

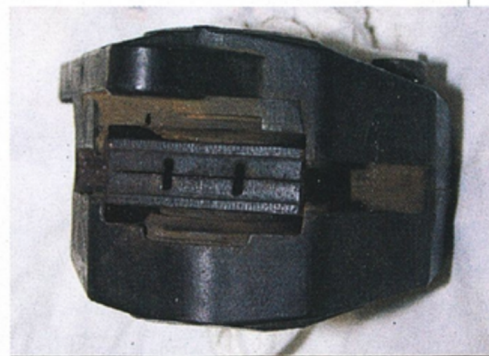
HOW-TO



1 The caliper we rebuilt was the rear unit on editor Backus' 1983 Laverda RGS. It's identical to the front left caliper. Remove the two bolts securing the caliper to its mounting plate. In our case, one of the bolts is obscured by the shock absorber.



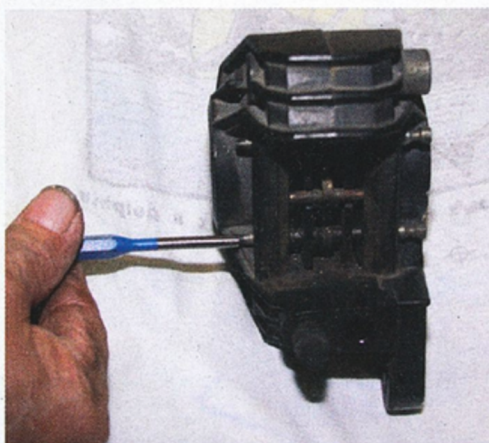
2 Once the caliper is free of its mount, loosen the brake line, but don't remove it. Instead, hold the line and spin the caliper loose so you don't twist the line.



3 Before we removed the line, however, we applied the rear brake to push the pads in. This will get the caliper pistons proud of their bore and make them easier to remove if the pistons or the bores are dirty or rusty.



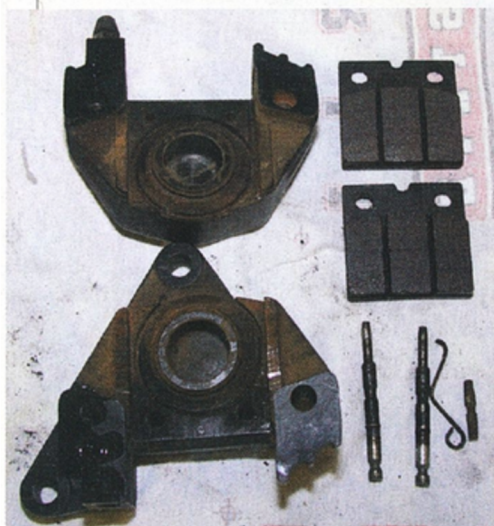
4 Next, gently pry off the hard plastic brake pad cover. Don't worry if it's missing or breaks while removing; they're readily available.



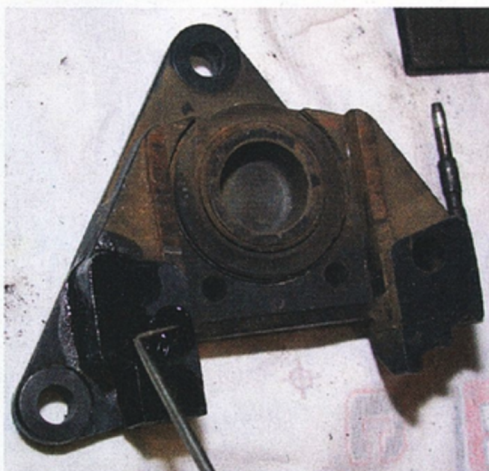
5 Use a punch to remove the brake pad locating pins, collect the hold-down spring and center spring pin and remove the brake pads. They'll just slide out the top or bottom.



6 Clamp the caliper by one of its locating lugs in a soft-jawed vice (or use strips of wood to protect the caliper). Remove the two 8mm Allen bolts securing the caliper halves.



7 With the bolts removed the caliper will separate. Here's our caliper and constituent parts.



8 Remove the O-ring seal in the transfer port. It typically stays stuck to the outboard half of the caliper, which has a recess machined into its port to locate the O-ring.

