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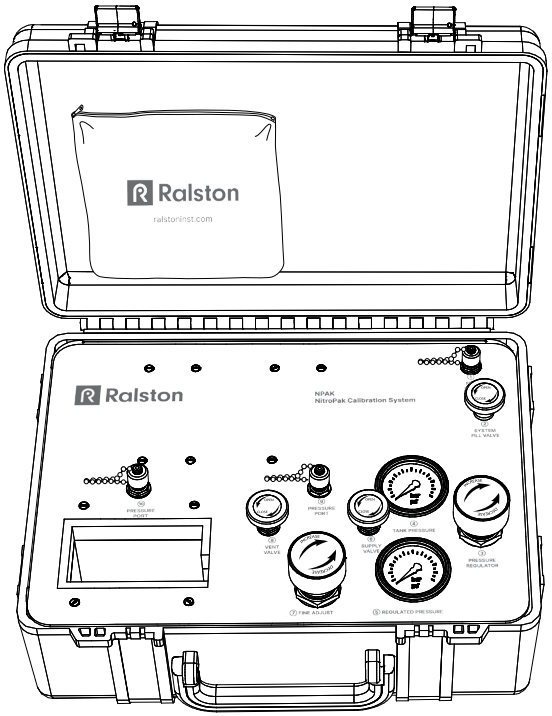
Ralston NPAK NitroPak Calibration System Operation Manual



For all models of the Ralston NPAK NitroPak Calibration System

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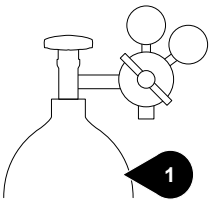
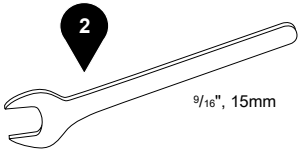
Notes

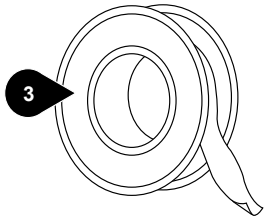
Specifications

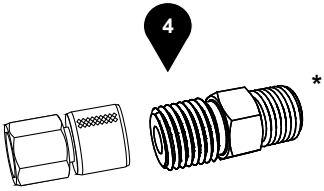
Pressure Range	0 to 3,000 psi (0 to 210 bar)
Vacuum Range	0 to 10 inHg (0 to 260 mmHg)
Temperature Range	0 to 130 °F (-18 to 54 °C)
Seal Materials	Buna-N, Delrin, Teflon
Weight	28.8 lb (13.1 kg)
Dimensions	W: 14.6 in (37.08 cm) H: 18.5 in (46.99 cm) D: 7.5 in (19.05 cm)

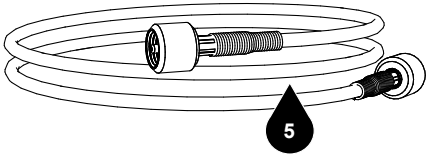
Requirements

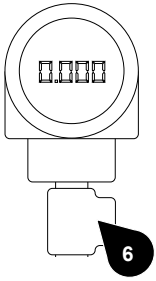


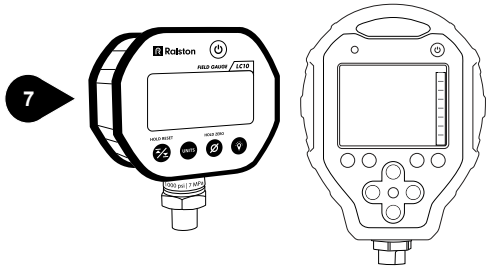












*** ralstoninst.com/adapters**

What you need to use your NitroPak:

1. Compressed Gas
2. Wrench
3. Thread Tape
4. Ralston Quick-test™ Adapters
5. Ralston Quick-test™ Hose
6. Device Under Test
7. Pressure Reference

Important Safety Notices

⚠ WARNING: Do not exceed Maximum Working Pressure for this product or damage may result.

⚠ WARNING: Device under test should be isolated from the process, vented and vent valve closed prior to use.

⚠ WARNING: Do not attempt to pressurize, operate, maintain or transport the NitroPak until you have read and fully understand the instructions and hazards to the product.

- Any modifications to the NitroPak including replacement of parts with custom parts can result in hazardous operation of the NitroPak. Possible consequences include:
  - Pressure can cause parts to be ejected at high speed.
  - Unit could become combustible/explosive.
  - Contact with gasses may be hot, cold, toxic or otherwise hazardous.
  - Hoses may fly around dangerously.
  - Damage or destruction to internal or external components.
- If the NitroPak is leaking or malfunctioning, remove from service.
- Never allow problems or lack of maintenance to go unreported.
- Do not modify equipment or add attachments not approved by manufacturer.
- Always wear safety glasses when operating.
- Do not use NitroPak past the hydrostatic certification date on certification label on the front panel.
- Be careful not to get liquid into the NitroPak. Use Ralston Liquid Trap (NitroPak-TRS0) to prevent liquid contamination.

