

Service-Information



Group: Engine	September 1980	Bulletin No.: 11 016 80(2019)
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- For U.S.A. and Canada Only -

Subject: Fitting of BMW Oil Cooler Kit to R 50/5 - R 90 S

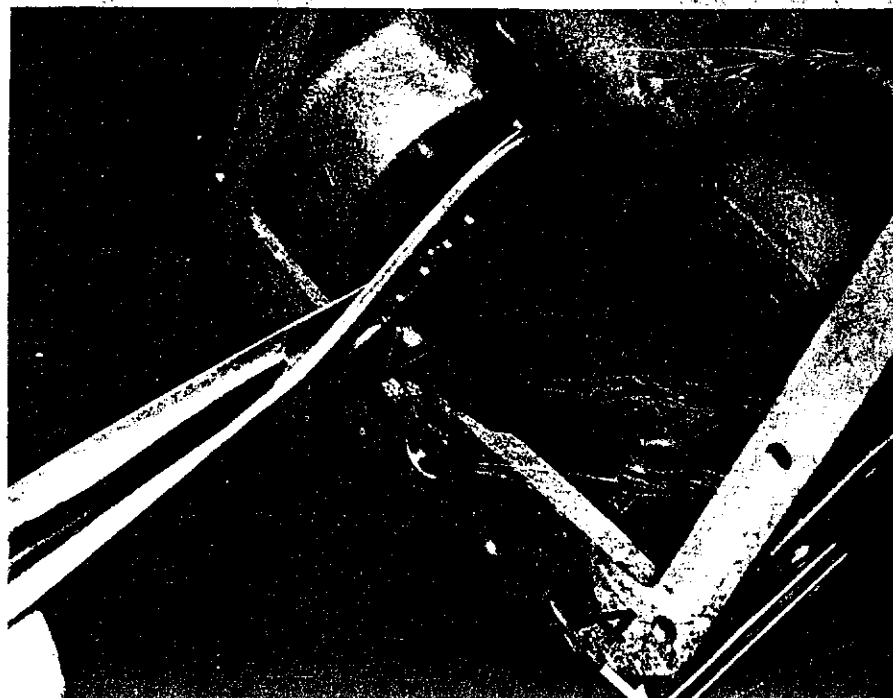
The BMW oil cooler kit, Part No. 11 42 1 335 396, can be retrofitted onto 1970-1976 model BMW motorcycles by the following procedures:

Refer to the corresponding diagrams for clarity.

BMW parts required:

<u>Description</u>	<u>BMW Part Number</u>	<u>Quantity</u>
Oil Cooler Kit	11 42 1 335 396	1
Filter Canister Sleeve	11 11 1 263 343	1

1. Drain engine oil and remove oil pan and oil filter.
2. With access to the filter canister sleeve from the bottom of the engine, use a suitable drift to collapse the sleeve near its secured location. With channel-lock pliers, work the canister loose and remove (Picture #1). Discard the damaged canister.



Bulletin No.: 11 016 80(2019)

3. Remove and discard the center(perforated) tube from the crankcase using a screwdriver and pliers. Carefully clean the threads in the crankcase with lacquer thinner.
4. Using a drift made to the dimensions shown in Diagram A, drive the new filter canister sleeve fully into the crankcase bore until the seal lip is 3+0.4mm above the crankcase face (see Picture #1), being careful not to distort the canister or damage the gasket surface in the crankcase.

