506 for Backplane Testing

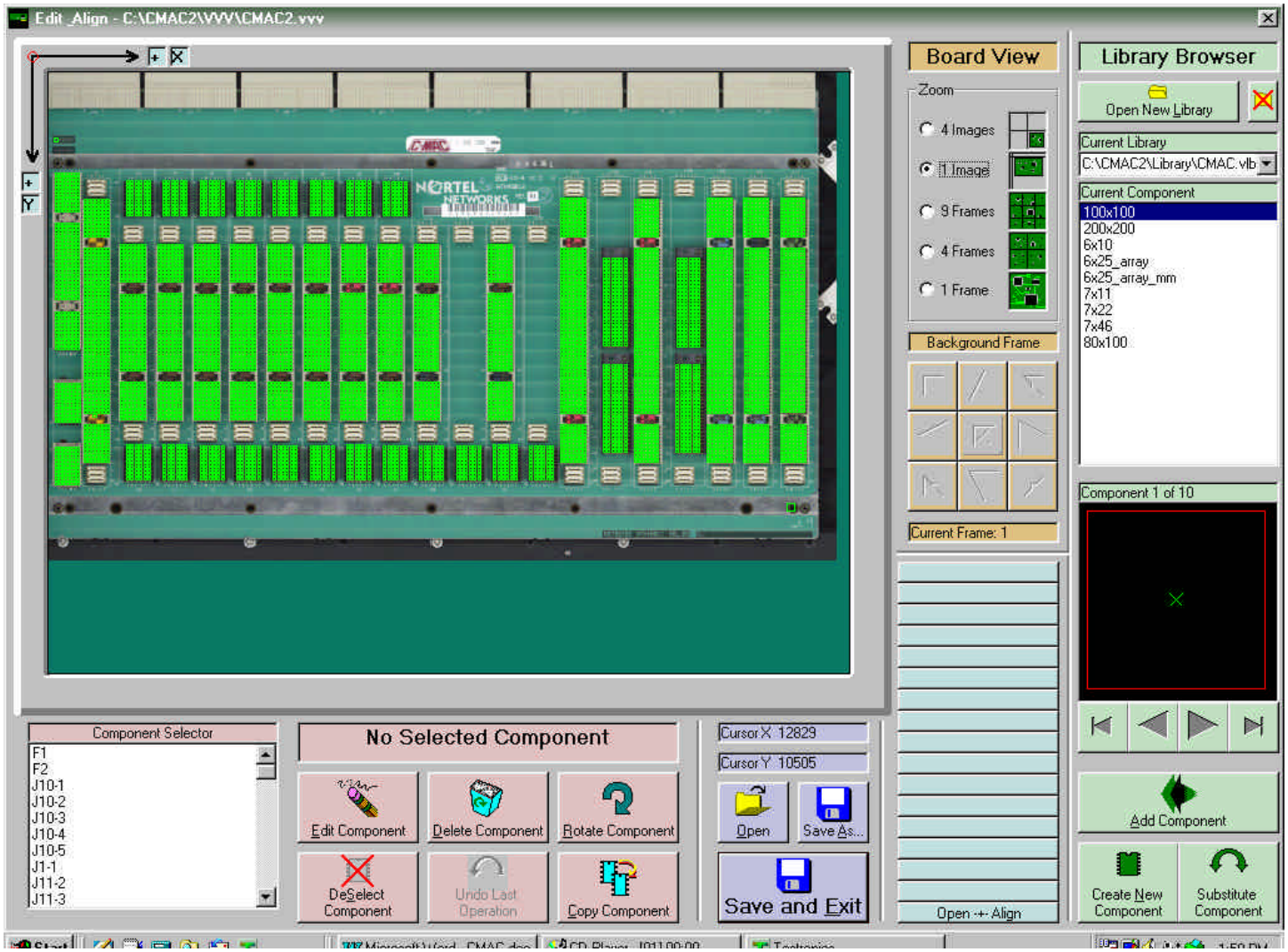
Applications

- Bent Pins
- Missing Pins
- Component Presence/Absence
  - Electrolytic Capacitors
  - Bypass Capacitors
- Polarity/Reversed Components
- Connector Key Orientation
- Pin not Protruding through Hole (Curled or Missing)

Using the Testronics Model 506 for backplane testing provides an economical and practical testing alternative to traditional testing methods. It allows the user to visually test the board in a quantified, sequenced procedure. The operator only checks those areas that the system finds different from preset test parameters set by the programmer. Programming the 506 is a simple procedure using easy Windows based software and user friendly interactive wizards to build library components and import CAD data.

The 506 tests for anomalies such as bent and missing pins, component presence and absence (both SMT and through-hole), position, polarity, and connector key verification and orientation. Additionally, the 506 will test both 2mm and VHDM connector arrays due to an enhanced linear lighting solution that allows the 506 see down between the pins and ground strips. This lighting setup also permits the testing of the underside of the board to find pins not protruding through the hole and may be missing or curled during the press fit process.

