

RESOLVING RACK EQUIPMENT POWER FAILURES

INDUSTRY:
Information Technology

APPLICATION:
Data Centers

COMPONENT:
Busbar

LOCATION:
Worldwide



BACKGROUND

A leader in integrated cloud technology noticed that the backup servers in their data centers were being used much too frequently because their primary servers were experiencing power failures. Upon inspection, they soon discovered that the busbar and crown clip connection for the primary server had corrosion build up. They attributed this problem to fretting corrosion, or micro-motions that wear contacts and expose fresh layers of metal to oxidation, eventually creating an open connection. The provider determined that the micro-motion occurred during shipping and regular operation. After their manufacturing partner recommended our connector greases, an engineer contacted Nye to see if we could provide a solution that would protect future power connections from fretting corrosion and restore reliable connectivity to damaged connectors in the field.

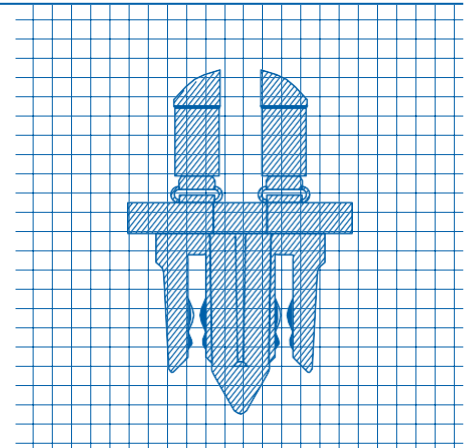
CHALLENGE

- Can our industry proven lubricant protect electrical contacts from fretting corrosion and prevent further power failures in the field?

SOLUTION NYOGEL® 760G

A silica thickened, medium viscosity, synthetic hydrocarbon grease for lubricating contacts.

- Extends the reliability of connectors
- Prevents fretting wear
- Insulates from short circuits
- Protects from environmental exposure



RESULTS

To validate our solution, our Application and Test Design Engineers used our fretting corrosion test rig and modified the design using custom fixtures to replicate the customer's application conditions. Our team ran two tests, one on unlubricated contacts and one with contacts lubricated with NyoGel® 760G. NyoGel® 760G was run for 5.8M cycles without any failures compared to 75K cycles unlubricated. After further internal

testing, the customer decided to use NyoGel® 760G for their tin-plated connectors. NyoGel® 760G is now being used in their data center equipment across the world and has successfully restored equipment power reliability to servers that experienced power failures.

Base Oil Properties	Conditions	NyoGel® 760G	Test Method
Chemistry		Silica / PAO	
Temperature Range		-40 to 135°C	
Kinematic Viscosity	40°C	400 cSt	ASTM D-445
Viscosity Index		147.5	ASTM D-2270
Grease Properties			
NLGI Grade		2	ASTM D-217
Oil Separation	24 hrs, 100°C	1.5%	ASTM D-6184
Evaporation	24 hrs, 100°C	0.3%	ASTM D-972
Water Washout	1 hr, 80°C	2%	ASTM D-1264
Copper Corrosion	24 hrs, 150C	1a, Slight Tarnish	ASTM D-4048
Salt Spray Resistance	48 hrs	No Corrosion	MIL-G-81827A
Dielectric Breakdown Voltage		11.2 kV	NYE CTM

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Nye Lubricants is a leader in the innovation, formulation and provision of synthetic lubricants, enabling and improving breakthrough products and critical new technologies. We bring proven experience, deep technical knowledge and customer focus to solve our customers' toughest challenges, adding tangible value to products in a wide range of industries and applications

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