
Subject: FW: Karting Focus - The total cost of ownership Part 1 (Read Part 2 in the May Issue of Kart Magazine on sale May 1st)



KARTING FOCUS

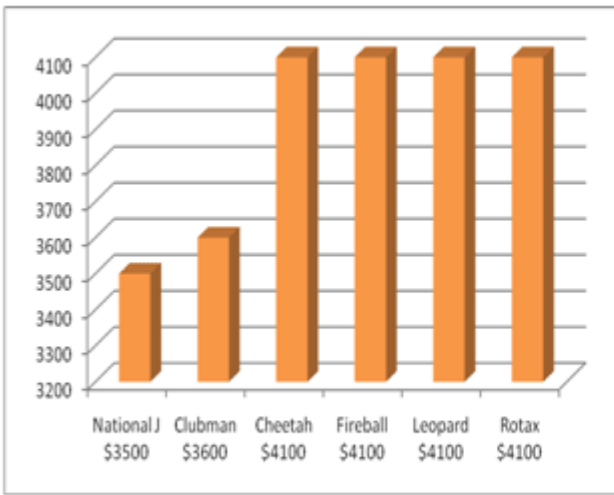
THE TOTAL COST OF OWNERSHIP PT 1 **What does it really cost you to race for a year?**

When most karters, new or existing, consider a new class they will look first at the initial costs; Cost of the engine with some blueprinting, cost of the chassis to suit the engine etc. However, this is not the best measure of the cost of your racing.

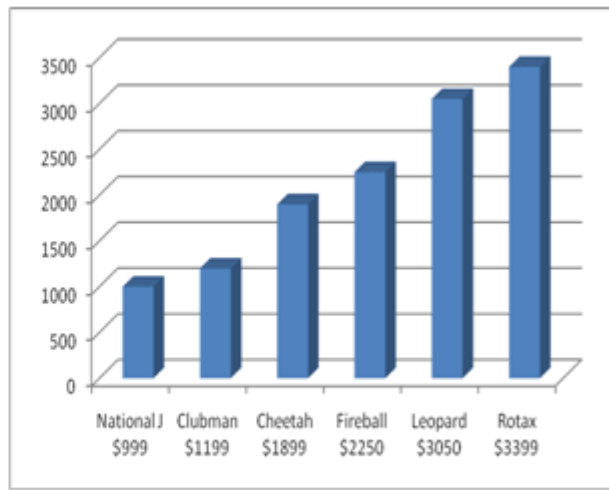
The following report is a breakdown cost of your initial purchase and then the actual cost yearly running expenses for the class you have decided to compete in.

What really needs to be considered is: Once you have bought the kart and engine can you afford to race!

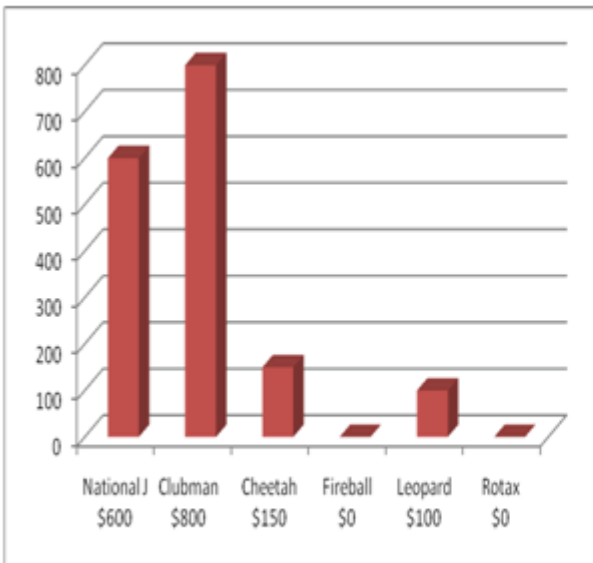
For this report the Kart Chassis/Engine packages are based on approx ex factory retail prices, these prices do not include extra freight charges which vary depending on your location. For the purpose of this exercise the chassis type and cost is based on a hypothetical 'Generic Australian Made' brand of Kart using different models suitable for the classes being discussed. All the engines would be blueprinted to reasonable standard, making the kart 'race ready' and competitive.



