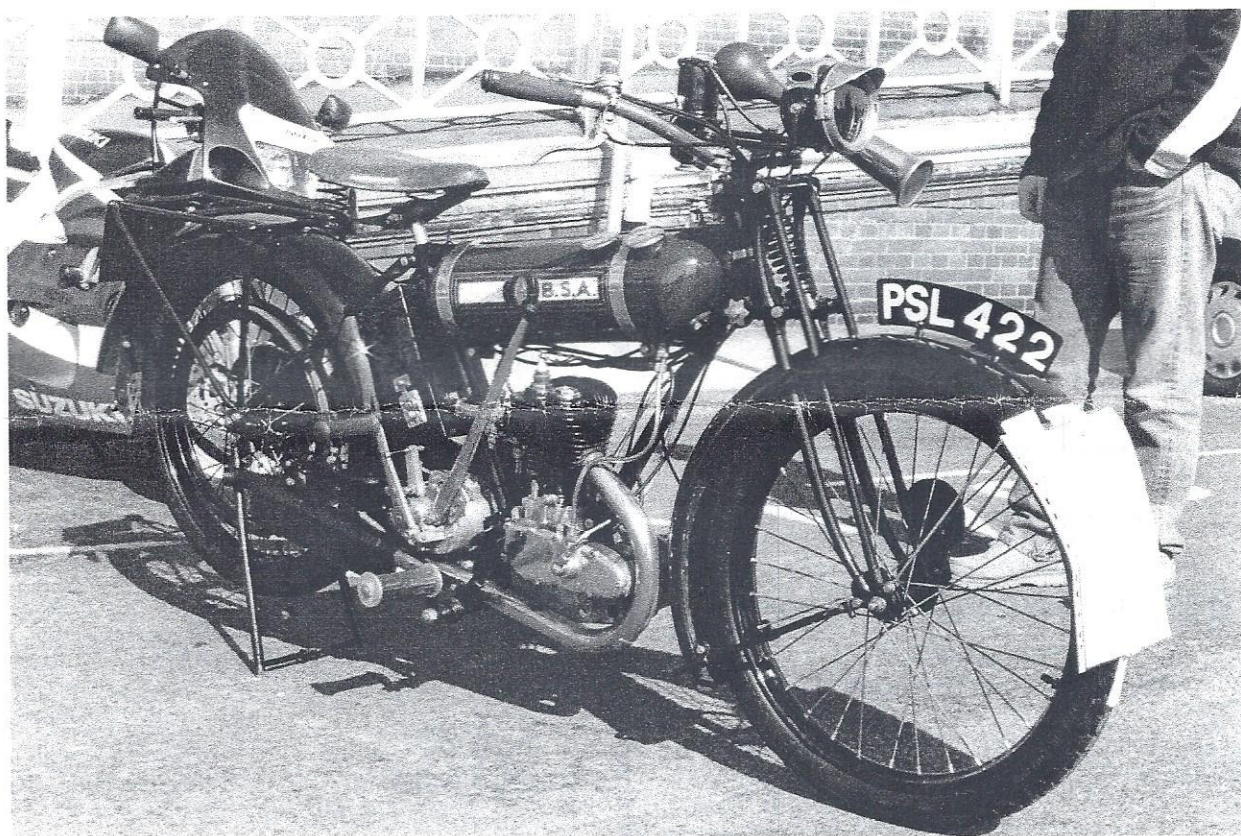


Antique Motorcycle Club Of Manitoba Inc.

P.O. Box 1074 Winnipeg, Manitoba R3C 2X4

RUST'N PIECES

Number 4 Volume 26 April, 2003



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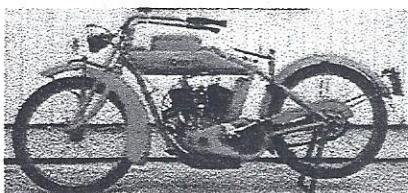
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UPCOMING EVENTS

May 10th

Abate 3rd Annual Show & Shine
Virden, MB

May 15th

CMMG MLA Ride
Legislative Grounds 5-6pm
contact 269-2664

June 20th to 22th

Manitoba Ride For Sight
contact Diane / Ivor 284-6753

July 4th to 6th

3rd annual AMCM Rally

July 10th to 13th

Moto Guzzi National Owners Club
National Rally (MGNOC)
Mt. Vernon Wshington
Richard Guthrie (206) 246-3181 or
email rtguthrie@jun0.com

August 24th

Breast Cancer Pledge Ride
Winnipeg to Morden
contact Tracie 233-9398
Sharon 633 2453

Sept 6th

Corn Roast

Meeting Notice

Next meeting at Woodhaven Community Club

April 29th, 7:30 p.m.

