

# Switchblade™

## RADICAL REACTIVE CASTER FRONT SUSPENSION SYSTEM

Trinity's new Switchblade 10 Radical Reactive Front Suspension kit will bolt directly on all existing EV10 and Revolver car kits plus Associated 1/10th and 1/12th, and Hyperdrive. This suspension kit includes adjustments for caster, camber, toe in and toe out and other tuning tips, all explained in the tuning section following the assembly instructions.

To help you identify parts, photos will accompany each step throughout the assembly instructions. You will also notice a small box at the top left of each step. When you finish the step, put a check mark in the box so that you know where you are in the assembly process.

Retain these instructions. You'll appreciate the tuning tips at the end, race after race. Every part that comes in your kit is numbered for easy re-ordering.

### Step 1.

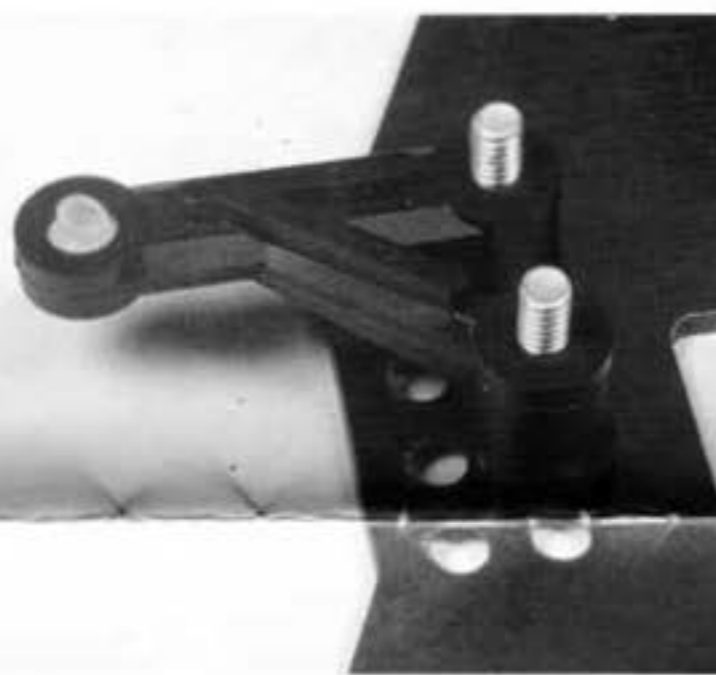
Locate the left and right suspension arms (SB5020) and two of the Delrin pivot balls (SB5022). Place one of the pivot balls on a flat surface, shoulder up and snap the right arm on to it using your thumb. Do the same for the left suspension arm. Always install the pivot balls from the bottom of the arms. **Do Not Use Pliers! You will damage the pivot ball.**



