

## Sunbeam Alpine Rear Hub Seal change recommendations

**NOTE: We are not professional mechanics and claim no expertise but have owned Alpines for many years. These notes and the accompanying video are simply the record of what we did when we replaced the rear hub seal on this Alpine, there may be other and better ways of doing this, this is our way.**

Do the job 'in your head' several times over before you start work, make a copy of the pages from a workshop manual or rebuild article that you want to follow that can get dirty in the garage and be thrown away afterwards, make a list of exactly what you are going to do, or use this one.

Get all the tools you expect to use together, including a suitable Hub Puller (The Sunbeam Alpine Owners Club U.K. have one they loan to members).

Check that every part needed is to hand, is clean and is correct for the Series of car. (There are variations in Alpine brake shoes, wheel cylinders, adjusters etc between the different Series and parts are not all interchangeable)

NOTE: It may *seem like* a good idea to always replace the rear wheel bearing when you replace the hub seal as the assembly will be in pieces but (if you have a car with separate bearing and seal) as the original bearings are high quality and very long lasting if there is no bearing problem it is probably better to leave it alone.

If the hub seal has leaked oil onto the brake shoes you *must* replace these (retain the old shoes as they can always be refurbished with new friction material in the future), it is good practice to replace the shoe springs and retaining clips too.

There will be different and possibly better ways of replacing the rear hub seals but this is how we did it.

1. Loosen centre lock spinners on wheels (or 4 bolts if not wires).

NOTE: Both rear wheels will definitely be removed during this job, depending on how you like to bleed your brakes you may also want to remove the front wheels later. If so loosen now.

2. Chock front wheels and jack up rear wheel and secure with axle stands beneath.
3. Undo spinner and remove rear wheel to be worked on.
4. Reach behind drum of this wheel and clean area as much as possible.
5. Undo countersunk screw in brake drum (if fitted) and 4 drum retaining bolts remove brake drum. Avoid inhaling dust and clean carefully.
6. Diagnose the problem. Is it actually the hub seal leaking or is it a wheel cylinder leaking? Follow the trail of fluid, smell it and be certain what is wrong before you proceed any further.
7. Undo the Handbrake connecting rod (offside) or cable adjuster (nearside). We are working on a Right-hand drive car.
8. Undo the two countersunk lock washers on brake shoe retaining pins by gripping them with pliers and pushing them in against the springs and turning 90°. Collect the pins, springs and lock washers.
9. Pull the brake shoes apart on their springs and remove.
10. Place two shoes and two springs to one side and inspect.
11. Undo hydraulic brake pipe(s) to the wheel cylinder. Put a

plastic bag and/or tape over the end of the pipe(s) for protection from dirt.

12. Remove the split pin from the castellated hub retaining nut if fitted. If not castellated, nut will be Nyloc (Nut is 1 1/8")
13. Using a box spanner or socket undo the Hub nut.
14. The nut can be VERY tight (both sides are conventional right hand threads). Resist the temptation to apply a naked flame and loads of heat.
15. If it doesn't come free re-fit the wheel onto the hub, lower car to ground and chock the wheel. If it still doesn't come free try a bigger bar or a piece of long tube over the ratchet handle.
16. If it *still* doesn't come free rest a soldering iron (or induction heater if you have one) against the hub nut and get the nut (only) very hot. Be patient and it will eventually come free and should be undamaged.
17. Fit the Hub Puller to the hub using the four brake drum retaining holes.

NOTE: The U.K. Owners Club Hub Puller comes with the necessary fittings to remove either centre lock wire wheels or 4 bolt wheels. So identify the correct parts and assemble the puller accordingly.

18. Once in place tighten the centre bolt of the Hub Puller and gradually increase the tension to pull the hub out and away from the shaft. The hub is keyed onto the half shaft and may be *very* tight but it is not recommended to use excessive heat or naked flame to remove it if you can possibly avoid it.
19. If necessary leave the puller assembly under high tension

and heat up the entire hub (gently) with a hot air gun until it is uniformly hot. Then leave it to cool *while under tension*. The hub will usually 'pop' free of its own accord as it cools down. If it doesn't, increase the tension on the puller and heat it again with the hot air gun until it does. Be patient and it will come free!

20. Once the hub is free the Hub Puller is no longer needed. Disassemble it, clean all the parts and pack it away together with the instructions for the next person to use.
21. Undo the 5 bolts that hold the oil catcher, seal retainer, seal and back plate to the axle. Two of the bolts are waisted and have a larger shank diameter, all five have nuts behind the back plate.
22. Once undone, remove all parts from the axle and clean.
23. If (as in this video) you are working on a car with separate bearing and seal, if it was fine beforehand *and you have not used excessive heat* the bearing should be fine to leave undisturbed.
24. If you have a later car with combined bearing and seal you will have to change it. Removal of this type of bearing and seal is not covered in this video.
25. To remove the wheel cylinder from the back plate push the retaining horse shoe clips aside and remove it from brake back plate. Examine for corrosion and check how freely it is sliding in the back plate slot.
26. Examine wheel cylinder itself. Is there any sign of leakage? Does it look old and corroding? Internal seals can be easily replaced and replacement cylinders are not expensive. Once clean bag up cylinder and put to one side if happy to reuse.