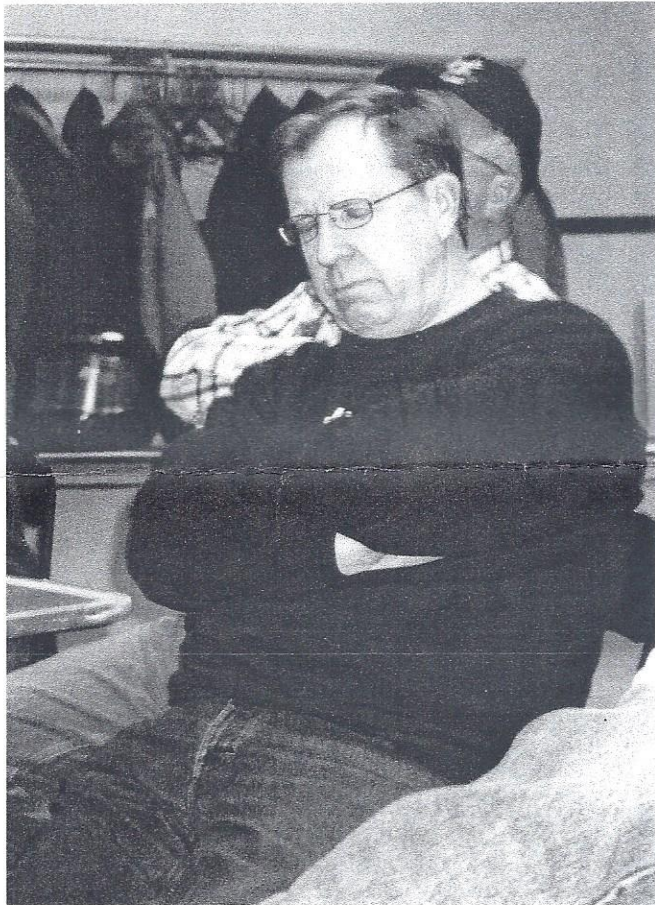
Next month May 27th

Community Club contact: Anne Boyd 831-1635

Minutes of the March Meeting

Meeting started almost promptly at 7:42. There were 13 members present, the secretary not among them, thus, Jim R. as a stand in so bear with me.

The meeting started with a candid camera shot of a sleeping member from last meeting being past around .



(Is this what he was dreaming of ??)

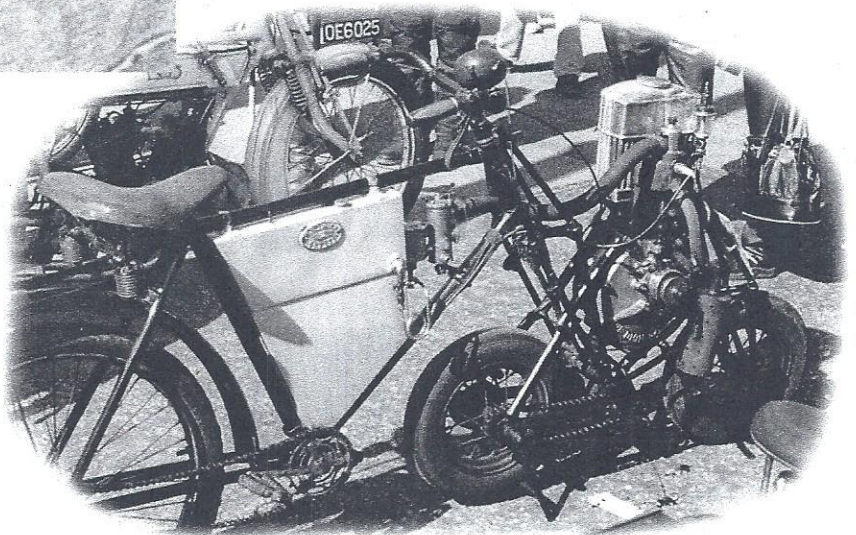
Ride suggestions for coming season; a run to Manitou, or the Morden Corn and Apple Festival. Anyone with a suggestion for a possible run should bring their ideas to the meeting.

