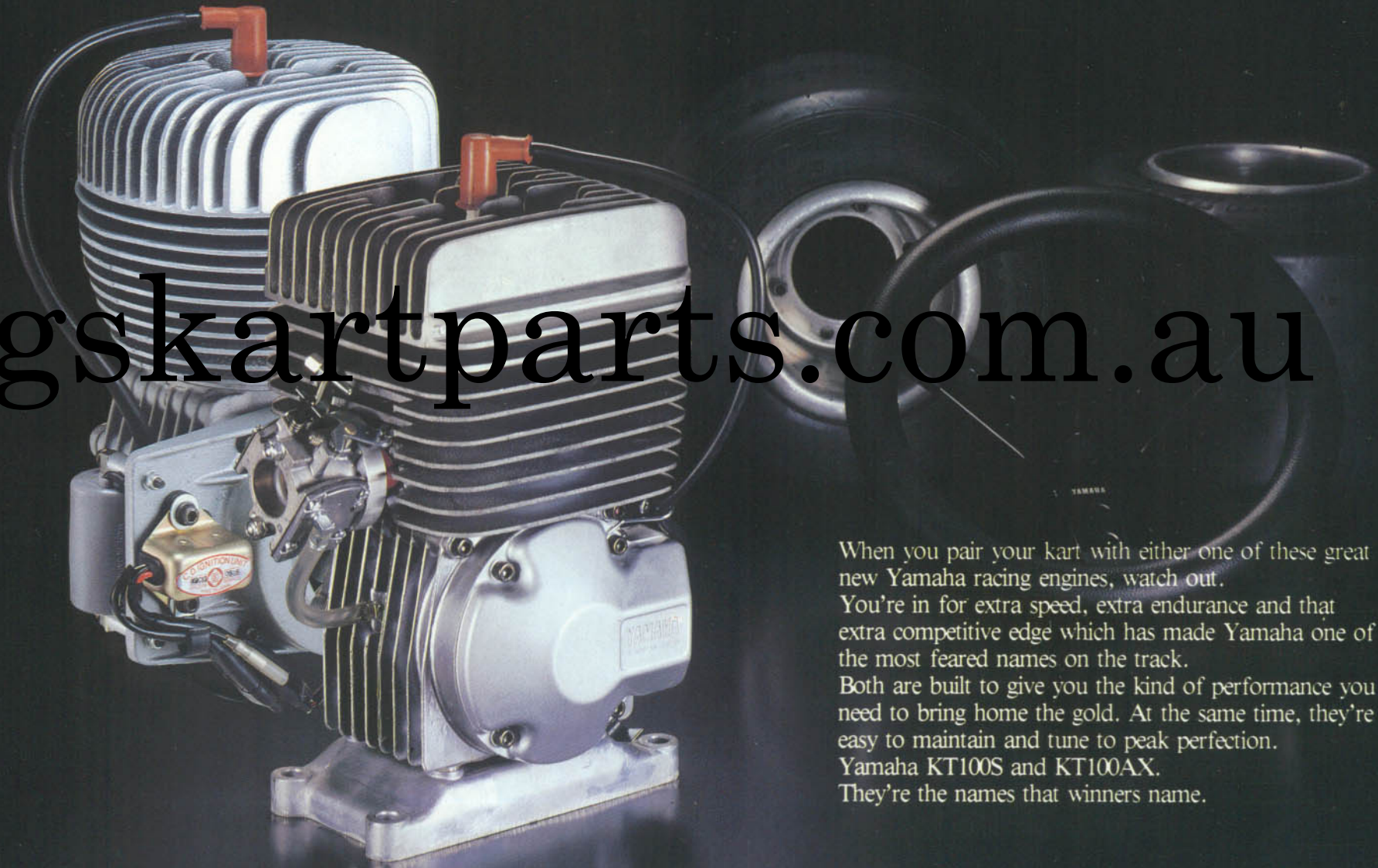
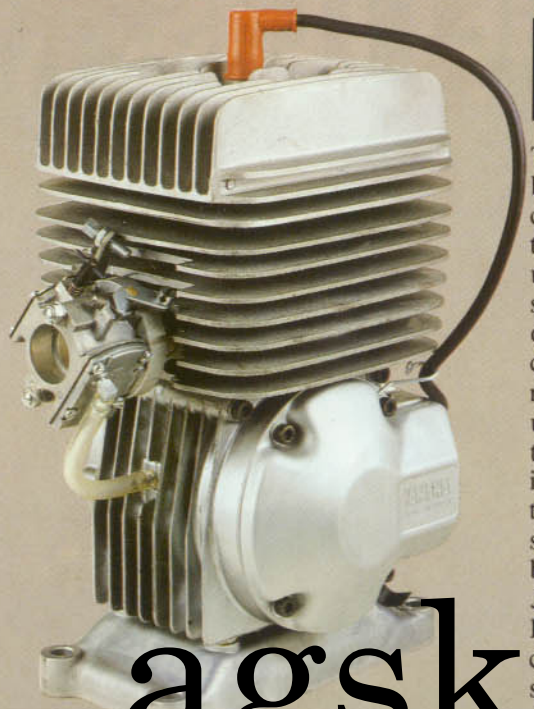
INTRODUCING THE GOLD GETTERS.

