## RADIO CONTROLLED ELECTRIC POWERED RACING BUGGY

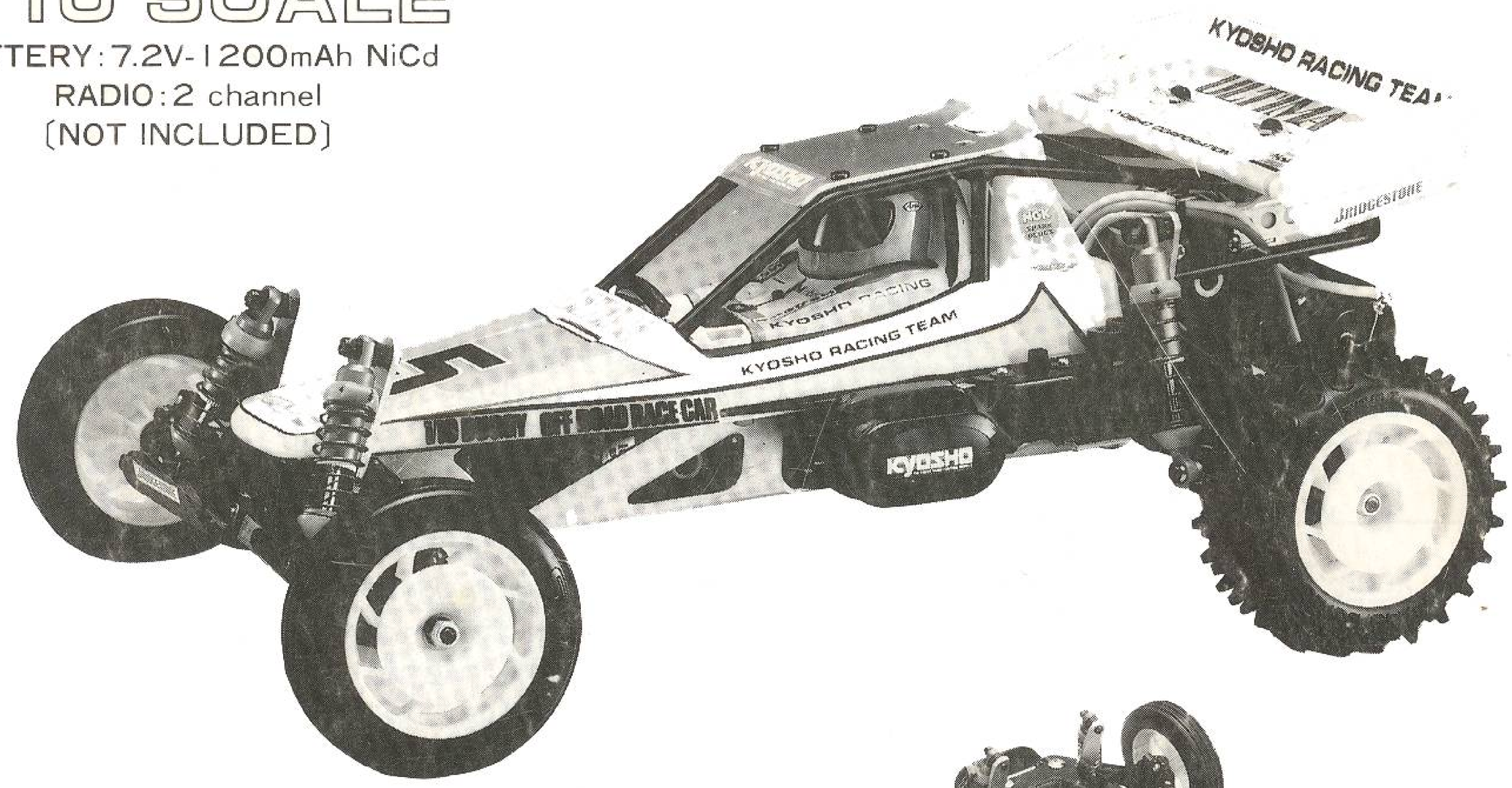
# OFF-ROAD RACER

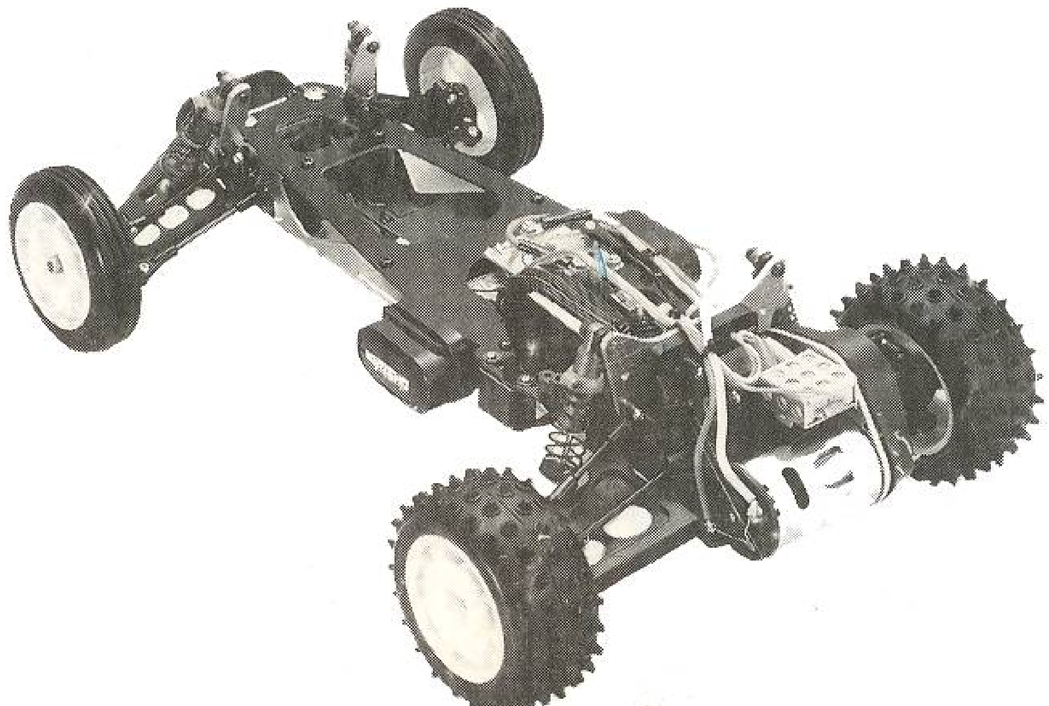
# ULTIMA

- SUPER LIGHT WEIGHT FOR SNAPPY ACCELERATION.
- SUPERB LONG-TRAVEL SUSPENSION FOR TOP HANDLING ON EVEN THE WORST TRACKS.
- NEW ALUMINUM PLATE/TRUSS CHANNEL-TYPE CHASSIS FOR STRENGTH AND LIGHT WEIGHT.
- OPTIMIZED COMBINATION OF SUSPENSION DESIGN AND WEIGHT DISTRIBUTION FOR TOP HANDLING.
- INDEPENDENT SUSPENSION ON ALL FOUR WHEELS BY PARALLEL WISHBONES/ARMS NEW RACE-TESTED GEOMETRY.
- COIL-SPRINGS AND OIL-FILLED SHOCK ABSORBERS ON ALL WHEELS.
- FRONT ANTI-ROLL BAR STANDARD. REAR BAR OPTIONAL.
- POWERFUL MABUCHI RS-540S MOTOR INCLUDED IN KIT.
- TRUE GEAR-TYPE DIFFERENTIAL.
- STRONG ALUMINUM AND NYLON PARTS. A QUALITY KIT.
- SIMPLE ADJUSTMENTS. DESIGNED FOR SIMPLE MAINTENANCE.
- MANY SUPER-PERFORMANCE PARTS AVAILABLE AS OPTIONS.

## 1:10 SCALE

BATTERY: 7.2V-1200mAh NiCd
RADIO: 2 channel
(NOT INCLUDED)



KYOSHO
THE FINEST RADIO CONTROL MODELS

KIT No.3115

## BEFORE ASSEMBLY

*Read the Instruction Carefully.

You can assemble the kit more easily if you have grasped the general idea of steps and structure beforehand by reading it through to the end.


Instruction

*Check the Parts in the Kit

Check to see if all the parts are correctly bagged as they are listed in the "List of Bagged Parts.


List of Bagged parts

Your through understanding of the assembly will enable you to build the kit without difficulty. Check the components in the kit prior to your startings the assembly. Any claims for replacements or refunds for the model in the process of assembly will not be accepted.

*Learn the Marks described in the Instruction.

 ... Points where grease should applied. (It will reduce friction and assure smooth movement.)

... Places to put some locktite. (It will prevent the screws and nuts get loosen by vibration while running.)

 .. Steps where you particular attention is required.

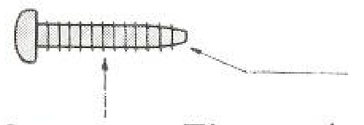
*Be well aware of the Different types of screws.

Distinguish them by the pitch of thread and the shape of screw points.

### Ordinary Screw

Finer Thread

### TP Screw (Short from of self tapping screw)



A tapered point

Coarse Thread

### Set Screw

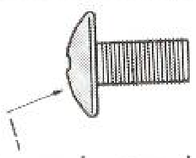
A hexagonal hollow in place of screw head.

### Bind Screw

(There are two kinds of thread, finer and caoser ones.)

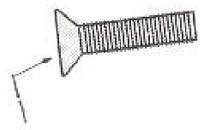
Thinner and bigger head

### Truss Screw



Round and bigger head

### Flat Head Screw

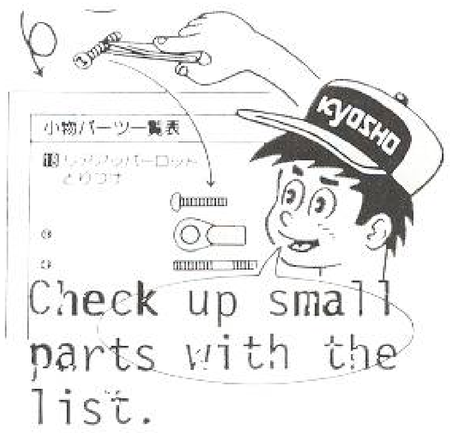


A shape of dish

*Pick up the Correct Parts and Screw

Compare the shape and size of small parts, such as screws, nuts, and washers with the attached sheet of "List of Small Parts."

List of Small Parts

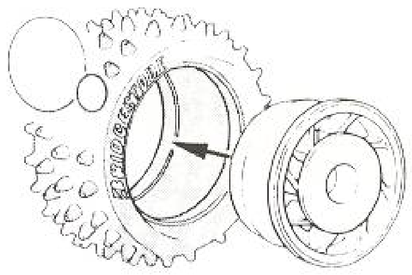



Check up small parts with the list.

*Be sure about the Location and Direction of Parts to Install.

Double-check the location and orientation of parts with the illustration before installation. When necessary, assemble the parts themselves tentatively before proceeding to the next step.

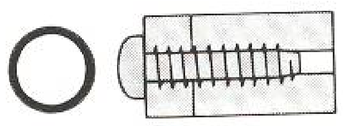
Be careful about the direction.



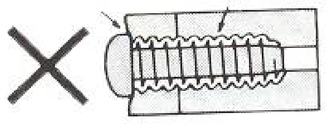
*Do not tight the Self-tapping Screw too tight.

Do not use excessive force when tightening the self-tapping screws, or you may strip the thread in the plastic. It is recommended to stop tightening it when the threaded part on the screw goes into the plastic part and you feel some resistance from the tightening.

Good



Over tighten and may strip the thread in the plastic.

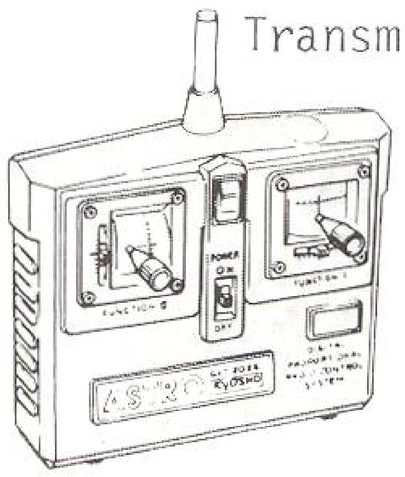


## THINGS NEEDED BESIDES THE KIT

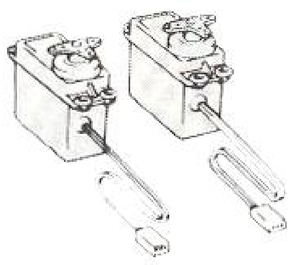
[2 Channel Radio System]

Two types of radio control sets are on the market, the stick type and the steering wheel type. Choose which ever you like.

Transmitter



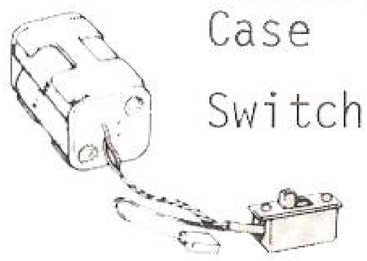
Servo



Receiver

Battery Case

Switch



[Battery for Radio System]

AA Size Battery
(For Transmitter .... 8 pcs.)
(For Receiver .... 4 pcs.)

[Ni-Cad Battery]

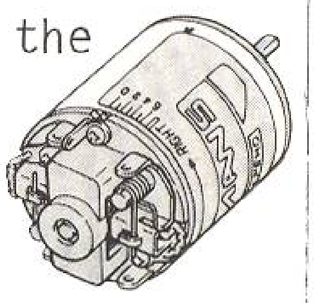
"Ultima" is designed to use a rechargeable 7.2V 1200mAh Ni-Cad battery pack. A Kyosho Racing Battery, Part number 2218 (and some other brands) may be recharged at a wide range of rates. The charging rate depends on the type of charger used.


[Battery Charger]

The simplest charger supplies a low current, and the battery is charged for 14-16 hours. This type of charger operates on household AC power. Faster charges are available, all operated from a well-charged 12V car battery. Using these, the battery pack can be recharged in 15-20 minutes. With the two or three battery packs, it is possible to run the car almost continuously. Kyosho offers three types of fast charger. Type 2207 charges at a constant current for a time set by a timer. Type 1846 allows adjusting the current using a built-in ammeter, and a timer shuts off the current at the time set by the user. Type 1848 also allows adjusting the current with a built-ammeter, but a circuit in it monitors the voltage of the cells and cuts off the charging current when the cells are fully charged. The latter two can charge a battery pack to 100% of its capacity, while the first gives about 70% of full charge safely.

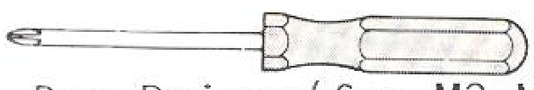
| Item No. | Name of Charger | Charging Time | Charging Rate | Features |
|---|---|---|---|---|
| No. 2221 | Super Ni-Cad Charger (AC100V) | 14 to 16 hrs. | 100% | For beginners |
| No. 2207 | Super Ni-Cad Rapid Charger (DC12V) | 15 minutes | about 70% | For beginners; timer built in |
| No. 1846 | Multi Charger (DC12V) | 20 minutes | 100% | Timer, Ammeter built in |
| No. 1845 | Lambda Charger (DC12V) | about 20 minutes | 100% | Ammeter, in; Automatic cut-off at peak of charge |
| No. 2232 | Super Ni-Cad AC Rapid Charger | about 40 minutes | about 80% | Chargable from Household Outlet, Electronic Timer built in |

The Ultima comes with a Mabuchi RS-540 motor as stock. You may wish to upgrade the performance by purchasing a Kyosho LeMans Motor.



[Required Tools]

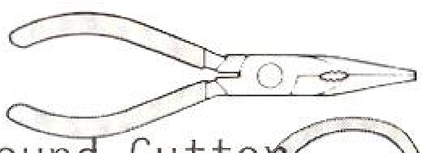
Philips & Slot Screw Driver(L, S)



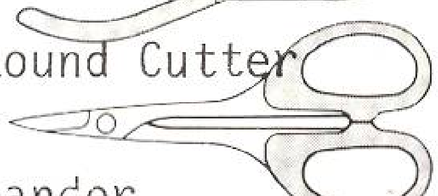
Box Driver(for M3,M4 Nut)

Sharp Hobby Knife

Needle Nose pliers



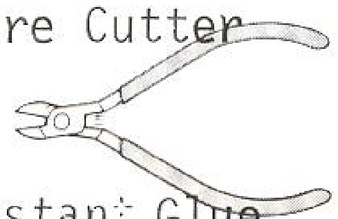
Round Cutter



Sander

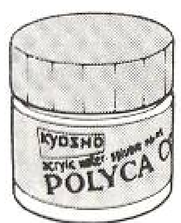
Awl

Wire Cutter



Instant Glue

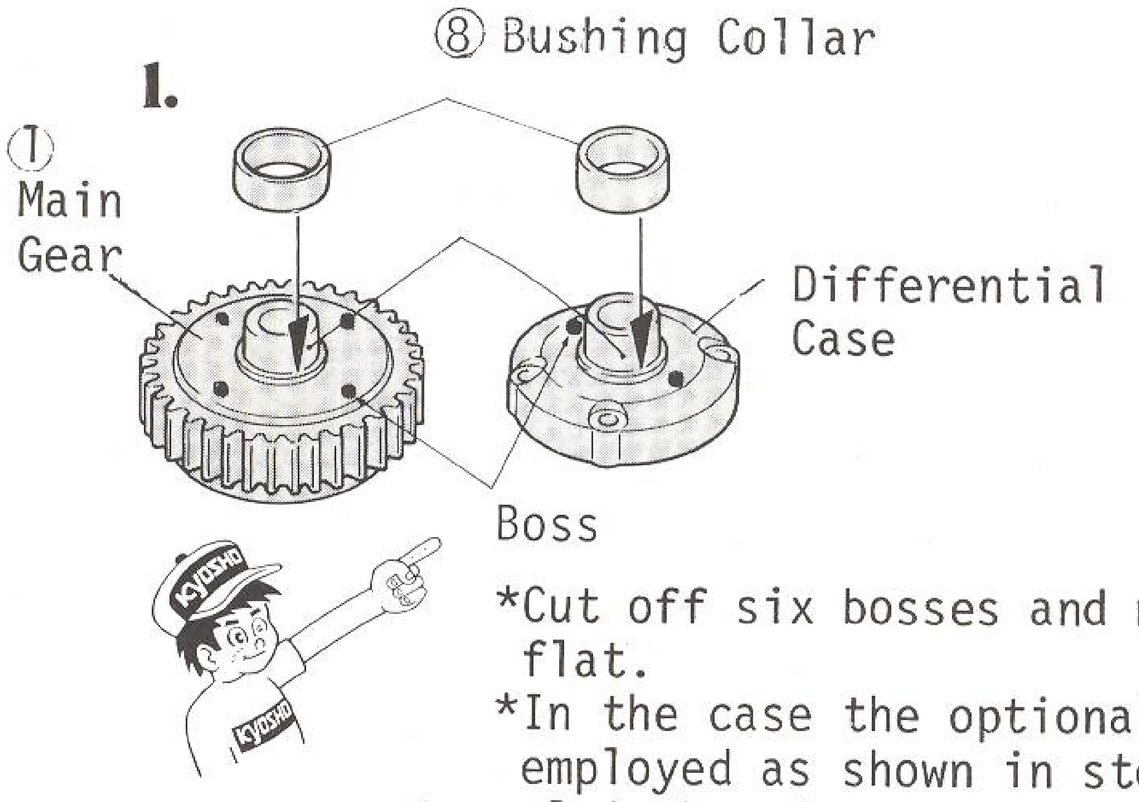
Polyca Paint




Micron Line Tape

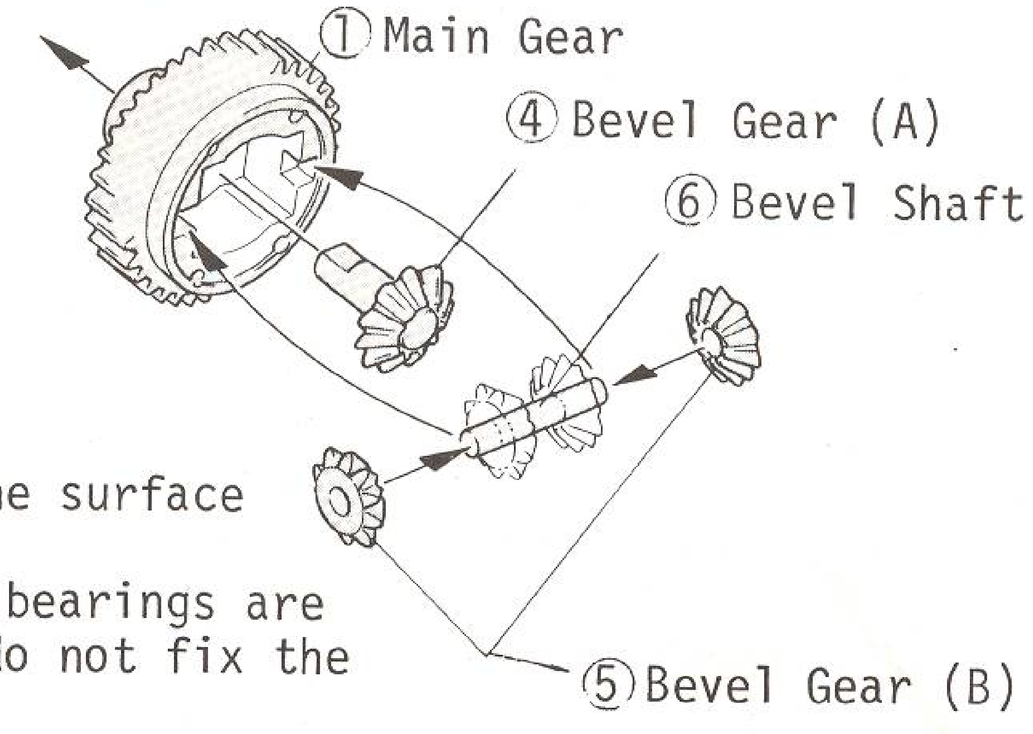
## 1 ASSEMBLY OF DIFFERENTIAL GEAR

**1.**

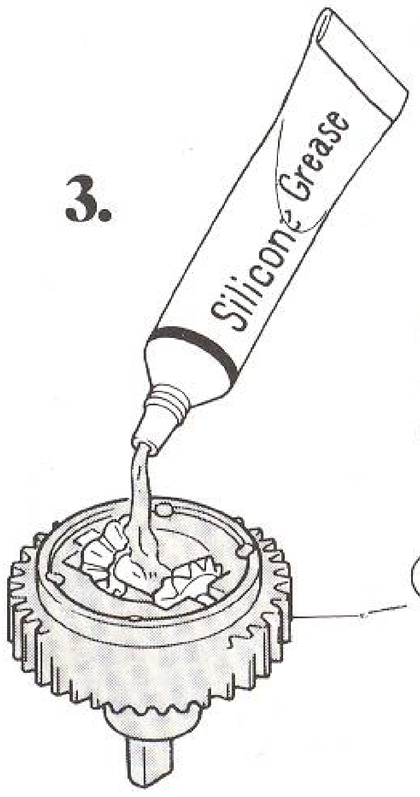



*Cut off six bosses and make the surface flat.
*In the case the optional ball bearings are employed as shown in step 2, do not fix the plain bearings.

**2.**

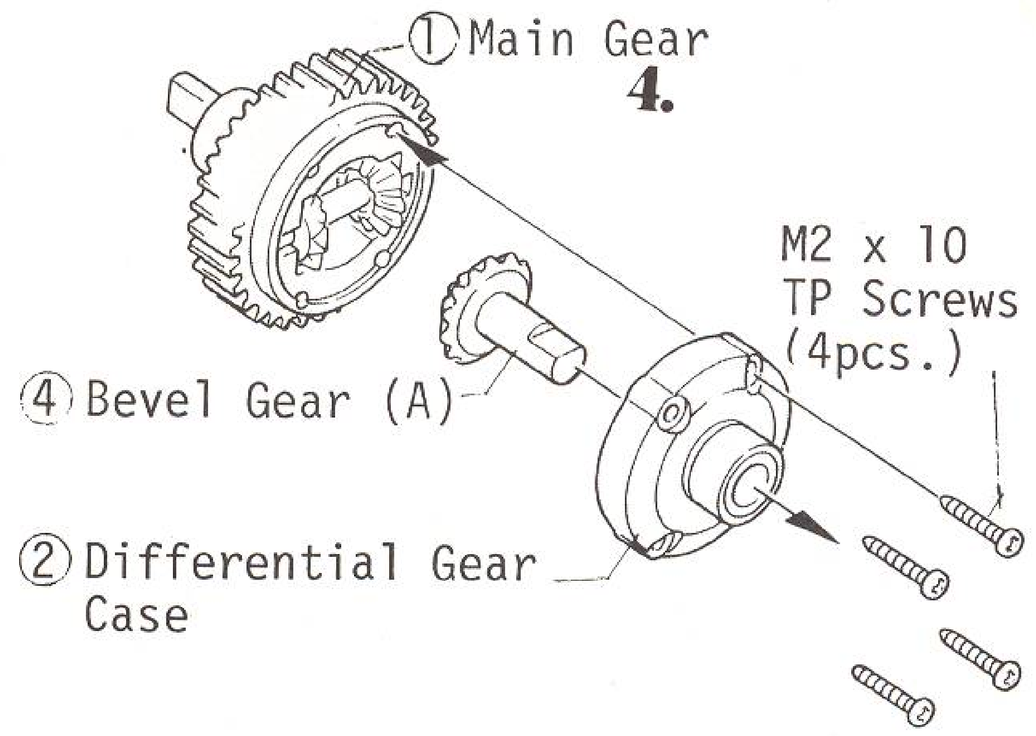



**3.**

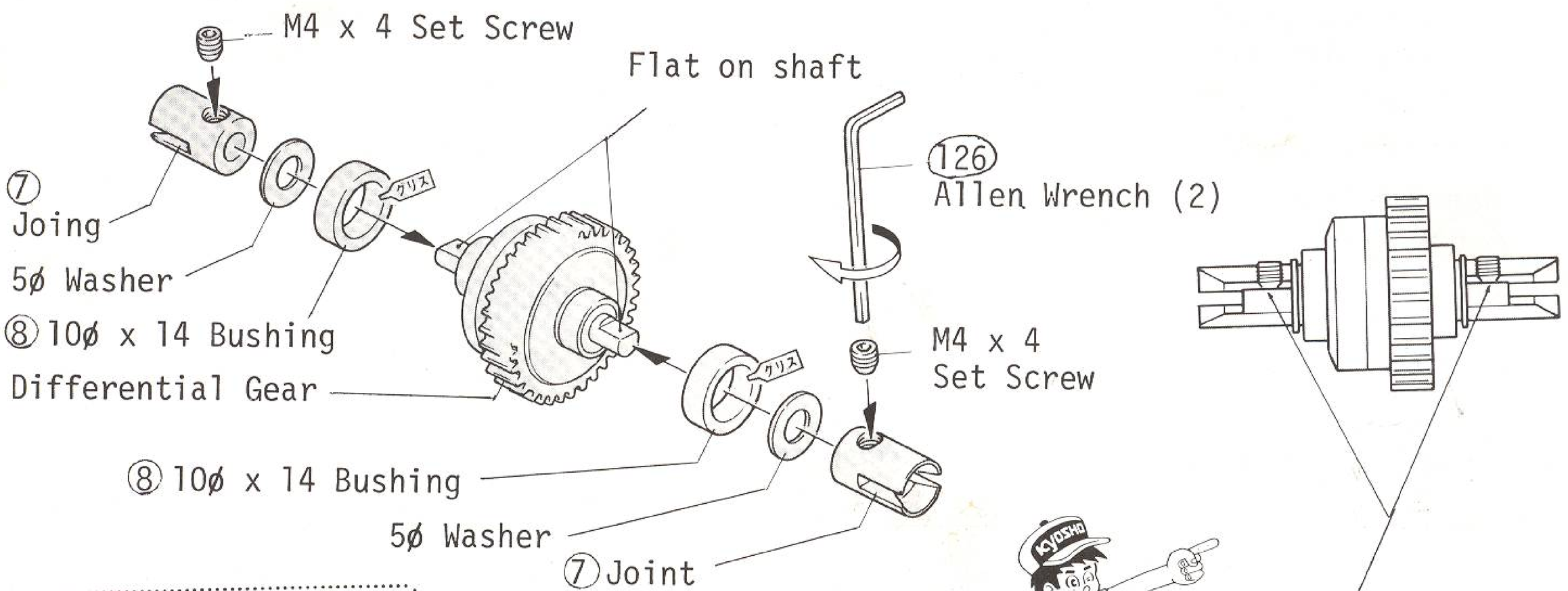



Fill up the gear train space with silicone grease.

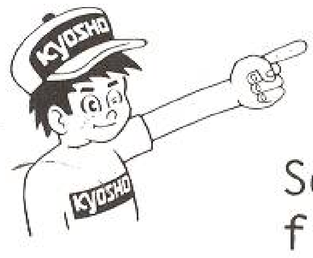
**4.**




## 2 INSTALLATION OF JOINT

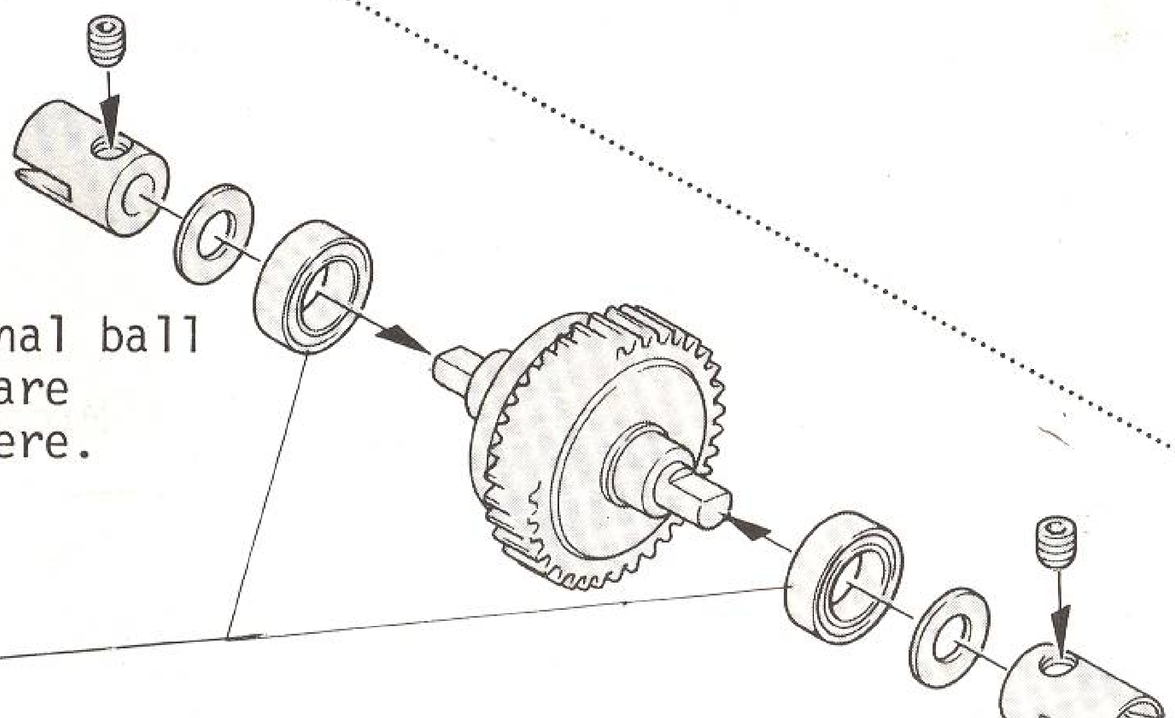




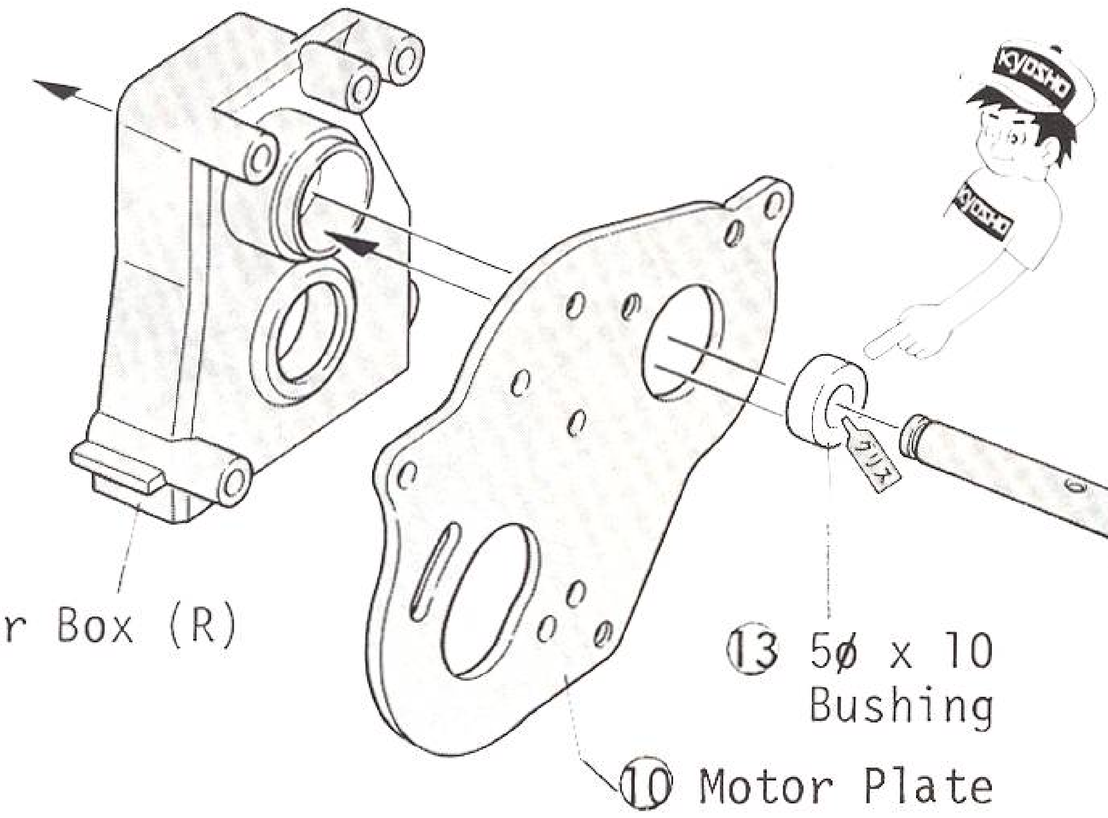
Set the set screw to the flat on the shaft and tight.

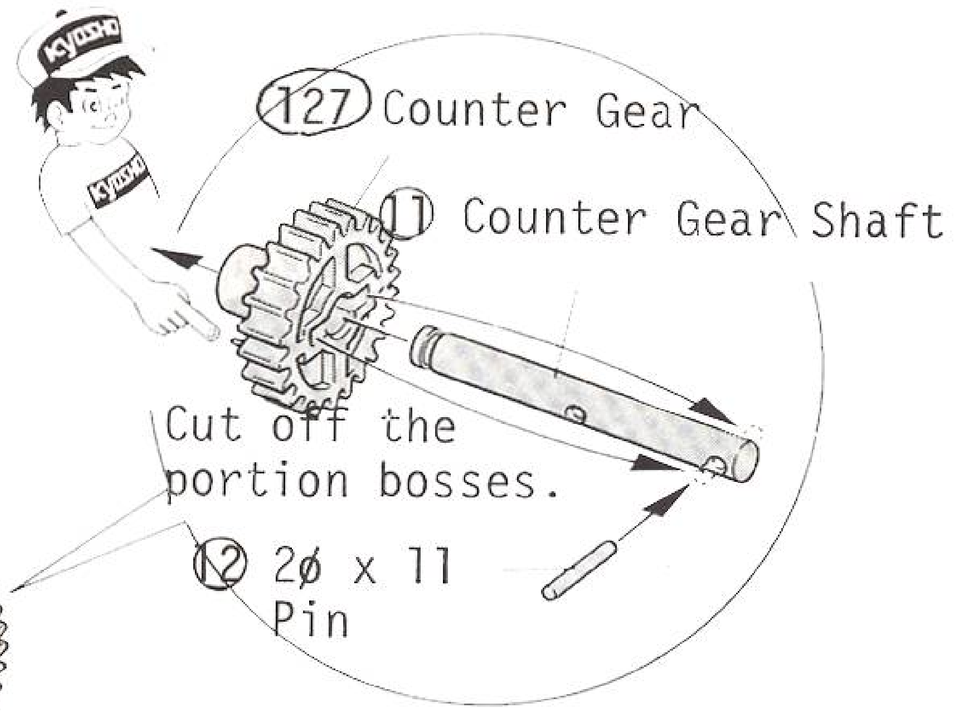
*The optional ball bearings are adopted here.