### Step 2.

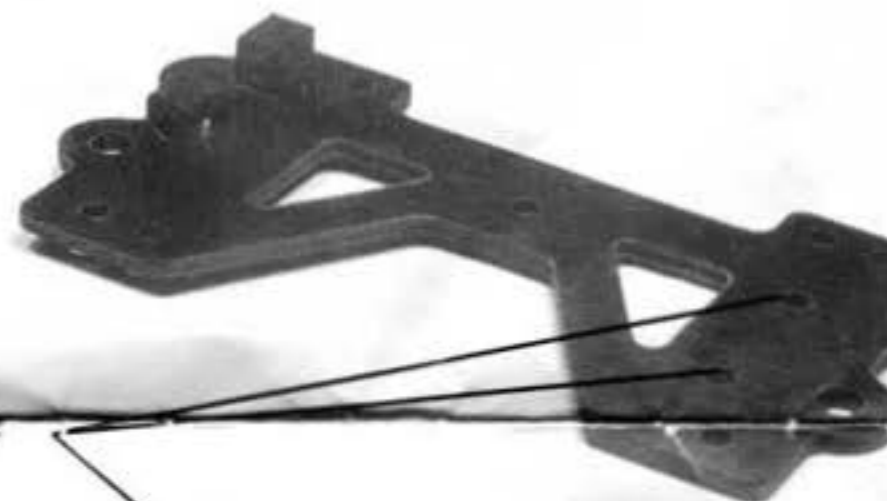
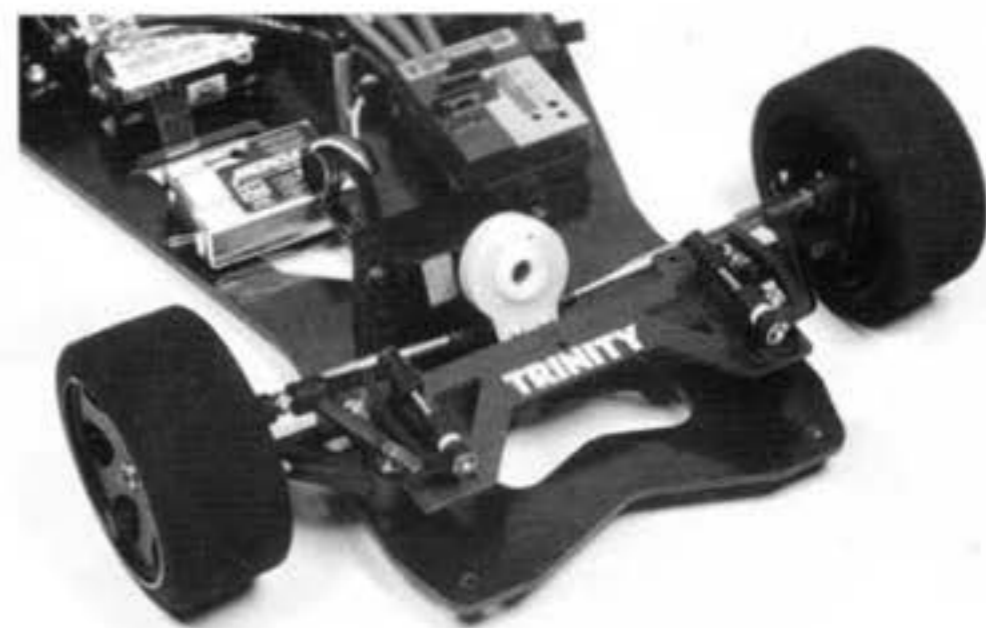
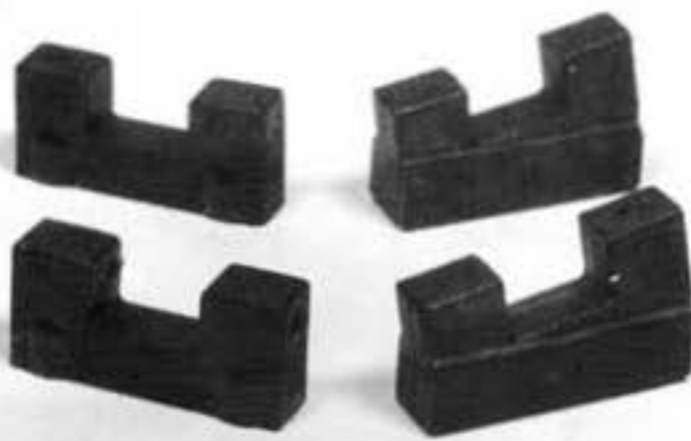
Locate the four 8-32 x 7/8" flat head screws (EV0049) and the two thin suspension arm spacers (EV0052). Insert two of the screws from the bottom of the chassis and through the thin suspension arm spacer. Depending on the track you are racing on, you may want to add or remove spacers

from under the front arms to adjust the front ride height. Align the right lower suspension arm with the screws and install it to the chassis as shown using a Phillips head screwdriver. Just snug up the screws for now, we will tighten them securely later. Do the same for the left arm.

