

MODEL: DUKONO / DUKONO PRO



MAN-DUKONO-DUKONO PRO-2018.8.02

- To ensure that you are using the most recent version of this manual:  
[www.redcatracing.com/manuals/DUKONO-DUKONOPRO\\_MANUAL.pdf](http://www.redcatracing.com/manuals/DUKONO-DUKONOPRO_MANUAL.pdf)
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FAST AFFORDABLE FUN™

# WARNINGS

READ ALL INSTRUCTIONS INCLUDED WITH VEHICLE BEFORE OPERATING



### AGE WARNING!

This radio controlled (RC) vehicle is not a toy! You must be 14 years of age or older to operate this vehicle. Adult supervision is required.



### RISK OF RUNAWAY VEHICLE OR INJURY!

Never turn on the vehicle or plug in the battery pack without first having the controller turned on.



### RISK OF FIRE! / RISK OF EXPLOSION!

There is a risk of fire and explosion when dealing with batteries. Rechargeable batteries may become hot and catch fire if left unattended or charged too quickly. Use extra caution when charging LiPO batteries. Use only LiPO specific chargers with LiPO batteries. Use a LiPO safe charging pouch when charging LiPOs. Charge away from flammable materials. Never charge at a rate higher than 1C. {2000Mah pack= 2amps charge rate). Overcharging can lead to fire and explosion. Always store battery packs in a cool dry place.



### RISK OF BURNS!

The batteries, electronic speed controller (ESC), electric motor, and other areas of the vehicle can get hot. Burns can occur if touched after vehicle operation. Allow adequate time to cool before handling.



### RISK OF ELECTRICAL SHOCK!

Use caution when charging batteries. Do not touch positive and negative leads together. Do not lay battery on metal. Use only chargers specified for the battery type being charged. Keep batteries and chargers away from water.



### RISK OF INJURY!

Hobby grade RC vehicles can cause serious injury or death if not operated correctly. Never use vehicle in crowds. Never chase people or animals. Drive in safe open areas only. Keep body parts away from moving parts.



### RISK OF DAMAGE!

Never operate RC vehicles on public roads. Damage of vehicle and property can occur. Only operate on open private property. Never charge the battery pack while it is still plugged into the RC vehicle. Always unplug the battery pack from the electronic speed controller (ESC) and remove the battery from the RC vehicle before charging. Failure to do so will result in damage to the vehicle's electronics.



### WARNING!

Do not mix old and new batteries. Do not mix alkaline, lithium, standard (carbon zinc), or rechargeable (nickel cadmium) batteries. Do not change or charge batteries in a hazardous location.



# WARNINGS

## ENGLISH

WARNING: DO NOT MIX OLD AND NEW BATTERIES. DO NOT MIX ALKALINE, LITHIUM, STANDARD (CARBON ZINC), OR RECHARGEABLE (NICKEL CADMIUM) BATTERIES.

WARNING: THIS REMOTE-CONTROL VEHICLE IS NOT A TOY. THIS REDCAT RACING PRODUCT IS A HIGH-PERFORMANCE VEHICLE THAT FOR SAFETY REASONS SHOULD NOT BE RUN ON PUBLIC STREETS, IN CROWDED AREAS, ENVIRONMENTALLY SENSITIVE AREAS, OR NEAR CHILDREN OR ANIMALS. THIS VEHICLE CONTAINS MOVING PARTS AND PARTS THAT CAN BECOME HOT TO THE TOUCH DURING NORMAL OPERATIONS. PLEASE READ THE MANUAL AND ALL WARNINGS CAREFULLY TO AVOID ANY DAMAGE OR INJURIES THAT MIGHT OCCUR. FOLLOW ALL PRODUCT WARNINGS. THIS PRODUCT MAY REQUIRE SOME ASSEMBLY AND ROUTINE MAINTENANCE IS NECESSARY. VISIT REDCATRACING.COM FOR HELPFUL VIDEOS ON PREPARING AND RUNNING YOUR R/C CAR. PLEASE GO TO REDCATRACING.COM TO VIEW THE LIMITED WARRANTY INFORMATION. CRASH DAMAGE IS NOT COVERED UNDER WARRANTY.

WARNING: THIS PRODUCT CONTAINS CHEMICALS WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM. NOT FOR CHILDREN UNDER 14 YEARS OF AGE WITHOUT ADULT SUPERVISION. CONTAINS SMALL PARTS. KEEP OUT OF REACH OF SMALL CHILDREN.

MADE IN CHINA

## GERMAN

WARNUNG: ALTE UND NEUE BATTERIEN NICHT MISCHEN. MISCHEN SIE KEINE ALKALI-, LITHIUM-, STANDARD-(KOHLENSTOFF-ZINK) ODER WIEDERAUFLADBAREN (NICKEL-CADMIUM) BATTERIEN.

WARNUNG: DIESES FERNGESTEUERTE FAHRZEUG IST KEIN SPIELZEUG. DIESES REDCAT RACING PRODUKT IST EIN HOCHLEISTUNGSFAHRZEUG, DAS AUS SICHERHEITSGRÜNDEN NICHT AUF ÖFFENTLICHEN STRAßEN, IN ÜBERFÜLLTEN GEBIETEN, IN ÖKOLOGISCH SENSIBLEN BEREICHEN ODER IN DER NÄHE VON KINDERN ODER TIEREN EINGESETZT WERDEN SOLLTE. DIESES FAHRZEUG ENTHÄLT BEWEGLICHE TEILE UND TEILE, DIE SICH WÄHREND DES NORMALEN BETRIEBS ERHITZEN KÖNNEN. BITTE LESEN SIE DAS HANDBUCH UND ALLE WARNHINWEISE SORGFÄLTIG DURCH, UM SCHÄDEN ODER VERLETZUNGEN ZU VERMEIDEN. ALLE PRODUKTWARNUNGEN BEACHTEN. DIESES PRODUKT KANN EINIGE MONTAGE- UND WARTUNGSARBEITEN ERFORDERN. BESUCHEN SIE REDCATRACING.COM FÜR HILFREICHE VIDEOS ÜBER DIE VORBEREITUNG UND DEN BETRIEB IHRES RC-AUTOS. BITTE GEHEN SIE ZU REDCATRACING.COM, UM DIE INFORMATIONEN ZUR EINGESCHRÄNKTEN GARANTIE EINZUSEHEN. UNFALLSCHÄDEN SIND VON DER GARANTIE AUSGESCHLOSSEN.

WARNUNG: DIESES PRODUKT ENTHÄLT CHEMIKALIEN, DIE DEM STAAT KALIFORNIEN BEKANNT SIND, UM KREBS, GEBURTSFEHLER ODER ANDERE REPRODUKTIVE SCHÄDEN ZU VERURSACHEN. BENUTZUNG NICHT FÜR KINDER UNTER 14 JAHREN OHNE AUFSICHT EINES ERWACHSENEN. ENTHÄLT KLEINTEILE. AUßERHALB DER REICHWEITE VON KLEINEN KINDERN AUFBEWAHREN.

HERGESTELLT IN CHINA

## SPANISH

ADVERTENCIA: NO REVOLVER BATERIAS VIEJAS CON NUEVAS. NO REVUELVA ALCALINAS, LITIO, ESTANDARS (CARBONO DE ZINC), O BATERIAS RECARGABLES (NIQUEL CADMIO).

ADVERTENCIA: ESTE VEHICULO CONTROL REMOTO NO ES UN JUGETE. ESTE PRODUCTO REDCAT RACING ES UN VEHICULO DE ALTO RENDIMIENTO Y POR RAZONES DE SEGURIDAD NO DEVERIA SER CORRIDO EN CALLES PUBLICAS, EN ZONAS CON MUCHEDUMBRE, AREAS AMBIENTALMENTE SENSIBLES, O CERCA DE NIÑOS O ANIMALES. ESTE VEHICULO CONTIENE PARTES QUE TIENEN MOVIMIENTO Y PARTES QUE SE CALIENTAN DURANTE SU USO NORMAL. POR FAVOR LEA EL MANUAL Y TODAS SUS ADVERTENCIAS CUIDADOSAMENTE PARA EVITAR CUALQUIER DAÑO O LESION QUE PUEDA OCURRIR. SIGA TODAS LAS ADVERTENCIAS DEL PRODUCTO. ESTE PRODUCTO PUEDE REQUERIR ALGUN ENSAMBLE Y ES NECESARIO EL MANTENIMIENTO DE RUTINA. VISITA REDCATRACING.COM POR VIDEOS DE AYUDA EN PREPARACION Y COMO CORRER TU R/C CAR. POR FAVOR VE A REDCATRACING.COM PARA VER LA INFORMACION DE LOS LIMITES DE GARANTIA. DAÑOS POR CHOQUE NO SON CUBIERTOS POR LA GARANTIA.

ADVERTENCIA: DEACUERDO AL ESTADO DE CALIFORNIA ESTE PRODUCTO CONTIENE QUIMICOS QUE SON CONOCIDOS POR CAUSAR CANCER, DEFECTOS DE NACIMIENTO, O OTROS DAÑOS REPRODUCTIVOS. NO PARA NIÑOS MENORES DE 14 AÑOS DE EDAD SIN LA SUPERVISION DE UN ADULTO. CONTIENE PARTES PEQUEÑAS, MANTENLO FUERA DEL ALCANCE DE LOS NIÑOS PEQUEÑOS.

HECHO EN CHINA

## FRENCH

AVERTISSEMENT : NE PAS MÉLANGER D'ANCIENNES ET DE NOUVELLES PILES. NE PAS MÉLANGER DES PILES ALCALINES, AU LITHIUM, STANDARD (CARBONE-ZINC) OU RECHARGEABLES (NICKEL-CADMIUM).

AVERTISSEMENT : CE VÉHICULE TÉLÉCOMMANDÉ N'EST PAS UN JOUET. CE PRODUIT REDCAT RACING EST UN VÉHICULE DE HAUTE PERFORMANCE QUI, POUR DES RAISONS DE SÉCURITÉ, NE DOIT PAS ÊTRE UTILISÉ SUR LA VOIE PUBLIQUE, DANS DES ENDROITS BONDÉS, DANS DES ZONES ÉCOLOGIQUEMENT SENSIBLES OU À PROXIMITÉ D'ENFANTS OU D'ANIMAUX. CE VÉHICULE CONTIENT DES PIÈCES MOBILES ET DES PIÈCES QUI PEUVENT DEVENIR CHAUDES AU TOUCHER PENDANT LES OPÉRATIONS NORMALES. VEUILLEZ LIRE ATTENTIVEMENT LE MANUEL ET TOUS LES AVERTISSEMENTS AFIN D'ÉVITER TOUT ACCIDENT OU BLESSURE QUI POURRAIT S'EN SUIVRE. SUIVRE TOUTES LES MISES EN GARDE SUR LES PRODUITS. CE PRODUIT PEUT NÉCESSITER UN CERTAIN ASSEMBLAGE ET UN ENTRETIEN DE ROUTINE SI NÉCESSAIRE. VISITEZ REDCATRACING.COM POUR VISIONNER DES VIDÉOS UTILES SUR LA PRÉPARATION ET L'UTILISATION DE VOTRE VOITURE DE LOCATION. VEUILLEZ VOUS RENDRE SUR REDCATRACING.COM POUR CONSULTER LES INFORMATIONS SUR LA GARANTIE LIMITÉE. LES DOMMAGES DUS À UN ACCIDENT NE SONT PAS COUVERTS PAR LA GARANTIE.

AVERTISSEMENT : CE PRODUIT CONTIENT DES PRODUITS CHIMIQUES QUI SONT CONNUS DE L'ÉTAT DE CALIFORNIE COMME CAUSANT LE CANCER, DES MALFORMATIONS CONGÉNITALES OU D'AUTRES PROBLÈMES DE REPRODUCTION. PAS POUR LES ENFANTS DE MOINS DE 14 ANS SANS LA SURVEILLANCE D'UN ADULTE. CONTIENT DE PETITES PIÈCES. GARDER HORS DE PORTÉE DES JEUNES ENFANTS.

FABRIQUÉ EN CHINE



# FEATURES & SPECIFICATIONS

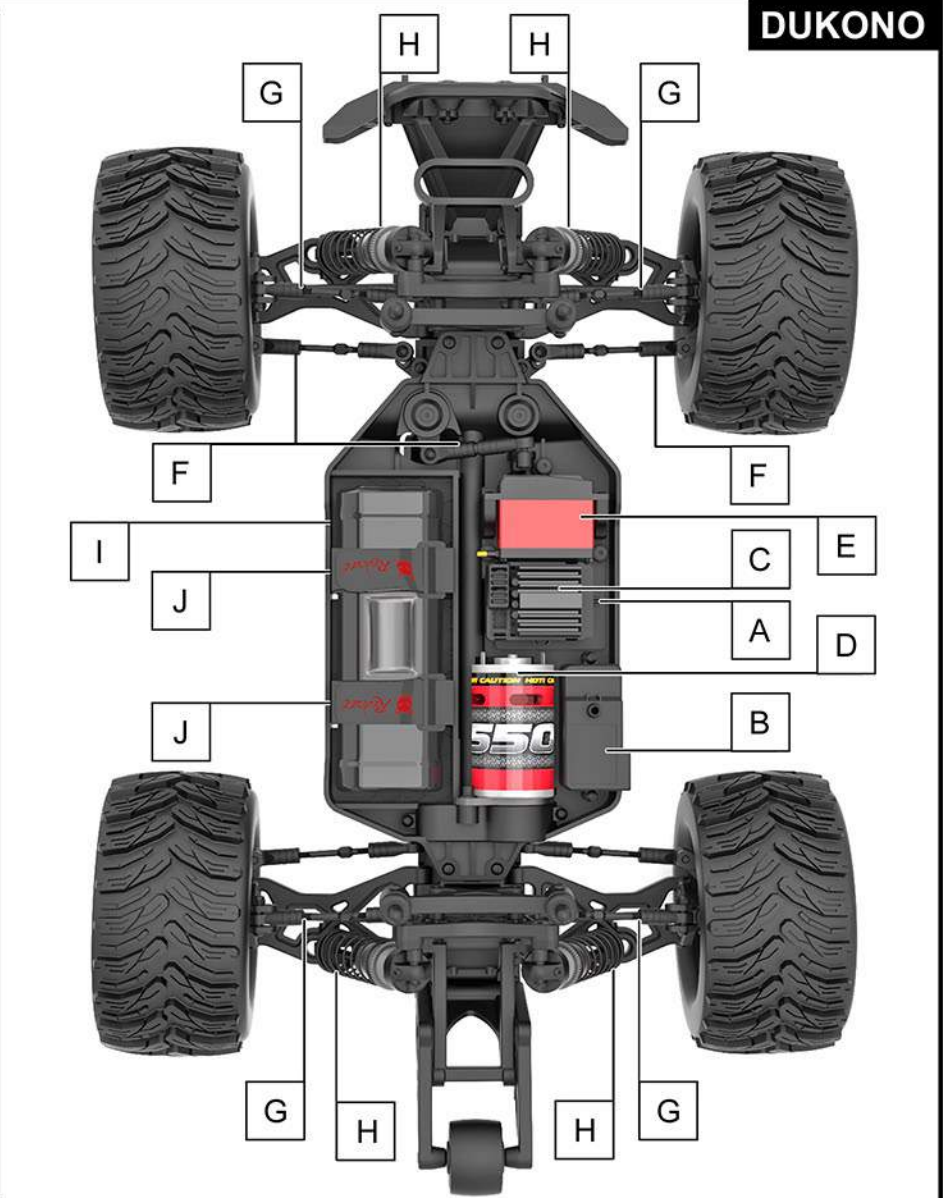
- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Scale: 1:10</li> <li>Length: 465mm</li> <li>Width: 325mm</li> <li>Height: 205mm</li> <li>Wheelbase: 275mm</li> <li>Wheel Track: 255mm</li> <li>Wheel Diameter: 130mm</li> <li>Wheel Width: 66mm</li> </ul> | <ul style="list-style-type: none"> <li>Clearance: 50mm</li> <li>Weight: 2650g</li> <li>Gear Ratio: 11.00:1</li> <li>Motor: 19T Brushed (Rc550)</li> <li>ESC: Waterproof Brushed (40A)</li> <li>Servo: 6kg</li> <li>8.4V 3000mAh NiMH Battery</li> <li>NiMH Charger</li> </ul> |
|---|---|

DUKONO

Maximum NIMH Battery: 8.4v (7cell)  
 Maximum LIPO Battery: 7.4v 2S LIPO  
**Warning: Exceeding the maximum battery voltage may cause damage to the motor and electronic components of this vehicle and will void the vehicle warranty.**

# VEHICLE OVERVIEW

- A:** On/Off Switch
- B:** 2.4GHz Receiver
- C:** ESC
- D:** Electric Motor
- E:** Steering Servo
- F:** Steering Linkage
- G:** Upper Suspension Link
- H:** Oil Filled Shocks
- I:** Battery
- J:** Battery Straps



DUKONO

# FEATURES & SPECIFICATIONS

- Scale: 1:10
- Length: 465mm
- Width: 325mm
- Height: 205mm
- Wheelbase: 275mm
- Wheel Track: 255mm
- Wheel Diameter: 130mm
- Wheel Width: 66mm

- Clearance: 50mm
- Weight: 2275g
- Gear Ratio: 9.85:1
- Motor: RC540 Brushless (3300Kv)
- ESC: Waterproof Brushless (60A)
- Servo: 15kg
- Battery & Charger Not Included

**DUKONO PRO**

Maximum NIMH Battery: 8.4v (7cell)  
 Maximum LIPO Battery: 7.4v 2S LIPO

**Warning:** Exceeding the maximum battery voltage may cause damage to the motor and electronic components of this vehicle and will void the vehicle warranty.