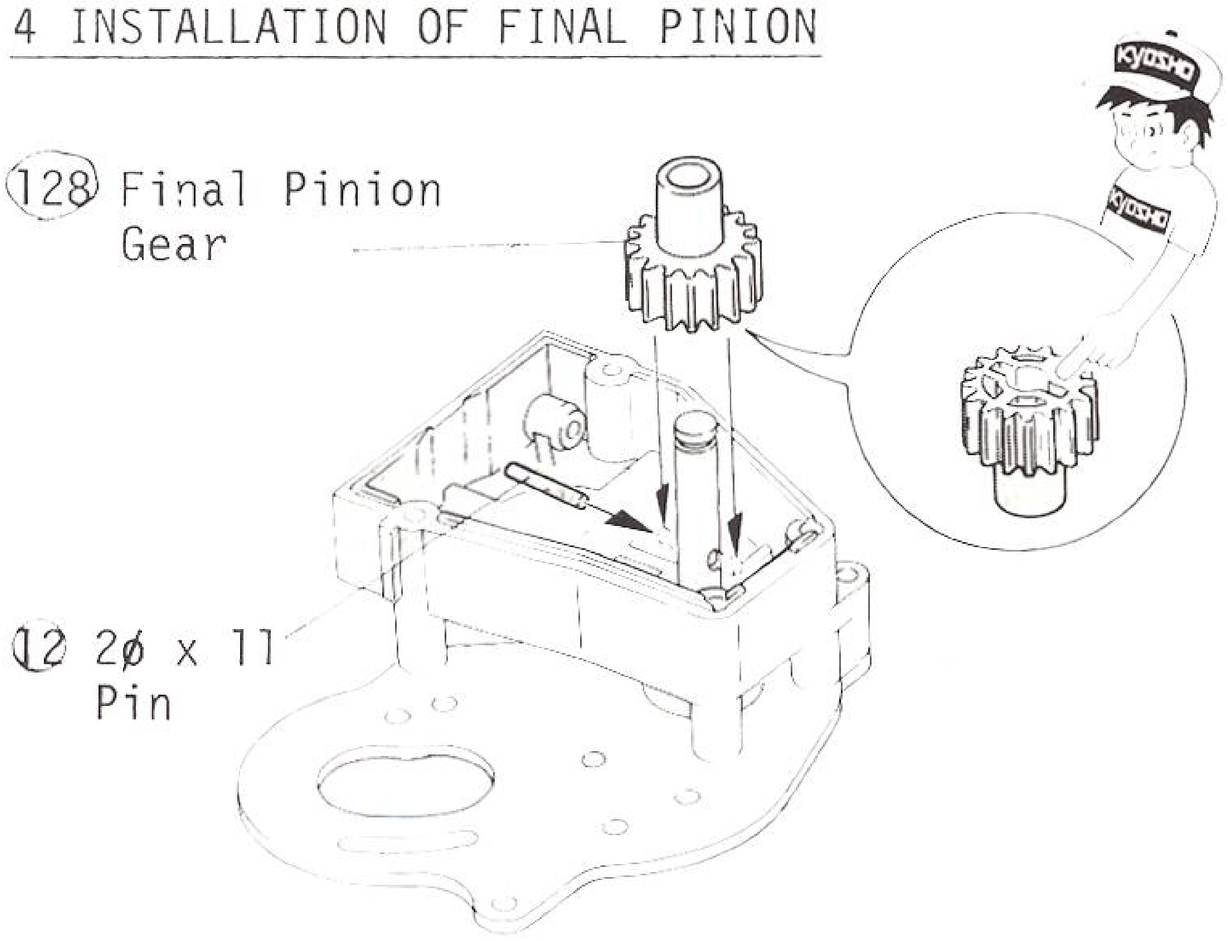
## 3 INSTALLATION OF COUNTER GEAR

*The optional ball bearings are adopted here.
In place of plain bearings, fit the 5mm dia. x 10 ball bearings, parts No.1901.

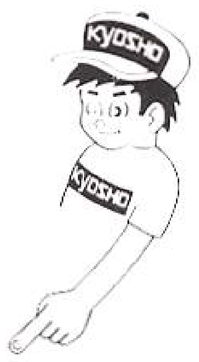


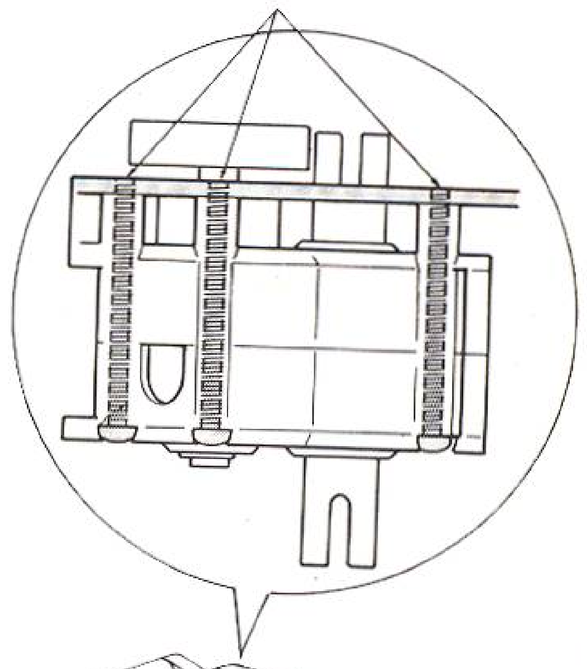

## 4 INSTALLATION OF FINAL PINION




Square the groove inside the gear to the pin on the shaft.



Tighten M3 x 33 screws flush with rear plate.



## 5 ASSEMBLY OF GEARBOX



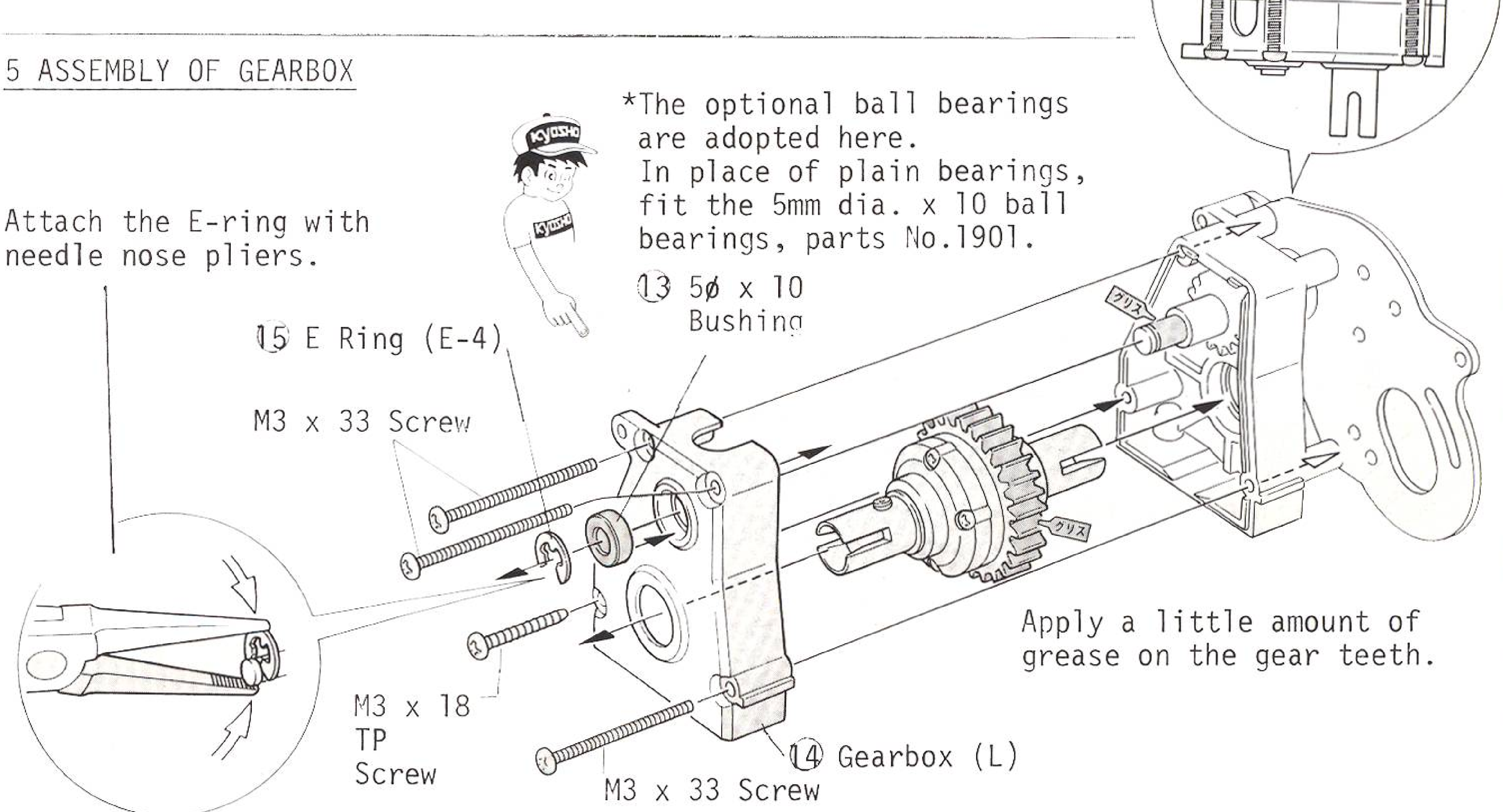
*The optional ball bearings are adopted here.
In place of plain bearings, fit the 5mm dia. x 10 ball bearings, parts No.1901.

13 5ø x 10 Bushing

Attach the E-ring with needle nose pliers.

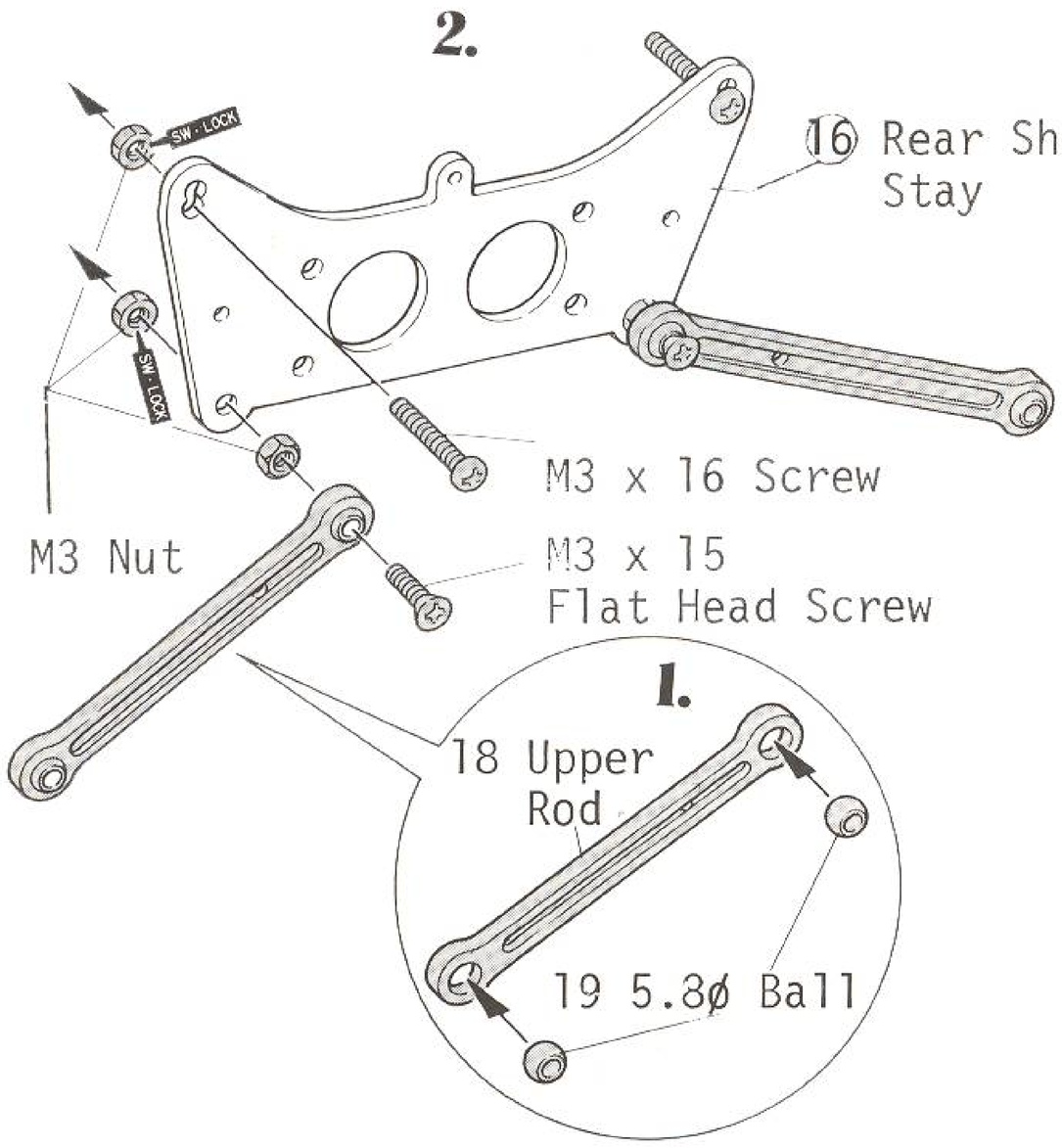
15 E Ring (E-4)

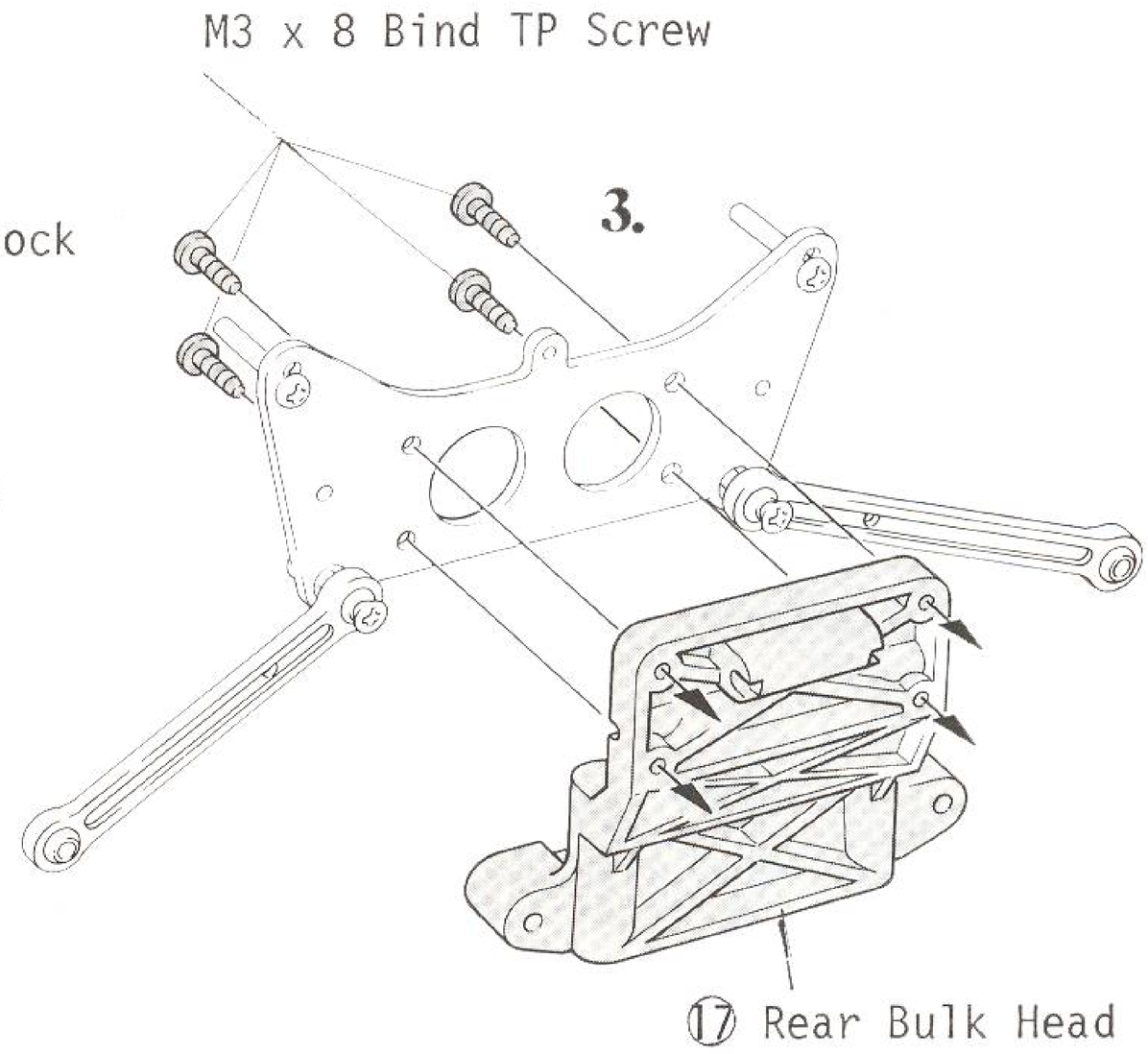
M3 x 33 Screw



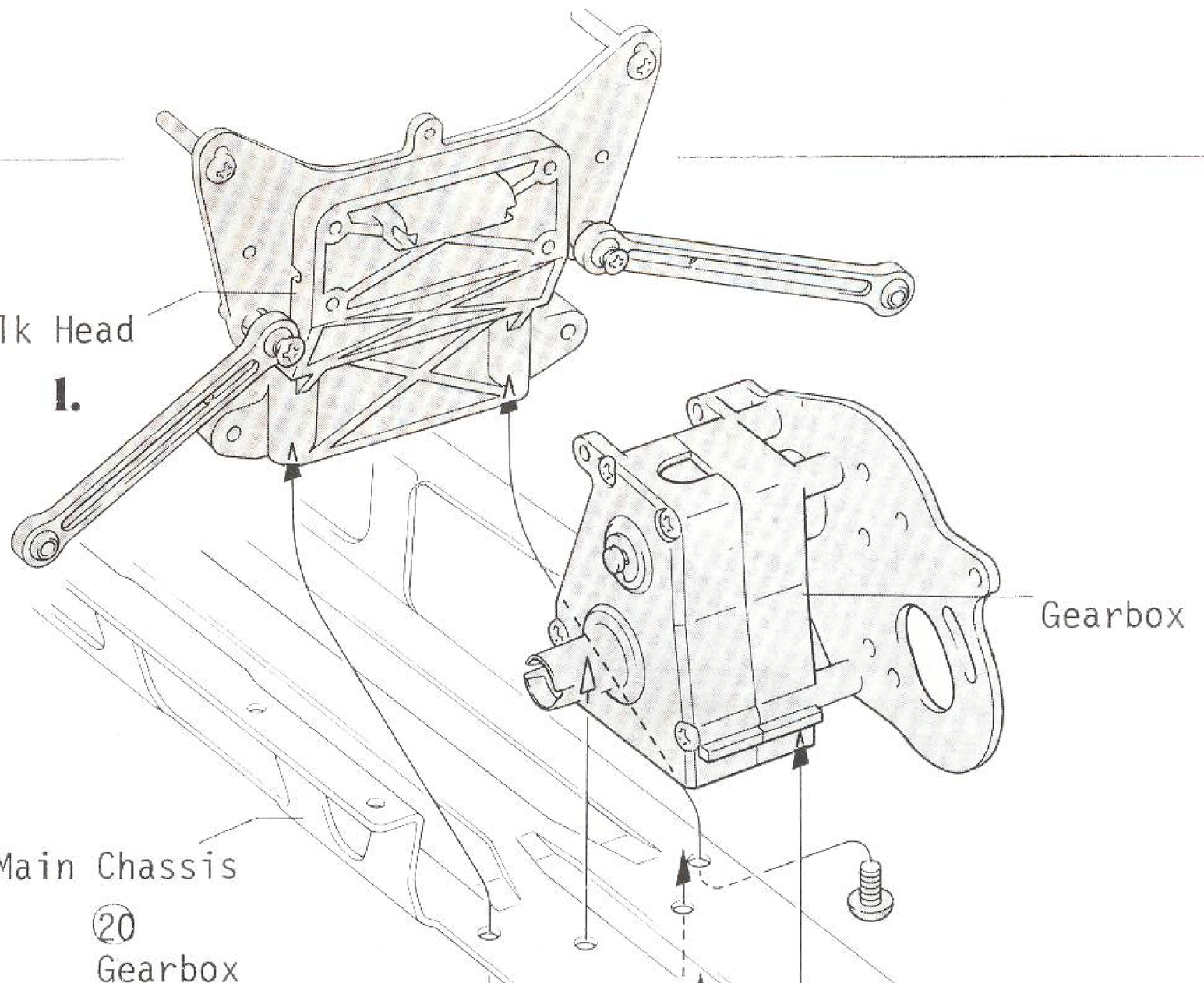

Apply a little amount of grease on the gear teeth.

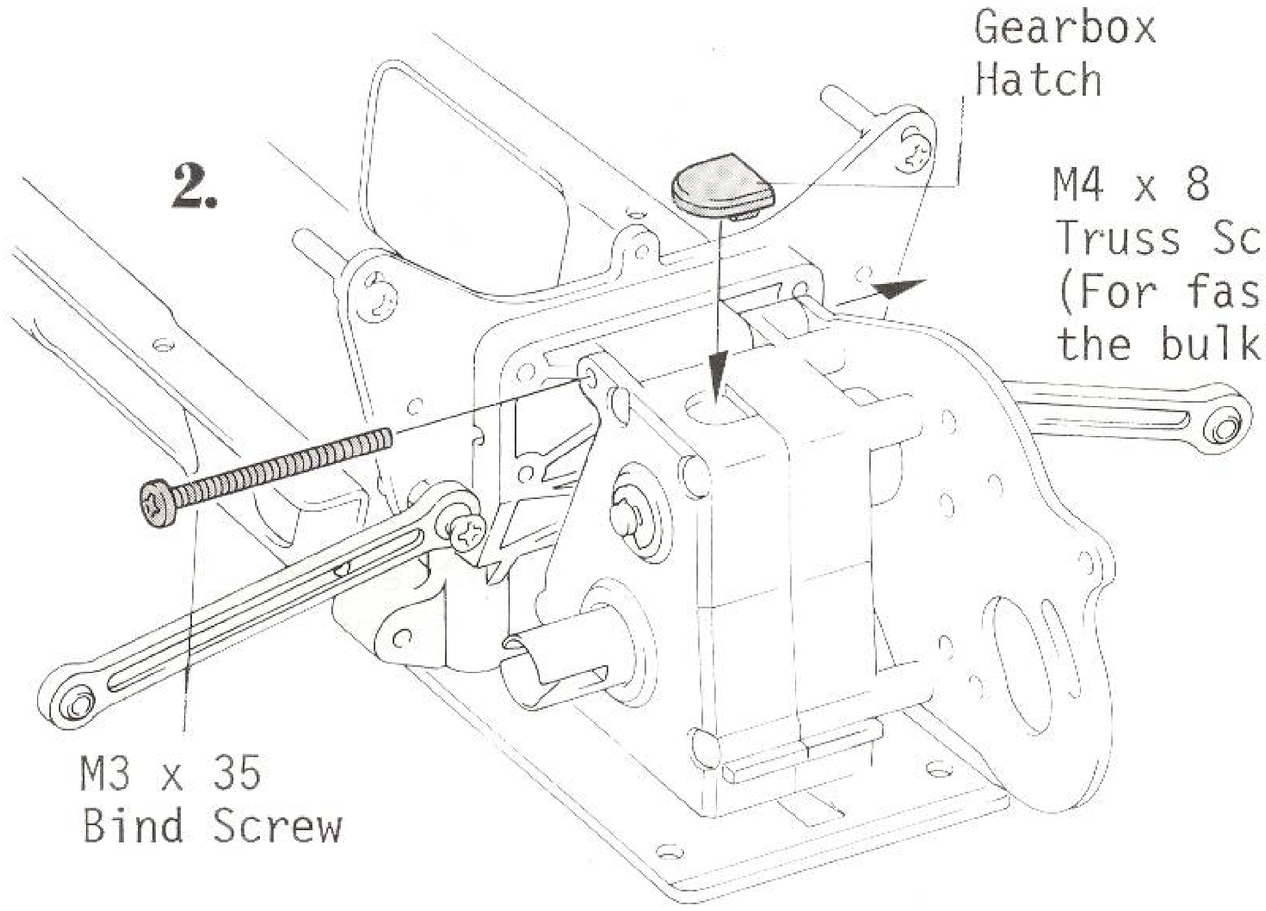
## 6 INSTALLATION OF REAR SHOCK STAY

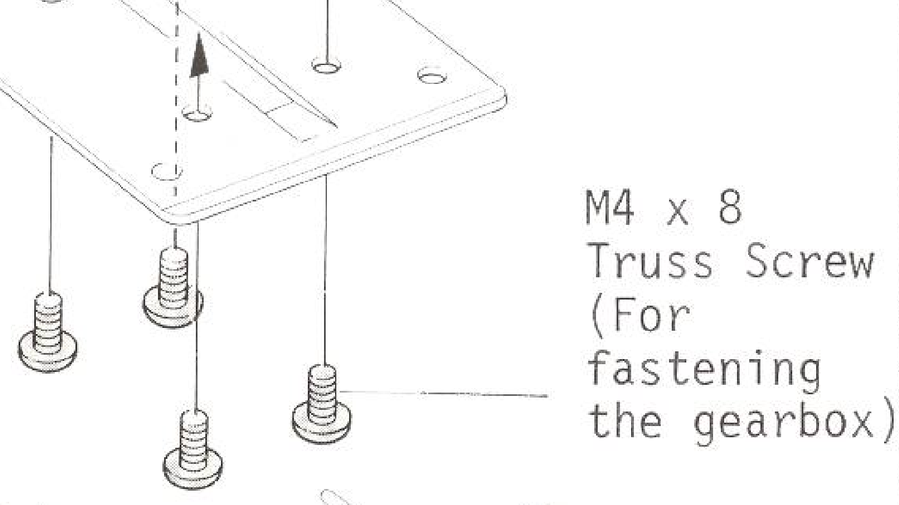


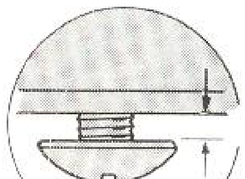




## 7 INSTALLATION OF GEARBOX



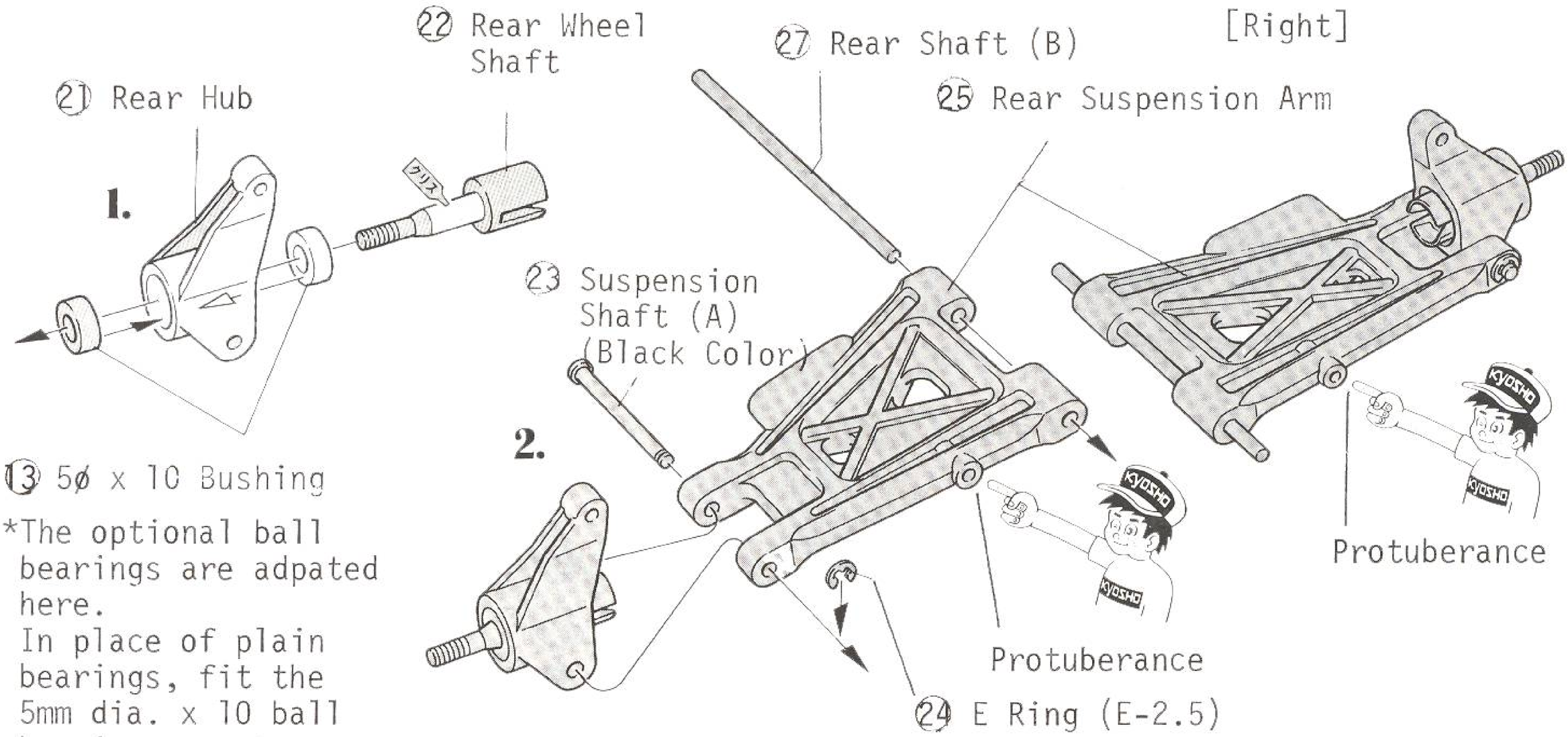



Make a clearance about of 2mm.

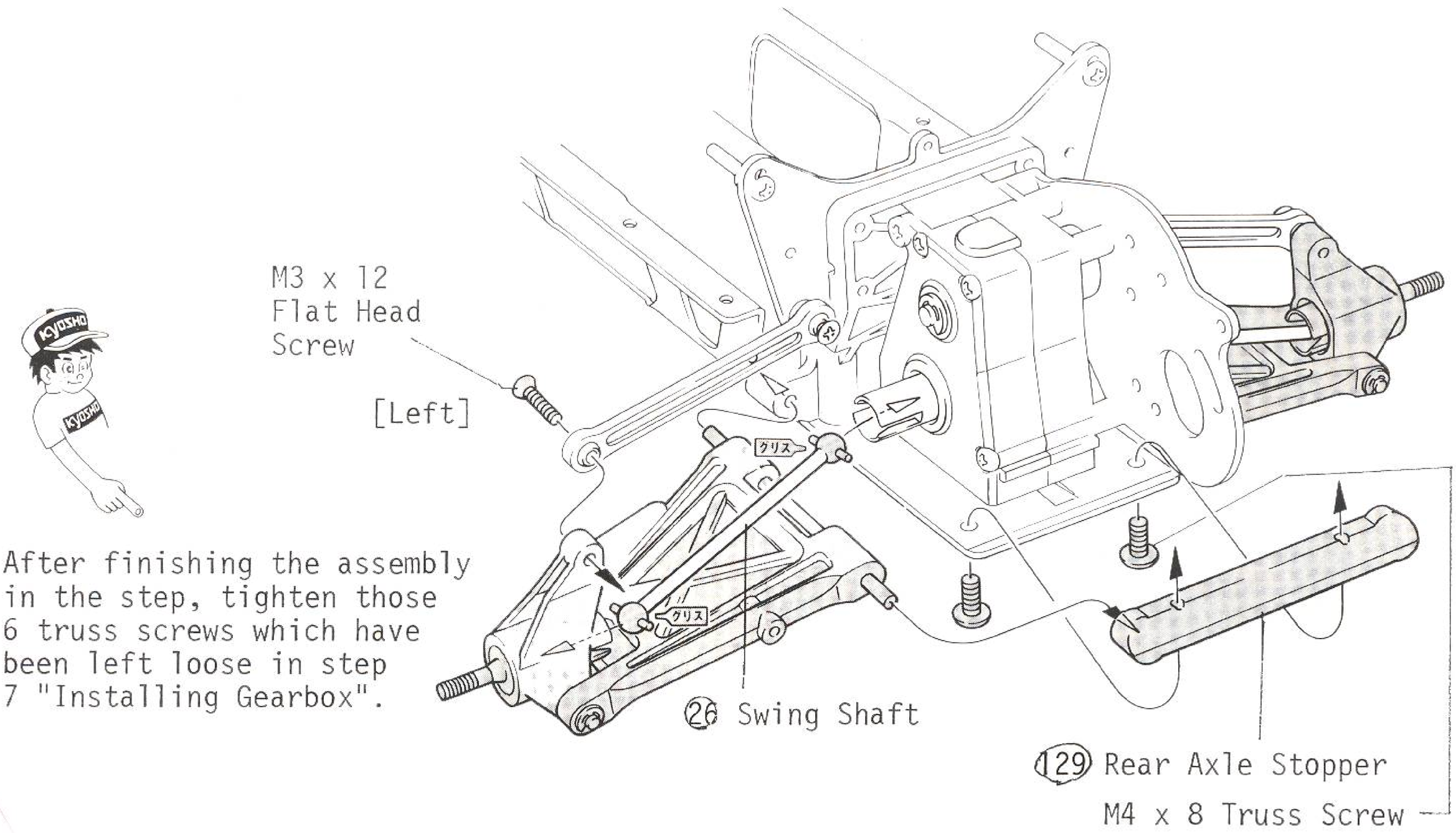
## 8 INSTALLATION OF REAR HUB




13 5ø x 10 Bushing

*The optional ball bearings are adpated here.
In place of plain bearings, fit the 5mm dia. x 10 ball bearings, parts No.1901.

