



# Application Note

<b>Application Note Number</b>	A-BC1900D-2020EP-PB-1.0
<b>Revision</b>	1.0
<b>Function</b>	Propeller Balance
<b>Airframe</b>	Beechcraft 1900D
<b>Engine</b>	PT6
<b>E-Setup Number</b>	N/A
<b>ACES Systems Analyzer</b>	2020 (EP)
<b>Firmware Version</b>	2.01 or higher
<b>Procedure</b>	N/A

## Introduction

This Application Note contains specific directions on how to perform a propeller balance on a Beech 1900D with PT6 engine(s). This Application Note describes the steps necessary to perform the physical set up of equipment (e.g., analyzer, cabling, sensor mounting, etc.) and the steps necessary to perform the prop balance.

## A. Required Equipment

The following ACES Systems' equipment is required.

<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
1.	1EA	2020 ProBalancer Analyzer Prop Kit	2020-110V-N
2.	1EA	Interface, Beech	10-320-0164
3.	1EA	Sensor, Velocity, Model 7310 (one for each engine being balanced)	69-100-7310

## Optional Equipment

None

## B. Equipment Installation

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### 1. TEST PREPARATION

- a. Remove the upper forward engine cowling.
- b. Disconnect the cable from the dummy sensor connector on the bracket shown in figure 1.
- c. Remove the dummy sensor and retain for later reinstallation.
- d. Replace the dummy vibration sensor with the 7310 vibration sensor, item 3. Install the sensor on the bracket provided on the tach generator pad as shown in figure 1.
- e. Connect the cable, previously disconnected from the dummy sensor, to the connector of the 7310 sensor, item 3.
- f. Reinstall the upper forward cowling assembly.
- g. Place the 2020 ProBalancer in the flight compartment.
- h. Connect the Beech Interface cable, item 2, to the receptacle for propeller balance located in the side wall behind the copilot's seat.
- i. Connect the left engine leads (labeled LEFT VIBRATION and LEFT TACH ) from the interface cable, item 2, to CHANNEL A and LEFT TACH. Connect the right engine leads (labeled RIGHT VIBRATION and RIGHT TACH) to CHANNEL B and TACH 2.

### Equipment Installation Diagram

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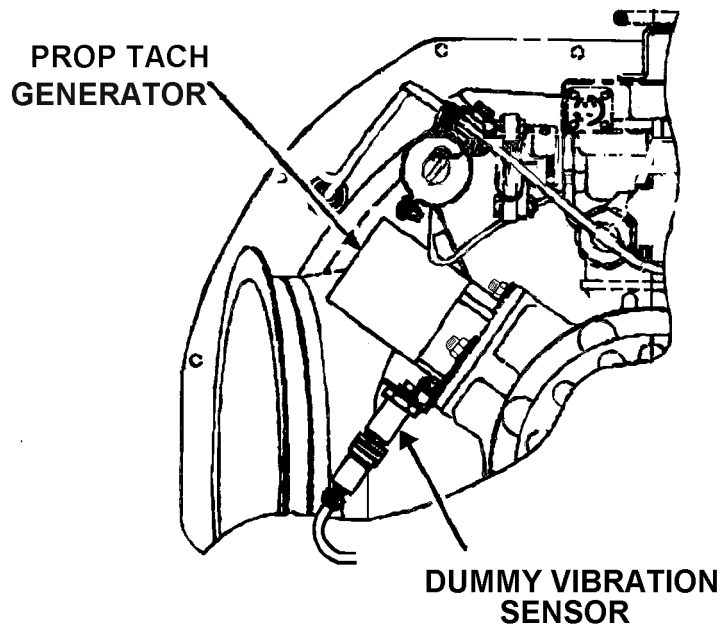


Figure 1. (Engine as viewed from forward looking aft (FLA))

## C. Analyzer Set Up

### 1. ENTER THE SETUP

#### NOTE

You may download the BEECH 1900D prop balance setup from the ACES web site and install it directly to the 2020 ProBalancer Analyzer, or enter it manually as follows:

- a. Turn the analyzer on by pressing the [ON/OFF] key.
- b. From the Main Menu, select “Propeller Balance” and press [ENTER].
- c. From the Propeller Balance banner screen, select “Start Job” and press [ENTER].
- d. If the “Last Job performed is incomplete, Finish it?” screen is displayed, press the [F3] “NO” key.
- e. If the analyzer contains previously installed setups, the setup list will be displayed. From the setup list screen, press [F1] “New”. If no setups are installed, the setup screen will automatically be displayed.
- f. Configure the setup screen as follows:

Model 2020 ProBalancer	
Prop Balance Setup	
Name:	BEECH 1900D
Eng HP:	750
Num of Eng:	(2)
Balancing RPM:	2000
Max Baln. Wts:	340
Holes:	(Yes)
Wts relative to:	(Tape)
Rotation (#1):	(CW)
(#2):	(CW)
Tach Type:	(MagLo)
Tach Pos (FLA):	(5):00 (4):00
Sens Type:	(CH 7310)
Sens Pos (FLA):	(7):00 (7):00
Edit ICF	Sensor

- g. When all fields in the Prop Balance Setup screen as configured as shown above, press the “Edit ICF” key. The Edit ICF screen will be displayed. Use the keypad to enter the influence of 100.00 Grams/IPS as shown below.

```

Model 2020 ProBalancer
  Edit ICF

      Grams/IPS   Deg/Rotation
Eng 1A: 100.00   0
Samples: 0
Eng 2A: 100     0
Samples: 0

Press ENTER to continue, or
BACKUP to exit w/ defaults.
Default
  
