Team TRC

COMPOSITE CRAFT

ASSEMBLY INSTRUCTION MANUAL

FOR PRO 10 SPORT

Pictured with optional bumper & side wing.

TO BE USED WITH STEP-BY-STEP PICTORIAL REFERENCE

THE PRO-10 1988 ROAR NATIONAL CHAMPION !

Congratulations! You have now joined the wonderful world of R/C racing. Many hours of fun are ahead of you. The PRO-10 SPORT you have purchased is based on the national winning design of the PRO-10 ELITE, one of the top 1/10th scale T-bar oval and on road cars in the world. Two of the most successful radio controlled car manufacturers in the world,**Compositecraft** and **TRC** have joined forces and have introduced an entry level racing machine at an entry level price without sacrificing race performance. The PRO-10 SPORT can take you from the beginning all the way to the top.

As your skill level increases, the PRO-10 SPORT can be up-dated to improved performance and will be ready to handle anything you can give it.

The PRO-10 series of cars are still the most simple cars to build and maintain on the circuit. Precision molded and machined components make the **PRO-10 SPORT** a snap to put together, but you still need to read and follow the instructions. They will give you tips in the assembly process that will help you when it is time to race.

TAKE YOUR TIME ! How careful you assemble the car now is going to determine how well it performs on the track. Don't be in a hurry. You won't win anything for the fastest chassis assembly.

ASSEMBLY TIPS FROM THE FACTORY

Before you get started, here are some suggestions and tips that will make the assembly of your kit a little easier.

Glance through the instructions and pictures once before you start to assemble the kit. This will help get you familiarized with the assembly steps and the pictures.

To help eliminate confusion, only open the parts bags when they are called for in the instructions. Otherwise you might mix up small parts which will make the assembly much more difficult.

When you empty the parts bags, use a paper plate or a small container to empty it in. This will keep parts from rolling off the table and being lost forever.

When you are putting screws into plastic pieces, be sure that you do not over tighten them. This could result in the threads in the plastic stripping. Tighten the screws until they are snug.

Check all the holes in the nylon pieces. Some of the holes are not tapped. You should tap these holes with the correct size tap before putting a screw in the piece.

All molded nylon pieces will have a small amount of flashing. Before you assemble these pieces it is a good idea to remove it with a hobby knife.

In the instructions, certain parts are referred to as left and right. Imagine yourself sitting in a full size car in the driver's seat. The driver's side is what will be referred to as the left side.The passenger side will be referred to as the right side. Please keep this in mind while you are assembling your car.

The step numbers in this manual correspond to the pictures in the pictorial assembly manual. Use both for the assembly of this kit.

Due to COMPOSITECRAFT & TRC's on-going development program, certain parts in the pictorial assembly manual may be different from the actual parts in the kit.

Items required to complete this car

- 1 - Two channel radio system
- 1 - Speed control device
- 1 - 6 or 7 cell battery pack - saddle type
- 1 - 05 electric motor
- 1 - 1/10th scale body (if not included)
- 1 - Servo saver
- 1 - Battery charging system

Tools and supplies needed to build this kit

#2 phillips screw driver - large / Hobby knife
Small pliers / Needle nose pliers / Medium file
Shock oil / 20 - 25 Weight / Silicone lube

OPTIONAL TOOLS

Nut driver set / Dremel Tool
4-40 tap, 8-32 tap

PRO - 10 SPORT KIT CONTENTS

BAG # 1 FOR PRO-10 SPORT

#5138	MOLDED NYLON FRONT CROSS BAR	1
#5562	1/16" ALLEN WRENCH	1
#5140	KING PINS FOR NYLON FRONT CROSS BAR	2
#5142	2 DEGREE CASTER SHIMS	2
#5144	1/8" STEERING BLOCKS	2
#5156	.022 FRONT SUSPENSION SPRINGS	2
	1/4" X .060 STEEL WASHER	2
#5502	4-40 X 1/4" STEEL FLATHEAD SCREWS	2
#5523	8-32 X 1/2" ALUMINUM FLATHEAD SCREWS	2
#5574	1/8" X 1/4" STEEL WASHER	2
#5476	1/8" X 5/16" FLANGED OILITE BUSHINGS	4
#5560	1/8" E-CLIP	10

BAG # 1A FOR PRO-10 SPORT

#5166	SERVO MOUNTING KIT	1
#5424	3" MOLDED NYLON BODY POST	2
#5428	BODY POST COLLAR	2
#5502	4-40 X 1/4" STEEL FLATHEAD SCREW	2
#5506	4-40 X 1/2" STEEL FLATHEAD SCREW	2
#5540	4-40 X 1/8" SET SCREW	2
#5561	.050" STEEL ALLEN WRENCH	1
#5590	STEERING LINKAGE KIT	1

BAG # 2 FOR PRO-10 SPORT

#5316	SUPPORT PLATE PIVOT BALL & SOCKET SET	1
#5318	FIBERGLASS REAR T-BAR	1
#5320	TOP MOTOR BLOCK BRACE	1
#5322	NYLON MOTOR BLOCK SET	1
#5328	RIDE HEIGHT ADJUSTOR SET	1
#5502	4-40 X 1/4" STEEL FLATHEAD SCREW	1
#5514	5-40 X 1/4" STEEL SOCKET HEAD CAP SCREW	4
	8-32 X 3/8" STEEL SOCKET HEAD SCREWS	2
#5523	8-32 X 1/2" ALUMINUM FLATHEAD SCREWS	4
#5574	1/8" X 1/4" STEEL WASHER	1

BAG # 3 FOR PRO -10 SPORT

#5314	MOLDED NYLON T-BAR SUPPORT PLATE	1
#5334	REAR DAMPENER KIT	1
	ANTENNA MOUNT	1
#5426	4" NYLON BODY POSTS	2
#5428	BODY POST COLLARS	2
#5523	8-32 X 1/2" ALUMINUM FLATHEAD SCREW	1
#5340	REAR SUSPENSION SPRINGS	2
#5342	NYLON SPRING LOCATORS	2
	4-40 X 1/4" STEEL FLATHEAD SCREW	1
#5510	4-40 X 1" STEEL FLATHEAD SCREW	2
#5540	4-40 X 1/8" STEEL SET SCREW	2
#5553	4-40 STEEL LOCK NUT	2
#5512	5-40 X 3/8" STEEL FLATHEAD SCREWS	4

BAG # 4 FOR PRO-10 SPORT

#676	120 TOOTH SPUR GEAR	1
#5558	8-32 NYLON LOCK NUT	1
#5663	STEEL DIFF AXLE	1
#5667	MOLDED NYLON DIFF HUB	1
#5669	MOLDED NYLON WHEEL HUB	1
#5677	THRUST BEARING SET	1
#5678	CONE WASHER	1
#5566	3/32" ALLEN WRENCH	1
#5685	AXLE SPACER SET	1
#5546	10-32 X 1/4" STEEL SET SCREW	2
#5674	DIFF DRIVE RINGS	2
#5690	1/4" X 3/8" NYLON DIFF BUSHINGS	2
#5478	1/4" X 3/8" FLANGED OILITE BUSHINGS	2
#5516	5-40 X 3/8" STEEL SOCKET HEAD CAP SCREW	8
#5672	STANDARD DIFF BALLS	8

Check the contents of each bag with the list above. These bags have been checked at the factory, but it is possible that a part may be missing. For missing parts call 704 - 982 - 0507. Make sure you use part numbers when ordering.

ONE FINAL NOTE !

Assembly step numbers correspond to the picture numbers. Complete each step before going on to the next.

NOW LET'S GET STARTED !

STEP # 1 *We will need to do a slight amount of chassis prep before we start the assembly.*

Locate the chassis, and you will notice that on one side the holes in the chassis are countersunk for screw heads. This is the bottom of the chassis. On the top of the chassis we want to file the battery slots at a slight angle so the batteries will not be sitting on a sharp corner that could cut the protective heat shrink on them and cause them to short out. Lightly file both the front and back of all the battery slots so the cells will have a flat spot to sit in. Before you do this, it might be a good idea to spread some newspaper out to catch the filings. You will also use strapping tape to hold the batteries in the chassis. You will need to file the sections of the chassis that the tape goes around. If these places are left sharp, they will cut the tape and the batteries will fall out. Just round off these edges.

When you are finished, wash off the chassis with water and dry it off with a paper towel.Then make sure you wash your hands with soap and water. Clean up the dust and dispose.

You are now finished with step #1. Put a check mark in the box to show that this step is complete. After you've completed each step from now on, check off its box so you know which part of the assembly you are on in case of an interruption. You won't miss any steps this way.

PRO-10 SPORT FRONT END ASSEMBLY

STEP # 2 *Open bag #1 and empty the contents. For the time being do not open bag #1A. Locate the front nylon cross bar. Check over the beam to make sure all the flashing, if any, is removed around the holes. The caster on this front end is 0 degrees. This means the king pins will be straight up and down. You need to run a small amount of caster in the front end, so locate the two caster shims. These are molded at 2 degrees each. Fasten the front beam to the chassis with the caster shims between the chassis and the front beam. Use an 8-32 x 1/2" screw in the front and a 4-40 x 1/4" screw in the rear of the beam block. Tighten all screws completely.*

STEP # 3 *Locate the two front steering blocks and remove any flashing from around the holes with a hobby knife.*

STEP # 4 *Locate the two front king pins. You will notice that they have a groove in each end. These grooves are for the e-clips. Put one e-clip on one end of each king pin.*

STEP # 5 *Next, put a king pin in the bottom arm on the front cross bar so it sticks through about 1/8". Now slide a steering block on the king pin as shown and push the king pin up until it reaches the top of the steering block and sticks through about a 1/16". There is not a left or a right on the steering blocks. They are the same. Now put a spring on the king pin on top of the steering block, then a thick washer and push the king pin through the top of the axle beam. Put an e-clip in the top groove to hold the assembly in place.*

STEP # 6 *Open bag #1A. Find the front body posts. Fasten them to the chassis using the 4-40 x 1/2" screws. Hold the posts with pliers while tightening the screws. Make sure you do not over tighten the screws and strip out the threads. Put the body post collars on the posts just under the last set of hood pin holes and lock in place with the 4-40 x 1/8" set screws. These will be adjusted later to the body.*

STEP # 7 *Put the servo mounting posts in the chassis as shown using a 4-40 x 1/4" screw. For now, put the servo mounting face plates on the posts with the #2 X 3/8" self tap screws so they do not get lost These will hold the steering servo in place later.*

PRO-10 SPORT REAR T-BAR ASSEMBLY

STEP # 8 *Open bag #2 and locate the steel pivot ball and the 1/4" steel washer. Fasten the pivot ball to the t-bar in the middle hole with the washer in between the pivot ball and the t-bar as shown using a 4-40 x 1/4" screw. It would be a good idea to lock tite this screw. Do not use pliers to hold the ball while tightening the screw.*

STEP # 9 *Find the pivot ball nylon socket. Using a light oil, coat the inside of the socket that snaps onto the pivot ball as well as the pivot ball. Snap the pivot socket onto the pivot ball. Move it around. It will probably be a little tight. After the car has been run a few times it will loosen up.*

STEP # 10 *Next, find the two rear motor blocks. Fasten them to the rear t-bar using four 8-32 x 1/2" aluminum flathead screws. Note: both motor blocks are the same shape. The only difference is in the holes for the ride height adjustors. Be sure to put the blocks on the t-bar so the ride height adjustors will be on the outside of the blocks. Not on the inside.*

STEP # 11 *Now find the ride height adjustor set. You will notice that there are three different offsets in them. This gives you the option of five different rear axle heights, depending on how they are placed in the motor blocks. Most of the racers run the axle in the middle setting, but you can refer to the section on* ***RIDE HEIGHT SET UP.*** *When you have chosen the set you are going to use, install them in the motor blocks as shown. Be sure to trim off any flashing that might be present around the edges.*

STEP # 12 Next, fasten the motor block brace to the motor blocks, using four 5-40 x 1/4" cap screws and the 8-32 X 3/8" screws. Put the brace on so that the TRC logo is facing up and to the rear of the t-bar as shown.

PRO-10 SPORT SUPPORT PLATE ASSEMBLY

STEP # 13 Open bag #3 and find the t-bar support plate. Using four 5-40 x 3/8" flathead screws, fasten the support plate to the chassis as shown.

STEP # 14 Fasten the rear damper post to the t-bar support plate as shown using a 4-40 x 1/2" screw. Make sure you do not over tighten the screw. Also be sure the holes in the posts are facing the front and rear of the chassis. Not side to side.

STEP # 15 Next, locate the rear damper pushrod and install it in the rear motor block brace as shown.

STEP # 16 Slide a set collar and spring on the push rod as shown.

STEP # 17 Next, slide the t-bar assembly into position under the t-bar support plate that is on the chassis, and slide the push rod into the middle hole of the damper post.

STEP # 18 Next, slide the nylon pivot socket into the large hole in the nylon t-bar support plate.

STEP # 19 Now, using a 8-32 x 1/2" aluminum screw, fasten the front of the t-bar to the front hole in the t-bar support plate and lock into place using an 8-32 nylon lock nut.

STEP # 20 Slide another spring and set collar on the push rod as shown. Using a 4-40 set screw, tighten the set collar on the push rod to hold the assembly in place. This will be adjusted later.

STEP # 21 In each hole next to the pivot ball in the t-bar, place a 4-40 x 1" screw.

STEP # 22 Put a rear suspension spring over each screw on top of the t-bar support plate. On top of each spring, place a nylon spring locator as shown.

STEP # 23 Lock this assembly into place with a 4-40 lock nut on each screw. Tighten the nuts until they compress the springs approximately 25%

STEP # 24 Next, fasten the antenna mount on the chassis using a 4-40 x 1/4" screw.

STEP # 25 Next, fasten the 4" body posts to the chassis using a 4-40 x 1/2" screw. Make sure you do not over tighten the screw in the body post. Put the body post collars on the body posts just under the last set of hood pin holes and lock into place with a 4-40 x 1/8" set screw. These will be adjusted later to the body.

STEP # 26 Take a break. Go and get a cold drink and sit back and tell yourself what a great job you have done so far.

DIFFERENTIAL ASSEMBLY

STEP # 27 Locate bag #5 and empty into a container. There are many small parts that will roll off a table in this bag. Find the diff axle. Slip one of the diff drive rings onto the hub on the axle as shown. Many racers use a drop of super glue, like ZAP or HOT STUFF to hold the drive ring in place on the hub.

STEP # 28 Now locate the spur gear. You will notice that the gear has two sets of holes in it. We will be using the outside set of holes. Push an 1/8" diff ball in each of the outside eight holes. Now put a small dab of diff grease on each ball.

STEP # 29 Now slide the spur gear onto the diff axle topped with the second diff drive ring. If you find something to stand the diff axle in while building, it makes assembly much easier.

STEP # 30 Next, push a nylon bushing into each end of the diff hub. Be sure to trim any flashing off from the edge of the bushings. Make sure they fit all the way down in the hole. Put a drop of light oil inside each bushing and slide the hub assembly on the axle. Line up the drive ring on top of the gear with the diff hub. This drive ring may also be super glued to the hub.

STEP # 31 Now put the thin thrust washer on the axle, inside the diff hub, followed by the black thrust bearing, and then the thick thrust washer. Next, put the steel cone washer on the axle (small end up) and lastly the 8-32 nylon lock nut. Tighten the nut just enough to hold all the parts in place. We will adjust it later. Only use a nylon nut on the diff axle.

STEP # 32 Put the two 1/4" x 3/8" flanged bushings in the ride height adjustors in the motor blocks. Put a drop of light oil inside each bushing.

STEP # 33 Next, find the nylon axle spacers. Take the 1/8" spacer and slide it on the diff axle. Slide the assembly through the bearings in the rear pod.

STEP # 34 On the other side of the axle, slide on the other 1/4" spacer.

STEP # 35 Now locate the wheel hub and slide it on the diff axle next to the nylon spacer. Using the two 10-32 x 1/4" set screws, lightly lock the hub into position on the axle. Loosen the screws and remove the wheel hub. The screws have left marks on the axle. Lightly file a small flat spot in the axle where the marks were made. This will make it easier to remove the wheel hub later on. Put the hub back on the axle, and check the side to side play. You only want the axle to move from side to side about a piece of papers thickness. Tighten the set screws on the flat spots that you filed on the axle. Spin the axle to make sure it turns freely.

STEP # 36 Install the rear tires on the rear hubs using the eight 5-40 x 3/8" screws. Remove all the flashing from around the screw holes on the hubs or the wheels will not sit flat against the hub. Also be sure to tighten all the screws equally, otherwise the wheel will not run true. Spin the rear axle and see if the tires are running true. If they are not, loosen or tighten screws until they do run true.

STEP # 37 To adjust the diff, turn the car so the rear end is facing you. Hold the left hand tire in your left hand and the right hand tire in your right hand. Now with your right hand thumb on the top of the spur gear, try to rotate the gear forward. If you haven't over-tightened the nut, the gear should slip freely. Tighten the nut on the axle 1/4 of a turn and try again. Keep tightening the nut a 1/4 turn at a time until the gear will not slip. Your diff is now adjusted.

STEP # 38 O.K. Now its time for the front wheels to be put on. Find the front wheel bushings and open the bag with the front tires inside. You will notice that the wheels have a deep side and a shallow side. The shallow side is the outside of the wheel. Press two bushings into the center of each wheel and put a drop of light oil inside each bushing. Put the steel washer on the front axle, then slide the wheel on, and lock it in place with a 1/8" e-clip on the end of the axle.

This should complete the chassis assembly of your PRO-10 SPORT. Look over the chassis to be sure all of the parts are in the correct position. Now, on to the radio gear installation.

RADIO GEAR INSTALLATION

There are a number of good radios on the market today. Consult your hobby shop and they can suggest the best set up for the type of racing you will be doing. If you plan to do a lot of serious racing, we recommend that you do not buy the cheapest radio possible. This could result in radio interference problems at the race track.

There are many different ways to install radio gear. This is only one way. Put the gear in the way that is best suited for you and your type of equipment.

We will be showing you the installation of an electronic speed control. This is the most popular type speed control device used today. Although, resister type speed controls are still available, you will have much less trouble from an electronic type. There are many different types and price ranges to choose from. Ask your hobby shop to help you pick one that will do the job for you.

ADDITIONAL TOOLS & SUPPLIES NEEDED TO INSTALL RADIO GEAR & BATTERIES

Soldering Iron / Rosin Core Solder
Small Tie Wraps / Electrical Tape
Nylon Strapping Tape / Hook up wire

STEP # 39 Take the servo you will be using for the steering, remove the screw and wheel that came on it. Put your servo saver in its place as shown, but do not put the screw back in. You need to use the servo saver when you race. When you hit something, the servo saver has a spring in it that keeps the internal gears in the servo from being stripped. That's why they call it a servo saver. Pretty good, uh? Now, with your fingers, turn the servo saver all the way to the left and then all the way to the right to the stops. You want to position the servo saver so that it's right in the middle of the stops. Now screw in the servo shaft screw.

STEP # 40 Stick a piece of servo tape on the bottom of the servo. Only peel off one side of the protective backing.

STEP # 41 Remove the screws and face plates from the servo mounting posts and position the servo between the posts on the chassis as shown. Be sure the servo saver is in the middle of the chassis. When you are sure the servo is in the right position, peel off the protective backing and place the servo on the chassis. Lock the servo in place (using the screws and face plates) to the posts as shown. Some servos are too large to fit in between the servo mounting posts. If yours will not fit, only use one of the posts. Remove the post on the side that will still allow the servo saver to be in the center of the chassis.

STEP # 42 Now, put the steering linkage in the servo saver and steering blocks as shown.

STEP # 43 Next, lock the two pieces of steering linkage in place using the set collars and 4-40 set screws. With the servo saver in the straight up position, the front wheels should be pointing straight. Adjust the linkage until they are.

STEP # 44 Position your receiver in the position where the Novak receiver is shown. Attach it to the chassis using double sided sticky tape.

STEP # 45 Take the end of the receiver wire and run it up through the bottom hole in the antenna mount. Next, run the antenna wire up through the antenna tube until about an inch is sticking out of the top of the tube. Fold the antenna wire over the end of the tube and put the antenna cap on to hold the wire in place. Take the excess receiver wire and neatly fold it up and tie-wrap it along side the receiver. Plug the steering servo wire into the appropriate spot in the receiver .

STEP # 46 Mount your speed control device in the position that the Novak speed control is shown on the chassis. Attach it to the chassis using double sided tape. Plug the speed control's wire into the throttle spot on the receiver. Next use the double sided tape to attach the switch to the chassis. Tie-wrap the steering servo and speed control wires together in a neat bundle.

STEP # 47 Many different battery configurations can be used with the PRO-10 SPORT. This step will show a 6 - cell pack for road course racing. Using a piece of wire or battery shunt wire, solder the batteries together as shown. Most of the racers glue the cell together before soldering with either a hot glue gun or silicone cement. This makes them much easier to work with. All of the connections should be positive to negative. Solder tabs can be made from pieces of wire or battery shunt. The connections from the speed control can be made to these instead of directly to the batteries each time. This protects the batteries from being overheated too many times. Next, cut a piece of jumper wire. This will connect the two packs together. When measuring the wire, allow enough clearance for the wire to clear the shock mount. The jumper wire length should be about **3 1/2"** long. Solder the jumper wire into place and set the pack in the chassis to make sure everything is correct.

STEP # 48 Put the battery pack in the car and use nylon strapping tape to hold the batteries in. About 2 wraps of tape per side should do it. Now solder the speed control battery wires to the battery locations shown. Refer to the speed control instructions for the proper wire hook ups.

STEP # 49 Install the motor in the rear pod. Hook up the wires from the speed control to the corresponding positive and negative terminals on the motor.

The spur gear supplied is a 64 pitch gear. You will need to get a 64 pitch pinion gear. The size pinion gear you get will depend on what motor you have and what type track you are racing on. Consult the motor manufacturer for pinion gear size. After you have selected a pinion gear, put it on the motor shaft and lock it in place with a 4-40 set screw. The edge of the pinion gear should be even with the edge of the spur gear. TRC / COMPOSITECRAFT has a full line of steel and aluminum pinion gears. Check our complete catolog for a full line of accessories.

To set the gear mesh, loosen the motor screws so the motor can slide front to back. Pull the motor toward the rear axle until the pinion gear engages with the spur gear. You should be able to feel a small amount of play in the spur gear. Tighten the motor screws and check the play again. If the gear mesh is too tight, you will lose running time. If the gears are too loose they will strip out very easily.

If you run a large spur gear and pinion, it will be necessary to file a small amount of the t-bar away so the motor can be moved forward enough to get the proper gear mesh. This will not hurt the strength of the t-bar as long as you don't go too far. About 1/16" should be enough.

This should complete the mechanical assembly of your PRO-10 SPORT. The body is next.

BODY PAINTING INSTRUCTIONS

Before you get started, you should decide on the colors you are going to use to paint the body. You should use a paint that is made for Lexan bodies. Many brands are available in spray cans as well as brush on.

Wash the inside of the body using warm water and soap. Be sure to rinse the body good to remove all of the soap. Dry the body off completely with a soft, lint free cloth.

Remove the antenna from the chassis and set the body on top of the chassis. Line up the wheel wells in the body to the wheels on the chassis making sure the chassis is centered side to side in the body. With a magic marker, put a mark on the body on top of the body posts. After you paint the body you will be able to tell where to drill the 1/4" holes for the body posts.

Using masking tape, cover the windshields and any other areas not to be painted with the first color. Rub the edges around the tape with the back of your finger nail so that paint will not bleed under the tape. Make sure you use a good automotive grade paint tape or the paint will bleed through it anyway.

After the body has been taped, spray or brush on the paint. It is better to paint several thin coats as opposed to one thick coat. If you are going to paint the body more than one color, the darker colors should be painted first and the lighter colors last. If you paint the light colors first, the dark colors will bleed through the light colors.

After the paint has completely dried, remove the masking tape from the windshield and any other place you may have taped. Trim the body along the bottom trim line using a pair of scissors or a hobby knife. Drill a 1/4" hole in each mark that you made for the body posts. Set the body on the chassis. Check the height of the body. You can now raise or lower the body post collars to get the body to set the way you want it on the chassis.

Using a magic marker trace around the front and rear wheels on the outside of the body. Trim out the wheel wheels. If any magic marker is left on the body it can be removed with rubbing alcohol. Be sure to trim the wheel wells about 1/4" larger than the wheels to allow for the suspension to move.

BEFORE YOU RACE THE CAR, TAKE A FEW MINUTES TO READ THIS CHASSIS SET UP SECTION. IT WILL GIVE YOU A PLACE TO START BEFORE YOU GET TO THE TRACK. BEFORE CHARGING THE BATTERIES, MAKE SURE ALL THE CONNECTIONS ARE CORRECT AND THAT THE SPEED CONTROL SWITCH IS OFF. WE HOPE YOU ENJOY YOUR.....

PRO-10 SPORT

PRO-10 SPORT CHASSIS SET UP

Here are some tips that our racing team uses and some terms and explanations used in r/c car set up. The suggestions that are given in this manual are a starting point. The final set up you will have will depend on your track and driving styles.

When you make changes to the chassis, only make one or two changes at a time. If you make a bunch of changes all at once, you won't know which one helped or hurt the set up for sure. Take your time and start off driving slow and work your way into it. It will take practice.

FRONT CASTER

Caster is a term referring to the angle that the king pins lay back compared to the chassis. As a general rule, the more caster you have (the more the king pins are leaned back) the less steering you will have at high speeds. The car will also have more stability with more caster. The team starts out with 3 - 4 degrees of caster.

