



**DISCLAIMER:** Please read these instructions carefully to ensure proper installation. Improper installation can result in damage and/or injury. Tekno RC is not responsible for any damage or personal injury encountered while operating your vehicle. So read carefully!

Thank you and congratulations on your purchase of the Tekno RC V4 brushless conversion kit. The V4 kits represent the state of the art in 1/8th Electric racing. Utilizing your vehicle's front, rear, and center assemblies along with the Tekno RC chassis and other components, your electric 1/8th vehicle will be performing at its highest level.

You will need a suitable brushless motor, brushless ESC, and battery pack to complete the conversion. More about choosing the right gear can be found at [www.teknorc.com](http://www.teknorc.com). A 3 channel radio with throttle mixing is preferred if you are running mechanical brakes. For motor brake setups, a 2 channel radio will work just fine.

**Before You Begin:** Start with a clean work area. Be sure to keep any screws that you remove as we will be re-using most of them. Remove all radio gear before doing major disassembly. Make sure you have a good set of tools :)

**1. Disassembly of stock/nitro parts:** Start by removing the center differential assembly. The Tekno RC kit for the JQ Car does not accommodate mechanical brakes so remove all of the brake hardware (discs, pads, linkages, etc.).

Next remove the rear suspension assembly and rear chassis brace. Then remove the front suspension/steering assembly and front chassis brace. The stock axles will be replaced with custom length Tekno RC axles that are included in the kit. Leave the diff cups/couplings on the diff output shafts, they will be re-used.

**2. Reverse Steering Arm:** You will need to switch the steering arm that attaches to the servo and the servo saver assembly to the other side (pointing to the outside of the chassis). We moved the servo slightly for better alignment and this step is needed to move the RX box closer to center. Performance will be unaffected.

