

Chapter 19

SWIVEL COUPLING UNIT

TYPE No. 1.00483.001

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ILLUSTRATION

	Fig.
<i>Swivel coupling unit</i>	1

Introduction

1. This unit is attached to a main undercarriage unit and provides sealed swivel joints in the rigid pipe lines which carry fluid for the operation of the wheel brakes.

Description

2. The upper set of pipes are brazed at either end into swivel coupling posts, whilst the lower pipes are similarly fitted with swivel coupling banjos. At the upper end the swivel coupling post rotates in the bore of a swivel block which is drilled for attachment purposes and provided with three connection adapters, screwed in against bonded seals.

3. At the centre joint, the lower post of the upper pipes rotates in the upper banjo of the lower pipes. The posts are each retained in the swivel block and swivel coupling banjo by a collar and split pin.

4. The lower swivel coupling banjo rotates on a bottom swivel post and is retained by a swivel bearing, the post and bearing being

provided with elongated holes for attachment to the undercarriage. Three two-way banjo unions are secured to the swivel post between bonded seals by banjo bolts.

5. Each swivel post is drilled radially and longitudinally to provide a separate flow path from each pipe to one of three annular grooves on the post. Grub screws blank the ends of the longitudinal drillings and are locked and sealed by silver solder. The fluid paths through the swivel coupling banjos and the swivel block each terminate in an annular groove, each groove coinciding with a corresponding groove on the post. Further grooves in the bores of the banjos and block house sealing rings and backing washers prevent external leakage or leakage between flow paths.

6. The letters N (Normal), R (Return) and E (Emergency) are marked adjacent to corresponding connections at each end of the unit to indicate the flow paths and to avoid incorrect assembly to associated pipe lines.

SERVICING**Leakage**

7. External leakage or leakage between flow paths will be caused by faulty sealing rings or backing rings which must be renewed.

Dismantling

8. (1) Remove the bottom swivel bearing.

(2) Withdraw the bottom swivel post and unscrew the banjo bolts to free the banjo and bonded seals.

(3) Remove the split pins and collars and separate the pipe assemblies and the upper swivel block.

(4) Unscrew the connection adapters from the swivel block.

(5) If necessary, remove the anti-extrusion rings and sealing rings from the bores of the couplings and block.

Note . . .

Do not remove the grub screws from the swivel posts.

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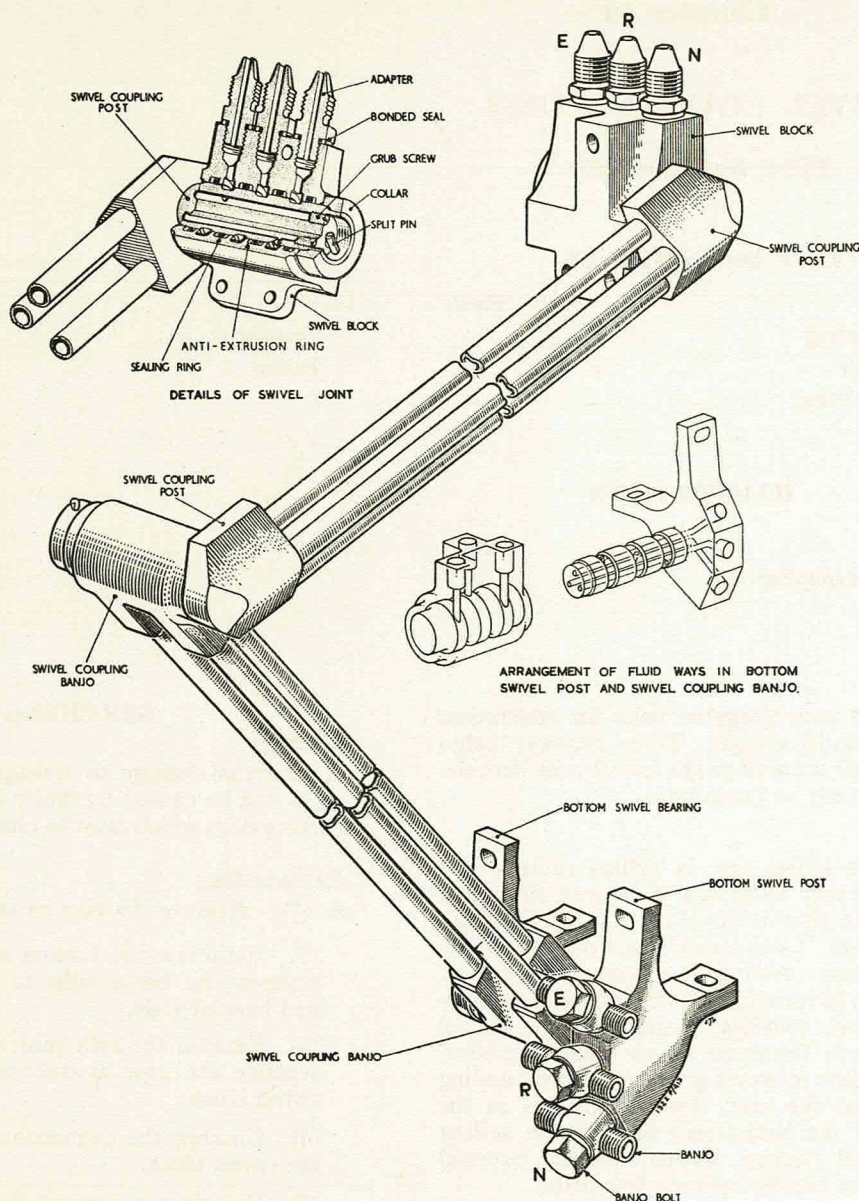


