks and loads when used normally and are highly efficient.

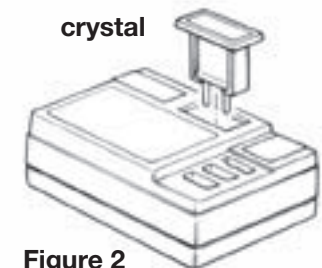



Figure 2

## INTERNATIONALLY RECOGNIZED FREQUENCY BAND...27MHz

Channel:	1	2	3	4	5	6
Frequency MHz:	26.995	27.045	27.095	27.145	27.195	27.255
Color:	Brown	Red	Orange	Yellow	Green	Blue

## IDENTIFICATION OF TRANSMITTER PARTS

- Transmitter Antenna** Extend the antenna fully for maximum signal strength.
- Battery Indicator** Full strength=all three LEDs illuminate; Caution=red and yellow; Change batteries=red
- Rudder/Steering Gimbal** (Channel 1)
- Steering Trim Tab** Adjust to make the model track straight at neutral.
- Optional Charging Jack** If the transmitter has Ni-Cd rechargeable batteries. installed, charge the batteries through the convenient charge jack. Note that the outer plug connection is negative (-) and the inner connection is positive (+). 
- Crystal**
- On/Off Switch**
- Servo Reversing Switch** Allows the direction of the servos to be reversed.
- Neutral Pre-set Lever** Allows you to change the ratio of throttle angle from 50%–50% to 70%–30%.
- Throttle Gimbal** (Channel 2)
- Throttle Trim Tab** Adjust for idle between forward and reverse operation.

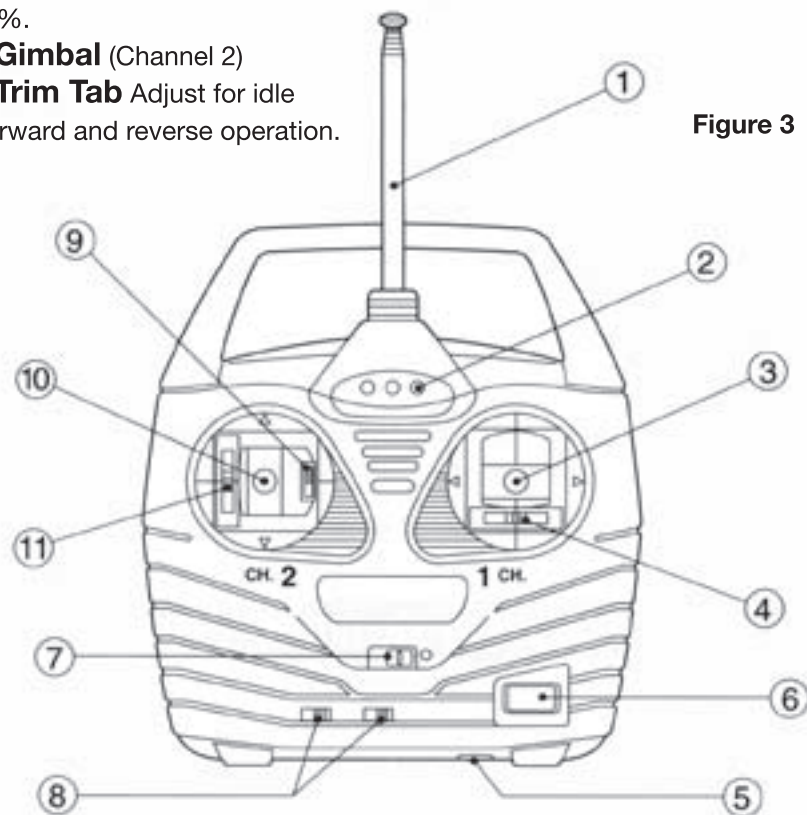


Figure 3

## CONNECTIONS TO BEC RECEIVER

\*Ni-Cd Battery and Speed Controller are not included in the Radio set.

