Redcat®

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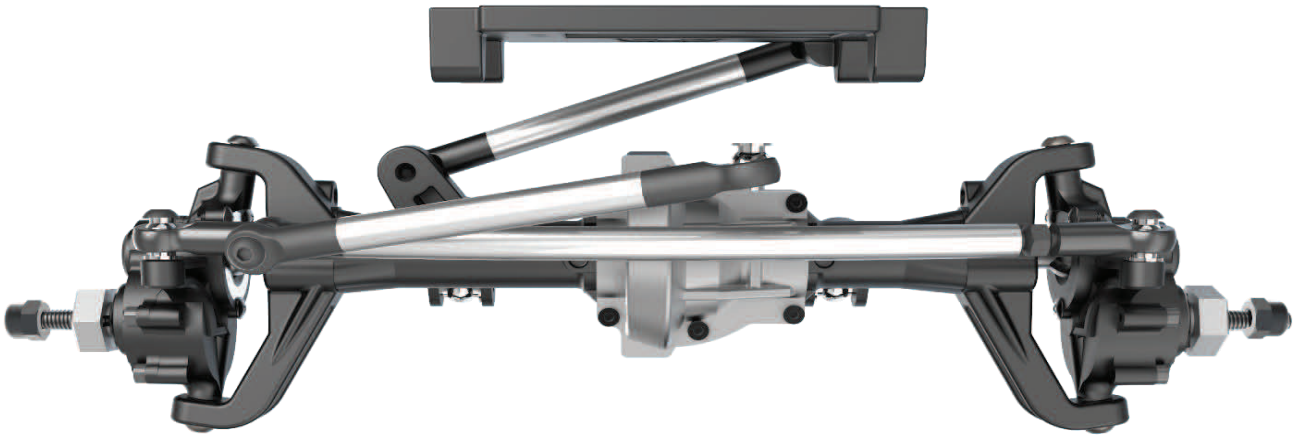
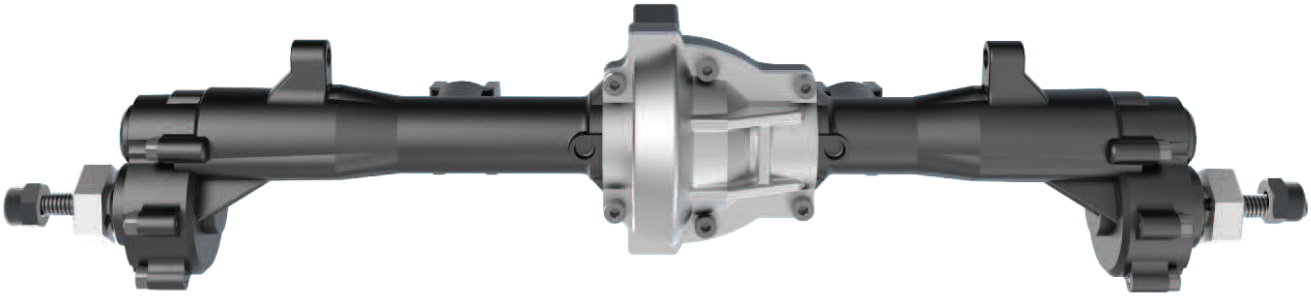
PORTAL AXLE UPGRADE KIT

DESIGNED FOR THE EVEREST GEN7

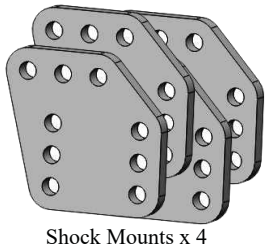
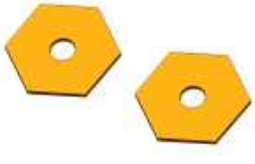
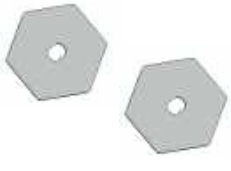
•Link to the most recent version of this manual with exploded views and parts lists: www.redcatracing.com/manuals/MAN-PORTAL-AXLE-UPGRADE-KIT.pdf
•For a video demonstration on how to install the Portal Axle Upgrade Kit and Slipper Clutch visit: www.RedcatRacing.com/RER11289



Front portal axle assembled with servo plate installed.



Rear portal axle, assembled.

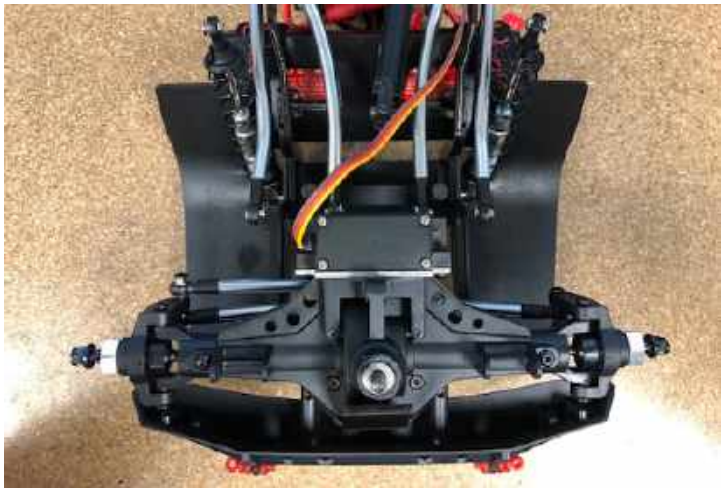
 M3 Nylon Lock Nut x 16	 Shock Mounts x 4	 12mm Wheel Hex x 4	 M4 Wheel Nut x 4	 Straight Pan Hard Bar x 1
 M3*10 Button Head Machined Screw x 16	 M3*14 Button Head Machined Screw x 2	 M3*20 Button Head Machined Screw x 5	 Curved Steering Link x 1	 50T Spur Gear x 1
 Slipper Clutch Compression Nut x 1	 Slipper Clutch Friction Material x 2	 Slipper Clutch Steel Plates x 2	 RER11471 - Spacer For Slipper Clutch  Washer for Slipper x 5	 Transmission Input Shaft For Slipper Clutch x 1

