



ESHX ^{RTR}

1/10 EP Racing Monster Truck 510003

Instruction Manual



Thank you for choosing the Team Magic E5 4X4 Monster Truck. The E5 4X4 Monster Truck is designed to be fun to drive and use top quality parts for performance and durability. Before you start building your new R/C kit, we suggest you read through the instruction manual first. Be sure to check all assembly and performance tips before you start. We hope you enjoy the building processes.

General Building Tips:

- ▶ Read the instruction manual before building.
- ▶ Clear a work area and try to work on a light color towel to avoid missing dropped parts.
- ▶ Don't over-tighten fasteners. Many assembly problems are caused by over-tightening screws or nuts. Don't use too large a grip. Please go slowly and feel the resistance build. Just snug it up.
- ▶ When it doesn't fit, please double check. If an assembly is not going together correctly, then either there really is a bad fit (e.g. a part is damaged or defective) or a mistake in assembly. Always re-read the instructions when there are any problems. If you cannot figure out what's wrong, always ask dealer, distributor or Team Magic. Don't use force beyond what the instructions call for.
- ▶ Using the right tools makes assembly much easier. The instructions below finely indicate you what tools to get to make things easier. We don't want to scare you by saying that all these tools are required, but you will have a easier time if you have them. Borrow them from a friend to check if necessary.
- ▶ The assembly is arranged so that you will open the bag and finish that bag before you go on to the next bag. Sometimes, you will have parts remaining at the end of a bag. These will become part of the following bags.

A Good Dealer Is Extremely Important!!

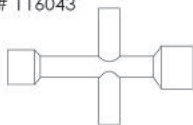
A good hobby dealer can help you with most assembly problems you might encounter. This is the main reason why you should buy your kits from a good dealer rather than from the cheapest dealer. Bring your problematic parts to the dealer and, most likely, you'll walk away soon thereafter with the problem solved. If you think that you really don't have the mechanical skills to complete the assembly, you may pay your dealer to finish the job for you.



Thank you for purchasing the E5 4X4 Monster Truck. To drive the car, you will need to check the following procedures.

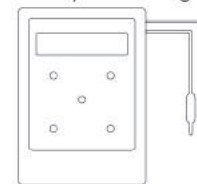
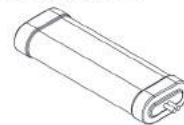
1 Included tools

- Cross Wrench (4, 5, 5.5 & 7mm) # 116043



2 Required items

- AA Alkaline Or Rechargeable Batteries For Transmitter, 4pcs
- 7.4v / 11.1v Rechargeable Battery Pack X 1
- Battery Pack charger

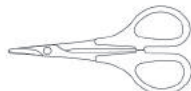


3 Helpful equipments

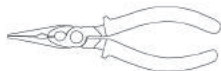
- Hobby Knife (Warning!! This knife cuts nylon parts and fingers with equal ease. Be careful.)



- Body Scissors (for body cutting) #116006



- Needlenose Pliers



- TM Black RC Hex Wrench Metric Size 1.5mm #117057-1



- TM Black RC Hex Wrench Metric Size 2.0mm #117057-2



- TM Black RC Hex Wrench Metric Size 2.5mm #117057-3



- TM Black RC Hex Wrench Metric Size 3.0mm #117057-4



- TM Black HC Nut Driver 5.5mm (for 3mm nut) #117010



- Circlip Plier #117032



Water Warning

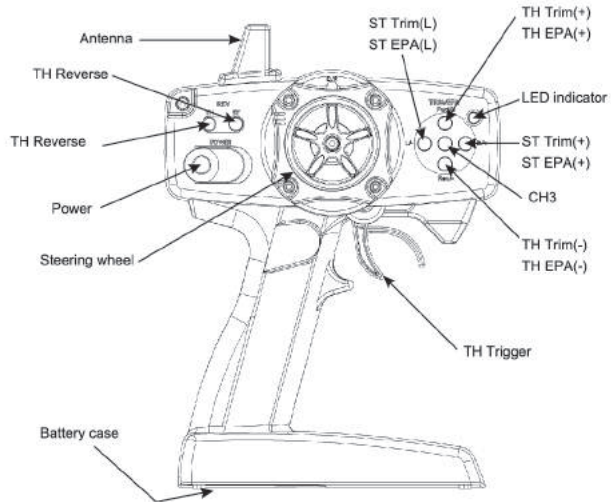
- ▶ After vehicle gets wet, please unplug the ESC from the battery to avoid putting users in danger. Also, rust proofing the bearings and metal parts is highly recommended.



- ▶ If you feel driving in water is necessary, please seal holes in the tires and rims before performing this action to prevent the tire foam from absorbing water inside the tiers.

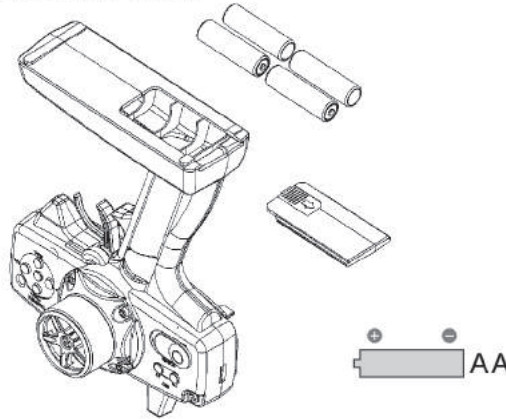
Instruction & Setup Manual

1 Transmitter Function



2 Operating Procedure

01 Install 4pcs AA batteries to the H.A.R.D transmitter.



02

- Turn the steering wheel right to turn the front tires go right.
- Turn the steering wheel left to turn the front tires go left.



