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. If weight is not a concern, NiMH batteries might be for you.

BATTERIES: NUMBER OF CELLS

Cells can be connected in series or in parallel. Usually batteries are labeled as 4-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 your battery voltage is higher 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 power (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 drain 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 amps (2.1A).

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 batteries will have to be connected in parallel to increase the capacity. Two 2100mAh batteries in parallel have a capacity of 4200mAh or 2.1Ah x 20C = 42 amp discharge rate.

ElectriFly offers a full line of NiMH and LiPo batteries. Aircraft that use the RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity batteries being heavier. All of the batteries have connectors installed on the RimFire 35mm motor, making the ESC selection simple.

Due to the constantly changing battery technology, check out the ElectriFly web site at www.electrifly.com for the most up-to-date listing of electric type props.

PROPELLERS

The RimFire 35mm motor comes with a prop adapter that mounts directly to the motor case. If the RimFire 35mm motor needs to be mounted so that the propeller is mounted on the motor shaft, the motor requires a 4mm prop adapter collet type (GPMQ4945), or set screw type (GPMQ4935).

PROPELLER ADAPTERS

The RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity batteries being heavier. All of the batteries have connectors installed on the RimFire 35mm motor.

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 drain 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 amps (2.1A).

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 batteries will have to be connected in parallel to increase the capacity. Two 2100mAh batteries in parallel have a capacity of 4200mAh or 2.1Ah x 20C = 42 amp discharge rate.

ElectriFly offers a full line of NiMH and LiPo batteries. Aircraft that use the RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity batteries being heavier. All of the batteries have connectors installed on the RimFire 35mm motor.

Due to the constantly changing battery technology, check out the ElectriFly web site at www.electrifly.com for the most up-to-date listing of the ElectriFly battery line.
Congratulations, you have just purchased the RimFire 35mm power system components. All the components are made by Great Planes® and have been designed to fit your airplane. The components needed to assemble your RimFire 35mm power system are: RimFire 35mm motors, propeller, propeller adapters and brushless speed controls. This instructions 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 use two 7.4V NiMH batteries.

If a battery is arranged in PARALLEL, it might be labeled as (P). Arranging the batteries in parallel will give you more power (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 180 (15C) or 200 (20C) times the capacity of the battery. The capacity is expressed in milliamp hours (2100mAh). It can also be expressed in amps (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 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.

ElectriFly offers a full line of NiMH and LiPo batteries. Airplanes that use the RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity linear motors. This means that the battery capacity must also be higher. All of the batteries have connectors that will fit the ESC: Deans® Ultra Plug® or set screw type (GPOM0495), or set screw type (GPOM0493).

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Voltage</th>
<th>Capacity</th>
<th>Weight (4.4V)</th>
<th>Battery Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPMP0606</td>
<td>7.4V</td>
<td>2100mAh</td>
<td>17g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0617</td>
<td>11.1V</td>
<td>2100mAh</td>
<td>33g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0622</td>
<td>7.4V</td>
<td>3300mAh</td>
<td>63g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0623</td>
<td>11.1V</td>
<td>3300mAh</td>
<td>125g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0630</td>
<td>7.2V</td>
<td>3600mAh</td>
<td>157g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0631</td>
<td>8.4V</td>
<td>3600mAh</td>
<td>157g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0632</td>
<td>9.6V</td>
<td>3600mAh</td>
<td>190g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0633</td>
<td>12V</td>
<td>3600mAh</td>
<td>290g</td>
<td>LiPo</td>
</tr>
<tr>
<td>GPMP0634</td>
<td>14.4V</td>
<td>3600mAh</td>
<td>290g</td>
<td>LiPo</td>
</tr>
</tbody>
</table>

ELECTRONIC SPEED CONTROL (ESC)

An ESC is basically the device that controls your motor through your radio system. Never run an ESC with a brushed ESC. It will not work and you may damage both the ESC and the motor. ElectriFly offers Brushless ESCs that will work with the RimFire 35mm motors.

- The Silver Series ESC (GPMS01490) for 45A maximum constant current draw.
- The Silver Series 60 (GPMS01540) for 60A maximum constant current draw.
- The Silver Series 80 (GPMS01680) for 80A maximum constant current draw.

