RADIO CONTROLLED ELECTRIC POWERED RACING BUGGY

4WD OFF-ROAD RACER

SALUTE

- FOUR-WHEEL DRIVE VIA HARDENED STEEL CHAIN.
- FOUR-WHEEL INDEPENDENT SUSPENSION WITH EXTRA-LONG WISHBONES FOR MINIMUM BUMP STEERING, MAXIMUM DIRECTIONAL STABILITY ON ALL SURFACES.
- EXTRA-STRENGTH PARTS FOR 8.4V POWER.
- 16 BALL BEARINGS INCLUDED IN KIT.
- OVERSIZE OIL-FILLED SHOCK ABSORBERS.
- ANTI-ROLL BARS FRONT AND REAR.
- SUPER-STRONG ALUMINUM LADDER FRAME.
- SHIELDED CHAIN FOR LONG LIFE.
- TWIN DIFFERENTIALS.

1:10 SCALE

BATTERY:8.4V-1200mAh
RADIO:2ch.
MOTOR:540/550TYPE
〔NOT INCLUDED〕

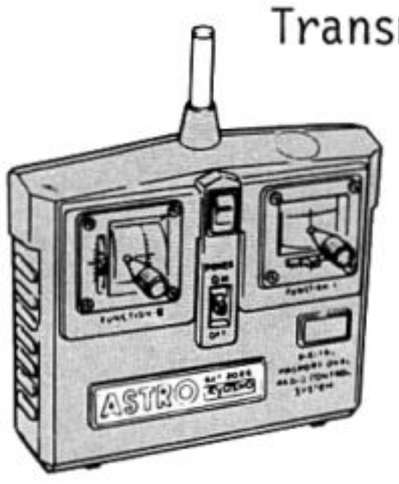
KYOSHO
THE FINEST RADIO CONTROL MODELS

KIT No.3034

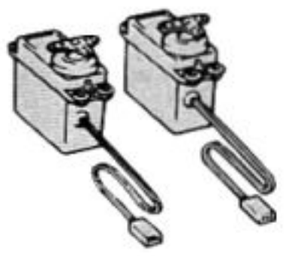
4WD OFF-ROAD RACER SALUTE

2 CHANNEL RADIO SYSTEM

Transmitter

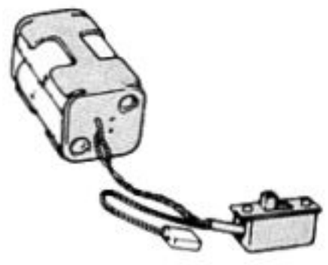


Servo



Receiver

Battery Holder



Switch

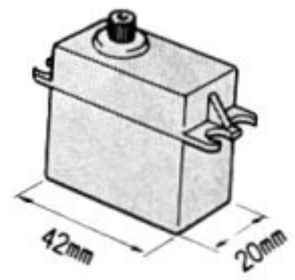
THINGS NEEDED BESIDES THE KIT

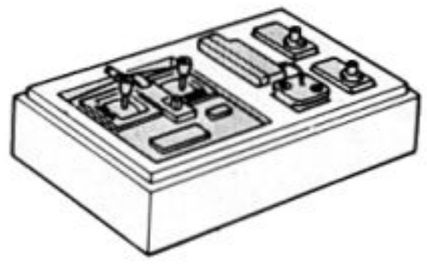
[2 Channel Radio System]

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

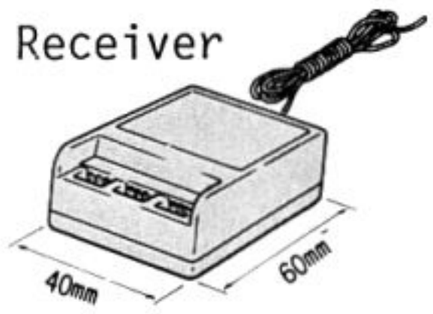
Servo

*NOTE: The dimensions shown are the maximum sizes which will fit.





Receiver



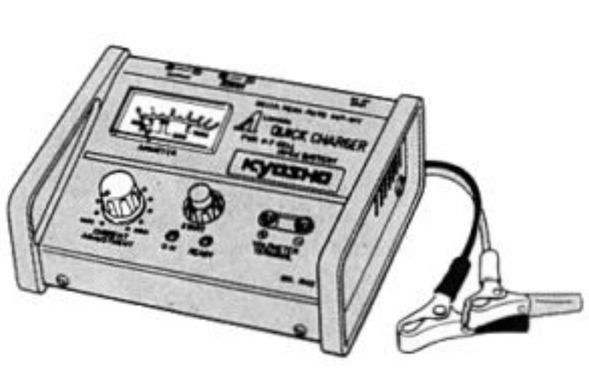
BATTERY PACK

A 8.4 V-1200 Battery in similar shape to the one shown here is required. The Kyosho #1973 is a good choice.

CHARGER

You'll need a charger to charge your battery, Kyosho offers three types:

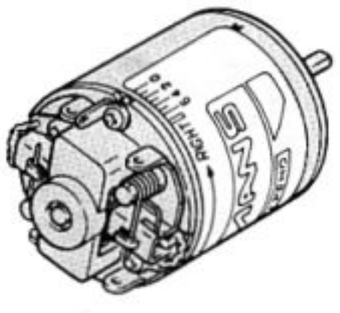
Model	Name	Time	Features
No.1846	Multi Charger (DC 12V)	25 Min.	Full charge, wide range of batteries.
No.1845	Lambda Quick Charger (DC 12V)	20 Min.	The best fully automatic operation. Easy to use, suitable for competition.
No.1931	Super Ni-Cad AC Quick Charger	50 Min.	AC Charger from household outlet. Electronic time built-in.



No.1845

No.1931

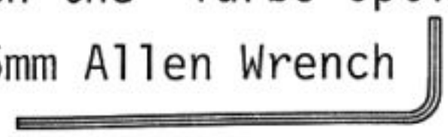
[Motor]



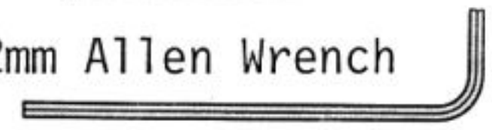
REQUIRED TOOLS

These are included with the "Turbo Optima"

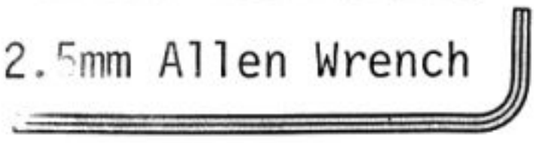
1.5mm Allen Wrench



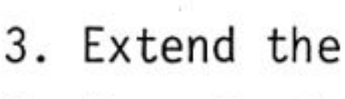
2mm Allen Wrench



2.5mm Allen Wrench

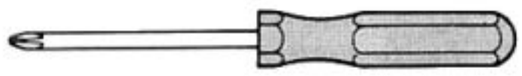


Silicon Grease

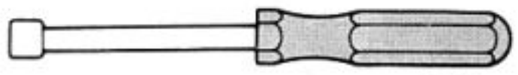


Screw locking compound

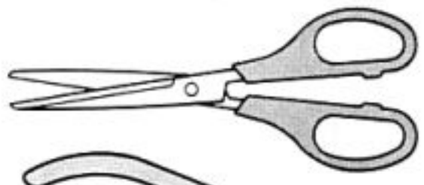
These are not included with the "Turbo Optima"



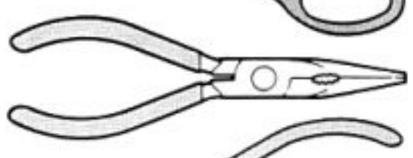
Phillips Screwdriver



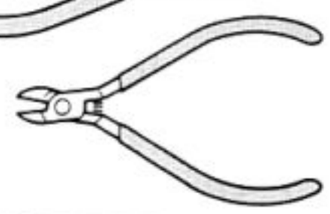
5.5mm & 7mm Box Driver



Scissors



Needle Nose Pliers



Wire Cutters

Awl

Sharp Hobby Knife

Rubber Cement

Polyca Paint

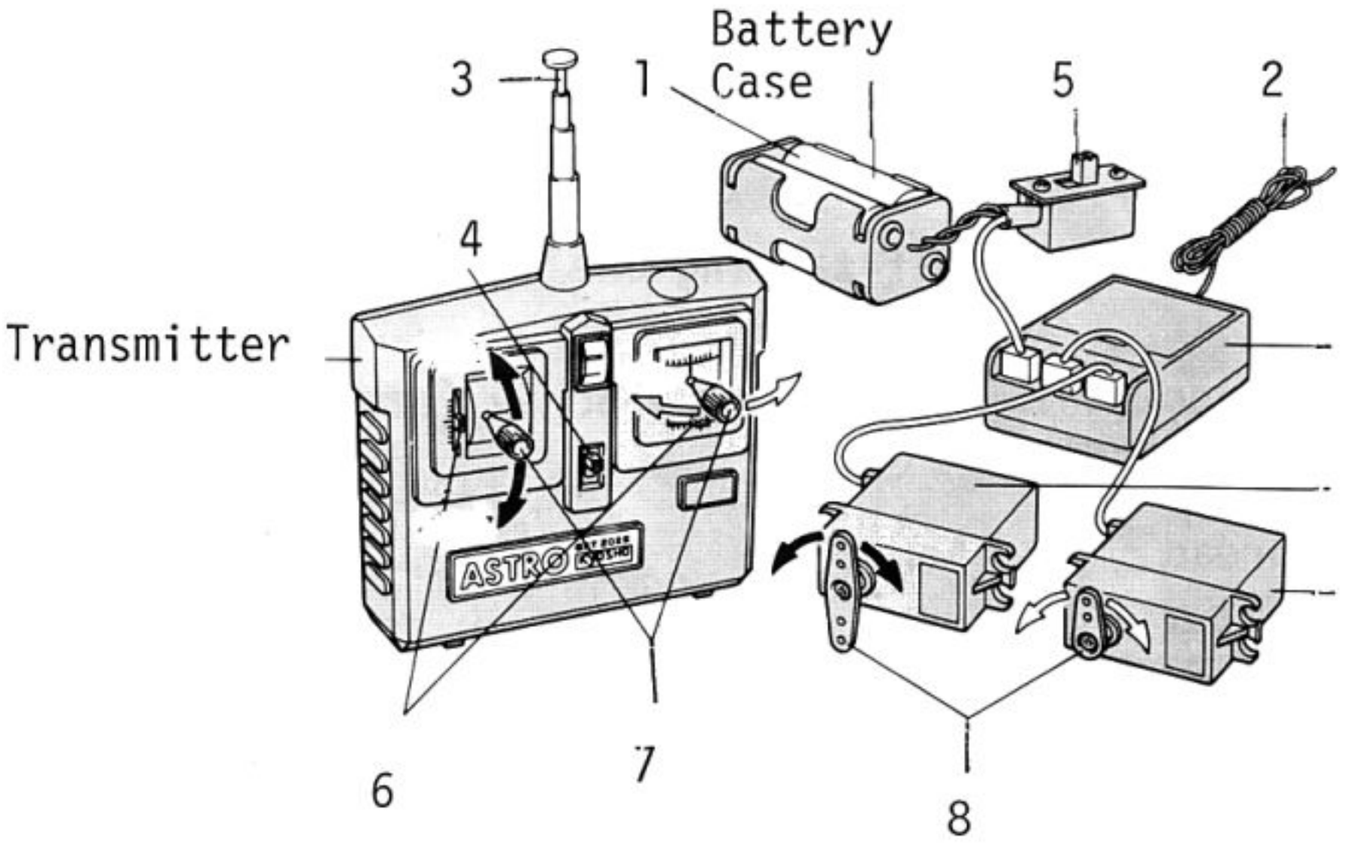
Micron Line Tape

Brush

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 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 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 radios waves.

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

*Servos ..... It 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.

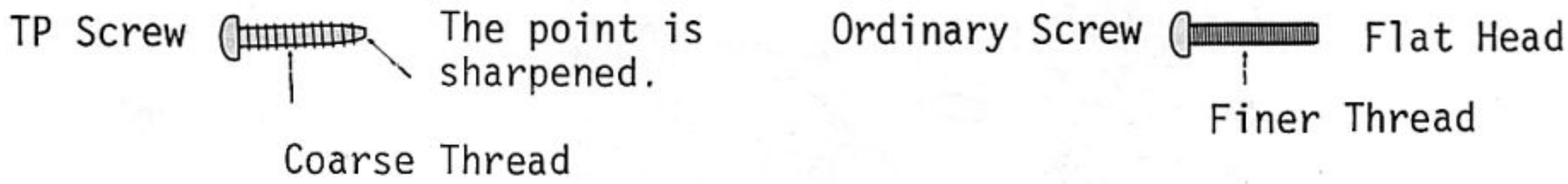
*Servo Horn ..... A small arm or wheel on a servo that transfers the movement of the servo.

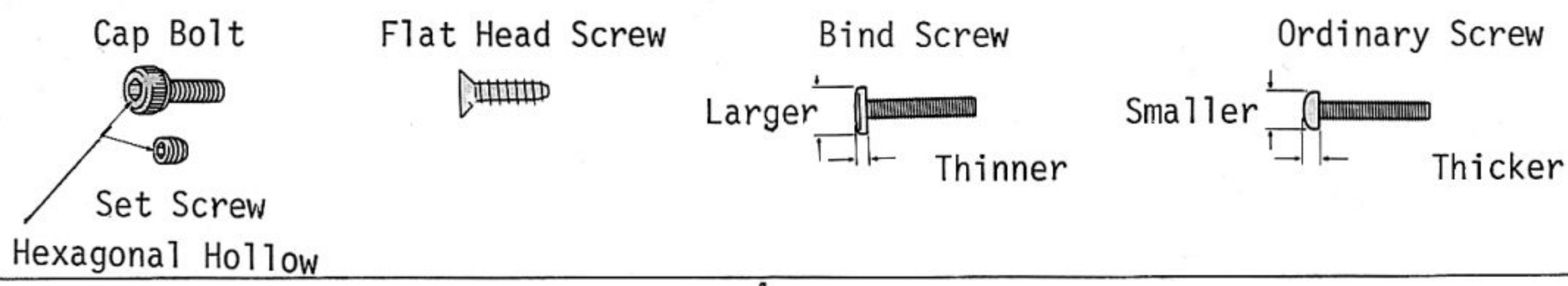
BEFORE ASSEMBLY

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 startings the assembly. Any claims for replacements or refunds for the model in the process of assembly will not be accepted.

[Please understand the following points before assembly]

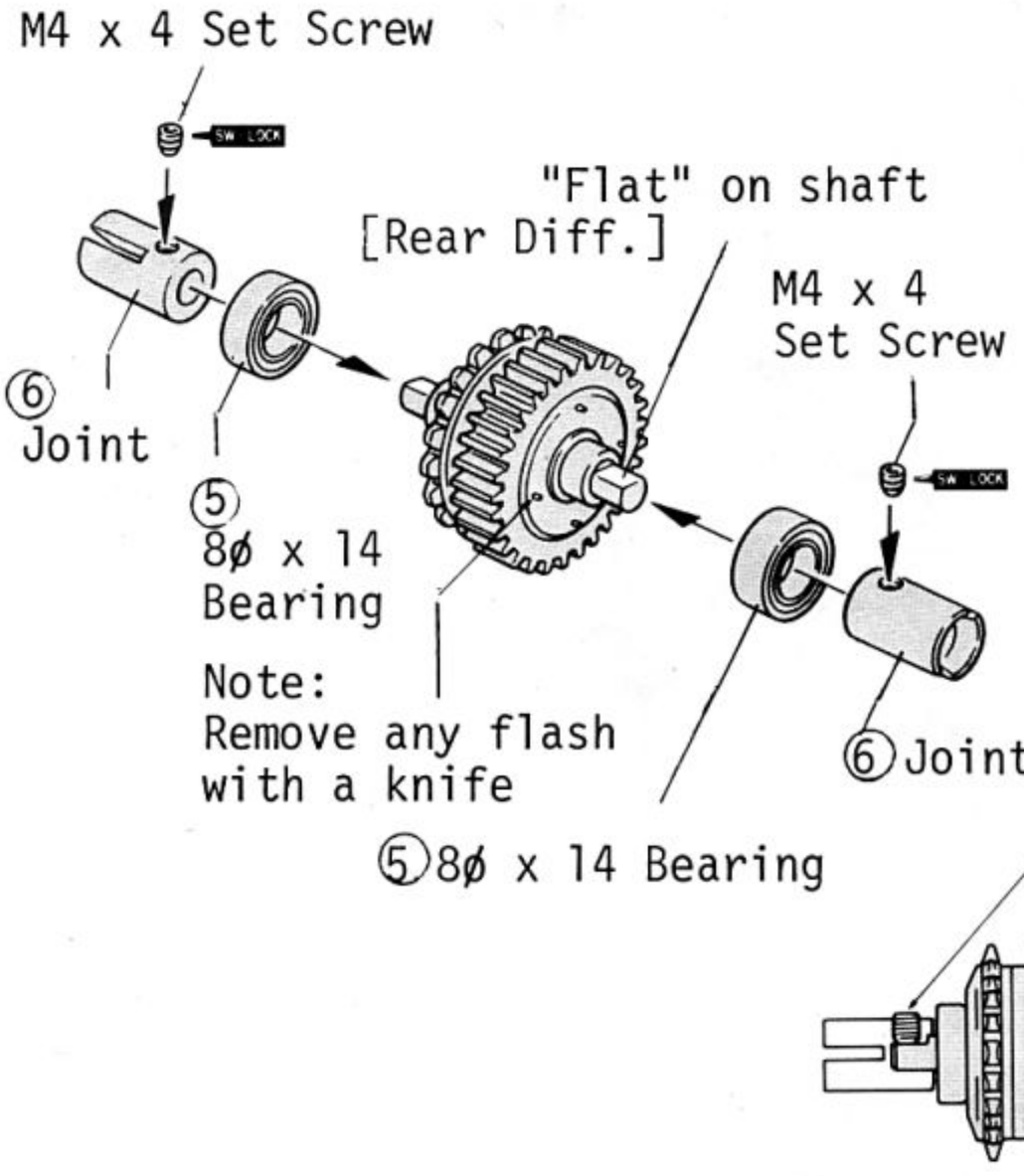
1. Places where grease and "locktire" should be applied;
   Apply some grease, which is included in the kit, to the spots indicated with mark GR , and "locktite" with SW LOCK .
2. Small Parts
   The small parts to be used such as screws, nuts, washers are illustrated in the actual size on the attached sheet "The List of Small Parts". Pick up the correct ones referring the size, shape, and the assembly number.
3. Some Hints when screwing in a self-tapping-screw, (hereinafter referred to as TP Screw).
   *This model uses a lot of plastic parts, and many TP screws will be used for assembling.
   *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.
4. Shape of Screw
   *You can distinguish the ordinary screw form the self-tapping one by the shape of points and thread.

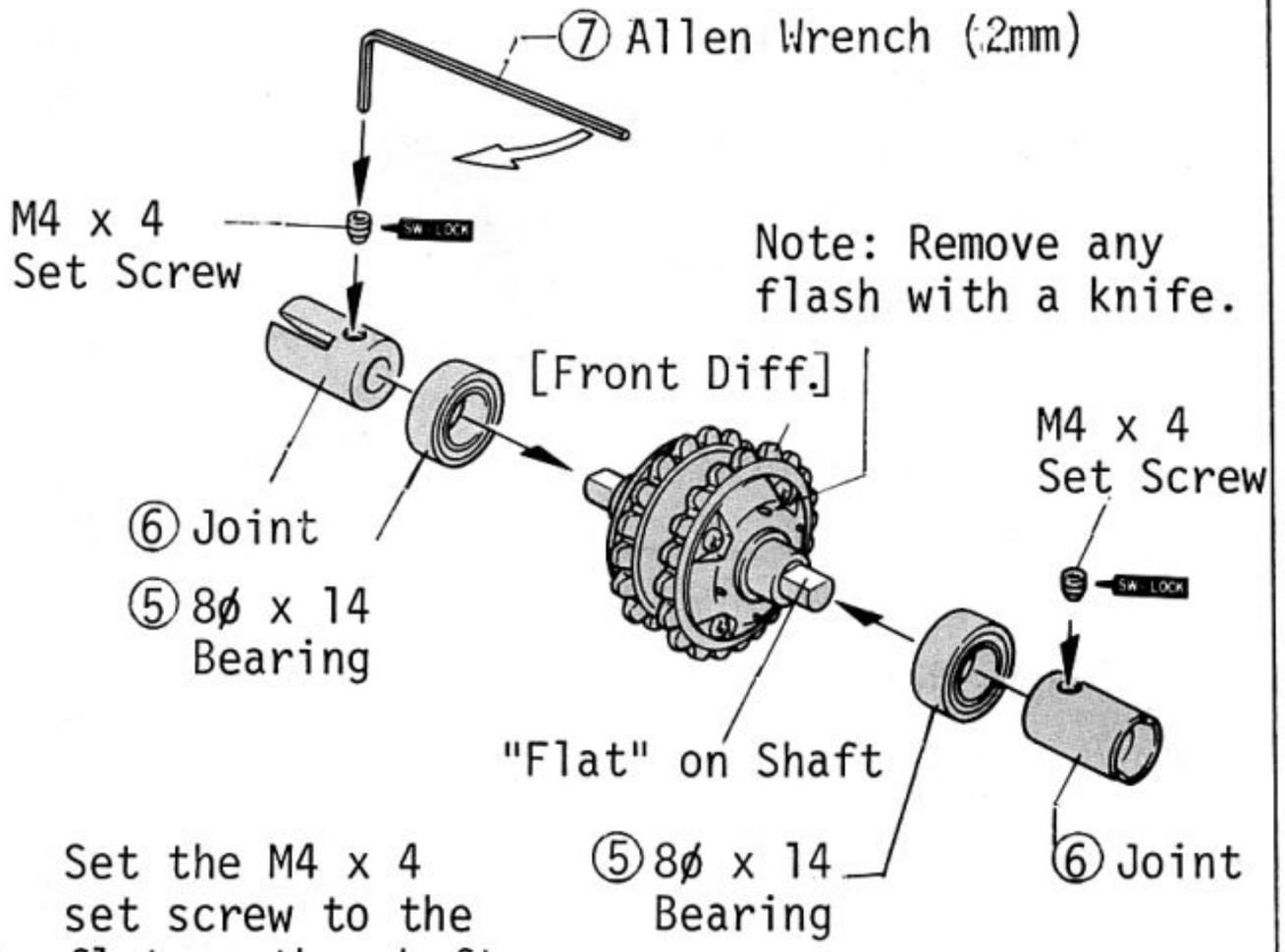


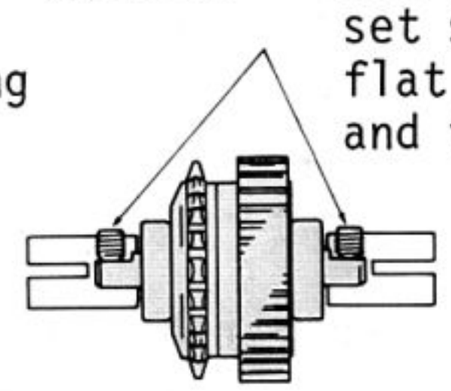


1 INSTALLATION OF JOINT

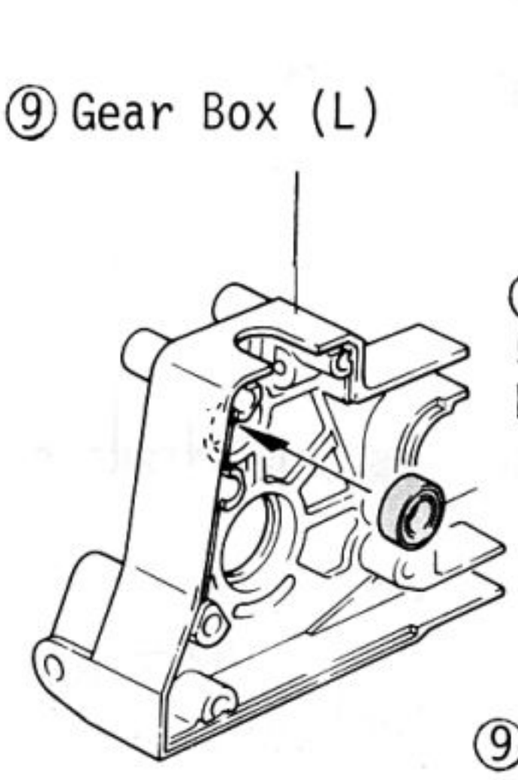
Assembly drawing of Front and Rear Diff.
reffer to Page 24.

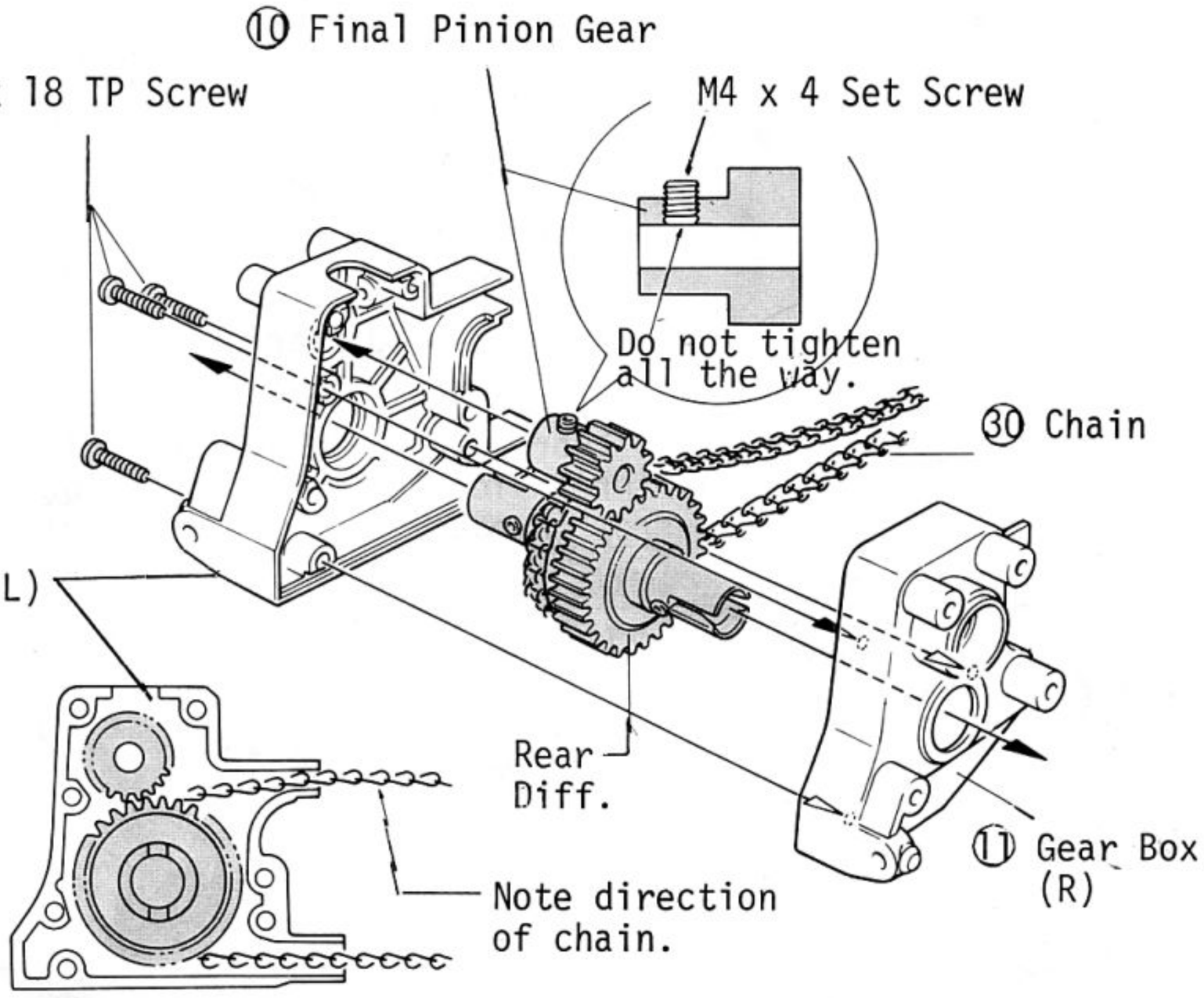






2 ASSEMBLY OF REAR GEAR BOX

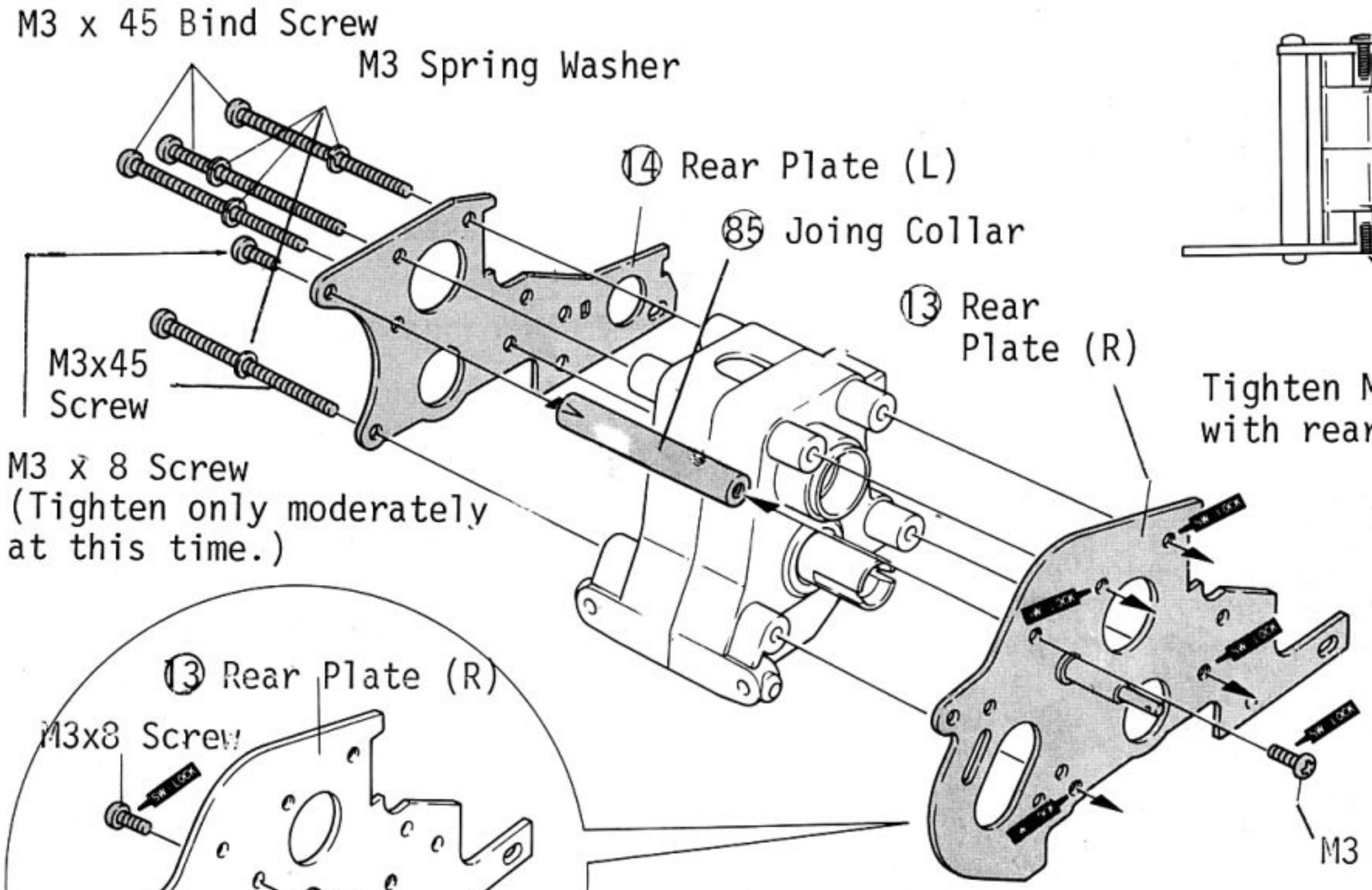


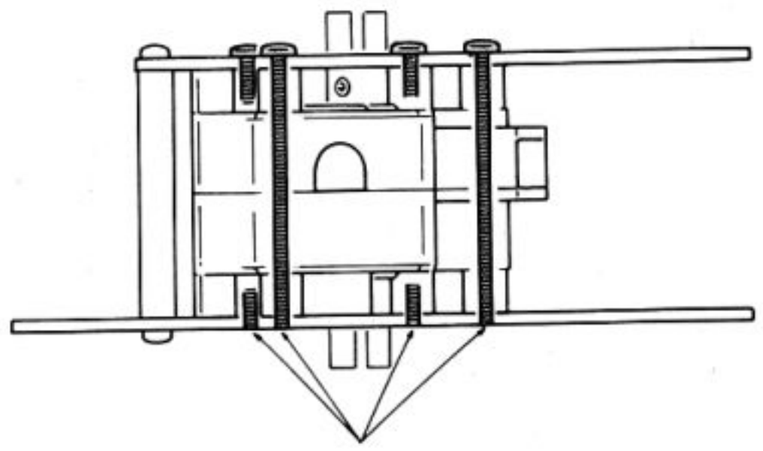


Install the parts in gear box (L) as shown then cover with gear box (R). Install M3 x 18 TP screws and tighten.

Never apply grease or oil to rear diff. and Final Pinion Gear.

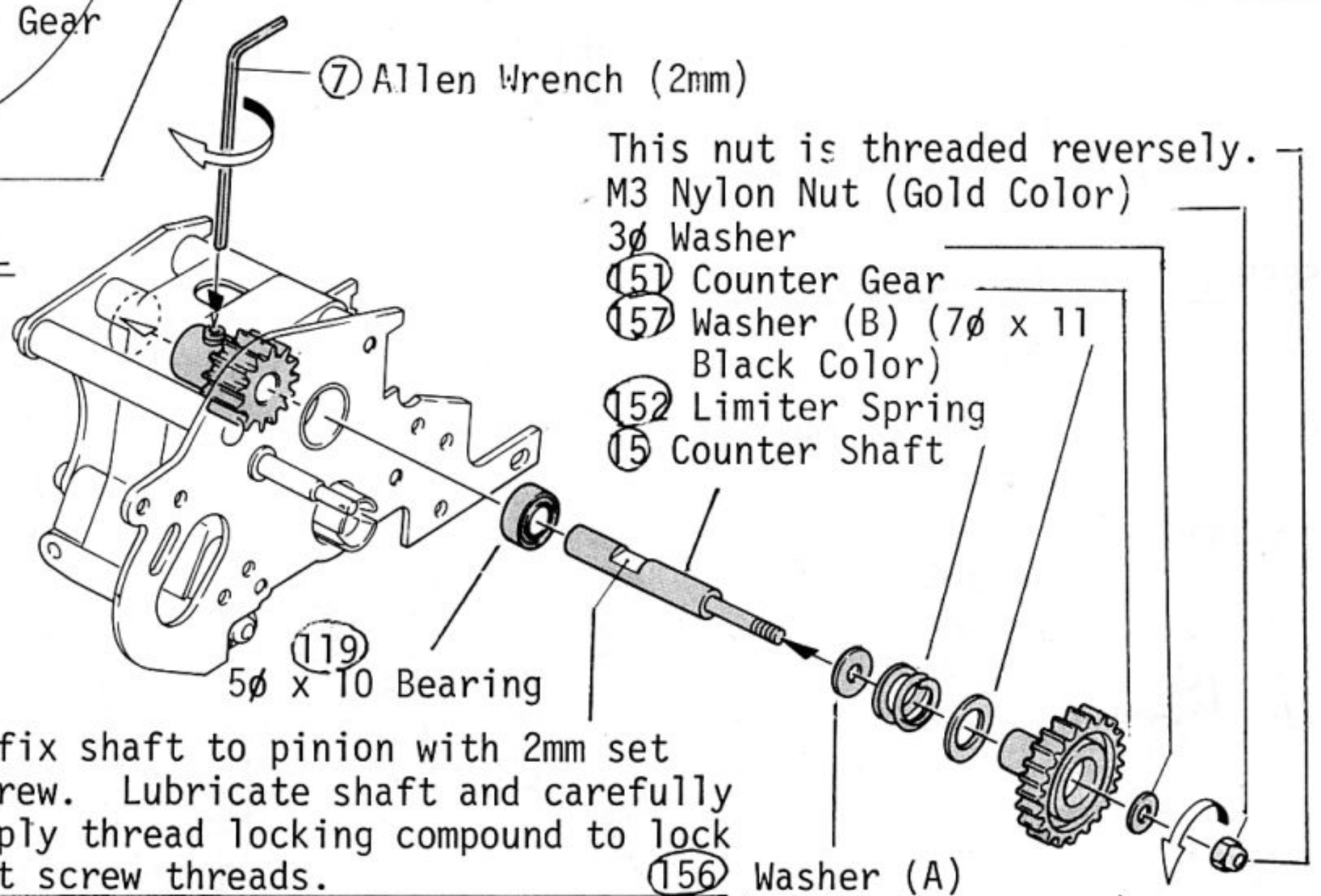
3 INSTALLATION OF GEAR BASE



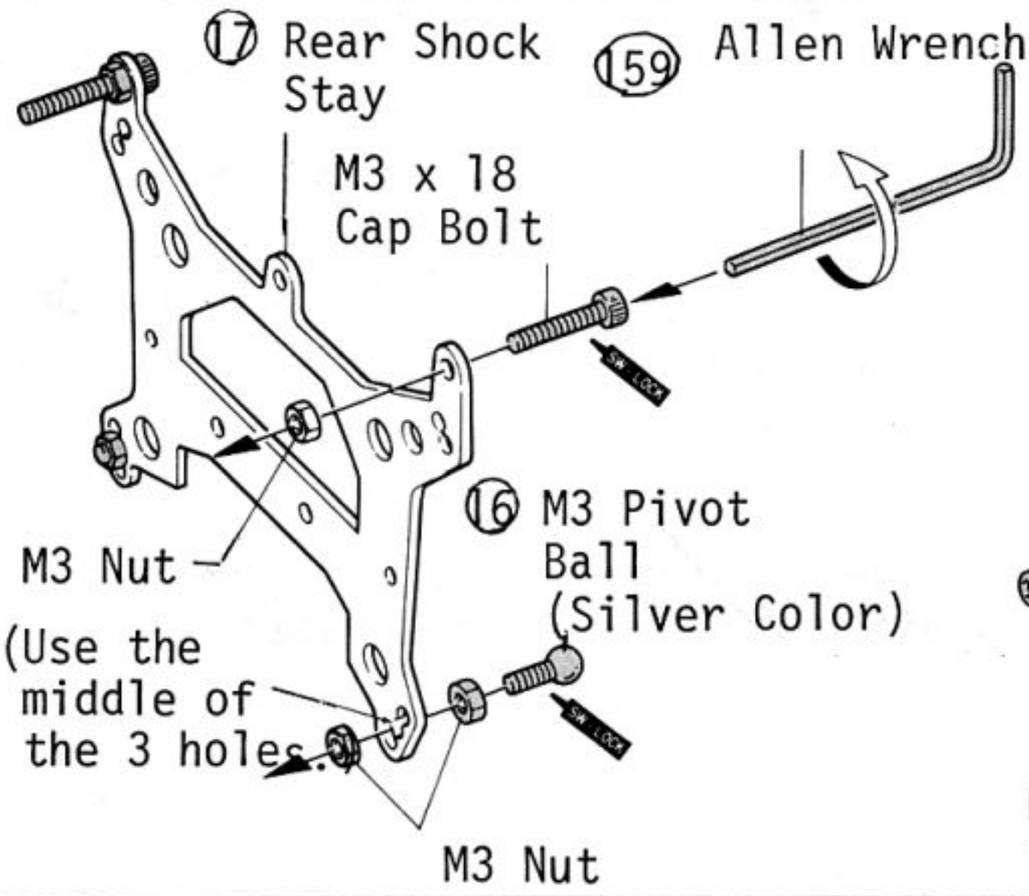


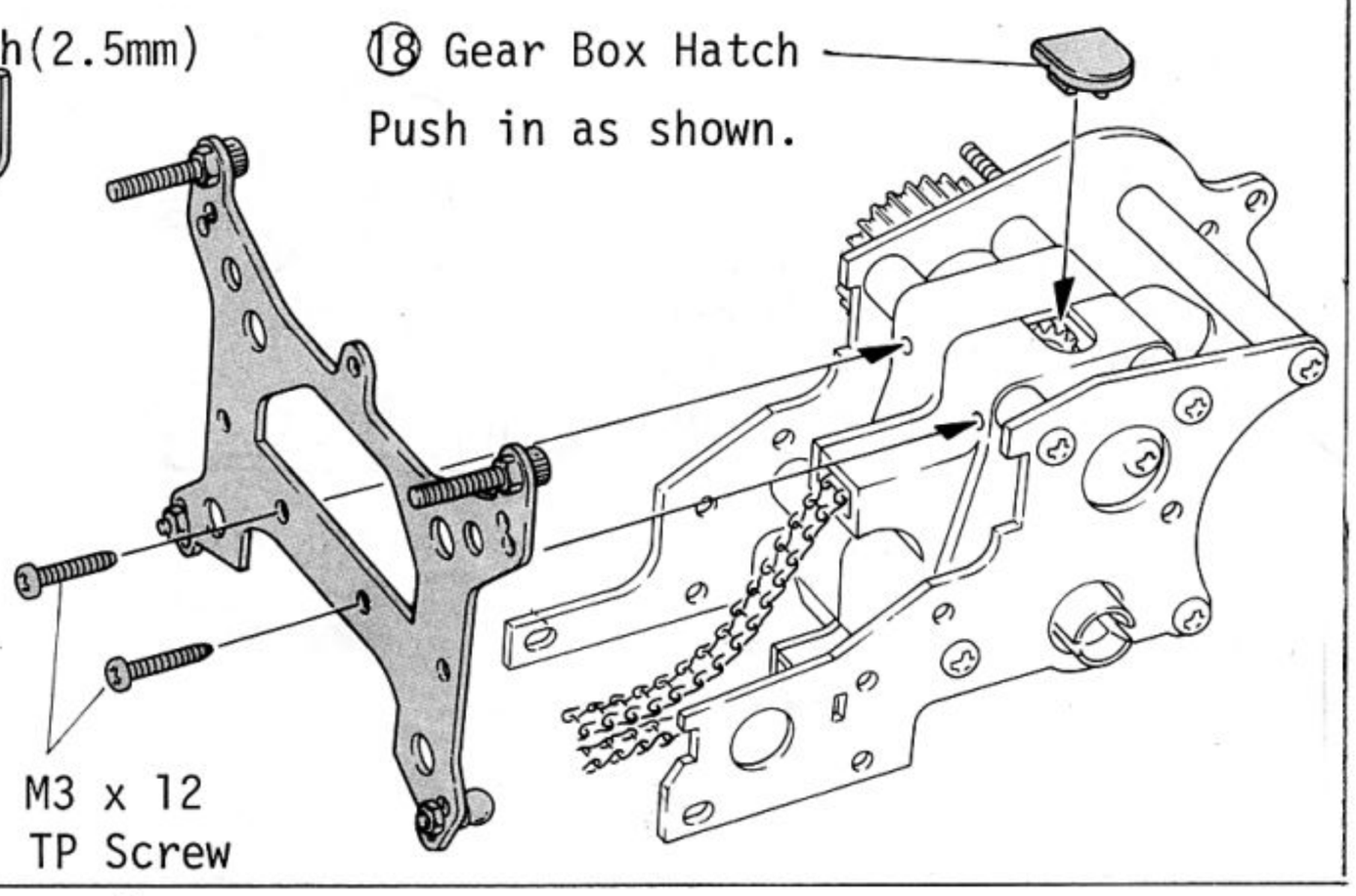
Tighten M3 x 45 screws flush with rear plate (R).