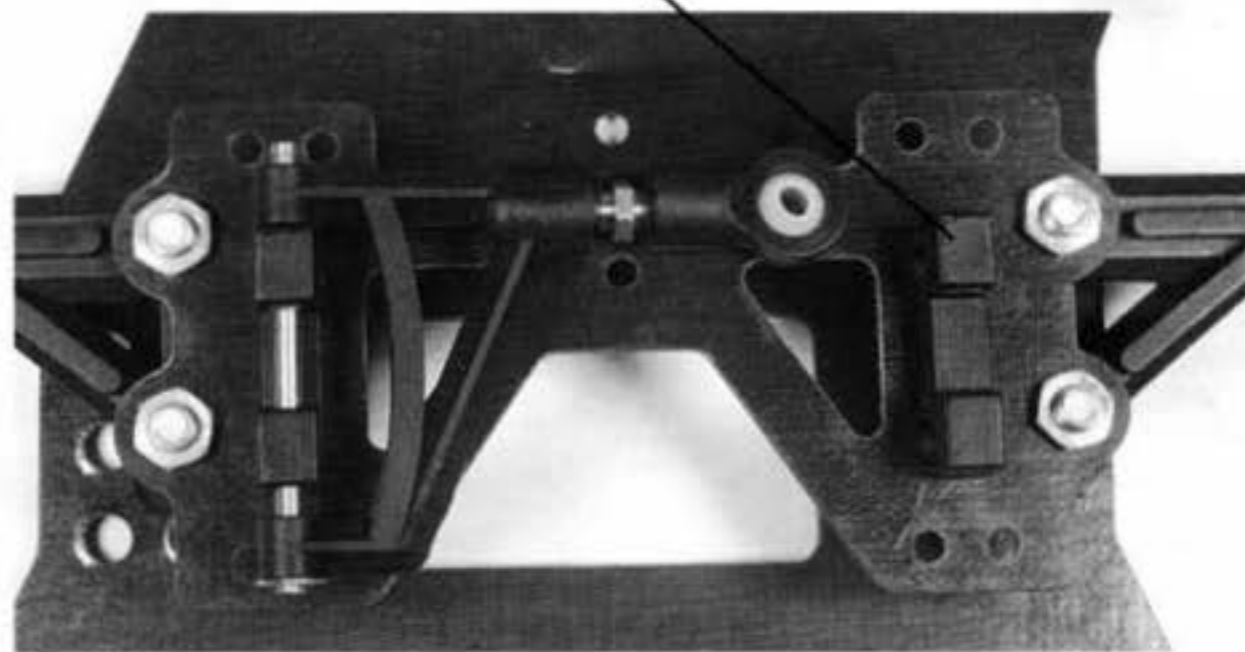


### Step 3.

There are two types of upper suspension arm mounts, 0 degree and 10 degree (SB5023). Locate the six 4-40 x 1/4" flat head screws (SB5034) and the graphite front suspension brace. On one side of the brace there are six countersunk holes. Insert the screws from this side and attach the 0 degree upper suspension arm mounts. (Be careful not to overtighten these screws. You may strip out the mounts).



The upper suspension arm mounts use these 2 holes.



### Step 4.

Align the front graphite suspension brace with the four 8-32 flat head screws. You will have to loosen the 8-32 screws a little before you can slide the brace over them. Once the brace is in place, you can tighten the 8-32 flat head screws securely. Use the four 8-32 flat nuts (EV4018) to hold the suspension brace in place.



### Step 5.

Locate the two upper suspension arms (SB5021), the upper suspension arm turnbuckles (SB5025), and the two eyelets (SB5024). Screw one of the upper arm turnbuckles into an eyelet several turns, (A 3/16" nut driver works great for this.) Next screw the other end of the turnbuckle into the upper suspension arm. Use a pair of needle nose pliers to hold the turnbuckle while doing this.

**Step 6.** Place another of the Delrin pivot balls (SB5022) on a flat surface, shoulder down, and snap an eyelet on to it from the side that has square edges. (Large opening.) Always install the pivot balls from the side that has square edges.

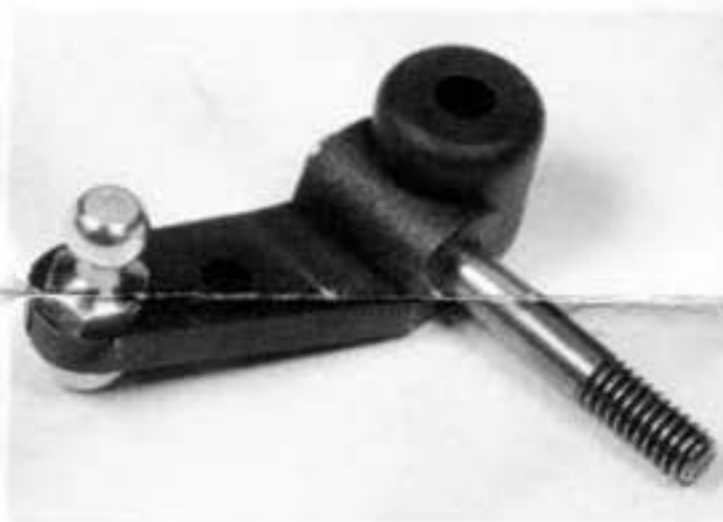


**Do not use pliers!** You will damage the pivot ball.

**Step 7.** Attach the upper suspension arm to the mount by sliding the upper arm hinge pin (SB5026) through the arm and mount with one white shim on each side of the mount. Install an E-clip (SB5027) on each end of the hinge pin to hold it in place. Now assemble and mount the left side arm repeating steps 5, 6, and 7.



**Step 8.** Thread one of the aluminum ball studs (EV0047) into the right steering block (SB5028) and secure with an aluminum locknut (EV0048). Install an E-clip (EV0059) on to the splined end of the stub axle (SB5029) and gently tap the stub axle into the steering block until the E-clip is flush with the steering block. The steering block should look like the photo below after assembly.



