STANDARD TRIUMPH

DISC BRAKES
HERALD & T.R.

SERVICE TRAINING NOTES

Introduction

The object of the book and its accompanying film strip is to show the main features of the Disc Brake assemblies as fitted to the TR and Herald Range of cars.

The filmstrip is divided into three parts covering identification of different caliper assemblies, servicing, overhauling and fitting of wire wheel adaptors.

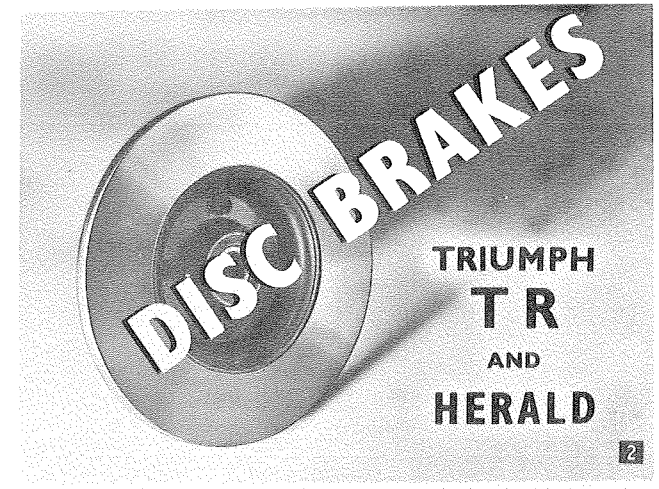
Where the film strip is used for instructional purposes, it should be remembered it is not an end in itself. At best it is an aid from which can be formed an introduction or summary to practical instruction.

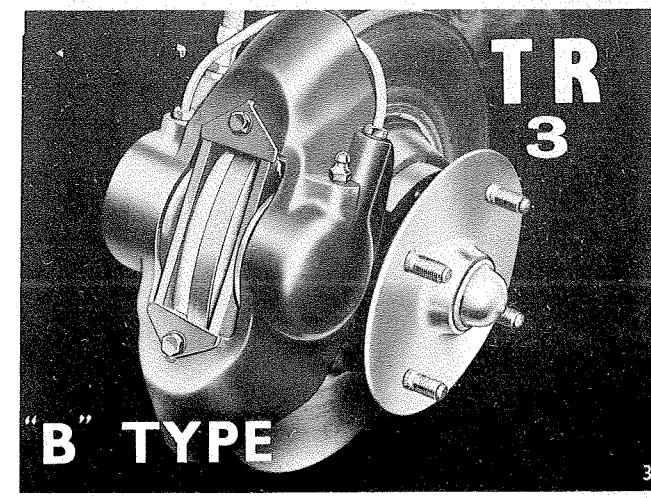
FRAME No. 3

The first disc brakes to be fitted to the T.R.3 were the "B" Type, at Commission No. TS.13046.

The caliper was a single unit made of high grade cast iron, also the disc which is 11 ins. (27.94 cm) dia with a swept area of 115.2 sq. ins (742 sq. cm) per caliper.

NOTE : Later models were fitted with Anti Rattle springs at Commission No. TS.23913.





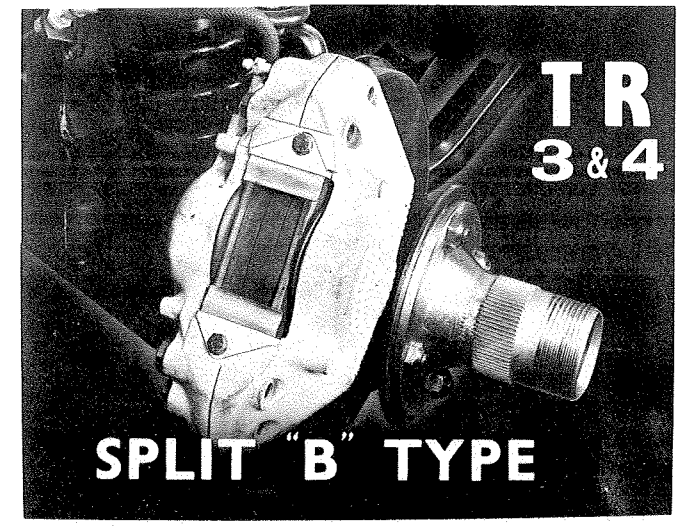
FRAME No. 4

The "split" "B" Type was first incorporated on T.R.3's at Commission No. TS.62956 (Wire Wheels) and TS.62775 (Disc Wheels).

The caliper is in two halves, which are held together by four bolts tightened to a very high torque figure during production, which must not be separated.

