



# 1 $\frac{1}{4}$ -litre Saloon SERIES 'Y'

## THE CLUTCH ASSEMBLY

by Eric Blower

THE single dry plate Borg & Beck clutch type 7A6g consists of a driven plate assembly, a cover assembly and a graphite release bearing assembly.

The driven plate assembly has a flexible centre, the splined hub being indirectly attached to the disc and transmitting the power and over-run through a number of coil springs held in position by retaining wires. Two facings are riveted to the disc.

The cover assembly consists of a pressed-steel cover and a cast-iron plate loaded by six thrust springs. The three release levers, pivoted on floating pins and retained by eyebolts, are mounted on the pressure plate.

Adjusting nuts are screwed onto the eyebolts and secured by lock pins or staking. The struts are interposed between the lugs on the pressure plate and the outer ends of the release levers, the release levers being loaded by anti-rattle springs and retained springs connecting the release lever plate.

The release bearing consists of a graphite bearing shrunk into a bearing cup, the cup being located by the operating fork and release bearing retained springs.

### Running Adjustments

The only adjustment required is periodically to restore the free movement of the clutch pedal, that is the movement of the pedal before the release bearing comes into contact with the release lever plate and commences to withdraw the clutch.

The free movement of the clutch pedal will gradually decrease

as the facings of the driven plate wear, tending to prevent the clutch fully engaging and permitting too great a movement on withdrawal.

Between the withdrawal lever plate and the face of the thrust bearing there should be a minimum clearance of  $\frac{1}{16}$  in., which will give a free pedal movement of  $\frac{1}{4}$  in. at the clutch pedal, which should always be maintained.

Full use should be made of the adjustment when the free pedal movement becomes less than this. The adjustment consists of an adjusting nut 'A' and locknut 'B' (see Fig. 1) at the forward end of the clutch operating cable. Tighten the locknut 'B' carefully after adjustment.

Care must also be taken to see that the pedal travel is not excessive, and there should be approximately  $\frac{1}{4}$  in. clearance at 'H' between the stop nut 'C' and its stop 'D' with the pedal lightly held with the carbon block in contact with the thrust ring by pushing lightly on the clutch pedal.

Adjustment is obtained by gripping the nut 'C' and slackening off the locknut 'J'; grip the nut 'K' and adjust the stop nut 'C' to the required position. Retighten the locknut 'J' after adjustment. The need for this adjustment arises when there is a tendency for the clutch not to free when the clutch pedal is depressed.

The adjuster 'E' should require no setting as this is for the initial adjusting of the outer cable length to give the correct flexibility between the pedal box and the floating engine. The adjusting nuts, item 14 (see Fig. 2), should not be altered unless the clutch has been dismantled and new parts fitted.

