Chapter 14

SWIVEL COUPLING UNITS

Type No. C.7819Y

C.7819Y, Mk. B

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ILLUSTRATION

Introduction

1. These swivel coupling units are incorporated in a specific aircraft hydraulic system and provide sealed swivel joints in rigid hydraulic pipe lines. The units are identical but opposite handed.

Description

2. Two pipe assemblies are secured end to end to form a centre swivel joint, comprising the coupling post of one pipe inserted into the banjo fitting of the second pipe. Coupling posts at the outer ends of the pipes carry the fixed connections 1 and 2, each of which is identical and consists of a standard pipe connection formed on a body drilled for attachment purposes.

3. The coupling posts and the banjo fitting are soldered over the pipes, and drillings in the posts and connection bodies connect through annular grooves with the bores of the pipes to provide for the passage of fluid. Sealing rings supported by anti-extrusion rings are fitted to the coupling posts, and the posts are retained in the connection bodies and banjo fitting by rings secured by covers, pins and split pins.

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 the covers, extract the pins and withdraw the rings from the swivel connections and the centre swivel joint.

(2) Remove the connection bodies from the coupling posts and separate the pipes.

(3) Remove the sealing rings and the anti-extrusion rings from the coupling posts.

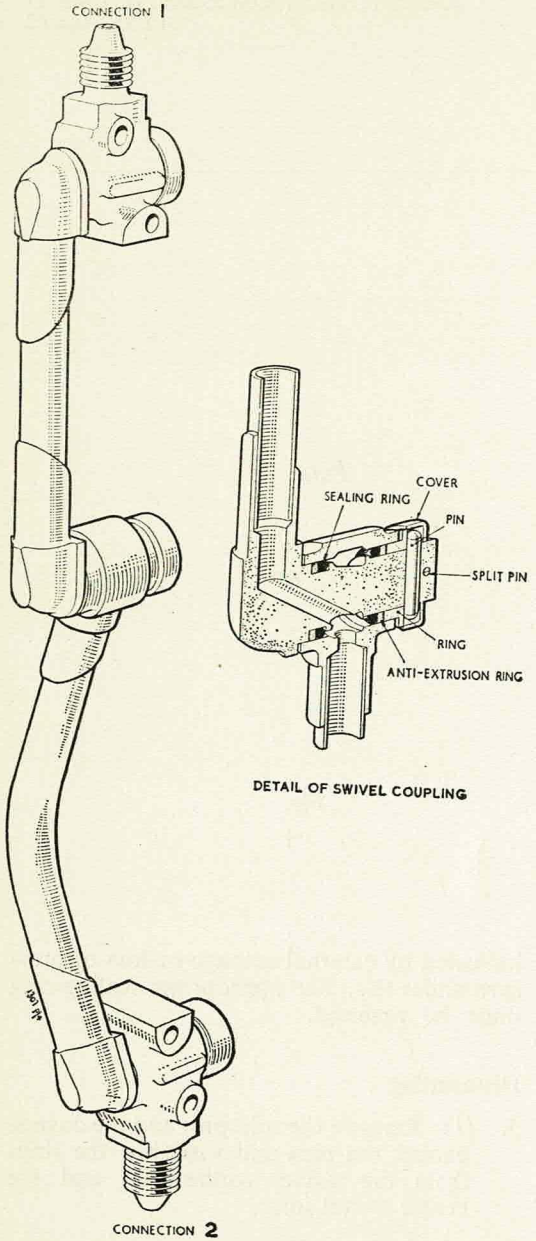

Fig. 1. Swivel coupling unit

Assembling

6. All sealing rings are to be lightly coated with Grease XG-315 (34B/9100519) before being assembled in the unit.

(1) Fit the sealing rings and the anti-extrusion rings to the inner grooves in the coupling posts.

Note . . .

The rough faces of the anti-extrusion rings must be adjacent to the sealing rings in all instances.

(2) Locate the banjo fitting of the curved pipe over a coupling post of the straight pipe. Fit the sealing ring and the anti-extrusion ring to the coupling post of the centre swivel joint. Slide the ring over the post and secure the assembly with the cover, pin and split pin.

(3) Locate the connection bodies over the coupling posts at the ends of the pipes, and fit the sealing rings and the anti-extrusion rings to the posts. Slide the rings over the posts and secure the bodies with the pins, covers and split pins.

Testing

7. A static hydraulic test rig is required.

(1) Connect the supply line of the static hydraulic test rig to connection 1 and apply pressure. Fluid should flow freely from connection 2.

(2) Blank off connection 2 and gradually apply a pressure of ◀1800▶ lb/in² with the unit remaining static. Leakage is not permissible. Release the pressure.

(3) With connection 2 still blanked off, apply a pressure of 100 lb/in² at connection 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 anti-clockwise). If a swivel joint cannot be rotated through the full range of 360 degrees due to the obstruction of the other pipe, it is to be rotated as far as possible. Leakage is not permissible.

(4) Repeat the test in (3), applying a pressure of ◀1200▶ lb/in² 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 plug.

Note . . .

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

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