

# Large block – Race-Tour MBgm, 225/250

## LARGE BLOCK RT MBgm 225 – 250 CYLINDERS

This is an article on the MBgm Large block Race-Tour cylinder kit. The writing is similar to our original MBD Race-Tour cylinder kit but there are differences if you are interested in the kits.

The MBgm RT225 Race – Tour kit is a development of the original MB UK made Race- Tour cylinder kit.

Scooter Center Koln wanted to produce our kit for us. Having tuned, made exhausts, rebuilt engines and Scooters and sold parts to them for 20 years it worked out well to develop our business partnership.

These things take time and 18 months after the project started they are here as a massed produced kit and not a one off fettled kit that I had to hand make. The upshot is more standardised in the engineering and with a reduced price.

The main differences between the UK MB version and the BGM versions are;

- Die cast cylinders
- CNC machined
- Nicasil plated
- Cheaper MBgm forged piston
- CNC cylinder head with more cooling
- Standardised port timings

If you read on you will find the advantages of the Race – Tour kits. This new MBgm kit is a work of art. I'm proud to say it's my design, it's so good I even impress my self when I pick one up as it reminds me of all the hard work I have put into Scootering over a 30 year period. These kits are designed to be a simple fit and forget, set them up right and for a very simple kit you will be surprised how fast they will be, it's the most versatile Road Race Touring kit on the market been Ride-able, Drive-able and Reli-able.

The main difference between the UK and new version is improved port timings for improved power with fuel economy. Add this to the MB – Bgm package for crankshafts, Big Box Clubman, Carb kits and Electronic ignitions we are aiming to produce the ultimate Lambretta engine package from two companies who have been in business for many years.

### Main features

- Carb on the standard left hand side working with carb sizes from 18 – 35mm with no mods apart from matching an inlet manifold
- Works with any exhaust standard or performance using standard oval port flanges
- Work with a standard 58mm crankshaft or full long stroke race spec crankshafts with no machining

Comes with these improved specifications

- Alloy cylinder to run cooler using modern strengthened aluminum specially treated to have no casting holes, heat treated and precision CNC machined
- Nicasil plated for long lasting friction free running, using our universal MBgm RT forged pistons
- Uses revised MRB retro old skool port timings
- Easily modified transfer feeds to match standard or existing over sized casing transfers
- Give the choice of either 4 exhaust studs or use the 2 standard studs depending on using a standard exhaust flange or an improved MB 4 stud flange

To do this and look at long term reliability and power they had to be designed with;

- Porting specs for high powered touring, with reshaped exhaust port, inlet port and transfer ports
- Extra material for higher spec Road or full Race or reed valve tuning
- Castings had to have 200 large block cylinder same as small block cylinder, basically a 200 cylinder on a small block
- Use 200 Inlet stud spacing on both small and large block cylinders to gain port size
- Improved casting thickness for anti warping around the ports, cylinder head and base faces
- Extra 4 studs to tighten the cylinder head
- Cylinder head machined so it drops into the bore to centralize squish clearances and prevent gaskets blowing allowing gaskets to set different squish clearances depending on stroke of crank
- Improved fuel economy from using old style tunes saving money paying for the kit long term

Together with all this they needed these advantages

- Work with standard 39mm crown height pistons using standard 107 or 110mm con rods
- Work with low compression 30/31/32mm crown height pistons to suit cranks with 115/116mm con rods
- Work with different base gaskets or packers and head gaskets to make port timings adjustable to suit Touring or Road-Race use
- And be the most versatile Lambretta cylinder kit ever made

Based on all this information, I took the original cylinder and gave it the MRB Stage 4 – 5 modern tune. If you want to tune them to full stage 6 group 4 standards then the outside of the transfers were beefed up also.