They are correctly set and locked during the initial assembly by

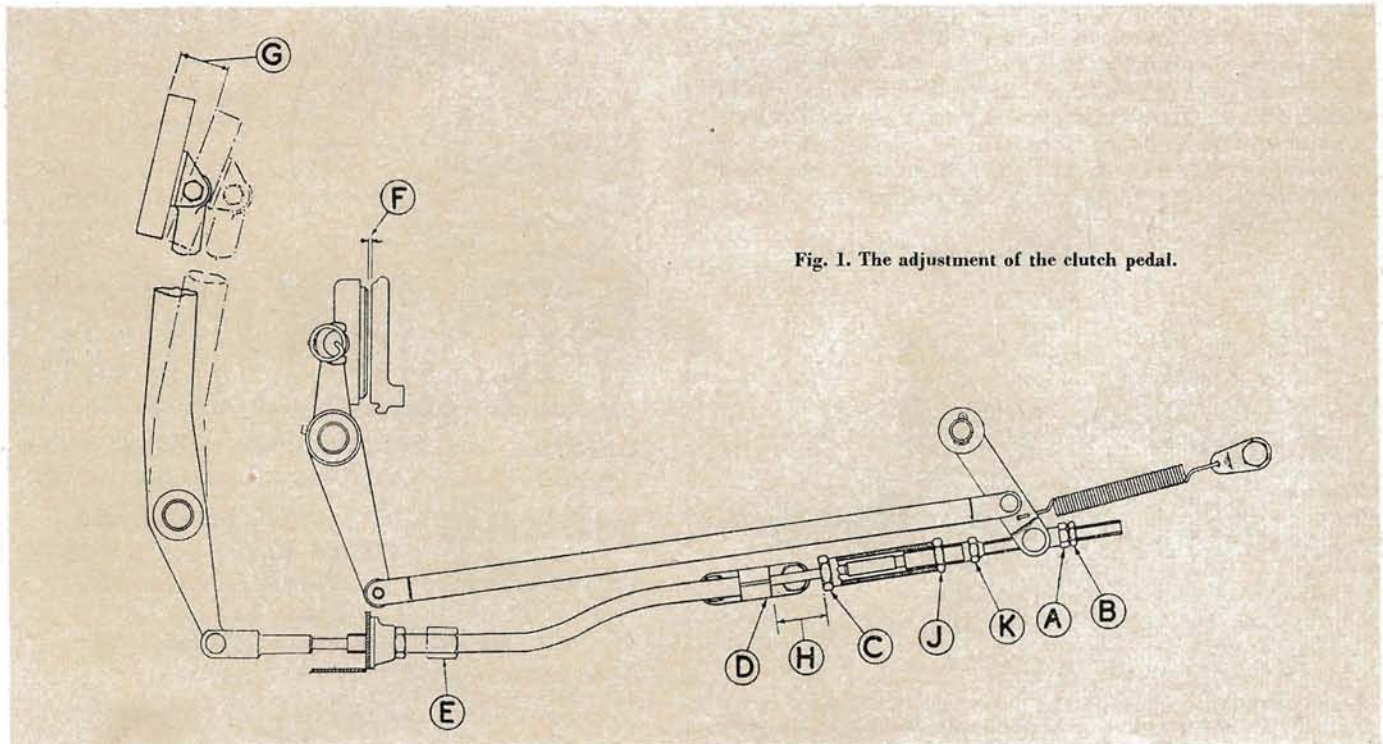


Fig. 1. The adjustment of the clutch pedal.



the manufacturers and any interference with the adjustment will throw the pressure plate out of position and cause the clutch to judder.

### Removal of the Clutch

Remove the gearbox as detailed last month, supporting the gearbox to avoid any distortion of the driven plate assembly or strain on the first motion shaft.

Slacken the securing bolts a turn at a time, by diagonal selection, until the spring pressure is relieved.

Remove the securing bolts, lift the clutch away from the flywheel and remove the driven plate assembly.

### Dismantling the Clutch

Although it is preferable to fit factory replacement units if the facilities are not available, particularly the Borg & Beck gauge plate, we will deal with the dismantling and reassembling of the clutch unit, for those readers who have well-equipped workshops and the necessary gauges available.

The following parts (marked with their numbers in Fig. 2), cover '4', pressure plate lugs '18' and release levers '12' should be marked in such a manner as to ensure their reassembly in the same relative positions to each other in order to preserve balance and adjustment.

Detach the release lever plate '10' from the retainer springs '11' and place the cover assembly under a press, with the pressure plate '18' resting on blocks, so arranged that the cover is free to move downwards when the pressure is applied.

Across the top cover place a block of wood resting on the spring bosses. Compress the cover with the spindle of the press, remove the adjusting nuts '14' and then slowly release the pressure to prevent the thrust springs '5' from flying out.

Removal of the clutch cover will expose all components for inspection.

The release levers '12' can be released by grasping the lever and eyebolt '15' between the finger and thumb, so that the inner end of the lever and the threaded end of the eyebolt are as near together as possible, keeping the eyebolt pin in position in the lever; lift the strut '17' over the ridge on the lever and remove the eyebolt '15' from the pressure plate.

### Assembling the Clutch

Thoroughly clean all parts and replace those showing any appreciable wear. Place the pressure plate in position on the blocks under the press and place the six thrust springs '5' in a vertical position on the bosses provided.

