



OPERATION AND MAINTENANCE MANUAL

SKID-MOUNTED HYDRAULIC TEST BENCH

BP-40-G250/10



OPERATION



SAFETY



MAINTENANCE

HYDRAULIC TEST BENCH

BP-40-G250/10-T300



Item No.: 231010802 – R00/2026

INTRODUCTION

This manual describes the safe and proper use of the hydraulic test equipment and provides the information required for its operation, safety, maintenance, and preservation.

This document is intended as a guide for operators, technical personnel, and personnel responsible for the equipment, ensuring that procedures are correctly applied and that the tests performed are traceable.

SCOPE OF APPLICATION

This equipment is intended for:

- Fast and safe field hydraulic testing of valves and wellhead components.
- Pressure and leak-tightness testing of hydraulic components, hoses, and piping.

Compliance with the instructions in this manual is the user's responsibility. Improper use, unauthorized modification of the equipment, or failure to follow the specified procedures releases the manufacturer and/or technical supervisor from responsibility.

PROPER USE OF THIS MANUAL

This manual is intended for:

- Equipment operators.
- Maintenance personnel.
- Technical and quality personnel.
- Training personnel.

Personnel using the equipment must have appropriate technical training and understand the risks associated with hydraulic testing and safety-valve calibration.

This manual must be read and understood before operating the equipment and must remain available at the place of use. If in doubt, stop operation and consult the technical supervisor.

SAFETY INFORMATION

General Warnings:

- This equipment is designed exclusively for hydraulic testing, using water as the test fluid and compressed air as the power source.
- Use of any other fluids, gases, or media not specified is prohibited.
- Improper use may cause property damage, serious injury, or death.

Hazards Associated with the Equipment:

The following hazards may arise during operation and maintenance:

- High hydraulic pressure.
- Stored pneumatic energy.
- Fluid ejection due to failures or leaks.
- Rupture of pressurized components.
- Pinch hazards from moving parts.
- Slip hazards due to the presence of water.

Personal Protective Equipment (PPE):

PPE is mandatory during operation and maintenance:

- Safety glasses or face shield.
- Mechanical and hydraulic protective gloves.
- Slip-resistant safety footwear.
- Hearing protection, if required by the noise level.
- Close-fitting work clothing (not loose-fitting).



Before placing the equipment into service, the operator must verify:

- Structural integrity of the equipment.
- No visible water or air leaks.
- Hoses and connections are properly secured.
- Pressure gauges are in good condition and read zero.
- Valves are in the specified initial position.
- Air pressure is within the permitted range.

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Maximum Pressures and operating limits:

- Never exceed the maximum test pressure shown on the equipment nameplate or specified in this manual.
- The compressed-air supply pressure must remain within the specified range.
- Do not disable, block, or modify relief valves, regulators, or safety devices.
- Do not operate the equipment if any safety device is not in proper working condition.

During Hydraulic Testing:

- Keep a safe distance from the component under test.
- Do not stand in front of pressurized connections, plugs, or hoses.
- Do not handle connections while the system is pressurized.
- Increase pressure gradually and in a controlled manner.
- Continuously monitor the measuring instruments.

At the End of the Test:

- Reduce pressure slowly and in a controlled manner.
- Verify that the pressure gauges read zero.
- Completely depressurize the hydraulic and pneumatic circuits.
- Drain the system, if applicable, before removing the tested component.

connections and adapters, providing operational flexibility and repeatable results.

Hydraulic Test Mode:

- Pressurize the component.
- Maintain pressure for a specified period.
- Inspect for leaks or deformation.
- Depressurize in a controlled manner.

EQUIPMENT SPECIFICATIONS

Skid-mounted hydraulic test bench designed for hydraulic pressures up to 22,000 psi.

TEST BENCH SPECIFICATIONS	
Air inlet connection	1/2" NPT
Main outlet connection	9/16" MU
Auxiliary outlet connections	9/16" MU (x2)
Maximum hydraulic pressure	1517 bar (22.000 psi)
Maximum air pressure	8 bar (116 psi)
Approximate weight (empty tank)	705 lb
Dimensions (W × L × H)	1400x1000x1050 mm
Waterplac tank capacity	300 litros

Frame manufactured from structural steel sections (IPN and UPN) in accordance with ASTM A36.

Finish: bright red epoxy paint.

Tubing connectors: ABALOK, AISI 316 material.

Seamless stainless-steel tubing: AISI 316, in accordance with ASTM A213.

GENERAL EQUIPMENT DESCRIPTION

The equipment is a test bench designed for hydraulic pressure and leak-tightness testing.

The system uses water as the test medium and compressed air as the power source, allowing hydraulic pressure to be generated in a controlled, progressive, and safe manner while minimizing the risks associated with testing using gaseous media.