YAMAHA KT100S/AX



When you pair your kart with either one of these great new Yamaha racing engines, watch out.
You're in for extra speed, extra endurance and that extra competitive edge which has made Yamaha one of the most feared names on the track.
Both are built to give you the kind of performance you need to bring home the gold. At the same time, they're easy to maintain and tune to peak perfection.
Yamaha KT100S and KT100AX.
They're the names that winners name.



KT100S

This extremely reliable engine has specially strengthened connection rods and pins, transistorized ignition and a unique domed piston. Power is steady at all speeds and revving quicker. The lightweight design, coupled with its overall ruggedness, makes this engine unbeatable yet popular among the racing lovers. Oversized fins insure adequate cooling, even on the hottest, hardest tracks. The simple, piston-valve design has been thoroughly proven in Japan and abroad, where KT100S-powered karts have compiled an impressive record of sprint and enduro successes.

KT100AX

The all new KT100AX is 97.7cc's of pure dynamite. With its 10.3 to 1 compression ratio, capacitor discharge ignition, and rotary valve, the KT100AX has 'winner' written all over it. It's longer, 54mm stroke provides great torque at all rpm's and makes the this rugged engine ideal for sprint and enduro.
Other outstanding features of this outstanding engine include shrink-fitted cylinder sleeves, carefully matched carburetion, and special alloy components. Plus, you get that famous Yamaha durability which guarantees you'll finish what you start.

SPECIFICATIONS

KT100S		KT100AX
7U5	Model code	7K0
2-stroke, air cooled, piston valve	Engine type	2-stroke, air cooled, rotary valve
Single, forward-inclined	Cylinder arrangement	Single, forward-inclined
10.3 kg	Engine weight-excluding exhaust pipe & muffler	12 kg
52 × 46 mm	Bore × stroke	48 × 54 mm
97.6 cc	Displacement	97.7 cc
7.9 : 1	Compression ratio	10.3 : 1
Mixed gasoline (15 : 1)	Lubrication system	Mixed gasoline (15 : 1)
T.C.I. (Transistor Control Ignition)	Ignition system	C.D.I. (Capacitor Discharge Ignition)
CHAMPION N-59G	Spark plug	CHAMPION N-57G
WALBLO WB-3A	Carburetor type	OPTION
Rear	Exhaust direction	Rear

*Specifications are subject to change without prior notice.