# VEHICLE OVERVIEW

**DUKONO PRO**

**A:** On/Off Switch

**B:** 2.4GHz Receiver

**C:** ESC

**D:** Electric Motor

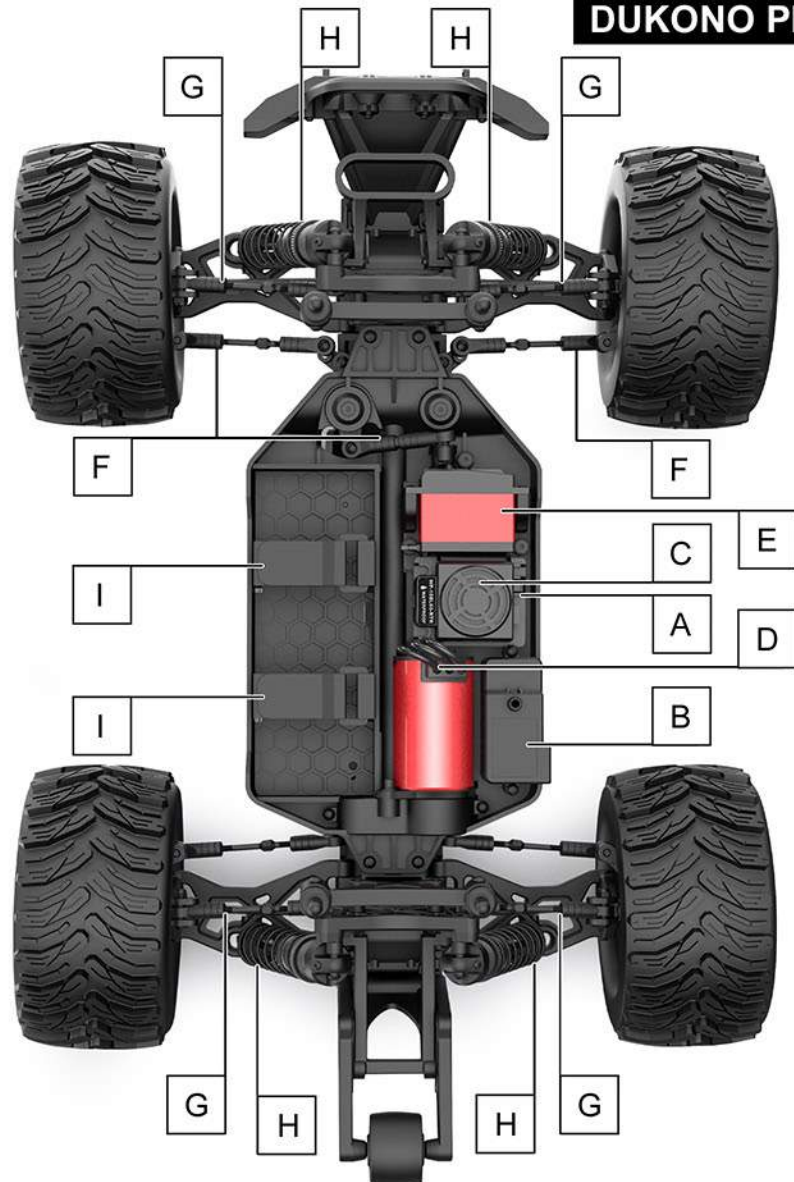
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**F:** Steering Linkage

**G:** Upper Suspension Link

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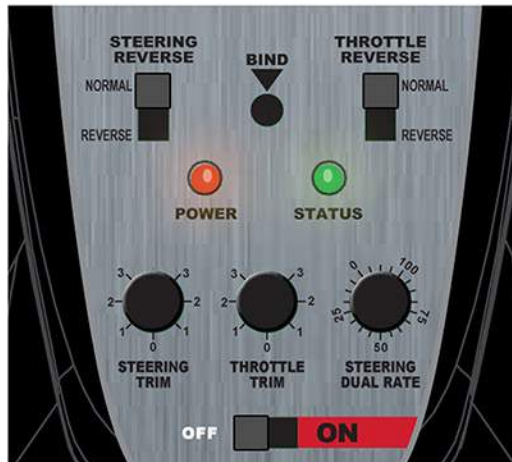
**I:** Battery Straps





# RADIO GUIDE

CONTROL PANEL



**RCR-2CENR**  
2.4 GHZ RADIO

## RADIO:

**Steering Reverse Switch:** Top left switch. Used to change steering orientation. If the car turns right when you steer left, flip this switch.

**Throttle Reverse Switch:** Top right switch. Used to change throttle trigger orientation. If the car goes in reverse while you pull the throttle trigger, flip this switch.

**Power LED:** Left LED light. Lights up when the transmitter is turned on.

**Status LED:** Right LED light. Lights up green when transmitter batteries are full. Flashes when transmitter batteries are low and need replacing.

**Bind Button:** Used to bind the transmitter to the receiver. See binding instructions.

**Steering Trim:** Left knob. Used to set the steering neutral point. If the vehicle veers in one direction while the steering wheel is centered, turn this knob in the opposite direction until the car drives straight.

**Throttle Trim:** Middle knob. Used to set the throttle neutral point. If the vehicle moves forward or reverse while the throttle trigger is centered, turn this knob until the vehicle remains still. For maximum setting, turn slowly until the vehicle creeps forward, then turn the knob the opposite direction until the car stops.

**Steering Dual Rate:** Right knob. Used to limit the amount of steering. 0= little/no steering & 100= maximum steering. Set the knob to the amount of steering you feel comfortable with. If the vehicle has a tendency to spin out, lower the steering rate.

**On/Off Switch:** Bottom switch. Turns transmitter On and Off.

## RECEIVER:

**BIND/VCC:** Used when binding to transmitter.

**Ch3:** Used for 3rd channel when needed.

**Ch2:** Used for electronic speed controller (ESC).

**Ch1:** Used for steering servo.

**Failsafe Button:** See next page.

## BINDING:

1. Insert the BIND PLUG into the receiver BIND port.
2. Make sure your ESC is plugged into CH2, and insert the bind plug into BIND/VCC. Now, power the vehicle on and the receiver light should begin to blink red.
3. Press the BIND button in the center of the transmitter's Control Panel and turn on radio.
4. Release the bind button when you see the green light on the radio flashing. At this point, your receiver's LED should now be solid red. Turn off the power to your vehicle, as well as the radio.
5. Remove the BIND PLUG from the receiver. Make sure the servos and ESC are attached as described above.
6. First turn your radio on, then your vehicle as normal. Your radio and receiver should be bound together and communicating with each other.



# RADIO GUIDE

## USING THE BUILT IN FAILSAFE

### 1. Function:

The failsafe helps to prevent out-of-control RC vehicles if the transmitter signal is lost. If the receiver is unable to receive a transmitter signal, the position of the throttle channel, on the receiver, will return to its preset failsafe position.

### 2. Setting the Failsafe:

- a. Turn on the transmitter.
- b. Turn on the receiver. The LED [N] will light up.
- c. On the transmitter, Apply full brakes and hold.
- d. Press the setting button [O] on receiver. The LED will blink, then stop after 3 seconds. This means the failsafe has completed setup.

### 3. Testing the Failsafe:

- a. Turn on the transmitter.
- b. Turn on the receiver.
- c. Turn off the transmitter.
- d. The throttle will return to its full brake setting automatically.
- e. The failsafe setup is complete if the above procedures were successful.

**WARNING:** Low or no voltage will not allow the failsafe to engage.

## SAFETY CERTIFICATES

**FCC Compliance Statement!** The radio included with your vehicle 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 operations. Note: 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 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.

**WARNING:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**WARNING:** While operating the Radio, a separation distance of at least 20 centimeters must be maintained between the radiating antenna and the body of the user or nearby persons in order to meet the FCC RF exposure guidelines.

**IC ID: 24025** (please note that there maybe additional alpha numeric codes added to this number)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operations of this device.

# ELECTRONIC SPEED CONTROLLER

## WARNINGS:

To avoid short circuits, ensure that all wires & connections are well insulated and there is good contact at all connections. Read through the entire manual before operating and ensure all electronics are installed correctly. To avoid accidents, we recommend setting the vehicle on a stand, with the tires free from any contact, while connecting and adjusting electronics. 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 the battery after use. The ESC continually 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.

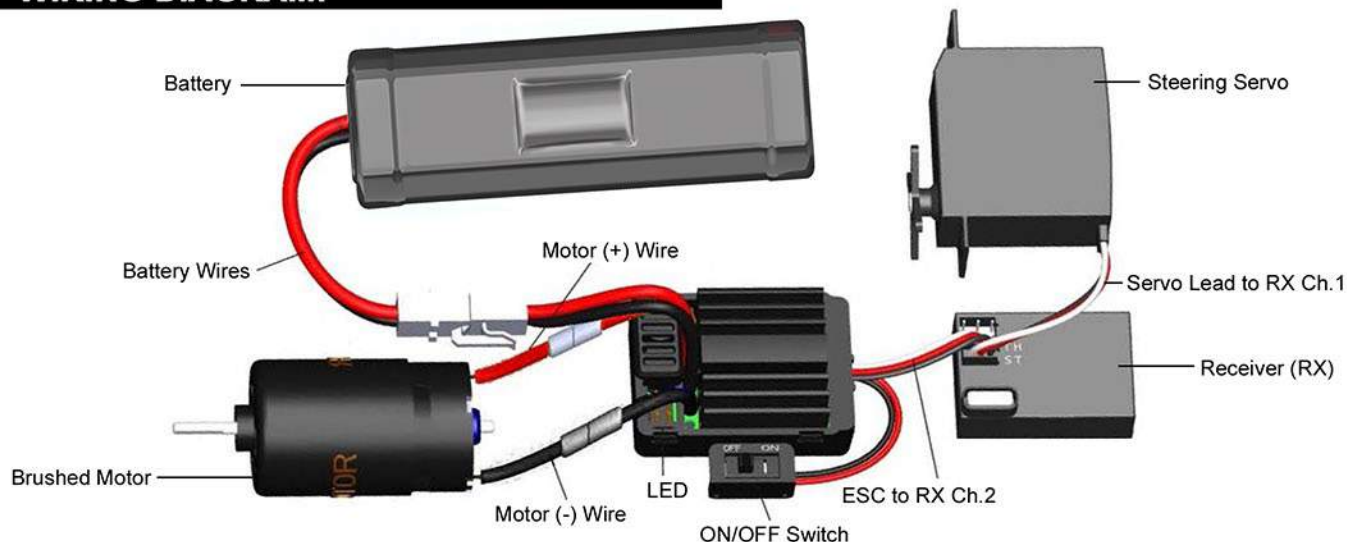
## FEATURES:

- Waterproof and dust-proof for all weather conditions. (Note: Be sure to clean and dry ESC and connections after wet use to avoid rust.)
- Compact design with built-in capacitor module.
- Built-in switching BEC with cont. /peak current of 3A/6A for use with most servos.
- Protective features: low-voltage cutoff protection, thermal protection, throttle signal loss protection, and motor lock-up protection.
- Easily programmable with included jumper caps.
- Use a LIPO or NiMH battery pack.

## SPECS:

<b>Model:</b>	<b>HW-WP-1040-BRUSHED</b>
<b>Cont./Peak Current:</b>	<b>40A / 180A</b>
<b>LIPO/NiMH Cells:</b>	<b>2-3S LIPO / 5-9 Cells NiMH</b>
<b>Applications</b>	<b>1/10th Vehicles On/Off Road</b>
<b>Motor Limit 2S LiPO / 5-6 Cells NiMH:</b>	<b>540/550 Size Brushed Motor ≥12T</b>
<b>Motor Limit 3S LiPO / 7-9 Cells NiMH::</b>	<b>540/550 Size Brushed Motor ≥17T</b>
<b>Built in BEC:</b>	<b>2A/6V (Linear-mode)</b>
<b>Size / Weight:</b>	<b>46.5mm x 34mm x 28.5mm / 65g</b>

## WIRING DIAGRAM:





# ELECTRONIC SPEED CONTROLLER

## OPERATION:

**Step 1: Connect all components** (as shown in the wiring diagram) and recheck all connections before moving to the next step.

**Step 2: Set the Throttle Range.** This ESC can automatically recognize the neutral position of the transmitter, but you need to perform the following steps.

- 1) Turn on the transmitter, leaving the throttle trigger in the neutral position.
- 2) With the ESC powered off, connect the motor, battery and other devices.
- 3) Turn on the ESC and wait at least 3 seconds. The ESC will automatically detect neutral.

**Note:** The ESC will beep according to the battery type and cell count used. If the ESC is set to use a LIPO battery, the ESC will sound 2 short beeps if it detects a 2S LIPO, and 3 short beeps if it detects a 3S LIPO. If the ESC is set to use a NiMH battery, it will beep one short beep followed by one long beep to indicate self detection is over and the ESC is ready to use.

### Attention!

1. After turning on the ESC, you **must** wait (at least 3 seconds) until the self detection completes. Otherwise, it may not function properly.
2. After turning on the ESC, if there is no power output and the Red LED flashes rapidly, it means the throttle of the transmitter is not in the neutral position. If this happens, be sure the "Throttle Trim" on the transmitter is at the "0" position, fine tune the throttle neutral position until the Red LED stops flashing.
3. To avoid any possible injury, always turn on the transmitter first and the ESC last, and then turn off the ESC first and the transmitter last. Be sure the transmitter is on anytime the vehicle is on.

**Step 3: The Red LED** will emit certain flash sequences while running the vehicle. If everything is hooked up correctly and the vehicle is running normal, the ESC LED should look like this.

1. The Red LED will turn off when the throttle trigger is in the throttle neutral zone.
2. The Red LED flashes rapidly when slight forward throttle is applied, and turns solid Red when full forward throttle is applied.
3. The Red LED flashes rapidly when slight reverse throttle is applied and turns solid Red when full reverse or brake is used.

**Note:** swap the two wires from motor to ESC if you find the motor runs in reverse, but check the Throttle Reverse switch on the transmitter first.

## PROGRAMMING:

This ESC has two programmable items, that can be easily programmed with the included jumper caps.

### 1. Top row = "Reverse".

Enable (Forward/Brake/Reverse) = Connect one jumper cap to the left two pins.

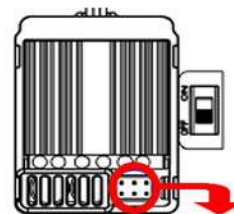
Disable (Forward/Brake) = Connect one jumper cap to the right two pins.





### 2. Bottom row = "Battery Type".

LIPO battery. = Connect one jumper cap to the left two pins.

NiMH battery = Connect one jumper cap to the right two pins.

LIPO battery = Default setting.



1.	Reverse		
2.	Battery		

**Note:** When using a LIPO battery, the ESC MUST be set to LIPO or damage to the battery will occur.



# ELECTRONIC SPEED CONTROLLER

## PROTECTIVE FEATURES:

**Low-voltage Cutoff (LVC) Protection.** If the voltage of battery pack drops below the threshold for 2 seconds, the ESC will enter into LVC protection mode. When this happens, power to the motor will cease and the red LED blinks to indicate the low voltage cut-off protection has been activated. Turn off the ESC and remove the discharged battery pack. Wait for the battery to cool before recharging.

2S LIPO	3S LIPO	5-9 Cells NiMH
50% Cutoff: 6.5V	50% Cutoff: 9.75V	50% Cutoff: 4.5V
100% Cutoff: 6.0V	100% Cutoff: 9.0V	100% Cutoff: 4.0V

**Note:** Be absolutely sure the "Battery Type" is set properly. If the low-voltage cutoff protection is activated prematurely, and you are certain the battery type is set correctly, the battery being used may not have a high enough discharge rate, or is damaged. Try another fully charged battery pack with a higher discharge rate (be sure ESC is set according to the new battery being used).

