Thread Topic: Cylinder head oil leak

Date: 10-18-11 06:34
From: doug73cs *in Canmore* profile
Subject: Cylinder head oil leak reply quote

I'm going to try to fix the oil seepage at the cylinder head gasket with RTF. Re-use the gasket (8,000mi on it) and bolts or splurge on new ones? Guessing the answer but always optomistic.

Doug

_____
73 CS Polaris
76 2002a Sahara

Date: 10-18-11 06:38
From: beammmer *in Slidell, LA* profile email
Subject: Not sure of the question here... reply quote

sounds like you have it figured out.
Don

_____
Don Derham
1973 Sahara # too long ago, purchased in 1978 sold in 1984
1973 Chamonix # 2589243 Katrina Victim, currently in the good hands of Baikal.2002
1973 Inka # 2587591 purchased from Mike McCurdy in Dec 2007

Date: 10-18-11 06:43
From: doug73cs *in Canmore* profile
Subject: Re: Not sure of the question here... reply quote

Yeah, but I can be cheap too. New it is Mr Blunt.

_____
73 CS Polaris
76 2002a Sahara

Date: 10-18-11 07:12
From: TobyB *in Seattle* profile
Subject: Re: Cylinder head oil leak reply quote

New gasket, same old bolts.

t

_____
<burp>

Date: 10-18-11 07:29
From: doug73cs *in Canmore* profile
Subject: Re: Cylinder head oil leak reply quote

Would a cutting ring head gasket help stop leaking? Overkill and $$$$ I know but I only want to do this once.

Thx

_____
73 CS Polaris
76 2002a Sahara

Date: 10-18-11 08:11
From: Catman *in west central Ga* profile
Subject: Re: Cylinder head oil leak reply quote

Are you trying to say that you are going to pull your cylinder head and put some goo on it then put it back on with the old head gasket ?

_____
I did the things yesterday no one wanted to -
So I could do the things today no one else can afford.

Date: 10-18-11 09:02
From: doug73cs *in Canmore* profile
Subject: Re: Cylinder head oil leak reply quote

Never having done this before I thought I would ask.

So new gasket, bolts and sealant of some sort. RTF silicon? A friend suggested a cutting ring head gasket would help increase the chance of success. The seep is driver side below the first intake/timing case cover. Classic location.

_____
73 CS Polaris
76 2002a Sahara

Date: 10-18-11 09:31
From: TobyB *in Seattle* profile
Subject: Re: Cylinder head oil leak reply quote

waitaminnit.

If you're talking about a leak from the front cover, that's a lot easier to
fix than the head gasket itself.
And pretty darned common. Classic causes are improper assembly, uncut

(too tall) cover, and lack of RTV. Which you do use, in moderation.

The head will only leak oil around the pressure port,
which is upper front. (erk. I think) And almost never does.
No, a cutting ring gasket will probably make it WORSE if it's leaking oil,
as the oil sealing passage is the same, but the rings around the cylinders
compress less than a normal gasket does. A cutting ring gasket's
for compression seal problems. And kind of drastic.

And you don't use sealants on a head gasket, nor do you have to use
new bolts. But post up a pic or 2- sounds like you have a front cover issue.

t

_____
<burp>

Date: 10-18-11 10:40
From: slash02 *in Calgary* profile email
Subject: Re: Cylinder head oil leak reply quote

doug73cs wrote:

> I'm going to try to fix the oil seepage at the cylinder head gasket with RTF. Re-use the gasket (8,000mi on it) and bolts or splurge on new ones? Guessing the answer but always optomistic.
>
> Doug

New gasket at least. Wait.. Doug, did you re-torque your head after doing the gasket 8000mi ago? Might just need a re-torque. Could try that. If you need a hand, let me know though.. :) You should know my email address.

Date: 10-18-11 11:01
From: slash02 *in Calgary* profile email
Subject: Re: Cylinder head oil leak reply quote

doug73cs wrote:

> Never having done this before I thought I would ask.
>
> So new gasket, bolts and sealant of some sort. RTF silicon? A friend suggested a cutting ring head gasket would help increase the chance of success. The seep is driver side below the first intake/timing case cover. Classic location.