03

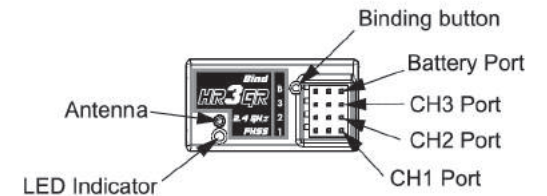
- Press the throttle trigger to moving forward the vehicle
- Push forward the throttle trigger to brake and reverse the vehicle.



3 Binding (connecting the receiver to transmitter)

Binding the Receiver to the Transmitter

"Binding" is tuning receiver to the frequencies used by the transmitter. Bind the receiver to the transmitter as follows:



1. With both transmitter and receiver turned off, place the units no more than 30 cm (1ft) apart.
2. While holding down the receiver's BIND button, apply power to the receiver. Its LED will start to flash steadily, indicating that the unit is in binding mode, a state that lasts up to 30 seconds.
3. Turn the transmitter on. It will immediately go into binding mode, a state that lasts one second.
4. When the receiver's LED shines steadily, binding complete.



Congratulations and thank you for your trust in Team Magic product. By purchasing a MAX10-80A-3S, you have chosen a high performance brushless electronic speed controller! This sensorless speed-control is equipped with high-tech features to enhance your experience with Team Magic Brushless power systems. Improper usage and unauthorized modifications to our product is extremely dangerous and may damage the product and related devices. Please take your time and read the following instructions carefully before you start using your speed control.

1 Warnings

- Ensure all wires and connections are well insulated before connecting the ESC to related devices, as short circuit will damage your ESC.
- Ensure all devices are well connected to prevent poor connection that may cause your vehicle to lose control or other unpredictable issues such as damage to the device.
- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Please use a soldering iron with the power of at least 60W to solder all input/output wires and connectors.
- Do not hold the vehicle in the air and rev it up to full throttle, as rubber tires can "expand" to extreme size or even crack to cause serious injury.
- Stop using the ESC when its casing temperature exceeds 90°C/194°F; otherwise your ESC will get destroyed and may also get your motor damaged. 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 fully dry it right after use.
- Always disconnect the batteries after use, as the ESC will continue to consume current if it's connected to batteries (even if the ESC is turned off). Long-time contact will cause batteries to completely discharge and result in damage to batteries or ESC. This WILL NOT be covered under warranty.

2 Features

- ESC is compatible with both sensorless and sensed brushless motors (only in sensorless mode).
- Fully waterproof design for all conditions.
- Super internal switch-mode BEC with switchable voltage of 6V/7.4V and cont./peak current of 3A/6A for usage with high torque and high voltage servos.
- Highly reliable electronic switch design prevents mechanical switch failure due to dirt, water, dust and etc.
- Separate programming port to easily connect the LED program card or the LCD program box to the ESC.
- Proportional brake with 9 levels of maximum brake force and drag brake force.
- 5 levels of acceleration/punch from soft to aggressive for different vehicles, tires and tracks.
- Capacitor Protection : Innovative Capacitor Protection effectively protects capacitors from exploding and causing irreversible damage to the ESC from overloading.
- Multiple protections: motor lock-up protection, low-voltage cutoff protection, thermal protection, overload protection, and fail safe (throttle signal loss protection).
- Single-button ESC programming and factory reset.
- Advanced programming via portable LED program card.

3 Specifications

Model	MAX10-120A-3S	MAX10-100A-3S	MAX10-80A-3S
Cont./Peak Current	120A/830A	100A/650A	80A/520A
Motor Limit	Sensored / Sensorless Brushless Motor		
Applications	1/10 th Touring Car, Buggy, Truggy and Monster Truck		
Motor Limit	with 2S LiPo/6 Cell NiMH: KV≤6000 with 3S LiPo/9 Cell NiMH: KV≤4000 (3656 size motor)	with 2S LiPo/6 Cell NiMH: KV≤5500 with 3S LiPo/9 Cell NiMH: KV≤3500 (3656 size motor)	with 2S LiPo/6 Cell NiMH: KV≤5000 with 3S LiPo/9 Cell NiMH: KV≤3000 (3656 size motor)
LiPo / NiMH Cells	2-3S LiPo/6-9S NiMH		
BEC Output	6V/7.4V Switchable, Continuous Current of 3A (Switch-mode)		
Fan (Included)	Powered by the stable BEC voltage of 6V/7.4V Input End: No Connectors.		
Connectors	Output End: 4.0mm Female Gold Connectors (pre-soldered onto the PCB of the ESC).		
Size/Weight (mm/g)	49mm(L)*39.5mm(W)*34.7mm(H)/105g		
Programming Port	FAN/PRG Port		

4 Connections

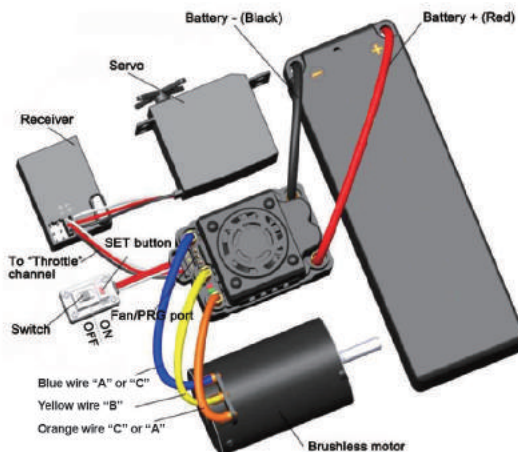
NOTE1 : The cooling fans of ESC is supplied by the built-in BEC, so it is always working under 6V .