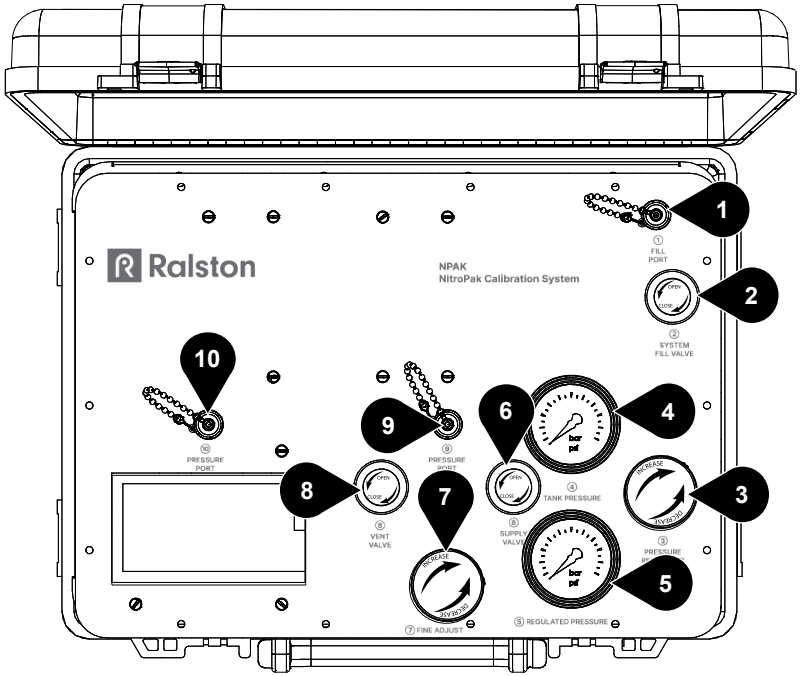
Storage and Transport Warnings:

- Do not fly with any compressed gas in the NitroPak. Make sure all valves are open fully (counter clockwise) and both pressure gauges read zero.
- Ship ahead via common carrier using ground shipment with no compressed gas in the cylinder. Transporting via commercial airline is not recommended as airline personnel usually need to see inside a gas cylinder to confirm it is indeed empty prior to allowing it onto a flight.
- When transporting by vehicle other than airplane with compressed gas in the NitroPak, be sure to have the system fill valve closed; all other valves open, and all ports capped before transporting.
- Do not drop.
- Do not leave in excessive temperatures such as trunk of a car or truck cab. Heat causes gas to expand and may cause the Burst Disc to burst.

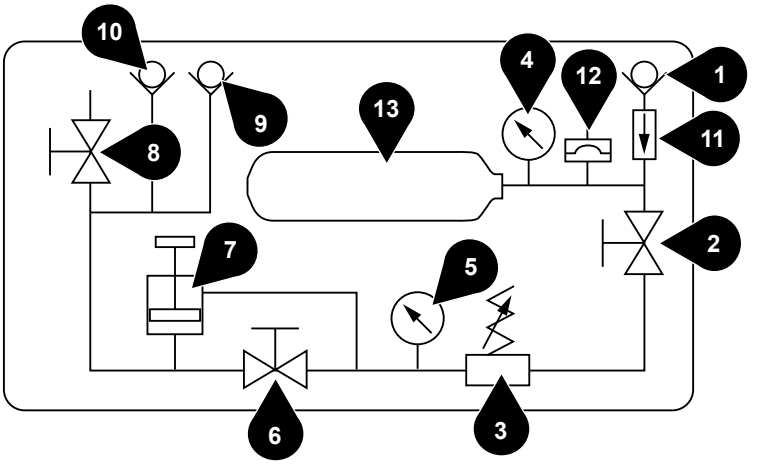
Pressurizing Warnings:

- Inspect valves and accessories before pressurizing your NitroPak.
- Do not connect NitroPak to supply sources having greater pressure than 3,000 psi (210 bar).
- Do not pressurize the system beyond 3,000 psi (210 bar).
- Gradually apply pressure to system to avoid a sudden pressure surge to the equipment.
- Use equipment that can handle the pressure exerted by your NitroPak. Over pressure of attached equipment may cause damage to your accessories.
- Only use clean,dry gases such as nitrogen. Other gases may become combustible at high pressures.

NitroPak Overview



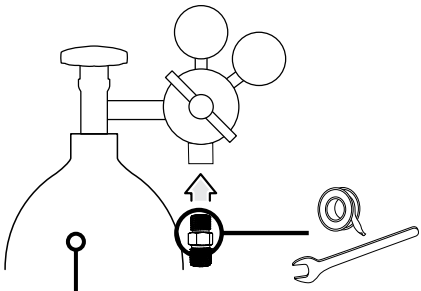
1. Fill Port
2. System Fill Valve
3. Pressure Regulator Adjustment Knob
4. Tank Pressure Gauge
5. Regulated Pressure Gauge
6. Supply Valve
7. Fine Adjustment Piston
8. Vent Valve
9. Pressure Outlet Port
10. Pressure Outlet Port
11. Inlet Check-Valve
12. Inlet Rupture Disk
13. Internal Tank 3,000 psi (210 bar)