NOTE : It is recommended not to split the caliper for overhauling purposes.

The disc is 11ins. (27.94 cm) dia with a swept area of 115.2 sq. ins. (742 sq. cm) per caliper.



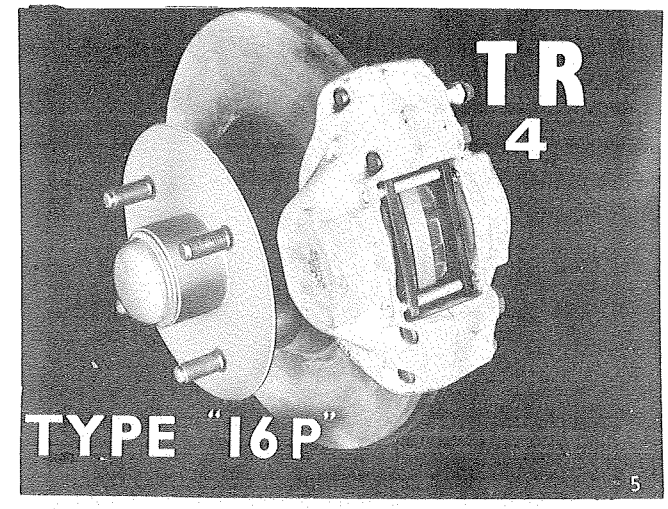
FRAME No. 5

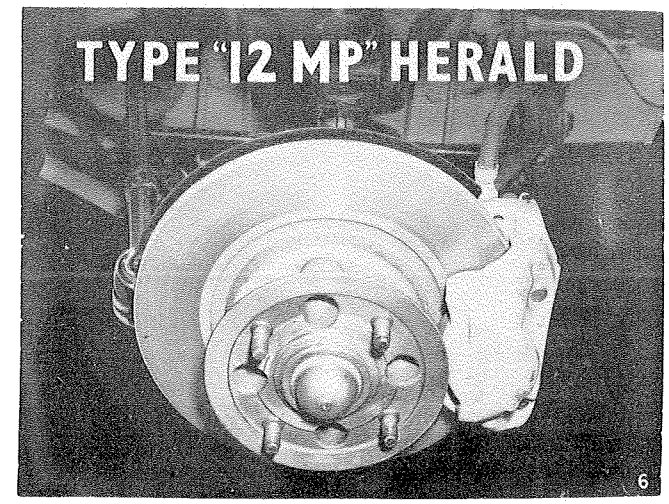
"Type 16P" replaces the "Split B Type" Disc brake on T.R.4's at Commission No. CT4690. The main difference in the "Type 16P" is the way in which the pads are located in the caliper housing. The locating plates and anti rattle springs are replaced by two pad retaining pins which are secured by hair pin type clips.

FRAME No. 6

The "Type 12" MP Disc brake is available to the Herald range of cars.

The caliper is the split type and the disc is 9 ins. (22.86 cm) dia with a swept area of 70.6 sq. ins. (452 sq. cm) per caliper.





FRAME No. 7

A quick check of pad wear can be made without any dismantling of the assembly, by the following method :

a. Jack up the front of the car.

b. Remove road wheels.

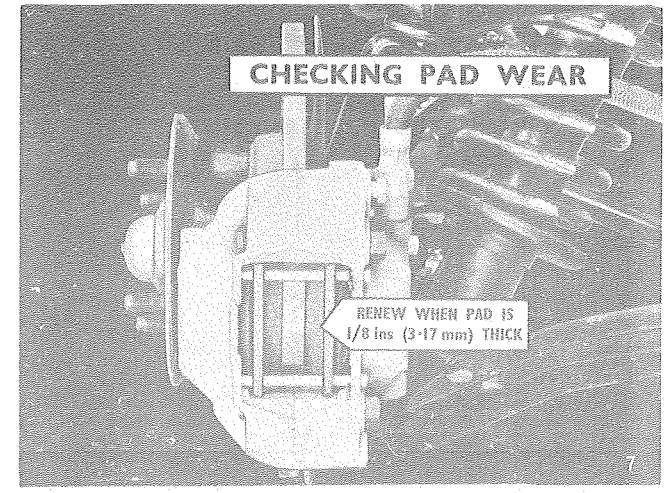
c. Inspect pads.