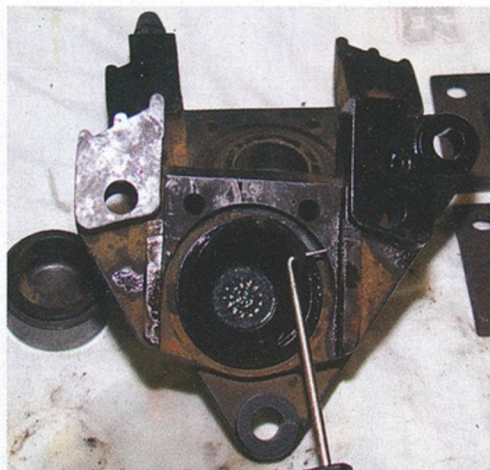


9 Remove the caliper piston dust boot.

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10 Cover the transfer port with your index finger, then point the piston down against a thick shop rag and blow compressed air through the brake line port to remove the piston. In step #3 we made sure the pistons were proud so we could grip them if they were stuck. Ours weren't.



11 Use a pick or other suitable tool to remove both piston seals from their grooves in the caliper.



12 Clean the caliper halves with brake parts cleaner, then clean off any residual corrosion or contamination using fine-grade Emery cloth lubricated with a bit of brake fluid.



13 Do the same thing with each piston. We used fine-grade Emery cloth for our initial cleaning, finishing with 1500 grit wet/dry sandpaper. You shouldn't have to be too aggressive, and be prepared to replace the pistons if they won't clean up; deep sanding marks in the pistons will cause the seals to leak.



14 With the pistons and bores cleaned up, rinse them thoroughly with brake parts cleaner, then blow out the fluid passages and bores with compressed air.



15 Here's our caliper overhaul kit, containing new caliper half bolts, the small O-ring for the transfer port, two piston seals, two dust boots and a small package of brake grease.



16 Liberally coat each of the piston seals in a coat of the special brake grease that comes with the kit. Fully compatible with brake fluid, the grease helps ensure easy assembly of the piston into the bore.



17 Likewise, liberally coat each piston and each piston bore with the special brake grease. This picture illustrates nicely how scratch-free our pistons were after cleaning.



18 Next, place the new seals into their machined slots in the piston bores (they're cut with square shoulders and will only go in one way), then gently press the pistons into their bores, leaving the top shouldered portion proud of the bore.

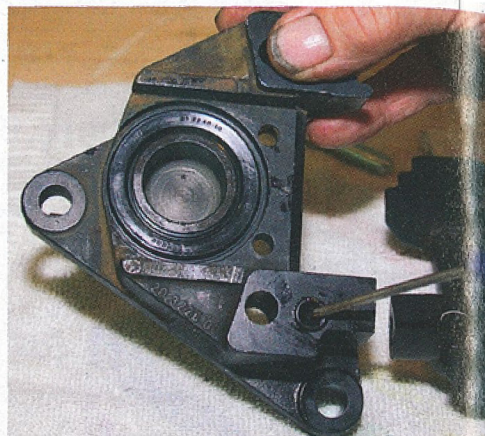
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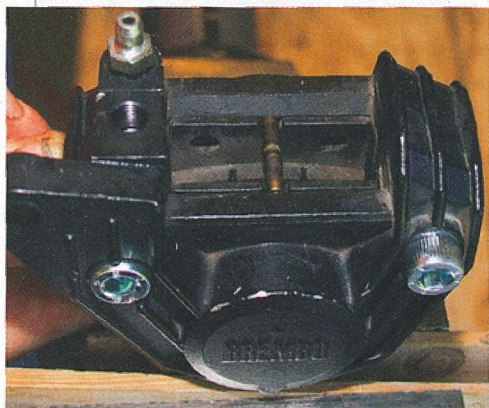
19 Here's a piston installed, with the shouldered top edge clearly visible. Although not essential, this makes it easier for the next step, installing the dust boots.



20 Place the boot over the piston, pressing it into the groove on the piston's shouldered edge. Work your way slowly around and it will push easily into place.