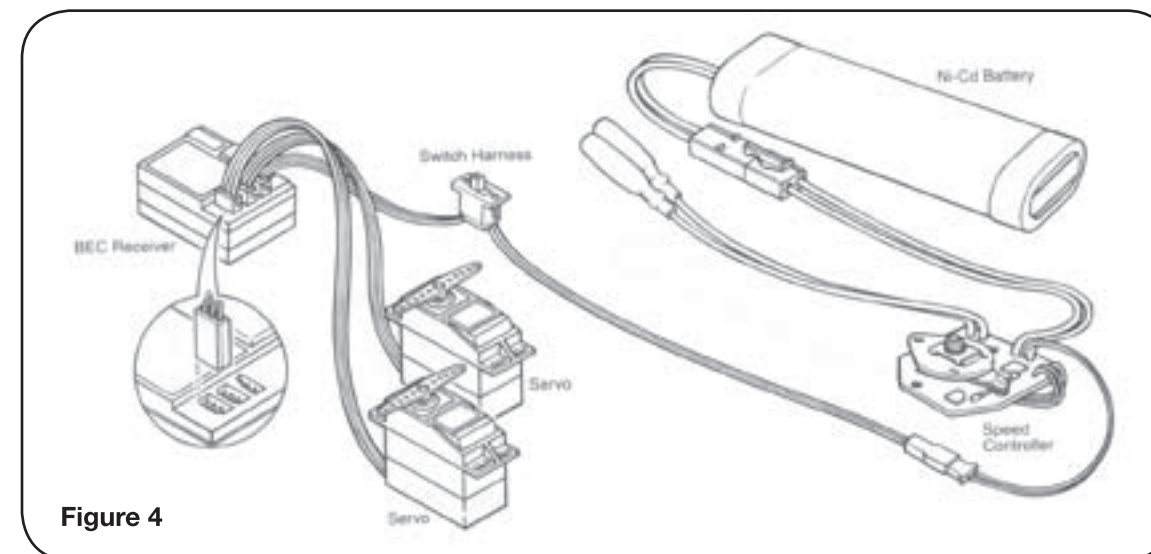


Figure 4

## TECHNICAL DATA FOR PRO BOAT PB-2S

### Transmitter Specifications

Output Power:	100mW
Frequency:	27MHz
Modulation:	AM
Power Supply:	9.6VDC
Dimensions:	6.5" x 2.5" x 7.25" (162mm x 62mm x 181mm)
Weight:	13.5 oz (382 g)
Impulse Tolerance:	1.4mS +/- 0.4mS
Length of Cycle:	18mS

### Receiver Specifications

Intermediate Frequency:	455kHz
Band Width:	5kHz / -6db
Dimensions:	1.12" x 1.72" x 0.67" (28mm x 43mm x 16.7mm)
Weight:	0.7 oz (18 g)