These ESCs come with 4mm female bullet connectors that require an adapter (GPMM0123) to plug into the 3.5mm male connectors installed on the RimFire 35mm motors. Also, these ESCs come with a Deans® Ultra Plug® battery connector that matches the connectors that are found on most batteries that it will use.

Brushless motors are labeled to provide the most information at a glance. For example: the 35-48-850kV is 35mm in diameter, 48mm long and has a kV (rpm-per-volt) of 850 rpm.

The RimFire motors are designed to fit the brushless speed control (ESC). One ESC can control up to 3 motors.

PROPELLERS

There is a wide selection of propellers available for electric use. The RimFire 35mm motors use high performance size fly electric propellers. The larger the propeller used, the more current your motor draws, and the smaller the propeller, the less current the motor will draw.

Shown are a few of the recommended electric propellers. Due to the large range of propellers and the constant addition of new sizes, visit our website at www.electrifly.com and the constant addition of new sizes, visit our website at www.electrifly.com and the constant addition of new sizes, visit our website at www.electrifly.com and the constant addition of new sizes, visit our website at www.electrifly.com and the constant addition of new sizes, visit our website at www.electrifly.com and the constant addition of new sizes, visit our website at www.electrifly.com.

- APCQ4130 ..........12x6 Electric
- APCQ4128 ..........11x7 Electric
- APCQ1055 ..........11x5.5 Electric
- APCQ0945 ............9x4.5 Electric
- APCQ4120 ..........10x5 Electric
- APCQ4123 ..........13x5 Electric
- APCQ0655 ..........11x5 Electric
- APCQ4128 ..........11x7 Electric
- APCQ4129 ..........11x8 Electric
- APCQ4130 ..........12x6 Electric
- APCQ4136 ..........12x12 Electric
- APCQ0685 ..........13x6 Electric
- APCQ4052 ..........18x15 Electric
- APCQ4054 ..........18x15 Electric

If you need a battery voltage of 14.8V you can connect two battery packs together in series.

- 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 use the Series V-Connector (GPMM0134) to connect two 7.4V batteries together.

The Series V-Connector (GPMM0134) connects two 7.4V batteries together.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Voltage</th>
<th>Capacity</th>
<th>Weight (4.4V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPMP0606</td>
<td>7.4V</td>
<td>2100mAh</td>
<td>17g</td>
</tr>
<tr>
<td>GPMP0617</td>
<td>11.1V</td>
<td>2100mAh</td>
<td>33g</td>
</tr>
<tr>
<td>GPMP0622</td>
<td>7.4V</td>
<td>3300mAh</td>
<td>63g</td>
</tr>
<tr>
<td>GPMP0623</td>
<td>11.1V</td>
<td>3300mAh</td>
<td>125g</td>
</tr>
<tr>
<td>GPMP0630</td>
<td>7.2V</td>
<td>3600mAh</td>
<td>157g</td>
</tr>
<tr>
<td>GPMP0631</td>
<td>8.4V</td>
<td>3600mAh</td>
<td>157g</td>
</tr>
<tr>
<td>GPMP0632</td>
<td>9.6V</td>
<td>3600mAh</td>
<td>190g</td>
</tr>
<tr>
<td>GPMP0633</td>
<td>12V</td>
<td>3600mAh</td>
<td>290g</td>
</tr>
<tr>
<td>GPMP0634</td>
<td>14.4V</td>
<td>3600mAh</td>
<td>290g</td>
</tr>
</tbody>
</table>