[BEGIN TO USE THE NEW ESC]

WARNING! For safety, please always keep the wheels away from the track when switching on the ESC.

1. Connect The ESC, Motor, Receiver, Battery And Servo

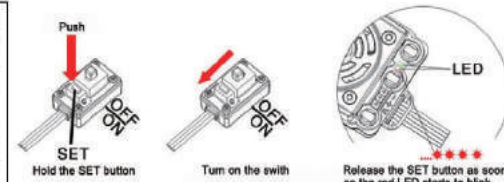
The #A, #B, #C wires of the ESC can be connected with the motor wires freely (without any sequence). If the motor runs in the opposite direction, please swap any two wire connections.



2. Throttle Range Setting (Throttle Range Calibration)

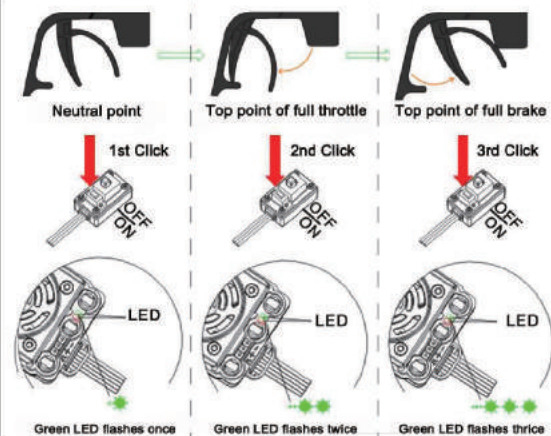
In order to make the ESC match the throttle range you must calibrate it when you begin to use a new ESC, or a new transmitter, or change the settings of neutral position of the throttle stick, ATV or EPA parameters, etc.

- Switch off the ESC, turn on the transmitter, set the direction of throttle channel to "REV", set the "EPA/ATV" value of throttle channel to "100%", and disable the ABS function of your transmitter.
- Hold the "SET" key and then switch on the ESC, and release the "SET" key as soon as possible when the red LED begins to flash. (Note2)



Note2: If you don't release the "SET" key as soon as 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.

- Set the 3 points according to the steps shown in the pictures on the right side.
 - The neutral point**
Move the throttle stick at the neutral point, and then click the SET key, the green LED flashes 1 time.
 - The end point of forward direction**
Move the throttle stick at the end point of forward direction, and then click the SET key, the green LED flashes 2 times.
 - The end point of backward direction**
Move the throttle stick at the end point of backward direction, and then click the SET key, the green LED flashes 3 times.
- Throttle range is calibrated; motor can be started after 3 seconds.



3. Check LED Status In Normal Running

- ▶ Normally, if the throttle stick is located in the neutral range, neither the red LED nor the green LED lights.
- ▶ The red LED lights when the car is running forward or backward and it will flash quickly when the car is braking.
- ▶ The green LED lights when the throttle stick is moved to the top point of the forward zone.

5 Power On-OFF Warning

- Power ON/OFF: (Start with the ESC turned off), press the ON/OFF button to turn on the ESC; (start with the ESC turned on) press and hold the ON/OFF button to turn off the ESC.
- Warning Tones: Turn on the ESC (that is to turn it on without holding the SET button); the motor will beep the number of LiPo cells you have plugged in. For example, 2 beeps indicate a 2S LiPo, 3 beeps indicate a 3S LiPo.

6 Programmable Items

(Those black background and white text" options are the factory default settings.)

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 Calculation	2S	3S						
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%

1) Running Mode

Option 1: Forward with Brake

It has forward and brake functions only and is usually a racing mode.

Option 2: Forward / Reverse with Brake

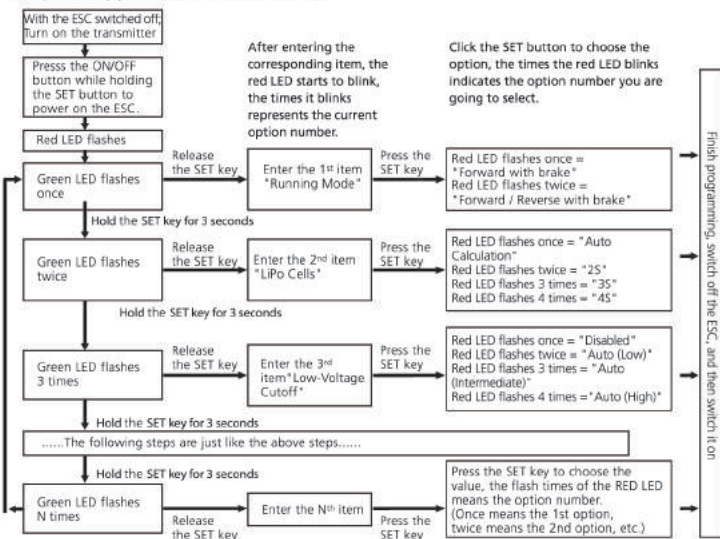
This mode can be used as for training and it has "Forward/ Reverse with Brake" mode. Hobbywing adopted the "DOUBLE-CLICK" method, that is your vehicle only brakes on the 1st time you push the throttle trigger forward (brake) (1st push). The motor stops when you quickly release the throttle trigger and then re-push the trigger quickly (2nd push), only then the vehicle will reverse. The reverse function will not work if your car does not come to a

