



The CRV-Plate — A Proven Design to Prevent Sticking Servo Valves

Avoid sticky situations

Stuck servo valves. Clogged last-chance filters. Plugged pencil-type filters on gas turbines. If any of these problems sound familiar, then your facility is a perfect candidate to benefit from the installation of a CRV-Plate.

Developed in conjunction with our European partner, Ansaldo Thomassen®, the Sovice® CRV-Plate (shown below) offers an easy-to-install, immediate solution for preventing the buildup of sludge and varnish on internal components.



The Problem

Over time, gas turbine performance is impaired by problems originating from lubrication and control oil contaminants. Analysis consistently shows that the two chronic sources of these contaminants are—you guessed it—sludge and varnish.

Sludge and varnish are degradation by-products created from the very oil that protects your internal components. These damaging elements are the inevitable products generated when oil becomes exposed to constant oxidation processes.

Big problems start small

The amount of sludge and varnish produced within your equipment depends on a number of factors. Major contributors to this process include the oil's heat load generated by a specific gas turbine type, the lube system design, the oil chemistry, and the additive package. Gas turbines equipped with combined lube and control oil systems (designs that use oil from the same reservoir) are more likely to develop sludge and varnish problems than machines equipped with separated systems.

The enemy within

Sludge and varnish are most debilitating on sensitive components within the control oil system. Servo valves and last-chance filters are particularly vulnerable to their damaging effects. Given the opportunity, sludge and varnish particles quickly precipitate outward, adhering to any free metal surface. Over time, their presence leads to the disturbance of oil flow and eventually to the failure of critical servo valves. In turn, these failures cause system trips or lead to the inability to start the unit. Ultimately, this damaging cascade drives up the cost of turbine operation and maintenance.

A sticky problem

Gas turbine operators and suppliers have invested substantial amounts of time and money in an attempt to solve these sludge and varnish problems. Oil companies are busy developing low-sludge forming lubricants. Filter manufacturers are creating more efficient filter systems. Analysts, Inc. has developed the QSA® test to determine the VPR (varnish potential rating) of lubricants. Yet despite the best efforts of many companies, gas turbine users still face the daunting problem of sticking servo valves bringing their operations to a sudden halt.

The solution

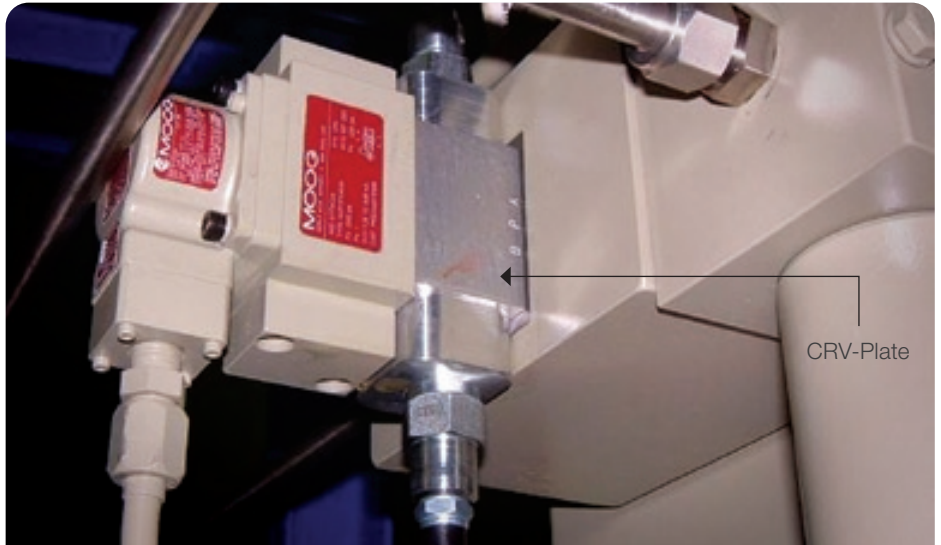
Sovice Solutions & Services (a subsidiary of Analysts, Inc.) holds the key to solving the expensive and disruptive problem of sticking servo valves. Working in conjunction with our European partner, Ansaldo Thomassen, we have developed the CRV-Plate.

Immediate relief where it's needed most

The Cross Relief Valve — or CRV-plate — is a new technology. How does it work? It creates an immediate lubricant flow condition within the control oil system that prevents sludge and varnish from falling out of solution and settling on critical operational components. No more sludge or varnish means no more sticking servo valves or unplanned repairs.

The best solutions are simple

Through our joint research program and extensive field-testing, we discovered that the process of sludge and varnish formation is dependent on two main factors: oil flow and temperature within the system. Based on this research, Ansaldo Thomassen developed the specific application of the CRV-plate. Its operating principle is amazingly simple and effective: adjustable needle valves control the oil flow, which is directed through the servo valve at all times—including when the unit is offline. This innovative solution ensures that the servo valve area of the control system will be continually exposed to the proper operating oil temperature.



A technology you'll want to stick with

As you might expect, the Sovice CRV-plate is easy to install — requiring only minor modifications, if any. It can principally be applied to all equipment with electro-hydraulic servo valves. And there is a specific CRV-plate available for each type of servo valve in gas turbine control systems.

Tests on GE type 7FA and 6B gas turbines have clearly shown the positive influence of the CRV-plate — demonstrating a significant reduction of sticky servo valve problems. Bottom line? After many years of sticktion problems and varnish buildup, users will finally see an immediate increase in both the reliability and availability of their gas turbines.

Call Analysts Today

Call toll free to the lab nearest you to speak with an Analysts representative about the CRV-Plate and while you're at it, ask how our turbine oil analysis program — VitalPointSM, can help you go beyond the "standard" tests currently available. VitalPoint provides the most comprehensive set of test packages and includes industry standard ASTM and Analysts' proprietary-test methods. You can also learn more by going to www.analystsinc.com.

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