用户使用说明书

User's Instruction Manual

HUNTER BL

Model #:8331

1/10 Scale 4WD Brushless Short Course Truck

Introduction

Thank you for choosing **DHK's HUNTER BL**! This evolutionary short course truck(SCT) is designed in thorough research and assembled with utmost craftsmanship. This 1:10 sclale 4WD brushless SCT can run as fast as 35MPH/55KPH. It is easy to drive and it uses quality parts and accessories to achieve best performance. It will bring you a lot of joy and fun when you drive this model. Before starting to run the model, you are kindly requested to take some time to review this instruction

manual for a better operation. This easy to follow instruction manual aims to provide a general guideline for end-users. Kindly note that a good understanding of the model, its relevant parts together with other accessories packed in this consumer box will enable you to have fun in driving. Meanwhile, users are recommended to conduct regular maintenance for a smooth performance. Failure to do so might shorten the lifespan of your model. You are cordially advised that DHK Hobby makes all necessary parts and accessories to support you for any problem during and after your driving.

Before you operate this radio controlled model, you must understand the following:

1.Make sure that all screws and nuts are tightened securely.

2.Make sure that the batteries are fresh or fully charged so the vehicle won't lose control.

3.Do not drive the model in the following places/areas to avoid injury of people and damage to the public property. Drive your model in open areas.

> On public streets or parks. Cause injury or death of pedestrians, young children, animals and pets.

> On highways. Cause accidents or damage of the model.

> In water. Cause damage to electronic components and parts, or direct failure of the model.

4.Check all signals and electronic parts are working properly.

After running, battery, ESC, and motor can be very hot. Make sure not to touch with bare hands.

Warning:

This high performance model can run very fast. It is designed and produced for people of 14+ years of age to operate. Players under that age should be guided by adult supervision. Entry level players should seek guidance and supervision from experienced model players. Players are responsible for any/all accidental occurrences (human or animal injury, damage to property and possessions, breakage of the model itself) due to improper operation of this model.

Model specifications

Specs	HUNTER BL
Overall length	: 572mm (22.5 in)
Width	: 306mm (12.0 in) (Excluding body)
Height	: 153mm (6.02 in)(Excluding body)
Wheelbase	: 330mm (13 in)
Ground clearance	: 30mm (1.2 in)
Weight (net)	: 5.8lbs/2.60kgs(Excluding transmitter)
Front track/rear track	: 258mm/258mm (10.2 in/10.2 in)
Tire diameter/width	: Φ108*45mm (Φ4.3*1.8 in)
Wheel diameter/width	: Φ60.5*40mm (Φ2.4*1.6 in)
Gear ratio	: 13.17:1
Speed	: 35MPH/56KPH

Articles required to operate the model

4 pcs AA batteries (Ni-Mh or Ni-Cd rechargeable batteries, or non-rechargeable alkaline batteries) for 2.4GHz transmitter. Please refer to the 2.4GHz transmitter Instruction Manual.

Lipo balance charger (#P109) (for 2S/3S Lipo battery) 850mAh output with AC input

2 Channel 2.4GHz radio system

HUNTER BL comes with a full function 2 channel 2.4GHz radio transmitter and receiver. Please refer to the 2.4GHz User's Instructions Manual for detail.

Brushless electronic speed controller (ESC)

HUNTER BL comes with 45A brushless electronic speed controller. Please refer to the instructions manual of the ESC for detail.

Brushless electric motor

Motor 3650 KV(RPM)	: 3970
Power	: 21.0V
Empty load current	: 2.0A(10V)
Resistance(Ω)	: 11Ω
Length(including motor shaft)	: 70mm
Diameter	: 36mm
Weight	: 170g
Shaft diameter	: 3.175mm

6kgs Servo

Features	: Plastic gears, ball bearings
Working voltage	: 4.8-6.0V
Speed (seconds/60°C)	: 0.18-0.16sec/60º
Torque	: 6kg/cm
Net weight	: 40g
Size(LxWxH)	: 40.8x20.1x38mm

Lipo Batteries

This short course truck comes with 7.4V 2S 2300mAh Lipo battery pack. Handling Lipo batteries should be very careful. Please read the following points with regard to charging and discharging Lipo batteries.

Charging the Lipo battery

Important warnings:

Be sure to follow these important warnings regarding the charging of Lipo batteries.

> Never leave a Lipo battery unattended at any time while being charged.
> Never charge a Lipo battery while it's inside the model. A hot pack could ignite wood, foam,plastic, etc.
> Never charge Lipo battery with Ni-Mh or Ni-Cd peak charger. Only use a charger designed specifically for Lipo batteries which can apply the constant current/constant voltage charge technique.
> Never charge Lipo battery at currents greater than the "1C" rating of the battery.
> Never allow Lipo cells to overheat at any time. Cells which exceed 60ºC (140°F) during charge can and usually will become damaged physically and possibly catch fire. Always inspect a battery which has previously overheated and do not re-use if you suspect it has been damaged in any way.
> Always discontinue charging a Lipo immediately if at any time you witness smoke or see the battery starting to swell up. This may cause the battery to rupture and/or lead, and the reaction with air may cause the chemicals to ignite, resulting in fire. Disconnect the battery and leave it in a safe fireproof location for approximately 15 minutes.
> Always charge a Lipo battery in a fireproof location, which could be a container made of metal, ceramic tile, or a bucket of sand.
> Never allow a battery's positive and negative leads to accidentally touch each other. This will result in a short circuit and cause permanent damage to your battery and charger.
> Always monitor the battery and charger during the entire charge process. Never leave the battery and charger unattended during charge!
> Never continue to charge the Lipo batteries if the charger fails to recognize full charge. Overheating or swelling of the Lipo cells is an indication that a problem exists and the batteries should be disconnected from the charger immediately and placed in a fireproof location.

Discharging the Lipo battery

> Never leave a Lipo battery unattended at any time while being discharged.
> Always discharge Lipo batteries in a fireproof location, which could be a container made of metal or on ceramic tile.
> Always connect the battery's lead marked "Discharge" or "TO ESC" to the electronic speed controller. Never attempt to connect the battery's "CHARGE" lead to the ESC.
> It is strongly recommended to use an ESC which is designed to handle the low voltage cutoff points or Lipo batteries (Always follow the instructions provided with the ESC for proper operation). Discharging Lipo batteries below 2.5V per cell (Norm is 3.7V per cell, at 4.2V once fully charged) can cause permanent damage and limit the number of times the battery can effectively be used again.
> Never discharge Lipo batteries at currents which exceed the discharge current rating of the battery as this can often cause a cell to overheat. Do not allow a Lipo cell to exceed 60°C (140°F) during discharge.

Caution!

Cells may be hot. Do not allow the battery's internal electrolyte to get in the eyes or on skin. Wash affected areas with soap and water immediately if they come in contact with the electrolyte. If electrolyte makes

contact with the eyes, flush with large amounts of water for 15 minutes and seek medical attention immediately.

Carefully inspect Lipo batteries which have been involved in a crash for even the smallest of cracks, splits, punctures or damage to the wiring and connectors.

Disposal of Lipo batteries

Unlike Ni-Cd batteries, Lithium-polymer batteries are environmentally friendly. For safety reasons, it's best that Lipo cells be fully discharged before disposal (however, if physically damaged it is not recommended to discharge Lipo cells before disposal). The batteries must also be cool before proceeding with disposal instructions. To dispose of Lipo cells and packs:

> If any Lipo cell in the pack has been physically damaged, resulting in a swollen cell or a split or tear in a cell's foil covering, do not discharge the battery.
> Place the Lipo battery in a fireproof container or bucket of sand.
> Connect the battery to a Lipo discharger. Set the discharge cutoff voltage to the lowest possible value. Set the discharge current to a C/10 value, with "C" being the capacity rating of the pack.
> Discharge the battery until its voltage reaches 1.0V per cell or lower. For resistive load type dischargers, discharge the battery for up to 24 hours.
> Submerse the battery into bucket or tub of salt water. This container should have a lid, but it does not need to be air-tight. Perhaps a bucket or tub containing 3 to 5 gallons of cold water, and mix in 1/2 cup of salt per gallon of water. Drop the battery into the salt water. All the battery to remain in the tub of salt water for at least 2 weeks.
> Remove the Lipo battery from the salt water and place it in the normal trash.

Terminology

Electronic speed controller (ESC)

An electronic circuit with the purpose to vary an electric motor's speed, its direction and possibly also to act as a dynamic brake. ESCs are often used on electrically-powered radio controlled models.

An ESC can be a stand-alone unit which plugs into the receiver's throttle control channel or incorporated into the receiver itself, as is the case in most toy-grade R/C vehicles. Some R/C manufacturers that install proprietary hobby-grade electronics in their entry-level vehicles, vessels or aircraft use onboard electronics that combine the two on a single circuit board.

Brushless DC motors (BLDC motors, BL motors)

Also known as **electronically commutated motors** (ECMs, EC motors) are synchronous electric motors powered by direct-current (DC) electricity and having electronic commutation systems, rather than mechanical commutators and brushes. The current-to-torque and voltage-to-speed relationships of BLDC motors are linear.

BLDC motors may be described as stepper motors, with fixed permanent magnets and possibly more poles on the rotor than the stator, or reluctance motors. The latter may be without permanent magnets, just poles that are induced on the rotor then pulled into alignment by timed stator windings. However, the term stepper motor tends to be used for motors that are designed specifically to be operated in a mode where they are frequently stopped with the rotor in a defined angular position.

RC servos

Servos are hobbyist remote control devices typically employed in radio-controlled models, where they are used to provide actuation for various mechanical systems such as the steering of a car, the control surfaces on a plane, or the rudder of a boat.

Due to their affordability, reliability, and simplicity of control by microprocessors, RC servos are often used in small-scale robotics applications.

RC servos are composed of an electric motor mechanically linked to a potentiometer. A standard RC receiver sends Pulse-width modulation (PWM) signals to the servo. The electronics inside the servo

translate the width of the pulse into a position. When the servo is commanded to rotate, the motor is powered until the potentiometer reaches the value corresponding to the commanded position.

RC servos use a three-pin 0.1" spacing jack (female) which mates to standard 0.025" square pins (which should be gold-plated, incidentally). The most common order is Signal, +voltage, ground. The standard voltage is 6VDC, however 4.8V and 12V has also been seen for a few servos. The control signal is a digital PWM signal with a 50Hz frame rate. Within each 20ms timeframe, an active-high digital pulse controls the position. The pulse nominally ranges from 1.0ms to 2.0ms with 1.5ms always being center of range. Pulse widths outside this range can be used for "overtravel" -moving the servo beyond its normal range. This PWM signal is sometimes (incorrectly) called Pulse Position Modulation (PPM).

The servo is controlled by three wires: ground, power, and control. The servo will move based on the pulses sent over the control wire, which set the angle of the actuator arm. The servo expects a pulse every 20 ms in order to gain correct information about the angle. The width of the servo pulse dictates the range of the servo's angular motion.

A servo pulse of 1.5 ms width will typically set the servo to its "neutral" position or 45°, a pulse of 1.25 ms could set it to 0° and a pulse of 1.75 ms to 90°. The physical limits and timings of the servo hardware varies between brands and models, but a general servo's angular motion will travel somewhere in the range of 90° - 120° and the neutral position is almost always at 1.5 ms. This is the "standard pulse servo mode" used by all hobby analog servos.

A hobby digital servo is controlled by the same "standard pulse servo mode" pulses as an analog servo. Some hobby digital servos can be set to another mode that allows a robot controller to read back the actual position of the servo shaft. Some hobby digital servos can optionally be set to another mode and "programmed", so it has the desired PID controller characteristics when it is later driven by a standard RC RC servos are usually powered by the receiver which in turn is powered by battery packs or an Electronic speed controller (ESC) with an integrated or a separate Battery eliminator circuit (BEC). Common battery packs are either NiCd, NiMH or Lithium-ion polymer battery (LiPo) type. Voltage ratings vary, but most receivers are operated at 5V or 6V.