4 INSTALLATION OF FINAL PINION GEAR

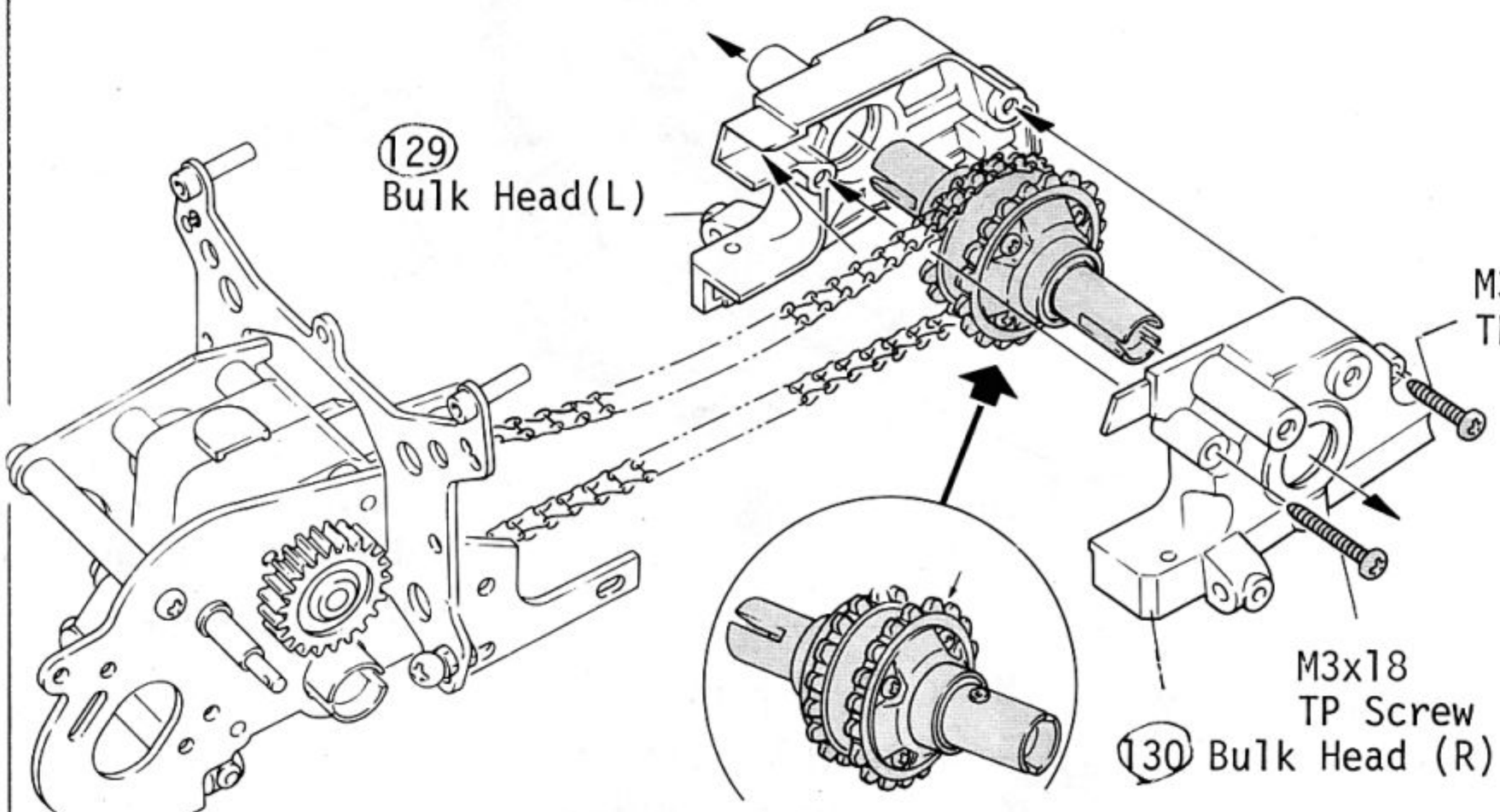


5 INSTALLATION OF REAR SHOCK STAY

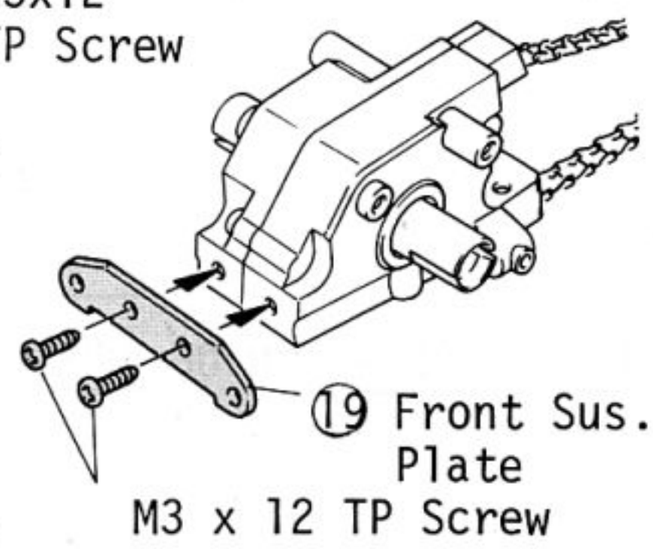




6 INSTALLATION OF FRONT GEAR BOX



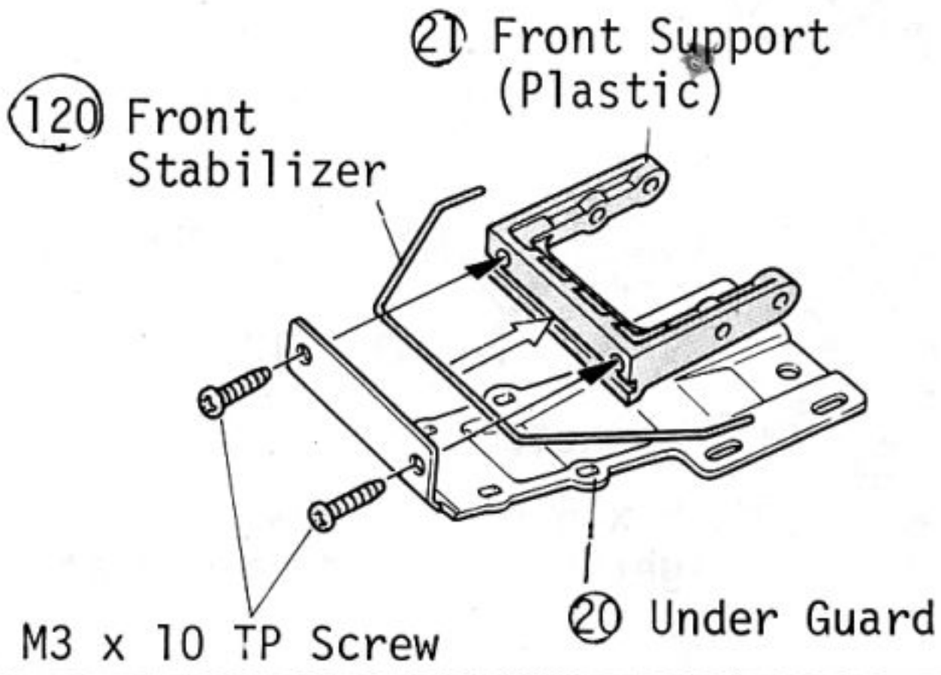
After the assembly step as shown in the left side drawing, install the front suspension plate.

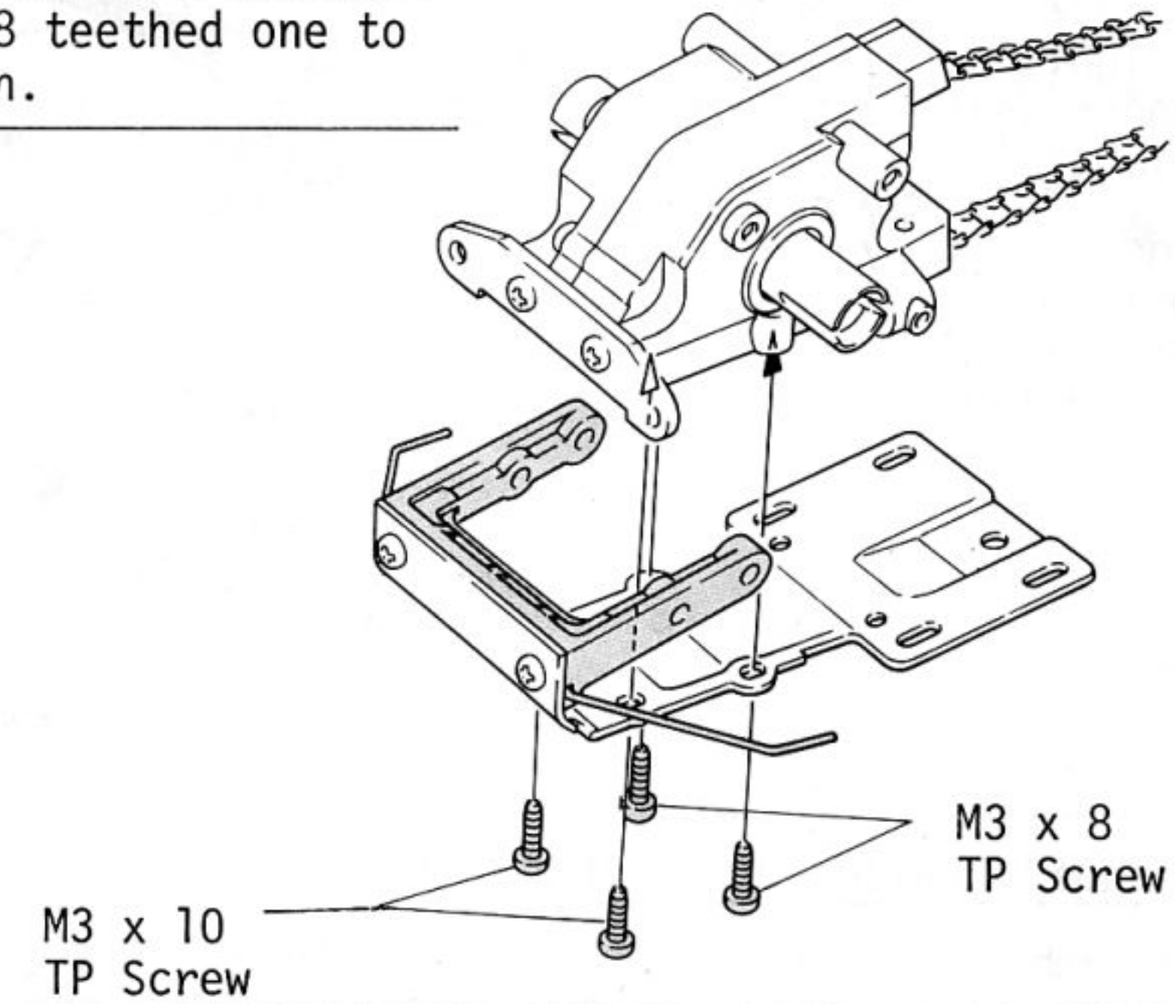


Note: Never apply grease or oil to the sprocket.

*Two types of sprockets are available (18 and 19 teeth). For the standard process, use the 18 teethed one to engage the chain on.

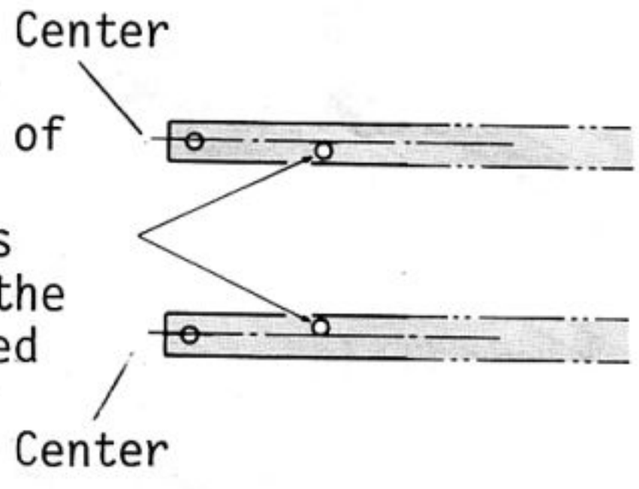
7 INSTALLATION OF LOWER GUARD

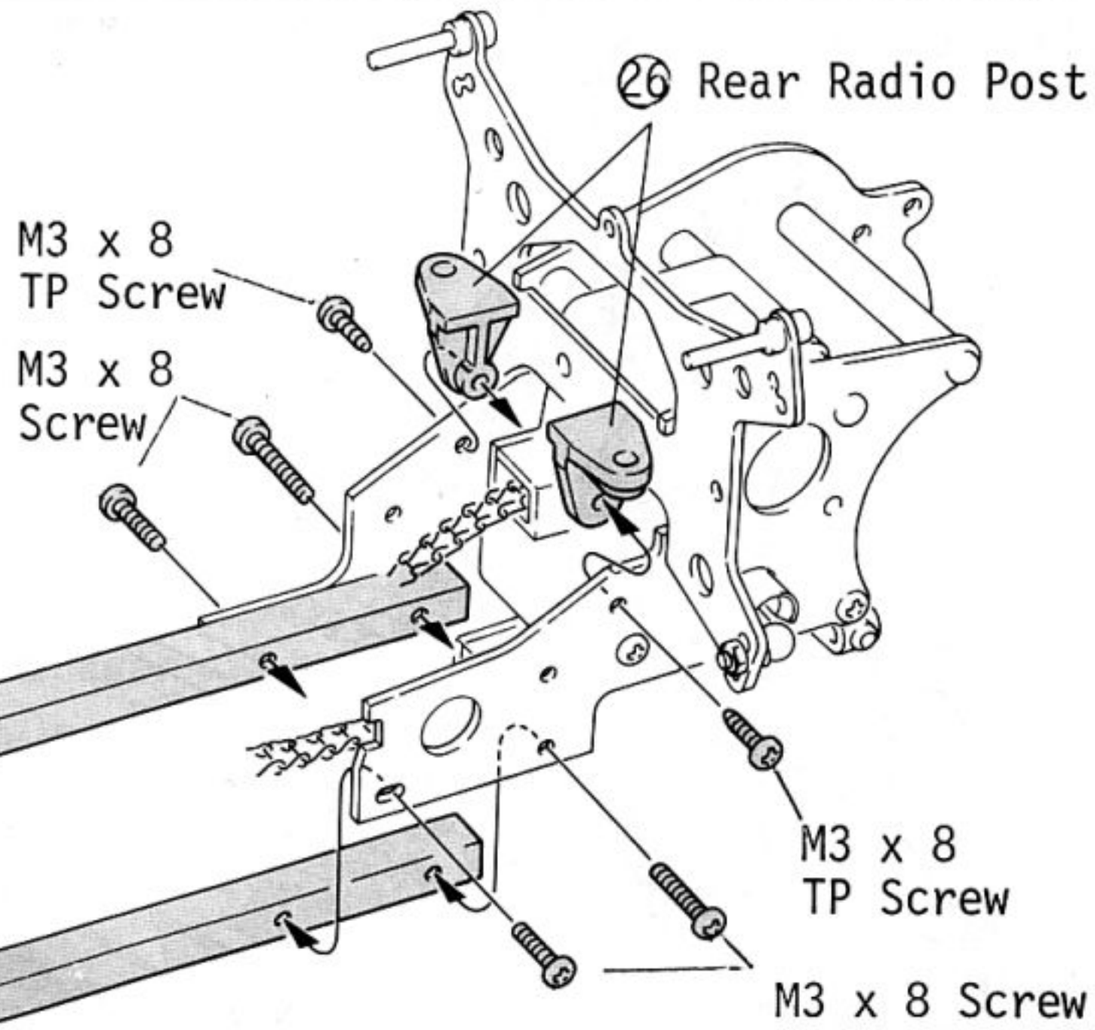


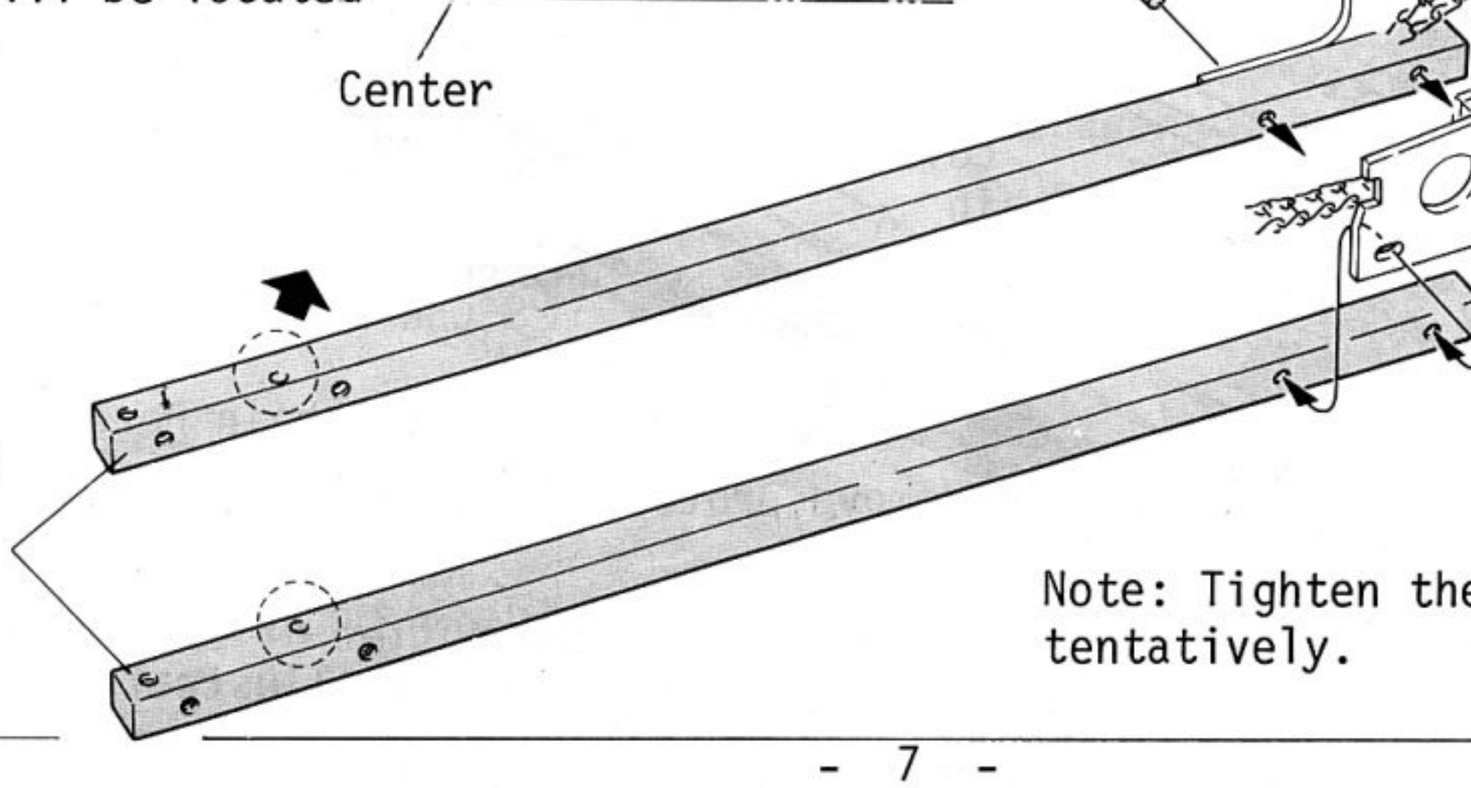


8 INSTALLATION OF REAR PLATE

NOTE:
These holes are out of the center line. Assemble the chassis in such a way that the holes will be located inside.

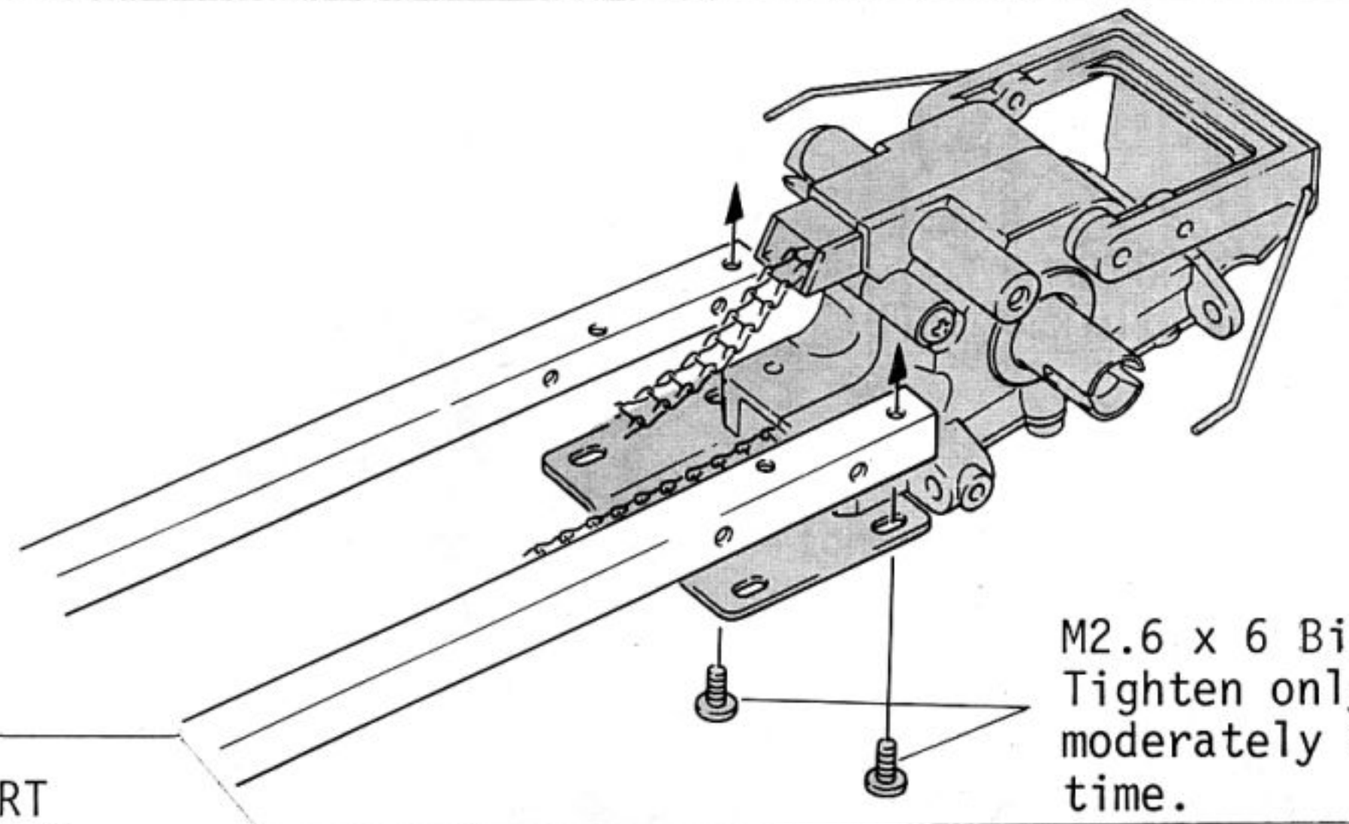




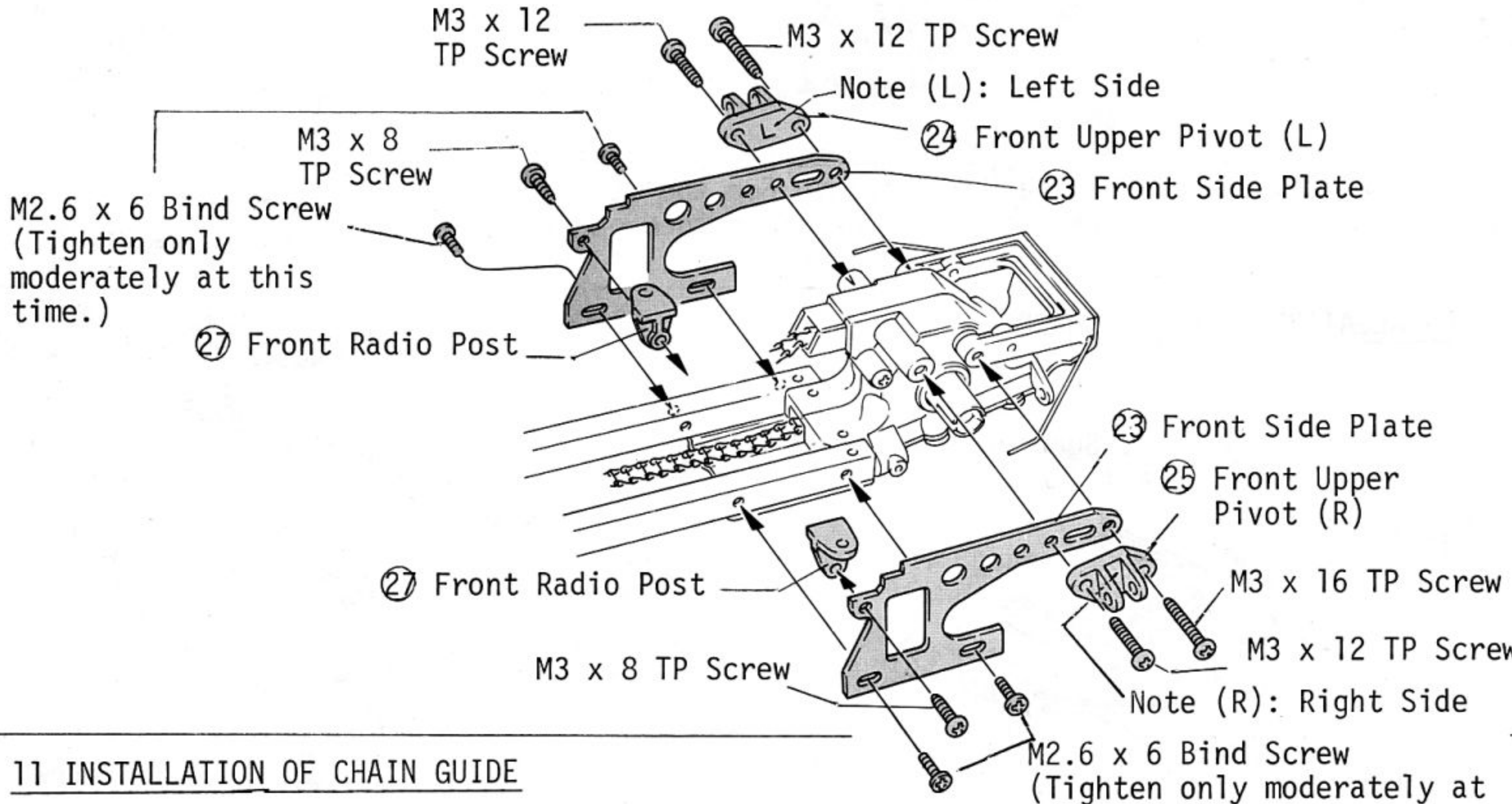


Note: Tighten the 4 M3 x 8 screws tentatively.

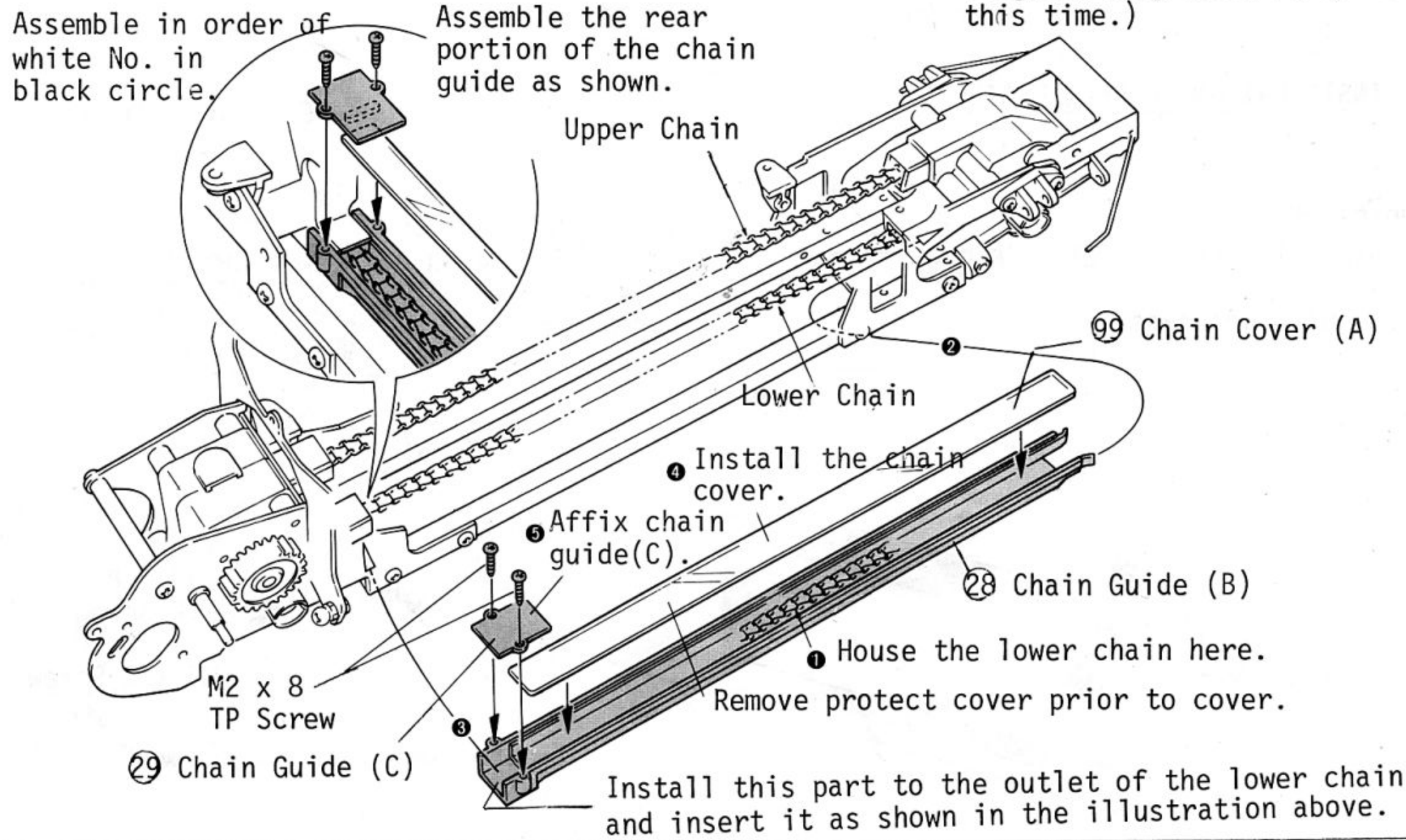
9 INSTALLATION OF BULK HEAD



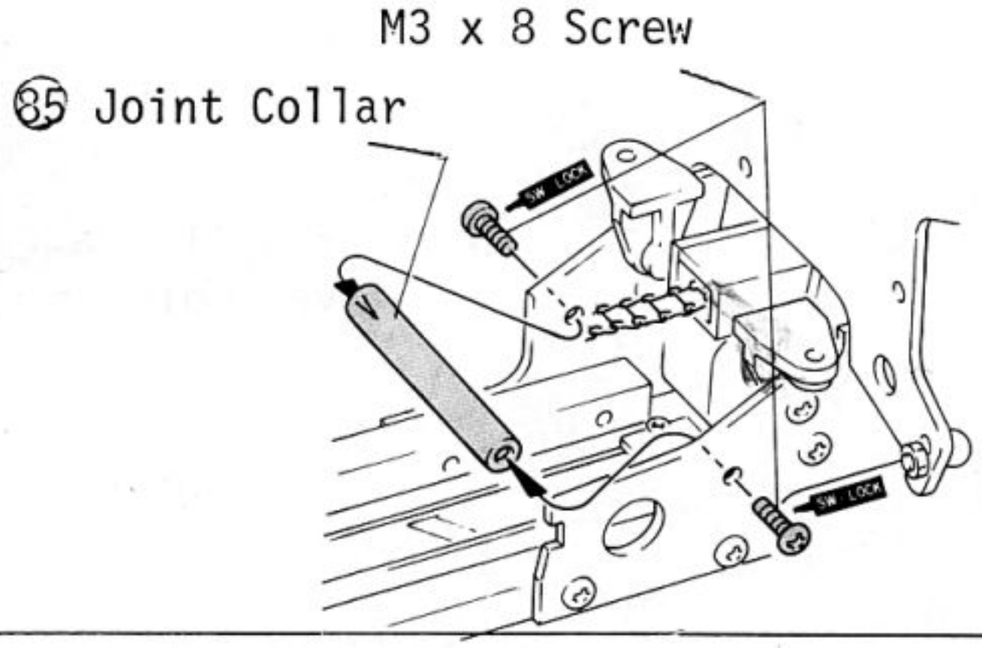
10 INSTALLATION OF FRONT SUPPORT



11 INSTALLATION OF CHAIN GUIDE



12 INSTALLATION OF JOINT COLLAR



If you have any difficulty to fix the joint collar (85), loosen the four M3 x 45 screws on the gearbox, then you can install it much easier.

13 ASSEMBLY OF SERVO SAVER

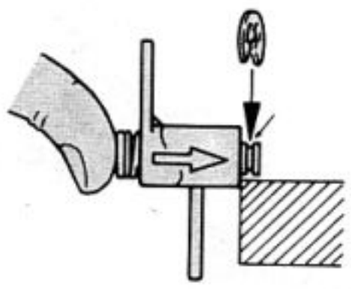
[Assembly of Servo Saver (A)]

1.

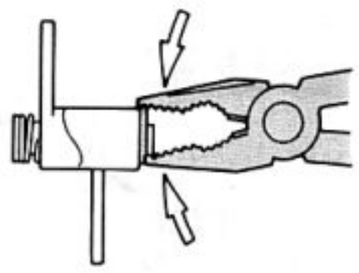
34 Servo Saver (A) 1set

E-Ring

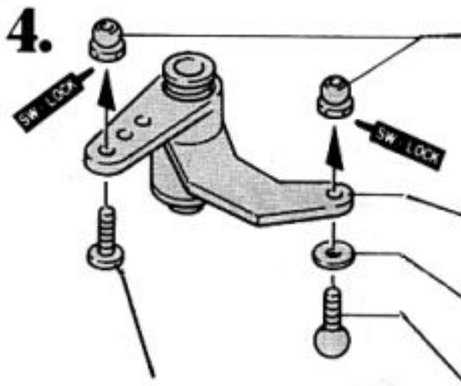
2. Push E-Ring into groove.



3. Attach them with pliers.



4.



31 Ball Nuts

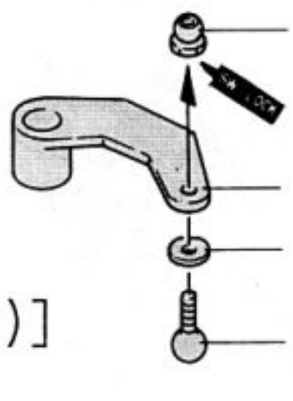
34 Servo Saver (A)

2.6 Washer (Black Color)

118 M2.6 Pivot Ball (Black Color)

M2.6 x 6 Bind Screw

[Assembly of Servo Saver (B)]



31 Ball Nut

35 Servo Saver (B)

M2.6 Washer (Black Color)

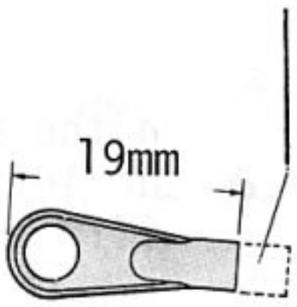
118 M2.6 Pivot Ball (Black Color)

14 INSTALLATION OF SERVO SAVER

[Screw in the Ball End]

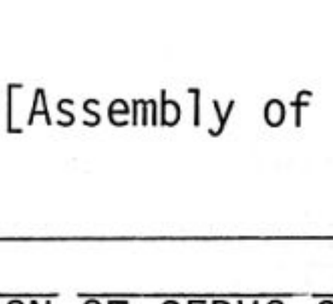
Remove this portion with knife.

1.

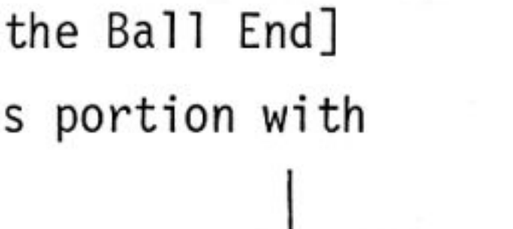


37 Ball End (S)

2.



36 M2 Shaft

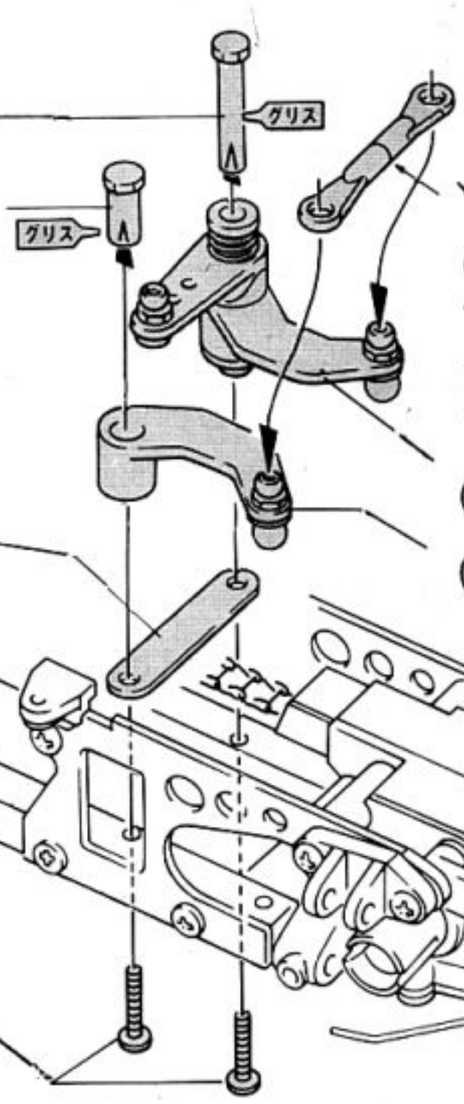


32 Saver Shaft (A)

33 Saver Shaft (B)

105 Saver Spacer

M2.6 x 15 Bind Screw



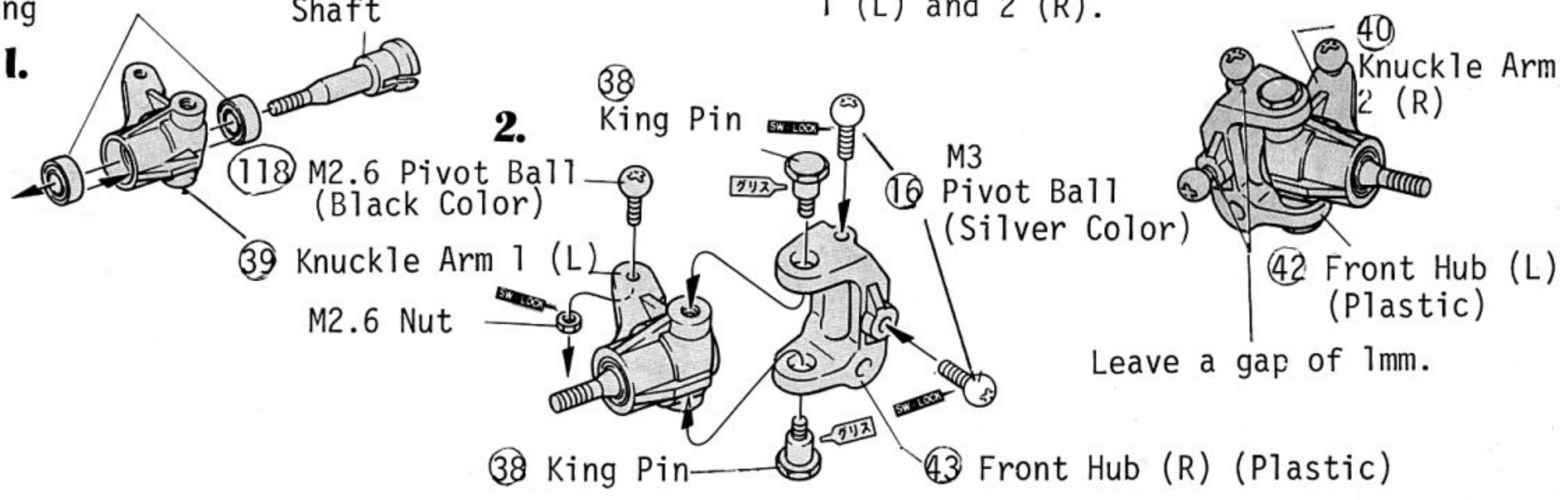
This is the ball end prepared in the step as shown in the left side illustration.

