

RADIO CONTROLLED ELECTRIC POWERED SPECIAL RACING BUGGY

# OFF-ROAD RACER

# RAIDER 2WD™

- LONG SUSPENSION TRAVEL FOR TOP HANDLING ON EVEN THE ROUGHEST TRACKS.
- QUICK, EASY ASSEMBLY AND ADJUSTMENT FOR TOP PERFORMANCE WITHOUT THE HASSLE.
- LEMANS "STOCK 05" AND SPEED CONTROL INCLUDED.
- PRECISION NYLON GEARS ENCLOSED IN A DUST-PROTECTED GEAR BOX.
- ADJUSTABLE SHOCK POSITIONING FOR CHASSIS TUNING.
- RELIABLE, QUALITY PARTS MADE FROM SELECTED RESINS.
- AN EXCELLENT ENTRY LEVEL BUGGY WITH NO COMPROMISE IN PERFORMANCE.
- MANY HIGH PERFORMANCE OPTIONAL PARTS ARE AVAILABLE.

**1:10 SCALE**

BATTERY: 7.2V-1200mAh  
RADIO: 2 Ch.  
(NOT INCLUDED)



A WEB SITE

FOR THE SERIOUS RACER

**KYOSHO**  
THE TRUSTED RADIO CONTROL MODELS

®

KIT No. 3184

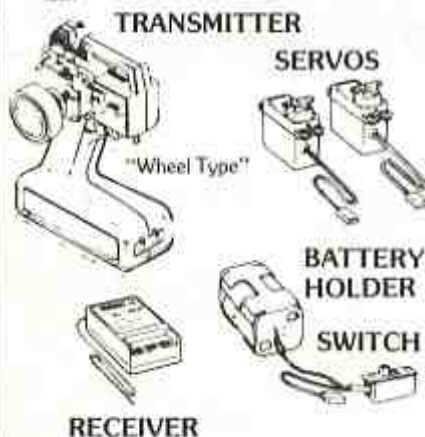
ENTIRE CONTENTS © COPYRIGHT 1988 Hobbico, INC.



# OFF-ROAD RACER **RAIDER 2WD**™

## 2 CHANNEL RADIO SYSTEM

A two channel, two servo radio control system is required for running the Raider. The various components are pictured below.



**Note:** Use only radio frequencies specifically allowed to operate "surface" models such as R/C cars and boats. In the United States those frequencies fall within the "75 MHz" or "27 MHz" bands. Use of any other frequencies is both illegal and dangerous.

## OPTIONAL MOTORS

The Raider comes with a powerful LeMans "Stock 05" motor. If you wish to upgrade the Raider with more power and more speed, use a 480T or 480S or even the 240ST motor. All of these motors will increase the speed and torque but will also decrease the run time. Choose the motor that will best suit your needs. Ask your local dealer for more information.



LeMans 480T      LeMans 480S      LeMans 240ST

## CHECK YOUR RADIO SYSTEM

Follow the instructions that came with your radio system to check out its operation.

You will also need to supply your radio with the proper number of batteries (usually 7 or 8 in the transmitter). The receiver is powered by the 7.2V battery.



## BATTERY PACK

A 6-cell flat configuration 7.2V battery similar to the shape of the batteries shown here is required. The Kyosho #2218B and the Kyosho #2306 are very good choices.



No. 2306 7.2V Power Battery

No. 2218B 7.2V Racing Battery

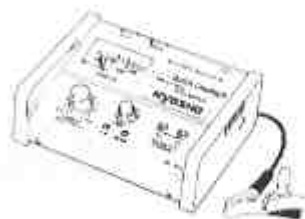
## CHARGER

You'll need a charger to charge your battery. Kyosho offers a few different types designed for 6-cell fast charging, here are two very popular models.

Model	Name	Time	Rate %	Features
No. 2326	7.2V Power Quick Charge (DC 12V)	15 (Min)	70%	For beginners. Built-in timer.
No. 1845	Peak Quick Charger (DC 12V)	20 (Min)	100%	Trickle charging auto-cut off at peak charge.



No. 2326 Power Quick Charger



No. 1845 Peak Charger

## REQUIRED TOOLS

These ARE NOT included with the Raider.



Phillips Screwdriver (L,M,S)



(5.5mm and 7mm) Nut Drivers or Sockets



Pliers



Scissors



Needle Nose Pliers



Cutters



Sharp Hobby Knife



Awl



Paint



Masking Tape



Paint Brush

## IMPORTANT! BEFORE YOU BEGIN

This is a sophisticated model with a large number of moving parts. Before you begin assembly, take a look through the box and these instructions carefully to decide whether or not you are ready for this challenge! If you do not feel that this type of model is for you, it may be returned to the dealer as long as it is NEW and UNUSED. UNDER NO CIRCUMSTANCES CAN YOUR DEALER ACCEPT A KIT FOR RETURN IF ASSEMBLY HAS ALREADY BEGUN! If this is not what you bargained for, then go no further and return this kit to the dealer immediately. BUT, if a little maintenance doesn't bother you and the thrill of high performance driving is for you, then don't hesitate another minute! Read through this entire manual thoroughly to familiarize yourself with the parts and methods of construction used before actually starting to build.

A few different types of screws are used in the construction of your model. Here are some examples of them and how they will be indicated in the instructions. For example, Self Tapping will simply be S/T screw.

## METRIC NUTS AND BOLTS

All nuts and bolts used throughout this kit are metric size. Therefore, some of the notations may not be familiar to you. An M3 nut is a 3 millimeter (3mm) nut. An M3 x 15 screw is 15mm long and 3mm in diameter. Some round parts may be labeled as a "4mm Washer" (this would be a washer with a 4mm inside diameter) or a "3mm Bushing" (a bushing with a 3mm inside diameter).

At various points throughout the manual these parts are labeled and pictured in their actual size on the left hand side of the page. For your reference, 1 millimeter equals approximately .039 inches.

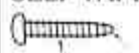


M3 x 15 SCREW

4mm WASHER

FLAT HEAD SCREW (F/H)

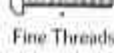
## SELF TAPPING (S/T) SCREW



Coarse Threads

Has a tapered end.

## SCREW



Fine Threads

If it is an ordinary screw it will be marked "screw"



Wide

Small

**KYOSHO**®

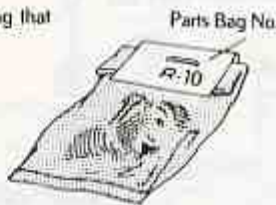
© ENTIRE CONTENTS  
COPYRIGHT 1988 HOBBICO, INC.



Assembly of the Raider is easier if you have the general idea of the steps beforehand by reading the instructions completely.

**GREASE:** Points where grease should be applied. (Grease will reduce friction and assure smooth operation).

Under the parts name, the bag that the part is in will be given.



Example: ⑩ KING PIN (R-10)

## SUGGESTED EXTRA READING



The Kyosho R/C Car Handbook contains a wealth of great information about R/C cars. Tricks and tips as well as information about racing is included in this very helpful guide. Priced at only \$1.00 this could be the best car accessory you will buy!

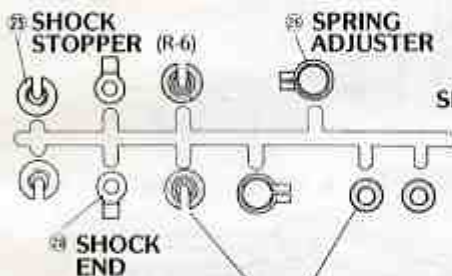
## 1 ASSEMBLY OF THE SHOCKS

(ASSEMBLE STEPS ● ● IN SEQUENCE)

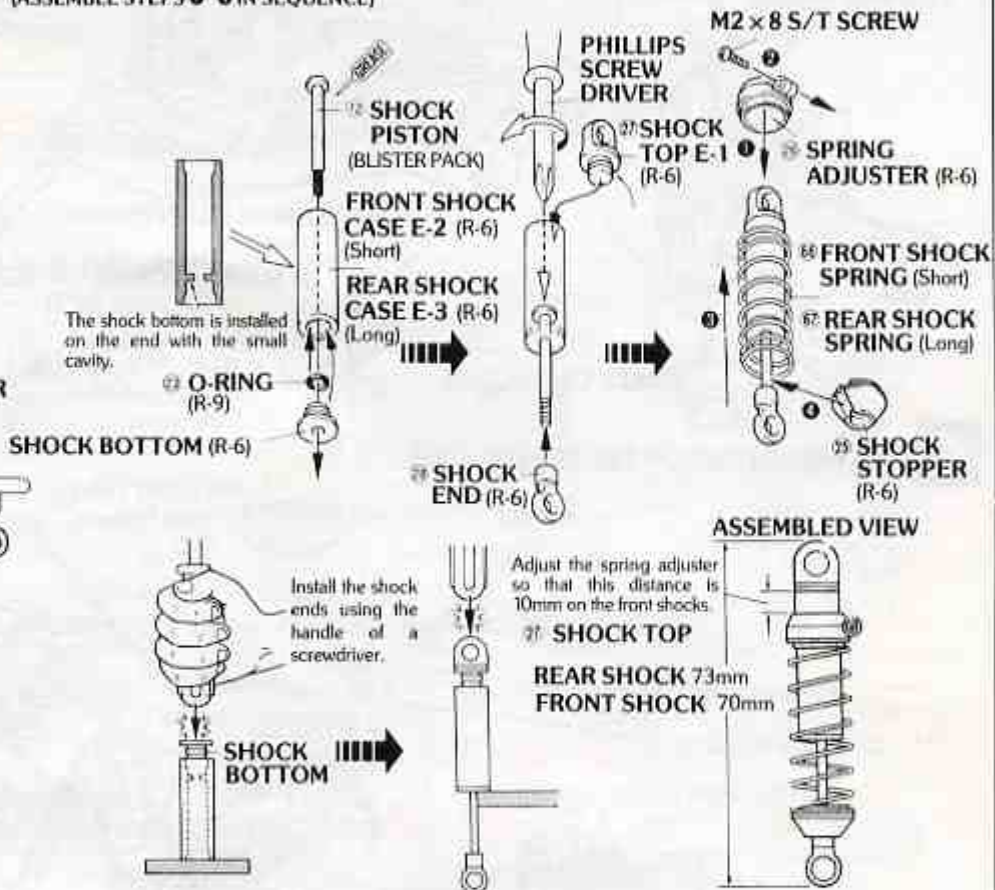
M2 x 8 S/T SCREW . . . . .4



3mm O-RING . . . . .4



These parts will not be used.



## 2 ASSEMBLY OF FRONT SUSPENSION ARMS

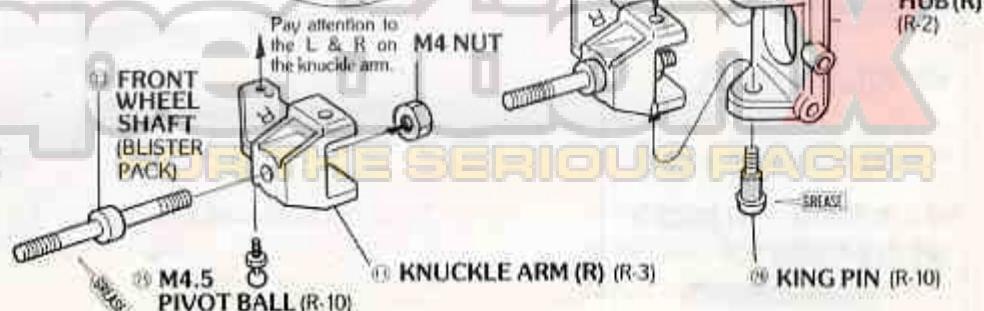
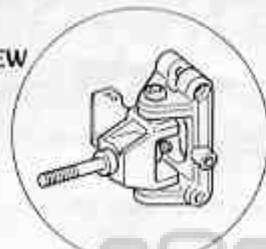
⑩ KING PIN . . . . .4

⑪ M4.5 PIVOT BALL . . . . .2

M4 NUT . . . . .2

• Assemble the left side in the same manner.

ASSEMBLED VIEW RIGHT SIDE

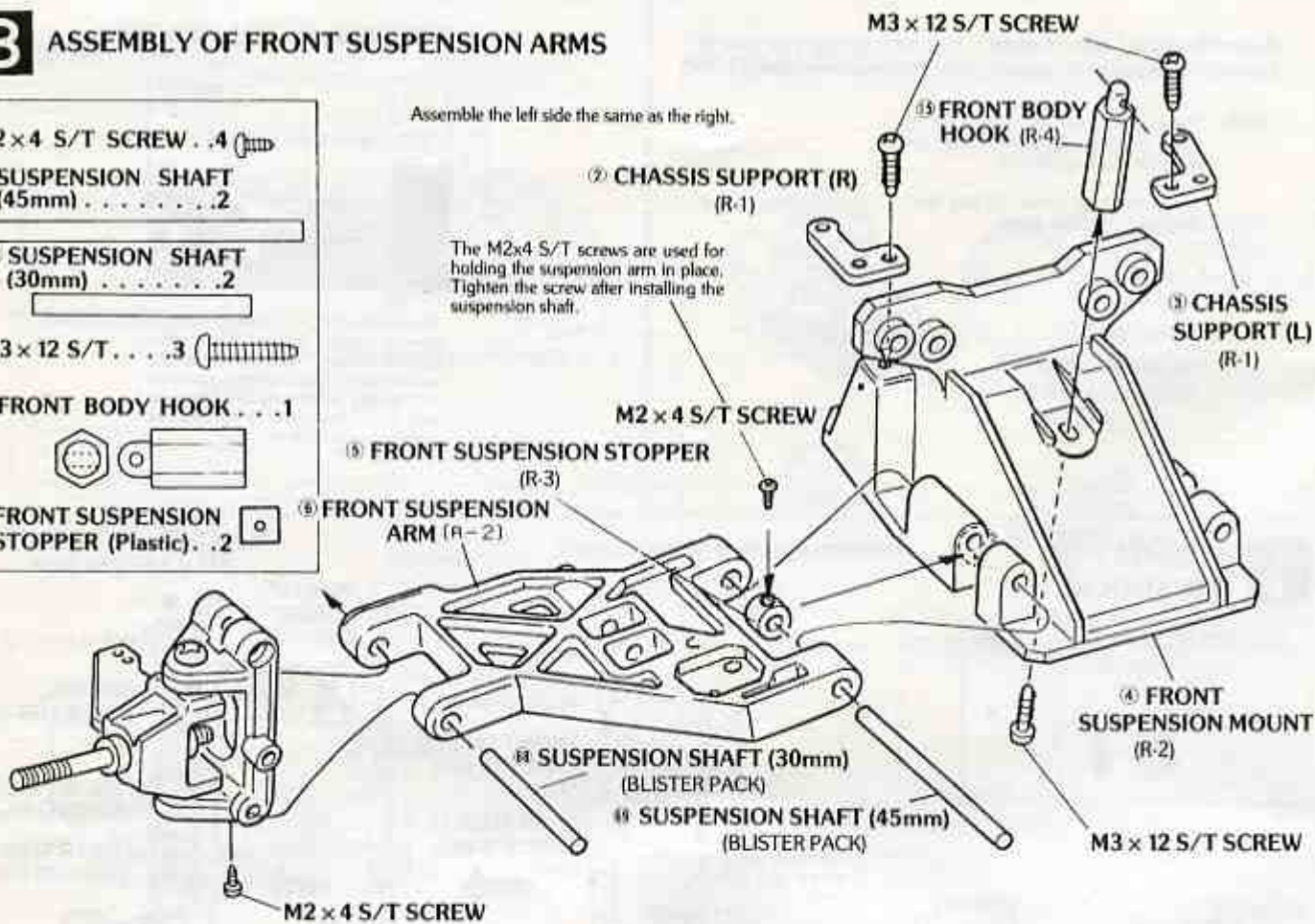


### 3 ASSEMBLY OF FRONT SUSPENSION ARMS

- M2 x 4 S/T SCREW . . . 4
- ② SUSPENSION SHAFT (45mm) . . . . . 2
- ③ SUSPENSION SHAFT (30mm) . . . . . 2
- M3 x 12 S/T . . . . . 3
- ④ FRONT BODY HOOK . . . . . 1
- ⑤ FRONT SUSPENSION STOPPER (Plastic) . . . 2

