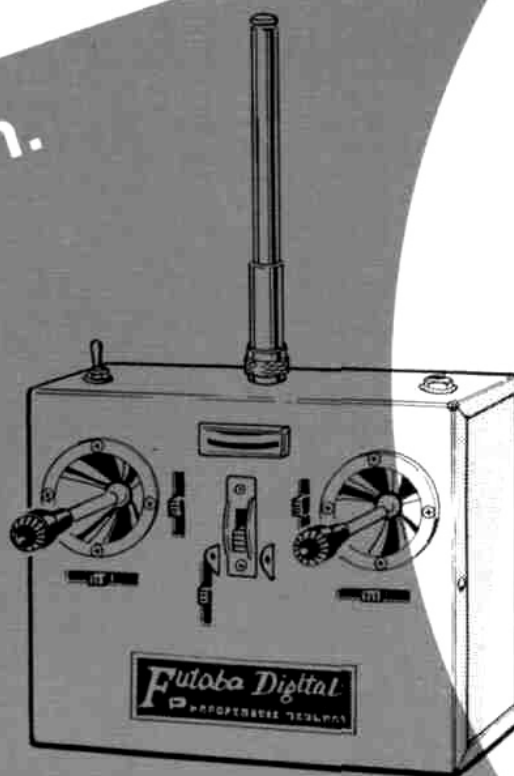


New FUTABA

DIGITAL PROPORTIONAL
RADIO CONTROL

FP-6DN 6ch. FP-5DN 5ch.
FP-4DN 4ch. FP-5 5ch.



FUTABA INDUSTRIES, U.S.A.

630 WEST CAROB STREET, COMPTON, CALIFORNIA, U.S.A.

FUTABA ELECTRONICS IND. CO., LTD.

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FUTABA NEW PROPORTIONAL R/C FEATURES

TRANSMITTER

1. All Futaba New Proportional Models are designed and manufactured to the identical standards and specifications.

Therefore mixing with other Futaba receivers and servos will not affect the operation.

2. Frequency changes are easily accomplished, because of the plug-in socket for the crystals.
3. Throttle control Lever location can be easily changed from left to right side.
4. Neck strap and Hook is provided for convenient handling.

RECEIVER

1. Because of the New 8-BIT integrated circuit device, used in all Futaba Receivers, all Futaba Propo. Systems are supplied with 6 channel capacity receiver FP-R6D.
2. Light weight and miniaturized by NEW 3-Wire Mini-Block connector.
3. Stable operation from 4V to 6.6V resulting from utilization of the power saving circuits.
4. Frequency change can be easily accomplished without opening the receiver case because of the unique outside-mounted crystal socket.
5. Strong rejection of spurious signals by utilization of a double tuned RF pre-selector circuit.
6. Shielded RF and Oscillator coils provide strong rejection of spurious signals.
7. Accidental touching of Futaba Transmitter and Futaba Receiver antennas will not affect the normal operation.

SERVO

1. Since the FP-S5, FP-S5L, FP-S4 are all designed and manufactured to identical standards, they will display their maximum capability even when mixed with other Futaba Models.
2. With the use of Monolithic intergrated circuit, Futaba BA-606 and BA-607 Servo AMPS are small in size, light weight and sturdy with high output torque.
3. In the BA-607, the 12-pin single End-line Monolithic 1C contains a low current drain. High resolution. Temperature compensated Low-voltage circuit which allows operation down to 4V without creating interference between adjacent Servos.
4. In the BA-606, the 9-pin single end-line integrated circuit is used. This circuit contains; 2 specially made high out-put current (500mA) transistors of the PNP type, 2 NPN type transistors, 4 Diodes, 4 Resistors, a total of 12 integrated devices in a single package.
5. At idle, low current consumption. (8 mA).
6. High out-put (torque) 2 kg/cm.

