Variable Pitch Prop Specifications:

Mechanical Design: Push-Pull System

Blades (2): Symmetrical Design, Fiber-Reinforced Nylon

Rotor Materials: ABS Plastic and Aluminum

Control Rod Material: Steel

Control Rod Dimensions: 0.04 x 6.02 in. (1 x 153mm)

Ball Bearings (5): Shielded

Motor Specifications:

Input Voltage: 7.2 – 12V

kV Rating: 1000 rpm/volt

Max. Constant Current: 11A

Max. Surge Current: 15A

No Load Current: 0.65A

Internal Resistance: 235 milli-ohms

Ball Bearings (2): Shielded

Motor Diameter/Length: 1.10 x 1.14 in. (28 x 29mm)

Shaft Diameter/Length: 0.16 x 1.73 in. (4 x 44mm)

Total Weight (VPP and Motor): 2.1 oz. (59.5 g)

The following hardware is included in the V-Pitch System:

- M3 x 16 bolts, hex (2, factory installed)
- M3 nuts (2, factory installed)
- M3 x 8 bolts, hex (2, factory installed)
- M3 set screws (5, factory installed)
- M3 x 5 round head bolts (3)

1. Locate the template for marking the servo location and the exit slot for the V-Pitch actuating shaft.

2. Place the template directly over the bottom fuselage doubler that is required for the Firewall-Mounted installation. Trace the template with a fine marker or pen accordingly. Only trace the template on one side of the plane.

3. With a sharp hobby knife, cut the servo slot completely through both sides of the fuselage as shown. Cut the slot for the servo actuating shaft only on the side you traced as shown.

These installation instructions for the V-Pitch Variable Pitch Prop System are designed specifically for use with all Great Planes FlatOut™ models. Please follow the Firewall-Mounted Motor System instructions in your FlatOut manual before proceeding any further.

Additional items you will need to complete your installation:

- One 17 oz/in micro servo
- A brushless ESC with governor (ElectriFly's BL-12, GPMM2075)
- A 5-channel micro receiver

For replacement items or support on this or any other ElectriFly item, please contact:

productsupport@greatplanes.com

www.hobbyservices.com

217-398-8970
4. Cut the shaft to length as shown above, but be sure that the blade holders are completely neutral (not pitching forward or backward) when doing this step. Also, bend a slight curve in the shaft as shown. Next, take a sanding bar or a piece of sandpaper and sharpen the end of the shaft before you install the motor.

5. Install the V-Pitch and Rimfire motor onto the plywood firewall using (3) #4 x 3/8" wood screws (not included). Make sure the wire exits the slot correctly before tightening the screws. Apply a drop of foam safe CA to the screws to ensure they will not back out.

6. Locate one servo arm and a z-bend from your FlatOut parts tree. Clip the z-bend through the servo arm. Next, press the shaft into the z-bend as shown. After you have firmly pressed the shaft into the z-bend, apply a drop of foam safe CA to keep the shaft from slipping out.

7. Install your servo into the slot as shown with a few drops of foam safe CA. The installation is now complete. Please proceed with the radio set-up instructions on the next page before you attempt to fly your model. Great Planes FlatOuts, similar mounting methods might apply to your model. Refer to your model manufacturer for details.

V-PITCH REPLACEMENT PARTS:

- GPMG4490 ......Replacement Blades (2)
- GPMG4491 ......Optional Carbon Fiber Blades (2)
- GPMG4492 ......Replacement Shaft w/2 Ball Bearings
- GPMG4493 ......Spinner/Collar
- GPMG4494 ......Screw and Nut Set
- GPMG4495 ......Blade Holder w/Ball Bearings
- GPMG4496 ......Blade Holder Hub

Radio Set-Up for V-Pitch

1. When setting up your V-Pitch unit in your radio, be sure to select the radio’s helicopter program. This will allow you to use pitch and throttle curves.

2. All of your channels will be as follows when using a Futaba radio:

- Channel 1: Aileron
- Channel 2: Elevator
- Channel 3: ESC/Throttle
- Channel 4: Rudder
- Channel 5: Pitch

3. Be sure to set an “idle-up” and a “normal” flight mode in the radio that can be changed with a switch that you prefer. This will allow you to disable the V-Pitch with a switch.

   "Normal" Mode:
   Acts just like any other conventional fixed pitch aircraft.

   "Idle-Up" Mode:
   Allows you to reverse the thrust of the propeller. When you have your throttle stick in the center position (0% throttle) you will not have any pitch. As you push your throttle stick back (–100% throttle) it applies negative pitch to the blades and allows the plane to go in reverse.

4. Before you go any further, unplug all 3 motor wires from the ESC so you can adjust the ATV (end point) on the pitch channel in the radio. Set the pitch ATV to maximum travel for positive and negative pitch.