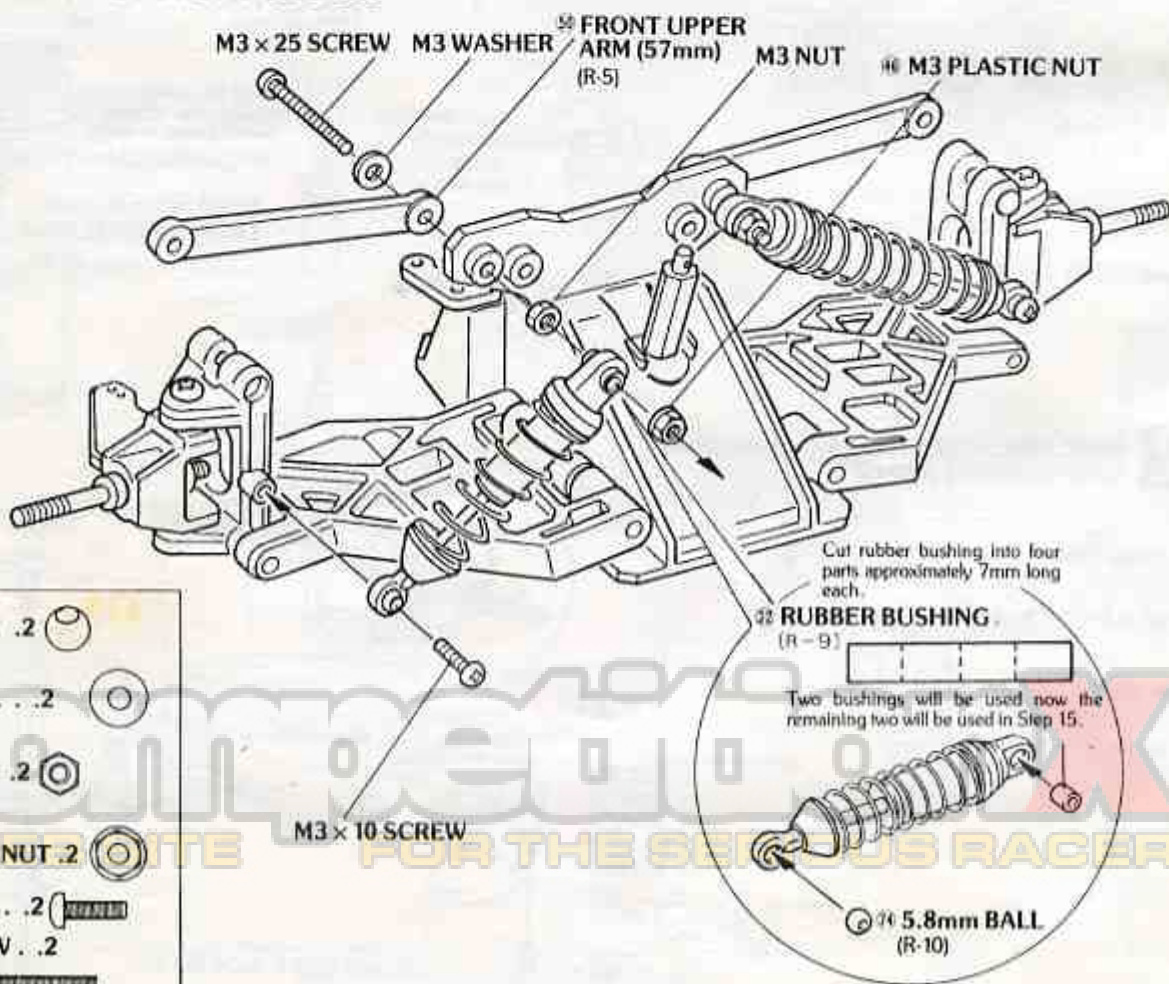
Assemble the left side the same as the right.

The M2x4 S/T screws are used for holding the suspension arm in place. Tighten the screw after installing the suspension shaft.



### 4 INSTALLATION OF FRONT SHOCKS

- ⑭ 5.8mm BALL . . . 2
- M3 WASHER . . . . . 2
- M3 NUT . . . . . 2
- ⑯ M3 PLASTIC NUT . . . 2
- M3 x 10 SCREW . . . 2
- M3 x 25 SCREW . . . 2





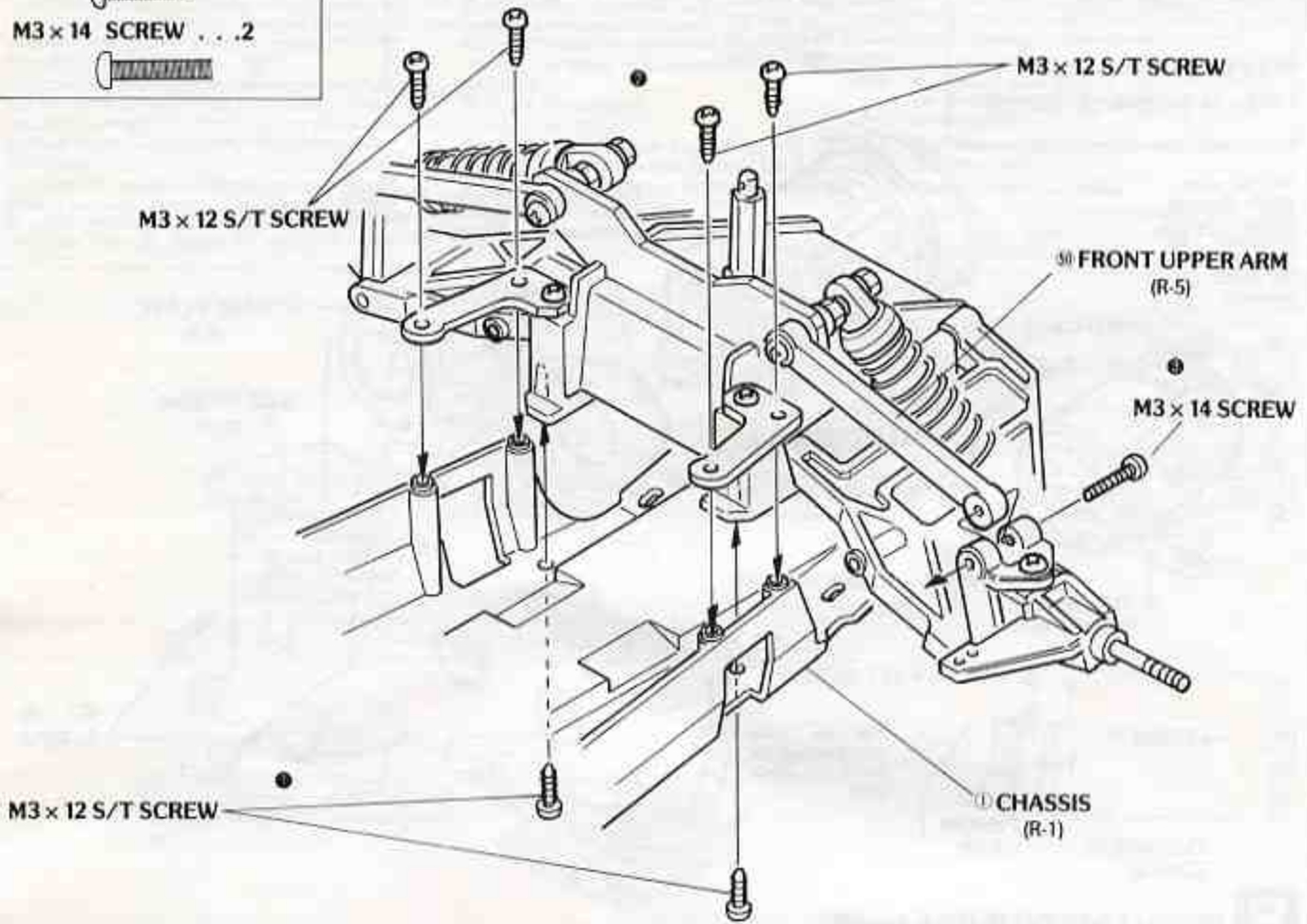
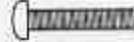
## 5 INSTALLATION OF FRONT ASSEMBLY

(ASSEMBLE STEPS ① ~ ③ IN SEQUENCE)

M3 × 12 S/T SCREW .6

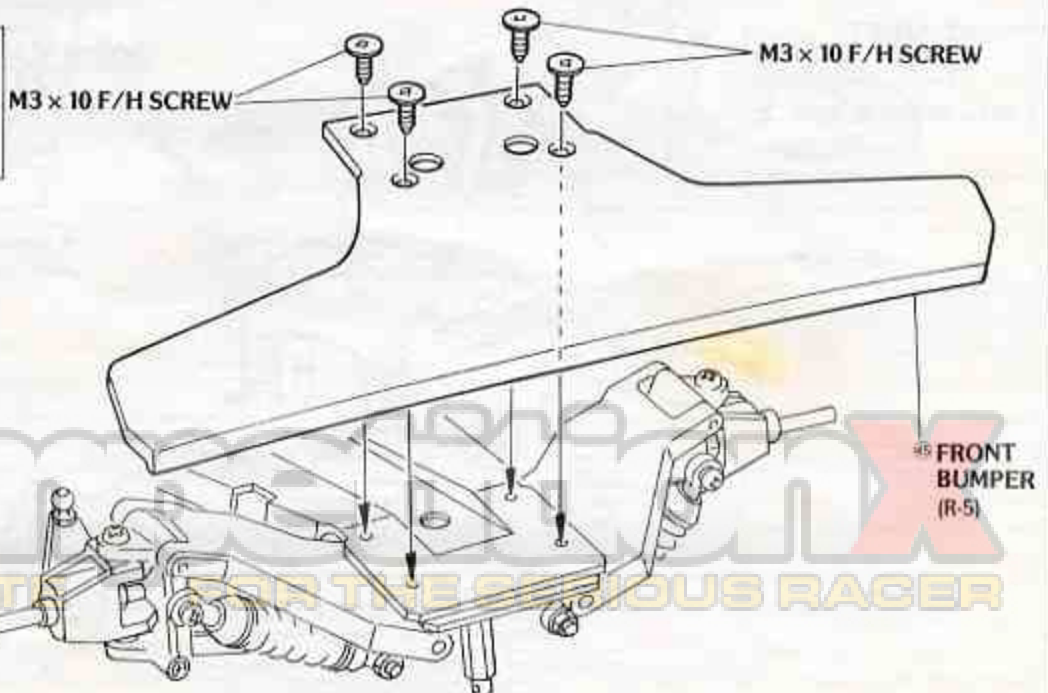


M3 × 14 SCREW . . . 2



## 6 INSTALLATION OF FRONT BUMPER

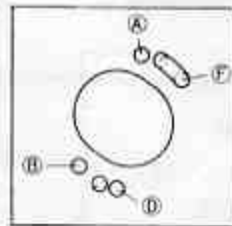
M3 × 10 F/H SCREW .4



## 7 INSTALLATION OF MOTOR

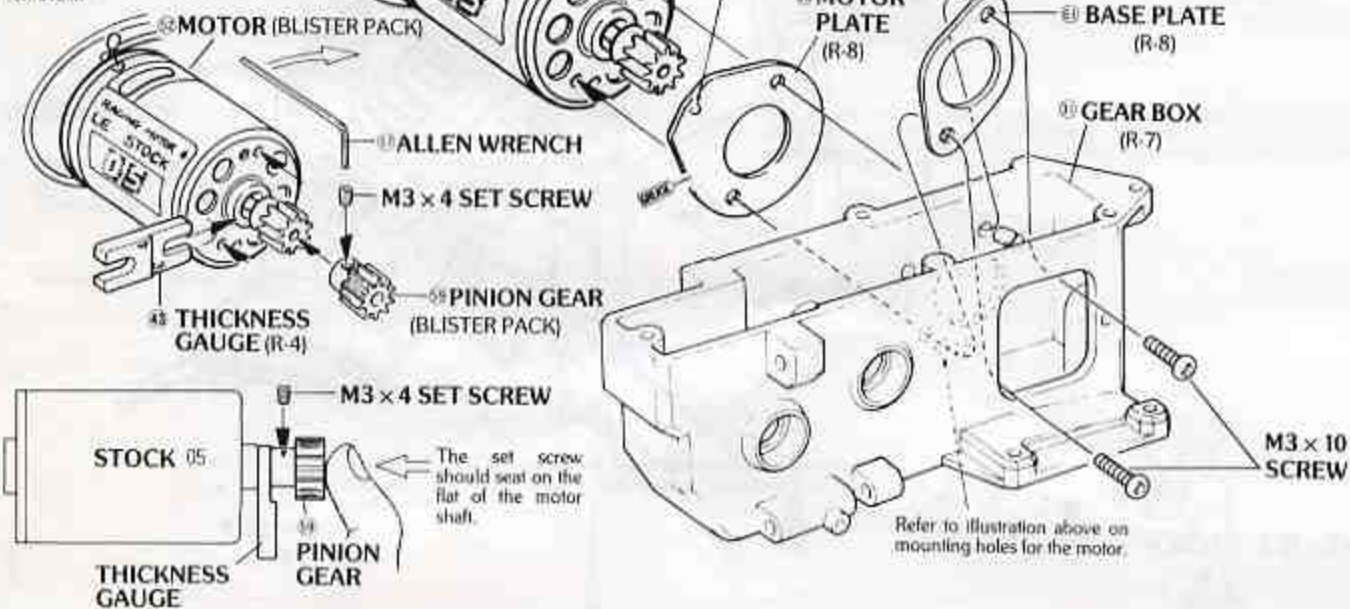
Use the illustration and chart to determine which mounting holes to use.

Number Of Pinion Gear Teeth	Number Of Idle Gear Teeth	Mounting Holes To Be Used
14T	36T	(A) & (D)
15T	36T	(E) & (F)

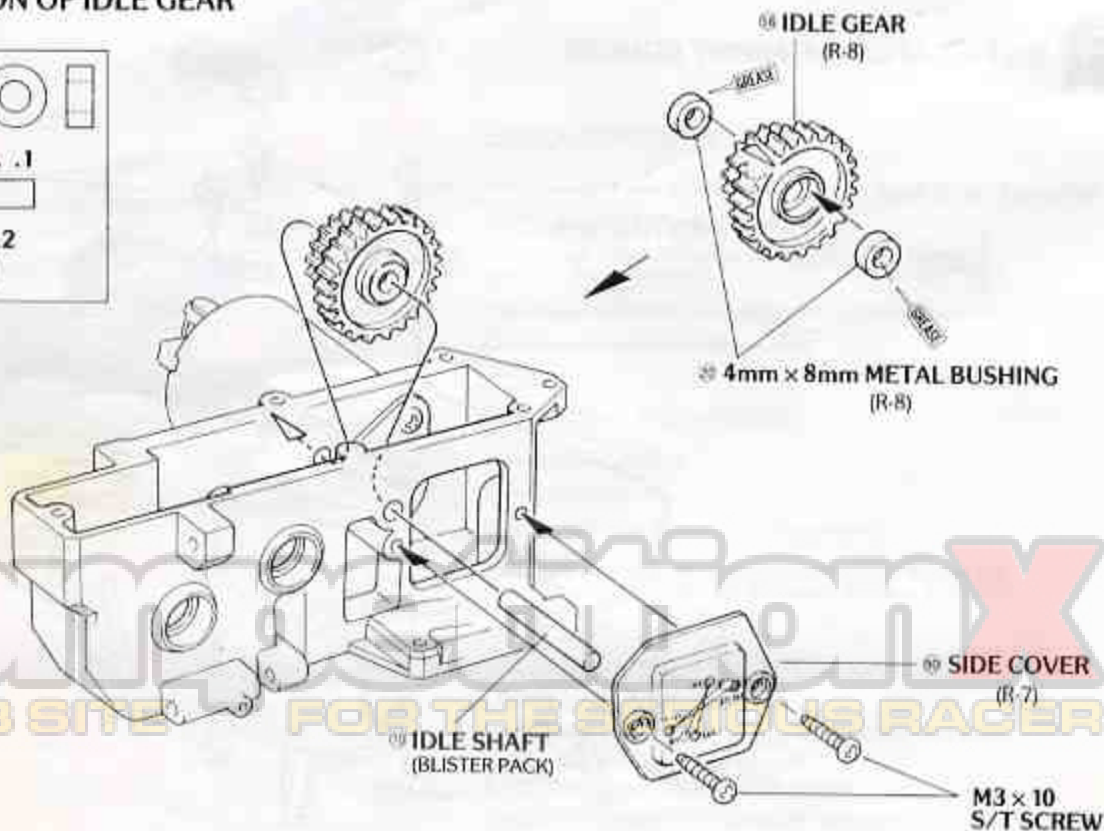
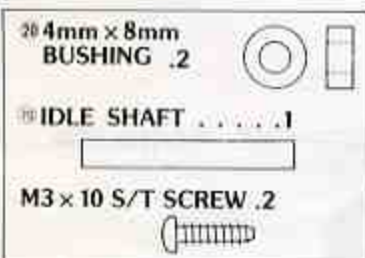


Once the motor is installed, slide the foam motor cover over the end of the motor and secure with a rubber band.

Use the motor/pinion thickness gauge when mounting the pinion gear onto the motor then remove it.

