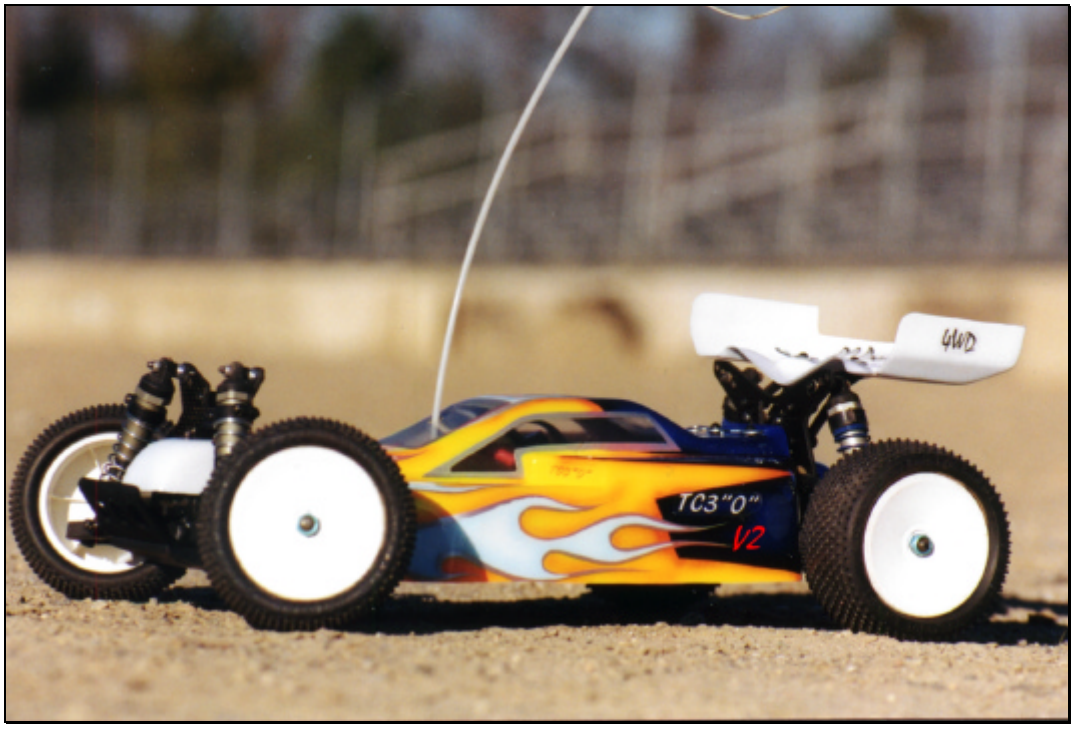
Instruction Manual



TC3 "O" V2
4WD Off-Road Buggy Conversion Kit
for the Associated TC3

Kit #: DC-000B

Website Address: www.rcproductdesigns.com
E-Mail Address: rcproductdesigns@comcast.net

DC-000B V2 Kit Content:

⇒ DC-001B – V2 Carbon Fiber Rear Shock Tower
⇒ DC-002B – V2 Carbon Fiber Front Shock Tower
⇒ DC-003B – V2 Carbon Fiber Center Drive Shaft
⇒ DC-004B – V2 Carbon Fiber Chassis Brace
⇒ DC-005B/006B – V2 Brass Steering Posts
⇒ DC-007B – V2 Black Delrin Steering Spacer
⇒ DC-008 - Tie Bar
⇒ DC-009B/010B - Steering Knuckle Extensions
⇒ DC-011B – V2 Black Delrin Wheel Hex Adapters
⇒ DC-012 – MIP™ CVD Steel Bones (Set of 4)
⇒ DC-013B – V2 Machined Black Delrin Front A-Arms
⇒ DC-014B – V2 Machined Black Delrin Rear A-Arms
⇒ DC-015B – V2 Nylon Reinforced Front Chassis Extension Plate
⇒ DC-016B – V2 Modified Front and Rear Arm Mounts (Pivot Blocks)
⇒ DC-017B – Black Delrin Servo Mounts
⇒ DC-018 – V2 Front Shock Tower Mount
⇒ DC-019 – V2 Rear Shock Tower Mount
⇒ DC-020 – Decal Sheet
⇒ DC-025 - Additional screws, nuts and washers
⇒ DC-026 – Steel inner hinge pins
⇒ DC-030 – V2 Body & Wing
⇒ DC-U1516D – Front White smooth design (Dish) 2.2"
⇒ DC-U1458X – Rear White smooth design (Dish) 2.2"
⇒ DC-3872 – 4 Degree Front Block Carriers
⇒ DC-9150 – B3 Servo Saver Kit (Steering Bell-Crank Kit)
⇒ DC-7319 – Body Mounts
⇒ DC-A4222 – Wing Mount Kit

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Tools Required

- ⇒ Allen wrenches: 1/16" and 3/32"
- ⇒ Molded tools from Associated #6956
- ⇒ Dremmel Cutting Tool & File
- ⇒ Pencil
- ⇒ 1/8" & 3/16" drill & 82 degree Countersink ¼" diameter
- ⇒ Needle-nose pliers

Warning!

It is recommended to always wear Eye Protection when using any Power Tools and a Dust Mask if grinding/sanding plastic, graphite or metal parts.