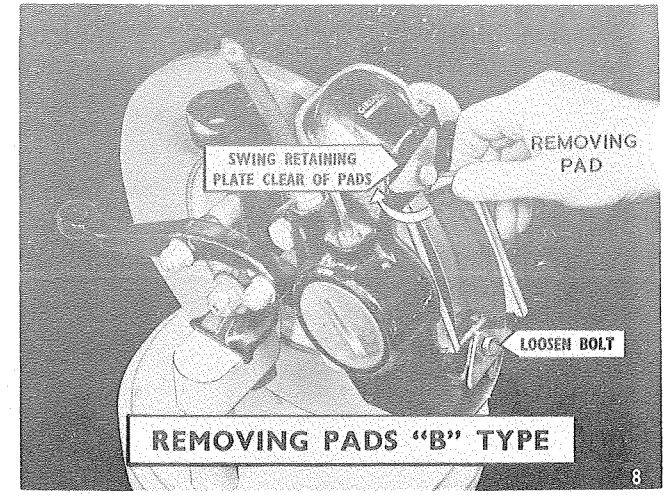
If the pads are seen to be approximately 1/8 ins. (3.17 mm) thick they must be replaced.

They must never be thinner than 1/16 ins. (1.58 mm) thick.

FRAME No. 8

To remove the pads from the "B Type" Assembly unscrew the two bolts which secure the pad retaining plates and swing the plates round (with anti-rattle spring if fitted) to clear the pad window. Then lift the pads out.



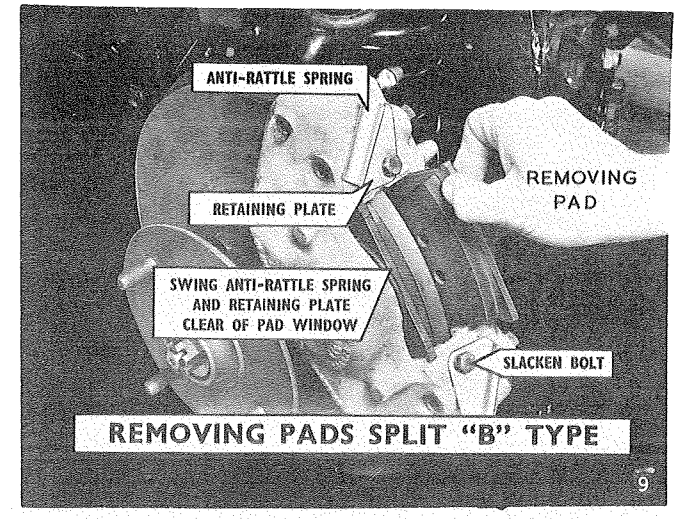


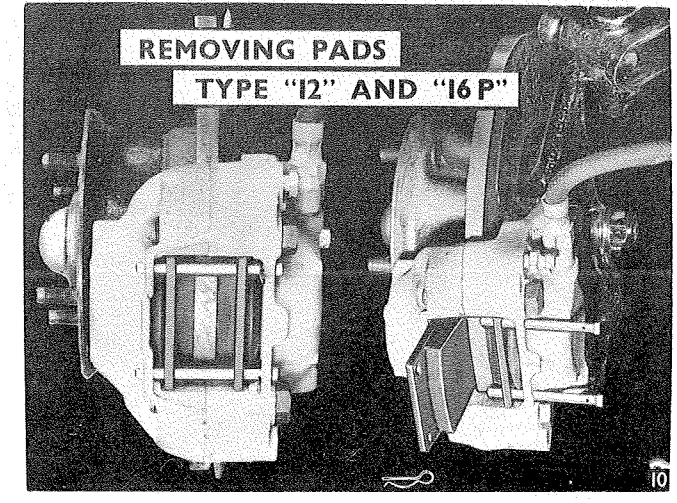
FRAME No. 9

To remove the pads from the "Split B Type" assembly unscrew the two bolts which secure the pad retaining plate and anti-rattle spring, then swing them clear of the pad window. Then remove pads.

FRAME No. 10

To remove the pads from "Types 12 MP & 16P" pull out the two hairpin clips, then draw out pad retaining pins and remove the pads.





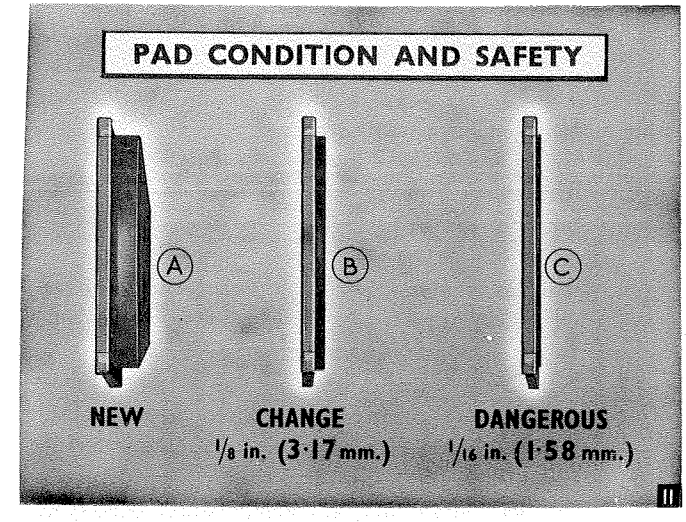
FRAME No. 11

This frame shows three stages of lining thickness.

a. A new pad

b. A pad 1/8" (3.17 mm) thick the condition at which the pads should be replaced.

c. A pad 1/6" (1.58 mm) thick the state at which the pad is approaching a dangerous condition.