NitroPak Process Diagram

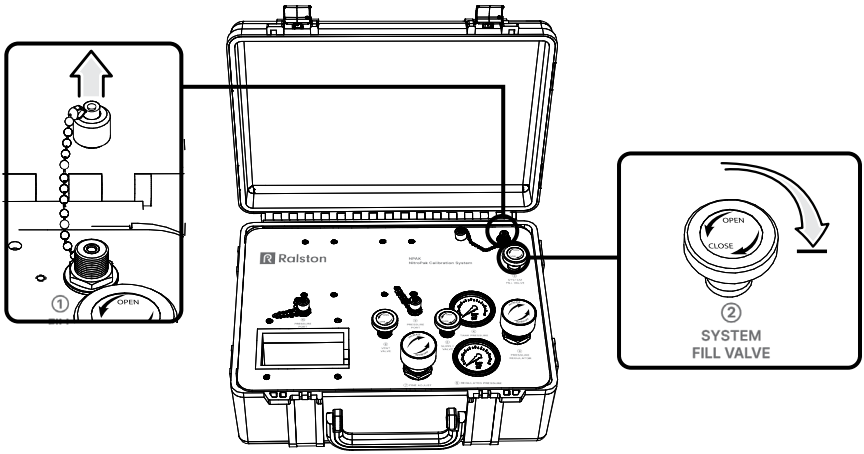
Pressurize Your NitroPak

1



Maximum Pressure: 3,000 psi (210 bar)

2



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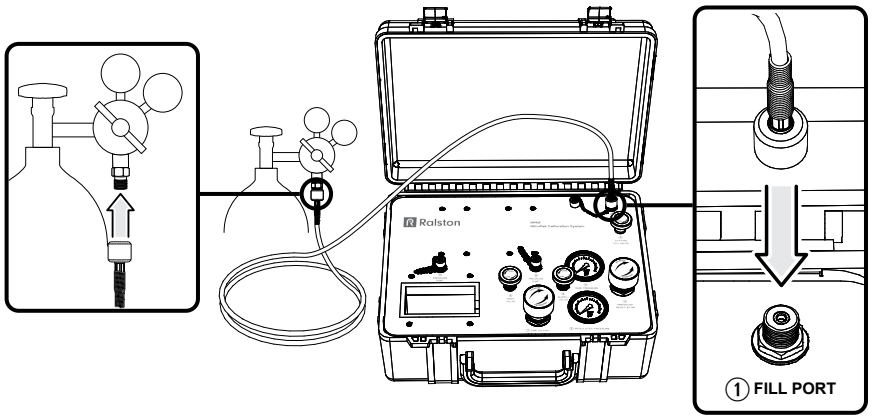

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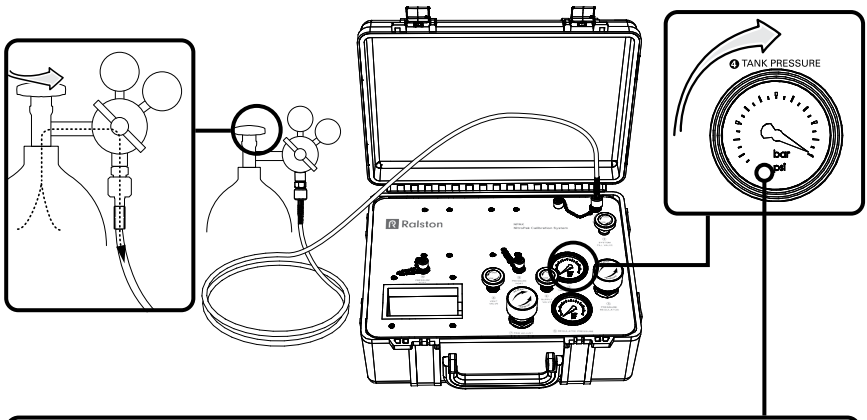
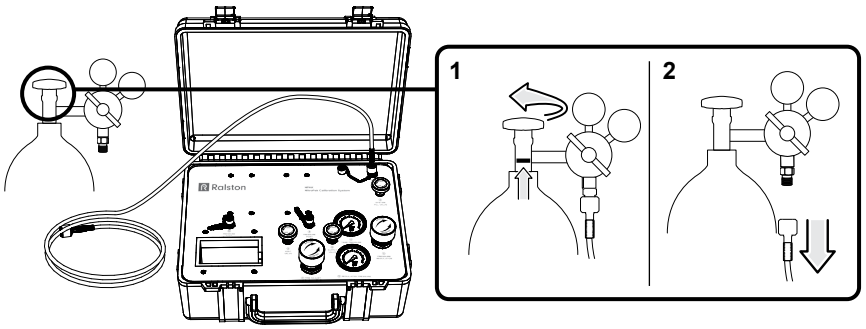


Maximum Pressure: 3,000 psi (210 bar)

5



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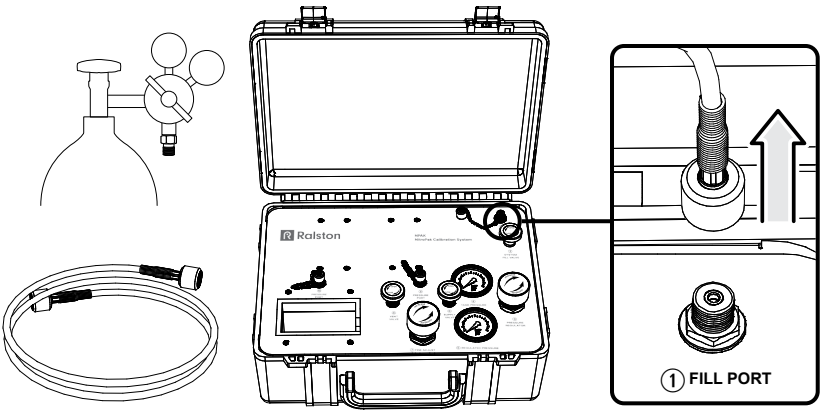