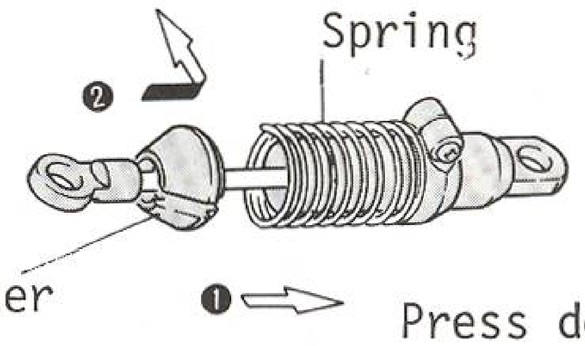
## 9 INSTALLATION OF REAR SUSPENSION



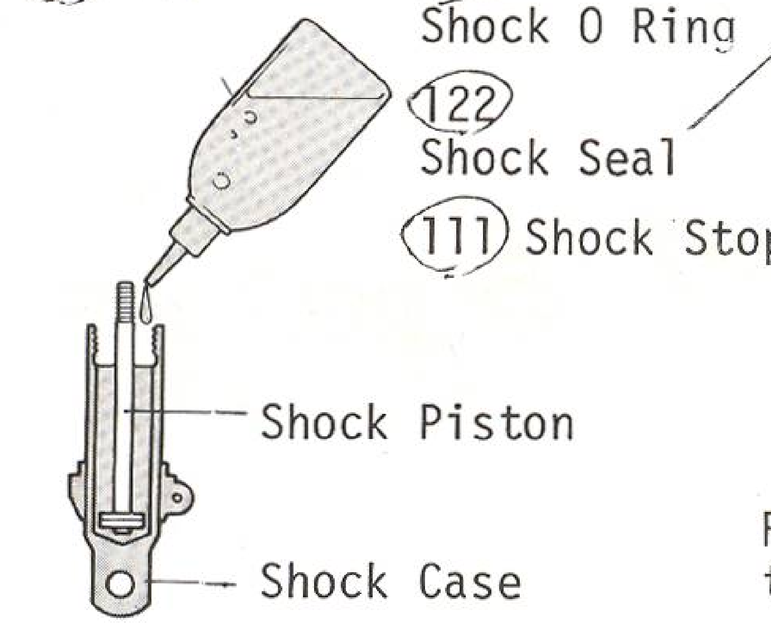
## 10 FILLING SHOCK WITH OIL

[Disassembly of Shock]

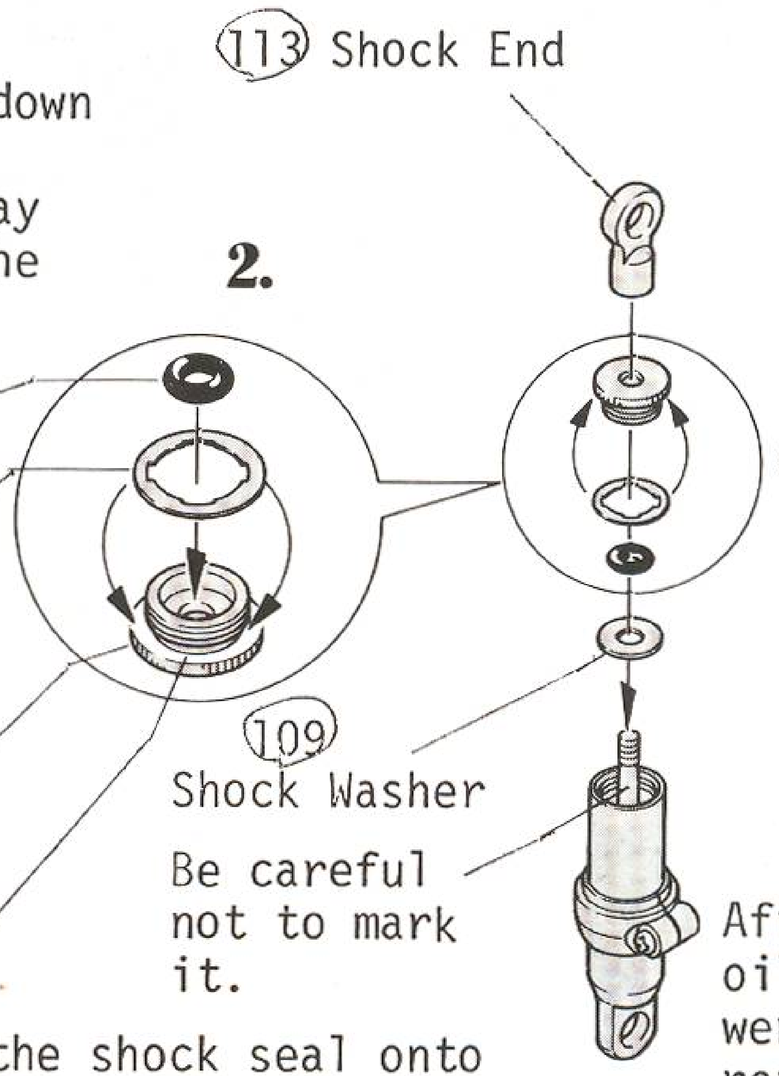
Remove the spring receptacle and the spring, and other parts as shown in the drawing on page 24; and reassemble pursuant to the following processes 1 to 3 as illustrated below.



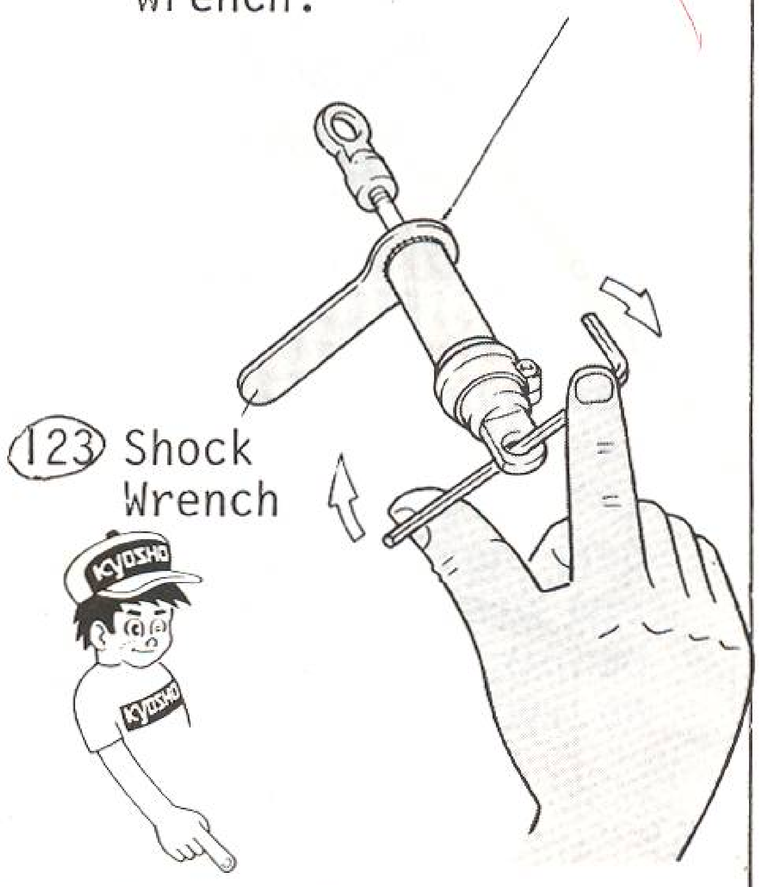

**1.** Press down the piston all the away to the bottom. Pour the oil to the point as shown in the diagram. Care should be taken not to get an air bubble in the oil.




**2.**

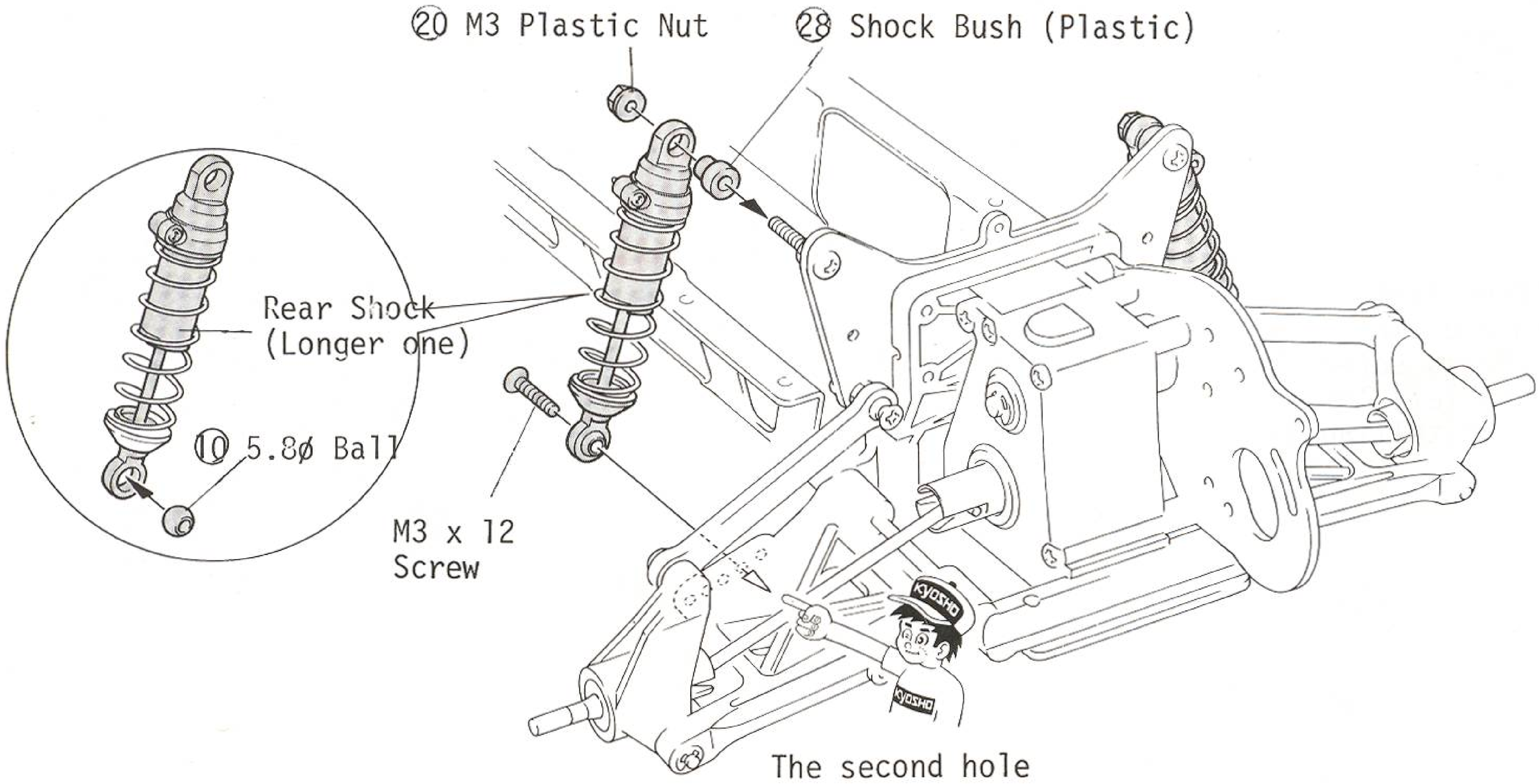



**3.** Fasten the stopper firmly. Hold the shock stopper with the shock wrench.

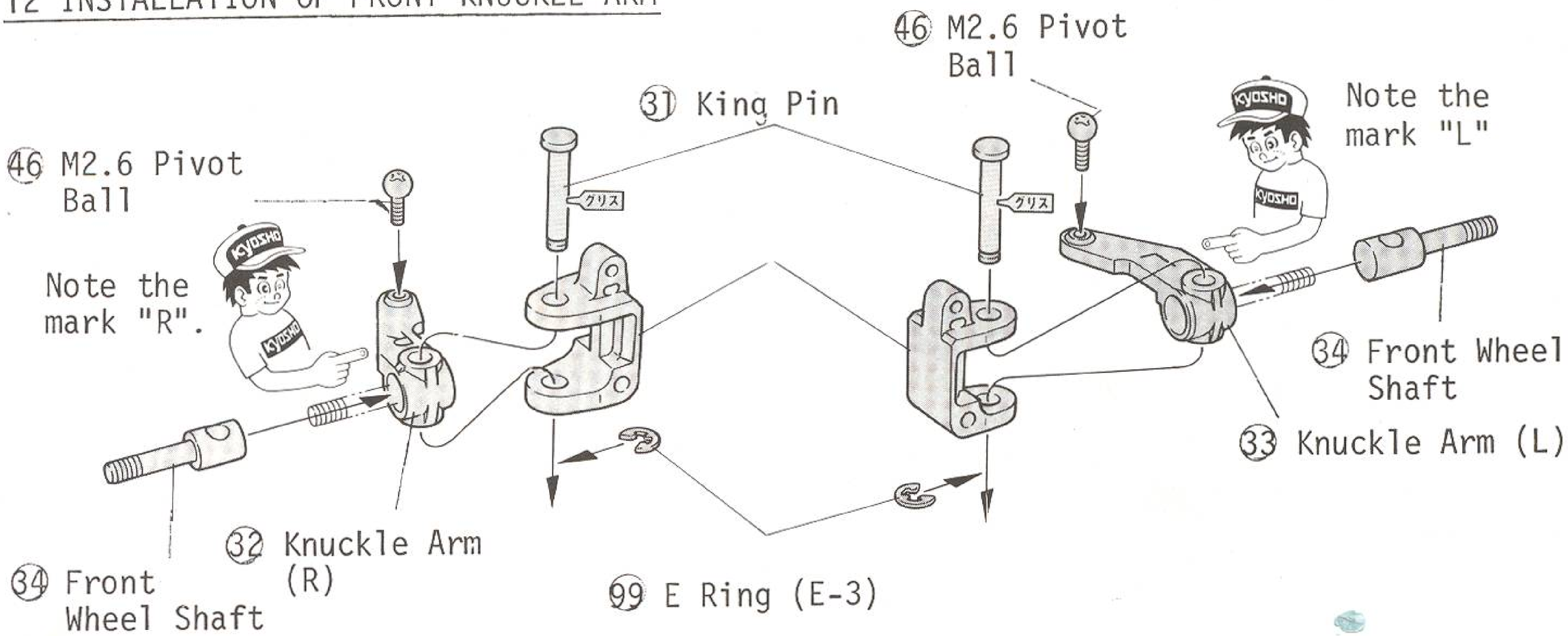



After filling the shock with oil, assemble them as they were again. The front and rear shocks have differently sized piston, spring, and Cylinder. Make sure to pick up the correct parts when assembling. Refer to the exploded view on page 24.

