



AP

STANDARD PRACTICES
and
PROCEDURES
4th EDITION

This manual complies with British Civil Airworthiness Requirements, Section A, Chapter A6-2. The technical accuracy of this manual has been verified and is certified as correct.

Signed: W.N.Bainbridge

Date: 16.4.69

A.R.B.Design Approval No. AD/1033/39



Automotive
Products
Group

AUTOMOTIVE PRODUCTS LTD

~~LOCKHEED PRECISION PRODUCTS LTD~~

SHAW ROAD · SPEKE · LIVERPOOL 24 · ENGLAND
TELEGRAMS: LOCKHEED, LIVERPOOL, TELEX · TELEPHONE: HUNTS CROSS 2121 · TELEX NO. 62394



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1. Unit part number

All units of Lockheed design and manufacture have a basic part number followed by a stroke number. For example :-

AIR.00000/1

The unit part number will not be affected if its drawing is raised in issue to incorporate a drafting correction. To obviate the need to inform users of every change of drawing issue, some of which will not affect the unit, a system has been evolved whereby users are informed only of changes which affect the actual unit. These changes are recorded as the stroke number and enable the modification state of the unit to be readily checked.

For example:-

AIR.00000/2

Manuals will be revised to correct errors in the manual and/or incorporate changes which affect the unit. Each change which affects the unit will be additional information in the manual and will not delete or supersede any existing text or illustration unless the change is mandatory.

2. Unpacking

Units are packed in accordance with the A.T.A. 300 Specification, Provided care is exercised when unpacking the units no special instructions or precautions are necessary.

Units are always despatched containing hydraulic fluid and with all connections blanked.

3. Acceptance checks

The following checks should be carried out when the unit is received.

(a) Visually inspect the unit for corrosion, obvious signs of damage etc.

(b) Check for fluid leakage past the blanking plugs.

If fluid leakage is suspected exercise the unit as detailed in the storage instructions and tightly refit the blanking plugs before placing the unit in store.

An identification plate is attached to the unit and gives the following information:-

Part number and stroke number of unit

Serial number of unit

Inspector's stamp and tester's stamp

This information is provided so that operators can correctly identify the unit when corresponding with the manufacturer.

It is recommended that a record be kept of the dates of receipt of the various units in order to prevent an excessive storage period.

4. Storage instructions

A. General

These recommendations apply when units are protected from extremes of climatic variations; they may have to be varied to suit prevalent conditions.

Provided the recommendations contained herein are fulfilled, the maximum recommended shelf life should be attained without adverse effects.

All units are despatched containing residual fluid from the test procedures and with all connections plugged. When units are received in approved containers, they should be left in their containers until it is necessary to carry out any of the test procedures detailed herein, they should then be repacked. Any silica-gel capsules must be dehydrated and any V.P.I. paper renewed.

When the maximum recommended shelf life has expired, all seals, fabric rings etc., not built into units should be scrapped. When the maximum recommended life of seals, fabric rings etc., built into units has expired they must be renewed in accordance with the instructions given in the relevant overhaul manual.

B. Complete units

(1) Conditions

(a) Where a unit is received packed in an approved container, it should be kept in that container until it is necessary to carry out any of the procedures detailed herein; it should then be repacked.

(b) Units should be stored horizontally on racks in a room which is dry and at a temperature of approximately 16°C (60°F). Metal-to-metal contact between units must be avoided, and there must be no risk of crushing.

Care must be taken to avoid damage to external threads, the exposed portions of piston rods, valve plungers, pump splines, etc. All fluid connections must be kept plugged whilst the units are in store to prevent both the egress of fluid and the ingress of foreign matter.

(2) Order of usage

To prevent certain units remaining in storage for an excessive period, units should be used in the order in which they are received in store.

When no record of delivery has been kept, the serial numbers stamped on the units are a reasonable guide to the sequence of delivery.