- 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 use the Series V-Connector (GPMM0134) to connect two 7.4V batteries together.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Voltage</th>
<th>Capacity</th>
<th>Weight (4.4V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPMP0606</td>
<td>7.4V</td>
<td>2100mAh</td>
<td>17g</td>
</tr>
<tr>
<td>GPMP0617</td>
<td>11.1V</td>
<td>2100mAh</td>
<td>33g</td>
</tr>
<tr>
<td>GPMP0622</td>
<td>7.4V</td>
<td>3300mAh</td>
<td>63g</td>
</tr>
<tr>
<td>GPMP0623</td>
<td>11.1V</td>
<td>3300mAh</td>
<td>125g</td>
</tr>
<tr>
<td>GPMP0630</td>
<td>7.2V</td>
<td>3600mAh</td>
<td>157g</td>
</tr>
<tr>
<td>GPMP0631</td>
<td>8.4V</td>
<td>3600mAh</td>
<td>157g</td>
</tr>
<tr>
<td>GPMP0632</td>
<td>9.6V</td>
<td>3600mAh</td>
<td>190g</td>
</tr>
<tr>
<td>GPMP0633</td>
<td>12V</td>
<td>3600mAh</td>
<td>290g</td>
</tr>
<tr>
<td>GPMP0634</td>
<td>14.4V</td>
<td>3600mAh</td>
<td>290g</td>
</tr>
</tbody>
</table>
Congratulations, you have just purchased the RimFire 35mm power system components. All the components are designed so you can use how you to customize your power system to your airplane. The components needed to assemble your RimFire 35mm power systems are: RimFire 35mm motors, propeller, propeller adapters and brushless speed controls. This instructions 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 weight is not a concern, NiMH might be for you. LiPo batteries, but if weight is not a concern, LiPo batteries might be for you. Usually batteries are labeled as 8-cell NiMH or 3-cell LiPo. This means the cells are connected in series. Typically, NiMH batteries are heavier but much more affordable for the same capacity as LiPo batteries. If weight is not a concern, LiPo might be for you. Batteries are labeled as (P). Arranging the batteries in parallel can double the voltage and the constant addition of new sizes, visit our web sites at www.electricfly.com and www.groupprop.com for the most up-to-date listing of electric type props. Due to the constantly changing battery capacity of 2000 to 3600mAh with the higher capacity of 2000 to 3600mAh with the higher current draw. Always use a brushless motor and ESC for any RimFire motors with a brushed ESC. RimFire offers Brushless ESCs that will work with the RimFire 35mm motors.

BRUSHLESS MEDIUM MOTOR MOUNT

There is a wide selection of propellers available for electric use. The RimFire 35mm motors use high performance size fly electric props. The larger the propeller, the more current your motor will draw. The smaller the propeller, the less current the motor will draw. Shown are a few of the recommended electric props. Due to the large range of propellers and the constant addition of new sizes, visit our web sites at www.electricfly.com and www.groupprop.com for the most up-to-date listing of electric type props.

PROPELLERS

The RimFire 35mm motor comes with a prop adapter that mounts directly to the motor case. If the RimFire 35mm motor needs to be mounted so that the propeller is in front of the motor, the motor requires a 4mm prop adapter collet type (GPMQ4935), or an screw type (GPM04935).

PROPELLER ADAPTERS

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 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 use the Series V-Connector (GPMMP3143) 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 voltage (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 drain 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 amps (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 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. ElectriFly offers a full line of NiMH and LiPo batteries. Airplanes that use the RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity of 2000 to 3600mAh with the higher constant discharge rate. Silver Series 45 (GPMM1845) for 45A maximum constant current draw.

• Silver Series 45 (SS-45) ESC (GPMM1845) for 45A maximum constant current draw.
• Silver Series 60 (SS-60) ESC (GPMM1850) for 60A maximum constant current draw.
• Silver Series 80 (SS-80) ESC (GPMM1860) for 80A maximum constant current draw.

ElectriFly offers a full line of NiMH and LiPo batteries. Airplanes that use the RimFire 35mm motors will typically use batteries with a capacity of 2000 to 3600mAh with the higher capacity of 2000 to 3600mAh with the higher constant discharge rate. Silver Series 45 (GPMM1845) for 45A maximum constant current draw.

RIMFIRE 35mm POWER SYSTEM

The RimFire 35mm motors are labeled to provide the most information at a glance. For example: the 35-48-850 is 35mm in diameter, 48mm long and has a KV (rpm-per-volt) of 850 rpm.

The RimFire motors are labeled to provide the most information at a glance. For example: the 35-48-850 is 35mm in diameter, 48mm long and has a KV (rpm-per-volt) of 850 rpm.
4. Determine if you want to use LiPo or NiMH batteries

If you expect 3D or extreme performance multiply the number of cells based on the recommended voltage current draw of your system and your desired flight time. If you expect aerobatic or high speed-like performance then multiply the number of cells based on the recommended voltage current draw. Another possibility to fine tune the power system’s performance is to use another motor with higher kV to the screws will prevent the screws from coming loose.