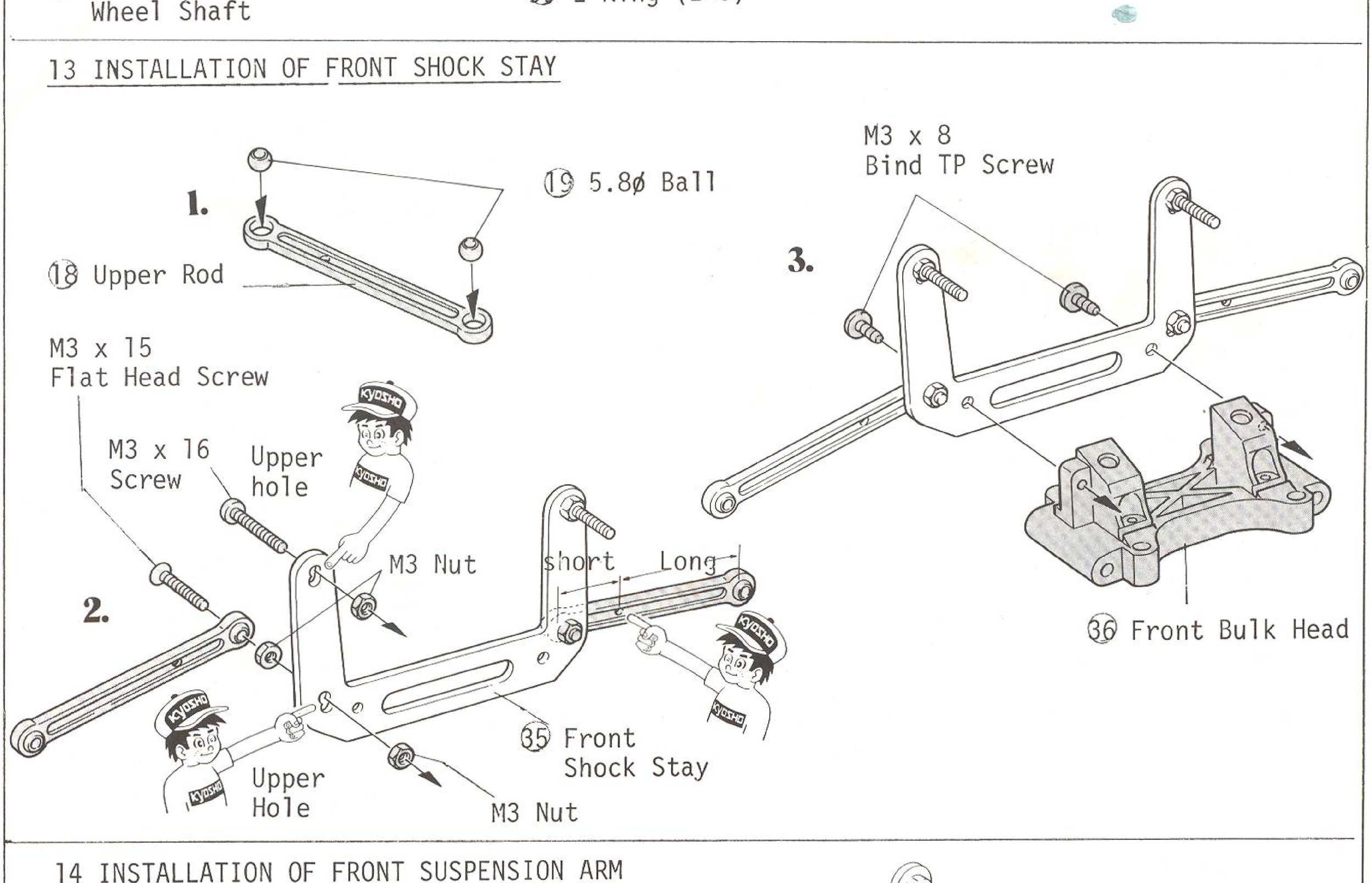
## 11 INSTALLATION OF REAR SHOCK



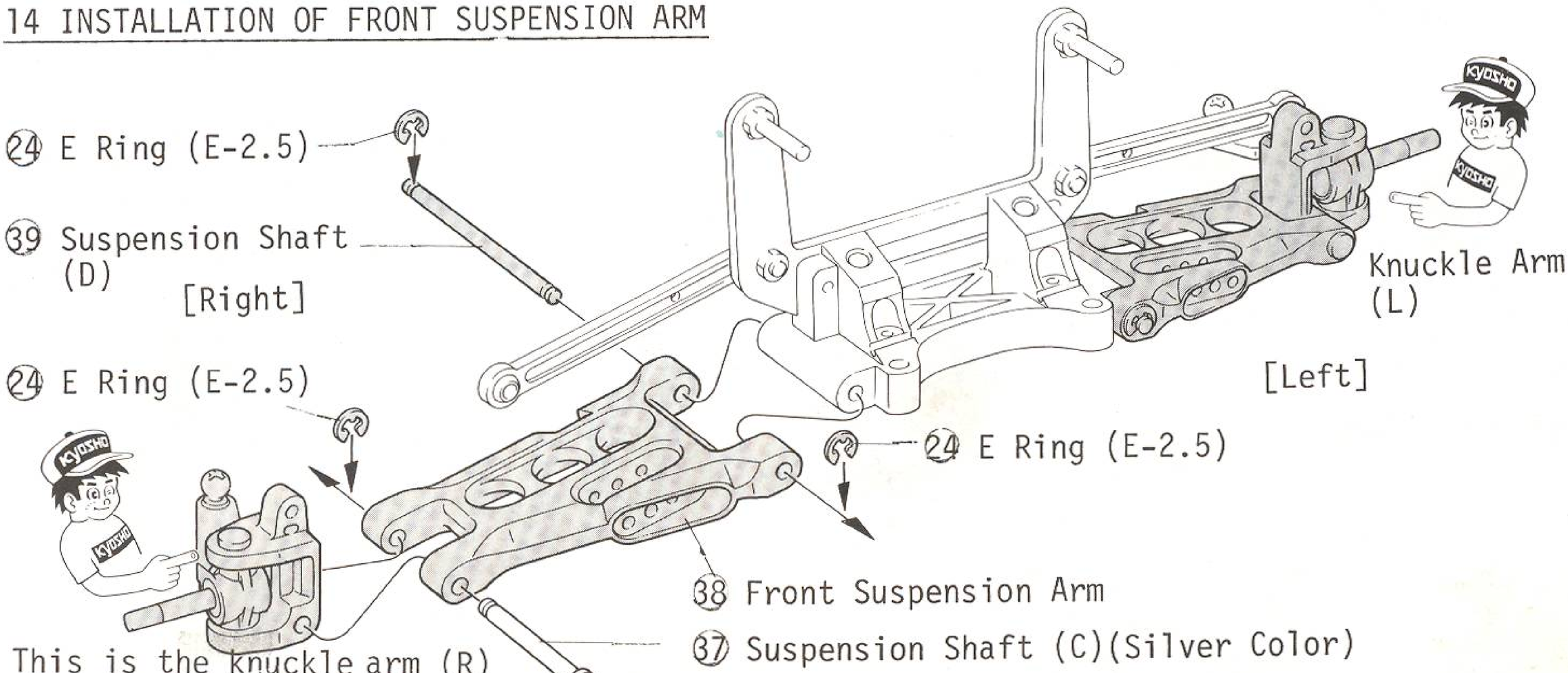
## 12 INSTALLATION OF FRONT KNUCKLE ARM



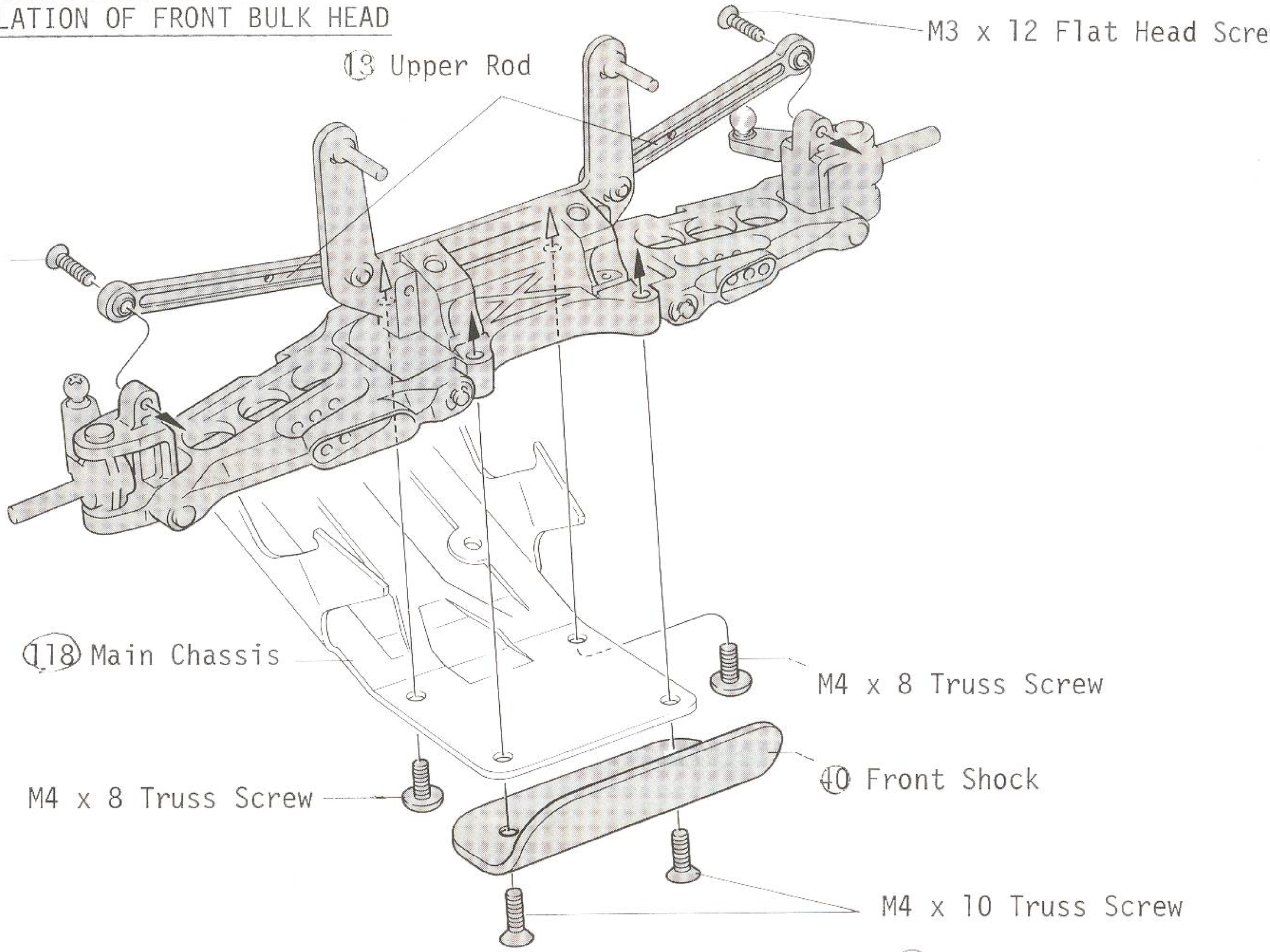

## 13 INSTALLATION OF FRONT SHOCK STAY



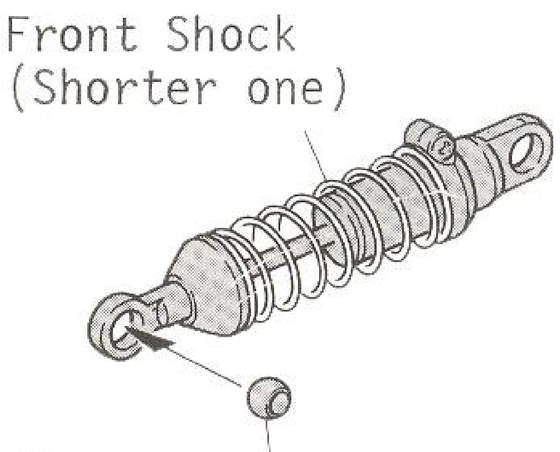

## 14 INSTALLATION OF FRONT SUSPENSION ARM

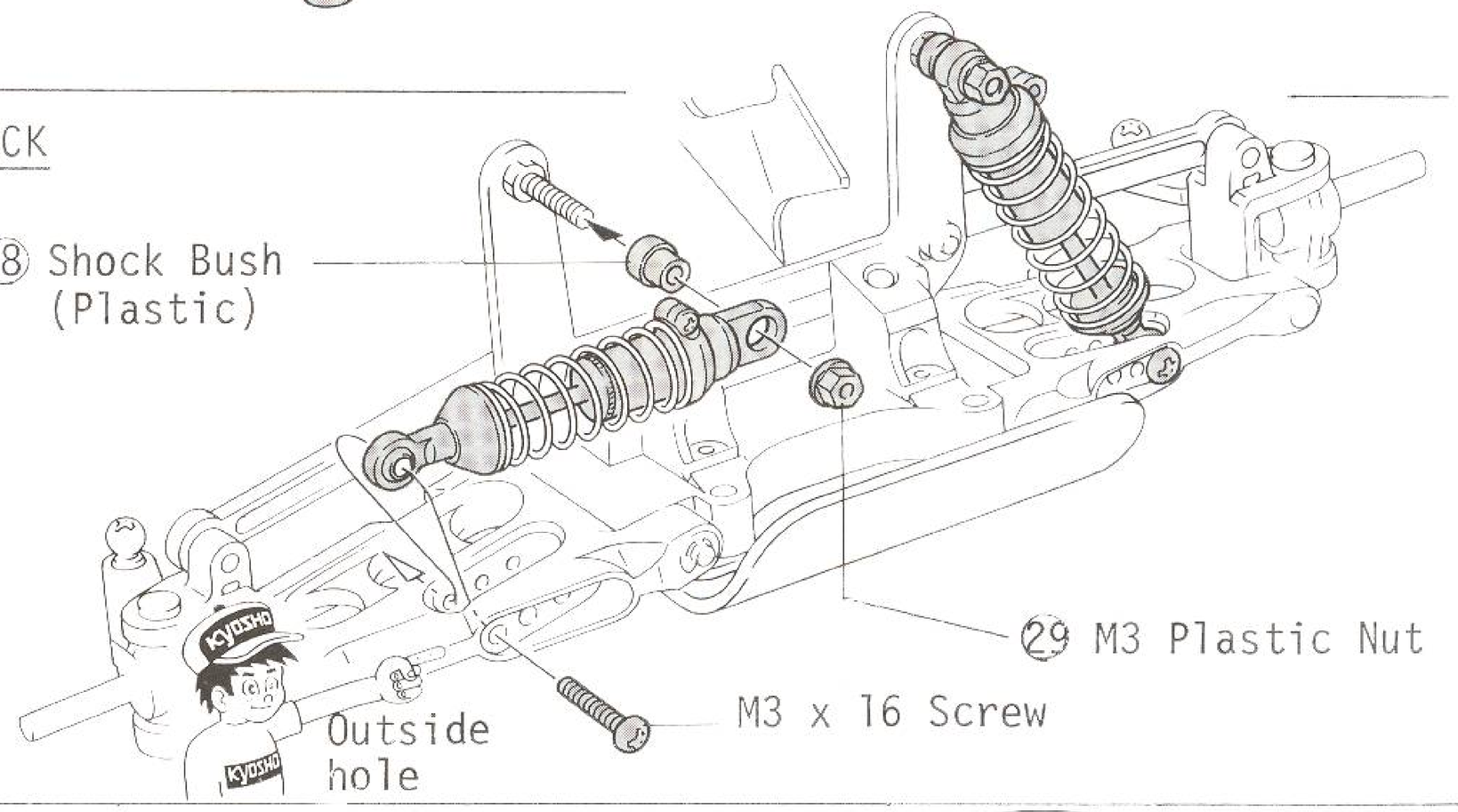


## 15 INSTALLATION OF FRONT BULK HEAD

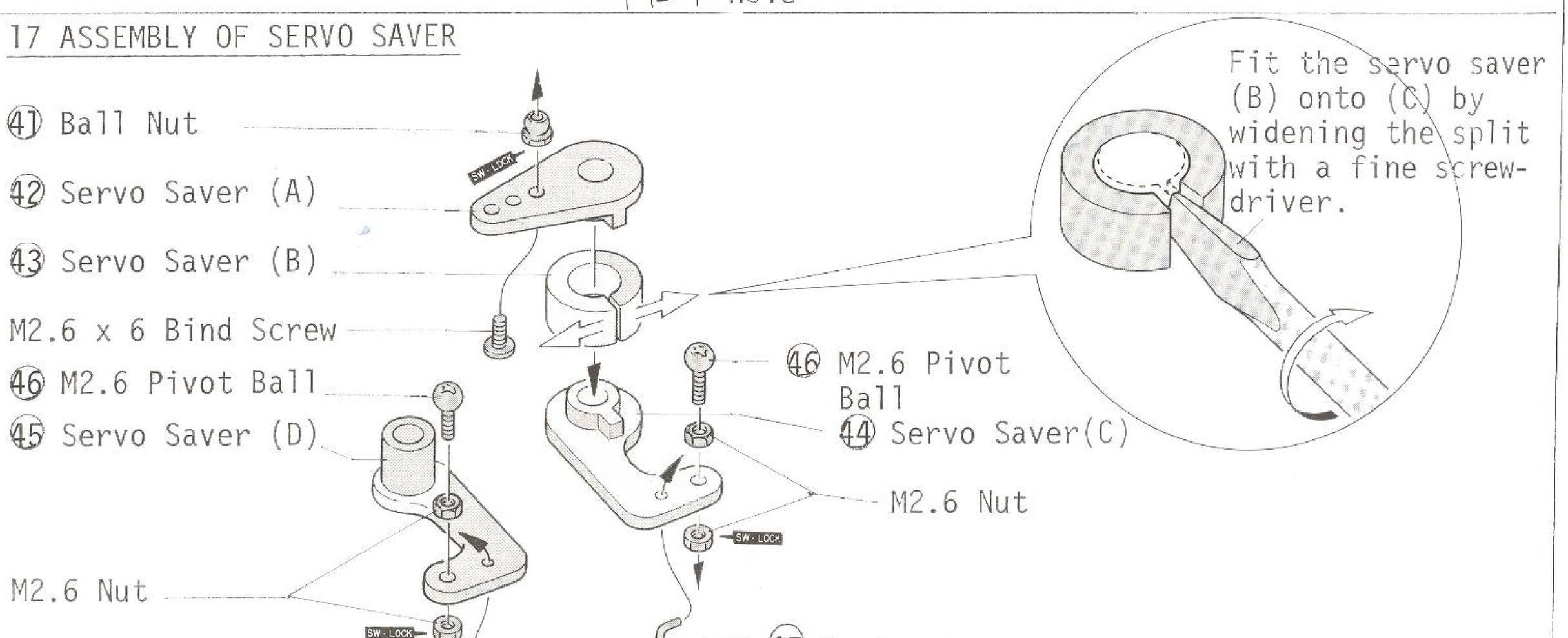



## 16 INSTALLATION OF FRONT SHOCK

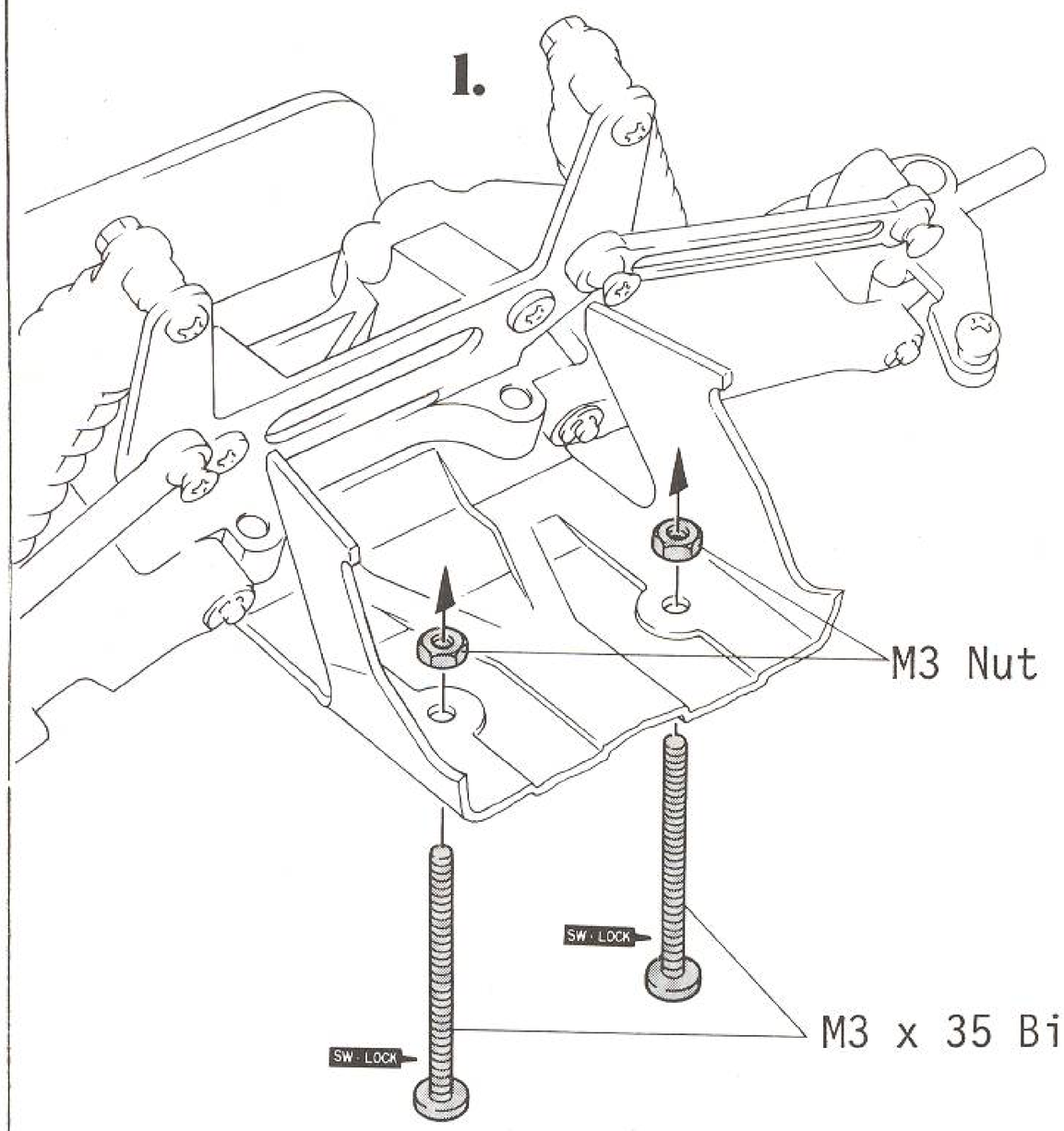


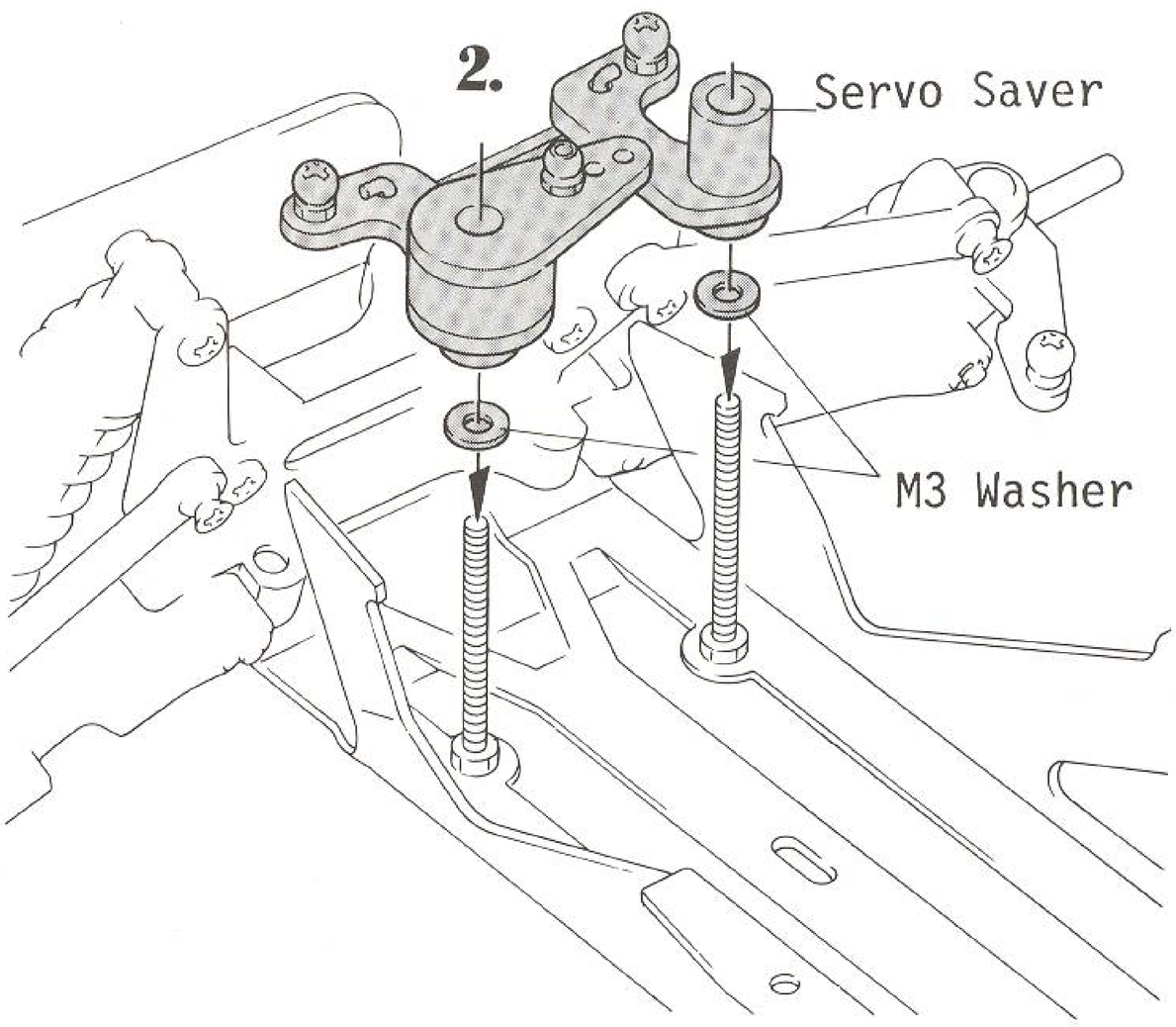



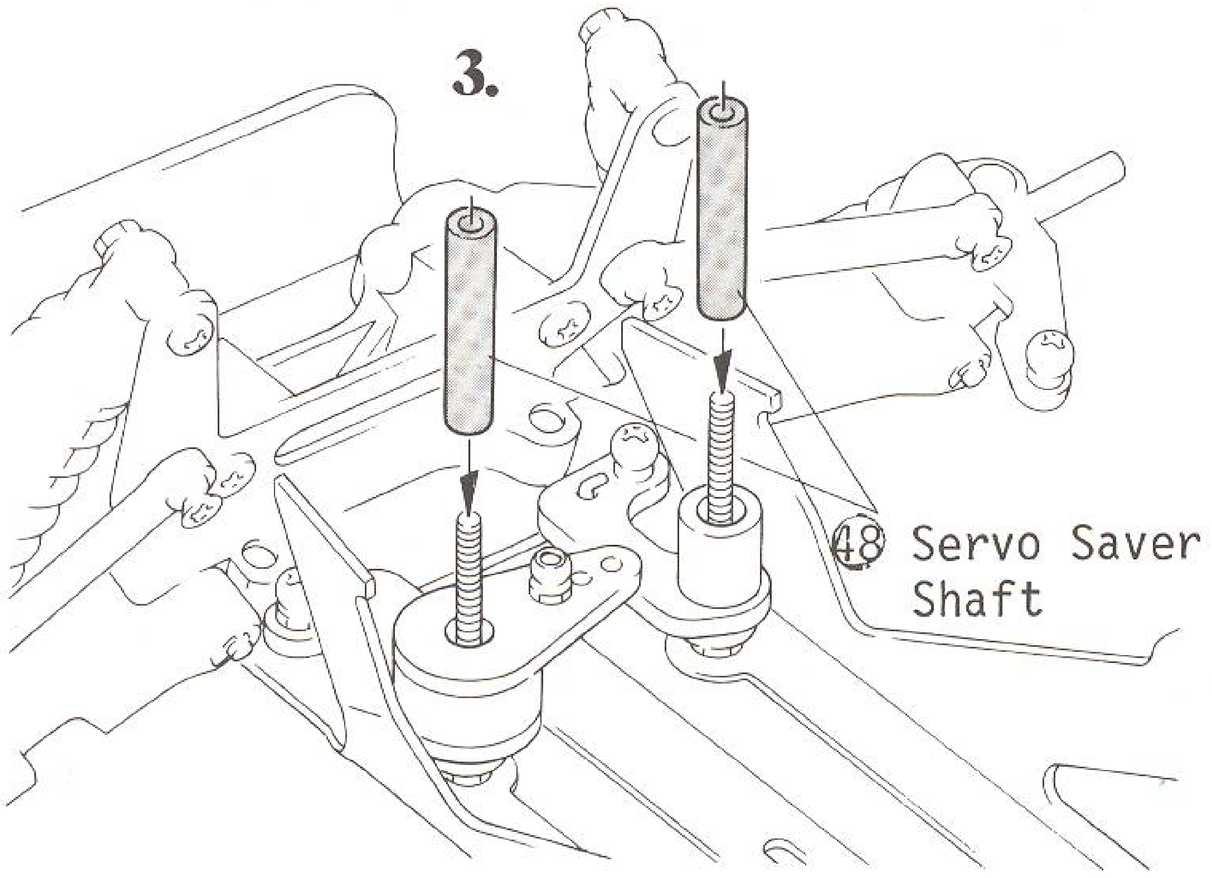

## 17 ASSEMBLY OF SERVO SAVER

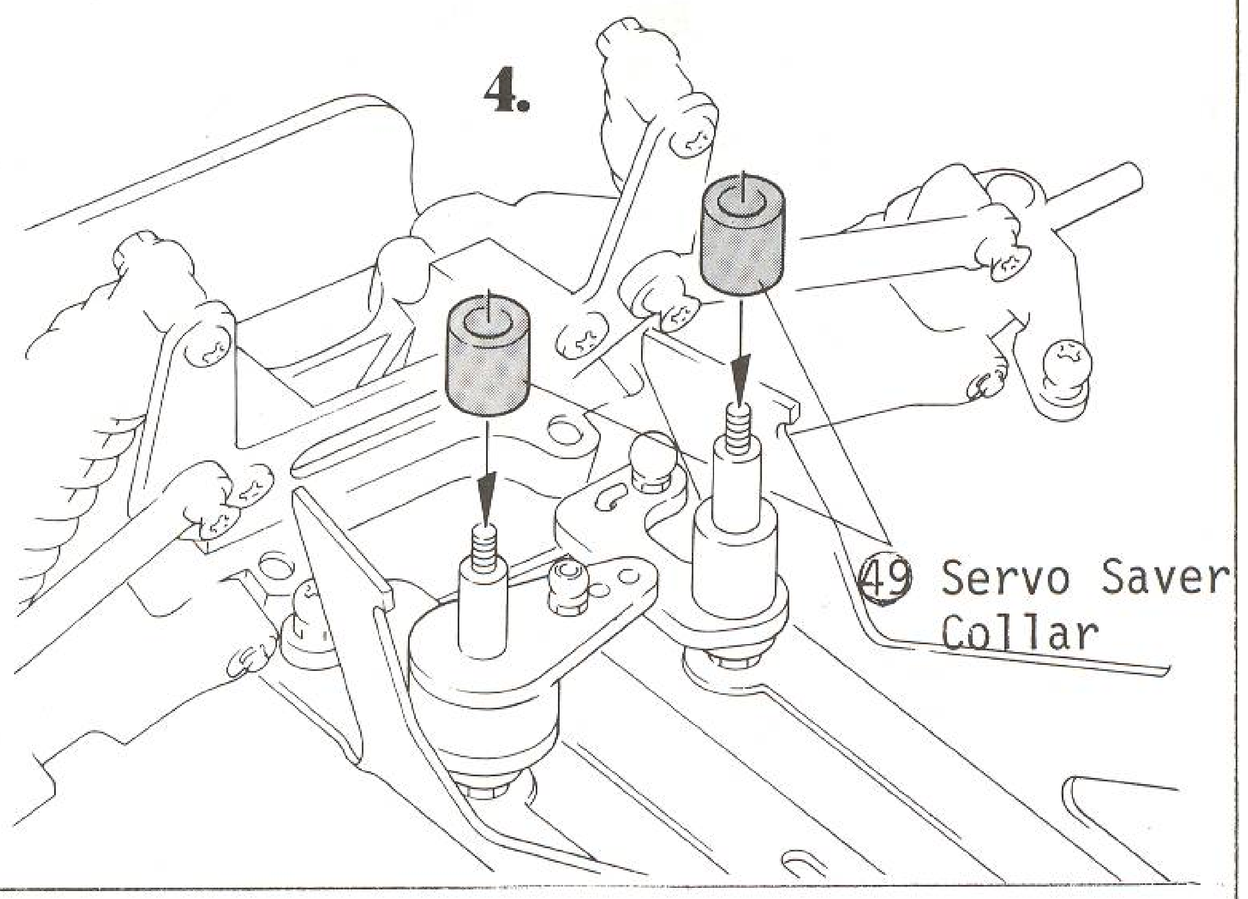


## 18 INSTALLATION OF SERVO SAVER



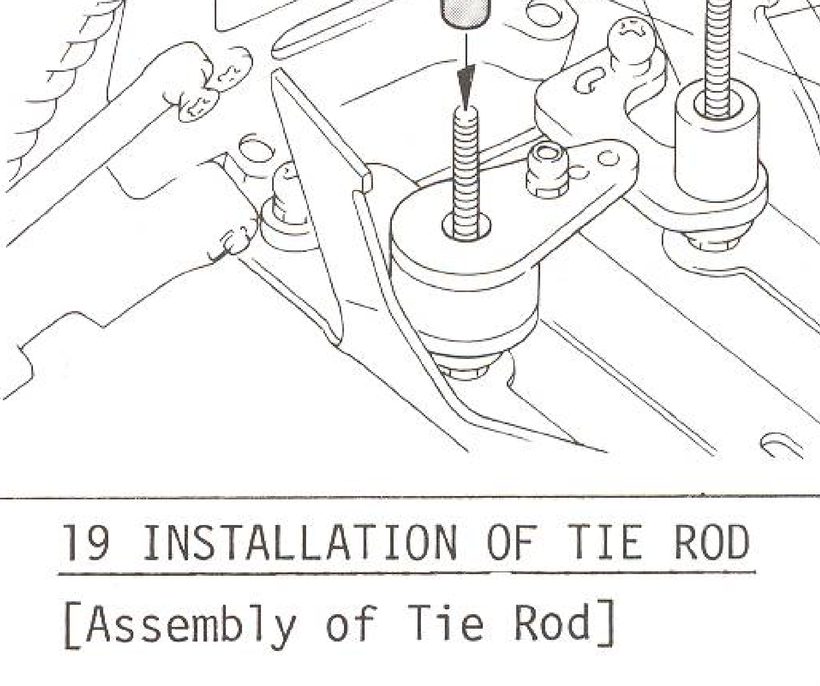




## 19 INSTALLATION OF TIE ROD

[Assembly of Tie Rod]

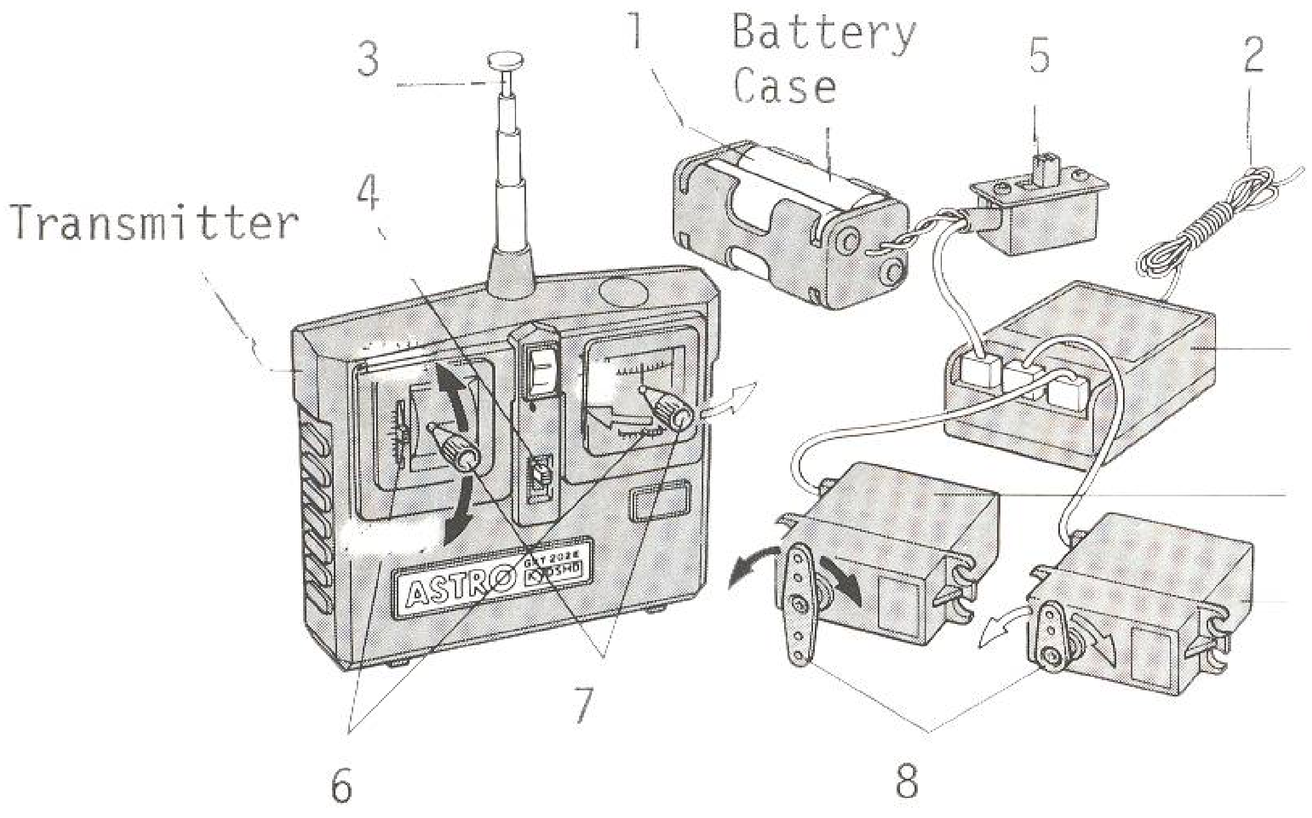





## 20 HOW TO CHECK RADIO SYSTEM

Follow steps 1-8.

1. Install the batteries into both the transmitter and receiver. If your radio is a rechargeable system, charge it as outlined in the manual that came with your set.
2. Unravel the receiver antenna and plug the servo and battery connectors into the receiver.
3. Extend the transmitter antenna.
4. Turn on the power switch of the transmitter.
5. Turn on the power switch of the receiver.
6. Set the small trim levers to the center position and make sure that both main control sticks are also centered.
7. Move both main control sticks slowly through their full travel. The servo horns should move in proportion to the movement of your sticks.
8. When trim levers and sticks are at their neutral positions the servo horns should be centered. You may now turn off the transmitter, then the receiver and unplug the servos and battery from the receiver.




*IT IS IMPORTANT TO ALWAYS SWITCH THE TRANSMITTER ON FIRST... THEN THE RECEIVER. WHEN TURNING OFF THE SYSTEM, TURN OFF THE RECEIVER FIRST AND THEN THE TRANSMITTER.

A 2-channel radio control system is composed of a tramsmitter, receiver, two servos, and a battery holder (for the receiver).

*Transmitter ..... This is the part of the system that you hold in your hands to control the model. Information is sent to the receiver and servos via radios waves.

*Receiver ..... Receives the radio signals from the transmitter and sends them to the appropriate servo.

*Servos ..... It can be though of as the "muscle" of the system. They actually move the controls of the model. The receiver tells them which direction to move and how much.

*Antenna ..... The transmitter antenna broadcasts the radio signal.

*Antenna ..... The transmitter antenna broadcats the radio signal. The receiver antenna (which is no more than a small wire tuned to a precise length picks up the signals so that the receiver can decode them.

*Trim Levers ..... Adjust the neutral position of the servos from the transmitter. Trim levers provide fine tuning of the steering and speed control.

*Battery Meter ... Allows you to see the condition of your transmitter batteries.

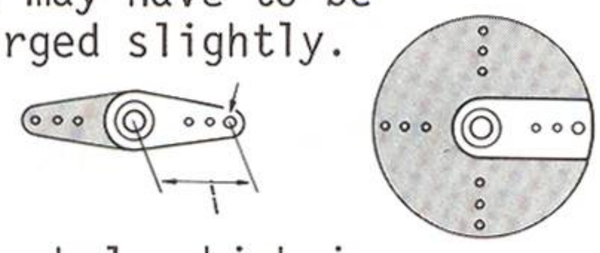
*Servo Horn ..... A small arm or wheel on a servo that transfers the movement of the servo.

## 21 INSTALLATION OF STEERING ROD

[Processing of Servo Horn]

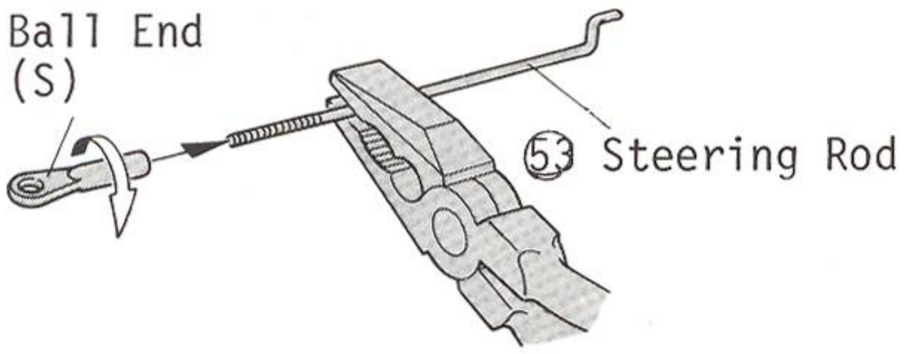
Trim the shaded portion from your servo horn.

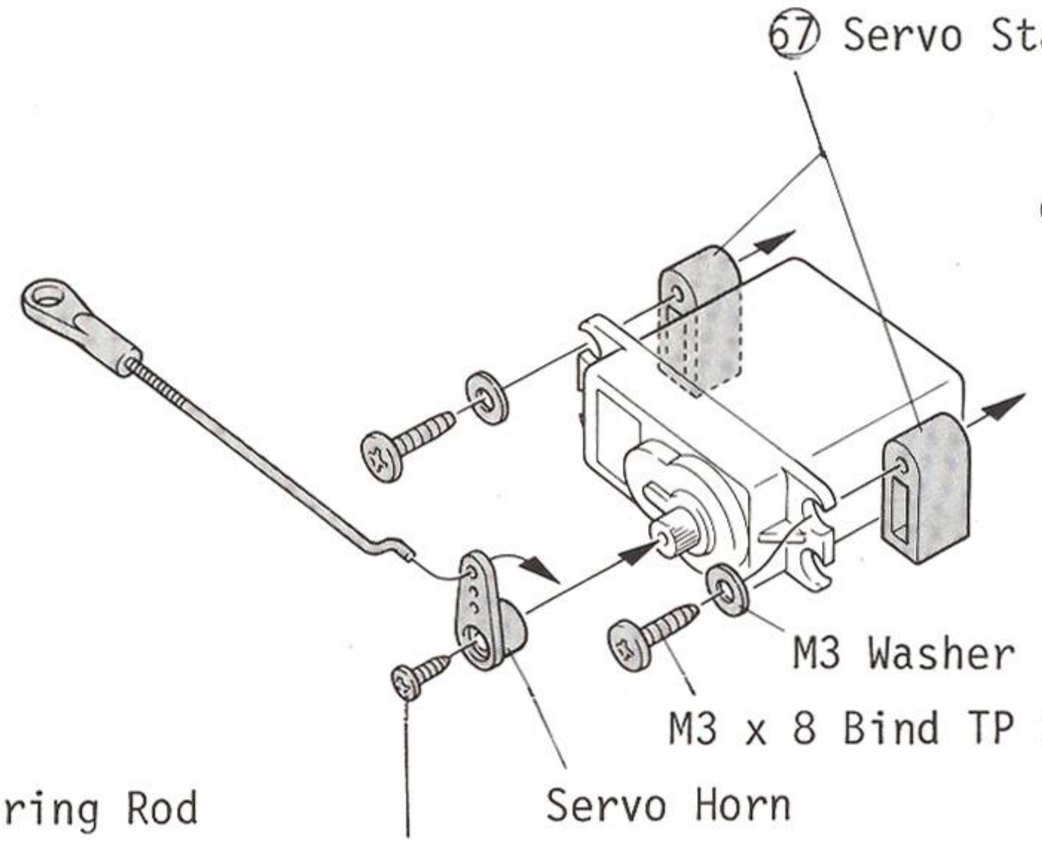
Hole may have to be enlarged slightly.



Use a hole which is away from the center pivot for 13mm.

[Assembly of Steering Rod]

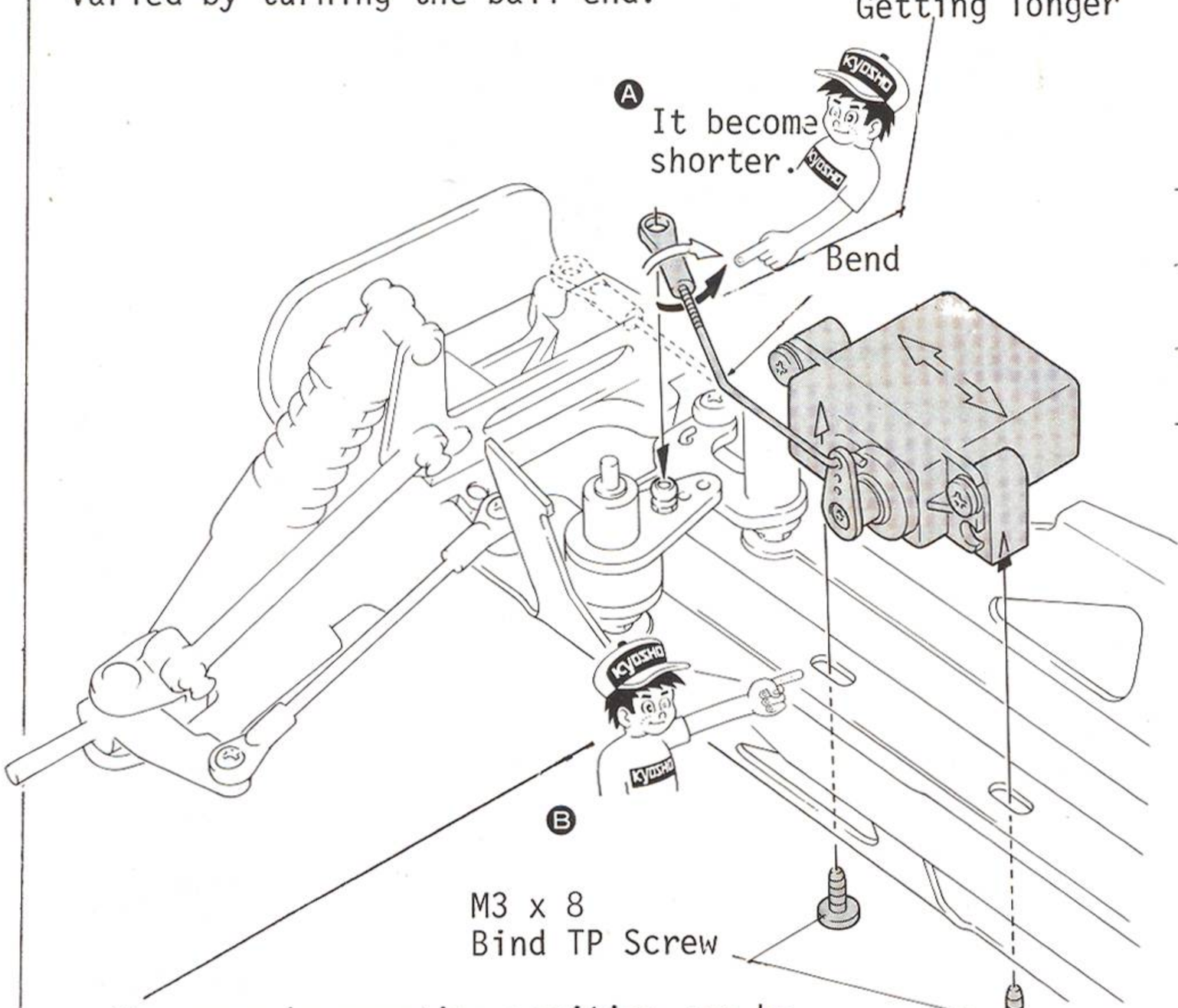


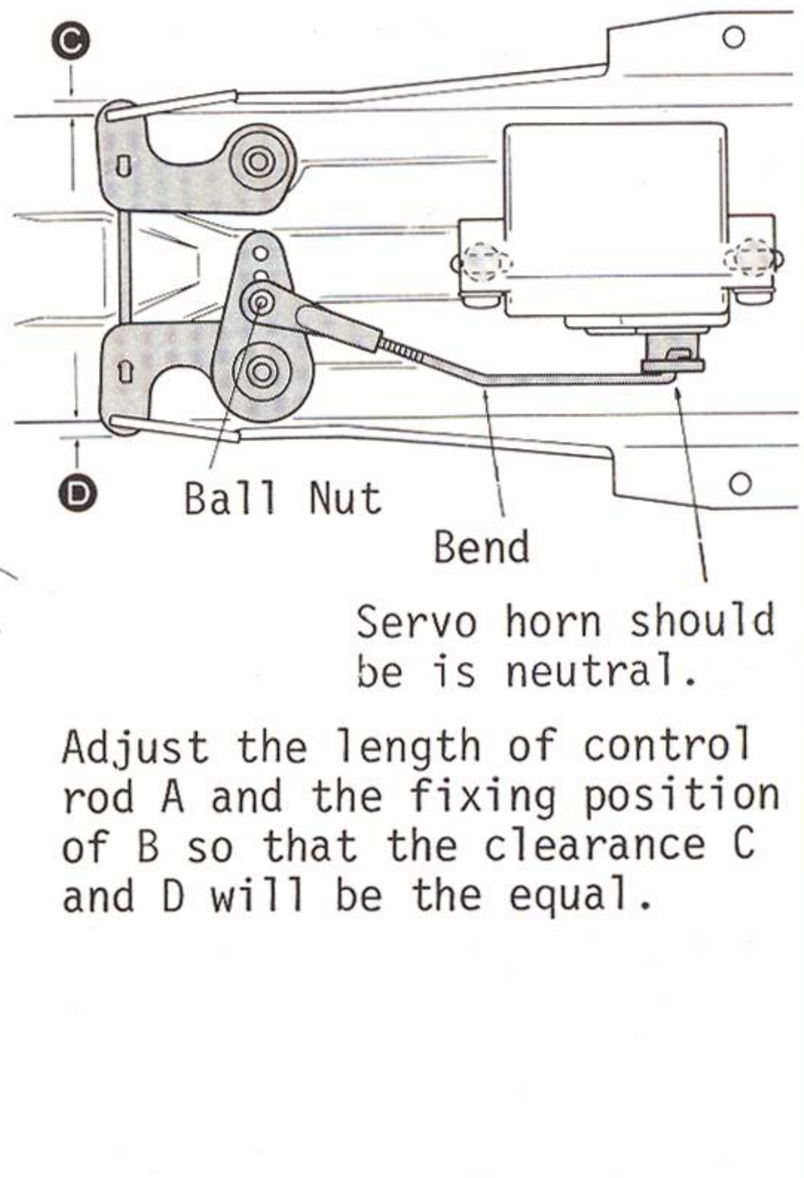

Use the screw included with your radio.

## 22 INSTALLATION OF STEERING SERVO

The length of control rod can be varied by turning the ball end.



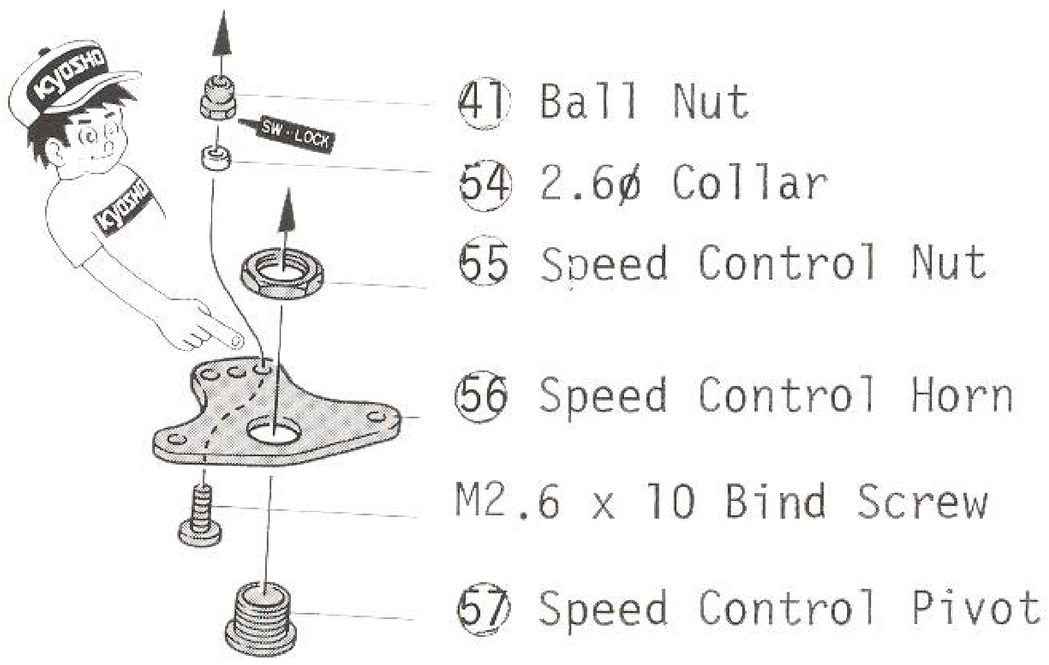

The servo's mounting position can be adjusted within the limits of length of the oval hole B.

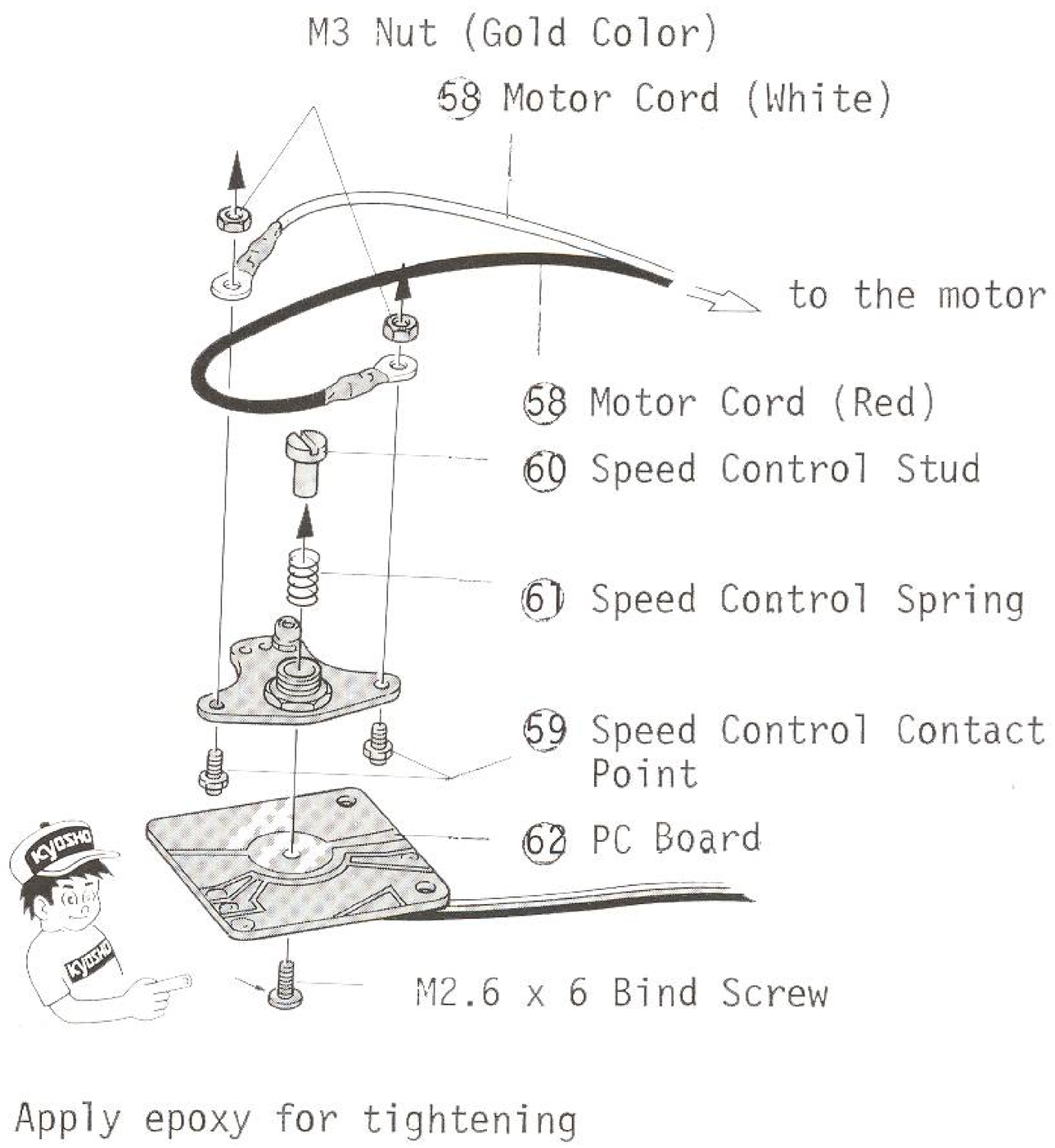



Servo horn should be is neutral.

Adjust the length of control rod A and the fixing position of B so that the clearance C and D will be the equal.

