



KYOSHO®

IMPULSE II™

Digital Proportional Radio Control System
2 Channel, 2 Servos and Accessories
or
2 Channel Transmitter with R/S set for Mini Car
or
R/S Set for Motorcycle

- Lightweight 2 Channel, 2 Stick Transmitter
- Servo Reversing Allows Instant Direction Change of Servos
 - High Visibility Battery Power Indicator
 - Strong Servos and Lightweight BEC Receiver
- Additional Components and Accessories Available

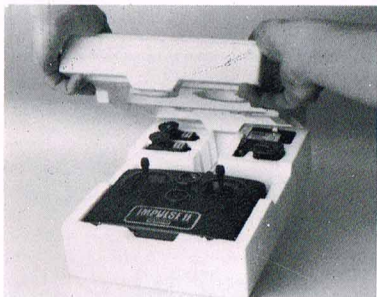
Introduction

Thank you for purchasing the Kyosho Impulse II radio system. We feel that the Impulse II is one of the finest 2-channel radio systems available. The Impulse II uses some of the latest R/C electronics technology for excellent performance and high quality. Everything about the Impulse II has been designed with you, the model enthusiast, in mind. The two stick style transmitter has been designed for superior comfort making it well-suited for a relaxed afternoon of operation. All of the controls are logically placed allowing the beginner as well as the advanced modeler to operate the radio with ease. Congratulations on choosing the Impulse II, we are sure that it will serve you well.

Please take your time and read through this instruction manual carefully before you install the Impulse II in your model. We have written this manual in a style that even beginners should be able to follow. It is important that you follow the instructions closely whether you are a beginner or an expert.

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UNPACKING YOUR IMPULSE II

Carefully remove the radio system from its foam container. Do not throw away your radio box or foam container! You may need these items if you ever need to send the system for repairs or tune-ups.

Use the checklist and pictures on this page to make sure that your Impulse II system is not missing any parts. If you do find anything missing, contact your Kyosho Impulse II dealer right away.

CHECK LIST

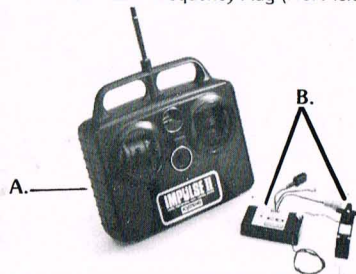
IMPULSE II WITH SERVOS

- | | | | |
|-----------------------------|------------------------------------|-----------------------------|----------------------------------|
| A. <input type="checkbox"/> | Transmitter | D. <input type="checkbox"/> | Receiver Battery Holder |
| B. <input type="checkbox"/> | Receiver | E. <input type="checkbox"/> | Servo Accessories (Not Pictured) |
| C. <input type="checkbox"/> | Two standard servos or mini servos | F. <input type="checkbox"/> | Frequency Flag |



IMPULSE II WITH R/S SET

- | | |
|-----------------------------|---------------------------------------|
| A. <input type="checkbox"/> | Transmitter |
| B. <input type="checkbox"/> | One Receiver/Speed Control Servo Unit |
| C. <input type="checkbox"/> | Frequency Flag (Not Pictured) |



IMPULSE II FEATURES

The Kyosho Impulse II is a very advanced system for controlling R/C models. The transmitter comes with servo-reversing switches allowing the servo rotation to be changed with the flip of a switch. The receiver comes with BEC. This allows electric cars and boats to be run without the need of a receiver battery.