User Manual of MAX10-80A-3S Sensorless Brushless Speed Controller

- complete stop. The vehicle only reverses after the motor stops. This method is for preventing vehicle from being accidentally reversed.
- Lipo Cells**
"Auto Calculation" is the default setting. If LiPo batteries are often used with the same cell count, we would strongly recommend setting this item manually to avoid the incorrect "calculation" (For instance, the ESC may take a not fully charged 3S LiPo as a fully charged 2S LiPo) which may cause the low-voltage cutoff protection to not function ideally.
 - Cutoff Voltage**
Sets the voltage at which the ESC lowers or removes power to the motor in order to either keep the battery at a safe minimum voltage (for LiPo batteries). The ESC monitors 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. Please set the "Disabled" the "Cutoff Voltage" if you are using Ni-Mh batteries.
Warning: If you set the Cutoff Voltage to Disabled when you use a LiPo pack, then please pay attention to the power change of your vehicle. In general, the battery voltage gets pretty low when your vehicle is severely losing power, then you should stop using that pack.
 - ESC Thermal Protection**
The ESC will automatically cut off the output with the GREEN LED flashes (☆☆, ☆, ☆) when the temperature gets up to the value you've previously preset and activates the ESC Thermal Protection. The output will not resume until the temperature gets down.
 - Motor Thermal Protection**
This item has been permanently set to "None" by the manufacturer.
 - Motor Rotation**
Pull the throttle trigger with the motor shaft facing you, the motor spins counter clockwise. When this item is set to **CCW**; the motor spins clockwise. When it is set to **CW**. The (A/B/C) wiring order of motors from different manufacturers may vary, so do the direction of the motor rotations. You can adjust the "Motor Rotation" or swap any two (ESC-to-motor) wires if the motor runs in reverse.
 - BEC Voltage :**
Option 1 : 6.0V
It's applicable to 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
It's applicable to high voltage servos. Do not use this option with ordinary servos; otherwise your servos may be burnt due to high voltage.
 - Max. Brake Force**
The ESC provides proportional braking function; the braking effect is decided by the position of the throttle trigger. It sets the percentage of available braking power when full brake is applied. Large amount will shorten the braking time but it may damage your pinion and spur. Please select the most suitable brake amount as per your car condition and your preference.
 - Max. Reverse Force**
Different reverse amount will bring different reversing speed. For the safety of your vehicle, we recommend using a low amount.
 - Start Mode / Punch**
You can choose the punch from level 1 (very soft) to level 5 (very aggressive) as per the track, tires, grip, conditions. This feature is very useful for preventing tires from wheel-spinning during the warm-up process. In addition, "level 4" and "level 5" have strict requirement on battery's discharge capability. It may affect the starting up if the battery discharges poorly and cannot provide large current in a short time. If the car stutters or suddenly loses power in the starting-up process, indicates that the battery's discharge capability is poor, you might need to reduce the punch or increase the FDR (Final Drive Ratio).
 - Drag Brake**
Drag brake is the braking power produced when releasing from full speed to neutral zone. This is to simulate the slight braking effect of a neutral brushed motor while coasting. (Attention! Drag brake will consume much power, so apply it cautiously.)

7 ESC Programming

1) Programming your ESC with the SET button



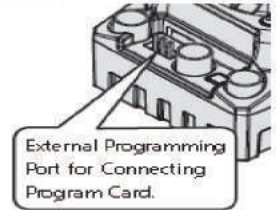
Note 2:

- For easy recognition, the motor beeps at the same time when the GREEN LED flashes.
- When "N" (the number) is equal to or bigger than 5, we use a long flash to represent "5". For example, the GREEN LED flashes a long flash (and the motor beeps a long beep at the same time) indicating you are in the 5th programmable item; if the GREEN flashes a long flash and a short flash (and the motor beeps a long beep and a short beep at the same time) indicating you are in the 6th programmable item; a long flash and two short flashes (a long beep and two short beeps at the same time) indicating you're in the 7th programmable item and so on.

2) Program your ESC with a LED program card

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

Note 3: 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 in the PRG/FAN port and the other end (of the programming cable) in the ESC port on the LCD program box. Please don't use the throttle control cable (also called Rx cable) on the ESC to connect the program card/box, otherwise the program card/box won't function.



8 Factory Reset

1) Restore the default values with the SET button

Press and hold the SET button for over 3 seconds anytime when the throttle trigger is at the neutral position (except during the ESC calibration and programming) can 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 back on, your settings will be back in the default mode.

