Congratulations, you have purchased the RimFire 42mm power system components. All the components are available in the Lipo battery line, you will need to connect two 7.4V batteries together.

**BATTERIES: CHEMISTRY**

The RimFire Motor/Silver Series ESC combination can use NiMH or LiPo batteries. Typically, NiMH batteries are heavier but much more affordable for the same capacity as LiPo batteries. If you want a very light, high-performance airplane, you might want to use LiPo batteries, but weight is not a concern, then NiMH batteries might be for you.

**BATTERIES: NUMBER OF CELLS**

Cells can be connected in series or in parallel. Usually batteries are labeled as 8-cell NiMH or 3-cell LiPo. This means the cells are connected in SERIES (S). Arranging batteries in series gives you more power (higher voltage).

- Each NiMH cell has 1.2V, so an 8-cell NiMH battery has 1.2V x 8 = 9.6V
- Each LiPo cell has 3.7V, so a 3-cell LiPo battery has 3.7V x 3 = 11.1V.

If you need a higher voltage than what is available in the LiPo battery line, you will need to connect two battery packs together in series. If you need a battery voltage of 14.8V you can use the Series V-Connector (GPMM3143) to connect two 7.4V batteries together.

If a battery is arranged in PARALLEL, it might be labeled as (P). Arranging the batteries in parallel will give you more duration (more capacity).

All LiPo batteries have a rated discharge that must not be exceeded or the battery will be damaged. They may say 25C max. discharge rate or 20C max. discharge rate. This means that the discharge rate (current draw of the motor) must not be more than 25 or 20 (15C or 20C) times the capacity of the battery. The capacity is expressed in milliamp hours (2100mAh). It can also be expressed in amp hours (2.1Ah). A LiPo battery with a capacity of 2100mAh with a 20C discharge rate can be discharged at 42 amps, 2.1Ah x 20C = 42 amps. If the power system draws more than 42 amps, the battery will have to be connected in parallel to increase the capacity. Two 2100mAh batteries in parallel have a capacity of 4200mAh or 4.2Ah x 20C = 84 amp discharge rate.

**MOTORS**

**Model**

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Motor Output Shaft Diameter and Length: 5x17.5mm [0.2x0.7&quot;]</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-40-800</td>
<td>GPMP6670</td>
</tr>
<tr>
<td>40-40-1000</td>
<td>GPMP6675</td>
</tr>
<tr>
<td>40-50-600</td>
<td>GPMP6695</td>
</tr>
<tr>
<td>40-50-800</td>
<td>GPMP6700</td>
</tr>
<tr>
<td>40-50-1000</td>
<td>GPMP6705</td>
</tr>
<tr>
<td>40-60-480</td>
<td>GPMP7415</td>
</tr>
<tr>
<td>40-60-600</td>
<td>GPMP7420</td>
</tr>
<tr>
<td>40-60-800</td>
<td>GPMP7425</td>
</tr>
</tbody>
</table>

The RimFire motors are labeled to provide the most information at a glance. For example: the 42-50-600 is 42mm in diameter, 50mm long and has a KV (rpm-per-volt) of 600 rpm.

**ELECTRONIC SPEED CONTROL (ESC)**

An ESC is basically the device that controls your motor through your radio system. Never run any RimFire motors with a brushed ESC. It will not work and you may damage both the motor and ESC. EsciFly offers Brushless ESCs that will work with the RimFire 42mm motors.

- **EsciFly Silver Series 45 (SS-45) ESC (GPMM1840)** for 45A maximum constant current draw.
- **The Silver Series 60 (SS-60) ESC (GPMM1850)** for 60A maximum constant current draw.
- **The Silver Series 80 (SS-80) ESC (GPMM1860)** for 80A maximum constant current draw.

This ESC comes with 4mm female bullet connectors that plug directly into the 4mm male connectors installed on the RimFire 42mm motors, so no soldering is required. Also, this ESC comes with a Dean’s Ultra Plug® battery connector that matches the connectors that are found on most batteries that it will use.

**BRUSHLESS MEDIUM MOTOR MOUNT**

There is a wide selection of propellers available for electric use. The RimFire 42mm motors use high-performance electric props such as the APC E-series props. The larger the propeller used, the more current your motor will draw. Shown are a few of the recommended electric props.

