

RADIO CONTROLLED ELECTRIC POWERED RACING BUGGY

**4WD OFF-ROAD RACER**

# OPTIMA

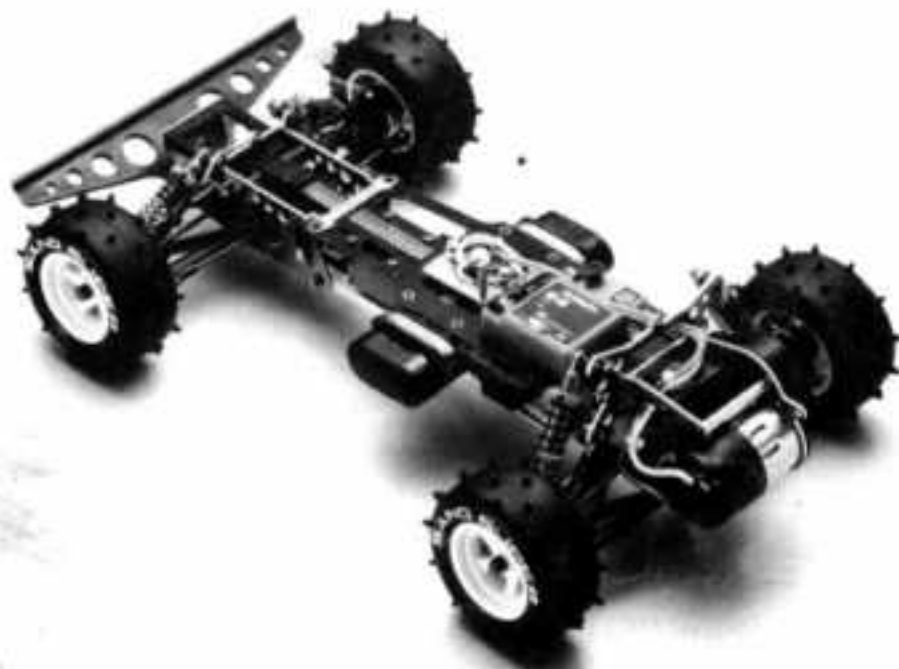
- ★ DESIGNED FOR HIGH PERFORMANCE
- ★ FOUR-WHEEL DRIVE FOR MAXIMUM TRACTION
- ★ SELECTABLE FRONT/REAR POWER BIAS
- ★ EXTRA LONG WISHBONES FOR GOOD STEERING EVEN ON ROUGH TERRAIN
- ★ SPIKE TIRES OPTIMIZED FOR FOUR-WHEEL DRIVE
- ★ LIGHT WEIGHT FOR QUICKEST ACCELERATION
- ★ SHIELDED DRIVE CHAIN FOR LONGEST LIFE
- ★ TRUE GEAR-TYPE DIFFERENTIALS FRONT AND REAR
- ★ PRECISION-MOLDED DRIVETRAIN GEARS FOR SMOOTH POWER DELIVERY
- ★ LOW-RESISTANCE SPEED CONTROLLER FOR LOW POWER LOSS
- ★ HIGH GROUND CLEARANCE AND LONG SUSPENSION TRAVEL
- ★ OIL-FILLED SHOCK ABSORBERS ON ALL FOUR WHEEL
- ★ HIGH-STRENGTH ALUMINUM AND GLASS-FILLED NYLON PARTS
- ★ PERFECT 50-50 WEIGHT DISTRIBUTION
- ★ TRUE-GEOMETRY ACKERMAN STEERING LINKAGE
- ★ EASY STEP-BY-STEP ASSEMBLY INSTRUCTIONS

**1:10 SCALE**

BATTERY: 7.2V-1200mAh

RADIO: 2ch.

[NOT INCLUDED]

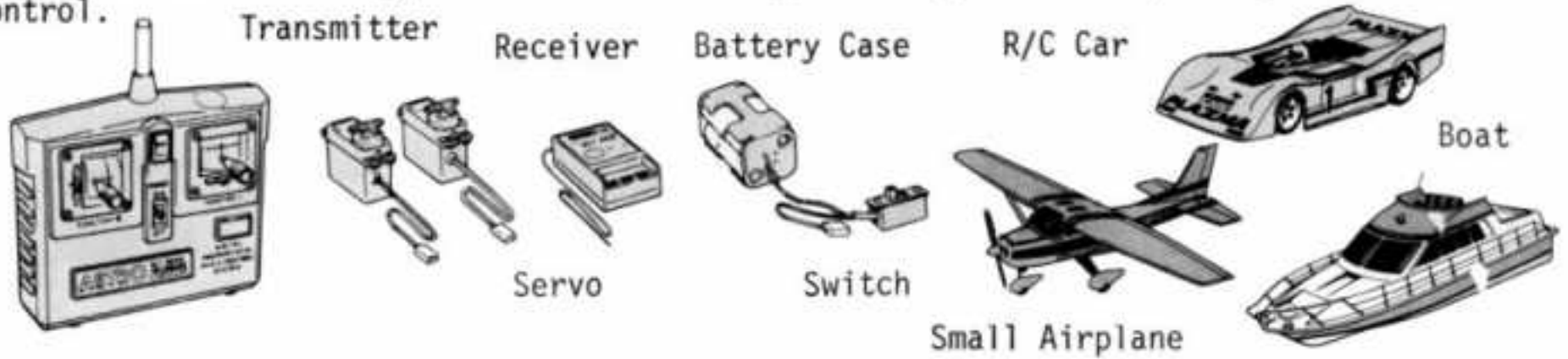


**KYOSHO**  
THE FINEST RADIO CONTROL MODELS

◀ KIT No.3032 ▶

## RADIO CONTROL SET

A 2 channel, 2 servo digital proportional radio control unit is required for operating this model car. This type of radio can be used for any models requiring 2-channel control.



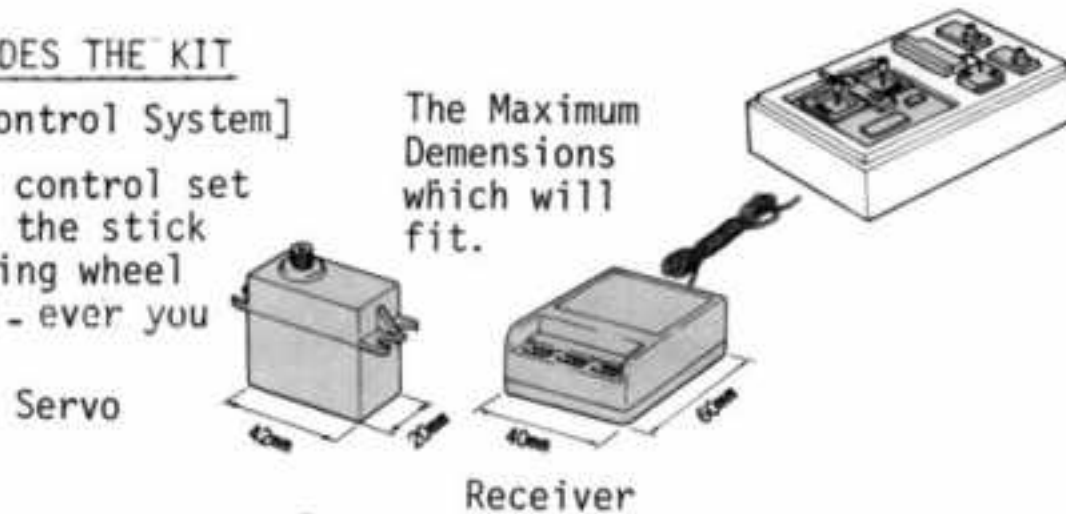
## NI-CAD BATTERY

It is formally called a nickel cadmium battery, which is more economical than a dry cell battery, since it can be recharged for reuse over and over again. Also, with its regulated voltage it is an ideal power source for driving radio control models.

## THINGS NEEDED BESIDES THE KIT

### [2 channel Radio Control System]

Two types of radio control set are on the market, the stick type and the steering wheel type. Choose whichever you like.



### [Ni-Cad Battery for Power Source]

7.2V-1200 racing Battery is ideal for the "OPTIMA".



### [Battery Charger for Ni-Cad Cells]

Ni-Cad Batteries are very high performance. As long as you charge them properly, they would remain good for a long period of use. There are two types; one type is a 15 hour charger to be powered from a household 100 volt outlet, the other is a rapid charger (about 15 minutes) to be charged from a 12 volt car battery directly or through a car cigarette lighter. Select the most suitable one for you among those listed below:

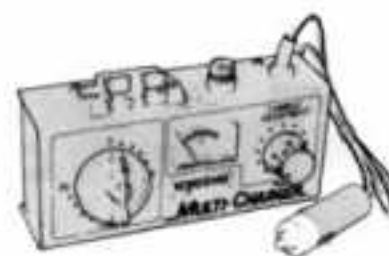
KYOSHO Item No.	Name of Charger	Charging Time	Charging Rate	Features
No.2221	Super Ni-Cad Charger (AC 100V)	14-16hours	100%	Suitable for Beginners
No.2207	Super Ni-Cad Rapid Charger (DC-12V)	15 minute	about 70%	For Beginners, w/Timer built in
No.1846	Multi Charger (DC 12V)	20 minute	100%	w/Timer, Ammeter built in
No.1848	Auto Charger (DC 12V)	20 minute	100%	w/Ammeter, Voltmeter built in & w/Automatic cut-off Circuit at the Peak of Charging



No.2221 Super Ni-Cad Charger



No.2207 Super Ni-Cad Rapid Charger



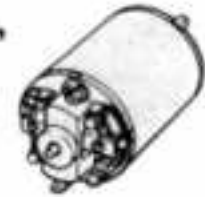
No.1846 Multi Charger



No.1848 Auto Charger

[Motor]

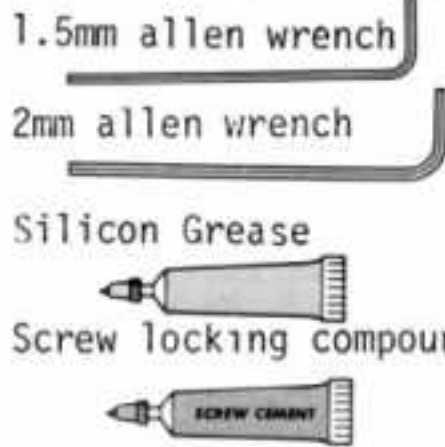
A Mabuchi RS-540S Motor is installed as the standard motor. In addition, Racing motor "Le Mans 600E - regular high torque type and "Le Mans 360PT - high torque type for 8 minutes races" are available as an option.



The Le Mans motor includes wires, condensers and screws.

REQUIRED TOOLS

These are included with the "Optima":



These are not included with the "Optima".

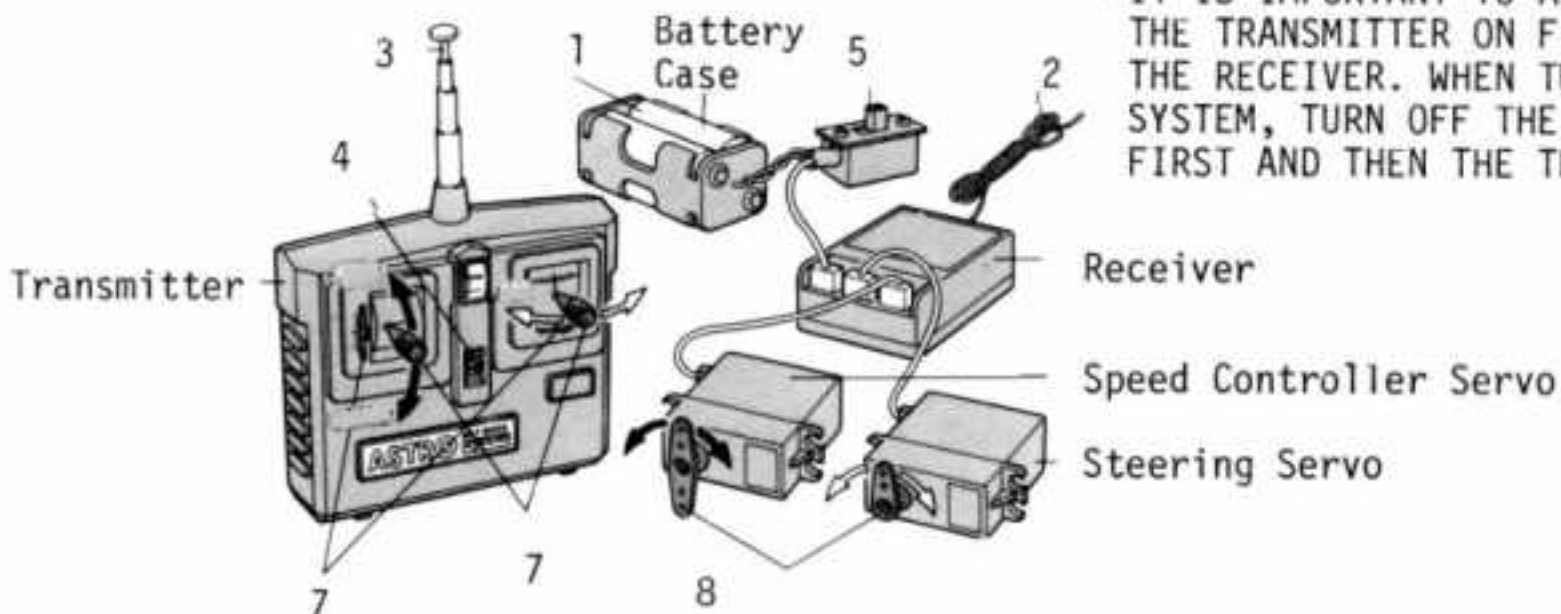


HOW TO CHECK YOUR RADIO SYSTEM

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 at the transmitter.
5. Turn ON the power switch for 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 transmitter, 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 radio waves.
- \*Receiver ..... Receives the radio signals from the transmitter and sends them to the appropriate servo.
- \*Servos ..... Can be thought 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. 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.

#### BEFORE ASSEMBLY

Please read through these instructions before assembly. Your thorough understanding of the assembly will enable you to build the kit without difficulty. Check the components in the kit prior to your starting the assembly. Any claims for replacements or refunds for the model in the process of assembly will not be accepted.

- \*Apply "Screw Locking compound" to any point indicated with ~~LOCK~~ mark.
- \*Apply "Grease" to any point indicated with "grease" mark.

## DISASSEMBLY OF OIL-SHOCK

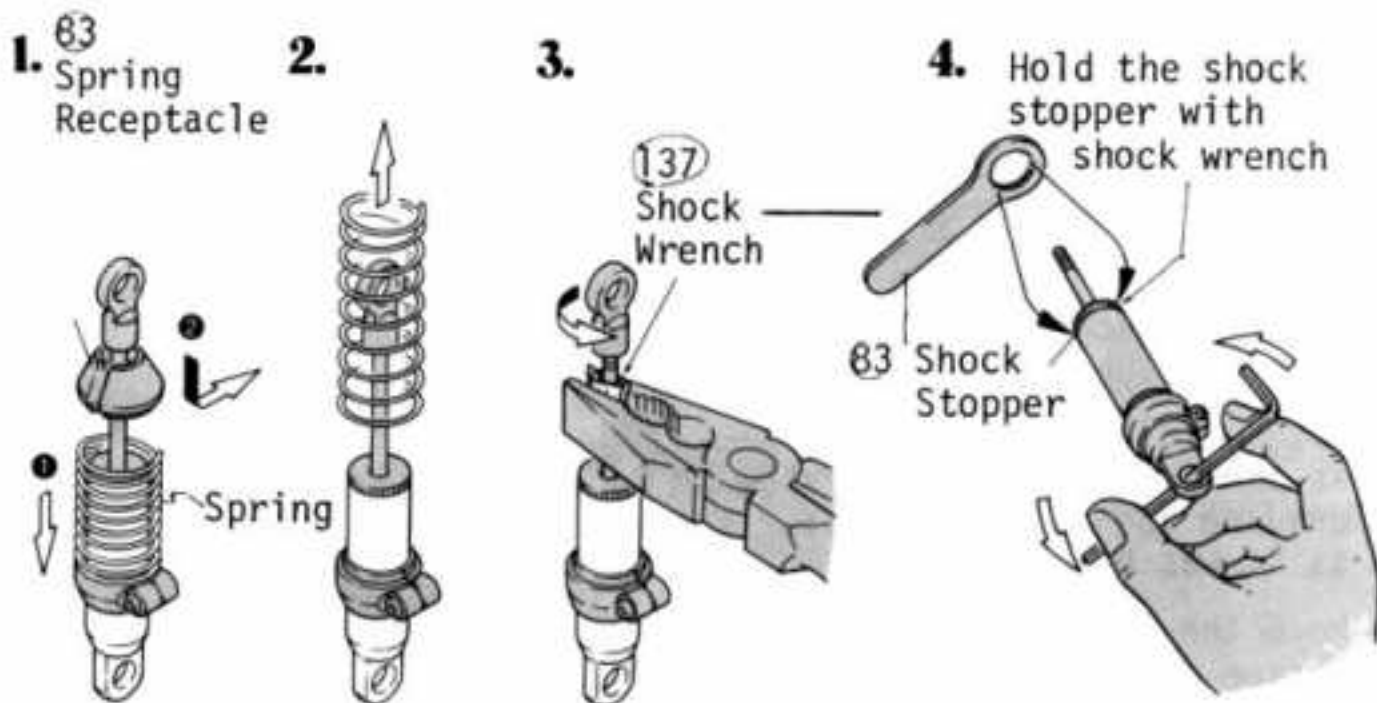
For Front

For Rear



## DISASSEMBLY OF OIL-SHOCK

\*The shocks are factory assembled, but disassembly is required when filling oil into them. Since different parts are employed for the front and rear shock, the disassembly, filling with oil, and reassembly should be done one by one.



1. Press down the spring and dismantle the spring receptacle by sliding it sideways.

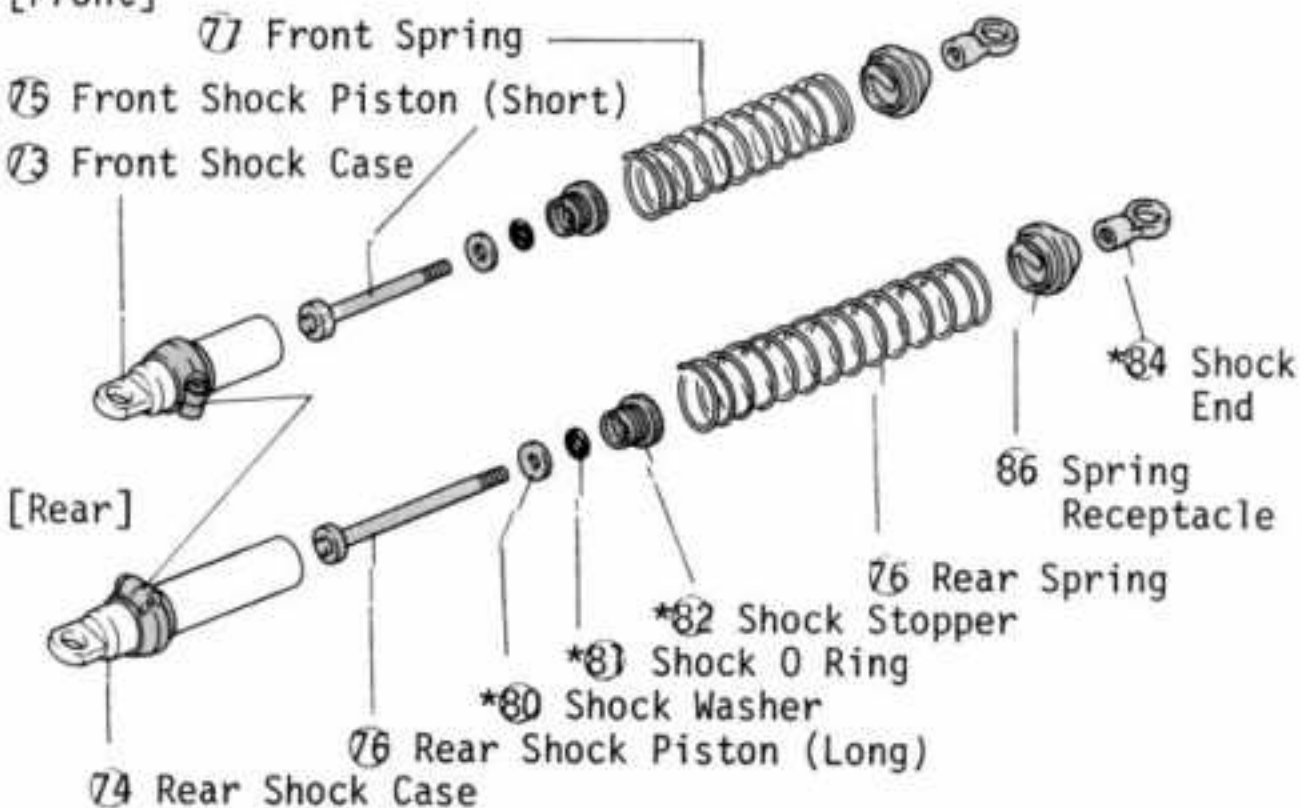
2. Pull off the spring .

3. Hold the shock shaft with a pair of needle nose pliers and remove the shock end as shown in the drawing.

4. Remove the shock stopper by unscrewing.

## EXPLODED VIEW OF OIL-SHOCK

[Front]



All the parts with the \* mark are the same use for the front and rear shocks.

### 3 FILLING SHOCK WITH OIL

### 3 FILLING SHOCK WITH OIL

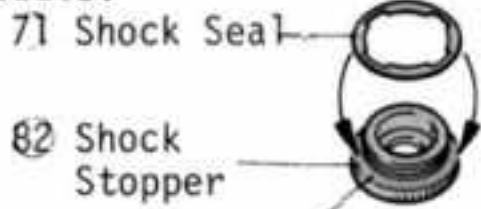
\*All of the parts are included in bag No.1 and No.2.

When pouring oil into the Shock, put the shock seal on the stopper.

NOTE: BE CAREFUL NOT TO MISTAKE THE FRONT FOR THE REAR SHOCK

\*Set the shock seal little by pushing it with something pointed like a needle.

Hold the shock stopper with the shock wrench.

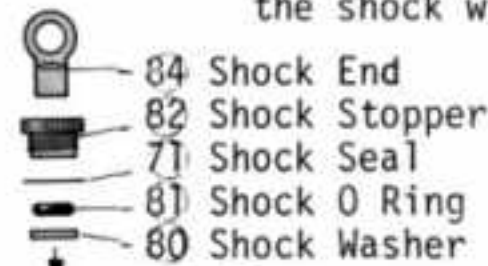


Put the shock seal onto this shoulder.

Put some oil into the shock as shown in the right hand drawing and reassemble it as it was before.



1.



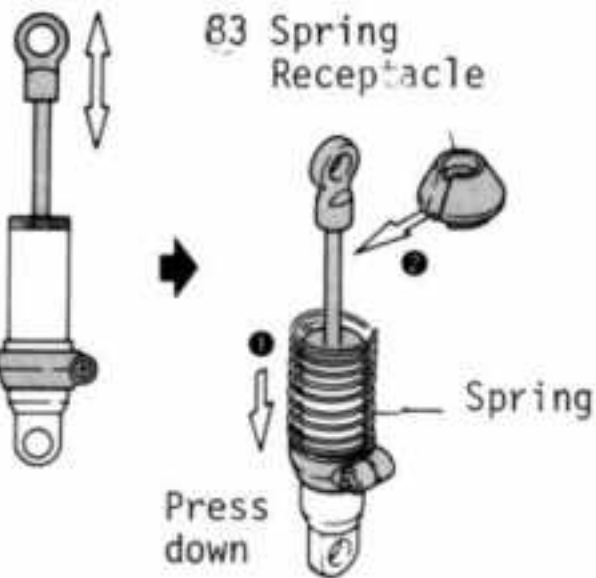
2.



3.

Move the piston up and down to see if it operates smoothly. If not, decrease the amount of oil.

1. Press down the piston all the way 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. Assemble the shock in the sequence as shown in the drawing to completion.
3. Tighten the stopper firmly as illustrated.



### 4 ASSEMBLY OF TIRE

\*All of the parts are included in bag No.3

Measure the length of the front and rear shocks to make them the same length.

Adjust the length by screwing the shock end out or in.

### 4 ASSEMBLY OF TIRE

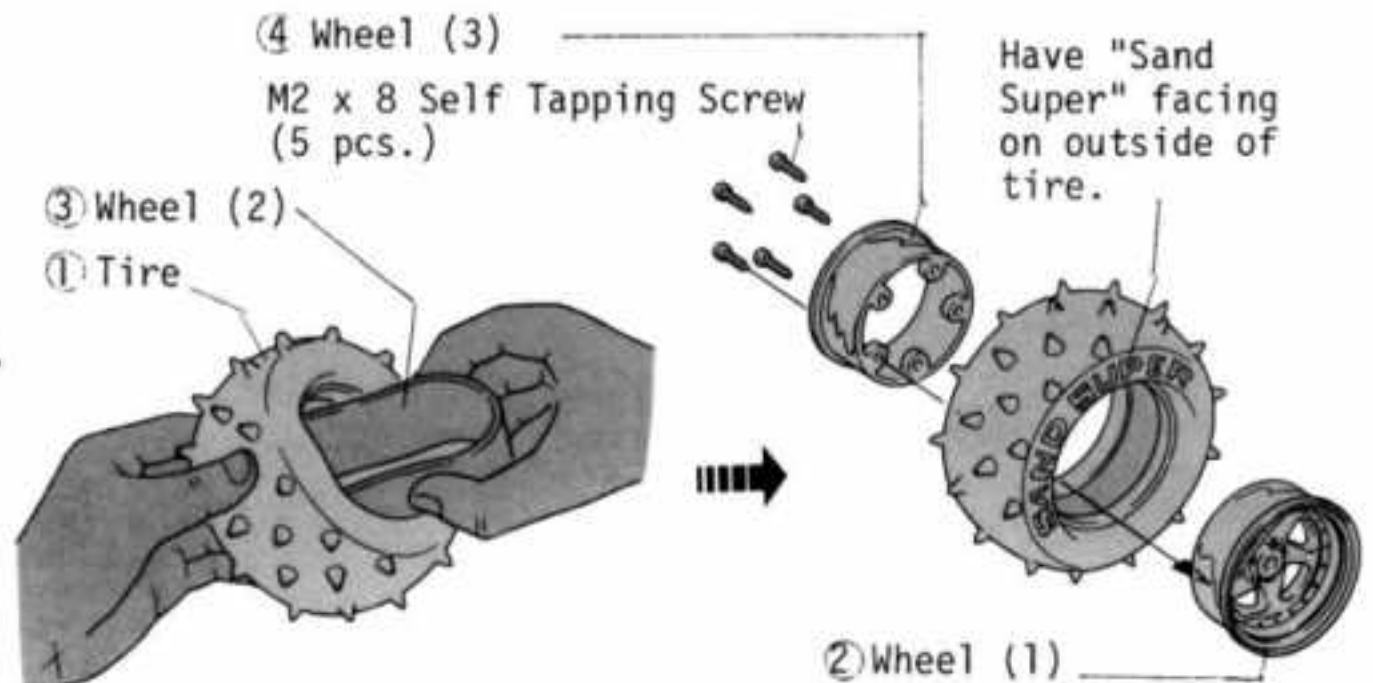
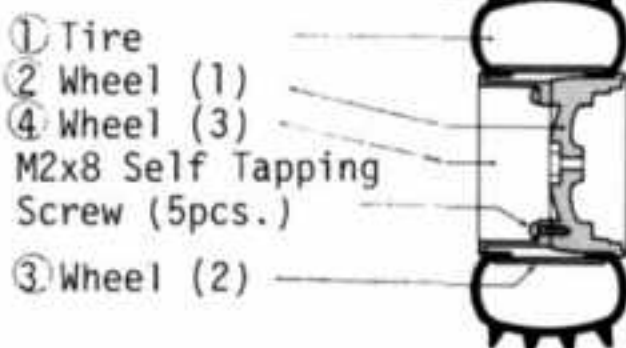
The bolts and nuts used in the assembly steps are illustrated actual size. All nuts and screw sizes are metric.

[Small Parts Needed]

M2x8 Self Tapping Screw



[Cross-Sectional View of Tire & Wheel]



You can place the wheel (2) into the tire by squeezing the wheel.

If the tires and wheels are too tight to fit, apply a little soapy water to them for lubrication.

## 5 INSTALLATION OF JOINT

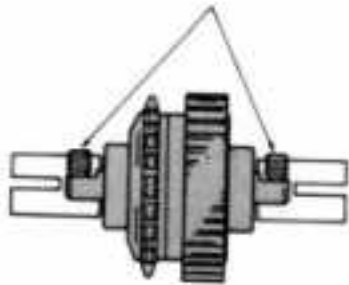
[Small Parts Needed]

M4 x 4  
Set Screw (4)

⑤ 8φ x 14  
Bearing (4)

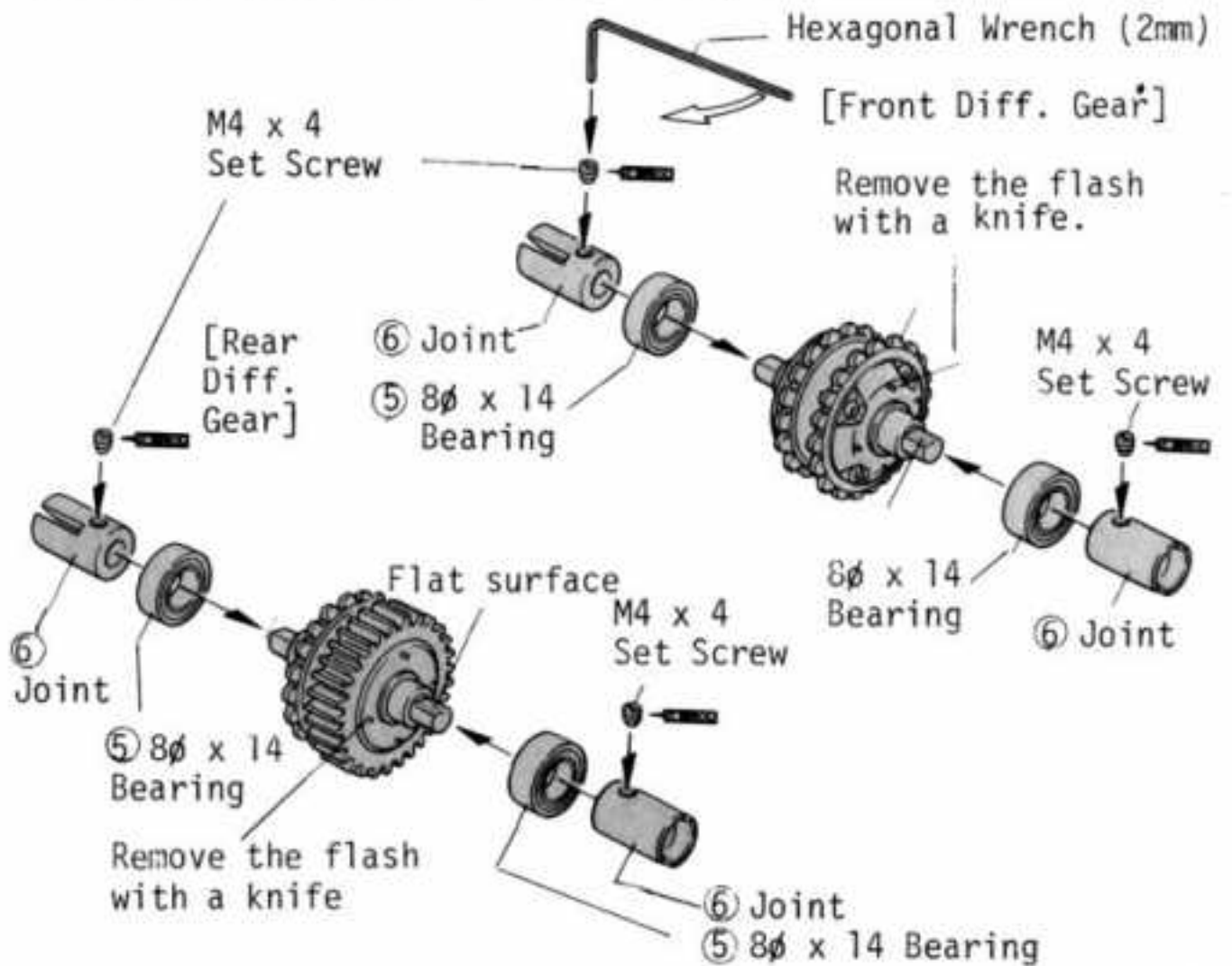
⑥ Joint (4)

Set the M4 x 4 setscrew to the flat on the shaft and tighten it.



## 5 INSTALLATION OF JOINT

\*All of the parts are included in bag No.3.