TRANSMITTER OPERATION

With the FP-4DN, a two-stick control will operate:

1. Throttle
2. Aileron
3. Elevator
4. Rudder

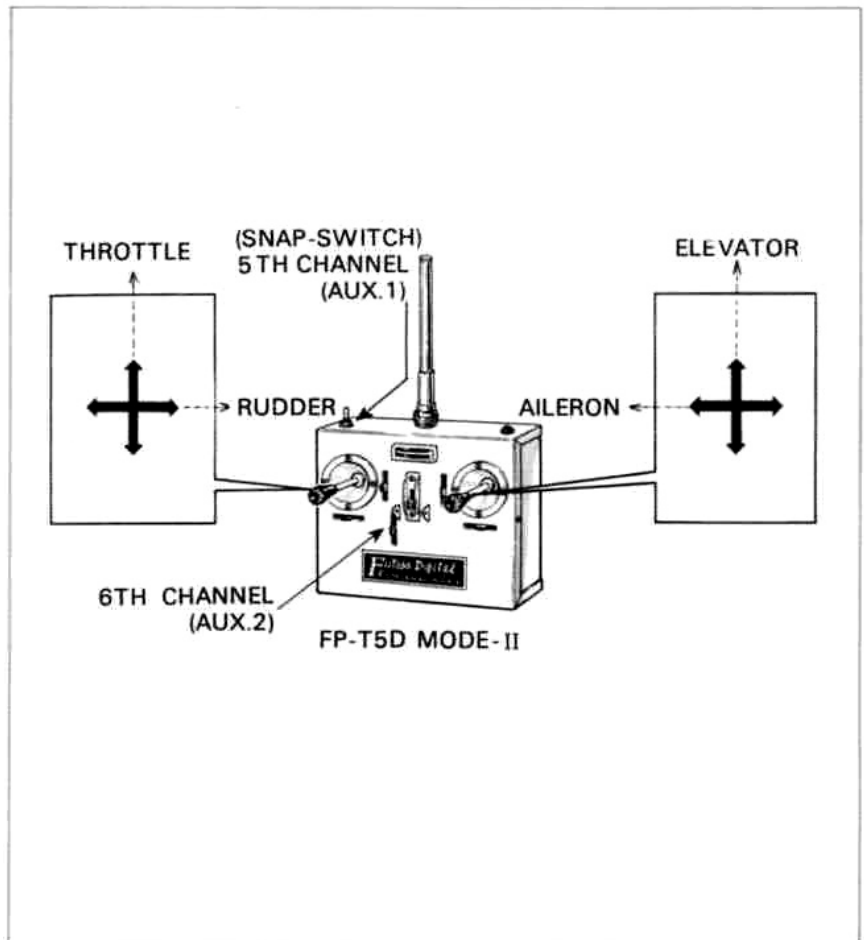
With the FP-5DN, in addition to the above mentioned operations, a snap-switch is provided for the landing gear or other suitable operations.

With the FP-6DN, aside from the 5 movements above, an additional control (volume type control) is added on the front panel for the 6th control (variable movement).