The newer headgaskets have this bead that goes all the way around to prevent this BTW.

You can see it in this worldpac pic... (Autopartways.com)

Date: 10-19-11 03:52
From: c.d.iesel *in So. West Conn. = The Right Coast =* profile
Subject: Re: Cylinder head oil leak reply quote

it's not yer head gasket,

it's your fuel pump spacer block and gaskets

and if you did remove thehead - have it checked on a surface plate,
resurfaced with the front timing cover attached if needed,
ONLY NEW HEAD GASKET - standard is good, and you MUST
completely clean out the head bolt holes in the blockbefore reassembling!
Finally - proper tightening torque of the head bolts.
NOTHING - NO sealong applied to the NEW head gasket!
Only a tiny dab of sealent at the front small holes in the gasket
at the seamsof the front timing cover gaskets

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1976 BMW 2002 # 2743711(sweet dreams I)
1986 BMW R65 650cc # 6128390 20k Mi
1964 BMW R27 250cc # 383851 17K Mi
2002 BMW E46 325xiT (sweet dreams II)
2011 FORD Transit Connect # T058971 10K Mi
2013 FIAT 500 ABARTH # DT600282 0 K Mi

Date: 10-19-11 04:31
From: sislane *in New Hampshire* profile email
Subject: Re: Cylinder head oil leak reply quote

TobyB wrote:

> waitaminnit.
>
> If you're talking about a leak from the front cover, that's a lot easier to
> fix than the head gasket itself.
> And pretty darned common. Classic causes are improper assembly, uncut
> (too tall) cover, and lack of RTV. Which you do use, in moderation.
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> The head will only leak oil around the pressure port,
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> compress less than a normal gasket does. A cutting ring gasket's
> for compression seal problems. And kind of drastic.
>
> And you don't use sealants on a head gasket, nor do you have to use
> new bolts. But post up a pic or 2- sounds like you have a front cover issue.
>
> t

ya, what he said. Sounds like you just need to remove the upper timing chain cover, clean it up and add some RTV around the all the matir
Pics woul dconfirm that.

Good luck.

Scott

_____
1975 2002A Sahara (sold Feb 2008)
1976 2002 Dk Blue Metallic (never-ending project)
www.bmw2002.us

Nor'East 02ers Nor'East 02ers Nor'East 02ers Nor'East 02ers

Date: 10-19-11 07:21
From: c.d.iesel *in So. West Conn. = The Right Coast =* profile
Subject: and incase you do remove the head - reply quote

**this would be nice to do to make it last many years and
1,000' of miles**

Service-Information

GROUP 11 Engine	Bulletin Number 11 19 85 (1106) Page 1 of 4	Montvale, NJ June 1986 Technical Dept.

This Service Information Bulletin supersedes S.I. 11 09 85 (1003) dated March 1985. It contains new tightening procedures for cylinders head bolts.

Please remove and discard S.I. 11 09 85 (1003) dated **March 1985** from your S.I. binder.

SUBJECTS:
I. Cylinder head bolt shoulder shortened.
II. Revised tightening procedure for cylinder head bolts, valid for old **and** new version bolts.
III. Valve clearance adjustment.

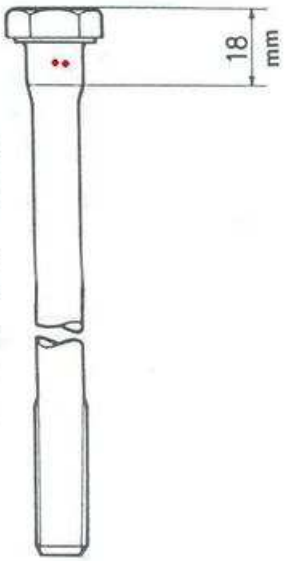
MODELS: All

I. Cylinder head bolt shoulder shortened.

Situation: Rocker arm shafts difficult to remove.

Cause: Unfavorable combination of tolerances between rocker arm shaft and cylinder head bolt shoulders, which might produce burrs on rocker arm shafts.

Correction: The bolt shoulder was shortened from 22 mm to 18 mm (see sketch) and gradually introduced into series production.



