RADIO CONTROLLED ELECTRIC POWERED RACING BUGGY

TURBO SCORPION

*NEW SPECIALLY DESIGNED FRONT TREAD PATTERN

*NEW SUPER LIGHT WHEELS FOR TOP HANDLING IN THE ROUGH

*SPECIAL NEW FRONT SUSPENSION GEOMETRY FOR SUPER DIRECTIONAL STABILITY

*NEW OVERSIZE BALL JOINTS IN FRONT SUSPENSION FOR INCREASED STRENGTH

*NEW OVERSIZE 10mm OIL-FILLED SHOCK ABSORBERS FOR EVEN BETTER ROADHOLDING

*WATER DUST RESISTANT RADIO AND BATTERY BOX

*NEW SPEED CONTROLLER GIVES THREE FORWARD SPEEDS PLUS REVERSE

*NEW SPORTY BODY STYLE: OPEN ENGINE/CONTOURED BODY

*NEW SPIKE REAR TIRES FOR BETTER TRACTION

*RUGGED DIECAST ALUMINUM SUSPENSION PARTS

*NEW HEATSINK-COOLED SPIED CONTROLLER RESISTOR

*DECORATIVE AND FUNCTIONAL WING

*POWERFUL MABUCHI RS-540S MOTOR (INCLUDED)



RADIO SYSTEM

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

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

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

*Antenna The transmitter antenna broadcasts the radio signal.

The receiver antenna (which is no more than a small wire tuned to a precise length) picks up the signals so that the receiver can decode them.

*Trim Levers Adjust the neutral position of the servos from the transmitter.

Trim Levers provide fine tuning of the steering and speed control.

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

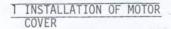
*Servo Horn A small arm or wheel on a servo that transfers the movement of the servo.

BEFORE ASSEMBLY

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

*The bolts and nuts used in the assembly steps are illustrated actual size. Bolts nuts and screw sized are metric. For your reference lmm equals approximately .039 inches.

*Apply "Screw Locking compound" to any point indicated with mark.



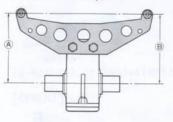
[Small Parts Needed]

M3 x 8 Allen Screw (2)

M3 x 8 Screw (2)

M3 Nut (2)

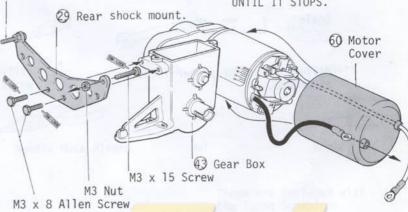
Install shock mount so that A and B are equal.

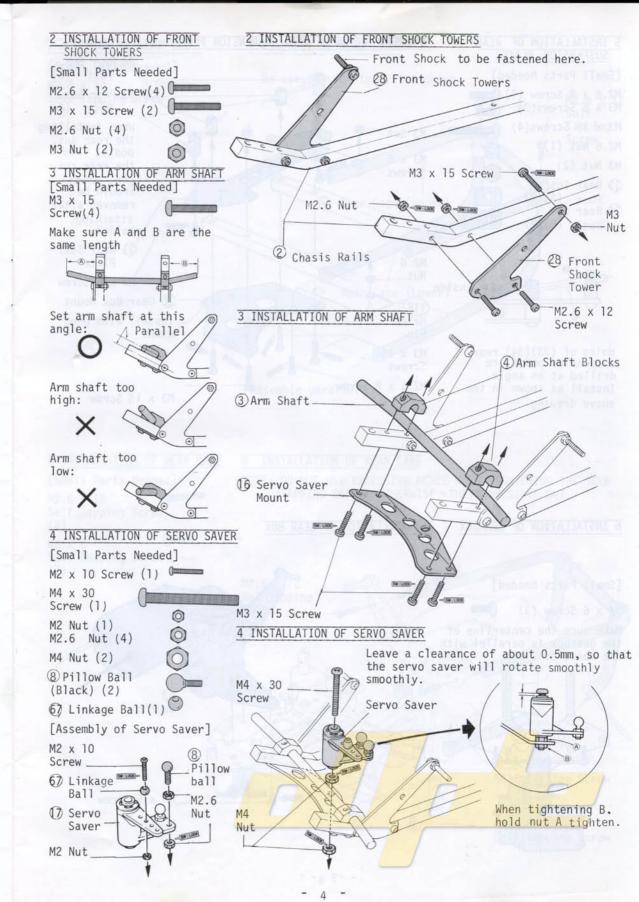


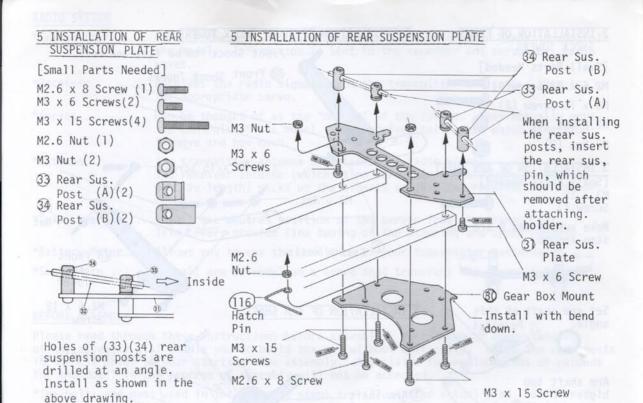
T INSTALLATION OF MOTOR COVER

The rear shock will be mounted here.

