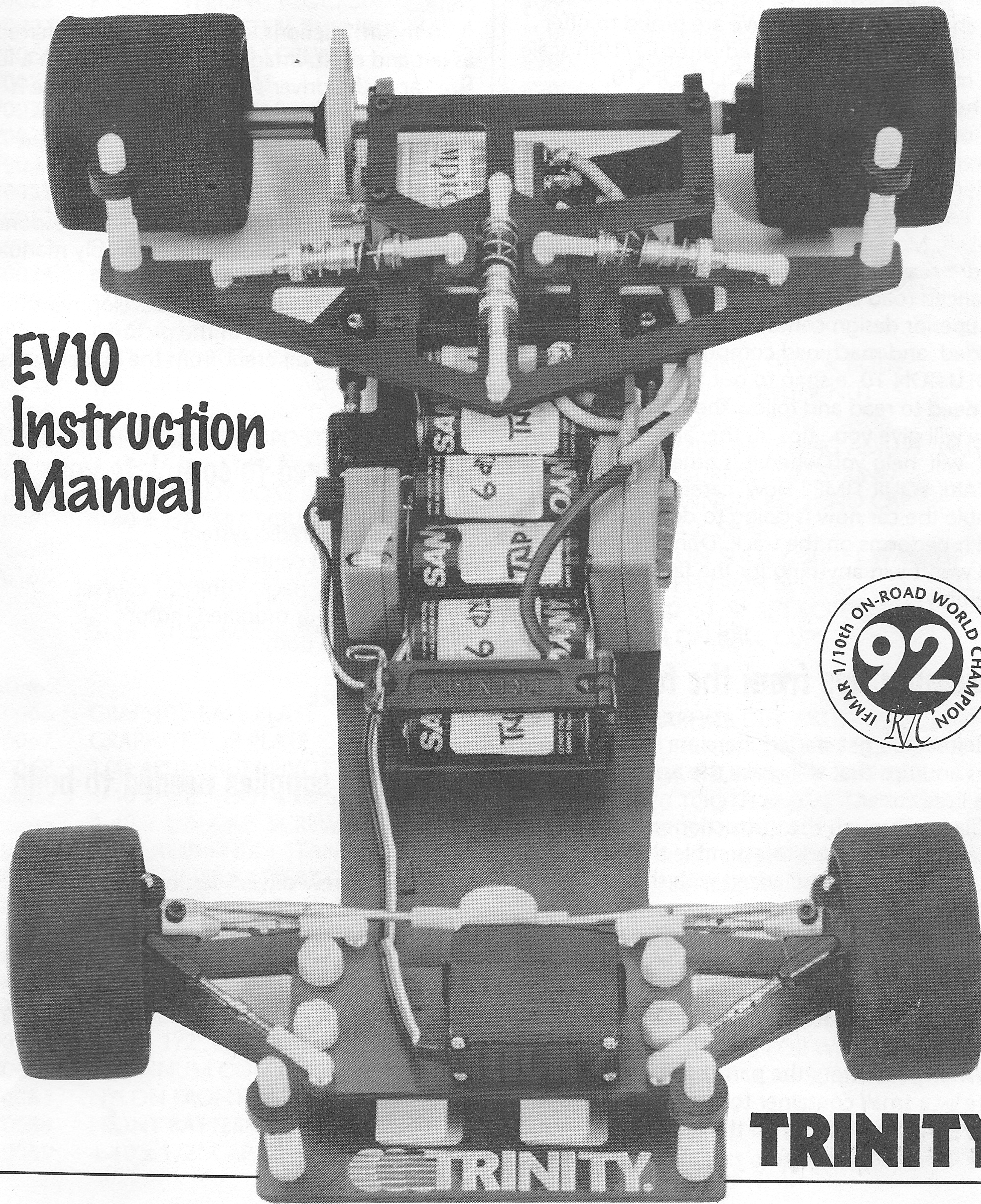


Evolution 10TM

EV10 Instruction Manual



TRINITY

EVOLUTION 10 1992, 1993 IFMAR WORLD CHAMPION !

Congratulations! You now have the best 1/10th scale car in the world. At the first ever IFMAR 1/10th scale on road World Championships, Trinity unveiled its newest assault weapon, and shattered the world. We are proud to offer the most technologically advanced 1/10th scale cars on the market, THE EVOLUTION 10.

The EVOLUTION 10 features things you won't find on many other cars such as; Low Polar Movement™ battery mounting system, Reactive Caster™ front suspension, super stiff .110" Zero Flex Pencil™ graphite chassis, hollow graphite Pro-Diff, MonoSphere™ rear suspension and the Triad™ rear dampening system. Clearly the most advanced road racer on the market today.

Superior design combined with precision molded and machined components make the EVOLUTION 10 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.

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 TRINITY'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 your EV10

- 1, Two channel radio system
- 1, Novak Speed control
- 1, 6 cell battery pack, Trinity of course!
- 1, Trinity stock or modified motor
- 1, 1/10th scale body
- 1, Servo saver
- 1, Receiver pack

Tools and supplies needed to build this kit.....

- #2 Phillips screw driver - large
- Hobby knife
- Small pliers
- Needle nose pliers
- Medium file
- Nut driver set
- Silicone lube
- Servo tape

Your EV10 kit contains.....

