

**ATE' FRONT BRAKE CALIPER HOUSING O-RINGS  
(Replacement)**

**Application: 1981 BMW R65**

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Sometimes the simplest and most mundane operations of restoration and component rebuilds serve to be the most challenging – and problematic. I felt it necessary to get my findings of rebuilding the dual ATE' front brake calipers of my restoration of a 1981 R65 out to the mainstream in hopes of cushioning future frustrations for any of you that may anticipate the same task. The purpose of this commentary is to document and archive the generic replacement of the ATE' front brake caliper O-rings, not to be confused with the caliper piston square O-ring.

The subject replacement O-rings are no longer available as OEM equipment or available through factory BMW means, nor replacement part suppliers to the best of my knowledge. A diligent search was made by means of REAL OEM Microfiche records with no information available along with numerous well known parts suppliers, web sources and personal contacts. No graphic depiction or BMW part number was available through all resources that were searched. The O-ring just doesn't seem to exist in any BMW reference – except physically in the caliper! The caliper repair kit which is readily available from numerous sources does not include this O-ring. Reference Repair Kit BMW part number: 34 11 1 454 809.

This O-ring is sandwiched in-between the caliper halves and seals the brake fluid delivery gallery port that supplies fluid and hydraulic pressure to the piston and piston chamber. The original O-ring is a square O-ring configuration and rests inside of a recessed bore approximately 2 mm in depth on only one of the two caliper halves while the adjoining caliper half is a flat milled surface for compression of the O-ring.

After repeated inquiries to different sources, an Industrial Supplier (McMaster-Carr) was selected as a possible supplier for a replacement O-ring. The logical choice was the EPDM (Ethylene-Propylene-Diene-Monomer) for it's resistance to extreme low and high temperatures along with its properties to resist glycol based fluid exposures. The original O-ring was carefully measured with a high precision caliper, the results were as follows; 10 mm (od) x 5 mm (id) x 2.5 mm (w). The O-ring I finally decided upon was supplied by McMaster-Carr EPDM O-ring AS568A Dash Number 107, Part Number: 9557K72. Cost: \$5.17 for a pack of 100.

The dimensions and specifications are as follows;

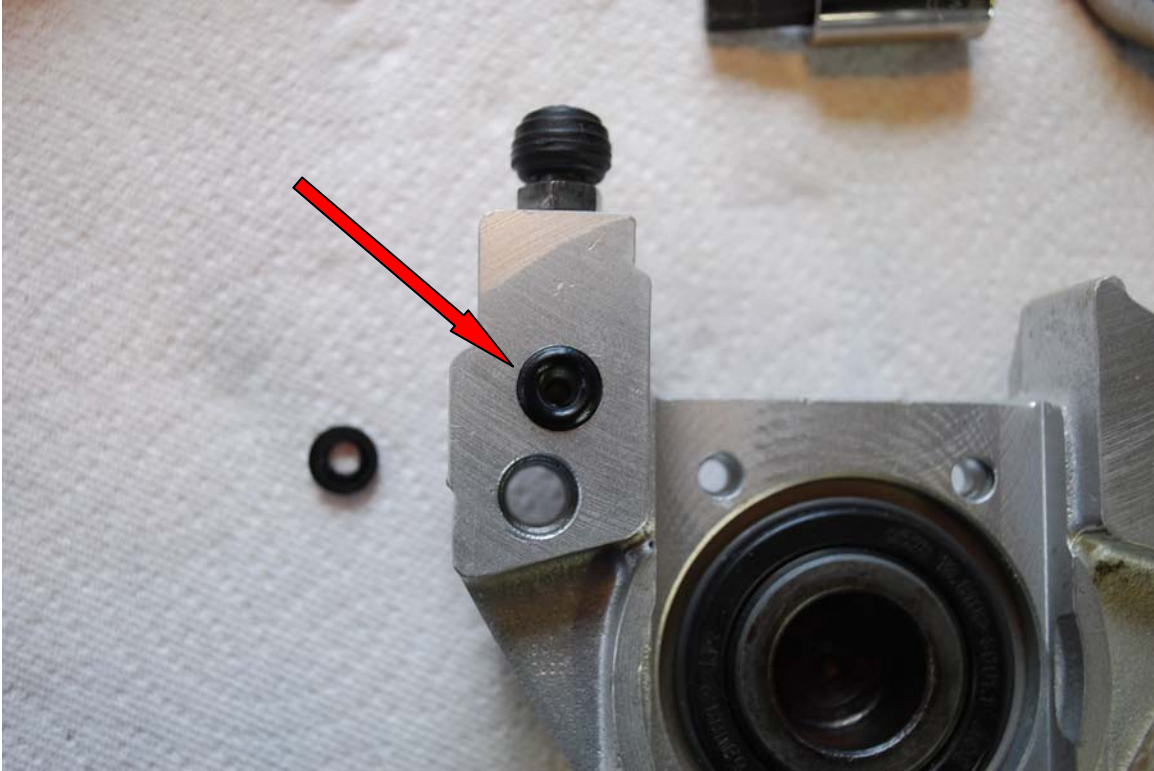


Type: O-Ring  
O-Ring Type: Standard  
Cross Section Shape: Round  
Width: 3/32"  
Actual Width (wd): 0.103"  
Metric Width (wd): 2.78mm  
Inside Diameter (id): 7/32"  
Actual Inside Diameter (id): 0.206"  
Metric Inside Diameter (id): 5.16mm  
Outside Diameter (od): 13/32"  
Actual Outside Diameter (od): 0.412"  
Metric Outside Diameter (od): 10.32mm  
Material: EPDM (Ethylene-Propylene)  
Durometer: Hard  
Durometer Shore: Shore A: 70  
Temperature Range: -65° to +212°F  
Color: Black

This O-ring in my personal opinion was an adequate fit in the bore of the caliper allowing its outer most limits to rest inside of the recessed port with no overlap and adequate compression extension for sealing. And in addition, the inner opening of the O-ring allowed adequate fluid flow with no restriction to the gallery port. The thickness of the O-ring was acceptable with what I would estimate to be approximately 0.5 mm of production above the milled surface of the caliper allowing for compression in-between the two caliper halves for sealing. I was able to locate metric square EPDM O-rings by a few other Industrial suppliers but the cost in comparison to the round O-rings supplied by McMaster-Carr were exorbitant and not economically feasible for my specific application.

## EPDM O-Ring

0.412"(od) x 0.206"(id) x 0.103"(w)



The above photo illustrates the complete overall coverage of the gallery port bore with the subject O-Ring which by visual observation seems to be a perfect fit. In the left background is the original Square O-Ring.

In closing, actual road tests have not been performed at the time of this writing. The restoration is still in progress. But, I have filled and bled the entire system with no visible leaks or loss of pressure and the entire system seems to be functioning perfectly.

Any constructive collaboration or added experience regarding this specific subject matter and application is always appreciated and welcomed. Feel free to contact me.

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Special Thanks and Appreciation for their help go to;  
Oak Okleshen  
Ted Porter (Beemershop)  
Scott Lydiard  
Steve Linden