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**Technical Bulletin**

**No. 231**

## **REPLACING TOP MOUNTED H.V. BUSHINGS**

### ***Tools Required:***

- 5/8" Wrench
- Screw Driver to fit 1/4" Slotted Screw
- 9/16" Wrench
- 9/16", 5/8", 11/16", 7/8" Deep Sockets Ratchet and Long Extension

### ***Safety Precautions:***

1. **PRIOR TO PERFORMING THIS PROCEDURE, MAKE SURE THAT THE T/R SET IS DE-ENERGIZED AND LOCKED OUT USING THE PROPER INTERLOCK SEQUENCE.**
2. **A SEPARATE SOLID GROUND CONNECTION MUST BE MADE TO THE HIGH VOLTAGE BUS CONDUCTOR THAT FEEDS THE PRECIPITATOR. IF A SEPARATE EXTERNAL GROUND CONNECTION IS NOT MADE, LETHAL VOLTAGES MAY EXIST AT THE H.V. BUSHING CONNECTIONS.**

### ***Other Precautions:***

1. Make sure that the lid of the T/R set and other surfaces are clean of dirt, flyash, water, or other contaminants prior to opening the T/R set. Once the T/R lid is removed, care should be taken not to introduce any contaminants into the dielectric fluid.
2. It is not necessary to drain the dielectric fluid to perform this repair. Draining the fluid will only cause other problems. this procedure was intended to be performed with the fluid at the operating level. If there are any questions concerning the type of fluid in the T/R set, check the dielectric nameplate on the side of the tank. Material Safety Data Sheets (MSDS) for our dielectric fluids can be found at [www.nwl.com](http://www.nwl.com).



***Procedure:***

1. Access the H.V. bushing by removing the bushing access panel, if provided, or removing the H.V. duct work. Disconnect the H.V. bus bar from the H.V. bushing.
2. Using a 9/16" wrench, remove the T/R cover clamps and remove the lid.
3. Disconnect the H.V. bushing lead from the T/R module assembly by twisting the BNC connector and pulling.
4. The T/R lid can now be temporarily replaced. Remove the H.V. bushing clamp stud nuts. The two piece clamp assembly can also be removed.
5. Lift the bushing straight up and out of the tank.
6. The H.V. bushing BNC connector lead must be taken off the old bushing and installed on the new bushing. Install a new neoprene gasket on the new bushing.
7. Carefully lower the new bushing into position through the T/R top. Remove the hand hold cover and align the bushing so the BNC connector lead can be reconnected to the module. Replace the cover and secure with the lid clamps.
8. The bushing clamp must be interleaved before placement on the clamp studs.
9. The nuts and washers can now be re-installed on the clamp studs. The nuts should be tightened down evenly until snug (approximately 150 in-lbs.).
10. Re-install duct work and H.V. bus bar using care not to damage the H.V. bushing.