**Thermal Protection.** The ESC will cut off all power output and the Red LED will blink repeatedly when its internal temperature reaches 100°C/212°F. The ESC will return to its normal operating state when the ESC temperature falls below 80°C/176°F.

**Note:** If the thermal protection is activated regularly, the motor may be geared too high, vehicle load may be too high, or there may be an obstruction in the drivetrain.

**Throttle Signal Loss Protection.** The ESC will immediately cut power output and the Red LED will blink rapidly when it detects that the throttle signal has been lost for 0.1 second. See the radio section for setting the "Fail Safe" function.

## TROUBLESHOOTING:

TROUBLE	POSSIBLE CAUSE(S)	POSSIBLE SOLUTION(S)
The ESC will not power on. The status light is off and there is no power output after the ON/OFF switch was turned ON.	<ol style="list-style-type: none"> <li>1. No power is being supplied to the ESC.</li> <li>2. The ESC switch may be damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check battery connections and wires. Properly connect a fully charged battery.</li> <li>2. Contact Redcat support.</li> </ol>
The ESC was unable to start the motor but the Red LED flashed rapidly after it was powered on.	<ol style="list-style-type: none"> <li>1. The neutral position on the transmitter may need adjustment.</li> <li>2. The ESC is plugged into the receiver incorrectly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-calibrate the throttle range or tune the radio throttle trim neutral position to match the current ESC neutral position.</li> <li>2. Plug the ESC into the RX correctly.</li> </ol>
The vehicle ran backward when you pulled the throttle trigger towards you.	<ol style="list-style-type: none"> <li>1. The radio "Throttle Reverse" switch may be improperly set.</li> <li>2. The motor-to-ESC wiring is incorrect.</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch the radio "Throttle Reverse" switch.</li> <li>2. Swap the two wires (black and red) from the motor to the ESC.</li> </ol>
The motor suddenly stopped working, but the steering still works.	<ol style="list-style-type: none"> <li>1. The throttle signal was lost.</li> <li>2. The LVC protection or the thermal protection may have been activated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the radio and the receiver.</li> <li>2. If the Red LED blinks repeatedly: check the battery voltage and the ESC temperature.</li> </ol>
The motor accelerated suddenly, stuttered or stopped during the starting-up process.	<ol style="list-style-type: none"> <li>1. The discharge capacity of the pack is insufficient.</li> <li>2. The RPM is too high, the gear ratio or final drive ratio is incorrect.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use another pack with better discharge capability.</li> <li>2. Use stock motor, stock gearing, and don't pull heavy loads.</li> </ol>
The car won't go backward.	<ol style="list-style-type: none"> <li>1. The jumper position is wrong.</li> <li>2. Throttle trim position set wrong.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set the "Reverse" jumper to "On".</li> <li>2. Set throttle trim on the radio to "0"</li> </ol>



# ELECTRONIC SPEED CONTROLLER

## WARNINGS:

- Ensure all wires and connections are properly insulated before connecting the ESC to related devices as short circuits will damage the ESC.
- Ensure all devices are connected securely. Poor connections may cause loss of vehicle control or damage to electrical components. Loose connections may also generate unwanted heat and cause damage or fire.
- Thoroughly read all manuals to all components being used with this device, including the vehicle manual, to ensure all parameters are met before using.
- Do not hold the vehicle in the air while pulling the throttle. Rubber tires can "expand" to extreme size and explode, causing serious injury.
- Stop using the ESC when its casing temperature exceeds 90°C /194°F. These temps. can destroy the ESC and may also cause damage to the motor. We recommend setting the "ESC Thermal Protection" to 105°C/221°F (this refers to the internal temperature of the ESC).
- We recommend removing the cooling fan from ESC before exposing vehicle to liquids, and completely dry the ESC immediately following wet use.
- Always disconnect and remove batteries after use. The ESC will continue to draw current from the batteries, even if the ESC is turned off. Leaving the batteries plugged into the ESC for a length of time may cause the batteries to become completely discharged, resulting in damage to the batteries, electronics, persons, and surroundings. This will not be covered under warranty.

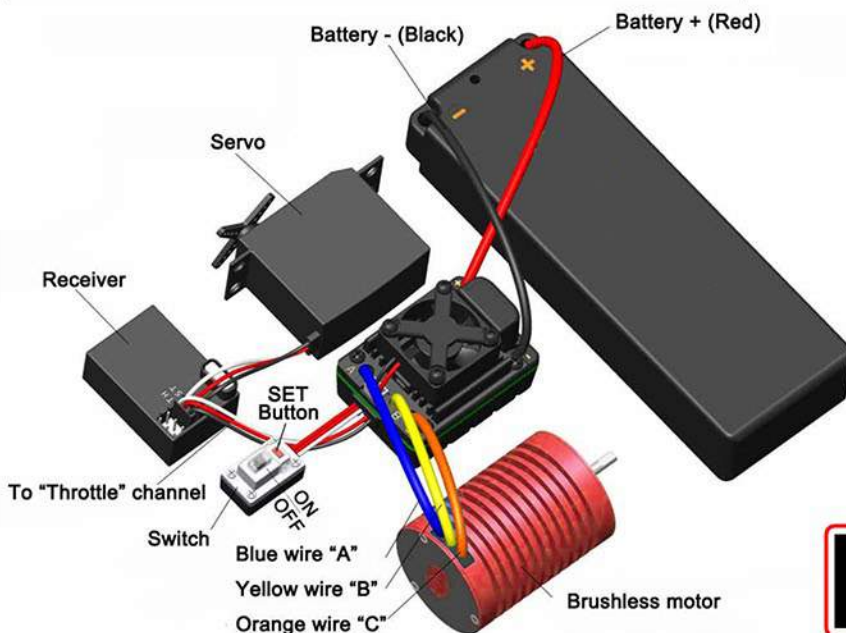
## FEATURES:

- Compatible with sensorless brushless motors (only in sensorless mode) and sensored brushless motors.
- Linear throttle response with exceptional punch power and smooth acceleration.
- Fully waterproof design for all weather conditions. The power button is water proof and dust proof. (Remove the fan for wet conditions and also dry the ESC after running in water to avoid the oxidation of copper components)
- Includes 2 running modes. Forward/brake mode and forward/brake/reverse mode.
- Proportional braking with 4 levels of maximum brake force, and 8 levels of drag brake force.
- 4 levels of punch/acceleration, soft to aggressive, for different vehicles, tires, and driving conditions.
- Multiple protective features: motor lock-up protection, low-voltage cutoff protection, thermal protection, overload protection, and fail safe.
- Single-button ESC programming and factory reset and advanced programming via portable LED program card (sold separately).

## SPECIFICATIONS:

<b>Model</b>	<b>HW-WP-10BL60-RTR-D</b>
<b>Cont./Burst Current</b>	<b>60A/390A</b>
<b>Motor Type</b>	<b>Sensored / Sensorless Brushless Motor (only in sensorless mode)</b>
<b>Vehicle Type</b>	<b>1/10th on-road &amp; off-road</b>
<b>Motor Limit 2S LIPO / 6Cells NiMH</b>	<b>(3650) On-road ≥5.5T / Off-road ≥9T</b>
<b>Motor Limit 3S LIPO / 9Cells NiMH</b>	<b>(3650) On-road ≥8T / Off-road ≥13T</b>
<b>Battery</b>	<b>4-9 Cell NiMH, 2-3S LIPO</b>
<b>BEC Output</b>	<b>6V/3A (switch-mode BEC)</b>
<b>Cooling Fan</b>	<b>Powered by stable 6V BEC</b>
<b>Program Port</b>	<b>Fan/PRG Port</b>
<b>Dimensions / Weight</b>	<b>48.5mm*38mm*32mm /90g</b>

## WIRING DIAGRAM:



- Connect the ESC, motor, receiver, battery and servo as shown in the diagram to the left.
- The battery "+" and "-" wires of the ESC are connected to the battery pack (Pos-Pos, Neg-Neg).
- The control cable of the ESC (three small wires colored black, red and white) is connected to the throttle channel of the receiver (Usually CH2).
- The "SET" button on the power switch is used for programming the ESC.
- The #A, #B and #C wires on the ESC are connected to the motor #A, #B, and #C wires.
- If using a sensorless motor, the #A, #B, #C wires of the ESC can be connected with the motor wires in any sequence. If the sensorless motor runs in the opposite direction, just swap any two of the wire connections. **If using a sensored motor, DO NOT SWAP THE WIRE CONNECTIONS! All three motor wires must be connected in the correct sequence (A-A, B-B, C-C). Failure to do so may permanently damage the ESC and sensored motor.** If a sensored motor runs in the opposite direction you must change the rotation setting in the ESC menu.

**WARNING! Do not change the motor wire sequence when using a sensored motor!**



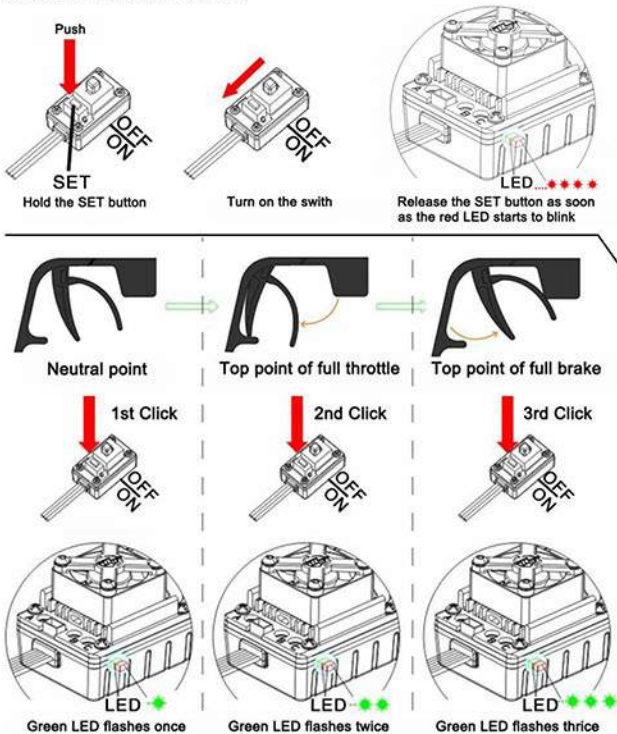
# ELECTRONIC SPEED CONTROLLER

## PROTECTION FEATURES:

1. Low voltage cut-off protection: If the voltage of a LIPO battery pack is lower than the pre-set threshold for 2 seconds, the ESC will cut off power to the motor. The ESC cannot be restarted if the voltage of each LIPO cell is lower than 3.5V.  
If using NiMH batteries, you can turn off the low voltage cut-off feature in the menu, otherwise if the voltage of the whole NiMH battery pack is higher than 9.0V but lower than 12V, it will be considered as a 3S LIPO. If the NiMH battery pack voltage is lower than 9.0V, it will be considered a 2S LIPO. For example, if the NiMH battery pack is 8.0V, and the low voltage cut-off threshold is set to 2.6V/Cell, the NiMH battery will be considered a 2S LIPO, and the low-voltage cut-off threshold for this NiMH battery pack will be 5.2V (2.6V x2).
2. Thermal protection: When the temperature of the ESC is over a factory preset threshold for 5 seconds, the ESC will cut off the output power. You can disable the over-heat protection function for competition racing, but you must use the optional program card.
3. Throttle signal loss protection: The ESC will cut off the output power if the throttle signal is lost for 0.2 second. See the radio page to set the radio fail-safe.

## THROTTLE CALIBRATION:

In order to match up the radio's throttle range with the throttle range of the ESC, you must calibrate the radio and ESC before using. Be sure to do this before running the vehicle for the first time. The pictures on the following page show how to set the throttle range with the included RCR-2CENR transmitter.



1. Turn on the transmitter and set the throttle "TRIM" to "0".

If using an upgraded radio, like the FlySky FS-GT3C, be sure to set the throttle "DR", "EPA", and "ATL" to 100%. Also DISABLE the "ABS braking function" on the transmitter.

2. Plug the battery into the ESC, but leave the power turned off. On the ESC, while pressing and holding the SET button, turn on the ESC. Release the SET button immediately when the motor begins to beep and the Red light on the ESC begins to blink. The ESC will continue to beep after the button is released, to show the ESC is now in calibration mode. (Note2)

3. While leaving the throttle trigger in the neutral position, press and release the SET button (on the ESC) one time. The Red LED will go out and the Green LED will flash one time, along with one motor beep.
4. While holding the trigger at the full throttle position, press and release the SET button on the ESC one time. The Green LED will flash two times, along with two motor beeps. Now release the trigger.
5. While holding the trigger at the full brake (or reverse) position, press and release the SET button on the ESC one time. The Green LED will flash three times, along with three motor beeps. Release the trigger.
6. After waiting at least three seconds, the ESC should be calibrated and ready to use.

**Note2:** If you don't release the "SET" key after the red LED begins to flash, the ESC will enter the program mode, in such a case, please switch off the ESC and re-calibrate the throttle range again from step A to step D.

### LED Status During Operation:

- A. Red & Green LEDs go out when the throttle trigger is in throttle neutral zone.
- B. The Red LED lights up solid when the vehicle runs forward. The Green LED will also come on when pulling the throttle trigger to the full (100%) forward driving position.
- C. The Red LED lights up solid when applying brakes and the Green LED will also light up when full (100%) brake is being applied.
- D. The Red LED lights up solid when the vehicle is in reverse.

### Powering ON/OFF & Warning Tones:

- A. Powering ON/OFF:  
Be sure the radio is turned ON before turning on the ESC.  
(Start with the ESC turned off), Slide the ON/OFF switch to ON.  
(Start with the ESC turned on), Slide the ON/OFF switch to OFF. Once the ESC is turned off, you can turn off the radio.
- B. Warning Tones:  
Turn on the ESC as normal (not holding the SET button), the motor will beep the number of LIPO cells you have plugged in. For example, 6 beeps indicate a 6S LIPO (2x 3S LIPOs), 8 beeps indicate a 8S LIPO (2x 4S LIPOs).



# ELECTRONIC SPEED CONTROLLER

## PROGRAMMABLE ITEMS:

- Running Mode:** Option 1: Fwd/Br (Forward with Brake) The vehicle can go forward and brake, but cannot reverse in this mode. Option 2: Fwd/Rev/Br (Forward/Reverse with Brake) This mode includes the reverse function. "Forward/Reverse with Brake" mode uses the "DOUBLE-CLICK" method. The vehicle only brakes (won't reverse) the 1st time the throttle trigger is pushed forward. If the motor stops when you release the throttle trigger and you quickly push it again (2nd push), the vehicle will go into reverse. If the motor does not stop (1st push), the vehicle will not go into reverse on the second push, it will continue to brake. You will need to push the throttle trigger one more time to enter into reverse. The vehicle only goes into reverse after the motor has stopped. This method is to prevent the vehicle from accidentally going into reverse.
- 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. Properly set drag brake makes the vehicle easier to corner during races. (Attention! Drag brake will consume lots of power, so use it cautiously.)
- Low Voltage Cut-Off:** This sets the voltage at which the ESC lowers or removes power to the motor in order to keep the LIPO battery at a safe minimum voltage. The ESC will constantly monitor the battery voltage and when the voltage drops below the cutoff threshold per cell, the ESC will immediately reduce the power to 50% and then to 0% ten-seconds later. The red LED will flash a short, single flash that repeats to indicate the low-voltage cutoff protection is activated. If using a NiMH battery pack, set the "Cutoff Voltage" to "Disabled".
- Start Mode/Punch:** This effects the initial starting force. You can choose from punch level 1 (very soft) to level 5 (very aggressive). Track condition, grip level, tire choice, and driving style may effect the amount of punch you choose. Soft punch is useful for preventing tires from slipping during initial acceleration. Aggressive (level 4 and level 5) punch has strict requirements on a battery's discharge capability (C-rating). This may affect initial vehicle movement if the battery discharges slowly and cannot quickly provide the required current. If the car stutters or suddenly loses power with acceleration, the battery's discharge capability is too low and you need to use a higher rated battery, or reduce the punch on the ESC. Using a smaller pinion gear on the motor may also help.
- Brake Amount/Max. Brake Force:** This ESC uses proportional braking; the position of the throttle trigger effects the amount of braking applied. This function sets the percentage value of available braking power that is applied with full brake. Large amounts will shorten the braking distance but may damage your pinion and spur gears. Set it to the least amount of braking you can successfully and safely drive with. The looser the driving surface, the less brake force you should use.