1) Using your stock Everest Gen 7 Sport or Pro model, start by removing the wheels and tires as well as the body. Once that is complete, we'll start with the front end.

Here's what your current front end should look like:

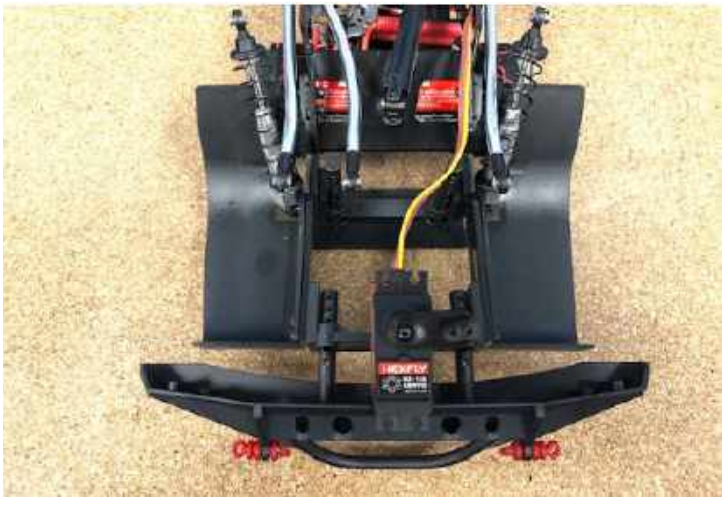
2) The first step will be to start removing the front axle assembly. Remove the screws and nuts that secure the upper and lower links and shocks to the axle housing. You'll need to remove the screw pin that secures the drive shaft to the input shaft.

The end result will look like this:



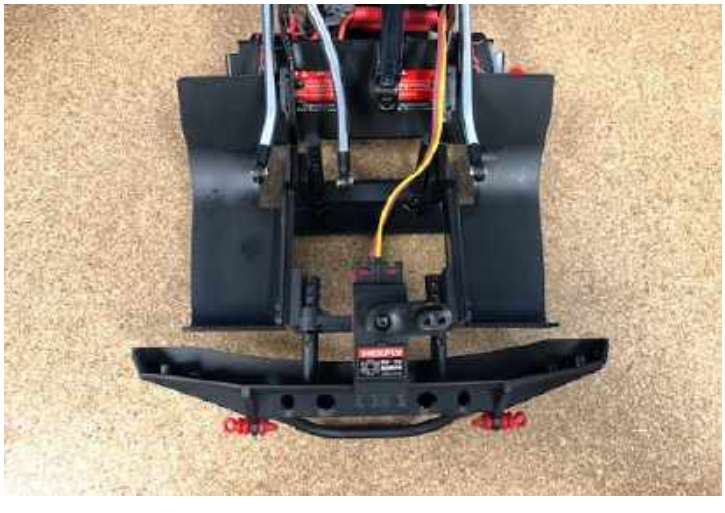
3) Since the steering servo wire is secured to the chassis with zip ties, you can't completely separate the axle assembly from the vehicle just yet. The next step will be to remove the screw that secures the servo link to the servo horn as well as the screws that secure the servo to the servo mounts. You'll also need to remove the upper link that is on the opposite side of the vehicle as the motor. Now you can completely remove your original axle assembly.

This is what that should look like:



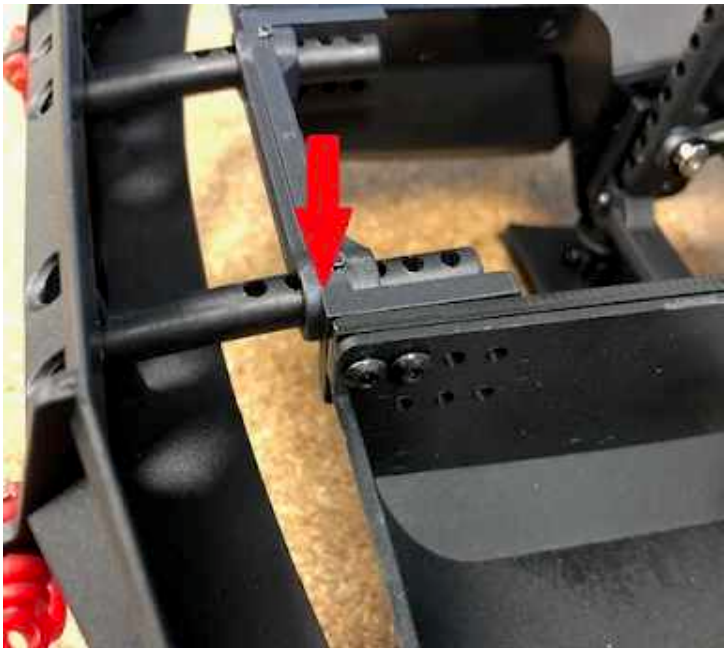
4) Next, unbolt the top of the shocks from the chassis to separate them from the vehicle. Go ahead and also pop the lower ball out of the rod ends on both shocks, and set the shocks aside for now.

