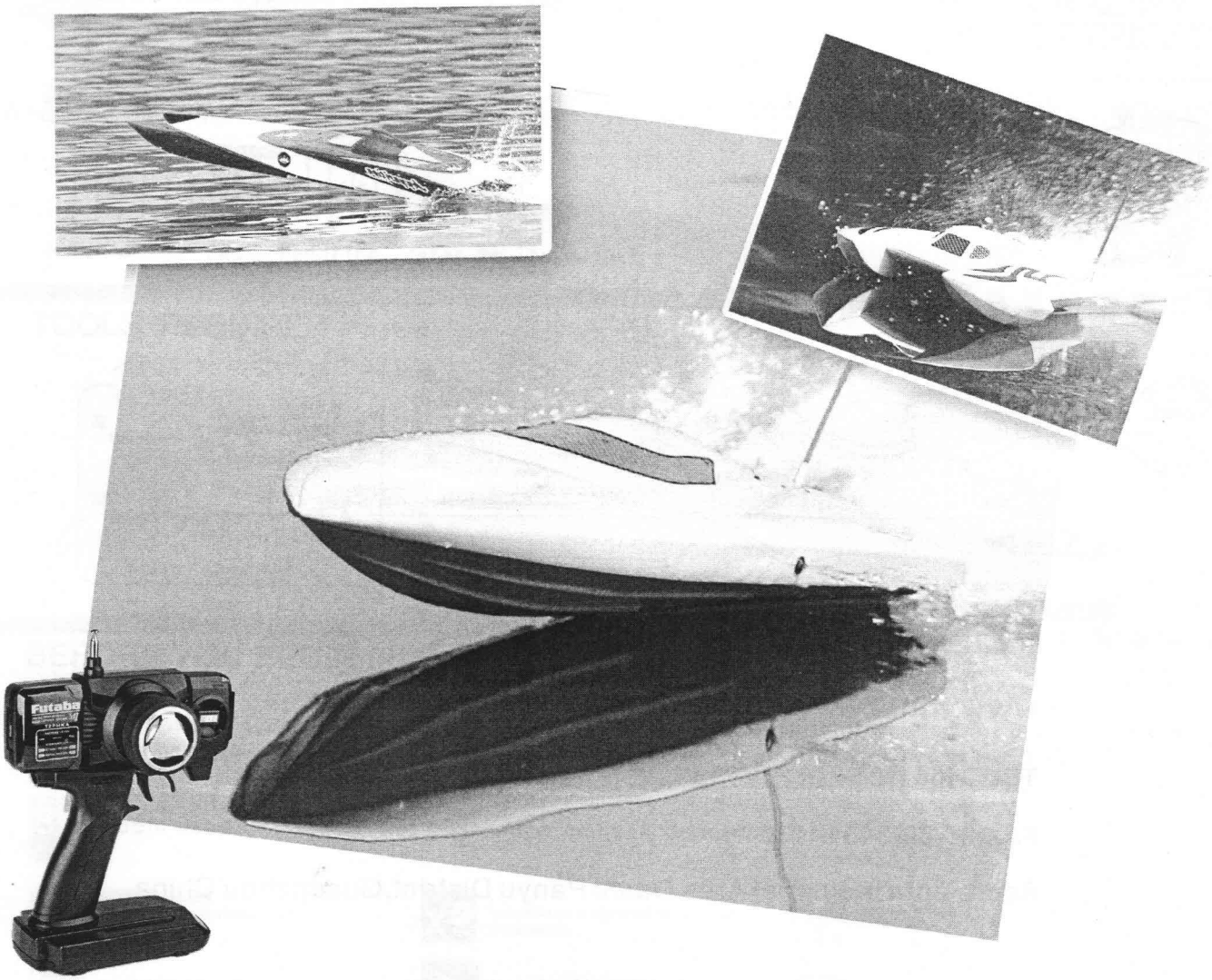
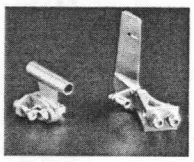
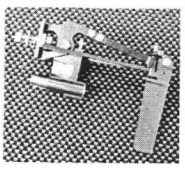
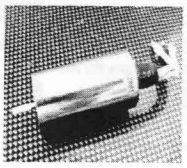
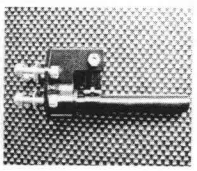
TFLhobby®

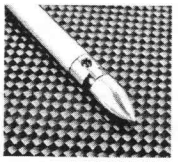
RACING ELECTRIC BOAT

Instruction Manual and Tuning Guide

組裝–使用說明書





Before beginning assembly, please read these instructions thoroughly!

在動手組裝模型之前，請先詳細閱讀這本組裝使用說明書！

Always keep this instruction manual ready at hand for quick reference, even after completing the assembly.

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  ASSEMBLY

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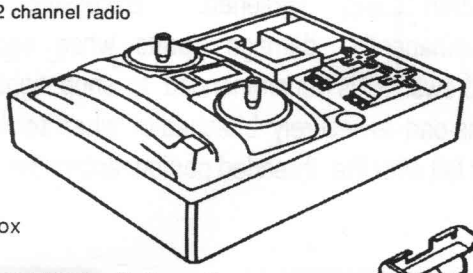
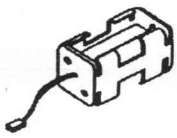
REQUIRED FOR OPERATION

2channel & 2 servo radio for R/C models, and battery box.

