

Procedure for Repairing a Lucas Indicator Switch with Pneumatic Timing

1. Isolate the battery before starting work either through an isolating switch or disconnect the earth terminal connection.
2. Remove the indicator switch control lever by loosening the centre screw. Release the switch from the dash by removing the chrome ring and shake proof washer between the switch and rear face of the dash.
3. With the switch hanging on the wires note both the colour code of each wire and the terminal they are connected too. The terminals posts are identified by moulded letters F, L,R, in the plastic body.
4. Disconnect the wires and remove switch to workbench.
5. With the switch standing on its base remove the three screws holding the outer cover



3. Remove the cover.
4. With the cover removed the contact plate is exposed. Note there are three long screws which pass through the contact plate down the length of the body and terminate in the brass terminals at the base.



5. Each screw acts as a conductor between the contact plate and the brass terminals on the base. The lower screw in the photo passes through the common terminal for the two moving contacts and connects to the base terminal marked F. When assembling takes place this is the correct position for the contact plate.
6. Holding the switch firmly on its base loosen and remove the three long screws. As they are loosened the internal spring pushes the piston and contact plate away from the body, but it can be held with a firm hand.



7. Remove the contact plate, piston and spring



8. To remove the old piston seal it is necessary to drill out the centre rivet which passes through the large washer, the leather seal, piston and is swaged over on the inner piston face.

Cover a flat surface with rags to protect and hold the piston. Place the piston face down.

Using a sharp drill 1/4" / 5mm and preferably held in a hand brace gently cut away the swaged material of the rivet on the underside of the piston. Stop frequently to check you are not cutting the plastic piston. The rivet is made of copper and cuts easily. As the material is removed the true diameter of the rivet is exposed, which is 1/8" / 3mm approx.

Using a terminal size screwdriver push the rivet out of the piston releasing the seal and large washer



9. Clean all parts as necessary ensuring old grease is removed.

10. Inspect the switch contacts which should be silver tip. If pitted polish

with a soft cloth. If paper is used make sure its at least 600 grit and treat it lightly.

11. Unscrew the central screw in the base of the body. This is a needle valve which allows adjustment of the units timing . There is a felt pad underneath the screw which allows fine adjustment. The felt is approx 5mm long and 3mm in diameter. If missing make a new one from a piece of felt and roll it into shape between fingers.

With the screw and felt removed it should be possible to blow through the hole into the inner chamber of the body. If blocked use a small pin or needle to clear. Refit the felt and needle screw and tighten until resistance is felt.

12. Assembly

Using the screw provided wrap a small amount of PTFE tape around the base of the screw head. This is to ensure an air tight seal between the large washer and the screw head. Alternatively use a small amount of silicon sealant. Pass the screw through the large washer, new seal and piston head. The seal is cupped shaped and fits over the piston head enclosing the piston edge.

Fit the small washer followed by the nylock nut to the exposed screw end in the underside of the piston. Tighten the nut until it just pinches the seal and check the seal is central to the washer. Position the seal as required before final tightening so it is not possible to rotate the large washer on the piston head by hand. Experience has shown that if the seal is off centre it will not seal. Tighten nut a further half a turn. (Do not over tighten or there is a risk of cracking the piston)

13. Lubricate the body bore and piston seal with red grease or a light general grease.

Place the body facing upwards and fit the spring large end first.

Fit the piston, face end first against the spring and push it in ensuring its guide lugs engage in the body slots. Push it in as far as it will go and air will be heard to expel. Hopefully it will be held by the vacuum created depending how well it was pushed in and the initial sealing.

14. Place the contact assembly over the end ensuring the bar beneath the contacts engaged with the two vee slots in the piston base, and the common terminal screw hole is in line with terminal F at the base. Fit the three long screws and screw into the brass terminal pillars at the base. (Its easier to just engage each screw into the brass pillars

before final tightening) Before final tightening ensure the slot in each brass pillar faces outward to make wire connection easier.

15. Temporary fit the operating knob and check operation. If it switches off rapidly place finger over the adjustment screw in the base and operate.
If it now times slowly you need to adjust needle valve. Timing of close to 30 seconds should be achievable. Adjust the timing to around 15/20 seconds.
16. Fit the outer cover with the three short screws.
17. Refit the switch to the car ensuring the wires are connected as removed.
18. Reconnect the battery and turn ignition on.
19. Check the indicators work and the correct side of the car is indicating.