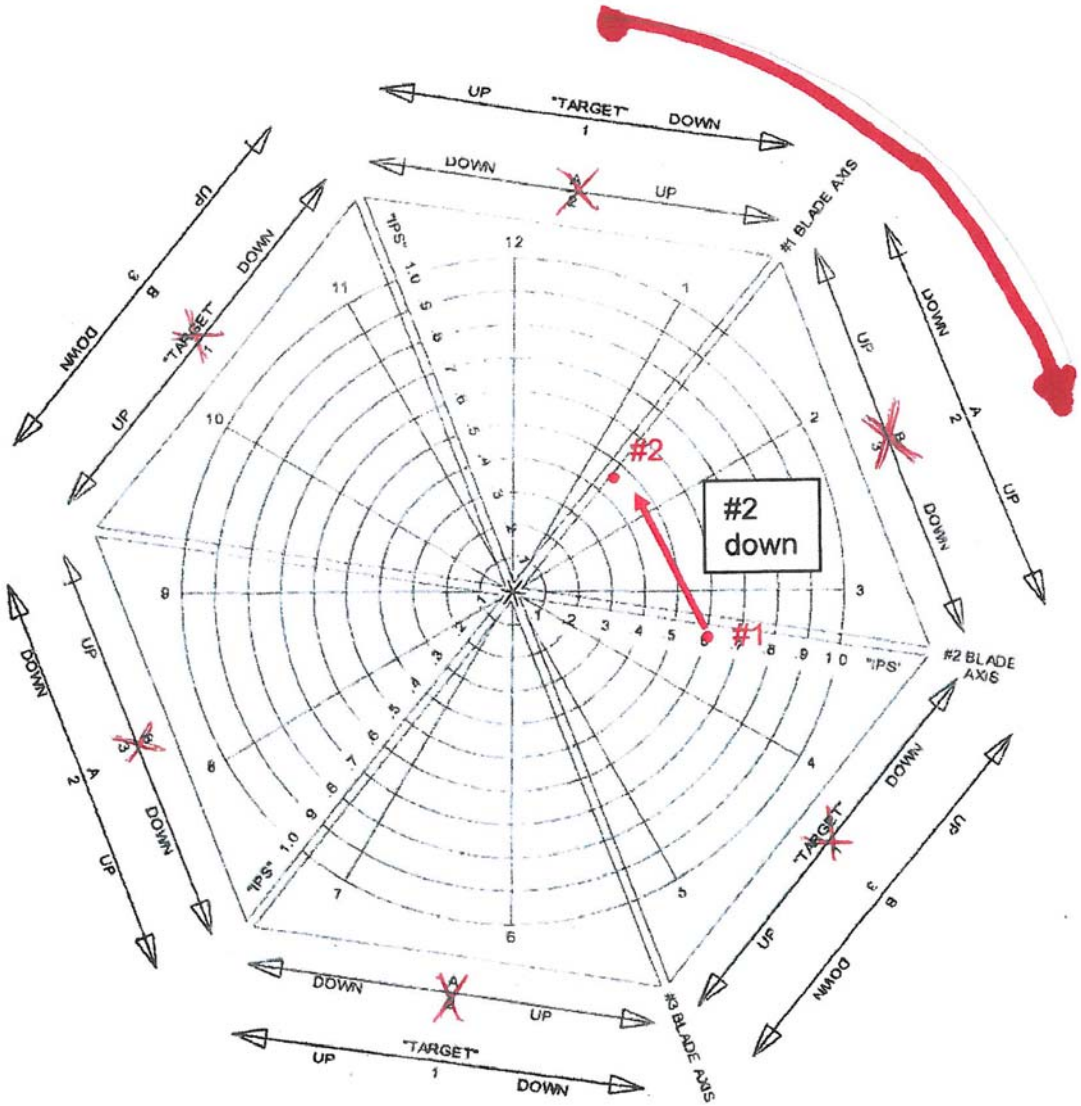
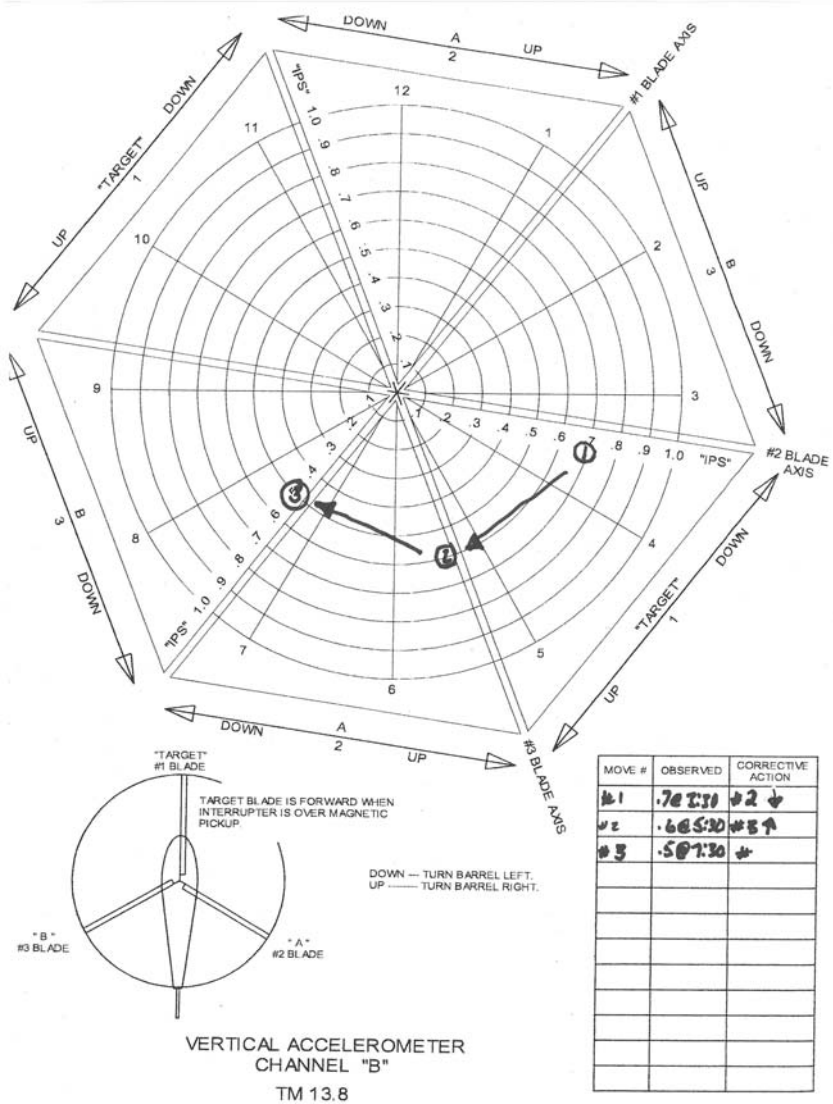
CLOCK ANGLE CORRECTIONS AND THE ENSTROM ROTOR SYSTEM

