



*PLEASE
READ THIS
FIRST!*

AVOID TROUBLE!
**PLEASE REVIEW
THIS
DOCUMENT CAREFULLY.**
**AVOID 90%+ OF PROBLEMS
BY READING FIRST!**

Model airplane motors, model airplanes, speed controls, batteries, propellers and related accessories, tools and equipment can be hazardous if improperly used. Be cautious and follow all safety recommendations when using your VMAX product. Keep hands, tools, clothing and all foreign objects well clear of equipment prior to and during operations. Take particular care to safeguard and protect your eyes and fingers and the eyes and fingers of other persons who may be nearby. Use only a good quality propeller that has no cracks or flaws. **Stay clear of the propeller and stay clear of the plane of rotation defined by the propeller prior to connecting your battery to any motor or power system.**

ALWAYS disconnect the battery from any motor, device or charger when transporting, storing or not using.

Liability Disclaimer

It is important that the following liability disclaimer be
READ BEFORE CHARGING OR USING THIS PRODUCT

Proceeding with use of this product indicates Agreement With and Acceptance of the Liability Disclaimer & Warranty Conditions.

The Manufacturer, Distributor, Retailer and/or other suppliers of this product expressly disclaim any warranties or representations, either expressed or implied, including but not limited to implied warranties of fitness for the purposes of achieving and sustaining remotely controlled flight.

In no event will the Manufacturer, Distributor, Retailer and/or other suppliers of this product have any obligation arising from contract or tort, or for loss of revenue or profit, or for indirect, special, incidental, consequential or other damages arising from the use of this product.

In purchasing and/or using this product, the user accepts all responsibility for its use and accepts all liability associated with such use. This motor and speed control are warranted against manufacturing defect for 30 days following proof of purchase date. **ALL WARRANTY CLAIMS WILL REQUIRE PROOF OF PURCHASE & RETURN OF THE PRODUCT** per the **RETURN PROCEDURES** as described at www.richmondrc.com/support.htm

WARNING

Keep hands, tools, clothing and all foreign objects well clear of equipment prior to and during operations. Take particular care to safeguard and protect your eyes and fingers and the eyes and fingers of other persons who may be nearby

STAY CLEAR OF PROPELLER. PROTECT YOURSELF & OTHERS AT ALL TIMES

Use only a good quality propeller that has no cracks or flaws. **Ensure propellers are securely attached. Stay clear of the propeller and stay clear of the plane of rotation defined by the propeller prior to connecting your battery to any motor or power system.**



Please Review
the NO NO's &
MUST DO's on
Page 4.

1) INSTALLATION.

VMAR Power Modules enable fast easy installation into the VMAR model that they were designed for. Please carefully review the Assembly & Operations Manual that was provided with your model and consult Figure 1 on Page 3.

Extra female connectors may have been provided for your battery. Look carefully to see if the connectors are needed or not. If this Power Module was provided as a part of a VMAR Power Pack, the extra connectors provided with the Power Module will not likely be needed. The Power Pack will contain an adapter or other wiring to assist with quick easy installation and reliable low loss wiring.

PAY ATTENTION TO ELECTRICAL CONNECTORS AND RATINGS. WRONG CONNECTIONS &/OR EXCEEDING RATINGS WILL DESTROY COMPONENTS.

A prop nut & washer set or a prop adapter are provided with this Power Module. They work well with VMAR propellers and may be suitable for other models and props. See the Assembly & Operations Manual that came with your model. **With power disconnected, always double check the propeller to make sure it is not damaged or nicked in any way and that it is securely and safely mounted. Check before & after each flight.**

SEE THE WARNING LABEL ON THE MOTOR SHAFT &/OR FIREWALL. DO NOT EXCEED MAXIMUM PROP SIZE NOTED. ENSURE PROP TURNS TRUE (NO WOBBLE) & IS BALANCED. ENSURE ALL FASTENERS ARE TIGHT. USING THE WRONG PROP &/or OPERATING WITH EXCESSIVE VIBRATION WILL DESTROY THE MOTOR

2) OPERATING

This Power Module is intended for the model specified on the packaging and contains a Brushless Motor and Electronic Speed Control (ESC) pre-installed on the firewall for the specified model.

We developed this Power Module as a "system" for your model and we strongly recommend that you **do not change any component within this system.** Changing one thing can lead to unexpected results. If a component requires replacement, ensure you replace it with a new but identical component as listed on Page 3.