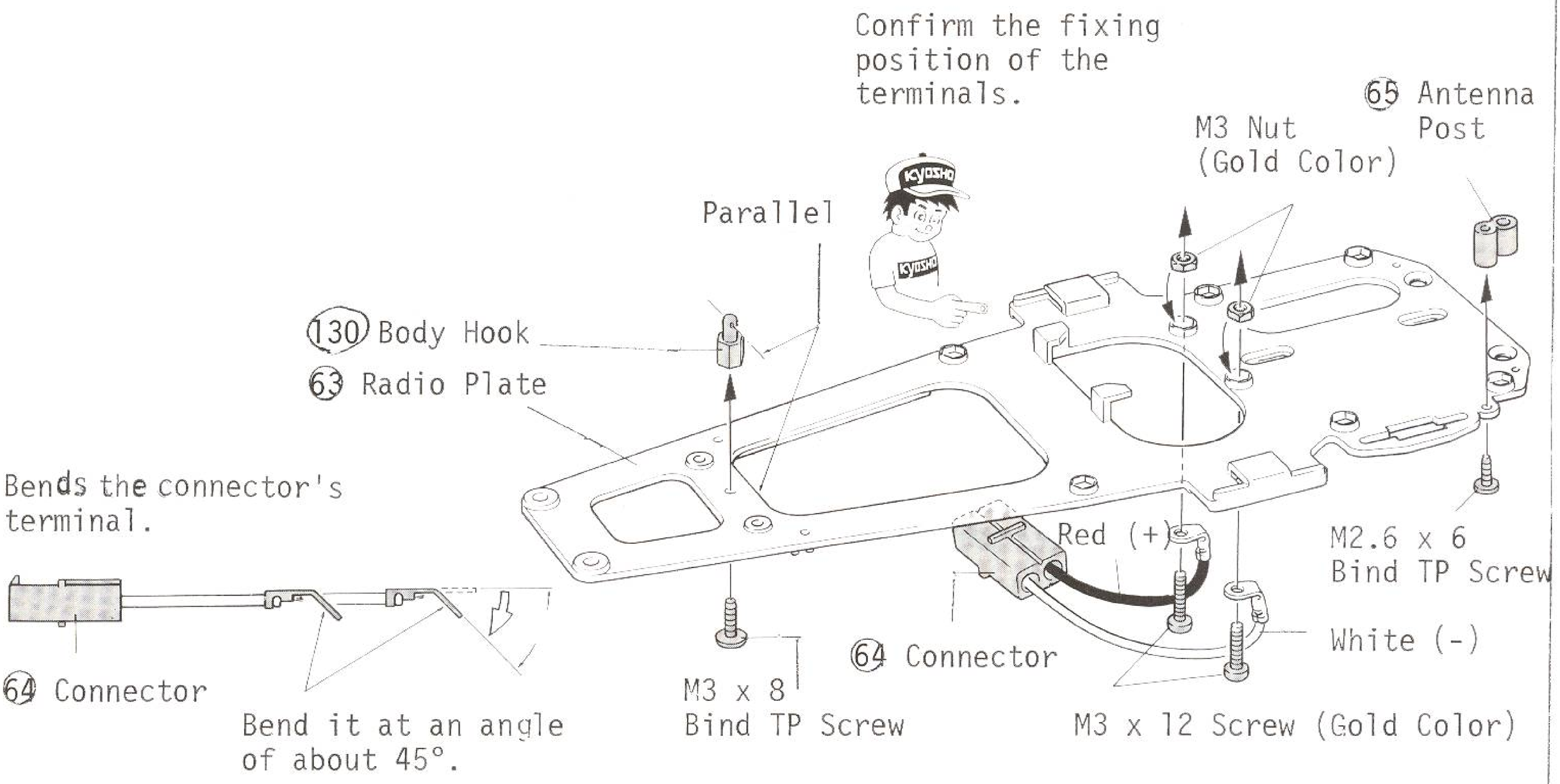
## 23 ASSEMBLY OF SPEED CONTROL




Apply epoxy for tightening

## 24 INSTALLATION OF BATTERY CONNECTOR



## 25 WIRING OF RECEIVER BATTERY

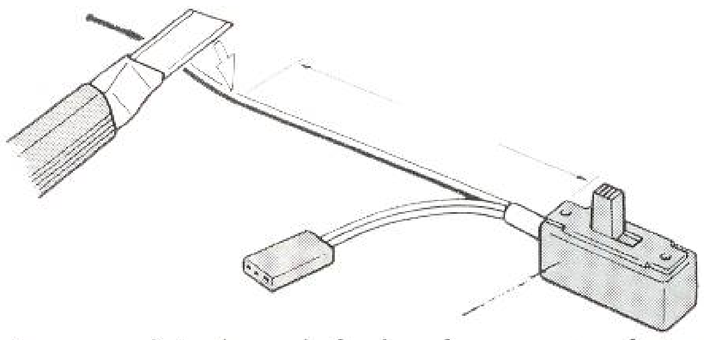
For those who use a BEC type radio, please skip the step 25, and proceed to the next step.

The battery that powers the motor also powers the receiver. Use great care and do not allow polarity to be reversed. Also, do not allow 7.2V to flow directly into receiver.

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 (-).

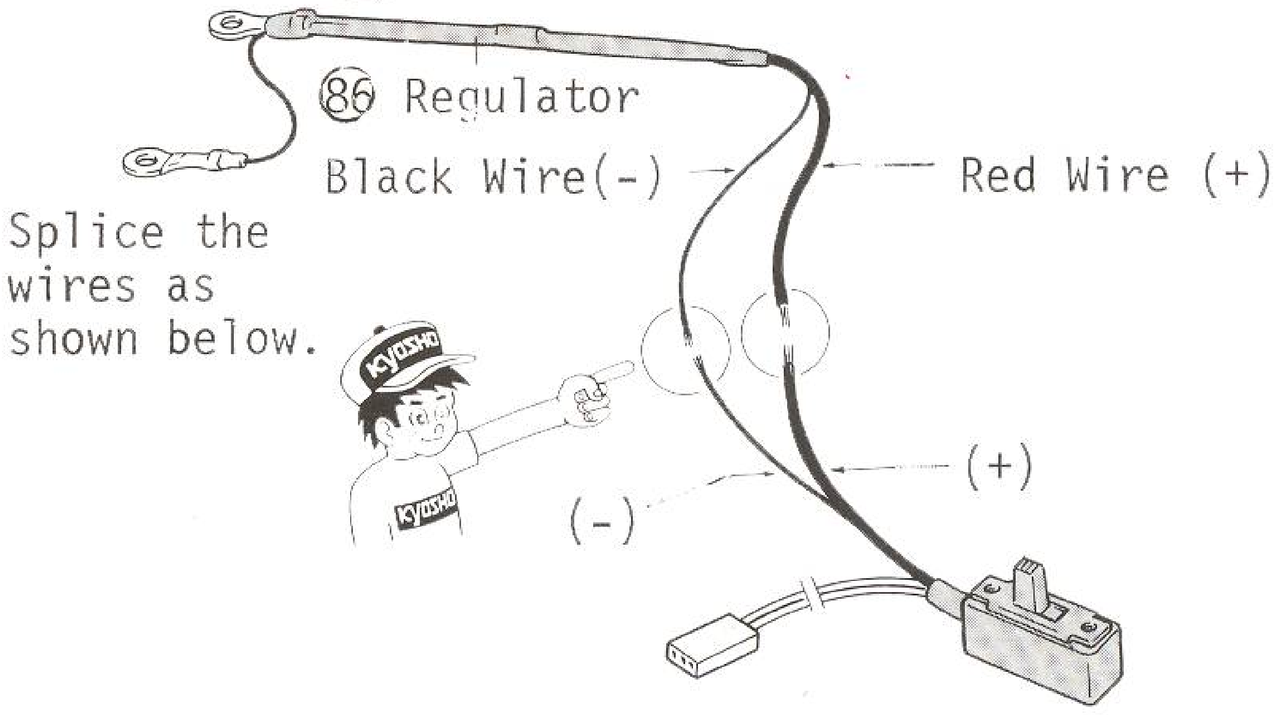
Battery box is not used

**1.** Cut off wires from radio box as shown.



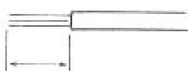
Use the switch which is provided with your radio.

**2.** Connect the leads from the R/C unit switch and the regulator.




[How to Connect the lead wire]

**1.**



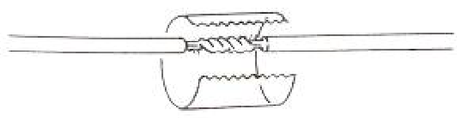
Trim off about 5mm.

**2.** Splice the cords of the same porality.



For ensuring the job, solder the spliced leads.

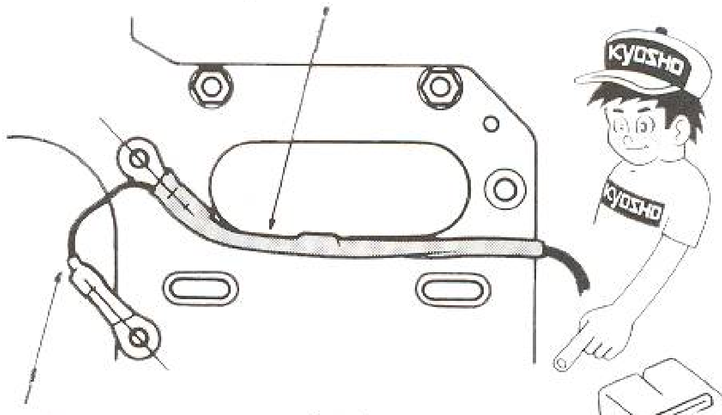
**3.** Insulate the connection points with vinyl tape to prevent a short-circuit.



## 26 INSTALLATION OF SPEED CONTROL

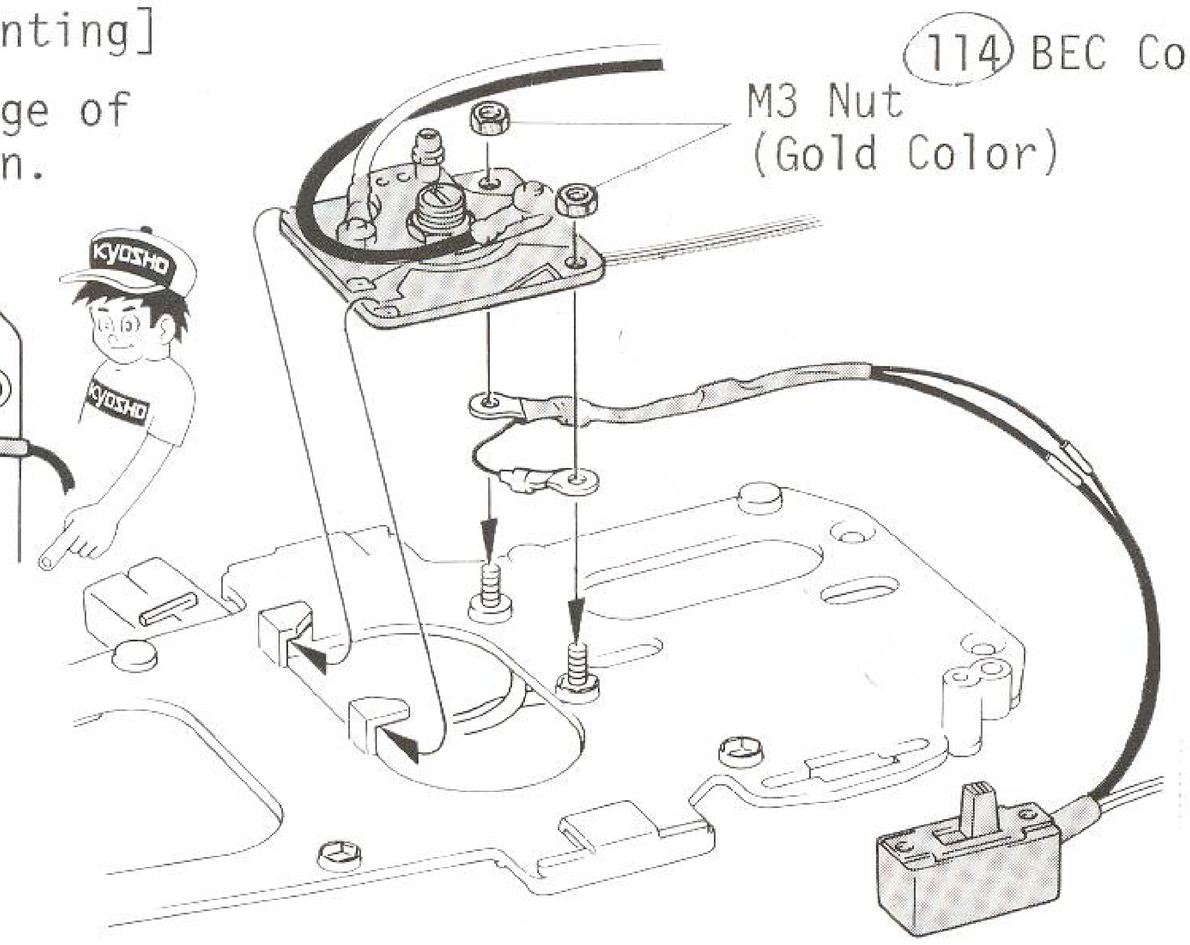
[Orientation of Mounting]

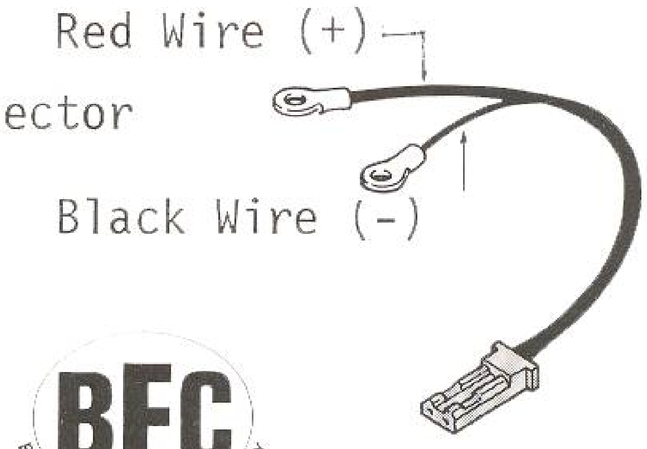
Lay it along the edge of the oval perforation.



Black Wire (1)

Make sure the positive and the negative not to make mistake.




The radio contained in the box with this logo is the BEC type. As shown in step 25, the radio does not use the regulator 86, also the wiring for the switch is not required. When using this type of radio, fix the BEC connector as illustrated.

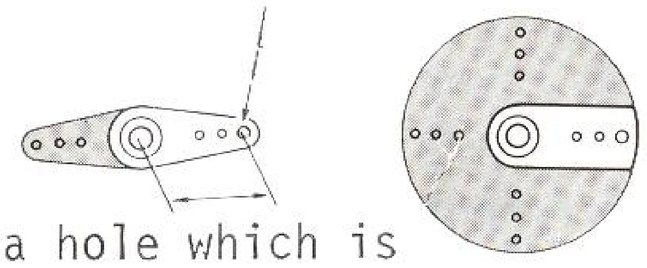
When arranging the BEC connector, do not mistake the positive (red wire) with the negative (black wire). The improper polarity may damage the radio.

## 27 INSTALLATION OF SPEED CONTROL SERVO

[Processing of Servo Horn]

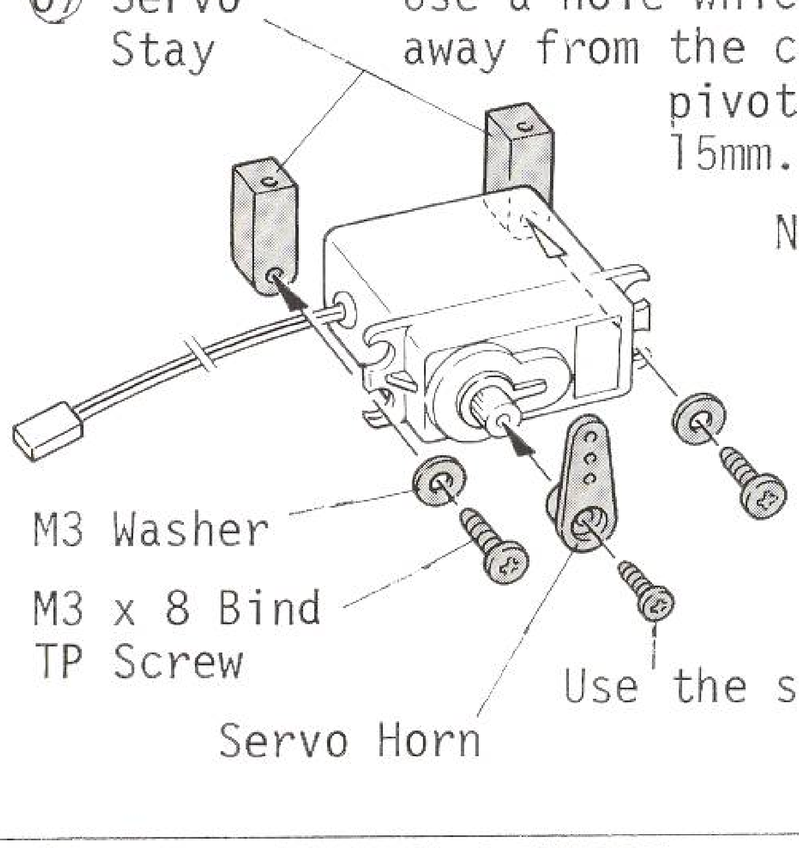
Trim the shaded portion from your servo horn.

Hole may have to be enlarged slightly.

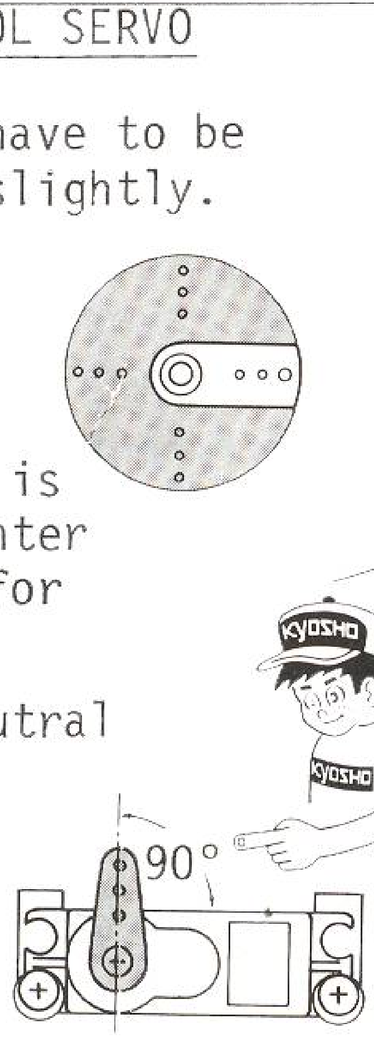


(67) Servo Stay

Use a hole which is away from the center pivot for 15mm.



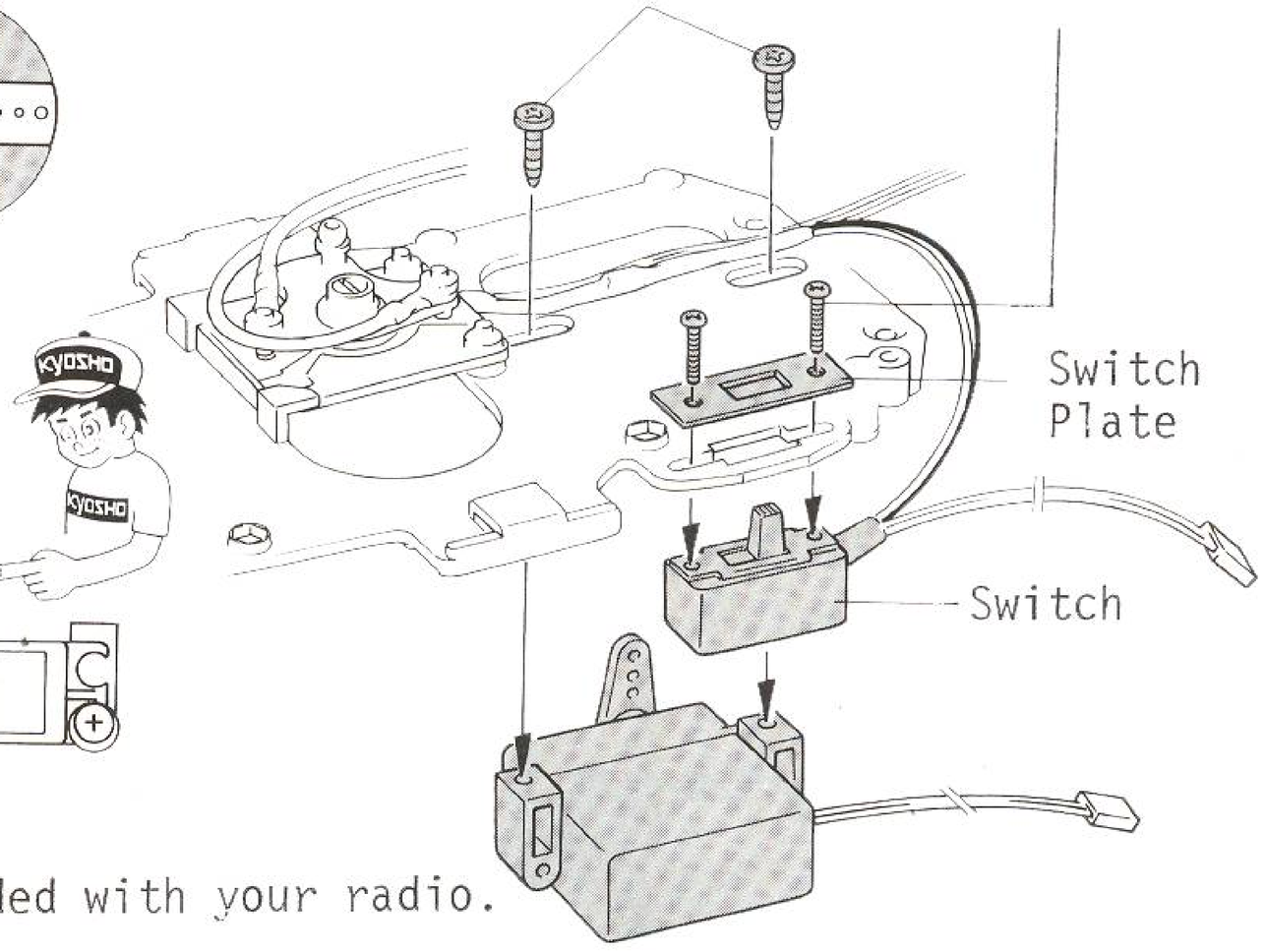

Neutral




Use the screw included with your radio.

M3 x 8 Bind TP Screw

Screw provided with the switch.

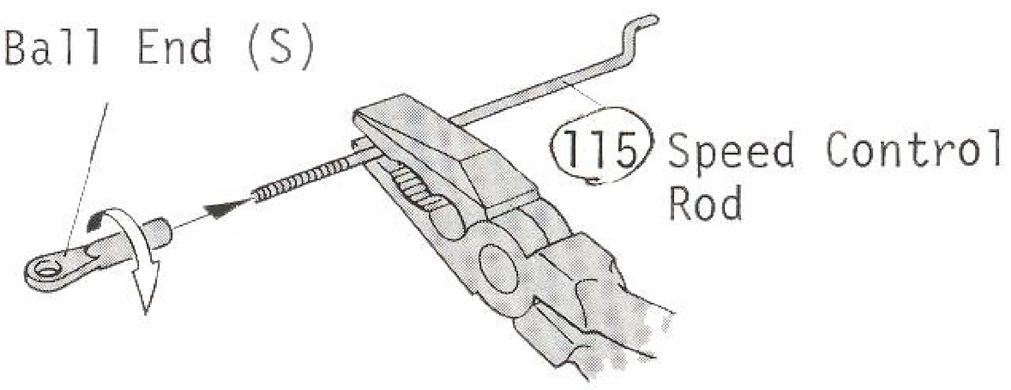



## 28 SPEED CONTROL LINKAGE

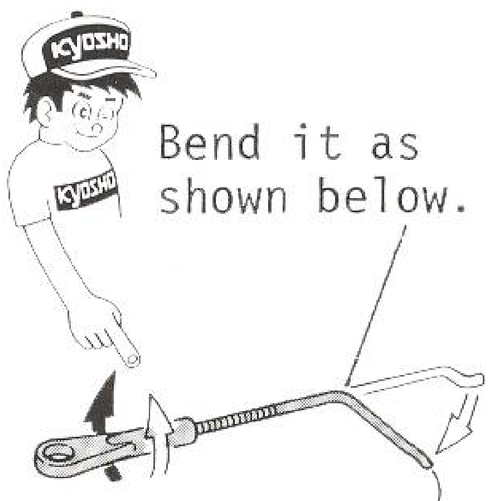
[Assembly of Speed Control]

(52) Ball End (S)

**1.**



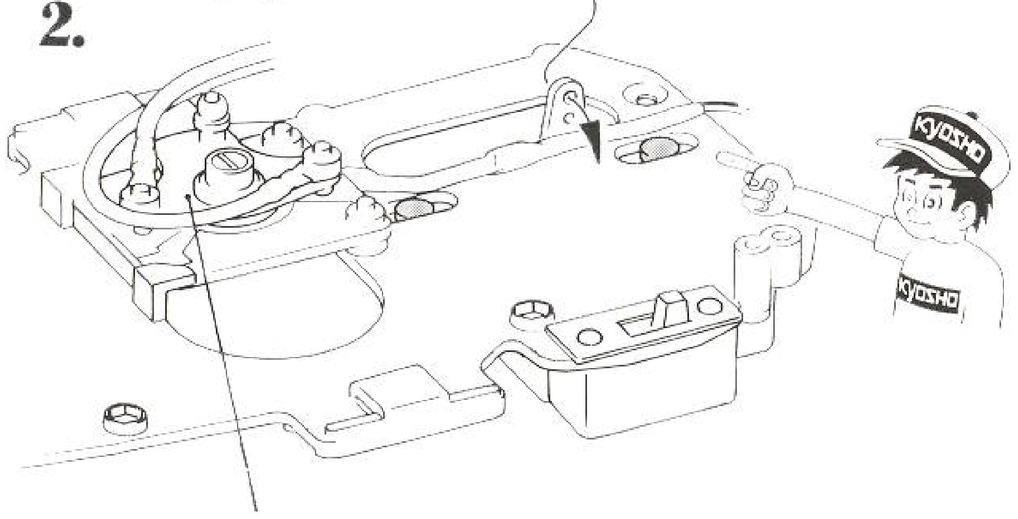

Ⓐ The length of control rod can be varied by turning the ball end.



Bend it as shown below.

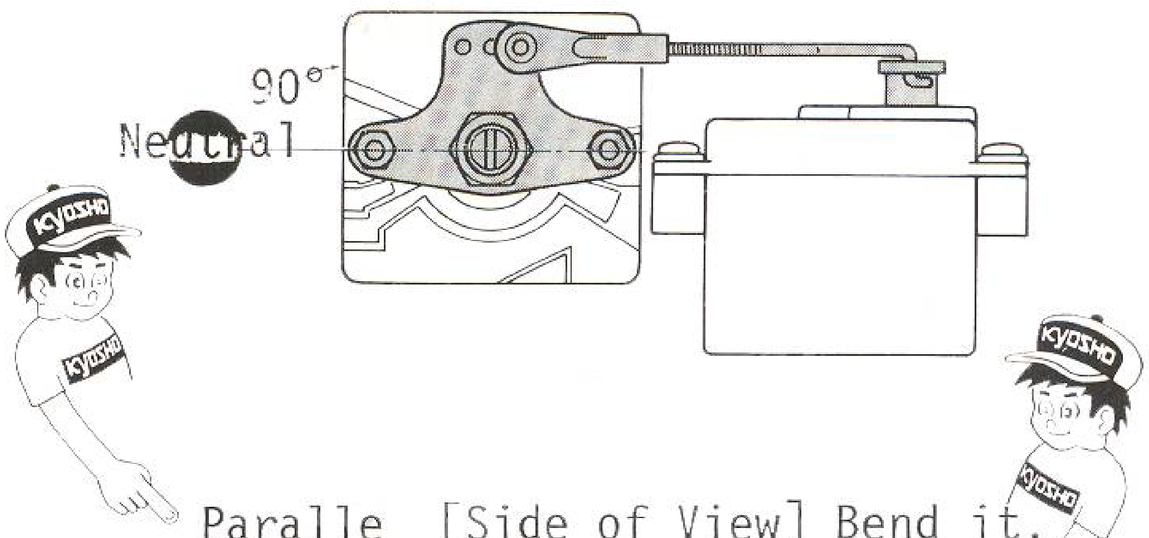
Ⓑ The servo's mounting position can be adjusted within the limits of length of the oval hole B.

**2.**

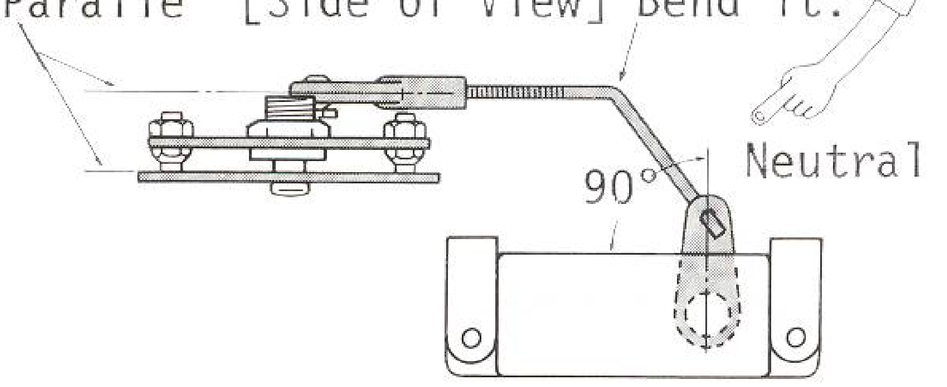


Adjust A and B in such a way that the speed controller will position in neutral as one of the illustrations at right indicates.

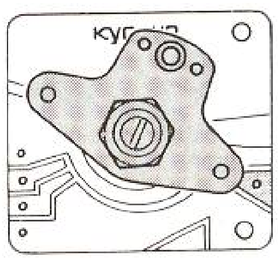
[Top of View]



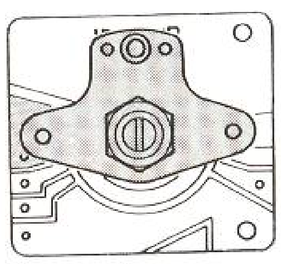

Paralle [Side of View] Bend it.



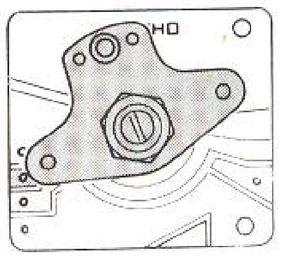

Reverse



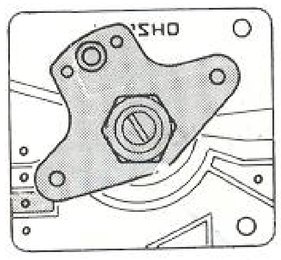
Neutral



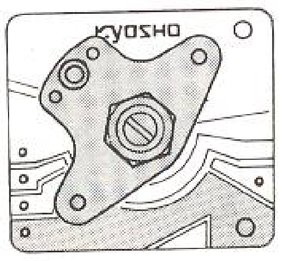
Low Speed



Medium Speed



High Speed



## 29 MOUNTING OF RADIO PLATE

Pay attention not to mistake (R) for (L).

[Top of View]

68 Body Stopper (R)

132 Body Stopper (L)

M3 Nut

M4 x 10 Flat Head Screw

M4 x 8 Truss Screw

M3 Nut

29 M3 Plastic Nut

118 Main Chassis

M2.6 x 12 TP Screw

M3 x 6 Bind Screw

M3 x 6 Bind Screw

## 30 FIXING OF RESISTOR

69 Heat Sink (A)

120 Resistor

70 Heat Sink (B)

M3 Nut

SW-LOCK

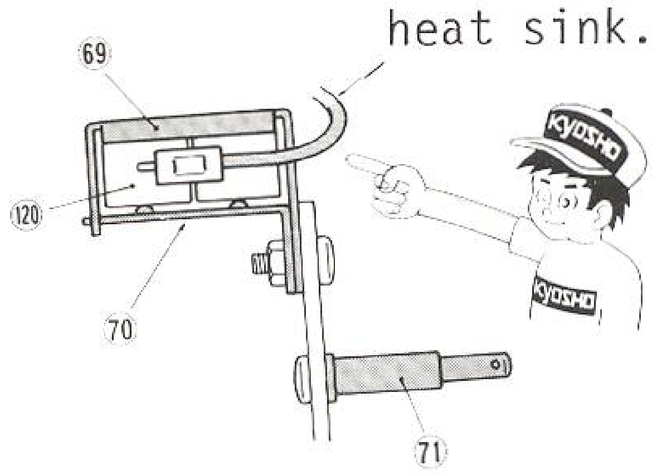
SW-LOCK

M3 x 6 Bind Screw

71 Center Gear Shaft

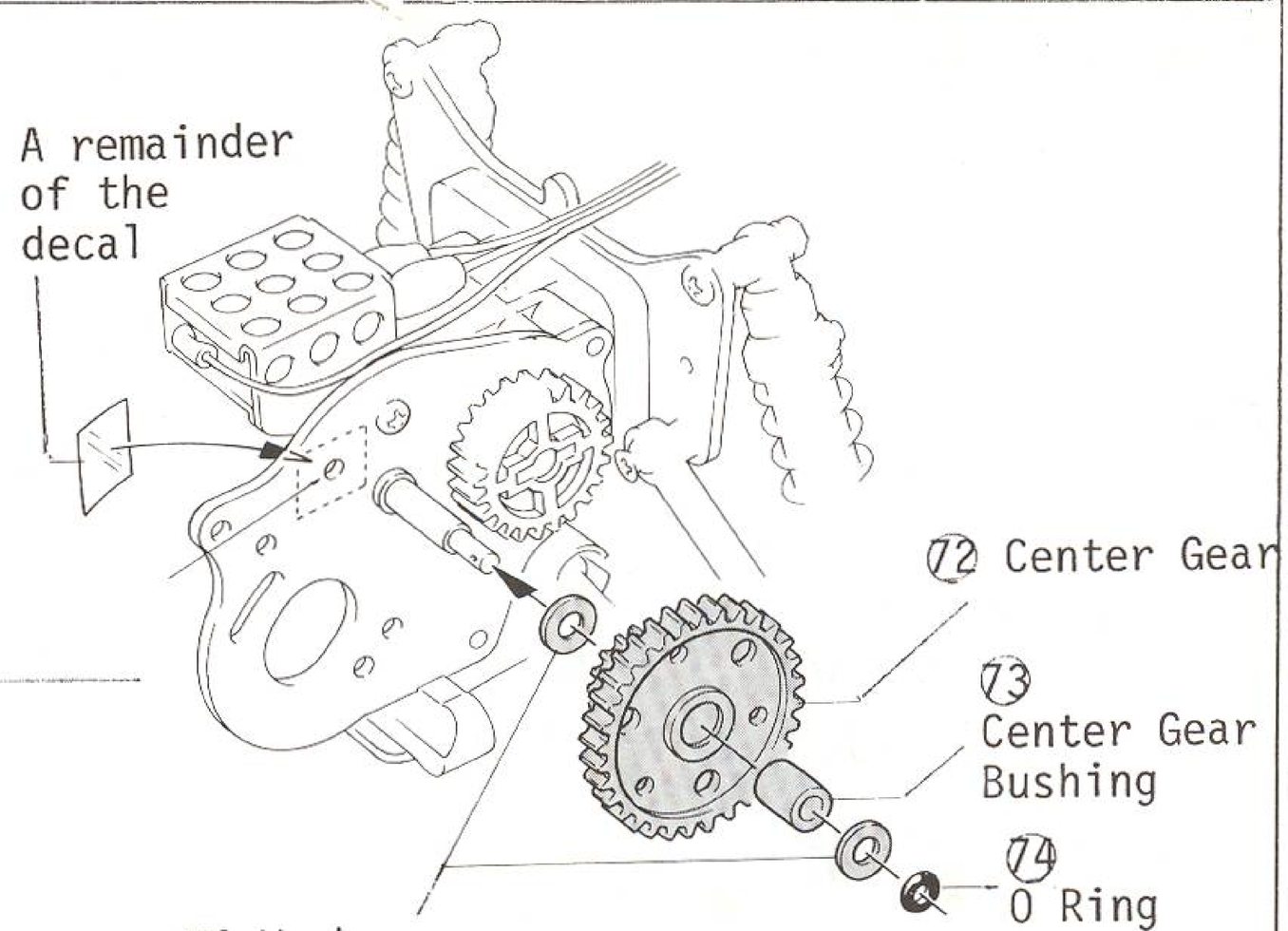
[This is a view of the assembly looking at from behind]

Lead the orange cord out of the heat sink.



