



2.0
COBBLE
RTR

1/8 scale Ready To Race electro Buggy

USER MANUAL & REFERENCE GUIDE



2.0
COBBLE
RTR



(Note: car shown in images may differ from box content)



Introduction

Thank you very much for buying this Serpent rc car. You are now member of a large following of Serpent fans worldwide. This Serpent car will bring you many hours and weekends of racing excitement. Serpent started as rc racing company in 1980, and has developed many modelcars since. This wealth of experience and know how is used in our todays cars and that shows!

The Serpent S811-Be Cobra RTR 2.0 is the best entry in the world of rc offroad racing. Affordable and very good basis to start your racing carreer. The Serpent S811 Cobra *RTR 2.0*, is based on the high-end competition version of the Cobra and shares geometry and many parts. Still its easy to use, assemble, and set up. The *RTR Cobra 2.0* is fully upgradable to high end competition spec. The details can be found in our website. You are now part of the worldwide network of Serpent drivers, which gives you superior technical support and access to many benefits that only Serpent drivers can enjoy.

The Serpent S811-Be Cobra *RTR 2.0* offers state of the art specifications and leads the way in 1/8 scale electro offroad chassis design, using all the knowledge our designers have gathered from racing offroad cars for over 15 years, into this design too. Continuously pushing the performance envelope. Designed, tested and raced by Billy Easton, USA. World Champion.

This manual contains a number of steps you need to follow to operate the Serpent cars in the right way. This manual also contains a quick-start section, a partslist and exploded views, and a FAQ section. A full assembly manual can be found online in the **Serpent.com** website. So read this manual with great attention before racing this car. For your own safety as well as for others, and to ensure you can enjoy your Serpent car a long time, even if you are an experienced user. Serpent is not only about the car itself. Serpent as company, and the worldwide network or distributors and dealers are here to help you out. The Serpent website, social media and forum are available for assistance and additional information as well.

Enjoy your Serpent, the racing experience!

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Read this first

- This is a highly technical hobby product, intended to be used in a safe racing environment. This car is capable of speeds in excess of 80 km/h or 50mph. Please follow these guidelines when building and operating this model.
- Parental guidance is required when the builder/user of this car is under 16.
- Follow the building instructions. If in doubt, contact your dealer or importer.
- Be sure to use the proper tools when assembling the car. Always exercise caution when using electric tools, knives and other sharp objects.
- Be careful when using liquids like lubrication oil or glue. Do not swallow.
- Follow the manufacturer's instruction in case you experience irritation after using the product.
- Be careful when operating the car. Stay away from any rotating parts such as wheels, gears and transmission. Stay away from speedo during and immediately after use, as these parts may be very hot. We advise to use protective handgloves.
- Only operate this car in a safe environment, like a special racing track or a closed parking lot. Avoid using this car on public roads, crowded places or near infants.
- Before operating this car, always check the mechanical status of the car. Check that the batteries of the transmitter and receiver are fully charged.
- After use, always check all the mechanics of the car. We advise to clean the car immediately after use, and inspect the parts for wear or fractures. Replace when necessary. Do not use water, methanol, thinner or other solvents to clean the car.
- Store the car in a dry and heated place to avoid corrosion of metal parts.
- Avoid using this car in wet conditions as the water will cause corrosion on the metal parts and bearings and these parts will cease to function properly. If driven in the wet, ensure that all the electric equipment is waterproofed and after use, that all moving parts are dried immediately.

Safety matters

All instructions in this manual must be followed to ensure safe use of the car. This model is not intended for use by children under 14 years .

Important pre-cautions

- Only run the car in designated areas or areas with very few people, so no-one can get hurt.
- The car has a lot of power and the turning parts on the car can cause damage, also some parts of the car like transmission and motorparts can become very hot. So wear protective clothing both as driver and helper and be careful when picking up the car.
- Do not operate the car under dark conditions, as both you and others may not see the car properly and can get hurt, due to lack of car control.
- Use good common sense while operating the car so you can fully enjoy your car.

Battery and battery-charging

- The battery and battery-charger are not included with this model. We advise to use good quality NimH or Lipo rechargeable battery-packs with 4000 mA or more. Check carefully to buy batteries with the correct connector for the speedcontroller, or also purchase and mount other fitting ones.
- Use proper battery-charger specifically designed for that type batteries and follow the instructions of the battery supplier and the charger correctly. Keep the battery and charger always in dry places only and never leave un-attended during charging.
- When the batteries are at their end of life, dispose them at a recycling-place, check www.call2recycle.org for more info.