27. Examine the bearing (sealing) face of the hub. If it is scored, badly pitted or corroded it will not make a long term, oil tight seal. Small blemishes can be carefully polished away.
28. This is the end of the dirty part of the job. So clean *everything*, parts, tools and workspace. When you rebuild with the new parts you want everything to be spotless.
29. Repaint seal carrier, brake drum etc as required.
30. If preferred the entire back plate can be built up off of the car on the workbench (this is much easier than doing it on the car).
31. Apply sealant to the axle face and fit a new paper gasket ensuring the holes are all correctly aligned.
32. Lubricate the wheel cylinder slot with Green brake grease and refit the wheel cylinder ensuring that it slides freely. Refit the horseshoe clips and rubber dust seal. Ensure cylinder still slides freely.
33. Screw the adjuster on the wheel cylinder fully out and lubricate the wedges and the adjusters with Green brake grease (only). Ensure that the adjusters move freely.

NOTE: Because of differences between Alpine rear wheel adjuster mechanisms you may need to refer to the workshop manual to ensure that you make the adjustments for your car correctly.

34. Lightly lubricate (With Green brake grease only) the three raised areas on each side of the back plate that the brake shoes ride on. If these flats are scored or damaged remove any rough edges with a file.
35. Fit new brake springs to the new brake shoes, pull them

apart and fit them to the back plate. Push the two brake shoe locating pins into the holes in the back plate, through the brake shoes and place the springs over the pins. Using pliers push the springs down and twist the locking washers 90° to lock.

36. Place the back plate assembly into the brake drum and wind the adjuster in to approximately position the shoes.
37. Fit the new seal in the seal retainer (Oil the outside edge of the new seal, place old seal over the new one and lightly tap it into position with a mallet).
38. Place the seal retainer onto the back plate lining up the bolt holes.

NOTE: The drain hole *must* be clear and at the bottom.

39. Place the oil catcher over the seal retainer with the pressed steel angled piece over the drain hole at the bottom.

NOTE: The oil catcher is intended to catch any oil from a leaking hub seal and divert it away from the brake shoes and out through the drain hole in the back plate – it is not very effective!

40. Using the two waisted bolts pushed through their holes join the oil catcher, seal retainer and back plate together.
41. Smear the rear of the back plate with sealant and using the two waisted bolts in the two largest holes fit the back plate to the axle face, securing the bolts with their nuts.
42. Fit the other three bolts and nuts.
43. Refit the hydraulic pipes (two pipes to the offside rear wheel cylinder, one pipe and a bleed valve to the nearside one).

44. Re-connect the handbrake operating rod (cable adjuster if working on nearside).
45. Lightly oil the bearing (sealing) face of the hub and the lip of the hub oil seal and push the hub over the woodruff key and home into position.
46. Put the washer over the half shaft and loosely attach the hub nut. (It will not be possible to fully tighten it yet).
47. At the very least you will need to top up the differential oil, it makes sense to change it while doing this work.
48. With the offside rear wheel removed (gives easier access) drain off the differential oil (1" head on drain plug) and remove the square headed oil filler plug (9/16").
49. Once drained replace the offside rear wheel and lower the car so that it is standing on its wheels on level ground.
50. Replace the drain plug and fill differential with fresh EP90 oil (plus any additives that you favour) until the oil is just overflowing from the filler plughole. Then refit filler plug.
51. With the car standing on its wheels you can now fully tighten the hub nut.
52. Jack up, secure with axle stand and remove the opposite (in this instance the nearside) rear wheel, then replace the brake shoes and springs as previously described.
53. Once complete the brake system must be fully bled.
54. Bleed brakes in this order only:- Rear Nearside, Front Nearside, Front Offside.
55. Once brakes are correctly bled jack up and support the rear axle and adjust the rear shoes in each drum carefully

to ensure they are balanced across the axle. It is important that both shoes in each drum are engaging equally with their drums.

NOTE: Unbalanced rear brakes are becoming a very common MOT failure on classic cars in the UK.

56. Once the rear brakes are correctly balanced adjust the handbrake (at rear nearside) so that it is free without binding but comes on smoothly and evenly across both brake drums.
57. Lower car from jacks and stands back onto its wheels.
58. Tighten all road wheel fixings.
59. Road test car and ensure brakes are even all round and that there are no signs of leaks from brake hydraulics or rear axle.
60. Once satisfied that the job is a success....
61. Return Hub Puller to the Owners Club, go out and enjoy the car.