Ed the money man, said our membership sits at 41, the same as last year. MPIC still not moving on any kind of a plate to move from bike to bike. Ed reported on Cuban holiday, lot's of 50's American carsal over the street, also classy cop's down there (they ride Moto Guzzi's).

Marv was looking for some rally forms, he says on of the guys coming is a professional photographer, so he figures we'll get some really good rally shots.

Richard G will have sample jackets for the next club meeting. Richard also reported that a club porta potti in his care was destroyed. Every agreed that it need not be replaced.

Jim R.





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Editor's Note

The article on the 90 degree crank for british twins come from the CVMG news letter, Jan. and Feb. issuses for this year. It is a two part article with the second part comming in next month's newsletter. So if any of you are not satisfided with meerly keeping your old parallel twin running, you may want to consider redesigning your engine, enjoy.

If anyone comes across any technical article in other publications and thinks the club members may have an interest, or if you would like to share any experiences or wisdom from your own project, send them in.

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Building 90° Offset-Crankshafts for Triumph Twins

Part One: Building the Crankshaft and Cams

by Geoff Collins

The Crankshaft

I became interested in building a 90° crankshaft for my Bonneville in 1997 after reading various Classic Bike articles on the benefits of both 76° and 90° crankshafts. In these articles the crankshafts were built using custom machined components bolted to existing stock or modified components. As a toolmaker, I looked at these constructions as something to be improved on by making a stronger, all-welded assembly from stock components with the minimum of custom machining. This description of crankshaft construction does not go into the benefits of 76° or 90° configurations, but describes how I have built a 90° offset cranks for Triumph twins. With slight modification in the process, Norton and BSA cranks can also be built using the same tooling.

It should be noted that I did little of the actual machining or welding. I don't have the equipment needed for a production-quality job. For example, once the fixture was cast the only machining I did was to modify the fixture to make the drive and timing side journal clamps with a hacksaw and drill press. It was also part of the exercise to have others build the crank to determine the price to contract the entire job out. As well, any fixtures, drawings and specifications I developed along the way meant that other skilled trades could build each part of a crank without me being there to watch each step.

From the start I knew a fixture was required to hold crankshaft components while welding and maintaining alignment during stress-relieving. With scrap wood, glue, screws, wood filler and a belt sander I built a pattern that was sent by mail to Lake Foundry near Grimsby, Ontario. They also received a drawing showing a line-bored hole between the two webs that would hold the crankshaft journals. With basic research and the foundry's advice the fixture was cast in Class 45 iron, a cast alloy that would remain stable during the heating and cooling of stress-relieving. At home, I drilled and tapped holes for bushing clamps then hand-sawed the end webs apart to split the line bored holes horizontally creating two clamps.

Slip fit bushings were machined to hold the crank securely on each end of the crankshaft. They extend the holding power of the clamps and prevent damage to ends of crankshaft during handling. The use of bushings was also part of the plan – in this way Norton and BSA cranks can be handled by swapping bushings instead of building a special fixture that only suited Triumph bearing journals. Stops are used to set big end journals for accurate 76 or 90 degree offset. Figure 1 shows the resulting fixture with bushings, clamps and stops.

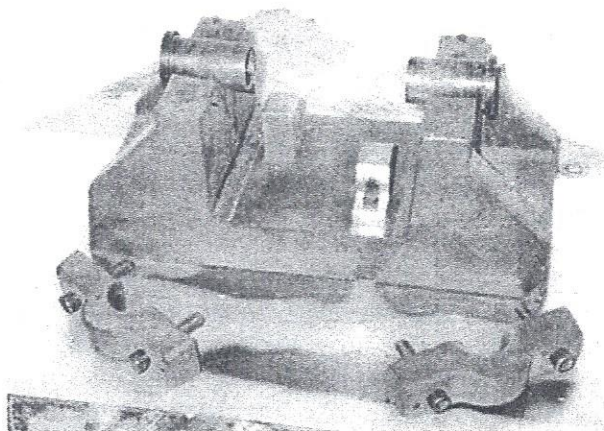


Figure 1 – The fixture with bushings, clamps and stops to position crank throws.

