HYDRAULIC WORKOVER SERVICES
Safe and Reliable Performance From the Most Experienced Hydraulic Workover (HWO) Company in the World

MINIMIZE RISK AND OPTIMIZE RESULTS WITH HALLIBURTON HWO SERVICES

- Full-time, highly experienced HWO specialists
- Advanced job design software
- Unsurpassed safety, quality, and environmental performance
- Custom designed and built HWO equipment
- Broad range of specialty services
- Single-point access to the full Halliburton suite of services

Every workover job involves some degree of risk to the wellbore, the formation, and to the operating personnel. Plus, the risks grow as pressures rise. It quickly becomes apparent that any hydraulic workover job—no matter how simple or complex—is both a matter of risk management and a process to restore or increase production.

Halliburton manages these risks with a focus on four individual areas and the relationships that bind them all: Safety, Technology, Equipment and Experience. We bring all these facets together with cost-effective performance you have come to expect from the leader in hydraulic workover (HWO) services and technology.

EXPERIENCED PERSONNEL, CUSTOMIZED SOLUTIONS

For more than 70 years our experienced personnel and technology have led the industry in the development of equipment and techniques that best serve operators’ needs for drilling, completion, and maintenance programs.

Examples include the skidding HWO tower system built specifically for an operator in the North Sea, our procedure and methods for working in HPHT environments.

Full-time HWO specialists bring a wealth of knowledge to each job and are able to tailor the operation to meet the specific job requirements. This capability extends through the full range of Halliburton services provided through a single point of contact.

This experience helps to control the risks encountered during workover operations. And it helps to protect your investment and enhance safety. So, when you’re approached by someone who offers the “lowest cost” workover, it pays to remember that there are better ways to save money while reducing risk. Experience is an indispensable resource no matter how simple or complex a workover job may be.
Halliburton has developed software specifically designed to plan and manage the hydraulic workover operation. This software enables calculating the multidimensional stresses that will be encountered during the job. These calculations are used to establish an in-depth plan for the job, even before equipment is in place. Such information means the job is executed quickly, safely and effectively.

Even during the operation, this software helps reduce complex fluid, pressure, flow, and combined stress relationships to integrated answers—quickly and accurately.

**PROVEN HWO APPLICATIONS**

- Running and pulling gravel pack completions
- Running and pulling completions under pressure
- Drilling extensions or cutting windows for laterals both in overbalanced and underbalanced conditions
- Any underbalanced applications where jointed pipe is to be moved under pressure
- Sand washing with fluid or foam
- Unloading with nitrogen or foam
- Fishing lost wireline tools and parted tubing or drillpipe
- Washing perforations and acidizing
- Resetting weight on packers
- Squeeze cementing or cutting a cement plug
- Running and pulling production or kill strings
- Installing packoff overshot and respacing tubing if it becomes parted
- Pulling and rerunning tubing due to damaged joints, collars, and subsurface controls
- Drilling cement and bridge plugs, and milling
- Downhole cleaning services
- Gaining control of blowouts
**HYDRAULIC WORKOVER UNIT CAPABILITIES**

<table>
<thead>
<tr>
<th>Unit Nominal Capacity</th>
<th>Unit Type</th>
<th>Bore Size (in.)</th>
<th>Pipe Range (in.)</th>
<th>Stroke (ft)</th>
<th>Lifting Capacity (lbs)</th>
<th>Snubbing Capacity (lbs)</th>
<th>Rotary Torque (ft/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 K</td>
<td>Stand Alone / QR</td>
<td>4-1/16</td>
<td>1 – 2-7/8</td>
<td>10</td>
<td>117,000</td>
<td>60,000</td>
<td>2,235</td>
</tr>
<tr>
<td>120 K</td>
<td>Rig Assist</td>
<td>11-1/8</td>
<td>1 – 5-1/2</td>
<td>10</td>
<td>117,000</td>
<td>60,000</td>
<td>N/A</td>
</tr>
<tr>
<td>150 K</td>
<td>Stand Alone / QR</td>
<td>8</td>
<td>1 – 2-7/8</td>
<td>10</td>
<td>150,000</td>
<td>66,000</td>
<td>2,800</td>
</tr>
<tr>
<td>170 K</td>
<td>Rig Assist</td>
<td>7-1/16</td>
<td>1 – 5-1/2</td>
<td>10</td>
<td>169,000</td>
<td>95,000</td>
<td>N/A</td>
</tr>
<tr>
<td>200 K</td>
<td>Stand Alone / QR</td>
<td>7-1/16</td>
<td>1 – 5-1/2</td>
<td>10</td>
<td>199,000</td>
<td>103,000</td>
<td>3,400 – 4,800</td>
</tr>
<tr>
<td>200 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 7-5/8</td>
<td>10</td>
<td>199,000</td>
<td>103,000</td>
<td>4,800</td>
</tr>
<tr>
<td>225 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 5-1/2</td>
<td>10</td>
<td>225,000</td>
<td>120,000</td>
<td>5,000</td>
</tr>
<tr>
<td>235 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 7-5/8</td>
<td>11</td>
<td>235,000</td>
<td>117,500</td>
<td>7,500</td>
</tr>
<tr>
<td>300 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 7-5/8</td>
<td>10</td>
<td>300,000</td>
<td>150,000</td>
<td>12,000</td>
</tr>
<tr>
<td>340 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 7-5/8</td>
<td>10</td>
<td>340,000</td>
<td>188,000</td>
<td>6,600</td>
</tr>
<tr>
<td>400 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 9-5/8</td>
<td>12</td>
<td>381,000</td>
<td>182,000</td>
<td>10,500 – 23,000</td>
</tr>
<tr>
<td>460 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 7-5/8</td>
<td>10</td>
<td>460,000</td>
<td>220,000</td>
<td>6,600 – 23,000</td>
</tr>
<tr>
<td>600 K</td>
<td>Stand Alone</td>
<td>11-1/8</td>
<td>1 – 9-5/8</td>
<td>10</td>
<td>580,000</td>
<td>288,000</td>
<td>10,500 – 23,000</td>
</tr>
</tbody>
</table>

**“Boosted” capacities are for short term use. They are achieved by utilizing the system’s full 3,500 psi hydraulic pressure capability.**

**HALLIBURTON IS TOTALLY COMMITTED TO SAFETY, QUALITY, AND ENVIRONMENTAL PERFORMANCE**

The first and foremost concern of any workover job is the safety of the personnel involved. This concern touches every part of the process—tools, technology, and methods.

An example of our safety commitment include the Tension Table that protects the wellhead during HWO operations by diverting forces to skid beams.

As always, the cornerstone of safety is people and that’s why training—the most comprehensive in the industry—is the foundation of our HWO services. In addition, the service and equipment is continually monitored and improved under the Halliburton Correction, Prevention, and Improvement (CPI) process. The Halliburton Management System process enables global transfer of best practices and consistently high service quality, health, safety, and environmental performance.
EQUIPMENT DESIGNED AND BUILT BY HALLIBURTON

Halliburton designs and builds virtually all of its HWO equipment. Our service equipment is developed based on a thorough understanding of completion procedures and downhole equipment. This HWO equipment meets the safety standards of government agencies around the world and meets our standard for quality, reliable performance, and safety.

For more information about how Halliburton HWO equipment, capabilities and experienced personnel can help you reduce risks and optimize results, contact your local Halliburton representative or email production-solutions@halliburton.com.

Large capability HWO units permit handling of a full range of pipe sizes.
Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.