Precision Balanced

KYOSHO® PULSAR

Pro-2000 and EXP-2001 Models
Digital Proportional Radio Control System
2 Channel, 2 Servos with Accessories

- Precision Balanced Transmitter
- Reversible Wheel Assembly
- Strong Servos and Lightweight Receiver
- Additional Components and Accessories Available

Introduction

Thank you for purchasing the Kyosho Pulsar radio system. We feel that the Pulsar is one of the finest 2-channel radio systems available. The Pulsar uses some of the latest R/C electronics technology for excellent performance and is very high in quality. Whether you have the basic PRO-2000 or the highly advanced EXP-2001, you can be sure that your new Pulsar is one of the best radios you can buy. Everything about the Pulsar has been designed with you, the model enthusiast, in mind. The popular, pistol-style transmitter has been Precision Balanced (an exclusive Kyosho design) for super-comfort making it especially well-suited for competition. All of the controls are logically placed – the ones you need while running are easy to get at, while those that you don't want to upset are safely out of the way. Even the on-board components have been carefully designed especially for model car and boat use. Congratulations on choosing the Pulsar, we are sure that it will serve you well!

Please take your time and read through this instruction manual carefully before you install the Pulsar 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 these instructions closely whether you are a beginner or an expert.

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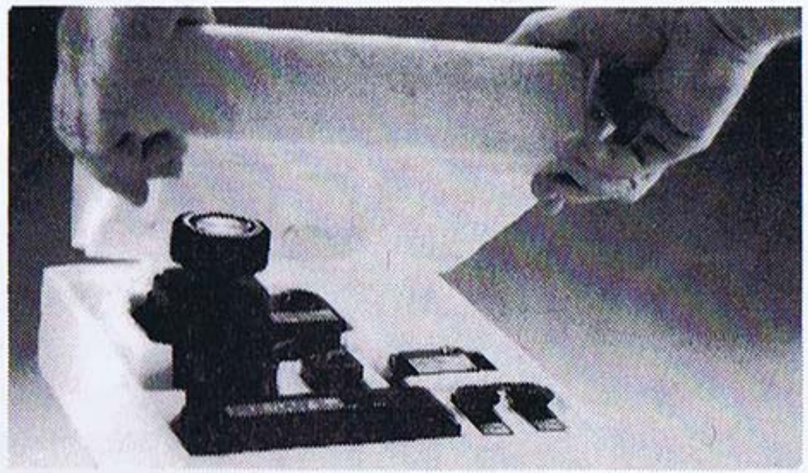