Part #	Part Description	Qty
BAG # 1		
EV0046	GRAPHITE FRONT AXLE PLATE	1
EV0047	ALUMINUM BALL JOINTS	8
EV0048	4-40 ALUMINUM LOCK NUTS	8
EV0049	8-32 x 7/8" ALUM FLATHEAD SCRS	4
EV0050	8-32 NYLON LOCK NUTS	6
EV0022	FRONT STEERING BLOCKS	2
EV0027	1.125" x 4-40 STEEL TURNBUCKLES	4
EV0065	4-40 x 3/8" CAP SCREWS	2
EV0023	FRONT KINGPINS	2
EV0031	1/4" DELRIN BALLS	2
EV0030	NYLON BALL CUPS	8
EV0025	.022" FRONT SUSPENSION SPRING	2
EV0051	FRONT NYLON KINGPIN BUSHING	2
EV0052	NYLON CLEVIS	2
EV0053	FRONT SPACER SET	1
EV0024	NYLON UPPER BALL SUPPORT	2
EV0054	1/8" SILICONE O-RING	2
EV0055	3/16" x 5/16" FLANGED BEARINGS	4
EV0058	1/8"x 1/4" STEEL WASHERS	4
EV0059	1/8" E-CLIPS	6
EV0088	2.250" x 4-40 ALUM TURNBUCKLES	2
EV0085	2" NYLON BODY POSTS	2
EV0064	4-40 x 3/8" STEEL FLATHEAD SCRS	2
EV0086	NYLON BODY POST COLLARS	2
EV0087	4-40 x 1/8" SET SCREWS	2
EV0090	HOOD PINS	3
EV0100	.050" STEEL ALLEN WRENCH	1
	1/16" STEEL ALLEN WRENCH	1
	3/32" STEEL ALLEN WRENCH	1
BAG # 2		
EV0066	GRAPHITE BALL PLATE	1
EV0067	GRAPHITE TOP PLATE	1
EV0068	1/4" ALUMINUM PIVOT BALL	1
EV0064	4-40 x 3/8" FLATHEAD SCREWS	7
EV0065	4-40 x 3/8" CAP SCREWS	6
EV0069	3/16" ALUMINUM STANDOFF	2
EV0070	NYLON REAR BATTERY CUP	1
EV0071	2-56 x 1/4" BUTTONHEAD SCREWS	4
EV0072	NYLON PIVOT BALL SOCKET SET	1
EV0073	1/8" THICK ALUMINUM WASHERS	2
EV0047	ALUMINUM BALL JOINTS	3
EV0048	4-40 ALUMINUM LOCK NUTS	3
EV0074	4-40 x 1/2" FLATHEAD SCREWS	2
EV0076	ALUMINUM CONTROL LINK BALLS	2
EV0083	NYLON FRONT BATTERY CUP	1
EV0084	FRONT BATTERY CUP LID	1
EV0089	4-40 x 1/2" CAP SCREW	1

EV0085	2" NYLON BODY POSTS	2
EV0086	NYLON BODY POST COLLARS	2
EV0087	4-40 x 1/8" SET SCREWS	2
EV0090	HOOD PINS	3
EV1001	NYLON ANTENNA MOUNT	1
BAG # 3		
EV0060	GRAPHITE TOP MOTOR PLATE	1
EV0061	GRAPHITE LOWER MOTOR PLATE	1
EV0062	NYLON LEFT REAR AXLE BLOCK	1
EV0063	ALUMINUM RIGHT MOTOR BLOCK	1
EV0064	4-40 x 3/8" FLATHEAD SCREWS	8
EV0065	4-40 x 3/8" CAP SCREWS	4
EV0091	RIDE HEIGHT ADJUSTOR SET	1
EV0047	ALUMINUM BALL JOINTS	3
EV0076	ALUMINUM CONTROL LINK BALLS	2
EV0027	1.125" x 4-40 STEEL TURNBUCKLES	2
EV0075	NYLON BALL LINK SOCKET	4
EV0071	2-56 x 1/4" BUTTON HEAD SCRWS	4
EV0048	4-40 ALUMINUM LOCK NUTS	3
BAG # 4		
EV0033	ALUMINUM SHOCK BODY	3
EV0034	NYLON CYLINDER NUT	3
EV0035	SILICONE O-RING	3
EV0036	ALUMINUM SPRING ADJUST NUT	3
EV0037	PRESSURIZATION SPRING	3
EV0038	ALUMINUM ROD END CAP	3
EV0039	SHOCK SHAFT	3
EV0040	NYLON SHOCK SHAFT WASHER	3
EV0043	SUSPENSION SPRING	3
EV0087	4-40 x 1/8" SET SCREWS	3
EV0030	NYLON BALL CUPS	6
BAG # 5		
EV0077	GRAPHITE DIFF AXLE	1
EV0079	ALUMINUM LEFT WHEEL HUB	1
EV0078	ALUMINUM RIGHT DIFF HUB	1
MM120	120 TOOTH MAGIC SPUR GEAR	1
EV0092	1/8" DIFF BALLS	12
EV0080	THRUST CONE & WASHER	1
EV0081	BELLEVILLE WASHERS	2
EV0050	8-32 NYLON LOCK NUT	1
EV0082	NYLON AXLE SHIM SET	1
EV0056	1/4" x 3/8" BEARING	1
EV0057	1/4" x 3/8" FLANGED BEARINGS	4
EV0093	DIFF RINGS	2
EV1002	SET SCREWS FOR WHEEL HUB	1
EV0065	4-40 x 3/8" CAP SCREWS	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 small part may be missing. For missing parts call Trinity. Make sure you use part numbers when ordering parts.