```

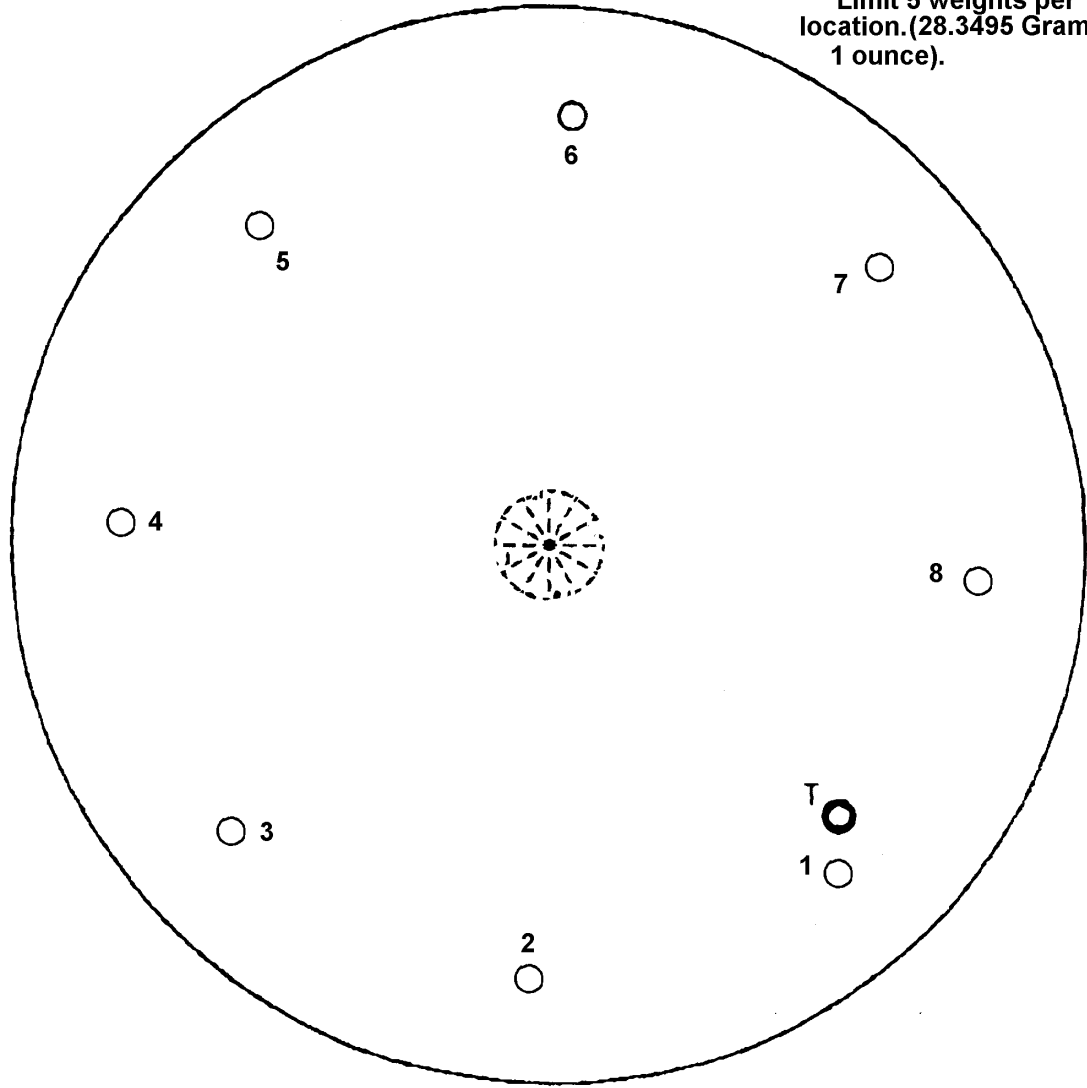
- h. When the influence is set as shown above, press the [ENTER] key. The screen will return to the Prop Balance Setup screen shown above in item f. When this screen is displayed, press [ENTER] again. The Prop Hole Layout screen, shown below will be displayed. Configure the screen as follows:

```

Model 2020 ProBalancer
  Prop Hole Layout Setup
Name: BEECH 19000
No. of Holes: 12 Space: (Even)
Dir (FLA): (CCW) Max H. Wt: 28
Angle of No.1 Hole: 240
  
```

- i. The direction of hole numbering (ascending) shown in this screen is CCW (Counter Clock Wise) as viewed from forward looking aft (FLA), however; when installing trim balance weights, it is viewed from aft looking forward. Do not confuse the hole numbering sequence when installing weights. The diagram below shows the hole numbers as viewed from the aft looking toward the front of the engine. When the solutions are given on the analyzer screen they will be in reference to the hole numbers only. If necessary, mark the hole numbers as indicated below with a indelible marker to avoid confusion.

**Limit 5 weights per location. (28.3495 Grams, 1 ounce).**



**LEFT ENGINE**

**2. PERFORM THE BALANCE JOB**

To complete the remainder of this procedure, refer to: the 2020 User Manual, chapter 4, Propeller Balance. If the setup is entered and you are continuing directly to the balance job, you may begin at paragraph 4.1.4 – Prop Balance Equipment Setup.





# Application Note

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## Beechcraft 1900D

## Propeller Balance

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