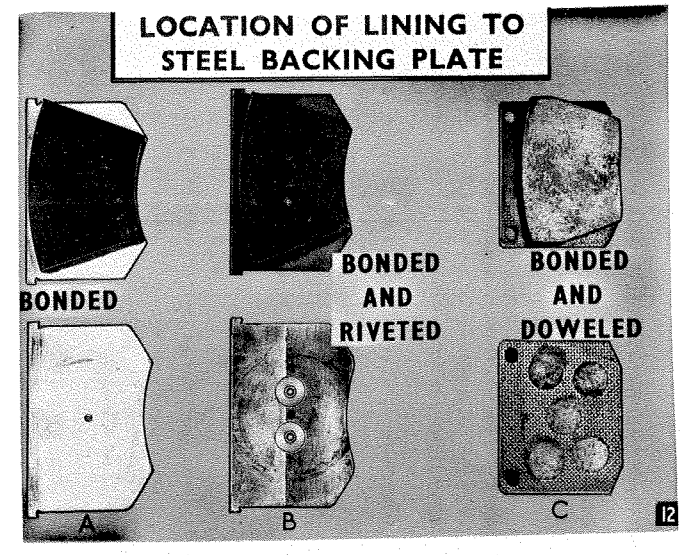
FRAME No. 12

Three methods have been used to secure the lining material to the backing plate.

a. The early linings were bonded to the steel backing plate.

b. The next stage of development, rivets were added to give additional shear strength between lining and backing plate.

c. The latest development is to use a steel backing plate with holes. The lining material is moulded to the plate forming its own dowels in the holes giving added shear strength.



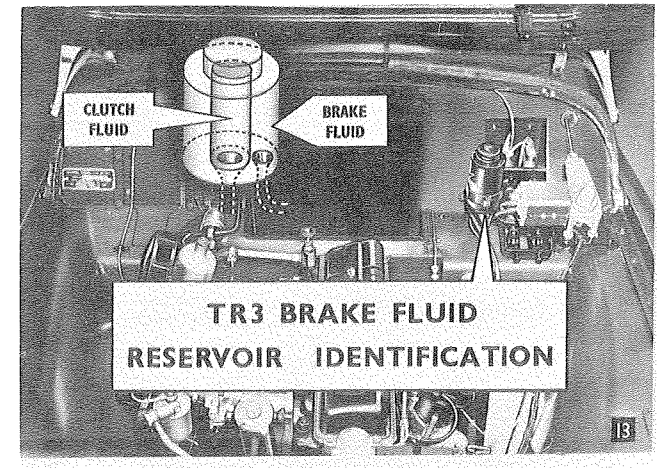
FRAME No. 13

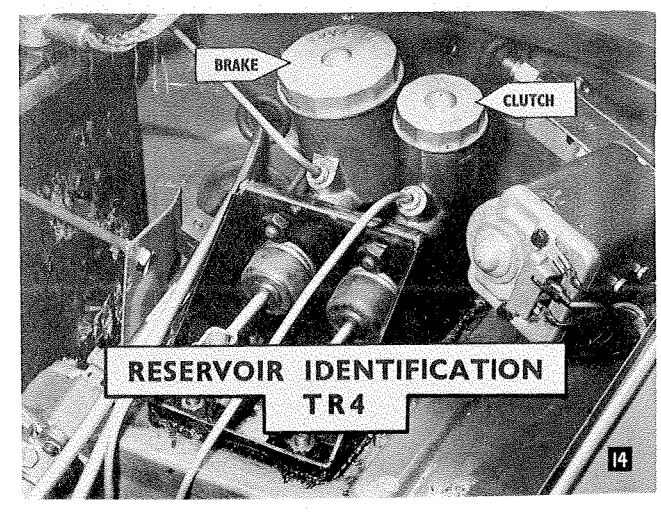
The fluid reservoir for the T.R.3 is divided into two separate containers. The central reservoir is for the clutch and the outer reservoir supplies the brake. For convenience a common filler cap is used to cover both containers.

