Chapter 26

SWIVEL COUPLING UNIT
Type No. 1.01052.001

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ILLUSTRATION

Introduction

1. This unit provides sealed swivel joints between rigid hydraulic pipe lines on a nose undercarriage.

DESCRIPTION

General

2. The unit consists of two pipe assemblies joined at a centre swivel joint and having swivel connections at the outer ends. The outer swivel joints each consists of a coupling post rotating in the bore of a connection block and the centre swivel joint comprises a coupling post rotating in the bore of a swivel connection. The posts are retained by collars and split pins. The connection block 1 is drilled and bossed for attachment purposes and is integral with a pipe adapter; the connection block 2 is formed with a lug, drilled for the passage of fluid.

3. A drilling, through each coupling post, sealed by a screwed plug soldered in position, connects through radial drillings to an annular groove in the post, which coincides with an annular groove in the swivel connection and connection blocks. Additional grooves in the swivel connection and connection blocks house sealing rings and backing rings to prevent the leakage of fluid. The pipes are soldered into the relevant posts and swivel connection.

SERVICING

Leakage

4. Leakage past the sealing rings will be indicated by external seepage or loss of pressure under test. The appropriate sealing ring must be renewed.

Dismantling

5. (1) Remove the split pins and collars from the swivel joints and withdraw the coupling posts from the connection blocks and swivel connection.

Note . . .

The screwed plugs are soldered in position and must not be removed.

(2) Remove the sealing rings and backing rings from the swivel connection and the connection blocks.

