

Hydraulic Training Systems

Teaching and learning hydraulics in real-time



Plug-and-Play Training Module Industrial/mobile Directional Control Valve with four (4) Circuit Modules

How the Model MF100-SVM will benefit students and industry -

This statement applies to every troubleshooting workshop I have ever done. Before teaching technicians how to test a “stacked” valve assembly I ask them this question, “Has anyone ever had any reason to believe there is a problem within a “stacked” valve assembly?”

There is at least one, oftentimes more, that answer, “yes.” My follow-up question is always, “What did you do to find the problem?” The answer has never been anything other than, “I/we replaced the entire assembly.”

Not once have I met a technician who knows how to pinpoint a problem in a stacked valve assembly – not even once!”

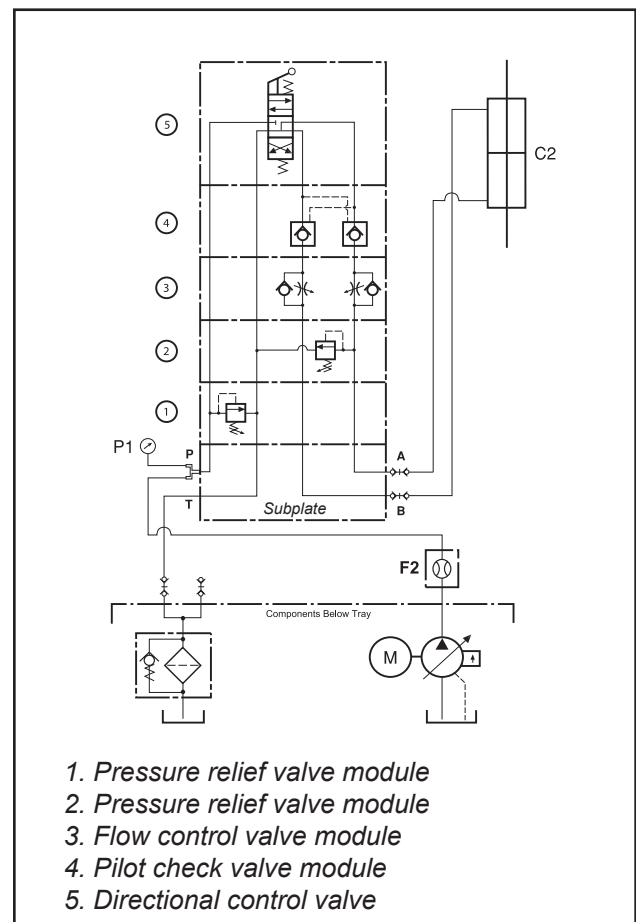
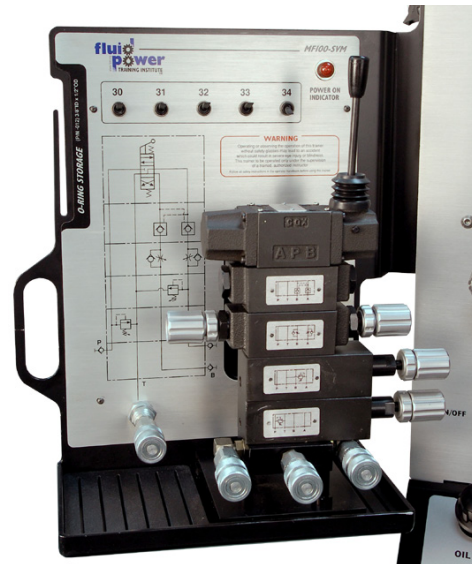
We designed this module to put an end to this very expensive and unnecessary problem.

Rory S. McLaren – Hydraulic Teacher

Hundreds and thousands of stacked valves are literally thrown away every year because maintenance people simply don't have the skillsets needed to troubleshoot them. Many technicians don't even know how to adjust them correctly or that they need to be adjusted.

This brilliant training module is identical, in every way, shape, and form, to the one's used in plants around the world. It will teach students the skillsets they need to safely and correctly assemble, adjust, and disassemble stacked valves. Also, the fact that the individual valves within the stack can be faulted, means that students will learn, in real-time, how to pin-point leakage paths within a stacked valve assembly within a few minutes using FPTI's amazing pressure/leak testing technology.

Your students will have the skillsets needed to save their respective companies hundreds and thousands of dollars in labor, production, and components.



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Description -

Solenoid-controlled, sub-plate mounted valves are used extensively in industrial plants. They are typically used to start, stop, and control the position of actuators.

If additional actuator control is needed, for example, pressure control, flow control, sequence, pressure reducing, etc., it's a simple case of inserting one, or more, of these valves in the form of "modules" between the sub-plate and directional control valve.

Due to the fact that the components are mounted on top of one another the assembly is typically referred to as a "stacked valve" assembly. Think of it as a hydraulic system without transmission lines.

