

THE NINJA 4WD

1/10th SCALE HIGH PERFORMANCE R/C OFF-ROAD RACER

SHAFT DRIVE 4WD

SHAFT DRIVE SYSTEM 4WD
OFF-ROAD RACER



忍者

7.2-8.4V Ni-Cd BATTERY (NOT INCLUDED) INCLUDES RS540S MOTOR.
1/10 SCALE RADIO CONTROL CAR
RACING BUGGY (THE-NINJA 4WD)



FORWARD THREE STAGE SPEED CONTROL AND REVERSE
ASSEMBLED SEALED TYPE SPEED CONTROLLER / DURABLE BIG
BUMPER CHASSIS GUARD / ONE PIECE TYPE ABS RESIN WHEEL
DOUBLE WISHBONE SYSTEM INDEPENDENT SUSPENSION FRONT AND REAR
MAX TRACTION WART PATTERN SEMI PNEUMATIC RUBBER TIRES FRONT AND REAR

2 DIFFERENTIAL GEAR & SHAFT DRIVE SYSTEM 4WD. READY TO ASSEMBLE RADIO CONTROL CAR KIT.

PRODUCT BY TOKYO MARUI CO., LTD. MADE IN JAPAN.

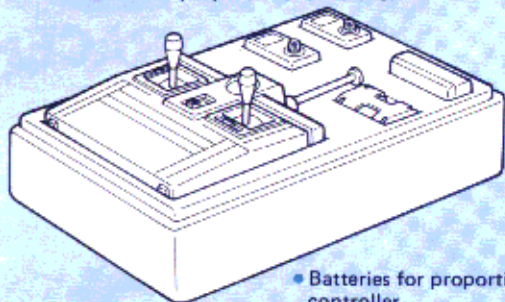
HIGH PERFORMANCE R/C OFF-ROAD RACING BUGGY



RCScrapyard.net

Parts Not Included In Kit

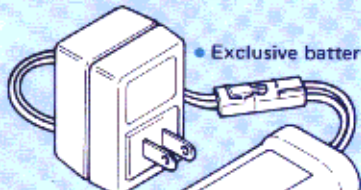
- 2-channel proportional controller



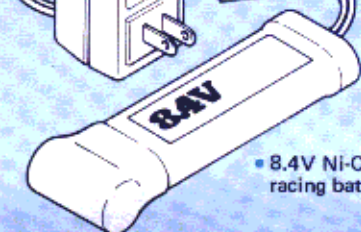
- Batteries for proportional controller



- Exclusive battery charger



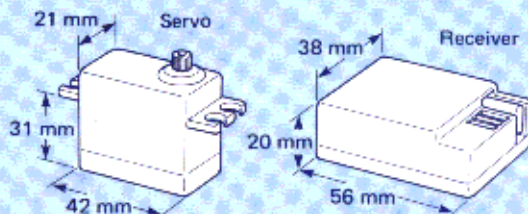
- 8.4V Ni-Cd or 7.2V racing battery



- A 2-channel proportional controller is required for the kit. Most standard proportional controllers can be used, but use care since there are some models that are not suitable, especially, receivers and servos of 3- to 8-channel proportional controllers.

- The BEC system proportional controller may also be used.

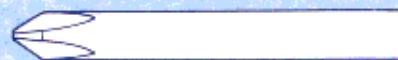
Maximum dimensions of servo and receiver installed



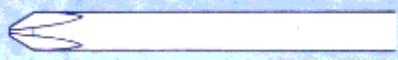
- For driving, use an 8.4V or 7.2V Ni-Cd racing battery. The battery can be used 300 times or more by recharging. Use the exclusive charger, connected to a household 100V receptacle or 12V power source such as an automotive cigarette lighter. Chargers in slow and rapid charging types are available.

Tools Required for Assembly

The actual size of screwdrivers are shown.



- Phillips screwdrivers (Large) $\phi 3$ screw $\phi 3$ tapping screw



- Phillips screwdriver (Middle) $\phi 2$ screw $\phi 2$ tapping screw $\phi 2.6$ tapping screw



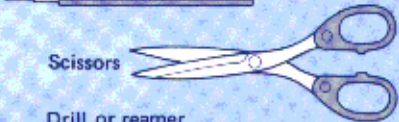
Long-nosed pliers



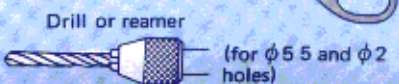
Cutting pliers



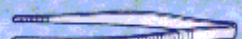
Cutter



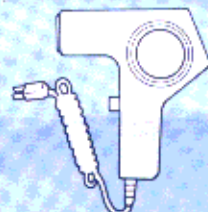
Scissors



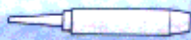
Drill or reamer (for $\phi 5.5$ and $\phi 2$ holes)



Tweezers

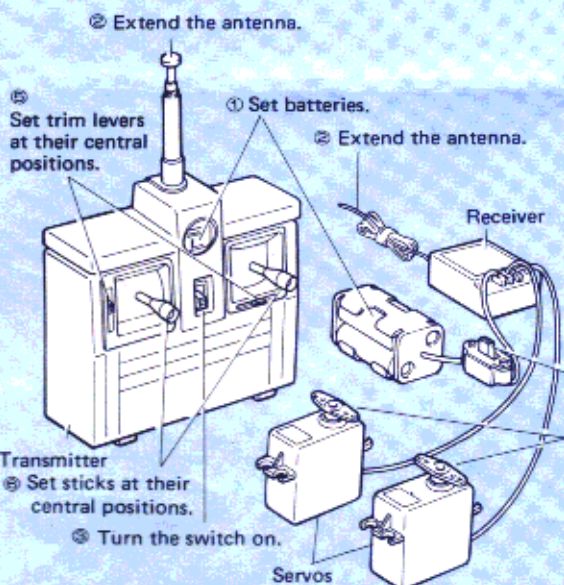


Hair dryer



Instantaneous bond

Check of Radio Controller and the Neutral Position



- 1 Set batteries in the receiver and transmitter.
- 2 Extend antennas of the receiver and transmitter.
- 3 Turn the transmitter switch on. (Always turn the transmitter switch on first.)
- 4 Turn the receiver switch on.
- 5 Set trim levers at their central positions.
- 6 Set sticks at their central positions. (Servo horns stop at the neutral positions.)
- 7 Move sticks to see if servos operate properly.
- 8 When check of the proportional controller is complete, turn the receiver switch off first followed by the transmitter switch.

- For other types of radio controllers, refer to their instruction manuals.

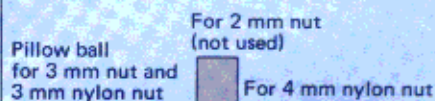
- Turn the switch on.

Positions that servo horns stop at in Step 6 are their neutral positions.



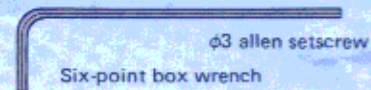
- If you use a BEC system proportional controller, install the exclusive connector to the speed controller according to Step 10 on Page 10. Check the proportional controller by referring to the instruction manual.

Tools Included in Kit



Box wrench
For 2 mm nut (not used)
For 3 mm nut and 3 mm nylon nut
For 4 mm nylon nut

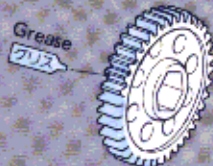
For 2.6 mm nut (not used)



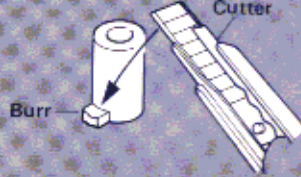
$\phi 3$ allen setscrew
Six-point box wrench

Precautions Before Assembly

- Read through the instruction manual and make sure you understand the procedures well before beginning assembly.
- Use proper screws and other parts shown in actual sizes.
- Excess screws, nuts, and washers are provided. Use them as spare parts.
- Parts Lists are attached at the end of this manual. Use them to find the proper parts.
- Thoroughly understand each assembly Step with drawings. Accurate assembly assures you of a high-performance model car.



- Apply grease at places where the mark is printed. Use the grease provided in the kit or that for use with plastic. Other oil may damage the gear case.
- Do not apply grease to moving parts which are outside the case since contamination of sand may cause a malfunction.



- Remove parts from runner carefully so as not to damage them. Thoroughly remove burrs, especially, on the nylon parts. Burrs on nylon parts may result in faulty operation.



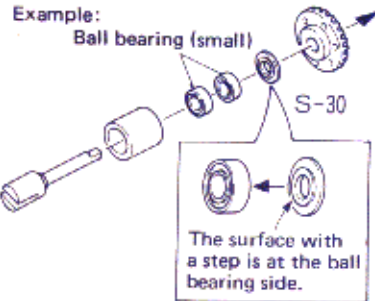
- May tapping screws are used to assemble the model car. Since high torque is required to tighten the tapping screw, use the proper screwdrivers for the tapping screw to be tightened (see actual size drawing of screwdrivers). Stop rotating the screwdriver when the torque is sufficiently high. Too much torque may damage the threads.

1 < Ball Bearing (Small) >

• P-21 may be replaced with the ball bearing (small) listed on the Marui Spare Parts List. The ball bearing (small) provides higher performance because of reduced friction force.



• When installing the ball bearing, install spacer S-30 instead of the thrust washer.



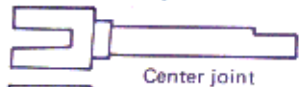
< P-21 >



• Press the ball bearing P-21 with a proper tool that does not damage the part, like the rear portion of a screwdriver grip.

Actual size

[In Motor Set]

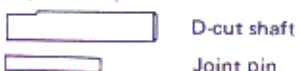


Center joint



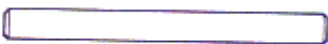
Differential shaft

[In Set A]



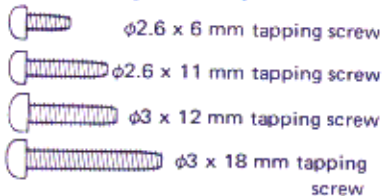
D-cut shaft
Joint pin

[In Set B]

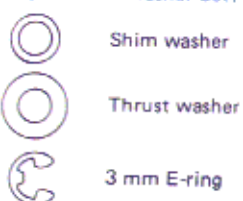


Rear counter shaft

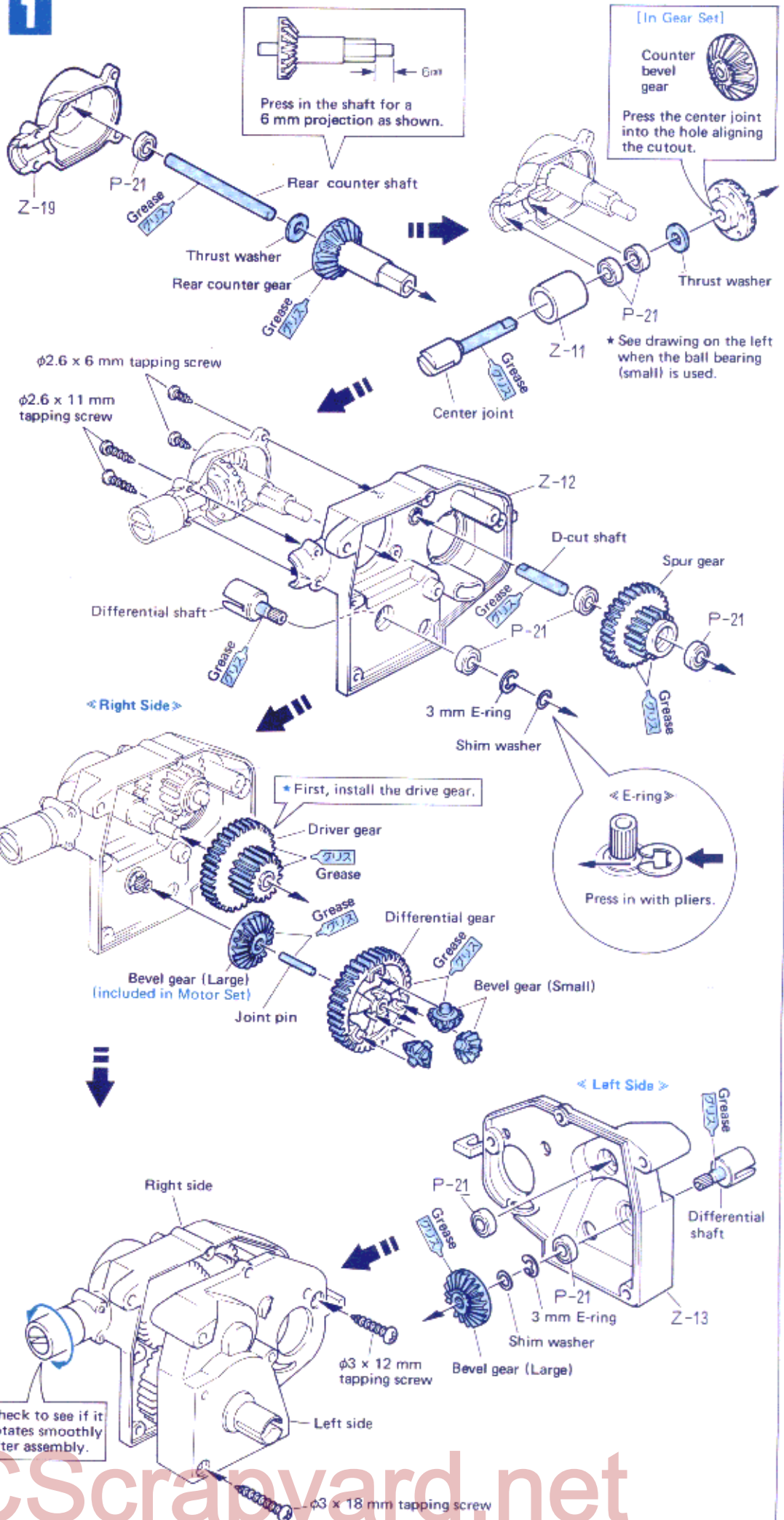
[In Tapping Screw Set]



[In Nut & Washer Set]

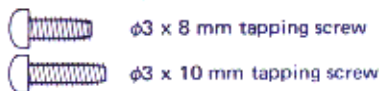


1



2

[In Tapping Screw Set]

**3**

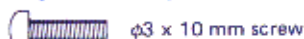
[In Set C]



[In Tapping Screw Set]



[In Screw Set]



[In Nut & Washer Set]

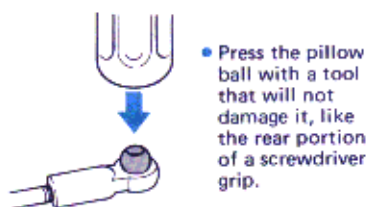
**4**

<Ball Bearing (Large)>

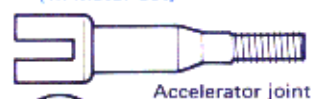
- P-22 may be replaced with the ball bearing (large) listed on the Marui Spare Part List. The ball bearing (large) provides higher performance because of less friction force.



