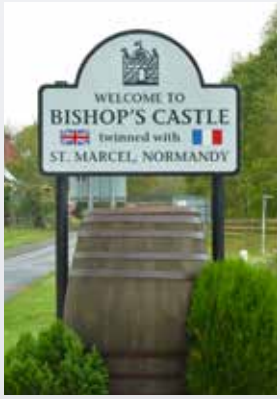
# METAL MALARKEY ENGINEERING

**BY STEVE JACKSON**




A bit more than a few months ago, our Chairman Ken Talbot and I paid a visit to a small market town (population around 1600) in South Shropshire by the name of Bishop's Castle. Yet the fact that Real ale has been brewed there since the middle of the 17th Century and that the town has two breweries along with another four excellent real ale pubs (although very good reasons to visit on their own), wasn't why we were in town. Neither was the fact that its position in an area of outstanding natural beauty and unspoilt countryside makes it an ideal area for motorcycling touring. The reason was to visit Metal Malarkey, a metal fabrication and mechanical engineering company specialising in motorcycle frame manufacture, specialist welding and in advanced design and development projects.



Established in 1998 by Malcolm Shepherdson, the company has built a well-deserved reputation for excellence with its customers through the outstanding quality of its products. Malcolm's background is in tool making and welding and he was previously Foreman with MRD Metisse, building classic race bike chassis.

The rest of the Metal Malarkey team is made up of:

Phil James, a custom Motorcycle Engineer in his own right; his background is in the electronics industry.

Lee Clements, a classic motorcycle enthusiast and qualified Mechanical Engineer, Lee has been involved in all things motorcycle related for the past 30 years.

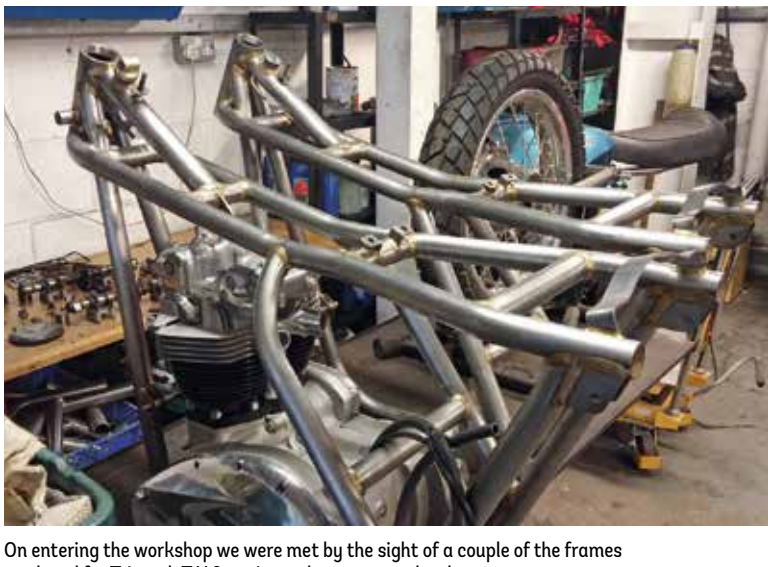
Jack Farrington is the IT guru, who Malcolm and Phil pass the design work to for all the CAD drawings and project management development.

Next up is Reuben Shepherdson, a trainee who is studying Mechanical Engineering at Shrewsbury Tech College, and last but by no means least is Nick Holiday. Nick is the person who wields the camera, coming up with new ideas on locations and themes.