## 6 INSTALLATION OF GEAR BOX

[Small Parts Needed]

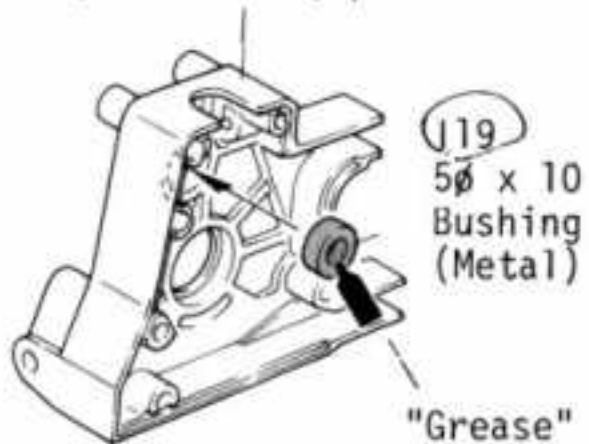
M3 x 18  
Self Tapping  
Screw (3)

M4 x 4  
Set Screw (1)

⑪ 5φ x 10  
Bushing  
(Metal) (1)

[Insert 5φ Bushing (Metal)]

⑨ Gear Box (L)

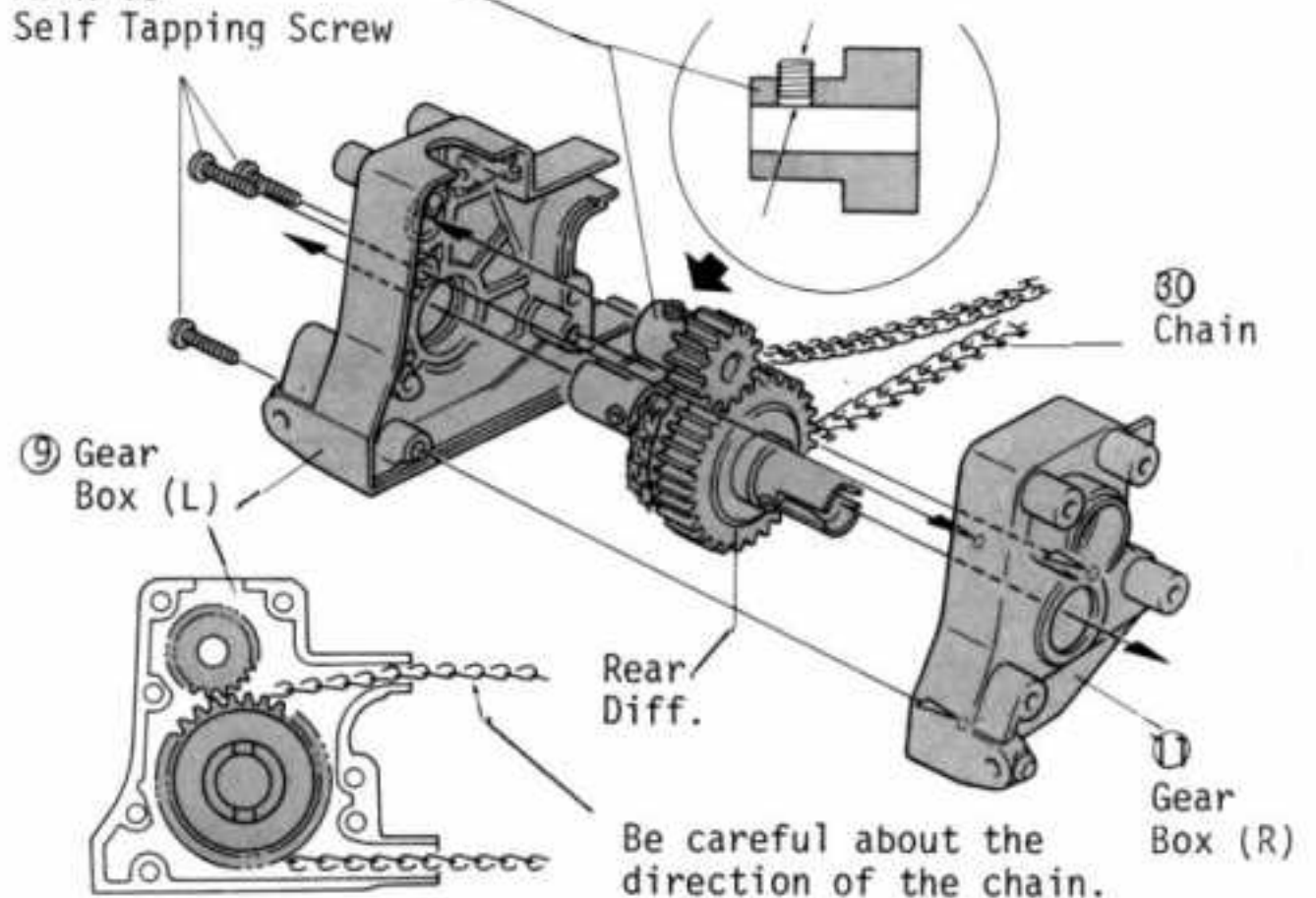


## 6 INSTALLATION OF GEAR BOX

⑩ Final Pinion

M3 x 18  
Self Tapping  
Screw

Screw in the M4 x 4 setscrew into the pinion gear.



Install the parts into the gearbox as shown in the drawing and cover it with the gearbox(R).

### 7 INSTALLATION OF GEAR BASE

[Small Parts Needed]

M3 x 8 .....3

M3 x 45.....4



12 Center Shaft..1



M3 Spring Washer..4



[Installation of Center Gear Shaft]

13 Rear Plate (R)

M3 x 8



Center Gear Shaft

### 7 INSTALLATION OF GEAR BASE

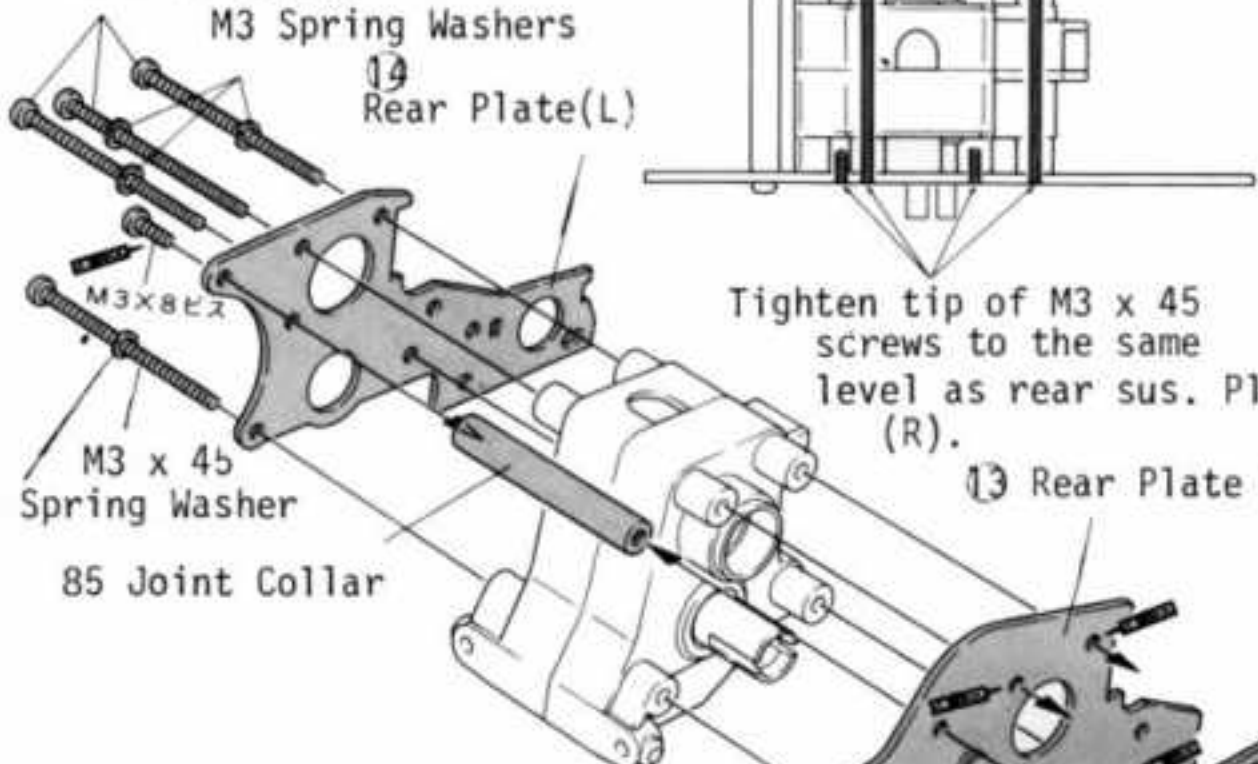
M3 x 45 Screws

M3 Spring Washers

19 Rear Plate(L)

M3 x 45  
M3 Spring Washer

85 Joint Collar



Tighten tip of M3 x 45 screws to the same level as rear sus. Plate (R).

13 Rear Plate (R)

### 8 INSTALLATION OF FINAL PINION

[Small Parts Needed]

119 5φ x 10 Bushing .1



9 INSTALLATION OF REAR SHOCK STAY

M3 x 12 Tapping Screw 2

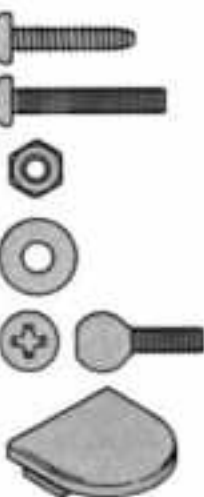
M3 x 13 Machine Screw 2

M3 Nut ..... 4

M3 Washer ..... 2

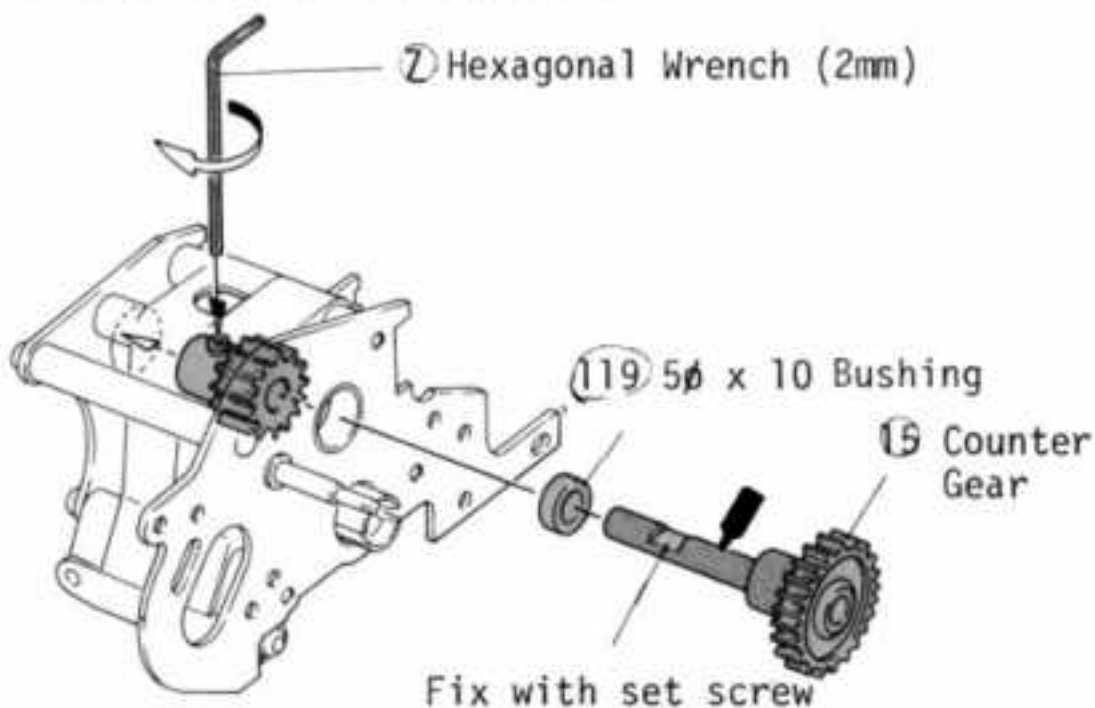
16 M3 Pivot Ball Silver ..... 2

18 Gear Box Hatch ..... 1



### 8 INSTALLATION OF FINAL PINION

2 Hexagonal Wrench (2mm)



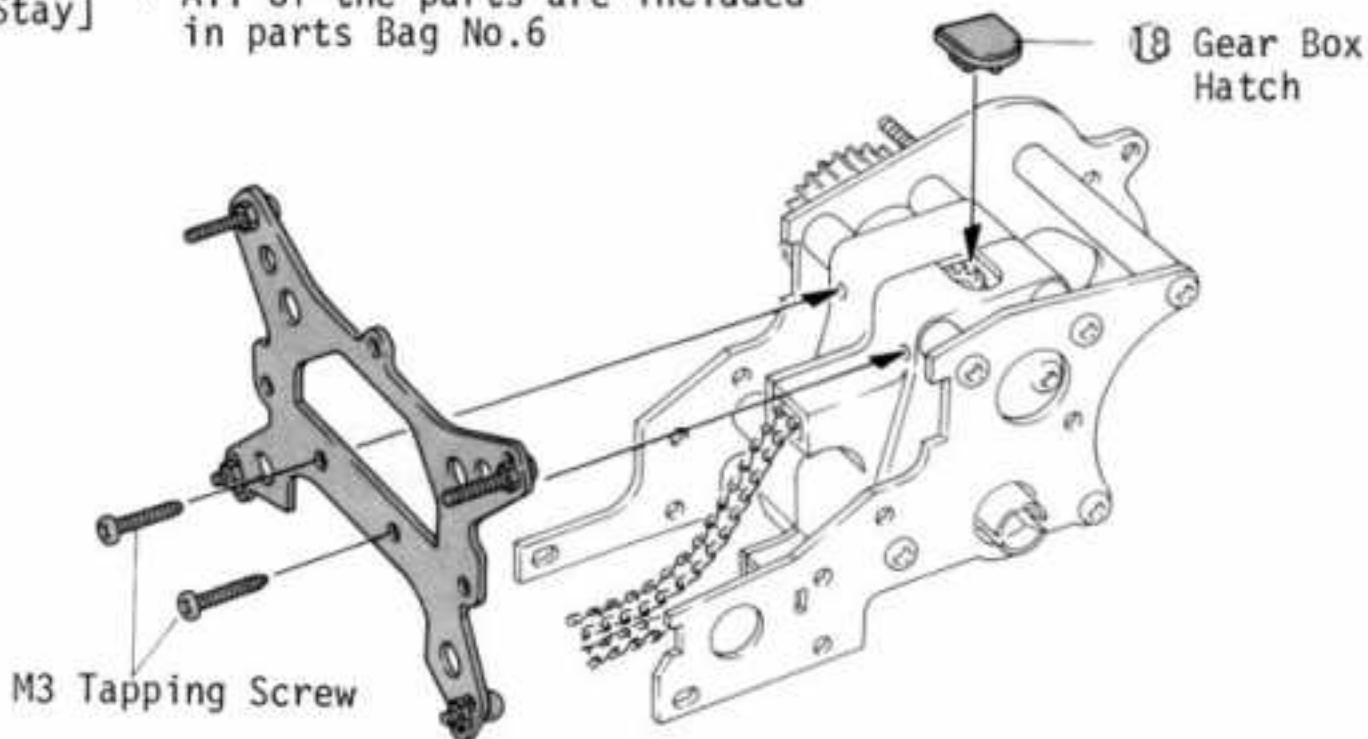
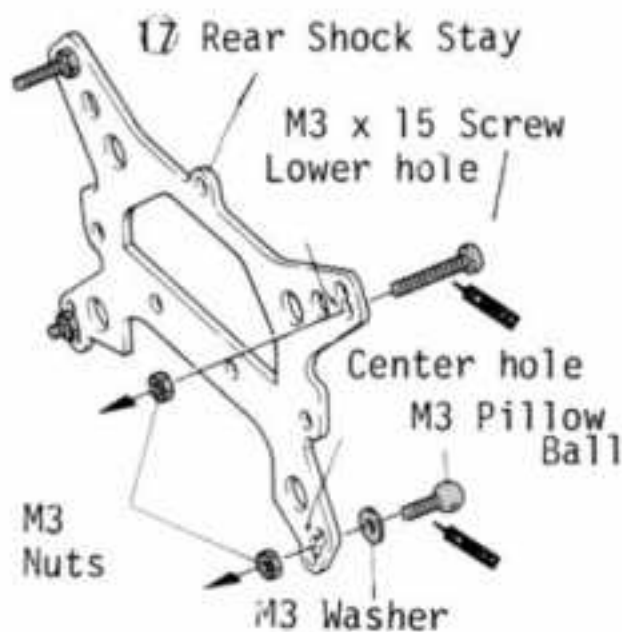
Fix with set screw

[Fix Screws with Rear Shock Stay]

### 9 INSTALLATION OF REAR SHOCK STAY

\* All of the parts are included in parts Bag No.6

Push-in as shown



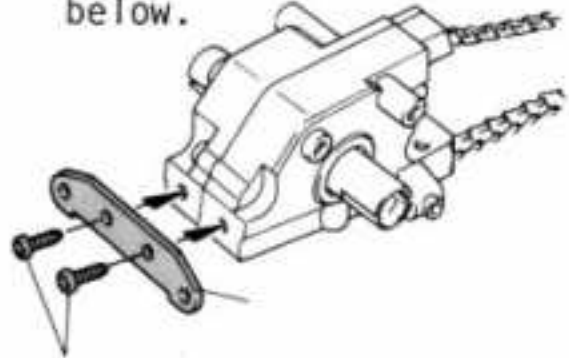
**10 ASSEMBLY OF BULKHEAD**

[Small Parts Needed]

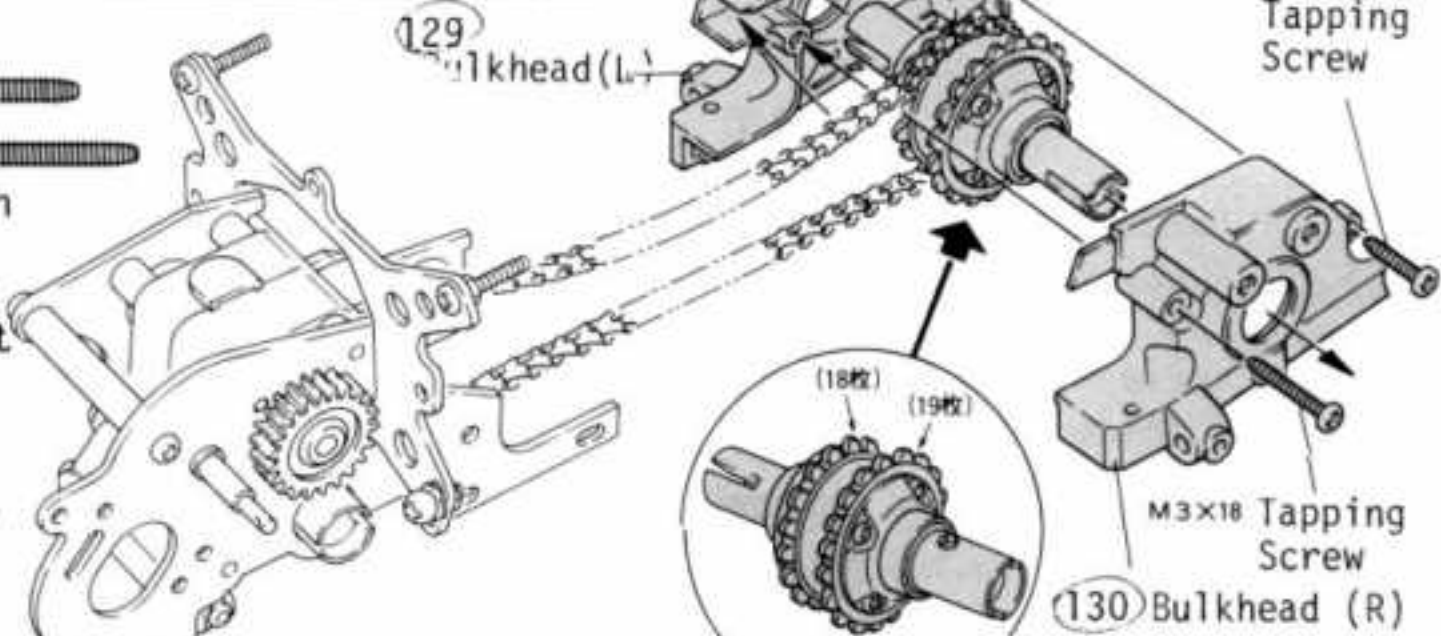
- M3x12 Tapping Screw 3
- M3x18 Tapping Screw 1

[Fix the front suspension plate]

\*After assembling the bulkhead attach 19 front suspension plate as below.



**10 ASSEMBLY OF BULKHEAD**



\* 2 kinds sprocket 18T and 19T. Use 18T for chain.

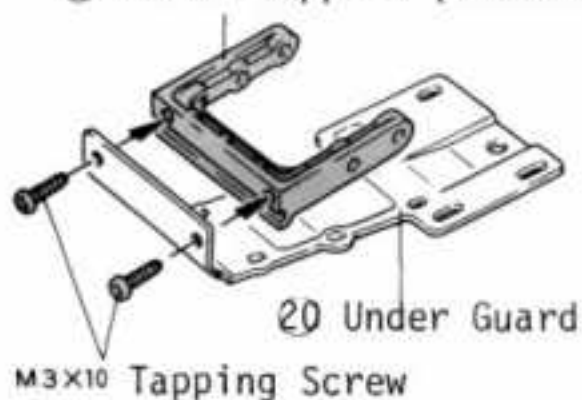
**11 INSTALLATION OF UNDER GUARD**

[Small Parts Needed]

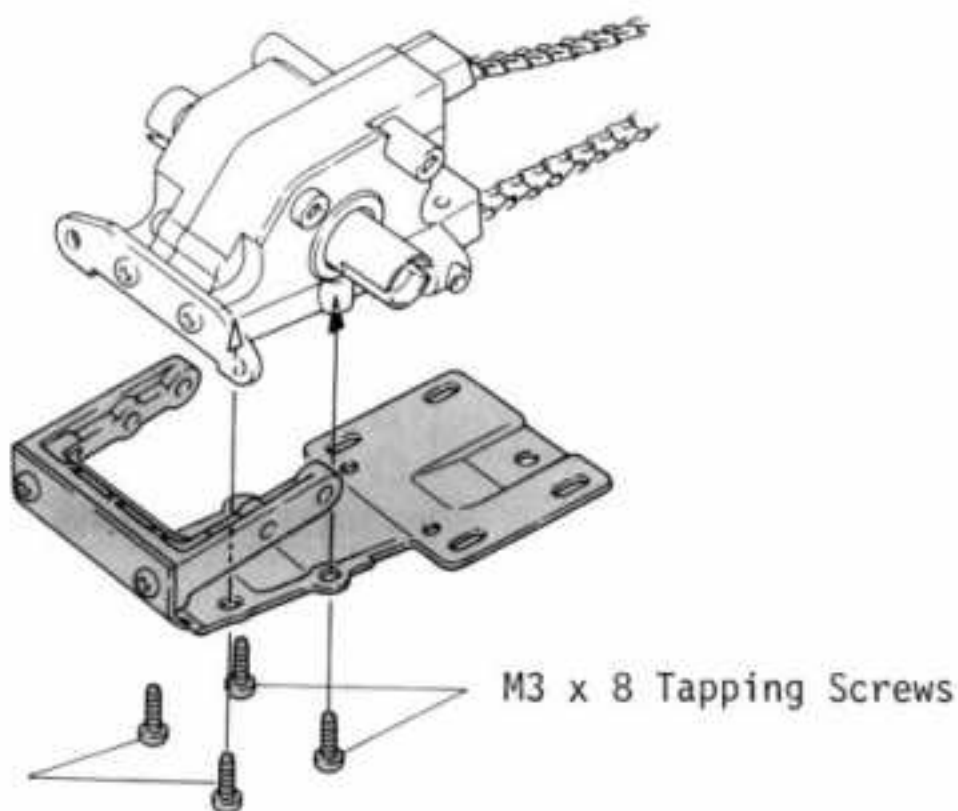
- M3x10 Tapping Screw 4
- M3x8 Tapping Screw 2

[Installation of Front Support]

2) Front Support (Plastic)



**11 INSTALLATION OF UNDER GUARD**



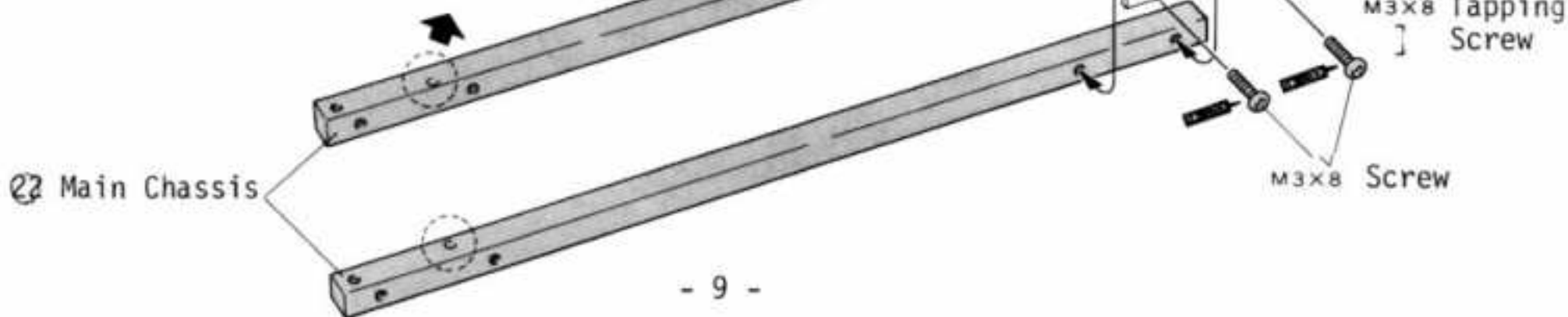
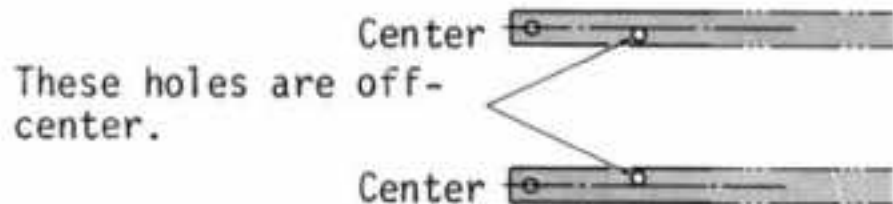
**12 INSTALLATION OF REAR PLATE**

[Small Parts Needed]

- M3 x 8 Screw ..... 4
- M3 x 8 Tapping Screw.. 2
- 26 Rear Radio Box Post.. 2 Large (Plastic)



M3x8 Tapping Screw  
M3x8 Screw

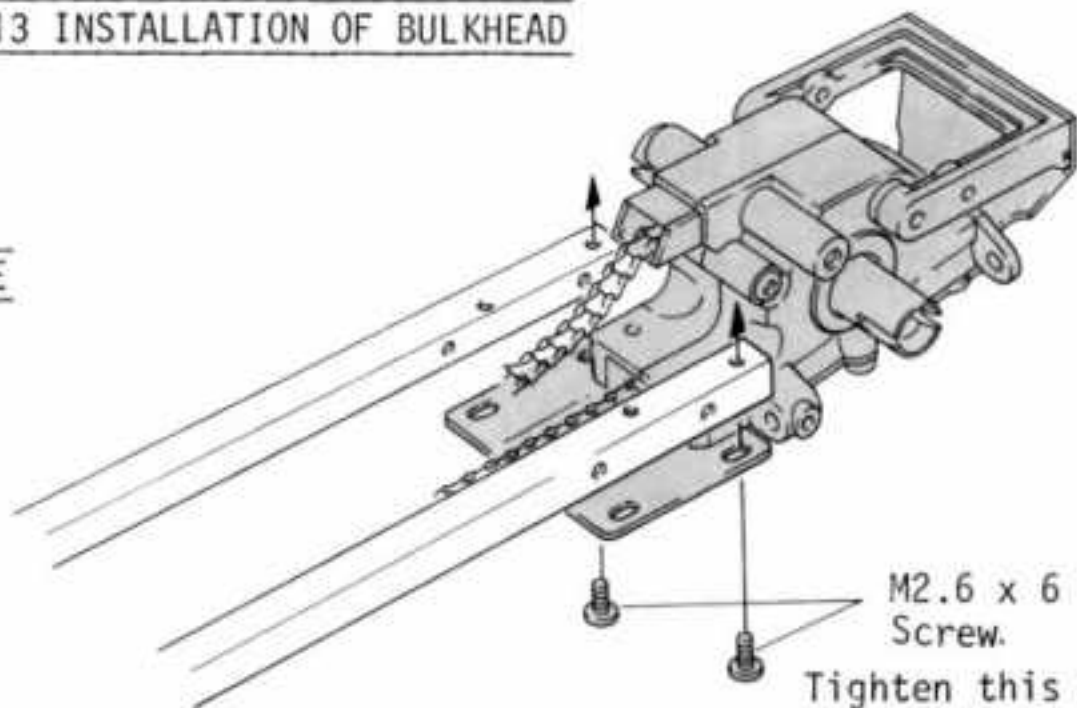


**13 INSTALLATION OF BULKHEAD**

[Small Parts Needed]

M2.6 x 6 Screw ..2 





**13 INSTALLATION OF BULKHEAD**




M2.6 x 6 Screw.  
Tighten this screw moderately

**14 INSTALLATION OF FRONT SIDE PLATE**

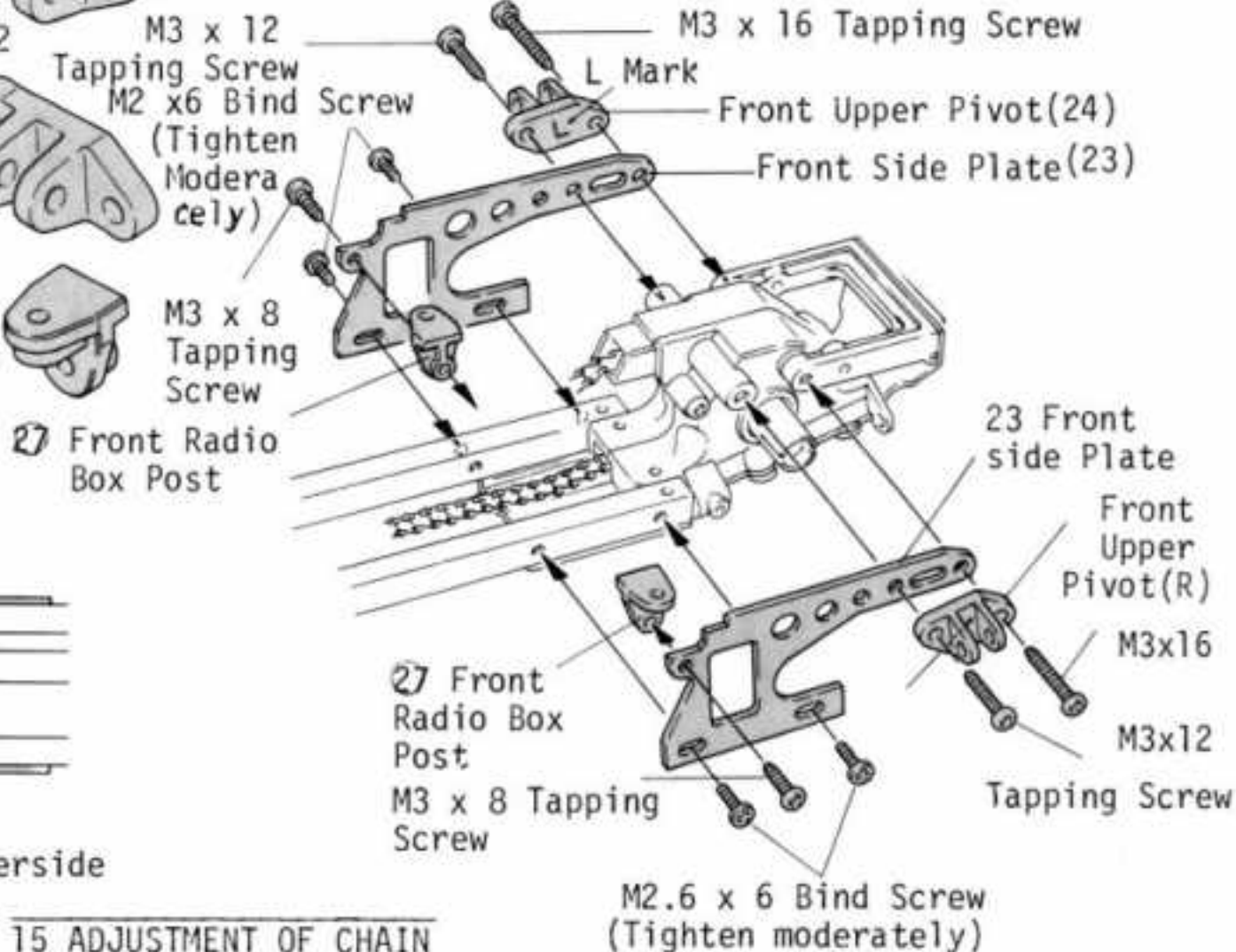
[Small Parts Needed]

M2.6x6 Screw .... 4   
 M3x8 Tapping Screw... 2   
 M3x12 Tapping Screw.. 2   
 M3x16 Tapping Screw.. 2 

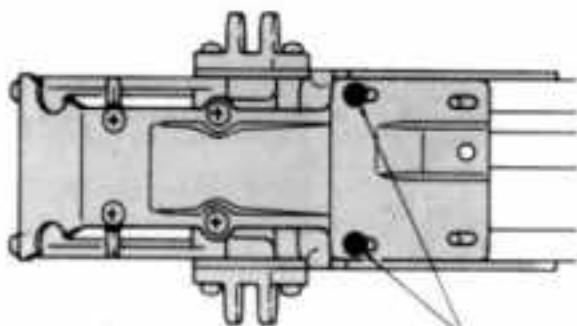
**14 INSTALLATION OF FRONT SIDE PLATE**

24 Front Upper Pivot (L)..1 (Plastic) 

25 Front Radio Box Post...2 (Small) (Plastic) 



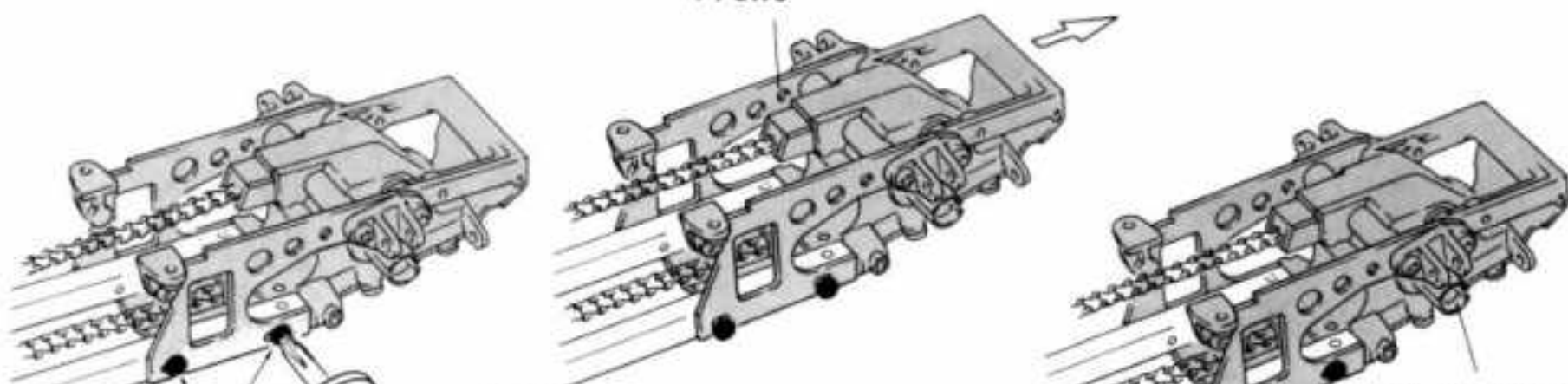
**15 ADJUSTMENT OF CHAIN**



2 pcs. Underside

**15 ADJUSTMENT OF CHAIN**

Front



[2] Slide the front portion until the chain will be tensioned slightly.