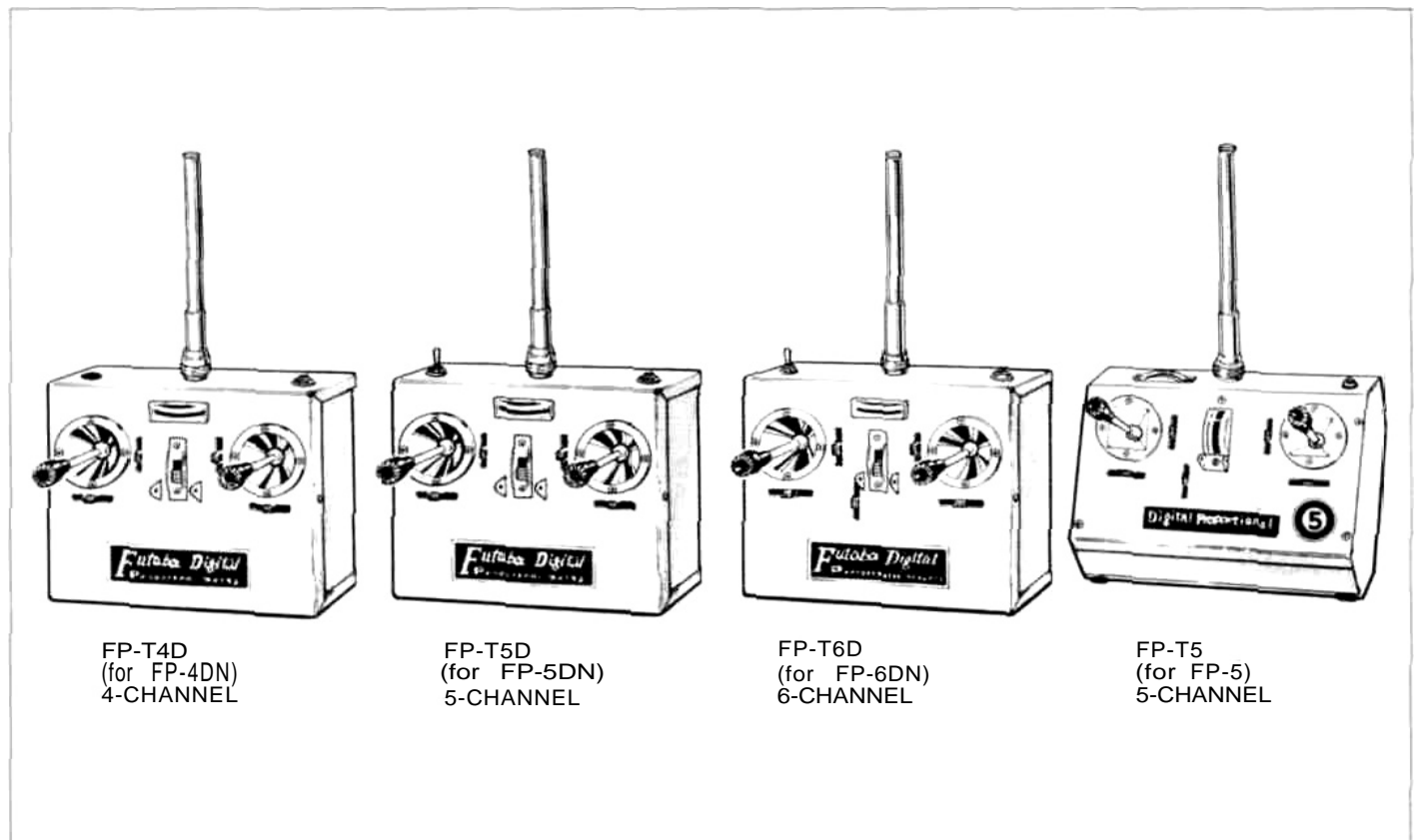
Operating procedures for the FP-4DN, FP-5DN, FP-6DN are the same as they are designed and Manufactured to the same specifications.

As an additional feature, all Futaba Propo. Models are provided with two (2) sets of knobs (long and short), to suit your requirements. To change knobs, pull firmly off the Black Plastic Knobs from the control sticks and replace with the spare plastic knobs provided in the Kit.

A neck strap too is provided for your convenience.



The front panel controls on the Transmitters are shown in the Diagram below and it is suggested that the manipulation of these controls be well mastered.



1. FP-4DN, FP-5DN, FP-6DN and FP-5 Transmitters are equipped with a built-in transformer-type charger for maximum safety and provided with 8/450 mAH Nickel Cadmium Batteries for dependable operations.
2. With the antenna firmly in place, turn the switch on and the Meter needle will point to 10 or more on the Dial. This is an indication that a Radio signal is being radiated. If the meter needle does not move, check for a possible bad connection in the power supply unit.
3. When the meter needle points below 10, this indicates that the battery is not sufficiently charged.
4. Please be aware that whenever the meter needle falls below 10, the area covered by the signal is diminished.
5. Along side and below each control sticks are two (2) small Black levers. These allow "trim" of all four main controls. You can adjust (Trim) these levers for fine adjustments for all four (4) operations such as throttle, ailerons, elevators and rudder.
6. FREQUENCIES - Available in MHz.
(Available Futaba pair crystal Tx/Rx)

27 MHz Areas

26.995 (Brown)
27.045 (Red)
27.095 (Orange)
27.145 (Yellow)
27.195 (Green)