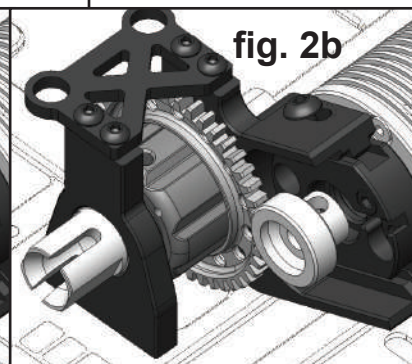
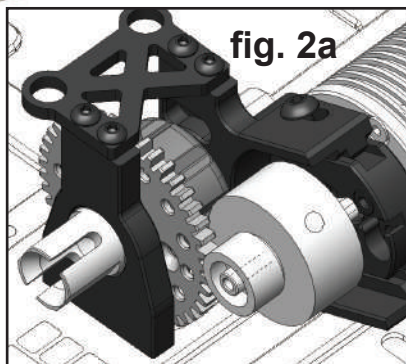
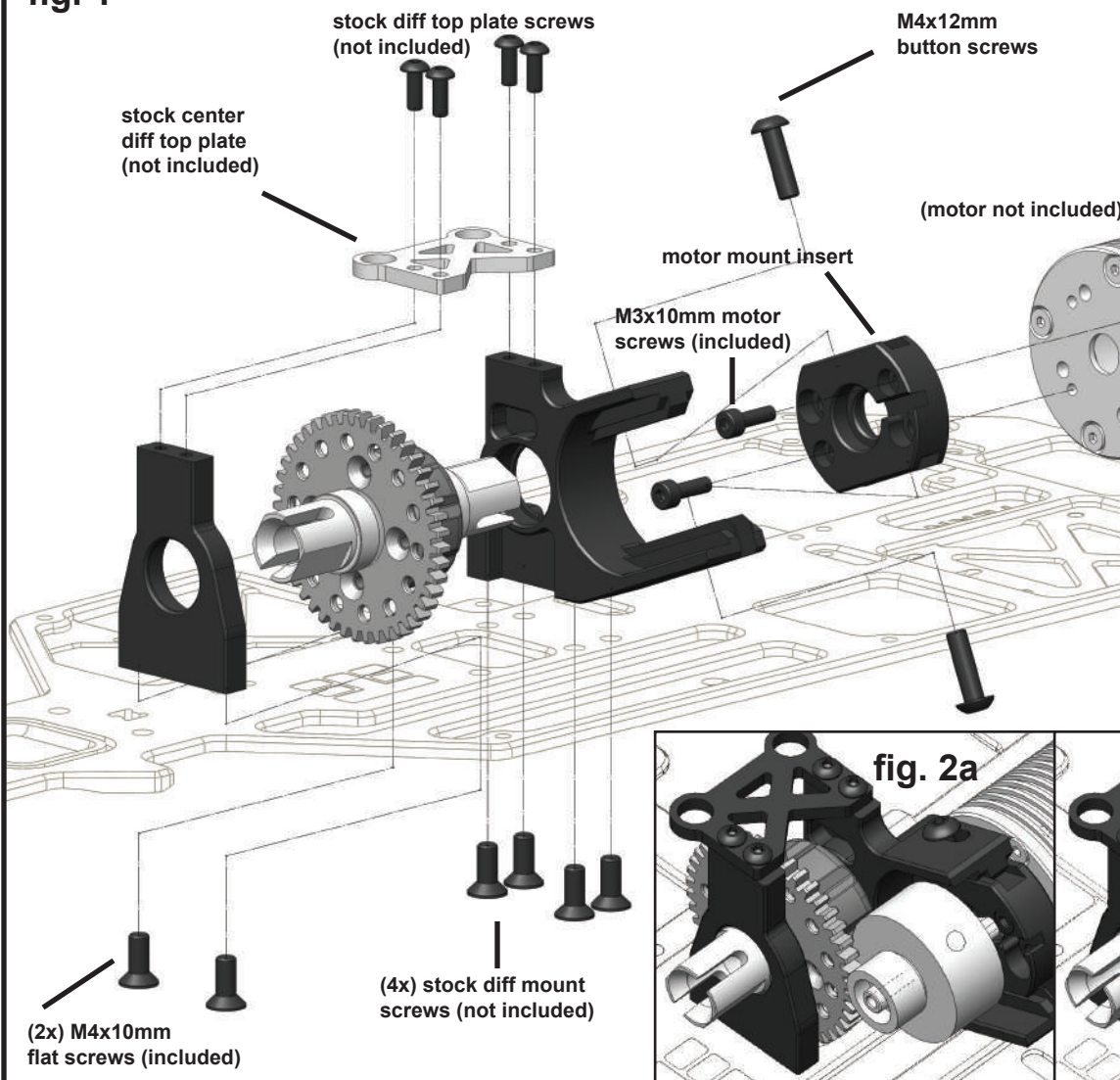
**3. Motor mount:**

Assemble motor as shown in the diagram to the left (fig. 1). NOTE: You will re-use the stock diff top plate, the screws for the top plate and the (4x) M4x10mm flat screws from the stock nitro diff mounts.

In figure 2a and 2b, you can see the two drive options. If you are using a Tekno RC Traktion Drive unit (TKR4301X), the diff gear should be toward the back of the car. If you are using a standard pinion (TKR4171->TKR4190), the diff gear should be toward the front of the car.

The (2x) M4x12mm button screws are used to clamp the motor in place and set the mesh. The bottom screw is accessed through a slot in the chassis. To remove the motor, remove the top screw, loosen the bottom screw and the motor will slide out.

