

Chapter 6

NOSE UNDERCARRIAGE UPLOCK JACK

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Introduction

1. This jack is employed to disengage the nose undercarriage uplock, preparatory to the lowering operation. The complete jack consists of a jack unit to which a shuttle valve and a cone adapter are fitted. A basic type is described and illustrated in this chapter and its variants are given in appendices.

Description

2. The cylindrical body of the jack has four bosses for mounting bolts and a boss forming the fluid connection to one end of the cylinder bore. This end of the bore houses an abutment ring and gland carrier secured by a screwed plug that is bored for the passage of the piston rod. The gland carrier is sealed in the cylinder by a rubber ring and carries a rubber ring that seals the piston rod.

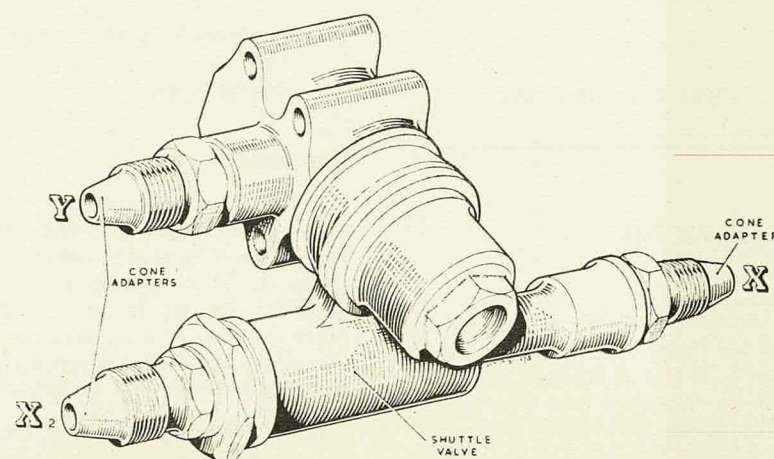


Fig. 1. Nose undercarriage uplock jack assembly

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3. At its other end the cylinder is screwed to receive an end cap and is grooved for the flow of fluid between that end of the bore and the shuttle valve banjo connection. The end cap closes the cylinder and secures the shuttle valve to the cylinder between two bonded seals. If the jack unit is stored separately, the shuttle valve is replaced by a protection sleeve.

4. The piston, which is integral with the rod, is sealed in the cylinder by a rubber ring between two backing rings.

Principle of operation (fig. 1)

5. The jack is extended by the admission of hydraulic pressure at X1 or X2 and its simultaneous release from Y. Reversal of the pressure closes the jack.

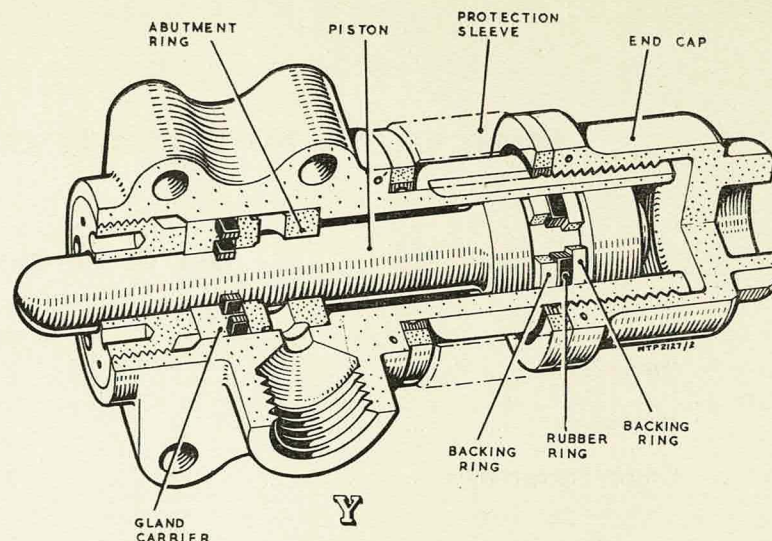


Fig. 2. Nose undercarriage uplock jack

TABLE 1

Special tools

Part No.	Description
MT.1388	Oil seal guide
MT.1393	Test adapter
BM.286/5	Spanner for end plug

SERVICING

Leakage

6. Leakage at bonded seals may be rectified by checking that the banjo bolt or adapter is normally tightened. If this is ineffective the joint faces must be examined and the seal renewed. Defective gland carrier sealing rings are indicated by leakage along the piston rod or around the plug; in this case examine the surfaces and renew the sealing rings.

Dismantling

7. (1) Remove the end cap and the shuttle valve and bonded seals.
- (2) Remove the end plug.
- (3) Using a soft drift, press the piston through and out of the cylinder taking the abutment ring and gland carrier with it.
- (4) Remove the gland carrier and abutment ring from the piston rod, and remove all sealing rings.

Assembling

8. Fit new sealing rings on the piston and gland carrier, lubricate the rings with grease XG-315 and locate the backing rings as shown in fig. 2. Backing rings are to be split at 45 degrees; the gap is not to exceed 0.005 in. when fitted in the appropriate bore and the gap edges are to be trimmed clean. Lubricate bearing surfaces with oil OM-15.

- (1) Fit the abutment ring (chamfer leading) and the gland carrier (seals leading) into the cylinder and secure them with the end plug.

- (2) Insert the piston rod into the cylinder until it projects beyond the end plug.
- (3) Fit the test adapter on to the cylinder with a bonded seal on each side and secure it with the end cap.
- (4) Carry out the tests detailed in para. 9, then remove the test adapter.
- (5) Secure the shuttle valve on the cylinder with the end cap, fitting a bonded seal on each side of the banjo. The normal system connection of the valve is to face in the same direction as the cylinder fluid connection and their axes are to be parallel.
- (6) Fit the cone adapter, with bonded seal, in the cylinder fluid connection.
- (7) Carry out the tests detailed in para. 10.

Testing

Jack unit (fig. 2)

9. Carry out all tests using oil OM-15.
- (1) Apply a pressure of 5400 lb/in² at connection Y and hold it for two minutes. Leakage is not permissible.

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- (2) Apply a pressure of 5400 lb/in² at the test adapter (connection X) and hold it for two minutes. Leakage is not permissible.
- (3) Apply pressure alternately at X and Y to extend the jack against no load; movement must be smooth and regular. At the end of each stroke adjust the pressure to 100 lb/in² and hold for one minute without leakage, then increase the pressure to 4000 lb/in² and hold for a further minute without leakage.

- (4) Carry out test (3) five times. During one test check that the stroke is 1.054/1.094 in.
- (5) Apply pressure alternately at X and Y to extend and close the jack against no load. The maximum pressures to extend and close must not exceed 100 lb/in² and 150 lb/in² respectively.
- (6) Carry out test (5) five times.

Jack assembly (fig. 1)

10. (1) With connection X2 blanked apply a pressure of 4000 lb/in² at connection X1. Leakage is not permissible.
- (2) With X1 blanked apply a pressure of 4000 lb/in² at X2. Leakage is not permissible.
- (3) Apply a pressure of 4000 lb/in² at connection Y. Leakage is not permissible.
- (4) Tests are to be carried out in the above sequence.

Appendix 1

NOSE UNDERCARRIAGE UPLOCK JACK

Type No. 1.00647.001

incorporating UPLOCK JACK Type No. 5222
SHUTTLE VALVE Type No. 8515 Mk. 2

Introduction

1. This uplock jack is identical to that described and illustrated in the chapter. Refer to A.P.1803T for a description of and servicing instructions for Shuttle valve, Type No. 8515 Mk. 2.

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