

Chapter 3C HYDROSTATIC WEIGHING PROCEDURE

(completely revised)

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WARNING

The relevant safety precautions detailed on the LETHAL WARNING marker card must always be observed before entering the cockpit or performing any operations upon the aircraft.

General information

1. This chapter describes the application of hydrostatic weighing units to the aircraft and lists the items required to carry out the weighing. Information of a general nature concerning the practical measurement of basic weight and moment is contained in A.P. 4747A, Sect.1, Chap.1. A description of hydrostatic weighing units and instructions for their use are given in A.P. 4747A, Sect.1, Chap.2.

Aircraft condition

2. The aircraft is to be in, or as near as is possible to, the basic condition (*Chap.3A, Table 2 (Mk.1 aircraft); Chap.3B, Table 2 (Mk.1A aircraft)*), plus a maximum fuel load including a full ventral tank. List all basic weight surpluses and deficiencies. (*For a definition of basic weight, refer to A.P. 4747A, Glossary.*)

Preparation prior to weighing**WARNING**

1. The procedure detailed in para.3 and 4 must be rigidly adhered to, and the weighing adapters, which are interposed between the hydrostatic weighing units and the aircraft jacking pads, closely watched throughout the operation for canting. Should canting become apparent, at once

transfer the weight of the aircraft to the lifting jacks and re-level the aircraft before transferring its weight back to the hydrostatic units.

2. The instructions, and the words used therein, are specific and individual interpretations are not to be placed upon either.

3. Prior to weighing the aircraft:-

(1) Position the aircraft on a level site in a closed hangar.

(2) Open the canopy and fit the canopy jack safety lock, Ref.No.26DK/95291.

(3) Prepare a list of surpluses and deficiencies as required in para.2.

(4) Loosely chock the wheels and release the brakes.

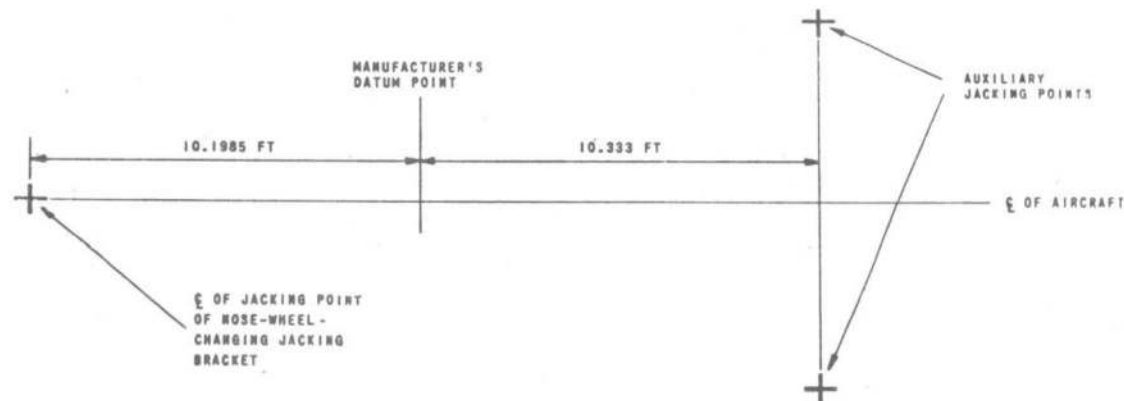
(5) Jack and level the aircraft (*Chap.4*) approximately 4 inches clear of the ground.

(6) Remove the main undercarriage ground locks, if fitted.

(7) Disconnect the alighting gear up line at the nose undercarriage down-lock jack (*Sect.3, Chap.6, fig.8*). Fit pressure blanks to the disconnected pipe and the union on the down-lock jack.

(8) Fit the nose undercarriage ground lock, Ref.No.26DK/95711.

(9) Switch the battery master switch to ON; select alighting gear emergency up by rotating the rim of the UP selection button clockwise as far as it will go and then selecting UP in the normal manner, or alternatively, pressurize



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Fig.1. Measuring points

TABLE 1

Weight and moment adjustments

| Description | Adjustments |
|--|--|
| 1 Adapters Ref.No. 4GB/5801 | Deduct 2 lb from each main-plane reaction point weight |
| 2 Jacking pads Ref.No. 26DK/95110 | |
| 3 Nose-wheel changing jacking bracket Ref.No. 26DK/95006 | Deduct 23 lb from the nose reaction point weight |
| 4 Weighing unit readings | Correct as necessary for zero error (A.P.4747A, Sect.1, Chap.2) |
| 5 Main-plane jacking pads Ref.No. 26DK/95004 | Deduct 4 lb from weighed weight and 56 lb ft from moment |
| 6 Nose undercarriage ground lock Ref.No. 26DK/95711 | Deduct 28 lb from weighed weight and add 269 lb ft to moment |
| 7 Alighting gear | To adjust to wheels down configuration, deduct 5158 lb ft from moment (WX) |
| 8 Cockpit canopy | Subtract 104 lb ft from as weighed moment to adjust to canopy down configuration |
| 9 Canopy jack safety lock | Deduct 1 lb from weighed weight and add 6 lb ft to moment |
| 10 Divergencies from basic weight and moment | Add to, or deduct from, weighed weight and moment as necessary |

the pitot head to 150 knots I.A.S. and select UP in the normal manner. Using the hand pump, fully retract the main undercarriage. Check that the main undercarriage indicator lights are out and the nose undercarriage indicator light is green.

Note...

Use only sufficient hydraulic pressure to lock the main undercarriage.

