

BRUSHLESS NOVAK USA

SS5800 MOTOR SPECS #3400

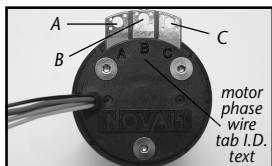
Motor Diameter	1.41"	[35.8 mm]
Motor Length	2.08"	[52.8 mm]
Motor Weight	6.40 ounce	[181.4 grams]
Motor Power Rating	196 Watts	
Motor Kv	5800 RPM/Volt DC	
Motor Kt	0.45 Inch-Ounce/Amp	
Motor Commutation	Sensor-Based Electronic	
Motor Magnet Material	Neodymium (1pc/multi-pole)	

SS4300 MOTOR SPECS #3401

Motor Diameter	1.41"	[35.8 mm]
Motor Length	2.08"	[52.8 mm]
Motor Weight	6.40 ounce	[181.4 grams]
Motor Power Rating	175 Watts	
Motor Kv	4300 RPM/Volt DC	
Motor Kt	0.45 Inch-Ounce/Amp	
Motor Commutation	Sensor-Based Electronic	
Motor Magnet Material	Neodymium (1pc/multi-pole)	

WIRING MOTOR TO ESC

• **Solder power wires at motor** by stripping 1/8-1/4" of insulation from the end of the motor power wire (14G). Tightly twist strands of wire, lightly tin, and insert into proper solder tab's hole (*tabs are identified by lettering that is engraved in the end cap of the motor--see photo below*). Use soldering iron to apply heat to exposed wire that is extending past bottom of PCB, and begin adding solder to tip of soldering iron and to wire. **Add just enough solder to form a clean & continuous joint from the plated area of solder tab up onto the wire.** Use side cutters to trim remaining (*now soldered*) wire from below the solder tab (*about 1/16" above PCB*)--make sure no strands of wire have strayed to an adjacent solder tab as this can result in short-circuiting & damage to the electronics, which will void the product's warranty.



Be sure to solder wires to matching tabs at ESC & Motor (A/B/C)

• **Note:** Power wires can also be soldered flat onto the PCB solder tabs. Strip 3/16-1/4" of insulation from the end of the new wire. Tightly twist strands of wire, and tin with solder. Lay the stripped & tinned end of the wire flat on the PCB solder tab and use soldering iron to heat the end of the wire, and add solder to form a clean solder joint between the wire and the tab.

IMPORTANT NOTE: DO NOT OVERHEAT SOLDER TABS
Prolonged/excessive heating of solder tabs will damage PCB.

PRECAUTIONS

- **WATER & ELECTRONICS DON'T MIX** Never allow water, moisture, or other foreign materials to get inside motor, or on PCBs.
- **CHECK MOTOR SCREWS** Remember to check all motor screws for loosening. The 3 main 4-40 socket head screws on the shaft end of the motor may become loose after a few runs of the motor, and will need to be tightened.
- **NOVAK MOTORS WITH NOVAK ESCs ONLY** The SS series of motors have been specially designed for use with sensor-based Novak Brushless ESCs Only! Use any Novak sensor-based motor with any Novak brushless ESC as long as the ESC has a higher wattage rating than the motor.
- **INSULATE WIRES** Always insulate exposed wiring with heat shrink tubing to prevent short circuits.
- **NO SOLVENTS** Exposing the motor to any type of solvents can damage the exposed material.

SENSOR-BASED DESIGN BENEFITS

- **Constant Rotor Position Knowledge** Always knowing what angle the rotor is at, allows instantaneous response and smooth transitions from neutral to drive.
- **Smooth & Controlled Low Speed Driveability** Rotor position is key to smooth acceleration without delivering abrupt and uncontrolled bursts of power.
- **Strong/Consistent Brakes & Starting Torque** Rotor position knowledge results in consistent starts & stops, without hesitation or inconsistent lag times before acceleration or braking.
- **Locked Rotor & Thermal Protection** Position & temperature sensors inside motor provide unparalleled thermal protection for your investment, letting you to run pack after pack without worrying about overheating the motor, ESC, or magnets.