Recommended Tools:

- ⇒ 3/32" driver
- ⇒ 1/16" driver
- ⇒ 3/16" nut driver
- ⇒ 11/32" nut driver

Parts you will need to complete the kit:

- ⇒ R/C 2-channel surface frequency radio system.
- ⇒ Battery pack (6 cell).
- ⇒ Electronic speed control.
- ⇒ R/C electric motor.
- ⇒ Pinion gear, size to be determined by type and wind of motor you will be using.
- ⇒ Your donor TC3 chassis.
- ⇒ Associated B4 Buggy Shocks or other suitable buggy shocks.
- ⇒ 4WD Off-Road Tires.
- ⇒ Steering & Camber Link Turnbuckles
- ⇒ One trapped end/eyelet for the steering link end on the bell crank.

Recommended upgrades:

- ⇒ Replacing plastic steering knuckles with Aluminum ones
- ⇒ Replacing plastic center shaft drive cups with Aluminum ones
- ⇒ On tight technical tracks use a front one-way (Associated P/N: 3978) or a mid-shaft one-way (aftermarket).

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Parts you must retain from your original Associated TC3:

⇒ Chassis
⇒ Battery Bar and Clips
⇒ Front Differential, Bearings and Transmission Case (Steel Outdrives P/N: 3912 Recommended)
⇒ Front and Rear Input Shafts with all the hardware
⇒ Rear Differential, Bearings and Transmission Case (Steel Outdrives P/N: 3912 Recommended)
⇒ Spur Gear Adapter Mount
⇒ Spur Gear
⇒ Rear Bumper
⇒ Front and Rear Outer A-Arm Hinge Pins
⇒ Front and Rear Axles (less CVD Bones)
⇒ All Bearings
⇒ Front and Rear Hub Carriers
⇒ Steering Knuckles
⇒ All Ball Studs and Ball Cups
⇒ Motor Cam
⇒ Motor Clamp
⇒ Steering Servo Horn
⇒ Servo Offset Spacers
⇒ Rear Chassis Braces
⇒ Antenna Tube and Cap

We have designed the TC3"O" to utilize as many of the stock TC3 components as possible. That way you can use many aftermarket TC3 Hop Ups. Remember that with the conversion kit, you can always change back and forth from the TC3 "O" Off-Road 4WD Buggy form to the original On-Road car. You will have the best of both worlds!

- Disassemble your TC3 car completely into major sub-assemblies.
- Save all your parts because you will need the majority of them for the assembly of your new kit

Tools required for this step:

- Allen wrenches or drivers: 1/16"and 3/32"
- Molded tools from Associated #6956

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Step 2

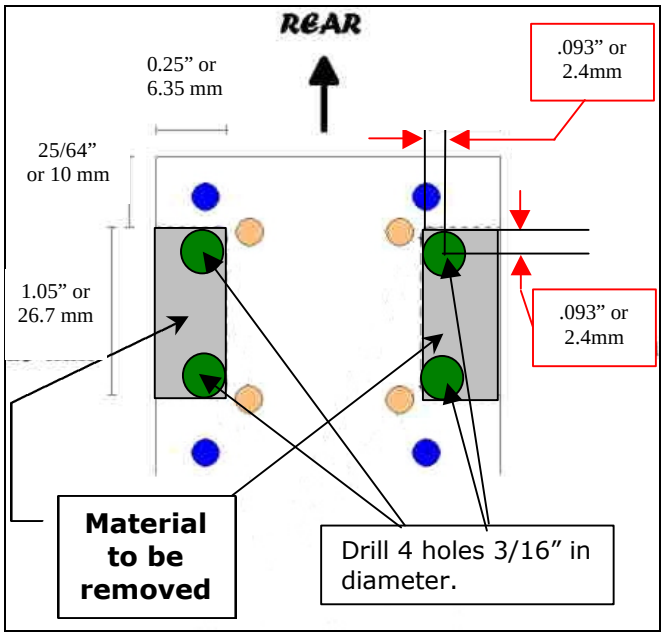
Modify the rear of the chassis:

- Mark with pencil the lines and the center of the holes on your chassis per dimensions shown in the diagram
- Prick punch the location for the 4 holes approx. 3/16" from sides of marked lines and drill holes per location shown in diagram (start with the 1/8" drill, and then open up the hole with the 3/16" drill bit). This will be the radius at each inside corner.
- Carefully cutout the chassis along the marked lines with a Dremmel cutting tool per diagram. Be careful not to cut into the corner radius.
- File or sand to blend the edges of the cutout section of the chassis with the holes.
- **Trim width for additional clearance if necessary to allow A-Arms to extend fully**

It is recommended to secure the chassis to a work bench or piece of wood with a clamp, or put in a vise while you drill and cut the chassis.

Tools required for this step:

- Pencil
- Dremmel Cutting Tool & File
- 1/8" and 3/16" drill and prick punch



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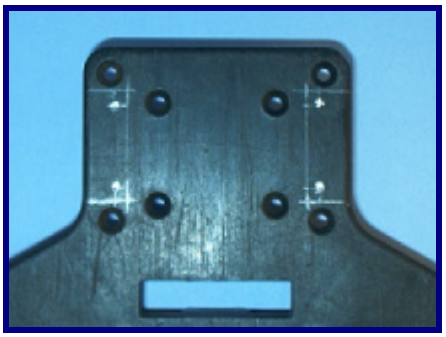

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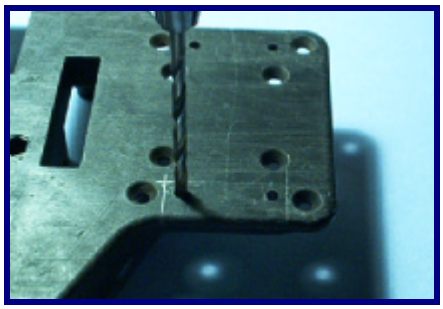

