

Chapter 32

UP-LOCK JACK

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<i>Up-lock jack</i>	Fig. 1
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Introduction

1. This jack is spring-loaded to the closed position and hydraulically operated to the extended position against the spring pressure. A shuttle valve is attached to the jack to provide for operation by an emergency system in the event of the failure of the normal hydraulic system. A basic type is described in the chapter and the variants are given in the appendices, together with the type number of the applicable shuttle valve.

2. The shuttle valve and its operation are described in A.P.1803U, Vol. 1, Book 4, Sect. 9.

Description

3. The cylindrical body is formed with lugs for attachment purposes and the shuttle valve

is spigoted into one end and secured by bolts screwed into wire inserts. The body houses a piston and also receives an end cap, screwed in to retain a spring and a piston rod. The spring loads the domed head of the piston rod against a conical recess in the head of the piston and movement of the rod is limited by the skirt of the end cap and the piston head, which abuts against a shoulder of the body. Shims are fitted between a flange of the end cap and the body, for adjustment of the piston rod travel. The outer end of the piston rod is slotted to locate a spanner grip and receives a screwed eye-bolt, which is fitted with a lock-nut.

SERVICING**Leakage**

4. External leakage will indicate a faulty

TABLE 1
Special tool

Ref. No.	Part No.	Description
27Q	ST.2075/9	'C' key spanner for end cap

sealing ring which must be renewed. Internal leakage past the piston sealing ring will be shown by sluggish action of the jack in service or loss of pressure during test. Renew the sealing ring. Failure of the jack to return to the closed position will be due to a weak or damaged spring which must be renewed.

Dismantling

5. (1) Unscrew the bolts and remove the shuttle valve.
- (2) Slacken the lock-nut, unscrew the eye-bolt and remove the spanner grip from the piston rod.
- (3) Unscrew the end cap and withdraw the spring, the piston rod and the piston from the body. Remove the shims from the end cap. Remove the sealing ring and the split ring from the piston.

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 ring and the split ring to the piston. If a new split ring is fitted, it must be gapped 0.009 to 0.012 in on assembly and the sharp edges at the gap, on the flat faces only, removed by a radius of 0.005 to 0.015 in.
- (2) Insert the piston into the body, sealing ring leading, until the head abuts the shoulder in the body.
- (3) Insert the piston rod into the body, locating the domed head against the recess in the piston head. Locate the spring over the piston rod.
- (4) Fit the shims to the end cap, pass the cap over the piston rod and screw it into the body to retain the spring and the piston rod. Adjust the number of shims to ensure that the stroke of the piston rod is within the limits of 0.187 to 0.193 in.

(5) Screw the lock-nut on the eye-bolt and locate the spanner grip to the slots in the end of the piston rod. Screw the

eye-bolt into the piston rod. The eye-bolt will be finally adjusted after the unit is installed.

(6) Ensure that the sealing ring and backing ring are fitted to the shuttle valve spigot, with the rough face of the backing ring adjacent to the sealing ring. Fit the fully tested shuttle valve to the jack by inserting the spigot into the bore of the body and securing with the bolts.

(7) After final assembly and test, wire-lock the end cap to the body and the shuttle valve securing bolts together.