Assembly step numbers correspond to the picture numbers in the PICTORIAL MANUAL. Complete each step before proceeding to the next step.

Now lets get this car started.....!

FRONT END ASSEMBLY

STEP # 1, Your new EVOLUTION 10 chassis is constructed of ADC's new sandwich type graphite material. Some sanding, with a fine grit sand paper, might be necessary around the outside of the chassis to remove any sharp edges. Before you do this, it might be a good idea to spread some newspaper out to catch the graphite dust.

When you are finished, clean off the chassis and dispose of the dust. Be sure you wash your hands with soap and water when you are done.

Additional strength can be added to the chassis by coating the outside edge with a thin layer of super glue. This will also help keep the layers of graphite from separating.

Locate the front axle plate in bag #1. Check for any sharp edges and remove with sand paper. You may also apply a thin layer of super glue to the edges. This will give the axle plate more strength and protect it from layer separation under hard impact.

Locate the two nylon king pin bushings from bag #1. Check for flashing and remove with a hobby knife. Insert them into the front graphite axle plate. The bushings should snap securely into place. It does not matter which side of the plate you put them in, but be sure you put both bushings in from the same direction.

You are now finished with step #1. Put a check mark in the box to show that this step is complete. After you have 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.

STEP # 2, Insert the four aluminum ball joints into the axle plate from the opposite direction as the bushings, and lock into place with the aluminum lock nuts as shown.

STEP # 3, Locate the two upper ball supports and delrin balls and snap the balls inside the upper supports, from the top of the supports, using a pair of pliers. Be careful not to mark up either part. Adrop of light oil on the ball before snapping together might make the job easier.

STEP # 4, Thread a turnbuckle into each of the upper ball supports about 1/4". An allen wrench in the turnbuckle hole will make turning it much easier.

STEP # 5, On the other end of the turnbuckle install a nylon ball cup, also thread it on about a 1/4". There should be about 3/4" between the end of the molded boss on the upper support and the end of the ball cup.

STEP # 6, On the other turnbuckles, install a nylon ball cup on one end of each, again about 1/4". On the opposite end, thread a nylon clevis also about 1/4". The distance between the two parts should be about 11/16". These lengths will be adjusted later.

STEP # 7, Slide the king pin into the bushing on the front axle plate. The king pin should slide freely up and down. If it is too tight, use an 1/8" drill bit and ream out the bushing. Recheck the king pin fit and keep reaming until the king pin slides freely. Be careful that you do not ream the hole too large. This will cause the king pin to fit too loose.

STEP # 8, Install an E-clip on one end of each king pin, a steel washer, a front suspension spring, another steel washer and then a silicone o-ring. The o-ring "fools" the car into thinking it has front shocks. Different degrees of dampening can be achieved by the type of lubrication that you use on the front king pins. You can use a thick grease or silicone lube for dampening. The o-ring can be removed if less dampening is desired.

STEP #9, Slide the king pin assembly up through the nylon bushing in the front axle plate as shown.

STEP #10, Place a steering block on each of the king pins, making sure the steering block slides smoothly on the king pin. Also make sure the trailing arms face the rear of the front axle plate.

STEP #11, Look at the upper ball supports. You will notice that one of the supports has a number 2 molded into it. This support will go on the right side of the front axle. Install the upper ball support assembly on the corresponding king pins above the steering block and secure in place with an E-clip as shown.

STEP #12, Snap the nylon ball cup that is on the upper ball support turnbuckle assembly, on the front aluminum ball joint located on the front axle plate as shown.

STEP #13, Slide the clevis, that is on the other turnbuckle assembly, over the hole in the upper ball support. Make sure that the large hole in the clevis is up and the small hole is down. Lock the clevis into place with the 4-40 x 3/8" cap screws.

STEP #14, Snap the nylon ball cup that is on the other end of the clevis turnbuckle assembly to the aluminum ball joint on the rear of the axle plate. Using an allen wrench, adjust the turnbuckles by turning them until the king pins are straight in respect to both caster and camber. Move the suspension through its travel and see if the suspension has any binding spots during its travel. If it does, remove the king pin from the bushing, and use the 1/8" drill bit to get the clearance needed to free the suspension throughout the travel. Only remove small bits of material at a time so that you don't go too far. Anytime you adjust the caster and camber you need to check the travel. If the suspension is too tight, the car will not handle properly.

STEP #15, Put the four 8-32 x 7/8" aluminum flathead screws up through the bottom of the chassis in the front four holes.

STEP #16, The spacers provided will raise or lower the front ride height of the chassis. Normally, we use the large spacer along with one small spacer. Select the spacers you want to use and slide them in place over the 8-32 screws on top of the chassis.

STEP #17, Place your pre-assembled front axle assembly over the screws and spacers on the chassis and lock into place using the 8-32 nylon lock nuts.

