TRIUMPH

MAINTENANCE INSTRUCTIONS

TRIUMPH ENGINEERING CO. LTD.
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MAINTENANCE TRIUMPH INSTRUCTIONS

MAINTENANCE OPERATION No. 1

SPRING WHEEL

MARK 2

The Mark 2 Spring Wheel is of robust design and will operate over long periods with the minimum of maintenance.

The recommended servicing periods are every 20,000 miles. It will be noted that there is no provision for greasing ; it has been found through exhaustive tests that addition of grease is unnecessary. When the wheel is dismantled for servicing, new grease should be packed into the working parts and by referring to the lubricant chart it will be noted two types of grease are used.

To dismantle the Plunger Guide Box Assembly the mechanic MUST use a special jig to compress the springs. Failure to observe this warning may result in serious injury. On pages 6 and 7 two jigs are illustrated; in the first illustration all dimensions are given to enable it to be manufactured locally. The jigs have been designed to handle the dismantling of both Mark 1 and 2 Spring Wheels. The first jig should be held in the vice by clamping the lower fixed leg and the second can be secured permanently to either the bench or a fixture.

DISMANTLING.

1. After the wheel has been removed from the frame take off both spindle nuts and distance collars. Place the wheel on the workbench with the brake side uppermost.

2. Prise off the spindle to frame anchorage lever by using a screwdriver under the lever close to the spindle and then tap the other end of the lever with a hammer. On the underside of the lever are two split collars. Withdraw the dust excluder centre sleeve, spring and sliding portion. Unscrew the two screws securing dust cover and gently ease the cover away with a screwdriver. The brake anchor plate may now be lifted off.

3. Before removing the slipper roller test for freedom of rotation and clearance each side with a feeler gauge. If the roller rotates freely and the clearance is not more than ·002" EACH SIDE, it will be in order to carry on with the dismantling. Should the clearance be above the limit make a note of the dimensions to enable rectification on assembly.

4. Turn the wheel over and remove the chamfered collar and dust cover assembly. Remove the slipper roller after checking.

5. Remove the ten nuts securing the end plate to the hub. Fit the jig as shown on page 9 and by screwing down the centre screw the plate will be withdrawn from the hub. Beneath the plate aluminium shims are fitted; when removed they should be counted to ensure correct clearance on re-assembly.

6. Withdraw the spring box assembly from the hub.

7. To remove the brake drum and sprocket, bend back the four locking tabs and remove the eight nuts. Between the brake drum side bearing and anchor plate a cast iron ring is fitted.

8. Removal of the off-side bearing is simplified by heating the back plate ; when the temperature is sufficiently high (approx. 100° C.) the bearing can easily be tapped out. On the brake drum side a suitable piece of hard wood should be made to fit the bearing inner ring in order that it can be drifted out.

DISMANTLING THE PLUNGER GUIDE BOX.

9. Remove four of the six bolts from the plunger guide box and unscrew the two centre bolts sufficiently to allow the cases to be parted about $\frac{3}{8}$".

10. Place the spring box in the jig with the curvature towards the jig and the long spindle on the left-hand side. Screw down the jig until the springs are sufficiently tensioned to remove the cases. (See paragraphs 30 to 32.)

11. Unscrew the jig until the spring tension is released and remove the springs from the shoe. Note that the bottom of the shoe has two springs fitted, one heavy and one light gauge, the upper part being fitted with one only of medium gauge.

12. If the slipper pads show no sign of wear there is no necessity to disturb them. Wear is generally noticed on the thrust side only, front on the chain side and rear on the opposite. To remove, unscrew the two screws holding each pad in position. Note at the back of each pad metal shims are fitted of varying thicknesses. (See assembly of spring box for refitting.)

RE-ASSEMBLING THE PLUNGER GUIDE BOX.

LUBRICATION. *NOTE.*—The ball journal bearing must be packed with bearing grease only. (See chart on page 10.)

SPRING WHEEL, MARK 2—continued

13. If the steel slipper pads have been removed for replacement or adjustment purposes it will be necessary to assemble the spring box less the springs, plates and rubber buffers. This will enable the fitter to operate the axle and guide in the case when testing the roller clearances.

14. The roller and slipper pad must have an equal clearance of ·002" on each side, to allow for any deformation after the springs have been fitted. To enable the fitter to obtain the correct clearance aluminium shims of ·002" and ·003" thickness are available. When the pads have been fitted ensure that the screws securing them to the case are well tightened with a suitable screwdriver.

15. After the pads have been fitted correctly the case should be parted and then re-assembled with the springs. If the above work has not been necessary as paragraph 3, assembly can proceed from this point. Place the axle and guide on the bench with the longer side of the axle to the left and the convex side uppermost. Lubricate and insert the heavy and light spring in the bottom hole with the curvature of the spring conforming to the guide. Place the other spring in the top hole in a like manner. Now fit the rubber buffers and spring plates to the springs, plate curve conforming to the guide.

16. Fit the assembly to the jig, the two springs being in lower position. Screw down the jig until the springs have been compressed sufficiently to enable the spring box casing to be fitted. Grease and fit the casing, then unscrew the jig to remove assembly.

17. Through the gap between the cases, fill with lubricant and then tap the cases together with a hide hammer. Fit and tighten up the six nuts and bolts. NOTE—The top rear and bottom front are made from H.T. Steel; colour blue-black.

RE-ASSEMBLING THE SPRING WHEEL.