34 Servo Saver(A)

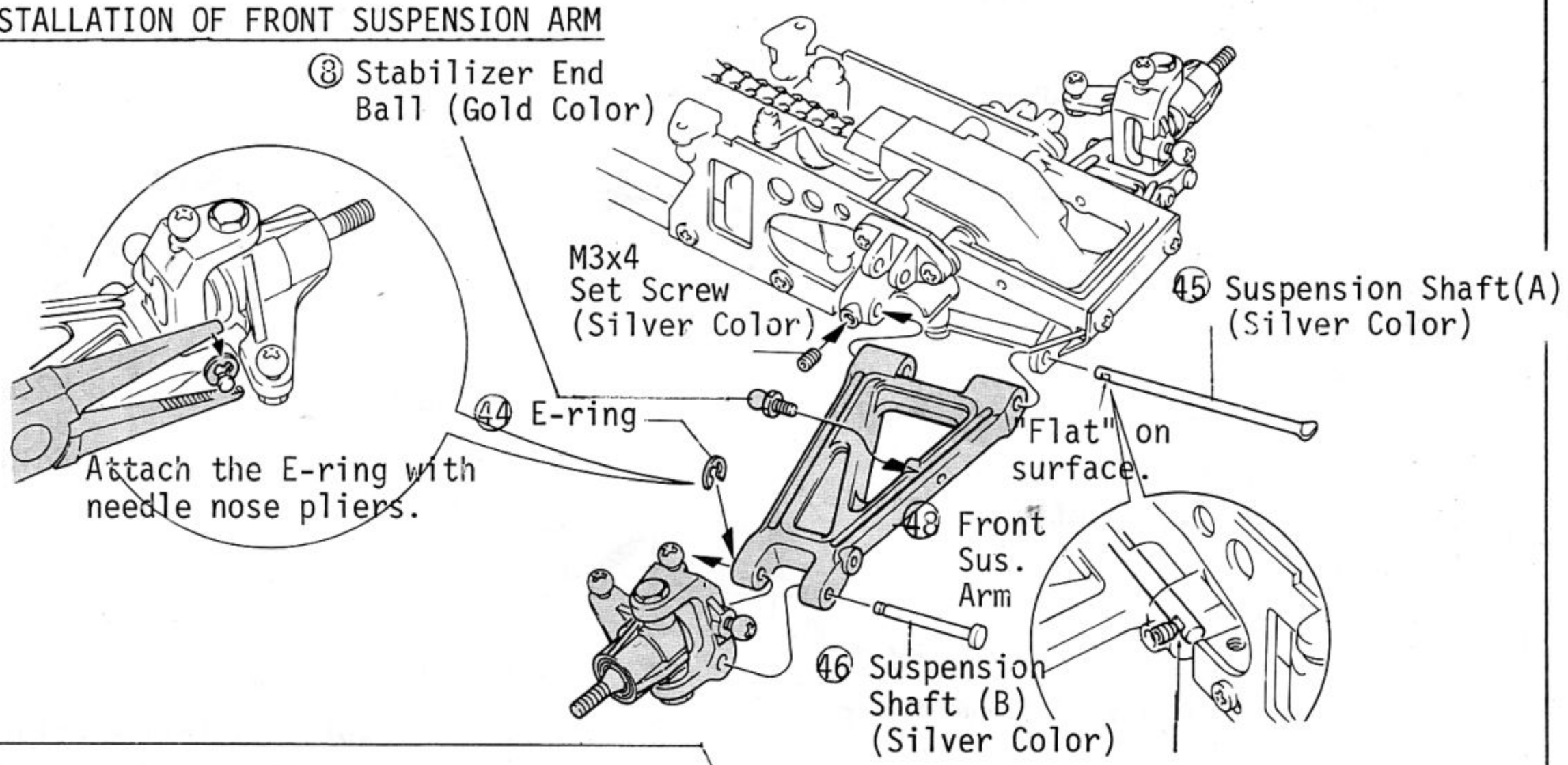
35 Servo Saver(B)

15 ASSEMBLY OF KNUCKLE ARM

*Before installing the knuckle arm onto chassis, be certain to confirm which is 1 (L) and 2 (R).



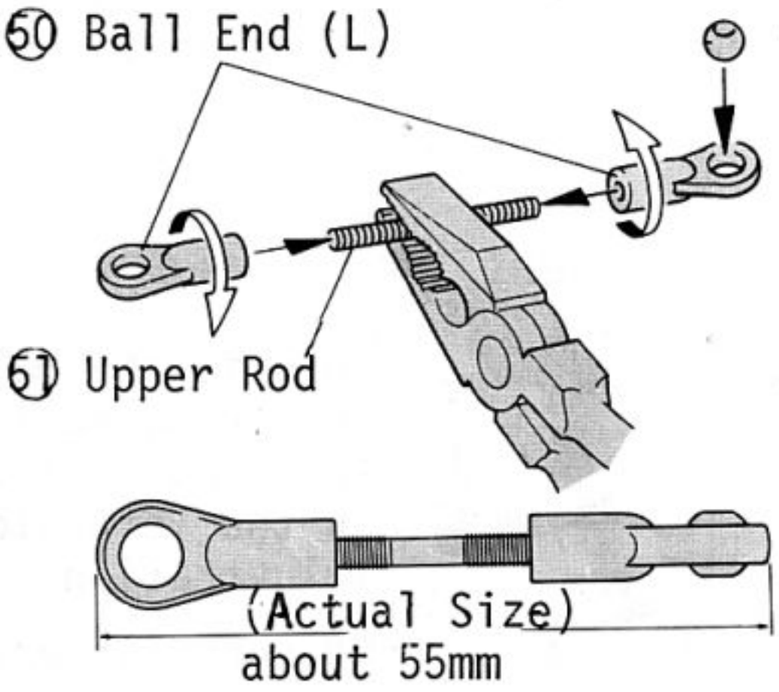
16 INSTALLATION OF FRONT SUSPENSION ARM



Fix the suspension shaft in such a way that the setscrew will hit on a flat on the shaft.

17 INSTALLATION OF FRONT UPPER ROD

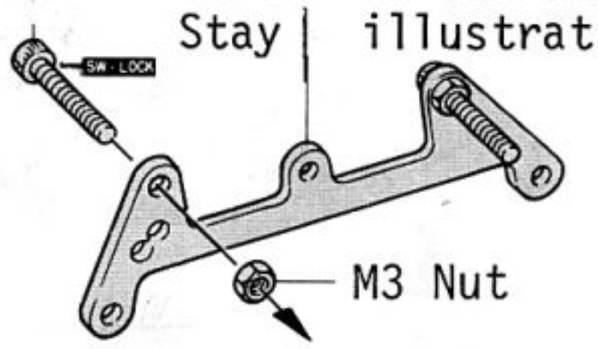
[Make two Upper Rods]



[Attach M3x18 cap bolts to the front shock stay]

M3 x 18 Cap Bolt

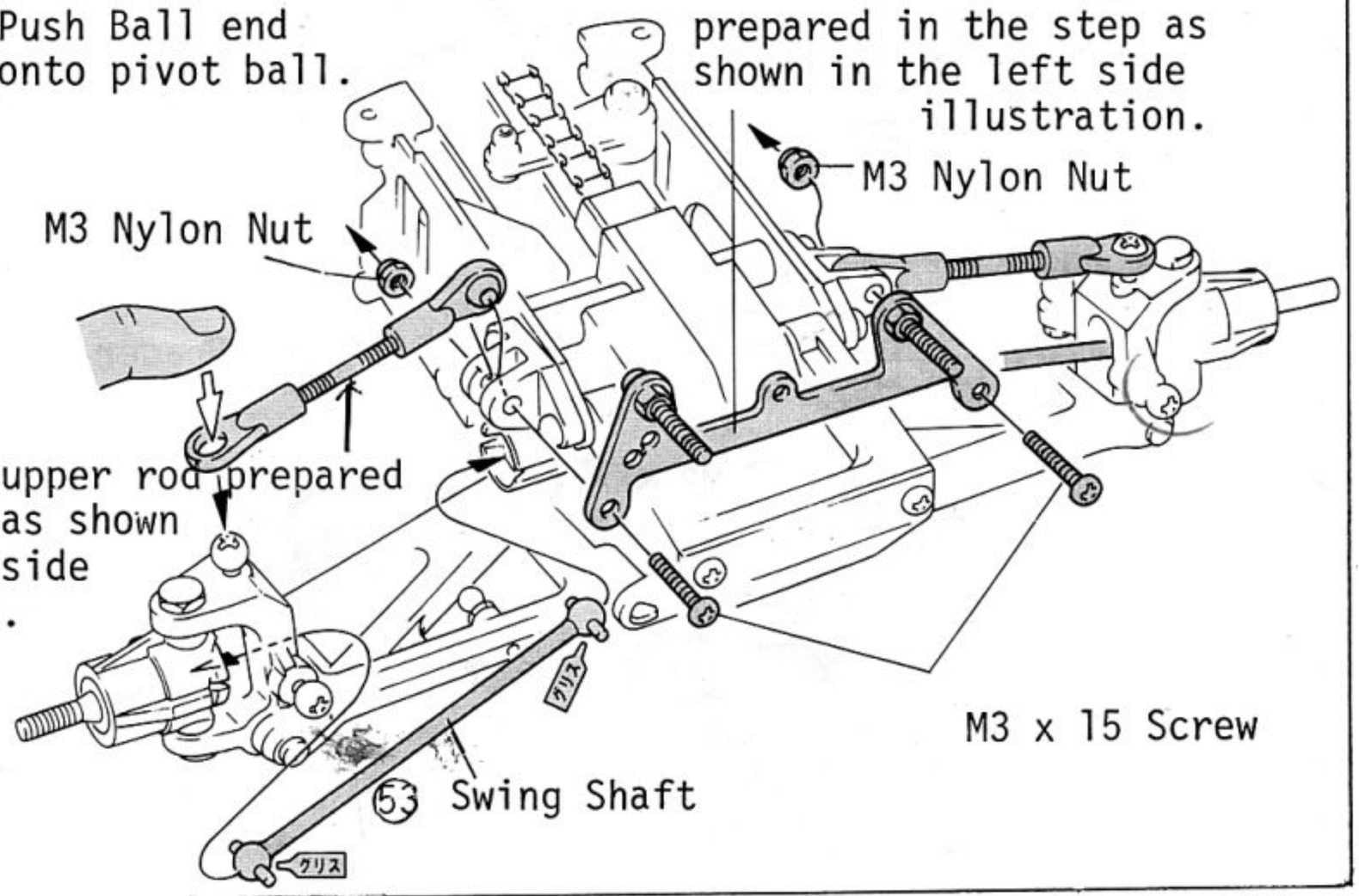
52 Front Shock Stay



Push Ball end onto pivot ball.

This is the upper rod prepared in the step as shown in the left side illustration.

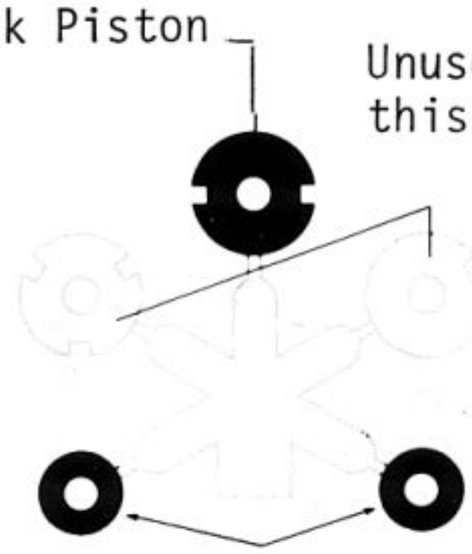
This is the front shock prepared in the step as shown in the left side illustration.



18 ASSEMBLY OF SHOCK

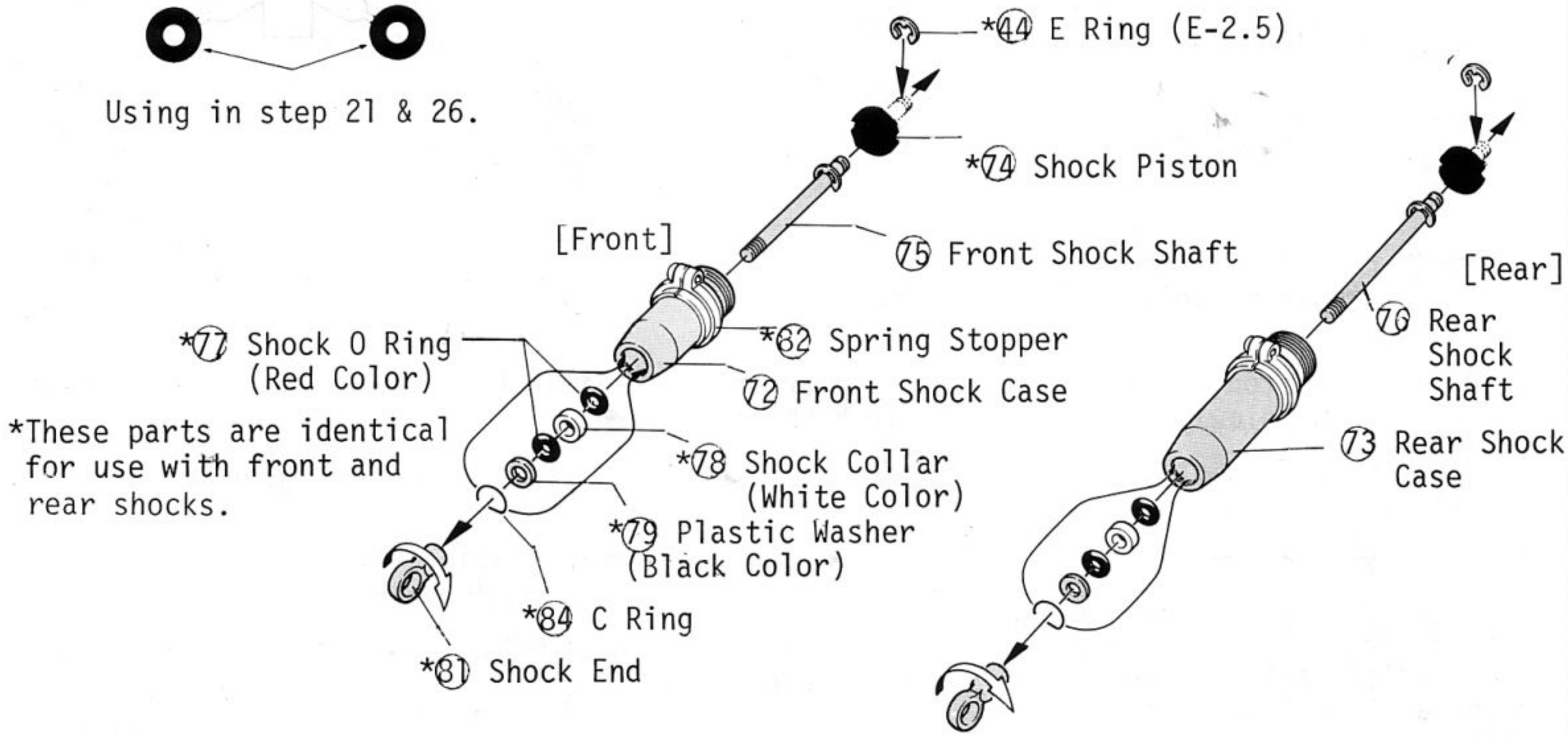
74 Shock Piston

Unused in this kit.

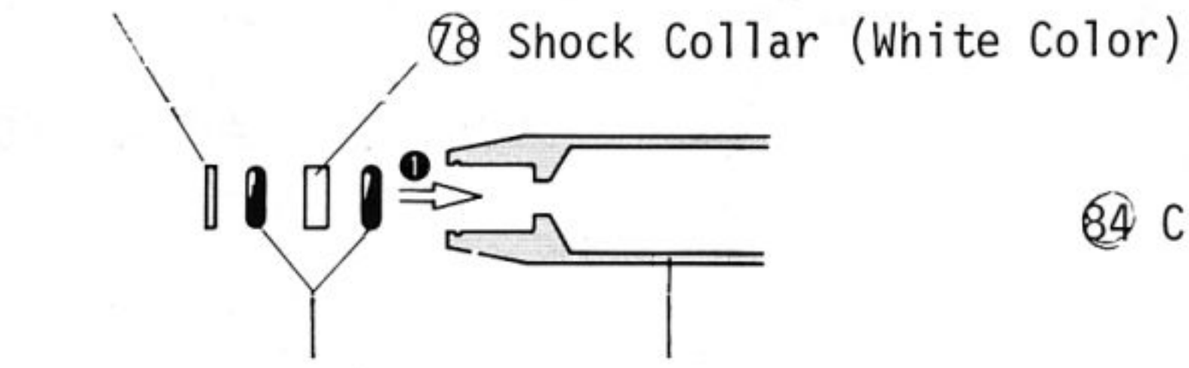


Using in step 21 & 26.

Cut off the stump of plastic runner carefully.

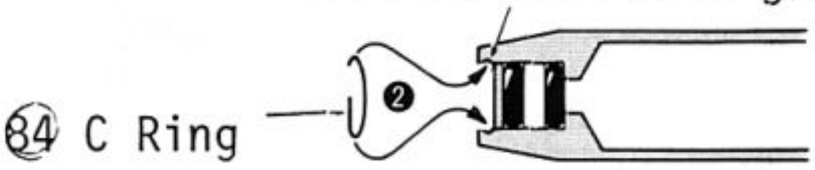


*These parts are identical for use with front and rear shocks.

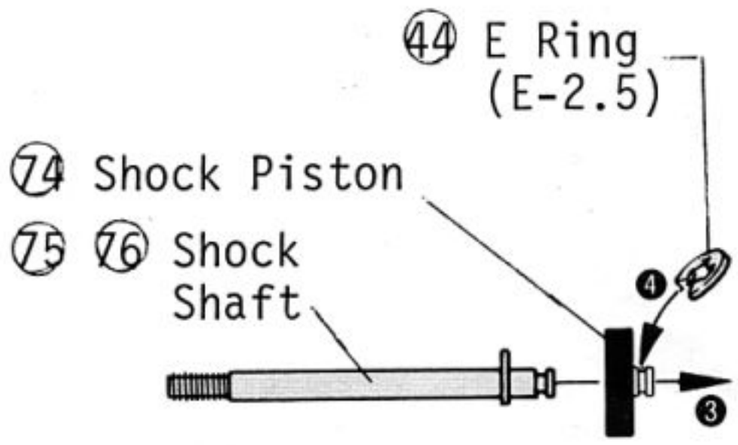


Fit a C-ring here. (Be careful not to loose it.)

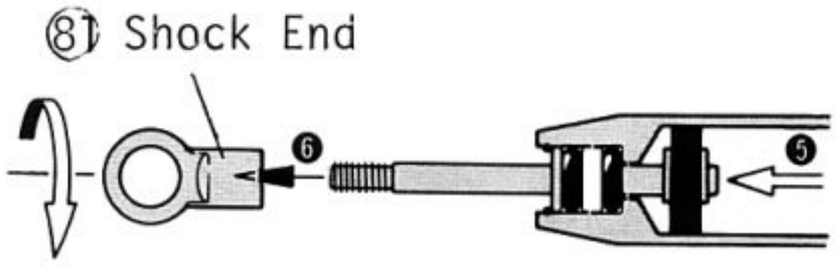
Fit it into this groove.



Secure the piston with an E-ring.



Let the shaft go through the shock case, and screw in the shock end.

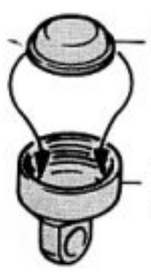


Screw it in.

19 FILLING SHOCK WITH OIL

[Installation of Diaphragm]

Fit the diaphragm (83) into the shock cap (155).

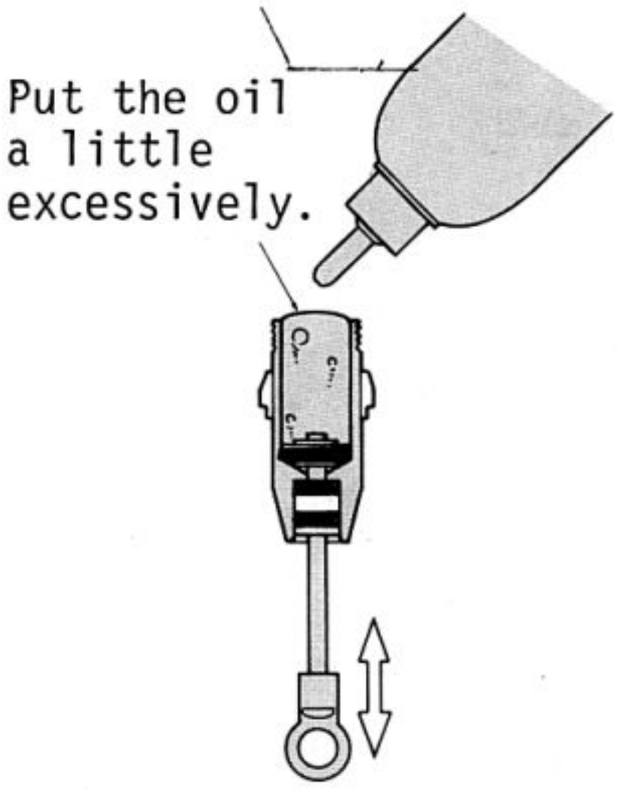


(83) Diaphragm

(155) Shock Cap

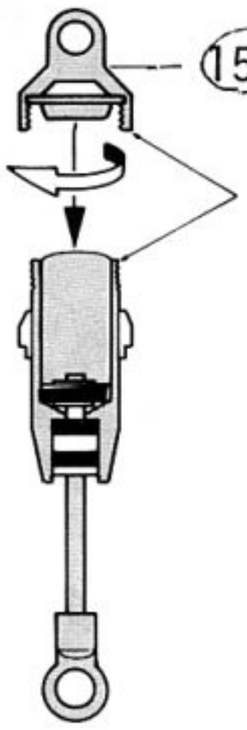
Fit it into the groove rigidly.

1. (71) Shock Oil



Put the oil a little excessively.

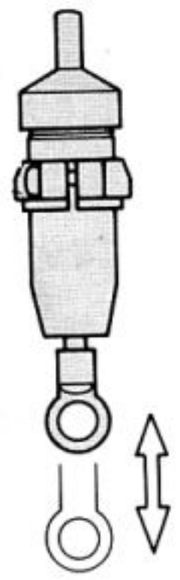
2.



(155) Shock Cap

Tighten the cap firmly so that no oil will run out.

3.



Movable smoothly

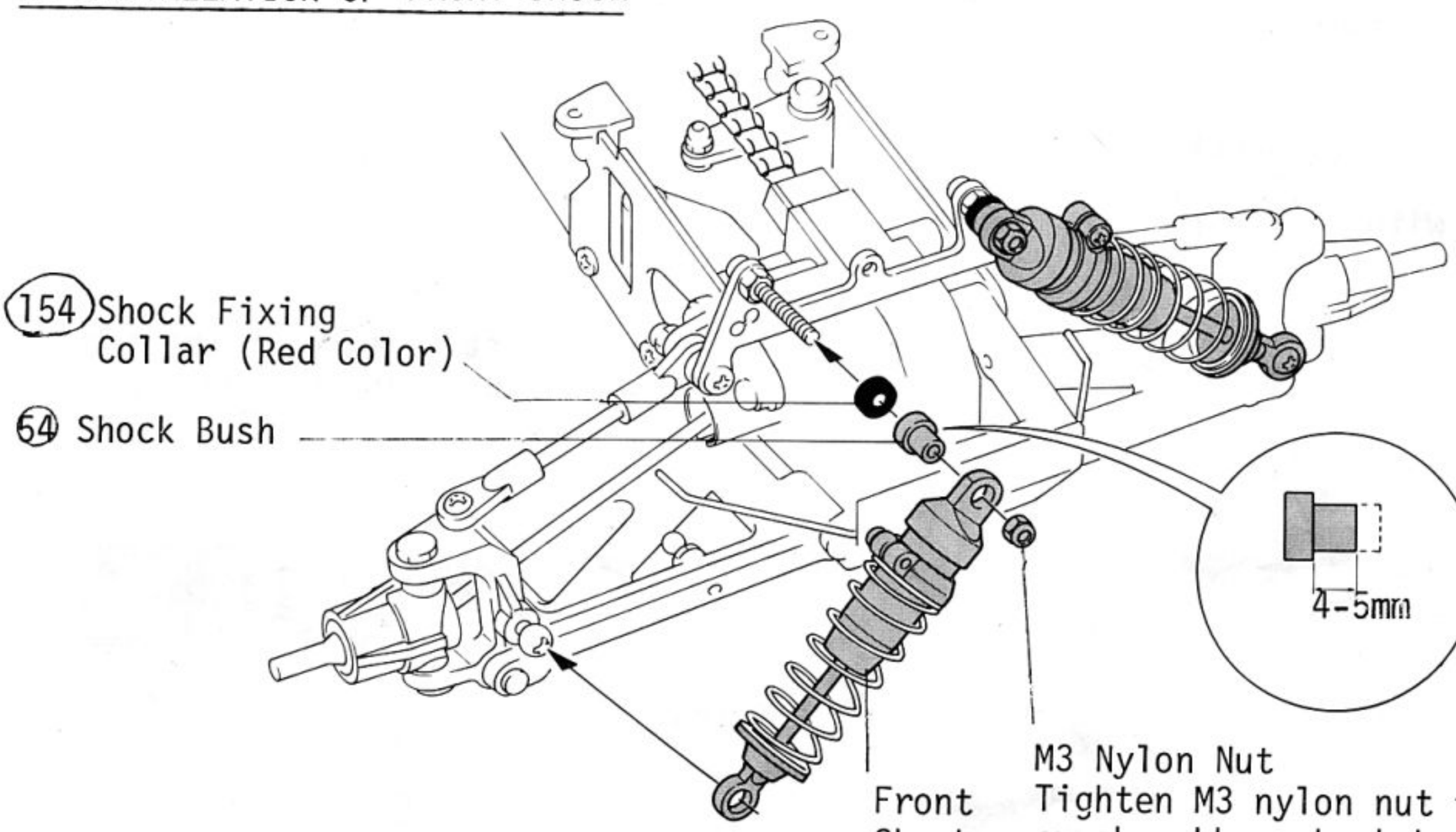
1. Push the piston all the way down and pour the oil little by little. Move the piston up and down slowly to get rid of air bubbles.
2. Keep the piston at the bottom and screw in the shock cap (155) gently, then any excessive oil will flow out.
3. Check to see if the piston will move smoothly by reciprocating it.

20 INSTALLATION OF SHOCK SPRING

The shorter spring is for front and the longer for rear.

The last step in assembling the shocks is to fit the spring holder (80) by compressing the spring.

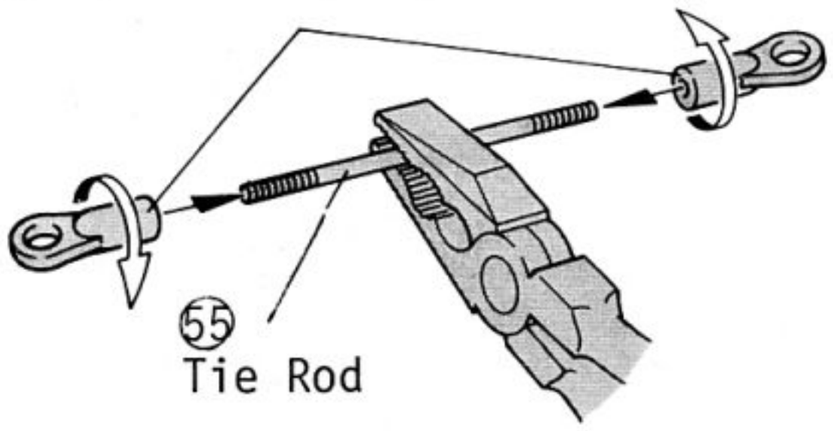
21 INSTALLATION OF FRONT SHOCK

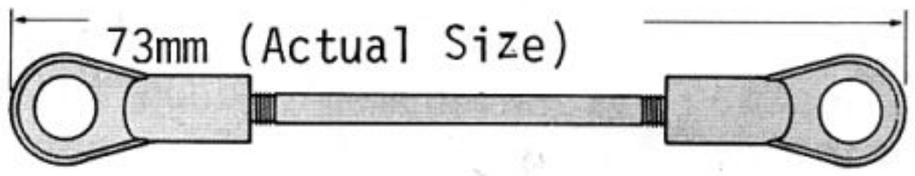


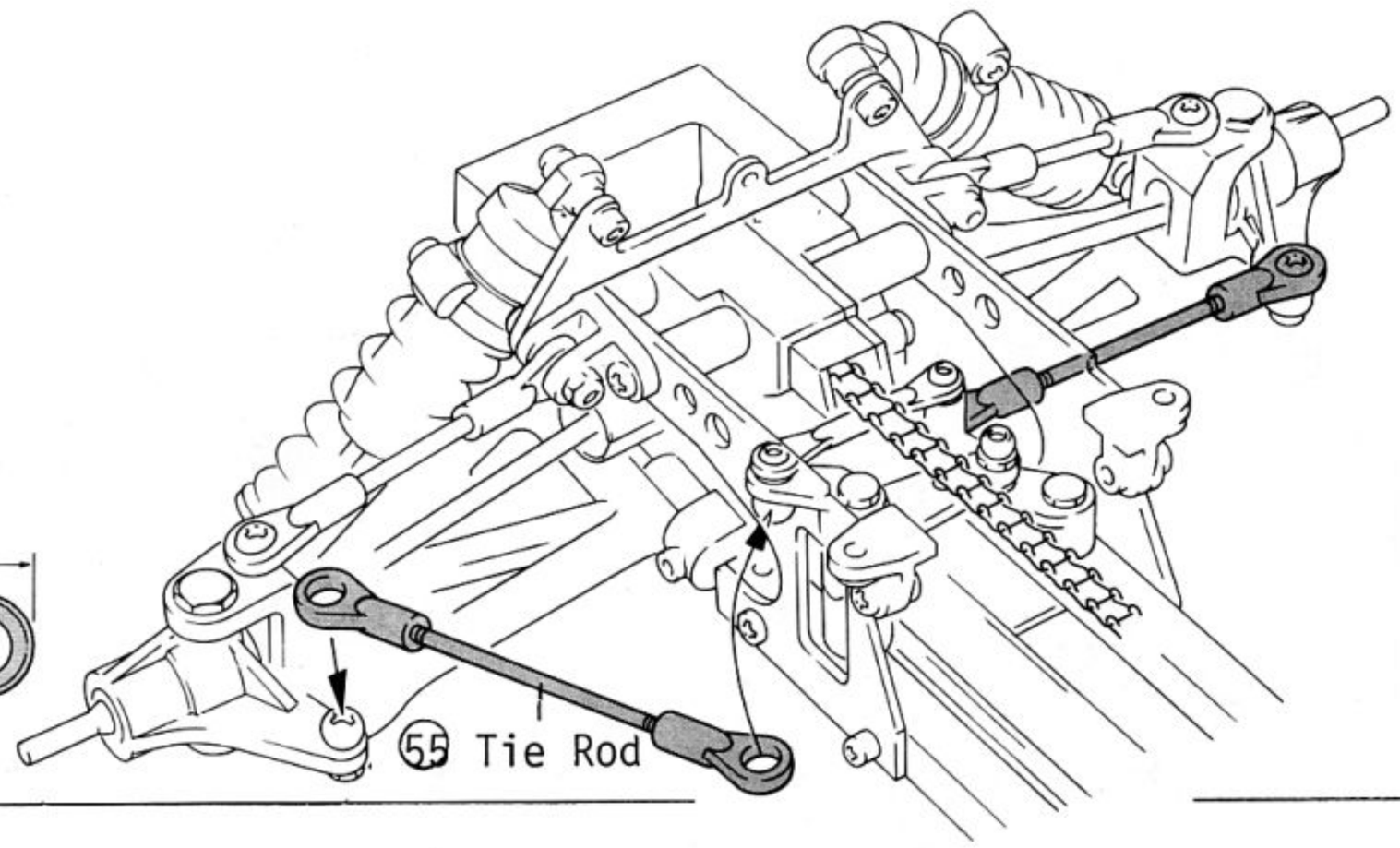
22 INSTALLATION OF TIE ROD

[Make two Tie Rod]

(60) Ball End (Large)





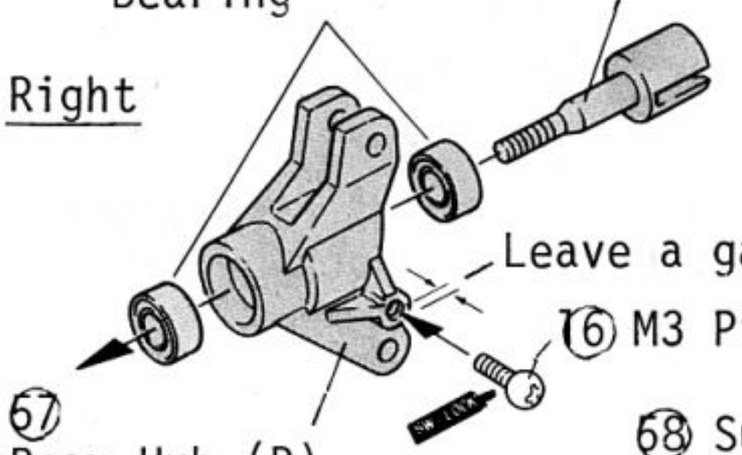


23 INSTALLATION OF REAR HUB

(119) 5øx10 Bearing

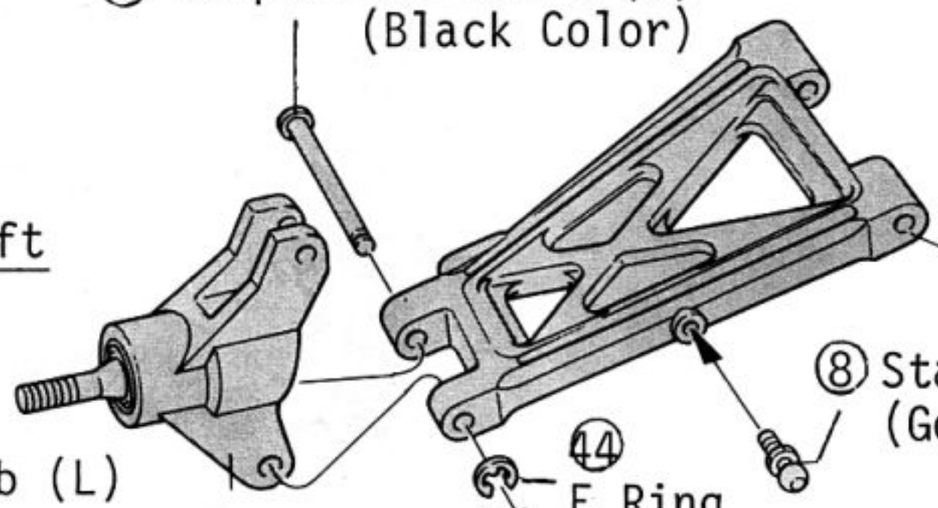
(56) Rear Shaft

Right



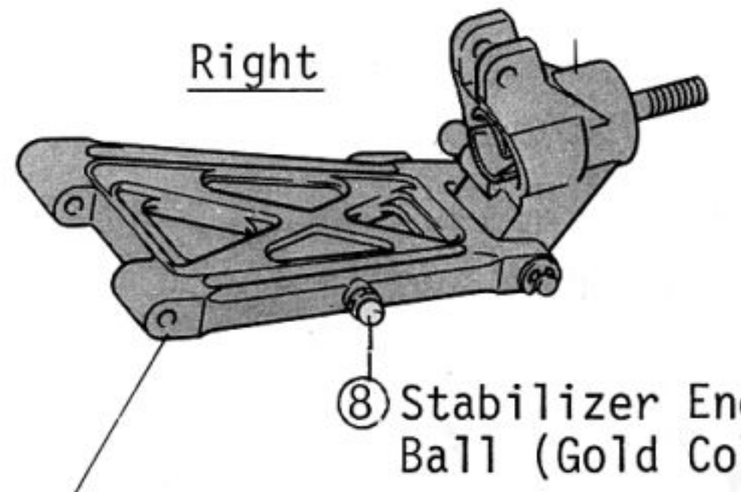
*Assemble the left side rear hub (L) (139) in the same way.