STEP #18, Fasten the front body posts to the chassis using the 4-40 x 3/8" 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 can be adjusted later to the body you choose.

STEP #19, Locate the two aluminum steering turnbuckles. Put a plastic ball socket on each end as shown. Thread them on until the overall length of the assembly is 2". This will be close. The final adjustment will be made after the steering servo is in the car.

STEP #20, In each of the two steering blocks put an aluminum ball joint in from the bottom up. Use the aluminum lock nuts to secure the ball joints in place. A 3/16" nut driver works well for this.

STEP #21, Snap one end of each turnbuckle assembly on the balls in the steering blocks as shown. The two aluminum ball joints and nuts that are left over will go on the servo saver. So they won't get lost, snap them into the other socket on the turnbuckle and thread the lock nut on finger tight.

STEP #22, Slide two front bearings onto each steering block axle and use a 8-32 nylon lock nut to hold them in place.

MID CHASSIS ASSEMBLY

STEP #23, Open bag #2 and empty contents. Locate the aluminum pivot ball. This is the aluminum ball with no hex on it. Install the aluminum pivot ball between the two halves of the nylon ball sockets along with a drop of silicone lube. The ball socket half with the four protrusions on it, is the top piece. It faces away from the aluminum shoulder on the pivot ball. Make sure the pivot ball is in the correct position before proceeding.

STEP #24, Place the pivot ball assembly into the graphite ball plate, with the large round nylon shoulder fitting tightly into the hole in the ball plate. Lock the pivot ball assembly into place

using the four 2-56 x 1/4" buttonhead screws as shown. Make sure the pivot ball rotates freely in the socket. If it is a little tight, loosen the screws until it is free.

STEP #25, Insert the two 4-40 x 1/2" flathead screws through the rear holes in the chassis and place one .125" thick washers over each screw.

STEP #26, Place the graphite ball plate with the pivot ball assembly in place, over the screws. Carefully thread an aluminum stand off on each screw. Hold the aluminum stand off with your fingers and tighten the screws. Do not over tighten the screws and strip the threads in the aluminum stand offs.

STEP #27, Find the rear battery cup and secure it to the chassis using two 4-40 x 3/8" flathead screws and tighten.

STEP #28, Find the triangular shaped graphite top plate. Install one aluminum ball joint in the forward most point in the top of the plate, on the same side as the countersunk holes, and lock in place with a 4-40 lock nut. The countersunk holes are not shown in the picture.

STEP #29, Install an aluminum ball joint in the outer most holes of the two available shock mounting holes and lock in place with 4-40 lock nuts. Keep in mind that the outer most holes on the plate are for the body posts.

STEP #30, Fasten the rear body posts to the top plate, in the outer most holes, using the 4-40 x 3/8" cap 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 can be adjusted later to the body you choose.

STEP #31, Place the top plate assembly on the standoffs and rear battery cup and secure into place using four 4-40 x 3/8" flathead screws. Note : the picture shows cap screws, OPPS! Be careful not to over tighten the screws and strip out the threads in the nylon battery cup.

STEP #32, Install the two .250" aluminum control

link balls ,with the hex on them, to the chassis in the holes next to the rear battery cup using two 4-40 x 3/8" flathead screws.

STEP #33, Locate the front battery cup and the lid. You will notice that the lid has a large enough hole in one end to let the 4-40 screw pass through and self tap itself into the other end. Line up holes in the lid with the large hole in the front battery cup and install the 4-40 x 1/2" cap screw. Tighten the screw until resistance is felt in the movement of the lid action. The lid is held in place with a hood pin.

STEP #34, Install the front battery cup on the chassis using two 4-40 x 3/8" flathead screws as shown.

STEP #35, Install the antenna mount as shown using a 4-40 x 3/8" flathead screw.

REAR END ASSEMBLY

STEP #36, Open bag # 3 and locate the lower graphite motor plate. Attach the left nylon axle block to the plate using three 4-40 x 3/8" flat-head screws. Be sure you do not over tighten the screws and strip out the threads in the holes.

STEP #37, Attach the right aluminum motor block to the bottom plate using two 4-40 x 3/8" flathead screws.

STEP #38, Install the two .250" aluminum control link balls ,with the hex on them, to the lower plate in the inner set of holes, using two 4-40 x 3/8" flathead screws.

STEP #39, 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. We usually start out with the axle in the middle. Depending on tire size and track conditions, you may choose to use a different setting.

When you have chosen the set you are going to use, trim them off the tree, and install them in the blocks on the rear pod as shown. They should fit snug in the holes in the blocks.

STEP #40, Install the rear pod on the chassis pivot

ball using a 4-40 x 3/8" flathead screw. Place the screw through the center hole in the rear pod and thread it into the pivot ball. Be careful when tightening the screw. In some cases the pivot ball will try to spin in the socket. Most of the time the screw will tighten with no assistance from a wrench. If it continues to spin, a pair of small needle nose pliers can be used. A drop of red LockTite can also be used on this screw.

STEP #41, Locate the 4-40 x 1.125" steel turnbuckles and thread a nylon ball link socket on each end to an approximate length of 2.750". Put a 2-56 x 1/4" buttonhead screw in each ball socket but only thread it a couple of turns. Make sure that the heads of the screws are on the same side.

