

# PA Video Camera Calibration Instructions

NOTE: It is very important that these measurements are as accurate as possible. These measurements are the basis for most of the analysis parameters in PA.

## Items Needed for Calibration:

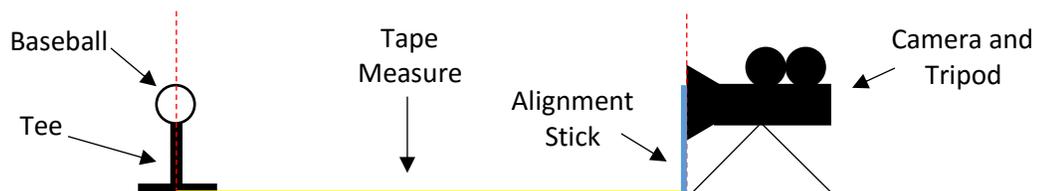
- Camera for calibration
- Recording remote if available
- Whitest baseball possible (new is preferred but not required)
- Baseball tee
- Tripod
- Tape measure
- Alignment pole (can be 4ft pvc pipe or a yard stick or something similar)
- Pen and paper
- A minimum of 2 people (1 for moving the camera, the other for data recording and measuring assistance)

## Approximate Time to Complete

- 20-30 minutes

## Measurement Steps

1. Using the pen and paper write out 3ft – 10ft in increments of 1ft, and 12ft – 36ft in increments of 2ft in a table. Make a column beside these values to note which video corresponds to each measurement on the table. Also make note of what the image quality to be recorded is (i.e. 720p, 1080p, 1440p, etc.).
2. Place the whitest baseball you can find on a tee.
3. Ensure the background behind the baseball is as dark as possible with the front of the baseball illuminated as much as possible.
4. Secure the camera being used for calibration to a tripod.
5. Place the camera and tripod approximately 3ft away from the ball.
6. Locate the ball in the screen on the camera. Try to get the ball as close to the center of the image as possible. Do not tilt the camera if vertical adjustment is needed. Keep the camera as level as possible and adjust the height using the tripod.
7. Once the ball has been positioned in the middle of the screen take care not to move the camera up and down or spun left to right on the tripod.
8. Using the tape measure, measure 3 ft. away from the center of the ball to the front of the lens on the camera. We have found it easiest to place the tape measure on the floor and use an alignment rod to measure the distance as closely as possible (Refer to image below).



9. Using the remote, or record button on the camera, record a short 1-2 second clip.
10. Record in the table made in step 1 the video number or file number on the camera for 3ft.
11. Move the camera and tripod to the next measurement listed in the table created in step 1. Take care not to shift the camera on the tripod.
12. Refer back to step 8 for making the next measurement and repeat this process until all measurements have been made in the table.
13. Once all measurements have been completed upload the videos, and the distances they correspond with, to Google Drive. It is preferable to list the file name as the recorded distance as this will save time for determining the calibration constant.