1. Front Plate (1)
2. Back Plate (1)
3. 4-40x1/4" SHC Screw (8)
4. 44 Flat Washer (10)
5. Motor Bracket (1, not used)
6. 4-40x1/4" SHC Screw (2)
7. 4-40 lock nut (2)

The ElectriFly Brushless Medium Motor Mount combines the ease of installation with the adjustability to fit most motor applications. The Medium Motor Mount is designed to fit the bolt pattern of the Great Planes .20-.48 Silver Series 60 (SS-80) E. This easily combines the adjustability to fit most motor applications. The ElectriFly Brushless Medium Motor Mount combines the ease of installation with the adjustability to fit most motor applications.

**PROPELLERS**

There is a wide selection of propellers available for electric use. The RimFire 42mm motors use high-performance electric props such as the APC E-series props. The larger the propeller used, the more current your motor will draw. Shown are a few of the recommended electric props.

**PROPELLER ADAPTERS**

The RimFire 42mm motor comes with a prop adapter that mounts directly to the motor case. If the RimFire 42mm motor needs to be mounted so that the prop is mounted on the motor shaft, the motor requires a 5mm prop adapter collet type (GPMM4966), set screw type (GPMM4935).

**BATTERY CONNECTORS**

- **GPMP0616** 7.4V 2100mAh 6.4oz (181g) LiPo
- **GPMP0617** 11.1V 2100mAh 6.4oz (181g) LiPo
- **GPMP0618** 13.2V 2000mAh 12.2oz (342g) LiPo
- **GPMP0619** 16V 2000mAh 19.9oz (564g) LiPo
- **GPMP0620** 19.6V 2000mAh 24.8oz (702g) LiPo
- **GPMP0621** 11.1V 2000mAh 9.1oz (260g) NiMH
- **GPMP0622** 13.2V 2000mAh 17.5oz (497g) NiMH
- **GPMP0623** 16V 2000mAh 24.8oz (702g) NiMH
- **GPMP0624** 19.6V 2000mAh 29.6oz (845g) NiMH

**ELECTRONIC SPEED CONTROL (ESC)**

An ESC is basically the device that controls your motor through your radio system. Never run any RimFire motors with a brushed ESC. It will not work and you may damage both the motor and ESC. ElectriFly offers Brushless ESCs that will work with the RimFire 42mm motors.

- **EsciFly Silver Series 45 (SS-45) ESC (GPMM1840)** for 45A maximum constant current draw.
- **The Silver Series 60 (SS-60) ESC (GPMM1850)** for 60A maximum constant current draw.
- **The Silver Series 80 (SS-80) ESC (GPMM1860)** for 80A maximum constant current draw.

This ESC comes with 4mm female bullet connectors that plug directly into the 4mm male connectors installed on the RimFire 42mm motors, so no soldering is required. Also, this ESC comes with a Dean’s Ultra Plug® battery connector that matches the connectors that are found on most batteries that it will use.

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**ELECTRONIC SPEED CONTROL (ESC)**

An ESC is basically the device that controls your motor through your radio system. Never run any RimFire motors with a brushed ESC. It will not work and you may damage both the motor and ESC. ElectriFly offers Brushless ESCs that will work with the RimFire 42mm motors.
Congratulations, you have just purchased the RimFire 42mm power system components. All the components are compatible and allow you to customize your power system to your airplane. The components needed to assemble your RimFire 42mm power system are: RimFire 42mm motors, propeller, propeller adapters and brushless speed control. This instruction sheet explains how to determine what you will need and how to assemble each component.

BATTERIES: CHEMISTRY

The RimFire Motor/Silver Series ESC combination can use NiMH or LiPo batteries. Typically, NiMH batteries are heavier but much more affordable for the same capacity as LiPo batteries. If you want a very light, high-performance airplane, you might want to use LiPo batteries, but weight is not a concern, then NiMH batteries might be for you.

BATTERIES: NUMBER OF CELLS

Cells can be connected in series or in parallel. Usually batteries are labeled as 8.4V NiMH or 3-cell LiPo. This means the cells are connected in SERIES (8). Arranging batteries in series gives you more power (higher voltage).