STEP #42, Snap the control link assembly onto the pivot balls that are on the rear pod and chassis, making sure that the screw heads are facing to the outside of the chassis. This makes adjusting the tension on the pivot balls easier. Tighten the 2-56 screws in the sockets until the balls do not rotate in the sockets and then back the screw one or two turns until the balls pivot freely.

The rear pod must be on the car straight in order for the car to run in a straight line. Find a point on the chassis to measure from or you can measure the distance between the rear pod and the chassis. By placing an allen wrench in the turnbuckle hole on turning the turnbuckle, the length will get shorter or longer. Make sure there isn't a bind caused by different length control links. To check for this, move the rear pod in all directions. The action should be free. If it is not free, keep adjusting the control links until it is.

STEP #43, Install the three aluminum ball joints in the graphite top plate as shown locking them in place with the 4-40 aluminum lock nuts.

STEP #44, Place the top plate on the rear pod and secure in place using the four 4-40 x 3/8" cap screws. Be careful and do not over tighten these screws.

SHOCK ASSEMBLY

STEP #45, Open bag # 4 and empty contents into a small container because there are many small parts in this bag. Find the shock shaft and

put a drop of oil on the silicone o-ring and slide it onto the shock shaft next to the piston.

STEP #46, Locate the small flat washer. Slide it onto the piston shaft next to the silicone o-ring, making sure that it slides freely.

STEP #47, Now slide the small spring and cylinder nut on to the piston as shown. Remove any flashing from the cylinder nut and make sure it to slides freely on the shaft.

STEP #48, Before doing the next steps it would be a good idea to have a rag ready to clean up any mess. Using 20 - 25 weight shock oil, hold the shock body at a slight angle, drip oil down the side of the cylinder and fill the shock body up to the bottom of the threads. This lets the oil fill the cylinder, making sure there is no air trapped in the bottom.

STEP #49, By holding the shock body upright, slowly push the piston assembly into the shock cylinder as shown until the nut comes in contact with the shock body.

STEP #50, Thread the cylinder nut one or two turns in the shock body and with your fingers slowly push the piston rod into the shock body until it stops. Oil will come out at this point but don't worry. If you can't press the piston rod in, loosen the cylinder nut until you can.

STEP #51, With the piston rod still depressed in the shock body, tighten the cylinder nut, with your fingers only, until it is tight. When the nut is tight, release the piston rod and the piston should pop up. Check the shock action with your fingers. It should feel smooth. If it feels slushy or bumpy, you have air bubbles in the oil and you will have to start over from step #48.

STEP #52, Thread the aluminum spring adjustment nut on the shock body a couple of turns, and holding the shock body firmly, thread a nylon ball cup all the way on the threaded end of the shock body.

STEP #53, Install the shock spring over the shock body, against the adjusting nut, and attach the aluminum rod end cap on the piston as shown using the 4-40 x 1/8" set screw to hold it in

place. Next, thread a nylon ball cup on the end cap all the way until the treads seat.

Repeat these steps on the other two shocks. When you are finished, all the shocks should be close to the same length. The shock length is determined by the amount of oil in it. If they are different, repeat steps until all are the same.

STEP #54, Snap the shocks in place on the chassis as shown. We will make final adjustments later.

DIFFERENTIAL ASSEMBLY

STEP #55, Locate bag # 5 and empty into a container. There are many small parts that will roll off a table in this bag. Locate the 120 tooth Magic spur gear. Put a small amount of diff grease on one diff ring and snap it into place in the spur gear, greased side facing in. Put an 1/8" diff ball in each hole.

STEP #56, Now snap the other greased diff ring in the other side of the gear, greased side toward the balls.

STEP #57, Find the 1/4" x 3/8" non-flanged bearing. The other four bearings will have flanges on them. Press this bearing inside the spur gear. It may be necessary to slightly ream the inside of the gear to get the bearing to fit.

STEP #58, Now slide the spur gear onto the diff axle. Make sure that the drive ring fits around the lip of the hub on the axle and is seated properly. If you find something to stand the diff axle in while building, it makes assembly much easier.

STEP #59, Next, push a flanged bearing into each end of the aluminum diff hub. Make sure they fit all the way down in the hole. Slide the hub assembly on the axle. Line up the drive ring with the diff hub.

STEP #60, Now put the thrust cone washer on the axle, on top of the diff hub, followed by the aluminum thrust cone, small end down. Next, put a steel belleville washer on the axle, cone side up, followed with another belleville washer on top of it, cone side up also, and lastly the 8-32 nylon lock nut. Tighten the nut just enough to hold all the parts in place. Over tightening the nut will crush the belleville washers. We will adjust the

diff later.

STEP #61, Put the last two 1/4" x 3/8" flanged bearings in the ride height adjusters in the motor blocks, they will go in hard.

STEP #62, Next, find the nylon axle shims. You will notice that there are three different thicknesses, 1/16", 1/8", and 3/16". The different widths allow you to change the rear width of the car. The wider the rear width the less rear traction you will get. The narrower the rear end the more rear traction you will get. Take the desired spacer, if any, and slide one on the diff axle with the large side toward the hub on the axle. Slide the assembly through the bearings in the rear pod.