To change caster on the PRO-10 SPORT, you add or subtract caster shims. Everytime that you add a caster shim it lowers the chassis ground clearance. Keep this in mind when adding shims. Each shim is two degrees.

TWEEKING THE CHASSIS

The word tweek refers to how flat the chassis is. If your chassis is not flat then it is tweeked. You must set the tweek to insure the car turns the same in both directions. It must be done when the chassis is in a race ready state, less the body.

The tweek adjustments for the PRO-10 are the two outside screws that the rear suspension springs are on. Holding the car with the bottom of the chassis facing toward you and the front of the chassis pointing up, you will see these two screws.Which ever screw you tighten, it will make the front wheel on that same side heavy and the rear wheel on that side lighter. When you tighten these screws, do not tighten very much at a time. A full turn on the screw will make a big change on the tweek.

To check the tweek, set the chassis on a flat, smooth surface with the front of the car facing you. Using a hobby knife, lift the front of the chassis in the middle, about 1" off the surface and spin both of the front tires. Slowly, lower the chassis and both of the front wheels should hit the surface and stop at the same time. In order for this method to work, both of the front tires must be the same size, and the chassis must be in race ready state less the body. If they do not touch at the same time, tighten or loosen the tweek screws.

RIDE HEIGHT

The PRO-10 has five different rear axle ride height adjustments. The purpose of these are to control the ground clearance of the chassis, and to adjust weight transfer.

If the rear of the chassis is higher than the front of the chassis, in respect to ground clearance, more weight will be transfered to the front of the chassis, giving more steering. The same holds true if the front is higher than the rear. It will give you more rear traction.

Keep the chassis as low as the track conditions will allow. Do not set it up so that the chassis will bottom out when the rear suspension is at full travel.

FRONT & REAR SPRINGS

The front springs that come in the PRO-10 kit are .022". You may want to try different springs on the front end. As a general rule, the softer the spring, the more steering you will have.

If you are running an oval with most of the batteries on the left side of the chassis, the left spring needs to be stiffer than the right spring.

Regardless of the springs that you use, you will need to dampen the steering blocks with a thick silicone lube to smooth it out and keep it from bouncing.

The springs that are supplied in the rear suspension should be used. Stiffer and softer springs have been tried, but the stock springs work well for most tracks.

BATTERY POSITION

The position of the battery pack plays an important part in the way the chassis handles. The further forward the pack is in the chassis, the more steering you will have. The further back the pack is, the more rear traction you will have.

For 6-cell road racing, the team runs three cells per side, positioned in the back three rear slots in the chassis. Remember, if you need more steering, move them forward one slot.

For 6-cell oval racing, the team runs 5 cells on the left side starting at the rear and 1 cell on the right, one slot back from the front.

TIRE SELECTION

The tires that are supplied in this kit are green fronts and green rears. These tires will work on 80% of the tracks that you will be racing on, although other tires might work

better under certain conditions.

For oval racing on banked oval tracks, T/M RADIALS should be used. These tires have won every major oval race in 1989. There is no better tire for this type of racing.

For racing on carpet, the green tires that are supplied will work fine. Depending on the carpet type, YOKOMO tires might work a little bit better. YOKOMO tires are available from TRC.

For racing on asphalt, green tires are what most of the team uses. Because asphalt is different around the country, this is something that you will have to experiment with.

Good handling is a balance between front and rear traction. You should always run the hardest possible tire that gives you the traction that you need. Running a softer tire will increase traction, but it will hop and slow the car down in the turns.

You can add traction without changing compounds, with the use of a traction additive. For instance, if the car has good front traction but it is a little loose in the rear, traction additive can be added to the rear tires.

The following traction chart will give you the traction of each compound under normal conditions.

HIGHEST TRACTION

YELLOW DOT
GREEN / YELLOW
GREEN DOT
YOKOMO
BLUE DOT
ORANGE / BLUE DOT
ORANGE DOT

LOWEST TRACTION

ADJUSTING THE REAR SHOCK SPRINGS

The PRO-10 SPORT is supplied with a rear damper that acts as a shock absorber for the rear T-bar. By compressing or loosening the set collars, the motion of T-bar will be stiff or soft from front to back. If the rear of the car is bouncing, compress the springs. Be sure to put a drop of silicone lube in the hole that the push rod goes through. The springs supplied will work the best.

WINGS

Most racers today run wings at all types of races. Wing selection is important to car handling. Running a wing will do two things. It increases the rear traction and stability of the car. It decreases front traction and adds drag to the car. Run as small of a wing as possible to give you the results that you need. Running a huge wing will add too much drag and slow you down and decrease your run time.

There are many different types of wings available. Do some testing and pick the one that suits your racing best.

UP-GRADING YOUR PRO-10 SPORT

The PRO-10 SPORT was designed as an entry level race car. The car may be raced in the stock form, but there are many improvements that can be made to the chassis that will enhance the performance if you ever start to race on a competitive level. Because the PRO-10 SPORT is based on the same design as the PRO-10 ELITE, all of the ELITE parts will fit on your SPORT.

When you start to race, one of the most important things to consider is weight. You want the car to be as light as possible. The chassis supplied is made from fiberglass. One of the best weight savings you can get is by putting a graphite chassis on the car. This chassis will save you almost one ounce over the fiberglass chassis and it will be much stronger. The part number for the graphite chassis is #5310.

Another area that you need to look at in racing is rolling resistance. Because the car is battery powered, it has a limited supply of power. The more freely everything rolls the less power it takes, which will make the car run faster and longer. The car comes with oilite bushings. Replacing these with ball bearings will free up the front and rear wheels so you can run faster and longer. The part numbers are #5480 & #5484.

When you crash the car at high speeds, sometimes things break or bend. To help provent this, a front bumper and side crash pods may be added to the chassis. These parts will help you in a crash situation. They will help keep the front and rear axles from being bent or broken.

The front axle beam that is supplied is made from high-impact nylon. The magnesium front end will bolt onto your chassis. This front end is slightly stronger. You will need to buy the front cross bar, cinch blocks, king pins, and steering blocks. Contact your local dealer for more information.

A graphite axle may be added to replace the steel diff axle. This will save some weight and give you better differential action. Although the graphite axle is lighter, it is not as strong as the steel axle. The graphite axle must be used with rear ball bearings. Oilite bushings should not be used. A complete diff kit is available.

The rear hubs that are supplied are made from nylon. After a few crashes they may become bent. For racing, aluminum hubs should be used. These will not get bent as easily and the rear wheels will run truer.

There are many other accessories that are available to make your car a racing machine. Start out slow and learn to drive. As you become a better driver you can add performance parts. If you need help, have any questions or need to order parts, please give us a call. GOOD LUCK!

TOTAL RACING CONNECTION, INC.
2211 CHARTER STREET
ALBEMARLE, N.C. 28001
PHONE 704-982-0507

PRO-10 SERIES REPLACEMENT PARTS & ACCESSORIES

FRONT SUSPENSION

#5100	COMPLETE SPLIT FRONT CROSS BAR	$29.95
	Complete magnesium split front end kit. Includes two 2 degree axle halfs, dowell pin, spacer, one cinch block, two king pins, and all necessary screws and instructions.	
#5102	ZERO DEGREE AXLE HALF	$10.00
#5104	2 DEGREE AXLE HALF	$10.00
#5106	4 DEGREE AXLE HALF	$10.00
#5108	SPACER AND PIN SET	$2.00
#5110	MAGNESIUM FRONT CROSS BAR / STOCK	$14.00
#5112	MAGNESIUM FRONT CROSS BAR / OVAL * 2 DEGREES BUILT IN CAMBER	$14.00
#5113	MAGNESIUM FRONT CROSS BAR / OVAL * SAME AS #5112 BUT 1/8" WIDER	$14.00
#5114	LEFT CINCH BLOCK FOR MAGNESIUM FRONT CROSS BAR / ALUMINUM	$7.50
#5116	RIGHT FLOAT BLOCK FOR MAGNESIUM FRONT CROSS BAR / NYLON	$3.50
#5117	FRONT AXLE BLOCK SET / INCLUDES #5114 & #5116	$10.00
#5118	5/32" KING PINS FOR MAG. CROSS BAR	$4.00
#5120	5/32" STEERING BLOCKS / STOCK * TRAILING ARM AXLE / FOR 1/8" BEARINGS	$7.50
#5124	5/32" STEERING BLOCKS * ON CENTER AXLE / FOR 3/16" BEARINGS	$10.00
#5138	MOLDED NYLON FRONT CROSS BAR * INCLUDES 1 PAIR OF CASTER SHIMS	$8.00
#5140	KING PINS FOR MOLDED CROSS BAR	$4.00
#5142	2 DEGREE CASTER SHIMS / 2 PAIR * FOR USE WITH MOLDED CROSS BAR	$1.00
#5146	1/8" STEERING BLOCKS * TRAILING ARM AXLE / FOR 1/8" BEARINGS	$7.50
#5150	1/8" STEERING BLOCKS * ON CENTER AXLE / FOR 3/16" BEARINGS	$10.00
#5152	FRONT SUSPENSION SPRINGS .018" (SOFT)	$1.50
#5154	FRONT SUSPENSION SPRINGS .020" (MED.)	$1.50
#5156	FRONT SUSPENSION SPRINGS .022" (STIFF)	$1.50
#5158	ALUMINUM STEERING LINKAGE KIT / LONG * FOR USE WITH 1/8" WIDER FRONT CROSS BARS	$11.95
#5159	ALUMINUM STEERING LINKAGE KIT / SHORT * STOCK REPLACEMENT FOR PRO-10 SERIES	$11.95
#5160	ALUMINUM STEERING TURNBUCKLES / LONG	$5.95
#5161	ALUMINUM STEERING TURNBUCKLES / LONG	$5.95
#5162	ALUMINUM STEERING BALL JOINTS / LONG / 10	$9.95
#5163	ALUMINUM STEERING BALL JOINTS / SHORT / 10	$9.95
#5164	PLASTIC BALL CUPS / 14	$5.00
#5166	SERVO MOUNTING KIT	$1.50

CHASSIS PARTS

#5308	PRO-10 X / SPORT COMPOSITE GRAPHITE CHASSIS	$39.99
#5310	PRO -10 ELITE GRAPHITE CHASSIS PLATE	$49.95
#5314	MOLDED NYLON T-BAR SUPPORT PLATE	$3.50
#5315	MOLDED NYLON T-BAR SUPPORT PLATE SET * INCLUDES #5316	$5.00
#5316	PIVOT BALL & SOCKET FOR T-BAR SUPPORT PLATE	$2.00
#5318	PRO-10 SERIES REAR T-BAR	$7.99
#5320	PRO-10 SERIES MOTOR BLOCK BRACE	$2.50
#5322	PRO-10 SERIES NYLON MOTOR BLOCK SET	$7.99
#5324	PRO-10 SERIES LEFT ALUMINUM MOTOR BLOCK	$17.99
#5326	PRO-10 SERIES RIGHT ALUMINUM MOTOR BLOCK	$17.99
#5328	PRO-10 SERIES RIDE HEIGHT ADJUSTOR SET	$4.00
#5330	PRO-10 SERIES SHOCK & ANTENNA MOUNT	$5.99
#5332	PRO-10 SPORT ANTENNA MOUNT WITH TUBE	$2.00
#5340	PRO-10 SERIES REAR SUSPENSION SPRINGS	$2.00
#5342	PRO-10 SERIES NYLON SPRING LOCATORS	$1.00
#5350	PRO-10 SPORT REAR DAMPER KIT	$3.50

CHASSIS ACCESSORIES

#5400	MOLDED NYLON FRONT BUMPER	$5.00
#5402	PRO-10 SERIES ALUMINUM WING MOUNT KIT	$6.99
#5404	PRO-10 SERIES NYLON WING MOUNT KIT	$3.99
#5410	PRO-10 SERIES NYLON SIDE POD SET	$2.50
#5422	2" MOLDED NYLON BODY POST KIT	$2.00
#5424	3" MOLDED NYLON BODY POST KIT	$2.50
#5426	4" MOLDED NYLON BODY POST KIT	$3.00
#5428	MOLDED NYLON BODY POST COLLARS / 6	$1.50

SHOCKS & ACCESSORIES

#5450	COMPLETE SHOCK KIT / STOCK	$12.00
#5452	RE-BUILD KIT FOR STOCK SHOCK WITH PISTON	$6.00
#5454	HEAVY SHOCK SPRING / 2	$1.00
#5456	LIGHT SHOCK SPRING / 2	$1.00
#5458	ALUMINUM SHOCK PINS / 2	$2.99

BALL BEARINGS & BUSHINGS

#5476	1/8" X 5/16" FLANGED OILITE BUSHINGS / 2	$1.25
#5478	1/4" X 3/8" FLANGED OILITE BUSHINGS / 2	$1.50
#5480	1/8" X 5/16" FLANGED BEARING / 2	$12.00
#5482	3/16" X 5/16" FLANGED BEARINGS / 2	$12.00
#5484	1/4" X 3/8" FLANGED BEARING / 2	$13.00

SCREWS & HARDWARE

#5502	4-40 X 1/4" STEEL FLAT HEAD SOCKET SCREWS / 20	$2.00
#5506	4-40 X 1/2" STEEL FLAT HEAD SOCKET SCREWS / 8	$1.50
#5508	4-40 X 3/4" STEEL FLAT HEAD SOCKET SCREWS / 8	$1.50
#5510	4-40 X 1" STEEL FLATHEAD PHILLIPS SCREW / 6	$1.50
#5514	5-40 X 1/4" STEEL SOCKET HEAD CAP SCREW / 6	$1.50
#5516	5-40 X 3/8" STEEL SOCKET HEAD CAP SCREWS / 6	$1.50
#5517	5-40 X 3/8" ALUM. SOCKET HEAD CAP SCREWS / 8	$6.00
#5523	8-32 X 1/2" FLAT HEAD ALUMINUM SCREWS / 6	$1.50
#5526	8-32 X 7/8" FLAT HEAD STEEL SCREWS / 8	$1.50
#5527	8-32 X 7/8" FLAT HEAD ALUMINUM SCREWS / 6	$2.00
#5540	4-40 X 1/8" STEEL SET SCREWS / 8	$2.25
#5544	8-32 X 3/16" STEEL SET SCREW / 6	$1.50
#5546	10-32 X 1/4" STEEL SET SCREWS / 6	$1.50
#5552	4-40 ALUMINUM LOCK NUTS / 6	$1.50
#5558	8-32 NYLON LOCK NUTS / 6	$1.00
#5560	1/8" E-CLIP / 10	$1.50
#5561	.050" STEEL ALLEN WRENCH / 2	$1.00
#5562	1/16" ALLEN WRENCH / 2	$1.00
#5564	5/64" ALLEN WRENCH / 2	$1.00
#5566	3/32" ALLEN WRENCH / 2	$1.00

DIFFERENTIALS & ACCESSORIES

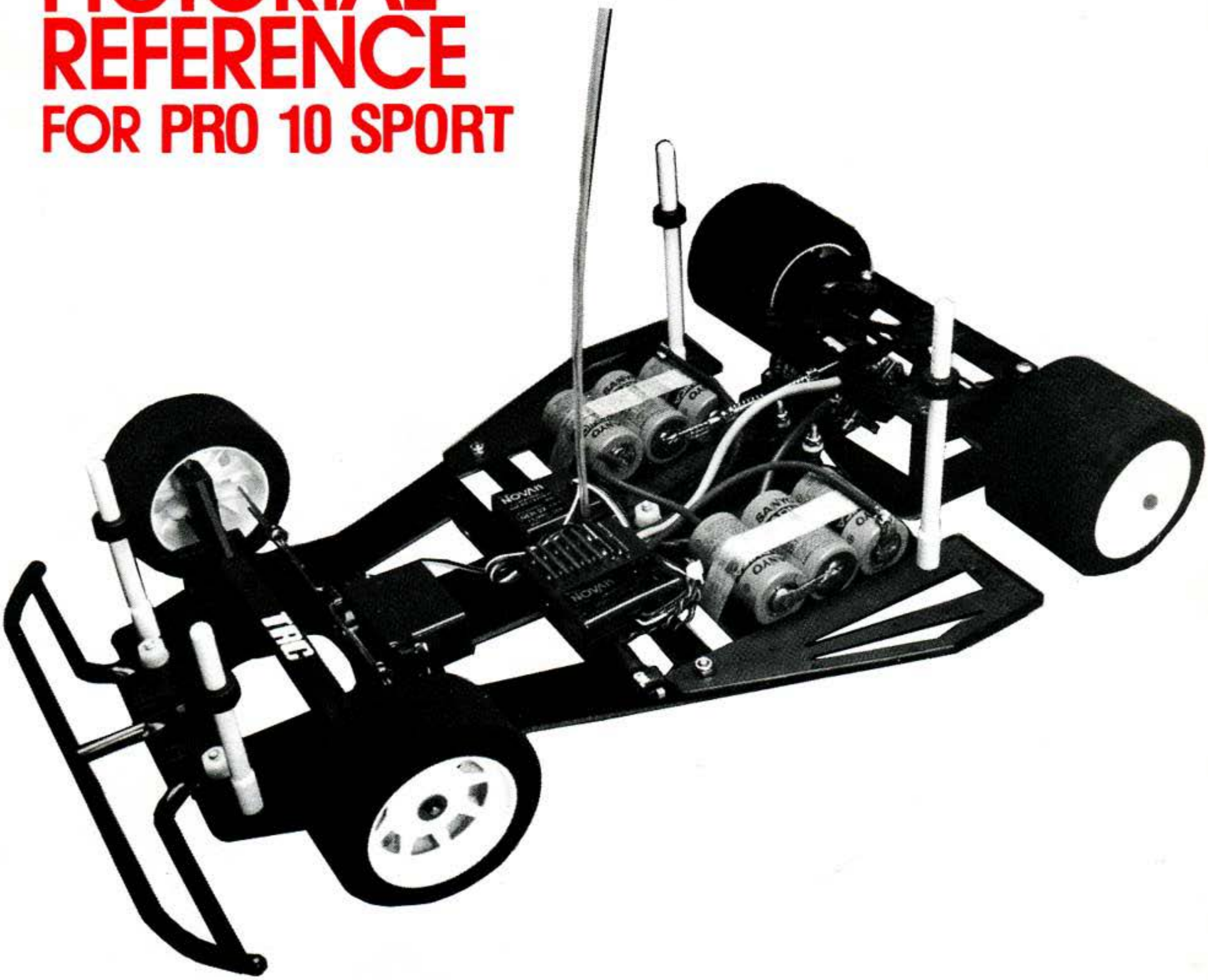
#5660	PRO-10 SERIES COMPLETE PRO DIFF	$75.00
#5661	ALUMINUM TIP GRAPHITE PRO AXLE * USES BEARING IN SPUR GEAR	$35.00
#5662	GRAPHITE DIFF AXLE	$24.95
#5663	STEEL DIFF AXLE	$7.99
$5666	RIGHT ALUMINUM DIFF HUB	$8.50
#5667	RIGHT MOLDED NYLON DIFF HUB	$3.00
#5668	LEFT ALUMINUM WHEEL HUB	$7.50
#5669	LEFT MOLDED NYLON WHEEL HUB	$3.00
#5672	STANDARD DIFFERENTIAL BALLS / 16	$1.00
#5673	* SUPER BALLS * FOR DIFFERENTIAL / 16	$3.00
#5674	DIFFERENTIAL DRIVE RINGS / 4	$2.00
#5677	DIFFERENTIAL THRUST BEARING SET	$2.00
#5678	CONE WASHERS FOR DIFF AXLE / 5	$1.00
#5685	PRO-10 SERIES REAR AXLE SPACERS / 4	$1.50
#5686	1/4" X 3/8" PLAIN BALL BEARING	$6.00
#5690	1/4" X 3/8" PLAIN NYLON BUSHING / 2	$1.00

TO ORDER PARTS AND ACCESSORIES
TOTAL RACING CONNECTION, INC..
2211 CHARTER STREET,
ALBEMARLE, N.C. 28001
704 - 982 - 0507

Team TRC

COMPOSITE CRAFT

STEP-BY-STEP PICTORIAL REFERENCE FOR PRO 10 SPORT



Pictured with optional bumper & side wing.

USE THIS NUMBERED PHOTO REFERENCE ALONG WITH YOUR INSTRUCTION MANUAL

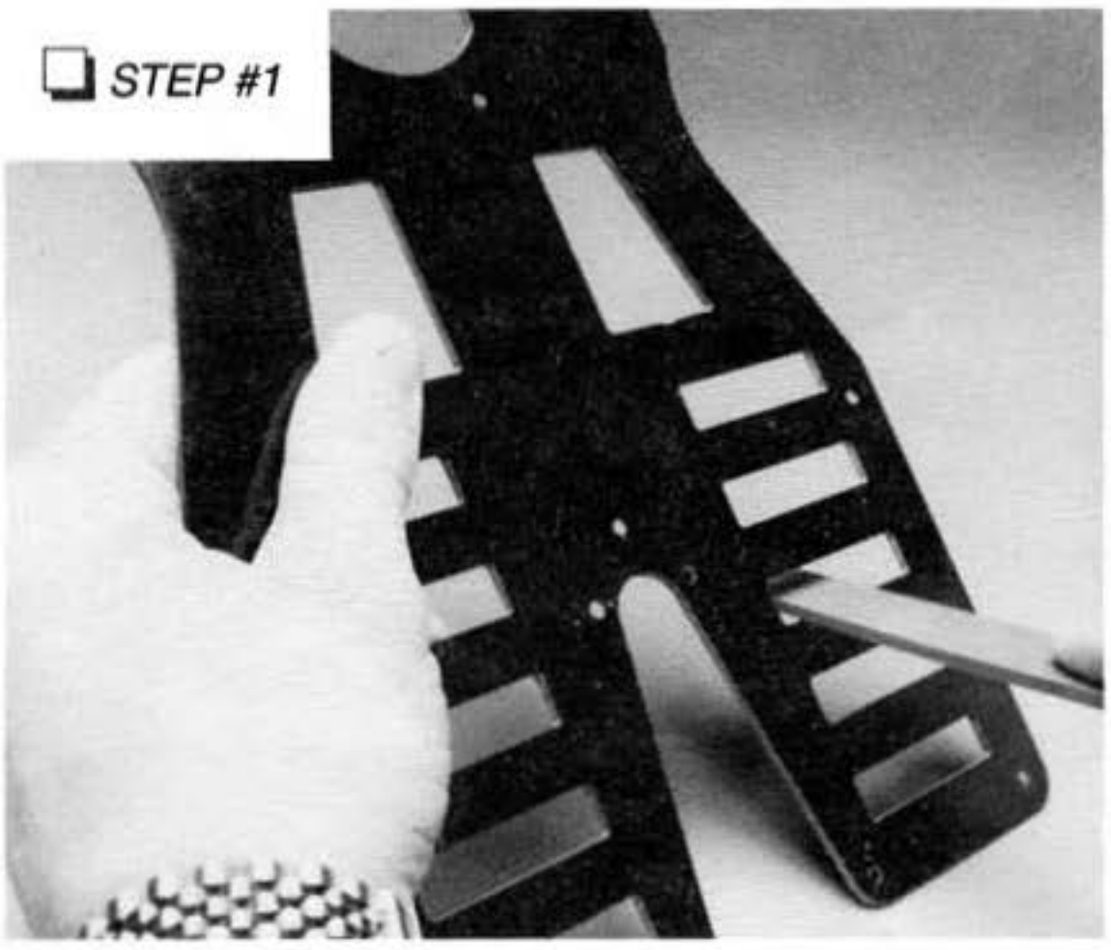
This step-by-step pictorial reference guide for the PRO-10 SPORT is to be used along with the assembly instruction manual. This kit should not be assembled using these pictures only.

The step numbers in the pictures correspond to the steps in the assembly instruction manual. Make sure each step is completed before proceeding to the next. Put a check mark in the box on each picture after the step is completed.

The PRO-10 SPORTS will have a nylon front end. To insure the strength of it, we suggest boiling it in water for 10 minutes.

If you have any problems during assembly, call (704) 982-0507 for technical assistance. GOOD LUCK! We hope you enjoy your new PRO-10.