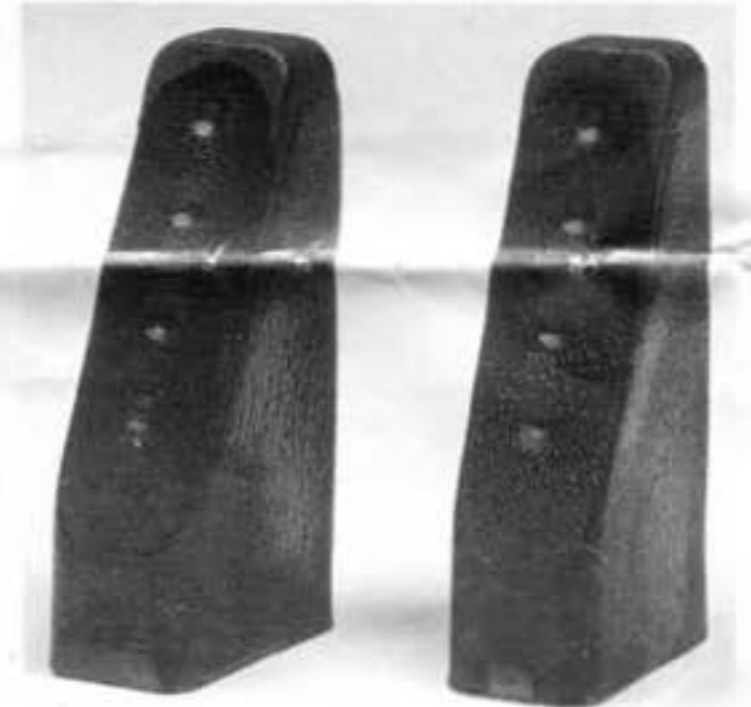
**Step 9.**



Install an E-clip (EV0059) on the kingpin (SB5030), add a washer (EV0058) and a spring (EV0025). Now slide the kingpin through the lower arm pivot ball, through the steering block, and through the upper suspension arm pivot ball. Add a washer to the top end of the kingpin and secure with another E-clip. Repeat steps 8 and 9 for the left side.

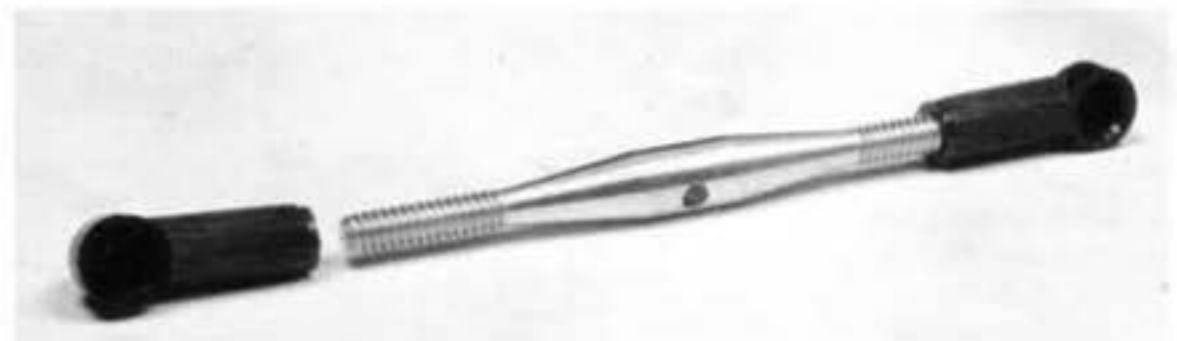


**Step 10.** Drill two 3/32" holes in each servo mounting block (SB5033), depending on the type of servo you plan to use. If you are using a large servo, drill out the 1st and 3rd hole from the top of the block. If you are using a small servo, drill out the 2nd and 4th hole from the top. Be sure to drill the holes perpendicular to the angle of the servo mount face. Mount the servo to the mounts using the four 4-40 x 3/8" cap screws (EV0065) and four flat washers (EV0058).



**Step 11.** Screw two aluminum ball studs (EV0047) into the servo saver (not supplied). Install the servo saver onto the servo and tighten after you have installed the radio and centered the servo.

**Step 12.**



Thread two plastic ball cups (EV0030) onto the ends of the aluminum turnbuckles. The overall length of the turnbuckles will be determined by the car you are running i.e. EV10, EV10SS, Revolver 12, 22j, or SS. Use an .050 allen wrench in the center hole of the turnbuckle and turn it to adjust the length of the steering rods.

**Step 13.** Snap the assembled turnbuckles onto the aluminum ball studs and servo saver ball studs. The servo saver should be lined up with the center of your car with the turnbuckles at a slight angle back to the steering blocks. Next drill one hole for each servo mount in the chassis using a 7/64" drill bit. Use the two 4-40 x 3/8" flat head screws (EV0064) if you are countersinking these holes. Use a 4-40 x 3/8" buttonhead if you do not.