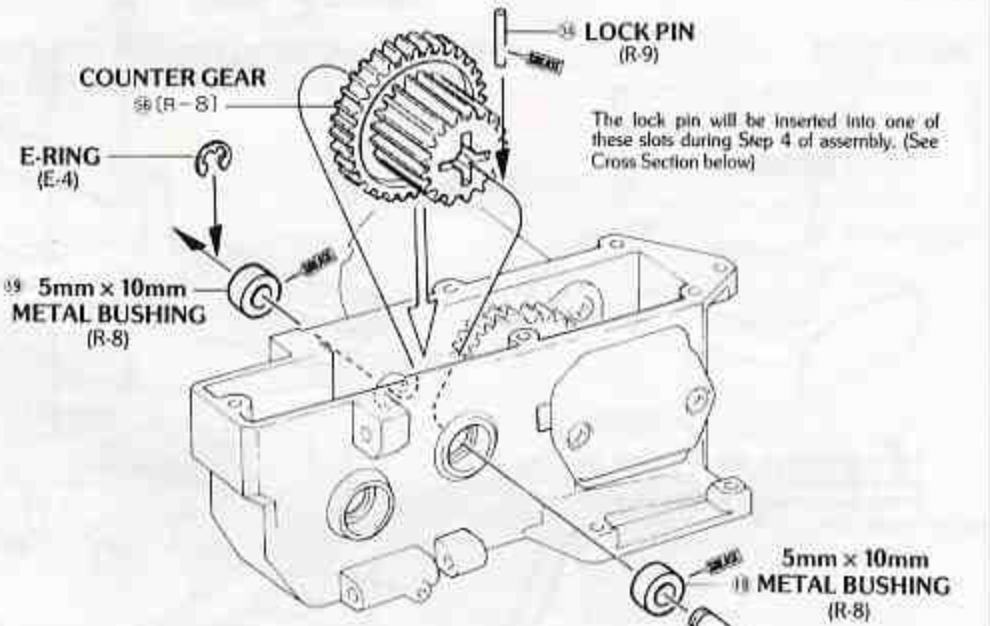
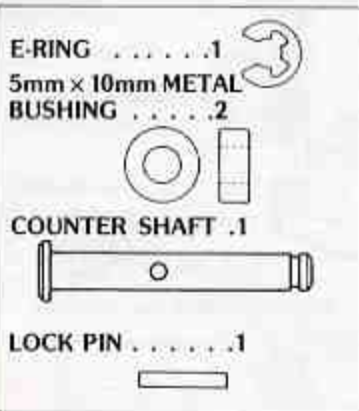


## 8 INSTALLATION OF IDLE GEAR

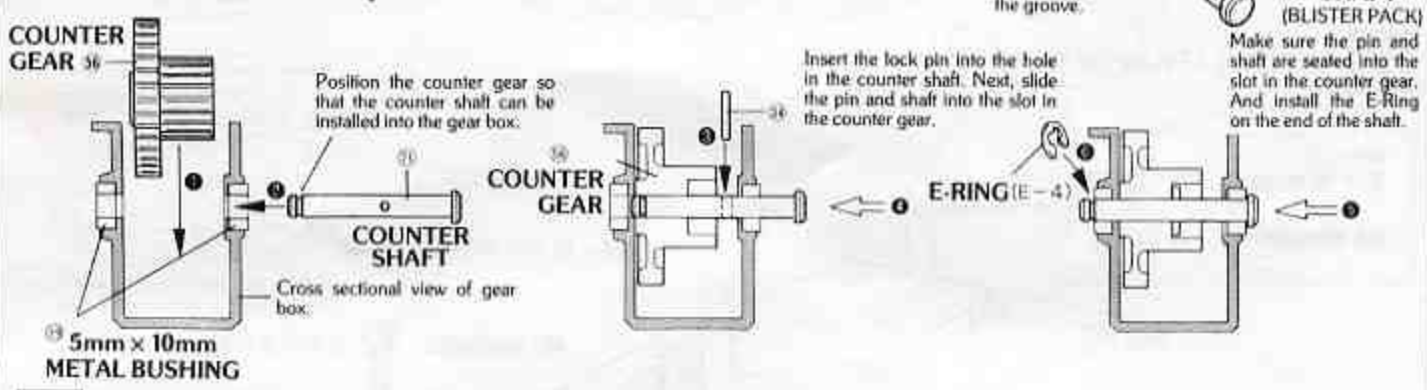




# 9 INSTALLATION OF COUNTER GEAR

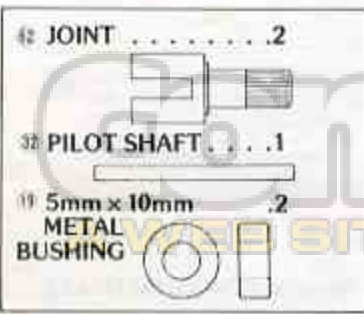
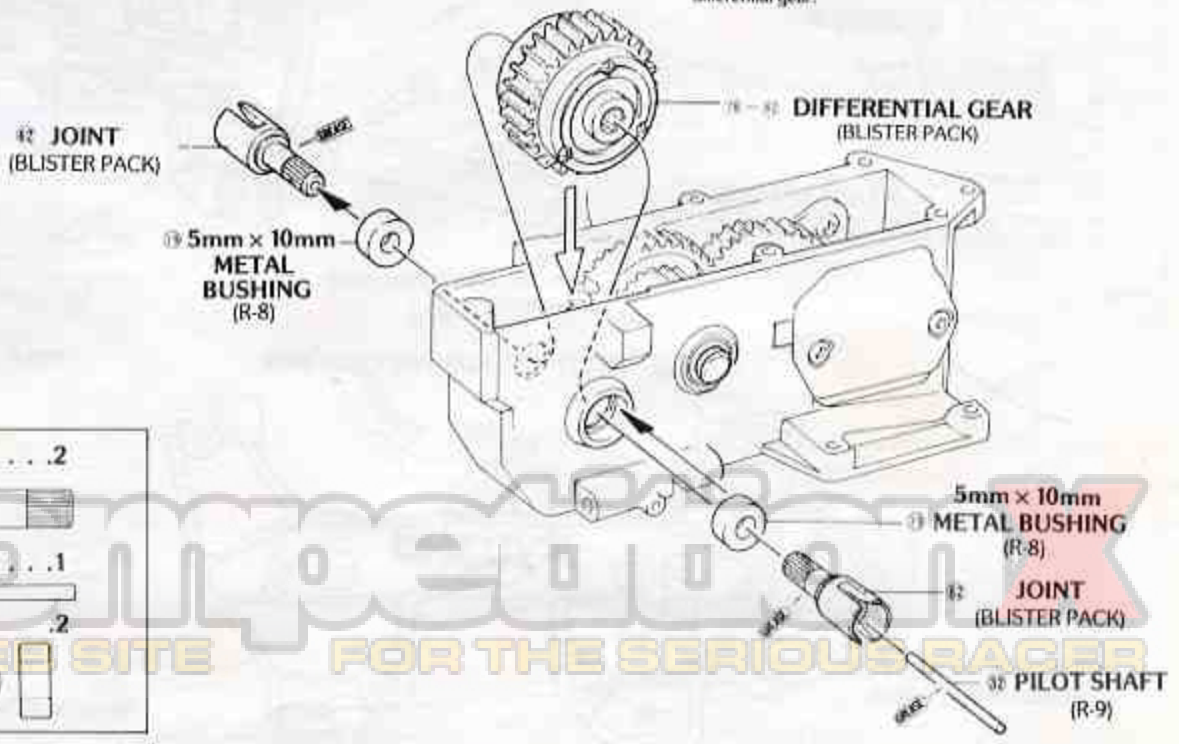


## ASSEMBLE STEPS 1-4 IN SEQUENCE



# 10 INSTALLATION OF DIFFERENTIAL

Page 18 contains the exploded view of the differential gear.



# 11 INSTALLATION OF GEAR BOX COVER

M3 x 12 S/T SCREW . . .5

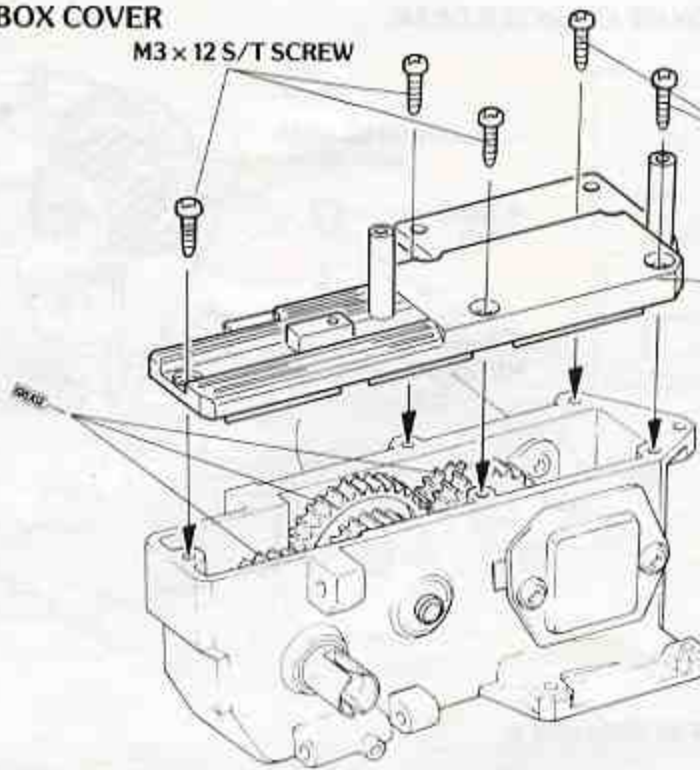


M3 x 12 S/T SCREW

M3 x 12 S/T SCREW

40 GEAR BOX COVER (R-4)

Lightly grease each gear in the gear box before mounting the cover. This will reduce friction and increase the life of the gears.



# 12 INSTALLATION OF REAR SHOCK STAY

M3 x 12 S/T SCREW . . .5



M3 WASHER . . .1



M3 x 12 S/T SCREW

M3 WASHER

43 REAR SHOCK STAY (R-3)

M3 x 12 S/T SCREW

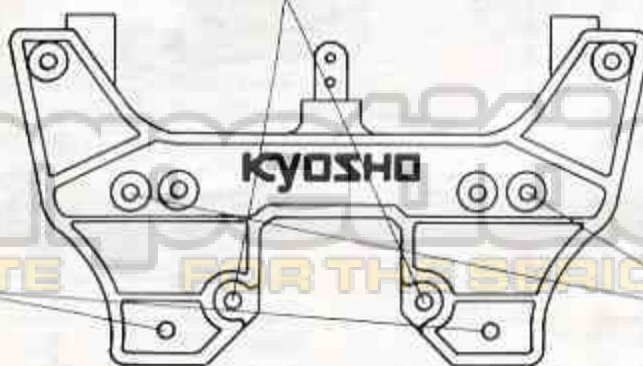
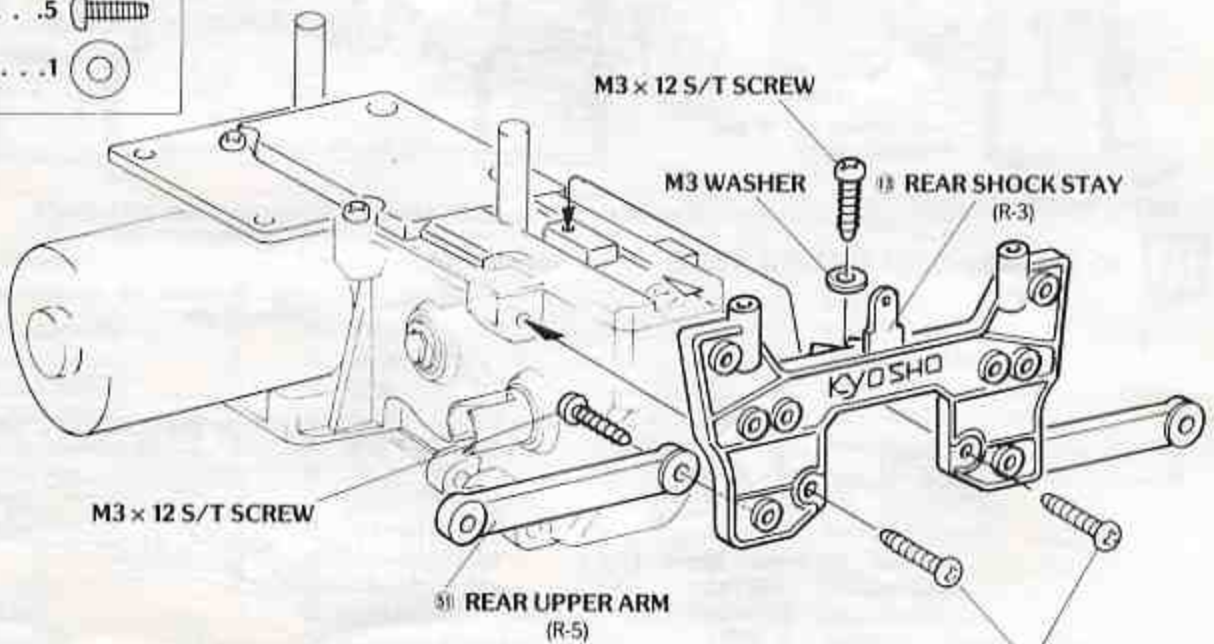
31 REAR UPPER ARM (R-5)

M3 x 12 S/T SCREW

MOUNTING HOLES FOR THE GEAR BOX

MOUNTING HOLES FOR REAR UPPER ARMS

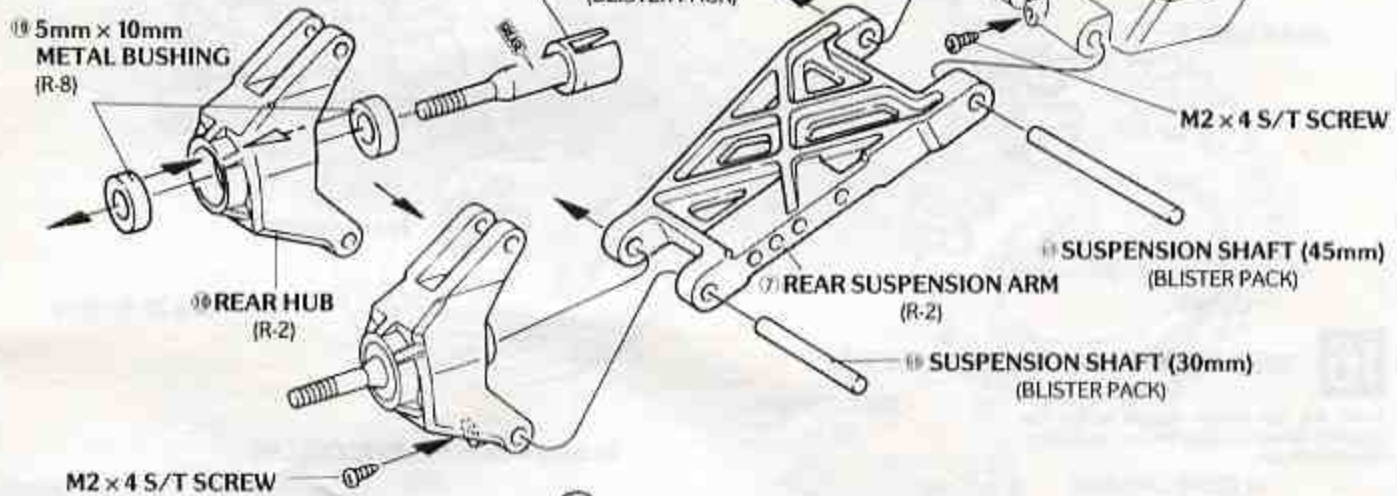
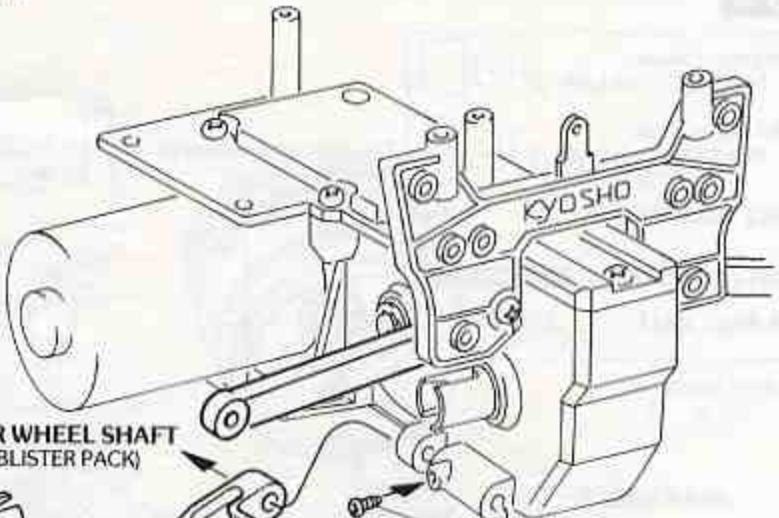
SHOCK MOUNTING HOLES