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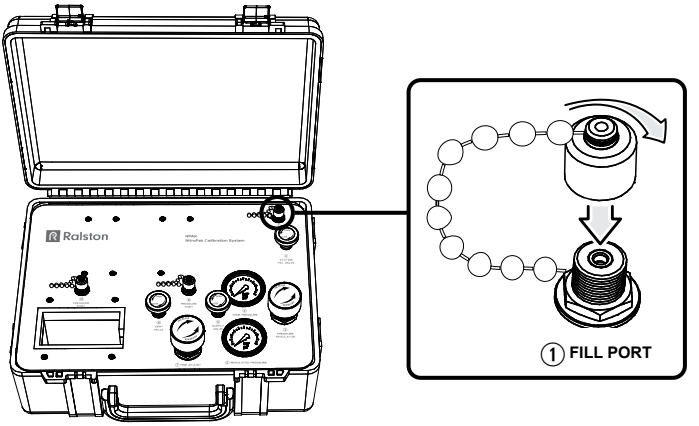
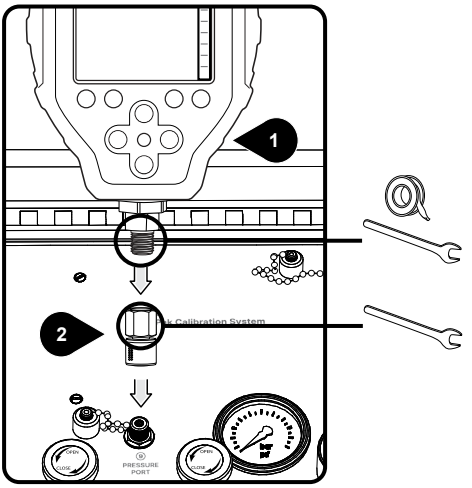


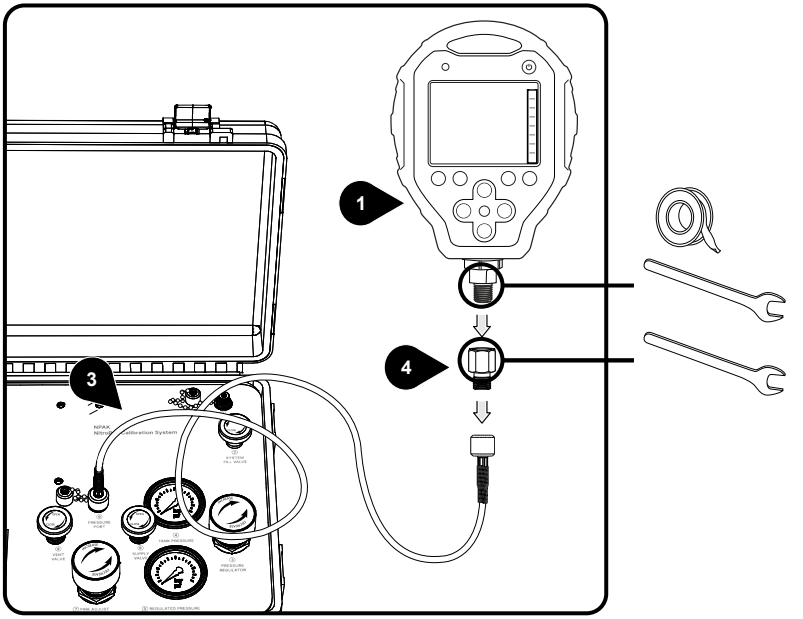
Connecting Reference Gauge

Male NPT Reference Gauge

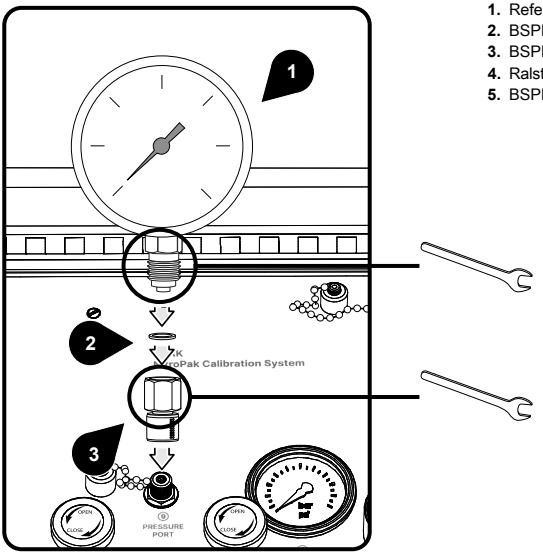


1. Reference Gauge with NPT male connection
2. NPT Female Ralston Quick-test™ Gauge Adapter
3. Ralston Quick-test™ Hose
4. NPT Female Ralston Quick-test™ Adapter