- Each NiMH cell has 1.2V, so an 8-cell NiMH battery has 1.2V x 8 = 9.6V
- Each LiPo battery has 3.7V, so a 3-cell LiPo battery has 3.7V x 3 = 11.1V

If you need a higher voltage than what is available in the LiPo battery line, you will need to connect two battery packs together in series. If you need a battery voltage of 14.8V you can connect two battery packs together in series.

If a battery is arranged in PARALLEL, it might be labeled as (P). Arranging the batteries in parallel will give you more duration (more capacity).

All LiPo batteries have a rated discharge that must not be exceeded or the battery will be damaged. They may say 15C max. discharge rate or 20C max. discharge rate. This means that the discharge rate (current draw of the motor) must not be more than 15 or 20 (15C or 20C) times the capacity of the battery. The capacity is expressed in milliamp hours (2100mAh). It can also be expressed in amp hours (2.1Ah).

A LiPo battery with a capacity of 2100mAh with a 20C discharge rate will give you more duration (more capacity).

BATTERIES: PERFORMANCE

A LiPo battery has a voltage of 2010mAh and 4.2V or 4.2Ahx20C = 84 amp discharge rate. ElectriFly offers a full line of NiMH and LiPo batteries. Airplanes that use the RimFire 42mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity batteries delivering more flying time. Batteries that it will use.

If your motor through your radio system. Never run any RimFire motors with a brushed ESC. This will not work and you may damage both the motor and ESC. ElectriFly offers Brushless ESCs that will work with the RimFire 42mm motors.

ElectriFly offers Silver Series ESCs (GPM0840) for 45A maximum current draw.

The Silver Series 60 (GPM0160) for 60A maximum current draw.

The Silver Series 80 (GPM0160) for 80A maximum current draw. This ESC comes with 4mm female bullet connectors that plug directly into the 4mm male connectors installed on the RimFire 42mm motors, so no soldering is required.

ElectriFly offers Brushless ESCs that will work with the RimFire 42mm motors.

The RimFire motors are labeled to provide the most information at a glance. For example: the 42-50-600V-42mm-diameter, 55mm long and has a KV (rpm-per-volt) of 600 rpm.

MOTORS

Model Stock # RPM Output Shaft Diameter and Length: Motor Output Shaft

42-40-800 GPM04670 42-240 5x17.5mm [0.2”x0.7”]

42-40-1000 GPM04675 42-240

42-50-600 GPM04695 42-260

42-50-800 GPM04700 42-260

42-60-400 GPM04705 42-260

42-60-480 GPM04715

42-60-600 GPM04720

42-60-800 GPM04725

The RimFire motors are available in a wide variety of sizes, and the constant addition of new sizes, visit www.electrifly.com for the most up-to-date listing of electric type props.

Each NiMH cell has 1.2V, so an 8-cell NiMH battery has 1.2x8 = 9.6V

NiMH battery has 1.2x8 = 9.6V

LiPo battery has 3.7x8 = 29.6V

The constant addition of new sizes, visit www.electrifly.com for the most up-to-date listing of electric type props.

PARALLEL: NiMH batteries delivering more flying time. Batteries that it will use.

The RimFire 42mm motor comes with a prop adapter that mounts directly to the motor case. The RimFire 42mm motor needs to be mounted so that the prop is mounted on the motor shaft, the motor requires a 5mm prop adapter. This instruction guide explains how to fit most motor applications.

The Electric Fly Brushless Medium Motor Mount combines the ease of installation with the adjustability to fit most motor applications. The Medium Motor Mount is designed to fit the bolt pattern of the Great Planes 20.48 and .40-70 Nylon Engine Mount. This easily allows the correction of a glow powered plane to electric powered.
Congratulations, you have just purchased the RimFire 42mm power system components. All the components are included so you may choose how you to customize your power system to your airplane. The components needed to assemble your RimFire 42mm power system are: RimFire 42mm motors, propeller, propeller adapters and brushless speed control. This control sheet explains how to determine what you will need and how to assemble each component.

