

STEP 5-TRANSMITTER ADJUSTMENTS

For proper ESC operation, adjust transmitter as follows:

- Set **HIGH ATV** or **EPA** to **maximum** setting.
[amount of throw at full throttle]
- Set **LOW ATV**, **EPA**, or **ATL** to **maximum** setting.
[amount of throw at full brakes]
- Set **EXPONENTIAL** to **zero** setting. [throttle channel linearity]
- Set **THROTTLE CHANNEL REV. SWITCH** to **either** position.
- Set **THROTTLE CHANNEL TRIM** to **middle** setting.
[adjusts neutral position/increases or decreases coast brakes]
- Set **ELECTRONIC TRIGGER THROW ADJUSTMENT** to **50% throttle** and **50% brake** throw (or 5:5).
[adjusts trigger throw electronic/digital pistol-grip transmitters]
- Set **MECHANICAL TRIGGER THROW ADJUSTMENT** to position with **1/2 throttle** and **1/2 brake** throw.
[adjusts trigger throw on mechanical/analog pistol-grip transmitters]

NOT ALL TRANSMITTERS HAVE THESE ADJUSTMENTS

STEP 6-ONE-TOUCH PROGRAMMING

With ESC connected to (at least) a receiver & a charged battery pack:

- TURN ON THE TRANSMITTER'S POWER**
- PRESS & HOLD ESC'S ONE-TOUCH/SET BUTTON**
- TURN ON THE SPEED CONTROL'S POWER**
With transmitter throttle at neutral, and still pressing the SET button, slide the ESC's ON/OFF switch to **ON position**.
- CONTINUE HOLDING SET BUTTON UNTIL RED LED COMES ON**
- RELEASE SET BUTTON AS SOON AS LED TURNS RED**
- PULL TRANSMITTER THROTTLE TO FULL-ON POSITION**
Hold it there until the **green status LED turns solid green**.
Note: Motor will not run during programming even if connected.
- PUSH TRANSMITTER THROTTLE TO FULL-BRAKES**
Hold it there until the **green status LED blinks green**.
- RETURN TRANSMITTER THROTTLE TO NEUTRAL**
Red status LED will turn solid red, indicating that throttle is at neutral, and proper programming has been completed.

Your HV-Maxx Brushless System is now Ready-To-Run!

NOTE: If transmitter settings are changed, programming must be repeated. If you experience any problems, turn off ESC and repeat programming.

THROTTLE PROGRAM SELECTION

The HV-Maxx ESC has **3 user-selectable Throttle Programs** to choose from:

- PROGRAM #1:** Forward, brakes, and full power reverse.
PROGRAM #2: Forward & brakes only--reverse disabled.
PROGRAM #3: Forward, brakes, and 25% power reverse.

SELECTING THROTTLE PROGRAM:

With ESC connected to a charged battery (transmitter ON or OFF):

- IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**
To avoid possible radio interference from other transmitters, remove the HV-Maxx's input signal harness from the receiver.
- TURN ON THE SPEED CONTROL'S POWER**
- PRESS & HOLD THE ONE-TOUCH SET BUTTON**
Continue to hold SET button on ESC until all the LEDs turns on.
- RELEASE SET BUTTON AS SOON AS ALL LEDs COME ON**
Once released, the status LEDs will flash to indicate what Throttle Program is currently selected. The number of times the LEDs flash indicates the Throttle Program selection (1 of 3).
- QUICK PRESS (& release) SET BUTTON TO CHANGE SELECTION**
Each press will change to the next consecutive Throttle Program. (After Program 3, the sequence begins again at Program 1)
Note: there is a time constraint during this selection process.
If SET button is not pressed for about 3 seconds, ESC will exit to neutral.
- ESC STORES SELECTION & EXITS TO NEUTRAL**
When SET button is not pressed for about 3 seconds, the selected Program is stored into memory & the red LED will come on solid. The speed control is at neutral & ready to go.

NOTE: Whenever the One-Touch set-up is performed, the HV-Maxx ESC will automatically revert to the factory default setting of Throttle Program #1.

USING A RECEIVER BATTERY PACK

If using an external receiver battery pack with the HV-Maxx ESC:

- Plug an external 5 cell (1.2VDC/cell) receiver battery pack into the battery slot of the receiver.
- Leave the HV-Maxx's **ON/OFF switch** in the **OFF** position, and use receiver battery pack's **ON/OFF switch** to turn the system power on and off—Do not use the ESC's switch.