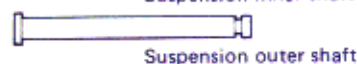
<φ5.8 Pillow Ball>



[In Motor Set]



[In Set B]



[In Set C]



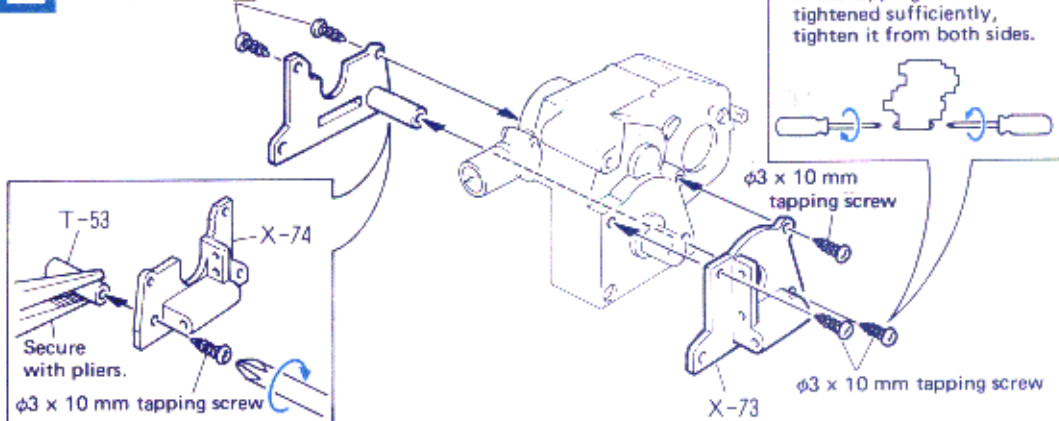
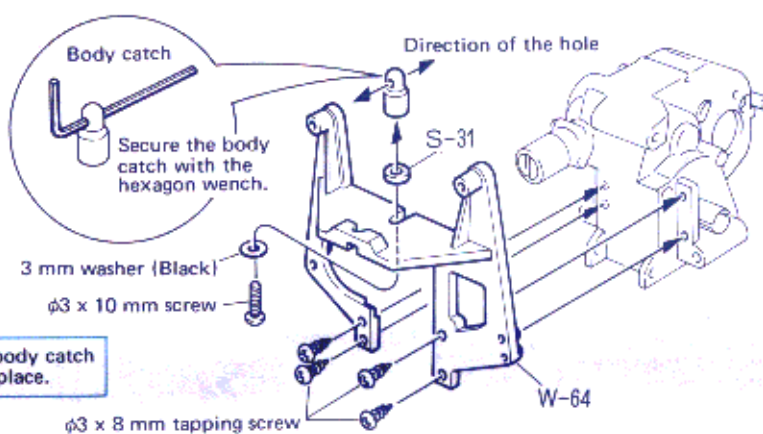
[In Screw Set]



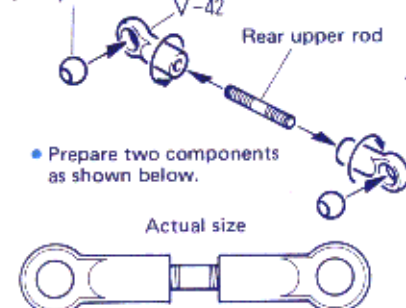
[In Nut & Washer Set]

**2**

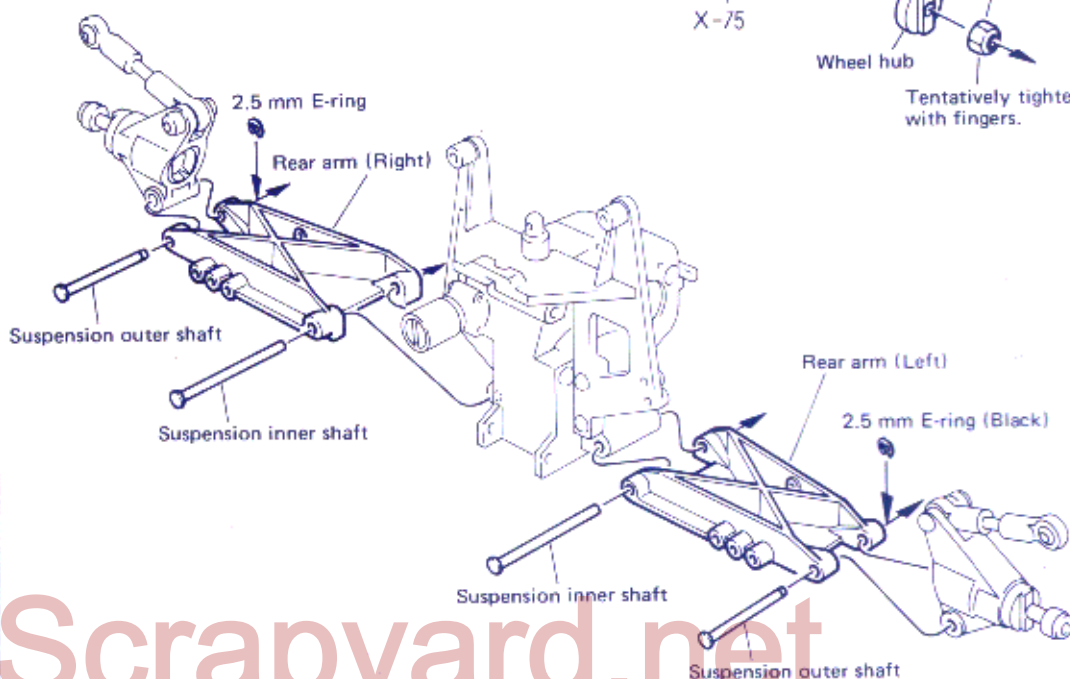
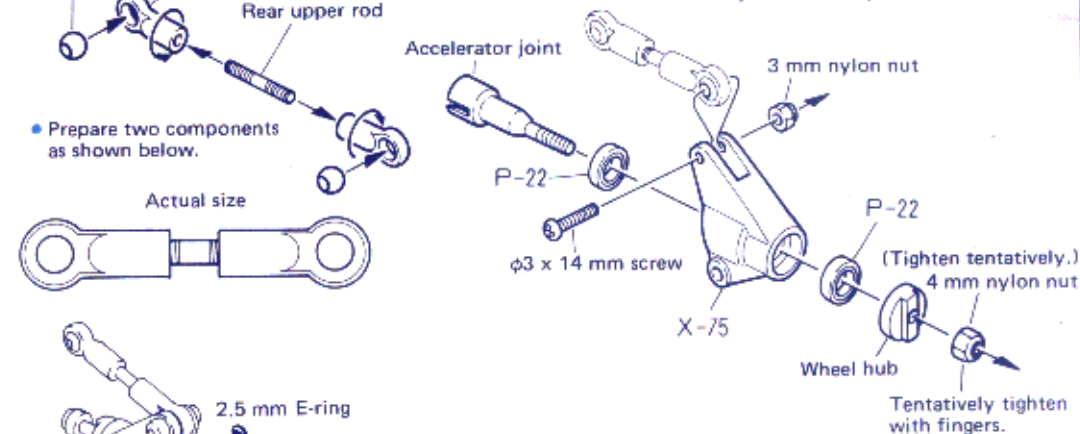
φ3 x 8 mm tapping screw

**3****4**

φ5.8 pillow ball



• Prepare two components.



6

[In Set C]



O-ring (Small)

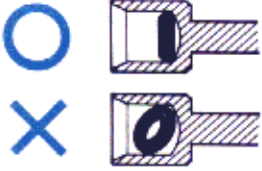
[In Tapping Screw Set]



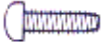
φ3 x 10 mm tapping screw

<O-ring>

- Properly install the O-ring in the accelerator joint as shown.

**6**

[In Tapping Screw Set]



φ3 x 10 mm tapping screw

[In Nut & Washer Set]



3 mm washer (Black)

7

<Pinion Gear>

- Select one of pinion gears according to road conditions.



[In Motor Set]

High-torque type (16 teeth)
for rough road surfaceHigh-speed type (18 teeth)
for flat road surface

[In Set A]



φ3 allen setscrew

[In Screw Set]



φ3 x 23 mm screw

[In Nut & Washer Set]



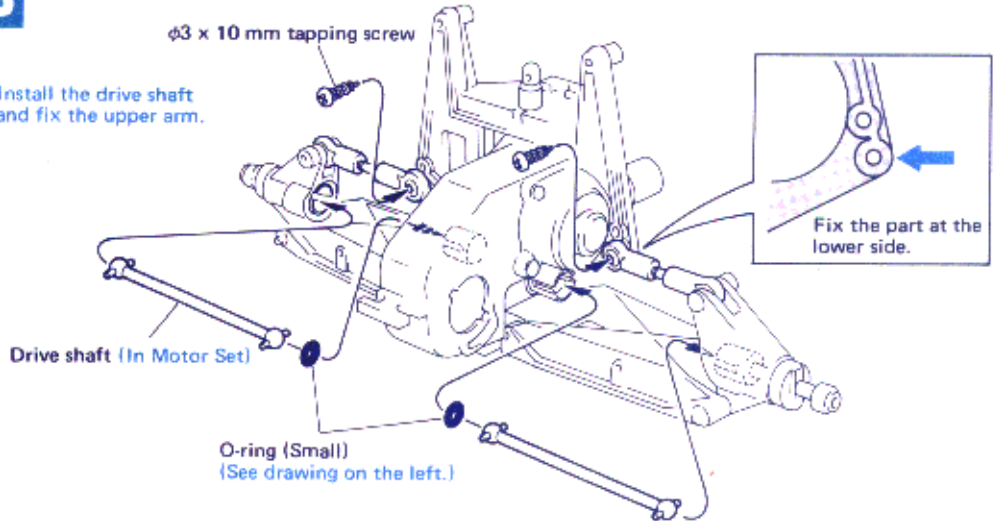
3 mm washer (Black)



Fiber washer

5

- Install the drive shaft and fix the upper arm.

**6**

φ3 x 10 mm tapping screw

3 mm washer (Black)

W-62
Rear under guard**7**

[In Motor Set]

Hexagon wrench

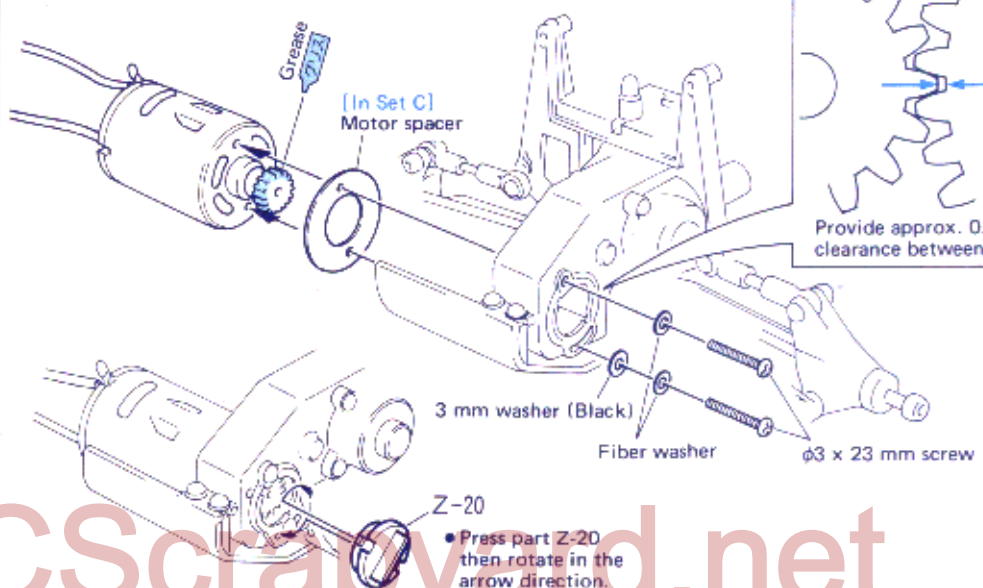
RS540S motor

φ3 allen
setscrew

18mm

Pinion gear
(See description
on the left.)Tighten the allen setscrew
on the shaft flat surface.