OPTIONAL PARTS

KT100S		KT100AX	
7F6-16600-01	OIL CLUTCH ASS'Y	7K0-13551-00	Cover rotary valve
7F6-16397-00	COVER, clutch housing	7K0-13556-00	Gasket carburetor
91316-06012	BOLT, hexagon with socket head cap	90185-05N05	Nut self locking
7F6-16659-00	OIL, clutch	90116-05N01	Bolt stud
		7K0-14501-00	WALBLO WB-13

YAMAHA

YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA-SHI SHIZUOKA-KEN JAPAN
LIT-3KT-0101006-81E 56.2×20 Printed in Japan

HERE'S AN EXTRA MUSCULAR ENGINE NEWLY DEVELOPED FOR COMPETITIVE KART RACING

YAMAHA KT100S

The newly introduced KT100S easily delivers high output, top performance. Just right for the most demanding kart racing. In addition, it's been newly designed with greater durability in mind. You need higher rpms in a 100 c.c. engine when higher horsepower is demanded. Moreover, difficult running conditions include race courses with many curves, repeated changes of speed and sustained cruising. Plus the added difficulty that a kart doesn't have any transmission.

Yamaha's great engineering expertise has overcome all these difficulties. The new KT100S. It's bound to put you in the fastest competition with its race-winning performance.

FEATURES

Superior performance worthy of Class A
Even though it's a simple piston valve type engine, it puts out superior performance with its ideal use of a WALBLO carburetor. Anyone can enjoy the kind of outstanding performance worthy of Class A.

Higher performance possible through tuning
Engine tuning is another of kart racing's pleasures.
The performance of the KT100S can be varied depending on your tuning technique. Get more enjoyment with just the kind of performance you want.

Newly adopted T.C.I.
High performance T.C.I. (transistor controlled ignition) puts out a powerful, reliable spark at all speeds, gives extra easy starting. Simple in construction and maintenance-free.

Excellent durability
Efforts have been made to insure extra toughness and durability through meticulous studies of every engine component in materials and during the manufacturing process. The superior durability of the KT100S has been proven in many sprint and enduro races throughout the world, including both the U.S. and Japan.

Optional oil clutch available
A Yamaha oil clutch is separately available as an option. Newly developed by Yamaha especially for beginners.

SPECIFICATIONS OF KT100S

Model	KT100S
Model code	7F6
Engine type	2-stroke, air cooled, piston valve
Cylinder arrangement	Single, forward-inclined
Engine weight — excluding exhaust pipe & muffler	10.3 kg
Bore × stroke	52 × 46 mm
Displacement	97.6 cc
Compression ratio	7.9 : 1
Lubrication system	Gas-oil mixture (15 : 1)
Ignition system	T.C.I. (Transistor Control Ignition)
Spark plug	CHAMPION N-59G
Carburetor type	WALBLO WB-3A (Floatless)
Exhaust direction	Rear

* Specifications are subject to change without pirior notice.

*** OPTIONAL PARTS**

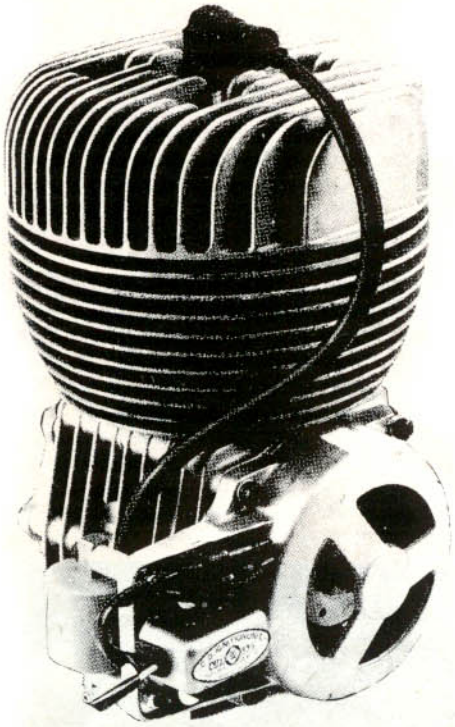
7F6-[illegible]600-01	OIL CLUTCH ASS'Y
7F6-16397-00	COVER, clutch housing
91316-06012	BOLT, hexagon with socket head cap
7F6-16659-00	OIL, clutch

YAMAHA

YAMAHA MOTOR CO., LTD.
2500 SHINGAI IWATA-SHI SHIZUOKA-KEN JAPAN

LIT-3KT-0101003-80E 55.3×2 Printed in Japan

YAMAHA'S KT100A-2 THE SHORT STROKE SCREAMER



The giant Yamaha concern has been involved in karting now since about 1978 and although the largest proportion of their kart engine production is concerned with piston port motors they do cater for the more enthusiastic competitor with a range of rotary valve engines.