Programmable Items	Programmable Value							
	1	2	3	4	5	6	7	8
1. Running Mode	Forward/Brake	<i>Forward/Brake /Reverse</i>						
2. Drag Brake Force	<i>0%</i>	5%	10%	15%	20%	25%	30%	40%
3. Low Voltage Cut-off Threshold	No-Protection	2.6V /Cell	2.8V /Cell	3.0V /Cell	<i>3.2V /Cell</i>			
4. Start Mode (Punch)	Level 1 (Soft)	Level 2	<i>Level 3</i>	Level 4 (Very Aggressive)				
5. Maximum Brake Force	25%	50%	<i>75%</i>	100%				

**NOTE:** The italicized items inside the black boxes are the factory default settings and can be changed using the SET button on the ESC power switch.

## PROGRAMMING WITH THE SET BUTTON:

The ESC programmable items listed above can be changed using the "SET" button on the ESC ON/OFF switch. (see table on following page)

With the ESC off, turn on the radio transmitter. Now hold down the SET button on the ESC power switch and slide the ON/OFF switch to the on position. Continue holding down the SET button until the ESC power switch until the green LED flashes the desired number of times. ex. 1 flash = "Running Mode", 2 flashes = "Drag Brake Force", and so on.

**NOTE:** While in the program process, the motor will emit a "Beep" tone when the LED is flashing. The 5th programmable item is represented by 5 short Beeps (that is, "BBBBB"). For the following options of each programmable item, we use a long time flash and long "Beep---" tone to represent number "5", so it is easy to identify the options with big numbers.

For example, if the LED flashes as follows:

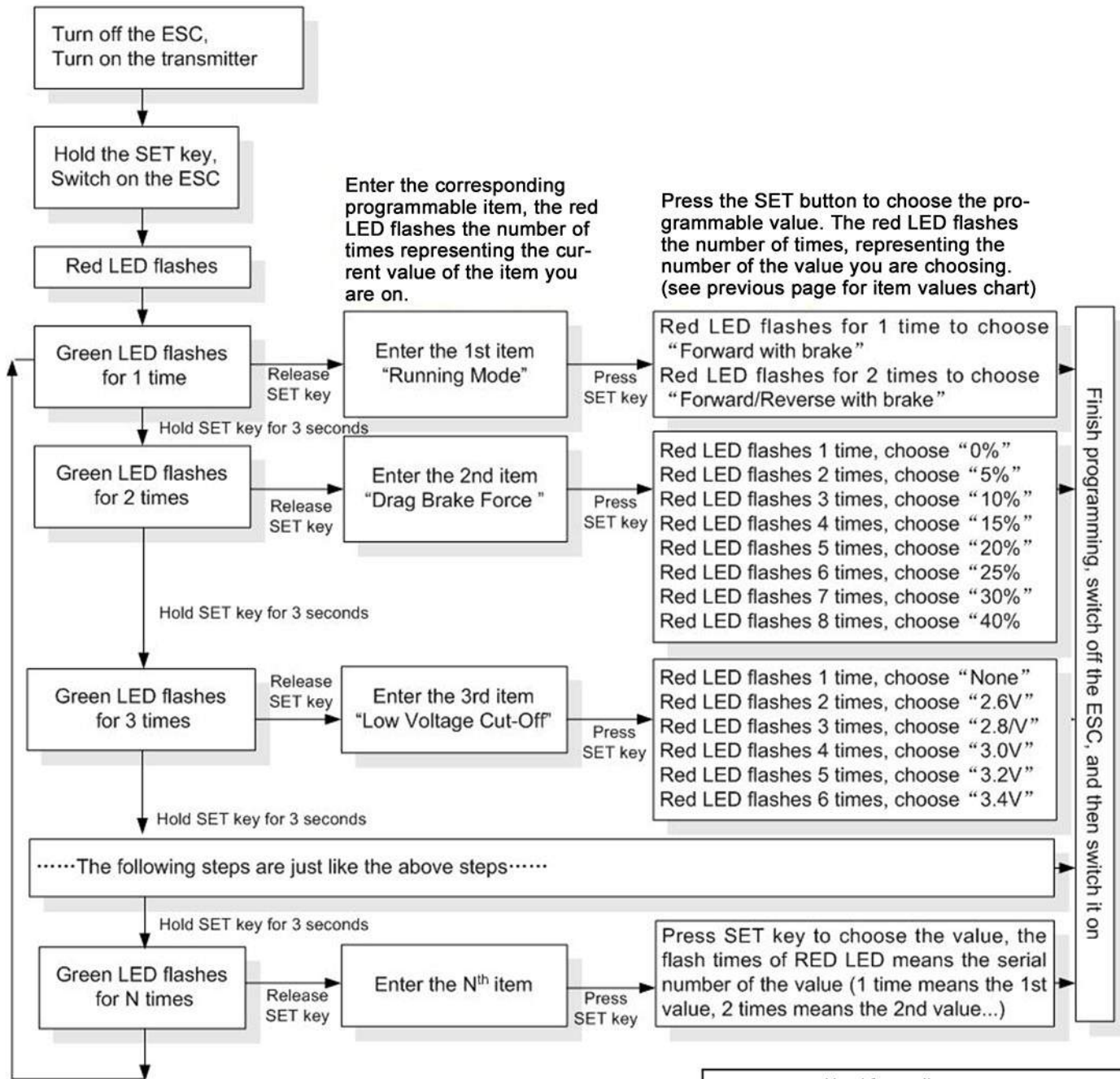
- "1 long flash" (Motor sounds "B---") = The option 5
- "1 long flash + 1 short flash" (Motor sounds "B---B") = The option 6
- "1 long flash + 2 short flashes" (Motor sounds "B---BB") = The option 7
- "1 long flash + 3 short flashes" (Motor sounds "B---BBB") = The option 8

**Default Values:** At any time when the throttle is located in neutral zone (except in the throttle calibration or programming mode), hold the "SET" key for over 3 seconds, the red LED and green LED will flash at the same time, which means each programmable item has been reset to its default value. The ESC needs to be turned off and back on again to complete the whole process.



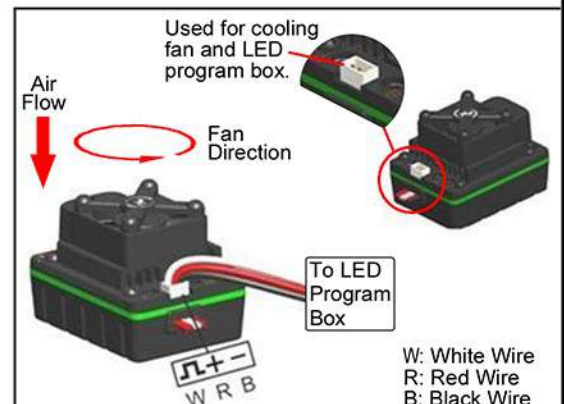
# ELECTRONIC SPEED CONTROLLER

## PROGRAMMING FLOW CHART:



- **Programming the ESC with the LED program box:**  
The portable program card is an optional accessory applicable for field use. It's friendly interface makes the ESC programming quick and easy. Before programming, connect the ESC to the program card with a cable that uses a JR male connector on each end, and then 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 "ITEM" and "VALUE" buttons on the program card. Then press the "OK" button to save all new settings to your ESC.

**NOTE:** The programming port of this ESC is also the fan port. You will need to unplug the fan, 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 on the LED program box. Do NOT use the throttle control cable (also called Rx cable) on the ESC to connect to the program card/box. This may cause damage and the program card/box won't function.





# ELECTRONIC SPEED CONTROLLER

**Programming the ESC with the LED program box (sold separately):**

The portable program card is an optional accessory applicable for field use. It's friendly interface makes the ESC programming quick and easy. Before programming, connect the ESC to the program card with a cable that uses a JR male connector on each end, and then 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 "ITEM" and "VALUE" buttons on the program card. Then press the "OK" button to save all new settings to your ESC.



**NOTE:** The programming port of this ESC is also the fan port. You will need to unplug the fan, 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 on the LED program box. Do NOT use the throttle control cable (also called Rx cable) on the ESC to connect to the program card/box. This may cause damage and the program card/box won't function.

## TROUBLE-SHOOTING:

Trouble	Possible Reason	Solution
After powering on the ESC, neither the motor nor fan work.	No power is supplied to the ESC.	Check if all ESC & battery connectors have been well soldered and firmly connected.
	The ESC switch is damaged	Call customer service.
After the ESC is powered on, 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
After the ESC is powered on and finished LiPo cell detection, the Green LED flashed N times, and the Red LED flashed rapidly.	The ESC didn't detect any throttle signal.	Check if the ESC throttle wire is correctly plugged into receiver CH.2 and the transmitter is turned on
	The neutral throttle value stored on your ESC is different from the value stored on the transmitter	Re-calibrate the throttle range after you return the throttle trigger to the neutral position.
The motor runs in the opposite direction when it is accelerated.	The (ESC-to-motor) wiring order was incorrect.	Swap any two wire connections between the ESC and the motor.
	Motor direction set wrong in the ESC (CW/CCW)	Set the motor direction correctly (CW/CCW)
The motor suddenly stops running while in working state.	The throttle signal is lost	Check the transmitter and the receiver Check the signal wire from the throttle channel of your receiver
	The ESC has entered the Low Voltage Protection Mode or Over-heat Protection Mode	Red LED flashing means Low Voltage. Green LED flashing means Over-heat
The motor stuttered but couldn't start.	Bad connection between the motor and the ESC.	Check all soldered connections, please re-solder if necessary.
	The ESC was damaged (some MOSFETs are burnt).	Contact the distributor for repair or other customer services.
The vehicle still has forward function, but no reverse.	The throttle trim position on your transmitter is not centered.	Re-calibrate the throttle neutral position. No LED on the ESC will come on when the throttle trigger is at the neutral position.
	The "Running Mode" is set improperly.	Set the "running mode" to "Forward/Reverse with Brake".
	The ESC is damaged.	Contact the distributor for repair or other customer services.
The car ran forward / backward slowly when the throttle trigger was at the neutral position.	The neutral position on the transmitter is not stable, so signals are not stable either.	Replace your transmitter
	The ESC calibration is incorrect.	Re-calibrate the throttle range or fine tune the neutral position on the transmitter.
The LED program card keeps displaying 3 short lines (- - -) after being connected to the ESC.	The programming card/box was connected to the ESC via the throttle control cable (Rx cable).	It is wrong to use the Rx cable to connect the programming card/box. The programming port of this ESC is also the fan port, so please connect the ESC and programming card/box by plugging the programming cable into the fan port.
When pressing the SET button to set the throttle neutral position, the Green LED didn't flash and no beep was emitted, or you were unable to set the full throttle endpoint or the full brake endpoint after the neutral position was accepted.	The ESC throttle cable isn't plugged into the correct channel on the receiver.	Plug the throttle cable into the throttle (TH) channel on your receiver (CH.2).
	The ESC throttle cable is plugged in backwards.	Plug in the throttle cable properly by referring to relevant mark shown on your receiver.



# CHARGING NIMH BATTERIES



**ATTENTION**

**BATTERY CONNECTION INSTRUCTIONS:**  
Make sure battery connectors are fully pushed in when charging and connecting to the vehicle.

**ATTENTION**

Before attempting to charge your NiMH battery, be sure to remove it from the vehicle and place it on a nonflammable surface away from hazards, such as curtains, couches, carpet, or clothing.  
**Warning!** Batteries can potentially catch fire if over charged or charged incorrectly.

**ATTENTION**

Be sure the wires are correctly orientated when plugging the battery into the vehicle.

When plugging the battery into the vehicle, Ensure the red (POS+) wire on the battery is connected to the red (POS+) wire of the ESC. Also ensure the black (NEG-) wire on the battery is connected to the black (NEG-) wire of the ESC.

Improper connection may damage electronics.

**NIMH Charging:**  
Charging NiMh battery packs with the included charger is simple.

1. Unplug and remove the battery from the RC vehicle.
2. Plug the charger into a 110v wall receptacle.
3. Plug the battery pack into the charger.

When plugging the battery into the charger, ensure the red (POS+) wire on the battery is connected to the red (POS+) wire of the charger. Also ensure the black (NEG-) wire on the battery is connected to the black (NEG-) wire of the charger.

Charge times vary according to charger current and battery mAh. **Battery mAh ÷ Charger mA = Approximate charge time**  
Ex. 2000mAh battery ÷ 500mA charger = ~4 hours charge time.

BATTERY CHARGER	2000mAh	2200mAh	3000mAh	3800mAh
500mA	4 hrs	4.4 hrs	6 hrs	7.6hrs
650mA	3 hrs	3.4 hrs	4.6 hrs	5.8 hrs
1A	2 hrs	2.2hrs	3 hrs	3.8 hrs

**STOP WARNING STOP**

**UNPLUG THE BATTERY PACK FROM THE VEHICLE!**  
BEFORE CHARGING YOUR BATTERY PACK, YOU MUST FIRST UNPLUG IT FROM THE ESC. FAILURE TO UNPLUG THE BATTERY FROM THE VEHICLE'S ESC BEFORE CHARGING MAY PERMANENTLY DAMAGE SOME OR ALL ELECTRONICS IN THE VEHICLE.

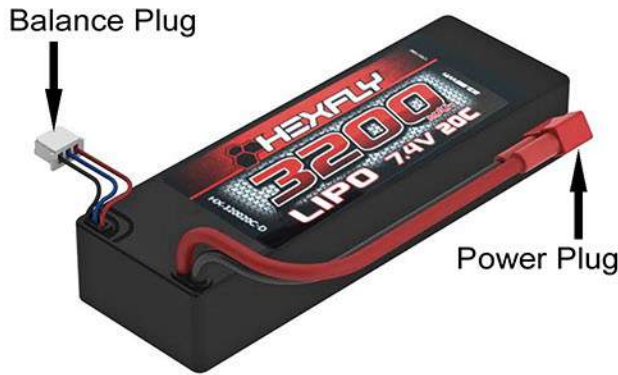
**NEVER LEAVE BATTERY PACKS UNATTENDED WHILE CHARGING!** Leaving a battery unattended while charging may result in fire and damage / injury.

**NEVER ALLOW A BATTERY PACK TO GET HOT!** It's normal for the battery pack to get warm, but it should never get hot! Monitor batteries during charging and unplug to let cool if the battery gets hot.

**WHEN CHARGING LIPOs, A LIPO SAFE CHARGING BAG SHOULD BE USED TO HELP PREVENT FIRES.**



# CHARGING BATTERIES



Batteries and charger not included

## ATTENTION:

It is important to read all instructions included with your battery and charger before attempting to charge a battery. Follow all instructions and warnings included with your battery and charger when using batteries.

**LIPO Balance Plug:** This plug **MUST** be plugged into a LIPO balance charger to charge your LIPO battery. Never attempt to quick charge LIPO batteries using the power plug.

**Power Plug:** This plug is used to power the vehicle and gets plugged into the ESC. On a LIPO battery, Make sure to unplug this plug from the ESC **BEFORE** plugging the Balance Plug into a charger.

**Battery Connection Instructions:** Make sure battery connectors are fully pushed in when connecting the battery to the vehicle.

## ATTENTION:

We recommend you only use quality batteries and chargers like Hexfly batteries and chargers in Redcat vehicles.

**Recommended Charger:**  
HX-403 - LIPO balance charger

**Recommended Batteries:**  
HX-580030C-D - Hexfly 5800MAH 7.4V 30C LIPO battery.

## Charge Times:

Charge times vary according to charger current and battery mAh. **Battery mAh ÷ Charger mA = Approximate charge time**  
Ex. 2000mAh battery ÷ 500 mA charger = ~4 hours charge time.

To convert milliamps (mA) to amps (A):  
Divide the mA number by 1000.  
ex. 900mA ÷ 1000 = 0.9A

BATTERY	3200mAh	3500mAh	5000mAh	5800mAh
0.9 A	3.55 hrs	3.88 hrs	5.55 hrs	6.44 hrs
1.5 A	2.13 hrs	2.33 hrs	3.33 hrs	3.87 hrs
3.0 A	1.07 hrs	1.17 hrs	1.67 hrs	1.93hrs

## STOP WARNING STOP

**UNPLUG THE BATTERY PACK FROM THE VEHICLE! BEFORE CHARGING YOUR BATTERY PACK, YOU MUST FIRST UNPLUG IT FROM THE ESC. FAILURE TO UNPLUG THE BATTERY FROM THE VEHICLE'S ESC BEFORE CHARGING MAY PERMANENTLY DAMAGE SOME OR ALL ELECTRONICS IN THE VEHICLE.**

**NEVER LEAVE BATTERY PACKS UNATTENDED WHILE CHARGING!** Leaving a battery unattended while charging may result in fire and damage / injury.