Part of the advantage of the RT cylinder is it is extended at the top and added an extra fin for three very good reasons

- Aid extra cooling at the hot spot
- Allow enough alloy to give depth for 4 extra bolt holes for extra head

studs

- Give the cylinder height, so the head can be machined to drop down into the bore, curing head gasket failures and making one cylinder suit 58, 60, 61, 62, 63 and 64mm stroked cranks with very little work for these to fit

## Difference between Small Block and Large Block version

The main basic casting was the same between the Small and Large block, we used the same casting patterns but used smaller transfer feeds on the Small Block, we couldn't help this, the transfers on the Small Block engines are smaller. We used the same method as on the 200 version with a new shaped larger transfer but reduced them at the gasket face. The cylinder studs are closer together on the Small Block so the transfer ports inside the cylinder are smaller. We used the same larger 200 stud size on the inlet port from Small to Large block castings.

We think we've made a very important cylinder kit with improved ideas to help make a better kit over the others, there are many new ideas and advantages. It was never designed to compete with a TS1, RB or Super Monza, it was designed as an all round touring motor which can be tuned to the limits of Racing! Expectations from the kit is variable because of the universal nature it was designed for, you can tweak power output to suit you, based on what carb and exhaust you want to fit and the type of riding you want to do.

We now no longer print dyno horse power figures, what we will say is we have seen power outputs varying depending on set up and who's dyno is used, we've seen from 9 – 22bhp from a standard kit.

## Large Block kit we offer

- 225 Large block 70mm piston

Using a 60mm crank gives you a 230cc Large block motor, these can also be made to work with 62-64mm cranks if required.

## Setting up

Our preferred method as with any cylinder kit is to use a crankshaft with a 110mm con rod as explained in our crankshaft section and packers section this allows cylinders to be lifted up or down using different thickness cylinder packers and head gaskets. But the kit is designed for using a standard 58mm cranks with 107mm con rod, on good casings the cylinder should set up with a standard 0.5mm base gasket, no head gasket and give around 1 – 1.2mm squish clearance. The same would be for a 110mm con rod but just tweak the base packer thickness. For touring, set the piston at bottom dead center level with the bottom of the transfer port, this lowers transfer and exhaust port timings to more like a conservative stage 3-4 tune and produces torque and pulling power lower down to ride like a fast standard. It does increase inlet port timings but not by enough to upset things. Usually to set the transfers level you will need a 2-3mm base packer, this depends on casing heights and stroke, then choose a head gasket to give the important squish clearance. If