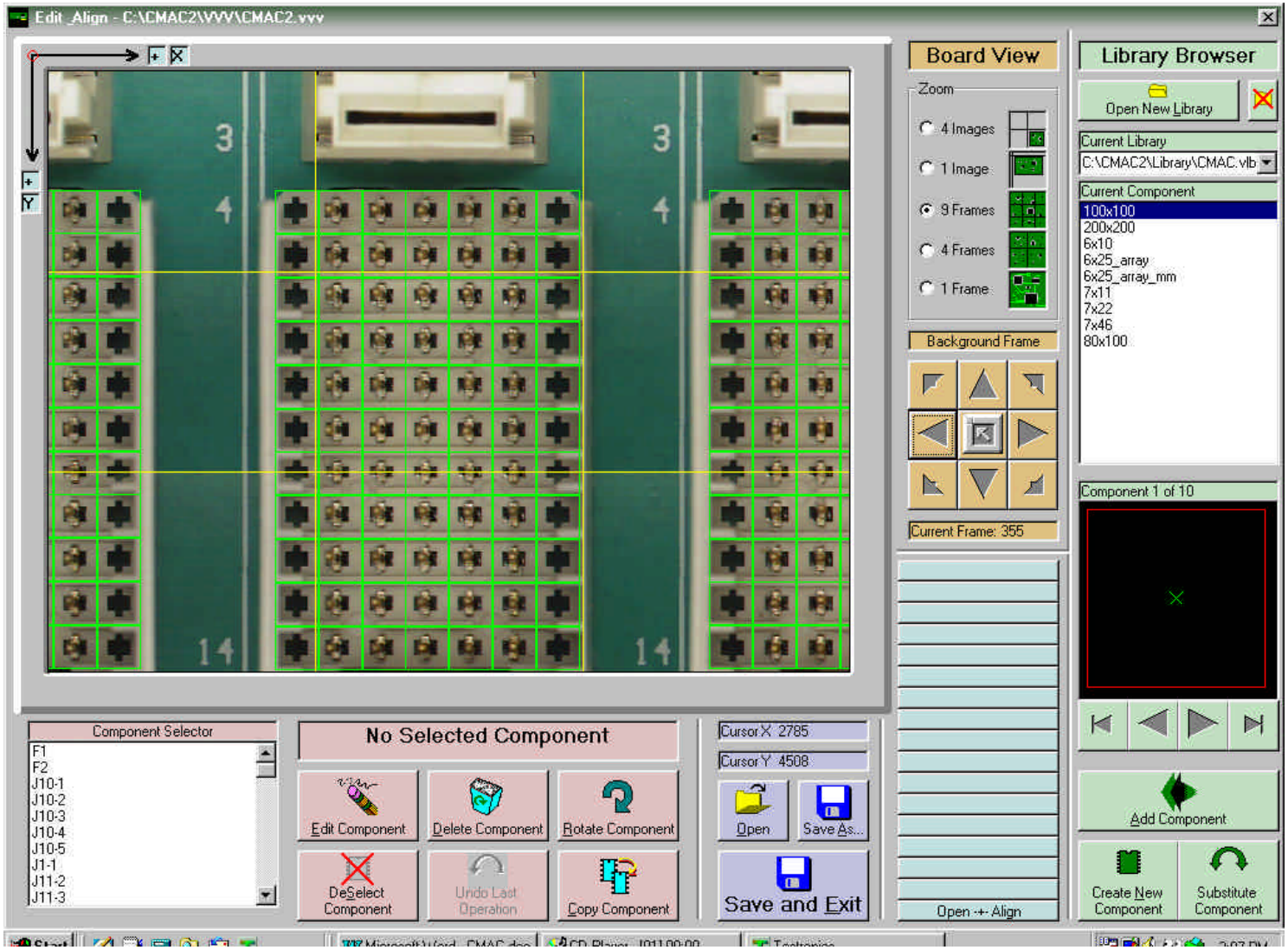
Programming and ROI Placement



1 Image View

The Edit/Align Screen allows the programmer to add, delete, and change the Regions of Interest (ROI's) associated with the program. This is where all test parameters are set or modified as needed. The user has the option of importing centroid data to place the ROI's or manually click and drag them into place. All the green areas you see above are ROI's, there are over 7500 on this particular board. **Total programming time for this board was approximately 2 hours.**

