



## RADIO CERTIFICATIONS

CE: GTS2023060192EV1

FCC: 2A2UNRTX4C00

IC: 24025-RTX4C00

Batteries not included



Link to the most recent version of this manual with exploded views and parts lists:  
[www.redcatracing.com/pages/manuals](http://www.redcatracing.com/pages/manuals)





## Warnings

**AGE WARNING!** You must be 14 years of age or older to operate this vehicle. It is the buyer's responsibility to ensure that this product is safely operated. This radio controlled (RC) vehicle is not a toy. It is the responsibility of the parents or guardian to ensure that minors receive appropriate guidance and supervision when operating or working on this product.

The buyer assumes all risks associated with the use of this product. Namero LLC d/b/a Redcat Racing and their retail partners, dealers, distributors, manufactures and affiliates cannot control the use and operation of this product and as such shall not be held responsible or liable for any injury, accident or damage resulting from the use of this product.

Always perform a prerun inspection to ensure that there is no damage and that all screws and wheel nuts are secure. If damage is found, repair or replace prior to use.

Fully read all instructions, manuals and warnings that come with your RC vehicle and any accessories required to operate the product.

Never operate your RC vehicles on public roads, near bystanders, children, pets other animals. Never lose sight of your vehicle while it is in operation and always leave a safe distance around your RC vehicles when driving so that in the event you lose control you don't damage the vehicle, hurt yourself or others. Always keep clear of the wheels or other moving parts on the vehicle and never attempt to pick up the vehicle if the wheels are in motion. Do not attempt to touch the motor, ESC, battery or other electrical components during or immediately after use as these items will get hot during operation.

Always allow the vehicle time to cool down between runs. Overheating the electronics can shorten the life of your electronic components.

Never leave the battery connected when not in use and store batteries in accordance with the manufactures instructions.

Never leave a battery unattended while being charged. Never charge batteries while they are inside of the RC vehicle.

There is a risk of fire and explosion when dealing with batteries. Rechargeable batteries may become hot and catch fire if left unattended, charged too quickly, charged too often, if overcharged, if over discharged or if previously damaged. Never charge at a rate higher than 1C. (2000Mah pack = 2 amp charge rate). Always use a LIPO safe charging pouch when charging LIPO batteries. Only use a LIPO specific charger when charging LIPO batteries.

Never use a LIPO battery that has previously overheated and/or shows signs of damage or swelling. If you suspect the battery to be damaged, immediately discontinue use and properly dispose of the battery. Never dispose of a LIPO battery with regular trash, check with local authorities for proper disposal.

Always check the ESC settings to ensure that they match the battery type during operation. If using a LIPO battery, the ESC must be set to LIPO or damage may occur.

Never mix old and new batteries. Do not change or charge batteries in a hazardous location. Do not mix alkaline, lithium, standard (carbon zinc), or rechargeable (NiMh, cadmium) batteries.

If you do not agree with or are unable to follow these warnings and are not willing to accept full and complete liability for the use of this RC product; immediately return the product to your place of purchase in new and unused condition.

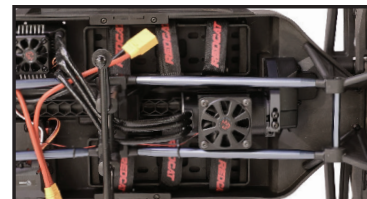
## Start Up

**Attention:** The ESC is set to LIPO from the factory.

**Note:** When using a LIPO battery, the ESC MUST be set to LIPO or damage to the battery may occur. See full online manual.

**Attention:** The ESC is designed to run on 6S or 8S.

This is done by using two battery packs that total 6S or 8S. You must use two 3S (6S total) LIPO battery packs or two 4S (8S total) LIPO battery packs. Do not mix and match 3S and 4S battery packs. Both packs being used must have the same voltage and MAh ratings.



**1.** Insert 4 brand new AA batteries into the controller. Be sure to line up the positive (+) side of the battery with the (+) mark inside the battery compartment. (see above warnings)



**2.** Remove the four body clips and lift the body off of the chassis.



**3.** Strap in two fully charged battery packs.



**4.** Plug in both batteries. CAUTION! Do not turn on the ESC yet!



**5.** Turn on the radio.






**6.** Power on the ESC and secure the body in place.





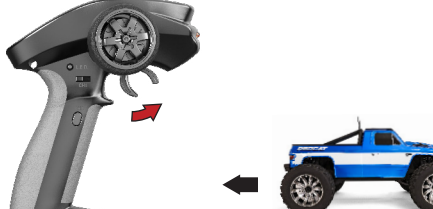
**NOTE:** You can also operate the ON/OFF button by reaching under the body behind the front right tire.





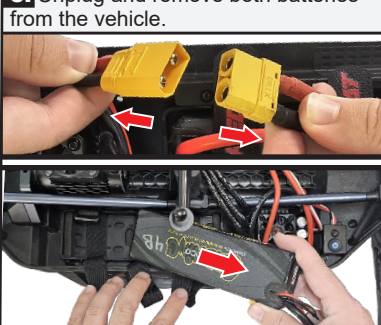
## Steering

Straight	Left	Right
		


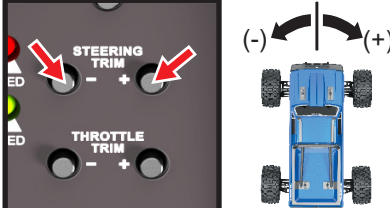
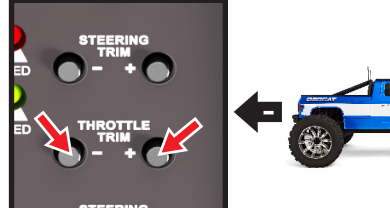
## Throttle







Forward	Brake - 1st tap	Reverse - 2nd tap
		

## Shut Down

<b>1. Remove body and turn off the vehicle.</b>  <p>Press and hold for 3 seconds.</p>	<b>2. Turn off the radio.</b> 	<b>3. Unplug and remove both batteries from the vehicle.</b> 
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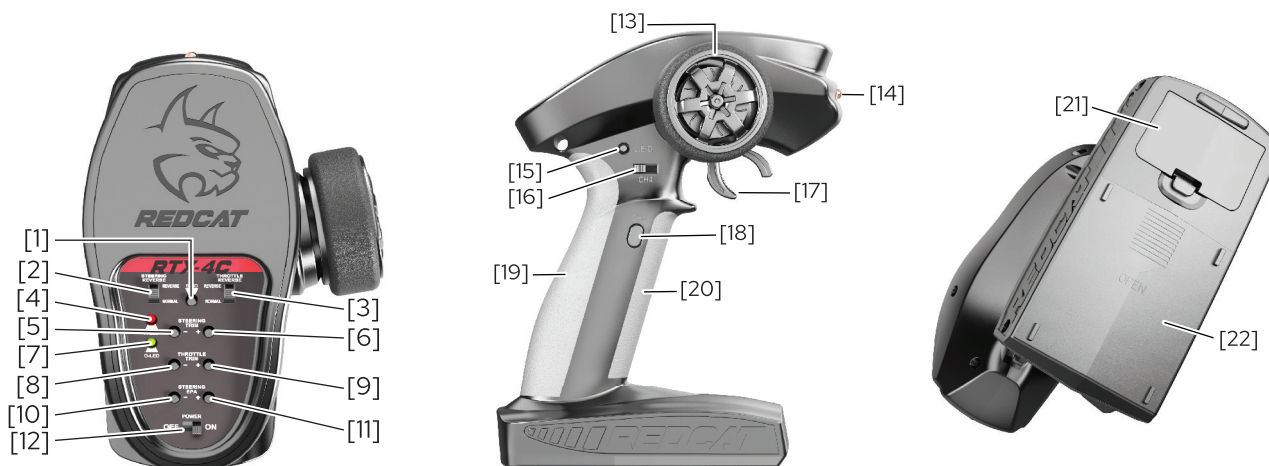
## Radio Adjustments

<b>Servo Reverse</b>  <p>While driving away from you, if the vehicle steers to the left while you steer the controller to the right, reverse channel 1 by flipping the switch labeled "STEERING REVERSE". The switch labeled "THROTTLE REVERSE" is for reversing throttle orientation.</p>	<b>Steering Trim - Steering Neutral</b> 	<b>Throttle Trim - Throttle Neutral</b> 
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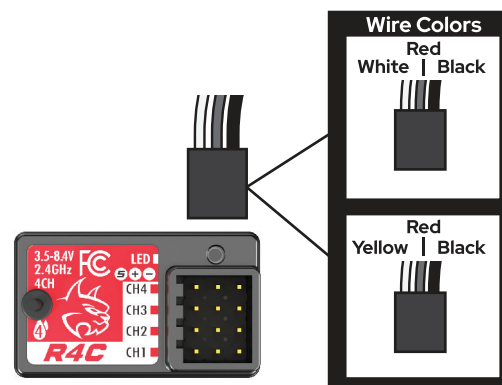
<b>Steering EPA - Maximum Steering Endpoint Adjustment</b>		
	<b>HOLD</b> → 	
	<b>HOLD</b> → 	



## RTX-4C Radio Guide



1. Bind Button	12. Power Switch
2. Steering Reverse	13. Steering Wheel. (CH1)
3. Throttle Reverse	14. LED Light
4. Power Indicator LED - RED (R. LED)	15. LED Light (ON/OFF) Button
5. Steering Trim (-)	16. Three Position Switch (CH4)
6. Steering Trim (+)	17. Throttle Trigger (CH2)
7. Status Indicator LED - Green (G.LED)	18. Button (CH3)
8. Throttle Trim (-)	19. Rubber Grip Rear
9. Throttle Trim (+)	20. Rubber Grip Front
10. Steering End Point Adjustment (-) (EPA)	21. Tool & Spare Parts Compartment
11. Steering End Point Adjustment (+) (EPA)	22. Battery Compartment - 4 AA Batteries



## Compliance & Warnings

**DoC Declaration:** Hereby, [Redcat Racing] declares that the Radio Equipment [RTX-4C] is in compliance with RED 2014/53/EU. The full text of the EU DoC is available at the following internet address: [www.flysky-cn.com](http://www.flysky-cn.com).

**CE:** GTS2023060192EV1  
**FCC ID:** 2A2UNRTX4C00

**Warning:** The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

**FCC** This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

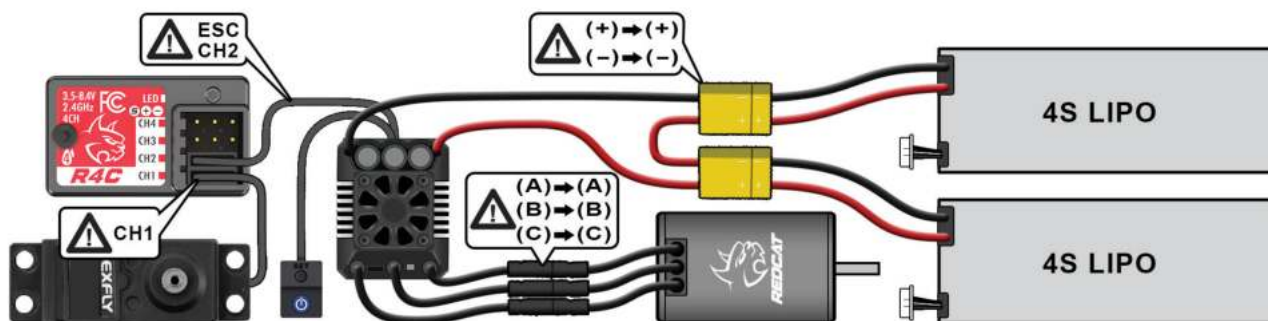
### Caution!

- The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.
- The 2.4GHz radio band is limited to line of sight. Always keep your model in sight as a large object can block the RF signal and lead to loss of control.
- To ensure the best signal quality make sure that the receiver antenna is mounted perpendicular to the model body in an upright position. Be sure the receiver antenna is not touching or right next to conductive materials, such as metal or carbon fiber.
- Low battery alarm: When the battery is lower than 4.2v, the G.LED on the transmitter panel will flash slowly. Turn off the vehicle and stop operation immediately when the batteries are low. Replace the transmitter batteries with (4) new AA batteries before further use.
- Do not cut, kink, damage or alter the antennas at any time. If an antenna is damaged, stop use immediately.