Fig. 1. Swivel coupling unit

Assembling

9. All sealing rings, swivel posts and coupling bores are to be lightly coated with Grease XG.-315 (34B/9100519) before being assembled. Bonded seals should be assembled dry.

(1) Fit the sealing rings and backing rings into the bores of the swivel coupling banjos and the swivel block, positioning a rubber ring supported by two leather rings in the two inner grooves of each bore. The outermost groove of each bore is to be fitted with a rubber ring and one leather ring with the leather ring outermost. All leather rings must be fitted with their rough faces adjacent to the rubber rings.

(2) Fit the bonded seals to the connection adapters and screw the adapters into the swivel block, applying a torque loading between 60 and 66 lb. in. to each adapter. Wire-lock the adapters together.

(3) Fit a bonded seal on either side of each banjo connection and secure the banjos to the bottom swivel post with the banjo bolts. Torque load each banjo bolt between 95 and 105 lb. in. Wire-lock the banjo bolts together.

Note . . .

The banjo connections must be positioned as shown in fig. 1.

(4) Assemble the swivel pipes as shown in fig. 1, securing the upper and centre joints by fitting a collar and a split pin to the post.

(5) Temporarily secure the swivel bearing on the bottom swivel post by tensioning locking wire between adjacent attachment holes of the bearing and post.

Testing

10. A static hydraulic test rig and blanking caps for the connection adapters are required for testing the swivel coupling unit.

Note . . .

Ensure that the bottom swivel post and the swivel bearing are securely wired together.

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(1) Connect the delivery line of the test rig to connection E of the swivel block. Operate the hand pump and ensure that free flow occurs from the banjo connection E of the bottom swivel post.

(2) Blank off the arms of the banjo E and gradually apply pressure at the swivel block up to 2,250 lb/in² with the unit static. Leakage is not permissible.

(3) Repeat the tests (1) and (2) with flow paths R-R and N-N separately.

(4) Carry out the following test for each flow path separately:—

Blank off one end of the flow path and apply a pressure of 100 lb/in² at the opposite end. Rotate each swivel joint through 180 deg. and back ten times and then through 360 deg. ten times (five clockwise and five anti-

clockwise). Where full rotation is prevented by obstruction turn the joint as far as possible. Leakage is not permissible.

(5) Repeat the test in (4) for each flow path but with a pressure of 1,500 lb/in² applied. During these tests, check that the torque required to rotate each swivel joint at 1,500 lb/in² does not exceed 55 lb. in. Leakage is not permissible.

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