❑ STEP #1



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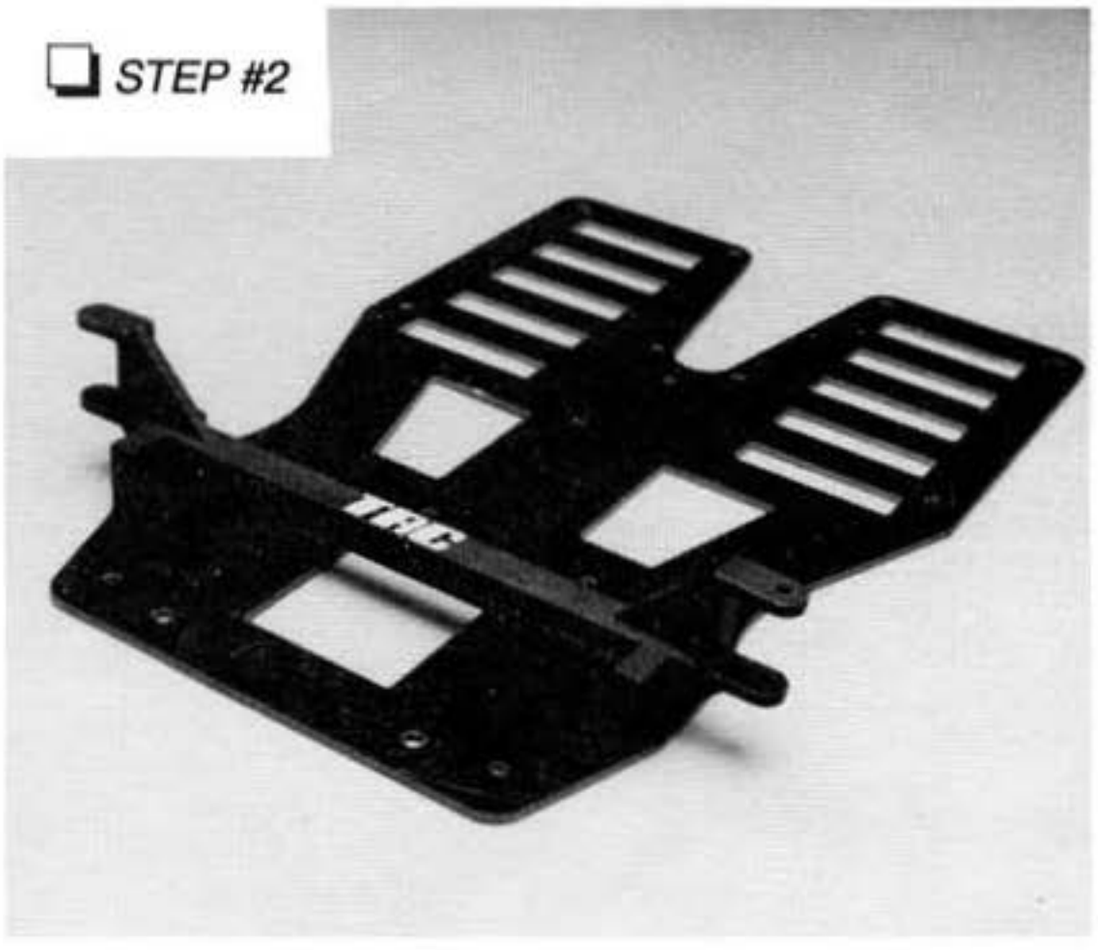

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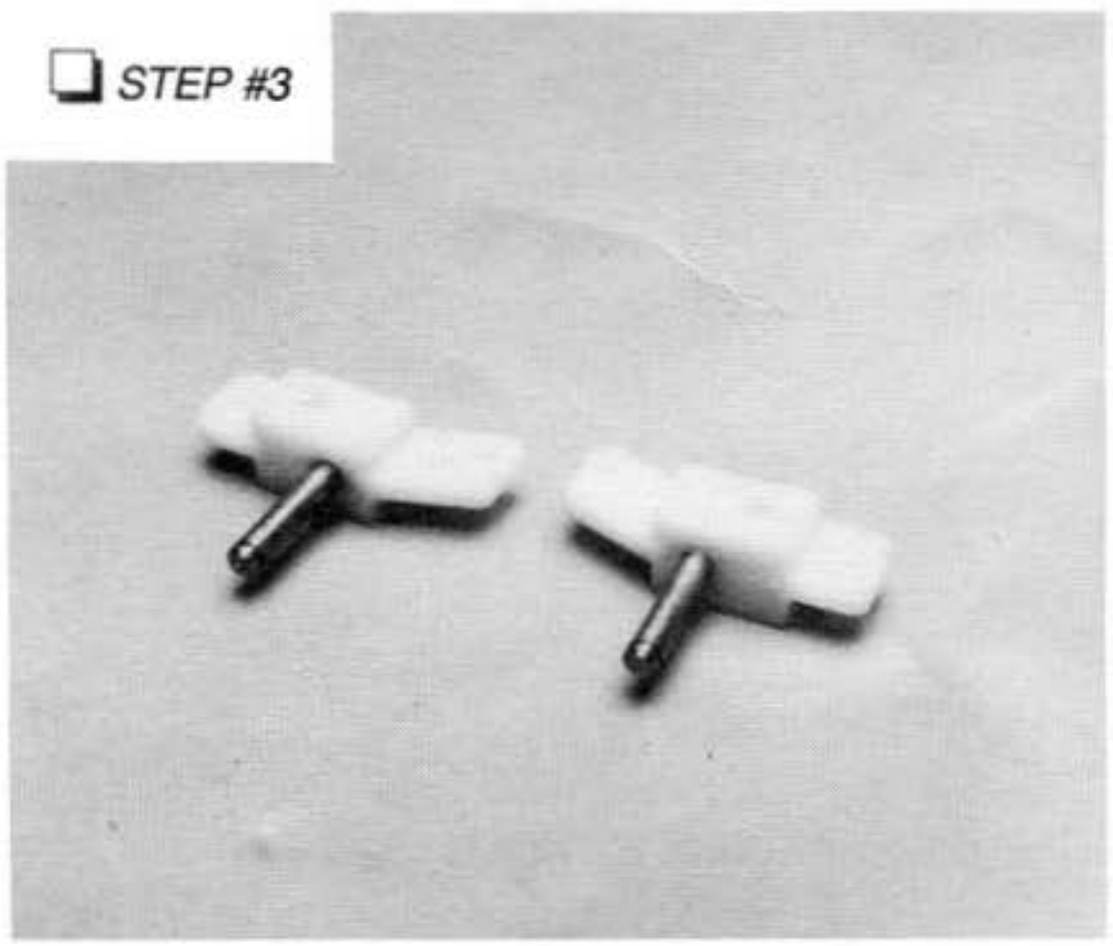

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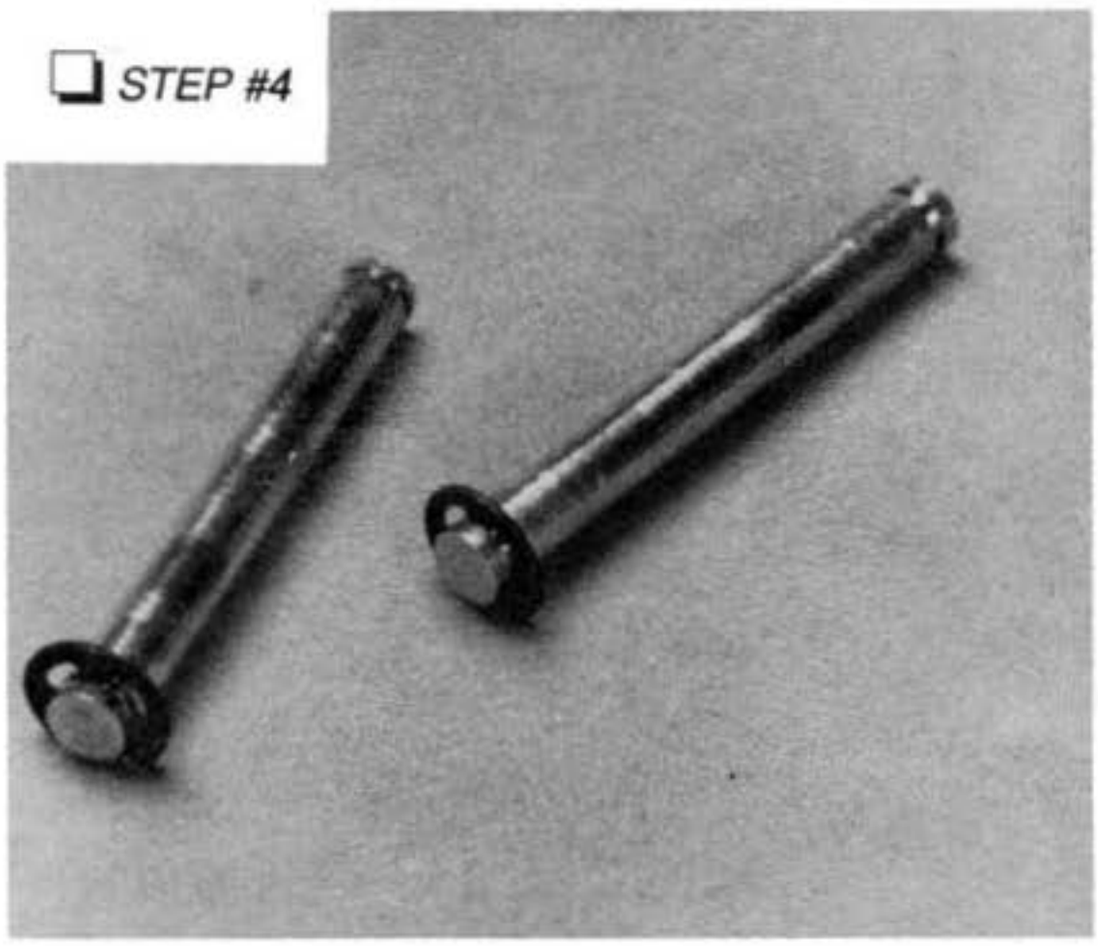

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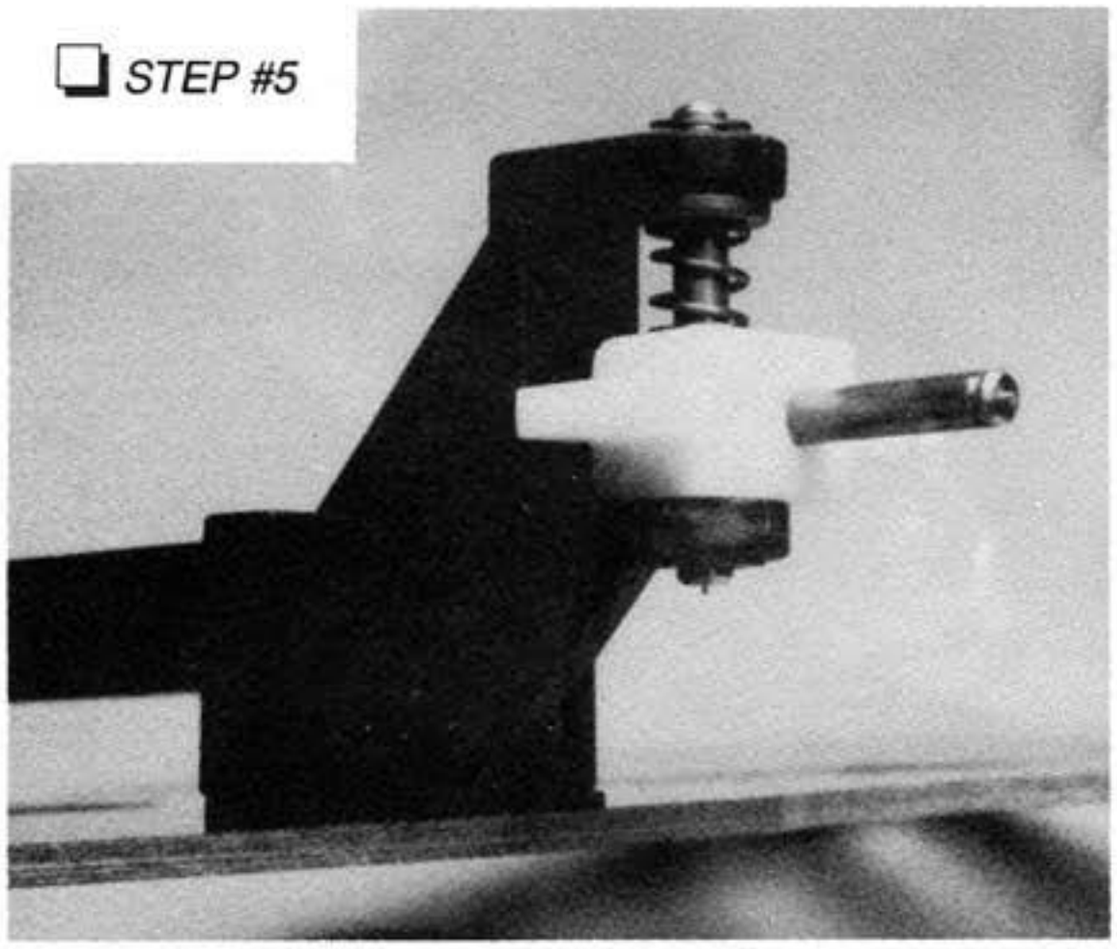

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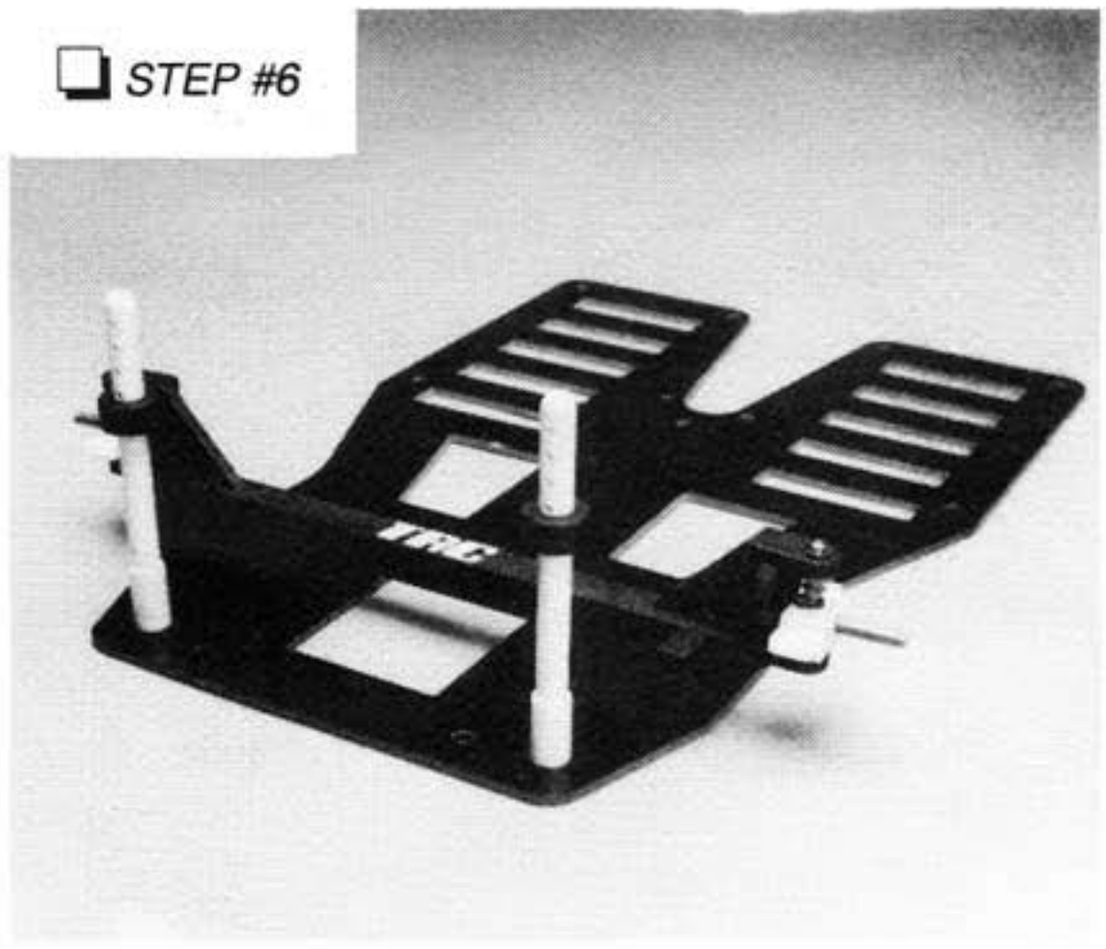

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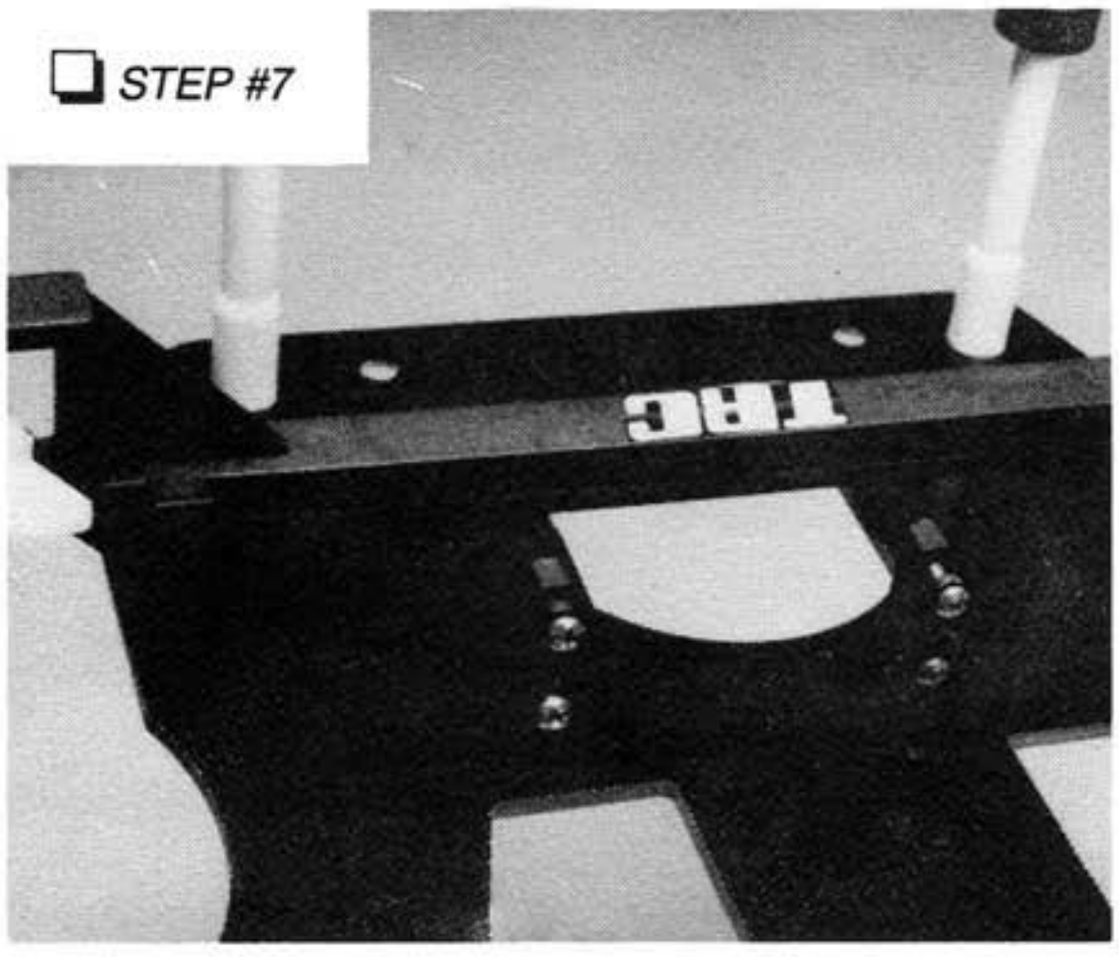

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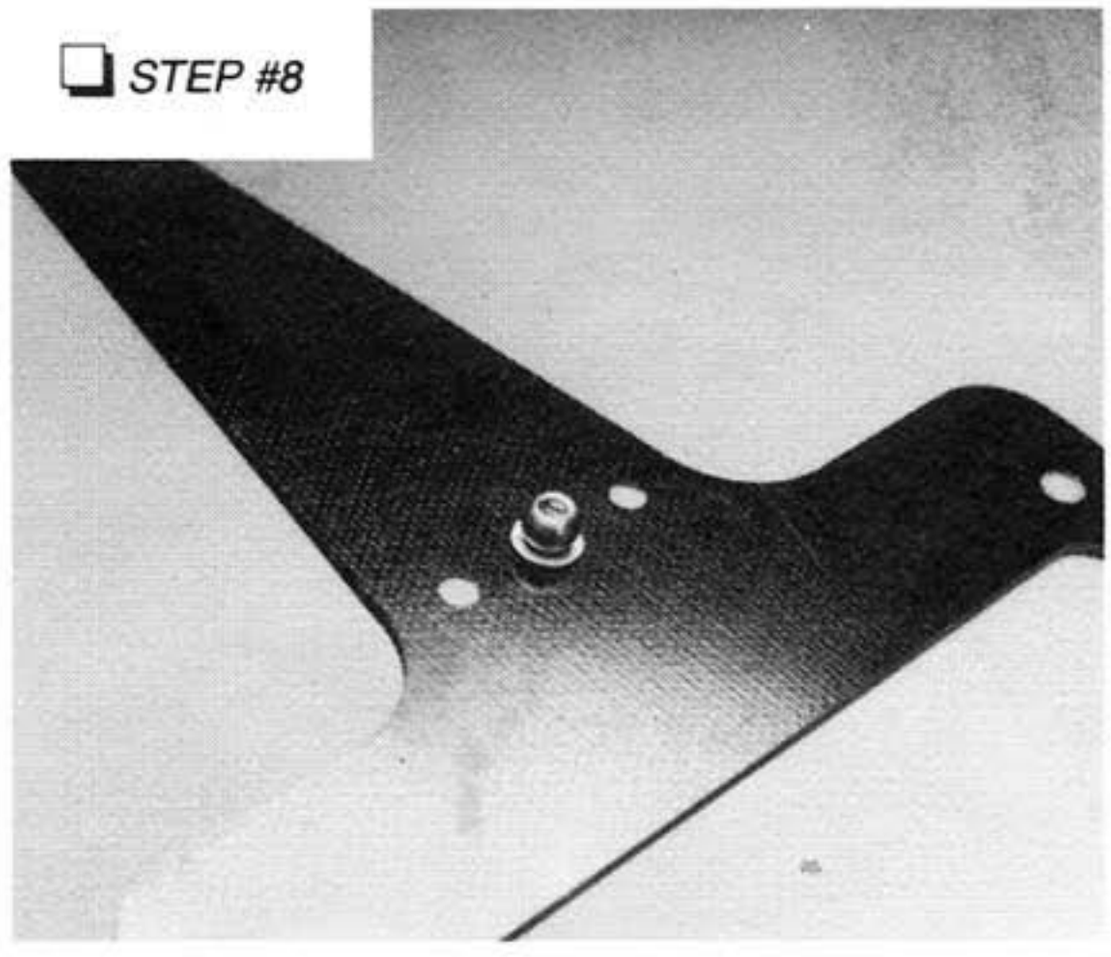

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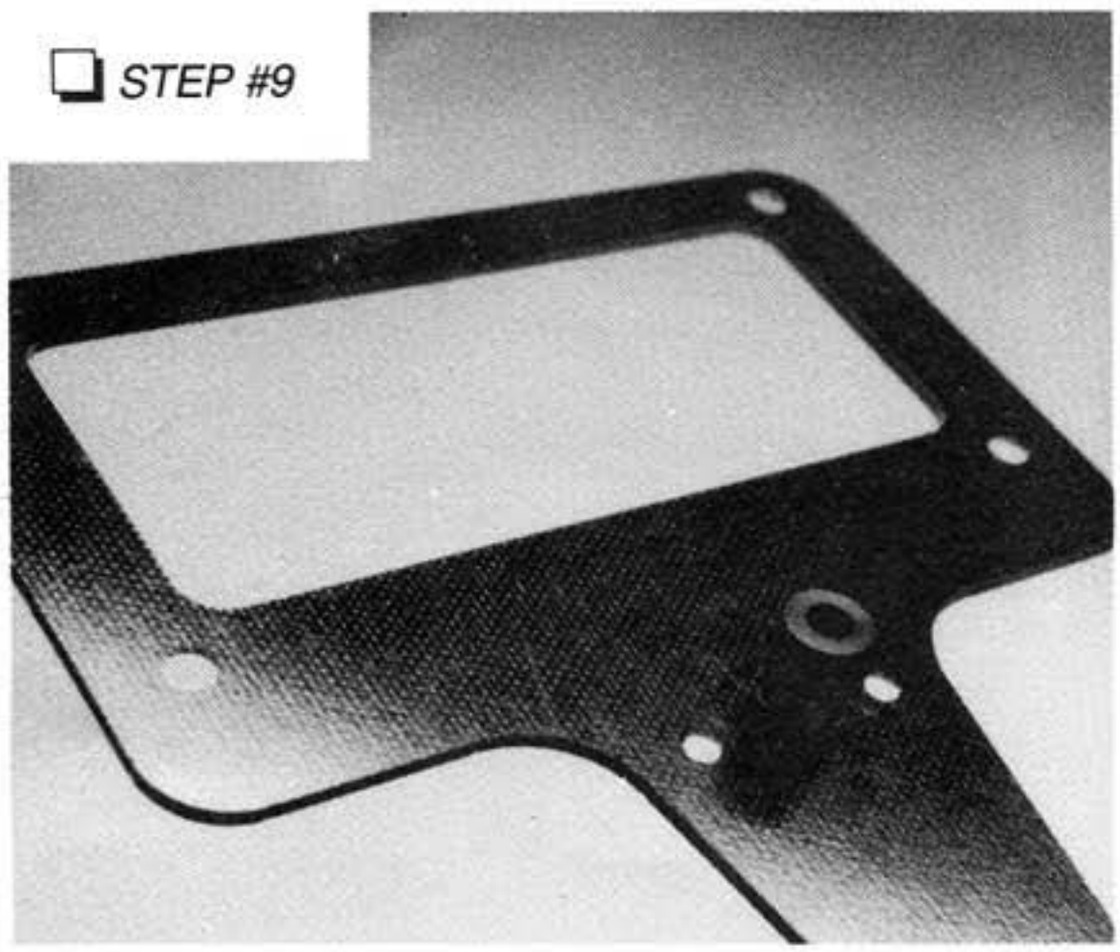

