

# ONE SHOT MILLONA

Words & Pics: Glen Williams

This very special Italian motorcycle resides within a New Zealand shed. There is no other machine quite like it 'down under' and only 60 of them have ever been produced, many going straight into glass display cases never to turn a wheel in competition. It has an odd name – but we can assure you it fires more than 'One Shot.....'



The bike is called the 'Millona One Shot' and it is made by NCR in Italy, very close to the Ducati factory with whom they have a close working relationship. NCR is headed by Michele Poggipolini and the company has been in operation since the 1970s. The partner company Poggipolini Group specialises in manufac-

turing titanium parts for the aerospace industry, F1 and MotoGP. In motorcycling terms, the company sprang to world attention when Mike 'The Bike' Hailwood rode an NCR built Ducati in the 1978 F1 TT, and since then they have carved a name as builders of bespoke Ducati-powered motorcycles. The Millona concept began in 2004.

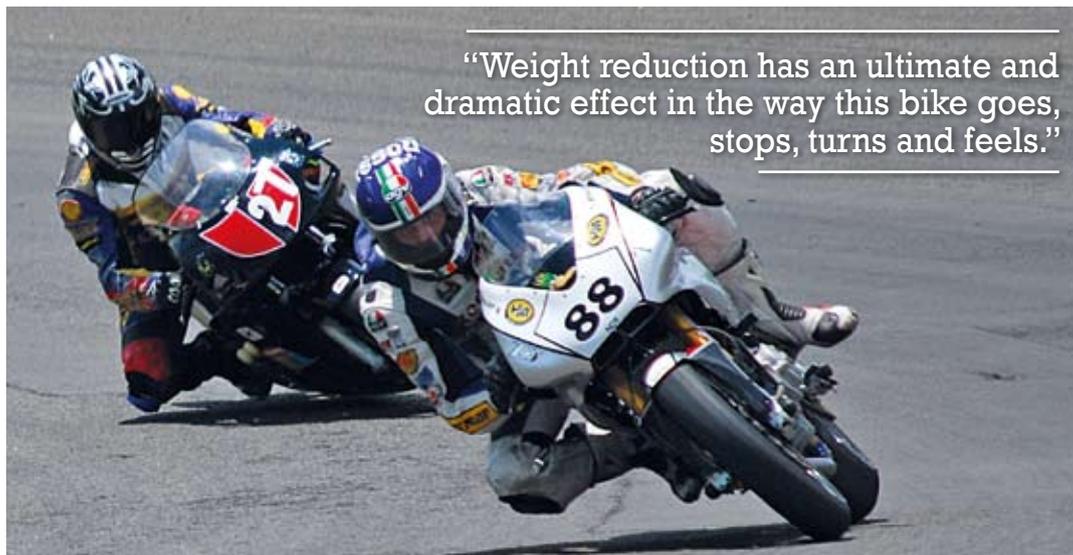
The goal was to produce the lightest and most powerful air-cooled Ducati ever. The bodywork and styling was drafted by the same chap that does Valentino Rossi's race helmets (Aldo Drudi), so that's a pretty sure winner as well. The paint finish is peerless and uses multiple layers of clear-coat – giving it a deep dreamy look.

## Take A Load Off

To put this bikes power-to-weight ratio into perspective – it weighs 40kg lighter than most modern 600cc Supersport machines – yet produces about twice the torque and has similar horsepower to the 600s.

The ultimate goal is to not only have a great power-to-weight ratio, but to also have the overall weight as minimal as possible. This bike weighs in at a claimed 121 kilograms dry and almost half of that weight is in the engine! Weight reduction has an ultimate and dramatic effect in the way this bike goes, stops, turns and feels.

It is mind boggling trying to make a list of the ways NCR has achieved these weight saving goals, for instance every single major fastener used on the machine is titanium, every bracket, clamp, and/or plate is CNC machined from billet and their design continues the weight reduction philosophy. What



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about carbon fibre you might ask, sure there's a bit used, try the tank, all of the bodywork, front fender, airbox, both wheels, the sub frame/seat unit,

air intake ducts, plus a plethora of smaller parts (even the brake and oil lines - getting the picture here! Oh not forgetting the drop-dead gorgeous hand-made aluminium swingarm that when you flick it with your fingernail you check to make sure you haven't dented it - as it sounds that thin and fragile, but the design and curves of which provide ample strength and stiffness. Full titanium twin two-into-one-into-two exhaust, lightweight 'wave' brake discs, the list goes on and on. Every part of this motorcycle has received some attention from the 'lightening stick' – and by this I mean every part. The assembly of all these components very much makes up this bikes character, and provides this stonking 'old school' V-twin with a weight and on-track demeanour not that much different to a 250GP bike.