Their first effort in the early 1980's was the short stroke (52x46) KT100A. They then followed conventional with the KT100AX long stroke engine and although this engine showed a lot of promise in new guise and the ability to keep level competition. However it was a very strong and reliable engine and has proven popular with the club type competitor who wants to stay away from the restricted classes.

However Yamaha is not a firm to take it lying down and their latest development for the 100cc International class is the KT100 A2 which returns to the original KT100A bore and stroke layout of 52mm bore and 46mm stroke, the same as is used for the ever popular KT100S. But there is more that is not conventional in the A2 than just the bore and stroke dimensions.

Externally the engine is hard to pick from the long stroke AX and when you move inside the engine the top end is conventional 100cc TT type layout. But due to the short stroke Yamaha have been able to make use of the large bore to provide unusually large port areas. This in itself is unusual for a Yamaha rotary valve motor. The engine is also much better finished off than was the AX.

Moving to the crankcases one finds again a situation of much improved finish with a large well angles inlet tract. The rotary valve is the usual reinforced Yamaha type with a marking on the centre to show the operator which way the valve fits correctly. Finish in the valve area is second to none.

The conrod is a diminutive looking little item. But when one realises that it is the same conrod as Yamaha fit to their 135cc engine and then relates this to the proven reliability of Yamaha connecting rods there is little doubt that they have done their homework correctly. The rod is located laterally at the big end eye as in common Yamaha practice. This leaves the little end fully floating and relieves the piston of any location loads.

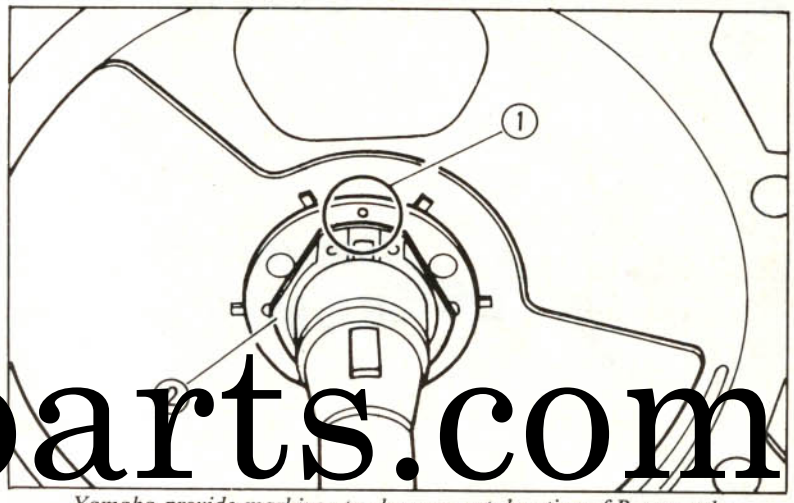
The crankshaft is a very interesting item indeed. It features very small diameter crankwheels. In fact they have a diameter of only 82mm against the more normal 86 to 88mm used in most 100cc engines. This we believe has been done to enhance bottom end performance.

The cylinder features fairly wide port timings with an exhaust duration of 176° and boost and transfer duration of 132°. Combined with the large port areas it would be expected that the performance would be more in the top end of the rev range!