STANDARD RADIO SYSTEM

Receiver
Battery
Holder

Lightweight
Receiver

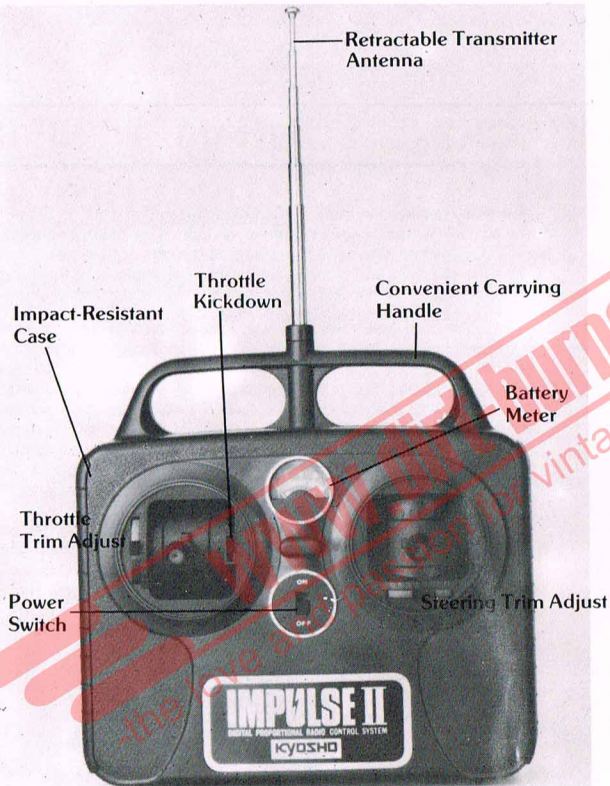
Receiver
Switch

Strong,
Lightweight Servos

MINI R/S SET

Receiver/
Speed Control

Servo



BATTERY INSTALLATION

The Impulse II is designed to run with eight "AA" size batteries in the transmitter and four "AA" size batteries or BEC connection to the receiver. The R/S unit operates from the 7.2V car battery. We recommend that you only use the ALKALINE type battery. These are a little more expensive, but last much longer than the standard type and are actually cheaper to use in the long run. You can also purchase Kyosho rechargeable batteries and a charger to convert your Impulse II to fully-rechargeable operation. (See Back Cover for more information.)



Make sure the batteries are installed properly.

Installing the batteries.

1. Make sure that both the transmitter and the receiver switches are in their "OFF" positions.
2. Place your thumb on the marks on the back of the transmitter and gently push the battery cover toward the bottom of the transmitter until it snaps and opens. Slide the cover all the way off and put it somewhere so you don't lose it.
3. Load eight "AA" alkaline batteries into the transmitter paying close attention to the markings on the holder as a guide to which way to place batteries. Remember, the (+) end of the battery has a "bump" on it, the (-) end is flat.
4. Replace the battery cover by placing the cover over the battery holder and pushing toward the top until the cover snaps in place. If you turn on the transmitter and the meter does not move, the batteries may not be installed correctly.
5. If using the receiver battery holder, place four "AA" batteries in the battery holder, again, paying close attention to the guide printed in the holder that shows which way to put (+) and (-). It is a good idea to wrap the battery holder with rubber bands or even cellophane tape to make sure the batteries don't pop out.

BEC INSTALLATION

If using the R/S unit turn to page 6.

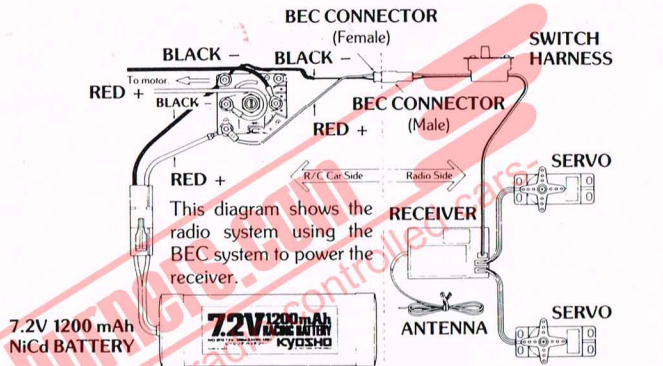
What is BEC? BEC stands for Battery Eliminator Circuitry, which is exactly what it sounds like, a circuit that eliminates the need for a receiver battery.

The actual BEC circuitry lies within the receiver of your radio, not in your car/buggy. Some car/buggies have circuits that do eliminate the need for a receiver battery. But most cars labeled "BEC EQUIPPED" simply include a BEC type connector that your radio's switch harness plugs into.