UNPACKING YOUR PULSAR

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

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

PULSAR CHECKLIST

A. ☐ Transmitter

B. ☐ Receiver

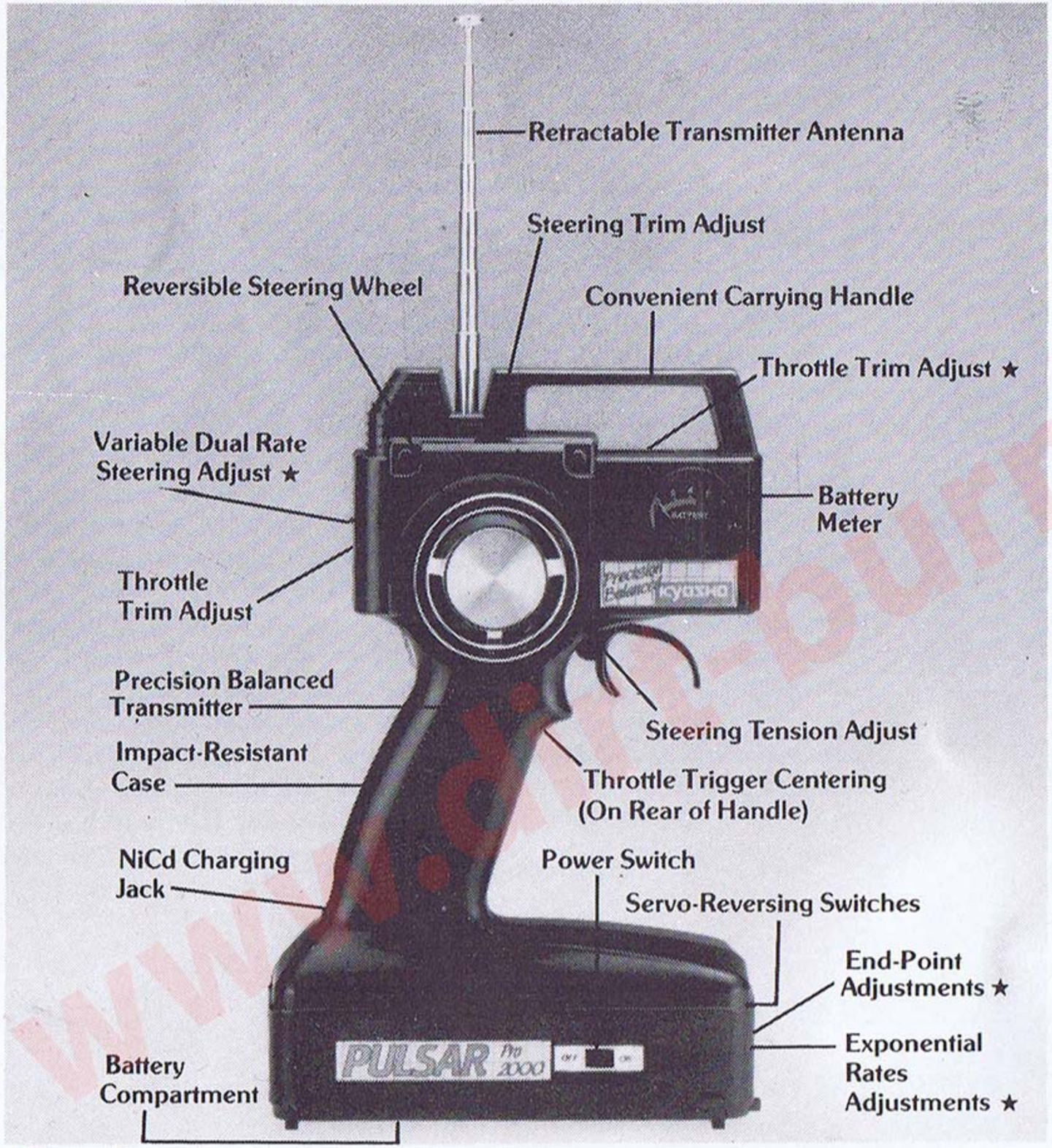
C. ☐ Two servos

D. ☐ Receiver battery holder

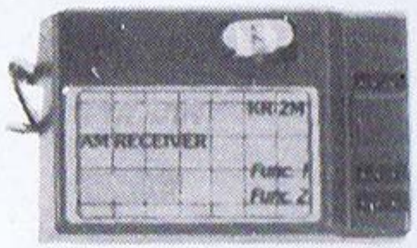
E. ☐ Servo Accessories (Not Pictured)

PULSAR FEATURES

The Kyosho Pulsar is a very advanced system for controlling R/C models. Even the basic PRO-2000 has many features found only in very expensive radio sets. Our advanced model, the EXP-2001 is "loaded" with additional features especially designed for competition. We have labeled those EXP-2001 features that are not included on the PRO-2000 with a star, like this ★.