Here's what your chassis should resemble currently:

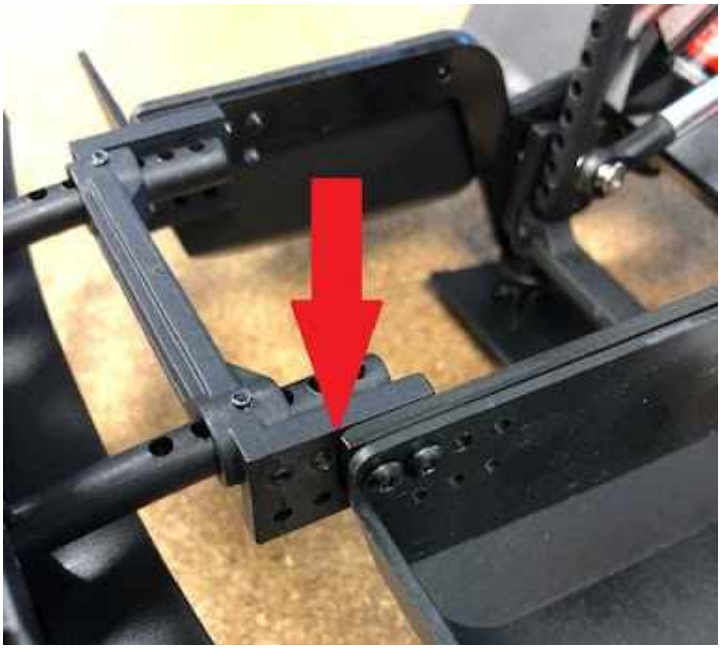


5) The next step will be to change the position of the bumper mount to clear the new portal axle servo plate. If you haven't moved your bumper mount before, it should be in the stock position.

This is the stock location:



This is the position you will need to move it to:

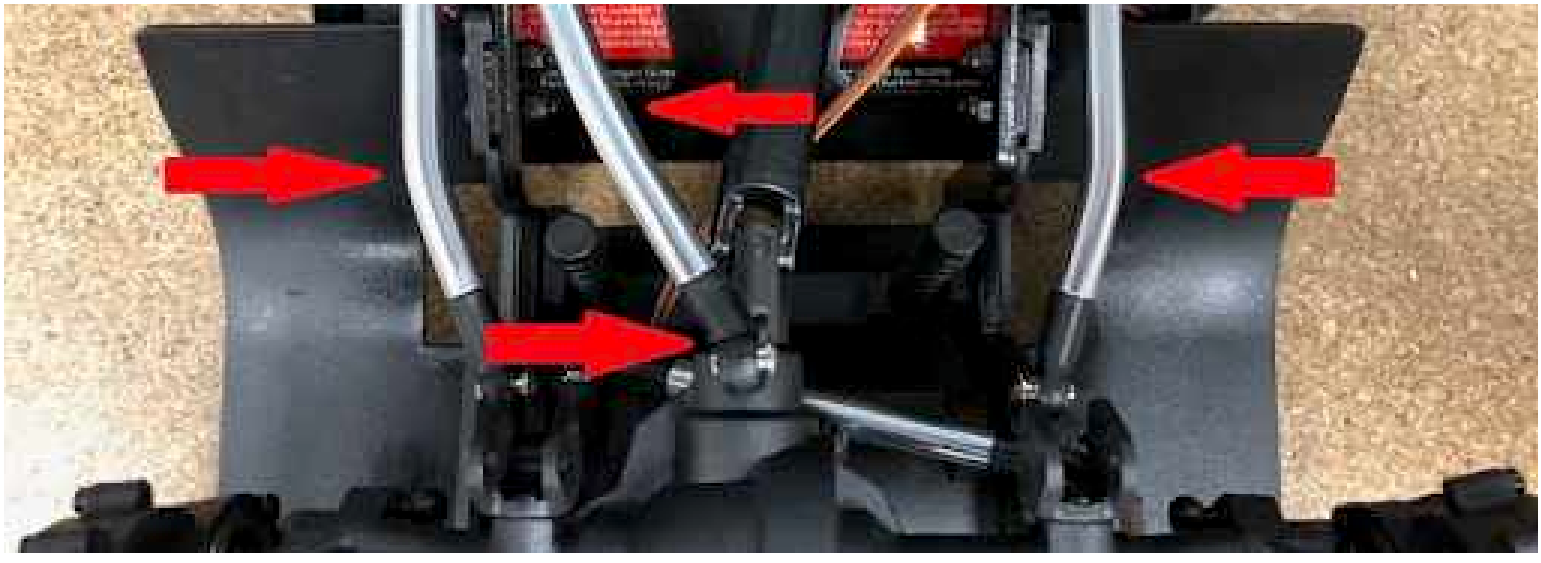


6) Now, we can start the process of installing the front portal axle. First and foremost, you will most likely need to feed some more servo wire through the zip ties toward the front of the vehicle to allow the servo to reach its new position. Once you've done that, the next step is to secure the servo into the servo plate, with the servo facing forward and down toward the bottom side of the vehicle. Just for reference, the servo horn should be on the same side of the chassis as the motor. Now, you can mount the servo plate to the chassis, using the 4pcs of 3x10mm button head screws.