Try turning

2 pcs. of this side and 2 pcs. of opposite side

[1] Loosen the 6 screws for a half turn as shown in the drawing.

[3] Adjust it where the chain is taut but still turns smoothly; then fix the 6 screws firmly.

## 16 INSTALLATION OF CHAIN GUIDE

- [Small Parts Needed]  
 M2X8 Tapping Screw..2  
 29 Chain Guide(C)...1  
 (Plastic)



## INSTALLATION OF SERVO SAVER

[Small Parts Needed]

M2.6X2 Screw -2

M2.6X15 Screw -2

M2.6 Washer(Black)-2

31 Ball Nut - 3

32 Saver Shaft(A)-1

33 Saver Shaft(B)-1

36 M2 Shaft - 1

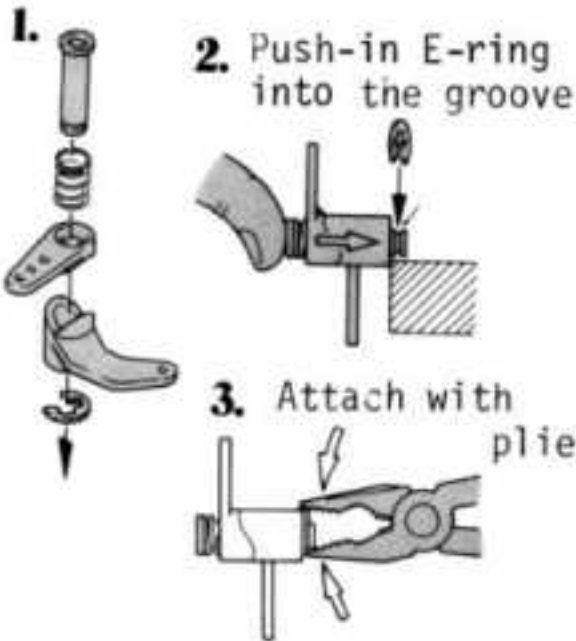
37 Ballend(S)-2

118 M2.6 Pivot Ball-2

105 Servo Spacer - 1

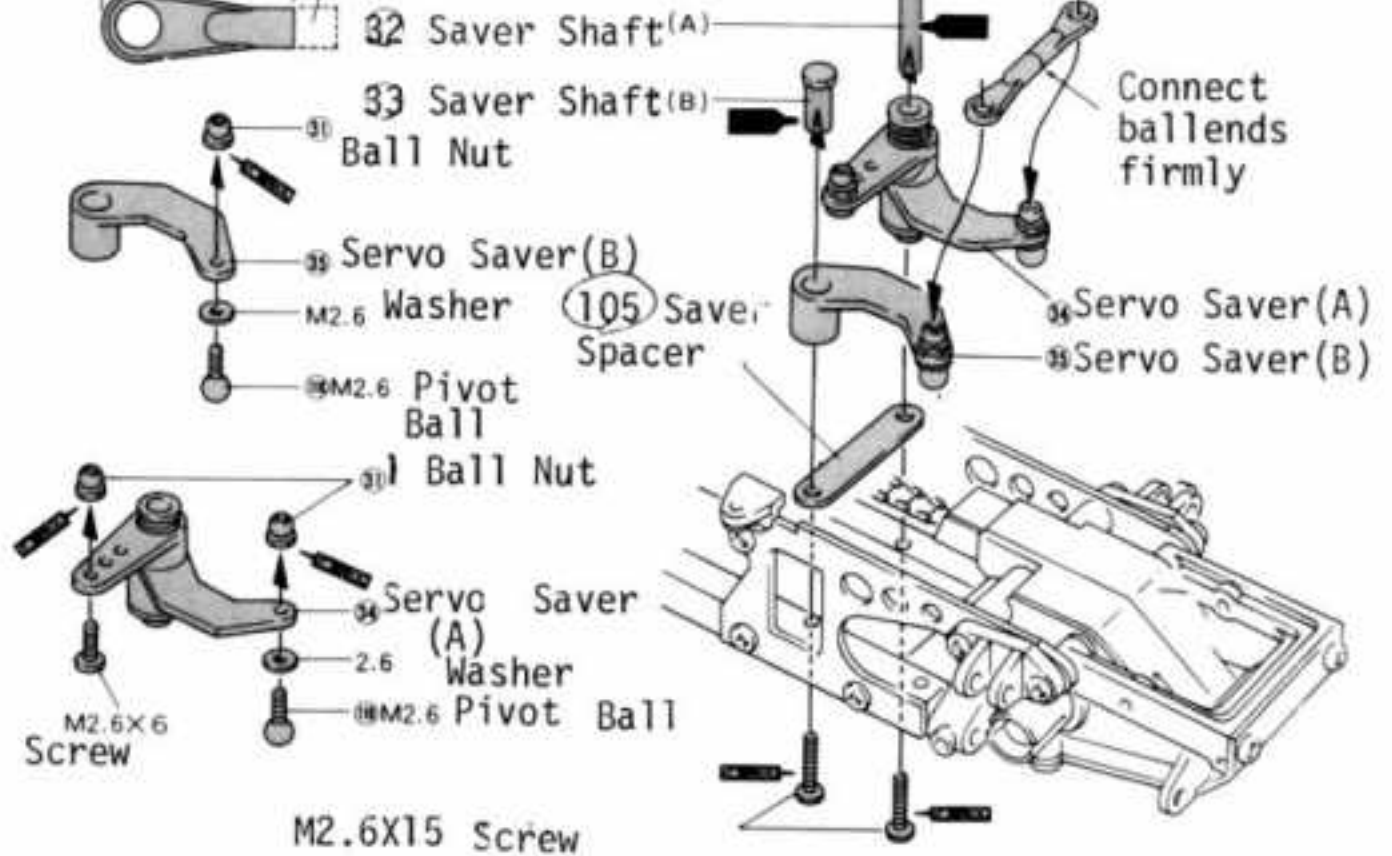
[Assembly of Servo Saver]

34 Servo Saver(A) - 1 set



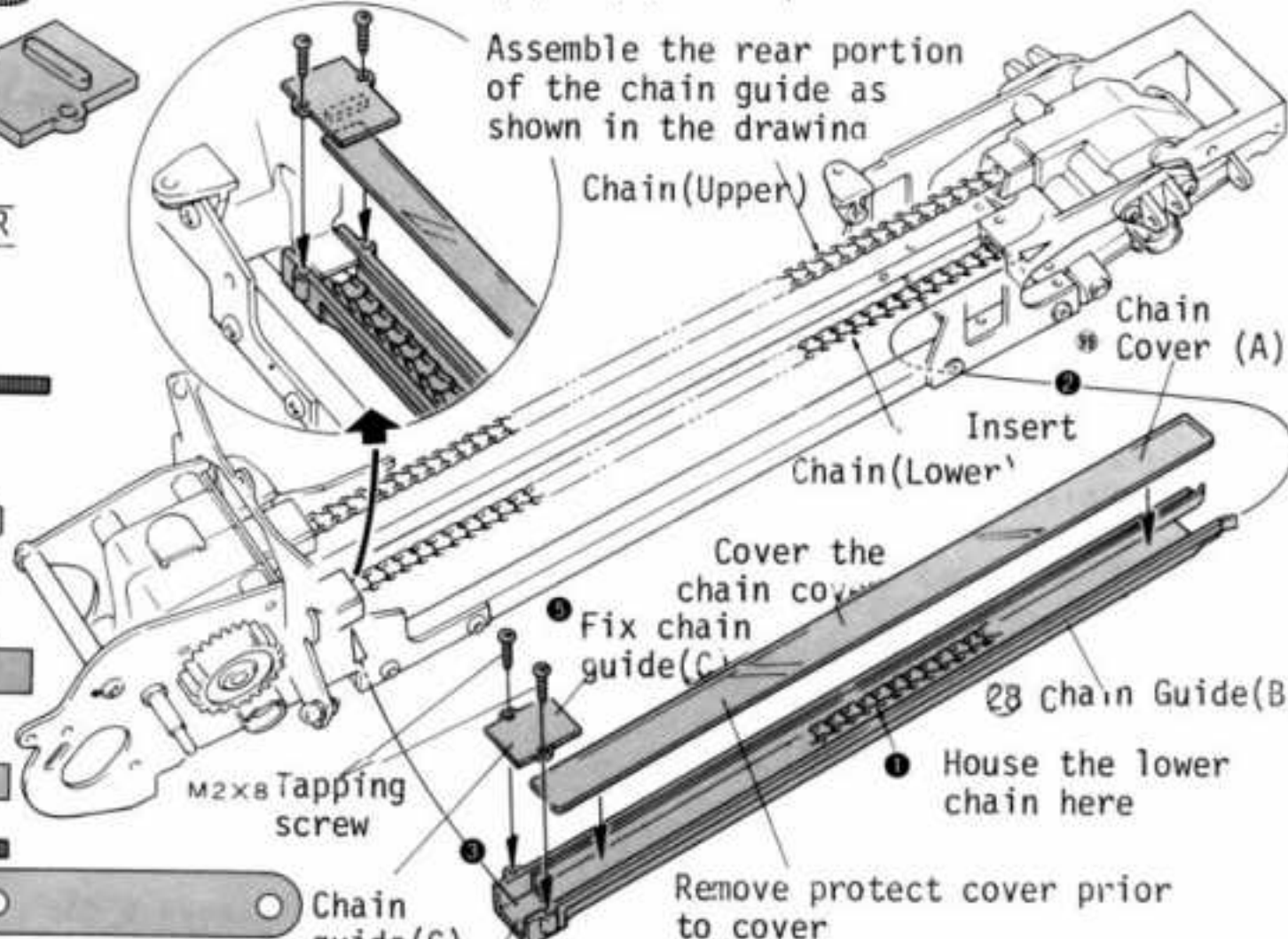
## 17 INSTALLATION OF SERVO SAVER

Cutout this part with a knife



Assemble (1) - (5) in sequence.






Assemble the rear portion of the chain guide as shown in the drawing



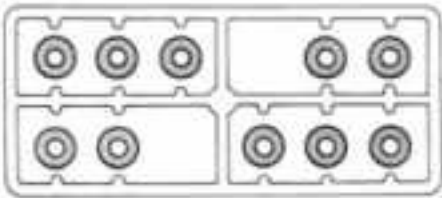
Put this part to the outlet of the chain from the underside and insert it as shown in the above illustration.

## 18 ASSEMBLY OF KNUCKLE ARM

[Small Parts Needed]

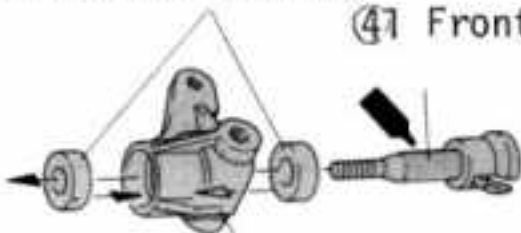
- M2.6 Nut ..... 2 
- M3 Pivot Ball (Silver)..4 
- 38 King Pin.....4 
- 118 M2.6 pivot Ball....2 
- 8 Plastic Bushing.....4 

Cut-off plastic bushing from runner and trim with a knife.



[Insert the plastic bushing into the knuckle arm]

- 8 Plastic Bushing
- 41 Front Shaft



40 Knuckle Arm(R)

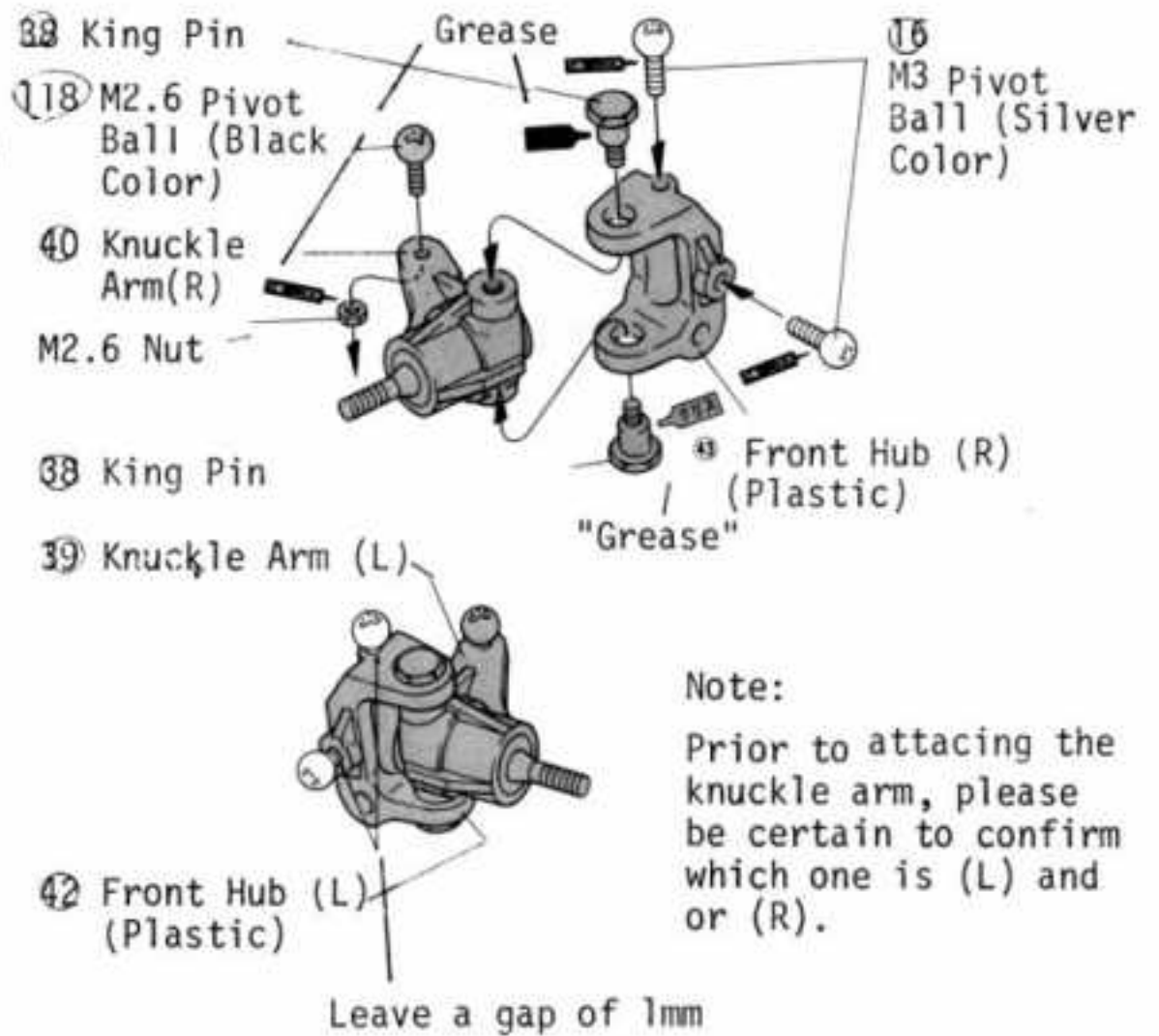
Assemble 39 Knuckle Arm (L) the same way.

## 19 INSTALLATION OF FRONT SUSPENSION ARM

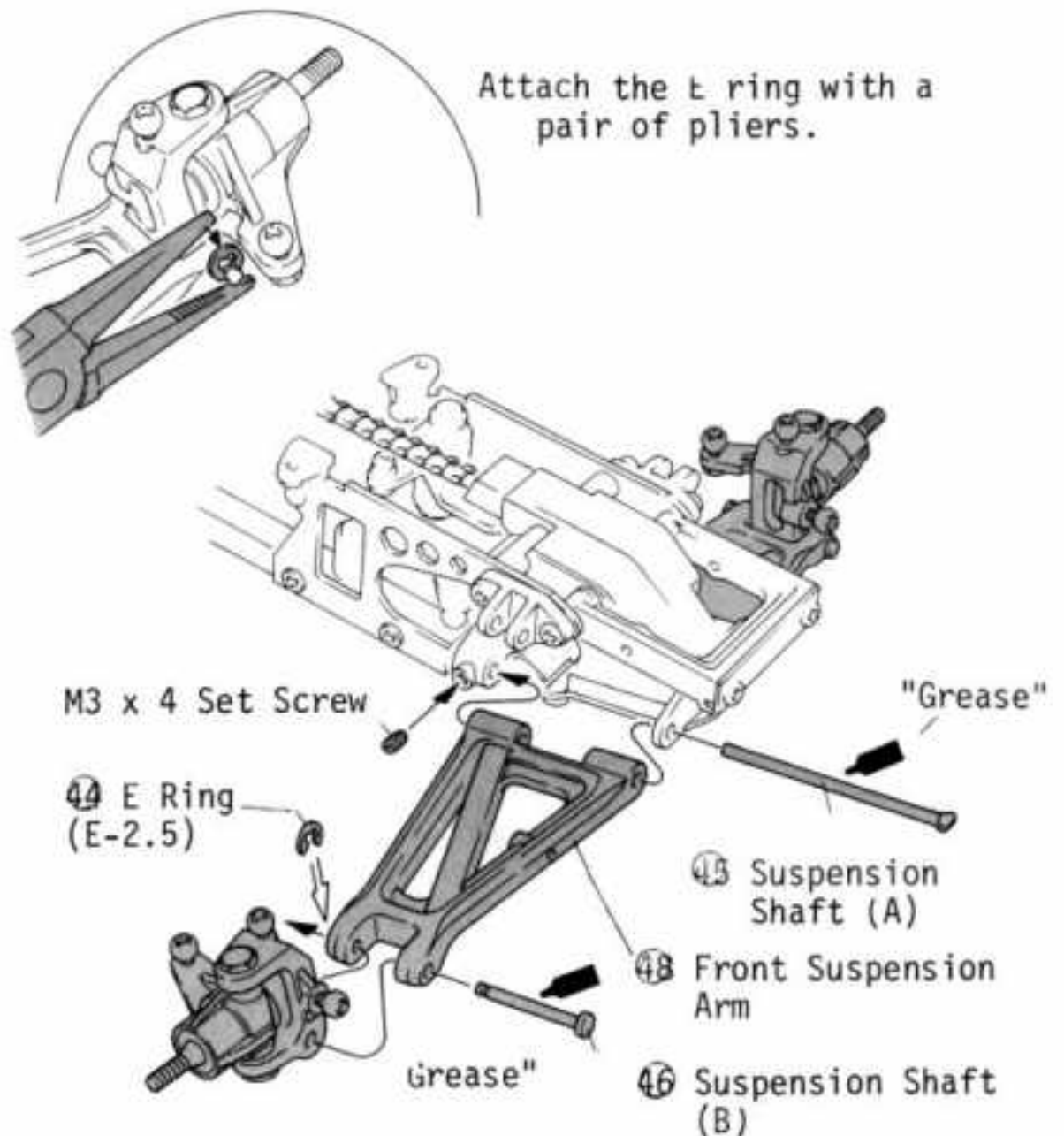
[Small Parts Needed]

- M3 x 4 Set Screw (2) 
- 44 E Ring (E-2.5) (2) 
- 45 Suspension Shaft (A) (2) (Short) (Silver Color) 
- 46 Suspension Shaft (B) (2) (Short) (Silver Color) 

## 18 ASSEMBLY OF KNUCKLE ARM



## 19 INSTALLATION OF FRONT SUSPENSION ARM

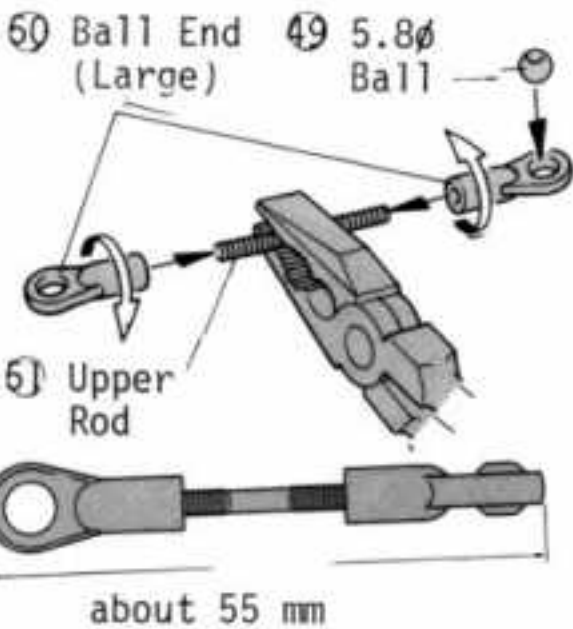


20 INSTALLATION OF FRONT UPPER ROD

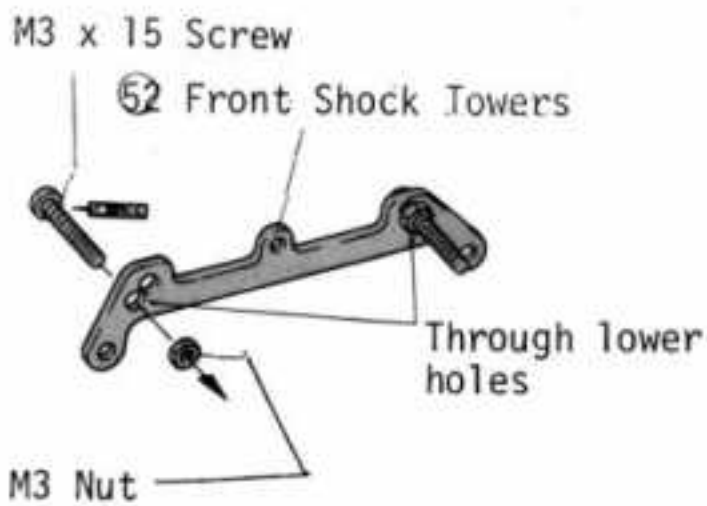
[Small Parts Needed]

- M3 x 15 Screw (4) 
- M3 Nut (2) 
- M3 Nylon Nut (2) 
- 49 5.8φ Ball (2) 
- 50 Ball End (Large)(4) 
- 51 Upper Rod (2) 

[Make two Upper Rods]





[Attach M3 x 15 screws to the front shock stay]

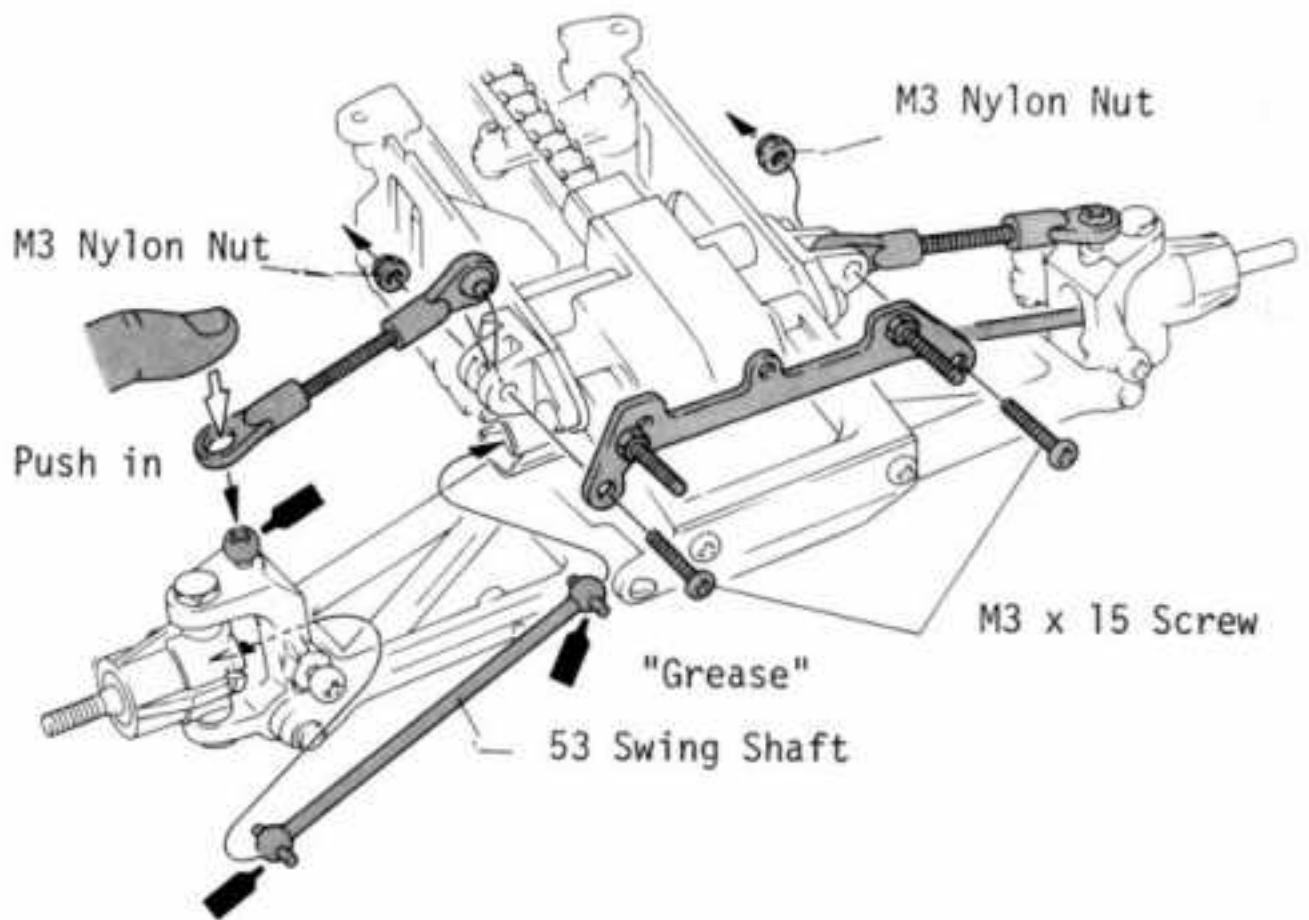


21 INSTALLATION OF FRONT SHOCK

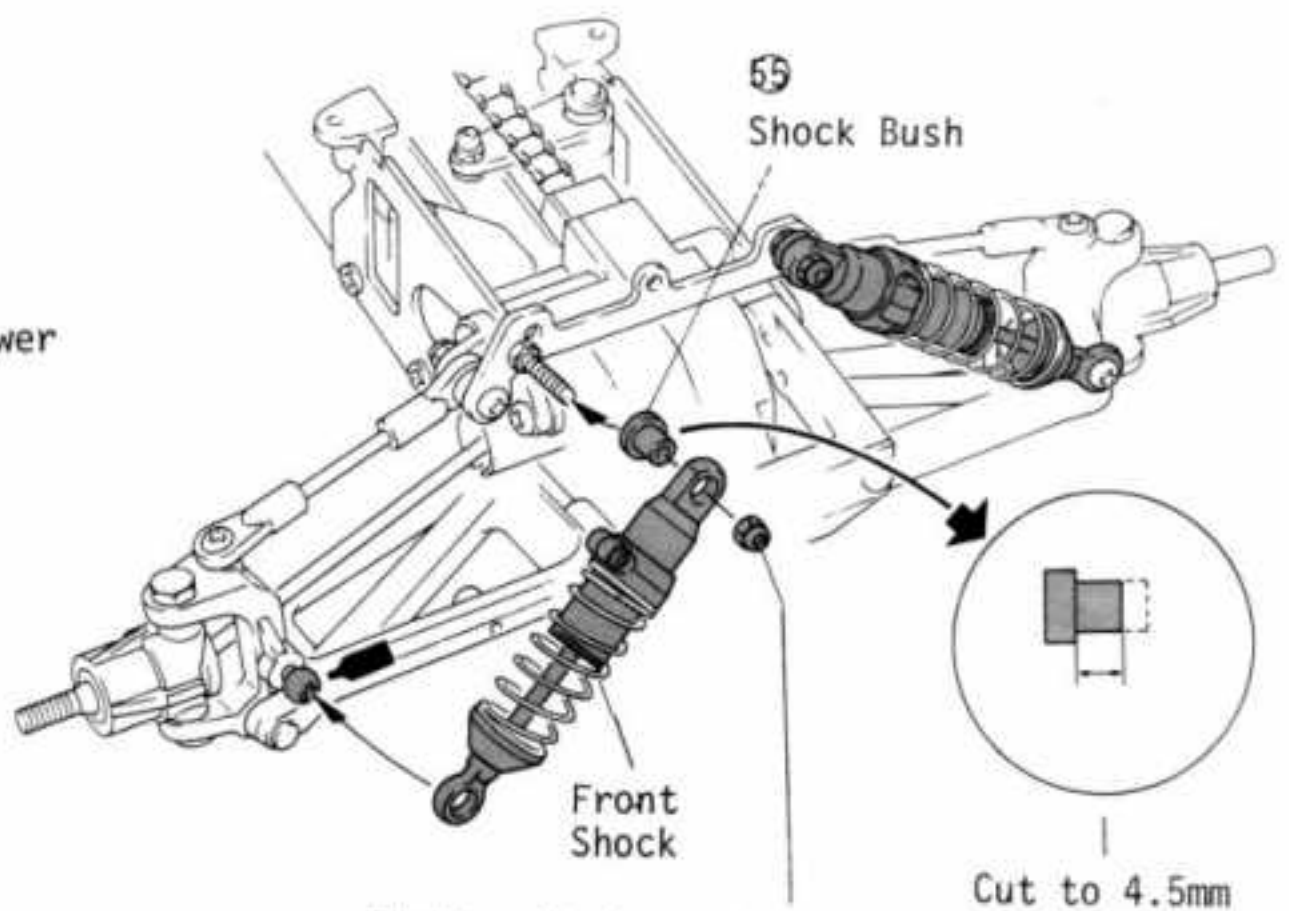
[Small Parts Needed]

- M3 Nylon Nut (2) 
- 54 Shock Bushing (2) (Black Rubber) 

20 INSTALLATION OF FRONT UPPER ROD



21 INSTALLATION OF FRONT SHOCK

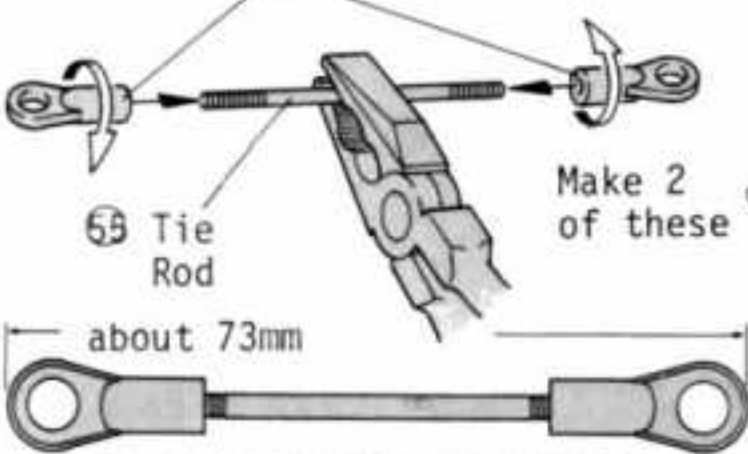


Tighten it in such a way that the shock bushings are not crushed.

