

240061-001 Test and Adjust Cassette Carrier Pitch and Roll

- Objective:
- To ensure that the end effector forks are parallel to the bottom of the wafer at all points.
- Tools Required:
- Standard tool kit
 - Boat containing 1 wafer
- Materials Required:
- None specified
- Sequence:
- This procedure is performed after “Align LED Mapping System”.
 - This procedure is performed after replacement of cassette carrier, shoulder, or end effector assembly.

Method:

1. Perform a <LEARN CASSETTE> operation for both cassettes, and save a hard copy of the data for reference later.
2. Select <CALIBRATION> <ROB. CALIB.> <INIT ROBOT>.
3. Place a wafer cassette boat containing one wafer in the top slot (slot 25) onto the right cassette plate.



NOTE

Use a known good boat. Make sure the wafer flat is parallel to the front or the back and not to either side of the boat.

4. Press END two times then select <S>, <R>, <M>, <Z>, <A>, and enter **800**.
5. Move the shoulder to either TP1 for right cassette or TP3 for left cassette
6. Move the end effector to its Train Point 1 position.

Result: The forks should be inside the cassette boat below the wafer.

7. Select <S>, <R>, <O>, <R>, and <F>.

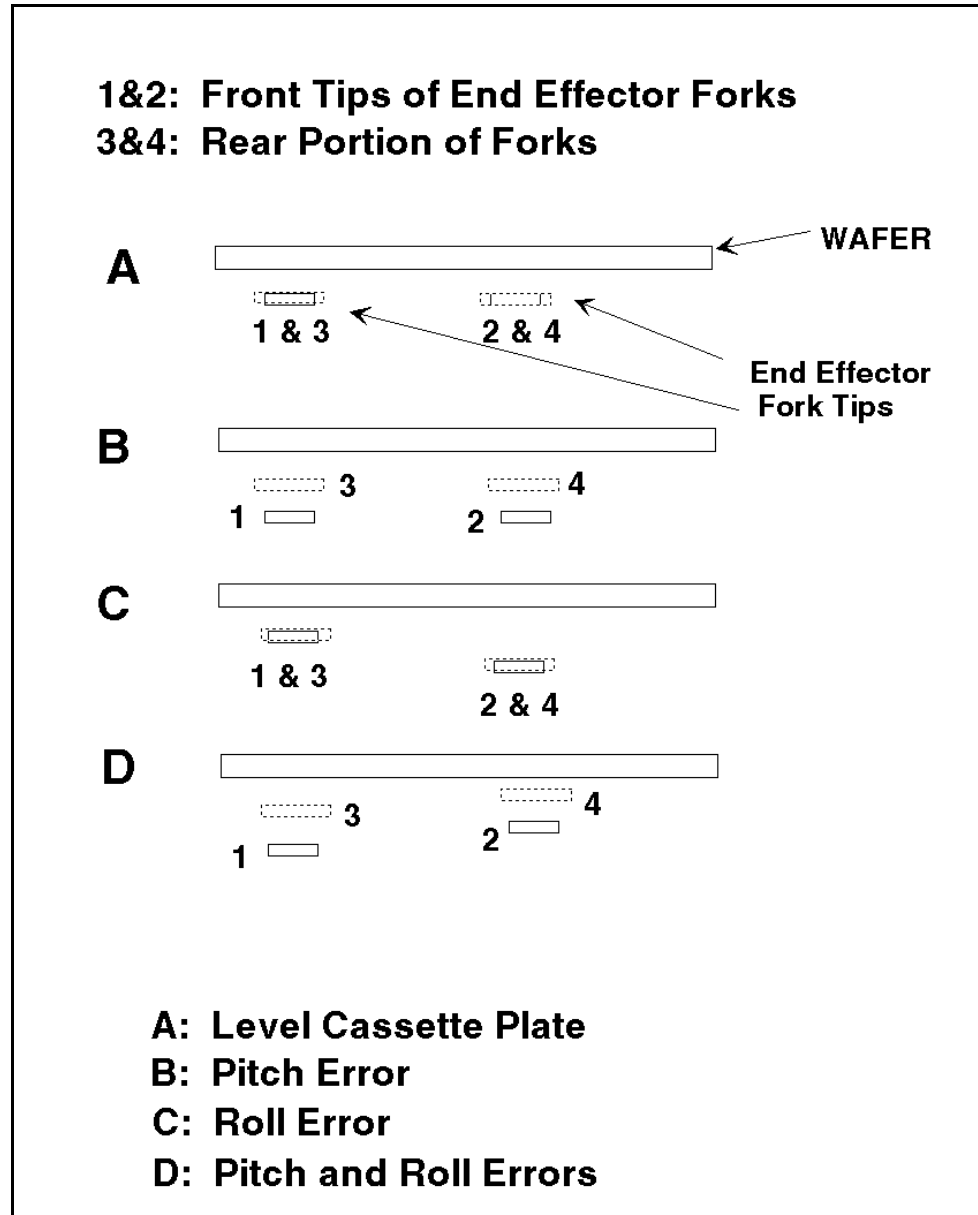
Result: This will turn off the vacuum to the end effector.

8. Press <END>; then select <UP 1 STEP> until the fork is almost touching the bottom of the wafer.

9. Look through the back of the cassette boat and observe the X and Y pitch of the wafer with respect to the fork. (References to X and Y direction apply to stage references.)

Result: Assuming the end effector forks are not bent, the tips of the end effector fork and a point toward the rear of each fork (4 points in all) should be equidistant from the wafer (see position A in Figure 5-12).

Figure 5-12: **Cassette Plate Leveling Adjustments**



If the cassette plate is level, proceed to step 13.

10. Determine what type of adjustment(s) need to be made by reviewing Figure 6-26.

If no Pitch Error is found, proceed to step 12.

11. Follow the steps below to correct for roll error.

- a. Adjust the Y roll by first loosening the two 4-40 SH screws located behind the two holes in the side of the cassette carrier.
- b. Using the inside hole for leverage, tilt the cassette up or down until the end effector is parallel to the wafer.
- c. Tighten the two screws.



NOTE

You may have to rotate the cassette in order for the wrench to fit inside the access holes.

- d. While in <ROBOT Z>, move Z up and down to visually verify that both forks touch the wafer at the same time.

12. Follow the steps below to adjust pitch error:

- a. Loosen the locknut on the post with a 3/8" wrench
- b. Lift the front of the cassette carrier and adjust the X tilt of the cassette by rotating the threaded post so that the wafer is parallel to the forks.
- c. Tighten the lock nut on the post.

13. Repeat above step 5 through step 12 for the other cassette.

14. Remove the cassette and wafer from the system.

15. Select <INIT ROBOT>.