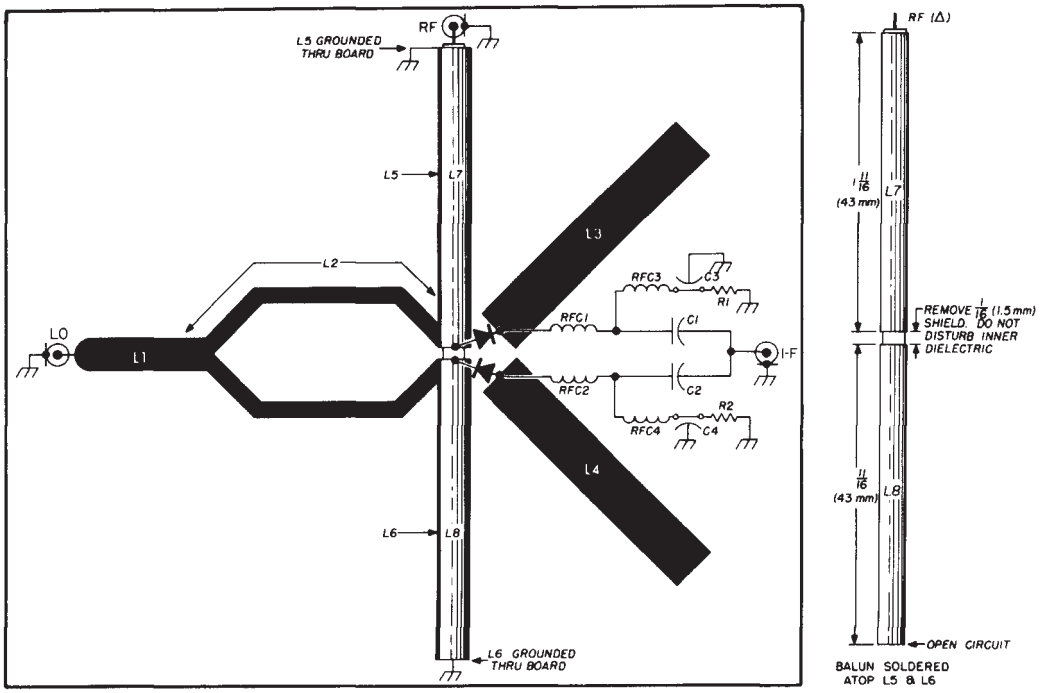


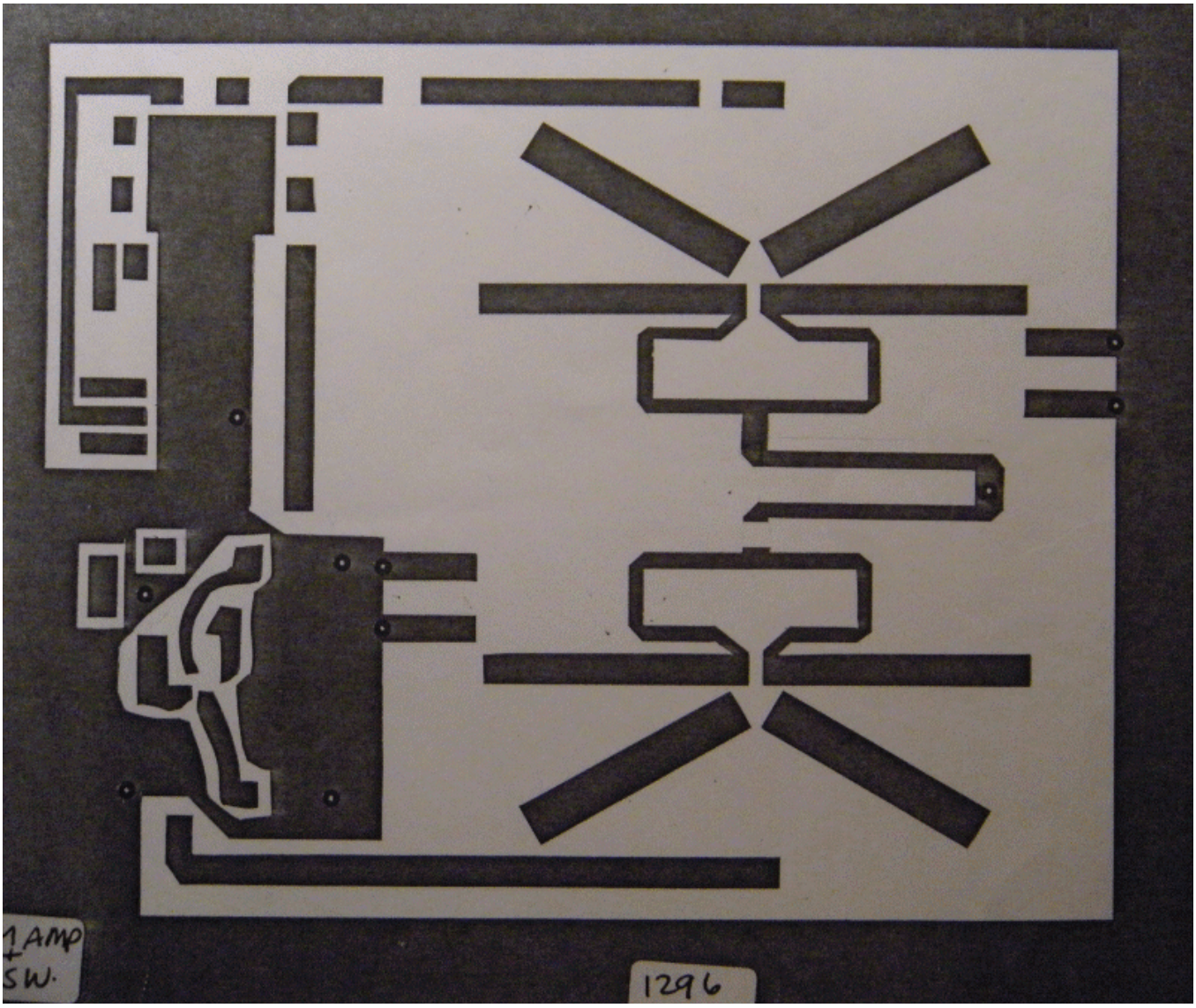

| | |
|---|---|
| C1,C2 | 0.01 μF disc ceramic |
| C3,C4 | 1000-pF feedthrough |
| CR1,CR2 | hot-carrier diodes (H-P 5082-2818) |
| L1 | 50-ohm micro-stripline, 0.168" (4.5 mm) wide, any length |
| L2 | 75-ohm micro-stripline, 0.080" (2.0 mm) wide, 1-7/16" (36.5 mm) long, (along center) |
| L3,L4 | 38-ohm micro-stripline, 0.25" (6.5 mm) wide, 1-7/16" (36.5 mm) long |
| L5,L6 | 50-ohm micro-stripline, 0.168" (4.5 mm) wide, 1-19/32" (40.5 mm) long |
| L7,L8 | 50-ohm UT-141 coaxitube, 0.141" (3.5 mm) diameter, 1-11/16" (43 mm) long |
| R1,R2 | 10-ohm, ¼-watt carbon composition resistors |
| RFC1,RFC2 | 2" (51 mm) no. 32 wire, close wound on 0.050" (1.5 mm) diameter form or ferrite beads on leads of C1 and C2 |
| RFC3,RFC4 | 22μH |

**fig. 5. This high-performance 1296-MHz balanced mixer uses etched 1/16" (1.5 mm) thick Teflon-fiberglass printed-circuit board and a coaxial balun. Full-size printed-circuit layout is shown in fig. 8. An equivalent circuit of this mixer, illustrating circuit operation, is given in fig. 6.