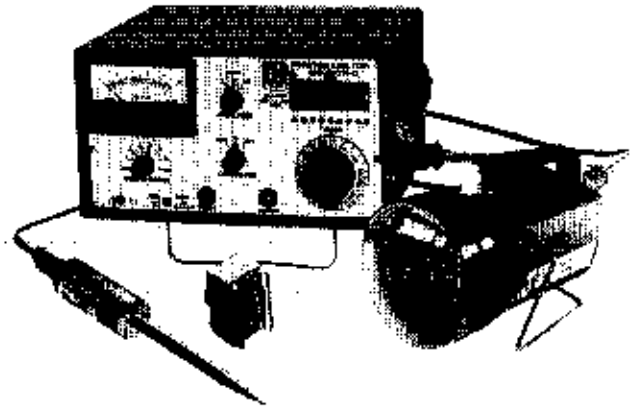
The "B" Book Series



Single-Plane Balancing

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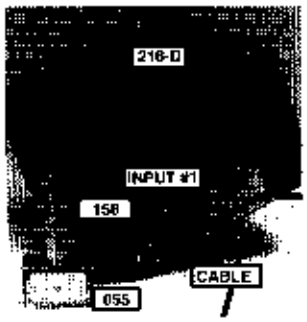
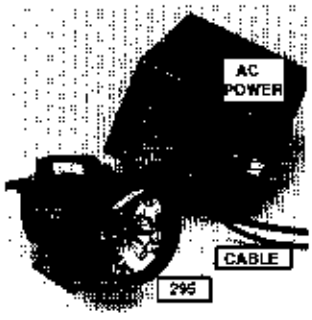
CONNECTIONS

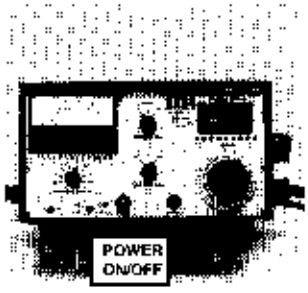
1. Thread MODEL 055 MAGNETIC BASE to MODEL 158 PICKUP and connect the PICKUP CABLE. Connect CABLE to INPUT #1 on 216-D unit.



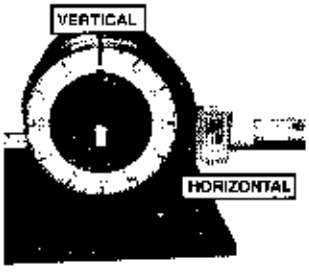
2.Connect MODEL 295 STROBE LIGHT to STROBE CABLE. Connect STROBE LIGHT and CABLE to 216-D. Connect AC POWER CORD.

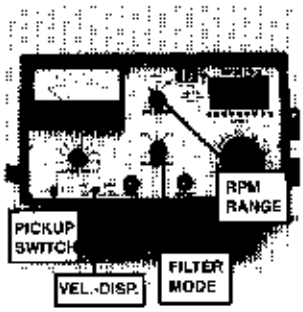


3. Push POWER button. (GREEN is power "ON").

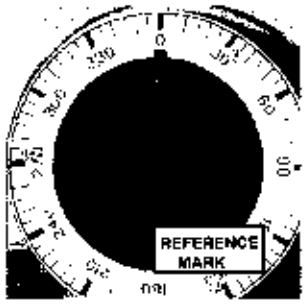


4. Mount the PICKUP to the machine housing or motor bearing in a radial direction. (Horizontal or Vertical)



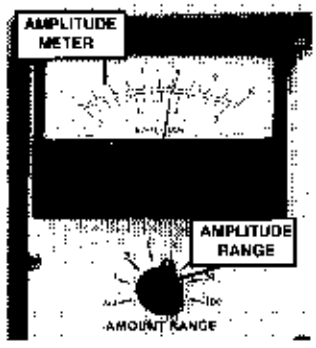


5. Toggle PICKUP SWITCH to #1. Set VEL. DISP. switch to DISP. (Displacement in mils). Set FILTER MODE switch to OUT. Set RPM RANGE switch for 200 to 2000 RPM (x1); for 2000 to 20,000 (x10); for 20,000 to 200,000 (x100).