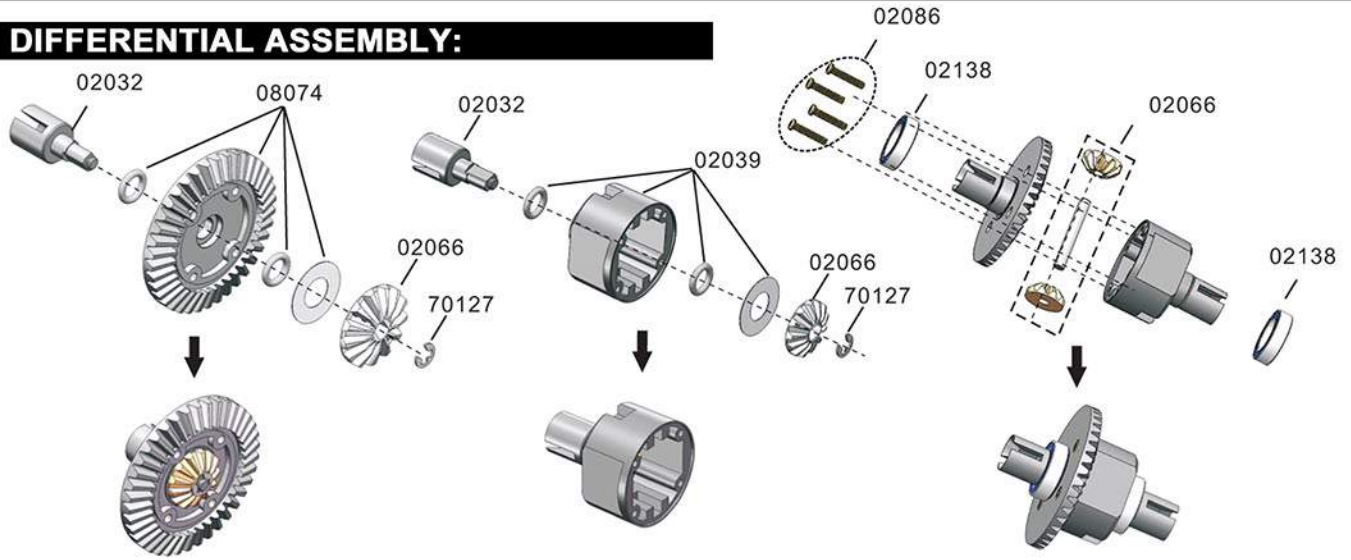
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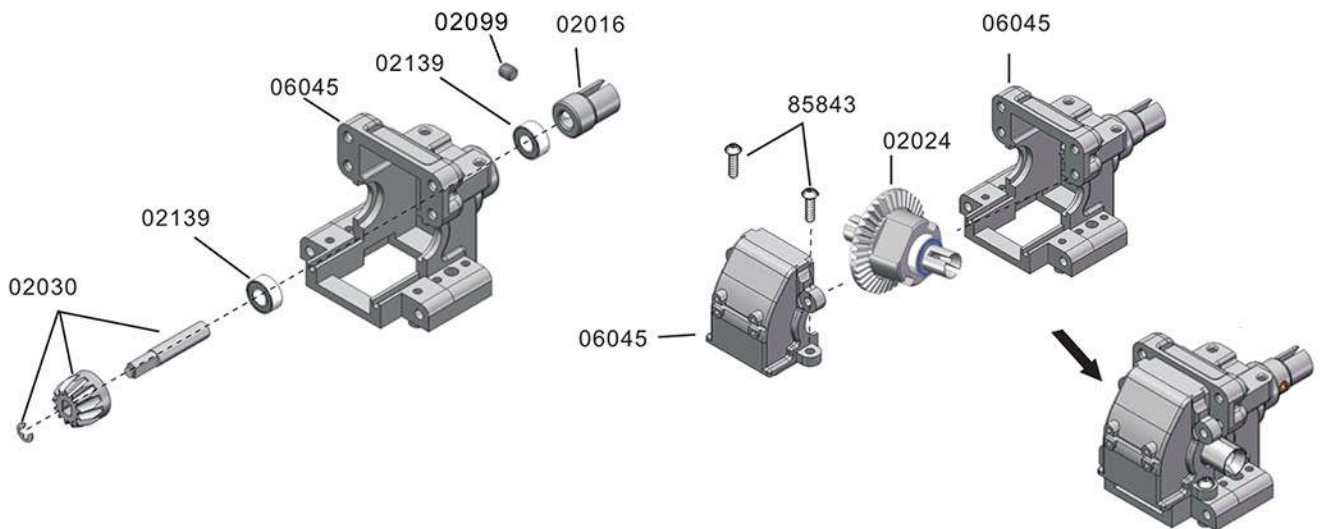


# EXPLODED VIEWS

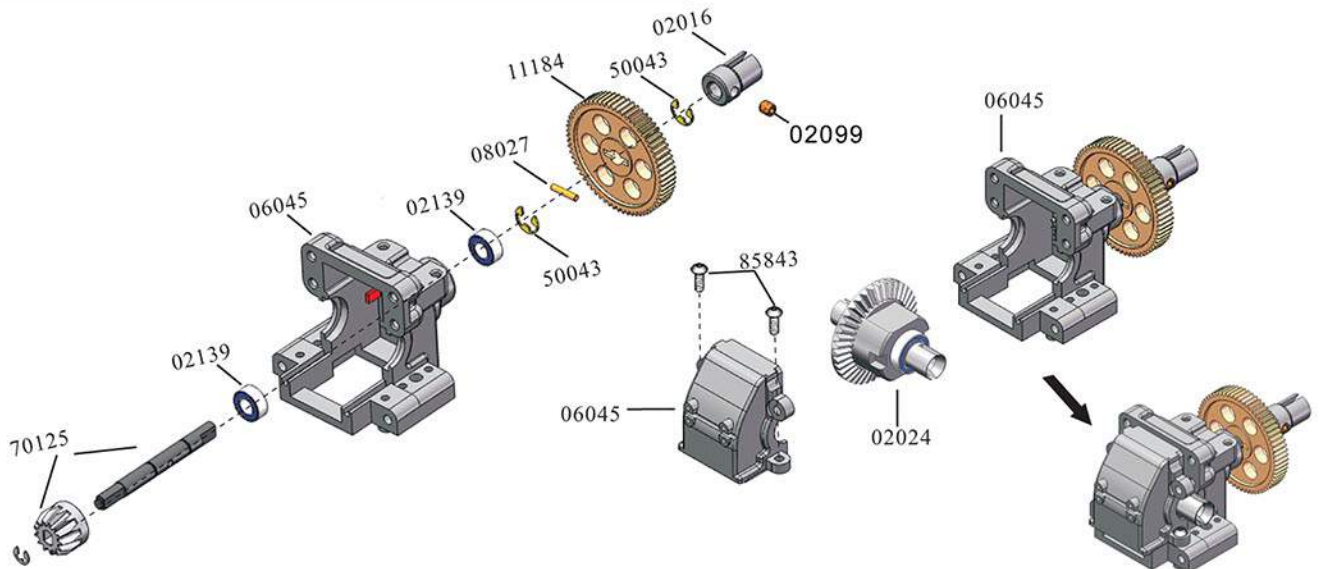
## DIFFERENTIAL ASSEMBLY:



## FRONT GEARBOX ASSEMBLY:



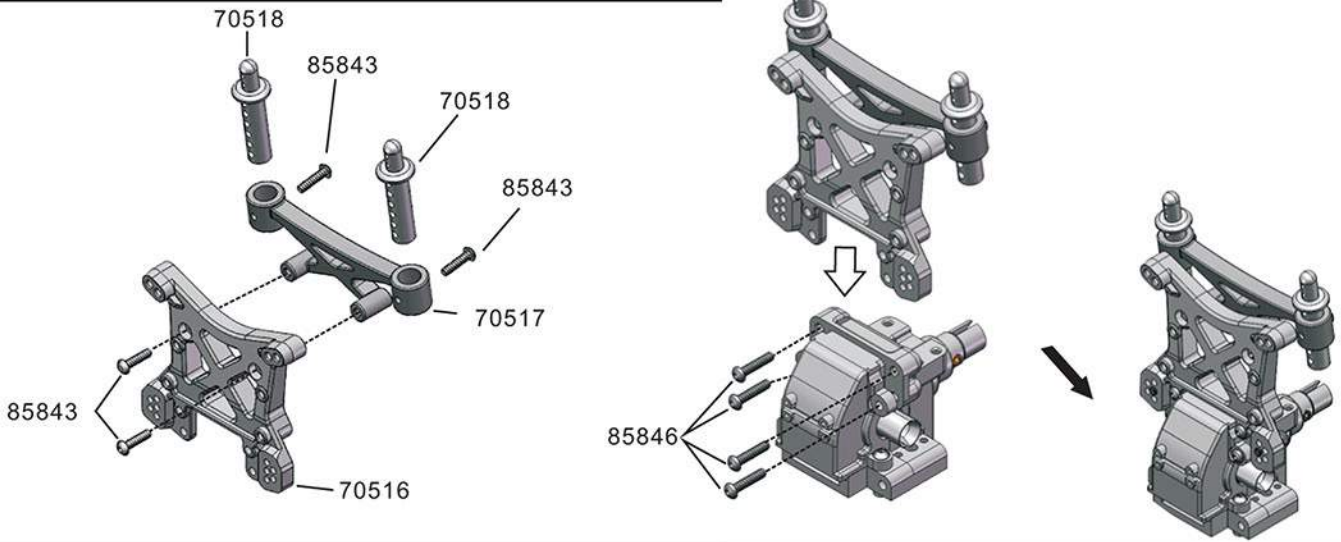
## REAR GEARBOX ASSEMBLY:



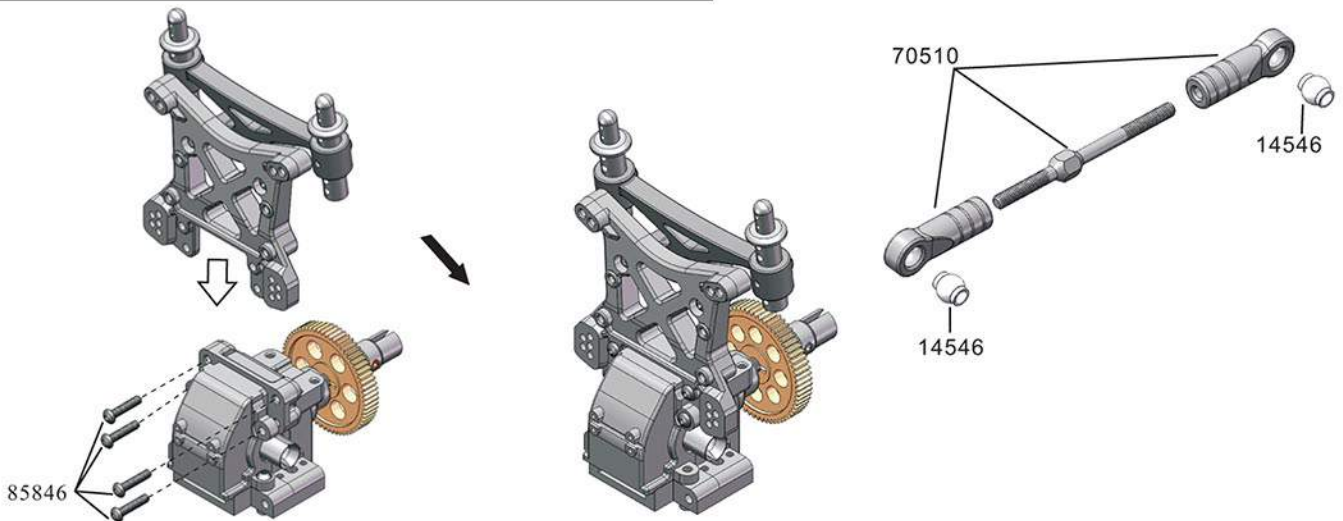


# EXPLODED VIEWS

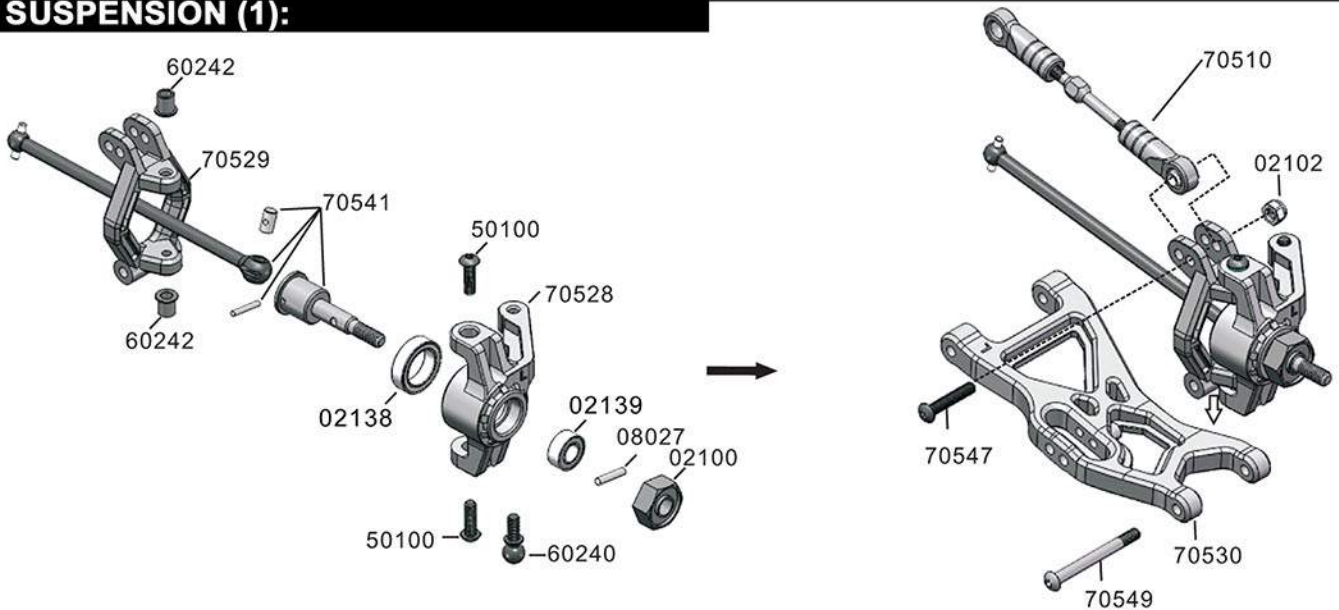
## FRONT SHOCK TOWER:



## REAR SHOCK TOWER:



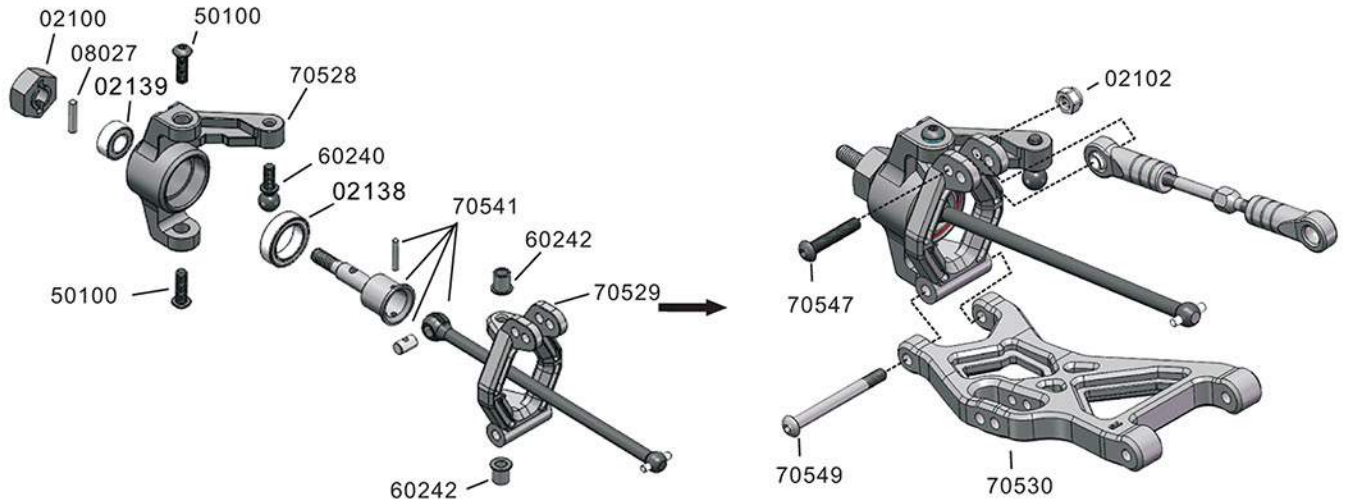
## SUSPENSION (1):



