

Bulletin
Number 5019

Issue 2

Date 24.11.48

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MODELS AFFECTED
1948 "60" and "75"
1948 Land-Rover

UNIT AFFECTED

TOOLS

COMPLAINT

SUBJECT

SPECIAL WORKSHOP TOOLS

The majority of maintenance and overhaul operations on 1948 models can be carried out using the tools normally available in the workshop.

For certain operations however, special tools are advisable and, in some instances, essential; this Bulletin gives details of all such tools. With one or two exceptions, these can be readily made from the dimensioned sketches which follow, either by garage staff or by local workshops; the few exceptions are items which should be bought complete.

ESSENTIAL TOOLS.

1. Jig-block for engine re-boring.

To enable standard cylinder boring equipment to be used on the inclined head faces of the cylinder blocks fitted to the "60" and "75" engines, special wedge blocks have been designed. They are stocked by our Spares Department, the part numbers being T1287 for the "60" 4-cylinder pattern and T1288 for the "75" 6-cylinder type, and will be supplied on application at cost price to Rover Agents.

2. Spreader for rear springs. (Except Land-Rover.)

Some form of spreader is required when removing or replacing rear springs owing to their large static deflection; a suitable pattern is shown in Fig. 1.

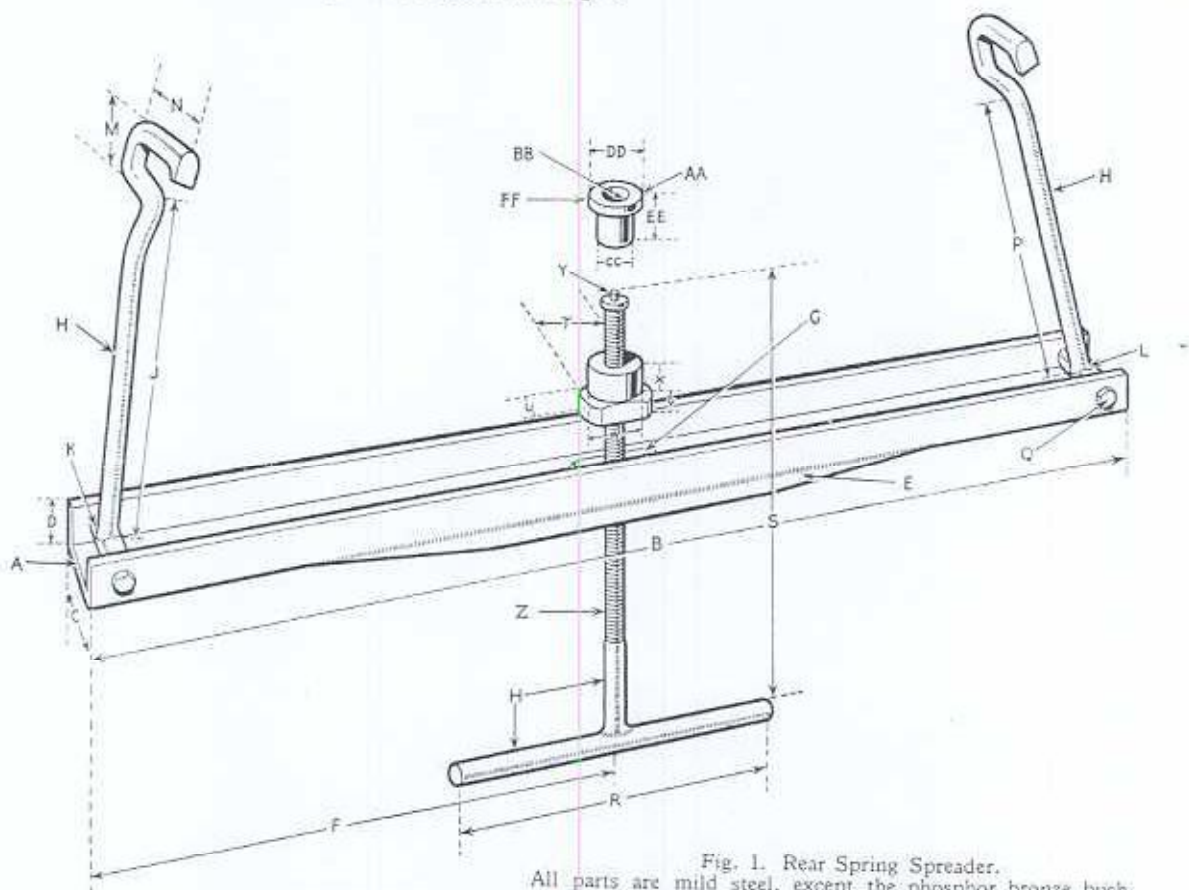


Fig. 1. Rear Spring Spreader.
All parts are mild steel, except the phosphor bronze bush.

