

730HTP70M

High Pressure Hydraulic Test Pump

Instructions

Introduction

The 730HTP70M High Pressure Hydraulic Test Pump (the Product) is used to check pressure measurement devices against master reference gauges. The Product supplies the same pressure to both a reference gauge and a device under test (DUT) to test the accuracy of the DUT.

Contact Fluke Corporation

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Safety Information

A **Warning** identifies conditions and actions that pose hazards to the user; a **Caution** identifies conditions and actions that may damage the Product or the equipment under test.

⚠ Warning

To prevent possible electrical shock, fire, or personal injury and safe operation and maintenance of the Product:

- Read all safety information before you use the Product.
- Do not alter the Product and use only as specified, or the protection supplied by the Product can be compromised.
- Use only specified replacement parts.
- Have an approved technician repair the Product.
- Do not use the Product if it is altered or damaged.
- Do not use the Product with flammable, explosive, or poisonous gasses.
- Do not use the Product above its rated pressure.
- Depressurize the system before removing any hoses, tubing, devices under test, or accessories from the Product.
- Use filters if impurities from source fluids are likely to contaminate the Product.
- Clean the Product with mild soap and water if contaminated. Dry parts and apply manufacturer-specified lubricants, seals, and gaskets during reassembly.

Table 1 lists the symbols used on the Product or in this document.

Table 1. Symbols

Symbol	Description
	Consult user documentation.
	WARNING. RISK OF DANGER.

Product Features

Table 2 shows the features of the Product.

Table 2. Product Features

Item	Description	Function
❶	Fine adjustment wheel	Increases and decreases pressure in small increments
❷	Pressure handle	Increases and decreases pressure in large increments
❸	Pressure release valve	Releases pressure
❹	Output port 1	Connection port for the reference gauge or the DUT
❺	Vent valve	Releases pressure in oil tank
❻	Output port 2	Connection port for the reference gauge or the DUT
❼	Pressure maintaining valve	Maintains pressure
❽	Tank	Stores the oil or water
❾	Injection screw	Seals the injection port of the tank
❿	O rings (7.8 mm x 3.1 mm)	Improves the seal between the reference gauge/DUT and the pump
⓫	Bulkhead plugs (M20 x 1.5)	Seals pressure in output ports

Before Use

To fill the tank:

1. Turn ❾, injection screw, counterclockwise to remove the injection screw from the injection port.
2. Pour oil or water into the tank up to the bottom of the inject port. Use a funnel if needed.
3. Place an O ring on the filter plug if needed.
4. Turn ❾, injection screw, clockwise to tighten the the injection screw into the injection port. Do not overtighten.
5. Turn ❺, vent valve, counterclockwise to exhaust the air from the oil or water.

Operation

Zero the Product before you do a pressure test.

Zero the Product

To zero the Product:

1. Turn ❸, pressure release valve, counterclockwise until the valve is fully open.
2. Turn ❼, pressure maintaining valve, counterclockwise until the valve is fully open.
3. Turn ❶, fine adjustment wheel, to the middle position.
4. Put one O ring in each of the output ports.
5. Connect the reference gauge to ❹, output port 1 or ❻, output port 2.
6. Connect the DUT to the open output port.
7. Read the zero pressure from the reference gauge.
8. Turn ❸, pressure release valve, clockwise until the valve is fully closed.

Ascending Pressure

To check ascending pressure:

1. Zero the Product.
2. Turn ❸, pressure release valve, counterclockwise until the valve is fully open.
3. Turn ❼, pressure maintaining valve, counterclockwise halfway.
4. To generate pressure, lift ❷, pressure handle, up and down until the pressure gets close to the target pressure. If liquid comes out of an output port, remove and reconnect the reference gauge or the DUT.
5. Turn ❼, pressure maintaining valve, clockwise until the valve is almost closed.
6. To get to the target pressure, turn ❶, fine adjustment wheel, to increase or decrease pressure as needed.
7. Turn ❼, pressure maintaining valve, clockwise until the valve is fully closed.
8. Turn ❸, pressure release valve, clockwise until the valve is fully closed.
9. Record the pressure from the DUT.
10. Repeat for each target pressure point up to the full scale.

Descending Pressure

To check descending pressure:

1. Zero the Product.
2. Turn ❼, pressure maintaining valve, counterclockwise halfway.
3. Generate ascending pressure greater than the target pressure or up to the full scale.
4. Turn ❼, pressure maintaining valve, clockwise until the valve is almost closed.
5. Select a pressure status:
 - High pressure:
Turn ❶, fine adjustment wheel, counterclockwise until the pressure gets close to the target pressure.
 - Low pressure:
Lift ❷, pressure handle, up and down until the pressure gets close to the target pressure.

Troubleshoot the Product

If the Product does not function as expected, try the steps in Table 3.

Table 3. Troubleshoot the Product

Problem	Cause	Solution
Difficult to maintain pressure (leakage)	The pressure release valve is open.	Close the pressure release valve.
	The reference gauge is loose.	Tighten the reference gauge.
	The DUT is loose.	Tighten the DUT.
	An O ring is worn.	Replace the O ring.
	The threads on the Product, the reference gauge, or the DUT are not smooth.	Apply thread seal tape to the threads of the reference gauge and the threads of the DUT.
	An impurity blocks the circulation of air.	Repeatedly apply pressure and suddenly release the pressure until the impurity comes out.
	The DUT connector is too small for the output port on the Product.	Use an adaptor to connect the DUT to the Product.
Difficult to generate pressure	The pressure maintaining valve is closed.	Open the pressure mantaining valve.
	The pressure release valve is open.	Close the pressure release valve.
	The reference gauge is loose.	Tighten the reference gauge.
	The DUT is loose.	Tighten the DUT.
	An O ring is worn.	Replace the O ring.
	The tank is empty.	Fill the tank.
	There is a leak in the DUT.	Test another DUT.
	There is air in the system.	1. Put a plug in each output port. 2. Close the pressure release valve. 3. Generate pressure. 4. Open the pressure release value. 5. Repeat as needed.
Valves or wheels do not turn freely.	The valve or wheel is turned too tightly.	Firmly grasp the valve or wheel and turn it gently.
	The threads of the Product are dry.	Apply grease to the threads of the Product.

6. Turn ❼, pressure maintaining valve, clockwise until the valve is fully closed.
7. Record the pressure from the DUT.
8. Repeat for each target pressure point down to zero.

Specifications

Operating
Altitude.....≤3000 m
Temperature.....-10 °C to 40 °C (with oil)
Pressure
Media.....Hydraulic oil, water
Range.....0 MPa to 70 MPa, 0 psi to 10 153 psi
Size (H x W x L).....384 mm x 198 mm x 175 mm
Weight.....3.0 kg
SafetyIEC 61010-1: Pollution Degree 2

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