Compatibility -

The MF100-SVM-TS is compatible with all model MF102 training systems. It integrates seamlessly with all the components on the simulator. It also harmonizes with the computer on the "TSE" models.

NOTE: An optional bracket is available to make the MF100-SVM compatible with other training simulators. Please specify the "TS" version with manual fault switches.

What the MF100-SVM training module consists of -

The MF100-SVM training module consists of the following components:

1. 03 Sub-plate
2. Pressure relief valve module
3. Cross-port relief valve module
4. Dual flow control valves module
5. Dual pilot-operated check valves module
6. Directional control valve
7. Aluminum panel with integrated lined tray
8. Steel back cover

Plug-and-Play training modules attach quickly and easily to any MF102 series training system



Components that can be faulted -

- Pilot-operated check valve
- Cross-port relief valve
- Directional control valve

Learning outcomes -

1. Describe the advantages of "stacking" valves.
2. Describe at least four practical applications for sub-plate mounted valves.
3. Describe the international standards interface for sub-plate mounted valves
4. Identify the sub-plates for 03, 05, 07, 08, and D10 valves.
5. Identify the O-rings for 03, 05, 07, 08, and D10 valves.
6. Identify at least four manufacturers of sub-plate mounted valves.
7. Describe the difference between finite and infinite spool control.
8. Describe the difference between a single-stage and two-stage valve.
9. Describe the correct torque values for the retaining bolts for 03, 05, 07, 08, and D10 valves.
10. Describe the correct bolt tightening sequence for the retaining bolts on stacked valve assemblies.
11. Describe the correct assembly procedure for stacked valves.

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12. Describe what could happen if the valves in a stacked valve assembly are installed in the incorrect sequence.
13. Describe the safety procedures that must be followed before disassembling a stacked valve assembly.
14. Describe the consequences of not following the safety procedures.
15. Describe how to set a pressure relief valve in stacked valve assembly.
16. Describe how to set a flow control valve in a stacked valve assembly.
17. Describe how to troubleshoot a stacked valve assembly.
18. Describe how to pinpoint a leakage path in a stacked valve assembly without disassembling it.

Assessment Criteria -

Written:

1. Describe at least two advantages of a stacked valve assembly.
2. Describe at least four practical applications for sub-plate mounted valves.
3. Using a chart identify the international standards interface for sub-plate mounted valves
4. From drawings correctly identify the sub-plates for 03, 05, 07, 08, and D10 valves
5. Using manufacturer's specifications write down the correct part numbers for O-rings for 03, 05, 07, 08, and D10 valves.
6. Using your resources, identify at least four manufacturers of sub-plate mounted valves that will interchange with 03 size valves.
7. Describe the difference between finite and infinite spool control.
8. Using a drawing describe the differences between a single-stage and two-stage valve.
9. Using the manufacturer's specifications find, and record, the correct torque values for the retaining bolts for 03, 05, 07, 08, and D10 valves.

Practical:

1. Perform the safety procedures required before removing a valve from a sub-plate.
2. Disassemble the stacked valve assembly on the module.
3. Replace the O-rings.
4. With the aid of a schematic install the valves in the correct sequence.
5. Find the correct torque specifications for the retaining bolts.
6. Tighten the bolts in the correct sequence.
7. Describe what could happen if the valves in a stacked valve assembly are installed in the incorrect sequence.
8. Describe the consequences of not following the safety procedures.
9. Set the main pressure relief valve.
10. Set a flow control valve.
11. Set a cross-port relief valve.

Troubleshoot a stacked valve assembly:

1. Learn to identify leakage paths within a stacked valve assembly.

Support Material -

- Facilitator's Guide
- Powerpoint™ presentation
- Student workbook activity

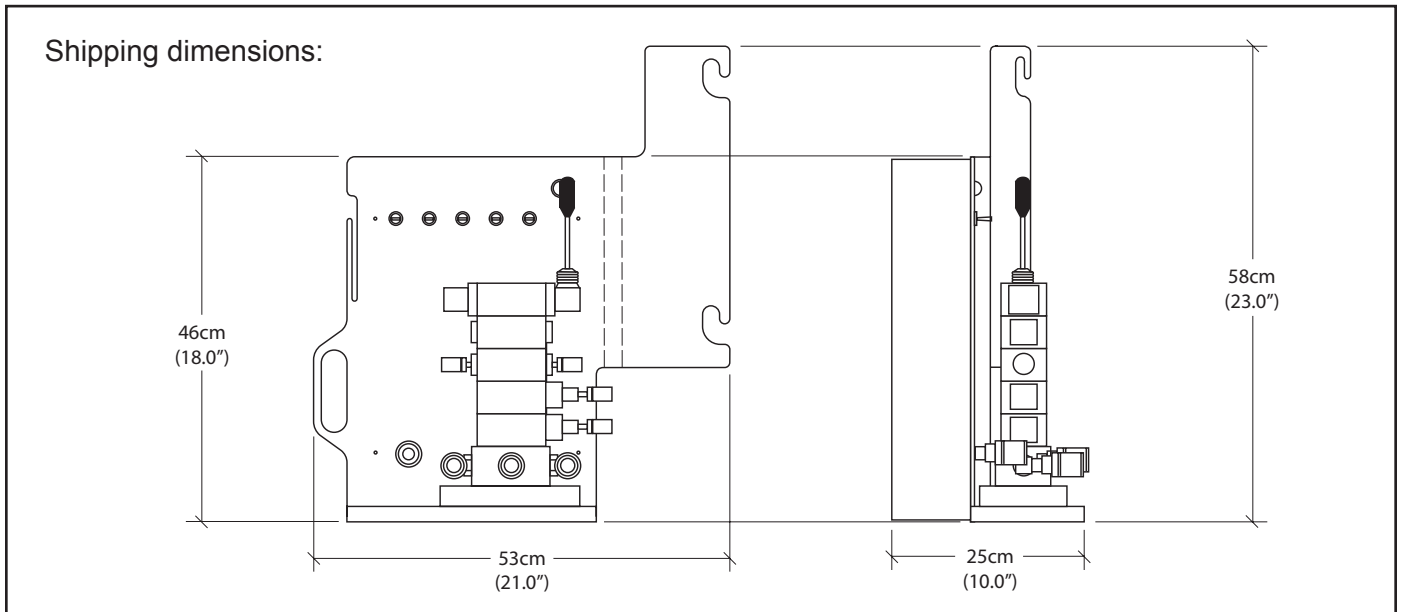
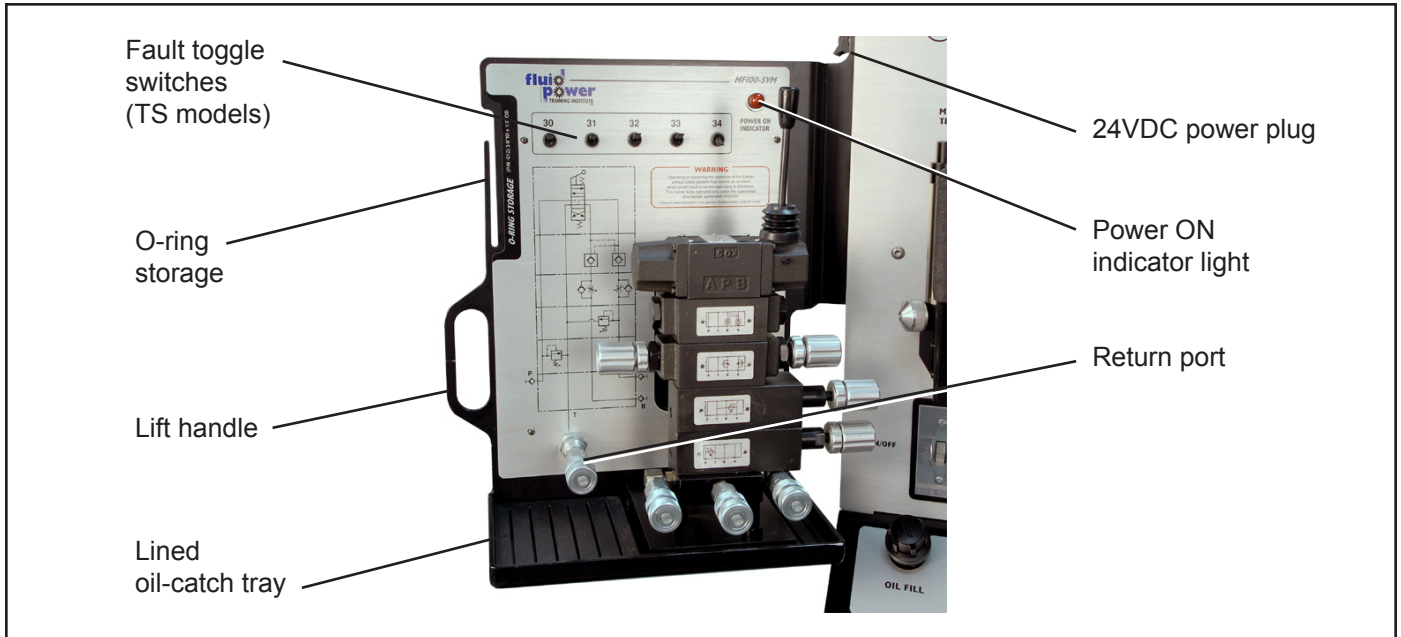
All FPTI™ simulators are available for operation at any voltage or frequency

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Specifications -

MF100-SVM and MF100-SVM-TS -

Power: 24VDC

Shipping weight (does not include container and packaging): 22.68 kgs (50 lbs)

Warranty -

FPTI™ warrants its products against defect in materials or workmanship for a period of two (2) years from date of delivery.

Shipping dimensions:

58cm (23") tall x 53cm (21") wide x 33cm (10") deep

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