18. Fully load the bearings with grease and assemble to the back plate and brake drum. The bearing chip shield should in each case face towards the hub centre.

19. Fit the bolts to both sides of the hub shell.

20. Assemble the brake drum to the hub and lock the nuts with new locking plates.

21. Assemble the plunger guide box assembly to the hub and press well home into the bearing.

22. Fit the shims to the hub and ensure the correct number as removed have been replaced. (See illustration on page 8 if new parts have been fitted).

23. Replace the end plate and tighten up the ten nuts securely.

24. Grease the slipper pads and spindle on the back plate side and fit the slipper roller.

25. Fit the dust excluder, concave facing forward, centre sleeve spring and sliding portion. The chamfered collar should be fitted with the chamfer towards the hub centre.

26. Turn the wheel over and fit the distance sleeve over the spindle then grease the slipper pads and fit the slipper roller.

27. The cast iron ring should be placed over the guide box case so that it abuts against the inner ring of the bearing.

28. Assemble the brake anchor plate assembly to the brake drum, it is advisable at this stage to release the spring off the brake lever to prevent the shoes binding in the drum.

29. Replace the dust excluder assembly in the same manner as the opposite side, and secure the cover with the two screws. Ensure the wheel spindle is in its top-most position and the brake anchor arm facing forward. Then place the split collars into the groove and fit the frame anchorage lever to the spindle. Re-fit the brake lever spring and fit the wheel to the frame.

CHECKING THE PLUNGER IN THE GUIDE BOX.

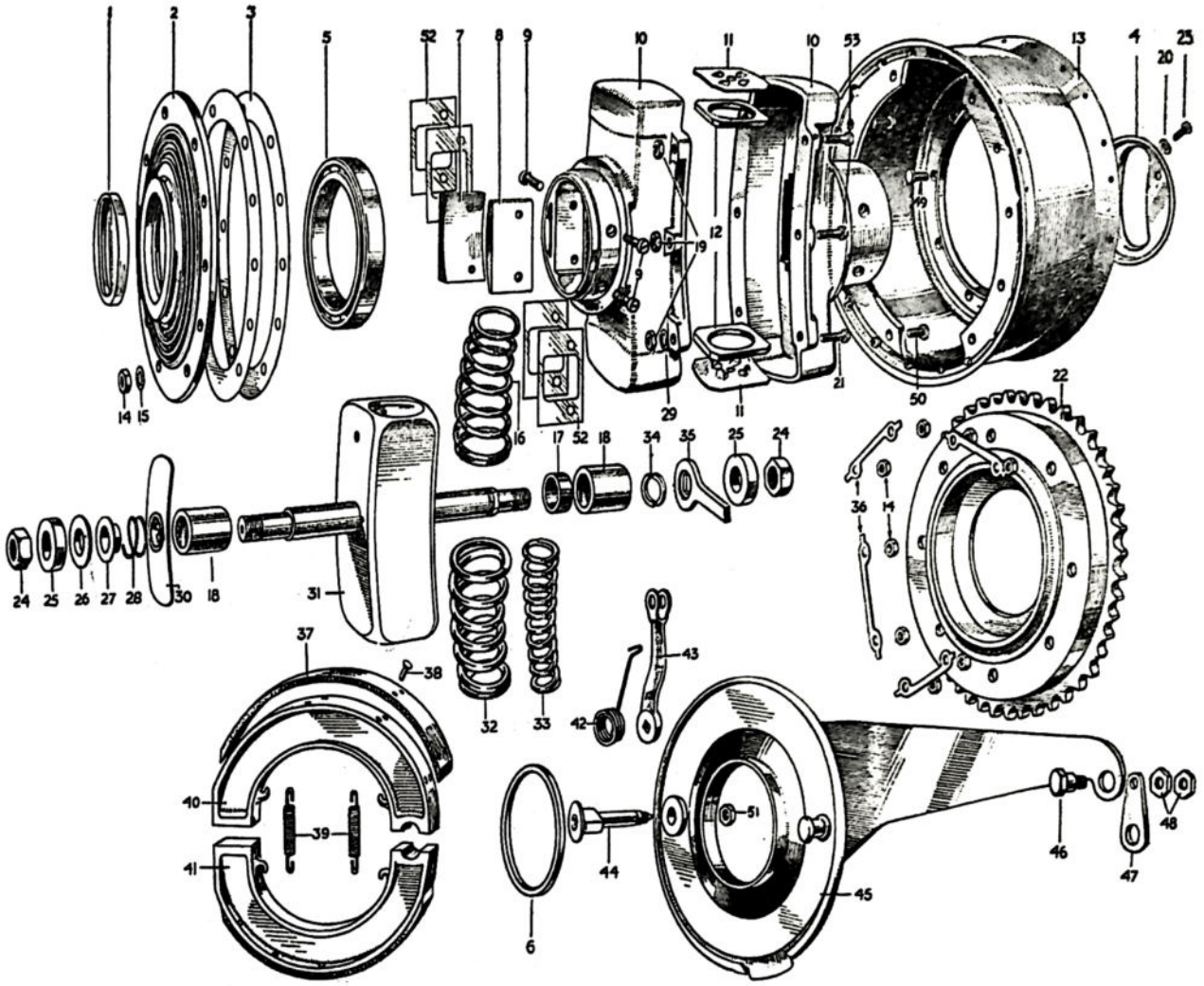
30. When the assembly is taken out of the hub it should not be split until the amount of play between the plunger and guide box is ascertained. This is done by placing either end of the spindle in the vice so that the plunger is held rigid, while the box is rocked to estimate the amount of " shake."

