MUGEN

BULLDOG II

A.W.D.S. SUPER OFF-ROADER

1/10th SCALE

ELECTRIC POWERED RADIO CONTROLLED

SPECIAL OFFROADER

good performance even in the hands of a beginner
high-traction tires give good roadholding and stability

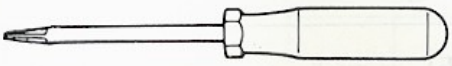
MABUCHI RS-540S INCLUDED – REQUIRES 2 CH. RADIO AND 7.2V-1200 mAH NI-CD BATTERY

INSTRUCTION MANUAL

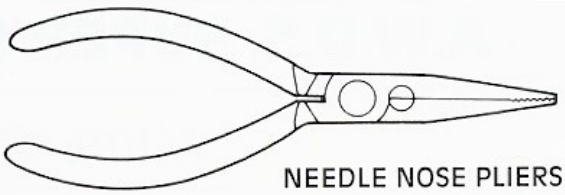
MUGEN
RADIO CONTROL ELECTRIC RACING OFFROADER

varicom INDUSTRIES, INC.
18480 BANDILIER CIRCLE
FOUNTAIN VALLEY, CA 92728-8610

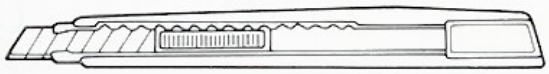
1. TOOLS NEEDED FOR ASSEMBLY



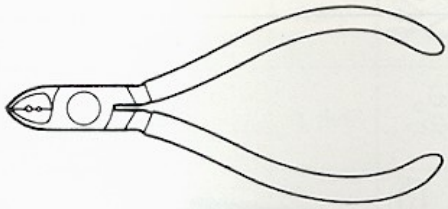
BLADE & PHILLIPS SCREWDRIVERS



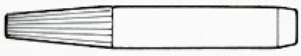
NEEDLE NOSE PLIERS



HOBBY KNIFE

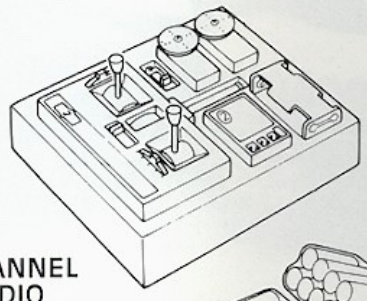


DIAGONAL CUTTERS

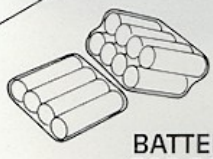


INSTANT GLUE

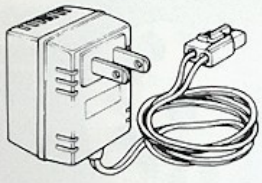
2. OTHER ITEMS NEEDED TO COMPLETE KIT



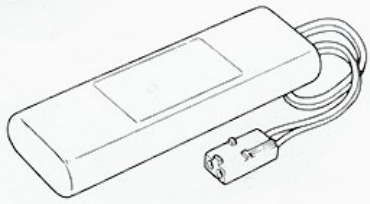
2 CHANNEL RADIO



BATTERIES FOR RADIO

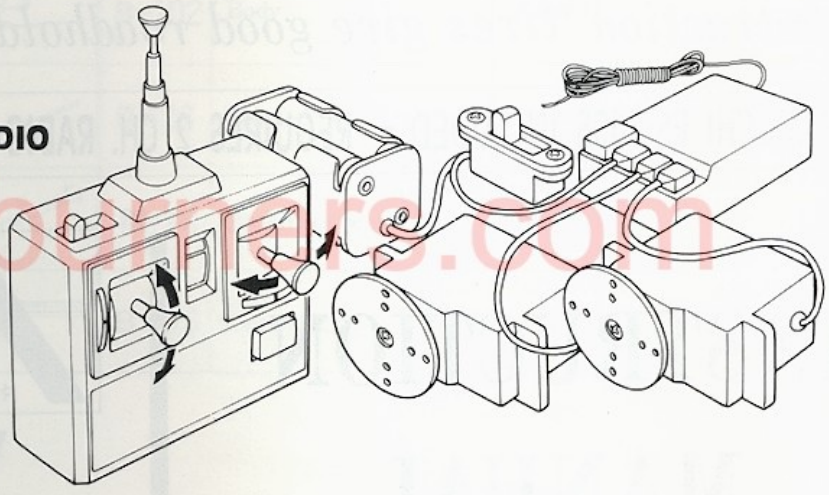


BATTERY CHARGER FOR NI-CDS



7.2V 1200 mAH NI-CD BATTERY

3. NEUTRAL SETTING OF THE RADIO

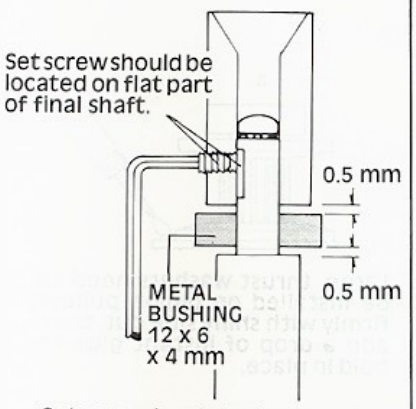


Radio must be set at neutral position before installing in the kit.

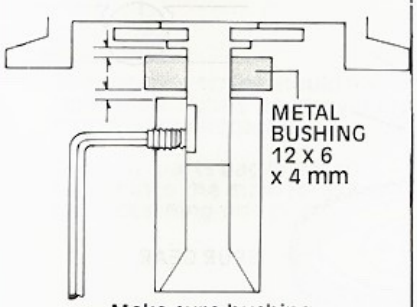
Sequence to set neutral:
1). Turn on transmitter.
2). Turn on receiver.
3). Set tranmitter trims in center position.
4). Turn off receiver.
5). Turn off transmitter.

NOTE: Carefully read the instruction manual of your 2 channel radio before using.

4. FRONT/REAR DIFFERENTIAL GEAR ASSEMBLY

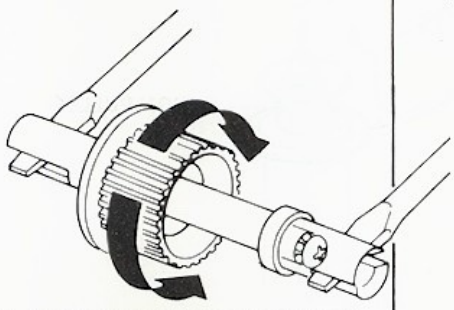


Set screw has to be loosened to adjust differential.

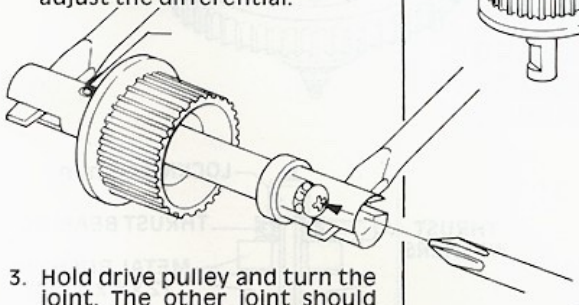


Make sure bushing rotates freely.

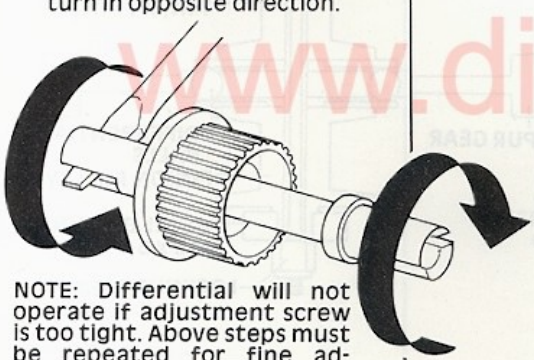
1. Drive pulley should not rotate on shaft.



2. If drive pulley rotates on shaft, tighten adjustment screw slightly. The set screw on the joint needs to be loosened to adjust the differential.

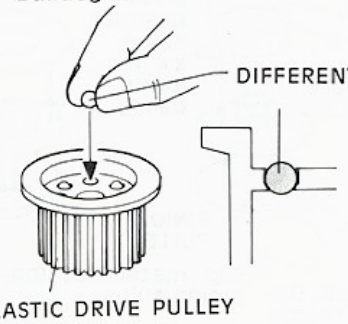


3. Hold drive pulley and turn the joint. The other joint should turn in opposite direction.



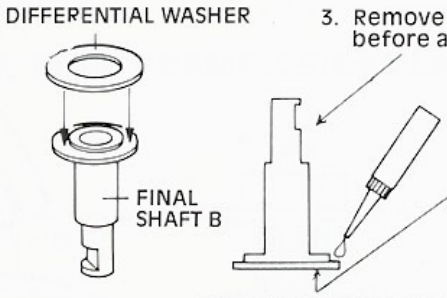
NOTE: Differential will not operate if adjustment screw is too tight. Above steps must be repeated for fine adjustment.

1. The front and rear differentials are already assembled in Bulldog II.



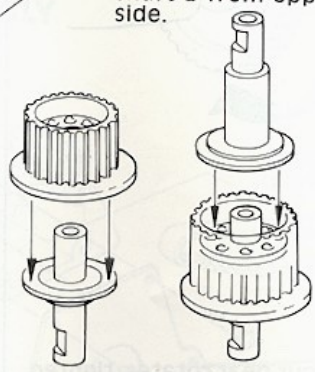
2. Small thrust washers need to be installed on shaft A and B firmly with shiny side out. Then add a drop of instant glue to hold in place.

3. Remove oil from shafts before assembly.



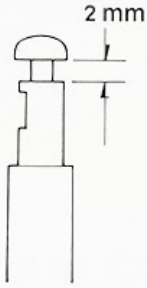
Do not allow any glue on shiny side of thrust washers.

4. Install final shaft A on shallow side of drive pulley. Install final shaft B from opposite side.

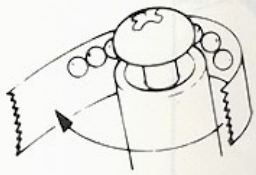


5. Adjustment screw (parts bag A-3). Put a very slight bend in the threaded end of the adjustment screw.

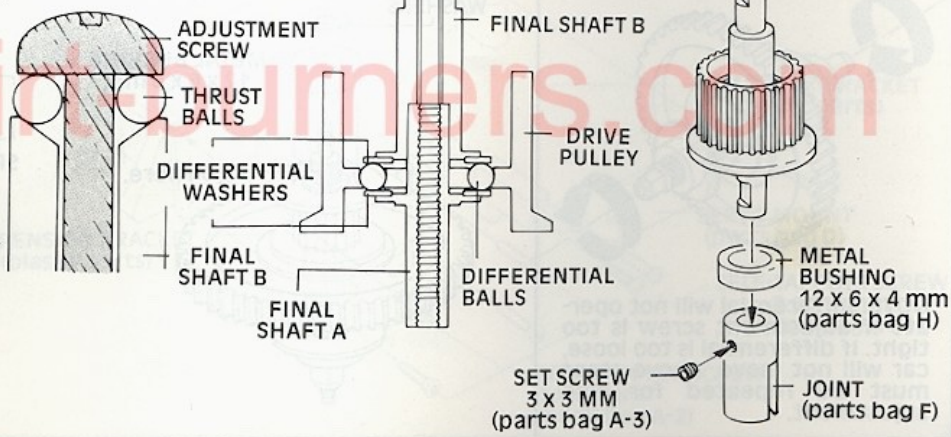
Maintain a gap of 2 mm between the final shaft B and the screw head as shown.



6. Remove tape after adjustment screw is tightened. Install only 8 of the small thrust balls under the head of the adjustment screw.

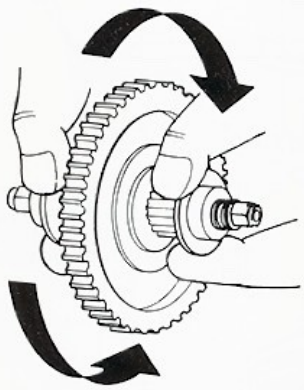


Keep thrust balls in a small box.

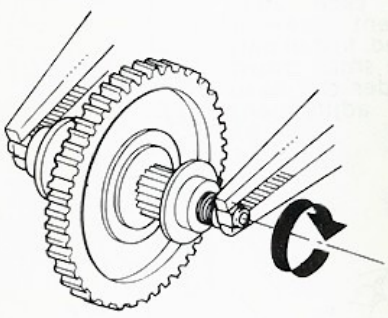


Center Differential Adjustment

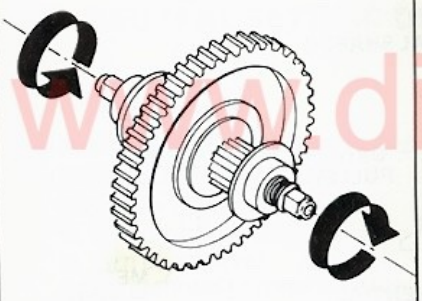
Spur gear should not rotate after assembly when holding pulleys.



If the spur gear rotates, tighten nuts as shown.



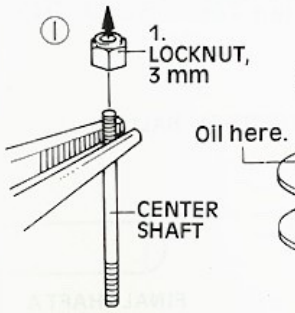
Hold the spur gear and turn the pinion pulley. The other pulley should turn in the opposite direction.



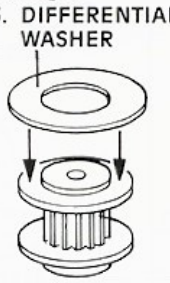
NOTE: Differential will not operate if adjustment screw is too tight. If differential is too loose, car will not move. Above steps must be repeated for fine adjustment.

5. CENTER DIFFERENTIAL GEAR ASSEMBLY

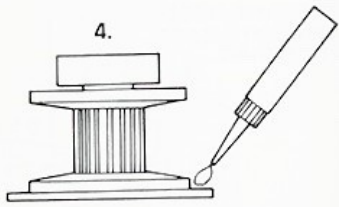
(Already assembled in the Bulldog II)



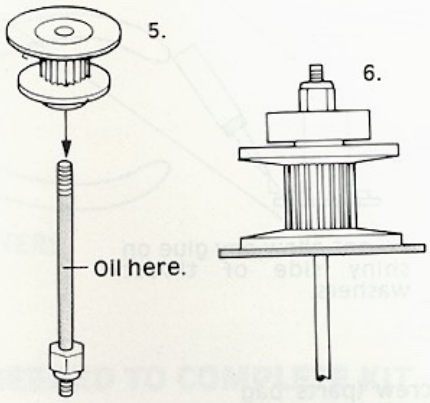
Do not damage threads. Differential will not rotate properly if the shaft is damaged.

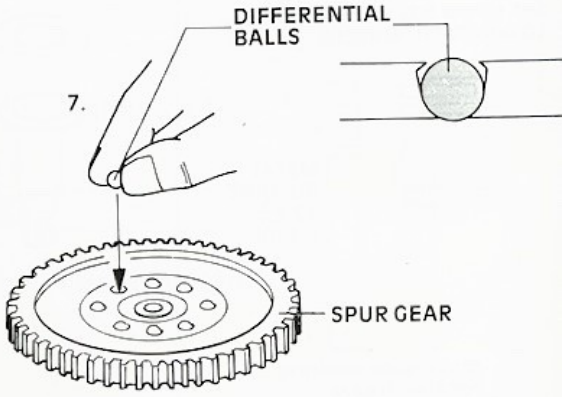


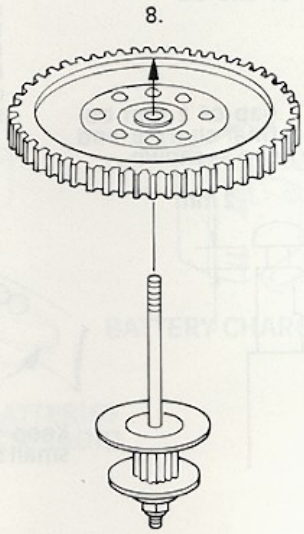
Slip metal bushing onto pinion pulley.