Lightweight Receiver



Strong, Lightweight Servos

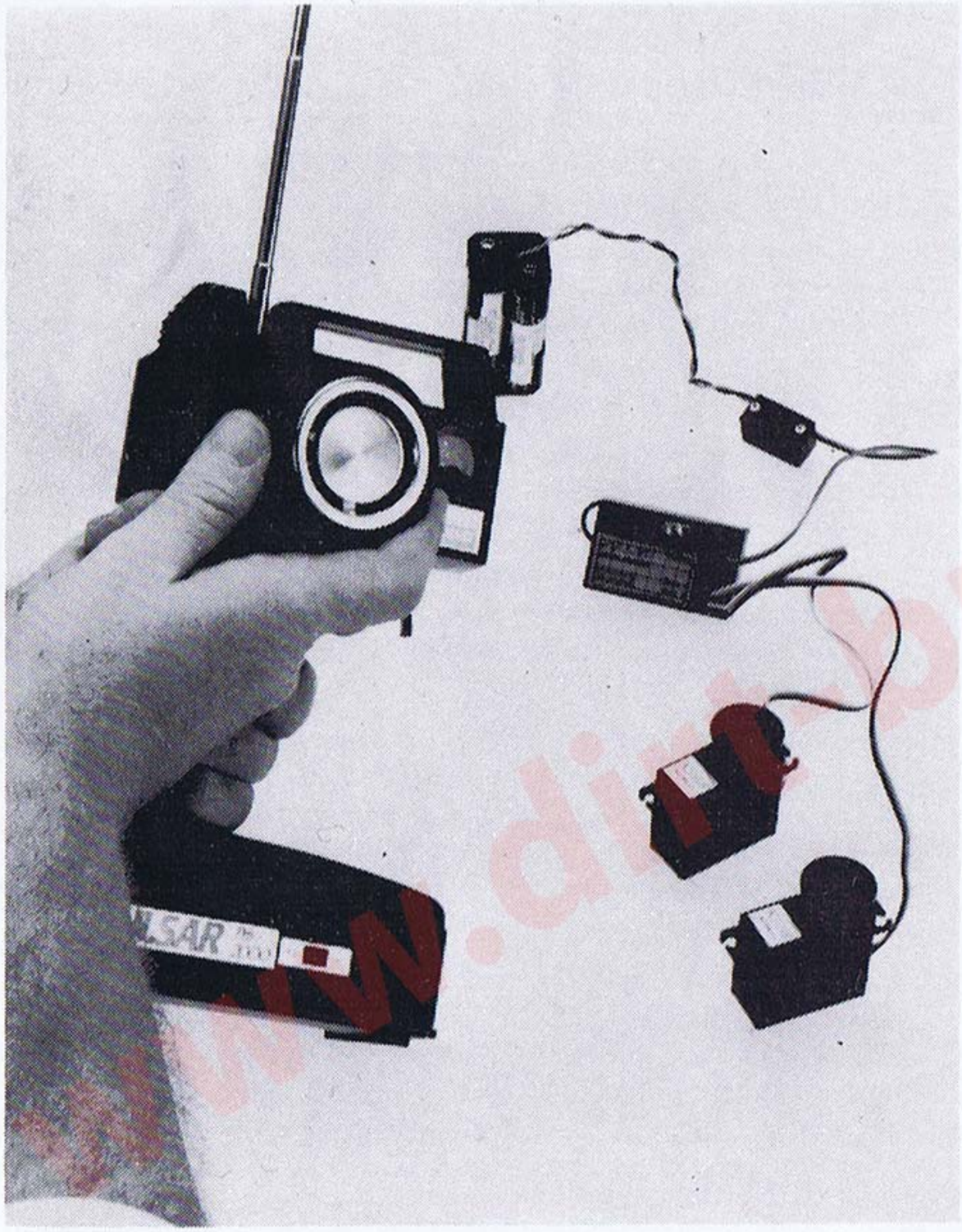
BATTERY INSTALLATION

The Pulsar is designed to run with eight "AA" size batteries in the transmitter and four "AA" size batteries in the receiver. We recommend that you only use the ALKALINE type. 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 Pulsar to fully-rechargeable operation. (See Back Cover for more information.)

Make sure the battery holder is 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 bottom of the transmitter and gently push the battery cover toward the front 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. Remove the battery holder by pulling the small ribbon until the holder pops out slightly. Notice how it is installed in the transmitter—this is the same way that you will put it back in. Take the holder out the rest of the way with your fingers.
4. Load eight "AA" alkaline batteries into the battery holder paying close attention to the markings on the holder as a guide to which way to place the batteries. Remember, the ⊕ end of the battery has a "bump" on it, the ⊖ end is flat.
5. Pull on the ribbon so that it will not get lost under the battery holder and place the holder back into the space provided in the bottom of the transmitter. Pay very close attention to line up the two battery terminals (which stick out of the holder) with the tabs on the inside of the transmitter. If you turn on the transmitter and the meter does not move, the batteries and/or the holder is not installed correctly.
6. Place four "AA" batteries in the receiver 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.