STEP #63, On the other side of the axle, slide the other spacer on with the large end to the outside of the chassis. Make sure that the axle is centered in the car. This can be checked by measuring the distance from the center of the car to the outside of each wheel.

Now locate the wheel hub and slide it on the diff axle next to the nylon spacer and check the side to side play. You only want the axle to move from side to side about a piece of papers thickness. Using the set screws, lock the hub into position on the axle. Spin the axle to make sure it turns freely.

STEP #64, Install the rear tires on the rear hubs using the eight 4-40 x 3/8" screws. 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 #65, 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 #66, O.K. Now its time for the front wheels to be put on. Go back to the front steering blocks

and remove the nuts and bearings from the axles. Press two bearings into the center of each wheel. Slide the wheel on the steering block axle and lock it in place with the lock nut. Tighten the nut until the wheel has a little side to side play. About the thickness of a sheet of paper again.

This should complete the chassis assembly of your EVOLUTION 10. Look over the chassis to be sure all of the parts are in the correct position and you do not have any major pieces left over. Now, on to the radio gear installation.

RADIO GEAR INSTALLATION

There are a number of good radios on the market today. If you plan on doing a lot of serious racing, we recommend that you do not buy the cheapest radio possible. This will only 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 racing.

STEP #67, Take the servo you will be using for the steering and remove the screw and control wheel that came on it. Put your servo saver in its place as shown, but do not put the screw back in yet. Now, with your fingers, turn the servo saver all the way to the left and then all the way to the right until it 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 #68, Un-snap the aluminum ball joints from the steering linkage and install them in the servo saver as shown. If you mount the balls in the top holes, you will get more steering than mounting them in the bottom holes. It will be necessary to enlarge the holes in the servo saver to get the ball joints in. Use a hobby knife or the correct size drill bit to do this. Put an aluminum lock nut on the back side of each ball joint to lock it in place.

STEP #69, Place the steering servo on the front axle plate as shown. It is important that the servo saver is in the middle of the chassis and that the ball joints on the servo saver and the ball joints on the steering blocks are in line. Mark the position of the servo on the axle plate. Put a piece of servo tape on the bottom of the servo

and stick the servo in place on the front axle plate.

STEP #70, Now snap the steering linkage cups on the servo saver ball joints. The front wheels on the EVOLUTION 10 should be straight with no toe-in or toe-out. To adjust them, stick a small allen wrench through the hole in the aluminum turnbuckle and turn it. Depending on the direction you turn, the wheels will either toe-in or toe-out. Adjust until straight.

STEP #71, Position your receiver in the position where the Novak receiver is shown. Attach it to the chassis using double sided servo tape.

Take the receiver antenna wire and run it up the inside of the antenna tube. Leave about 3/8" of an inch of the wire sticking out, and fold the wire over the end of the tube and put the antenna tube cap in place.

Take any excess receiver wire and neatly fold it up and tie wrap it along side the receiver. Plug the steering servo into the appropriate spot in the receiver.

STEP #72, Mount your speed control in the fashion shown on the chassis using servo tape. Plug the speed control into the receiver and tape the wire down as shown. Using servo tape, attach the on-off switch to the chassis.

STEP #73, Assemble the battery pack as shown. Put the pack in the battery cups and check to make sure you will be able to solder your connecting wires from the speed control to the tabs.

STEP #74, Solder the speed control wires in place with the battery pack in the battery cups on the chassis. Refer to the speed control instructions for proper wire hook ups.

STEP #75, 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.

STEP #76, The spur gear supplied is a 64 pitch gear. You will need to get a 64 pitch pinion gear. The size pinion gear you will need depends on what motor you have and what type of track you are racing on. 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.

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, your run time will shorten. If the gears are too loose they will strip out very easily.

Chassis setup and tuning.....

Now that you have your chassis assembled, we can start on the setup. Always setup your chassis with the motor and batteries installed. This is important, because the chassis will sit differently without the extra weight, and all your adjustments will be worthless when the motor and batteries go in.

You always want to setup your car on a level smooth surface. If you happen to have a tweak board this will come in handy for adjusting the final tweak of the car.

The first place to start is to adjust the rear shock and spring that controls the front to rear movement. Back the spring all the way off so that it does not touch the retainers. Holding the car in your hands and viewing the chassis from the side you should be able to move the pod forward and backwards past the point where the lower pod plate is parallel with the chassis. It is important when flexing the pod to the rear, that you are not pulling the shock against the internal pressurization spring. If this happens lengthen the shock by unscrewing the ball cups a turn or two. This is an important step that most people do not do. When the shock is adjusted correctly it works in both directions and makes the chassis work over bumps. On very bumpy tracks, use the rearward ball mounting hole for the shock on the top plate. This will give more travel to the front and back.

Now place the car on a flat surface and adjust the spring so that the chassis sits level. The 2 side shocks will be adjusted later. Make sure both springs are backed all the way off.

Now on to the front end. The EV10 front end is the most adjustable on the market. Camber, caster and toe in are adjusted by turning the tie-

rods that make up the upper "A" arm. These items can all be changed independently from side to side, to really fine tune your car to any possible track conditions.

