GALAXY R/C OFF-ROAD RACING BUGGY

READY TO ASSEMBLE RADIO CONTROL OFF-ROAD RACING CAR MODEL KIT/REQUIRES TWO CHANNEL, TWO RADIO CONTROL EQUIPMENT AND 7.2V RACING PACK Ni-cd BATTERY/INCLUDES MARUI 360RS HIGH SPEED MOTOR

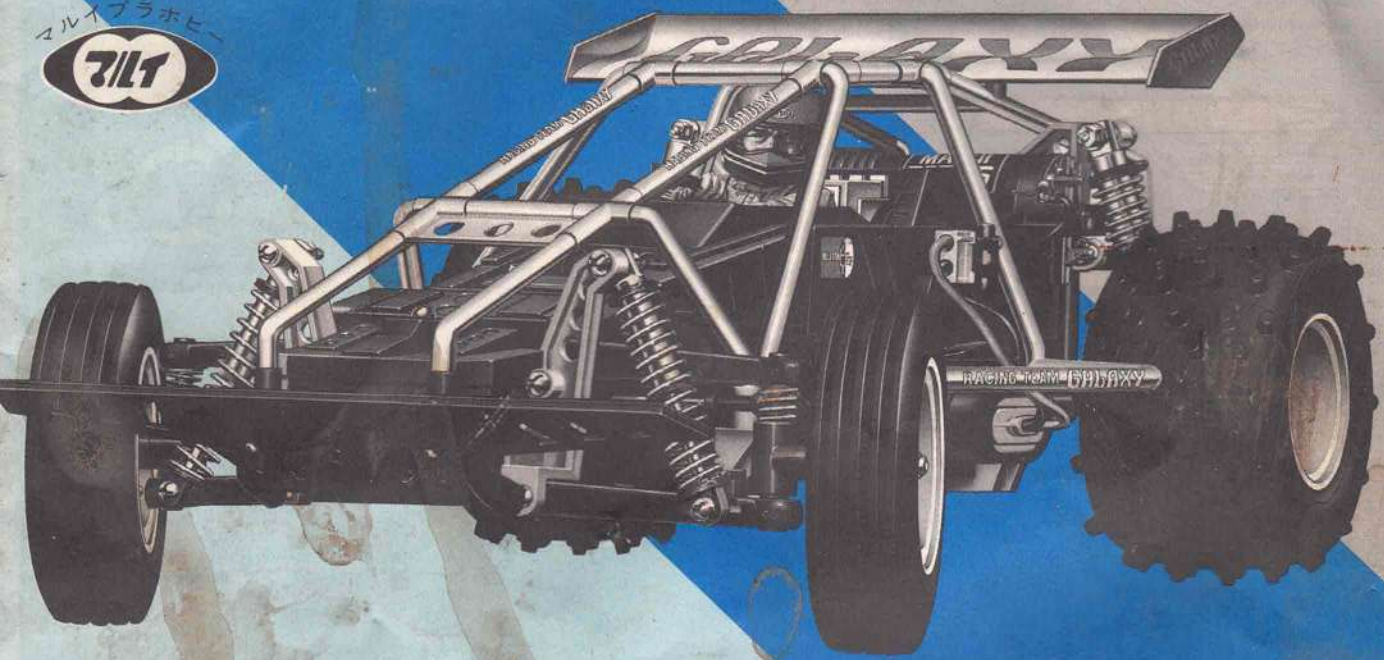
With 360RS High Speed Motor

1/10 Size, Electrically Powered, Radio Controlled Buggy Racing Model

MODELLING SKILLS HELPFUL IF UNDER 10 YEARS OF AGE.

DIFFERENTIAL GEAR DRIVE SYSTEM.
CHANGEABLE PINION GEAR RATIOS.
STRAIGHT RIBBED FRONT TIRES.
WART PATTERN REAR TIRES.
DURABLE POLYCARBONATE REAR WING. ADJUSTABLE SUSPENSION SPRING.
ASSEMBLED SPEED CONTROLLER.

マルイプラホビー
マルイ

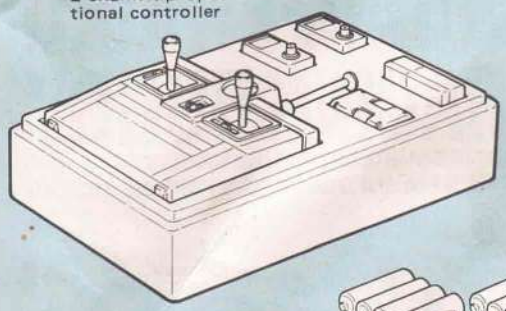


Tokyo Marui Plastic Model Co., Ltd.

HIGH PERFORMANCE R/C OFF-ROAD RACING CAR

≪Parts not included in the kit≫

● 2-channel proportional controller



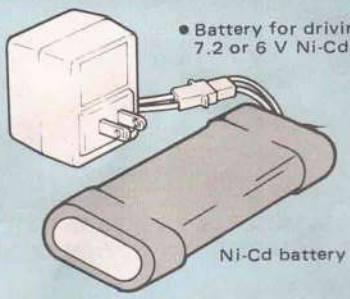
Most regular 2-channel portional controllers may be used, but be careful as some types do not fit with this model.
For those who are going to purchase a controller, the following models are recommended:

FUTABA . . . ATTACK
SAMWA . . . . DASH
J.R. . . . . BEAT 2
K.O. . . . . FX-II

● Batteries for prroportional controller

Special battery charger

● Battery for driving: 7.2 or 6 V Ni-Cd battery

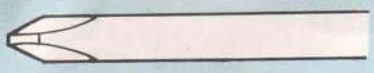


Ni-Cd battery

Use either 6 V or 7.2 V racing Ni-Cd battery. The battery may be recharged up to 300 times using a special charger connecting with household 100 V current or a qick charger (15 to 20 min) connecting with a 12 V power supply such as a car cigarette lighter plug.

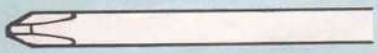
≪Tools required for assembly≫

+ Only phillips type screwdrivers are shown in actual sizes.



+ Phillips type screwdriver (Large)

Use for ϕ 3 screws, ϕ 3 and ϕ 4 tapping screws.

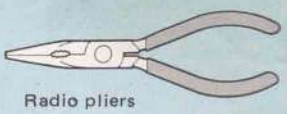


+ Phillips type screwdriver (Middle)

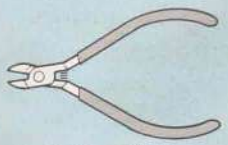
Use for damper shaft, ϕ 2.6 tapping screws, and ϕ 2 screws.

Plain screwdriver (Middle)

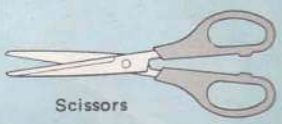
This kit includes many tapping screws. Use proper screwdriver and adequate torque to tighten screws. Release turning pressure on the screwdriver when the screw becomes tight and does not rotate any more. Be careful not to damage screws by applying too much torque.



Radio pliers

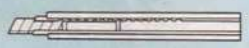


Cutting pliers

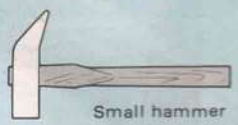


Scissors

Insulation vinyl tape and scotch tape

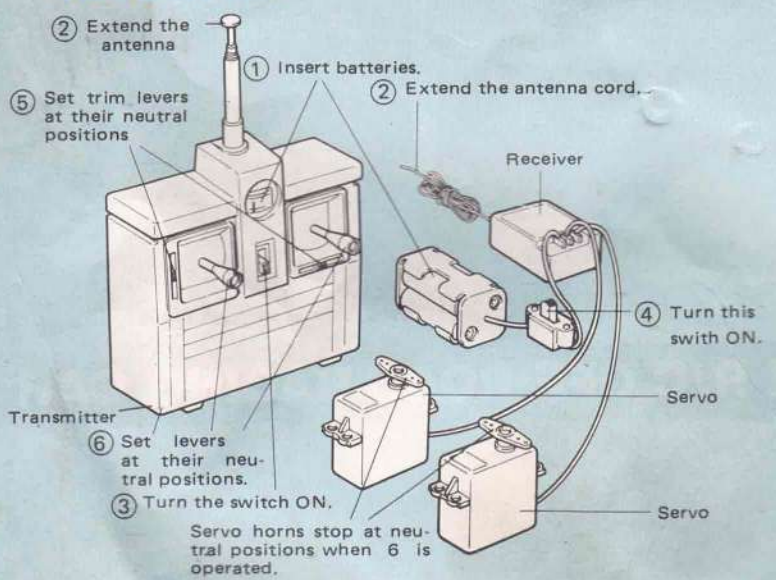


Cutter



Small hammer

≪Radio control unit≫



Most of 2-channel digital proportional radio controller can be used for this model. But be careful as some types of 2-channel unit do not fit. Receivers and servos of controllers with 3 channels or more may not fit with this model.

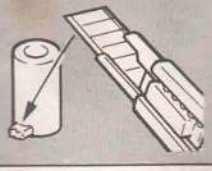
● Check the controller operation

1 Insert batteries in the transmitter and receiver.
2 Extend the antenna of transmitter and receiver.
3 Turn ON the transmitter power switch. (Always turn ON the transmitter switch first.)
4 Turn ON the receiver power switch.
5 Set the levers at their neutral positions.
6 Set the levers at their neutral positions. (The servo horns stop at their neutral positions.)
7 Check servos operate correctly by moving levers.
8 Turn off the receiver and then transmitter switches in this order when test is complete.

See the radio controll equipment instruction sheet for details.

★ Read the following instructions carefully before assembly

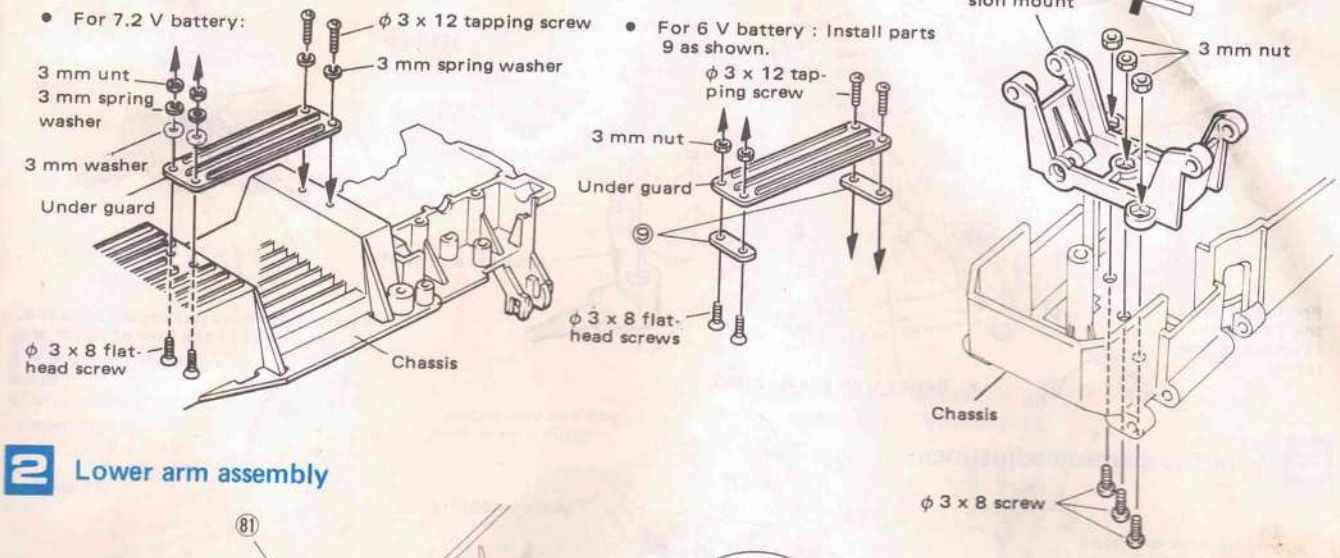
- Read the entire assembly instruction before beginning assembly.
- A Grease mark indicates the portion where grease included in the kit must be applied. Use a small hammer when the ⊢ mark is shown in the figure.
- The actual sizes of all screws, washers, etc. are shown to simplify the assembly and ensure that correct parts are used.
- Some screws, nuts, and washers may be left over as more than required numbers are included in this kit. Use them as spare parts.
- Thoroughly remove plastic part burrs with a cutter.
- Strengthened nylon part burrs must be completely removed as they may impair driving performance. (Be careful not to cut your fingers with a cutter.)