Parts List

Number	Desc
8381-100	Assembly of diff gear box
8381-101	Diff set
8381-102	Diff outdrive/pins (dia 2*10mm)
8381-103	Pins(dia 2*10mm) (16 pcs)
8381-104	Flathead screw-coarse thread(KB2.6*10 mm) (16 pcs)
8381-105	Crown gear-41T (large)/pinion gear-11T (small)
8381-106	Diff case set/diff case cover/diff gasket
8381-107	Washer-A/washer-B (8 pcs each)
8381-108	Gear-18T (2 pcs)/gear-12T (4 pcs)
8381-109	O Ring(dia 8mm * dia 2mm) (16 pcs)
8381-110	Ball bearing(dia 10mm * dia 15*4mm) (2 pcs)
8381-111	Diff pins(dia 4*25.8mm) (4 pcs)
8381-112	Assembly of the pinion gear
8381-113	Flathead screw(KM2.6X6mm) (16 pcs)
8381-114	Ball bearing(dia 8mm * dia14*4mm) (2 pcs)
8381-115	Pins(dia 2*8mm) (16 pcs)
8381-116	Pinion gear outdrive/pins(dia 2*8mm)
8381-117	Ball bearing(dia 5 mm * dia 11*4mm) (2 pcs)
8381-118	Diff gear box-F/R
8381-119	B head screw-coarse thread(BB3*16mm) (16 pcs)
8381-206	Center diff gear box/center diff gear box plate
8381-207	B head screw-coarse thread (BB3*20mm) (16 pcs)
8381-208	Center outdrive set
8381-305	Shock ball (8 pcs)
8381-306	M3 nylon nut (8 pcs)
8381-309	Shock shaft (4 pcs)
8381-310	Shock spring (4 pcs)
8381-50L	Assembly of upper sus.arm-Left
8381-50R	Assembly of upper sus.arm-right
8381-501	Upper sus.arm ball (4 pcs)
8381-502	Upper sus.arm/rod end (2 sets)
8381-503	Upper sus.arm linkage (2 pcs)
8381-601	Brass washer (4 pcs)
8381-602	Servo saver bushing/adjustment ring
8381-603	Servo saver spring (4 pcs)
8381-604	Servo saver sus. Arm-upper/lower/ steering sus. Arm
8381-605	B head screw-coarse thread(BB3*12mm) (16 pcs)
8381-606	Servo saver assembly-complete
8381-608	Shaft (2 pcs)
8131-6Z0	Assembly of steering linkage (2 pcs)
8381-6Z1	Steering linkage (2 pcs)
8381-6Z2	Plastic rod end (8 pcs)
8381-6Z3	Double way ball end (8 pcs)
8381-701	Upper sus.arm mount-rear/suspension mount
8381-702	B head screw-coarse thread(BB3*14mm) (16 pcs)
8381-703	B head screw-coarse thread(BB3*10mm) (16 pcs)
8381-706	Lower sus.arm-front (2 pcs)
8381-707	Drive shaft set/revolving shaft (2 sets)
8381-710	Ball bearing(dia 6mm * dia 12*4mm) (2 pcs)

Number	Desc
8381-714	C-hub (2 pcs)
8381-717	Shock tower (2 pcs)
8381-718	Pivot ball mount (4 pcs)
8381-719	Upper sus.arm shaft (4 pcs)
8381-721	Lower sus.arm plate-front
8381-723	C-hub screw bushings (16 pcs)
8381-724	T head hex screws (TM4*12mm) (16 pcs)
8381-725	T head hex screws (TM4*22mm) (16 pcs)
8381-726	B head screw-coarse thread(BB3*18mm) (16 pcs)
8381-727	B head screw(BM3*56mm) (8 pcs)
8381-728	B head screw(BM3*43mm) (8 pcs)
8382-703	Body post holder/body post
8382-705	B head screw(BM3*24mm) (16 pcs)
8381-801	Lower sus.arm-rear (2 pcs)
8381-802	Rear hub-L/R
8381-803	B head screw(BM3*18mm) (16 pcs)
8381-805	B head screw(BM3*10mm) (16 pcs)
8381-807	Pin-A(dia 1.5mm) (16 pcs)
8132-9M1	Motor gear-15/Lock nut(M3*3)
8381-9S1	Servo mount
9381-9B4	Servo arm-B (2 pcs)
8131-9S2	B head screw(BM2.6*6mm) (12 pcs)
8381-9Z0	Assembly of steering tie rod
8381-9Z1	Steering tie rod (2 pcs)
8381-005	Central drive shaft-A
8381-006	Central drive shaft-B
8381-008	Antenna tube (3 pcs)
8381-009	Pin-B(Φ1.2mm) (16 pcs)
8381-010	Screw washer(4 pcs)
8381-011	Flathead screw(KM3X10mm) (16 pcs)
8381-012	Flathead screw-coarse thread (KB3*10mm) (16 pcs)
8381-016	Upper deck-A
8381-017	Upper deck-B
8381-024	Flathead screw(KM4X11.5mm) (12 pcs)
8331-200	Central diff gear box(complete)
8331-201	Central diff set
8331-001	Printed body (PC) (W/body decals)
8331-002	Body decals (Hunter BL)
8135-001	Tire complete (black rims) (2 pcs)
8135-002	Chassis
8135-003	Body nerf bars (left & right)
8135-004	Upper deck mount-F/R
8135-005	Battery mount-C/D
8135-006	Waterproof receiver box
8135-007	Tires with foams (unglued) (2 pcs)
8135-008	Wheels (2 pcs)
8331-001C	Clear SCT body(PC) (W/body decals and window cutout)
8135-203	Spur gear-53T(plastic) (2 pcs)
8135-301	Shock absorber complete (2 pcs)
8135-600	Servo saver assembly-complete
8135-601	Steering plate
8135-701	Wheel axle (2 pcs)
8135-702	Steering arm (2 pcs)
8135-703	Hex adapter (4 pcs)
8135-704	Set screws-M4 (4 pcs)
8135-705	Front bumper/upper sus.arm mount-front
8135-801	Rear bumper/upper sus.arm mount-front
8135-9M1	Motor mount
D303	Servo (6kg)
D302T	2.4GHz transmitter

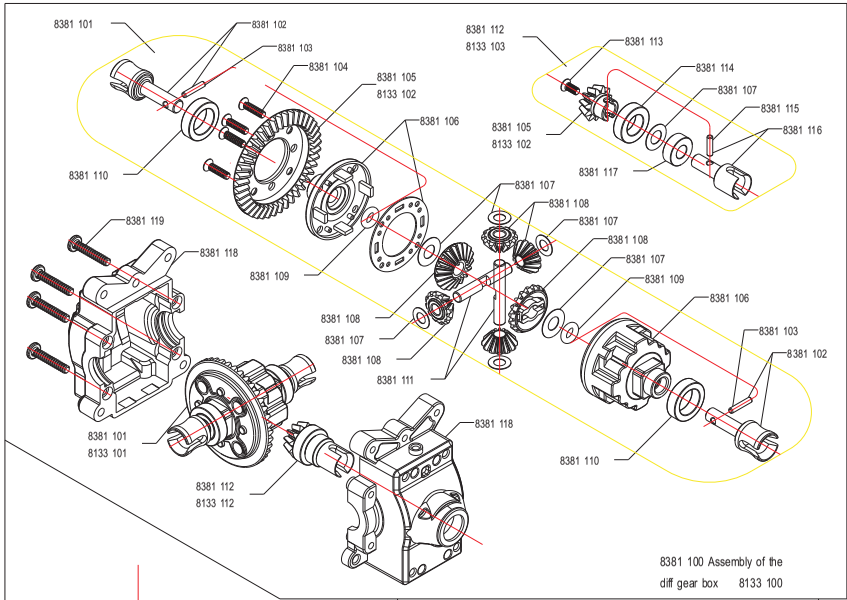
Parts List

Number	Desc
D302S	2.4GHz receiver
H121	Brushless ESC (45A) Waterproof

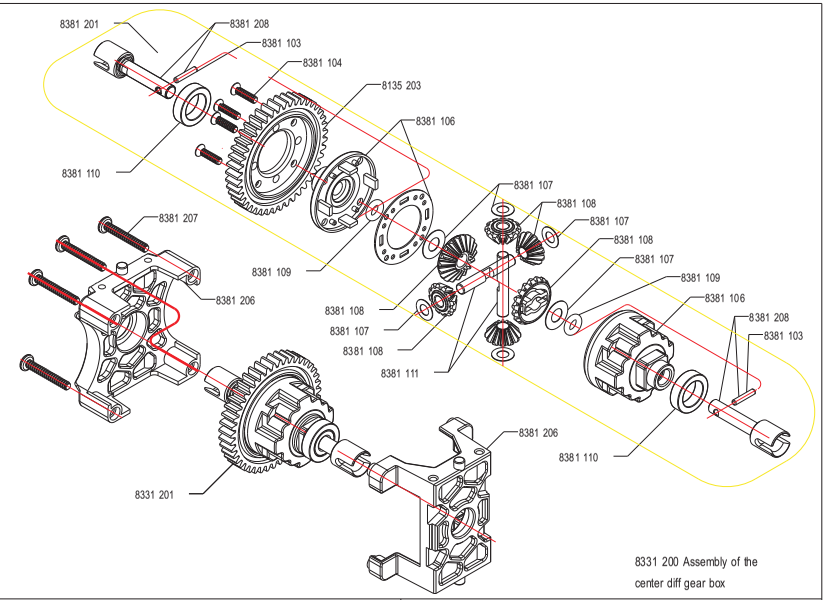
Number	Desc
H109	Brushless motor (KV:3970)
H113	LiPo battery (7.4V, 20C, 2300mAh)

Optional Parts

8381-400	Anti-roll bar assembly
8381-40L	Assembly of anti-roll bar linkage-Left
8381-40R	Assembly of anti-roll bar linkage-Right
8381-401	Anti-roll bar rod end (8 pcs)
8381-402	Anti-roll bar linkage (4 pcs)
8381-403	Anti-roll bar pivot ball-upper/lower (4 sets)
8381-404	Set screws (M3*3mm) (8 pcs)
8381-405	Anti-roll bar(dia 2.2mm) (2 pcs)
8381-607	Steering plate
8381-709	Steering arm (2 pcs)
8381-716	Set screws (M4*10mm) (16 pcs)



8381 100 Assembly of the
diff gear box 8133 100



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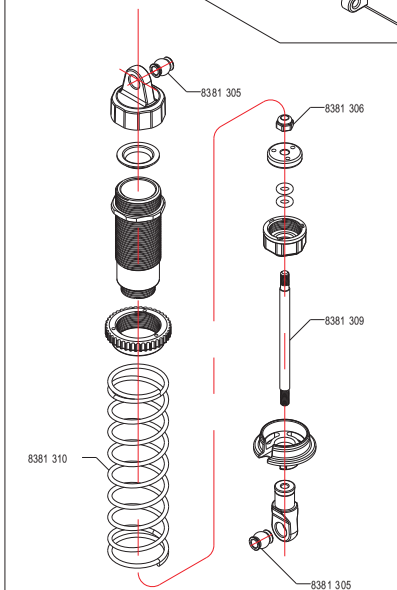
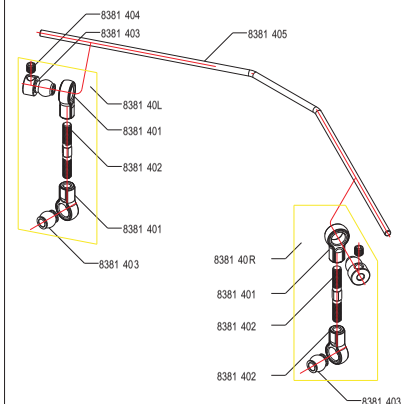
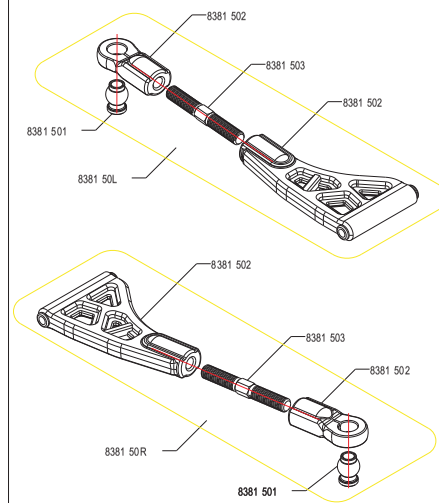