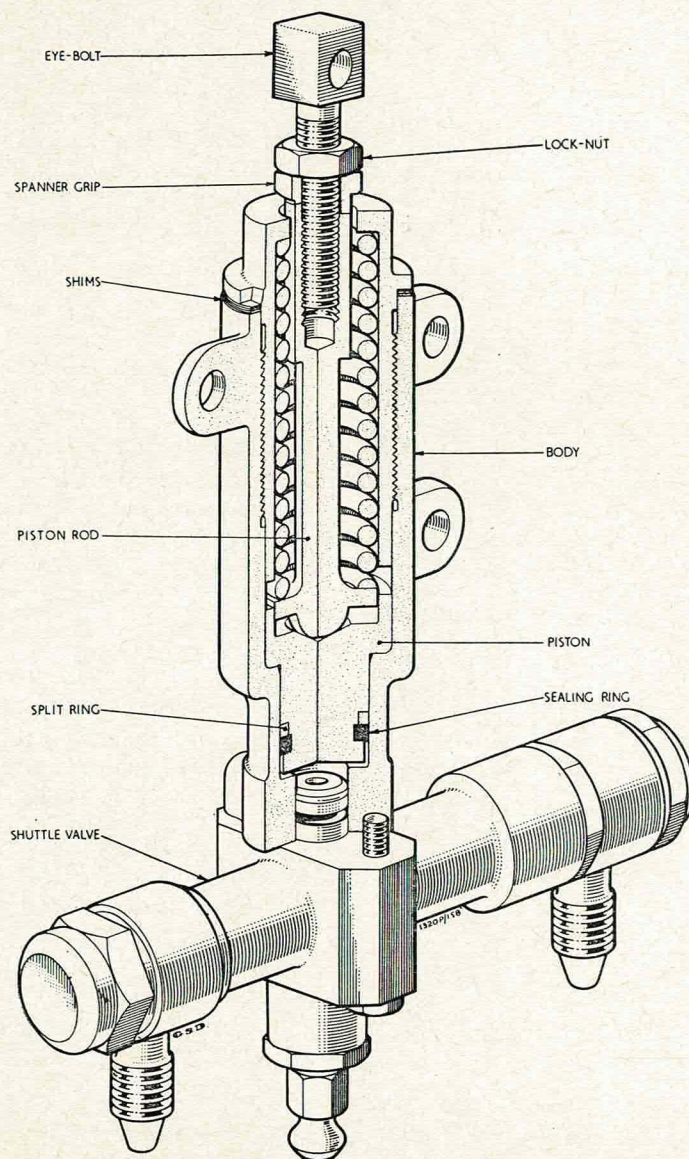


Fig. 1. Up-lock jack

Testing

7. A static hydraulic test rig and a power pump rig fitted with a pump capable of delivering 3.45 gal/min, are required. Pipes between the test rigs and the jack are to be $\frac{3}{8}$ in. outside diameter for metal pipes or $\frac{3}{8}$ in. nominal for flexible hose. Before testing, the jack is to be hydraulically operated at least six times to expel all air.

(1) Connect the supply line of the static hydraulic test rig to one of the shuttle valve connections and slowly apply a pressure of 300 lb/in². Gradually increase the pressure to 6000 lb/in². Leakage is not permissible. Release the pressure and disconnect the supply line.

(2) Connect the supply line of the power rig to one of the shuttle valve connections and operate the rig. The pressures required to commence and complete the extending movement must not exceed 335 lb/in² and 370 lb/in² respectively. Release the pressure, the jack must return smoothly and immediately to the closed position.

(3) Check that the stroke of the piston rod is within the limits given in para. 6 (4).

Installation

8. When the jack is installed, the eye-bolt is to be adjusted to suit the pick-up points. The dimension between the centres of the attachment holes adjacent to the end cap and the centre of the eye-bolt hole, is to be within the limits of 1.81 in. and 1.93 in., with the jack in the fully closed position. After adjustment, lock the eye-bolt with the nut and wire-lock the eye-bolt, the lock-nut and the spanner grip together.

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Appendix 1

UP-LOCK JACK

Type No. 1.00594.002

incorporating—

Shuttle valve Type No. 1.00595.001

UP-LOCK JACK

Type No. 1.00675.003

incorporating—

Shuttle valve Type No. 1.00677.001

1. These units are identical to the type described and illustrated in the chapter and differ from each other only by the type of shuttle valve fitted.

Appendix 2

UP-LOCK JACK

Type No. 1.00675.004

incorporating—

Shuttle valve Type No. 1.00677.001

1. This unit is identical to the type described and illustrated in the chapter, except for the omission of the split ring fitted to the piston.

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