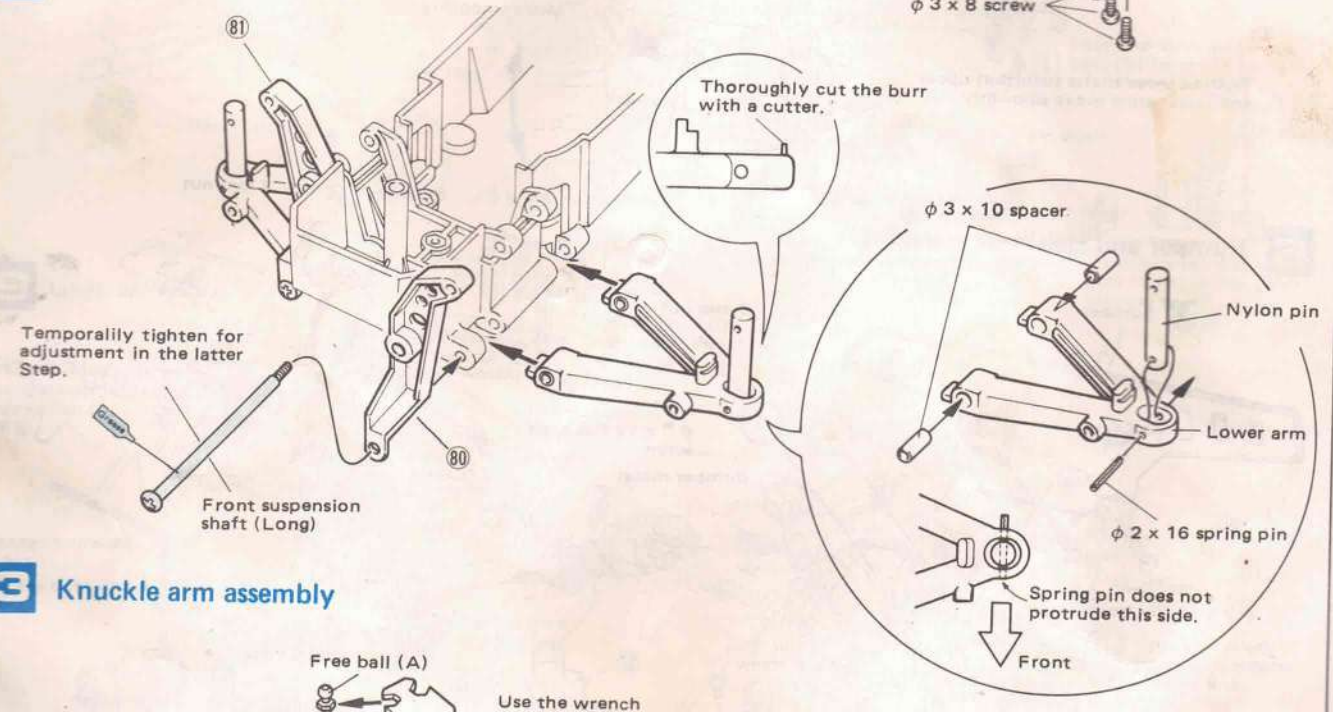
≪Metallic part actual sizes used on P. 3≫

- φ 3 x 8 flat-head screw ..... 2 pcs
- 2 mm nut ..... 2 pcs
- Front shaft ..... 2 pcs
- Front suspension shaft (Long) ..... 2 pcs
- φ 3 x 12 tapping screw ..... 2 pcs
- 3 mm nut ..... 5 pcs
- Free ball (A) .... 2 pcs
- φ 2 x 16 Spring pin ..... 2 pcs
- 3 mm spring washer ..... 4 pcs
- 3 mm washer ..... 4 pcs
- φ 3 x 8 screw ..... 3 pcs
- φ 3 x 10 spacer ..... 4 pcs

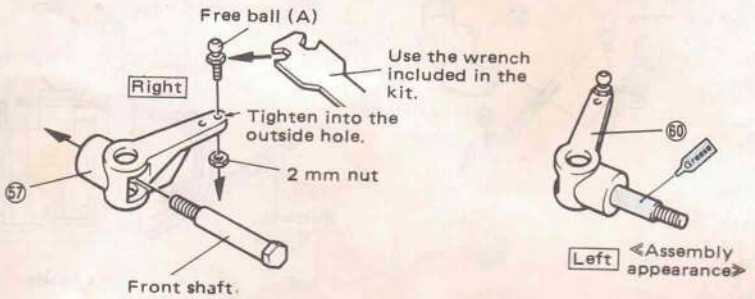
1 Under guard and front suspension mount assembly



2 Lower arm assembly



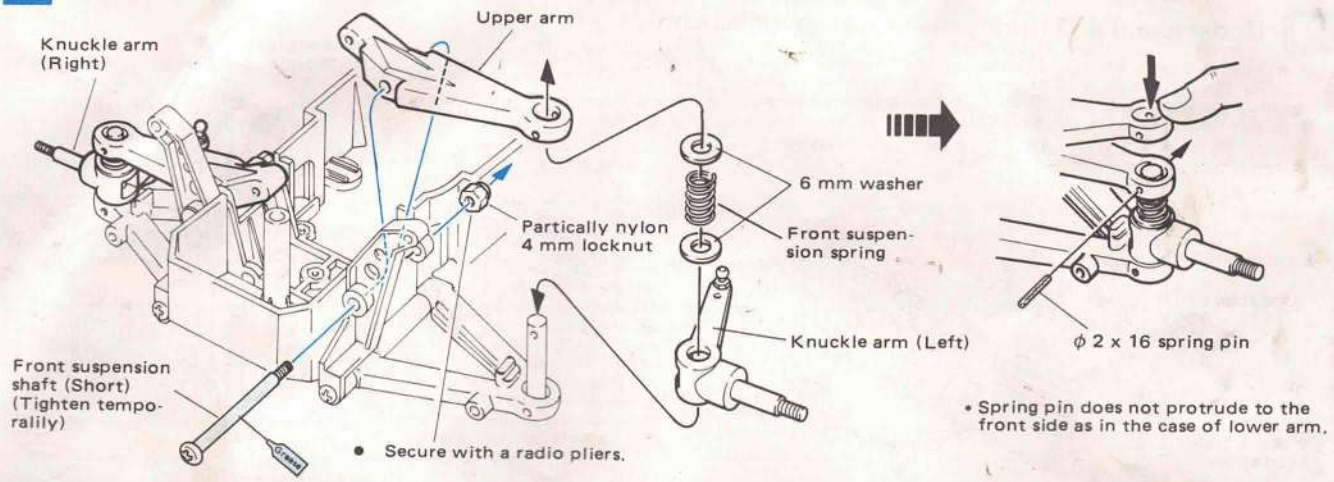
3 Knuckle arm assembly



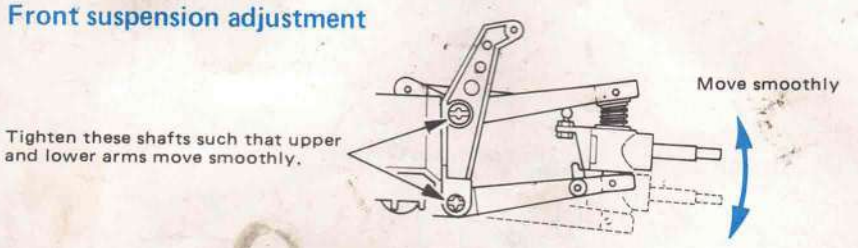
<Metallic part actual sizes used on P. 4>

- φ 3 x 6 screw ..... 2 pcs
- φ 3 x 12 flat-head screw ..... 3 pcs
- φ 2 x 16 spring pin ..... 2 pcs
- Partically nylon 4 mm locknut ..... 2 pcs
- 3 mm nut ..... 5 pcs
- Front suspension spring ..... 2 pcs
- 6 mm washer ..... 4 pcs
- Front suspension shaft (short) ..... 2 pcs
- Bumper metal ..... 2 pcs