<Back Lash>

Provide approx. 0.5 mm
clearance between gears.

10

[In Tapping Screw Set]



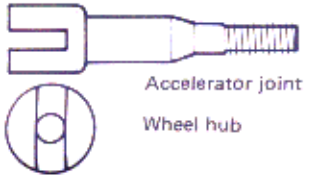
11

<Ball Bearing (Large)>

• P-22 may be replaced with the ball bearing (large) listed on the Marui Spare Part List. The ball bearing (large) provides higher performance because of less friction force.



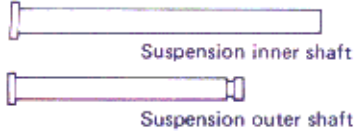
[In Motor Set]



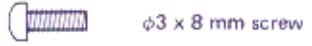
[In Set A]



[In Set B]



[In Screw Set]



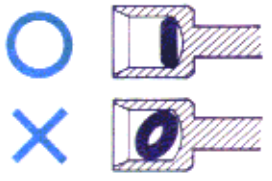
[In Nut & Washer Set]



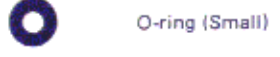
12

<O-ring>

• Properly position the O-ring in the accelerator joint.



[In Set C]



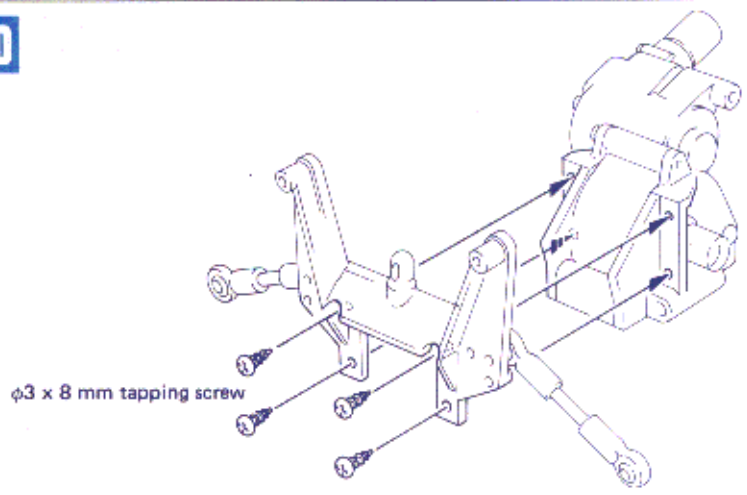
[In Tapping Screw Set]



[In Nut & Washer Set]

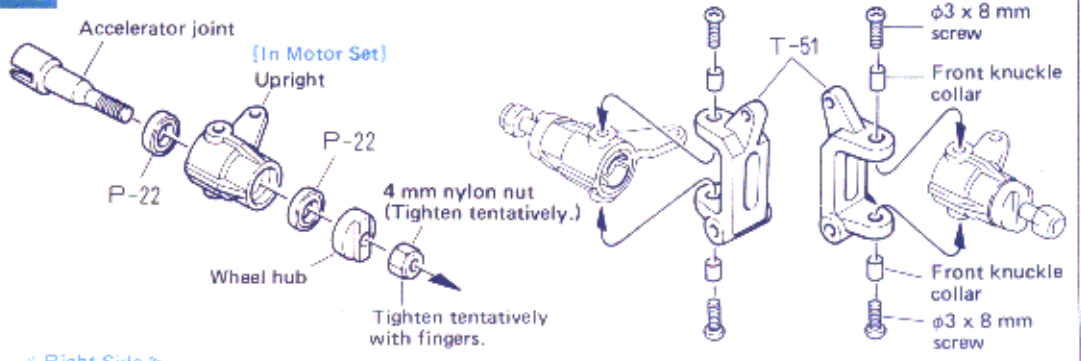


10

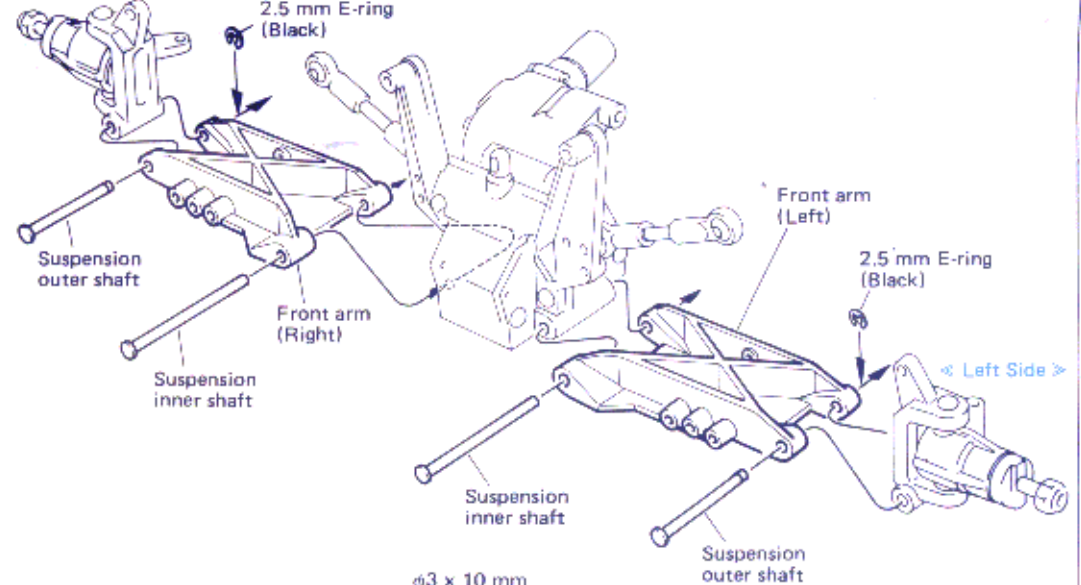


11

• Prepare two components.

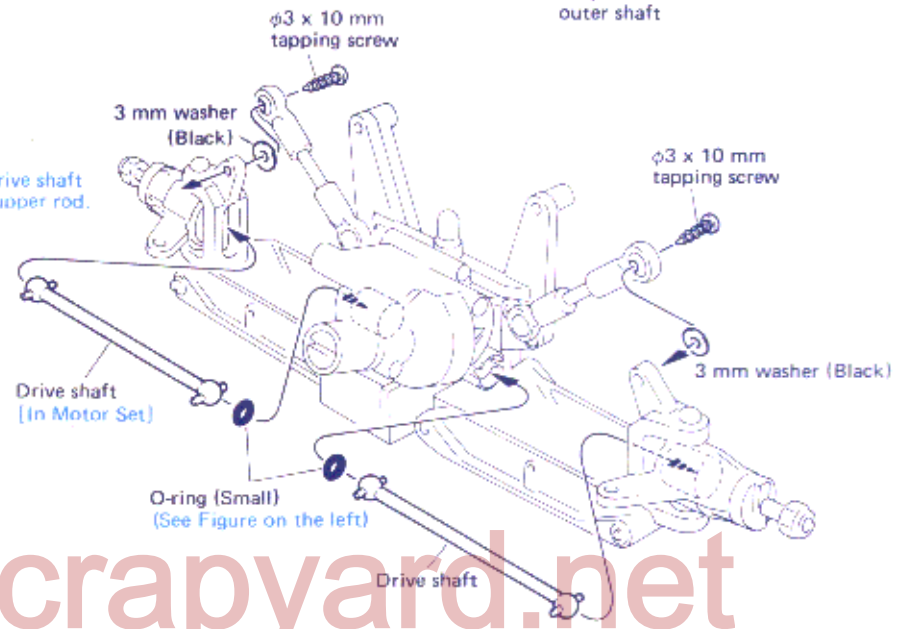


< Right Side >

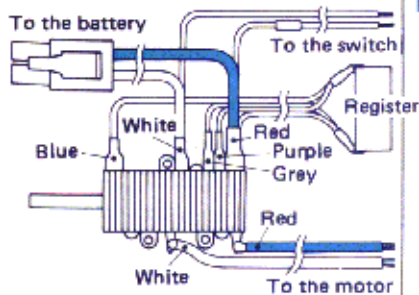


12

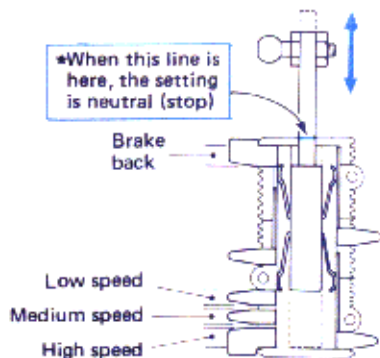
• Install the drive shaft and fix the upper rod.



13 < Speed Controller >



< Switch Position >



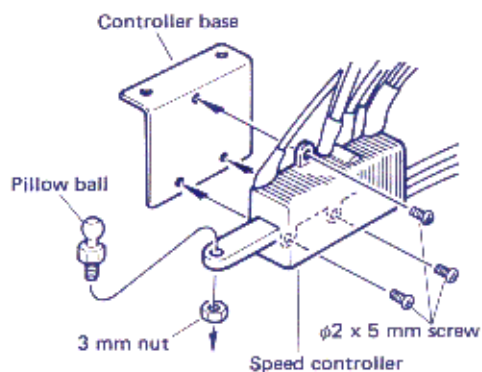
< Operational Precautions >

- Operating the model car at a low- or medium-speed for a long period of time causes heat build-up of the resistor in the speed controller, which may result in burnt solder and heat-shrink tube. Make sure to switch to the high-speed.
- Do not touch the register since it is heated after operation.
- Large electric current flows in the controller which should be considered as a consumable part.
- The controller is a dust proof type, but occasional cleaning should be done of internal contacts with cloth containing a small amount of thinner for plastic use. See the above figures for the wiring.

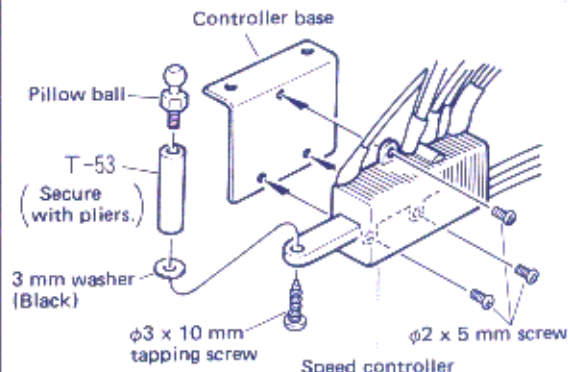
- 14** [In Tapping Screw Set]
- $\phi 3 \times 8$ mm tapping screw
 - $\phi 3 \times 10$ mm tapping screw

13 Assembly procedure varies by the proportional controller type (with or without reverse switch)
(Reverse switch changes the rotation direction of the servo motor.)