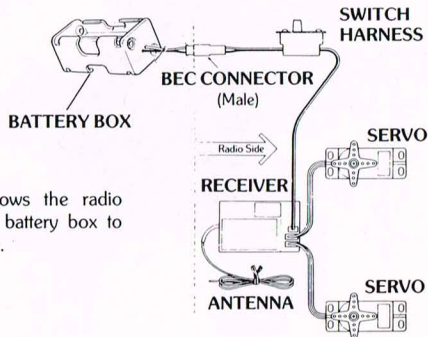
The basic difference between the two is how much voltage goes to the receiver. A BEC type receiver can accept an input voltage of 7.2V and higher, depending on the state of charge of the 6-cell battery, which is where the receiver and servos get their power. Your radio's switch harness has a BEC connector attached.

If the BEC connector is not already installed on the speed control, proper care should be taken when installing it. The polarity of the wires is very important and special attention should be given to get it correct. Remember to always connect Red (+) to Red (+) and Black (-) to Black (-). (Negative sides are not always black, sometimes they are white or other colors.) The BEC wires should be soldered on, where the battery wires go into the speed control.

Note, if polarity is reversed, even for an instant, permanent damage to your receiver could result. BE CAREFUL.



If your car kit does not come with a female BEC connector on the speed control, one can be purchased from your local hobby dealer.



TRANSMITTER ADJUSTMENTS

Transmitter Adjustments

The Impulse II transmitter has been designed with your convenience in mind. You can control many aspects of the operation of your R/C system directly from the transmitter.

Trims-These are the small lever adjustments directly beside the two transmitter sticks. They fine-tune the centering position of the servo. Use them to correct small steering and speed control centering problems.

Left Stick Neutral Lever

The neutral position of the left stick (throttle stick) is adjusted by the small lever to the right of the stick. The adjustments are shown below.

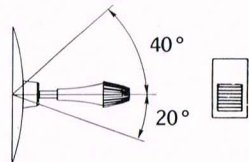
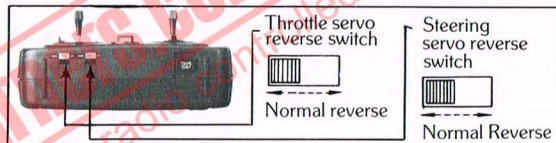


If the neutral lever is moved, the neutral position of the stick lever can be adjusted in two steps as shown in the figure.

When the neutral lever is up, the throttle stick can be adjusted to a total of 60°, 30° up and 30° down, from the neutral position. This position is best for airplanes, electric cars, and other models with which the center of the speed controller is the neutral position.

Standard Adjustments

Servo Reversing-These switches are found on the bottom of the transmitter. They reverse the direction of rotation of the servo wheels. You may install control rods to either side of the servo wheels or arms without regard to direction. If the movement turns out to be backwards, you may reverse it with these switches.



When the neutral lever is down, the throttle stick can be adjusted to a total of 60°, 40° up and 20° down (2-to-1), from the neutral position. This position is best for engine-drive cars or other models with which the speed controller neutral position is offset.

OPERATIONAL CHECK

If using the Mini R/S Set for the motorcycle, turn to Page 9 and 10. If using the Mini R/S Set for the mini cars, turn to Page 11 and 12.

An operational check of your complete radio system prior to installation is a must. This check will locate possibly defective components BEFORE they are installed into your model.

Gently plug the switch harness and servo connectors into the proper receptacles on the receiver. The connectors are polarized and will fit only one way (the ridges on the connectors and the receptacles line up with each other). If they do not plug in easily, turn them around and try again. (DO NOT FORCE). Install the 8 "AA" size dry-cell alkaline batteries into the battery holders as shown on Page 4.

Unravel the receiver antenna wire and turn on the transmitter, then turn on the receiver switch. The servos may move a little bit at this point, but this is normal. Check to see if the battery meter needle moves into the green section, and if it did, continue. If it did not move, recheck your installation of the batteries. You should be able to move the servos' arms using the transmitter control sticks. Notice how the servos move. They should move the same amount as you move the sticks. Also notice the direction of rotation of the servos, then switch the servo reversing switches on the bottom of the transmitter (see Page 6) and see if the rotation of the servos change. They should rotate in the opposite direction as before.

Decide whether your radio is in proper working order. If you decide that it is defective, check the warranty procedures described on Page 14.

When turning off the system always turn off the receiver first then the transmitter. This will prevent the receiver from responding to stray signals which can cause the servos to act erratically and move to the extreme of their rotation which can cause damage.



