



**Marvel**  
Manufacturing Company

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# Propeller Balance

## HARTZELL Propeller Model HC-B5MA-( )

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### Balance Equipment

#### Balance Indicator and Accessory

- |    |               |                           |
|----|---------------|---------------------------|
| 1. | 1 ea. 7BAL152 | Kit- Balance Indicator    |
| 2. | 3 ea. 3031    | Stand – Propeller Support |

-Alternate-

- |               |                         |
|---------------|-------------------------|
| 1 ea. 7BAL150 | Kit – Balance Indicator |
|---------------|-------------------------|

Note:

The 7BAL152 Kit does not include hoisting or propeller support equipment. The 7BAL150 Kit includes tripod type hoisting equipment and 3 ea. P/N 3031 Propeller Support Stands, as well as the same basic balancing equipment supplied by 7BAL152 Kit.

- |    |            |        |
|----|------------|--------|
| 3. | 1 ea. 2201 | Spacer |
|----|------------|--------|

### Propeller Mount

- |    |             |                                 |
|----|-------------|---------------------------------|
| 4. | 1 ea. 7A072 | Kit – Propeller Balance Adapter |
| 5. | 5 ea. 3490  | Jack – Blade Position           |

### Preparation

1. Provide shop hoisting facilities in a draft free area of adequate size.
2. Prepare P/N 3015 Balance Indicator Arbor for use. Stand upright in bore of P/N 2998 Back-balance Weight and remove rubber “O” ring seals (2 ea.) from indicator area and retain seals for re-installation. Thoroughly clean indicator area and indicator collar with a volatile cleaning agent to remove all traces of damping oil. Re-install indicator collar, set to provide approximately .005” clearance with arbor top surface and secure in place with indicator collar set screw.
3. Adjust height of 3 each P/N 3031 Propeller Support Stands as necessary to provide floor clearance for propeller when supported in a horizontal orientation with propeller mounting flange upward. Place stands under hoist in approximate position to contact propeller blades outboard from end of deicer boot.

4. Position propeller horizontally to locate mounting flange upward and set on propeller support stands with blade contact outboard from deicer boot.
5. Carefully inspect flat mounting surface of propeller mounting flange for nicks and other irregularities. Eliminate all raised portions by hand stoning. Such irregularities, even though small, cause mounting misalignment (cocking) which will affect balancing indication accuracy.
6. Carefully inspect flat flange mounting surface of P/N 3806 Adapter for nicks and other irregularities. Eliminate all raised portions by hand stoning.

## Procedure

1. Install P/N 2994 Quick Disconnect Cable on top end of P/N 3015 Arbor Assembly and suspend from hoist. Clean and lightly oil arbor shaft surface.
2. Install P/N 2742 Anchor Ring on arbor from lower end, slide upward and temporarily secure with clamp screw at approximate mid-length of arbor shaft.
3. Install P/N 3806 Adapter (flange end downward) on arbor from lower end, slide upward and temporarily secure directly beneath anchor ring by moderately tightening adapter set screw.
4. Install P/N 2201 Spacer on arbor from lower end and retain by installing P/N 3009 Ring Sections (2 ea.) in groove located at 2 inch arbor scale position (i.e.: 2 inches from arbor lower end). Allow spacer to seat on ring sections.
5. Loosen adapter set screw and lower adapter to seat on spacer.
6. Reposition P/N 2742 Anchor Ring (previously installed on arbor) by lowering to top surface of adapter and securely tighten clamp screw.
7. Clean and lightly oil exposed bore at lower end of adapter. Insert P/N 3808 Air Seal, and position to stop against lower end of arbor.
8. Check to make certain that "O" ring seal is installed on pilot diameter of adapter and, using hoist, carefully lower adapter to seat on propeller mounting flange. Index (rotate) adapter to match bores of adapter and propeller, and secure with P/N 2882 Bolts (4 each), symmetrically spaced. Avoid installing a bolt immediately adjacent to adapter air valve, thereby causing interference with air chuck. Tighten evenly to approximately 100 inch pounds torque.
9. Remove quick disconnect cable from arbor and install P/N 3007 Protector on top end of arbor. Secure by lightly tightening retaining set screw.
10. Install P/N 2742 Anchor Ring over arbor top end, position upper surface at 22 3/4 inch arbor scale Sensitivity Setting position and secure by tightening clamp screw. Install P/N 2998 Back-balance Weight over top end of arbor and lower to seat on anchor ring.
11. Remove P/N 3007 Protector and reinstall quick disconnect cable. Hoist propeller to clear support stands.
12. Position slack of all electrical deicer leads symmetrically to provide even weight distribution.

- 13. Introduce pressurize air (150-200 PSI required) through adapter air valve to set and hold propeller blade pitch at full low pitch setting during the balancing procedure. Check for and correct air leakage if present.**
- 14. Install P/N 3490 Jacks (5 each) between blade bearing clamp assembly and adjacent guide collar with tang of jack extending outward along outside diameter of clamp assembly. Locate symmetrically to provide even weight distribution. Fingers tighten only.**
- 15. Stabilize propeller movements and observe balance condition as indicated by exposure of black disc in top surface of arbor shaft. Check to insure balance indications are not being affected by physical interferences, air drafts, or movement of nearby personnel.**
- 16. Refer to applicable propeller maintenance manual for method of balance correction, balance tolerance, and/or other manufacturer's requirements.**

**NOTE: Raise position of P/N 2998 Back-balance Weight (and supporting P/N 2742 Anchor Ring) to increase balance indicator arbor sensitivity, and conversely, lower to decrease sensitivity.**