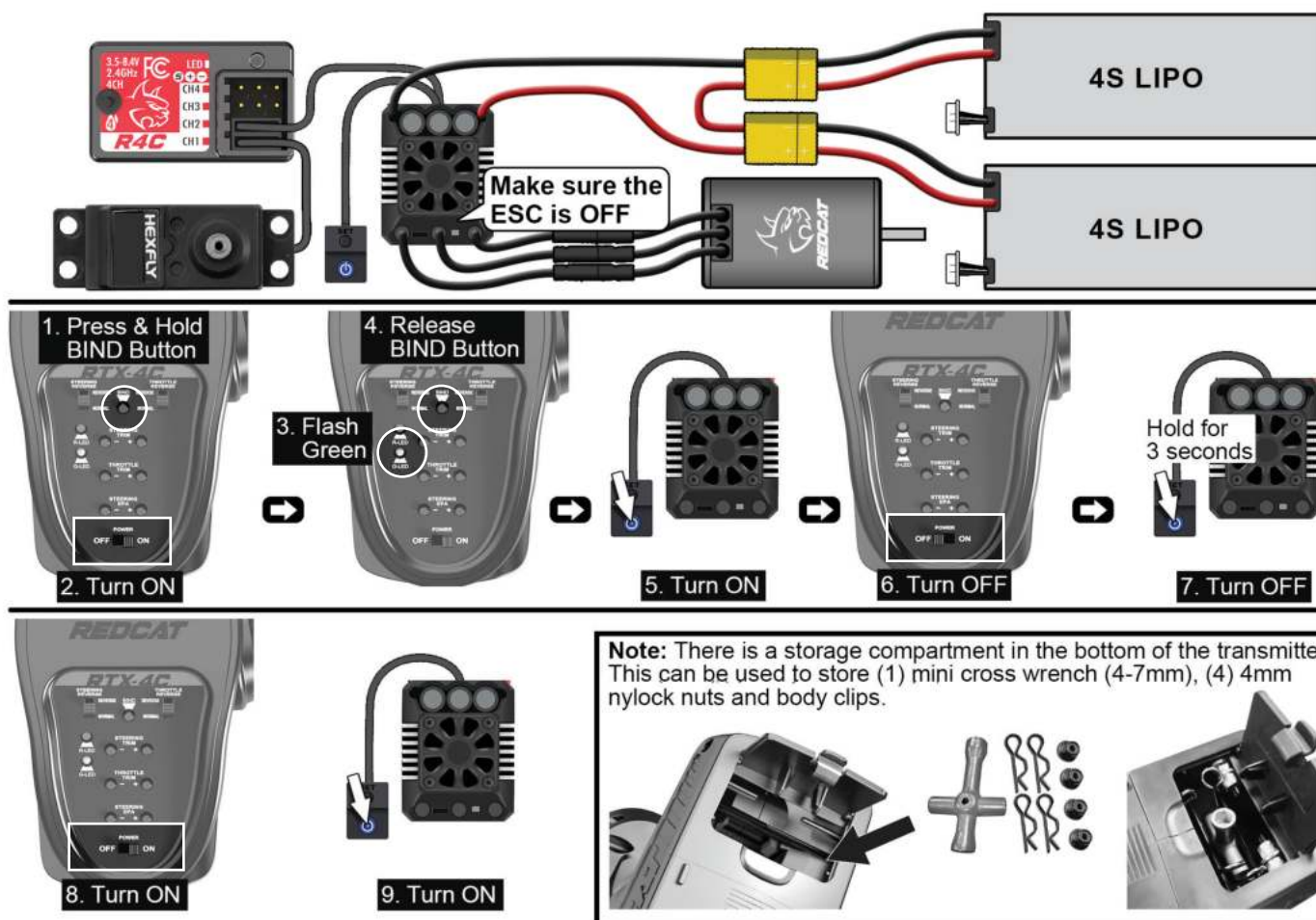


## Connections



## Binding Process

**NOTE:** The radio is already bound at the factory and only needs to be done if the receiver can't find the radio's signal. Before attempting to bind the radio, be sure there are new batteries in the radio, a fully charged battery pack in the vehicle and that both are turned on.



## Calibration

This function is used to set the neutral position for the throttle trigger and steering wheel.

Every transmitter is calibrated before leaving the factory, however if recalibration is required, please follow these steps:

1. Turn and hold the wheel as far clockwise as it will turn, move the throttle trigger to the full reverse position and turn on the transmitter. If done correctly, both Red and Green LEDs will double flash on and off.
2. Calibrate wheel: Turn the wheel completely clockwise, then completely counterclockwise.
  - When calibration is completed the Red LED will turn off.
3. Trigger calibration: Pull the trigger to the full throttle position.
  - When calibration is completed the Green LED will turn off.
4. Once calibration is complete press the bind button to save the settings and exit calibration mode.

## Radio Functions

### -CHANNEL DESCRIPTION-

The transmitter outputs a total of 4 channels, which are allocated as follows:

**CH1:** Steering Wheel

**CH2:** Throttle Trigger

**CH3:** Accessory Button (2 Position button)

**CH4:** Accessory Switch (3 Position Switch)

**Note:** By default the output of CH3 is in the position of 1000us. Pressing the button will toggle between 1000 and 2000us.

### -CHANNEL REVERSE-

This function is used to adjust each channel's direction of movement in relation to its input. The STEERING REVERSE and THROTTLE REVERSE switches directly effect CH1 and CH2. If the switch is up, the channel is reversed. If the switch is down, the channel is in its normal orientation.

### -TRIMS-

The STEERING TRIM buttons are used to center the steering servo (CH1). If the vehicle steers without transmitter steering input, use these buttons to adjust the vehicle so that it drives straight without steering input from the transmitter. STEERING TRIM can be multiplexed to trim CH3 and CH4. For multiplexing instructions, refer to the [Mode Switching] section.

The THROTTLE TRIM buttons are used to ensure the vehicle remains still while there is no transmitter throttle input (CH2). If the vehicle drives forward or backward without transmitter throttle input, use these buttons to trim the throttle until the vehicle is completely still.

Adjustment range: -120us- + 120us, each step is 4us.

STEERING TRIM + / THROTTLE TRIM +: Increases adjustment steps.

STEERING TRIM- / THROTTLE TRIM -: Decreases adjustment steps.

#### LED Indicator:

- While using the trim buttons, the G.LED flashes slowly on short presses and quickly on long presses.
- When the trim adjustment value is in the neutral position, the G.LED will flash twice slowly.
- When the trim adjustment value is at its maximum setting (+ 120us / -120us), the G.LED will no longer flash with each press of the button, indicating it is at its maximum value.

### -END POINT ADJUSTMENTS (EPA)-

STEERING EPA is used to set the steering servo's maximum amount of travel. This is used to ensure the steering servo provides enough throw to steer the front wheels to their maximum capacity without damaging the servo. To set the steering end points, press the "STEERING EPA (-)" button several times, then turn and hold the transmitter's steering wheel all the way to one side. Gradually press the "STEERING EPA (+)" button until front wheels have reached their maximum steering capacity. If you hear the steering servo buzzing, press the "STEERING EPA (-)" until the buzzing stops.

The end point adjustments can be multiplexed to adjust CH2 (throttle), CH3 and CH4. For multiplexing instructions, refer to the [Mode Switching] section.

Adjustment range: 0-120%(the default is 100%), the step value is 5%.

STEERING EPA +: Increases servo travel.

STEERING EPA -: Decreases servo travel.

#### LED Indicator:

- When using the trim keys the G.LED will flash slowly on short presses and quickly on long presses.
- When the end point adjustment value is at its maximum setting, the G.LED will no longer flash with each press of the button.

### -MODE SWITCHING-

This function is for reusing the STEERING TRIM and STEERING EPA buttons for different channels. Refer to the [Trims] and [END POINT ADJUSTMENTS (EPA)] sections above to view their effect on the vehicle.

#### Function settings:

After turning on the transmitter, quickly press the Bind button twice (within 1 second) to cycle through modes 1, 2, 3, and 4. The default setting when powered on is mode 1.

**Mode 1:** G.LED flashes slowly once, STEERING TRIM adjusts CH1 and STEERING EPA adjusts CH1.

**Mode 2:** G.LED flashes twice slowly, STEERING TRIM adjusts CH1 and STEERING EPA adjusts CH2.

**Mode 3:** G.LED flashes three times slowly, STEERING TRIM adjusts CH3 and STEERING EPA adjusts CH3.

**Mode 4:** G.LED flashes slowly four times, STEERING TRIM adjusts CH4 and STEERING EPA adjusts CH4.

### -FAILSAFE-

This function dictates what the receiver will do in the event that it loses signal from the transmitter, this includes servo position, throttle position, etc.

#### Function settings:

1. Turn on the transmitter and make sure it is connected to the receiver.

2. Hold the control surface at the desired failsafe position.

3. Press and hold the bind button for 3 seconds, the G.LED will flash for 2 seconds, indicating that the settings were saved.

**Note:** The failsafe function is not set at the factory by default. If no failsafe setting has been set, the receiver will maintain the output of the last signal when the signal is lost. Failsafe is intended as a safety measure during transmitter signal loss and will not work if the receiver loses power.

### -BEGINNER MODE-

Beginner mode is designed for the people who are new to the hobby.

In this mode the throttle is limited to 50 percent and the channel range defaults are set to 1250~1500~1750us.

#### Function settings:

To switch between beginner and normal modes, press and hold the CH3 button while turning the steering wheel completely counterclockwise, as far as it can go. While holding, turn on the transmitter.

**Note:** By default, the system is set to normal mode. When set to beginner mode, the G.LED will double flash for 3 seconds after turning on the transmitter.





### Specs:

Model:	WP-6BL160-8S-RTR
Cont. / Peak Current:	160A / 1050A
NiMH / LIPO Cells:	9-24 Cells NiMH, 3-8S LIPO
Applications:	Large Scale Car, Truggy, Buggy, Monster Truck
Built in BEC:	6V/7.4V Switchable, Continuous Current of 6A (Switch-mode BEC)
Size / Weight:	70mm(L)x56mm(W)x46.5mm(H)/240g
Programming Port:	FAN / PRG Port
Motor Type:	Sensored / Sensorless Brushless Motor (only in sensorless mode)
Motor Limit:	6S LiPo ≤ 1500KV 8S LiPo ≤ 1200KV
Splash-proof:	Cannot Be Submerged

**NOTE:** The cooling fan is powered by a stable voltage of 6V/7.4V.

### FEATURES:

- Compatible with sensorless brushless motors and sensored brushless motors (only in sensorless mode).
- Splash-proof design for all weather conditions. (Remove the cooling fan when running in wet conditions. If the ESC gets wet, clean and dry thoroughly to avoid damage from the oxidation of copper connectors). The ESC CANNOT be submerged.
- Super internal switch-mode BEC with switchable voltage of 6V/7.4V and a cont. /peak current of 6A/25A for use with standard or high voltage servos.
- Highly reliable push button electronic switch avoids troubles which may happen to traditional mechanical switch due to dirt and water.
- The built-in spark-proof circuit effectively protects not only the battery and ESC connectors from damage, but also users from physical injury (to hands) caused from electrical shock produced at the battery and ESC connecting points.
- Proportional brake with 9 levels of brake amount/maximum brake force and 9 levels of drag brake force.
- 5 levels of acceleration /punch from soft to aggressive for different vehicles, tires and tracks.
- Multiple protections: motor lock-up protection, low-voltage cutoff protection, thermal protection, overload protection, and fail safe.
- Single-button ESC programming and factory reset.
- Advanced programming via portable LED program card.

### WARNINGS:

- Ensure all devices are well connected, in order to prevent poor connections that may cause your vehicle to lose control or other unpredictable issues like damage to the device.
- Remove the cooling fan from ESC before exposing the vehicle to liquids, and fully dry the ESC, connections, and anything on the vehicle that is metal right after the use.
- To avoid short circuits, ensure that all wires & connections are well insulated and there is proper contact at all connections.
- Read through the entire manual before operating and ensure all electronics are installed correctly. To avoid accidents, be sure the transmitter has good batteries and is turned on before plugging a battery pack into the ESC. we recommend setting the vehicle on a stand, with the tires free from any contact, while connecting and adjusting electronics. While the vehicle is on the stand, never pull the throttle trigger to its full position. Doing so can cause the tires to balloon and tear, which may result in injury and/or damage.
- Stop usage and unplug the battery immediately if the ESC exceeds 90°C/194°F as this may damage both the ESC and motor.
- Disconnect both battery packs after use and remove them from the vehicle. The ESC continuously draws current from the battery (even if the ESC is turned off). If left plugged in for long periods of time, the battery will completely discharge, which may result in damage to the battery or ESC. This WILL NOT be covered under warranty.

