

### PRACTICAL HYDRAULICS SIMULATOR AND TROUBLESHOOTING — ELECTRONIC DOUBLE STATION

#### DESCRIPTION

What do you get when you take a MF100D-TS simulator, add a panel PC, and a vibrant, 19-inch touch-screen?

You get the most technologically advanced hydraulic training system in the world . . . *the amazing MF100D-TSE simulator!*

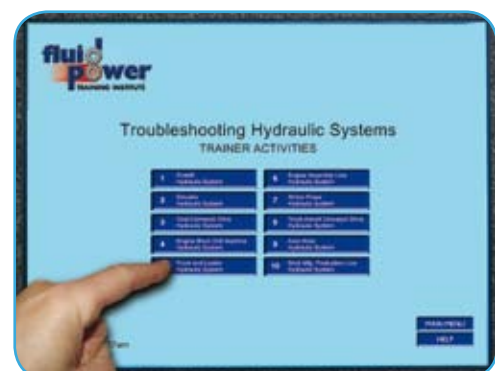
The MF100D-TSE simulator is the FPTI™'s flagship simulator with truly stunning capability!

It has the same impressive capability as the MF100D-PH and MF100D-TS simulators for teaching, and learning, basic through advanced hydraulics. However, its prowess is in its stunning ability to teach “real-world” diagnostics; a skill that is sorely lacking throughout the world.

In addition to having all the Practical Hydraulics activities programmed into the onboard PC touch-screen, there is also an extraordinarily comprehensive diagnostics program . . . *and there's more!*

As an added option, you can program any machine's hydraulic system into the PC's database. This is an excellent feature for machine and equipment manufacturers who want to teach their personnel and clients how to setup and/or troubleshoot their own machines.

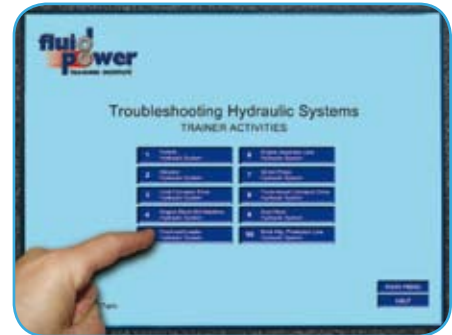
The added benefit of having the flexibility of making your own “Plug-N-Play” modules makes the MF100D-TSE simulator's capabilities limited only by the instructor's imagination.



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Here is a step-by-step overview of the MF100D-TSE series simulator’s stunning capabilities:

1. The touch-screen lists a wide variety of industrial and mobile hydraulic systems. The student touches the assigned activity, eg. front-end loader. Here are just a few of the many hydraulic circuits in the troubleshooting program:
  - a. Elevator - *industrial*
  - b. Aerial platform - *mobile*
  - c. Coal conveyor - *industrial*
  - d. Forklift - *mobile*
  - d. 50-ton press - *industrial*
  - ... and many more!



2. The touch-screen shows an illustration of the respective machine and describes the operator’s complaint. The student reviews the complaint and touches “NEXT.”

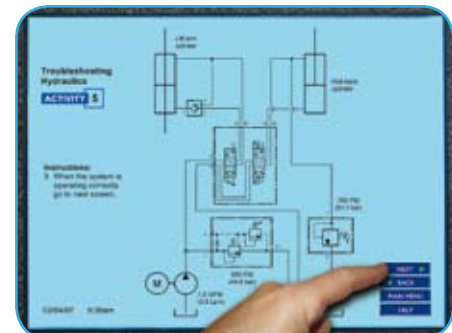
TYPE OF MACHINE EXPERIENCING THE PROBLEM(S)

DESCRIPTION OF THE PROBLEM(S) OCCURRING  
 AS REPORTED BY THE OPERATOR

DESCRIPTION OF THE STUDENT’S TASK



3. The touch-screen shows the hydraulic schematic for a typical front-end loader. The student constructs the circuit on the simulator and sets the parameters (flows and pressures) shown on the schematic. The student then touches “NEXT.”

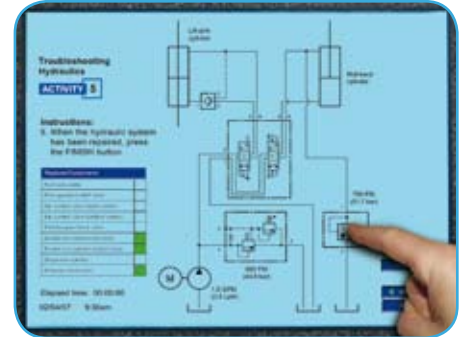


4. The touch-screen displays the operator’s written complaint form which the student uses, in conjunction with the class theory, and a comprehensive student activity workbook (312 pages), to analyze the problem. When the student is ready to start the troubleshooting activity, he/she touches “NEXT” which automatically sets one or more faults and starts the on-board timer.



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5. When a diagnostic procedure yields a defective component, the student simply “replaces” the component by touching its corresponding symbol on the touch-screen. When the student believes that the activity has been successfully completed, he/she touches “FINISH.” The final screen grades the student’s performance.