### Motors

<table>
<thead>
<tr>
<th>Model</th>
<th>Stock #</th>
<th>Weight (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>42-40-800</td>
<td>GPMF4680</td>
<td>19.1</td>
</tr>
<tr>
<td>42-1000</td>
<td>GPMF4675</td>
<td>20.2</td>
</tr>
<tr>
<td>42-50-600</td>
<td>GPMF4695</td>
<td>23.2</td>
</tr>
<tr>
<td>42-50-800</td>
<td>GPMF4700</td>
<td>24.5</td>
</tr>
<tr>
<td>42-60-480</td>
<td>GPMF4715</td>
<td>25.6</td>
</tr>
<tr>
<td>42-60-600</td>
<td>GPMF4720</td>
<td>26.8</td>
</tr>
<tr>
<td>42-60-800</td>
<td>GPMF4725</td>
<td>28.0</td>
</tr>
</tbody>
</table>

The RimFire motors are labeled to provide the most information at a glance. For example: the 42-50-600 is 42mm in diameter, 50mm long and has a KV (rpm-per-volt) of 600 rpm.

### Batteries: Chemistry

Typically, NiMH batteries are heavier but much more affordable for the same capacity as LiPo batteries. If you want a very light, high-output airplane, you might want to use LiPo batteries. If weight is not a concern, LiPo batteries, but if weight is not a concern, LiPo batteries might be for you.

### Batteries: Number of Cells

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Number of Cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>NiMH</td>
<td>3</td>
</tr>
<tr>
<td>LiPo</td>
<td>3</td>
</tr>
</tbody>
</table>

### Batteries: Voltage

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NiMH</td>
<td>11.1</td>
</tr>
<tr>
<td>LiPo</td>
<td>11.1</td>
</tr>
</tbody>
</table>

### Batteries: Amp Hours

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Amp Hours (Ah)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NiMH</td>
<td>4200</td>
</tr>
<tr>
<td>LiPo</td>
<td>2100</td>
</tr>
</tbody>
</table>

### Brushless Medium Motor Mount

<table>
<thead>
<tr>
<th>Component</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Plate</td>
<td>1</td>
</tr>
<tr>
<td>Back Plate</td>
<td>1</td>
</tr>
<tr>
<td>Motor Bracket</td>
<td>1 (not used)</td>
</tr>
<tr>
<td>#4 Flat Washer</td>
<td>10</td>
</tr>
<tr>
<td>Motor Bracket (1, not used)</td>
<td>1</td>
</tr>
<tr>
<td>4-40x1/2&quot; Screw (2)</td>
<td>2</td>
</tr>
<tr>
<td>4-40 Lock Nut (2)</td>
<td>2</td>
</tr>
</tbody>
</table>

The Electricfly Brushless Medium Motor Mount combines the ease of installation with the adjustability to fit most model airplanes. The Medium Motor Mount is designed to fit the bolt pattern of the Great Planes 20.48-40.70 Hobby Electric motor and has a kV (rpm-per-volt) of 600 rpm. It will not work and you may damage both the motor and the ESC. Electricfly offers Brushless ESCs that will work with the RimFire 42mm motors.

### Propellers

There is a wide selection of propellers available for use. The RimFire 42mm motors use high performance electric props such as the APC E-series. The larger the propeller used, the more current the motor will draw. The smaller the propeller, the less current the motor will draw.

There are a few of the recommended electric props.

### Propeller Adapters

<table>
<thead>
<tr>
<th>Model Stock #</th>
<th>Weight (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPMP0065 5mm Collet Type</td>
<td>6.3</td>
</tr>
<tr>
<td>GPMP0065 5mm Collet Type</td>
<td>6.3</td>
</tr>
</tbody>
</table>

### Electronic Speed Control (ESC)

An ESC is basically the device that controls your motor through your radio system. Never run any RimFire motors with a brushed ESC. It will not work and you may damage both the motor and the ESC. Electricfly offers Brushless ESCs that will work with the RimFire 42mm motors.

### Proportional (P)

If a battery is arranged in PARALLEL, it might be labeled as (P). Arranging the batteries in parallel will give you more duration (more capacity).

All LiPo batteries have a rated discharge (current draw of the motor) that must not be exceeded or the battery will be damaged. They may say 15C max. discharge rate or 20C max. discharge rate. This means that the discharge rate (current draw of the motor) must not be more than 15 or 20 (15C or 20C) times the capacity of the battery. The capacity is expressed in milliamp hours (2100mAh). It can also be expressed in amp hours (2.1Ah).