I've already mentioned frame design and building, but Metal Malarkey has far more strings to its bow with the design and production of the following too:

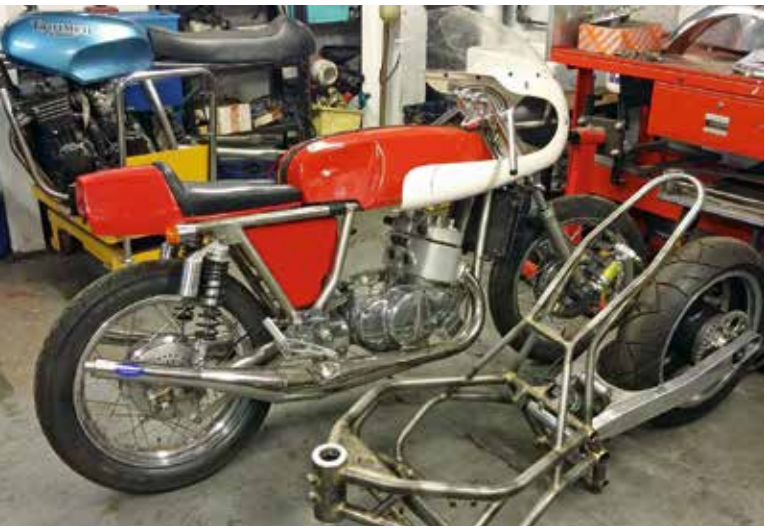
| | | |
|---|---|---|
| **Girder forks** | **Yokes** | **Exhausts** |
| **Seats** | **Handlebar switchgear** | **Caliper carriers** |
| **Foot controls** | **Luggage racks** | **Grab rails** |
| **Fork braces** | **Exhaust brackets** | **Custom airboxes** |
| **Carburettor manifolds** | | |

But before looking into some of those, here's a quick trip around the workshop.

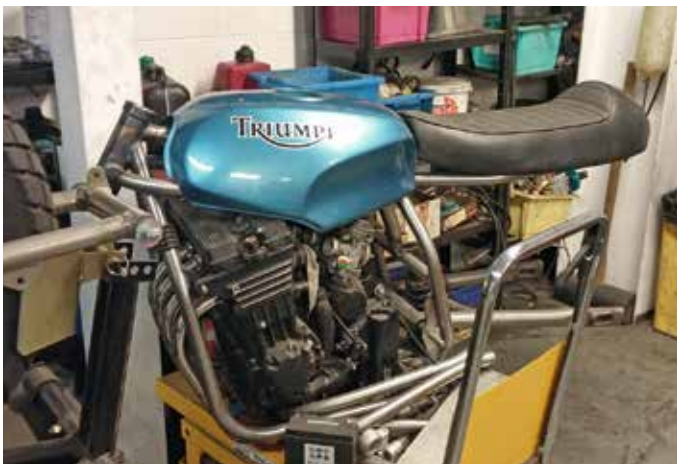


On entering the workshop we were met by the sight of a couple of the frames produced for Triumph T140 engines – but more on that later

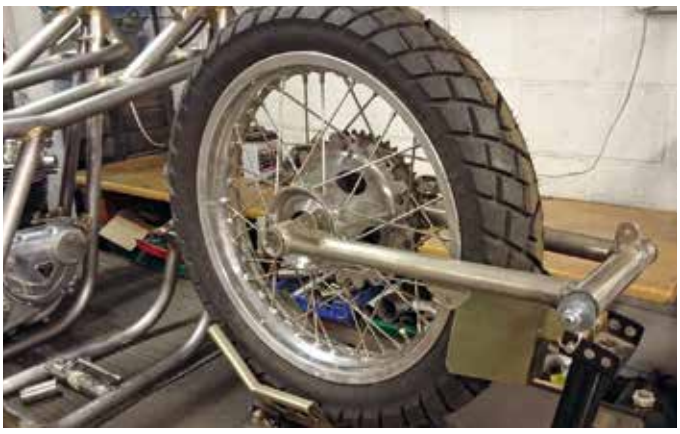
Remember The Silk? A machine manufactured by a motorcycle company founded in the late 1960s by George Silk, a Scott motorcycle enthusiast who developed a racing motorcycle by fitting a Scott engine into a Spondon frame. George, along with his business partner Maurice Patey, planned a road-going prototype and set up Silk Engineering. The prototype made its public appearance at the Racing and Sporting Motorcycle Show in London in 1971. The idea was to re-manufacture and use Scott engines but following a dispute with the holder of the Scott trademark, they had to develop an engine of their own. Which they did with the assistance of David Midgelow (from Rolls Royce engineering) and two-stroke expert Gordon Blair of Queen University, Belfast.