Assemble the release levers '12', eyebolts '15' and eyebolt pins '16', holding the threaded end of the eyebolt and inner end of the lever as close together as possible. Using the other hand, insert the strut '17' in the slots on the pressure plate lug sufficiently to allow the plain end of the eyebolt to be inserted in the hole in the pressure plate. The strut should now be moved upwards into the slot in the pressure plate lug and over the ridge in the short end of the lever and dropped into the groove formed in the lever, fitting the remaining levers in a similar manner.

Lay the cover '4' over the assembled parts, with the anti-rattle spring '13' in position and with the tops of the springs directly under the seats in the cover, and the machined portions of the pressure plate lugs directly under the slots in the cover through which they have to pass. Ensure, also, that the marked parts are in their correct relative positions to maintain correct balance.

Across the top of the cover place the block of wood and compress by means of the press spindle, guiding the eyebolts and pressure plate lugs through the holes in the cover.

Screw the adjusting nuts '14' on the eyebolts '15' and, after adjusting the levers, secure by staking.

Remove the clutch from the press and assemble the lever plate '10' on the tip of the levers '12' and retainer springs '11'.

The release levers should be set, using Borg & Beck gauge plate CG12916, and from Engine No. XPAG/SC/16916 with the 8-in. clutch, gauge plate CG10516.

### Adjusting the Release Levers

On the accurate adjustment of the release levers depends the satisfactory operation of the clutch. This adjustment should only be necessary if new parts have been fitted and must be carried out before the clutch assembly is bolted to the flywheel. The maximum difference allowed in the height of the levers is .015 in. To set the levers use the special gauge plate (Part No. 68885) in conjunction with the flywheel, the clutch assembly mounted on the flywheel or lying on a bench, whichever is the most convenient.

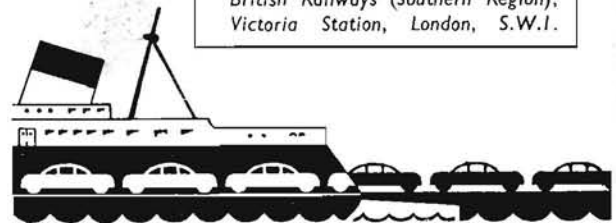
Place the gauge plate centrally in the flywheel in place of the driven plate and fit the cover assembly to the flywheel, tightening

(continued on next page)

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## 1 1/4-LITRE SERIES 'Y'

(CONTINUED)

the bolts a turn at a time by diagonal selection until fully secured.

Across the gauge plate boss and the lip of one release lever place a straight-edge, and adjust the lever, if necessary, by turning the eyebolt until the tip of the lever is exactly level with the top of the gauge boss, adjusting the remaining levers in a similar manner. The setting should be within .005 in. if carefully carried out.

Slacken the securing bolts a turn at a time, again by diagonal selection, and remove the securing bolts and clutch from the flywheel and remove the gauge plate.

### Refitting the Clutch

With the larger chamfered spline of the driven plate hub towards the gearbox, assemble the driven plate assembly in the flywheel.

Using a suitable lining-up bar, for preference the clutch alignment bar T124, centralise the driven plate, and fit the cover assembly to the flywheel by means of the securing bolts, tightening them a turn at a time, again by diagonal selection. The clutch alignment bar must not be removed until all securing bolts are securely tightened.

Withdraw the alignment bar and refit the withdrawal bearing and the gearbox, supporting the weight of the gearbox during refitting.

### Refacing the Driven Plate

The securing rivets should always be drilled out, using a 1/8 in. drill. Under no circumstances should they be punched out.

Rivet one new facing in position, using a blunt-ended centre punch if the correct tool is not available, to roll the rivet shanks against the plate. Rivet the second facing onto the opposite side of the plate with the clearance holes over the rivet heads already formed in fitting the first facing.

Mount the plate on a mandrel between centres and check for run-out as near the edge as possible. If the error is more than .015 in. dress over the high spots until true within this figure.

