

REF 141230

COMPETITOR INFORMATION - NEW 125 MAX EVO ENGINE SERIES

Dear Competitor/Entrant,

As many of you will be aware, BRP Powertrain have recently introduced a new generation of kart engines – the Rotax 125 MAX EVO series – which will be available to selected markets from the beginning of 2015.

Rumours abound regarding this significant announcement and the purpose of this information release is twofold: (1) to detail the differences between the original MAX engine series and the new 125 MAX EVO product range, and (2) to clarify the situation regarding availability and introduction of the new engine range (and specific upgrades) in UAE and the rest of the GCC.

Rather than a whole new concept, the Rotax 125 MAX evo engine series is an evolution of the existing MAX series with primary focus on providing a more user-friendly experience to owners while maintaining ultimate performance and further improving durability.

Rotax have combined the proven MAX concept with the latest technology in karting to produce a power unit with optimised performance characteristics, greatly reducing the time needed to find optimal set-up and thereby promoting equal opportunities for all competitors. Further, the new technology has answered a call for even lower operating costs due to the improved durability of the engine and its components.

COMPLETE OVERVIEW OF 125 MAX EVO ENGINE DEVELOPMENTS:

1) New Dellorto VHSB34 "XS" carburettor:

The "XS" carburettor has a completely redesigned carburation system which offers a significantly improved throttle response and is less sensitive to changing conditions, thereby requiring less calibration adjustment.

Advantages:

- Supports ease of use of the whole engine package improved driving experience.
- Less of a need for carburettor '*experts*' to find the appropriate carburetion reduced cost of operation.

2) <u>Electronic timed exhaust valve:</u>

The timing of the exhaust valve (open/closed) on the 125 MAX and 125 MAX DD2 is electronically controlled and triggered by the engine speed (rpm). This exact opening/closing point meets with the requirements for ideal engine performance in the low to mid-range and is independent of other conditions (temperature, carburation, condition of isolating mat, exhaust system, etc.). Two different activation rpm values can be selected according to personal preference (125 MAX evo at 7,600 or 7,900rpm; 125 MAX DD2 evo at 8,800 or 9,100rpm).

Advantages:

- Exact, automatic timing of exhaust valve for 125 MAX evo and 125 MAX DD2 evo.
- Less technical assistance required for proper function of the system lower cost of operation.



3) <u>New Dellorto ignition system:</u>

To integrate the electronic timing for the exhaust valve into the ignition system, a new system (Dellorto) has been developed with separate ignition coil (same for all engines) and a specific electronic box for each engine.

The ignition timing for the 125 MAX evo remains unchanged. This timing is also used for both 125 Micro MAX evo and 125 Mini MAX evo so these 3 engine configurations will use the same Dellorto electronic box.

The ignition timing of the 125 Junior MAX evo engine has been changed to improve the engine characteristics in the rpm range from 12,000 to 14,000 rpm.

The ignition timing of the 125 MAX DD2 evo engine has been changed to minimise the risk of misfiring and detonation at critical engine operation.

Advantages:

- Improved engine characteristic for 125 Junior MAX evo at high rpm ease of use.
- Reduced risk of misfire and detonation for 125 MAX DD2 evo increased durability.
- Integrated timing for exhaust valve for 125 MAX evo and 125 MAX DD2 evo.

4) New exhaust system (125 MAX evo and 125 MAX DD2 evo)

The exhaust systems of both 125 MAX evo and 125 MAX DD2 evo have been redesigned with separate tuned pipe and silencer, offering low weight, reduced noise emissions and improved durability. As before, the 125 MAX evo exhaust system will be utilised also for 125 Mini MAX evo and 125 Junior MAX evo variants.

Advantages:

- Increased durability lower cost of operation.
- Lower noise emissions.
- Slightly lower weight compared to actual exhaust system.

5) New exhaust sockets with sealing ring

New exhaust sockets with integrated sealing ring ensure accurate sealing between the engine and the exhaust system which is essential for the proper performance of the engine.

Advantages:

- No leaking between exhaust socket and exhaust system clean.
- Optimised engine performance.

6) <u>New battery holder unit with integrated combi-switch (OFF/ON/START)</u>

A new battery holder carries a single OFF/ON/START switch as well as a relay for the electric starter. The compact unit of the battery housing is easy to operate and install onto the chassis. Advantages:

- Easy to install and operate.
- Improved durability of combination of OFF/ON/START switch and starter relay lower cost of operation.

7) <u>New piston</u>

The changed profile of the new piston allows a shorter running-in period and still provides, at the same time, a reduced wear rate.

Advantages:

- Shorter running in period
- Lower wear rate lower cost of operation

8) New con rod:

The new connecting rod is produced using an advanced hardening process. The outcome is a new lightweight design with two lubrication slots to enable better lubrication and improved durability.

Advantages:

• Improved durability - lower operating cost.

9) Optimised crankshaft:

Sliding seats for the main bearings provide a "free turning" crankshaft at the first start of the engine.

Advantages:

- No need to "free-up" new engines by extended running.
- Optimum engine performance already at first start.