Quick-start

The quick-start section is not a replacement for the full instructions. To be able to use the model to its best take the time to read the full manual.

1. Read the manual and safety pre-cautions (page 3)
2. Buy and install the batteries in the transmitter (see Transmitter manual)
3. Install battery packs in the model, make sure the speedo is switched off, connect the cables (avoid reversed polarity) and securely fasten the battery-pack.
4. Turn on the transmitter (see Transmitter manual). Always turn on the transmitter first before to switch on the car and only turn off the transmitter after you switched off the car.
5. Check servo operation. Check that the servo works correctly and check that the car runs straight in neutral position, trim as needed.
- 6 Perform a range test with the radio system
- 7 Personalise the body of your car by applying more decals if required.
8. Drive your modelcar.
9. Maintain your modelcar (page 9)

Equipment

Included with your model

- Serpent modelcar, factory assembled and set-up
- Dragon-RC DTS-2 transmitter (as shown or similar)
- Dragon-RC DESC speedcontroller
- Dragon-RC brushless motor
- Dragon-RC racing tyres, pre-mounts
- Dragon-Rc digital servo MG
- Dragon-RC prepainted and pre-cut bodyshell



Powered by  DRAGON-RC



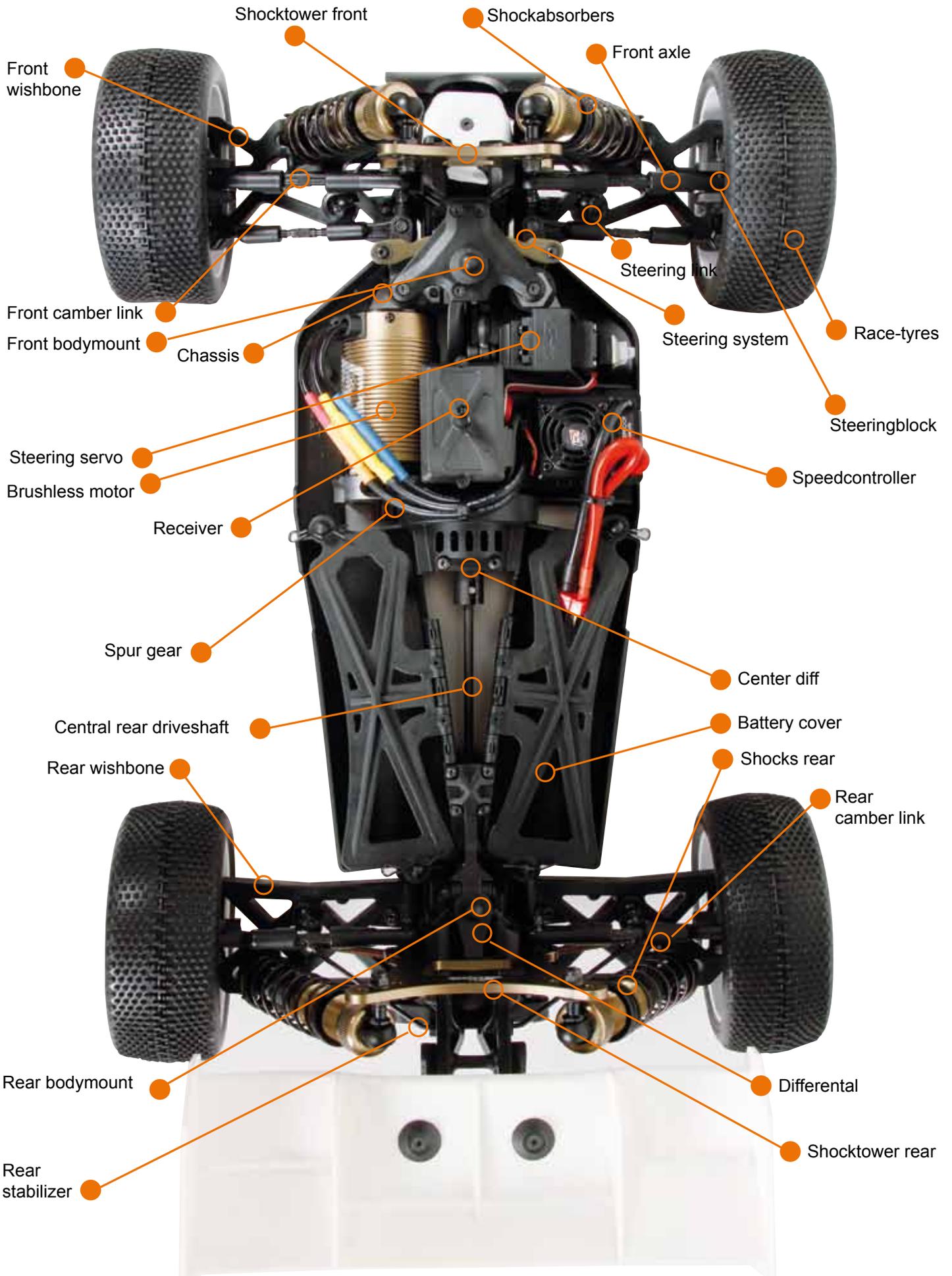
Required for your model

- Multi Charger; to charge transmitter battery and car battery
- Battery pack 2-S Lipo x 2
- Battery AA x 4 to operate the transmitter
- Tools: selection of allen tools and screw- drivers
- Hobby knife
- Camber gauge

Recommended materials

- Side cutter and nose plier
- Cleaning brush and towel
- Safety glasses and gloves
- Cleaning gum
- Thin bearing oil
- Transmission grease
- CA glue
- Degreaser

Model specs/overview

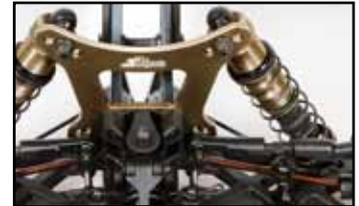


Basic Tuning

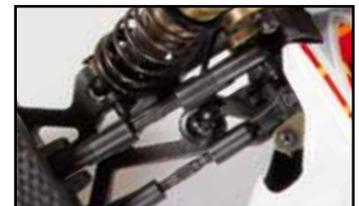
- **Springs:** by using a softer spring you will have more sag, more chassis roll/lean, more dive and a less responsive car this might be better on low-grip surfaces; by using a harder spring you have less sag, less body lean, less dive and a more responsive car. What to apply depends on driving style and grip-level surface. This is more suitable on high-grip surfaces.
- **Shock-angle:** the angle at which the shocks are mounted create a different suspension feel; the more vertical, the harder it feels, the more horizontal, the softer it feels.
