

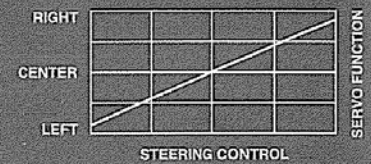
ATTACK

2ER

BIOENGINEERING DESIGN
DIGITAL PROPORTIONAL
RADIO CONTROL SYSTEM

2-channel digital proportional
R/C system for cars, boats,
yachts, and other models.

Bioengineering Design



INSTRUCTION MANUAL

2 Channel Digital Proportional R/C System



1M23N06402

Futaba[®]
Digital Proportional R/C System

Thank you for purchasing a Futaba ATTACK 2ER.
Before using your ATTACK 2ER, read this manual carefully and
use your R/C set safely.

After reading this manual, store it in a safe place.

APPLICATION, EXPORT, AND RECONSTRUCTION

1. Use this product in models only.

The product described in this manual is subject to regulations of the Ministry of Radio/Telecommunications and is restricted under Japanese law to such purposes.

2. Exportation precautions

(a) When this product is exported from Japan, its use is to be approved by the Radio Law of the country of destination.

(b) Use of this product with other than models may be restricted by Export and Trade Control Regulations. An application for export approval must be submitted.

3. Modification, adjustment, and replacement of parts

Futaba is not responsible for unauthorized modification, adjustment, and replacement of parts of this product.

THE FOLLOWING STATEMENT APPLIES TO THE RECEIVER (FOR U.S.A.)

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

-No part of this manual may be reproduced in any form without prior permission.

-The contents of this manual are subject to change without prior notice.

-This manual has been carefully written. Please write to Futaba if you feel that any corrections or clarifications should be made.

-Futaba is not responsible for the use of this product.

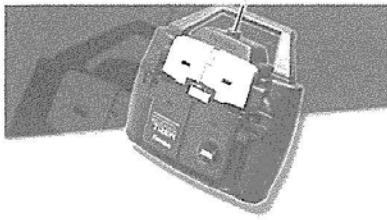


TABLE OF CONTENTS

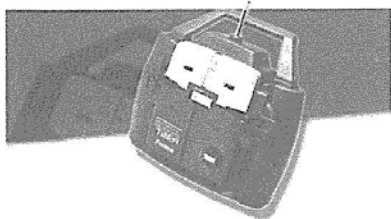
SAFETY PRECAUTIONS	2
Definition of Symbols	2
Running Preparations Safety Precautions	2
Running Safety Precautions	3
Storage and Disposal Safety Precautions	4
Other Safety Precautions	5

BEFORE OPERATION	6
System Contents	6
Nomenclature / Handling	7

ASSEMBLY / ADJUSTMENT	9
Receiver and Servo Connection	9
Assembly Precautions	10
Digital Proportional Adjustment	12

DESCRIPTION OF FUNCTIONS	13
Steering Trim	13
Throttle Trim	13
Servo Reverse	14
Changing the Neutral Position	14
Modifying the Throttle Stick to a Ratchet Type	14

REFERENCE	15
Ratings	15
Troubleshooting	16
Repair Service	17



SAFETY PRECAUTIONS

For your safety as well as that of others. Please read this manual thoroughly prior to installation and operation of your digital proportional R/C system.

Definition of Symbols

The following defines the symbols used in this manual.

Explanation of Symbols

Warning

Indicates a procedure that could result in serious injury or death to the user or other persons if ignored and not performed properly.

Caution

Indicates a procedure that may result in serious injury to the user or other persons, as well as physical damage. If ignored and not performed properly.

Explanation of Graphic Symbols



Indicates an operation that prompts a warning (including Caution).



Indicates an operation that must not be performed.



Indicates an operation that always must be performed.

Running (Sailing) Preparations Safety Precautions

Warning

(When using a Ni-cad battery to power your system)

(Charging)



When using a Ni-cad battery to power your system, always charge and check the battery voltage prior to operation.

Should the battery discharge below the minimum voltage level, control will be lost.

Caution

(When using a Ni-cad battery to power your system)





When the charger is not in use, disconnect from the outlet.