This picture shows a Silk machine being re-built using a new Metal Malarkey chassis and in the background can be seen...




...a frame being designed around a 1990s Series '300' Triumph triple motor

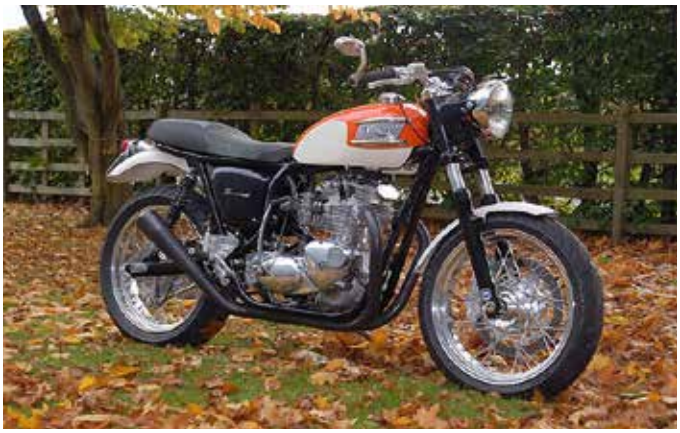


Swing-arm complete with conical hub alongside more T140 Metal Malarkey frames

## Metal Malarkey 21st Century Classic x 1

**Triumph Bonneville** – and a nod to the early 60s

Here is the stunning Malarkey Bonneville with its styling cues taken straight from Triumph's original 1963 model.



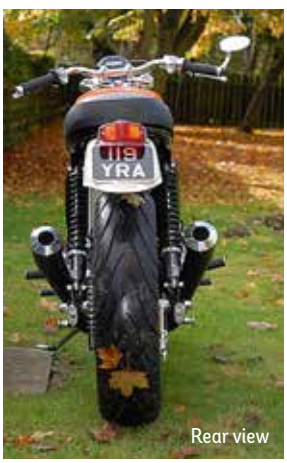
Designed by Bill Gysin/Metal Malarkey Engineering (MME) and inspired by the Metisse Mk3 chassis, the frame is made up of bronze-welded CDS tubing.

Forks, yokes and front hub are from a 90s Thunderbird, the forks containing Maxton cartridge internals with the rear hub being from a Sportster. Swing-arm is an MME Oval section item with internal adjusters and Maxton shocks.

Oval-section swing-arm

Exhausts are MME custom fabricated and are ceramic coated, fuel tank is a modified Oil-In-Frame US spec three gallon item, the oil tank and side panels being from a 1966 Bonnie and modified to suit, as is the modified front mudguard from a Hinckley Bonnie. The rear mudguard is also 1966 Bonneville that has been shortened by 9" and widened by 2".

The headlamp brackets are Hinckley Scrambler, the headlamp a Lucas replica and the modified seat from a 1963 Bonnie re-upholstered using leather and suede.




Rear view

The engine in this particular machine is a T140V unit built by P&M Motorcycles with a lightened and dynamically balanced crank, Carrillo rods, Megacycle cams, Richard Peckett twin-plug head, 10.5:1 compression ratio, lightened and polished rockers, lightened timing gears, Morgo gear type oil pump, Amal Concentric MkIIs, Pazon ignition, Mick Hemmings belt drive and diaphragm clutch and finally a P&M close-ratio 5-speed gearbox.

Statistics also include a dry weigh of just163kg and a wheel base of 1400mm. Rake is 24.5 deg. with a trail of 90mm.

