TR-7100 Pre/Post Re-Flow Automated Optical Inspection (AOI) System

- High Speed
- High Defect Coverage
- Fast, Easy Programming

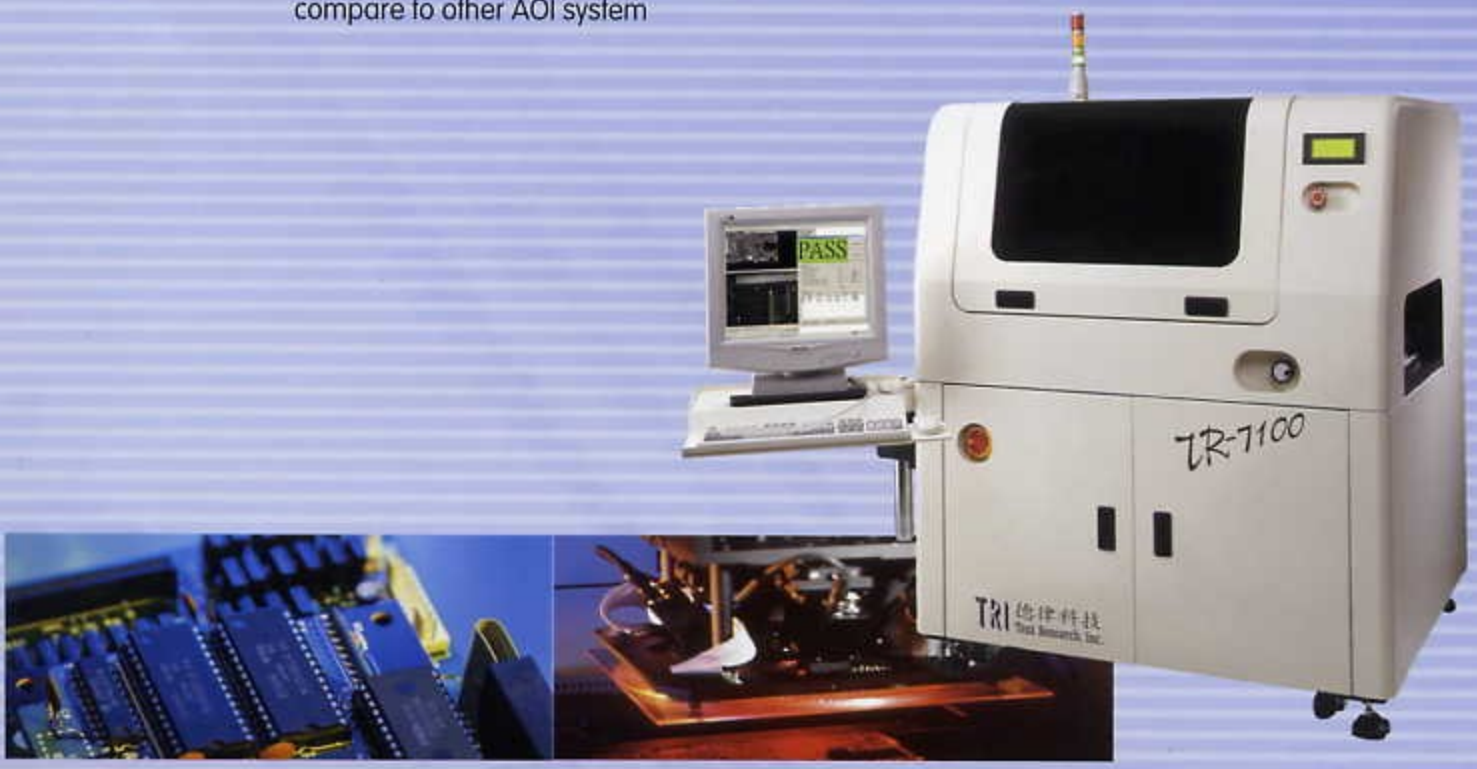
Better Testing Better Quality

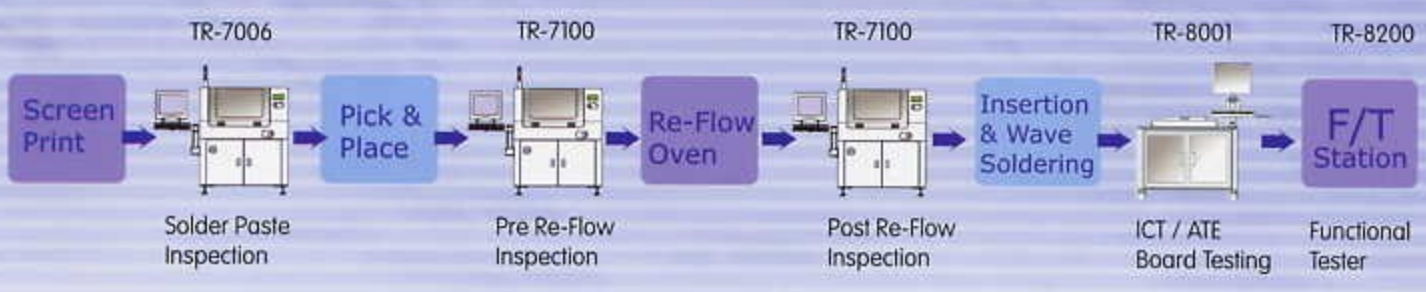
Inspection on the Fly

High Speed Inspection

- Advanced high speed read on fly imaging along with precision motion and lighting control technology delivers 300 frame/sec standard VGA format image (640*480 pixel)

- Image based warp compensation technology by using the same FOV for both warp calculation and inspection windows, no extra image scan time necessary as compare to other AOI system





TRI provides complete Testing and Inspection Solution for the PCB assembly line.