or

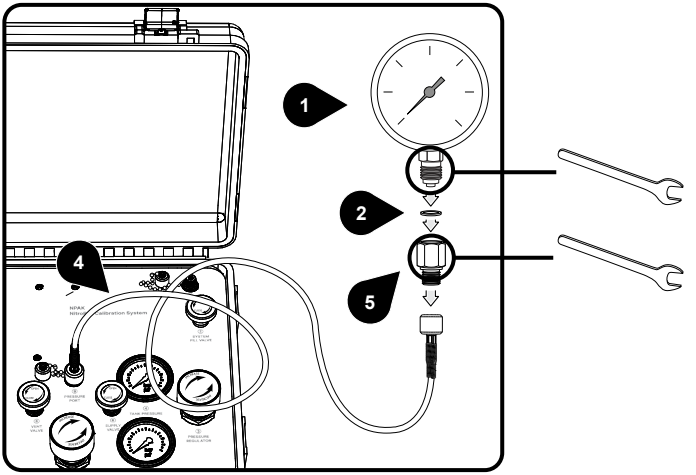


Male BSPP Reference Gauge

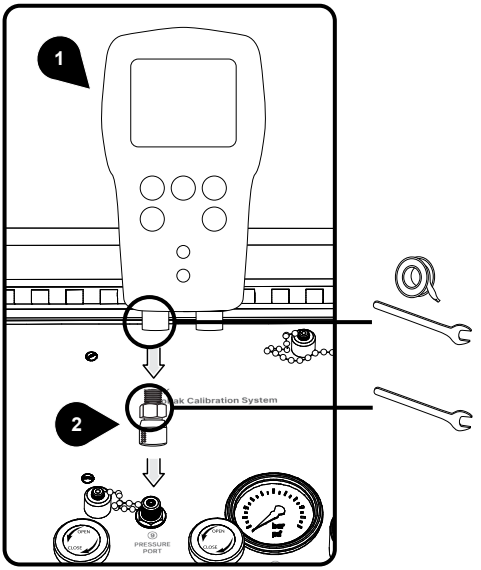


1. Reference Gauge with BSPP male connection
2. BSPP Washer
3. BSPP Female Ralston Quick-test™ Adapter
4. Ralston Quick-test™ Hose
5. BSPP Female (RG) Ralston Quick-test™ Adapter

or

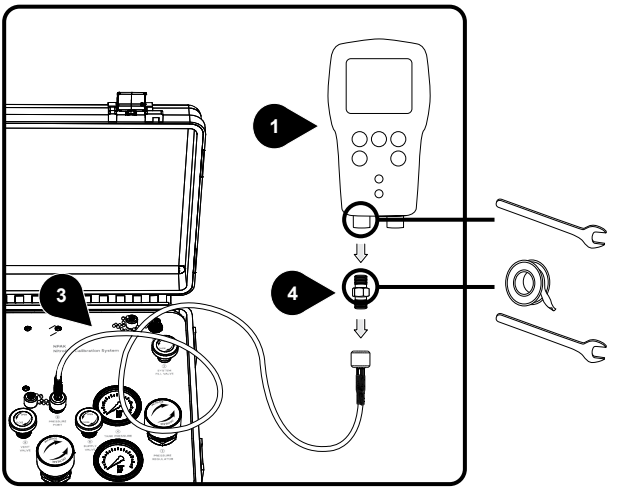


Female NPT Pressure Reference Gauge



1. Reference Gauge with NPT female port
2. NPT Male Ralston Quick-test™ Gauge Adapter
3. Ralston Quick-test™ Hose
4. NPT Male Ralston Quick-test™ Adapter

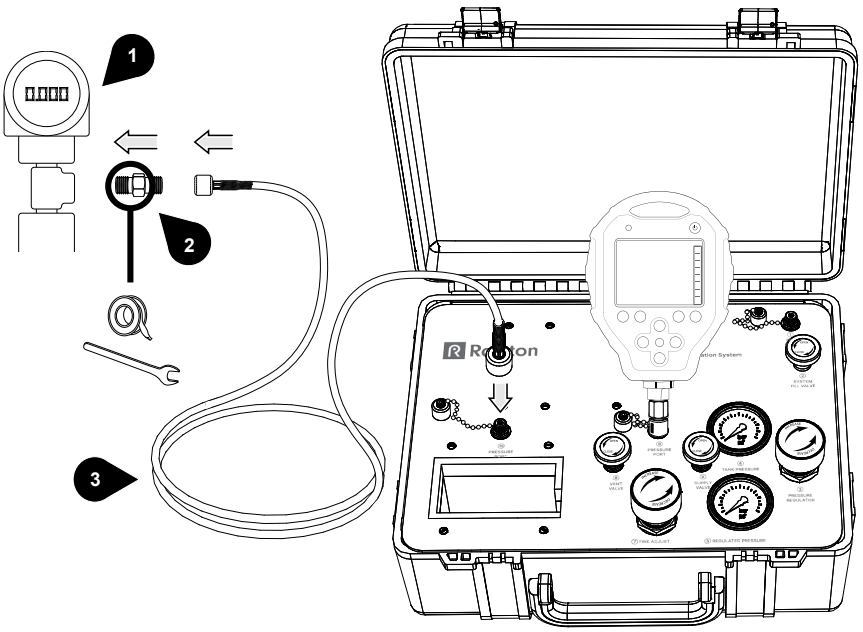
or



Connecting Device Under Test (DUT)

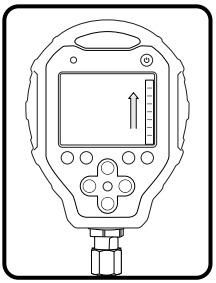
1 Isolate the Device Under Test (DUT) from the process and vent DUT prior to connecting to it.