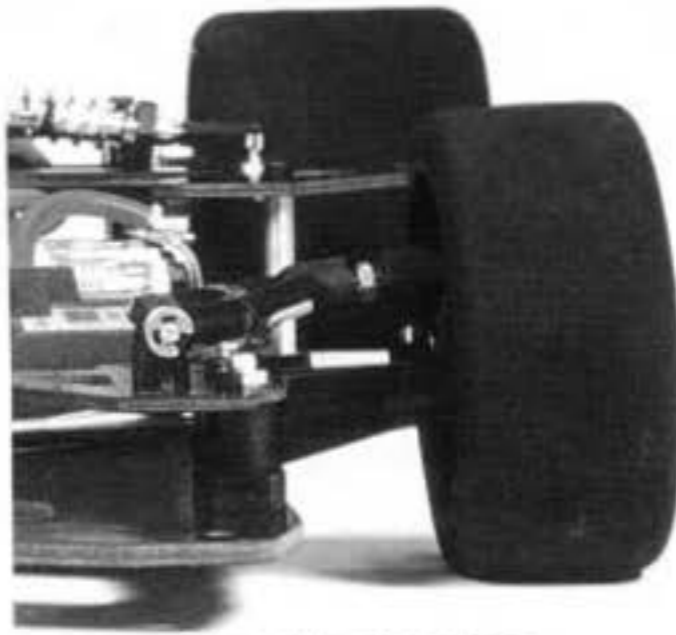
**Step 14.**



Your completed front suspension should look like this.

# Switchblade 10 Front Suspension Tuning Tips

**CAMBER** is adjusted by turning the turnbuckle in the upper suspension arm. The word camber describes the angle to which the tire rides relative to the ground. Looking at your car from the front end, *negative camber* means that the tire is leaning inward at the top of the tire. *Positive camber* means just the opposite. For on-road racing we recommend starting with 1-2 degrees of negative camber by adjusting the upper suspension arm turnbuckle in the appropriate direction.



Negative Camber

After driving your car the first time, check to see if your tires are wearing evenly. If they are not, adjust the front end for even tire wear as this will give you the maximum amount of steering. You can add 1 or 2 degrees more negative camber if less steering is desired.

For oval racing you should start with 2-3 degrees of negative camber on the right side tire and 1-2 degrees of positive camber on the left side tire. Again, you should check to see if your tires are wearing evenly after making a test run and make the appropriate camber adjustment.

**CASTER** is adjusted by moving the white spacers in the upper suspension arms. The word caster describe the angle which the kingpin rides in relation to the vertical plane. *Negative caster* means that the kingpin is leaning rearward at the top of the kingpin. By increasing caster, your car steering will increase entering a corner and decrease exiting the corner. Removing all caster will decrease the steering entering the corner, but will give more steering in the center and exiting the corner. Caster is adjustable in two degree increments.

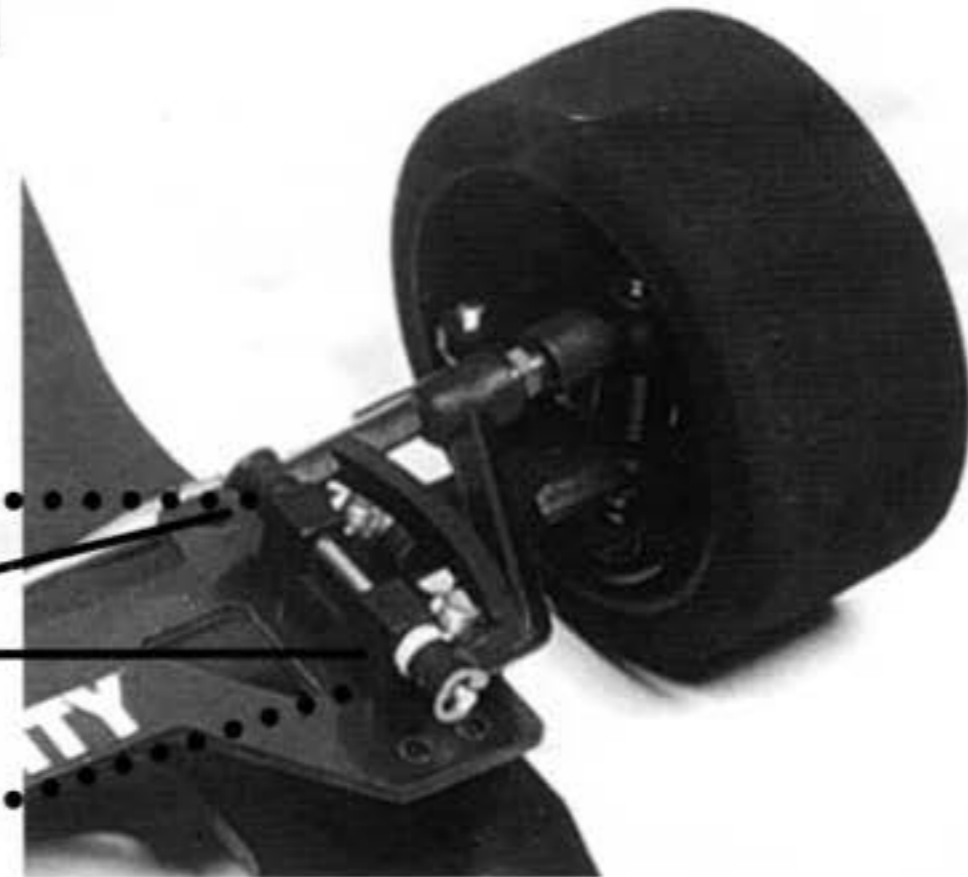
Two shims in the rear gives about 5 degrees of caster. ●●●●●●●●●●