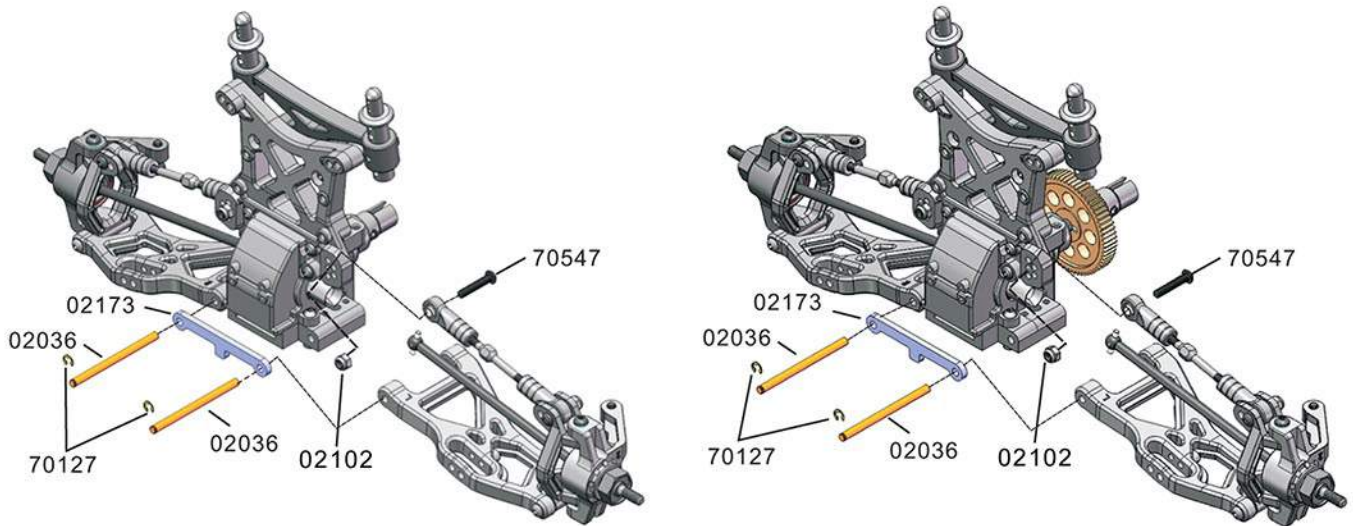


# EXPLODED VIEWS

## SUSPENSION (2):



## SUSPENSION ASSEMBLY:



## SHOCK ASSEMBLY:

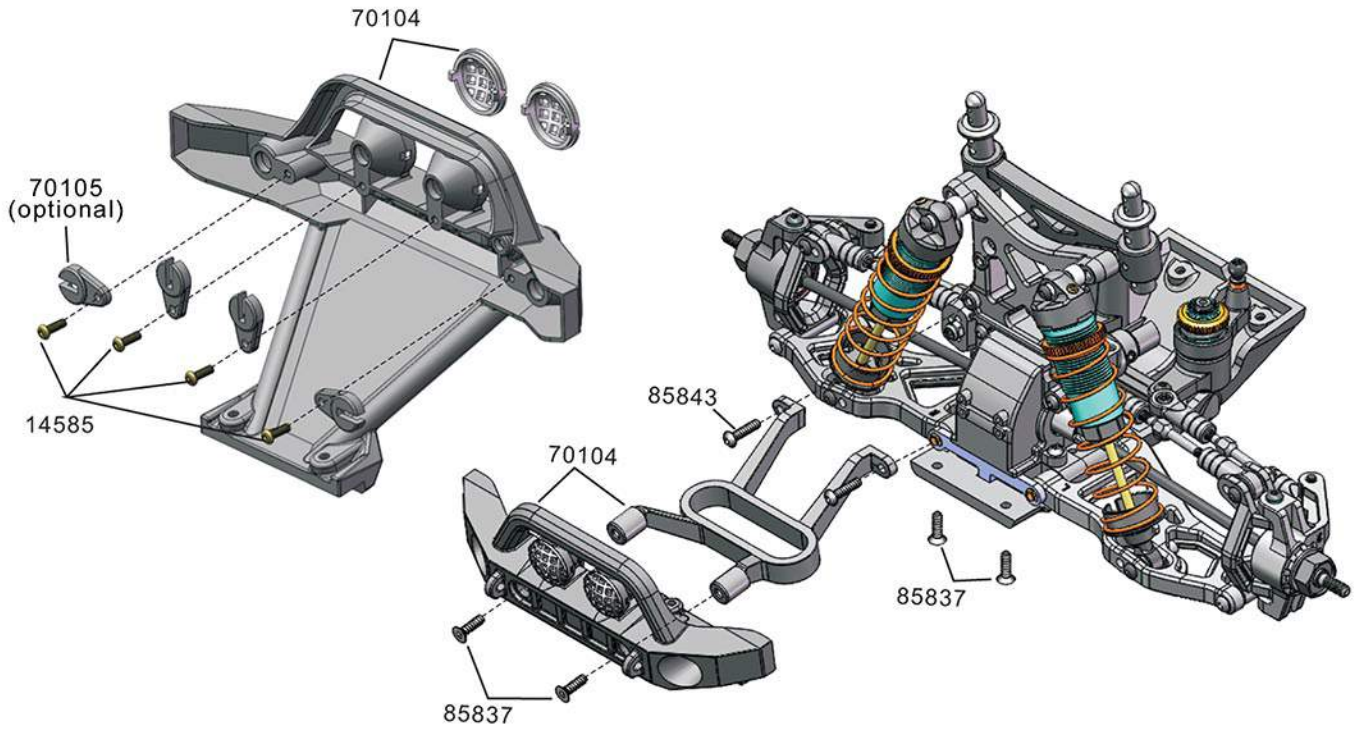




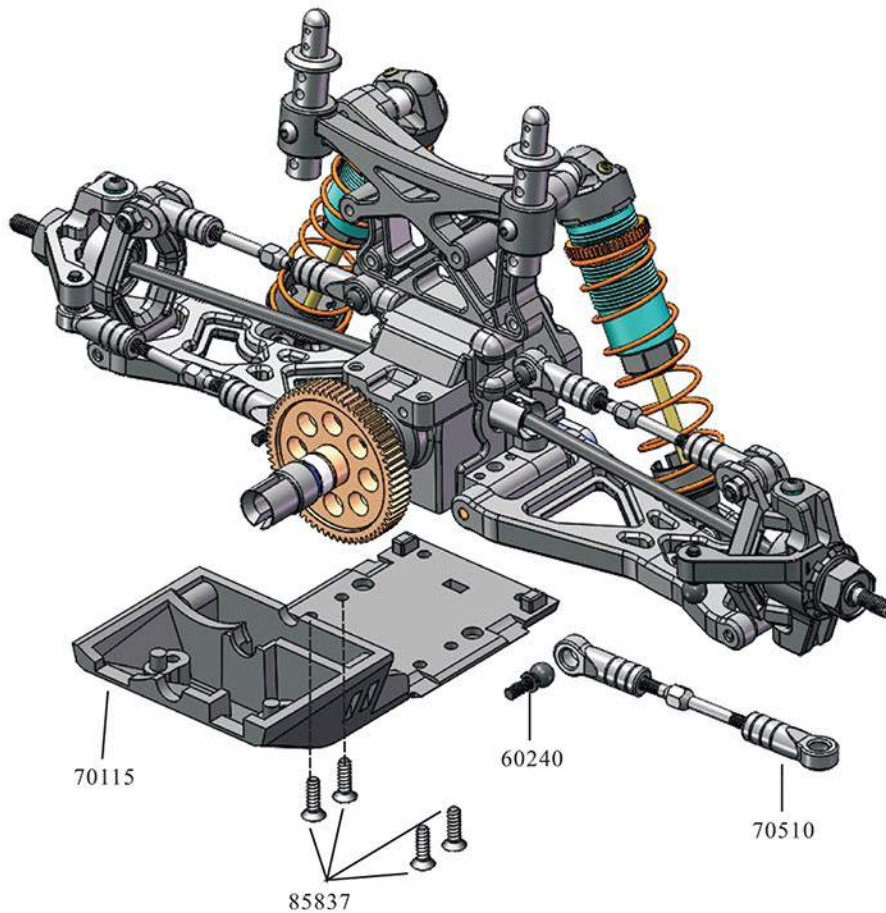


# EXPLODED VIEWS

## BUMPER INSTALLATION:



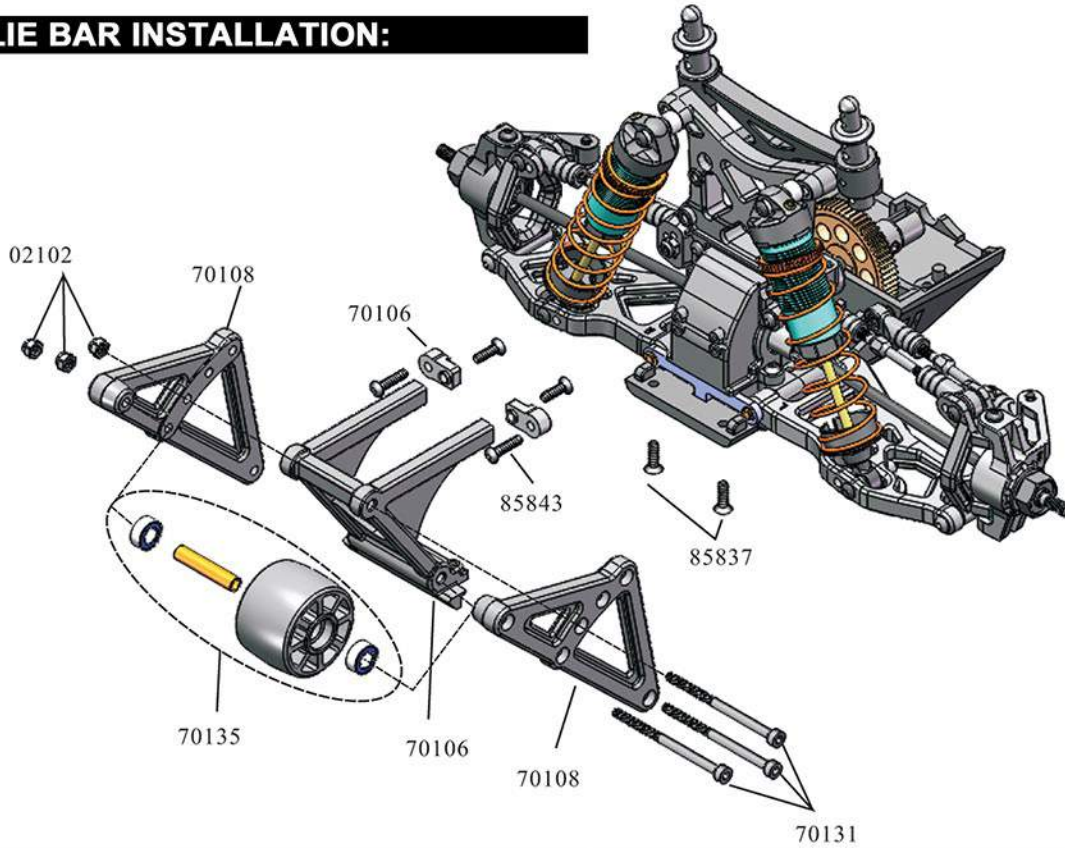
## REAR ARM ASSEMBLY:



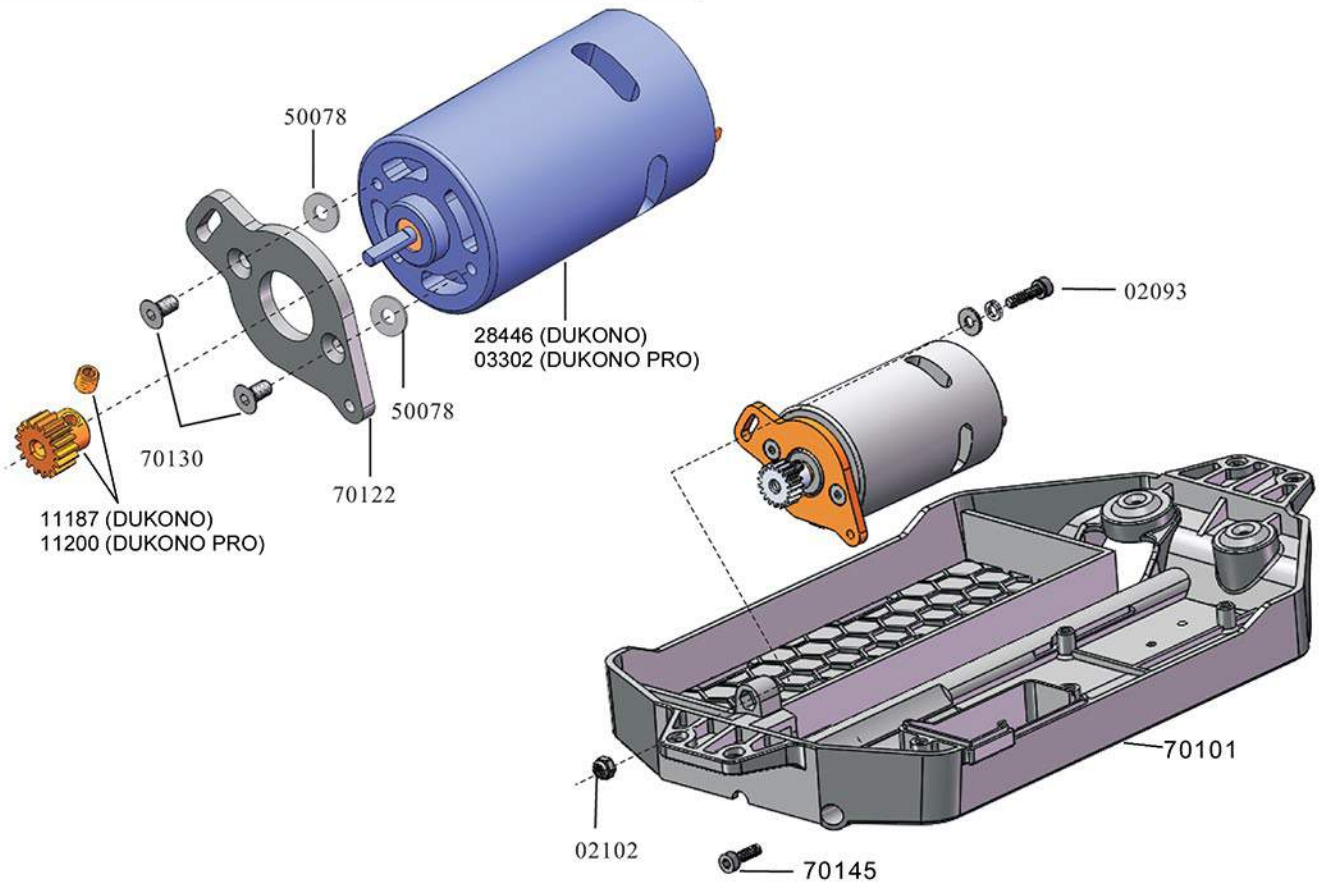


# EXPLODED VIEWS

## WHEELIE BAR INSTALLATION:

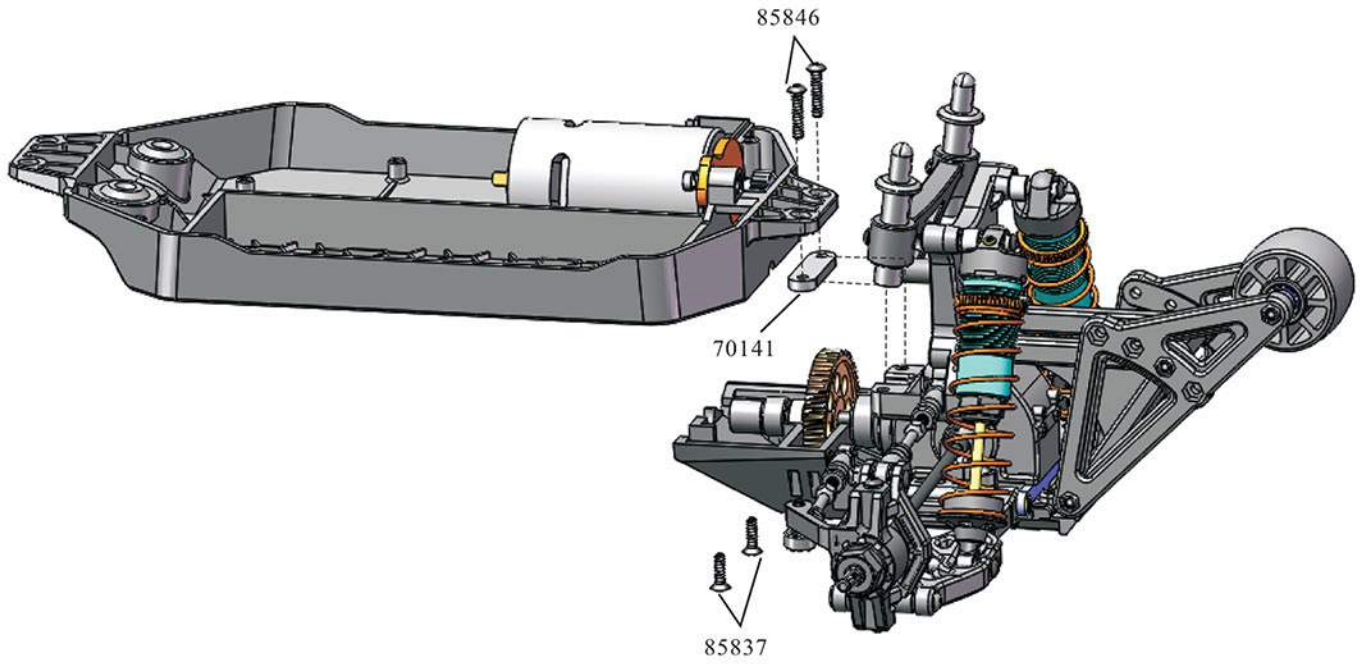


## MOTOR INSTALLATION:

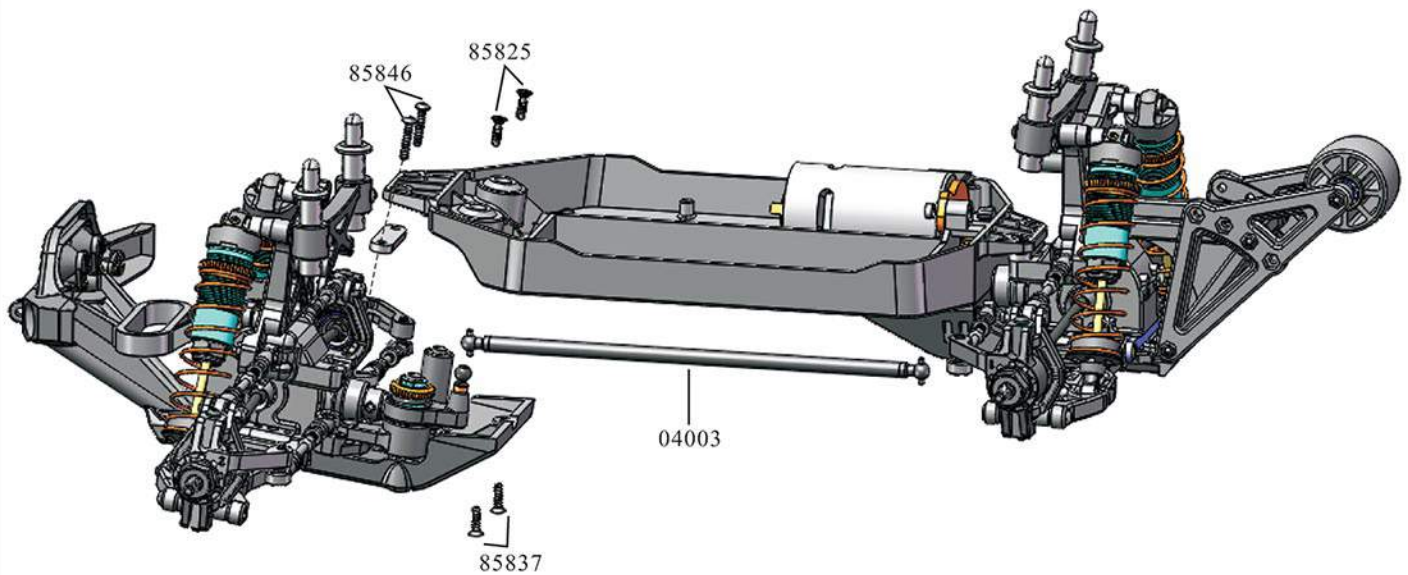


# EXPLODED VIEWS

## REAR UNIT INSTALLATION:



## FRONT UNIT INSTALLATION:

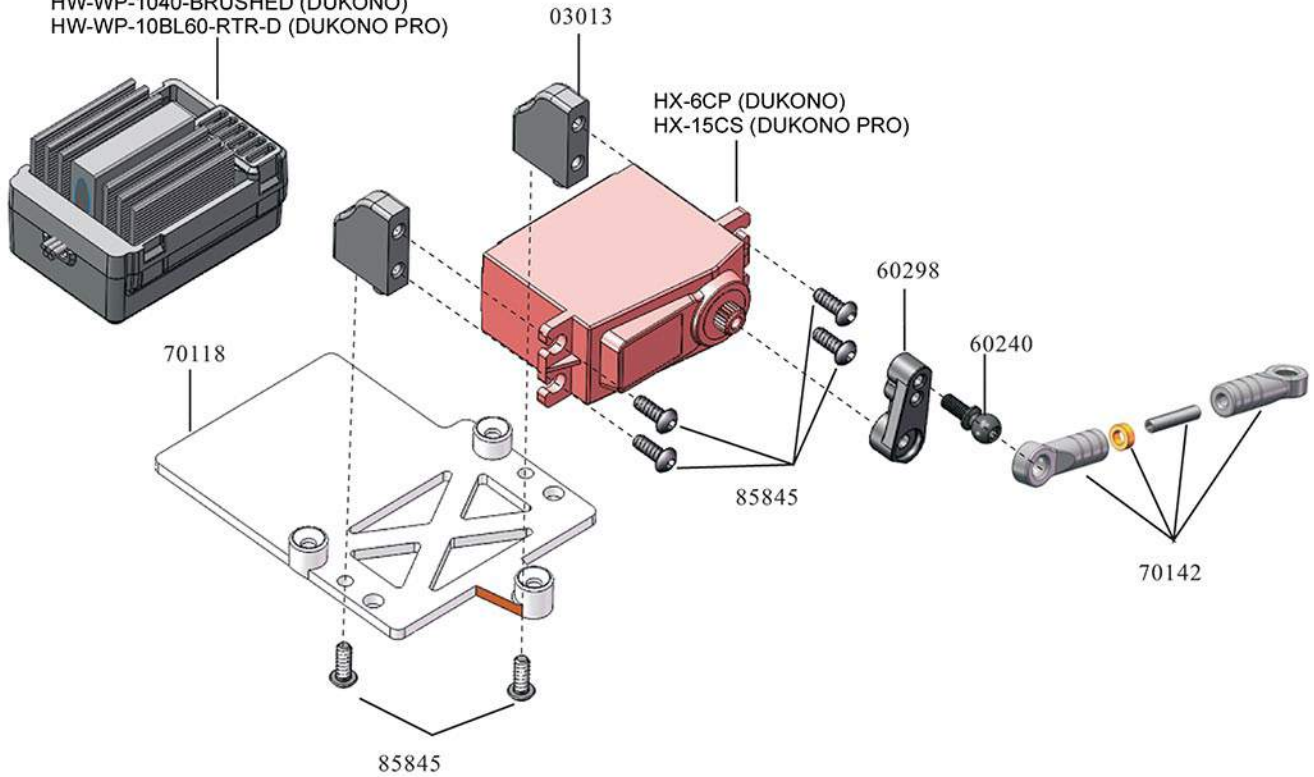




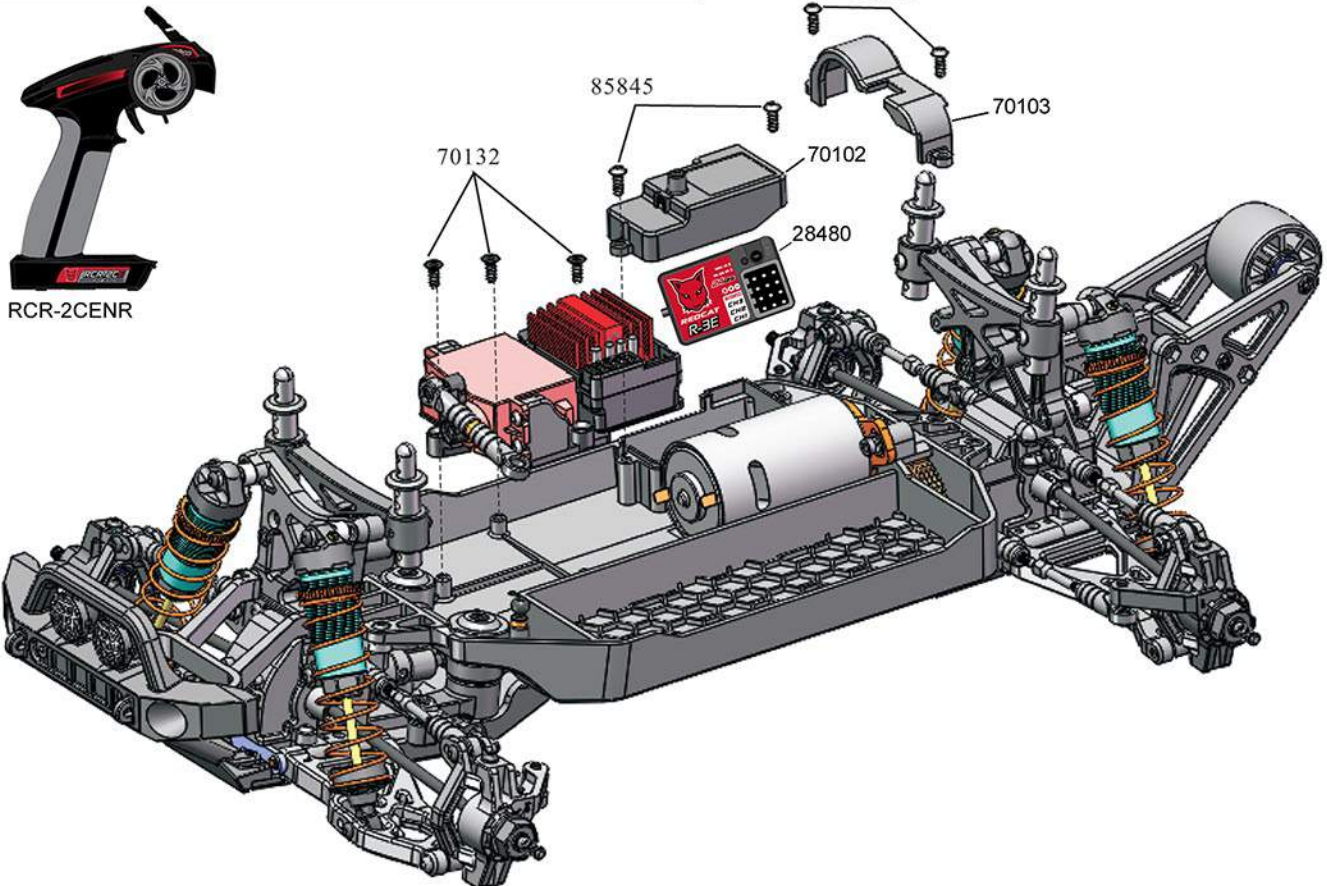
# EXPLODED VIEWS

## SERVO AND ESC INSTALLATION:

HW-WP-1040-BRUSHED (DUKONO)  
HW-WP-10BL60-RTR-D (DUKONO PRO)