(68) Suspension Shaft (C) (Black Color)

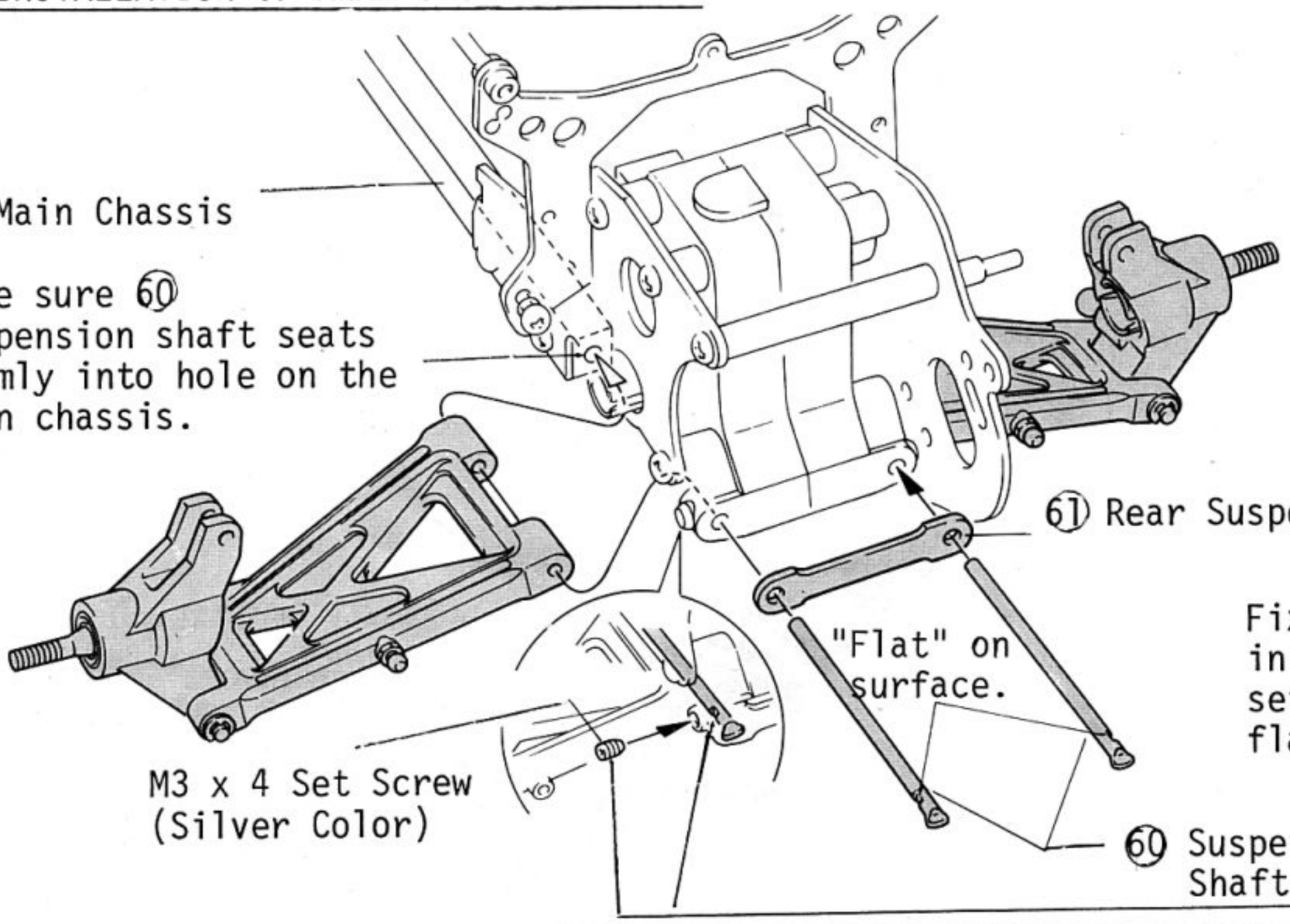


(57) Rear Hub (R)

Right

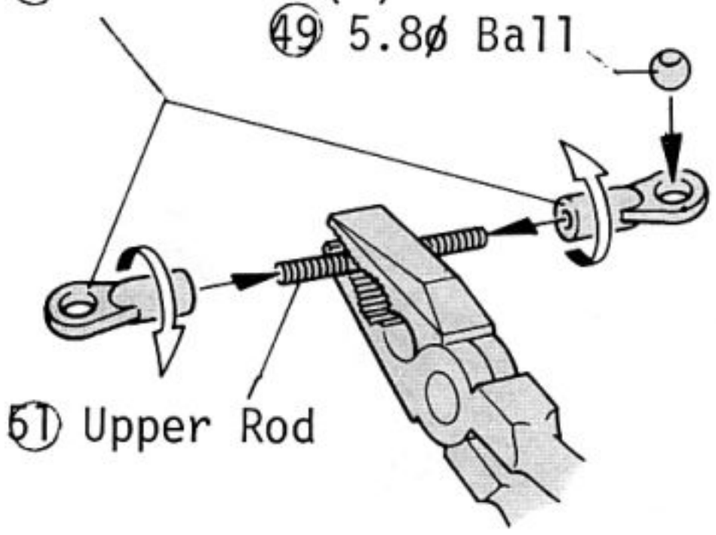


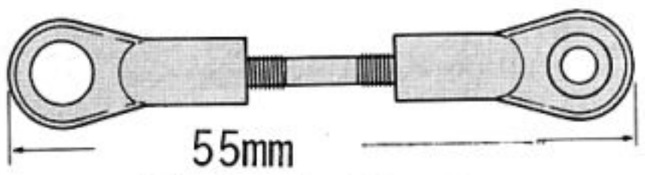
24 INSTALLATION OF REAR SUSPENSION ARM

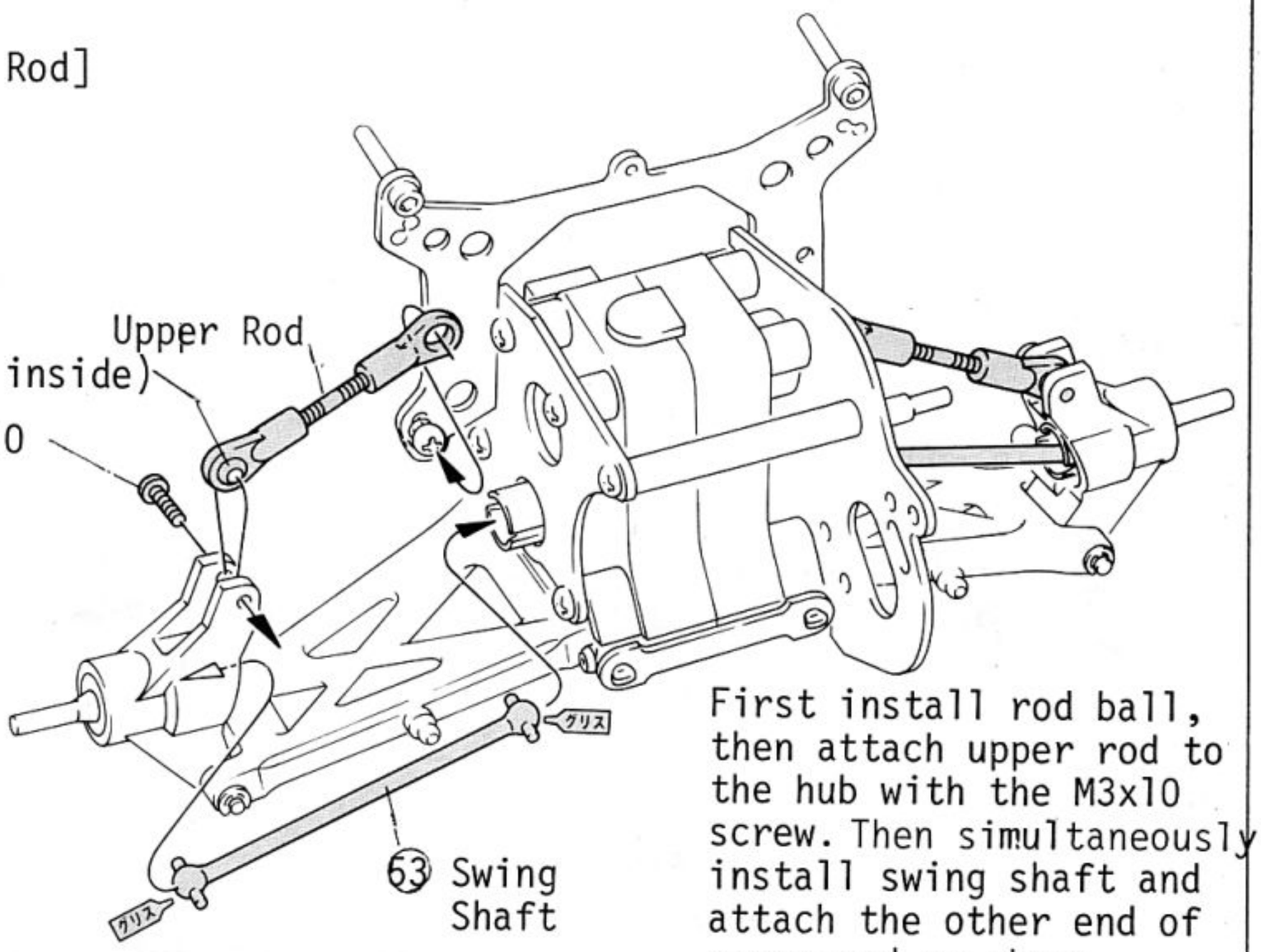


25 INSTALLATION OF REAR UPPER ROD

[Make two Upper Rod]

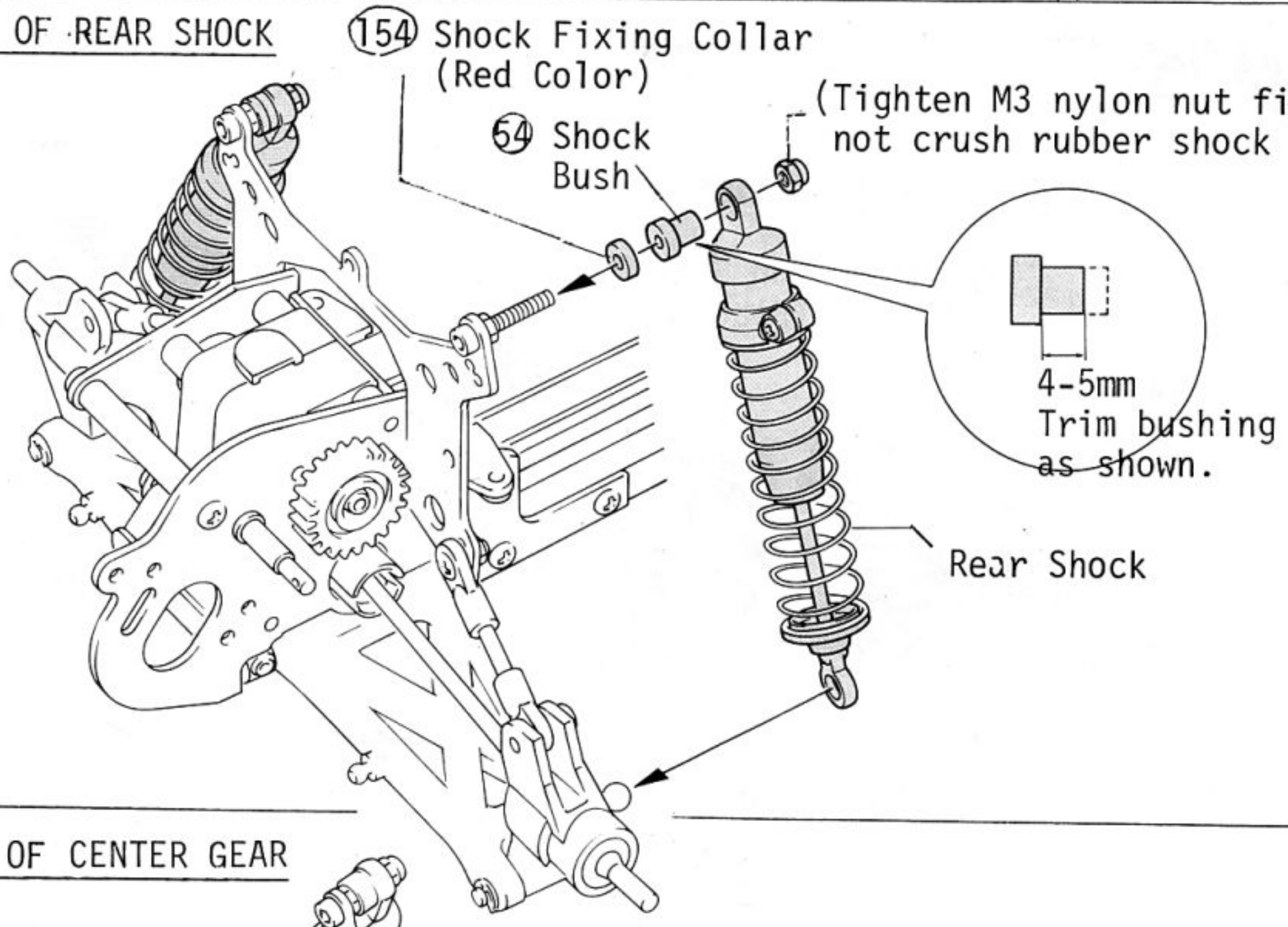




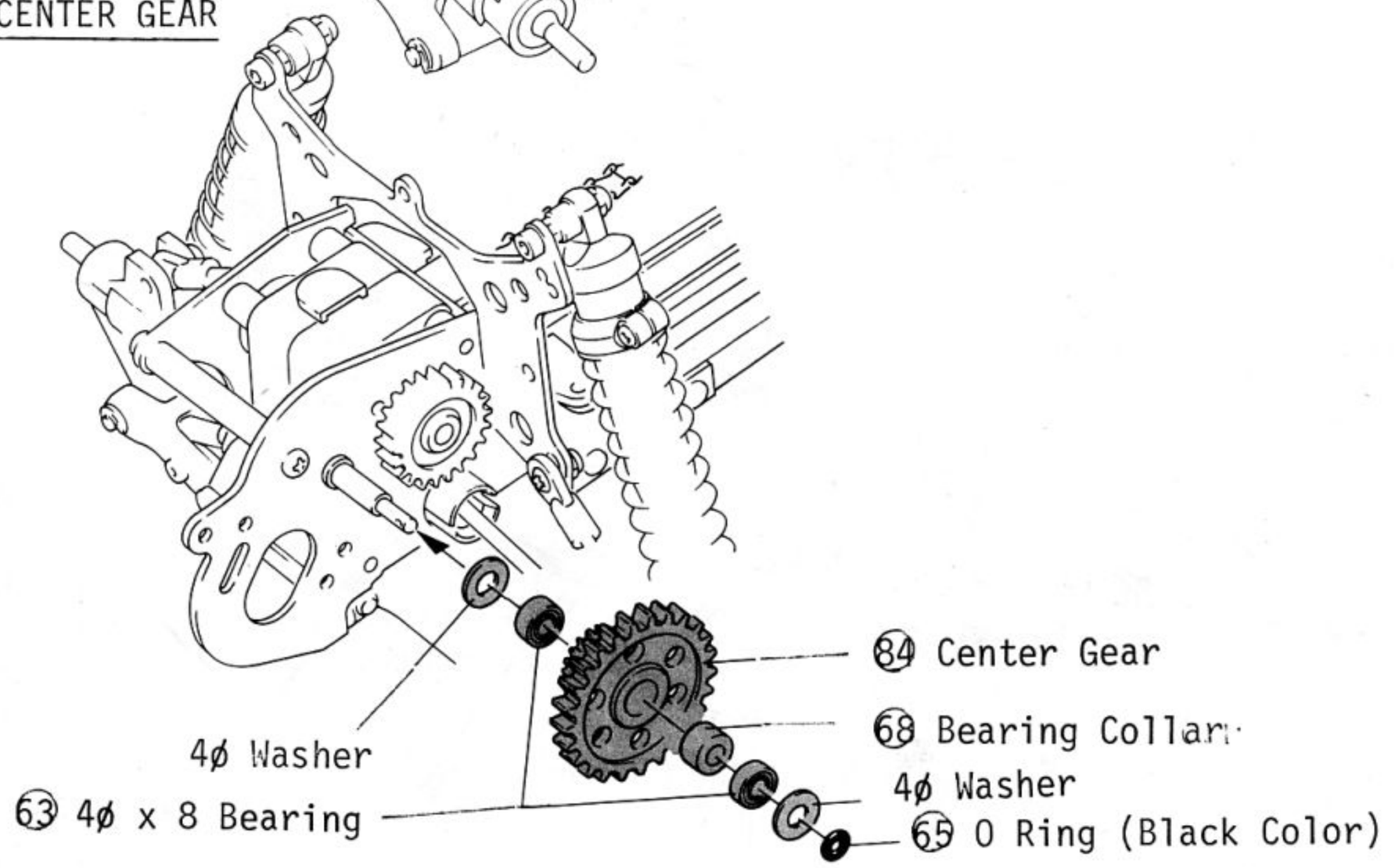


First install rod ball, then attach upper rod to the hub with the M3x10 screw. Then simultaneously install swing shaft and attach the other end of upper rod as shown.

26 INSTALLATION OF REAR SHOCK



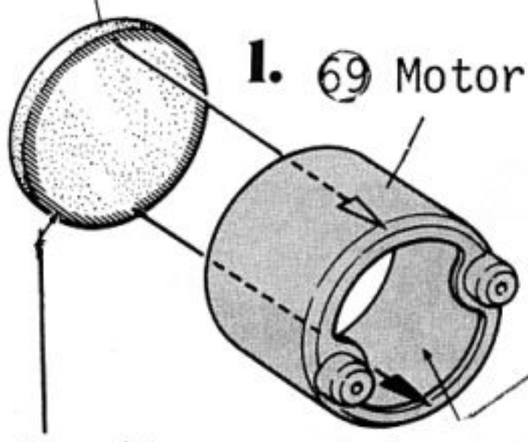
27 INSTALLATION OF CENTER GEAR



28 INSTALLATION OF MOTOR

[Installation of Motor Cover]

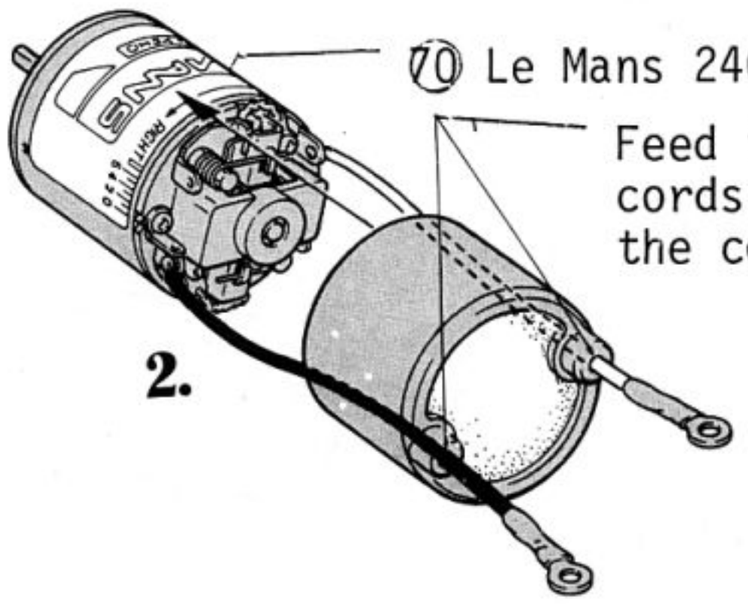
(146) Motor Cleaner



1. (69) Motor Cover

Perforate the side as shown in the drawing before fitiing the motor cleaner.

Put rubber cement on striped portion and install it inside of the motor cover.

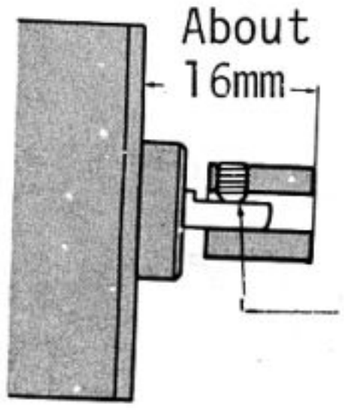


(70) Le Mans 240S Motor

Feed the motor cords through the cover

2.

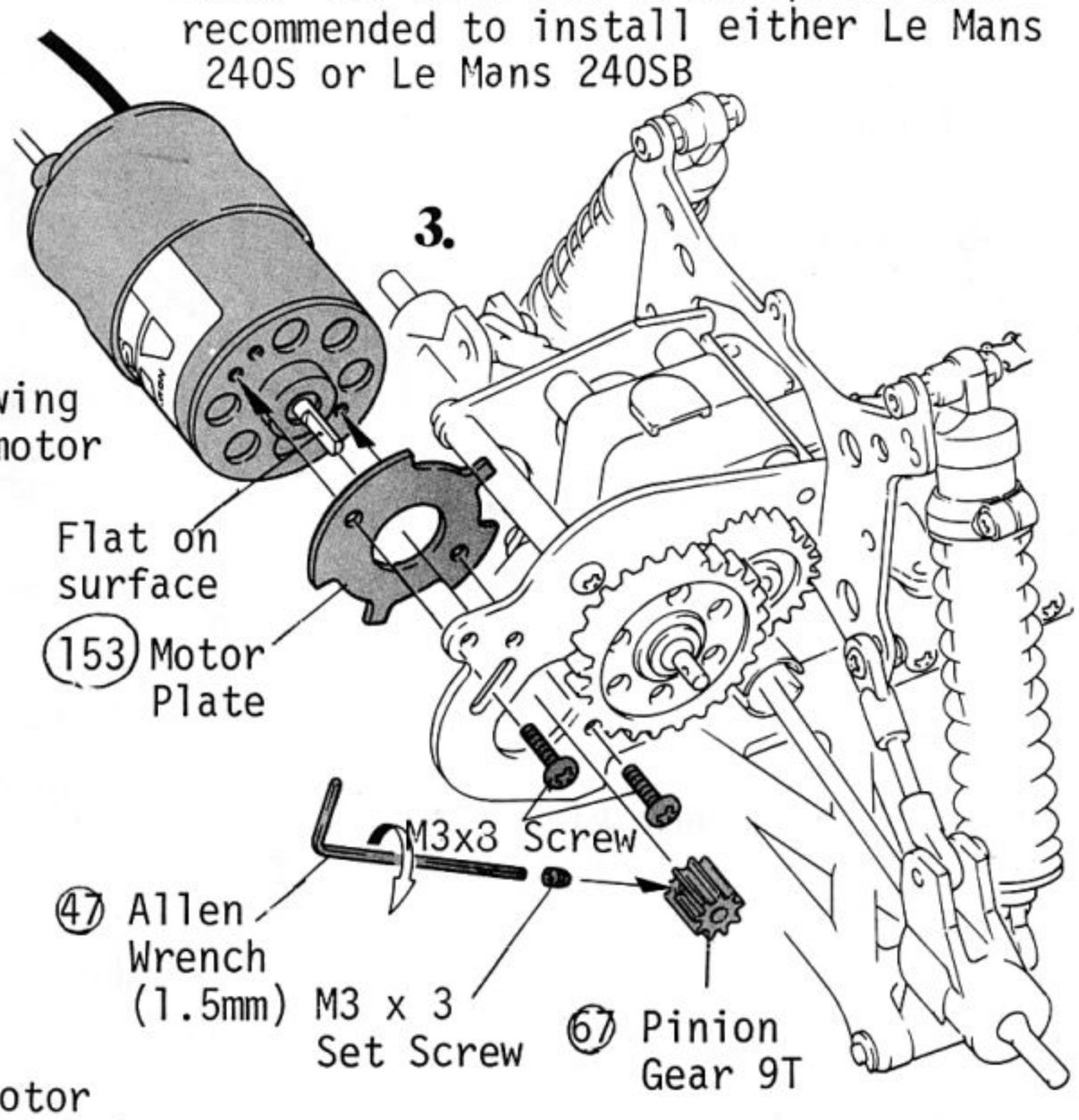
Connect the motor cord and motor with solder. Red cord to (+) and white to (-)



About 16mm

Tighten set screw to flat surface on motor shaft.

Motor for this kit is an option and recommended to install either Le Mans 240S or Le Mans 240SB



3.

Flat on surface

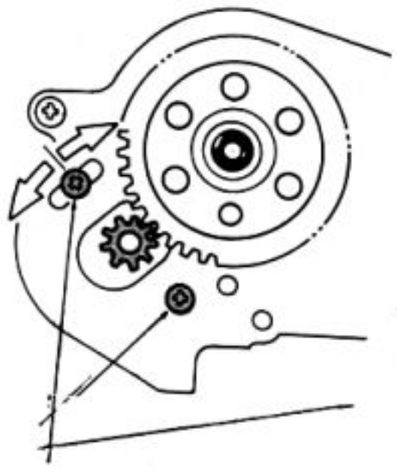
(153) Motor Plate

M3x3 Screw

(47) Allen Wrench (1.5mm)

M3 x 3 Set Screw

(67) Pinion Gear 9T

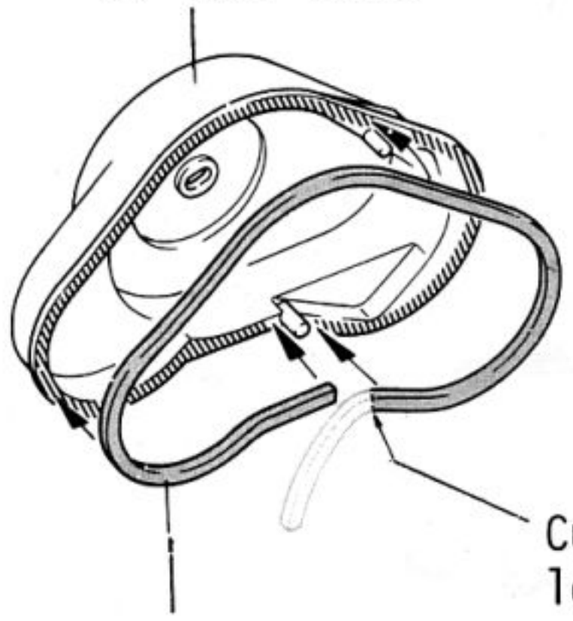


[Adjustment of rolling gear]

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

29 INSTALLATION OF GEAR COVER

(86) Gear Cover



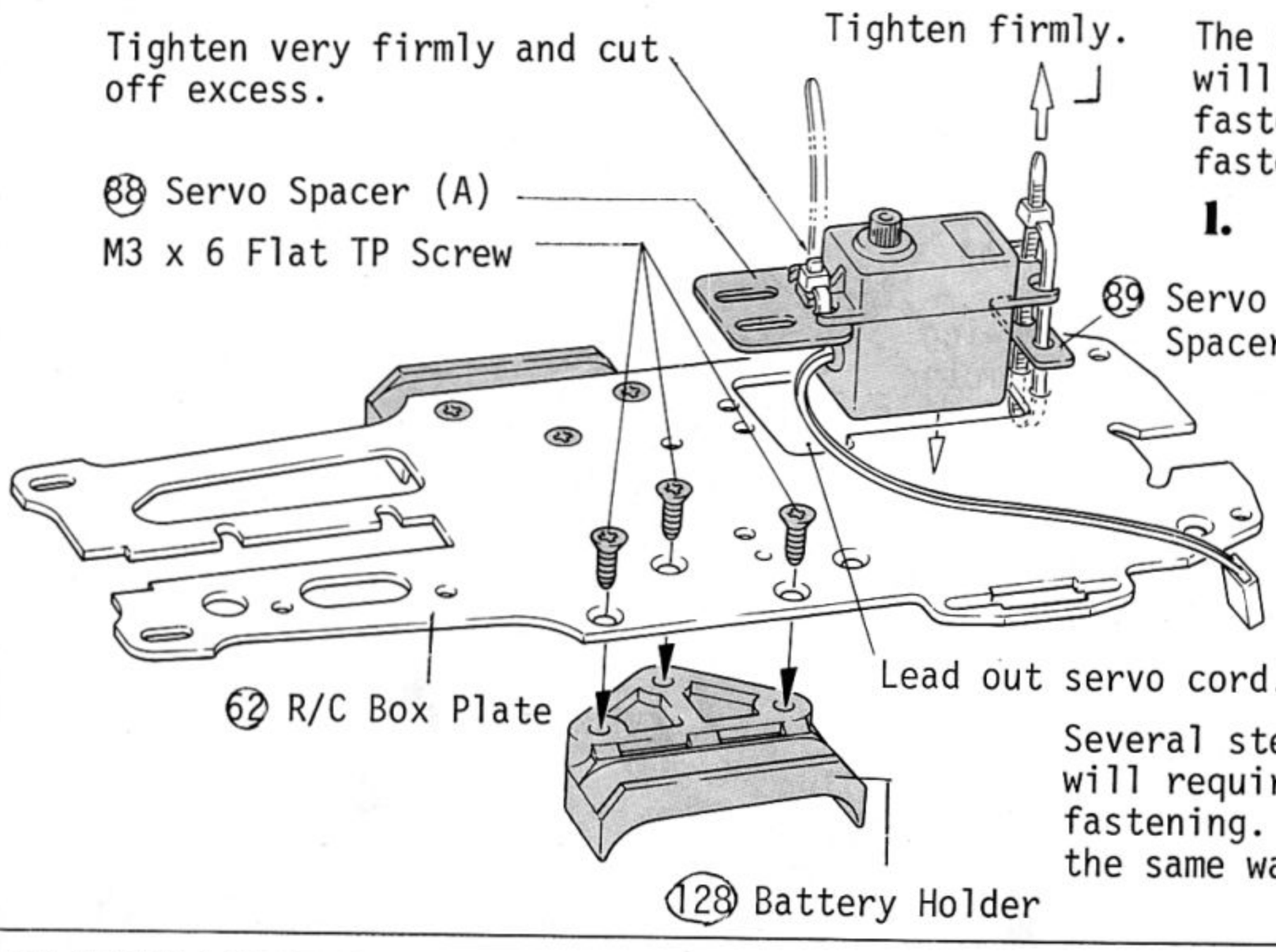
Cut the seal to length.

(87) Gear Cover Seal (Home Rubber)

Unseal them from backing and seal them on striped portion.

(66) Hook Pin

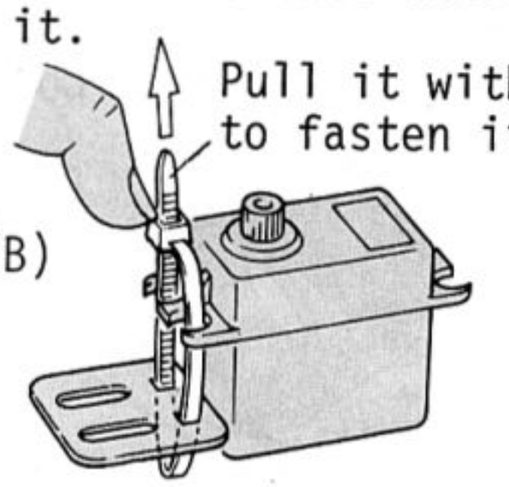
30 INSTALLATION OF MINI-SIZE SERVO



[How to Fasten the Strap (S)]

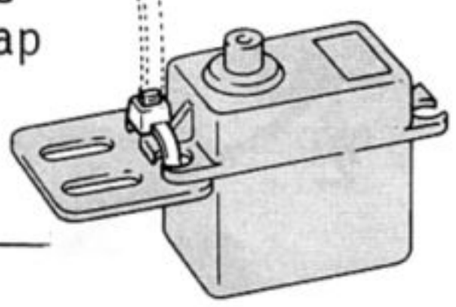
The strap is so designed that it will not be undone after once fastened. So be sure where to fasten it.

1. Pull it with pliers to fasten it tightly.



2. After fastening it, cut off the excess portion.

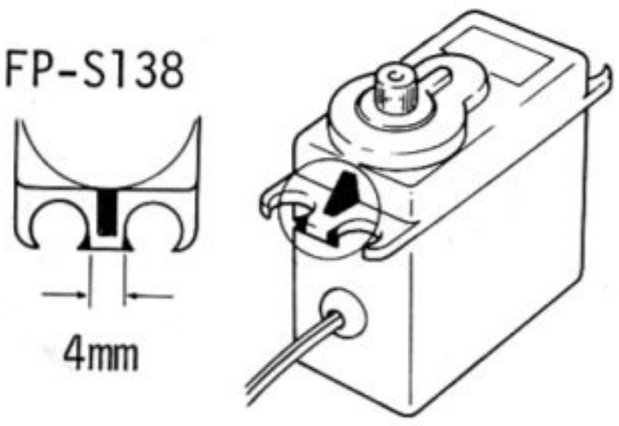
Several steps to come will require the strap fastening. Do it in the same way.



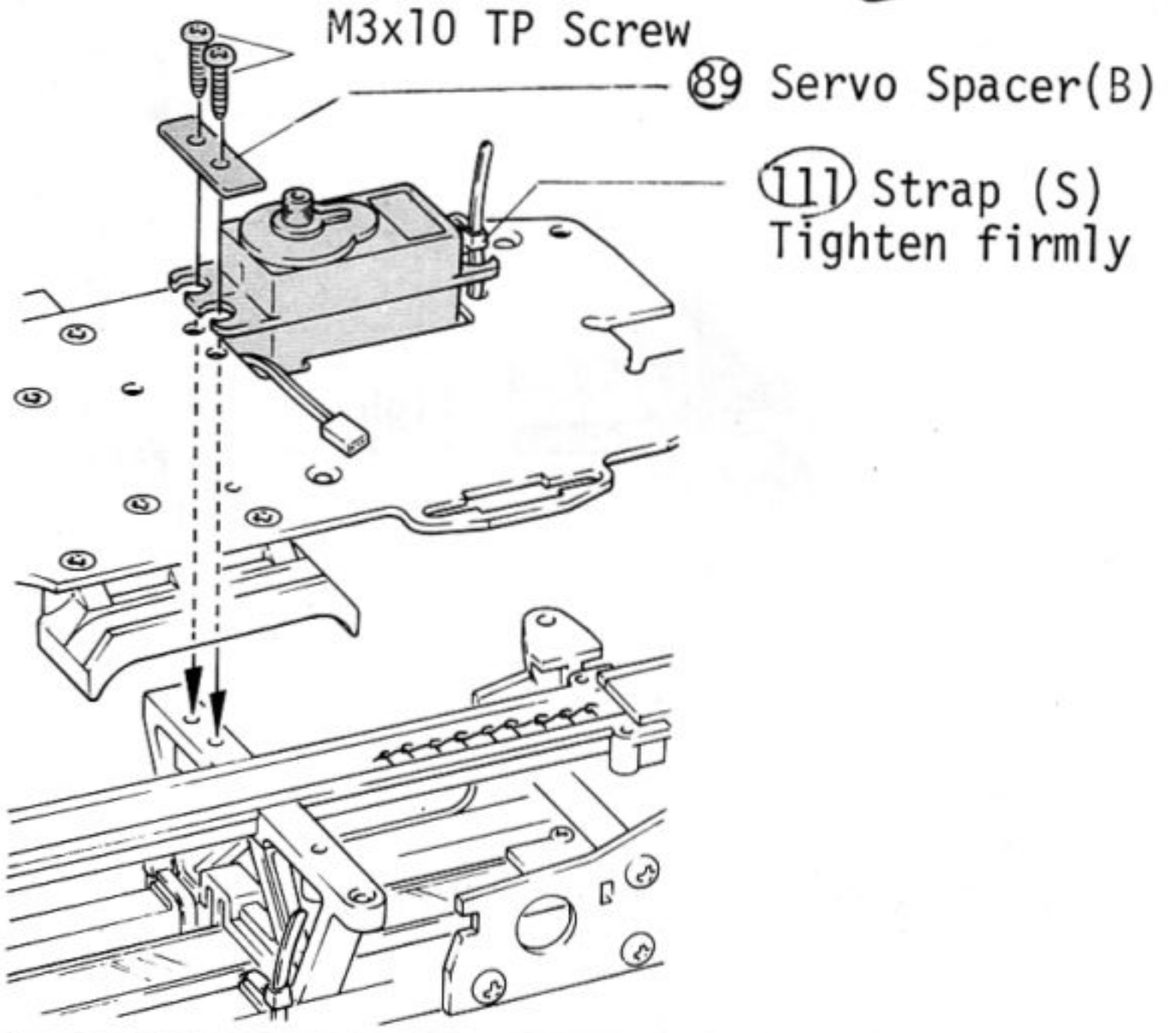
31 INSTALLATION OF MID-SIZE SERVO

When employing any servo listed below, prepare it as shown in the drawing beneath.

Futaba ... FP-S28, FP-S138
Sanwa SM631
KO PS-VM3
JR NES-505



Shave-off excess part with a file.

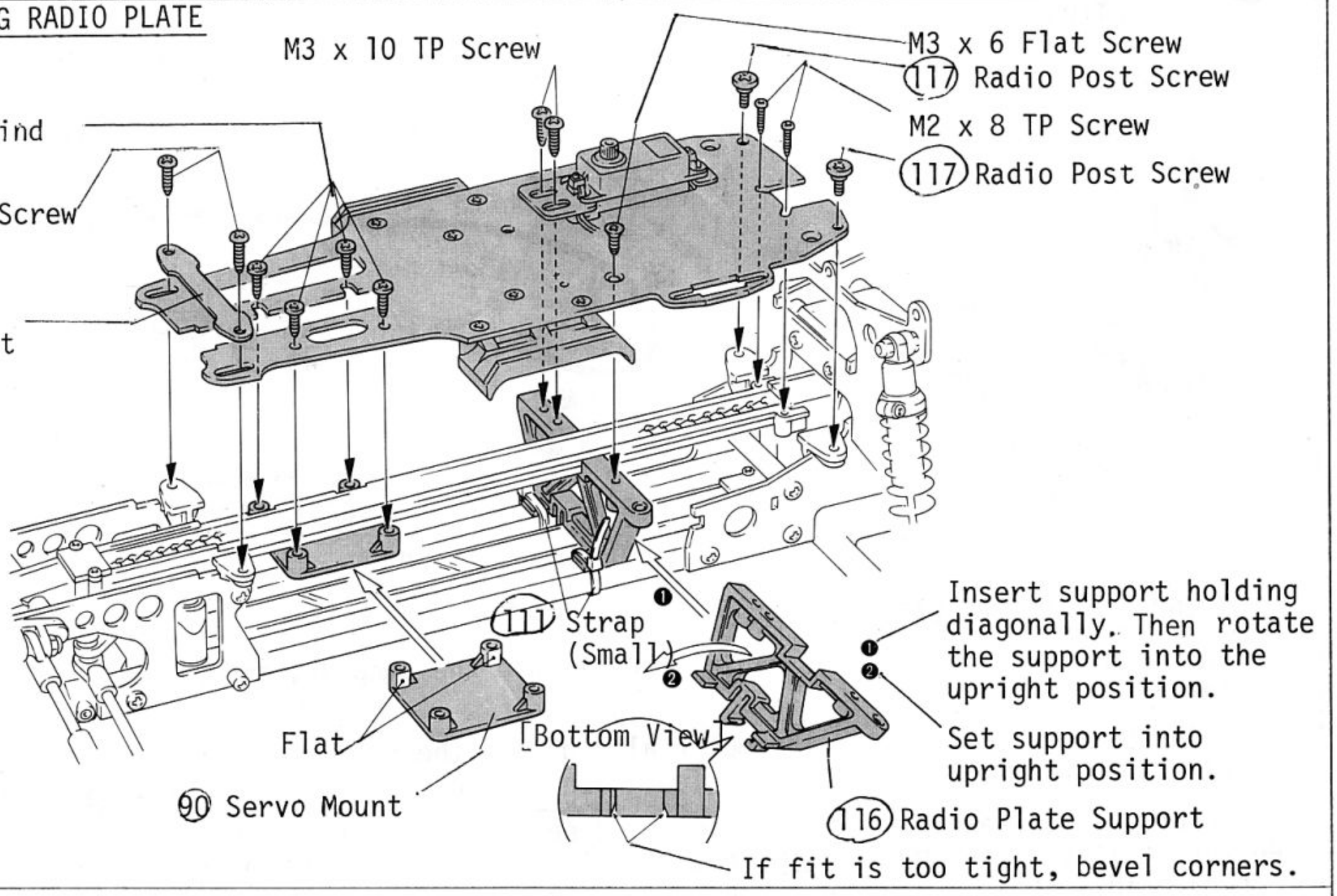


32 INSTALLATION OF CHAIN GUIDE(A)

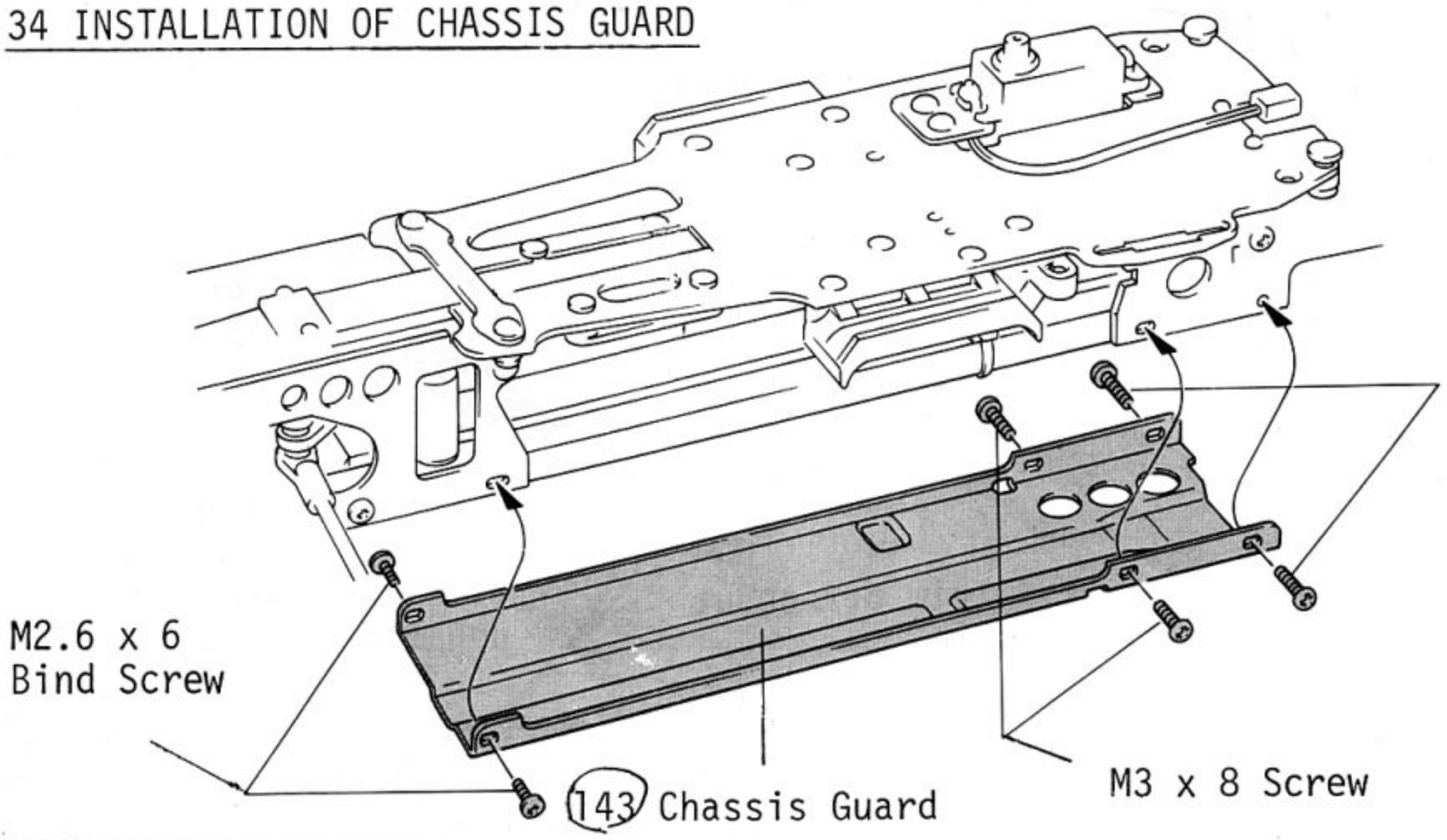
M2 x 8 TP Screw
100 Chain Guide (D)

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

33 MOUNTING RADIO PLATE

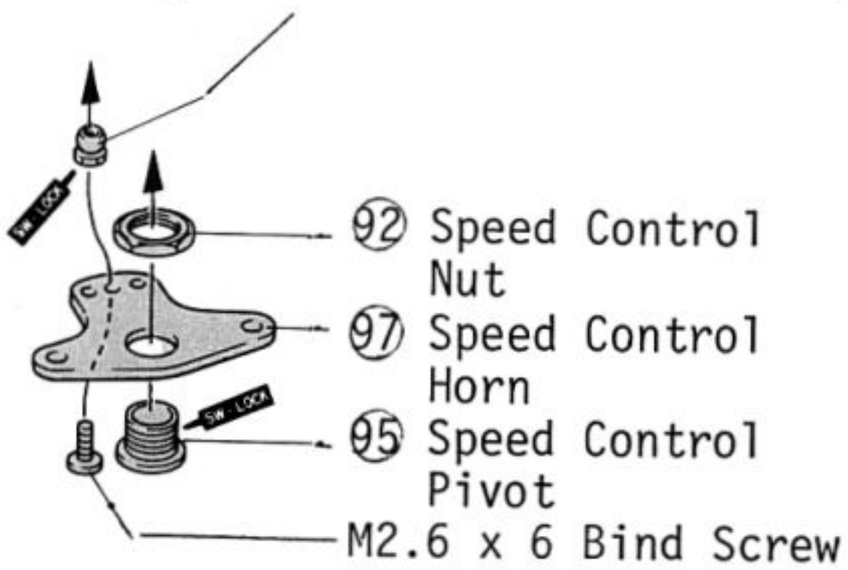


34 INSTALLATION OF CHASSIS GUARD



35 FIXING OF CEMENT RESISTOR

36 INSTALLATION OF SPEED CONTROL



(31) Ball Nut

(92) Speed Control Nut

(97) Speed Control Horn

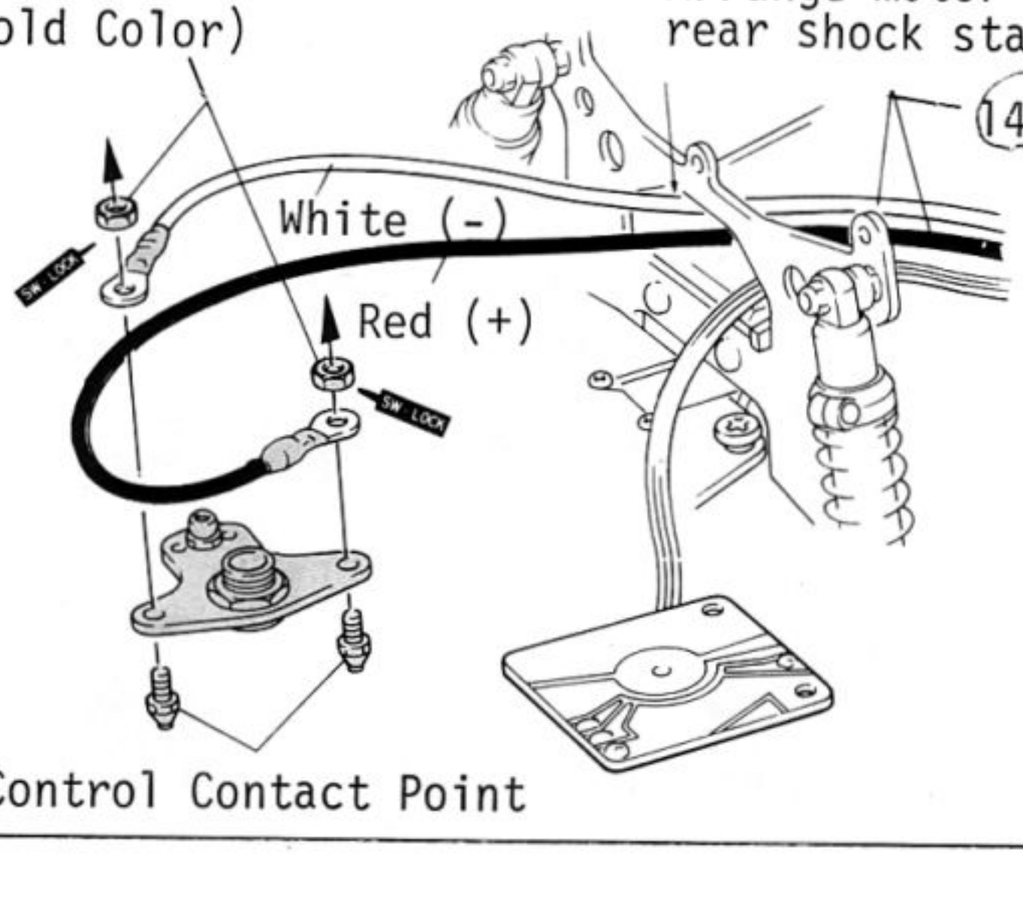
(95) Speed Control Pivot

M2.6 x 6 Bind Screw

M3 Nut (Gold Color)

Arrange motor cords through rear shock stay.