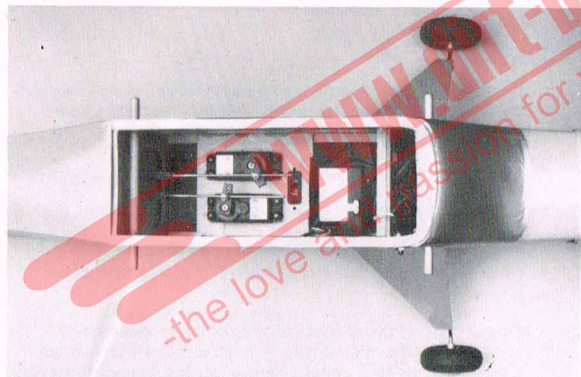
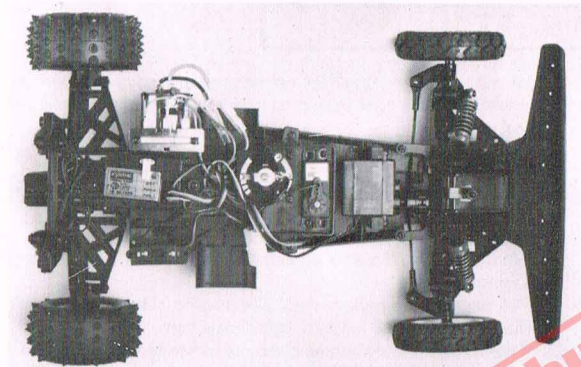
INSTALLATION

While we cannot cover the installations for each model, there are a few basic principles which apply in most cases. Refer to your model's instructions for more specific information on servo/receiver location, control rod length & shape etc.

SERVO LINKAGES: When installing your servos in your model make sure that the servos are not binding or "stalling". Stalling a servo increases the current drain from the battery and may cause permanent damage to the servo. Be certain that the holes in the servo arms and control arms are not larger than the control rod diameter. If the hole is larger, "slop" will occur in the control assembly. This slop will magnify the vibrations and the model will not perform properly. This slop can also cause permanent servo damage. Install your control rods to produce the maximum freedom of movement possible with the minimum amount of slop and friction.

RECEIVER: Wrap the receiver in foam rubber or a material with the same type of qualities. If this precaution is not taken, vibration will take its toll on the radio components (especially the receiver). Water, dust and dirt will also cause damage to the components. The receiver should be placed into a plastic bag to prevent dirt and water from getting to the receiver. Before sealing the bag re-check the operation of the system, then close the open end of the bag securely around the servo leads and the antenna, a rubber band or electrical tie works well for this.

SWITCH HARNESS: Should be installed as described in the instructions supplied with your model. Your instructions may ask you to modify your switch harness to allow it to be used with a "BEC" type circuitry, such a modification will not damage your radio if the instructions are followed carefully and correctly. But any damage caused by an incorrectly installed BEC circuit is not covered under warranty.



R/S UNIT FOR MOTORCYCLE

OPERATIONAL CHECK AND ADJUSTMENT

An operational check of your complete radio system prior to installation is a must. This check will locate possibly defective components **BEFORE** they are installed into your model.

Gently connect the red NiCd battery connector to a 7.2V-270mAh battery. The connector is polarized and will fit only one way. If it doesn't plug in easily, turn them around and try again. (**DO NOT FORCE**). Install the 8 "AA" size dry-cell alkaline batteries into the battery holder as shown on Page 4. Plug the NiCd battery into the battery connector on the R/S unit.

STEERING ADJUSTMENT

Unravel the receiver antenna wire and turn on the transmitter, then turn on the receiver switch. The servo may move a little bit at this point, but this is normal, check to see if the battery meter needle on the transmitter moves into the green section; and if it does, continue. If it did not move, recheck your battery installation. By moving the right stick on the transmitter the arm on the servo should move. The arm should move the same amount as you move the stick. Also notice the direction of rotation of the servo arm, then switch the reversing switch (see Page 6) and see if the rotation of the servo arm changes. It should rotate in the opposite direction as before.

To adjust the steering, set the steering trim lever in the neutral position. Follow the motorcycle instructions for proper position of the steering servo arm. Remove the screw holding the servo arm and set the arm in the proper position, then re-install the screw.