HOOK-UP INSTRUCTIONS

1. **MOTOR CAPACITORS & SCHOTTKY NOT NEEDED**
Novak brushless motors have built-in motor capacitors, and like all reversible ESCs, does not use an external Schottky diode--Schottky diodes damage reversible ESCs.
2. **CHECK MOTOR SCREW LENGTH**
Insert the M3 motor mounting screws that came with your vehicle through the motor mounting plate in vehicle. You need to have no more than 1/8" of screw extending past the vehicle's mounting plate (2-4mm). Too little can strip the threads in the end bell, and any more will cause short-circuiting/damage inside the motor & will void warranty.
3. **INSTALL PINION GEAR (see GEAR SELECTION on back)**
Install pinion gear on motor and position set-screw over flat on end of shaft. Test fit motor in vehicle to align pinion and spur gears, then tighten pinion gear on shaft.
4. **INSTALL MOTOR IN VEHICLE**
 - Determine the best routing for sensor harness & motor power wire. **Some off-road cars may require unsoldering motor to route wires through the shock tower--refer to the "WIRING MOTOR TO ESC" section.**
 - Using the M3 motor screws that came with your vehicle, attach motor to vehicle's motor mount using one of the three sets of threaded mounting holes--select a mounting position that will avoid short-circuiting of solder tabs on conductive surfaces such as aluminum or graphite.
 - Check gear mesh for proper amount of play. You want to have a small amount of free play between the pinion and spur gears (*about the thickness of piece of paper*)--check free play at several positions around the spur gear.
 - Avoid using excessive force when tightening motor screws, as the threaded holes could become stripped.

GEAR SELECTION (Important)

SS5800 Motor

With the SS5800 motor start with **2 teeth lower pinion gear** than you would use with a 27 turn "stock" brush-type motor.

SS4300 Motor

With the SS4300 motor start with **3 teeth lower pinion gear** than you would use with a 27 turn "stock" brush-type motor.

Because of the broader power band of the brushless motor, you can go with a 1 to 3 tooth higher pinion than the above recommendations for more top speed, but remember that going with 3 or more teeth higher will produce excessive speed control heating. Be sure to check the operating temperature of the ESC after making any gearing adjustments--the Super Sport ESC is designed to operate comfortably between 160°F and 180°F (*this is warmer than typical brush-type ESC temperatures*).

If you had a low turn modified brush-type motor in your vehicle before switching to the Super Sport system, and you do not change the gearing, you will be under-gear and the vehicle will be slow at top speed!

You will want the final drive ratio in the vehicle to be:

7.30 : 1 for Touring Cars
9.00 : 1 for Off-Road Buggies
12.30 : 1 for Off-Road Stadium Trucks

Higher final drive ratios give longer run time at the expense of top speed. Lower ratios result in higher ESC temperatures--too low may result in thermal shut-down.

VEHICLE	SPUR	SS5800 PINION	SS4300 PINION
Losi XXX Buggy	78	21-22	20-21
Losi XXX-4 Buggy	94	21-22	20-21
Losi XXX-T Truck	86	17-18	16-17
Assoc. B3 Buggy	84	23-24	22-23
Assoc. T3 Truck	90	19-20	18-19

Note: The above chart shows basic starting points for gearing on larger tracks with std. size tires--See our website for extended gearing chart.

Note: Due to lower Kv rating, the SS4300 will not reach RPM limit in Profiles 5&6.