OPERATIONAL CHECK

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 12 "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 wheel and trigger. Notice how the servos move. They should move the same amount as you move the wheel or trigger. Also notice the direction of rotation of the servos, then switch the servo reversing switches (see Page 7) and see if the rotation of the servos change. They should rotate in the opposite direction as before.

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.

REVERSING THE STEERING WHEEL

The Pulsar is shipped from our factory with the steering wheel on the right side of the transmitter. This is where most right-handed people prefer it. One out of ten people in the U.S. population is left-handed. This is why we designed the Pulsar so that the location of the wheel could be reversed very easily. It does not matter if you are right-handed, or a "lefty" – the Pulsar is a perfect fit!

How to change the steering wheel.

1. Turn the power switch **OFF.**
2. Using a medium-size Phillips screw driver, remove the four small screws holding the backplate on – then remove the backplate. Put the parts in a safe place, so you don't lose them.
3. Turn the transmitter over and carefully remove only the four long screws that hold the steering wheel assembly onto the transmitter but DO NOT remove the assembly. (See Figure A.)
4. Be very careful! The steering wheel assembly is connected to the transmitter with wires which will break if you tug too hard! Slowly lift the front plate away from the transmitter and unplug the connector from the steering assembly (See Figure B). Move the steering assembly to the left side of the transmitter and carefully plug the transmitter connector back into the steering assembly. Note that the connector will not go in the wrong way, so do not force it! (See Figure C).
5. Attach the steering assembly using the four long screws to the left side of the transmitter (See Figure D). Install the backplate to the right side of the transmitter using the four short screws.

That's it! If you later find that the steering control does not work properly, it is probably because the connector is plugged in wrong . . . go back and check it.

Fig. A

Fig. B

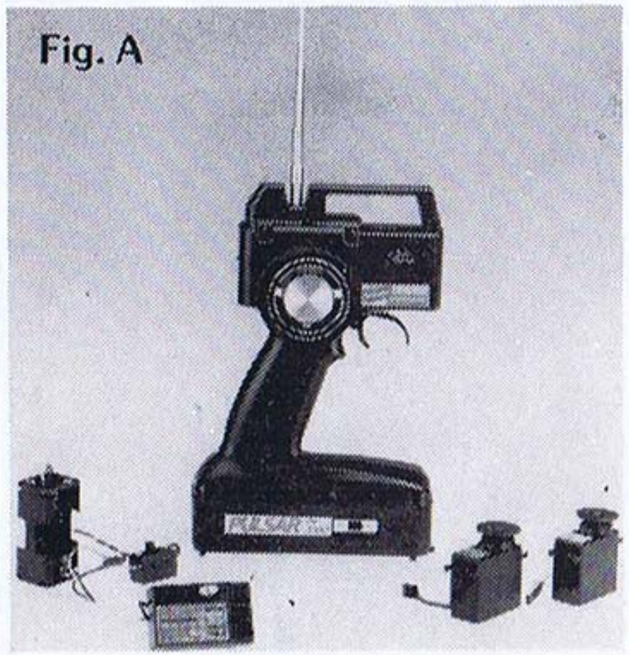
Fig. C

Fig. D

TRANSMITTER ADJUSTMENTS

Transmitter Adjustments

The Pulsar 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 – no more manual linkage modifications right before the big race!