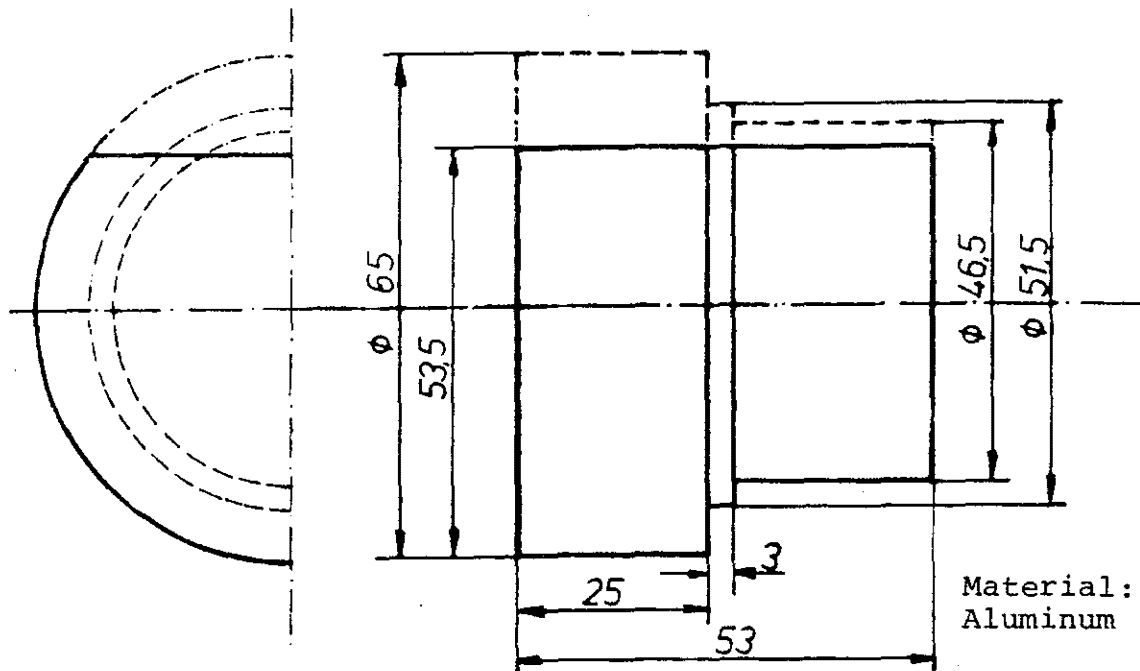
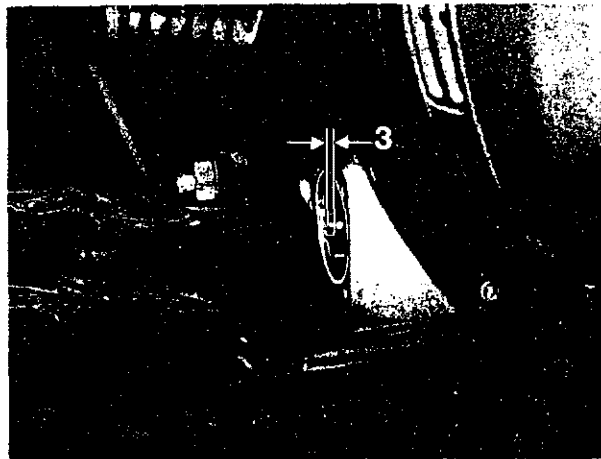


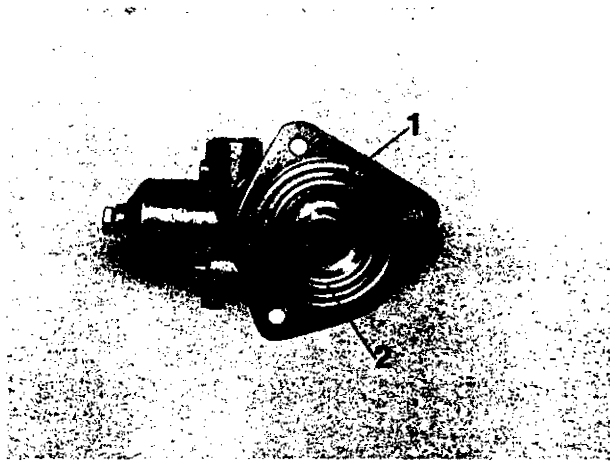
Diagram A.(All dimensions in millimeters)

5. Apply a few drops of loctite Red (Stud 'N' Bearing Mount) to the threads of the center filter tube (supplied with the kit) and screw the tube into the crankcase until it only protrudes 3mm above the gasket surface (see Picture #2).



Bulletin No.: 11 016 80(2019)

6. Slide the small red "O" Ring (supplied with kit) over the center tube, all the way in.
7. Install the special filter with the recessed end facing outward.
8. Using light grease, stick the supplied shim to the end of the filter canister.
9. Prepare the thermostat for installation by fitting the supplied gasket and two white "O" Rings (Picture #3). Remove the protective plastic plugs from the hose connection. Bolt the thermostat assembly to the crankcase using the three hex-head bolts provided.