NOTE: SEAL THE MOTOR WITH THE MOTOR COVER ALL THE WAY UNTIL IT STOPS.







6 INSTALLATION OF GEARBOX

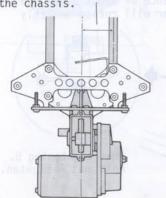
6 INSTALLATION OF GEAR BOX

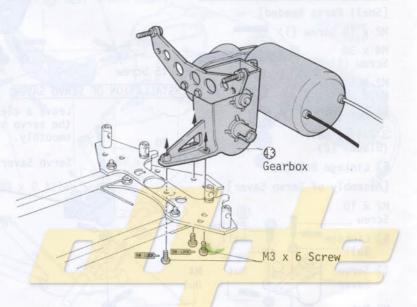
[Small Parts Needed]

3ø x 6 Screw (3)

x 6 Screw (3) ke sure the centerline o

Make sure the centerline of the gearbox is parallel with the chassis.



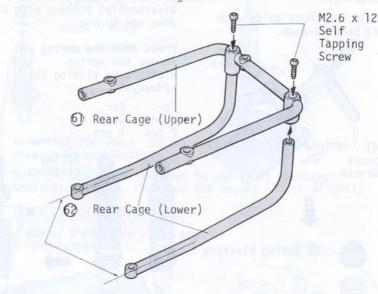


7 ASSEMBLY OF REAR CAGE

[Small Parts Needed]
M2.6 x 12 (mmmmms
Self Tapping Screw

7 ASSEMBLY OF REAR CAGE

Be careful not to over tighten.



Assemble parallel.

8 INSTALLATION OF REAR CAGE

[Small Parts Needed]

M2.6 x 12 Quantum Self Tapping Screw

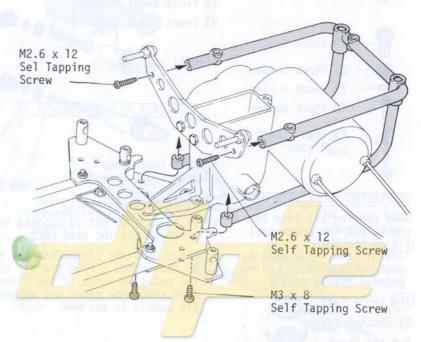
(2)

M3 x 8
Self Tapping Screw

(2)

8 INSTALLATION OF REAR CAGE

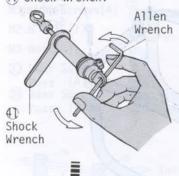
NOTE: DO NOT USE EXCESSIVE FORCE WHEN TIGHTENING THE SELF TAPPING SCREW, OTHERWISE, THEY MAY STRIP OUT.

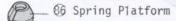


9 SHOCK ABSORBERS

Detach the shock and disassemble it a shown in the drawings.

Hold the shock guide with 47) Shock Wrench.







35 Front Spring

86 Rear Spring



18 Rear Shock Case 87) Front Shock Case

38 Spring Collar



22 Shock End



2) Chock Guide



20 Shock 0 ring



19 Shock Washer



10 FILLING SHOCK WITH OIL

When pouring oil into the shock, put the shock seal (119) on the guide. *Install the shock seal by pushing it with something pointed like a needle.

(119) Shock Seal

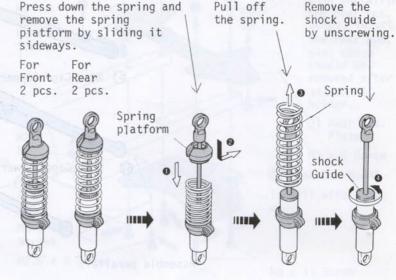
2) Shock Guide Put the Shock

seal on here.



9 SHOCK ABSORBERS

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

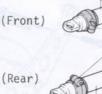


10 FILLING SHOCK WITH OIL

[Exploded View of the Shock]

*All the parts with the * mark are in common use for the front and rear portions.

\$5 Front Spring . 26 Front Shock Piston-37 Front Shock Body



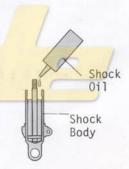
18 Rear Shock Body 27 Rear Shock Piston

25 Shock End 86 Spring Platform. 36 Rear Spring *Shock Guide *Shock O Ring *19 Shock Washer

[Filling Shock with Oil]

NOTE: BE CAREFUL NOT TO MISTAKE THE FORNT FOR THE REAR ONES.

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



Put some oil into the shock as shown in the right hand drawings and tighten the stopper firmly as illustrated below.

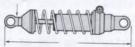
Hold the Shock

Hold the Shock guide with the shock wrench.

Allen Wrench

After having poured the oil into the shock and assembled the whole as it was before, measure the length of the front and rear shock to make them in the same length.