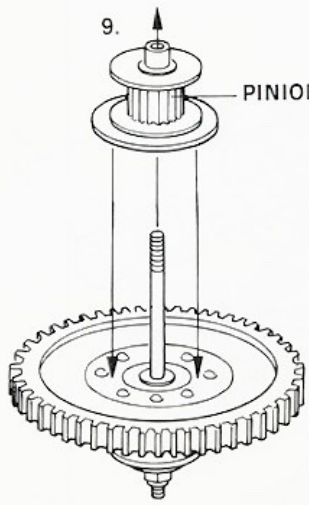


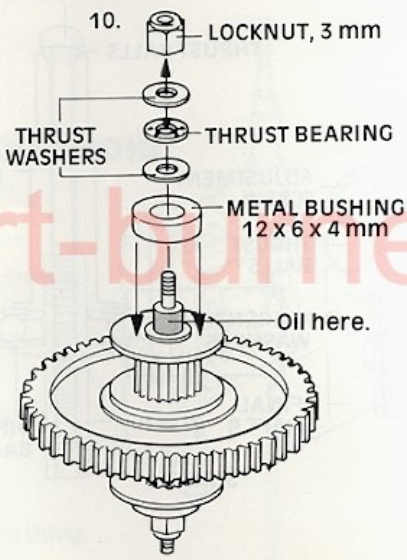
Large, thrust washers need to be installed on pinion pulleys firmly with shiny side out, then add a drop of instant glue to hold in place.

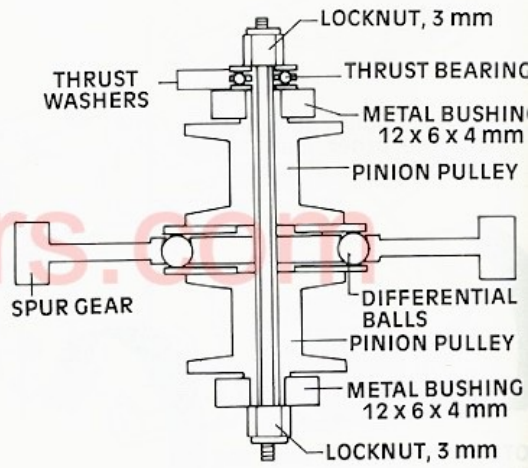




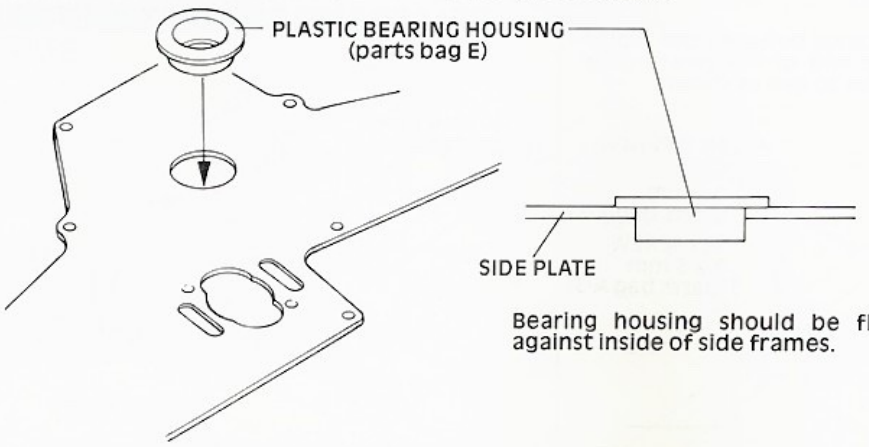








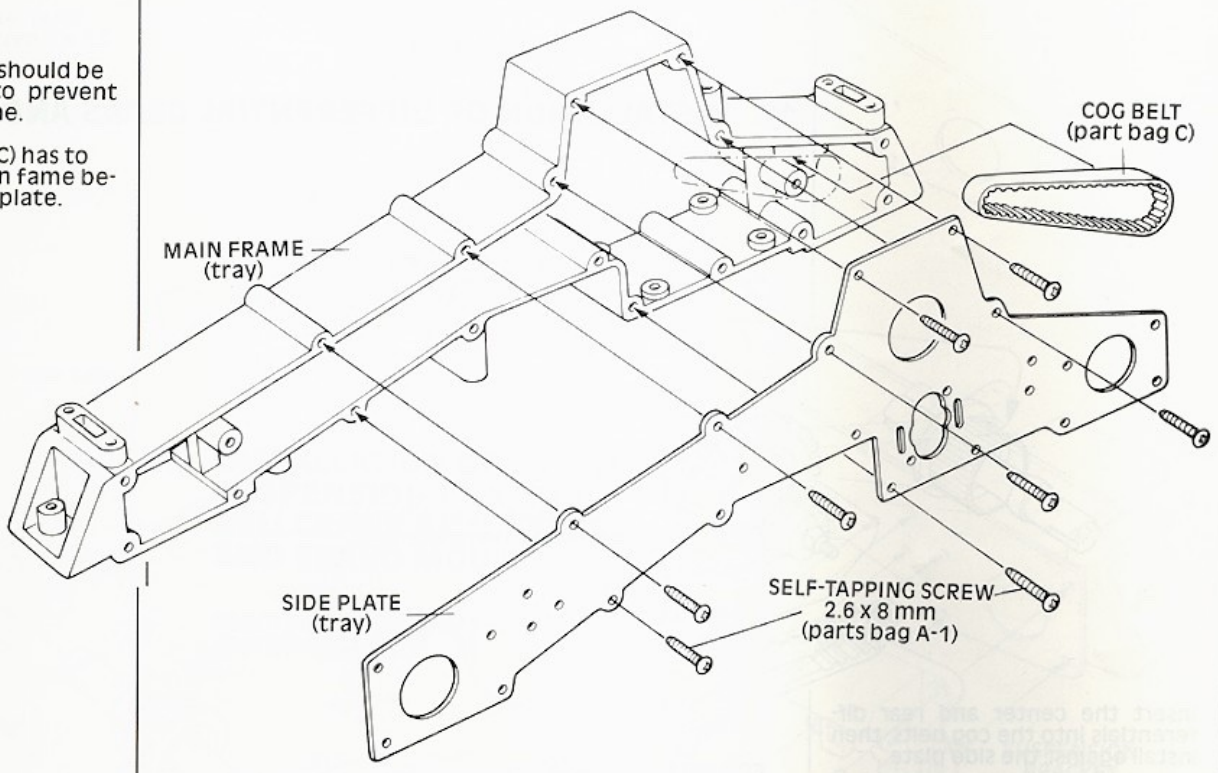
6. ASSEMBLY OF PLASTIC BEARING HOUSING



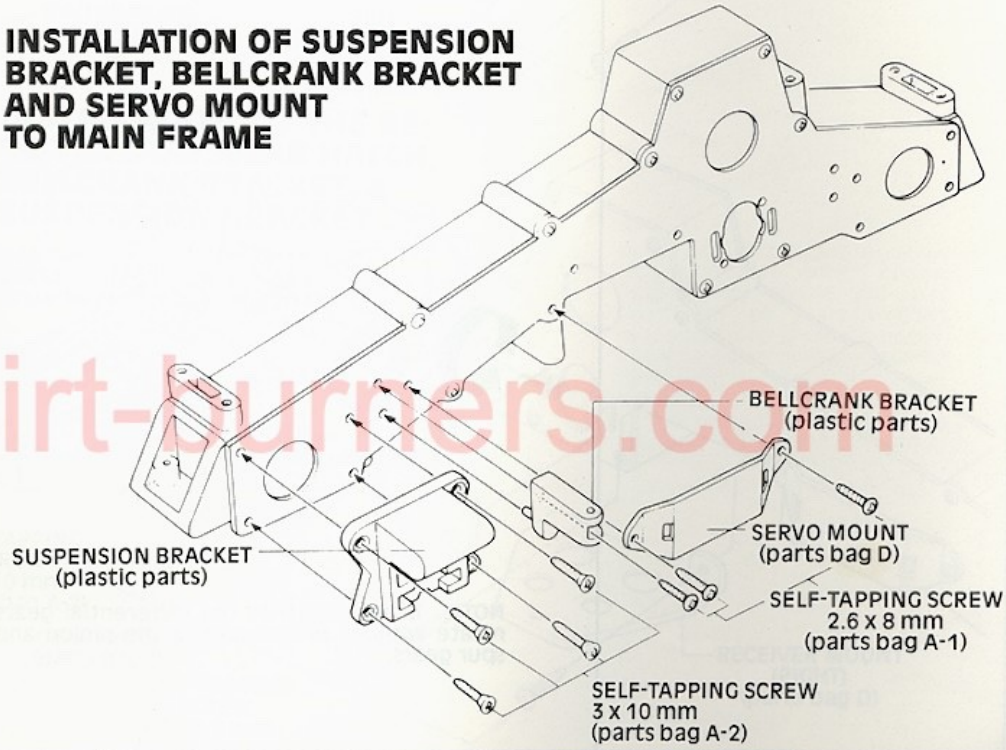
Bearing housing should be flush against inside of side frames.

7. MAIN FRAME & SIDE PLATE ASSEMBLY

1. Self-tapping screw should be tightened lightly to prevent stripping main frame.
2. Cog belt (parts bag C) has to be put into the main fame before attaching side plate.

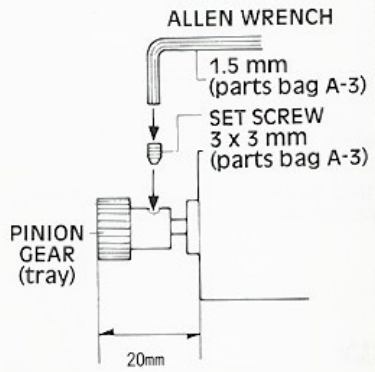


8. INSTALLATION OF SUSPENSION BRACKET, BELLCRANK BRACKET AND SERVO MOUNT TO MAIN FRAME

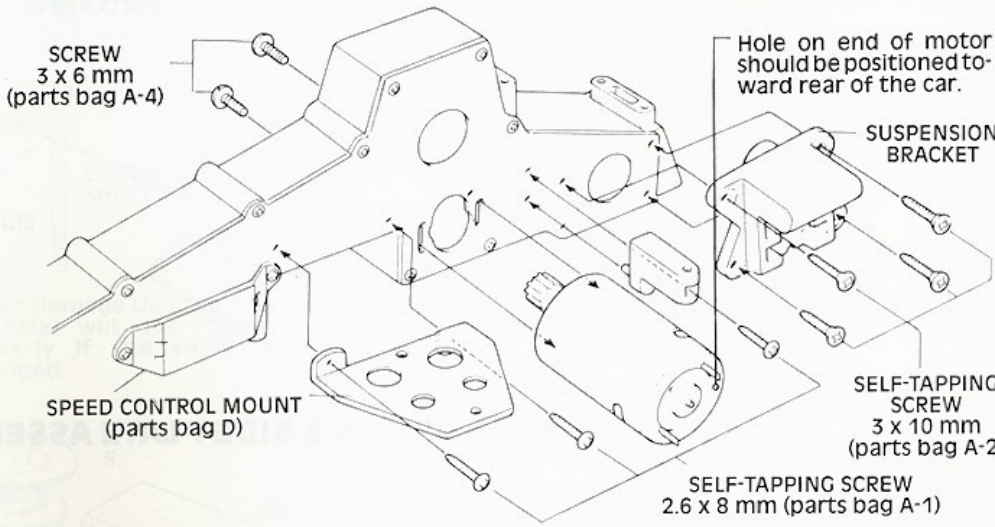


PINION GEAR ASSEMBLY

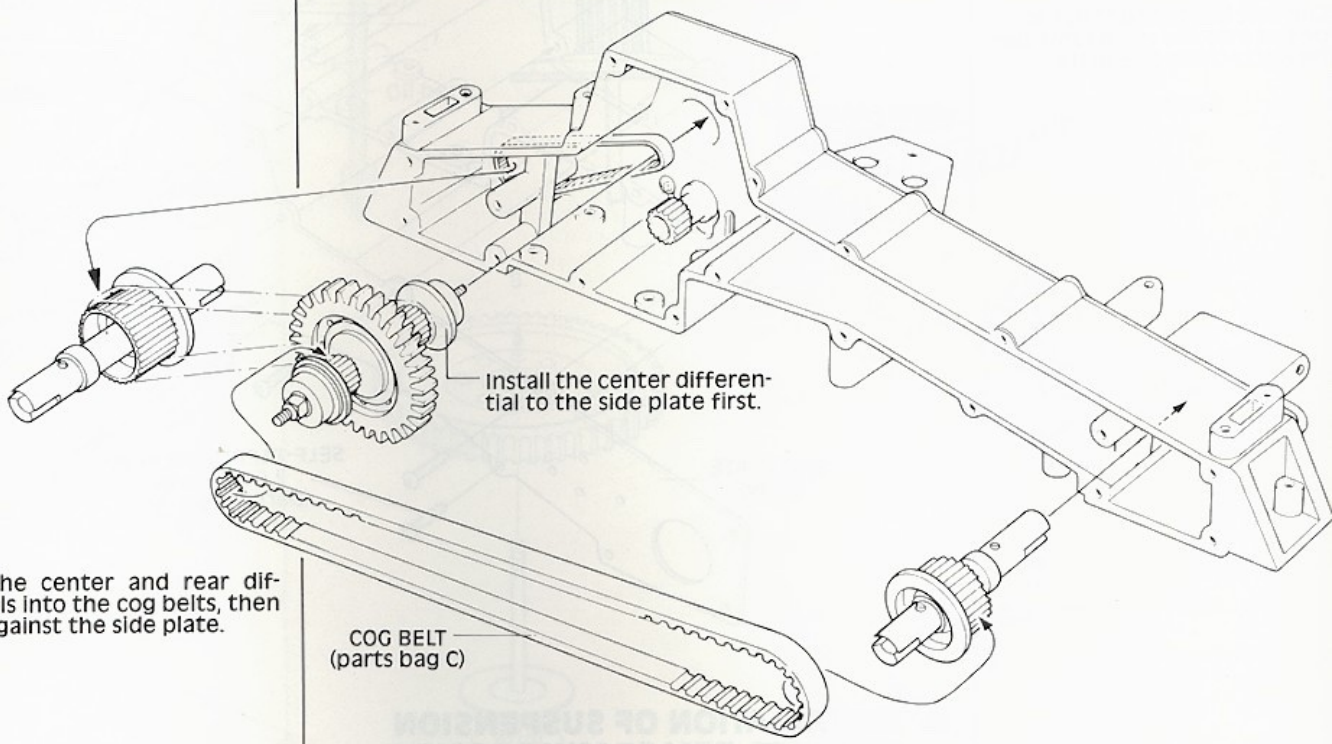
The distance between the motor and the end of the pinion gear should be 20 mm as shown.