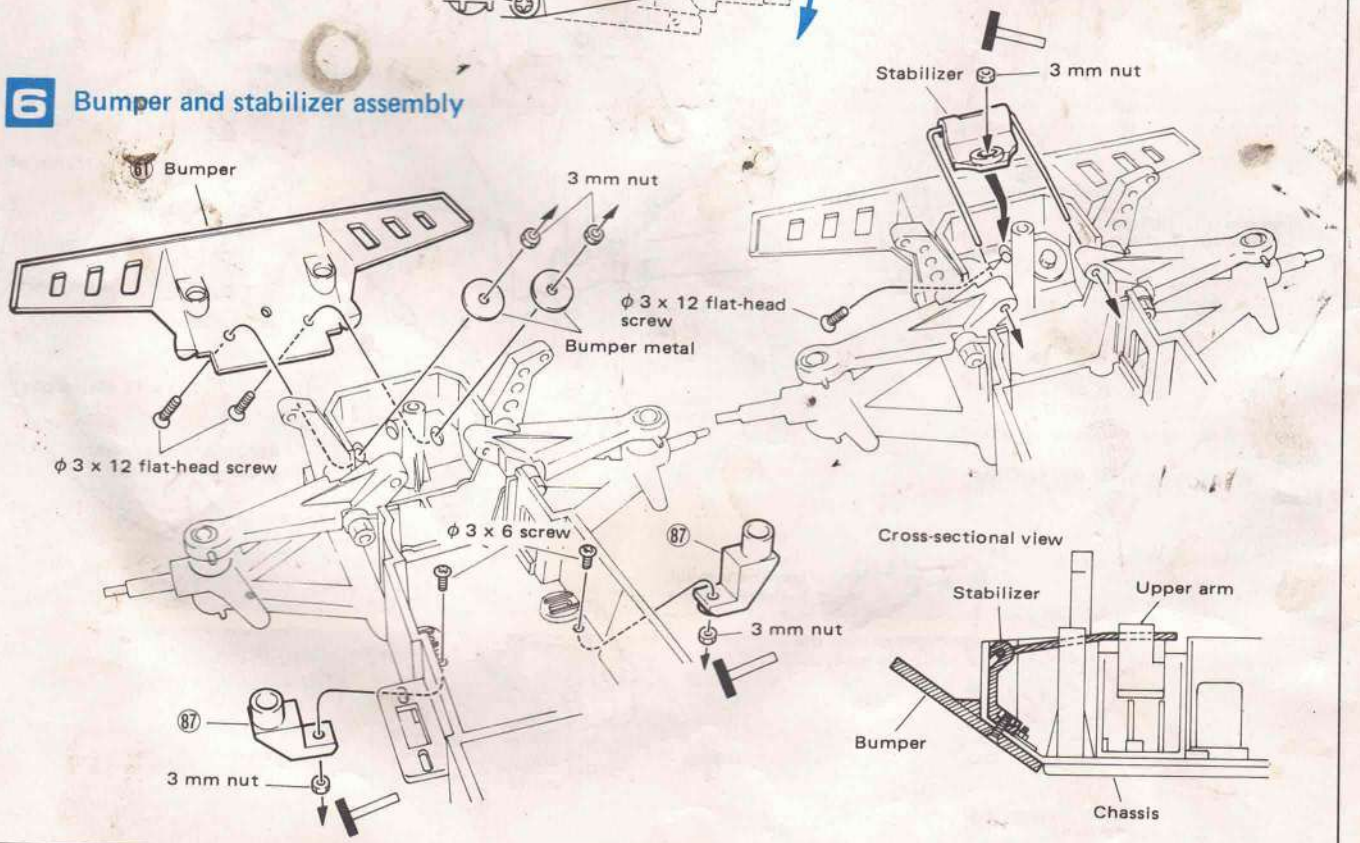
4 Upper arm assembly



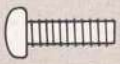
5 Front suspension adjustment

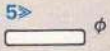


6 Bumper and stabilizer assembly



≪Metallic part actual sizes used on P. 5≫


φ 4 x 12 tapping screw ..... 8 pcs

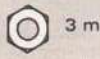

φ 2 x 10.5 bushing pin ..... 2 pcs


φ 4 x 11.5 bevel shaft ..... 2 pcs

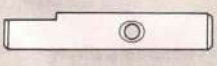

φ 2.5 x 12 differential center shaft ..... 1 pc


Bevel bushing (Plastic) ..... 2 pcs


Bevel gear (A) ..... 2 pcs
(Plastic)
Bevel gear (B) ..... 2 pcs


3 mm nut ..... 1 pc

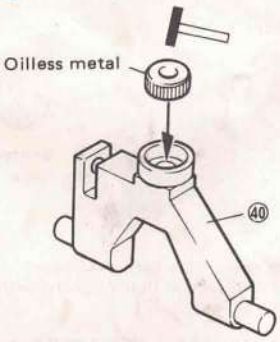
Oilless metal ..... 4 pcs

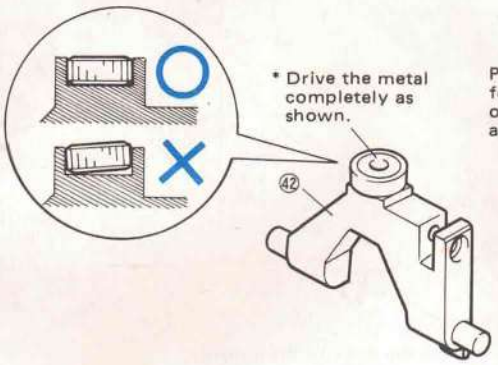

Differential shaft ..... 2 pcs


φ 5 x 6 butt screw ..... 2 pcs

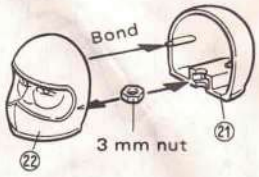
Universal joint ..... 2 pcs

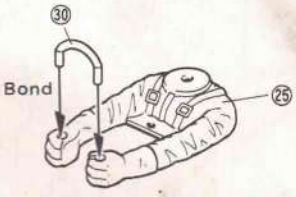
7 Driving the metal and bonding the driver





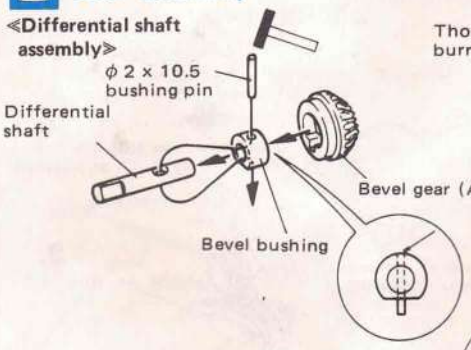
Paint the driver following the picture on the package as an example.





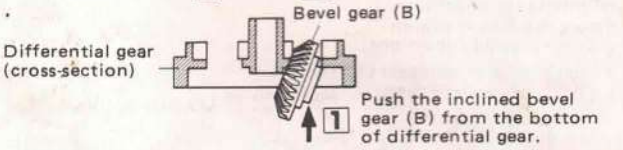
8 Gear assembly

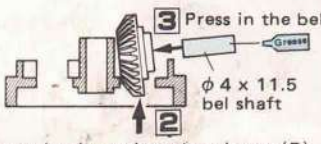
≪Differential shaft assembly≫

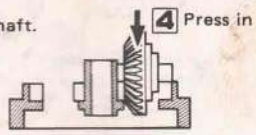


≪Differential gear assembly≫

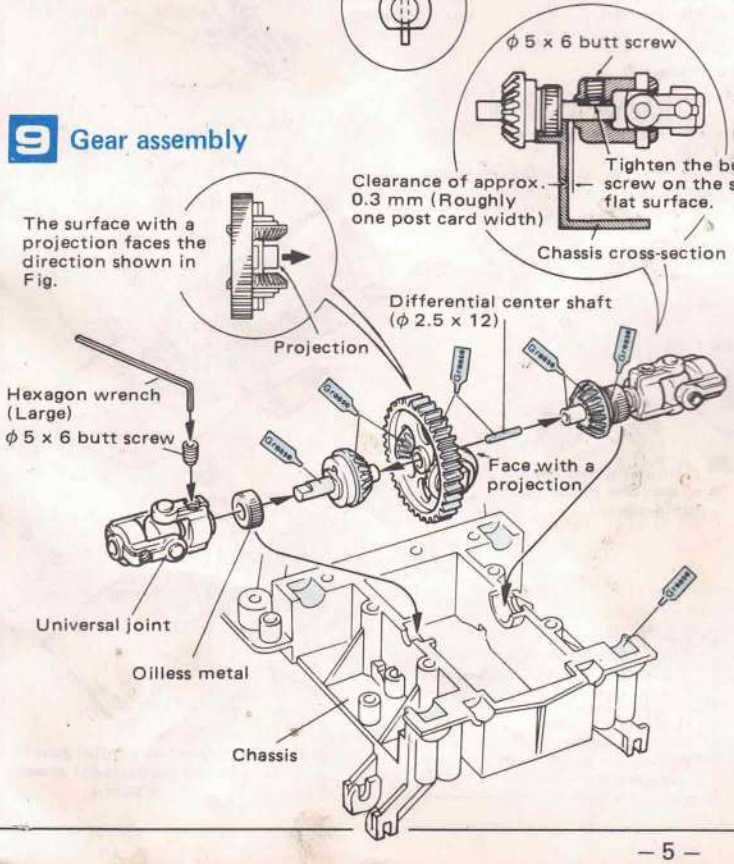
Assemble in order 1 through 4

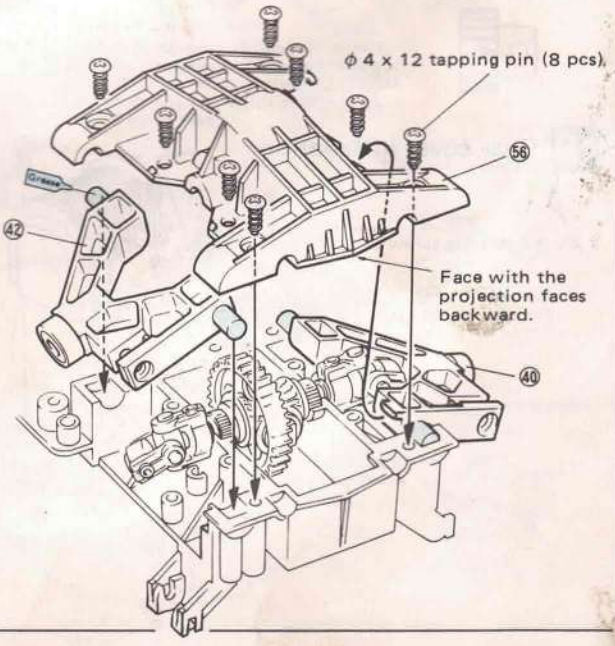






9 Gear assembly

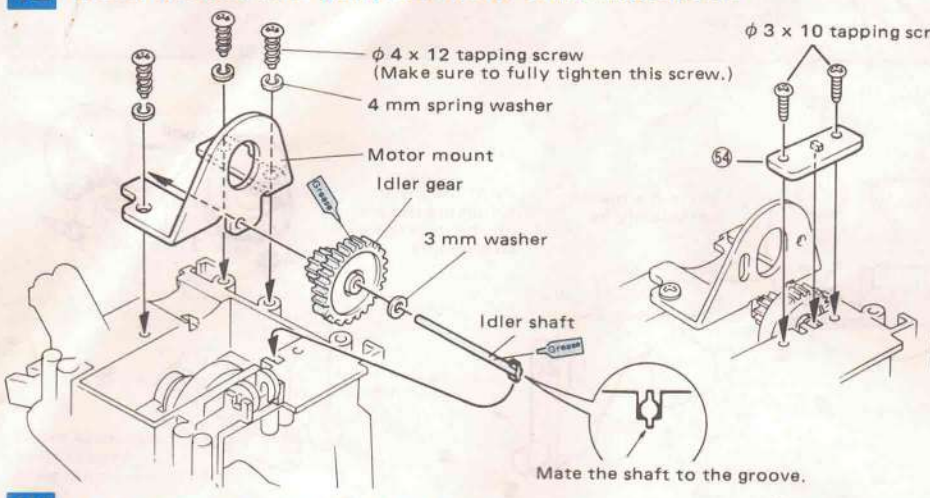




≪Metallic part actual sizes used on P. 6≫

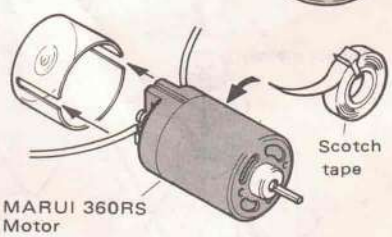
- φ 3 x 6 screw ..... 2 pcs
- φ 4 x 12 tapping screw ..... 7 pcs
- φ 3 x 3 butt screw ..... 1 pc
- 3 mm spring washer ..... 2 pcs
- φ 3 x 10 tapping screw ..... 2 pcs
- 3 mm washer ..... 3 pcs
- Idler shaft ..... 1 pc
- 4 mm spring washer ..... 3 pcs

10 Motor mount, idler gear, and motor cover installation



≪Motor cover≫

Remove the gray portion with a cutter.



Insert the motor into the motor cover and secure them tightly with scotch tape.

11 Pinion gear and motor installation

The motor becomes hot after operation. Be careful not to burn yourself.

≪Pinion gear selection≫

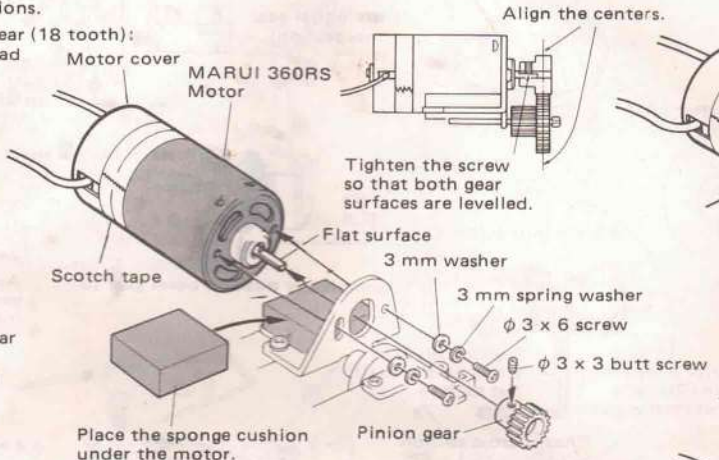
Select the proper pinion gear for driving conditions.

- High torque pinion gear (18 tooth): For rough surface road

- Regular pinion gear (20 tooth):

- High-speed pinion gear (22 tooth): For flat surface road

≪Pinion gear position≫

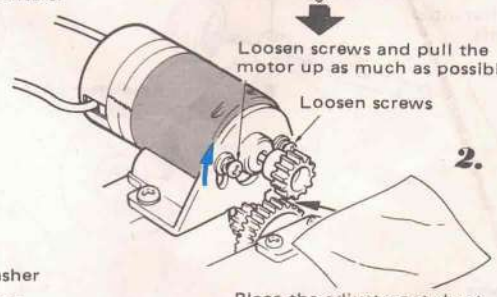


≪Attaching the pinion gear≫

Gear engagement adjustment sheet included in the kit.

1.

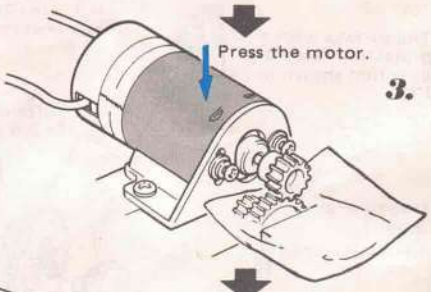
Loosen screws and pull the motor up as much as possible.



2.

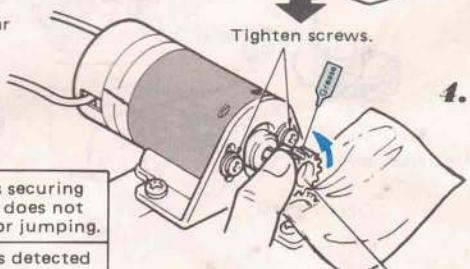
Place the adjustment sheet between the pinion gear and idler gear.