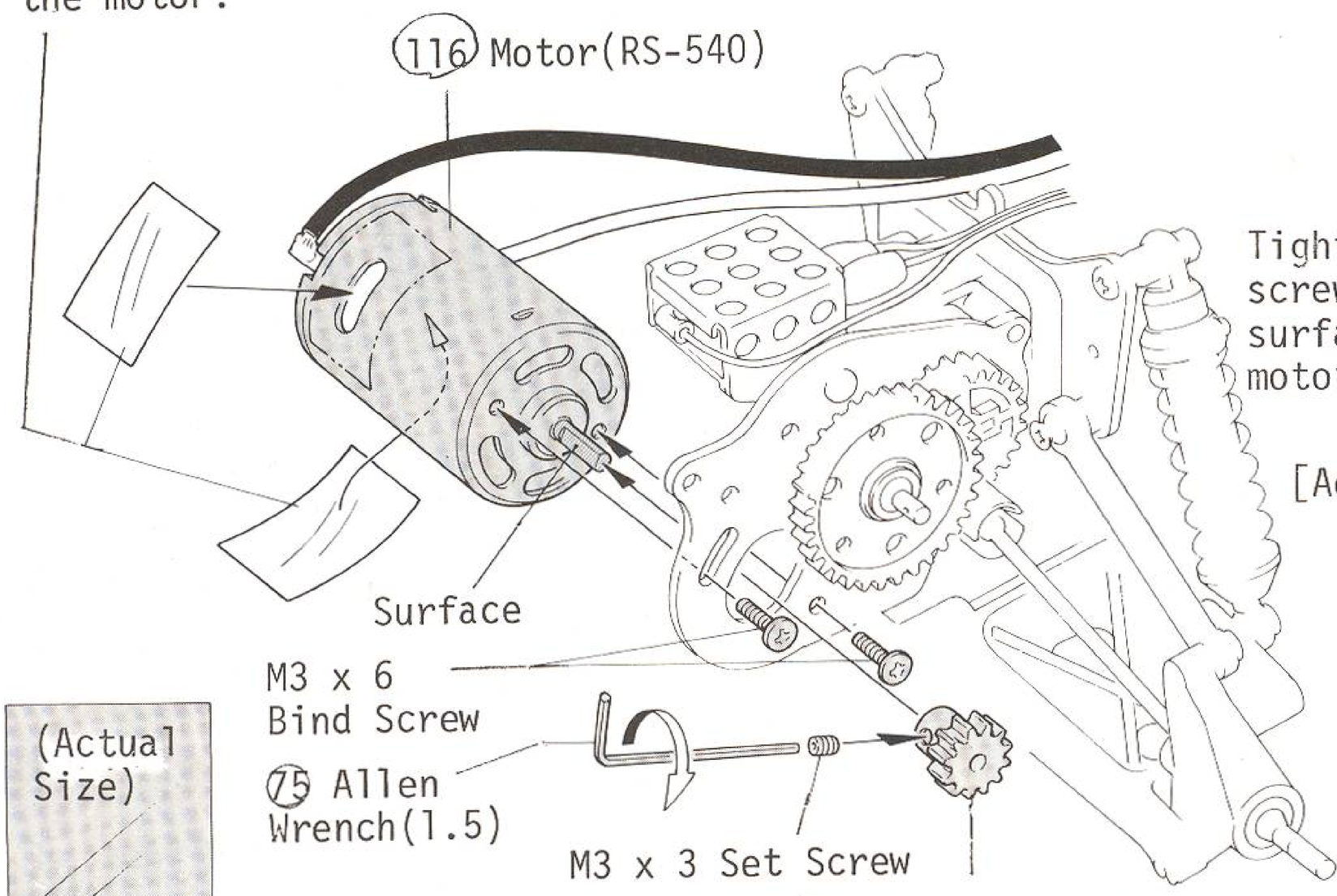
## 31 INSTALLATION OF CENTER GEAR

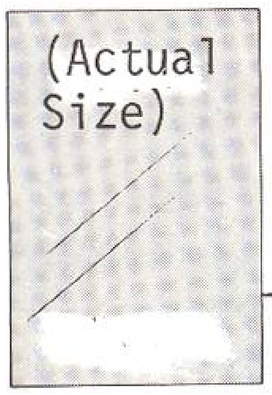
This hole is for fixing the motor guard, which is a optional parts. If you don't attach the motor guard, cut out a piece of the decal, which is excessive, and cover the hole for preventing dusts from penetrating.



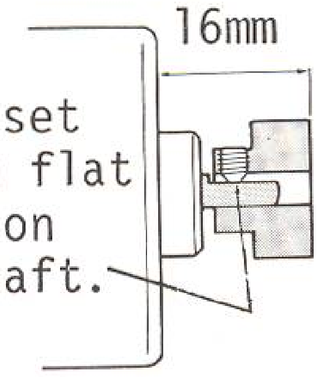

## 32 INSTALLATION OF MOTOR

Cut out any extra part of the decal into the size as shown below, and cover the hole on the motor.

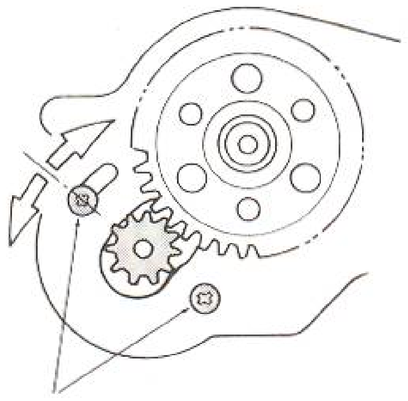



Cut two pieces of this size.

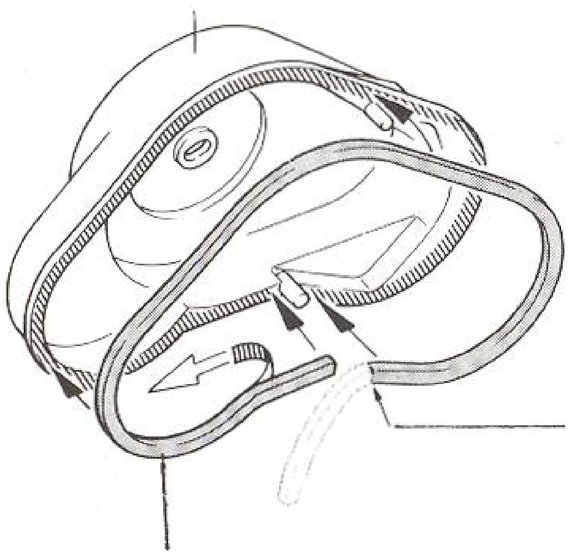



[Adjustment of Rolling Gear]

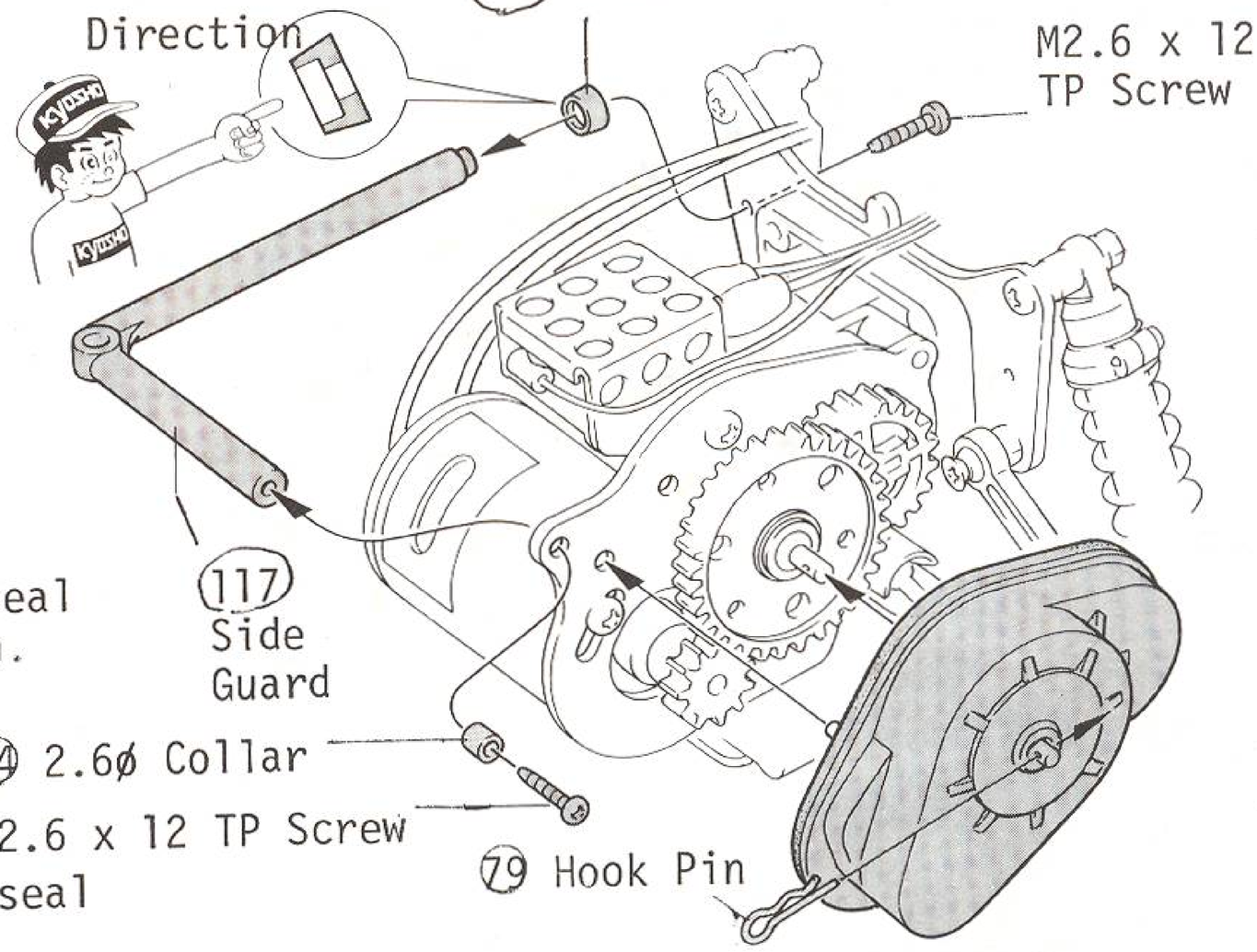


Adjust gear lash by loosening screws and sliding motor back and forth.

## 33 INSTALLATION OF GEAR COVER




(Unseal them from backing and seal them on striped portion.

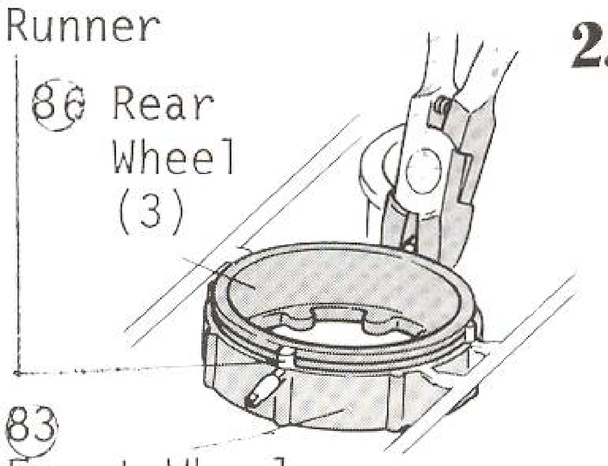


## 34 FABRICATION OF TIRE AND WHEEL

[Front]

**1.** Cut off 83 and 86.

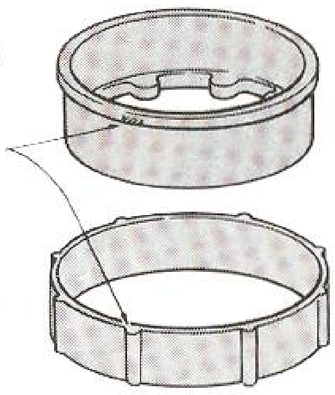
Runner

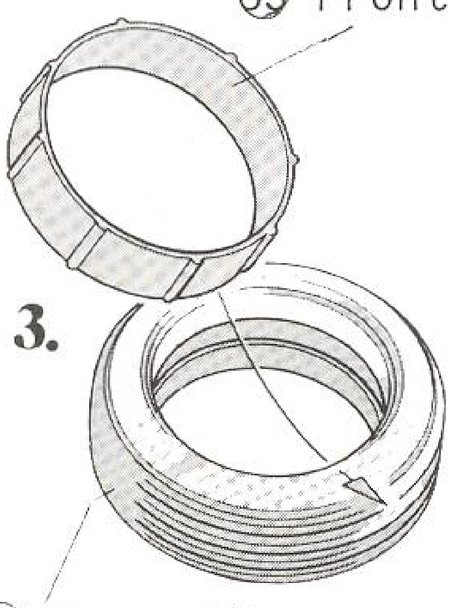


86 Rear Wheel (3)

83 Front Wheel (2)

**2.** Remove the mold runner and smooth the cuts.

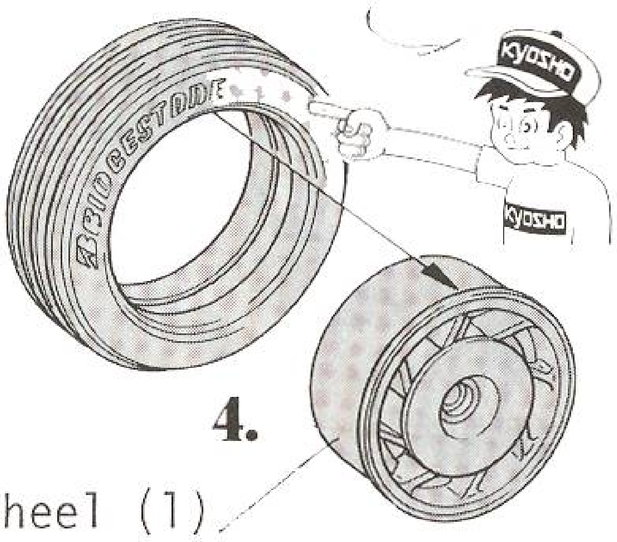




83 Front Wheel (2)

**3.**

80 Front Tire



**4.**

82 Front Wheel (1)

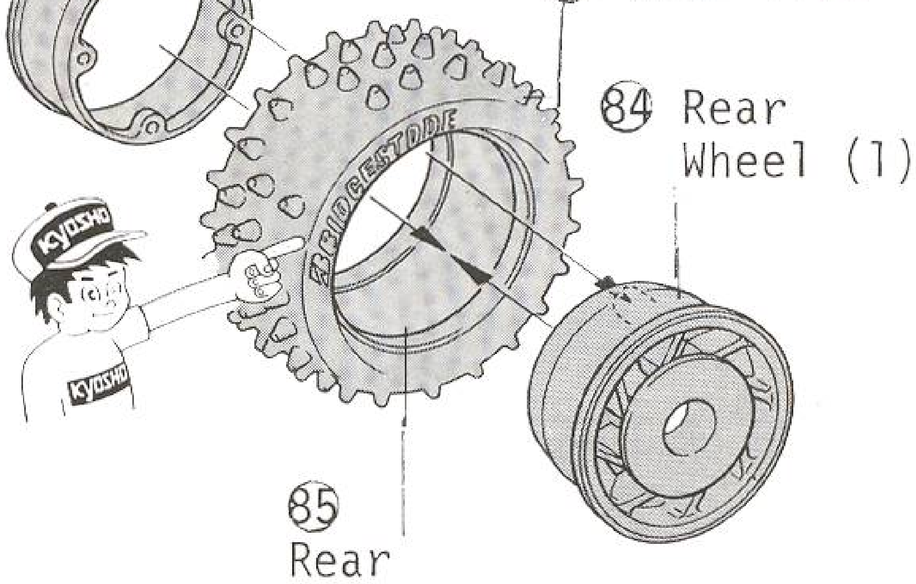
Cement the tire and the wheel by applying cyanoacrylate adhesive along the seam.

M2 x 8 TP Screw (4pcs.)

86 Rear Wheel (3) [Rear]

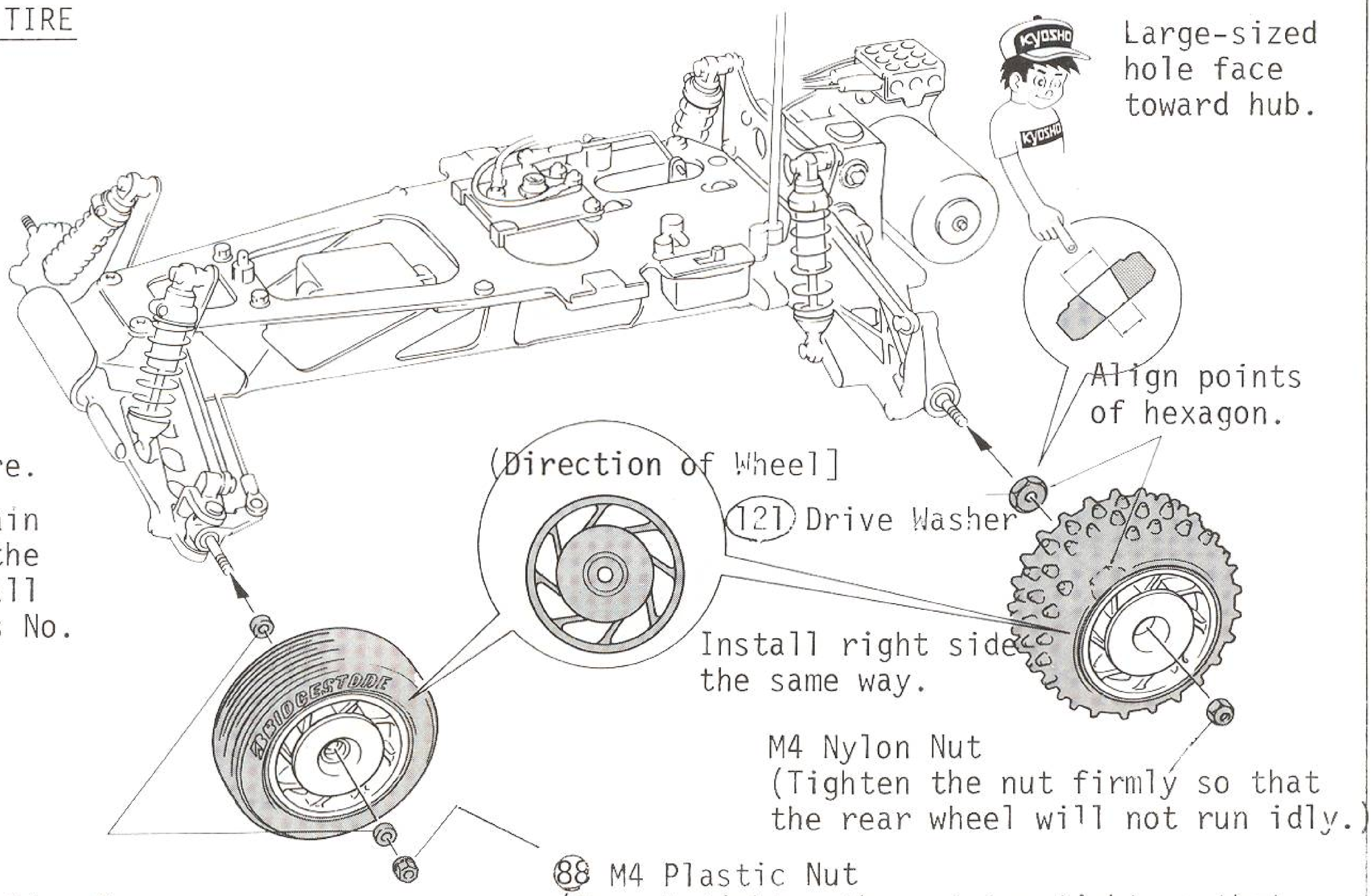
81 Rear Tire

84 Rear Wheel (1)



85 Rear Wheel (2)

## 35 MOUNTING OF TIRE



Large-sized hole face toward hub.

Align points of hexagon.

[Direction of Wheel]

121 Drive Washer

Install right side the same way.

M4 Nylon Nut
(Tighten the nut firmly so that the rear wheel will not run idly.)

*The optional ball bearings are adapted here.

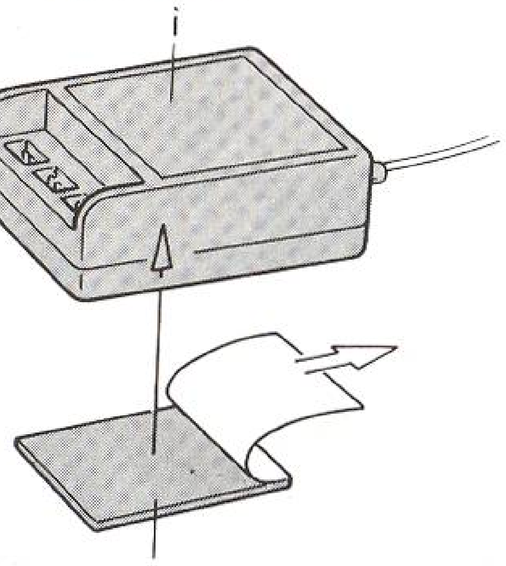
In place of plain bearings, fit the 4mm dia. x 8 ball bearings, parts No. 1903.

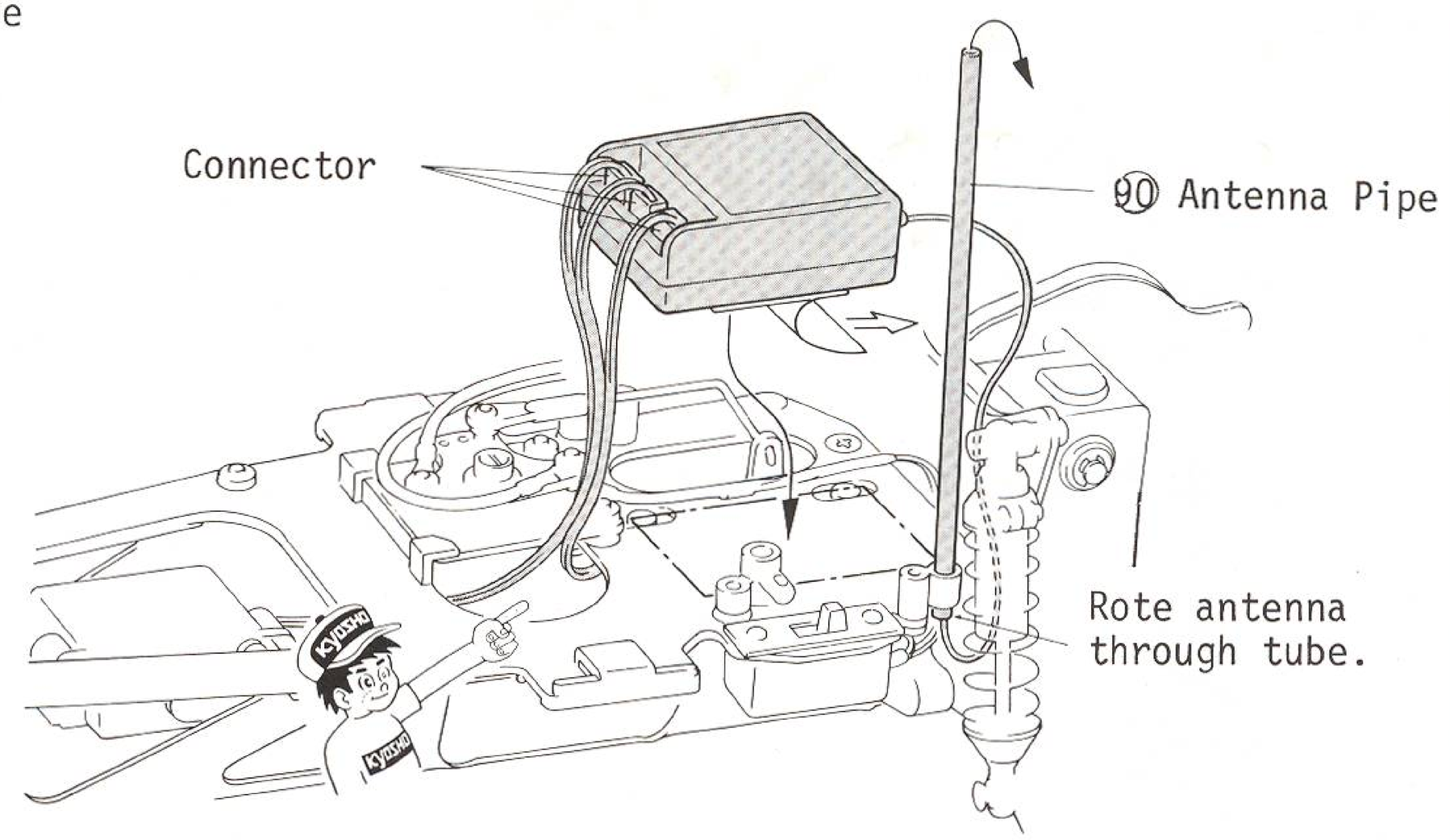
87 4ø x 8 Plastic Bushing

88 M4 Plastic Nut
(Do not tighten the nut too tight so that the front wheel will turn smoothly.)

## 36 INSTALLATION OF RECEIVER

Affix both sided tape
under the receiver.



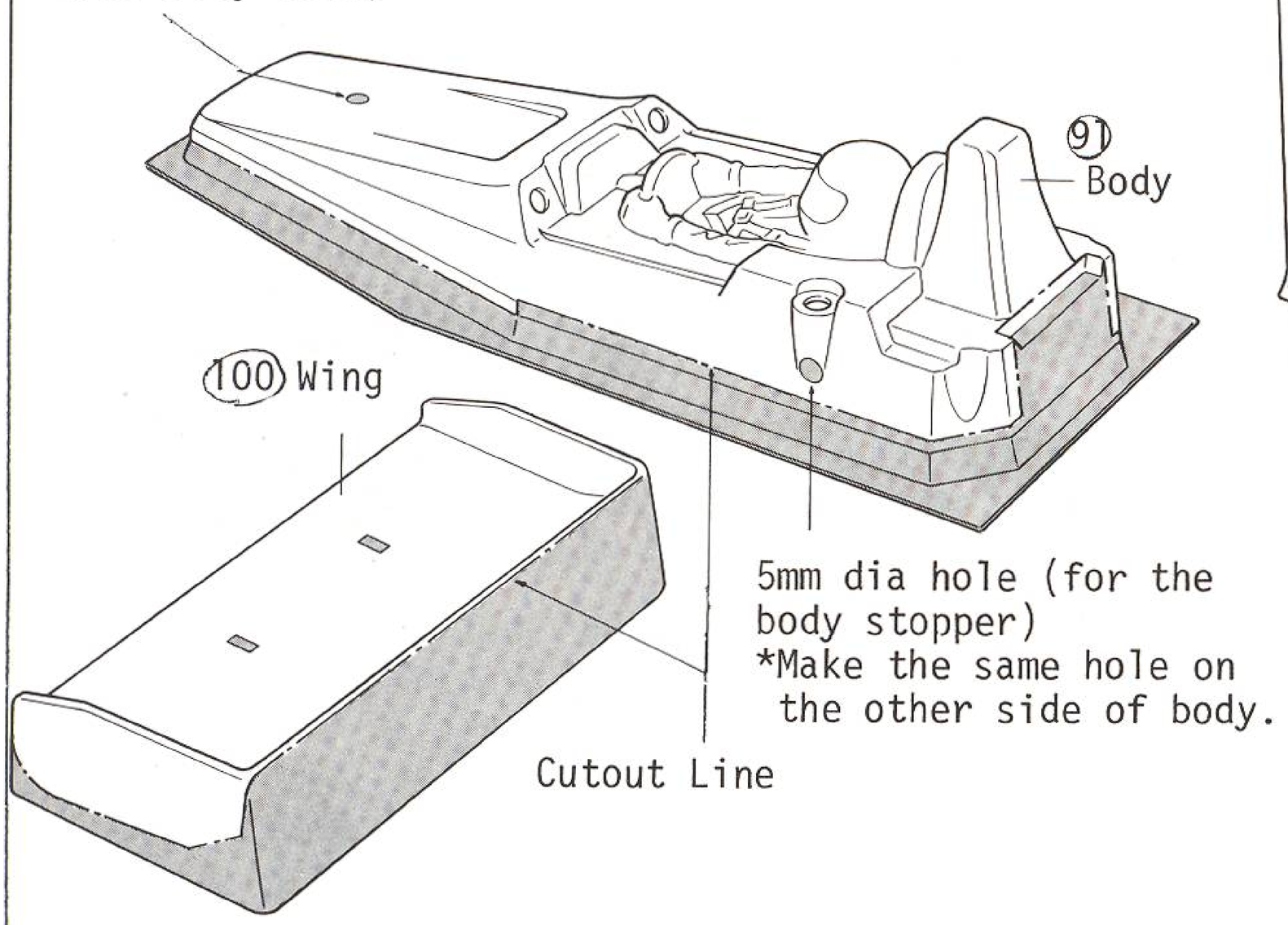



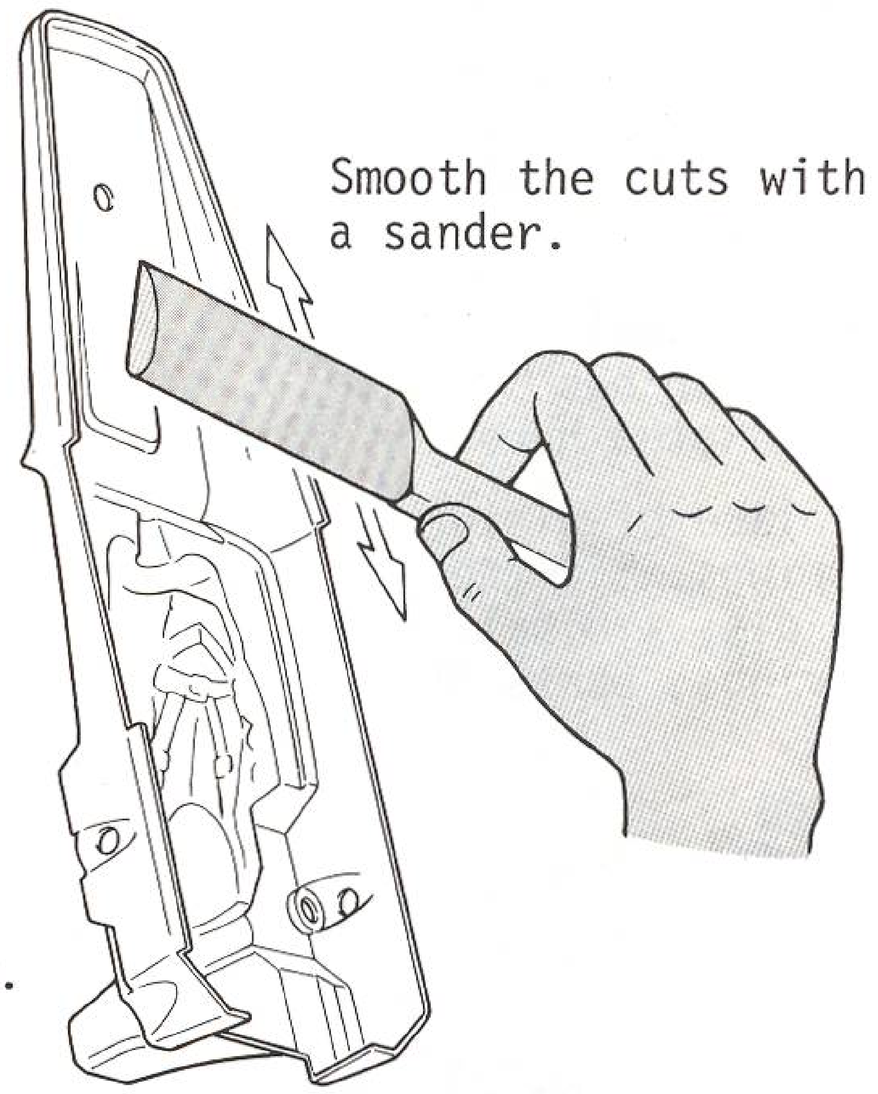

Arrange the connector cords through
this opening and plug the one into
the receiver.

## 37 CUTTING OUT BODY

*Drill three holes at the marked
points on the car body.

*Cut off the portions along with
the cutout line.

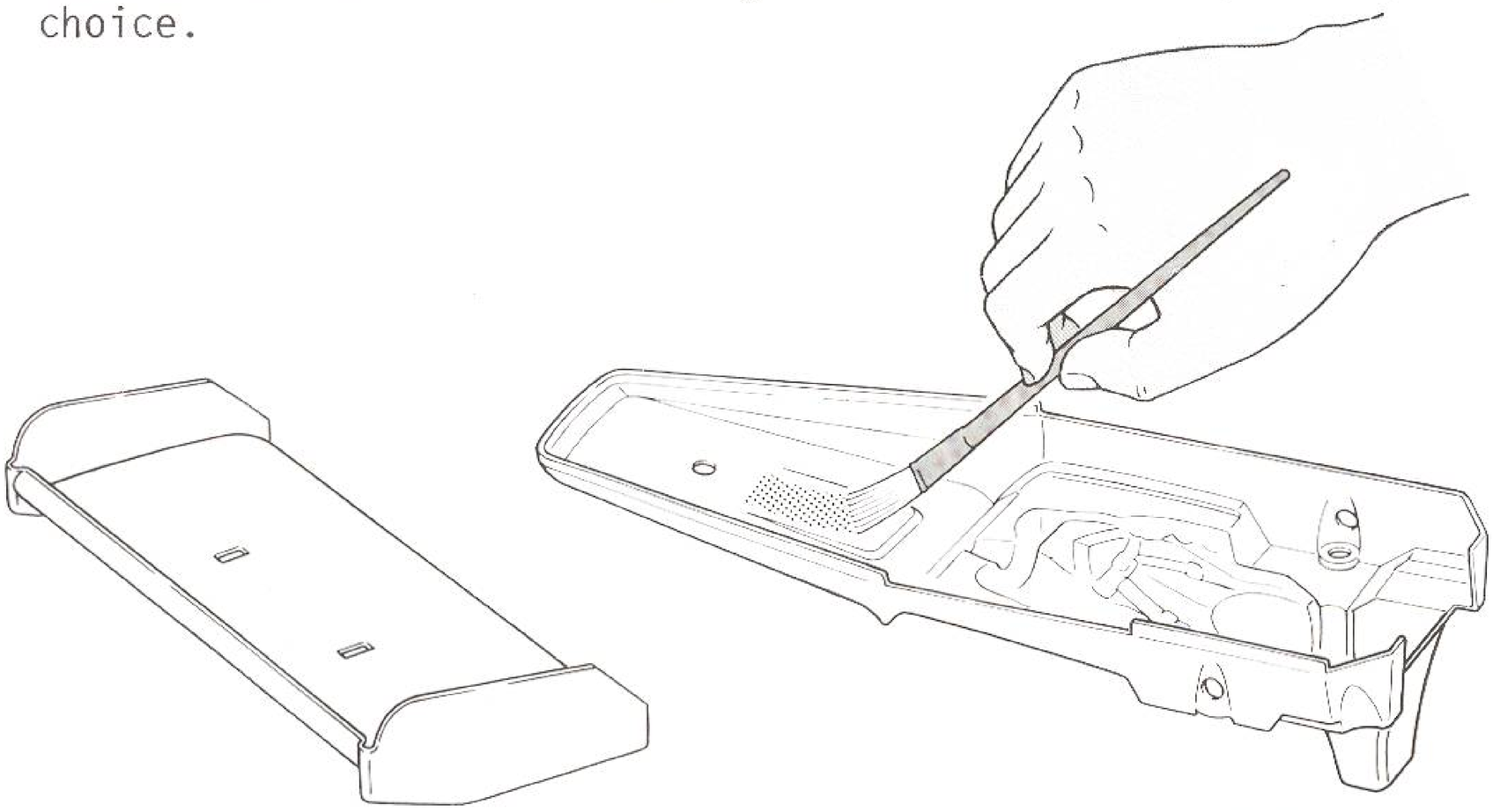


## 38 PAINTING

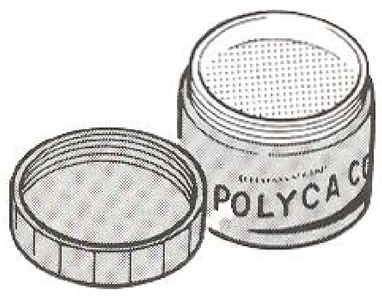
First, wash the body to remove any oil or dirt. Rinse thoroughly. Paint the inside of the body. You can obtain a color scheme by masking a portion with tape then removing the tape and painting. Apply the lightest color last.