To prevent accidents, overheating and short circuits


Running (Sailing) Safety Precautions


Warning


-
-  **Do not operate two or more models on the same frequency at the same time.**
Operation of two or more models on the same frequency at the same time will cause interference and loss of control of both models.
AM, FM and PCM are different methods of modulation. Nonetheless the same frequency can not be used at the same point in time, regardless of the signal format.

 -  **Never operate in the rain or run through puddles.**
The transmitter, receiver, batteries and most servos, and speed controls are not waterproof. Contact with any type of moisture or immersion in water or snow will cause damage along with possible loss of control. Should any type of moisture enter any component of the system immediately stop using the R/C system and return to our service center for inspection.


 -  **Do not operate when visibility is limited.**
Should you lose sight of the model a collision or other dangerous situation may occur.


 -  **Do not operate near people or roads.**
Do not operate near high tension power lines or communication broadcasting antennas.
Prior to the operation of any model be sure the area you plan to use is safe. Be aware of all objects that may be in the path of your model. Do not operate the model where people or any type of moveable object could stray in the path of your model. Control loss due to interference, component failure, loss of sight or low battery voltage could result in serious injury to yourself and others as well as damage to your model.

 -  **Do not operate your R/C system within 1 mile of another site where radio control activity may occur.**
Interference from other R/C systems will cause loss of control.

 -  **Do not operate when you are tired, not feeling well or under the influence of alcohol or drugs.**
Your judgement is impaired and could result in a dangerous situation that may cause serious injury to yourself and others.

 - (Conduct Tests)

 **Prior to operation always perform a range test.**
Even one abnormality in the R/C system may cause loss of control.
[Range Test Procedure]
Have a friend hold the model, or place on a stand where the wheels or prop can not come in contact with any object. Collapse the transmitter antenna and operate from a distance of about 10 yards. Be sure to check the movement of each servo to make sure they follow the movement of the steering and throttle stick. If the servos do not follow the commands from the transmitter or any type of interference is detected, Do Not operate the model.

 -  **Fully extend the transmitter antenna.**
If the transmitter antenna is not fully extended range will be reduced and control may be lost.

-
- ⚠ **Before you turn on the power switch on the transmitter, always check to see that the stick is at the neutral position. Always turn the transmitter on first, then the receiver. When you turn the system off, always turn the receiver off first then the transmitter.**

This step is very important always follow this procedure.

If this procedure is not followed, injury to yourself and others as well as loss of control could occur.

(Adjustment Note)

- ⚠ **Make all adjustments to the radio control system with engine not running, or the electric motor disconnected.**

If the engine is running or the motor is connected while adjustments are made the model may run out of control.

- ⚠ **Remove the main battery source from electric powered models when they are not being used.**

Should you accidently leave the receiver switch on the model could run out of control.

Caution

- ⊘ **Do not touch the engine, motor, speed control or any part of the model that will generate heat while running.**

Touching hot parts will result in serious burns.

Storage and Disposal Safety Precautions

Warning

(When using a Ni-cad battery to power your system)

- ⊘ **Do not throw a Ni-cad battery into a fire. Do not disassemble or attempt to repair a Ni-cad battery pack.**


Overheating, damage and acid leakage may lead to burns, loss of eye sight as well as numerous other types of injuries. The electrolyte in Ni-cad batteries is a strong alkali. Should you get even the smallest amount of the electrolyte in your eyes, Do Not rub, wash immediately with water, seek medical attention at once. The electrolyte can cause blindness. If electrolyte comes in contact with your skin or clothes, wash with water immediately.

(When using a Ni-cad battery to power your system)


- ⚠ **At the end of a days operation store the system with Ni-cad battery discharged. Be sure to recharge the system before it is used again.**

You should fully discharge your systems batteries periodicity to prevent a condition called "memory effect". For example if you only make two run in a day or you regularly use a small amount of the batteries capacity, the memory effect can reduce the actual capacity even if the battery is charged for the recommended amount of time.

Caution

-  Do not store your R/C system where it will be exposed to the following conditions.
 - Extreme heat or coldness
 - Exposed to direct sunlight
 - Where humidity is high
 - Where vibration is prevalent
 - Where dust is prevalent
 - Where there is steam and condensation
 - Where the system would be exposed to engine exhaustStoring your R/C system under adverse conditions could cause deformation and numerous other problems with operation.