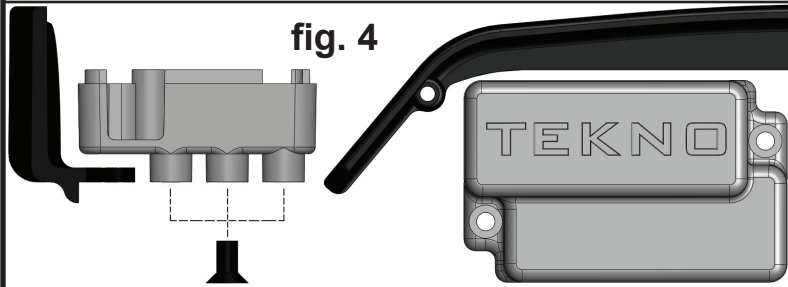
fig. 1



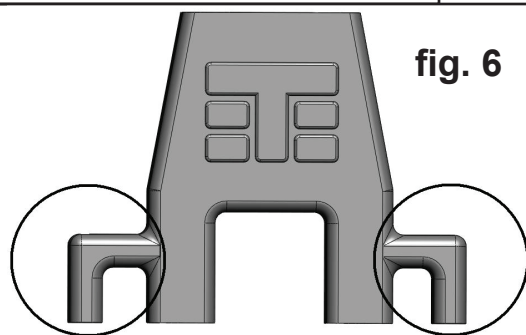
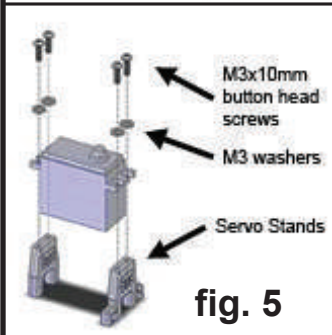
**4. Battery Tray:** Locate the battery, screw Bag A, and the battery straps. The two short straps go through the holes running along the **length** of the tray (the "long" sides), underneath the tray and between the chassis and the tray. The long strap goes through the two holes running along the **width** of the tray (the "short" sides). Insert the straps, hook side first, with the hook side facing towards the outside of the tray. The direction of the straps and where the buckle ends up is a matter of personal preference. Thread the included (6x) M4x6mm screws through the tray and into the chassis. Be sure to use blue thread lock on all six screws.

NOTE: TO ENSURE YOUR BATTERY DOES NOT EJECT FROM THE VEHICLE, IT IS ESSENTIAL THAT YOU INSTALL AND FASTEN ALL THREE BATTERY STRAPS. RUNNING LESS THAN THREE STRAPS IS NOT RECOMMENDED AND WILL MORE THAN LIKELY RESULT IN A BATTERY ACCIDENT.

**5. Receiver Box:** Locate the receiver box and screw bag 'B'. Test fit your receiver to find the best placement. Secure your receiver with servo tape and screw the receiver box bottom to the chassis with (2x) M3x6mm screws. There are 3 sets of holes to mount the RX box. Use the set that puts the RX box closest to the mudguards. Once your servos and ESC are installed and you've set up your radio, install the receiver box top. You will want to orient the box top so the 'TEKNO' is on the outside, closest to the mudguard providing the most clearance for your servo arm (fig. 4).



**6. Wire Guides:** Locate the wire guides and screw bag 'H'. There are 3 wire guides included with the kit, only 2 are used with the JQ kit. They look like upside down 'U's. There are cutouts on the chassis indicating the position and orientation of the guides. You will need to install 2 of the guides in the middle of the chassis. Install them at this point using the supplied M3x6mm screws, but leave them loose so you can run the ESC wire underneath them. The servo wire can go straight into the RX box. Tighten them down once the electronics are properly installed.



**7. Servo Mounts:** Locate screw bag 'C'. Install the servo on to the servo mounts as shown in fig. 5. Be aware that you will need to remove the wire guide "ears" off of the servo mounts to clear the cutouts in the chassis (see fig. 6). Only one set of servo mounts will be used.

**8. ESC Tray:** Locate the ESC tray and screw bag 'I'. Test fit your ESC before securing anything down so as not to position your ESC too close to the gears. Once you have decided on your ESC position, use servo tape to secure it to the tray. It is also recommended that you use a long zip-tie to go around the tray and ESC for added security. Use the included M3x6mm screws to attach the tray to the chassis. Route the wire through the wire guide to keep it out of harms way.

**9. Transponder Mount:** The transponder mount included with the kit is not used for the JQ Car. We recommend mounting your transponder on the front steering top brace or on the inside of the right mud guard with either Velcro or double-sided tape. Alternatively, you can mount the Tekno RC transponder mount in another location.