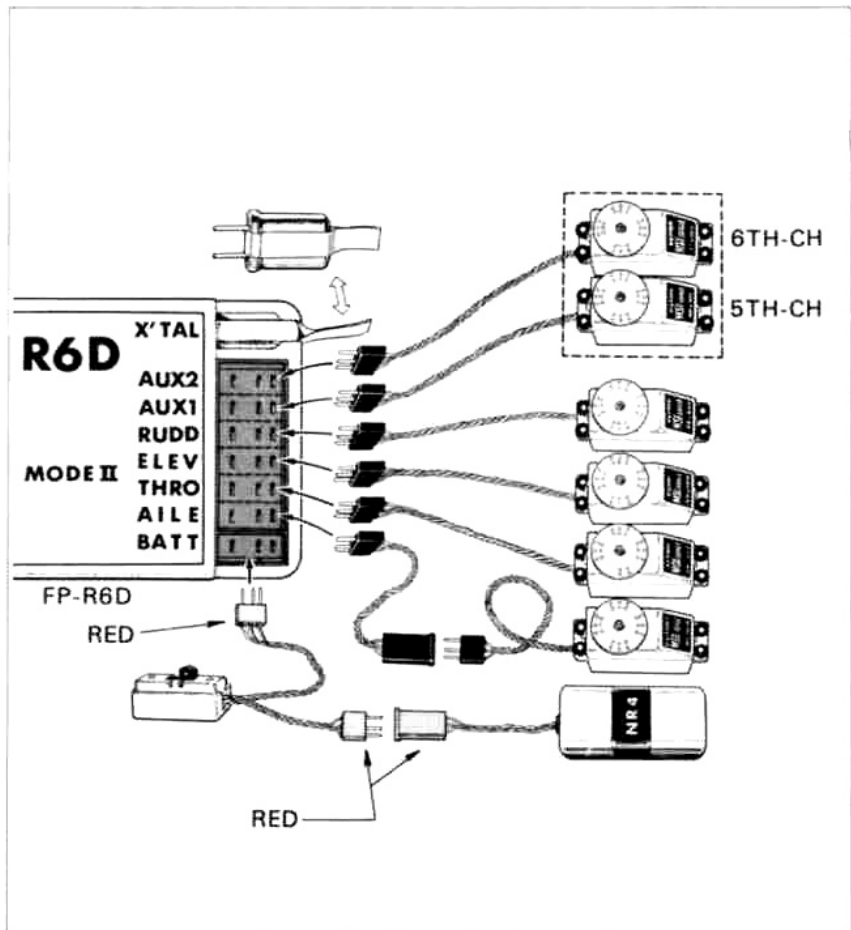
72 MHz Areas.

* 72.080 (Brown/White)
72.160 (Blue/White)
* 72.240 (Red/White)
72.320 (Violet/White)
* 72.400 (Orange/White)
72.960 (Yellow/White) (**)
* 75.640 (Green/White) (**)

Remarks: Mark * = Model Aircraft use only.
Mark (**) = Factory tuned conversion of crystal is required.

HANDLING THE RECEIVER AND SERVOS

1. The FP-R6D receiver incorporates an 8 Bit integrated circuit and is made into 6-channel operation. The same integrated circuit is also used for Four (4) and Five (5) channel operation.
2. The Block connector sockets that connects the different Servos are an integral part of the receiver.
3. The Block Connector sockets are polarized and each position is designated on the receiver case. Therefore check carefully before connecting the Servos. Particularly care must be taken since the power supply relay connector is Red and the Aileron relay connector is BLACK.
4. Since each Servo is built to the same specifications, any Servo can be used for any purpose.
5. There is a FP-S5L (Reversible Servo Red Label) included in each set. This Servo is convenient for throttle control on shoulder wing models.



6. Connectors are made as shown in the above diagram. Please make certain that each connector is fully plugged in and that the Aileron section etc., and the power supply switch harness is correctly identified.
7. After making certain that the connections are correct according to the above diagram, turn on the transmitter switch and then put the receiver switch to ON position. At this point each Servo will stop at the Neutral position.
8. Move each stick and Trim lever and check to see if the specific Servo is actuated correctly.
9. When each section is tested for movement, please make certain that both the Transmitting and Receiving antennas are fully extended. If the Transmitting antenna is shortened and the Transmitter switch is left ON for more than 5 minutes, the transistors in the Transmitter will be damaged.
10. If the system does not operate after completely assembling the batteries, switch harness and Servos for the receiver and the Transmitter, the problem may be due to damage during shipment. Do not attempt to open any of the units, but return them for exchange.

