

HIGH-SPEED BASEBALL LAUNCHER TESTING OPERATION MANUAL

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1. Before testing can begin, the arm needs to be balanced based on the exact weight of the baseball being used. This can be done by rotating the system on its side and adjusting the distance of the counterweight from the center. When the arm can rest at a completely horizontal position then tighten down the counterweight to the arm.



2. The next step is to secure the ball into the release mechanism. This is done by latching the release mechanism and then pushing the ball into place. The distance between the top of the baseball and the top of the release mechanism should be held constant for more accurate testing.



3. The next step is to attach the bat to the setup. This is done by lining the knob of the bat with the head of the shoulder bolt. The U-Bolt should then be tightened to secure the bat to the holder.



4. After the bat is in place, the high-speed camera is placed into position. The camera requires lots of light to clearly see the collision. The position of the camera can be tested by holding a ball to the spot of collision on the bat and adjusting the camera to see the point of contact.



5. The final step before testing is to set up a protective cage around the structure to protect the area. A GoPro camera was also added to the cage so that the entire cycle can be videoed for future reference.



6. Set up the software to capture the flight of the baseball. Refer to the Program Theory of Operation Manual for detailed information on how to use the code provided. The manual also goes through the steps on how to process the data from testing.

Baseball Launcher Program Theory of Operation Manual

7. The final step is to make sure everything is unplugged before going back in to reload the structure. If the same ball is being used, then step 1 can be skipped.