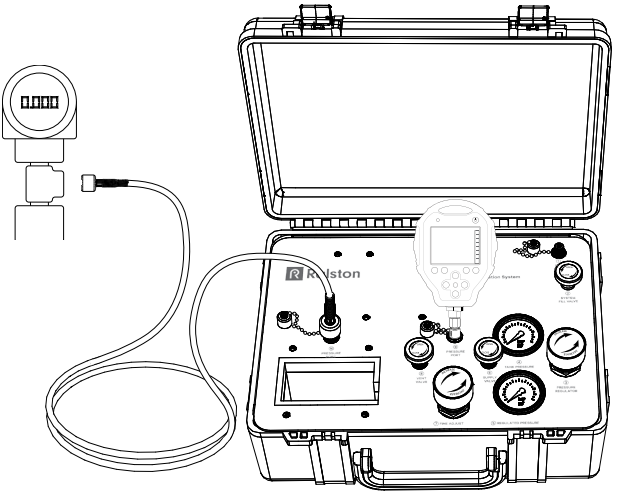
2



1. Device under test (DUT)
2. NPT Male Ralston Quick-test™ Adapter
3. Ralston Quick-test™ Hose

Increase Pressure





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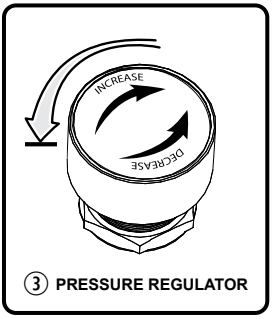
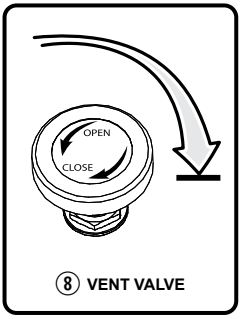
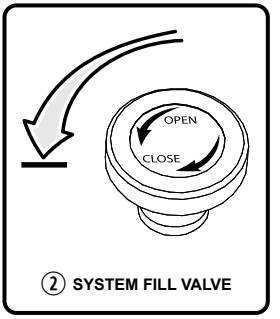


③ **PRESSURE REGULATOR**



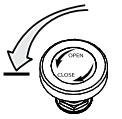
⑧ **VENT VALVE**



② **SYSTEM FILL VALVE**

2

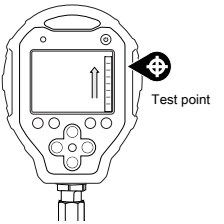
1



⑥ **SUPPLY VALVE**

2

③ **PRESSURE REGULATOR**



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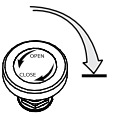
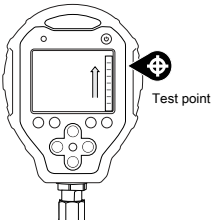


⑥ **SUPPLY VALVE**

Rough-adjust to below test point.

3

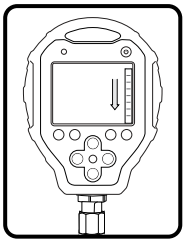
⑦ **FINE ADJUST**

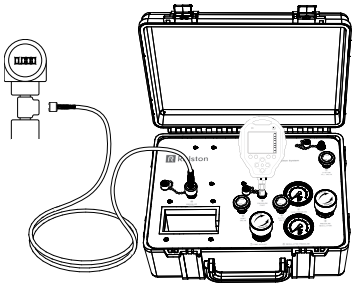


Fine-adjust to test point.

Repeat steps 2 and 3 for each test point up-scale

Decrease Pressure





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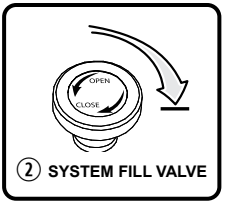
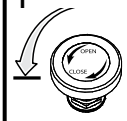


② **SYSTEM FILL VALVE**

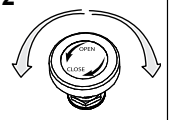
2

1

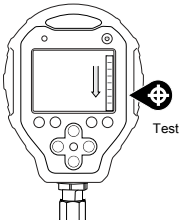


⑥ **SUPPLY VALVE**

2

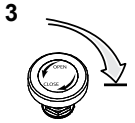


⑧ **VENT VALVE**



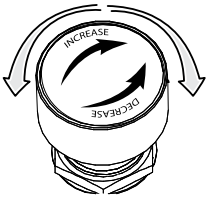
Turning slowly, rough-adjust to just above test point.

3

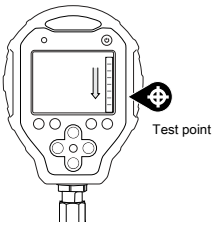


⑥ **SUPPLY VALVE**

3



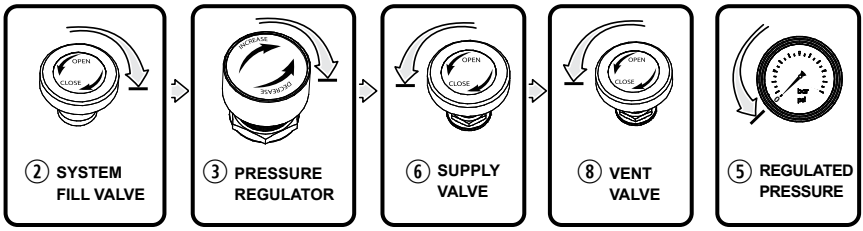
⑦ **FINE ADJUST**



Fine-adjust to test point.