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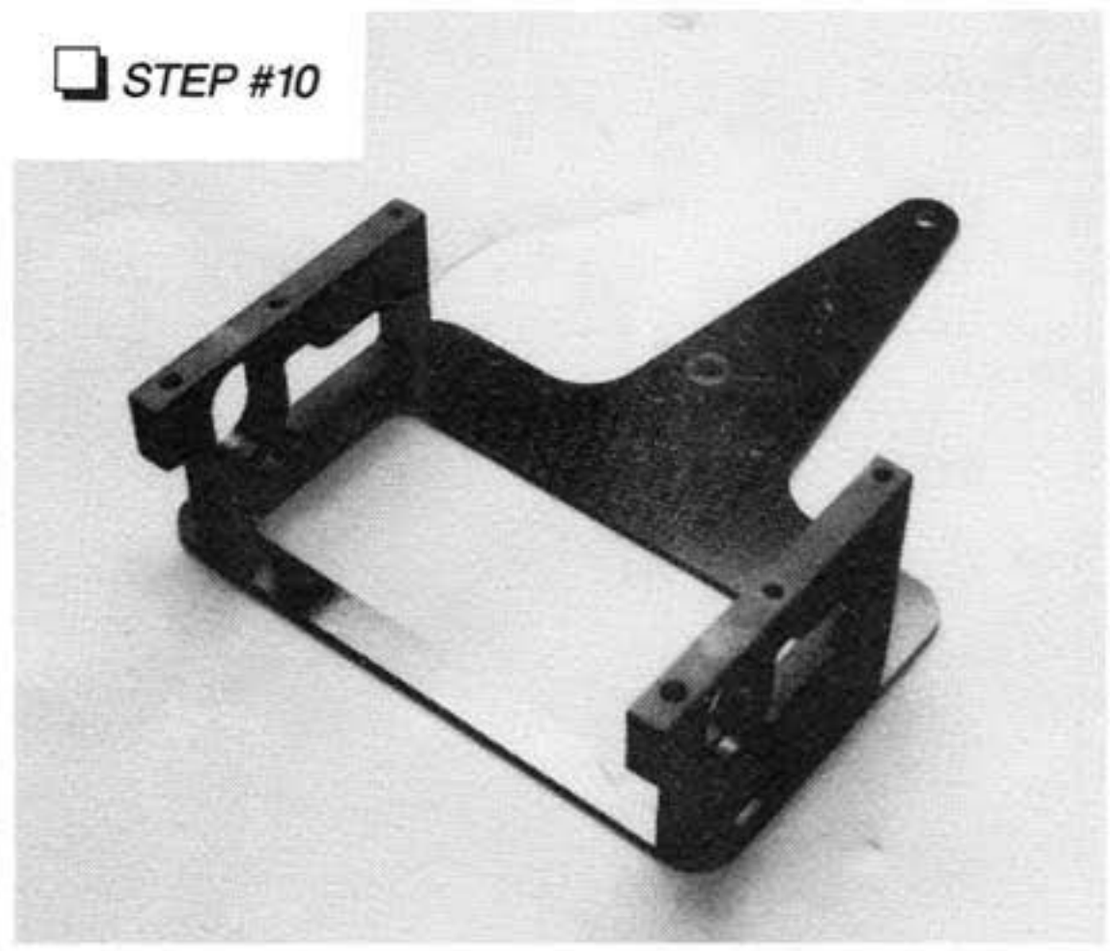

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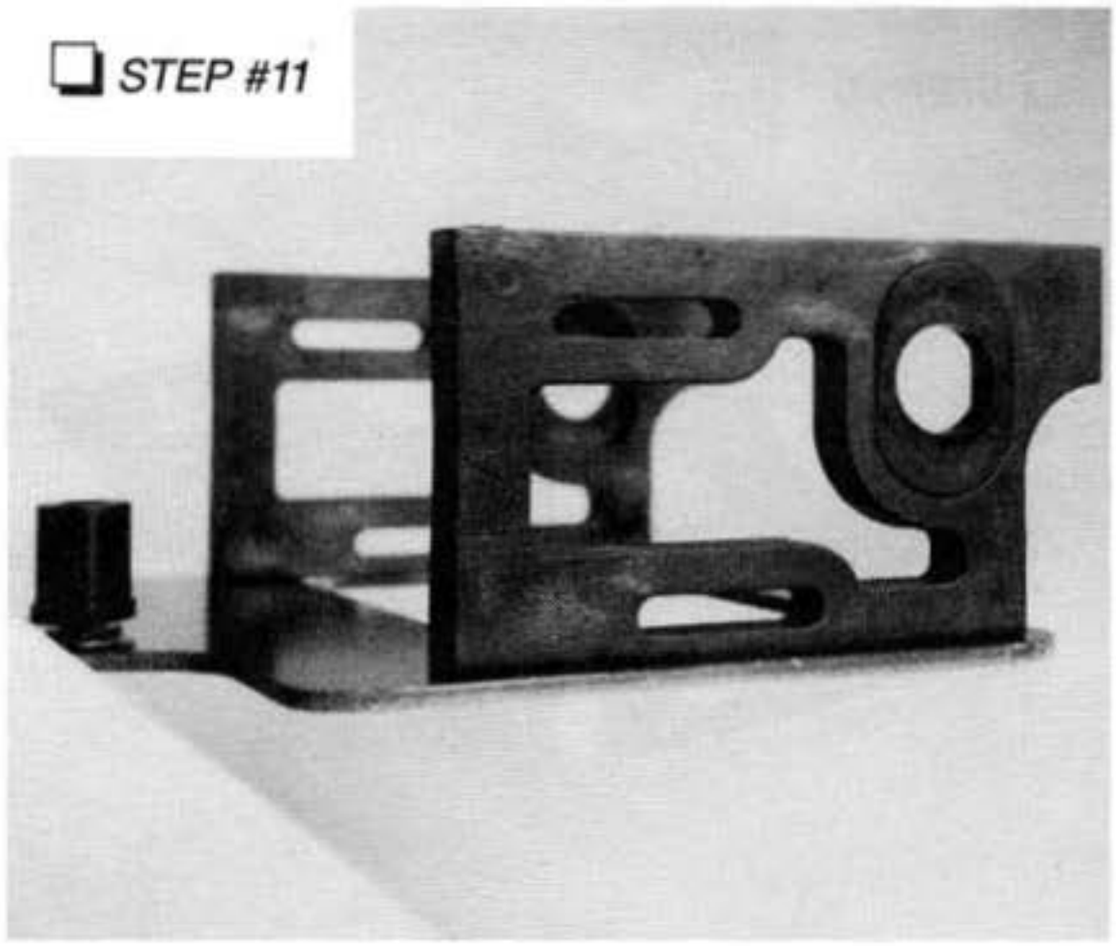

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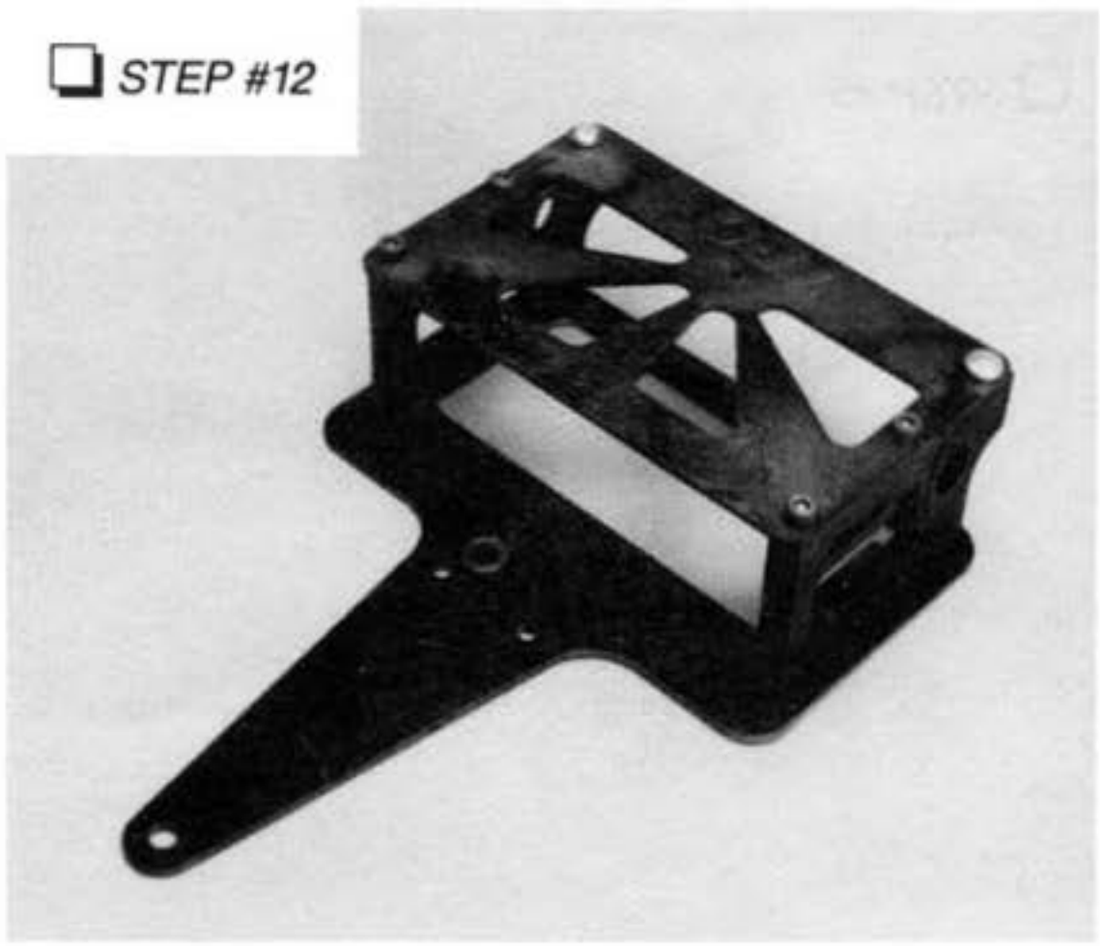

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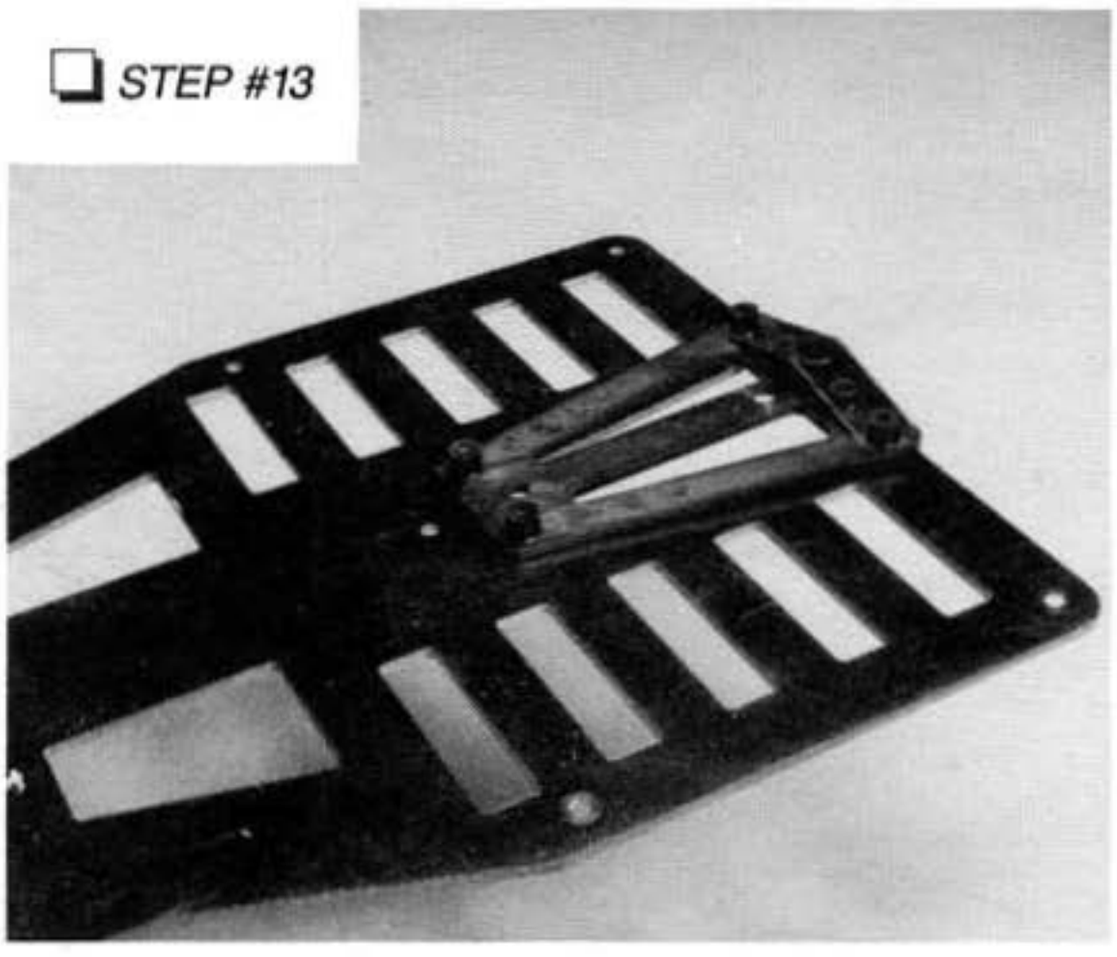

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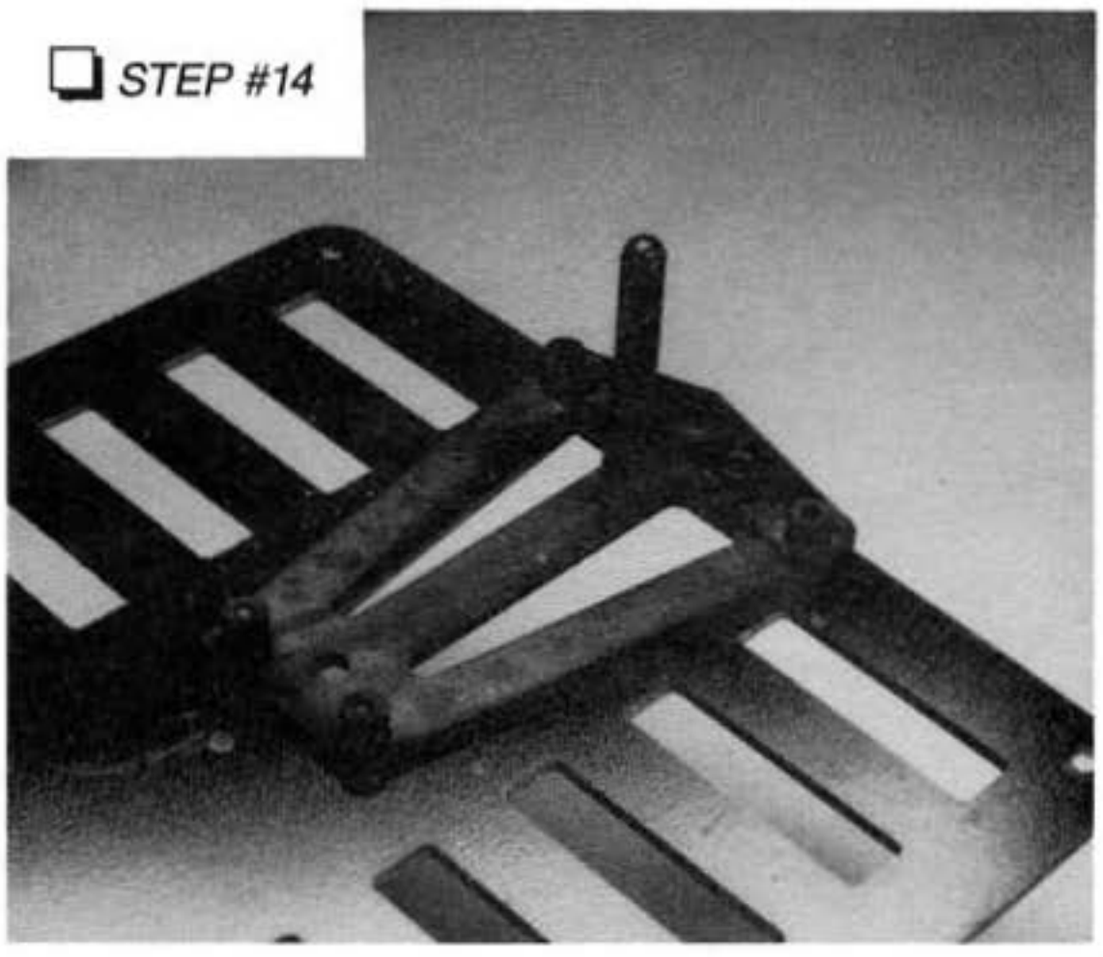

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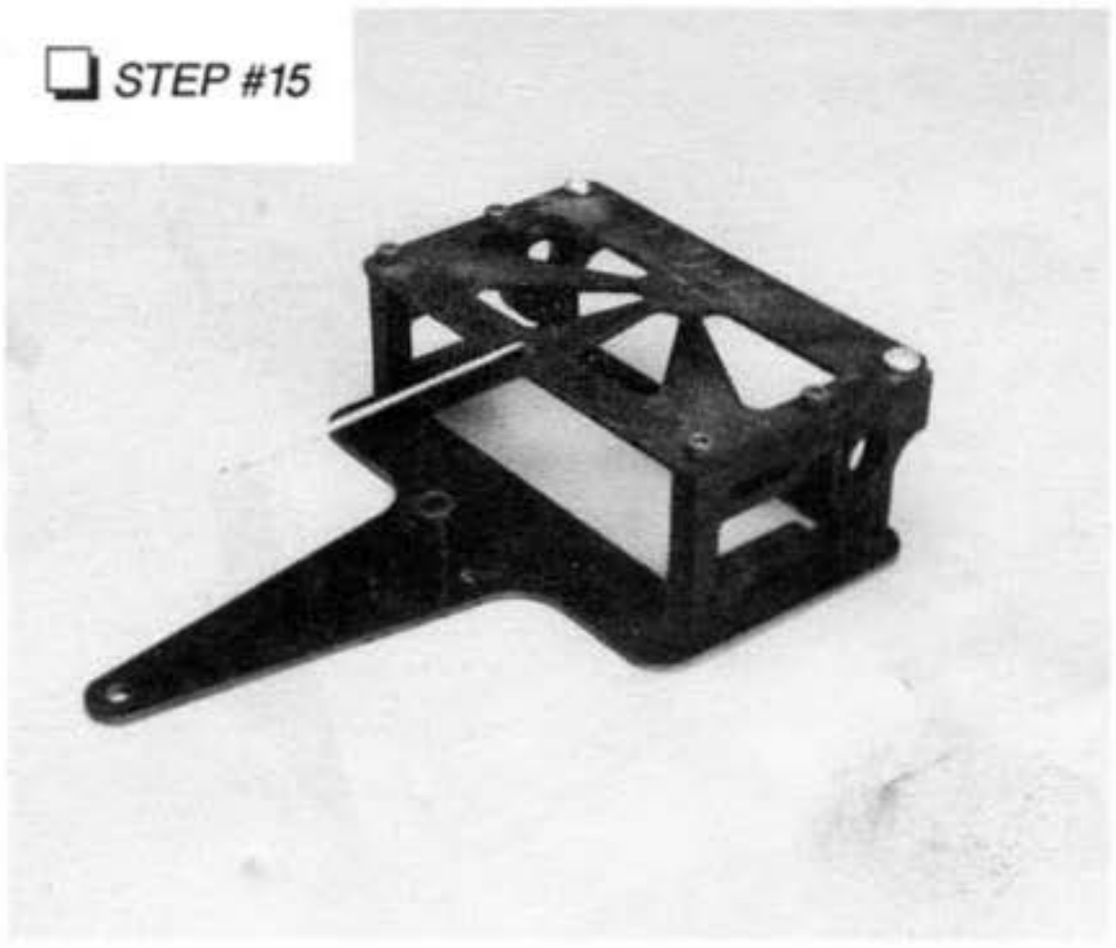

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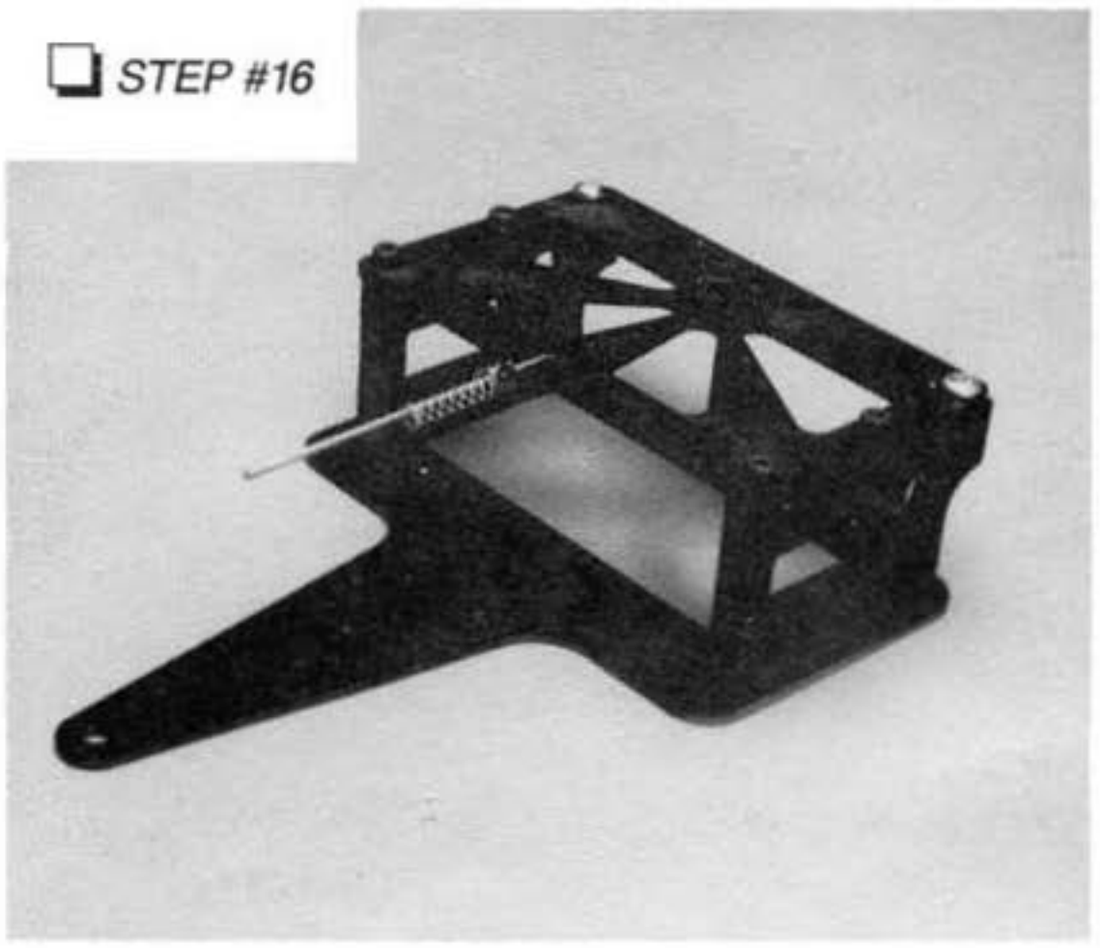

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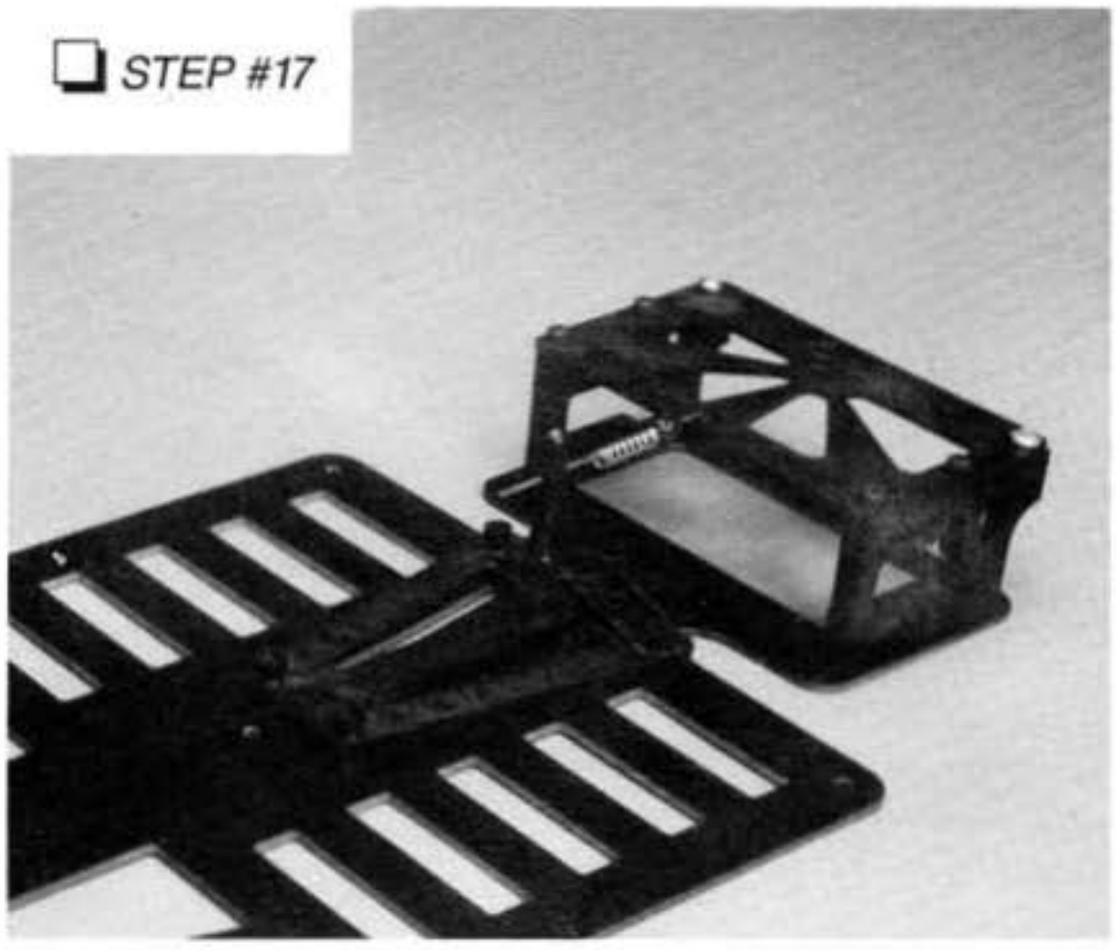