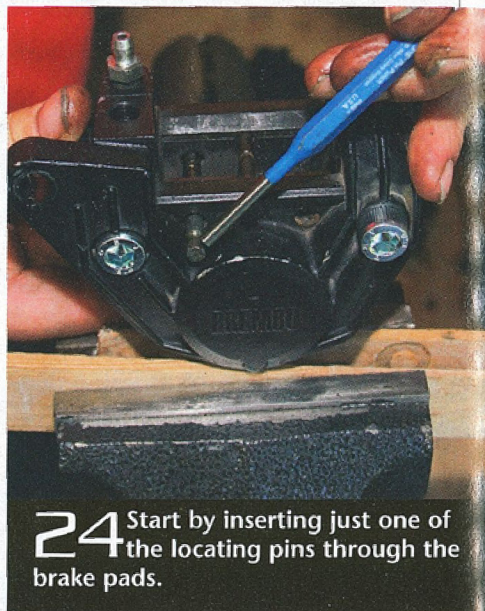
21 Lubricate the new O-ring with brake grease and place it into the recess machined into the transfer port on the outer caliper half.



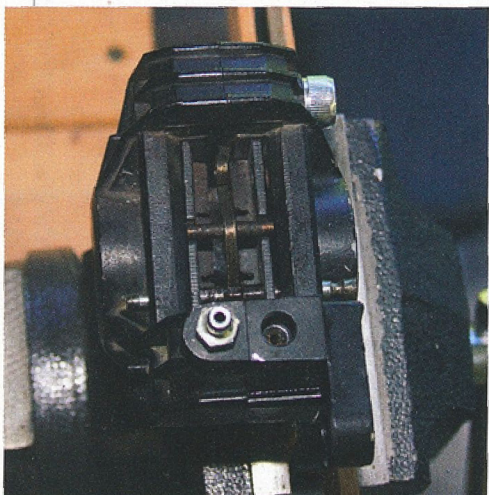
22 Place the outer caliper half back in the vise and bolt the two halves back together using the supplied new bolts. Reinstall the brake pads and the retaining spring center pin.



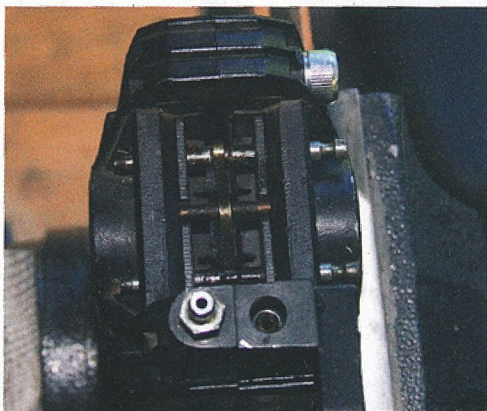
23 Ensure the brake pad locating pins are straight, then lubricate them with a dab of silicone grease.



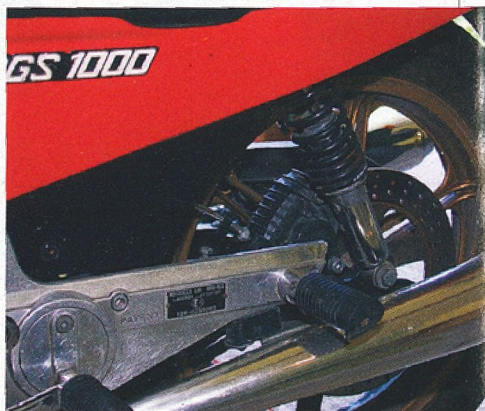
24 Start by inserting just one of the locating pins through the brake pads.



25 Slip the free end of the retaining spring under the installed locating pin, with the spring centered on the center pin.



26 Insert the second brake pad locating pin, making sure it passes through the looped end of the retaining spring. This will pull the center pin down, firmly locating the pads and keeping them from rattling on the locating pins.



27 Remove the caliper from the vise, attach the caliper to the rear brake hose, then reinstall the caliper on the bike. Flush thoroughly with clean DOT 3 or DOT 4 brake fluid, bleeding the system until no air is present. That's it, you're done!