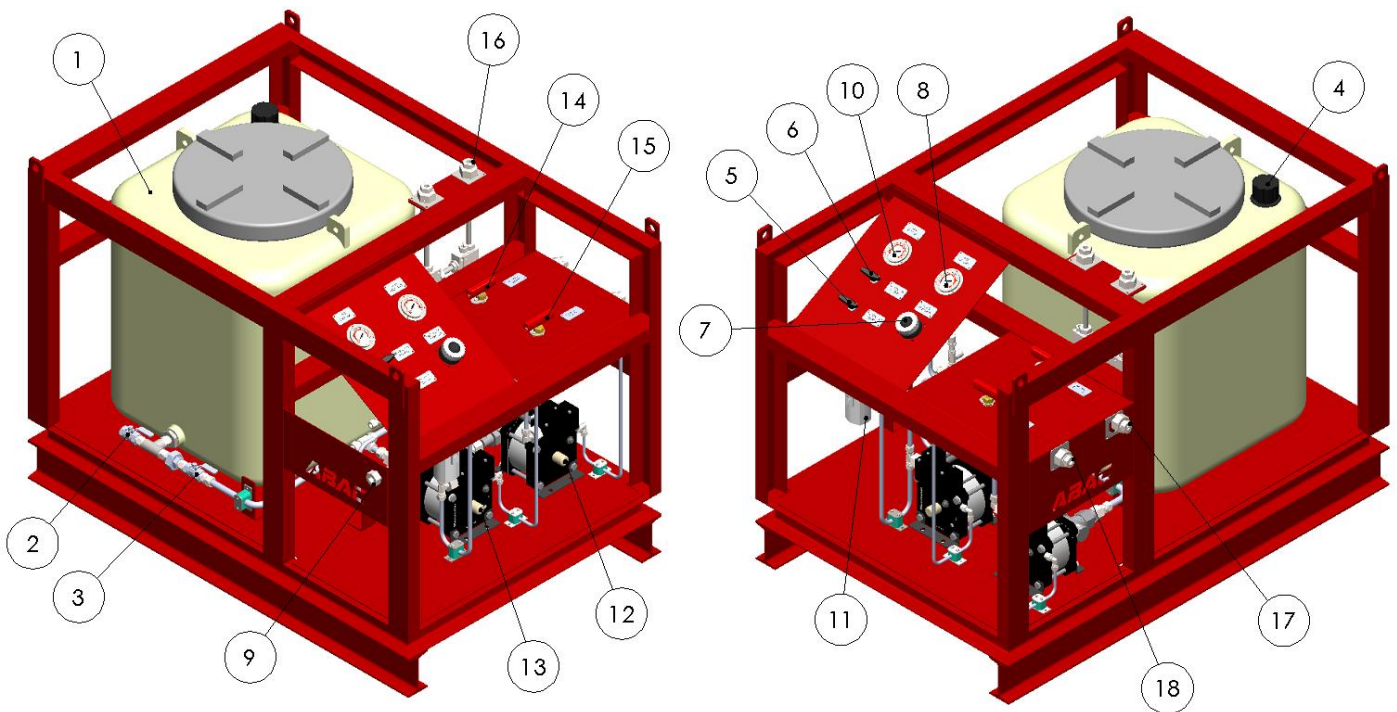
The equipment can be adapted to different types of components and valves through the use of specific

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1	79.3 gal water tank	7	High-pressure pump air regulator	13	Prefill pump
2	Tank drain valve	8	Regulated air-pressure gauge	14	Shutoff valve
3	Main water shutoff valve	9	½" NPT air inlet	15	Bleed valve
4	Fill port with pre-filter	10	Line air-pressure gauge	16	Auxiliary outlets (2)
5	High-pressure pump operating valve	11	Air shutoff valve	17	9/16" MU pressure outlet
6	Prefill pump operating valve	12	High-pressure pump	18	9/16" MU bleed outlet



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INSTALLATION

The equipment is delivered assembled on a structural skid, ready for field use and movement by forklift or another suitable lifting device. No additional assembly of the main components is required.

Installation consists of correctly positioning and leveling the unit and connecting the required utilities before placing it into service.

- Place the equipment on a firm, stable, level surface.
- Provide sufficient clearance around the equipment for operation and maintenance.
- Avoid installation in areas subject to flooding or water accumulation.
- Ensure adequate lighting.
- Move the equipment only with a forklift or lifting device rated for the skid's weight.
- Do not drag the equipment or lift it by its piping, hoses, or components.
- Verify that the equipment is properly supported on the floor.
- Connect the compressed-air line to the designated inlet.
- Verify that the supply pressure and flow are within the specified values.
- Ensure that the connection is leak-tight.
- Do not turn on the air supply until the rest of the installation is complete.
- Verify that the tank is clean and free of debris.
- Fill the tank with clean, preferably filtered water. Keep the drain valve (2) closed.
- Do not use other fluids.



WARNING

Move the equipment only when it is depressurized and with the water tank oriented toward the moving equipment.

Pre-Start Checks:

Before operating the equipment, verify:

- The equipment is correctly positioned and level.
- The compressed-air connection is complete.
- The water tank is full.
- Valves are in their specified initial positions.
- There is no visible damage caused during transportation.