[With Reverse Switch]

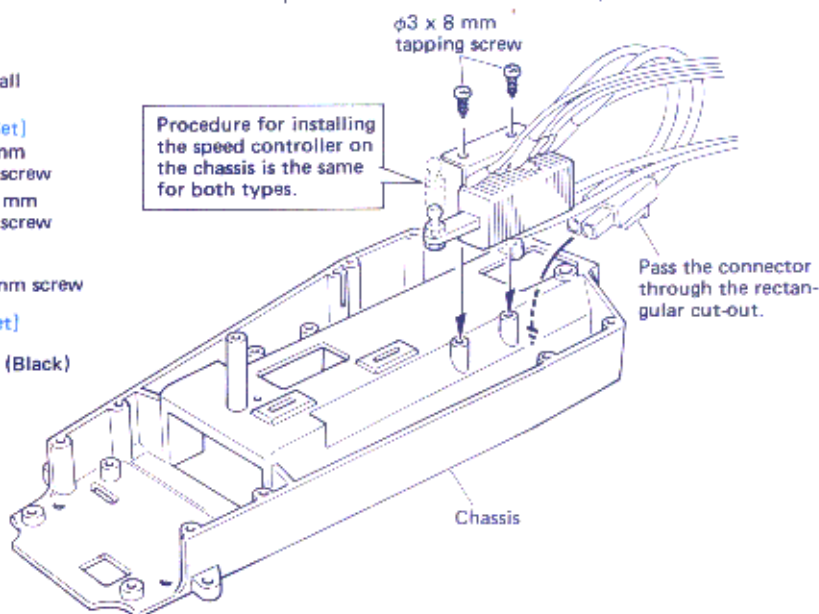


[Without Reverse Switch]

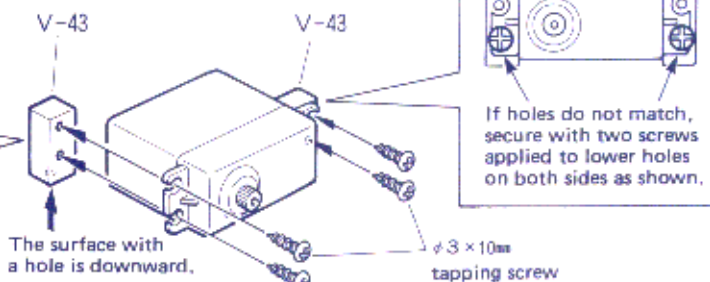
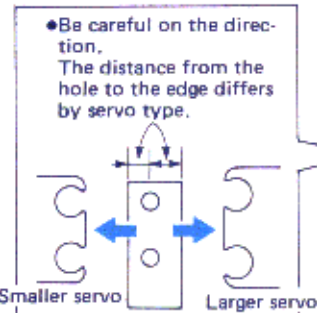


- [In Set C] Pillow ball
- [In Tapping Screw Set] $\phi 3 \times 8$ mm tapping screw, $\phi 3 \times 10$ mm tapping screw
- [In Screw Set] $\phi 2 \times 5$ mm screw
- [In Nut & Washer Set] 3 mm washer (Black), 3 mm nut

Procedure for installing the speed controller on the chassis is the same for both types.

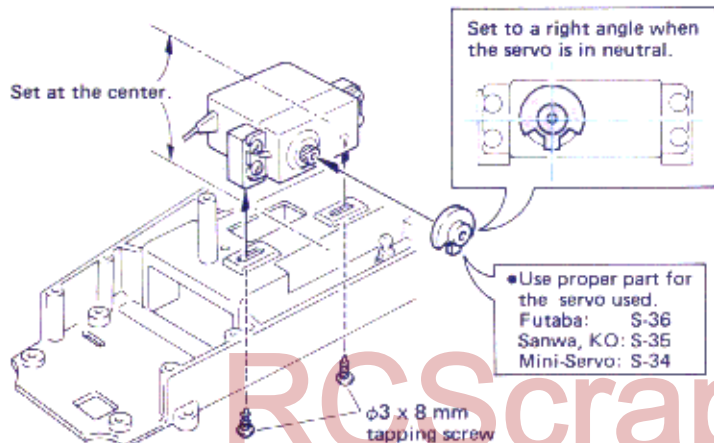


14 Set the servo surely in neutral before assembly. If you use a BEC system proportional controller, set in neutral after installing connectors according to Step on Page 10.

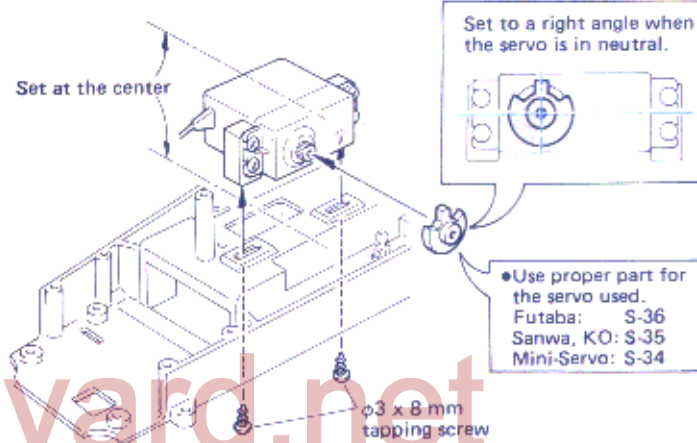


Assembly procedure of the servo varies by the proportional controller type (with or without reverse switch).

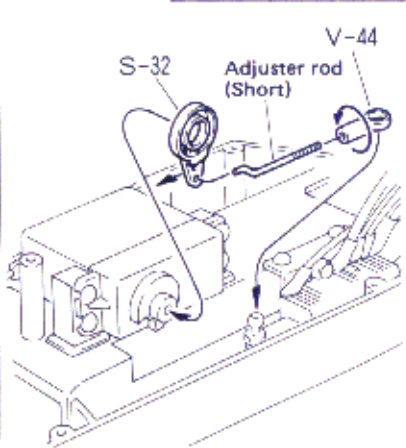
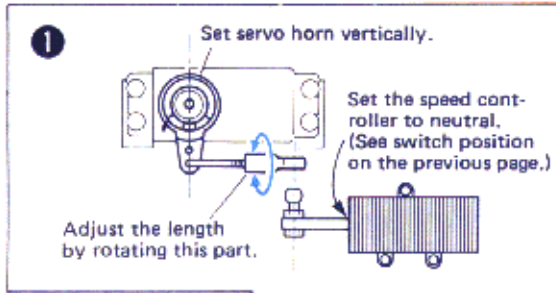
[With Reverse Switch]



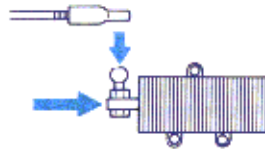
[Without Reverse Switch]



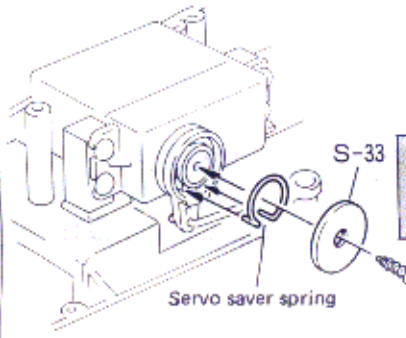
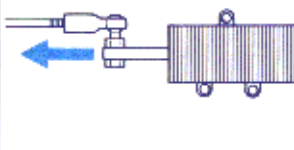
[With Reverse Switch]



2 Press the switch arm, and install part T-44 as shown.



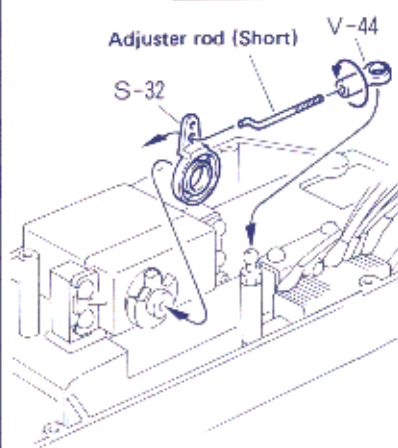
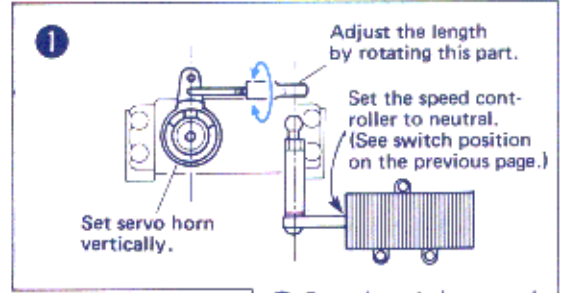
3 Return to the neutral position.



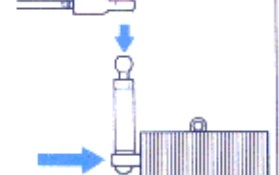
Futaba, JR, KO:
φ2.6 x 11 mm tapping screw
Sanwa:
φ3 x 10 mm tapping screw

Servo saver spring

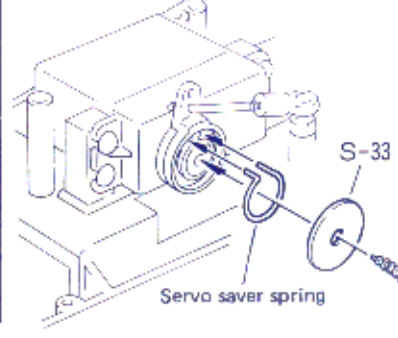
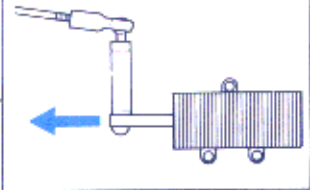
[Without Reverse Switch]



2 Press the switch arm, and install part T-44 as shown.



3 Return to the neutral position.



Futaba, JR, KO:
φ2.6 x 11 mm tapping screw
Sanwa:
φ3 x 10 mm tapping screw

Servo saver spring

[In Set A]

Adjuster rod (Short)



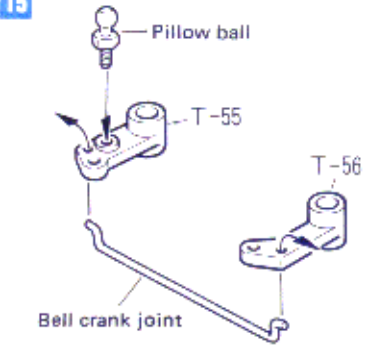
Servo saver spring

[In Tapping Screw Set]

φ2.6 x 11 mm tapping screw

φ3 x 10 mm tapping screw

15



[In Set A]

Bell crank joint

[In Set C]

Pillow ball

Bell crank spacer

[In Tapping Screw Set]

φ3 x 8 mm tapping screw

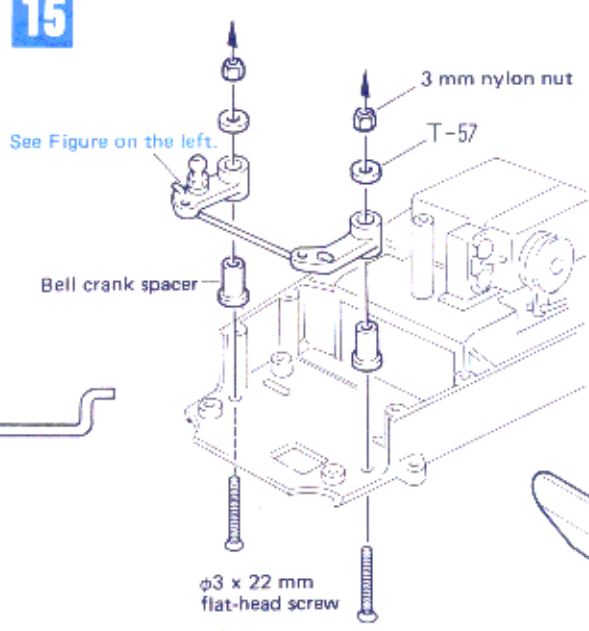
[In Screw Set]

φ3 x 22 mm flat-head screw

[In Nut & Washer Set]

3 mm nylon nut

15



See Figure on the left.

Bell crank spacer

φ3 x 22 mm flat-head screw

3 mm nylon nut

T-57

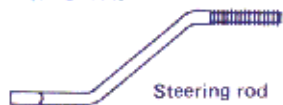
W-61 Front under guard

φ3 x 8 mm tapping screw

RCScrapyard.net

16

[In Set A]

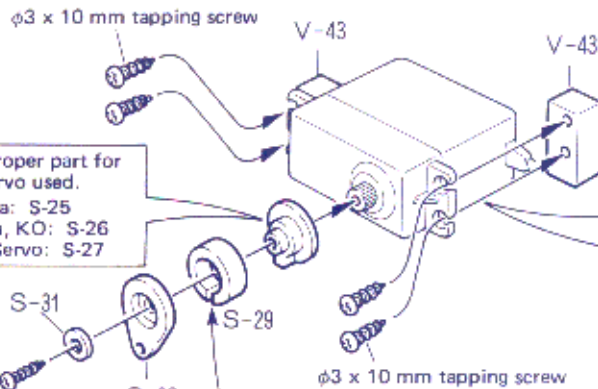


[In Tapping Screw Set]



16

★ Set the servo to neutral before assembly



Use proper part for the servo used.
 Futaba: S-25
 Sanwa, KO: S-26
 Mini-Servo: S-27

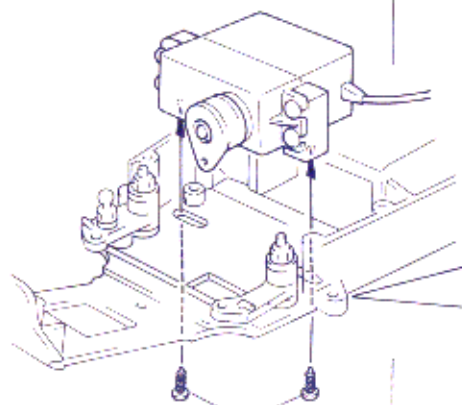
Set the servo horn at a right angle when the servo is set to neutral.



Secure with two screws as shown if holes do not match.