- **Oil:** the viscosity of the shock-oil defines the dampening of the shockabsorber. Thinner oil will be softer, with slower response, thicker oil will be harder dampening with faster reponse. The dampening can also be fine-tuned by fitting other pistons with more or less holes, which is an optional.
- **Differential:** you can make the gear differential harder or softer by using a different oil viscosity. Lighter oil will create a looser diff which increases rear traction on acceleration, but also more understeer, and a harder differential will decrease rear traction on acceleration, but also more on-throttle steering
- **Front anti-roll bar:** by using a softer anti-roll bar you will have more sag, more chassis roll/lean, more dive and a less responsive car. But you will have more steering once you have entered the corner
- **Rear anti-roll bar:** by using a softer anti-roll bar you will have more sag, more chassis roll/lean, more dive and a less responsive car. But you will have more rear traction and a more stable car
- **Toe adjustment: Front:** adjusted with the track-rods, make longer or shorter. More toe-in will create more steering, but less stability; toe-out will create a more stable car, with less steering.
- **Toe adjustment: Rear:** adjusted with suspension blocks (optional). More toe-in will create more traction, more stability, but less speed. Less toe in will create a less stable car, with less traction but higher speed.
- **Front camber:** using more negative camber in the front will give you more steering but also increases possible traction roll.
- **Rear camber:** using more negative camber in the rear will create more grip in the rear meaning also creating more understeer.
- **Front caster:** use optional caster blocks to change caster, more caster will create more steering but also increases possible traction roll. And less caster will create less steering but also decreases possible traction roll.
- **Wheel-base length:** a longer car will be more stable and react slower, a shorter car will be more nervous and more direct.
- **Gear-ratio:** spur and pinion: for correct gearmesh keep a pieces of notebook paper at hand, to put between the spur and pinion for correct mesh.
- **Ride-height:** you can change the ride-height of the car, by applying more or less pre-load on the springs, turn the pre-load adjusters to set the desired height and keep left and right the same.