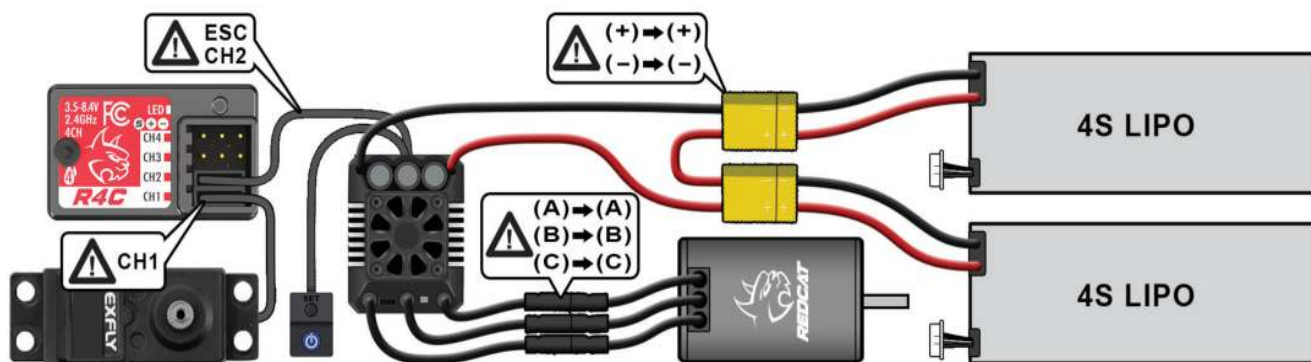
## ESC Start-up Tone

When you turn on the ESC (with out holding the set button), the ESC/motor will beep the total number of cells you have plugged in. Example: 2 beeps = 2 Cells, 3 beeps = 3 Cells, 4 beeps = 4 Cells, 5 beeps = 6 Cells, 6 beeps = 8 Cells.

If your battery pack cell count total differs from the number of beeps, recharge your battery packs and make sure they are both functioning normally without damage or swelling. If both battery packs check out and the ESC is still recognizing the incorrect number of total cells (4S pack + 4S pack = 8S), you will need to manually set the LIPO cell count on the ESC to match the cell count of your fully charged battery pack as shown on the next page.

**Note:** The "S" number on the LIPO pack equals the number of cells. Example: A 3S pack has 3 cells and a 4S pack has 4 cells. When using two LIPO packs, you will need to add the number of cells for each pack together. Two 4S packs equals 8 Cells. Only use matching LIPO packs. Never use a #S pack and a 4S pack together. They must match cells counts and burst rates.

## ESC Guide



## Calibration

- Press and hold the SET button
- Turn ON the ESC
- Release the SET button once the LED flashes.
1. Turn on the transmitter, set parameters on the throttle channel like "D/R", "EPA" and "ATL" to 100% and the throttle "TRIM" to "0". Disable the "ABS braking function", if available on your radio.
2. Start with the transmitter on and the ESC turned off but connected to a battery. While holding the SET button, Turn ON the ESC, then release the SET button when you see the RED LED on the ESC start to flash. (Note: the motor beeps at the same time) (The ESC will enter the programming mode if the SET button is not released within 3 seconds, which will then require you to restart from step 1.)
- Move the throttle trigger to the neutral position and press the SET button.
- The Green LED flashes once and motor emits "Beep" tone.
- Pull the throttle trigger to the end position of forward and press the SET button.
- The Green LED flashes twice and motor emits "Beep-Beep" tone.
- Push the throttle trigger to the end position of reverse and press the SET button.
- The Green LED flashes three times and motor emits "Beep-Beep-Beep" tone.
3. To set the neutral point, leave the throttle trigger at the neutral position, press the SET button. The RED LED dies out and the GREEN LED flashes 1 time and the motor beeps 1 time to accept the neutral position.
4. To set the full throttle endpoint, pull and hold the throttle trigger to the full throttle position and press the SET button. The GREEN LED blinks 2 times and the motor beeps 2 times to accept the full throttle endpoint, then release the trigger.
5. To set the full brake endpoint, push and hold the throttle trigger to the full brake position, press the SET button. The GREEN LED blinks 3 times and the motor beeps 3 times to accept the full brake endpoint. Release the trigger back to the neutral point. (The motor can be started 3 seconds after the ESC/Radio calibration is complete)

## Programming

- Press and hold the SET button
- Turn ON the ESC
- The Red LED flashes
- The Green LED flashes.
1. Turn on the transmitter.
2. Press and hold the set button on the ESC ON/OFF switch.
3. Turn ON the ESC.
4. Continue to hold the set button until the Green LED flashes the number of times that corresponds with the item # you wish to adjust. Refer to the "Item #" column of the chart to determine the number of Green LED flashes needed. (1 flash = Running Mode, 2 flashes = Drag Brake Force, etc.)

Programmable Items	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
1. Running Mode	Fwd/Br	Fwd/Rev/Br							
2. LiPo Cells	Auto	2S	3S	4S	6S	8S			
3. Low Voltage Cutoff	Disabled	Auto (Low)	Auto (Intermediate)	Auto (High)					
4. ESC Thermal Protection	105 °C/221°	125 °C/257°F							
5. Motor Thermal Protection	Disabled								
6. Motor Rotation	CCW	CW							
7. BEC Voltage	6.0V	7.4V							
8. Max Brake Force	12.50%	25.00%	37.50%	50.00%	62.50%	75.00%	87.50%	100.00%	Disabled
9. Max Reverse Force	25.00%	50.00%							
10. Start Mode (Punch)	Level 1	Level 2	Level 3	Level 4	Level 5				
11. Drag Brake	0%	2%	4%	6%	8%	10%	12%	14%	16%

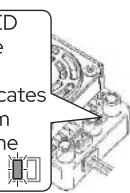
**NOTE:** The shaded boxes are the default settings.





## Programming (continued)

The Red LED flashes. The number of flashes indicates the program option on the chart.



Press and release the SET button once the desired number of Red flashes is reached



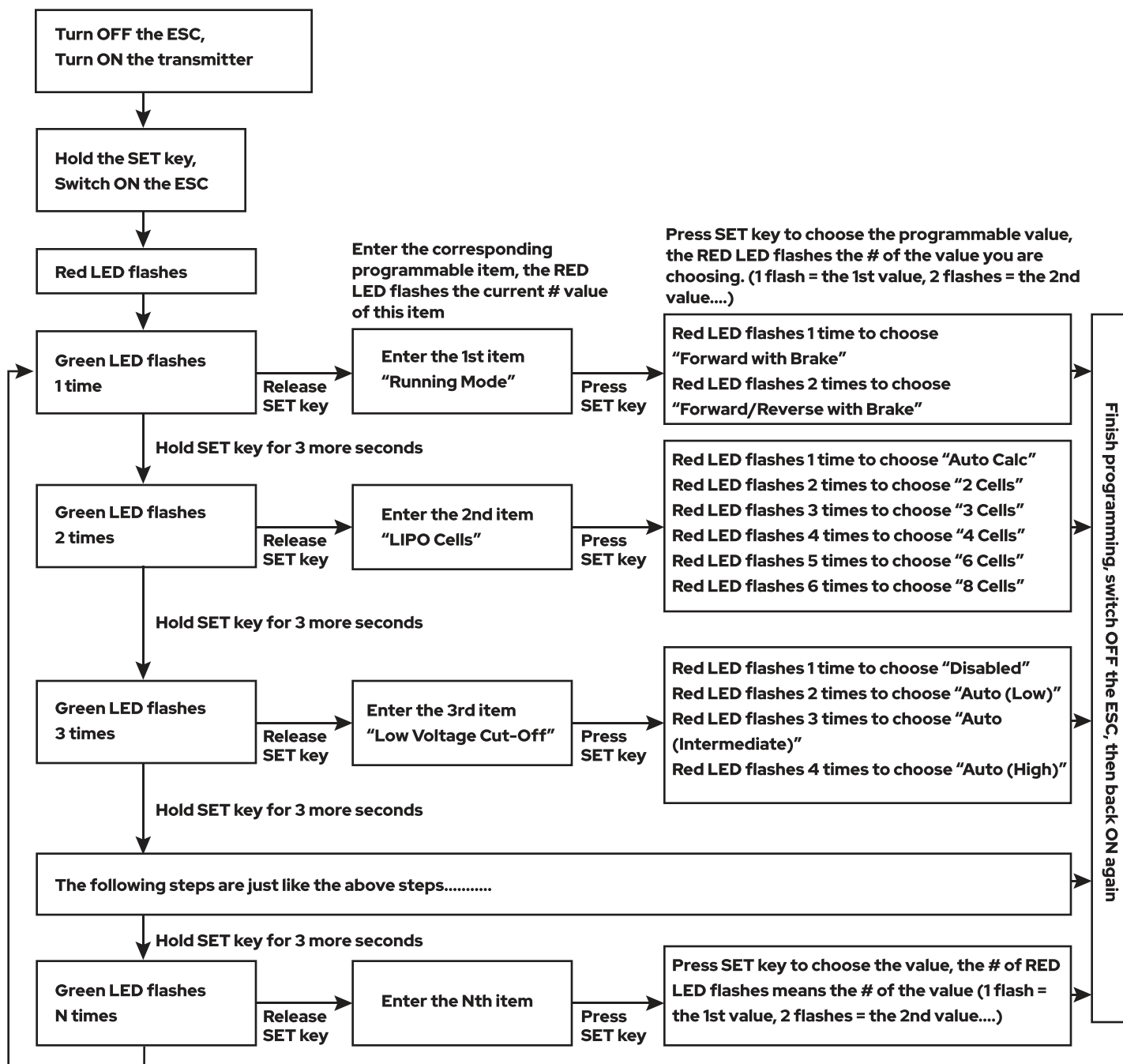
Turn off the ESC.

Hold for 3 Seconds



5. The Red LED will flash the number of times that corresponds to the number of the option listed along the top of the chart. (1 flash = Option 1, 2 flashes = Option 2, etc.)
6. Press and release the set button until the desired number of red flashes is achieved.
7. To finish set up, turn OFF the ESC by holding down the ON/OFF button for three seconds.
8. You can now power the ESC back on. The settings should now be saved.
9. Repeat steps 1-8 for each setting you wish to adjust.

## Programming Flow Chart



### Programmable Items

- 1. Running Mode:** In "Forward with Brake" mode, the vehicle can go forward and brake, but cannot go in reverse, this mode is suitable for competition. "Forward/Reverse with Brake" mode provides the reverse function, which is suitable for most driving situations.  
**Note:** "Forward/Reverse with Brake" mode uses "Double-click" method to enter reverse. When you move the throttle trigger from the forward zone to the reverse zone for the first time (The 1st "click"), the ESC begins to brake the motor, the motor slows down but it is still running, not completely stopped, so the reverse function does NOT happen immediately. When the throttle trigger is moved to the reverse zone again (The 2nd "click"), if the vehicle is stopped, the reverse function will engage, driving the vehicle backward. The "Double-Click" method prevents accidentally sending the vehicle into reverse while trying to brake.  
**Note:** Any time during braking or reversing, if the throttle trigger is moved to forward running zone, the motor will run forward at once.
- 2. LiPo Cells:** We strongly recommend setting this item manually instead of using the default setting "Auto Calc. (which means calculating the LiPo cells automatically)". If the battery packs are not fully charged, the ESC may misinterpret the packs' cell count as lower than it actually is. If this happens, the battery packs may be drained beyond their safe voltage levels which could damage the batteries and may result in fire.  
**Note:** The cell count is the total number of cells being plugged into the ESC. Two 4S LIPOs are equal to 8 cells. Be sure to add the total amount of cells being used and never use two batteries with a different cell count. Always use matching batteries with equal cell counts (S rating) and equal capacity ratings (mAh ratings), otherwise, the lower-rated battery pack may be drained beyond its safe voltage level.  
**Note:** To lessen the chance of the ESC miscalculating the number of cells, only use fully charged battery packs or set the cell count manually.  
**Note:** This ESC is not intended for 2S operation. Even if you can set the "LiPo Cells" to 2S, it still does not work. You need to set "LiPo Cells" to "Auto Calc." and "Cutoff Voltage" to "Disabled" if using NiMH battery packs.
- 3. Low Voltage Cut-Off:** Sets the voltage at which the ESC lowers or removes power to the motor in order to keep the LiPo batteries at a safe minimum voltage. The ESC will monitor the battery voltage all the time, it will immediately reduce the power to 50% and cut off the output 10 seconds later when the voltage goes below the cutoff threshold. The RED LED will flash a short, single flash that repeats (⏏, ⏏, ⏏) to indicate the low-voltage cutoff protection is activated. If you use a NiMH pack, then please set the "Cutoff Voltage" to "Disabled".
- 4. ESC Thermal/Overheat Protection:** When the temperature of the ESC rises to the preset value and activates the ESC thermal protection, the ESC will automatically cut off all power output and the GREEN LED will flash a short, single flash that repeats (⏏, ⏏, ⏏). The power output won't resume until the temperature goes back down to a safe operating level.
- 5. Motor Thermal/Overheat Protection:** This item has been permanently set to "Disabled" by manufacturer.
- 6. Motor Rotation:** Pull the throttle trigger with the motor shaft facing you, the motor spins counter clockwise if this item is set to CCW; the motor spins clockwise if set to CW. The (A/B/C) wiring order of motors from different manufacturers may vary, so the direction of the motor rotation may be opposite to what you expect. You can adjust the "Motor Rotation" or swap any two (ESC-to-motor) wires if the motor runs in reverse.
- 7. BEC Voltage:**  
*Option 1:* 6.0V is used with ordinary servos. Do not use this option with high voltage servos, otherwise your servos may not function normally due to insufficient voltage.  
*Option 2:* 7.4V is used with high voltage servos. Do not use this option with ordinary servos, otherwise your servos may burn out due to high voltage.
- 8. Brake Amount/ Max. Brake Force:** This ESC provides the proportional braking function; the braking effect is decided by the position of the throttle trigger. This setting sets determines the percentage of available braking power when full brakes are applied. A higher setting will shorten the braking time, but may cause damage to the pinion and spur gears. It is best to select the most enough maximum brake force to quickly stop the vehicle without completely locking up the wheels. Tweaking this setting can give the vehicle more controllability on slippery surfaces.
- 9. Reverse Amount/ Max. Reverse Force:** This effects how fast the vehicle will drive in reverse. A low settings is recommended.
- 10. Start Mode / Punch:** You can choose the punch level from 1 (very soft) to 5 (very aggressive). The higher the punch level, the more easily the tires will spin on initial takeoff. This feature is very useful for preventing the tires from slipping during initial take-off, providing more vehicle control. In addition, "level 4" and "level 5" have strict requirement on the battery's discharge capability. It may affect the performance if the battery has a low discharge rating and cannot provide a large enough burst current. The vehicle stutters or suddenly loses power while pulling full throttle from a complete stop, indicating the battery's discharge capability is not high enough. If this happens, reduce the punch level setting or get a battery with a higher burst rating.
- 11. Drag Brake:** Drag brake is the slight braking power produced when releasing the throttle trigger to neutral zone. This gently slows the vehicle down when you let off the trigger; it can provide a better cornering approach. (Attention! Drag brake will consume much power, so apply it cautiously.)