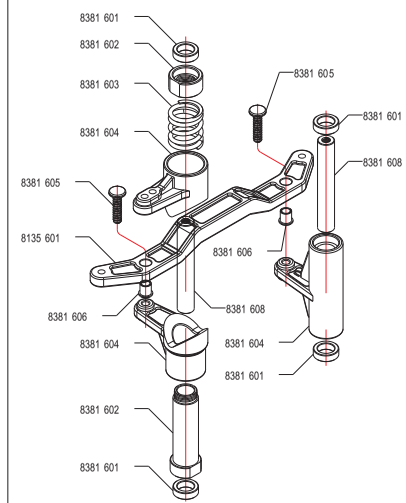
8135 300 Assembly of the
shocks



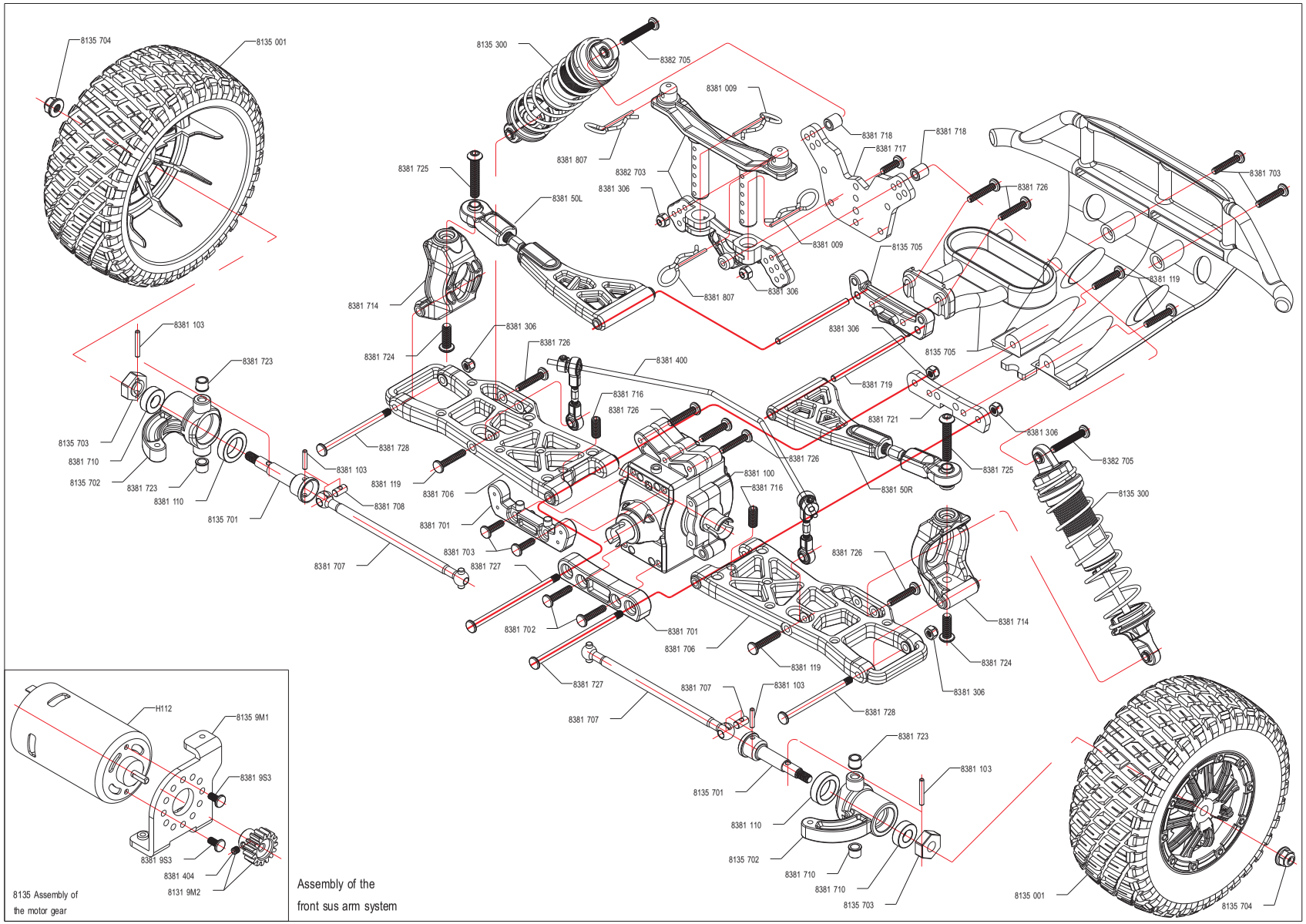
8381 400 Assembly of the
sway bar



8381 50L Assembly of upper sus arm Left
8381 50L Assembly of upper sus arm Right

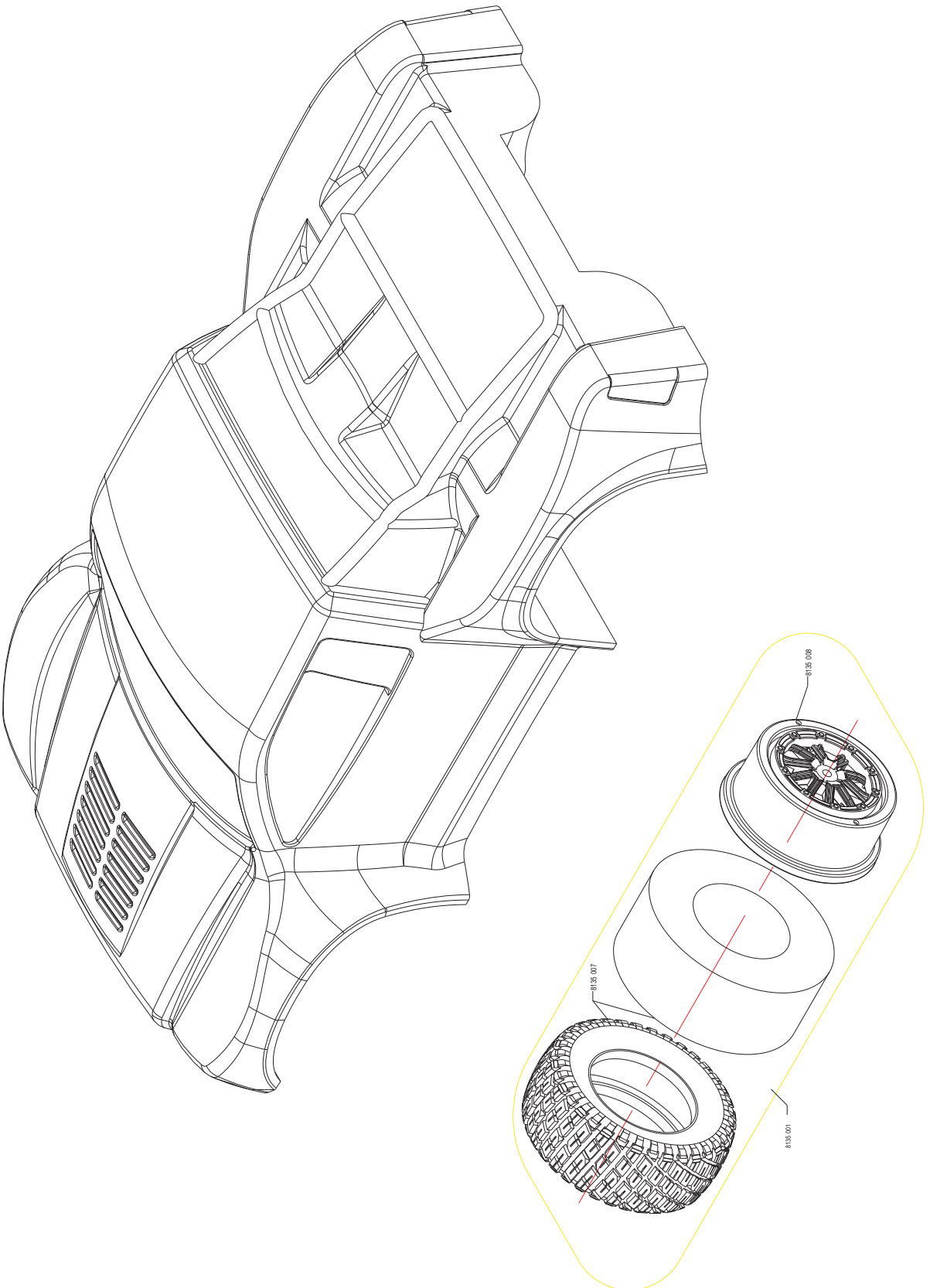


8135 600 Assembly of the
servo saver



8135 Assembly of the motor gear

Assembly of the front sus arm system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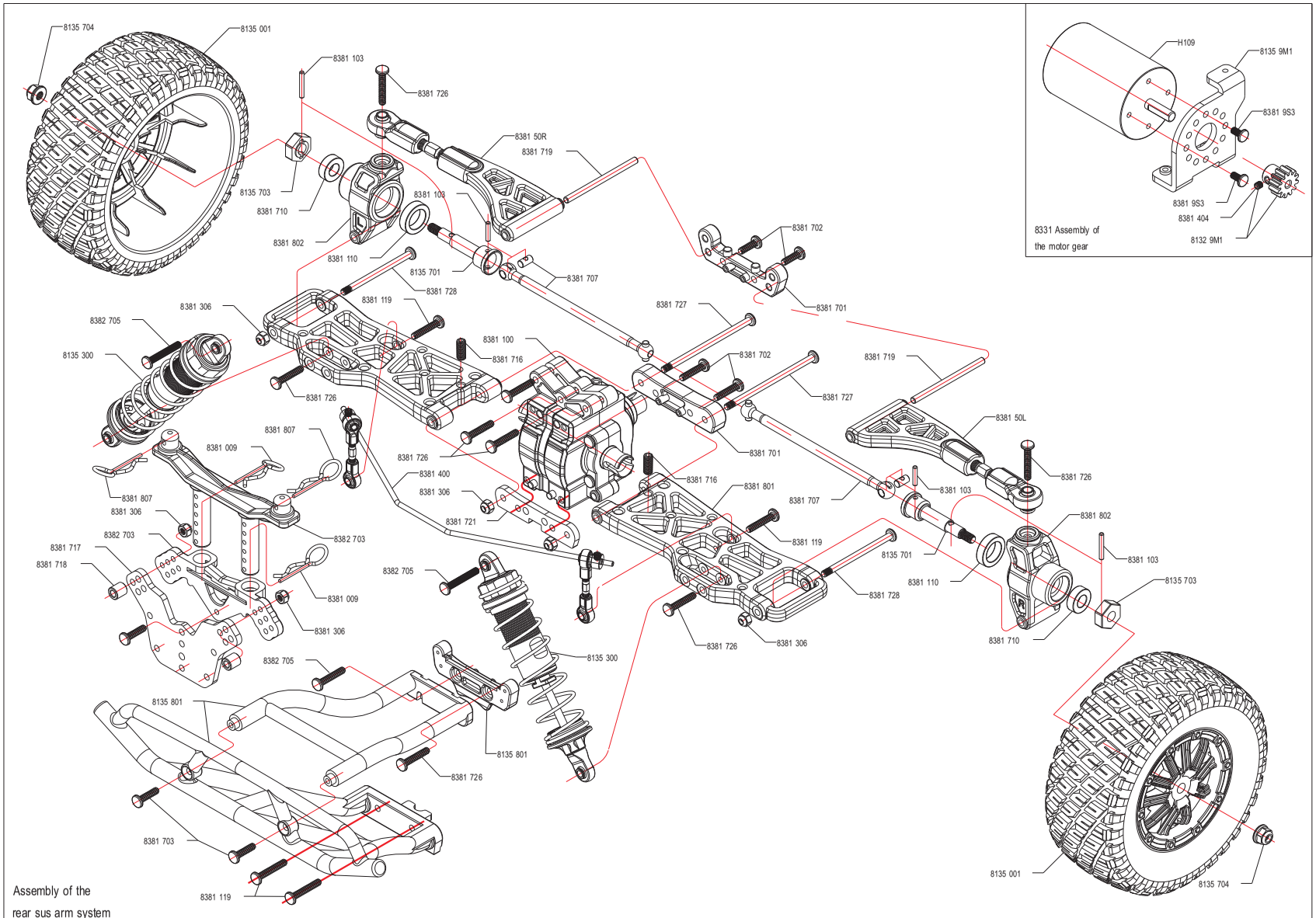
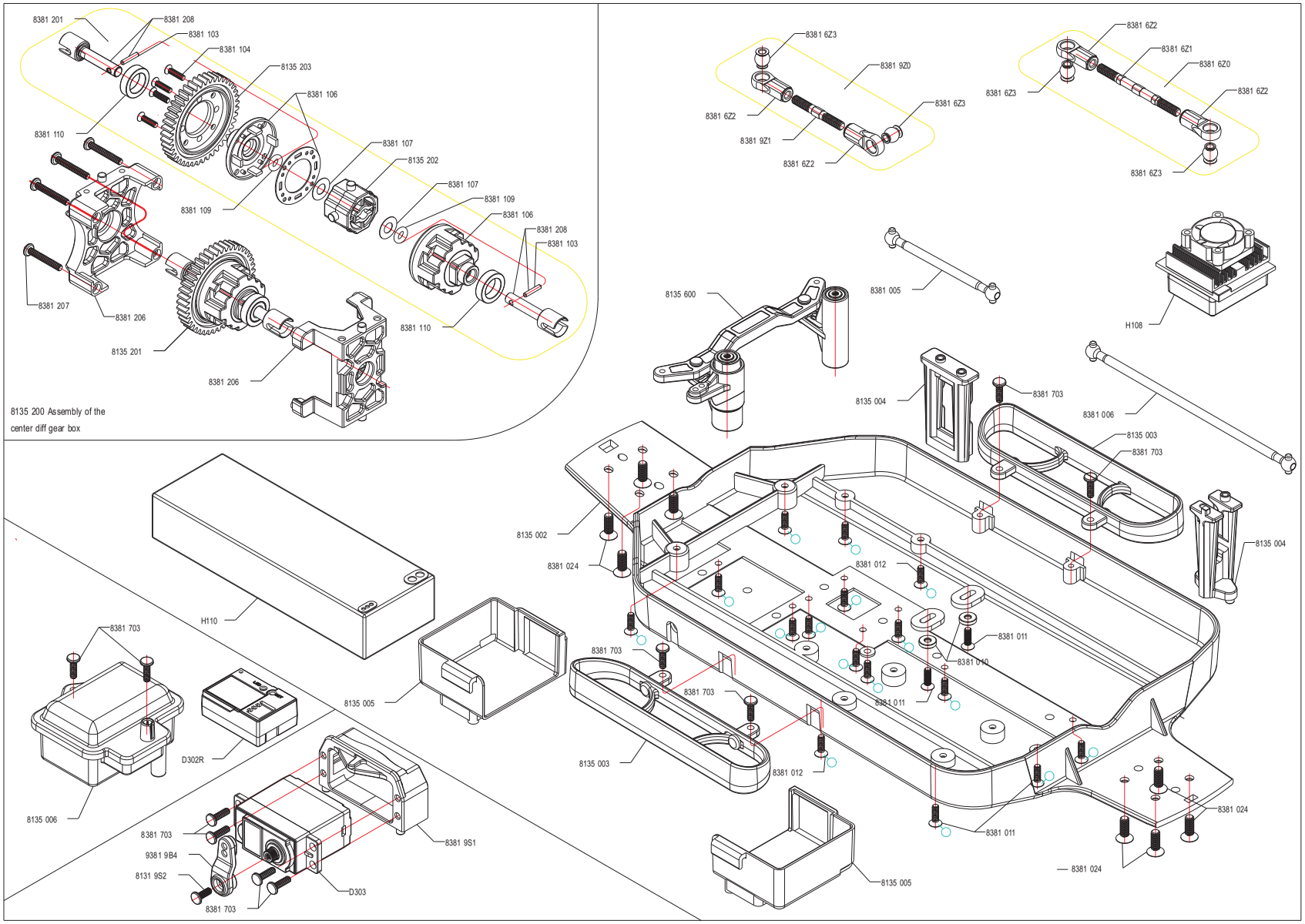