(When using a Ni-cad battery to power your system)

-  When disposing Ni-cad batteries, cover any exposed contacts with some type of insulation to prevent short circuit. Improper disposal could cause fire.





*Special Note!

Some states require special handling when Ni-cad batteries are disposed. Contact the State Agency responsible for recycling hazardous waste for the procedures in your state.

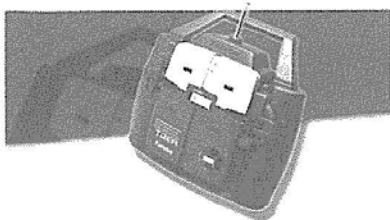
Other Safety Precautions

Caution

(When using a Ni-cad battery to power your system)

-  Do not short circuit the Ni-cad battery terminals. Short circuiting the terminals will lead to sparks and overheating and could cause a fire and burns as well.
-  When operating two or more models at the same time, have a third person act as a spotter. They will be in charge of safety and you should follow their instructions.
-  Beginners should receive instructions regarding safety and operation from an experienced modeler.
-  Always use only genuine Futaba receiver, servos, electronic speed controls along with other optional parts and components. Futaba will not be held responsible for damages caused by other than genuine Futaba parts and components. Use only genuine Futaba parts and components listed in the instruction manual and catalog.

BEFORE OPERATION



System Contents

After opening the container, check the contents for the following items. The contents will vary with the system purchased.

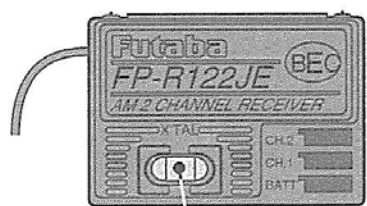
	System with 2 Servos	System with 1 MC210CB and 1 Servo	System with 1 MC310CB and 1 Servo
Transmitter		T2ER (x1)	
Receiver		R122JE (x1)	
Servo	S3003 (x2)	S3003 (x1)	
E.S.C.		MC210CB (x1)	MC310CB (x1)
Miscellaneous	Switch		
	Battery Holder		
	Servo mounting hardware and servo horns		
	Mini Screwdriver		

Should any item be missing or you are uncertain of the contents of the system, please contact the dealer where the unit was purchased.