Press the motor.



3.

Tighten screws.

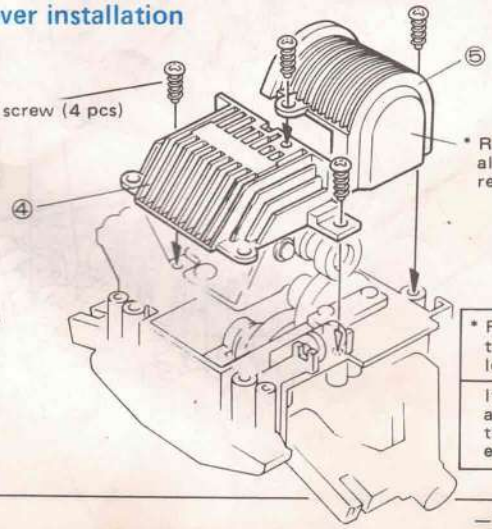


4.

Manually rotate the pinion gear and remove the adjustment sheet. (Be sure to apply grease.)

12 Gear cover installation

φ 4 x 12 tapping screw (4 pcs)



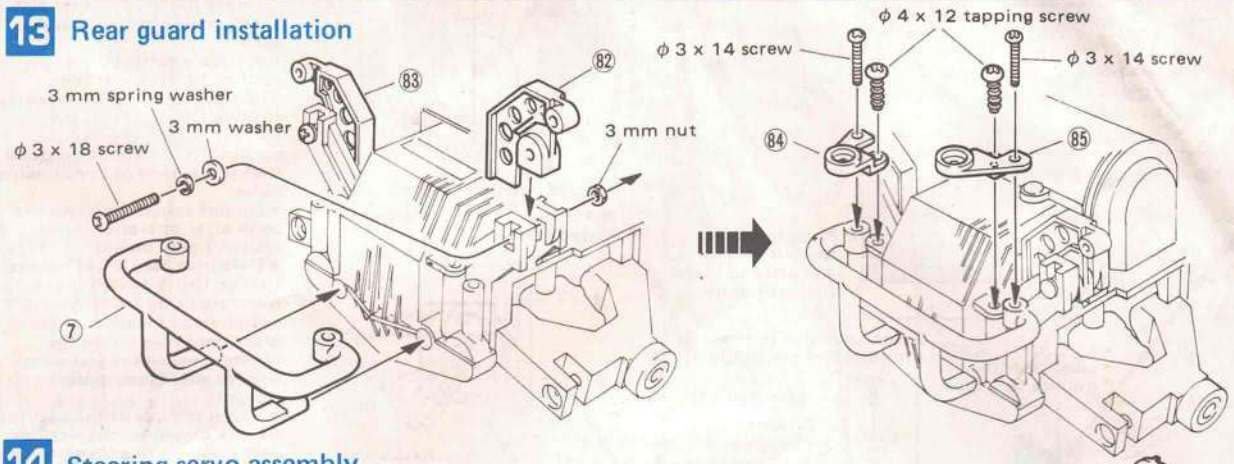
* Fully tighten screws securing the motor so that it does not loosen by crushing or jumping.

If abnormal sound is detected after crushing or jumping, stop the motor and check the gear engagement.

≪Metallic part actual sizes used on P. 7≫

- φ 3 x 10 screw ..... 4 pcs
- φ 3 x 16 screw ..... 2 pcs
- φ 2.6 x 11 tapping screw ..... 1 pc (For servos of FUTABA, JR, or KO)
- φ 3 x 10 tapping screw ..... 3 pcs
- 3 mm spring washer ..... 4 pcs
- φ 3 x 14 screw ..... 2 pcs
- φ 4 x 12 tapping screw ..... 2 pcs
- 3 mm washer ..... 8 pcs
- 3 mm nut ..... 6 pcs
- Rod adjuster (Long) ..... 1 pc — 58.8 mm (Aprox. 59 mm)
- Rod adjuster (Middle) ..... 1 pc — 42.5 mm

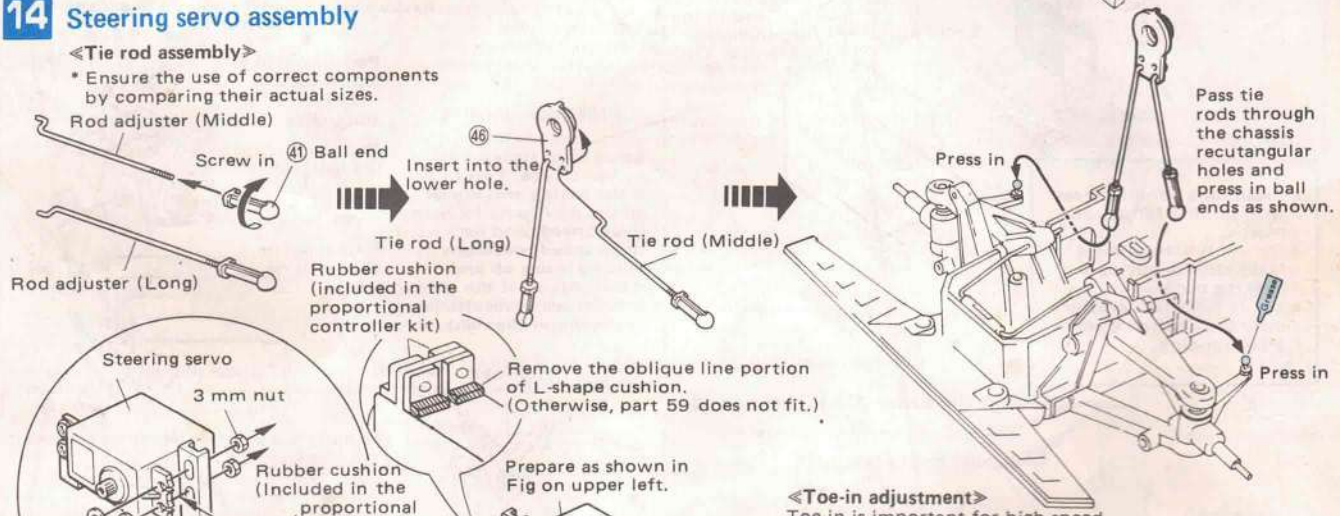
13 Rear guard installation



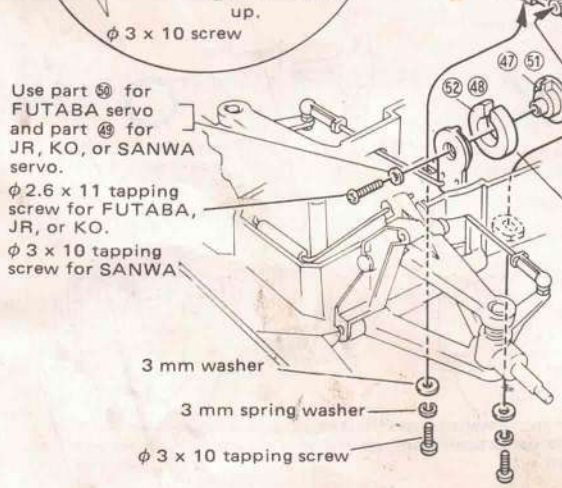
14 Steering servo assembly

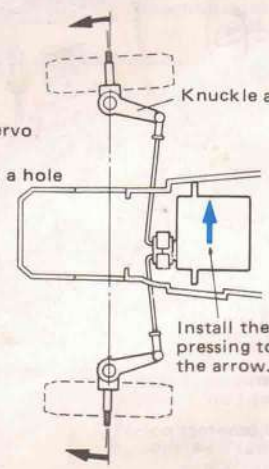
≪Tie rod assembly≫

* Ensure the use of correct components by comparing their actual sizes.

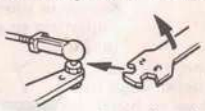


≪Toe-in adjustment≫
Toe-in is important for high-speed, straight driving. Adjust tie rod length so that knuckle arms slightly incline forward. Adjust toe-in angles with actual drive test.





≪Removing the ball end≫



Gouge the ball end with the wrench included in the kit.

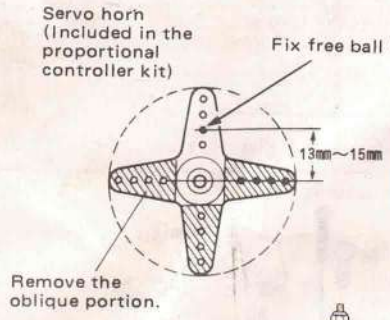
≪Adjusting rod length≫

15 Speed controller assembly and adjustment

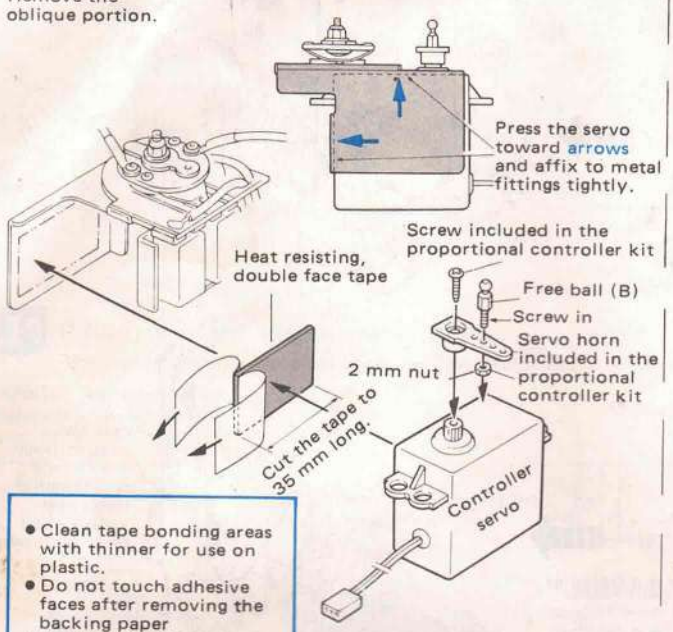
(Set the servo to receiver before beginning assembly. See P. 2)

≪Metallic part actual sizes used on P. 8≫

- 2 mm nut ..... 1 pc
- Free ball (B) ..... 1 pc
- Rod adjuster (short) ..... 1 pc

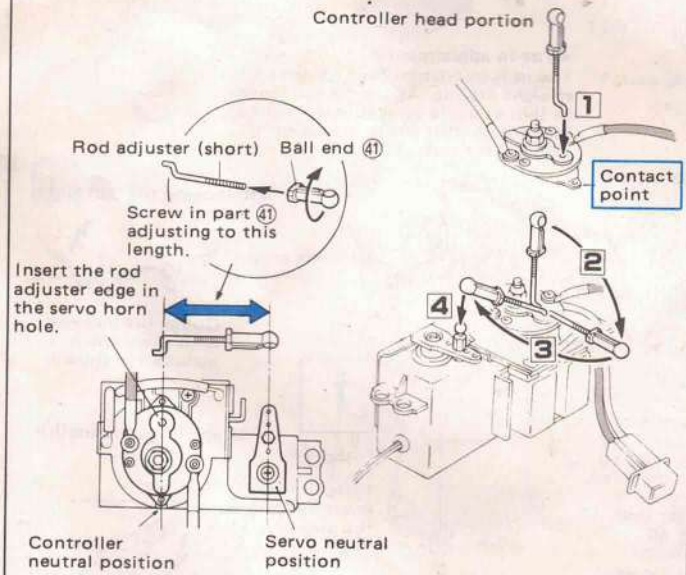


Use the servo horn hole within 13 mm or 15 mm from the center.

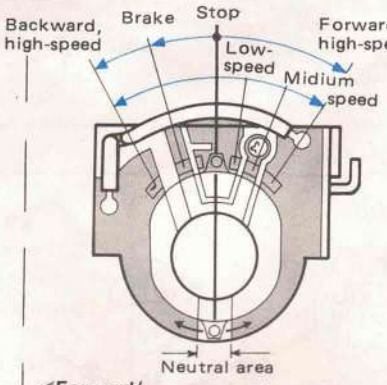


- Clean tape bonding areas with thinner for use on plastic.
- Do not touch adhesive faces after removing the backing paper
- Apply sufficient pressure onto the controller servo after bonding.