(140) Motor Cord



(93) Speed Control Contact Point

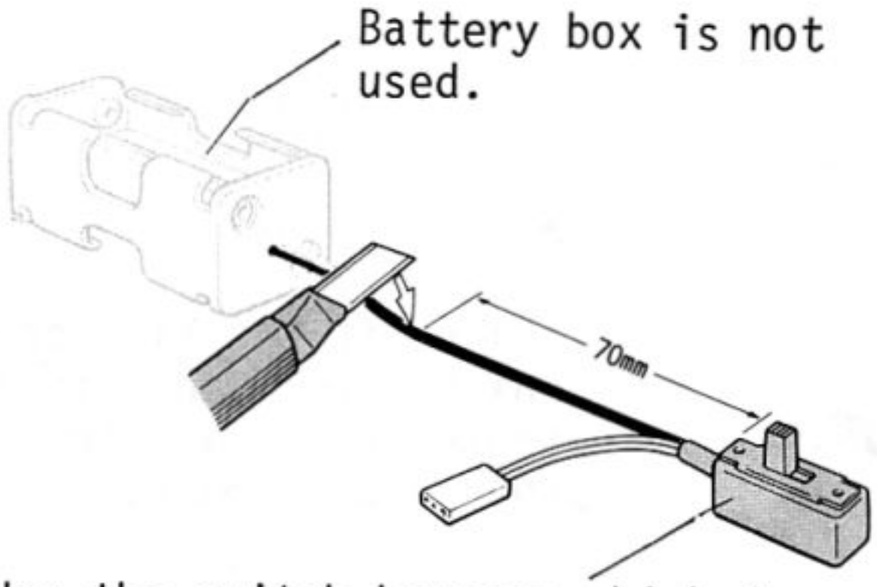
37 WIRING OF RECEIVER BATTERY

[For those who use a BEC type radio, please skip the step 37, and proceed to the next step.]

NOTE: 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 8.4V to flow directly into receiver.

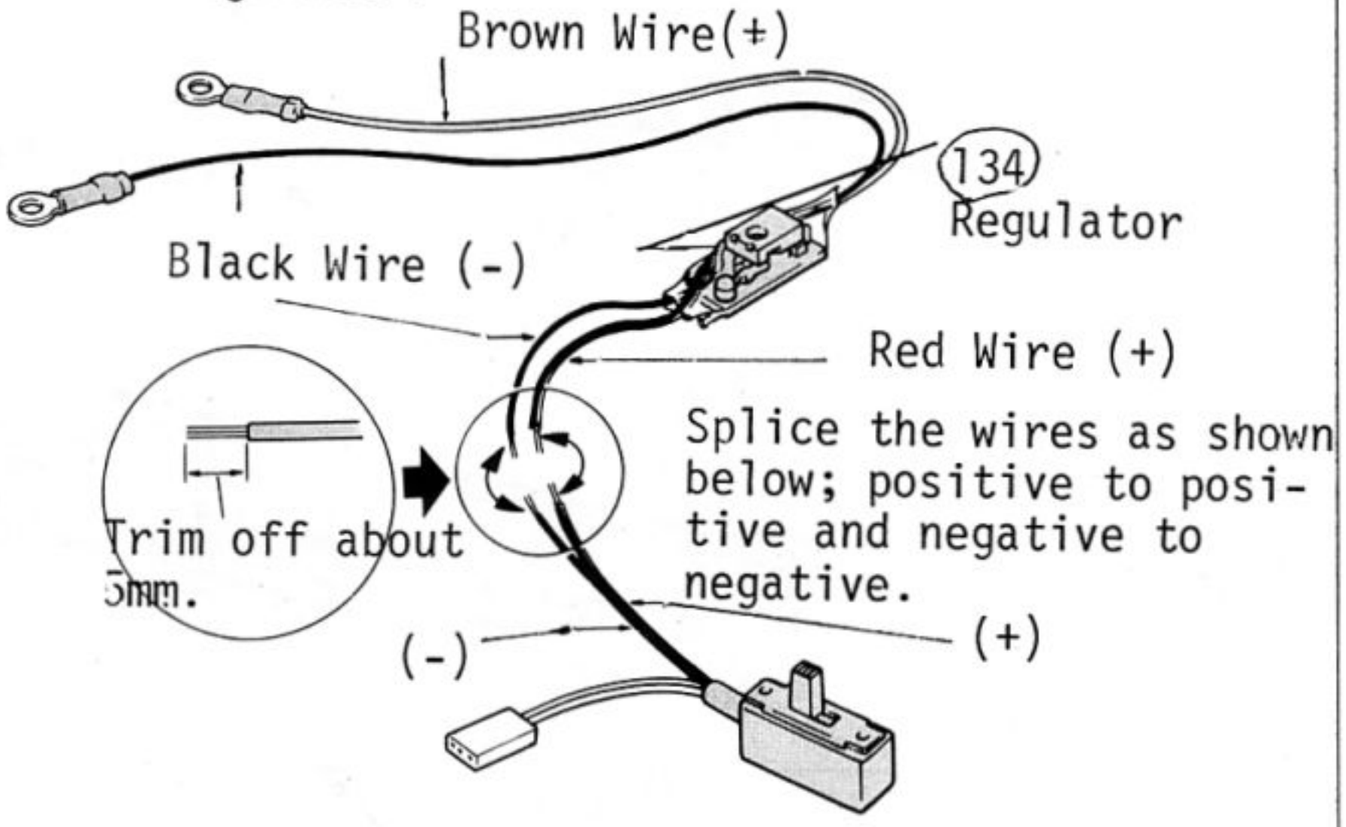
The colors of the lead wires are different depending upon radio manufacturer. Most use red for positive (+) and black for negative (-). The exception being Cox and Airtronics (Sanwa). Their (+) lead has a white stripe and the middle lead is (-).

1. Cut off wires from radio box as shown.

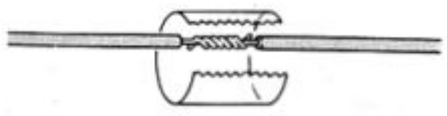


Use the switch harness which is provided with your radio.

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



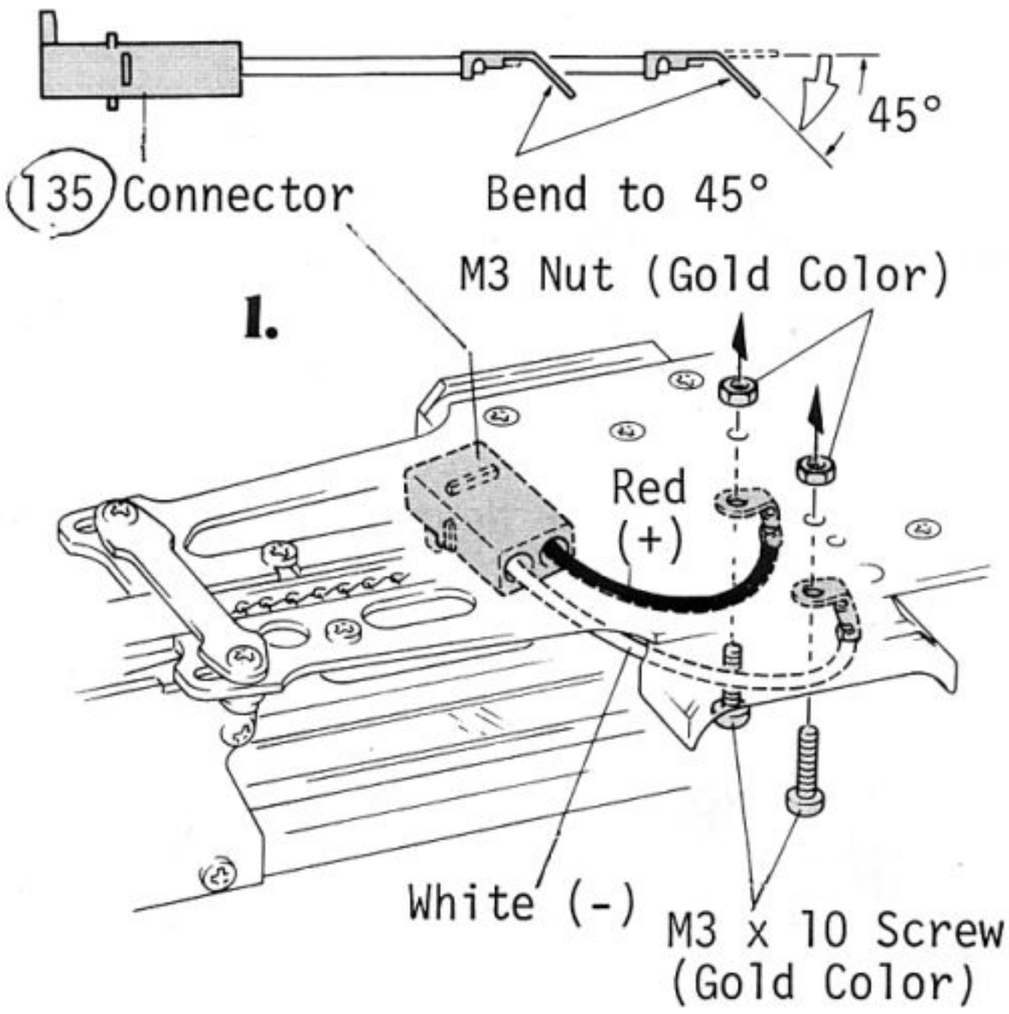
① Join wires by twisting together.



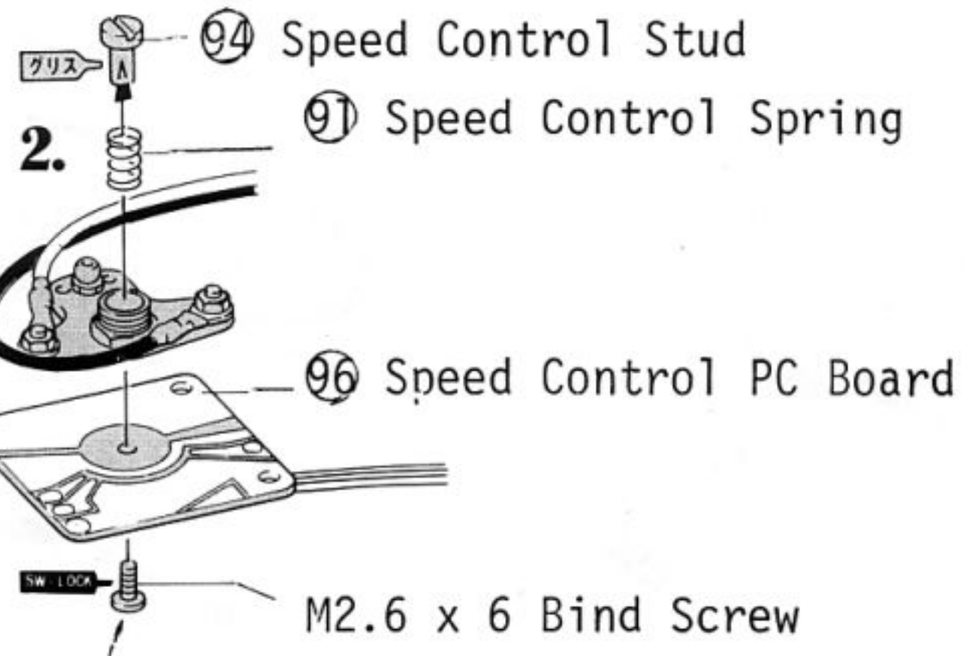
② Insulate the connection points with vinyl tape to prevent a short-circuit.

*For ensuring the job, solder the spliced leads.

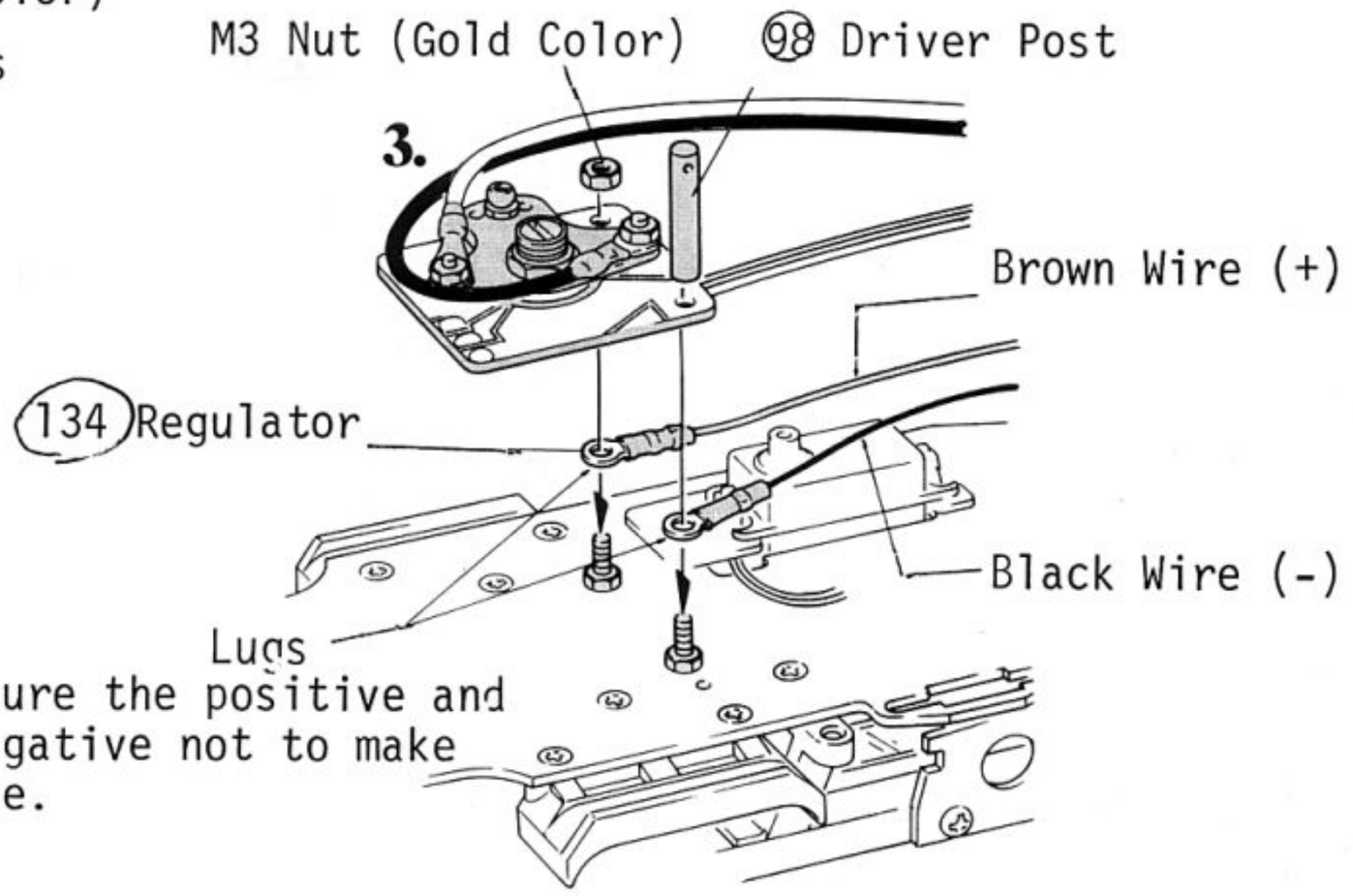
38 INSTALLATION OF SPEED CONTROL PC BOARD



NOTE: Fix the connector terminals under the radio plate.



Cement this screw to the PC board with cyanoacerylate adhesive or "Locktite" so that it won't turn idle.

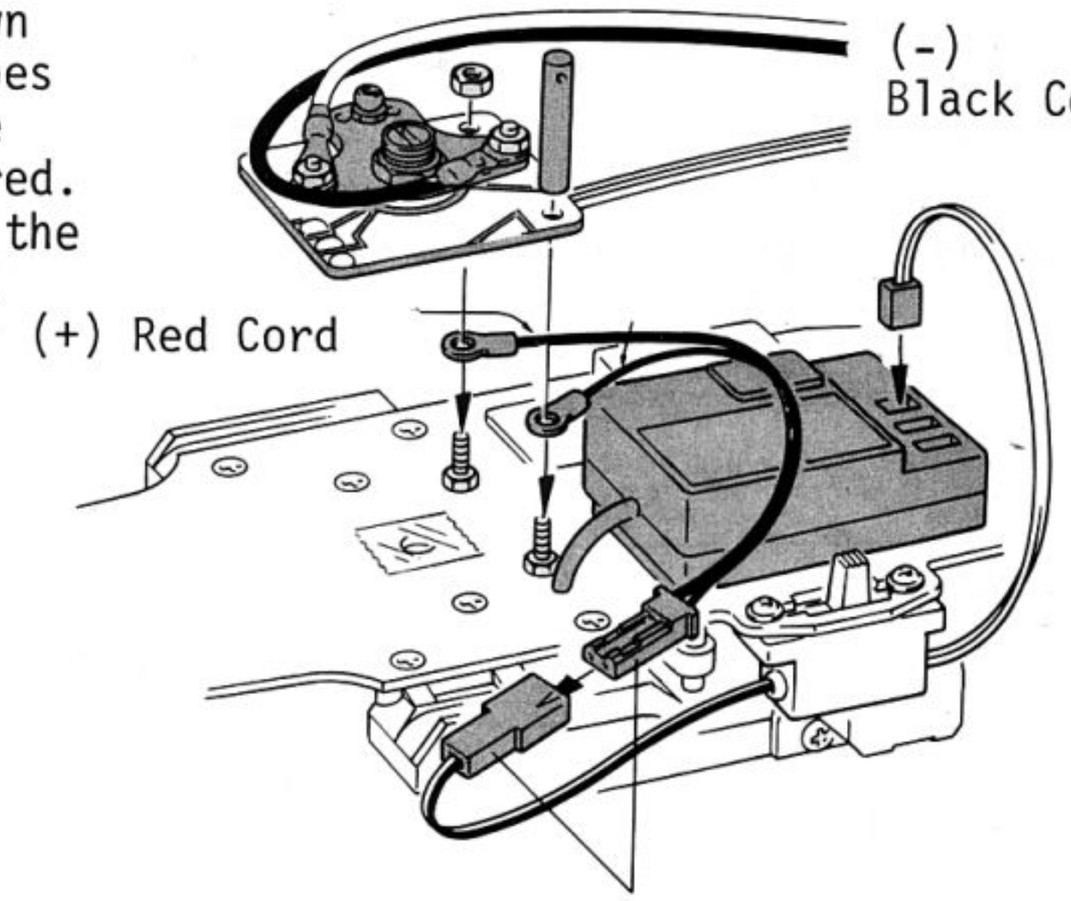


Make sure the positive and the negative not to make mistake.

39 WHEN THE BEC RADIO IS EMPLOYED

The radio contained in the box with this logo is the BEC type. As shown in step 37 on page 18, the radio does not use the regulator (130), also the wiring for the switch is not required. When using this type of radio, fix the BEC connector as illustrated below.

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

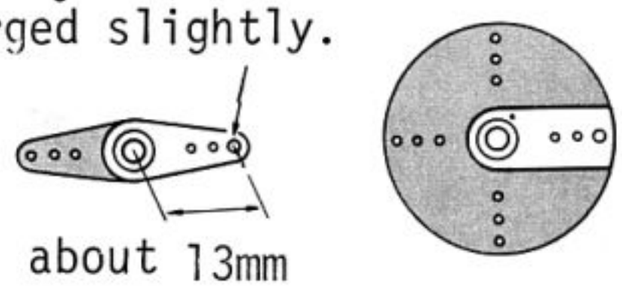


BEC Connector

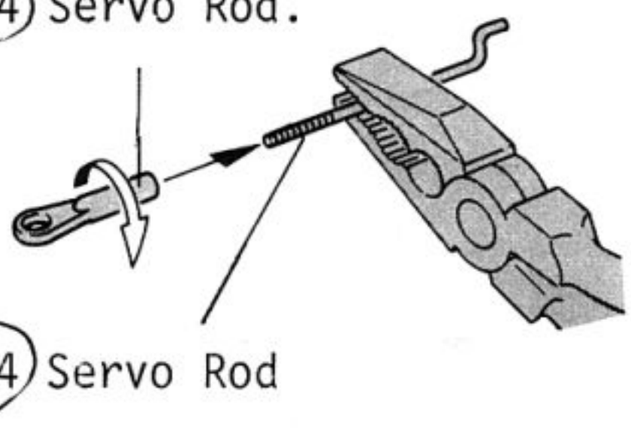
40 SPEED CONTROL LINKAGE

Trim the shaded portion from your servo horn.

Hole may have to be enlarged slightly.



Install ball end onto (104) Servo Rod.



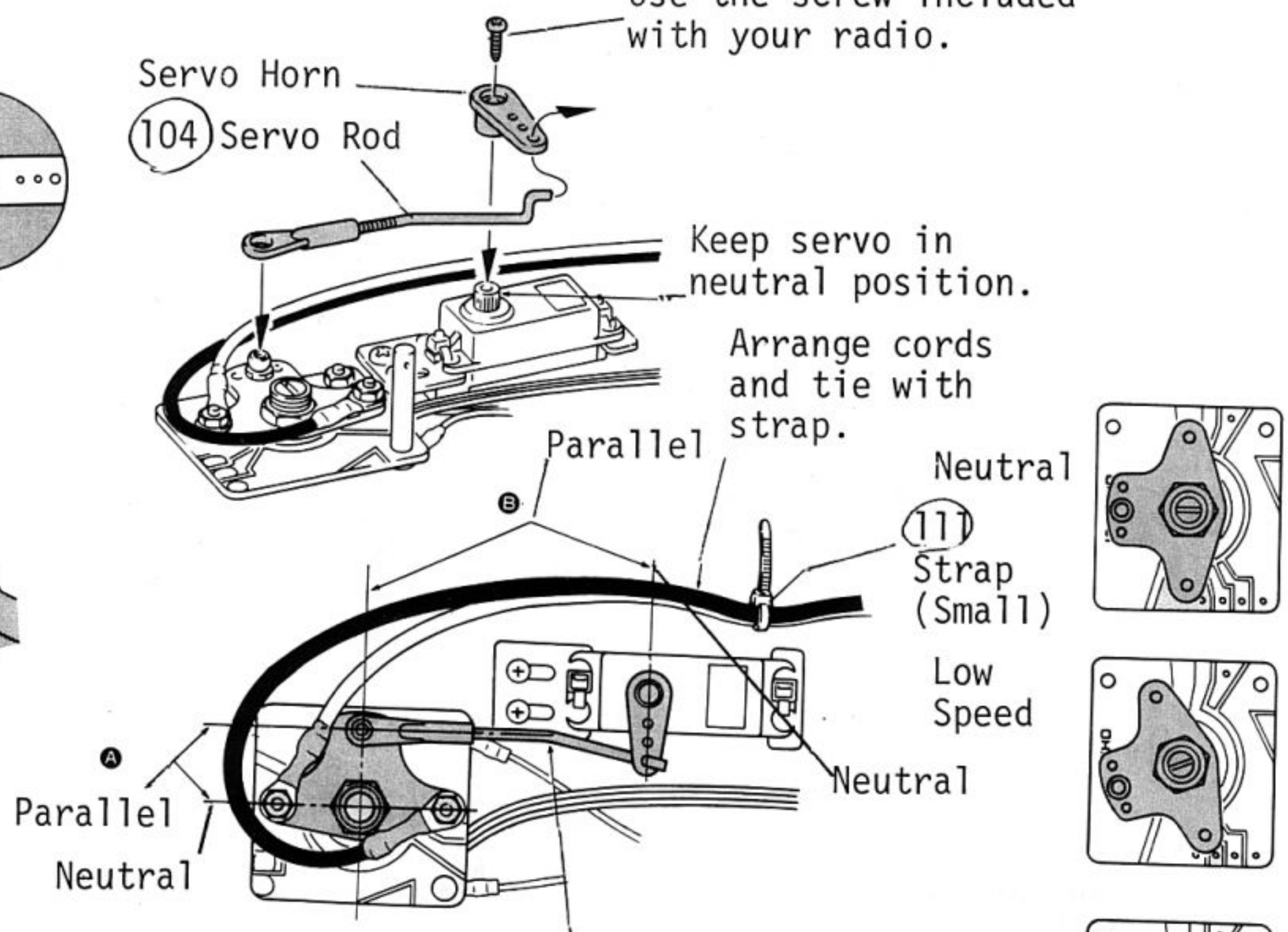
Use the screw included with your radio.

Servo Horn

(104) Servo Rod

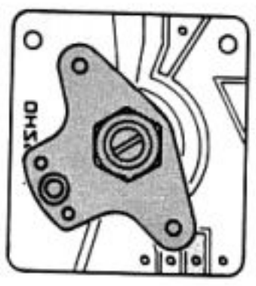
Keep servo in neutral position.

Arrange cords and tie with strap.



Low Speed

Medium Speed



Turn the ball end.

Getting longer

Reverse

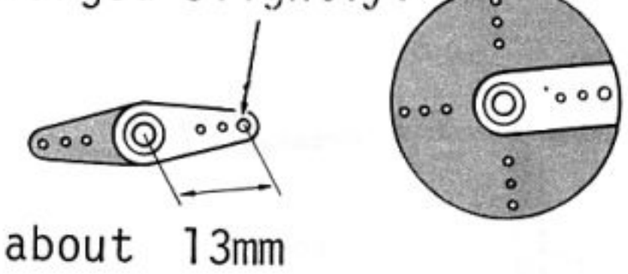
High Speed

It become shorter.

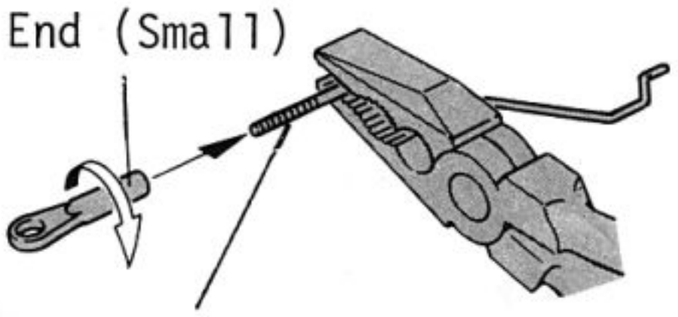
41 INSTALLATION OF STEERING ROD

Trim the shaded portion from your servo horn.

Hole may have to be enlarged slightly.

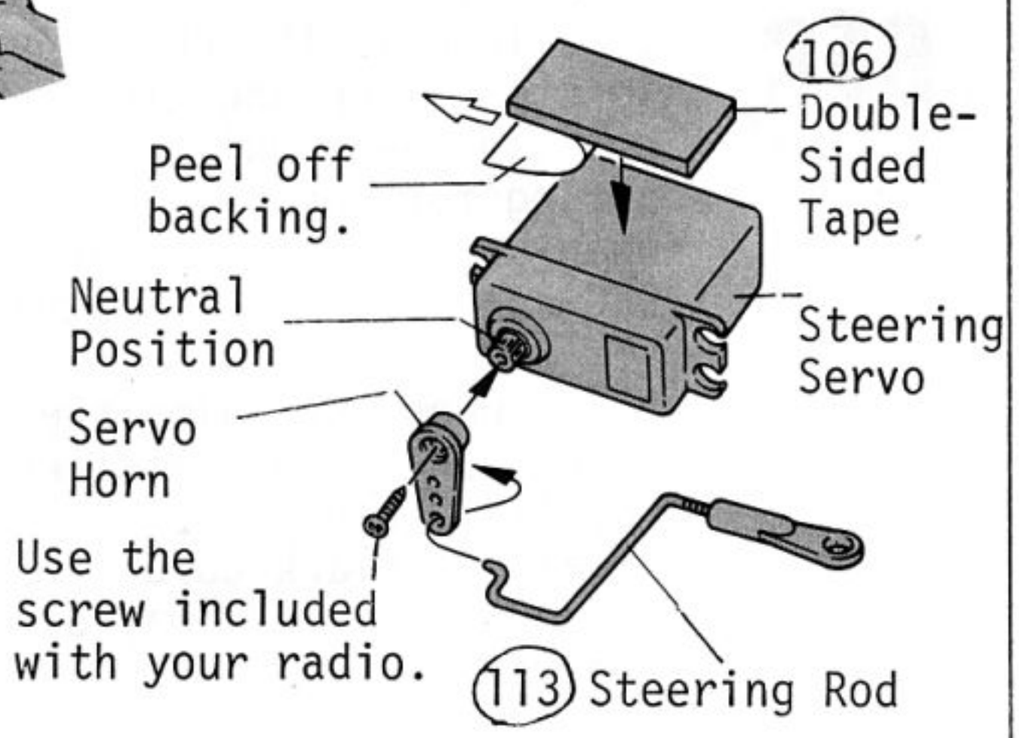


(37) Ball End (Small)



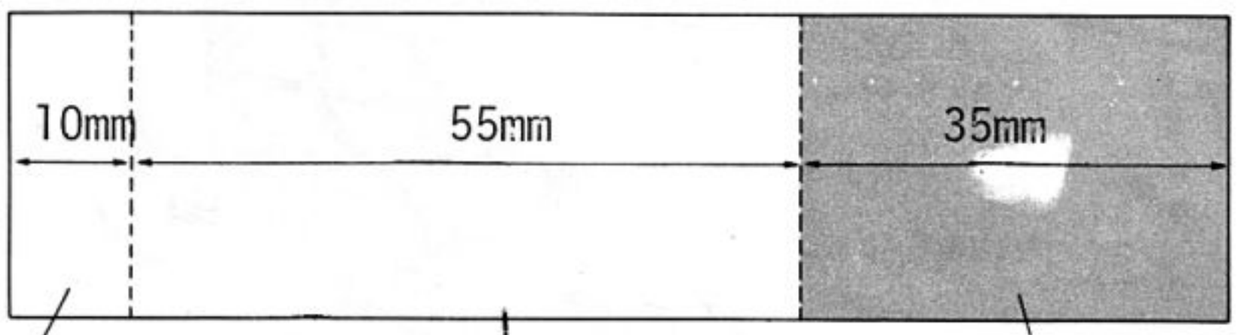
(113) Steering Rod

[Affixing Double-Sided Tape]

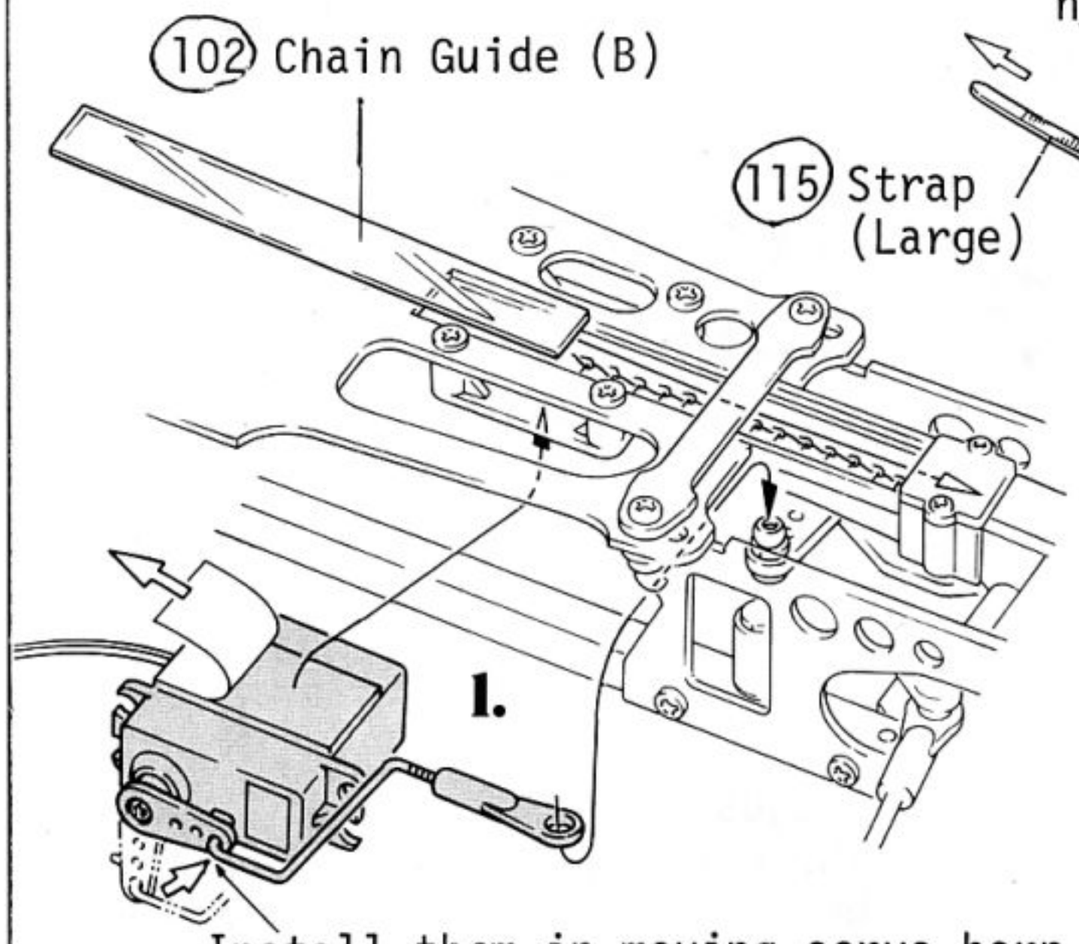


[Cutting Double-Sided Tape]

(106) Double Sided Tape (Actual Size)

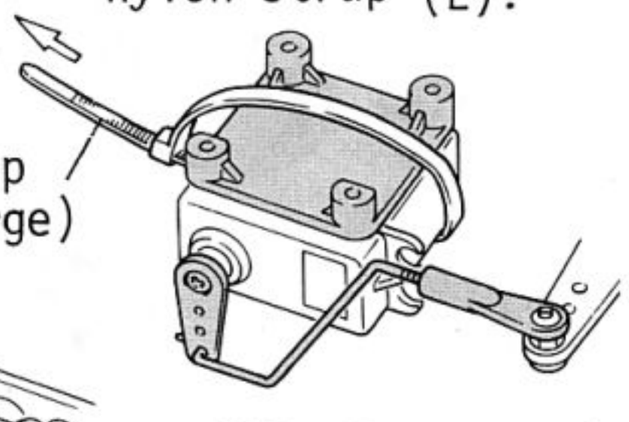


42 STEERING CONTROL LINKAGE



Install them in moving servo horn aside.

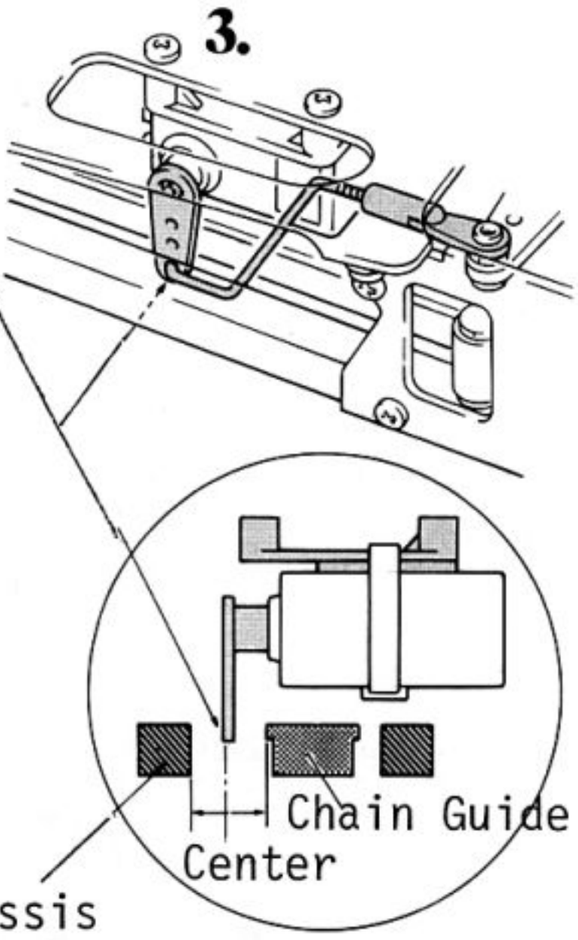
2. After installation, fasten servo with nylon strap (L).

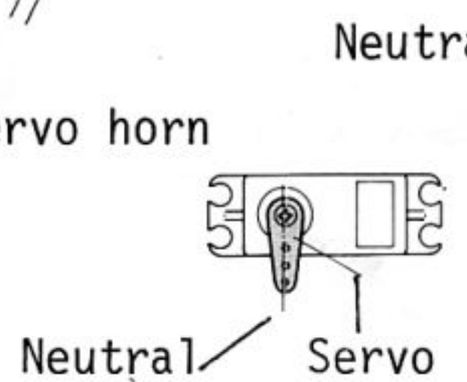


NOTE: For steering, use a reverse servo, your radio may employ servo reversing, or you will need to reverse the position of the gimbal stick on your transmitter.

Fix the servo horn in such a way that it will come in the center between the chassis and the chain guide.

3.

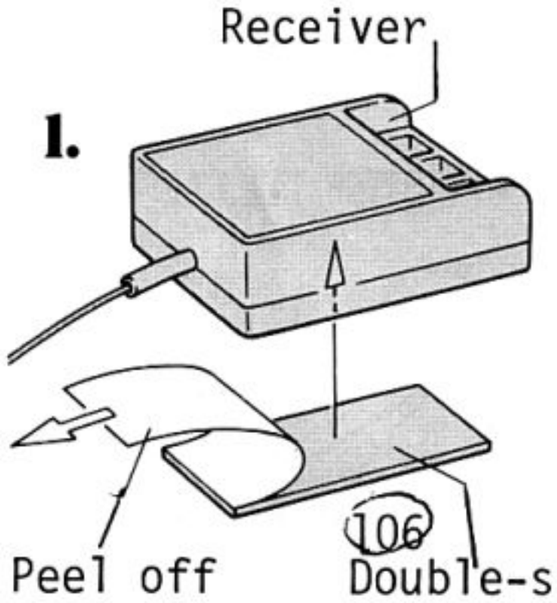


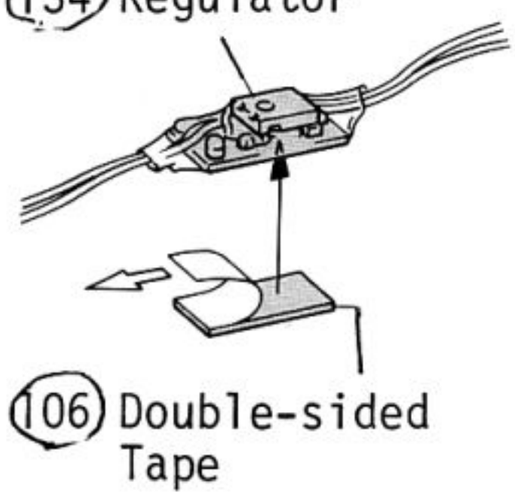


Keep servo horn & servo saver in neutral when you install steering rod.

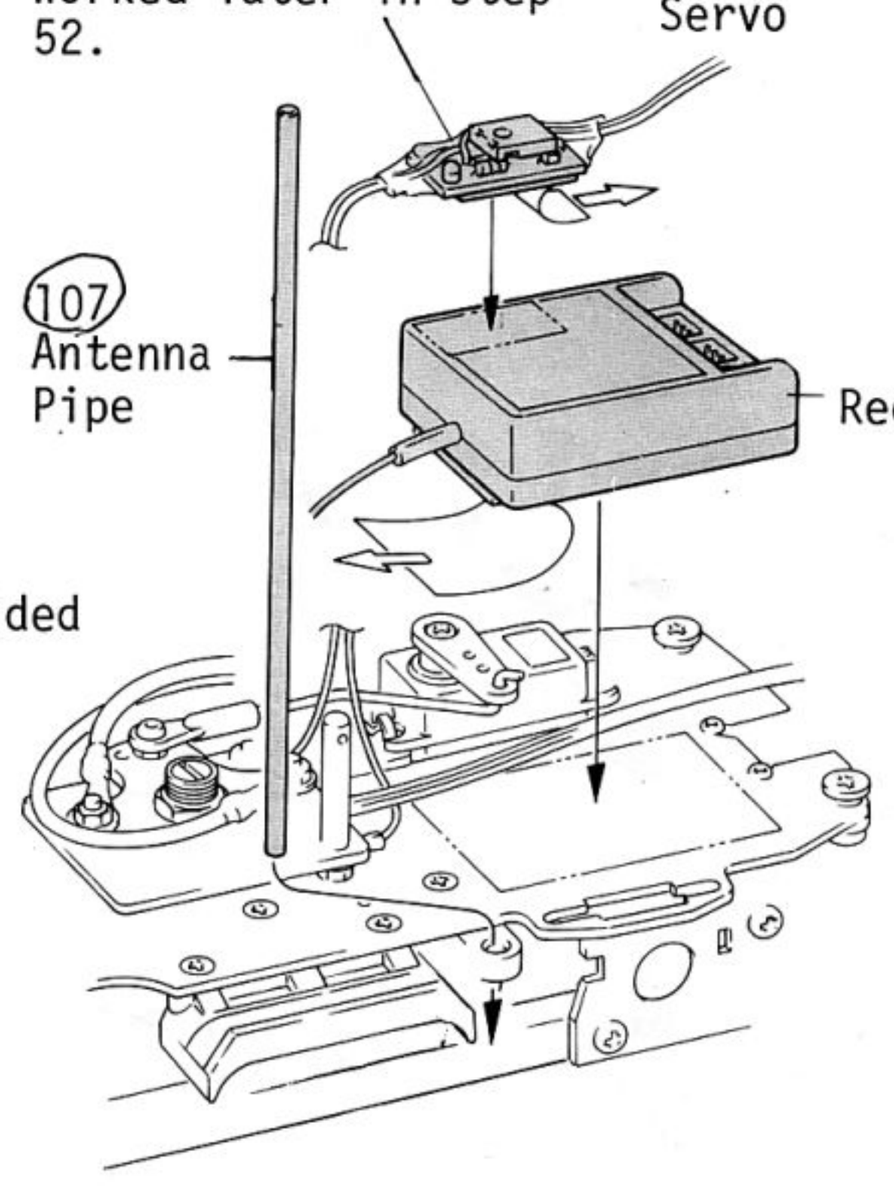
43 INSTALLATION OF RECEIVER AND ANTENNA

Put the pieces of double-sided tape, which was cut in step 41, under the receiver and the regulator.