BEFORE OPERATION

Receiver R122JE

Servo S3003



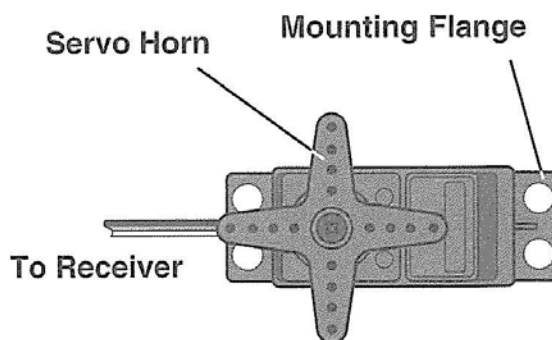
Crystal

Output Connector

"CH.1" : Steering Servo

"CH.2" : Throttle Servo

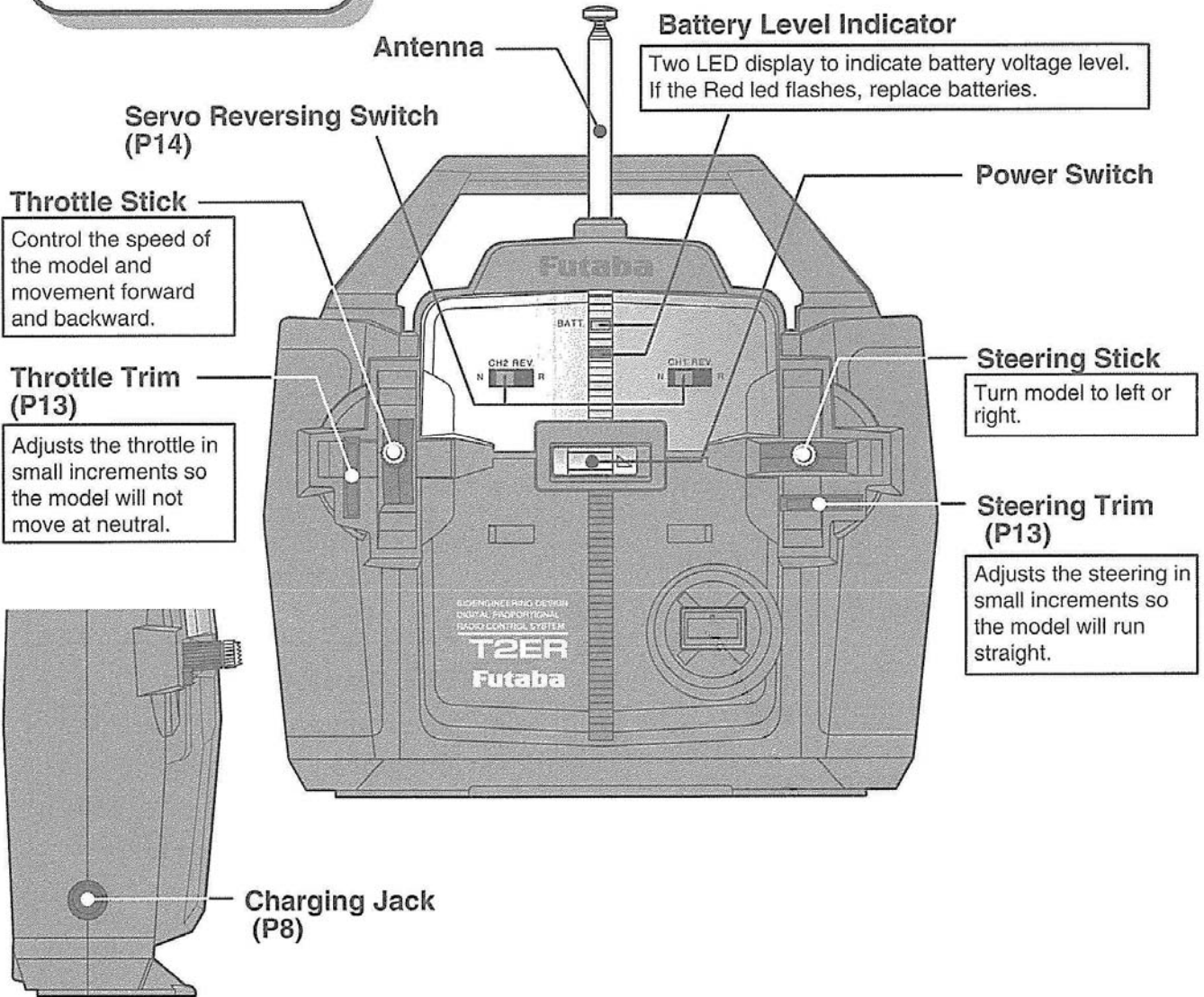
Power Supply Connector (BATT)