Assembly of the
rear sus arm system

8331 Assembly of
the motor gear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8381 110
8135 200 Assembly of the
center diff gear box
8381 6Z3
8381 9Z0
8381 6Z2
8381 6Z3
8381 9Z1
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8381 6Z2
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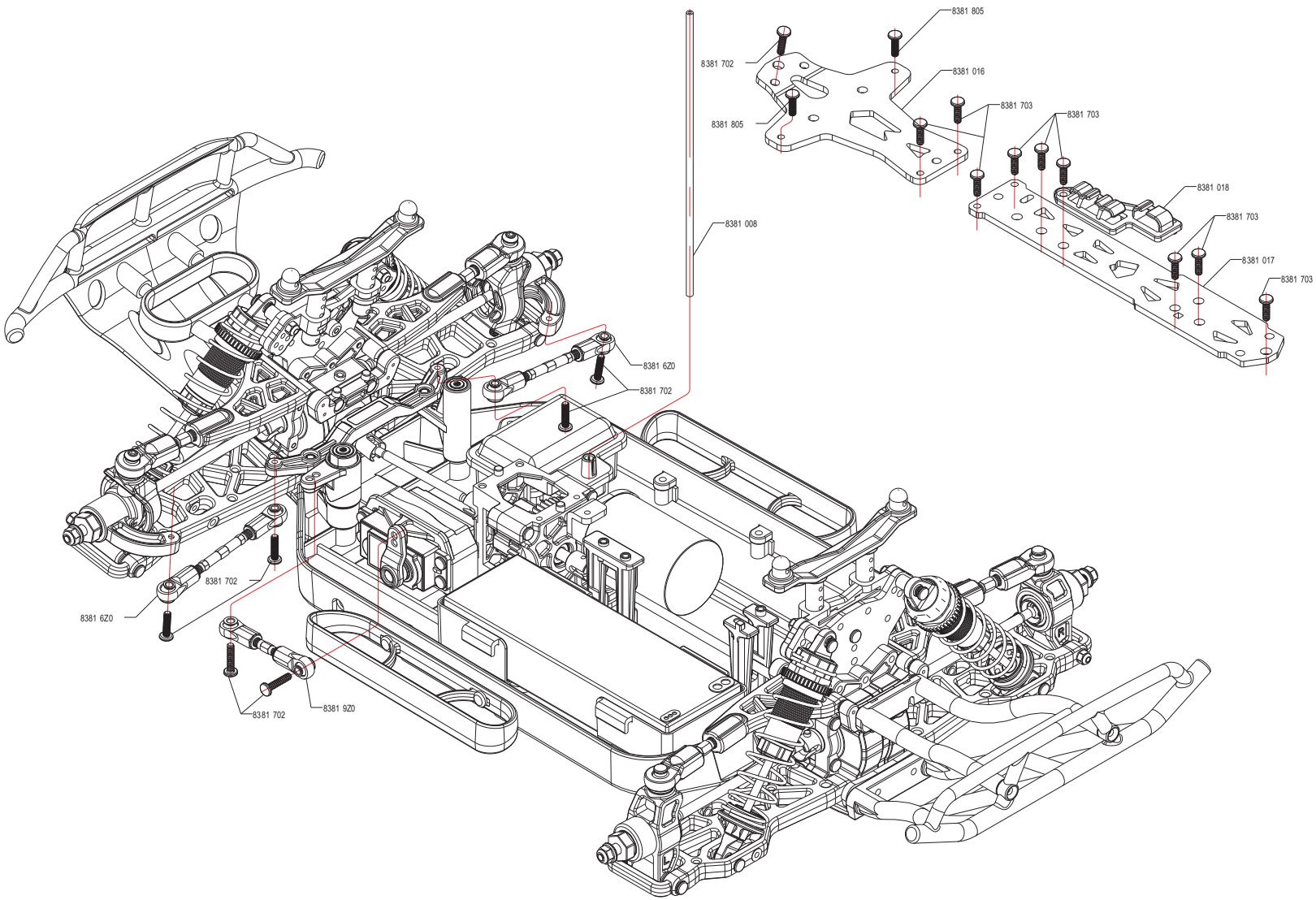
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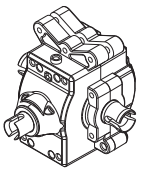
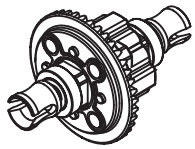
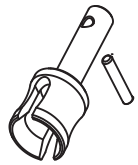


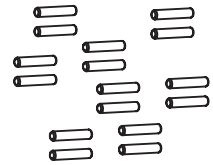
8381-100 Assembly of diff gear box



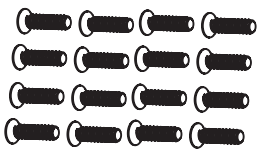
8381-101 Diff set



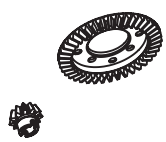
8381-102 Diff outdrive/pins (dia 2*10mm)



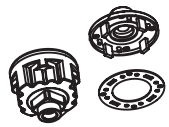
8381-103 Pins (dia 2*10mm) (16 pcs)



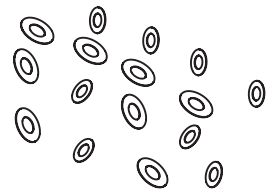
8381-104 Flathead screw-coarse thread(KB2.6*10mm) (16 pcs)



8381-105 Crown gear-41T (large) /pinion gear-11T (small)

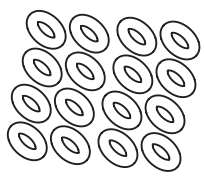


8381-106 Diff case set/diff case cover/diff gasket

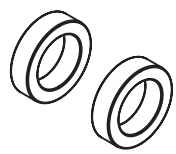


8381-107 Washer-A/washer -B (8 pcs each)

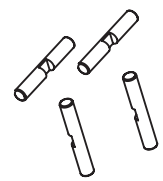
8381-108 Gear-18T (2 pcs)/ gear-12T (4 pcs)



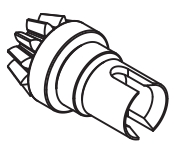
8381-109 O Ring(dia 8mm * dia 2mm)(16 pcs)



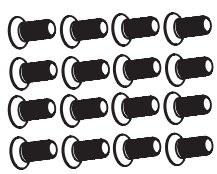
8381-110 Ball bearing(dia 10mm * dia 15*4mm)(2 pcs)



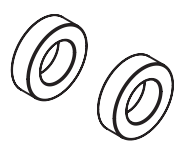
8381-111 Diff pins (dia 4*25.8mm) (4 pcs)



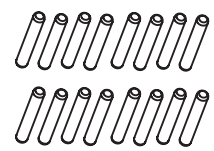
8381-112 Assembly of the pinion gear



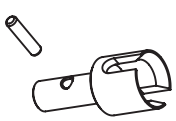
8381-113 Flathead screw (KM2.6X6mm)(16 pcs)



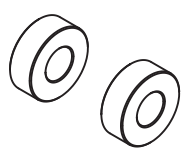
8381-114 Ball bearing (dia 8mm * dia14*4mm)(2 pcs)



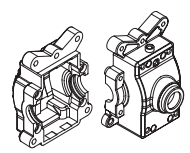
8381-115 Pins(dia 2* 8mm) (16 pcs)



8381-116 Pinion gear outdrive/ pins(dia 2*8mm)

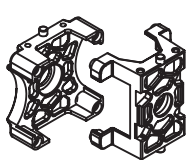


8381-117 Ball bearing(dia 5 mm * dia 11*4mm)(2 pcs)



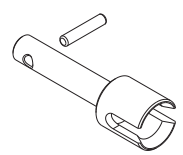
8381-118 Diff gear box-F/R

8381-119 B head screw-coarse thread(BB3*16mm) (16 pcs)

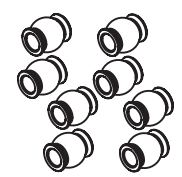


8381-206 Center diff gear box/ center diff gear box plate

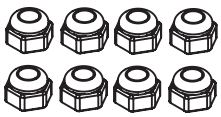
8381-207 B head screw-coarse thread(BB3*20mm) (16 pcs)



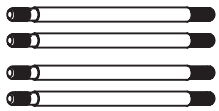
8381-208 Center outdrive set



8381-305 Shock ball (8 pcs)

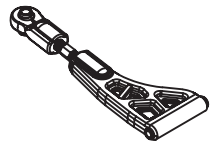


8381-306 M3 nylon nut (8 pcs)

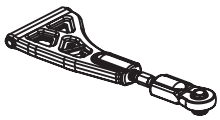


8381-309 Shock shaft (4 pcs)

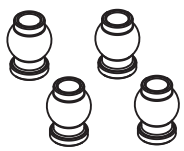
8381-310 Shock spring (4 pcs)



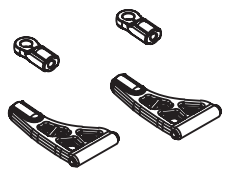
8381-50L Assembly of upper sus.arm-Left



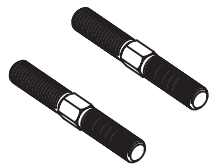
8381-50R Assembly of upper sus.arm-Right



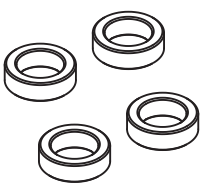
8381-501 Upper sus.arm ball (4 pcs)



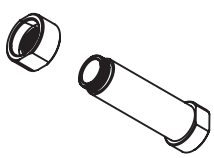
8381-502 Upper sus.arm/ rod end (2 sets)



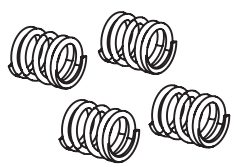
8381-503 Upper sus. arm linkage (2 pcs)



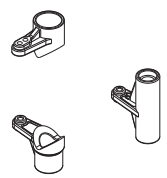
8381-601 Brass washer (4 pcs)



8381-602 Servo saver bushing/ adjustment ring

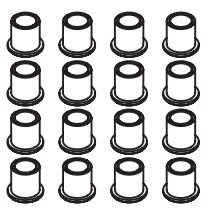


8381-603 Servo saver spring (4 pcs)

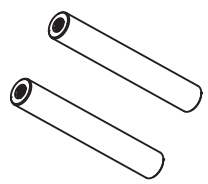


8381-604 Servo saver sus. Arm-upper/lower/steering sus. Arm

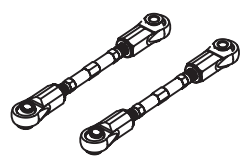
8381-605 B head screw-coarse thread(BB3*12mm) (16 pcs)



8381-606 Screw bushing (16 pcs)

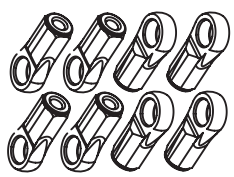


8381-608 Shaft (2 pcs)



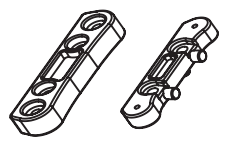
8381-6Z0 Assembly of steering linkage (2PCS)

8381-6Z1 Steering linkage (2 pcs)

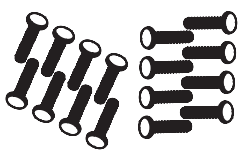


8381-6Z2 Plastic rod end (8 pcs)

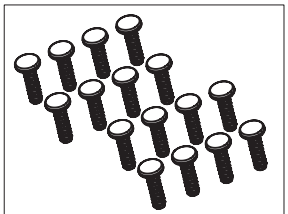
8381-6Z3 Double way ball end (8 pcs)



8381-701 Upper sus.arm mount-rear/suspension mount

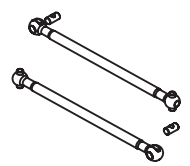


8381-702 B head screw-coarse thread(BB3*14mm) (16 pcs)

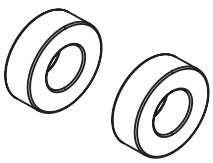


8381-703 B head screw-coarse thread(BB3*10mm) (16 pcs)

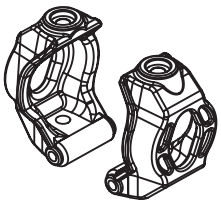
8381-706 Lower sus. arm-front (2 pcs)



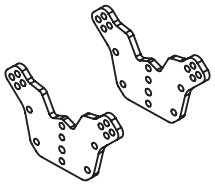
8381-707 Drive shaft set/ revolving shaft (2 sets)



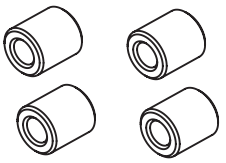
8381-710 Ball bearing(dia 6mm * dia 12*4mm) (2 pcs)