Springs



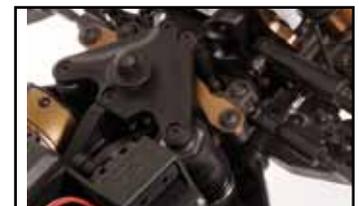
Shock-angle



Front anti roll-bar



Rear anti roll-bar



Ackermann



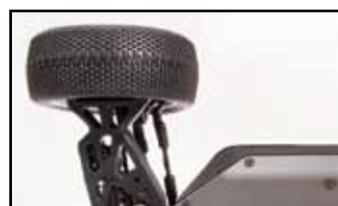
Front camber



Rear camber



Rear caster



Front caster



Gear-ratio

Maintenance

Shockabsorbers

- Check for smooth operation of the shockabsorbers, and check for airbubbles by pushing the shock up and down fast after removal of the spring. Clean the shockabsorbers as needed and refill with fresh **100% pure silicone oil** as needed.

Tyres

- Replace tyres if case worn or damaged, and clean the surface in case dirty to obtain better grip.

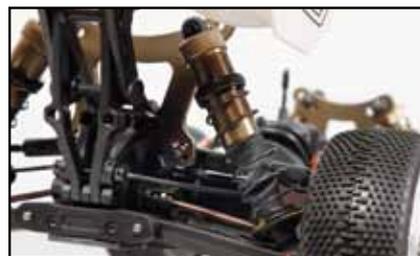
Wheel-axes and driveshafts

- Remove the wheels, and check the wheel-axes, driveshafts and adaptors for dirt, play and pins. Clean thoroughly as needed and lubricate the touching parts with a small amount of grease or oil.

Differentials

- Check the differentials and gears for wear and dirt and clean as needed. Check the functioning of the diff by turning the wheels in opposite direction and feel if still smooth or 'gritty'. In case of gritty feel, the silicone oil may need replacement.

The full assembly manual of this model is available online; check on www.serpent.com and type your modelnumber, partnumber, or select your car from the car-page; go to the download section in the menu and download the full manual.



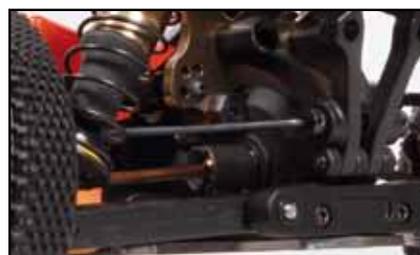
Shockabsorbers



Tyres



Wheel-axes and driveshaft front



Differential



Partslist and Optionals list

600006 Serpent 811 Cobra Buggy EP 1/8 4wd RTR

Manual & Decals

- 600329 Decal sheet S811 black/white (2)
- 600332 Decal sheet S811 chrome (2)

Radio Installation / Battery option

- 600463 Servo lever 23T 811-E alu
- 600464 Servo lever 24T 811-E alu
- 600465 Servo lever 25T 811-E alu

Servo Saver & Steering option

- 600153 Topdeck front carbon
- 600171 Steeringrack option 1
- 600172 Steeringrack option 2
- 600173 Steeringrack option 3
- 600182 Bolt steeringrack (2)
- 600278 Servo saver post alu (2)
- 600296 Servosaver alu coated (3)
- 600330 Servo saver spring hard
- 600463 Servo lever 23T 811-E alu
- 600464 Servo lever 24T 811-E alu
- 600465 Servo lever 25T 811-E alu

Shock Absorbers option

- 600317 Shockset fr (2)
- 600318 Shockset rr (2)
- 600357 Membrane webbed silicone (4)
- 600287 Shock spring support alu (4)
- 600306 Shock shaft FR TiN coating (2)
- 600645 Shockrod 811 2.0 rear Tin coated (2)

Shock Springs

- 600648 Spring FR pink V2 (0.73N/4.15LB) (2)
- 600654 Spring RR pink V2 (0.58N/3.3LB) (2)
- 600646 Spring FR orange V2 (0.66N/3.8LB) (2)
- 600647 Spring FR red V2 (0.70N/4.0LB) (2)
- 600649 Spring FR blue V2 (0.75N/4.3LB) (2)
- 600650 Spring FR purple V2 (0.79N/4.5LB) (2)
- 600651 Spring FR green V2 (0.81N/4.65LB) (2)
- 600652 Spring RR orange V2 (0.53N/3.0LB) (2)
- 600653 Spring RR red V2 (0.56N/3.2LB) (2)
- 600655 Spring RR blue V2 (0.60N/3.4LB) (2)
- 600656 Spring RR purple V2 (0.61N/3.5LB) (2)
- 600657 Spring RR green V2 (0.63N/3.6LB) (2)
- 600658 Spring set FR V2 (6x2)
- 600659 Spring set RR V2 (6x2)