To Receiver

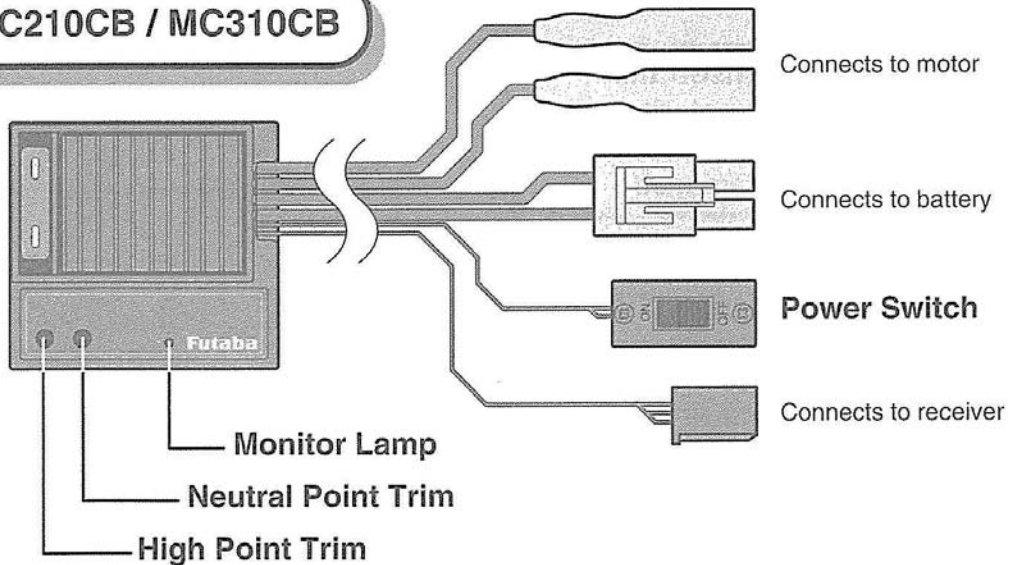
Nomenclature / Handling

Transmitter T2ER

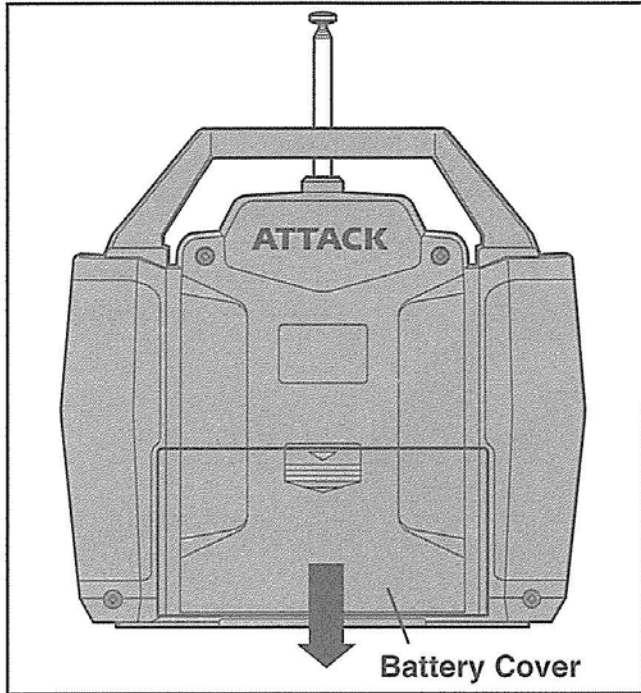


BEFORE OPERATION

E.S.C. MC210CB / MC310CB



Battery Replacement Method



- 1 Slide the battery cover off the transmitter in the direction of the arrow in the figure.
- 2 Remove the used batteries.
- 3 Load the new AA size batteries .
Pay very close attention to the polarity markings and reinsert accordingly.
- 4 Slide the battery cover back onto the case.

Caution

Always be sure you reinsert the batteries in the correct polarity order. If the batteries are loaded incorrectly , the transmitter may be damaged.

When the transmitter will not be used for any short or long period of time always remove the batteries. If the batteries do happen to leak , clean the battery case and contacts thoroughly. Make sure the contacts are free of corrosion.

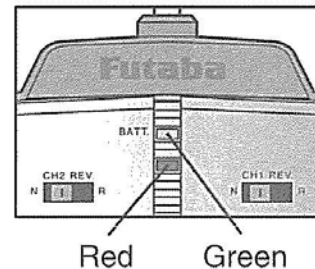
Check

Turn the power switch on the transmitter to the ON position. Check to see if the two LEDs light. If the LEDs fail to light, check the batteries for insufficient contact in the case or incorrect battery polarity.

Battery Alarm Display

When the Green battery level indicator (LED) goes off and the Red LED flashes, change the batteries immediately.

Battery Level Indicator



Battery Disposal

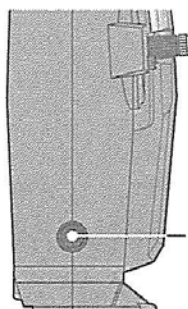
Some states require special handling when any type of battery is disposed. Contact the State Agency responsible for recycling hazardous waste for procedures in your area.

Charging Jack

(Only transmitter with charging jack)

Caution

Do not charge a dry cell battery. Charging a dry cell battery will cause abnormal heating, etc. and is dangerous.



Charge the Ni-cd battery by Futaba special charger (sold separately).