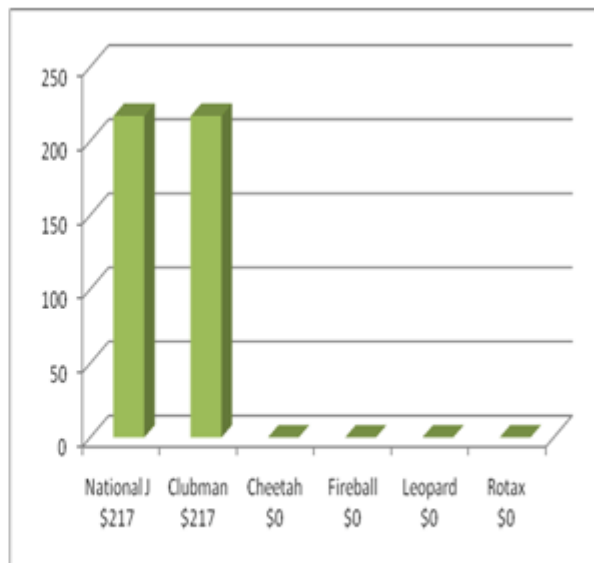
Chassis



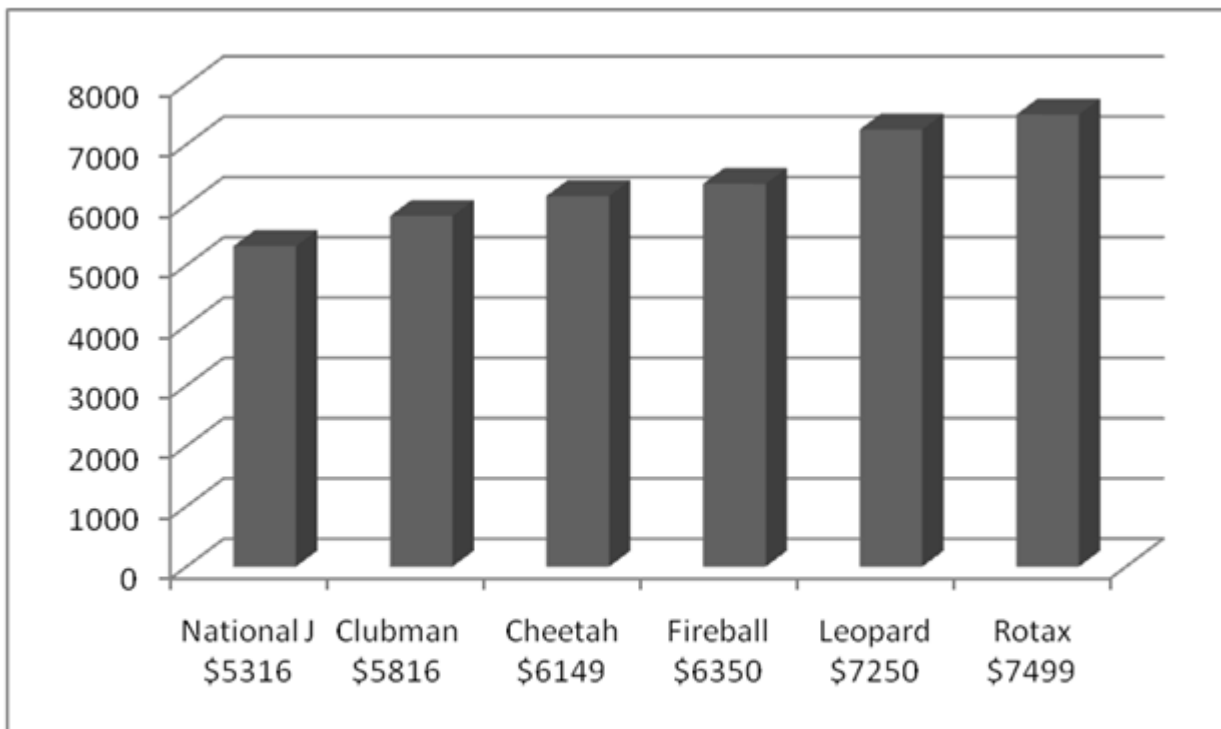
Engine



Engine Blueprinting



AKA approved Exhaust Pipe and Airbox



Initial Purchase - Total Cost of Race Package (Kart & Engine ready to race)

	Generic Kart	Engine	Blueprinting	Exhaust	Airbox	Clutch	Starter	Total
National J	3500	999	600	140	77	295* Optional	355* Optional	5316
Clubman	3600	1199	800	140	77	330* Optional	355* Optional	5816
Cheetah	4100	1899	150	Std	Std	Std	Std	6149
Fireball	4100	2250	0	Std	Std	Std	Std	6350
Leopard	4100	3050	100	Std	Std	Std	Std	7250
Rotax	4100	3399	0	Std	Std	Std	Std	7499

Note: All prices are approx and ex Factory which do not include freight

Fitting of a clutch and purchasing an outboard starter pack is optional and not included in Total

Now that you have decided which package is best for you, here is a rough guide to what you can expect in yearly running costs. It most certainly makes for some interesting reading and comparisons.

Different classes consume resources at different rates. In general terms; the faster you go the more it costs.

In order to provide our readers with a good guide to the costs of racing classes Kart Magazine has performed an in-depth analysis of the costs of each class when spread over the course of a year's worth of competition for an average karter.

The metrics we used to calculate the years racing are as follows:

- 10 club level/open event race meetings per year assuming an average of 50 minutes of racing and 10 minutes of practise per meeting.

- 1 major meeting (state title level)
- Tyres to suit each class
- Rebuilds to suit each engine type
- The amount of oil used per meeting at \$35/litre
- Maintenance to suit each engine type (carburettor kits, exhausts etc)
- Does not include travel, entry fees or accommodation costs
- We looked at senior classes only, but the information applies equally to the equivalent junior classes