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



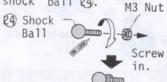
11 INSTALLATION OF SHOCK BALL

[Small Parts Needed]

24 Shock Ball (4)

M3 Nut (2)

Screw in the M3 nut on the shock ball 4. M3 Nut



12 INSTALLATION OF REAR AXLF

[Sam]1 Parts Needed]
M4 Nylos Nut (2)

[Option Parts]
If you change the rear wheel axle bearings 112 for the optional part, MS-26 6mm
Ball Bearins, the mode]
would run more faster
[5] Rear Sus. Arm



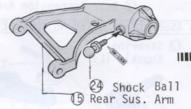
Shock End
Shock Guide
Shock Seal
Shock O Ring
Shock Washer



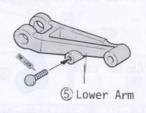
- Assembled the shock in the sequence as shown in the drawing to completion.
- Move the piston up and down to see if it operates smoothly. If not, decrease the amount of oil slightly

11 INSTALLATION OF DAMPER BALL

make them in the same length. Make two of these (for right and Adjust the length by screwing left rear suspension).



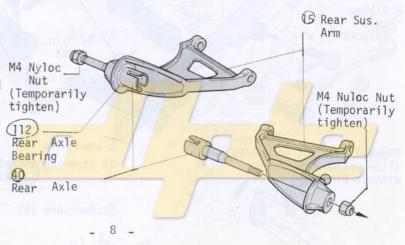
Make two of these (for right and left front suspension.)



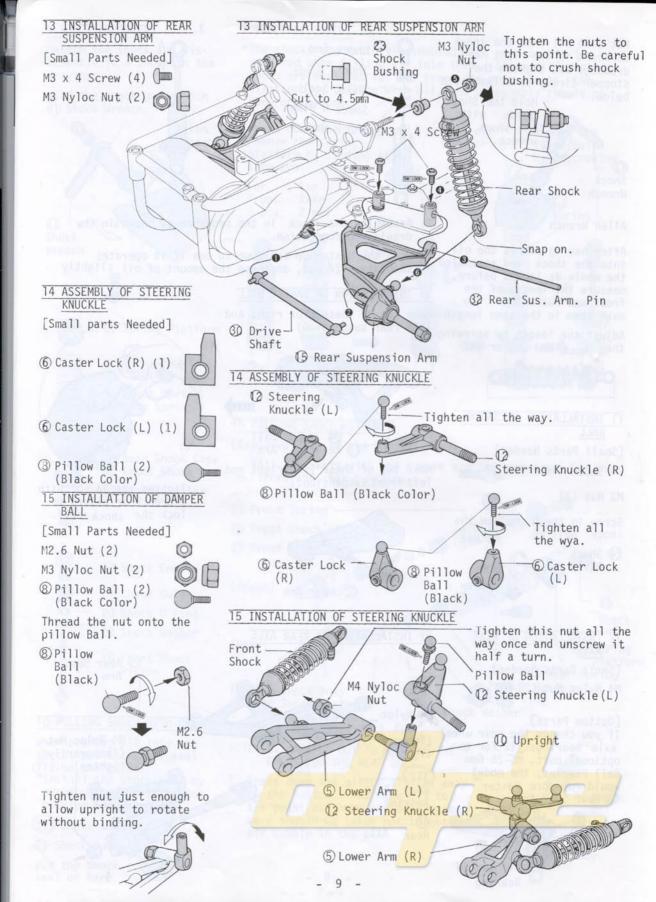


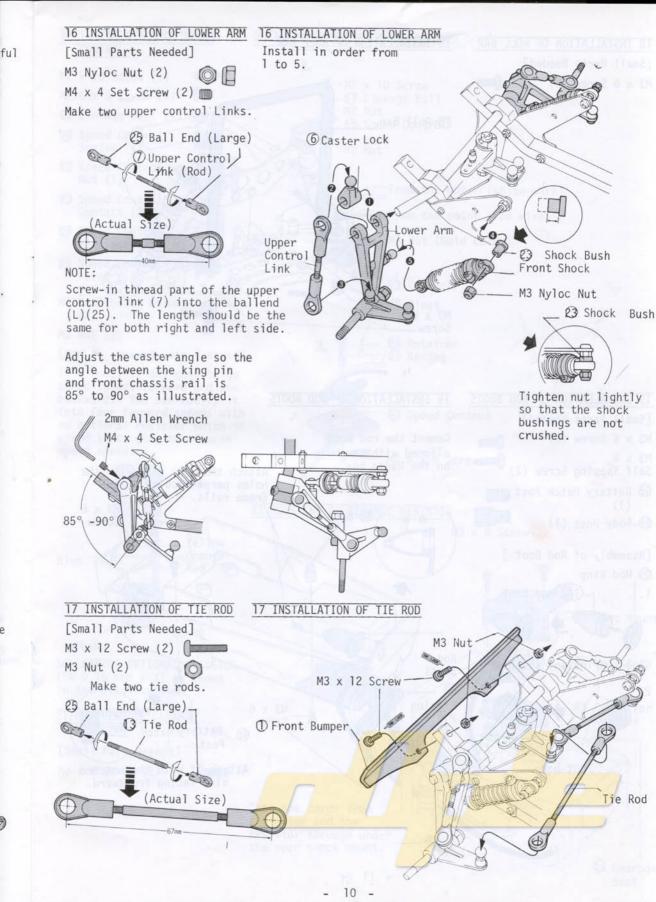
Tighten the 3¢ nut with a wrench or pliers to lock the shock ball.