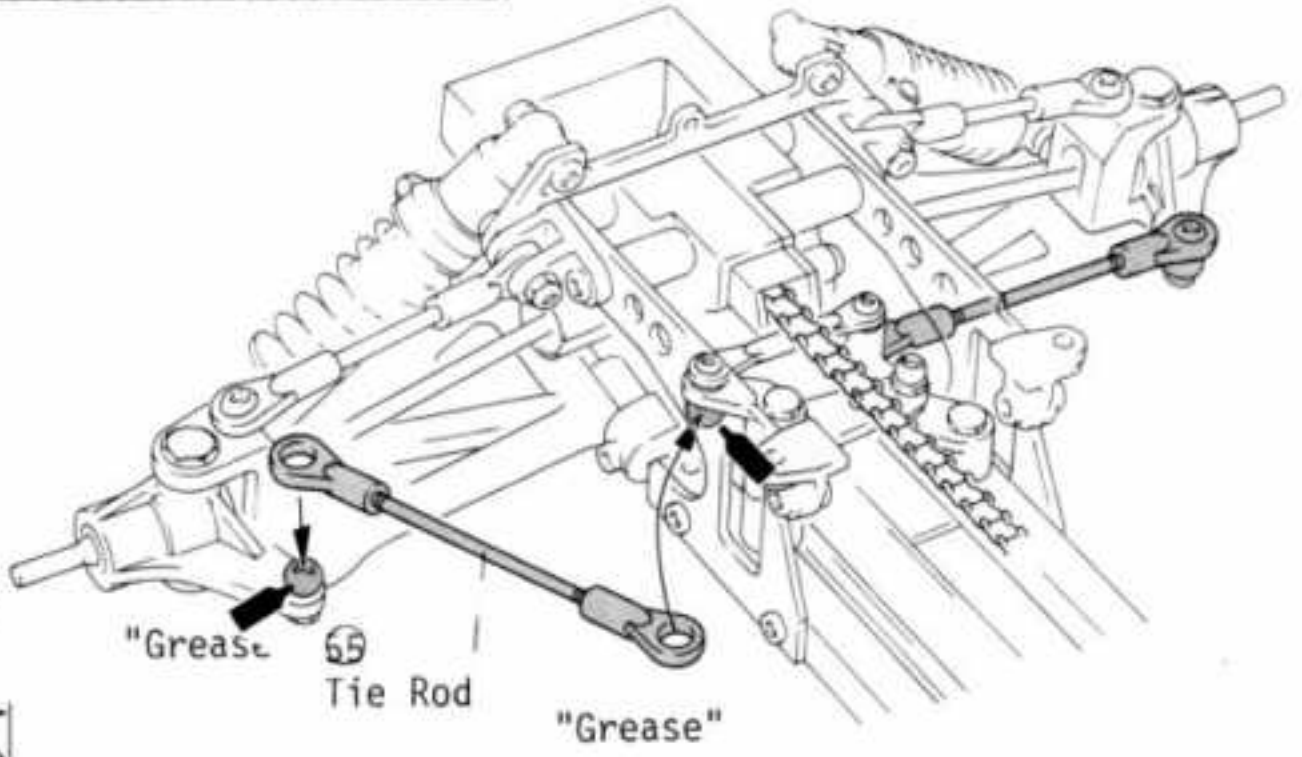
**22 INSTALLATION OF TIE ROD**  
[Small Parts Needed]

- 50 Ball End (L)(4)
- 55 Tie Rod (2)

**50 Ball End (Large)**

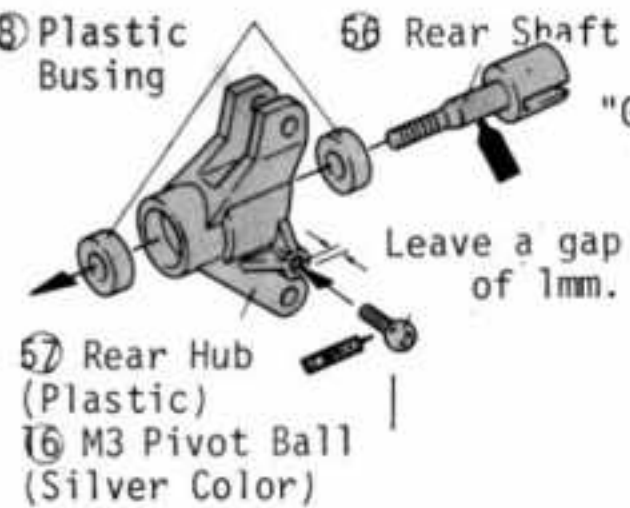


**22 INSTALLATION OF TIE ROD**

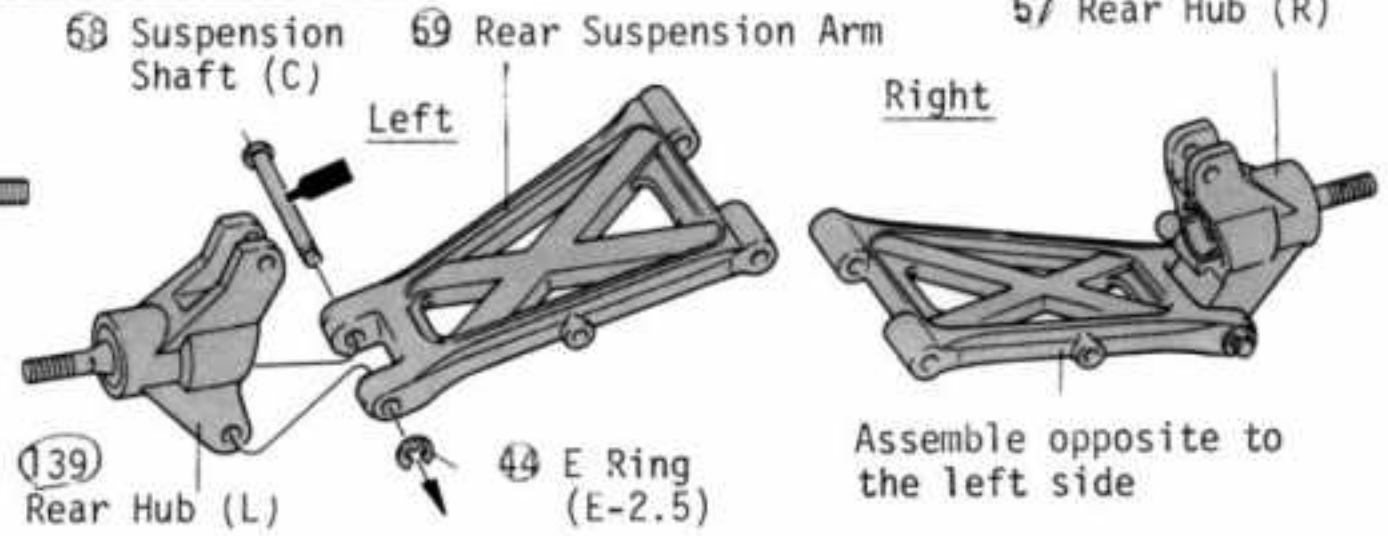


**23 INSTALLATION OF REAR HUB**  
[Small Parts Needed]

- 8 Plastic Bushings(4)
- 16 M3 Pivot Ball (Silver Color)(2)
- 44 E Ring (E-2.5)(2)
- 58 Suspension Shaft (C) (2)(Long ,Black color)



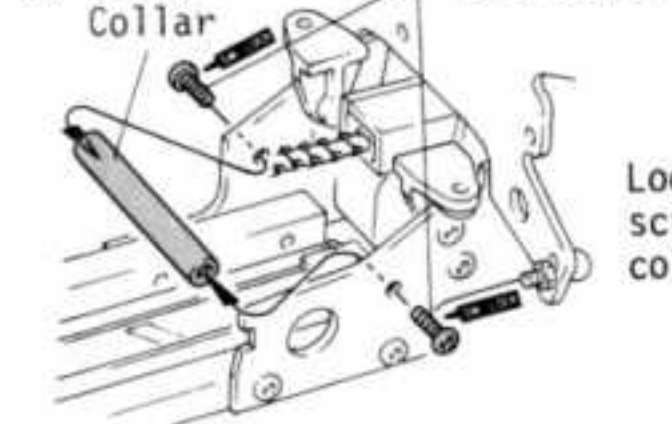
**23 INSTALLATION OF REAR HUB**



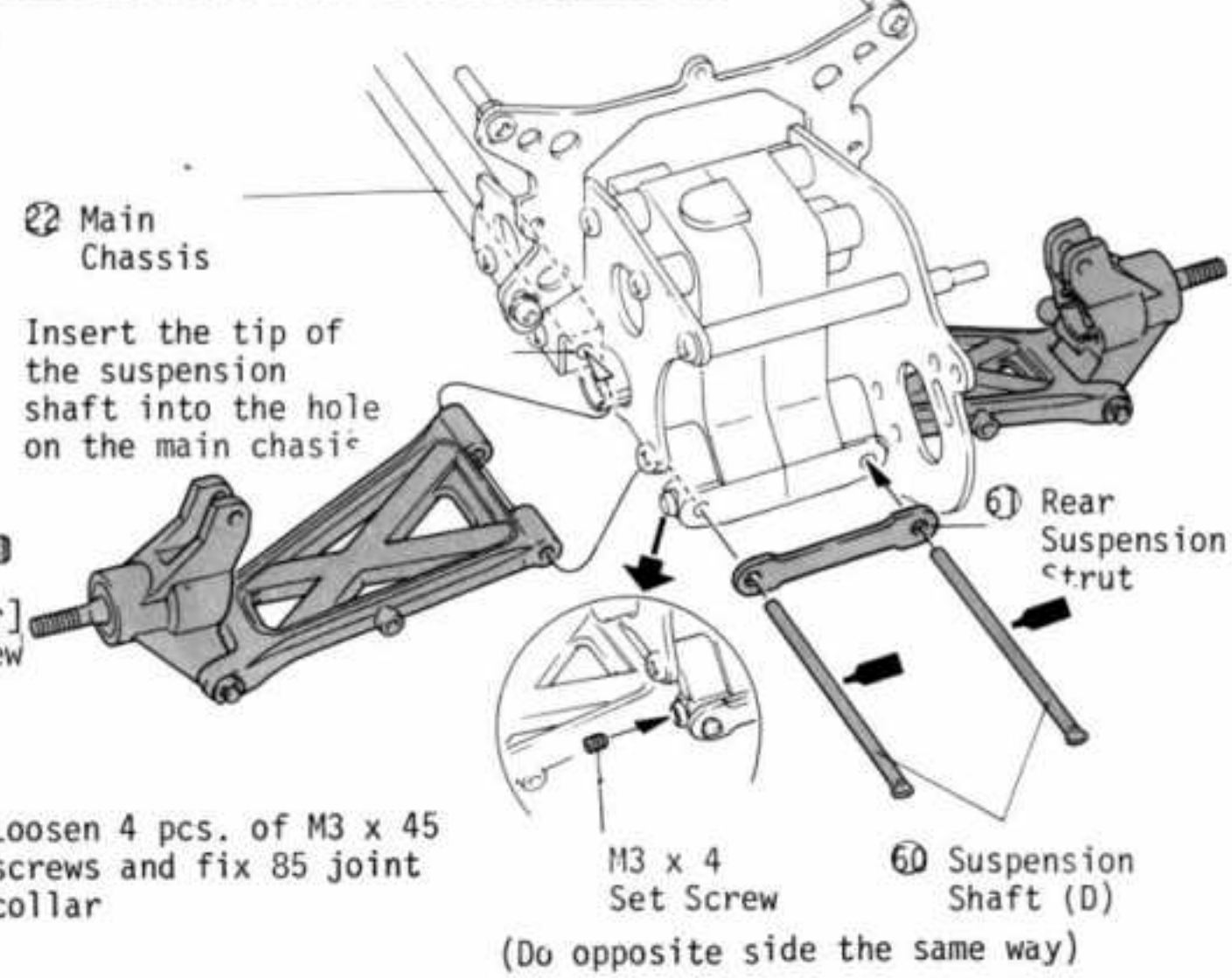
**24 INSTALLATION OF REAR SUSPENSION ARM**

- [Small Parts Needed]
- M3 x 8 Screw (2)
  - M3 x 4 Set Screw(2)
  - 60 Sus. Shaft (D)(Long)(2)

[Installation of Joint Collar]



**24 INSTALLATION OF REAR SUSPENSION ARM**



## 25 INSTALLATION OF REAR UPPER ROD

[Small Parts Needed]

M3 x 10 Screw (2)

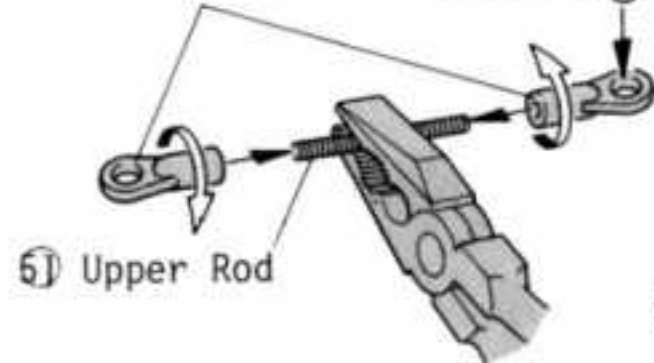
49 5.8φ Ball (2)

60 Ball End (Large) (4)

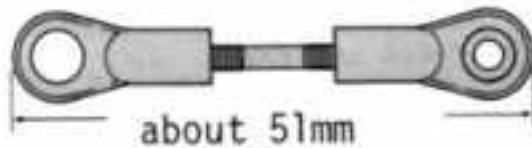
61 Upper Rod (2)

[Make two Upper Rods]

60 Ball End (L) 49 5.8φ Ball



61 Upper Rod



## 26 INSTALLATION OF REAR SHOCK

[Small Parts Needed]

M3 Nylon Nut (2)

64 Shock Bushing (2) (Black Rubber)

## 27 INSTALLATION OF CENTER GEAR

[Small Parts Needed]

4φ Washer (2)

63 Center Gear Bushing (1)

65 O Ring (P-3) (1) (Black Rubber)

## 25 INSTALLATION OF REAR UPPER ROD

Upper Rod

(Ball inside)

M3 x 10 Screw

M3 x 10 Screw

63 Swing Shaft

## 26 INSTALLATION OF REAR SHOCK

64 Shock Bushing

M3 Nylon Nut

(Tighten the nut to the degree as the damper bushing 54 will not be deformed.)

Cut to 4.5mm.

Rear Shock

Grease

## 27 INSTALLATION OF CENTER GEAR

\*All of the parts are included in bag No.9 & 10.

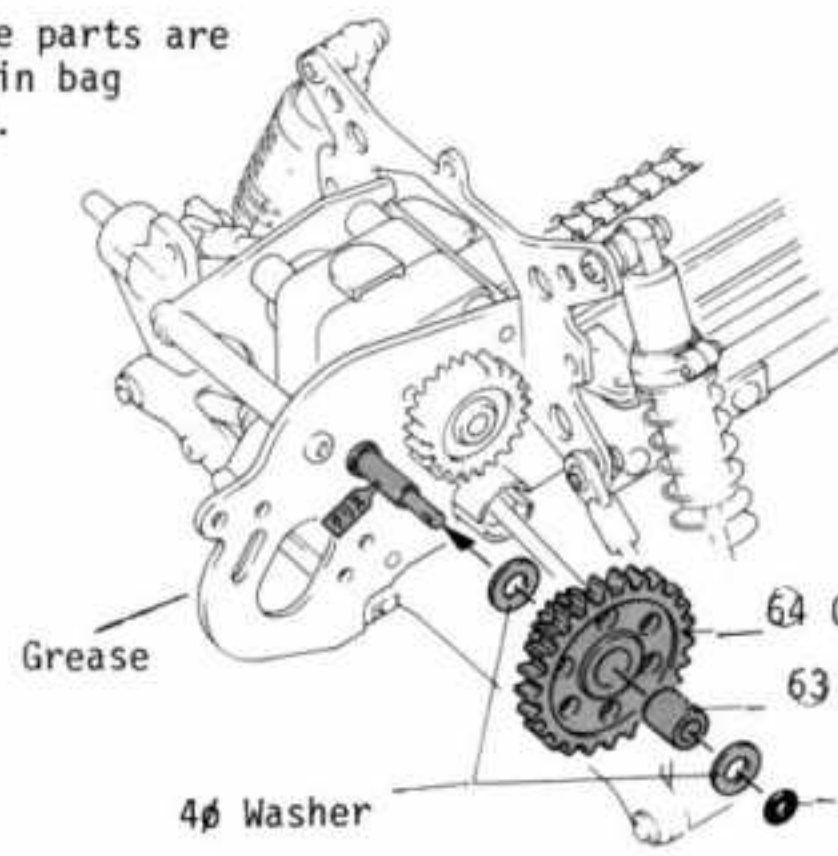
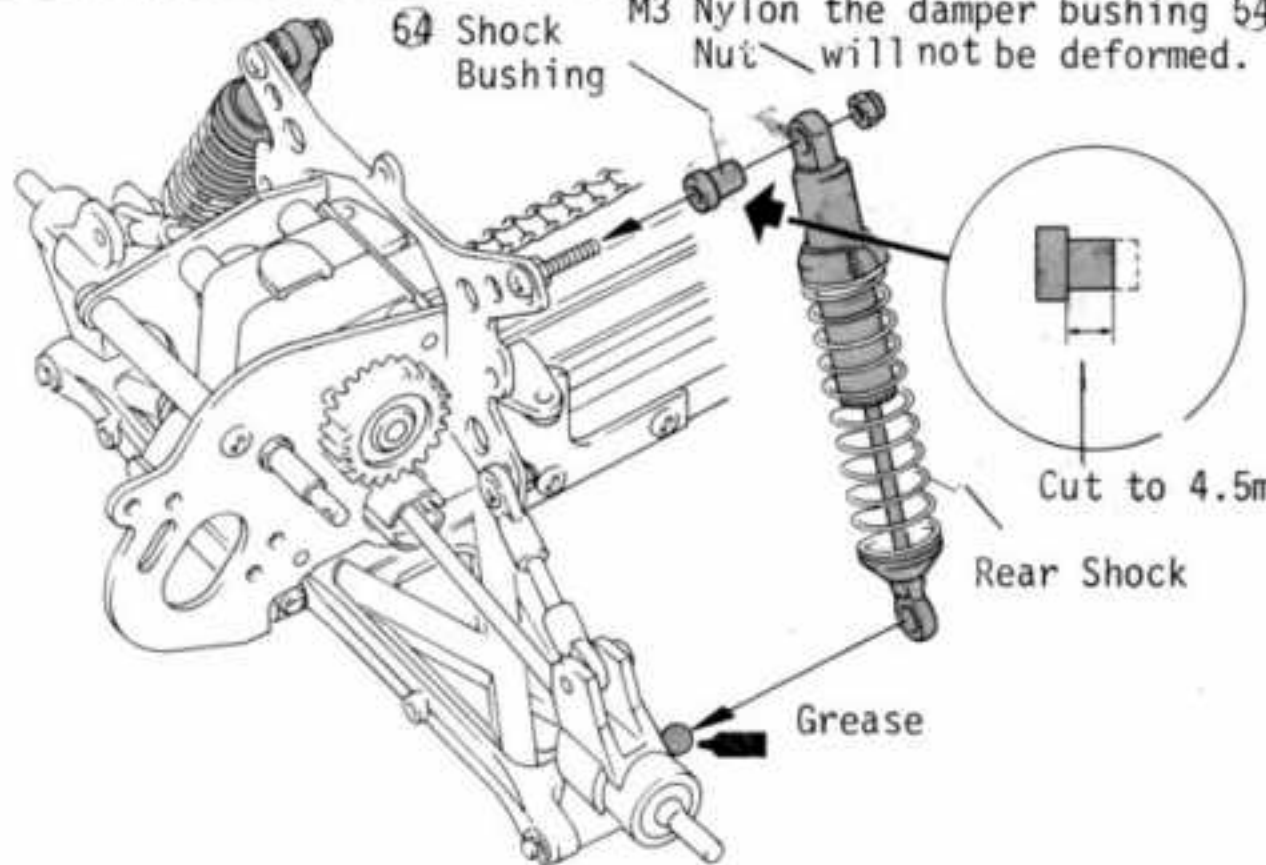
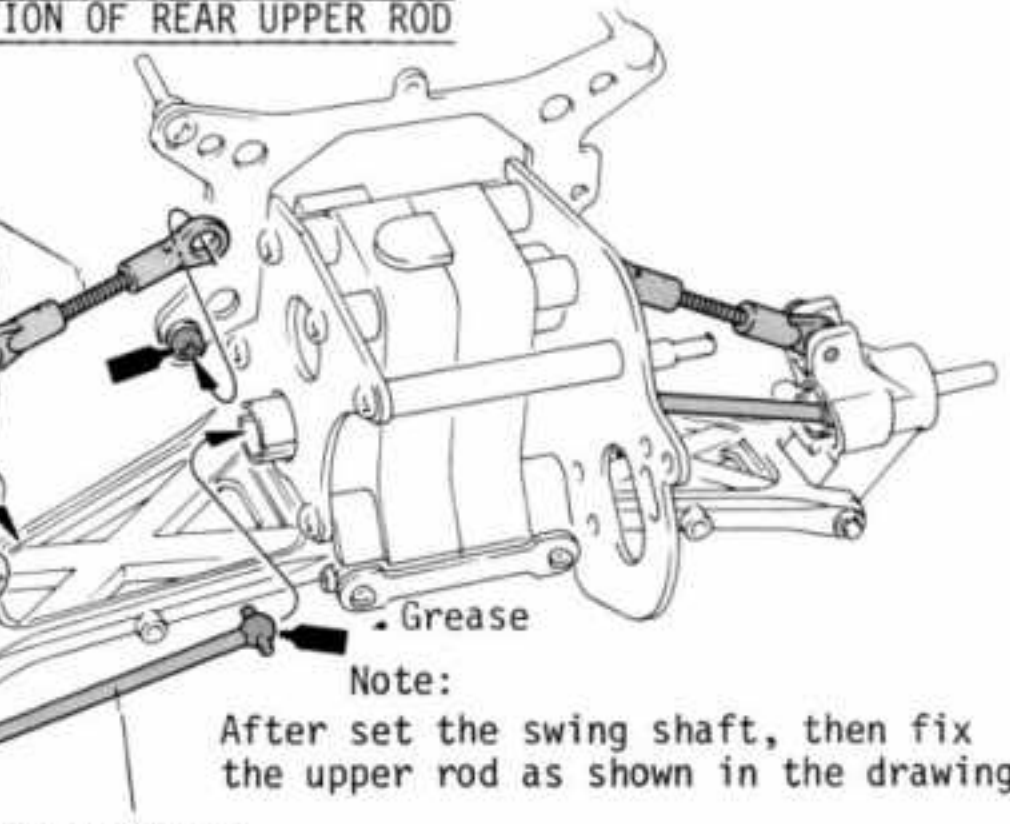
Grease

4φ Washer

64 Center Gear

63 Center Gear Bushing

65 O Ring (P-3)

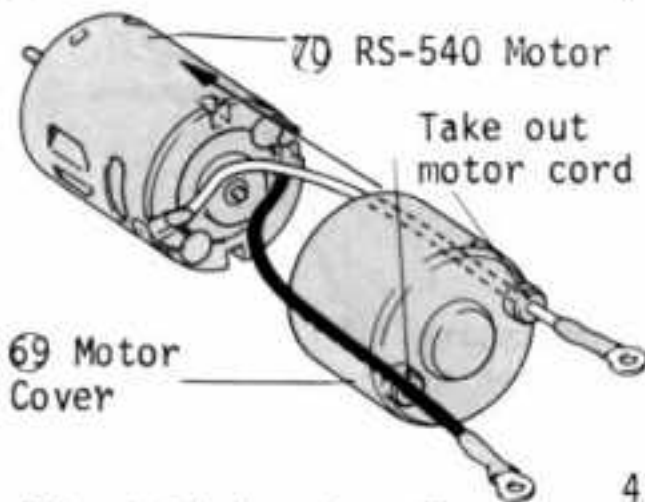


## 28 INSTALLATION OF MOTOR

[Small Parts Needed]

- M3 x 3 Set Screw .... 1
- M3 x 8 Screw ..... 2

[Installation of Motor Cover]

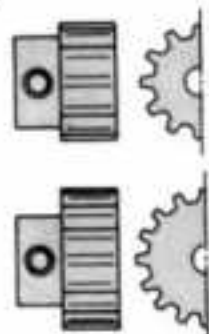


[About Pinion Gear Teeth and Gear Ratio]

The kit includes two types of pinion gears. A low gear with 12 teeth and a high gear with 15 teeth. It is recommended to use the low gear until you become accustomed to control to some extent, then you can use the high gear.

67 Pinion Gear (12T) -smaller.

68 Pinion Gear (15T) -larger.



## 29 INSTALLATION OF GEAR COVER

[Small Parts Needed]

- 66 Hook Pin ... 1

## 30 INSTALLATION OF CONTROLLER SERVO

[Small Parts Needed]

- M3x6 Tapping Screw ... 6

88 Servo Spacer A .1

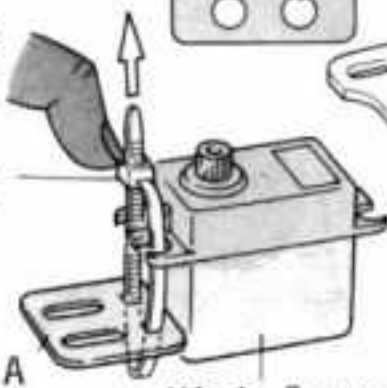
(Note) Not needed for mid size servos

89 Servo Spacer B .1

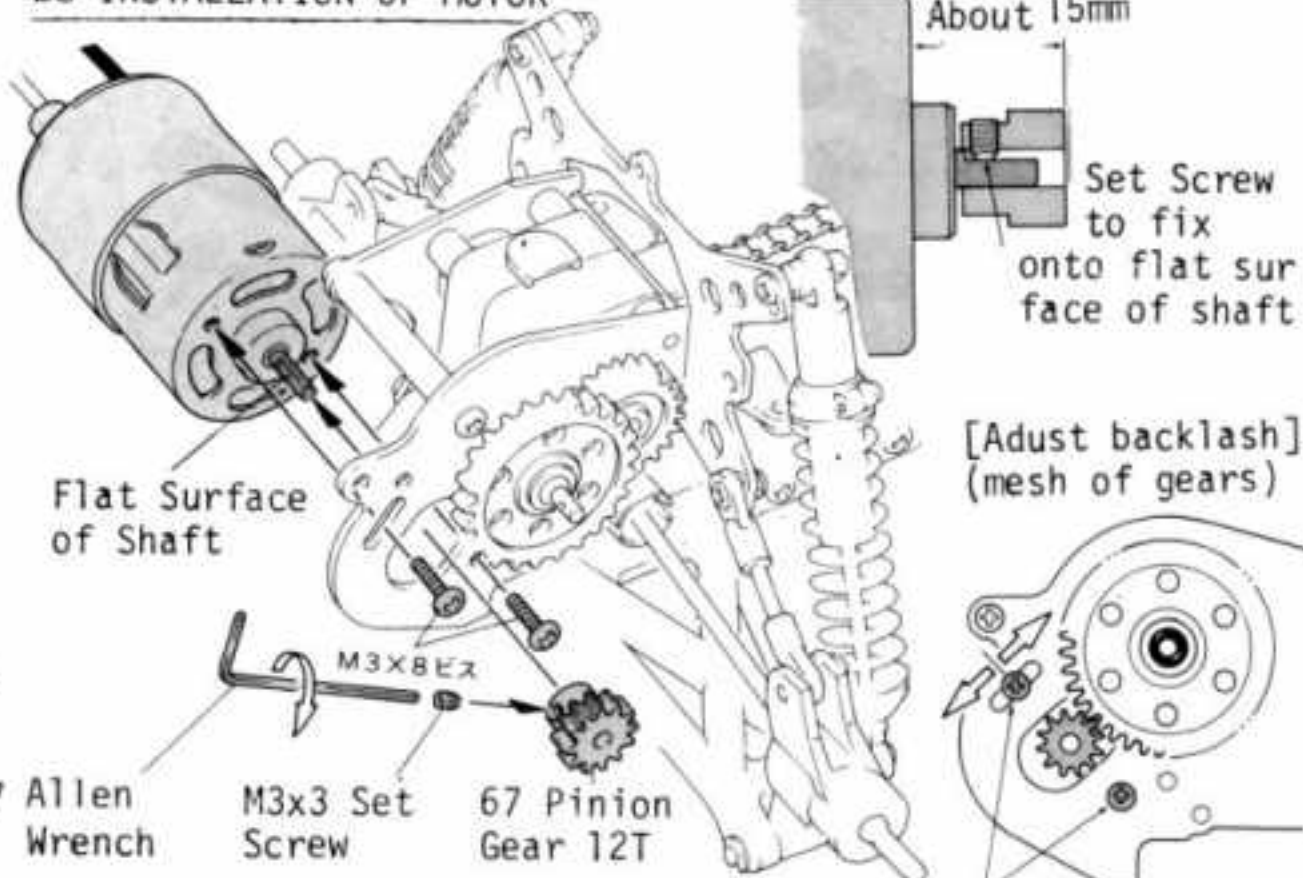
[How to mount Servo Spacer]

111 Strap (S)

88 Servo Spacer A



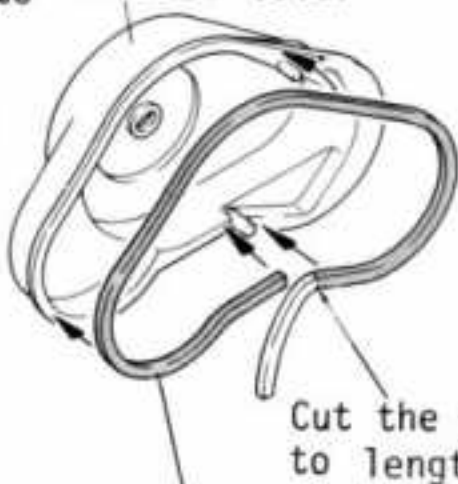
## 28 INSTALLATION OF MOTOR



- 47 Allen Wrench
- M3x3 Set Screw
- 67 Pinion Gear 12T

## 29 INSTALLATION OF GEAR COVER

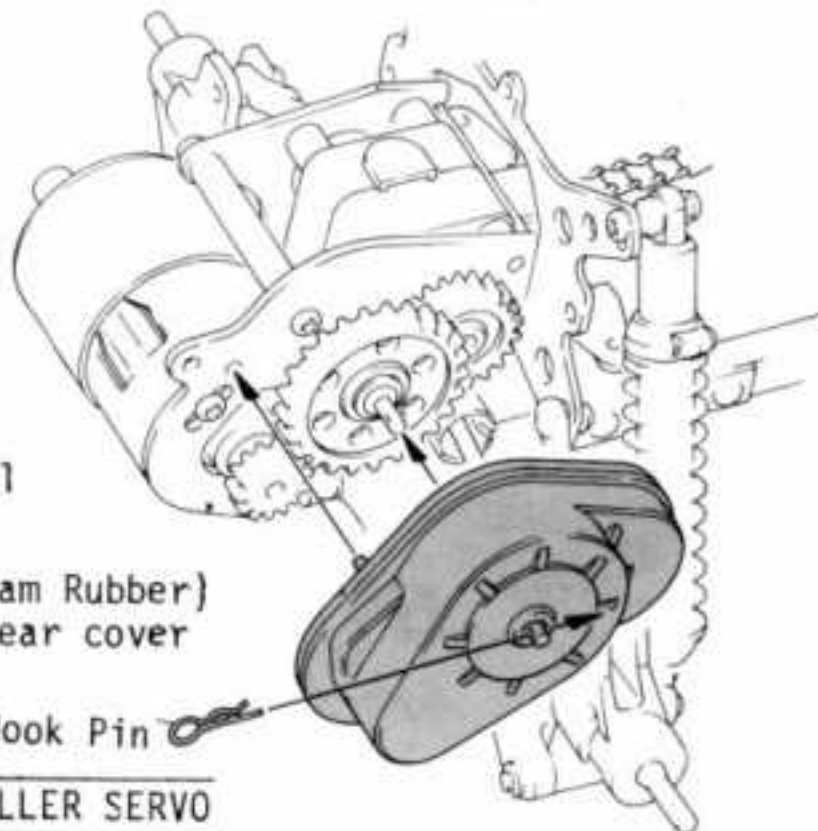
86 Gear Cover



Cut the seal to length.

Gear Cover Seal 87 (Foam Rubber) Fix it inside of the gear cover with instant glue.

66 Hook Pin



## 30 HOW TO MOUNT CONTROLLER SERVO

(In case of Mini Servo)

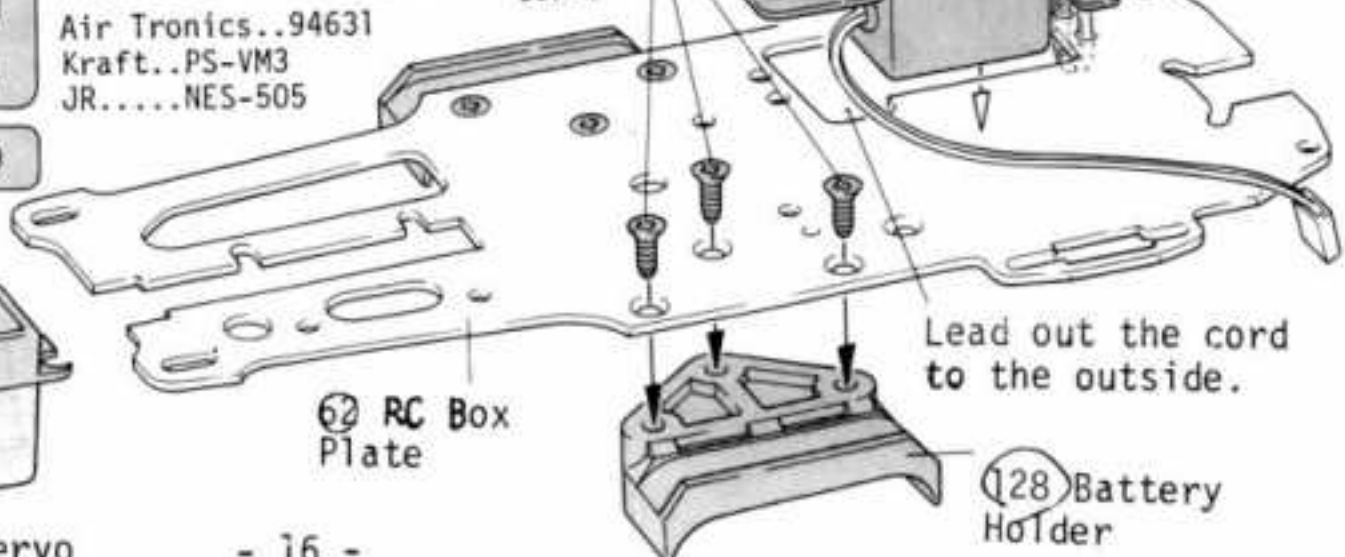
(Note) When mid size servos are installed, refer to Step 32 drawing Futaba..FP-S28, FP-S128 Air Tronics..94631 Kraft..PS-VM3 JR.....NES-505

Tighten it as hard as possible and cut the excess

M3x6 Tapping Screw

Tighten firmly

89 Servo Spacer B



### 31 INSTALLATION OF CHAIN GUIDE

[Small Parts Needed]

- M2 x 8 Self Tapping Screw (2)
- 101 Chain Guide(D) (Plastic) (1)

### 32 MOUNTING RADIO PLATE

[Small Parts Needed]

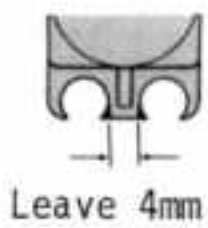
- M2 x 8 Self Tapping Screw (2)
- M2.6 x 8 Bind Self Tapping Screw (4)
- M3 x 8 Flat Self Tapping Screw (1)
- M3 x 8 Self Tapping Screw (2)
- M3 x 10 Self Tapping Screw (2)
- 117 Radio Post Screw (2)

[Use Medium Size Servos]

- Futaba - FP-S28, FP-S128
- Airtronics - 94631, Astro GXS-202
- Kraft - PS-VM3
- JR - NES-505

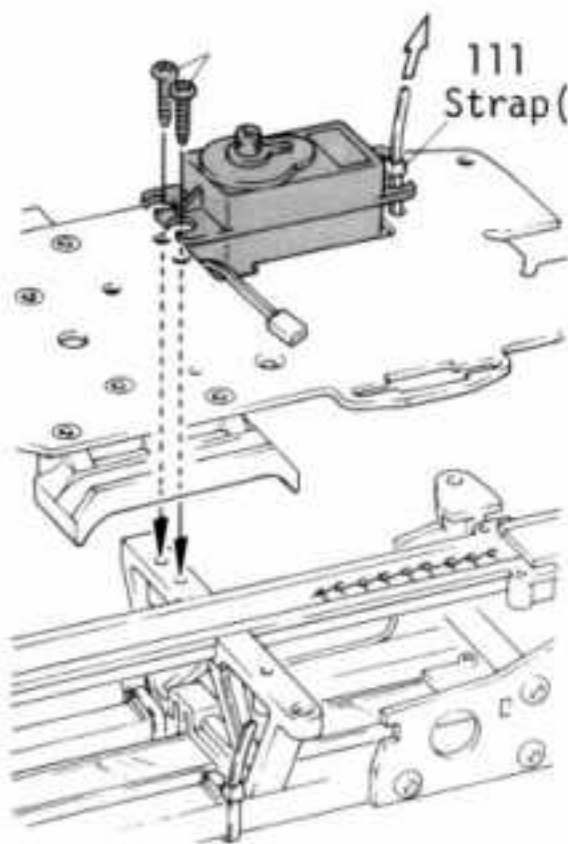
(1) In case of using the above servos, process as following.