PROCEDURE #2:

If you know the approximate weight of screws and eight #4 flat washers, spaced out as far as possible will give you a much lower rpm than its rated kV, causing it to draw a lot of current in the climb. It is recommended that a smaller propeller be used to keep the maximum rated current of the motor.

There are no brushes to wear out and replace. The RimFire brushless motors require virtually no maintenance. Never attempt to use a damaged motor (having mechanical or electrical defects).

Collet Type Prop Adapter Installation

On the workbench, make sure that the prop adapter is attached to the output shaft of the gear drive or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power. Because every motor has a maximum current it can take based on the manufacturer’s rating, the maximum current that the motor can take is determined. Too large a propeller with the motor setup is a much better bet than the rated kV, causing it to draw a lot of current in the climb. If a higher voltage battery is replaced with a one with a higher voltage, it is recommended that a smaller propeller be used to keep the maximum rated current of the motor.

Mount the aluminum prop adapter to the motor case using four 3x7mm screws. Use a drop of Threadlock to the threads of each bolt.

Adjust the backlash of the motor mount to the firewall using four 6-32 machine screws and four #6 washers. Notice the location of the motor mount on the firewall (front or back) by using four 3mm machine screws.

Install the prop or set screw prop adapter on the motor shaft using four 3x7mm #6 screws. Use a drop of Threadlock to the threads of each bolt. The prop adapter is attached to the output shaft of the gear drive or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power. It can be mounted directly to the firewall using the RimFire aluminum mounting plate (included with the motor). For a complete list of these products, check out our web site at: greatplanes.com or RimFire (out-runner style) brushless motors, Great Planes and ElectriFly products.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

When a propeller is attached to the motor, the motor will try to spin at a higher speed than its rated kV, causing it to draw a lot of current in the climb.

RimFire Motor Maintenance

There are no brushes to wear out and replace. The RimFire brushless motors require virtually no maintenance. Never attempt to use a damaged motor (having mechanical or electrical defects).

ElectriFly is complete line of Aero in问卷 style and feature the latest brushless motor technology.

Visit our monthly hobby shop that carries the full line of Great Planes and ElectriFly products.

ElectriFly is complete line of Aero in问卷 style and feature the latest brushless motor technology. Great Planes, motor cases, prop adapters and speed controllers, on a single multi-turn wire, check out our web site at: greatplanes.com or www.electrifly.com.

ASSOCIATE YOUR POWER SYSTEM

Once the required RimFire motor has been determined, it needs to be installed on the plane to determine the best mounting system, the distance from the firewall to the front of the prop adapter first needs to be determined.

******************************************************************************

Determine the battery capacity needed based on the current draw of your system and your desired flight time. Determine the ESC you need based on the system current draw.

INSTALL THE BRUSHLESS ESC

Set the check Box on the header card to locate the motor mount pattern. Using a #2 or #4 square, trace the outline of the motor mount pattern onto the firewall. Install the mounting system that it gets some cooling air flowing over it. When a propeller is attached to the motor, the motor will try to spin at a higher speed than its rated kV, causing it to draw a lot of current in the climb. It is recommended that a smaller propeller be used to keep the maximum rated current of the motor.

When determining what you need to build your power system

Note that you have a component for your power systems, there are several different steps to follow depending on what components of your power system it is. Experience will help you to determine what works best for you, but this easy way to determine what you need is most foolproof.

PROCEDURE #1:

If you determine the ESC you need is on the header card, skip to the next procedure. In order to have a complete ESC set on the system current draw.

In addition to the next procedure, you can visit the Great Planes ElectriFly web site for descriptions of the power systems recommended for use with electric and glow systems as well as more detailed explanation on the subject.