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A	— ¼ in. (6 mm.) channel section	R	— 12 in. (300mm.)
B	— 40 in. (1,02 m.)	S	— 15½ in. (395 mm.)
C	— 2½ in. (65 mm.)	T	— 2½ in. (70 mm.) diam.
D	— 1½ in. (38 mm.)	U	— 1½ in. (50 mm.)
E	— Two stiffening webs, ¼ in. (6 mm.) plate, welded to channel	V	— 7 in. (19 mm.)
F	— 21 in. (535 mm.)	W	— 1½ in. (44,5 mm.) diam.
G	— Slot ⅜ in. (22 mm.) wide x 2½ in. (57 mm.) long	X	— 1½ in. (28,5 mm.)
H	— 7 in. (19 mm.) round bar	Y	— ⅝ in. (11 mm.) diam.
J	— 13 in. (330 mm.). Crank slightly inwards	Z	— 7 in. Whit. thread
K	— Tube 7 in. (19 mm.) O/D x 1½ in. (50 mm.) long	AA	— Phosphor bronze bush
L	— Weld	BB	— ⅝ in. (11 mm.) bore
M	— 1½ in. (45 mm.)	CC	— 1 in. (25 mm.) diam.
N	— 2½ in. (66 mm.)	DD	— 1½ in. (28,5 mm.) diam.
P	— 11½ in. (290 mm.). Crank slightly inwards	EE	— 1½ in. (49 mm.)
Q	— ⅜ in. (9,5 mm.) bolts and nuts	FF	— ⅝ in. (8 mm.) flange

The two arms hook over the extremities of the main leaf adjacent to the shackle bushes, while the phosphor bronze bush bears on the underside of the bottom plate, locating on the centre dowel.

3. Clip for hydraulic plunger assembly.

The hydraulic plunger assembly for the timing chain jockey wheel, comprising the cylinder, piston and spring must be fitted as a unit, as there is insufficient room and the spring is too strong for the components to be fitted separately.

The illustration shows the clip in position and also gives dimensions for its manufacture.

A	— 15,32 in. (11,9 mm.)
B	— ¼ in. (9,5 mm.)
C	— ⅜ in. (15,9 mm.)
D	— 15,32 in. (11,9 mm.)
E	— ½ in. (12,7 mm.)
F	— ⅜ in. (17,5 mm.)
G	— 2 ⅝ in. (58,7 mm.)
H	— 14 S.W.G. (2 mm.) mild steel

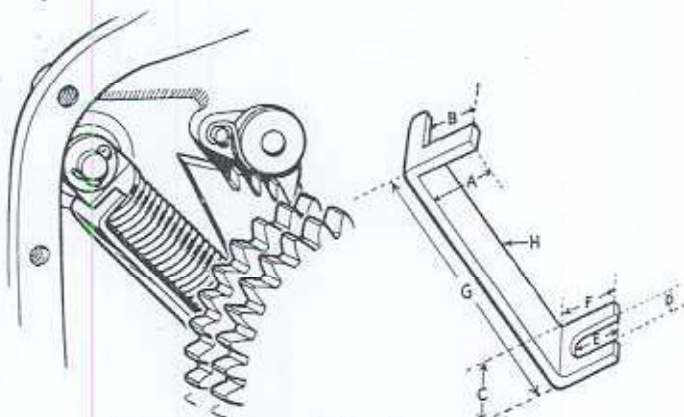


Fig. 2. Clip for hydraulic plunger assembly.

4. Extractor for water pump impellor.

The water pump impellor is a press fit on its spindle, thus making the use of extractor essential.

The extractor illustrated in Fig. 3 is of a common design and the method of using should be clear from the sketch.

Later impellers have ¼ in. B.S.F. tapped holes for extraction, whereas the holes in those fitted to early models are 2 B.A. When it is desired to remove this type, the extraction holes should first be enlarged, as the smaller threads are liable to strip.