Once the fixture was built the modification of the crankshaft could begin. First, the flywheel was removed. Scarborough Engines cut the crankshaft in half through the centre web. Each half of the crankshaft was then machined on its cut face to true the surface and allow for the addition of a spacer plate. The spacer plate also carries the oil passage between crankshaft journals (Figure 2). Spacing between drive and timing side journals was checked and maintained.

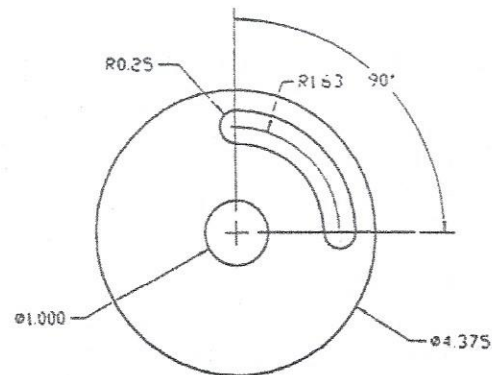


Figure 2 - Spacer plate between crank halves

Scarborough Engines indexed the first crankshaft halves in the fixture, with spacer plate installed, then welded the two halves to make crank whole again. Stops are now used to accurately set journals at correct 90 or 76 degree offset as shown in Figure 1.

At this point the crankshaft rotated freely in the fixture indicating that no distortion of crankshaft had occurred. Figure 3 shows the welded crankshaft sitting in fixture after centre-section was turned to re-fit stock flywheel. Flywheel is a slip-fit the same way stock flywheel is mounted.

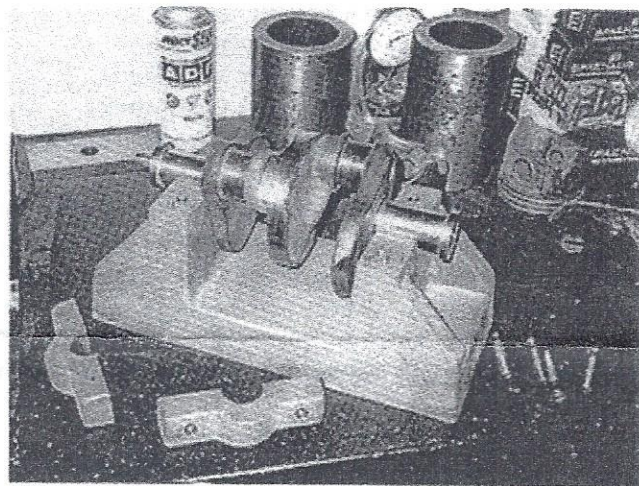


Figure 3 – Welded crankshaft before flywheel is fitted.

The flywheel was test mounted with large counterweight opposite the journals. A conservative estimate of the material to be removed was marked and removed on a vertical mill using radius cutter to prevent sharp corners.

Flywheel was fitted to crankshaft again and tack-welded in position. Both sides of flywheel were welded around complete joint between flywheel and crankshaft centre web in the fixture, rotating crankshaft to get at all sides. Welding the flywheel in place also adds strength to narrow centre web. If crank is to be lightened, material is removed from flywheel after this welding process. The ground electrode must be attached to the crankshaft during welding to prevent the crank from being welded to the bushings, or the bushings from being welded to the fixture.

Once welding is complete the entire assembly is stress-relieved. Crank is bolted solidly in the fixture using anti-seize compound and entire assembly is slow cycled up to 1500F degrees then back to room temperature in a furnace. This ensures that all welding stress' have been removed. Weld slag is ground off, welds are ground smooth, then crank is Magna-fluxed to check for cracks. If greater strength is required crank assembly could be Nitrided in the fixture even though that process is done at lower temperatures.

Crank is now ready for grinding and balancing. Drive side and timing side bearings are checked for true alignment. The smallest variation indicates that these journals must be ground undersize, hard-chrome plated oversize, then ground to original size. Big-end journals are ground .010" undersize to clean the bearing surface with factory-specified .090" radius at the edge of each journal. Figure 4 shows the first crankshaft with extra balance weights added to pear-shaped counterweights to compensate for material that could not be removed from the flywheel.