NI-CAD BATTERIES AND RE-CHARGING

FP-4DN, FP-5DN, FP-6DN and FP-5 Transmitters are equipped with eight (8) pen-light type Ni-Cad batteries.

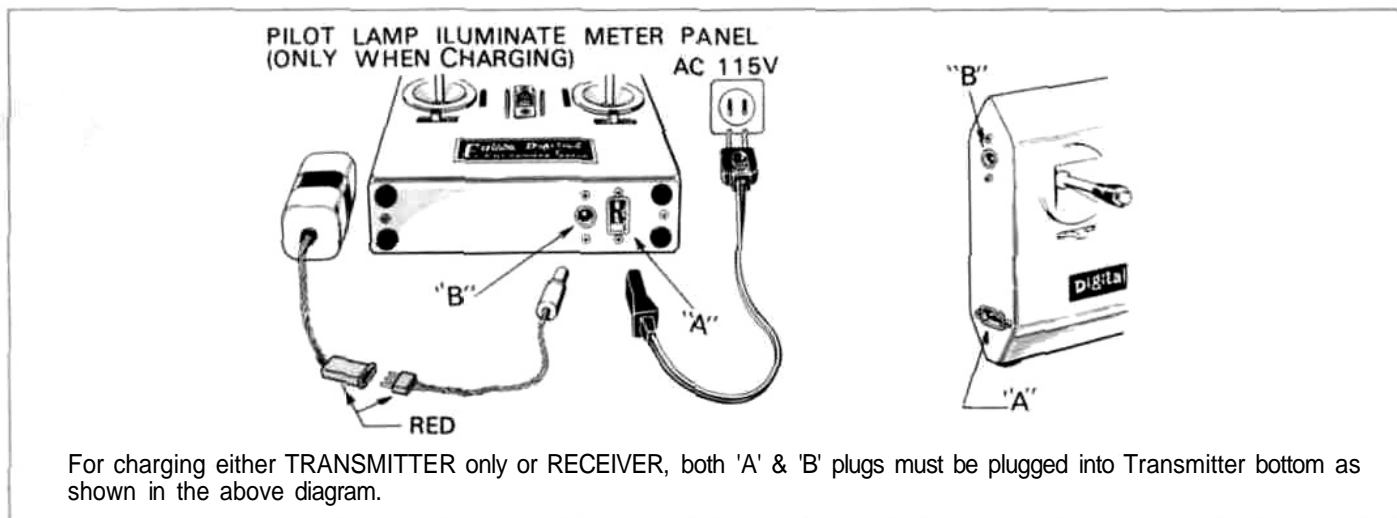
For the Receiver & Servos, Four (4) Ni-Cad batteries are provided in the set.

Prior to each usage Ni-Cad batteries should be charged for 12 to 15 hours. If they have not been in use for some time, the batteries should be charged for about 20 hours before use. There is no harm if the charging time is slightly exceeded.

When Ni-Cad batteries are completely charged, you can ordinarily expect about 100 minutes of use during a given day, about 10 control sessions of 10 minutes each.

Normally Ni-Cad batteries will hold an average voltage however, after this given time period of use, the voltage will drop suddenly so it is recommended that following 7 or 8 control sessions of use, a voltage check be made without fail.

For charging the Ni-Cad batteries, connections should be made as shown in the Diagram.



TO CHARGE TRANSMITTER BATTERIES

1. One end of the charging cord should be plugged into "A" at the bottom of the Transmitter and the other end into the wall socket of the household electric power outlet (AC 115V).