When finished, here's what it should look like:

7) The next step will be to connect the drive shaft coupler to the input shaft on the portal axle by using the screw pin you removed from the original axle. Now, you'll need to adjust the direction the curves in the suspension links face. This will ensure all links will properly clear the frame rails and drive shaft. All 3 links will need to be curved outward, as shown. We've also found the best results when flipping the upper link around so that the angled rod end is toward the front of the vehicle.

Everything can be better understood in the following picture:



8) Now, you can mount the three links to the portal axle. Mounting the single upper link first will be easiest, and then the two lower links after. The upper link will use the 3x20mm BH Screw and an M3 Lock Nut.

NOTE: For the best result when mounting upper link, put the screw through the passenger side of the hole first, so that the head of the screw is against the portal axle housing. Now, slide the link ball over the screw threads that are exposed, and tighten the lock nut against the link ball.

For the lower links, you'll use 3x16mm BH Screws with M3 Lock Nuts. Be sure to use the lower of the two mounting options for the lower links as a good starting point. You can also connect the servo link to the servo horn, using the screw you removed from the original servo link and threading it into the outermost hole on the servo horn.

Here's a picture of everything mounted:

9) Now, let's move on to the rear of the vehicle.

Here's what you should be starting with:

10) Go ahead and remove the screws and nuts that secure the upper and lower links and shocks to the axle housing, as well as the screw pin that secures the drive shaft to the input shaft.

The end result will look like this:

11) Next, unbolt the top of the shocks from the chassis to separate them from the vehicle. You'll also need to pop the lower ball out of the rod ends on both shocks, and set the shocks aside for now.

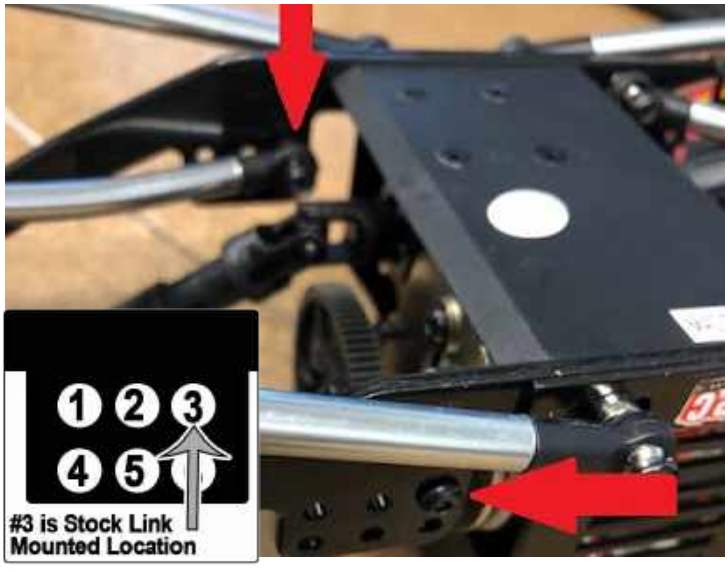
Here's what your chassis should resemble currently:

12) Now is a good time to adjust the direction the curves in the suspension links face. This will ensure all links will properly clear the frame rails and drive shaft. The lower links will need to be curved outward, and the upper links will need to be curved up, toward the top of the vehicle.

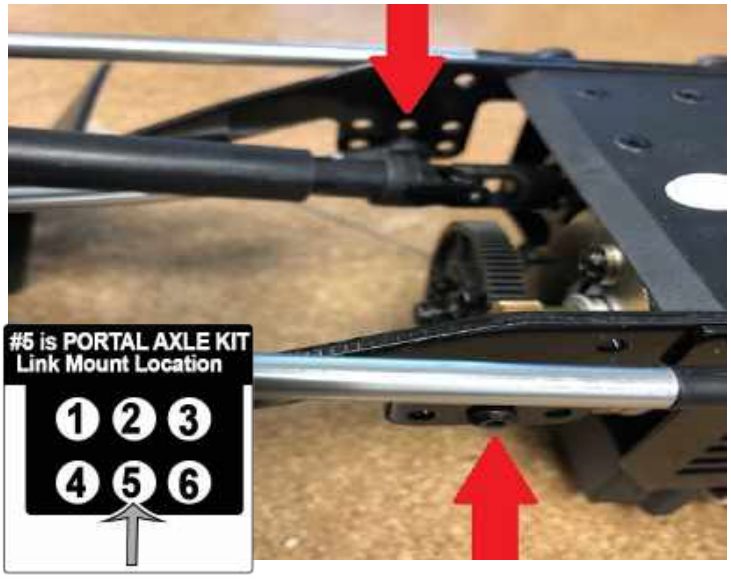
Here is how they should look:

13) Now is a good time to change the chassis mounting position of the upper links. Currently, they are mounted in the low/forward position. We recommend starting with the upper/middle position.