Your ESC comes with a Battery Eliminator Circuit (BEC) auto cutoff to protect your batteries from low voltage. The BEC will throttle back and then stop the motor when your battery is almost depleted. **Land immediately when power begins to sag off.**

For 3 Cell 11.1 Volt Lithium Polymer batteries, leave the BEC Jumper in place at the end of the BEC Jumper pigtail. For 7.2-9.6V LiPo, NiCd or NiMH batteries remove the BEC Jumper from the end of the BEC Jumper pigtail. The BEC Jumper affects the cutoff voltage which varies depending on battery voltage & type

The ESC will beep when power is applied. When the ESC beeps, reduce your throttle to zero, stay clear of the propeller and then throttle up slowly.

Ensure that your propeller is rotating clockwise when viewed from behind and that the prop is blowing air from the front of the model to the back.

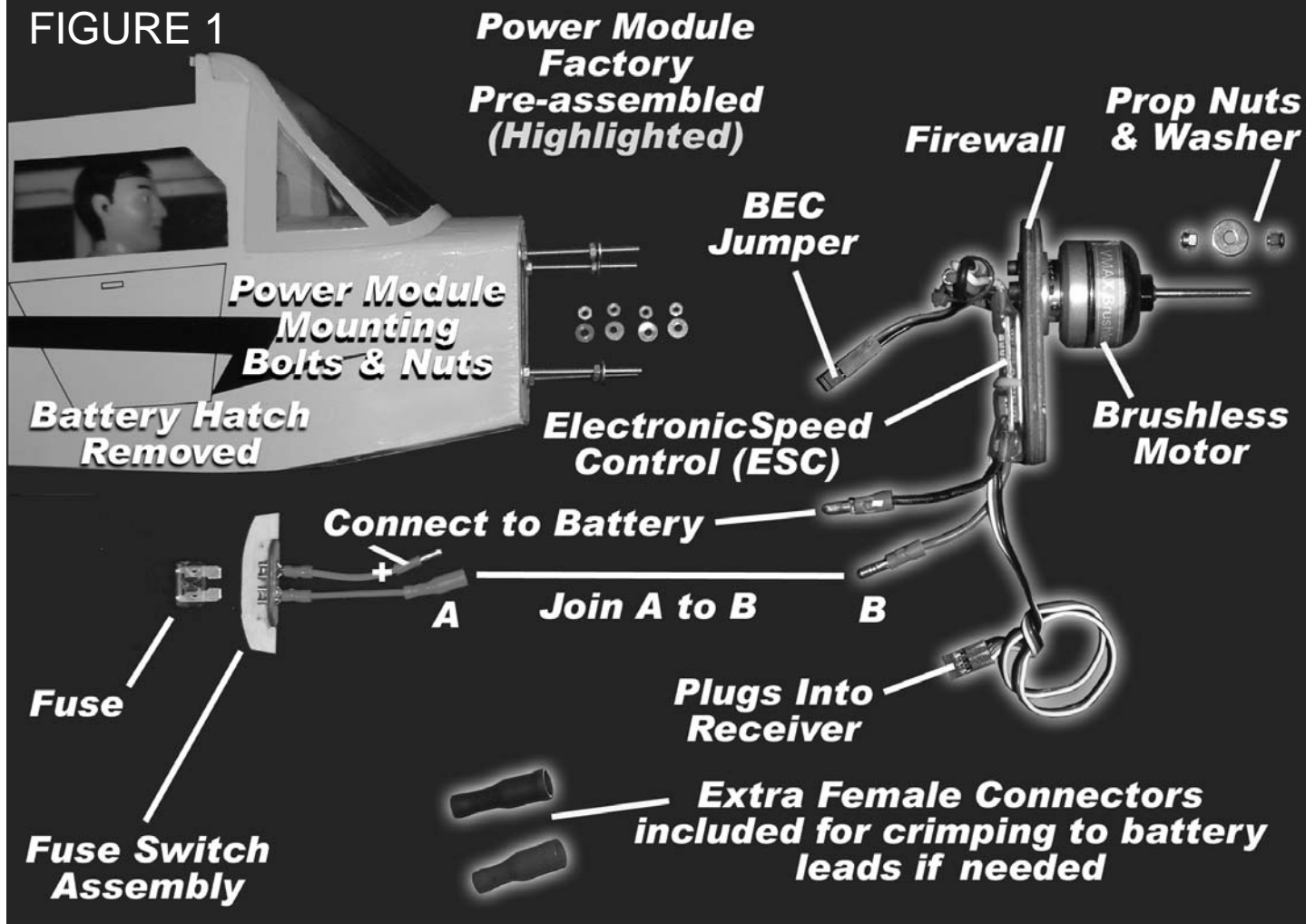
If the propeller is rotating backwards, reverse the white or yellow wire connection with the black wire connection between the speed control and the motor.

If the propeller is rotating clockwise when viewed from behind but air is blowing from the back to the front of the model, then the propeller is mounted on the motor backwards. Check and reinstall the propeller correctly.

