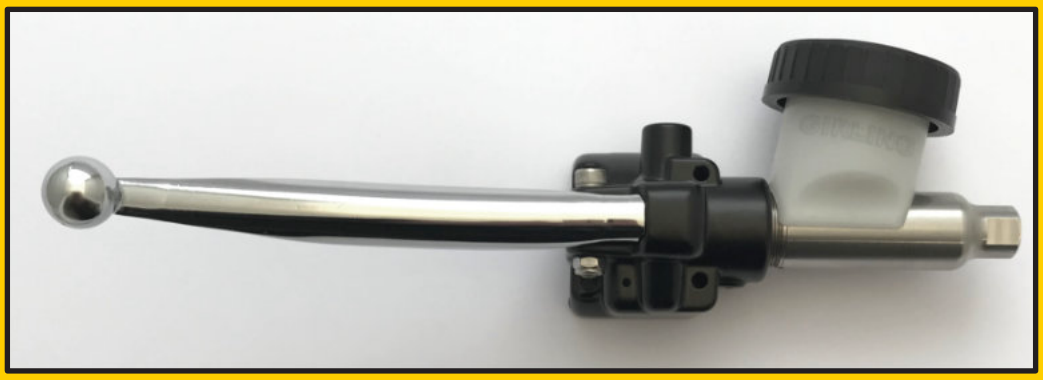
GIRLING

FRONT BRAKE MASTER CYLINDER

INFORMATION SHEET



When the brake lever is operated the piston moves along the bore to displace hydraulic fluid under pressure to operate the caliper pistons. On releasing the brakes, the return spring moves the piston back faster than the fluid can return and this causes the lip of the main rubber cup to relax. Fluid then passes over the cup from behind, through the holes drilled in the piston head for this purpose.

When the piston is fully back against the circlip stop a small by-pass port just in front of the main cup is uncovered which releases all fluid pressure within the cylinder. This port also allows for the expansion or contraction of the fluid caused by temperature changes during operation.

The check valve at the bottom of the cylinder bore assists in purging air from the system during bleeding by ensuring a fresh charge of fluid each time the piston is stroked.

DISMANTLING THE MASTER CYLINDER

Disconnect the brake fluid pipe at the outlet port and insert a suitable plug to prevent the loss of fluid and entry of dirt.

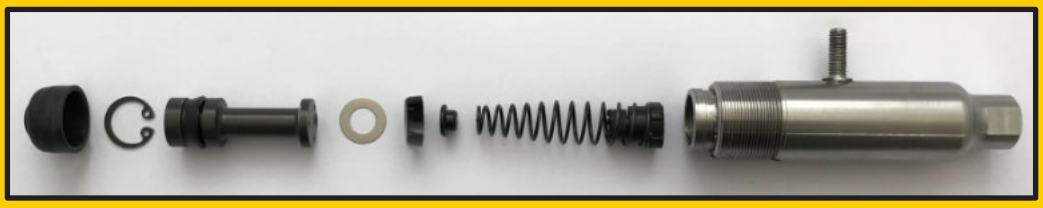
Remove the master cylinder assembly from the machine. Slacken and remove the small Allen screw from underneath the assembly so that the master cylinder and reservoir can be unscrewed from the bracket. Unscrew the Nyloc nut and the pivot bolt and remove the lever and pushrod sub-assembly from the bracket.

RESERVOIR REMOVAL

Remove the filler cap and the rubber diaphragm and empty all brake fluid from the reservoir. Grip the cylinder barrel in a soft jawed vice and with a suitable spanner unscrew the Nyloc nut. Extract the flat washer then lift the reservoir off the locating stud. Retrieve the 'O' ring seal from underneath.

STRIPPING THE PISTON

Remove the rubber boot and the circlip from the bore mouth, then withdraw all the internal parts, carefully noting their positions. Remove the secondary seal from the piston taking care not to damage the seal groove.



INSPECTION OF PARTS

Clean parts to be reused with new brake fluid and lay them out in order on a clean sheet of paper. Make sure the hands are clean and free from oil and grease. Absolute cleanliness is essential in the rebuilding operation.

Inspect the bore of the cylinder for scoring or corrosion. If it is not in perfect condition, or if the cylinder or piston is damaged in any way, a new replacement assembly should be fitted.

REASSEMBLING THE MASTER CYLINDER

Lubricate the bore and the new rubber seals prior to assembly with new brake fluid. Using the fingers only, fit the new secondary seals to the piston with the lip facing towards the drilled head of the piston. In the positions previously noted, refit the parts into the cylinder, taking care not to bend back the lips of the seals when entering the bore mouth. Finally refit the circlip making sure that it is securely seated into its groove and seat the new rubber boot over the cylinder mouth.

RESERVOIR REPLACEMENT

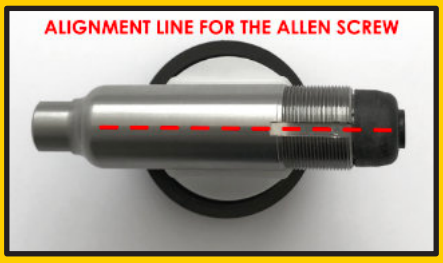
Position the new 'O' ring seal into its groove on the underside of the reservoir. Check that the spacing collar is on the locating stud and lower the reservoir into position on the cylinder barrel. Replace the flat washer on the stud and fit the Nyloc nut, screwing it down to a torque of 6-7Nm. (4-5lb.ft). DO NOT OVER TIGHTEN.