UNDERSTANDING MOTORS

kV is the number of rpm a motor will spin per volt. This means that basically a motor that has a kV of 1000 when connected to a 12V battery will try to spin at 12,000 rpm (12X1000) under load, whereas a 12000 rpm motor will try to spin at 48,000 rpm (48X1000) under load.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

INSTALL SET SCREW TYPE PROP ADAPTER INSTALLATION

If you are installing brushless motors, make sure to use our ESCs. (GPMQ4965 Collet Type or GPMQ4936 Set Screw Type) RimFire 35mm motors use the 4mm prop adapter shaft or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power.

Install the prop adapter over the shaft of the prop adapter. (GPMR6060)

Help is contained in the ESC’s user manual on each ESC.

ALUMINUM PROP ADAPTER INCLUDED WITH MOTOR

Mount the aluminum prop adapter to the motor case using four 3x7mm #6 screws. Use a drop of Threadlock to the threads of each bolt.

Collet Type Prop Adapter Installation

Adjust the backlash of the motor mount to the firewall using four 6-32 machine screws and four #6 washers.

Set the check Box on the header card to locate the motor mount pattern. Using a #2 or #4 square, trace the outline of the motor mount pattern onto the firewall. Install the mounting system that it gets some cooling air flowing over it. When a propeller is attached to the motor, the motor will try to spin at a higher speed than its rated kV, causing it to draw a lot of current in the climb. It is recommended that a smaller propeller be used to keep the maximum rated current of the motor.

RimFire Brushless Electric motor systems recommended for our line of electric and glow systems as well as more detailed explanation on the subject.

INSTALL THE BRUSHLESS ESC

Set the check Box on the header card to locate the motor mount pattern. Using a #2 or #4 square, trace the outline of the motor mount pattern onto the firewall. Install the mounting system that it gets some cooling air flowing over it. When a propeller is attached to the motor, the motor will try to spin at a higher speed than its rated kV, causing it to draw a lot of current in the climb. It is recommended that a smaller propeller be used to keep the maximum rated current of the motor.

UNDERSTANDING MOTORS

kV is the number of rpm a motor will spin per volt. This means that basically a motor that has a kV of 1000 when connected to a 12V battery will try to spin at 12,000 rpm (12X1000) under load, whereas a 12000 rpm motor will try to spin at 48,000 rpm (48X1000) under load.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

INSTALL SET SCREW TYPE PROP ADAPTER INSTALLATION

If you are installing brushless motors, make sure to use our ESCs. (GPMQ4965 Collet Type or GPMQ4936 Set Screw Type) RimFire 35mm motors use the 4mm prop adapter shaft or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power.

Install the prop adapter over the shaft of the prop adapter. (GPMR6060)

Help is contained in the ESC’s user manual on each ESC.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

INSTALL SET SCREW TYPE PROP ADAPTER INSTALLATION

If you are installing brushless motors, make sure to use our ESCs. (GPMQ4965 Collet Type or GPMQ4936 Set Screw Type) RimFire 35mm motors use the 4mm prop adapter shaft or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power.

Install the prop adapter over the shaft of the prop adapter. (GPMR6060)

Help is contained in the ESC’s user manual on each ESC.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

INSTALL SET SCREW TYPE PROP ADAPTER INSTALLATION

If you are installing brushless motors, make sure to use our ESCs. (GPMQ4965 Collet Type or GPMQ4936 Set Screw Type) RimFire 35mm motors use the 4mm prop adapter shaft or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power.

Install the prop adapter over the shaft of the prop adapter. (GPMR6060)

Help is contained in the ESC’s user manual on each ESC.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.

INSTALL SET SCREW TYPE PROP ADAPTER INSTALLATION

If you are installing brushless motors, make sure to use our ESCs. (GPMQ4965 Collet Type or GPMQ4936 Set Screw Type) RimFire 35mm motors use the 4mm prop adapter shaft or the aluminum prop adapter on the motor case. The prop adapter is attached to the motor shaft BEFORE applying power.

Install the prop adapter over the shaft of the prop adapter. (GPMR6060)

Help is contained in the ESC’s user manual on each ESC.

DO NOT apply currents to the motor that exceeds the maximum specifications of each motor.
**ASSEMBLE YOUR POWER SYSTEM**

Once the required Rimfire motor has been determined, it needs to be installed into the airplane to determine the best mounting system. The distance from the firewall to the front of the prop adapter for the motor mount needs to be determined. Once this distance is calculated, it can be used directly in the firewall using the Rimfire aluminum mounting plate included with the motor, or an Electric Flywheels Motor Mount (GPM0135). Both must be used to mount the Rimfire Motor to the mounting plate for the Great Planes, .40-.70 size engine installation.