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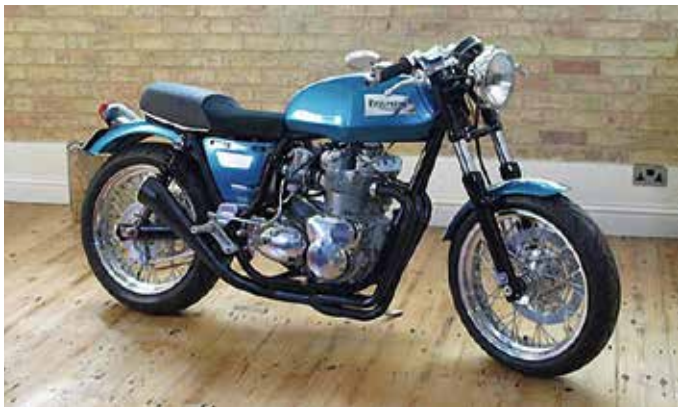
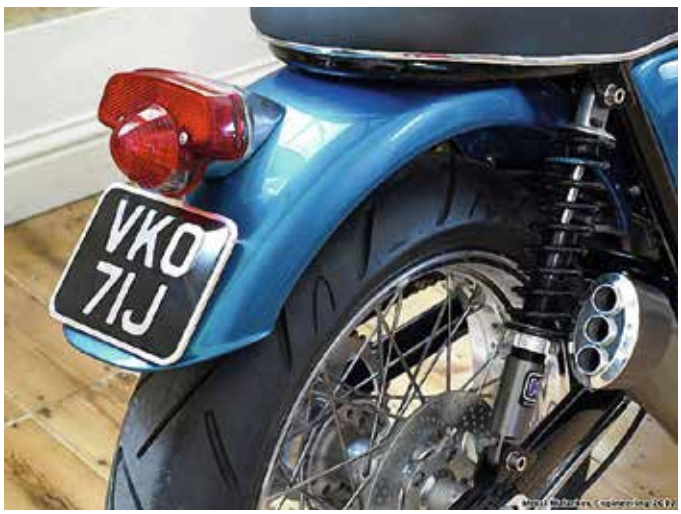


## 21st Century Classic x 2

**Triumph Trident** – cue 1969
Another design by Bill Gysin/MME, and which again uses a bronze-welded CDS steel frame inspired by the Mk3 Metisse model.




Forks, yokes, hubs are from the same machines that the Malarkey Bonneville model above uses along with the same modifications. The fuel tank is a modified one from an OIF UK Spec. Triumph, the aluminium oil tank is custom built, front mudguard a modified Hinckley Bonnie and the rear mudguard is a 1969 Trident item shortened 9" and widened 2".

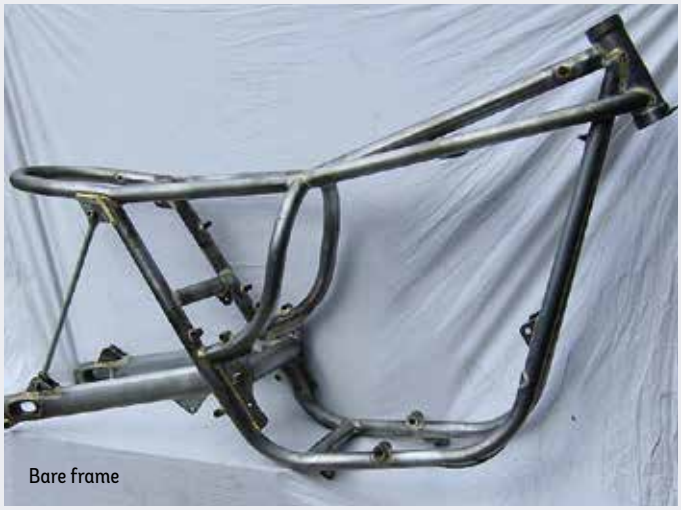
Headlamp brackets from a Scrambler are used, the headlamp is a Lucas 'flat-back' replica and the seat is also from a '69 Trident modified and upholstered in leather and suede. One-off side panels in GRP are again based on the 1969 Trident machine.