SPEED CONTROL ADJUSTMENT

To check the speed control/receiver. Adjust the throttle neutral trim screw until the brake light goes out. Connect the yellow motor connector to the connector from the motor. If adjusted properly the motor should not be running. If it is, adjust the throttle neutral trim until the motor stops. Push the left stick up on the transmitter and the

motor will run. By pulling back on the stick the motor will stop and the brake indicator light should be glowing on the receiver/speed control unit.

INSTALLATION

1. Install the radio system following the instructions that came with your kit.
2. Raise the back wheels off of the ground.
3. When you push the stick up the wheels should spin clockwise or forward.
4. Pull back on the stick to the brake position. The wheels should stop and the reverse indicator light should come on.
5. If the wheels spin the wrong direction, switch the reversing switch on the transmitter and the re-adjust the receiver/speed control.
6. If the steering is reversed, switch the reversing switch on the transmitter.

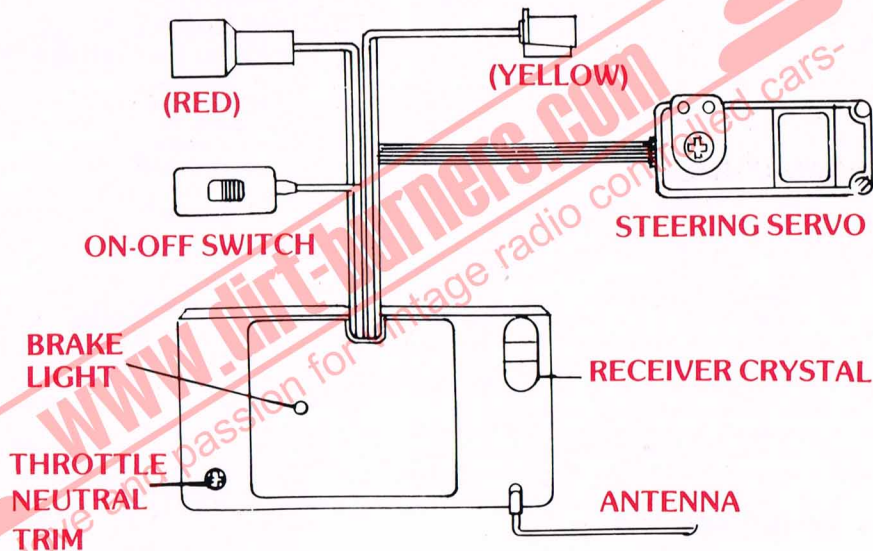
CAUTION

- If the rotation of the motor needs to be reversed, switch the wires on the motor. Do not reverse the polarity of the battery connector. Damage to the R/S unit may result.
- After running the mini vehicle always unplug the NiCd battery.
- Be careful that the polarity is not reversed when plugging the NiCd battery into the R/S unit.
- Do not allow the R/S unit to get wet. Water will damage the R/S unit.
- Do not connect the R/S unit to a motor larger than what is suggested for the mini vehicle. A larger motor will draw more current than the R/S unit can handle causing damage to the R/S unit.

WIRING DIAGRAM FOR MOTORCYCLE R/S SET

NiCd BATTERY CONNECTOR

MOTOR CONNECTOR



R/S UNIT FOR MINI CAR

OPERATIONAL CHECK AND ADJUSTMENT

An operational check of your complete radio system prior to installation is a must. This check will locate possibly defective components **BEFORE** they are installed into your model.

Gently connect the red NiCd battery connector to a 7.2V-270mAh battery. The connector is polarized and will fit only one way. If it doesn't plug in easily, turn them around and try again. (**DO NOT FORCE**). Install the 8 "AA" size dry-cell alkaline batteries into the battery holder as shown on Page 4. Plug the NiCd battery into the battery connector on the R/S unit.

STEERING ADJUSTMENT

Unravel the receiver antenna wire and turn on the transmitter, then turn on the receiver switch. The servo may move a little bit at this point, but this is normal, check to see if the battery meter needle on the transmitter moves into the green section; and if it does, continue. If it did not move, recheck your battery installation. By moving the right stick on the transmitter the arm on the servo should move. The arm should move the same amount as you move the stick. Also notice the direction of rotation of the servo arm, then switch the reversing switch (see Page 6) and see if the rotation of the servo arm changes. It should rotate in the opposite direction as before.