We looked at a number of factors to determine the overall costs.

First we considered the cost of tyres and applied a usage factor to the tyres based upon the number of meetings per year and wear rate of the tyres.

Second we looked at the number of engine rebuilds required for each engine type to remain reasonably competitive during the course of a race season. In order to determine a price for rebuilds for each class we spoke to four nationally recognised engine builders and averaged the responses. We calculated the number of hours of racing based upon an average of 60 minutes (10mins Practice & 50mins Racing) per club day + 2 hours for the major meeting for a total of 12.00 hours of racing per year. We also asked each of the engine builders to provide guidance on the number of hours that they recommend for each engine before top end rebuilds.

Third we delved into the cost of general maintenance for each engine type. This covered carburettors and other general costs such as spark plugs. We also considered the cost of carburettor kits for each engine class.

We did not include into the annual running costs items such as apparel (helmet, race suit etc) or the initial purchase costs as these vary widely and these purchases can be amortised over two or more years of use. We also did not look at the cost of consumables such as Chains, Sprockets and Brake pads as higher performance classes consume these items at a faster rate. Fuel was another expense that was not included as 125cc engines will use more, the difference is minor over the course of a year, and what you don't use you can put in your car (unmixed of course).

Once we had those costs for each class we were able to calculate a total cost figure for a year's worth of racing for the average karter.

National J (Low Performance)

Still the most popular class overall and dominant in junior ranks. The National J classes are roundly promoted as the cheapest form of karting.