ENSURE ADEQUATE COOLING. AVOID OPERATING AT HIGH THROTTLE ON THE GROUND FOR LONGER THAN 10 SECONDS.

#VMM-C210XPM1 POWER MODULE FOR CUB AND L4

FIGURE 1



VMAR POWER MODULES CONSIST OF:

- Brushless Motor with Prop Nuts & Washer or Prop Adapter,
- Electronic Speed Control (ESC) with adjustable cutoff Battery Eliminator Circuit (BEC) for powering your RC receiver.
- Firewall that has been pre-drilled for easy mounting into your model,
- Power Wiring with Connectors, and a
- Signal/Power Cable that plugs into the throttle control output of your receiver so that you can tell the ESC how fast to run the motor and to provide power from the power battery back to your RC receiver.

For more VMAR Electric ARF's, POLYPRO batteries, VMAX Electric Power systems, accessories, connectors & chargers
Visit us on the web at
www.richmondrc.com

Our Support Services Knowledge Base is a good source of technical information.

POWER MODULE REPLACEMENT PARTS:

- Complete Power Module #VMM-C210XPM1
- Brushless Motor Assembly #VMM-111B18VM
- Electronic Speed Control assembly with power wiring, male connectors, BEC, Jumper and Signal/Power Cable #VMC-120B15VC
- Firewall (pre-drilled) #VMA-S210XPMF
- Bullet Connector Set (Red M/F & Blue M/F) #VMW-154VP1XX
- Power Pole 30 Amp Connector Set (1 Red, 1 Black) #VMW-302PY1XX

OTHER "POWER" RELATED PARTS:

- Fuse (20A) #VMW-FUS20AS
- Fuse Switch Assembly #VMA-C210XFSA
- Propeller suitable for Cub & L4
- Grasshopper Power Module #MAS-0850NE
- POLYPRO 11.1V 1800mAh 20C LiPo Pack with Power Pole Connectors #PPR-3X180PYF
- Adapter (no crimping required) to connect POLYPRO battery #VMW-302PY1VF



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(604) 940-1066

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NO NO'S & MUST DO'S!

1) Read Everything First! Every instruction! Every Warning Label! Browse our Knowledge Base while you are at it. About 90% of problems can be avoided by Reading First.

2) Do NOT screw up the electrical connections! Polarity is important. If you are not sure, figure it out first... trial and error testing can get expensive!

3) Do NOT exceed the maximum electrical specifications! Pay attention to the maximum allowable Voltage, Current and Wattage (Volts x Amps).

4) Do NOT use a propeller that is bigger in diameter and/or bigger in pitch than the specifications provided! Use the recommended propeller.

5) Do NOT operate the motor if the prop appears to wobble when you turn it by hand! Look at the back of the hub as you rotate the propeller over by hand. The back of the hub should remain in one plane throughout the rotation, not wobble.

6) Do NOT operate if the motor appears to vibrate! Look at the prop shaft when it first gets going. If it look blurry to the eyes or sounds strange it is vibrating. Excessive vibration will destroy your motor and possibly hurt your servos as well. Stop and check all bolts for tightness and make sure the prop is turning true (no wobble) and that the prop is balanced.

7) Do NOT operate with loose fasteners! Check bolts, nuts, screws etc for snug tightness. Do not over tighten but keep them snug. Check periodically, particularly after the first few times you use the motor.



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ALWAYS disconnect the battery from any motor, device or charger when transporting, storing or not using.

Use blue thread locker such as Pacer Z42 to help keep fasteners from loosening up. If you find that fasteners are continuously loosening up even after the motor has been used many times, you have a vibration issue. Check for sources of vibration. Excessive vibration will destroy your motor.

8) Do NOT operate at High Throttle on the ground or test bench for longer than 10 seconds! High Throttle static operation such as this where the airplane is not moving, induces maximum load on the motor while not providing proper air flow to help cool it. Heat will build up quickly, particularly if the motor is cowed. Heat is bad news. Heat can melt the windings down and destroy the motor.

9) Do NOT operate without a safety fuse system!

10) Do NOT assume an electric motor is the same as a glow or gas engine! An electric motor is very different. Electric motors will attempt to overcome any load they encounter, even to the point of destroying themselves.

11) Do NOT use your plumbing tools or hammer! A brushless motor is not a farm tractor. Small hand tools only. Snugly tight does not mean you tighten things to the point they strip.

12) Do NOT get dirt, water or metal objects into the motor! If you drop a small screw or nut when working on your model, find it first before turning on your motor. Electric motors have strong magnets. Chances are that if you drop something small and metal into your model and can't find it... that it will be inside the motor. Turn the motor over by hand and pay attention to any unusual resistance, grinding or other odd sounds or feel. Find the missing metal item before operating your motor!