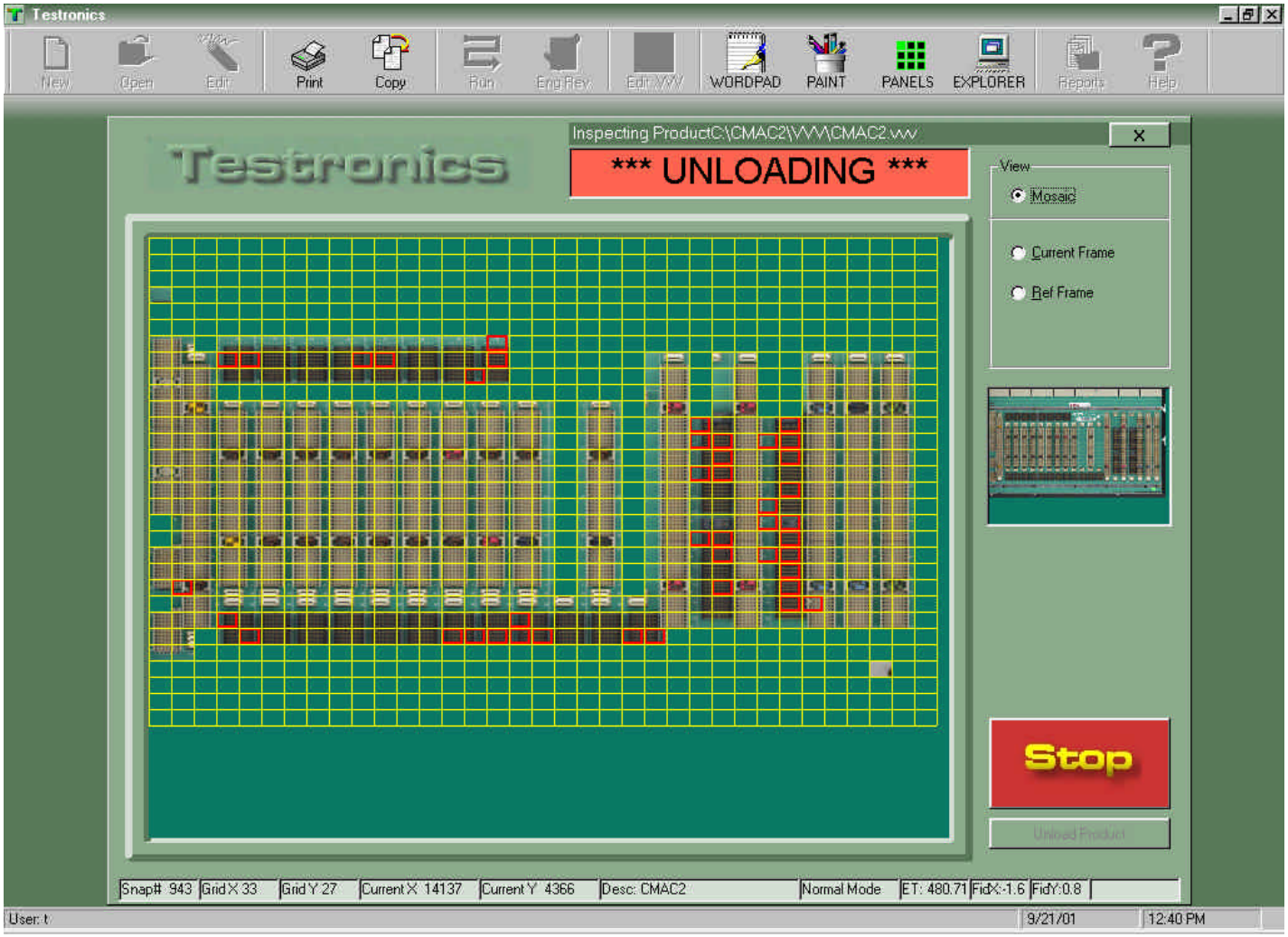
Multi Level Zoom Capability



9 Frame View

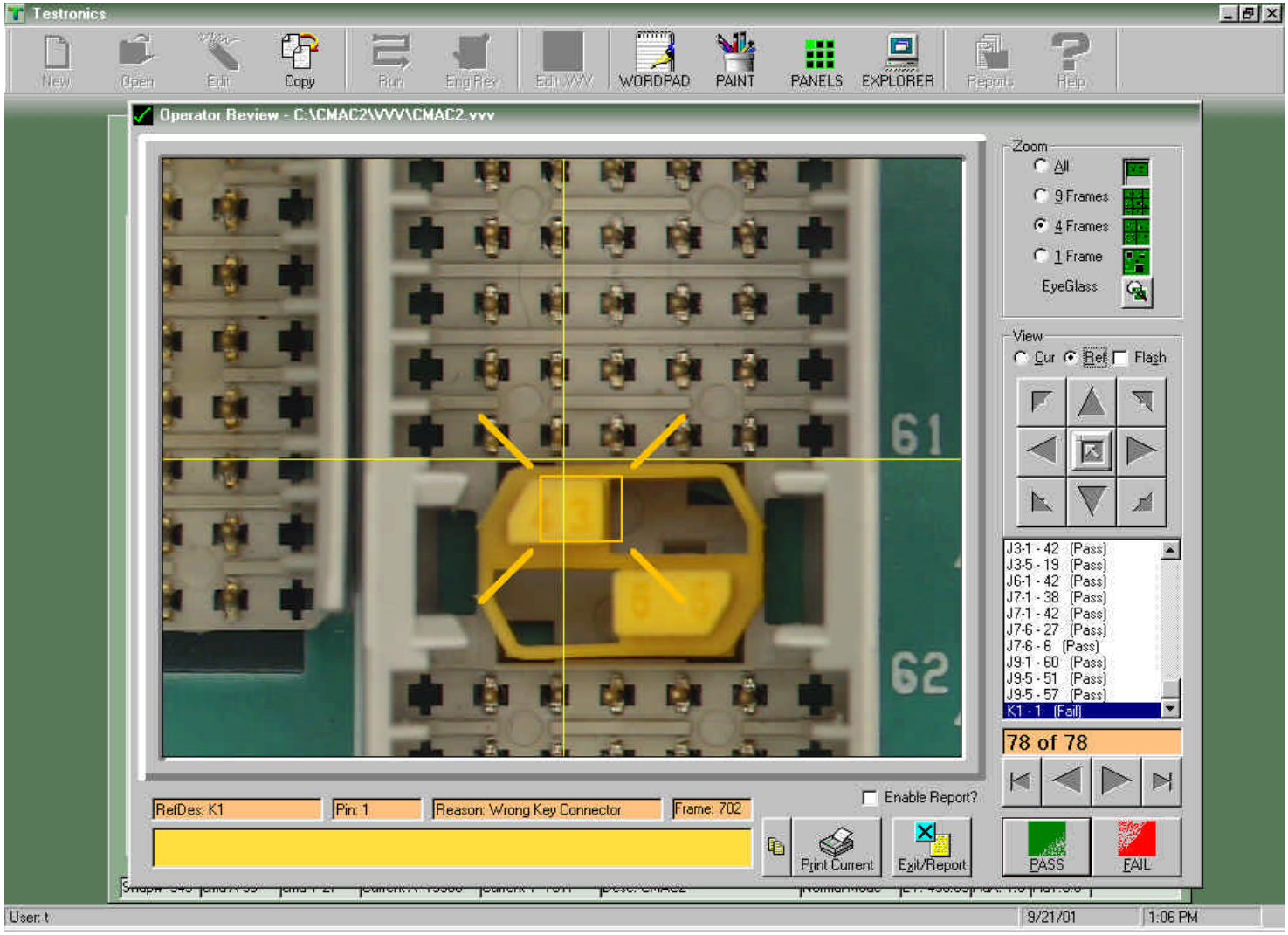
The operator can zoom in or out of frames as needed. Each frame is defined as a .48”x.64” inspection area. The ability to zoom in and out greatly enhances the programmer’s ability to align, position, and inspect large components such as pin arrays.