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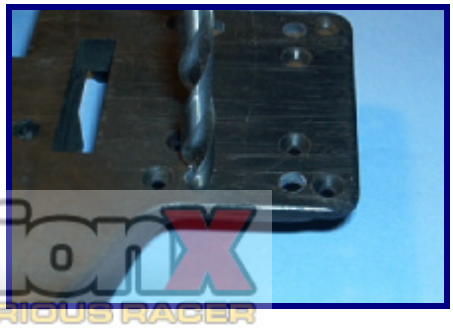

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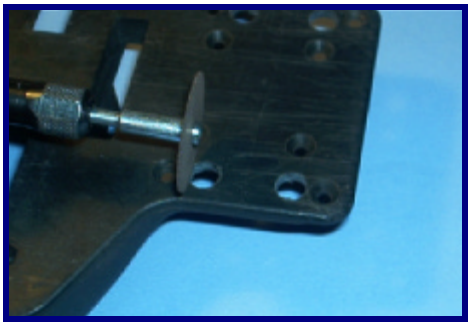
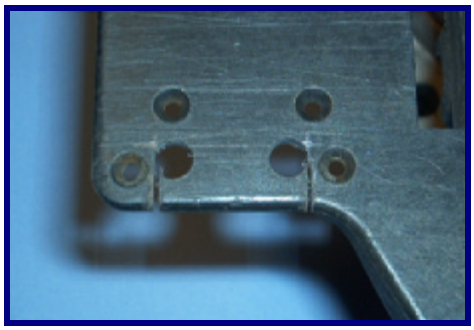
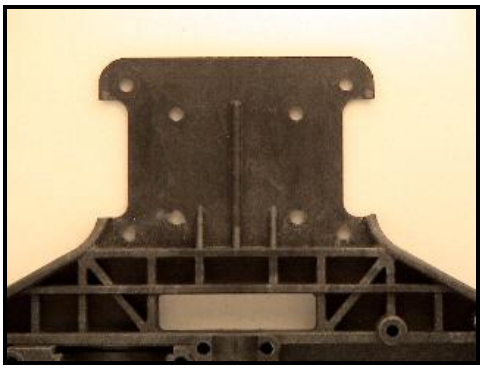
Caution: Be careful with the cutting tool not to extend the cut-line past the drilled holes!

4. 

5. 

This is how the chassis should look after the modifications.

6. 

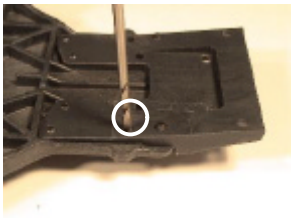
Step 3a

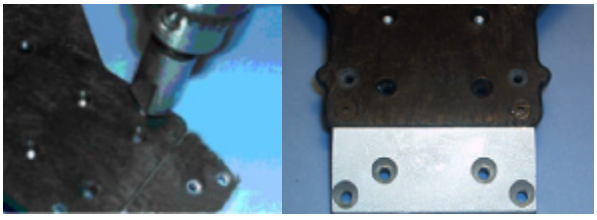
Modify the Front of the chassis:

- Slide chassis extension plate (DC-015B) into place in the front of the chassis. Secure with 2 or 3 supplied 4-40 x ¼" Flat Head screws.
- With 1/8" drill, from the top direction, use 2 holes marked on chassis plate as a guide to drill through the chassis perpendicular to the new mounting surface for the front A-Arm Mounts. (NOT SQUARE TO THE BOTTOM OF THE CAR).
- From the bottom of the chassis, countersink those 2 holes until a 4-40 Flat head screw nests comfortably in the hole. **(Be sure to hold the 82 DEGREE COUNTERSINK drill perpendicular to the A-Arm Mount mounting surface and NOT to the bottom surface of the chassis.)**

Tools required for this step:

- 1/8" drill
- 82 degree Countersink Drill Bit
- 1/16" Allen Wrench or Driver





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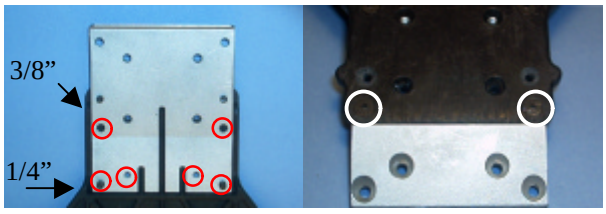
Mount Front Chassis Extension Plate:

- Mount chassis extension plate (DC-015B) to the front of the chassis where the gearbox would normally mount using 4 supplied 4-40 x 1/4" Flat Head screws and 2 4-40 x 3/8" FHS in the holes indicated in the bottom view. (Be sure not to over tighten the screws to prevent stripping the threads on the plate.

Tools required for this step:

- 1/16" Allen Wrench or Driver



TOP VIEW BOTTOM VIEW

Step 4

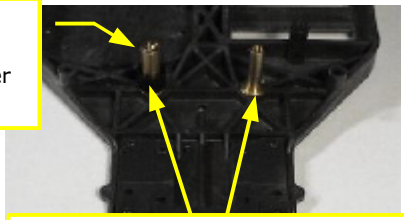
Assemble the Steering System:

- Install parts DC-005B/006B Steering Posts LH & RH on the chassis and secure them with the 2 provided 4-40 x ½" Flat Head screws from the bottom of the chassis. *(Picture 1 shows steering posts installed).*
- Assemble your B3 Servo Saver Steering Assembly per Associated Electronics' instructions. *(As shown in pictures 2 & 3)*
- Mount the Ball Studs from the original steering rack, into the bell crank/servo saver system. *(As shown in picture 4).* Install a couple of washers underneath the ball stud that connects the steering servo link, prior to installing stud in the bell crank.
- Install Tie Bar part number DC-008B with the provided 4-40 x 3/8" Flat Head screws. Need to add a #4 washer between tie bar and bell crank. Tightened the screw all the way in, then back off screw so that the tie bar rotates smoothly. *(As shown in picture 4).*
- Install RH side crank arm over the RH steering post and then slide the steering spacer (DC-007B) over the RH steering post *(As shown in picture 4).*

Tools required for this step:

- 0.16" Allen Wrench or Driver
- 3/32" Allen Wrench or Driver

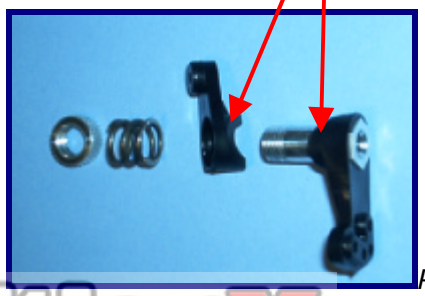
RH Steering post has the Larger Diameter



Picture1

Tip: Use a small amount of suitable lubricant (Lithium grease, Teflon grease or powder graphite) on the surface of the brass posts prior to install the bell crank over them.

We recommend you use powder graphite to lubricate the beveled edges first.



Picture 2

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- Mount the Tie Bar part number DC-008 with the provided 4-40 x 3/8" Flat Head screw over the RH steering crank. Need to add a #4 washer between tie bar and bell crank. *(As shown in picture 4).* Tightened the screw all the way in, then back off screw a 1/8 of a turn so that the tie bar rotates freely.

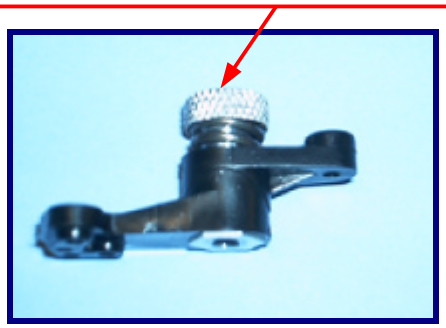
- Install your steering links using the turnbuckles and ball cups of your choice. Each link should measure approx. 2.57" (65 mm) in length from end to end. We recommend you use a trapped end cup/eyelet to attach servo link to the bell crank. (More on that on step 7).

Step 5

Assemble the Front Suspension:

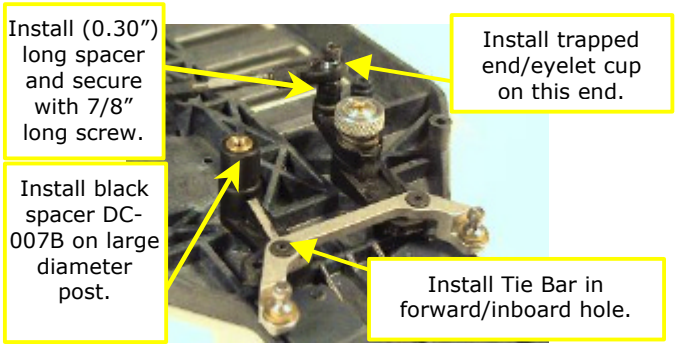
- Mount the modified pivot blocks (part number DC-016), starting with the rearward first using the 2 supplied 4-40 x ½" Flat Head screws. *Picture 5.*
- You need to mount two 1/8" diameter inner hinge pins. Insert the front A-Arms (part number DC-013B) into the inner hinge pin.
- Be sure to modify and install a Rear Bumper (Associated part number 3900) in the front of the chassis as you assemble the car. This bumper needs to be cut to clear the gearbox. Also, the forward holes must be elongated inboard to accept the front arm mount which has a shorter span length between the mounting holes. *(See the picture on the right).*
- Mount the modified front bumper with the modified forward front pivot block into the inner hinge pin. Secure the pivot block with the 2 provided 4-40 x ½" FH screws.
- Mount the assembled front differential gearbox, and secure it with the 4 supplied 4-40 x ½" Flat Head screws. *(Example shown on picture 6).*
- Install the front shock tower mount to the top of the transmission case. Shim the low side accordingly with the provided Delrin spacer. Secure the shock tower mount with 3 4-40 x 3/8" and 1 4-40 x 5/8" Socket Head screws. *(As shown on pic. 7)*

Make sure that the upper surface of the Aluminum nut is below the surface of the threaded Aluminum post.



Picture 3

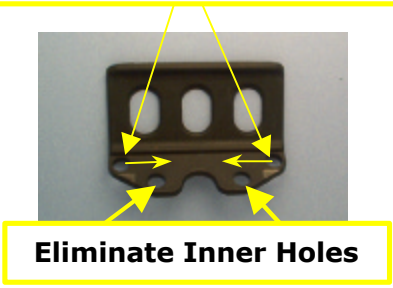
Picture 4: Tie Bar & Steering Bell Crank Installed



Tools required for this step:

- 1/16" Allen Wrench or Driver
- 3/32" Allen Wrench or Driver
- Dremmel tool

Elongate the two forward holes in the inboard direction to fit front modified arm mount.