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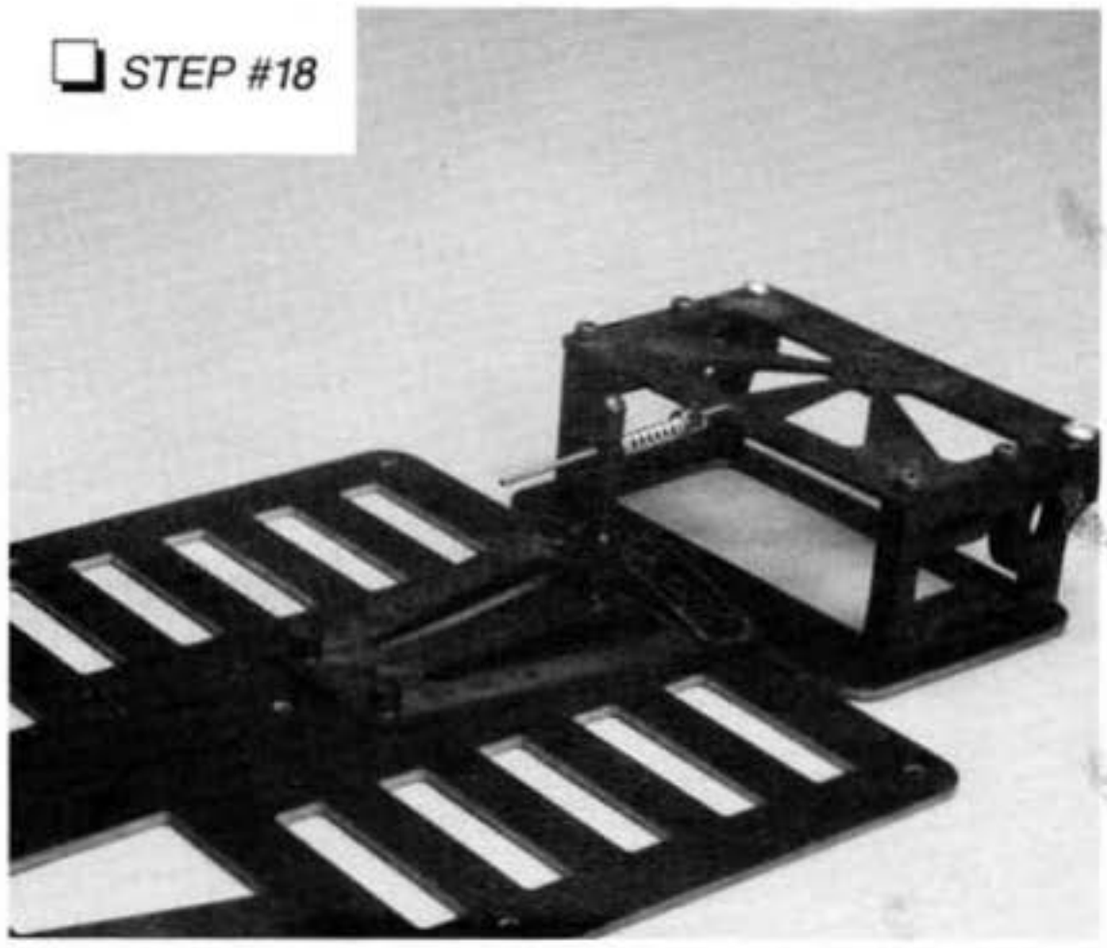

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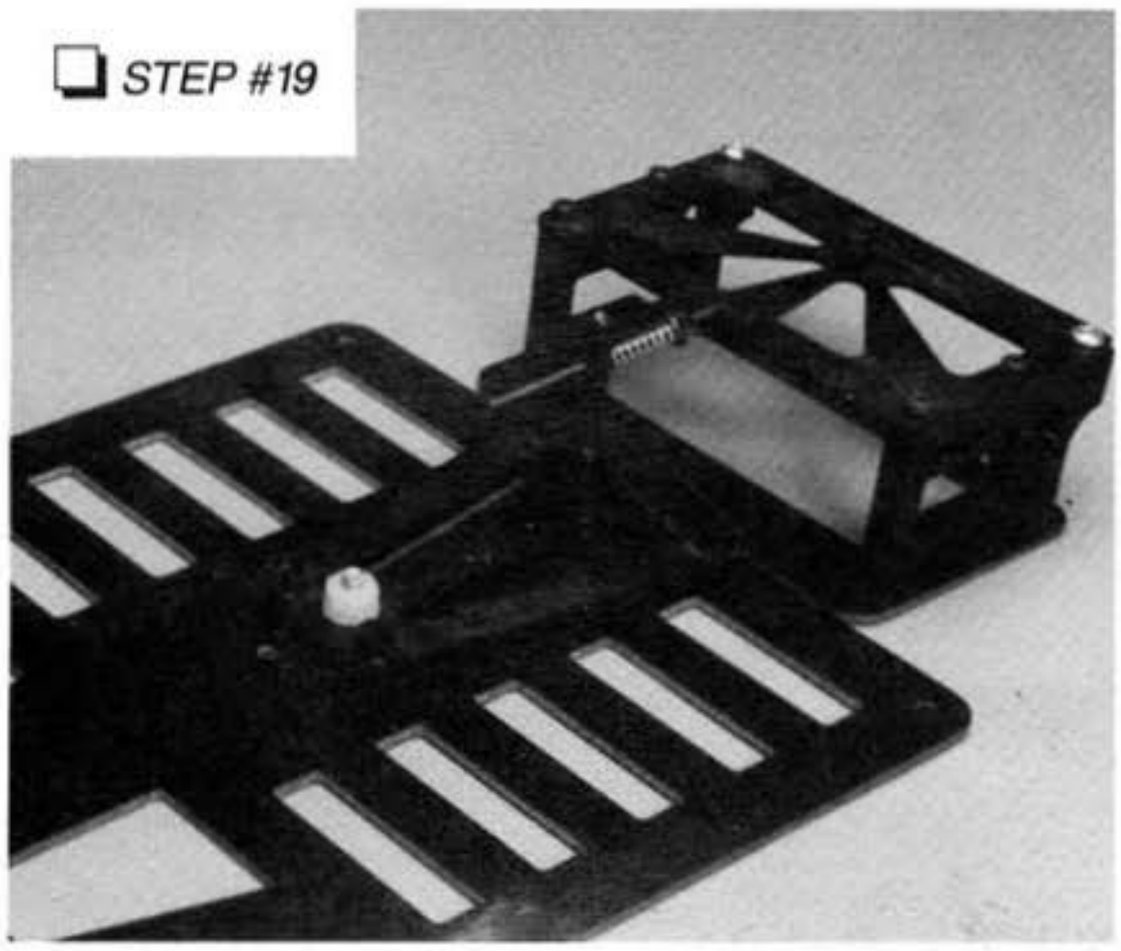

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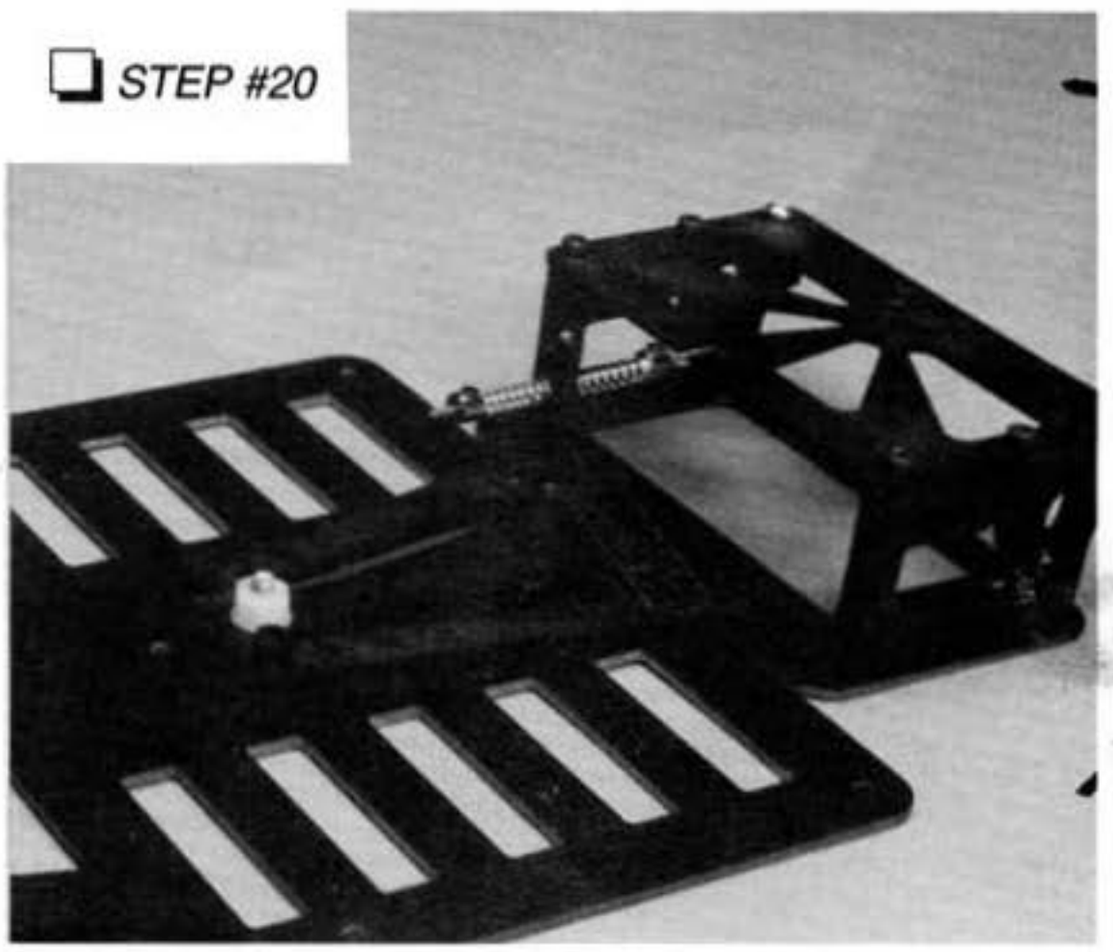

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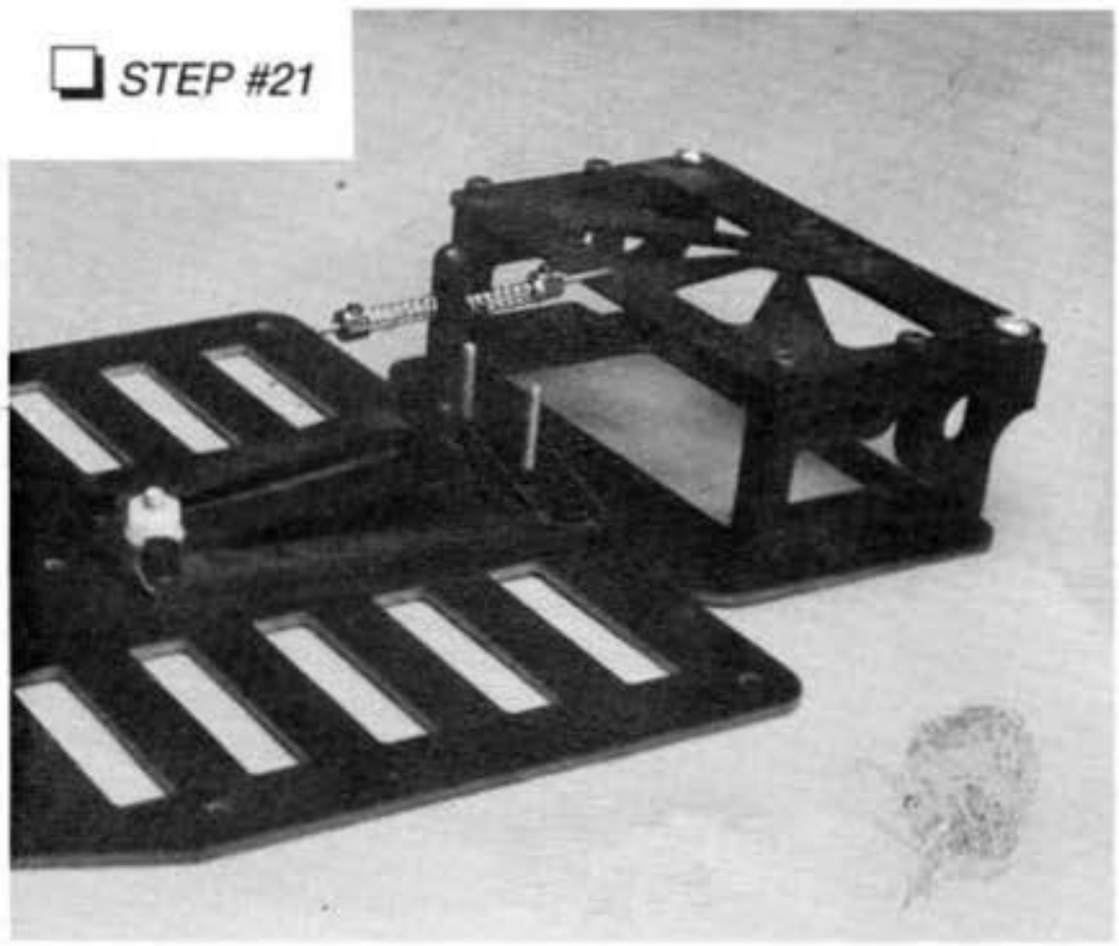

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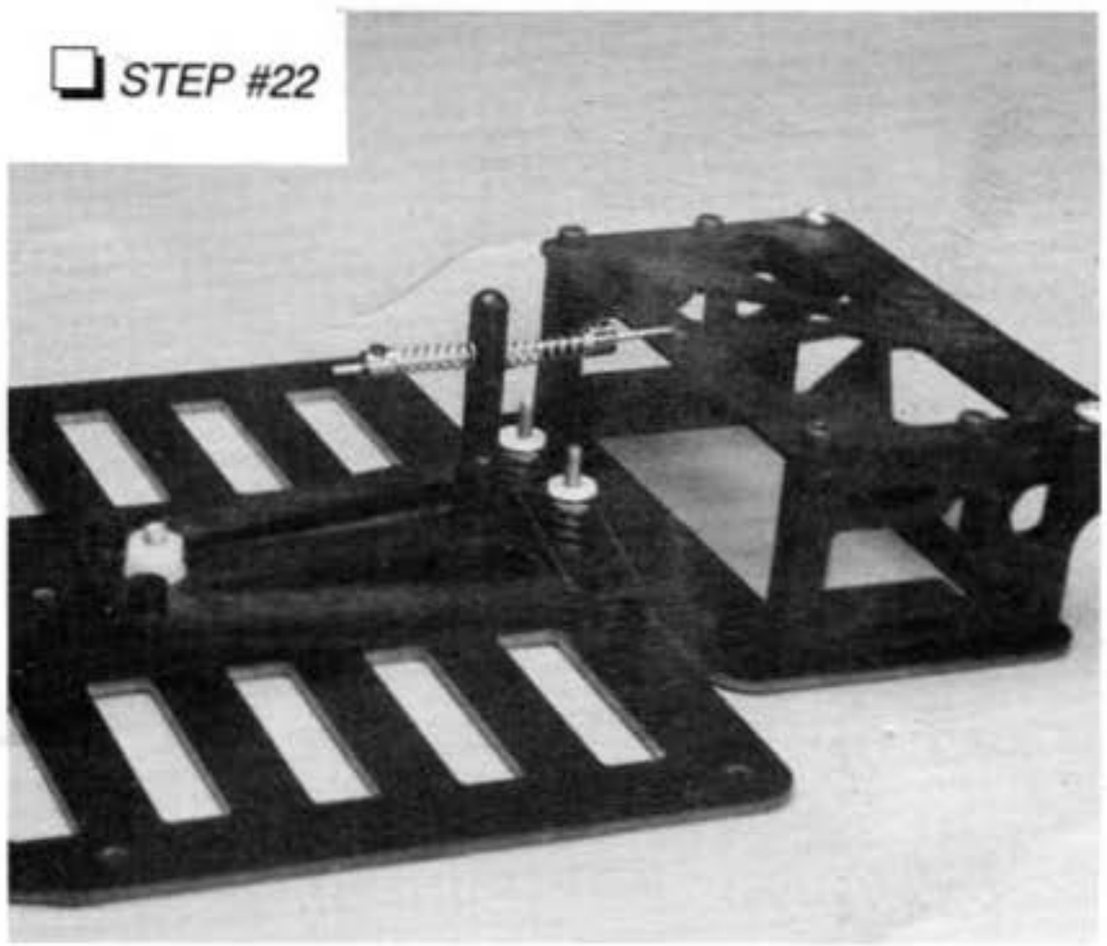

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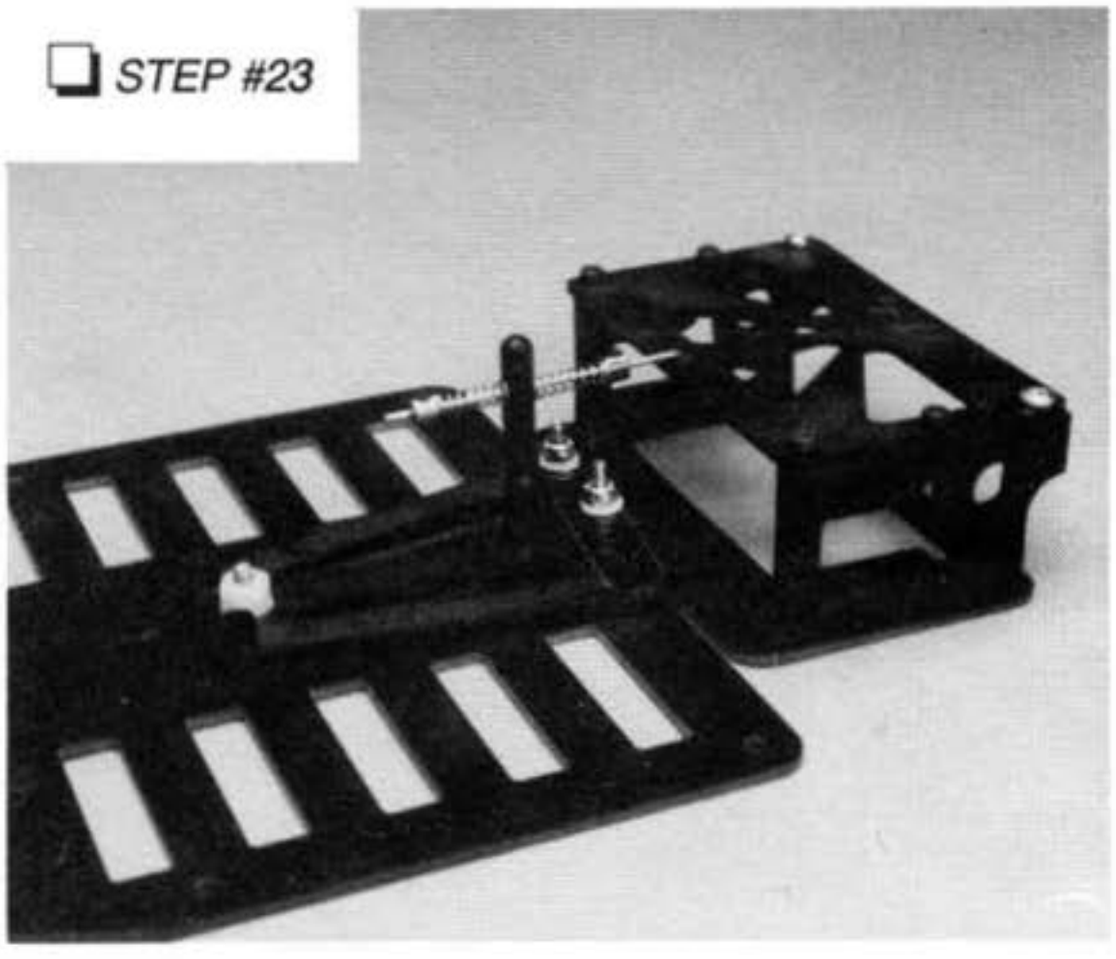

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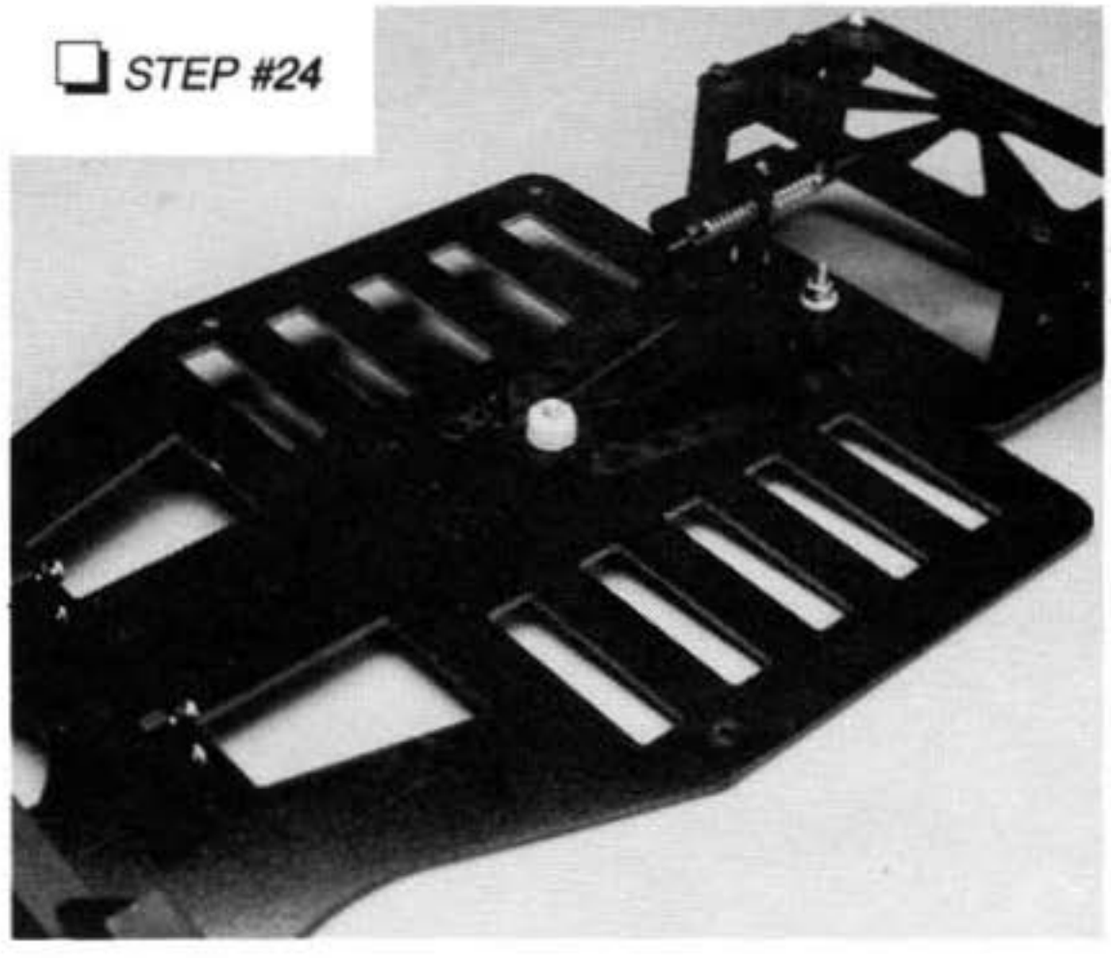