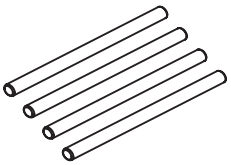
8381-714 C-hub (2 pcs)



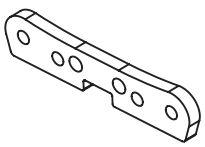
8381-717 Shock tower (2 pcs)



8381-718 Pivot ball mount (4 pcs)

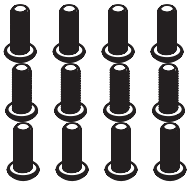


8381-719 Upper sus.arm shaft (4 pcs)

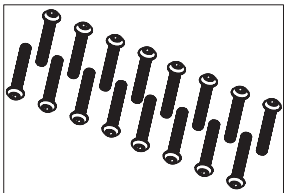


8381-721 Lower sus.arm plate-front

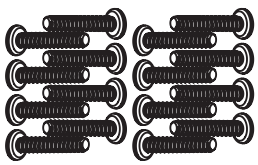
8381-723 C-hub screw bushing (16 pcs)



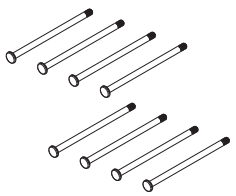
8381-724 T head screw (TM4*12mm) (16 pcs)



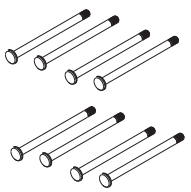
8381-725 T head screw (TM4*22mm) (16 pcs)



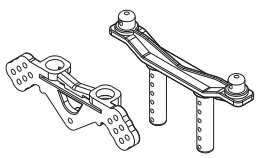
8381-726 B head screw-coarse thread(BB3*18mm) (16 pcs)



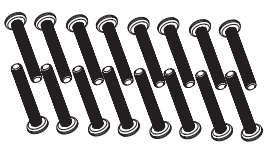
8381-727 B head screw (BM3*56mm) (8 pcs)



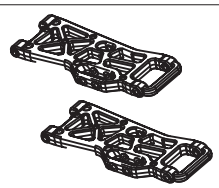
8381-728 B head screw (BM3*43mm) (8 pcs)



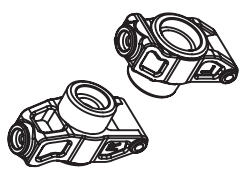
8382-703 Body post holder/body post



8382-705 B head screw (BM3*24mm)(16 pcs)



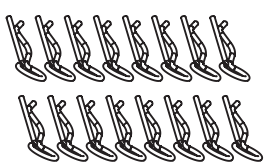
8381-801 Lower sus.arm-rear (2 pcs)



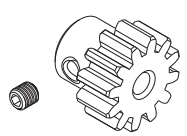
8381-802 Rear hub-L/R

8381-803 B head screw (BM3*18mm) (16 pcs)

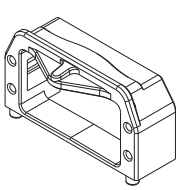
8381-805 B head screw (BM3*10mm) (16 pcs)



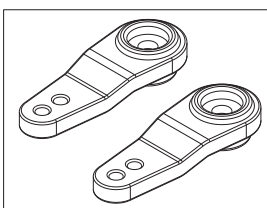
8381-807 Pin-A(dia 1.5mm) (16 pcs)



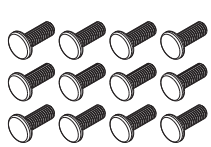
8132-9M1 Motor gear-15/ Lock nut(M3*3)



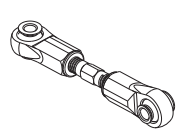
8381-9S1 Servo mount



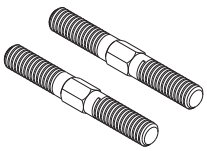
9381-9B4
Servo arm-B (2 pcs)



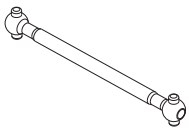
8131-9S2 B head screw (BM2.6*6mm) (12 pcs)



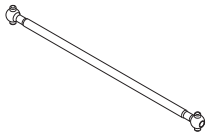
8381-9Z0 Assembly of steering tie rod



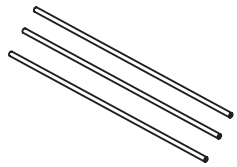
8381-9Z1 Steering tie rod (2 pcs)



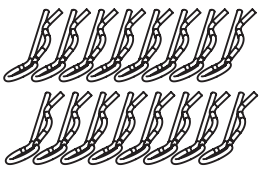
8381-005 Central drive shaft-A



8381-006 Central drive shaft-B

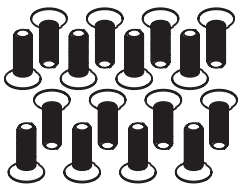


8381-008 Antenna tube (3 pcs)

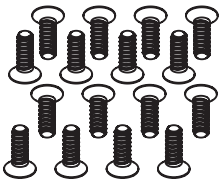


8381-009 Pin-B
(dia 1.2mm) (16 pcs)

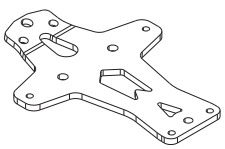
8381-010 Screw washer



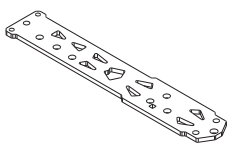
8381-011 Flathead screw
(KM3X10mm) (16 pcs)



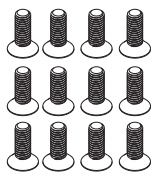
8381-012 Flathead screw-coarse
thread(KB3*10mm) (16 pcs)



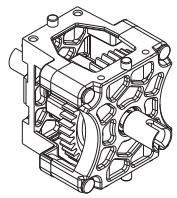
8381-016 Upper deck-A



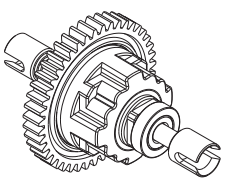
8381-017 Upper deck-B



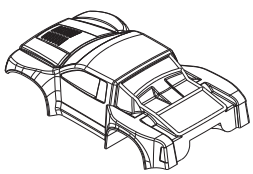
8381-024 Flathead screw
(KM4X11.5mm) (12 pcs)



8331-200 Central diff gear
box(complete)

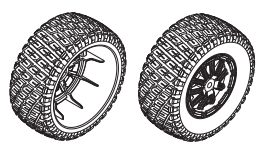


8331-201 Central diff set

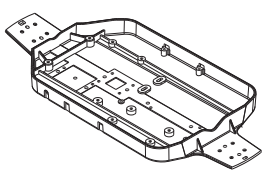


8331-001 Printed body (PC)
(W/body decals)

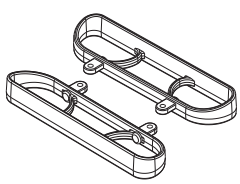
8331-002 Body decals(Hunter BL)



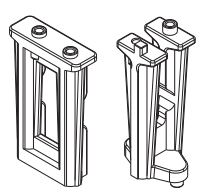
8135-001 Tire complete
(black rims) (2 pcs)



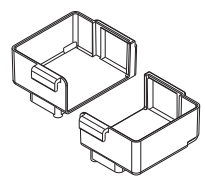
8135-002 Chassis



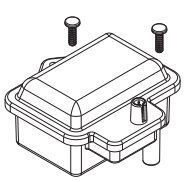
8135-003 Body nerf bars
(left & right)



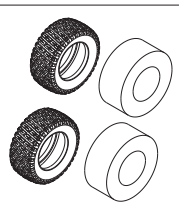
8135-004 Upper deck
mount-F/R



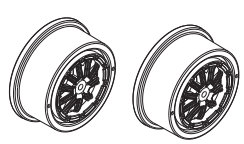
8135-005 Battery mount-C/D



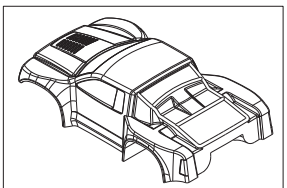
8135-006 Waterproof
receiver box



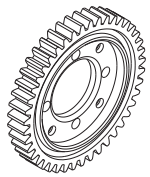
8135-007 Tires with foams
(unglued) (2 pcs)



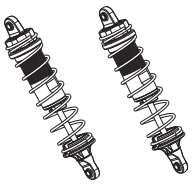
8135-008 Wheels (2 pcs)



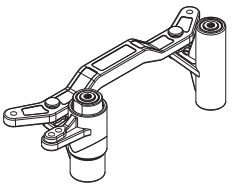
8331-001C Clear SCT body
(PC) (W/body decals and
window cutout)



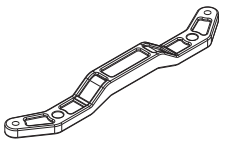
8135-203 Spur gear-53T (plastic) (2 pcs)



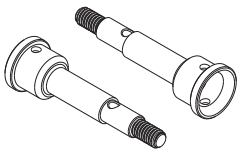
8135-301 Shock absorber complete (2 pcs)



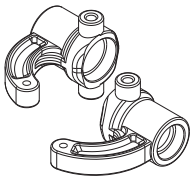
8135-600 Servo saver assembly -complete



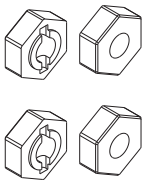
8135-601 Steering plate



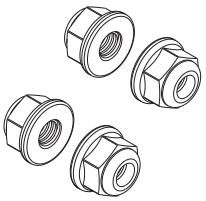
8135-701 Wheel axle (2 pcs)



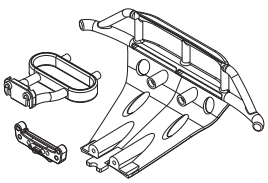
8135-702 Steering arm (2 pcs)



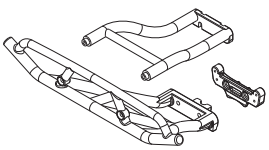
8135-703 Hex adapter (4 pcs)



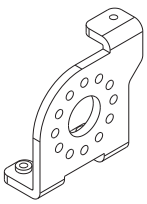
8135-704 Set screws-M4 (4 pcs)



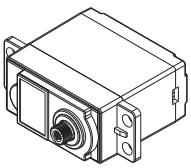
8135-705 Front bumper/upper sus.arm mount-front



8135-801 Rear bumper/upper sus.arm mount-front



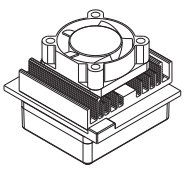
8135-9M1 Motor mount



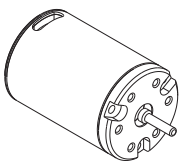
D303 Servo (6kg)

D302T 2.4GHz transmitter

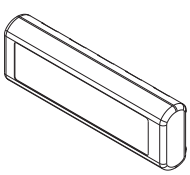
D302S 2.4GHz receiver



H121 Brushless ESC (45A) Waterproof

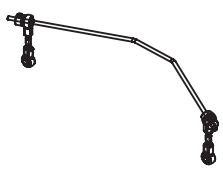


H109 Brushless motor (KV:3970)

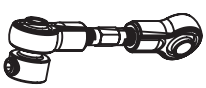


H110 LiPo battery (7.4V, 20C, 2300mAh)

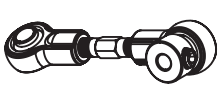
Optional Parts



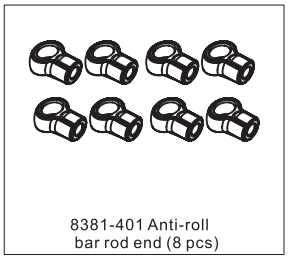
8381-400 Anti-roll bar assembly



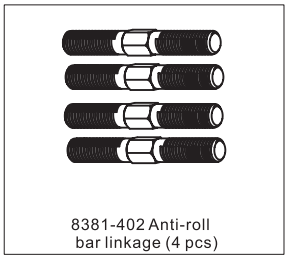
8381-40L Assembly of anti-roll bar linkage-Left



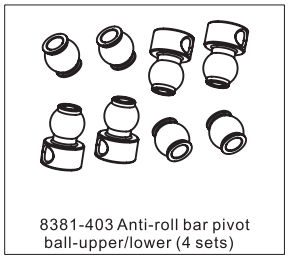
8381-40R Assembly of anti-roll bar linkage-Right



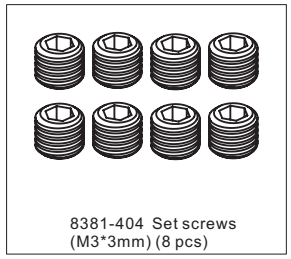
8381-401 Anti-roll bar rod end (8 pcs)



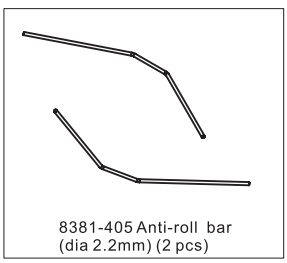
8381-402 Anti-roll bar linkage (4 pcs)



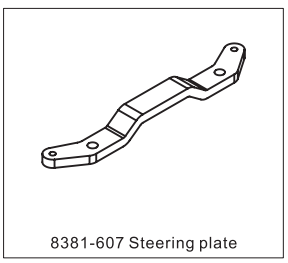
8381-403 Anti-roll bar pivot ball-upper/lower (4 sets)