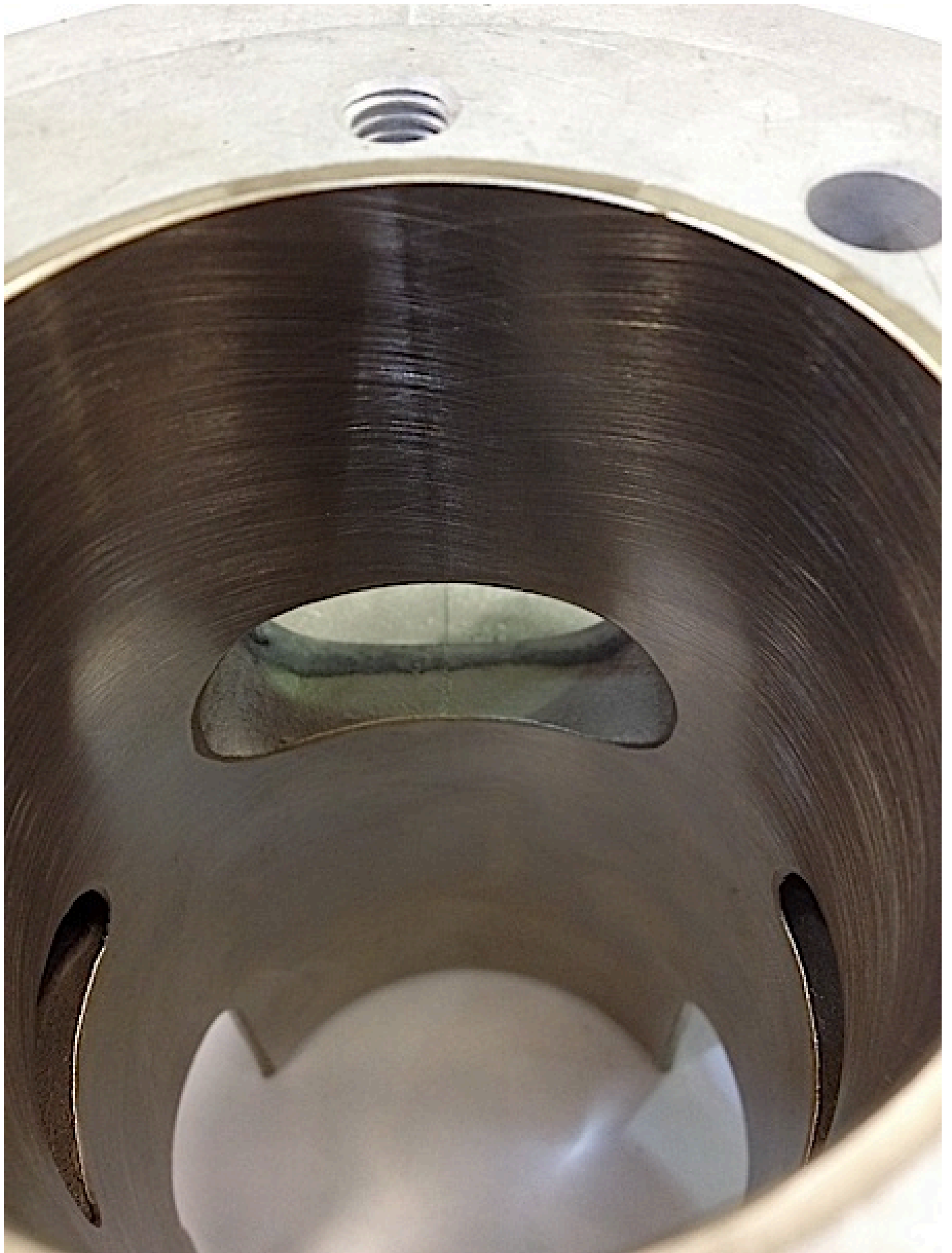
you want to increase power and speed, increase the size of the base packer to lift the ports by 0.5 – 1.00mm this lifts the lower edge of the transfers but this is fine. You may need to lower the bottom of the exhaust port to suit if you do this. Then add a smaller head gasket to set the squish clearnce.