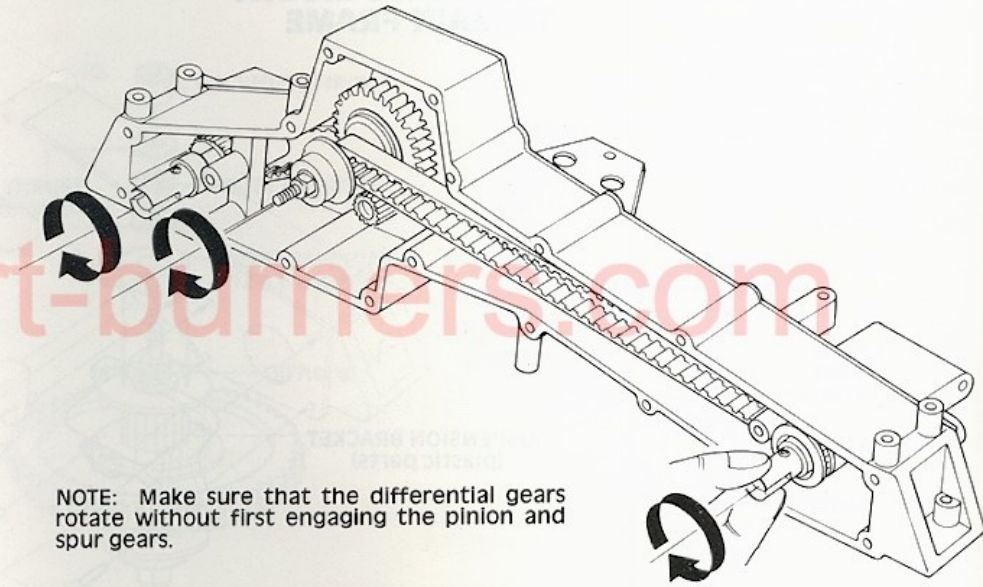
9. INSTALLATION OF SPEED CONTROL MOUNT, MOTOR, BELLCRANK BRACKET AND REAR SUSPENSION BRACKET



10. INSTALLATION OF DIFFERENTIAL GEARS AND BELTS

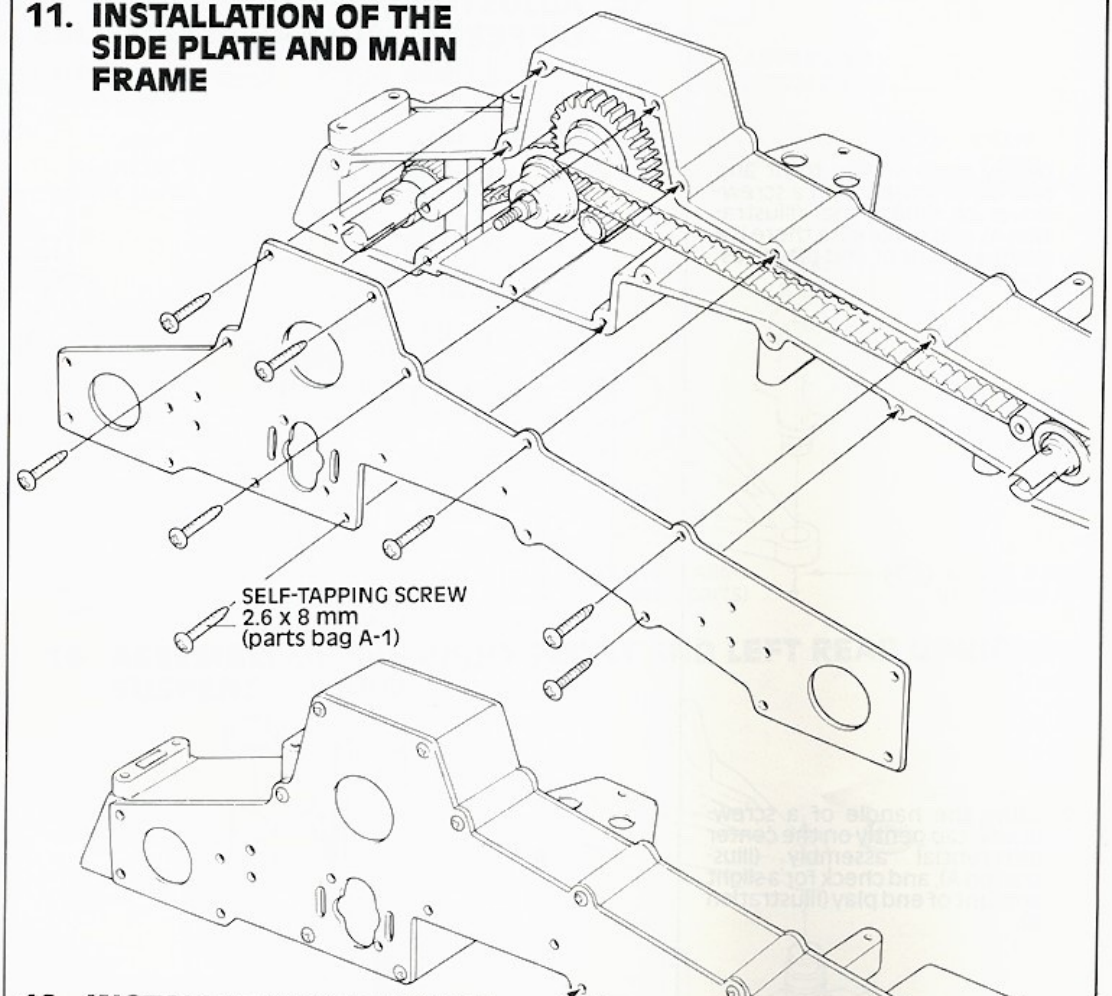


Insert the center and rear differentials into the cog belts, then install against the side plate.

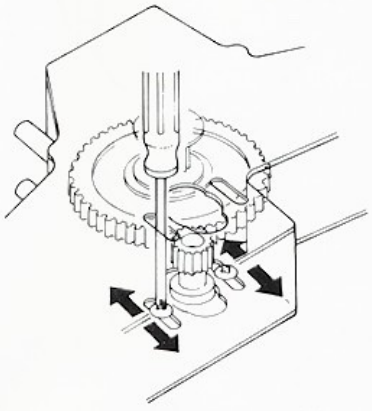


NOTE: Make sure that the differential gears rotate without first engaging the pinion and spur gears.

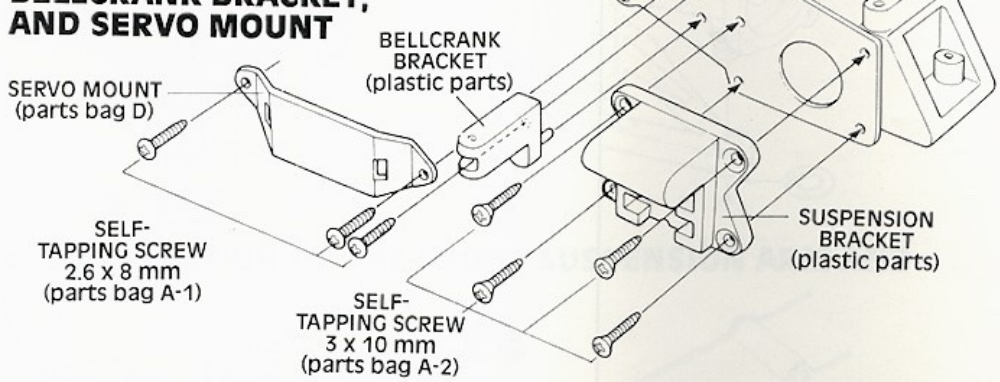
11. INSTALLATION OF THE SIDE PLATE AND MAIN FRAME



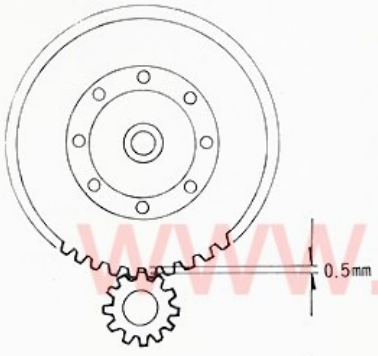
Do not over tighten the self-tapping screws.



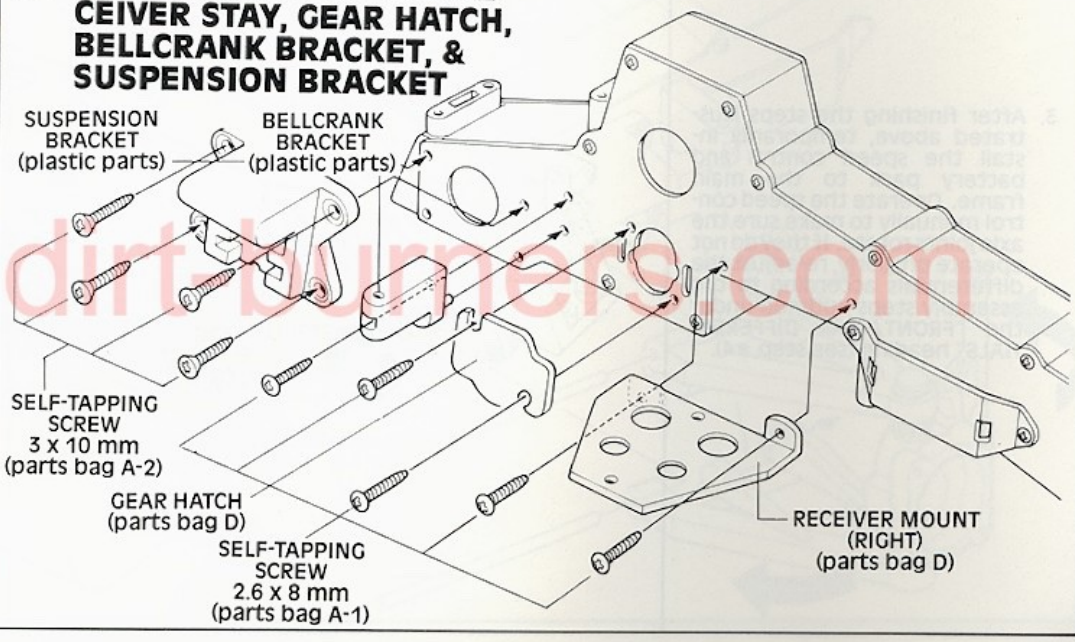
12. INSTALLATION OF FRONT SUSPENSION BRACKET, BELLCRANK BRACKET, AND SERVO MOUNT



Tentatively adjust the gear mesh before installing the gear hatch.

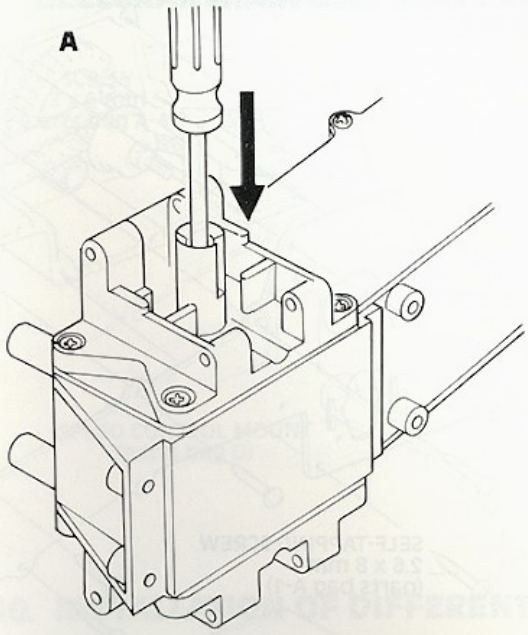


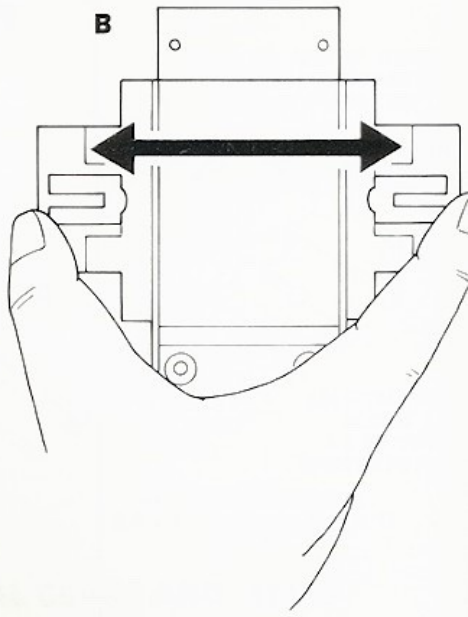
13. INSTALLATION OF THE RECEIVER STAY, GEAR HATCH, BELLCRANK BRACKET, & SUSPENSION BRACKET



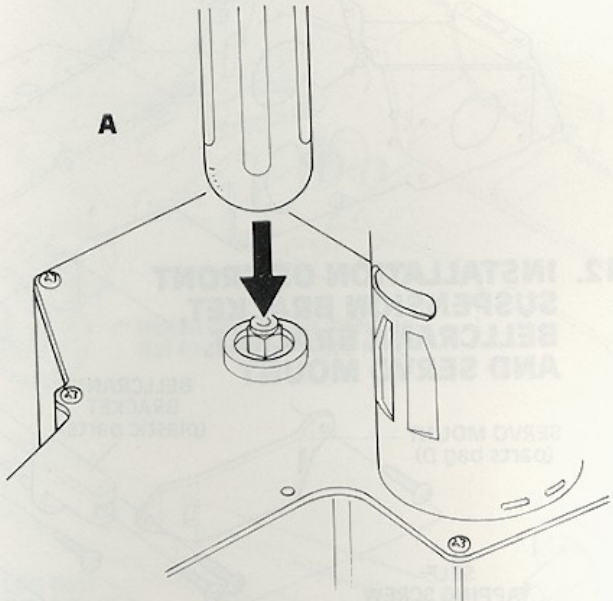
14. ADJUSTMENT OF SIDE PLAY OF FRONT/CENTER/REAR DIFFERENTIAL GEAR ASSEMBLIES

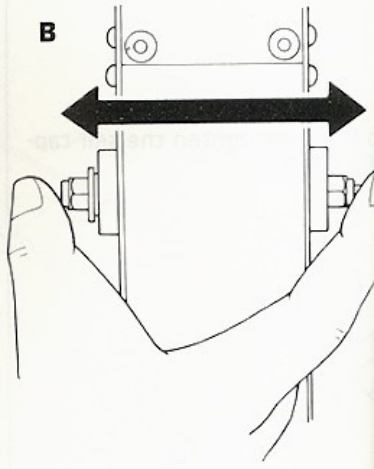
1. Gently press on the front and rear differentials with a screwdriver or similar tool (illustration A), and make sure there is a slight amount of end play (illustration B).



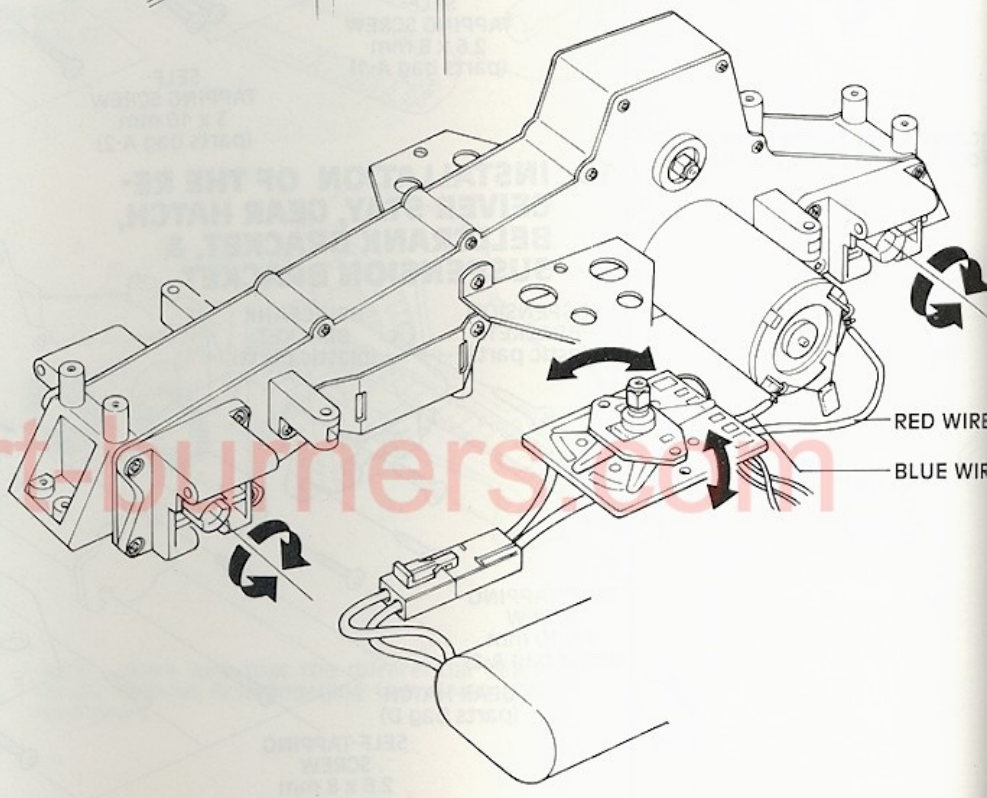


2. Using the handle of a screwdriver, tap gently on the center differential assembly (illustration A), and check for a slight amount of end play (illustration B).