Note: Whenever cylinder head bolts have to be removed for any engine repair, check if long shouldered bolts have been used and if they show any damage at the shoulder itself.
If one or more are found to be damaged, all bolts have to be replaced by the new version with a shorter shoulder. ••
DO NOT MIX LONG AND SHORT SHOULDERED CYLINDER HEAD BOLTS ON THE SAME ENGINE!

Please initial and route to the following for information before filing

X	Service Mgr.			Warranty Mgr.		X Service Technicians - Initial Below						
X	Service Advisor		X	Parts Mgr.								
X	Service Advisor			Sales Mgr.								
X	Shop Foreman		X	PDI Dept.								

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2

CAUTION: M 30 Engines

If cylinder head bolts with a short shoulder are used, dowel pins 11 1 063 will have to be used in bolt bores 7, 9, 12 and 14 to hold the rocker arm shafts in position while disassembling and assembling the cylinder head (see Figure 1).

To mount the cylinder head on the engine block, screw in all other cylinder head bolts and tighten bolts 1 through 6 in correct tightening order (see Figure 2) to the first tightening torque value.

Replace dowel pins with cylinder head bolts.

Now tighten bolts 7 through 14 in the correct order to the first tightening torque value.

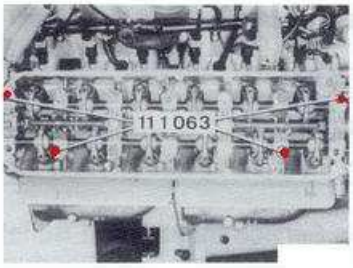

Figure 1

Check order of cylinder head bolts 1 through 14 when tightening them to torque values and torque angles (see Figure 2).

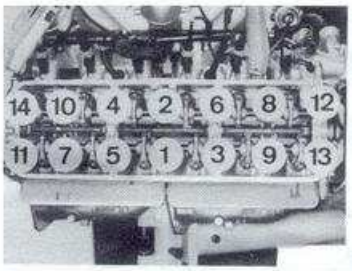

Figure 2

II. Revised tightening procedure for cylinder head bolts.

The following procedure should be followed on all repair work where torquing of the cylinder head bolts is required. This procedure is valid for all BMW engines.

Procedure	M 10	M 20	M 21 D[a]	M 30	M 88/3[b]
1. Torque	60 Nm	40 Nm	55 Nm	60 Nm	50 Nm
2. Torque	——	——	——	——	80 Nm
3. Waiting time[c]	15 min.	15 min.	15 min.	15 min.	15 min.
4. Torque angle or tightening torque	33°	65 Nm	73°	33°	100 Nm
5.	— valve clearance adjustment —				
6. Warm-up running[d]	25 min.	25 min.	25 min.	25 min.	——
7. Torque angle	25°	25°	90°	35°	——

Torque angle tightening can be made after the engine warm-up running phase regardless of engine temperature.

Valve clearance adjustments are not necessary after the final torque angle tightening.

a) M 21 D = BMW 524 td.
b) M 88/3 = BMW M 635 CSi/4-valve
c) Waiting time = cylinder head gasket settling time
d) Warm-up running = time to run engine to coolant temperature of 185 to 203° F (85 to 95° C)

These revised specifications are effective immediately. They eliminate the requirement for cylinder head retorquing at pre-delivery inspection and 1200 mile inspection.

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III. Valve clearance adjustment.
The valve clearance is the same for intake and exhaust valves:

		cold engine max. coolant temp. 95° F (35° C)	warm engine coolant temp. 185 to 203°F (85 to 95° C)
M 10	4 cyl. engine	0.20 mm	0.25 mm
M 20	"small" 6 cyl. engine	0.25 mm	0.30 mm
M 30	"large" 6 cyl. engine	0.30 mm	0.35 mm
M 88/3	4-valve engine	0.30 - 0.35 mm	0.35 - 0.40 mm
M 21D	diesel engine	0.30 mm	0.35 mm with coolant temp. above 122° F (50° C)

Note: Checking and adjusting the valves is required at the 1200 mile Inspection.

Miscellaneous Information: Cylinder Head Installation

- The threads of bolts and tapped bores in the engine block have to be cleaned prior to reinstallation of a cylinder head.

