Marvel

Manufacturing Company

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Tail Rotor Balance Agusta Model 109 Helicopter Typical & 119 Typical

Balance Equipment

Balance Indicator and Rotor Mount

1	**7HEL091**	**Kit - Tail Rotor Balance**	**109**
1	**7HEL095**	**Kit - Tail Rotor Balance**	**119**

Note: The HEL091 Kit supplies all balance equipment required for this rotor. Due to multipurpose application, balance equipment for other helicopter models may include one or more of its individual parts. Refer to the installation illustration for identification.

Alternate Equipment

1. **The 2516 Arbor with associated suspension cables will substitute for the 3165 Arbor.**
2. **The 2532 Fixture will substitute for the 3152 Base.**
3. **Agusta similar part will substitute for the 3437 Adapter.**

Preparation

1. **Select a draft free area. Provide a flat top bench and hoist equipment or other means of suspension.**
2. **Provide two standard 2" x 4" wood blocks approximately 6" long. Place on edge approximately 3 ½" apart on bench top.**
3. **Remove 3165 Arbor from kit case and stand upright in bore of case block. Wipe oil from indicator area, if present.**
4. **Depress indicator collar, releasing oil seal, and reposition to provide minimum free clearance with arbor end. Lightly secure with set screw.**

Balance Procedure

1. **Place 3152 Base, hub extension upward, central across blocks.**
2. **Install 3441 Stops at opposite ends of base, locating pin in outboard bore. Secure with captive screw.**
3. **Insert small diameter of 3437/3856 Adapter into rotor trunnion from inboard side, opposite hub identification marking, align pin index marking 90° to trunnion journal axis.**
4. **Maintain adapter position and install rotor on base, engaging adapter large end with hub extension and positioning blade pitch change studs over bar of stops.**
5. **Install 2533 Bushing, large end downward, on arbor from lower end. Position top surface of busing at arbor scale setting indicated by Installation Illustration and moderately tighten both sets screws to secure.**
6. **Install 2586/3859 Plate on arbor from lower end and insert thru rotor trunnion and base, Seat plate squarely on rotor hub. Adjust rotor teeter if necessary. Secure by moderately tightening both set screws in hub of base.**
7. **Grasp blade assemblies adjacent to their pitch change arms. Exert outboard pressure and initiate minor pitch reversal movements, ending with pitch change studs resting on bar surface of stops.**
8. **Without disturbing blades or contact of their pitch change studs with stops, suspend assembly by cable loop of arbor to clear work support. Stabilize movements and observe balance condition indicated by black disc in top surface of arbor shaft. Check to insure balance indications are not affected by interferences, air drafts or movements of nearby personnel.**
9. **Refer to applicable helicopter maintenance manual for balance tolerances, method of correction or other assembly requirements.**

Balancer Installation – Tail Rotor
Giovanni Agusta Model 109 Typical & 119 Typical