NOTE : When checking fluid level care must be taken to observe not only the central reservoir but also the outer brake reservoir. Neglect of brake fluid level could be very dangerous.

FRAME No. 14

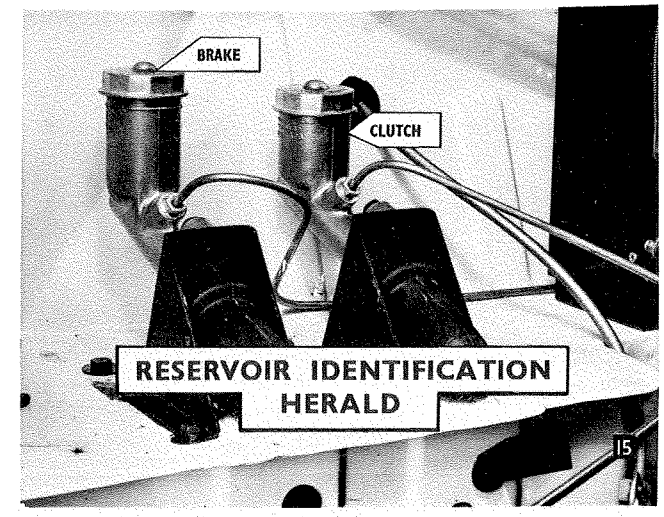
The T.R.4 has two separate reservoirs, the brake containers can be recognised as it is much larger than the clutch reservoir.





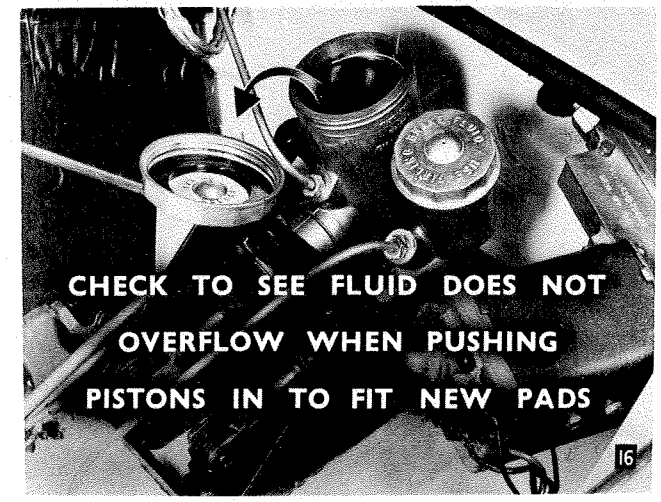
FRAME No. 15

The Herald brake and clutch reservoirs are identified in the same way as for the T.R.4, the larger of the two containers being for the brake.



FRAME No. 16

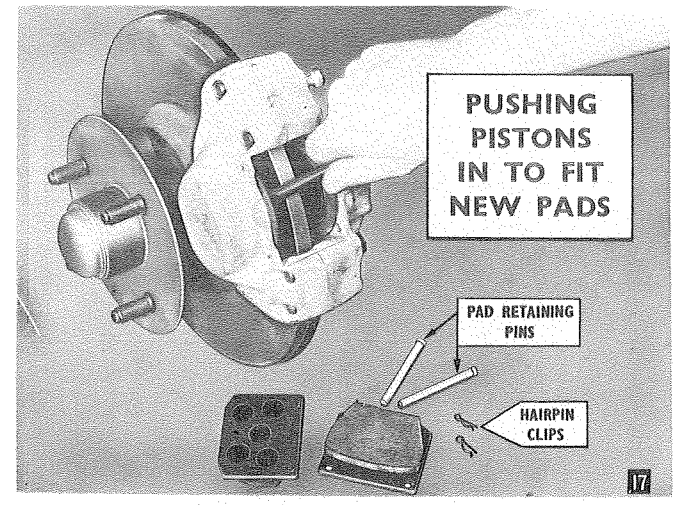
Before attempting to fit new pads it is wise to remove the brake reservoir cap and make sure the hydraulic level is not too high, as the fluid will damage and lift paint. Remove some fluid before sttempting to push the pistons fully back. (See next frame).



FRAME No. 17

Having checked the fluid level, use a lever and push the pistons with an even pressure to the bottom of the cylinder bores. Then fit new pads and secure with retaining pins and clips.

NOTE : Bleeding is unnecessary but the foot pedal MUST be pumped until a solid resistance is felt. Finally check reservoir level and top up if necessary.