Here is where the links are most likely mounted:



Here is where the links need to be mounted for the portal axles instillation:



14) Now, you can go ahead and install the rear portal axle. Start by connecting the drive shaft coupler to the input shaft on the portal axle by using the screw pin you removed from the original axle. Now, mount the upper links to the portal axle housing using the 3x28mm BH Screw and an M3 Lock Nut and the lower links (using the upper holes in the link mounts using the 3x16mm BH Screws and M3 Lock Nuts.

15) Now is a good time to install the shocks onto the front and rear axles. Feed the shocks through the holes in the fenders down to the axles, and pop the shock rod ends onto the installed ball studs.

When finished, here's what you should see:

These are located here:

16) Once you've installed the bottoms of the shocks, you can flip the vehicle back over to its correct orientation.

Your vehicle should now look like this:

17) Now it's time to install the shock mounts. Let's start with the rear end this time.

If you are using the tilt rear body mount, you can remove the rear body post mount from in between the original shock towers. Now, using 3pcs each of the 3x10mm BH Screws and M3 Lock Nuts, install each shock mount as shown below. Once the mounts are installed, go ahead and mount the top of the shocks.

Note: If you'd like to keep the rear body post mount, you will just thread the screws directly into the mount instead of using the lock nuts where the mount is lined up with the screws positions shown.

This is the location of the shock now. Note the positions of each screw and lock nut:

18) Now, we can install the front shock mounts. The forward two screws on each side will go through the shock mounts, frame rails, and thread directly into the body post mount. The rear screws will need lock nuts to thread into after passing through the shock mounts and frame rails.

You can see the positions in the picture below:

Now you can reinstall your wheels and tires, and your body. The installation of your Redcat portal axles is complete!

Portal Kit Slipper Clutch Info

The Redcat Portal Axle Kit includes a slipper clutch upgrade, with gearing change, intended for the Everest Gen7. This is an optional upgrade. Because of the additional gear reduction present in the portal axles, without a gearing change, the Everest Gen7's top speed will be reduced by about 50%. When properly installed and adjusted, the slipper clutch will prevent drive-train damage, and should return the top speed of the vehicle to the stock levels.

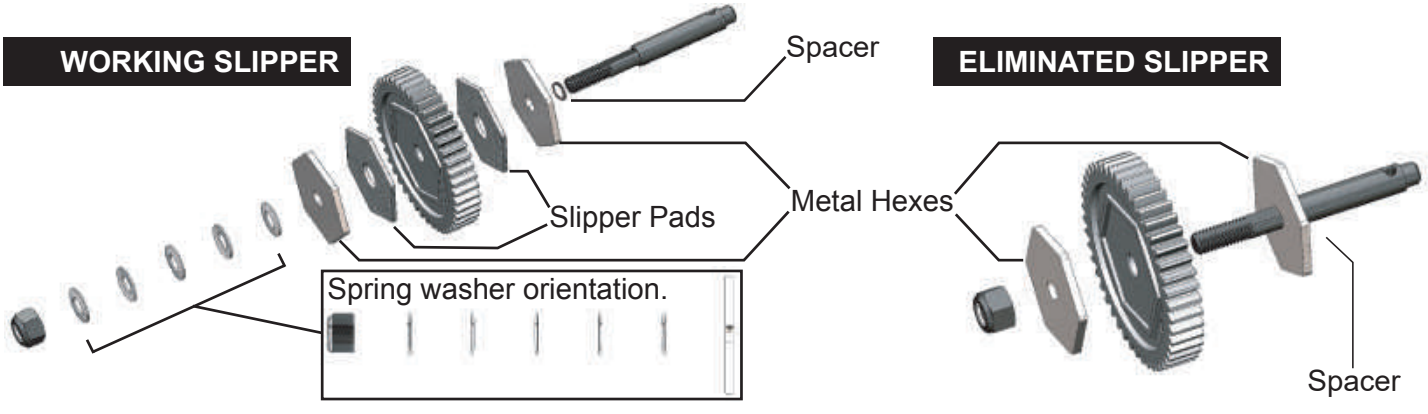
This slipper clutch system features a lockout system, for those who decide they don't want the possibility of their drive-train slipping, but still want the gearing change. The metal clutch plates are designed to fit into the pocket on both sides of the spur gear. To lock out the clutch system, disassemble the clutch, then reassemble without the washer springs or the friction pads.

Recommended Slipper Clutch Settings

The recommended slipper clutch setting is 75% throttle. You can check this by holding the car still on carpet, with a fully charged battery, and gradually applying throttle. You should hear the slipper clutch begin to slip at approximately 75% throttle. If the slipper clutch begins to slip before 75% throttle, tighten the M4 nut approximately ¼ turn and try again. If the slipper clutch begins to slip after 75% throttle, or does not slip at all, loosen the M4 nut approximately ¼ turn and try again. Please note that over the life of your vehicle, it is normal for the slipper pads will wear out and will need to be replaced periodically. It is recommended to check your slipper clutch performance every 4-5 hours of use.