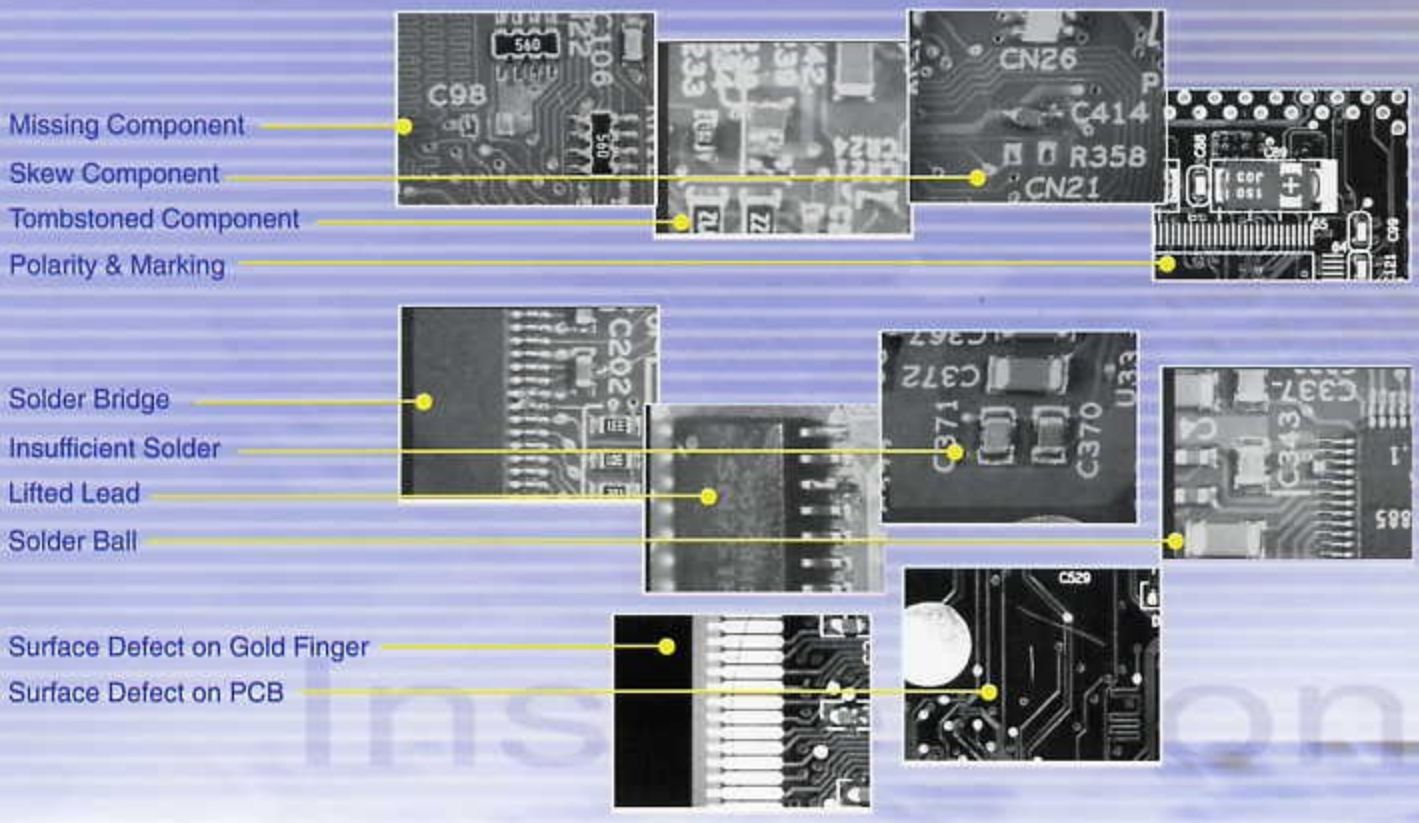
High Defect Coverage

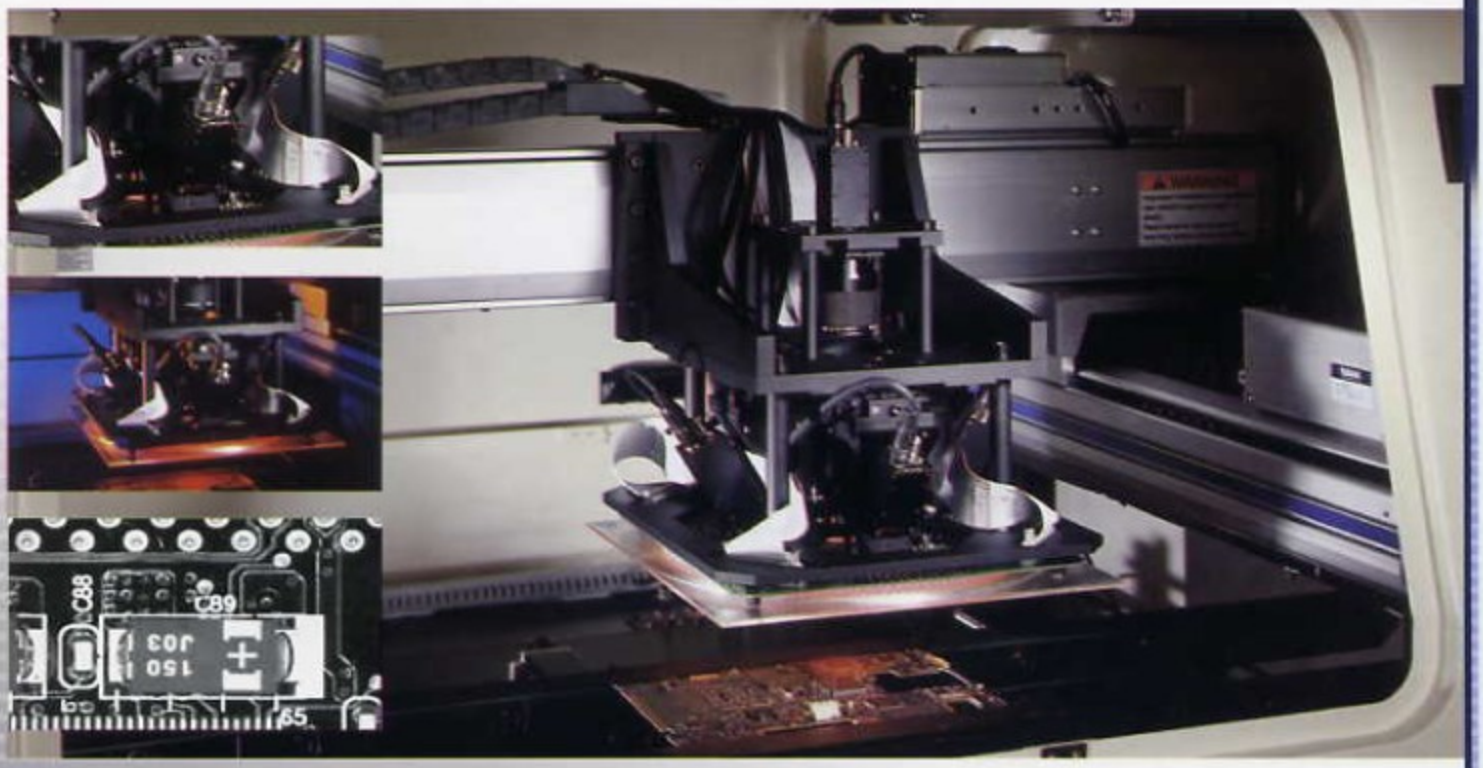
High density PC Mother board

Multi-board

- Thanks to the high-speed read-on-fly imaging technology, each component has 10 top and angled view images to identify the correct defect type.

