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## **Pulsation Dampener Refurbishment: Cost-Effective or Money Pit?**

In preparation for getting stacked rigs back to work and field-ready, you may be considering pulsation dampener refurbishments to reduce operational cost, decrease downtime, and extend the dampener's longevity.

In reality, pulsation dampener refurbishment is only necessary if you continue to use outdated gas-charged bladders. Gas-charged bladders lack the technology and structural integrity to withstand the 21st-century's harsh drilling plans and aren't the most efficient, cost-effective solution.

# Pulsation dampener refurbishment versus Charge Free Conversion Kit

Choosing cutting-edge Charge Free Conversion Kits is the optimal long-term choice for maximum rig profitability.

Let's compare the refurbishment process to the Charge Free Conversion Kit option.

## The Pulsation dampener refurbishment process and considerations

Pulsation dampener refurbishment occurs when a third party inspects, sandblasts, internally coats, and repaints the unit.

### Inspection

The pulsation dampener walls are inspected for a reduction in wall thickness that corrosive fluids can cause.

### Cost considerations

- There's no way for the third-party refurbisher to determine the dampener's baseline wall thickness without original vessel documentation.
- The third party assumes zero responsibility for the pulsation dampener. They only measure the wall thickness, which can quickly be done in-house.
- The performance of the unit is not enhanced by measuring wall thickness. Wall thickness is simply a function of pressure control and safety.
- Unless the pulsation dampener is cast, inspecting dampener walls is most likely pointless with a forged unit. Personnel should check a pulsation dampener with excessive service time but units are generally retired before wall thickness reduction is a concern.

### Internal Coating

The dampener's internal surfaces are coated to remove burrs that can puncture bladders and cause premature failure.

### Cost considerations

- Unless the pulsation dampener is cast, the internal coating doesn't make economic sense with a forged unit. Burrs and pitting on a forged unit are limited and not significant enough to puncture thick bladder walls.
- Bladders generally fail from material fatigue from flexing before failure caused by internal burrs slicing or puncturing the bladder wall.
- The internal coating does not enhance the unit's performance. Bladder failure is predominantly from material fatigue resulting in the inability to retain gas pressure.

## Repainting

Fresh paint gives the illusion that the dampener has been returned to like-new status.

### Cost considerations

- Repainting is an expensive service that can quickly be done in-house if appearance is vital.
- Repainting does not enhance the unit's performance. Bladder failure is predominantly from material fatigue resulting in the inability to retain gas pressure.

## Bottom line - refurbishment doesn't solve bladder material fatigue failure.

The majority of bladders fail from material fatigue caused by wall flexing well before bladder failure caused by internal burr puncture.

The ultimate problem with gas-charged pulsation dampeners is that the 80-year old technology can't adequately withstand the rigorous demands of 21st-century drilling plans.

The bottom line is that while pulsation dampener refurbishment does benefit from removing potential bladder puncture causing burrs from cast units, it doesn't solve the more frequently occurring costly problem of bladder material fatigue failure.

**Refurbishment doesn't solve bladder material fatigue failure.**



## Charge Free Conversion Kits increase efficiency, reduce downtime, and reduce operational cost.

### Sigma's Charge Free Conversion Kit

The Sigma Charge Free Conversion Kit is a "fit it and forget it" cutting-edge solution designed for optimal performance in today's rigorous and aggressive drilling plans.

The Sigma CFC Kit utilizes a suspension bag designed to allow for fluid interaction with the CFC Kit's internal components. The suspension bag isn't designed to retain pressure like a bladder and therefore doesn't have a bladder failure defect.

Instead, the bag suspends a compression wedge system in the drilling fluid, which mitigates energy using compression and kinetic exchange.

### Benefits include:

- Zero gas-charging
- No pressure retainment needed for the operation
- Eliminates constant maintenance and downtime of gas-charged bladders, greatly increasing efficiency and significantly reducing operational costs
- Eliminates the need for costly third-party bladder installations and charging
- Improved MWD Signal Detection
- Easy and quick installation saves time and money
- Maintenance-free for one year
- Backed by a 1-year warranty

### Users Know the Difference!

**"I love these kits because they simply work, and we don't have to mess with bladders all the time. They just work and keep on working."**

-J.T., Maintenance Supervisor for a principal offshore drilling contractor

This rig's experience is typical of the hundreds of rigs that have capitalized on increased efficiency and enhanced profitability by using Sigma Charge Free Conversion Kits.

**" They just work and keep on working."**

## Summary

- With today's market conditions requiring fiscal prudence, getting your rigs field ready can present opportunities and obstacles. Pulsation dampener refurbishments may be a waste of financial resources that do not solve the underlying costly problems of a premature bladder failure.
- The real opportunity is reducing operational costs WHILE improving rig efficiencies and performance. One of the easiest ways to achieve these results is to forgo wasteful refurbishments and convert your pulsation dampener bladders to Charge Free Conversion Kits.



**Sigma's Charge Free Conversion Kit**

**"Fit it and forget it" technology solution designed for optimal performance**



**Request a Free Demonstration:**



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