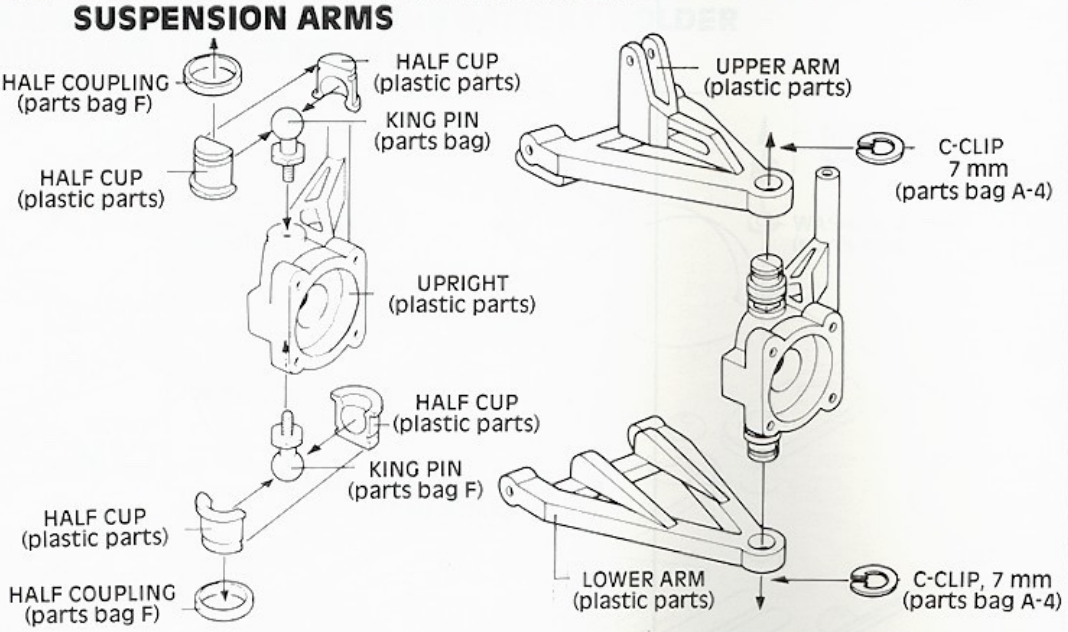




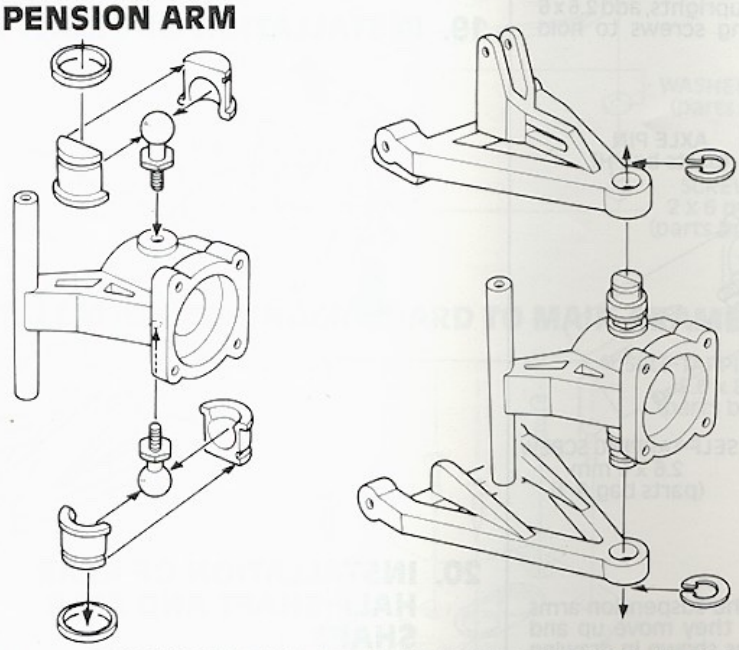
3. After finishing the steps illustrated above, temporarily install the speed control and battery pack to the main frame. Operate the speed control manually to make sure the axle joints rotate. If they do not operate properly, re-adjust the differentials according to the assembly steps outlined under the "FRONT/REAR DIFFERENTIALS" heading (see step #4).



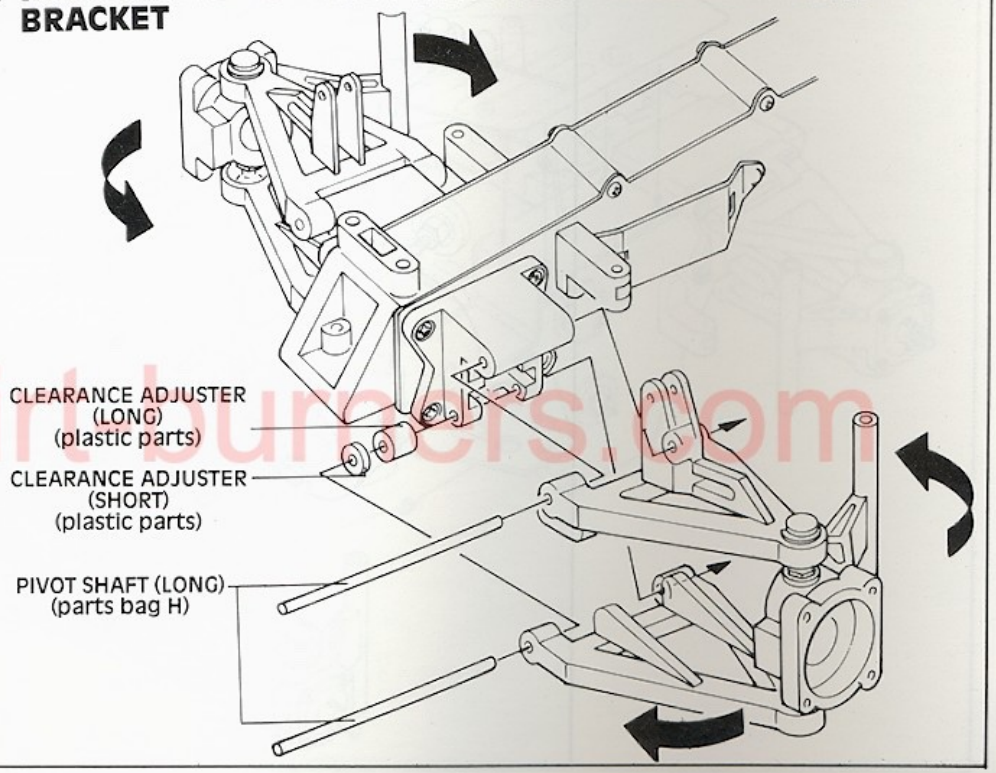
15. ASSEMBLY OF THE LEFT FRONT AND RIGHT REAR UPRIGHT SUSPENSION ARMS



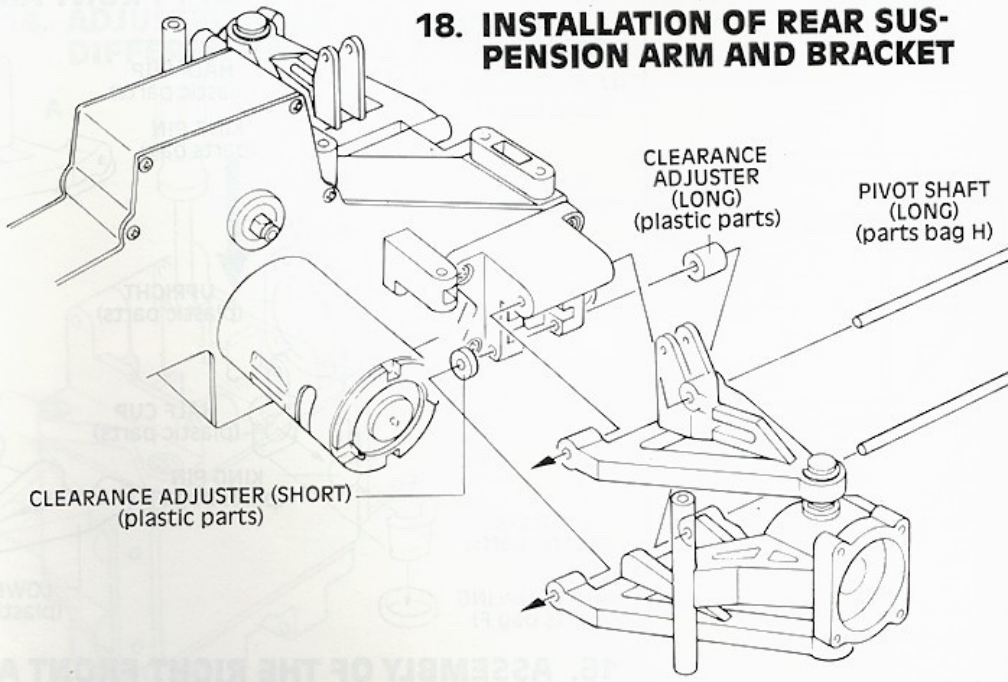
16. ASSEMBLY OF THE RIGHT FRONT AND LEFT REAR UPRIGHT SUSPENSION ARM



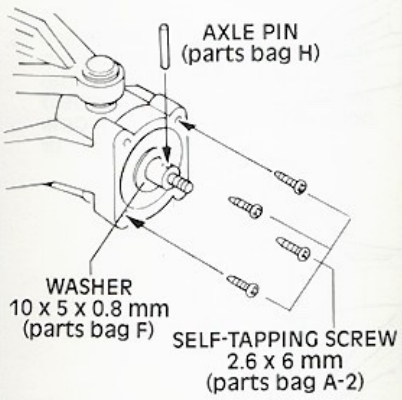
17. INSTALLATION OF THE FRONT SUSPENSION ARM AND BRACKET



18. INSTALLATION OF REAR SUSPENSION ARM AND BRACKET

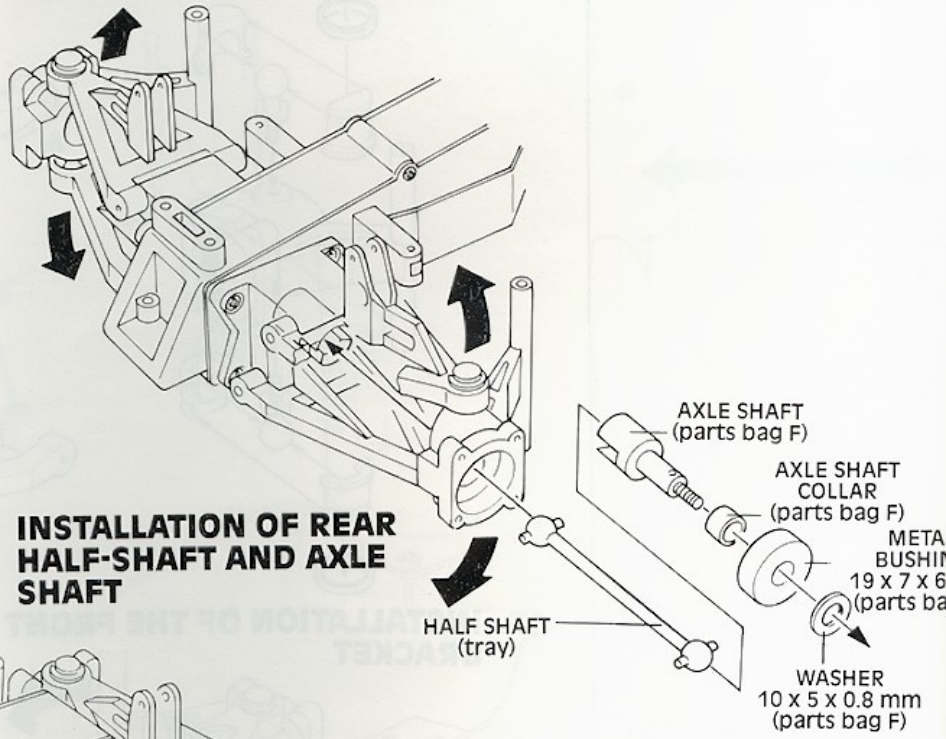


After axle shafts and bushings are installed in the uprights, add 2.6 x 6 mm self-tapping screws to hold them in place.

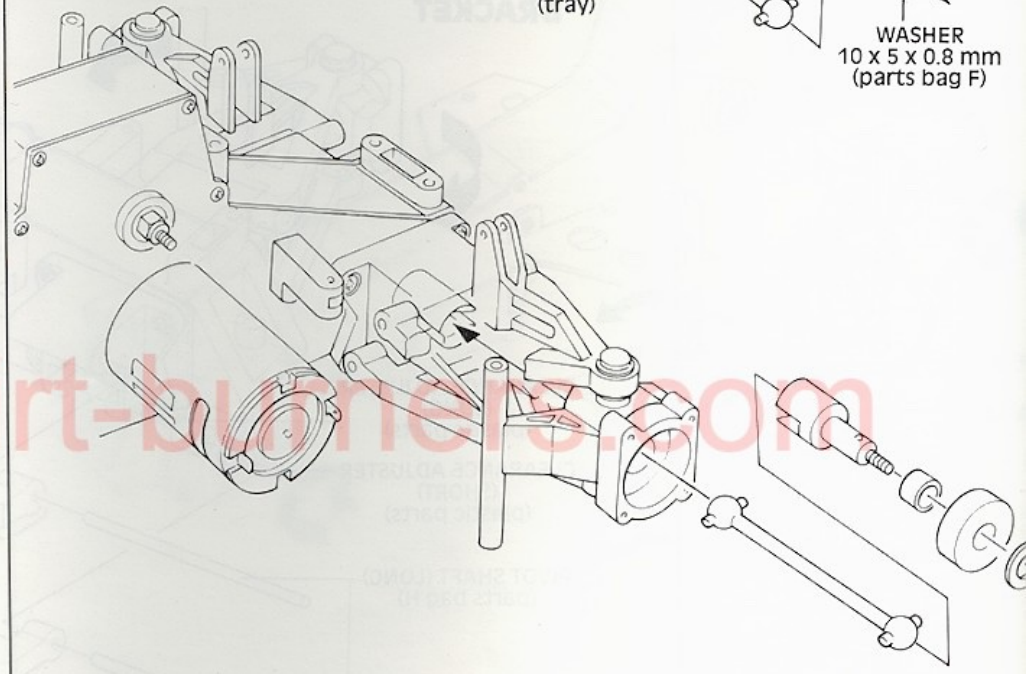


NOTE: Check the suspension arms to make sure they move up and down freely, as shown in drawing #19.

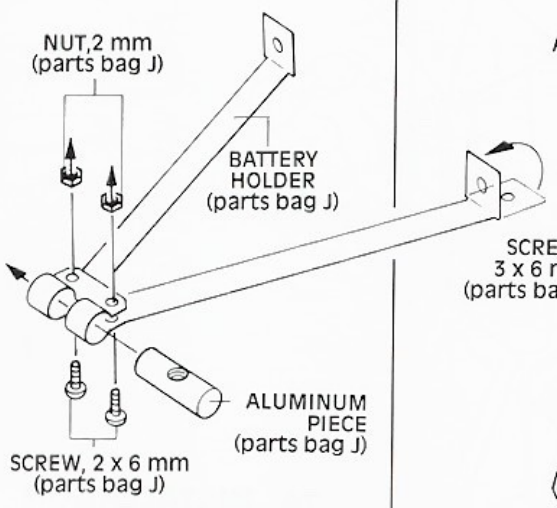
19. INSTALLATION OF FRONT HALF-SHAFT AND AXLE SHAFT