Optimized Test Sequence



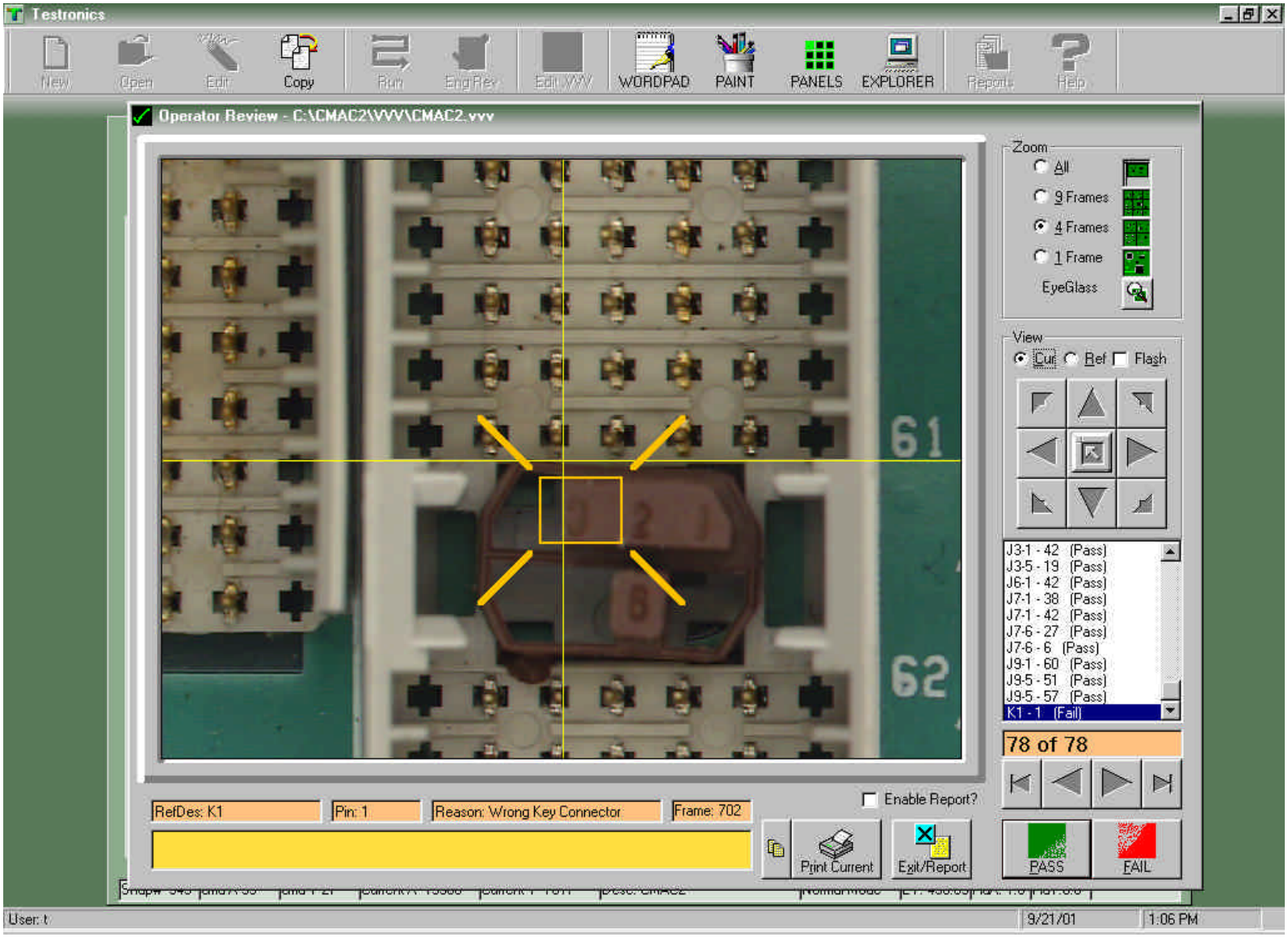
Testing time is optimized by using the “Nearest Neighbor” function. The system calculates the nearest frame with an active ROI in it to the current position of the stage and camera, then moves there for the next test. The stage and camera move simultaneously to minimize test time. Additionally, the system can skip frames without active ROI’s to further decrease test time. The 506 will test 100% of the ROI’s defined and flag only those ROI’s that fall outside of the test parameters. The red outlined areas designate frames that contain one or more ROI’s that have been flagged for the operator to review.

Key Orientation - Correct



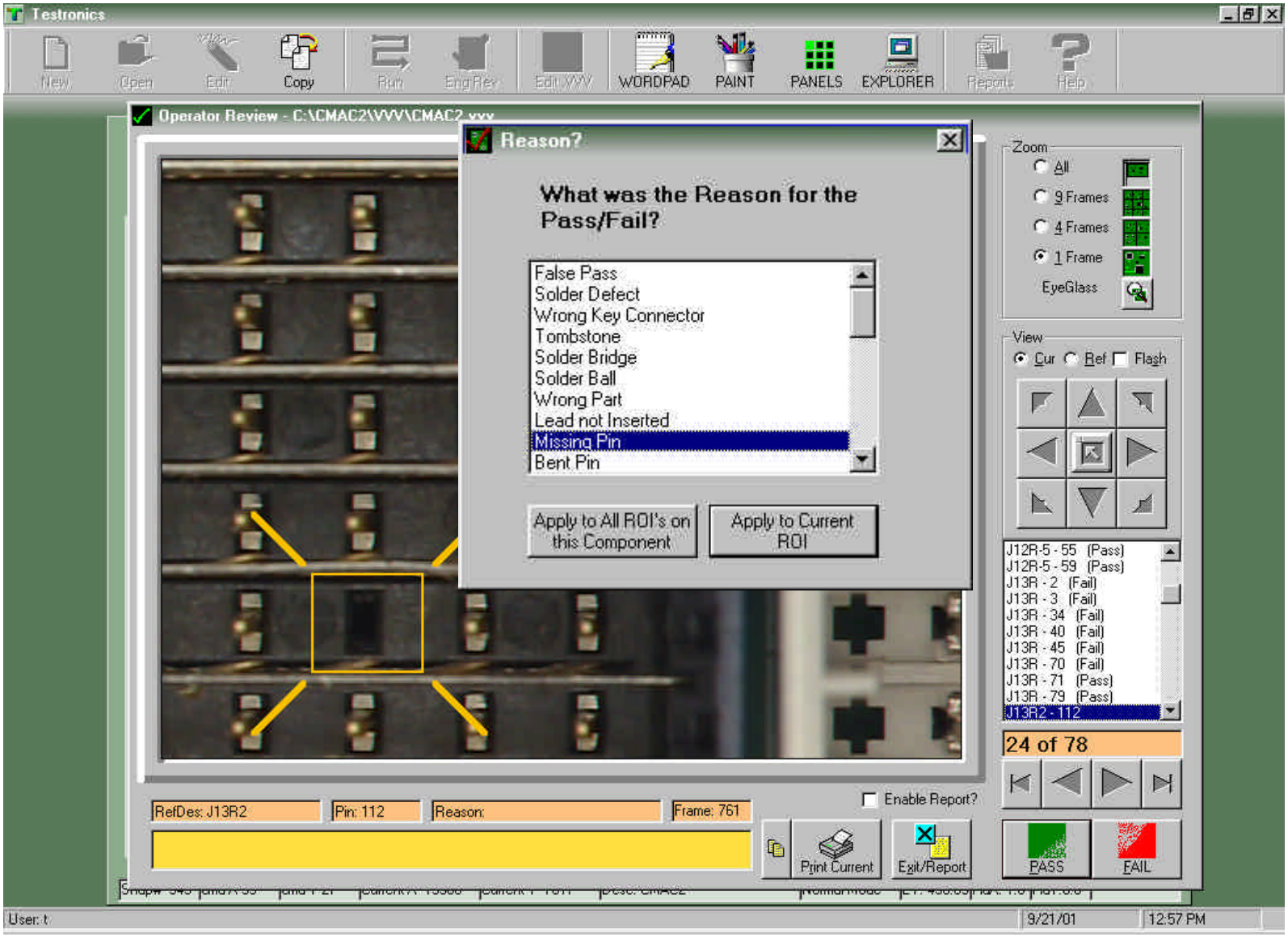
After test, the operator will be prompted to the operator review screen. Here the user can manually or automatically flash between the reference (golden) image and the image under test. The above image is the reference image of a good connector key