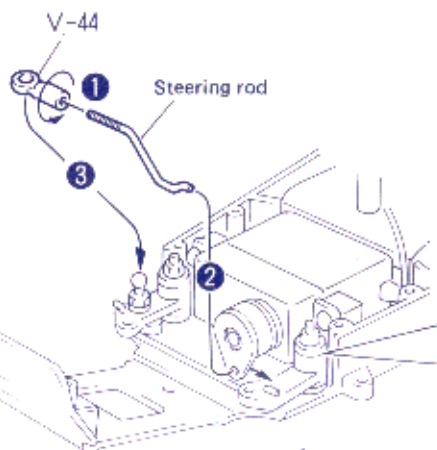
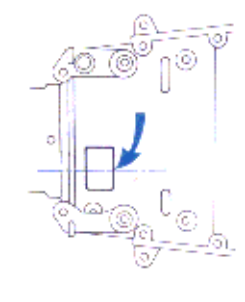
Futaba, JR, KO: $\phi 2.6 \times 11$ mm tapping screw
 Sanwa: $\phi 3 \times 10$ mm tapping screw

Expand the opening with a flat-blade screwdriver and press in.

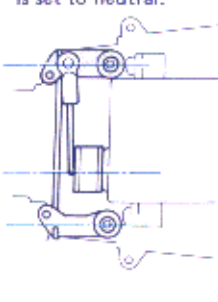


$\phi 3 \times 8$ mm tapping screw

Set the servo so that the center of servo horn is as close to this dent as possible.



Engage the bell crank so that it is parallel to the longitudinal axis when the servo is set to neutral.



17

[In Tapping Screw Set]

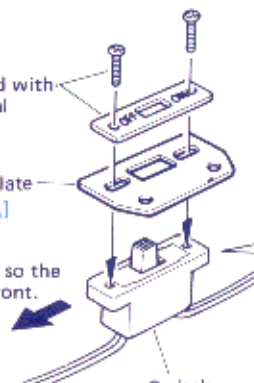


17

Screws provided with the proportional controller

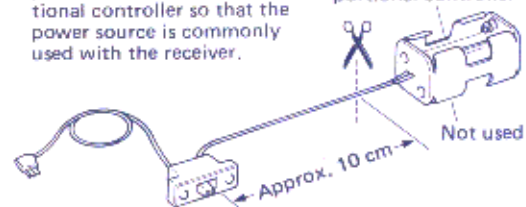
Switch plate
 [In Set A]

Orientate the switch so the OFF position is in front.



• Disconnect the battery case provided with the proportional controller so that the power source is commonly used with the receiver.

Battery box provided with proportional controller

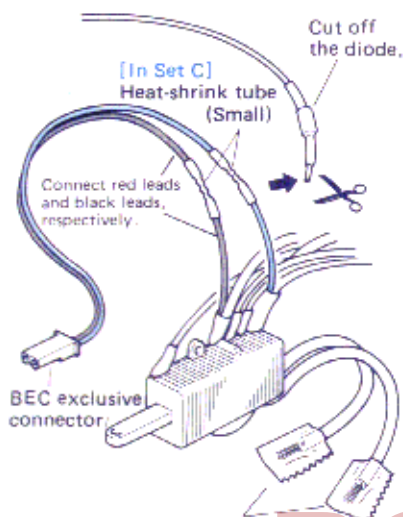


Lead colors vary by suppliers. Connect leads in proper polarity.

Proportional controller	Polarity	
	+	-
Futaba	Red	Black
JR	Red	Brown
KO	Red	Black
Sanwa	White lines or red	Black



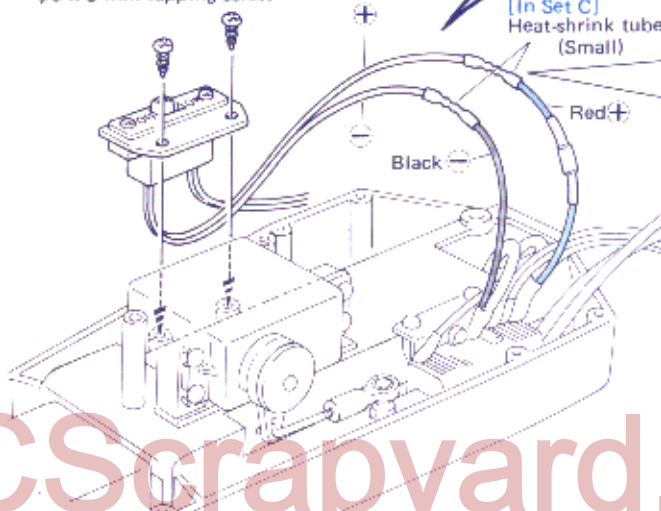
• If you use the BEC system proportional controller, attach the BEC exclusive connector to the speed controller.



Insulate the joints so that they will not be short-circuited.

$\phi 3 \times 8$ mm tapping screw

[In Set C] Heat-shrink tube (Small)



◀ Heat-Shrink Tube ▶

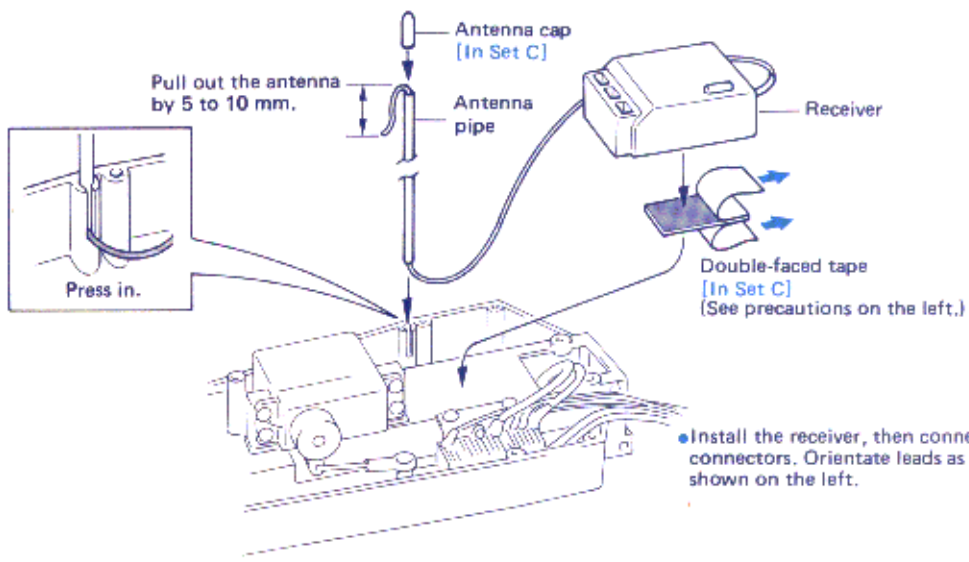
- Cut the heat-shrink tube at the center.
- Cover the lead with the heat-shrink tube and connect leads.
- Cover the joint with the heat-shrink tube.
- Heat the heat-shrink tube with a hair dryer to shrink the tube.

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18 < Double-Faced Tape >

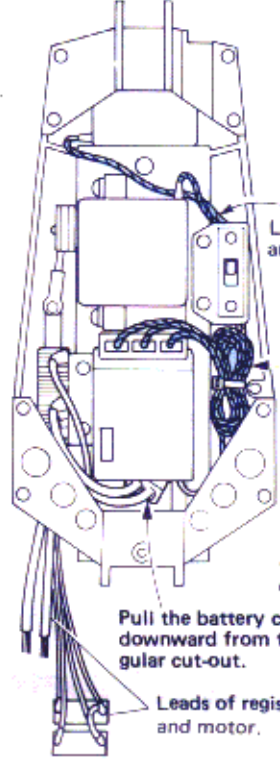
- Clean where the double-faced tape will be applied with thinner for plastic use.
- Do not touch the bonding surface after removal of protective paper. (Dirt and oil on fingers adversely influences the bonding strength.)
- Apply pressure after bonding double-faced tape.

18



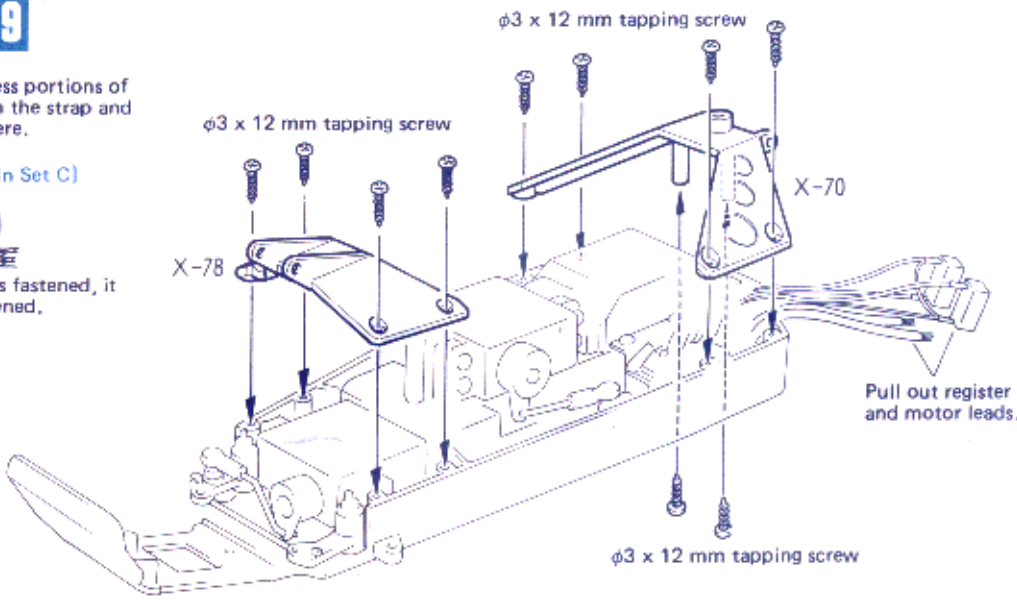
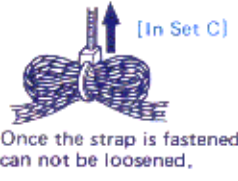
- Install the receiver, then connect connectors. Orientate leads as shown on the left.

19 < Orientation of Leads >



19

Bind the excess portions of the leads with the strap and place them here.



[In Tapping Screw Set]
φ3 x 12 mm tapping screw

20
[In Set B]
φ6 spacer

[In Tapping Screw Set]
φ3 x 10 mm tapping screw

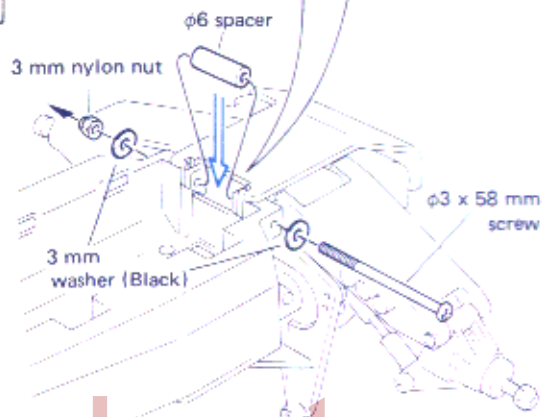
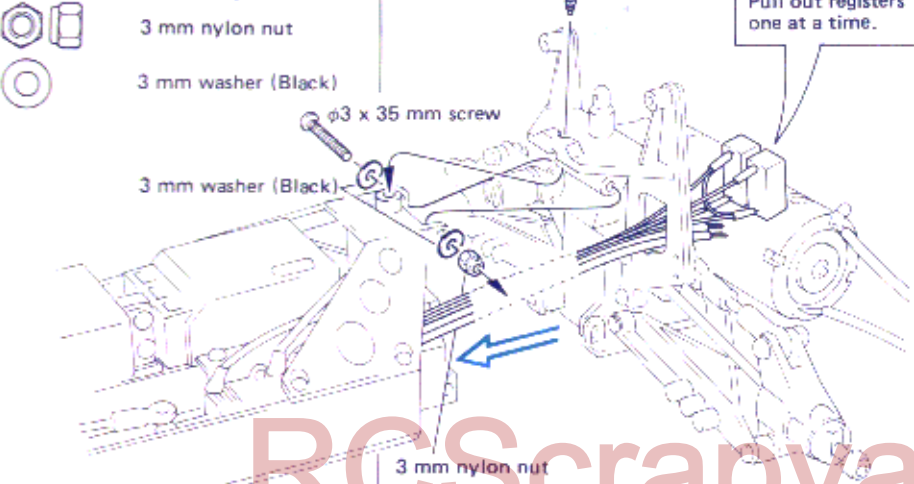
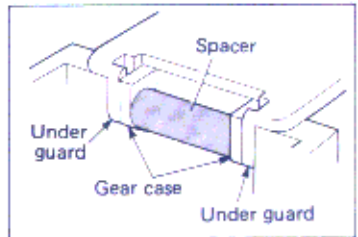
[In Screw Set]
φ3 x 35 mm screw

φ3 x 58 mm screw

[In Nut & Washer Set]
3 mm nylon nut
3 mm washer (Black)

20

Pull out motor leads and registers. Pull out registers one at a time.