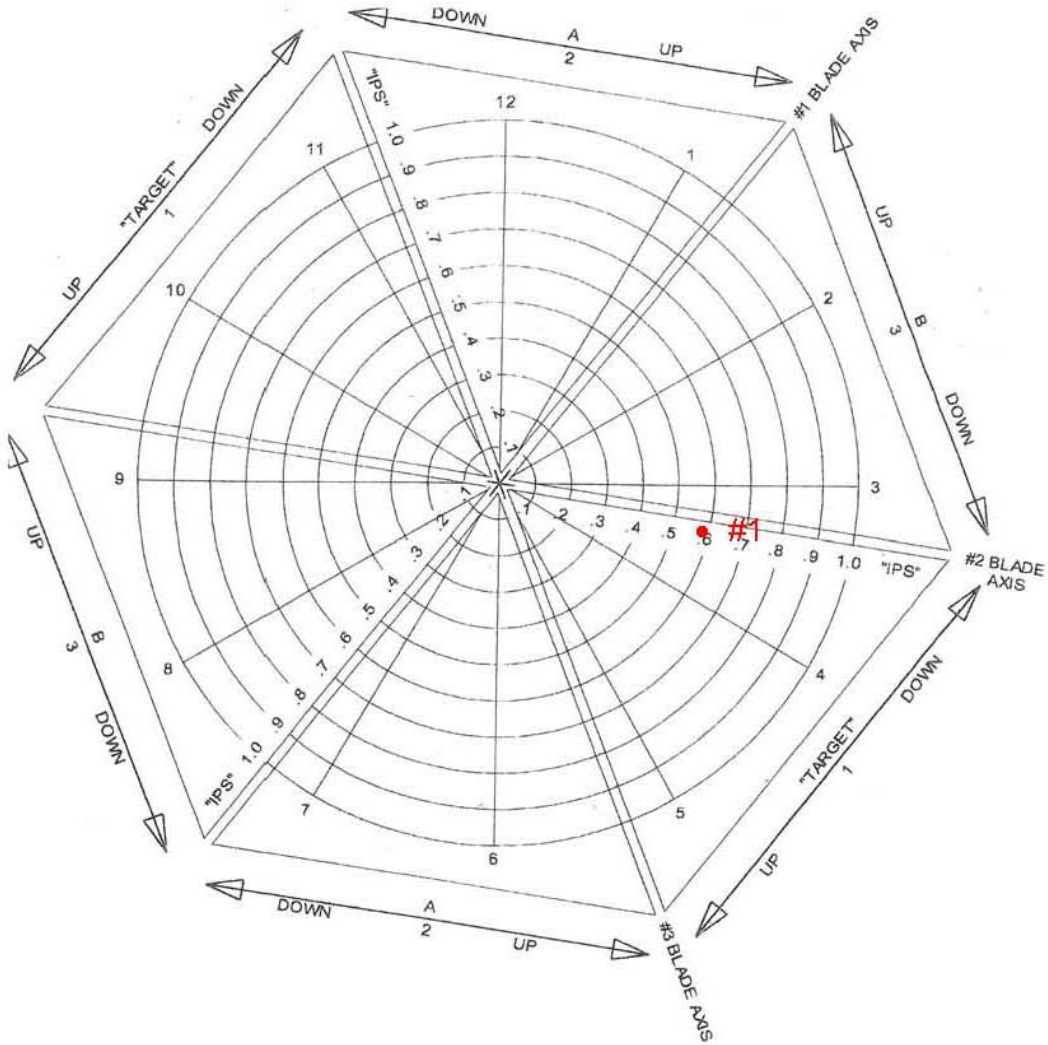


When tracking blades using a polar chart, it is quite common for the plotted blade track corrections that are made to the rotor to not follow the suggested move lines on the polar chart.

- A common example of this is shown in the picture where the plot is moving around in a circle rather that towards the center.



