Model ProBalancer 2020HR TURBO

Dynamic Balancing
Rotor Track and Balance
Spectrum Analysis
High Resolution Screen

Turbo is standard on ACES Model 2020HR ProBalancer Analyzer

320x240 high resolution screen

Full time adjustable contrast keys while analyzer is on

True multiple-channel, simultaneous inputs

Full graphic spectrum display with cursor and expanded-view feature

Backlit easier to read white graphic LCD screen

Digital accuracy

5-year warranty

Step-by-step propeller balance

Programmable propeller balance influences

Maintains prior influences to compute one-shot balance

Split weights to existing holes

Helicopter magnitude and phase measurements

Supports the use of multiple speed and vibration sensor types such as: strobe, tracker, phototach, Lasetach®, magnetic interrupter, accelerometers, velocimeters, etc.

User-defined and stored setups for repeated use

Printouts of all jobs and setups

Powered by internal battery or ship's power

Large, easy-to-read multiple-function keypad

Compact, rugged design

Easy, Detailed, Time-Efficient Vibration Analysis and Balancing

Simultaneous Data Input, Full Graphical Display, and Custom Setups

The ACES Model 2020HR ProBalancer Analyzer combines the best features of previous ProBalancers with the spectrum analysis capabilities of our top-of-the-line ACES Analyzers. The new higher resolution screen with its easier to read, white LED backlite feature allows brighter, sharper, at-a-glance visuals. The high capacity rechargeable battery and ship's power input permit you to operate indefinitely without downtime for changing or recharging the battery, thus increasing productivity.

This ultra-efficient instrument, designed with direct input from customers, offers more functionality, more accuracy, and speed of use than ever before. Responsive to customers' needs, our team of innovative engineers have added many other new user-convenience features that could make the Model 2020HR the star of the ProBalancer line. With its true, two-channel simultaneous inputs, the Model 2020HR makes performing twin engine propeller balancing a snap. In addition, it acquires both vertical and lateral helicopter main rotor vibration measurements without switching channels which is infinitely more time and fuel efficient.

The Model 2020HR ProBalancer Analyzer provides step-by-step on-screen instructions for performing propeller balancing, rotor track and balance measurements, and vibration surveys. Additionally, the user may extend the basic capabilities by defining and saving "setup information" for common procedures. These saved settings can be recalled later to provide on-screen setup information, consistent procedures, and one-shot balance solutions without the difficulty of configuring the unit and re-entering data each time you use it. Once you complete a job, it is easy to print a summary of the job suitable for log book entry. The rugged construction, with its expanded ABS plastic case, continues the ACES tradition of high quality, durable vibration test equipment for years of trouble-free operation.

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Creating better aviation maintenance solutions...

ACES SYSTEMS

Model 2020HR
ProBalancer

Technical Specifications

Accuracy
- Vibration Amplitude: +/- 5%, 0 - 10 IPS
- Frequency Range: 0 - 10K Hz
- Tachometer Inputs: +/- .3%, 100 - 10,000 rpm

Power Supply
- Camcorder Type Battery Model RB 85 or Equivalent (12V, 2.3 A hour internal lead acid battery)

Operation Time
- Up to 10-12 hours

Voltage
- 12 V DC Battery or 14-28 V DC ships power

Charging Time
- 2 hours

Physical Specifications

Height:	9.3"
Width:	7.5"
Depth:	4.4"
Weight:	4.8 lbs.

AC Input

The data acquisition system is capable of measuring AC values from 0.1 volt to 2.048 volts peak.

Tachometer-Synchronized Measurements

The analyzer can use the tachometer input to synchronously sample and average data. These data contain phase information for vibration related to the tachometer. The analyzer can report phase to +/- 3 degrees for this vibration, which is reproducible to 1 degree.