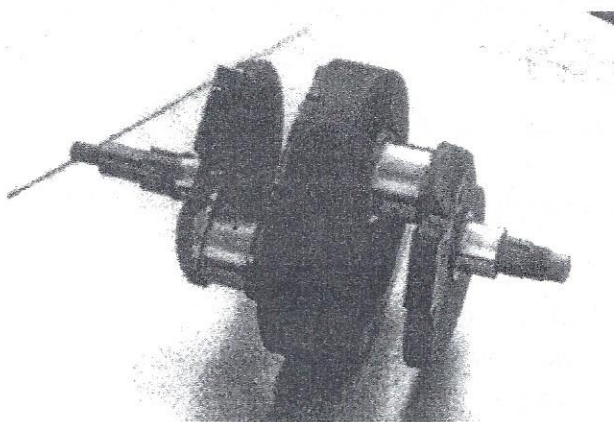


Figure 4 – The first crankshaft – original flywheel mounting holes are not used. Odd Mallory-metal counter-weights on crank cheeks added by Garland – they are not required on newer cranks.

Balancing completes the crankshaft. D. Garland & Sons Lt. uses a dynamic balancing system using an RPM range for best smoothness or a balance factor. On the first crank I specified a 60% balance factor based on a compromise between V-twin and vertical-

twin balance factors. I provided Garland with connecting rods, bearing shells, pistons, wrist pins and circlips as they can balance within one-half-gram to specified balance factor.

Camshafts

There are two ways to make camshafts; by modifying existing Triumph cams or by having someone build them. If I modified stock camshafts another fixture would have to be built so I could saw camshafts between lobes, index them correctly by 45° degrees, then weld them back together. It may take four cams to make two good cams using this process to compensate for material removed when the cams are sawn apart as well as an experienced micro-welder. The other alternative was to have custom cams built by MegaCycle Cams of San Rafael, CA. to my drawings. Numerous advantages came from this; a choice of cam grinds, cams known to run true and harder than stock cam surfaces. Their 510-05 grind was used for the first engine because of its intended use as a city bike.

MegaCycle was provided with instructions for cam modifications using drawings showing the offset required. After engine was assembled, and cam timing checked, lobe positions were found to be within less than 1° of cam specification. Figure 5 shows camshaft lobe offset in comparison to the standard, a critical instruction to the cam grinder.

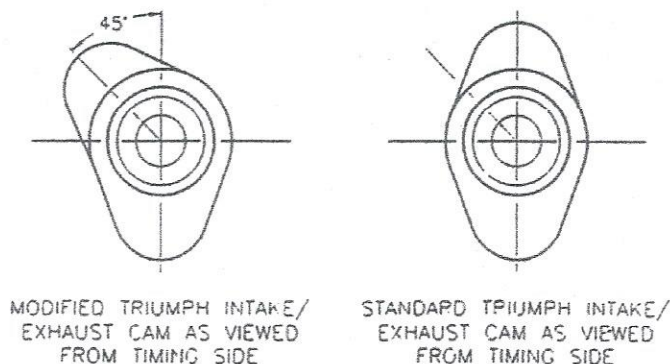


Figure 5 – Camshaft lobe offset, timing side is standard, drive side is 45 degrees behind

Next Month: Part Two, including Timing, Norton & BSA Crankshafts and a road report.

MAAC Report - March Meeting

Calendar

The MAAC 2003 Activity Calendar has been printed and distributed, I picked up about 45 copies.

Unfortunately, our Rally was omitted from the calendar, in spite of submitting the info on time- It's an Oops, but too late.

World of Wheels

MAAC clubs will provide security for the World of Whhels show, but members will still have to pay to get in.

MAAC will also sell WOW T-shirts

NAAACCC and SVAO have lobbied the government re the steet racing equipment law in Ontario, some movement is expected.

Bus pass for an Old Car program seems to be on hold, the City is reluctant to give away bus passes.

Manitoba is not planning emissions testing laws at the moment.

MAAC Comittees

No action with MPIC/DMV, discussions planned with DMV re the Vintage plate.

No action on the Municipal front

Wpg Police have created a program to combat street racing, will be taken to the high schools.

The Manitoba Ethanol fuel program is dormant.

PLEASE READ THIS

I invited Bob Chubala (MAAC Chairman) to our next meeting to answer the question "What has MAAC done for us?".

Bob indicated that looked OK, but will confirm being able to attend the April AMCM meeting.

On the understanding that he will attend, PLEASE do your best to come to the next meeting

– We need to make him aware that we would appreciate more benefit than merely affordable club insurance coverage.

Ed P.