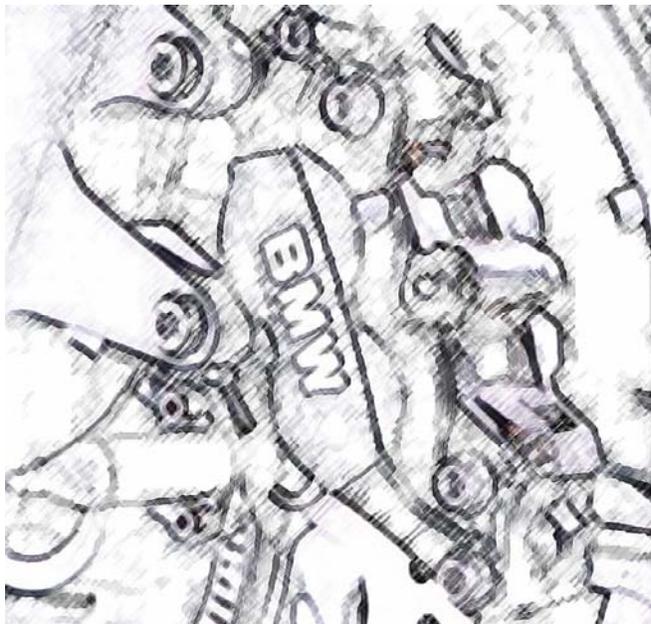


**BMW Integral ABS System
Wheel Circuit Reservoir Filling Adapter**



by **Dana E. Hager & Charles B. Gilman**

editorial support and review by **Brian D. Curry**

Send comments/corrections to

dehager@rcn.com

First Edition

5-30-2004

The author(s) have described how they made the parts/ tooling. The construction was based on their experience, knowledge, skills and available materials and tools. Our experience, knowledge and skills maybe and likely are different from any potential users of the information here. Users may not have the material and tools we had available. What was, or is, obvious to us and so not described, may not be apparent to potential users at all. Therefore, they/ we assume no liability for any damage or injury caused by any errors or omissions in this description. Please consult the OEM maintenance manual before doing any work. Use at your own risk.

All contents [Copyright](#) © 2004 by the original author(s)

All rights reserved. Not to be reprinted, translated or duplicated
either wholly or in part without prior written permission.

How To Make the Filling Adapter

The OEM BMW tool PN: 34 1 580 costs approximately ~US\$200 dollars. Here you will find instructions on how to fabricate an equivalent device for ~US\$30 dollars. The original idea for this tool came from Brian Rozema (*rosema* – on the www.bmwspporttouring.com list). Many thanks to Brian for taking the time to research the parts and construct the original tool.



Funnel

McMaster-Carr www.mcmaster.com

PN: 4005T5 US\$3.79

No minimum order and they ship same day.



TOP

US\$23.52 (*Tool - 34 2 541*)

BMW PN: 90 88 6 342 541 (*For ~2002 and older bikes*)

BMW PN: 34 51 7 677 998 (*For ~2003 and newer bikes*)

You should be able to order this from any BMW shop.

Check your bike before ordering.



O-ring - 5/8" OD x 3/32" Width

The "TOP" does not come with an o-ring. You will need to seal the funnel assembly to the "*wheel circuit reservoir*" when you fill it. Any hardware store should have this. Be sure to get a few extra.



JB Weld

Cold weld, two part steel epoxy resin. Will bond virtually any combination of materials and will not be affected by brake fluid. Any filled epoxy should work, check the label for compatibility with brake fluid.



How To Make the Funnel Adapter - *Continued*

- 1) Drill a hole for the funnel stem in the center of the "TOP". Using a 3/8" drill bit will result in a slightly small hole. However the "TOP" is plastic so work the drill bit in and out and wobble it a bit until you get a snug fit for the funnel stem.



- 2) Cut the funnel stem end square. Rough up the last 3/8" with some sandpaper so the filled epoxy adheres well. Clean the epoxy joint surfaces with some alcohol. (Methanol, Isopropyl etc.)