12VDC BATTERY NOTE: An external receiver battery pack should be used when using the HV-Maxx with a single 12 volt battery, like a lead acid or gel cell. The ESC's built-in B.E.C. will provide limited output due to the high voltage directed through the single battery input, resulting in degraded servo and receiver performance.

TROUBLE-SHOOTING GUIDE

Steering Channel Works But Motor Will Not Run

- Red status LED blinking when throttle is applied.** Check motor sensor harness connection at ESC (make sure all metal sockets are fully inserted into the connector's plastic housing)—check for damaged wires.
- Green & red status LEDs both on solid.** Check input signal harness is plugged into ESC & receiver throttle channel. Check throttle channel operation with a servo. Check receiver signal harness wiring sequence.
- Blue & green status LEDs both blinking.** Possible ESC shut-down due to locked rotor detection—return throttle to neutral position to regain motor control—check vehicle's drive train for free operation.
- Blue & Red status LEDs blinking.** Possible ESC thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/ESC is being severely overloaded—allow system to cool & return throttle to neutral position to regain motor control. LEDs will continue to blink until system is cooled down.
- Blue & Amber status LEDs blinking.** Possible motor thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/motor is being overloaded—allow system to cool & return throttle to neutral position to regain motor control. LEDs will continue to blink until system is cooled down.
- Blue & green (Locked Rotor Detection), Blue & Red (ESC Thermal Shut-Down), or Blue & Amber (Motor Thermal Shut-Down) status LEDs blinking.** ESC may have shut-down due to thermal overload or locked rotor detection & ESC's neutral point is too far off to sense throttle has been returned to neutral—Refer to Steps 5 & 6.
- Possible internal damage—Refer to Service Procedures.

Receiver Glitches/Throttle Stutters During Acceleration

- Receiver or antenna too close to ESC, power wires, battery, or motor.
- Bad connections—Check wiring, connectors, & sensor harness.
- External Power Capacitor damaged/not installed—Replace Power Capacitor.

Motor and Steering Servo Do Not Work

- Check wires, receiver signal harness wiring & color sequence, radio system, crystals, battery/motor connectors, & battery pack.
- Possible internal damage—Refer to Service Procedures.

Speed Control Runs Excessively Hot

- Gear ratio too low—Increase gear ratio (see 'GEAR SELECTION').

Model Runs Slowly/Slow Acceleration

- Gear ratio too high—Reduce gear ratio (see 'GEAR SELECTION').
- Check battery connectors—Replace if needed.
- Incorrect transmitter/ESC adjustment—Refer to Steps 5 & 6.
- External Power Capacitor damaged/not installed—Replace Power Capacitor.

ESC Is Melted Or Burnt/ESC Runs With Switch Off

- Internal damage—Refer to Service Procedures.

*For more assistance call our Customer Service Department or check our website.

SERVICE PROCEDURES

Before sending your system in for service, review Trouble-Shooting guide and instructions. System may appear to have failed when other problems exist.

After reviewing instructions, if you feel your system requires service, please obtain the most current product service options & pricing by the following:

WEBSITE: Print a copy of the **PRODUCT SERVICE FORM** from the CUSTOMER SERVICE section of the website. Fill out the needed information on this form and return it with the Novak product that requires servicing.

PHONE/FAX: If you do not have access to the internet, please contact our customer service department by phone or fax as listed below.

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

ESCs returned without a serial number will not be serviced under warranty

ADDITIONAL NOTES:

- Dealers/distributors are not authorized to replace Novak products thought to be defective.
- If a hobby dealer returns your brushless system for service, submit a completed **PRODUCT SERVICE FORM** to the dealer and make sure it is included with the product.
- Novak Electronics, Inc. does not make any internal electronic components (transistors, resistors, etc.) available for sale.

Novak Electronics, Inc.

(949) 833-8873 • FAX (949) 833-1631

Customer Service e-mail: cs@teamnovak.com

Monday-Thursday: 8:00am-5:00pm (PST)

Friday: 8:00am-4:00pm (closed every other Friday)

www.teamnovak.com

SET-UP GUIDE -- HV-MAXX

NOVAK



#55-3020-1
12-2004

The ultimate high-voltage/high-power brushless is here & it is the HV-Maxx!