■ Stick-type 2 channel radio



■ Battery Box



● If already supplied with the radio, there is no need to purchase a battery box separately

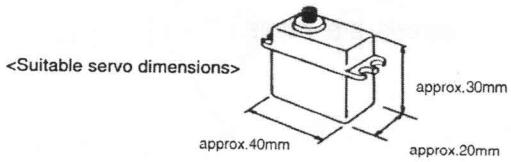
■ AA-size Batteries (For Transmitter)...8pcs.

■ AA-size Batteries (For Receiver)...4pcs

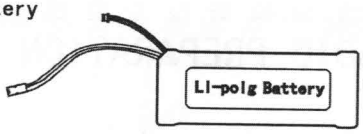
* For proper radio handling, refer to its manual

With a standard radio

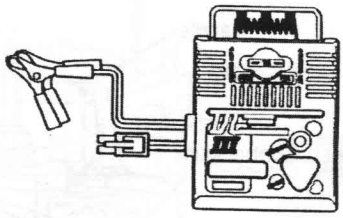
● If using a radio you are in possession of, check the dimensions of its servos against the diagram below.



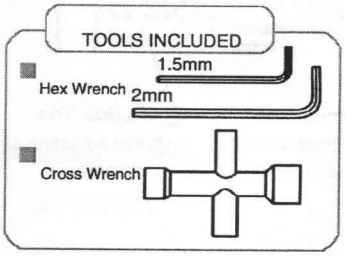
■ 11.1V Li-Polg Battery



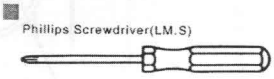
■ DISCHARGER



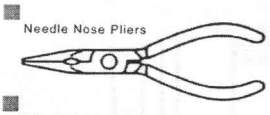
TOOLS REQUIRED



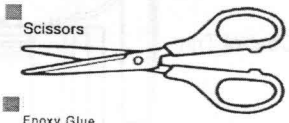
■ Phillips Screwdriver(LM.S)



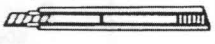
■ Needle Nose Pliers



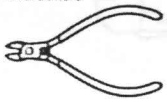
■ Scissors



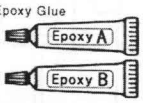
■ Sharp Hobby Knife



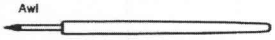
■ Wire Cutters



■ Epoxy Glue



■ Awl



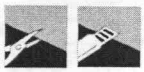
■ Instant Glue

BEFORE YOU BEGIN (1)

1 Read through the manual before you begin, so you will have an overall idea of what to do.

2 Check all parts. If you find any defective or mising parts, contact your local dealer or our Distributor.

3 Symbols used throughout the instruction manual, comprise:


Cut off shaded portion.

Assemble left and right sides the same way.

Apply instant glue (CA glue, super glue).

Drill holes with the specified diameter (here:2mm)

Pay close attention here!

Must be purchased separately!

Assemble as many times as specified (here:twice).

Assemble in the specified order.

Cut off excess.

Tentatively tighten.

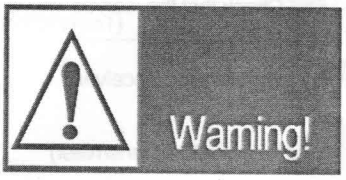
Apply epoxy glue.

Ensure smooth non-binding movement While assembling.

Apply grease.

Do not do that!

● Do not overlook this symbol !

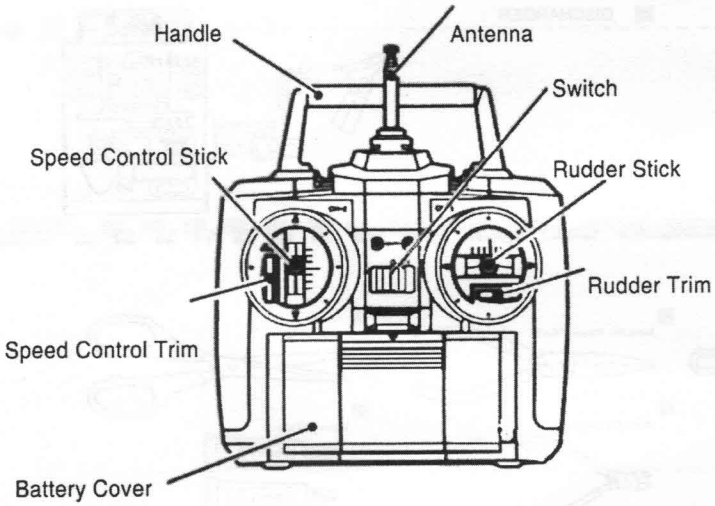


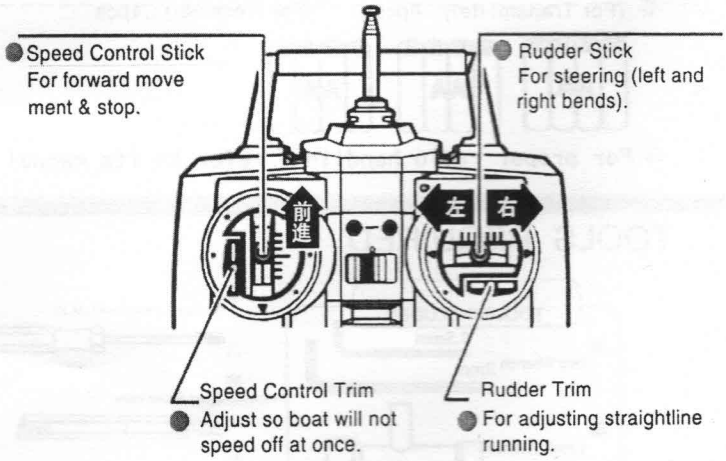
BEFORE YOU BEGIN (2)

