

# Model TR-9-2000-QC Long-Travel Fixture System

## Product Features

- Fast Loading and Unloading
- Integrated Rack/Cabinet
- Quick-Change Fixture Kits
- Compatible with KIT1000-QC
- 2000 Test-Point Capability
- Easy, Low-Cost Customizing
- Top and Front UUT Access

## Applications

- **Most Common Circuit Assemblies**
- **Through-hole and SMT Devices**
- **Hard-to-Gasket Assemblies**
- **Individual or Panelized PCBs**

The CheckSum Model TR-9-2000-QC Long-Travel Pneumatic Fixture System is designed to be the basis for CheckSum stand-alone bed-of-nails test systems. Integrated into the system is rack space for system electronics, a keyboard, and a front panel with a minimum selection of buttons to make it easy, safe, and error-free for the operator to use.

The Model TR-9-2000-QC can be used for test fixturing of circuit boards up to 13.2" x 16". This fixture system can be used for most general-purpose bed-of-nails fixturing applications including those with top and bottom access, and TestJet\* Technology.



*Model TR-9-2000-QC in UUT Loading Position*



*Model TR-9-2000-QC Performing Test*

## Operating the System

The Model TR-9 utilizes a 6" long-travel mechanism so that a lid does not need to be opened and closed between tests. The unit-under-test (UUT) is simply removed and the next one put into place.

To start the test, the operator uses both hands to press and hold the Test button in conjunction with a safety button. Once the test starts, the operator can release the buttons. For extra safety, a force-sensing mechanism causes the system to release if it encounters resistance during its downward travel until the last 0.5" of travel is reached. In addition, a clear shield blocks

\* TestJet Technology is protected under U.S. Patent Nos. 5,124,660 and 5,254,953.

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access on the two sides and back. An emergency switch (red) will turn-off all power to the system, return the top lid to the up-position, and release the fixture interface.

Unlike alternative long-travel fixture systems, the TR-9 allows easy front access to the UUT. The top plate can also contain openings for top access to the UUT for adjustments and settings during a test.

After the test is complete, the top automatically rises to allow the tested assembly to be removed. Buttons on the console allow the operator to select common testing functions such as loading a test program, initiating reports, and starting/terminating testing.

Front panel lights indicate power-on, busy, pass or fail status. A stack-light also shows busy, pass or fail to help prevent operator errors and to allow others in the area to be aware of system status.

## Change-Over for New UUTs

The Model TR-9-2000-QC makes change-over from one type of UUT to another quick and easy. With the integrated fixture interface, there are no cables to change or tools required.

The top plate of the fixture simply unclips for removal. The fixture-kit base is released with a switch and

removed in a single operation. Installing the new fixture is done by sliding the new cover plate into position and clicking it into place. The fixture base is set into position and a switch is used to engage the test point interface.

## Integrating System Electronics

For compatibility with CheckSum Test Electronics, the Model TR-9 contains 14" of 19"-EIA rack space. This will house up to two industrial controllers in either 14-slot or 20-slot configuration, such as the CheckSum Model T-120-IC. Rack slides allow the test electronics to be easily accessed for maintenance.

A front-panel power switch enables six internal 110V outlets, one of which is used by the internal pneumatic control electronics. The rack includes casters for ease in installing and relocating the system. A shelf (included) can be installed on the side of the rack to hold a CheckSum Model T-120-2P Industrial Strip Printer (not included).

The TR-9 has a keyboard drawer to hold the system keyboard and mouse/trackball. The drawer can be pulled out so that a programmer can comfortably sit at the system for programming operations. At the rear of the drawer, a jack for the system probe provides access for debugging operations.



For electronics integration to the front panel, the test system used with the Model TR-9 must have an integrated keypad interface (such as the CheckSum Model TR-8 and above).

Internally, the test electronics are connected to the fixture interface via 50-pin ribbon cables. The fixture interface can accommodate up to 2000 signals via ten 200-point interface blocks.