Shave-off excess part with a file.



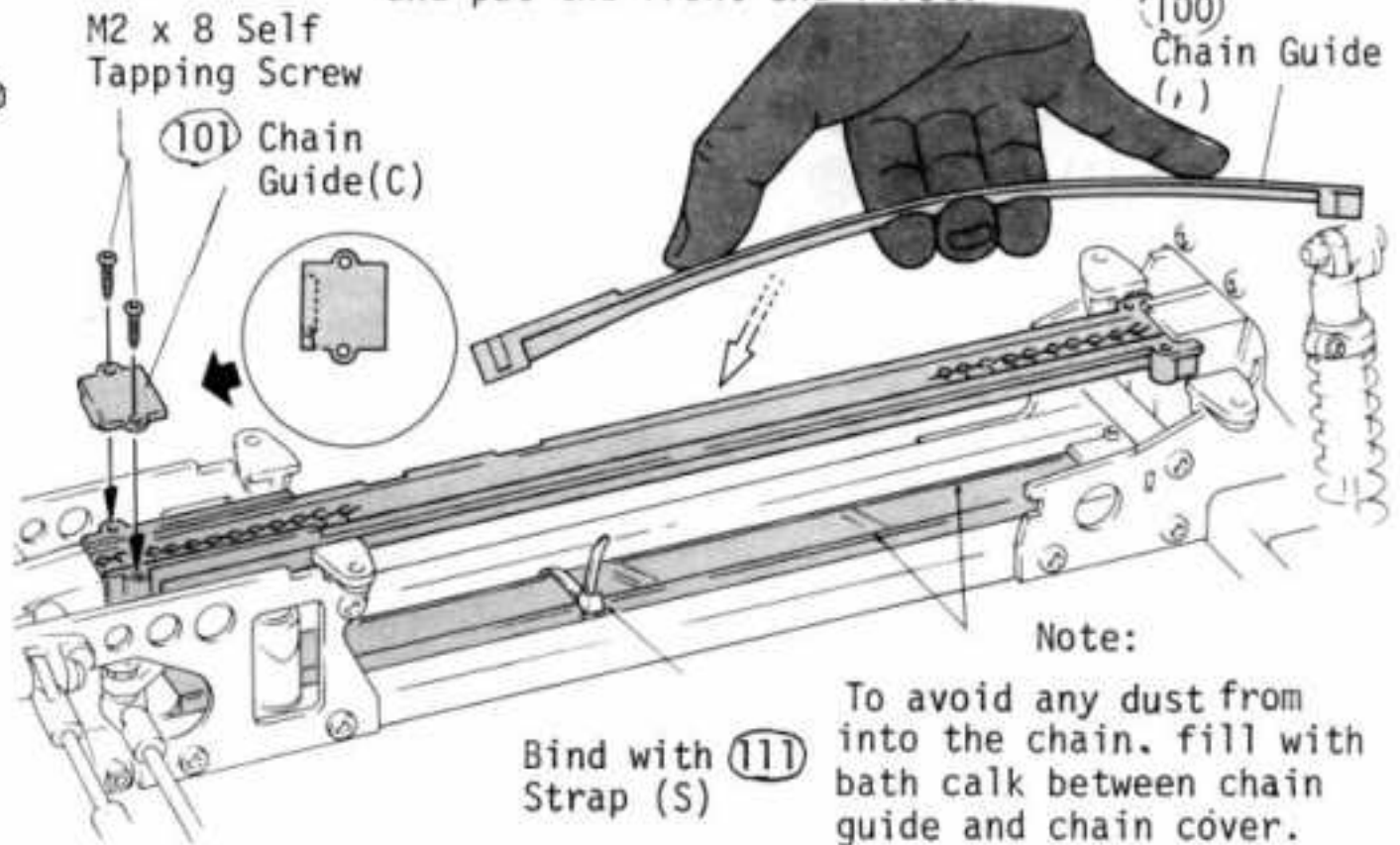
Leave 4mm

[How to Install Medium Size Servos]



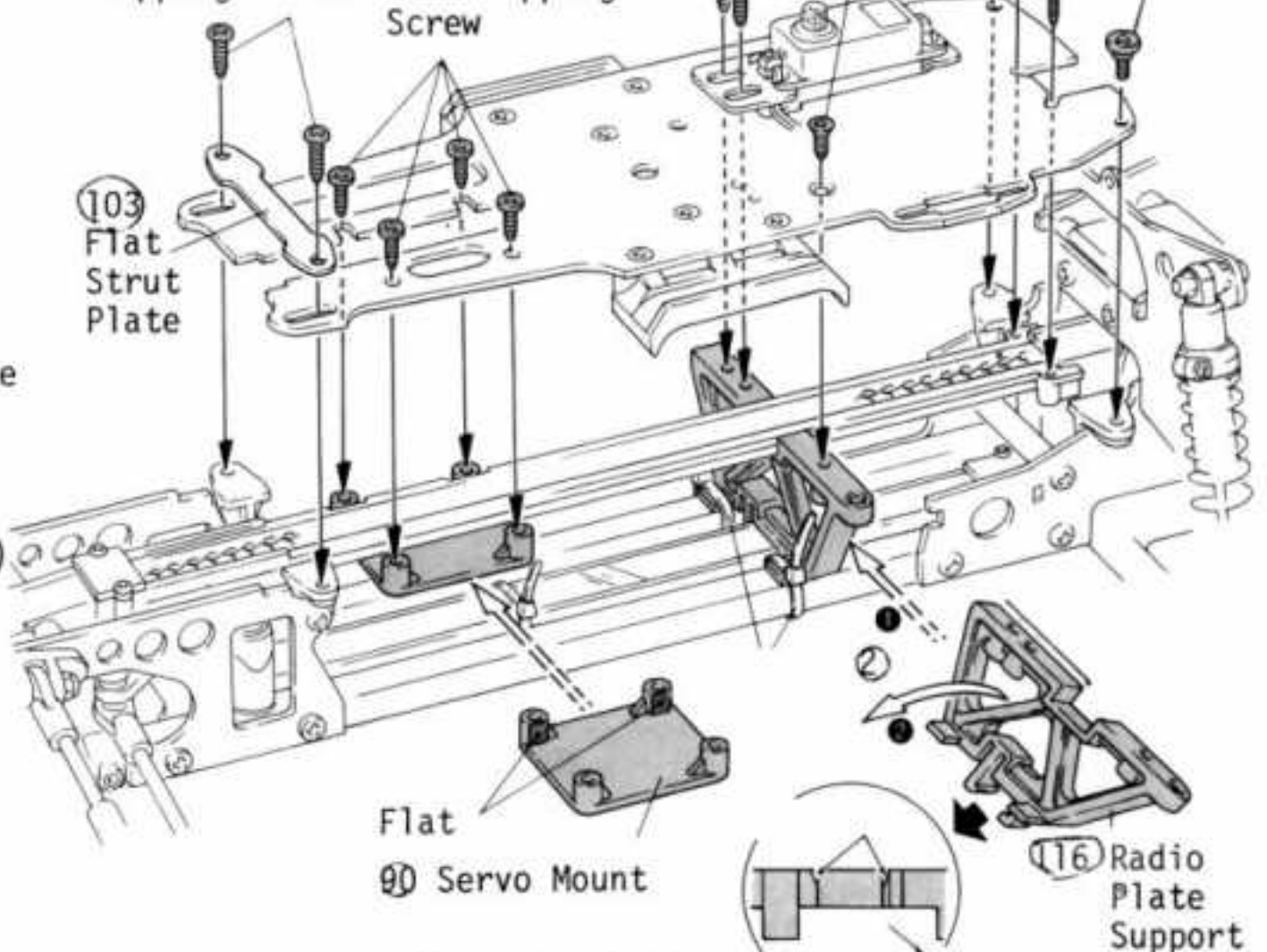
### 31 INSTALLATION OF CHAIN GUIDE

Bend the chain guide (A) as shown and put the front end first.



### 32 MOUNTING RADIO PLATE

- 117 Radio Post Screw
- M3 x 6 Flat Self Tapping Screw
- M3 x 10 Self Tapping Screw
- M3 x 8 Self Tapping Screw
- M2.6 x 8 Bind Self Tapping Screw



If it is hard to fit in, bevel the corners.

- ① Insert it holding diagonally, then ...
- ② Set it into the upright position.

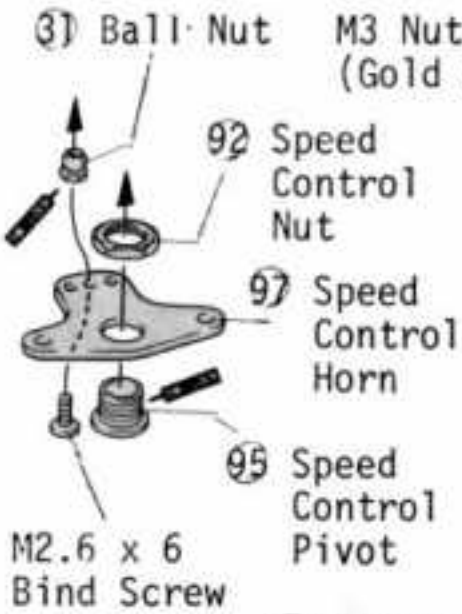
### 33 INSTALLATION OF SPEED CONTROLLER

#### [Small Parts Needed]

- M2.6 x 6 Screw (1)
- M3 Nut (Gold Color) (2)
- ③ Ball Nut (1)
- 92 Speed Controller Nut (1)
- 93 Speed Control Contact Point (2)
- 95 Speed Control Pivot (1)

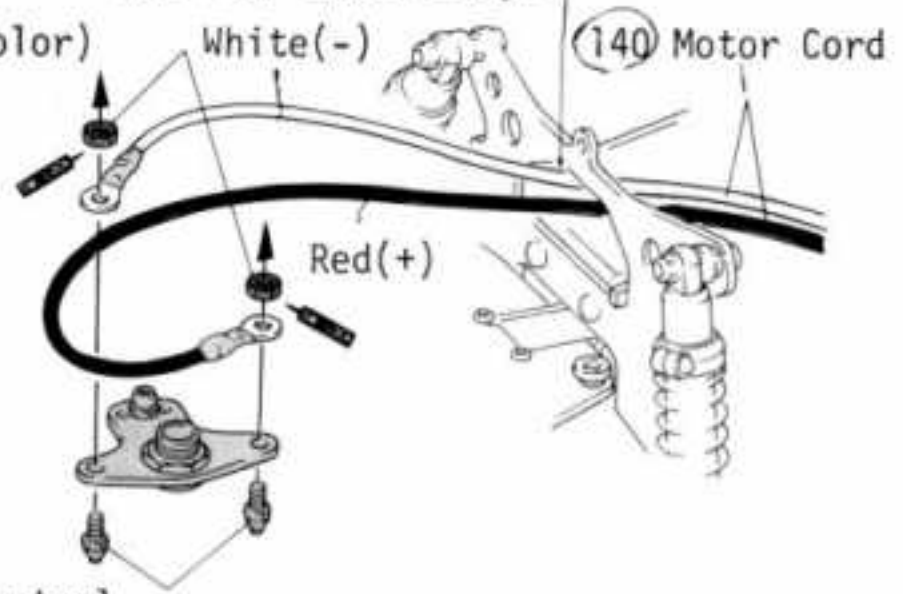


### 33 INSTALLATION OF SPEED CONTROLLER



93 Speed Control Contact Point

Arrange the motor cords through the rear shock stay.



### 34 WIRING OF RECEIVER BATTERY

#### [How To Join The Wires]

Cut-off the wires from the battery box as shown in the right side drawing and Join with regulator.

(1) Join the wires by twisting them.

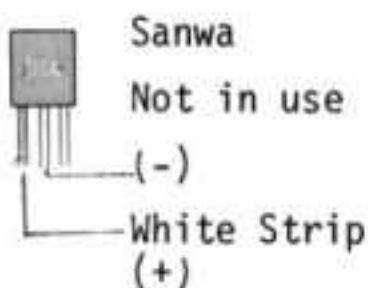
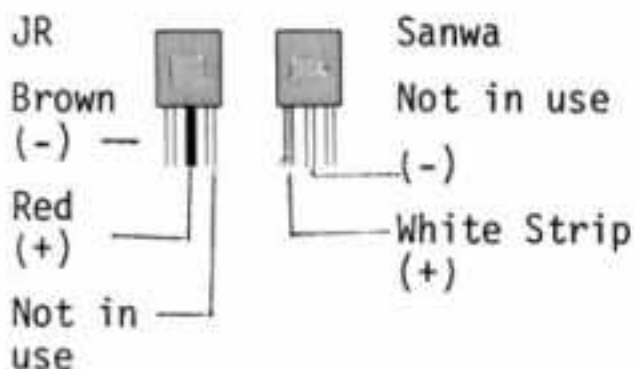
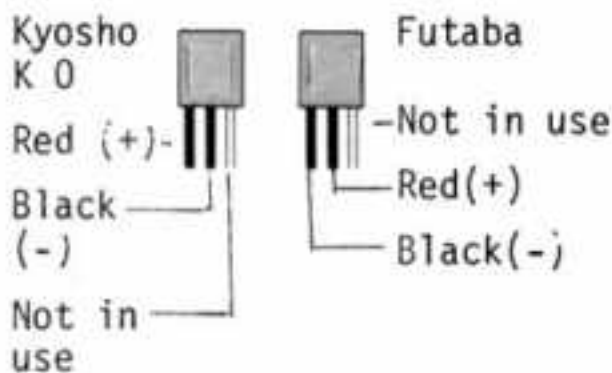


(2) Insulate the plus and minus cords with vinyl tape to avoid short-circuit.



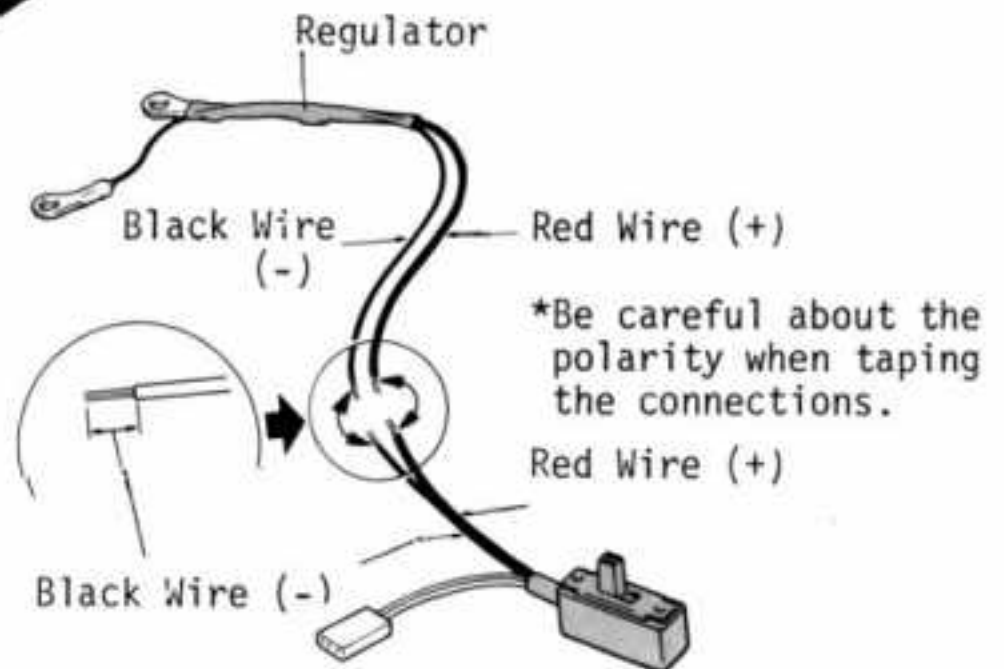
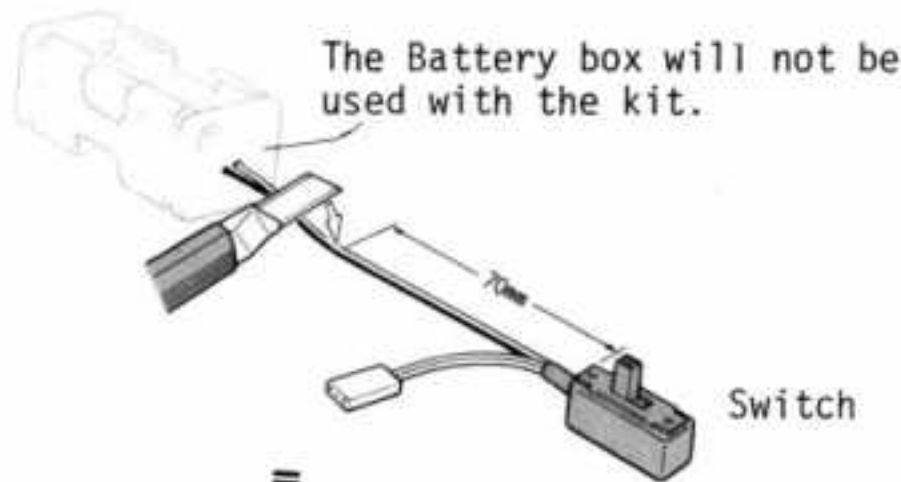
You can make the connection more reliable by soldering it.

NOTE:  
THE COLORS OF THE LEAD WIRES ARE DIFFERENT DEPENDING UPON THE RADIO MAKER.



### 34 WIRING OF RECEIVER BATTERY

NOTE: THE BATTERY PROPELLING THE MODEL (7.2V) ALSO POWERS THE RECEIVER. BE CAREFUL ABOUT THE POLARITY AND THE VOLTAGE 7.2V WILL NOT FLOW INTO THE RECEIVER DIRECTLY.

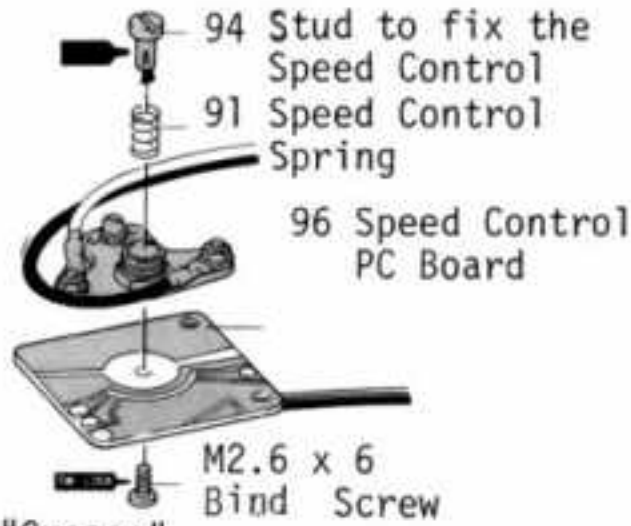


### 35 INSTALLATION OF SPEED CONTROL PC BOARD

[Small Parts Needed]

- M2.6 x 6 Screw (1)
- M3 x 10 Screw (Gold Color) (2)
- M3 Nut (Gold Color) (3)
- 91 Speed Control Spring (1)
- 94 Stud to fix the Speed Control (1)
- 98 Driver Post (1)

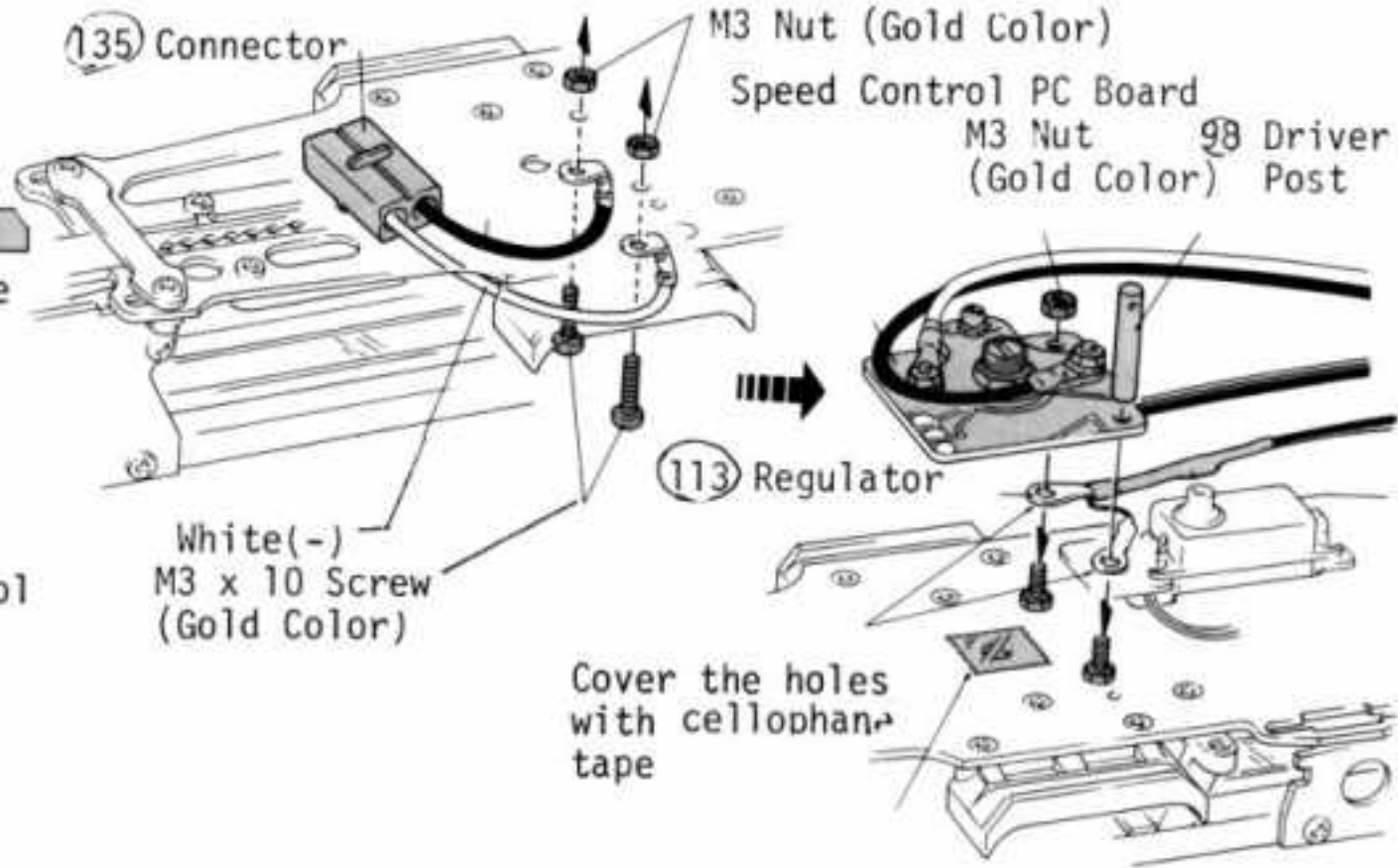
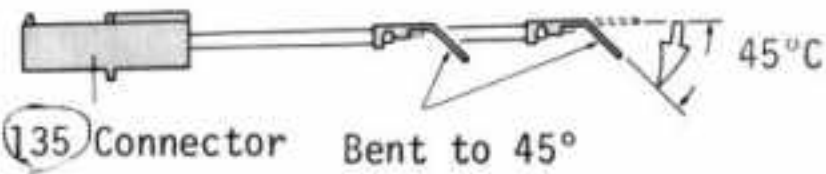
[Install the PC Board on the Speed Control]



"Grease"

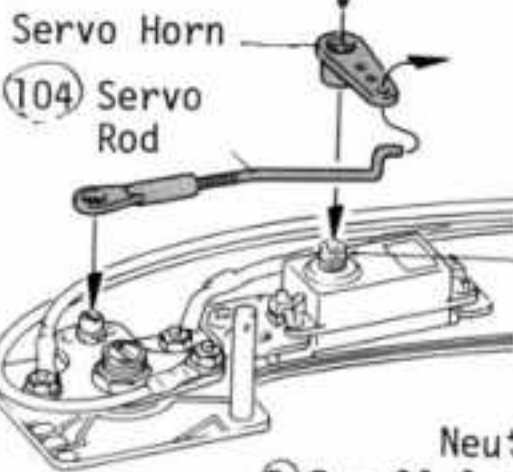
\* Screw in the M2.6 x 6 bind screw with the PC Board. Apply a little amount of instant glue.

### 35 INSTALLATION OF SPEED CONTROL PC BOARD



### 36 SPEED CONTROL LINKAGE

Use a screw included in your radio



Keep the servo in the neutral position.

Arrange the cords running outside of the servo.

### 36 SPEED CONTROL LINKAGE

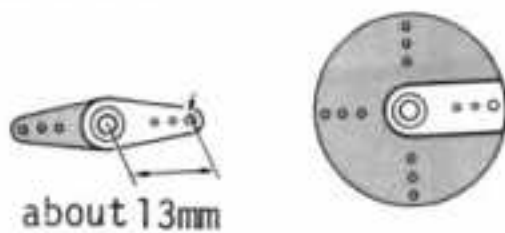
[Small Parts Needed]

- 37 Ball End (S)
- 104 Servo Rod (1)

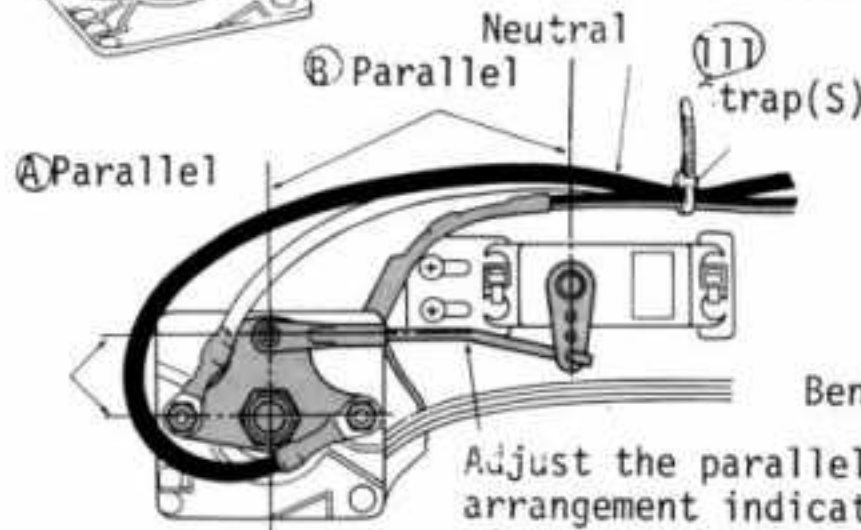
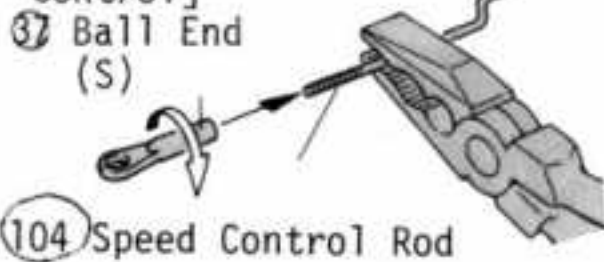
[Cut of Servo Horn]

Cut-off the shaded portion of servo horns included in radio control system.

Enlarge the hole slightly with a awl.



[Installation of Speed Control]



Neutral



It become shorter. getting longer

Adjust the parallel arrangement indicated with B by turning the link adjuster Back

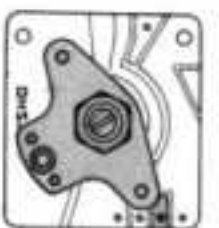
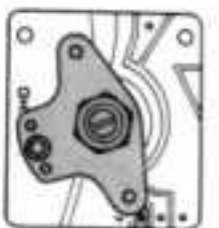
Brake

Neutral

Low Speed

Medium Speed

High Speed



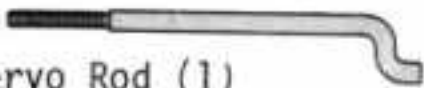
### 37 STEERING CONTROL LINKAGE

[Small Parts Needed]

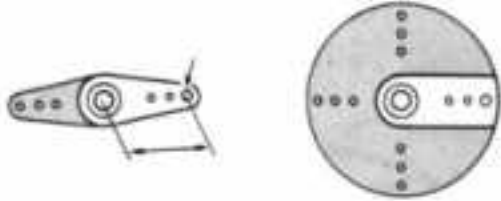
37 Ball End (S)(1)



104 Servo Rod (1)

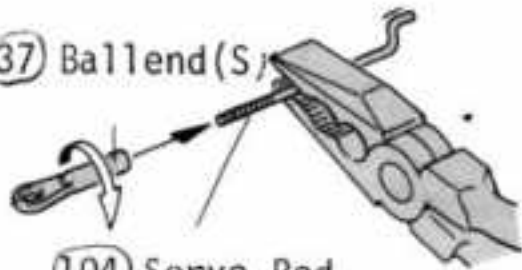


Cut-off the shaded portion of servo horns included in radio control system.



[Assembly of Steering Rod]

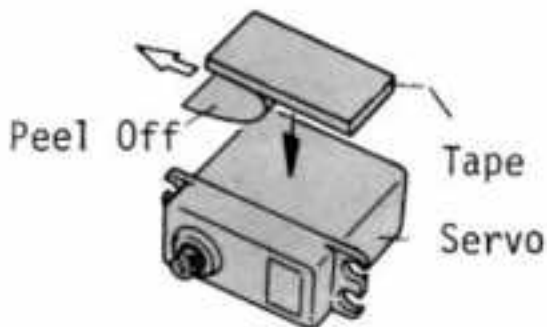
37 Ballend(S)



104 Servo Rod

[Affixing Double Sided Tape]

Cut out the double sided tape to the size of servo and affix to the servo



### 38 INSTALLATION OF RECEIVER, RESISTOR AND ANTENNA

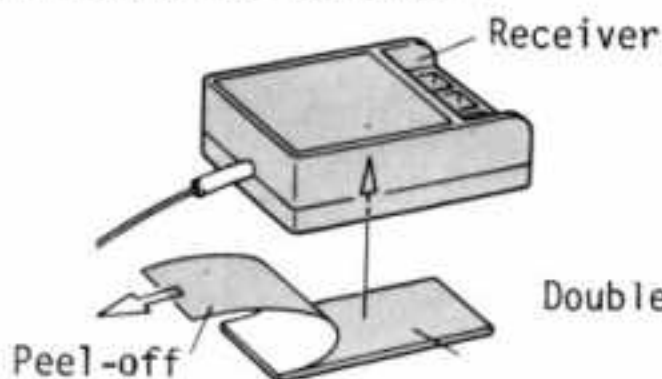
[Small Parts Needed]

M2.6 Washer (Black) (2)

120 Resistor Protector



[Affixing Double Tape]  
Cut out the double tape to the size of receiver and affix to the receiver.

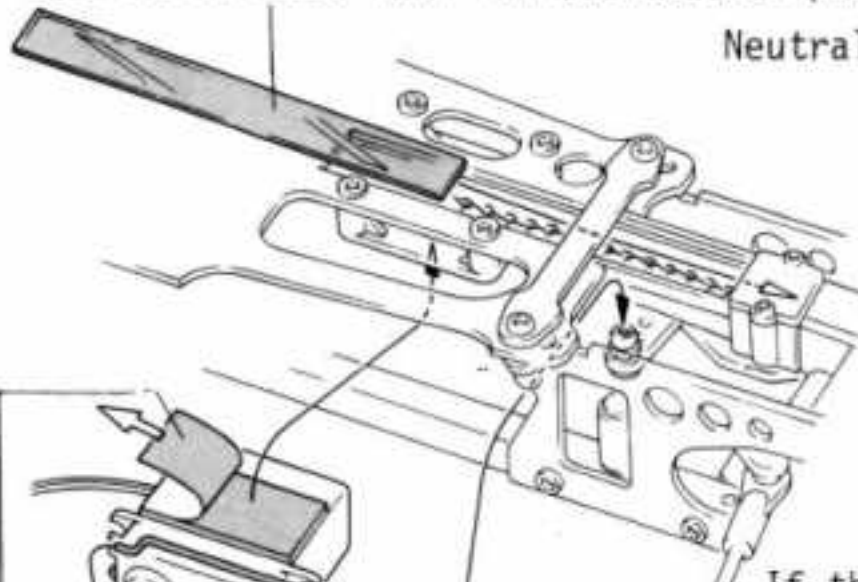


### 37 STEERING CONTROL LINKAGE

Note: For steering use a reverse servo. If reverse servos not included in radio system, using a small screw driver turn the steering control stick on the transmitter upside down 180°

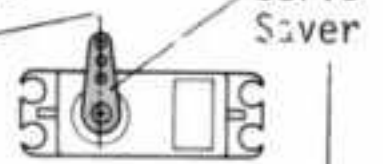
When fixing the steering control rod, keep the servo horn and the servo saver in the neutral position.