Mask the windows with something like Micron Line Tape and paint it any color at your choice.




Micron-Line tape enhances the apprearance of any model.

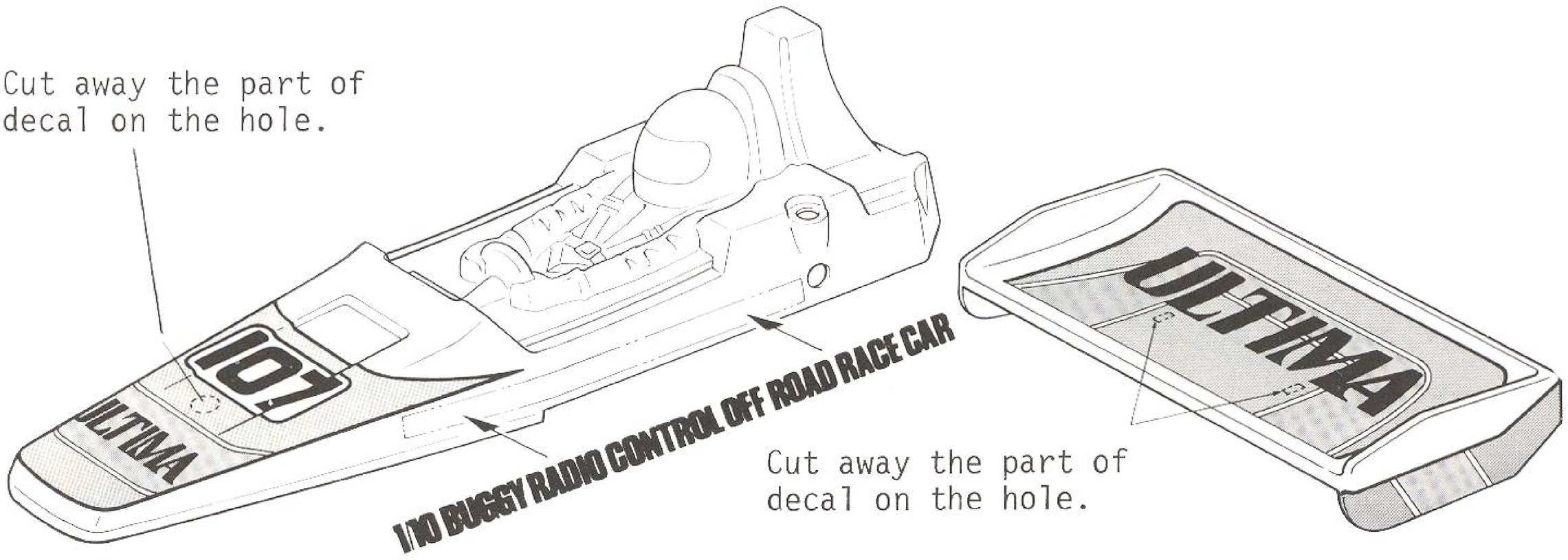

Polyca Color Paint is available for painting your Lexan Bodies. 12 grear looking colors!



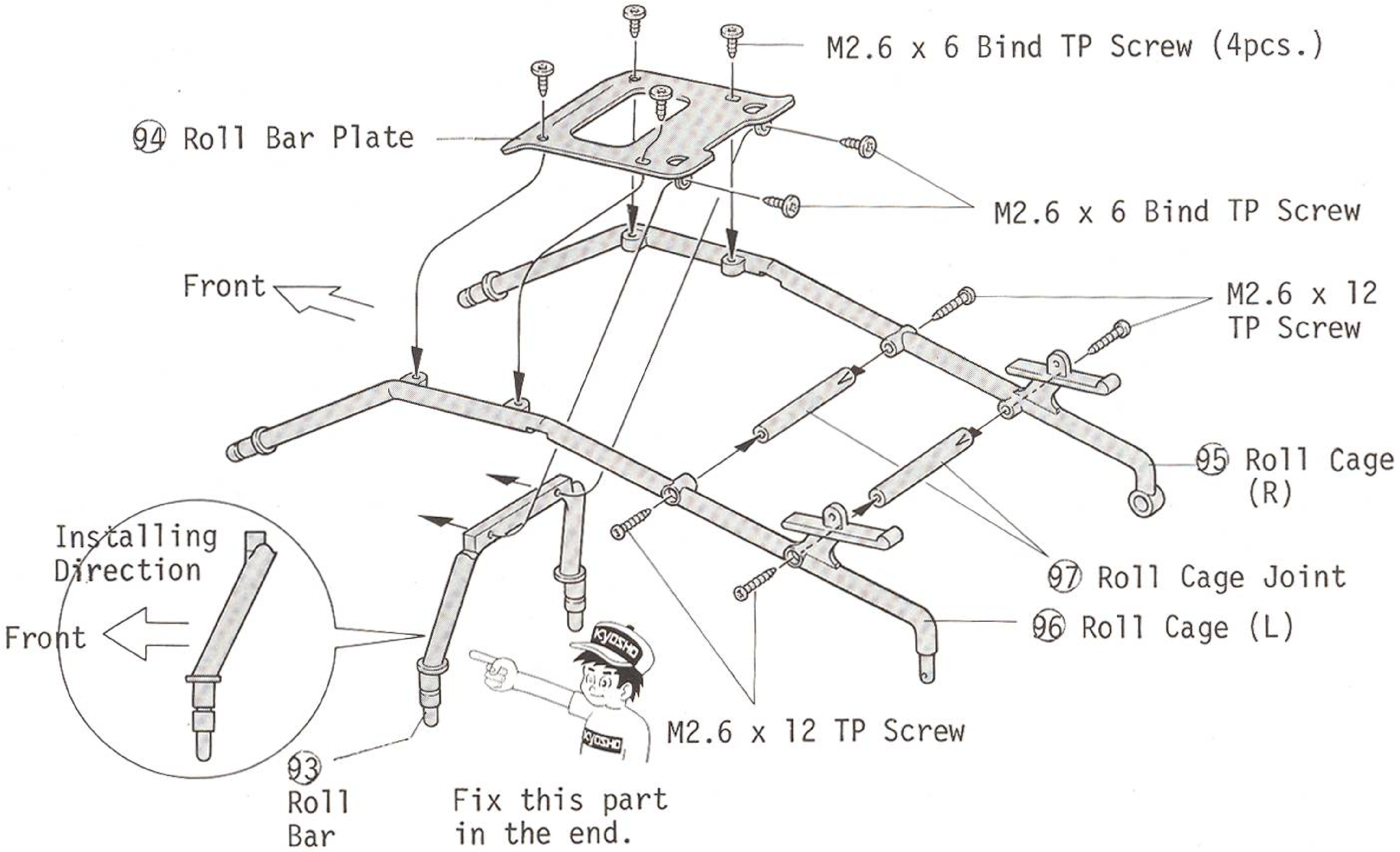

Polyca Color

## 39 MASKING OF BODY

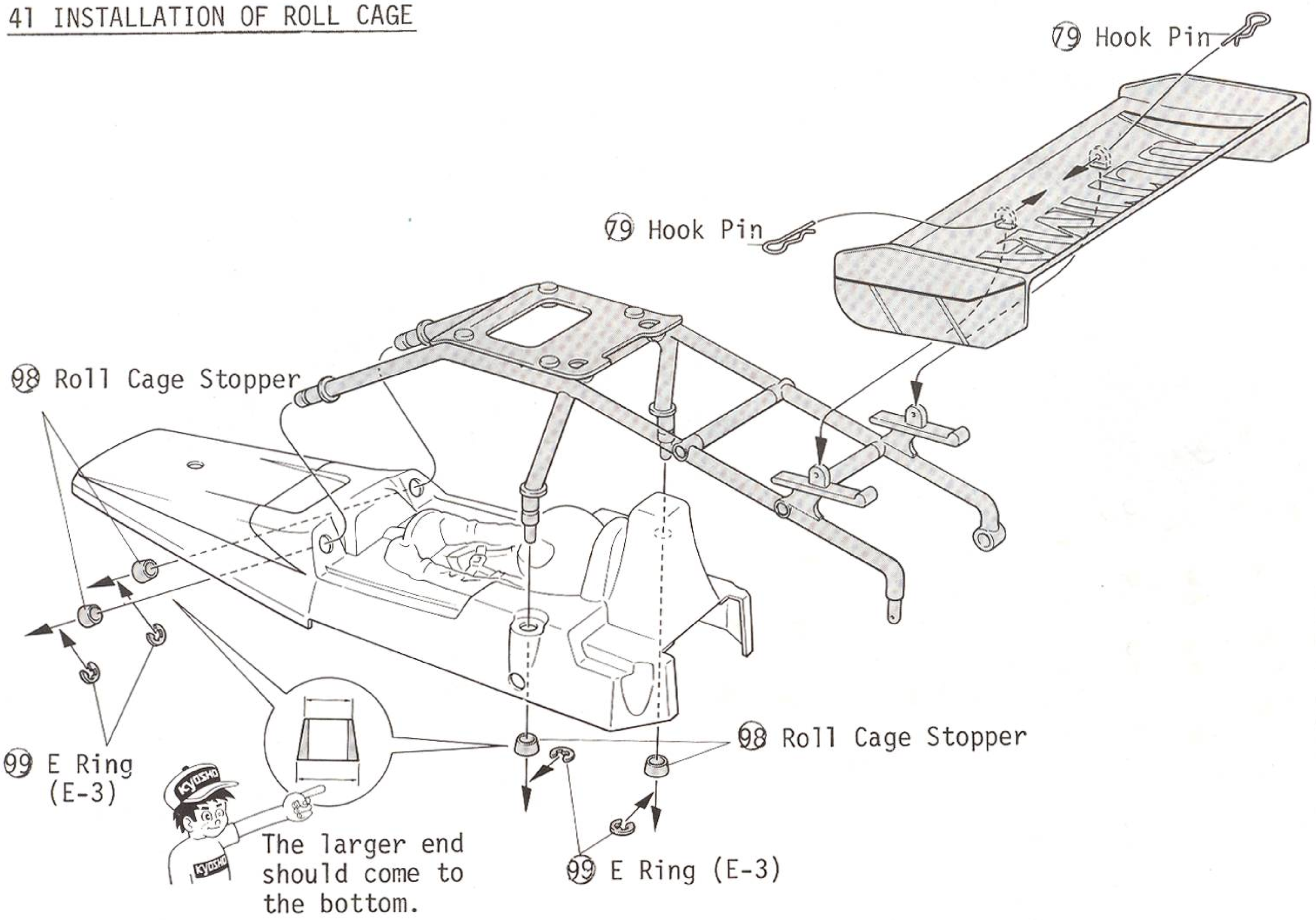
Cut out the decals as close as to the cutout line, and affix them as shown.



## 40 ASSEMBLY OF ROLL CAGE

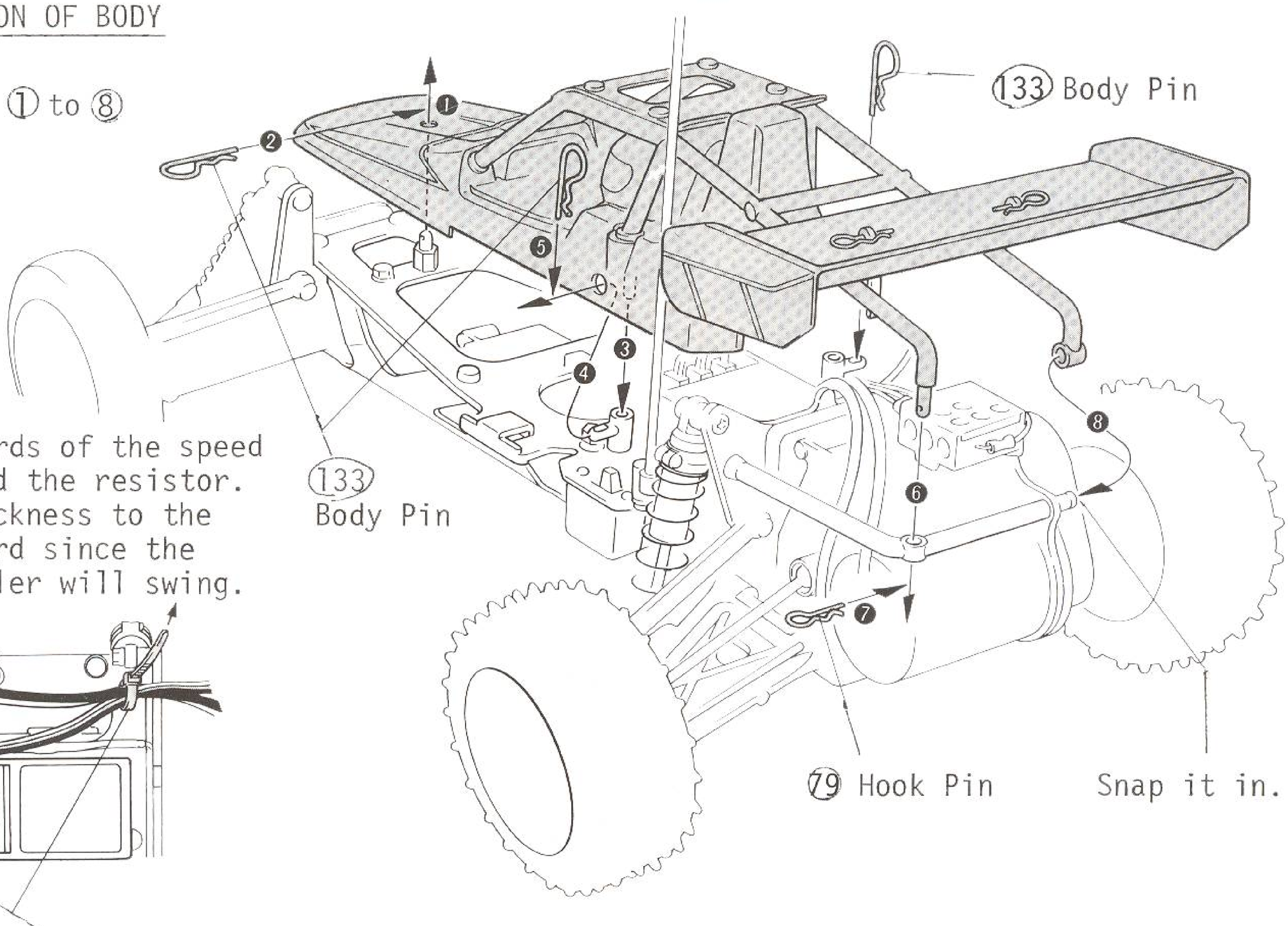



## 41 INSTALLATION OF ROLL CAGE

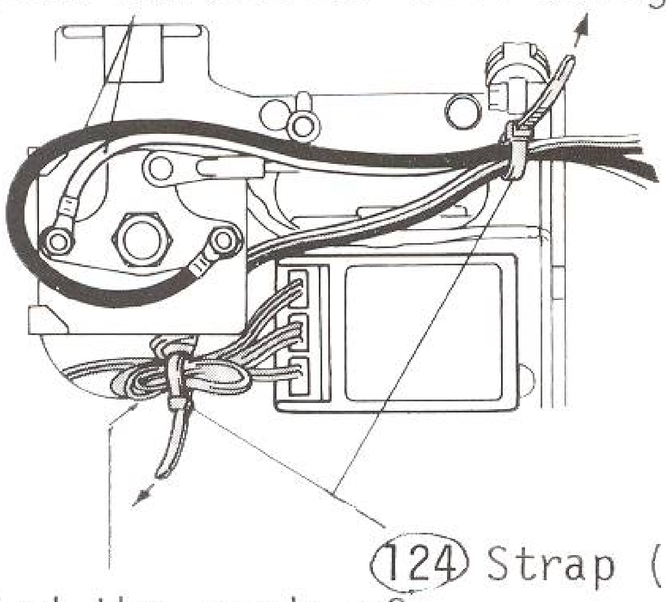


## 42 INSTALLATION OF BODY

Install steps ① to ⑧ in order.




Fasten the cords of the speed controller and the resistor. Give some slackness to the controller cord since the speed controller will swing.

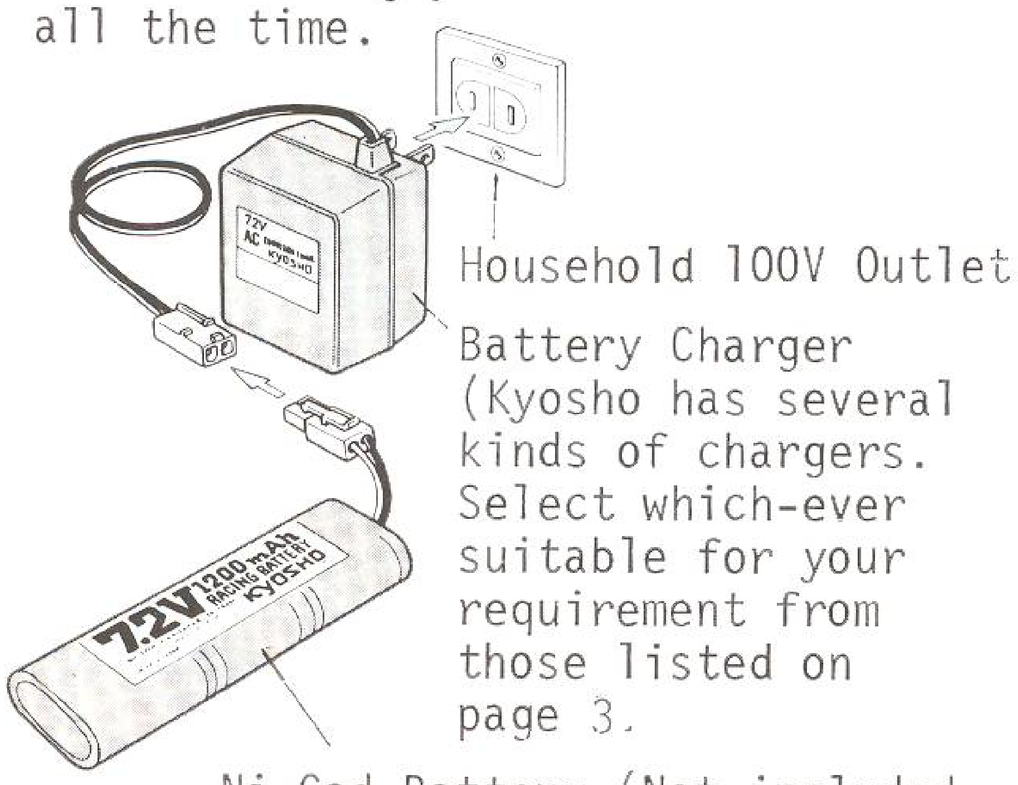



Bind the cords of the radio control units.

## 43 MOUNTING OF BATTERY

[Charging Ni-Cad Battery]

Charge your battery fully before running your model all the time.

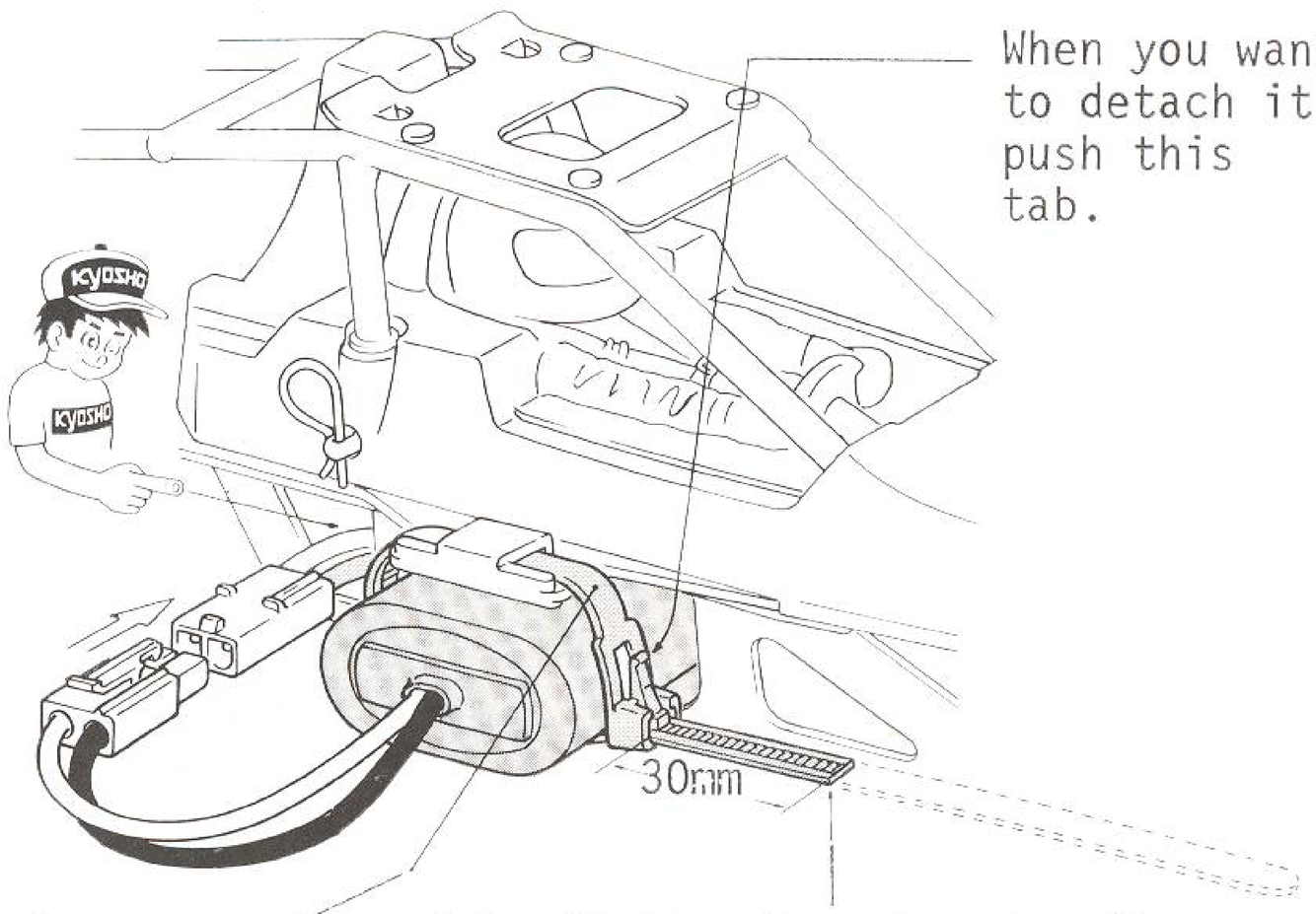



Household 100V Outlet

Battery Charger (Kyosho has several kinds of chargers. Select which-ever suitable for your requirement from those listed on page 3.

Ni-Cad Battery (Not included in the kit.)

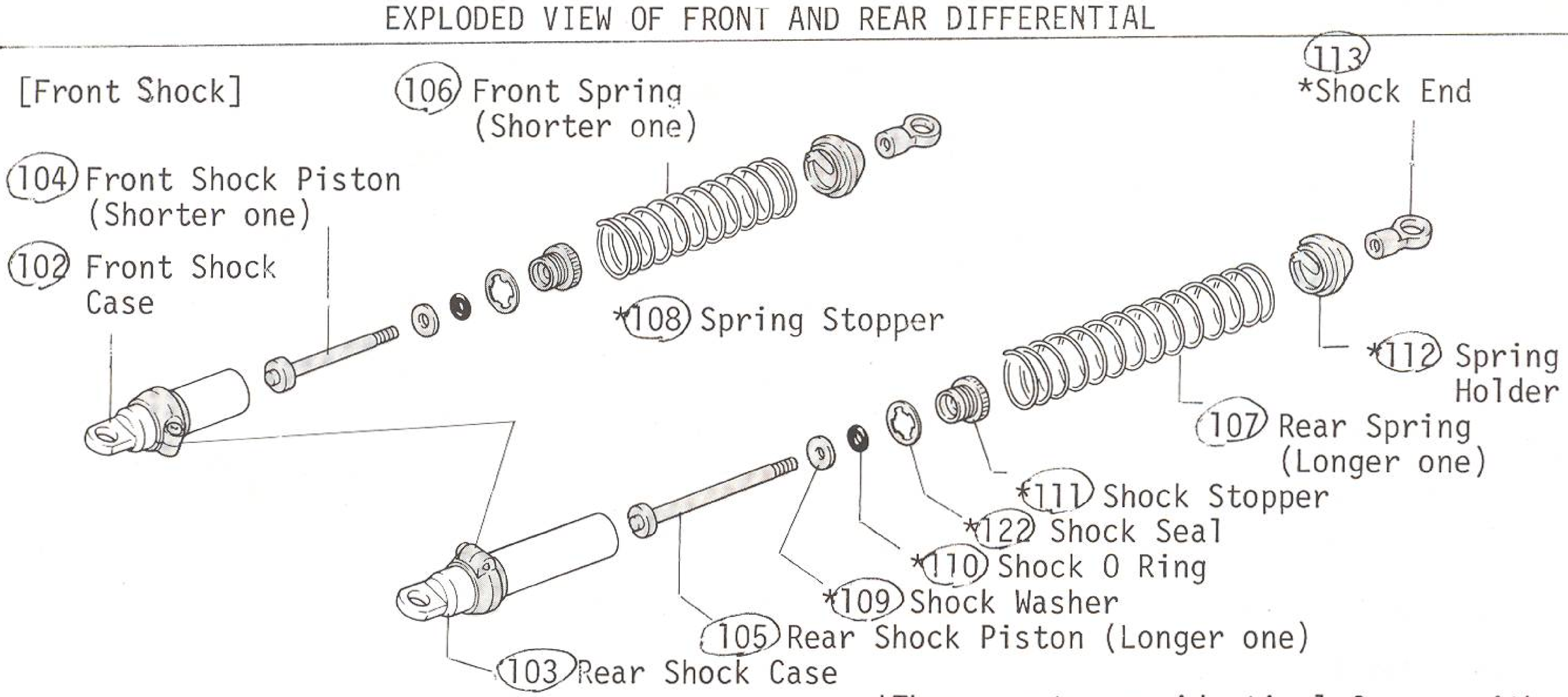
YOU HAVE TO TAKE AWAY THE BATTERY PACK WHEN YOU KEEP YOUR CAR NOT RUNNING OR STORE IT.





For maximum performance of car, a high performance battery is recommended. (Not included in kit)

## EXPLODED VIEW OF FRONT AND REAR DIFFERENTIAL




*These parts are identical for us with front and rear shocks.

## SETTING GUIDE

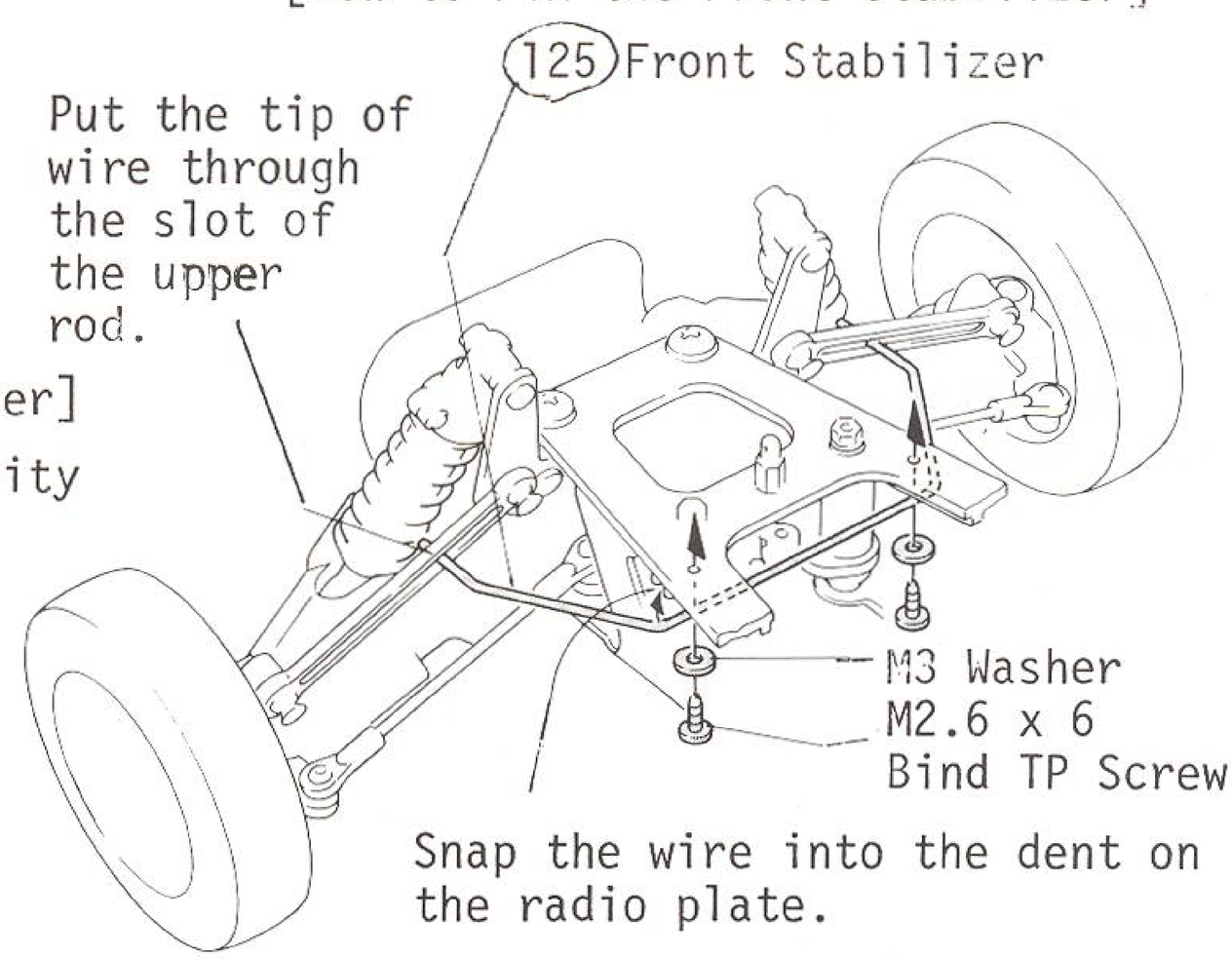
[Recommend to fix the front stabilizer]

1. Steering characteristic is sensitivity in running.
2. Flat race track.
3. Hard race track and bad gripping.

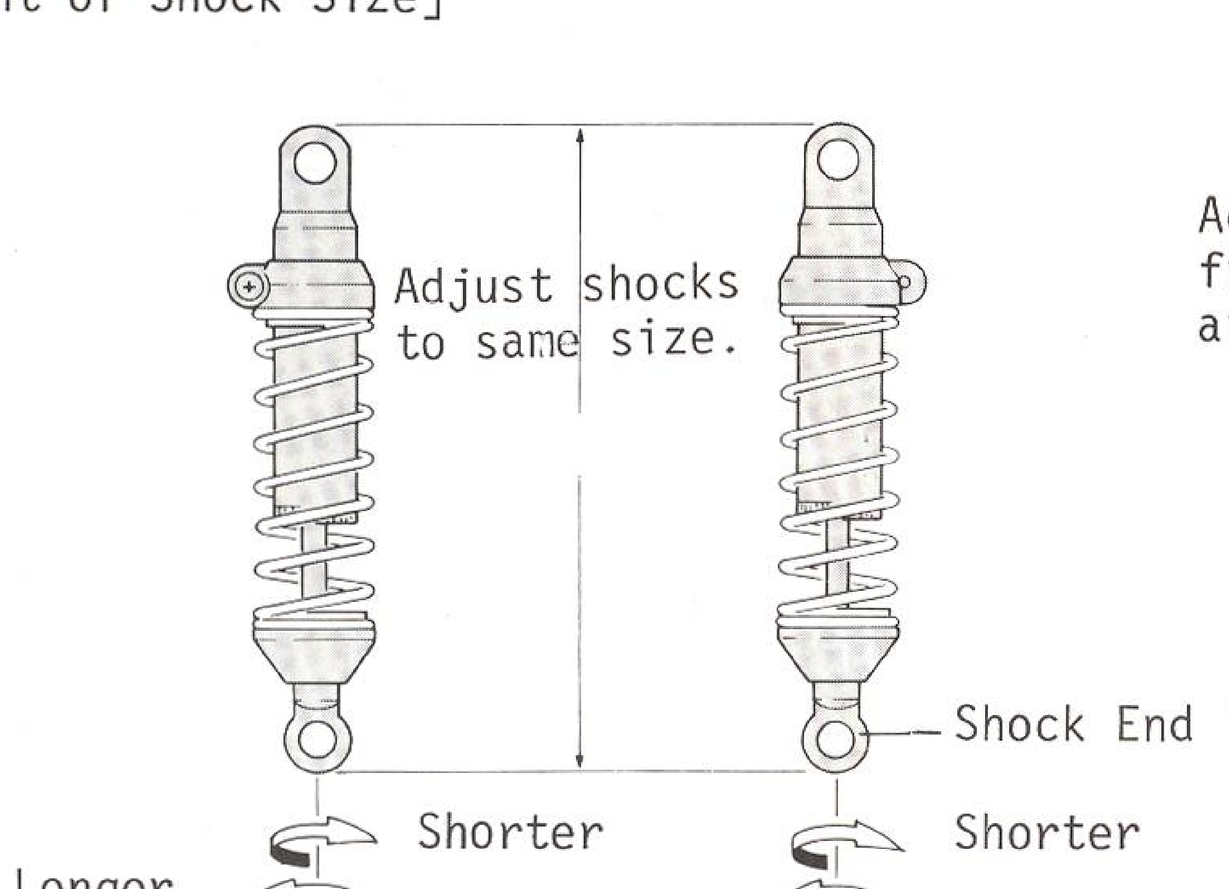
[Not recommend to fix the front stabilizer]

1. Steering characteristic is insensitivity in running.
2. Bumpy race track.

[How to Fix the Front Stabilizer]




[Adjustment of Shock Size]

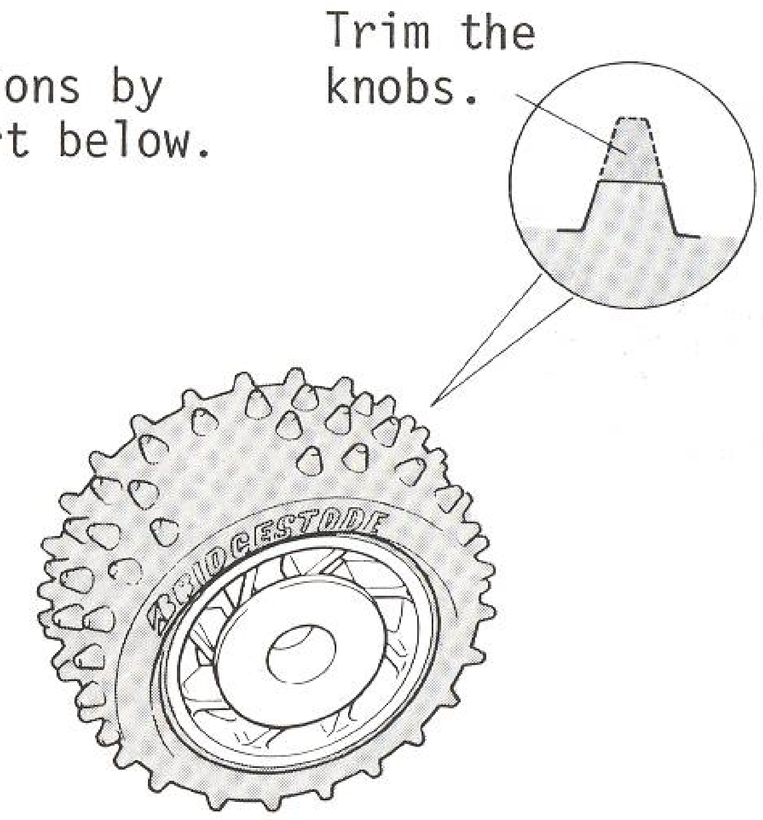



Adjust the shocks so that both front shocks and both rear shocks are exactly the same length.

[Customizing the Tires]

*Rear Tire

(1) You can increase performance for various track conditions by triming the knobs of the rear tires. Consult the chart below.




| Track | Amount of Trim |
|---|---|
| Grass | 1/2 |
| Concrete | 2/3 |
| Sand | None |
| Hard Dirt | 1/3 |
| Soft Dirt | None |

(2) Besides these items, tires for hard and soft road surfaces are available from the "Option House" kit.