One shim on each side gives about 3 degrees of caster. ●●●●●●●●●●

Two shims in front of the upper suspension arm mount gives approximately 1 degree of negative caster. ●●●●●●●●●●

## CAMBER GAIN

can be changed by adding one of the Roll Center Spacers (SBS038) under the front suspension arm mounts. Raising the front roll center will decrease the camber gain (leaning in) of the tire during suspension travel. This will make the car feel less twitchy and will usually decrease the amount of steering response.



This front end is set-up with 1 degree negative caster

**REACTIVE CASTER** is adjusted by changing the upper suspension arm mounting block. There are two types of mounting blocks, one has no angle and the other has a ten degree angle. (The lower end of the mount goes toward the front of the car when using the 10 degree mount). This angle is what provides the caster change when your front suspension travels. The caster will decrease by 1-2 degrees when using the ten degree mounts. This will make the car steer more aggressively when entering a corner. We recommend using this option for on-road racing when more steering is desired. The amount of caster is adjusted the same as when using the 0 degree mounts by moving the white shims.

**TOE-IN/OUT** are helpful adjustments that can be made to your car. You should try to use as little toe-in or toe-out as possible as both will cause your car to scrub speed. By adding toe-in, your car will be more stable but will remove a small amount of steering. Adding toe-out will allow the car to turn in faster but will make the car unstable exiting the corners. Adjust for toe-in and toe-out by turning the steering turnbuckles with an allen wrench.

[Click part number to search eBay](#)

## SWITCHBLADE 10 HOP-UP PARTS

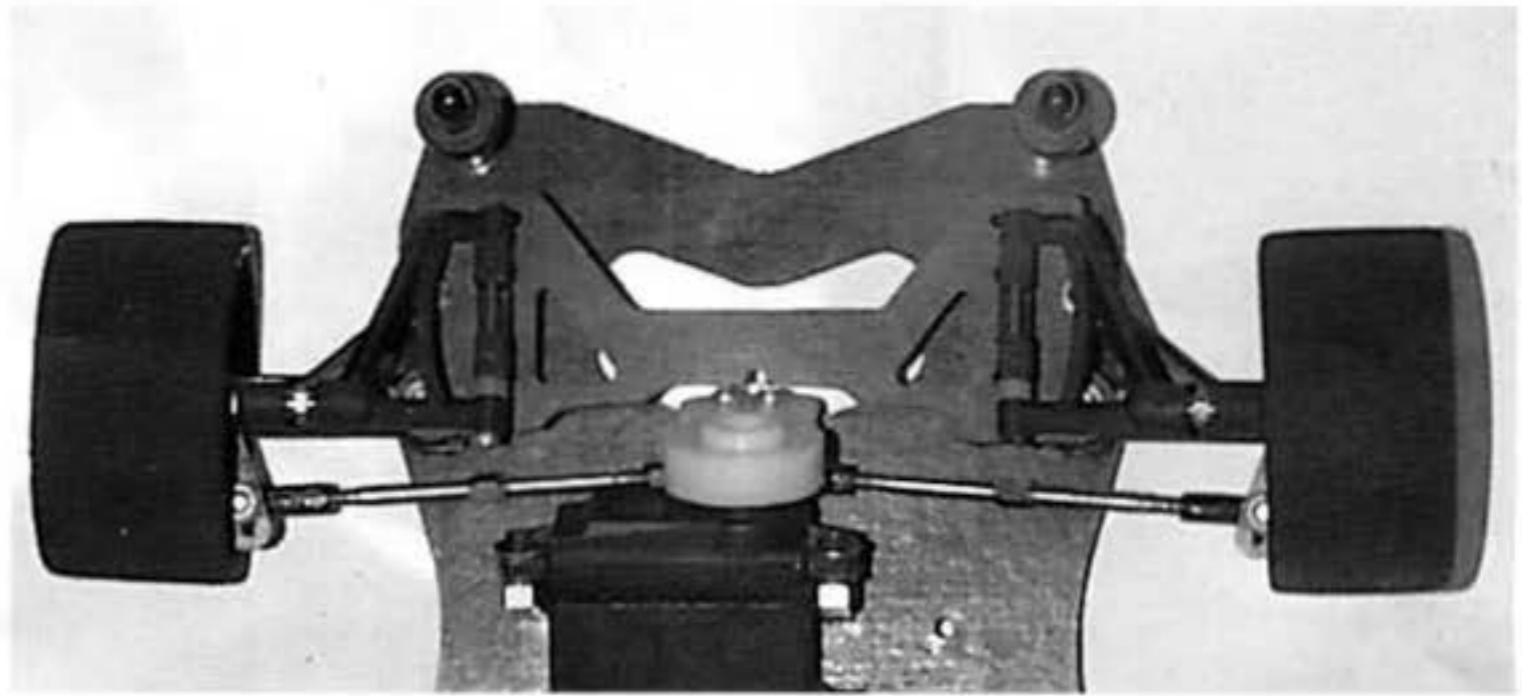
EV0099	Progressive Ft Spring Orange, 4-6 lb	\$2.00
EV0100	Progressive Ft Spring Blue, 6-8 lb	\$2.00
EV0101	Progressive Ft Spring White, 8-10 lb	\$2.00
EV0102	Progressive Ft Spring Red, 10-12 lb	\$2.00
EV0103	Progressive Ft Spring Green, 12-14 lb	\$2.00
EV0104	Progressive Front Spring Set	\$8.00
EV0125	Constant Rate Front Spring Purple, 14 lb	\$2.00
EV0126	Constant Rate Front Spring Black, 16 lb	\$2.00
EV0127	Constant Rate Front Spring Green, 12 lb	\$2.00
EV0128	Constant Rate Front Spring Red, 10 lb	\$2.00
EV0129	Constant Rate Front Spring White, 8 lb	\$2.00
EV0130	Constant Rate Front Spring Blue, 6 lb	\$2.00
EV0131	Constant Rate Front Spring, Orange, 4 lb	\$2.00
EV0132	Constant Rate Front Spring Set, 2 ea	\$11.25
SBS031	On Center Steering Blocks, 1 pr	\$2.50
SBS032	On Center Front Stub Axles 3/16", 1 pr	\$7.00
RC6051	"Purple Stuff" Dampener Lube, Extra heavy	\$1.99
RC6070	"Red Stuff" Dampener Lube, Medium	\$1.99
RC6071	"White Stuff" Dampener Lube, Light	\$1.99