MOTOR MAINTENANCE

- **CHECK MOTOR SCREWS** Check all motor screws for loosening at regular intervals, just like other hardware on your vehicle. **Note: The 3 main 4-40 socket head screws on the shaft end of the motor may become loose after a few runs of the motor and will need to be tightened.** Also check the 3 flat head screws securing the end cap on the back of the motor.
- **CHECK MOTOR BEARING WEAR** After extensive use, the ball bearings in the end bells of your brushless motor may need to be replaced. While the design of the motor will keep the majority of the debris out of the bearings, some debris may get in, and eventually wear will occur. If the shaft will not spin freely, you may need to replace the motor bearings (*replacement bearing sets are available in Novak accessory kit #5905 and include bearing replacement instructions--If you do not feel comfortable changing the bearing on your own, please contact our Customer Service Dept. for assistance*). A small drop of light oil on the bearings periodically can help extend bearing life--too much oil will cause problems, so apply sparingly.

ACCESSORIES

BATTERY/MOTOR 14G POWER WIRE

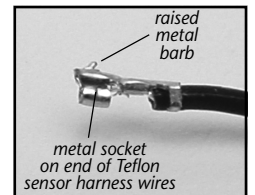
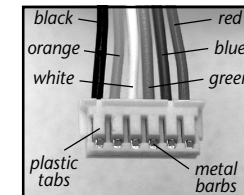
Replacement silicone power wires for your brushless motor system are available in Novak kits #5500 (36"red/36"black), #5505 (36"red/36"blue), or #5508 (2 each of 9"red/black/blue/yellow/orange).

REPLACEMENT BEARINGS & FRONT END BELL SET

After extensive use, the ball bearings in the end bells of your brushless motor may need to be replaced. Replacement motor bearings & front end bell are available in Novak kit #5905.

SENSOR HARNESS WIRING

Should any of the 26G Teflon wires pull out of the connector on the end of the motor's sensor harness, replace them into the appropriate slot in the connector as shown below. The connector has small plastic tabs that grab a small raised barb on the back of the metal socket that is crimped onto the ends of the Teflon wire. The plastic tab should be checked to make sure it has not deformed excessively before inserting the socket into the plastic connector housing.



SERVICE PROCEDURES

Review instructions before sending motor for service--motor may appear to have failed when other problems exist.

After reviewing the instructions, if you feel the motor requires service, please obtain the most current product service options and pricing by one of the following methods:

WEBSITE: Print a copy of the product **SERVICE FORM** from the SERVICE section of Novak website. Fill out the needed information and return it with the Novak product.

PHONE/FAX/E-MAIL: Contact our customer service department by phone, fax, or e-mail (see CUSTOMER SERVICE section below), and they will supply you with current service options.

WARRANTY SERVICE: For warranty work, you **MUST CLAIM WARRANTY** on the product **SERVICE FORM** and include a valid, itemized cash register receipt with purchase date on it, or an invoice from previous service work. If warranty provisions have been voided, there will be service charges.

ADDITIONAL NOTES:

- **Brushless ESC & Motor should be returned together.**
- Hobby dealers or distributors are not authorized to replace Novak products thought to be defective.
- If a hobby dealer returns your product for service, submit a completed product **SERVICE FORM** to the dealer and make sure it is included with the items.

PRODUCT WARRANTY

Novak brushless motors are guaranteed to be free from defects in materials or workmanship for a period of 120 days from the original date of purchase (*verified by dated, itemized sales receipt*). Warranty does not cover incorrect installation, components worn by use, cross-connection of battery/motor power wires, overheating solder tabs, damage resulting from thermal overload, splices to sensor harness, damage from disassembling motor, tampering with internal electronics, allowing water, moisture, or any other foreign material to enter motor or get onto the PCB board, allowing exposed wiring or solder tabs to short-circuit, or any damage caused by a crash, flooding, or act of God. In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice. Because Novak Electronics, Inc. has no control over the connection and use of the motor or other related electronics, no liability may be assumed nor will be accepted for damage resulting from the use of this product. Every motor is thoroughly tested and cycled before leaving our facility and is, therefore, considered operational. *By the act of connecting/operating speed control, the user accepts all resulting liability.*

NOVAK CUSTOMER SERVICE

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