(10) Switch the battery master switch to OFF.

(11) Fit the auxiliary jacking pads (Chap.1).

(12) Fit the nose-wheel-changing jacking bracket (Chap.4).

(13) Check that the aircraft remains level laterally and longitudinally.

Weighing

4. To weigh the aircraft:-

(1) Place a jack Ref.No. 4Q/2293 beneath each auxiliary jacking point and check both for verticality using clinometer Ref.No. 1A/4046. Extend the jacks to contact the pads centrally. Lower the jacks sufficiently to allow the jack-to-unit adapters Ref.No. 4GB/5081, the 10-ton weighing units Ref.No. 4GB/4894 and the unit-to-pad adapters Ref.No. 4GB/5801 to be fitted. Extend the jacks until contact with the jacking pads is made and, continually checking that the jack rams, adapters and weighing units do not move out of the vertical, apply sufficient load (approximately 30 divisions on the weighing units) to make it impossible for the unit-to-aircraft adapters to cant.

(2) Using a 15-inch block of wood beneath the jack to reduce the amount of extension necessary, place an 8-ton pillar-type jack Ref.No. 4Q/1309, with jack-to-unit adapter Ref.No. 4GB/5689 and 10-ton weighing unit Ref.No. 4GB/4894 beneath the nose-wheel-changing bracket and, carefully centralizing the jacking/weighing assembly, extend the jack until the weighing unit is in full

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contact with the bracket (representing approximately 30 divisions on the weighing units).

(3) Extend all three jacks simultaneously until each weighing unit registers an initial load of approximately 50 divisions. Lock the jacks.

(4) Check the aircraft rigging position and make any necessary adjustments to the lifting jacks, keeping the weighing adapters central and at a 50-division register.

(5) Slowly, and simultaneously, retract the three lifting jacks until the weight of the aircraft is wholly transferred to the weighing units. Check that all three jacks are clear of the aircraft but sufficiently close to the pads to act as steadies should canting occur.

(6) Check the aircraft longitudinal level, effecting any necessary adjust-

ment upon the nose-unit pillar jack. Remove the leveling equipment.

(7) Lightly tap the weighing units and record the respective readings.

(8) Extend the lifting jacks until the weight of the aircraft is fully transferred thereto. Take away the jacks and equipment used for weighing purposes.

After weighing

5. After weighing the aircraft:-

(1) Remove the auxiliary jacking pads and refit the blanks.

(2) If the alighting gear was raised (para.3(9)) by emergency operation of the selector switch, the latter must be reset, using Dowty resetting tool Part No.ST1657/2.

(3) Switch the battery master switch to ON.

(4) Select alighting gear DOWN and, using the hydraulic hand pump, lower the main undercarriage. Ensure that the nose and main undercarriage indicator lights are green and that approximately 1500 lb/in² is registered on the brake pressure gauge.

(5) Remove the nose undercarriage ground lock.

(6) Remove the blanks fitted in para.3 (7) and reconnect the up line to the nose undercarriage down-lock jack. Prime and bleed the services system (Sect.3, Chap.6).

(7) Carry out alighting gear functioning tests (Sect.3, Chap.6).

(8) Fit the alighting gear ground locks and lower the aircraft to the ground.

(9) Remove the canopy jack safety lock and all ground equipment.

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TABLE 2

Equipment necessary to weigh the aircraft

| Item No. | Description | Ref. No. | Qty. |
|---------------------------|---|------------------|--------|
| Special-to-type equipment | | | |
| 1 | Pin, rigging, longitudinal leveling | 26DK/95087 | 4 |
| 2 | Gauge, longitudinal leveling | 26DK/95099 | 1 |
| 3 | Pin, rigging, lateral leveling, P and S | 26DK/95414 and 5 | 1 each |
| 4 | Gauge, lateral leveling | 26DK/95100 | 1 |
| 5 | Lock, ground, main undercarriage | 26DK/95032 | 2 |
| 6 | Lock, ground, nose undercarriage | 26DK/95711 | 1 |
| 7 | Jacking bracket, nose-wheel-changing | 26DK/95006 | 1 |
| 8 | Pad, jacking, main-plane | 26DK/95004 | 2 |
| 9 | Pad, jacking, main-plane, auxiliary point | 26DK/95110 | 2 |
| 10 | Extractor, pin | 26DK/95088 | 1 |
| 11 | Beam, jacking, nose c/w adapter head | 26DK/95005 | 1 |
| 12 | Lock, safety, canopy jack | 26DK/95291 | 1 |
| Standard equipment | | | |
| 13 | Jack, 10-ton, hydraulic | 4Q/2293 | 4 |
| 14 | Trestle | 4Q/2294 | 2 |
| 15 | Adapter | 4Q/2661 | 2 |
| 16 | Jack, 5-ton, hydraulic | 4Q/2232 | 1 |
| 17 | Trestle | 4Q/2261 | 1 |
| 18 | Jack, pillar, 8-ton, hydraulic | 4Q/1309 | 1 |
| 19 | Clinometer, Mk.6 | 1A/4046 | 1 |
| Weighing equipment | | | |
| 20 | Weighing unit, hydrostatic, 10-ton | 4GB/4894 | 3 |
| 21 | Adapter, jack-to-unit | 4GB/5081 | 2 |
| 22 | Adapter, jack-to-unit | 4GB/5689 | 1 |
| 23 | Adapter, unit-to-aircraft pad | 4GB/5801 | 2 |
| Additional equipment | | | |
| 24 | 15 in. deep block of wood for nose jack | | |



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