

GREYSCALERACING.COM

Before You Begin

The MRCG1.1 is a high-quality, high-performance chassis conversion kit for the Kyosho Mini-Z MR-02. It is a dedicated racing chassis, not a toy, and should only be run on prepared on-road tracks, with other RC cars of similar size.

Before building and running your MRCG1.1, please read through this entire document and understand it fully to make the build experience as smooth as possible. Many Mini-Z parts are required to assemble the chassis and may either be taken off a donor Mini-Z MR-02 or purchased separately. To figure out what you need to finish the kit, you should consult the MRCG Compatible-Parts List: it contains the names and part numbers of all the aftermarket and original Mini-Z MR-02 parts that we can recommend for use with the MRCG1.1.

As the MRCG1.1 is a conversion chassis kit, you may need to refer to other instruction manuals (especially for aftermarket option parts) to finish assembling it. And while we have made these instructions as comprehensive and straightforward as possible, we understand that a build process of this nature can be a little confusing, especially when looking for parts to install on the chassis. So if you have any problems, questions or comments, feel free to email me at color0@greyscaleracing.com and I will reply as soon as possible. Feel free to visit our website at www.greyscaleracing.com as well for the latest updates, information, etc. on our products.

Safety Precautions

This kit has been designed to be easily built by any RC modeler with some degree of previous experience. Nevertheless, glue, threadlock, screwdrivers, and pliers are required to finish the kit and it is advisable to wear goggles and thin protective gloves during assembly (thick gloves will not allow proper handling of the small parts). It is also advisable to use hand tools instead of power tools. The hardware in this kit is very small and power tools are likely to cause damage.

The MRCG1.1 makes extensive use of carbon fiber and fiberglass composite materials, the dust and splinters of which are a known health hazard if inhaled, ingested, or rubbed in the eye. We strongly recommend wearing thin gloves when building the kit, especially if you intend to sand or file the edges of the parts. At the very least, wash your hands thoroughly after working on the kit. Sealing the edges of the carbon fiber parts is also recommended; in addition to preventing splinters from catching on your hands, the sealing process will also prevent the woven fibers from damage in a collision.

Keep this kit away from small children at all times; the parts are very small, may have sharp edges, and (as mentioned above) may be otherwise dangerous for small children to touch.

The finished car has an exposed geartrain, like many other RC cars. Do not put fingers, paper, miscellaneous objects, etc. in close proximity of these gears; they may catch and cause injury or damage.

Warranty Policy/Customer Service

This kit is sold as-is; due to the nature of the kit and the assembly process required we are unfortunately unable to provide a warranty policy for this kit. However, should any problems arise during the build process or operation of the car, we would be more than happy to help. Just send an email to color0@greyscaleracing.com with a description and pictures and we will try to rectify the situation as quickly as possible.

Legal Notice

Under proper usage, this kit is perfectly safe to operate and store. Therefore, I will not be liable for any loss, injury or damages, whether from the kit, the user, the operating conditions, direct or indirect, etc. arising from the use/misuse/abuse of this model or any accessory products required to operate this model. In no case whatsoever will my liability exceed the value of this product.

Building Tips

- Read through all the instructions first. You need to determine how you will wire your electronics together, what parts to buy to finish this kit, etc. before you attempt to build it.
- Read the MRCG Compatible-Parts List and the MRCG Setup Manual (available online) to see which parts are compatible with this chassis kit and decide which ones you will use during the build.
- Measure the screws carefully with a caliper or millimeter ruler. This kit is designed to tight tolerances and putting the wrong screw in the wrong place will cause problems. Flat head screws are measured by total length, while pan head screws are measured by the length of the threaded section.
- Apply a small dab of light threadlock to every screw on this chassis. It will save you hassle in the long run. Tighten screws securely but not excessively; the threadlock will hold them. Check the screws periodically to prevent them loosening unexpectedly.
- Make sure no screws protrude from the bottom of the chassis. This is a hazard both to the racing surface and to the car.

Required for Assembly -- See MRCG Compatible-Parts List for details

Superglue/CA glue

Light threadlock

Mini-Z MR015/02 knuckles, kingpins, springs, spring perches, c-clips, ball differential

Mini-Z MR01/015/02 wheels, tires, bearings

M2 locknut (4)

Micro servo (no wider than 23mm), servo saver

Receiver and ESC (or combo), compatible transmitter

Mounting tape for electronics

130-size motor, Mini-Z pinion

Battery pack

Charger appropriate for battery pack

Hard plastic (Kyosho AutoScale, Atomic VDS/VDSII, PN Racing Pan Car, etc.) or Lexan body, 94mm to 100mm wheelbase

Tools Recommended

Small Phillips screwdriver

4mm hex nut driver/wrench

Small thin pliers (no teeth)

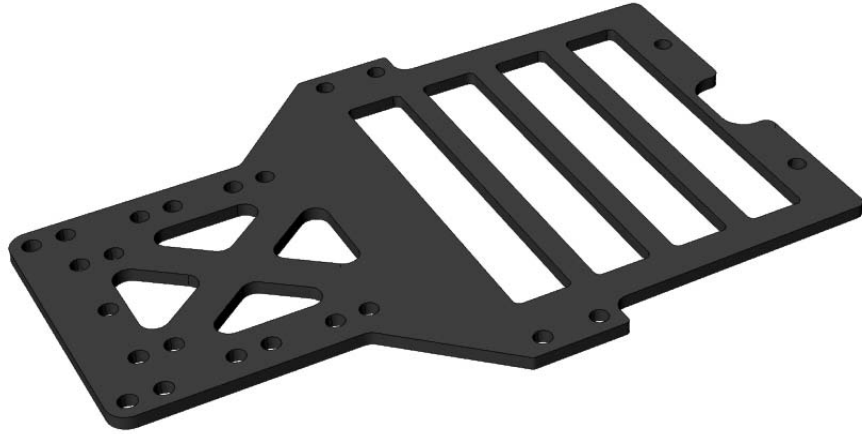
Side clippers

Measuring calipers (or a millimeter ruler)

Soldering iron if necessary (for electronics)

1. Main Chassis Preparation

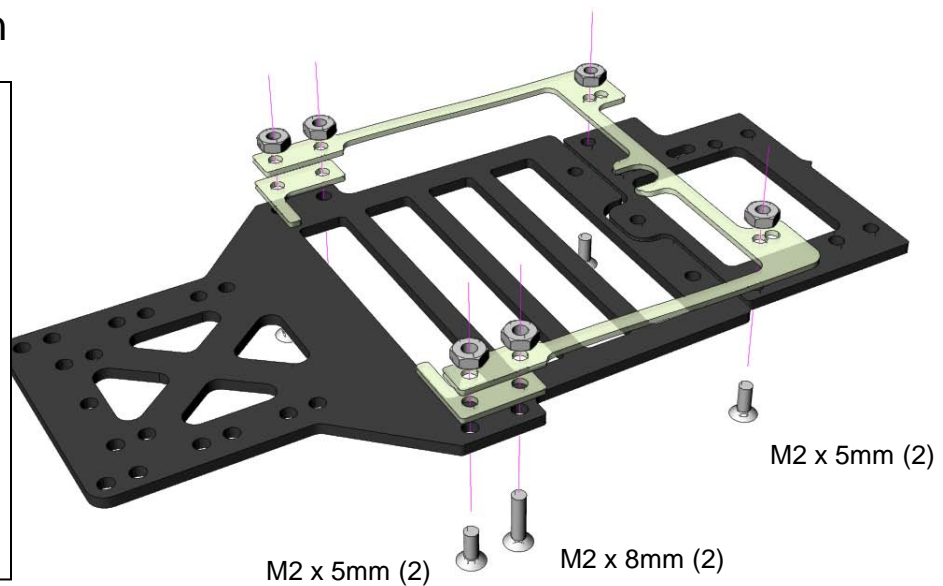
Lightly sand/file the battery slots to prevent them from cutting the batteries' shrinkwrap.