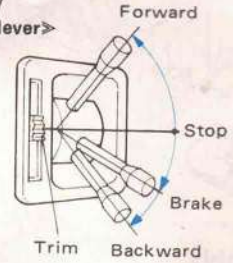
Install in the order of 1 through 4



When the controller head (contact point) is located within the neutral area, the horn is positioned as shown above.



≪Forward/ Backward lever≫

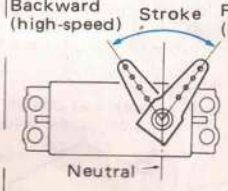


≪Switch positions≫

- The controller may be damaged if it is used incorrectly. The controller has built-in resistors which may over-heat or burn if it is used only at low or medium speed ranges. Operate the model at its high-speed setting as much as possible.
- A large electric current is applied to the controller. The controller switch repeats turning ON and OFF the current, which shorten its service life. Please understand that it is a kind of consumable parts.
- Do not touch the controller soon after operation as its resistors may be hot.
- Defective controller installation or faulty switch movement resulting from incorrect switch head location or wire placement may cause the resistors over-heat and burn the bakelite electric components.
- Avoid the use of the controller in a closed mechanical box as it contains heat generating resistors.

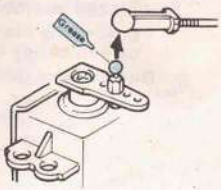
≪Stroke adjustment≫

Servo horn stroke differs by servo type. Test to see if the switch arm moves all the way to its forward (high-speed) and backward (high-speed) positions by moving levers up and down. Adjust if the stroke is excessive or insufficient as shown on the right.

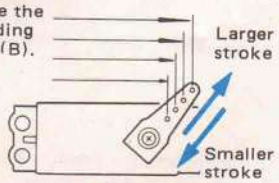


Perform stroke adjustment in the order of ❶ through ❸

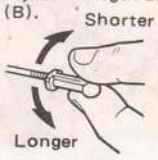
❶ Disconnect the ball end.



❷ Change the hole holding free ball (B).

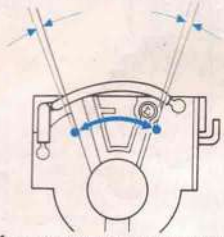


❸ Adjust rod adjuster length and connect with free ball (B).

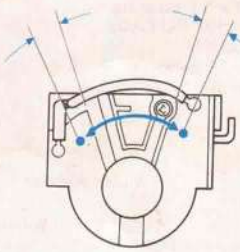


≪Switch contact position≫

Secure sufficient contact movement.



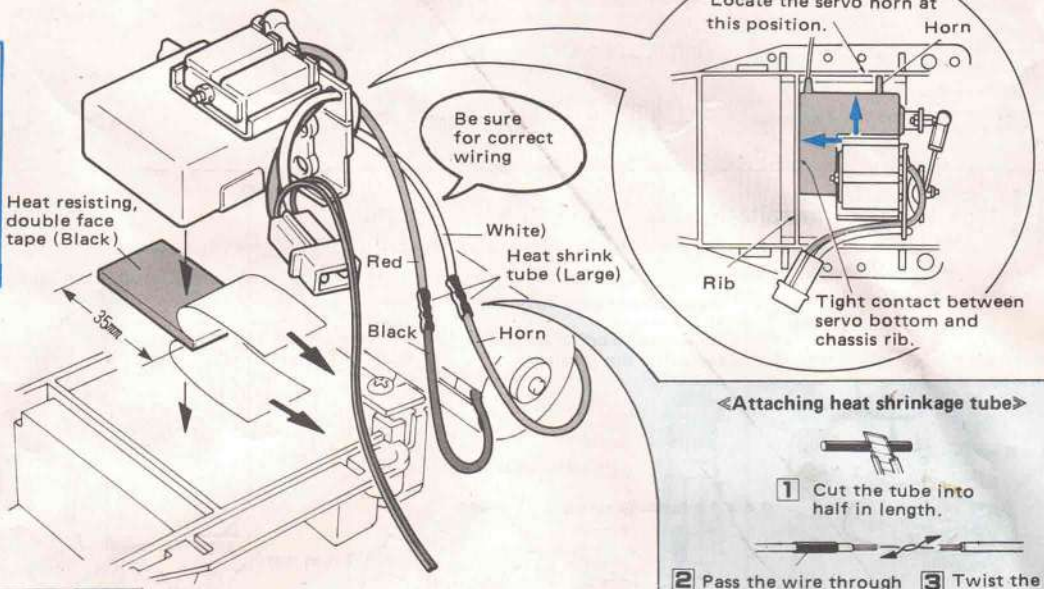
Sufficient contact movement.



If contact movement is insufficient, change the servo born hole toward the 15 mm side.

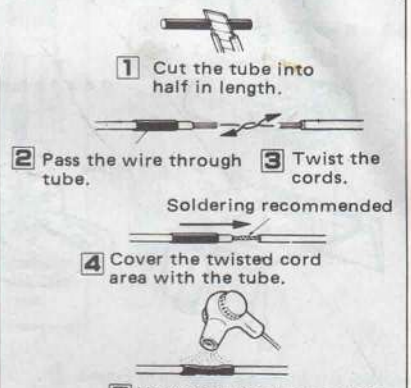
16 Speed control servo installation

- Clean bonding areas with thinner for use on plastic.
- Do not touch adhesive faces after removing the backing paper. (Oil on your fingers may adversely influence bonding strength.)
- Apply sufficient pressure to secure the servo.

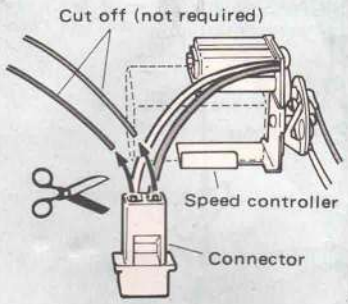


- If the model runs backward when the lever is set to forward, the wiring is faulty.

≪Attaching heat shrinkage tube≫



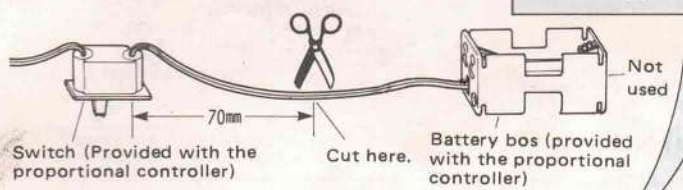
- To use the proportional controller as it is supplied or the 6 V battery pack:



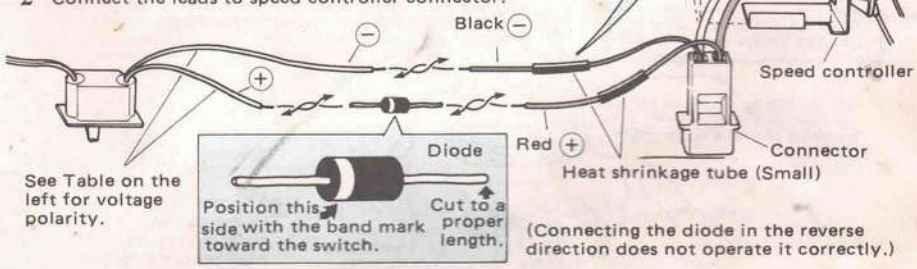
- To commonly use the 7.2 V battery pack as the receiver power supply (6 V battery pack is not suitable):

* This change is to decrease the total weight for racing purpose.
When the battery is commonly used, controlling the model cannot be properly performed when the battery voltage drops (the model speed is reduced). Replace the battery pack.

1 Disconnect the receiver battery box (provided with the proportional controller).



2 Connect the leads to speed controller connector.

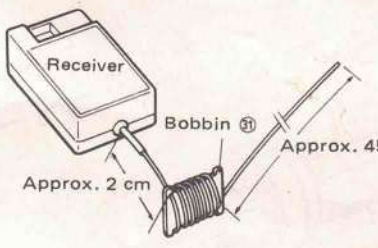


(Connecting the diode in the reverse direction does not operate it correctly.)

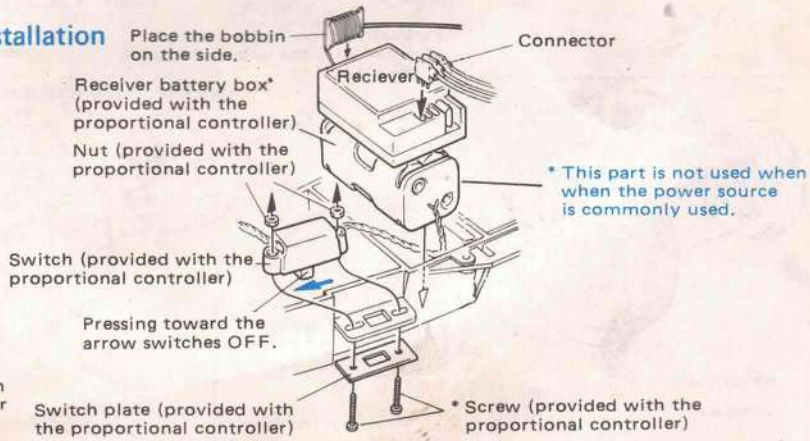
≪+ and - of switch leads≫

Polarity / Proportional controller	⊕	⊖
FUTABA	Red	Black
JR	Red	Brown
SANWA	White lined or red	Black
KO	Red	Black

17 Switch, receiver, and battery box installation



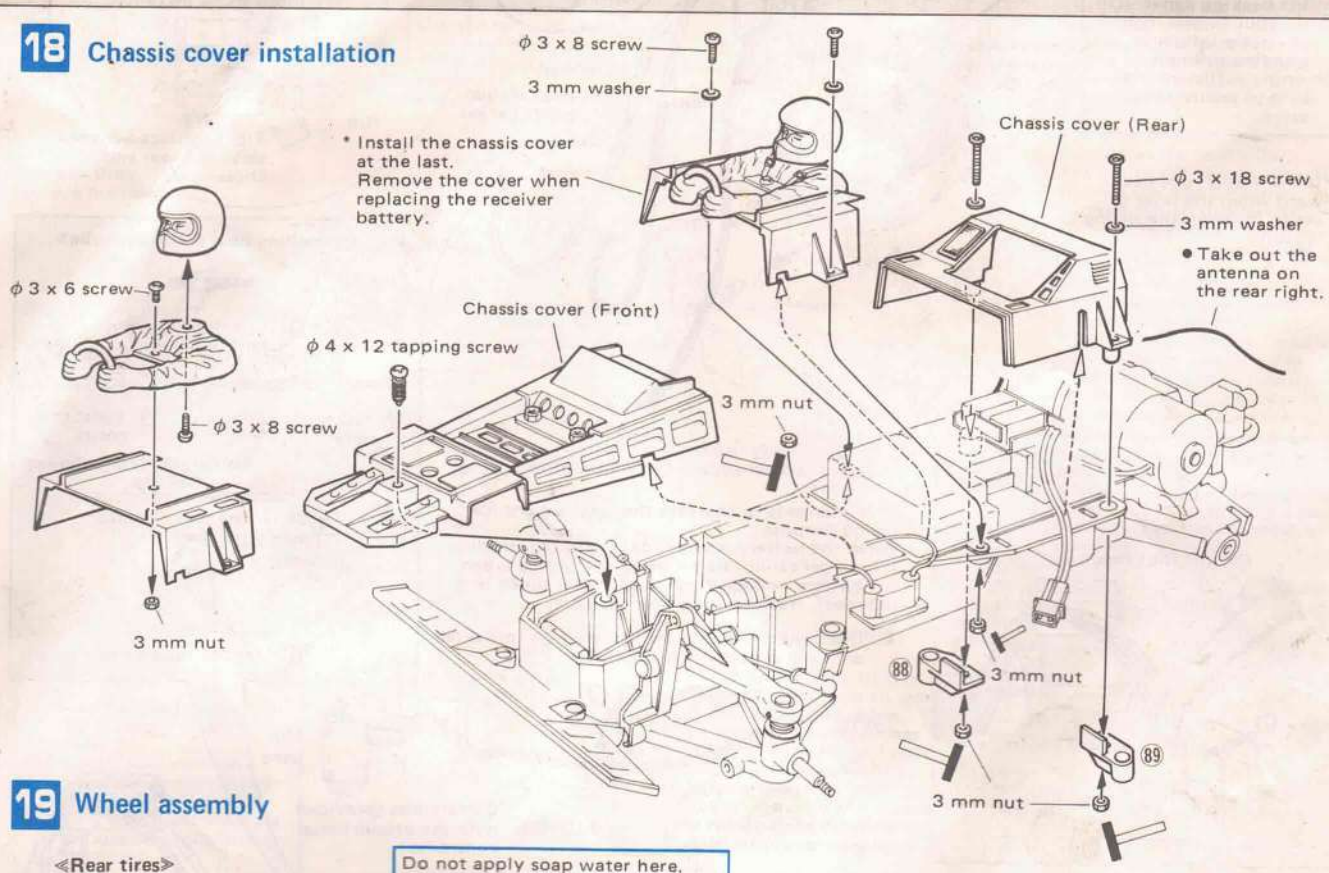
Wind the antenna on a bobbin starting 2 cm from the receiver and leave approx. 45 cm on the other end free.