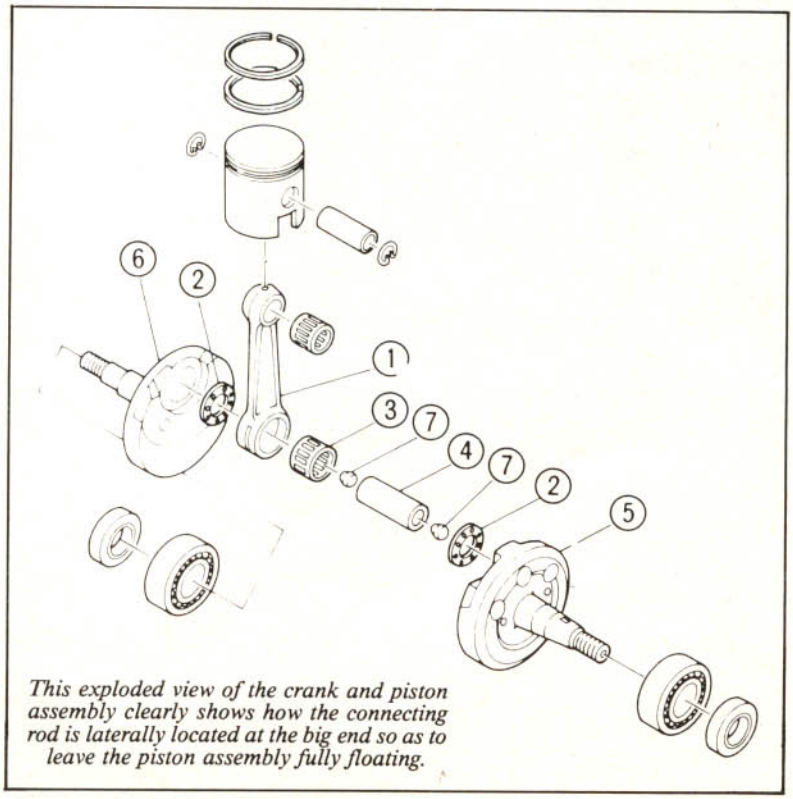
By courtesy of Yamaha Motor Australia we have been able to give the A2 a run and despite the wild port timings can report that the engine pulls strongly in the lower revolution range. In fact the bottom end power of the engine is it's strongest feature. We ran the engine fitted with a 25.5mm Ibea slide carburettor and would suggest probably a 27mm version to get the best performance from this engine so strong is it's low end power. Another feature that impressed us about the engine was it's out and out smoothness. It is unbelievably smooth right throughout the power range. Yamaha engines are noted for their durability and this smoothness must add to that reliability record.

At Orange we recorded a best time of 33.8 seconds with the engine which is around .4 of a second off the pace. However with a little more sorting we feel that the engine would be competitive. We had the engine geared to 10 to 85 and were using an 80.5cm pipe. It was felt that a 84 tooth rear sprocket would have been better with even a shorter pipe.

The A2 is an interesting development of the Yamaha theme and well worth consideration for the International classes.



Yamaha provide markings to show correct location of Rotary valve.



This exploded view of the crank and piston assembly clearly shows how the connecting rod is laterally located at the big end so as to leave the piston assembly fully floating.

TECH INSPECTION — YAMAHA KT100AX ROTARY VALVE ENGINE

The Yamaha KT100AX has been in action in Australia for around six months now and although it is yet to register a major victory on the Australian circuits, it has been aquitting itself well on the European circuits. Milledge Imports recently supplied Australian Kart Report with an engine to race and check over. These are our findings with the engine.

Our first job was to strip and measure the engine and in this regard, it must be stated that the engine is assembled ex-factory so as to allow the average karter with limited mechanical knowledge to be able to campaign the engine with out worrying too much. Most of the dimensions that we checked were on the safe side, thus enabling the engine to be taken out of the box, run in and raced without firstly having to reset the engine up.

The piston to cylinder head (squish) clearance measured in at 1.1mm, plenty on the safe side. The head capacity was 9.4cc, a figure obviously designed for safe running on the Champion N57G spark plug that is supplied with the engine.

The piston to cylinder clearance measured up at .90mm while the top ring gap was .25mm and the bottom ring gap was .20mm.

The crankshaft on the particular engine that we checked ran very true indeed, the worst runout being .005mm. The crankshaft end float registered at .15mm, a little closer than we would have liked, but still on the safe side. Big end cage side clearance was .51mm and that about completes the critical dimensions checked.

The engine itself is of the conventional long stroke (54mm) design with two side transfer ports and a forward TT type port. The TT passage is quite wide at 22mm and has plenty of depth.