The best place to start is to set the caster to 1 or 2 degrees. This will change to 0 degrees as the car corners, giving a lot of steering during high speed cornering. By increasing this to 4 or 5 degrees you will get more steering coming out of the turns and less going in, but more stability down the straights. Neither setup is the rule, it all depends on your driving style and the track. Remember for more cornering going into a turn, use less caster, for less steering going in to a turn use more caster. Adjust this to suit your driving style and horsepower.

Looking at the car from the front we usually set the car up with some camber. Tilt the front tires so that the tops of the front tires point inward toward the center of the car (negative camber) about 1/16th of an inch on each side. The best item to use to set this is a draftsman's triangle. Place one side of the triangle flat on the working surface and the other against the outside of the tire. Check the space between the triangle and tire at the top. This space should be about 1/6th of an inch. This will keep the front tires flatter on the track surface during cornering, for more traction and even tire wear. After running a few laps check tire wear and increase the camber if the outside of the tire is wearing more than the inside.

Always try to run 1 or 2 degrees toe in. Toe in will make the car run in a straight line, and be more consistent in the turns. Too much toe in will hurt the cars entrance speed into a turn. Always check toe in by slightly pulling the front tires from the rear. This takes out any play in the suspension and bearings, and is the position the wheels will assume as the car moves forward.

In most cases the supplied grease is all the dampening you will need in the front suspension. To increase the dampening, a light silicone lube will work, like Trinity RC 6009. The more dampening you use the slower the suspension works and the less steering you get. This is the setup to use on high speed tracks, with fast sweepers.

Once you get the front end set the way you want, it is time to adjust the 2 side shocks. The side shocks should be adjusted so there is about .150" of travel in each shock. Adjust this as we did the front to rear shock by turning the ball

cups in or out. This will be more than enough movement. The springs should now be adjusted. Leaving the car on a flat surface, tighten up the spring retainers so that the retainers just touch the springs. Now tighten each spring 1 to 2 more complete turns.

If you have a tweak board set the car on the board and adjust the side to side shock springs until the tweak board reads that the weight is even on both front wheels.

For those who do not have a tweak board use this method. With the car sitting on a smooth flat surface, put a hobby knife blade directly under the center of the rear of the car and lift up the rear pod. Both rear tires should lift up off the surface at the same time. Do this while looking at the car from the rear. If one of the tires lifts first, add some tension to the shock spring on the same side of the car. Adjust this until both rear tires lift at the same time. It should never take more than 1 turn either way to adjust the chassis so there is no tweak in it.

RIDE HEIGHT

Now that your chassis is all adjusted it is time to start tuning it. Always try to run the chassis as low to the track surface as possible without it dragging. Run it parallel to the track surface. For more steering lower the front, and for more rear bite raise the front, but for starters keep it level.

MORE STEERING

To get more steering in your EV10, try these things.

Lower the front of the chassis.

Add More camber.

Raise the rear upper "A" arm mounting ball so there is more reactive caster.

Use softer front springs.

Use less front dampening.

Decrease rear dampening by using a lighter oil in rear shocks

Use stiffer side to side springs in the rear.

LESS STEERING

Remove camber

Raise front chassis ride height

Use stiffer front springs

Use more front dampening

Raise front and rear "A" arm mounting balls so upper "A" arm is closer to parallel with the lower graphite plate.

Use heavier rear dampening

MORE REAR TRACTION

Use softer rear springs and light oil in rear shocks

Raise front of chassis

Make rear track narrower

Your EV10 is more adjustable than any car you may have owned before. Because of its advanced design, any small changes you make in the suspensions set-up will show a change on the track. Remember to always make small changes, and to make one at a time. Write down everything you do, so that if you totally mess up the setup, you have a basic setup to go back to.

EV10 Replacement Parts....