31. Dismantle the assembly and thoroughly degrease all parts. A minute amount of metal should now be removed from the joint surfaces of the plunger guide box, bearing in mind the amount of " shake " which was present when the unit was tested. The metal can be removed by " draw-filing " with a flat smooth file or by placing a piece of smooth emery on the surface plate and rubbing the joint surface of the box over it. Again wash the boxes and dry off. Apply marking blue to the four contact surfaces of the plunger and install it in the guide box without the springs. Replace the securing bolts and nuts. Now test the fit by gripping the spindle ends and with the guide box in contact with the work bench, depress the plunger to its full extent, then invert the box and repeat. This operation should be carried out three or four times.

32. Dismantle the guide box unit and ease off all high spots shown on the internal walls by the marking blue. Re-assemble the unit and repeat the operation until a bearing area of approximately 80% is obtained. When this stage is reached the plunger should be a good tight push fit in the guide box without any perceptible side play at any point.

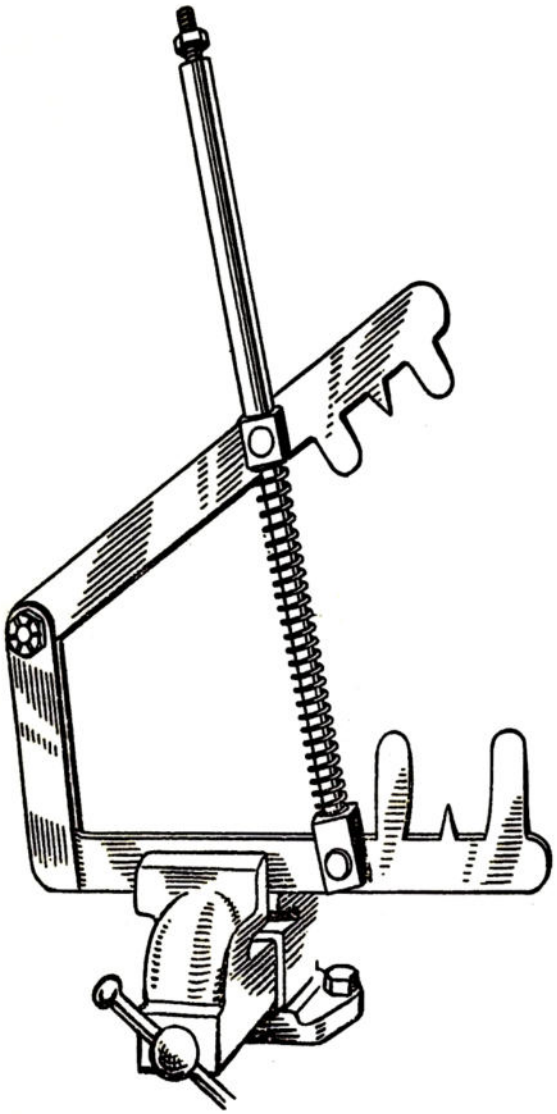
SPRING WHEEL

MARK 2

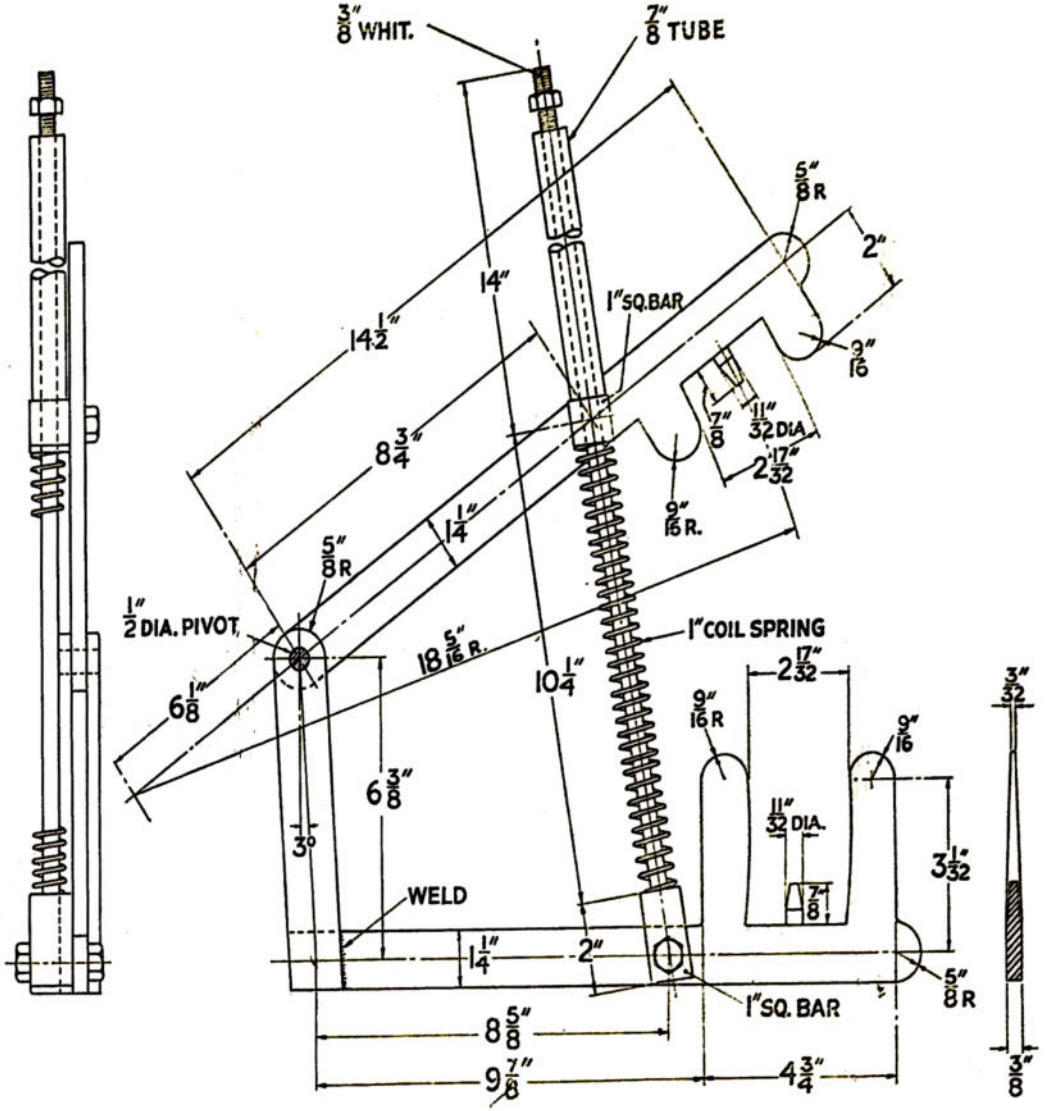


SEE INDEX IN REPLACEMENT PARTS BOOK FOR PART NUMBERS AND DESCRIPTIONS

JIG FOR COMPRESSING PLUNGER GUIDE BOX SPRINGS



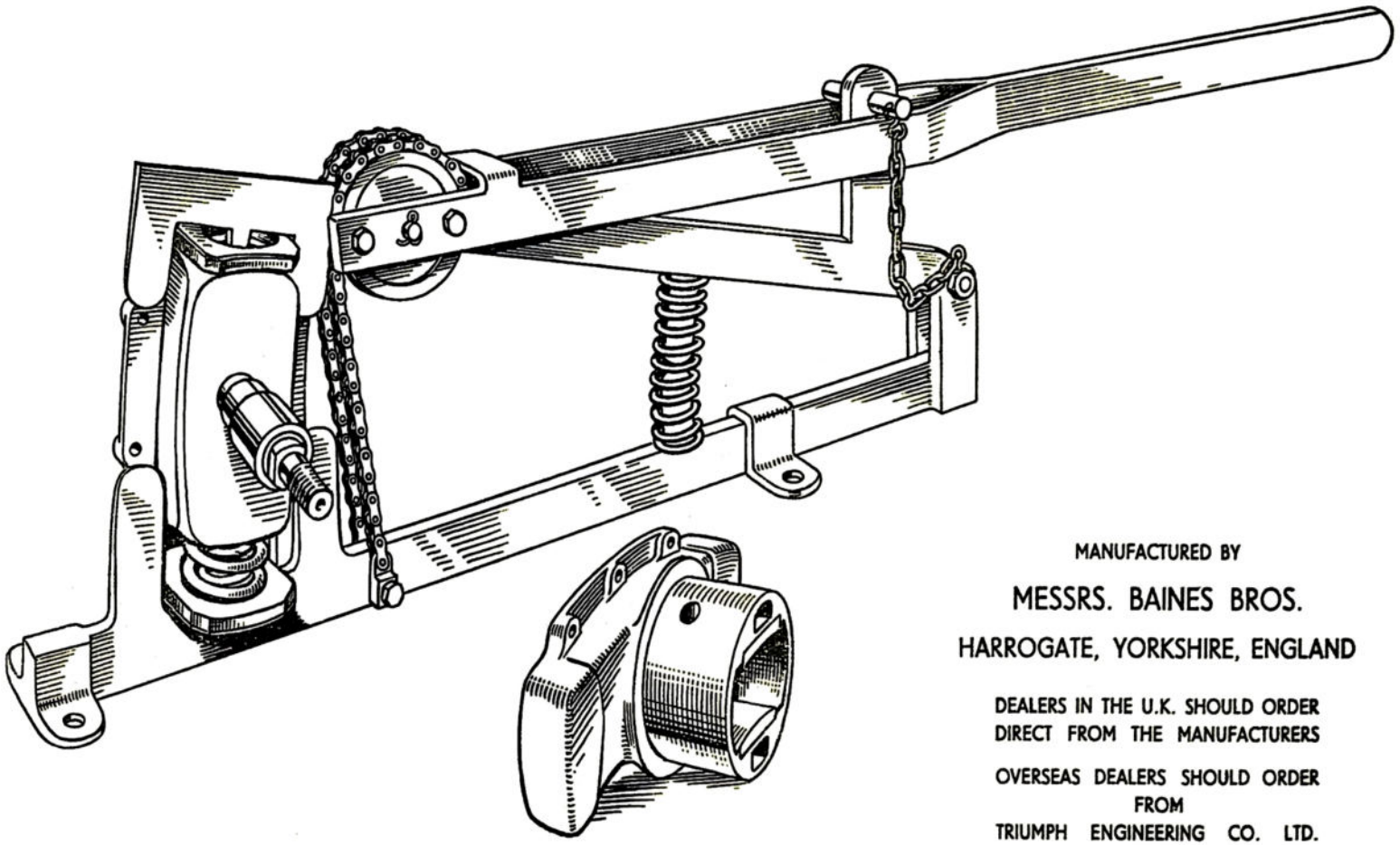
METHOD OF HOLDING THE JIG IN THE VICE



JIG DIMENSIONS FOR LOCAL MANUFACTURE

JIG FOR COMPRESSING PLUNGER GUIDE BOX SPRINGS

PART No. Z.77



MANUFACTURED BY

MESSRS. BAINES BROS.