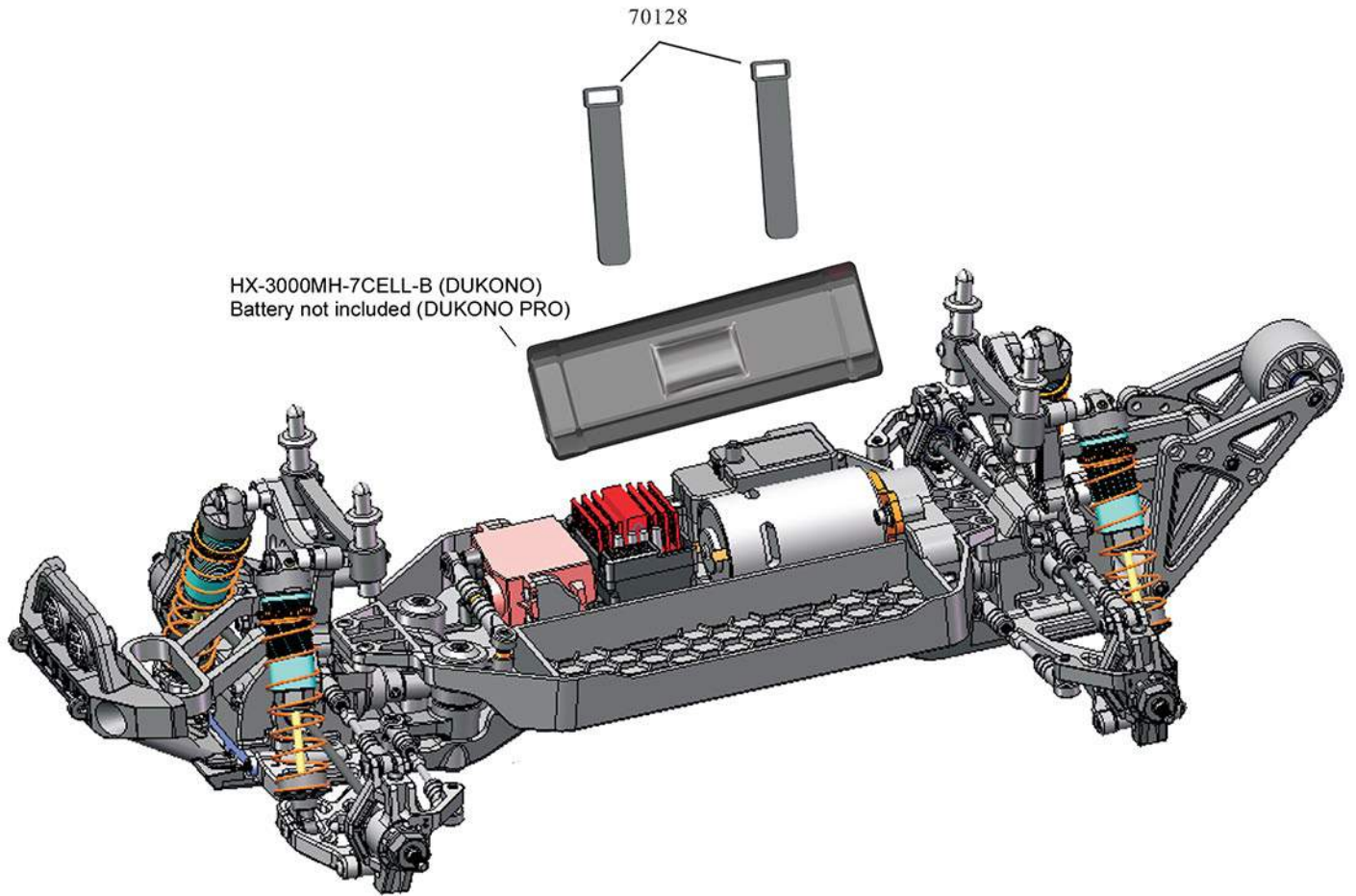


## ELECTRONICS TRAY INSTALLATION:

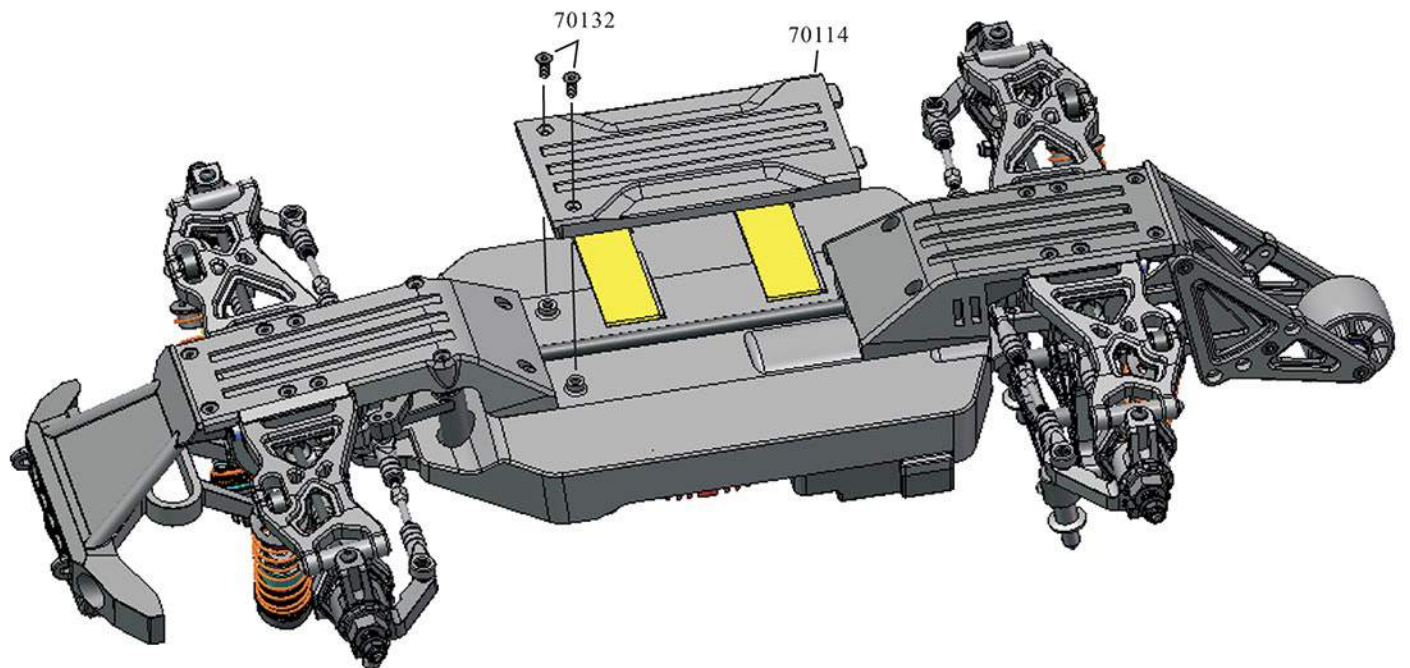


# EXPLODED VIEWS

## BATTERY INSTALLATION:



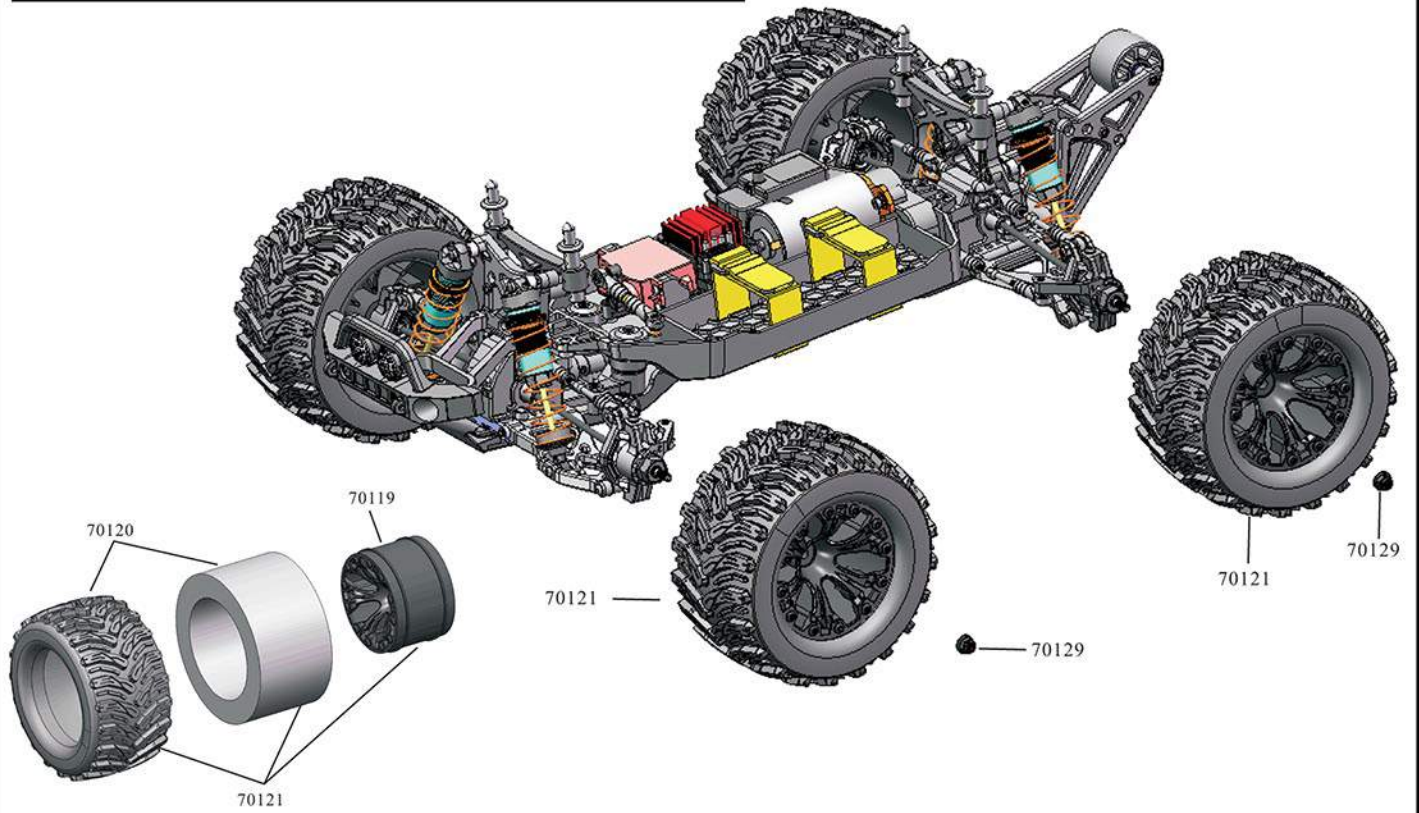
## CENTER SKIDPLATE INSTALLATION:



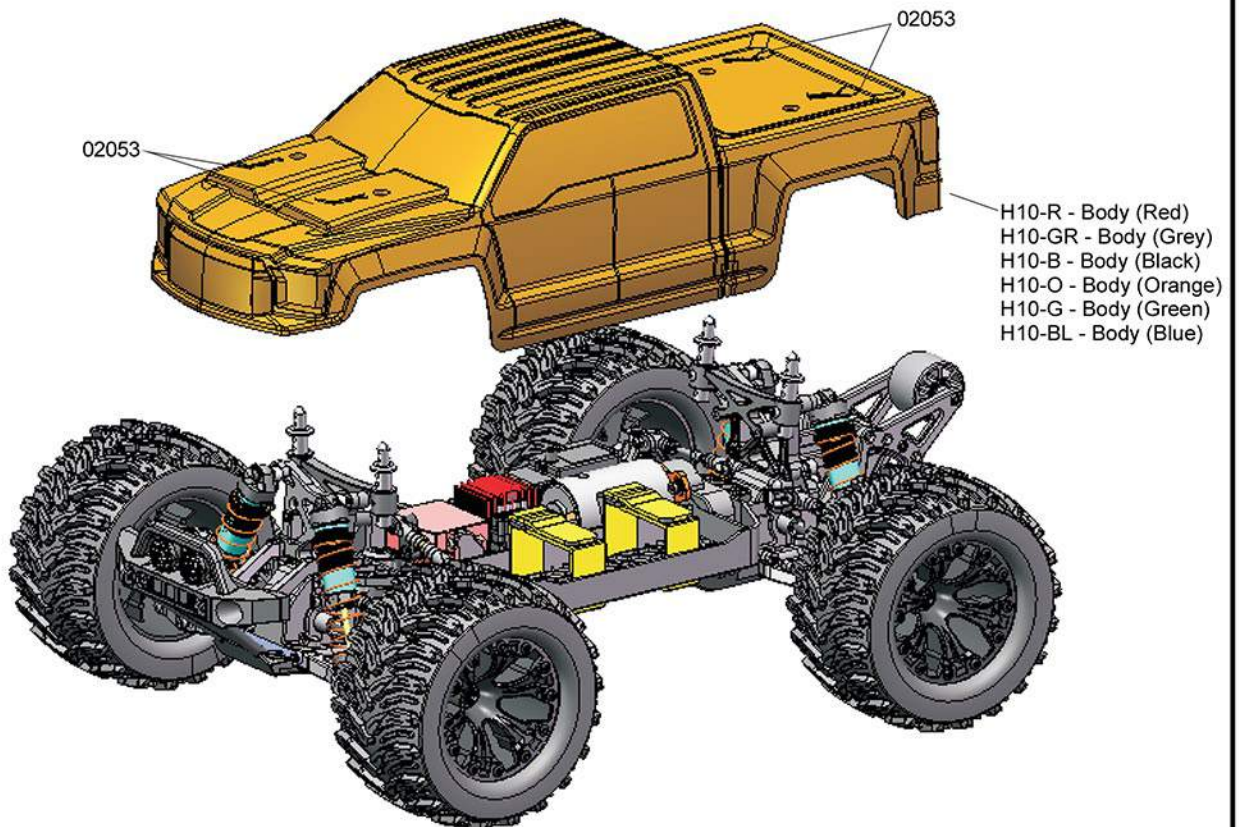


# EXPLODED VIEWS

## TIRE/WHEEL INSTALLATION:



## BODY INSTALLATION:



# PARTS








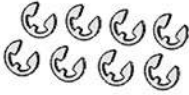


## SPARE PARTS:

<p>70101 - Chassis</p> 	<p>70102 - Receiver Cover</p> 	<p>70103 - Gear Cover</p> 	<p>70104 - Front Bumper</p> 	<p>70106 - Wheelie Bar Mount</p> 
<p>70108 - Wheelie Bar Adjustment Brackets</p> 	<p>70135 - Wheelie Bar Wheel</p> 	<p>70114 - Center Skid Plate</p> 	<p>70115 - Rear Chassis Plate</p> 	<p>70139 - Front Chassis Plate</p> 
<p>70118 - Electronics Tray</p> 	<p>70122 - Motor Mount</p> 	<p>70510 - Adjustable Links (2pcs)</p> 	<p>70516 - Shock Tower (1pc)</p> 	<p>70517 - Body Post Mount (1pc)</p> 
<p>70518 - Body Posts (4pcs)</p> 	<p>70528 - Knuckles (2pcs)</p> 	<p>70529 - C-Hubs (2pcs)</p> 	<p>70530 - Lower Suspension Arms (2pcs)</p> 	<p>70541 - CVA Axle (2pcs)</p> 
<p>70542 - Shocks (2pcs)</p> 	<p>70544 - Shock Bushings (4pcs)</p> 	<p>70107 - Steering Servo Saver Plastics</p> 	<p>60298 - Servo Horns</p> 	<p>70123 - Servo Saver Hardware</p> 
<p>70142 - Servo Link</p> 	<p>70141 - Gearbox Spacers (2pcs)</p> 	<p>70124 - Steering Posts (2pcs)</p> 	<p>70125 - Rear Input Gear w/ Main Shaft</p> 	<p>70128 - Battery Straps (250mm)</p> 
<p>06045 - Front/Rear Gear Box Housing</p> 	<p>03013 - Servo Mounts</p> 	<p>02039 - Differential Case Set</p> 	<p>11184 - Metal Spur Gear (64T)</p> 	<p>11200 - Metal Motor Pinion Gear (19T) (DUKONO PRO)</p> 























# PARTS

## SPARE PARTS:

<p>11187 - Metal Motor Pinion Gear (17T) (DUKONO)</p> 	<p>02024 - Complete Differential</p> 	<p>02030 - Front Input Gear w/ Shaft</p> 	<p>08074 - Differential Crown Gear (38T)</p> 	<p>02066 - Differential Bevel Gears</p> 
<p>02032 - Differential Outdrive Cups (C)</p> 	<p>02016 - Drive Cups + Grub Screws (B)</p> 	<p>70119 - Wheels</p> 	<p>70120 - Tires and Foams</p> 	<p>70121 - Wheel/Tire Complete</p> 
<p>14559 - Ball Bearing (8*5*2.5)</p> 	<p>02138 - Ball Bearing (15*10*4)</p> 	<p>02139 - Ball Bearing (10*5*4)</p> 	<p>04003 - Center Drive Shaft</p> 	<p>02173 - Lower Inner Hinge Pin Brace</p> 
<p>02036 - Front Inner Lower Suspension Hinge Pin (3*44mm)</p> 	<p>50078 - Servo Washers (3*8*0.8mm)</p> 	<p>70131 - Column Head Machine Screw (Hex Head) (3*45mm) 3P</p> 	<p>70549 - Front Lower Suspension Arm Hinge Screws (3*30mm) 4P</p> 	<p>85837 - Flat Head Self Tapping Screw (Hex Head) (3*10mm) 12P</p> 
<p>60240 - Threaded Ball Studs (5.8mm)</p> 	<p>02102 - Nylon Lock Nut M3</p> 	<p>02099 - Grub Screw M4*4</p> 	<p>70129 - Flanged Lock Nut M4</p> 	<p>60242 - Steering Bushings</p> 
<p>02100 - Wheel Hex</p> 	<p>14546 - Shock Pivot Ball</p> 	<p>70127 - E-Clip (ø2.5mm)</p> 	<p>50043 - E-Clip (ø4mm)</p> 	<p>02053 - Body Clips</p> 
<p>08027 - Pin (2*10mm)</p> 	<p>85845 - Cap Head Self Tapping Screw (Hex Head) (3*8mm) 4P</p> 	<p>85843 - Cap Head Self Tapping Screw (Hex Head) (3*12mm) 4P</p> 	<p>85846 - Cap Head Self Tapping Screw (Hex Head) (3*14mm) 4P</p> 	<p>14585 Cap Head Machine Screw (Hex Head) (2*6mm) 8P</p> 

# PARTS

## SPARE PARTS:

<p>50100 - Cap Head Machine Screw (Hex Head) (3*10mm) 8P</p> 	<p>70547 - Cap Head Machine Screw (Hex Head) (3*16mm) 6P</p> 	<p>82047 - Cap Head Machine Screw (Hex Head) (3*25mm) 4P</p> 	<p>02086 - Button Head Self Tapping Screw (Hex Head) (2*10mm) 10P</p> 	<p>70130 - Flat Head Screw (Hex Head) (3*6mm) 5P</p> 
<p>02093 - Column Head Machine Screw (Hex Head) (3*10mm) 10P</p> 	<p>70145 - Column Head Machine Screw (Hex Head) (3*12mm) 10P</p> 	<p>85825 - Flat Head Machine Screw (Hex Head) (3*10mm) 4P</p> 	<p>70132 - Flat Head Self Tapping Screw (Hex Head) (3*8mm) 10P</p> 	<p>28446 - 19T Brushed Motor (Rc550) (DUKONO)</p> 
<p>03302 - Brushless Motor (3300Kv) (DUKONO PRO)</p> 	<p>HW-WP-1040-BRUSHED - Brushed ESC (40A) (DUKONO)</p> 	<p>HW-WP-10BL60-RTR-D - Brushless ESC (60A) (DUKONO PRO)</p> 	<p>RCR-2CENR - 2.4GHz Radio Transmitter</p> 	<p>28480 - 2.4GHz Receiver</p> 
<p>HX-6CP - 6kg Steering Servo (DUKONO)</p> 	<p>HX-15CS - 15kg Steering Servo w/ Metal Gears (DUKONO PRO)</p> 	<p>HX-3000MH-7CELL-B - NiMH Battery (8.4V 3000mAh) (DUKONO)</p> 	<p>HX-01003B - NiMH Battery Charger (DUKONO)</p> 	<p>H10-R - Body (Red) H10-GR - Body (Grey) H10-B - Body (Black) H10-O - Body (Orange) H10-G - Body (Green) H10-BL - Body (Blue)</p> 



# PARTS

## UPGRADE PARTS:

<p>701008 - Aluminum Center Skid Plate</p> 	<p>701009 - Aluminum Electronics Tray</p> 	<p>705006 - Aluminum Shock Tower (1pc)</p> 	<p>705009 - Aluminum Knuckles (2pcs)</p> 	<p>705010 - Aluminum C-Hubs (2pcs)</p> 
<p>705015 - Aluminum Lower Suspension Arms (2pcs)</p> 	<p>701001 - Aluminum Steering Servo Saver Assembly (Hardware not included)</p> 	<p>108837 - Aluminum Body Post (4pcs)(Purple)</p> 	<p>701005 - Aluminum Servo Mounts</p> 	<p>102048 - Aluminum Nylon Lock Nut M3 (8pcs) (Purple)</p> 
<p>102049 - Aluminum Flanged Lock Nut M4 (4pcs)(Purple)</p> 	<p>70105 - LED Light Clip (optional)</p>  <p>Hex 2*6</p>	<p>HX-403 - LIPO balance charger</p> 	<p>HX-580030C-D - Hexfly 5800MAH 7.4V 30C LIPO battery.</p> 	



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