## ESC Guide

### Programming (continued)

In the program process, the motor will emit a "Beep" tone when the LED flashes.

A long flash and long "Beep---" tone is used to represent the number "5", to easily identify items of a large number.

"A long flash" (Motor sounds "B---") = the No. 5 item

"A long flash + a short flash" (Motor sounds "B---B") = the No. 6 item

"A long flash + 2 short flashes" (Motor sounds "B---BB") = the No. 7 item

"A long flash + 3 short flashes" (Motor sounds "B---BBB") = the No. 8 item

### Factory Reset

#### Restore all items to default values with the SET button:

Press and hold the SET button for over 3 seconds anytime the throttle trigger is at the neutral position (except during the ESC calibration and programming) to factory reset your ESC. RED & GREEN LEDs flash simultaneously indicating you have successfully restored all the default values within your ESC. Once you power the ESC off, and then on again, all of the ESC's settings will be back in the default mode.

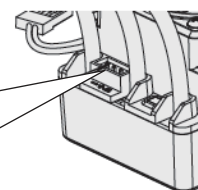
#### Restore all items to default values with the LED program card:

After connecting the program card to the ESC, press the "RESET" button and the "OK" button to factory reset your ESC to its default values.

### Using The Optional Program Card (not included)

The portable program card is an optional accessory applicable for field use. Its friendly interface makes ESC programming quick and easy. Before programming, you need to connect your ESC and the program card via the cable with two JR male connectors. Once connected, turn on the ESC; all programmable items will show up a few seconds later. You can select the item you want to program and the setting you want to choose via the "ITEM" & "VALUE" buttons on the program card. Press the "OK" button to save all new settings to the ESC.

External fan port used for connecting an optional Programming Card



**Attention!** The programming port of this ESC is also the fan port, so you need to unplug the fan first and then plug (one end of) the programming cable into the PRG/FAN port. The other end of the programming cable plugs into the ESC port located on the LED program box. Do not use the throttle control cable, that plugs into the receiver, on the ESC to connect the program card, otherwise the program card will not function.

### Trouble Shooting

TROUBLE	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
NiMH battery charge doesn't last as long as it should.	1. ESC is set to LIPO battery. 2. NiMH battery is not charged completely. 3. NiMH battery is not holding a charge.	1. Refer to the ESC Guide to set the ESC to NiMH battery. 2, 3. Completely charge the NiMH battery with an appropriate NiMH charger.
LIPO battery won't recharge after running the vehicle.	1. ESC "cell count" and/or "low voltage cut-off" is set incorrectly and the LIPO battery was discharged below the safe level. 2. Bad LIPO battery.	1. Refer to the ESC Guide and set the ESC according to LIPO batteries being used. Properly dispose of the LIPO batteries. 2. Replace the LIPO batteries with fully charged, brand new batteries. Dispose of the bad batteries in accordance to your local laws.
The ESC will not power on and the ON/OFF switch was turned ON.	1. No power is being supplied to the ESC. 2. The ESC switch may be damaged.	1. Check if all ESC & connections are well soldered and firmly connected. 2. Contact Redcat support.
The vehicle ran backward when you pulled the throttle trigger towards you.	1. The radio "Throttle Reverse" switch may be improperly set. 2. The motor rotation is incorrectly.	1. Switch the radio "Throttle Reverse" switch. 2. Set the rotation in the ESC according to the included instructions.
Vehicle moves with no throttle input.	1. Throttle trim is not set properly. 2. Did not follow proper start-up instructions.	1. Set transmitter throttle trim. 2. Follow Quick Start Guide for proper start-up sequence.

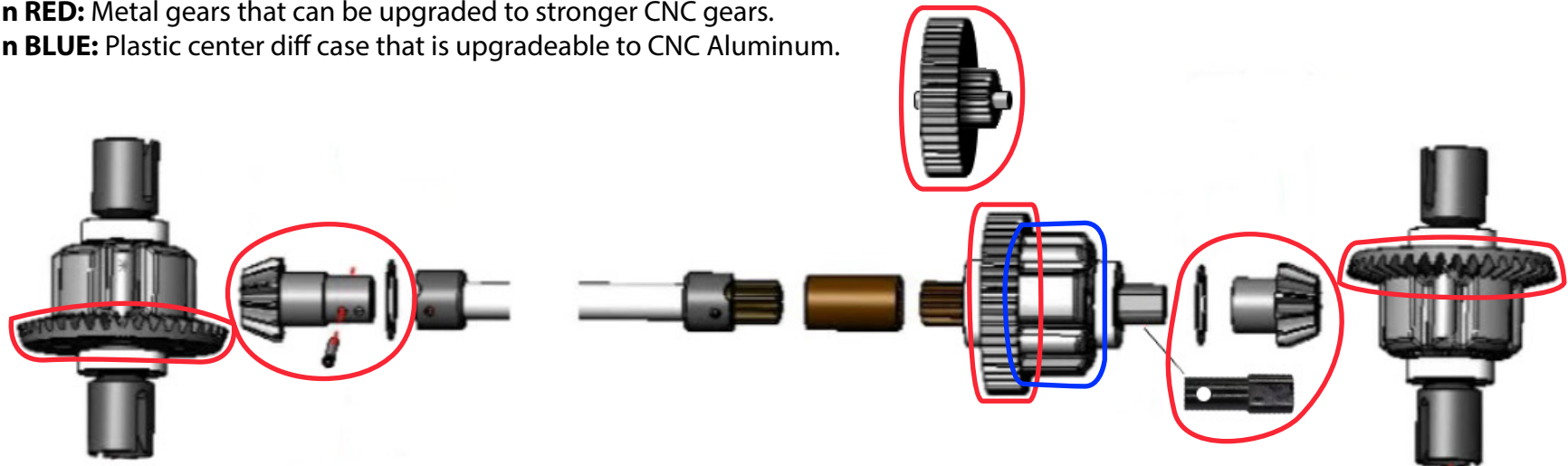
## Trouble Shooting (continued)

The motor suddenly stopped working, but the steering still works.	The LVC protection or the thermal protection may have been activated.	Check the battery voltage and the ESC temperature. Let cool and recharge battery.
The motor accelerated suddenly, stuttered or stopped during the starting-up process.	1. The discharge capacity of the pack is insufficient. 2. The RPM is too high, the gear ratio or final drive ratio is incorrect. 3. Gear mesh too tight.	1. Use another pack with better discharge capability. 2. Use stock motor, stock gearing, and don't pull heavy loads. 3. Reset gear mesh.
After powered on, the motor doesn't work, but emits "beep-beep-, beep-beep-" alert tone. (Every "beep-beep-" has a time interval of 1 second ).	Input voltage is abnormal, too high or too low.	Check the voltage of the battery pack
Grinding sound.	1. Gear mesh too loose. 2. Gears worn.	1. Reset gear mesh. 2. Replace gears.
Clicking noise while steering.	1. Servo gears stripped. 2. Servo horn stripped.	1. Replace servo. 2. Replace servo horn.
Vehicle won't steer or move.	1. Battery pack not charged. 2. Battery wires loose. 3. Did not follow proper start-up instructions.	1. Charge battery pack. 2. Plug in battery securely. 3. Follow Quick Start Guide for proper start-up sequence.
Vehicle turns to the side automatically.	1. Steering trim needs adjusting. 2. Steering servo horn needs realigning or replaced. 3. Servo gears stripped. 4. Too much toe-out in front wheels.	1. Adjust transmitter steering trim. 2. Check servo horn, replace if worn or stripped. 3. Replace servo. 4. Adjust steering linkage to lessen toe amount.
Vehicle steers to the left when you steer to the right.	1. Steering reverse (on transmitter) is set incorrectly. 2. You are driving towards yourself and it just seems like it's backwards.	1. Set the steering reverse on transmitter. 2. Practice driving the vehicle to get used to steering with different vehicle orientations. When driving towards yourself, it just seems like the steering is backwards.
After the ESC was powered on and finished LIPO cells detection (the GREEN LED flashed N times), and then the RED LED flashed rapidly.	1. The ESC didn't detect any throttle signal. 2. The neutral throttle value stored on your ESC is different from the value stored on the transmitter.	1. Check if the throttle wire is reversely plugged in or in the wrong channel and that the transmitter is turned on. 2. Re-calibrate the throttle range after you release the throttle trigger to the neutral position.
After the ESC was powered on and finished LIPO cells detection (the GREEN LED flashed N times), and then the RED LED flashed rapidly.	The ESC throttle cable wasn't plugged in the correct channel on the receiver. The ESC throttle cable was plugged in incorrectly (reversed).	1. Plug the throttle cable into the throttle (TH) channel on your receiver. 2. Plug in the throttle cable properly by referring to relevant mark shown on your receiver.



### CNC Gear Set - Upgrading From Powdered Metal Gears

- **Circled in RED:** Metal gears that can be upgraded to stronger CNC gears.
- **Circled in BLUE:** Plastic center diff case that is upgradeable to CNC Aluminum.



**If your Vigilante has a CNC Aluminum Center Differential Case (RER39156); it already has the CNC gears installed and is the latest version of the vehicle.** The earlier versions of the Vigilante have a plastic center differential case (shown in the diagram above) and powdered metal gears.

While each of the circled components above can be purchased separately, you can save money by purchasing them together with the "Vigilante Full CNC Upgrade Gear Set". This set includes all CNC gears for the Vigilante (everything circled in red) and is a great savings when bought as a set.

**NOTE: If you already have the latest version of the Vigilante, with aluminum center differential case, there is no need to upgrade: all of the upgraded gears are already installed in your vehicle.**

To Purchase the **Vigilante Full CNC Upgrade Gear Set**, click the link: <https://www.redcatracing.com/products/vigilante-full-cnc-gear-set>