HARROGATE, YORKSHIRE, ENGLAND

DEALERS IN THE U.K. SHOULD ORDER DIRECT FROM THE MANUFACTURERS

OVERSEAS DEALERS SHOULD ORDER FROM TRIUMPH ENGINEERING CO. LTD.

SPRING WHEEL

HUB ASSEMBLY GAUGE
Part No. Z.86

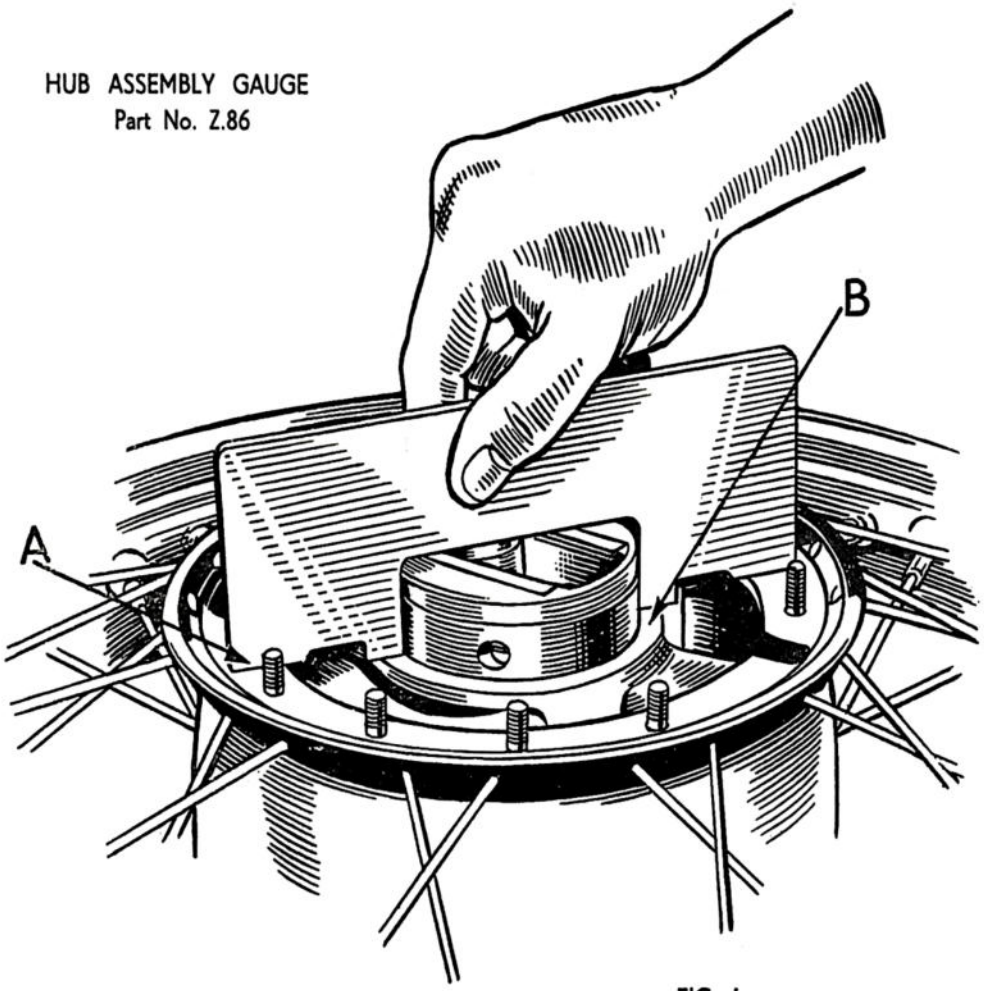


FIG. 1

END PLATE GAUGE
Part No. Z.87

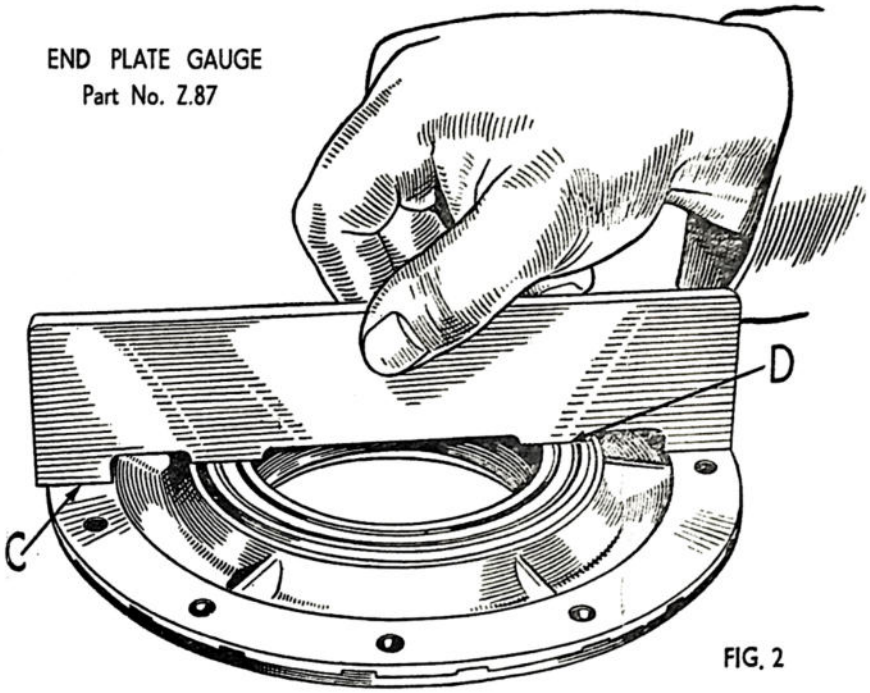


FIG. 2

APPLICATION OF SHIM GAUGES

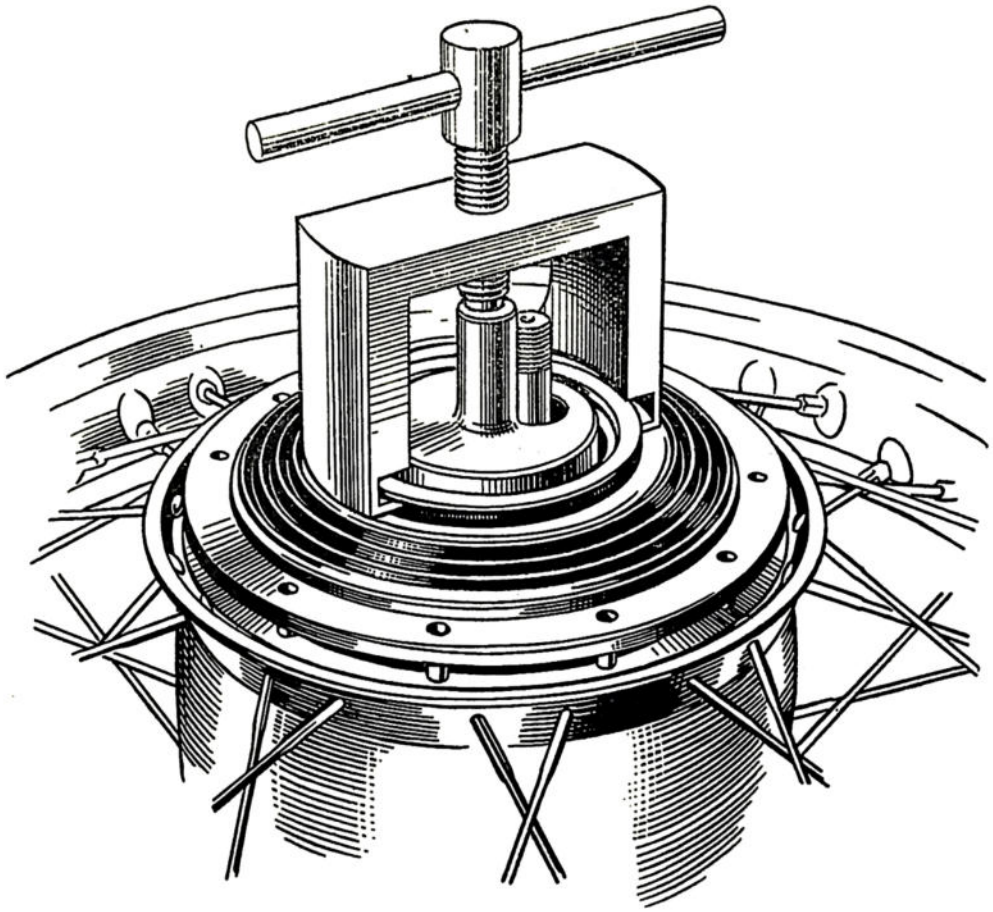
Normally six .003" shims are fitted, but to allow for machining tolerances, shims may be added or taken away. The above illustrations demonstrate the use of the jigs for determining the correct number of shims. Place the base of the Jig firmly on the hub assembly as shown in Fig. 1 and if a .003" feeler can be slid under A or B, one shim will have to be added or taken away as the case may be. The same instructions apply to Fig. 2 and as an easy aid to checking, the following table is listed.

For every .003" Gap :

For A	...	add one shim	For C	...	add one shim
For B	...	take away one shim	For D	...	take away one shim

END PLATE EXTRACTOR

PART No. Z.66 (Two parts)



Always use this jig when removing the end plate from the hub. Do not attempt to release it by bumping the underside of the wheel spindle on the bench. This procedure will cause the spindle to move in the plunger guide to which it is keyed.

Cases have been known where a wheel has been completely overhauled and when replaced in the frame the action is extremely stiff with sometimes no movement at all, although the fitter could vouch for the freedom of the plunger guide in the box before assembly. This trouble is usually traced to the misplacement of the spindle in the guide. An easy method to detect this fault is to examine the sliding dust cover plates, which should be just free to move sideways when pressure is applied by hand. Whichever plate is tight will denote that the spindle is too far in at this side; to remedy, remove the wheel and give the opposite spindle end a sharp blow with a hide or lead hammer to centralise. Replace and test the wheel.

When the wheel is in the dismantled condition, the fitter can easily check the position of the spindle in relation to the plunger, by measuring between the spindle shoulder and the plunger on the brake side. This side is identified by the machined flats on the shoulder. The reading should be:

2.725″ (69.2 m/m)
2.730″ (69.1 m/m)

RECOMMENDED LUBRICANTS for SPRING WHEEL

U.K.