A LiPo battery with a capacity of 2100mAh with a 20C discharge rate will draw more than 42 amps. If the power system draws more than 42 amps, the batteries will have to be connected in parallel to increase the capacity. Two 2100mAh batteries in parallel have a capacity of 4200mAh or 4.2Ah x 20C = 84 amp discharge rate.

Electricfly offers a full line of NiMH and LiPo batteries. Airlines that use the RimFire 42mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity batteries being very high current draw rates. This is also a concern for LiPo batteries as well. The batteries have connectors that fit the recommended ESCs.

Due to the constantly changing battery technology, check out the Electricfly website at www.electricfly.com for the most up-to-date listing of the Electricfly battery line.

### Stock 

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Voltage (V)</th>
<th>Capacity (Ah)</th>
<th>Weight (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPMF0616</td>
<td>7.4</td>
<td>2100</td>
<td>4.3oz (121g)</td>
</tr>
<tr>
<td>GPMF0617</td>
<td>11.1</td>
<td>2100</td>
<td>6.4oz (181g)</td>
</tr>
<tr>
<td>GPMF0622</td>
<td>7.4</td>
<td>3000</td>
<td>6.3oz (179g)</td>
</tr>
<tr>
<td>GPMF0623</td>
<td>11.1</td>
<td>3000</td>
<td>9.5oz (269g)</td>
</tr>
<tr>
<td>GPMF0580</td>
<td>7.2</td>
<td>2000</td>
<td>8.5oz (241g)</td>
</tr>
<tr>
<td>GPMF0581</td>
<td>9.6</td>
<td>2000</td>
<td>12.2oz (344g)</td>
</tr>
<tr>
<td>GPMF0352</td>
<td>9.6</td>
<td>2000</td>
<td>13.7oz (390g)</td>
</tr>
<tr>
<td>GPMF0353</td>
<td>12.5</td>
<td>2000</td>
<td>16.7oz (457g)</td>
</tr>
<tr>
<td>GPMF0357</td>
<td>8.4</td>
<td>3600</td>
<td>17.5oz (407g)</td>
</tr>
<tr>
<td>GPMF0362</td>
<td>9.6</td>
<td>3600</td>
<td>19.9oz (546g)</td>
</tr>
<tr>
<td>GPMF0363</td>
<td>12</td>
<td>3600</td>
<td>24.8oz (702g)</td>
</tr>
<tr>
<td>GPMF0367</td>
<td>14.4</td>
<td>3600</td>
<td>29.6oz (645g)</td>
</tr>
</tbody>
</table>
**Determine What You Need to Build Your Power System**

Now that you have a component for your power system, there are several different steps to follow to complete the components of your power system. In this section, we will help you to determine what works best for you, but our easy way to determine what you need to do in the following.

**PROCEDURE 1.**

1. Find the combination in the motor/prop chart that gives the current draw of your system and your desired flight time.
2. Determine the ESC you will need based on the system current draw shown in the motor chart. See the ESC section.

**PROCEDURE 2.**

1. Knowing the approximate weight of your airplane, including the motor and battery, and the performance you want, you can use the following chart to determine the correct power system for your plane. You must use the correct rating of your airplane and the correct rating of the motor to determine the required current draw. The number in the column represents the amount of current that the battery will require to spin the prop at the rated kV. The higher the number, the more current the battery will require to spin the prop at the rated kV.
2. The number you get is the minimum wattage you will need to operate the motor. Add any additional wattage needed for any accessory, such as ESC, battery, or any other devices.
3. The number you get in the minimum wattage you will need to operate the motor. Add any additional wattage needed for any accessory, such as ESC, battery, or any other devices.
4. Further look at the following to determine the wattage required.
   - If your system is only capable of typical performance or expecting no performance above the wattage not on the chart, then go to Procedure 2.
   - If you expect typical or no performance above the wattage not on the chart, then go to Procedure 2.
5. Determine the ESC you will need based on the system current draw shown in the motor chart. See the ESC section.