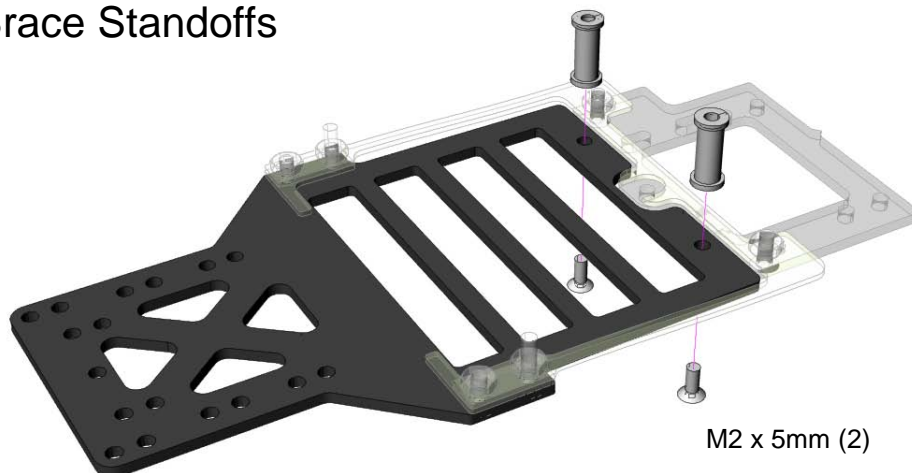
2. Rear Suspension

The MRCG1.1 has 2 sets of holes by which you can attach the rear pod plate; for the kit setup, use the foremost two (this allows selection of the standard wheelbase options: 94mm and 98mm).

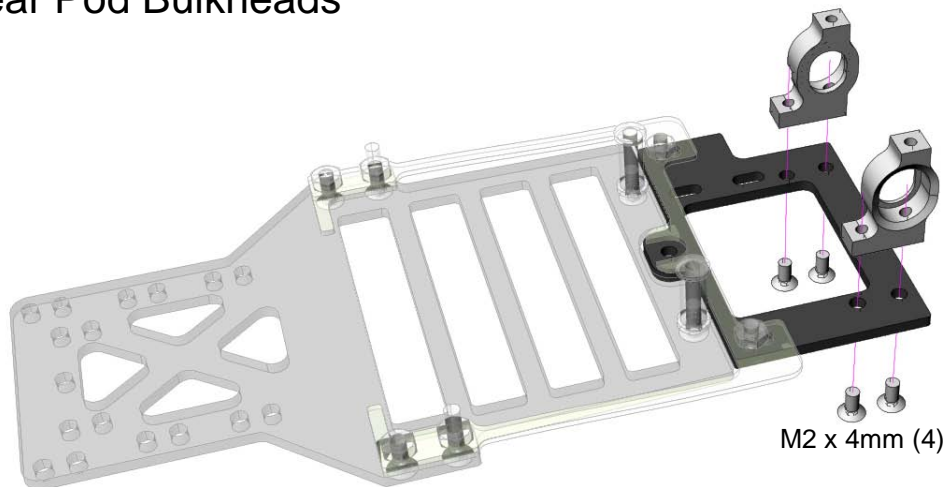
After the chassis is built you can use the rearmost pair of holes to select between 96mm or 100mm wheelbases.



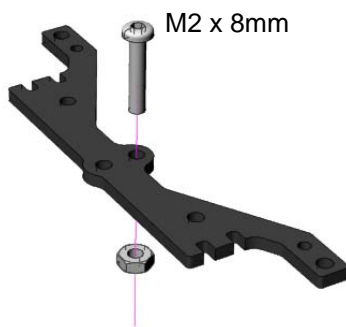
3. Upper Brace Standoffs



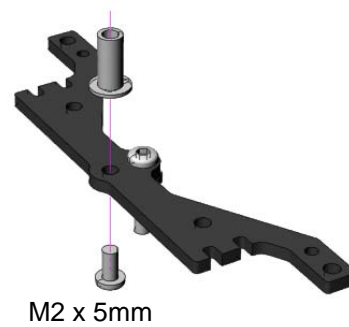
4. Rear Pod Bulkheads



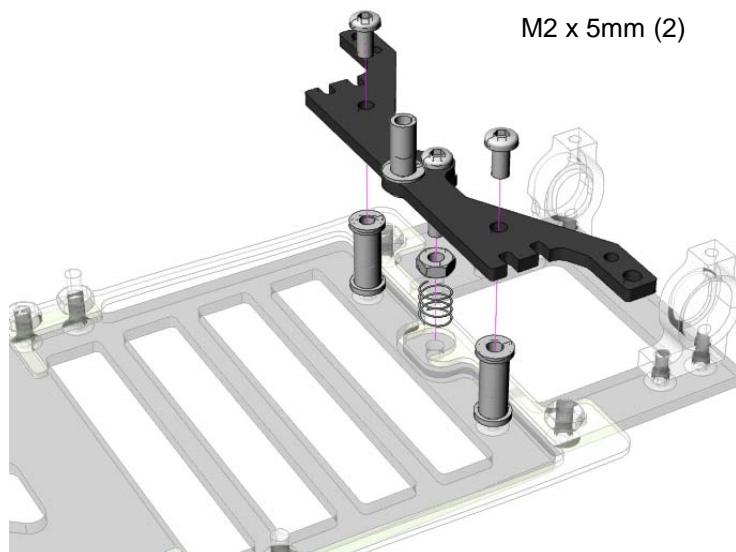
5. Upper Brace



6. Damper Post



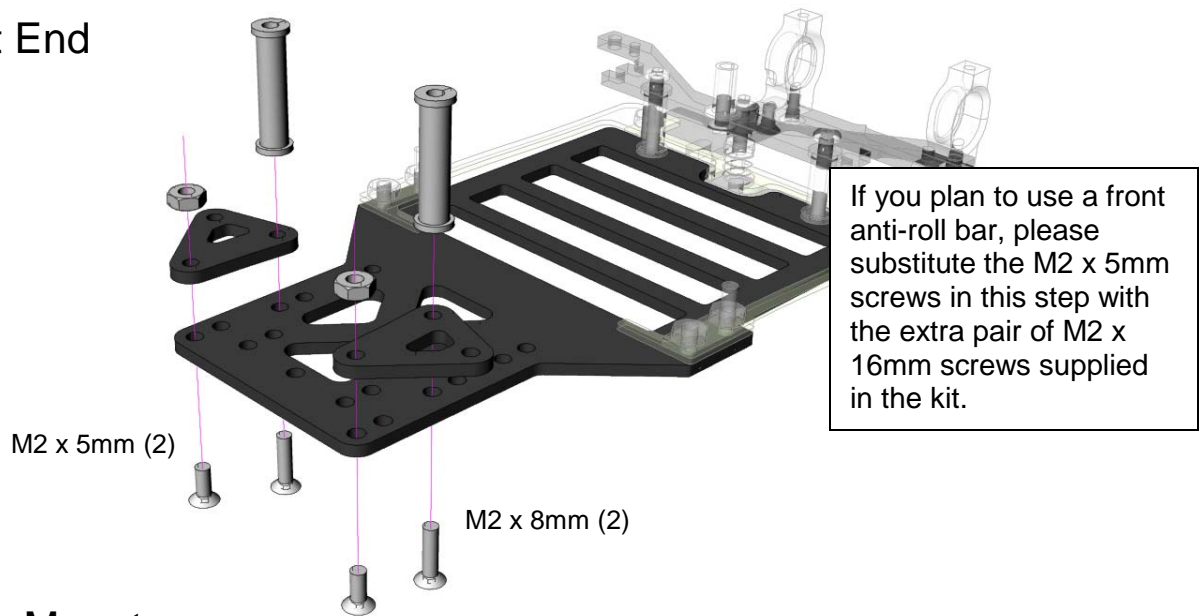
7. Upper Brace Attachment/Center Spring



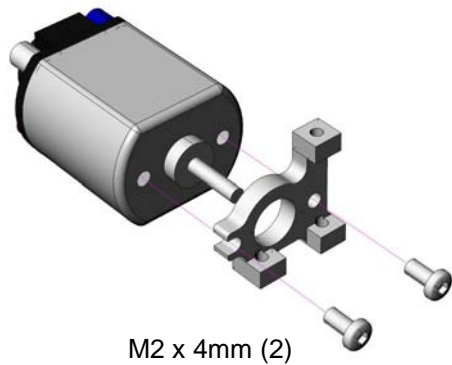
Recommended:

Before attaching the upper brace to the main chassis, you may choose to mount a center spring to the screw/nut assembly from Step 7. Almost any Mini-Z MR-015/02 spring will work unless it is too short (less than 5mm). We recommend using an M2 locknut for the center spring instead of the M2 hex nuts included; it acts as a spring perch. Use a small dab of glue to secure the spring.

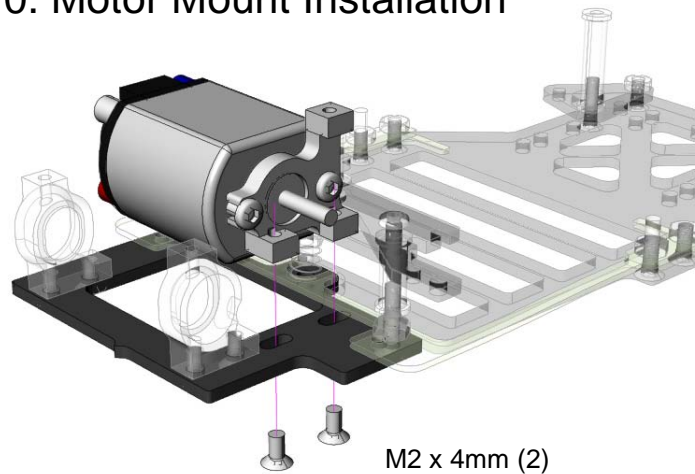
8. Front End



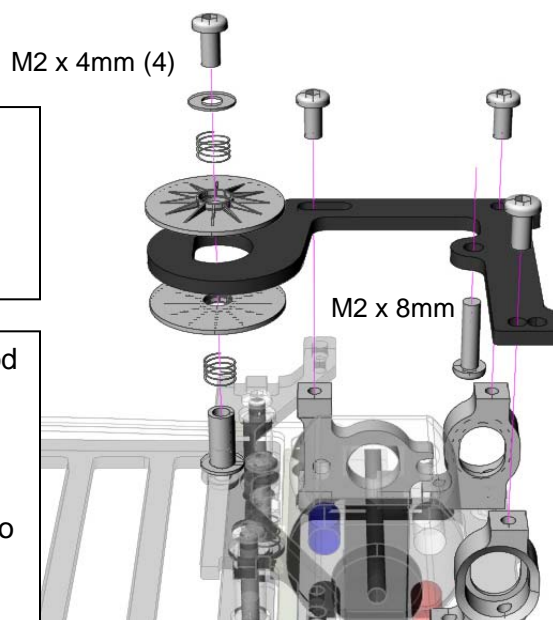
9. Motor Mount



10. Motor Mount Installation



11. Disk Damper



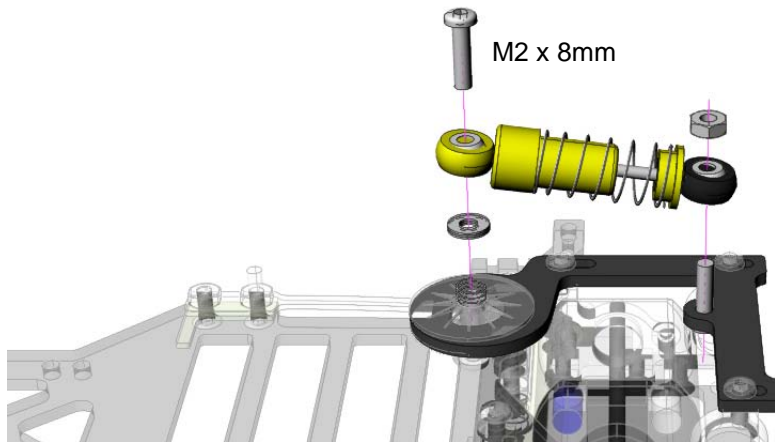
Sand the upper rear pod plate and the damper disks with fine-grit sandpaper (600 and up) before installing.

As with the lower rear pod plate, install the upper rear pod plate using the foremost pair of holes. After the chassis is built you can use the other two holes for alternative wheelbase selection.

Thread the M2 x 8mm screw right into the carbon plate – make sure it is straight.

For the initial kit setup we recommend using a blue (hard) top and blue bottom spring for the disk damper, and 200-1000wt silicone oil for lubrication.

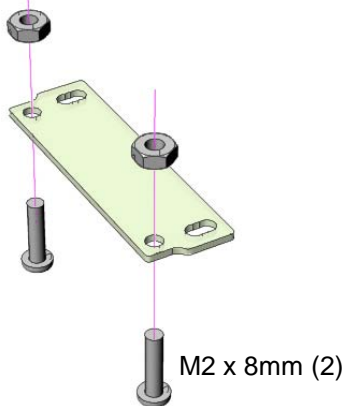
12. Oil Damper/Top Shock (Recommended)



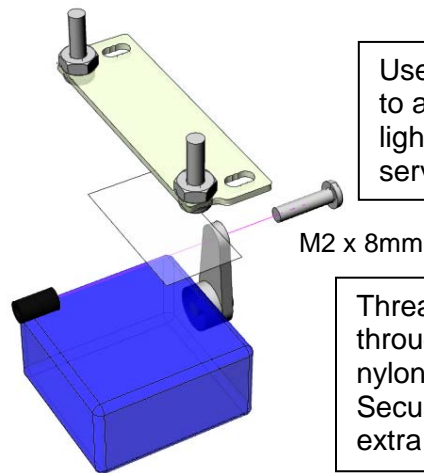
Installing an oil damper or top spring (not included) is recommended. Extra washers may be necessary to clear the disk damper.

For the Kyosho oil damper that we recommend for the MRCG1.1, we recommend starting out with a green (medium) spring and 200wt silicone oil.

13. Tierod Mount



14. Servo Mounting

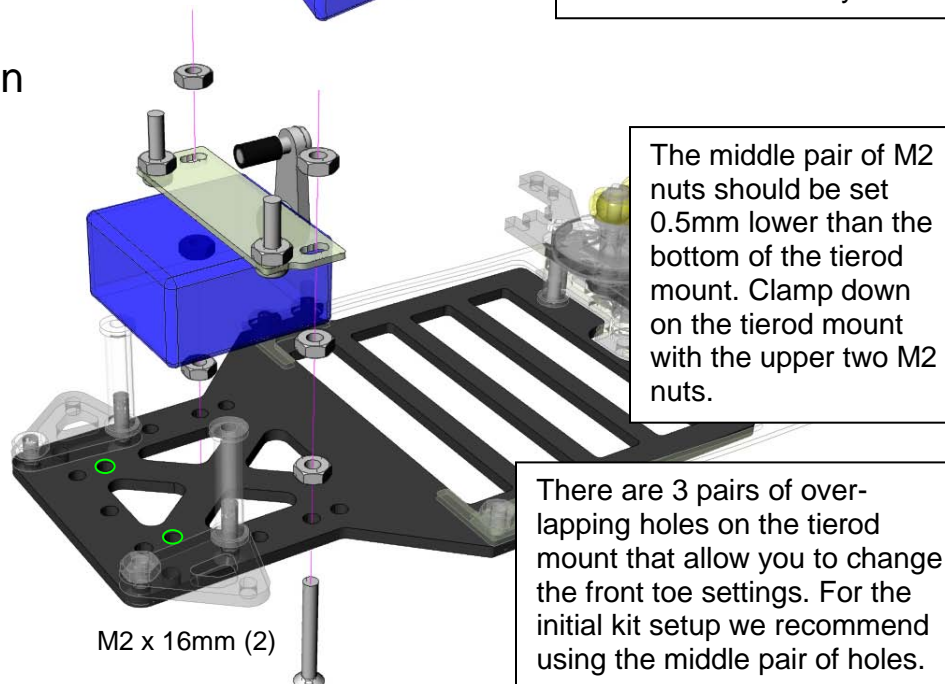


Use thin double-sided tape to attach the servo. Press lightly as you will set the servo's final position later.