Chassis / Guards Optional

- 600445 Chassis 811-E
- 600461 Chassis brace front alu 811-E
- 600462 Chassis brace rear alu 811-E
- 600470 Chassis S811E hard anodized
- 600489 Transmission brace tube alu

Front Section Optional

- 600151 Shocktower front carbon
- 600153 Topdeck front carbon
- 600176 Suspension bracket alu FR RR std
- 600177 Suspension bracket alu FR FR std
- 600241 Antiroll bar front 2.5mm
- 600242 Antiroll bar front 2.7mm
- 600263 Washer M3 alu (12)
- 600284 Shocktower FR alu light
- 600297 Lightweight wheel nut 17mm (4)
- 600303 C-hub 10 L+R alu
- 600304 C-hub 12 L+R alu
- 600336 Antiroll bar front 1.8mm

- 600337 Antiroll bar front 2.0mm
- 600497 Steeringblock L+R V2 alu
- 600611 Steeringblock Alu 0-Deg L+R
- 600663 C-hub 16 L+R alu
- 600665 C-hub 14 L+R alu

Middle Section Option

- 600197 Driveshaft insert (2)
- 600198 Spur gear 46T
- 600279 Spur gear 44T
- 600280 Spur gear 48T
- 600444 Driveshaft center FR 811-E
- 600471 Driveshaft center RR 811-E
- 600472 Gear coupler V3
- 600473 Gear coupler sleeve (2)
- 600606 Spurgear 46T composite
- 600607 Spurgear 48T composite
- 600608 Spurgear 50T composite

Rear Section option

- 600155 Suspension bracket RR RR 3
- 600156 Suspension bracket RR FR 2
- 600238 Antiroll bar rear 2.5mm
- 600239 Antiroll bar rear 2.7mm
- 600263 Washer M3 alu (12)
- 600265 Suspension bracket RR FR 2.5 - 4.5
- 600266 Suspension bracket RR RR HR 3
- 600267 Suspension bracket RR RR LR 3
- 600297 Lightweight wheel nut 17mm (4)
- 600300 Post wingmount alu (2)
- 600301 Wing washer alu (2)
- 600338 Antiroll bar rear 1.8mm
- 600339 Antiroll bar rear 2.0mm
- 600434 Antiroll bar rear 2.4mm
- 600637 Shocktower carbon RR 811 2.0
- 600661 Upright L+R 811 2.0 alu
- 600684 Antiroll bar rear 3.0mm

Differential Optional

- 600325 Diff universal
- 600480 Diff gear 44T
- 600501 Complete FR/RR 44T diff

Pinions Optional

- 600452 Pinion 12T
- 600453 Pinion 13T
- 600454 Pinion 14T
- 600455 Pinion 15T
- 600456 Pinion 16T
- 600457 Pinion 17T
- 600458 Pinion 18T
- 600460 Pinion 20T

Body Optional

- 170317 Body 1/8 buggy E-Avenger semipainted
- 170318 Body 1/8 buggy E-Avenger orange
- 170319 Body 1/8 buggy E-Avenger red
- 170320 Body 1/8 buggy E-Avenger blue
- 170321 Body 1/8 buggy E-Avenger green
- 170322 Body 1/8 Cobra E-buggy semipainted
- 170323 Body 1/8 Cobra E-buggy Orange
- 600143 Wing white nylon
- 600277 Wing black nylon
- 600438 Body + nosecone 811-E
- 600439 Wing white low 811
- 600440 Wing black low 811