OPERATION

Preparation and Connections:

1. Connect the equipment to the compressed-air line through connection (9).
2. Install measuring instruments (reference pressure gauge, pressure transmitter, etc.) at the auxiliary outlets (16).

Priming the Equipment:

1. Verify that ball valves (3) and (11) are open.
2. Close the 9/16 in MU bleed valve (15) and open the 9/16 in MU outlet valve (14).
3. First operate the prefill pump by opening valve (6) until water begins to flow from outlet (17).
4. Close the prefill valve (6) and open the high-pressure pump operating valve (5). Adjust the air regulator (7) to run the high-pressure pump until water flows from outlet (17).
5. Close valve (5) and set regulator (7) to zero.

Test Procedure:

1. Close valve (5) and set regulator (7) to zero.
2. Close the bleed valve (15) and confirm that the shutoff valve (14) is open.
3. Operate the prefill pump by opening valve (6) until it reaches its maximum pressure (approximately 1,160 psi / 80 bar). Then close this valve.
4. Open valve (5) to operate the high-pressure pump. Slowly turn the regulator dial (7) to increase the pressure on the component being pressurized until the required test pressure is reached. Close valve (14) to isolate the pressure-generation circuit from the component under test.
5. Maintain the pressure for the specified period and verify that there are no leaks or failures.

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WARNING

The high-pressure pump multiplies the inlet pressure by a factor of 263. For Example:

- 14.5 psi pneumatic inlet pressure (1 bar) → approximately 3,814 psi hydraulic outlet pressure (263 bar).

Completing the Test:

1. Depressurize the system using valve (15).
2. Verify that the pressure gauges read zero.
3. Disconnect the tested component.

MAINTENANCE

The purpose of maintenance is to ensure safe and reliable equipment operation, prevent failures and leaks, and extend the service life of pneumatic and hydraulic components.

WARNING

Before any maintenance:

- Wear the required PPE.
- Completely depressurize the hydraulic circuit.
- Shut off and lock out the compressed-air supply at valve (11).
- Close the water supply valve (3) or drain the water tank, if applicable.
- Verify that the pressure gauges read "0 psi".
- Do not service the equipment while a test is in progress or while residual pressure remains.

Weekly Maintenance:

- Perform a general visual inspection of the equipment.
- Check for water leaks and air leaks.
- Verify that the pressure gauges return correctly to zero.
- Drain condensate from the pneumatic system (filter-regulator).

Monthly Maintenance:

- Clean the water tank to remove sediment and particles.
- Verify proper operation of relief valves.
- Check the pneumatic pressure regulator.
- Check tightness of threaded connections and fittings.

Semiannual/annual Maintenance:

- Replace the pneumatic pump seals.
- Calibrate the pressure gauges.
- Perform a complete functional test.

Cleaning and Storage:

- Use clean water, preferably demineralized.
- Do not use abrasive products.
- Keep the exterior of the equipment dry.
- Drain the system if it will remain out of service for an extended period.

COMMON FAULTS

Water Leaks

Check:

- Fittings and connections.
- Seals and O-rings.
- Valve bodies.

Corrective action:

- Tighten connections or replace seals as required.

Do not operate the equipment if visible leaks are present

Loss of Test Pressure:

Check:

- Leaks in the hydraulic circuit.
- A faulty relief valve.
- Worn seals in the pneumatic pump.

Corrective action:

- Isolate sections of the circuit.
- Check the relief valve.
- Repair or replace the pump.

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Erratic Pneumatic Pump Operation:

Check:

- Compressed-air supply pressure.
- Air quality (moisture and oil).
- Pneumatic filter.

Corrective action:

- Clean or replace filters.
- Adjust the air pressure.

WARRANTY

ABAC SRL warrants its products against defects in design, materials, or workmanship, except for defects resulting from improper use or maintenance or from work performed by personnel outside ABAC SRL. Examples include impact damage, drops, excessive torque when operating valves, damage caused by improper installation at fluid inlets and outlets, introduction of fluids that do not meet the specified requirements, use of the equipment with filters that are not in good condition, damage caused by improper installation performed by personnel outside ABAC SRL, and use of pressures exceeding the specified limits at either the inlets or outlets.

The warranty period for new products is twelve (12) months from the date of shipment or delivery to the Buyer. The date is verified using the traceability number engraved on the product, which must therefore remain legible.

If a failure occurs during the warranty period, the Buyer must ship the product(s) suspected of failure to ABAC SRL's address at the Buyer's expense for evaluation. If ABAC SRL's responsibility is confirmed, ABAC SRL will honor the warranty, which is limited solely to repair or replacement of the defective product or refund of the purchase price paid by the Buyer, at ABAC SRL's option.

Under no circumstances shall ABAC SRL be liable for incidental, consequential, or special damages of any kind arising from the products in question, including, but not limited to, damage to third parties, damage to equipment or facilities, or loss of profits.