12 INSTALLATION OF REAR AXLE



rm



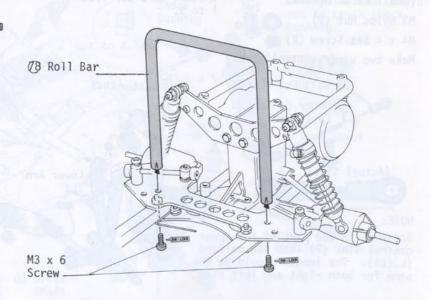


18 INSTALLATION OF ROLL BAR

[Small Parts Needed]

M3 x 6 Screw (2)

18 INSTALLATION OF ROLL BAR



19 INSTALLATION OF ROD BOOTS

[Small Parts Needed]

M3 x 6 Screw (2)

M3 x 8

Self Tapping Screw (2)

6 Battery Hatch Post (1)

98 Body Post (1)

[Assembly of Rod Boot]

9 Rod Ring



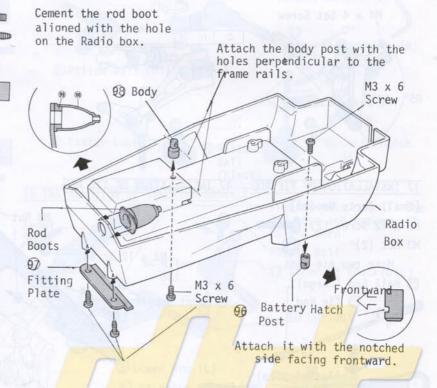
Glue with instant cement.

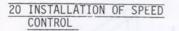
2.



Cut here.

19 INSTALLATION OF ROD BOOTS





M2 x 10 Screw (1)

M2.6 x 5 Screw (1) 67 Linkage Ball (1)

90 Speed Control

Spring (1) 92 Speed Control Nut (1)

93 Speed Control Contact (2)

99 Speed Control Retainer (1)

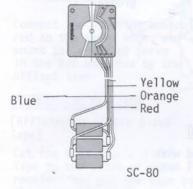
95 Speed Control Pivot (1)

M3 Nut (Gold Color) (2)

M2 Nut (2)

[How to convert into 4 speed]

This model is designed to go three speeds forward and one backward. You can modify it into four forward speeds with an optional resister which is wired in to give the fourth speed ahead.



SOLDER THE OPTIONAL RESISTOR $(5W-0.15 \text{ ohm } \times 3)$ as shown in the illustration.

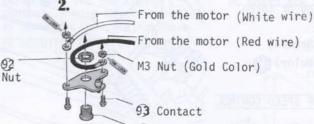
21 MOUNTING OF CERAMIC RESISTOR

[Small Part Needed]

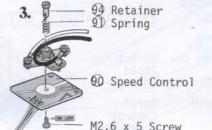
M3 x 8 Screw (2)

20 INSTALLATION OF SPEED CONTROL

1. -M2 x 10 Screw 67 Linkage Ball M2 Nut 65 Speed Control Horn M2 Nut



99 Pivot

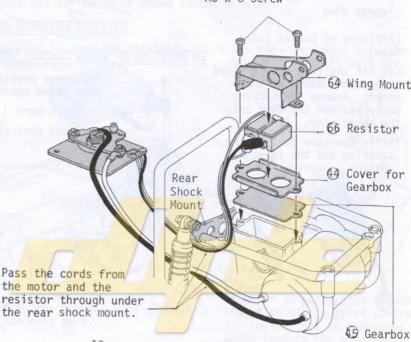


PC Board

Sea1

21 MOUNTING OF CERAMIC RESISTOR

M3 x 8 Screw



12

22 MOUNTING OF RADIO BOX

[Small Parts Needed]

M2.6 x 8 Screw (2)

M3 x 15 Screw (Gold Color) (2)

M3 Nut (Gold Color) (2)

23 INSTALLATION OF SPEED CONTROLLER

[Small Parts Needed]

M3 Nut (Gold Color) (2)

24 MOUNTING OF SPEED CONTROL SERVO

[Small Parts Needed]

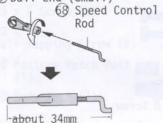
Ball End
 (Small) (1)



68 Speed Control Rod (1)

Screw in the ball end on the speed control rod.

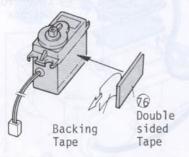
9 Ball End (Small)

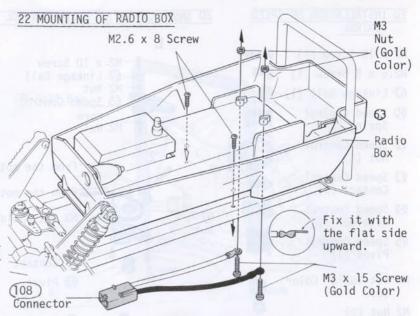


[Affixing of Double Sided Tape]

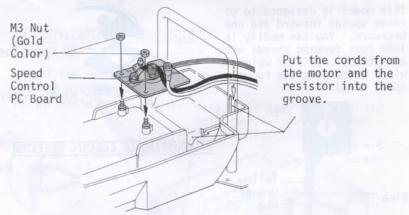
Cut off the foam double sided tape to the width of the servo. Remove the backing paper and put the tape onto the servo side.

*Affix the tape just on the steering and the speed control servos.