10. Remove the horn from its bracket and lay aside. Fabricate a hanger strap to the dimensions shown in Diagram B, and attach to horn bracket, using the horn mounting bolt.

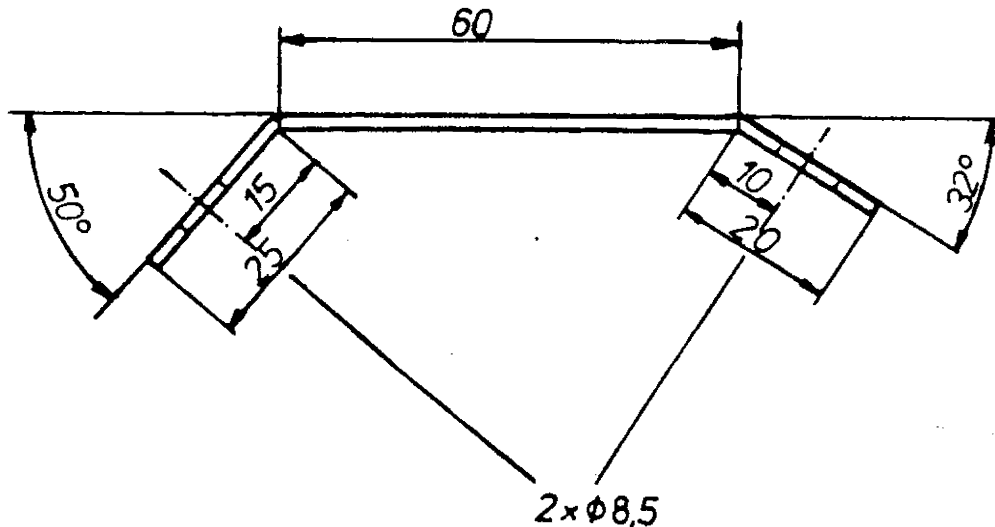
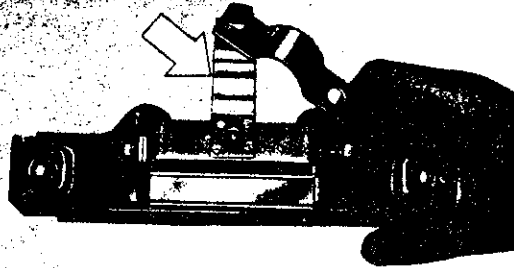


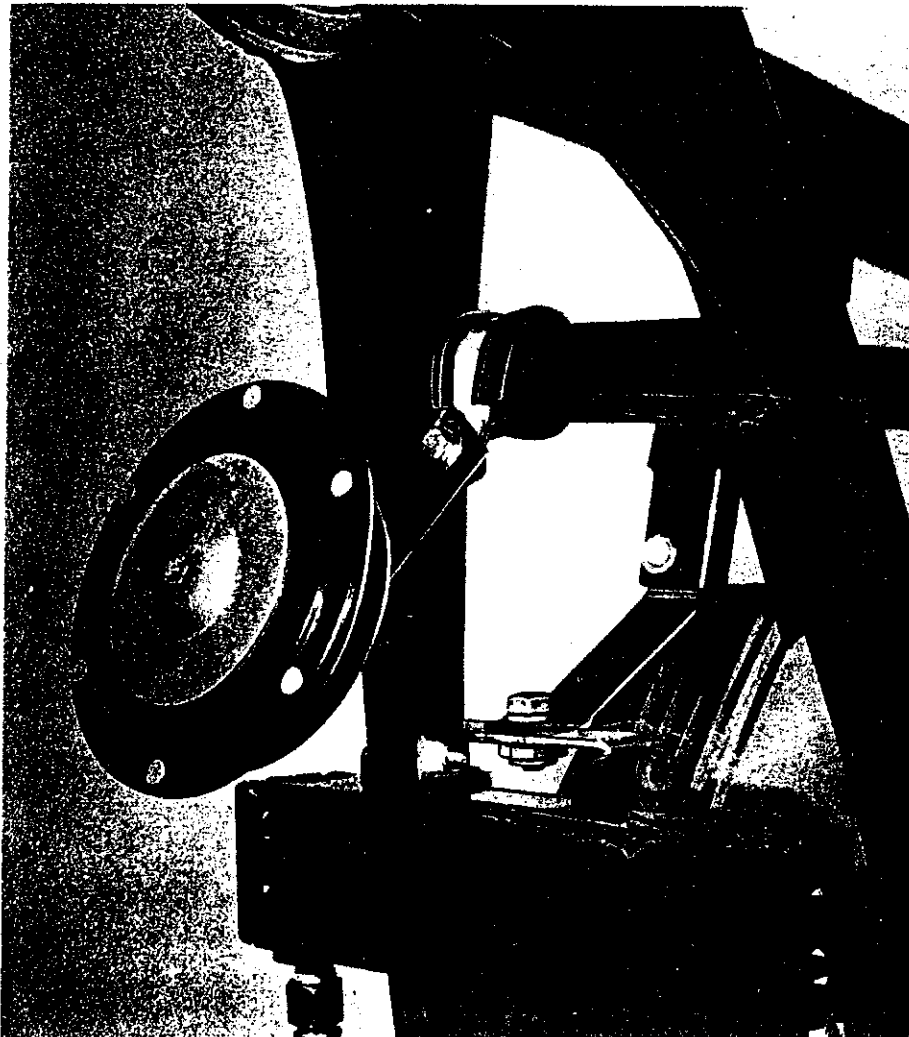
Diagram B.