## Classy Chassis

The NCR developed frame keeps the traditional Ducati look via its trellis design and weighs in at a measly 3.9kg. The sub frame is not included in this weight figure as this job is done by the carbon fibre seat/tail section, which bolts on as a unit. Up front we have a set of Öhlins 43mm inverted forks with Ti nitride surface treatment for reduced stiction, the forks are held in a billet machined triple clamp set which offer adjustable offset via sleeve inserts. The rear TTX36 Öhlins shock is held via a cantilevered progressive linkage and includes a unique concentric cam adjuster to allow progressive or digressive adjustment - the ride height is also adjustable, while the wheelbase is a relatively short 1405mm.

As mentioned before, the swingarm is a hand-made and highly polished feature. Wheels are five spoke BST carbon fibre front and rear and are shod with Dunlop's finest 'Ntec series' 195-section rear slick and 125-section front slick. Malcolm has tried a number of tyre brands on the bike – but has found the Dunlops to be particularly suited to this chassis with their quick turn-in and their excellent side grip – just as well considering the prodigious lean angle ability this bike offers.

Braking duties are comfortably handled by Brembo monobloc radial 'GP' calipers. Dual 300mm wave discs are up front and a single twin-piston Brembo rear caliper grabs a 200mm wave disc at the rear. Malcolm is currently running ceramic compound NCR spec brake pads in the bike.

## The Ride

No starter motor on this sweet puppy, roll her back onto the compression stroke, put her in top gear and introduce the starter dolly wheel to the rear tyre

## THE LUCKY OWNER(S)

Malcolm Bell (a self-confessed Ducati nut - especially of the air-cooled belt-drive powered models) and his dad Graeme have put their heart and soul into building up this very special motorcycle and have customised it to make it their own. No other NCR Ducati has the same spec build as the bike built up by these two Kiwis and they have finished up with a machine that has a power-to-weight ratio better than most modern sports bikes.

Malcolm and his dad live and breathe bikes and Malcolm himself is a damn handy rider in his own right, managing to punt a pretty trick Ducati 900SL around for many years. A bad accident at the Paeroa street races in 2004 sidelined him for a while, but in 2006 they won the Superstock class at the 'Sound of Thunder' meeting in Christchurch. Unfortunately just after that meeting they blew the 900SL up big-time whilst it was on the dyno - and it was then that Malcolm started searching for something different to scratch his racing itch and in the NCR Millona he found it! "I really enjoy working with this series of Ducati engines and the NCR Millona gave me an opportunity to build something up that was unique and cutting edge effective on a race track – plus look beautiful at the same time." Malcolm and Graeme were able to then develop their own specification engine and with help from Warren and Dean at Landon Motorsport Tauranga who are combustion chamber and head design specialists - they have been able to put together an awesome package.



## Show Me The Money

Quality and uniqueness like this, simply put, does not come cheap. More expensive than a Desmosedici V4 with a material cost that runs into six figures and a time input cost that the owners dare not add up.

"Over the past two years we would have spent over a thousand hours on the initial build and on-going development", says Malcolm Bell, the bike's owner. "So we best not think about that too much and I am really lucky to have an understanding wife (Wendy) and three daughters who often travel to the meetings with us. My dad Graeme has had a huge input into the machine also which is great as it keeps it a real family affair and we all like that."

Malcolm and the 'Coyote Racing' team have also received valuable help from Lindsay Beck from Bayride in Tauranga, who is an avid supporter of this project.



when an indicated 45kph appears on the digital race dash, drop the clutch and this is closely followed by .....the sound of all hell breaking loose! The engine note from the twin outlet ZARD full titanium exhaust and carbon end cans is clean and purposeful. The speed that the engine picks up revs at a stand-still immediately indicates that we have a very different weight crankshaft (with its attached accessories) spinning around in the engine department down below.



