

The background image shows a large industrial power transformer with multiple high-voltage insulators and a complex system of electrical connections. The transformer is housed in a grey metal enclosure. The sky is blue with some white clouds. The Siemens logo is in the top right corner, and the title 'Ferranti-Packard on-load tap changer upgrades' is in a teal box on the left side of the image.

SIEMENS

Ingenuity for life

Ferranti-Packard on-load tap changer upgrades

On-load tap changers (OLTCs) are intricate, electromechanical devices often operating under severe service conditions and performing hundreds of thousands of operations. OLTCs may endure mechanical wear on switch components and the drive mechanism, thus requiring readjustment and/or part replacement. Siemens offers a comprehensive portfolio of OLTC renewal part solutions and services supported by factory-trained service engineers and original manufacturer engineering departments who understand your equipment design. A preventative OLTC maintenance program will help customers avoid unplanned failures, lower maintenance costs and extend transformer service life.

Ferranti-Packard manufactured the LRT 25, 34, 69 and 138 kV load tap changers from the early 1960s through 2005. The LRT was built to withstand severe operating conditions with a minimal amount of maintenance. Siemens has received reports of burning and coking on the reversing switch contacts, most prominently on switches in the 25-35 kV class with high amperage applications that operate in a very narrow tap range and that seldom move through the reversing switch application.

Reversing switch contact kit

To improve performance and reliability, Ferranti-Packard has redesigned the reversing switch assembly and improved components, including:

- Stationary contact blades (M, P and Q) upgraded from cast copper to machined copper bar
- Selector stationary contacts upgraded from a tin-plated, blunt-leading edge to a silver-plated, easy-leading edge design requiring less mechanical force during the transition through neutral
- Moving contact finger mating edges radiused where they contact the stationary blade and ride up into position
- Moving finger assembly clamping spring pressure doubled
- Clamping spring isolated from the finger contacts with an insulating washer to eliminate heating caused by circulating currents
- Clamping spring centered and held in place around the retaining pin
- Contact spring assembly upgraded, integrating a larger seating surface to ensure a greater distribution of compression on the moveable contacts

Ferranti-Packard on-load tap charger upgrades

Application notes

- This reversing switch upgrade kit is not applicable to 138 kV switches nor to older 1960 - 1970s switches manufactured using contact posts with porcelain insulators
- Although parts are interchangeable with older components supplied on most LRT tap changers, it is necessary to change all the components on the reversing switch as they are a mating set

Diverter switch contact kit

The load diverter switch is a quick-break type employing a four-link mechanism, which is stable in two positions. The two side links of this mechanism carry the four moving contacts. The diverter switch is actuated by two coil springs that are charged by a crank and a slide mechanism. These springs are connected to the center of the upper link. Switches are equipped with a tungsten-copper arcing tip brazed to a copper backing plate approximately 7/32-inch thick at the tip. Contacts should be replaced when worn down to within 1/16-inch of the backing plate. Although this measurement is a quick visual indicator to the operation of the diverter, many components in the diverter should also be inspected to ensure proper timing and operation.

To improve performance and reliability, Ferranti-Packard has redesigned the diverter switch and improved switch components.

Gaps, springs and clearances are paramount to the proper operation of this most valued component in the LTC compartment.

Other kits available for Ferranti-Packard OLTCS

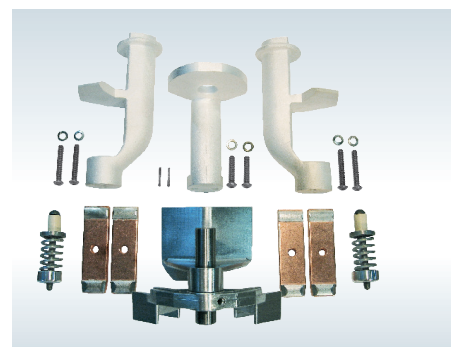
- Selector switch contact kit
- Complete oil seal assembly
- Transition resistors, diverter switch
- Complete selector top board assembly

Other parts solutions include

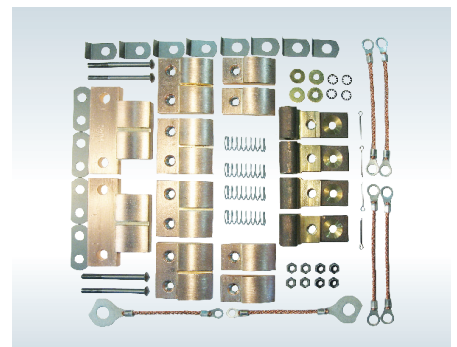
- Gasket kits
- Bushings
- Coolers, radiators and fans
- Motors
- Gauges
- Replacement nameplates

Field service

The upgrades listed above, depending on your transformer, can be field installed. Siemens can support you with factory trained field service engineers who are familiar with OEM-recommended procedures to minimize downtime and maximize transformer reliability and performance.



Ferranti-Packard LRT reversing switch contact kit



Ferranti-Packard LRT diverter switch contact kit

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Order No: IC1000-E240-A123-X-4AUS
Printed in USA

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