**UNDERSTANDING KV**

KV is a term that gets thrown around quite a bit when talking electricals and it is important to know what it is. KV is essentially the number of rpm a motor will spin per each volt applied pneumatically under no load.

This revolves on basic physics that a motor has a kV (1000) when connected to a 12-volt battery it will try to spin at 12,000 rpm (1000x12) under no load. Likewise a 3000 kV motor will try to spin at 36,000 rpm (3000x12) under no load.

When selecting KV's it is important to see that they are matched to the propeller wind the motor and so be sure to spin the propeller rated rpm. Depending on the diameter and pitch of the propeller the desirable diameter is larger than the thinpitch, the thinner the prop, the lower the motor's current draw can be increased or decreased. These factors are very important from your hobby dealers that measure current and voltage.

Because every motor has a maximum current it can be run at its maximum speed and the maximum speed the motor can handle is determined. Too large of a propeller with the motor using a much more than the maximum speed caused by too high a voltage, too low voltage, is used. It is recommended that a smaller propeller be used with a motor to keep the current in check. If it is higher wattage is replaced by a lower voltage battery, the size of the propeller can be increased to keep the motor at its rated current.

Another possibility to fine tune the power systems performance is to have a different motor choice to increase or decrease the current in a battery to keep the current.

**ASSEMBLE YOUR POWER SYSTEM**

Once the required Kevlar or motor has been determined, its time to install the power system. The distance from the firewall to the front of the prop adapter needs to be determined.

**INSTALL THE BRUSHLESS ESC**

Once the battery is connected to the ESC, check all input connections are insulated electrically. Make sure that the wires are not touching each other while power is applied to the motor. Make sure that the ESC is properly oriented to prevent damage.

**INSTALL THE MOTOR**

Once the battery is connected to the ESC, check all input connections are insulated electrically. Make sure that the ESC is properly aligned to prevent damage.

**INSTALL THE BRUSHLESS ESC**

Once the battery is connected to the ESC, check all input connections are insulated electrically. Make sure that the ESC is properly oriented to prevent damage.
Determine the battery capacity needed based on the current draw of your system and your desired flight time. Unselect the ESC and determine the current draw of the propeller/fan system. Join these two procedures, you can visit the Great Planes ElectriFly web site for descriptions of the power systems recommended for our line of electric and glow engines as well as more detailed explanation on the subject.

UNSELECT THE ESC

The number you get is the minimum wattage you will need for your plane to perform as you wish. Look at the wattages listed on the recommended propeller or fan shown in the chart.

If you expect aerobatic or high speed-like performance

Do not apply currents to the motor that exceed the maximum rated current of the motor. If a battery with a higher voltage is replaced, the size of the propeller can be decreased. If a battery with lower voltage is replaced with one with a higher voltage, it is recommended that a smaller propeller be used to prevent the motor from overheating. If a higher voltage battery is replaced, the current in check. If a higher voltage battery is replaced by a lower voltage battery, the size of the propeller can be increased to keep the motor at its rated current.

Another possibility to fine tune the power system's performance is to try to spin the same propeller at a higher rpm. This will cause the motor to draw more current and possibly exceed the maximum current draw. If the propeller/fan is too small, it will not be able to deliver the closest performance to what you want. Look at the wattage required:

Airplane Weight (lbs)

If you want to use LLRF motors, determine the number of cells needed to power your plane. Select the number of cells based on the recommended voltage on the chart.

To determine if a number is a minimum wattage you will need for your plane to perform as you wish, look at the wattages included in the chart. You may need to make more than one calculation using different power systems recommended for our line of electric and glow engines as well as more detailed explanation on the subject.

Install the propeller by attaching the prop adapter to the motor shaft using the prop washer and prop nut. Use clear CA to secure the prop washer to the prop nut.

Note that the side with the larger diameter hole is installed first. Never attempt to use a damaged motor (having broken carbon brushes or damaged commutator). Always make sure that the ESC is positioned so that it gets some cooling airflow when being used. Use instructions included with the ESC to correctly connect the ESC.

IMPORTANT PRECAUTIONS

• Always make sure that the ESC is installed in the correct orientation. See the chart on the header card for the current draw of various Great Planes Silver Series Brushless ESCs, 46 amp continuous current for motors drawing 45 amp or less. See the chart on the header card for the current draw of various Great Planes Brushless ESCs, 30 amps continuous current for motors drawing 30 amp or less.