The only really unconventional part of the engine was the fact that the connecting rod is located at the big end instead of the more usual little end location. This is more in line with motor cycle practice and is a feature that Mr. Grana has adopted on the latest TT27 Parilla engines. The rod itself is a very sturdy looking item and so far has proven a very serviceable item.

The ignition system is a Japanese manufactured electronic system and it too has given no problems as far as we know.

LOW PORT TIMINGS

The engine that we inspected, and a second one that we checked to make sure that what we found was the norm, both had very low port timings. This would indicate that the engine would pull well low down in the rev range, but this is not the case and we believe that this is due to the Walbro-carburettor fitted as standard. The carby is a 27mm unit and as it comes the blow off pressure is around the 14 P.S.I. mark. We found a considerable improvement in engine performance by simply lowering the blow off pressure to 10 P.S.I. This move would be a wise one for anyone purchasing a KT100AX fitted with the Walbro carby.

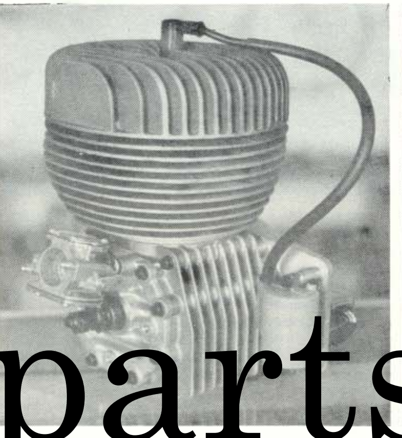
Other than the adjusted carburettor, we ran the AX at Canberra's Steve Aaron memorial meeting in out of the box form and found it to be pleasantly competitive. It still lacked a little in the bottom end range and seemed to run out of revs at the top end. But it must be stated that the engine performed well for a stock standard unit.

For the Canberra meeting the exhaust length was 81cm and the ignition timing on 2.5mm B.T.D.C.

The next meeting for the engine was at Oran Park and for this time out we raised the exhaust port by 1mm and remachined the cylinder head to give a head capacity of 8.5cc. This was done to get some idea as to how the engine responds to the more normal tuning treatment.

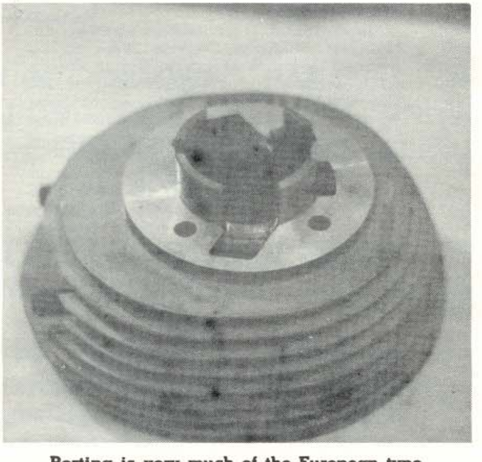
The result was that the engine recorded a best lap time of 37.72 seconds and placed second on the day. It still lacked a little in bottom end power but showed good middle range power. The lap times recorded were very respectable, if not record breaking and it can be said that the engine in this form is a competitive unit.

At the time of writing, the engine has not used any parts. It still does lack a little in bottom end power, but now has ample top end performance. It would seem that the engine requires a tooth or more than the other long stroke rotaries, but this could be due to the carburettor. We are still to test using a different carburettor. In the mean time the AX gets our blessing as to being good value for money.

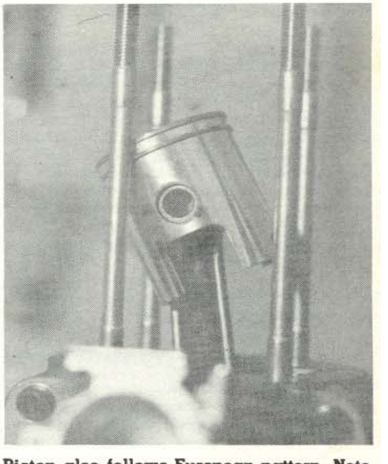


Yamaha's 100cc International challenger, the KT100AX.

The ignition system is a Japanese made C.D.I. unit and worked well. Note the ignition cover come coil mount that is standard equipment.