Our panel of engine builders were all in agreement that the Yamaha KT100J engine will basically run forever. The consensus was for karters to expect in excess of 10 hours between rebuilds, although there is evidence of people running their engines for 20 plus hours between rebuilds. Interestingly the costs for each rebuild are basically the same as a clubman engine due mainly to the labour content. Therefore engine rebuilds would be running at \$368 @ 10 hours intervals, this would make for a annual rebuild cost of \$442.

The National classes continue to use the **Dunlop SL1** tyre. Generally considered to be a good, durable and

consistent tyre for the class. The consensus is that an average karter will be competitive at five race meetings with a set of tyres plus we have made allowance for 1 set of tyres for a State Titles event @ \$238 per set. Based on this our average karter yearly cost for tyres will be \$714.

KT100J engine maintenance requirements are basically the same as for a clubman. The only regular maintenance item is the carburettor. Generally the diaphragm kits should be replaced on a regular basis. As for the clubman we would expect they will be replaced twice a year at a cost of \$44 for the year.

Most engine builders recommend 20:1 oil ratio for the Yamaha KT100s engines. At this rate most karters will spend \$265 on oil and sparks plugs for a year's racing.

The total yearly spend to race in a national class based upon our calculations is \$1,509. Clearly living up to the reputation as the cheapest (and also slowest) form of karting.

Clubman (Medium Performance)

Despite all of the changes over the last few years the clubman classes continue to thrive.

This class is the most difficult to get a consensus on engine rebuilds, some saying 2 hours and others suggesting 10. We have used 5 hours as the benchmark figure. The average cost for a top end rebuild for a Yamaha KT100S engine was \$368 from our panel of engine builders. The cost for a season of racing for engine rebuilds is \$693.

The clubman class continues to use the **MG Red** tyre. Generally most drivers consider this tyre to have too much grip for the class and therefore increase the cost. However, the consensus is that this tyre is competitive for two race meetings. Therefore allowing for 1 set of tyre for every second club/open event and 2 sets of tyres for state titles @ \$235 per set, the tyre cost for a season of racing would be \$1,645.

Clubman engines are easy to maintain with a small number of external parts. The only regular maintenance item is the carburettor. For peak performance the diaphragm kits should be replaced on a regular basis. For the purposes of this exercise we have assumed that they will be replaced twice a year (again most competitors will replace the kits more often) at a cost of \$44 for the year.

Most engine builders recommend 16:1 oil ratio for the Yamaha KT100s engines. At this rate karters will spend \$313 on oil and spark plugs for a year's racing.

The total yearly spend to race in a clubman class based upon our calculations is \$2,460.

Rotax 125 Max (High Performance)

The Rotax engine was the first 125cc engine to be used regularly in Australia and has been in use for almost ten years.

The number of hours that a Rotax Max engine (and Junior Rotax as well) can competitively operate is a subject of some conjecture. Most engine builders agree that at 25 hours of operation the engine needs to be inspected. For the purposes of this exercise we have used twenty hours as the mark for a top end rebuild at a cost of approx \$450. So on a pro rata basis your yearly running time of 12 hours would calculate out to \$270 for a year's worth of racing.

Rotax classes use the **MOJO** tyre. This tyre has in no small part assisted in the resurgence of the Rotax

classes. Most racers agree that they can compete at three race meetings with a set of tyres and allowing 2 sets of tyres for a State Titles event @ \$255 per set. Based on this our average karter will spend \$1,360 on tyres for a year's racing.

Rotax engines require slightly different maintenance than the other 125cc engines. The carburettor does not require diaphragm kits to be changed; rather regular use of carburettor cleaner does the trick.

The old style clutch uses springs and clutch shoes. The components wear and can require replacement of clutch shoes. These are \$78 per set and we have assumed one set per season although most karters will not use any. It should be noted that the new Rotax clutch does not use these shoes and in fact has almost no moving parts, so this cost is not applicable to those with the new clutch.

As part of the tuned system the exhaust plays an important part of the Rotax package. The matting used in the silencer assembly is a consumable item requires replacement. We calculated that this would be required three times a year at a cost of \$54 for the year.