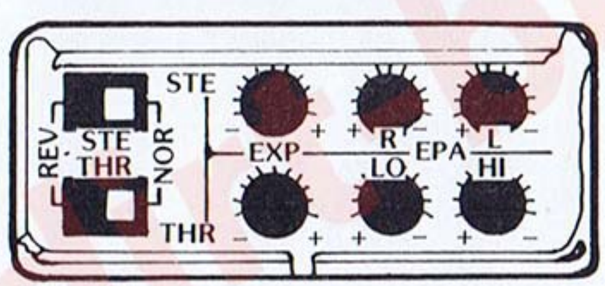


Fig. C

Standard Adjustments

Servo Reversing – These switches are found at the end of the base of the transmitter (see Fig. B for the PRO-2000 and Fig. C for the EXP-2001). 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.

Trims – These are the small thumb-wheel adjustments directly above the steering wheel and on the rear of the transmitter. They fine-tune the centering position of the servo. Use them to correct small steering and speed control centering problems.

Adjustable Steering Tension – The steering tension spring screw, found just under the base of the steering wheel assembly, can be adjusted by using a small Phillips screwdriver. Turn the screw clockwise to tighten and counter-clockwise to loosen the feel of the steering wheel.

Special Adjustments (for EXP-2001 only)

Note that when turning the small, round screw adjustments on the front panel of the EXP-2001 (see Fig. C) be careful not to strip the heads. It is recommended that you use a plastic screw driver to make the adjustments if at all possible.

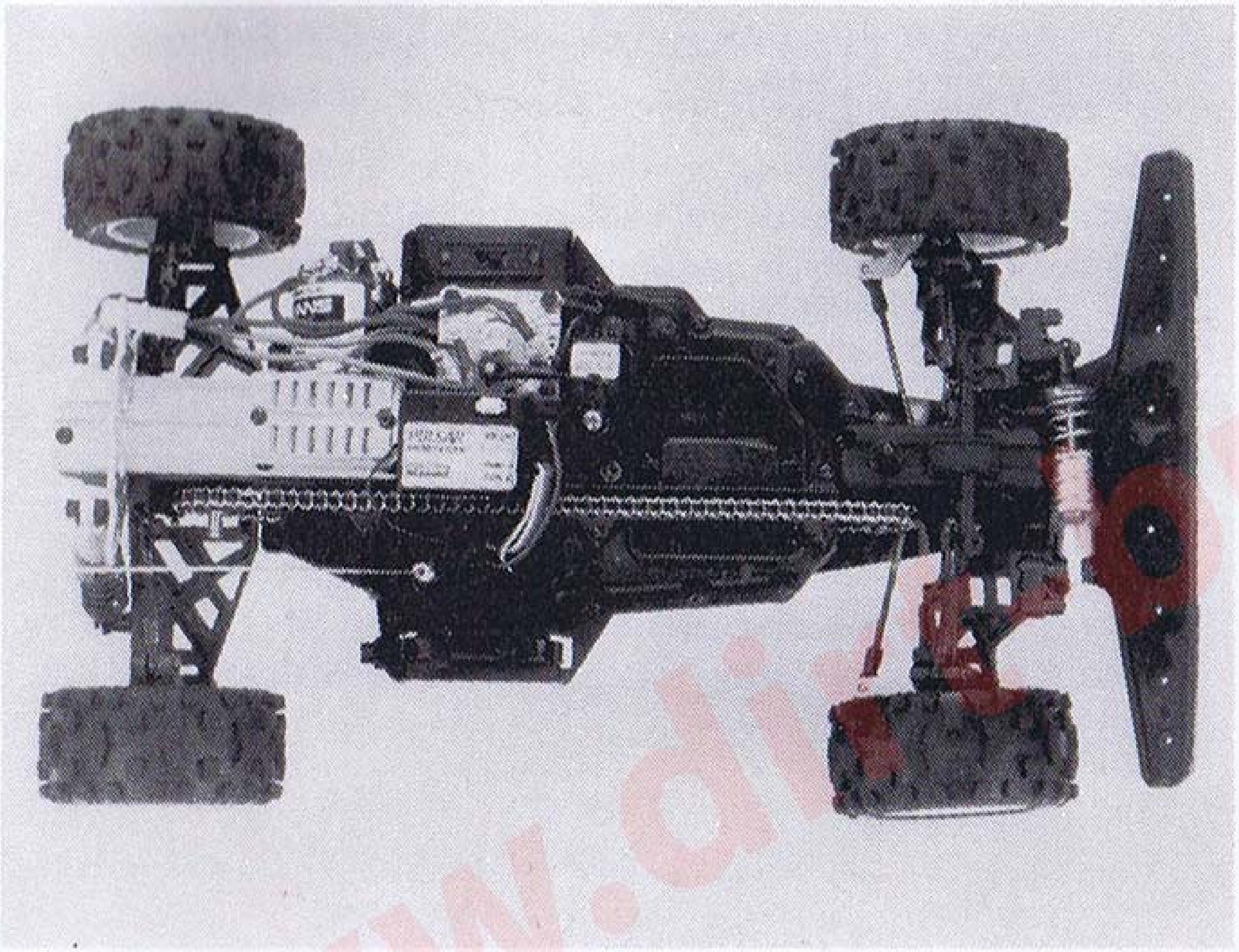
End Point Adjustment (EPA) – These adjustments are found on the end of the base of the transmitter (see Fig. C). EPA allows you to set the end point of the servos' travel in either direction. The servo travel on the EXP-2001 can actually be reduced up to 50% of the normal full range of travel in either direction.