20. INSTALLATION OF REAR HALF-SHAFT AND AXLE SHAFT

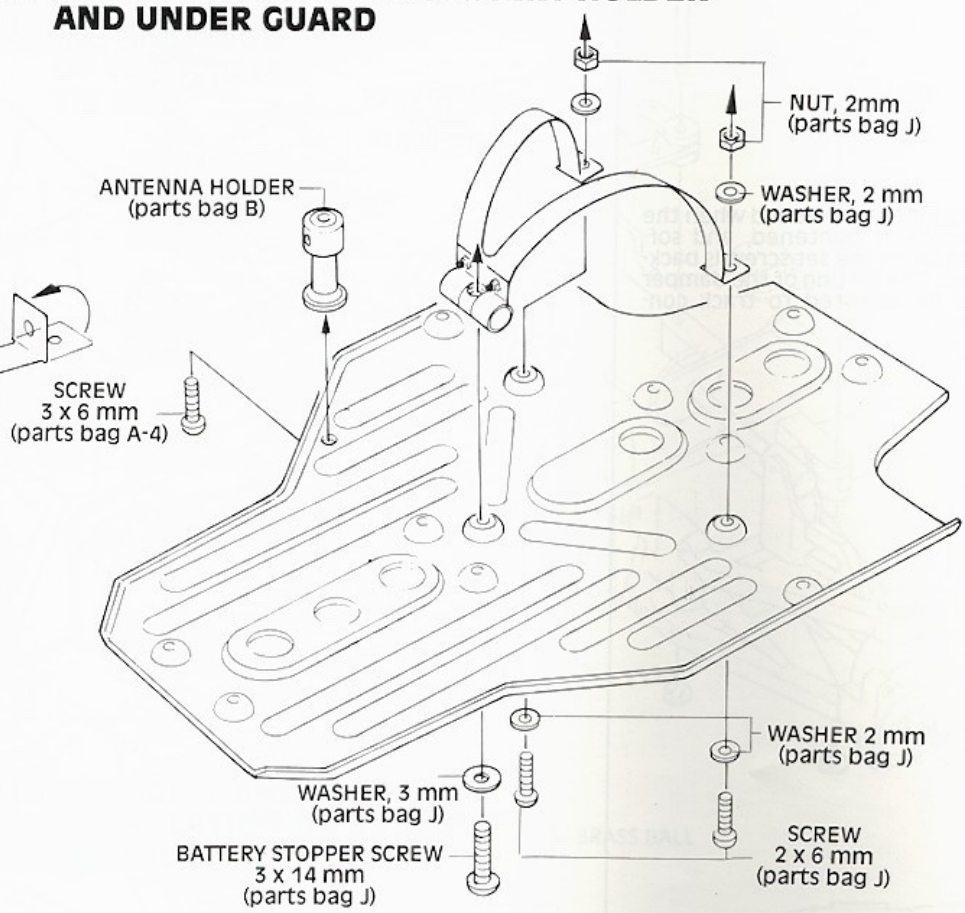


Assembly Of Battery Holder

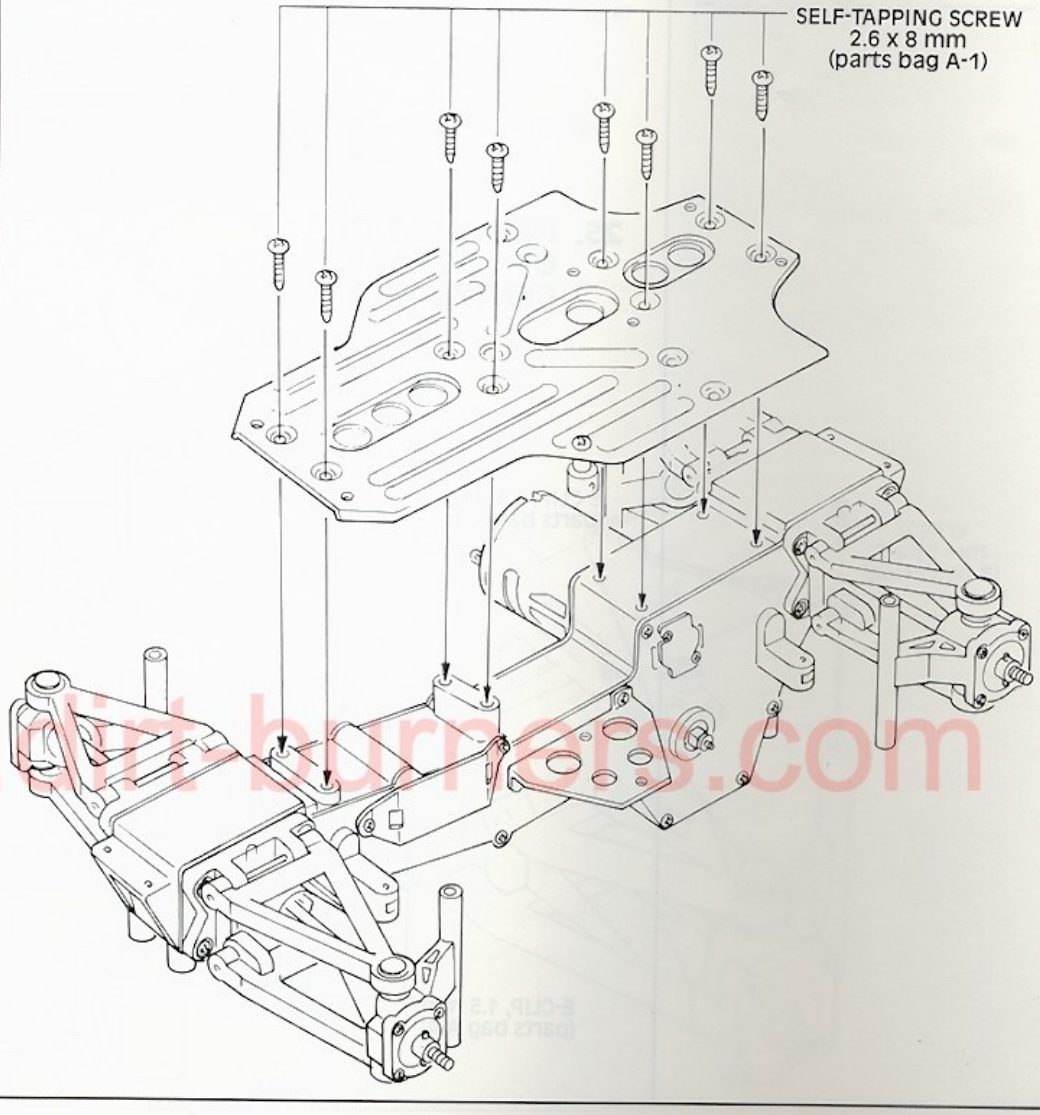


Bend up ends of battery holder as shown.

21. INSTALLATION OF THE BATTERY HOLDER AND UNDER GUARD

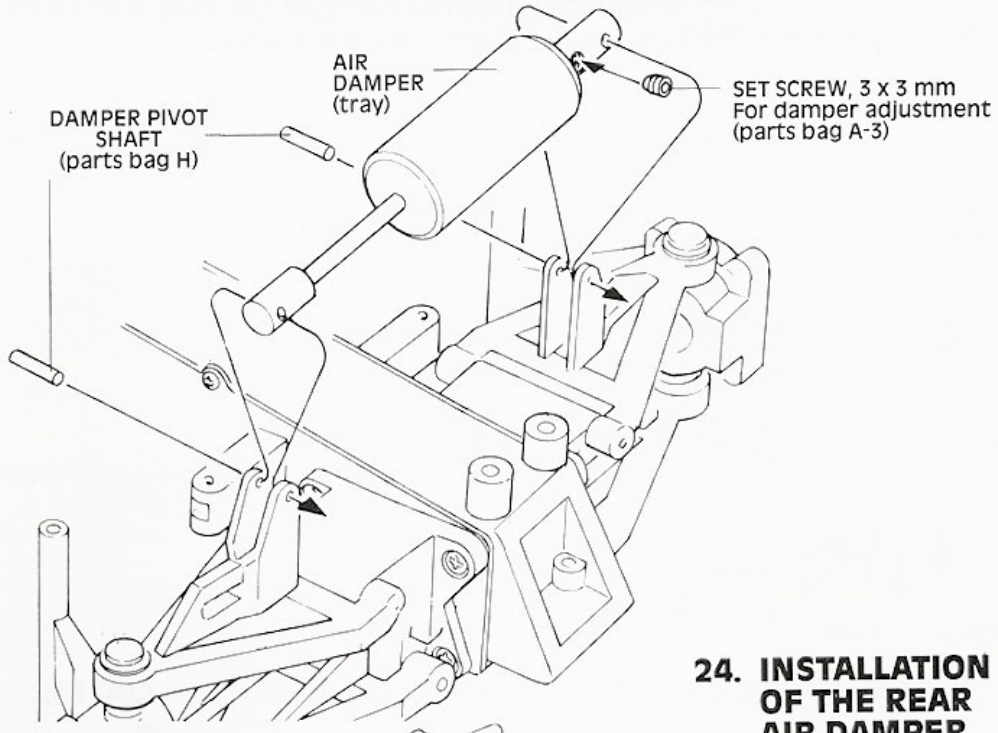


22. INSTALLATION OF UNDER GUARD TO MAIN FRAME

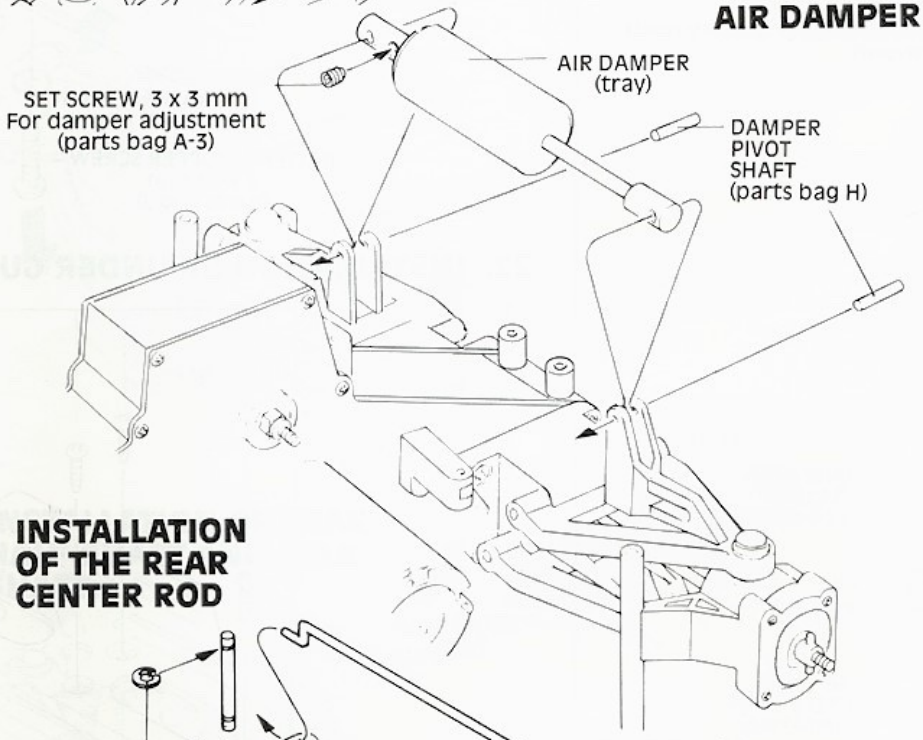


The damper is stiffened when the set screw is tightened, and softened when the set screw is backed out. The setting of the damper must be adjusted to track conditions.

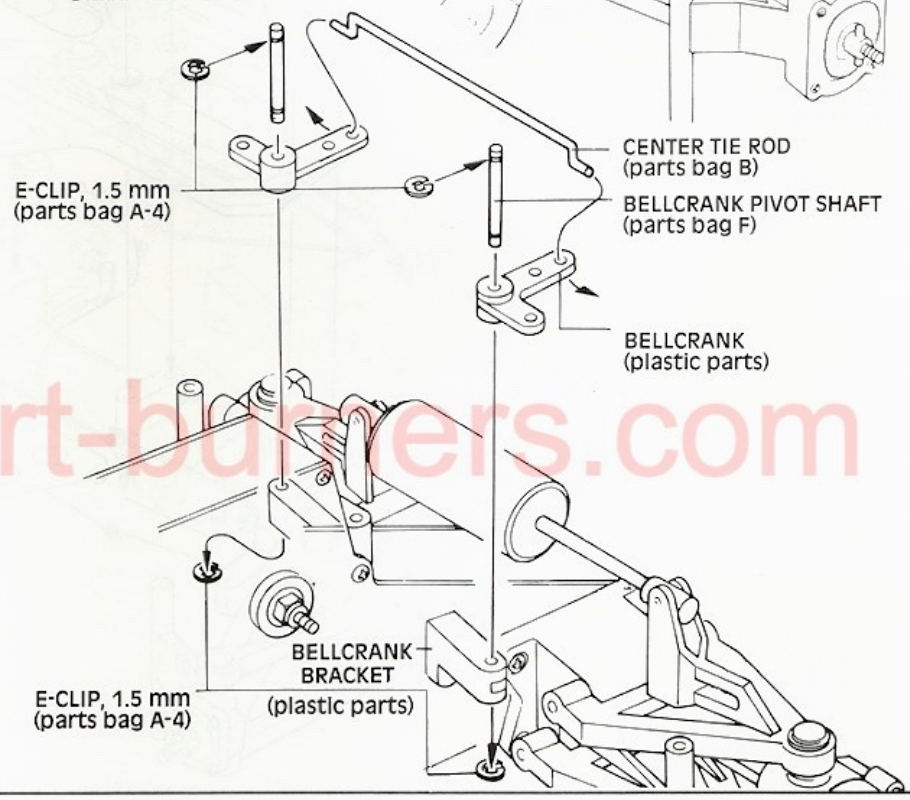
23. INSTALLATION OF THE FRONT AIR DAMPER