A	— ⅝ in. (20,64 mm.) centres
B	— Two bolts ¼ in. B.S.F. x 1 in. (19 mm.) long
C	— ½ in. (6 mm.) mild steel plate
D	— ⅝ in. (8 mm.) set bolt x 2 in. (50 mm.) long

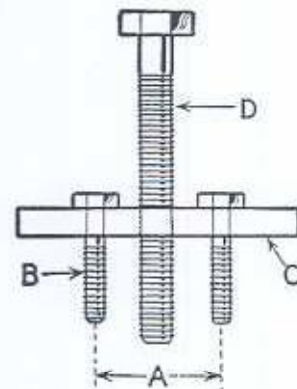


Fig. 3. Extractor for water pump impellor.

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5. Extractors for bottom (exhaust) rocker shafts.

Removal of the exhaust rocker shafts can be effected from the rear of the cylinder block with the engine either in or removed from the vehicle. With the engine in position on early "75" models, the toe-board must first be removed; later models incorporate a hole in the toe-board, covered with a removable plate. On "60" models the shafts can be withdrawn without removing the toe-board, whilst on Land-Rover, the gearbox cover must first be removed.

A suitable extractor which screws into the end of the shaft is shown at Fig. 4; in addition a second shorter extractor will be necessary for Model "60" (with the engine in position) and a cylinder head bolt will be found suitable for this purpose.

This extractor is for early engines having threads provided in the rocker shafts; later shafts have plain bores and to effect removal a similar tool will be required, having a No. 4 Easy-Out stud extractor in place of the $\frac{7}{16}$ " B.S.F. thread.

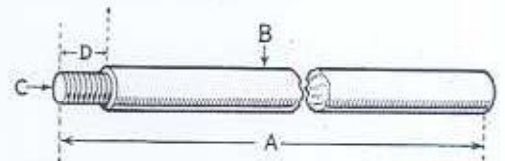


Fig. 4. Extractor for exhaust rocker shafts.

- A — 13 in. (330 mm.)
- B — $\frac{1}{2}$ in. (12,5 mm.) round bar
- C — $\frac{7}{16}$ in. B.S.F. thread
- D — $\frac{1}{2}$ in. (12,5 mm.)

6. Packing block for front road spring removal (Except Land-Rover)

When removing a front coil spring by jacking under the spring support plate and removing the six bolts securing the plate to the bottom suspension link, a packing block between the jack pad and plate is essential, to ensure that the plate remains square with the link members. A suitable tapered wooden block for use with the normal garage Hi-Lift jack is illustrated at Fig. 5.

- A — $2\frac{1}{2}$ in. (64 mm.) radius
- B — 3 in. (75 mm.)
- C — $1\frac{1}{4}$ in. (31,7 mm.)
- D — $1\frac{1}{2}$ in. (41,3 mm.)

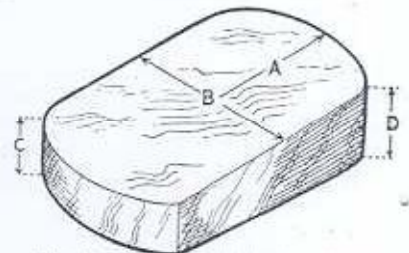


Fig. 5. Packing block for front road spring removal.

7. Collar for assembly of swivel pin (Except Land-Rover)

To ensure correct end-float on the swivel pin thrust bearing, it is essential that the swivel pin be pulled well home into the swivel column. To assist in this operation the collar shown in Fig. 6 should be fitted and the pin tightened up with the $\frac{3}{4}$ " fixing nut, before fitting the thrust bearing and shims.

- A — $\frac{11}{16}$ in. (23,8 mm.)
- B — $1\frac{1}{2}$ in. (38 mm.) diam.
- C — 1 in. (25 mm.) diam.

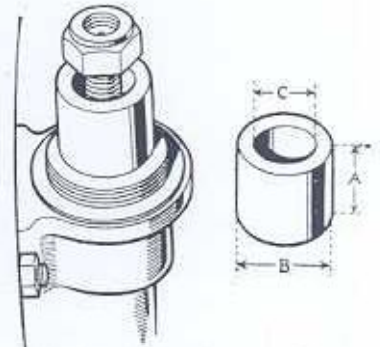


Fig. 6. Collar for swivel pin assembly.