Oil (at 40:1) and spark plugs added \$168 to the cost.

The total yearly spend to race a Rotax engine based upon our calculations is \$1,930.

Leopard 125/FireBall 125/Cheetah 125 (High Performance)

These three engines are essentially the same and all run on the MG Yellow tyre, either in the TaG class or in the case of Leopard in its own class.

These engines are generally considered to need rebuilds at around 3 hours of use. The Cheetah engine is fairly new and as of the date of writing little is known about its exact engine rebuild requirements. As it is basically a Chinese clone of the Leopard and in consideration of the fact that it has a nikasil bore lining we increased the hours between rebuild for this engine to 4.

Based upon feedback from our engine builders the average price for a top end rebuild of this class of engine was \$425 with the Cheetah slightly less at \$400 due to the cheaper engine component prices. Based upon 12 hours of use the rebuild cost for Leopard/Fireball is \$1,700 per year and for a Cheetah it is \$1,200 per year.

The **MG Yellow** tyre is a soft tyre providing high levels of grip. Being a softer tyre it wears at a high rate. The general consensus is that this tyre is good for one race meeting. For the purposes of this evaluation we calculated the tyre costs based upon the cost on using 1 set of tyres per Club/Open meeting and 2 sets of tyres for a State Titles event @ \$255 per set. Tyre cost for these classes per year was calculated at \$3,060.

Regular maintenance is required for all engines between race meetings. Most, if not all can be carried out by the competitor and we therefore did not include any labour costs for these items. We assumed five carburettor kits per year would be used (most people would use more) for a total of \$225 per year.

Oil (at a ratio of 16:1) and spark plugs added \$313 to the total yearly spend.

The total yearly spend to race a Leopard or Fireball based upon our calculations is \$5,298 pa, a Cheetah comes in at \$4,798 pa. These figures do not include chains, sprockets and brake pads which would need replacing more often in this high performance class.

TaG 125 Restricted (Medium Performance)

Any of the above 125 engines (Rotax, Leopard, Fireball or Cheetah) used in the popular TaG (R) restricted class would save you even more money on your running costs per year. The TaG Restricted class runs on the slightly more durable MG Red tyres, the engines are fitted with a restrictor plate in the exhaust outlet which markedly reduces the performance thus giving greater engine and tyre life. A quick breakdown of running costs for the four different engines in Tag Restricted would be as follows:

Using the **MG Red** tyre the general consensus is that this tyre is competitive for three race meetings. Therefore allowing for 1 set of tyre @ \$235 for every third club/open event the tyre cost for a season of racing 11 events would be \$861.

Double the engine life makes the annual rebuild cost would calculate out at Leopard/Fireball is \$850 per year and for a Cheetah it is \$600 per year.

We assumed five carburettor kits per year would be used (most people would use more) for a total of \$225 per year.

Oil (at a ratio of 16:1) and spark plugs added \$313 to the total yearly spend.

Again Rotax engines require slightly different maintenance than the other 125cc engines. Double the engine life for a restricted Rotax would bring the engine maintenance cost down to an incredible \$135 per year. The carburettor does not require diaphragm kits to be changed; rather regular use of carburettor cleaner does the trick.