Pit equipment

- 190500 Pit-caddy
- 190501 Tool-bag
- 190502 Pit-bag medium. 3 drawers
- 190503 Fuel bottle 500ml
- 190504 Ballcup tool
- 190508 Toolset for offroad (20pcs) with tools bag
- 190509 Allen wrench 1.5 X 120mm
- 190510 Allen wrench 2.0 X 120mm
- 190511 Allen wrench 2.5 X 120mm
- 190512 Allen wrench 3.0 X 120mm
- 190513 Ball driver hex wrench 2.0 X 120mm
- 190514 Ball driver hex wrench 2.5 X 120mm
- 190515 Ball driver hex wrench 3.0 X 120mm
- 190516 Tool tip Allen wrench 1.5 X 120mm
- 190517 Tool tip Allen wrench 2.0 X 120mm
- 190518 Tool tip Allen wrench 2.5 X 120mm
- 190519 Tool tip Allen wrench 3.0 X 120mm
- 190520 Tool tip Ball driver hex wrench 2.0 X 120mm
- 190521 Tool tip Ball driver hex wrench 2.5 X 120mm
- 190522 Tool tip Ball driver hex wrench 3.0 X 120mm
- 190523 Turnbuckle wrench 3mm
- 190524 Turnbuckle wrench 4mm
- 190525 Turnbuckle wrench 5mm
- 190526 Flat head screwdriver 3.0 X 150mm
- 190527 Flat head screwdriver 4.0 X 150mm
- 190528 Phillips screwdriver 2.0 X 45mm
- 190529 Phillips screwdriver 3.5 X 120mm
- 190530 Phillips screwdriver 5.8 X 120mm
- 190531 Nut driver 5.0 X 100mm
- 190532 Nut driver 5.5 X 100mm
- 190533 Nut driver 7.0 X 100mm
- 190534 Reamer with end cap for lexan body
- 190535 Exhaust spring / caster clip remover
- 190536 Wrench-glowplug / clutchnut - 10mm long
- 190537 Flywheel wrench tool wheelnut for 1/8 off-road buggy
- 190538 Flywheel wrench

Merchandising

- 1896 Cap serpent black-orange
- 190172 Winter jacket Serpent black-orange hooded (M)
- 190173 Winter jacket Serpent black-orange hooded (L)
- 190174 Winter jacket Serpent black-orange hooded (XL)
- 190175 Winter jacket Serpent black-orange hooded (2XL)
- 190176 Winter jacket Serpent black-orange hooded (3XL)
- 190208 Winter jacket Serpent black-orange hooded (4XL)
- 190156 Polo shirt Serpent black (S)
- 190157 Polo shirt Serpent black (M)
- 190158 Polo shirt Serpent black (L)
- 190159 Polo shirt Serpent black (XL)
- 190160 Polo shirt Serpent black (XXL)
- 190161 Polo shirt Serpent black (XXXL)
- 190182 T-shirt Serpent Splash white (S)
- 190183 T-shirt Serpent Splash white (M)
- 190184 T-shirt Serpent Splash white (L)
- 190185 T-shirt Serpent Splash white (XL)
- 190186 T-shirt Serpent Splash white (XXL)
- 190187 T-shirt Serpent Splash white (XXXL)
- 190188 T-shirt Serpent Splash orange (S)
- 190189 T-shirt Serpent Splash orange (M)
- 190190 T-shirt Serpent Splash orange (L)
- 190191 T-shirt Serpent Splash orange (XL)
- 190192 T-shirt Serpent Splash orange (XXL)
- 190193 T-shirt Serpent Splash orange (XXXL)
- 190194 T-shirt Serpent Splash black (S)
- 190195 T-shirt Serpent Splash black (M)
- 190196 T-shirt Serpent Splash black (L)
- 190197 T-shirt Serpent Splash black (XL)
- 190198 T-shirt Serpent Splash black (XXL)
- 190199 T-shirt Serpent Splash black (XXXL)

- 190201 Hoody sweater Serpent black-zip (S)
- 190202 Hoody sweater Serpent black-zip (M)
- 190203 Hoody sweater Serpent black-zip (L)
- 190204 Hoody sweater Serpent black-zip (XL)
- 190205 Hoody sweater Serpent black-zip (2XL)
- 190206 Hoody sweater Serpent black-zip (3XL)
- 190207 Hoody sweater Serpent black-zip (4XL)
- 190215 T-shirt Serpent WC edition black (S)
- 190216 T-shirt Serpent WC edition black (M)
- 190217 T-shirt Serpent WC edition black (L)
- 190218 T-shirt Serpent WC edition black (XL)
- 190219 T-shirt Serpent WC edition black (XXL)
- 190220 T-shirt Serpent WC edition black (XXXL)