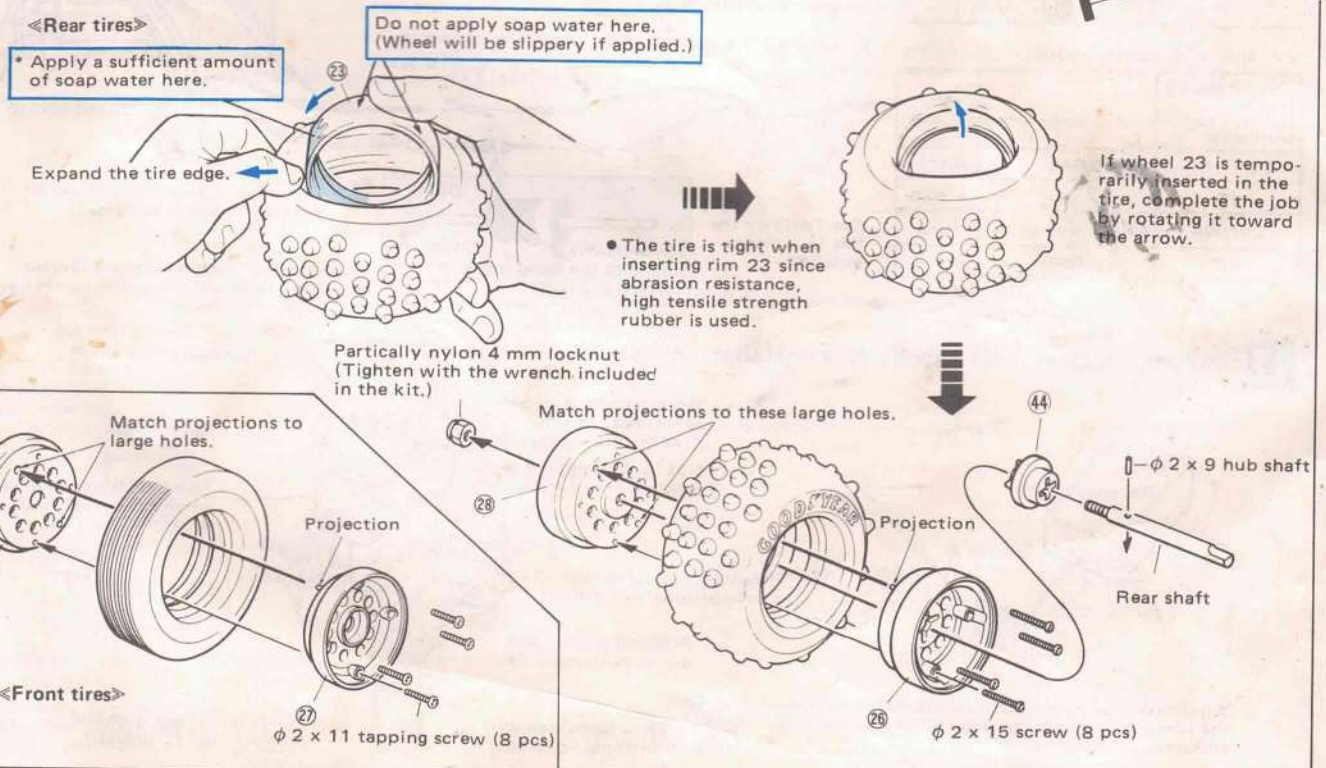
Metallic part actual sizes used on P. 10≫

- φ 3 x 6 screw ..... 1 pc
- φ 2 x 15 screw ..... 8 pcs
- φ 2 x 9 hub shaft ..... 2 pcs
- Rear shaft ..... 2 pcs
- φ 3 x 8 screw ..... 3 pcs
- φ 2 x 11 tapping screw ..... 8 pcs
- 3 mm washer ..... 4 pcs
- Partically nylon 4 mm locknut ..... 2 pcs
- φ 3 x 18 screw ..... 2 pcs
- φ 4 x 12 tapping screw ..... 1 pc
- 3 mm nut ..... 5 pcs

18 Chassis cover installation



19 Wheel assembly

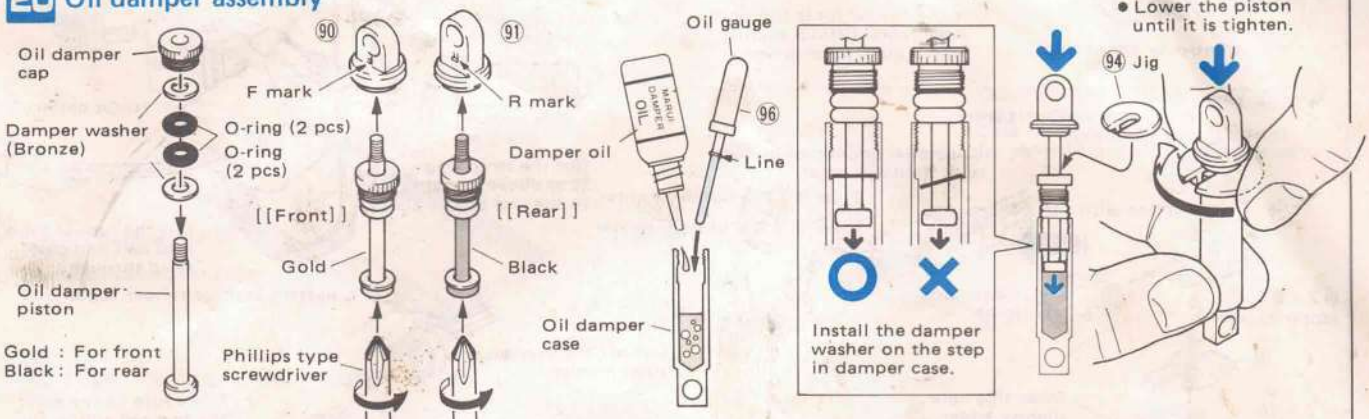


≪Metallic part actual sizes used on P. 11≫

- φ 3 x 10 screw ..... 2 pcs
- φ 3 x 14 screw ..... 2 pcs
- φ 3 x 16 screw ..... 4 pcs
- φ 2 x 7 tapping screw ..... 4 pcs
- 3 mm nut ..... 4 pcs
- 3 mm washer ..... 6 pcs
- 3 mm spring washer ..... 4 pcs
- Damper washer (Bronze) ..... 8 pcs
- φ 3 x 5 spacer ..... 6 pcs
- φ 3 x 8 spacer ..... 2 pcs
- O-ring (Rubber) ..... 8 pcs
- Oil damper piston (Gold) ..... 2 pcs
- Oil damper piston (Black) ..... 2 pcs
- Oil damper cap ..... 4 pcs
- Oil damper case ..... 4 pcs
- Oil damper spring (Front) ..... 2 pcs (Finer wire, weaker spring)
- Oil damper spring (Rear) ..... 2 pcs (Thicker wire, stronger spring)

20 Oil damper assembly

● Be careful on colors for front and rear pistons. (Each two pistons)



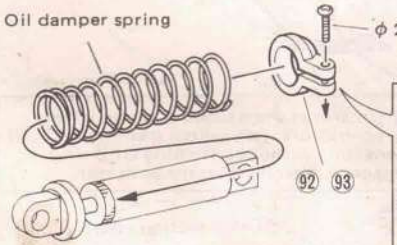
1 Install as shown above.

2 Tighten with a screwdriver.

3 Pour oil up to the oil gauge line. (Insert the oil gauge until it contacts the bottom.)

4 Insert the piston gradually.

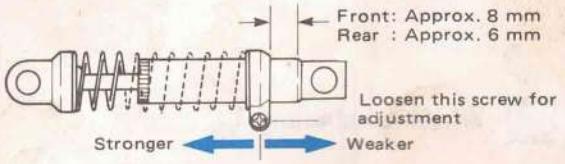
5 Hold the damper cap with jig 94 and tighten the cap.



6 Install front and rear oil damper springs. Use the correct spring for front and rear (see part actual sizes in above Fig. and be careful on the different spring force.)

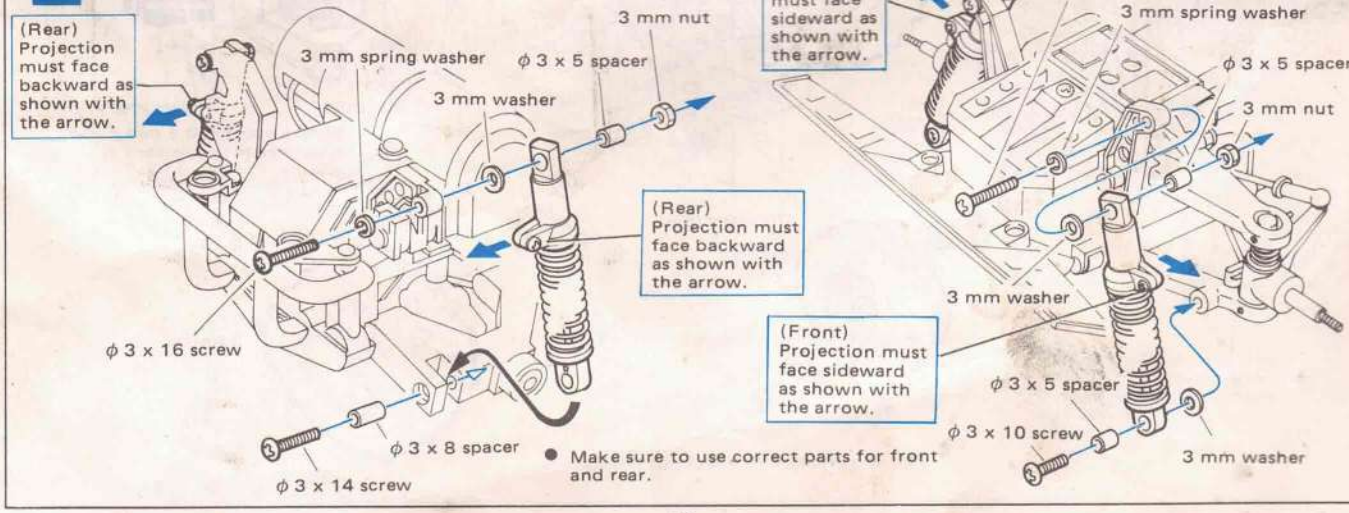
Always use a pair of spring stoppers 92 and 93 for front and rear oil damper cases. Be careful as tapping screw direction differs by parts 92 and 93 . Apply tapping screws from larger holes toward smaller ones.

Position the spring stopper as shown below for normal setting.



Adjust the spring force by moving the spring stopper position. Set to the optimum spring force for driving conditions.