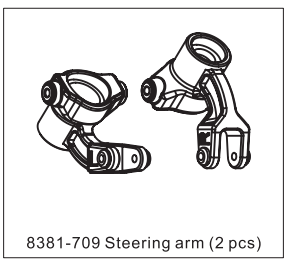
8381-404 Set screws (M3*3mm) (8 pcs)



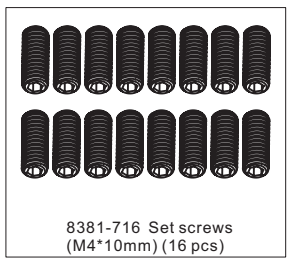
8381-405 Anti-roll bar (dia 2.2mm) (2 pcs)



8381-607 Steering plate



8381-709 Steering arm (2 pcs)



8381-716 Set screws (M4*10mm) (16 pcs)

User Manual--Brushless Speed Controller

【SPECIFICATIONS】

MODEL	Current		Suitable Car	Suitable Brushless Motor (2 cells Lipo) 6 cells NiMH)	Battery Cel	BEC Output	Size L*W*H	Weight
	Cont. Current	Burst Current						
25A	25A	85A	1/18, 1/16 car	On-road: 12T Off-road: 18T 2030 size moto	4-9 Cells NiMH or 2-3 Cells Li-Po	6V/1A	31.5* 27.5* 16	21g (W/O wires)
35A	35A	200A	1/10 car	On-road: 9T Off-road: 12T 3650 size motor		6V/1.5A	31.5* 27.5* 24 (The height of fan is not included)	30g (W/O wires)
60A	45A	300A	1/10 car	On-road: 7.5T Off-road: 10.5T **Suitable** 3650 size		6V/1.5A		32g (W/O wires)
60A	60A	400A	1/10 car	On-road: 5.5T Off-road: 8.5T **Suitable** 3650 size motor		6V/1.5A		32g (W/O wires)

1) For 4-6 cells NiMH or 2 cells Lipo: You needn't change the fan combined with the ESC;
2) For 7-9 cell NiMH or 2 cells Lipo: You must change the fan combined with the controller because it cannot work with such a high voltage, so please choose a high voltage fan or supply the fan from the receiver (+5V); (**Note1*)

Note1: For information about the high voltage cooling fan, please refer to the brief introduction on page 3.

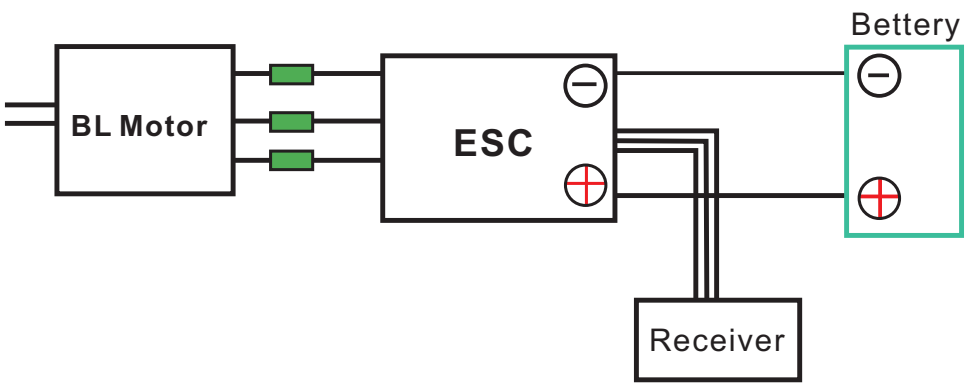
【FEATURES】

1. Specially designed for RC car and truck, with excellent start-up, acceleration and linearity features.
2. Compatible with sensorless brushless motor.
3. 3 running modes suitable for different applications (“Forward with brake” mode, “Forward/Backward with brake” mode and “Rock crawler” mode).
4. 4 steps of maximum reverse force adjustment.
5. Proportional ABS brake function with 4 steps of maximum brake force adjustment, 8 steps of drag-brake force adjustment and 4 steps of initial brake force adjustment.
6. 9 start modes (“Punch”) from “Soft” to “Very aggressive” to be suitable for different chassis, tires and tracks.
7. Multiple protection features: Low voltage cut-off protection for lithium or nickel battery / Over-heat protection / Throttle signal loss protection / Motor blocked protection.
8. 8 steps of timing adjustment.
9. User programmable. Several program methods are supported, such as: The “SET” button on the ESC, the digital LED program card,
10. Waterproof and dustproof.

【BEGIN TO USE THE NEW ESC】

1. Connect the ESC, motor, receiver, battery and servo according to the following diagram

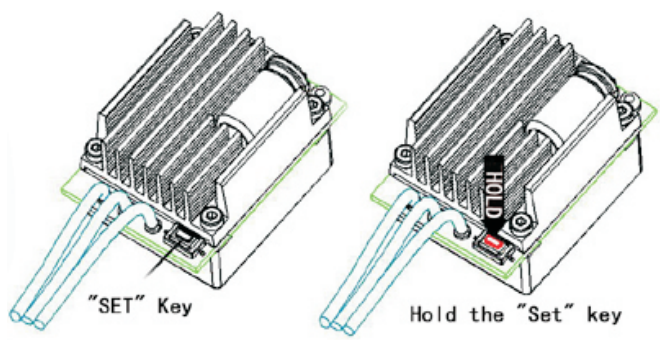
“+” and “-” wires of the ESC are connected with the battery pack, and #A, #B and #C are connected with the motor wires. The “SET” the throttle channel of the receiver (Usually CH2). The #A, #B, #C wires of the ESC can be connected with the motor wires freely
(without any order). If the motor runs in the opposite direction, please swap any two wire connections.
Note: You can use the transmitter to set the throttle channel to the “Reverse” direction, and then the motor will run oppositely. Please calibrate the throttle rangeagain after changing the direction of throttle channel.



2. Throttle Range Setting (Throttle Range Calibration)

In order to make the ESC fit the throttle range, you must calibrate it for the following cases; otherwise the ESC cannot work properly.
1) Begin to use a new ESC;
2) Begin to use a new transmitter;
3) Change the settings of neutral position of the throttle stick, ATV or EPA parameters, etc.Three (3) points need to be set, they are the top point of “forward”,” backward” and the neutral point.The following pictures show how to set the throttle range with a **Futaba**TM transmitter.

A) 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” brake function of your transmitter. (**Note2*)
B) Hold the “SET” key and then switch on the ESC, when the red LED begins to flash, release the key immediately.

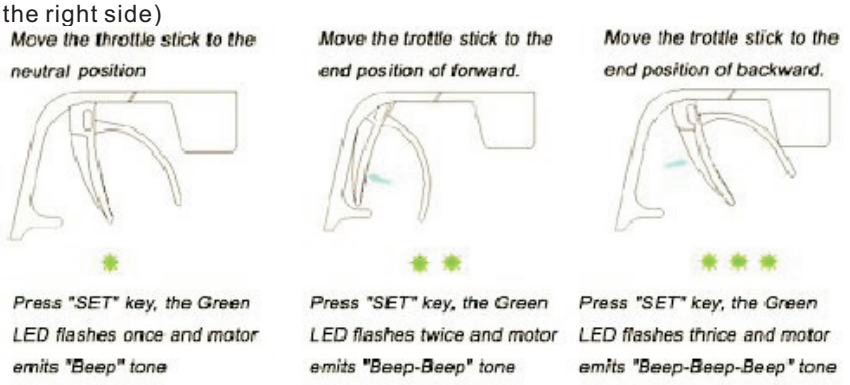


(Please refer to the picture on the right side)

C) Set the THREE points according to the steps shown in the picture on the right side.

1) Neutral point
2) End point of forward direction
3) End point of backward direction

D) When the process of calibration is finished, the motor can be started after 3 seconds.



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

3. The LED Status in Normal Running

a) In normal use, if the throttle stick is in the neutral range, neither the red LED nor the green LED lights.
b) The red LED lights when the car is run forward or backward and it will flash quickly when the car is braking.
c) The green LED lights when the throttle stick is moved to the top point (end point) of the forward zone or backward zone.

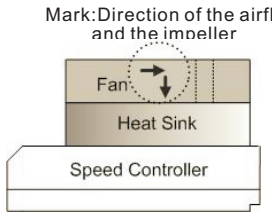
【TROUBLE SHOOTING】

Trouble	Possible Reason	Solution
After power on, motor can't work, no sound is emitted	The connections between battery pack and ESC are not correct	Check the power connections Replace the connectors
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 power on, motor can't work, but emits "beep-, beep-, beep-" alert tone. (Every "beep-" has a time interval of about 2 seconds)	Throttle signal is abnormal	Check the transmitter and the receiver Check the wire of the throttle channel
The motor runs in the opposite direction	The wire connections between ESC and the motor need to be changed	Swap any two wire connections between the ESC and the motor.
The motor suddenly stops running while in working state	The throttle signal is lost	Check the transmitter and the receiver Check the wire of the throttle channel
	The ESC has entered the Low Voltage Protection Mode	Replace the battery pack
Random stop or restart or irregular working state	Some connections are not reliable	Check all the connections: battery pack connections, throttle signal wire, and motor connections, etc.
	There is strong Electro - Magnetic interference in flying field.	Reset the ESC to resume normal operation. If the function could not resume, you might need to move to another area to run the car.

【OPTIONAL ACCESSORIES FOR UPGRADE】

We provide the following optional accessories for upgrade your power system:

1. Cooling fan (12V): The high voltage fan is necessary when you are using battery pack more than 6 cells . of NiMHIt is located on the heat sink of the ESC, it helps to cool the ESC with downward airflow. The picture on the right side shows the installation.



WARNING! Please note the original fan (5V) combined with the ESC can ONLY work with a 2 cells lithium battery pack or 4-6 cells NiMH battery pack. Please NEVER use it with a 3 cells lithium battery pack or NiMH battery pack more than 6 cells, otherwise it may be destroyed. Please check the label of the fan carefully to confirm its working voltage before using it.

2. Program card (Digital LED Display).

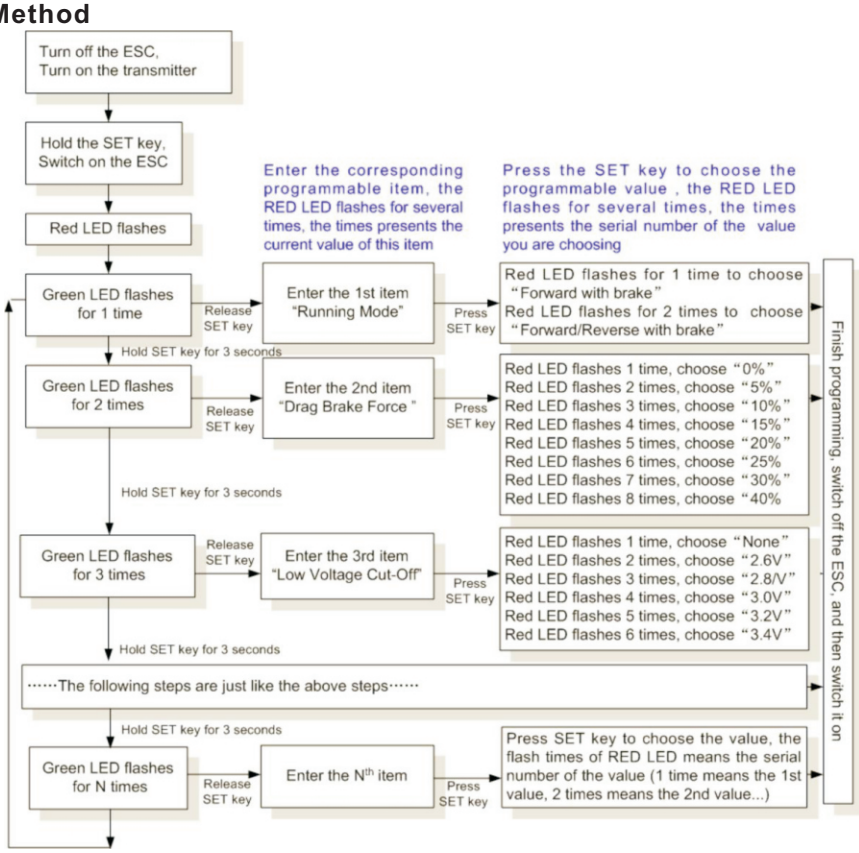
Program card is an optional accessory which needs to be purchased separately. It has a friendly user interface. The process of programming the ESC becomes quite easy and fast with this pocket sized device. When the programmable value needs to be changed, please just plug the control wires of the ESC (trio wires with black, red and white color) into the socket of the program card (The socket is on the right corner, and marked with + -), and then connect the main battery pack to the ESC, each item's value will be shown on the program card. Use "ITEM" and "VALUE" buttons to select the programmable items and new values, and then press "OK" button to store the new settings into the ESC.

3. Advanced program box (LCD Display).

Advanced program box is an optional accessory which needs to be purchased separately. It has LCD display to show the programmable items, so it can work as an individual device to set the ESC. And it can also work as an USB adapter to connect the ESC with a PC to update the ESC firmware online.

【PROGRAM THE ESC】

1. Program Method



2. Note:

3. 3 In the program process, the motor will emit “Beep” tone at the same time when the LED is flashing.
4. If the “N” is bigger than the number “5”, we use a long time flash and long “Beep---” tone to represent
5. “5”, so it is easy to identify the items of the big number.
6. For example, if the LED flashes as the following:
7. A long time flash + a short time flash” (Motor sounds “Beep---Beep”) = the No. 6 item
8. A long time flash + 2 short time flash” (Motor sounds “Beep---BeepBeep”) = the No. 7 item
9. A long time flash + 3 short time flash” (Motor sounds “Beep---BeepBeepBeep”) = the No. 8 item
10. ……
11. And so on.