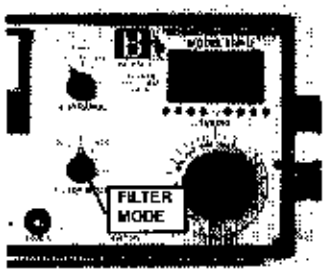


6. Mark machine motor/fan shaft end with an easily observed REFERENCE MARK. Or, use an existing KEY or KEYWAY as the REFERENCE MARK.

RUN #1



7. **Start machine.** With rotor running at operating speed, turn the AMPLITUDE AMOUNT RANGE switch until you get an on-scale (between 20% and 100% of scale) reading on the AMPLITUDE METER.



8. NOTE the RPM meter reading. Set FILTER MODE switch to "IN."

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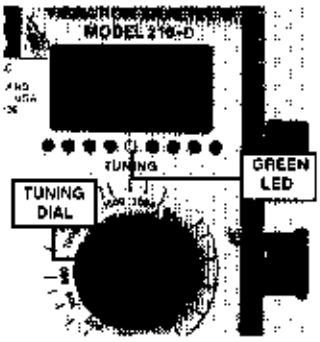
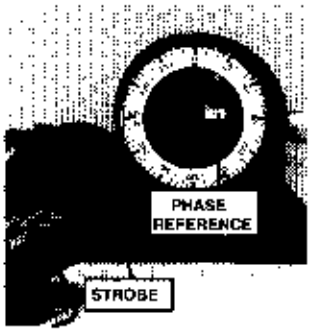
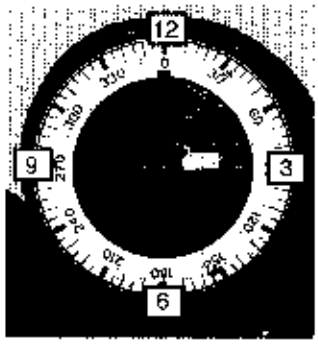
9. Tune the filter to the speed of the machine being balanced. Turn TUNING DIAL until GREEN LED lights. (It may bounce from side-to-side between green and red with slight speed variations.



10. Direct STROBE at machine motor/fan to view RUN #1 PHASE REFERENCE position.



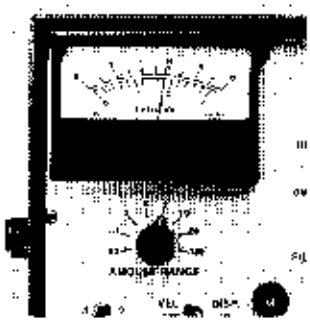
11. Visualize the machine housing as a clock face. Read the position of the mark as though it were a clock hand.



12. Record REFERENCE MARK position on POLAR GRAPH PAD under PLANE "A" PHASE.

PLANE "A"		
RUN	AMPLITUDE	PHASE
1	1.8	90
2		
3		
4		

13. Read AMPLITUDE from AMPLITUDE METER and record on graph.



14. Stop machine.

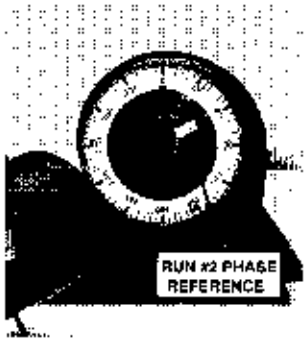
15. Measure and record trial WEIGHT SIZE (WS). Add TRIAL WEIGHT at any known location on the rotor.

CAUTION: ATTACH TRIAL WEIGHT SECURELY.

RUN #2

16. Restart machine.

17. Use STROBE to view RUN #2 PHASE REFERENCE position.



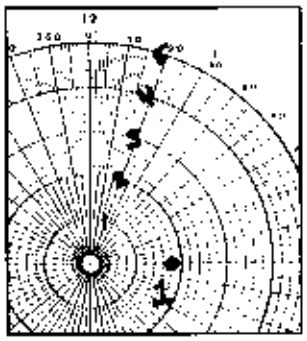
18. Record RUN #2 PHASE position on Polar Graph.

PLANE "A"		
RUN	AMPLITUDE	PHASE
1	1.8	90
2	3.8	60
3		
4		
5		

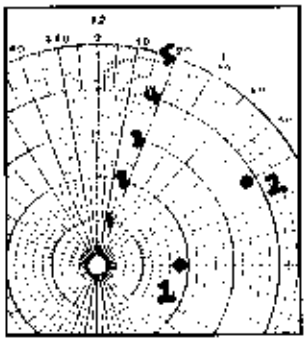
19. Read and record RUN #2 AMPLITUDE on graph.