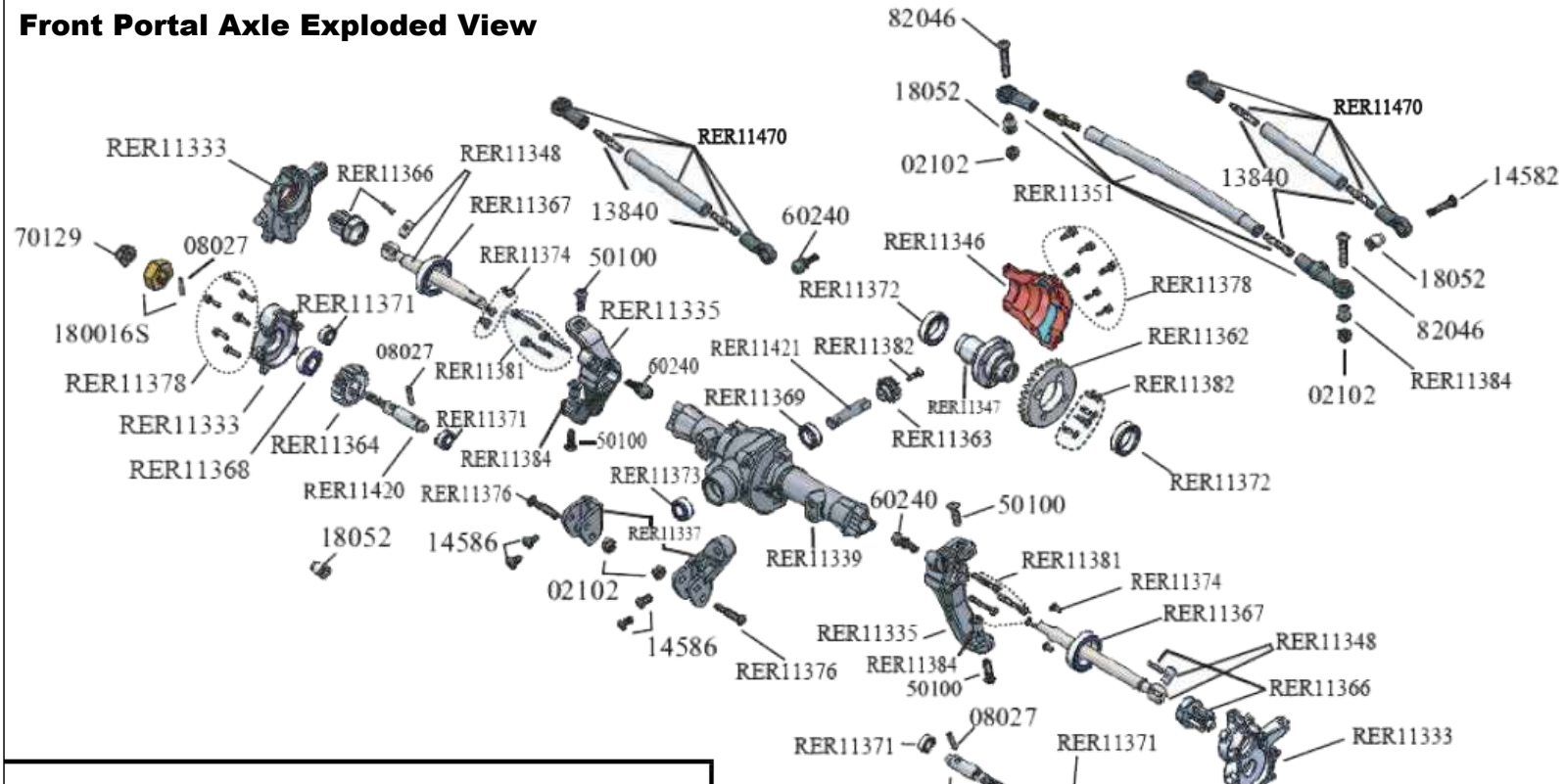
Slipper Clutch Elimination

You can eliminate the slipper from the vehicle by removing the slipper pads and spring washers. The images below show correct assembly of the slipper shaft with a working slipper and eliminated slipper.
Note: Eliminating the slipper increases the potential of drivetrain damage.