## Customizing the Fixture

The Model TR-9-2000-QC Fixture Press is used in conjunction with low-cost, KIT2KN-QC Fixture Kits that are customized for each UUT.

Configuring the fixture for your UUT can be done by CheckSum, a local fixture contractor, or in-house if the necessary drilling and wiring equipment is available.

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Fixture Kit customization involves drilling, installation of spring probes and receptacles, installation of guide pins, wire-wrapping the probe receptacles to the interface blocks, and installation of pressure rods into the top plate. For top-access to the UUT, the top plate can be drilled or machined to allow use of screwdrivers or adjustment tools.

## TR-9-2000-QC Configuration

The Model TR-9-2000-QC Fixture Press includes the rack-cabinet, fixture press, rack-slides for one 7" chassis, stack-light, printer tray, ten 200-point interface blocks, monitor stand, top support stiffener, and instruction manual.

When building a customized test head, order:

1. A Model KIT2KN-QC Fixture Kit which includes the bottom probe plate and pan assembly, top clear polycarbonate pressure plate, and ten pressure rods.
2. For each 200-points wired for the UUT, order one FIX-200P-WB 200-point fixture wiring block for connection to CheckSum Test System electronics. If you will be using SMT, a power or functional test module during testing, you may need additional blocks.
3. For each 15-25 probes, order a P-ROD pressure rod. Ten are included with each kit to accommodate UUTs of up to about 200 points. If tapered (pointed) pressure rods are necessary, order the P-ROD-T. If your UUT has high-force and/or high probe-counts in concentrated areas, you may need to add one or more FIX-SUPRT-BP stiffener posts to the bottom probe plate.



Model KIT2KN-QC

## TR-9-2000-QC Specifications

### Fixture Press

Base Size	24"W x 32"D x 48"H (without monitor and printer)
Overall Size	30.5"W x 38"D x 61"H (with monitor and printer)
Air Requirements	80–120 PSI with 40 micron filtering. 100 PSI required for full probe loading. 0.25 CFM maximum operating flow rate.
Air Connection	Standard 1/4" OD hose
Power	115/230V, 50/60Hz, 15A maximum
Fixture Travel	6.0" (top pressure plate moves down)
Fixture Interface	Ten (10) 200-Point Receiver Blocks
Front Panel Control	Three-position switch for up, down, or remote control. A two-position switch to release the test fixture. An emergency off/on switch.
Front Panel Indicators	Power-on, Pass, Fail and Busy LEDs plus Stack-Light with Red, Green and Amber.
Front Panel Keypad	Test (F1), ReTest (F2), Safety, F3-F7, and Escape
Weight (Press)	Approximately 315 lbs (shipping wt. approximately 400 lbs)
Warranty	90-day parts and labor limited warranty

### Fixture Kits

Probe Area	13.2"D x 16"W
UUT Height	3.325" (UUT PCB to top pressure plate)
Closed Height	3.70" (probe plate to top pressure plate)
Inside Depth	2.92" (inside the bottom of fixture kit)
Probe Plate	0.375" G-10 (FR-4) material
Top Plate	0.50" clear polycarbonate
Probe Count	Up to 2000
Weight (Kit)	Approximately 25 lbs. (shipping wt. approximately 30 lbs.)

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## Ordering Information

Model	Description
TR-9-2000-QC	Fixture Press with Rack/Cabinet
FIX-200P-RB	200-Point Receiver Block/Cable
KIT2KN-QC	Fixture Kit for TR-9-2000-QC
FIX-200P-WB	200-Point Wiring Block
P-ROD	Pressure Rod, 3.325"
P-ROD-T	Tapered Pressure Rod
FIX-SUPRT-BP	Fixture bottom support post
FIX-RACK-SLIDE	Rack-Slide Kit for additional chassis

### Note:

Pictures in this brochure show optional equipment installed in the TR-9-2000-QC. For example, the Model T-120-PPC2-IC controller, T-120-2P Printer, and customized KIT2KN-QC fixture kit with TestJet technology.



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Specifications subject to change (5/2005)