Thread an M2 x 8mm screw through the horn and into the nylon tubing supplied. Secure the screw with an extra nut if necessary.

15. Servo Installation

Aligning the servo:
With the tierod mount in the foremost position, align the servo such that its leading edge just covers the rearmost pair of body clip mounting holes (in green). Then press firmly down on the tierod mount to secure the servo to it.



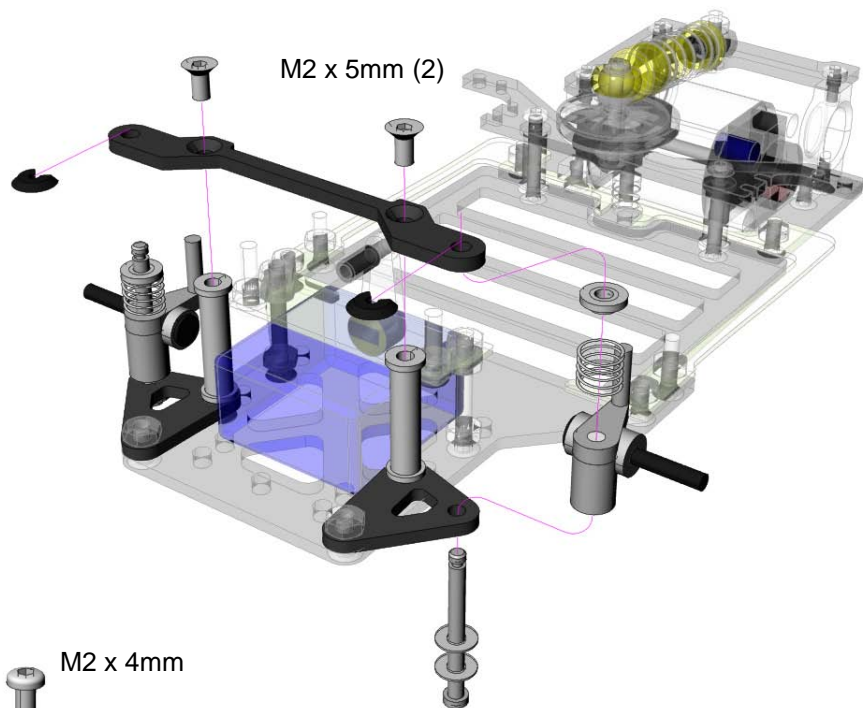
The middle pair of M2 nuts should be set 0.5mm lower than the bottom of the tierod mount. Clamp down on the tierod mount with the upper two M2 nuts.

There are 3 pairs of overlapping holes on the tierod mount that allow you to change the front toe settings. For the initial kit setup we recommend using the middle pair of holes.

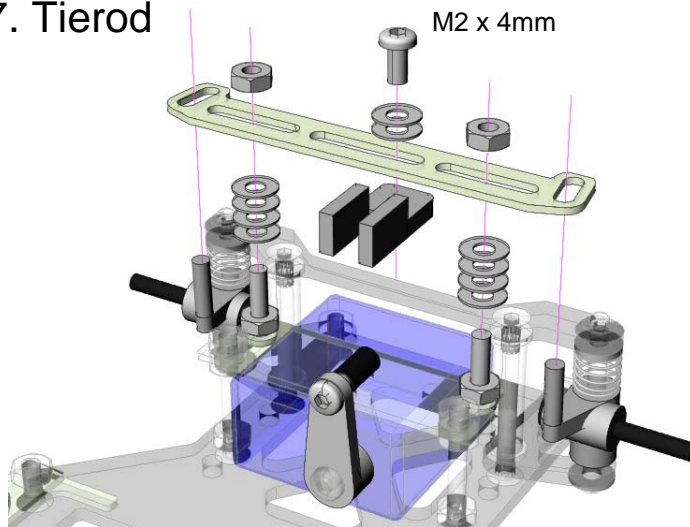
16. Front Suspension

Kingpins, steering knuckles, springs and spring perches are not included in the kit.

Install kingpins first, then knuckles, springs, and spring perches as shown. Additional shims may be required to achieve an appropriate ride height.



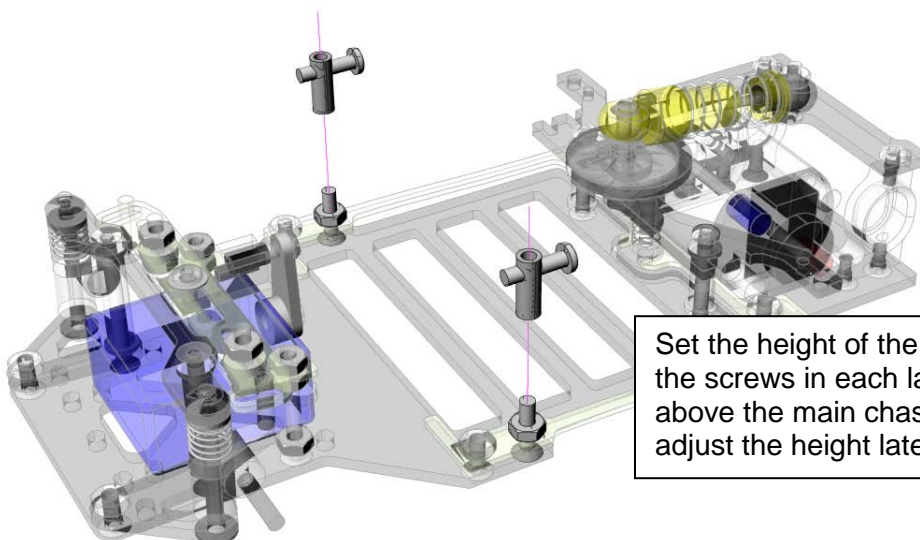
17. Tierod



Use washers to set the clearance and height of the tierod. The initial kit setup uses four M2 washers under each side of the tierod, and two for the tierod horn.

Center the servo horn and align the entire steering assembly. Once the front end is correctly aligned, carefully tighten the tierod horn. Do not overtighten; you will strip the threads.