Bulletin No.: 11 016 80(2019)

11. Mount the supplied oil cooler bracket in a vise and, using a suitable chisel, separate the four spot welds, holding the curved bracket, from the main bracket, as shown in Picture #4.

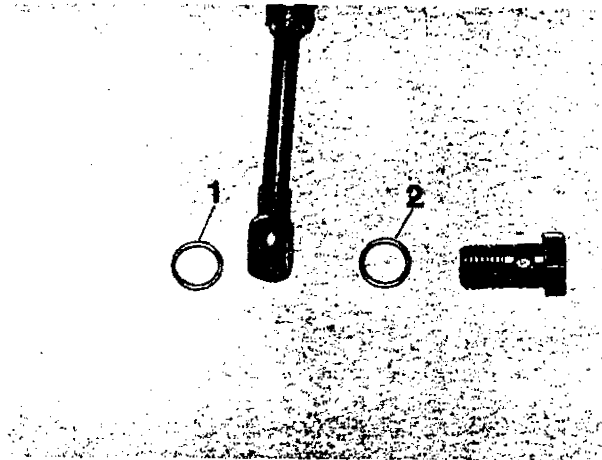


12. Mount the cooler to the bracket as shown in Picture #5.



Bulletin No.: 11 016 80(2019)

13. Attach the oil hoses, as shown in Picture #6, using the hollow bolts and metal washers provided. Torque bolts to 14.5 ft.lb. The shorter hose goes on the right side.

