

L.A.D.M.A.C. *FLYER* INFORMATION SHEETS

No.5 Propeller SELECTION guide

Here is a useful propeller selection guide by **Chris Hinds** that I found on the internet recently that might help some of our members - **B.F.**

While all engines produce power the Propeller is essential to transmit this power. A more efficient propeller will transmit more power to the air. In the UK the most commonly available propellers for I/C engines are:-

Master Airscrew, Bolly, Kyosho, Graupner, APC, Precedent (Smart & Airflow), Menz 'S' and 'Ultra', Mjenlik

Engine Size	Idea Prop Size	Prop Size Range	Engine Type	Idea RPM Range
0.10	7x4	7x4-6, 8x4	2-Stroke Glow	14000 - 16000 RPM
0.15	8x4	7x5-6, 8x4-6	2-Stroke Glow	14000 - 16000 RPM
0.25	9x5	9x4-6, 10x4-5	2-Stroke Glow	12000 - 15000 RPM
0.32 - 0.36	10x5	9x6-8, 10x5-6 11x4-5	2-Stroke Glow	12000 - 15000 RPM
0.40	11x5	10x6-8, 11x5-7 12x5-6	2-Stroke Glow	11000 - 12000 RPM
0.46	11x6	10x7-9, 11x6-8 12x5-7	2-Stroke Glow	10000 - 12000 RPM
0.53	11x7	10x8-10, 11x7-9 12x6-8	2-Stroke Glow	10000 - 11000 RPM
0.61	13x6	12x8-10, 13x6-7 14x5-6	2-Stroke Glow	9500 - 11000 RPM
0.75	13x7	12x9-11, 13x7-8 14x6-7	2-Stroke Glow	9500 - 10500 RPM
0.91 - 1.08	14x6	13x10-11, 14x6-8 15x6-8	2-Stroke Glow	9000 - 10000 RPM
1.20 - 1.35	16x6	15x8-10, 16x8-10 17x8	2-Stroke Glow	8500 - 9500 RPM
1.40 - 1.80	18x8	17x8-10, 18x8-10 20x6-8	2-Stroke Glow	8000 - 9000 RPM
2.10	20x10	20x10, 22x8	2-Stroke Glow	8000 - 8500 RPM

Of these propellers Menz 'S' and Precedent's 'Smart' range are suitable for large engines, these are wooden propellers so tend to break more easily than composite propellers, Mjenlik propellers are also suited to large models and are Carbon Fiber propellers. APC propellers are composite propellers and are excellent for most uses. they are not robust enough for beginners however. Graupner and Kyosho propellers are also composite propellers and are well suited to beginners, as a matter of preference I prefer a Graupner propeller. Kyosho props are a mildly quieter design than Graupner however. Master Airscrew props are noisy, inefficient propellers and their only redeeming feature is their strength against ground impacts - only buy if there is nothing else. A table of my suggested propeller sizes follows. It would be fair to say that my recommended props are often much larger than those typically used in the USA but this helps significantly with noise reduction and therefore I will go with a larger prop. The engines will not bog down with these props, they just won't quite develop all the power they could. Though to be fair we do overpower any way. Prop sizes are only slightly above US recommendations. If your field is noise sensitive (as many are) then head for one of the large sizes.

*The Yamada FZ120 is very powerful so a 16x8 is advised as a minimum, 15x10 being an alternative.

**The Yamada FZ140 Limited is more powerful than a Saito 180 so use the 1 80 - 2.00 prop sizes as a guide.

The figures are merely estimates - do not take them as gospel they are merely a rough guide. notes:-

1. The 3W and Desert Aircraft petrol engines are very powerful for their size and larger props should be used such as a 28x10 on a 100cc Twin from these manufacturers.

2. I generally like to prop the engine in the RPM ranges shown to develop power without excessive noise levels. In order to meet the UK limits a sensible mounting system (I like the Dubro Mounts) and an APC or similar propeller should be used, provided the manufacturer's silencer is adequate. Of the engines I have come across, O.S Irvine and MDS Silencers are adequate without extra silencing fitted. The OS silencers are the best of the standard silencers though.

The table for petrol engines is over leaf.

Engine Size	Idea Prop Size	Prop Size Range	Engine Type	Idea RPM Range
0.26-0.30	10x6	10x5-7, 11x4-5	4-Stroke Glow	10000 - 11000 RPM
0.40 - 0.45	11x6	11x6-7, 12x5-6	4-Stroke Glow	10000 - 11000 RPM
0.48 - 0.56	11x7	11x7-8, 12x6-7 13x5-6	4-Stroke Glow	10000 - 11000 RPM
0.63 - 0.72	12x7	12x7-9, 13x6-7	4-Stroke Glow	10000 - 11000 RPM
0.80 - 0.91	14x7	13x8-11, 14x7-9 15x5-7	4-Stroke Glow	10000 - 11000 RPM
1.00 - 1.20 *	14x8	14x7-8, 15x6-10 16x6-8	4-Stroke Glow	9000 - 10000 RPM
1.40 - 1.50 **	16x8	16x8-12, 17x8-10 18x6	4-Stroke Glow	8500 - 9500 RPM
1.80 - 2.00	17x8	16x10-12 17x8-10, 18x8	4-Stroke Glow	8000 - 9500 RPM
2.40	20x8	18x10-12, 20x6-8	4-Stroke Glow	7500 - 8500 RPM
2.70	20x10	20x8-12, 21x8-10	4-Stroke Glow	7500 - 8500 RPM
3.00 - 3.20	21x10	20x10-12 21x8-10, 22x8	4-Stroke Glow	7500 - 8500 RPM

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Engine Size	Idea Prop Size	Prop Size Range	Engine Type	Idea RPM Range
1.40 - 1.80	16 x 8	16x8 -10, 17x8 -10 18x8	Petrol	8500 - 9500 RPM
40 cc	20 x 8	18x10 -12, 19x10 20x8 -10	Petrol	6500 - 7800 RPM
45 cc	20 x 10	20x10 -12 21x8 -10, 22x8	Petrol	6000 - 7500 RPM
50 cc	21 x 10	20x12, 21x10 -12 22x8 -10	Petrol	6000 - 7200 RPM
60 cc	22 x 10	22x10 -12 24x8 -10, 26x8	Petrol	6000 - 7200 RPM
75 cc	24 x 10	24x12, 26x10 -12	Petrol	6000 - 6800 RPM
100 cc	26 x 10	26x10 -12, 28x10	Petrol	6000 - 6500 RPM
150 cc	32 x 12	30x10 -12 32x10 -12	Petrol	5500 - 6000 RPM
200 cc	34 x 11	32x12 -14 34x10 -12, 36x10	Petrol	5000 - 6000 RPM