#### Vigilante Full CNC Upgrade Gear Set:

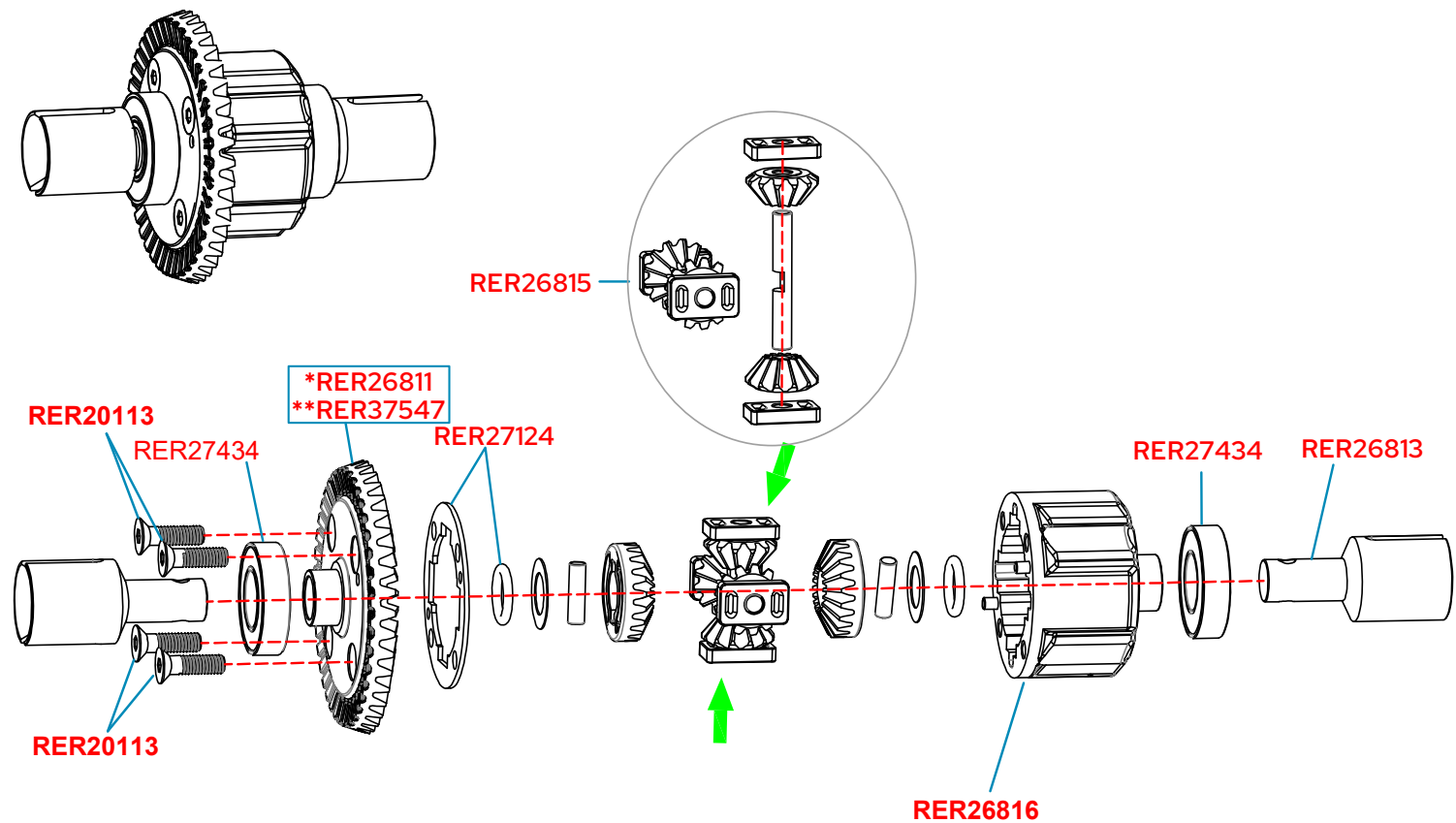
RER37547 (Qty 2), RER37545 (Qty 1), RER37546 (Qty 1), RER37548 (Qty 1), RER37645 (Qty 1)



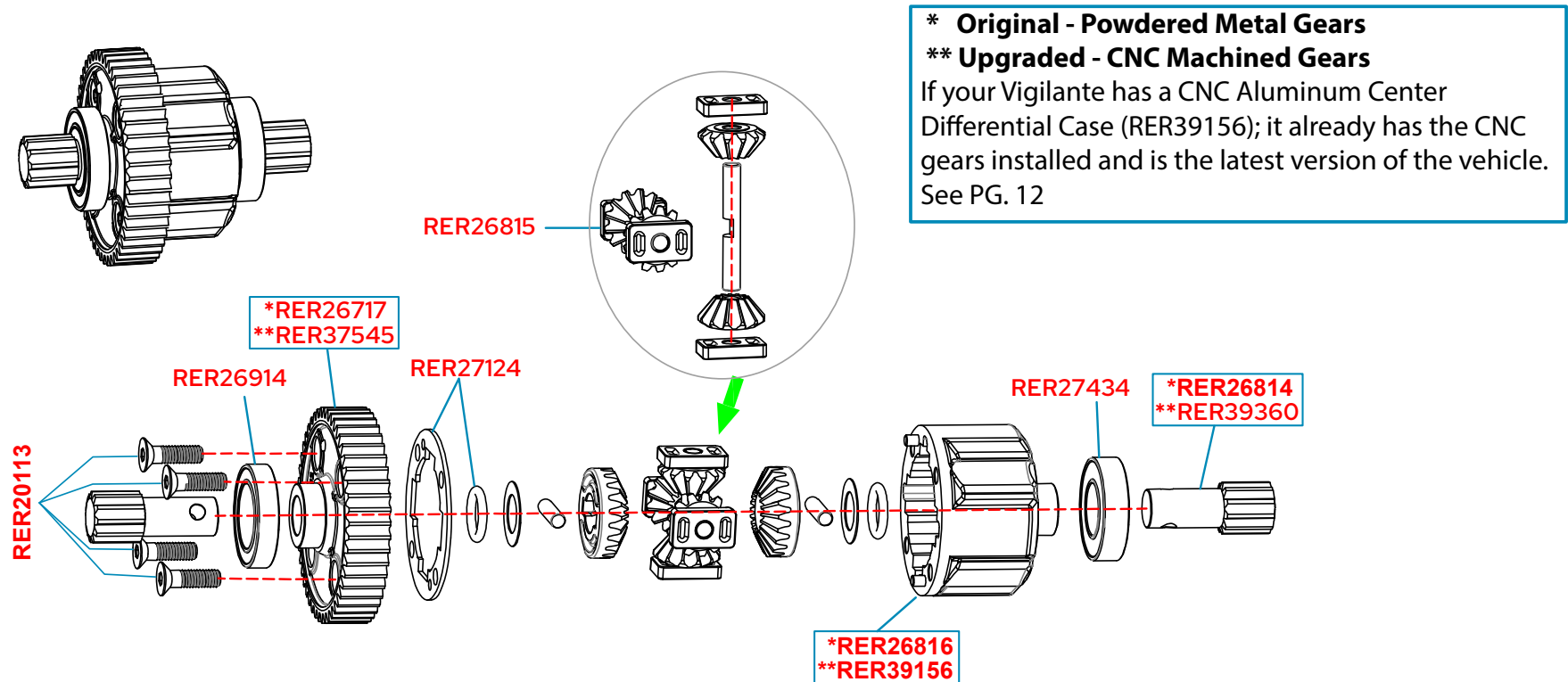
We also recommend upgrading the plastic center differential case, with the CNC Aluminum Differential Case, at the same time you install the CNC Gear Set.



Front & Rear Differential Assembly

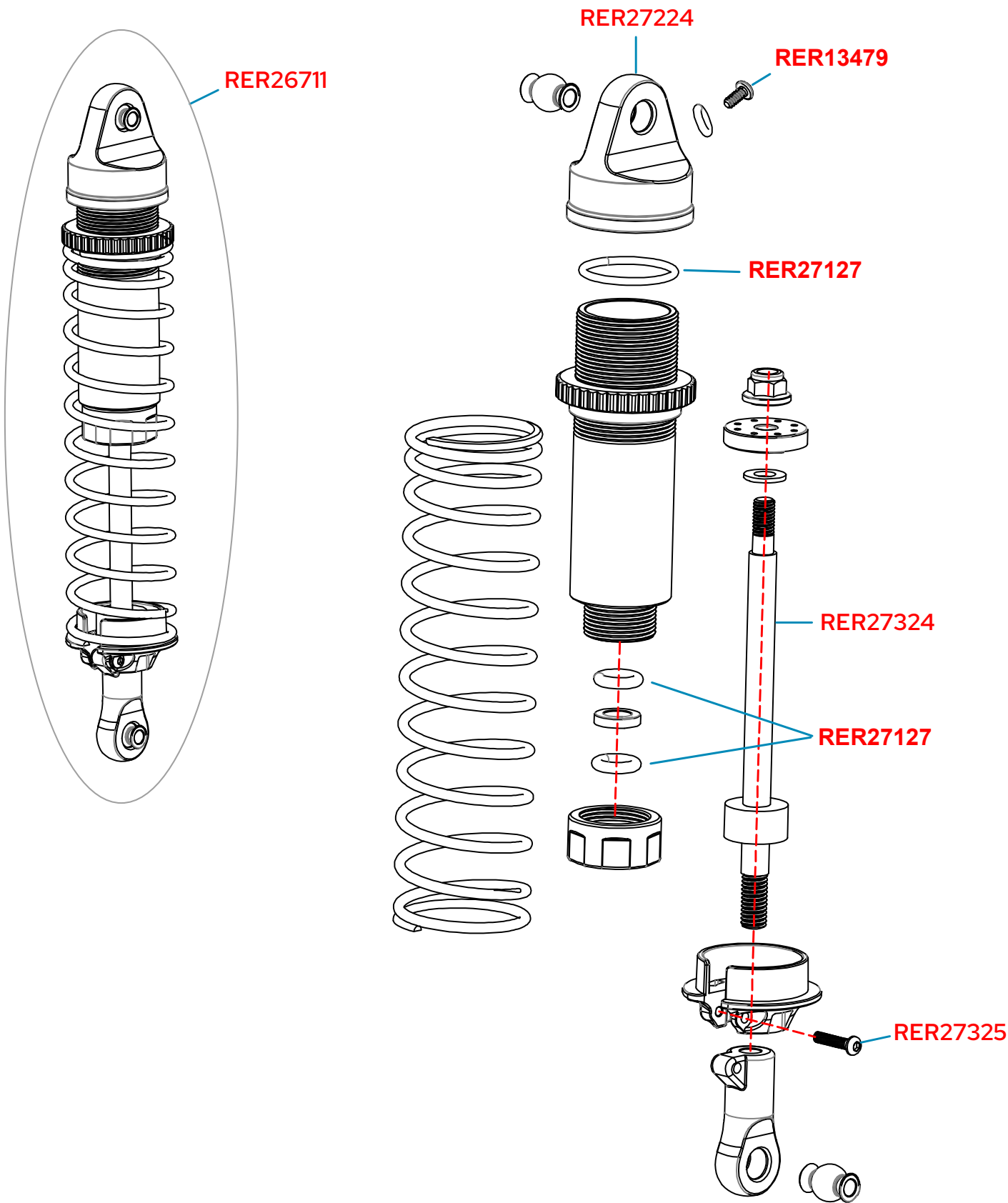


Center Differential Assembly





Shock Assembly

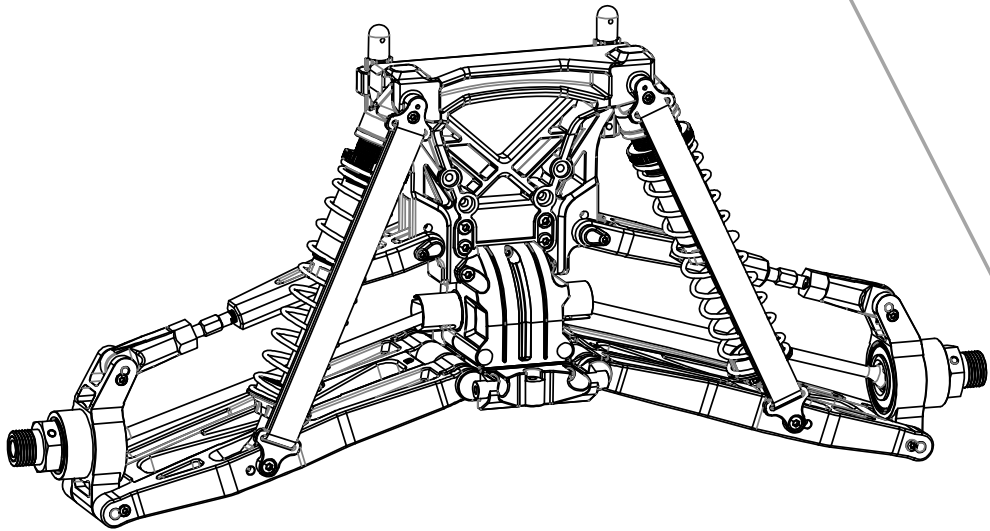
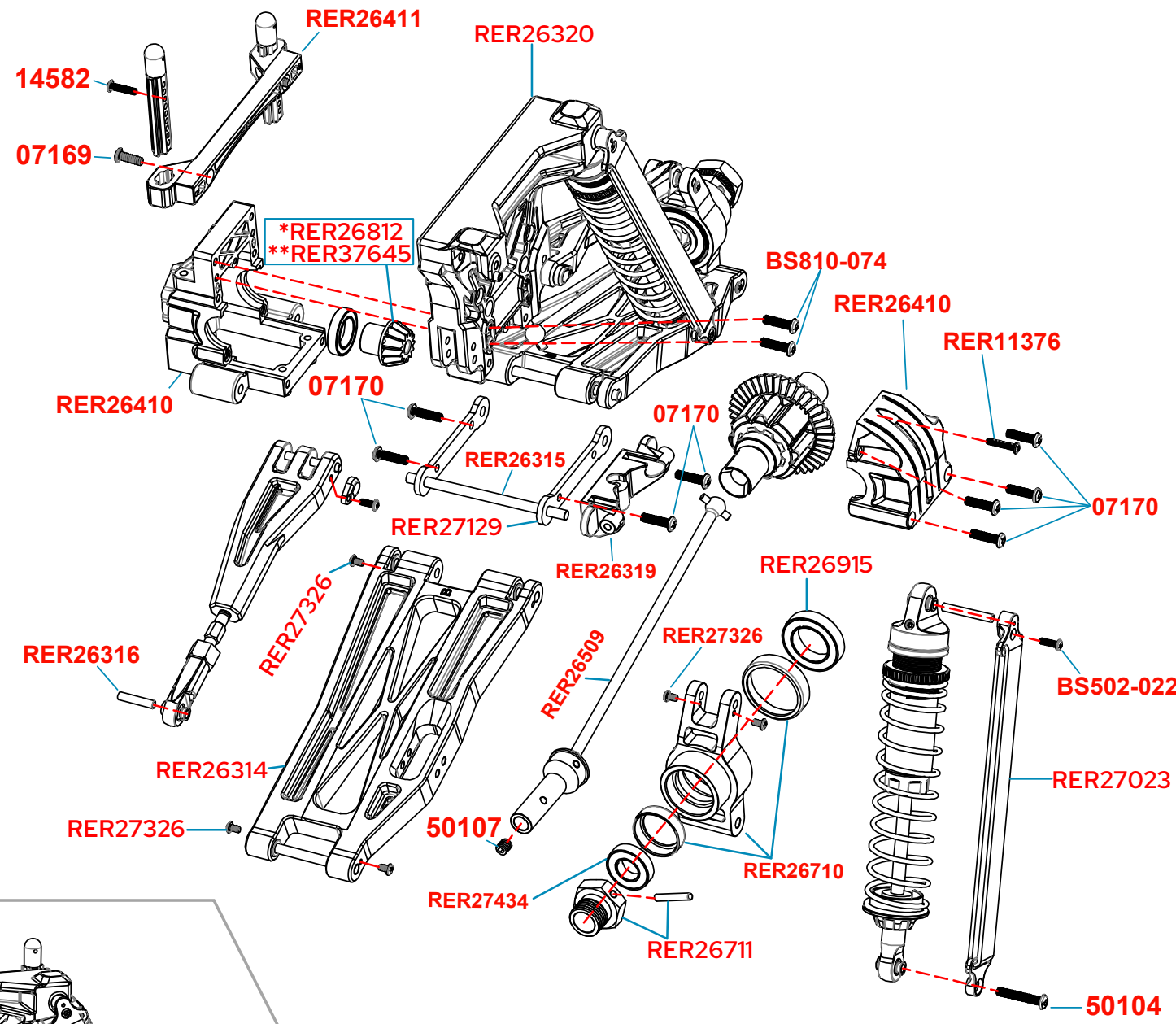