Exhausts are MME's own ceramic-coated custom designed products.

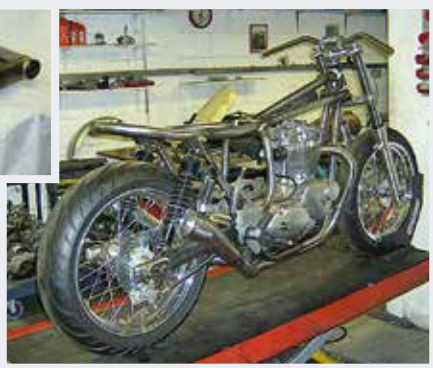
The T150V engine has been built by P&M Motorcycles and has a fully lightened and dynamically balanced race crank, Carrillo rods, Megacycle cams, lightened and polished valve gear, P&M 880cc billet barrel, Richard Peckett centre-plug head, 10.5:1 compression ratio, high capacity oil pump, 29mm Keihin CRs, Pazon ignition, a P&M belt drive with race clutch conversion and close-ratio 5-speed gearbox.

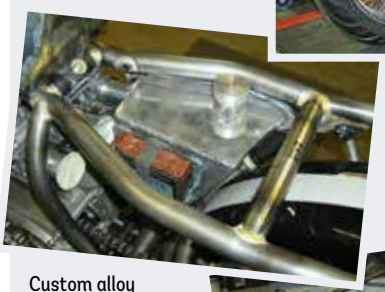
The complete machine has a dry weight of 173kgm.

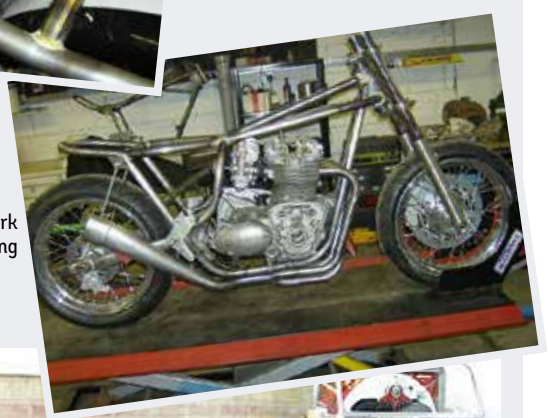
## Malarkey Trident construction in pictures


