



The Motor Cycling Club

TRIALS CAR REAR BRAKES

MAINTENANCE

For any vehicle used in motorsport brake performance is important; but with trials cars, it is the holding power and control from the rear brakes when reversing off a steep section that is especially important. A brake malfunction at this critical point can be a recipe for loss of control, with potentially serious consequences, however experienced the driver. As always with brakes, frequent knowledgeable inspection and careful maintenance is the key. Trials cars operate in truly demanding conditions with the brakes often flooded with slurry and grit, then often left for months between events all giving ideal conditions for rapid wear and corrosion.

HYDRAULIC HAND BRAKES

All cars are required to have two independent braking systems; normally the hydraulic foot brake and a mechanical hand brake. Hydraulic hand brakes are much in favour as the mechanical handbrakes often struggle to achieve the performance offered by the hydraulic version. But be careful, hydraulic hand brakes typically tap into the hydraulic line to the rear brakes, so are not independent of the foot brake. A loss of hydraulics can take out both systems leaving only the mechanical hand brake.

ADVICE: ENSURE YOUR MECHANICAL HAND BRAKE IS IN FIRST CLASS CONDITION AND CAN BE RAPIDLY USED IF YOUR HYDRAULIC HAND BRAKE FAILS.

GIRLING AND LOCKHEED REAR DRUM BRAKES

This note looks at problems that have occurred with Girling and Lockheed rear hydraulic drum brakes fitted to Austin, Austin Healey, Morris and MG cars and brakes taken from those donor vehicles, now having a second life in many Class 7 and 8 vehicles. The axle/brake system involved:

- A series MG Midget and Sprite using Lockheed rear drum brakes
- B Series rear axle from the A60 through to the later Morris Marina, Marina 10cwt Van typically using Girling brakes and the banjo axle MGB using Lockheed brakes

These brakes have been produced in millions and have been around for many decades and maintenance requirements are well known. Problems should be picked up at MOT or routine inspection. However not all cars are subject to MOT and there are two issues mostly occasioned by age that need special attention on a trials car.

Brake Adjusters

Both Girling and Lockheed brake adjusters use a square headed steel wedge screw threaded directly into the brake adjuster. A Series Lockheed adjusters use a steel body whereas later Lockheed B Series, notably the MGB and all Girling adjusters have an aluminium body. Here lies a danger, the screw thread in the aluminium body degrades with age, principally due to corrosion and will often seize.

Once freed up, they may appear to be working satisfactorily but the aluminium thread will have been damaged. If the adjuster is not replaced, the whole thread can eventually fail such that when the brakes are applied the wedge screw is forced out violently and all brake adjustment is lost. This failure will affect all

the brake systems including any hydraulic hand brake. Pumping may get some foot brake back, but the mechanical hand brake may become ineffective or only work on one side

All this is most likely to happen when the brakes are applied to their maximum, as when the foot brake and hydraulic hand brake and/or mechanical hand brake are applied together. The load on the adjuster from each braking system being accumulative. Sods Law will ensure a failure happens just when reversing off a steep section.

Replace the adjusters with new units if any doubt about their condition or history. It's probably prudent to change them at intervals such as when relining. Adjusters are available and not expensive. However, there are poor quality adjusters on the after-market, try to get genuine old stock.

WARNING: DANGER OF BRAKE FAILURE. REPLACE THE ADJUSTERS WITH NEW UNITS IF IN ANY DOUBT ABOUT THEIR CONDITION OR HISTORY.

Slave Cylinder Mounting Circlip

With Lockheed brakes the slave cylinder is retained in the backplate by a circlip and prevented from rotating in the backplate by a short roll pin.

If the circlip and roll pin are not correctly fitted, corroded, damaged or even missing the slave cylinder can become loose. In the worst case, the slave cylinder can rotate in the back plate to such an extent that its pistons are ejected. Result - loss of brake fluid leads to total brake failure.

Inspect the circlips and roll pin, ensure they in good condition and fitted correctly. If in any doubt get them replaced. Using the correct tool is essential. There is plenty of advice on line for this task.

WARNING: DANGER OF BRAKE FAILURE. REPLACE THE CIRCLIPS WITH NEW UNITS IF IN ANY DOUBT ABOUT THEIR CONDITION OR HISTORY

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