Install the lever and pushrod sub-assembly into the bracket. Screw in the pivot bolt and replace the Nyloc nut. Tighten to a maximum torque of 7-9 Nm. (5-7lb.ft).

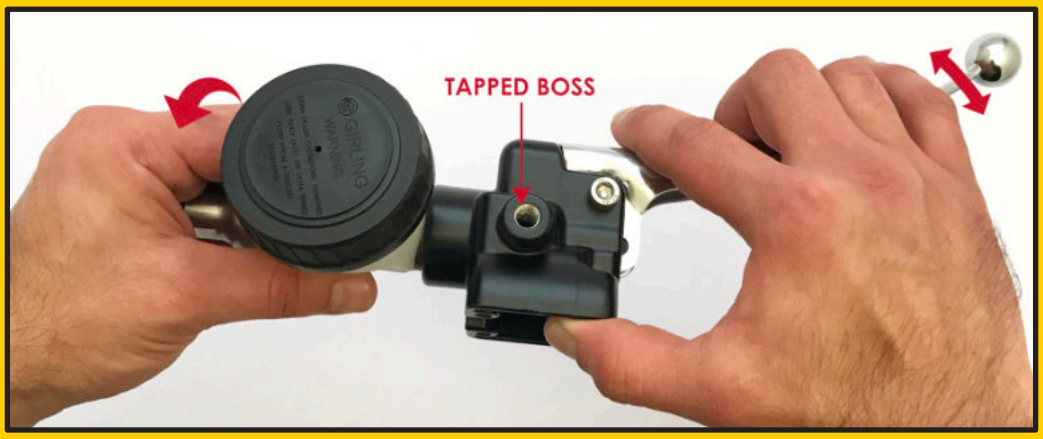
PROCEDURE FOR RESETTING THE PUSH ROD

The position of the master cylinder in relation to the lever bracket is very important. The assembly method is as follows:

1. Take note of the slot machined in the centre of the underside of the cylinder barrel.

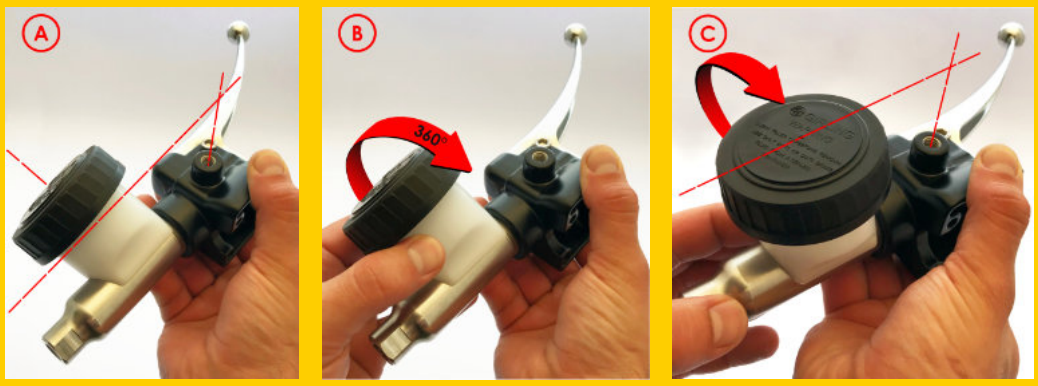


2. Making sure that the pushrod enters the hole in the boot, screw the cylinder into the bracket moving the lever slightly so as to feel when all the lost movement is eliminated. Do this very carefully so that all movement is JUST removed.



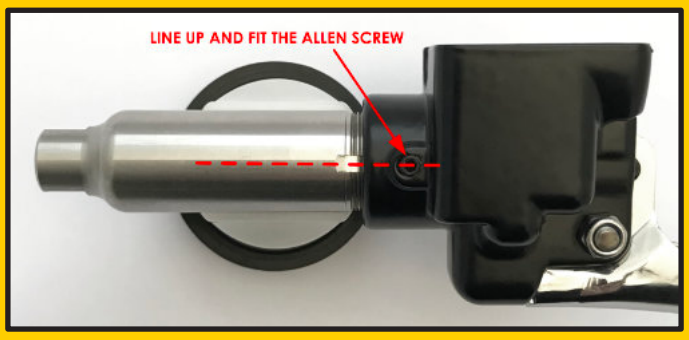
PROCEDURE FOR RESETTING THE PUSH ROD (continued)

3. With all lost movement eliminated, note the position of the reservoir in relation to the tapped boss on the bracket (Diagram A). From this position screw the cylinder in one complete turn so that the reservoir finishes up in the same previously noted position (Diagram B).



4. Continue screwing in the cylinder the part of a turn necessary to bring the reservoir vertical so as to line up with the tapped boss (Diagram C). DO NOT UNSCREW the cylinder to line it up with the tapped boss - always screw IN the part turn necessary even if it is almost another complete turn of 360°.

5. Make a further slight turn inwards to align the hole for the Allen screw with the centre of the slot. Fit the screw (ideally apply Loctite CV), making sure that the screw properly locates in the slot.



IMPORTANT

As a final check, pour clean brake fluid into the reservoir until the locknut inside is covered (keep the cylinder inclined with the threaded outlet port above the horizontal otherwise the fluid will run out!). With a foot pump, gently blow air into the threaded port in the end of the cylinder. Air should bubble up through the fluid in the reservoir.

NOTE: Brake fluid is a powerful paint stripper so be careful not to spill any onto a painted surface.