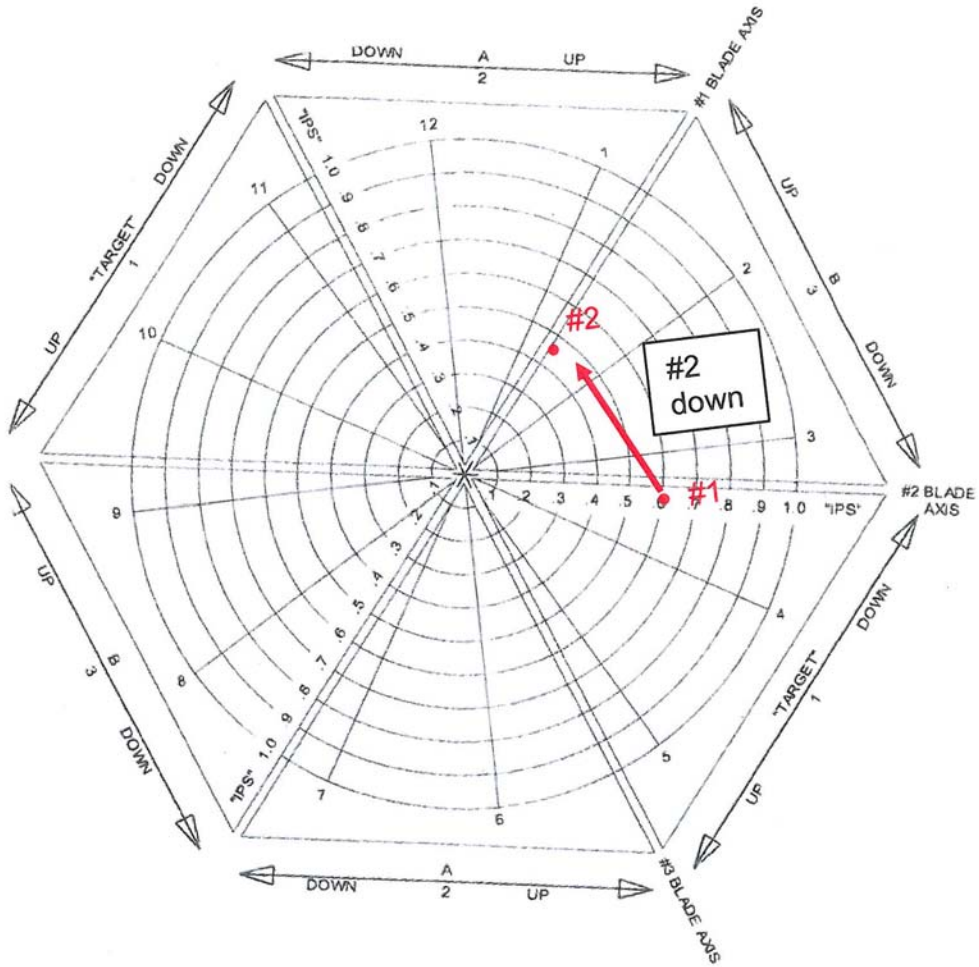
The following is an example of a track plot requiring a clock angle correction and out lines the procedure used to make the correction.