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8. Reamer for stub axle bushes (except Land-Rover).

Owing to the fact that the top and bottom stub axle bushes have different internal diameters, normal straight reamers cannot be used when fitting replacement bushes. Dimensional details have been supplied to a few tool manufacturing firms and will be given to other firms on request, to enable special reamers to be designed and marketed. Rover agents in need of this reamer should therefore apply to any tool manufacturer advertising in the Trade Press.

TOOLS ADVISABLE.

The tools listed below are not absolutely essential, but each will be found to greatly assist in its respective application, with consequent long-term savings in both time and labour involved.

9. Extractor for camshaft chainwheel.

Easy removal of the camshaft chainwheel can be effected by utilising the two $\frac{3}{8}$ " Whit. threads provided in the chainwheel, in conjunction with the extractor illustrated in Fig. 7.

- A — 2½ in. (57,15 mm.) centres
- B — Two bolts $\frac{1}{4}$ in. Whit. x 3 in. (75 mm.) long
- C — Mild steel block 1¼ in. (32 mm.) x ½ in. (19 mm.) x 3½ in. (89 mm.)
- D — $\frac{1}{8}$ in. (11 mm.) round bar threaded into block
- E — 3 in. (76 mm.) thread minimum.

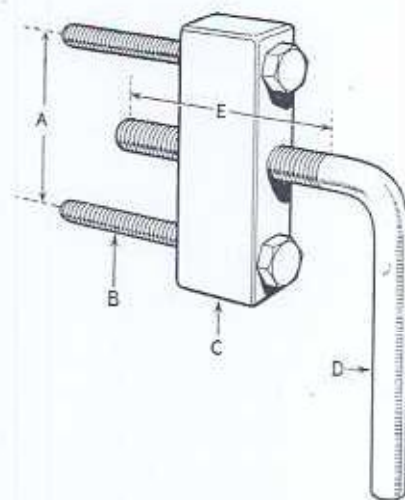


Fig. 7. Extractor for camshaft chainwheel.

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10. Brackets for use with dial test indicator.

We recommend the use of a dial test indicator when carrying out three operations and for this purpose special brackets will be required.

(a) Valve timing.

The bracket shown in Fig. 8 is designed to allow a dial test indicator to be used on No. 1 exhaust rocker, thus facilitating the accurate location of the E.P. position.

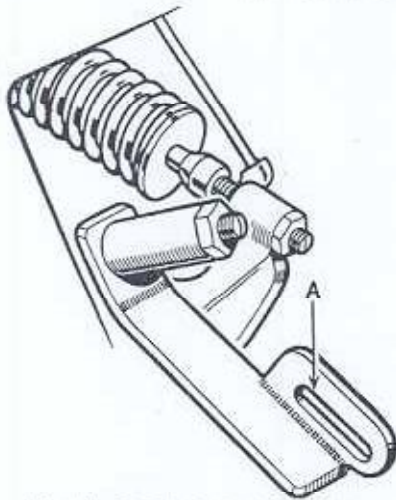


Fig. 8. Bracket for valve timing.
A — Secure dial test indicator here.

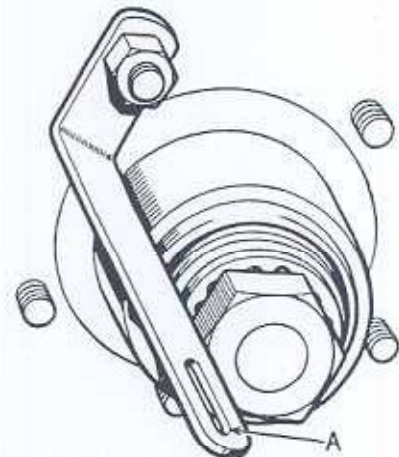


Fig. 9. Bracket for front hub end-float.
A — Secure dial test indicator here.

(b) Front hub end-float.

The front hub end-float must be accurately set to .003 in.-.004 in. (0,08 mm.-0,1 mm.), and the use of a dial test indicator in conjunction with the bracket shown at Fig. 9 is the best method of ensuring the correct setting.

(c) Differential crownwheel backlash.

The differential crownwheel backlash must be set accurately to .007 in. (0,18 mm.); the use of a dial test indicator clamped to the crownwheel by means of the bracket illustrated and bearing on the housing flange is the only reliable method of setting to this figure.