5. Please see the illustrations for setting up your radio’s pitch and throttle curves when using your V-Pitch with and without governor mode. Keep in mind that these are just starting points. You will need to fine tune each point per your airplane and flying preferences.
4. Cut the shaft to length as shown above, but be sure that the blade holders are completely neutral (not pitching forward or backward) when doing this step. Also, bend a slight curve into the shaft as shown. Next, take a sanding bar or a piece of sandpaper and sharpen the end of the shaft before you install the motor.

5. Install the V-Pitch and Rimfire motor onto the plywood firewall using (3) #4 x 3/8" wood screws (not included). Make sure the wire exits the slot correctly before tightening the screws. Apply a drop of foam safe CA to the screws to ensure they will not back out.

6. Locate one servo arm and a z-bend from your FlatOut parts tree. Clip the z-bend through the servo arm. Next, press the shaft into the z-bend as shown. After you have firmly pressed the shaft into the z-bend, apply a drop of foam safe CA to keep the shaft from slipping out.

7. Install your servo into the slot as shown with a few drops of foam safe CA. The installation is now complete. Please proceed with the radio set-up instructions on the next page before you attempt to fly the aircraft. For mods other than the Great Planes Rimfire, similar mounting methods might apply to your model. Refer to your model manufacturer for details.

**V-Pitch Replacement Parts:**
- GPMG4490 ......Replacement Blades (2)
- GPMG4491 ......Optional Carbon Fiber Blades (2)
- GPMG4492 ......Replacement Shaft w/2 Ball Bearings
- GPMG4493 ......Spinner/Collar
- GPMG4494 ......Screw and Nut Set
- GPMG4495 ......Blade Holder w/Ball Bearings
- GPMG4496 ......Blade Holder Hub

**Radio Set-Up for V-Pitch**

1. When setting up your V-Pitch unit in your radio, be sure to select the radio’s helicopter program. This will allow you to use pitch and throttle curves.

2. All of your channels will be as follows when using a Futaba radio:
   - Channel 1: Aileron
   - Channel 2: Elevator
   - Channel 3: ESC/Throttle
   - Channel 4: Rudder
   - Channel 5: Pitch

With Governor Mode Set in the ESC:

- Throttle (Normal) Pitch (Normal)
- Throttle (Idle Up) Pitch (Idle Up)
- Positive Pitch
- Negative Pitch
- Zero Pitch

<table>
<thead>
<tr>
<th>Positive Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zero Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%</td>
</tr>
</tbody>
</table>
Variable Pitch Prop Specifications:

Mechanical Design: Push-Pull System

Blades (2): Symmetrical Design, Fiber-Reinforced Nylon

Rotor Materials: ABS Plastic and Aluminum

Control Rod Material: Steel

Control Rod Dimensions: 0.04 x 6.02 in. (1 x 153mm)

Ball Bearings (5): Shielded

Motor Specifications:

Input Voltage: 7.2 – 12V

kV Rating: 1000 rpm/volt

Max. Constant Current: 11A

Max. Surge Current: 15A

No Load Current: 0.65A

Internal Resistance: 235 milli-ohms

Ball Bearings (2): Shielded

Motor Diameter/Length: 1.10 x 1.14 in. (28 x 29mm)

Shaft Diameter/Length: 0.16 x 1.73 in. (4 x 44mm)

Total Weight (VPP and Motor): 2.1 oz. (59.5 g)

The following hardware is included in the V-Pitch System:

- M3 x 16 bolts, hex (2, factory installed)
- M3 nuts (2, factory installed)
- M3 x 8 bolts, hex (2, factory installed)
- M3 set screws (5, factory installed)
- M3 x 5 round head bolts (3)

1. Locate the template for marking the servo location and the exit slot for the V-Pitch actuating shaft.
2. Place the template directly over the bottom fuselage doubler that is required for the Firewall-Mounted installation. Trace the template with a fine marker or pen accordingly. Only trace the template on one side of the plane.
3. With a sharp hobby knife, cut the servo slot completely through both sides of the fuselage as shown. Cut the slot for the servo actuating shaft only on the side you traced as shown.

These installation instructions for the V-Pitch Variable Pitch Prop System are designed specifically for use with all Great Planes FlatOut™ models. Please follow the “Firewall-Mounted Motor System” instructions in your FlatOut manual before proceeding any further. Additional items you will need to upgrade your model include:
- One 17 oz/in micro servo
- A brushless ESC with governor (ElectriFly’s BL-12, GPMM2075) and a 5-channel micro receiver.

Without Governor Mode Set in the ESC:

- Throttle (Normal) Pitch (Normal)
- Throttle (Idle Up) Pitch (Idle Up)

For replacement items or support on any other ElectriFly item, please contact:

productsupport@greatplanes.com

217-398-8970

www.hobbyservices.com

217-398-0007