- 3) Mix the J-B Weld epoxy as directed on the label. Apply the epoxy to the stem and TOP surfaces that will be touching. Insert the funnel stem in the TOP. Build up the funnel stem to TOP joint for support. Fill or cover the small vent hole on the "TOP" with epoxy.

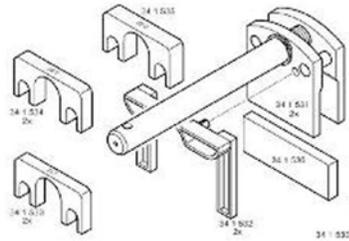


- 4) Keep everything square and allow to setup for 24 hours in a warm area. Install the o-ring when dry.



How To Make the Brake Caliper Spacers

You will need some wooden blocks to keep the brake wheel cylinder pistons pushed back into the caliper during the flushing process. (This minimizes old fluid “hiding out” in the wheel cylinders during flushing and maximizes new fluid in the system when you are done.) You will also need the wooden blocks to set the PROPER/CORRECT fluid levels in the “wheel circuit reservoirs”. (If this is not done an ABS fault condition can occur.) These blocks of wood will replace the OEM BMW (*Brake Caliper, Piston Reset*) tool PN: 34 1 530 which cost approximately ~US\$480 dollars.



Brake Caliper, Piston Reset Tool



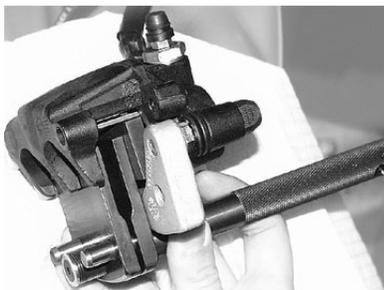
Wooden (*Oak*) Piston Spacers



Front pistons being pushed back.



Front pistons being pushed back and blocks inserted.



Rear pistons being pushed back.

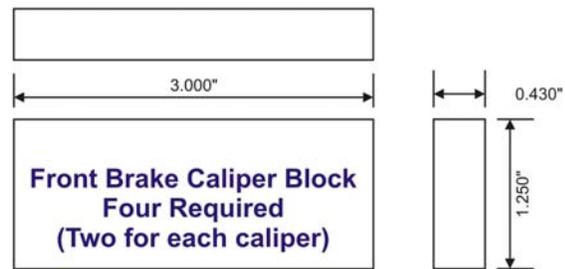


Rear pistons being pushed back and blocks inserted.

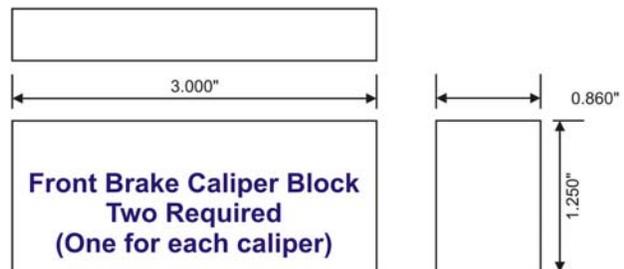
Wooden Spacers Dimensions

The spacers keep the pistons pushed back into the caliper during flushing and to set the **“wheel circuit reservoir”** brake fluid levels. We recommend and used hardwood to make your spacers. It should be easy to find someone with access to a table saw and a planer. Scrap hardwood can be found at any lumber or home improvement center. You will need two sets of spacers for the front calipers and one set for the rear caliper. They could also be made using the metal of your choice and a CNC machine station with the appropriate programming. The result should be blocks shaped and sized as described here.

For the front calipers you need a total block thickness of 0.860” per caliper. I had ¾” scrap oak so I made two .430” spacers totaling .860”.



If you have thicker wood, you can make a single block for the front.



Two blocks have to be used to fit into the rear brake caliper. Sand or machine in some manner, the blocks to the shape of the rear brake pad backing plate so they fit into the caliper.