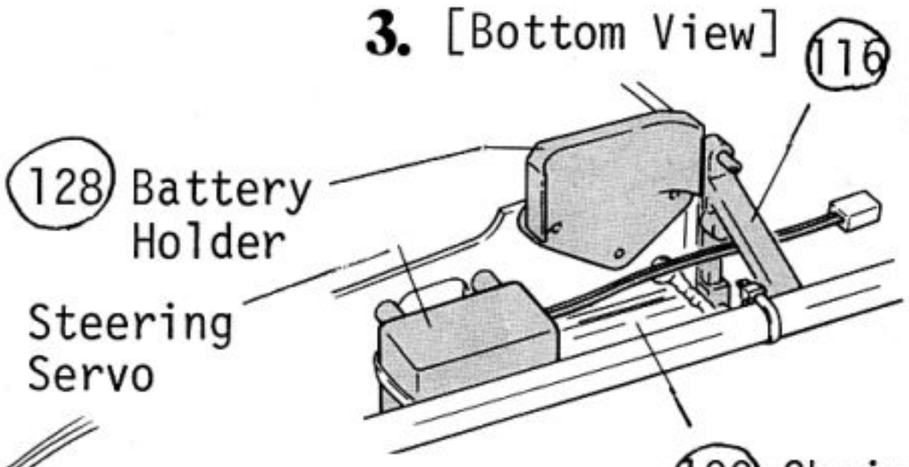




2. Fix the regulator in such a position that it will be housed in the head of driver doll, which will be worked later in step 52.

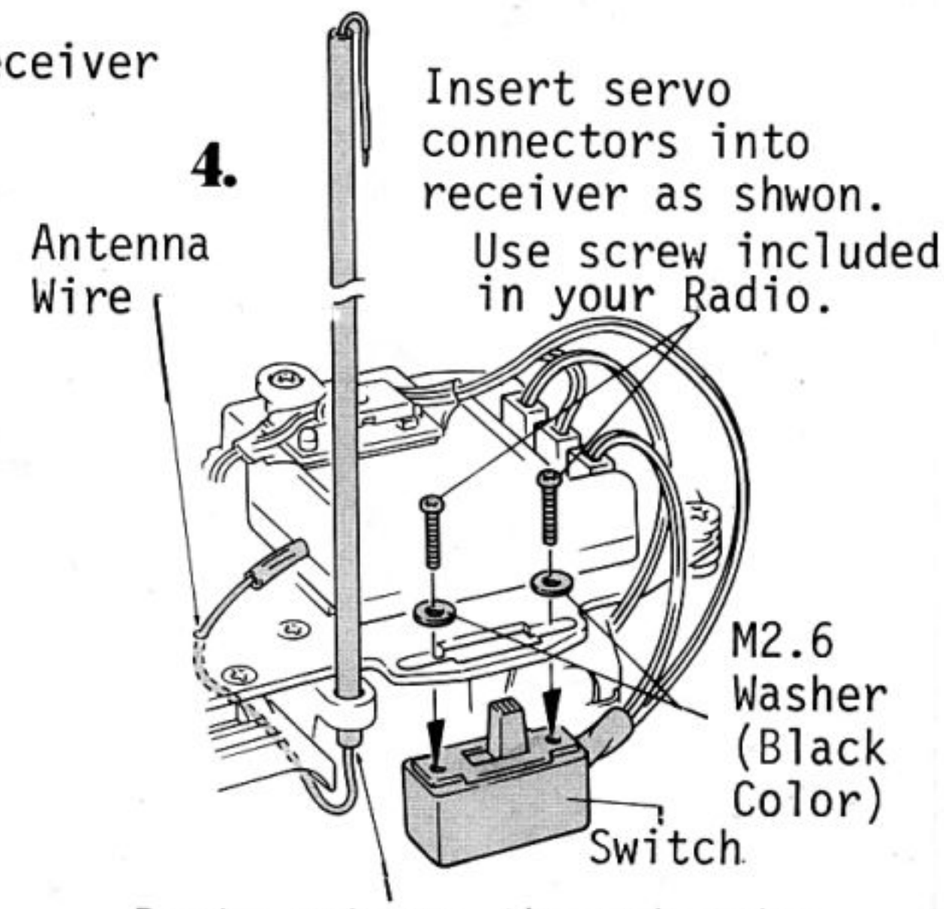


3. [Bottom View]



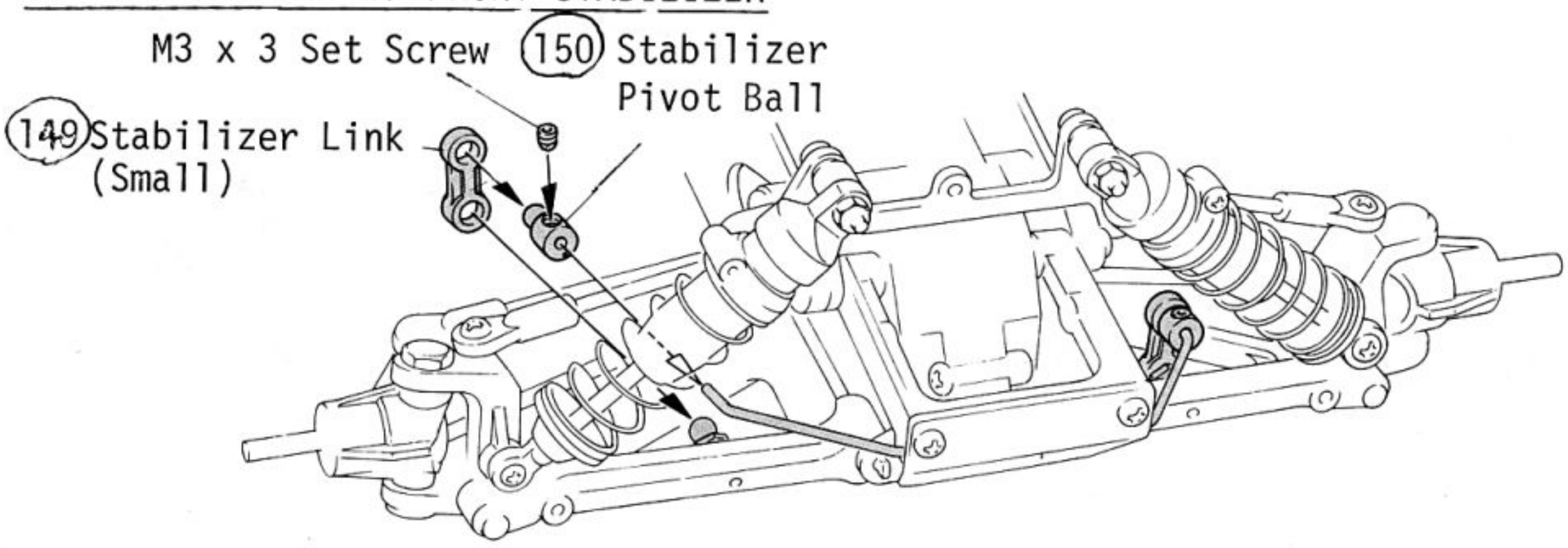
Route the cord of the steering servo as shown above.

4.

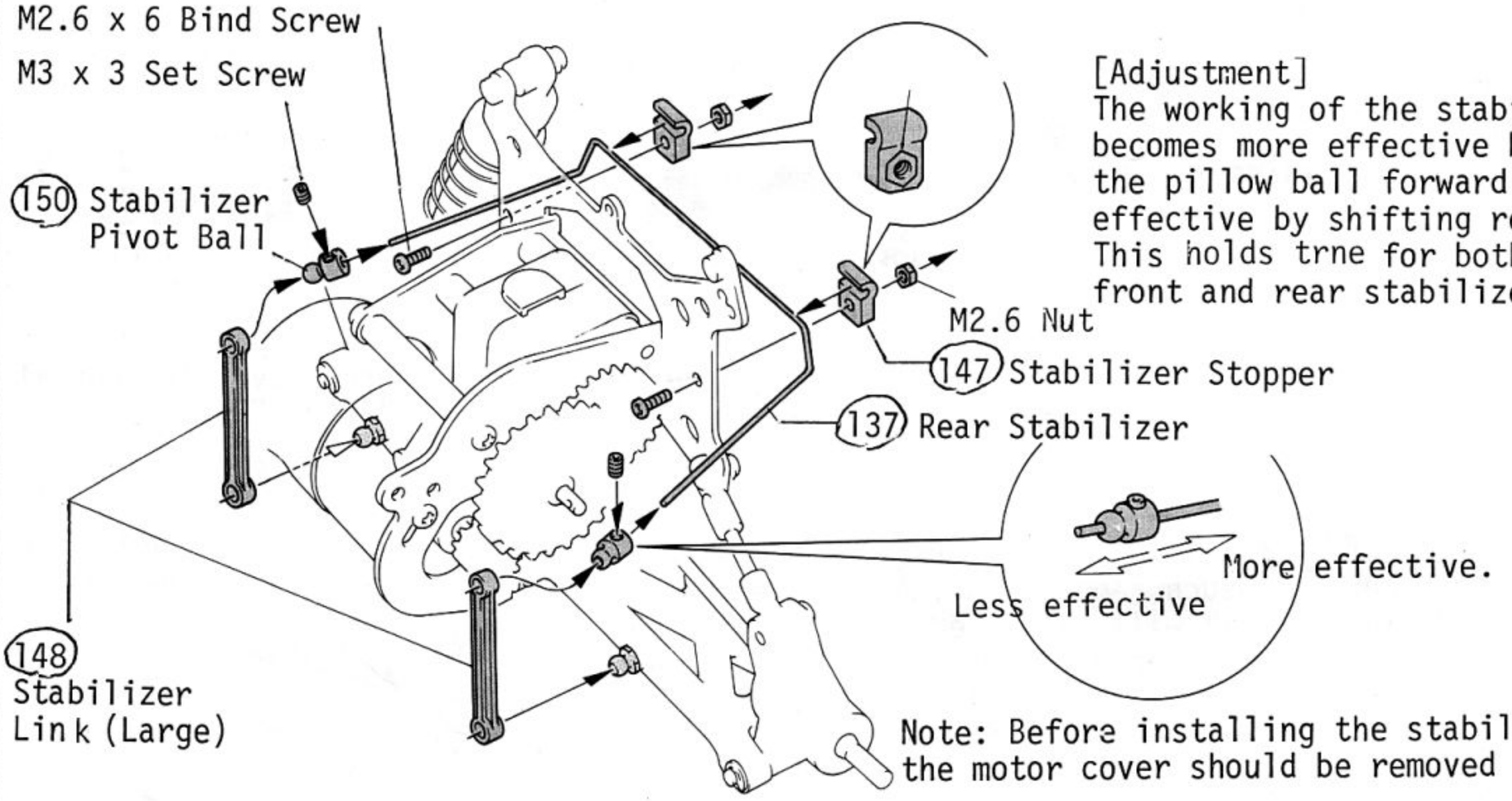


Route antenna through tube.

44 INSTALLATION OF FRONT STABILIZER



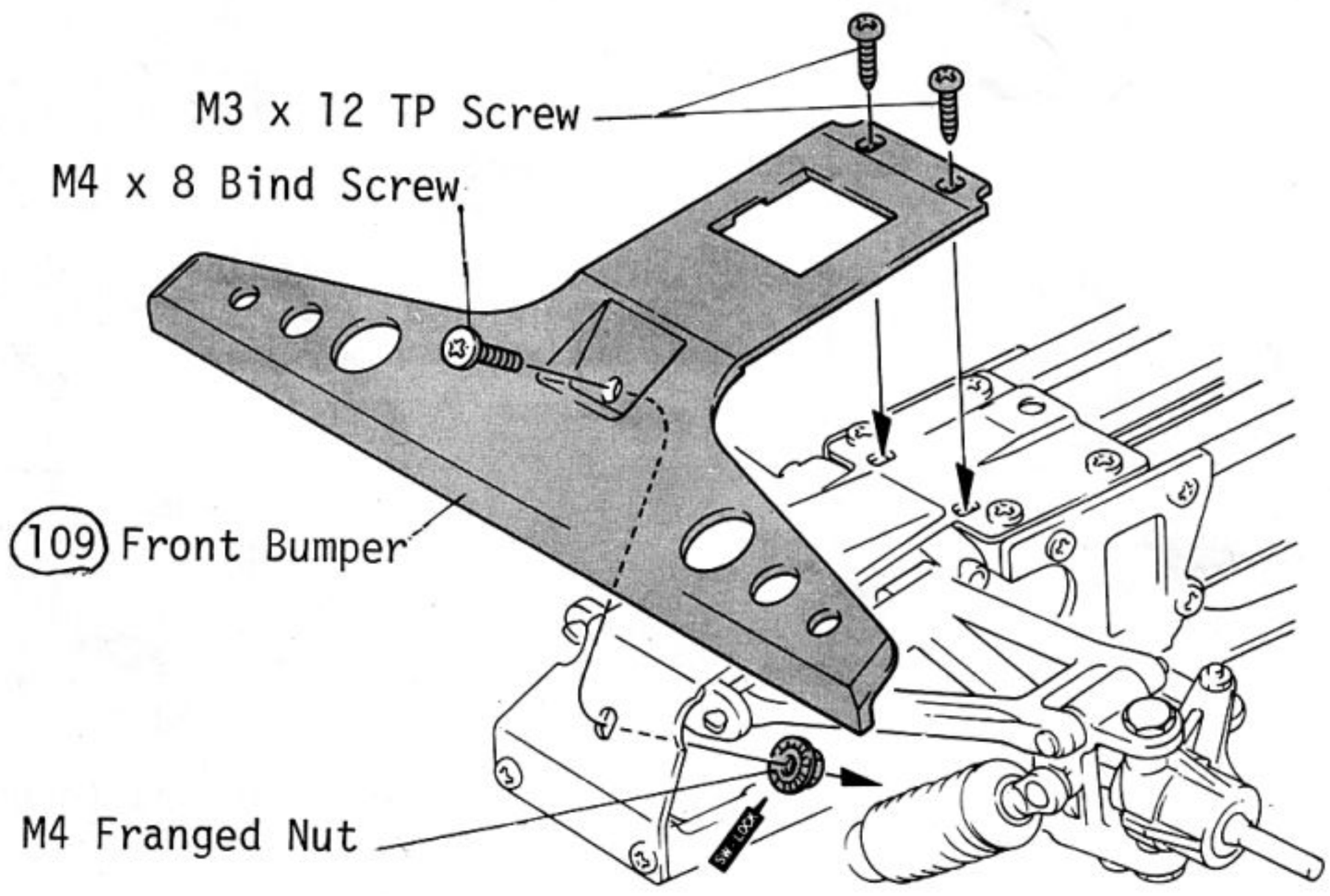
45 INSTALLATION OF REAR STABILIZER



[Adjustment]
The working of the stabilizer becomes more effective by moving the pillow ball forward, and less effective by shifting rearward. This holds trne for both the front and rear stabilizers.

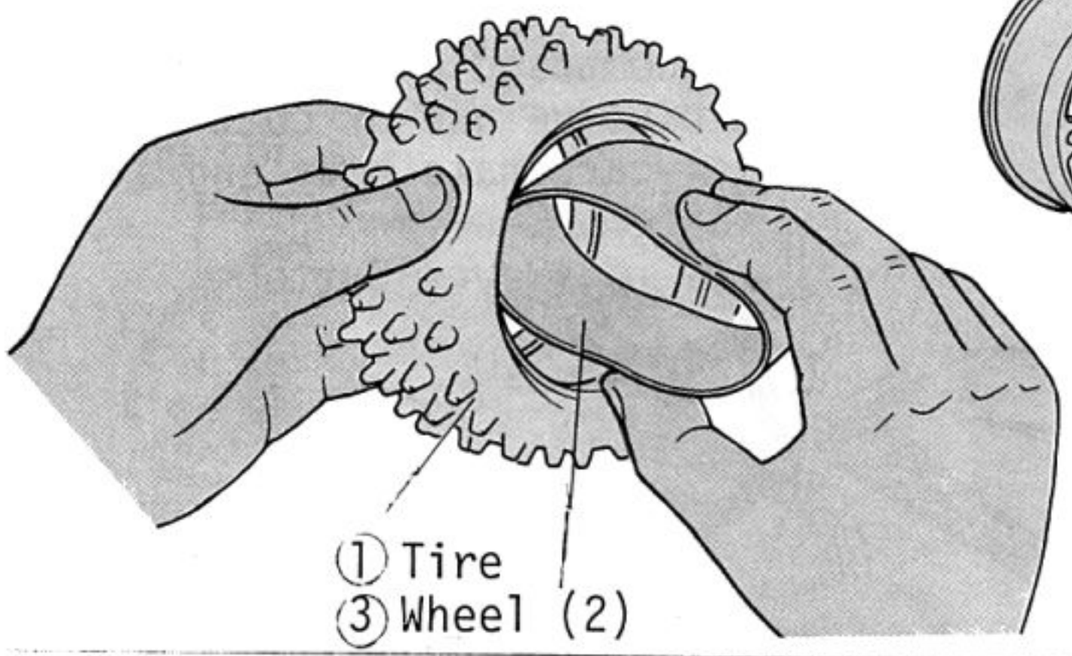
Note: Before installing the stabilizer, the motor cover should be removed once.

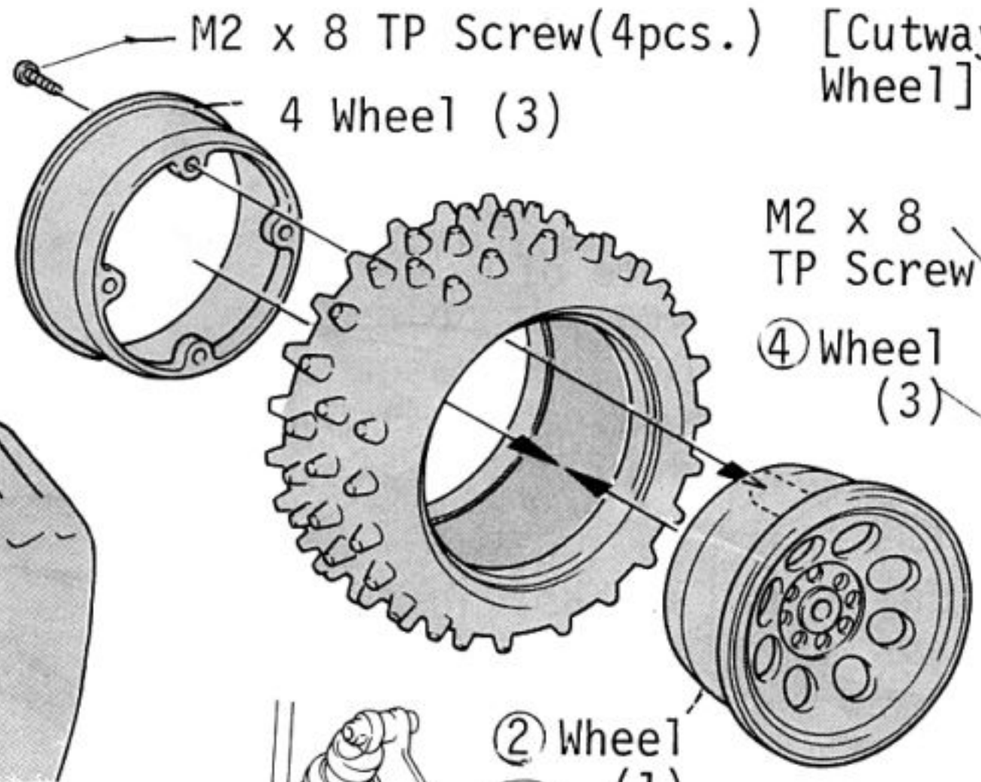
46 INSTALLATION OF BUMPER



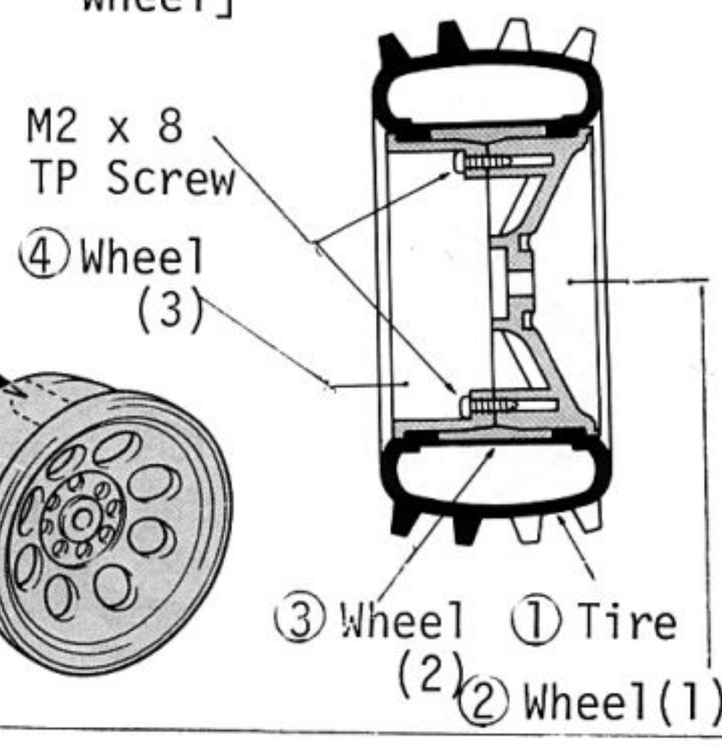
47 MOUNTING THE WHEEL

Insert ③ Wheel (2) inside of 1 Tire as below picture.

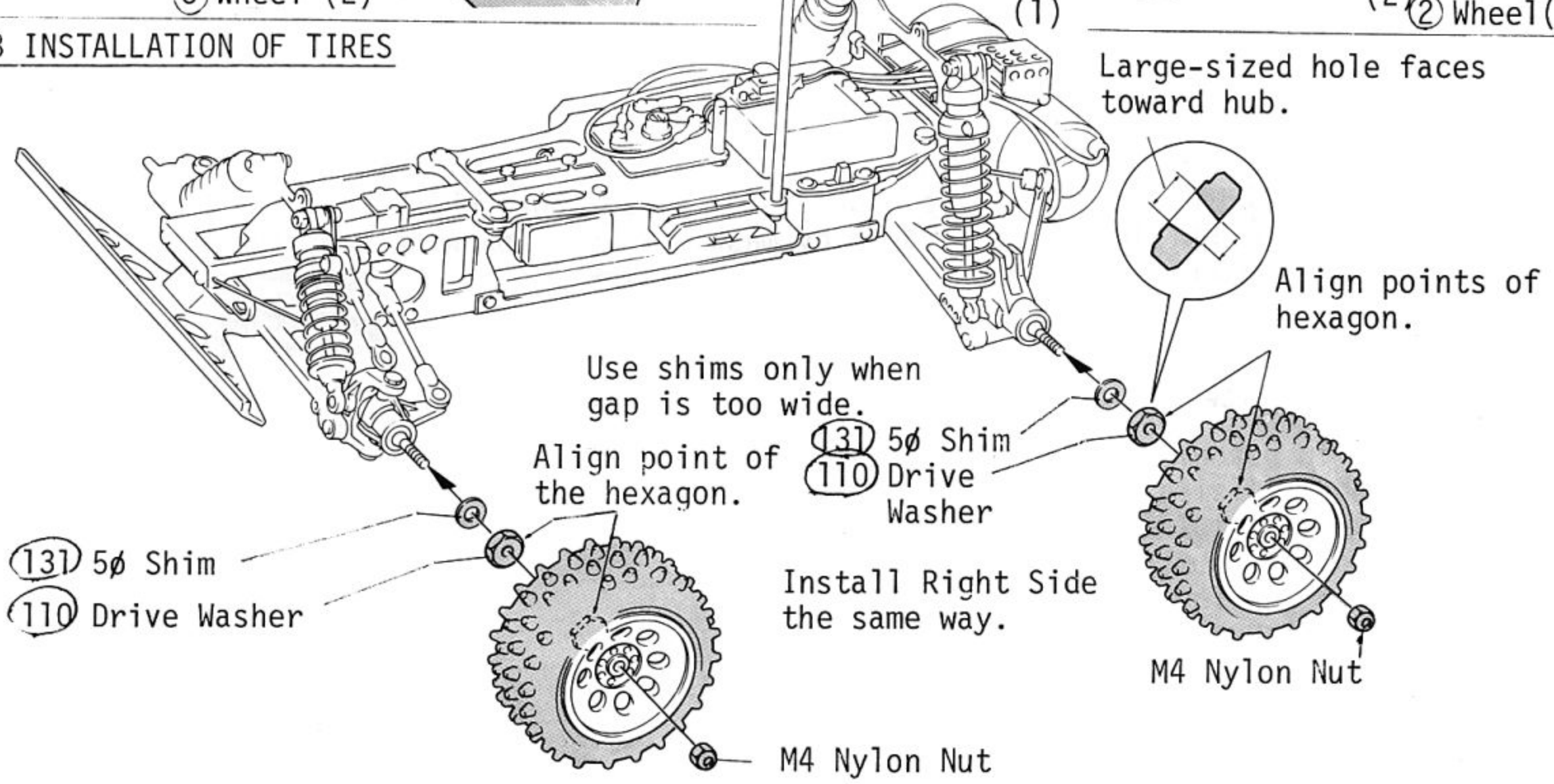




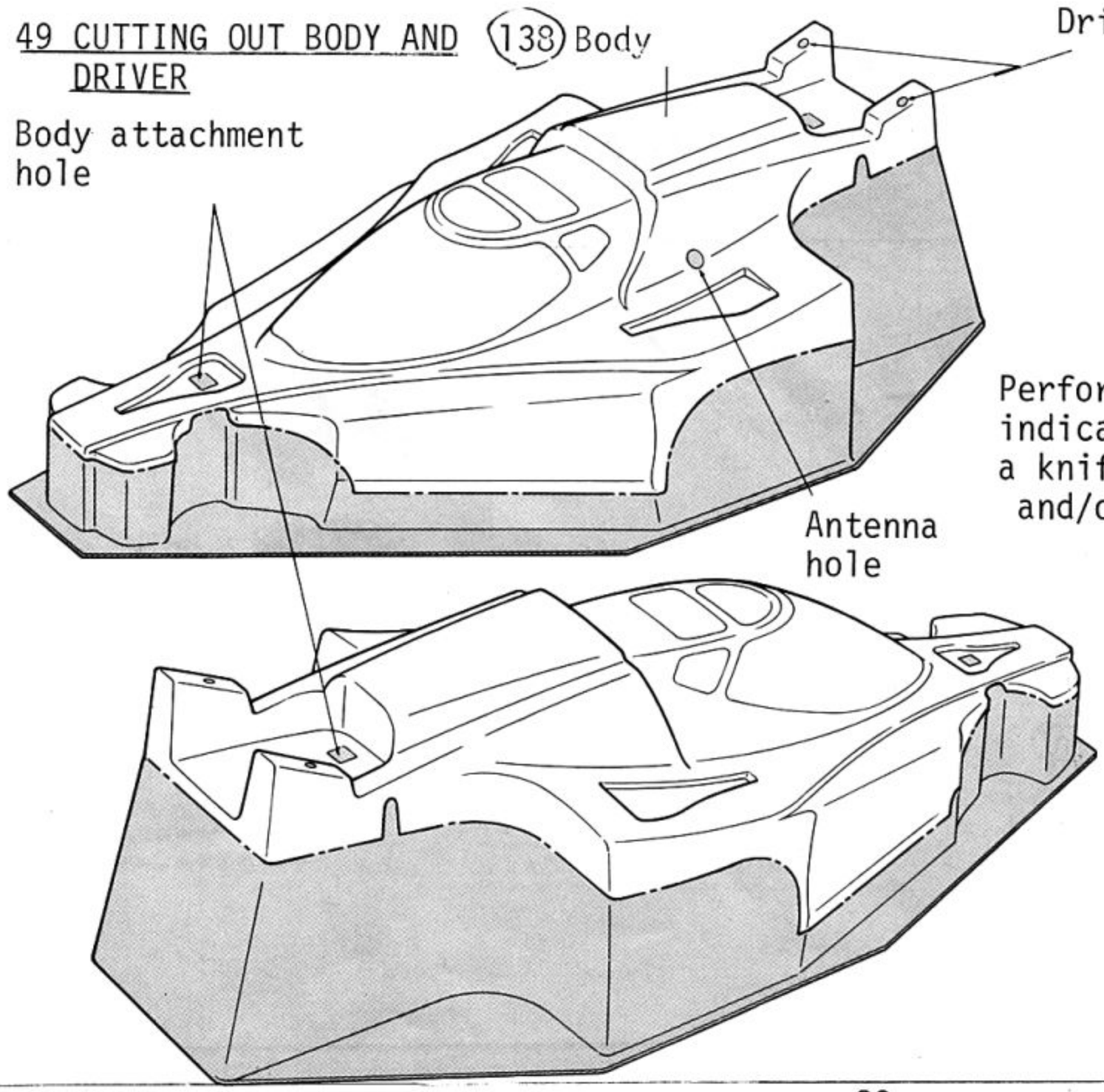
[Cutway View of Tire and Wheel]

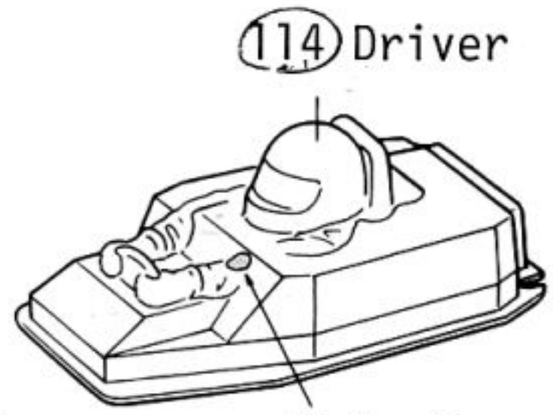


48 INSTALLATION OF TIRES

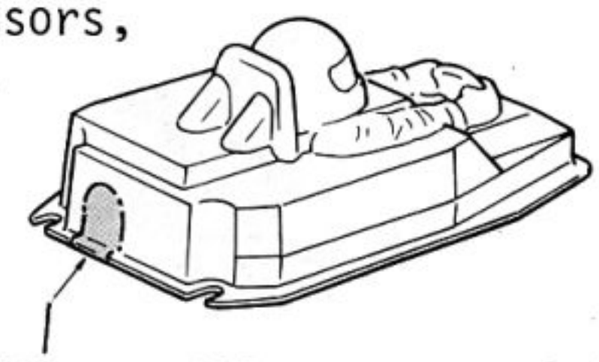


49 CUTTING OUT BODY AND DRIVER

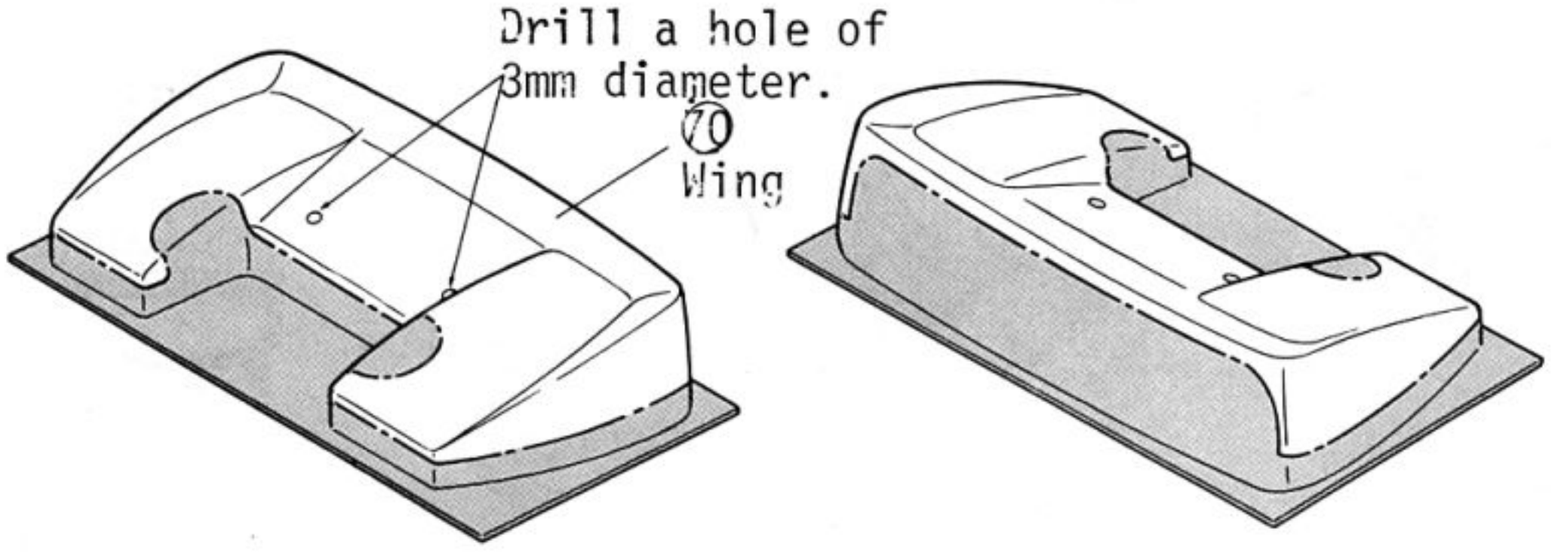




Perforate the places indicated with ▭ with a knife or scissors, and/or an awl.

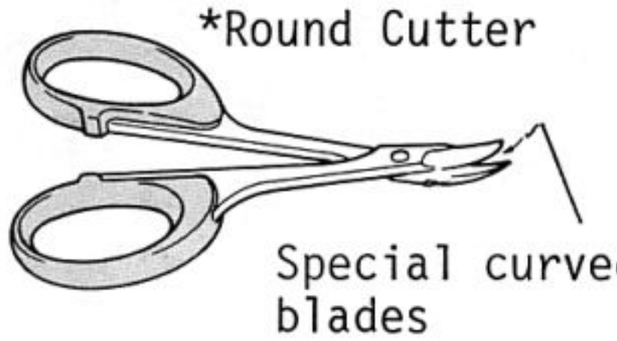


50 CUTTING OUT WING

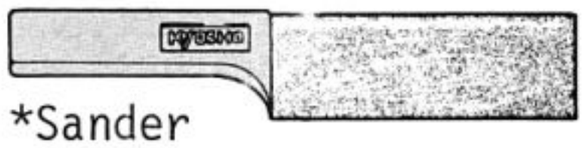


The "Round Cutter/Sander" is available at Kyosho which is composed of snips for the exclusive use of cutting the polycarbonate body and a sander.

*Round Cutter



Special curved blades

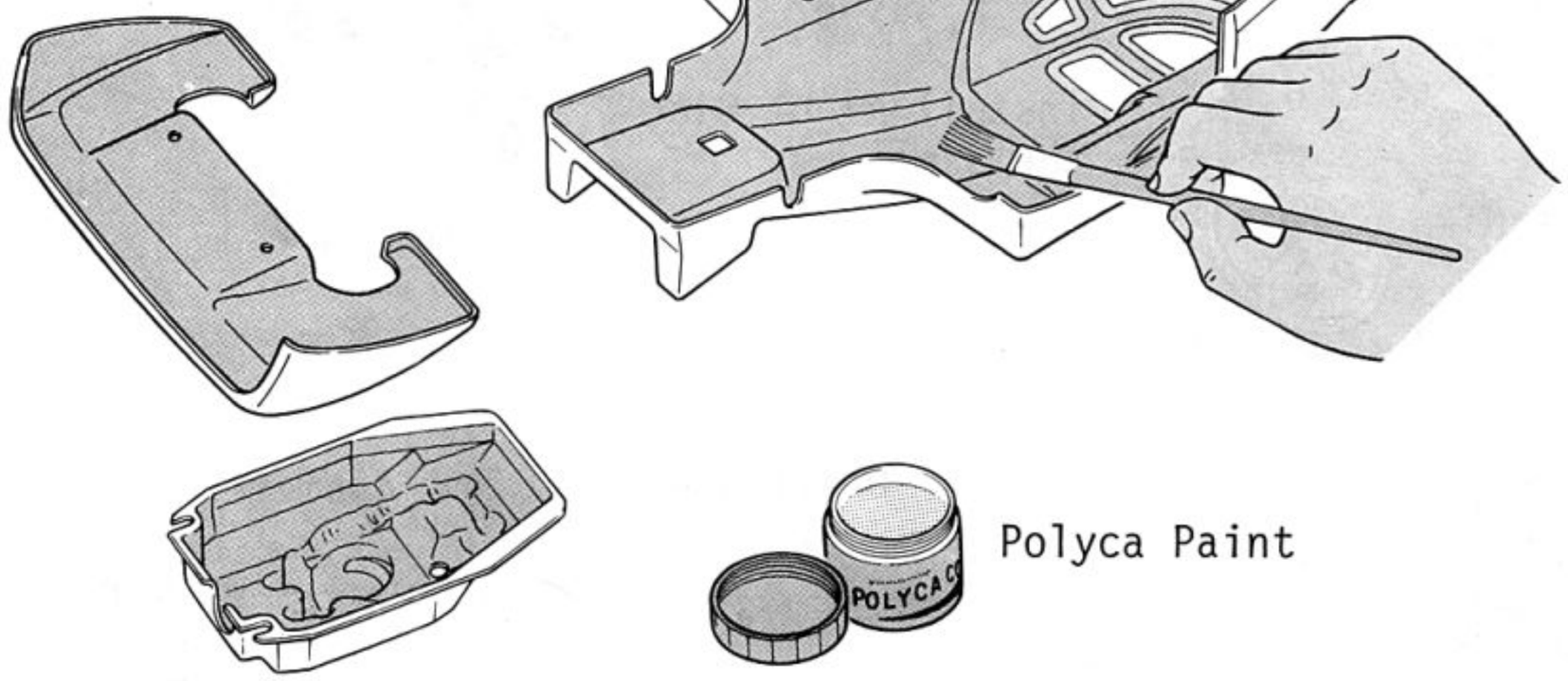


*Sander

51 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.

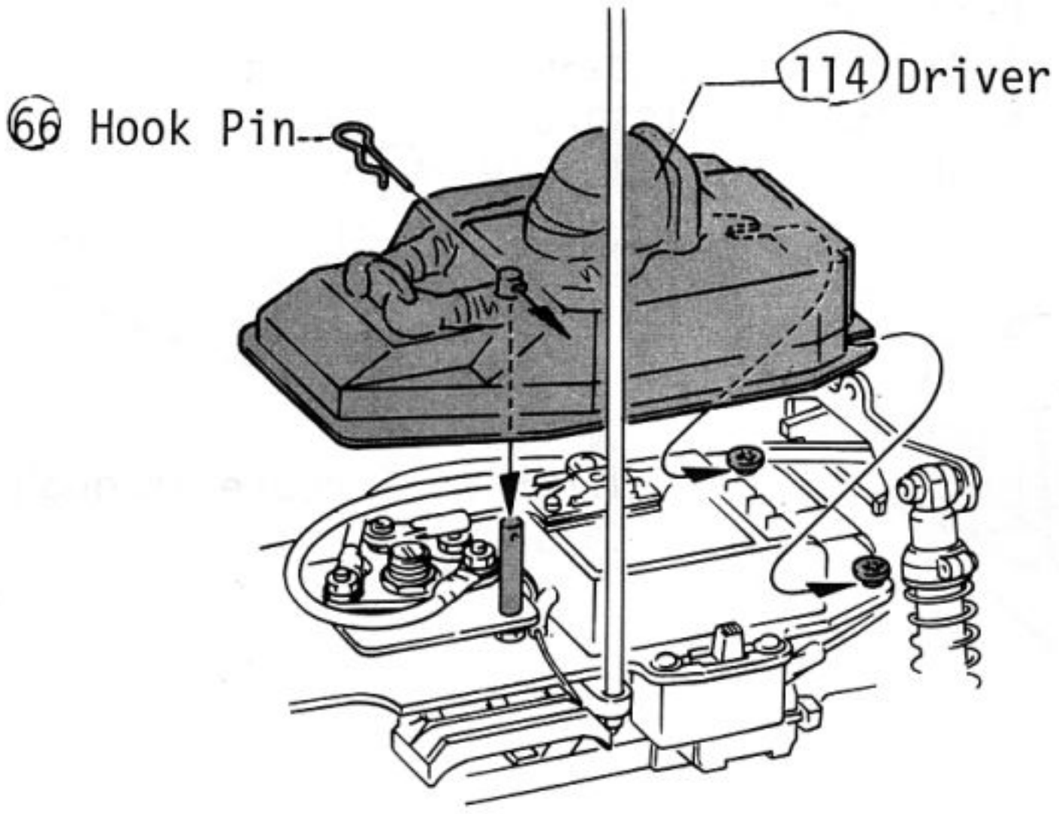


Micro-Line tape enhances the appearance of any model.

