

## Choices Worksheet:

### Sources:

allerc.com – Hyperion brand products: Use search term: Hyperion Z for motors & Hyperion LVX for Li-Po's  
 hobby-lobby.com - AXI motors, Jeti Advance Plus Controllers, Poly-Quest "Twenty" Li-Po's, Kool Flight Systems UBEC  
 nesail.com - Hacker A20 & A30 motors  
 maxxprod.com/ - HiMax Outrunners  
 modelmotors.cz - AXI manufacturer site  
 castlecreations.com - Castle Creations ESC's & Berg Receivers  
 fmadirect.com - FMA receivers, Kokam Li-Po's  
 towerhobbies.com - Hitec servos, APC props  
 maxamps.com - MaxAmps Li-Po's  
 duralitebatteries.com - "Evo" Li-Po's  
 thunderpower-batteries.com - Thunder Power Li-Po batteries  
 horizonhobby.com - E-Flite Power 46 & 60 motors

**Warning!:** Do NOT attempt to run your motor without some type of meter to measure the amp draw and volts! Initial prop suggestions are "best guess" based on manufacturer/supplier data and the Drive Calc spreadsheet. They have not been verified in any way!

Work through these examples to help in understanding how to use the spreadsheet:

### 1. Motor for the Herr Pitts Special for good performance

With a 2-cell Li-Po pack the following is shown on the spreadsheet:

Estimated Brushless Motor Weight: <b>1.04 oz.</b> Recommended Mfg. Burst amps draw about: <b>12 amps</b> <b>Enter number of Li-Po cells in series in pack</b> - Start with 2, check amp draw in cell B25, For sport/sport scale don't exceed 45 amps <div style="background-color: green; color: white; text-align: center; width: 40px; height: 20px; margin: 5px auto;">2</div> Estimated Amps: 9.6 amps	Range: 0.93 1.25 Check data sheet for motor, cells may need adjusting More cells-more efficient - fewer cells-cheaper. For sport/sport scale planes, 35 amps or less results in longer flights. 10S is practical max.
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The Data sheet shows the following:

	Price	Weight (oz.)	Cell Count	Max Amps	Prop Dia. Range 2-cell	Initial 2-cell Prop	Prop Dia. Range 3-cell	Initial 3-cell Prop
<b>Hacker A20-34S</b>	\$59.99	1.02	2-3	8	6"-7"	6X4E	4"-5"	4.6X3 1/2A
<b>Hacker A20-50S</b>	\$59.99	1.02	2-3	8	9"-10"	9X6E	7"-8"	7X6E
<b>Hyperion Z2205-34 + \$3.25 MT &amp; Adpt.</b>	\$54.95	1.04	2-3	9	5"-8"	7x5E	5"-6"	5.5x4.5E
<b>Hyperion Z2205-38 + \$3.25 MT &amp; Adpt.</b>	\$54.95	1.04	2-3	8	7"-8"	8x6E	5"-6"	6x4E
<b>Hyperion Z2205-46 + \$3.25 MT &amp; Adpt.</b>	\$54.95	1.04	2-3	6	7"-9"	8x6E	6"-7"	6x4E
<b>Himax 2212-0840</b>	\$53.95	1.06	2-3	4.5	9"-10"	9X6E	7"-8"	8x6E
<b>Himax 2212-1180</b>	\$53.95	1.06	2-3	4.5	6"-8"	7x5E	5"-6"	6x4E

What motor(s) would be a good choice? Why? (Max amps & Burst amps are the same thing)

When the cell count is changed to 3, the spreadsheet shows the following:

Estimated Brushless Motor Weight: <b>1.04 oz.</b> Recommended Mfg. Burst amps draw about: <b>8 amps</b> <b>Enter number of Li-Po cells in series in pack</b> - Start with 2, check amp draw in cell B25, For sport/sport scale don't exceed 45 amps <div style="background-color: green; color: white; text-align: center; width: 40px; height: 20px; margin: 5px auto;">3</div> Estimated Amps: 6.4 amps	Range: 0.93 1.25 Check data sheet for motor, cells may need adjusting More cells-more efficient - fewer cells-cheaper. For sport/sport scale planes, 35 amps or less results in longer flights. 10S is practical max.
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Using the Data sheet information (on the front of this sheet), which motors would NOT be appropriate for

this project? \_\_\_\_\_

What motor would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the motor? \_\_\_\_\_

**2. Motor for the Herr Pitts Special for equivalent performance**

With a 3-cell Li-Po pack the following is shown on the spreadsheet:

Estimated Brushless Motor Weight:	2.08 oz.	Range:	1.87	2.49
Recommended Mfg. Burst amps draw about:	<b>16</b> amps			
<b>Enter number of Li-Po cells in series in pack</b> - Start with 2, check amp draw in cell B25, For sport/sport scale don't exceed 45 amps	<b>3</b>			
Estimated Amps:	12.9 amps			

More cells-more efficient - fewer cells-cheaper. For sport/sport scale planes, 35 amps or less results in longer flights. 10S is practical max.