Key Orientation - Fail



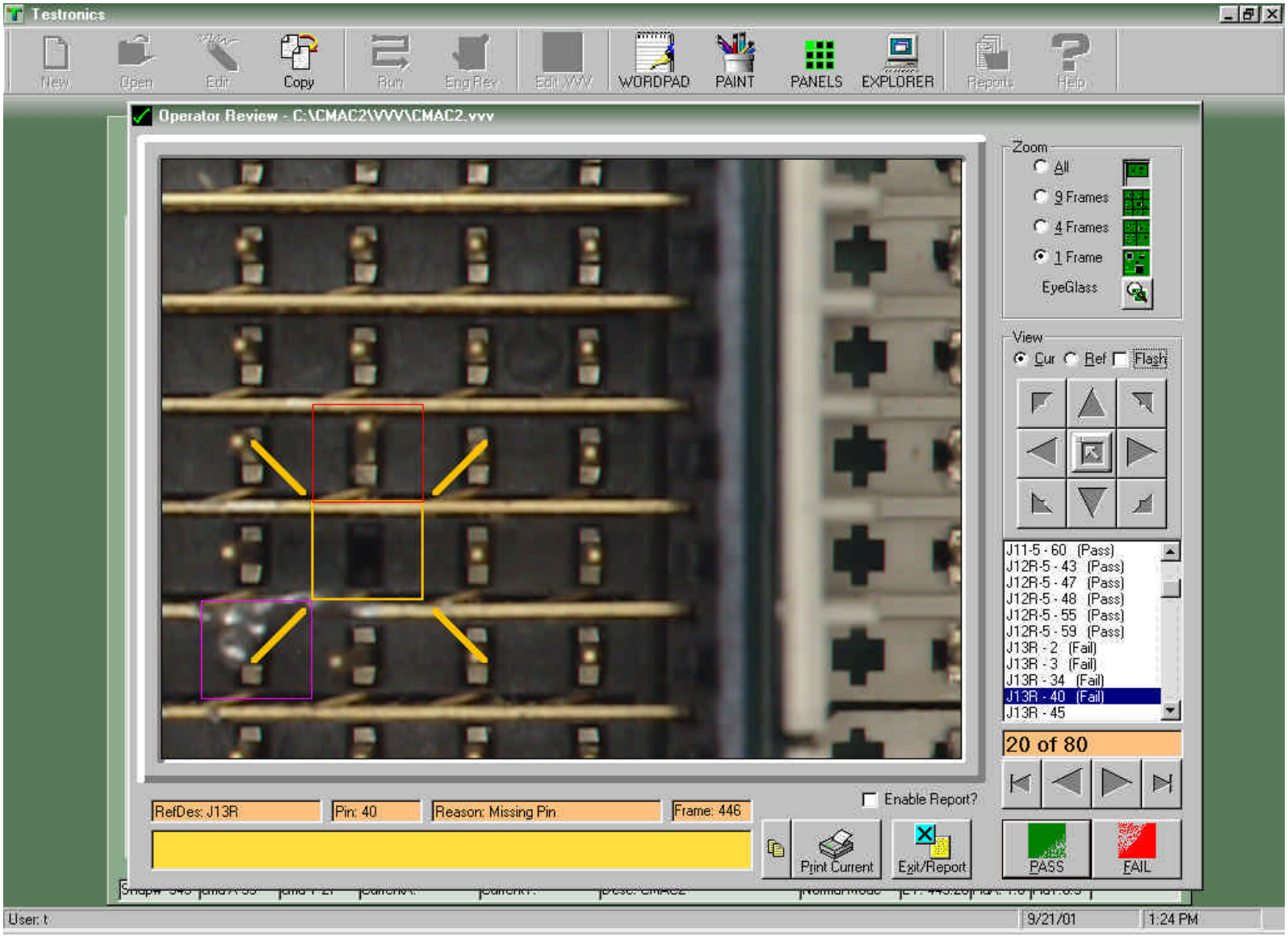
This is the image of the same connector key on the board under test. Notice it is a different color as well a shape. It has been flagged for the operator to review and make the final decision of pass or fail.