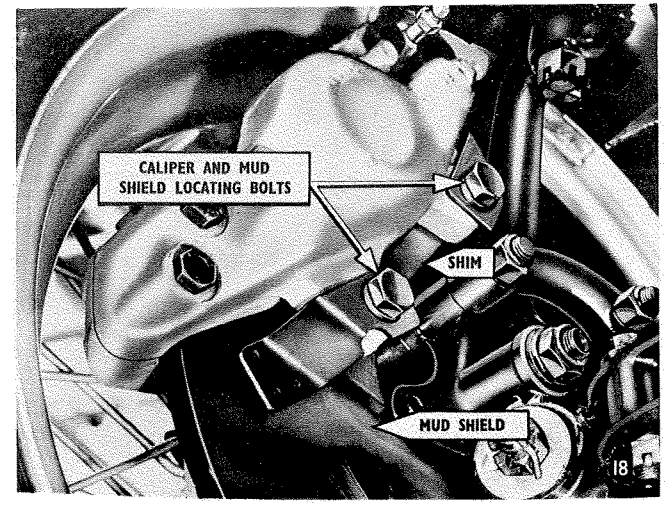
FRAME No. 18

Abrasion was found to be occuring between the inner face of the disc and the pad due to dirt being flung up from the opposite front wheel, with consequent excessive wear to the inside pad.

Dirt shields were first fitted to the "B" Type disc brake assembly at "T.R." Commission No. T.S. 27689 and thereafter.

The T.R. dirt shields are located by three bolts, two can be seen in the frame.

The Herald dirt shield is located by four bolts to the stub axle flange on the vertical link.

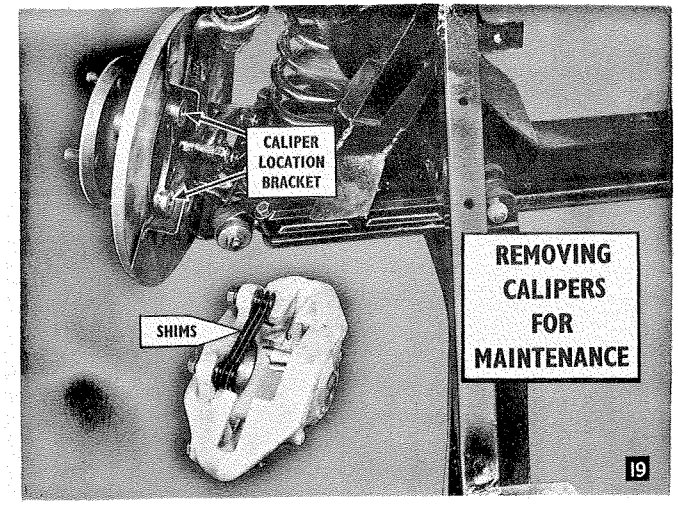


FRAME No. 19

When removing the caliper assembly for maintenance the following procedure should be adopted.

1. Disconnect the brake pipe and drain off fluid into a clean container and seal to prevent dirt from entering.

2. Remove the two locating bolts and lift out the caliper assembly at the same time checking the number of centralising shims (if fitted) found between caliper and locating flange.



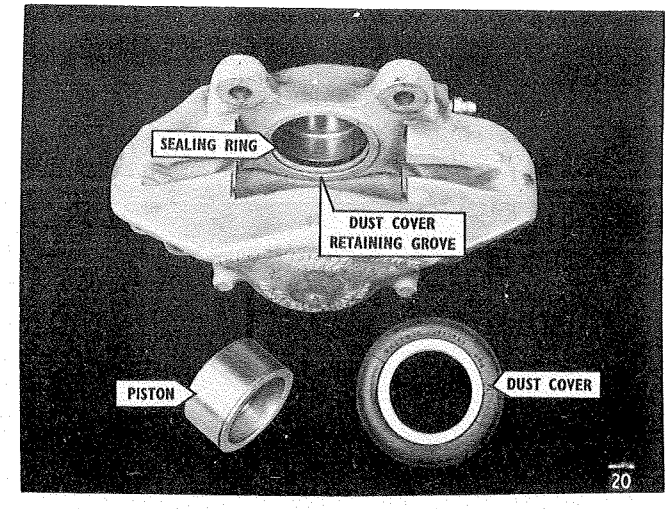
FRAME No. 20

If there has been any suspicion of fluid leakage a check should be made of all parts.

Withdraw the two pistons, taking great care not to damage as they are machined to a very high degree of surface finish. Remove rubber dust covers and finally remove rubber sealing rings again take care not to damage the grooves or cylinders.

NOTE : The caliper assembly must NOT be split as the bolts are tightened during production to individual torque figures which are very high. In the case of the "B" type calipers the large plug on the side of the caliper must not be removed for similar reasons.

It is wise to renew all rubber parts. (See next frame concerning pistons and cylinders).