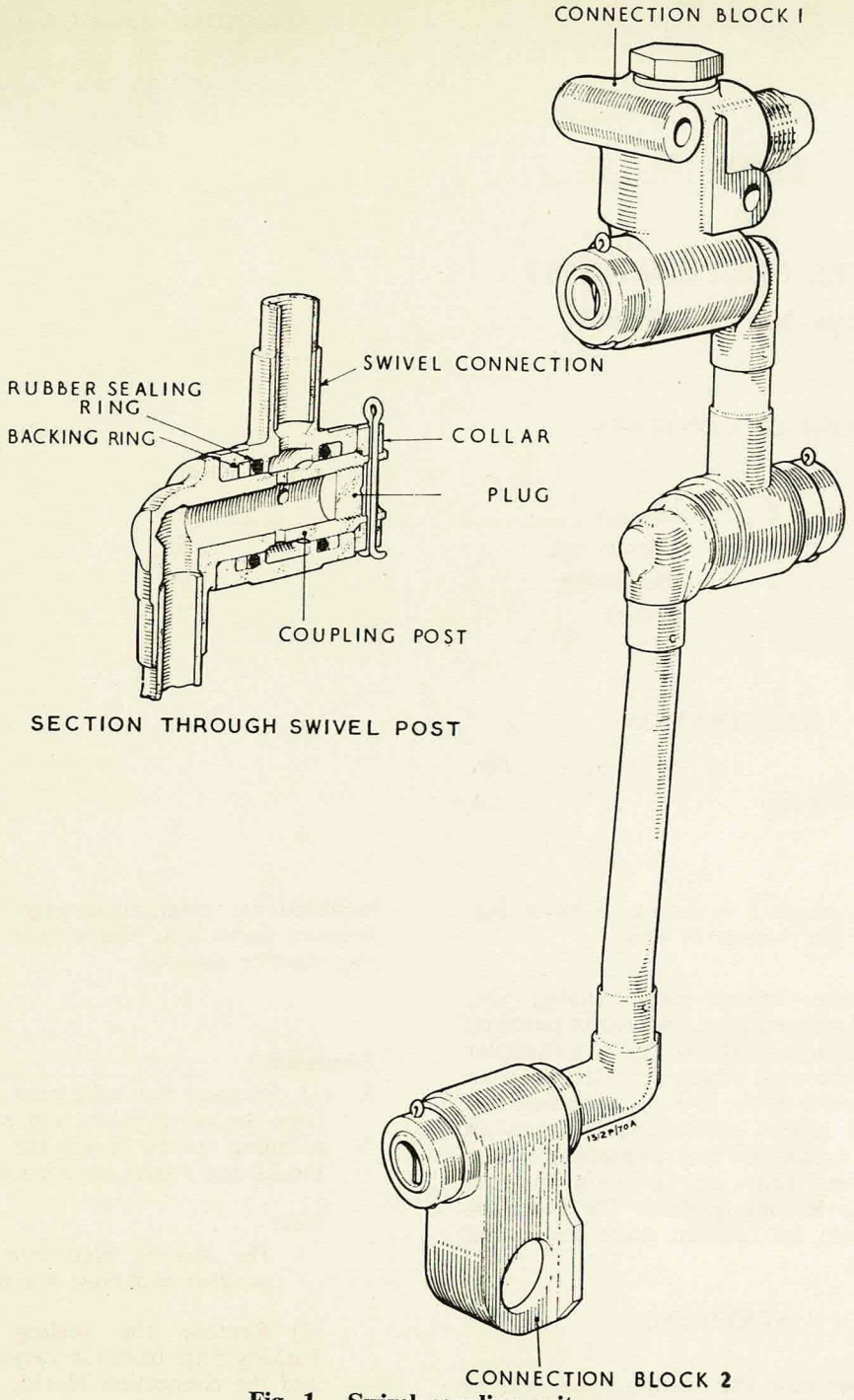

Fig. 1. Swivel coupling unit

Assembling

6. All sealing rings must be coated with a thin film of grease XG-315 before being assembled into the unit.

(1) Fit the sealing rings and backing rings to the connection blocks and swivel connection respectively, with the rough faces of the backing rings adjacent to the sealing rings.

(2) Insert the coupling posts into the relevant connection blocks and swivel connection and secure the assemblies with the collars and split pins.

Testing

7. For testing the unit, a static hydraulic test rig, is required. Proceed as follows:—

(1) Connect the supply line of the static test rig to the pipe adapter of the connection block 1. Apply pressure and fluid should flow freely from the connection block 2.

(2) Blank off the drilling in the connection block 2 and gradually apply a pressure of 4,950 lb/in^2 with the unit remaining static. Leakage is not permissible. Release the pressure.

(3) With the connection block 2 blanked off, apply a pressure of 100 lb/in^2 at the connection block 1. Rotate each swivel joint through an angle of 180 degrees and back ten times and through 360 degrees ten times (five clockwise and five counter-clockwise). If a swivel joint is prevented from moving through 360 degrees by the obstruction of other pipes etc., it should be moved as far as possible. Leakage is not permissible.

(4) Repeat the test in (3) applying a pressure of 3,300 lb/in^2 and check that the torque required to rotate each swivel joint at this pressure does not exceed 25 lb. in. Release the pressure, disconnect the supply line and remove the blanking plugs.

Note . . .

Before checking the torque, the swivels are to be 'freed' by working them to and fro approximately ten times.

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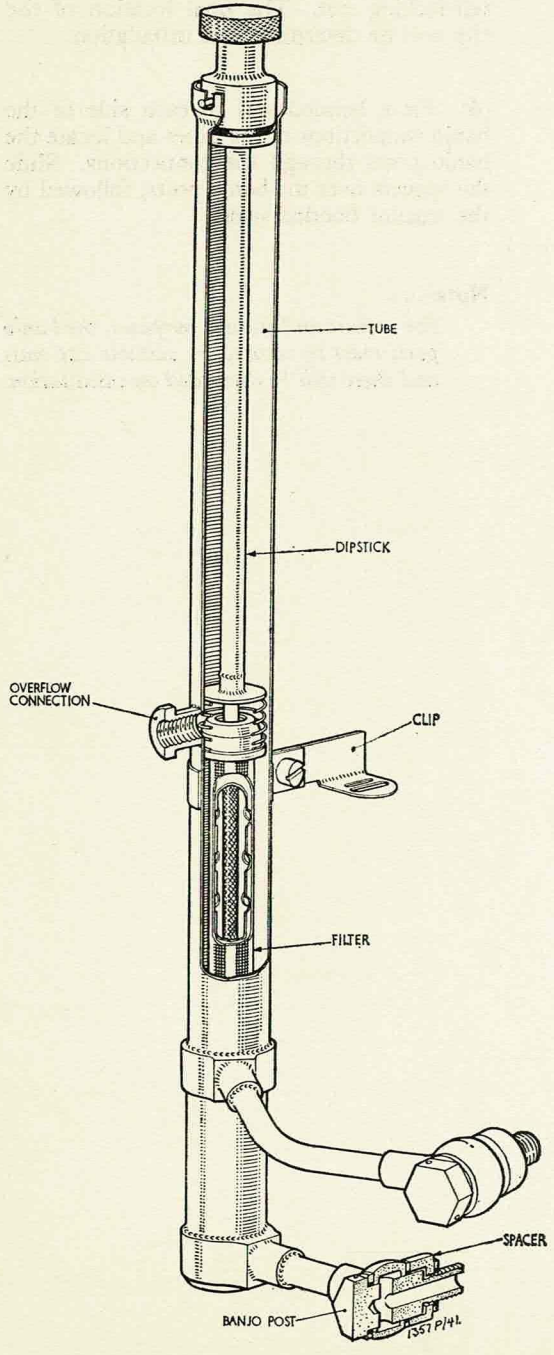

