

BL Motorcycles Ltd

Professional Workshop Manual - English Translation

BSA - SECTION D

D14/4 FRAME AND FITTINGS D1

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D14/4 FRAME AND FITTINGS D2

FIG. D1. Frame dimensions.

D14/4 FRAME AND FITTINGS D3

FRAME ALIGNMENT

FIG. D2.

The only satisfactory way of checking the D14 Bantam frame for correct alignment is on an engineer's setting-out table. In addition to the table, which should be approximately five feet by three feet, the following equipment will also be necessary.

One mandrel and two blocks for the steering head, as in Fig. D2.

One set-square.

One 18" Vernier height gauge or large scribing block.

One pair of large vee-blocks and several adjustable height jacks.

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If a scribing block is used in preference to an Vernier height gauge, then an 18" steel rule will also be required. All mandrels must be perfectly straight and round, otherwise measurements will be affected. Figure D3 shows the basic set-up for checking the D14 Bantam frame, though variations can be used, according to the facilities available.

Place the blocks into the steering head, insert the mandrel and support with the vee-blocks at one end to ensure that it is parallel with the surface of the table. Insert the swinging arm spindle through its pivot hole in the rear frame member.

Now, using jacks or packing pieces, set the frame horizontal to the table so that checks taken at (A) are the same. If the frame has suffered damage in an accident, it may not be possible to set points (A) parallel, in which case points (B) can be used.

Sometimes, if the machine has been subjected to a frontal impact, the main tubes may remain parallel at points (A) but will be bent as shown in Fig. D4. A straight-edge made from piece of good quality hardboard can be used for checking purposes, but the actual checking edge must be quite straight.

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FIG. D3. Frame on setting-out table.

FIG. D4. Showing bent top tube.

When the frame is set parallel to the surface of the table, the swinging arm pivot spindle should be vertical. This can be checked using the set square and internal calipers or a slip gauge between the spindle and the square.

Find the frame tube centre line and make a thorough check at all points to ensure that the frame is not twisted. A check must also be taken at the engine mounting lugs. Errors at any point should not exceed 1/32" (79 mm.).

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SWINGING ARM

FIG. D5. Swinging arm dimensions.

Removal

Take off the rear wheel, mudguard, dampers and chainguard, as described on pages F3, D9, D6 and D9 respectively.

Release the silencer bracket from the right-hand

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sub-frame down tube (Bushman and Sports models).

Remove the pillion footrest brackets (not fitted to Bushman Pastoral models) and note that the lower fixing bolt on each bracket is fitted with a spacer tube. To facilitate removal of the left-hand bracket, it will be necessary to take off the brake pedal and to disconnect the brake light switch at its snap connectors. The brake pedal is retained by a pivot bolt with nut and a return spring. On Bushman models only, the prop stand must also be removed, the bracket for which is held by two nuts and bolts.

Removal of the special bolts at the top of the brackets also releases the ends of the sub-frame or saddle support which can be tied up out of the way to provide more access. Note that the bolts are each fitted with a grease nipple to enable the bushes to be lubricated.

The pivot spindle can now be extracted with a suitable drift and a raw-hide mallet should then be used to tap the swinging arm away from the frame lugs. When finally withdrawing the swinging arm, note the location of any spacing shims which may have been fitted.

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FIG.D6. Checking the swinging arm.

The two phosphor-bronze bushes can be tapped out of the swinging arm pivot lugs with a suitable drift.

Alignment

Before a proper check of the swinging arm can be made, it must be established that the bushes are in good condition.

Insert the wheel spindle through the pivot bushes and set the swinging arm in vee-blocks as shown in Fig. D6. Place a suitable mandrel in the fork ends and use small adjustable height jacks to set both the mandrel and the pivot spindle parallel to the surface table. If a mandrel for the fork end is not available, then the rear wheel spindle can be used.