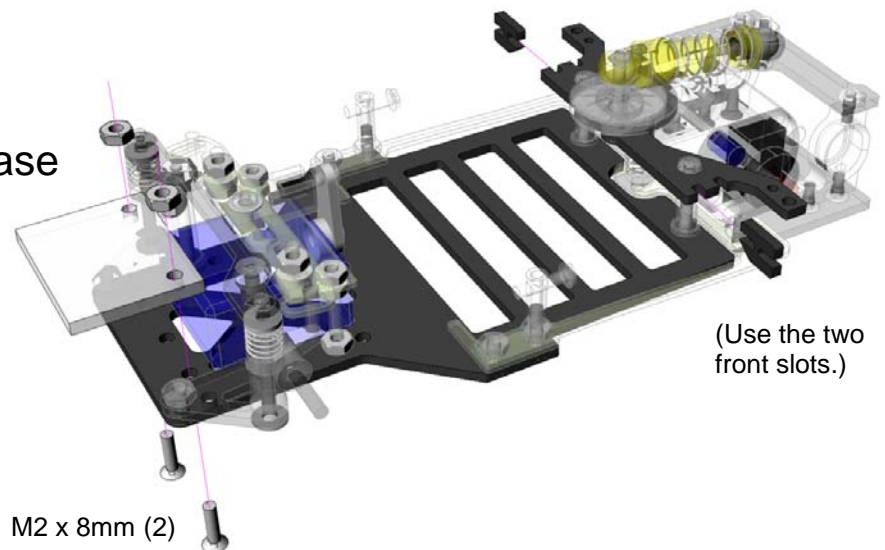
18. Quick-Release Latch Installation



Set the height of the latches such that the screws in each latch are about 9mm above the main chassis plate. You can adjust the height later.

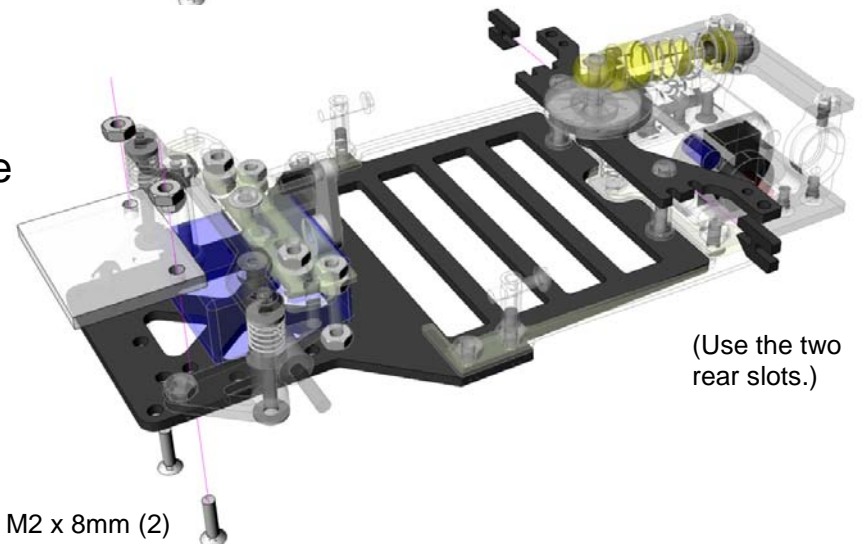
19. Body Mounting/Wheelbase Options

A: Hard Plastic/ Auto Scale Body 98/100mm wheelbase



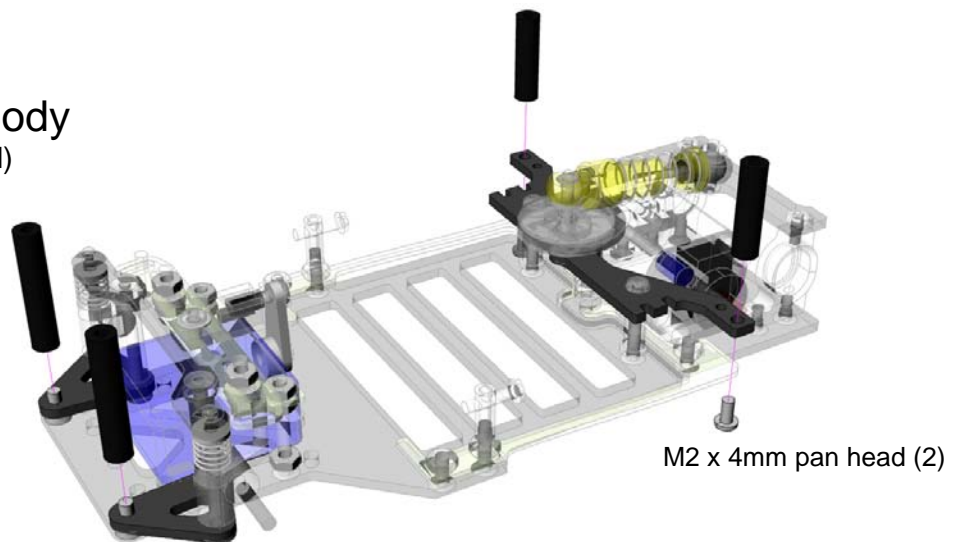
B: Hard Plastic/ Auto Scale Body 94/96mm wheelbase

The entire front end is moved 4mm aft for 94/96mm WB configurations.

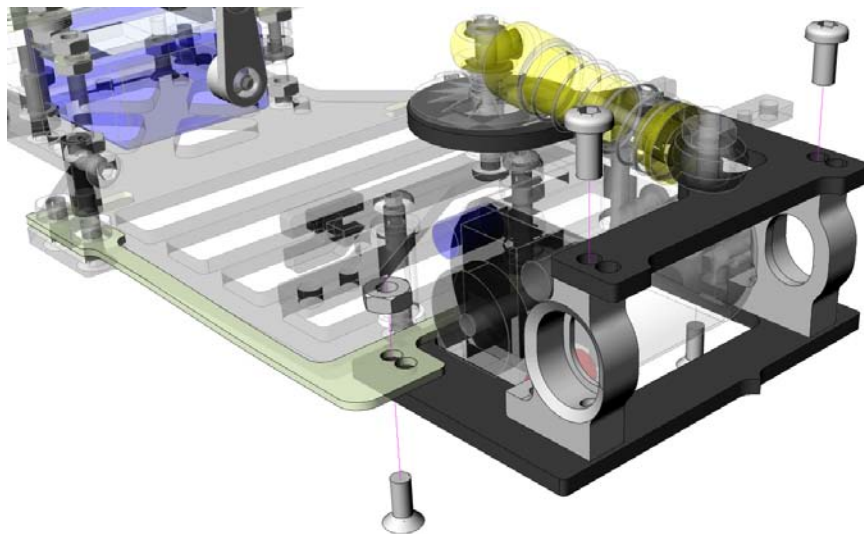


C: Polycarbonate Body (Body posts not included)

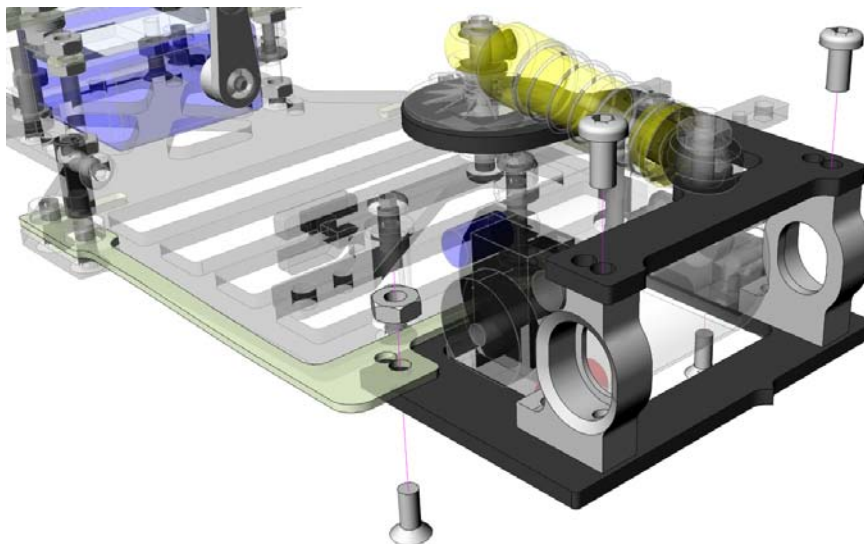
You may want to replace the 5mm length screws with longer items for the front body posts.