21

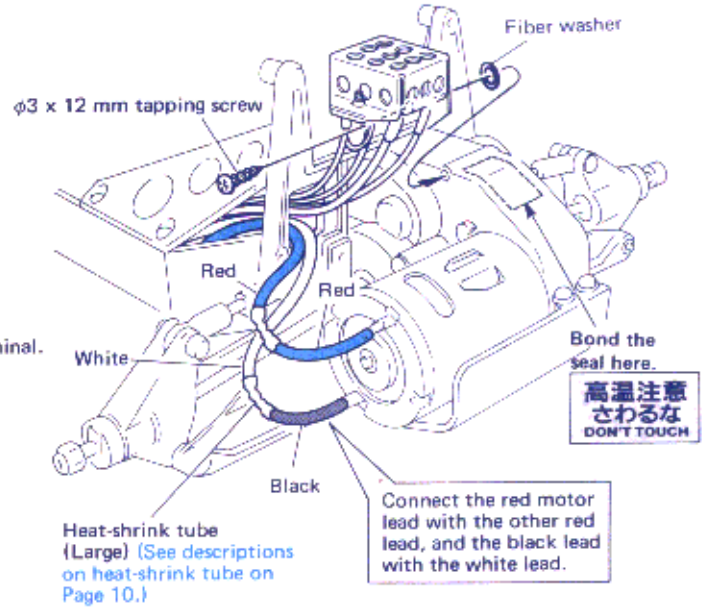
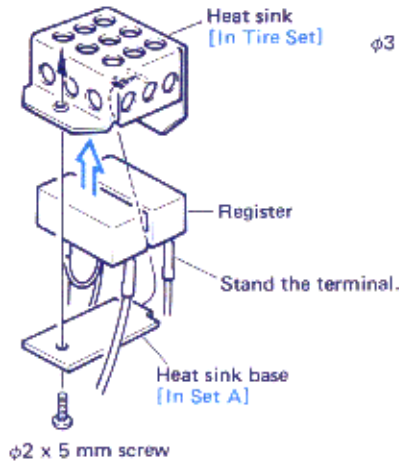
[In Tapping Screw Set]

 φ3 x 12 mm tapping screw

[In Screw Set]

 φ2 x 5 mm screw

[In Nut & Washer Set]

 Fiber washer
21**22**


[In Set B]

 Tie rod

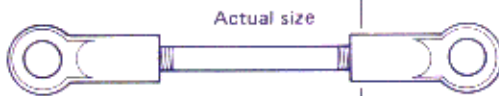
[In Set C]

 φ5.8 pillow ball

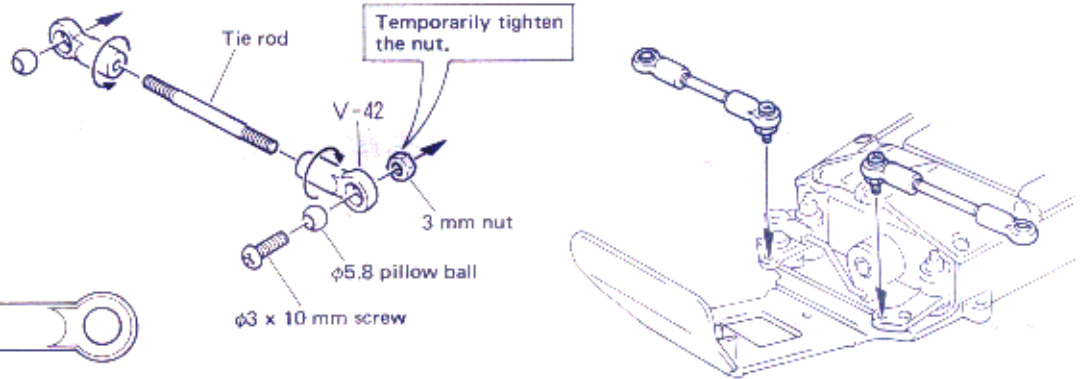
[In Screw Set]

 φ3 x 10 mm screw

[In Nut & Washer Set]

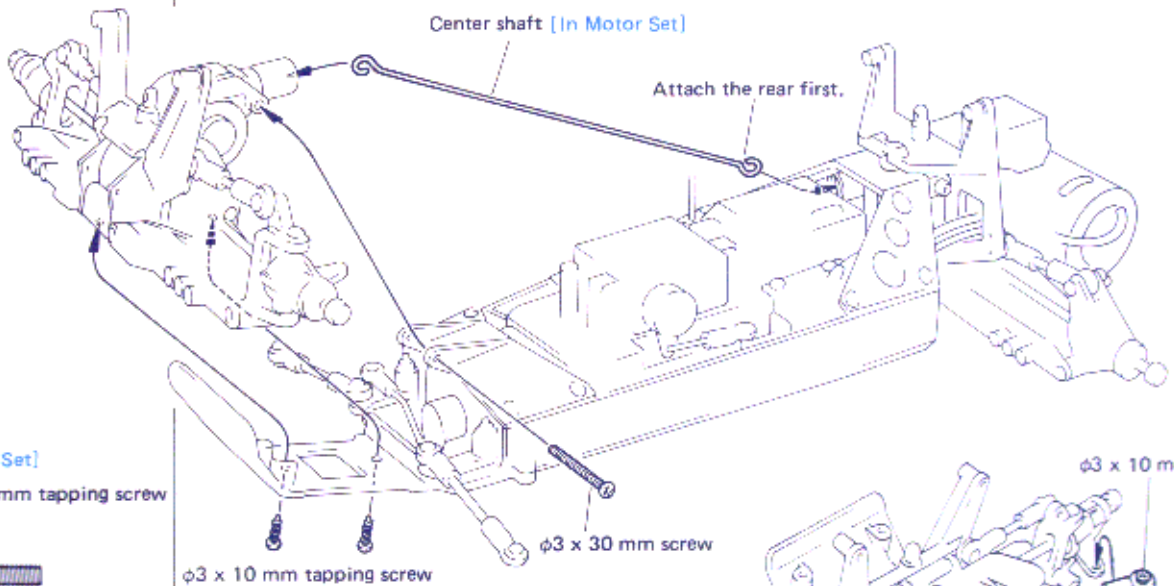
 3 mm nut
**22**

● Assemble two tie rod sets.

**23**

Center shaft [In Motor Set]


Attach the rear first.

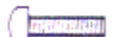
**23**

[In Tapping Screw Set]

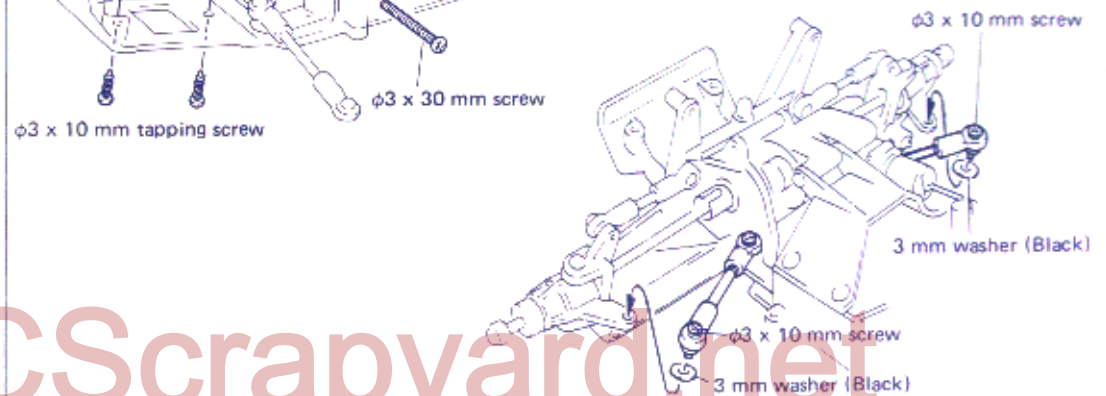
 φ3 x 10 mm tapping screw

[In Screw Set]

 φ3 x 30 mm screw

 φ3 x 10 mm screw

[In Nut & Washer Set]

 3 mm washer (Black)


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24

< Piston >

• Number of piston holes influences the damper effect.

Standard



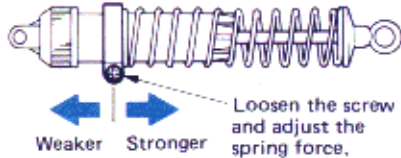
For greater damper effect



The damper return speed is slower.

< Spring Adjustment >

• The spring force is adjusted with the stopper position.



Loosen the screw and adjust the spring force.

[In Set B]



Front damper spindle



Rear damper spindle

[In Set C]



φ5.8 pillow ball



O-ring (Large)

[In Tapping Screw Set]



φ2 x 9 mm tapping screw

[In Nut & Washer Set]



2.5 mm E-ring (Black)

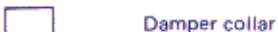
[In silicon O-ring]



Silicon O-ring

25

[In Set C]



Damper collar

[In Tapping Screw Set]



φ3 x 12 mm tapping screw



φ3 x 15 mm tapping screw

[In Nut & Washer Set]



3 mm washer (Black)

Damper collar

φ3 x 15 mm tapping screw

φ3 x 12 mm tapping screw

3 mm washer (Black)

Front (Left)

Front (Right)

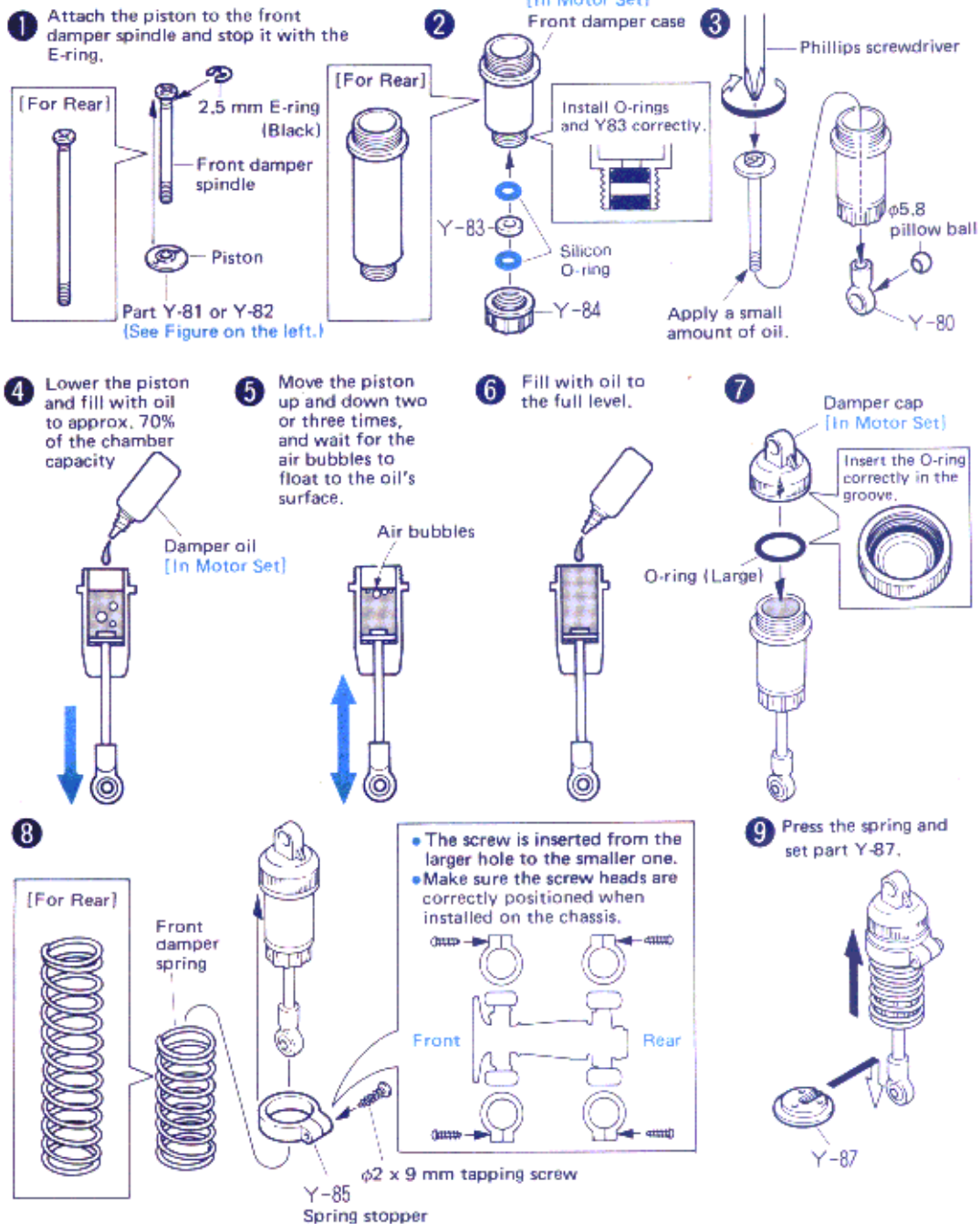
Rear (Left)

Rear (Right)