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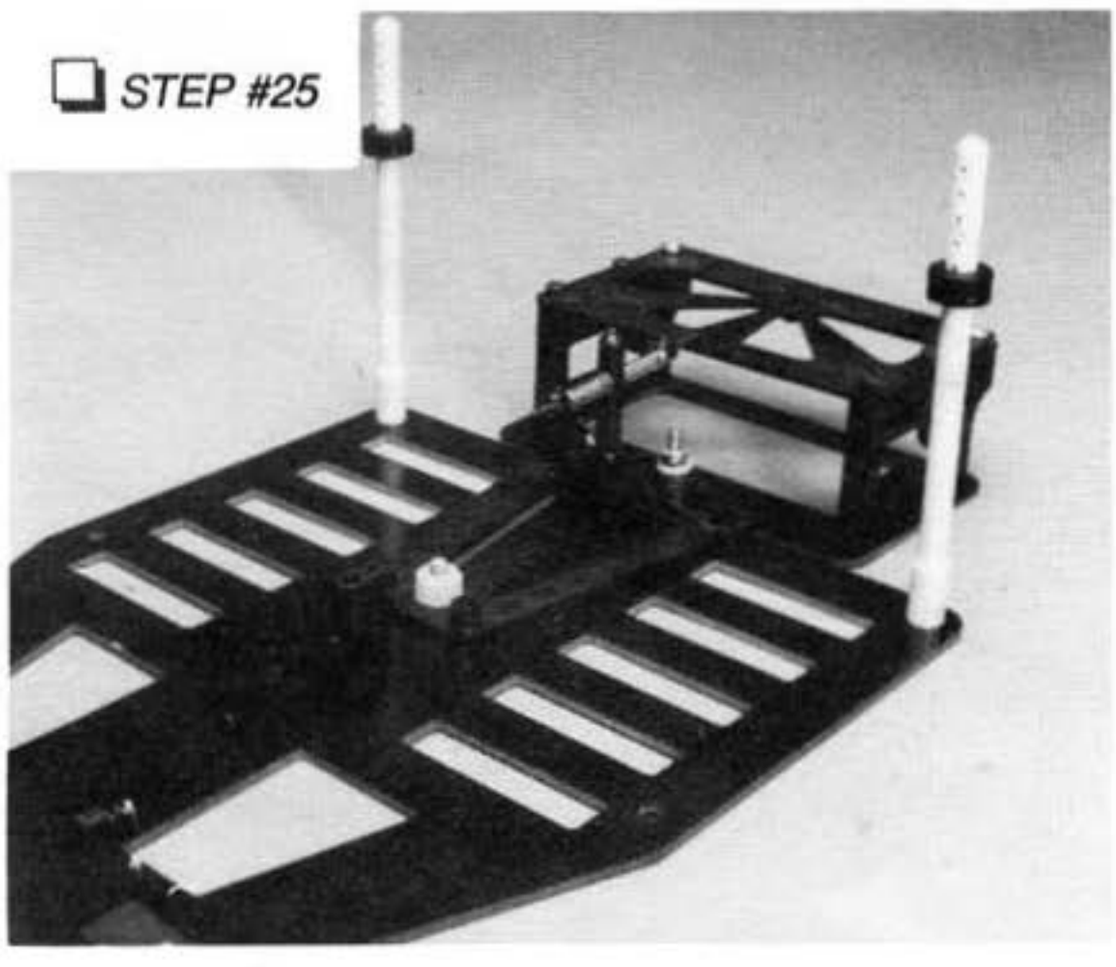
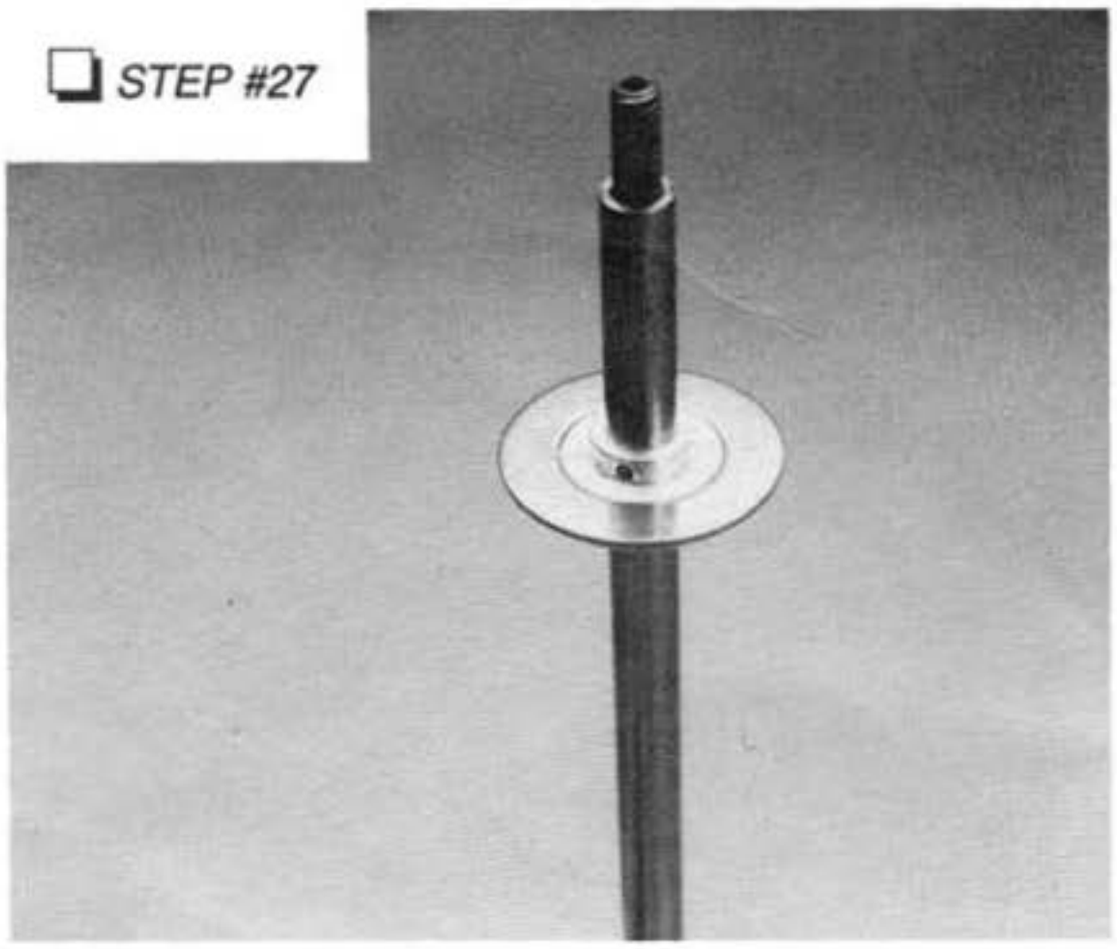
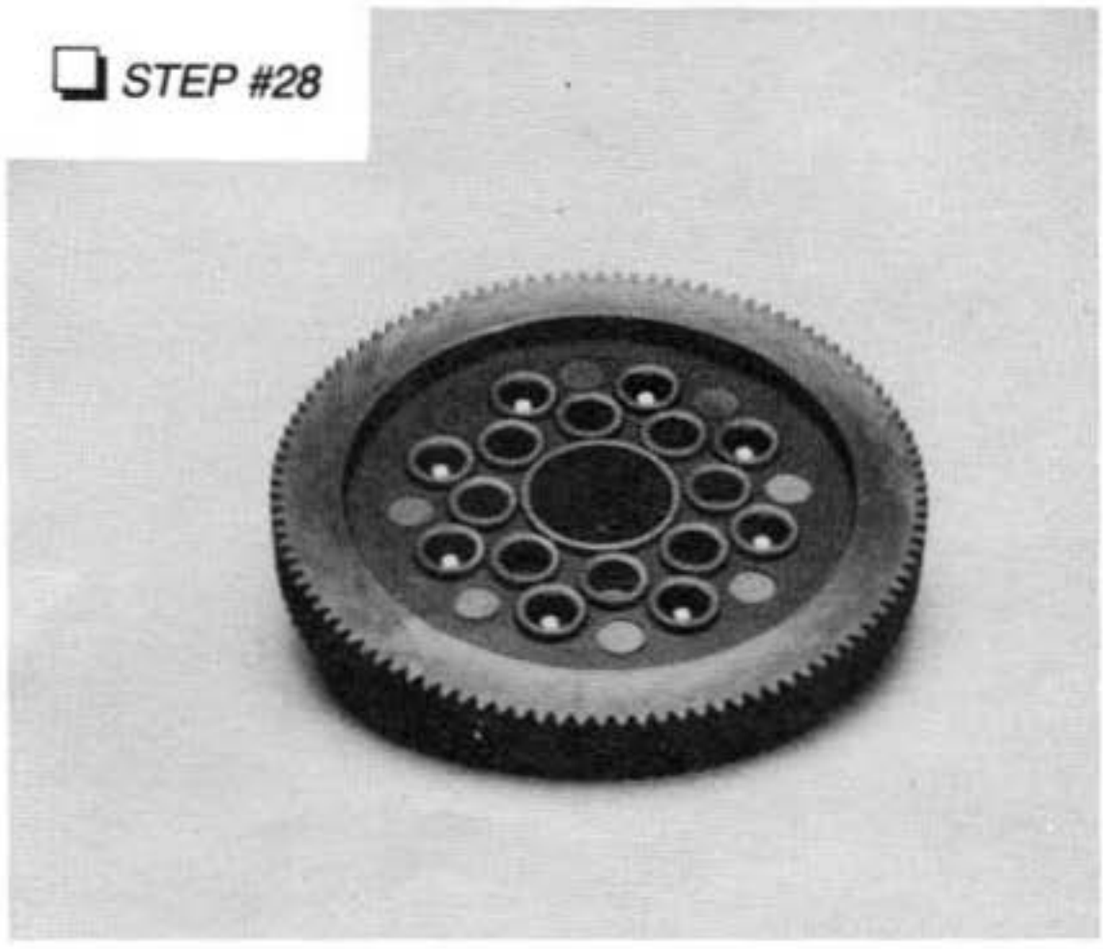