Part #	Part Description	Qty	Price
EV0022	FRONT STEERING BLOCKS	2	\$10.99
EV0023	FRONT KINGPINS	2	\$4.99
EV0024	NYLON UPPER BALL SUPPORT	2	\$3.99
EV0025	.022" FRONT SUSPENSION SPRING	2	\$3.99
EV0026	CLEVIS ALUMINUM	2	\$3.99
EV0027	1.125" x 4-40 STEEL TURNBUCKLES	4	\$10.99
EV0028	4-40 BALL STUD	4	\$4.99
EV0029	4-40 NUTS	4	\$0.99
EV0030	NYLON BALL CUPS	4	\$2.99
EV0031	1/4" DELRIN BALLS	2	\$1.99
EV0032	COMPLETE SHOCK	1	\$14.99
EV0033	ALUMINUM SHOCK BODY	1	\$9.99
EV0034	NYLON CYLINDER NUT	2	\$1.99
EV0035	SILICONE O-RING	4	\$1.99
EV0036	ALUMINUM SPRING ADJUST NUT	2	\$1.99
EV0037	PRESSURIZATION SPRING	4	\$1.99
EV0038	ALUMINUM ROD END CAP	2	\$4.99
EV0039	SHOCK SHAFT	2	\$4.99
EV0040	NYLON SHOCK SHAFT WASHER	4	\$1.99
EV0041	SUSPENSION SPRING 5 LB.	1	\$4.99
EV0042	SUSPENSION SPRING 11 LB.	1	\$4.99
EV0043	SUSPENSION SPRING 15 LB.	1	\$4.99
EV0044	SUSPENSION SPRING 23 LB.	1	\$4.99
EV0046	GRAPHITE FRONT AXLE PLATE	1	\$29.99
EV0047	ALUMINUM BALL STUDS	4	\$4.99
EV0048	4-40 ALUMINUM LOCK NUTS	8	\$4.99
EV0049	8-32 x 7/8" ALUM FLATHEAD SCRS	4	\$1.99
EV0050	8-32 NYLON LOCK NUTS	4	\$1.99
EV0051	FRONT NYLON KINGPIN BUSHING	2	\$1.59
EV0052	NYLON CLEVIS	2	\$2.99
EV0053	FRONT SPACER SET	1	\$2.99
EV0054	1/8" SILICONE O-RING	4	\$1.99
EV0055	3/16" x 5/16" FLANGED BEARINGS	2	\$12.00
EV0056	1/4" x 3/8" BEARING	1	\$7.50
EV0057	1/4" x 3/8" FLANGED BEARINGS	2	\$14.00
EV0058	1/8"x 1/4" STEEL WASHERS	4	\$1.99
EV0059	1/8" E-CLIPS	12	\$0.99
EV0060	GRAPHITE TOP MOTOR PLATE	1	\$14.99
EV0061	GRAPHITE LOWER MOTOR PLATE	1	\$19.99
EV0062	NYLON LEFT REAR AXLE BLOCK	1	\$3.99
EV0063	ALUMINUM RIGHT MOTOR BLOCK	1	\$14.99
EV0064	4-40 x 3/8" FLATHEAD SCREWS	8	\$2.99
EV0065	4-40 x 3/8" CAP SCREWS	8	\$2.99
EV0066	GRAPHITE BALL PLATE	1	\$4.99
EV0067	GRAPHITE TOP PLATE	1	\$24.99
EV0068	1/4" ALUMINUM PIVOT BALL	2	\$2.99
EV0069	3/16" ALUMINUM STANDOFF	2	\$3.99
EV0070	NYLON REAR BATTERY CUP	1	\$4.99
EV0071	2-56 x 1/4" BUTTONHEAD SCREWS	8	\$2.99
EV0072	NYLON PIVOT BALL SOCKET SET	1	\$2.99
EV0073	1/8" THICK ALUMINUM WASHERS	2	\$1.99
EV0074	4-40 x 1/2" FLATHEAD SCREWS	8	\$2.99
EV0075	NYLON BALL LINK SOCKET	4	\$3.99
EV0076	ALUMINUM CONTROL LINK BALLS	4	\$6.99
EV0077	GRAPHITE DIFF AXLE HOLLOW	1	\$27.99
EV0078	ALUMINUM RIGHT DIFF HUB	1	\$14.99

EV0079	ALUMINUM LEFT WHEEL HUB	1	\$14.99
EV0080	THRUST CONE & WASHER	1	\$1.99
EV0081	BELLEVILLE WASHERS	4	\$1.99
EV0082	NYLON AXLE SHIM SET	1	\$3.99
EV0083	NYLON FRONT BATTERY CUP	1	\$4.99
EV0084	FRONT BATTERY CUP LID	1	\$1.99
EV0085	2" NYLON BODY POSTS	4	\$4.99
EV0086	NYLON BODY POST COLLARS	4	\$2.99
EV0087	4-40 x 1/8" SET SCREWS	8	\$1.99
EV0088	2.250" x 4-40 ALUM TURNBUCKLES	2	\$9.99
EV0089	4-40 x 1/2" CAP SCREW	5	\$2.99
EV0090	HOOD PINS	6	\$1.79
EV0091	RIDE HEIGHT ADJUSTOR SET	1	\$2.99
EV0092	1/8" DIFF BALLS	12	\$2.99
EV0093	DIFF RINGS	2	\$1.99
EV0094	CHASSIS PLATE	1	\$59.99

EV10 Hop up Parts....

EV0095	WIDE OVAL CONVERSION	1	\$75.00
EV0096	NARROW OVAL CONVERSION	1	TBA
EV0097	LEFT SIDE DRIVE KIT NARROW	1	\$69.99
EV0099	FRONT SPRING ORANGE, 4-6 LBS	2	\$2.00
EV0100	FRONT SPRING BLUE, 6-8 LBS	2	\$2.00
EV0101	FRONT SPRING RED, 8-10 LBS	2	\$2.00
EV0102	FRONT SPRING WHITE, 10-12 LBS	2	\$2.00
EV0103	FRONT SPRING GREEN, 11-13 LBS	2	\$2.00
EV0104	COMPLETE SPRING KIT	10	\$8.00
EV0105	LIGHTENED PURPL RIGHT POD PLATE	1	\$25.00
EV0106	LIGHTENED PURPLE LEFT POD PLATE	1	\$25.00
EV3000	EV10 4 COLOR STICKER SHEET	1	\$2.99

EV10 Shirts....

EV3001	EV10 MEDIUM T SHIRT	1	\$15.00
EV3002	EV10 LARGE T SHIRT	1	\$15.00
EV3003	EV10 X-LARGE T SHIRT	1	\$15.00
EV3004	EV10 XX-LARGE T SHIRT	1	\$17.50

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