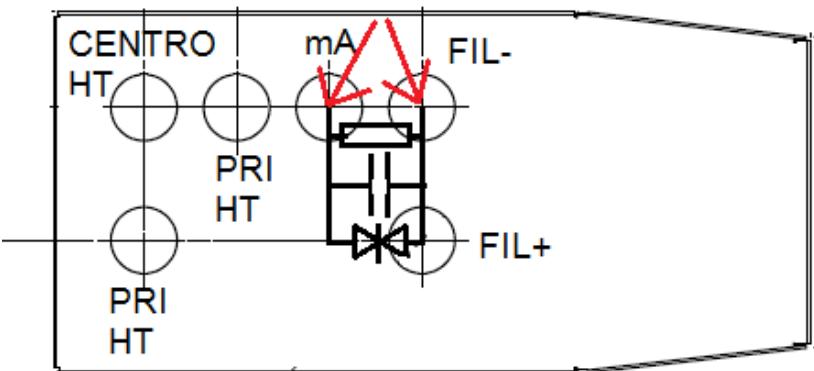


RiX 70-DC

Adjustment procedure for KV and mA setting

| Rev. | Descrizione | Creato | Verificato | Approvato |
|------|-------------|--------|------------|-----------|
| 0 | First Issue | R.L. | R.C. | F.A. |

1. Connect a multi-meter for DC voltage measurement, 10 VDC end of scale, across the $1\text{K}\Omega$ measuring resistor mounted on the outside of monoblock metal housing.



Note that with this connection between filament minus (GROUND – Monoblock housing) and mA sensing (opposite side of $1\text{K}\Omega$ resistor) measured voltage will read negative.

2. Place the non-invasive KV meter at about 30 cm in front of the output beam ready to measure the KV level.
If distance is much shorter than 30 cm, be sure that measuring area of the non-invasive meter is properly aligned with output beam.
3. **If procedure is performed as a first time adjustment**, turns R42 (KV adjustment) at least 8 turns clockwise.
- 4. Set the intraoral system for exposures at 60 KV 1 second.**
5. Perform X-ray exposure and:
 - a. Verify that maximum value of measured voltage at the mA point is $6.3 \div 6.8 \text{ V}_{\text{DC}}$, 1 V corresponding to 1 mA of anode current.
If not, slightly tune the trimmer R6 to fall in the indicated range: turn it clockwise to reduce the current or counter-clockwise to increment it.
 - b. Verify that the measured KV level **is below 60 KV** otherwise apply some extra clockwise turns to R42.
6. Repeat the exposure at 60 KV until mA reading is within required range of $6.3 \div 6.8 \text{ V}_{\text{DC}}$.
7. Once mA value is properly adjusted, KV value can be regulated using R42. Increase KV setting gradually and perform emissions until measured value is 58 \div 60 KV.
- 8. Set the intraoral system for exposures at 70 KV 1 second.**

**READ NOTE AT THE END OF PROCEDURE
ABOUT INTERACTION OF mA AND KV**

9. Perform X-ray exposures at 70 KV 1 second and;
 - a. Verify that maximum value of measured voltage at the mA point is $6.5 \div 7.5 \text{ VDC}$.
If not, tune the trimmer R6 to have a value in the indicated range.
 - b. Verify that the measured KV level is from $69 \div 70.5 \text{ KV}$.

If not, tune the HV calibration trimmer R42 to have a value in the indicated range.

10. Set the intraoral system for exposures at 60 KV 1 second.

11. Perform X-ray exposure and:

- a. Verify that maximum value of measured voltage at the mA point is $6.3 \div 7.5 \text{ V}_{\text{DC}}$.
- b. Verify that the measured KV level is $58 \div 62 \text{ KV}$.

12. Set the intraoral system for exposures at 65 KV 1 second.

13. Perform X-ray exposure and:

- a. Verify that maximum value of measured voltage at the mA point is $6.3 \div 7.5 \text{ V}_{\text{DC}}$.
- b. Verify that the measured KV level is $63 \div 67 \text{ KV}$.

14. End of procedure.

Note : KV and mA settings interaction.

The adjustment of KV and mA requires some attention because a change of one regulation will affect the other value too.

This is due to physics of the X-ray tube and cannot be compensated by the electronics particularly for short exposure time when thermal inertia of the filament is dominating.

When adjusting the system, you must know that:

- **Increasing** the HV value will also slightly **increase** the mA because the electric field inside the tube becomes higher and will attract more electrons.
- **Increasing** the mA value will **decrease** the resulting HV value due to extra losses on the voltage multiplier stage.

A good way to reach the desired operating point is:

- First set mA just a little below nominal value (see point 6 of procedure)
- Then rise KV to required value

At that point mA reading should be slightly higher than initial measurement.

If it is required to have exactly the nominal value (e.g. 7mA) a very small adjustment will not affect too much KV setting.

