

Chapter 4

(Completely revised)

SWIVEL PIPE UNIT (WITH RESTRICTOR)**LIST OF CONTENTS**

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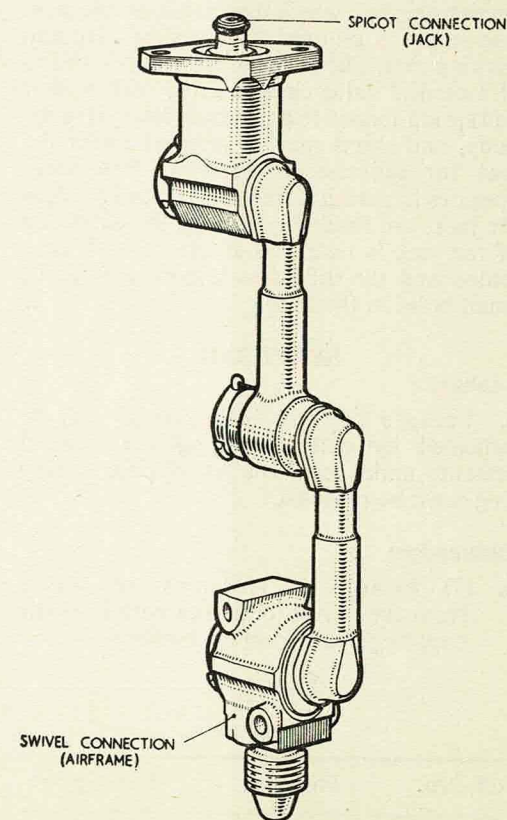
Introduction

1. These swivel pipe units are attached to a specific main undercarriage jack to supply fluid for closing the jack and to permit movement of the jack during operation. The units each incorporate a restrictor valve which allows a free flow of fluid to close the jack, but restricts the rate of fluid flow from the jack during extension. A basic type is described

in the chapter and the variants are given in the appendices.

Description

2. The units each consist of two pipe assemblies forming a centre swivel joint and having fixed connections at the outer ends for attachment to the jack and airframe respectively. Each swivel joint consists of a coupling post rotating in a coupling body and retained

**Fig. 1. Swivel pipe unit (with restrictor)****RESTRICTED**

by a collar and split pin. The bore of each coupling post, sealed by a screwed plug soldered in position, is linked by radial holes to an annular groove in the post, which coincides with an annular groove in the body. Additional grooves in the coupling body house sealing rings and backing rings to prevent the leakage of fluid. The pipes are soldered into the relevant posts and coupling bodies.

3. The airframe connection has lugs for attachment purposes and is formed integral with a pipe adapter. The jack connection comprises a valve body into which is screwed a valve housing retaining a restrictor valve assembly to regulate the flow of fluid from the jack. The body is flanged for attachment to the jack; and the housing, fitted with a sealing ring, is formed integral with a spigot connection through which fluid passes to the jack. The spigot is grooved for a sealing ring and backing ring. The restrictor assembly consists of a conical valve element fitted with a filter and spring-loaded to a valve seat located in the body, and shims may be inserted under the seat for adjustment purposes. The valve operates to permit a free flow of fluid to close the jack, but fluid displaced by the extension of the jack is restricted as the valve is then seated and the fluid flow is confined to the small holes in the filter.

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 bodies.

TABLE 1
Special tool

Ref. No.	Part No.	Description
27Q/	03022TA01	Test adapter

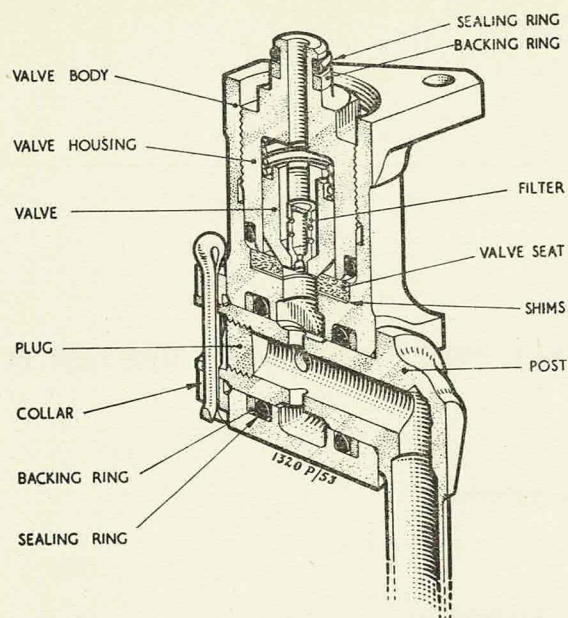


Fig. 2. Details showing restrictor valve

Note . . .

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

- (2) Remove the sealing rings and backing rings from the spigot connection and the coupling bodies.
- (3) Unscrew the valve housing from the valve body and withdraw the valve element and the spring from the housing. Remove the sealing ring from the housing. Withdraw the valve seat and the shims (if fitted) from the body. Do not remove the filter from the valve element.

Assembling

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

- (1) Ensure that the sealing ring is fitted to the valve housing and insert the spring, followed by the valve element, into the housing.

- (2) Insert the valve seat into the valve body with the inner chamfer outermost. Screw the housing into the body and check that the valve seat is compressed by 0.003 to 0.005 in. with the face of the valve housing flush with the face of the valve body. If necessary, fit shims to the required thickness to meet these conditions.
- (3) Fit the sealing ring and backing ring to the spigot connection, and the sealing rings and backing rings to the coupling bodies, with the rough faces of the backing rings adjacent to the sealing rings.
- (4) Slide the coupling bodies over the relevant coupling posts and secure the assemblies with the collars and split pins.

Testing

7. A static hydraulic test rig is required, together with the test adapter quoted in Table 1.

- (1) Bolt the test adapter to the valve body and connect the supply line of the static hydraulic test rig to the airframe connection. Apply pressure and fluid should flow freely from the jack connection.
- (2) Blank off the test adapter at the jack connection and gradually apply a pressure of 6,000 lb/in² with the unit remaining static. Leakage is not permissible. Release the pressure.
- (3) With the jack connection blanked off, apply a pressure of 100 lb/in² at the airframe connection. 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 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 test (3), applying a pressure of 4,000 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 test adapter.

Appendix 1

SWIVEL PIPE UNIT (WITH RESTRICTOR)

Type No. 11861P and S A02

Introduction

1. These swivel pipe units are identical to the type described in the chapter. Port and starboard assemblies are denoted by the letters P and S respectively and are handed by the jack attachment flange of the restrictor body.

Appendix 2

SWIVEL PIPE UNIT (WITH RESTRICTOR)

Type No. 1.00619.001

1.00619.002

Introduction

1. These swivel pipe units are identical, but are improved versions of the type described in the chapter. Port and starboard assemblies are denoted by the suffix numerals 001 and 002 respectively and are handed by the jack attachment flange of the restrictor body.

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