Although it is recommended to use a brushless motor, there are no brushes to wear out or replace. The performance boost from a brushless motor will probably not be noticeable in the short run, but after a long time the internal parts of the motor will run cooler and the motor will last a lot longer. The internal parts of the motor should run cooler to become more efficient. The only thing needed is to check to make sure the esc and screw the screws tight.

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Brushless motors have been designed to optimize efficiency and performance. They are designed to use less power to achieve the same performance as a brushed motor. This means that they can operate at lower temperatures, which is good for both cooling and improving performance. However, they do require a few extra precautions to ensure they function properly.

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Determine the battery capacity needed based on the current draw of your system and your desired flight time. To determine the ESC’s current draw, look at the current draw on the system draw chart.

In order to use these procedures, you will need to visit the Great Planes Electric web site for descriptions of the power systems recommended for use with our electric and glow drives, as well as more detailed explanation on the subject.

UNDERSTANDING MOTORS

KV is the number that gets around quite a bit when talking electrics and it is important to know what it is. The number of a propeller that a motor will spin per each volt applied typically under no load.

This means basically a motor that has a 1000 when connected to a 12 volt battery will try to spin at 12,000 RPM under no load, whereas a 5000 KV motor will try to spin at 48,000 RPM (40x1200) under no load.

When propellers are selected, you always want to skip the propeller chart first. Depending on the diameter and pitch of the propeller, the diameter can be larger than the thrust. The longer in is, the slower the motor’s current draw can be increased or decreased. There are reasons available from your hobby dealer that measure current and voltage.

Because every motor has a maximum current it can be loaded with current and loading the maximum amount of current can damage or destroy the motor. In addition, the maximum wattage of the motor is determined. Too large of a propeller will make the motor waste so much heat that the motor will be uncool, no matter how much air is blown through the motor. But if the propeller weighs less than the current in volts, it will be necessary for a motor that is at its maximum current in check. If a higher voltage battery is replaced by a lower voltage battery, the size of the propeller can be increased to keep the motor at its rated current. Another possibility is to fine tune the power systems performance by using another motor or prop, or even using an adapter to increase the current in the event it is lower than the current in volts.

ASSEMBLE YOUR POWER SYSTEM

Once you have your motor, controller, ESC, and battery you can begin to assemble the power system.

RIMFIRE MOTOR MAINTENANCE

RimFire brushless motors require virtually no maintenance. However, the motor should be checked after each flight. The motor shaft of the motor will rotate at very high rpm. Allow the motor to cool after each flight. DO NOT apply currents to the motor that exceed the maximum specifications of each motor.

Operate the motor with the ESC in the off or stop mode. DO NOT allow the input connectors to accidentally touch each other while powered as the motor will produce a high voltage across the input circuit. DO NOT short water or moisture to enter the motor, as it can cause permanent damage to the motor and possibly shut the ESC down. Never allow the ESC to be mounted in the motor if it is being used on batteries.

Check the brushless motor for any binding. Brushless motors are electric motors that use magnets to provide rotation to the propeller. A brushless motor is used where the speed and direction of rotation is required to be controlled. A brushless motor, unlike a brushed motor, has no carbon brush or commutator. To control the rotation and speed of the motor, the electronics in the ESC control the current into the motor and prop.

The motor shaft will rotate at very high rpm. Allow the motor to cool after each flight. DO NOT apply currents to the motor that exceed the maximum specifications of each motor. DO NOT allow the input connectors to accidentally touch each other while powered as the motor will produce a high voltage across the input circuit. DO NOT short water or moisture to enter the motor, as it can cause permanent damage to the motor and possibly shut the ESC down. Never allow the ESC to be mounted in the motor if it is being used on batteries.

COMBINATION PROP ADAPTER INSTALLATION

The RimFire surface mount plate is the adapter and the motor case using four 3x7mm HC screws. Use a drop of Threadlocker to the screws before installing them. Mount the Aluminium Prop Adapter to the motor case using four 3x7mm screws. Use a drop of Threadlocker to the threads of each bolt. Mount the screws with four #6 flat washers.

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