

THE UNIVERSAL STATIC BALANCE FIXTURE

USBF

FROM



Avion's Patented Universal Static Balance Fixture cuts the cost and hassle of balancing blades and pays for itself the first time it's used.



How does it work?

The Universal Static Balance Fixture

is a sophisticated, sensitive set of scales interfaced by computer to interpret three separate weight readings and prescribe remedial adjustments. As the blade is lowered onto the fixture's load bar, a positioning pin assures precise blade placement span-wise, while two electronic micrometers assure proper chord-wise positioning. Three strategically positioned USBF electronic load cells measure blade weight and from these load cell readings computer software is able

to compute the blade's center of gravity (CG). Further computations by Avion's proprietary software use weight and CG to determine moments. This is compared to the manufacturer's specs for the blade-data which is also stored in the Avion program. The USBF internal printer provides the operator with blade measurement data and weight adjustments recommended to return the blade to manufacturer's specifications. As each blade is evaluated, data is collected and stored on disk, an invaluable library of trend data for information-based inventory management.

CUTS THE COST & HASSLE OF BALANCING BLADES.

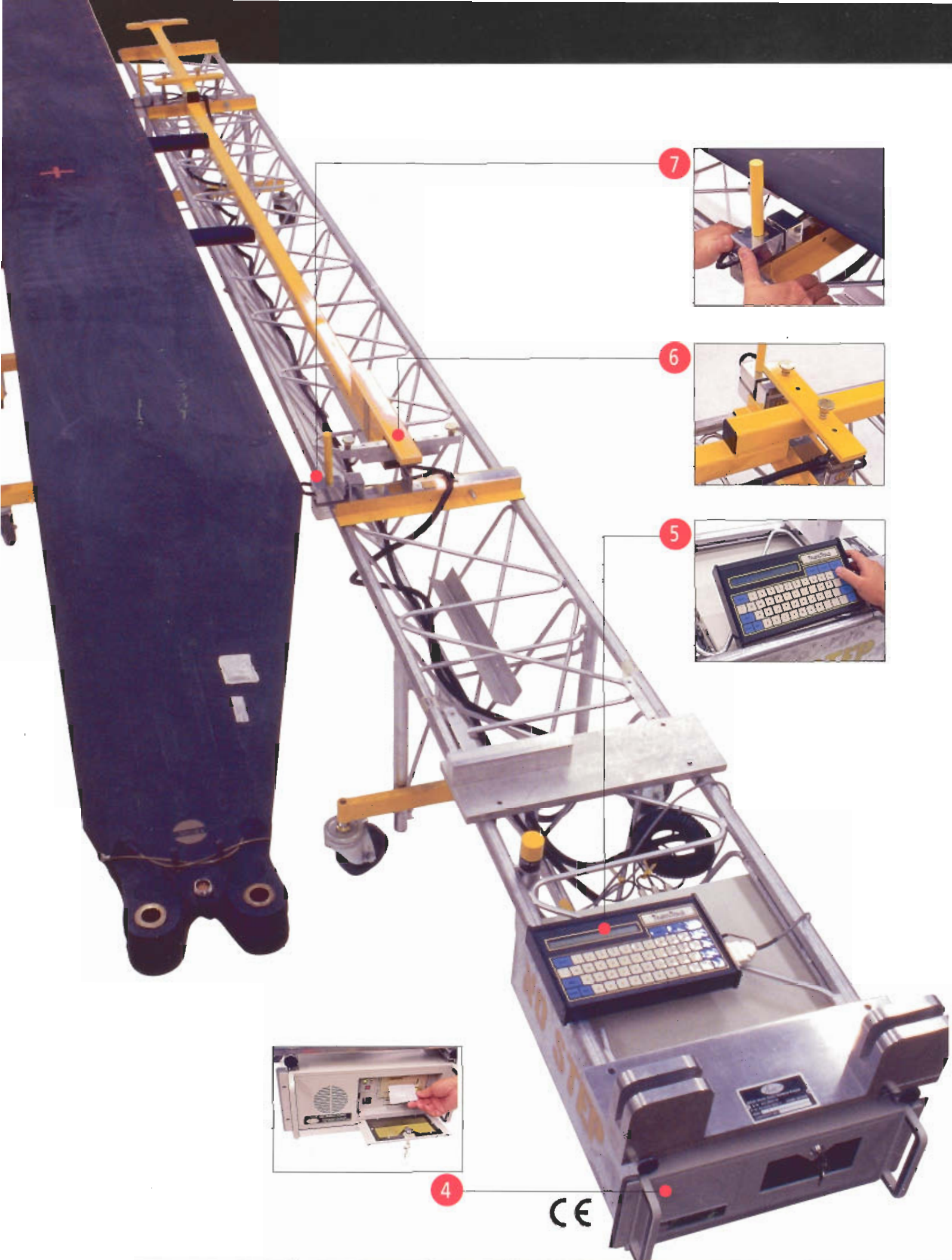


User Friendly Features

- 1 EASY SET UP**
allowing balancing of first blade two hours from delivery
- 2 BLADE-POSITIONING DOLLY**
so maneuverable only one person is needed to place even a huge Chinook blade onto the fixture's load bar
- 3 USERS MANUAL**
for back-up, clearly written, thorough and error-proof
- 4 THERMAL PAPER PRINT-OUT**
providing hard copy of all measurements, diagnoses and prescriptions
- 5 COMPUTER DISPLAY**
flashes clear and concise instructions, step by step
- 6 SELF-CALIBRATING FUNCTION**
during every balancing cycle, speeds the process assuring accurate dependable data (periodic calibration checks take only five minutes)
- 7 POSITION SENSORS**
electronically determines blade chord-wise position on fixture

AVION TRAINING AND SUPPORT SERVICES provided by one of the company's experienced aerospace engineers means you are never out there alone!





