



250W of TX RF in the transmit path with more than 70dB of isolation in the receiver, typically 80dB from 14MHz and below. This is better than most mechanical relays when operated at HF.

Transmit path. The first thing to understand about the SSS is that it isolates the PA stage from the receiver but does not switch HF power directly. The path from the TX PA through the aerial filters to the aerial socket is hardwired, thus the PA stage is connected to the aerial regardless of Omega being in transmit or receive.

In transmit, Tr1, a BF259 high voltage small signal transistor is open circuit with the base tied to the emitter via C10 and R5. PIN diode D8 conducts tying the emitter (and hence the base) of Tr1 to RF ground. It acts simply as a reverse biased diode in transmit. Diodes D1 to D6 and their RF potential dividers C2 to C7 rectify the transmit RF signal to keep Tr1 biased to a DC level just 10V more than the peak to peak RF voltage. Any forward conduction of Tr1's collector base junction during the RF cycle spells instant death for the transistor. The diode chain prevents this occurring. Note that Tr1 develops around +200V on the collector during transmit.

A small DC to DC generator provides around -10V of reverse bias for PIN diode D9 (and the other PIN diodes in their off state) adding further isolation to the receive path. In transmit, the other remaining function of the SSS is to connect the input of the PA strip to the output of the pre-selector. D10 connects point C, the pre-selector, terminal to point D, the PA strip terminal. Tr2 and Tr3 simply provide DC switching.

Receive Path

The TX PA stage, which connects continuously with the aerial, has the bias removed from the output transistors. This effectively puts the port into a high impedance state. Note though that the DC supply to the output transistors is not removed. If the supply were removed completely there would be a massive increase in output capacitance due to the varactor effect. This would de-tune the output filters and load the receive signal path.

Tr1, the high voltage transistor is massively saturated by heavy base current though R6. The minority