Chapter 27

DIPSTICK AND OVERFLOW UNIT

LIST OF CONTENTS

ILLUSTRATION

Introduction

1. This unit is attached to a motor pump gearbox and provides for fluid level and overflow checks during filling operations. A basic type is described in the chapter and appendices cover the variants.

Description

2. The unit consists of a tube, housing a filter and dipstick assembly, and to which two pipes of different lengths are brazed. The pipes communicate with ducts in the tube and have banjo connections brazed to their outer ends. The banjos receive banjo posts, which are fitted with bonded seals and spacers, and screw into the relevant connections on the gearbox. The tube, which is blanked at one end, has two bayonet slots at the opposite end, and a boss at the mid-position receives a screwed overflow connection. A clip and screw assembly is fitted to the tube for attachment purposes.

3. A gauze filter assembly, which accommodates the knurled end of the dipstick shaft, is flanged to provide a seat for a spring compressed between the flange and a collar located midway on the shaft. The outer end of the dipstick carries a head, grooved for a sealing ring and knurled at its outer extremity for ease of handling. The head is secured to the shaft by a pin, the ends of which protrude to engage in the bayonet slots against the pressure of the spring. This arrangement ensures that the dipstick is held firmly in position at all times.

Fig. 1. Dipstick and Overflow Unit

SERVICING

Leakage

4. External leakage will indicate a faulty sealing ring which must be renewed.

Dismantling

5. (1) Remove the banjo posts, together with the bonded seals and spacers from the banjo connections of the pipes.

(2) Remove the dipstick and withdraw the spring and filter from the tube. The sealing ring may be removed from the dipstick head if necessary.

Note . . .

The pin securing the head to the shaft is pressed in and must not be removed. If damage has occurred renew the complete dipstick sub-assembly.

(3) Remove the clip from the tube.

Assembling

6. (1) Fit the spring to the filter and insert the filter into the tube.

(2) Lightly coat the sealing ring with Grease XG–315 (34B/9100519) and fit the ring to the dipstick head. Insert the dipstick into the tube, pushing it in until the pin is fully engaged in the bayonet slots.

(3) Position the clip over the tube and temporarily secure it with the screw and self-locking nut. The final location of the clip will be determined on installation.

(4) Fit a bonded seal to each side of the banjo connections of the pipes and locate the banjo posts through the connections. Slide the spacers over the banjo posts, followed by the smaller bonded seals.

Note . . .

For transit and storage purposes, the banjo posts must be secured by suitable cap nuts and these will be discarded on installation.

Appendix 1

DIPSTICK AND OVERFLOW UNIT
⟨Type No. 1.00655.002⟩

1. This unit is identical to the type described in the chapter.

Appendix 2

DIPSTICK AND OVERFLOW UNIT
⟨Type No. 1.00661.002⟩

1. This unit is a similar but shortened version of the type described in the chapter.

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