

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. 11-1-1-338-6'

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.

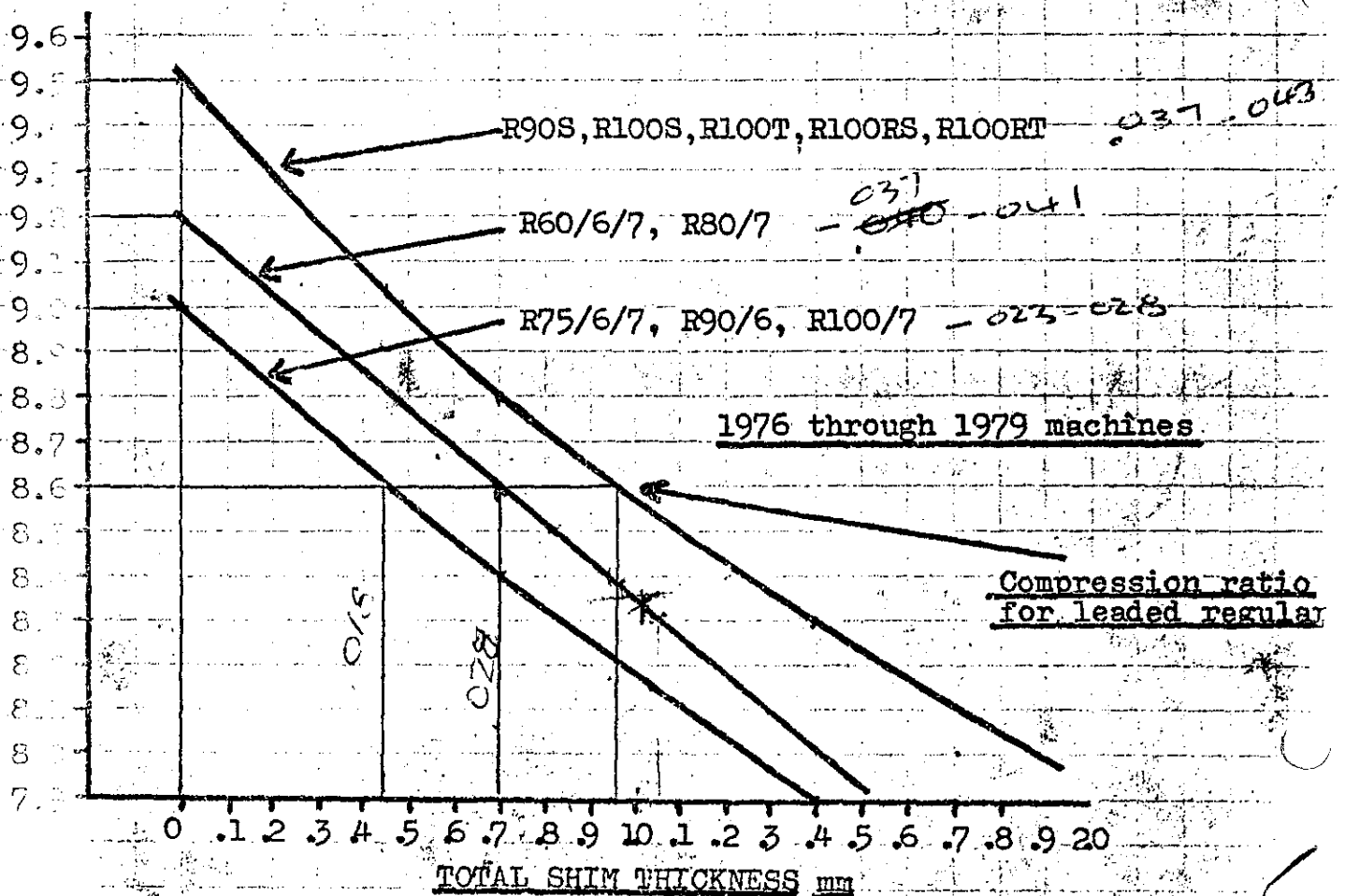
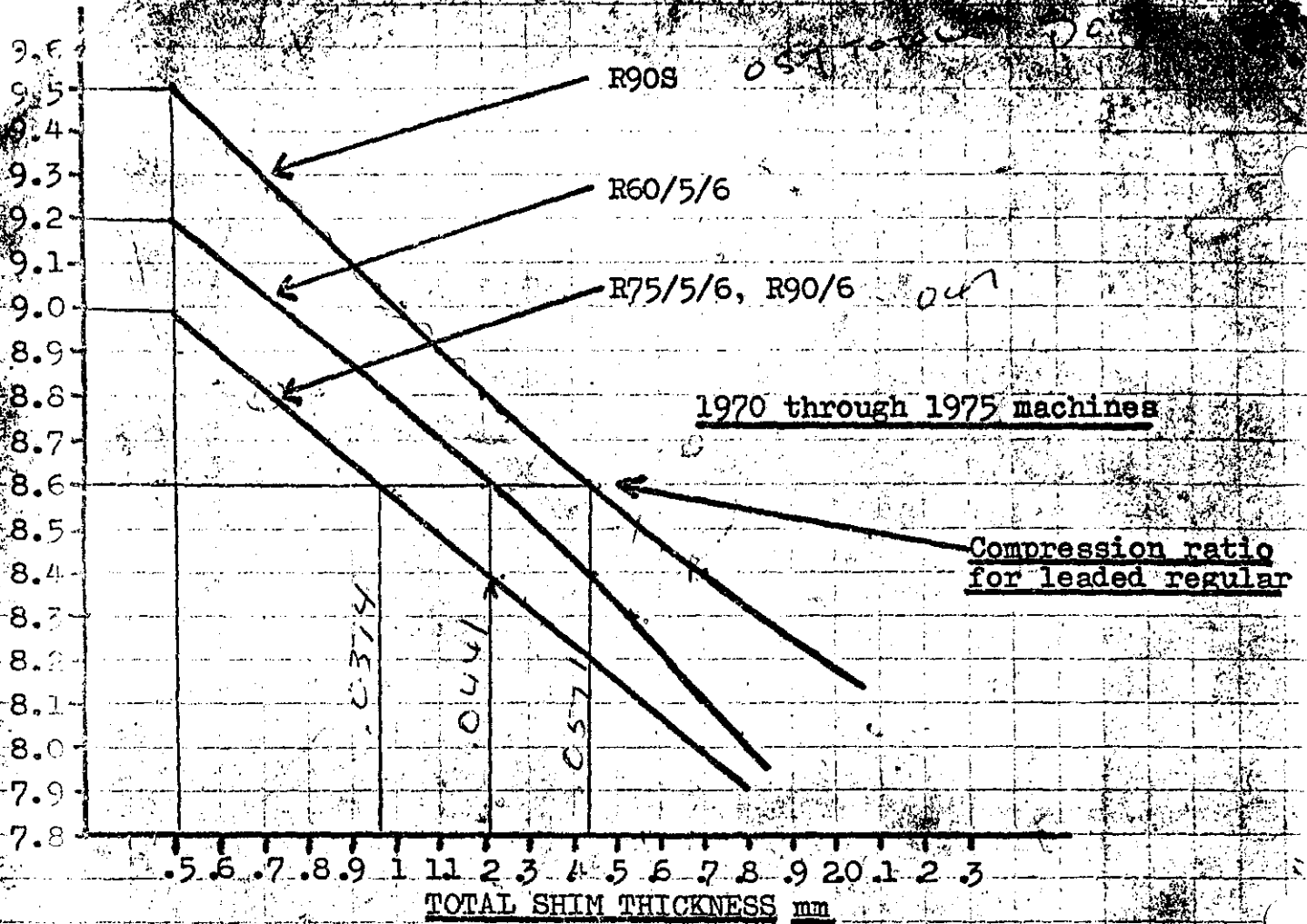
While we took somewhat of a negative approach of the shim conversion, it still has merit and is promoted on its merits accordingly. This is outlined on pages 7 and 8 and you may want to especially review that part, because it also gives the owner a chance to get other problems fixed. They are all over 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.

*Oak*

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 on

BIG D CYCLE CENTER

TO BILL:

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OF GASKET PAPER  
IS ABOUT .015

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ONE YOU HAVE BEEN  
GETTING ARE .015

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Inmitt & Kock falls  
11-74 626-1957

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R75/5/6-90/6 70-75 - 043 - 8.5

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+ 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 -

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