4 This kit contains many screws in and other hardware different metric sizes and shapes. For your reference, the figures in the manual show actual sizes. (some screws are extras.)

5 Self-tapping (TP) screws cut threads into the parts When being tightened. Excessive force may permanently damage parts when tightening TP screws. It is recommended to shop tightening when the part is securely attached or when some resistance is felt after the threaded portion enters the plastic.

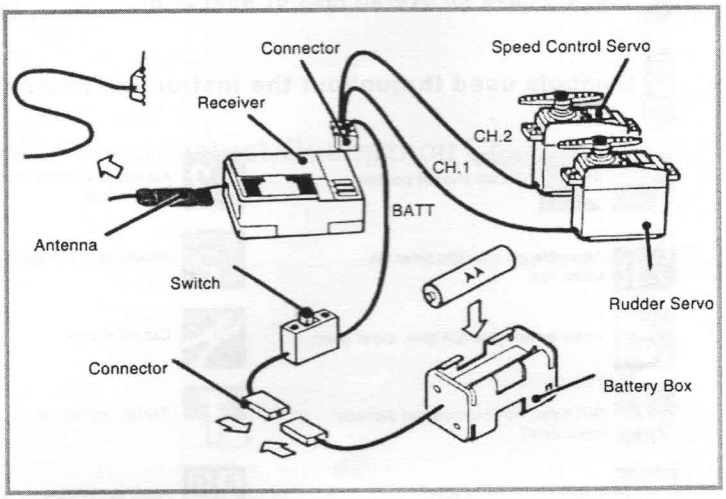
RADIO PREPARATION





- Set up a radio control system as Indicated below.

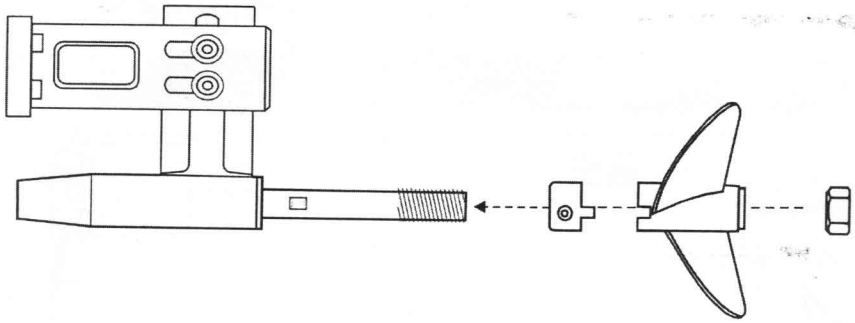
1. Plug in connectors.
2. Install the AA-size batteries.
3. Extend the transmitter antenna. If not, the range of the transmitter will not be sufficient!
4. Undo the receiver antenna. If not the range of the receiver will not be sufficient!
5. Center all trims. (Transmitter)
6. Switch on. (Transmitter)
7. Switch on. (Receiver)
8. Check that the servos move according to your inputs. (Transmitter)
9. Switch off. (Receiver)
10. Switch off. (Transmitter)
11. Retract the antenna. (Transmitter)



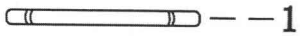
In addition to this page, read the instruction manual supplied with your radio as well.