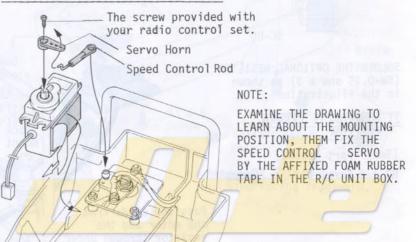


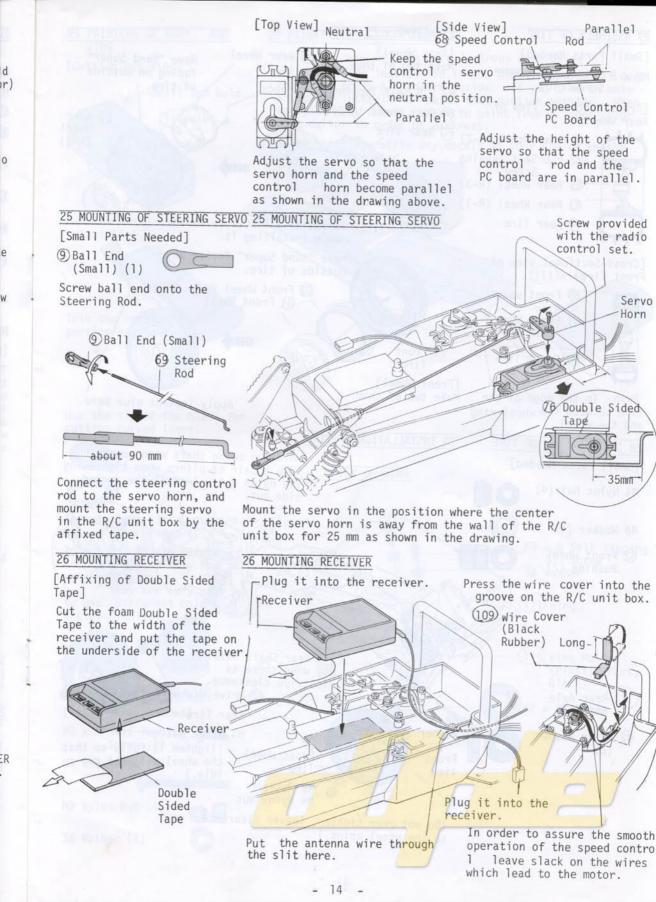


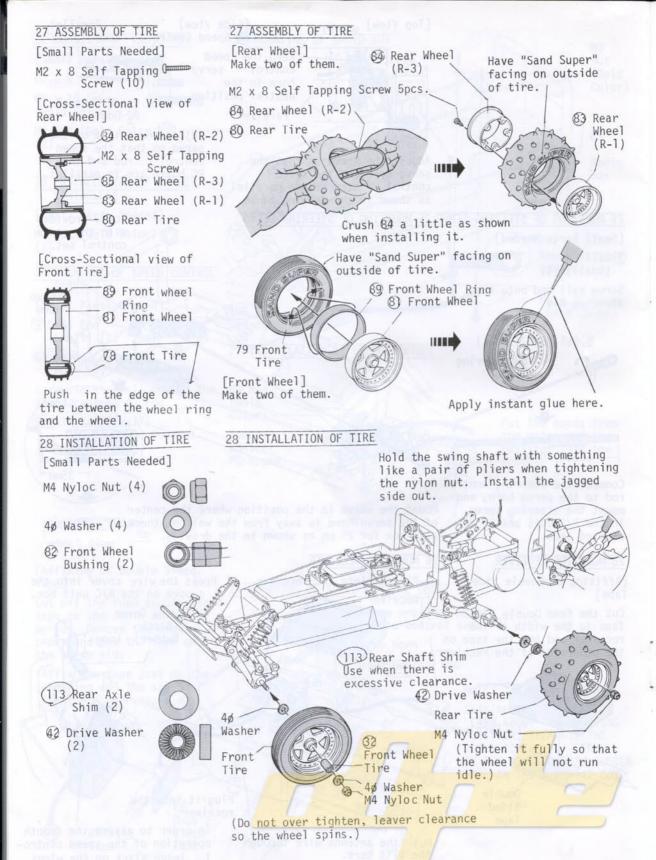
23 INSTALLATION OF SPEED CONTROL

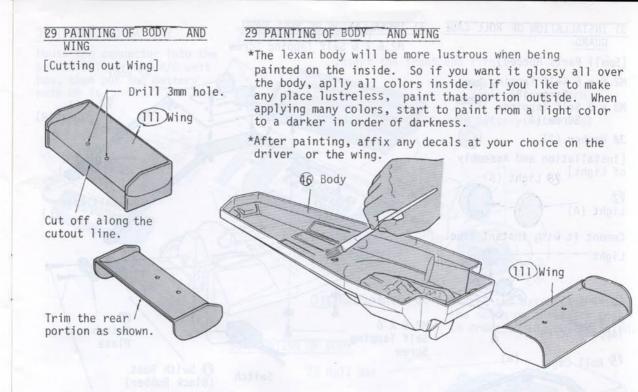


24 MOUNTING OF SPEED CONTROL SERVO









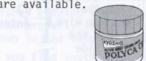
Use the tip of the blade for cutting curved lines.



For straight lines, use the base of the blades.

Polyca Colors are paints composed exclusively for painting lexan.

They are very easy to use. Different colors are available.