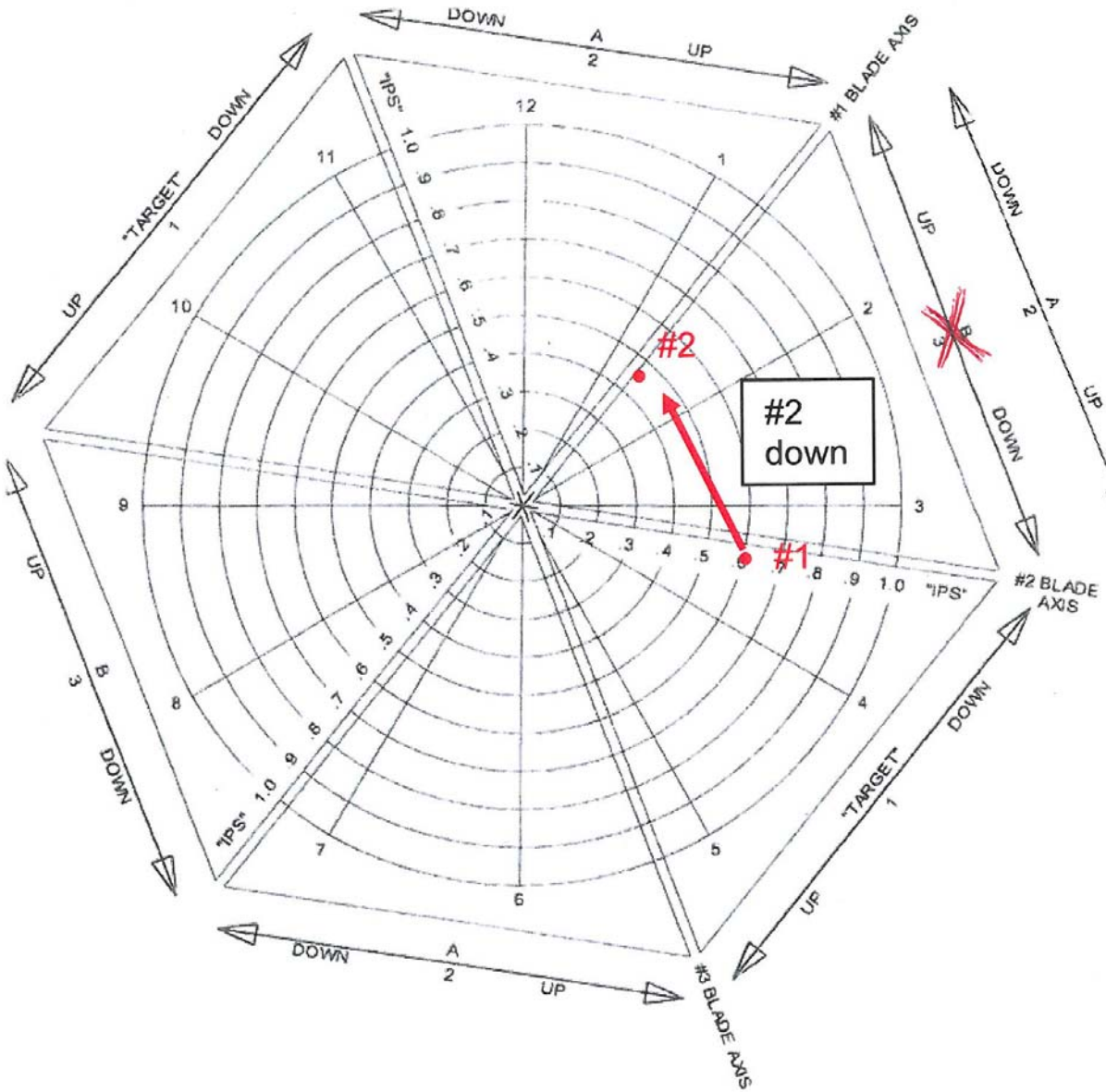


- In this example the helicopter is hovered and the Chadwick records an ips reading of .6 @ 3:30
- The track correction line shows that #2 blade should be pitchlinked down approximately 1/3 flat.