D: Switching Between 94/96mm or 98/100mm Wheelbases

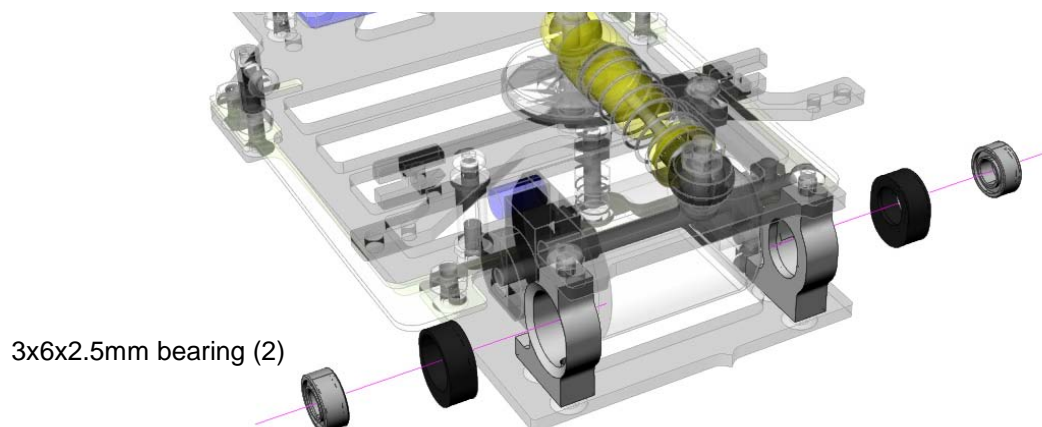


94 and 98mm:
Use the foremost
two holes on the
flex plate and
damper plate.

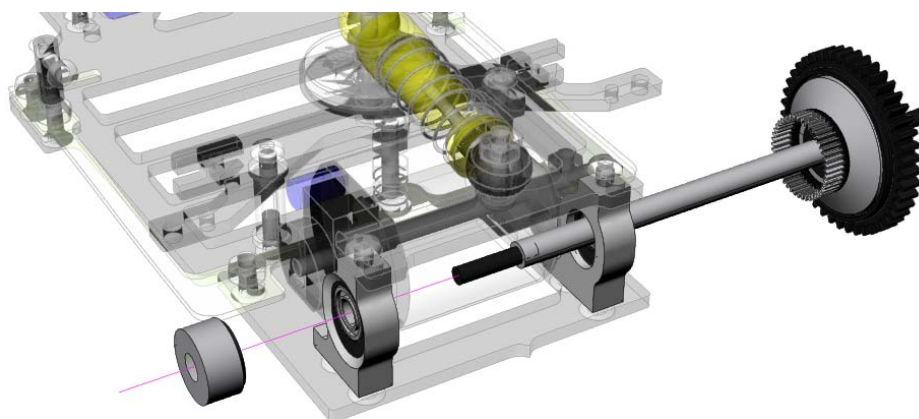


96 and 100mm:
Use the rearmost
two holes on the
flex plate and
damper plate.