Now, using a Vernier gauge, check the forks ends for alignment. Should there be less than $\frac{1}{4}$ " (635 mm.) malalignment, it is permissible to correct it by means of a suitable lever. Care must be taken, however, to avoid causing further damage.

To check that the forks are square to the pivot, they

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must be swept up at 90° to the position illustrated, so that the pivot is vertical. Next, find the centre of the pivot and check that all measurable points are in accordance with the dimensions shown in Fig. D5.

NOTE: There may also be variation in the rear dampers and a careful examination should be made of the overall length between the mounting eyes of each unit. It is possible that one damper may be weaker than the other, caused by the "settling" of a spring. If this should be the case, it is advisable to renew the springs in both dampers, using the information given below.

REAR DAMPERS

The rear dampers or shock absorbers, are of the coil spring type, hydraulically damped and are mounted on bonded rubber bushes at each end. The actual damping units are a sealed assembly and the only service work that can be carried out on the dampers is for the renewal of the springs.

To remove a damper, take out the top fixing bolt with nut and washers then unscrew the lower fixing nut. Pull the damper off the stud at the bottom and withdraw from the top frame bracket.

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The removal and replacement of the mounting bushes will be found much easier if a little liquid soap is applied.

The spring is retained at its base by split collets and, to enable the spring to be removed the collets must be extracted. Assemble service tool No. 61-5064, as shown in Fig. D7, and screw down the nut until the spring is sufficiently compressed to allow the collets to be extracted through the apertures in the tool. The spring will be released when the tool is removed.

FIG. D7.

Using service tool No. 61-5064.

Having renewed the spring, reassemble in the reverse manner, again using the service tool to compress the spring.

The dampers fitted to the Sports and Bushman models, have no spring cover, but are dismantled in the same manner.

When refitting the dampers to the machine, note that the top fixing bolts also retain the ends of the dualseat

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bracket.

PETROL TANK

Turn off the petrol tap and detach the petrol pipe at its union on the float chamber.

Take out the two fixing bolts from the front of the tank and note that the large washers are fitted between the tank brackets and the steering head lugs. Loosen the rear fixing bolt; it will not be necessary to remove this bolt. The petrol tank can now be withdrawn from the front.

Take note of the way in which the chrome beadings are fitted. These are loosely located over the tank and are held at each end by the fixing bolts.

The petrol tap is screwed into the base of the tank and is fitted with a fibre washer. If the washer appears unserviceable, replace it to avoid any leakages.

FIG. D8. Petrol tank badge.

To remove one of the tank badges, loosen the two fixing screws and pull the badge upwards to disengage from the clip. The Bushman models are not fitted with badges of this sort.

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DUALSEAT

Should it be found necessary to remove the dualseat, first loosen the damper top fixing bolts sufficient to allow the ends of the seat bracket to be released. Raise the seat at the rear and withdraw rearwards to disengage the front clip from the frame tie bar. The bracket is held to the base of the seat by two nuts with washers.

Replace in the reverse manner but ensure that the damper top fixing bolts are tightened firmly.

Some Bushman Pastoral models are fitted with a single seat, being held to the sub-frame at the rear by two clips.

SIDECOVERS

The left-hand sidecover is held in place by two "Oddie" studs which only require a half-turn to release.

The sidecover can now be removed to reveal the tool roll (Bushman) or to give access to the battery (Supreme). To remove the battery, lift the tag on top of the battery carrier and lift the battery out.

To remove the left-hand back plate on the Supreme,

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unscrew the two large nuts at the front of the plate.

Now remove the single small nut and bolt from the top right-hand corner of the plate, also slacken the bolt behind the mudguard, and remove back plate.

Access will now be gained to the coil and rectifier, both being dealt with in the Electrical section. The coil retaining clip is fixed to the top of the rear mudguard by two nuts and bolts.

A single nut secures the rectifier to its bracket. Care must be taken when tightening this nut, and the bolt head should be held firmly with a second spanner to prevent it