# 13 ASSEMBLY OF REAR SUSPENSION ARM

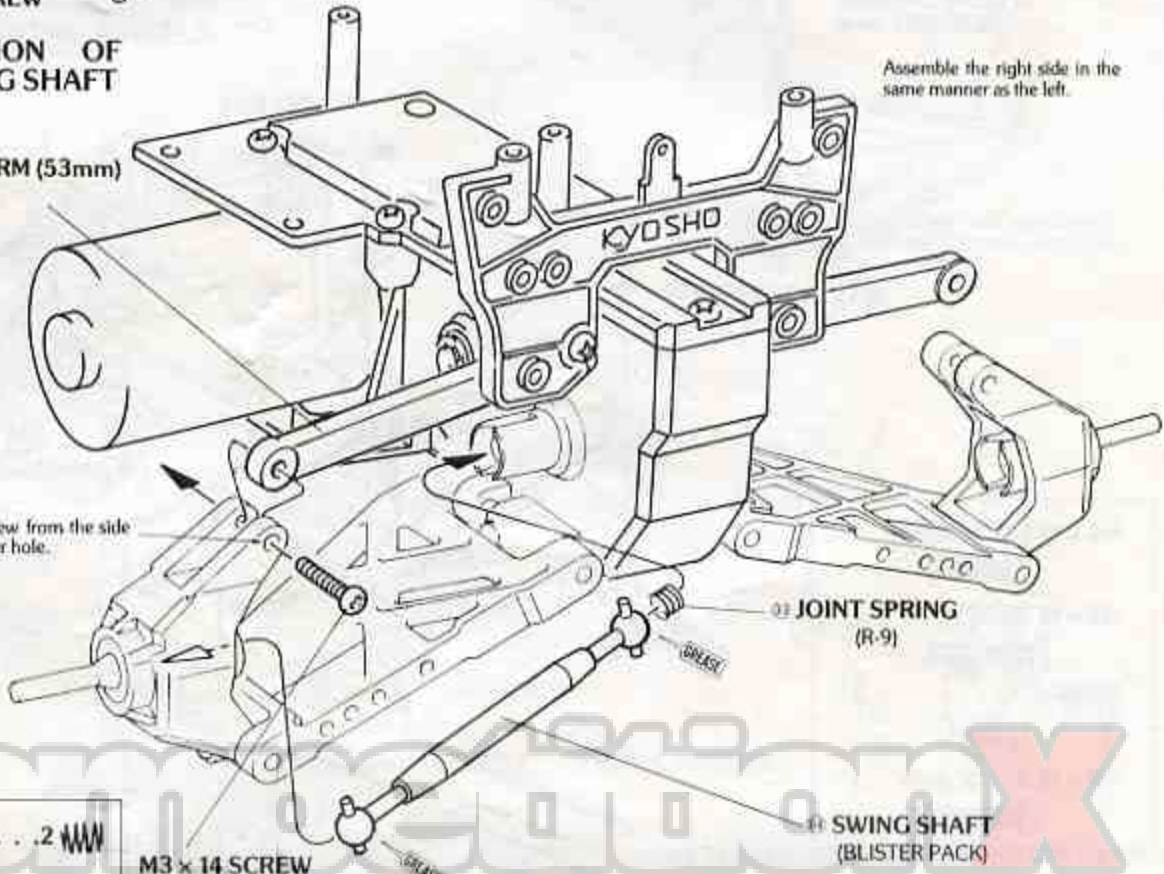
- ① 5mm x 10mm METAL BUSHING . . . . 4
- M2 x 4 S/T SCREW . . . 4
- ② SUSPENSION SHAFT (45mm) . . . . . 2
- ③ SUSPENSION SHAFT (30mm) . 2
- ④ REAR WHEEL SHAFT. . . . . 2



# 14 INSTALLATION OF REAR SWING SHAFT

Assemble the right side in the same manner as the left.

- ⑪ REAR UPPER ARM (53mm) (R-5)



- ⑫ JOINT SPRING . . . . 2
- M3 x 14 SCREW . 2
- ⑬ SWING SHAFT . . . . 2



# 15 INSTALLATION OF REAR SHOCKS

- ④ 3mm x 5mm PLASTIC COLLAR . 2
- ④ 3mm x 3mm PLASTIC COLLAR . 2
- M3 WASHER . . . . 2
- M3 x 20 SCREW . 4
- 5.8mm BALL . . . . 2

This is the rubber bushing cut in Step ⑤

REAR SHOCK

⑩ 5.8mm BALL (R-10)

④ 3mm x 3mm PLASTIC COLLAR (R-3)

M3 WASHER

M3 x 20 SCREW

④ 3mm x 5mm PLASTIC COLLAR (R-3)

# 16 INSTALLATION OF REAR ASSEMBLY

Install the rear chassis support to the rear assembly before installing the rear assembly to the main chassis.

④ REAR CHASSIS SUPPORT (R-4)

M3 x 14 S/T SCREW

M3 x 12 S/T SCREW

M3 NUT

M3 NUT

M3 x 12 S/T SCREW . 4

M3 x 14 SCREW . . . . 2

M3 NUT . . . . . 2

M3 x 14 S/T SCREW . . 1

① MAIN CHASSIS (R-1)

M3 x 14 SCREW

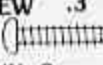
M3 x 12 S/T SCREW



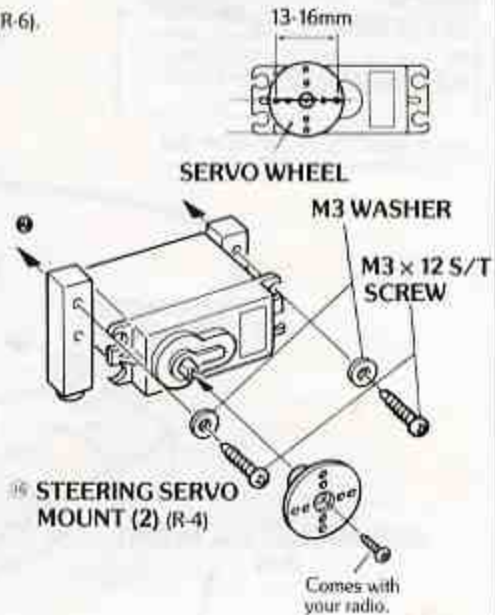
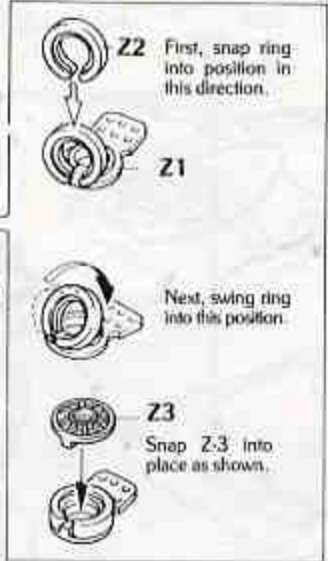


# 17 SERVO SAVER INSTALLATION

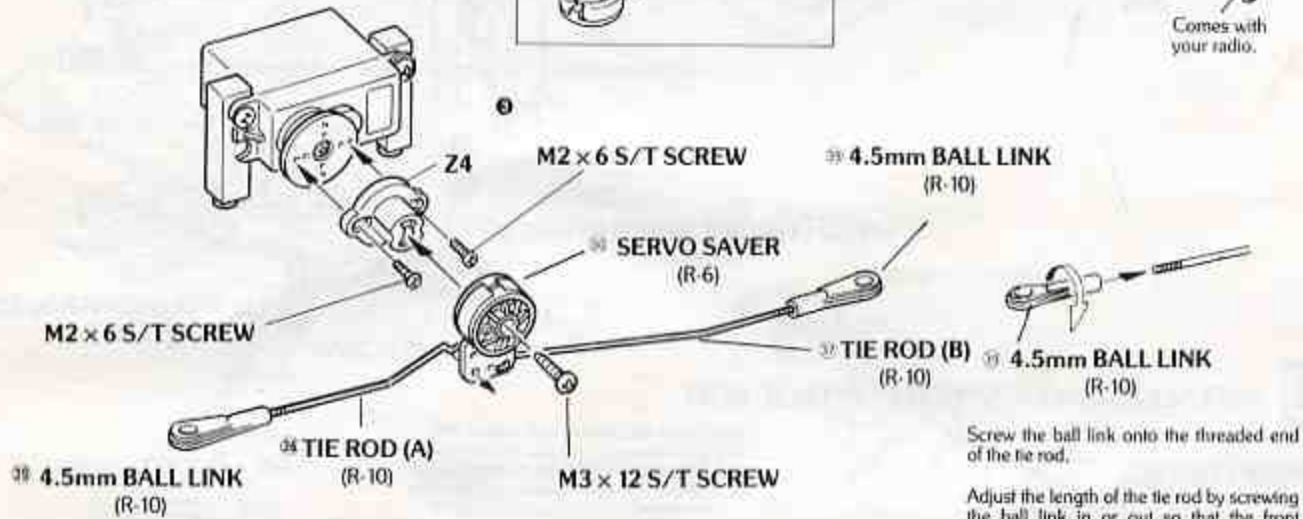
Use holes in servo wheel that are 13-16mm apart.

- M3 WASHER . . . .2 
- M2 x 6 S/T SCREW .2 
- M3 x 12 S/T SCREW .3 
- 4.5mm BALL LINK .2 

Servo saver parts Z-1 thru Z-4 are packaged in bag (R-6).



## ASSEMBLE STEPS 1 - 6 IN SEQUENCE

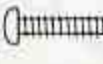


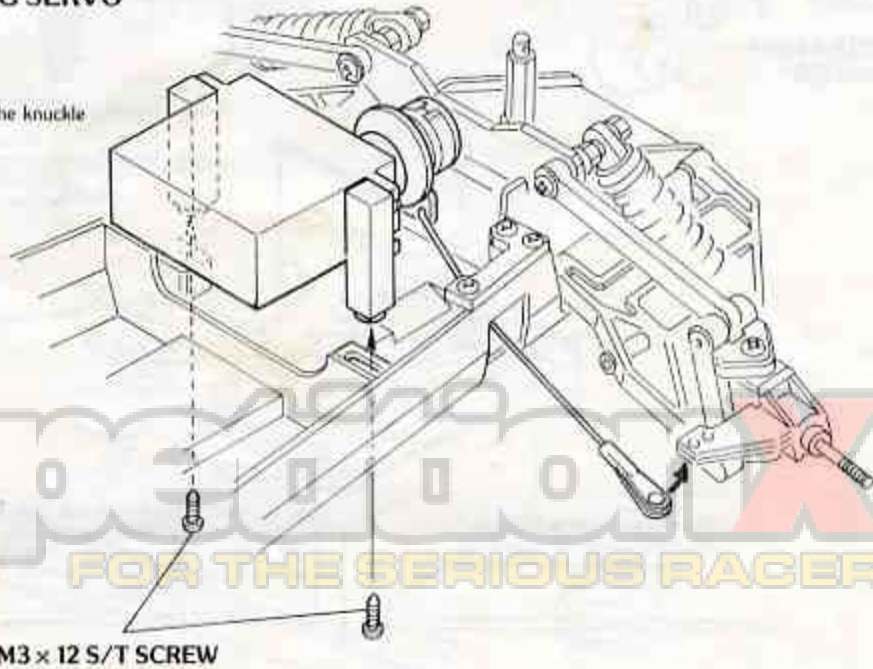
Screw the ball link onto the threaded end of the tie rod.

Adjust the length of the tie rod by screwing the ball link in or out so that the front wheels are positioned straight ahead when the steering servo is in the neutral position.

# 18 INSTALLATION OF STEERING SERVO

Snap the ball links onto the 4.5mm Pivot balls on the knuckle arms.