Malcolm reminds me to give her a few revs and to slip the dry action clutch when pulling away from a start and its immediately clear why - 1st gear is incredibly tall and is genuinely used as a race gear on track which is not untypical of a big V-twin-powered machine. The bike is fuel-injected and it pulls away cleanly even when cold from Manfeild's pitlane. Instructions were to first warm the Millona up to an indicated 80degC oil temp. "Once up to temperature the DS1000SS based engine (which has been increased in capacity to 1078cc) begins to work at its best," advised Malcolm. With this done I immediately found the legendary low down stomp of the air-cooled Ducati motor was still there except this one felt like it had taken an overdose of steroids. "The current power



figure is well over 100bhp at the rear wheel – and both power and torque are well above the standard 1000cc unit," says Malcolm. It makes thumping great gobs of torque from an indicated 5000rpm through to just over 9000rpm, above that the power and torque falls off pretty rapidly. But this isn't really a problem as you simply use the close-ratio gearbox to change up a gear before the top of the torque curve and the bike proceeds to pull your elbows out of their sockets all over again in the next gear. The front wheel goes light with any gear change made in the meat of the torque zone and it does this right through the box. The bike is fitted with a slipper clutch and it is very much needed on a bike like this (especially in the wet). Malcolm did not have the auto 'throttle blipping' option set up on the machine as yet but plans to add this into the Motec programming for even smoother down-changing very soon. The clutch has a lot of reverse-slipping action during down-changes and the bike felt like it was freewheeling into the corners with almost no engine noise and what felt like no engine braking whatsoever. A trait I personally found disconcerting.

On track this machine indicated immediately that it will not suffer fools gladly, and required respect on the throttle out of corners with its quite sudden throttle response from the very moment you cracked the throttle back on. Malcolm comments, "We are actually trying to develop the fuelling map to



soften the initial throttling-on action – as it is a bit too sharp at the moment."

If I had to coin a word that sums up the steering action and mid-corner feel of this bike, I would say that word would be 'precise'. The Millona turns in so late and so fast you need to recalibrate your brain for where you think an acceptable turn-in point is. The only bike that springs to mind that offers something similar in steering performance would be a 250GP bike. This bike's featherweight dimensions combined with a 23.5° steering rake angle and quite short trail allow you to throw the thing on its side incredibly fast. I fully understand why Malcolm finds the Dunlop tyres well suited - given that their sharp profile and large side surface area allows this machine to rail through corners at brutal speeds. The bike held its line beautifully through a corner and whether you were trail braking in or on the gas mid-corner, it had no inclination to run wide or fall into the corner too fast, it simply went where you asked it to go – niiiiice.

The brakes – well it's not often I will find a set up that beats my own personal race-bike units for power and feel, but the NCR provided effortless one finger 'rear wheel in the air' braking lap after lap. Very impressive, squeeze them too hard at your peril though.

Suspension action was good, but with a 35kg difference between myself and the owner I had to expect a little harshness over the bumps. "The suspension is very much still under development," adds Malcolm with Öhlins suspension guru Rob Taylor from Crown Kiwi Technical in fact working on the bike the very day we were at the track. The torque of the engine was working the rear TTX36 unit pretty hard in its current set up. It is early days in the suspension department and the team are really looking forward to making improvements to the bike in this area (including the fitting of a telemetry system very soon).

The steering sharpness and its almost effortless action remind you that your inputs into this machine have a dramatic effect on the bike's attitude, and with the Öhlins steering damper set at minimum the bike required very little input through the bars to make it change direction. This bike 'teaches' you how to ride fast – if you do something ham-fisted or are lazy and don't keep ahead of the bike's next move – then lookout! It will tell you in no uncertain terms that you are at fault and to take better care next time. On the other hand if you are positive and committed to your actions it will reward you with a veritable Nirvana of effortless corner carving heaven. Front-end feedback was good also – no doubt a result of the quality equipment used, although the suspension development will improve things here further for sure.

The quick-shift gear change was new to the bike for the day and required

some fine-tuning to the pressure sensor. Malcolm runs a race pattern shift to drive the slick-shifting close-ratio gearbox, which was taken from a Ducati 749RS Corse factory race bike.