Eliminate Inner Holes

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- Install carbon fiber Front Shock Tower (part number DC-002B) forward of the Front Shock Tower Mount and secure with 3 lock nuts from behind the shock tower mount. *(Picture 8 & 9)*

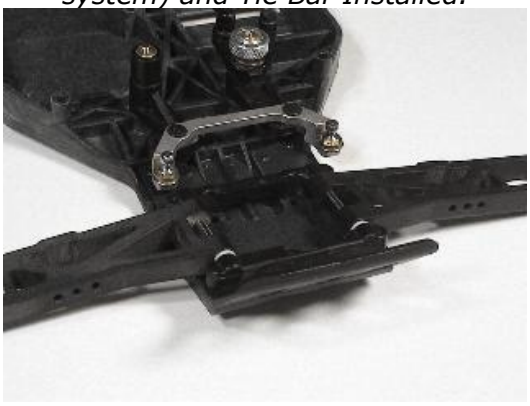
- Assemble all 4 CVD according to the instructions for the Associated TC3, but using the kit MIP™ CVD bones part number DC-012, to the stock Associated TC3 axles. REMEMBER TO USE THE 4-DEGREE FRONT BLOCK CARRIERS P/N: 3872).
- If you have purchased Aluminum Steering knuckles, be sure to install them now.

- Install your Front camber links using the turnbuckle and ball cups of your choice. Each assemble link should measure approx. 2.71" (69 mm) in length from end to end. Final length will vary depending on your camber settings. Mount link on the lowest outboard hole of the shock tower and on top of the steering knuckle.
- On the Steering Knuckles, mount the RH and LH Steering Knuckle Extensions (Part number DC-009B/010B) and secure them with the 2 provided 4-40 x 3/8" Socket Head screws. If installing Aluminum Steering Knuckles then we recommend applying a small amount of thread locking compound, such as Lock-Tite, to the threads of the screws. MAKE SURE THEY ARE IN THE RIGHT POSITION, INSTALLED FROM THE TOP. *See Picture on the right. (Optional: you can secure the screw with a nut installed from the bottom as well).*
- Install a ball stud on the steering knuckle extension. Make sure you install on the bottom of the extension, not from the top. *(We recommend you apply a small amount of thread locking compound to the ball stud threads prior to installation.)*

Front Camber link measures approx. 2.75" (70 mm). (For example turnbuckles of 1.97" (50 mm) in length and standard 0.78" (20mm) long ball cups.

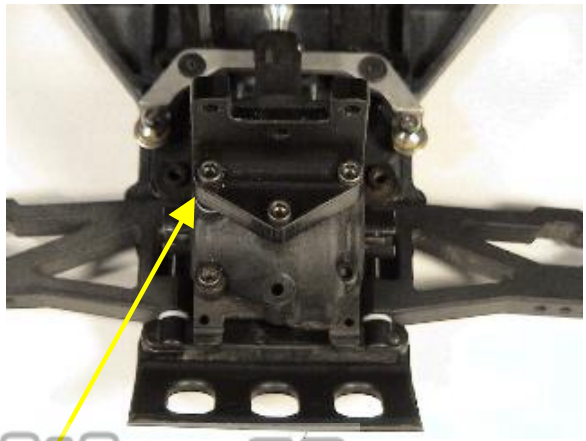
- Install your front buggy shocks on the outer holes of the Front Shock Tower

Picture 5: Complete Servo Saver (Bell-Crank system) and Tie Bar Installed.



Picture 6: Gear box installed in the front end.

Picture 7: Shock tower mount installed.



Use long screw 4-40 x 5/8" on the side where you use the 0.2" Delrin spacer.

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Extension. To acquire proper clearance between the shock and the tower extension, you may need to shim the plastic shock mount with washers. The shocks must be mounted facing forward of the shock tower. The lower shock mount location should be the center hole in the front A-Arm.

- The front body mount will need to be installed in the center hole of the chassis brace. You will need to secure it with one 4-40 x ½" flat head screw as shown in pic 13.

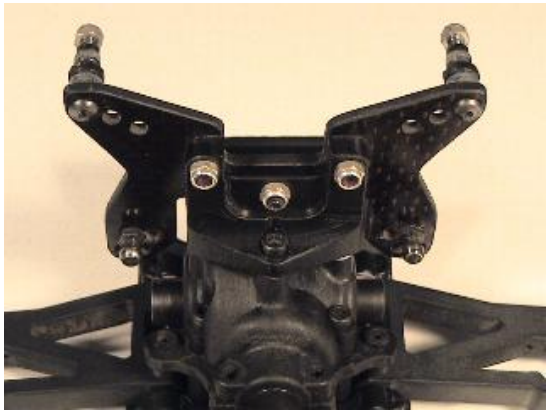
- Mount the Delrin Wheel Hex Adapters part number DC-011B to the stock axles. Make sure you have the pins inserted in the axle prior to installation. The hex adapters have been specifically designed to accept the Schumacher Buggy Wheels.

Picture 10: Front End Assembly Rear View

Picture 11: Front End Assembly Top View

Picture 8: Front Shock Tower installed.

Picture 9: Front Tower Installed Rear View



- Install the front chassis brace DC-004B with the supplied 0.10" spacers underneath and the 4 4-40 x ½" socket head screws as shown in *Picture 14*.

Picture 13: Carbon Fiber Chassis Brace

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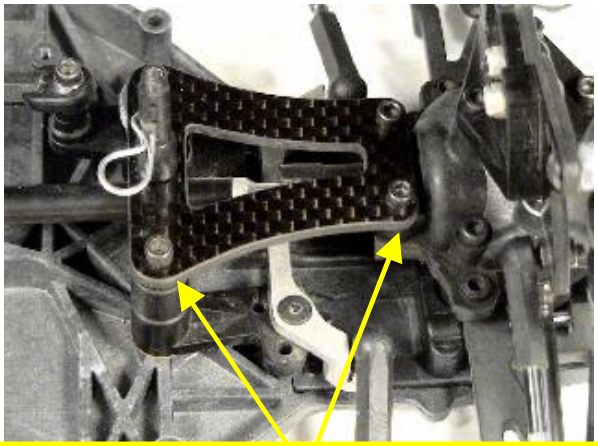
Picture 12: Front End Assembly Front View

Picture 14: Chassis Brace installed



Install the (4) 0.1" Delrin spacers provided underneath the chassis brace and secure the brace with screws.