Bare frame

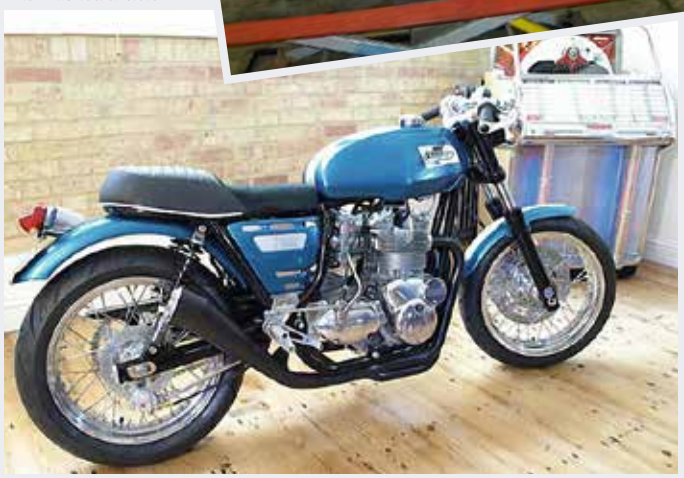

Swing-arm showing bronze welding and internal adjusters


Engine in the rolling chassis

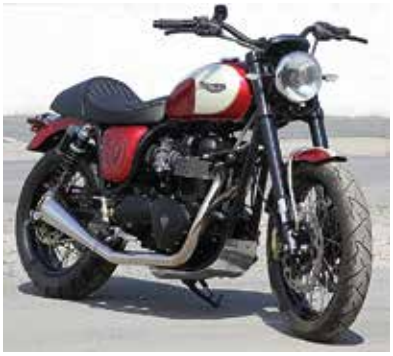

Custom alloy oil tank


Work progressing

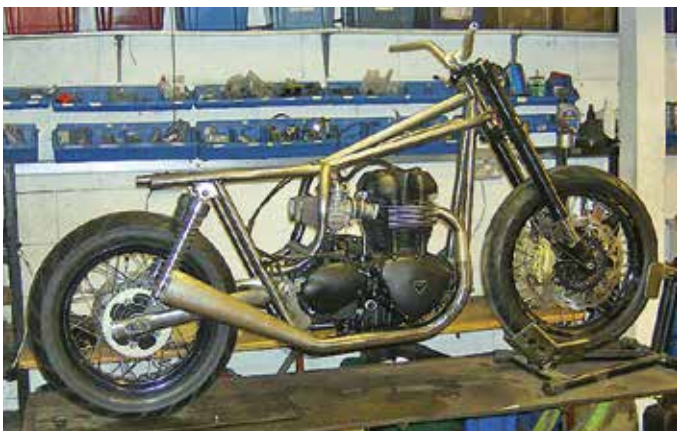
The finished article



# 21st Century Classic x3



**Malarkey Hinckley Triumph Special**
Design: Steve Goddard/ Metal Malarkey, this motorcycle was specially designed and fabricated to meet the requested criteria of lightness, handling and road holding. It features classic Triumph styling and ergonomics to suit the customer with all its component parts being to a very high standard.

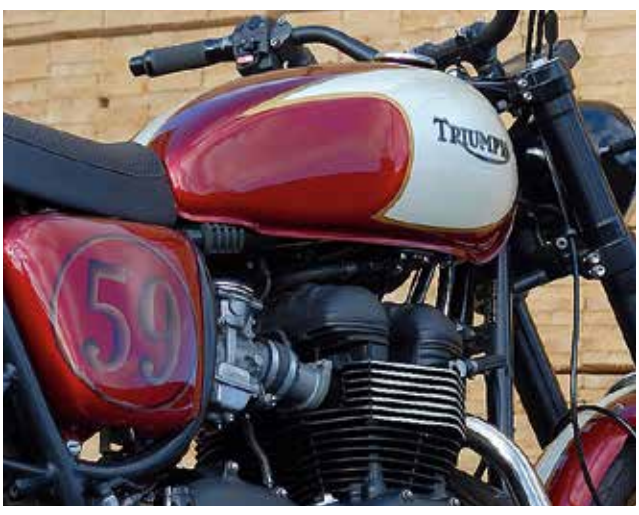


Engine mounted in the new T45 tubed rolling chassis

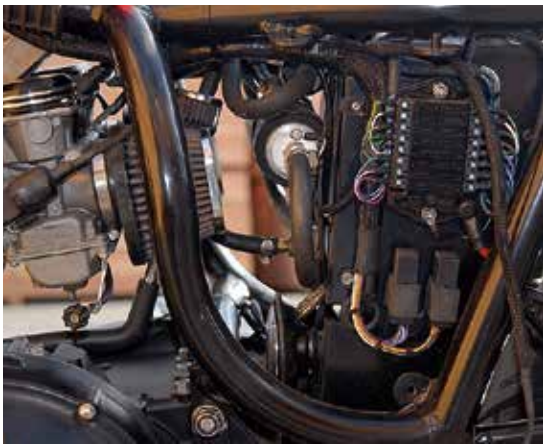
Special consideration was given to weight saving with a bronze-welded frame manufactured in high tensile T45 16swg tube based on MME's 21stC. design. The frame is oil bearing with oil being fed through the frame from the oil pump to the cylinder head. A design that means there is no need for a separate oil cooler and has led to a 30% reduction in weight from 51lb down to 32 lb.

The frame's reduced rake and trail geometry means it's quicker steering than the standard Triumph product, along with a wheelbase having been kept to a minimum.