❑ *STEP #26*

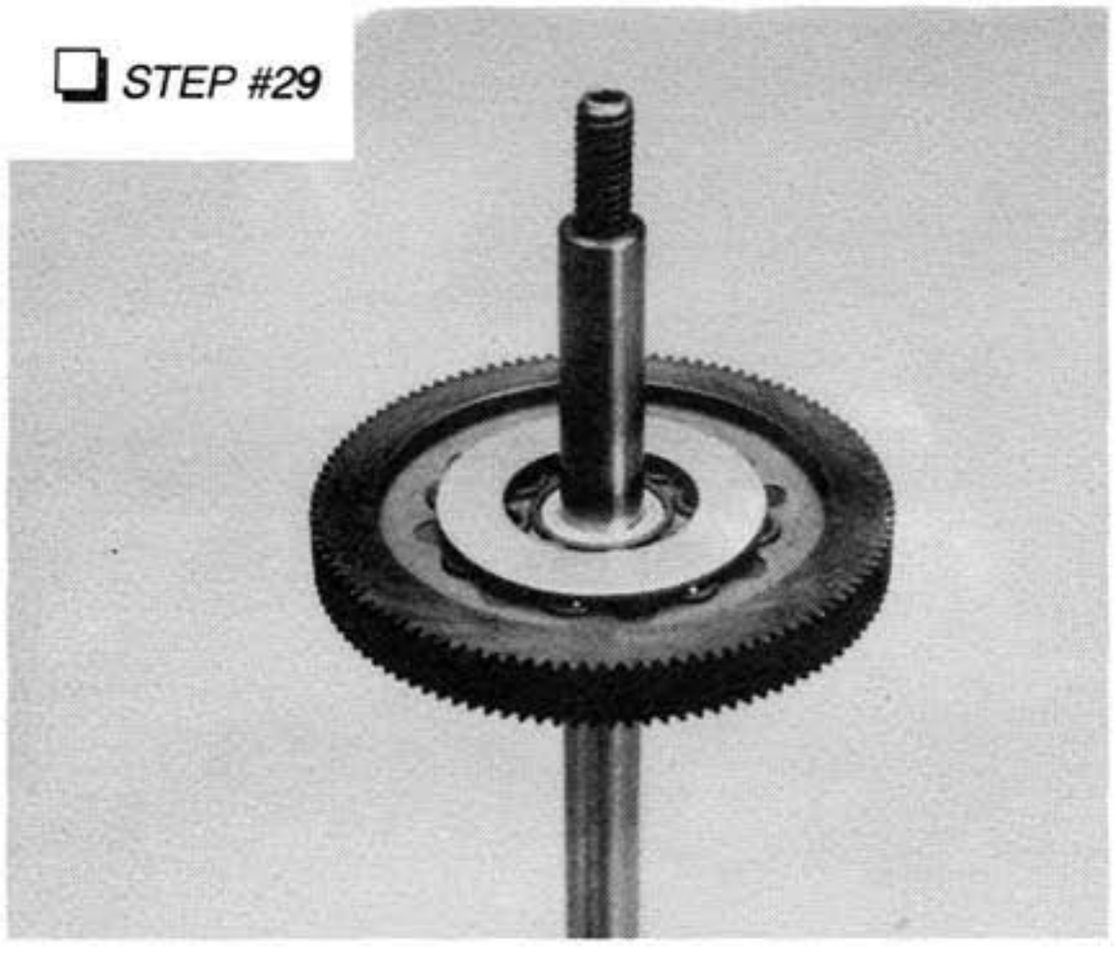
❑ *STEP #27*



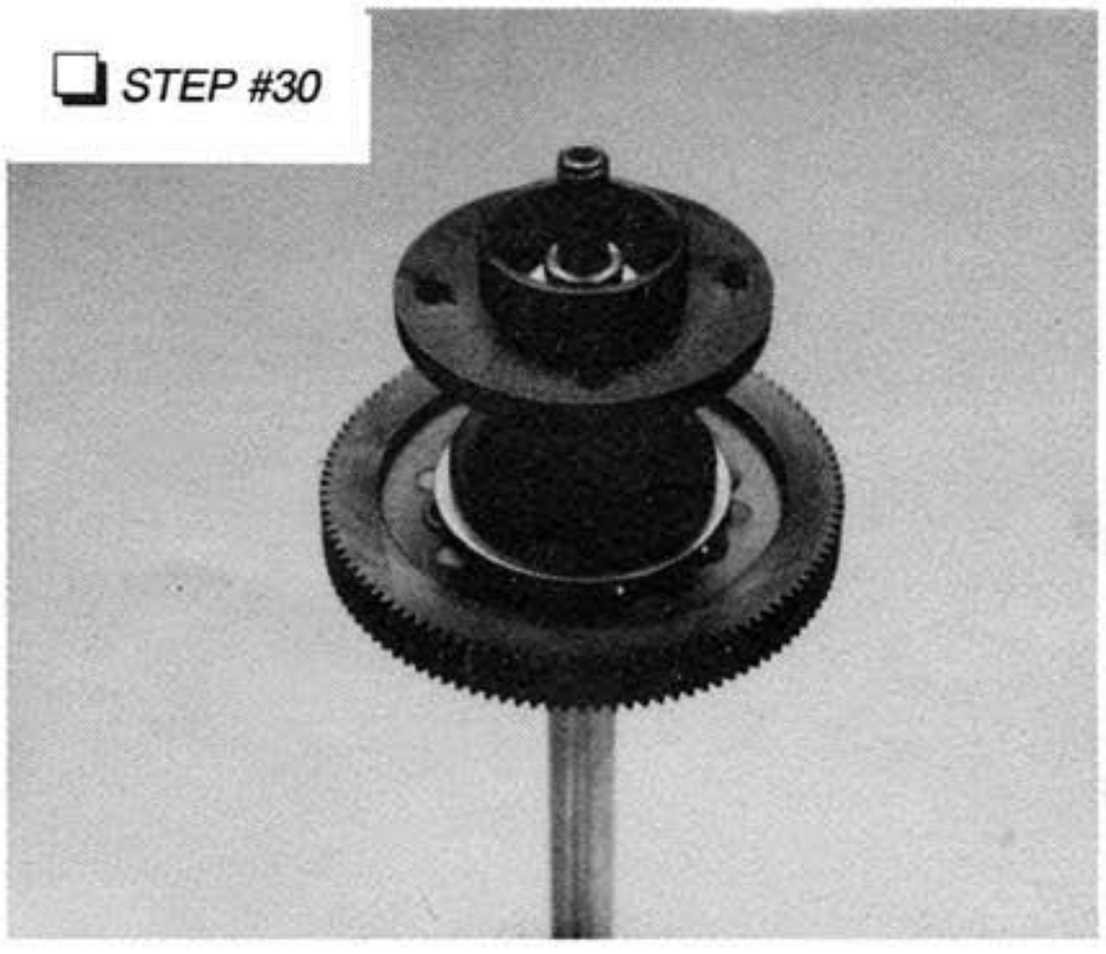
❑ *STEP #28*



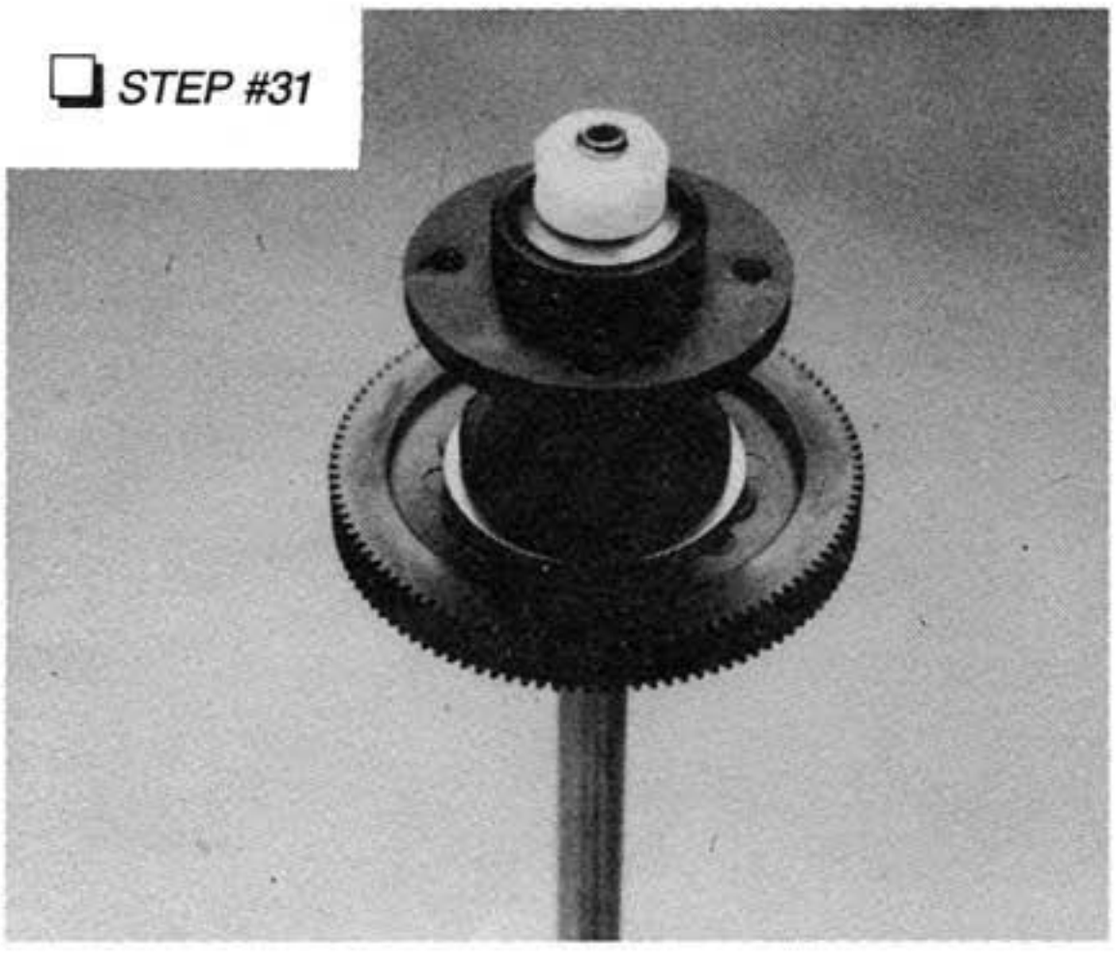
❑ *STEP #29*



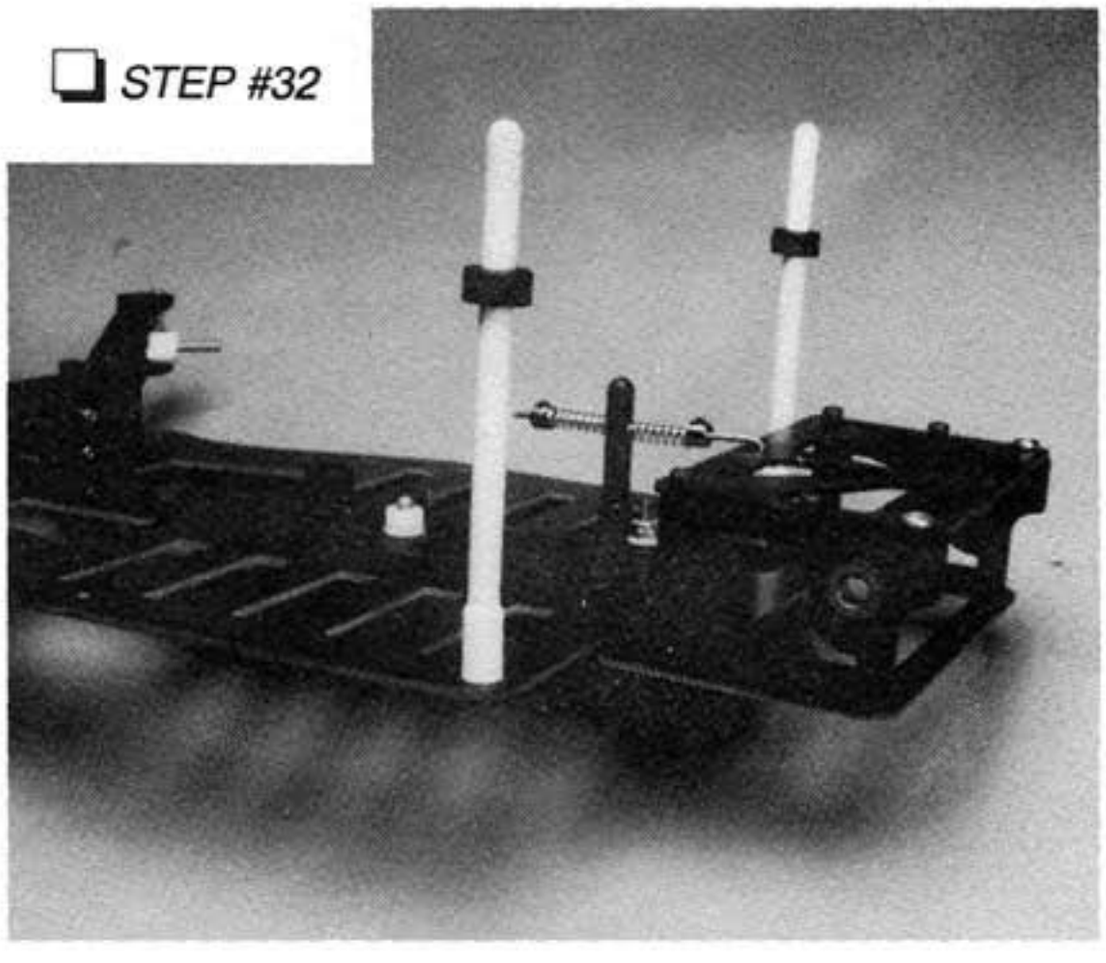
❑ *STEP #30*



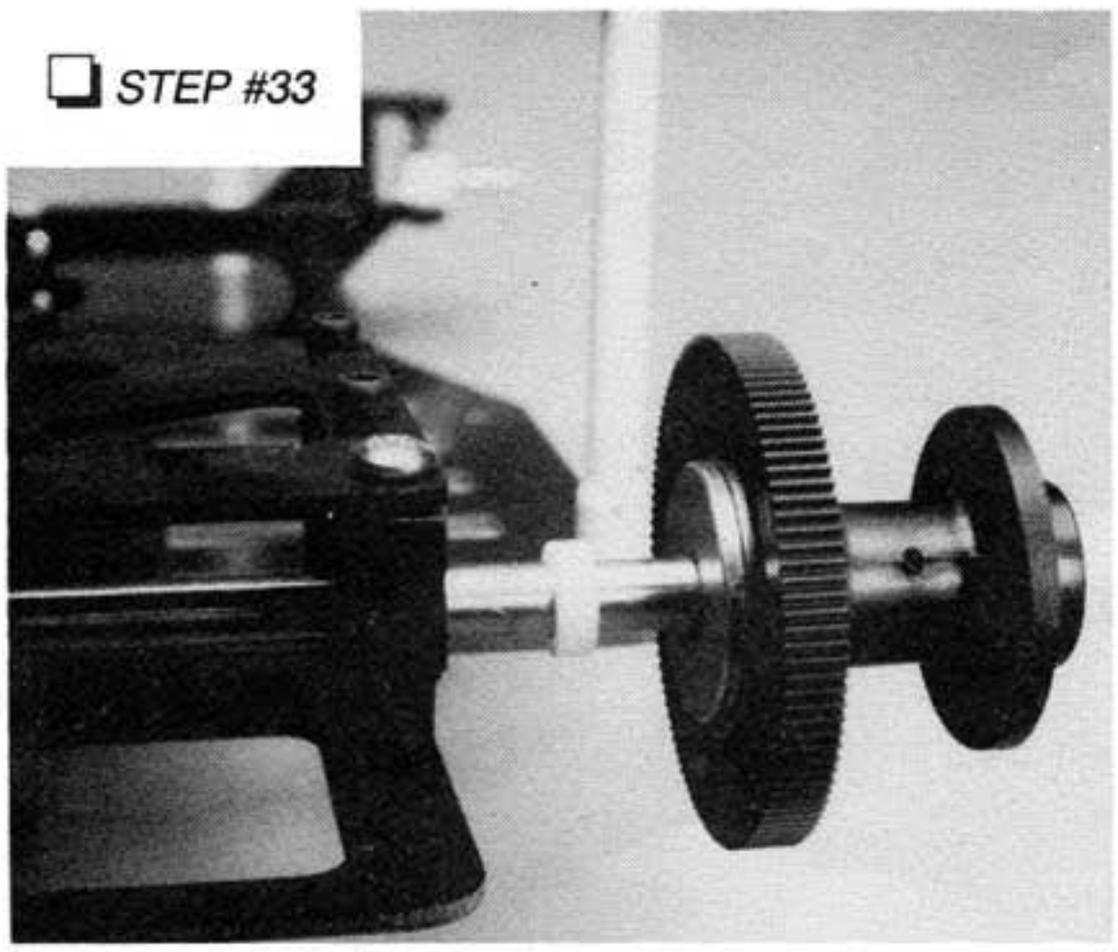
❑ *STEP #31*



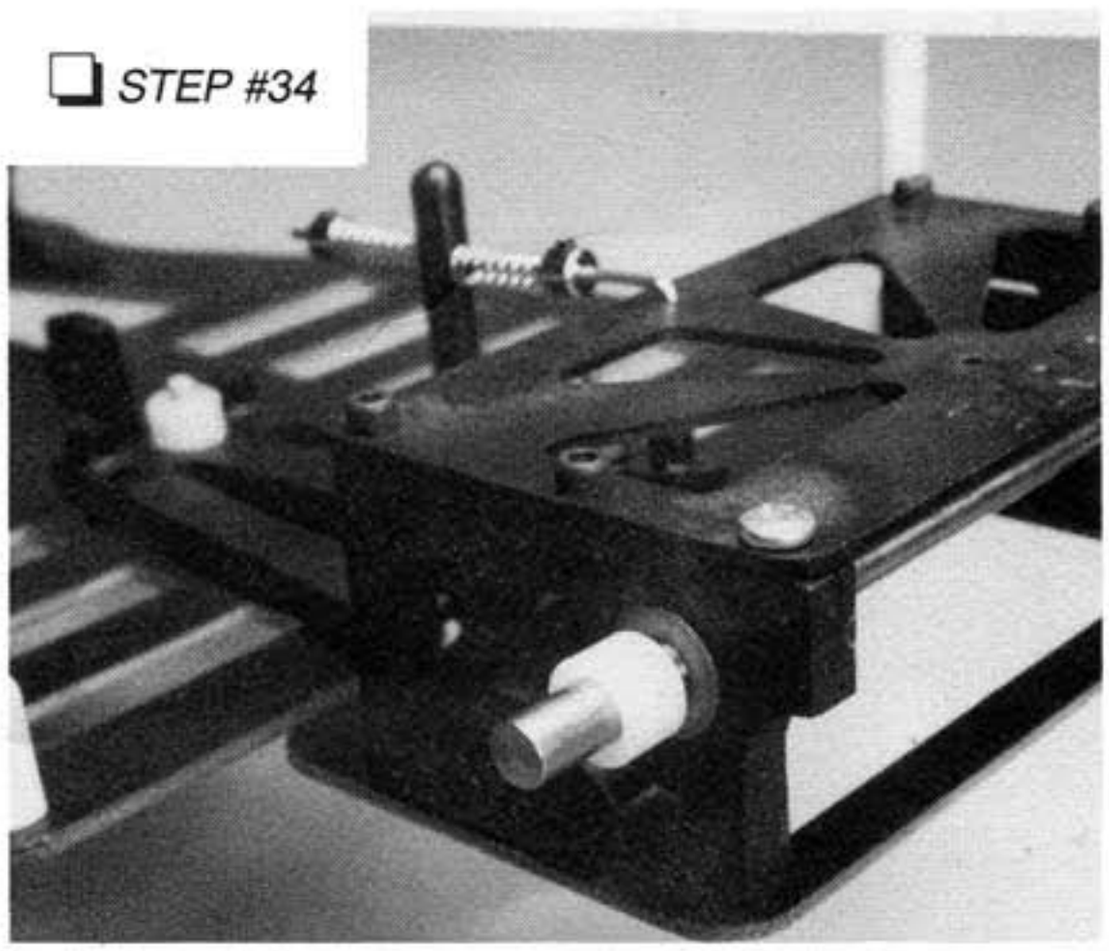
❑ *STEP #32*



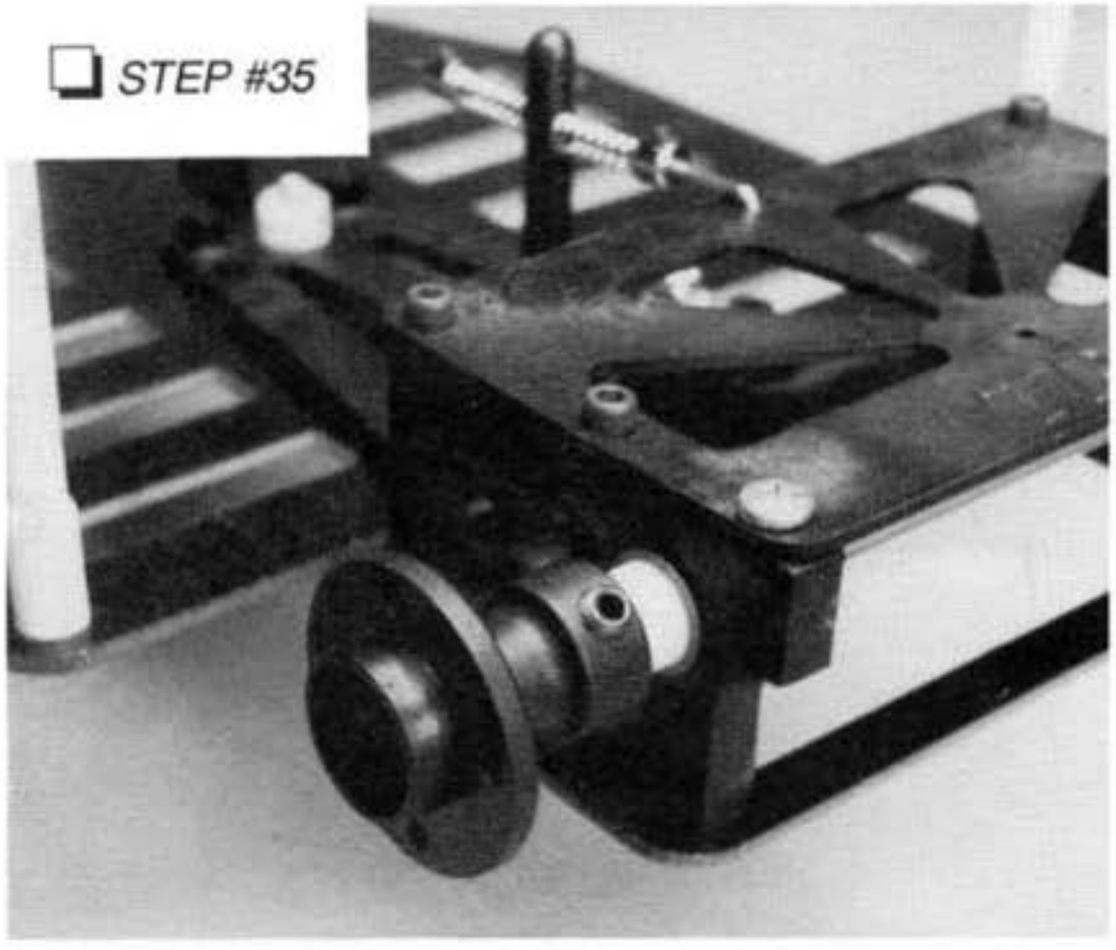
❑ *STEP #33*



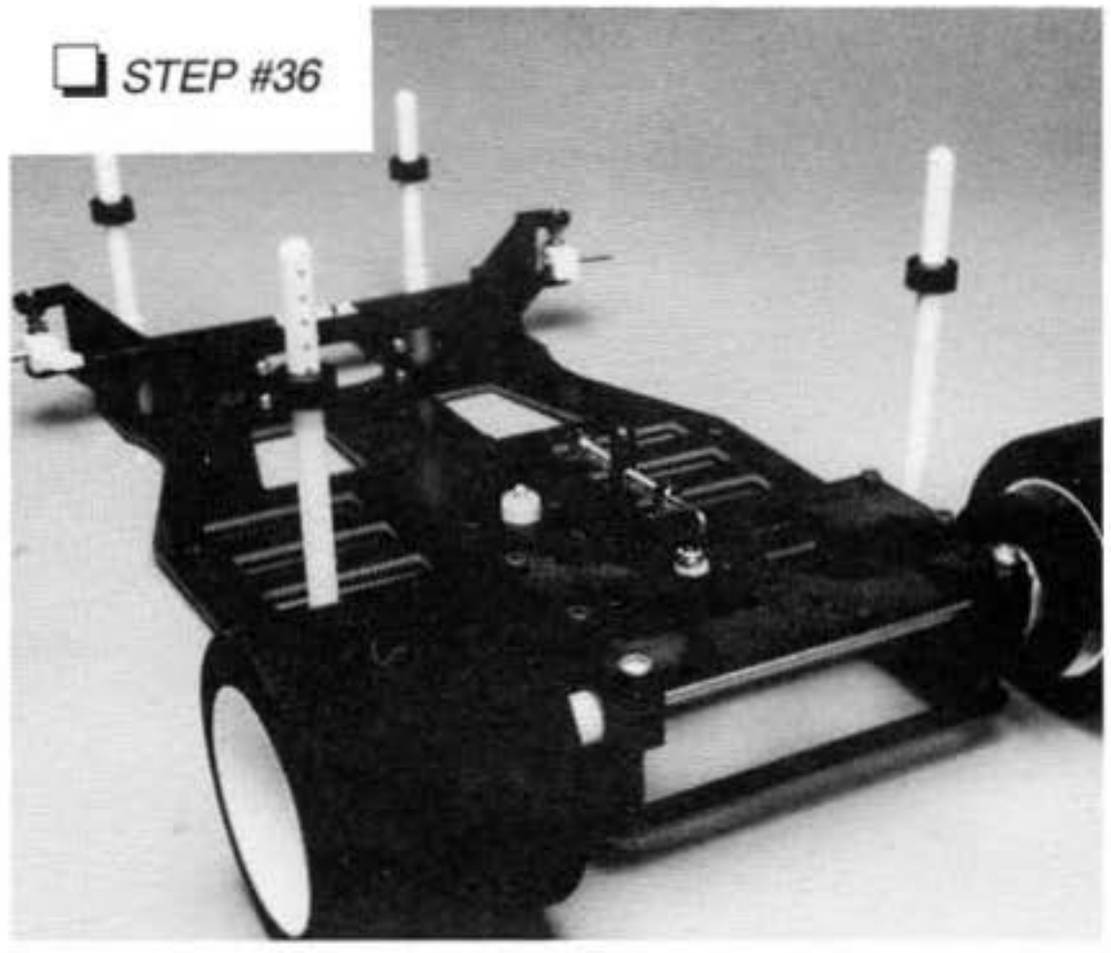
❑ *STEP #34*



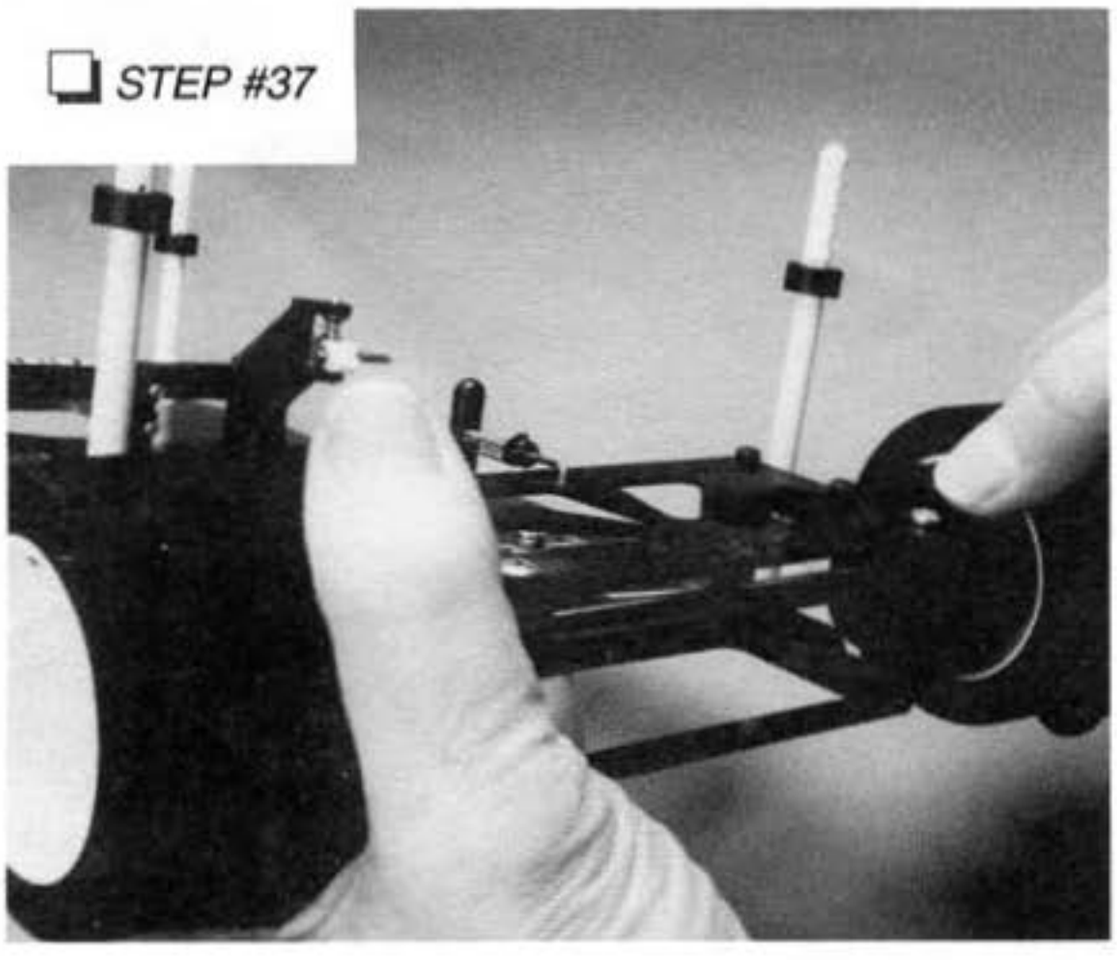
❑ *STEP #35*



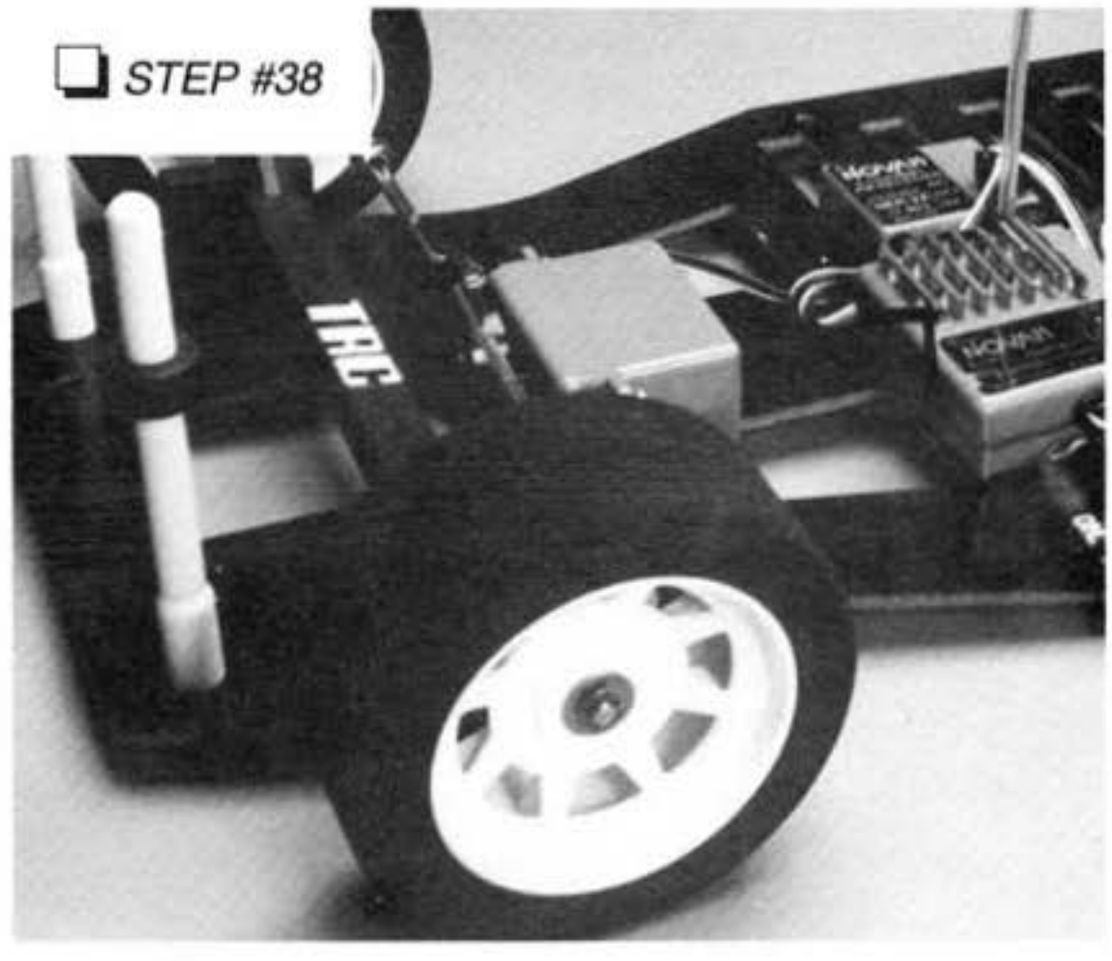
❑ *STEP #36*



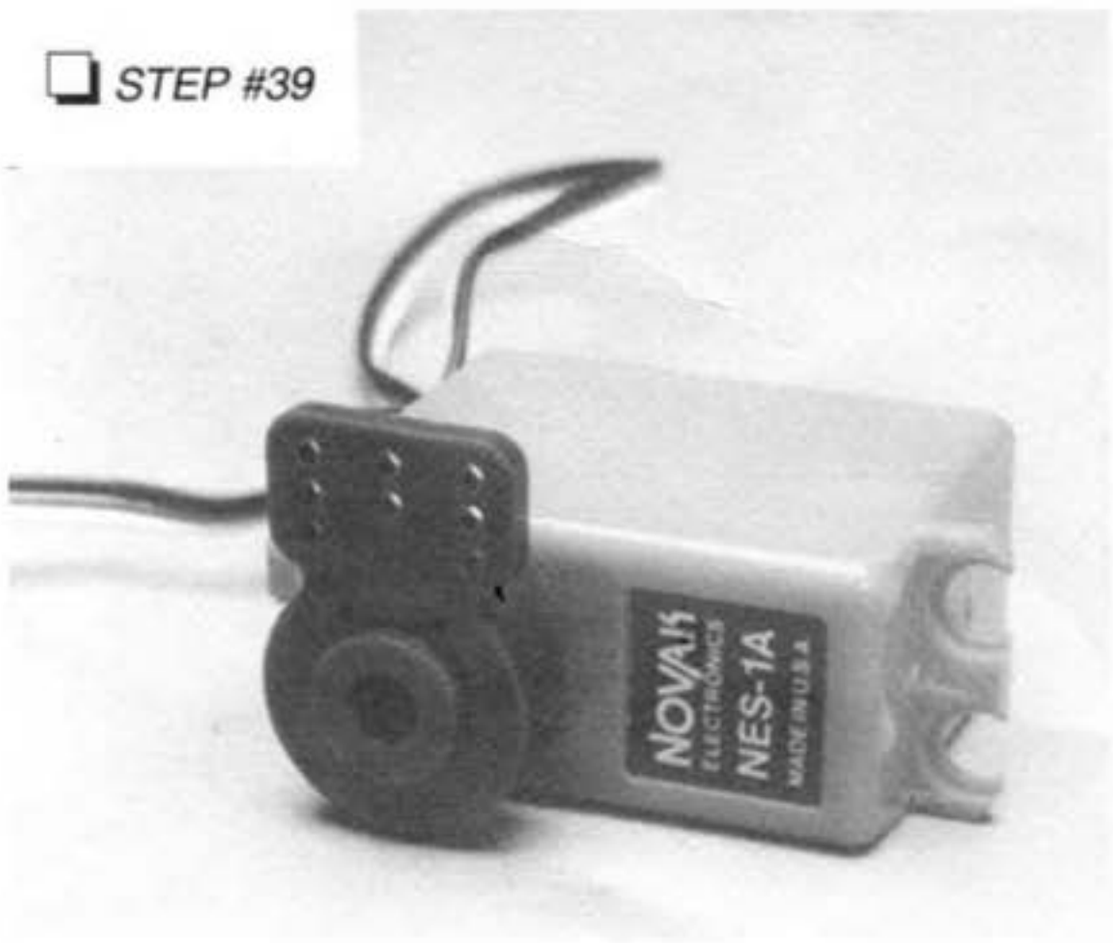