The HV-Maxx brushless motor system is the best high-power reversible electronic speed control & sensor-based brushless motor upgrade that you can throw at your big trucks, hot boats, or any other high-power R/C application where you want all the benefits of brushless motors & it's even smoother, more controlled, and more driveable than standard brush-type systems!

With 3 factory throttle programs to choose from & Novak's Smart Braking II (you don't go into reverse until you shift into reverse by returning the trigger to neutral and then back to reverse), the HV-Maxx is perfect for any high-power application. The HV-Maxx system has **Thermal Overload Protection** in both the motor & ESC, **high-power B.E.C.** for strong/fast servo response, **Polar Drive & Digital Anti-Glitch circuitries** for cool & smooth operation, and **Radio Priority circuitry** for the ultimate in control, right down to the end of the battery. Add to this the included Power-Boost ESC Cooling Fan kit & factory-installed motor heat sink, the user-replaceable battery wires, power capacitor, ON/OFF switch, & input harness, and the HV-Maxx is ready for anything!

To benefit from all of the HV-Maxx's extensive technical features, **PLEASE READ ALL INSTRUCTIONS**

PRECAUTIONS

WATER & ELECTRONICS DON'T MIX!

Never allow water, moisture, or other foreign materials to get inside ESC, motor, or on the PC Boards. **Water damage will void the warranty!**

CHECK MOTOR SCREWS!

Check M3 motor mounting screw length—too long of mounting screws will damage motor & void warranty. The main 4-40 socket head & end cap's flat head screws may also loosen after a few runs—tighten if needed.

DISCONNECT BATTERIES WHEN NOT IN USE

Always disconnect the battery pack from the speed control when not in use to avoid short circuits and possible fire hazard.

6 TO 14 CELLS ONLY

Never use fewer than 6 or more than 14 cells (7.2-16.8VDC, 1.2VDC/cell) in the vehicle's main battery pack(s).

NOVAK MOTORS ONLY

The HV-Maxx ESC is specially designed for use with sensor-based Novak HV-Series Brushless Motors Only! You may replace motor with Novak sensored motor rated up to 375W (ESC's rating)—Novak SS-Series (540 size) motors will work, but will run hot and thermally shutdown. At the time of printing, there are no other motor's available that work with the HV-Maxx ESC—check our website for further updates & compatibilities.

NO REVERSE VOLTAGE!

Reverse battery polarity can damage ESC & void warranty. Disconnect battery immediately if a reverse connection occurs.

ALWAYS USE ESC HEAT SINKS

Heat sinks are factory-installed on your HV-Maxx ESC and **MUST** be used for maximum cooling and performance—**Never allow separate heat sinks to touch each other or any exposed metal or conductive surface, as this will cause a short circuit & damage ESC.**

POWER CAPACITOR REQUIRED

An external power capacitor is installed and **MUST** be used with your HV-Maxx ESC. **Failure to use Power Capacitor will result in higher ESC operating temperatures & possible thermal shut-down.**

TRANSMITTER ON FIRST

Always turn on the power of the transmitter first so that you will have control of the vehicle when you turn it on.

INSULATE WIRES

Always insulate exposed wiring with heat shrink tubing or electrical tape to prevent short circuits, which can damage ESC.

NO CA GLUE

Exposure to CA glue or its fumes can cause damage to internal components of the speed control and result in premature failure.

SPECIFICATIONS

Input Voltage	6-14 cells (1.2 volts DC/cell)
ESC Case Size	1.75" x 2.17" x 0.85" [44.5x55.1x21.6mm]
ESC Weight (w/o wires)	4.80 ounce [135 grams]
On-Resistance @ Transistors/25°C	0.0013 x 2 Ω
ESC Power Handling (Transistors @ 25°C)	375 watts
ESC Power Handling (Transistors @ 25°C)	525 watts [w/cooling fan]
B.E.C. Voltage/Current	6.0 volts DC/3.0 amps
Power Wire	14G Super-Flex Silicone
ESC Throttle Programs	3 [2 w/Reverse & 1 Forward & Brake only]
HV Motor Diameter	1.41" [35.8mm]
HV Motor Length	2.84" [72.1mm]
HV Motor Weight (w/o heat sink)	8.4 ounce [295 grams]
Motor Commutation	Sensor-Based Electronic
Motor Magnet Material	Neodymium [1 piece/multi-pole]

OPTIONAL ACCESSORIES

POWER-BOOST ESC COOLING FAN KIT [Novak kit #5646]

Direct-replacement for the cooling fan kit that is included in the HV-Maxx high-voltage brushless system. Everything needed to pull maximum power from the HV-Maxx ESC for hot set-ups: custom-fit fan bracket, mounting screws, & high-volume cooling fan that plugs into HV-Maxx ESC's fan power output jack.