Drive Shaft

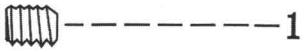
5mm Nylon Nyt



RUDDER

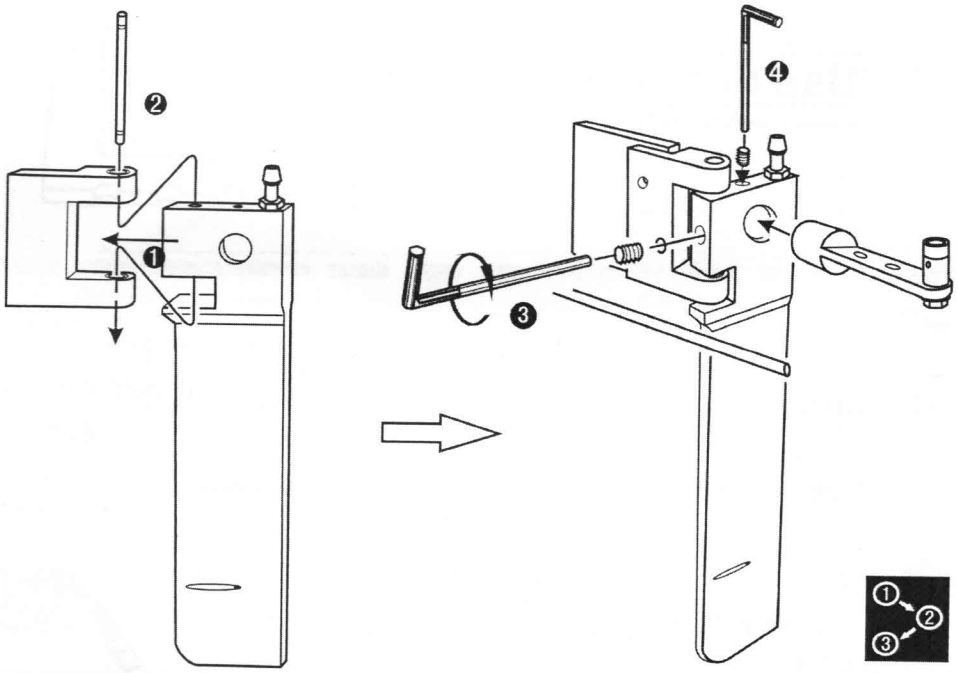


Shaft

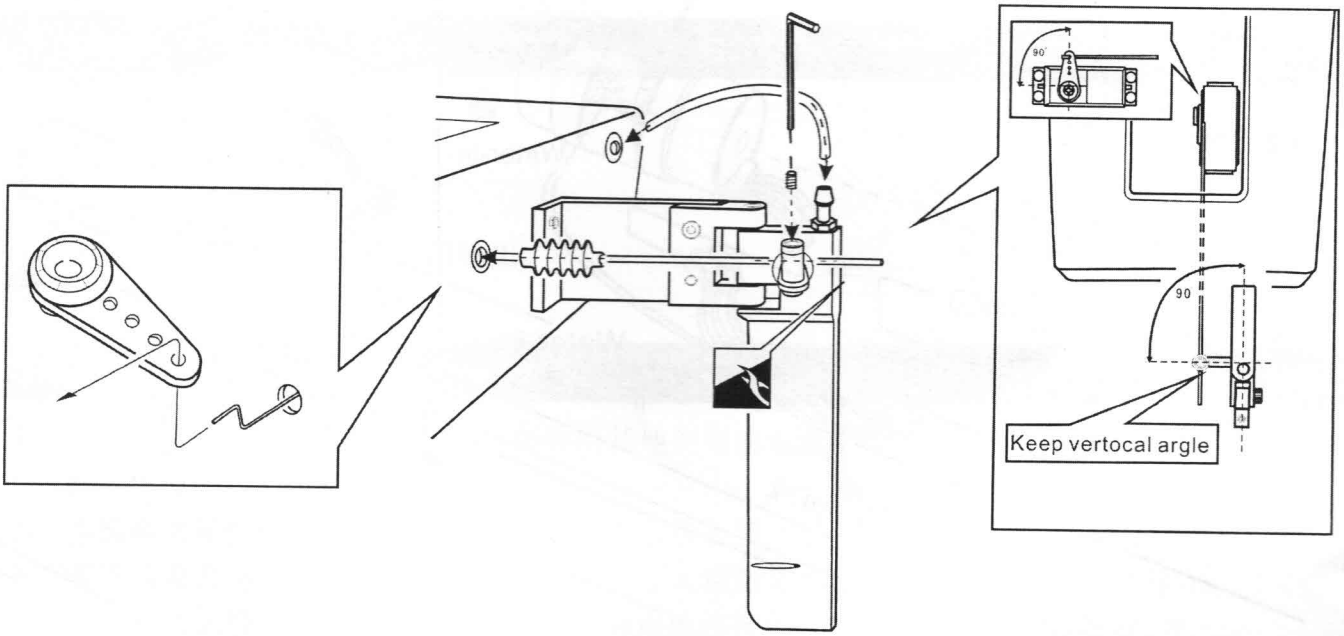


3x3mm Set Screw

Hex wrench
(1. 5mm)



