

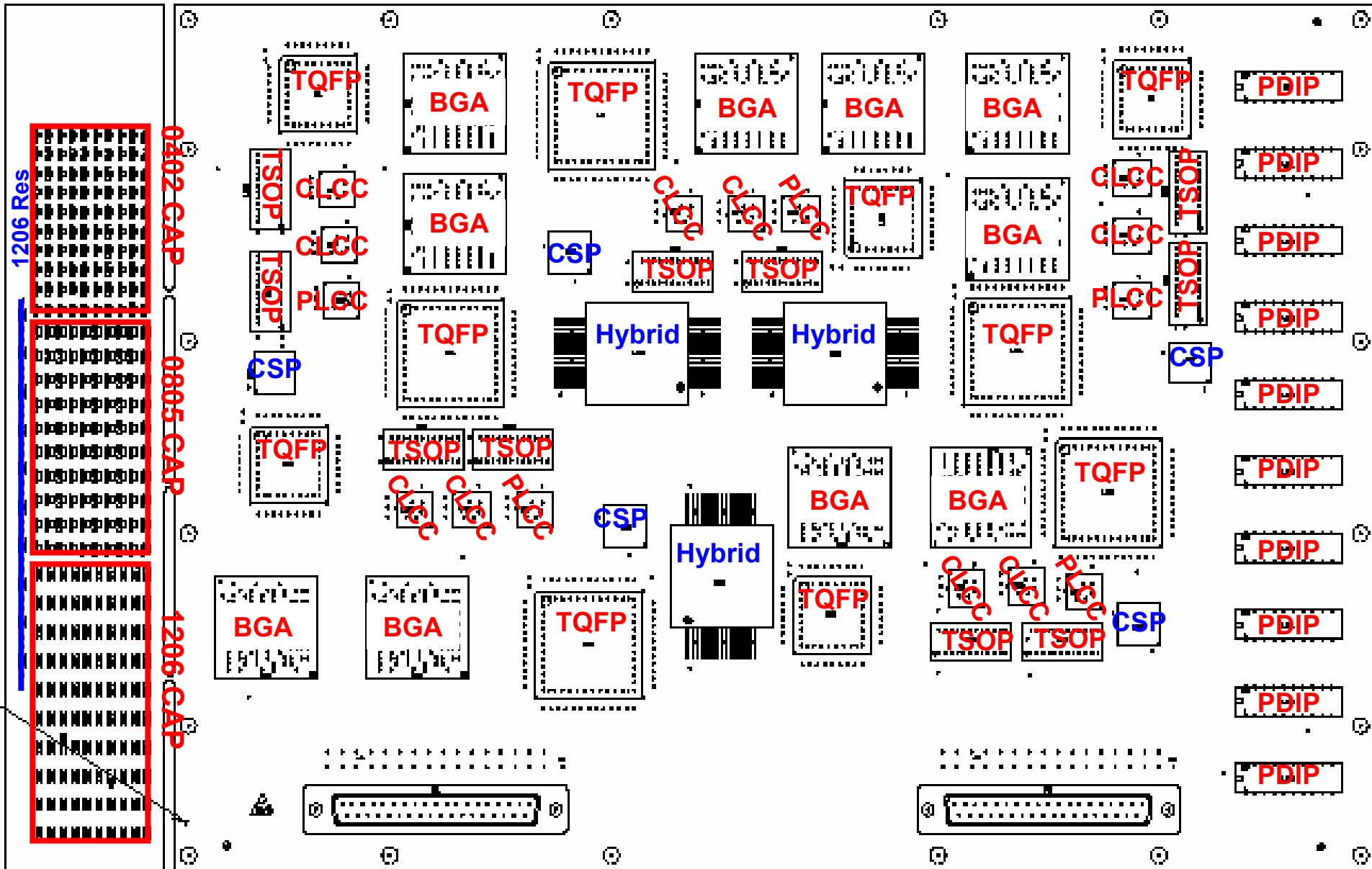
CSP and Hybrid Component Issues

During board assembly at Boeing-Irving, problems arose with two types of components—the CSPs and the hybrids—resulting in their necessary omission from the board. The supplier provided the wrong size of CSPs. The CSP components that were received had a .8mm pitch, measuring .8mm from the center of each ball to the center of the next ball while the pads on the board were configured to receive a component with a .7mm pitch. This proved to be an insurmountable mismatch.

The hybrids also could not be fit on the board, for slightly different reasons. The hybrid component was designed to be placed in a recessed area on the circuit boards. We did not design our circuit boards with a recess. As a result, the hybrid leads did not meet the circuit board pads. Other options, like bending the leads or milling the hybrids, presented problems as well.

Two drawings of the circuit boards are provided. The first drawing (slide 2) illustrates our original plan, showing where the CSP and hybrid components would have been located. The second drawing (slide 3) shows the completed test vehicles as they look now with the CSP and hybrid components omitted.

Original Test Vehicle Layout, Includes Hybrid and CSP Components



Modified Test Vehicle Layout, Hybrid and CSP Components Removed