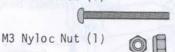


30 INSTALLATION OF WING

[Small Parts Needed]

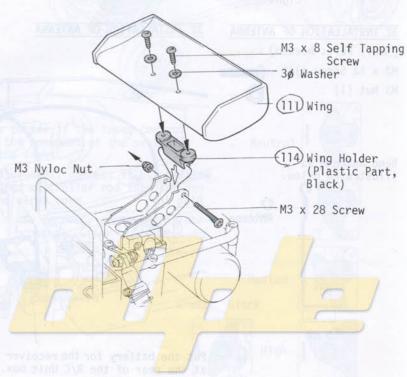
M3 x 8 Self Tapping Screw (2)

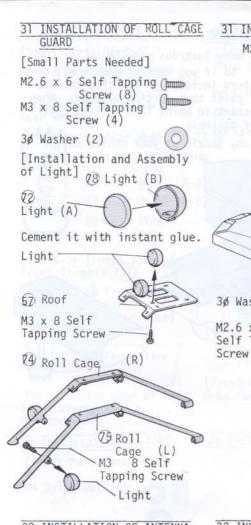
M3 x 8 Screw (1)

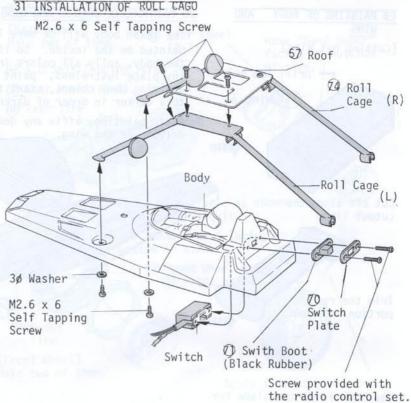


3ø Washer (2)

30 INSTALLATION OF WING





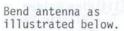


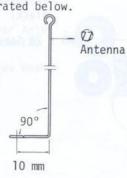
32 INSTALLATION OF ANTENNA

[Small Parts Needed]

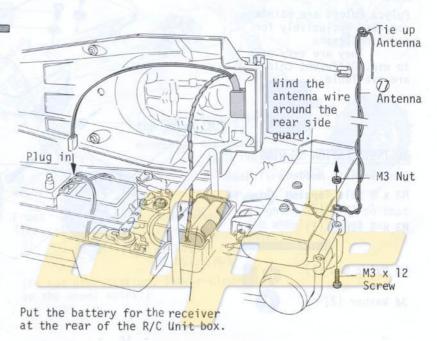
M3 x 12 Screw (1)

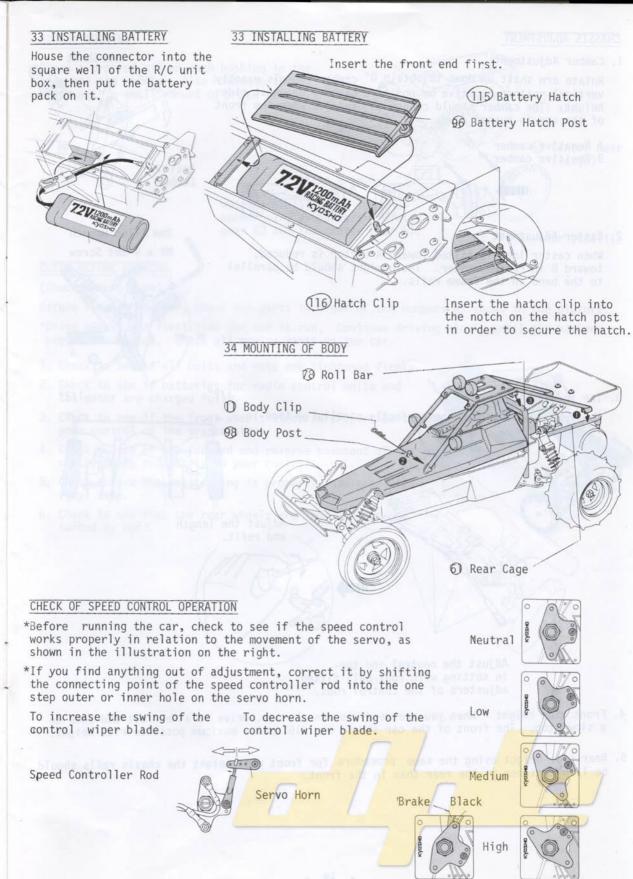
M3 Nut (1)





32 INSTALLATION OF ANTENNA



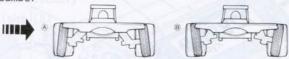


CHASSIS ADJUSTMENT

1. Camber Adjustment

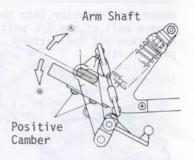
Rotate arm shaft up down to obtain 0° camber (wheels exactly vertical neither negative or positive camber) heighest ride height. The camber should change to negative when the front of the car is pushed down.

A Negative camber B Positive camber



2. Caster Adjustment

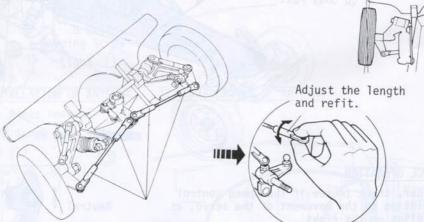
When caster lock is tilted foward A caster is reduced, toward B increases caster. The upright should be parallel to the bend in the frame rails.



2mm Allen Wrench M4 x 4 Set Screw

3. Toe in Adjustment

The front wheels should be perfectly parallel or toed-in 1° maximum.

