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REF: General-MSR 14

WARNING - Whenever working on electrical components, be sure to remove the power from the circuit. Remove the battery connections for most electrical repair procedures.

Dielectric Grease

- A silicone dielectric compound, nonconductive, moisture proof grease meaning that it does not enhance the flow of electrical current and acts as a moisture seal as well as a current insulator for electrical connections. It is silicone based but does not harden like silicone sealants that you used to. It acts as normal grease does with a varying viscosity to heat.
 - Typical industry uses include aircraft, automotive and marine ignition systems, widely used in spark plug connections and also disconnection junctions in electrical wiring systems, electrical assemblies and terminals.
 - Also for other uses including a seal and lubricant for cable connectors, battery terminals, rubber door seals, switches and rubber and plastic O-rings and as an assembly lubricant for various metal-on-plastic and metal-on-rubber combinations.
- A good quality dielectric grease compound will normally be:
 - High in dielectric strength with a low volatility
 - Moisture resistant / highly water repellent
 - With good thermal oxidation
 - Chemically stable in high heat conditions to keep its consistency while adhering readily to dry metals, ceramics, rubber, plastics and insulating resins. ¹⁾
 - Dielectric grease comes in small squeeze pouches as well as pressurized canisters depending on quantity desired. There are many uses for it, it is usually better to buy the can.
- Here is another good argument prone subject but towards its use instead of its ingredients. Most people agree that dielectric grease is a great product for most all the reasons publicized. The divide, however, is the use of it "before or after" connecting your joints/ splices.

The Truth About Using Dielectric Grease

- In some cases, a grease may not be recommended or productive to adjacent components. Check the manufacturer's label for precautions in use.
- It is OK to grease the connectors before connection being made for most applications as long as there is a tight enough metal to metal connection point to push out the grease in that area.
- DO NOT use WD-40 to blow out/ clean old grease from connectors. Regular WD-40 is a conductive petroleum based lubricant that will not wipe out or dry up enough to ensure a non-conductive condition in your connections which could arc on such use. Check for specialized WD-40 products

(contact cleaner) and be sure it is compatible with your usage.

- Dielectric grease is NOT a conductor, its an insulator....²⁾
- Dielectric grease, while not promoting conductivity, does help to preserve and maintain it by reducing conductivity degrading corrosion/oxidation of electrical connections over the dimension of time. It works by sealing out air and moisture (if good, solid, tight connections have been made and have been periodically cleaned and checked for same).
- While slathering dielectric grease everywhere onto electrical connectors before you mate them won't yield an improvement in electrical current, it does coat and/or undercoat surrounding open areas not subject to tight bonding and keeps corrosion from entering.
- Applying too much can hydro lock the insides of the connectors to be interlocked (as in male to female wiring connectors and especially the closed cup plastic ones often found on Sportsters) and keep a tight connection from happening. Apply it sparingly.
- It's a pain to remove from electrical connectors.
- In use of a dielectric or any other type grease, there will be dirt infiltration/ contamination from time to time that must be cleaned out and replenished. Even though some manufacturers will claim that dielectric grease does not chemically attract dirt, it will find its way into the connector/ connection.
- Always make sure your connections are tight, especially if you lube them before connecting them to allow the grease to move out of the hard connection area. Use a multi-meter to confirm conductivity before leaving it.
- Dielectric grease is not a cleaner, it cannot restore corroded electrical connections but it is non-conductive grease with good heat resistance properties.
- I tried both ways and don't see any voltage difference with my cheapo meter so I don't think the grease has much, if any resistance.³⁾