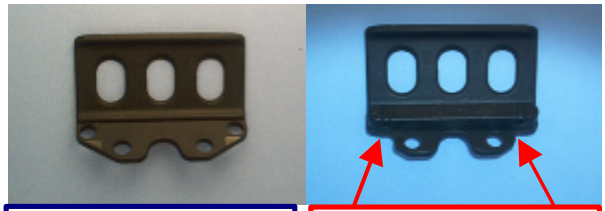
Step 6

Install Rear Suspension:

- Mount the modified pivot blocks (part number DC-016), starting with the forward block first using the 2 supplied 4-40 x ½" Flat Head screws. Install the 1/8" diameter inner hinge pins. Insert the rear A-Arms (part number DC-014B) into the inner hinge pin.
- If you wish to install (optional) the rear bumper, then be sure to modify it prior to its installation. This bumper needs to be slightly modified to enhance the swing clearance of the rear A-Arms. *(Example shown in the picture on the right).*
- If you decided to use the rear bumper then proceed to mount the modified bumper with the modified rearward pivot block into the inner hinge pin. Secure them with the 2 provided 4-40 x ½" Flat Head screws.
- Mount the new center drive shaft part number DC-003B PRIOR to installing the rear differential gearbox. Remember to install the rubber "O" rings inside the drive cups prior to installing the drive shaft.
- Mount the assembled rear differential gearbox, and secure it with the 4 supplied 4-40 x ½" Flat Head screws. *(Example shown in the picture on the right).*

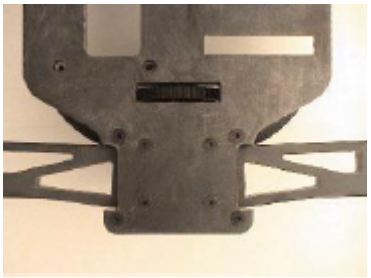
Tools required for this step:

- 0.16" & 3/32 "Allen Wrench or Driver
- Dremmel Cutting Wheel and 3/16" Nut Driver



STOCK BUMPER

MODIFIED
w/Notched Corners



Bottom view of chassis with modification. Rear bumper is not shown.

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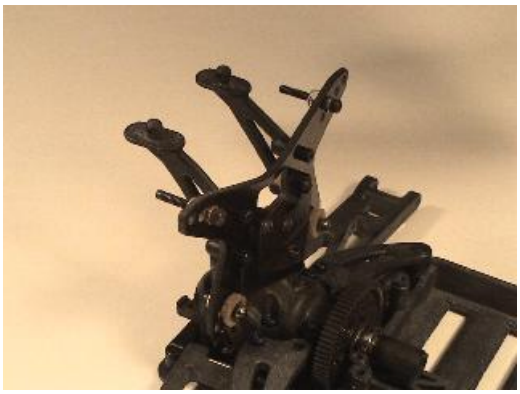
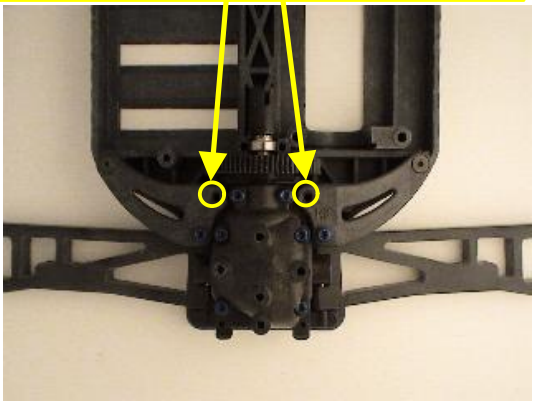
- Install the stock rear chassis braces to the gearbox with the original screws.
- Install the Rear Shock Tower mount with the 0.20" spacer using 3 4-40 x ½" Socket Head screws and 1 4-40 x 5/8" socket head screws on the hole that uses the spacer.
- Install ball studs in the shock tower and secure them with nuts. Install shock tower to shock mount with the 2 supplied 4-40 x 1/2" button head screws and 1 4-40x3/8" button head screw in the center of the mount. Secure those with the Nylock Nuts provided. *(Example of installation can be seen in picture on the right.)*
- Install the wing mount kit DC-A4222 using 4 provided 4-40 x 3/8" socket head screws on the rear shock tower. TIP: If you want to increase rear down force, you can shim the lower attachment point of the wing mount with a small washer. This will increase the angle of attack of the wing. (Example of wing mount installed shown below.)

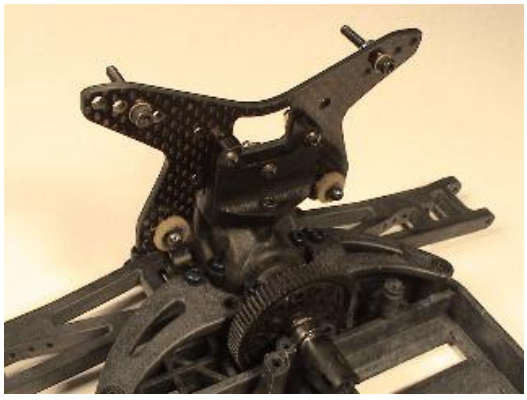


- Install the rear CVD assemblies you completed in previous steps, on the stock rear hub carriers. Remember to use the MIP™ CVD bones part number DC-012 with the stock Associated TC3 axles.