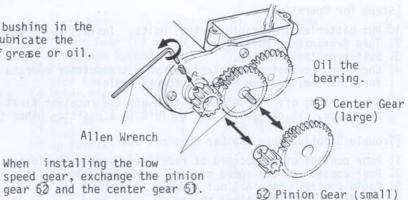


Adjust the neutral and toein setting with four ball fitted adjusters of the control rods.

- 4. Front ride height When you are ready to run the car, drive it a few feet and come to a slow stop. The front of the car should be 1/16" below maximum possible ride height.
- 5. Rear ride height using the same procedure for front ride height the chasis rails should be 1/16" heigher in the rear than in the front.

BEFORE RUNNING

Place a drop of oil on each bushing in the gear box and wheels. Also lubricate the gears with a small amount of grease or oil.



CHECK BEFORE RUNNING

[Check before Running]

Before running the car, check the parts in order of the numbers as shown in the picture. *Drive slowly the first time the car is run, Continue driving slowly until the battery needes recharging. Check all moving parts on the car.

1. Check to see if all bolts and nuts are tightened firmly.

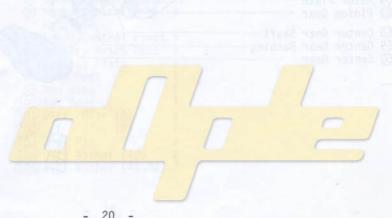
2. Check to see if batteries for radio control units and the motor are charged fully.

3. Check to see if the front wheels steer in proportion to your control of the transmitter.

4. Check to see if the forward and reverse movement of the car responds accurately to your control.

5. Check to see that all wiring is properly insulated with vinyl tape.

6. Check to see that the rear wheels are free and can be turned by hand.



[Steps for Operating]

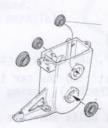
- 1. Put batteries into radio control units. Install main Ni-cad running battery.
- 2. Turn transmitter switch on.
- 3. Switch on the receiver.
- 4. Check to see that the controls of your transmitter operate correctly, right and left for steering, and low and high for throttle.
- * When turning off the switches, turn off the receiver first then transmitter. Otherwise, the car servos may be left in a position other than neutral.

[Trouble Shooting when the Car does not Start]

- 1. Poor contact of connectors of receivers, servos, batteries or of electric wiring.
- 2. Poor contact of the speed controller wiper blade.
- 3. Radio control units are out order.
- 4. Signal jamming from other radios.

OPTIONAL PARTS

Plain bearings are installed in the gear box and the front wheels. For less friction, replace them with the ball bearings which are available as optional parts.



4ø Bearing CK-63

6ø Bearing

EXPLODED VIEW OF GEAR BOX

NOTE: DIFF WASHER 80 (105) IS NOT BUILT IN. IF EACH GEARS HAVE TOO MUCH END PLAY. INSTALL AS SHOWN IN 0 ILLUSTRATION. 47 Spur Gear (101) Differential Gear (A) (102) Differential Gear (B) (106) Differential Washer (18ø) (104) Differential Washer 40 118 Differential Gear Guide (103) Differential Pin 48 Final Pinion (107) Rear Out Drive (B) 87 6¢ Bearing 43 Gear Box 87 6¢ Bushing 06) Rear Out Drive (A) 64 Motor Plate 62 Pinion Gear 49 Counter Gear 69 Center Gear Shaft 69 Center Gear Bushing 66 Gear Cover 50 Center Gear M3 Nyloc Nut