User Defined Failure Codes



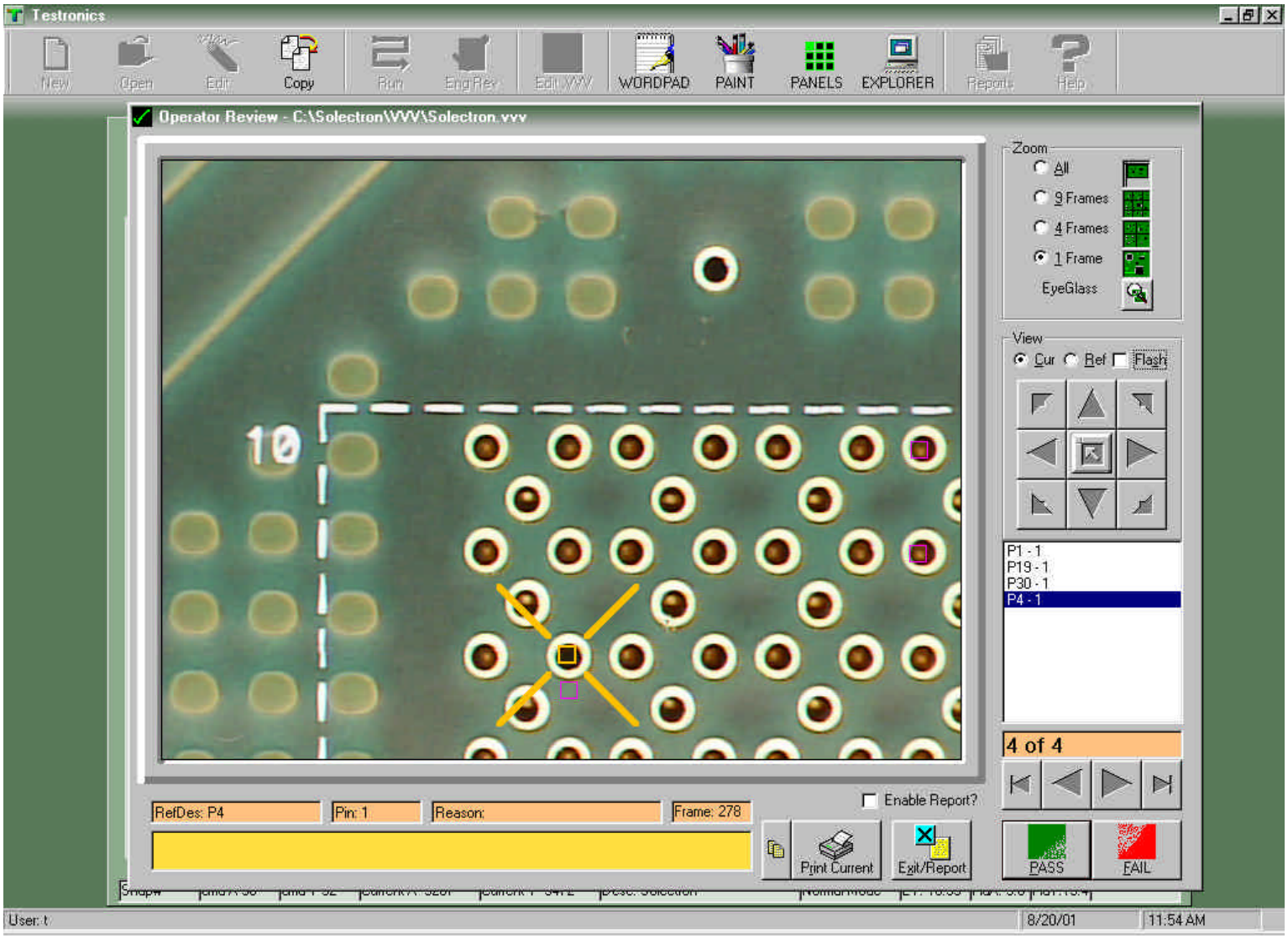
The 506 features a one click pass/fail option. When the operator clicks pass, they are prompted to the next item in the fail list. When fail is chosen the operator is prompted to a fail menu to choose a fail code. The user is able to customize this list to contain failure codes currently in place within their organization. All data associated with the pass/fail is logged into a Microsoft Access database for future review and/or SPC processing.