(3) Exercising units (except shock absorber struts)

Every month turn the units over to allow the fluid in the units to contact seals and surfaces from which it may have drained.

Every six months inject hydraulic fluid into the units and manually operate them, using a rotary motion, through their full range of movement six times.

The fluid used must be to the same specification as that used on the aircraft and must have passed through a 10 micron filter before being injected into the units.

If it is not possible to exercise a unit manually, it should be operated six times on a test rig. The fluid used must be to the same specification as that used on the aircraft, and must have passed through a 10 micron filter. Accumulators should be slowly inflated with air or nitrogen- just sufficient to allow the separator piston to complete a full stroke. The accumulator should then be deflated and the separator piston returned to its original position with fluid pressure.

Shock absorber struts

All shock absorber struts are despatched correctly filled with fluid, deflated and fully compressed. Every 6 months extend the struts by slowly inflating with dry, compressed air, release the air pressure by depressing the core of the inflation valve and then removing the valve, manually compress the strut and re-fit the charging valve. Repeat six times.

Do not unlock or remove the screwed plugs from the oil-head of strut.

NEVER store struts in the inflated condition.

ALWAYS store struts fully compressed.

Before returning the strut to store, smear the exposed portions of plunger tubes, etc., with thick Lanolin.

C. Detail parts

(1) Conditions

- (a) Seals and anti-extrusion rings are despatched in individual plastic bags and are to be kept in these bags until required. Store in a dry well-ventilated and shaded place at a temperature of approximately 16°C (60°F) and not in the immediate vicinity of heating apparatus or electrical plant. Protect from direct sunlight or strong artificial light. Do not allow any oil or grease in contact with the bags.
- (b) Metal detail parts are supplied wrapped and are to be kept wrapped until required; in addition, bright parts, for example plunger tubes, are coated with thick Lanolin. Protect from dirt and moisture and avoid damage from other components.

D. Shelf life

Provided the storage conditions have been fulfilled the shelf life of the units is governed by the condition of the seals. The following are the maximum recommended storage periods for seals supplied as spares and built into units.

Seals supplied as spares	Four years or whenever seal pack is opened (whichever occurs first).
Seals fitted into units held as spares.	Four years from date of fitting
Seals fitted into units in service ...	Four years or the recommended overhaul period.(whichever occurs first).
Maximum life of oldest seal in service ...	12 years -7-

The unused seal life at any period is not transferable to the next period, that is if a seal has been in store for one year it does not follow that the storage period for the assembly into which the seal has been built can be extended to five years. Furthermore if a seal has been stored for more than four years, and the operator decides to use it, the assembly into which it is built must be used immediately in service; there is no storage period available for the assembly.

5. Return to manufacturer or base

It is recommended that the unit be packed in a similar manner to that described in Section 2. Whenever possible a condensed history of the unit in Service should be enclosed together with the reason for returning the unit. All fluid connections are to be fitted with blanking caps.

WARNING

ALL UNITS MUST BE DE-PRESSURIZED BEFORE BEING PACKED.



LOCKHEED PRECISION PRODUCTS LTD

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Your Ref.

Our Ref. SPE/TECH.PUBS/TAM/PAB

23rd July, 1969

Civil Aviation Liaison Officer,
Camberra House,
10-16, Maltravers Street,
STRAND,
London. W.C.2.

For the attention of: Chief Inspector.

Dear Sirs,

Shelf Life and Storage
Lockheed Hydraulic Units

We are pleased to inform you that the Shelf Life of our hydraulic units has been increased from two to four years on the understanding that the units are stored and exercised in accordance with the instructions laid down in our 'Standard Practices and Procedures' 4th edition.

Enclosed is a copy for your information.

This information will eventually be incorporated into the Storage Instructions section of the Overhaul Manual at the next revision stage.

Yours faithfully,
LOCKHEED PRECISION PRODUCTS LIMITED.,

T.A. Makin
for: T.A. MAKIN
Technical Publications