The Data sheet shows the following:

	Price	Weight (oz.)	Cell Count	Max Amps	Prop Dia. Range 2-cell	Initial 2-cell Prop	Prop Dia. Range 3-cell	Initial 3-cell Prop
<b>Hacker A20-22L</b>	\$69.95	2.01	2-3	17	10"-12"	11x8E	9"-10"	9X6E
<b>Hacker A20-20L</b>	\$69.95	2.01	2-3	19	10"-11"	11x8E	9"-10"	9X6E
<b>AXI 2212/12 + \$12.90 MT &amp; Adpt.</b>	\$69.90	2.01	2-3	28	6"-7"	7x5E	5"-6"	6x4E
<b>AXI 2212/20 + \$12.90 MT &amp; Adpt.</b>	\$69.90	2.01	2-3	16	9"-10"	10x6 sport	7"-8"	7X5E
<b>AXI 2212/26 + \$12.90 MT &amp; Adpt.</b>	\$69.90	2.01	2-3	12	10"-11"	11x7E	8"-9"	8X6E
<b>AXI 2212/34 + \$12.90 MT &amp; Adpt.</b>	\$69.90	2.01	2-3	10	13"-14"	13X8E	10"-12"	11X7E
<b>Himax 2812-0650</b>	\$63.95	2.26	2-3	10	13"-14"	11X10E	11"-12"	11x8E
<b>Himax 2812-0850</b>	\$63.95	2.26	2-3	15	11"-12"	11X7E	9"-10"	9X6E
<b>Himax 2812-1080</b>	\$63.95	2.26	2-3	15	9"-10"	9X6E	7"-8"	7X5E
<b>Hacker A30-28S</b>	\$74.99	2.50	2-3	25	10"-11"	10X7E	8"-9"	8X6E
<b>Hacker A30-22S</b>	\$74.99	2.50	2-3	32	9"-10"	9X6E	7"-8"	7X5E

What motor would you choose? Why? \_\_\_\_\_

With a 3S pack, what would be the Initial prop for your motor choice? \_\_\_\_\_

Underline the props in the following list from the data table that it would be wise to have on hand when setting up this power system so that the amp draw would be the desired 12.9 amps.

- 6X4 Sport (Gas)      6x4E Speed 400 Electric      6.3x4 15 COMBAT      6.5x5.0 10-15 PYLON
- 7X4 15 FREE FLIGHT      7X5 Sport-Prop      7X5E Thin-Electric
- 8X5 Sport-Props      8X6E Thin-Electric
- 8.5X5.0 25 PYLON      8.5X5.5 25 PYLON      8.5X6.5 40 PYLON      8.5X7.0 40 PYLON
- 8.75X5 36 FAST COMBAT      8.75X7 40 PYLON
- 9X5 29 FREE FLIGHT      9X6 Sport-Props      9X6E Thin-Electric Props      9X6.5 40 PYLON
- 9X7 Sport-Props      9X7.5E Thin-Electric Props      9.25X6.0 25 PYLON      9.5X6 Sport-Props
- 10X6 Sport-Props      10X7 Sport-Props      10X7E Thin-Electric Props      10X8 Sport-Props

According to the sources on the front page, who supplies the motor? \_\_\_\_\_

3. Battery for the Herr Pitts Special for equivalent performance

The spreadsheet shows the following for a 3S pack:

Estimated 20C cell mAh: 1300 mAh If mAh does not exist, round up in mAh

Estimated Battery Weight: 3.64 oz.

The Data sheet shows:

Hyperion VX1200-3S 1200mAh \$42.95, 3.49 oz.

Kokam 3S 1250mAh \$55.50, 4.13 oz.

Thunder Power TP1320-3S 1320mAh \$54.95, 3.00 oz.

Hyperion VX1500-3S 1500mAh \$52.95, 4.16 oz.

MaxAmps 1500mah 3S \$45.99, 4.59 oz.

What battery pack would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the battery? \_\_\_\_\_

4. Electronic Speed Control for the Herr Pitts Special for equivalent performance (pack is a 3S)

The spreadsheet shows the following about the ESC:

Minimum Burst (short term) amps for ESC & Motor: 16

ESC weight: 0.6 oz.

Castle Creations Name: Phoenix 25 Standard version Okay

The Data sheet shows:

Phoenix 10 \$59.95, 0.21 oz./6g 2-4 Li-Po

Phoenix 25 \$79.95, 0.6 oz./17g 2-4 Li-Po

Phoenix 35 \$99.95, 0.9 oz./24.5g 2-4 Li-Po

Jeti Advance Plus 12 Amp \$62.90, 0.35 oz./10g, 2-3 Li-Po

Jeti Advance Plus 18 Amp \$66.90, 0.74 oz./21g, 2-3 Li-Po

Jeti Advance Plus 28g, 2-3 Li-Po

Hyperion Titan 10A 47.95, 0.46 oz./13g, 2-3 Li-Po

Hyperion Titan 20A \$56.95, 0.74 oz./21g, 2-3 Li-Po

Hyperion Titan 30A \$67.95, 1.06 oz./30g, 2-3 Li-Po

What ESC would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the ESC? \_\_\_\_\_