SUPER-FLEX SILICONE POWER WIRE [Novak kits #5500 & 5530]

Novak Super-Flex wire for power wiring. 14 gauge silicone wire in kit #5500 (36" red & 36" black), and 12G silicone in kit #5530 (36" red & 36" black).

INPUT SIGNAL HARNESS [Novak kits #5315 & 5320]

User-replaceable input signal harnesses are available for the HV-Maxx in both short/4.5" (#5315) and long/9" lengths (#5320).

REPLACEMENT SWITCH HARNESS [Novak kit #5600]

The replacement switch harness has ON/OFF switch with pre-tinned wires ready to solder to the HV-Maxx ESC's Direct-Solder Wire Tabs.

H-SERIES MOTOR END BELL & BEARING SET

After extensive use, the ball bearings in the end bells of your brushless motor may need to be replaced. Replacement front end bell with oversize bearing installed & rear bearing are available in Novak kit #5910.

PRODUCT WARRANTY

The HV-Maxx brushless motor system is 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, damage to case or exposed circuit boards, damage from using fewer than 6 or more than 14 cells (1.2 volts DC/cell) input voltage, cross-connection of battery/motor power wires, overheating solder tabs, reverse voltage application, damage resulting from thermal overload or short-circuiting motor, damage from incorrect installation of FET servo or receiver battery pack, not using or incorrect installation of a Power Capacitor on the ESC or from using a damaged Power Capacitor, using a Schottky diode or non-Novak Power Capacitor or motor, splices to input, ON/OFF switch, or sensor harnesses, damage from excessive force when using the One-Touch/SET button or from disassembling case or motor or using too long of motor mounting screws, tampering with internal electronics, allowing water, moisture, or any other foreign material to enter ESC or get onto the PC board, incorrect installation/wiring of input plug plastic, allowing exposed wiring or solder tabs to short-circuit, or any damage caused by a crash, flooding, or act of God.

Because Novak Electronics, Inc. has no control over the connection & use of the speed control or other related electronics, no liability may be assumed nor will be accepted for any damage resulting from the use of this product. Every Novak speed control & motor is thoroughly tested & cycled before leaving our facility and is, therefore, considered operational. By the act of connecting/operating speed control, user accepts all resulting liability. In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice.

©2004 Novak Electronics, Inc. • All Rights Reserved • No part of these instructions may be reproduced without the written permission of Novak Electronics, Inc. • Super Duty XR ESC, Smart Braking II, Polar Drive Technology, Radio Priority Circuitry, & One-Touch Set-Up are all trademarks of Novak Electronics, Inc. • All Novak speed controls & motors are designed & manufactured in the U.S.A.

STEP 1—CONNECT INPUT HARNESS

The HV-Maxx ESC has the industry-standard receiver input connector on a user-replaceable input harness & **works with all major radio brand's new receivers**. However, some very old receivers must have the wiring sequence in the plastic 3-pin connector housing changed. **This is important, because receiver & servo electronics may be damaged if the sequence is incorrect.**

CHANGING WIRING SEQUENCE @ RECEIVER END

JR • Hitec • Futaba • New KO • Airtronics Z
JR, Hitec, Futaba, new KO, & Airtronics Z receivers do not need input harness re-wiring. Airtronics Z receivers have blue plastic cases & new KO cases have tabs on the input harness openings as in Figure 1.

- Plug the connector on one end of the input harness into the receiver with the **BLACK wire toward the outside edge** of receiver case.
- Plug the other end of the input harness into 3-pin header inside rectangular opening on top of the HV-Maxx ESC's case with the **WHITE wire toward the 'S' (signal) marking** on the ESC's label.