Failure Examples: Bent, Missing, and Solder



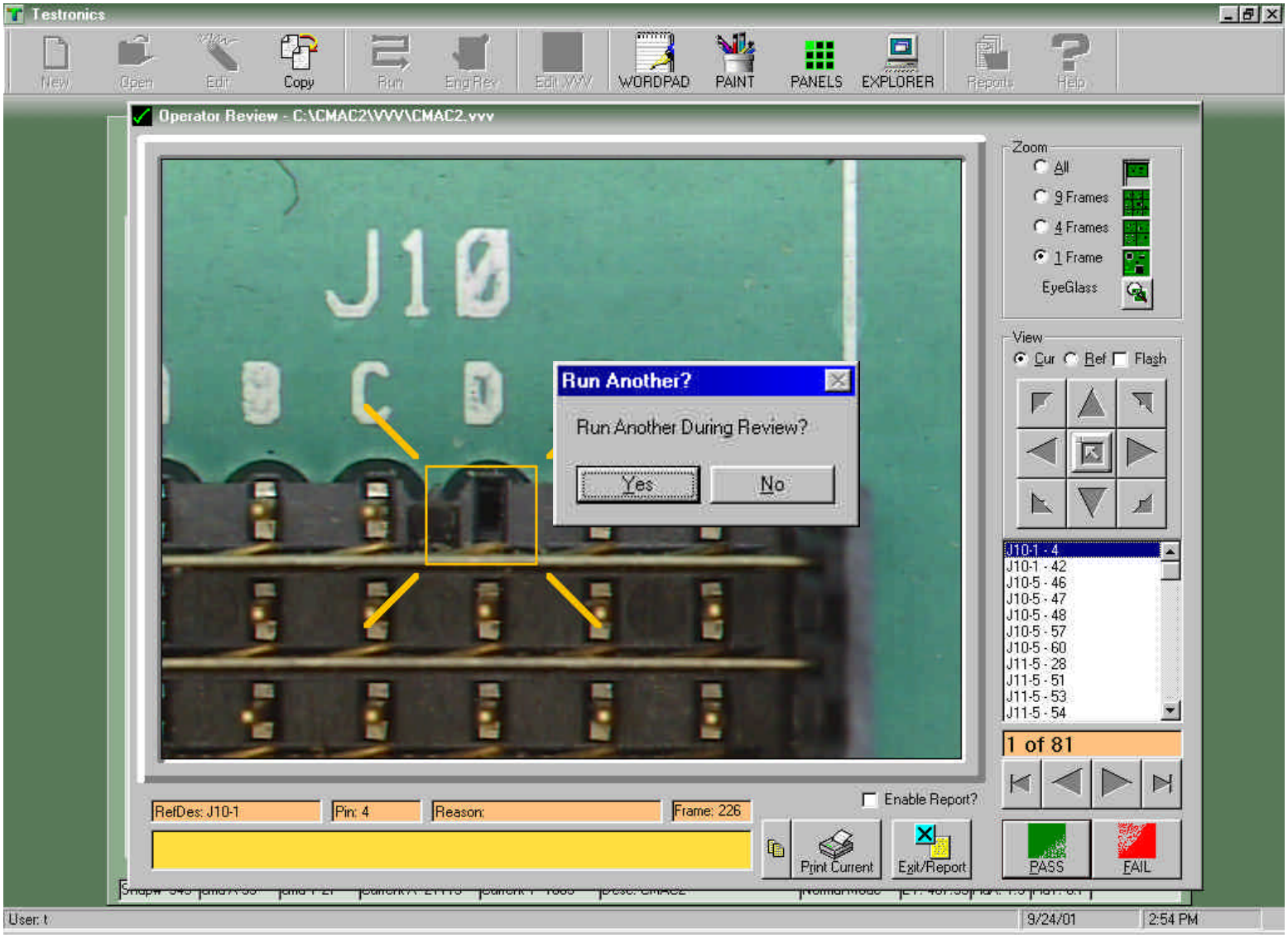
The operator review screen color codes defects as you move through the failure list. Red designates an area that has already been reviewed and determined a fail by the operator. Yellow denotes the area currently being addressed, and purple shows an area that has been flagged, but not yet reviewed by the operator. The image above shows three common types of failures the 506 is able to detect – bent pin (red), missing pin (yellow), and a solder defect (purple).

Testing Underside for Missing and Curled Pins



Above is a view of a .25” thick backplane being inspected for missing pins. The yellow ROI designates a via without a visible pin, a symptom of a missing or curled connector pin. The linear light as well as the high resolution 1 mil/pixel optics allow the 506 to see down into holes, even on thick boards.

Concurrent Inspection During Review



Images are stored in memory for review, allowing the system to begin capturing images of the next board to be tested while the operator is stepping through the failures of the current board under test. This feature is unique to the 506 and decreases test time by allowing the operator to inspect one board while testing another.