- Accurate warp compensation and fiducial finding algorithm provides correct position of inspection windows that lead to high and repeatable defect detection





Robust Mechanical System

- Box type machine frame supports stable and vibration free high speed imaging
- Production line proven X-Y table supports high speed and long operating life

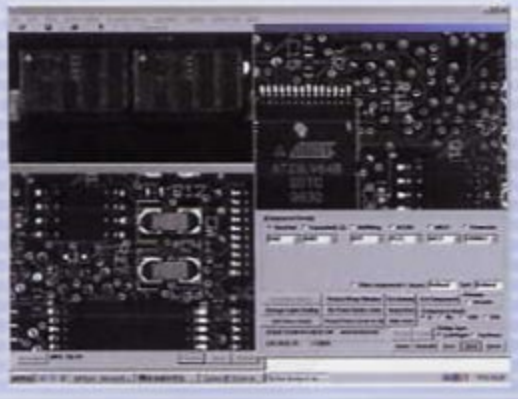
Modularized Control System

X-Y table, Conveyor system, Image acquisition, lighting system and host PC are independent system with minimum interface line interconnected. It provides easy diagnostic and maintenance.

on the Fly

Inspection on the Fly

Programming Environment



Friendly user interface

Image library for easy Teach & Train

The TR-7100 features easy to use graphical program development environment, permitting rapid development of inspection programs. There are two programming methods available:

❶ Direct programming by using CAD data. Only 5 data fields are necessary:
1.component name 2.package type 3.X-position 4.Y-position 5.rotation angle.

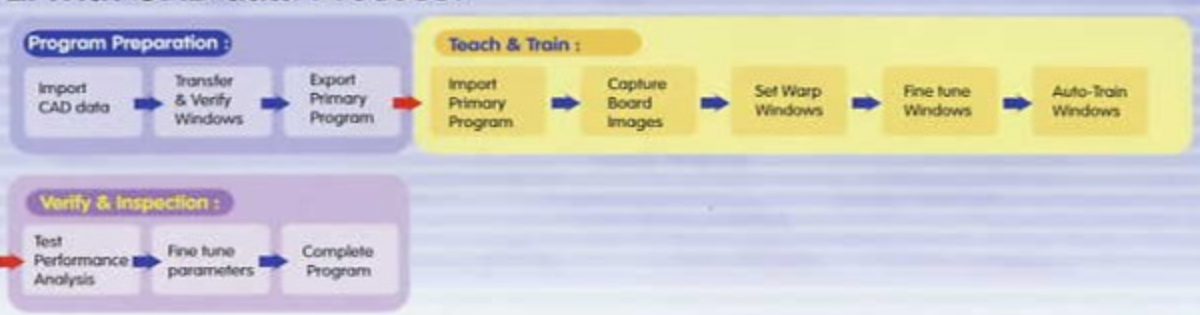
❷ Golden board teaching. With the aid of Auto-Windowing technology, about 60~80% of components can be taught automatically.

❸ Off line Programming tool (Option)
A PC based standalone programmer can be used as an off-line programming tool. With the input of acquired images from golden board, the inspection programming can be prepared without using inspection machine.

Auto-Windowing of fine pitch QFP lead

1. Non-CAD data Process:

2. With-CAD data Process:



Specifications

Inspection Technology

Multi-angle read on fly imaging
Continue variable lighting level control
Gray scale image processing algorithms
Image based warp compensation

Field of View: 0.7" x 0.53"
Warp compensation across panel:+/- 200 mil
Number of camera: 1 top + 4 angle
Camera resolution: 33 um/ square pixel
optional: 20 um/ square pixel
Inspection area:
Minimum: 50 x 75 mm
Maximum: 500 x 400 mm
Position resolution: 2.4um
Image acquisition rate: 60 FOV/second per camera
Board imaging rate:> 5 square inches/sec
Top side clearance: 65 mm
Bottom side clearance: 65 mm

Power requirement
220V, single phase, 50/60Hz, 20A
Dimension
Size: W 1220 mm x D 1100 mm x H 1500 mm
Weight: 500Kg
Conveyor system
Motor driven clamping and transport
Pass-through mode allows independent conveyor operation
Panel size: 50 x 70~500 x 400 mm
Panel thickness:
Minimum: 0.6 mm
Maximum: 5.0 mm

Defect Coverage

Component defects:
Missing components
Skew components
Extra components
Component skid/skew
Tombstoned components
Billboarded components
Alternative/Marking
Solder joint defects:
Solder bridge
Insufficient solder
Excess solder
Lifted Lead
Solder balls
Through-hole pins
Surface defects:
Gold-finger contamination
Scratch

Programming and software tools

Operating system
Windows 2000 (English or Multi language version)
Support Windows networking capabilities
Programming
CAD data import. Standard and custom libraries supported. Interactive live image editing for lighting level and inspection window Multi-board panel support
Repair station
A PC based standalone repair station with graphic review software and Microsoft networking capabilities, allows defect classification and recording for further defect analysis.