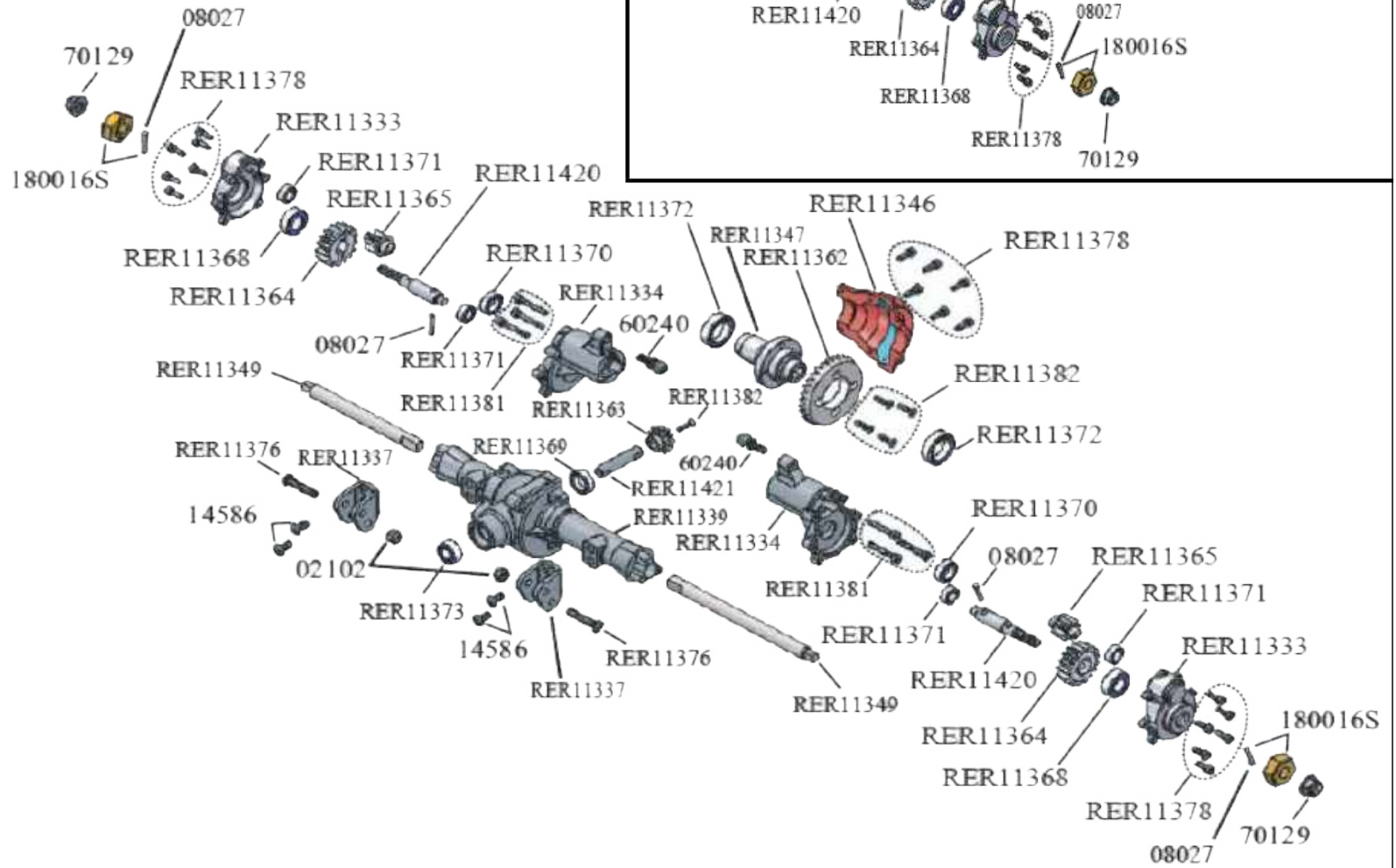


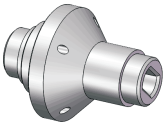
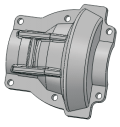
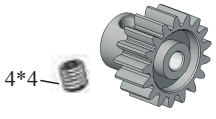
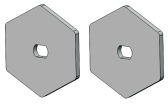
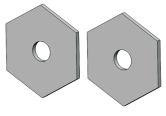
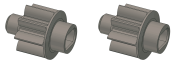
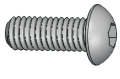
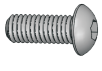
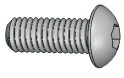
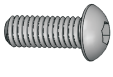
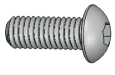
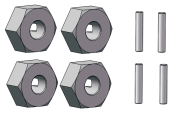
For a video demonstration on how to install the Slipper Clutch visit: www.RedcatRacing.com/RER11289

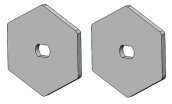
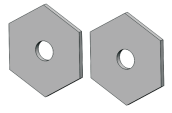
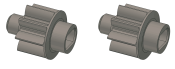
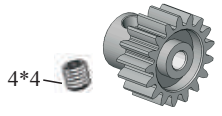
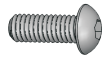
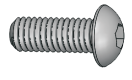
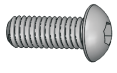
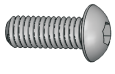
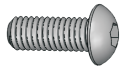
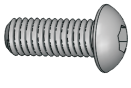
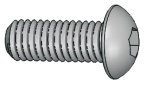
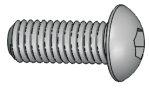
Front Portal Axle Exploded View