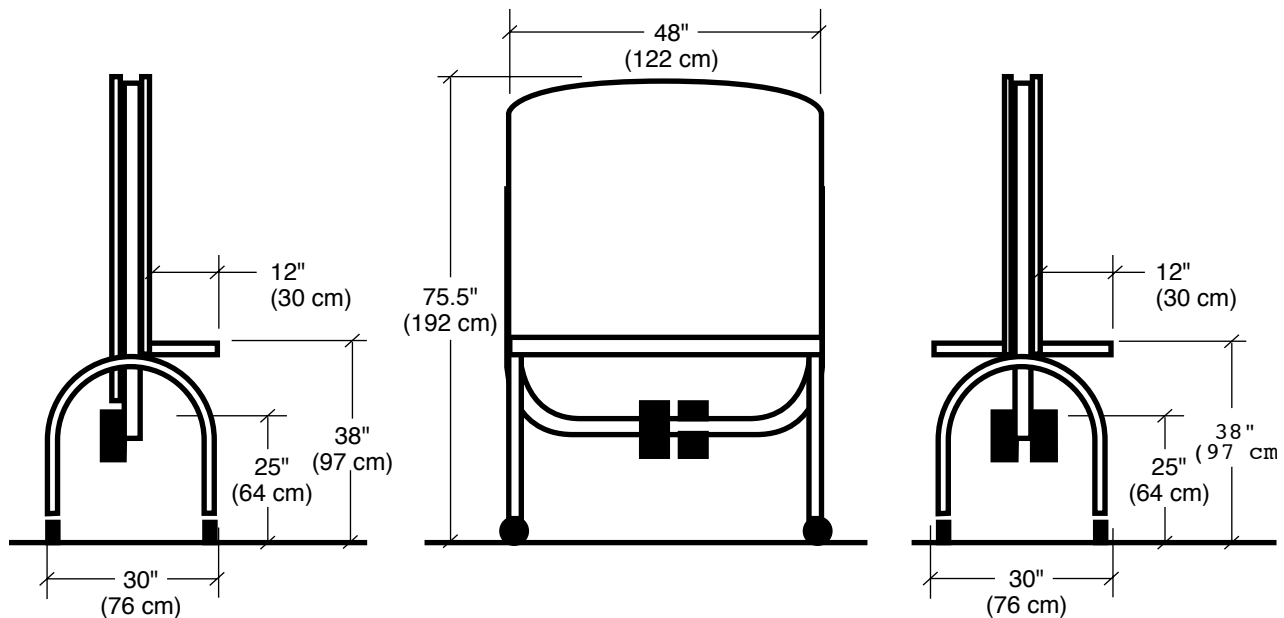
Each station (side) of the MF100D-TSE simulator is equipped with the following standard components:

- On-board, programmable computer
- Touchscreen monitor - 17 or 19 inches
- 120V single phase, electric motor (1 HP)
  - Swing-mounted and modified to facilitate pump internal leakage troubleshooting.
- Motor ON/OFF switch with thermal fuse protection.
- Pressure-compensated axial piston-type pump (1 GPM, 1000 PSI/69 bar).
- Directional control valves (2)
  - Solenoid-operated (closed-center and open-center).
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  - Lever-operated (tandem-center and float-center).
- Two (2) joystick controllers for solenoid-operated valves.
- Double-acting, single-rod cylinder.
- Double-acting, double-rod cylinder.
- Integrated load (manually-operated load engagement).
- Illuminated load select/de-select switch.
- Counterbalance valve.
- Direct-operated pressure relief valve.
- Pilot-operated pressure relief valve.
- Sequence valve.
- Pressure reducing valve.
- Conventional inline check valve.
- Pilot-operated (pilot-to-open) check valve.
- Shuttle valve (available with load-sense option).
- Needle valve.
- One-way flow control valve.
- Pressure-compensated flow control valve
  - Restrictor type.
- Pressure-compensated flow control valve
  - Bypass type.
- Ball valve.
- Electronic stop watch.
- Integrated, swing-out, paper towel holder.
- Three (3) glycerine-filled pressure gauges (1000 PSI/69 bar).
- Digital oil temperature gauge.
- Digital ambient temperature gauge.
- Dual inline flow meters.
- Digital tachometer.
- Bi-directional hydraulic motor (available with load/no-load option).
- Ammeter.
- Return-line spin-on/off filter with by-pass service indicator.
- Oil level sight glass.
- Oil reservoir filler/breather located in oil drip tray to prevent spilling.
- Integrated, self-cleaning/draining oil drip tray.
- Can operate using petroleum/biodegradable vegetable-based oils.
- Pressure/leak test pump for troubleshooting exercises.
- Hydraulic hoses with quick-disconnect fittings - 24” and 40” lengths with two (2) hose connectors to extend hose length, all mounted in swing-out/stow-away hose caddy.
- Six (6) troubleshooting “T” assemblies.
- Four-wheel, heavy-duty casters (2 lockable wheels).

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The following items are also included with each station of the model MF100D-TSE:

1. Full-color PowerPoint® presentations in CD format;
2. Student workbooks featuring simulator activities; and,
3. Instructor's manual.



#### SHIPPING SPECIFICATIONS

Weight: 940 lbs (428 kg)

Dimensions: 76" tall x 46" wide x 31" deep (193 cm x 117 cm x 79 cm)

#### WARRANTY

FPTI™ warrants its products against defect in materials or workmanship for a period of two years from date of delivery.