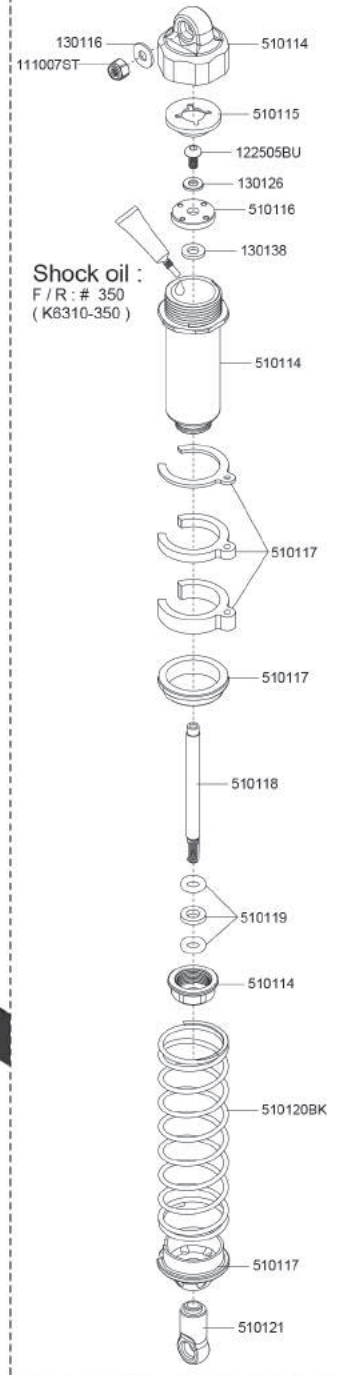
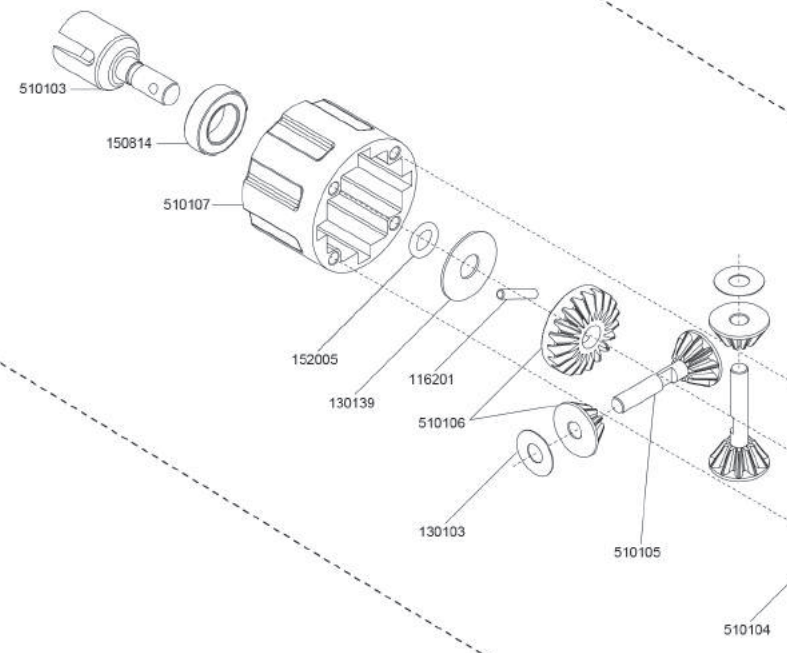
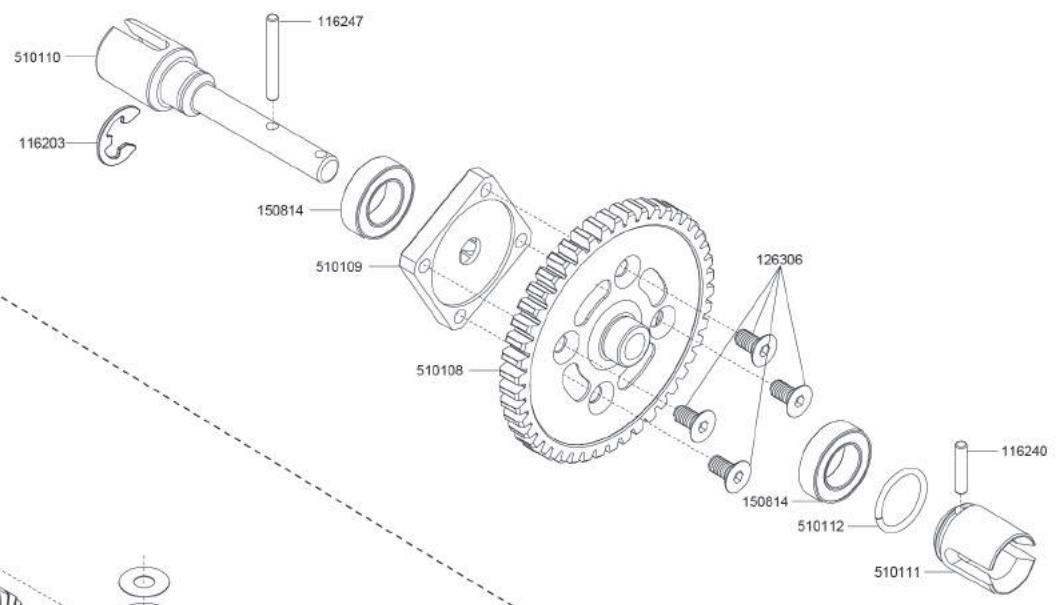
2) Restore the default values with a LED program card

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

9 Troubleshooting

Trouble	Possible Reason	Solution
After power on, motor doesn't work, and the cooling fan doesn't work	No power was supplied to the ESC.	Check if all ESC & battery connectors have been well soldered or firmly connected.
	The ESC switch was damaged	Replace the broken switch.
After power on, motor can'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 was powered on and finished LiPo cells detection (the GREEN LED flashed N times), and then the RED LED flashed rapidly.	The ESC didn't detect any throttle signal.	Check if the throttle wire is reversely plugged in or in the wrong channel and if 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 release 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.
	Your chassis is different from popular chassis.	
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.	Some soldering between the motor and the ESC was not good.	Check all soldering points, please re-solder if necessary.
	The ESC was damaged (some MOSFETs were burnt).	Contact the distributor for repair or other customer services.
The vehicle could run forward (and brake), but could not reverse.	The throttle neutral position on your transmitter was actually in the braking zone.	Re-calibrate the throttle neutral position. No LED on the ESC will come on when the throttle trigger is at the neutral position.
	Set the "Running Mode" improperly.	Set the "running mode" to "Forward/Reverse with Brake".
The car ran forward/backward slowly when the throttle trigger was at the neutral position.	The ESC was damaged.	Contact the distributor for repair or other customer services.
	The neutral position on the transmitter was not stable, so signals were not stable either.	Replace your transmitter
The LED program card kept display 3 short lines (- -) after you connected it to your ESC.	The ESC calibration was not proper.	Re-calibrate the throttle range or fine tune the neutral position on the transmitter.
	It is wrong to use the Rx cable to connect 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 and the full brake endpoint after the neutral position was accepted.	The programming card/box was connected to the ESC via the throttle control cable (Rx cable).	
	The ESC throttle cable wasn't plugged in the correct channel on the receiver.	Plug the throttle cable into the throttle (TH) channel on your receiver.
	The ESC throttle cable was reversely plugged in.	Plug in the throttle cable properly by referring to relevant mark shown on your receiver.