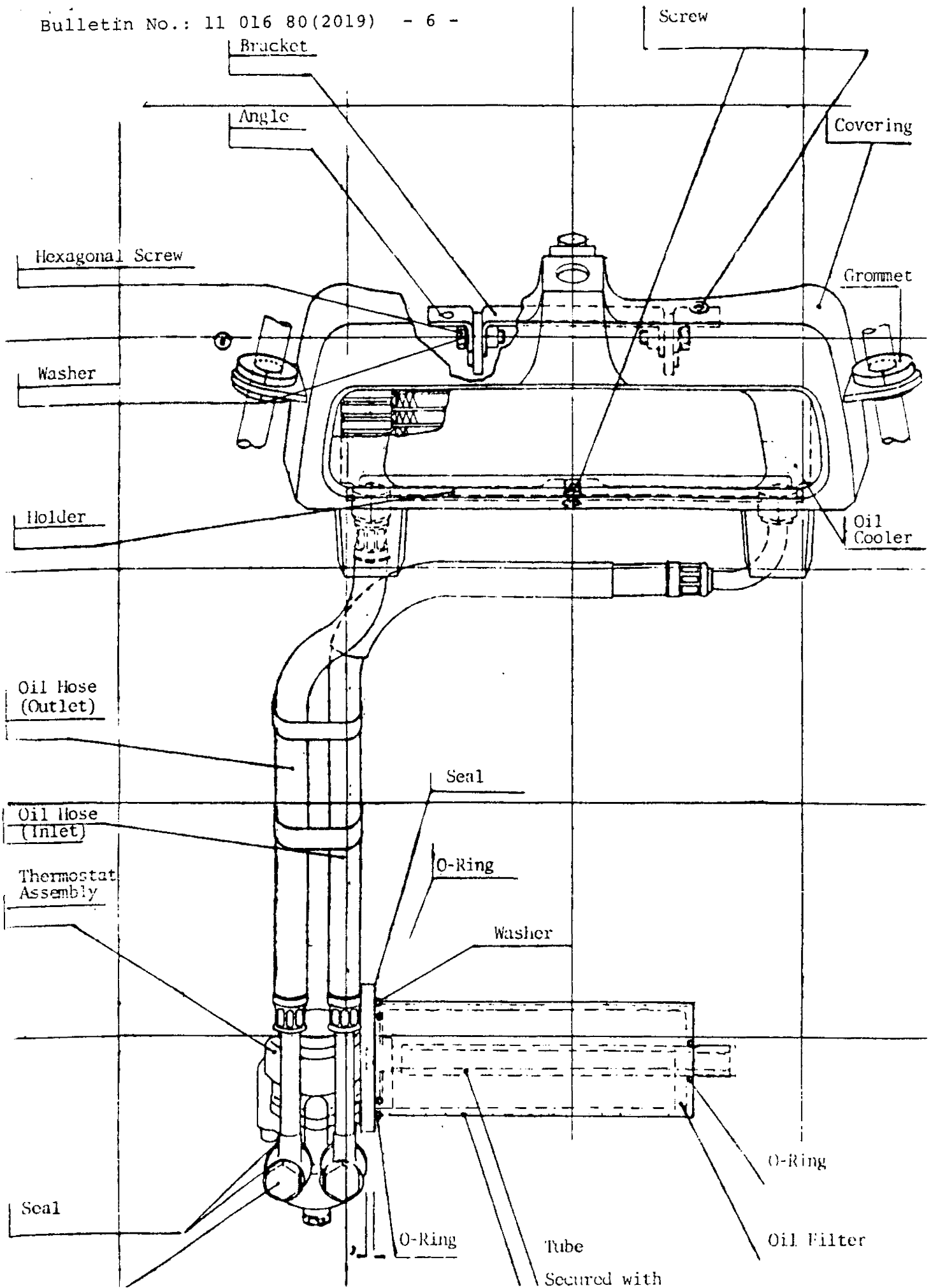


14. Attach the hoses to the oil cooler, without stress. Check routing to avoid pinching or chafing of hoses. Secure hoses with the tie-wraps provided in kit.
15. Re-mount horn using a rubber coated clamp as shown in Picture #5. Check that horn and cooler do not interfere with cable movement or fender travel.
16. Re-install oil pan with new gasket.
17. Refill engine with correct oil - new quantity, with cooler, is 2.5 liters (2.6 U.S. quarts).
18. Bleed cooler per instructions provided in "BMW Service Information No. 11 010 78(1060R)".
19. For motorcycles without fairings, attach optional covering for cooler, shown in Diagram C. Parts needed:

<u>Description</u>	<u>BMW Part Number</u>	<u>Quantity</u>
Screw	07 11 9 901 682	3
Cover	11 42 1 336 904	1
Angle	11 42 1 335 987	2
Holder	11 42 1 335 986	1
Grommet	11 42 1 336 936	2

The front brake hoses should be secured to the cover using the grommets listed above. In some cases, it may be necessary to trim the upper cooler brackets for the cover to fit.

BMW MOTORRAD GMBH
After-Sales Service
Munich



April 2, 80
Oak

Dear Bill;

(under separate mailing)

Enclosed is a dozen or so copies (pre-publication) of the May issue of the BMW News covering the oil seal leakage problem, octane boosters, and cylinder shim conversions.

Pages 7 through 17 cover the cylinder shim conversions. Pages 16 and 17 cover the part about what is recommended for the dealer servicing.

Page 10 tells about your shim conversion kit and where to get it etc.

Now in relation to the letter from Joe Smart on page 7, I am enclosing graphs made up for the 1970 through 1979 machines covering compression ratios obtainable versus the thickness of the shim required. For each model and group, it changes radically.