#### PROS:

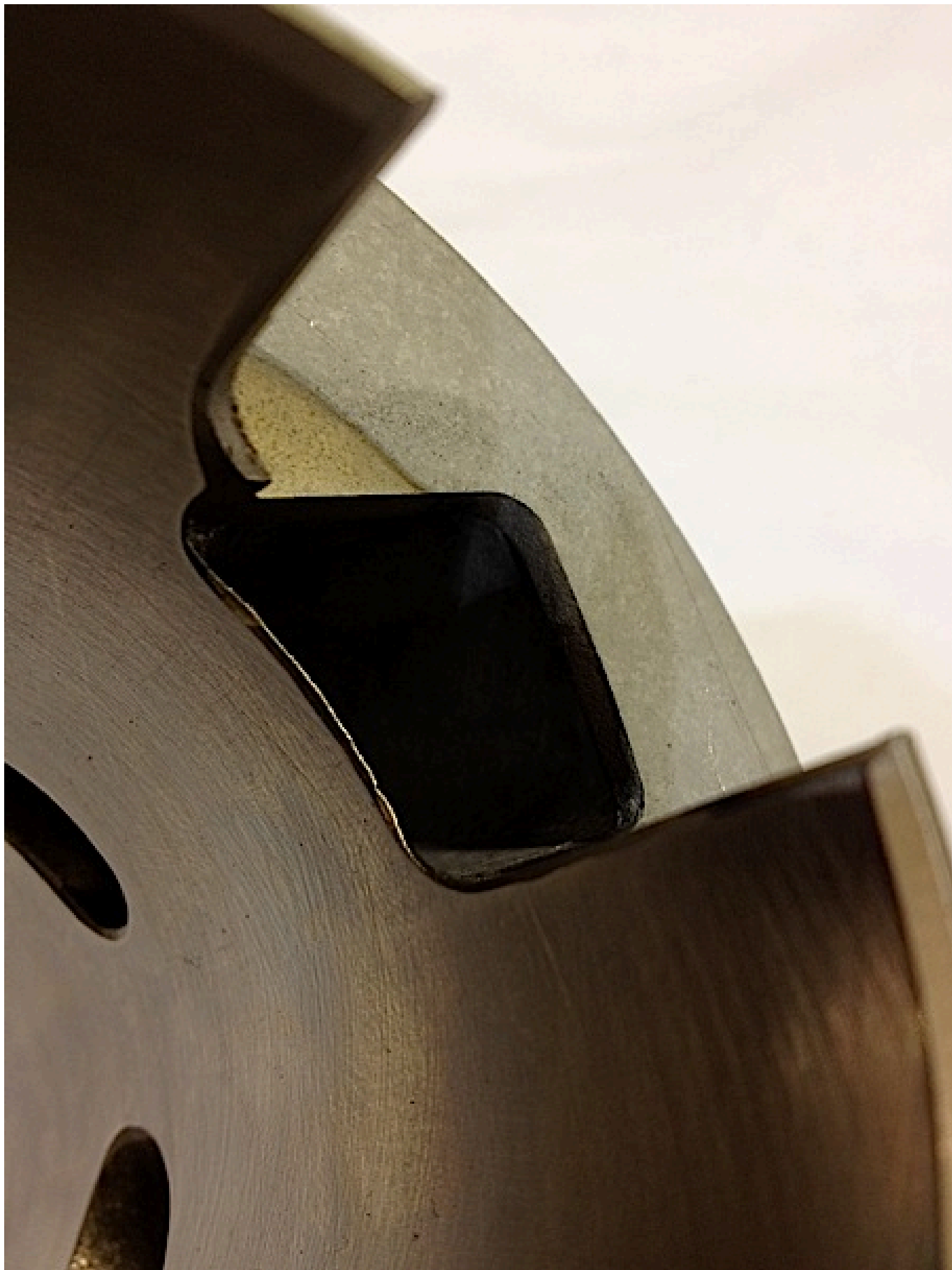
- Carb on the standard left hand side working with carb sizes from 18 – 35mm
- Works with any standard exhaust using standard 2 stud oval port flanges or improved with MBgm 4 stud flange which comes with the Big Box Clubman
- One cylinder casting to suit Small Block 125, 150, 175 and Large Block 200 casings
- Works with standard crankshafts, Race cranks or long stroke crankshafts with no complicated extra machining
- Alloy cylinder to run cooler, made from modern strengthened aluminum, specially treated to have no casting holes, heat treated and precision CNC machined
- Nicasil plated for long lasting friction free running
- Uses revised MRB retro old skool port timings
- Use MBgm RT forged pistons with varying grade sizes from A, B, C, D
- Easily modified transfer feeds to match existing over sized casing transfers
- Fits all standard cowlings, bodywork, no extra machining, trimming or tuning work required
- Porting spec for low to high powered touring, with reshaped exhaust, inlet and transfer ports
- Extra material for higher spec Road or Race tuning
- Small block casting uses 200 port sizes, uses the same 200 Inlet stud spacing on both small and large block cylinders
- Improved casting thickness for anti warping around the cylinder head and base faces
- Extra 4 studs to tighten the cylinder head
- Cylinder head machined so it drops into the bore to centralize squish clearances and prevent gaskets blowing allowing gaskets to set different squish clearances depending on stroke of crank
- Improved fuel economy from using old style tunes saving money paying for the kit long term
- Allow for Reed valve tuning as an extra at a later date