Rear Axle Assembly

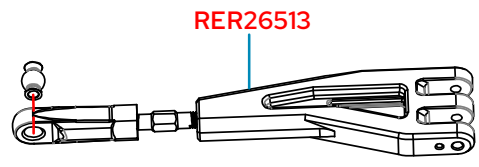
\* Original - Powdered Metal Gears

\*\* Upgraded - CNC Machined Gears

If your Vigilante has a CNC Aluminum Center Differential Case (RER39156); it already has the CNC gears installed and is the latest version of the vehicle.  
See PG. 12



Upper Suspension Arm

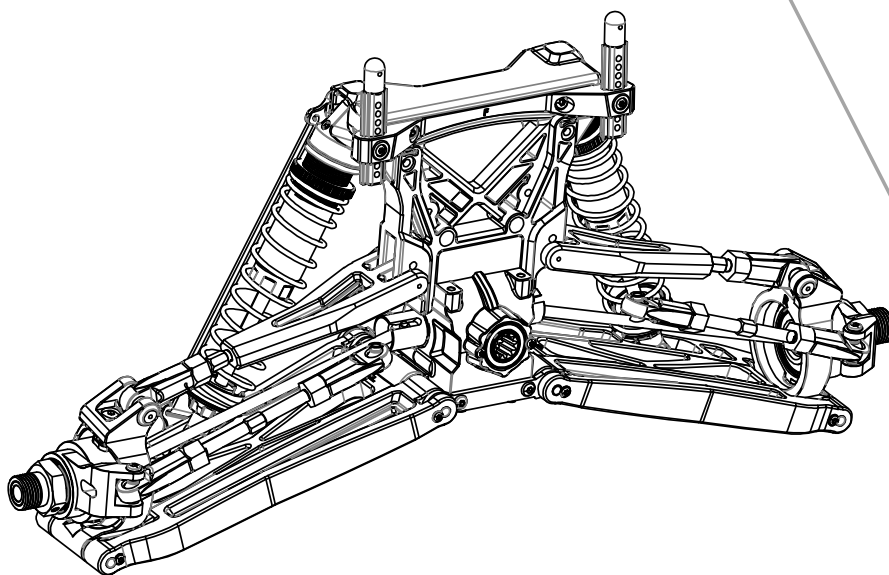
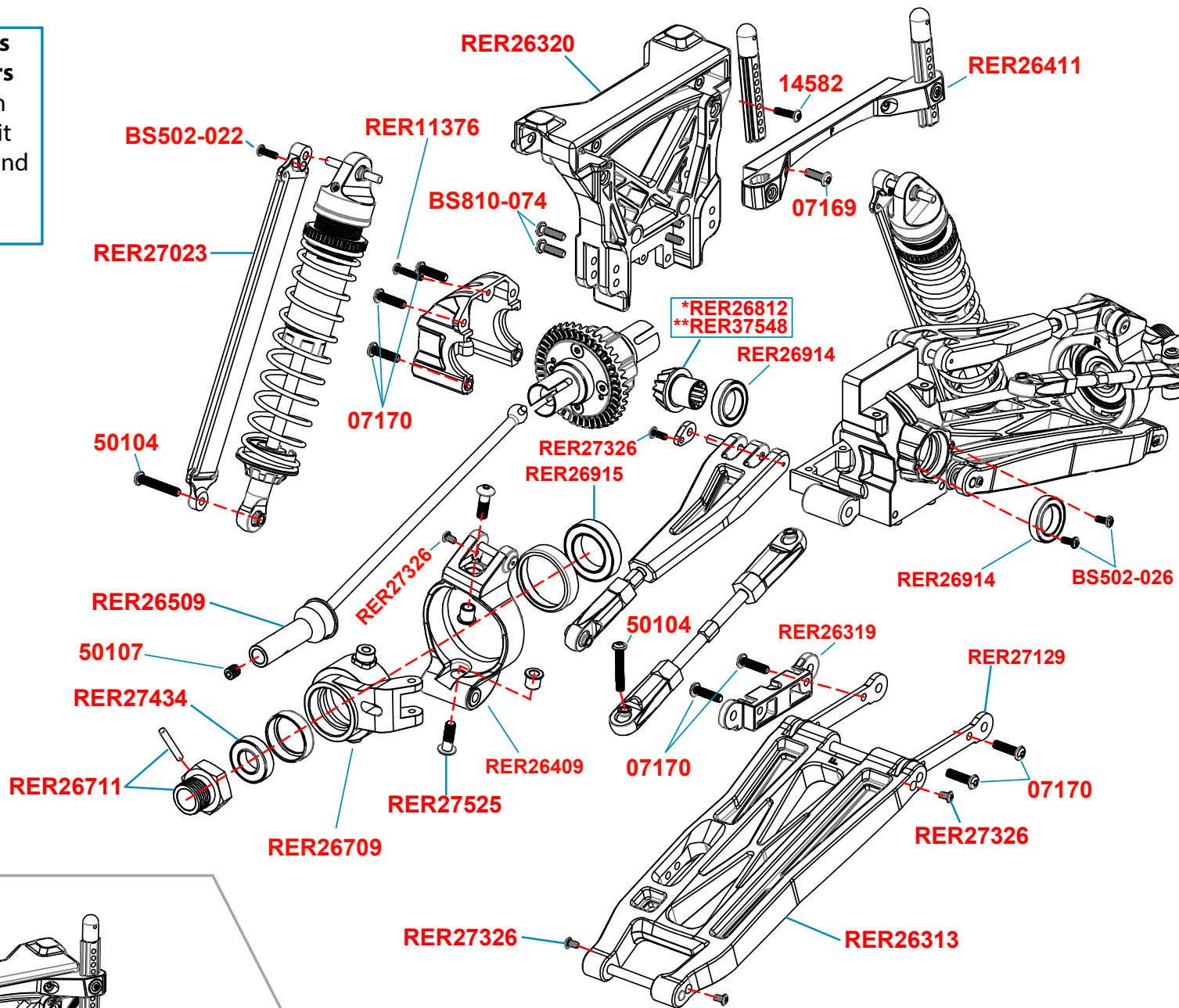


Front Axle Assembly

\* Original - Powdered Metal Gears

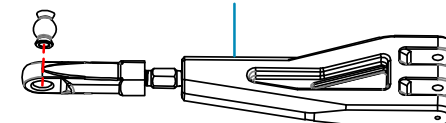
\*\* Upgraded - CNC Machined Gears

If your Vigilante has a CNC Aluminum Center Differential Case (RER39156); it already has the CNC gears installed and is the latest version of the vehicle.  
See PG. 12