# TRINITY®

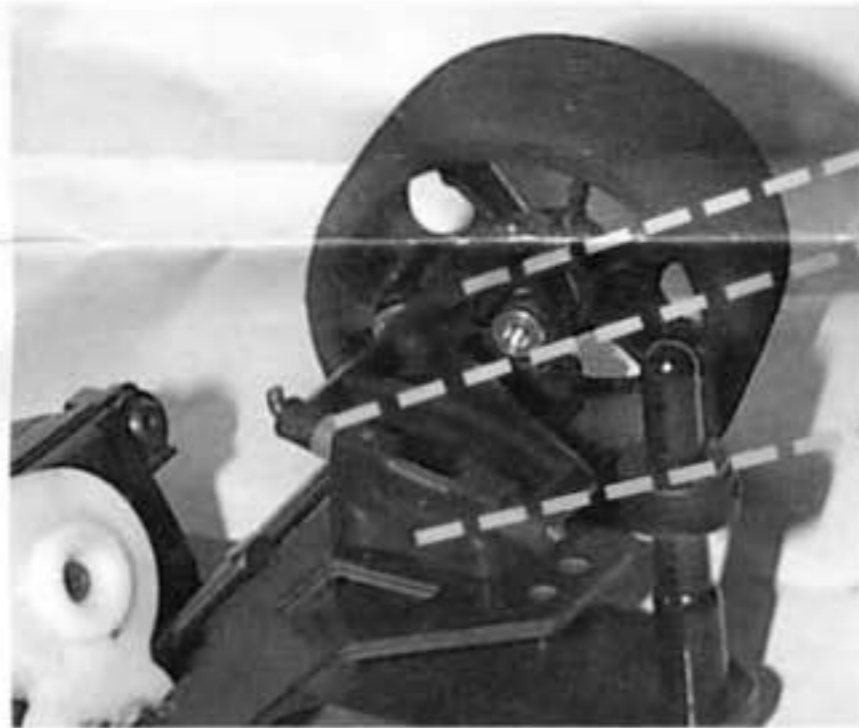
## Switch Blade

### RADICAL REACTIVE CASTER FRONT SUSPENSION SYSTEM!

This molded front end is completely adjustable for caster, camber, roll height and toe-in in just a matter of seconds. Stronger and lighter, plus it is much easier to set-up and track tune!



