



# Marvel

Manufacturing Company

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# Propeller Balance – Hartzwell N,P Flange Mount Models HC-B3TN, HC-B4TN, HC-B5MP Typical

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## Balance Equipment

### Balance Indicator and Accessory

1	7BAL150	Kit-Balance Indicator
1	3031	Stand-Propeller Support
	Alternate	
1	7BAL152	Kit-Balance Indicator
4	3031	Stand – Propeller Support
1	3392	Spacer
1	3487	Spacer

**NOTE:** The 7BAL150 Kit includes a tripod type hoist and 3 each 3031 Stands.  
Four blade propeller models require an additional stand.

The 7BAL152 Kit does not include hoist or propeller support equipment.

## Propeller Mount

1	7A060A	Kit-Propeller Balance Adapter
4	2247	Wedge-Blade Position (B3TN, B4TN)
5	3490	Jack-Blade Position (B5MP)

## Preparation

1. Select a draft free area of adequate size and assemble hoist unit of 7BAL150 Kit. Shop hoist and propeller support equipment must be available for use with 7BAL152 Kit.
2. Prepare 3015 Balance Indicator Arbor for use. Stand upright and remove rubber seals (2) for damping oil at indicator collar and clean indicator surfaces. Reinstall indicator collar to provide minimum free clearance, approximately .005” with end of arbor and secure. Maintain arbor in upright position after removal of seals and replace after use if arbor is to be stored horizontally.

3. Adjust height of 3031 Stand to first extended position (15 ¼") or as necessary to provide floor clearance for propeller. Place stands under hoist in approximate position to contact propeller blades outboard from end of deicer boot.
4. Position propeller to locate mount flange upward and install on stands with blade contact outboard from deicer boot.
5. Carefully inspect flat mount surface of propeller flange for and stone to remove all raised portions of nicks and irregularities.
6. Inspect flat mount surface of adapter flange for and stone to remove all raised portions of nicks.

## Procedure

1. Attach 2994 Quick Disconnect Cable to 3015 Arbor and suspend from hoist. Clean and lightly oil arbor shaft surface.
2. Install 3392 Spacer followed by 2958 Adapter, flange end downward, on arbor from lower end. Position to expose lower end of arbor approximately 6 inches and temporarily secure with adapter set screw.
3. Install 3487 Spacer on arbor from lower end and retain with 2 each 3009 Ring Section installed in groove at 1" arbor scale position.
4. Release set screw and seat adapter and insert 3487 Spacer. Install 2 each 3009 Ring Section above 3392 Spacer in groove at 6" arbor scale position.
5. Lightly oil exposure bore of adaptor and insert 3485 Air Seal. Position to stop against arbor end.
6. Insure "O" Ring Seal is installed on pilot dia. of adapter and lower to seat on propeller flange. Index to match bores and secure with 2885 Bolts equally spaced. Tighten evenly to 100 inch pound.
7. Remove quick disconnect cable from arbor and install 3007 Protector. Lightly tighten retaining screw.
8. Install 2742 Anchor on arbor and position upper surface at arbor scale setting "A" specified for specific propeller model. Secure with clamping screw. Install 3020 Weight on arbor and seat on anchor.
9. Install 2742 Anchor on arbor. Position upper surface at arbor scale setting "B" specified and secure. Install 2298 Weight on arbor and seat on anchor.
10. Remove 3007 Protector and reinstall quick disconnect cable. Hoist propeller to clear support stands.
11. Pitch blades to balance position specified by propeller manufacturer by pressuring with filtered air through fitting of adapter. Check for leakage to insure pitch position will remain constant during the balance operation.
12. Models B3TN, B4TN Typical. Install 2247 Wedge between each blade bearing clamp assembly and adjacent guide collar. Insert from leading edge side to insure symmetrical distribution of weight and tap lightly to insure blade is full outward position.

13. Models B5MP Typical. Install 3490 Jack between each blade bearing clamp assembly and adjacent guide collar with tang of jack extending outward along O.D. of clamp. Locate symmetrical to provide even weight distribution. Finger tighten only.
14. Insure all deicer leads and anchors are properly connected. Position slack of leads symmetrical to provide even weight distribution.
15. Stabilize swing and rotational movements of the propeller and observe balance indicated by black disc in top surface of arbor shaft. Check to insure indications are not affected by interferences from the stands, air draft or movement of nearby personnel.
16. Refer to applicable propeller maintenance manual for balance tolerance and method for correction.