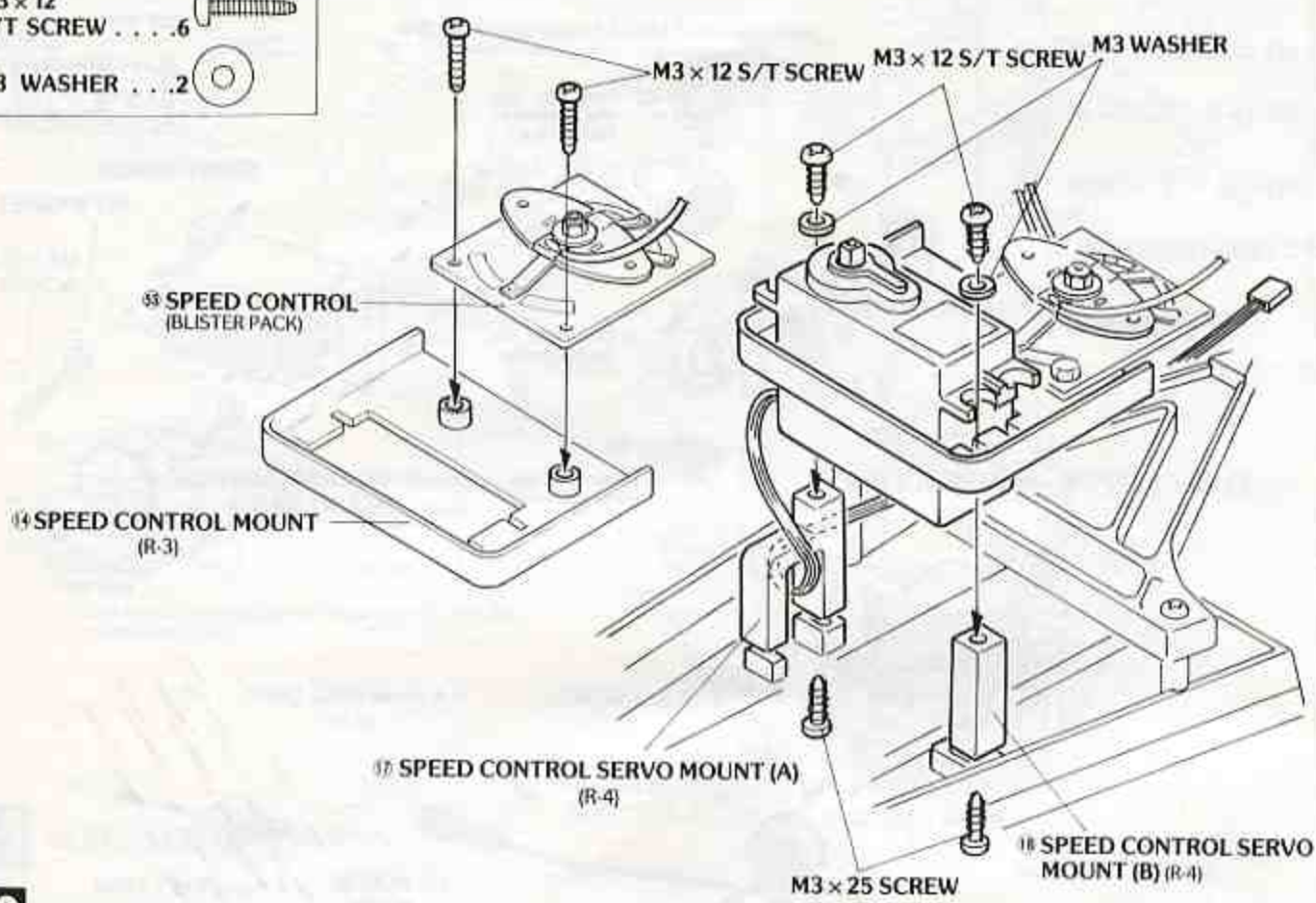
- M3 x 12 S/T SCREW . . . .2 



**COMPETITION**  
A WEB SITE FOR THE SERIOUS RACER

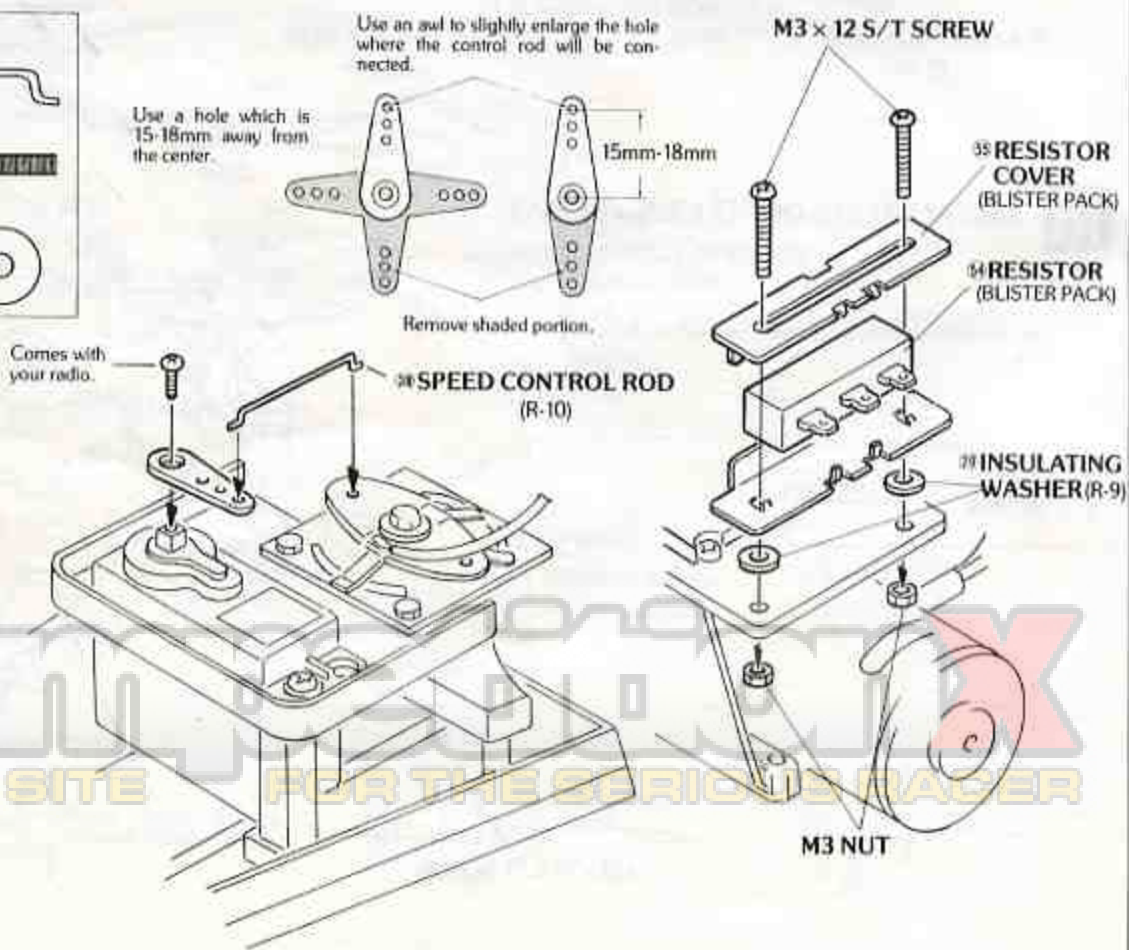
## 19 INSTALLATION OF SPEED CONTROL

- M3 x 12 S/T SCREW . . . . .6
- M3 WASHER . . . . .2



## 20 INSTALLATION OF SPEED CONTROL ROD

- 99 SPEED CONTROL ROD . . . . .1**
- M3 x 25 SCREW . . . . .2
- M3 NUT . . . . .2
- 99 INSULATING WASHER . . . . .2**





# 21 SWITCH HARNESS WIRING

Follow these instructions when using a BEC equipped radio.

NOTE: On some radios with BEC equipped receivers the voltage from the speed control may be too low to operate the receiver, such as the Futaba receiver R102GF with BEC-ASP. If this happens the diode on the red BEC wire will need to be removed and the red wire re-solder to the spot the diode was solder to. This will raise the voltage to the receiver.



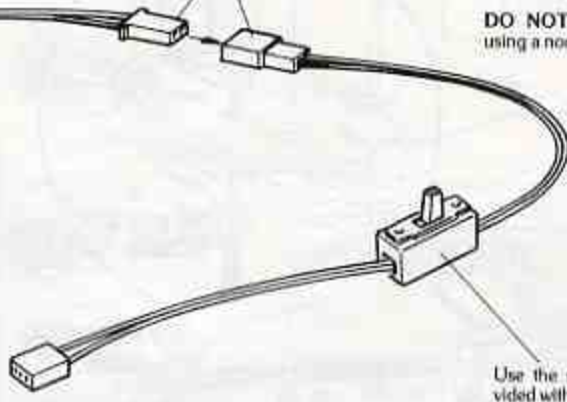
BEC CONNECTOR

(Red)

DO NOT remove the diode if your using a non-BEC equipped radio,



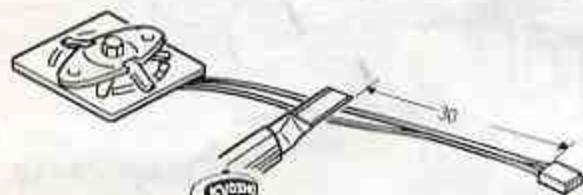
A radio contained in a box with this type of logo is a BEC type radio. With this type radio, the switch wiring and a regulator is not necessary. Use the BEC connector supplied with this kit as illustrated. Also, NOTE: with this connector the correct polarity is very important.



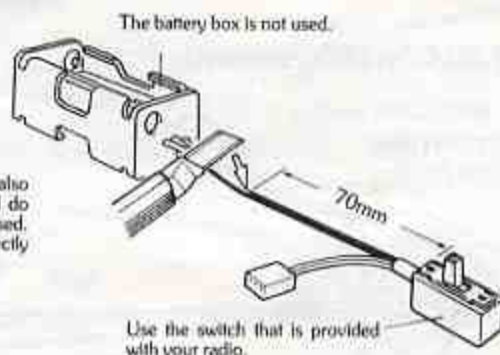
Use the switch that is provided with your radio.

Use these instructions when using a non-BEC equipped radio.

1 Cut off BEC connector from speed control set.

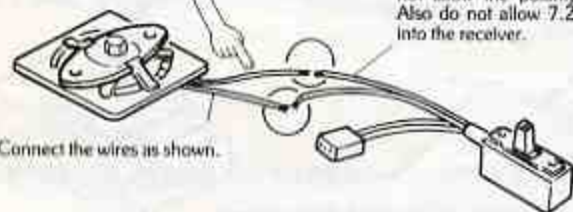


2 Cut off battery box as shown.



The battery that powers the motor also powers the receiver. Be careful and do not allow the polarity to be reversed. Also do not allow 7.2V to flow directly into the receiver.

3 Connect the wires as shown.



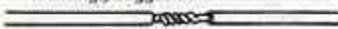
NOTE: The colors of the lead wires are different depending upon radio manufacturer. Most use red for positive (+) and black for negative (-). The exception being Cox and Airtronics (Sanwa). Their (+) lead has a white stripe and the middle lead is (-). Pay very close attention to the polarity. If necessary, contact the manufacturer to be sure.

## HOW-TO SPLICE WIRES

1 Remove 5mm of insulation from the end of the wire.



2 Join the wires together that are of the same polarity (+) to (+) and (-) to (-). Be very careful about the correct polarity. Soldering the joint is strongly suggested.



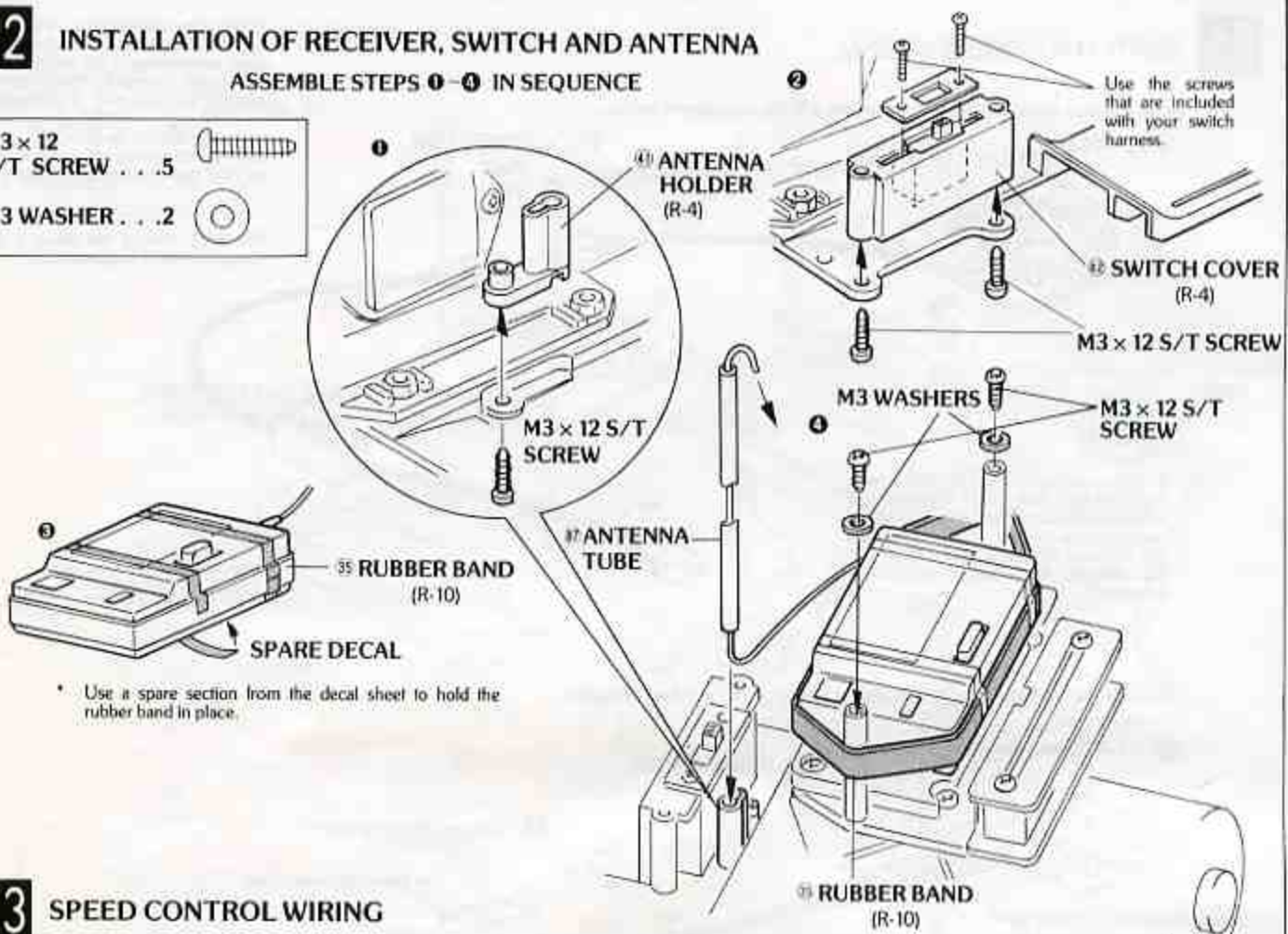
3 Insulate the connection joint with vinyl tape or heatshrink tubing this will prevent short circuiting.



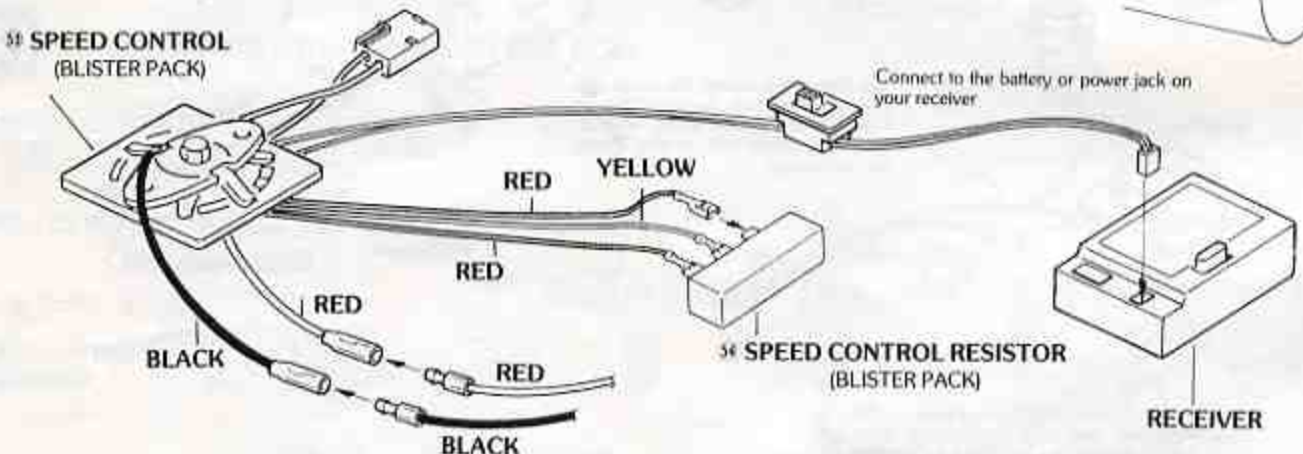
# 22 INSTALLATION OF RECEIVER, SWITCH AND ANTENNA

ASSEMBLE STEPS 1-3 IN SEQUENCE

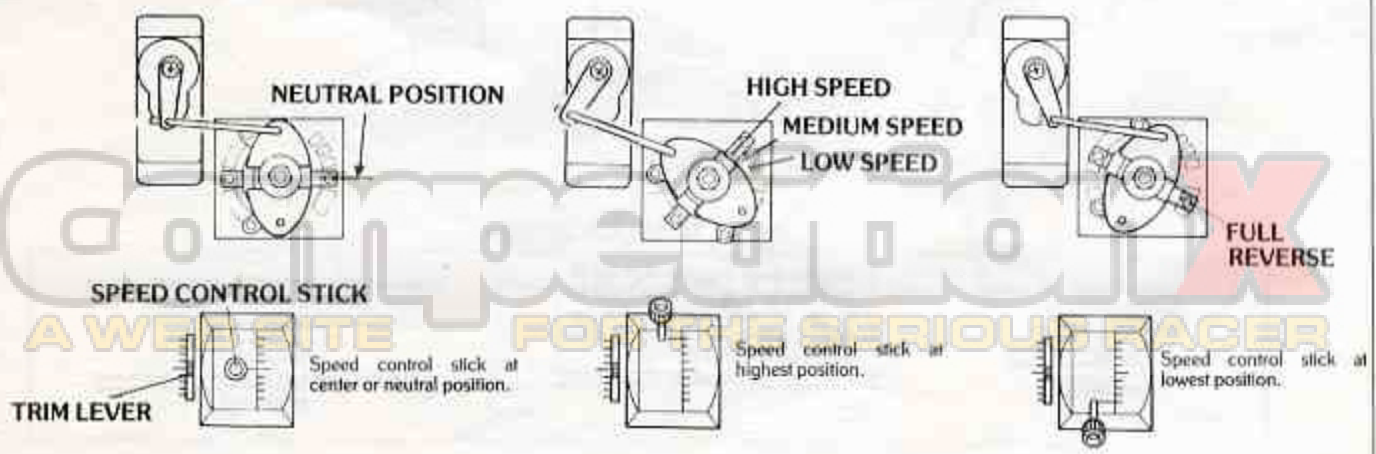
- M3 x 12 S/T SCREW . . . 5
- M3 WASHER . . . 2



