



**Marvel**  
Manufacturing Company

40 North 2<sup>nd</sup> Street  
Stroudsburg, PA 18360 USA  
570-421-6221

# **Tail Rotor Balance Hughes Model 500D Typical**

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## **Balance Equipment**

1	7BAL080	Kit - Balance Indicator
1	2523	Counterweight
1	3047	Yoke
1	3505	Cone
1	3506	Cone

## **Preparation**

1. Select a draft free area. Provide 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 of nicks at ends of fork spline minor diameter surfaces and mount ring seats.
2. Install 2523 Counterweight, flat surface upward, on suspended 3165 Arbor. Position top surface at arbor scale setting indicated by Installation Illustration and moderately tighten both retaining set screws evenly.
3. Install 3047 Yoke, hub upward, on arbor and position mid-length. Temporarily secure.
4. Install 3505 Cone, cone section downward, on arbor and position against yoke. Temporarily secure.
5. Adjust threaded ring section of 3506 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 3506 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 with cone and extending to give minimum clearance with hub. Moderately tighten set screws evenly to secure. Check to insure arbor has clearance with hub but does not exceed .050".**
- 8. Reposition 3505 Cone to engage fork spline and apply moderate seating pressure. Lightly tighten set screws.**
- 9. Adjust threaded ring section of 3506 Cone downward to lightly contact rotor hub, positioning blade span axis at 90° to arbor.**
- 10. Reposition 3047 Yoke downward on arbor and attach pitch change links to yoke posts. Do not tighten screws.**
- 11. Grasp both rotor blade shanks and apply outboard pressure while moving blades through their neutral pitch change force range. Find and position blades at their neutral condition. Yoke will slide freely along arbor during this operation.**
- 12. 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 suspension support, air drafts or movement of nearby personnel.**
- 13. Refer to applicable Helicopter Maintenance Manual for balance tolerance and method of correction. Balance indication sensitivity can be varied to suit specific conditions by raising the position of the counterweight to increase or lower to decrease. This operation may be necessary to compensate for changes in rotor assembly weight.**

# **Balancer Installation - Tail Rotor Hughes model 500D Typical**