24

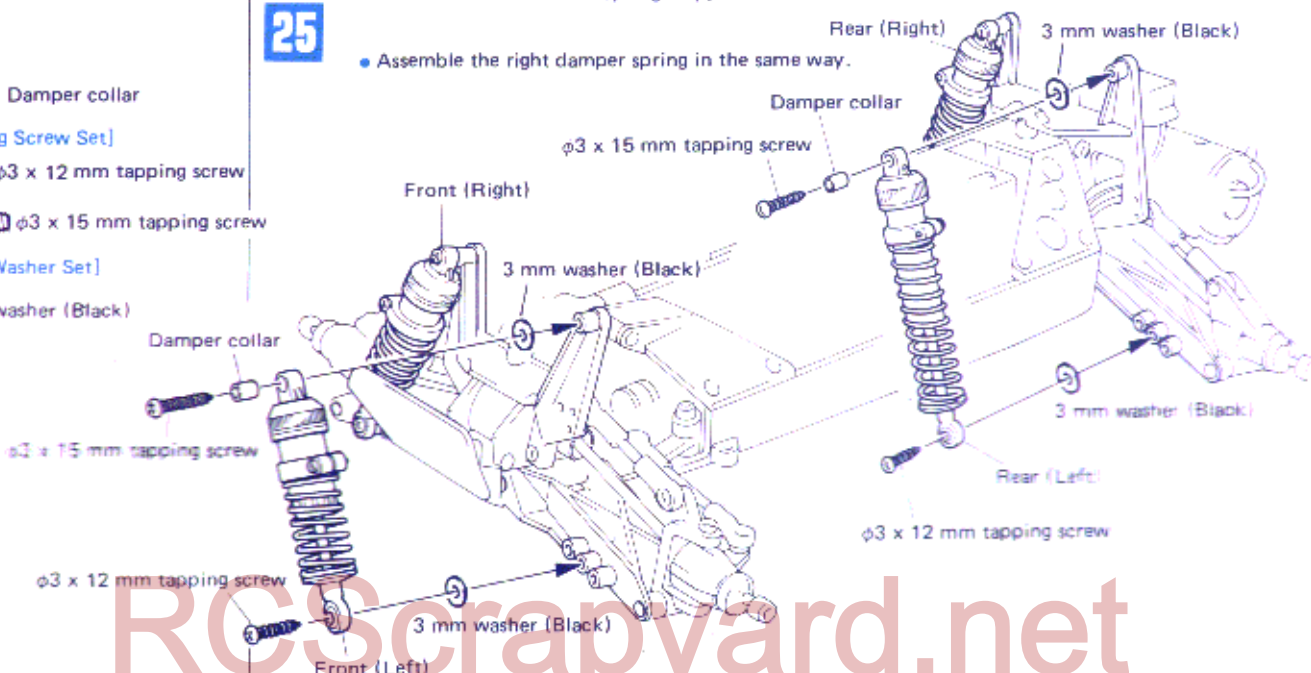
The front piston is shown. Assemble each two sets for front and rear.

Perform Assembly Steps 1 through 9 in order.



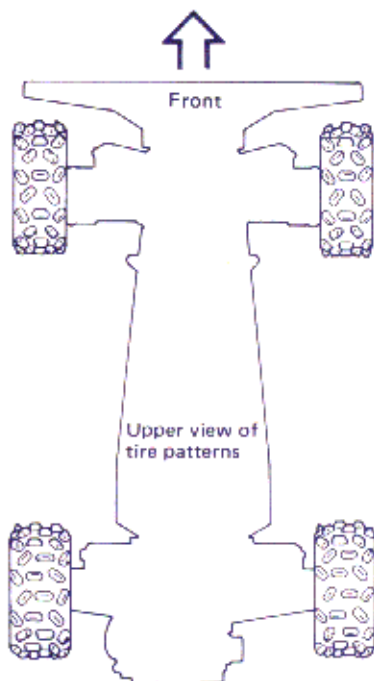
25

• Assemble the right damper spring in the same way.



26

«Tire Patterns»



$\phi 3 \times 8$ mm tapping screw

Bumper
W-60

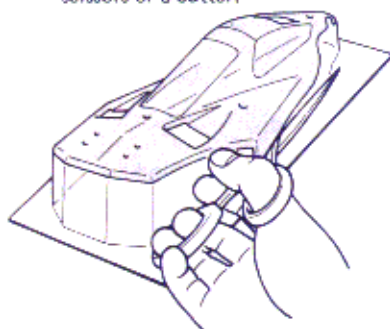
[In Tapping Screw Set]

$\phi 3 \times 8$ mm tapping screw

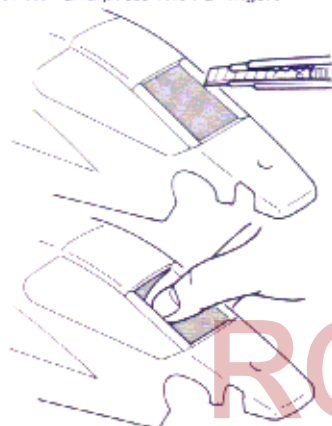
27

«Cutting of Body»

- Cut the grey portion with scissors or a cutter.



- For detailed patterns, gradually cut the border line with a cutter and press with a finger.

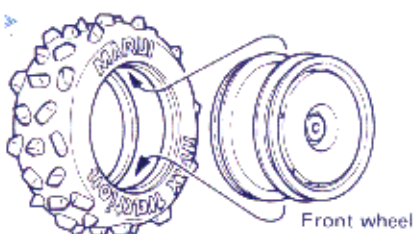


26

Install wheels into tires while referring to the tire pattern drawing on the left.

« Front »

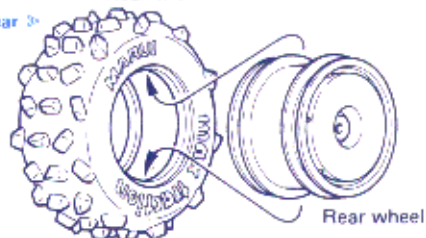
Front tire



Front wheel

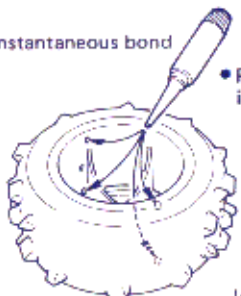
« Rear »

Rear tire



Rear wheel

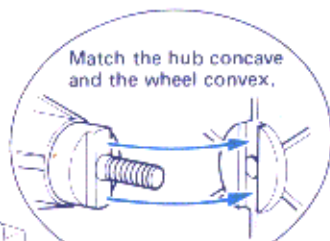
Instantaneous bond



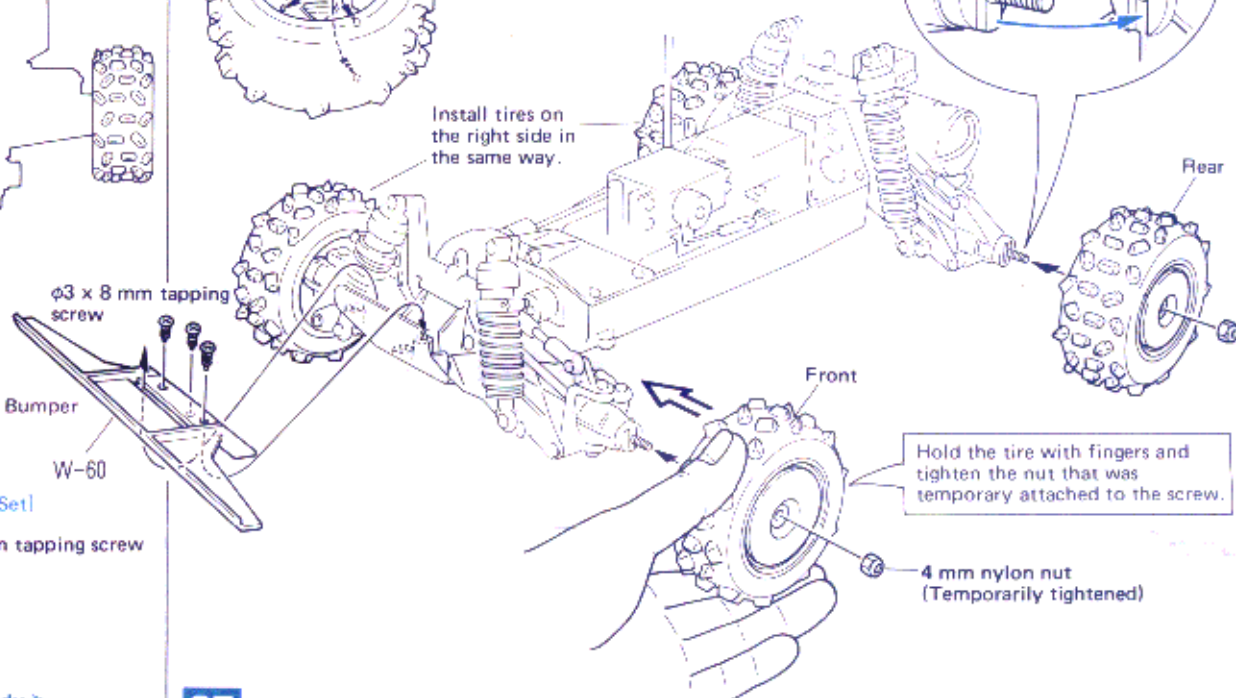
- Pour instantaneous bond into holes on the wheel.

Install tires on the right side in the same way.

Match the hub concave and the wheel convex.



Rear

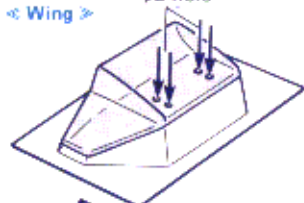


Hold the tire with fingers and tighten the nut that was temporarily attached to the screw.

4 mm nylon nut
(Temporarily tightened)

27

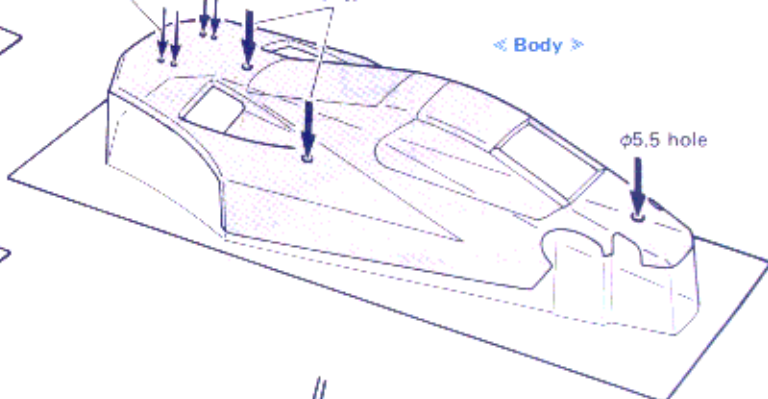
« Wing »

 $\phi 2$ hole

- Cut the grey portion (see descriptions on the left) and drill holes with a drill or reamer.

 $\phi 2$ hole $\phi 5.5$ hole

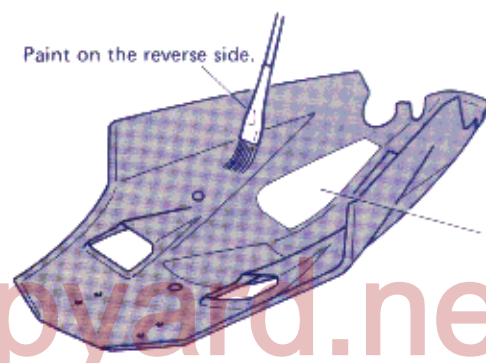
« Body »

 $\phi 5.5$ hole

28

Paint on the reverse side.

- Clean the body with detergent before painting.
- Paint polycarbonate coating on the reverse side of the body referring to colors on the next page or on the package.
- Do not paint windows.

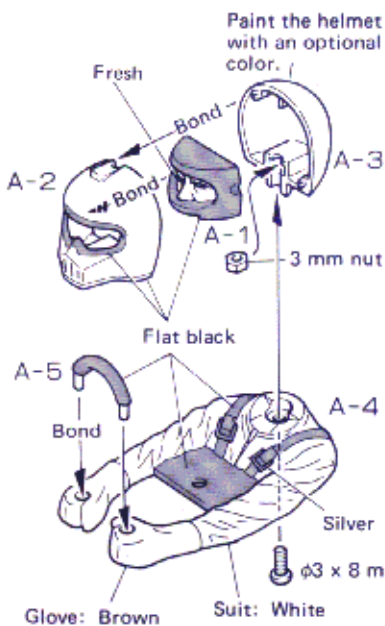


Mask windows with masking tape.

29

< Driver >

●Use instantaneous bond to bond parts.