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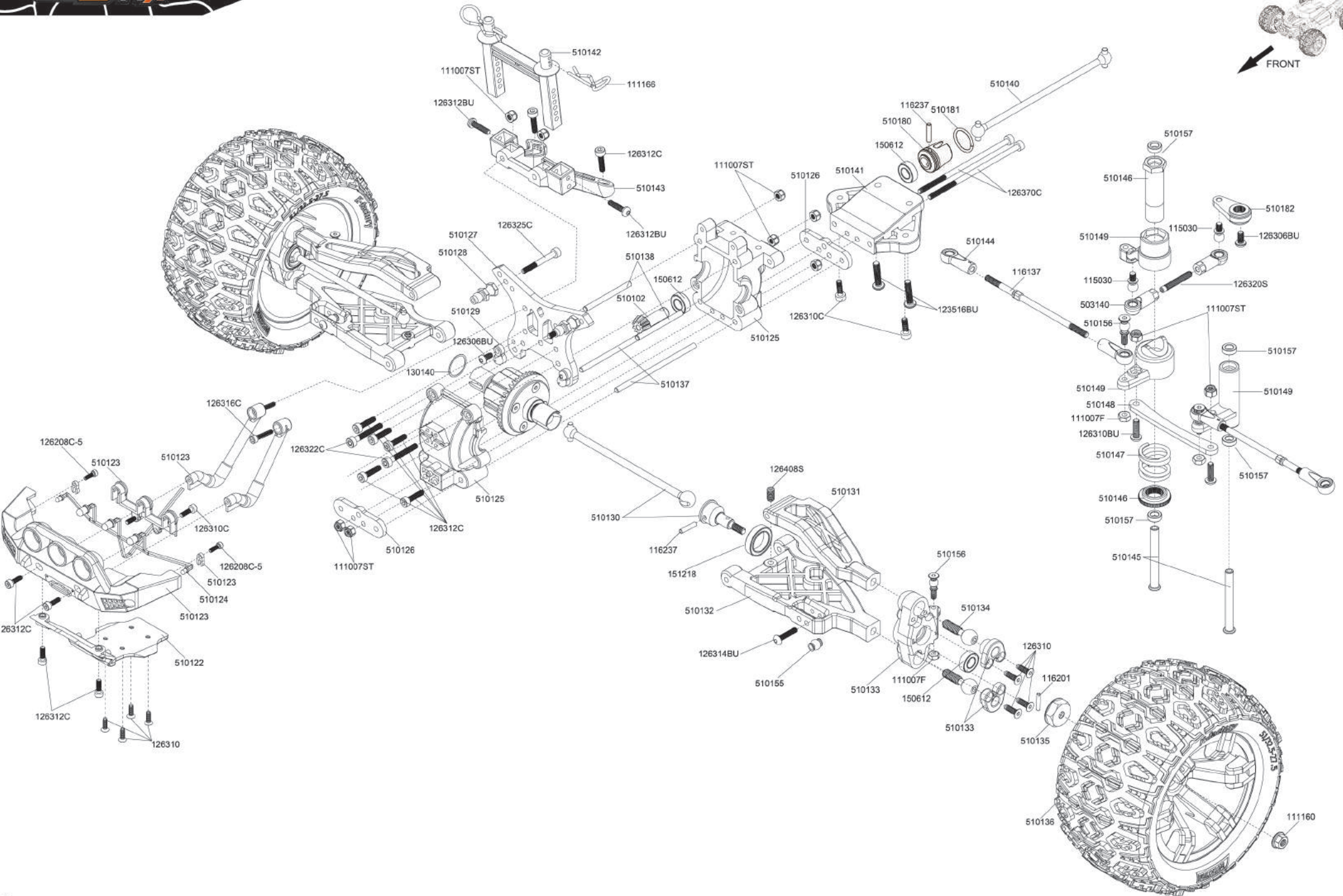
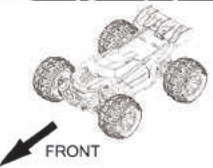


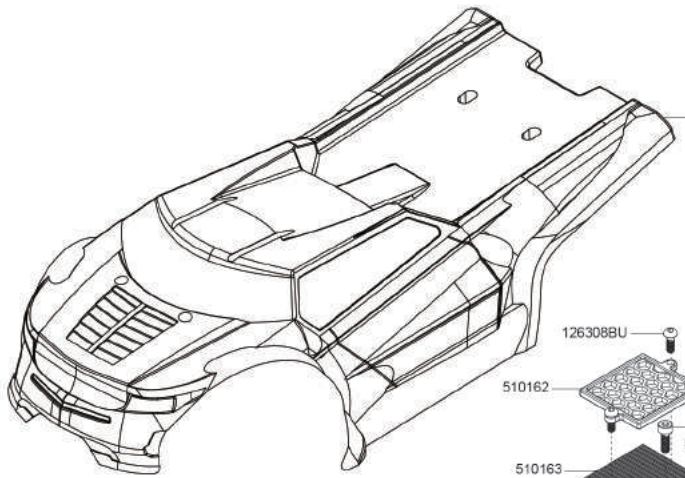
Shock oil :
 F/R : # 350
 (K8310-350)