21 Oil damper installation

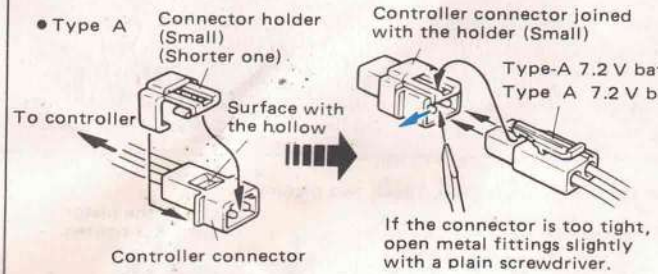


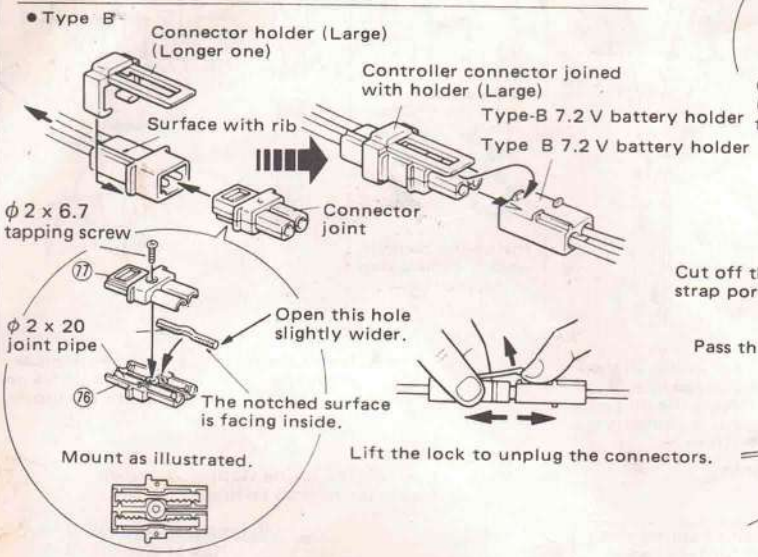
● Make sure to use correct parts for front and rear.

22 Ni-Cd battery placement

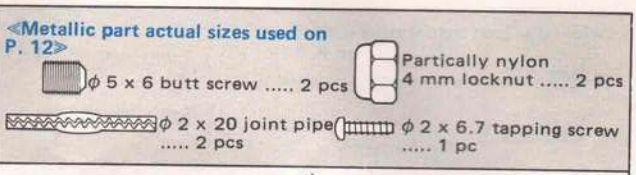
≪Before connecting the connector≫
(For 6 V battery, the following is not required.)

* Two types of 7.2 V battery connectors are provided as illustrated below. Confirm your connector type before connection.

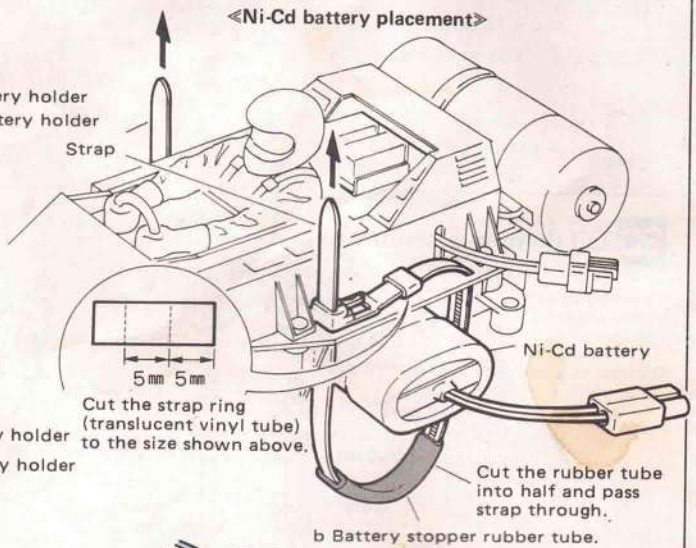


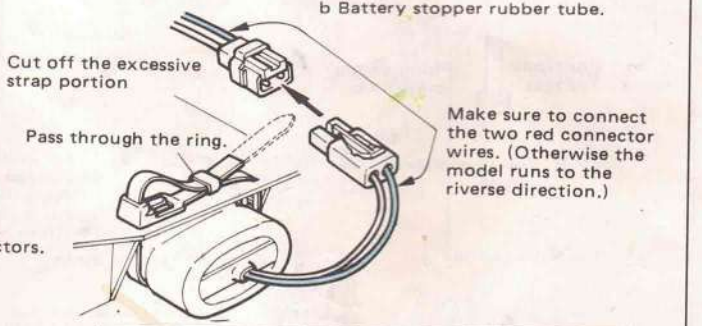


≪Metallic part actual sizes used on P. 12≫



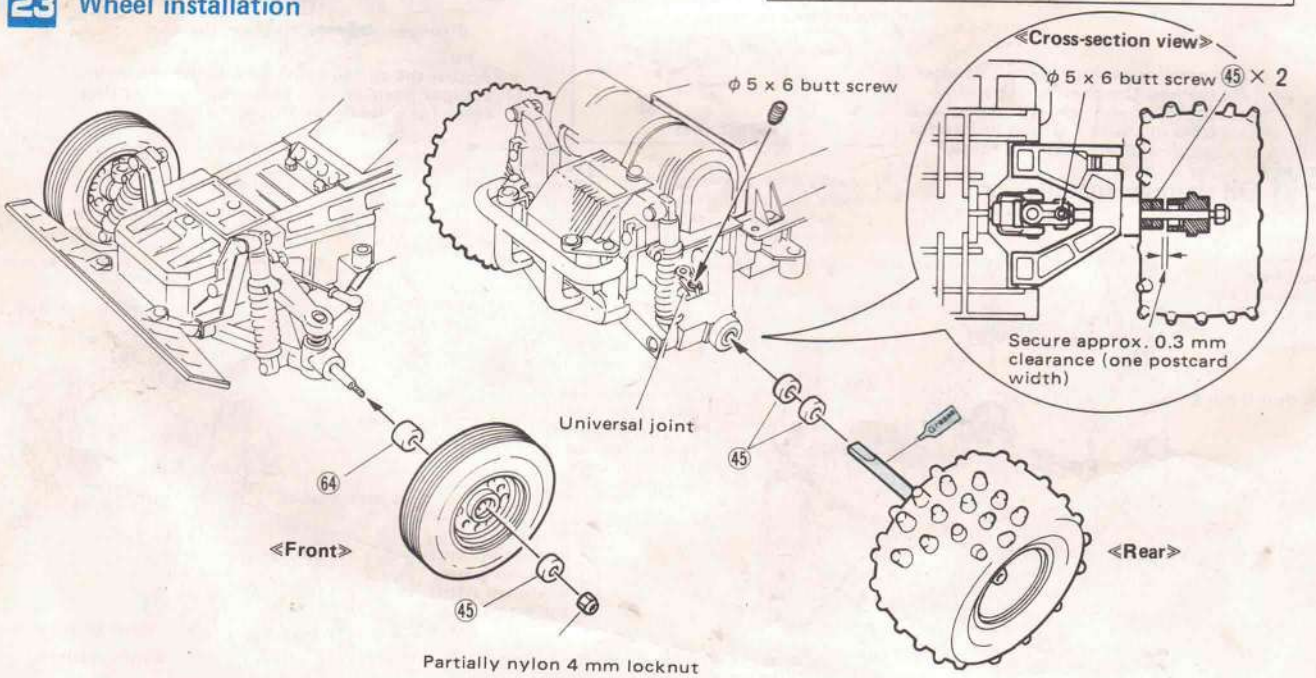
≪Ni-Cd battery placement≫





* Set the switch arm at the neutral position when plugging the connectors. (see switch position on P. 8) Plugging connectors without switching OFF may result in damaged controller battery or motor.

23 Wheel installation



24 Wing and player's number plate installation

≪Metallic part actual sizes used on P. 13≫

φ 3 x 10 tapping screw ..... 10 pcs

3 mm washer ..... 2 pcs

≪Wing≫

Drill a φ 3.2 hole with a gimlet or driller.

≪Wing cross-section view≫

Remove the grey area with a cutter or scissors.

Paint for polycarbonate

(Always paint from the reverse side.)

- Clean dirt and oil with soapy water before painting.
- Coat the body interior with paint for polycarbonate or laquer for metal.

≪Player's number plate≫

- Required to bond the player's number

Cut off the plate.

25 Pipe frame (roll bar) installation

- When participating in a race, bond the player's number plate with double face tape where you want.

Player's number plate

Double face tape (White) (Cut to a proper size.)

Pipe frame

φ 3 x 10 tapping screw

3 mm washer

Bond decals (see the picture on package as an example.)

φ 3 x 10 tapping screw (all screws securing pipe frames are the same.)

≪Mounting the antenna pipe≫

Tie this portion so that wire does not fll.

About 5 cm long

Antenna pipe

Press antenna pipe into this chassis hole after passing the wire through the pipe.

Pass the wire through the bottom. The wire is stretched so that it will not be tangle with the tire.

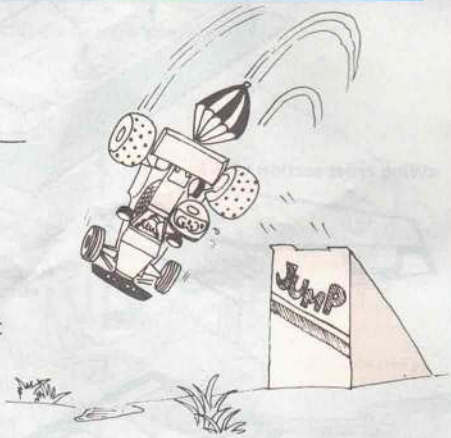
Handling precaution

The R/C BUGGY is designed as a high-speed off-road racing car. Be careful while handling and operating this model.

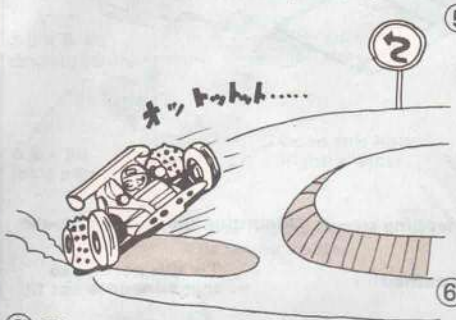
① Do not operate at a crowded location or where children are present.

③ Avoid sloppy areas as water may damage the model.

④ The controller and motor are hot after operation.
Be careful not to burn yourself.
(Do not touch carelessly)



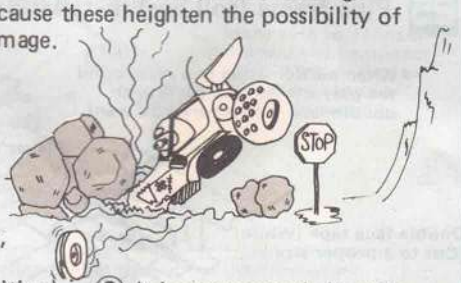
⑦ Damage may be anticipated if the car jumping, however when some races require it, use your judgement.
The R/C BUGGY ideal weight balance enable landing on its rear tires after taking a level straight forward jump at full-speed.
Avoid unbalanced front tire landings because these heighten the possibility of damage.



② The car may overturn if a high-speed turn is performed on a paved road or grassy lawn. Make sure to remember the basic principle for cornering, slow in and fast out.

⑤ Avoid grassy areas as long grass may become wound on drive shafts.

⑥ When driving is impaired by deep sand, obstacles, or wound grass or string on drive shafts, do not try to drive further, but set the transmitter levers to their neutral positions (controller's stop position). Be careful because the motor bears an excessive load under these conditions.



⑧ It is recommended not to drive in rough areas with many stones.

Checks before driving

① Check all screws and nuts for tightness. Pay special attention to screws and nuts securing the suspension, and butt screws attached to the universal joint.

② Check gears for correct engagement. Faulty pinion gear engagement due to loosened motor securing screws may cause idler gear damage. Check the pinion gear butt screw for correct tightness. (See Page 6.)

③ Are proportional controller batteries supplying sufficient power?
Receiver battery life is shorter than that of the transmitter, and early battery replacement is recommended. (See Page 2.)

④ Does the controller operate correctly?
Make sure that the controller is correctly adjusted. (See Page 8.)

⑤ Does the steering operate correctly ?
Perform a test run to see if the car runs straight. If not, turn the steering lever trim toward the reverse direction of the car's drift. If still not corrected, adjust the steering rod length as instructed in the assembly sheet. (See Fig. 14 of page 7.)

⑥ Are all wire connections tight?
Faulty insulating vinyl or soldered areas may cause short circuit. Repair using vinyl insulating tape. (See Fig. 18 of Page 9.)

⑦ Are drive batteries sufficiently charged?
(See Page 2.)

- Following troubles may be corrected through performance of above described checks before operation.