102 Chain Cover (2)

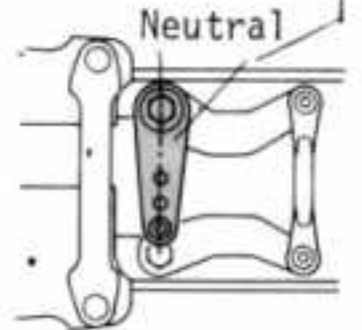


Neutral

Servo Saver



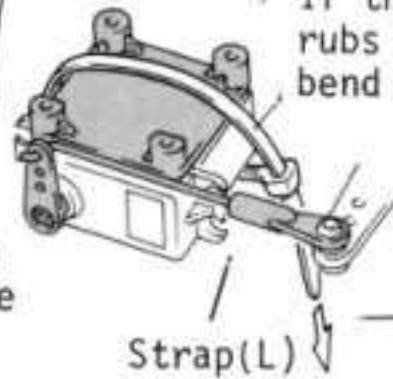
Neutral



If the steering control rod rubs against the radio plate, bend the rod as shown.

Servo Rod  
Servo Horn  
screw in radio

1. Double Sided tape after removing the protective sheet.



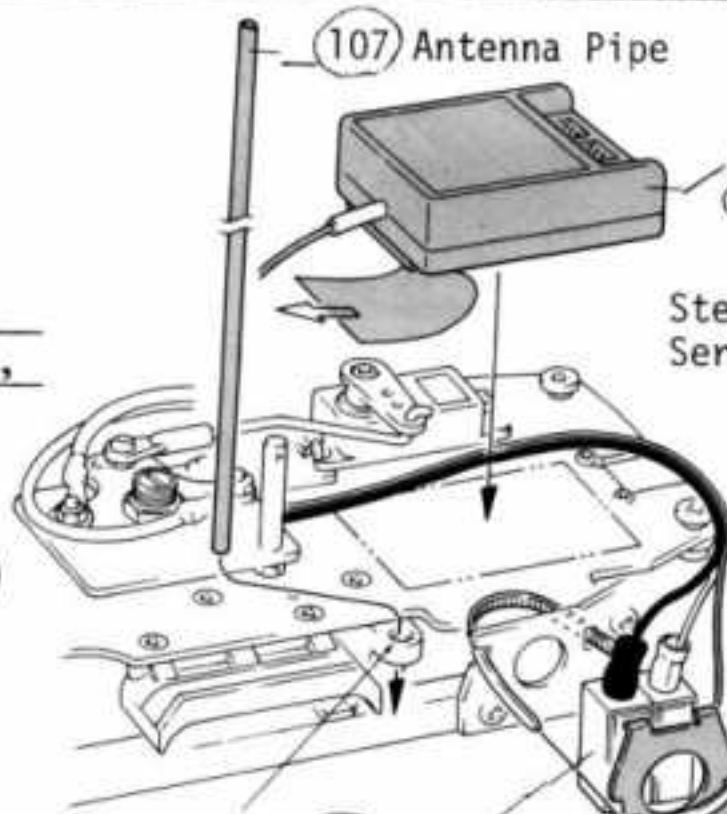
Strap(L)

2. After installation, fasten it with a nylon strap (M).



### 38 INSTALLATION OF RECEIVER, RESISTOR AND ANTENNA

[Bottom View]



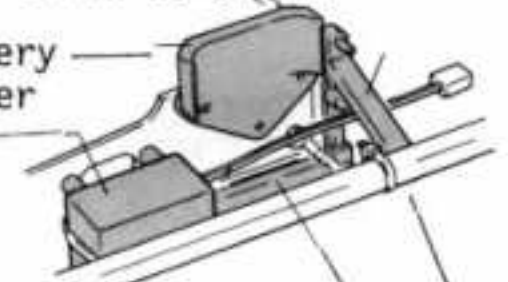
107 Antenna Pipe

Receiver

128 Battery Holder

Steering Servo

Wiring the connector cord of the steering servo as shown.

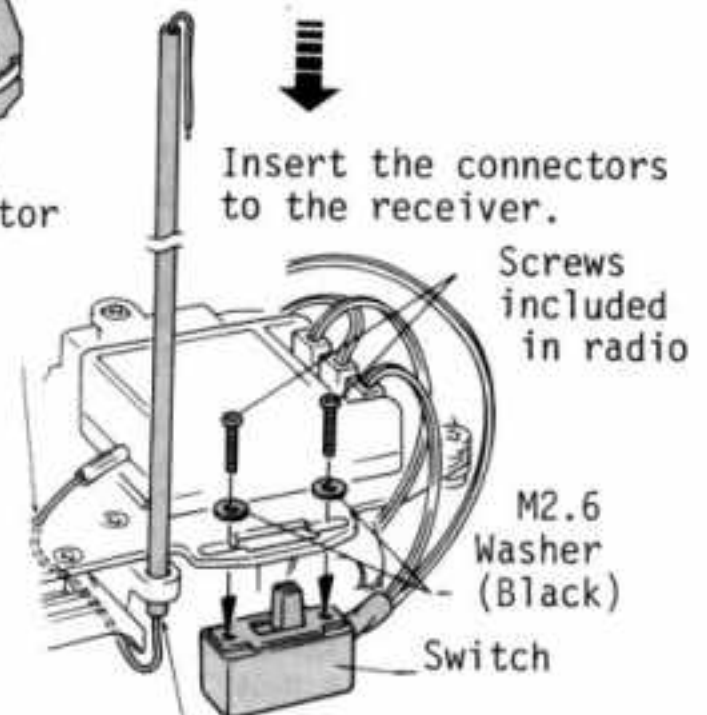


106 Chain Guide(A)

116 Radio Plate Support

100 Resistor  
138 Strap (M)  
120 Resistor Protector

Insert the connectors to the receiver.



Screws included in radio

M2.6 Washer (Black)

Switch

Through the antenna tube

**39 INSTALLATION OF FRONT BUMPER**

- [Small Parts Needed]  
 M3 x 12 Self Tapping Screw (2)  
 M4 x 8 Screw (1)  
 M4 Flange Nut (1)



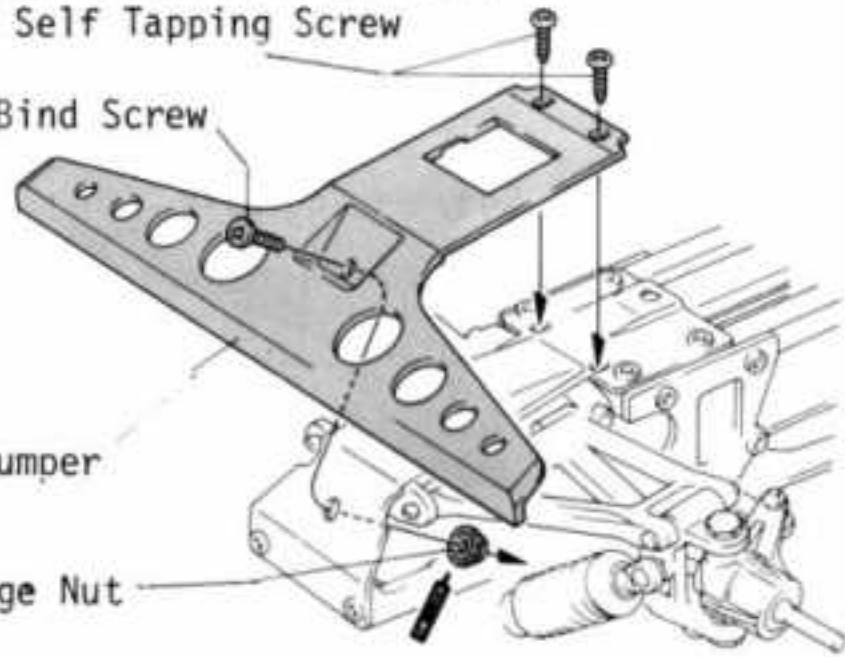
**39 INSTALLATION OF FRONT BUMPER**

M3 x 12 Self Tapping Screw

M4 x 8 Bind Screw

(109) Front Bumper

M4 Flange Nut



**40 INSTALLATION OF TIRE**

- [Small Parts Needed]  
 M4 Nylon Nut (4)



(110) Drive Washer (4)

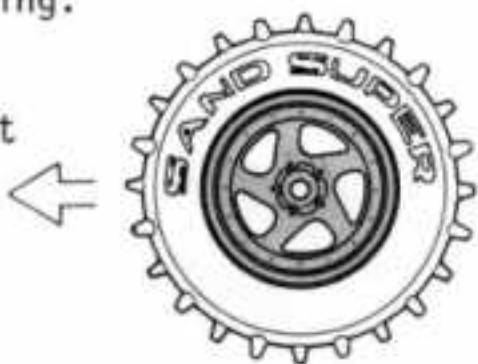


(131) 5φ Shim



Fix the wheel in the direction as shown in the drawing.

Front



**40 INSTALLATION OF TIRE**

Large size hole faced to outside

Align the points of the hexagon.

Fix the other side in the same way.

Align the points of the hexagon.

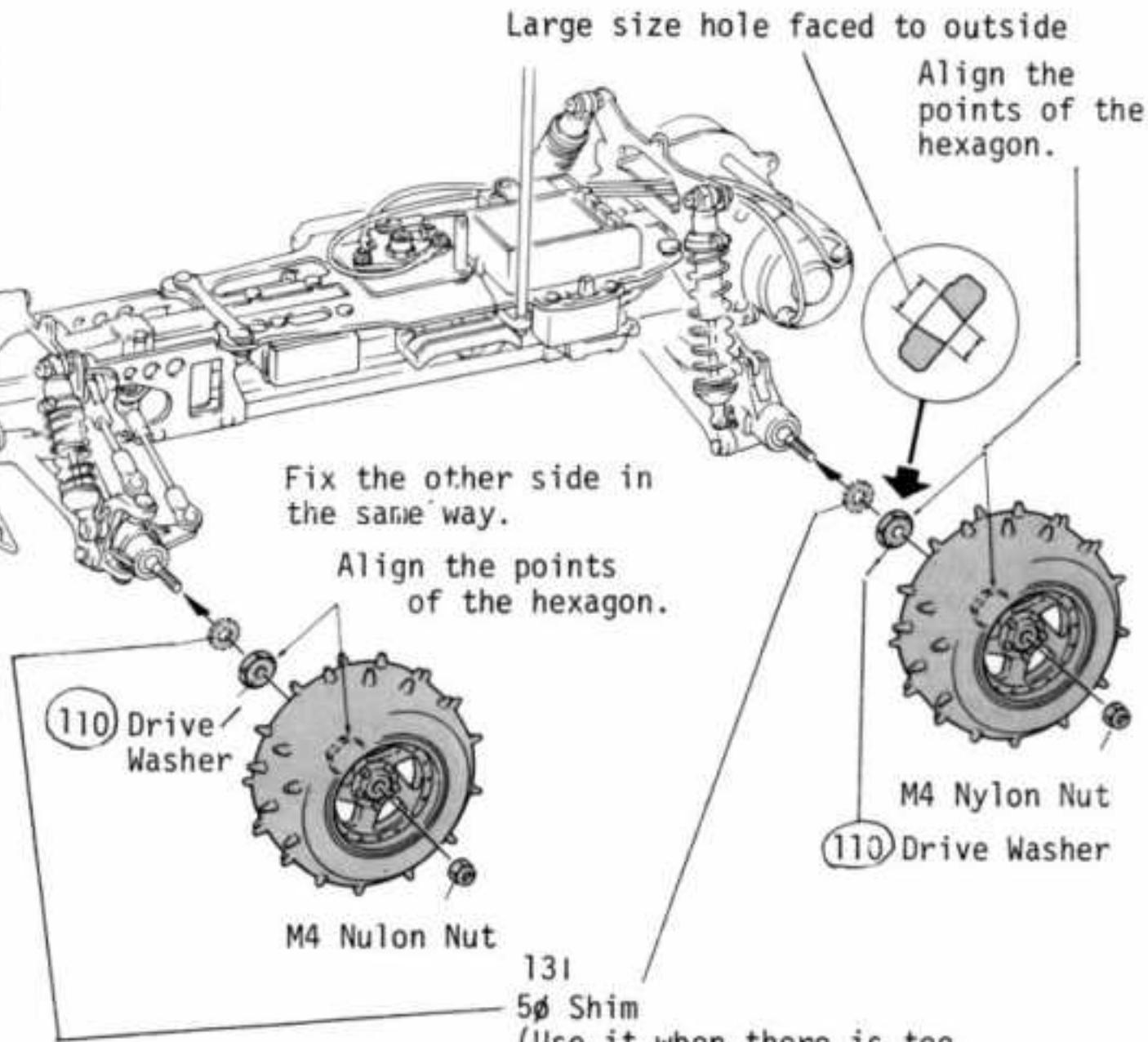
(110) Drive Washer

M4 Nylon Nut

M4 Nylon Nut

(110) Drive Washer

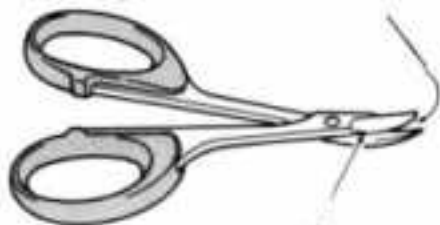
131 5φ Shim  
 (Use it when there is too wide a gap.)



#### 41 CUTTING OUR BODY AND DRIVER

A pair of scissors which is made to cut polycarbonate material "Round Cutter" is available at Kyosho.

Use the tip of the blade for cutting curved lines.



For straight lines, use the root of the blades.

#### 42 PAINTING OF BODY AND DRIVER

The body of the model is injected polycarbonate, a transparent resin. It can be finished better if being painted inside. For a better result, wash the body with neutral detergent and dry it well with care not to let any oil on the surface.

When applying only one color, put two or three coats on all over the surface. When you make any coloring scheme, mask it with the "Micron Tape" or any other tape according to your design. And paint from a darker color and, in the end, put the lightest on the whole area.


The Kyosho Micron Tape can be used as a masking tape and a designing tape. The tape is colored in six different ones, and in three various width.

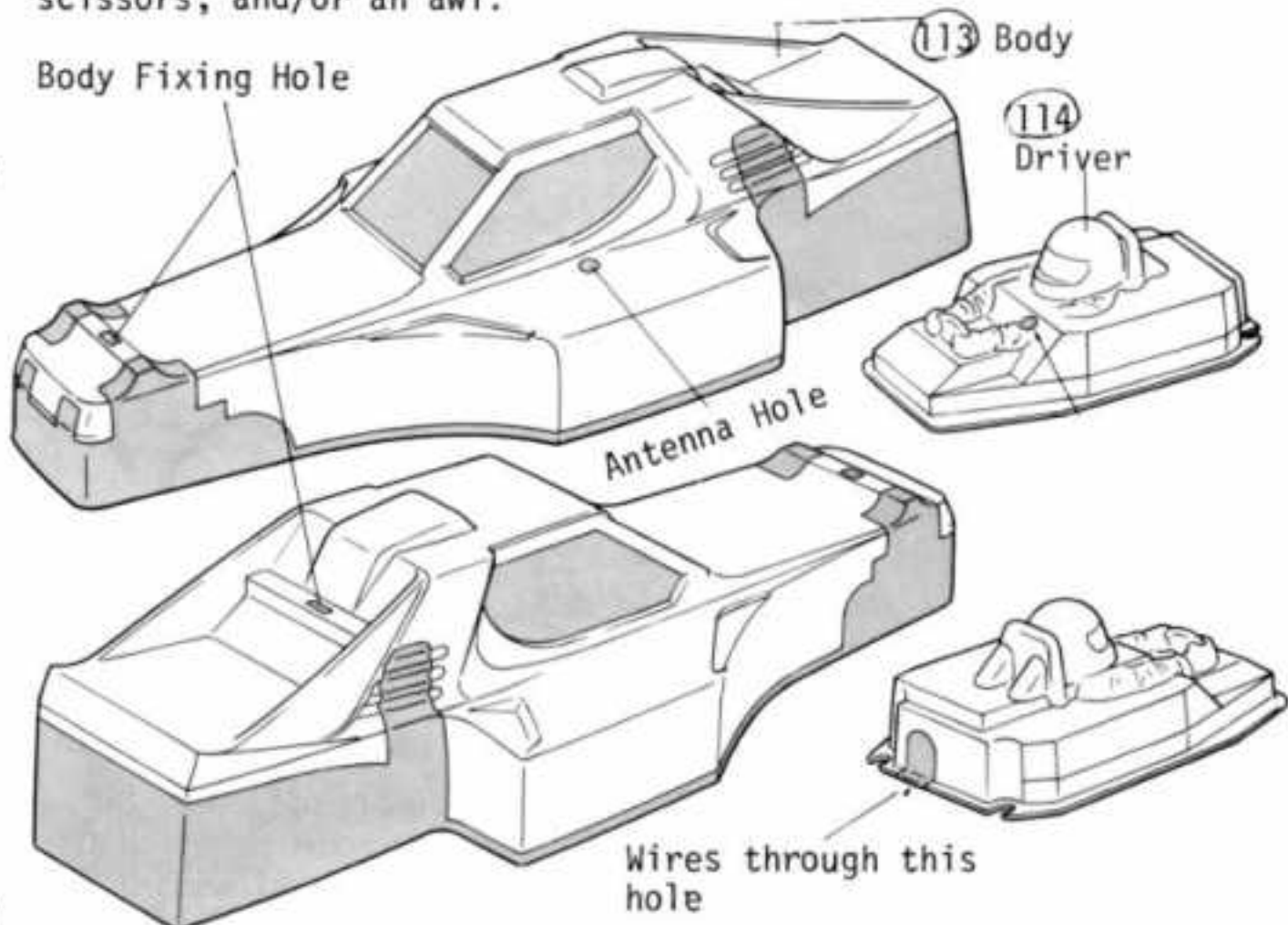


The Kyosho Polyca Colors are acryl paints for painting polycarbonate exclusively. There are 12 different colors.

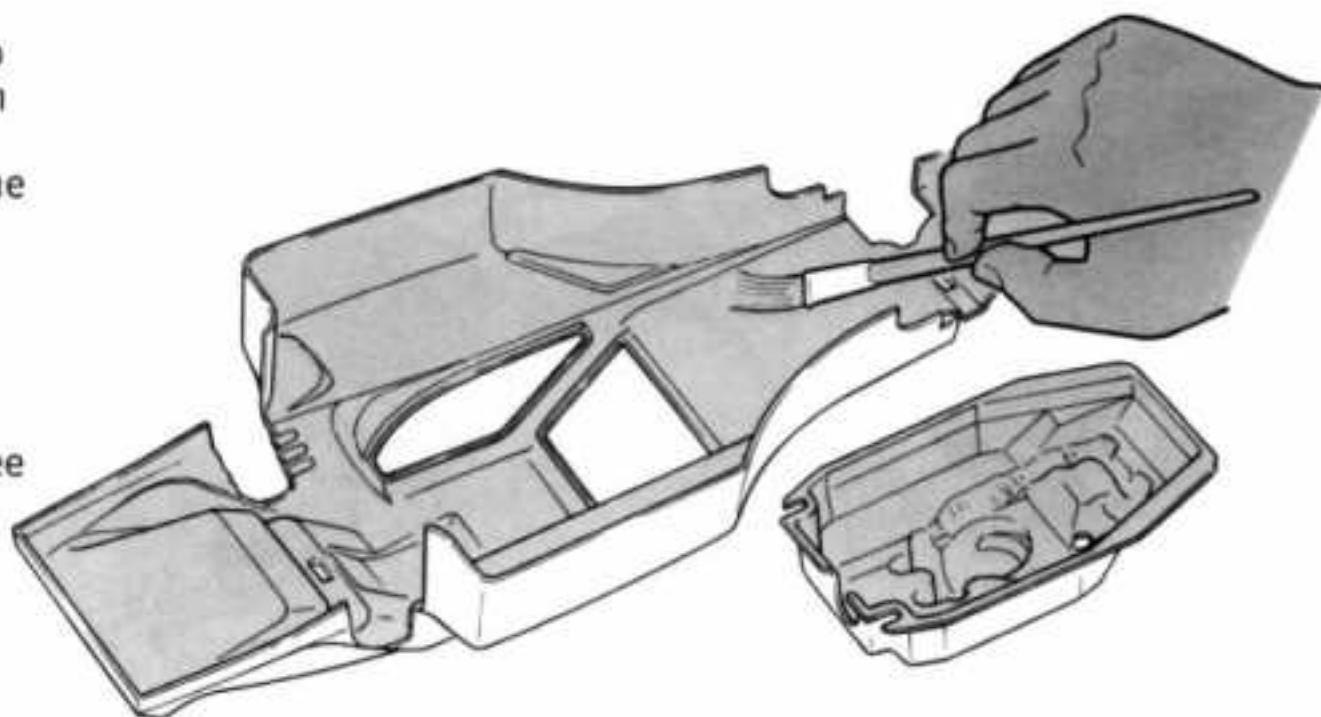


#### 41 CUTTING OUR BODY AND DRIVER

Perforate the places indicated with  with a knife or scissors, and/or an awl.




#### 42 PAINTING OF BODY AND DRIVER



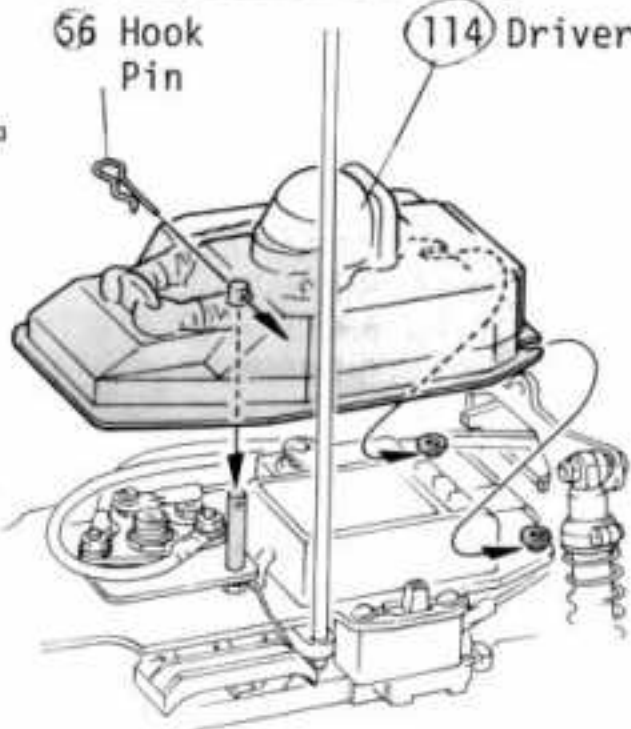
### 43 MOUNTING OF DRIVER

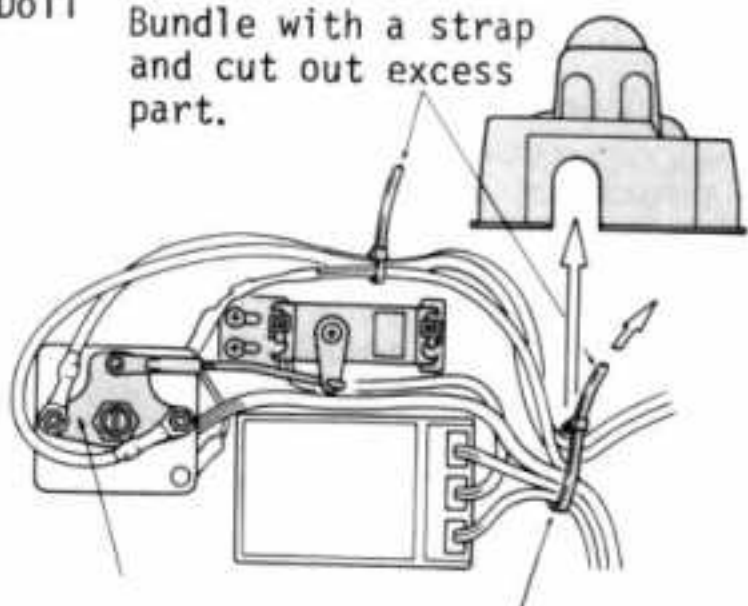
[Small Parts Needed]

66 Hook Pin (1) 

### 43 MOUNTING OF DRIVER

66 Hook Pin (1)  (114) Driver Doll





Bundle with a strap and cut out excess part. 

Bundle all the cords and lead them outside through the cut behind the driver doll.

### 44 MOUNTING OF BODY

[Small Parts Needed]

66 Hook Pin (2) 

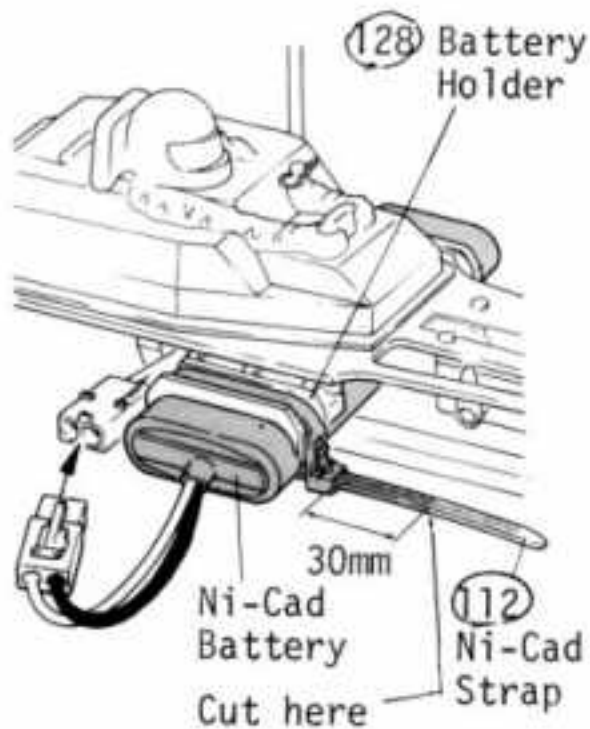
(132) Body Washer (2)   
Transparent plastic

[Mounting of Ni-Cad Battery]

Hold Ni-cad battery firmly with a Ni-cad battery hold strap.

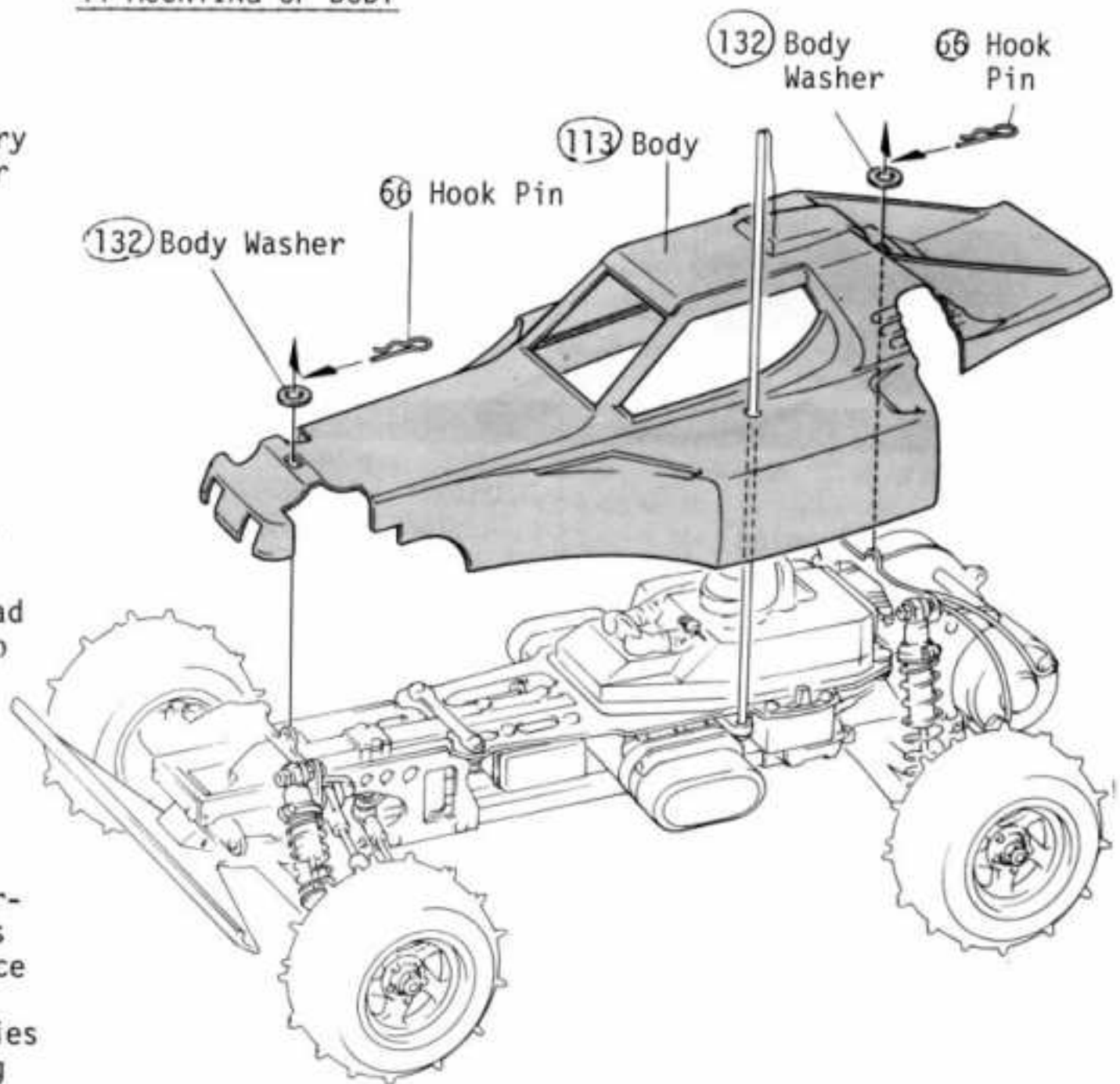
\*Give some slack to the cords since the speed controller will swing right and left.

### 44 MOUNTING OF BODY



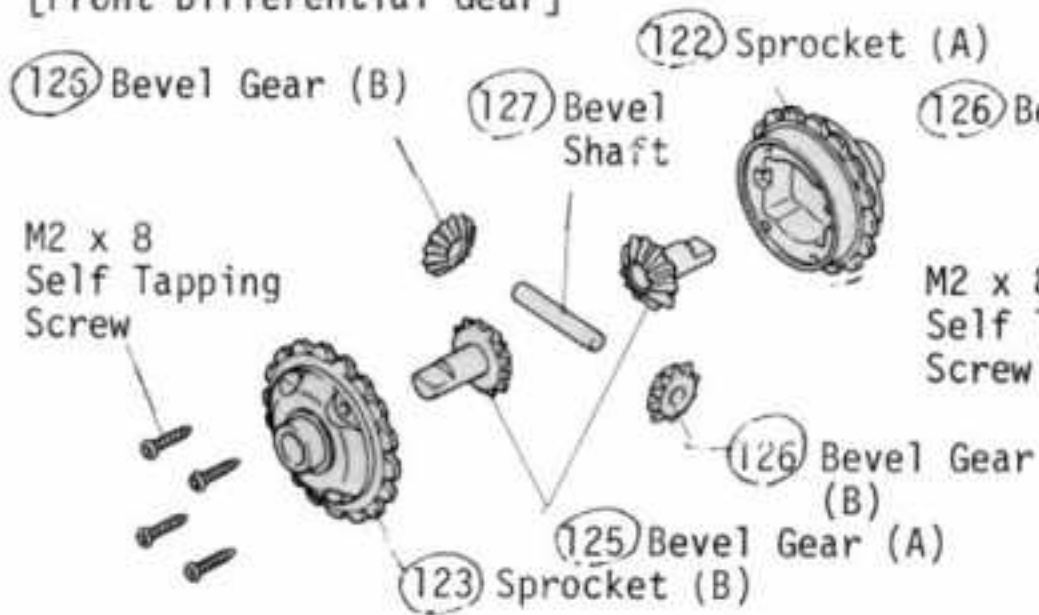
You must use a high performance battery, since it is critical to the performance of the car.

Kyosho supplies a high-yield Ni-Cad Racing Battery which is designed for racing.

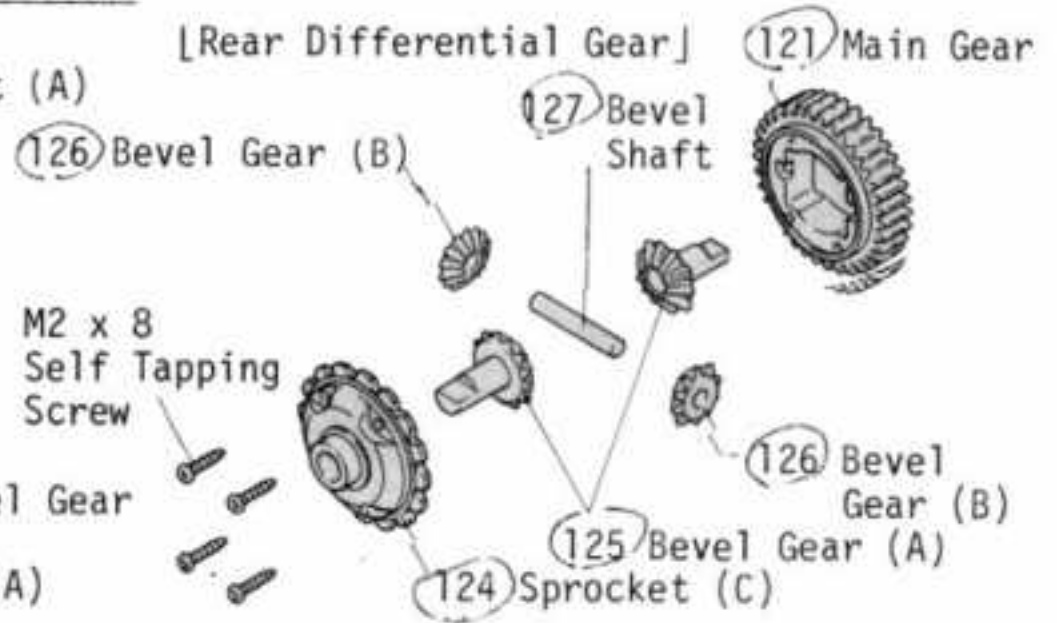


## EXPLODED VIEW OF FRONT & REAR DIFFERENTIAL GEAR

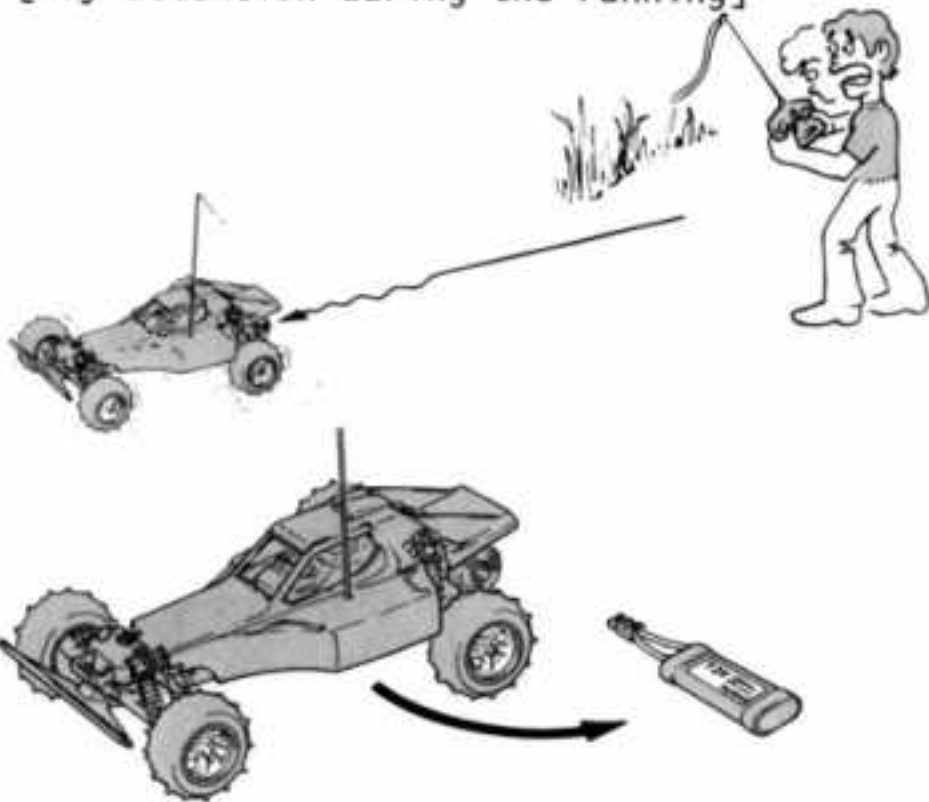
### [Front Differential Gear]



### [Rear Differential Gear]



### [Pay attention during the running]



The battery propelling this model (7.2V) also powers the receiver.