#### CONS:

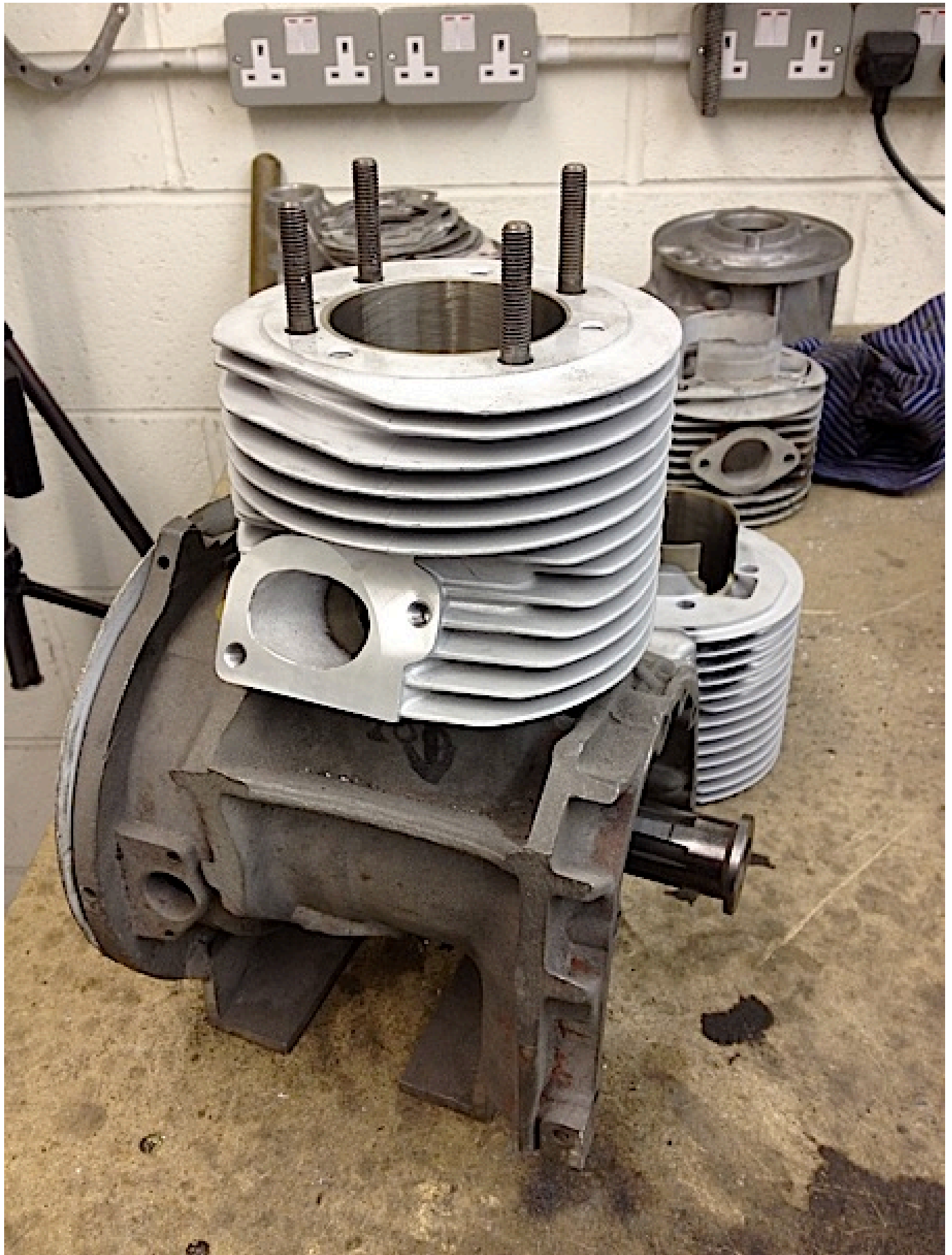
- I'm still thinking... Price! Oh no it's much cheaper than other kits that only offer half of this kit



*Inside the cylinder with touring porting*



*Transfers only need a bit of a tweak to suit larger stage 6 type transfers*



*Set up on the timing jig to make sure the port timings are correct from batch to batch*