### Electrickery

Malcolm and Graeme have spent a huge amount of time developing the MOTEC M600 engine management system and data logging system that replaces the 'EFI Euro-One' unit originally supplied with the machine. The Motec logs throttle position, oxygen ratio in each cylinder separately, fuel pump pressure, oil pressure, oil temperature in both the crankcase and head, battery voltage, exhaust gas temperature in each cylinder separately, the bikes track speed, engine rpm, airbox pressure and temperature, plus gear changes.

The ECU component controls fuelling and ignition and is infinitely adjustable via a laptop. The team has the potential to run a 'closed loop system' for fuelling which would allow the ECU to instantly adjust the fuelling to match the environmental and load conditions whilst on track.

The digital dash is an AIM mxl Pista model replacing the original AIM Mychron series dash. This dash includes G sensors and lap timing allowing the team to log lean angle and braking points to effectively 'map the track'. With the help of specialist Richard Moss from Motorsport Electronics they have been able to analyse the data from the bike and use it to improve the Millona's performance and overall lap times.

### Where To Next?

This NCR Millona series of bikes have been successfully raced by owners in the BEARS class all over the world since 2004. Millona Ducatis have had great success at the 2007 'Sound of Thunder'



Quality workmanship abounds throughout

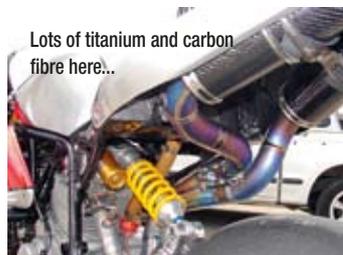
event held in Daytona with rider Valter Bartolini piloting. Malcolm was unable to ride the bike very much on the day of this test ride (as an old Rugby injury to his back was re-visiting him), however he and the Coyote Racing team have been invited to race in Australia this up-coming season. Within in New Zealand some competitors in the BEARS fraternity are reported to be a bit grumpy about letting the Millona Oneshot compete within the manufacturer's intended class. It surprises me that anyone would want to restrict the viewing public and fellow competitors from being able to appreciate this magnificent piece of machinery. I wonder if it had Britten written on the side of the tank whether it would be more acceptable, as I believe it belongs in that sort of company.

The Millona's next outing will be at the Auckland Motorcycle Club's summer series where it will compete in the open Pro-Twins class. If you are at the track – stop in and say hello to the boys and take a moment to have a good look at this piece of Italian motorcycling art.

BRM



Lots of titanium and carbon fibre here...



**SPONSORS** Geotech Systems Ltd, Ground Engineering Ltd, Bayride Motorcycles Ltd, Dunlop, Motul, Motorsport Electronics Ltd, Mainfreight and High Impact Auto Painters Ltd  
Malcolm & Graeme would like to especially thank Dean and Warren Landon of Landon Motorsport Ltd for their professionalism and highly specialized expertise, which they have unflinchingly provided during the development of the Millona engine.

NCR	
Price: Ring your bank manager before purchasing	
ENGINE	
Engine: Ducati DS1000, (bored to 1078cc), ported heads, larger valves, lightened flywheel, crankshaft and gears.	
Gearbox: 6 speed close ratio Ducati 749 Corse factory race box	
PERFORMANCE (CLAIMED)	
Max Power: 115hp @ 8450rpm	
Max Torque: 110Nm @ 6900rpm	
CHASSIS & RUNNING GEAR	
Frame: Tubular trellis type chrome-moly	
Front Brake: 2 x 300mm discs, 4 piston, radial calliper, ceramic pads	
Rear Brake: 200mm, 4 piston, billet calliper, ceramic pads	
Front Suspension: Öhlins 43mm USD, TIN coated slider, adjustable offset	
Rear Suspension: Öhlins TTX36, progressive linkage, fully adjustable	
Exhaust: Zard, Full titanium headers & secondary, 2-1-2 type, carbon fibre mufflers	
Wheels: 17", BST Carbon Fibre	
Tyres: Dunlop N-tec rear 195/65 slick, Dunlop KR106 125/80 front slick	
ECU: Motec M600	
Dash: Aim MXL Pista with CAN line to ECU & USB download connection	
DIMENSIONS	
Wheelbase: 1420mm	
Rake: 23.5 – 24.5 degrees	
Weight 121kg (dry claimed)	