*Front Tire

For improving the road holding grip of front tire, an optional one with deeper tread pattern is also sold in the market.

[Adjustment of Shock Oil and Sprint]

Front (With lighter damper oil, or by loosening the spring tension) . . . The steerage becomes more effective.

Front (With heavier shock oil, or by hardening the spring tension) . . . The steerage becomes less effective.

Rear (With lighter shock oil, or by loosening the spring tension) . . . The traction increases.

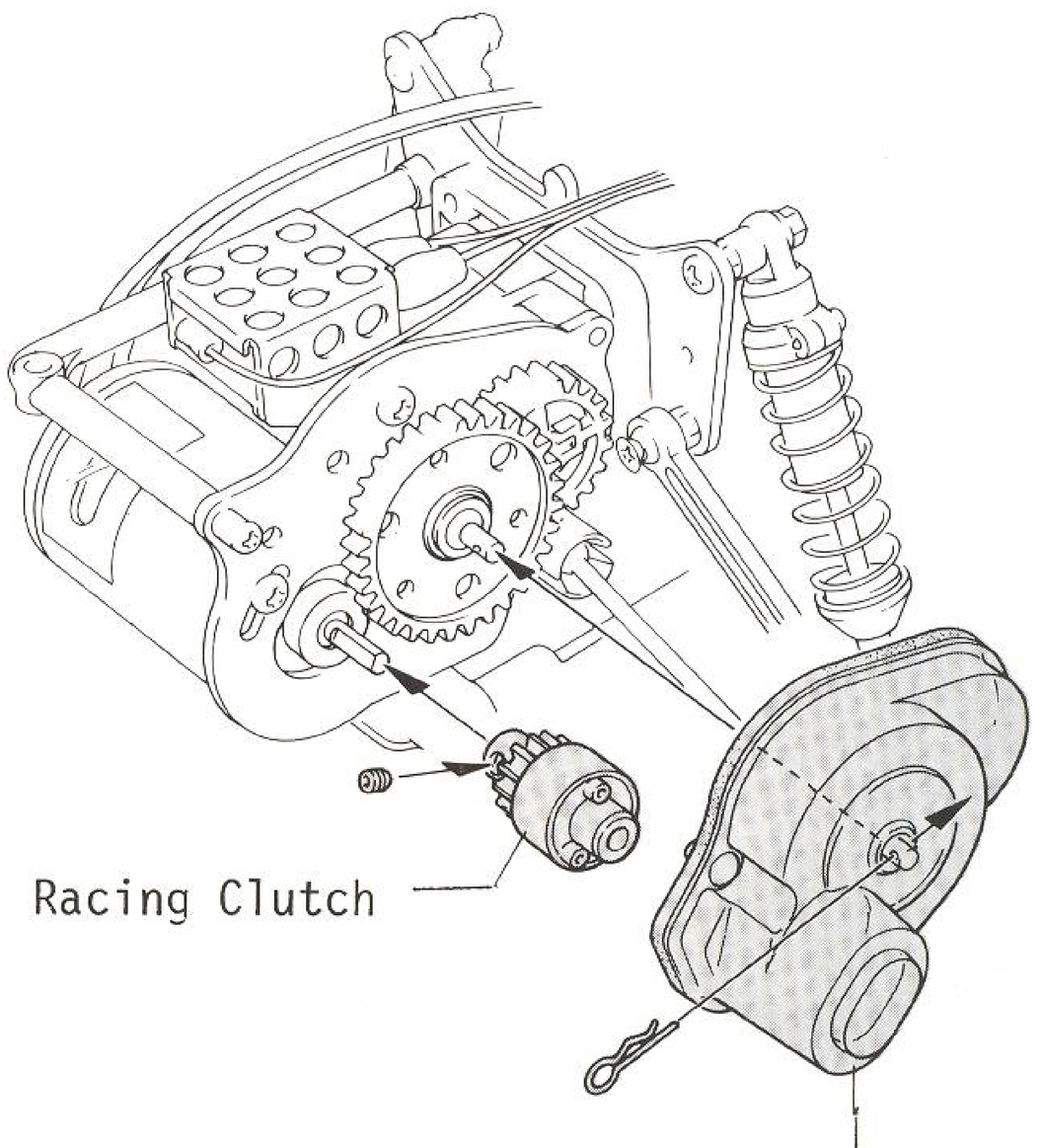
Rear (With heavier shock oil, or by hardening the spring tension) . . . The traction decreases.

[Gear Ratio and Motor]

| Pinion Gear | 14T | 15T | 16T | 17T | 18T | 19T | 20T |
|---|---|---|---|---|---|---|---|
| Gear Ratio | 8.8 | 8.2 | 7.7 | 7.3 | 6.9 | 6.5 | 6.2 |
| Le Mans Motor | 240S, 240 SB | | | | | | |
| | | | 360Gold, 360PT | | | | |
| | 480S, 480T, 480Gold | | | | | | |

[Optional Racing Clutch]

This is a centrifugal clutch for the electric buggy car with a function of the torque limiter. You can control your car much more easily on the slippery road surface with this optional item employed. Also the device will protect the motor and the gear train from percussion.



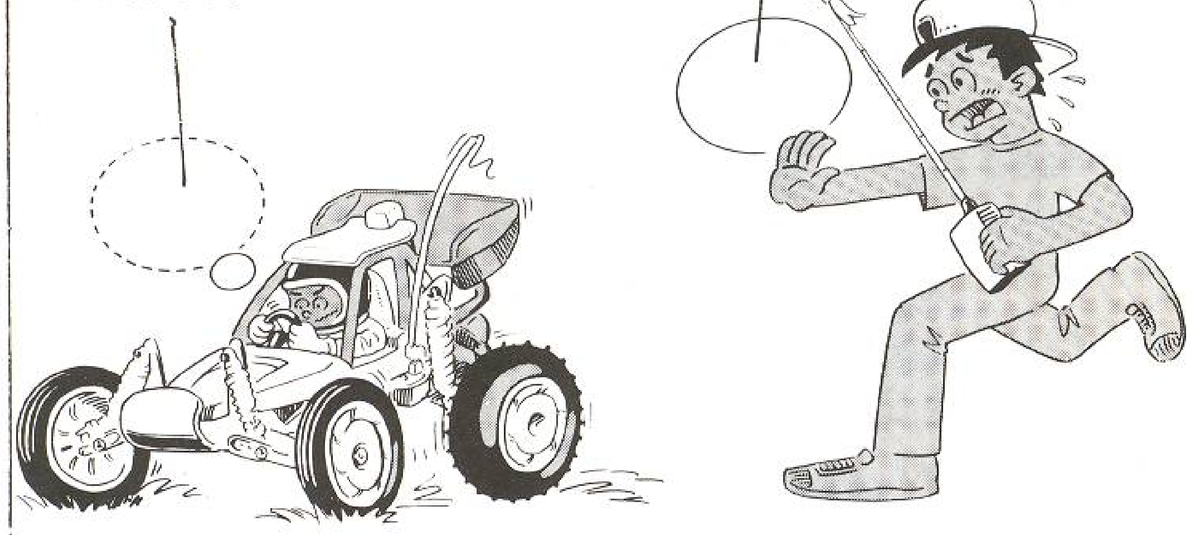

*There are three kinds of racing clutches availabel. Please refer to the list of optional parts on page 29.

# RUNNING THE ULTIMA

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

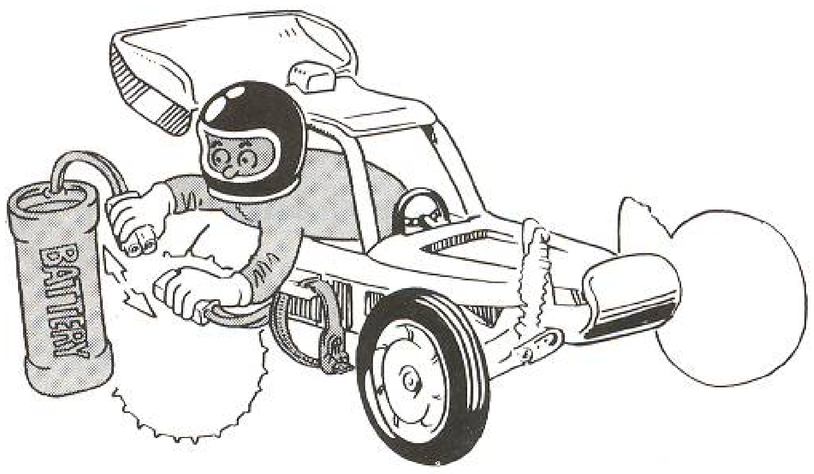
It seems I've lost the steering control!

What! You, handless chicken.



After running, always remove the battery from the car.

Ni-Cad Battery




[Check Before Every Run]

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

[Operating Procedures]

1. Turn transmitter switch on.
2. Switch on the receiver.
3. 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]

1. Poor contact of connectors of batteries, connector, and speed control
2. Check to see if the Ni-cad battery is fully charged.
3. Check to see shortage of battery power for the transmitter.
4. Signal jamming from other radios.

# KEY NUMBERS FOR PARTS

| No. | Parts Name | Q'ty |
|---|---|---|
| 1 | Main Gear | 1 |
| 2 | Diff. Gear | 1 |
| 3 | Bushing Collar | 2 |
| 4 | Bevel Gear (A) | 2 |
| 5 | Bevel Gear (B) | 2 |
| 6 | Bevel Shaft | 2 |
| 7 | Joint | 2 |
| 8 | 10ø x 14 Bushing | 2 |
| 9 | Gear Box (R) | 1 |
| 10 | Motor Plate | 1 |
| 11 | Counter Gear Shaft | 1 |
| 12 | 2ø x 11 Pin | 2 |
| 13 | 5ø x 10 Bushing | 6 |
| 14 | Gear Box (L) | 1 |
| 15 | E Ring (E-4) | 1 |
| 16 | Rear Shock Stay | 1 |
| 17 | Rear Bulk Head | 1 |
| 18 | Upper Rod | 4 |
| 19 | 5.8ø Ball | 12 |
| 20 | Gear Box Hatch | 1 |
| 21 | Rear Hub | 2 |
| 22 | Rear Wheel Shaft | 2 |
| 23 | Sus. Shaft (A) | 2 |
| 24 | E Ring (E-2.5) | 8 |
| 25 | Rear Sus. Arm | 2 |
| 26 | Swing Shaft | 2 |
| 27 | Sus. Shaft (B) | 2 |
| 28 | Shock Bush | 4 |
| 29 | M3 Plastic Nut | 6 |
| 30 | Front Hub | 2 |
| 31 | King Pin | 2 |
| 32 | Knuckle Arm (R) | 1 |
| 33 | Knuckle Arm (L) | 1 |
| 34 | Front Wheel Shaft | 2 |
| 35 | Front Shock Stay | 1 |
| 36 | Front Bulk Head | 1 |
| 37 | Sus. Shaft (C) | 2 |
| 38 | Front Sus. Arm | 2 |
| 39 | Sus Shaft (D) | 2 |
| 40 | Front Shock Bumper | 1 |
| 41 | Ball Nut | 2 |
| 42 | Servo Saver (A) | 1 |
| 43 | Servo Saver (B) | 1 |
| 44 | Servo Saver (C) | 1 |
| 45 | Servo Saver (D) | 1 |
| 46 | M2.6 Pivot Ball | 1 |
| 47 | Center Rod | 1 |
| 48 | Servo Saver Shaft | 2 |
| 49 | Servo Saver Collar | 2 |
| 60 | Ball End (L) | 4 |
| 51 | Tie Rod | 2 |
| 52 | Ball End (S) | 2 |
| 53 | Steering Rod | 1 |
| 54 | 2.6ø Collar | 2 |
| 55 | Speed Control Nut | 1 |
| 56 | Speed Control Horn | 1 |
| 57 | Speed Control Pivot | 1 |
| 58 | Motor Cord | 1set |
| 59 | Speed Control Contact Point | 2 |
| 60 | Speed Control Stud | 1 |
| 61 | Speed Control Spring | 1 |
| 62 | PC Board | 1 |
| 63 | Radio Plate | 1 |
| 64 | Connector | 1 |
| 65 | Antenna Post | 1 |
| 66 | Regulator | 1 |
| 67 | Servo Stay | 4 |
| 68 | Body Stopper (R) | 1 |
| 69 | Heat Sink (A) | 1 |
| 70 | Heat Sink (B) | 1 |
| 71 | Center Gear Shaft | 1 |
| 72 | Center Gear | 1 |
| 73 | Center Gear Bushing | 1 |
| 74 | O Ring | 1 |
| 75 | Allen Wrench (1.5) | 1 |
| 76 | Pinion Gear (15T) | 1 |
| 77 | Gear Cover | 1 |
| 78 | Gear Cover Seal | 1 |
| 79 | Hook Pin | 4 |
| 80 | Front Tire | 2 |
| 81 | Rear Tire | 2 |
| 82 | Front Wheel (1) | 2 |
| 83 | Front Wheel (2) | 2 |
| 84 | Rear Wheel (1) | 2 |
| 85 | Rear Wheel (2) | 2 |
| 86 | Rear Wheel (3) | 2 |
| 87 | 4ø x 8 Plastic Bushing | 4 |
| 88 | M4 Plastic Nut | 2 |
| 89 | Double Sided Tape | 1 |
| 90 | Antenna Pipe | 1 |
| 91 | Body | 1 |
| 92 | Decal | 1 |
| 93 | Roll Bar | 1 |
| 94 | Roll Bar Plate | 1 |
| 95 | Roll Cage (R) | 1 |
| 96 | Roll Cage (L) | 1 |
| 97 | Roll Cage Joint | 2 |
| 98 | Roll Cage Stopper | 4 |
| 99 | E Ring (E-3) | 6 |
| 100 | Wing | 1 |
| 101 | Ni-Cad Strap | 2 |
| 102 | Front Shock Case | 2 |
| 103 | Rear Shock Case | 2 |
| 104 | Front Shock Piston | 2 |
| 105 | Rear Shock Piston | 2 |
| 106 | Front Spring | 2 |
| 107 | Rear Spring | 2 |
| 108 | Spring Stopper | 4 |
| 109 | Shock Washer | 4 |
| 110 | Shock O Ring | 4 |
| 111 | Shock Stopper | 4 |
| 112 | Spring Holder | 4 |
| 113 | Shock End | 4 |
| 114 | BEC Connector | 1 |
| 115 | Speed Control Rod | 1 |
| 116 | Motor (RS-540) | 1 |
| 117 | Side Guard | 1 |
| 118 | Main Chassis | 1 |
| 119 | Oil | 1 |
| 120 | Resistor | 1set |
| 121 | Drive Washer | 2 |
| 122 | Shock Seal | 4 |
| 123 | Shock Wrench | 1 |
| 124 | Strap (S) | 2 |
| 125 | Front Stabilizer | 1 |
| 126 | Allen Wrench (2) | 1 |
| 127 | Counter Gear | 1 |
| 128 | Final Pinion | 1 |
| 129 | Rear Axle Stopper | 1 |
| 130 | Body Hook | 1 |
| 131 | Side Guard Collar | 1 |
| 132 | Body Stopper (L) | 1 |
| 133 | Body Pin | 3 |

# PURCHASING PARTS FOR YOUR KIT

You can purchase replacement and optional parts for your kit. All of the part identified by key numbers (see page for a 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 refering to the parts you need, always use the parts pack number. For instance, if you need a counter gear shaft (Key #11) ask your dealer for Kyosho Parts Pack UM-5 (Gear Shaft Set).

| Parts Pack # | Description | Includes These Key Numbers |
|---|---|---|
| OT- 5 | Joint | ⑦ x 2 |
| OT- 6 | Swing Shaft | ㉖ x 2 |
| OT-18 | Rear Shaft | ㉒ x 2 |
| OT-19 | Drive Washer | ⑫① x 4 |
| OT-24 | Pinion Gear (15T) | ⑦⑥ x 1 |
| OT-28 | Differential Gear Set | ⑥ x 2 ④⑤ x 4 |
| OT-29 | O Ring | ⑦④ x 10 |
| OT-32 | 5.8ø Ball | ⑲ x 10 |
| OT-33 | Ball Nut (M2.6) | ④① x 10 |
| OT-36 | M2.6 Pivot Ball | ④⑥ x 10 |
| OT-37 | Cord Set | ⑥⑥ x 1 ⑤⑧ x 1set |
| OT-39 | E Ring (E-2.5) | ㉔ x 10 |
| OT-58 | Wing | ⑩⓪ x 1 |
| OT-66 | Low Profile Tire (Rear) | ⑧① x 2 |
| OT-72 | Registor Heat Sink | ⑥⑨ ⑦⓪ x 1 |
| SC-26 | Front Tire | ⑧⓪ x 2 |
| SC-46 | Double Sided Tape | ⑧⑨ x 1 |
| SC-67 | Speed Control Set | ⑤⑤ ⑤⑥ ⑤⑦ ⑥⓪ ⑥① ⑥② x 1 ⑤⑨ x 2 |
| SC-78 | Speed Control PC Board | ⑧② x 1 |
| SC-79 | Speed Control Contact Point | ⑤⑨ x 2 |
| SC-89 | Tie Rod | ⑤① x 2 ④⑥ ⑤⓪ x 4 |
| SC-105 | Resistor | ⑫⓪ x 1set |
| EP-22 | Hook Pin | ⑦⑨ x 5 |
| EF-26E | Connector | ⑥④ x 1 |
| EF-39 | Ni-Cad Strap | ⑩① x 6 |
| EF-37 | Strap (S) | ⑬③ x 6 |
| SD-79 | Antenna Pipe | ⑨⓪ x 5 |
| KC-20 | E Ring (E-4) | ⑮ x 4 |
| CB-72 | E Ring (E-3) | ⑨⑨ x 4 |
| AB-30 | Front Shock Set | ⑩② ⑩④ ⑩⑥ ⑩⑧ ⑩⑨ ⑪⓪ ⑪① ⑪② ⑪③ x 2 ⑫② x 4 ⑫③ x 1 |
| AB-31 | Rear Shock Set | ⑩③ ⑩⑤ ⑩⑦ ⑩⑧ ⑩⑨ ⑪⓪ ⑪① ⑪② ⑪③ x 2 ⑫② x 4 ⑫③ x 1 |
| 1887 | Shock Seal (M)(10ø) | ⑫② x 10 |
| 1889 | Body Pin | ⑬③ x 5 |
| UM- 1 | Gear Set | ① ② ⑦② ⑫⑦ ⑫⑧ x 1 |
| UM- 2 | Bushing Set | ⑦③ x 1 ③⑧ x 2 ⑬ x 6 |
| UM- 3 | Gear Box | ⑨ ⑭ x 1 |
| UM- 4 | Motor Plate | ⑩ x 1 |
| UM- 5 | Gear Shaft Set | ⑪ ⑦① x 1 ⑫ x 2 |
| UM- 6 | Shock Stay Set | ⑯ ㉟ x 1 |
| UM- 7 | Sus. Shaft Set | ㉓ ㉗ ㉝ ㉟ x 2 |
| UM- 8 | Front Shaft Set | ㉛ ㉞ x 2 |
| UM- 9 | Rod Set | ㊼ ㉟ ⑪⑤ ⑫⑤ x 1 ㊷ x 2 |
| UM-10 | Collar Set | ㊽ ㊹ x 2 |
| UM-11 | Upright Set | ㉜ ㉝ x 1 ㉑ ㉚ x 2 |
| UM-12 | Bulk Head Set | ⑰ ㊱ ⑦⑦ ⑦⑧ ⑫⑨ x 1 |
| UM-13 | Suspension Arm Set | ㉕ ㊳ x 2 |

| Parts Pack # | Description | Includes These Key Numbers |
|---|---|---|
| UM-14 | Servo Saver Set | 20 42 43 44 45 65 130 x 1  49 x 2<br>18 28 29 67 87 88 x 4 |
| UM-15 | Radio Plate | 63 x 1 |
| UM-16 | Body Set | 68 93 94 95 96 117 131 132 x 1  97 x 2  98 x 4 |
| UM-17 | Wheel Set | 82 83 84 85 86 x 2 |
| UM-18 | Body | 91 x 1 |
| UM-19 | Decal (Ultima) | 92 x 1 |
| UM-20 | Main Chassis | 118 x 1 |
| UM-21 | Front Bumper | 40 x 1 |
| UM-22 | Screw Set | Screw, Nut, Wrench Set (w/o Plastic Nut) |

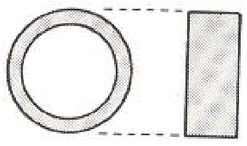
* OPTIONAL PARTS *

| | | |
|---|---|---|
| 1901 | Ball Bearing (5ø x 10) | 2pcs. For Rear Hub & Gear Box |
| 1903 | " (4ø x 8) | 2pcs. For Center Gear, Front Wheel |
| 1911 | " (8ø x 14) | 2pcs. For Differential Gear |
| W-5031 | Low Profile Tire, Allround Type (For Hard Truck) | |
| W-5032 | Low Profile Tire, High Grip (For Soft Truck) | |
| OT-51 | Pinion Gear (14T) | Gear Ratio 8 : 1 |
| OT-52 | " (16T) | " 7.7 : 1 |
| OT-53 | " (17T) | " 7.3 : 1 |
| UM-23 | " (18T) | |
| UM-24 | " (19T) | |
| UM-25 | " (20T) | |
| 1951 | Shock Oil Set (S,M.H.) | 3 Different Weight |
| LM-15 | Cooling Plate | For Le Mans Motor |
| OT-64 | Special Wing | Silvered |
| SC-90 | Front Tire | High Glip Type |
| W-5021 | Low Profile Wheel | Silver |
| W-5044 | Racing Clutch (14T) | |
| W-5046 | " (16T) | |
| W-5048 | " (18T) | |
| W-5001 | Pressure Oil Shock (S) | Use with UM-26 Special Shock Stay |
| W-5002 | " (L) | |
| OT-76 | Hard Final Pinion Gear | Need D-cut on the shaft |
| 1990 | Regulator | Stabilized power source for the receiver |
| EF-103 | Racing Wire | 4ø Cilicon Cord |
| 1863 | Sponser Sticker | Decal with sponsor mark |
| UM-26 | Special Shock Stay | For pressure oil shock made by glass |
| UM-27 | Special Chassis | 2mm thickness |
| UM-28 | Motor Guard (Ultima) | |
| W-5061 | Universal Swing Shaft | Wheel Shaft, Swing Shaft Set |
| 1952 | Differential Oil | Use when willing to harden the differential gear |
| W-5005 | Special Rod Set | Upper arm/Tierod adjustment |

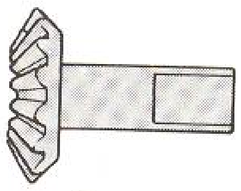
## 1 ASSEBMLY OF DIFFERENTIAL GEAR

M2 x 10 TP Screws(4)

③ Bushing Collars (Black Color)(2)



④ Bevel Gears(A)(2)



⑤ Bevel Gears(B)(2)

⑥ Bevel Shaft (1)

## 2 INSTALLATION OF JOINT

M4 x 4 Set Screws(2)

M5 Washers (2)

⑦ Joints (2)



⑧ 10ø x 14ø Bushings (2) (Gold Color)

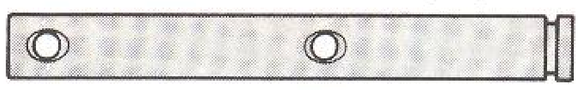


⑮ Allen Wrenchs (2)



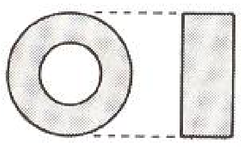
## 3 INSTALLATION OF COUNTER GEAR

⑪ Counter Gear Shaft (1)

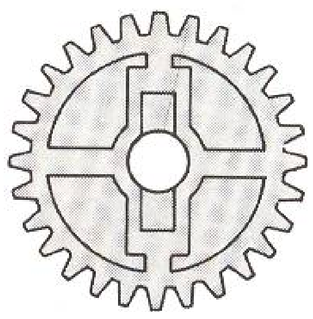


⑫ 2ø x 11 Pin (1)

⑬ 5ø x 10ø Bushing(1)



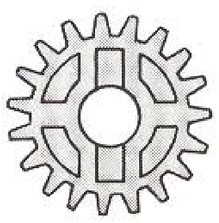
⑫⑦ Counter Gear (1)



## 4 INSTALLATION OF FINAL PINION GEAR

⑫ 2ø x 11 Pin (1)

⑫⑧ Final Pinion(1)

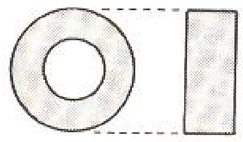


## 5 ASSEMBLY OF GEARBOX

M3 x 8 Bind TP Screw(1)

M3 x 33 Screw (3)

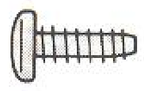
⑬ 5ø x 10ø Bushing (1)



⑮ E Ring (E-4) (1)

## 6 INSTALLATION OF REAR SHOCK STAY

M3 x 8 Bind TP Screws (4)



M3 x 16 Screws(2)

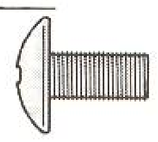
M3 x 15 Flat Head Screws (2)

M3 Nuts (6)

⑲ 5.8ø Balls (4)

## 7 INSTALLATION OF GEARBOX

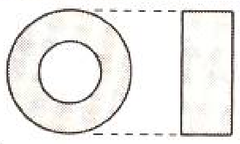
M4 x 8 Truss Screws(6)



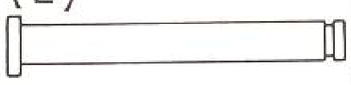
M3 x 35 Bind Screw (1)

## 8 INSTALLATION OF REAR HUB

⑬ 5ø x 10ø Bushings(4)

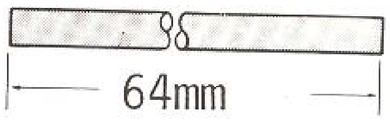


㉓ Sus. Shaft (A)(2) (Silver Color)



㉔ E Rings(E-2.5)(2)

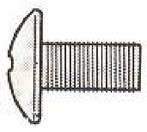
㉗ Sus. Shafts (B)(2)




## 9 INSTALLATION OF REAR SUSPENSION

M3 x 12 Flat Head Screws (2)

M4 x 8 Truss Screws(2)



㉒ Rear Wheel Shafts (2)

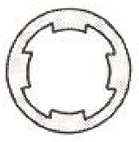
## 10 FILLING SHOCK WITH OIL

109 Shock Washers (4) (Assembled)

110 Shock O Rings (4) (Assembled)

113 Shock Ends (4) (Assembled)

122 Shock Seals (4)

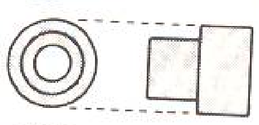


## 11 INSTALLATION OF REAR SHOCK

M3 x 12 Flat Head Screws (2)

⑲ 5.8ø Balls (2)

㉘ Shock Bushes(2)



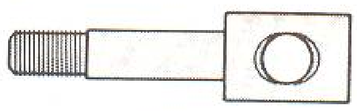
㉗ M3 Plastic Nuts (2)

## 12 INSTALLATION OF FRONT KNUCKLE ARM

㊾ E Rings (E-3)(2)

㉛ King Pins (2)

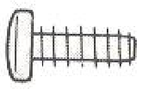
㉞ Front Wheel Shafts (2)



㊻ M2.6 Pivot Balls (2)

## 13 INSTALLATION OF FRONT SHOCK STAY

M3 x 8 Bind TP Screws (2)



M3 x 16 Screws (2)

M3 x 15 Flat Head Screws (2)

M3 Nuts (6)

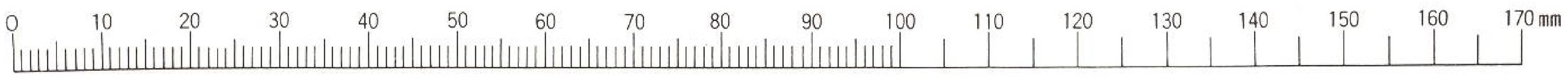
⑲ 5.8ø Balls (4)

## 14 INSTALLATION OF FRONT SUS. ARM

㉔ E Rings(E-2.5)(6)

㊲ Sus. Shafts (C) (2) (Black Color)

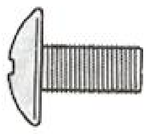
㊴ Sus. Shafts (D)(2)



## 15 INSTALLATION OF FRONT BULK HEAD

M3 x 12 Flat Head Screws (2)

M4 x 8 Truss Screws (2)

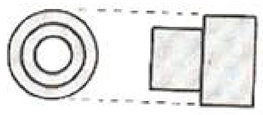


M4 x 10 Flat Head Screws (2)

## 16 INSTALLATION OF FRONT SHOCK

M3 x 16 Screws (2)

28 Shock Bushes (2)



29 M3 Plastic Parts (2)

## 17 ASSEMBLY OF SERVO SAVER

M2.6 x 6 Bind Screw (1)

M2.6 Nuts (4)

41 Ball Nut (1)

46 M2.6 Pivot Balls (2)

47 Center Rod (1)



## 18 INSTALLATION OF SERVO SAVER

M3 x 35 Bind Screws (2)

M3 Nuts (2)

M3 Washers (2)



48 Servo Saver Shafts (2)



49 Servo Saver Collars (2)



## 19 INSTALLATION OF TIE ROD

50 Ball Ends (L) (4)

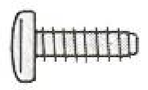


51 Tie Rods (2)



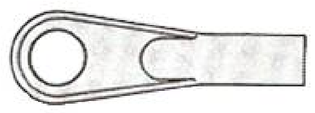
## 21 INSTALLATION OF STEERING ROD

M3 x 8 Bind TP Screws (2)



M3 Washers (2)

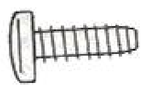
52 Ball Ends (S) (1)



53 Steering Rod (1)

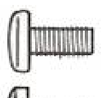
## 22 INSTALLATION OF STEERING SERVO

M3 x 8 Bind TP Screws (2)



## 23 ASSEMBLY OF SPEED CONTROL

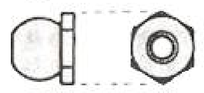
M2.6 x 6 Bind Screw (1)



M2.6 x 10 Bind Screw (1)

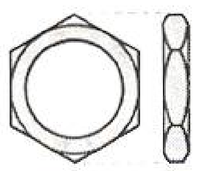
M3 Nuts (Gold Colars) (2)

41 Ball Nut (1)

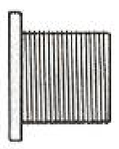


54 2.6ø Collar (1)

55 Speed Control Nut (1)

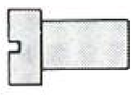


57 Speed Control Pivot (1)



59 Silver Contact Points (2)

67 Speed Control Stud (1)

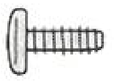


61 Speed Control Spring (1)

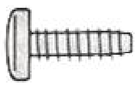
## 24 INSTALLATION OF BATTERY CONNECTOR

M3 x 12 Screws (Silver Color)(2)

M2.6 x 6 Bind TP Screw (1)



M3 x 8 Bind TP Screw (1)



M3 Nuts (Silver Color)(2)

130 Body Hook (1)

## 26 INSTALLATION OF BATTERY CONNECTOR

M3 Nuts (Gold Collar) (2)

## 27 INSTALLATION OF SPEED CONTROL SERVO

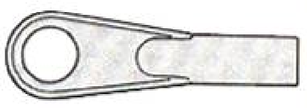
M3 Washers (2)

M3 x 8 Bind TP Screws (4)

## 28 SPEED CONTROL LINKAGE

M2.6 Washers (2)

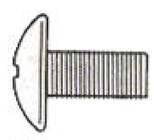
52 Ball End (S) (1)



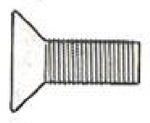
115 Speed Control Rod (1)

## 29 INSTALLATION OF RADIO PLATE

M4 x 8 Truss Screws (2)



M4 x 10 Flat Head Screws (2)



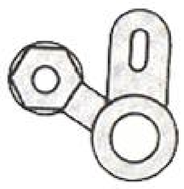
M3 x 6 Bind Screws (4)

M2.6 x 12 TP Screws (2)

M3 Nuts (4)

27 M3 Plastic Nuts (2)

132 Body Stopper (R) (1)



68 Body Stopper (L) (1)

## 30 FIXING OF REGISTER

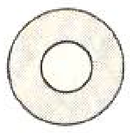
M3 x 6 Bind Screws (2)

M3 Nut (1)

71 Center Gear Shaft (1)

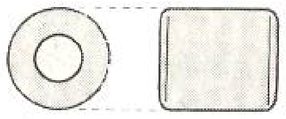
## 31 INSTALLATION OF CENTER GEAR

M4 Washers (2)



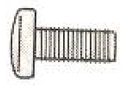
(74) O Ring (Black Rubber)(1)

(73) Center Gear Bushing(1)



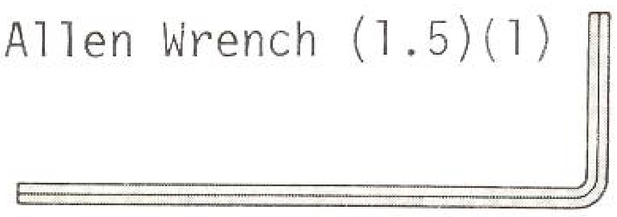
## 32 INSTALLATION OF MOTOR

M3 x 6 Bind Screws(2)



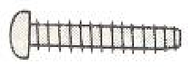
M3 x 3 Set Screw (1)

(75) Allen Wrench (1.5)(1)



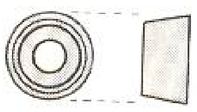
## 33 INSTALLATION OF GEAR COVER

M2.6 x 12 TP Screws (2)

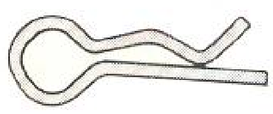


(54) 2.6ø Collar (1)

(131) Side Collar (1)



(79) Hook Pin (1)

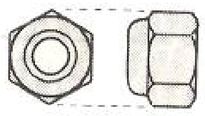


## 34 FABRICATION OF TIRE AND WHEEL

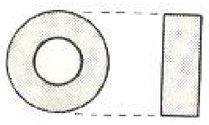
M2 x 8 TP Screws (8)

## 35 MOUNTING OF TIRE

M4 Nylon Nuts (2)

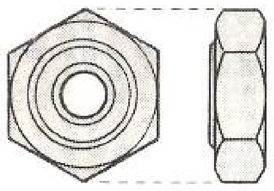


(87) 4ø x 8ø Plastic Bushings (4)



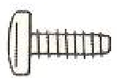
(88) M4 Plastic Nuts (2)

(121) Drive Washers (2)



## 40 ASSEMBLY OF ROLL CAGE

M2.6 x 6 Bind TP Screws (6)

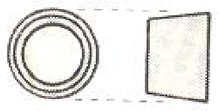


M2.6 x 12 Screws (4)

## 41 INSTALLATION OF ROLL CAGE

(79) Hook Pins (2)

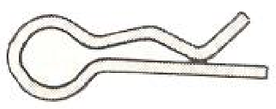
(98) Roll Cage Stoppers (4)



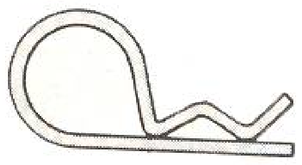
(99) E Rings (E-3) (4)

## 42 INSTALLATION OF BODY

(79) Hook Pin (1)



(133) Body Pins. (3)





# ULTIMA ULTIMA

PRINTED IN JAPAN

## 1/10 BUGGY RADIO CONTROL OFF ROAD RACE CAR

1/10 BUGGY RADIO CONTROL OFF ROAD RACE CAR

OFF ROAD UNLIMITED

OFF ROAD UNLIMITED

ENGLE JAPAN

ENGLE JAPAN

## OFF-ROAD RACER

OFF-ROAD RACER

BRIDGESTONE

BRIDGESTONE
BRIDGESTONE
BRIDGESTONE

NGK SPARK PLUGS

NGK SPARK PLUGS

Holley CARBS

Holley CARBS

VALVOLINE

VALVOLINE

KYOSHO

KYOSHO RACING TEAM

KYOSHO RACING TEAM

KYOSHO RACING TEAM