- Check that cylinder head bolts can be screwed into the engine block by hand up to the end of threads prior to installation of the cylinder head. Please check for an increase in torque (harder turning) of bolt during this test, which could be caused by the following:

- 1. Damaged threads on cylinder head bolt and/or in tapped bore of engine block.

- 2. Oil and/or water or pieces of cylinder head gasket in tapped bore.

Corrective Measures for Point 1:
Bolt threads — Replace bolt
Threads in engine block damaged — Recut threads with size 3 tap

Corrective Measures for Point 2:
Clean tapped bores with compressed air.

- We must point out again that no sealant whatsoever may be used for cylinder head repairs. The only exception is on M 10/M 30 engines, where a hole provided in the cylinder head gasket for the engine block/timing case cover connection point has to be filled with Hylomar (permanently elastic universal sealant) BMW P/N 81 22 9 400 339.

- In order to prevent damage to metal sealing surfaces when scraping off sticking pieces of gaskets, we recommend the use of gasket remover (BMW P/N 81 22 9 407 173) in conjunction with a hardwood scraper.

- **Cylinder Head Storage**
Cylinder heads must not be stored on their precision machined sealing surfaces; we recommend using wood boards or plywood sheets.

- **Cylinder Head Gasket Storage**
Cylinder head gaskets are supplied separately and have been vacuum-packed since May, 1982. The reason for this was that open-stored cylinder head gaskets would harden (dry out) and limit their storage time to about one year.

4

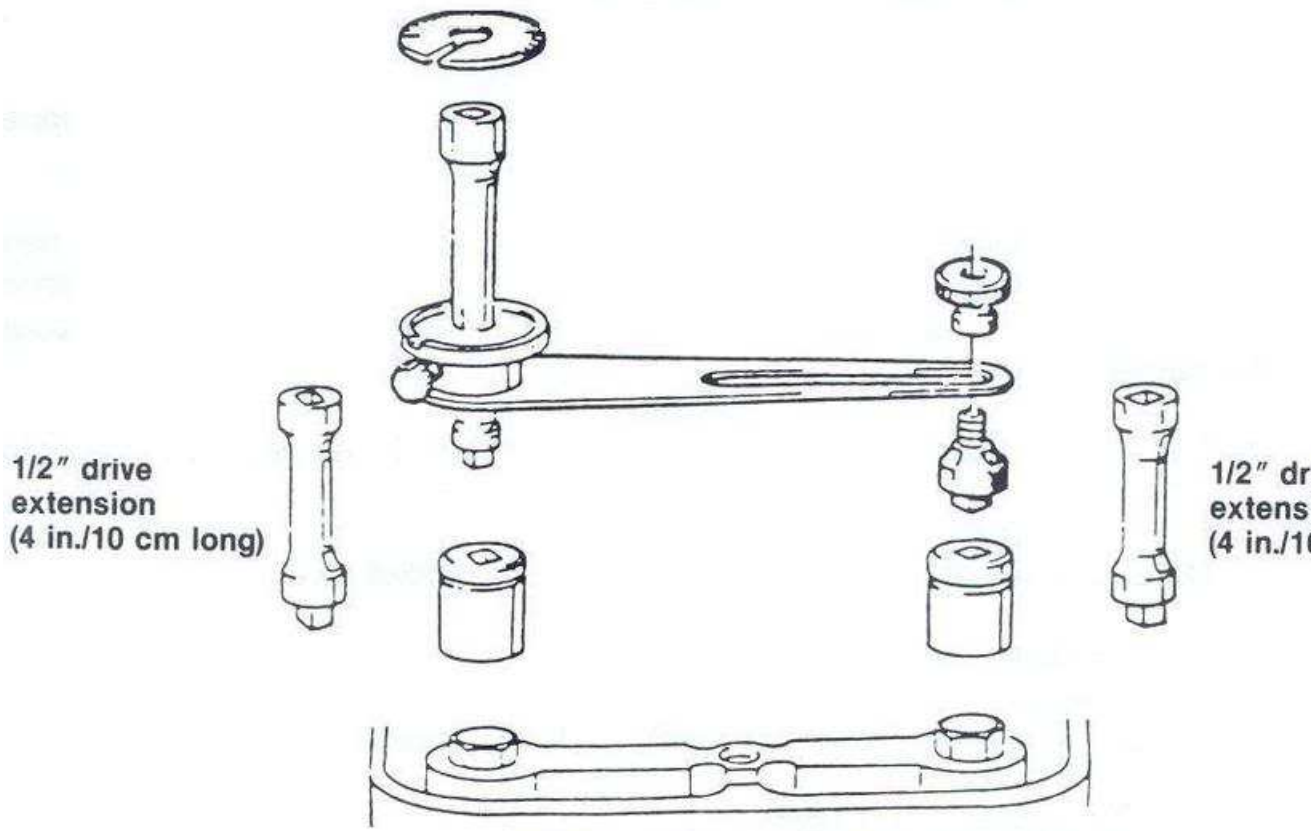
Please make sure that the plastic film is not damaged. The gasket has an eyelet to make storage easier.