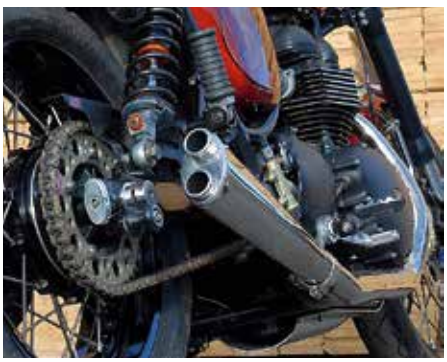
The swing-arm is of oval section CDS 14swg tube, bronze welded and with provision for a caliper plate/torque arm location lug, chainguard, shock absorbers and paddock stand. Wheel adjustment is internal with adjuster bolts bearing on aluminium ends and with stainless steel plates provided for rear wheel spindle clamping.




Pre-injection fuel tank reworked to fit the new frame



External fuel pump and regulator



MME 2 into 1 with elliptical reverse cone mega

The fuel tank is the narrower pre fuel injection type with the base extensively reworked to fit the new frame.

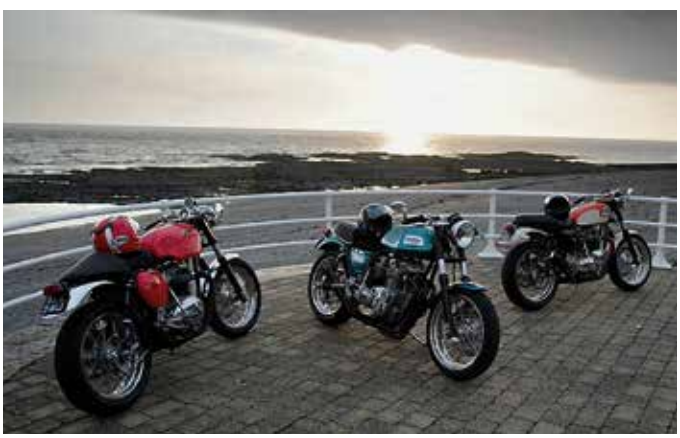
Mounting bracketry is reworked and a provision made for a low level fuel sensor and a Motogadget M Unit external fuel pump and regulator compatible with the fuel injection system. The front of the rear mudguard has also been extensively reworked with aluminium plates incorporated to aid dirt deflection and add provision for electrical component mounting. Side panels are modified to fit as is the front mudguard underbrace.

At the front, forks and yokes are Aprilia, the wheel hub is a Talon component laced to a rim from Takosago with stainless spokes. The rear hub is also from Talon with Triumph Cush-drive, Takosago rim and stainless spokes.

The chassis geometry has been designed around these components.

Moving on to the exhaust, it's a MME 2 into 1 stainless system with a tapered oval section and an aluminium 'ray gun' style end plate. It uses an absorption type baffle with perforated tube packed with blanket wrap and is mounted through anti vibration rubbers.

Frame dimensions include a rake of 25.5 degrees, a trail of 102mm (4") and a reduction in frame weight from 39lbs (17.7kg) down to 25lbs (11.3kg). Total machine dry weight is 380 lb (172kg)



The full 21st Century line up

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## Handlebar Switchgear

Fitted to the 21stC. models featured above is a range of MME designed and produced custom switchgear. Unusual, extremely individual and intriguing to look at, they are all machined from high tensile aluminium and secured by discrete stainless steel grub screws. All the buttons are waterproof, the switchgear is wired up to through the handlebars and mirror bosses can be incorporated where necessary.

If you really do want that individual 'look', here's the place to start.