Repeat steps 2 and 3 for each test point down-scale.

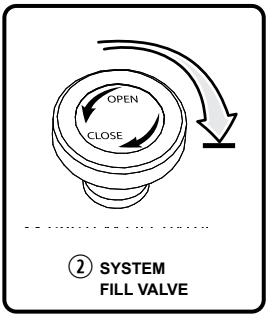
4 **When finished, vent system.**



Venting System

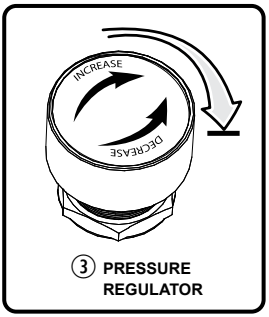
Vent system when calibration is completed.

1



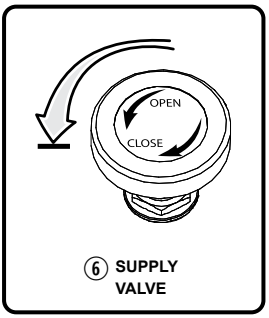
② **SYSTEM FILL VALVE**

2



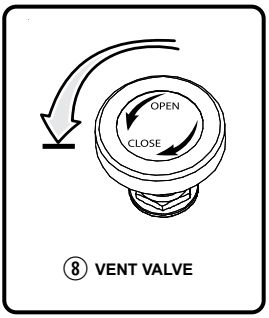
③ **PRESSURE REGULATOR**

3

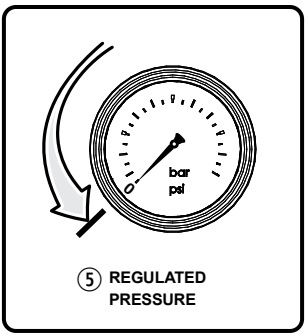


⑥ **SUPPLY VALVE**

4



⑧ **VENT VALVE**

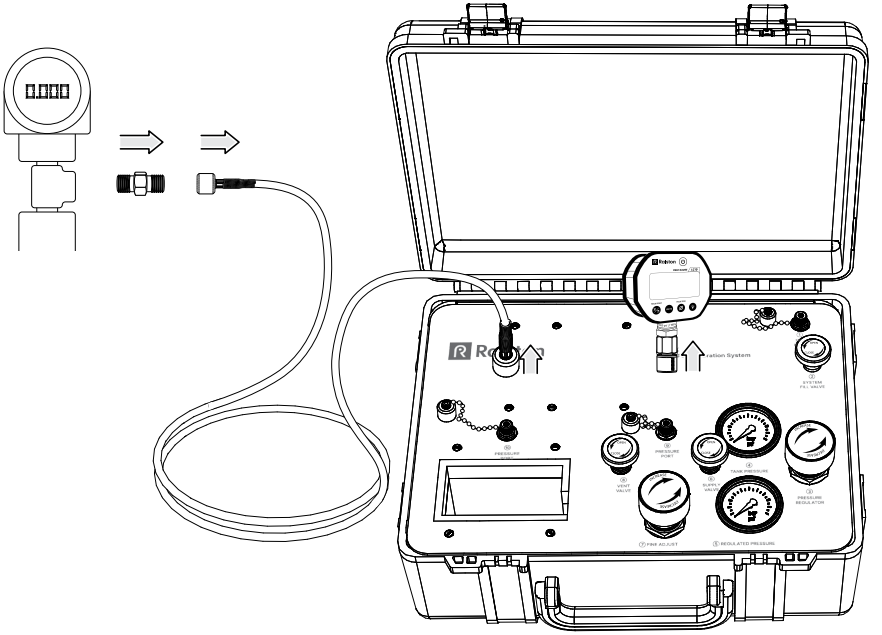


⑤ **REGULATED PRESSURE**

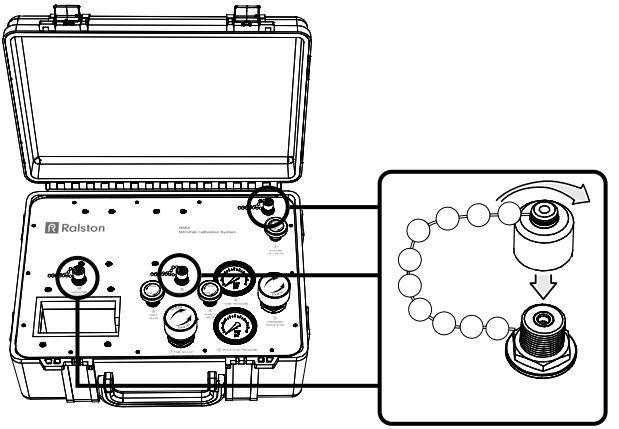
Storage and Transport

Vent system when calibration is completed. See page 19.