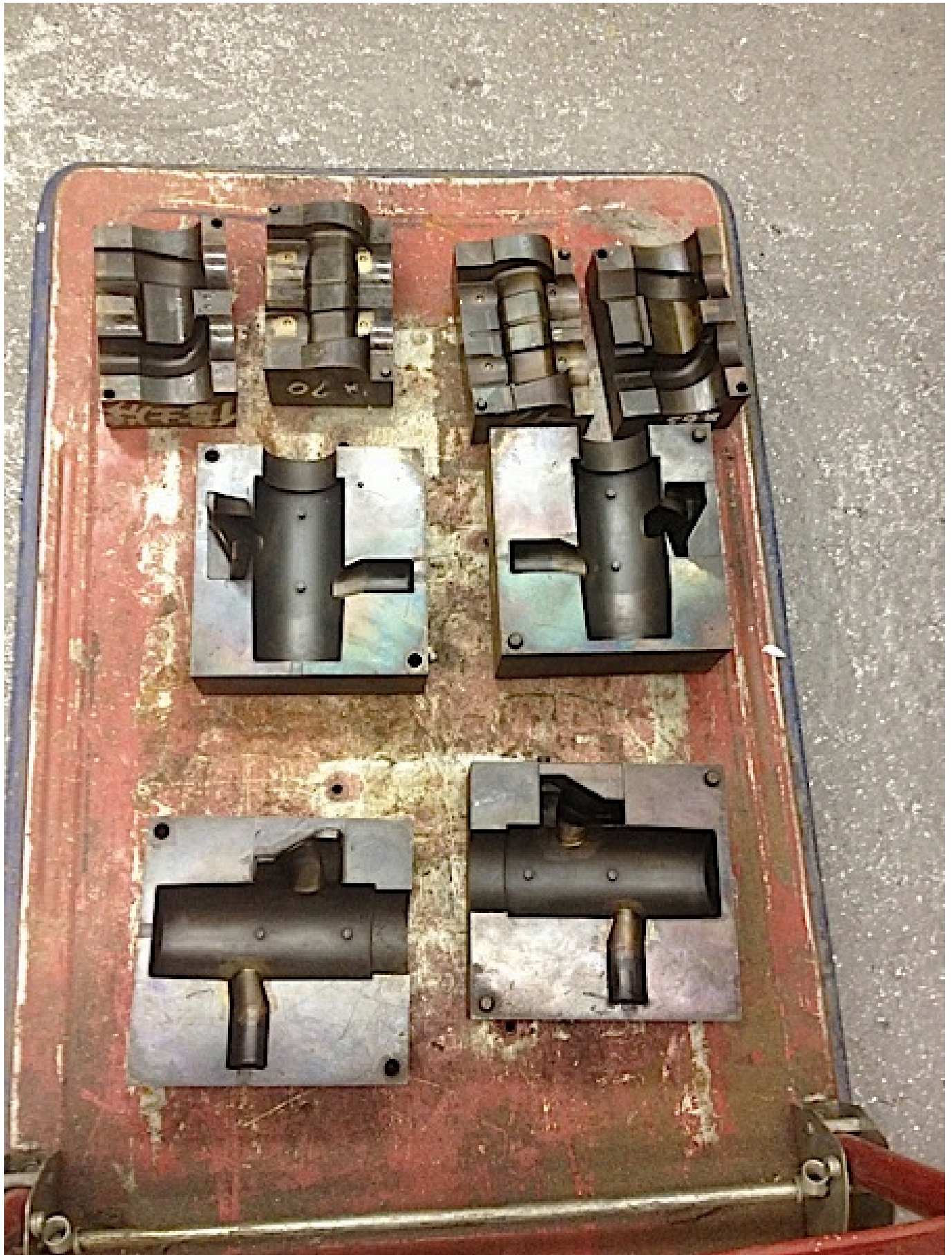


*The MBgm cylinders have a rounded port compared to the MBD version with a square shaped port*