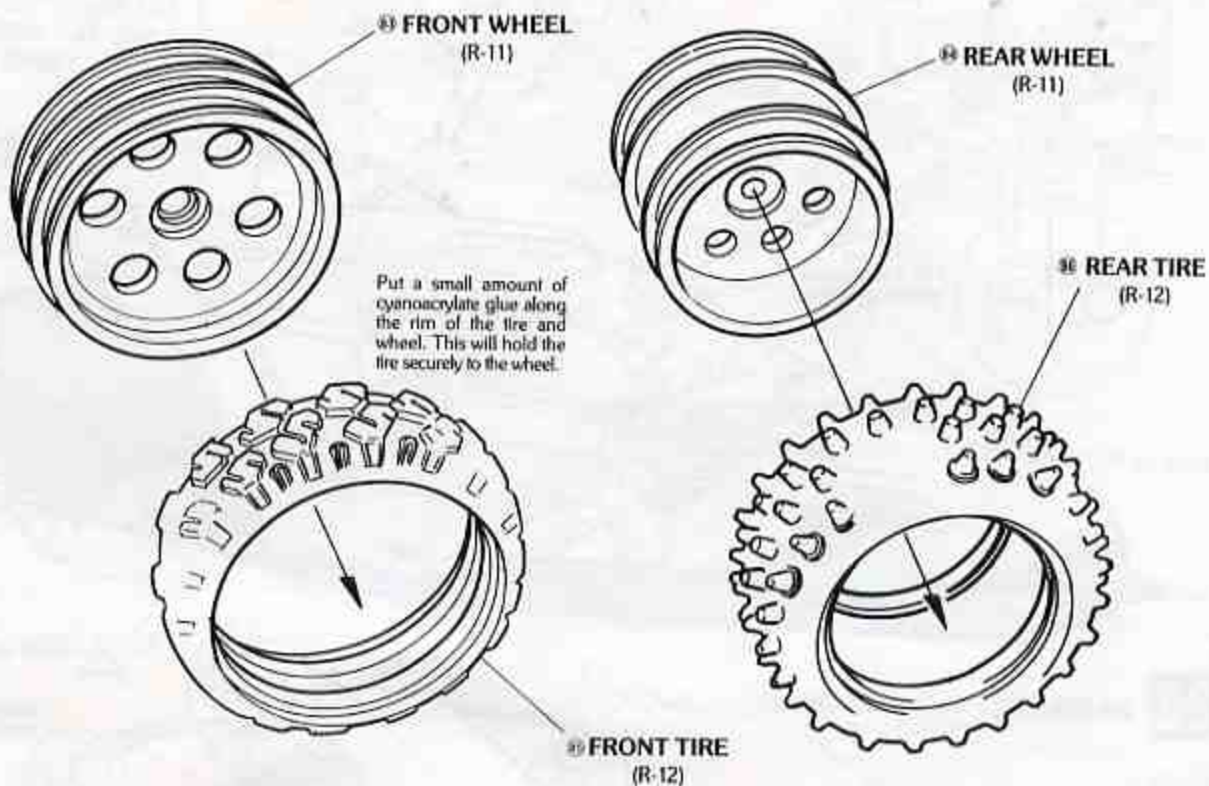
# 23 SPEED CONTROL WIRING



# 24 ADJUSTMENT OF SPEED CONTROL







4mm x 8mm METAL BUSHING . . . 4

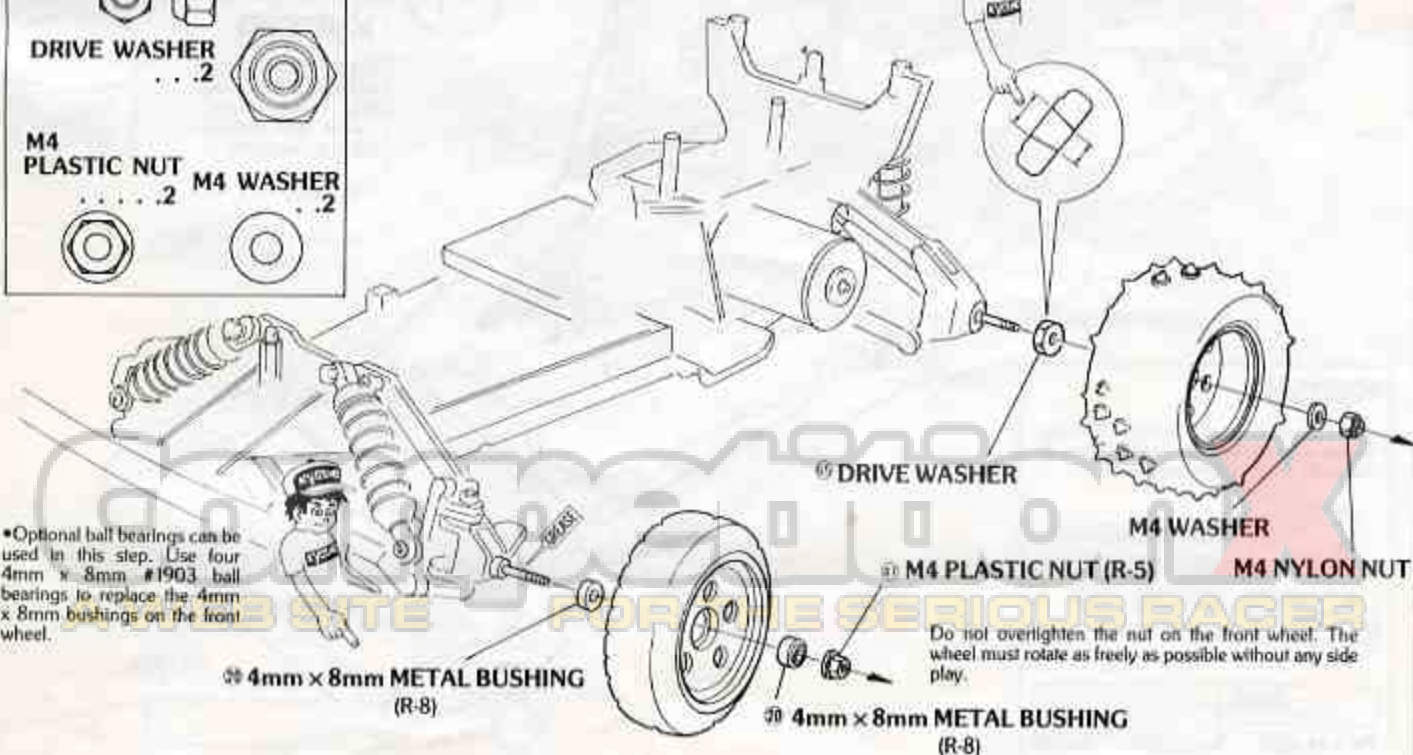
M4 NYLON NUT . . . 2

DRIVE WASHER . . . 2

M4 PLASTIC NUT . . . . 2 M4 WASHER . . . 2



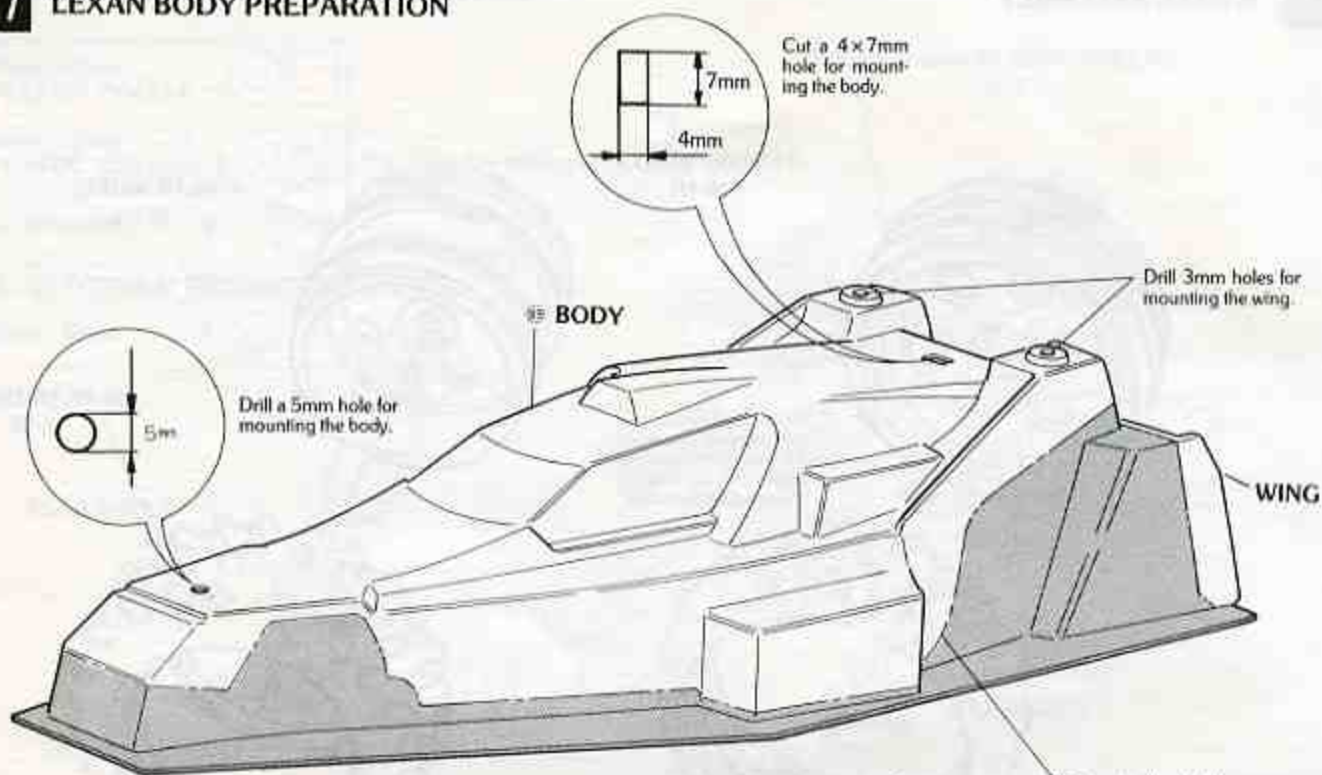
The large-sized hole faces toward the hub and the small one faces toward the wheel.



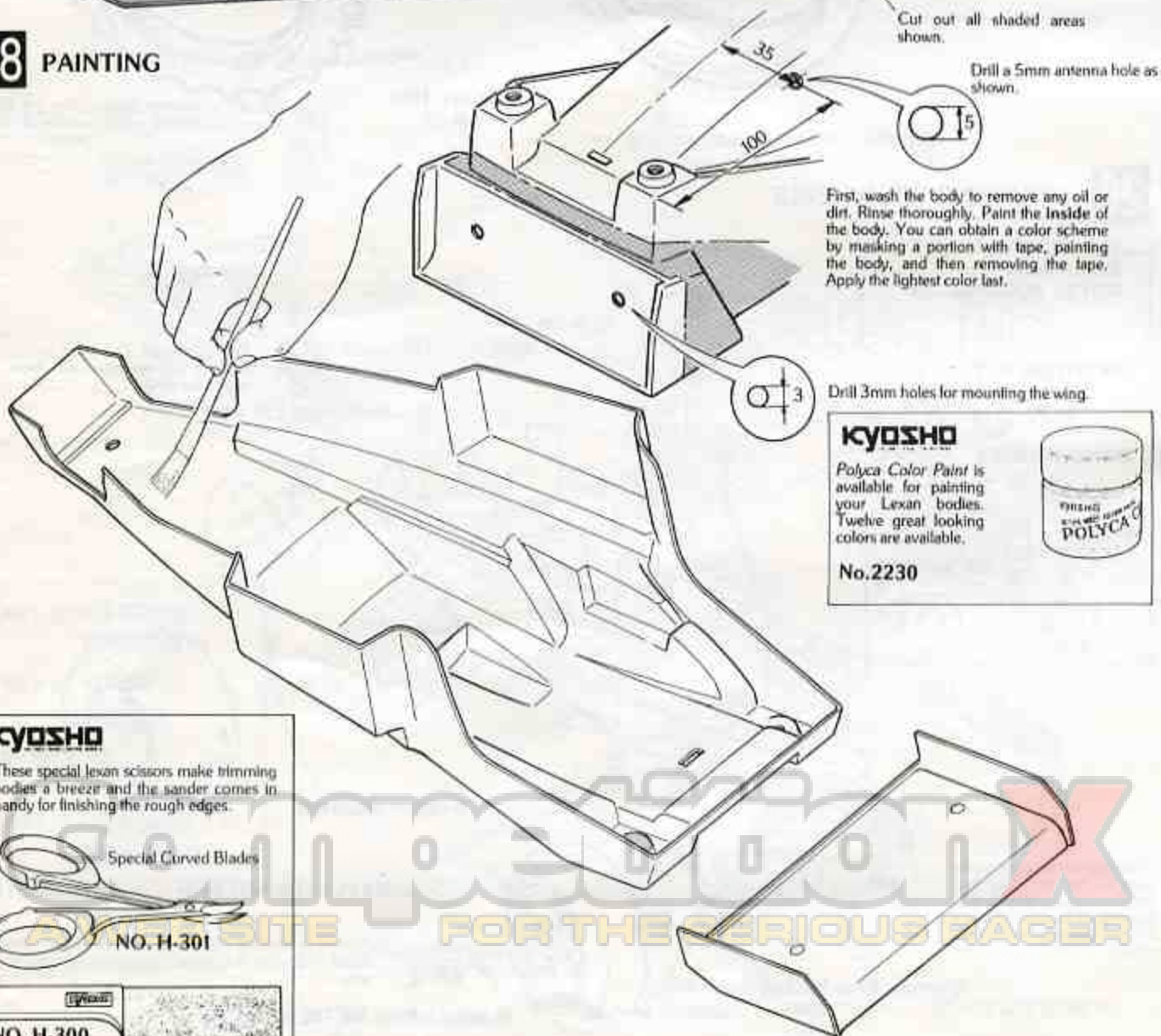
•Optional ball bearings can be used in this step. Use four 4mm x 8mm #1903 ball bearings to replace the 4mm x 8mm bushings on the front wheel.

Do not overtighten the nut on the front wheel. The wheel must rotate as freely as possible without any side play.

## 27 LEXAN BODY PREPARATION



## 28 PAINTING



**KYOSHO**

*Polyca Color Paint* is available for painting your Lexan bodies. Twelve great looking colors are available.

No. 2230






**KYOSHO**

These special lexan scissors make trimming bodies a breeze and the sander comes in handy for finishing the rough edges.





## 29 APPLYING DECALS AND WING INSTALLATION

- M3 WASHER . . . 4 
- M3 NUT . . . . . 2 
- M3x5 SCREW . . 2 

### AFFIXING DECALS

1. Cut out the decal along the cut out line.



2. When affixing a long or large decal, tear off one end of the backing paper and fold it back. Then place the decal in the correct position.

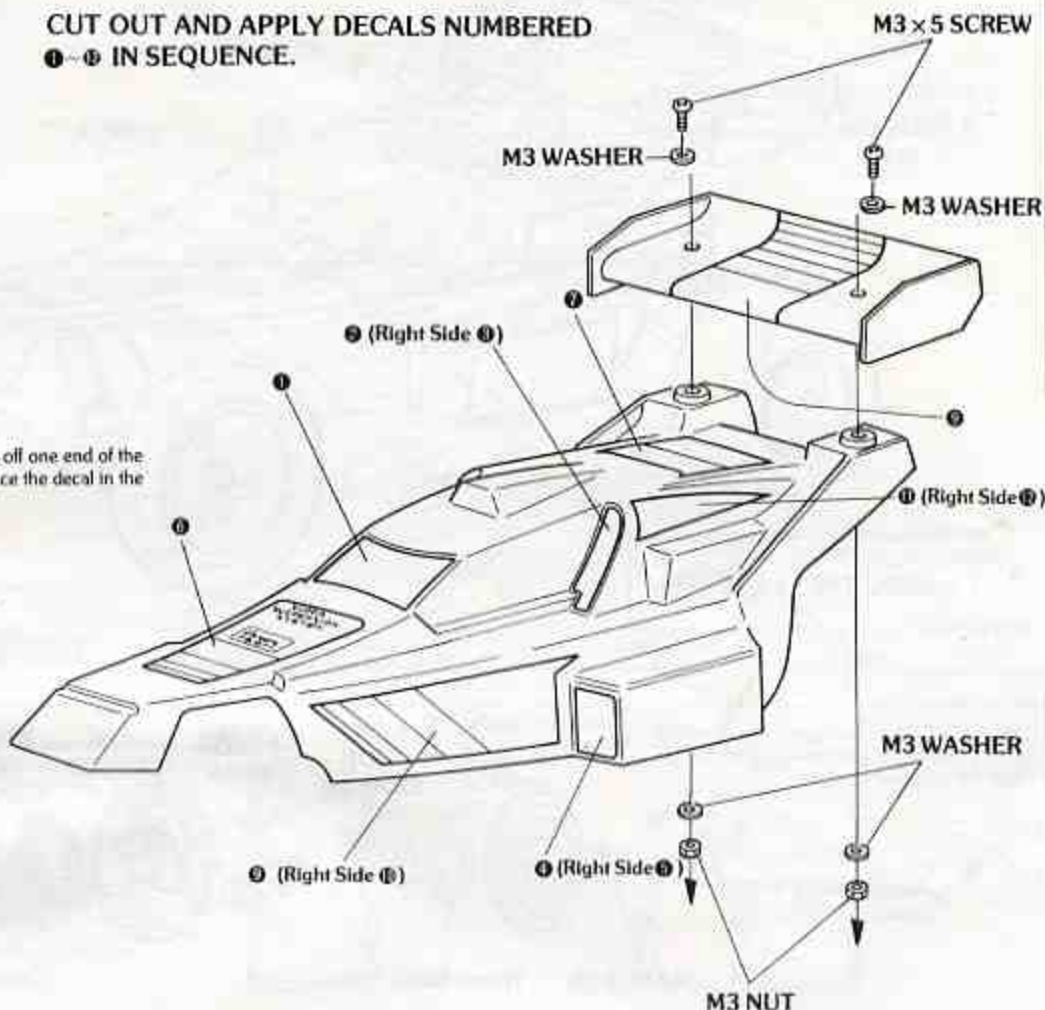


3. After positioning the decal, remove the backing paper and affix the decal by pulling it lightly and



smoothing out from one end to the other in order to get rid of air bubbles.

CUT OUT AND APPLY DECALS NUMBERED ①-⑥ IN SEQUENCE.



## 30 CHARGING THE NiCd BATTERY USING A KYOSHO QUICK CHARGER

1. Connect the clips of the charger to a 12V DC battery. The red clip is connected to the positive (+) terminal. The black clip is connected to the negative (-) terminal.