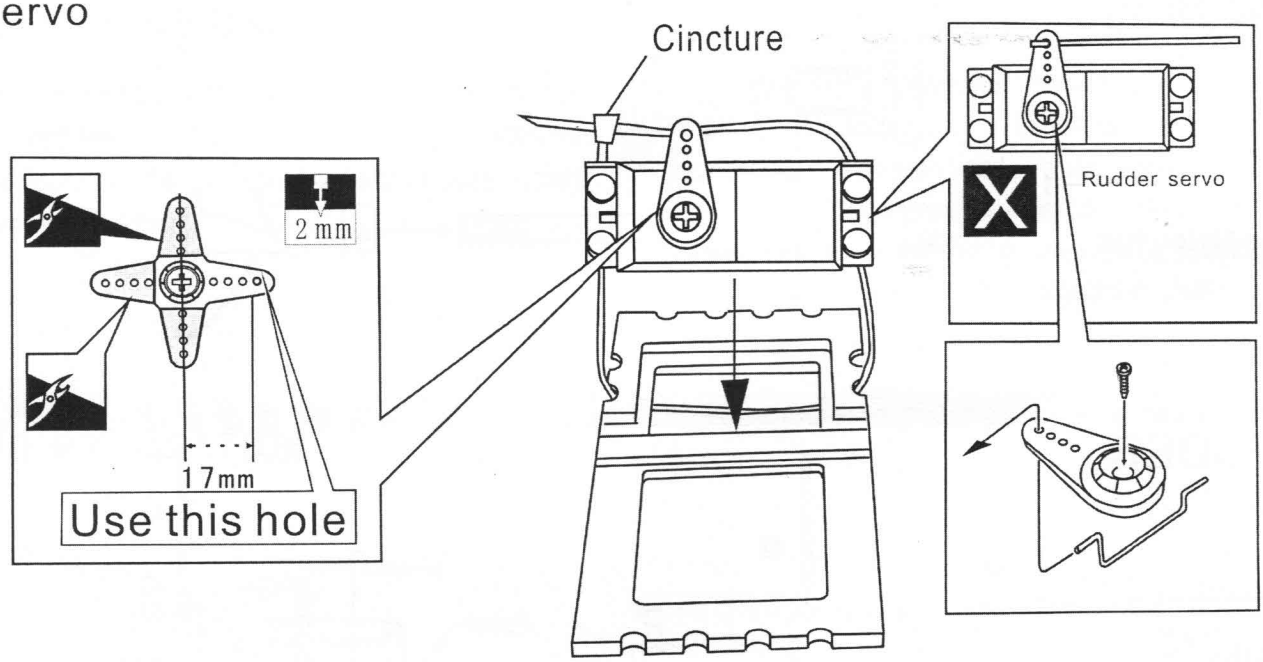
RUDDER



Assemble in the specified order

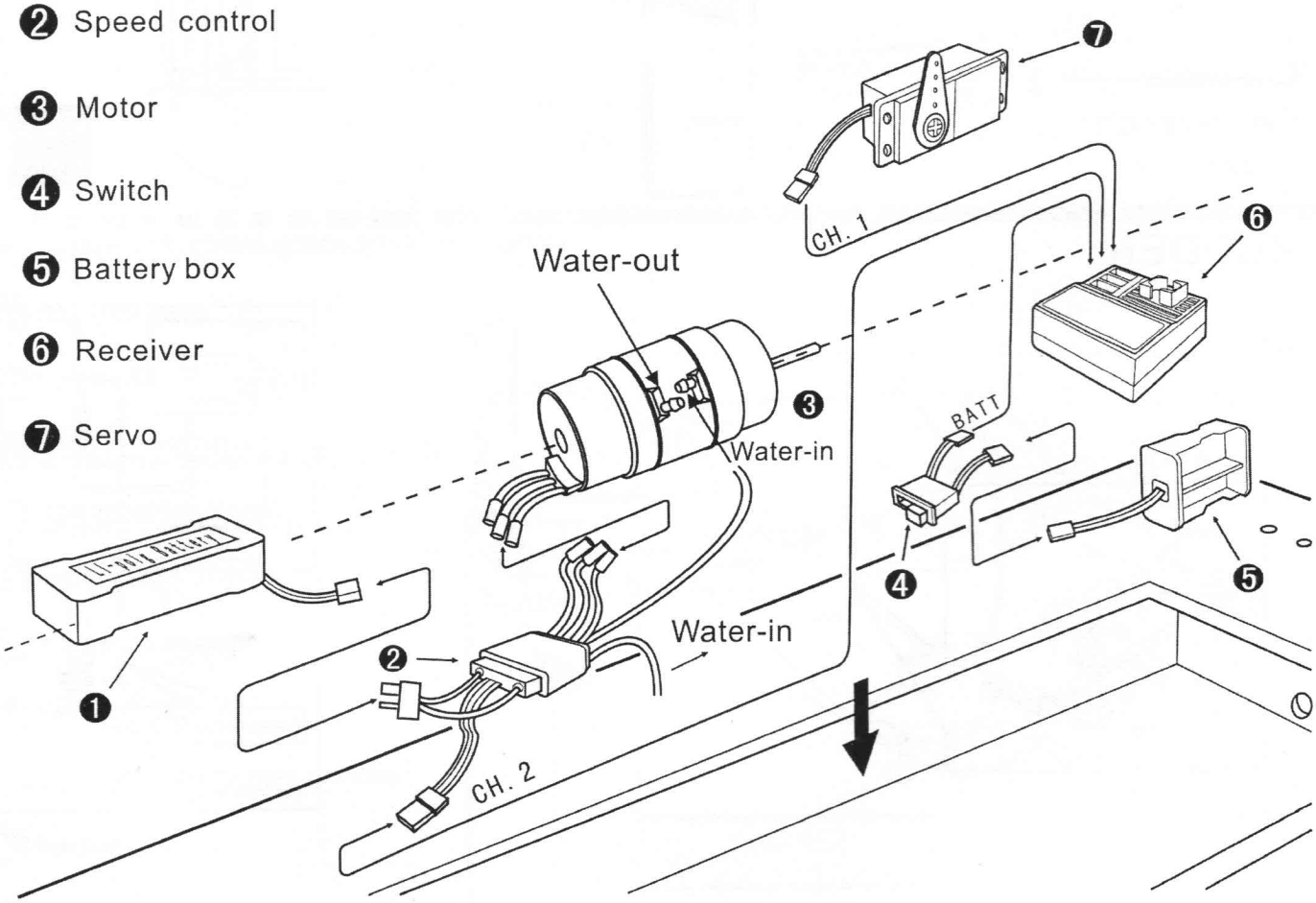
Cut off excess

Servo



Connected

1. Battery
2. Speed control
3. Motor
4. Switch
5. Battery box
6. Receiver
7. Servo



Drill holes with the specified diameter(here:2mm) (2 mm)

