

## Lagondaforum: 4.5 litre pushrods

### 4.5 litre pushrods

*Written by davidbracey at May 13, 2018 7:39 pm*

I believe that each of the sanction variant engines have different length pushrods. Is that correct?

My S3 engine has longer pushrods than a spare someone gave me but I've no idea which sanction it fits.

Does anyone have information of what length suits each engine? I'm interested in getting some made.

David

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### Re: 4.5 litre pushrods

*Written by Bill LG45 at May 14, 2018 2:09 pm*

Hi David

Sanction 3 push rods are longer and are also of smaller diameter, only clearing the head by a small amount.

A Sanction 3 head with integral inlet tract is deeper than the earlier sanctions which I imagine is the main reason for the difference but the crankcase was also modified / stiffened and has larger studs securing the block to the crankcase so there may be some differences in dimensions there too but I believe it is mainly the depth of the head.

Cheers

Bill

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### Re: 4.5 litre pushrods

*Written by davidbracey at May 18, 2018 7:48 pm*

Thanks Bill.

I now have a sample of both lengths of pushrods so will draw them up properly so that we've records. I'll get prices and then they should be available through the club.

David

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### Re: 4.5 litre pushrods

*Written by davidbracey at Jun 23, 2018 10:39 pm*

The later pushrods are not only longer and have thinner tubes but the ends are swagged to fit the machined ball and cup ends. These reduced diameter swagged ends seem to be a weakness to me.

Is there any reason why the tubes can't stay the same diameter along their whole length and the machined ends simply insert as an interference fit?

There's no clearance issues as far as I can see.

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### Re: 4.5 litre pushrods

*Written by h14 at Jun 24, 2018 10:02 am*

Hi,

Why oil into the pushrod tube? The lower end should already be well lubricated. Also, oil in the tube would add weight, not ideal.

Regarding the tube construction, good point, but if the later pushrods are reliable in service, perhaps simply evidence of ongoing improvement/development of the Meadows engine. Sometimes "improvements" are however cost-related, to the detriment of reliability!

Laurence

## Lagondaforum: 4.5 litre pushrods

### Re: 4.5 litre pushrods

*Written by Colin M34 at Jun 24, 2018 12:21 pm*

I agree with Laurence,

Back in the dim and distant days of doing my engineering degree we were taught that reciprocating masses need to be as light as possible, especially on valve gear. So perhaps these were results of ongoing improvement on the Sanction 3 Meadows engine by Harry Westlake.

This worthy pushrod engine was superseded by the V12 which of course is an OHC engine.

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### Re: 4.5 litre pushrods

*Written by davidbracey at Jun 24, 2018 8:41 pm*

I'm not sure the later pushrods are reliable in service. One of mine bent at the point where the tube diameter reduces. David Hine tells me that the longer pushrods reliably bend if the engine is taken to 4,500rpm too quickly.

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### Re: 4.5 litre pushrods

*Written by h14 at Jun 25, 2018 11:00 am*

I wondered if that was what you intended. The guiding factor would presumably be whether there is excessive wear otherwise occurring to the lower end of the pushrod and/or tappet. In service these areas are normally fairly flooded with oil. Drilling the upper pushrod cup could be detrimental: the cup would be an oil reservoir; drilling it would transform it into an oil drain, possibly to the detriment of the ball and cup bearing surfaces. More care, thought and science went into the design of engine components in period than we appreciate today. That doesn't mean they always got it right, though!

My LG6 has an S4 engine; no pushrod trouble so far, but then I've rarely approached max. revs. Did once get it up to 105mph on the original 3.58 cwp, which must have been thereabouts. Doubtless the fastest the car had ever gone, given the wind resistance presented by its original saloon body. Higher revs in the lower gears appears to be pointless performance-wise, the complete opposite to driving the V12.

Laurence

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### Re: 4.5 litre pushrods

*Written by Julian at Aug 02, 2018 11:46 am*

Hi

Agree with the above

Never ever seen a pushrod problem on a Meadows 4.5 that can be blamed on pushrod design.

Rockers seized, coil bind of the valve springs, collets hitting guides, pushrods hitting castings or head gasket etc will all have caused pushrod issues, but pushrods themselves are immensely strong.

No other engine that I know uses anything even close.

Why "improve"

And certainly not by drilling oil holes thus allowing to fill with oil.

On many American V8 race engines you actually close these holes.

Hope this helps.

Julian