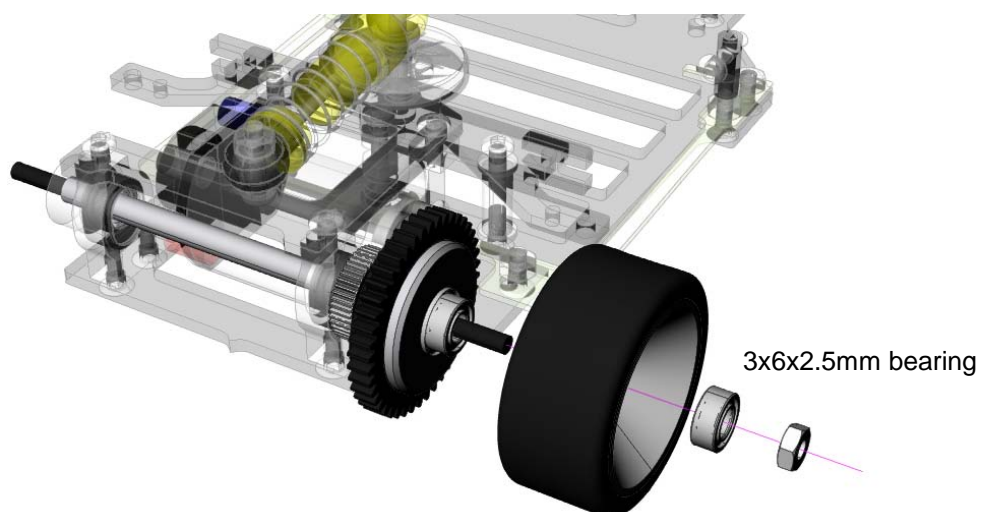
20. Rear Axle Bearings Installation



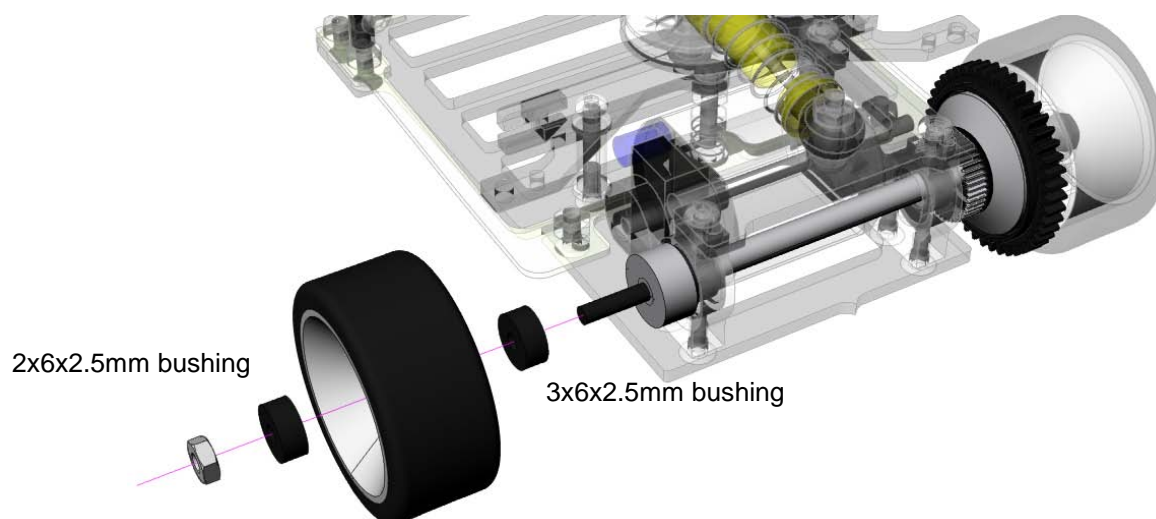
21. Differential Installation



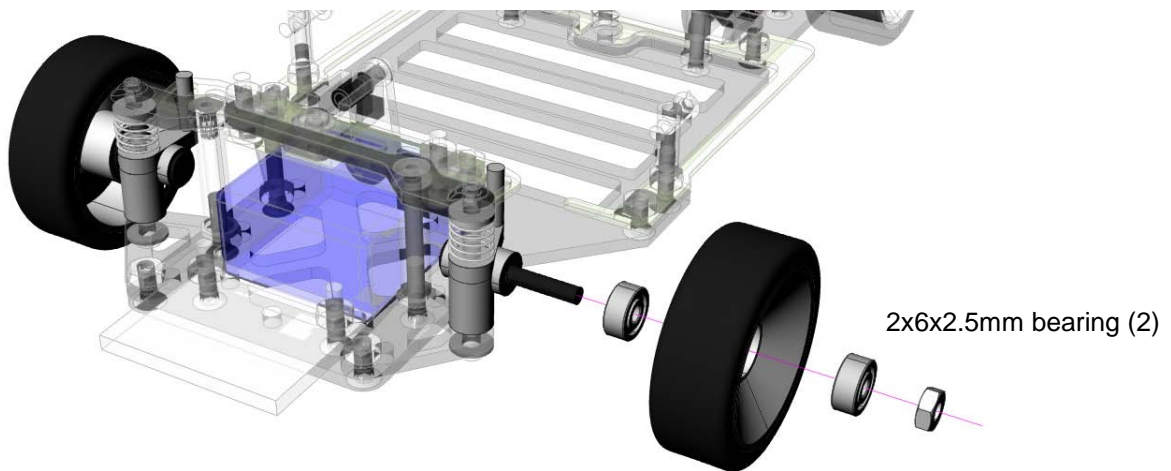
22. Rear Right Wheel Installation



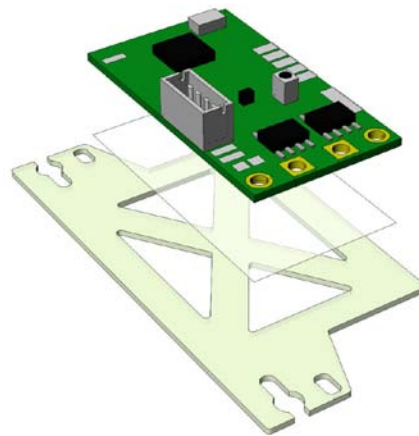
23. Rear Left Wheel Installation



24. Front Wheels Installation

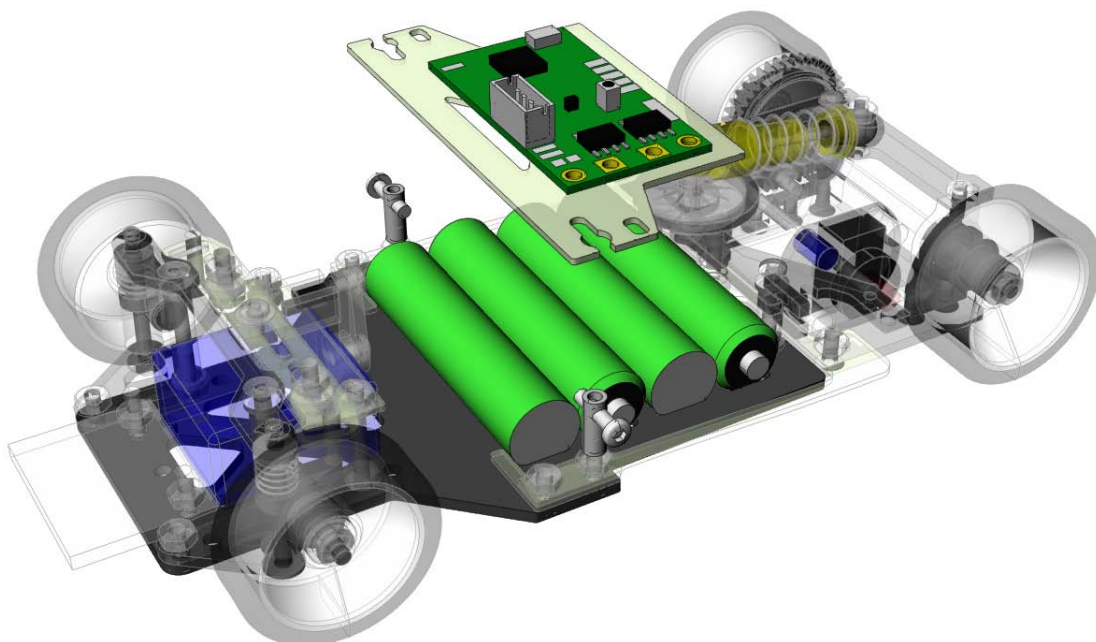


25. Electronics

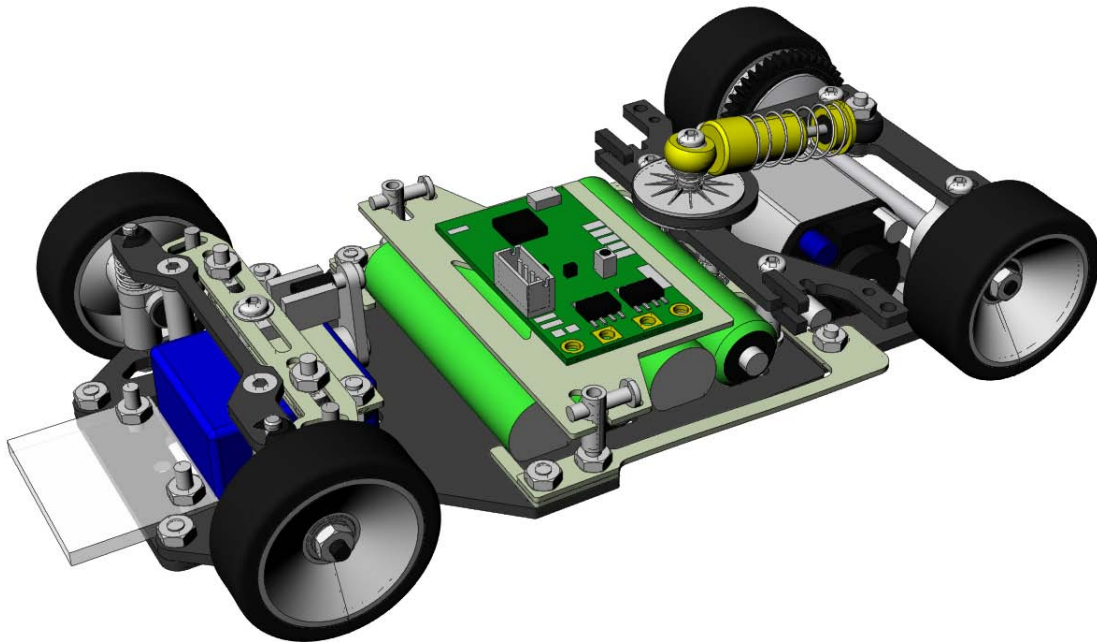


Use tape to secure the electronics to the battery strap. Shrinkwrap may be required for exposed electronics to shield them from dust and dirt.

26. Battery and Electronics Installation



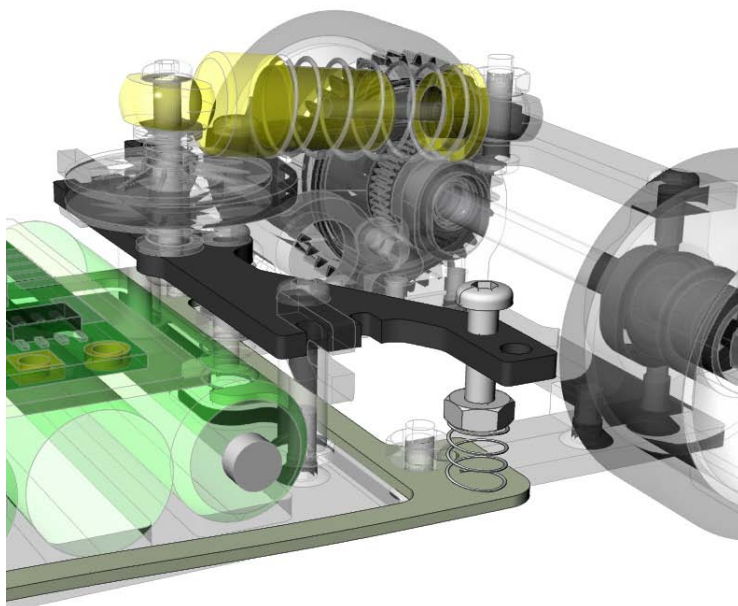
27. Final Assembly



Twist the quick-release latches inwards to complete assembly of the chassis.

Now, paint and mount your body, charge your battery pack and you are ready to go!