Cut off excess

Must be purchased separately

A/80A/100A 电调使用说明

基本特征

1) 电压范围 6V—30V
2) 6---20NIMH 2，3，4，5，6，7，LIPO
3) 内阻
   a) 0.0025----------（45A）
   b) 0.0017----------（65A）
   c) 0.00125 ----------（80A）
   d) 0.001 ----------（100A）
4) 12（45A）18（65A）24（80A）30（100A）个精选高性能场效应管
5) 单节 LIPO 保护电压 3.0V，单节 NIMH 保护电压 0.8V
6) 尺寸
   a) 46X35X8MM ----------（45A）
   b) 68X35X8 MM ----------（65A）
   c) 77X36X8MM ----------（80A）
   d) 66X40X12MM----------（100A）
7) 最大连续工作电流 40A/ 65A/80A/100A（需要比较良好气冷条件）

瞬间工作电流 60/90A/100A/140A 以下（10 秒）

8) 保护温度 90℃（表面温度，100A 无温度保护）
9) PWM 频率 8KHZ/16KHZ
10) 支持绝大多数模型用无刷电机，14 极电机转速可以到达 40000RPM。
11) 普通飞机版本为高速启动。直升机版本为安全缓慢启动，从油门开启到低速稳定时间为 3 秒。
12) 直升机版本提供智能恒速学习功能（PID），能计算出主桨最佳恒定转速（利用电机输出和总负载变化关系取最合理恒速点）

附加特性

1，油门位置错误禁止启动
2，自动学习油门行程
3，错误信号关闭动力
4，接收机无信号报警，并关闭输出。
5，多功能调节电机特性

*使用注意事项

1，本设备为电池为能源设计的，不能使用其他类型的电源，如果使用其他电源有可能损坏本设备或者电源。
2，本设备为遥控模型产品，不能使用在载人系统上面，以防止意外
3，本设备为大功率电子产品，在工作中会产生大量热量，请注意保持强制风冷条件
4，本设备内部带有电源电压检测系统，在和电池连接的时候请用尽量短的连接线，并且保证有足够电流的电池。以免电压系统产生错误动作，影响使用。
5，本设备不允许同时驱动 2 个或以上电机，以免发生误动作。

使用方法

把电调的输出线和电机连接，电调信号线和接收机油门通道连接。（注意本电调不提供接收机电源。）确认发射机油门在最小情况下，打开发射机和接收机电源后，接上主电源。

系统上电时候有♪ ♪ 2声提示声音，表示电源/电调/电机连接成功。等待1秒中电机将会发出2声BEEP BEEP声，这个是安全提示声音，证明电调已经在接收机控制下，这个时候请远离螺旋桨，以免发生事故。安全提示声音以后，电调就可以按发射机的油门提示，控制电机旋转和停车。

*如果上电提示声音连续进行，那么请检查接收机电源或者发射机状态。

注意：本电调在失去接收机信号时候将马上关掉输出，并且发出♪♪♪♪♪声音。以提示信号错误。外场飞行时候或许您可以按此声音寻找您的飞行器。（PCM 接收机在失去发射机信号时候会保持其正常的控制信号，此时电调将无法通过电机提供此声音）。另外某些接收机不带静噪功能的，在未开发射机的情况下或许不会发出♪♪♪♪声音，但是绝对不会有安全提示声音。这时候请打开发射机。

安全提示声音声响比较大，可能会导致螺旋桨轻微动作，这是正常的。如果安全提示声音不足够清脆，请检查电池或者电调到电池连接线的质量。

设置方法

1. 切断电调主电源，打开发射机，接收机电源。
2. 把发射机油门推到最大
3. 连接电调主电源
4. 等待提示声音
5. 上电提示声音：♪ ♪

系统将进入主选单：

单声：BEEP　这是第1项目选单，为电池种类和数量。

声音重复3次，如果油门不做变动，将转到第2项目选单。

如果要选择里面内容，在这个声音结束完以前把发射机油门移动到中间，等待新的提示声音。

•—　代表 NIMH/NICD 电池，本电调能自动检测电池数量，但要保证每次开启时候电池是充足电力的。然后在每个电池电压下降到0.8V的时候降低动力输出。当电池电压再下降到0.7V以下时候完全切掉动力。这个菜单所有声音重复3次。

如果说需要这个选项，请在这3组声音结束以前把油门推到最高。等待更改设置声音

注意：　更改设置声音为1声高频声音。

同时系统重新进入主选单

•——　使用7S锂聚合物电池每节电压下降到3.0V时候降低动力输出，在2.9V时候将完全切断动力输出

•———使用6S锂聚合物电池

•————使用5S锂聚合物电池

•—————使用4S锂聚合物电池

•——————使用3S锂聚合物电池

•———————使用2S锂聚合物电池

如果不改变发射机油门，系统将重复此子菜单，直到发射机油门到最大，重新进入主选单。停止选择或者取消可以在任何时候把发射机油门推到最小，系统将重新载入数据，等待1秒时间，安全提示声音出现以后。即可按油门比例输出动力。