- Install your rear camber links using the turnbuckle and ball cups of your choice. Each assemble link should measure approx. 3.05" (77 mm) in length from end to end. Actual length will vary depending on your camber settings. Mount link on the furthest inboard hole in the rear hub carrier and the upper inboard hole in the shock tower. *(Example camber link shown*

Do not install a screw in this location (it will be used for body mounts later on).





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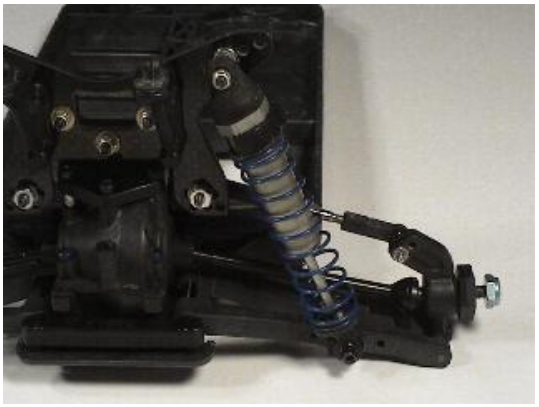
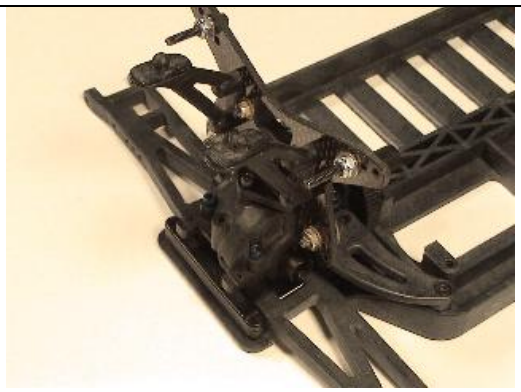
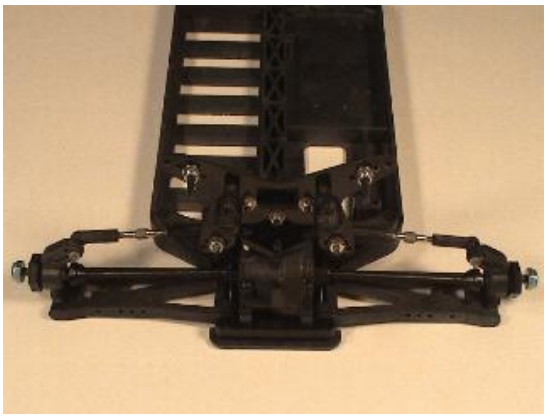
in illustration below).

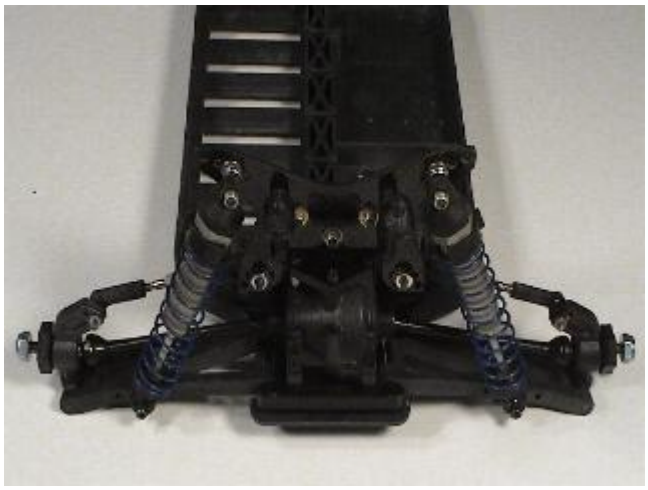
Rear Camber link length measures approx. 3.05" (77 mm). (We used turnbuckles of 1.57" (40 mm) in length and 1"(25mm) long heavy duty ball cups.)

- Install your rear buggy shocks on the second inboard hole in the rear shock tower. To acquire proper clearance between the shock and the tower, you may need to shim with washers the shock plastic mount. The shocks must be mounted facing the rear of the car. It is recommended to mount the shock in the 2nd outboard hole in the rear A-Arm.









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Step 7

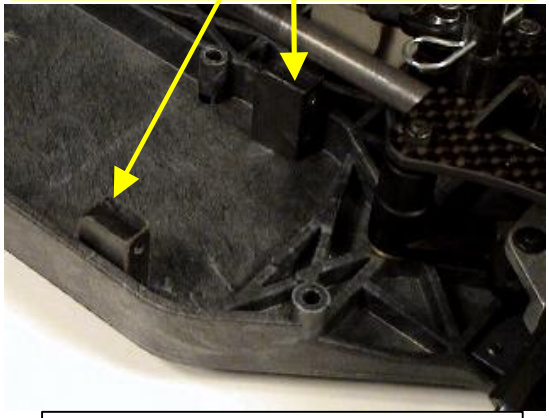
Steering Servo Installation:

- Use the Delrin servo mounts part number DC-017B, with the appropriate Associated spacers, based on your servo brand, to install your servo first. (Please refer to the Associated TC3 Instruction Manual). Make sure you install the servo horn in this step too. Try to use a long servo horn for improved clearances to the drive shaft. Secure the servo mounts from the bottom of the chassis with the 2 supplied 4-40 x 3/8" Flat Head screws.

