# Chapter 3A

## AIRCRAFT WEIGHING USING HYDROSTATIC UNITS

LIST OF CONTENTS

| | Para. |
|---|---|
| *Introduction* | 1 |
| **Preparation for weighing the aircraft** | 3 |
| **Weighing the aircraft** | 4 |
| **After weighing** | 5 |
| **Equipment** | 6 |

**Introduction**

1. The procedure for weighing an aircraft is given in the following paragraphs. Information of a general character regarding the practical measurement of Basic Weight and moment is contained in A.P.4747A. Descriptive information on hydrostatic units and instructions for their use are contained in A.P.119W-0301-1.

2. The aircraft must be drained down to residual fuel in accordance with the instructions in Sect.4, Chap.2 of this publication.

### PREPARATION FOR WEIGHING THE AIRCRAFT

3. Position the aircraft in a closed hangar on a level site. Note the condition of the aircraft with respect to oil, de-icing fluid, glycol, ballast and any other equipment. Check that all items listed as being included in the basic weight are actually fitted, then proceed:-

(1) Ensure that the wheel brakes are OFF.

(2) Fit two jacking pads Ref. No. 26DC/95063 to the front jacking points and two jacking pads Ref. No. 26DC/95004 to the rear jacking points.

*NOTE . . .*
*It is necessary to level the aircraft before weighing operations begin.*

(3) Measure the nose oleo extension, record for use.

(4) Position two jacks Ref. No. 4Q/4230812 complete with adapters Ref. No. 4Q/4230851 beneath the two front jacking points. Ensure that the jack rams are vertical then raise the jacks until contact is just made with the jacking pads. With the jack locking collars screwed down against the jack shoulders, raise the jacks evenly and simultaneously, in one inch stages so that the aircraft remains laterally level whilst being raised. Continue the lift until the aircraft is longitudinally level.

(5) Measure the nose oleo extension.

*NOTE . . .*
*The difference between the two nose oleo extension readings determines the height of wood blocks which will be required to support the nose wheels, thus ensuring the aircraft is level prior to weighing.*

(6) Continue to raise the aircraft until the correct sized wood blocks can be placed under the nose wheels. Position the wood blocks under the nose wheels.

(7) Lower the aircraft until the weight is taken on the wood blocks. Continue lowering the jacks until they are clear of the aircraft jacking pads.

*NOTE . . .*
*At this point, a check on the attitude of the aircraft may reveal that adjustment to the height of the wood blocks is required to position the aircraft exactly level. In this case it will be necessary to repeat operations (3) to (7).*

(8) Remove the fuel tank sump access panels and remove the sump drain plugs. Drain the residual fuel. On completion of draining the drain plugs must be refitted and wirelocked, then refit the access panels.

(9) After checking that the side legs of the forward jacks are attached to the LOWER lugs on the jack body, ensure that both jacks are correctly located under their respective jacking pads and that the jack body is truly vertical – raise the jack rams to ensure they align with the aircraft jacking pads.

(10) Lower the jacks, remove adapters Ref. No. 4Q/4230851 fitted in (4), then fit jack-to-H.W. unit adapters Ref. No. 4GB/4398898, H.W. units Ref. No.4GB/4399004 and H.W. unit-to-aircraft pad adapters Ref. No. 4GB/4398921.

(11) Check and record zero reading of both H.W. unit dials then raise jack rams until contact is just made with the aircraft jacking pads.

(12) After checking that the side legs of the rear jacks are attached to the UPPER lugs of the jack body, position the jacks below the rear jacking pads. Raise the rams to ensure they align with the aircraft pads and that they are truly vertical.

(13) Lower the jack rams, then fit jack-to H.W. unit adapter Ref. No. 4GB/4398898, H.W. unit Ref. No. 4GB/4399004 and H.W. unit-to-aircraft jacking pad adapter Ref. No. 4GB/4398924.

(14) Check and record zero reading of both H.W. unit dials, then raise jack rams until contact is just made with the aircraft jacking pads (approx. 20 divisions on H.W. unit dials).

### WEIGHING THE AIRCRAFT

**WARNING . . .**
**When jacking the aircraft, the four jacks must be raised simultaneously and evenly, otherwise serious damage may result. It is suggested that the 'halfpenny inch' method be employed, i.e., the locking collars being screwed down at each inch stage.**

4. To establish the weight of the aircraft proceed:-

(1) Raise all jacks evenly and simultaneously – using the 'halfpenny inch' method – until the aircraft wheels are clear of the ground, leave the wood blocks in position. Check and adjust the rigging position using the levelling plate and plumb line (Sect.2, Chap.4).

(2) Remove the undercarriage ground locks.

(3) Lightly tap the H.W. units, read and record the dial readings.

(4) Refer to Sect.2, Chap.3 for measurements required to calculate the weight.

### AFTER WEIGHING

5. When weighing operations are complete proceed:-

(1) Refit the undercarriage ground locks.

(2) Slowly lower the aircraft – using the 'halfpenny inch' method – until weight is taken on the main wheels and the nose wheels rest on the wood blocks.

(3) Lower jacks clear of the aircraft, remove the adapters and H.W. units, re-check zero readings. Stow the H.W. units in their transit cases.

(4) Remove rear jacks clear of the aircraft.

(5) Refit adapter Ref. No. 4Q/4230851 to the two front jacks, raise jacks to contact aircraft

pads. Check for clearance then raise the aircraft nose until the wood blocks can be removed. Lower the nose until weight is taken by the nose wheels.

(6) Lower front jacks and remove clear of aircraft. Remove front and rear jacking pads.

**EQUIPMENT**

6. Equipment required for weighing the aircraft is as follows:-

Four 25 ton jacks Ref. No. 4Q/4230812 - one for each jacking point.

Four 25 ton H.W. units Ref. No. 4GB/4399004 - one for each jacking point.

Two standard adapters Ref. No. 4Q/4230851 - for initial jacking at front jacking points.

Four jack-to-H.W. unit adapters Ref. No. 4GB/4398898.

Two H.W. unit-to-aircraft pad adapters Ref. No. 4GB/4398921 at front jacking points.

Two H.W. unit-to-aircraft pad adapters Ref. No. 4GB/4398924 at rear jacking points.

Two aircraft jacking pads Ref. No. 26DC/95063 - front.

Two aircraft jacking pads Ref. No. 26DC/95004 - rear.

Two wood blocks (Local Manufacture).

This file was downloaded
from the RTFM Library:

Link: www.scottbouch.com/rtfm

Please see site for usage terms,
and more aircraft documents.