连续 2 声：BEEP BEEP　　第 2 选单 为油门控制选项

••—自动适应油门行程

••——固定油门行程，1.1（最小油门）-1.8MS（最大油门）

••———高加速度，适合需要快速反映的场合使用。

••————低加速度，适合动力电池性能不太理想的场合使用

轻微刹车，油门到最后时候启动电机刹车，连续时间为3秒。中途有动力输出请求，即刻取消。

••———中等强度刹车，时间 3 秒，中途有动力输出请求，即刻取消。

••————高强度刹车，时间 3 秒，中途有动力输出请求，即刻取消。

连续 3 声：BEEP BEEP BEEP 第 3 主选单，为刹车选项（直升机版本为恒速控制选项）

•••— 无刹车 （直升机版本为正常操作模式）

•••——轻微刹车，油门到最后时候启动电机刹车，连续时间为 3 秒。中途有动力输出请求，即刻取消。（直升机版本为 2-4 极电机恒速控制选项）

•••———中等强度刹车，时间 3 秒，中途有动力输出请求，即刻取消。
（直升机版本为 6-10 极电机恒速控制选项）

•••————高强度刹车，时间 3 秒，中途有动力输出请求，即刻取消。
（直升机版本为 12-16 极马达恒速控制选项）

连续 4 声：BEEP BEEP BEEP BEEP，为动力基本特性调整

••••—	正向旋转
••••——	反向旋转
••••———	软低电压保护
••••————	硬低电压保护

连续 5 声：BEEP BEEP BEEP BEEP BEEP，为提前角选项

•••••—	1
•••••——	7
•••••———	15
•••••————	30

*注意　8 极以上电机可以使用高 1 级的提前角，这时候输出增加同时效率会有下降。所有电机均可以使用最小进角选项，以获取最高的效率。

连续 6 声：BEEP BEEP BEEP BEEP BEEP BEEP，第 PWM 选项

••••••—	8KHZ　适合绝大多数电机，特别是外转电机
••••••——	16KHZ　适合高 KV 超低内阻电机，例如 KV4000 以上无槽无铁心电机，这个时候电机机械震动将明显减小，运转更平顺。但选用这个选项时，电调将会增加 20%左右的发热量，请务必注意散热。

出厂基本设置

1，电池为自动检测

2，自动油门控制，低加速度

3，轻刹车（直升机版本为普通控制模式）

4，正向旋转，软电压保护

5，提前角为最小

6，PWM 8K

SUPPO™ Speed Controller Programming Instructions

For Advance programmable Normal Boat ESC

70A/125A/200A ESC

Important Note: these ESCs are all **Opto, without BEC** to your Receiver, you need extra power source for your receiver. You can use a UBEC, a voltage regulator, or extra batteries as the power source for your receiver. If you hear the music tone repeat again and again for more than 3 times, you may need to check your power source to the receiver.

Phrases 1 Enter programming Mode

1. Connect your motor and receiver to the speed controller, but do not connect the battery yet.
2. Turn on your transmitter and move the throttle stick to the full throttle position (full up). Please Note: Most Futaba transmitters have the throttle channel reversed by default.
3. Connect your battery and the controller will initialize with a musical tone.

Phrases 2 Programming

After 3 seconds, the motor will start beeping a sequence of tones – a musical tone followed by one or more beeps. Each sequence represents a parameter that you can program and is repeated 3 times. The parameters are:

▷—	Music Tone + 1 Beep	Options 1. Cell Type and No. of Cells
▷— —	Music Tone + 2 Beeps	Options 2. Throttle Setting
▷— — —	Music Tone + 3 Beeps	Options 3. Brake Setting
▷— — — —	Music Tone + 4 Beeps	Options 4. Direction and Cutoff Type
▷— — — — —	Music Tone + 5 Beeps	Options 5. Timing Mode
▷— — — — — —	Music Tone + 6 Beeps	Option 6. PWM setting

Step 1. Starting, Enter Sub-optins. When you hear the sequence for the parameter you wish to program, move the throttle stick to the **Center Position to Enter Sub-options**.
The controller will then **start beeping a Morse code sequence** of short and long beeps representing the possible options you may choose for the selected parameter. See table 2 for a list of all programmable options. Each option sequence is repeated 3 times.

Step 2. Select and save, the select the option, move the **throttle stick** back to **the Full-up-position.**, When you hear the sequence for the option you wish to select. The controller will then save the selected option, and **sound a long beep as a confirmation.** It then goes back to the beginning of the programming sequence (phrases 2).

Step 3. Complete and exit programming. Setup all the parameters you need to change. When complete, move the throttle stick to the **Lowest (Down) Position**. The controller will save all options and re-initialize in normal running mode so you can start your motor.

