

### PRACTICAL HYDRAULICS SIMULATOR DOUBLE STATION

#### DESCRIPTION

The ideal setting for teaching and learning hydraulics would be to set up a classroom in a manufacturing facility for a few weeks where students study industrial hydraulics, and then move the classroom to a construction site for a few weeks where they could study mobile hydraulics.

For a student to gain maximum comprehension of hydraulics, he/she **MUST** learn in an environment wherein the theory is well presented, and the lab activities are executed on a variety of hydraulic systems, which are capable of operating through complete "load-cycles."

FPTI™ created this exemplary learning environment - the MF101D-PH series hydraulic training simulator!

What sets the MF101D-PH hydraulic training simulator apart from all other simulators, is its unique ability to replicate a fully functional industrial or mobile hydraulic system, which is capable of operating with or without load.

The model MF101D-PH has for each side six (6) directional control valves – four (4) are handle-operated, and two (2) are solenoid-operated, and also includes one (1) loadable hydraulic motor. Students can construct systems with complexity equal to, and in many cases greater than, those found in typical industrial and mobile machinery.

In addition, the MF101D-PH simulator achieves yet another remarkable milestone in simulator design; a single simulator has the onboard capability to operate in fixed or variable displacement, pressure-compensated, and pressure and flow (load-sensing\*) pump environments (*\*optional*).

Add the numerous additional unique features, and you'll quickly discover that the MF101D-PH simulator is the most advanced in the world for both teaching and learning hydraulics.



MF100D-PH w/ PLUG-N-PLAY  
MF100-PDCV OPTIONAL MODULE

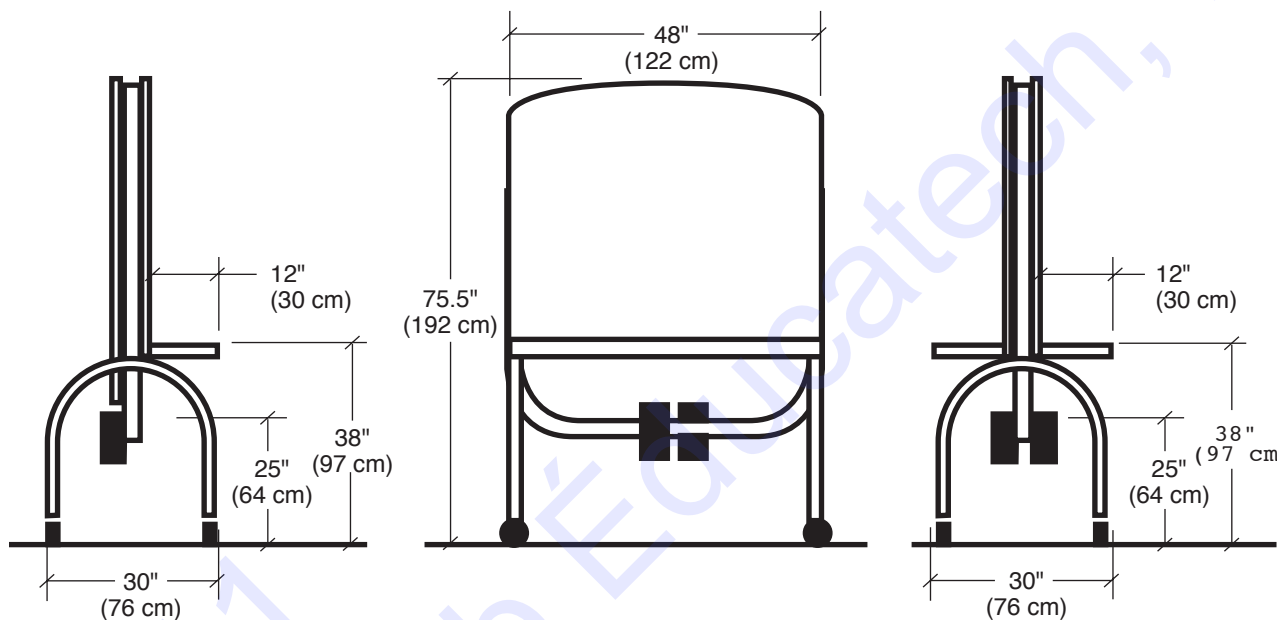
The MF101D-PH simulator is equipped with the following standard components:

- All-steel, uniframe design with tubular construction;
- All non-flexible transmission lines made from stainless steel tubing with Swageloktype connections;
- All steel parts finished in high-quality powder coating;
- Four-wheel, heavy-duty casters with wheel locks;
- 2.5 Gallon (9.5 L) hydraulic reservoir integrated in frame used by both sides;
- 1HP, 120V, single-phase, electric motors (2) – operate on a single 20-amp circuit;
- Variable-displacement pressure-compensated, axial piston-type pumps (2) — adjustable from 1 GPM to 3.0 GPM (3.79 - 11.36 Lpm), and adjustable pressure from 200 PSI to 1000 PSI (13.8 - 69 bar). Fixed displacement pumps (2);
- Pressure Control Valves:
  - a) Direct-operated pressure relief valves,
  - b) Pilot-operated pressure relief valves with remote option,
  - c) Sequence valves,
  - d) Counterbalance valves,
  - e) Pressure reducing valves;
- Directional Control Valves (12):
  - a) 3-position, 4-way, open-center, handlever-operated directional control valves (4),
  - b) 3-position, 4-way, tandem-center, solenoid-operated directional control valves (2),
  - d) 3-position, 4-way, closed-center, solenoid-operated directional control valves (2),
  - e) 3-position, 4-way, float-center, handlever-operated directional control valves (4);
- Flow Control Valves and Flow Dividers:
  - a) Needle valves,
  - b) Flow control valves,
  - c) Restrictor-type pressure-compensated flow control valves;
- Check valves:
  - a) Conventional in-line,
  - b) Pilot-operated (pilot-to-open),
  - c) Shuttle valves (with load-sense option only);
- Actuators:
  - a) Bi-directional hydraulic motors w/loadable hydraulic motor,
  - b) Double-acting, single-rod cylinders,
  - c) Double-acting, double-rod cylinders;
- Hydraulic hoses with quick-disconnect fittings:
  - a) Twelve (12) 24” hoses - Twenty-four (24) 40” hoses,
  - b) Four (4) hose connectors - to extend hose length;
- Twelve (12) “T” assemblies
- Four (4) in-line flow meters
- Six (6) Glycerine-filled, Bourdon tube pressure gauges (0 – 1000 PSI)

- Digital tachometers (2);
- Digital oil temperature gauges (2);
- Digital ambient temperature gauges (2);
- Electronic stopwatches (2) with auto retract;
- Ammeters (2);
- Return-line, spin-on/off filters (2) with by-pass indicator;
- Oil level sight glasses (2);
- Oil reservoir fillers/breathers located in drip trays to prevent spilling;
- Integrated load with hand-lock load engagement mechanism;
- Illuminated load select and de-select switches (2);
- Motor on/off switches (2) with thermal protection;
- Four (4) joystick controllers for solenoid-operated directional control valves;
- All moveable parts are covered with transparent protective covers;
- Four (4) lined work trays are located on motor housing to hold diagnostic instruments and tools for pump set-up, adjust, and test (if applicable);
- Integrated, swing-out paper towel holders (2);
- Swing-out/stow-away hose caddies (2), which holds all hydraulic hoses and “T’s” neatly. Quick-disconnects are conveniently held in upright position to prevent oil leakage;
- Front panels are fabricated out of 3/16” brushed aluminum. All components are clearly marked with their respective symbols silk-screened onto the aluminum panel for a lifetime finish; and,
- Valve Docking Plates (2) (VDP) allows the addition of numerous optional valves to be used on the simulator.

The following items are also included with each station of the MF101D-PH Practical Hydraulics Simulator:

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



#### SHIPPING SPECIFICATIONS

Weight: 900 lbs (405 kg)  
Dimensions: 75.5" tall x 48" wide x 30" deep (192 cm x 122 cm x 76 cm)

#### WARRANTY

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