2. Plug in the battery connector to the charger connector. **IMPORTANT!** Always charge a battery that is fully discharged. Never charge a battery that holds a partial charge. This way you will avoid overcharging which will damage your battery.

Pay attention to the orientation of the plugs when connecting the battery to insure proper polarity.

**KYOSHO**

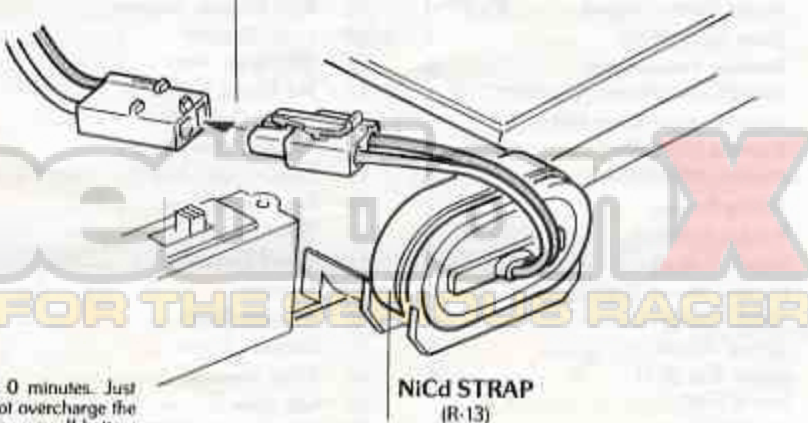


For maximum performance, use a high performance battery. The Kyosho 7.2V Power Battery or Racing Battery is recommended.

No. 2218

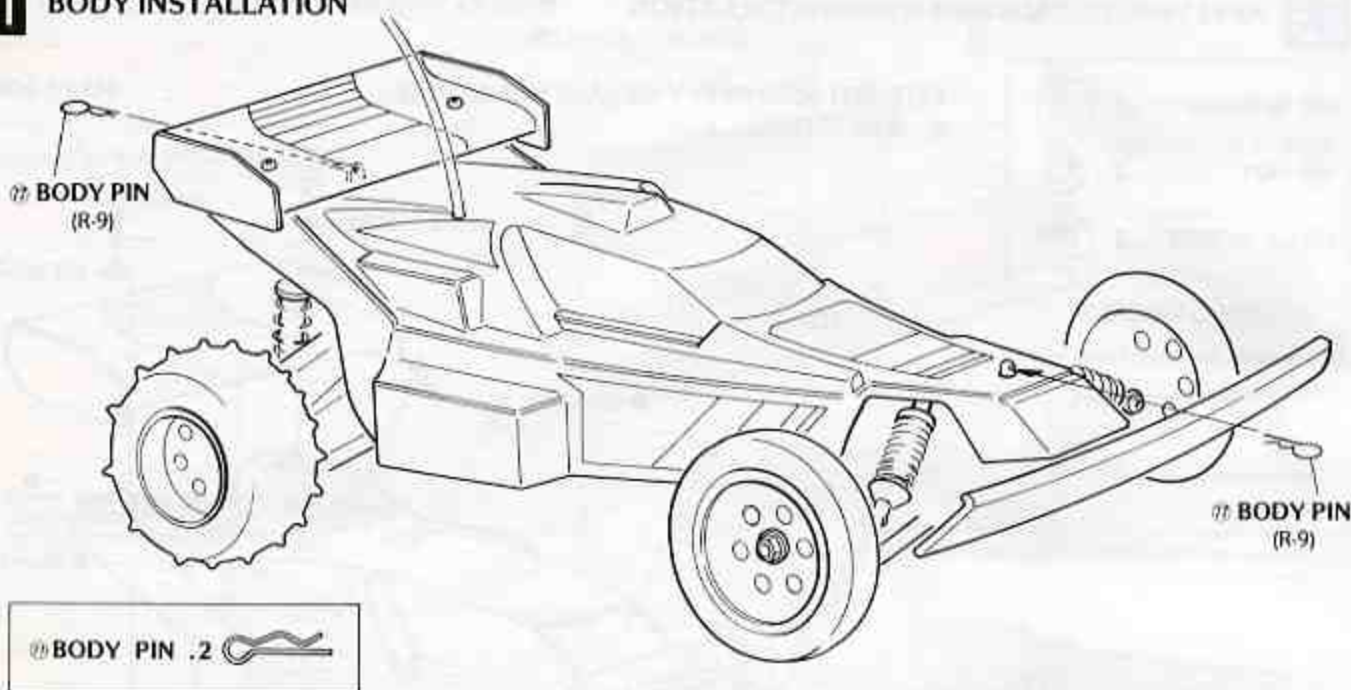
3. Turn the charger knob to 15 minutes. The pilot lamp will light, indicating that charging has begun. When timer moves to 0 minutes, charging has been completed.

4. The charger will stop charging when the time reaches 0 minutes. Just unplug the battery and you are ready to race again. Do not overcharge the battery. Do not open or alter the battery or charger in any way. If battery becomes warm, this is normal and indicates a fully charged battery. If battery becomes hot, stop charging immediately.

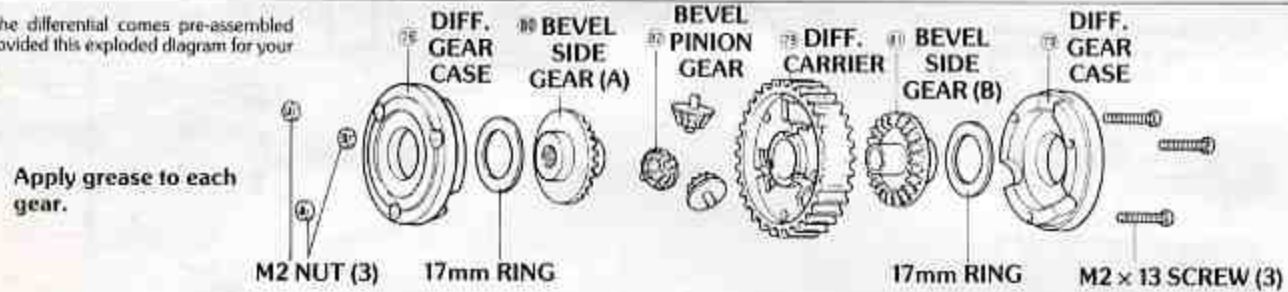


Install a NiCd strap at each end of the battery to hold it in place.

# 31 BODY INSTALLATION



Although the differential comes pre-assembled we have provided this exploded diagram for your reference.



This is a list of all parts in the Raider kit. To purchase parts see the guides on pages 21-23.

No.	Parts Name	Qty	No.	Parts Name	Qty	No.	Parts Name	Qty
1	Chassis	.1	41	Gearbox	.1	71	Base Plate	.1
2	Front Chassis Support (R)	.1	42	Pilot Shaft	.1	72	Joint	.2
3	Front Chassis Support (L)	.1	43	Joint Spring	.2	73	Rear Wheel Shaft	.2
4	Front Suspension Mount	.1	44	Lock Pin	.1	74	Swing Shaft	.2
5	Front Suspension Stopper	.2	45	Rubber Band	.3	75	Drive Washer	.2
6	Front Suspension Arm	.2	46	Tie Rod (A)	.1	76	Front Shock Spring	.2
7	Rear Suspension Arm	.2	47	Tie Rod (B)	.1	77	Rear Shock Spring	.2
8	Front Hub (R)	.1	48	Speed Control Rod	.1	78	Sus. Shaft (30mm)	.4
9	Front Hub (L)	.1	49	4.5mm Ball Link	.2	79	Sus. Shaft (45mm)	.4
10	Rear Hub	.2	50	Gearbox Cover	.1	80	Idle Shaft	.1
11	Knuckle Arm (R)	.1	51	Antenna Holder	.1	81	Counter Shaft	.1
12	Knuckle Arm (L)	.1	52	Switch Cover	.1	82	Shock Piston	.4
13	Rear Shock Stay	.1	53	Thickness Gauge	.1	83	Front Wheel Shaft	.2
14	Speed Control Mount	.1	54	Rear Chassis Support	.1	84	5.8mm Ball	.4
15	Front Body Hook	.1	55	Front Bumper	.1	85	4.5mm Pivot Ball	.2
16	Steering Servo Mount	.2	56	M3 Plastic Nut	.8	86	King Pin	.4
17	Speed Control Servo Mount (A)	.1	57	M4 Plastic Nut	.2	87	Body Pin	.2
18	Speed Control Servo Mount (B)	.1	58	Plastic Collar (A)	.2	88	Differential Gear Case	.2
19	Bushing (5 x 10mm)	.8	59	Plastic Collar (B)	.2	89	Differential Carrier	.1
20	Bushing (4 x 8mm)	.6	60	Front Upper Arm	.2	90	Bevel Side Gear (A)	.1
21	Hobby Grease	.1	61	Rear Upper Arm	.2	91	Bevel Side Gear (B)	.1
22	Rubber Bushing	.1	62	Motor	.1	92	Bevel Pinion Gear	.3
23	Shock O-Ring	.4	63	Speed Control	.1	93	Front Wheel	.2
24	Friction Shock (E2-E3)	.4	64	Resistor	.1	94	Rear Wheel	.2
25	Shock Stopper	.4	65	Resistor Cover	.2	95	Front Tire	.2
26	Spring Adjuster	.4	66	Counter Gear	.1	96	Rear Tire	.2
27	Shock Top (E-1)	.4	67	Allen Wrench	.1	97	Antenna Tube	.1
28	Shock End	.4	68	Idle Gear	.1	98	Decal Sheet	.1
29	Insulating Washer	.2	69	Pinion Gear (14T)	.1	99	Body	.1
30	Servo Saver (Z1-Z4)	.1	70	Motor Plate	.1	100	Side Cover	.1



## CHECKING THE CAR

### CHECKING THE CAR

Before running the car, perform the following checks.

1. Check that all screws and nuts are tightened properly.
2. Check that the wiring is neat and that there is no short circuits. (Use electrical insulating tape if there are any bare wires.)
3. Check that all wheels turn freely, without binding or drag. Rotate the wheels by hand for about two seconds to distribute the grease evenly and to free up the bushings.

Switch on the transmitter and receiver, then check that the wheels turn right when the steering control is operated for a right turn. Check that the wheels turn an equal distance right and left. If they do not, adjust the linkage.

5. Check that the speed controller slider moves the full distance and in the right direction when the transmitter speed control stick is moved fully forward, then check the same for reverse by moving the stick

backward. If slider movement is not correct, adjust the linkage.

After the check, switch off the receiver, then the transmitter in that order.

### RUNNING THE CAR

When the previous checks have been made successfully, the car is ready to run. Prepare it in the following manner. Perform these tests in a large open space because the car can go surprisingly quick.

1. Check that the transmitter, receiver, and car NiCd batteries are charged. (If the radio set used disposable cells, be sure that the batteries are fresh.)
2. Install the car battery in its compartment and join the connector.
3. Switch on the transmitter.
4. Switch on the receiver.
5. Check that the car moves forward when the transmitter speed stick is moved forward, and that the speed of the car increases as the stick is moved forward progressively further.
6. Check that the car steers at a rate that allows it to be controlled comfortably. If steering is too quick, move

the inner ends of the tie rods to the holes in the servo saver that are closer to the center of the servo wheel.

7. When you have finished running the car, switch off the receiver, then the transmitter.

**NOTE:** Never switch off the transmitter before the receiver. If there is radio interference, there is the risk that the car will respond and drive away at high speed.

### TROUBLESHOOTING

If the car has been assembled carefully, it should run without problem. However, if it fails to perform properly, check the following items one at a time.

1. Connectors of the radio set (battery box, switch lead to receiver, servo leads to receiver), connectors of car battery, wiring, and batteries of radio set (transmitter and receiver).
2. Poor contact of the slider of the speed controller with the contact strips.
3. Fault in the radio equipment.
4. Interference from another transmitter. (If the servo move or jitter when your transmitter is switched off, this is a problem.)

## TUNING THE SUSPENSION



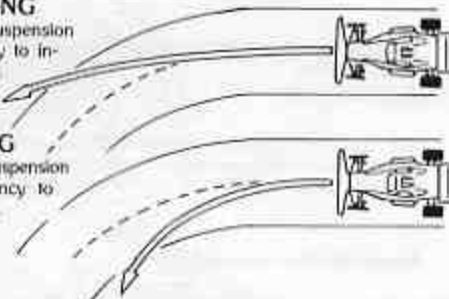
Loosen this screw, it will allow the shock spring tension to be adjusted. After adjustment is made retighten the screw. Be careful not to overtighten it.

### • UNDERSTEERING

Softening the rear suspension will have a tendency to increase understeering.

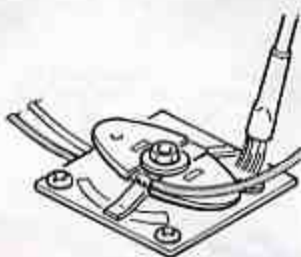
### • OVERSTEERING

Tightening the rear suspension will have the tendency to increase oversteering.



## MAINTENANCE OF SPEED CONTROL

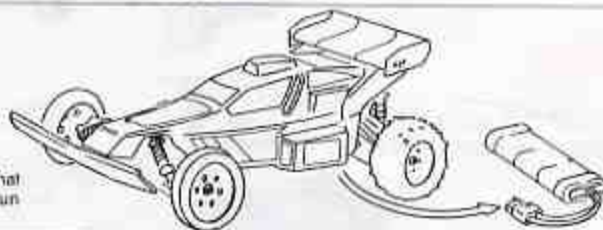
After running the Raider in dusty conditions, clean the contact strips of any dirt which may affect speed control operation.



Periodically oil the pivot to insure smooth operation.

## AFTER-RUN MAINTENANCE

- (1) Remove the NiCd battery from the car completely. This will prevent corrosion and inadvertent short circuits.
- (2) Clean the motor gears and chassis if necessary. Dirt and grime is your car's number one enemy. Keep it clean between use.
- (3) Check the car over from top to bottom. Be sure all screws are tight and that none are missing. It is much easier to find a lost nut or screw right after you run the car, than it is to find it a week or so later.



## TROUBLE SHOOTING GUIDE

Problem	Probable Cause	Possible Solution
Servo does not operate.	Weak transmitter or receiver battery.	• Charge/recharge transmitter and receiver batteries.
	Fault in radio control set.	• Have radio control set checked.
Car stops while running.	Discharged car battery.	• Recharge battery.
Car stops while running.	Bad wiring.	• Check all splices and wiring.
Car runs but does not gain speed.	Loose pinion on motor shaft (motor spins but car does not move).	• Tighten setscrew of motor pinion.
	Loose connectors.	• Check that all connectors are joined securely.
	Tight axle nuts.	• Check nuts holding wheels on axles. (Turn front and rear wheels to check for binding.)
	Bent axles, etc.	• Check that axles are straight and that no other important parts are out of line.
Car does not stop.	Deterioration of motor, battery.	• Replace faulty item.
	Speed controller linkage.	• Eliminate free play in speed controller linkage.
Car does not run straight.	Insufficient toe-in.	• Check that transmitter speed control stick is in center position when released (not offset by trim lever).
	Steering servo.	• Adjust speed controller linkage so that when arm is in center when transmitter stick is in neutral position.
Car does not run straight.	Wheel drag.	• Adjust length of tie rods as described in instructions.
	Smaller tires on one side.	• Horn on steering servo not centered. • Trim lever on transmitter not centered.
		• Check if a wheel is binding, scraping or dragging.
		• Tires may have worn more on one side of car. Check diameter of tires and fit new ones if this is the cause of the problem.

## OPERATIONAL SAFETY

Radio controlled model cars are powered by quick discharge NiCd batteries which allow the cars to obtain high speeds. **Caution** is required when operating R/C cars.

Do not run R/C cars on the street.

Do not run the R/C cars in the house.

Check to make sure no one else is on your frequency. If so do not turn your radio on.

If your car is stopped by an obstacle do not continue running the car. Remove the car manually. Failing to do so may ruin the motor and wiring.

Do not grab the tires while they are rotating.

Before connecting the NiCd battery, check that the speed control is in the neutral position.

The motor and receiver are powered by the same NiCd battery. As the battery lowers the receiver loses power resulting in the loss of control of the car. When the car slows down, stop, and recharge the battery.

Remove the NiCd battery from the car.

## MAINTENANCE AFTER RUNNING THE CAR

Wipe the dirt off of the car.

Make sure all the switches of the radio control unit are off.

Clean and grease the moving parts periodically.

Check and tighten all nuts and screws.

Wipe the speed control off with a rag or a brush and check regularly.

## MOTOR CARE

The motor generates a lot of heat while running. The motor needs time to cool between batteries. Failure to do this may shorten the life span of the motor.