If the speed is getting low, stop running at once.

### [Pay attention after running]

After running this car, remove the Ni-cad battery from the car and hold them separately.

### [Check Before Running]

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 (front tire), speed control in proportion to your control of the transmitter.
4. Check to see that all wiring is properly insulated with vinyl tape.
5. Check to see if parts are moving smoothly.

### [Operating Steps]

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

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

### [Trouble Shooting when 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.

## PARTS LIST

No.	Parts Name	Q'ty	No.	Parts Name	Q'ty	No.	Parts Name	Q'ty
①	Tire	4	58	Suspension Shaft (C)	2	①14	Driver	1
②	Wheel (1)	4	59	Rear Suspension Arm	2	①15	Strap (Large)	1
③	" (2)	4	60	Suspension Shaft (D)	2	①16	Radio Plate Support	1
④	" (3)	4	61	Rear Suspension Strut	1	①17	Radio Post Screw	2
⑤	8ø x 14 Bearing	4	62	Radio Plate	1	①18	M2.6 Pivot Ball	4
⑥	Joint	4	63	Center Gear Bushing	1	①19	5ø x 10 Bushing	2
⑦	Hexagonal Wrench(2mm)	1	64	Center Gear	1	①20	Resistor Protector	1
⑧	Plastic Bushing	3	65	O Ring	1	①21	Main Gear	1
⑨	Gear Box (L)	1	66	Hook Pin	4	①22	Sprocket (A)	1
⑩	Final Pinion	1	67	Pinion Gear (12T)	1	①23	" (B)	1
⑪	Gear Box (R)	1	68	" (15T)	1	①24	" (C)	1
⑫	Center Gear Shaft	1	69	Motor Cover	1	①25	Bevel Gear (A)	4
⑬	Rear Plate (R)	1	70	RS-540S Motor	1	①26	" (B)	4
⑭	" (L)	1	71	Shock Seal	4	①27	Bevel Shaft	2
⑮	Counter Gear	1	72	Shock Oil	1	①28	Battery Holder	2
⑯	M3 Pivot Ball	8	73	Front Shock Case	2	①29	Bulk Head (L)	1
⑰	Rear Shock Stay	1	74	Rear Shock Case	2	①30	" (R)	1
⑱	Gear Box Hatch	1	75	Front Shock Piston	2	①31	5ø Shim	4
⑲	Front Suspension Plate	1	76	Rear Shock Piston	2	①32	Body Washer	2
⑳	Under Guard	1	77	Front Spring	2	①33	Decal	1
㉑	Front Support	1	78	Rear Spring	2	①34	Regulator	1
㉒	Main Chassis	2	79	Spring Stopper	4	①35	Connector	1
㉓	Front Side Plate	2	80	Shock Washer	4	①36	Grease	1
㉔	Front Upper Pivot (L)	1	81	Shock O Ring	4	①37	Damper Wrench	1
㉕	" (R)	1	82	Shock Stopper	4	①38	Strap (Medium)	1
㉖	Rear Radio Post	2	83	Spring Receptacle	4	①39	Rear Hub (L)	1
㉗	Front Radio Post	2	84	Shock End	4	①40	Motor Cord	1
㉘	Chain Guide (B)	1	85	Joint Collar	2			
㉙	" (C)	1	86	Gear Cover	1			
㉚	Chain	1	87	Gear Cover Seal	1			
㉛	Ball Nut	4	88	Servo Spacer (A)	1			
㉜	Saver Shaft (A)	1	89	" (B)	1			
㉝	" (B)	1	90	Servo Mount	1			
㉞	Servo Saver (A)	1	91	Speed Control Spring	1			
㉟	" (B)	1	92	Speed Control Nut	1			
㊱	M2 Shaft	1	93	Speed Control Contact	2			
㊲	Ball End (Small)	4		Point				
㊳	King Pin	4	94	Speed Control Holder	1			
㊴	Knuckle Arm (L)	1		Metal				
㊵	" (R)	1	95	Speed Control Pivot	1			
㊶	Front Shaft	2	96	Speed Control PC Plate	1			
㊷	Front Hub (L)	1	97	Speed Control Horn	1			
㊸	" (R)	1	98	Driver Post	1			
㊹	E Ring (E-2.5)	4	99	Chain Cover (A)	1			
㊺	Suspension Shaft (A)	2	①00	Chain Guide (A)	1			
㊻	" (B)	2	①01	" (D)	1			
㊼	Hexagonal Wrench (1.5mm)	1	①02	Chain Cover (B)	1			
㊽	Front Suspension Arm	2	①03	Front Strap Plate	1			
㊾	5.8ø Ball	4	①04	Servo Rod	2			
㊿	Ball End (Large)	12	①05	Servo Plate	1			
1	Upper Rod	4	①06	Double Sided Tape	1			
2	Front Stock Stay	1	①07	Antenna Pipe	1			
3	Swing Shaft	4	①08	Resistor	2			
4	Shock Bushing	4	①09	Front Bumper	1			
5	Tie Rod	2	①10	Drive Washer	4			
6	Rear Shaft	2	①11	Strap (Small)	6			
7	Rear Hub (R)	1	①12	Ni-Cad Strap	2			
			①13	Body	1			

SPARE PARTS LIST

<u>Parts No.</u>	<u>Description</u>	<u>Contents.</u>
OT- 1	Gear Box	9 11 129 130 x 1
2	Chain	30 x 1
3	Wheel Set	2 3 4 x 4
4	King Pin	88 x 4
5	Joint	6 x 2
6	Swing Shaft	53 x 2
7	Rear Plate Set	12 13 14 x 1
8	Front Side Plate	23 x 1 85 x 2
9	Shock Towers	17 52 x 1
10	Bushing Set	63 x 1 119 x 2 8 x 10
11	Suspension Shaft	45 46 58 60 x 2
12	Radio Plate	62 x 1
13	Suspension Arm Set	48 59 x 2
14	Under Guard	20 x 1
15	Front Bumper	109 x 1
16	Knuckle Arm	39 40 x 1
17	Front Shaft	41 x 2
18	Rear Shaft	56 x 2
19	Drive Washer	110 x 4
20	Main Chassis	22 x 2
21	Screw, Nut Wrench Set	Same as Parts bag OP-1 included in kit.
22	Body Washer	132 x 10
23	Pinion Gear (12T)	67 x 1
24	Pinion Gear (15T)	68 x 1
25	Body (Optima)	113 x 1
26	Driver	98 114 x 1
27	Sprocket . Gear Set	15 64 121 122 123 124 x 1
28	Differential Gear Set	127 x 2 125 126 x 4
29	O Ring	65 x 10
30	Tire	1 x 2
31	M3 Pivot	16 x 10
32	5.8ø Ball	49 x 10
33	Ball Nut (M2.6)	31 x 10
34	Plate Set	19 61 88 89 103 105 120 x 1
35	Upper Rod Set	86 x 1 104 x 2 37 51 x 4 50 x 8
36	2.6ø Pivot Ball	118 x 10
37	Cord Set	134 x 1 140 x 1set
38	Silicon Grease (2 pcs.)	136 x 2
39	E Ring (2.5 )	44 x 10
40	Strap (L-150)	138 x 6
41	Final Pinion	10 x 1
42	Servo Saver Set	32 33 35 x 1 34 x 1 set
43	Rear Shock Set	137 x 1 80 81 82 84 54 49 76 78 74 71 79 83 x 2
44	Decal (Optima)	133 x 1
45	Rear Hub	57 139 x 1
46	Chain Guide Set	28 100 99 102 x 1
47	Front Hub Set	24 25 42 43 x 1
48	Battery Holder Set	18 29 101 x 1 26 27 128 x 2
49	Gear Cover Set	86 116 21 90 87 x 1
SC-40	Motor Cover	69 x 1
46	Double Sided Tape	106 x 1
67	Speed Control Set	97 98 91 92 94 95 x 1 93 x 2
78	Speed Control PC Board	98 x 1
79	Speed Control Contact Point	93 x 2

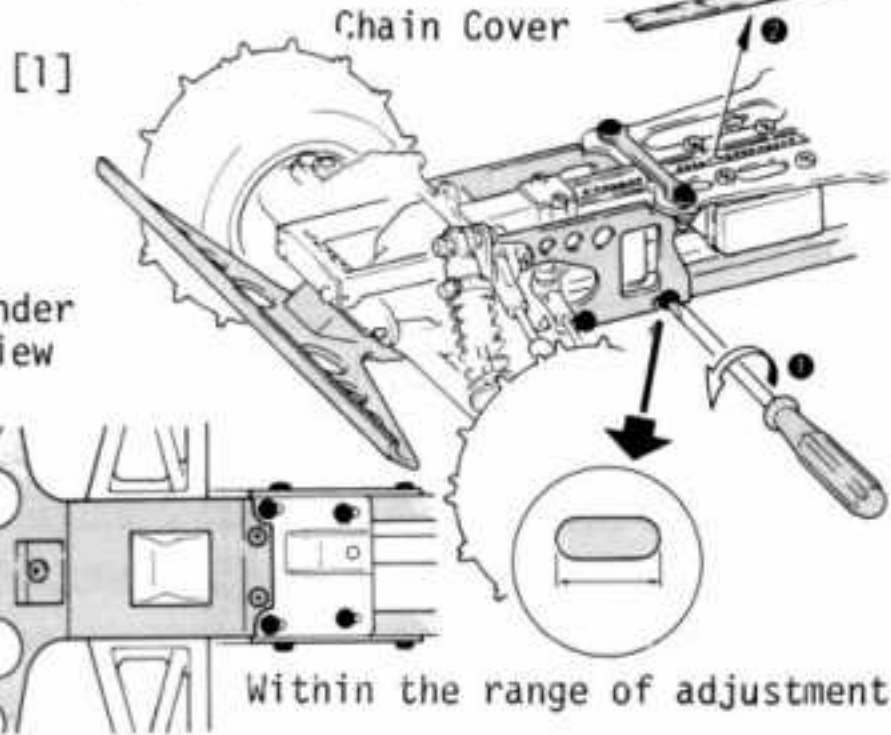
SC-105	Resistor	(108) x 1	
107	Connector	(135) x 1	
89	Tie Rod	55 x 2	50 118 x 4
101	Rear Shaft Shim	(131) x 10	
EF- 37	Strap (Small)	(111) x 6	
38	Strap (Medium)	(115) x 6	
39	Ni-cad Strap	(112) x 6	
22	Hook Pin	66 x 5	
LD- 79	Shock Bushing	64 x 10	
SD-79	Antenna Pipe	(107) x 5	
1911	8ø x 14 Bearing	5 x 2	
AB-30	Front Shock	(137) x 1	80 81 82 84 64 49 75 77 73
		71 79 83 x 2	

\*\*\* Optional Parts \*\*\*

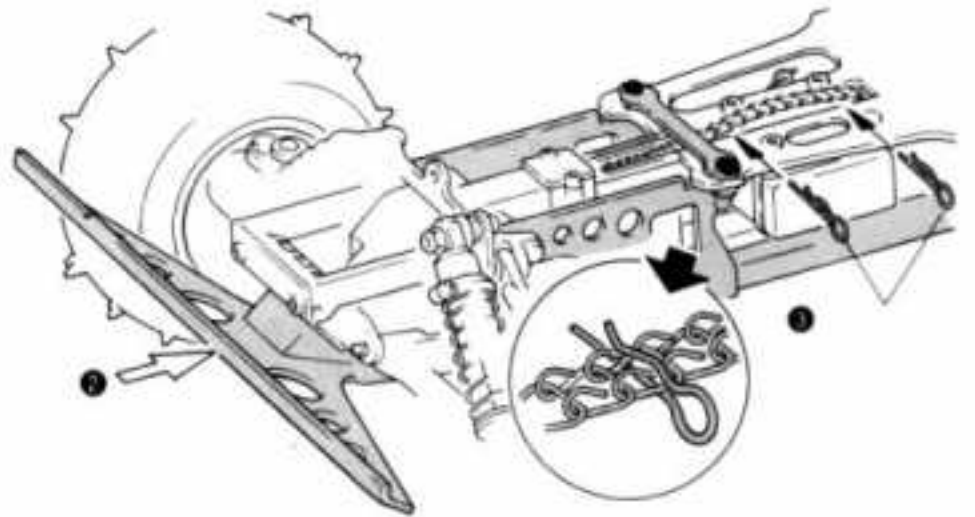
OT- 50	Pinion Gear (13T)	Gear Ratio (9.56 : 1)
51	" (14T)	" (8.87 : 1)
52	" (16T)	" (7.76 : 1)
53	" (17T)	" (7.31 : 1)
54	Stabilizer Set	Front and Rear Stabilizer Set
SC- 80	Four Speed Resistor	4 Forward Speed
1901	4ø x 8ø Bearing	2 pcs.
1903	5ø x 10ø Bearing	2 pcs.
1951	Shock Oil Set (S.M.H.)	Light, Medium, Thick (60cc) x 3

[ADJUSTMENT OF CHAIN]

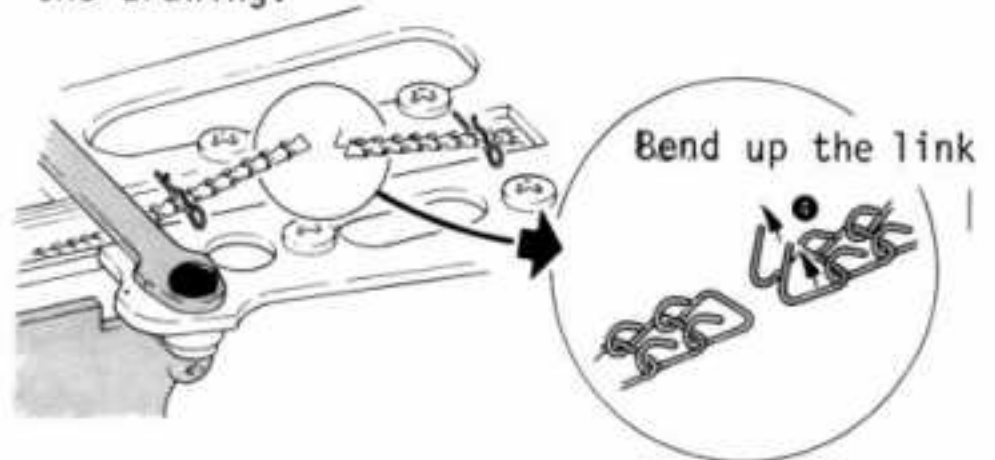
To avoid any damage to the sprocket, adjust the tension of the chain in every 5-6 runs.



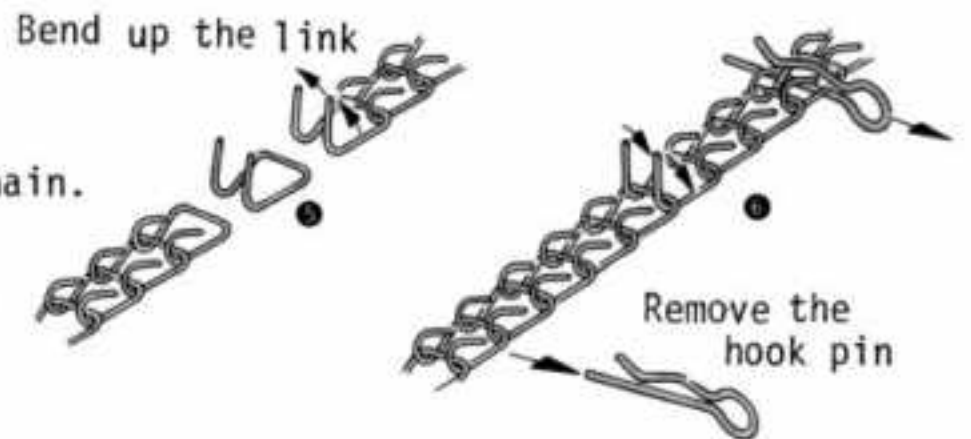
\* When the chain is stretched and without the range of adjustment .....



1. Loosen the 10 screws.
2. Push the front bumper in the direction of the arrow strongly to loosen the chain.
3. Hold the chain with hook pins as shown in the drawing.

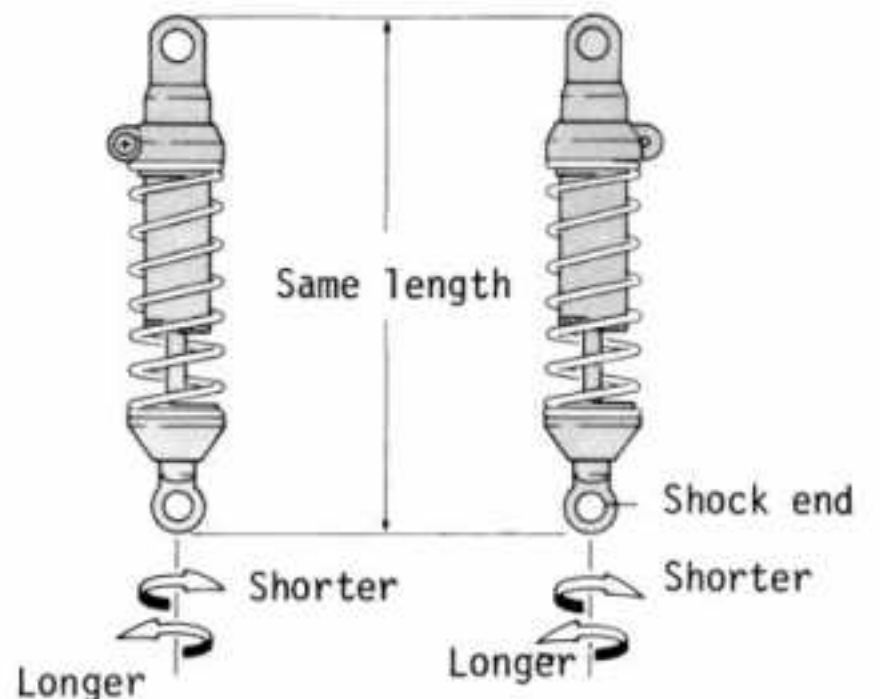


4. Bend up the link and take away one link.

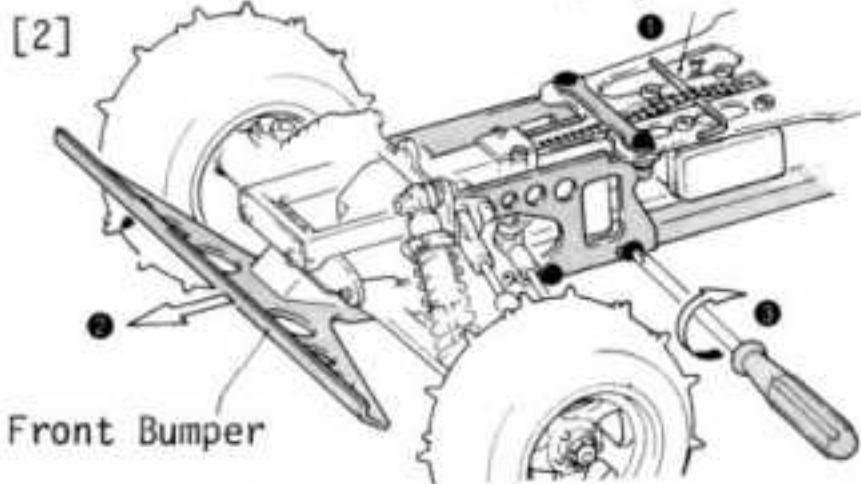


5. Take away one link
6. Connect the chain again.

[ADJUSTMENT OF SHOCK SIZE]



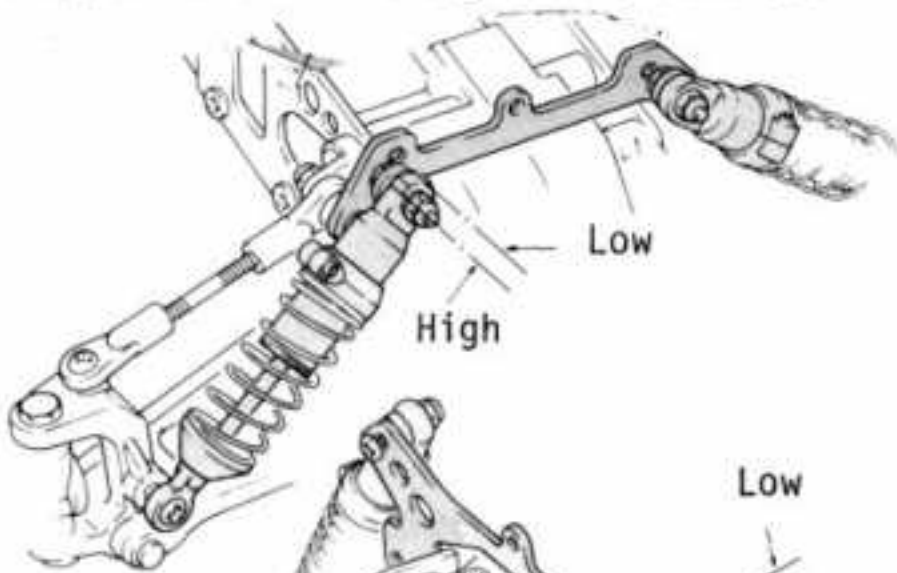
1. Loosen 10 screws for a half turn.
2. Remove the chain cover. Hexagonal Wrench



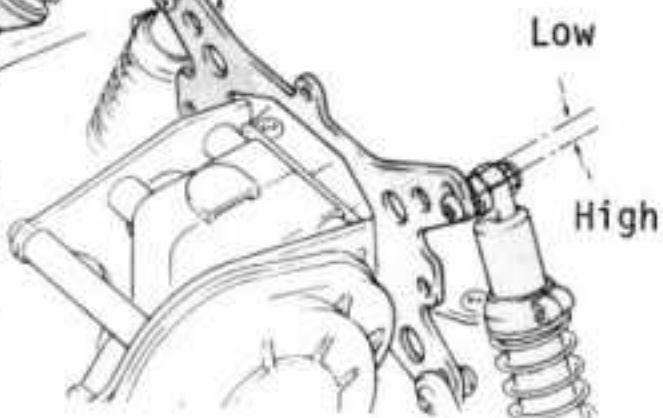
1. Insert a 1.5mm hexagonal wrench under the chain.
2. Pull the bumper forward.
3. Keep pulling the bumper and tighten the 10 screws firmly. This is the best adjustment of the chain.

[ADJUSTMENT OF GROUND CLEARANCE]

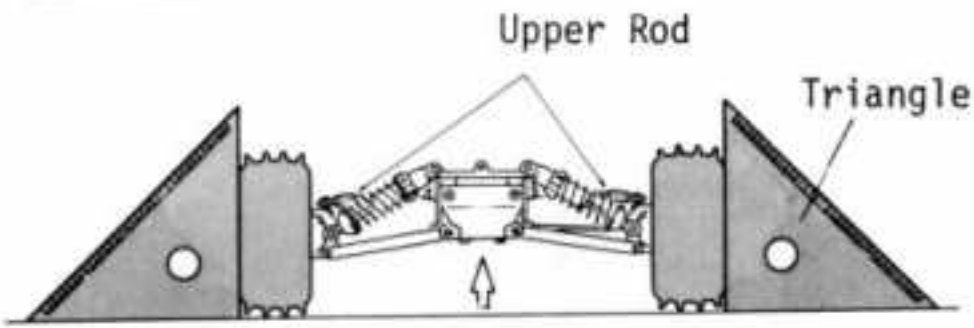
1. Adjustment of front ground clearance.



2. Adjustment of rear ground clearance.

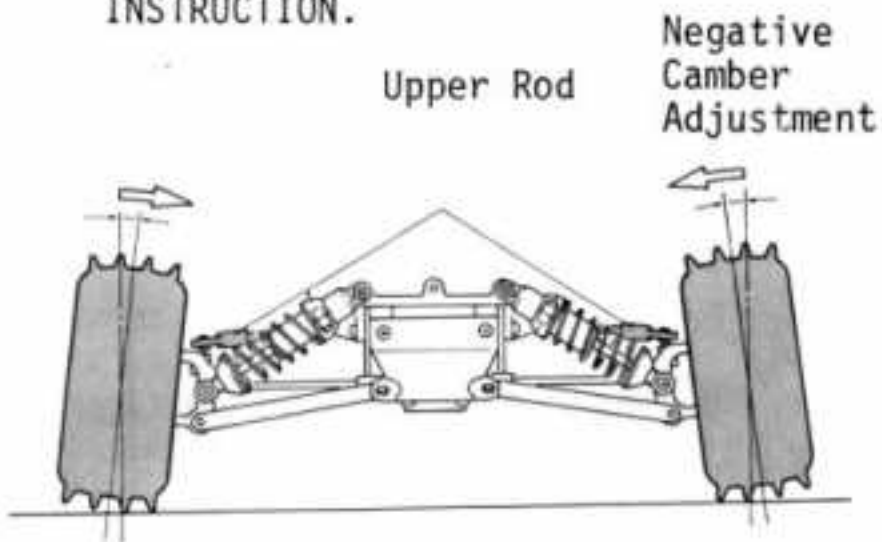


Basic Adjustment (1)

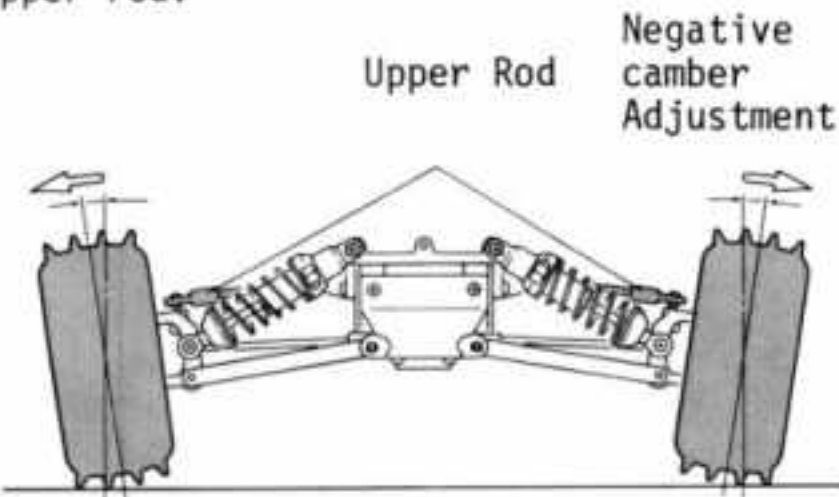


Place the car on a flat surface with the chassis raised as high as possible and adjust the length of the front and rear rods in a way so that the tires stand at a right angle to the ground surface.

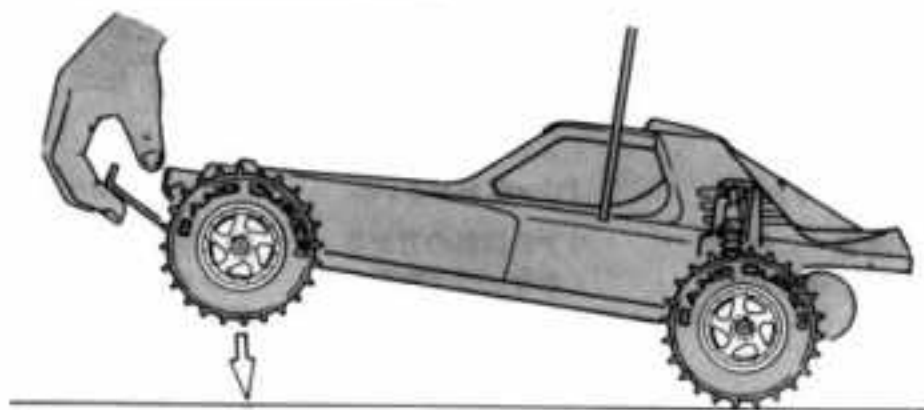
NOTE: EVERY TIME YOU SHIFT THE HEIGHT OF THE CHASSIS, DO THE SAME ADJUSTMENT, REFERRING TO PAGE 28 OF THE ASSEMBLY INSTRUCTION.



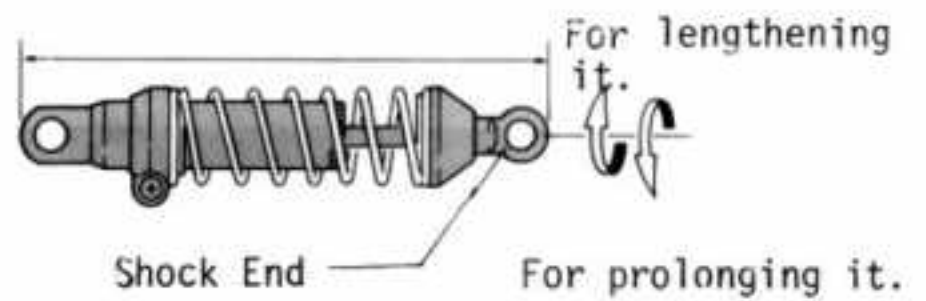
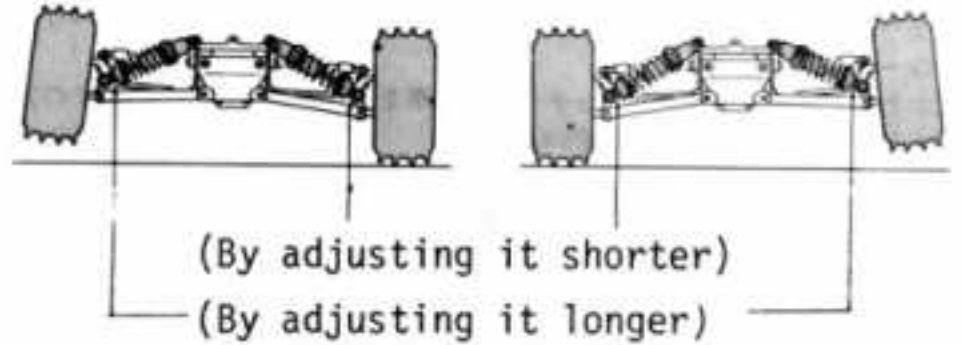
Negative camber is set when shortening the upper rod.



Basic Adjustment (2)

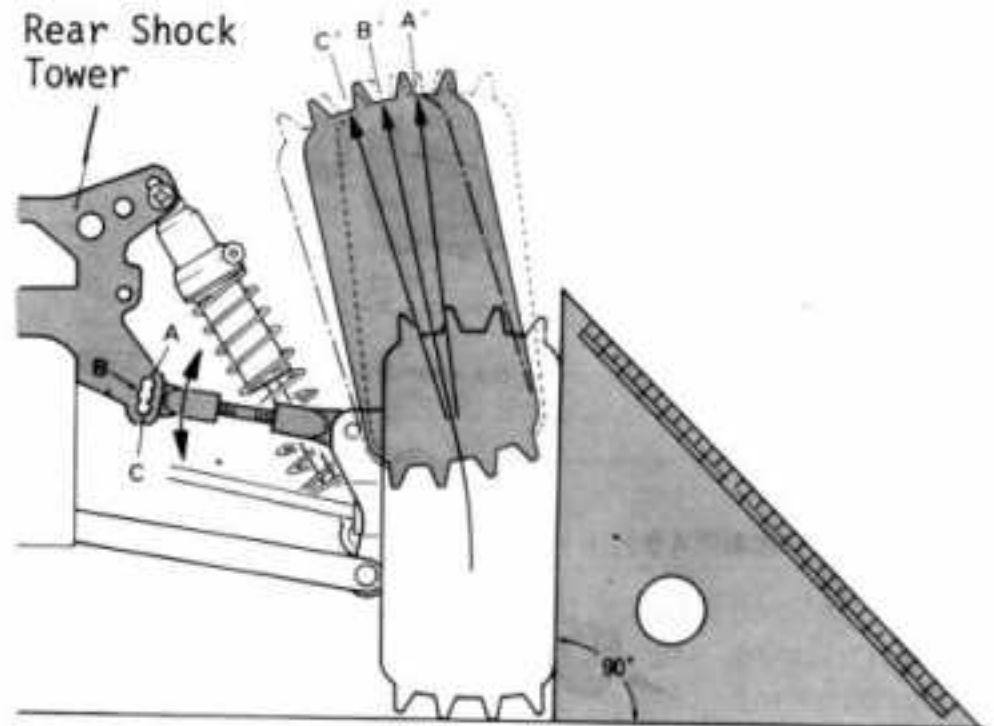


Place the car on a flat area, raise the front end and then lower the front wheels slowly to see whether they will touch the ground evenly. If not, adjust the length of the dampers. With unevenness, steering to the right and left turns will not be the same.