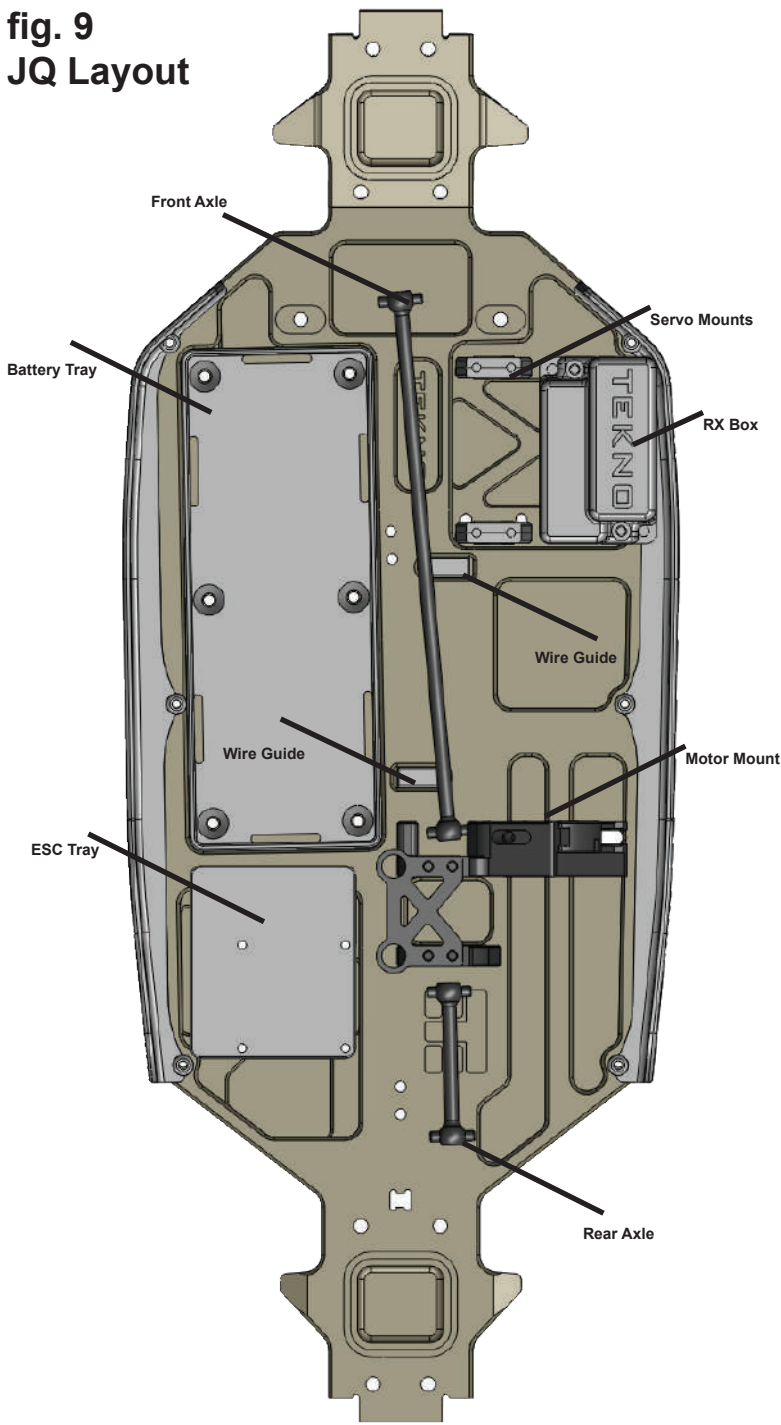
**10. Center Drive Shafts:** There are two drive axles included in the kit. The long axle installs in front and the short axle installs in the rear. You will put them in place when you re-install the front and rear suspension assemblies on the car. See fig. 9 for placement.