It is considered preferable, when linings reach a point where replacement becomes necessary, to instal a complete driven plate

assembly, for if the facings are worn to such an extent as to warrant replacement, then slight wear has obviously taken place on the splines and also on the torque reaction springs and their seatings. The balance and concentricity is also involved. Finally, lubrication of the splines of the driven plate is provided at assembly only, when C5881 graphite grease or a zinc-based Keenol can be used.

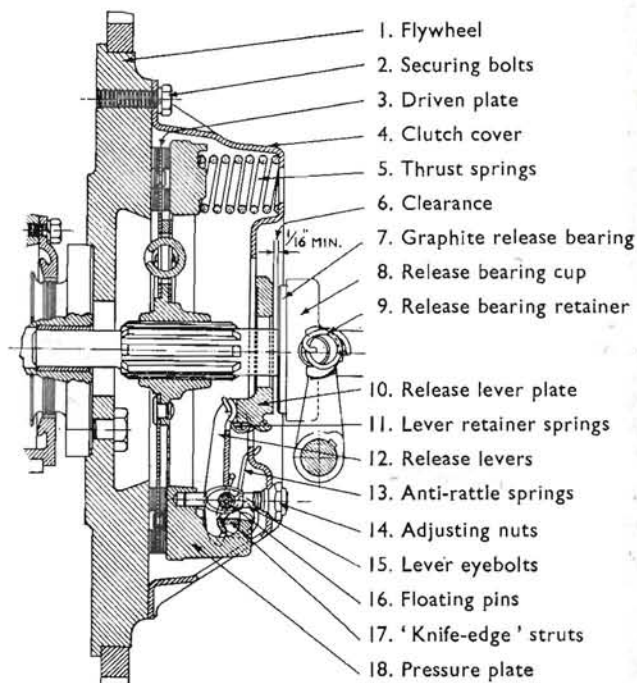
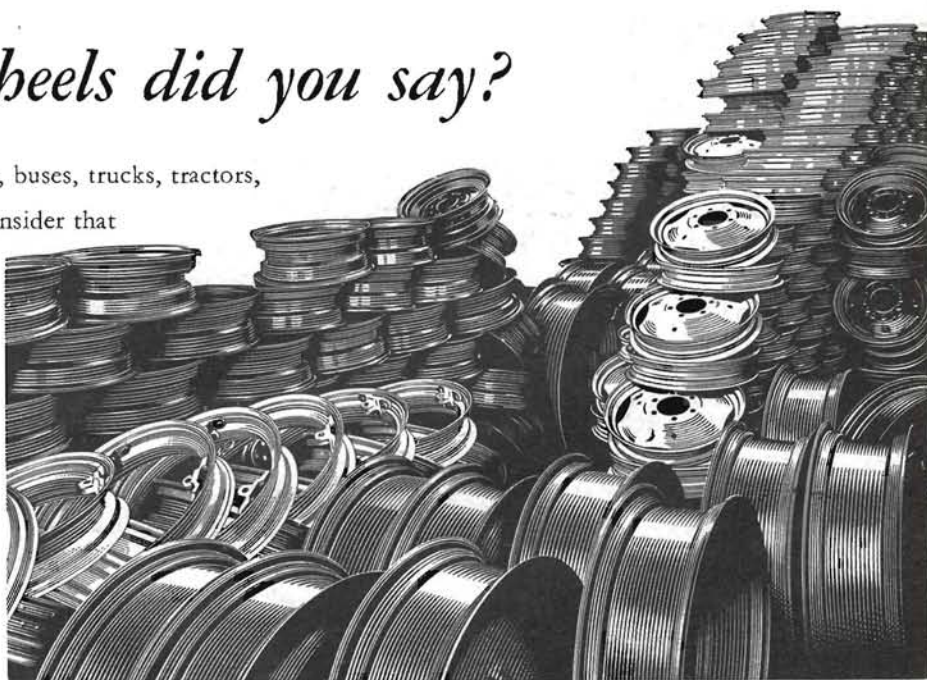


Fig. 2. The clutch in section.

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