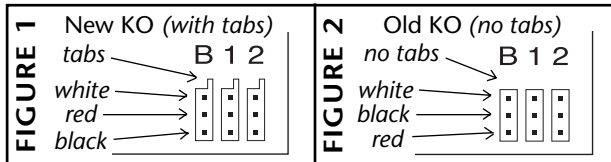


FIGURE 1 New KO (with tabs) tabs B 1 2
white red black

- Old-style KO • Old-style Sanwa/Airtronics**
 If you have an older KO or Sanwa/Airtronics, you must change the sequence of the ESC's input harness wires—Old Sanwa/Airtronics cases are black color & Old KO cases do not have tab openings, as in Figure 2 above.
- Using a small flat blade screwdriver, **remove the red & black wires** from the plastic housing at the receiver end of the input harness as in Figure 3 below.
 - **Interchange the red and black wires** in the plastic 3-pin connector housing at the receiver end of the input harness.
 - Insert modified end of the harness into the receiver with the **RED wire toward the outside edge** of receiver case.

FIGURE 3 With a small standard screwdriver, gently lift plastic prong until wire and metal socket easily slide out of plastic housing.



STEP 2—MOUNTING ESC

Mount ESC with power wires away from other electronics & moving parts. Select a location that allows airflow through heat sinks—**If the ESC gets air flow, it will run cooler, and that means it will be more efficient, and you will go faster!** **For single battery pack use, proceed to STEP 4 before completing STEPS 2 & 3**

1. **MOUNT HV-MAXX ESC IN VEHICLE** using the included double-sided tape or with screws through the mounting ears on the sides of the case [in Traxxas E-Maxx: **If using cooling fan, install with the included #4x1" self-tapping screws—If not using cooling fan, use the stock mounting screws from the original ESC in the E-Maxx.**]
2. **PLUG COOLING FAN INTO ESC'S FAN POWER OUTPUT JACK** Remove rubber plug from ESC's fan power output jack located directly above the input signal harness opening (see Fig. 5 below/right) & pull it back out of the way. Plug fan connector into the power output jack (Note polarity: RED = +).
3. **INSTALL FAN BRACKET ONTO ESC** using included #6x5/8" self-tapping screws [in Traxxas E-Maxx: **The #4x1" self-tapping screws will be used & will pass through the cooling fan bracket, then the ESC's mounting ears, & into the holes in the E-Maxx's chassis.**] Position fan bracket on ESC so that the holes for attaching the fan to the bracket are towards the front of ESC.
4. **INSTALL COOLING FAN ONTO BRACKET** using the included 4-40x1/2" socket head screws. Position fan so it is directly over the ESC's heat sinks and thread screws into the 2 holes on the top of the fan mounting bracket.
5. **INSTALL ESC ON/OFF SWITCH** using a screw or double-sided tape where it will be easy to access [in Traxxas E-Maxx: **You can screw the switch to one of the holes from the original switch.**]
6. **CONNECT ESC TO RECEIVER**—Configure input harness wires as described in Step 1 & connect ESC to the **THROTTLE CHANNEL (#2)** of receiver. Be sure receiver & antenna are mounted as far from ESC, power wires, battery, and servo as possible—these components all emit RF noise when throttle is applied. *On graphite or aluminum chassis vehicles, it may help to place receiver on edge with crystal & antenna as far above chassis as possible.*
Note: Mount antenna as close to receiver as possible—trail any excess wire off top of antenna mast (cutting or coiling excess antenna wire will reduce radio range).

STEP 3—MOTOR INSTALLATION

1. MOTOR CAPACITORS NOT NEEDED

Novak brushless motors have built-in motor capacitors and do not require external ones on the motor (see separate Motor Sheet for more info).

2. DO NOT USE SCHOTTKY DIODES

Schottky diodes **MUST NOT** be used with reversible speed controls (including brushless). Using a Schottky diode **will damage the speed control and void the product's warranty.**

3. FACTORY-INSTALLED POWER CAPACITOR

WHY YOU WANT A POWER CAPACITOR

The HV-Maxx comes with the best available Power Capacitor that drops ESC operating temperatures by 10-15°F (remember, cooler means your ESC will be more efficient & faster) and dissipates noise & voltage spikes from the ESC's high switching speed. **You MUST use Novak Power Capacitors—other capacitors with similar ratings don't provide equal protection. We've done extensive research to find capacitors with the very best quality factors.**

MOUNTING THE POWER CAPACITOR: Mount the Power Capacitor to the vehicle's chassis using the included double-sided tape or with tie-wraps [in Traxxas E-Maxx: **You can tie-wrap the power capacitor to the "X" in the middle of the rear shock tower.**]

If Power Cap. becomes dented or damaged, ESC failure can occur—replace immediately. Longer Power Capacitor wires decrease performance.