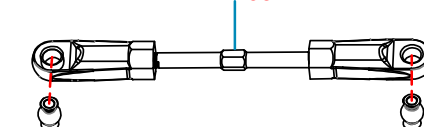


Upper Suspension Arm

RER26512

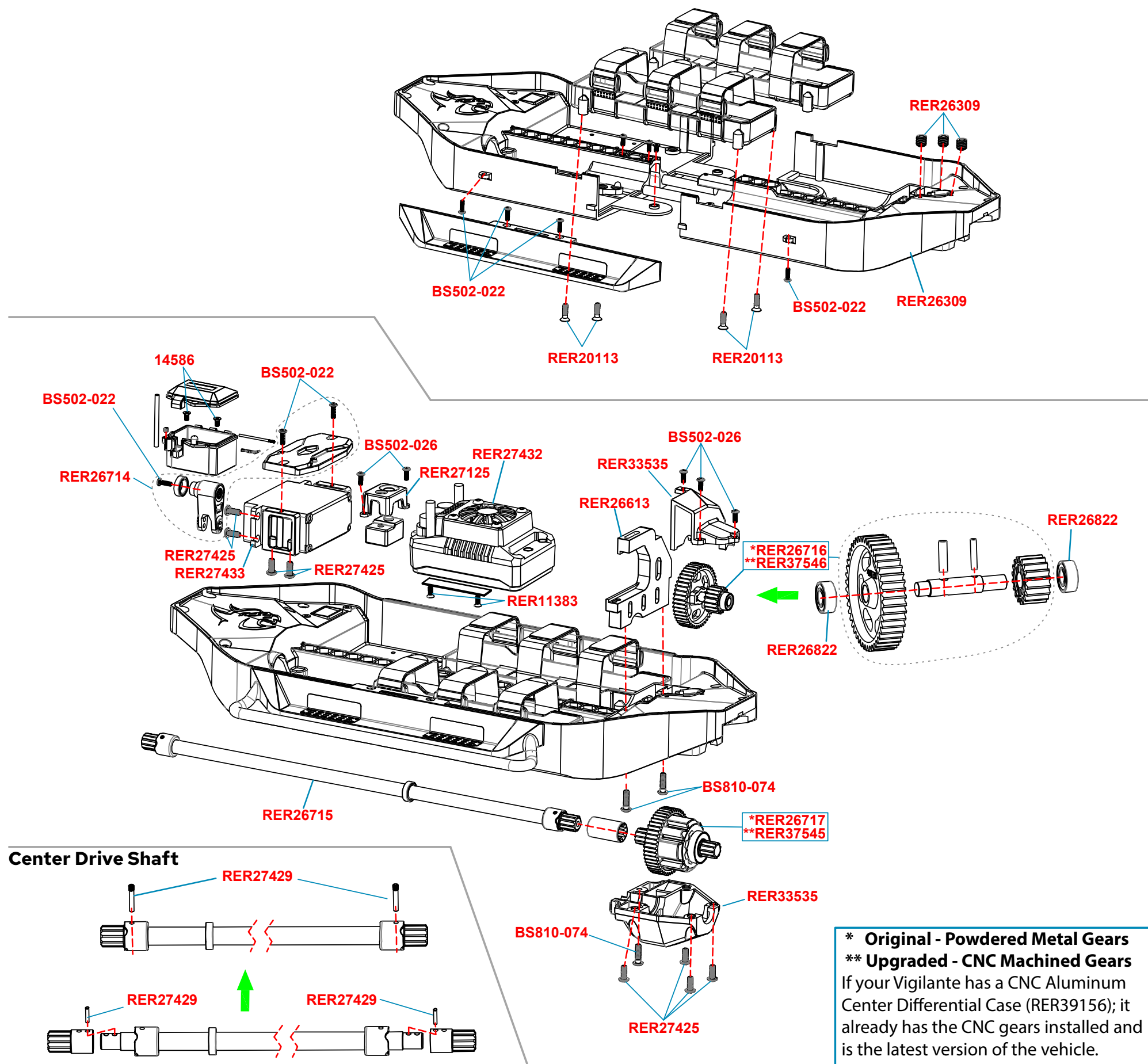


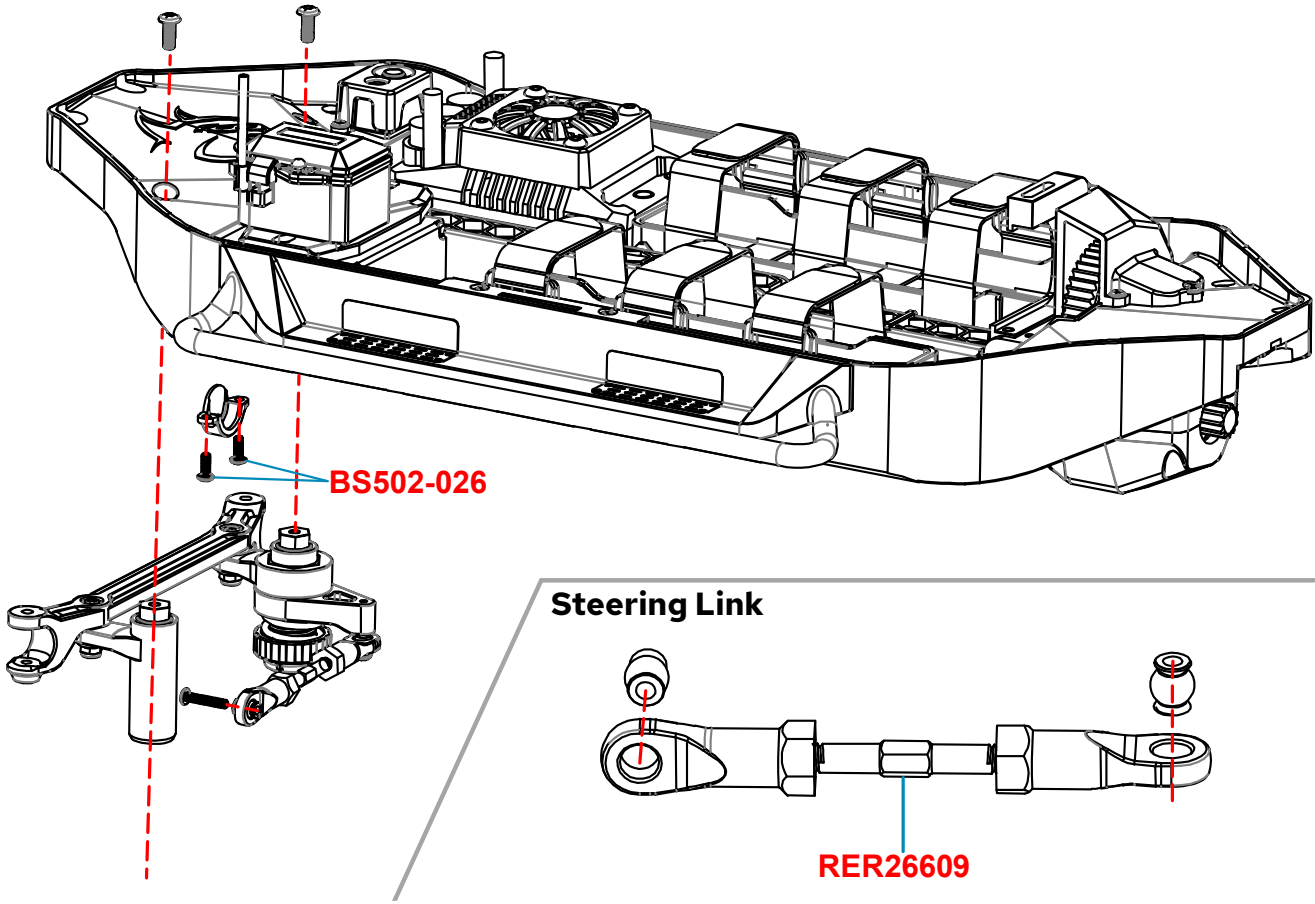
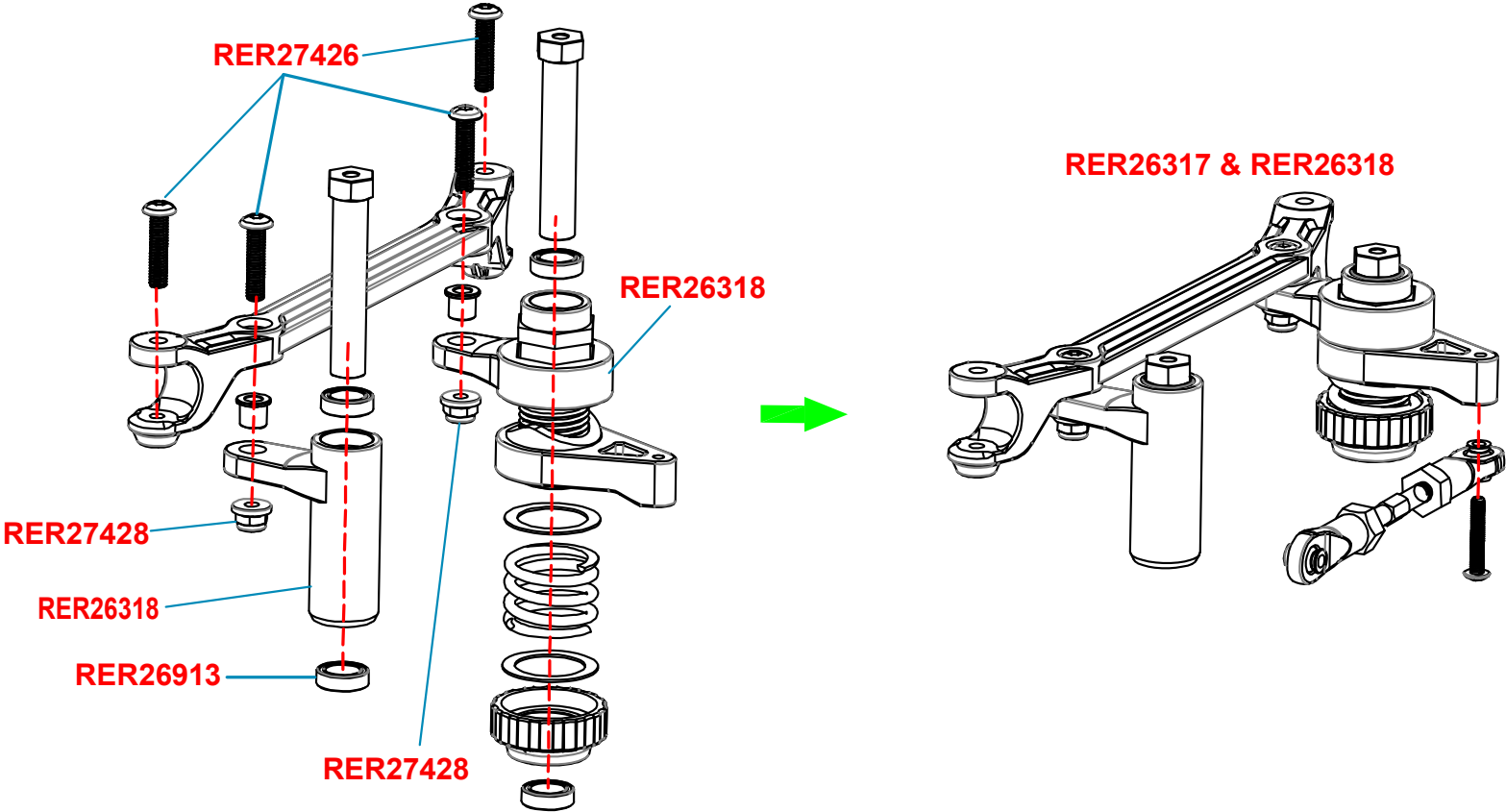
RER26514