I believe the name of the game is to avoid a situation like Joe had experienced, as he may have had too much compression ratio reduction and it loused up his fuel economy. That may leave a bad taste for some especially when it can be avoided.

As for the selection of the shims, it would be good idea if you could have several sizes made up to go with your paper gaskets and also investigate the possibility of using two gaskets together as a shim by itself to take care of the 1976 thru 79 R60/R80 group, and one by itself for the 1976 through 1979 R75 thru R100 group with 9.0 to 1 compression ratio

The idea in the whole ball of wax, to bring them all to the approximate 8.4 to 8.6 to 1 compression ratio as to cause minimal loss of performance and gripes later on from the owners about gas mileage etc.

Below is a chart giving the shim thicknesses for ALL groups and models to give the identical compression ratio of 8.6 to 1. It is a bunch of trouble to match them exactly, but should be a hot lick for performance. You probably could have the problem licked by the time the readers start sending in for information or kits etc.

<u>1970-75 CR Group</u>	<u>Total shim needed for 8.6 to 1 including paper gaskets.</u>	<u>Shim minus the paper gaskets</u>
9.5 to 1	1.43 mm	0.668 mm; 0.026"
9.2 to 1	1.22 mm	0.458 mm; 0.018"
9.0 to 1	0.97 mm	0.208 mm; 0.008"
<u>1976-79 CR Group</u>	<u>Total shim needed for 8.6 to 1 including paper gaskets.</u>	<u>Shim minus the paper gaskets</u>
9.5 to 1	0.95 mm	0.188 mm; 0.0074"
9.0 to 1	0.70 mm	2 papers alone
9.0 to 1	0.45 mm	close to 1 paper by itself.

Looking at the graphs again, I plotted the compression ratios that you would get with your present kit of two papers and one type "C" shim. 11-1-1-336-6'

For the 1970 through 1975 group, it comes out acceptable but for the 1976 and later, the compression ratio gets pretty low and may bring in a few complaints.

1970-75 CR GroupKit lowers Compression ratio to:

9.5 to 1	8.58 to 1 (Fine)
9.2 to 1	8.36 to 1 (Still OK)
9.0 to 1	8.18 to 1 (Could use an upward push)

1976-79 CR GroupKit lowers Compression ratio to:

9.5 to 1	8.25 to 1
9.2 to 1	7.95 to 1 (All could use elevation)
9.0 to 1	7.8 to 1

OK--there you have it and is the reason I left it open ended in the article in case you wish to work on the problem and make any changes.