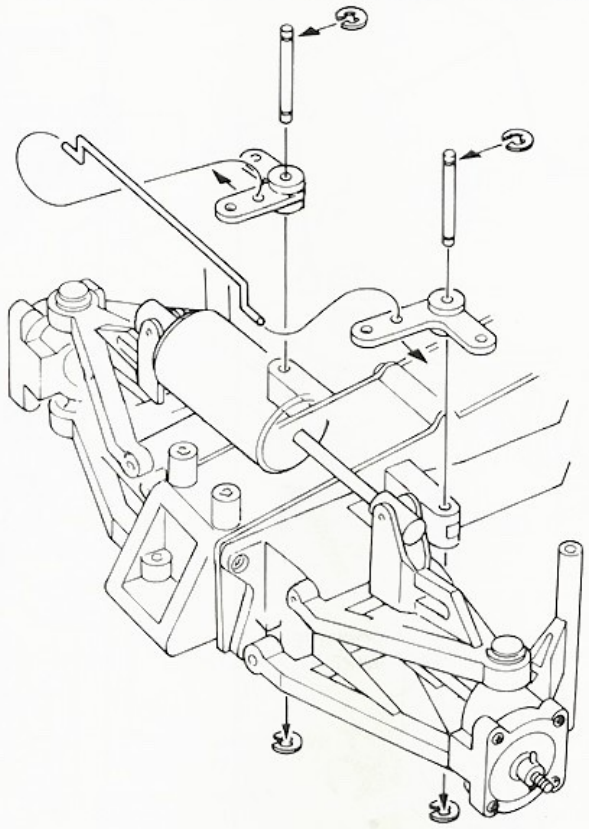
24. INSTALLATION OF THE REAR AIR DAMPER



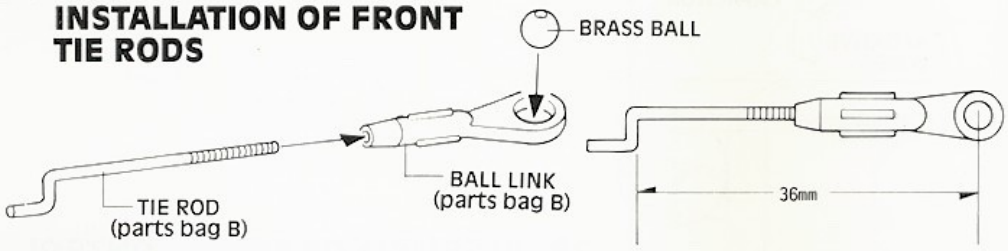
25. INSTALLATION OF THE REAR CENTER ROD

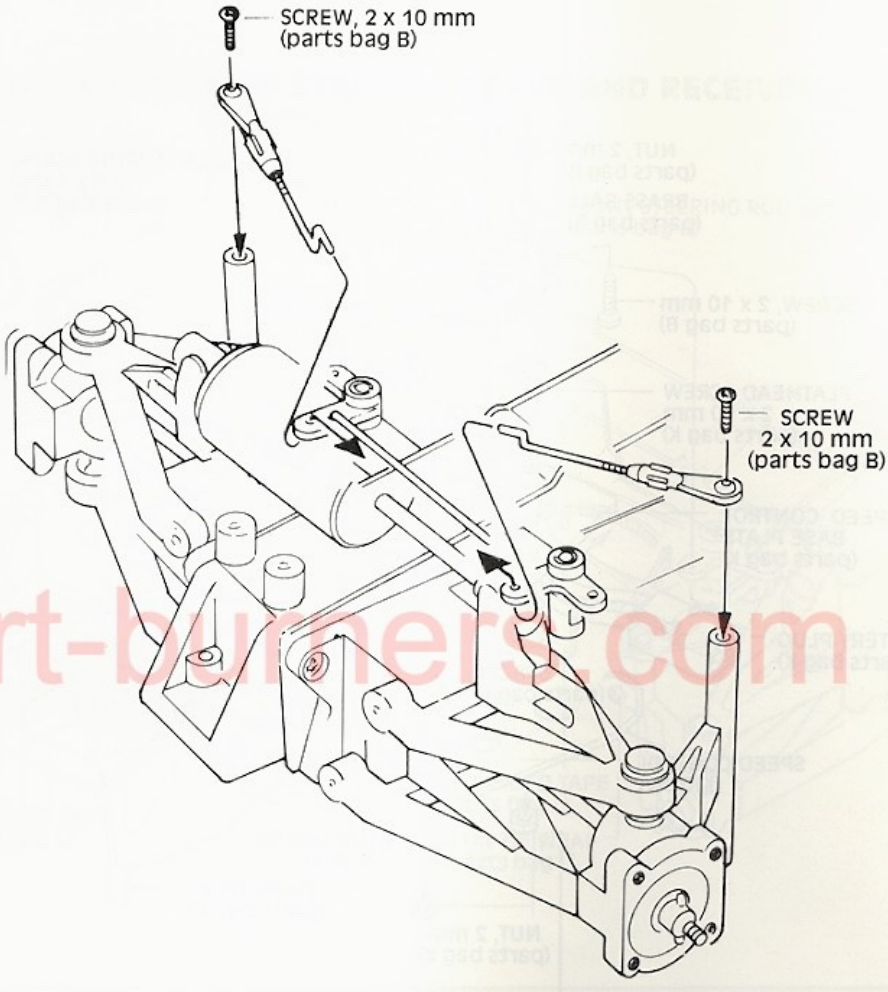


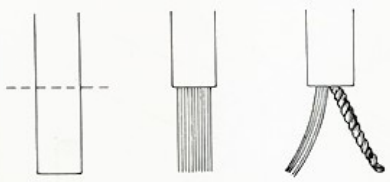
26. INSTALLATION OF THE CENTER TIE ROD

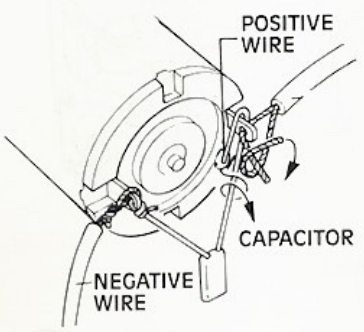


27. ASSEMBLY AND INSTALLATION OF FRONT TIE RODS

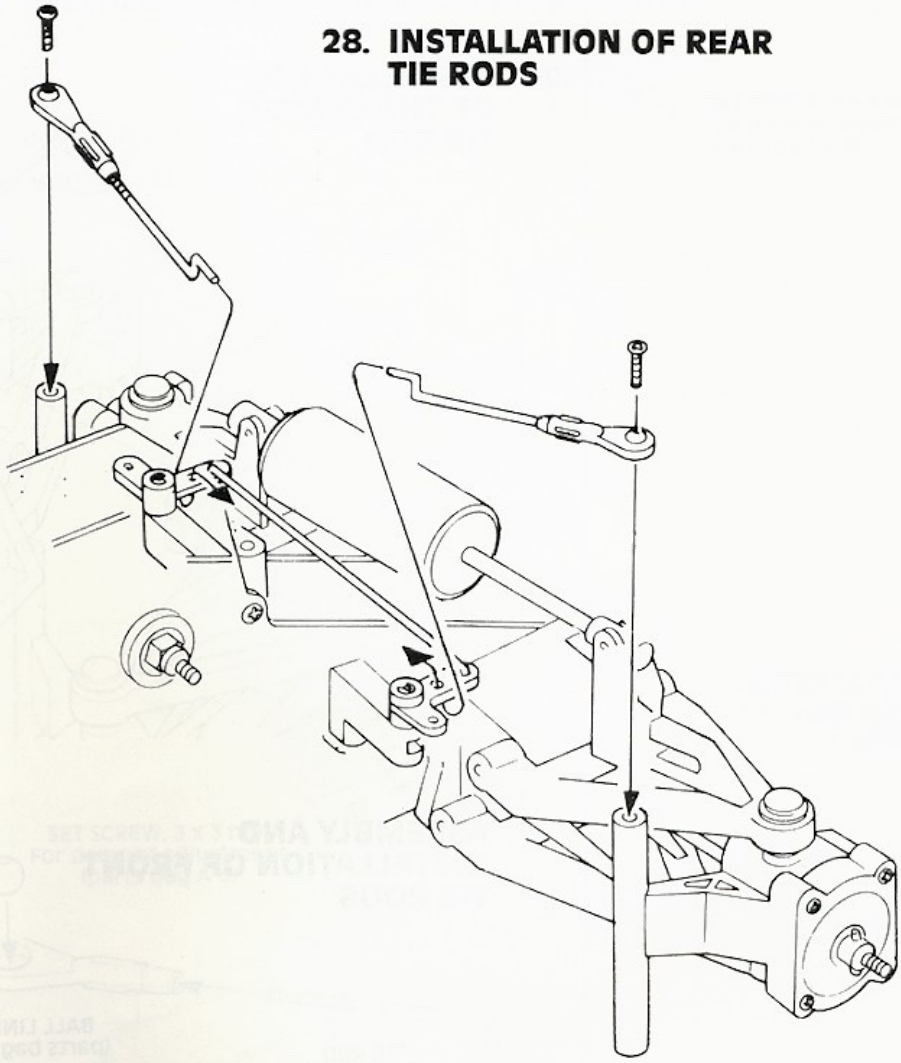




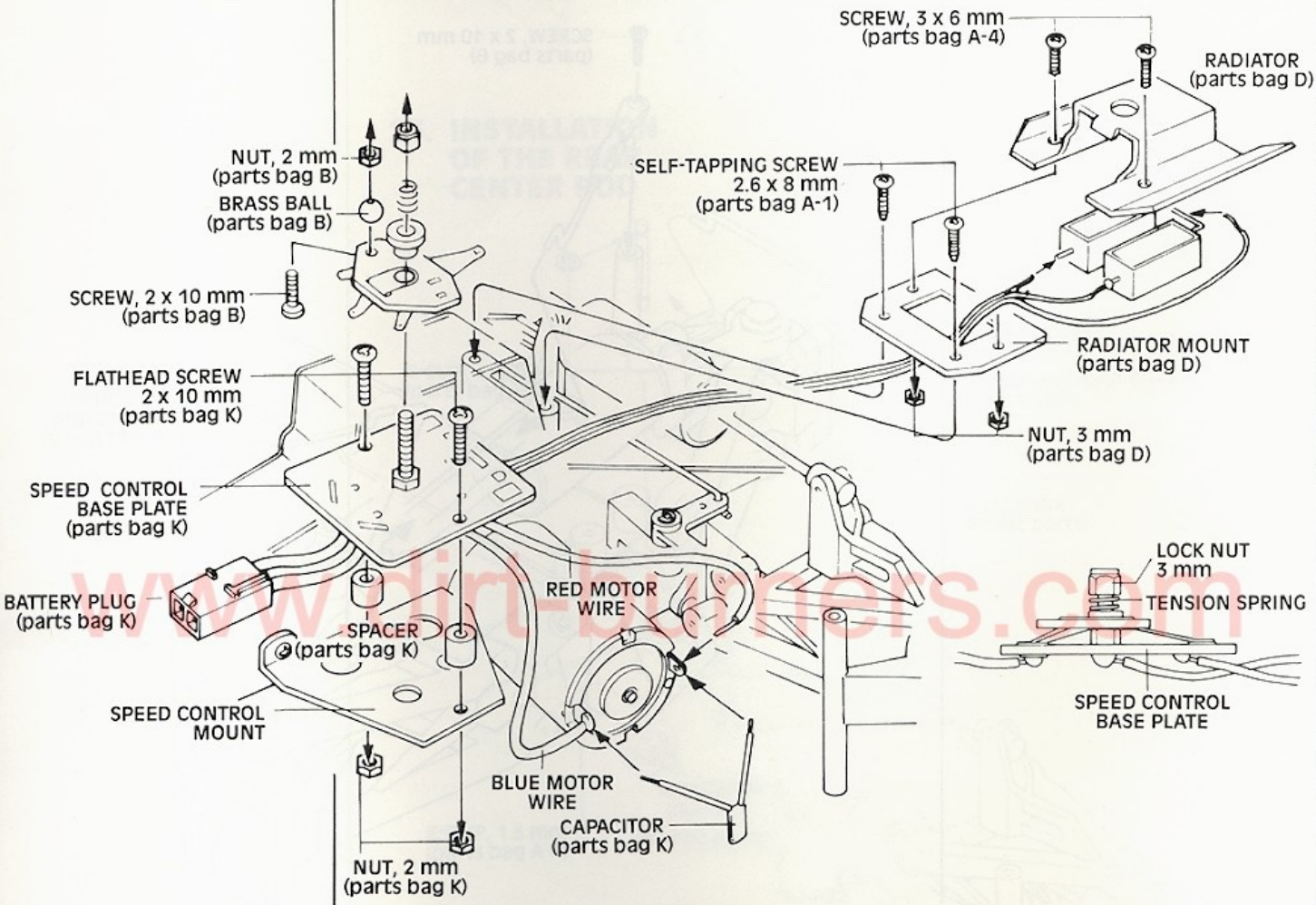




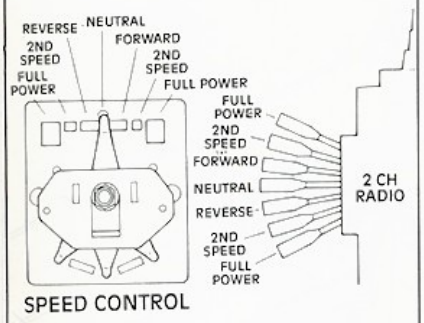
28. INSTALLATION OF REAR TIE RODS



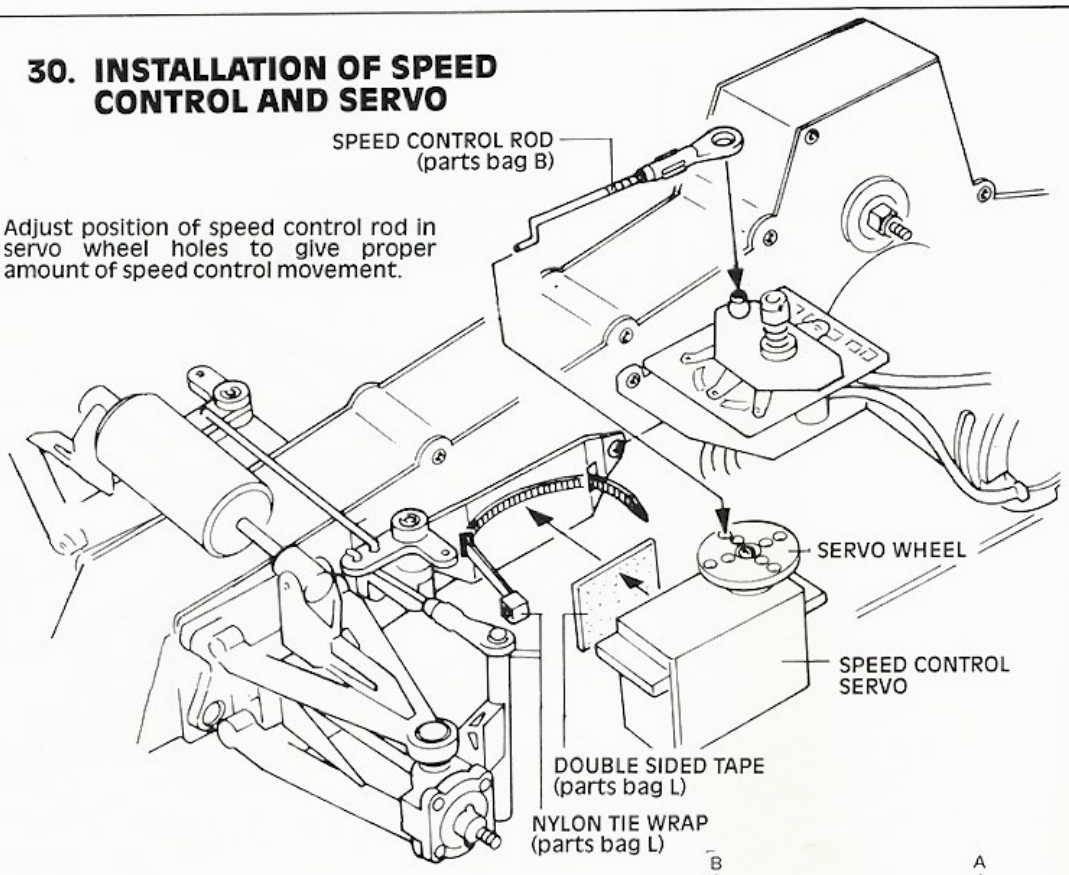
29. ASSEMBLY OF SPEED CONTROL



30. INSTALLATION OF SPEED CONTROL AND SERVO

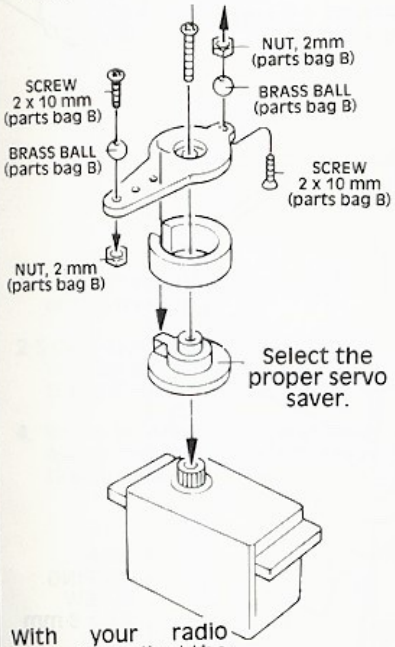


SPEED CONTROL



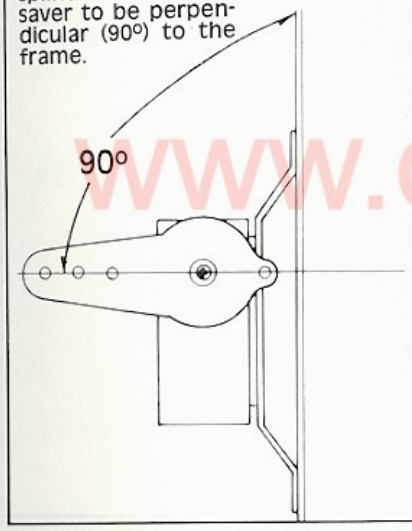
Adjust position of speed control rod in servo wheel holes to give proper amount of speed control movement.

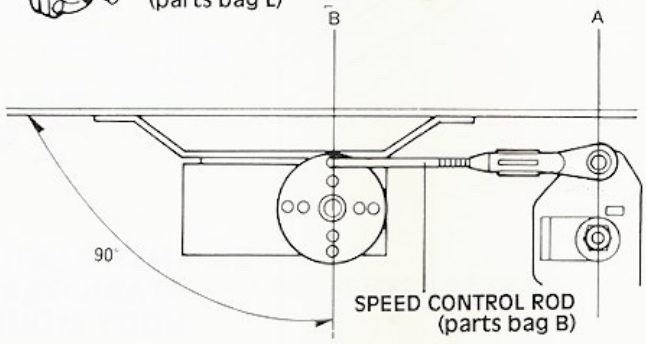
Servo Saver Assembly
(select correct screws from parts bag I)



Select the proper servo saver.

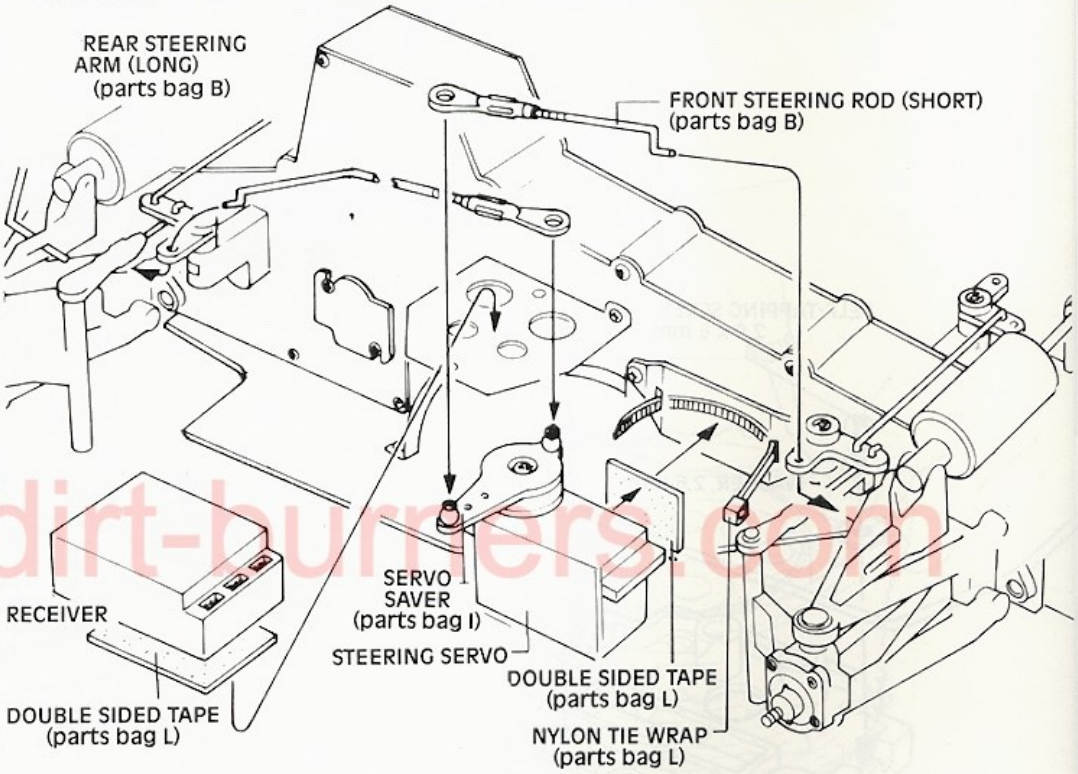
With your radio turned on, adjust the splines of the servo saver to be perpendicular (90°) to the frame.