SPRING WHEEL	WAKEFIELD	ESSO	PRICE'S	SHELL	VACUUM
MECHANISM	Castrolease Graphited or Castrolease Heavy	Esso Graphited Grease	Energrease C3G	Retinax A	Mobile Graphited Grease
BEARINGS	Castrolease Heavy	Esso Grease	Energrease C3	Retinax A	Mobilgrease No. 2

OVERSEAS

MECHANISM	Castrolease Graphited or Castrolease Heavy	Esso Spring Grease	Energrease C3G	Retinax A	Mobil Graphited Grease
BEARINGS	Catrolease Heavy	Esso Bearing Grease	Energrease C3	Retinax A	Mobilgrease No. 2

MAINTENANCE OPERATION No. 2

FRONT FORK ALIGNMENT JIG

IMPORTANT

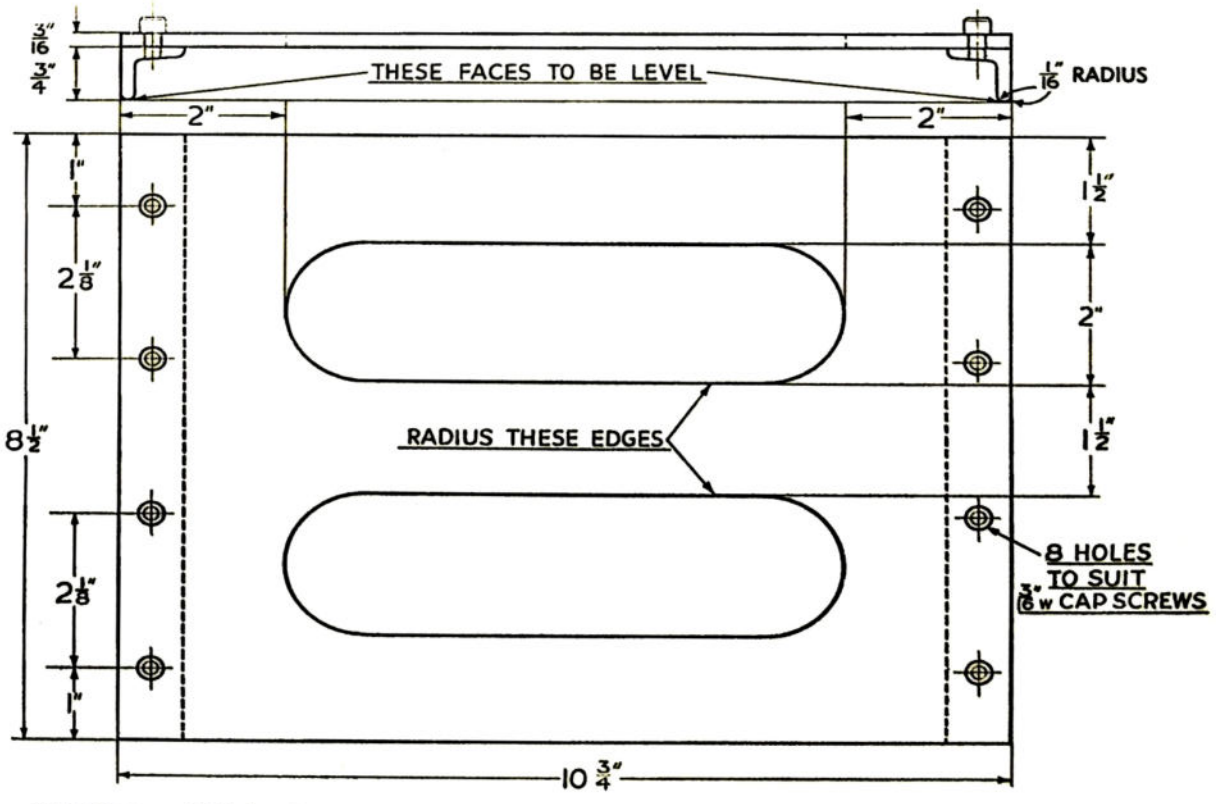
To ensure correct alignment, whenever a fork is fitted to a frame this jig should be employed. We have proved by experience that it is not possible for a fitter to assemble the fork with both legs perfectly parallel to each other without a jig.

The usefulness of this jig will amply repay its first cost or time taken to manufacture. A rider may complain that the steering has become affected after being involved in a minor accident, such as machine knocked off the stand, rider falling off at low speeds, etc. Here a quick survey of the damage to the fork, if any, can be effected after removal of the front wheel with the jig placed in position on the fork legs. On pages 12 and 13 a diagram shows the application of the jig and a machine drawing, together with full instructions in its use and manufacture.

METHOD OF APPLICATION

This jig is of simplified form and can easily be made by the distributor, dealer or the private owner. It has the advantage that after the front wheel has been removed, both nacelle and non-nacelle type forks can be checked.

Fit the wheel spindle in position and place the jig on the lower fork members as indicated on the fork illustration. Hold it firmly and if the alignment is correct, contact will be made at all four points marked "X." If the jig does not make contact at "A" or "B," it will be necessary with the nacelle type fork to remove the headlamp assembly and instrument top unit to make an adjustment. Slacken off the top lug and middle lug pinch bolts. If the jig can be rocked at "A" this indicates "D" is too far forward. To remedy, strike the top lug at point "D" a sharp blow with a hide hammer and then make a further check with the jig. If the error is at "B" the application is the same, only at point "C." When the adjustment is satisfactory, tighten the pinch bolts and make another check. To avoid scratching the enamel finish on the fork members, apply a smear of grease at the four points.