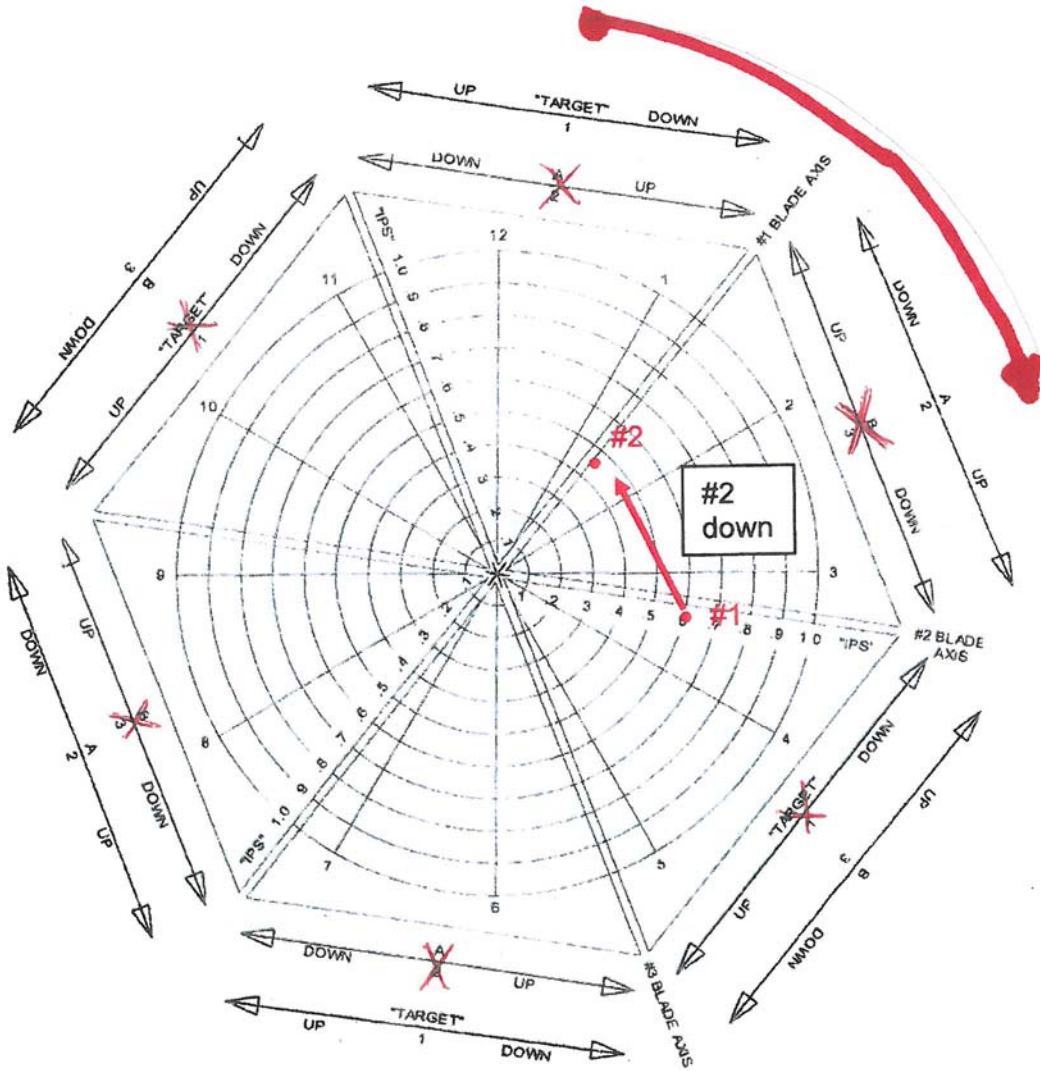
The helicopter is hovered again and the Chadwick records a #2 plot of .5@1:30

The helicopter did not respond as expected to the pitch link move indicating that the polar chart is not correctly aligned to the helicopter.