The table below summarizes the various programming options for each parameter:

Option 1.1 Cell Type and Number of Cells ♪—	**Only for 50A/70A/ 125A-LV / 200A-LV (LV as 2S-7S)**
• — 1 Short + 1 Long	NiMh/NiCD Auto Cell Count - 0.8V/Cell Cutoff Voltage
• — — 1 Short + 2 Long	7S Li-Po (25.9V) – 21V Cutoff Voltage **
• — — — 1 Short + 3 Long	6S Li-Po (22.2V) –18V Cutoff Voltage
• — — — — 1 Short + 4 Long	5S Li-Po (18.5V) – 15V Cutoff Voltage
• — — — — — —1 Short + 5 Long	4S Li-Po (14.8V) – 12V Cutoff Voltage
• — — — — — — 1 Short + 6 Long	3S Li-Po (11.1V) – 9V Cutoff Voltage
• — — — — — — — 1 Short + 7 Long	2S Li-Po (7.4V) – 8V Cutoff Voltage

Option 2. Throttle Setting ♪— —	
•• — 2 Short + 1 Long	Auto Throttle Range *
•• — — 2 Short + 2 Long	1.1ms to 1.8ms
•• — — — 2 Short + 3 Long	Hard Acc*
•• — — — — 2 Short + 4 Long	Soft Acc

Option 3. Brake Setting ♪— — —	
••• — 3 Short + 1 Long	No Brake
••• — — 3 Short + 2 Long	Soft Brake*
••• — — — 3 Short + 3 Long	Medium Brake
••• — — — — 3 Short + 4 Long	Hard Brake

Option 4. Direction and Cutoff Type ♪— — — —	
•••• — 4 Short + 1 Long	Clockwise Rotation *
•••• — — 4 Short + 2 Long	Counterclockwise Rotation
•••• — — — 4 Short + 3 Long	Soft Cutoff*
•••• — — — — 4 Short + 4 Long	Hard Cutoff

Option 5. Timing Mode Setting ♪— — — — —	
••••• — 5 Short + 1 Long	1° - For 2-4 Pole Inrunner Motors *
••••• — — 5 Short + 2 Long	7° - For 6-8 Pole Motors
••••• — — — 5 Short + 3 Long	15°- For 10-14 Pole Outrunner Motors
••••• — — — — 5 Short + 4 Long	30° - For 10-14 Pole High-RPM Outrunner Motors

Option 6. Pulse Width Modulation(PWM) Setting ♪— — — — — —	
•••••• — 6 Short + 1 Long 8KHz	– For low RPM and low pole count motors *
•••••• — — 6 Short + 2 Long 16KHz	– For most out runner motors

*** is Default Setting**

TFL hobby®

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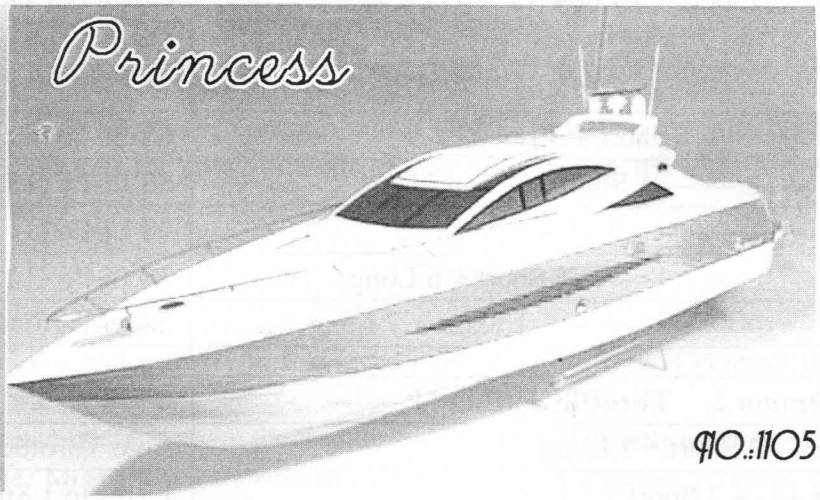
1105小公主

Lenght:970mm(38.1)

全长:970mm(38.1)

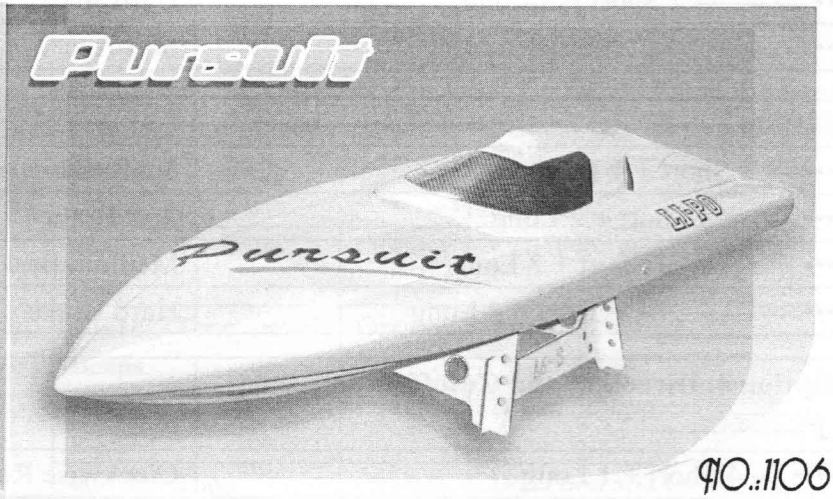


NO.:1105

1106追击手

LENGTH:820mm(32.3")

全长:820mm(32.3")



NO.:1106

204海金刚

LENGTH:800mm(31.5")

全长:800mm(31.5")

NO.:104

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