28. Side Springs (Optional)



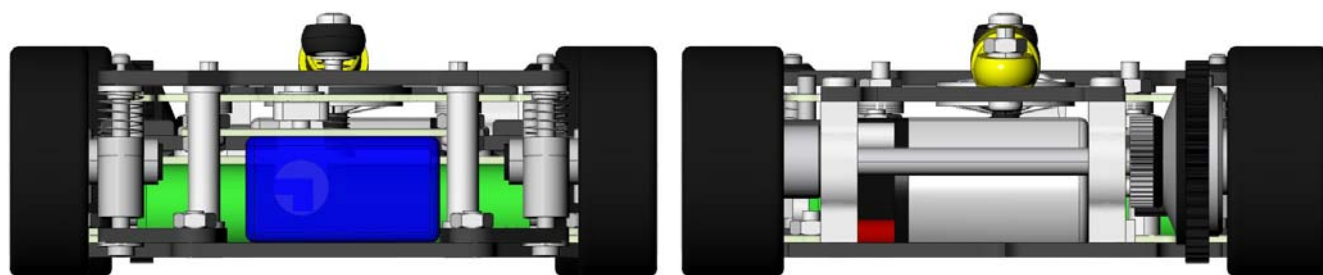
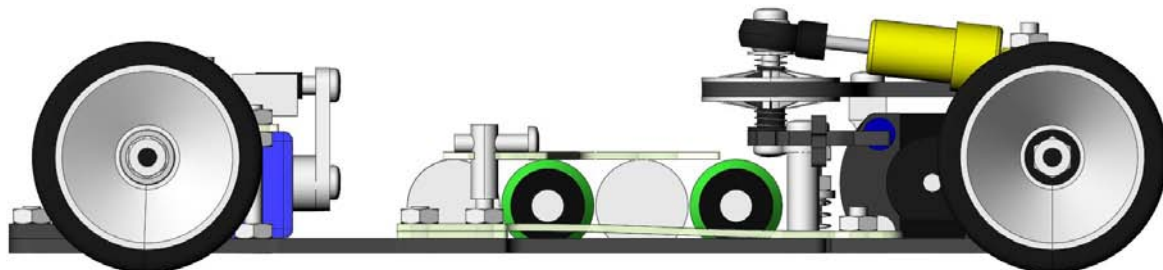
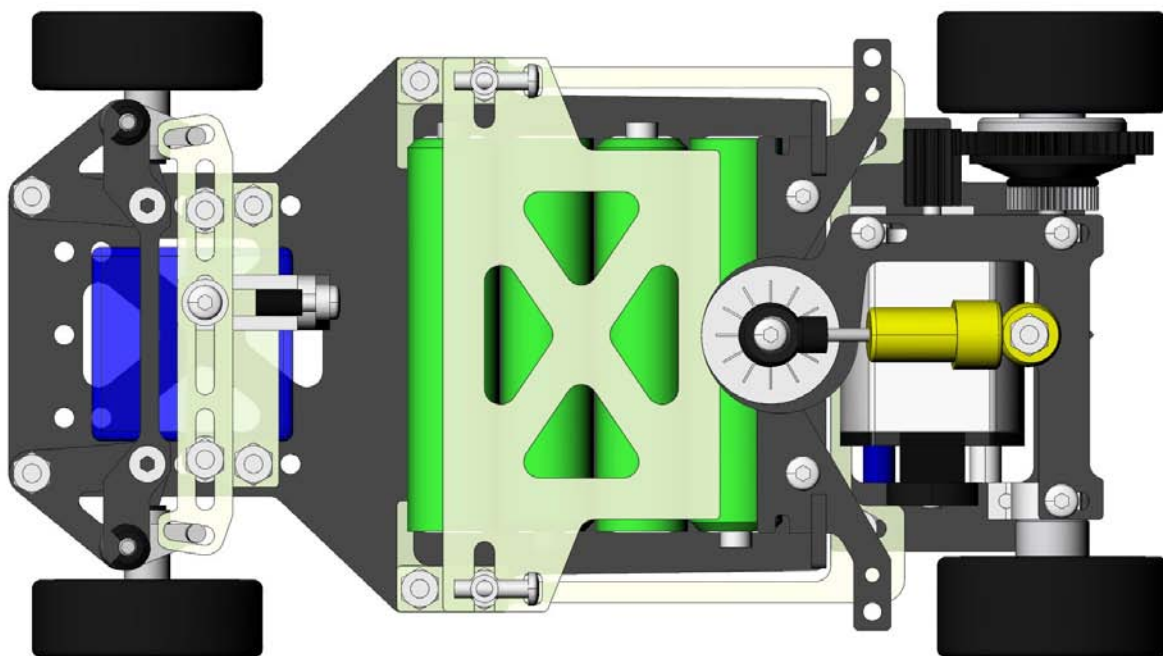
There are a huge number of springs that can be used as side springs for the MRCG. However, as many of them have slight differences in internal diameter, length, etc., the spring perch used must match the spring. This choice is left up to the user. Some tips:

If using Mini-Z MR-015/02 springs, use two extra M2 nuts and MR-015/02 spring perches.

If using Mini-Z MA-010 springs, use two M2 locknuts (they have a ridge on one end that acts as the spring perch).

In any case, a small dab of glue to secure the spring/spring perch is advised.

Blueprint View



Quick Setup Guide

Springs

Stiffer overall - Increases responsiveness. Too stiff and the car will hop and lose traction, and will be too twitchy to drive fast.

Softer overall - Increases stability. Too soft and the chassis will feel sluggish and may bottom out or scrape in corners.

Stiffer front - Less overall steering, less on-throttle steering, faster response

Softer front - More overall steering, more off-throttle/on-brake steering, slower response

Stiffer rear - More overall steering, more off-throttle steering, faster response

Softer rear - Less overall steering, less on-throttle steering, more on-throttle rear traction, slower response

Anti-Roll

Stiffer overall - Faster response, less roll, more traction on smooth tracks

Softer overall - Easier to drive, more roll, more traction on bumpier tracks

Stiffer front - Less overall steering, faster response

Softer front - More overall steering, slower response

Stiffer rear - More overall steering, faster response

Softer rear - Less overall steering, slower response

Damping

Heavier overall - Reduces responsiveness, makes the car easy to drive. Too stiff and the car cannot maintain traction on bumpy surfaces.

Lighter overall - Increase responsiveness. Too soft and the powered wheels will lose traction easily.

Heavier front - Gentler entry steering

Lighter front - More aggressive entry steering

Heavier rear - Gentler entry steering, less on-throttle traction; up to a point, increases overall rear traction

Lighter rear - More aggressive entry steering, more on-throttle traction

Roll Center

Higher rear - More overall steering, faster response

Lower rear - Less overall steering, slower response

Rear Steer

Flex plates angled down less - Less steering, especially on-throttle

Flex plates angled down more - More steering, especially on-throttle

Ride Height

Front lower - Slightly more steering

Rear lower - Slightly more rear traction

Droop

More overall - Slightly more traction on low-traction tracks; too much may cause traction roll
Less overall - Less roll and increases responsiveness for high-traction tracks

More front - Slightly more steering, but relatively less on-power steering
More rear - Slightly less steering, but relatively more off-power steering.

Camber

More - Up to an extent, more overall traction, but less initial steering response
Less - Less overall traction, but more initial steering response

Toe

Toe-in - More overall stability, reduced steering
Toe-out - More overall steering, reduced stability especially on straights.

Gearing/Rollout

Shorter gear ratio/rollout - More acceleration, less top speed, more runtime
Taller gear ratio/rollout - Less acceleration, more top speed, less runtime

Smaller pinion - Shorter gear ratio/rollout
Larger spur - Shorter gear ratio/rollout
Larger pinion - Taller gear ratio/rollout
Smaller spur - Taller gear ratio/rollout

Larger tire - more gear ratio/rollout
Smaller tire - less gear ratio/rollout