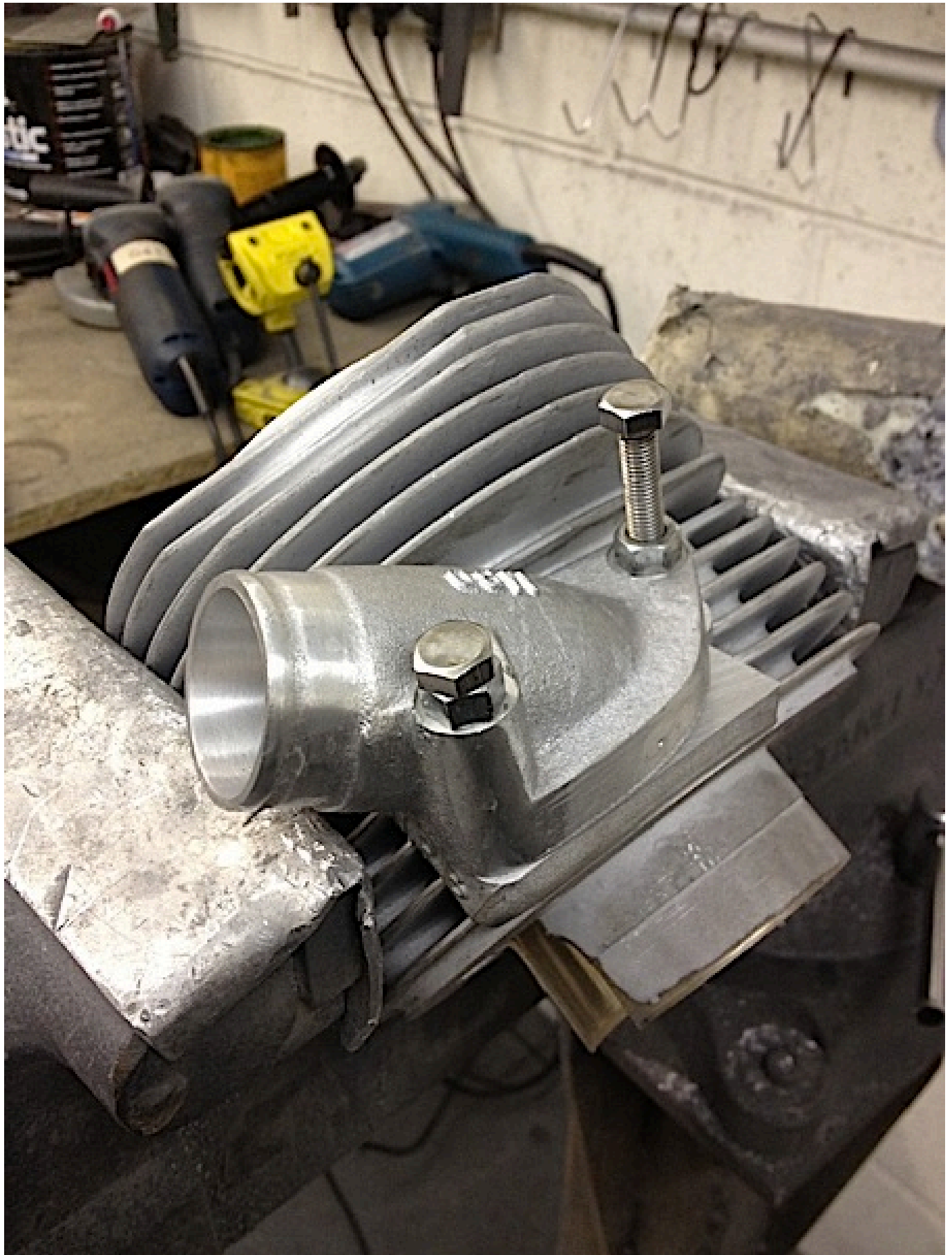
*Billet CNC RT head with drop into the bore to centralise the head and keep correct squish clearances*



*80 kg of tooling was shipped around the world to have 30 hours of tuning work done to get the tooling as Mark wanted it*