TO CHARGE THE RECEIVER

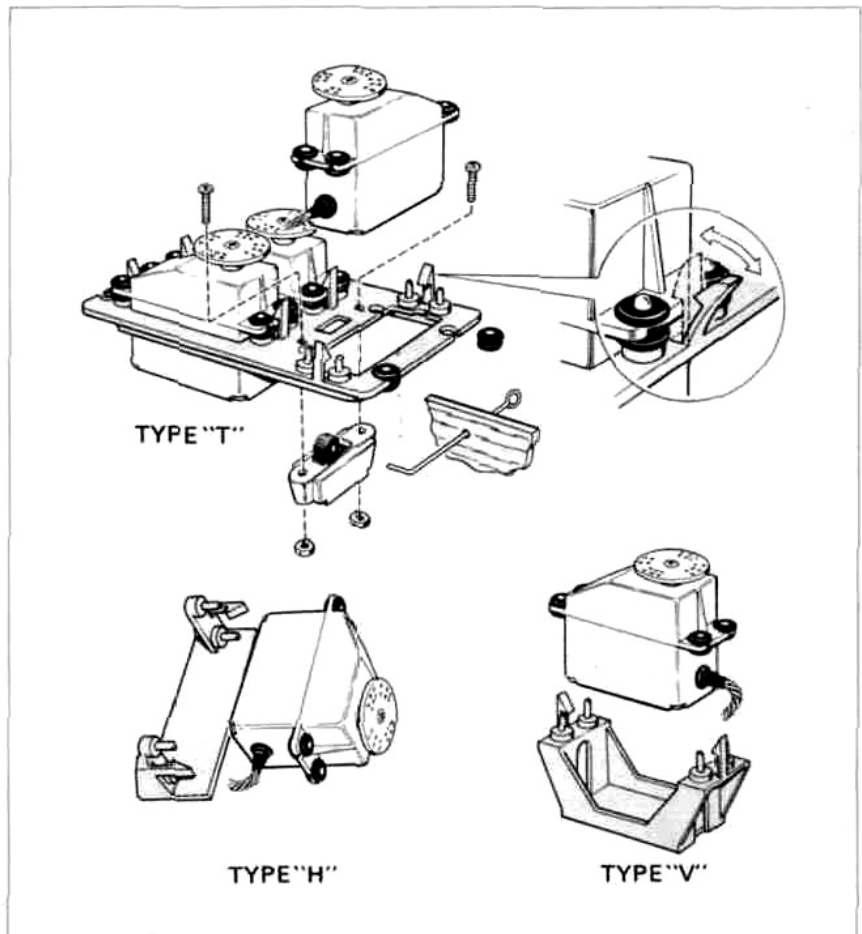
1. Use receiver charging harness (red 3 pin connector and Plug) as shown in diagram.
Red 3 pin connector should be plugged into battery unit and the other end with plug into Transmitter Marked "B".

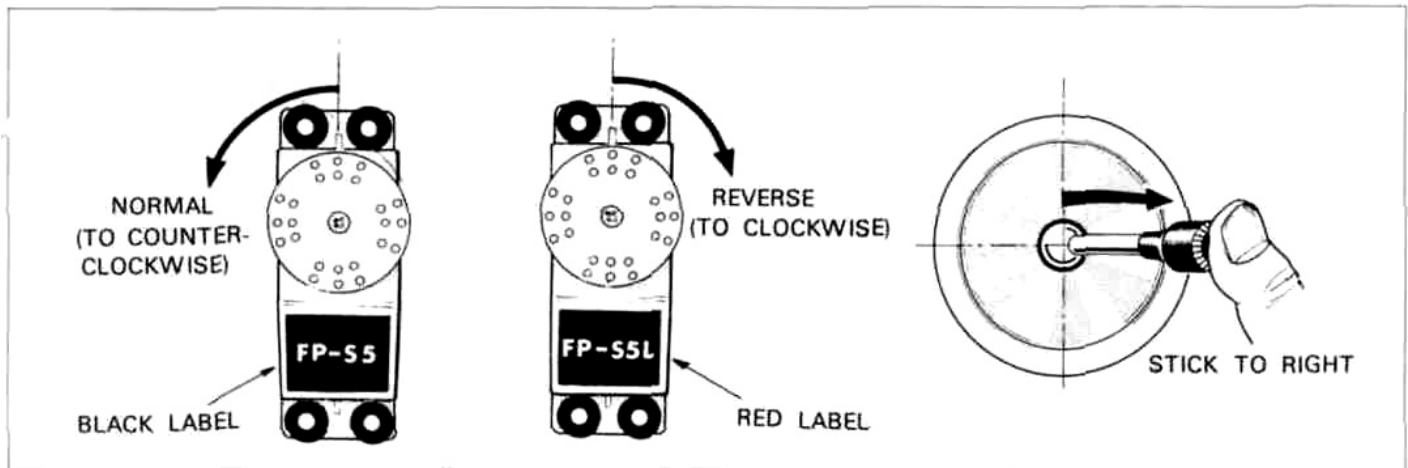
PRECAUTIONS FOR OPERATIONAL TEST AND INSTALLATION