4. CHECK MOTOR SCREW LENGTH

You must check the length of the motor screw to ensure that the motor will not be damaged. **You should have no more than 1/8" of screw extending past the vehicle's motor mounting plate (2-4mm).** Too little can strip the threads in the end bell, and any more will cause damage & short-circuiting inside the motor & will void warranty. **[the included M3x8mm screws are the proper length for the Traxxas E-Maxx]**

5. INSTALL PINION GEAR

{ refer to 'GEAR SELECTION' portion of MOTOR SET-UP sheet to determine the proper gearing }

After selecting the proper final gear ratio, install pinion gear (usually about 2 teeth smaller than stock) on motor and position set-screw over the flat on the end of the motor shaft. Test fit motor in vehicle to align pinion and spur gears, then tighten pinion gear on shaft.

6. USE SPIRAL WRAP TO BUNDLE/PROTECT SENSOR WIRES

Use the spiral wrap included in the HV-Maxx's accessory kit to protect the 6 Teflon sensor harness wires between the ESC & the motor. You can also use the spiral wrap and tie-wraps to bundle the sensor harness & motor power wires neatly together.

continued ↑

Motor Installation: continued →

7. INSTALL MOTOR IN VEHICLE

For most applications, the HV-Maxx ESC & brushless motor can be installed in the vehicle without any modification to the motor wiring.

- Determine the best routing for the motor's sensor harness (6 small Teflon wires). [in Traxxas E-Maxx: **Both the sensor harness & the ESC's input signal harness can be routed through the gap located beneath the pinion/spur gear cover on the left side of the vehicle—between the transmission case & the battery box wall.**]

- Attach motor to the vehicle's motor mount with included M3 motor screws (determine proper length motor screws in Step 3, #4), using one of the three sets of threaded mounting holes in the front end bell—select a mounting position that will avoid short-circuiting of motor's solder tabs against conductive surfaces like aluminum or graphite.

The HV motor included in the HV-Maxx brushless motor system comes with a heat sink factory-installed on it for extra cooling under excessive loads [for the Traxxas E-Maxx: **The heat sink is already pre-positioned on the motor for installation on the left hand side of the E-Maxx—install motor with the solder tabs toward the middle of the vehicle & angled slightly upward.**] You can rotate the heat sink on the motor as needed for different applications—beware of any wires crossing the sharp ends of the heat sink, as short-circuiting may occur.

- Check gear mesh for proper free play. You want to have a small amount of play between the pinion & spur gears (about the thickness of a piece of paper)—check free play at several positions around the spur gear.

- Tighten motor into position once desired gear mesh has been adjusted—avoid using excessive force when tightening motor screws, as the threaded holes could become stripped.

- For vehicles that originally used 2 motors, use the included motor hole cover in place of the 2nd motor (this will help keep debris out of the slipper and the gears). Install motor hole cover using the vehicle's original motor screws or with two 4-40x1/4" screws.

- Replace any parts of the vehicle that were removed to install the motor. [in Traxxas E-Maxx: **Replace the pinion/spur gear cover.**]

- Determine best routing for the motor's power wires. If your vehicle requires unsoldering motor to route power wires through the shock tower or chassis, refer to "REPLACING POWER WIRES AT ESC & MOTOR" on Motor Sheet. [in Traxxas E-Maxx: **Route motor power wires along the right side of transmission—2 wires press into the wire holds on the lower side of pinion/spur gear cover, & the 3rd wire goes through the gap between the transmission case & the battery box wall.**]