**INSTALL THE BRUSHLESS ESC**

- Use this set-screw to secure the ESC to the motor. It should be as close to the motor as possible. A 4mm metric hex socket key is recommended for this. The ESC acts as a controller that manages current drawn from the battery to the motor. It is responsible for the speed and direction of the motor.

**RIMFIRE MOTOR MAINTENANCE**

- Allow the motor to cool after each flight. It is important to avoid overheating the motor, as it can cause permanent damage.
- Never attempt to use a damaged motor (having mechanical or electrical defects).
- Do not apply an input voltage that exceeds the maximum specifications of each component.
- Do not allow water or moisture to enter the motor, as it can cause short-circuiting or damage.
- Do not allow the input connectors to accidentally touch or come loose.

**INSTALLzimmer**

- Use the instructions included with the ESC to correctly install the ESC.

**COOL TYPE PROP ADAPTER INSTALLATION**

- Mount the aluminum prop adapter to the motor case using four 4-40x1/2" sheet metal screws. Loosely drive a Drop of Threadlocker on both screws before installation. The prop adapter is secured to the motor by tightening the screws down to the proper torque.

**IMPORTANT PRECAUTIONS**

- Be sure the battery is connected to the ESC, not close to the motor and prop.
- Do not cut the prop adapter, even if it is slightly damaged or broken.
- Do not disassemble the ESC without proper personal protective equipment.
- Do not touch anything to the ESC without first removing the battery.
- Be sure the ESC is properly secured to the motor and prop assembly using the correct set-screw or other method.

**SEL CT SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**SET SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**ADJUSTABLE MOTOR MOUNT INSTALLATION**

- This picture shows the distances from the firewall to the front of the prop adapter for the motor mount. It includes the Mounting plate, Motor adapter and Mounting screws.

**MOUNTING PLATE INSTALLATION**

- Attach the Rimfire aluminum mounting plate to the motor using the included screws. A 4mm metric hex socket key is recommended for this. The aluminum mounting plate is included with the motor. It can be mounted directly to the firewall using the Rimfire (out-runner style) brushless motors, or an Electric Flywheels Motor Mount (GPM0135). Both must be used to mount the Rimfire Motor to the mounting plate for the Great Planes, .40-.70 size engine installation.

**ADJUSTABLE MOUNTING PLATE**

- Attach the backplate of the motor mount to the firewall using four 4-40x1/2" sheet metal screws and four washers.

**INSTALL THE BRUSHLESS ESC**

- Install the prop and set screw prop adapter on the motor shaft, line up the prop adapter and motor mount. It is important to ensure that the prop adapter is securely attached to the output shaft of the gear drive.

**ALUMINUM PROP ADAPTER INCLUDED WITH MOTOR**

- This kit includes the necessary components for mounting the propeller, and includes the Prop Adapter, Prop Adapter Screws, and Drop of Great Planes Threadlocker.

**RIMFIRE MOTOR MAINTENANCE**

- Never attempt to use a damaged motor (having mechanical or electrical defects).
- Do not apply an input voltage that exceeds the maximum specifications of each component.
- Do not allow water or moisture to enter the motor, as it can cause short-circuiting or damage.
- Do not allow the input connectors to accidentally touch or come loose.

**SEL CT SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**SET SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**ADJUSTABLE MOTOR MOUNT INSTALLATION**

- This picture shows the distances from the firewall to the front of the prop adapter for the motor mount. It includes the Mounting plate, Motor adapter and Mounting screws.

**MOUNTING PLATE INSTALLATION**

- Attach the Rimfire aluminum mounting plate to the motor using the included screws. A 4mm metric hex socket key is recommended for this. The aluminum mounting plate is included with the motor. It can be mounted directly to the firewall using the Rimfire (out-runner style) brushless motors, or an Electric Flywheels Motor Mount (GPM0135). Both must be used to mount the Rimfire Motor to the mounting plate for the Great Planes, .40-.70 size engine installation.