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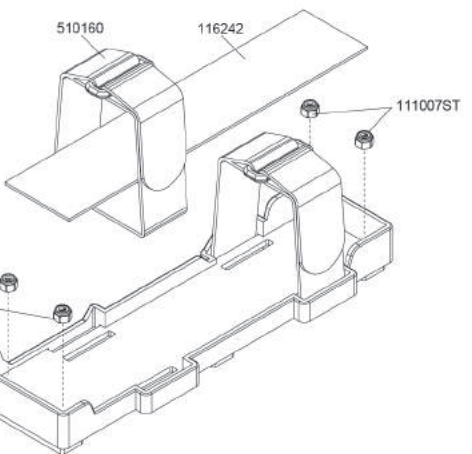
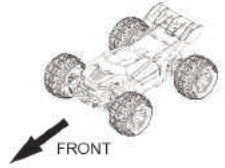
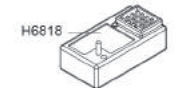
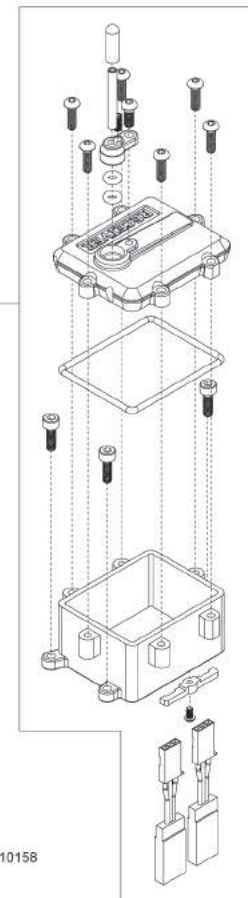
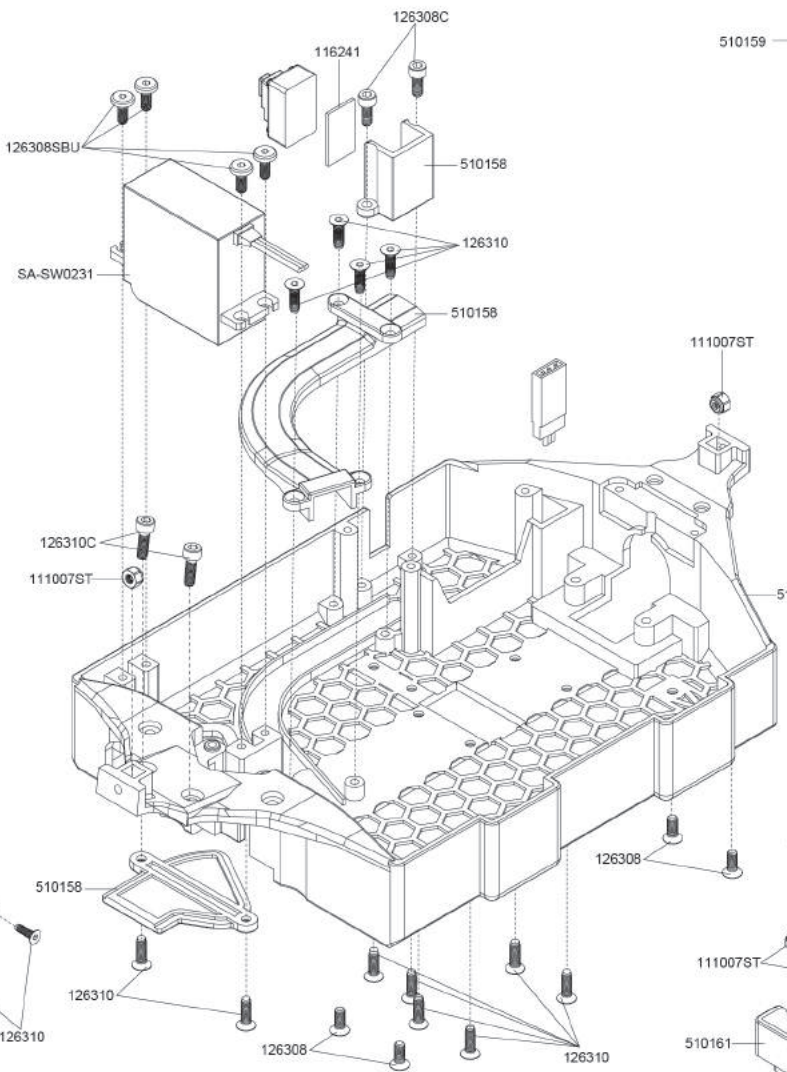
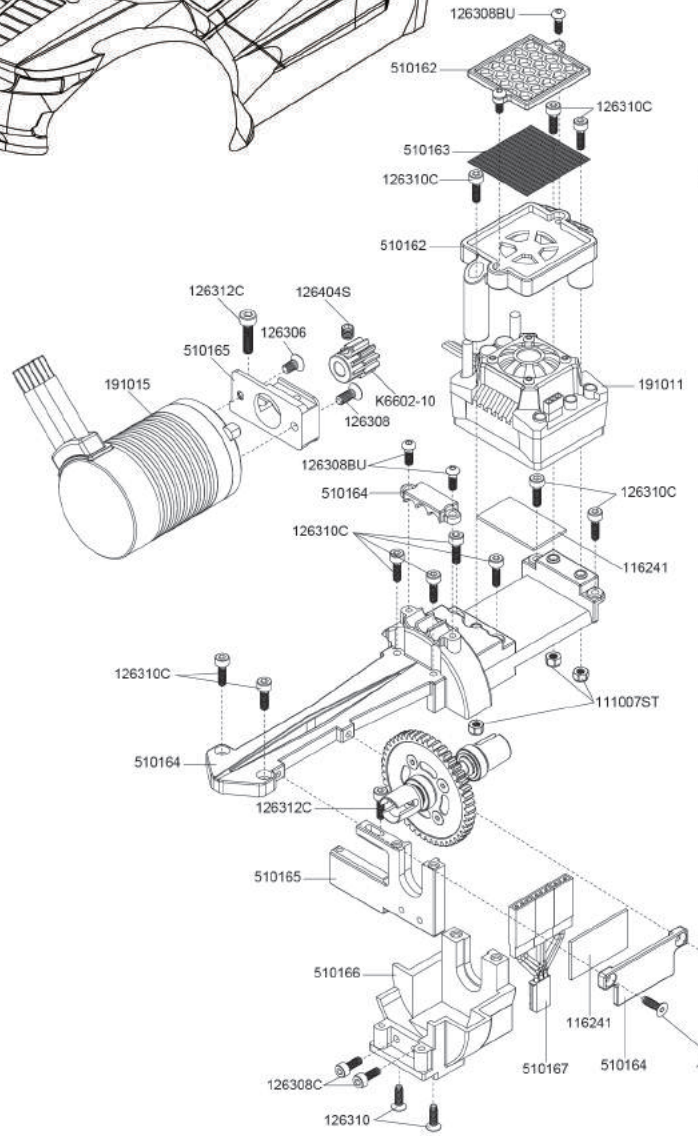
Diff oil :
 F/R : # 7000 (K6330-7000)