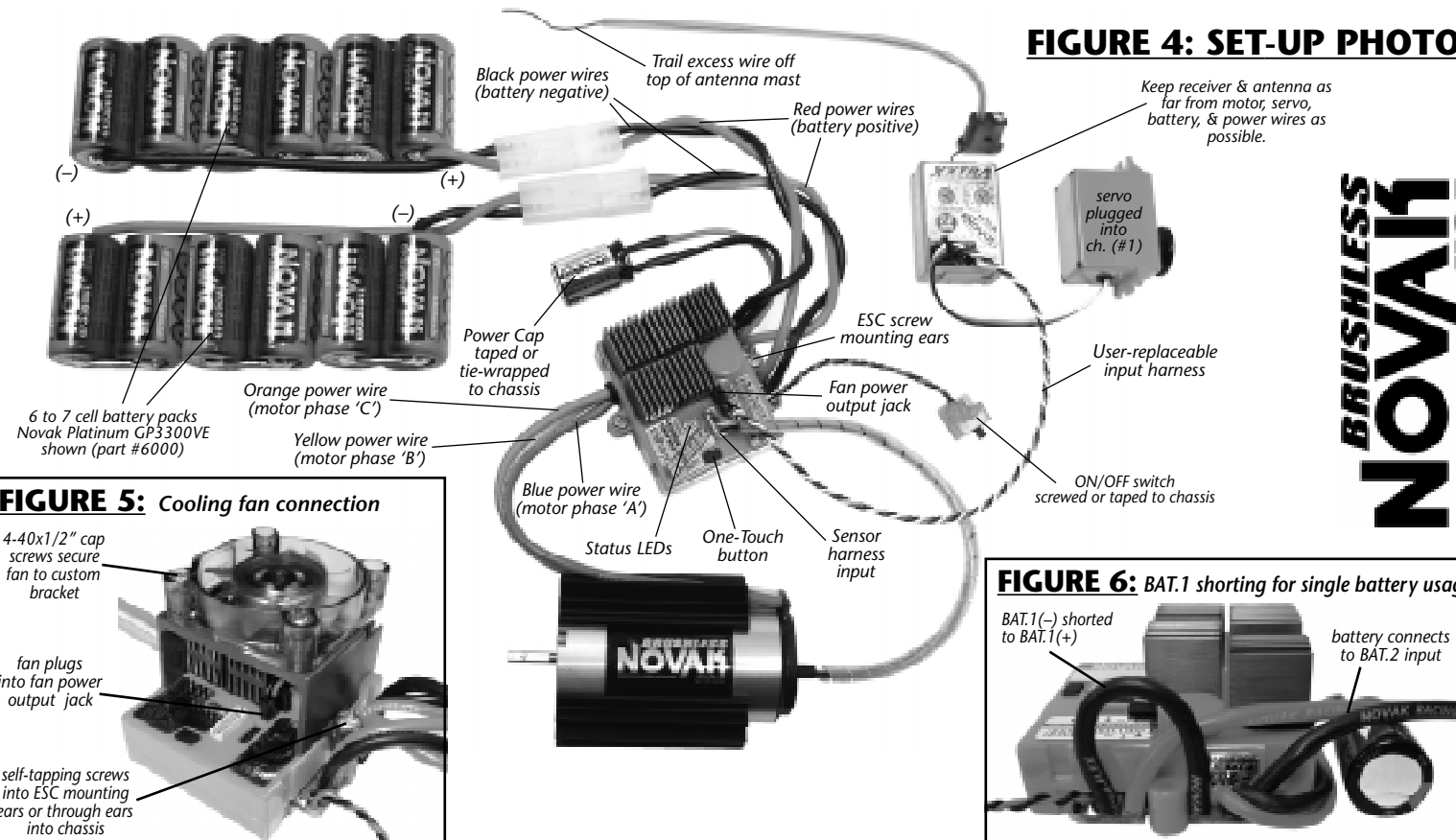


FIGURE 4: SET-UP PHOTO

FIGURE 5: Cooling fan connection

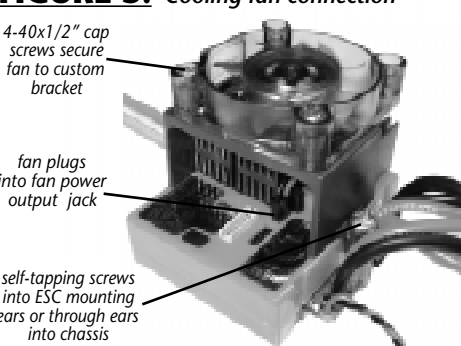
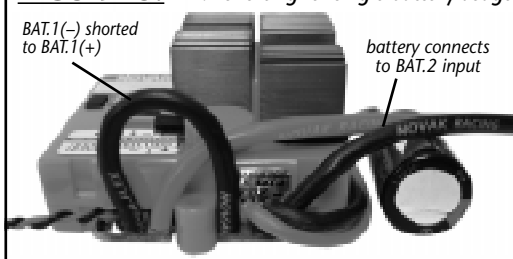


FIGURE 6: BAT.1 shorting for single battery usage



STEP 4—BATTERY CONNECTION

The HV-Maxx is very powerful, and capable of very efficient delivery of battery power to its brushless motor. Therefore, good connections must be made between the battery, speed control, and motor.