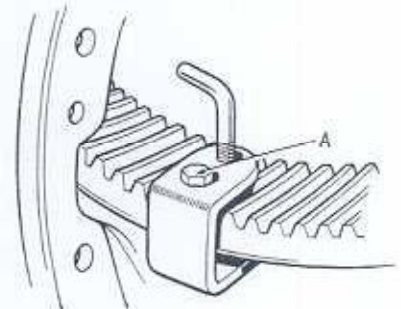


Fig. 10. Bracket for crownwheel backlash.
A — Secure dial test indicator with this bolt.

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11. Extractor for drop arm (except Land-Rover).

The drop arm on "60" and "75" models is pulled on to a tapered spline on the steering rocker shaft and removal may therefore prove difficult unless the extractor shown at Fig. 11 is employed. To effect removal disconnect the drag link ($\frac{7}{16}$ " self-locking nut), remove the $\frac{7}{8}$ " nut securing the drop arm, turn the road wheels on to full right lock and fit the extractor over the lugs on the drop arm boss from the front.

- A — 1 in. (25 mm.) x $\frac{3}{16}$ in. (8 mm.) mild steel strip.
- B — $\frac{1}{4}$ in. (6 mm.) mild steel plate cut to shape and inserted and welded inside piece A.
- C — 2 in. (50,8 mm.)
- D — 1 $\frac{1}{4}$ in. (44,5 mm.)
- E — 1 $\frac{1}{2}$ in. (38 mm.)
- F — $\frac{1}{2}$ in. (12,7 mm.)
- G — $\frac{1}{2}$ in. (13 mm.) nut welded on
- H — $\frac{1}{2}$ in. (13 mm.) set bolt x 2 in. (50 mm.) long.

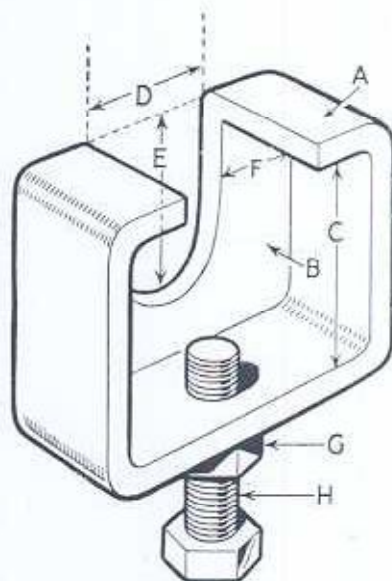


Fig. 11. Extractor for drop arm.

12. Bar Spanner for differential serrated locking nuts.

The illustration shows a bar spanner designed for adjustment of the serrated locking nuts securing the crownwheel.

- A — 15 in. (380 mm.)
- B — $\frac{3}{8}$ in. x 1 in. (25 mm. x 5 mm.) T-section mild steel.
- C — $\frac{1}{4}$ in. (9,5 mm.)
- D — $\frac{1}{2}$ in. (12,7 mm.)
- E — 1 $\frac{1}{4}$ in. (28,6 mm.)
- F — $\frac{1}{2}$ in. (12,7 mm.)
- G — $\frac{3}{4}$ in. (9,5 mm.)
- H — $\frac{1}{4}$ in. (9,5 mm.)

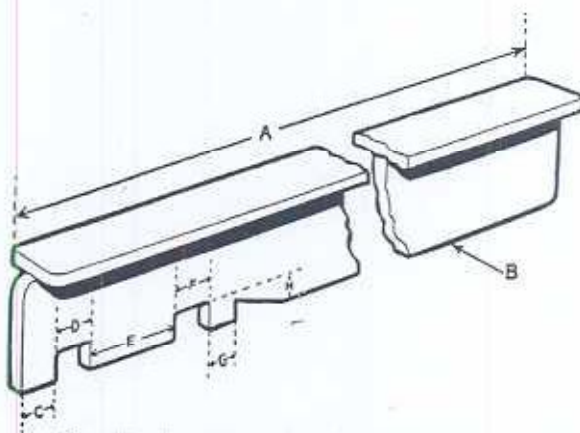


Fig. 12. Bar spanner for crownwheel adjustment.

13. Spanner for carburettor removal.

For easy removal of the carburettor it will be found advisable to employ a standard $\frac{1}{4}$ " side open-ended spanner, i.e., one having the jaw at right-angles to the shank.

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