

ECO-025 RFE Preamp Upgrade – 7/15/2005

All SDR-1000s shipped after July 15, 2005 include a Sirenza SGA-6286 preamplifier in place of the SGA-4586 used on all previous units. The new preamp increases the **2KHz spacing**, third order dynamic range to around 99dB and third order intercept (IP3) to approximately +17dBm in the High preamplifier setting. IP3 is increased to at least +28dB in the Medium setting.

It is important to note that there is a tradeoff in sensitivity in return for the for the higher IP3 and dynamic range. The 500Hz bandwidth MDS at 14MHz decreases from around –136dBm with the SGA-4586 to around –130dBm with the SGA-6286. This is a good tradeoff on HF because the need for large signal handling capability greatly exceeds the need for sensitivity.

ECO Parts kits are available from FlexRadio Systems as well as upgrade installation.

Tools and Components Required

1. Small tipped diagonal cutters
2. Fine tipped soldering iron
3. Second soldering iron or SMD removal iron
4. Solder wick
5. Tweezers
6. Exacto knife (optional)
7. Rosen core solder
8. Sirenza SGA-6286 (Avnet SGA-6286-BLK)
9. One 330 Ohm 1/4W 1206 SMD resistor (Digikey 311-330FCT-ND)

Upgrade Procedure

1. Remove the BPF and RFE boards from the SDR-1000 board stack.
2. Refer to the partial top view on the next page for component locations.
3. Remove the original SGA-4586 preamp located at IC1 on the RFE board by one of the following methods:
 - a. Cut each of the four preamp leads on IC1 with the small diagonal cutters and then wipe away the old leads with the fine tipped soldering iron.
 - b. Use the solder wick to remove most of the solder from the four preamp leads. Then lift each lead carefully with an Exacto knife while heating the lead with the iron. This method allows the part to be salvaged.
4. Install the SGA-6286 at IC1 with the dot facing C47. The lead on the dot end is cut at a 45-degree angle.
5. Piggyback a 330 Ohm resistor and solder it on top of the one installed at R2.