#### **11. Front and Rear Assembly to V4 Chassis:**

The next step will be to re-install the front and rear assemblies onto your new V4 chassis. You will be using both the front and rear stock chassis braces. When installing the front and rear assemblies onto the chassis, be sure to thread each screw a little at a time. This will ensure that the assembly goes down evenly and does not tweak to one side or the other. Be sure that both front and rear center axles are seated in the drive cups before tightening everything down.

**12. Mudguards:** Locate the Mudguards and screw bag 'D'. Each mud guard is installed with (3x) M3x10mm flat head screws. The mud guards should be the last parts you need to install.

**fig. 9**  
**JQ Layout**



**Choosing your power system:**

Be aware, our recommendations are based on racing setups. These setups will run cool and provide speeds of approximately 30-40 mph. If you need more speed or torque, simply increase your voltage or motor kv but be aware that this will put more stress on you electronics and drive train.

Your motor and battery choice are dependent upon each other. Running a high voltage battery should be paired with a lower kv motor. Running a lower voltage battery should be paired with a higher kv motor to achieve the same speed.

**How to obtain the right motor/voltage set-up:**

- 1) Choose the voltage you want to run, 4s is the most common however 5s or 6s should be more efficient when paired with the correct motor.
- 2) Pick a motor from the chart below that will give you 28-35k rpm with that voltage.
- 3) Start with the stock nitro gearing for your car, if more or less speed is needed, you can adjust 1-2 teeth on the pinion/spur gear without harm.

Know that a properly set up high voltage system will draw less amps than a properly set up low voltage system that generates the same speed (Volts(battery) x Amps(motor) = Watts). A system that draws less amps will generate less heat. Voltage is your friend. If your speed control can handle the voltage, then run it. Pick a motor that is appropriate for the voltage and your setup WILL run cooler than a lower voltage setup that yields the same power.

Kv	4S (4 cells)	5S (5 cells)	6S (6 cells)
1300	19,240 RPM	24,050 RPM	28,860 RPM
1400	20,720 RPM	25,900 RPM	31,080 RPM
1500	22,200 RPM	27,750 RPM	33,300 RPM
1600	23,680 RPM	29,600 RPM	35,520 RPM
1700	25,160 RPM	31,450 RPM	37,740 RPM
1800	26,640 RPM	33,300 RPM	39,960 RPM
1900	28,120 RPM	35,150 RPM	42,180 RPM
2000	29,600 RPM	37,000 RPM	44,400 RPM
2100	31,080 RPM	38,850 RPM	46,620 RPM
2200	32,560 RPM	40,700 RPM	48,840 RPM
2300	34,040 RPM	42,550 RPM	51,060 RPM
2400	35,520 RPM	44,400 RPM	53,280 RPM

**Tips from the Team:**

**Motor wires:** You can use an air filter support or pipe hanger wire to keep your motor wires out of harm's way. Mount the support on top of the center differential assembly and position it to best protect your motor wires. This is also useful to keep the motor wires from bouncing around during operation. If these wires are left to bounce around without being held down, they can fail over time. Use zip ties wherever possible to keep all wires under control. Shorten or extend wires so there is no stress on them.

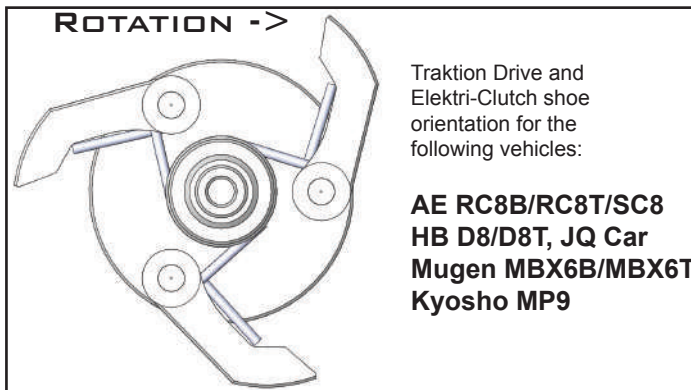
**Center Diff Clearance:** Sometimes gearing choices can affect the clearance between the clutch bell and center differential supports. The smaller the clutch bell choice, the more likely it is there may be a clearance issue. The center diff supports can be ground down where the clutch bell makes contact. In all of our testing, this has not caused any issues or failures.