A common cause of performance problems and ESC failures is poor connections—If you have any doubts about your soldering skill, we suggest installing the system without modifying the length of the power wires, or seeking assistance at your hobby shop or track.

Once you've mounted the HV-Maxx ESC & motor, it's time for the battery connections. The HV-Maxx ESC is factory-wired for two battery packs, and is equipped with high-power versions of JST/Tamiya-style battery connectors so you can use standard sport battery packs.

Using different style connectors is discussed on the Motor Sheet.

BATTERY PACK CONNECTIONS

The HV-Maxx system is designed to be used with two battery packs. However, it can also be used with one standard R/C battery pack (6 or 7 cells @ 1.2VDC/cell) or with one 12 volt DC battery. Using the HV-Maxx with a single battery requires special wiring and is discussed below.

USING DUAL BATTERY PACKS:

- A. Connect one battery pack (6-7 cells @ 1.2VDC/cell) to the JST/Tamiya connector at the end of the red & black wires coming from the ESC's **BAT.1** solder tabs as marked on the HV-Maxx case labels.
- B. Connect a second battery pack to the JST/Tamiya connector coming from the ESC's **BAT.2** solder tabs.

USING SINGLE BATTERY PACK:

To use the HV-Maxx with a single 6-14 cell (1.2VDC/cell) pack or a 12VDC battery, the pack/battery must be connected to the **BAT.2** input & the **BAT.1** input must be shorted together (see Fig. 7 below/left).

- A. Cut the black wire coming from the **BAT.1** (-) solder tab (battery wire closest to the front of ESC) about 2-3" above the solder tab.
- B. Strip a 1/8-1/4" of insulation off the end of the **BAT.1** (-) black wire. Tightly twist the strands of wire & lightly tin with solder.

CAUTION: When making battery wire solder connections at the HV-Maxx's Direct-Solder Wiring Tabs, it is important to not overheat & damage PCB (printed circuit board) with the soldering iron by applying prolonged or excessive heating (PCB damage voids warranty).

- C. Remove the red wire from the **BAT.1** (+) solder tab: Use a soldering iron to apply heat to the wire's solder joint while gently pulling on the wire to remove it from the PC Board's hole.
- D. Solder the stripped & tinned end of the black wire coming from the ESC's **BAT.1** (-) solder tab into the **BAT.1** (+) solder tab:

Insert the wire end into the **BAT.1** (+) solder tab hole (if there is still solder in the hole you can melt it with the iron while pushing the wire through the hole). Apply heat to the section of wire that is sticking through the tab's hole, and add solder to the tip of the soldering iron and to the wire. **Add just enough solder to form a clean & continuous joint from the plated area of the solder tab up onto the wire.** Use side cutters to trim excess wire above tab (about 1/16").

- E. Connect battery pack (6-14 cells @ 1.2VDC/cell) to the JST/Tamiya connector at the end of the red & black wires coming from the ESC's **BAT.2** solder tabs as marked on the HV-Maxx case labels.

B.E.C. OUTPUT WHEN USING SINGLE BATTERY ABOVE 8.4VDC
 When using a single battery above 8.4VDC (like a lead acid or gell cell), there is limited output from the B.E.C. circuit—using a separate receiver battery pack (refer to Motor/Wiring Sheet) can improve servo/receiver performance.

Important motor, gear selection, & wiring information on separate Motor/Wiring Sheet

SENSOR HARNESS WIRING

Should any of the 26G Teflon wires pull out of the connector on the motor's sensor harness, re-insert them in the appropriate slot in the connector as shown below. There is a small plastic tab that grabs a small raised barb on the back of the metal socket crimped to the Teflon wire's end. The plastic tab should be checked to make sure it has not deformed excessively before inserting the socket into the plastic connector housing. If the sensor harness gets damaged, contact our Customer Service Department.