10) Engine appearance:

Black coating of crankcases and gearbox covers as well as red coating of the cylinder head cover supports the racing look of the engine package.

Advantages:

• New appearance promotes the racing image of the product.

SUMMARY OF SPECIFICATIONS OF 125 MAX EVO ENGINE SERIES:



125 MAX evo

Carburettor	New VHSB34 XS carburetor (main jet 130)
Ignition system	Dellorto; split e-box and ignition coil; ignition timing unchanged
Exhaust valve	Electronic timing with pre-selectable opening/closing (7,600 or 7,900 rpm)
Exhaust socket	New design with sealing ring
Exhaust system	New design with separated tuned pipe and silencer
Piston	New design (new profile)
Con-rod	New design (2 lubrication slots, lower weight)
Crankshaft	New design with free main bearing seats
Engine appearance	Black coated crankcase and gearbox cover; red painted cylinder head cover



125 MAX DD2 evo

Carburettor	New VHSB34 XS carburetor (main jet 145)
Ignition system	Dellorto; split e-box and ignition coil; new ignition timing
Exhaust valve	Electronic timing with pre-selectable opening/closing (8,800 or 9,100 rpm)
Exhaust socket	New design with sealing ring
Exhaust system	New design with separated tuned pipe and silencer
Piston	New design (new profile)
Con-rod	New design (2 lubrication slots, lower weight)
Crankshaft	New design with free main bearing seats
Engine appearance	Black coated crankcase and gearbox cover; red painted cylinder head cover



125 Junior MAX evo

Carburettor	New VHSB34 XS carburetor (main jet 130)
Ignition system	Dellorto; split e-box and ignition coil; new ignition timing
Exhaust valve	Electronic timing with pre-selectable opening/closing (7,600 or 7,900 rpm)
Exhaust socket	New design with sealing ring
Exhaust system	New design with separated tuned pipe and silencer
Piston	New design (new profile)
Con-rod	New design (2 lubrication slots, lower weight)
Crankshaft	New design with free main bearing seats
Engine appearance	Black coated crankcase and gearbox cover; red painted cylinder head cover

	= 125 Junior MAX evo with following exceptions j:
Squish gap	2.40 mm (same as Micro MAX evo)
Max rpm under load	≈12,000 rpm
Ignition system:	Same e-box as 125 MAX evo; ignition timing unchanged
Exhaust socket	New design with sealing ring, 20 mm diameter

125 Mini MAX evo	= 125 Junior MAX evo with following	exceptions):



125 Micro MAX evo (= 125 Junior MAX evo with following exceptions):

Squish gap	2.40 mm
Max rpm under load	≈11,000 rpm
Carburettor	New VHSB34 XS carburettor + main jet kit
Ignition system	Same e-box as 125 MAX evo; ignition timing unchanged
Exhaust socket	New design with sealing ring, 18 mm diameter
Exhaust system	Existing exhaust system with new perforated tube (elbow 22 mm diameter)

A video summarising the new elements of the 125 MAX evo engine range can be found here.

INTRODUCTION AND AVAILABILITY OF 125 MAX EVO ENGINE RANGE:

As exciting as the new 125 MAX evo range is, we are faced with a difficult decision in our territory since we are already half way through our season. Consideration must be given to existing competitors, especially those who have very recently invested in new parts/machinery. Further, any significant changes to National Championship regulations must be applied for and sanctioned by the presiding authority. To that end, wholesale changes are normally avoided.

On that basis it is not our plan to introduce the new 125 MAX evo engine range during this motorsport season, ending April 2015. We have tried to account for projected sales and are confident that we can satisfy demand for the original MAX engine in all configurations until then.

However, should it become impossible to satisfy market demands within this period we will liaise with ATC UAE and release official communications in accordance with any related decisions.

Individuals wishing to procure any of the new evo range of engines for test purposes ahead of next season should register interest with Guy Sheffield (guy@alainraceway.com).

POSSIBILITY OF EVO UPGRADES TO EXISTING ENGINES:

The new 125 MAX evo developments are focused on ease of use, greater durability, lower operating costs and improved opportunities for all drivers. The optimised performance derived from the new developments is a big positive for all new MAX owners since the attainment of optimum performance and function will now be easily achievable.

How about existing MAX owners? Rotax have ensured that each of the engine developments can be retrofitted to older versions of the MAX engine in all configurations. A full list of possible upgrades will be available in the coming months from AI Ain Raceway along with recommendations as to what can be upgraded and when.

As far as regulations are concerned, Al Ain Raceway is committed to ensuring that there is no barrier of entry to the UAE RMC or any other GCC National Karting Championship. Consequently, there is no forthcoming plan in place to phase out the existing range of spare parts.

There may be conditions of use in terms of the mixing of old and new version engine components in future seasons but these will be communicated clearly and in advance in line with manufacturer recommendations.

The introduction of new evo components/upgrades will also be communicated in advance and, in the short term, will be based on providing the most reliable and cost-effective solutions without any influence on ultimate performance.

We hope that this information answers your questions regarding the Rotax 125 MAX evo engine series and look forward to sharing more news with you in the coming weeks.

Kind regards,

Guy Sheffield Al Ain Raceway