



MGB Salisbury Rear Axle Clunk

When It's not wear- it's preload

A practical guide to diagnosing and eliminating rear axle clunk.

Covers:

- (1) Preload diagnosis
- (2) Backlash & shim adjustment
- (3) Internal wear compensation
- (4) Real world set up methods

Based on hands-on repair of a high mileage
1979 MGB

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About the author:

I own a 1979 MGB roadster with unknown mileage but probably over 100,000 miles that developed a bad clunk when reversing in my drive way and while normal driving when pulling away from lights and then letting off the gas while the clutch was out. Sometimes it would clunk between gear changes as well. If you have a spouse like mine and rides in the car with you she will say "What's that noise" "Do you hear that?" Of course I hear it, I'm not deaf. After two attempts at trying to tighten up the spider gears (thought that was the sole problem) by replacing the spider gear thrust washers while the ring gear carrier was in the axle led to this article. The third a final attempt I was able to eliminate the dreaded MGB rear axle clunk. If you follow this procedures outlined in this article I feel that you will to eliminate the clunk in the rear axle you want to get rid of for good. In the Internal Wear Compensation section I meant to say that the axle gears (the bigger of the two spider gears) have fiber thrust washers that I replaced though the new were the same size as the old. The smaller spider gears also have thrust washers but are made of some like brass material which was doubled on 1 spider gear (1 old and 1 new) due to the worn carrier.. The reason for this was to take out as much slop in the gears as possible before reassembly. When the carrier was removed the bearing and races were inspected, I did not see any rough spots on the bearing roller or the races, so they were reused. Be sure to keep the



carrier shims and races on the left and right as to not mix them up. The carrier caps that hold the carrier in should also be marked left, right and up and down. I would say that if your bearings are pitted and races are starting to flake off that the bearings and races would need to be replaced and the clearances checked. When adjusting the preload of the pinion gear my pinion depth changed resulting in the back lash changing. Before I refit the carrier into the axle housing and the drain plug out I took a rag soaked in mineral spirits several times and tried to wash out the interior of the housing best I could and then let dry. So my MGB being a 79 is equipped with the rear sway bar so the bushings on the axle were replaced and the brake flex hose while I was there. The tools used were a dial caliper to measure the fiber thrust washers, a dial indicator with magnetic base to measure the ring gear back lash and a 0 to 1 inch micrometer to measure the carrier shims. With the help of the 18th edition of the MGB shop manual I was able to get some of the specifications but more important were the illustrations. Because I have heard good things about synthetic lubricants I used GL-5 75w-90w full synthetic gear oil which is supposed to be superior to conventional gear oil.

Note: There is some concern in older literature that GL-5 oils may damage brass or bronze components such as the spider gear thrust washers. This was true of early GL-5 formulations.

Modern GL-5 lubricants are formulated to be non-corrosive to yellow metals and are widely used in differentials containing such components.

The Salisbury axle uses hypoid gears which require the extreme pressure protection provided by GL-5 oil.

In this rebuild, GL-5 oil was used with no adverse effects and contributed to smooth quiet operation.



MGB Rear Axle Clunk: When It's Not Wear — It's Preload

Introduction

A Salisbury axle can be mechanically good and still clunk if preload relationships are incorrect. This guide documents a real-world method to diagnose and correct that condition.

Pre-Check List

- 1 Loose or worn U-joints
- 2 Axle hub nuts torqued to 140–150 ft-lb
- 3 Wire wheel spline wear
- 4 Excessive driveshaft play
- 5 Internal gear damage

Rear Suspension Checks (1976+ Cars)

Inspect sway bar bushings visually. At full droop (axle hanging), play may not be felt by hand.

Visible gaps between bar and bushings indicate wear.

End fitting bushings are harder to inspect and not sold separately. Replacement requires full assemblies.

Brake Hose Safety

Replace rear brake flex hose if original. Failure can cause total brake loss on single-circuit systems.

Hoses may also collapse internally, causing brake drag and overheating.

Vehicle Setup

Support car on frame rails so axle hangs fully for access. Note suspension is not in normal position.

Specifications

- 1 Backlash: 0.006–0.008 in (target ~0.007)
- 2 Pinion preload: 10–12 in-lb (used bearings)
- 3 Carrier cap bolts: 45–50 ft-lb
- 4 Axle hub nuts: 140–150 ft-lb



Pinion Preload Measurement

Carrier must be removed to measure pinion preload. Measure rotational torque only.

Breakaway torque will be higher and must be ignored.

Carrier Shims — Adjustment & Sourcing

Backlash is adjusted by moving the carrier side-to-side.

If backlash is excessive, move ring gear toward pinion by same amount.

Moss shims may be limited. Rimmer Bros provided required sizes in this project.

Internal Wear Compensation

Side shims were replaced even though thickness matched originals.

Spider gear thrust washers replaced; an additional worn washer added on one side.

Gears rotated freely but felt tighter, reducing internal slack.

Pinion Flange Holding Tool

Universal tool required modification (holes filed closer).

Tool must be braced against floor or solid surface; not held by hand.

Pinion Preload Adjustment Method

- 1 Use 1/2 inch drive torque wrench
- 2 Start at 100 ft-lb
- 3 Increase in 10 ft-lb increments
- 4 Stop when nut just begins to move
- 5 Re-check preload after each movement
- 6 Do not exceed ~170 ft-lb

Process Summary

- 1 Verify backlash
- 2 Remove carrier
- 3 Measure pinion preload
- 4 Adjust preload
- 5 Reinstall carrier
- 6 Set carrier preload
- 7 Re-check backlash

Final takeaway

A Salisbury axle can meet all specifications and still clunk if preload is incorrect.