Transmitter, reciver, servo, parts

- 210003 Servo digital 0.19s/10.5kg MG
- 210005 Servo case for #210003
- 210007 Servo gear set for #210003
- 210009 Transmitter set DTS-2 with display 2.4 Ghz
- 210010 Transmitter DTS-2 with display 2.4Ghz
- 210011 Receiver DRS-2 on 2.4Ghz

Speed controller, motors, parts

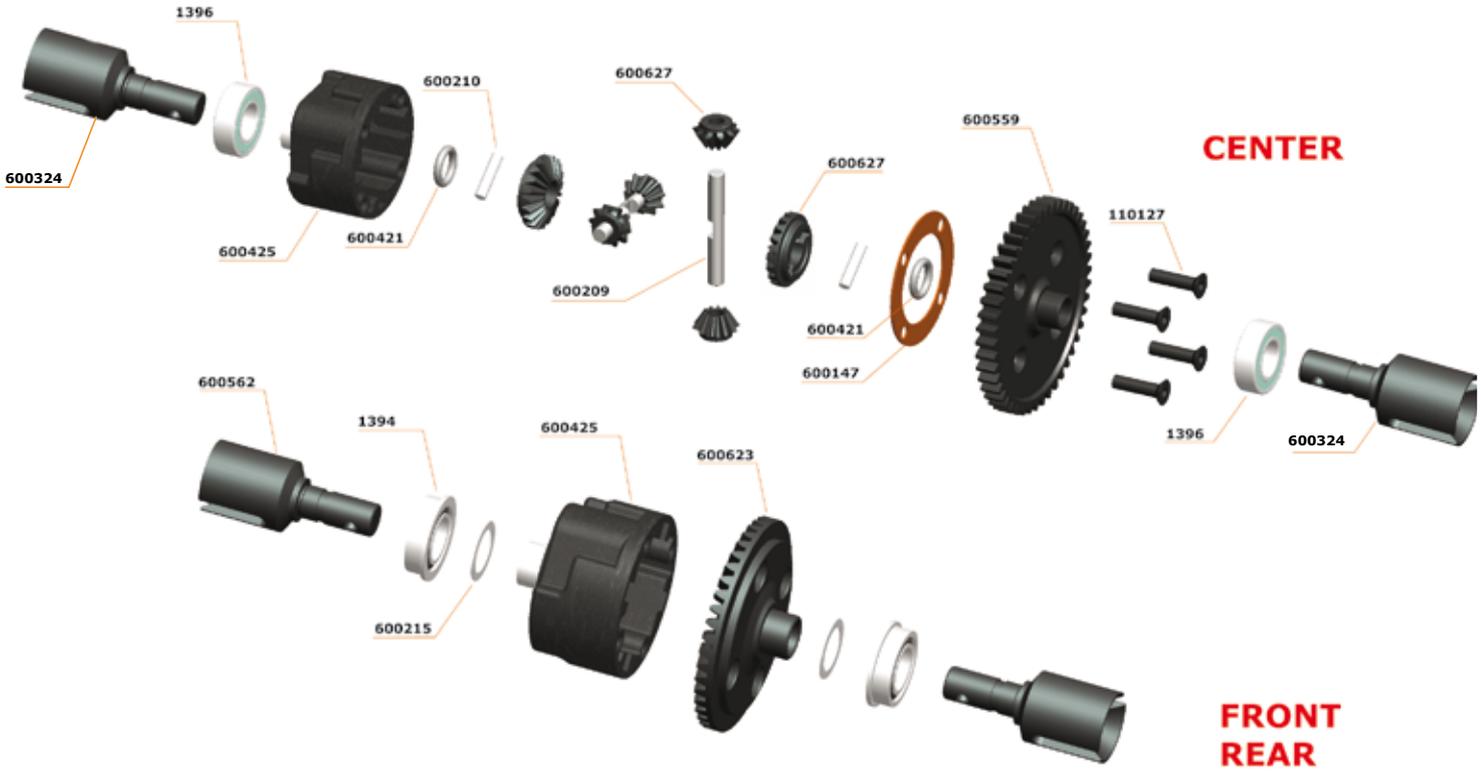
- 211001 Speed controller DS-8 120A WP
- 211003 Speed controller DS8 WP-120A - BL 1650 motor
- 211005 Motor brushless BL 8 1650kv
- 211006 Speed controller DS8 WP-120A - BL 2490 motor
- 211007 Motor brushless BL 8 2490kv
- 211012 Program card DS series