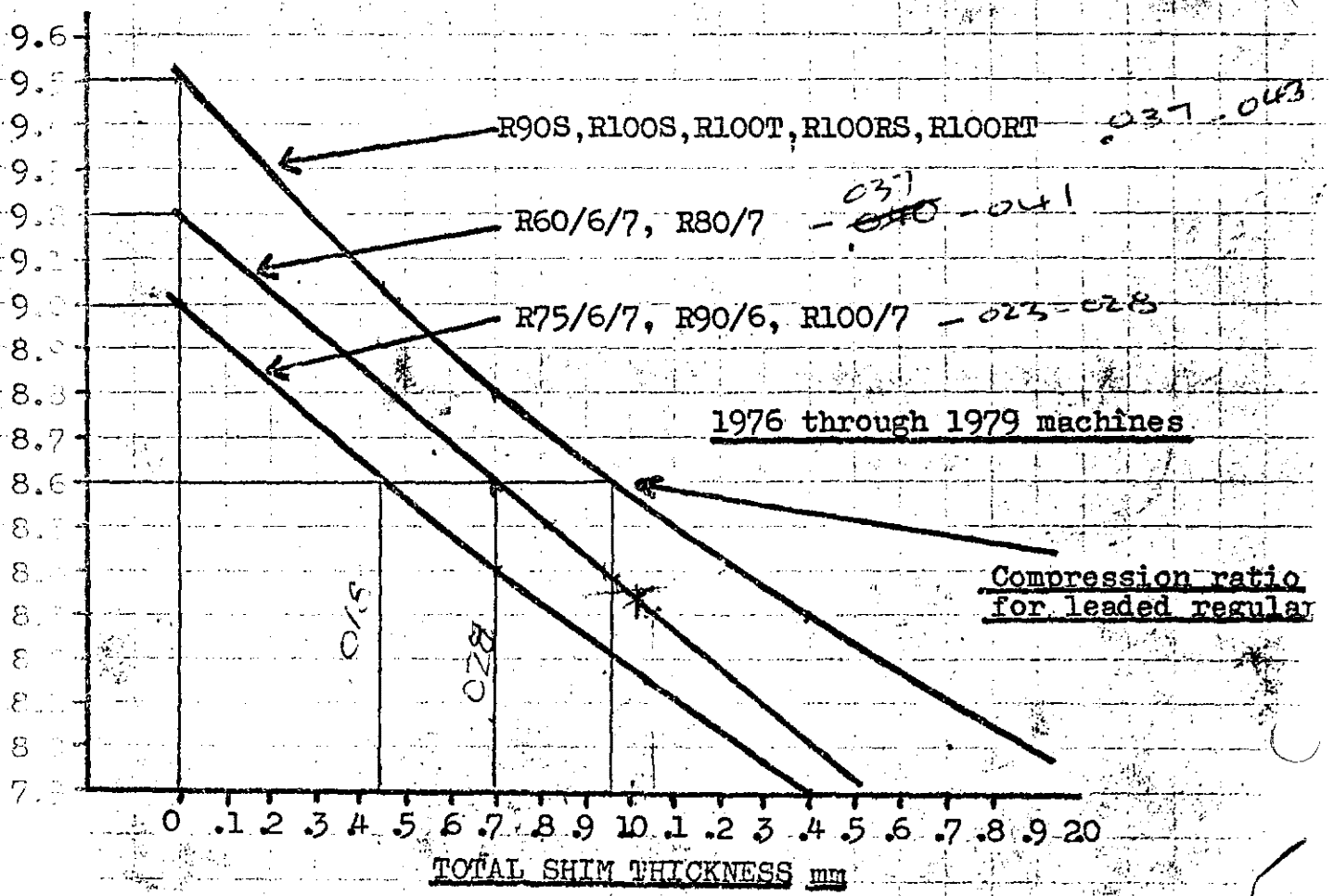
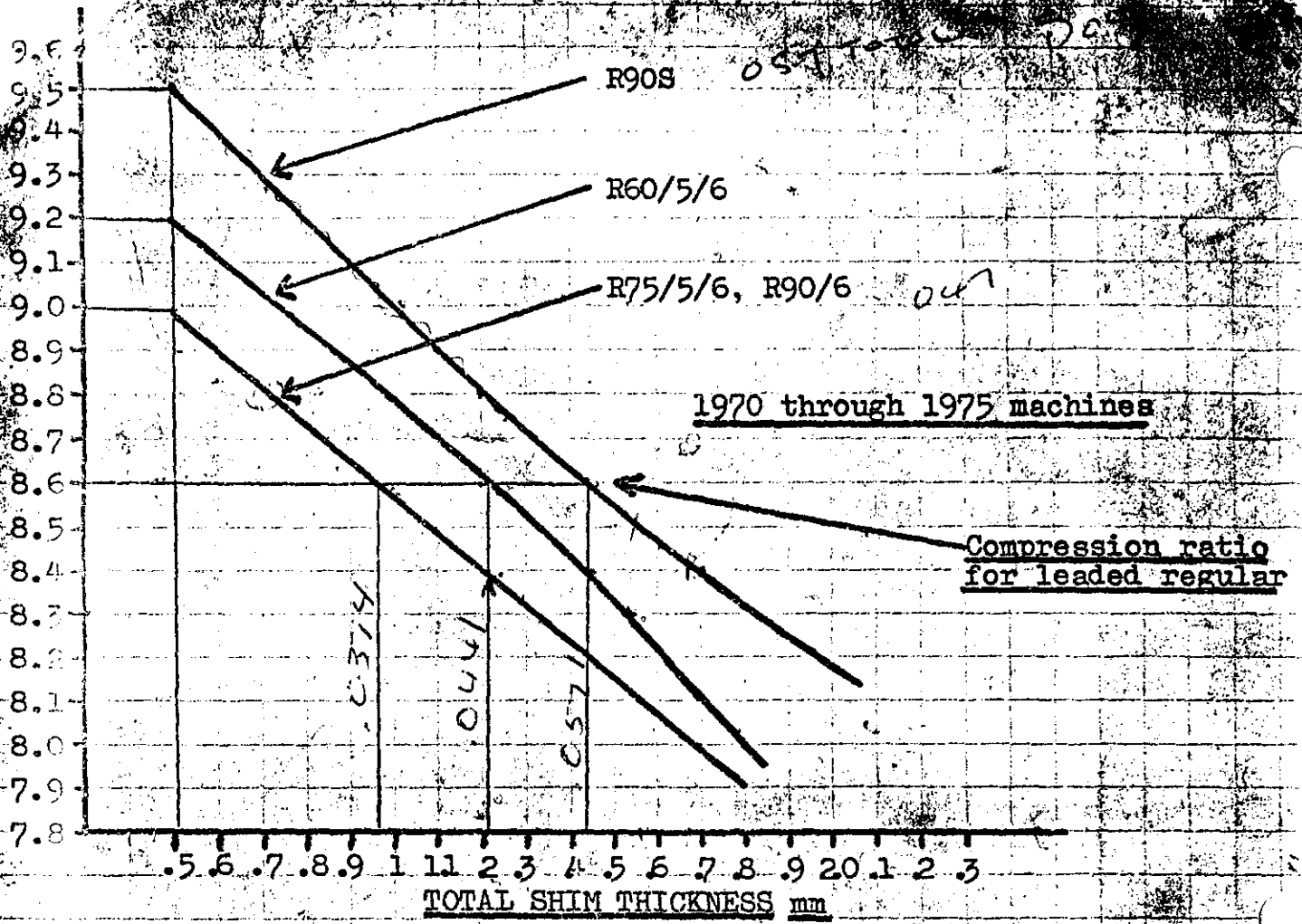
While we took somewhat of a negative approach of the shim conversion, it still has merit and is promoted on its merits accordingly. This is outlined on pages 7 and 8 and you may want to especially review that part, because it also gives the owner a chance to get other problems fixed. They are all over 21 and can make their own choice. The alternative is to hunt around for premium fuels and or use boosters. None of the fixes are 100% appealing and each has their flaws. his way as I stated in the article, they get their choice of the table. Since they will learn of all the different possibilities and combination, if they make a wrong choice, they have nobody to blame but themselves--at least they KNOW what they did!!