Polyca Paint

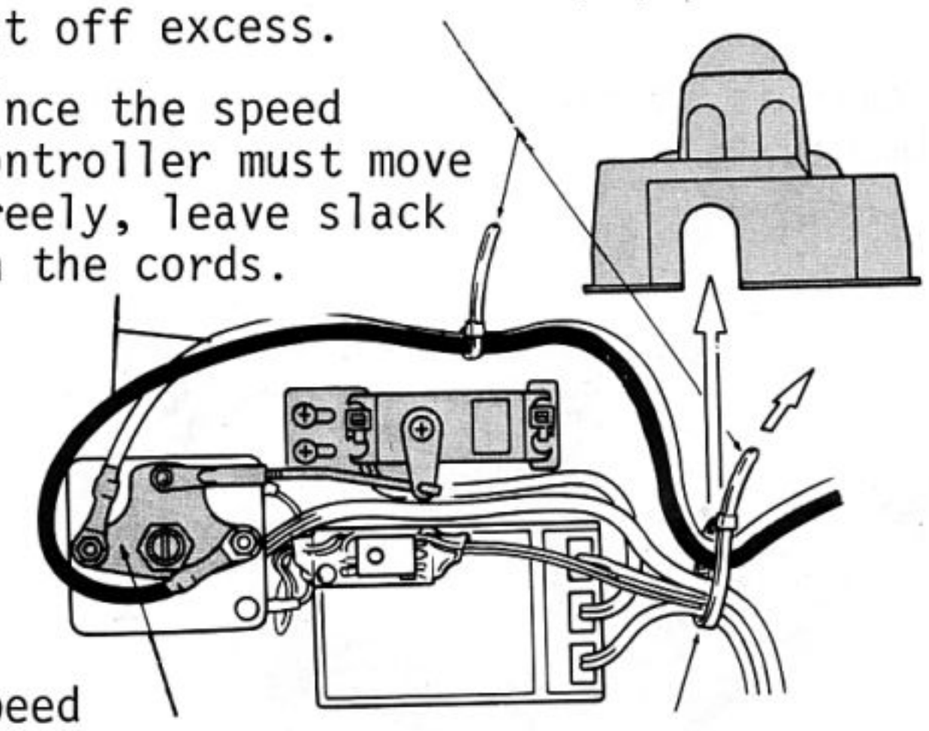
Polyca Color Paint is available for painting your Lexan Bodies. 12 great looking colors!

52 MOUNTING OF DRIVER



Bundle wires with a strap (S) and cut off excess.

Since the speed controller must move freely, leave slack in the cords.



Speed Controller

Bundle cords and lead them out of cut behind driver doll.

[Working Test of Speed Controller]

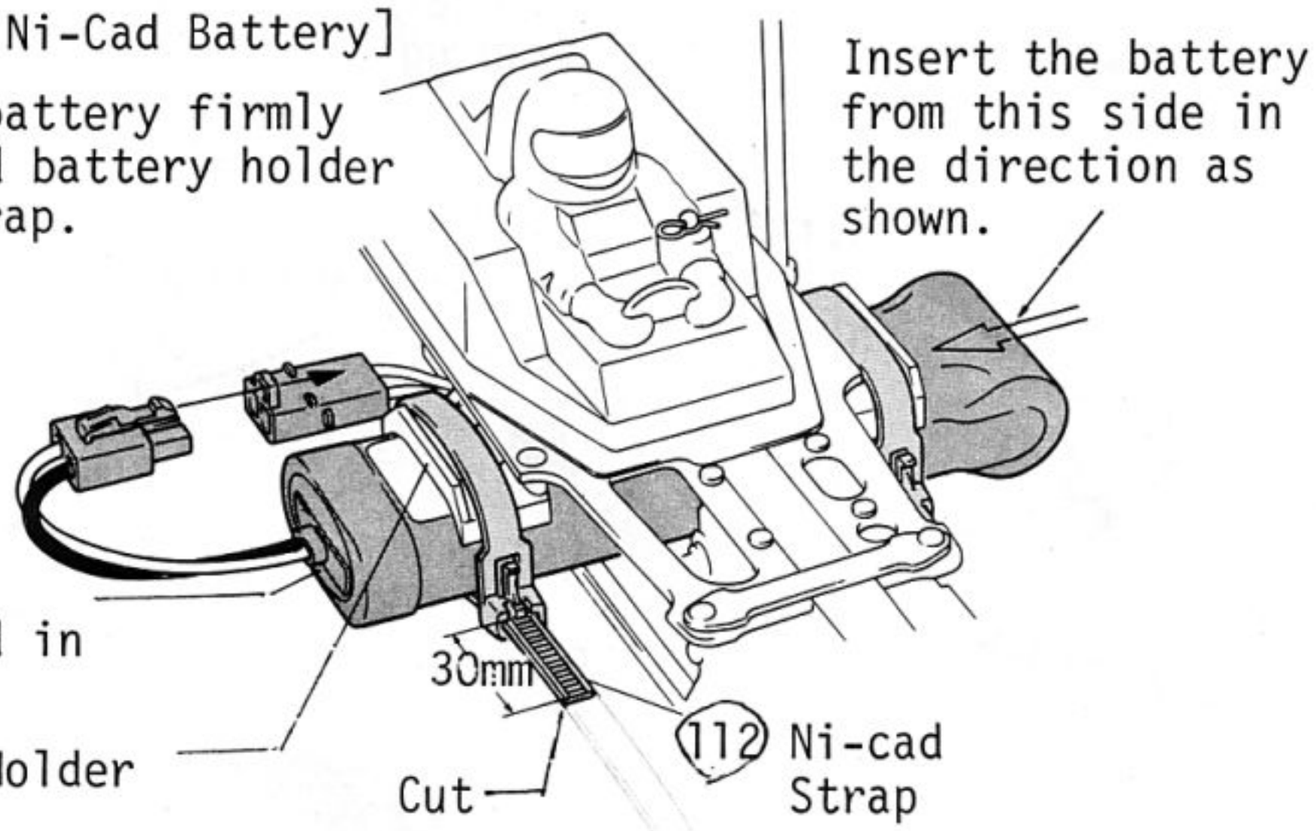
1. Confirm that the speed controller wiper is positioned in neutral (refer to the illustration in step 40) and plug in the battery connector (refer to step 53).
2. Switch on the radio control units and operate the speed controller to see if the wiper will move from the lowest to the high and to the reverse as illustrated in step 40.

*When the wiper does not swing smoothly, see if the motor lead is too tight, or, on the other hand, too long and rubs against the inside of the driver doll. Either case will hamper the smooth movement.

53 MOUNTING OF BODY

[Mounting of Ni-Cad Battery]

Hold Ni-cad battery firmly with a Ni-cad battery holder by Ni-Cad Strap.



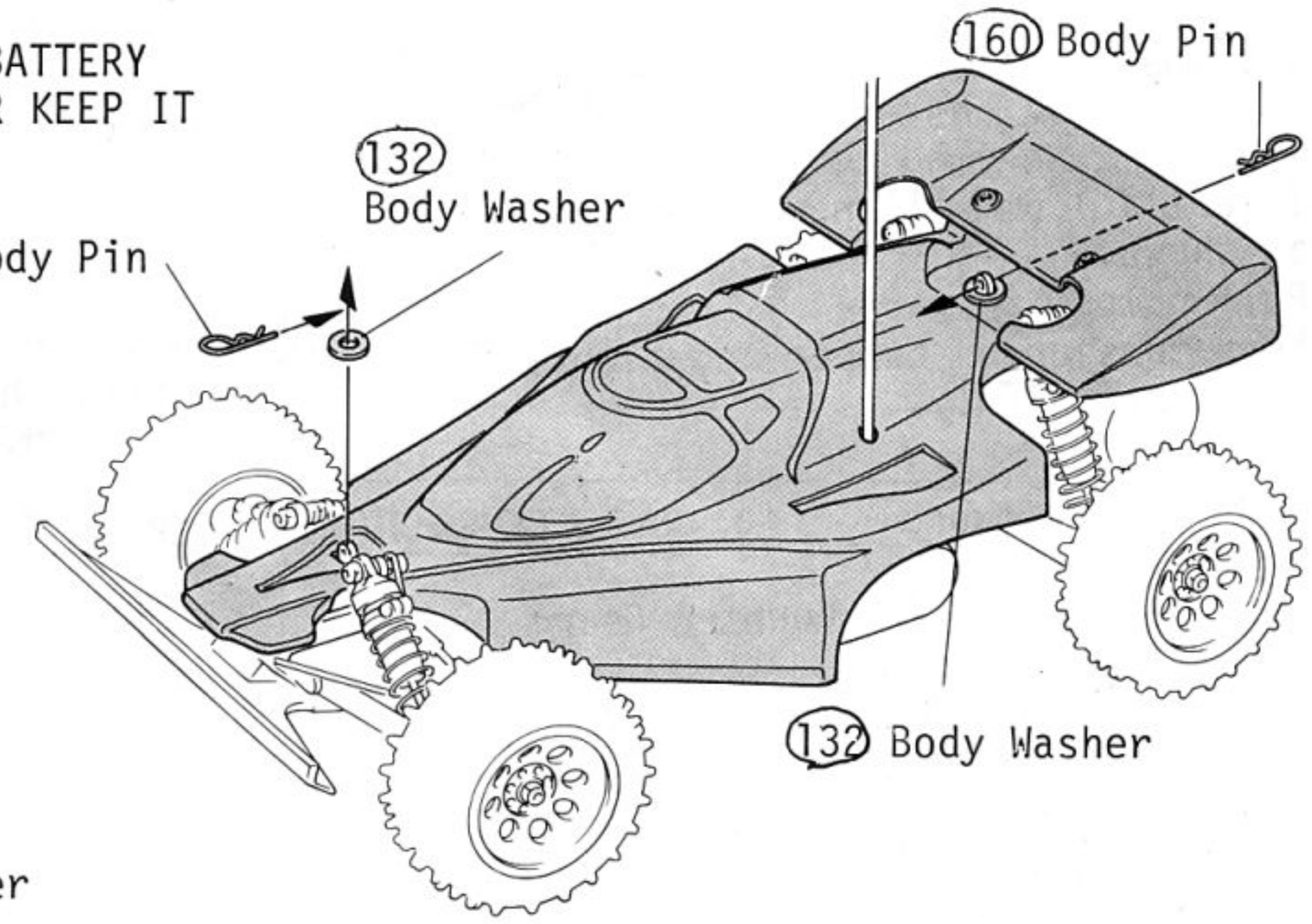
Turbo Racing 8.4V Battery (Not included in the kit)

(128) Battery Holder

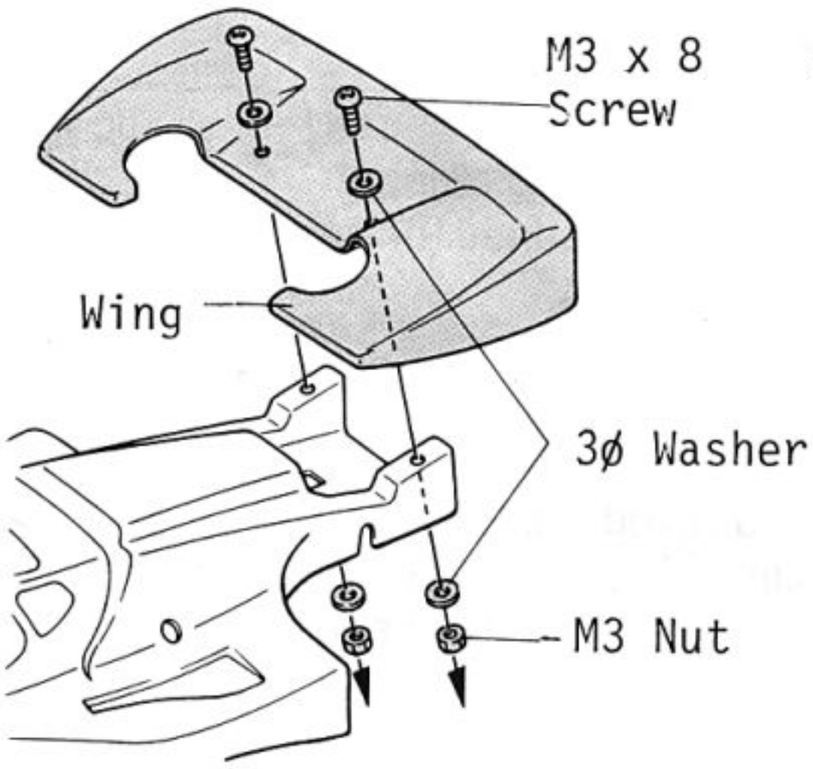
(112) Ni-cad Strap

Kyosho puts in the market a high power 8.4V Turbo Racing Battery which is composed of tabless type cells. It can discharge a lot of current at a time to give a model car excellent pick-up power and running ability.

BE SURE TO DISMOUNT THE NI-CAD BATTERY WHEN YOU WILL NOT RUN THE CAR OR KEEP IT IN STOCK.



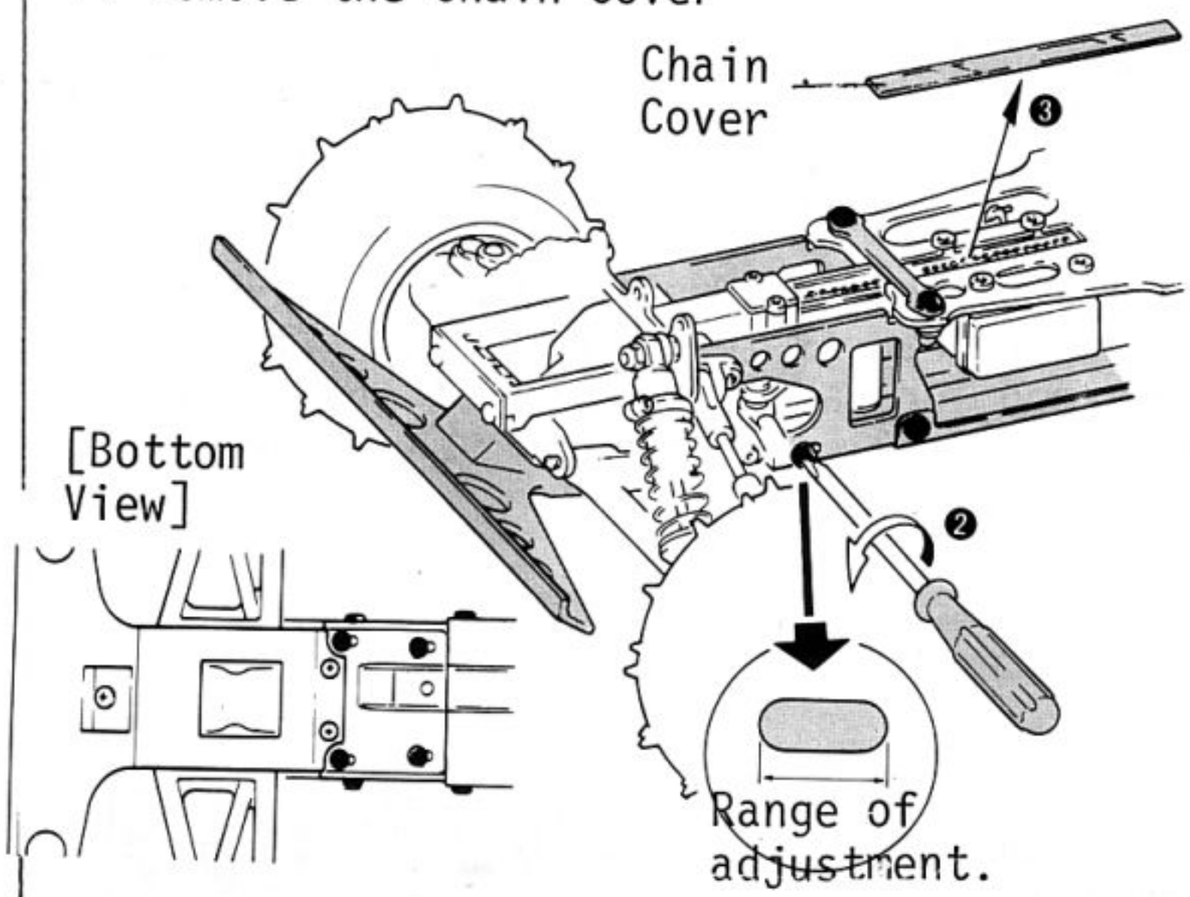
[Installation of Wing]



ADJUSTING THE CHAIN

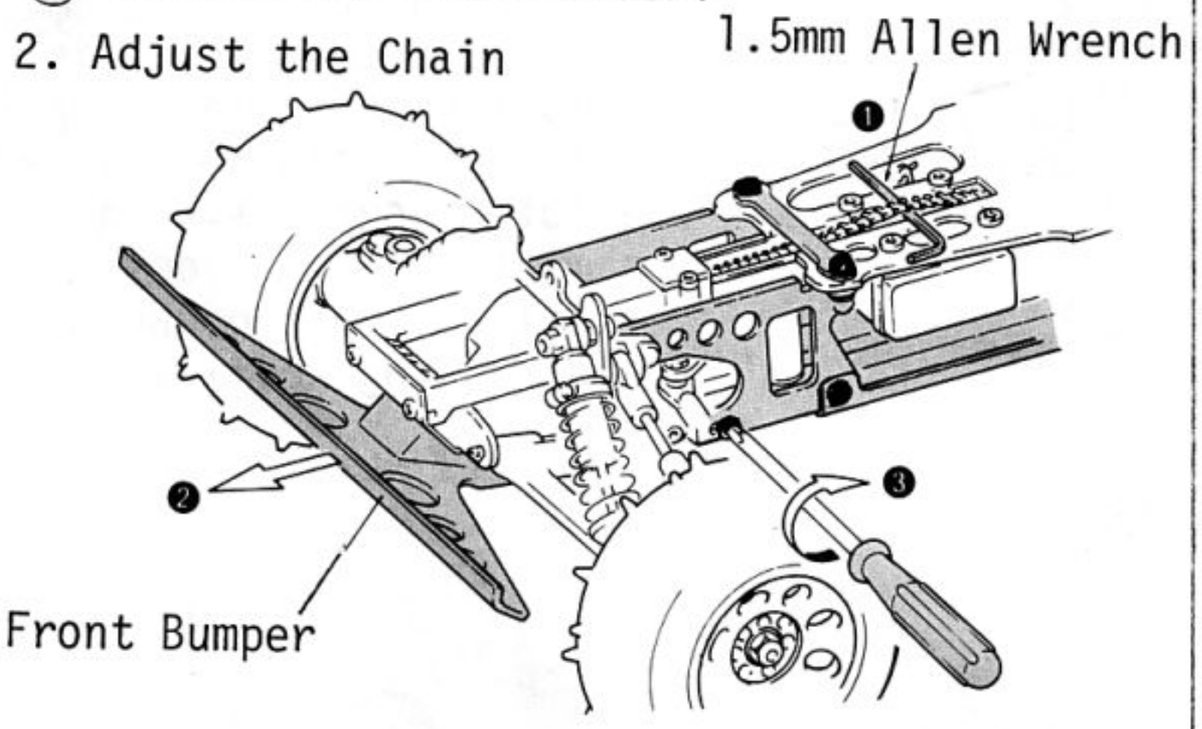
To avoid any damage to sprockets, adjust the chain every 5-6 runs.

1. Remove the Chain Cover



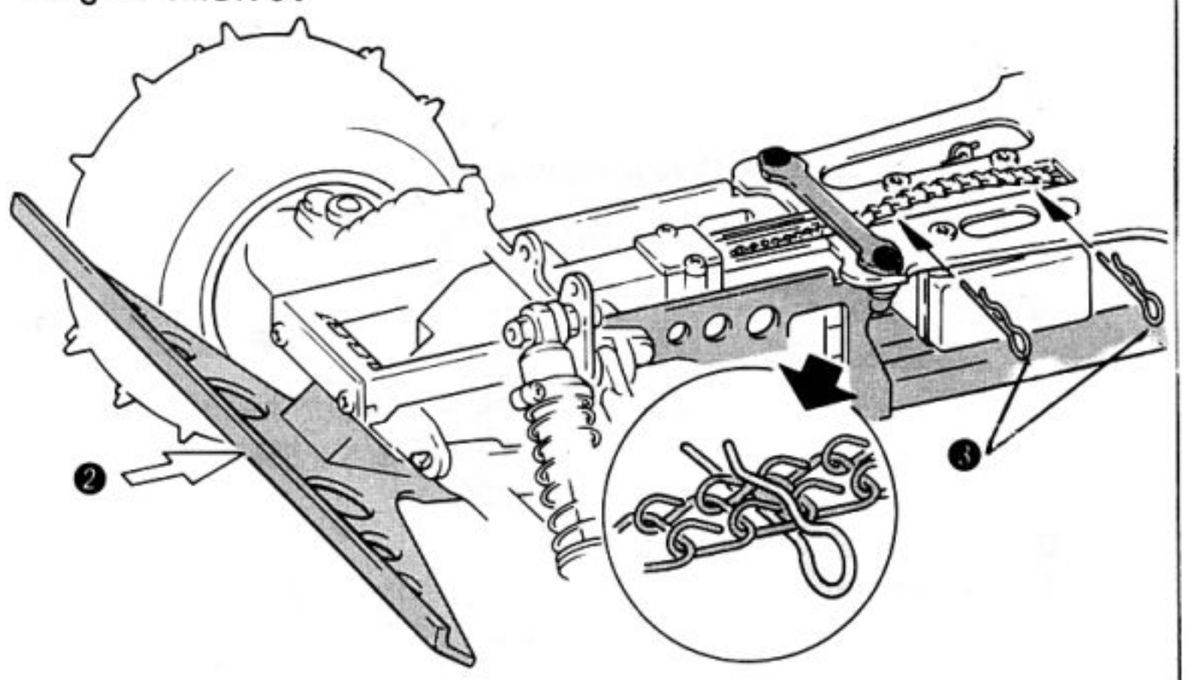
① Remove the Body.
② Loosen 10 (darkened) screws 1/2 turn each.
③ Remove the chain cover.

2. Adjust the Chain

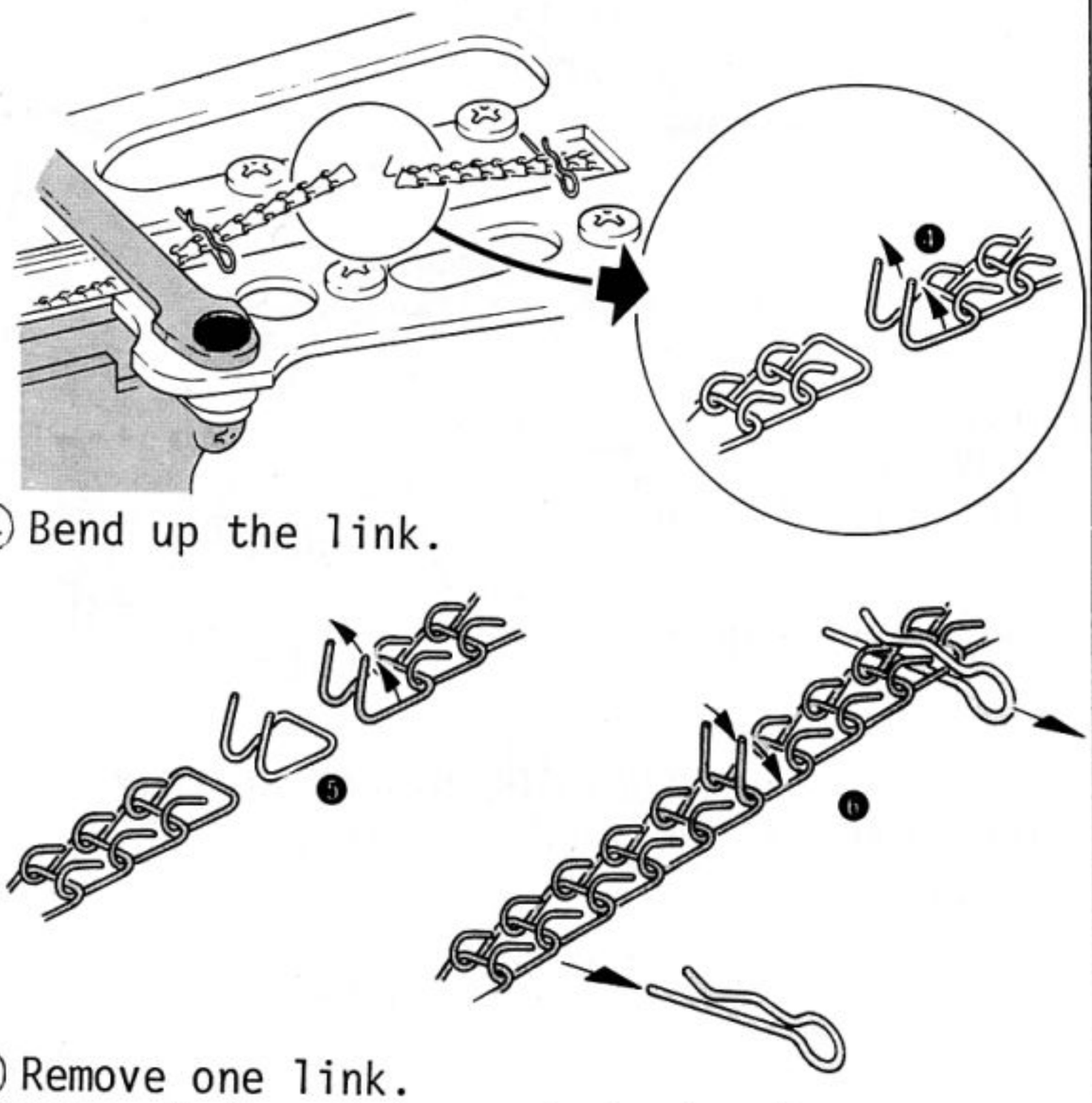


① Insert a 1.5mm allen wrench under chain as shown.
② Pull bumper forward.
③ Keep tension on bumper and tighten the 10 screws firmly.

*When chain is stretched beyond range of adjustment.



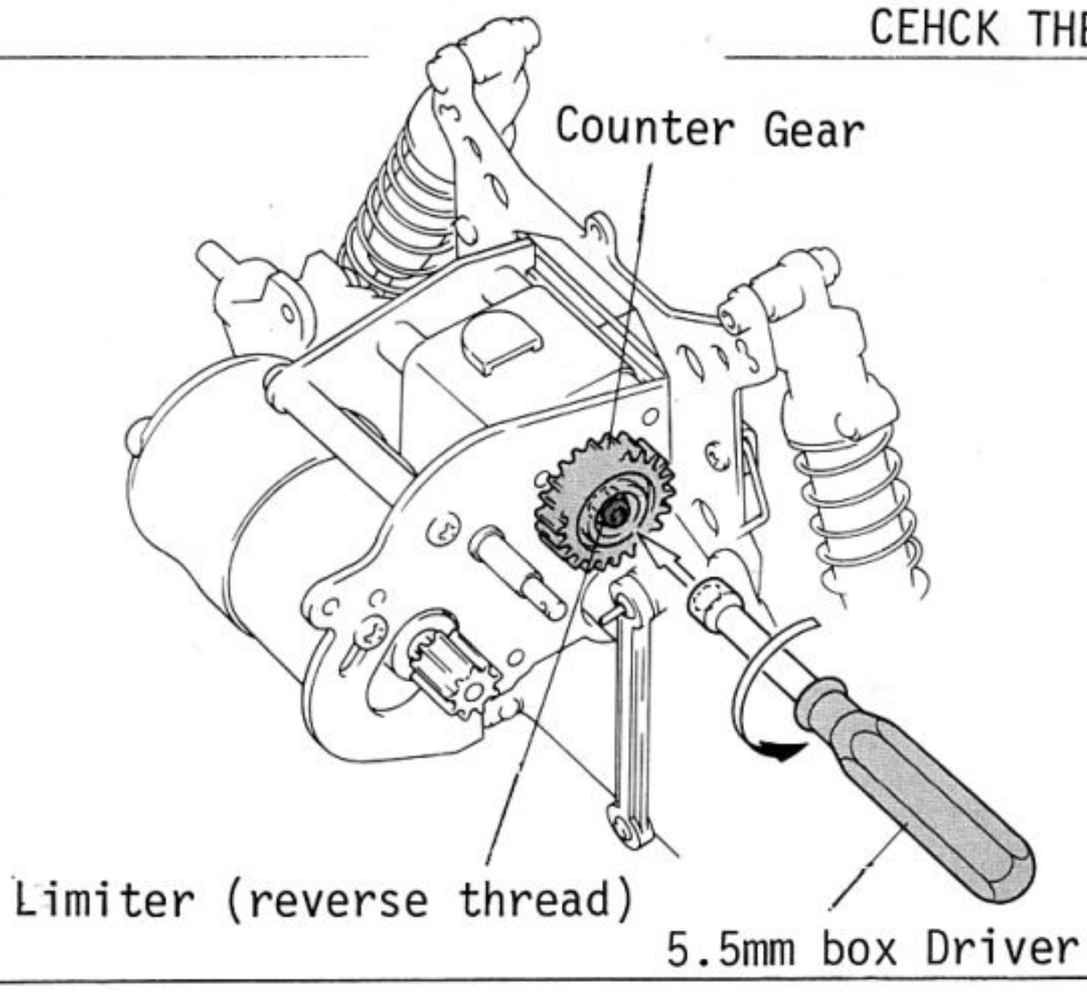
① Loosen the 10 screws.
② Push bumper rearward to loosen chain fully.
③ Hold the chain with hook pins as shown in inset drawing.



④ Bend up the link.

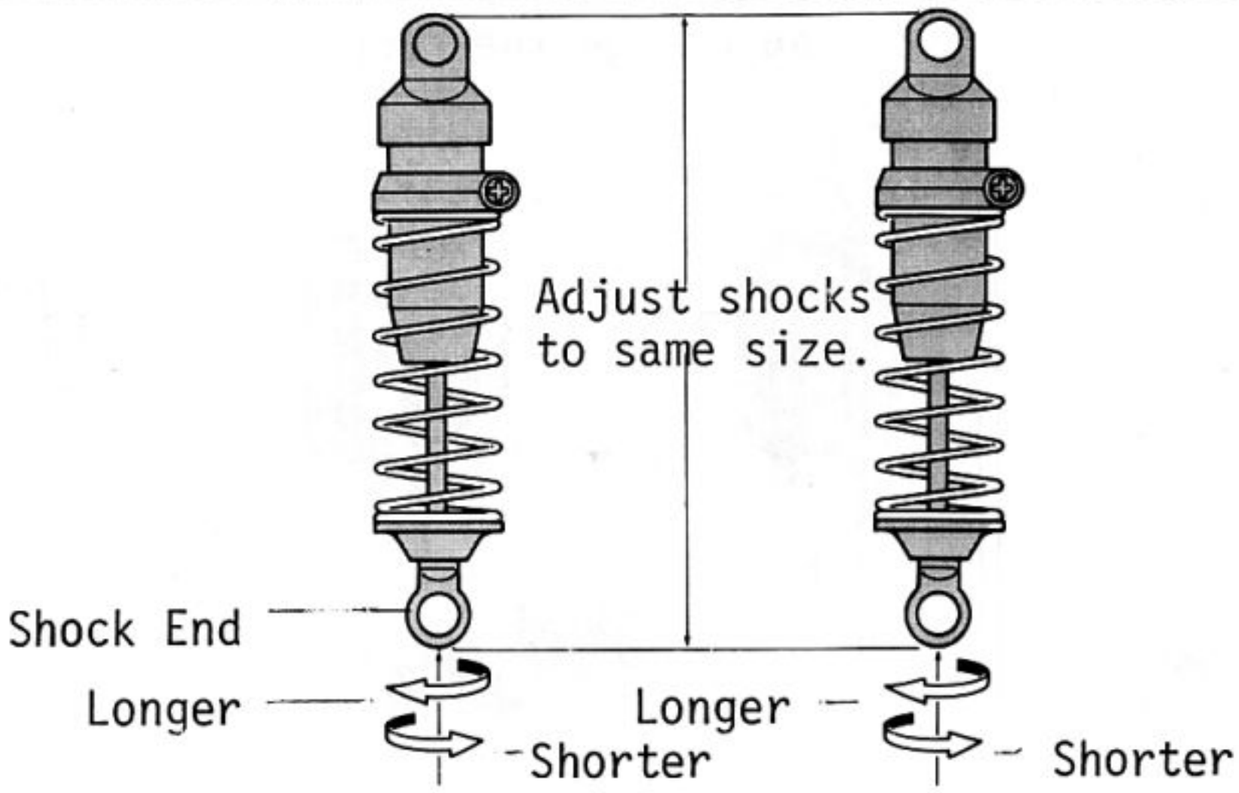
⑤ Remove one link.
⑥ Connect the chain again by bending the link ends down. Readjust the chain.

CEHCK THE LIMITER



Check the limiter nut once in a while. Whenever you find it loosen, tighten it firmly; otherwise, the counter gear will run idle excessively to result in melting the nut.

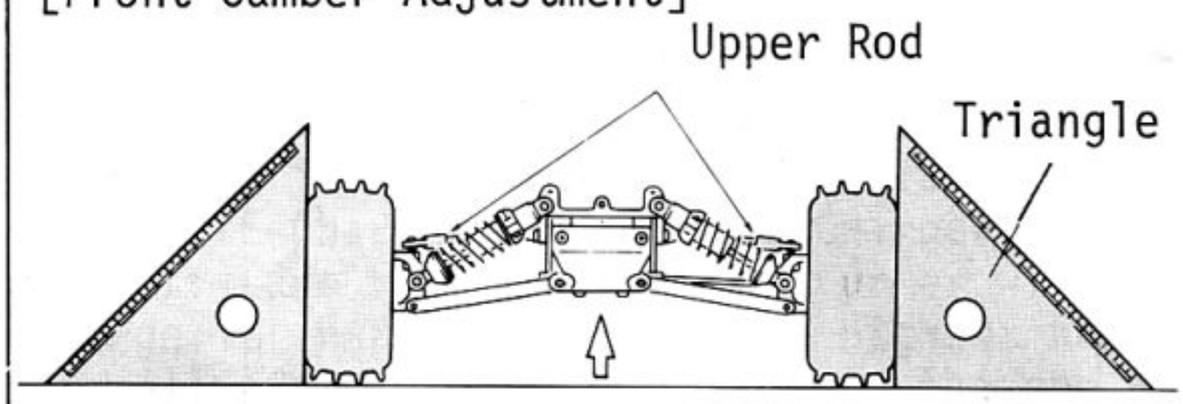
ADJUSTMENT OF SHOCK SIZE



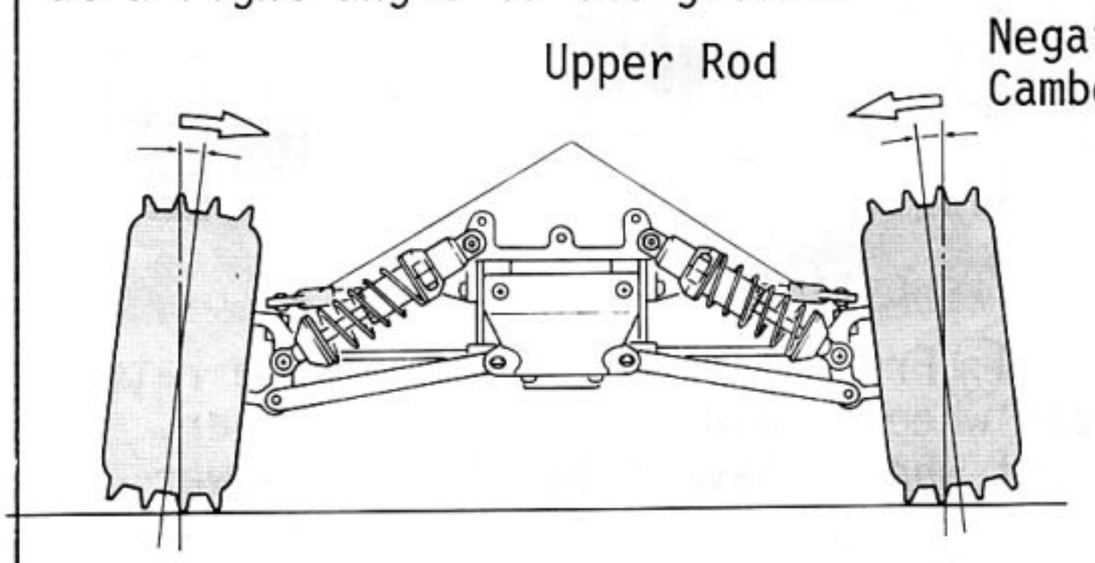
Adjust the shocks so that both front shocks and both rear shocks are exactly the same length.

BASIC ADJUSTMENT GUIDE FOR THE OPTIMA

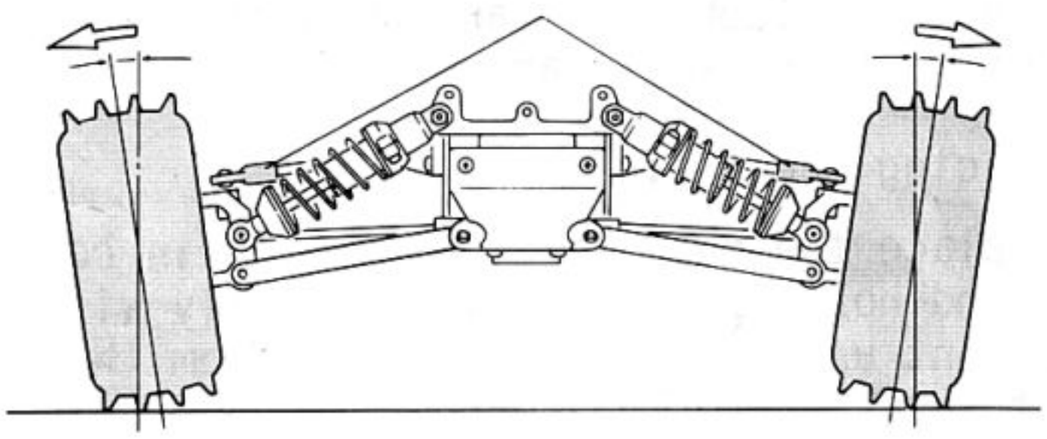
[Front Camber Adjustment]



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

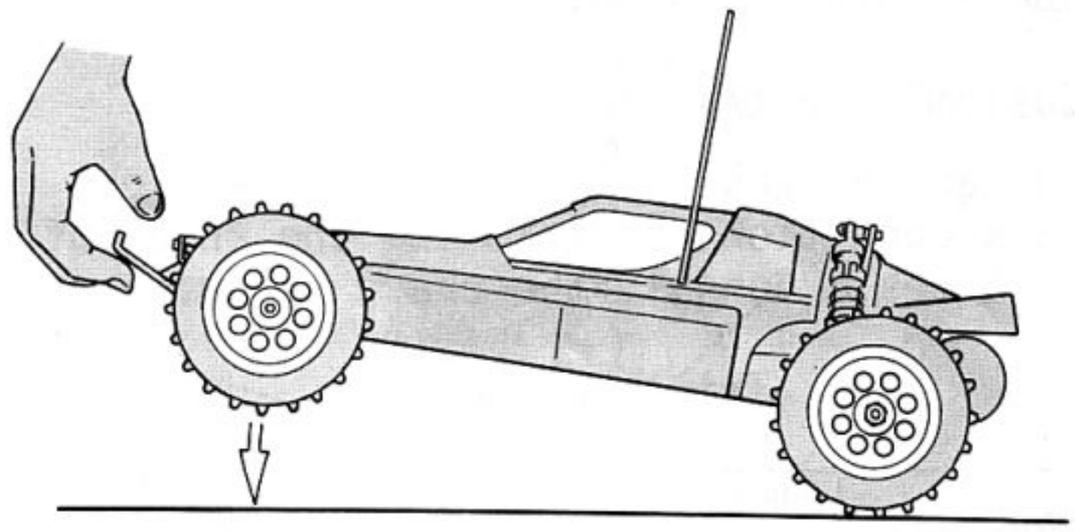


Negative camber results when you make the upper rods shorter.

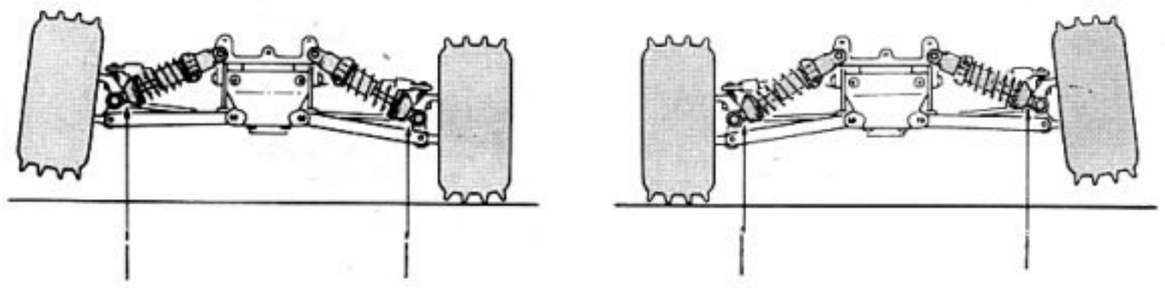


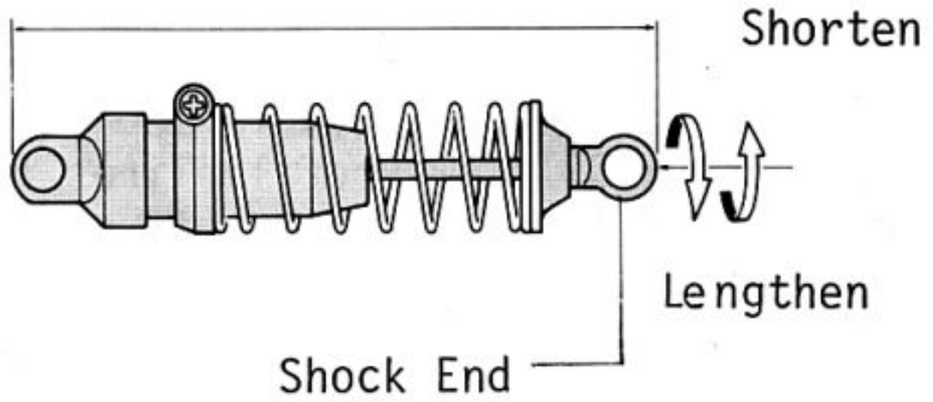
Positive camber results when you make the upper rods longer.