Tyres rubber offroad and wheels

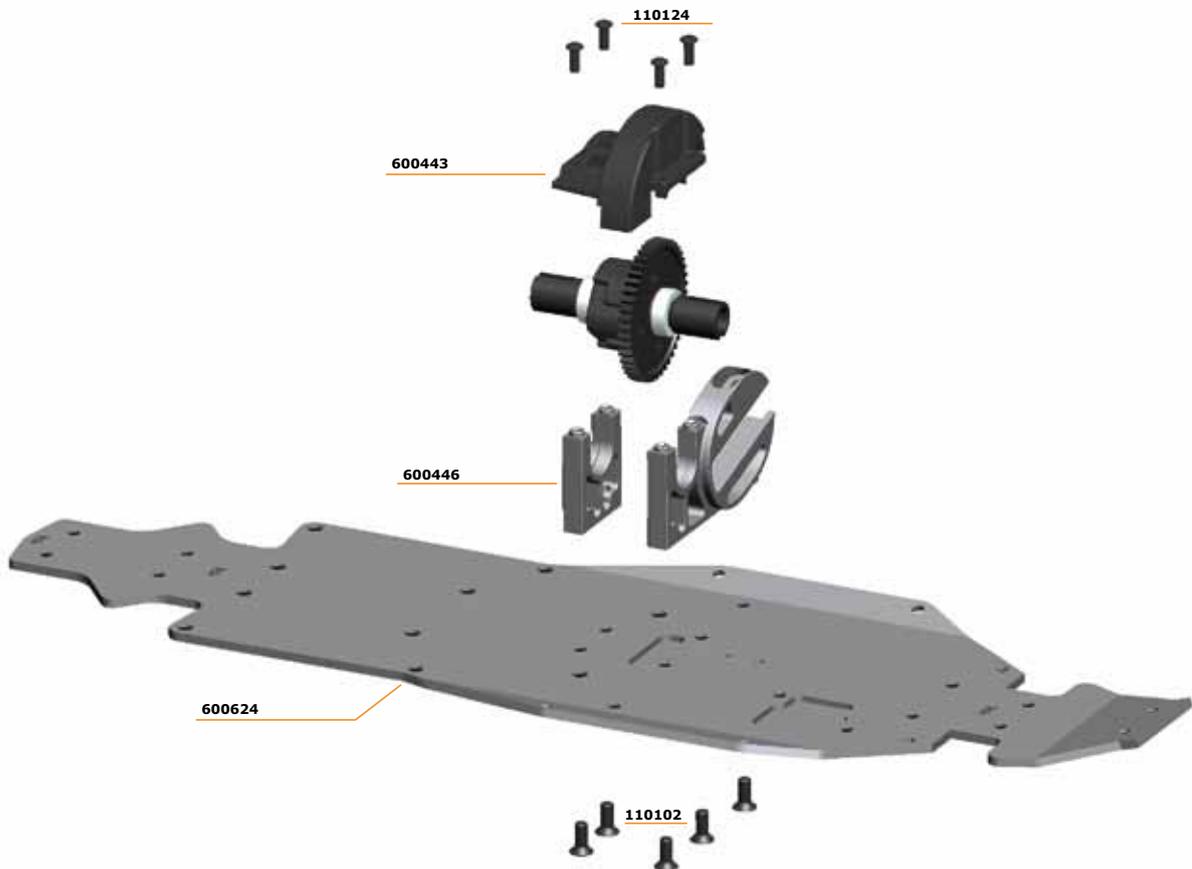
- 214001 1/8 buggy tyre hard mounted on white rim (2)
- 214002 1/8 buggy tyre med mounted on white rim (2)
- 214003 1/8 buggy tyre soft mounted on white rim (2)
- 214004 1/8 buggy tyre s-soft mounted on white rim (2)
- 214005 1/8 buggy tyre hard (2)
- 214006 1/8 buggy tyre med (2)
- 214007 1/8 buggy tyre soft (2)
- 214008 1/8 buggy tyre s-soft (2)
- 214009 1/8 moulded insert hard (4)
- 214010 1/8 moulded insert med (4)
- 214011 1/8 moulded insert soft (4)
- 214012 1/8 moulded insert s-soft (4)

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DIFFERENTIAL ASSEMBLIES



TRANSMISSION CENTER



2.0 COBBLE RTR



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