5. Motor for the Great Planes Venus 40 Sport Aerobatic ARF .40-.51 for equivalent performance

With a 8-cell Li-Po pack the following is shown on the spreadsheet:

Estimated Brushless Motor Weight:	14.00 oz.	Range:	12.60	16.80
Recommended Mfg. Burst amps draw about:	41 amps			
<b>Enter number of Li-Po cells in series in pack</b> - Start with 2, check amp draw in cell B25, For sport/sport scale don't exceed 45 amps	<b>8</b>			
Estimated Amps:	32.5 amps			

More cells-more efficient - fewer cells-cheaper. For sport/sport scale planes, 35 amps or less results in longer flights. 10S is practical max.

The Data sheet shows the following:

	Price	Weight (oz.)	Cell Count	Max Amps	Prop Dia. Range 5-cell	Initial 5-cell Prop	Prop Dia. Range 6-cell	Initial 6-cell Prop	Prop Dia. Range 7-cell	Initial 7-cell Prop	Prop Dia. Range 8-cell	Initial 8-cell Prop
<b>Hyperion Z4025-10 + \$18.95 MT &amp; Adpt.</b>	\$119.95	12.56	4-6	80	12"-13"	12x10E	11"-12"	11x8.5E	10"-11"	10x7E		
<b>Hyperion Z4025-12 + \$18.95 MT &amp; Adpt.</b>	\$119.95	12.56	4-6	65	14"-15"	14x8E	12"-13"	12x8E	11"-12"	11x7E	10"-11"	10x7E
<b>Hyperion Z4025-16 + \$18.95 MT &amp; Adpt.</b>	\$119.95	12.56	4-7	50	16"-17"	16x10 Sport	15"-16"	15x10 Sport	13"-14"	13x10 Sport	12"-13"	12x8E
<b>E-Flite Power 60 AXI 4130/16 + \$18.50 MT &amp; Adpt.</b>	\$129.99	13.40	5-7	60	14"-15"	14x10E	13"-14"	13x8E	11"-12"	11x8.5E		
<b>AXI 4130/20 + \$18.50 MT &amp; Adpt.</b>	\$149.00	14.43	5-8	60	16"-17"	16x10 Sport	14"-15"	14x10E	13"-14"	13x10E	12"-13"	12x8E
<b>AXI 4130/20 + \$18.50 MT &amp; Adpt.</b>	\$149.00	14.43	6-8	55			17"-18.5"	17x10E	16"-17"	16x10 Sport	14"-15"	14x10E
<b>Hyperion Z4035-10 + \$18.95 MT &amp; Adpt.</b>	\$129.95	15.73	5-7	78	14"-15"	14x10E	12"-13"	12x10E	11"-12"	12x10E		
<b>Hyperion Z4035-12 + \$18.95 MT &amp; Adpt.</b>	\$129.95	15.73	5-7	65	16"-17"	16x10 Sport	14"-15"	14x10E	13"-14"	13x10E		
<b>Hyperion Z4035-14 + \$18.95 MT &amp; Adpt.</b>	\$129.95	15.73	5-8	57	18"-19"	18x12E	16"-17"	16x10E	15"-16"	15x10 Sport	14"-15"	14x10E

What motor would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the motor? \_\_\_\_\_

6. Battery for the Venus 40 Sport for equivalent performance

The spreadsheet shows the following for a 8S pack:

Estimated 20C cell mAh: 3300 mAh If mAh does not exist, round up in mAh

Estimated Battery Weight: 24.62 oz.

The Data sheet shows:

Hyperion VX3300-4S 3300mAh \$158.95, 11.82 oz.

Poly-Quest PQ33004 4S 3300 mAh \$166.00, 12 oz.

Kokam 4S 3200mAh \$210.95, 14.46 oz./410g

What battery pack(s) would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the battery? \_\_\_\_\_

3. Electronic Speed Control for the Venus 40 Sport for equivalent performance

The spreadsheet shows the following about the ESC:

Minimum Burst (short term) amps for ESC & Motor: 41

ESC weight: 1 oz.

Castle Creations Name: Phoenix 45 WARNING: High voltage version required (Remember it is an 8S pack)

The Data sheet shows:

Phoenix 45 \$119.95, 1 oz./29g 2-4 Li-Po

Phoenix HV-45 \$159.95 1.9 oz./59g 4-12 Li-Po

Jeti Advance Plus 45 Amp Opto \$132.90, 1.34 oz./38g, 3-8 Li-Po

Hyperion Titan 50A Opto \$84.95, 1.34 oz./38g, 2-5 Li-Po

Jeti Advance Plus 70 Amp Opto \$129.90, 1.34 oz./38g, 2-6 Li-Po

What ESC would you choose? Why? \_\_\_\_\_

According to the sources on the front page, who supplies the ESC? \_\_\_\_\_