

M189 cylinder liner and head gasket questions.

Post by "Ron B ." of Apr 29th 2021, 12:34 pm

I am working on a 1965 W112 Coupe. The Car was missing on #3& #4 and a leakdown test indicated a leak between the two .

I removed the head and found the gasket blown in several places.



The cylinder head and the cylinder block appear to have "fret" marks on the surface as if the head was moving. How should I determine if the cylinder liners



Post by "Wuff_6.3" of Apr 29th 2021, 3:19 pm

A blown head gasket (if still original) is nothing unusual for that age. Check your head for linearity and/or have it milled. Then use a new OEM gasket and possibly also new head screws. Also make sure your head is matching to the engine block. The original MB repair manual might come in handy, too.

Cheers

Tom

Post by “HaWa” of Apr 29th 2021, 4:02 pm

May be the Block was remanufactured by a Honk.

The Cylindersleeve is not in correct Position.

If that happens grind to Max. 1.5mm from Blocksurface.

Post by “Wuff_6.3” of Apr 29th 2021, 4:39 pm

for Ron "Honk" = pinhead

Post by “T-Modell” of Apr 29th 2021, 5:10 pm

[Quote from Wuff_6.3](#)

for Ron "Honk" = pinhead

even better - where Ron lives - ... use hoon 😊

Thomas

Post by “Wuff_6.3” of Apr 29th 2021, 5:29 pm

oh.. Australia... ok .. I missed that

Post by “Ron B .” of Apr 29th 2021, 11:03 pm

Ha ha , Ok thanks for that 👍 . I am going to get it machined this morning and ensure it's actually parallel .I have lots of manuals but very little for the m189 ,only a few pages in the August 1959 book. I suspect the head has been off before as the gasket doesn't look old. I will know more once my friendly machinist looks at the head closer. 😊

Post by “Wuff_6.3” of Apr 30th 2021, 12:01 am

I've sent you a PN (message).

Cheers,

Tom

Post by “Ron B .” of Apr 30th 2021, 1:01 pm

Tom ,I have 6.3 also, jan .1969 #1574 .

So,the machinist had my head done before lunch time but had to remove .9 which is .1 over the limit. looking at what information I have to hand I have to check the adjusting screws on the intake tappets to allow for clearance .

When doing a 300SL engine some time back ,we found the same problem, where the engine would run perfectly oK while cold but under load would start making a rattle sound .When the head is machined ,as far I can understand it, the cam timing is altered slightly allowing the lobe to connect with the tappet adjustment screw...some how.

Anyone got any ideas about this? The head looks nice even though they couldn't get all of the marks out on # 6 combustion area. The exhaust valves show the results of leaving a car standing for 10 years...



Post by “Insulaner” of Apr 30th 2021, 1:36 pm

Hi Ron,

[Quote from Ron B .](#)

Anyone got any ideas about this?

when you take material of the head it changes the angle of the camshaft because the side where the tensioner is located is taking up the slack of the opposite side. I am not sure about the M189 but other engines have a stepped key available holding the cam shaft wheel in place to compensate for that. You get them for various angles. Check the parts catalogue of the engine, you should find them there.

If that is not available spacers under the camshaft bearings may be an option.

Kind Regards,

Hagen

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Post by “Wuff_6.3” of Apr 30th 2021, 3:00 pm

here are the numbers. they are same for all engines

Post by “Wuff_6.3” of Apr 30th 2021, 3:11 pm

[Quote from Ron B .](#)

Tom ,I have 6.3 also, jan .1969 #1574 .

interesting... mine is #1444 from February 69. Wonder how your later model hit Australian soil so quickly, even before mine in Germany? 😊

Post by “Gerd.Batke” of Apr 30th 2021, 9:47 pm

Hi Ron,

I guess there are pictures of the "stepped key" / "Woodruff key" Hagen & Tom were talking about shown here:

[https://www.autohausaz.com/cat...2-woodruff key?s=r&page=1](https://www.autohausaz.com/cat...2-woodruff_key?s=r&page=1)

Regards,

Gerd

Post by "Ron B ." of May 1st 2021, 5:31 am

[Quote from Wuff 6.3](#)

interesting... mine is #1444 from February 69. Wonder how your later model hit Australian soil so quickly, even before mine in Germany? 😊

Australia was once populated with wealthy people. We got 250 approximately, 6.3's. All the rare ones ,in RHD. I have another here for some major work, which was imported by a local tire magnate to Race in the Annual Bathurst car race but because it didn't meet one of the rules regarding homologation it was ineligible to race. The owner wants me to pull the heads and replace the valve guides so I am going to check which cams it has. It has more raw power than any other 6.3 I have ever driven . Last year I finished a partial restoration on 6.3 #702 and I know a guy who parted out #201 ☐☐ That one had the same intakes as a W100 . So we got them here as soon as they were released for sale.