Adjust the length by turning the damper end.

Corelation between the Position of the Rear Upper Rod and Camber Adjustment



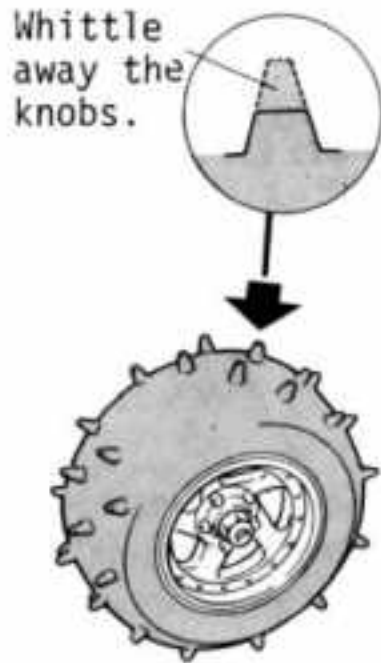
With the position of A for fixing the upper rod, the camber adjustment A' is achieved when the suspension is lowered: with the B position for B camber, and with C for C. In order of A, B, to C, the more intensified camber adjustment is obtained.

### Setting of Tires (1)

You can expect a better performance of the car by retouching knobs on the tire variously according to the road surface condition.

\*When the car is too sensitive in steering, cut the knobs by 1/3 to 1/2. Then you can make the car's steering response milder.

Place to run	Amount of Cutting Down the knobs
Lawn	Cut Half
Concrete	Cut 2/3
Sand	No Cutting
Hard Dirt Track	Cut 1/3
Soft Dirt Tract	No Cutting



### Setting of Tires (2)

When more traction of the tire is needed, you can use the special rear tire SC-84. It is recommended to keep one set of them ready.

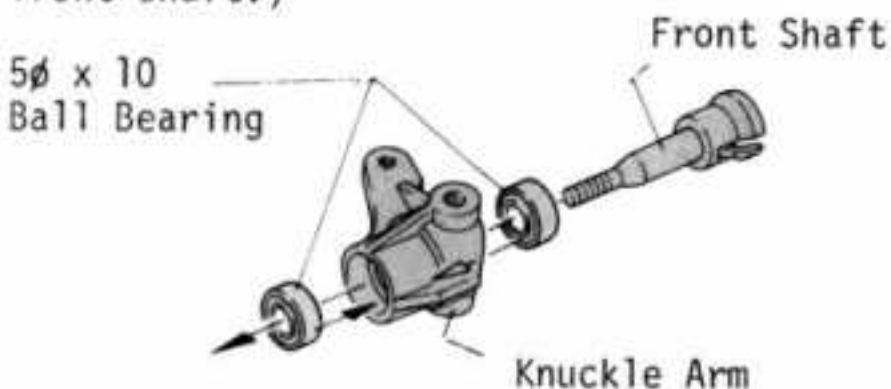
### Gear Ratio and Optional Motor

Pinion Gear	12T	13T	14T	15T	16T	17T
Gear Ratio	10.3	9.5	8.8	8.2	7.7	7.3
Adaptable Motor	Le Mans Motor 240S			RS-540S		
	Le Mans 360					
	Le Mans 480					

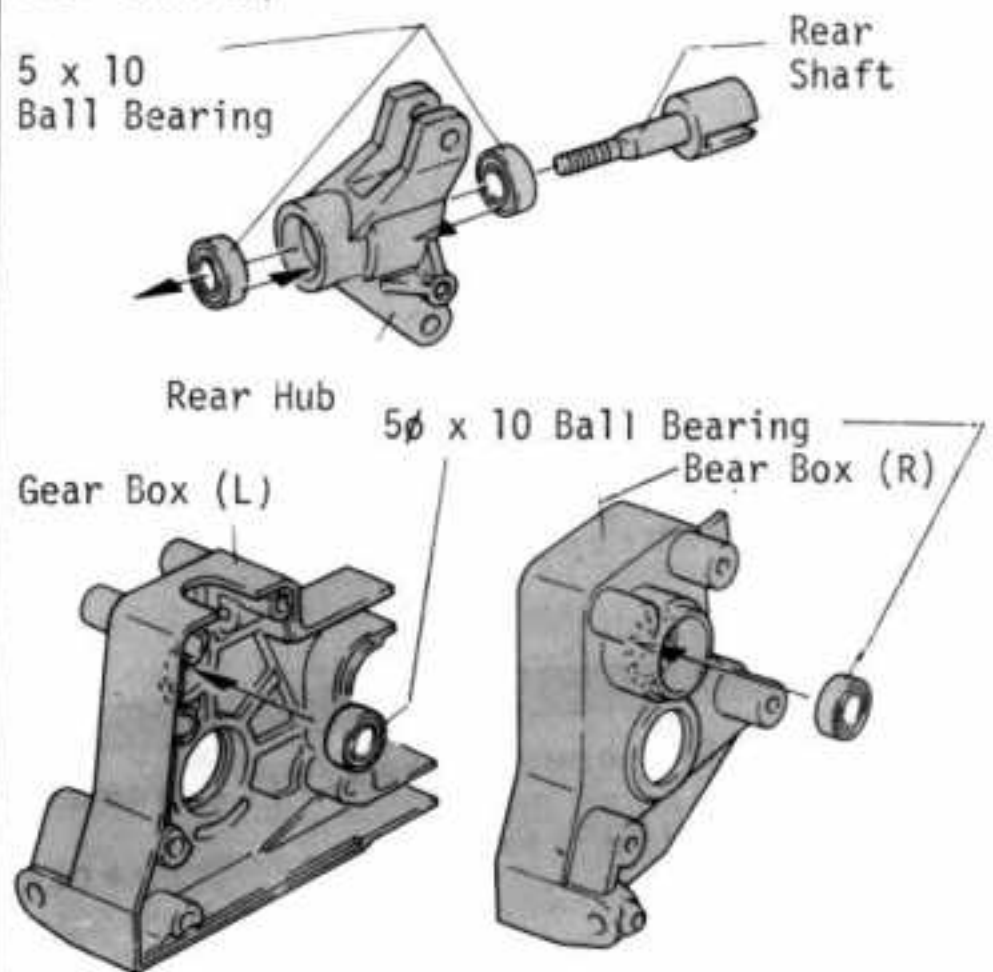
### Optional Ball Bearing

The optional ball bearings employed will assure more smooth running of the motor and improvement in speed and the running duration.

(4 pcs. are installed on the right and left front shaft.)

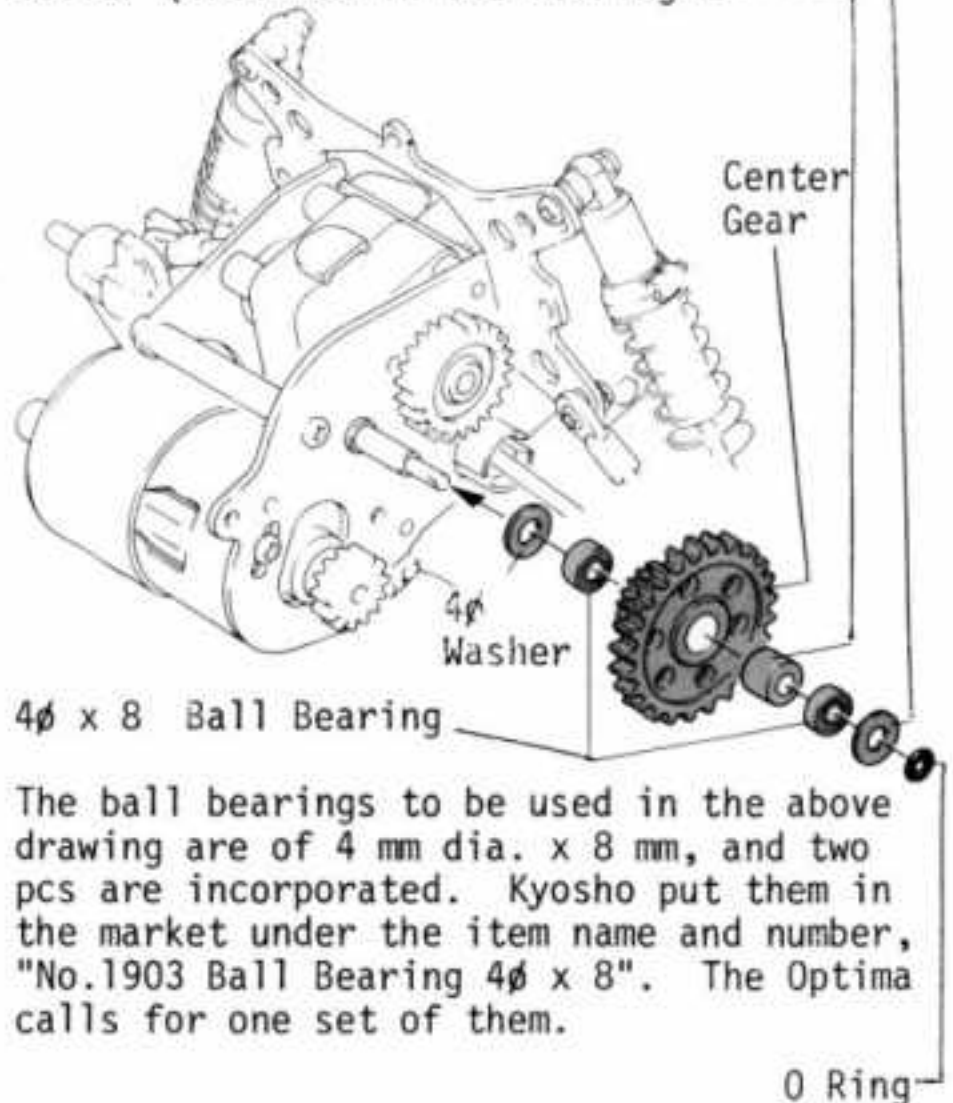


(4 pcs. are installed on the right and left rear shaft.)



(2 pcs. can be installed in the right and left gear boxes.)

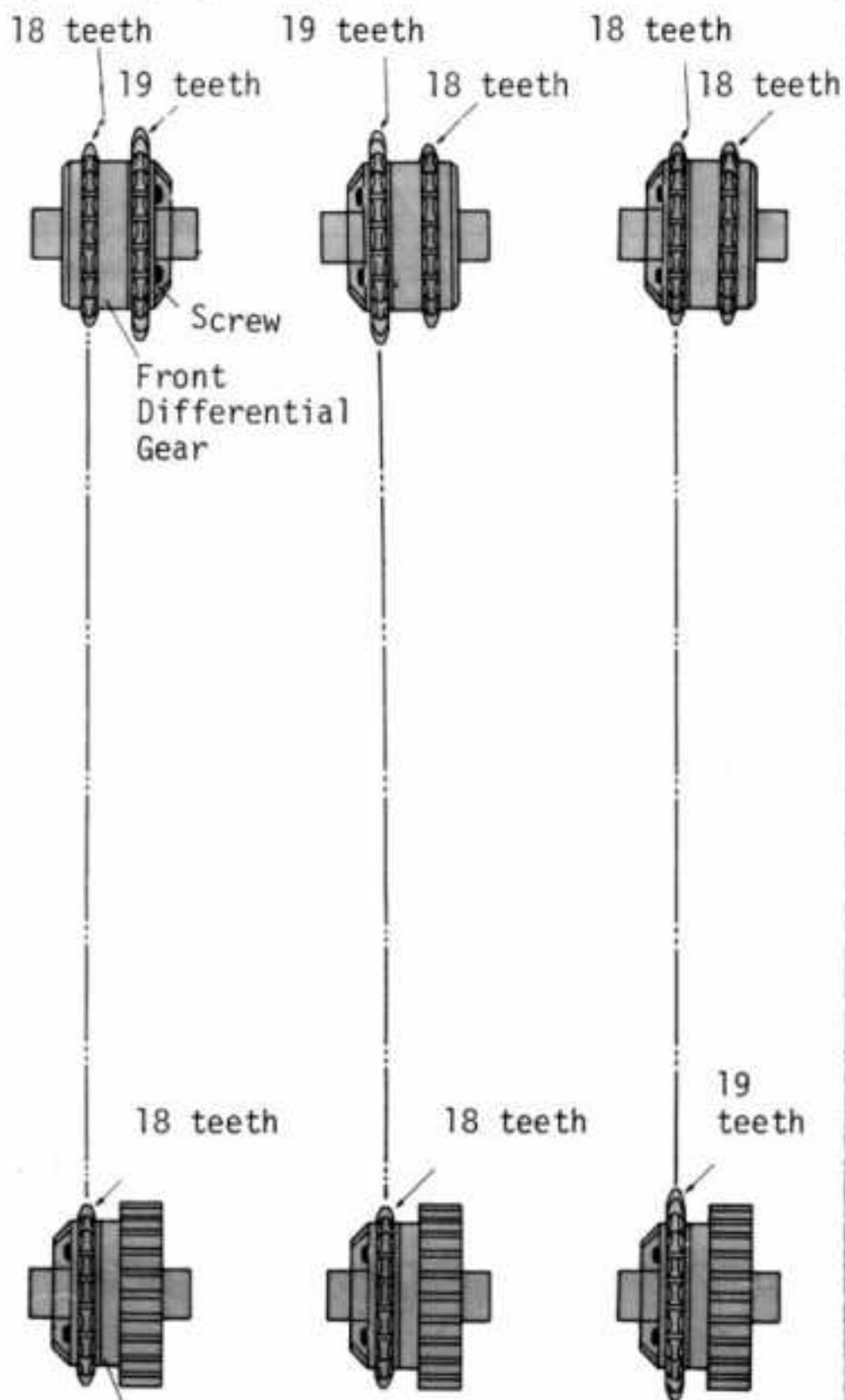
The ball bearing shown above are 5 mm dia. x 10 mm in size and ten of them will be used in all. Kyosho sells a set of them (2 pcs. in one set) under the item number and name, "No. 1901 Ball Bearing 5 x 10". The Optima requires five sets of them. 4 Washer — Collar (included in the bearing.)



The ball bearings to be used in the above drawing are of 4 mm dia. x 8 mm, and two pcs are incorporated. Kyosho put them in the market under the item name and number, "No.1903 Ball Bearing 4 x 8". The Optima calls for one set of them.

## Changing the Rotation of the Front and Rear Wheels

The model can have the varied assortment of rotations between the front and rear wheels by changing the sprocket.



1. Rear Diff.

2.

3.

1. (Normal) When being assembled as stated in the instruction, the front and rear wheel rotate in the same rate.

2. (More of Rear Wheel Drive) With this combination, the rear wheels run more.

3. (More of Front Wheel Drive) The front wheels rotate more than the rear toward a tendency to the front wheel drive.

## Protection of the Chain from Entering Dust

Be alert not to let sand and dust in through the chain cover and the chain guide.

You may as well seal the openings around the chain cover and guide with cellophane tape or bath caulking compound, also once in a while remove the gear box hatch and turn the model upside-down to drive out any sands or foreign articles.

NOTE: ANY DUST OR PEBBLE IN THE CHAIN GUIDE MAY DAMAGE THE GEARS OR THE SPROCKET.

## How to Fix the Chain

When you want to replace the chain, remove the chain cover (B); and holding the model vertically with the front end upward, feed the chain from the front sprocket to the rear one. It may require some knack but it is not impossible.



What is BEC? BEC stands for Battery Eliminator Circuitry, which is exactly what it sounds like, a circuit that eliminates the need for a receiver battery. In the United States, use of the BEC system in radios is not widespread so chances are that you do not have it. But if you do, then read on!

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

The basic difference between the two is how much voltage goes to the receiver. A BEC type receiver can accept an input voltage of 7.2V and higher, depending on the state of charge of the 6-cell battery, which is where the receiver and servos get their power. In receivers other than BEC Equipped types the input voltage needs to be from 4.8V to 6V which is generally the voltage supplied by four "AA" batteries.

If your radio is not BEC Equipped you should use a separate receiver battery or some type of circuit that drops the source battery's voltage down to an acceptable range. (Contact the manufacturer of your radio system.) If your receiver is BEC Equipped, then you can use the BEC connector that is supplied with this kit. Your radio's switch harness has a matching BEC connector attached.

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

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

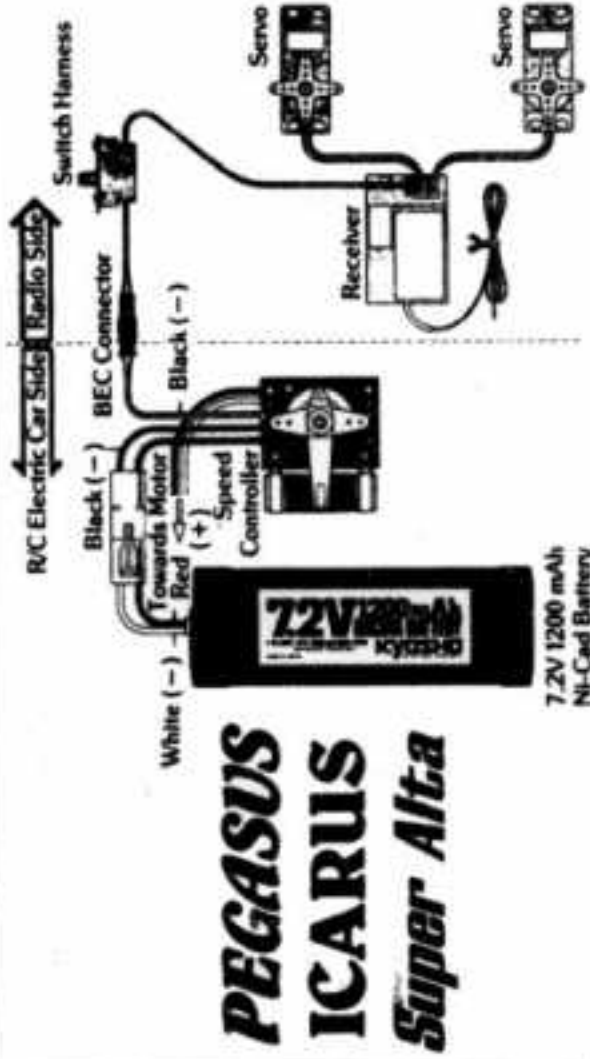
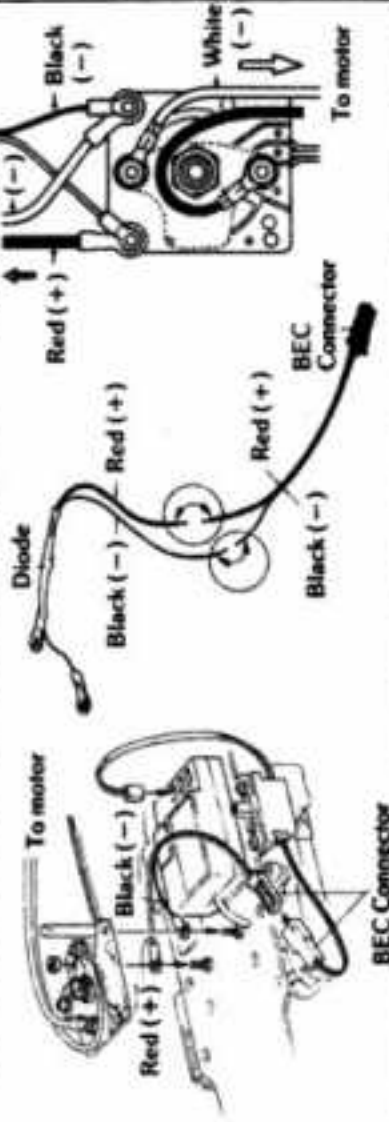
These diagrams will help you in understanding the BEC systems and how they are used in different Kyosho kits.

For more information about the BEC system, contact your radio's manufacturer.



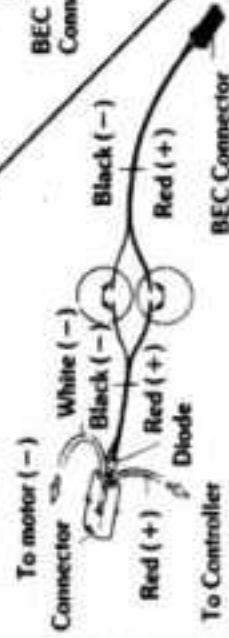
©COPYRIGHT HOBBICO 1986

## OPTIMA JAVELIN



## FANTOM

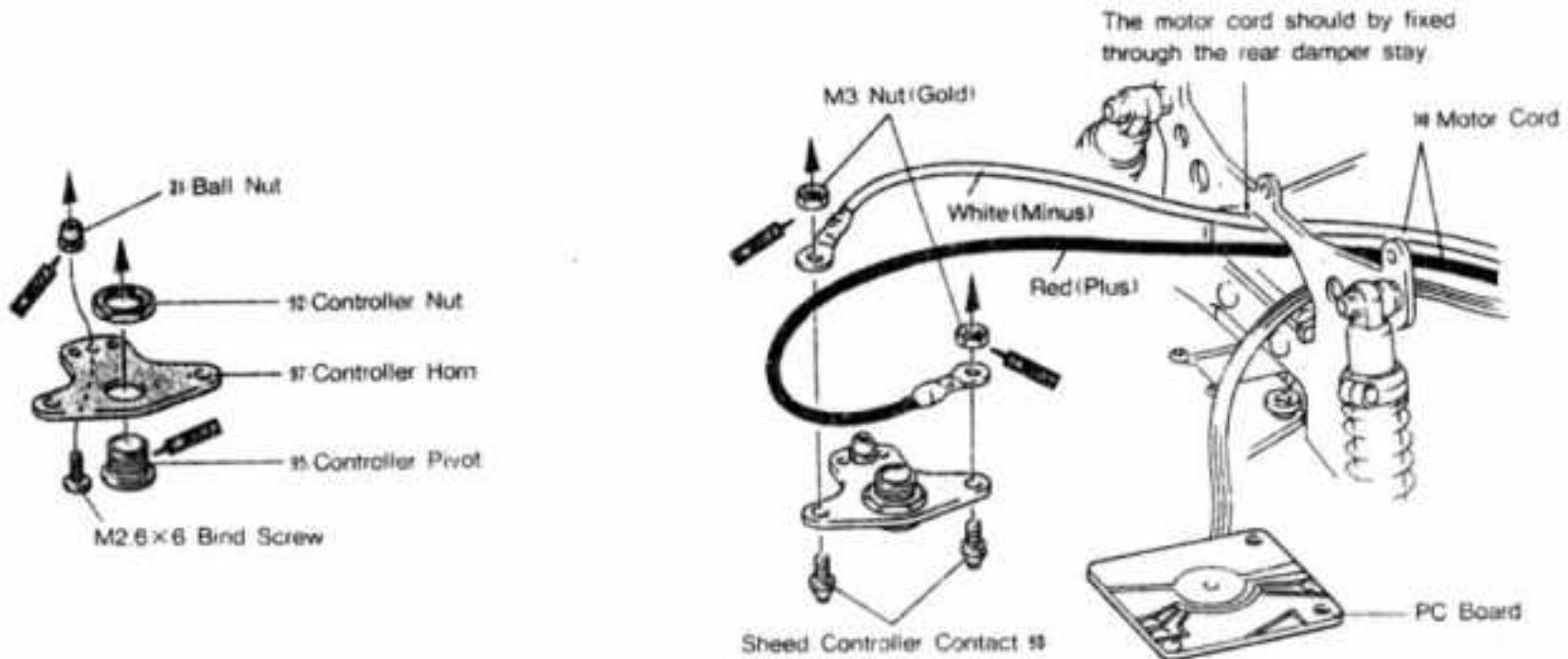
## PLAZMA MkII



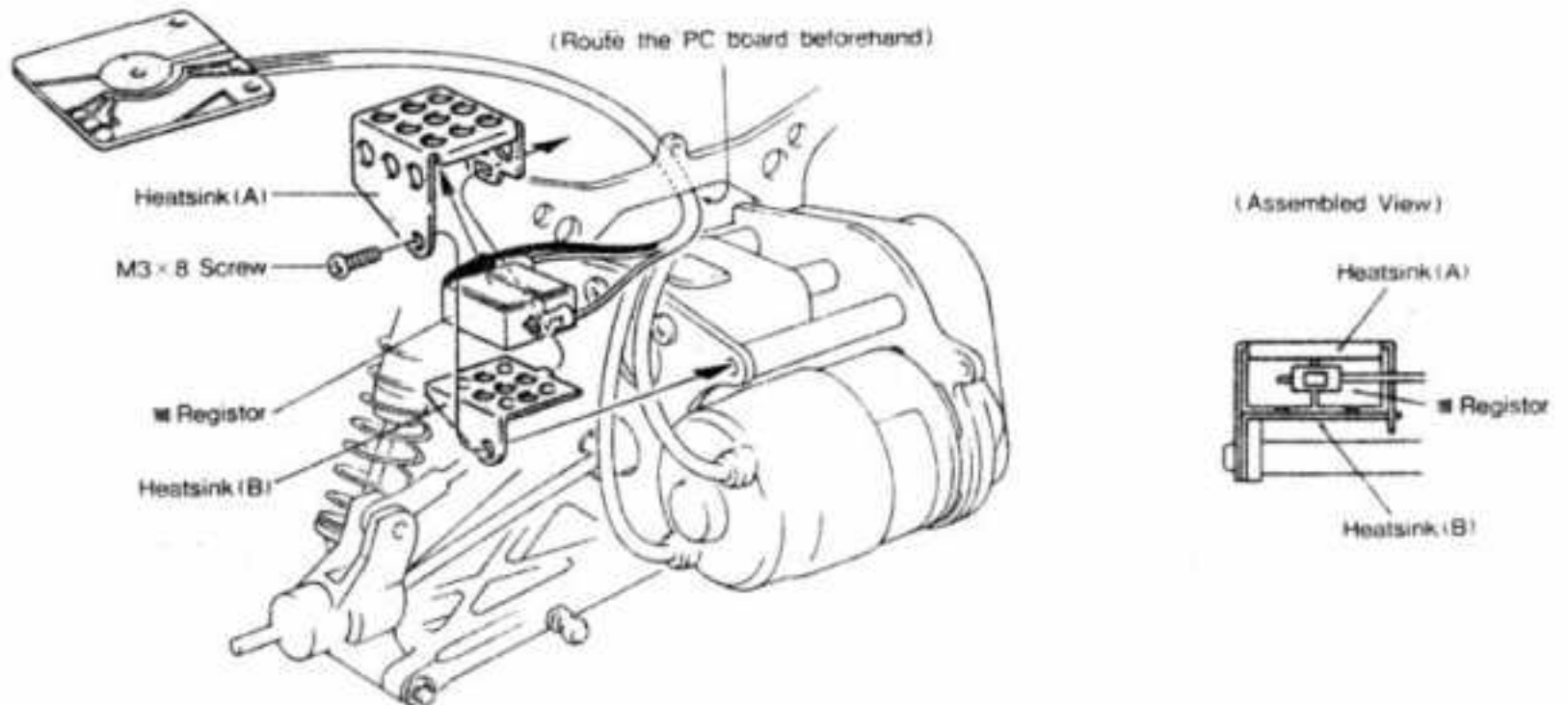
## Supplemental Assembly Instruction for Optima and Javelin

※The following is a correct location of the speed controller position which is modified for safety's sake. Please assemble these models as per described below;

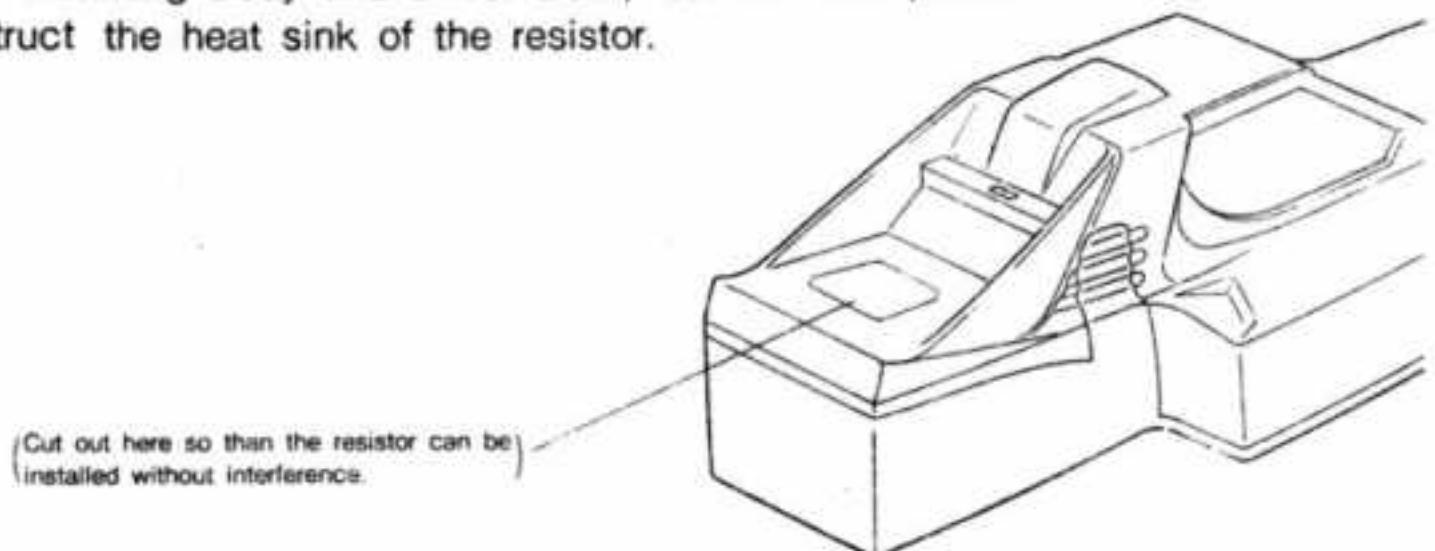
- ① In the step "Assembly of Speed Controller" 33, route the PC board with the motor cord 14 as shown in the drawing below.



- ② Remove the M3x8 screw which is fastening the joint plate 35 once, and fix the resistor 100 to the rear plate 14 being assembled with the heat sinks (A) and (B).



- ③ In the step 41 "Trimming Body and Driver Doll", cut off the portion of the rear body which is to obstruct the heat sink of the resistor.



(Note.) This description 3 is not applied to the model, Javelin.

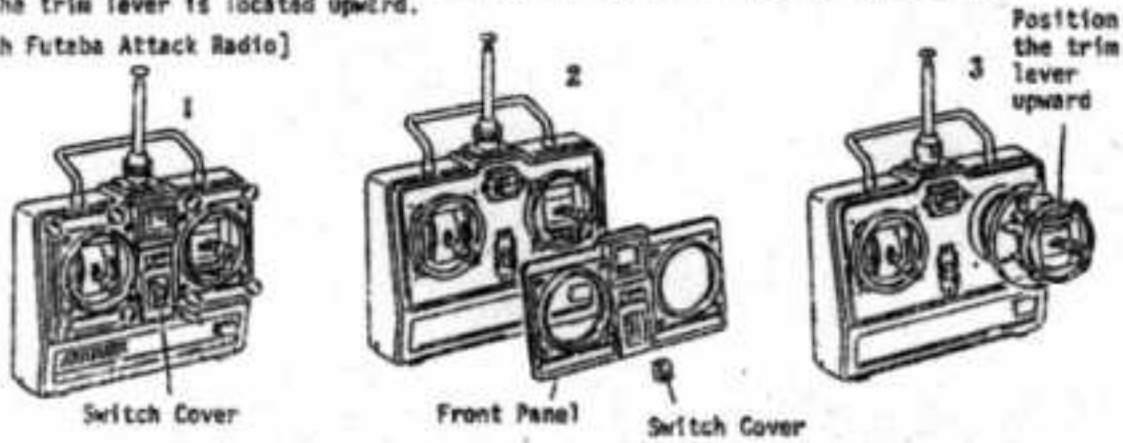
**KYOSHO CORPORATION**

\*WITH A SERVO WHICH IS OUTLINED TO MOUNT IN STEP 37 "STEERING", ON PAGE 20 OF THE ASSEMBLY INSTRUCTION, THE FRONT WHEELS WILL STEER TO THE OPPOSITE DIRECTION OF THE CONTROL STICK.

\*SO THE FOLLOWING MODIFICATION IS NECESSARY TO MAKE IT CONSISTENT;

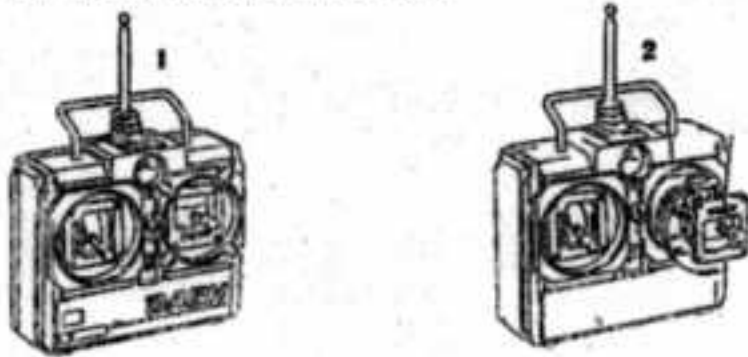
- (1) If your radio has a reverse device, just turn the reverse switch, activating that channel, to "Reverse".
- (2) If your radio has no reverse mechanism, but you can invert the direction of control stick 180° (like those radios, "Futaba's Attack", "Sama's Dash", and "Kyosho's Astro 202E"), remove the front panel of radio as shown in the drawing below, and pull out the gimbal gently and replace it up-side-down so that the trim lever is located upward.

[With Futaba Attack Radio]



- 1 Remove the eight screws indicated with the arrow marks ⊙ and the switch cover.
- 2 Take off the front panel quietly.
- 3 Pull out the gimbal portion carefully, give it a half turn so that the trim lever comes above, and put it back in its place again.

[With the Sama Dash or Kyosho Astro 202E]



- 1 Remove only four screws which are pointed with the arrow marks ⊙.
  - 2 Draw out the gimbal calmly, rotate it in 180° arc with the trim levers positioned above, and restore it to its place.
- (3) With those radios which have no reverse device or the gimbals of which you cannot turn round, arrange the steering control rod linkage as shown in the diagram below;