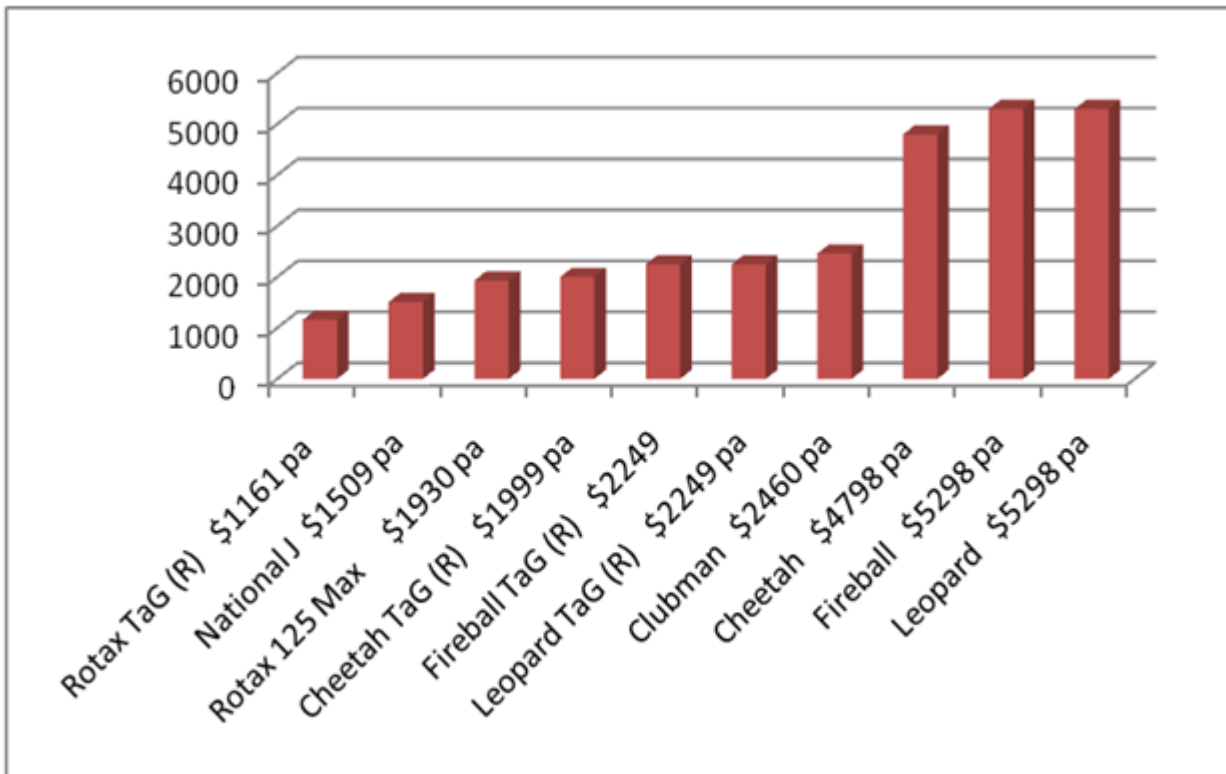
The old style Rotax clutch uses springs and clutch shoes. The components wear and can require replacement of clutch shoes. These are \$78 per set and we have assumed one set per season although most karters will not use any. It should be noted that the new Rotax clutch does not use these shoes and in fact has almost no moving parts, so this cost is not applicable to those with the new clutch.

As part of the tuned system the exhaust plays an important part of the Rotax package. The matting used in the silencer assembly is a consumable item requires replacement. We calculated that this would be required three times a year at a cost of \$54 for the year.

Oil (at 40:1) and spark plugs added \$168 to the cost.