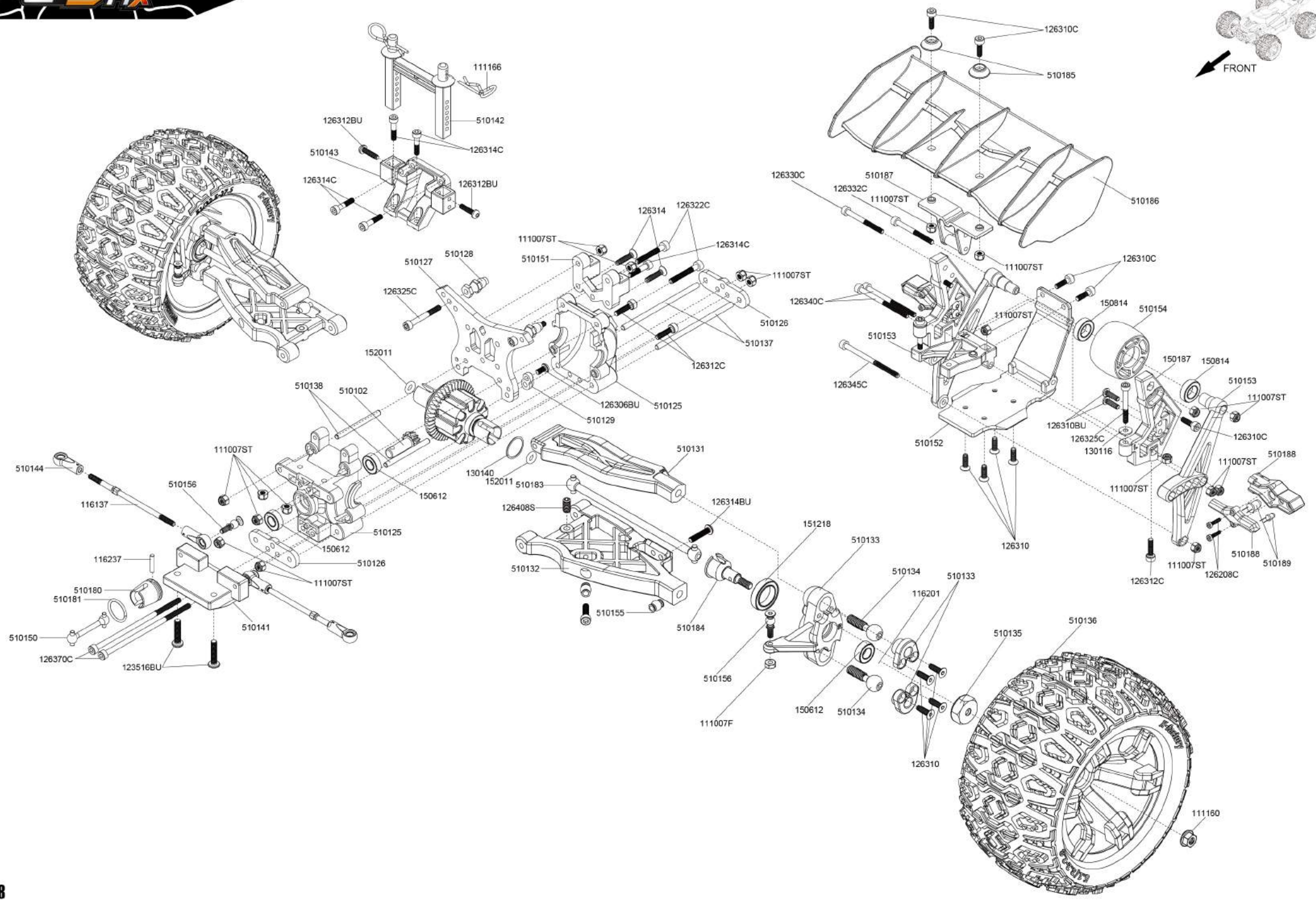
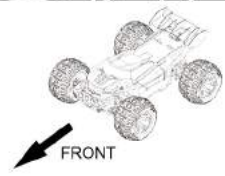






- 510190C (Clear)
- 510190B (Blue)
- 510190G (Green)
- 510190O (Orange)
- 510190R (Red)







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MADE IN TAIWAN
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