To adjust the steering, set the steering trim lever in the neutral position. Follow the mini car instructions for proper position of the steering servo arm. Remove the screw holding the servo arm and set the arm in the proper position, then re-install the screw.

SPEED CONTROL ADJUSTMENT

To check the speed control/receiver. Adjust the throttle neutral trim screw until the reverse light goes out. Connect the yellow motor connector to the connector from the motor. If adjusted properly the motor should not be running. If it is, adjust the throttle neutral trim

until the motor stops. Push the left stick up on the transmitter and the motor will run. By pulling down on the left stick the motor will run in reverse and the reverse indicator light should be glowing on the receiver/speed control unit.

INSTALLATION

1. Install the radio system following the instructions that came with your kit.
2. Raise the back wheels off of the ground.
3. When pushing up on the left stick the wheels should spin clockwise or forward.
4. Pull the stick back to the reverse position. The wheels should stop.
5. If the wheels spin the wrong direction, switch the reversing switch on the transmitter and the re-adjust the receiver/speed control.
6. If the steering is reversed, switch the reversing switch on the transmitter.

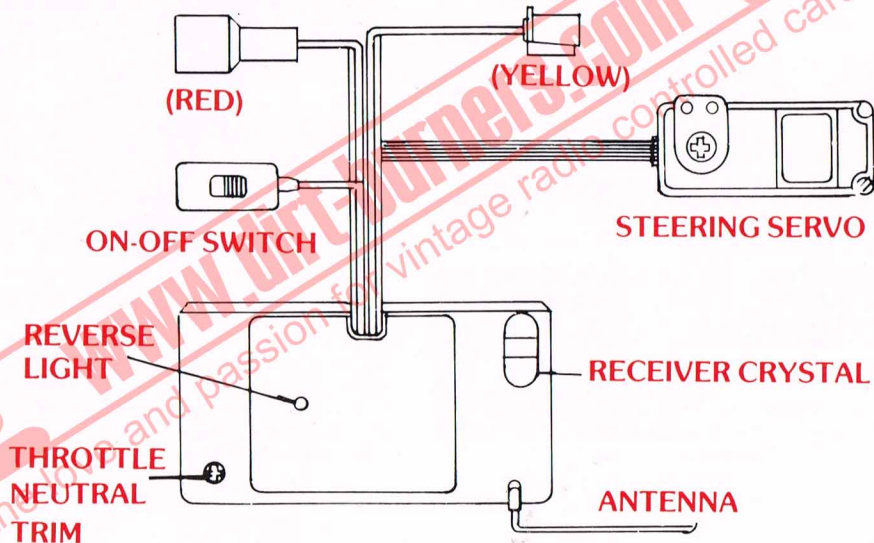
CAUTION

- If the rotation of the motor needs to be reversed, switch the wires on the motor. Do not reverse the polarity of the battery connector. Damage to the R/S unit may result.
- After running the mini vehicle always unplug the NiCd battery.
- Be careful that the polarity is not reversed when plugging the NiCd battery into the R/S unit.
- Do not allow the R/S unit to get wet. Water will damage the R/S unit.
- Do not connect the R/S unit to a motor larger than what is suggested for the mini vehicle. A larger motor will draw more current than the R/S unit can handle causing damage to the R/S unit.

WIRING DIAGRAM FOR MINI CAR R/S SET

NiCd BATTERY CONNECTOR

MOTOR CONNECTOR



WARRANTY

Six Month Limited Warranty

IT IS EXPRESSLY UNDERSTOOD THAT THE STANDARD REPLACEMENT WARRANTY OF THE SELLER, A COPY OF WHICH IS ANNEXED TO AND MADE PART OF THIS AGREEMENT, SHALL BE LIEU OF ANY AND ALL OTHER WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE. THE SOLE RESPONSIBILITY OF THE SELLER SHALL BE IN ITS REPLACEMENT OBLIGATIONS CONTAINED IN THE STANDARD WARRANTY.

Kyosho Impulse II radio control systems are warranted to the original owner to be free of defects in parts or workmanship for a period of six months from the date of purchase. During this time Kyosho's authorized U.S. repair facility, Hobby Services will repair or replace at their option any defective parts without charge.