1. After making certain that the Receiver & Servos are hooked up according to the diagram and batteries checked extend the Transmitter antenna to its shortest length and with the receiver antenna in extended condition, if the controls functions properly at the distance of 50 to 100 feet the system is operating normally. However it should be cautioned that this should not continue any longer than Five (5) minutes, otherwise it might damage some components. Never test the system without attaching the antenna to the Transmitter as this will also have an undesirable effect on the instrument.
2. During the installation wrap the receiver well with sponge rubber so that it will not touch other mechanisms or the aircraft itself. Also be careful to prevent engine vibrations from affecting the receiver. As for the Boat use, in addition, it might be a good practice to cover each unit with vinyl bag and tied securely at each cord to prevent water from entering.

3. When installing the Servo, the use of the Servo tray is very convenient. This is done according to the diagram. Please make sure each connector is plugged in completely.

Always re-check the installation of the Servo Horns and Rods to make sure that their motion matches the movement of the Transmitter control stick. Use the reversible Servo (FP-S5L) for Throttle control on shoulder wing models or for actuating the rudder and nose gear, however this Servo can not be used for Aileron.





4. After setting the push rods on each Servo, using transmitter, actuate each Servo fully from left to right making sure the rod will not hang-up on any position, otherwise the excessive current flow thru Servo will damage the unit.
5. Noise (interference) signals should be avoided. For example, if two metal parts are in intermittent contact with each other due to engine vibrations, noise signals are generated. When these signals enter the receiver, unexpected movements of the Servos can result. Therefore one of the metal surfaces touching each other should be covered with an insulating material.
6. When the installation is complete, at least once, by all means, visit a nearby radio control expert or the dealer where the equipment was purchased and be advised on proper handling techniques and other items which require attention. It is necessary while receiving this correct instruction also, to have the installation completely checked.

Let's enjoy Radio control by taking the advice of experts and observing the rules of Safety.



GUARANTEE

Your NEW FUTABA Digital Proportional R/C system is guaranteed for 180 days from date of purchase against all defects in materials or workmanship. When the attached registration card is returned to us within Ten days of purchase.

Guarantee is void if this R/C system has been improperly handled, damaged in a crash or tampered with. The guarantee does not cover the replacement of Plastic Housings or Electronics components by the use of improper voltage.

In the event that service is needed, please take your equipment to our local authorized service station or ship directly to us, you are required to pay all postage, shipping and insurance charges.

This will apply only to continental U.S.A. including Hawaii and Alaska.



OUT OF WARRANTY FACTORY REPAIR SERVICE

To insure prompt service, please follow the instructions listed below.

1. Charge batteries for at least 18 hours prior to shipment.
2. Return only the system, separate from your installation. Remove servos from mounts, remove foam padding from receiver.
3. Plugs or other modifications which interfere with factory testing procedures will be returned to factory standards at your expense.
4. Carefully pack all components individually with sufficient packing material to prevent shipping damage.
5. Include a brief but thorough explanation of all problems and service required and tape to back of transmitter. Label servos as to their function.
6. Be sure to include your full address and zip inside the box as well as outside.
7. Include a packing list of all items being returned and double check to make sure all items are.
8. If you return damaged equipment to FUTABA for factory service FUTABA will estimate the cost of repair and notify you, upon receipt of your payment your equipment will be repaired and return to you.

This will apply only to continental U.S.A. including Hawaii and Alaska.

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