① The car does not move forward although the motor is operating.
See Page 5, 6, 8, and 12.

② Irregular motor or gear sound.
Rear wheels do not rotate smoothly.
See Page 5, 6, and 12.

③ The car does not respond properly to control or runs at random during driving.
See Page 2, 7, and 8.

④ Speed controller does not operate correctly including no full-speed drive.
See Page 8.

⑤ Faulty straight driving, or turning to the right and left differs. See Fig. 14 to of Page 7.

⑥ Controller, drive batteries, or wires are over-heated. See Page 8.

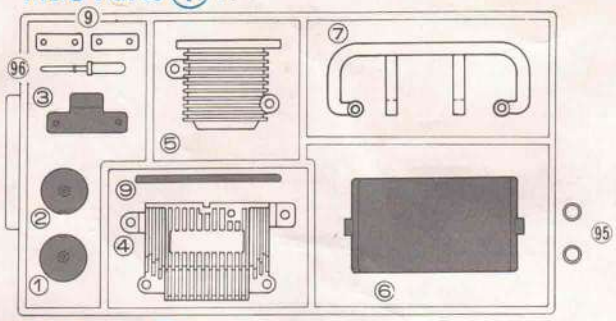
⑦ For faulty proportional controller operation including improper servo movement, check the following points:
Sufficient power supply by batteries, correct (+) and (–) battery connections, an discontinuous servo or connector wires.

⑧ If the faulty operation is still not correcte after the above, contact your dealer for repair.

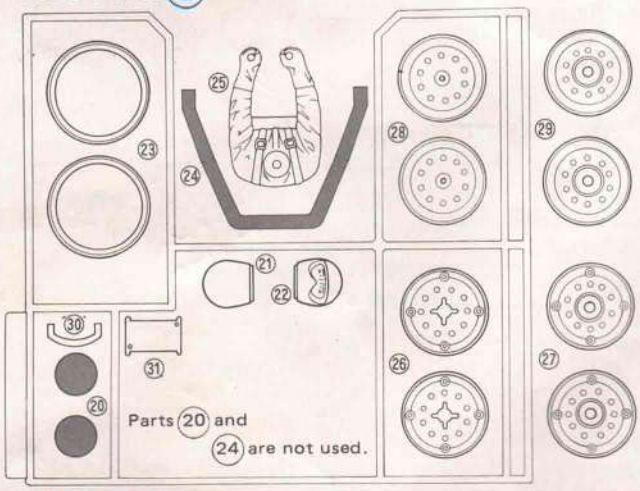
PART LIST

ABS Parts (1) x 1

Parts (1), (2), (3), (6), and (9) are not used.



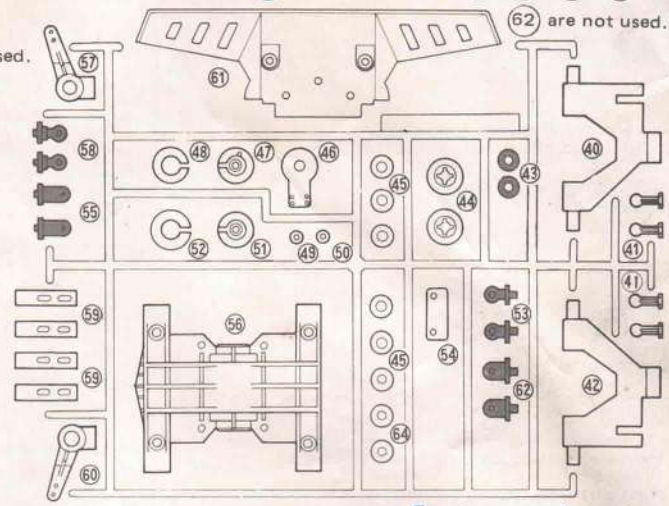
ABS Parts (2) x 1



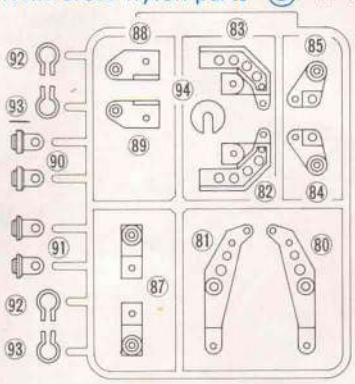
Parts (20) and (24) are not used.

Reinforced nylon parts (A) x 1

Parts (43), (53), (55), (58), and (62) are not used.

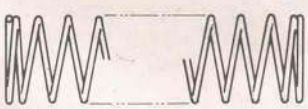


Reinforced nylon parts (C) x 1

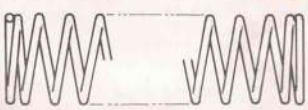


Damper set

Oil damper sprint (Front) x 2



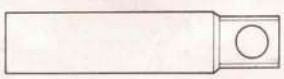
Oil damper spring (Rear) x 2



Oil damper cap x 4

Damper oil x 1

Damper case x 4



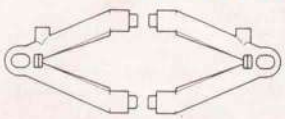
When a spare part set is required, the following parts are included:

- ★ Oil damper piston (Front x 2, Rear x 2)
- ★ Damper washer x 8
- ★ O-ring x 8

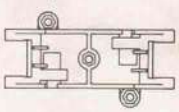
Front suspension set

Upper arm x 2

Lower arm (Left 1, Right 1)

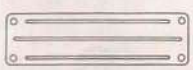


Front suspention mount x 1



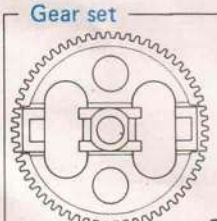
Stabilizer x 1

Under guard x 1

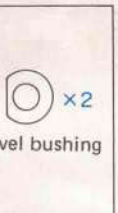


King pin (Nylon) x 2

Gear set



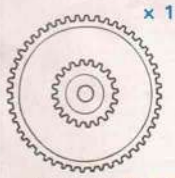
Differencial gear x 1



Bevel bushing x2

Bevel gear (A) x2

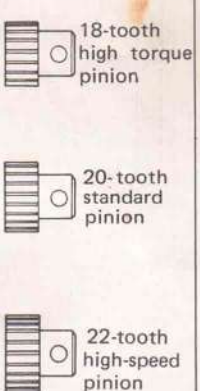
Bevel gear (B) x2



Idler gear x 1

Grease Included

Pinion gear set

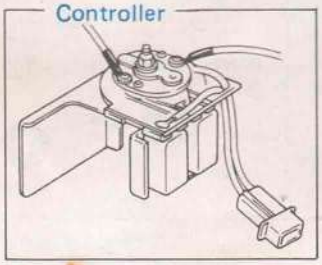


18-tooth high torque pinion

20-tooth standard pinion

22-tooth high-speed pinion

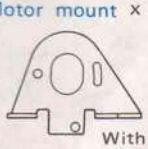
Controller



Front tire x2

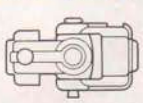
Rear tire x2

Motor mount x 1

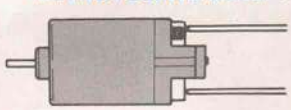


With sponge cushion

Universal joint x 2



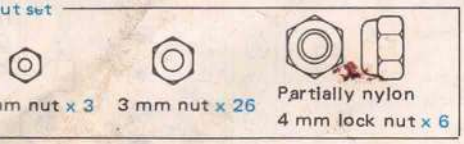
MARUI 360RS Motor x 1



PART LIST

- Some types of screws and nuts are included excessively for spare part use.
("φ3" in figures represents "3 mm diameter")

Nut set



C Set

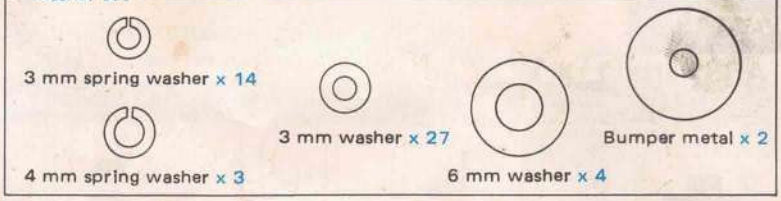
Heat shrinkage tube (Large) x 1	Rubber tube x 1
Heat shrinkage tube (Small) x 1	Sponge x 1
Translucent tube x 1	Pliers x 1
	Bond x 1
	Grease x 1

- Other Parts

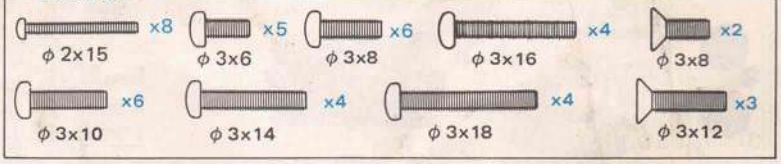
Chassis x 1
Chassis cover (Front, Middle, Rear) ..... 1 each
Pipe frame x 1
Heat resisting, double face tape (Black) x 1
Double face tape x 1
Gear engagement adjustment sheet x 1
Wing x 1
Player's number plate x 1
Motor cover x 1
Decal sheet x 1
Strap x 2

* Spare parts may be purchased separately.

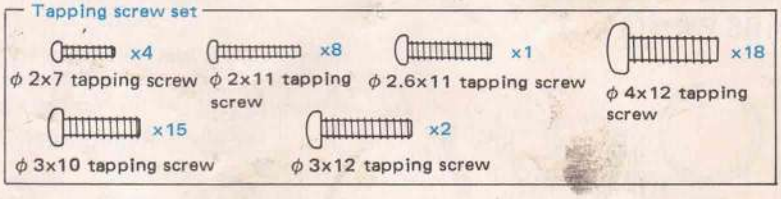
Washer set



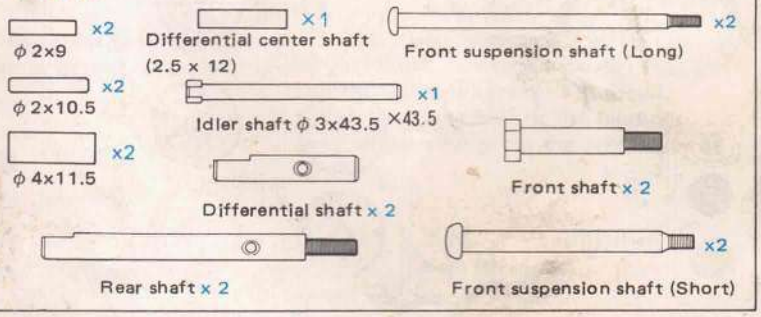
Screw set



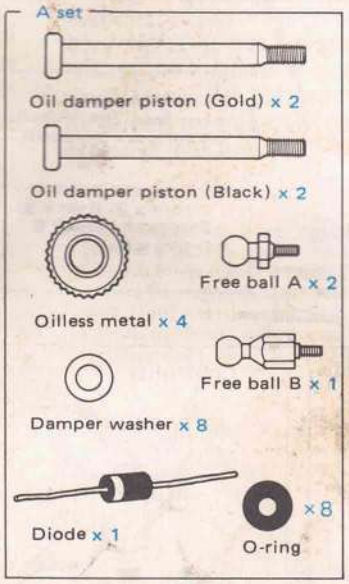
Tapping screw set



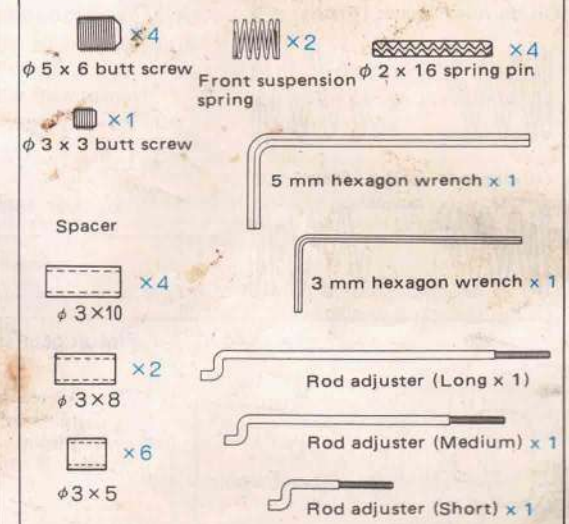
Shaft set



A set



B set



Connector set