Give me a holler if you wish to offer any comments. The deadline for any last minute changes will be about April 8 or 9, so there is room to correct any booboos.

P.S. If you have new shims made for each model/group, I would recommend that you make them about 10% thicker than the theoretical values. This way you will be on the safe side and not be in a marginal condition of needing premium fuel or experiencing detonation etc with some of the conversions.

Dak

P.S.S. I got the paper gaskets in the mail and they look great. Nice material, seems sturdy enough. Maybe you could have them stamped thinner material to help with the changes ?? (use two sizes of paper material etc)



from the desk of

BIG D CYCLE CENTER

TO BILL:

THE THICKNESS
OF GASKET PAPER
IS ABOUT .015

.031 .062 - THE
ONE YOU HAVE BEEN
GETTING ARE .015

SACK


Smith & Kock falls
11-74 626-1957

2 - 8.5 comp
2 - 8.3
43 - 8.5

065 - } 062
060 - }
- - 040

76-79 - 9015 - 20015 - 10017 - 1001RS - 10027 - 037 - 043
76-79 60167 8017 - 036 - 041
76-79 75167 9016 - 210017 - 018 - 027

062
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- 10017
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5/2/75

650 - 027
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PAPER - 015
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5
Inmitt & Kock falls
11-74 626-1957


90/S - 70-75 - 062 - 8.5 comp
R60-5/6 - 70-75 - 062 - 8.3
R75/5/6 - 90/6 70-75 - 043 - 8.5

* 70-75 - 90/S - 056 - 065 - } 062
+ 70-75 R60+5/6 - ~~055~~ 060 - }
+ 70-75 75/90/6 - 038-047 - 040 ..

* 76-79 - 90/S - R00/S - 100/T - 100/RS - 100/RT - 037 - 043
76-79 60/67 80/7 - 036 - 041
76-79 75/67 90/6 - R100/7 - 018 - 027 -

2/22/74

062
040
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5 
* - 100/7
1 78/S