**ADJUSTABLE MOUNTING PLATE**

- Attach the backplate of the motor mount to the firewall using four 4-40x1/2" sheet metal screws and four washers.

**INSTALL THE BRUSHLESS ESC**

- Install the prop and set screw prop adapter on the motor shaft, line up the prop adapter and motor mount. It is important to ensure that the prop adapter is securely attached to the output shaft of the gear drive.

**ALUMINUM PROP ADAPTER INCLUDED WITH MOTOR**

- This kit includes the necessary components for mounting the propeller, and includes the Prop Adapter, Prop Adapter Screws, and Drop of Great Planes Threadlocker.

**RIMFIRE MOTOR MAINTENANCE**

- Never attempt to use a damaged motor (having mechanical or electrical defects).
- Do not apply an input voltage that exceeds the maximum specifications of each component.
- Do not allow water or moisture to enter the motor, as it can cause short-circuiting or damage.
- Do not allow the input connectors to accidentally touch or come loose.

**SEL CT SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**SET SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**ADJUSTABLE MOTOR MOUNT INSTALLATION**

- This picture shows the distances from the firewall to the front of the prop adapter for the motor mount. It includes the Mounting plate, Motor adapter and Mounting screws.

**MOUNTING PLATE INSTALLATION**

- Attach the Rimfire aluminum mounting plate to the motor using the included screws. A 4mm metric hex socket key is recommended for this. The aluminum mounting plate is included with the motor. It can be mounted directly to the firewall using the Rimfire (out-runner style) brushless motors, or an Electric Flywheels Motor Mount (GPM0135). Both must be used to mount the Rimfire Motor to the mounting plate for the Great Planes, .40-.70 size engine installation.

**ADJUSTABLE MOUNTING PLATE**

- Attach the backplate of the motor mount to the firewall using four 4-40x1/2" sheet metal screws and four washers.

**INSTALL THE BRUSHLESS ESC**

- Install the prop and set screw prop adapter on the motor shaft, line up the prop adapter and motor mount. It is important to ensure that the prop adapter is securely attached to the output shaft of the gear drive.

**ALUMINUM PROP ADAPTER INCLUDED WITH MOTOR**

- This kit includes the necessary components for mounting the propeller, and includes the Prop Adapter, Prop Adapter Screws, and Drop of Great Planes Threadlocker.

**RIMFIRE MOTOR MAINTENANCE**

- Never attempt to use a damaged motor (having mechanical or electrical defects).
- Do not apply an input voltage that exceeds the maximum specifications of each component.
- Do not allow water or moisture to enter the motor, as it can cause short-circuiting or damage.
- Do not allow the input connectors to accidentally touch or come loose.

**SEL CT SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**SET SCREW TYPE PROP ADAPTER INSTALLATION**

- Use the instructions included with the prop adapter to correctly install it.

**ADJUSTABLE MOTOR MOUNT INSTALLATION**

- This picture shows the distances from the firewall to the front of the prop adapter for the motor mount. It includes the Mounting plate, Motor adapter and Mounting screws.

**MOUNTING PLATE INSTALLATION**

- Attach the Rimfire aluminum mounting plate to the motor using the included screws. A 4mm metric hex socket key is recommended for this. The aluminum mounting plate is included with the motor. It can be mounted directly to the firewall using the Rimfire (out-runner style) brushless motors, or an Electric Flywheels Motor Mount (GPM0135). Both must be used to mount the Rimfire Motor to the mounting plate for the Great Planes, .40-.70 size engine installation.

**ADJUSTABLE MOUNTING PLATE**

- Attach the backplate of the motor mount to the firewall using four 4-40x1/2" sheet metal screws and four washers.
PROCEDURE #1 will help you to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time. 

4. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time. 

Under normal use, the procedure described above can be used to determine the battery capacity needed for your system.

Under normal use, the procedure described above can be used to determine the battery capacity needed for your system.

PROCEDURE #2 will help you to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.

5. Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

Determine the battery capacity needed based on the current draw of your system and the desired flight time.

UNDERSTANDING MOTORS

In this section, you will find the information you need to determine what works best for you, but an easy way to determine the battery capacity needed based on the current draw of your system and the desired flight time.