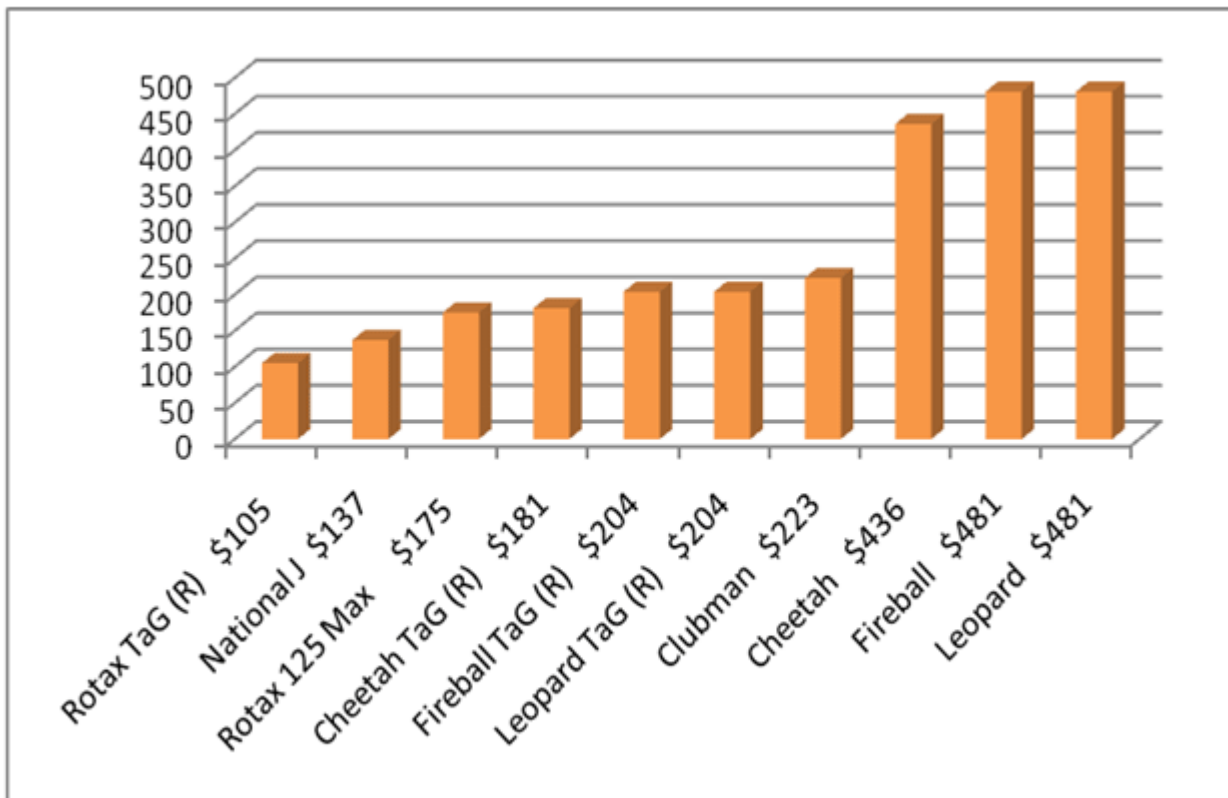
The total yearly spend to race a Leopard or Fireball in TaG Restricted based upon our calculations would be \$2,249 pa and the Cheetah comes in at \$1,999 pa.

The Rotax engine in TaG Restricted based upon our calculations would come in at \$1,161 pa.



Yearly cost of racing by engine type for the average karter

PER RACE MEETING



Avg cost per race meeting for the average karter - Racing 11 times per year

The figures we have calculated do not include petrol, chains, sprockets, chain lube or brake pads. These consumables will vary depending on the lower or higher performance of the class you choose to race in.

And the winners are.....

From this evaluation there are three clear choices depending upon your budget and performance

requirements.

For higher performance: **Rotax.** Clearly cheaper to run than other the other 125cc engines and the clubman classes. As an international class there are more options for racing overseas. Rotax also offers good options for juniors to race Junior Rotax and move on to the senior classes at small cost using mostly the same engine.

For medium performance: **Rotax in TaG (R).** Bit of a shock this one. The extra long life of the restricted Rotax engines and the slightly more durable MG Red tyre make this class the best overall value. The Rotax engine definitely looks like it would be the preferred weapon of choice for the TaG Restricted class, an ideal choice for the entry level and budget conscious racer. Just goes to show that you can still race cheaply even with a 125cc engine strapped on. Only drawback is that there is no State or National status for the TaG (R) Restricted class.

For the budget racer: **National J.** No shock here. The cheaper initial investment and the long life of the engines and the harder tyre also make this class an ideal choice for the entry level and budget conscious racer. State and National titles for junior and senior drivers are on offer if aspirations are in that direction. Same engine is used across junior and senior classes.