Right-hand switches with red 'Kill' button

Finally the last MME product to be highlighted in this article is:

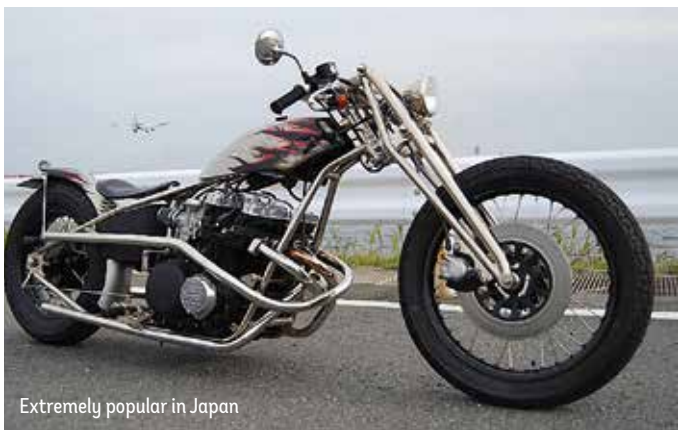
## Girder Forks

Whilst Malcolm was showing Ken and I round we dropped on something that I thought had been consigned to motorcycling history, but now I know better; they're not in the past by a long way!

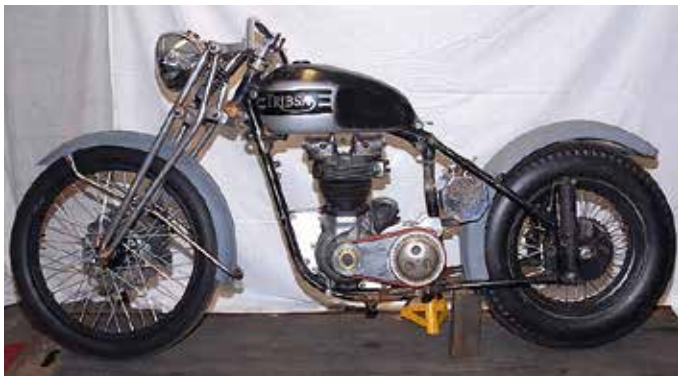
Much sought after by custom bike builders the world over are MME's girder forks. They are a particularly favourite fitting of a great many Japanese customisers; and who Malcolm reported as being one of his biggest markets.

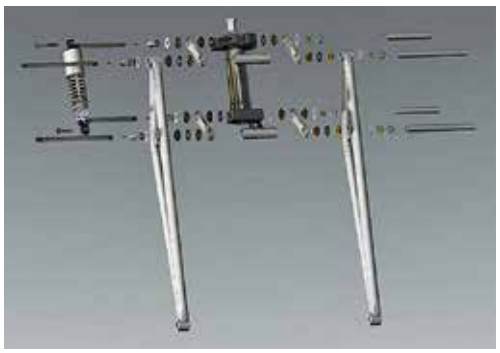
These high quality forks give superb road holding characteristics and are equally suitable for classic, custom Motorcycles and Trikes. They are available in two standard widths - 6" single shock and 8" twin shock, the shock absorbers from Hagon having their spring and damping rates adjusted to suit each individual application. Fork lengths are custom made to fit each specific machine with fork tube diameters being determined in-house for the required strength and aesthetics.

What's in there then?



Extremely popular in Japan





ABOVE: Even on a Tribsa!

LEFT: Exploded view

BELOW: HE30 Yokes and stainless fasteners

The fork legs are manufactured using 7/8" to 11/2" 14 SWG cold drawn steel TIG or bronze welded, with rocker arms of bright medium carbon steel that are also bronze welded.

Yokes are machined in Aluminium HE30, bearings are Oil-lite bushes and fasteners of stainless steel with Nordlock washers and stainless grease nipples.

So there you have it, a wander around Metal Malarkey and a look at some of the best products of quality British motorcycle engineering and design you can buy. It was both a pleasure and a privilege to have been able to visit, and thank you very much to Malcolm for his hospitality and patience in showing us round. The only thing left to do to end a perfect day, was a tasting session of Bishop's Castle breweries finest...

...and they didn't disappoint either. To top it all off Malcolm joined us too! ●

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**Opening Hours**
9.30 am - 6.00 pm weekdays. Out of hours - prior arrangement.