

Alpha 99/91B Electronic Bias Switching (EBS) Testing

The Alpha 99/91B Electronic Bias Switching (EBS) circuit has 3 conditions:

- 1) tubes cutoff,
- 2) keyed but no RF detected (a small amount of idle Ip),
- 3) and once RF is detected there is operating bias (a little more idle Ip).

If you key the radio on CW at about 40 wpm in SEMI-breakin (not full QSK), running full or near full power out, you can see the plate current LEDs indicate the two levels of operating bias. Between dits the Ip should drop about half way to zero, but it should NOT go to zero. That is the idle Ip when the amp is keyed by the radio but no RF is detected.

It is a heat-saving feature, switching to higher bias voltage (lower Ip) about 20 msec after RF is removed. This will also happen on SSB between voice peaks, but it's easier to see in action with a steady repetition of dits on CW.

If you do not see the lower level and the Ip drops to zero between dits, then the RF detect isn't working. It's usually a bad 1N5711 diode under the tube deck, on a small circuit board that the RF input SO-239 is mounted on. If that is the case, the amp usually also takes a lot more drive to get full output than is normal.

Key the amp at 30-40 wpm in SEMI-BREAKIN, **not full QSK**, and see if there is a difference in the Ip indications as described above.