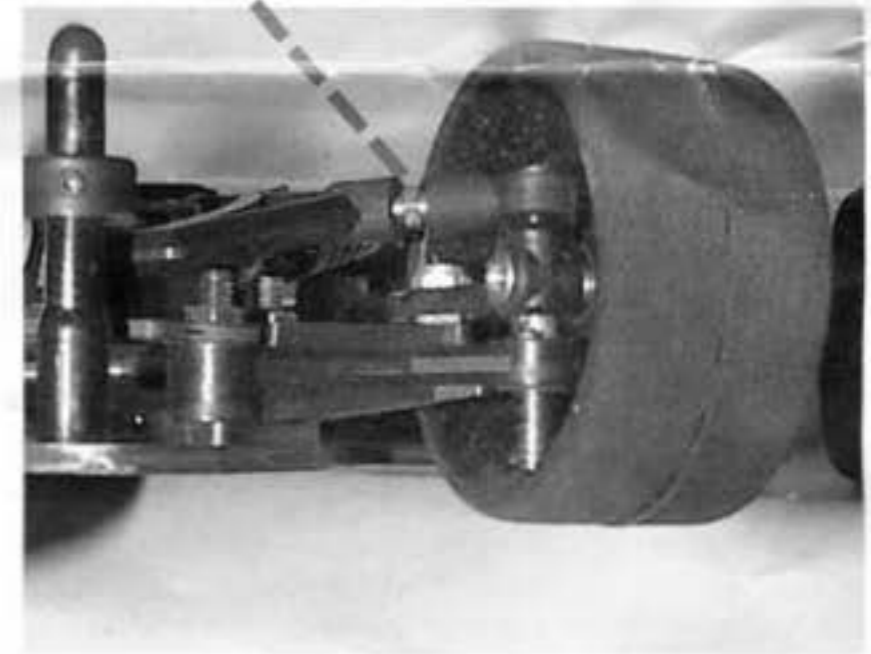
A top graphite plate between the upper and lower arm mounts stiffens up the whole suspension assembly.



Camber is adjustable by turning the turnbuckle in the upper "A" arm.

Caster is adjusted by moving the upper "A" arm forward or backwards on the upper suspension mounts.

Reactive caster is adjusted by changing the upper "A" arm mounting block.



### SUPER EASY TO ASSEMBLE AND ADJUST!

## Switch Blade<sup>10</sup> Radical Reactive Caster Front Suspension System Parts List

[Click part number to search eBay](#)

SB5000	1/10 On-road Front Suspension		\$39.99	SB5034	4-40 x 1/4" Flat Head Screw	8	\$0.99
SB5001	1/10 Speedway Front Suspension		\$39.99	SB5035	Graphite Axle Plate 1/10 On Road	1	\$10.99
SB5002	1/12 Revolver Front Suspension		\$39.99	SB5036	Graphite Axle plate 1/10 Speedway	1	\$13.99
SB5020	Lower Suspension Arms (L&R)	Pr	\$3.50	SB5037	Graphite Axle Plate 1/12 Revolver	1	\$9.99
SB5021	Upper Suspension Arms	Pr	\$3.00	EV0025	Spring .022 Front Suspension	pr	\$2.00
SB5022	Upper/Lower Suspension Arm Pivot Ball	4	\$6.00	EV0030	Ball Cups Nylon	4	\$2.99
SB5023	Upper Suspension Arm Mounts 0&10°	4	\$3.50	EV0047	Ball Stud. 4-40	4	\$3.99
SB5024	Upper Suspension Arm Eyelet	2	\$1.50	EV0048	Mini Locknut	8	\$2.99
SB5025	Upper Suspension Arm Turnbuckles	2	\$4.50	EV0049	8-32 x 7/8" Flat Head Screw	4	\$1.49
SB5026	Upper Arm Hinge Pins w/Shims	pr	\$2.00	EV0053	Front Spacer Set Nylon	2	\$3.59
SB5027	"E" Clips Front Hinge Pins	12	\$0.99	EV0058	1/8 Steel Washers	4	\$0.99
SB5028	Offset Steering Block	pr	\$2.00	EV0059	1/8 "E" Clip	12	\$0.99
SB5029	Stub Axle	pr	\$3.00	EV0088	Steering Turnbuckles On-Road	pr	\$5.99
SB5030	Front Kingpins	pr	\$3.00	EV4017	Steering Turnbuckles Speedway	pr	\$6.99
SB5031	On Center Steering Block	pr	\$2.50	EV4018	8-32 Aluminum Nuts	4	\$0.99
SB5032	On Center Front Axles (3/16")	pr	\$7.00	RE1003	Steering Turnbuckles 1/12 Revolver	pr	\$6.99
SB5033	Servo Mount w/screws	pr	\$2.00				

[Click part number to search eBay](#)

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