[Front Wheel Height]



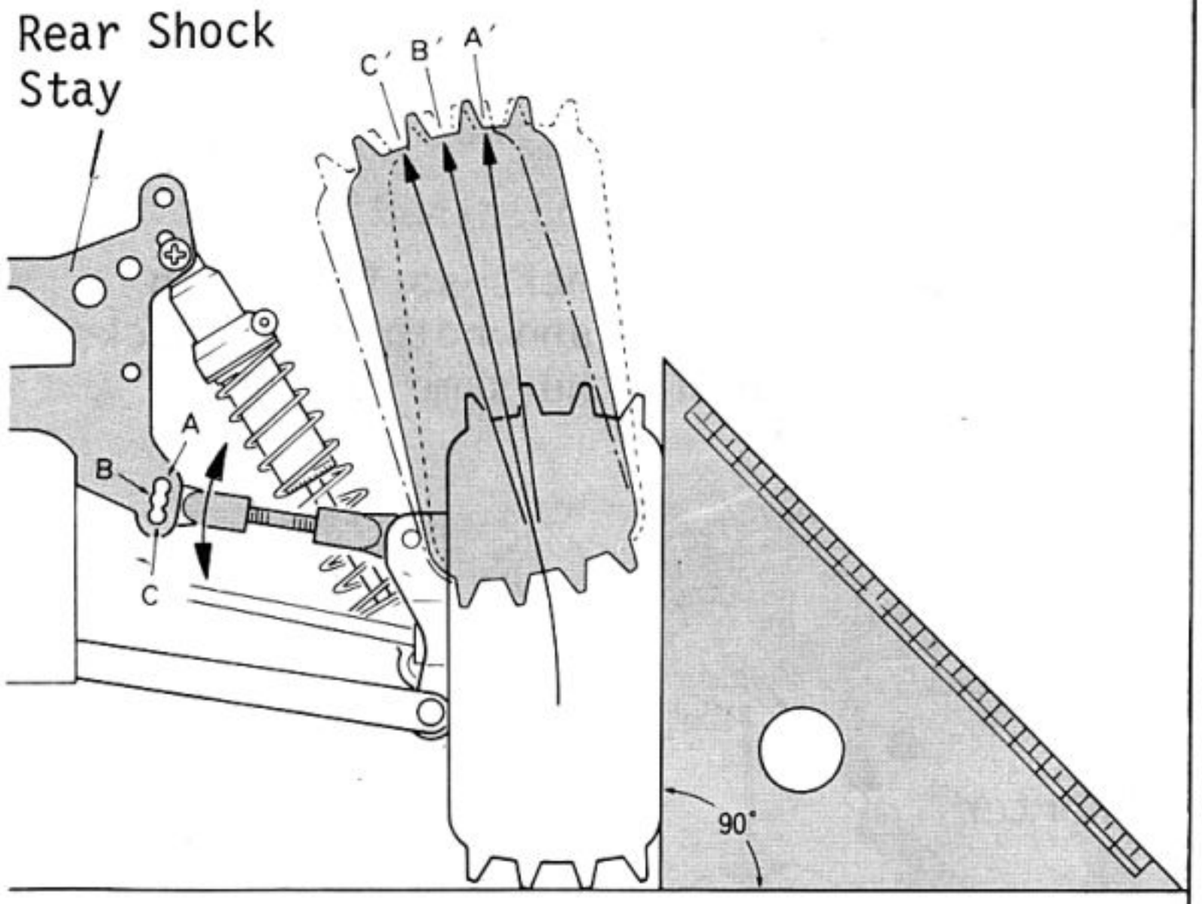
Place the car on a flat area, raise the front end and then lower the front wheels slowly to see whether they will touch the ground evenly. If not, adjust the length of the shocks. If they are uneven, steering to the right and left will not be the same.





Adjust the length by turning the shock end.

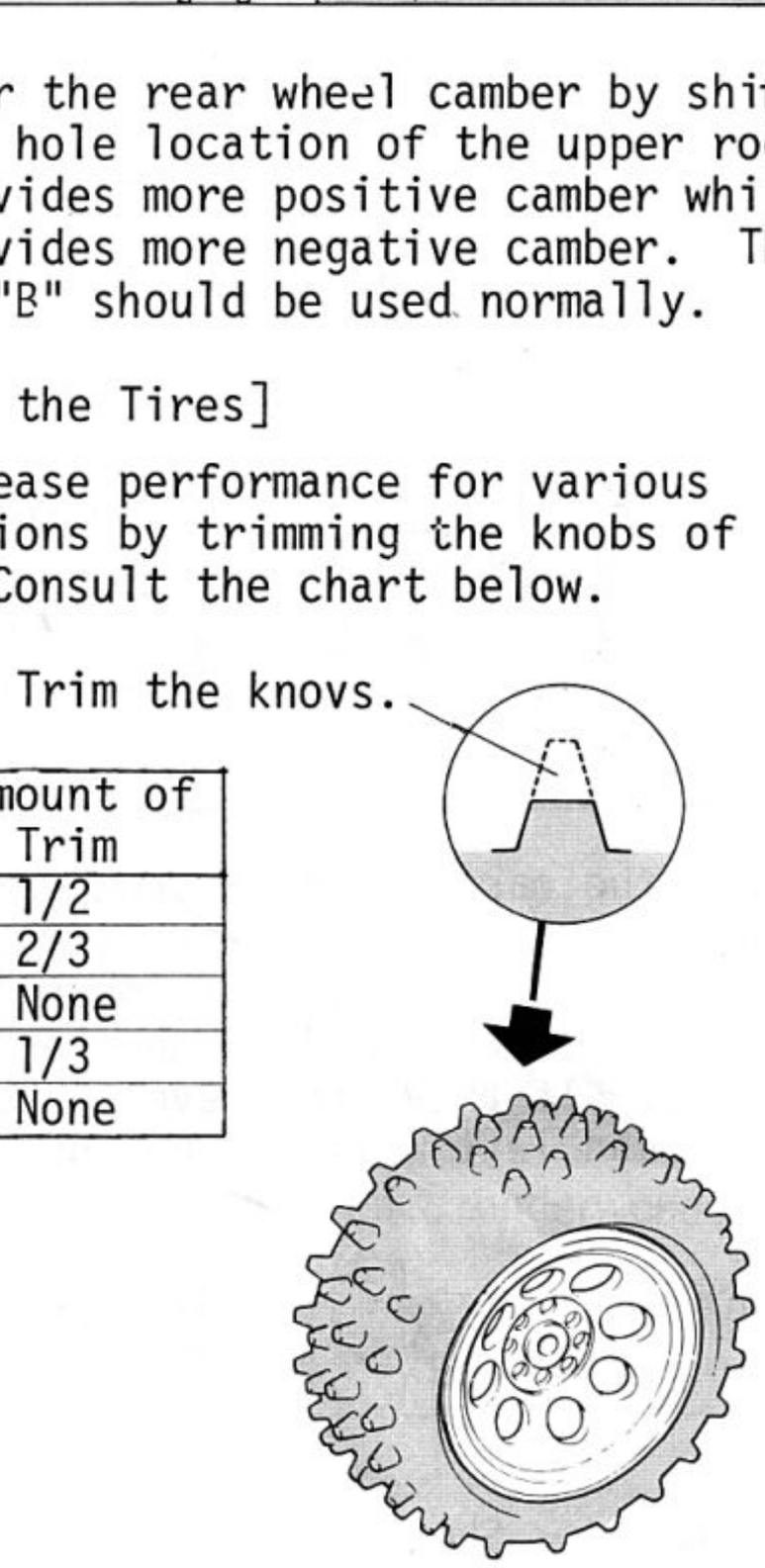
[Rear Camber Adjustment]



You can alter the rear wheel camber by shifting the bolt hole location of the upper rod. Hole "A" provides more positive camber while hole "C" provides more negative camber. The middle hole "B" should be used normally.

[Customizing the Tires]

You can increase performance for various track conditions by trimming the knobs of the tires. Consult the chart below.



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

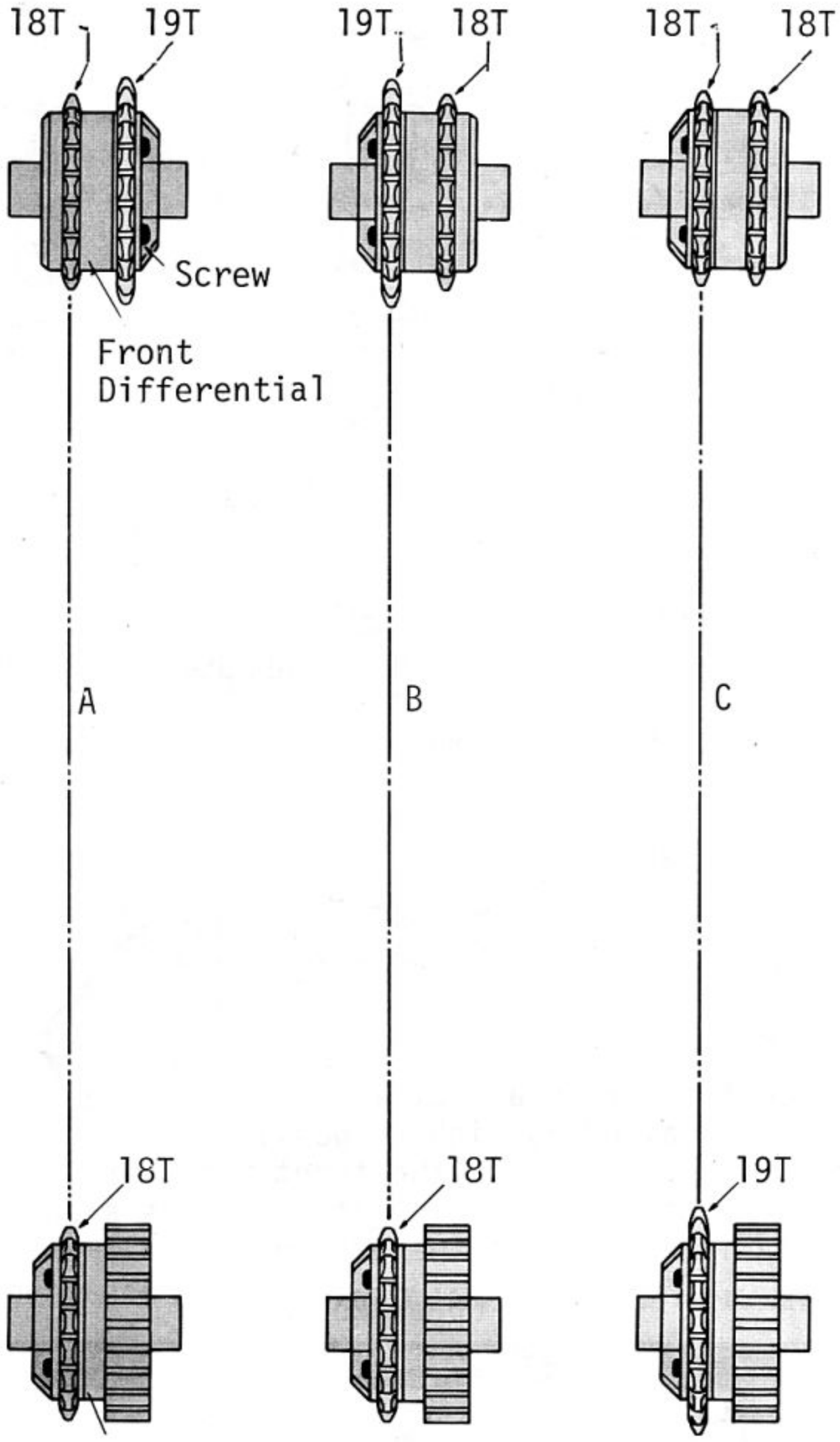
[Optional Tires]

The Option House" set, available separately, offers you the W5031 Low-Profile Tires for hard ground, and the W5032 for soft soil.

Pinion Gear	9T	10T	11T	12T	13T	14T
Gear Ratio	13.8	12.4	11.2	10.3	9.85	8.8
Motor	240S			360 Gold		
	240SB					

[Adjusting Front/Rear Power Ratio]

By changing the front and rear sprockets, you can change the power ratio.



A. Nomal: Front and rear furn at same rate.
B. Rear wheels have slightly more power.
C. Front wheels have slightly more power.

[Keeping the Chain Clean]

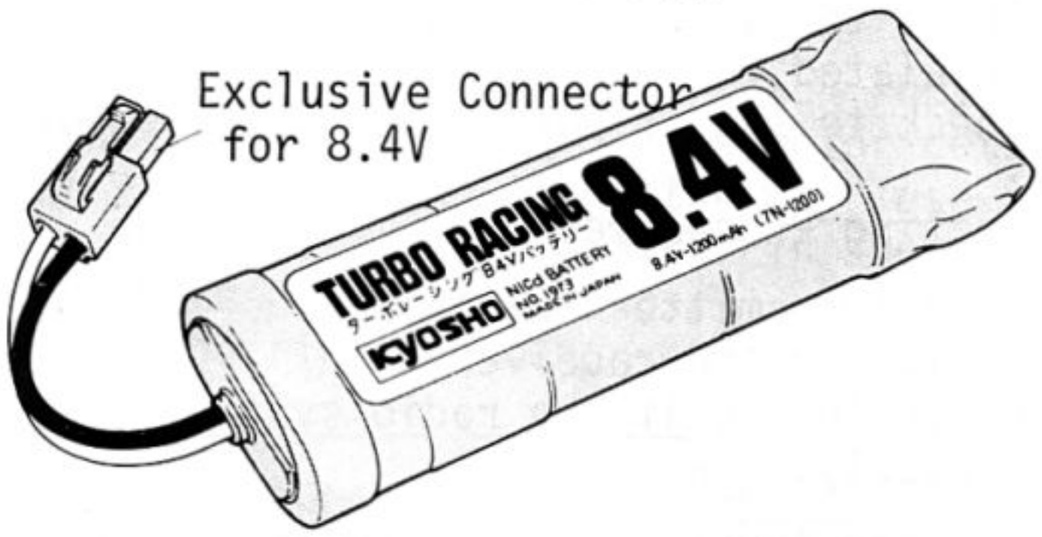
Be careful not to let sand and dust in through the chain cover and chain guide. Seal the openings around the chain cover and guide with cellophane tape or silicone sealer. Remove the gearbox hatch cover and hold the car upside down to remove any dirt.

[Replacing the Chain]

To replace the chain, remove the chain cover (B); and holding the model vertically with the front upward, feed the chain from the front sprocket to the rear. It may require a few tries to get it right.

HOW TO USE 8.4V BATTERY

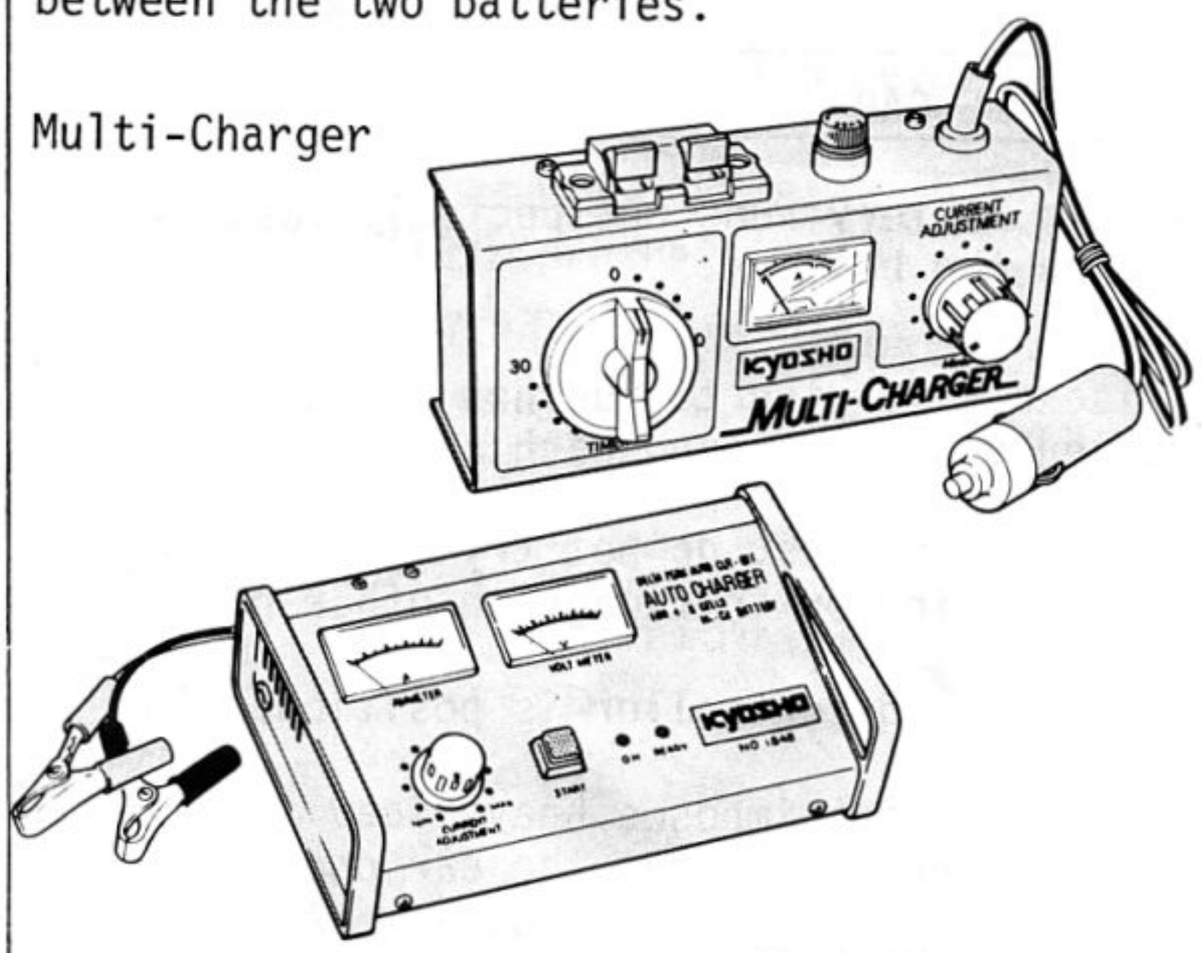
The 8.4V Turbo Racing Battery is a high power battery pack for more powerful running. It puts out about 1.4 times the power of the existing 7.2V racing battery. With higher voltage, it will discharge a greater amount of current. So you have to be careful if there is any loose contact or connection in the circuit. Plug out the connector when you store the car after a run.



CHARGE THE 8.4V BATTERY

When you charge it from a 100V source, the 8.4V AC Quick Charger is ideal. You can charge it in 50 minutes. From a 12V battery, The Multi-Charger or the Auto Charger (auto cut off) are recommended, the former will charge it in 25 minutes at the highest range. It will often happen that, toward the end of charging, the charging amperage is tend to decline. This is a natural course of events because of a little disparity in voltage between the two batteries.

Multi-Charger

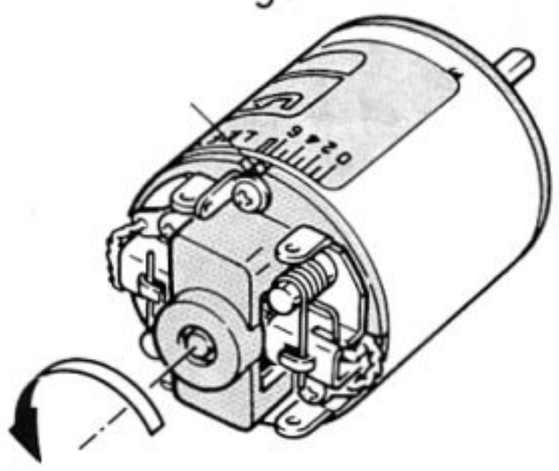


Auto Charger

HOW TO USE MOTOR

The Le Mans 240S is designed as a high-rotation and high-power motor, still there are some requirements to bring out its maximum capability;

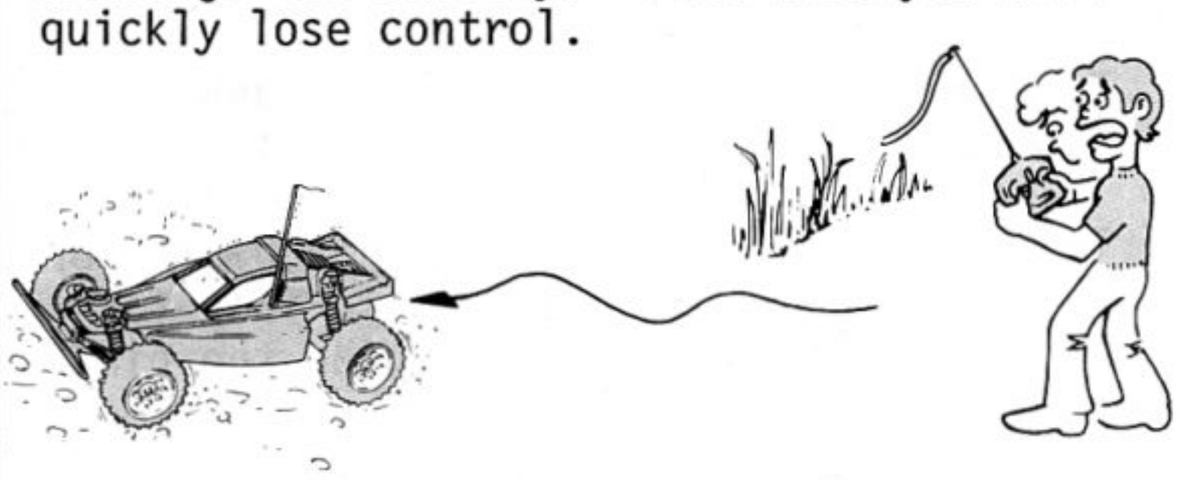
1. The portion of commutator and brushes is a possible place to generate heat. So check the point each time if you impose heavy load on it. If you find it discolored or any carbon accumulated, run it idle for 10 to 15 minutes after removing the pinion gear.
2. Perforate the motor cover as shown in step 28 on page 12 without fail for better ventilation. Without it, the motor may be damaged.
3. Adjust the timing point according to the duration of a run within the range between 0 to 6. The more number of timing adjustment, the more speed, at the same time, the more consumption of current and the shorter duration of running.



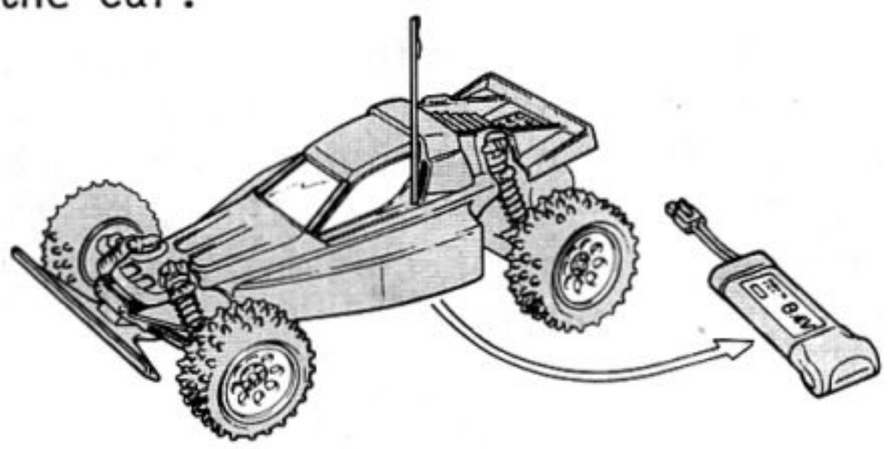
4. Overhal the motor periodically. (Refer to the instruction which came with the motor)

RUNNING THE OPTIMA

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



After running, always remove the battery from the car.



[Check Before Every Run]

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.

WARNING FOR RUNNING THE CAR

The electric R/C powered by a highly efficient Ni-cad battery runs unexpectedly fast. So great care is required when you handle the car and the battery.

*Do not run the car in the crowd and on the road.
*Check the frequency bands when you see someone else also trying to run his car at a time with you. Radio control systems on the same frequency will respond each other and causing them to go out of control.
*If you car suddenly stalled, or being caught by some obstacles, do not try to move the car further. It may result in burning the motor or wiring or in damage on other parts.
*Do not try to hold the rotating wheels forcibly.
*When connecting the Ni-cad battery, be sure that the speed controller is positioned in neutral.
*Any binding or drag on the bearing portion of driving system imposes heavy load to the motor and battery, thus causing overheating of the components or that the car does not gain speed. So check to see always if the driving system will turn smoothly. Application of oil and grease is also very important.
*With those cars which have only one battery powering both the motor and the radio control units, the cars come to be out of control as the battery voltage is being dropped down. So whenver you will find your car losing speed, discontinue the operation.

MAINTENANCE AFTER A RUNNING

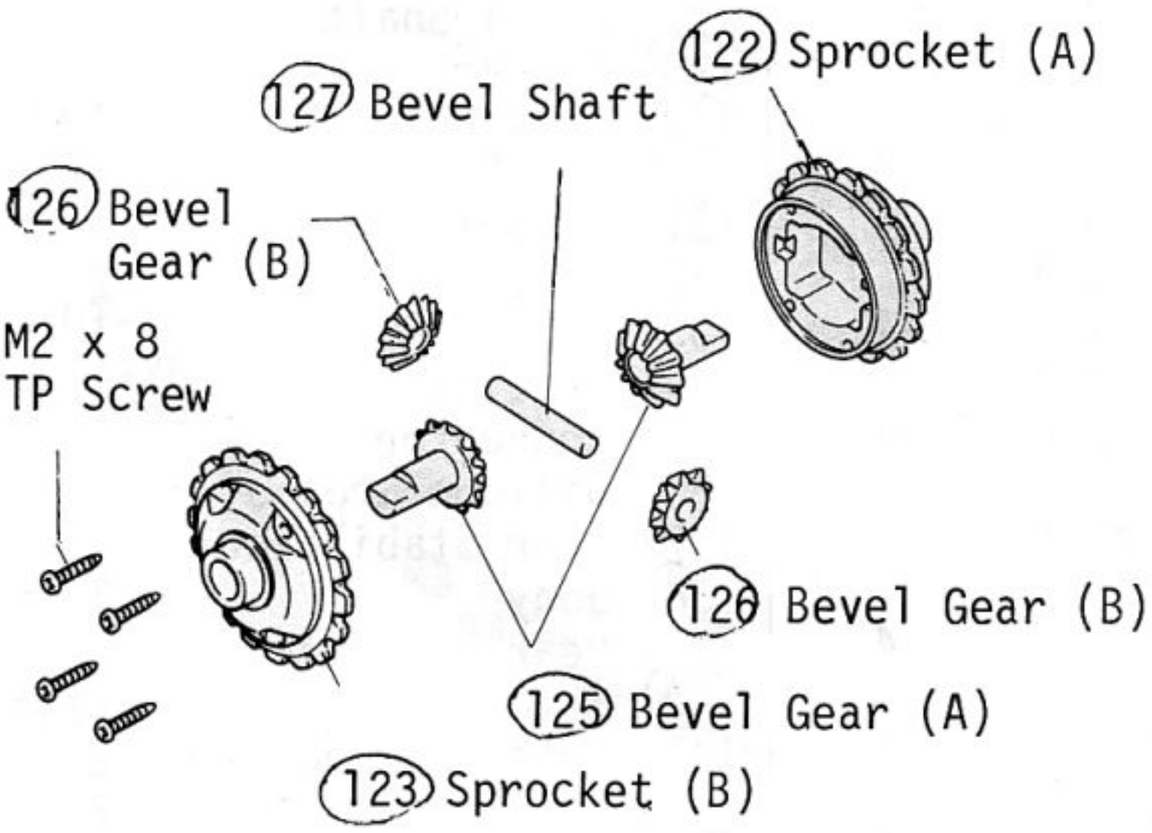
*After a run of the radio controlled car, remove the Ni-cad battery from the car and store it separately.
*When you have finished running the car, clean dirt off the car.
*Turn off the switches of the radio control units without fail.
*Apply grease on the moving parts regularly.
*Check that all screws and nuts are tightened properly.

HANDLING THE MOTOR

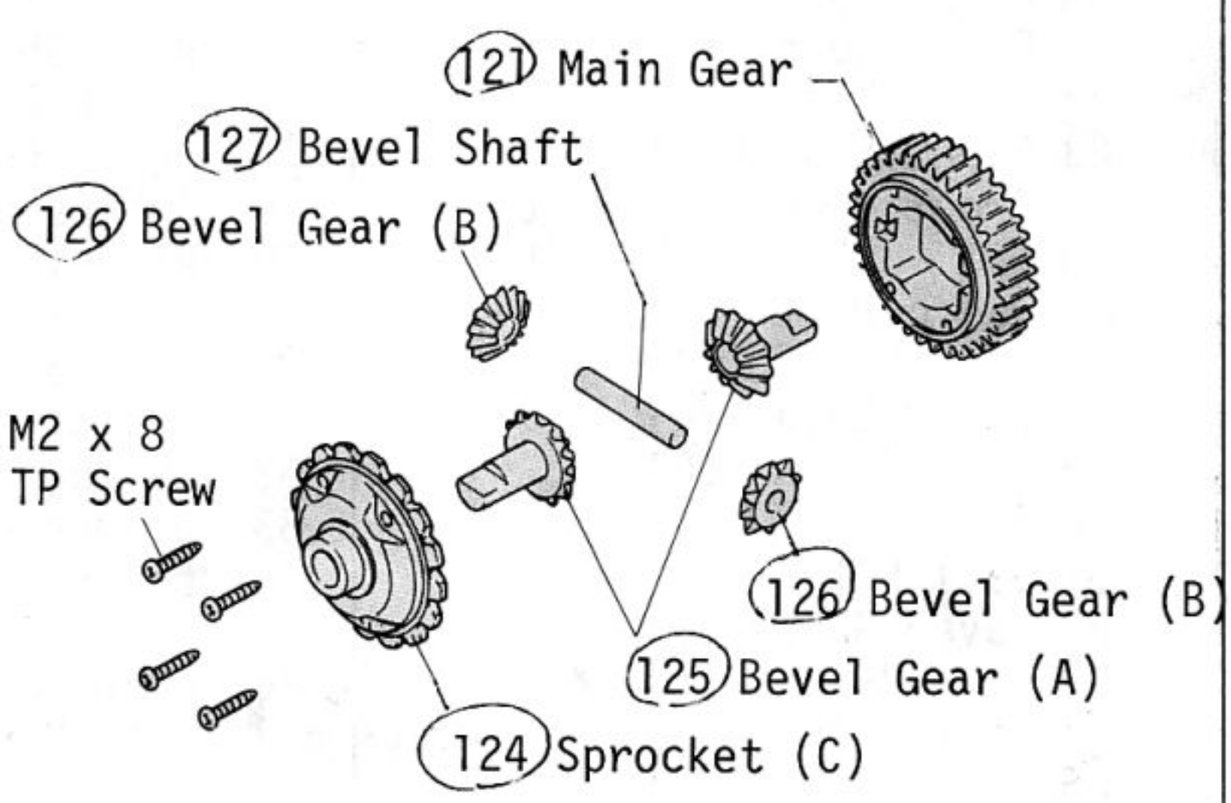
*The motor becomes hot after each run. So continuous running may shorten its life. Do not run the car until the motor gets cool after each operation.
*After several runs the motor may lose its power. This is because of carbon accumulated on the commutator of motor. In such a case, remove the pinion gear and run it idly for 15 minutes under 7.2 volts.
*Oil thr bearings of motor periodically.

EXPLODED VIEW OF FRONT AND REAR DIFFERENTIAL

[Front Differential]



[Rear Differential]



Parts Pack #	Description	Includes These Key Numbers
SC-40	Motor Cover	69 x 1
SC-46	Double Sided Tape	106 x 1
SC-67	Speed Control Set	91 92 94 95 96 97 x 1 93 x 2
SC-78	Speed Control PC Board	96 x 1
SC-79	Speed Control Contact Point	93 x 2
SC-89	Tierod	55 x 2 50 118 x 4
SC-101	Rear Shaft Shim	131 x 10
SC-105	Resistor	108 x 1
EF-37	Strap (S)	111 x 6
EF-38	" (M)	115 x 6
EF-39	Ni-Cad Strap	112 x 6
EP-22	Hook Pin	66 x 5
LD-76	Shock Bush	54 x 10
SD-79	Antenna Pipe	107 x 5
1911	8ø x 14 Bearing	5 x 2
1901	Ball Bearing 5ø x 10	119 x 2
1903	" 4ø x 8	68 x 1 63 x 2
W-5001	Pressure Oil Shock (S), Front	72 74 75 78 79 80 81 82 83 84 141 154 x 2 77 x 4
W-5002	" " " (L), Rear	73 74 76 78 80 81 82 83 84 142 154 x 2 77 x 4
W-5009	Hard Pinion Gear 9T	67 x 1
1990	Regulator	134 x 1 (for 7.2V . 8.4V)
1971	Bearing Set	63 x 2 119 x 10

OPTIONAL PARTS

OT-64	Speical Wing (Silvered)	Polycaborante
OT-65	Wing Stay Set	For attachment of OT64
OT-76	Hard Final Pinion Gear	Hardened Alumite
W-0101	Motor Guard	Case of Protecting your motor.
W-5031	Low Profile Tire Allround Type	For Hard Truck
W-5032	Low Profile Tire, High Grip "	For Soft Truck
W-5010	Hard Pinion Gear 10T	Gear Ratio (12.4 : 1)
W-5011	Hard Pinion Gear 11T	Gear Ratio (11.2 : 1)
1951	Shock Oil Set (S.M.H)	3 Different Weights
OT-23	Pinion Gear 12T	Gear Ratio (10.3 : 1)
OT-50	" 13T	" (9.5 : 1)
OT-51	" 14T	" (8.8 : 1)
OT-56	Light Weight Aluminum TP Screw Set	Tapping (Aluminum), Nylon Nut Set
SC-80	Speed Control(4 speed Registor)	4 Forward Speeds
LM-15	Cooling Plate	For Le Mans Motor
OT-47	Front Hub Set	For better steering
W-5021	Low Profile Wheel	Silvered
1863	Sponser Sticker	
W-0102	Side Guard	For Protecting Rear Sus. Arm
1952	Differential Oil	
W-1001	High Corbon Plate 1.7	For Material of Mecha Plate
W-0103	Gold Plate Set	For Ornament of Your Model

Bag No.	Key No.	Parts Name	Q'ty	
	1	Spike Tire	4	[47]
	2	Wheel (1)	4	[47]
	5	8ø x 14 Bearing	4	[1]
	8	Stabilizer End Ball(Gold Color)	4	[16][232
	48	Front Sus. Arm	2	[16]
	59	Rear Sus. Arm	2	[23]
	63	4ø x 8 Bearing	2	[27]
	119	5ø x 10 Bearing	10	[2][4] [15][23]
	120	Front Stabilizer	1	[7]
	135	7N-8.4V Connector	1	[38]
	137	Rear Stabilizer	1	[45]
	144	Heat Sink (A)	1	[35]
Blister	145	" (B)	1	[35]
	147	Stabilizer Stopper	2	[45]
	148	Stabilizer Link(L)	2	[45]
	149	" (S)	2	[44]
	150	Stabilizer Pivot Ball	4	[44][45]
		M2.6 x 6 Bind Screw	2	[45]
		M2.6 Nut	2	[45]
		M3 x 3 Set Screw	4	[44][45]
	Assembly	Front Diff.	1	[1]
	"	Rear Diff.	1	[1]
	"	Presser Shock(S)	2	[18]
	"	" (L)	2	[18]
	9	Gear Box (L)	1	[2]
	10	Fainal Pinion	1	[2]
	11	Gear Box (R)	1	[2]
	30	Chain	1	[2]
	41	Front Shaft	2	[15]
	56	Rear Shaft	2	[23]
	67	Pinion Gear (9Z)	1	[28]
	71	Shock Oil	1	[19]
	74	Shock Piston	4	[18]
	77	O Ring	8	[18]
	154	Shock Fixing Collars(Red Color)	4	[21][26]
	78 79	Plastic Washer		[18]
		White	4	
		Black	4	
	83	Diaphragms	4	[19]
	84	C Ring	8	[18]
	110	Drive Washer	4	[48]
	129	Bulk Head (L)	1	[6]
	130	" (R)	1	[6]
	136	Silicon Grease	1	
	159	Allen Wrench(2.5mm)	1	[5][17]
	44	E Ring (E-2.5)	8	[18](4pcs. Spare)
		Cap Bolt M3x18	4	[5][17]
		Screw Rock	1	
TOP-3	3	Wheel (2)	4	[47]
	4	Wheel (3)	4	[47]

Bag No.	Key No.	Parts Name	Q'ty	
	6	Joint	4	[1]
	12	Center Gear Shaft	1	[3]
	15	Counter Shaft	1	[4]
	16	M3 Pivot Ball (Silver Color)	2	[5]
	31	Ball Nut	4	[13][36]
	32	Saver Shaft(A)	1	[14]
	33	" (B)	1	[14]
	38	King Pin	4	[15]
	49	5ø Ball	4	[17][25]
	53	Swing Shaft	4	[17][25]
TOP-4	64	Center Gear	1	[27]
	68	Bearing Collar	1	[27]
	85	Joint Collar	2	[3][12]
	151	Counter Gear	1	[4]
	152	Limiter Spring	1	[4]
	156	Washer (A)(Black)	1	[4]
	157	" (B)(")	1	[4]
	158	M3 Nylon Nut (Gold Color)	1	[4]
		3ø Washer	1	[4]
		Saver Shaft (C)	1	[14]
		Servo Saver Spring	1	[14]
	13	Rear Plate (R)	1	[3]
	14	" (L)	1	[3]
	17	Rear Shock Stay	1	[5]
	19	Front Sus. Plate	1	[6]
	23	Front Side Plate	2	[10]
TOP-5	52	Front Shock Stay	1	[17]
	61	Rear Sus. Strut	1	[24]
	99	Chain Cover (A)	1	[11]
	102	" (B)	1	[42]
	103	Front Strap Plate	1	[33]
	105	Saver Spacer	1	[14]
	18	Gear Box Hatch	1	[5]
	21	Front Support	1	[7]
	24	Front Upper Pivot (L)	1	[10]
	25	" (R)	1	[10]
	26	Rear Radio Post	2	[8]
	27	Front Radio Post	2	[10]
	28	Chain Guide (B)	1	[11]
	29	" (C)	1	[11]
	34	Servo Saver (A)	1	[13]
	35	" (B)	1	[13]
	39	Knuckle Arm 1 (L)	1	[15]
	40	" 2 (R)	1	[15]
	42	Front Hub (L)	1	[15]
	43	" (R)	1	[15]
	57	Rear Hub (R)	1	[23]
	86	Gear Cover	1	[29]
	90	Servo Mount	1	[33]
	100	Chain Guide (A)	1	[32]
	101	" (D)	1	[32]
	109	Front Bumper	1	[46]
	116	Radio Plate Support	1	[33]

Bag No.	Key No.	Parts Name	Q'ty	
	128	Battery Holder	2	[30]
	139	Rear Hub (L)	1	[23]
	16	M3 Pivot Ball	6	[15][23]
	36	M2 Shaft	1	[14]
	37	Ball End (S)	2	[14]
	45	Sus. Shaft (A) (Silver Color)	2	[16]
	46	" (B) (")	2	[16]
TOP-7	50	Ball End (L)	12	[17][22] [25]
	51	Upper Rod	4	[17][25]
	54	Shock Bush	4	[21][26]
	55	Tie Rod	2	[22]
	58	Sus. Shaft (C) (Black Color)	2	[23]
	60	" (D)	2	[24]
	118	M2.6 Pivot Ball (Black Color)	4	[13][15]
	20	Under Guard	1	[7]
	22	Main Chassis	2	[8]
	62	Radio Plate	1	[30]
	69	Motor Cover	1	[28]
TOP-8	107	Antenna Pipe	1	[43]
	112	Ni-Cad Strap	2	[53]
	143	Chassis Guard	1	[34]
	146	Motor Clener	1	[28]
	153	Motor Plate	1	[28]
	37	Ball End (S)	2	[40][41]
	65	O Ring (P-3) (Black Color)	1	[27]
	87	Gear Cover Seal	1	[29]
	88	Servo Spacer (A)	1	[30]
	89	" (B)	1	[30]
	91	Speed Control Spring	1	[38]
	93	Speed Control Contact Point	2	[36]
	94	Speed Control Stud	1	[38]
	95	Speed Control Pivot	1	[36]
	96	Speed Control PC Board	1	[35]
TOP-9	97	Speed Control Horn	1	[36]
	98	Driver Post	1	[38]
	104	Speed Control Rod	1	[40]
	106	Double Sided Tape	1	[41]
	108	Resistor	2	[35]
	111	Nylon Strap (S)	7	[30][33] [40][45]
	113	Steering Rod	1	[41]
	115	Nylon Strap (L)	1	[42]
	132	Body Washer	2	[53]
	134	Regulator BEC Coard	1	[37] [39]

Bag No.	Key No.	Parts Name	Q'ty	
	114	Driver	1	[49]
	138	Body	1	[49]
Others	133	Decal	1	
	70	Wing	1	[50]
		Spare Screw	1bag	
	7	Allen Wrench 2mm	1	
	36	M2 Shaft	1	
	44	E Ring E-2.5	4	
		" E-5.0	1	
	47	Allen Wrench 1.5mm	1	
	66	Hook Pin	4	
	92	Speed Control Nut M8	1	
	117	Radio Post Screw	2	
	131	Shim 5ø	4	
		Set Screw M3 x 3	1	
		" M3 x 4 (Silver Color)	4	
		" M4 x 4	5	
		Round Head Screw M3 x 8	13	
		"	2	
		M3 x 10		
		"	6(4pcs.	
		M3 x 15	Spare)	
		Bind Screw M2.6x6	9	
		" M2.6x15	2	
		" M3 x 45	4	
		" M4 x 8	1	
TOP-1		Screw, Gold Color M3 x 10	2	
		Round Head TP Screw M2 x 8	26(4pcs.Spare)	
		" M3 x 8	8	
		" M3 x 10	6	
		" M3 x 12	9	
		" M3 x 16	2	
		" M3 x 18	4	
		Bind TP Screw M2.6 x 8	4	
		Flat Head TP Screw M3 x 6	7	
		Nut M2.6	2	
		" M3	10	
		Flange Nut M4	1	
		Nut M3 Gold Color	5	
		Nylon Nut M3	6	
		" M4	4	
		Washer M2.6	4	
		" M3	6(Spare)	
		" M4	2	
		Spring Washer M3	4	