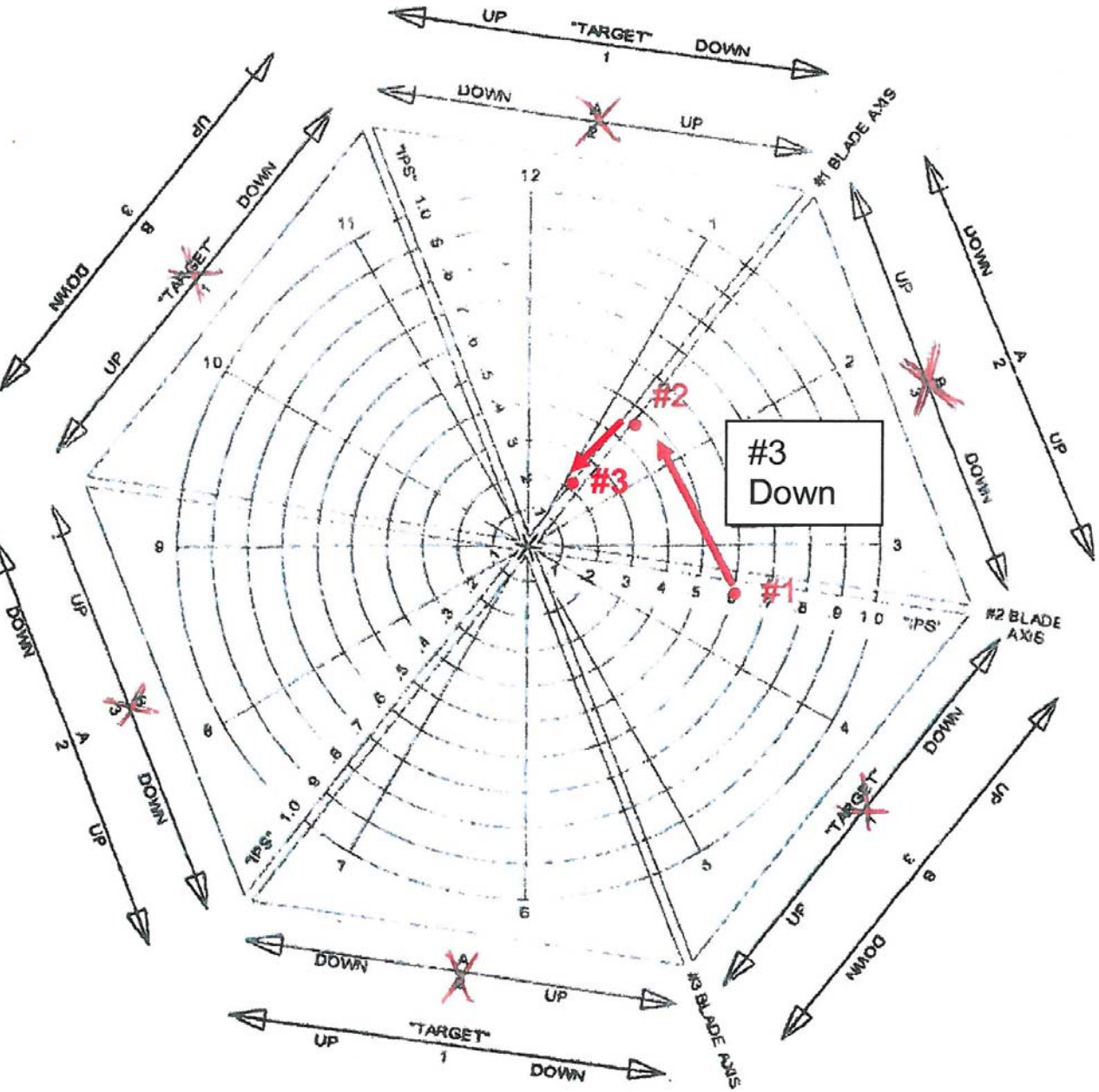
- When we study the chart, we can see that the move line drawn between the #1 plot and the #2 plot actually followed the #3 blade axis instead of the #2 blade axis.
- If we remark the blade move line on the outside of the chart, we can make the chart reflect what actually happened.
- Here we have switched the blade correction line from the #3 blade to the #2 blade which reflects what really happened when we pitchlinked #2 blade down.



- To alter the polar chart so that it will match the helicopter, we have to move all of the blade correction lines around the chart in the same direction, and the same amount as in the previous adjustment.

- After the clock angle correction, the chart now looks like this.

- According to the corrected chart, the next move should be to pitch link the #3 blade 1/3 flat down



•If life is good, after the helicopter is hovered again, the #3 plot looks something like this.

- Clock angle corrections are related to how well the balance equipment matches the helicopter.
- Most helicopters will use the same clock angle correction when tracked with the same balancing equipment.
- The clock angle correction is almost never the same in forward flight as it is in a hover. When you progress from hover to forward flight, a new chart should be used, and the clock angle correction will have to be re-computed.
- In some cases, particularly when the ips readings progress from a large number to a small number, the clock angle correction may change or go away entirely so the plots should be carefully recorded and analyzed.