

Model TR-9-1000-QC Pneumatic Fixture System

Product Features

- Fast Loading and Unloading
- Integrated Rack/Cabinet
- Quick-Change Fixture Kits
- 1000 Test-Point Capability
- Easy, Low-Cost Customizing
- Top and Side 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 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 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*.



Typical Model TR-9-1000-QC Performing Test



Typical Model TR-9-1000-QC in UUT-Loading Position

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.

FIXTURE
SYSTEMS

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

Model TR-9-1000-QC Pneumatic Fixture System

Unlike alternative long-travel fixture systems, the TR-9 allows easy side and 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.

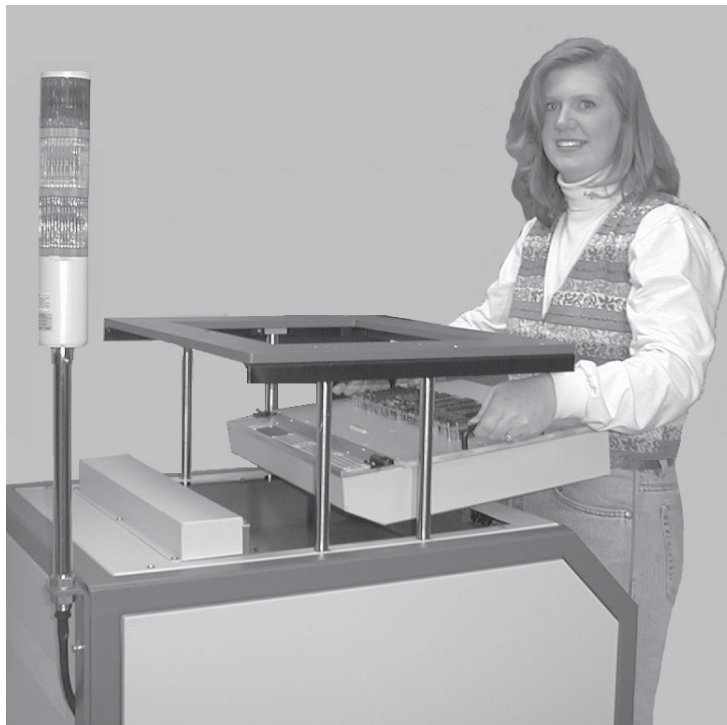
After the test is complete, the top automatically rises to allow the tested assembly to be removed. Buttons on the console allow the operator to select common testing functions such as loading a test program, initiating reports, and starting/terminating testing.

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 makes change-over from one type of UUT to another quick and easy. The top plate of the fixture simply unclips for removal. The fixture-kit base is released with a lever and is removed in a single operation.

With the integrated fixture interface, there are no cables to change or tools required. Fixtures can be changed out in a matter of seconds. Installing the new fixture is done by sliding the new cover plate and fixture base into position and clicking them into place.



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 115VAC 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 1000 signals via five 200-point interface blocks.

Customizing the Fixture

The Model TR-9 Fixture Press is used in conjunction with low-cost, KIT1000-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.

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.

Model TR-9-1000-QC Pneumatic Fixture System

TR-9-1000-QC Configuration

The Model TR-9-1000-QC Fixture Press includes the rack-cabinet, fixture press, rack-slides for one 7" controller, stack-light, printer rack, five 200-point interface blocks, CRT stand and instruction manual.

If your UUTs contain dense concentrations of probes, you may need the FIX-SUPR-T top support stiffener kit to reduce top pressure plate flexing.

When building a customized test head, order:

1. A Model KIT1000-QC Fixture Kit which includes a probe plate and pan assembly, 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, -PWR, or functional test module during testing, you may need additional blocks.
3. For each 15-25 probes, order a Model 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 probe-counts in concentrated areas, you may wish to add one or more FIX-SUPRT-BP stiffener posts to the bottom probe plate.



Model KIT1000-QC

TR-9-1000-QC Specifications

Fixture Press

Base Size	24"W x 32"D x 48"H (without monitor and printer)
Overall Size	30.375"W x 38"D x 61"H (with monitor and printer)
Air Requirements	50-120 PSI with 40 micron filtering, 80 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)
Connections	Internal DB25 cable to CheckSum MDA Interface Electronics, 50-pin ribbon cables to CheckSum Test Electronics, 5-pin cable to controller power supply and speaker.
Auxiliary I/O	26-pin connector with: Test system 8 digital I/O signals and fused 5V and +12V, plus connections to 4 form-C relays (COM/NC/NO contacts).
Fixture Interface	Five (5) 200-Point Receiver Block/Cable assemblies are included.
Front Panel Control	Three-position switch for up, down, or remote control.
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 245 lbs. without the computer and fixture kit, 320 lbs. loaded (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 1000
Weight (Kit)	Approximately 25 lbs. (shipping wt. approximately 30 lbs.)

**FIXTURE
SYSTEMS**

Model TR-9-1000-QC Pneumatic Fixture System

Ordering Information

Model	Description
TR-9-1000-QC	Fixture Press with Rack/Cabinet
KIT1000-QC	Fixture Kit for TR-9-1000-QC
FIX-200P-WB	200-Point Wiring Block
FIX-200P-PWB	150-Point Signal/12-point Power Wiring Block
P-ROD	Pneumatic, Pressure Rod, 3.325"
P-ROD-T	Pneumatic, Tapered Pressure Rod
FIX-SUPRT-T	Top Support Stiffener Kit
FIX-SUPRT-BP	Fixture bottom support post
FIX-RACK-SLIDE	Rack-Slide Kit for additional chassis

Note:

Pictures in the catalog show optional equipment installed in the TR-9-1000-QC. For example, the Model T-120-IC controller, Model T-120-2P Printer, and customized KIT1000-QC fixture kit with TestJet Technology.