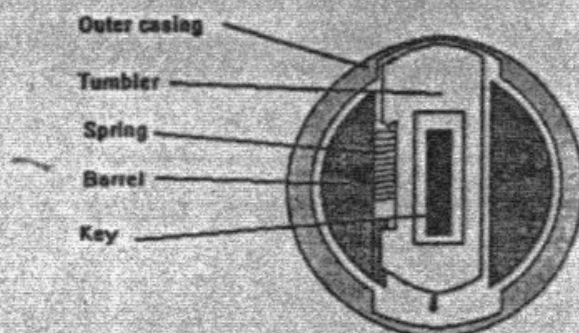


Most cars nowadays have several key-operated locks; a sad sign of the times. These sometimes cause trouble by falling out, ceasing to work, or freezing up in winter. Furthermore, it is very frustrating when one of them has been replaced and you need two different keys instead of one. This article attempts to show you how to repair lock barrels, and how to make a lock barrel suit a key.



How it works

Lock barrels on most cars work on the same principle. The barrel proper can rotate either a quarter or half a turn within a housing, but is prevented from doing so by (usually) five tumblers that are spring loaded so that they engage a slot in the housing, and therefore prevent the barrel from rotating. Each tumbler has a rectangular slot, and one end of this slot (acting face) is made a calibrated distance from the tumbler end. The acting face is one of (usually) four distances from the end. When the correct key is inserted, the part of the key in line with each tumbler presses the tumbler down by such an amount that the tumbler is flush with the outside of the barrel on each side, and the barrel can now rotate. An incorrect key will move one or more tumblers too far or not far enough. Either way, the tumbler(s) will project and prevent rotation. Five tumblers and four heights gives a possible 625 (5 to the power of 4) combinations. One extra tumbler increases this to 1296.

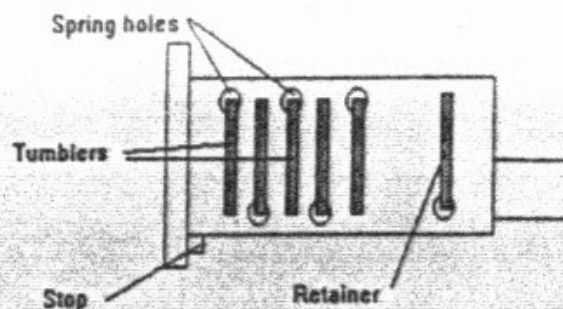
Problems

The most common problem is that the lock sticks or does not work. Squirting WD40 or similar into it will relieve the problem temporarily, but this will wash all the lubricant out, and the lock will freeze in winter. The body of the barrel is zinc alloy, and the tumblers are brass or plated steel. Moisture causes electrolytic corrosion due to the dissimilar metals, once all the grease has gone. To cure this, remove the lock barrel. Barrels are held into their housings by a latch which resembles an extra tumbler. The exact method depends on its use, but once the housing has been removed, a small hole should be visible, into which a scriber or similar can be inserted to push back the latch. Wash the parts in petrol (usual precautions!) and dry them. Lubricate with petroleum jelly or thick grease, pushed well into the tumbler slots, and reassemble. Sometimes barrels fall out because the latch is sticking or has fallen out.

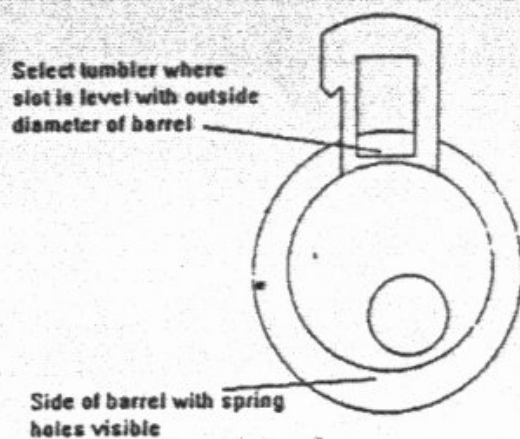
Making barrels fit keys

If you have to replace a barrel, it is quite possible to make it fit your existing key. Prerequisites are a good eye and a steady hand, and preferably a supply of old lock barrels of the same make. Start by washing the barrel clean, then removing the tumblers. Locate the side of the barrel where the spring holes are visible - we shall refer to this as the top for convenience.

M-4



The tumblers can be pushed out from the bottom side with a small screwdriver and a few light taps. Work over some sort of container. Be careful not to lose the tiny return springs. Repeat the process on any scrap barrels that you have, to provide a supply of tumblers. Now, insert the key, and one tumbler at a time, try the tumblers by inserting them upside down in the bottom of the barrel as shown. You are looking for one whose action face is flush with the barrel.



Each time you find such a tumbler, remove the key and fit it into the barrel. There is a knack in doing this. Smear the tumbler with grease, and insert so the spring slot is half in. Then, insert the spring, lower end first, gently compress it, and engage the top on the triangular projection in the slot. Then push the tumbler in, and when the key is inserted again, it should be flush. Repeat this until all tumblers have been fitted. In an emergency, you could leave one out, at the expense of security. Smear outside of barrel with grease and refit.