**Gear Mesh:** You'll want to adjust your gear mesh so there is a small bit of play between the clutch bell and spur gear. The same goes if you are using Long Shank or standard pinions. After setting it a few times, you will become familiar with the proper setting. You can use a sheet of paper in between the teeth if you are not sure how tight or loose it should be. Proper gear mesh is critical to smooth and durable operation. **Clutch Adapter:** To make sure your clutch adapter or pinion gear doesn't move during operation, it is recommended to clean the parts with motor spray to remove any oils used during manufacturing. Additionally, use a Dremel or file to lightly scuff the shaft of the motor. Lightly, meaning not much at all. The set screw just needs a micro texture on the shaft to dig into when tightened down. This will ensure the adapter will not move during operation. Always use thread locking compound whenever tightening or adjusting the adapter set screw.



### IMPORTANT Traktion Drive note:

If you will be using the Traktion Drive system in your JQ V4 kit, you MUST RUN THE SHOES in the position below. Since the motor is reversed, you must reverse the shoe direction as well or the traction systems will not function properly.



### Power Delivery Option Chart

Drive Option Features	Mechanical Brakes	Motor Brakes	Drivetrain Protection / Traction Control	Freewheeling Drivetrain	Lower Temps / Electronics Protection
Standard Pinion		X			
Long Shank Pinion	X	X			
Traktion Drive	X	X	X		X
Elektri-Clutch	X		X	X	X

### Traktion Drive / Elektri-Clutch Spring Recommendation Chart:

Condition / Spring Recommendation	Grooved / Hard Pack outdoor	Medium Traction outdoor	Loose / Dusty / Loamy outdoor	High Bite indoor	Loose indoor
Elektri-Clutch – 0.7mm	X	X	X	X	X
Elektri-Clutch – 0.8mm		X	X		
Elektri-Clutch – 0.9mm			X		
Traktion Drive – 0.8mm		X	X	X	X
Traktion Drive – 0.9mm		X		X	X
Traktion Drive – 1.0mm	X			X	
Traktion Drive – 1.1mm	X			X	

### Body Notes:

We have tested many bodies for the buggy chassis. The Losi 8E body (LOSA8097) fits very well. Other narrow bodies may fit (Losi 810 body, ProLine Slipstream, bodies for JQ Car), but this is a good place to start. Use velcro instead of the body posts and the body will fit snug to the mudguards.

### Setup Advice:

**Center Diff:** If you've converted your nitro over, we only suggest thickening your center diff fluid 1-2k.

**Shocks:** As for shocks, springs, and oil, the new V4 kits work great with the nitro setups and no changes are recommended. If you are running a heavy battery however (over 1.25 lb), going up one spring rate and ~5wt in oil may be necessary.

**Traktion Drive or Direct Drive?:** This is probably the question we get asked most. Although direct drive is what most people are using to power their cars, we only recommend it where there is super traction (clay indoors). You will be a smoother driver with some sort of traction control. Driving smoother will make you more consistent and crash less, resulting in faster lap times around the track.

For indoor tracks, we recommend Traktion Drive with thick springs (1.0mm or 1.1mm), or one of our M5 hardened steel pinion gears (TKR4171->TKR4190). For outdoor tracks, Traktion Drive (TKR4301X) with thinner springs (0.8mm or 0.9mm) are the best choice for maintaining control through rough and slick sections of the track. The Traktion Drive system is championship tested, taking a respectable 2nd place at the 2010 ROAR 1/8th Electric Nationals.

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<http://www.rctech.net/forum/electric-off-road/235623-official-tekno-conversions-thread.html>

<http://www.socal-rc.com/forum/forumdisplay.php?f=37>