Post by "Ron B ." of May 1st 2021, 5:50 am

Now more mechanical horrors have raised their ugly heads. The area which had the large black burn mark in the gasket is most worrying . the liner on # 4 appears to .50 lower in that area .Possibly burnt away in the past from another gasket leak. The feeler gauge under the Straight edge is where the low spot is.

The other problems are the head bolt inserts into the alloy block. Two were not screwed in properly and sit proud of the block surface instead of below the surface. There are supposed to be self tapping and a special tool is used to screw them in . i doubt over sized ones are still available so... I might have to make a tool and use loctite to hold them n place. Assuming the threads are OK. With the head sitting so high above the block, I am surprised it hadn't blown out years ago. And thankfully it's not warped.



Post by “Ron B .” of May 1st 2021, 5:53 am

[Quote from Gerd.Batke](#)

Hi Ron,

I guess there are pictures of the "stepped key" / "Woodruff key" Hagen & Tom were talking about shown here:

https://www.autohausaz.com/cat...2-woodruff_key?s=r&page=1

Regards,

Gerd

Display More

That's a really good idea actually. And something I will definitely try.

Post by “Insulaner” of May 1st 2021, 9:00 am

Hi Ron,

[Quote from Ron B .](#)

That's a really good idea actually. And something I will definitely try.

when you take the cam wheel diameter and the height of the material taken off (0.9mm) you can calculate the correction angle of the key required. With those rip-off prices I would avoid trial and error.

Kind Regards,

Hagen

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Post by “Wuff_6.3” of May 1st 2021, 10:04 am

[Quote from Ron B .](#)

Now more mechanical horrors have raised their ugly heads. The area which had the large black burn mark in the gasket is most worrying . the liner on # 4 appears to .50 lower in that area .Possibly burnt away in the past from another gasket leak. The feeler gauge under the Straight edge is where the low spot is.

Hi Ron, that truly looks bad. Certainly a new gasket alone will not do the job. As far as I remember, the M189 block was made out of cast alloy, so a skilled machine shop might be able to weld on some material there, but it will require a full disassembly first...

How are you going to tackle this?

Post by "Trompka" of May 1st 2021, 10:37 am

I know a company in Germany who is able to weld it with a patented Laser technology. The advantage is, the depth of heating is only 0.1mm.!

They've rescued a 928s block for me and did a great job!

Post by "Ron B ." of May 1st 2021, 1:09 pm

The only way to repair it here would be to replace the liner. Yes ,the m189 is an alloy block engine ,with pressed in Liners. I have a contact here in Australia who has two sets of new liners but the problem is ,I don't have the liner fitting tool or access to a oven to heat it up to 150 C so the new liners can be fitted. It's up to the owner now to decide how much his budget can be stretched ..I rebuilt another years ago and the cost was \$25,000 .

Trompka, I also have a 928 V8 engine here which was damaged after sitting for many yeas and started without attention to the bores (pour oil down the spark plug holes and let it soak for a couple of days...) .luckily i found another locally and rebuilt it which was cheaper than restoring the damaged unit.

Post by "Ron B ." of May 5th 2021, 6:05 am

Yesterdaythe cars owner came to see what has happened and seems to be OK with me fitting a new gasket and seeing if it will hold up. it appears from the cars service records that the head may have been removed 25 year ago but i have no idea of how many miles it may have

covered in that time... Fingers crossed...

Post by “Wuff_6.3” of May 5th 2021, 8:41 am

[Quote from Ron B .](#)

fitting a new gasket and seeing if it will hold up

[Quote from Ron B .](#)

. the liner on # 4 appears to .50 lower in that area

Hi Ron,

with a reported gap of 0.5mm on the block the new head gasket won't last long. German manufacturer Elring permits 0,03mm .. 0,05 mm.

Check this link [Elring Head Gasket Brochure](#)

Cheers, Tom