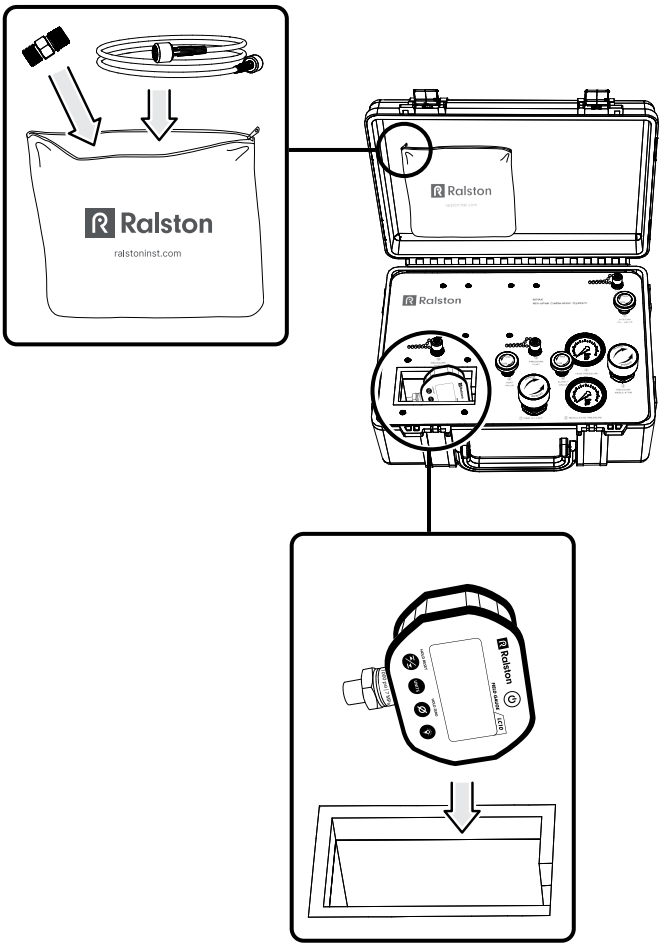
1



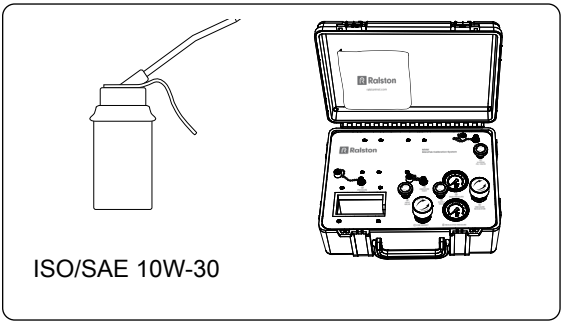
2

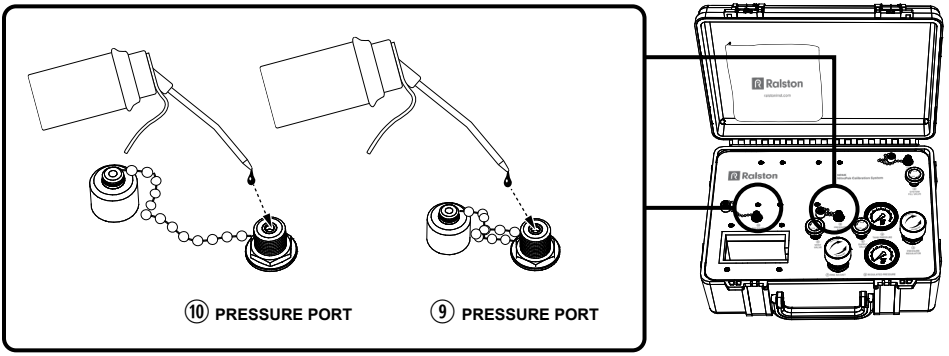


3



Oil Pressure Ports Every 50 Uses or Every 3 Months ⑨⑩





Internal Cylinder Requalification (Hydrostatic Test) Interval

Internal gas cylinder is approved for use in the US, Canada and EU until the date on the Hydrostatic Test label affixed in the top right corner of the control panel. Procedures for external and internal inspection, including the appropriate damage identification criteria for the acceptance or rejection of cylinders may be found in the applicable standards listed below. When the cylinder must be requalified send the NitroPak without pressure in the cylinder back to an authorized Ralston Instruments distributor. Requalify internal cylinder according to applicable national standards for composite cylinders. Note that additional local, national or international standards may apply that are not listed below.

Internal Cylinder Requalification (Hydrostatic Test) Interval

Country	Standard	Permit	Requalification Interval
USA	CGA C-6.2	DOT SP 10915	5 years
Canada	CSA B339, Clause 24 [6, 4]	TC SU 5134	5 years
European Union	ISO 11623	PED and TPED	5 years

Troubleshooting

Turning Fine Adjust knob does not change pressure

If turning Fine Adjust ⑦ knob does not change pressure, then close Supply Valve ⑥ tightly.

Fine Adjust knob ⑦ is difficult to turn

If the fine adjust becomes difficult to turn, then increase or decrease the regulated pressure indicated by the Regulated Pressure Gauge ⑤ by turning the Pressure Regulator ③ so that the regulated pressure is closer to the pressure reading on the reference gauge.

If the issue was not resolved by these troubleshooting instructions, then please contact support listed on page 25.

Support

Hours: **8:30 am – 5:00 pm EST**
Phone: **1 440-564-1430** • Toll Free: **1 800-347-6575 (US and Canada)**
Web: **ralstoninst.com/support**
Email: **support@ralstoninst.com**
Parts and Service: **ralstoninst.com/npak**

Ralston NPAK NitroPak Calibration System Operation Manual

For all models of the Ralston NPAK NitroPak Calibration System

ralstoninst.com

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