-	_	_	_	_	-
DA	D 7	FC	1 7	C 7	-
PA	· •				

P	AR	IS LIST					
N	lo.	Parts Name	Q'ty	No.	Parts Name	Q'ty	No. Parts Name Q't
	10000000 00000000000000000000000000000	Front Bumper Chassis Rails Arm Shaft Arm Shaft Biocks Lower Arm (L,R) Caster Locks Upper Control Link (Rod) Pillow Ball Ball End (S) Upright Body Clip Steering Knuckle Tie Rod (Rod) Decal Rear Sus. Arm	1 2 1 2 1 set 1 " 2 8 2 2 1 1 set 2 1 2 1	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Pinion Gear (L) (for High Speed) Pinion Gear (S) (for Low Speed) Motor Plate Center Gear Shaft Gear Cover Roof 4ø Bushing Center Gear Bushing Motor Cover Rear Cage Upper Hal Rear Cage Lower Hal Radio Box Wing Mount Speed Control Horn	1 1 1 1 1 1 2 1 1 1	106 Diff. Out Drive (A) 1 107 Diff. Out Drive (B) 1 108 Connector 1 109 Wire Cover 1 110 Oil 1 111 Wing 1 112 Rear Axle Bearing 4 113 " " Shim 2 114 Wing Holder 1 115 Battery Hatch 1 116 Battery Hatch 1 117 Allen Wrench (2mm) 1 118 Diff. Gear Guide 2 119 Shock Seal 4
	17	Servo Saver Mount Servo Saver Rear Shock Body	l lset 2	67	Resistor Linkage Ball Speed Control Rod	2 2 1	
	19	Shock Washer	4	69	Steering Rod	i	[OPTIONAL PARTS]
		Shock O-Ring Shock Guide	4		Switch Plate Switch Boot	1	CB-86 Nylon Super Spike
	22	Shock End	4	73	Light (A)	4	CK-63 4ø Bearing (2 pcs.)
		Shock Bush Shock Ball	4	74	Light (B) Roll Cage (R)	4	Control Andrews of the Control of th
		Ball End (Large)	8	75	Roll Cage (L)	i	MS-26 6¢ Bearing (2 pcs.)
		Shock Piston Rod	2	76	Double Sided Tape	1	SC-58 Heatsink
	57	(Front) Shock Piston Rod	2		Antenna Roll Bar	1	SC-61 Second Gear
	E1	(Rear)			Front Tire	2	SC-80 Resistor for 4 speed
	-	Front Shock Fowers	2	-	Rear Tire	2	Control
		Rear Shock Mount Rear Chasis Plate	1		Front Wheel Bearing	2	SC-27 Rear Tire
		Rear Sus. Plate	1		Rear Wheel (R-1)	2	
		Rear Sus. Shaft	2	84	" (R-2)	2	
	83	Rear (suspension	2	85	(R-3)	2	
	34	arm) Posts (S) Rear (suspension	2	87	Spring Platform 6¢ Bushing	4	
	09	arm) Posts (L)	_		Allen Wrench (1.5mm		
	35	Front Spring	2		Front Wheel Ring	2	
		Rear Spring	2	90	Speed Control	1	
	3/	Front Shock Body Spring Collar	2	61	PC board Speed Control	1	
		Drive Shaft	2	0)	Spring	4	
		Rear Axle	2	93	Speed Control Nut	1	
		Shock Wrench	1		Speed Control Contac	£2	
		Rear Drive Hub	2	99	Speed Control Retainer	1	
		Gear Box Gear Box Cover	1	99	Speed Control Pivot	1	
		Gear Box Seal	1		Battery Hatch Post	1	
		Body	1	97	Fitting Plate	1	
	47	Spur Gear	1		Body Post	1/	
		Final Pinion	1	100	Rod Ring Rod Boot	1/	
	43	Counter Gear (w/shaft)	1		Diff. Gear (A)	2	The state of the s
	50	Center Gear	1		" " (B)	2 2 2	
		(for High Speed)	1	103	Diff Pin		
	6)	Center Gear	1		Diff Washer (4ø)	2	
		(for Low Speed)		(105	Diff Washer $(40,80)$	2/	

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Parts No.	Description	Includes these parts
SC- 2	Chassis Rails	A WARE THE RESERVE OF THE PARTY
3	Arm Shaft Set	(2 x 2 (3) x 1 (4) x 2
4	Lower Arm Set	5)6)x 1 set
7	Steering Knuckle Set	12 x 1 set
9	Servo Saver Mount	16 x 1
12	Front Shock Towers	28 x 2
13	Rear Chassis Plate	29 x 1
14	Gear Box Mount	30 x 1
17	Drive Shaft	39 x 2
18	Rear Axle	40 x 2
19	Rear Wheel Bushings	1)2 x 4
20	Drive Hub	42 x 2
21	Rear Cage Set	6) x 1 62 x 2
84	Special Rear Tire	80 x 2
36	Gear Cover and Motor Plate Set	59 59 56 x 1
37	Gear Box Bushing Set	69 x 1 58 87 x 2
	Motor Cover	60 x 1
	Servo Saver	17 x L
42	Rear Suspension Arm	(15 x, 2)
	Antenna Guide	77 x 1
46	Double Sided Tape	76 x 1
56	Differential	47 106 107 x 1 101 102 103 104 105 118 x 2
60	Diff. Replacement Gears	47 x 1 10D 102 103 104 105 x 2
	Front Wheel Bushing	82 x 2
	Front Bumper	①x 1
10.77.07	Speed Control Connector	65 90 91 92 94 95 x J 93 x 2
	PC Board	108 x 1
	Speed Control Contact Points	90 x 1
83	Final Pinion Gear	93 x 2
85	Rear Shocks (Special)	48 x 1 41 x 1 18 (9 20 2) 22 23 24 27 36 38 86 (119x)
	Diff. Rear Out Drives	106 107 x 1
	Rear Suspension Plate Set	31 x 1 32 33 34 x 2
	Upper Control Link Set (Turbo)	7 x 2 8 25 x 4
	Upright Set	810 x 2
	Tie Rod Set (Turbo)	13 x 2 8 25 x 4
	Special Front Tire	79 x 2
	Front Wheel (Turbo)	8) · 89 × 2
	Rear Wheel (")	83 84 85 x 2
	Screw Set (")	Screw, Nut Wrench Set
	Decal (")	14 x 1
95	Linkage Set (")	63 99 x 1 9 67 x 2
96	Radio Box (")	63'109 115 x 1
97	Roll Cage (")	57 74 75 x 1
	Roll Bar (")	78 x 1
	Body (")	46 x 1
100	Wing Set (")	64(11)(114) x 1
	Rear Axle Shim	113 x 10
	Samll Parts Set (")	44 96 97 98 116 x 1
103	Special Gear Set (B)	60 60 52 53 x 1
105	Resistor	66 x 1
	0il	(110 x 1
	Light Set	72 73 x 4
30	Front Shock (Special)	4) x 1 19 20 2) 22 23 24 26 35 37 38 86
RS-13	Gear Case	43 45 x 1
	Gear Set (A)	48 49 x 1
	Linkage Boots	70 71 99 100 x 1
OD ILT	- Illinage Boots	10 11 03 100 X 1