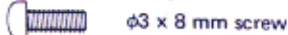
[In Set A]



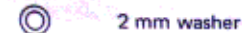
[In Tapping Screw Set]



[In Screw Set]

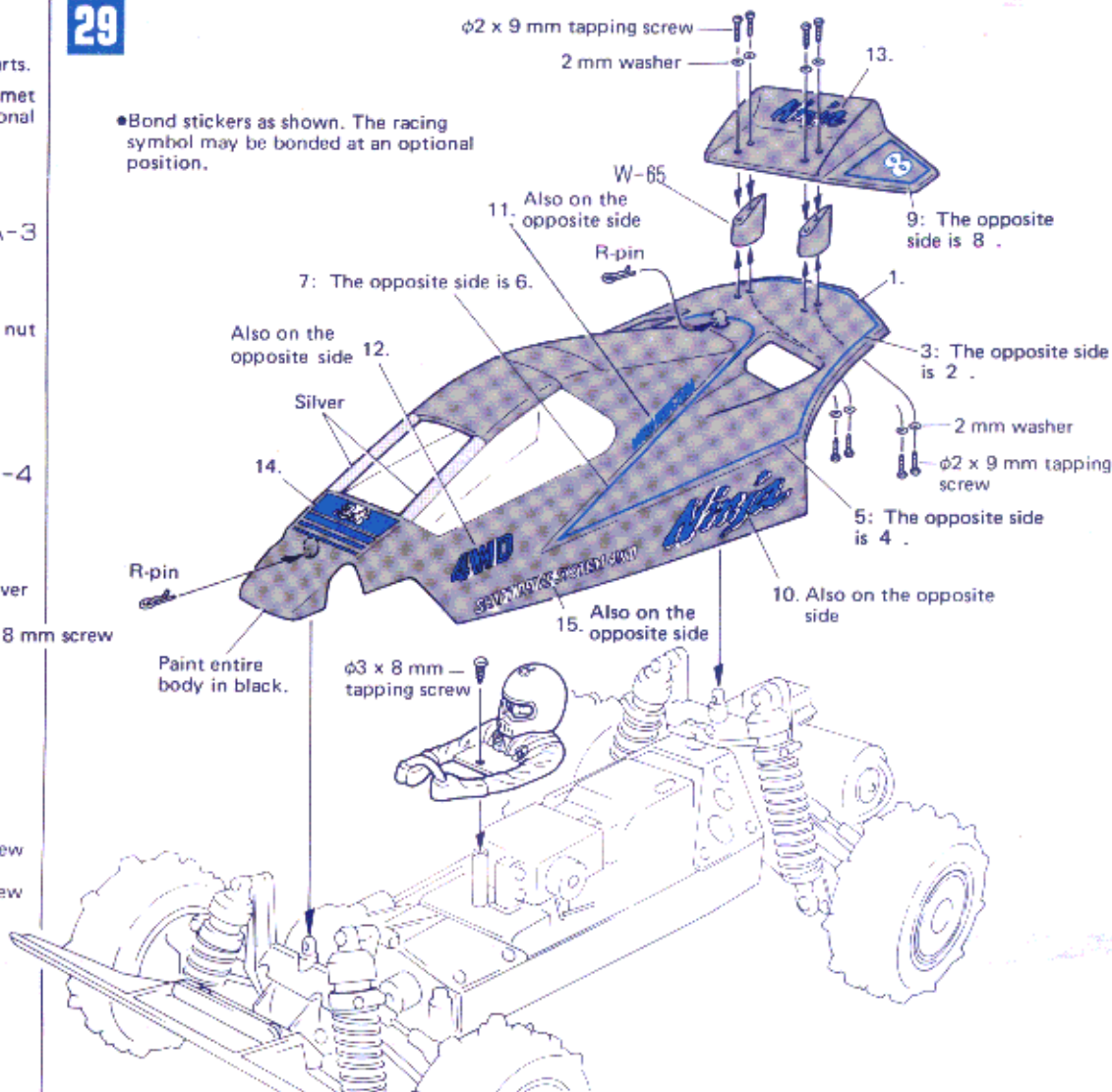


[In Nut & Washer Set]



29

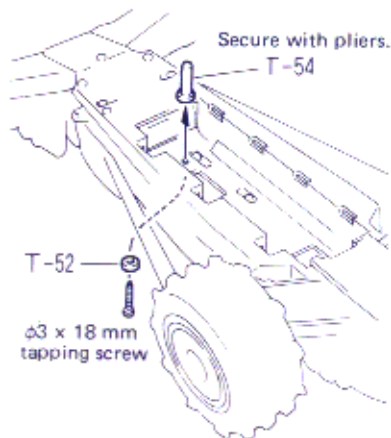
●Bond stickers as shown. The racing symbol may be bonded at an optional position.



30

< 7.2V Racing Battery >

●If you use a 7.2V racing battery, install a poll on the battery box.

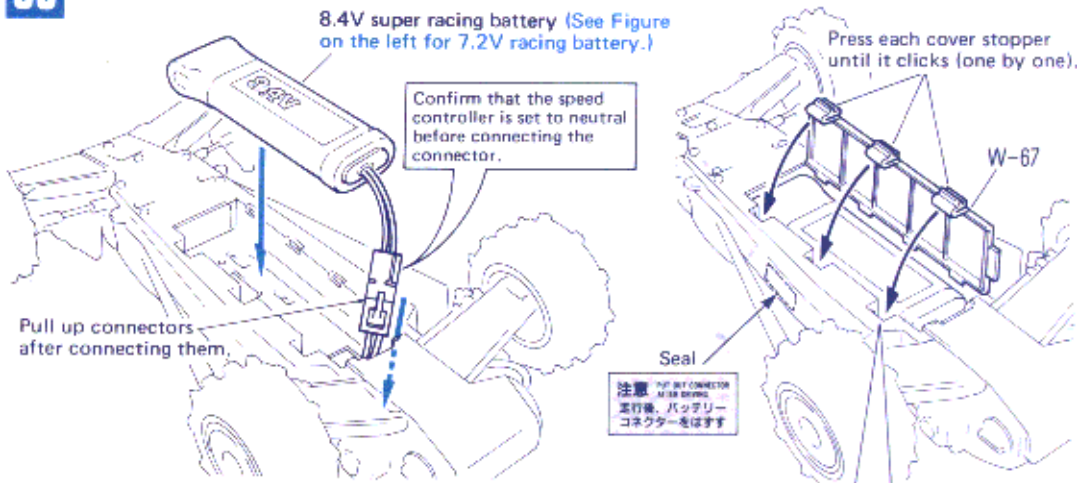


[In Tapping Screw Set]

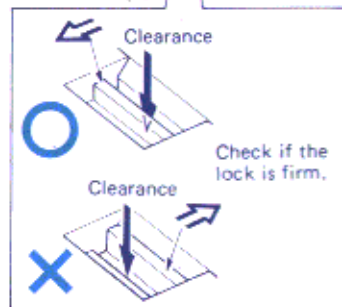
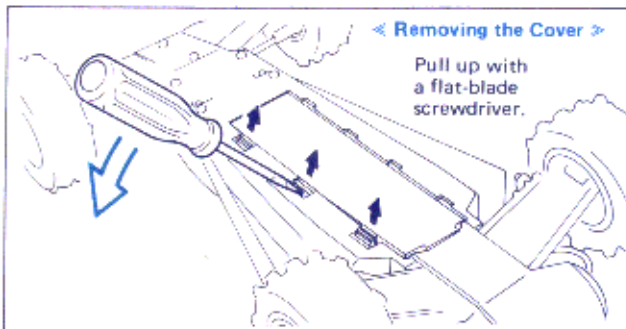


30

8.4V super racing battery (See Figure on the left for 7.2V racing battery.)



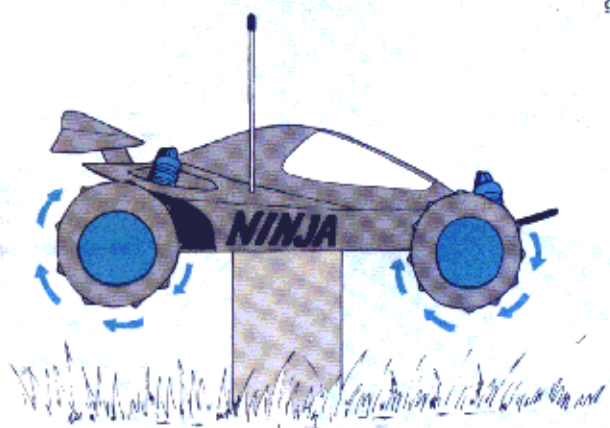
< Removing the Cover >



●Always Remove Battery When The Model Is Not Operated!
Make sure to remove the battery when the model car is not operated. Otherwise, the register will be overheated or the model car will suddenly start to run if the switch is accidentally turned on.
Make it a habit to remove the battery immediately after operation.

●Do not connect the battery until the model car is operated.
●Always remove the battery after operation.

◀ Checks Before Operation ▶



• Always check components before operation. For the check, place the model car on a stand as shown, keeping all tires off the ground. If the model car is positioned on the ground during the check, it may suddenly run resulting in unexpected danger.

★ Observe the following check procedure:

- ① Check for loose screws.
- ② Check if the wiring is correct and connections are tight.
- ③ Check if the speed controller is set to neutral.
- ④ Use a fully charged battery.
- ⑤ Turn the transmitter switch on and check if the battery power is sufficient.
- ⑥ Turn the receiver (model car) switch on.
- ⑦ Check if the steering moves as instructed from the transmitter.
- ⑧ Check if the speed controller operates as instructed from the proportional controller.

• If the above checks are satisfactory, operate the model car for one or two minutes on the stand and check for abnormal contact. Be careful that the model car does not drop from the stand because of the vibration.

◀ Precautions For Operation ▶



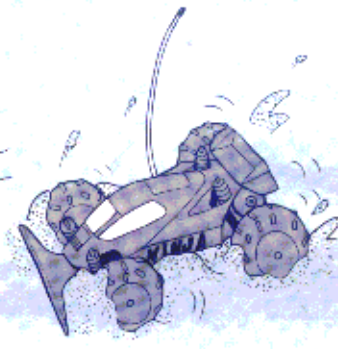
• Avoid driving the model car on the road, in the presence of small children, or in places where it is crowded.



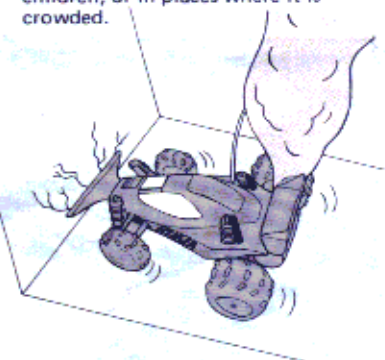
• Avoid driving in a water pool, which may result in a damaged proportional controller or motor or both.



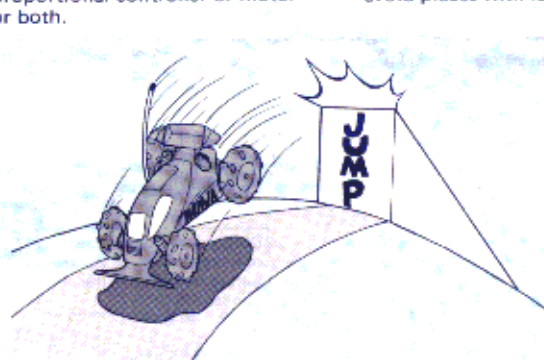
• Although the NINJA model car is designed for off-road racing, avoid places with large stones.



• When the model car is stuck in deep sand, do not continue to operate it.



• Do not continue operation when the model car is caught by an obstacle.



• Jumping may damage the frame and other components. When making a jump, drive straight at full speed.

• Driving on a grassy field may cause grass to wind around the shaft.

• When the battery is fully discharged, the model car is not controllable since the power is common for the motor and the controller.

• The register and motor are hot after an operation. Do not burn your fingers by touching them.

Since THE NINJA 4WD is designed for the off-road race, the model car reaches a high speed. Pay attention for safety.

◀ Maintenance After Operation ▶

- Always perform maintenance after driving to maintain the performance.
- Make sure to turn the receiver switch off, then the transmitter when turning off the proportional controller.
- Make sure to disconnect the battery connector after driving. Always remove the battery when the model car is not operated.
- Remove contaminated sand and dust with a dry cloth. Never wash with water.
- Periodically apply grease to gears and other moving parts.
- Check for loose screws and nuts.
- Check if the oil level of the damper is proper.

◀ Troubleshooting ▶

- The motor rotates, but the model car does not run. See Pages 3, 5, 9, 12, and 14.
- Abnormal sound from the motor and/or gear. Front and/or rear wheels do not rotate smoothly. See Pages 3 and 6.
- No-control or abnormal operation during driving. See Page 2.
- Abnormal speed control or the high-speed is not applied. See Pages 8 and 9.
- If the model car does not run straight, adjust the steering stick trim by shifting it to the opposite direction from the car curves. See Pages 10 and 12.
- If the proportional controller develops faults such as a servo that does not operate, check if the battery has sufficient power, the polarity of receiver power is correct, and the leads of the servo and motor are continuous. If the controller is still faulty, consult the after service of the proportional controller supplier.

◀ Technical Data ▶

Overall length	390 mm
Overall width	237 mm
Overall height	140 mm
Wheel base	265 mm
Front tread	200 mm
Rear tread	200 mm
Front tire size	φ84 x 32
Rear tire size	φ84 x 37
Max. road clearance	42 mm
Min. road clearance	25 mm
Overall weight	1450 g
Gear ratio (16 teeth)	8.68 : 1
Gear ratio (18 teeth)	7.72 : 1

• Specifications are subject to change.

Make sure to disconnect the battery connector after operation.