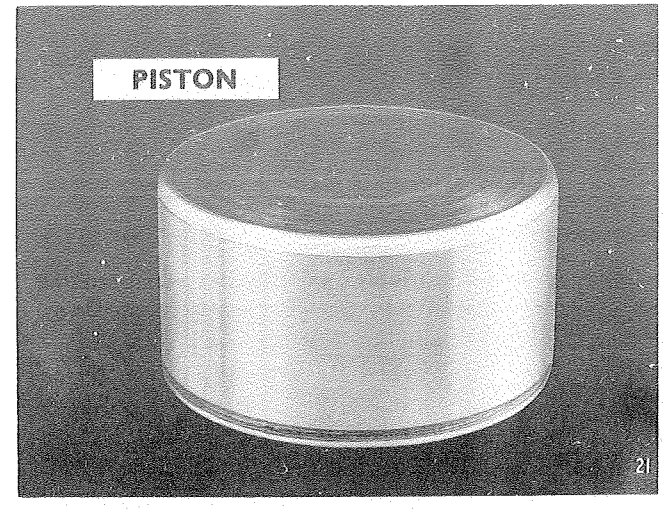
FRAME No. 21

The pistons and likewise the cylinders should be checked for surface damage. The slightest blemish will impair their efficiency and therefore the parts should be replaced.

These parts should be cleaned with Girling Cleaning Fluid. Then lubricated with brake fluid before assembling.

NOTE : Cleaning fluids such as Petrol, Paraffin and Trichlorethylene must NOT be used under any conditions. Lubrication must be Girling Brake Fluid, as in the system and under no circumstances should MINERAL FLUIDS BE USED.

"Rubber grease" should be used around rubber gaiter as it preserves the rubber and seals the assembly from dust.



FRAME No. 22

Before fitting the calipers examine the disc for surface damage such as scoring and abrasion. These blemishes may be removed by machining, but always consult the manufacturer for latest tolerances and advice.

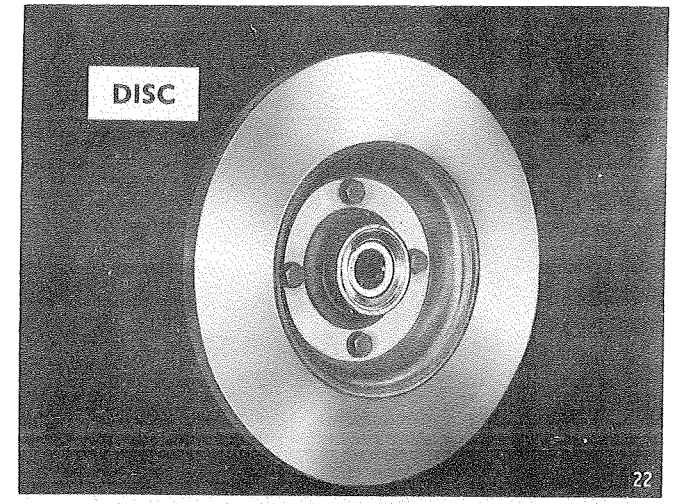
FRAME No. 23

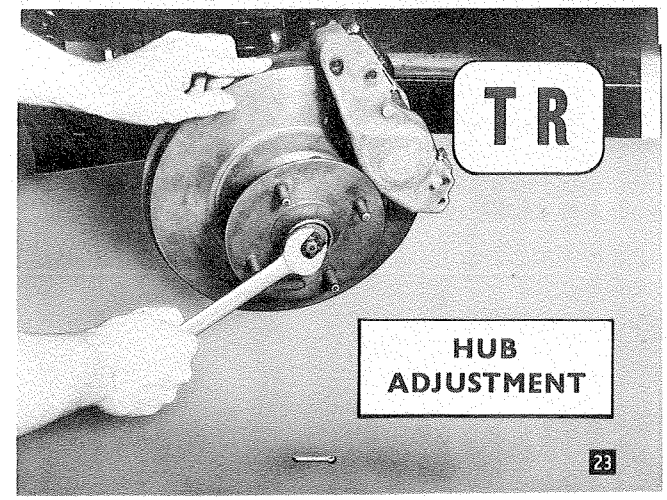
If judder and vibration is experienced when braking, the cause is usually excessive disc run out. Start by checking hub adjustment, by the following method.

1. Tighten hub nut with fingers until all disc rock is eliminated, at the same time spin the disc to allow the taper rollers to re-settle.

2. Slacken back the nut sufficiently to allow the split pin to be inserted through the first of the two holes to become apparent in the stub axle.