- Install your servo steering link using the turnbuckle and ball cup/trapped eyelet of your choice. The link should measure approx. 2.76" (70 mm) in length from end to end. Use the provided 0.3" spacer on the backside of the bell crank to increase clearance of the steering link to the driveshaft. Use the needle nose pliers to pop in the ball cups on the ball studs.

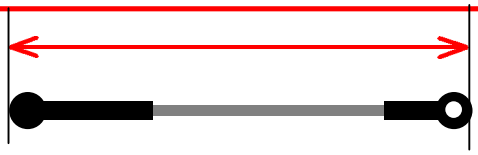
- When adjusting the total steering throw of the system, pay attention to the inboard ball cups in the steering links so that they do not touch the center drive cup.

Black Delrin Servo mount installed in chassis.



Note: Servo not shown installed in picture. Must install servo to mounts first, then to install assembly to chassis.

Servo Steering link length measures approx. 2.76" (70 mm). We used a turnbuckle of 1.57" (40 mm) in length and 1"(25mm) long heavy duty ball cup in one end and a trapped eyelet in the other.



Step 8

Body Mount Installation:

- We recommend you use the Associated "Front Body Mount" kit for all three positions to support the body or you could use the aftermarket Parma Body mount kit. You can actually choose any kind you want as long as you can adjust the height of the body to your preference. The choice is yours. (Example shown on next page with Associated mounts).

- We have provided 4-40 threaded rod and nuts, so you can create the assembly once you pick the body mounts of your choice.

Tools required for this step:

- Needle Nose Pliers
- 3/16" Nut Driver

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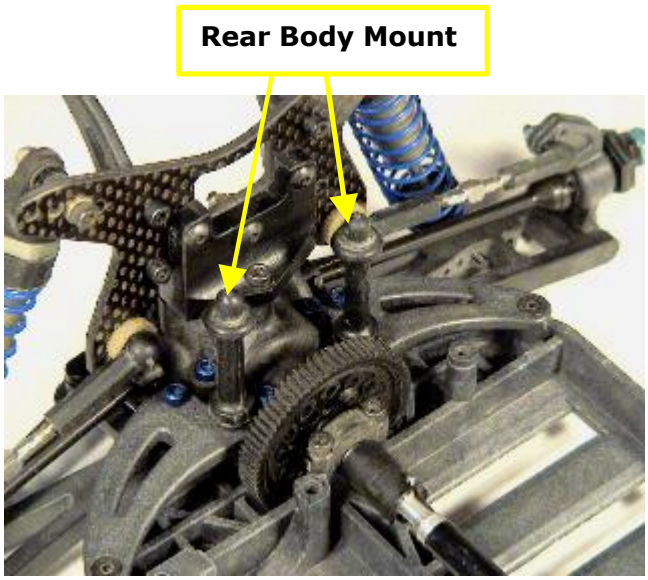
- First insert the jam nuts on the threaded rod, and double jam them in the middle of the rod, leaving about ½" of thread to go into the rear gearbox mount hole. The upper portion of the rod you will use for installing the body mount post. Thread the post all the way down, flush with the 4-40 nuts as shown in the picture on the right.



Step 9

Wheel Installation:

- Prior to installing any wheel, make sure you check the wheel for any excess flashing left from the molding process on the hex socket that may inhibit wheel installation. BE SURE TO SEAT THE WHEEL ON THE WHEEL ADAPTER COMPLETELY. IT IS DESIGNED WITH TIGHT TOLERANCES FOR A CLOSE FIT IN THE WHEEL.

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TIPS:

- Typical motor wind used in this car can range from 8 turns all the way to 15 turn motors. You can actually use higher motor winds, the choice is up to you!
- Using the stock 72 spur gear, the following pinion combinations can be expected for the given motors as a good starting point:
  - 15 Turn Double – 19 Teeth Pinion
  - 14 Turn Double – 18 Teeth Pinion
  - 13 Turn Double – 18 Teeth Pinion
  - 12 Turn Double – 17 Teeth Pinion
  - 11 Turn Double – 17 Teeth Pinion
  - 10 Turn Double – 16 Teeth Pinion
  - 9 Turn Double - 16 Teeth Pinion
  - 8 Turn Double - 16 Teeth Pinion
  - Below this….GOOD LUCK!
- Remember, that if you change the spur gear, the matching numbers shown above may change as well.
- The largest spur gear we can fit, without modifying the chassis is 80 teeth spur gear.
- After every raceday we recommend that you inspect the steering bell crank to the brass posts surfaces. Clean the surfaces and re-apply small amounts of suitable lubricant (i.e. Teflon grease, Lithium grease or even powder graphite) to keep the surfaces lubricated. Failure to clean them on a regular basis may inhibit the steering system to operate smoothly.
- We recommend that when you fit the body to the chassis, you add a couple of pieces of Velcro along each side of the car so you can closeout/seal better the body, and minimize the amount of dirt it can get inside the car.
- If you wish to seal all the orifices on the bottom of the chassis (i.e. motor vent hole, battery slot openings, spur clearance slot opening, etc) to keep dirt from coming in through them, then we suggest that you install a flexible sheet film on the bottom exterior surface of the chassis. The Associated chassis protection sheet film works very well on this application. Make sure you clean the bottom surface of the chassis thoroughly prior to applying the sheet film. If necessary, apply liberal amounts of motor cleaner to a clean cloth rag, and scrub the bottom surface of the chasis. Allow to dry for a couple of minutes, prior to installation.

Website Address: www.rcproductdesigns.com
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Enjoy the TC3 "O" V2 kit!

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