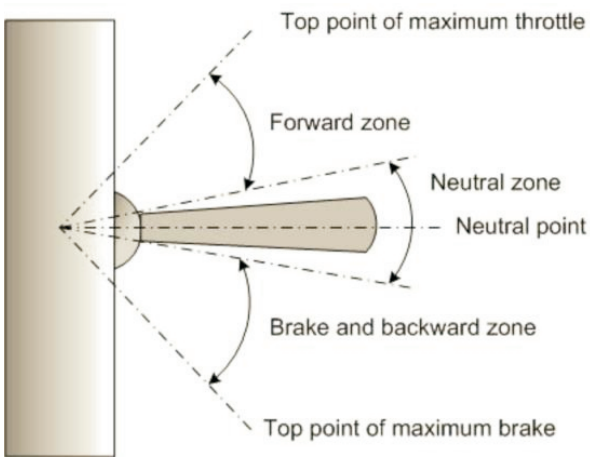
Programmable Items	Programmable Value								
	1	2	3	4	5	6	7	8	9
Basic Items									
1.Running Mode	Forward with Brake	***Forward/Reverse with Brake***	Rock Crawler						
2.Drag Brake Force	0%	5%	***10%***	20%	40%	60%	80%	100%	
3.Low Voltage Cut-Off Threshold	***Non-protection***	2.6V /Cell	2.8V /Cell	3.0V /Cell	3.2V /Cell	3.4V /Cell			
4.Start Mode (Punch)	Level1 (Soft)	Level2	L3	L4	L5	L6	***L7***	L8	L9 (Very Aggresive)
Advanced Items									
5.Maximum Brake Force	25%	50%	75%	***100%***					
6.Maximum Reverse Force	25%	***50%***	75%	100%					
7.Initial Brake Force	***=Drag Brake Force***	0%	20%	40%					
8.Neutral Range	6%(Narrow)	***9%(Normal)***	12%(Wide)						
9.Timing	0.00°	3.75°	7.50°	11.25°	***15.00°***	18.75°	22.50°	26.25°	
10.Over-heat Protection	***Enable***	Disable							

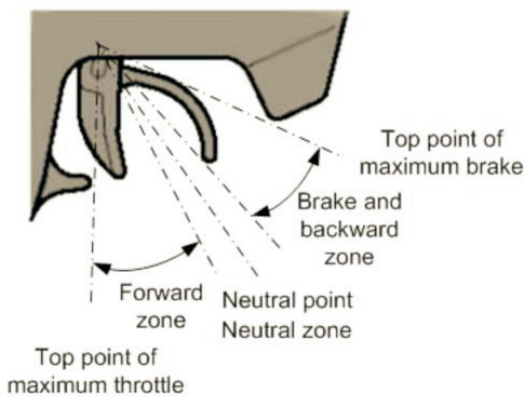
Attention: The italics texts in the above form are the default settings.

3. Programmable Values

3.1. **Running Mode:** With “Forward with Brake” mode, the car can go forward and brake, but cannot go backward,
this mode is suitable for competition; “Forward/Reverse with Brake” mode provides backward function, which is suitable for training. The “Rock Crawler” mode is only used for rock crawler.
Note: “Forward/Reverse with Brake” mode uses “Double-Click” method to make the car go backward.
When you move the throttle stick from forward zone to backward zone for the first time, the ESC begins to brakethe motor, the motor speeds down but it is still running, not completely stopped, so the backward action is NOT happened now. When the throttle stick is moved to the backward zone again (The 2nd “click”), if the motor speed is slowed down to zero (i.e. stopped), the backward action will be occurred. The “Double-Click” method can prevent mistakenly reverse when the brake function is frequently used in steering.With “Rock Crawler” mode, the reverse action will be happened immediately when the throttle stick is moved to backward zone. Please set the “Drag Brake Force” to 100% if you choose the “Rock Crawler” mode.
3.2. **Drag Brake Force:** Set the amount of drag brake applied at neutral throttle to simulate the slight braking effect
of a neutral brushed motor while coasting.
3.3. **Low Voltage Cut-Off:** The function is mainly to prevent the lithium battery pack from over discharging. When using lithium battery pack, please set the suitable value for low-voltage protection as your like. **WARNING: Never**
use the default value “Non-protection” for lithium battery! The ESC monitors the battery’s voltage at any time,
if the voltage is lower than the threshold, the output power will be reduced to 50% in 2 seconds.

Please drive and stop the car at the side of the racing track as soon as possible, the ESC will completely cut off the output power in 10 seconds.
3.4. **Start Mode (Also called "Punch"):** Select from "Level1 (Soft)" to "Level 9 (Very aggressive)" start mode as your like. Please note that if you choose "Level 7" to "Level 9", you' d better use good quality battery pack with
powerful discharge ability, otherwise these modes cannot get the bursting start effect as you want. If the motor cannot run smoothly (the motor is trembling), it may caused by the weak discharge ability of the battery pack, please choose a better battery or increase the gear rate.
3.5. **Maximum Brake Force:** The ESC provides proportional brake function. The brake force is related to the position of the throttle stick. Maximum brake force refers to the force when the throttle stick is located at the top point of the backward zone. A very large brake force can shorten the brake time, but it may damage the gears.
3.6. **Maximum Reverse Force:** Sets how much power will be applied in the reverse direction. Different value makes different reverse speed.
3.7. **Initial Brake Force:** It is also called "minimum brake force", and it refers to the force when the throttle stick is the initial position of the backward zone. The default value is equal to the drag brake force, so the brake effect can be very smooth.
3.8. **Throttle Neutral Range:** Please see the following illustrations to adjust the neutral range as your like.
3.9. **Timing:** There are many differences among structures and parameters of different brushless motors, so a fixed





timing ESC is difficult to compatible with all brushless motors. It is necessary to make the timing value programmable. Please select the most suitable timing value according to the motor you are just using. Generally, higher timing value brings out higher power output, but the whole efficiency of the system will be slightly lower down.
3.10. **Over-Heat Protection:** If the function is activated, the output power will be cut-off when the temperature of the ESC is up to a factory preset threshold for more than 5 seconds. When the protection happens, the Green LED will flash.

4. Reset All Items To Default Values

At any time when the throttle is located in neutral zone (except in the throttle calibration or parameters program
process), hold the "SET" key for over 3 seconds, the red LED and green LED will flash at the same time , which indicates that all goes to default values.

Annex: 2.4GHz Transmitter Manual

PART I:

2.4GHz Transmitter (Standard, Model#: D302T)

Safety Precautions

1. The 2.4GHz transmitter and receiver are pre-bound at the factory.
2. Please always use the same receiver model from the factory to match your 2.4GHz transmitter when you need to replace it. Receivers from other suppliers don't work on DHK HOBBY 2.4GHz transmitter.
3. When you need to replace a receiver, please make sure that it is bound with the transmitter before use.
4. Please operate the transmitter in vast areas where no radio interference exists. It's strongly recommended that no humans, animals or high voltage grid should be nearby.
5. Please do not operate this transmitter during fatigue, sickness, intoxication or in bad mood. 6. Do not operate the transmitter at night time, in the rain and thunderstorm or at low visibility. 7. Always use the same types of batteries in the transmitter. Do not mix old and new batteries in the transmitter. Please check the battery power before use. Replace batteries whenever the power is low to avoid out of control. Ni-Mh or Ni-Cd rechargeable batteries can be used on this transmitter. Please charge the batteries to full before use.
8. Before you operate the transmitter, please check the switch, batteries, servo and ESC for proper connection. 9. ALWAYS switch on the transmitter first, and off last so as to avoid possible radio interference from other sources. Failure to do so may cause out of control of your vehicle.
10. Before operation, check the servo forward and reverse functions, motor range, and neutral position. Modify it when necessary.
11. Please handle the transmitter with care. Store the transmitter in a dry and clean place when it's not in use for some time.

Transmitter Specifications

Channels	2 channels
Model types	Cars, boats
Frequency range	2.40-2.483GHz
RF power	⩽20dB
Power output	10mW
Bandwidth	1M
Band number	64
2.4GHz modulation	AFHDS
Encoding	GFSK

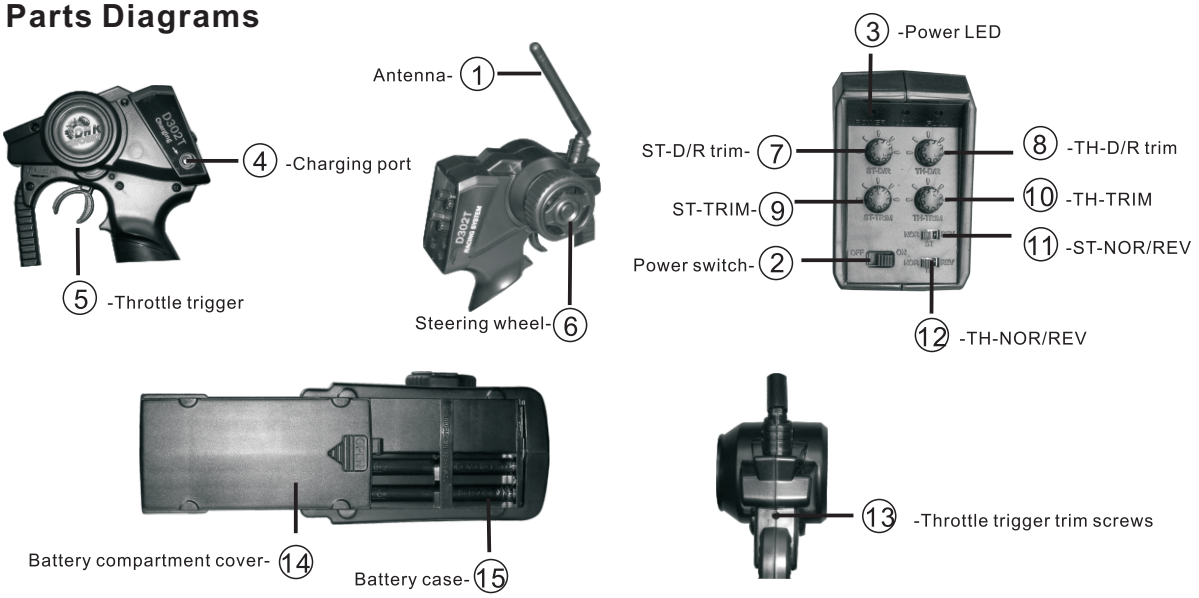
Channel resolution	4096
Remote range	>200M
TH range	0.9mS-2.1mS
ST range	0.9mS-2.1mS
Battery voltage	6V (1.5V*4 cells)
Low voltage protection	⩽4.4V
Weight	320g
USB port	N/A
Charging port	Yes

2.4GHz Standard Transmitter Parts and Functions

1-Antenna: pull up the antenna straight before use.
2-Power switch: slide the switch to turn on or off.
3-Power LED: shows the power strength. Green LED shows full power, Yellow LED flashes when the power is running short.
4-Charging port: charges Ni-Mh or Ni-Cd batteries only. Alkaline batteries are not rechargeable. NEVER charge your alkaline batteries.
5-Throttle trigger: Please refer to the transmitter diagram.
6-Steering wheel: Please refer to the transmitter diagram.
7-ST-D/R trim: adjust the steering servo angle ranging from 0% to 120%.
8-TH-D/R trim: adjust the throttle servo angle ranging from 0% to 120%.
9-ST-TRIM: adjust the steering neutral position, from 0% to 20%.
10-TH-TRIM: adjust the throttle neutral position, from 0% to 20%.
11-ST-NOR/REV: slide to left or right to choose steering mode.

12-TH-NOR/REV: push the trigger or pull it back to choose the throttle mode.
13-Throttle trigger trim screws: use a hex driver to tighten or loosen the screw to a comfortable level.
14-Battery compartment cover: to open the compartment, slide the cover to OPEN direction as indicated, snap it to close the compartment.
15-Battery case: open the battery cover, install 4 pcs AA 1.5V alkaline or rechargeable batteries based on the "+" & "-" poles. If the status LED flashes red, the transmitter batteries may be weak, discharged or possibly installed incorrectly. Replace with new or freshly charged batteries. The power indicator light does not indicate the charge level of the battery pack installed in the model.

Parts Diagrams



Receiver Functions

Frequency range	: 2.4GHz
2.4GHz modulation	: AFHDS
Sensitivity	: -100dbm
Working voltage	: DC4.8-6.0V
Working current	: ⩽25mA
Size	: 5.7*26*15.2mm
Weight	: 11.2g

1. Antenna: Pull out the antenna completely

2. Connecting ports: receiver power port and channel signal connecting ports
> ST/1: Channel 1, steering signal port
> TH/2: Channel 2, throttle servo or ESC signal port
> AUX/3: Auxiliary signal port
> BATT/4: Receiver power port, can be auxiliary signal port

3. Set keys & LED indicators
>Bind setup. Switch on the receiver, indicators flash slowly, press the setup key for 2 seconds and release it, LED indicator flash in faster motion, binding starts. When the LED indicator is on in stable status, the binding is complete. Note: To bind it quickly and effectively, please put the receiver 40-50cm away from the transmitter.