Variable Dual Rate Steering – The steering channel of the EXP-2001 is fitted with a special adjustment that allows you to vary how sensitive the servo is to the steering wheel's control. This variable dual rate is located on the rear of the transmitter (your thumb should comfortably reach it) and is continuously adjustable even while running your model. Choose "lower" sensitivity (thumbwheel toward the upward position) for high-speed straight-aways or a "higher" sensitivity (thumbwheel towards the lower position) for lower-speed tracks or turns.

Exponential Rates – Normally as you move one of the controls on your transmitter, the servo will respond in direct proportion to your control movements. For example, move the steering wheel 1/2 of the way right or left and the servo will move 1/2 of its normal movement. Move the wheel 3/4, and the servo will move 3/4. While this is fine for most functions, there are times when you might want the servo to be less responsive near its neutral position and more responsive near the end of its travel. Steering is one good example. When your car is at full speed in the straightaways, you will want minimal response from your servo since the vehicle is very sensitive at high speeds. But while turning, full servo response is needed. Exponential rates take care of this problem by giving more servo response the farther from neutral you go.

Exponential control makes the servo much more sensitive towards the ends of its control movements. The amount of exponential "influence" can be adjusted on the front panel from full EXP to none at all on both steering and throttle channels. Please note that if you are using the EXP-2001 on a gas-powered model, set the throttle trigger at the normal 35% setting. This will allow the throttle to work correctly in relation to the carburetor.

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.

REPAIR SERVICE

When returning your Pulsar radio for 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, a list of all items returned, and a THOROUGH explanation of the problem and the service needed.

6) Your full return address.

Send your system needing repairs to:

Parts & Accessories

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

KYOM1000	KS-88 Servo
KYOM7100	Servo Extension Cable (8 Inches long approx.)
KYOM7200	Servo "Y" Harness
KYOM6500	Servo Accessory Pack (Horns, Mtg. Screws, Grommets, Horn Screw)
KYOM6400	Servo Gear Set (For KS-88 servo)
KYOM6300	Servo Case Set (For KS-88 servo complete w/decals)
KYOL3000	Receiver (Complete w/decals)
KYOM4910	Receiver Case (Complete w/decals)
KYOM4900	Battery Box w/Switch (For dry cells)
KYOM9000	TX Antenna
KYOM9400	Rubber Wheel (For steering wheel)
KYOM9410	TX Battery Cover
KYOM9420	TX Battery Case
KYOM7000	BEC Adapter (For R/C cars with BEC)
KYOM4700	TX NiCd Battery Pack
KYOM4800	RX NiCd Battery Pack
KYOM7500	NiCd Switch Harness (w/Charge Jack)

..... Crystal Set

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All specifications and availability are subject to change without notice.

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