



Marvel
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Tail Rotor Balance

Hughes Model 300 / 500C Helicopters Typical

Balance Equipment

1	7BAL080	Kit-Balance Indicator
1	2523	Counterweight
1	3047	Yoke
1	3092	Cone
1	3102	Cone

Preparation

1. Select a draft free area. Provide a flat top bench and hoist equipment or other means of suspension.
2. Remove 3165 Arbor from kit case and stand upright in bore of case block. Wipe oil from indicator area, if present.
3. Depress indicator collar, releasing oil seal, and reposition to provide minimum free clearance with arbor end. Lightly secure with set screw.

Balance Procedure

1. Inspect rotor fork and remove raised sections only of nicks at ends of fork spline minor diameter surfaces, seat for spilt retaining ring and area under retaining nut.
2. Install No. 2523 Counterweight, flat surface upward, on suspended No. 3165 Arbor. Position to align its top surface (sensitivity setting reference) with the appropriate arbor scale position listed. Moderately tighten both retaining set screws evenly.

<u>Rotor</u>
300 High Tip Speed
300 Low Tip Speed
500C

<u>Setting</u>
13 1/8"
13"
13 1/4

3. Install No. 3047 Yoke, hub upward, on arbor and position at mid-length. Temporarily secure.
4. Install No. 3012 Cone, cone section downward, on arbor and position against yoke. Temporarily secure.
5. Adjust threaded ring section of No. 3092 Cone to mid-point of its hub section, aligning side bores with securing set screws. Back out set screws to engage bores and maintain ring position.
6. Carefully insert No. 3092 Cone into space between rotor hub and fork, cone section toward fork. Rotate to position set screws in accessible location and insert into spline bore. Engage with light pressure.
7. Maintain cone position and install rotor on suspended arbor, engaging arbor through cone and extending to give minimum clearance with hub. Secure by tightening cone set screws lightly and evenly.
8. Position blade span axis at 90^0 to arbor and check to insure arbor has clearance with hub but does not exceed .050". Reset if necessary.
9. Reposition No. 3102 Cone to engage fork spline and apply moderate seating pressure. Secure by lightly tightening set screws evenly.
10. Adjust threaded ring section of No. 3092 Cone downward to lightly contact rotor hub, positioning blade span axis at 90^0 to arbor.
11. Reposition No. 3047 Yoke downward on arbor and attach pitch change links to yoke posts. Do not tighten set screws.
12. Grasp both rotor blade shanks and apply outboard pressure while moving blades through their neutral pitch change force range. Find and position blades at the neutral condition. Yoke will slide freely along arbor during this operation. Lightly tighten set screws.
13. Stabilize movements of the suspended assembly and observe balance condition indicated by exposed black disc in top surface of arbor shaft. Check to insure balance indications are not affected by interferences from the suspension support, air drafts or movement of nearby personnel.
14. For balance tolerances and method of correction, refer to applicable helicopter maintenance manual. Visually centralize indicator using smallest correction weight or position adjustment specified.
15. Balance indication sensitivity can be varied to suit specific conditions by raising the position of the No. 2523 Counterweight to increase sensitivity or lower to decrease. This operation may be necessary to compensate for changes in rotor assembly weight.
16. Removal of the rotor from the balance equipment is accomplished in reverse order from its installation except the No. 3092 Cone is disengaged from its tight fit in the rotor fork bore prior to arbor removal. Downward movement of the arbor unseats the cone, releasing its collet type grip on the arbor produced during spline engagement.

Balancer Installation - Tail Rotor
Hughes Models 300 / 500c Typical
Low Tip Speed Rotor