>Failsafe. Switch on the transmitter and receiver, then you can see the LED indicator on receiver is on. Adjust the throttle servo or ESC to brake or stop status, and keep it that way. Press the setup key, then receiver LED indicator flashes, keep this for 3 seconds. After this, release the setup key. Failsafe setup is complete.

>Disabling failsafe function. Switch on transmitter and receiver, once the signal is connected, LED indicator is on. Press the setup key for 2 seconds, LED indicator flashes quickly, at this point, keep pressing the setup key without release, press it for 2 more seconds, LED indicator flashes slowly. Release the setup key, LED indicator is on. The setup is complete.

PART II:

2.4GHz Transmitter (LCD Version, Model#: D302HT)

Safety Precautions

Please refer to Safety Precautions in PART I

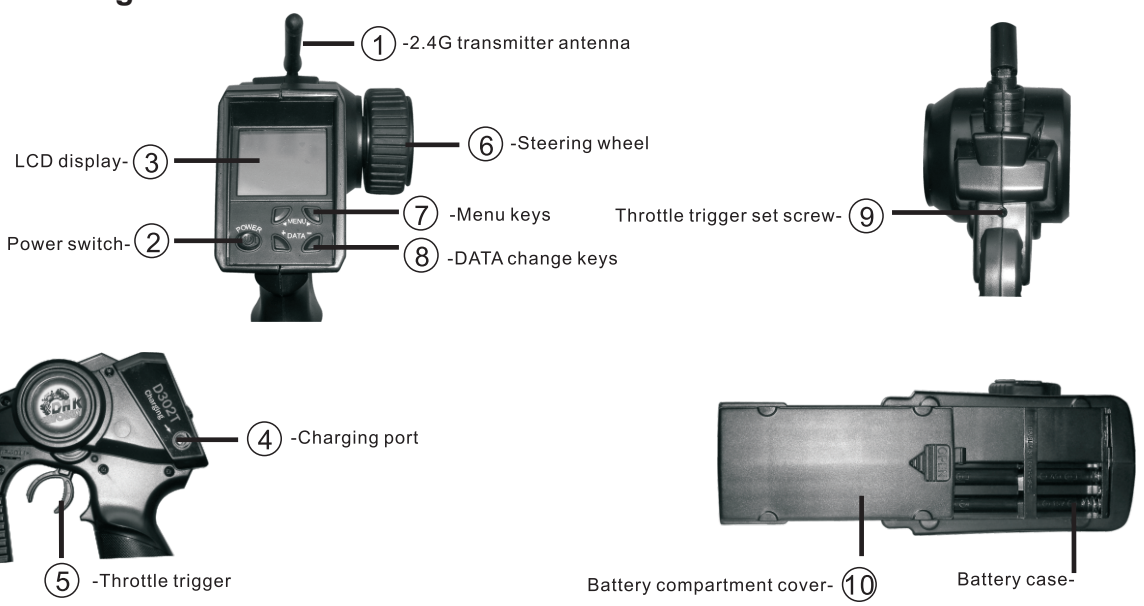
Transmitter Specifications

Please refer to Transmitter Specifications in PART I.

2.4GHz LCD Transmitter Parts and Functions

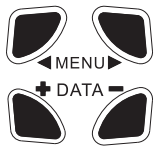
1. 2.4G transmitter antenna: before use, please pull the antenna straight up.
2. Power switch: Press down to turn on the transmitter, press the switch again to turn it off.
3. LCD display: shows transmitter menus, parameters and operation instructions.
4. Charging port: charging area is positive inside and negative outside. When Ni-Mh or Ni-Cd rechargeable batteries are to be charged, right charger should be selected for re-charging the batteries.
5. Throttle trigger: drag, push or make the throttle trigger to a neutral position to forward, reverse or brake your RC model.
6. Steering wheel: turn the steering wheel counterclockwise to turn the model to left. Turn the steering wheel clockwise to turn the model to right. Release it to neutral for straight driving.
7. Menu keys: Press Left key (<) or Right key (>), move the cursor to LCD display options.
8. DATA change keys: press Left key (+) or Right key (-) to change, adjust and save current parameters.
9. Throttle trigger set screw: use a 2.5mm hex screw driver to move forward or backward to adjust the throttle trigger to a comfortable hand feeling.
10. Battery compartment cover: Press the door to OPEN indicated direction to open the battery compartment cover. Snap the compartment door into the slot to close the battery compartment.
11. Installing batteries: open the battery compartment cover, install 4 pcs “AA” batteries (same type) according to the indicated “+” “-“ orientations. Turn on the transmitter and check the indicator status for a solid green light. Please take out the batteries when the transmitter is not in use. If the status LED flashs red, the transmitter batteries may be weak, discharged or possibly installed incorrectly. Replace with new or freshly charged batteries. The power indicator light does not indicate the charge level of the battery pack installed in the model.

Parts Diagrams



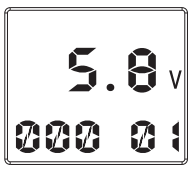
LCD Functions and Operations

Key Operations



Menu keys:
Press Left key (<) to main command, and Right key (>) for secondary command.
DATA keys:
Press Left key (+) or Right key (-) to adjust, set up and auto save the current chosen function.

Display Interface



Switch on the transmitter, you will hear “beep” sound (beeps once), and the LCD display mode will read the default parameters pre-set at the factory and BATT status mode (main menu).

BATT: battery status, function reset settings

Battery level display. Battery voltage appears on LCD display. When the voltage is 4.4V, the value flashes and you can hear warning sound. This means the battery voltage is deficient. When battery voltage value shows 4.0V, the value blinks fast and warning sound keeps strong. This indicates battery voltage is too low and batteries cannot be used. Please turn off the transmitter and replace batteries. If rechargeable Ni-Mh or Ni-Cd batteries are used, please charge the batteries with proper charger.

Function reposition. In case the parameters are messed up or if you don't know how to set up, please turn off the power, press and hold MENU Left key (<). Then turn on the power and you will hear “beep” sound after two seconds. Release all keys and all parameters will go back to factory default values.

Frequency duplication setting. When two transmitters are used at the same time, a frequency might be duplicated. In this case, you may choose the auto frequency function. First turn off the power, then press and hold MENU Right key (<), and turn on the power. The display will show hopping data. Release the key and the hopping data will stop. The digit shown on the display is your frequency. Bind the transmitter with the receiver through binding keys.

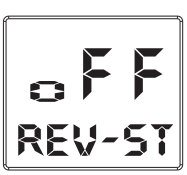
MOD: Setting up mode and naming

15 group memory data for choice, it's easy to manage and use. At start status, press Left key (+) or Right key (-) of the DATA to choose the necessary module (Screen shows main menu)

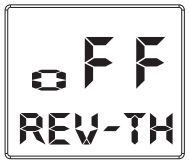
For easy control, you may name each module. Press Left key (<) on MENU (6 times on Main Menu) until you see 000 01 on the screen and the first digit must flash, at this moment, you may change the data here. Press Left key (+) or Right key (-) to choose necessary data. Once first change is made, press Right key (>) on MENU to move the cursor to the next position, then press Left key (-) or Right key (+) to choose the needed data. Based on the above, you can change data for the 3rd data group. Once all is changed, press Left key (<) on the MENU function to get back to Main Menu and save the setup. (Screen shows 000 01).

MOD	Range	Default
MODULE	0 – 15	01
NAMING UNITS	Digits 0-9, letters A-Z	000

REV: Servo forward and reverse setup



Setting up Steering servo direction. Press MENU function Left key (<) or Right key (>) (Press once under MAIN MENU) until you see” ***REV-ST”, then press DATA function Left key (+) or Right key (-) to choose ON/OFF. (Screen shows OFF REV-ST).

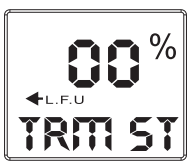


Setting up Throttle speed neutral position. Press MENU function Left key (<) (Press once under the MAIN MENU) and then press twice of MENU Right key (>) until you see ***REV-TH. Press DATA function Left key (+) or Right key (-) ON/OFF. (Screen shows OFF REV-TH).

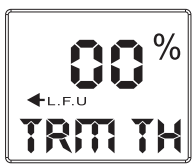
Setting up the 3rd Channel: Press MENU function Left key (<) (Press once under MAIN MENU), then press twice on Menu function Right key (>) until you see ***REV-3C, press DATA function Left key (+) or Right key (-) to choose ON/OFF. (Screen shows OFF REV-3C).

REV	Initial value	Range
ST	OFF	ON/OFF
TH	OFF	ON/OFF
3C	OFF	ON/OFF

TRM: Servo neutral trim setup



Setting up steering servo(ST) neutral position parameters. Press MENU function Left key (<) (Press twice under MAIN MENU) until you see **% TRM ST and neutral value. Press DATA function Left key (+) or Right key (-) to change the steering neutral position. On the screen there is steering neutral status L.F. U, R. B. D and percentage values indicating the neutral position at that setup. (Screen shows 00% TRM ST).

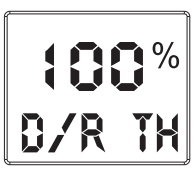


Setting up throttle speed (TH) neutral position parameters. Press MENU function Left key (<) (Press twice under MAIN MENU), and press MENU function Right key (<) until you see **% TRM TH and neutral value. At this point, press DATA function Left key (+) or Right key (-) for adjustment. On the screen you will see neutral position status indicator L. F. U, R. B. D and percentage values. (Screen shows 00% TRM TH)

TRM	Initial value	Range
ST	0%	100%<--L. F. U—100% R.B.D.-->
TH	0%	100%<--L. F. U—100% R.B.D.-->

D/R: Servo angle adjustment setup

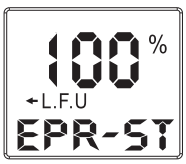
Set up Steering servo (ST) angle. Press Menu function Left key (<) (Press 3 times on MAIN MENU) until you see **% D/R ST on the screen, then press DATA function Left key (+) or Right key (-) to choose servo angle parameter. (Screen shows 100% D/R ST).

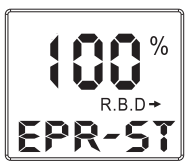


Set up Throttle servo (TH) forward and reverse angle. Press MENU function Left key (<) (Press 3 times on MAIN MENU), then press MENU function Right key (>) once, the screen shows **% D/R TH, press DATA function Left key (+) or Right key (-) for throttle angle parameters. (Screen shows 100% D/R TH)

D/R	Initial value	Range
ST	100%	0% - 100%
TH	100%	0% - 100%

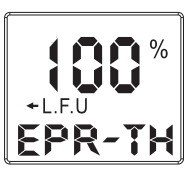
EPA: End point adjustment (servo single side angle setup)

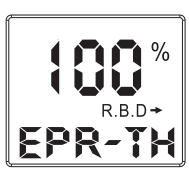




Set up steering servo single side (left steering or right steering) travel angle. Press MENU function Left key (<) (Press 4 times under MAIN MENU) until the screen shows **% EPA ST. Turn the steering wheel clockwise, the screen shows the EPA value of right steering R.B.D.-->; Press DATA function Left key (+) or Right key (-) and change the data. When you turn the steering wheel counterclockwise, the screen displays the EPA value of left steering L. F. U on steering servo. Press DATA function Left key (+) or Right key (-) for desired value. (Screen shows 100% EPA-ST)

Note: for this function, the steering servo travel angle is adjusted to a wider or narrower range, hence the steering angle of the left or right tire is adjusted to desired angle.



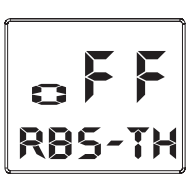


Set up throttle speed (forward or reverse). Press MENU function Left key (<) (Press 4 times under MAIN MENU) and press once on MENU function Right key (>), the screen shows **% EPA TH. Pull back the throttle trigger and the screen displays L.F.U value of forward (F) speed. Press DATA function Left key (+) or Right key (-) to change the value. Push forward the throttle trigger and the screen shows reverse R.B.D value of reverse speed, press DATA function Left key (+) or Right key (-) to change the value. (Screen shows 100% EPA-ST)

Note: for this function, the throttle servo angle is adjusted (wider or narrower) on nitro- (gas-) powered vehicles, and for EP vehicles, speed of the electronic speed controller adjusted (faster or slower).

EPA	Initial value	Range
ST←L.F.U	100%	0% - 120%
ST R.B.D→	100%	0% - 120%
TH←L.F.U	100%	0% - 120%
TH R.B.D→	100%	0% - 120%

ABS: Setting up brake system



Set up throttle ABS brake system. Press MENU function Left key (<) (Press 5 times under MAIN MENU), screen shows *** ABS- TH, press DATA function Left key (+) or Right key (-) to choose ON/OFF. At ON status, it prevents the tires from getting stuck in powerful griping motion during brake. (Screen shows *** ABS- TH)

For each of the above setup, when one setting is selected, please wait for 5 seconds until you see the main menu, then that setting is automatically saved as memory.

Receiver Functions

Please refer to Receiver Functions Section in PART I.

FCC Caution: Any changes or modifications not expressly approved y the party responsible for compliance could void the user's authority to operation this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the this device must accept any interference received, including interference that may cause undesired operation .
This device and its antenna(s) must not
be co-located or operating in conjunction with any other antenna or transmitter.