Unconditioned Tachometer Input

Tachometer signal processing electronics are capable of adjusting the full-scale input range to handle any available sensor for measuring speed. Adjustment of the tachometer conditioning electronics is performed automatically by the microprocessor and requires no user intervention. The voltage level that is used as a reference for detection of the start of the revolution can be adjusted from 120mV to 5 volts. The tachometer circuitry can detect speeds up to 10,000 RPM.

Autoranging Input

The analyzer autoranges all signal inputs based on sensor sensitivity. That way, it can determine the optimum gain setting to achieve the maximum dynamic range. Gains are adjusted by factors of two (1 to 512) for all channels. This adjustment enables the analyzer to perform each measurement without overload and with maximum accuracy.

Sensor Types

The analyzer will accept any vibration signal input (acceleration, velocity, or displacement). The input is then displayed as collected or integrated to an other vibration unit. The vibration input will accept any voltage-generating sensor (must have external charge converter when in charge mode) and will supply power to the sensor when required.

Analysis Range

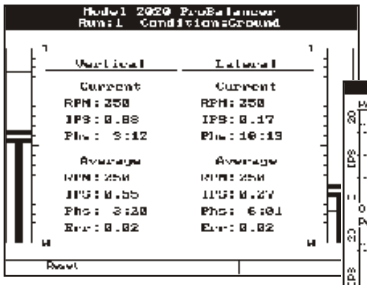
A high roll-off, 8-pole elliptical, anti-aliasing filter is used with a Fast Fourier Transform (FFT) to accurately transform data from the time to the frequency domain. The analyzer will perform FFT resolutions of 100, 200, 400, and 800 lines.

Complete Propeller Balance Kit:

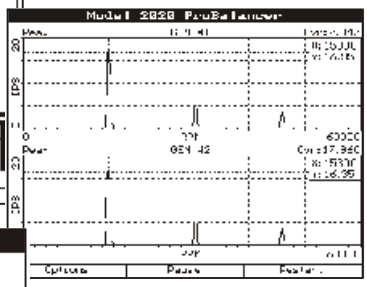
- Model 2020HR ProBalancer Analyzer
- 991D-1 Vibration Sensor
- 25' Vibration Sensor Cable
- Phototach Speed Sensor
- 25' Tachometer Sensor Cable
- Phototach Mount Assembly
- 1/4 x 28 Vibration Sensor Mount
- Eight piece case-bolt adapter set
- Digital Gram Scale
- Prop Protractor - Full Circle
- Battery Charger
- Pocket Pro Tackle Box
- Communications / Printer Cable
- Training Video
- Carrying Case
- User's Manual
- FAA-Approved *ACES Guide to Propeller Balancing*

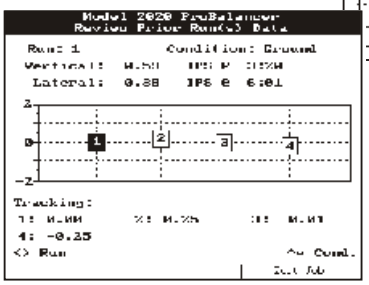
Optional interfaces are available for a wide range of vibration and speed sensors

The full graphics capability of the Model 2020 presents data in an easy-to-interpret format. As in the example screen, the IPS and clock functions appear in a "thermometer" format for easy viewing.



The ACES Model 2020HR ProBalancer Analyzer's ability to display two channels at once allows you to perform front and rear engine vibration analysis or vertical and lateral analysis for rotary wing applications. Cursor functions allow you to examine detailed frequency data.





Each review screen contains all the information required to make adjustments to your job. The run number, condition, vibration amplitude/clock angle, and blade tracking information are recorded and readily available for viewing, printing, or storage with only a few keystrokes.

High Quality ACES Systems products are manufactured at the TEC facility in Knoxville, Tennessee. Our aviation products are manufactured to ISO 9001 standards and guaranteed for five years against defects in material and workmanship. Extensive testing and quality checks are performed before any ACES product is allowed to leave the factory. At ACES, total Quality is not a "buzzword," it is the foundation of our business.

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