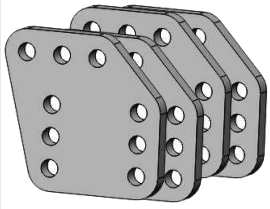
Rear Portal Axle Exploded View



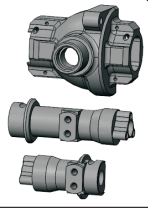
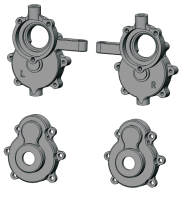
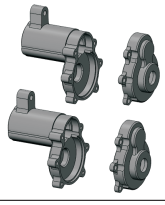
RER11337-Lower Link Mount Set For Axle 	RER11339-Portal Center Gearbox Housing 	RER11335-Caster Mounts (L/R) 	RER11348-Front Portal CVA Shafts w/Couplers 	RER11349-Rear Portal Axle Shafts 
RER11351-Steering Link (105mm) 	RER11347-Portal Axle Spool (1pc) 	RER11346-Differential Cover (1pc) 	RER11420 -Shaft for 17T Gear 	RER11421-Shaft for 11T Gear (2pcs) 
RER11362-Portal Axle Ring Gear (32T) (2PCS) 	RER11366-Front Portal CVA Input Gears w/Pins (2*12) 	11177-Brass Motor Pinion Gear (17T) (0.8 Module/32P) 	RER11356-Metal Slipper Plate (2pcs) 	RER11357-Slipper Pads (2pcs) 
RER11363-Portal Axle Pinion Gear (11T) (2pcs) 	RER11364-Portal Axle Output Gear (17T) (2pcs) 	RER11365-Rear Portal Axle Input Gear (8T) (2pcs) 	RER11367-12*18*4mm Rubber Sealed Ball Bearings (2pcs) 	RER11368-6*12*4mm Rubber Sealed Ball Bearings (6pcs) 
RER11372-15*10*4mm Rubber Sealed Ball Bearings (6pcs) 	RER11373-10*5*4mm Rubber Sealed Ball Bearings (6pcs) 	RER11369 -7*11*3mm Rubber Sealed Ball Bearings (2pcs) 	RER11370-6*10*3mm Rubber Sealed Ball Bearings (2pcs) 	RER11371-4*8*3mm Rubber Sealed Ball Bearings (6pcs) 
RER11384-King Pin Bushing (8pcs) 	60240-Ball Head Screws 5.8mm (8pcs) 	14582-3*14mm Button Head Hex Screw (10pcs) 	13881-2*4mm Button Head Hex Screw (10pcs) 	13882-3*16mm Button Head Hex Screw (10pcs) 
82045-3*8mm Button Head Hex Screw (8pcs) 	50100-3*10mm Button Head Hex Screw (8pcs) 	180016S-12mm Wheel Hex and Pin Set 	18052-Short Rod End Ball (5.8mm) (8pcs) 	70625-Ball Stand Ø5.9 (Long) (6pcs) 

RER11362-Portal Axle Ring Gear (32T) (2PCS) 	RER11420 -Shaft for 17T Gear 	RER11421-Shaft for 11T Gear (2pcs) 	RER11356-Metal Slipper Plate (2pcs) 	RER11357-Slipper Pads (2pcs) 
RER11363-Portal Axle Pinion Gear (11T) (2pcs) 	RER11364-Portal Axle Output Gear (17T) (2pcs) 	RER11365-Rear Portal Axle Input Gear (8T) (2pcs) 	RER11366-Front Portal CVA Input Gears w/Pins (2*12) 	11177-Brass Motor Pinion Gear (17T) (0.8 Module/32P) 
RER11372-15*10*4mm Rubber Sealed Ball Bearings (6pcs) 	RER11373-10*5*4mm Rubber Sealed Ball Bearings (6pcs) 	RER11384-King Pin Bushing (8pcs) 	18052-Short Rod End Ball (5.8mm) (8pcs) 	70625-Ball Stand Ø5.9 (Long) (6pcs) 
RER11367-12*18*4mm Rubber Sealed Ball Bearings (2pcs) 	RER11368-6*12*4mm Rubber Sealed Ball Bearings (6pcs) 	60240-Ball Head Screws 5.8mm (8pcs) 	13881-2*4mm Button Head Hex Screw (10pcs) 	13882-3*16mm Button Head Hex Screw (10pcs) 
82045-3*8mm Button Head Hex Screw (8pcs) 	50100-3*10mm Button Head Hex Screw (8pcs) 	14582-3*14mm Button Head Hex Screw (10pcs) 	RER11381-2*14mm Cap Head Screw (10pcs) 	RER11382-2*8mm Flat Head Hex Screw (10pcs) 
82047-3*20mm Button Head Hex Screw (8pcs) 	82048-3*25mm Button Head Hex Screw (8pcs) 	13854-3*28mm Button Head Hex Screw (8pcs) 	13840-3*18mm Hex Screw (8pcs)  08027-Pin 2*10mm 	RER11378-2*6mm Cap Head Screw (10pcs) 
RER11428-Pin 2*12mm 	70129-4mm Flanged Lock Nuts (8pcs) 	02102-3mm Lock Nuts (6pcs) 	02055-4mm Lock Nuts (8pcs) 	RER11426 - Belleville Washer for Slipper (10pcs) 

Parts List

RER11465 - Spur Gear for Slipper 50T 	RER11466 - Top Shaft For Slipper 	RER11467 - Chassis Mounted Servo Plate 	RER11468 - Shock Mounts 	RER11469 - 3*23mm Button Head Screw (8pcs) 
RER11470 - 47mm Links 	RER11471 - Spacer For Slipper Clutch 			

Optional Parts List

RER11405-Aluminum Portal Center Gearbox Housing 	RER11406-Aluminum Front Outer Portal Housing Set (L/R) 	RER11407-Aluminum Rear Outer Portal Housing Set 	RER11408-Aluminum Caster Mounts (L/R) 	RER11414-Aluminum Lower Link Mount Set For Axle 

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•Link to the most recent version of this manual with exploded views and parts lists: www.redcatracing.com/manuals/MAN-PORTAL-AXLE-UPGRADE-KIT.pdf
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