Handling and Application of Special Tool 'TORQUE ANGLE TIGHTI

A special tool attachment, which can be combined with the special to No. 11 2 110) for tightening connecting rod bolts, was developed in precisely tighten cylinder head bolts with the specified torque angl

To tighten cylinder head bolts with the final value, the tool must b each time that the second socket rests on the opposite cylinder hea the case of unfavorably located cylinder head bolts (e.g. on firewall), cm) long 1/2″ extensions must be used. In unloaded state turn graduated dial to 0° and lock with the knurled head screw.

Cylinder head bolts are tightened until the mark points to the c specified in the table (bolts tightened in proper sequence).



Assembly Sketch for Special Tool 11 2 110

1976 BMW 2002 # 2743711(sweet dreams I)
1986 BMW R65 650cc # 6128390 20k Mi
1964 BMW R27 250cc # 383851 17K Mi
2002 BMW E46 325xiT (sweet dreams II)

2011 FORD Transit Connect # T058971 10K Mi
2013 FIAT 500 ABARTH # DT600282 0 K Mi

Date: 10-19-11 08:50
From: doug73cs *in Canmore* profile
Subject: Re: Cylinder head oil leak reply quote

Answers to questions/suggestions and a photo of the seepage area.

The oil seeps down below the first intake port but looking at the photo it is entirely possible and maybe most likely that the leak is at the timing case cover as Toby suggests and just follows gravity and the casting back until it reaches a point where it can run down the block.

There is no oil seep around the fuel pump gasket - dry and clean.

I have not re-torqued the head nor have I touch the motor as I bought the car with a supposedly stock re-build (but no paper on the work). Given the very clean valve gear (zero sludge shiny bright metal), no smoke and good performance I believe this is the case. It has 8,000mi on it but I'll check the torque numbers.

Sounds like clean and re-seal the upper timing case cover gasket is worth a try first but I have a feeling getting a better seal given the difficulty in cleaning the surfaces of the lower timing case/head gasket joint is problematic. Worth a try though.

Thanks to all and CD - great info on correct procedure for the install.

_____
73 CS Polaris
76 2002a Sahara

Date: 10-19-11 04:23
From: TobyB *in Seattle* profile
Subject: Re: Cylinder head oil leak reply quote

Here's the only high pressure oil spot-

if it's coming out of the front upper corner, this is where it'd come from.

t

_____
<burp>

headgasket.jpg	
Description:	
Filesize:	47.52 KB
Viewed:	66 Time(s)

Date: 10-19-11 05:15
From: doug73cs *in Canmore* profile
Subject: Re: Cylinder head oil leak reply quote

Toby:

Yup, that's where I think it is coming from. Is trying to seal the front timing case a waste of time? It could originate under the head and be forced out under the timing chain cover.

Thanks

_____
73 CS Polaris
76 2002a Sahara

Date: 10-20-11 08:32
From: TobyB *in Seattle* profile
Subject: Re: Cylinder head oil leak reply quote

it's, just... that a leak from the head gasket's pretty unusual.

That's all.

I honestly can't tell from your pic!

But it's probably worth resealing the front cover first,
as doing the head's a lot more work.

The talcum/ baby powder method for finding a leak might work here.

hth

t

_____
<burp>

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