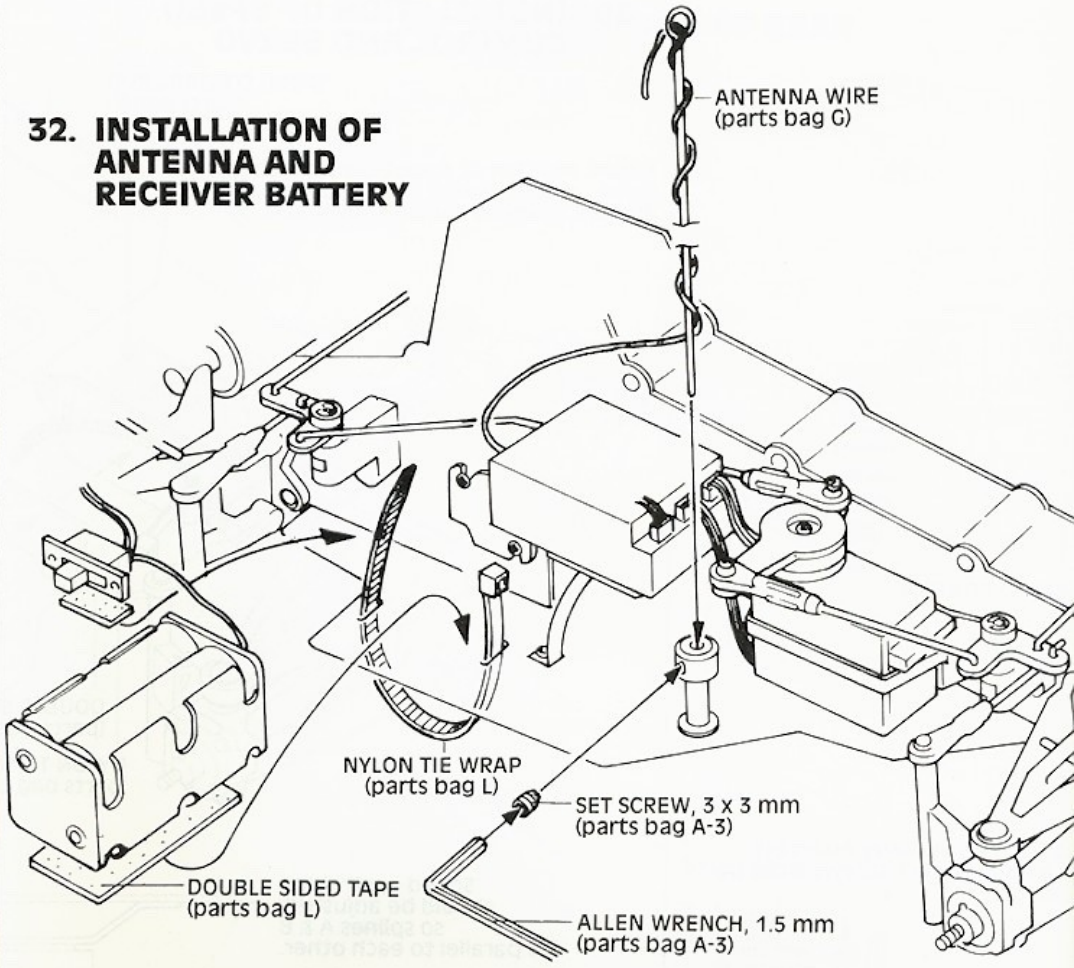


Speed control rod should be adjusted so splines A & B are parallel to each other.

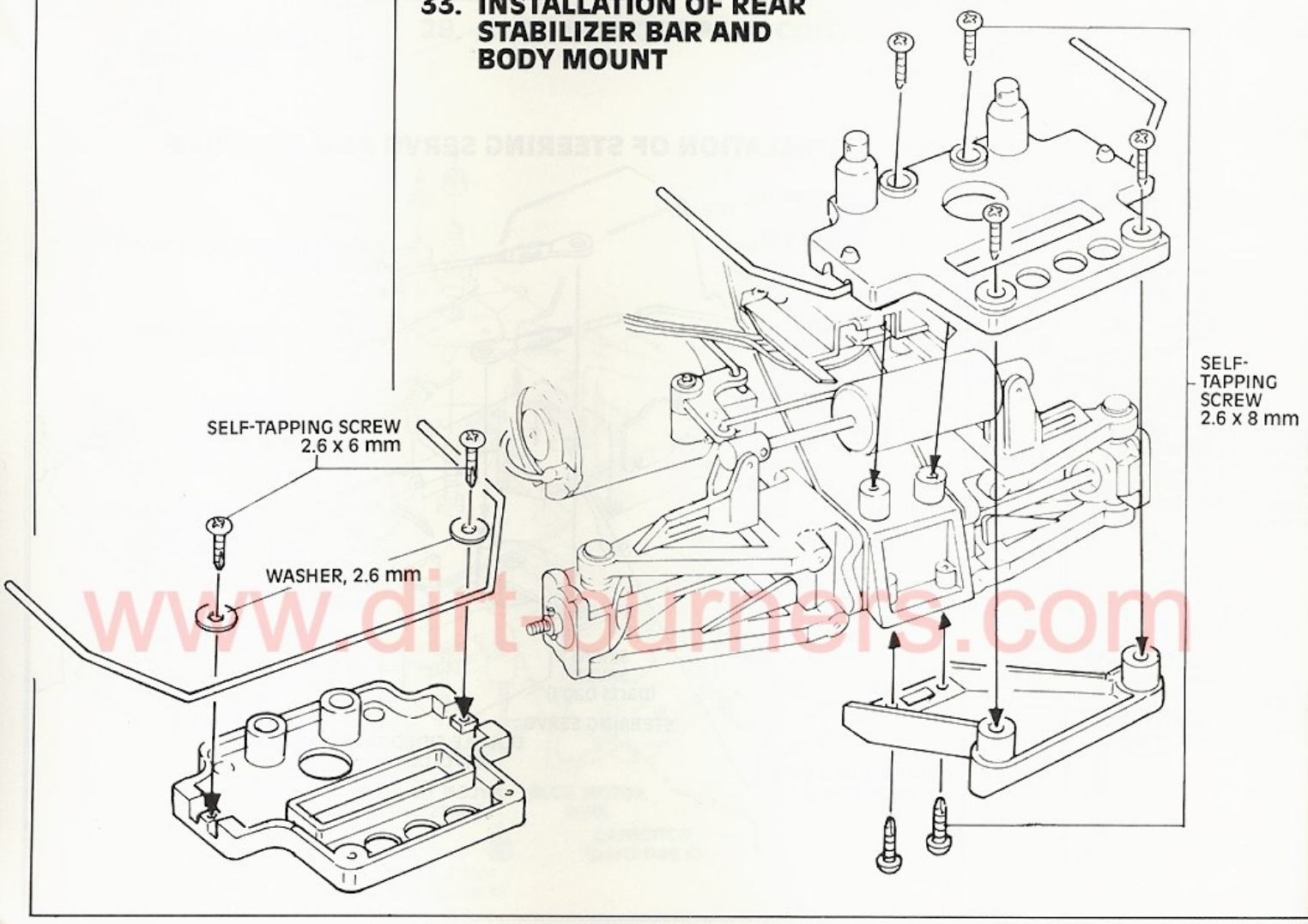
31. INSTALLATION OF STEERING SERVO AND RECEIVER



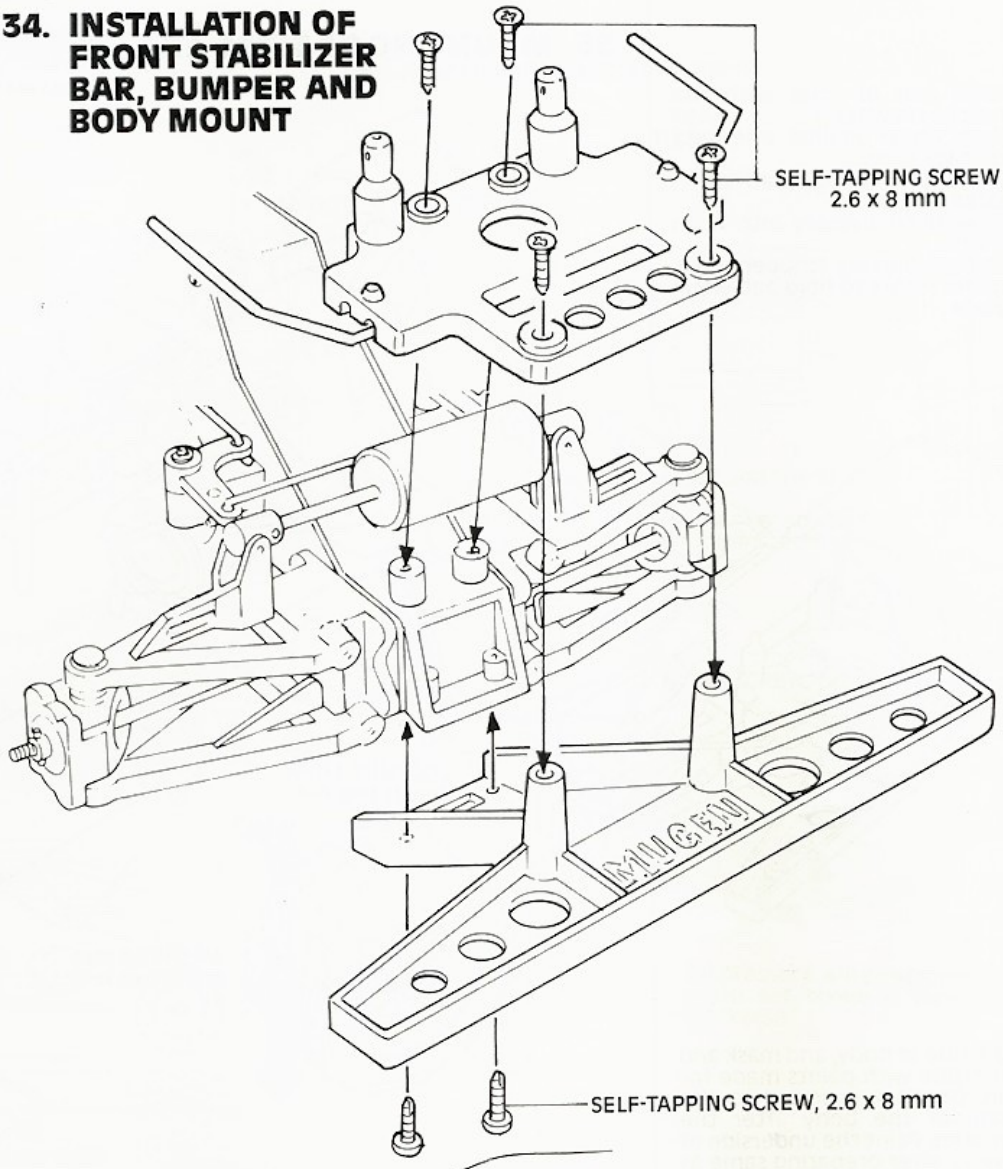
32. INSTALLATION OF ANTENNA AND RECEIVER BATTERY



33. INSTALLATION OF REAR STABILIZER BAR AND BODY MOUNT



34. INSTALLATION OF FRONT STABILIZER BAR, BUMPER AND BODY MOUNT

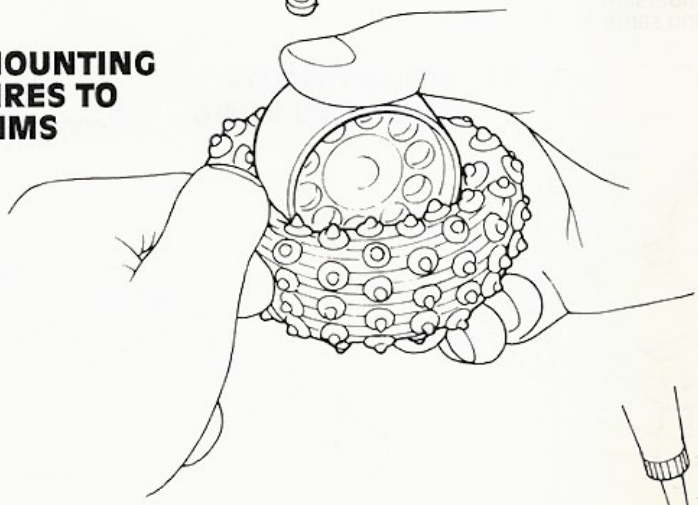


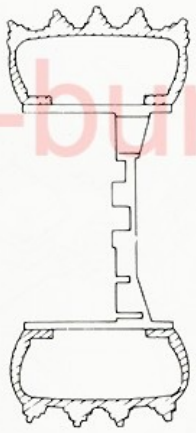
35. MOUNTING TIRES TO RIMS

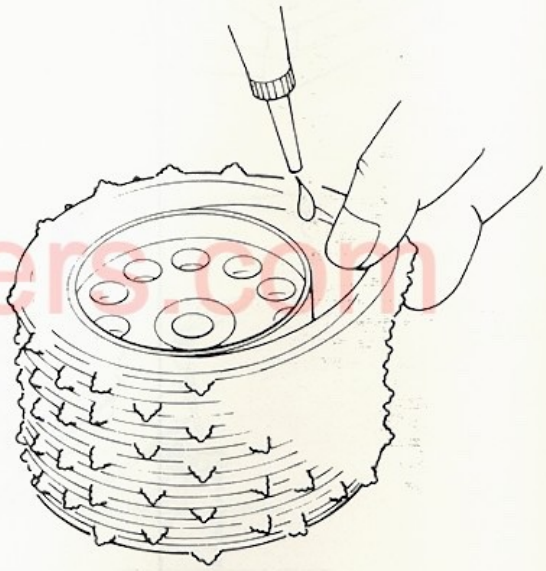
1. Lightly sand the circumference of the wheels.

2-3. Glue the tires to the wheels with bead of tire flush against the outside.