Limit of our Liability: Our liability under this is limited to the repair or replacement of defect or defective parts by Hobby Services and does not include shipping expense.

Exclusion and/or Voidance of Warranty: This warranty does not apply to damage or defects resulting from misuse, abnormal service, damage in shipment or damage resulting from a crash. The warranty is voided if the system is modified, altered, or repaired by anyone other than Hobby Services. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state within the U.S.

Proof of Date of Purchase: It is the responsibility of the purchaser to show proof of the date of purchase if a system's warranty is to be honored. Your original purchase invoice or receipt will suffice for this. Your Kyosho Impulse II radio control system should be returned directly to Hobby Services for warranty work. The address is: Hobby Services, 1610 Interstate Drive, Champaign, IL 61821. Attn: Warranty Radio Dept.

Please follow steps 1 through 6 on the next page in "Repair Service" when returning a radio to Hobby Services.

We are sorry, but we cannot be responsible for crash damage and/or loss of kits, engines, accessories, etc. In the majority of cases it is very difficult to determine whether crash damage was actually due to radio equipment failure; also, we cannot be responsible for all purchased components that are incorporated in the systems.

REPAIR SERVICE

Should your Impulse II radio system be past the six month warranty period, or should your set be voided or excluded from warranty coverage, repairs are available for a nominal cost through Kyosho's authorized U.S. repair facility, Hobby Services. Since we want you to be happy with your purchase for a long time, Hobby Services employs a full time in-house service staff. They have the professional knowledge, sophisticated equipment and parts availability to service your system for years to come. When returning your Impulse II radio, whether for warranty or repair service, please be sure to follow these instructions listed below. This will help the technician troubleshoot the system, repair it, and return it to you as quickly as possible.

- 1) Under all circumstances, return the ENTIRE system in the original foam container and box.
- 2) Separate your system from the installation (do not send receiver wrapped in foam, servos in trays, etc.)

- 3) It is not necessary to send the system back with dry cell batteries installed. If your system has NiCd batteries installed be sure they are fully charged before returning.
- 4) Disconnect the receiver battery switch harness and make sure the transmitter is turned off.
- 5) Send written instructions which include: serial number of the set, proof of purchase date (your store receipt or purchase invoice), a list of all items returned, and a THOROUGH explanation of the problem and the service needed.
- 6) Your full return address.

Repair charges and postage may be prepaid or billed COD. Additional postage charges will be applied for non-warranty returns. All repairs shipped outside the United States must be prepaid in U.S. funds only.

Send your system needing repairs to:

Hobby Services
1610 Interstate Drive
Champaign, IL 61821
Attn: Radio Repair

PARTS & ACCESSORIES

A complete line of replacement parts and accessories is available from your hobby retailer for your Kyosho Impulse II Radio control system. When inquiring about these items, refer to the stock numbers shown directly to the left of the items listed below.

KYOM1020	KS-91 Servo	KYOM5500	KS-91 Servo Case Set
KYOM1100	KS-30 Mini Servo	KYOM5600	KS-91 Servo Gear Set
KYOM1000	KS-88 Servo	KYOM9100	TX Antenna
KYOM7100	Servo Extension Cable (8 Inches long approx.)	KYOL95**	Frequency Flag Set
KYOM7200	Servo "Y" Harness	KYOM5000	AC NiCd Charger
KYOM6500	Servo Accessory Pack (Horn, Mtg. Screws, Grommets, Horn Screw)	KYOM4800	RX NiCd Battery Pack
KYOM6400	KS-88 Servo Gear Set	KYOM7500	NiCd Switch Harness (w/Charge Jack)
KYOM6300	KS-88 Servo Case Set	KYOM4850	BEC Rx Battery Box
KYOM4950	2CH BEC Receiver Case	KYOM4870	BEC Rx Switch Harness
KYOL35**	2CH BEC Receiver		
KYOL50**	Crystal Set (For transmitter and receiver)		
KYOL32**	R/S Set for Mini Car		
KYOL33**	R/S Set for Motorcycle		

**Replace these two numbers in the stock number with the CHANNEL NUMBER of the frequency desired.

KYOSHO®