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WHY you'll need It.

The more you can do at field-level the better.

Sending a problem blade to depot is like sending a car to Detroit to get the wheels balanced. It doesn't make sense. This is why Avion designed and built the USBF — to put the crucial static blade function where it belongs — at field level. The dollars and time saved plus valuable data generated allows a whole new and better way of doing business.

The USBF gives more management control to the field maintenance officer with durable, practical, portable technology, easy to use and easy to teach.

How many troops does it take to balance a blade?

ONE! With just one day of USBF training, anyone can learn how. Computer prompts guide each step. A highly-maneuverable dolly positions the blade for weigh-in. The manual provides back-up and a print-out gives hard copy of prescribed weight adjustments.

It takes only an hour to balance a blade, returning it to manufacturer's specifications.

Why is USBF blade balancing essential to an efficient, smooth-running helicopter maintenance operation? Field tests confirm that, with use, blade center of gravity (CG) strays dramatically from manufacturer's specs. These shifts are caused by normal wear and tear, water intrusion, painting or field repairs and dynamic balance becomes impossible.

These conditions soon disable blade inventory, resulting in a mismatched collection of individual blades hard to pair up for successful dynamic balancing. Blade-swapping offers a temporary time consuming, make-do solution. Makeshift measures take you only so far for so long and when blades are too far gone to track and/or balance, the only option available has been a costly depot turn-in — a drastic measure that cripples the maintenance budget and blade inventory, possibly grounding aircraft.

This was the nightmare scenario before USBF became available to diagnose the problems and prescribe the adjustments needed to bring blades back to specification. Once all blades are back to spec,

track and balance becomes a breeze, maintenance requires less flight time and most blade swaps and turn-ins are eliminated. You gain valuable trend data on every blade—information that helps you keep'em flying.

One USBF can support many different makes, models and configurations of helicopters. All of the Army Force Mod Aircraft have been approved for field use. Programs now under way will qualify additional blades for other armed services helicopters and commercial helicopters.

The USBF Advantage

- Eliminates blade swapping
- Achieves interchangeable blade inventory
- Cuts dynamic track and balance time
- Reduces vibration-related costs and problems
- Eliminates budget-busting blade turn-ins
- Uses up fewer flight hours on maintenance test flights
- Keeps more aircraft flight-ready within budget
- Helps raise unit operational readiness



AVION, INC. USBF CITATIONS

What customers say about us...

Use of the Avion Rotor Blade Static Balance Fixture has significantly reduced the cost of operating the helicopter fleet at Fort Rucker, Alabama.

At Fort Campbell, USBF users report that during the first year of operation at least ten costly blade turn-ins have been averted, resulting in savings of \$600,000 in blade turn-ins.

Six Chinook blades scheduled for depot return were successfully balanced and flown within the first week of operation.

Maintenance flight hours for cause on Chinooks were reduced at least 50%. This reduction in cost and manpower was directly attributable to USBF, a proven time and money saver.

A Company 615th ASB, Ft. Hood, Tx. "Good tool, 20 blades have been kept in service for the UH-60 MR blades."

MO-Avcrad, Springfield, Mo.
"We can perform more repairs of depot level tasks. The USBF has also cut down the amount of test flights to track MRB. We are looking forward to the Tail Rotor Tip Cap Balancer to aid us."

AASF#2 Pendleton, Or.
"The system worked so well. Columbia Helicopter tested it by balancing three sets of their Chinook blades and purchased one of their own."

D-Co 8-228 Fort Knox, Ky.
"Best thing that has come along in a long time. Has saved us hundreds of flight hours balancing blades. No or little weight adjustments required. Great product and very reliable."

DynCorp, Killeen, Tx.
"This system has significantly reduced the amount of time required balancing main rotor systems. It has proved exceptionally useful on UH-60 main rotors."

Columbia Helicopters, Aurora, Or.
"Valuable tool in determining excessive repairs. All repairs go through the USBF first. We experienced phenomenal savings and it reduced flight tracking time by at least one-half and is closer to two-thirds."

Ft. Bragg, NC
"Since the fielding of the USBF the amount of time required to track CH-47 blades has been reduced greatly."

1/211#AVN, West Jordan, Ut.
"I was (opposed) to spending this much money on something like this, but it has been a great asset in keeping our aircraft flying at their peak. Twice, I've called

Customer Service not for problems but just engineering questions and have always talked to a very intelligent, informative person. Our Post Phase test flights have been lessened in frequency. I've balanced seven aircraft so far and haven't had to use additional weight during the dynamic track and balance operation."



Customized computer assembly and testing.



Fabricating electronic components for a USBF computer.



Manufacturing mechanical components for a USBF.

VIRTUAL MASTER BLADE VMB

The Virtual Master Blade is a new product designed to assist in the balance of Tail Rotor blades.

The Virtual Master Blade is an easy to use tool that accurately

measures the blade's span moment, chord moment and weight. It provides recommended weight adjustments that will return the blade to the original manufacturer's production specification.

Like the USBF, the VMB shares the same User Friendly Features as well as the same GREAT Advantages.

Currently the VMB is configured to balance the AH-64 Tail

Rotor, UH-60 Tail Rotor and the UH-60 Tip Cap. The VMB is small and can be quickly configured for other aircraft.



Want a quote? Get in touch.



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