Proper Use of Dielectric Grease

- Understanding the principles above and the purpose of dielectric grease - a nonconductor of direct electric current, you can use it in an appropriate manner to help maintain electrical connections in your motorcycle or whatever else.
 - The widest use of dielectric grease is in high-voltage connections associated with spark plugs. The grease is applied to the rubber boot of the plug wire. This helps the rubber boot slide onto the ceramic insulator of the plug. The grease also acts to seal the rubber boot, while at the same time preventing the rubber from becoming stuck to the ceramic.⁴⁾
 - Another common use of dielectric grease is on the rubber mating surfaces or gaskets of multi-pin electrical connectors used in automotive, motorcycle and marine engines. The grease again acts as a lubricant and a sealant on the nonconductive mating surfaces of the connector. The MoCo did a lot to keep water out of the connections but not as much to reduce moisture which is a silent killer of your multi-pin connections.⁵⁾
 - The high temperature properties of a non-conducting grease, some sold at automotive supply stores, make it a good choice for acting as a sealant to keep water out of light/ lamp sockets. An incandescent bulb can create considerable temperature rise in an enclosed lamp compartment. Using a grease that does not turn into liquid and run out would be helpful.⁶⁾
 - Regarding 12-volt DC batteries in a Sportster, conductive grease or non-conductive is OK to use. Some will say there is little reason to use an expensive dielectric grease to protect battery electrical connections because the system voltage is so low that practically any

grease will have sufficient insulating properties. It is not necessary to employ such a skillfully formulated grease to keep moisture from the terminal of a 12-volt battery. Indeed, it is common that general purpose marine grease can be used as an electrical insulating grease in 12-volt systems, as well as "Coke" brand drink products, any bottom drippings of any oil container, etc. Just remember if using anything conductive, do not allow it to travel down the plastic towards the opposite connection.⁷⁾⁸⁾

- Electrical connections, circuit breakers, contacts, trailer connectors, HEI distributor, battery terminals, contacts, lubrication of plastic and rubber parts & O-rings⁹⁾

Dielectric Grease Cleanup (Spills)

- Remove with petroleum distillates and chlorinated solvents.¹⁰⁾
- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).¹¹⁾

Precautions

- Use only with adequate ventilation. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed.
- For safe storage, store at or below 38 °C (100.4 °F).
- Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

SAE - AS 8660	This specification covers one type of a nonmelting, heat stable silicone compound for use in high tension electrical connections, ignition systems and electronics equipment; for application to unpainted mating threaded or non-threaded surfaces, and as a lubricant for components fabricated from rubber. This compound is effective in the temperature range from -54°C (-65°F) to +204°C (+400°F) for extended periods and to 260°C (500°F) for short periods. This compound is identified by NATO symbol S-736 ¹²⁾
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Liquid Tape and Electrical Coatings

Electrical Tape

Electrical Contact Cleaner

Electrical Contact Cleaner can be used to dissolve dust, dirt, flux, grease and other contaminants from electrical contacts.

There are a number of readily available commercial products designed specifically as Contact Cleaners, such as from CRC, WD-40, etc. Look for the Contact Cleaner versions of these product brands, not their generic spray cleaners. These contact cleaners are designed to reach in difficult places with a blast of chemical spray to clean the contact surfaces. Be sure to read the precautions & directions on the can as most make notice about their affects on plastics. You don't want to do more harm trying to clean your contacts. As with all chemicals, protect your face and eyes and hands whenever using any spray cleaner.

Be sure the chosen product leaves No Residue. Do not use generic WD40 as a contact cleaner (it can be conductive). Use a brush, lint-free cloth or swap on stubborn dirt. Only use enough cleaner for the contacts being cleaned.

Let the liquid cleaner thoroughly evaporate. The area & contacts should be dry. Do not re-energize the circuit until any fumes have dissipated.

Cleaning may remove needed lubrication from electro-mechanical parts. Be sure to relubricate moving parts as necessary.

Use dielectric grease on the contacts & shell to minimize future oxidation.

Cold Spray - (Freeze)

Cold Spray is a different form of the 134A A/C coolant. It can also be labeled as 134 Spray, 134A Spray, Freeze Spray, Component Cooler, etc. One version is Chemtronics Duster ES-1017. Don't confuse this with other medical-type freeze spray which should not be used because they include topical ingredients. Be sure the product you get has No Residue. The right product is pure 1,1,1,2-tetrachloroethane.

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2)

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