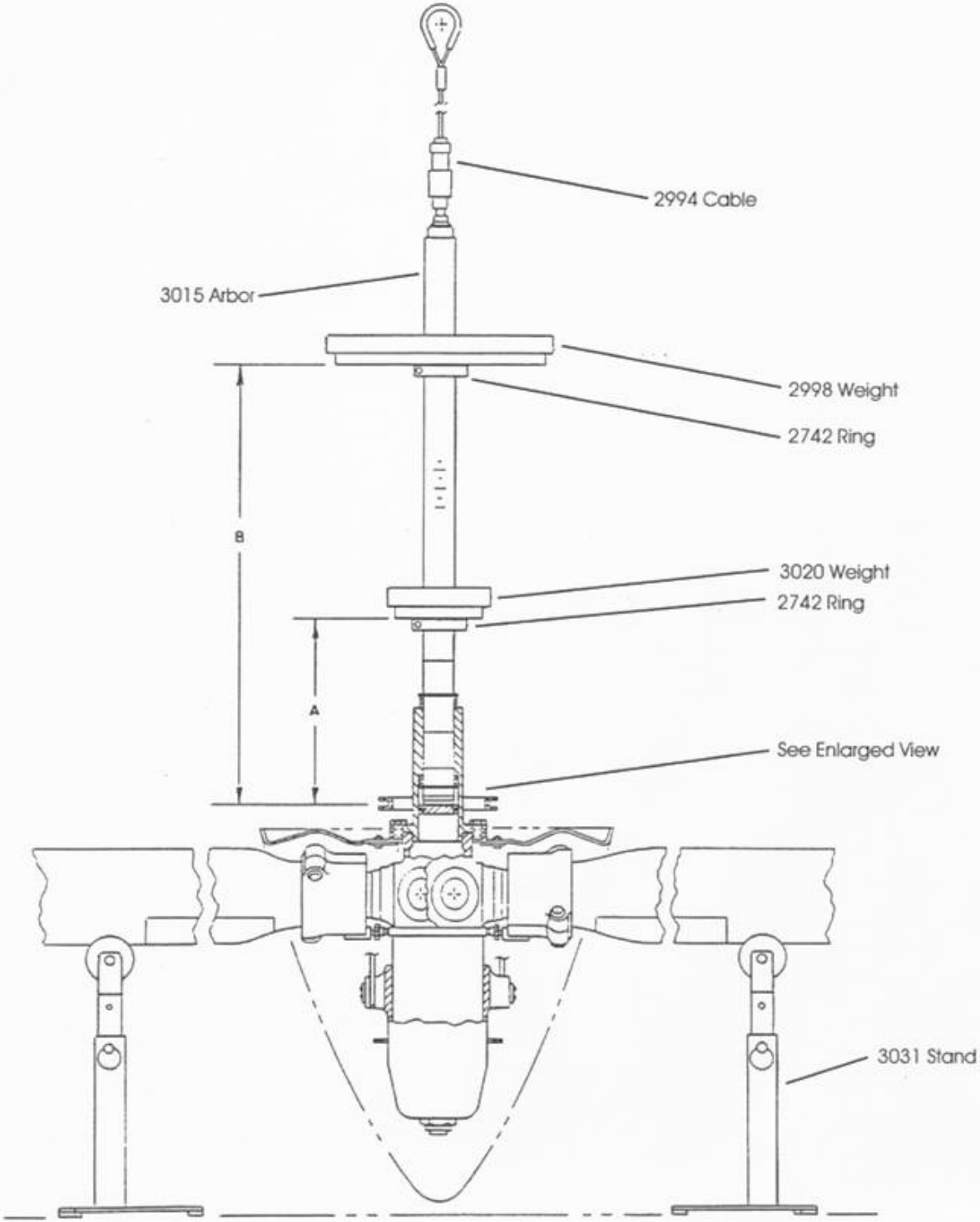
### Sensitivity Setting

<u>Propeller</u>	<u>Setting A</u>	<u>Setting B</u>
HC-B5MP	10 5/8"	22 1/8"
HC-B4TN	7 1/8"	16 3/4"
HC-B3TN	7 1/8"	11 3/4"

**NOTE:** Raise position of 2742 Anchors (Weights) to increase sensitivity, lower to decrease.

Change of propeller weight due to blade type, installation of deicer equipment or balance with the spinner will cause a variation in balance indication sensitivity. This sensitivity, or movement distance of the indicator for a given amount of unbalance, will decrease as the propeller weight increases. Restore sensitivity to the desired value by repositioning the weight/s as noted.

**Balancer Installation - Propeller**  
**Hartzell Models HC-B3TN, -B4TN, -B5MP Typical**



**Balancer Installation - Propeller**  
**Hartzell Models HC-B3TN, -B4TN, B5MP Typical**