❑ *STEP #37*



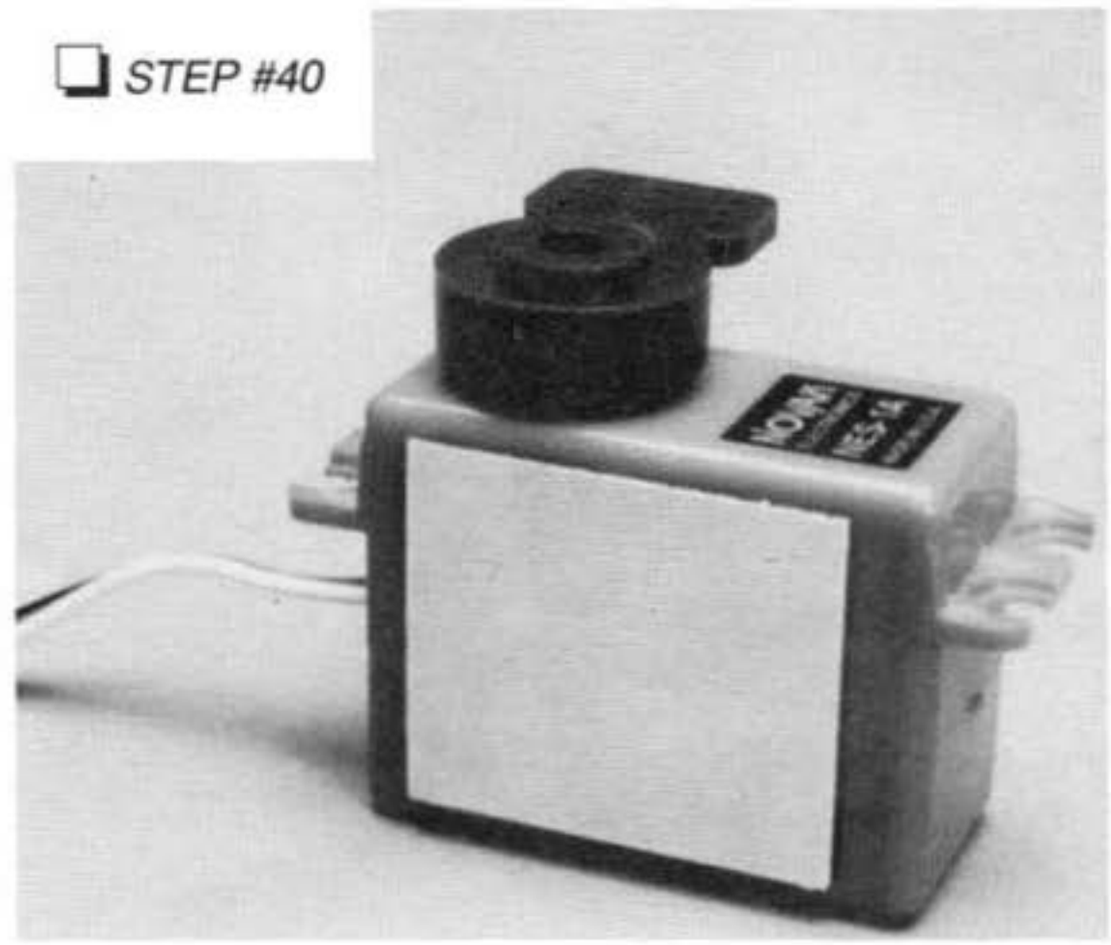
❑ *STEP #38*



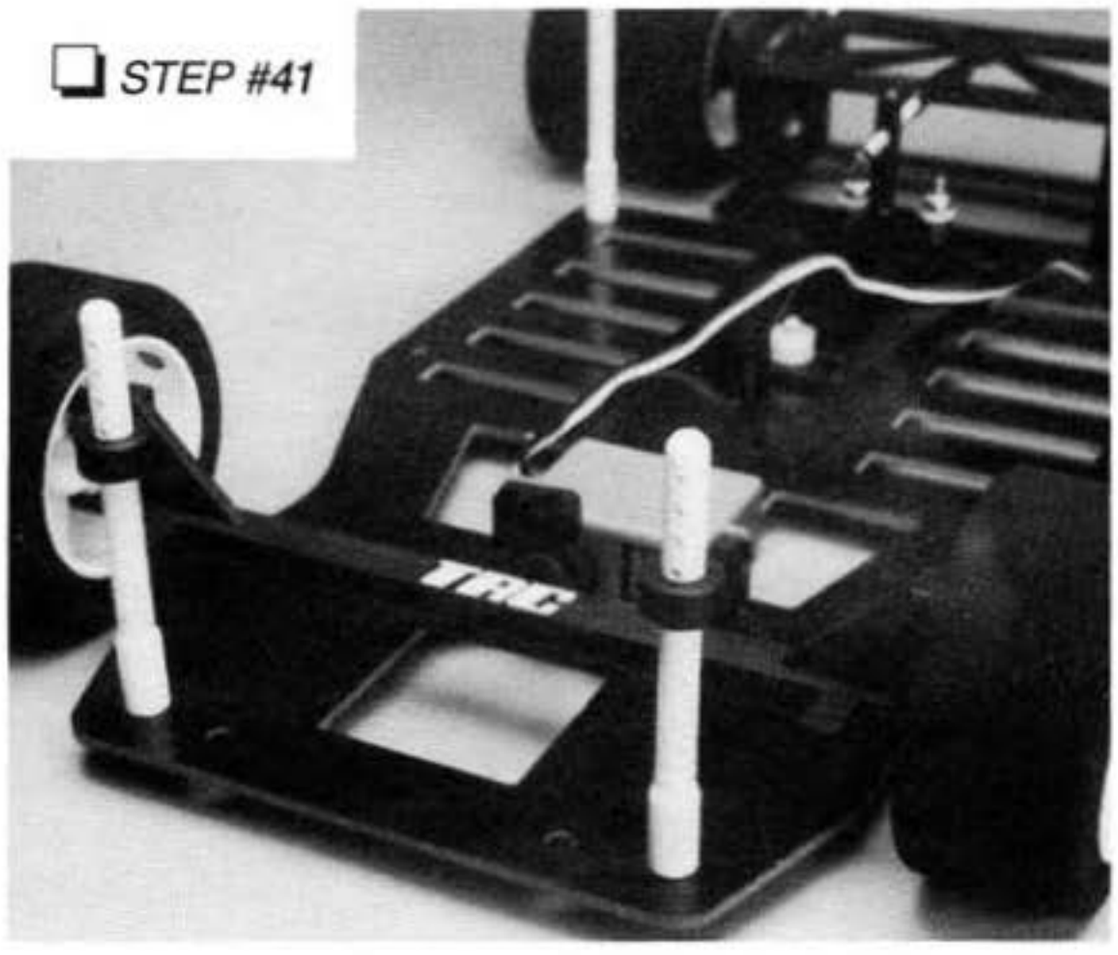
❑ *STEP #39*



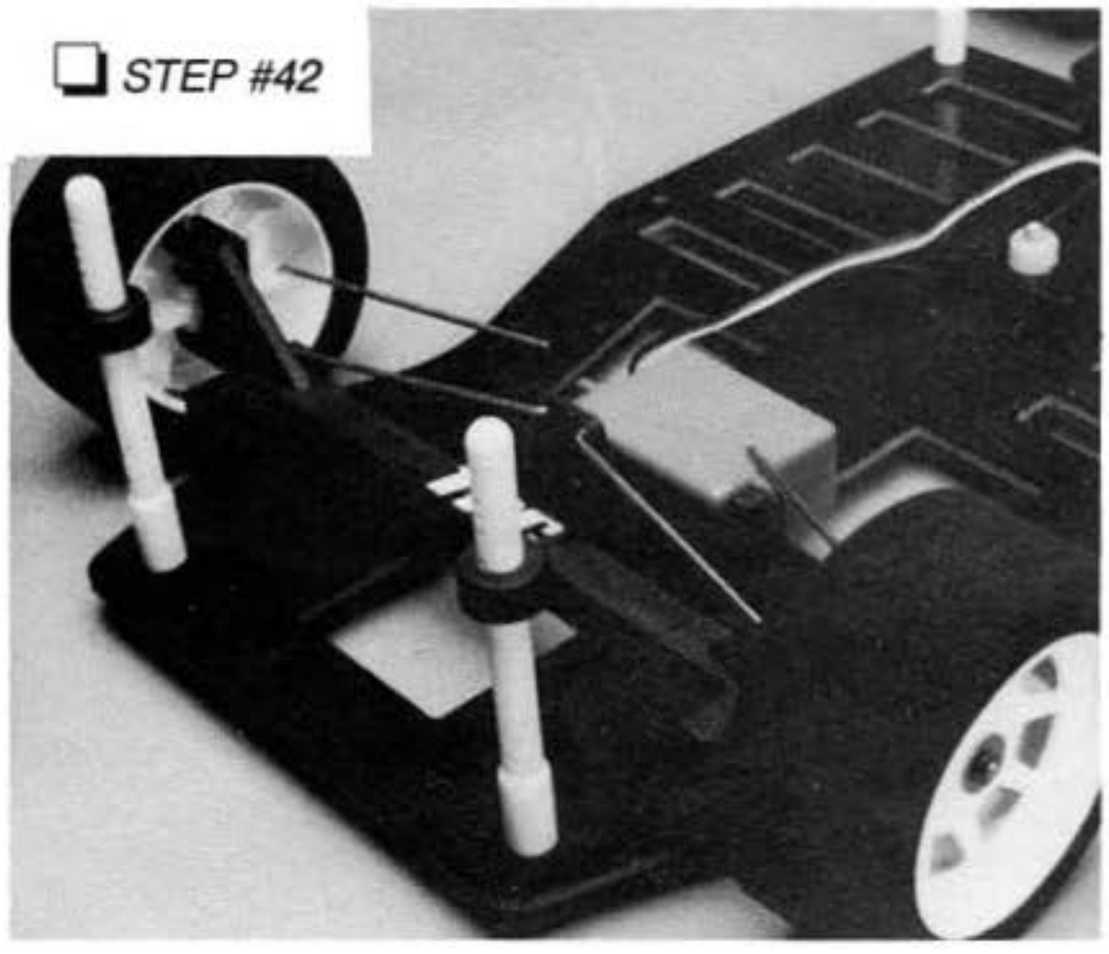
❑ *STEP #40*



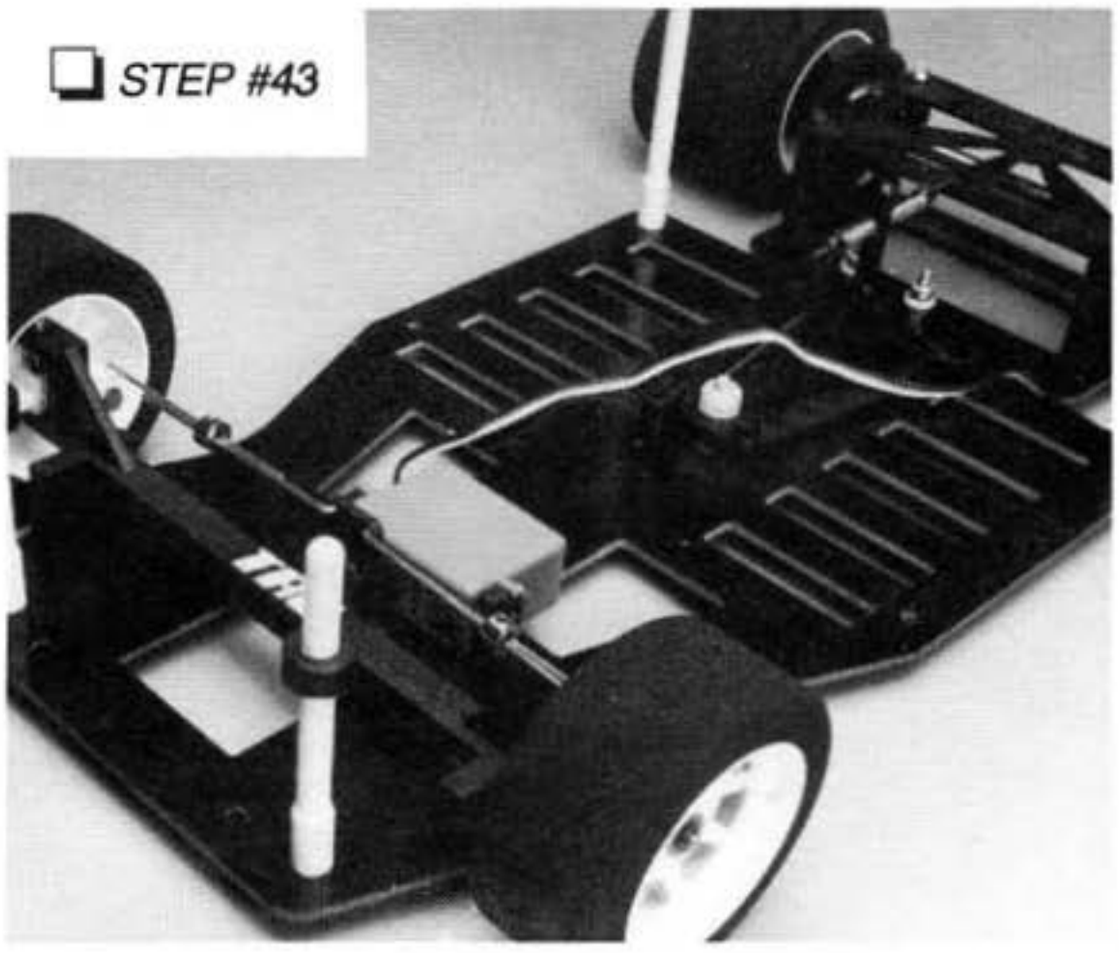
❑ STEP #41



❑ STEP #42

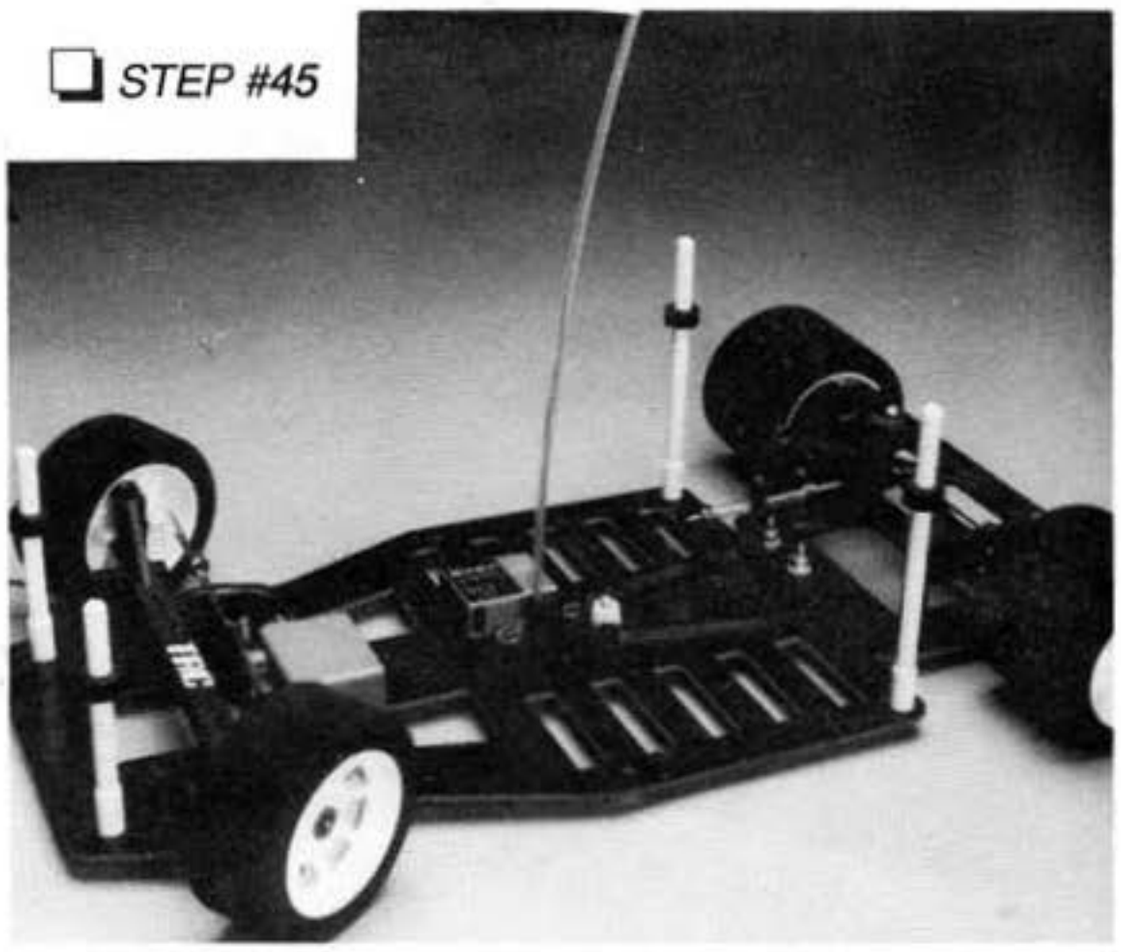


❑ STEP #43

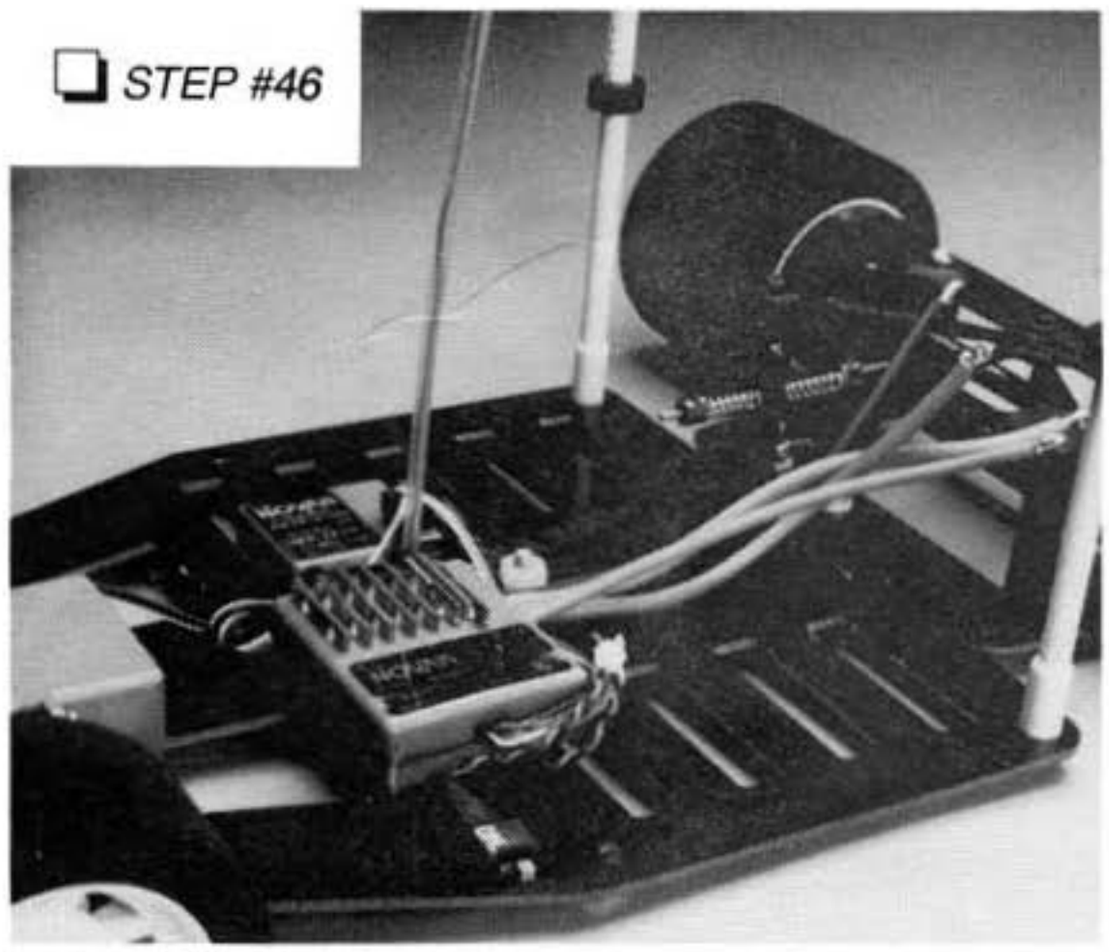


❑ STEP #44

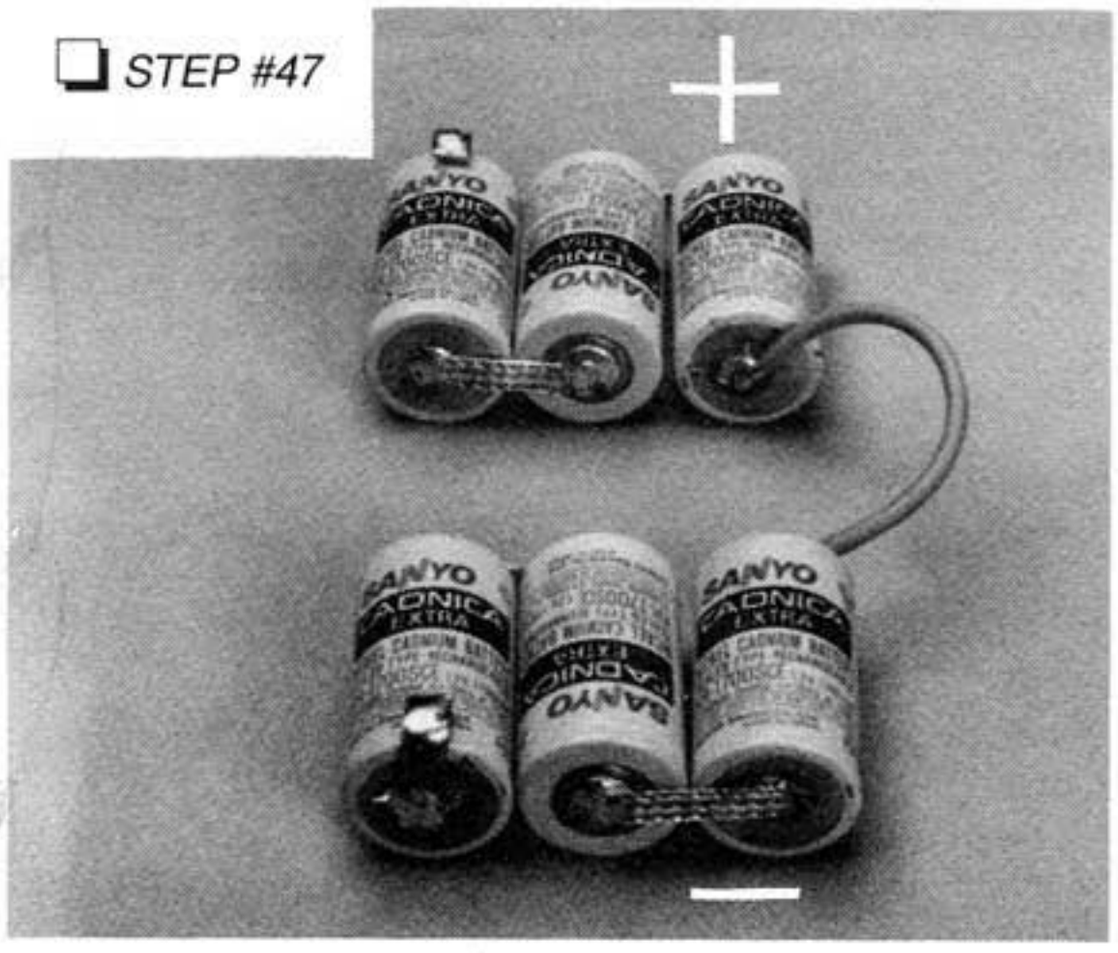
❑ STEP #45



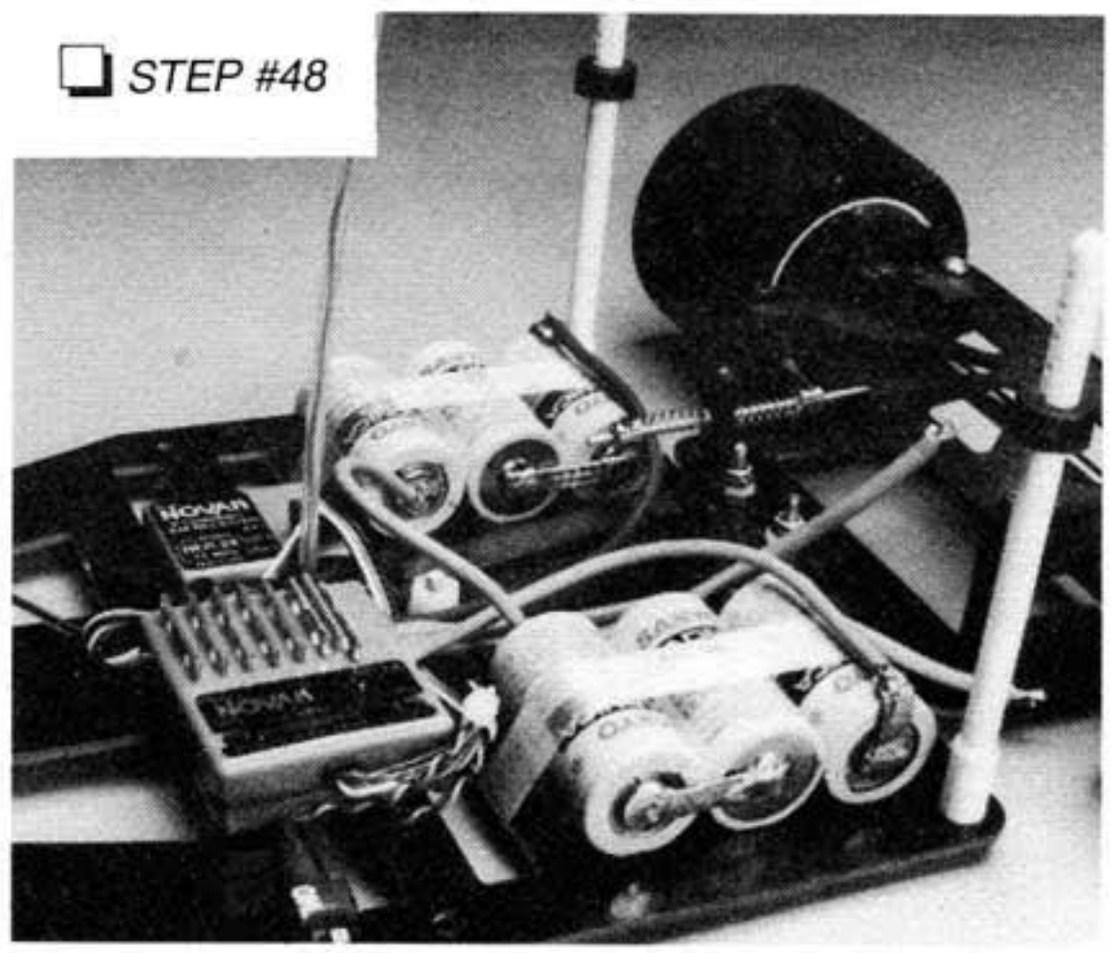
❑ STEP #46



❑ STEP #47



❑ STEP #48



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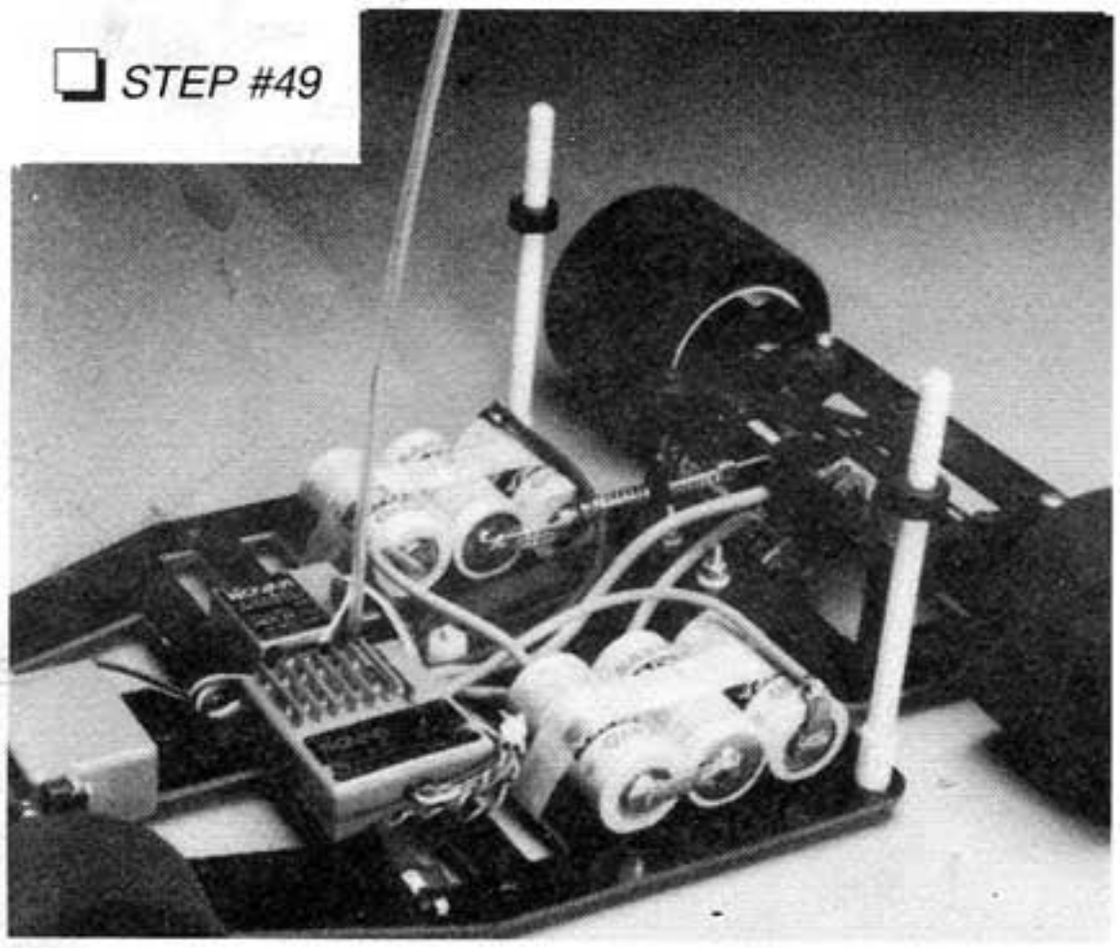

FINISHED ASSEMBLY