After several runs the motor power may decrease from carbon accumulating on the commutator. Remove the pinion gear and run the motor for 15 minutes with a 7.2 volt battery. This will clean the commutator of the carbon.

Clean and oil the motor bushings regularly.

## RUNNING THE RAIDER

The same battery powers the radio and motor. As soon as the car starts to slow down, recharge the battery. Otherwise you will quickly lose control.



After running, always remove the battery from the car.



## CHECK BEFORE EVERY RUN

- Check to see if all bolts and nuts are tightened firmly.
- Check to see NiCd battery is fully charged.
- Check to see if the steering and speed control is in proportion to your control of the transmitter.
- Check to see that all wiring is properly insulated.
- Check to see if parts are moving smoothly.

## OPERATING PROCEDURES

- Turn transmitter switch on.
- Switch on the receiver.
- Check to see if the radio system is working properly.

**NOTE:** When turning off the switches, turn off the receiver first then transmitter. Otherwise, the servos may be left in a position other than neutral.

## TROUBLE SHOOTING IF THE CAR DOES NOT START

- Poor contact of connectors of batteries, connector, and speed control.
- Check to see if the NiCd battery is fully charged.
- Check to see shortage of battery power for the transmitter.
- Signal interference from other radios.

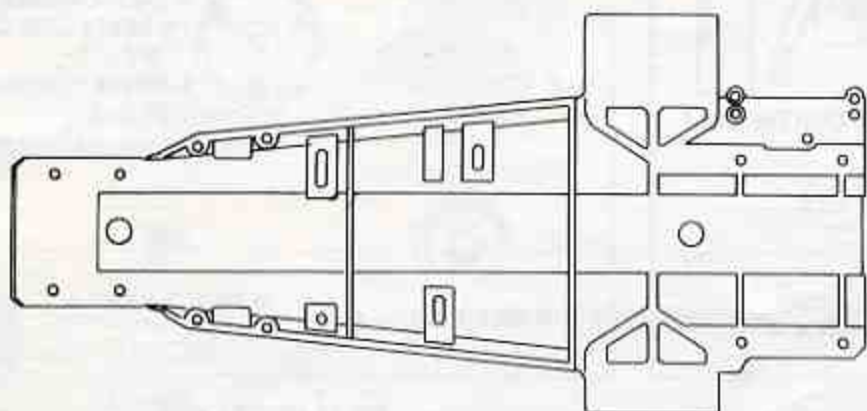


# PURCHASING PARTS FOR YOUR KIT

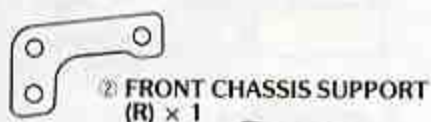
You can purchase a replacement and optional parts for your kit. All of the parts identified by key numbers (see page 18 for complete list) are usually not available singularly, but we offer these parts in convenient parts "packs" which can be purchased separately. To figure out which parts pack you need,

find the key number for that part within the manual. Then consult our parts pack guide below. When referring to the parts you need, always use the **Parts Pack Number**. For instance, if you need a Idle Shaft (Key #70) ask your dealer for Kyoshō Parts Pack RD-06 (Shaft Set).

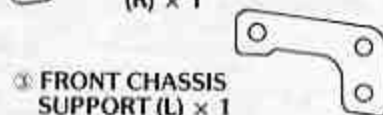
## RD-01 CHASSIS SET



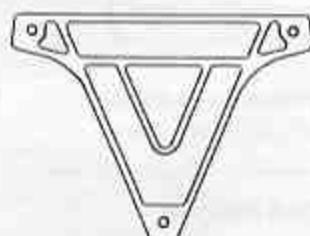
① MAIN CHASSIS × 1



② FRONT CHASSIS SUPPORT (R) × 1

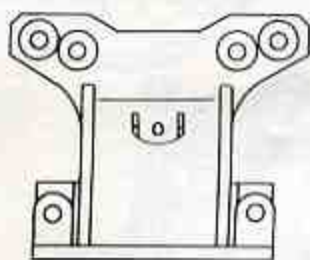


③ FRONT CHASSIS SUPPORT (L) × 1



④ REAR CHASSIS SUPPORT × 1

## RD-02 FRONT SUSPENSION MOUNT



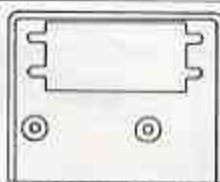
⑤ FRONT SUSPENSION MOUNT × 1

## RD-03 PLASTIC PARTS

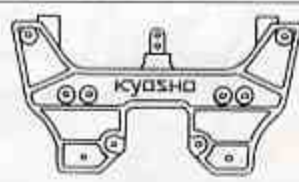
⑥ FRONT SUSPENSION STOPPER × 2

⑦ PLASTIC COLLAR (A) × 2

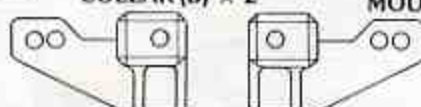
⑧ PLASTIC COLLAR (B) × 2



⑨ SPEED CONTROL MOUNT × 1



⑩ REAR SHOCK STAY × 1



⑪ KNUCKLE ARM (R) × 1 ⑫ KNUCKLE ARM (L) × 1



⑬ SERVO SAVER (Z1 - 4) × 1

## RD-04 PLASTIC PARTS B

⑭ FRONT BODY HOOK × 1

⑮ STEERING SERVO MOUNT × 2

⑯ SPEED CONTROL SERVO MOUNT (A) × 1

⑰ SPEED CONTROL SERVO MOUNT (B) × 1

⑱ ANTENNA HOLDER × 1

⑲ THICKNESS GAUGE × 1

⑳ SWITCH COVER × 1

## RD-05 UPPER ARM/KING PIN SET

㉑ KING PIN × 4

㉒ FRONT UPPER ARM × 2

㉓ REAR UPPER ARM × 2

## RD-06 SHAFT SET

㉔ SUSPENSION SHAFT 30mm × 4

㉕ SUSPENSION SHAFT 45mm × 4

㉖ IDLE SHAFT × 1

㉗ COUNTER SHAFT × 1

## RD-07 FRONT WHEEL SHAFT

㉘ FRONT WHEEL SHAFT × 2

## RD-09 ROD SET

㉙ 4.5mm PIVOT BALL × 2

㉚ TIE ROD (A) × 1

㉛ TIE ROD (B) × 1

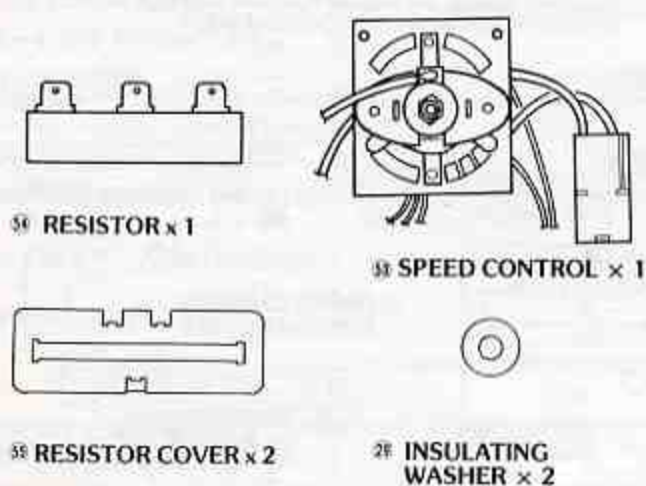
㉜ 4.5mm BALL LINK × 2

㉝ SPEED CONTROL ROD × 1

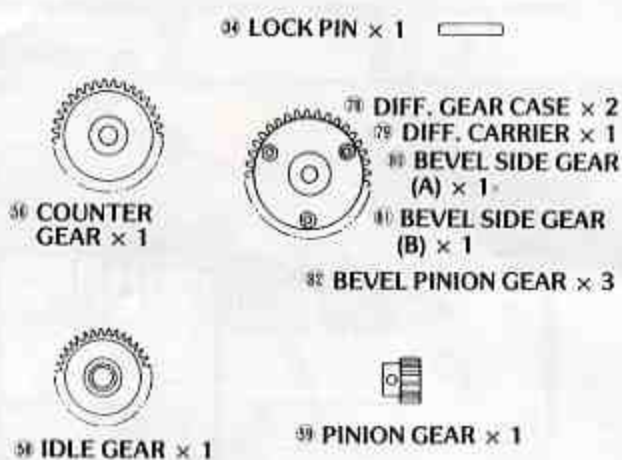
## RD-08 BUSHING SET

㉞ 4x8mm METAL BUSHING × 6 ㉟ 5x10mm METAL BUSHING × 8

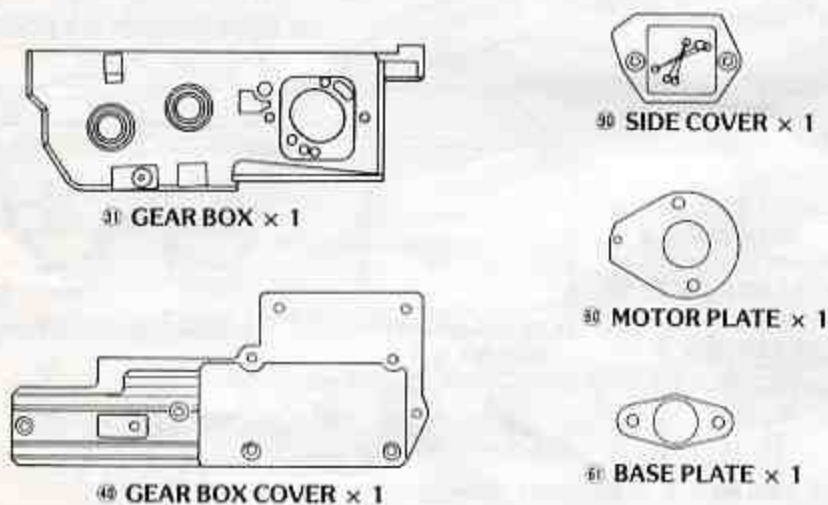
**RD-10 SPEED CONTROL**



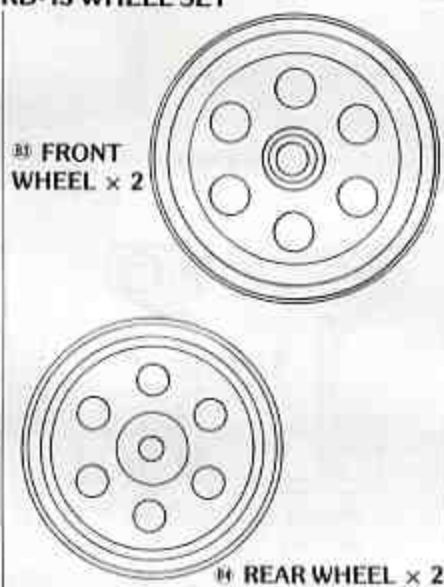
**RD-11 GEAR SET**



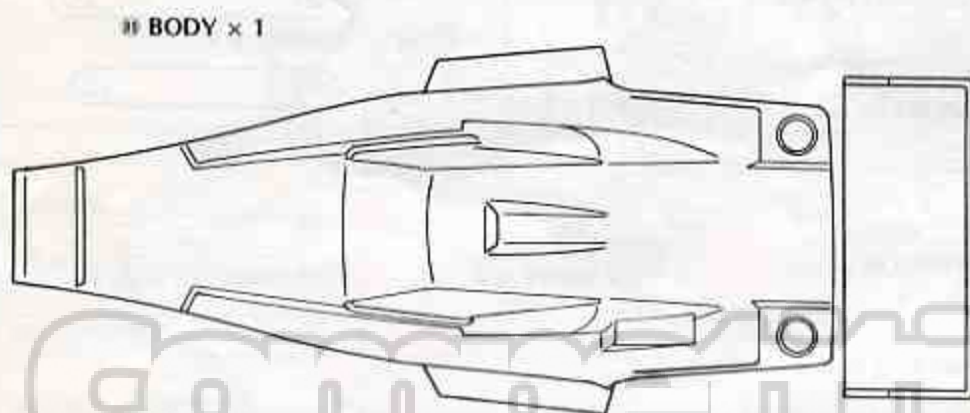
**RD-12 GEAR BOX**



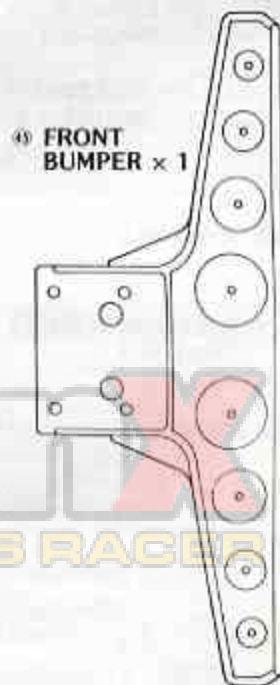
**RD-13 WHEEL SET**



**RD-15 BODY RAIDER (2WD)**



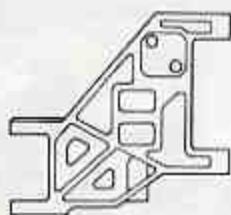
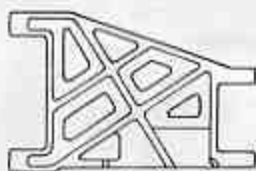
**RK-01 FRONT BUMPER**



**RD-14 SCREW SET x 1**

**RD-16 DECAL (RAIDER 2WD) x 1**



**RK-06 SUSPENSION ARM SET**

**⑥ FRONT SUSPENSION ARM × 2**

**⑦ REAR SUSPENSION ARM × 2**
**RK-10 HUB SET**

**⑧ FRONT HUB (R) × 1**

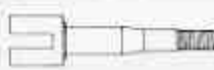
**⑨ FRONT HUB (L) × 1**

**⑩ REAR HUB × 2**
**RD-17 SWING SHAFT**
**⑪ SWING SHAFT × 2**

**RK-21 JOINT**

**⑫ JOINT × 2**
**⑬ PILOT SHAFT × 1**

**⑭ JOINT SPRING × 2**

**RK-23 REAR WHEEL SHAFT**

**⑮ REAR WHEEL SHAFT × 2**
**RK-24 DRIVE**

**⑯ DRIVE WASHER × 2**
**PI-7 SHOCK SET**
**⑰ FRICTION SHOCK (E1 - 3) × 4**

**⑱ 5.8mm BALL × 4**
**⑲ E-1 SHOCK TOP**

**E-2 REAR SHOCK CASE  
E-3 FRONT SHOCK CASE**
**⑳ SHOCK O-RING × 4**

**㉑ SHOCK STOPPER × 4**
**㉒ SHOCK PISTON × 4**

**㉓ SHOCK END × 4**
**㉔ RUBBER BUSHING × 1**

**㉕ SPRING ADJUSTER × 4**
**㉖ FRONT SHOCK SPRING × 2**

**㉗ REAR SHOCK SPRING × 2**

**PG-22 REAR TIRE**

**㉘ REAR TIRE × 2**
**1875 FRONT TIRE**

**㉙ FRONT TIRE × 2**
**SD-70 ANTENNA TUBE**
**㉚ ANTENNA TUBE × 5**

**OT-51 PINION GEAR 14T**
**㉛ PINION GEAR 14T**

**1889 BODY PIN**

**㉜ BODY PIN × 5**
**OPTIONAL PARTS**

Pack No.	Parts Name	Consisting Of
PG-14	Oil Shocks	Standard Size Oil Shock
EF-039	Strap	1/4" × 12 (6) Battery Holder
W-5001	Pressure Shock (S)	Gold Shock - Front
W-5002	Pressure Shock (L)	Gold Shock - Rear
W-5003	Adjustable Oil Shock (S)	Platinum Shock - Front
W-5004	Adjustable Oil Shock (L)	Platinum Shock - Rear
W-5044	Racing Clutch 14T	Torque Limiting Clutch
W-5062	Universal Swing Shaft	Replaces Swing Shaft and Rear Wheel Shaft
H-006	Bearing Set	8 pcs. 5mm × 10mm 6 pcs. 4mm × 8mm
PG-65	Oil Shocks	Standard Size Oil Shock
1951	Shock Oil Set (S.M.H)	3 Different Grades (Soft, Medium, Hard)
UM-17	Wheel Set	Use Wheel and Tire As A Set Suitable In Most Conditions
W-5031	Low Profile Tire	
1863	Decal (Sponsor)	
OT-24	Pinion Gear (15T)	9:1 10:1:1
SC-40	Motor Cover	

**KYOSHO**

 ENTIRE CONTENTS © COPYRIGHT, 1988, **HOBBICO**™ INC.

*THE SUPER HOBBY*

**KYOSHO**<sup>®</sup>  
THE FINEST RADIO CONTROL MODELS

**CompetitionX**  
A WEB SITE FOR THE SERIOUS RACER