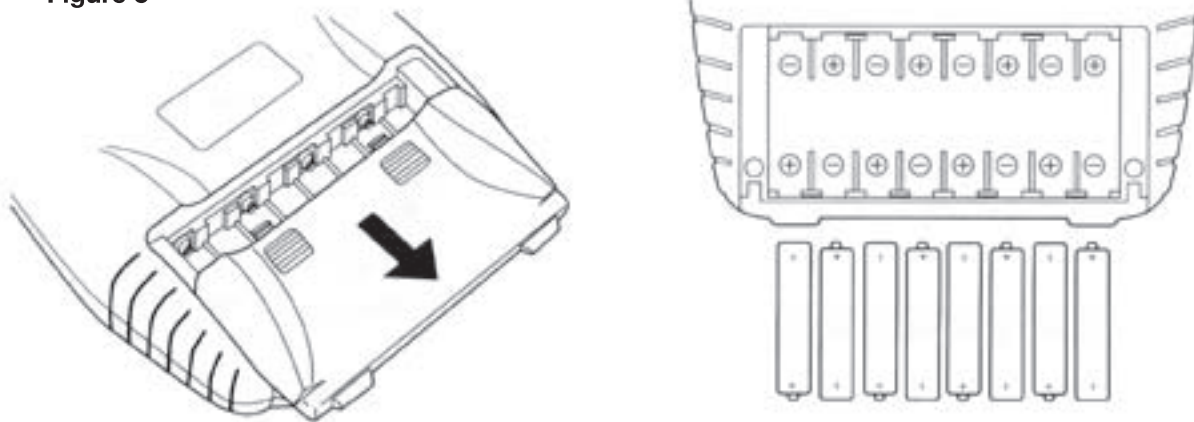
### Servo Specifications

Torque:	50 oz/in (3.0 kg / cm) @ 4.8V
	60 oz/in (4.2 kg / cm) @ 6.0V
Speed:	.22 sec / 60 degrees @ 4.8V
	.18 sec / 60 degrees @ 6V
Size:	0.72" x 1.51" x 1.36" (18mm x 37.7mm x 34mm)
Weight:	1.3 oz (34 g)



## HOW TO CHANGE TRANSMITTER BATTERIES

Figure 5



To remove the battery cover, slide in the direction of the arrows (downward), lightly pushing the finger mark. When inserting batteries always insert the negative end first, observing the correct polarity as stamped in the battery case. If the transmitter voltage indicator fails to register, check the contacts, especially the negative, and recheck that the batteries are fitted correctly. Also make sure alkaline batteries are fresh.

### Replacement Parts Listing

PRB8020	PB-2S Transmitter
PRB8023	AMR-2/27 Receiver
PRB8024	AMS-16 Servo
PRB8025	Transmitter Battery Cover
PRB8026	Transmitter Antenna
PRB8027	Switch Harness
PRB8028	Receiver Battery Holder
PRB8029	Servo Gear Set
PRB8030	Servo Case Set
PRB8031	Servo Accessory Set

## WARRANTY AND SERVICE INFORMATION

**IMPORTANT NOTE:** Be sure to keep your original dated sales receipt in a safe place as you will be required to provide proof of purchase date for the equipment to be serviced under warranty.

### WARRANTY COVERAGE

Your new Pro Boat™ Remote Control Radio System is warranted to the original purchaser against manufacturer defects in material and workmanship for 365 days from the date of purchase. During this period, Pro Boat™ will repair or replace, at their discretion, any component that is found to be factory defective at no cost to the purchaser. This warranty is limited to the original purchaser of the unit and is not transferable.

This warranty does not apply to any unit which has been improperly installed, mishandled, abused or damaged in a crash, or to any unit which has been repaired or altered by any unauthorized agencies. Under no circumstances will the buyer be entitled to consequential or incidental damages.

## WARRANTY AND SERVICE INFORMATION CONTINUED

This limited warranty gives you specific legal rights; you also have other rights which may vary from country to country. As with all fine electronic equipment, do not subject your radio system to extreme temperatures, humidity or moisture. Do not leave it in direct sunlight for long periods of time.

### REPAIR SERVICE DIRECTIONS

In the event that your Pro Boat™ radio needs service, please follow the instructions listed below.

1. Check all on/off switches to be sure they are off. This will speed the repair process of checking battery condition.
2. Return your system components only (transmitter, receiver, servos, etc.) Do not return your complete system, installed in a model car, boat, etc.
3. Include detailed information explaining your operation of the system and problem(s) encountered. Provide an itemized list of equipment enclosed and identify any particular area/function which may better assist our technicians in addressing your concerns. Date your correspondence, and be sure your complete name and address appear on this enclosure.
4. Include you name, mailing address, and a phone number where you can be reached during the business day.
5. **WARRANTY REPAIRS.** To receive warranty service you must include your original dated sales receipt to verify your proof-of-purchase date. Providing that warranty conditions have been met, your radio will be repaired without charge.
6. **NORMAL NON-WARRANTY REPAIRS.** Should your repair cost exceed 50% of the retail purchase cost, you will be provided with an estimate advising you of your options.
7. Inside the U.S., send your radio system to:
  - Horizon Service Center
  - 4105 Fieldstone Road
  - Champaign, Illinois 61821
  - 217.355.9511
 Outside the U.S., contact the original point of sale for specific warranty information.

## NOTES

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