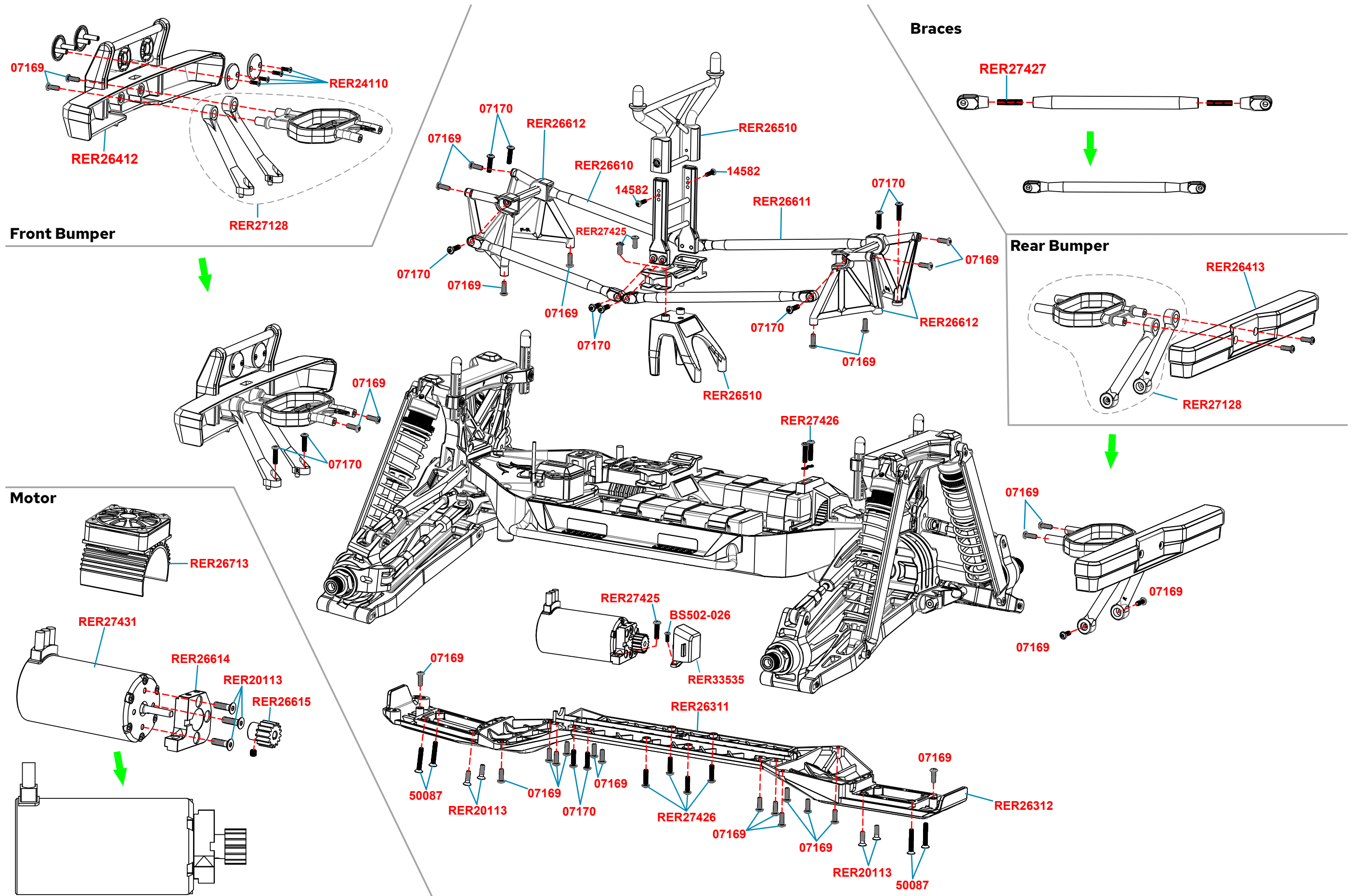


Steering Link

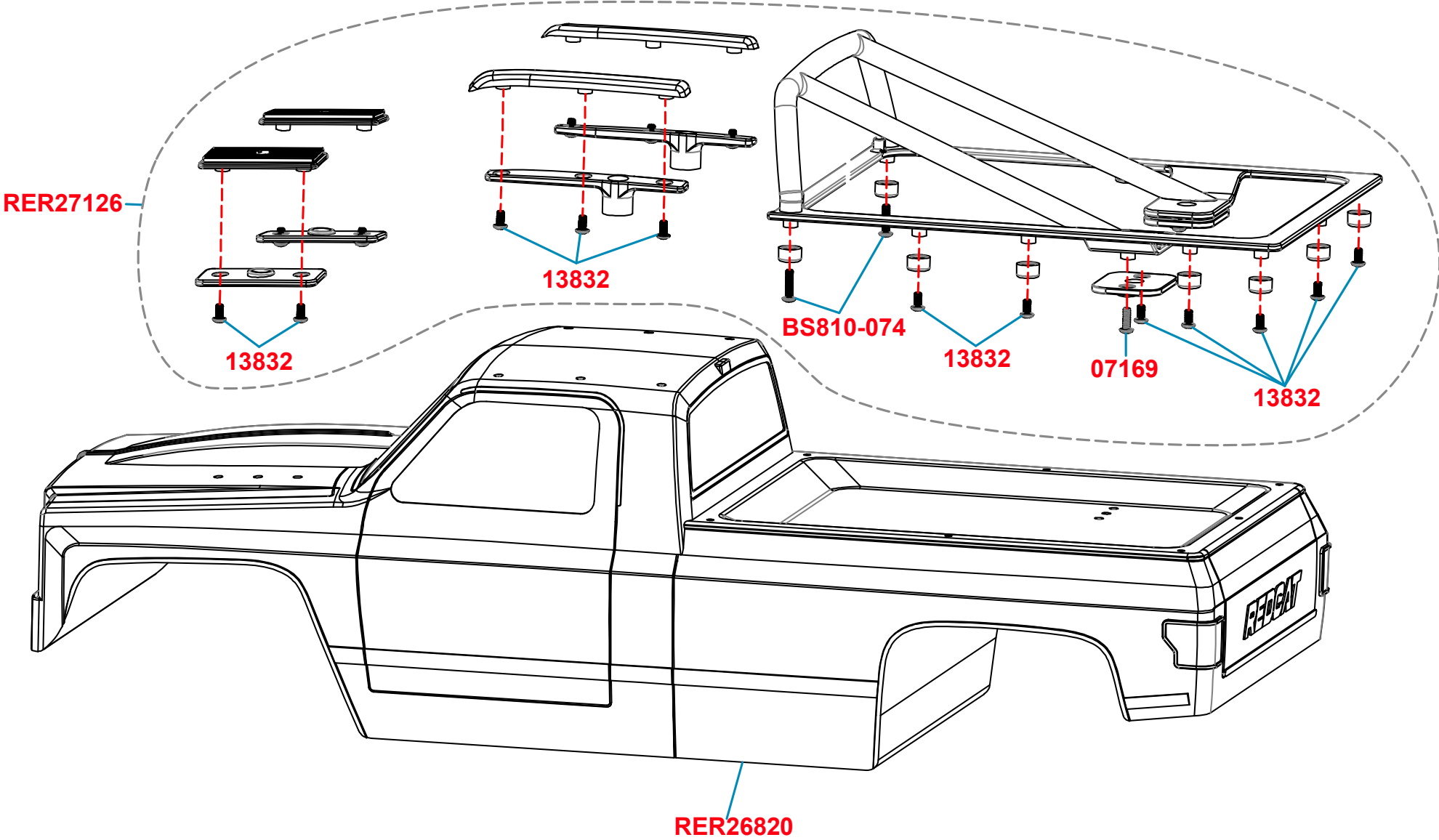


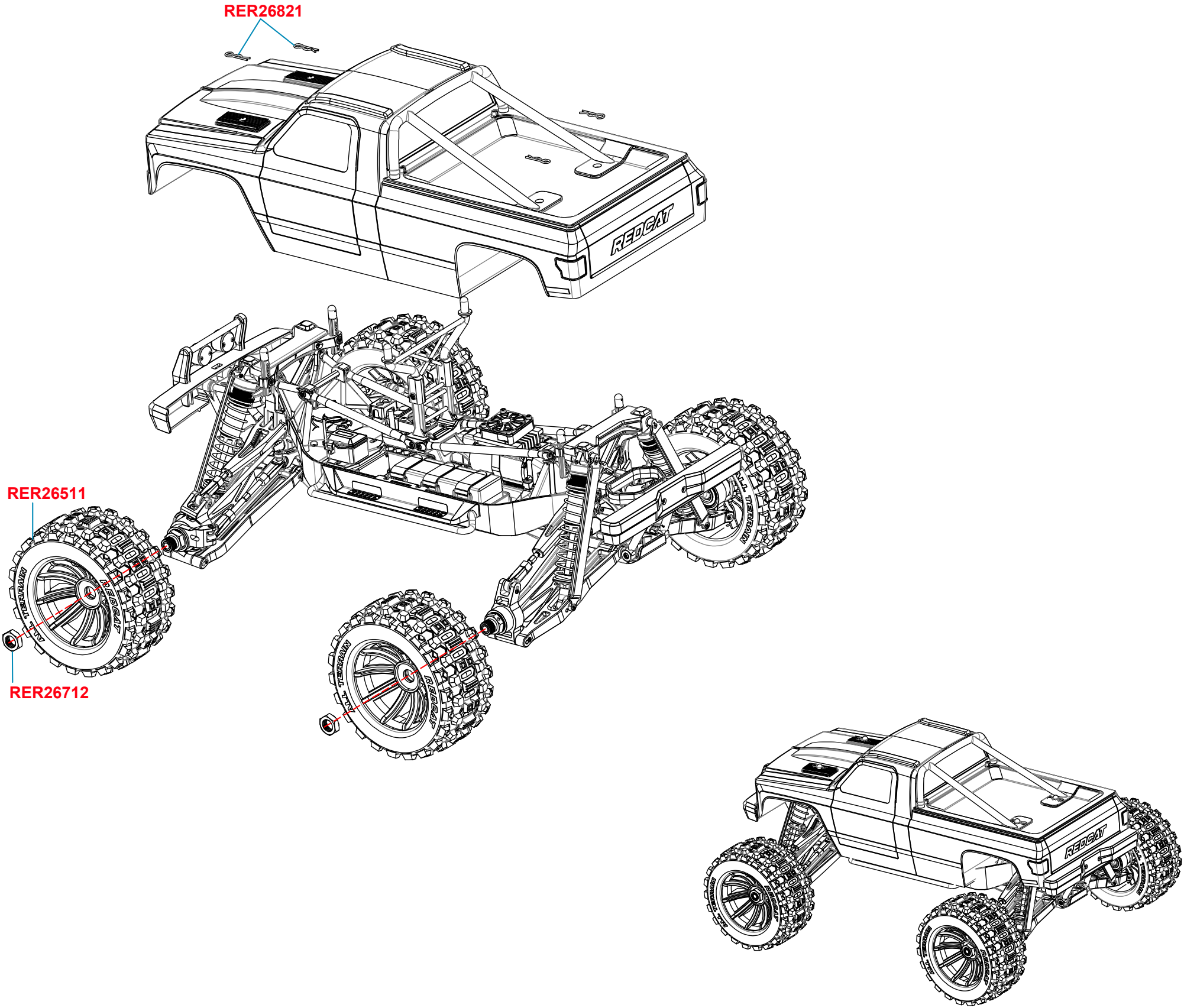












## Vigilante Parts List

### Spare Parts

RER26309	Main Chassis Set (1set)	* RER26716	Gear Set (18T&46T)(1set)
RER26310	Battery Tray and Side Guard Set (1set)	* RER26717	48T Spur Gear (Mod1)(1pc)
RER26311	Lower Skid Plate (Center) (1pc)	* RER26811	Ring Gear (40T)(1pc)
RER26312	Front/Rear Lower Skid Set (1set)	* RER26812	Diff Pinion Gear (13T)(1pc)
RER26313	Front Suspension Arms (Plastic)(2pcs)	** RER37546	Gear Set CNC W/ Shaft (18T&46T)(1set)
RER26314	Rear Suspension Arms (Plastic)(2pcs)	** RER37545	48T CNC Spur Gear (Mod1)(1pc)
RER26315	Lower Suspension Arm Pin Set (4pcs)	** RER37547	CNC Ring Gear (40T)(1pc)
RER26316	Upper Suspension Arm Pin Set (4pcs)	** RER37645	CNC Rear Diff Pinion Gear (13T)(1pc)
RER26317	Steering Rack Set (1set)	** RER37548	CNC Front Diff Pinion Gear (13T)(1pc)
RER26318	Servo Saver Assembly (Plastic)(1set)	** RER39360	Center Diff Rear Output Shaft (For CNC Pinion)(1pc)
RER26319	Suspension Block Cover Set (Plastic)(1set)	RER26813	F/R Differential Outdrives (2pcs)
RER26320	Shock Tower (Plastic)(1pc)	RER26814	Center Diff Output Gears (2pcs)
RER26409	Front Caster Block Set (Plastic)(1set)	RER26815	Diff Spider Gear Set (1set)
RER26410	Front and Rear Gearbox Housings (Plastic)(1set)	** RER39156	Differential Case (CNC Aluminum)(1pc)
RER26411	Body Mount Set w/ Braces (1set)	RER26816	Differential Case Set (1set)
RER26412	Front Bumper Set (Plastic)(1set)	RER26916	Upper Arm Mount (1pc)
RER26413	Rear Bumper Set (Plastic)(1set)	RER27023	Shock Strap Kit (4pcs)
RER26509	CVA Driveshafts (2pcs)	RER27123	Hub Bushings (Plastic)(1set)
RER26510	Support Mount Set (1set)	RER27124	Differential Seal Set (1set)
RER26511	Pre-Mounted MT-5 Tires w/ Wheels (1pr)	RER33535	Center Diff Covers (2pcs)
RER26512	Front Upper Arm Set (2pcs)	RER27125	Switch Cover (1pc)
RER26513	Rear Upper Arm Set (2pc)	RER27126	Body Plastics Set (1set)
RER26514	Turnbuckles (90mm)(2pcs)	RER27127	Shock Rebuild Kit (1set)
RER26609	Turnbuckle (50mm)(1pc)	RER27128	F/R Bumper Mount/Support Kit (1set)
RER26610	Front Chassis Brace (1pc)	RER27129	Suspension Pin Braces (4pcs)
RER26611	Rear Chassis Brace (1pc)	RER27223	Rod End Kit (Plastic)(1set)
RER26612	Support Plate Set (1set)	RER27224	Shock Caps (Plastic)(4pcs)
RER26613	Motor Mount A (1pc)	RER27323	Suspension Bushing Set (1set)
RER26614	Motor Mount B (1pc)	RER27324	Shock Shafts (2pcs)
RER26615	18 Tooth Steel Pinion Gear (Mod1)(1pc)	RER27625	Shock Absorbers (2pcs)
RER26709	L/R Knuckle Set (Aluminum)(1pr)	RER26820	1/5th Body W/ Decals and Accessories (Blue) (1set)
RER26710	Rear Hubs (Aluminum)(1pr)	RER27430	1/5th Body W/ Decals and Accessories (Clear) (1set)
RER26711	Wheel Hex Set (Aluminum)(4pcs)		
RER26713	Motor Heatsink W/ Fan (1set)		
RER26714	Servo Arm Set (1set)		
RER26715	Center Drive Shaft Set (1Set)		

\* Original Powdered Metal Gear Set

\*\* Upgraded CNC Machined Gear Set (See pg.21)



## Vigilante Parts List

### Hardware

RER26821	1/5th Body Clips (10pcs)
RER26712	24mm Wheel Nuts (Aluminum)(4pcs)
RER27225	24mm Wheel Wrench (1pc)
RER27325	2.5x12mm Button Head Machine Thread Screws (12pcs)
RER27326	3x5mm Button Head Machine Thread Screws (12pcs)
RER27425	4x10mm Button Head Machine Screws (12pcs)
RER27426	4x18mm Button Head Machine Thread Screws (12pcs)
RER27427	4x20mm Set Screw Machine Thread (8pcs)
RER27428	4mm Flange Lock Nuts (12pcs)
RER27429	3x16mm Screw Pin Machine Thread (4pcs)
RER27525	5x16mm Button Head Machine Thread Screws (12pcs)
BS502-026	3x8mm Button Head Hex Machined Thread Screws (12pcs)
07170	4x16mm Cap Head Hex Machine Thread Screws (8pcs)
07169	4x12mm Button Head Hex Machine Thread Screws (8pcs)
14582	3x14mm Button Head Hex Machine Thread Screws (10pcs)
50104	4x25mm Button Head Hex Machine Thread Screws (4pcs)
BS810-074	4x14mm Button Head Hex Machine Thread Screws (12pcs)
RER11376	3x16mm Button Head Hex Machine Thread Screws (10pcs)
50107	6x6mm Set Screws (8pcs)
BS502-022	3x10mm Button Head Hex Machine Thread Screws (12pcs)
RER13479	2.5x6mm Button Head Hex Machine Thread Screws (12pcs)
13832	4x8mm Button Head Hex Machine Thread Screws (4pcs)
13832	4x8mm Button Head Hex Machine Thread Screws (4pcs)
RER20113	4x14mm Countersunk Hex Machine Thread Screws (12pcs)
14586	3x6mm Button Head Hex Machine Thread Screws (8pcs)
RER11383	3x8mm Countersunk Hex Machine Thread Screws (10pcs)

### Ball Bearings

RER26822	6x13x5MM Ball Bearings (5pcs)
RER26913	8x12x3.5MM Ball Bearings (5pcs)
RER26914	15x24x5MM Ball Bearings (5pcs)
RER26915	20x32x7MM Ball Bearings (5pcs)
RER27434	12x24x6mm Ball Bearings (8pcs)

### Electronics

RER27431	1200KV Brushless Motor (1pc)
RER27432	160 Amp ESC w/ XT90 Connector (1pc)
RER27433	1/5th Scale Servo (70KG)(1pc)



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