Porting is very much of the European type layout. Ports are low and allow for tuning.



Piston also follows European pattern. Note the strong appearance of the connecting rod.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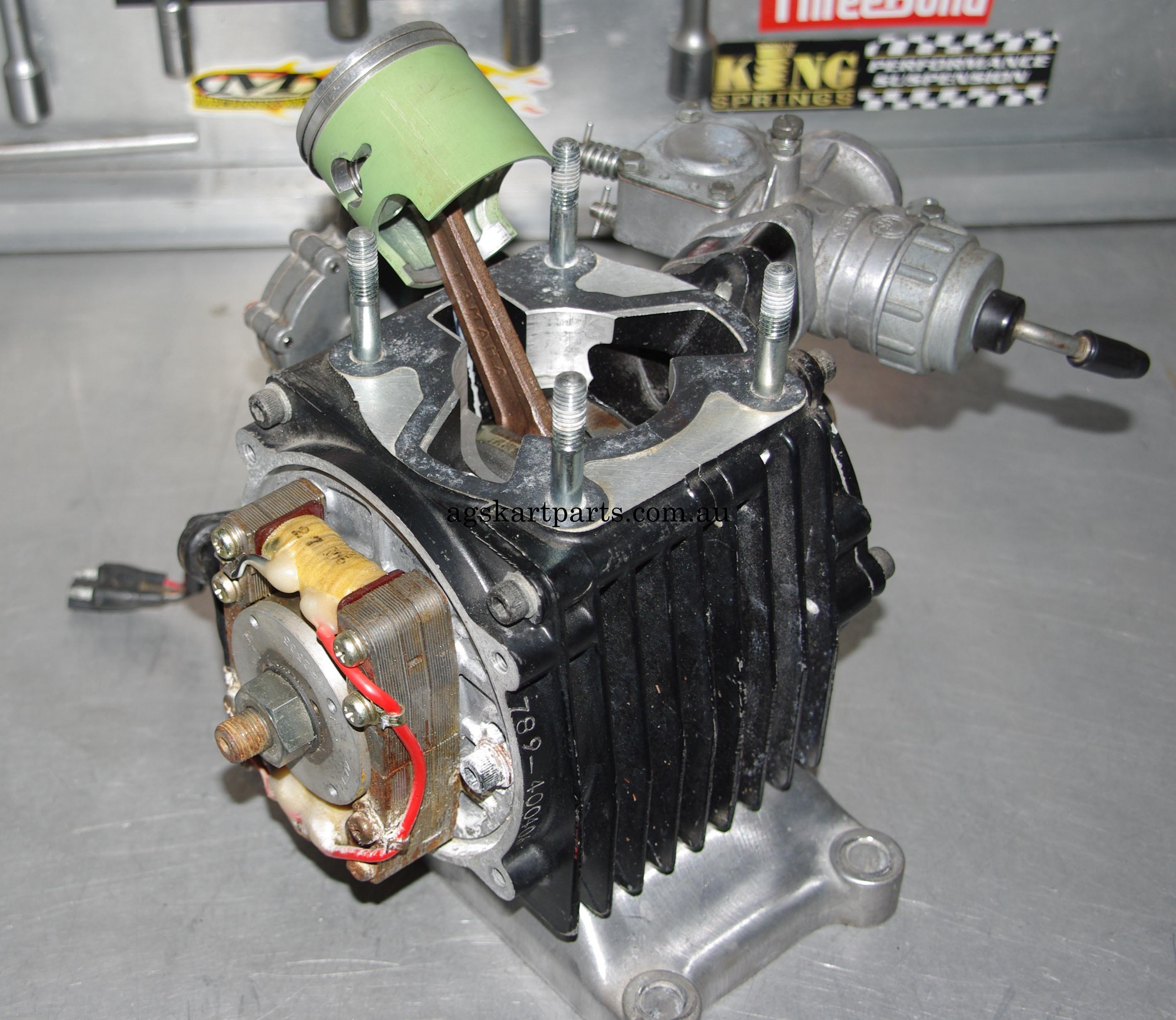
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