4. Drill a ⅛ inch diameter hole in either the tire or rim to allow tire to vent.

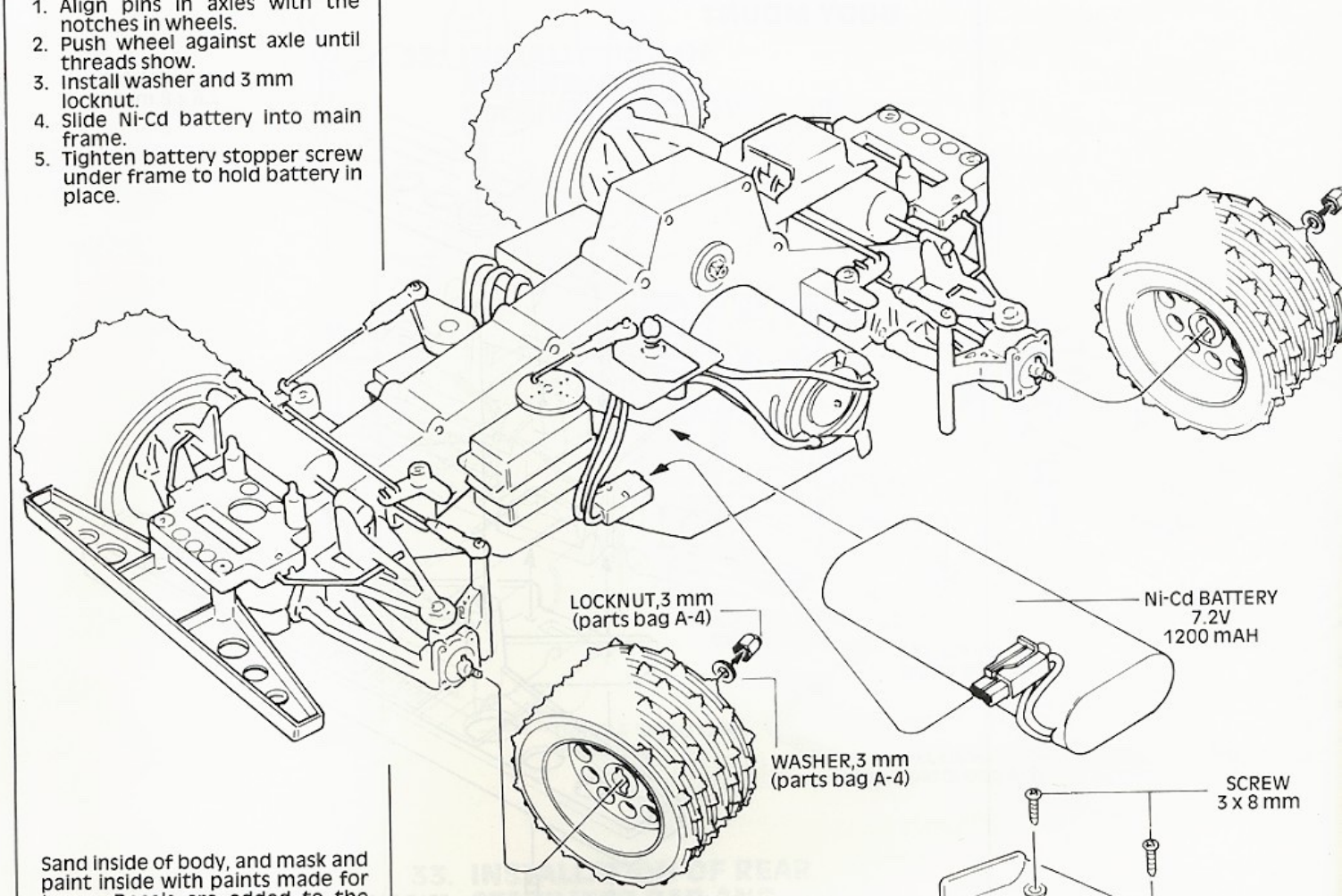






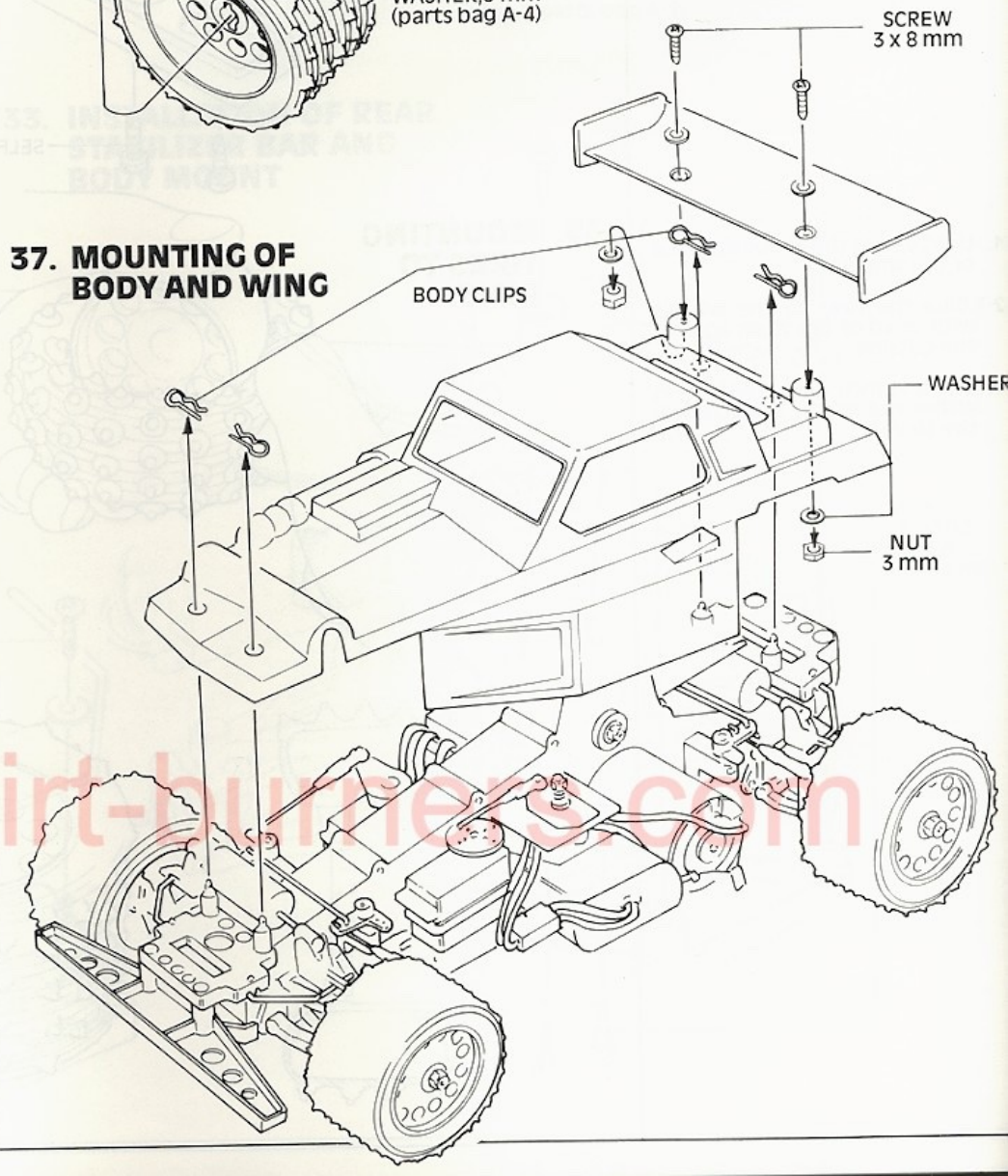
36. MOUNTING OF TIRES AND BATTERY

1. Align pins in axles with the notches in wheels.
2. Push wheel against axle until threads show.
3. Install washer and 3 mm locknut.
4. Slide Ni-Cd battery into main frame.
5. Tighten battery stopper screw under frame to hold battery in place.



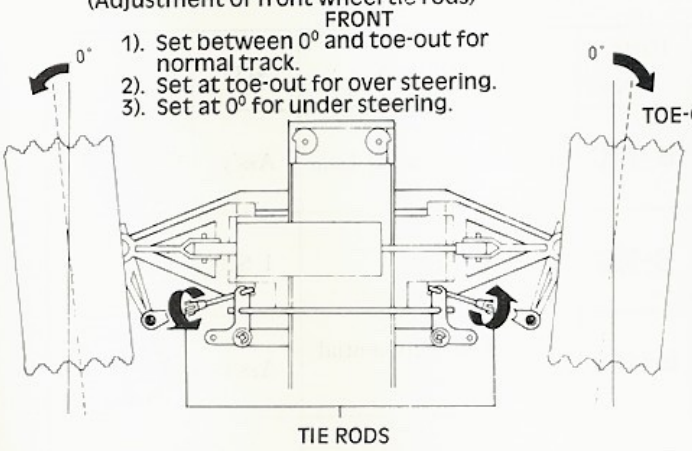
Sand inside of body, and mask and paint inside with paints made for Lexan. Decals are added to the outside of the body after the paint dries. Paint the underside of the wing after preparing same as the body.

37. MOUNTING OF BODY AND WING



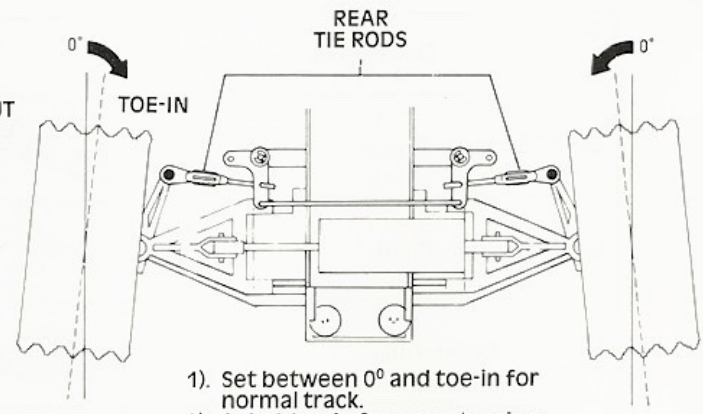
38. FINAL ADJUSTMENTS FOR DRIVING

■ Adjustment Of Front Wheel Toe-In
(Adjustment of front wheel tie rods)



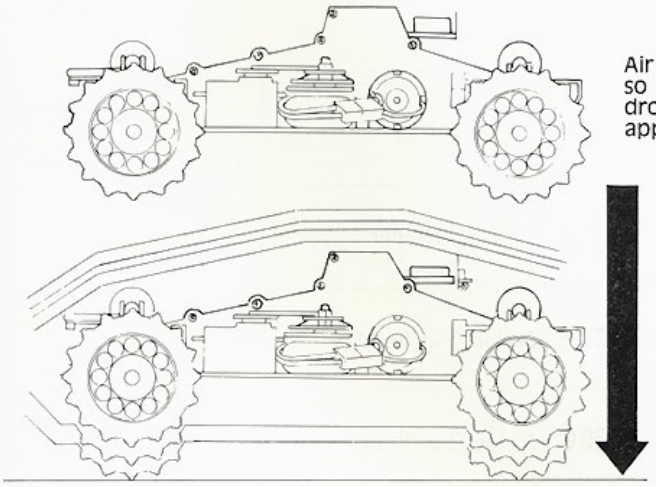
1). Set between 0° and toe-out for normal track.
2). Set at toe-out for over steering.
3). Set at 0° for under steering.

■ Adjustment of Rear Wheel Toe-In

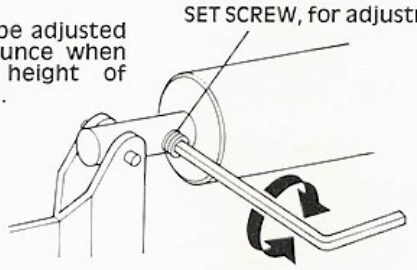


1). Set between 0° and toe-in for normal track.
2). Set at toe-in for over steering.
3). Set at 0° for under steering.

■ Adjustment Of Air Dampers

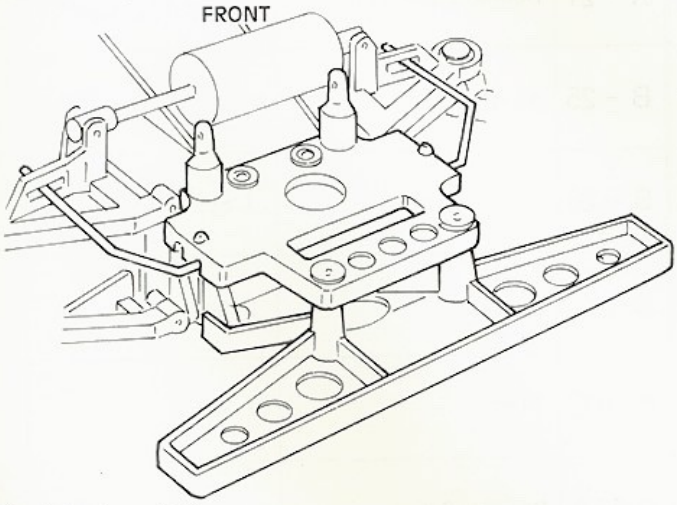


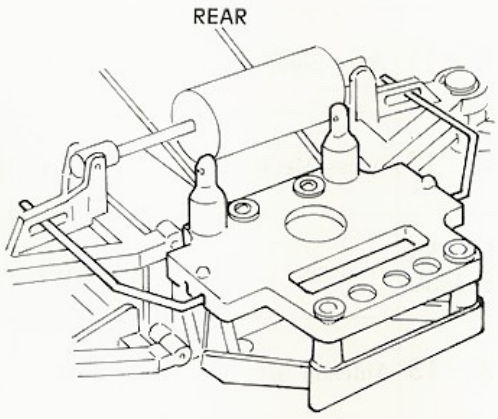
Air dampers should be adjusted so car does not bounce when dropped from a height of approximately 15 cm.



Air pressure will be stronger when set screw is turned clockwise.

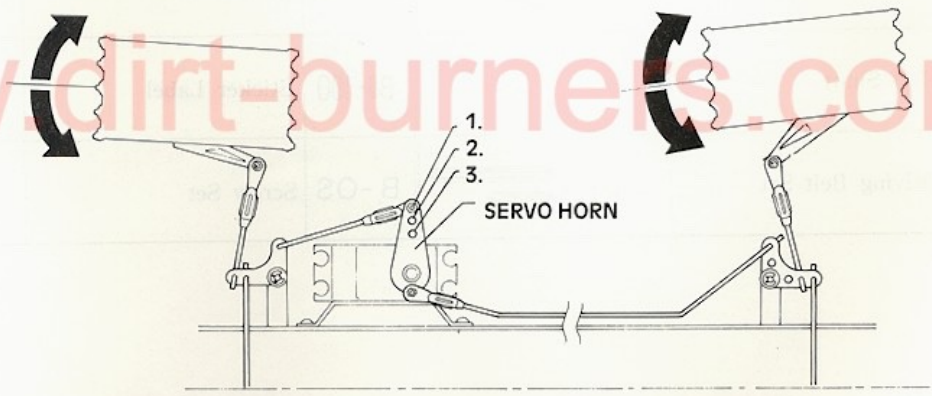
■ Setting Of Front/Rear Stabilizer Bars



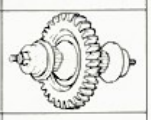
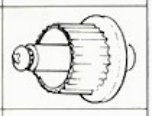
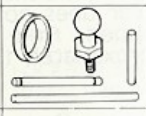
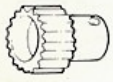
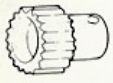
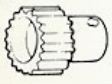
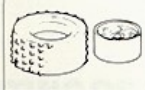
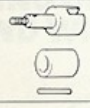
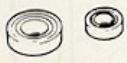
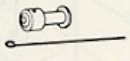


■ Adjustment Of Steering Angle

Positioning Servo Rods:
1). Maximum steering
2). Medium steering
3). Minimum steering



PARTS LIST FOR MUGEN BULLDOGII AWDS

Parts Nos.	Descriptions	Q'ty		Parts Nos.	Descriptions	Q'ty	
B-1M	Main Frame	1 pc.		B-14C	Center Differential Gear	Ass'y	
B-1S	Side Plate	2 pcs.		B-14G	Thrustball Set	1 Set.	
B - 2	Under Guard	1 pc.		B-14FR	Front/Rear Differential Gear	Ass'y	
B - 3	Controller	Ass'y		B-14J	Joint	4 pcs.	
B-5A	Suspension Arm	1 Set.		B - 17	Linkage Set	1 Set.	
B-5B	Pivot Pin	1 Set.		C - 18	Servo Guard	1 pc.	
B-812T	〃	1 pc.		C-20A	Battery Holder	1 Set.	
13T	〃	〃		X-20B	Nylon Tie Band	8 pcs.	
14T	〃	〃		X-20C	Nylon Tie Band	8 pcs.	
B - 10	Tire/Wheel	2 sets		X - 21	Double Face Tape	2 pcs.	
B - 11	Axle Shaft	1 Set.		B - 25	Air Damper	2 pcs.	
B - 12	Oiless Metal	1 Set.		B - 26	Stabilizer Set	1 Set.	
B-12SS B-12SL	Bearing	2 pcs.		B-27	Rx Stay	1 Set.	
X - 13	Antenna Set	1 set		B-102	Body	1 Set.	
X-13A	Wire for Antenna	2 pcs.		B-103	Bumper Set	1 Set.	
B-14A	Half Shaft	2 pcs.		BII-100	Sticker Label	1 sheet	
B-14B	Driving Belt Set	2 pcs.		B-OS	Screw Set	1 set	