NOTE : If molybdenum - di - sulphide grease is used for packing bearings, make sure that NONE gets onto the disc as it reduces braking efficiency and the grease can ONLY be removed by grinding the surface.



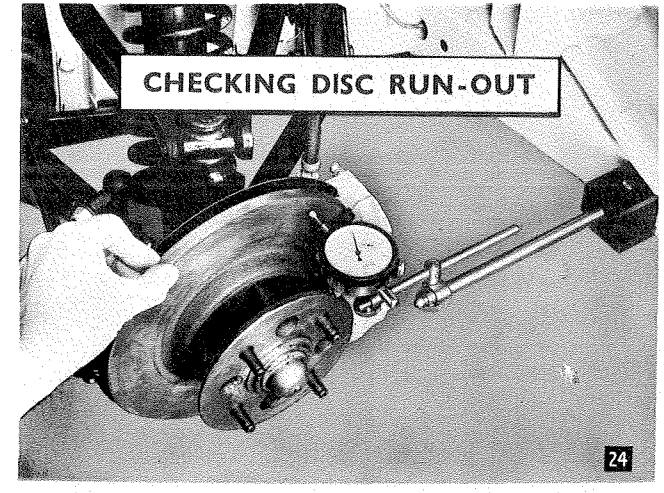


FRAME No. 24

With the aid of a clock check runout which must not exceed .004" (.0106 mm).

If needle fluctuation is excessive remove the disc for machining, but ALWAYS check machining tolerances with the manufacturer for latest figures and advice.

NOTE : Hub bearings should be checked and repacked with grease every 12,000 miles (20,000 Km) for competition work. For normal use this check may be extended to 24,000 miles (40,000 Km).



FRAME No. 25

When fitting wire wheel hub extensions the following precautions must be carried out :–

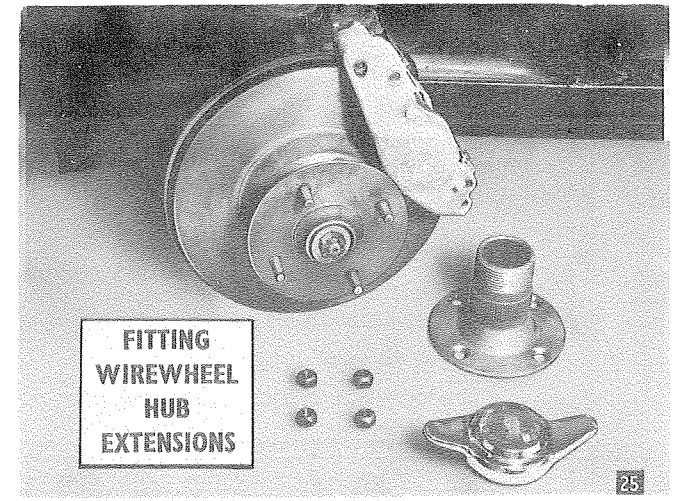
1. When converting a T.R. from disc wheels to wire wheels the wheel location studs which now locate the splined extensions MUST be shortened to prevent fouling of the wheel on the end of the studs when the wheel is fitted.

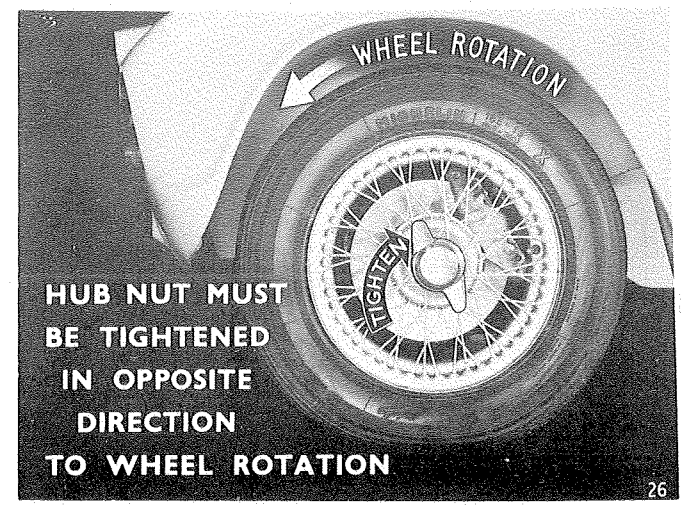
2. When adjusting hubs the splined extensions must be removed to obtain access to the hub nut.

3. VERY IMPORTANT. Splined extensions must be kept to their respective hubs to avoid the danger of wheels becoming to loose. See next frame for explanation.

FRAME No. 26

To prevent the wheel from coming loose the hub extensions must be fitted so that the wheel nut tightens in the opposite direction to wheel rotation.





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