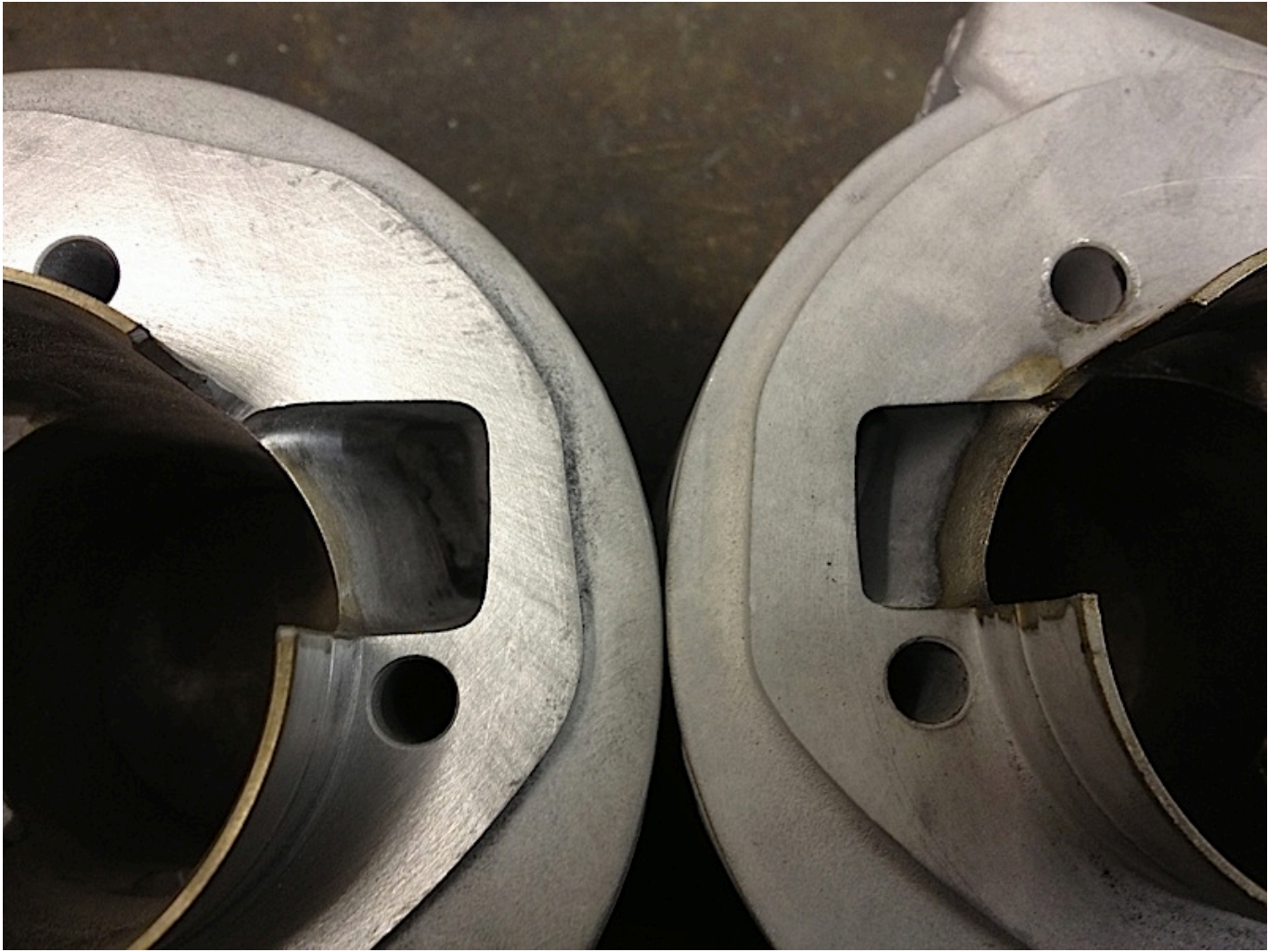


*Both inlet and exhaust port was modified as was the transfer ports*



*The only extra of the kit is having the manifold bolted and flowed to finish off the kit, there's so many manifolds we can not control this*





*On the left a tuned transfer feed on the right a standard feed*



*On the left a matched and flowed inlet port and standard on the right – note the thick top section with extra cooling fin*





*And the main man working away on a head, head work alone took around 40 hours to compare everything on the market*

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