

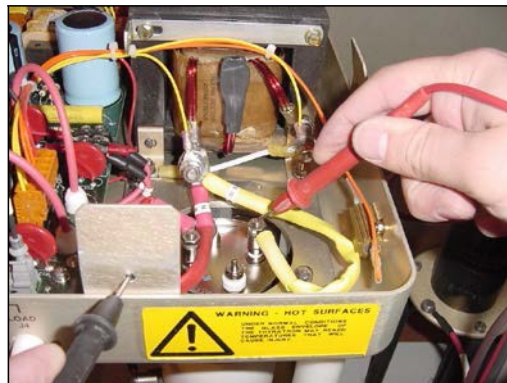
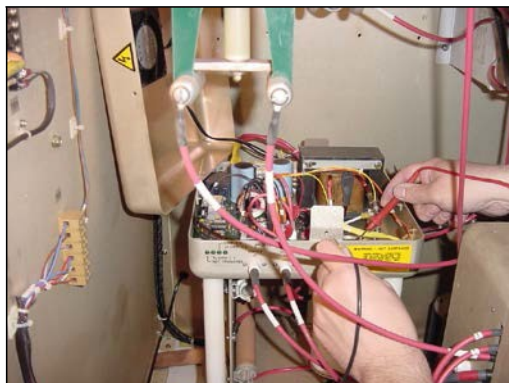
Technical Service Bulletin 030605

Adjustment of Crowbar Filament Voltage

This service bulletin provides the proper procedure to measure/adjust the filament voltage of the thyatron contained in the type 451227-01/02 Dual Gap Crowbar Assembly.

Procedure 030605: Adjustment of Crowbar Filament Voltage	
Applicability	IOX, DCX, and Advantage IOT Transmitters.
Prerequisites	Power applied to crowbar assembly. High voltage extinguished.
Equipment Required	Digital voltmeter.
Comments	Proper thyatron filament voltage is essential for proper operation of crowbar assembly. Filament voltage should be checked / adjusted whenever crowbar assembly is replaced or fails test. Test procedures are contained in Service Bulletin 990611.

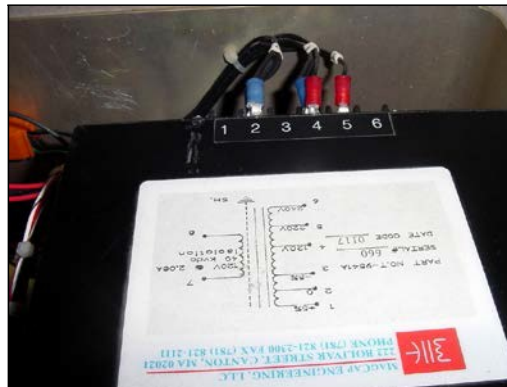
1. Gain access to high voltage compartment via key interlock system.
2. Discharge all high voltage circuits with grounding hook.
3. Remove four screws from cover of upper (high voltage) section of crowbar assembly. Crowbar assembly may need to be rotated to permit access to screws.
4. Carefully slide off and set aside cover from upper (high voltage) section of crowbar assembly. Do not disconnect cooling fan power cable, as this connection is interlocked and crowbar assembly will not work with it disconnected.
5. Measure voltage from thyatron filament terminal to ground with digital voltmeter. (see photo) Measured voltage should be 6.3 +/- 0.2 volts AC. The filament (heater) uses AC voltage.



If filament voltage is too low, there is a risk that thyatron may not correctly fire in case of an arc. If filament voltage is too high, there is a risk that thyatron may spuriously when there is no real arc.

NOTE: Even if it is within the acceptable range, it may still be desirable to change the filament voltage. A crowbar that has been experiencing frequent, random firings and has a filament voltage near the top of the acceptable range (6.5V) may benefit from having its filament voltage lowered. Likewise, a crowbar that has failed a test fire (see Service Bulletin 990611) and has a filament voltage near the bottom of the acceptable range (6.1V) may benefit from having its filament voltage raised.

6. If filament voltage does not require adjustment, close cover and restore equipment to original condition. Procedure complete.
7. If filament voltage requires adjustment, deactivate **Crowbar** and **Control Power** circuit breakers on AC distribution panel, disconnect connectors J1 – J4 from crowbar assembly, and remove entire assembly from high voltage compartment.
8. Tip crowbar assembly on its side to reveal filament tap winding connections. (see photo).



9. Change filament tap winding connection to increase or lower thyatron filament voltage by five percent. Because the adjustable tap connections belong to the isolation transformer primary side, the -5% setting will *raise* the filament voltage by 5% and vice versa. Transformers may vary in appearance and terminal location.

NOTE: Because the acceptable filament voltage window is only 6% wide and the tap adjustment step 5%, it often becomes necessary to choose between a filament voltage setting near the top of the acceptable range or near the bottom of the acceptable range. (e.g. $6.45V - 5\% = 6.13V$). In such cases, the risks of crowbar spurious firing versus crowbar non-firing must be weighed. In such cases, Comark recommends choosing the lower voltage setting and regularly test-firing the crowbar according to Service Bulletin 990611. If the crowbar fails to test fire, the filament voltage should be raised to the higher voltage setting.

10. Re-install crowbar assembly, close high voltage compartment, and restore equipment to original condition.
11. Procedure complete.

Please do not hesitate to contact Comark Customer Service with any questions you may have concerning the contents of this service bulletin.

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