DATA READINGS:

20. Plot/draw RUN #1 AMPLITUDE and PHASE position on the circular graph. Label it "1."

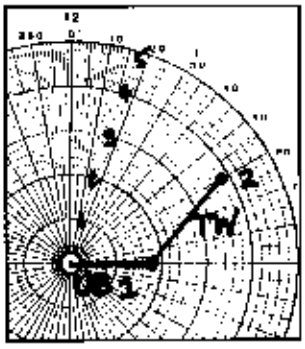


21. Plot/draw RUN #2 AMPLITUDE and PHASE position on circular graph. Label it "2."

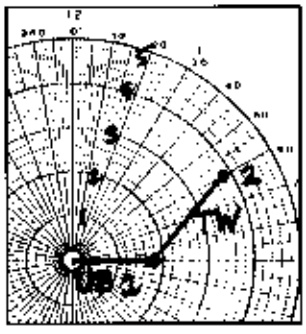


22. Draw a line from the graph center to number "1." Label it "UB" for "UnBalance."

23. Draw a line from "1" to "2." Label it "TW" for "Trial Weight."



24. Measure "UB" length. Measure "TW" length.



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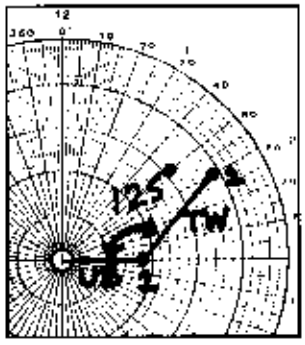
25. Calculate correct weight:

$$\frac{1.8}{2.5} \times 1 = .72 \text{ oz}$$

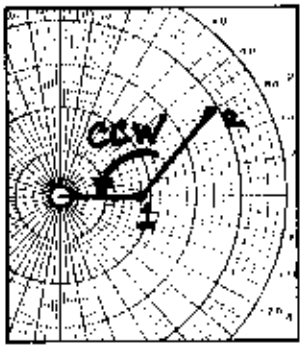
UB = Distance from center to "1"
TW = Distance from "1" to "2."
WS = Weight Size

UB / TW x WS = Correction Weight

26. Measure the angle between UB and TW. This angle is the amount of degrees to move the CORRECTION WEIGHT from the TRIAL WEIGHT location.



27. The CORRECTION WEIGHT shift is opposite the direction of the TW line phase shift. If the TW line must move COUNTER CLOCKWISE (CCW), then move the CORRECTION WEIGHT CLOCKWISE (CW).



28. In this example, the CORRECTION WEIGHT would be added to the rotor at a position 125° CLOCKWISE from the first TRIAL WEIGHT position.

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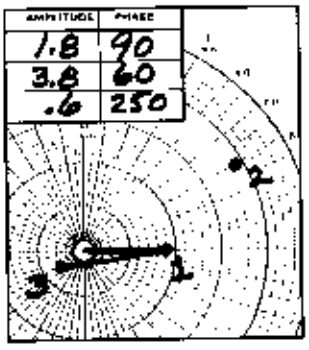
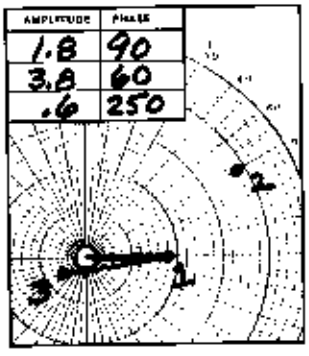
RUN #3

29. Add CORRECTION WEIGHT. Remove TRIAL WEIGHT.

30. **Start machine.** Check results. Compare vibration with RUN #1 data.



31. If new vibration (balance) is not acceptable, plot RUN #3 data as in Step #21.



32. Possible Additional Run Solutions:

A. Move and/or adjust size, location, or both, of correction weight (from Step #29).

B. Add additional weight to bring #3 back to graph center.

NOTE: Safety - Balmac encourages performing all balancing procedures in a safe manner within the guidelines of plant safety rules and OSHA regulations. Always exercise extreme caution when working around rotating machinery.

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