Shroud Key Testing

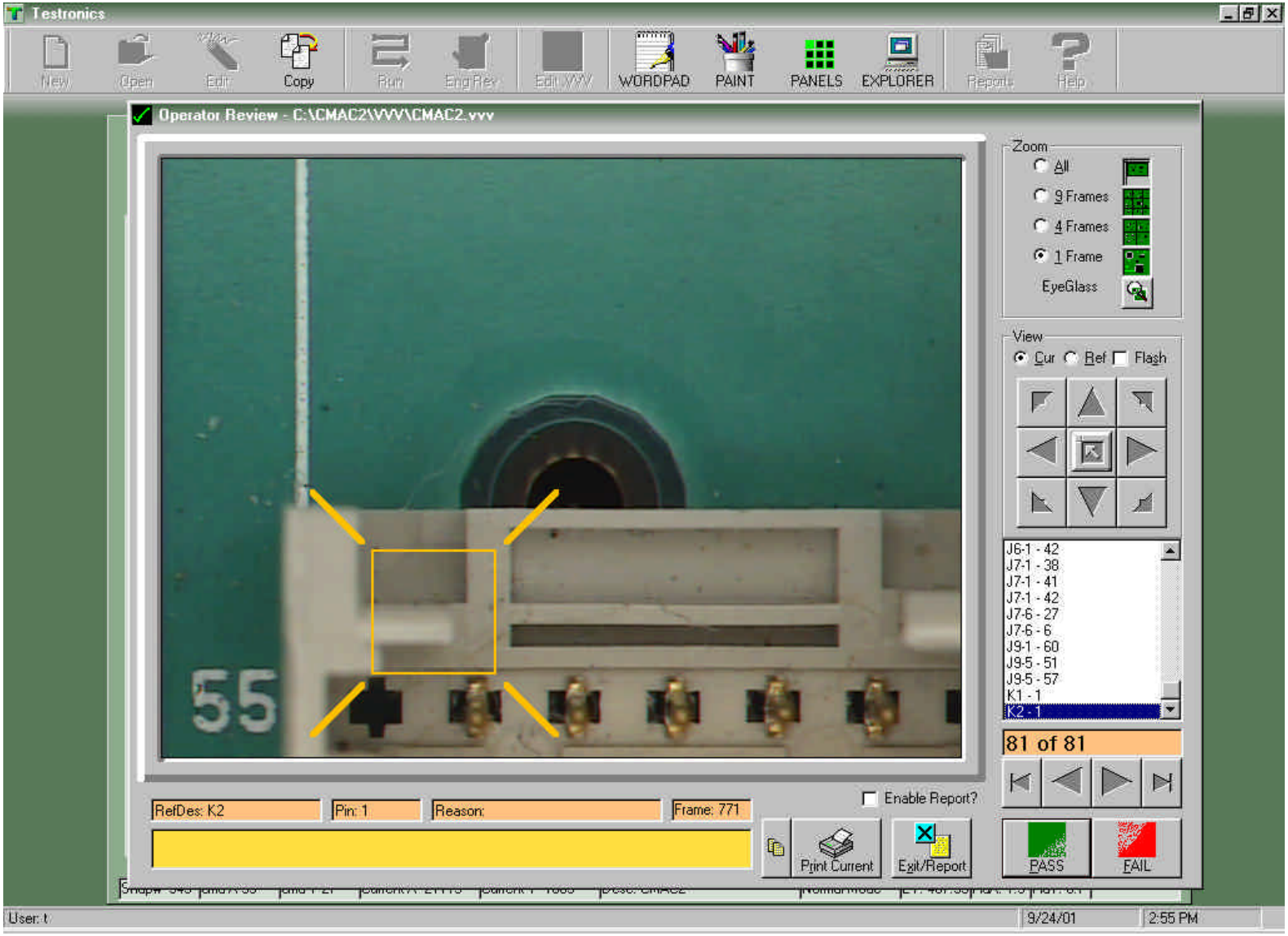
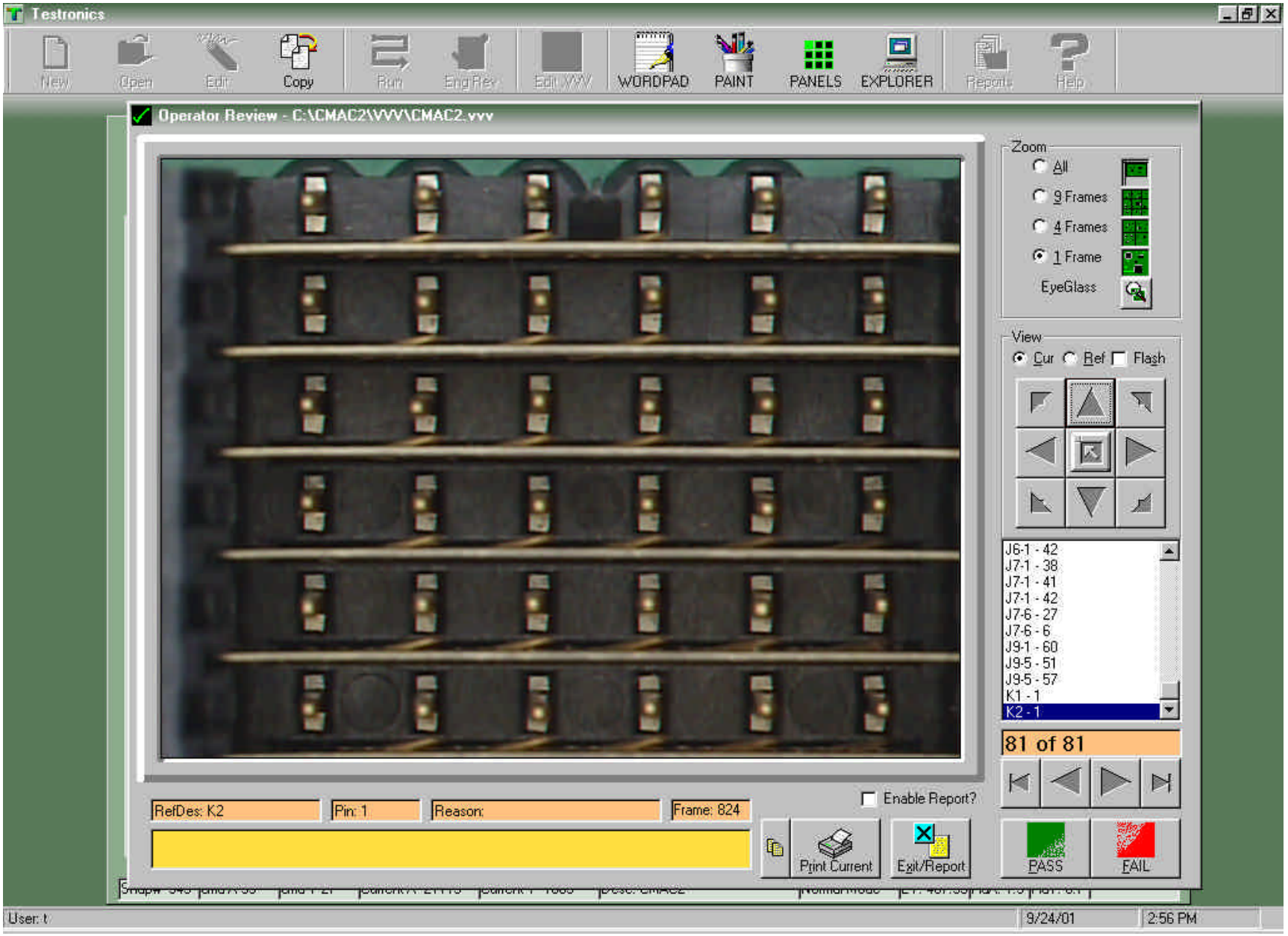


Image above features a reversed connector array. The 506 compares images of the shroud keying and flags differences for the operator to review.

Enhanced Linear Lighting



The enhanced linear lighting solution allows for crisp images, even between grounding plates in VHDM connectors. The 506 is able to test for bent and missing pins in these types of applications.

Testronics
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506 Features

- 24” x 40” Inspection Area – (Largest in the industry)
- High Speed X-Y Stage handles up to a 30 lb. Assembly
- Full Color Inspection, Unlimited Alternate Images, Multiple Inspection Algorithms
- Easy Programming – Operator / Technician Level
- Optional Off-line Programming Station Available
- Windows XP Operating System
- Free Factory Training
- Free Software Upgrades for the Life of the Machine plus Free Online and Telephone Support
- Low Initial Cost, Lower Cost of Ownership

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