MATERIAL - Mild Steel

ENGLISH PROJECTION

JIG PART No. Z85

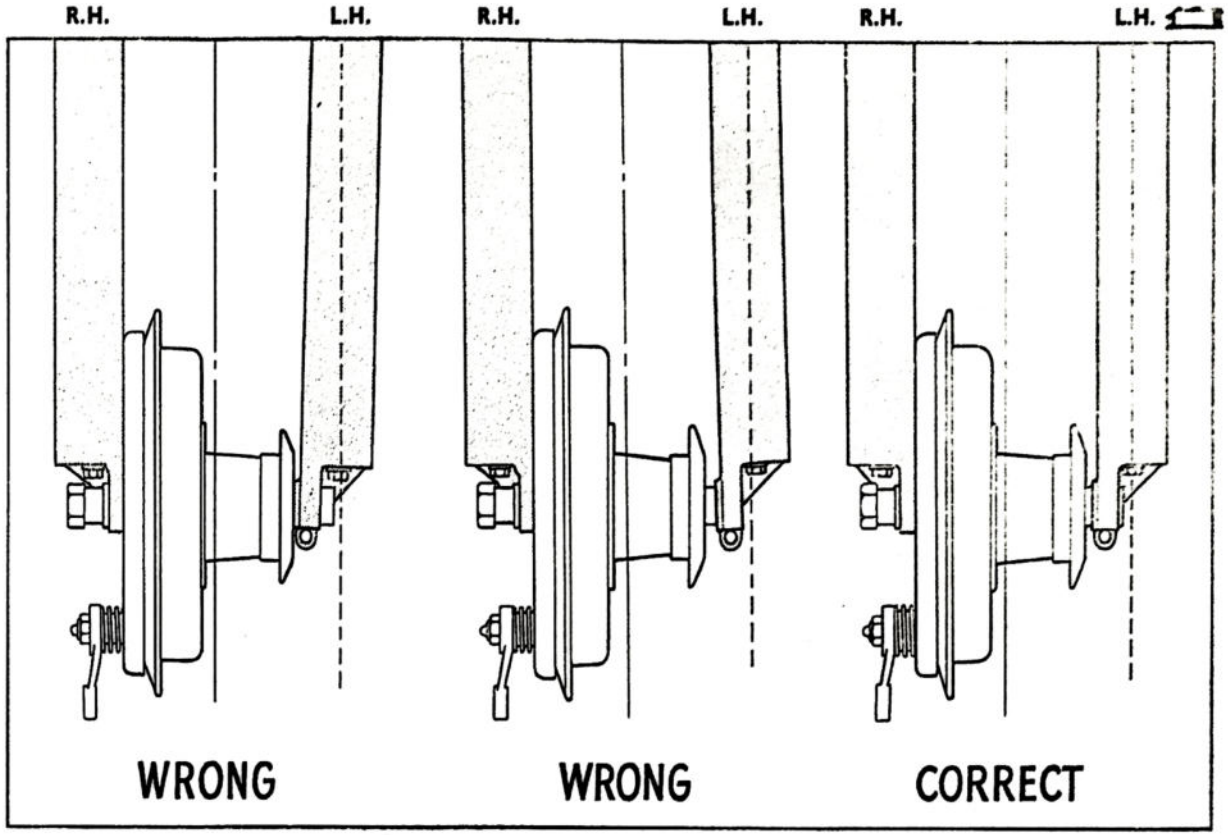
FRONT WHEEL REPLACEMENT

For a number of years we have emphasised in our instruction books the importance of correctly fitting the front wheel in the fork. In very many cases this warning seems to have been completely ignored judging by the machines examined in our Repair Shop and also the number of customers who complain of stiff fork action and are satisfied through our normal correspondence channels.

To simplify the instructions, three illustrated examples are shown to enable the owner or fitter to identify the correct and incorrect assembly of the wheel spindle.

Before fitting the wheel to the fork, the fitter should ensure that the sleeved end of the spindle is just a good push-fit in the split left-hand fork lug. If the fit is too tight, open up the split lug gap and check the sleeve and inside of the lug for burrs or enamel. This point must be attended to, as it is essential that the left-hand fork cover tube centralises itself on this sleeve.

Assemble the wheel to the fork in the normal manner, fit the spindle and tighten up the spindle nut, leaving only the pinch bolt in the left-hand lug slack. Then grip the handlebars and exert a downward pressure, telescoping the fork to its fullest distance. Continue this operation four or five times. This method will ensure correct positioning of the left-hand cover tube on the spindle sleeve and that no binding occurs between the stanchions and cover tube.



It may be necessary in some obstinate cases first to prise the left-hand cover away from the wheel to free it.

When the job has been carried out satisfactorily, tighten up the lug pinch bolt.

Remember, the fork cannot be correctly aligned by this method if the fork legs are twisted. Reference should be made to Maintenance Operation No. 2, which deals with the rectification of this trouble.

TIGHTENING BIG END BOLTS

There are as many ways of tightening these bolts as there are mechanics actually carrying out the work. In order to obviate these varying degrees of tightness the operator should observe the following:

First check the overall length of the bolts with a micrometer or vernier gauge before fitting and note the measurements. Assemble the connecting rod to the crankshaft journal, fit the bolts and self-locking nuts and commence to tighten. Continue to tighten until the bolts have been elongated .008" (.2032 m/m) and when this stage is reached the correct tension has been applied.

BOLT MATERIAL—NICKEL CHROME STEEL 75 to 85 TON