**

of **fig. 7B** as shown in **fig. 7C**. In this version the stub is a piece of coax identical to the original feedline. The center connector of the feeder is now connected to the center conductor, rather than to the shield of the stub. At the far end of the stub the center conductor is open. A quarter-wavelength toward the source (at the junction of the feeder and the stub) this open is transformed to a short, and rf sees the center conductor of the stub as being continuous with the shield. Therefore, the circuit at **fig. 7C** is electrically identical to that of **fig. 7B**, but with improved physical symmetry. Balanced output is taken from the same point as before.

Note that at the far end of the stub the center conductor must be open, and the shield grounded. Again the balun may be constructed upon a substrate, with return through it to a groundplane.

The balun used in the 1296-MHz mixer is made from a single piece of UT-141 type semirigid coax (50-ohms, Teflon dielectric, 0.141-inch [3.5-mm]


1AMP
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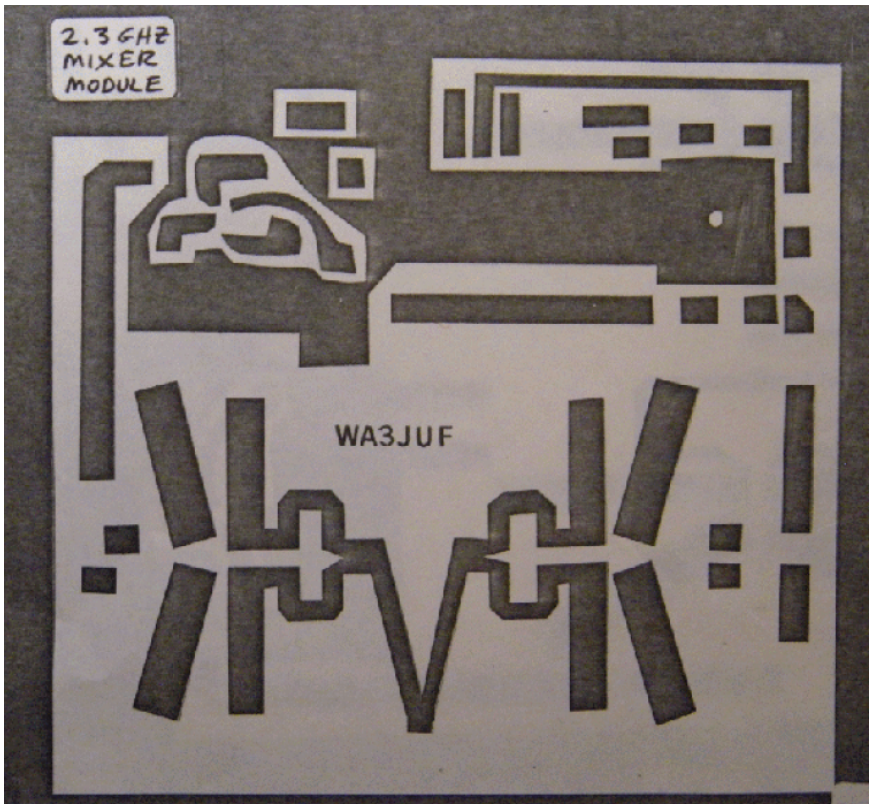
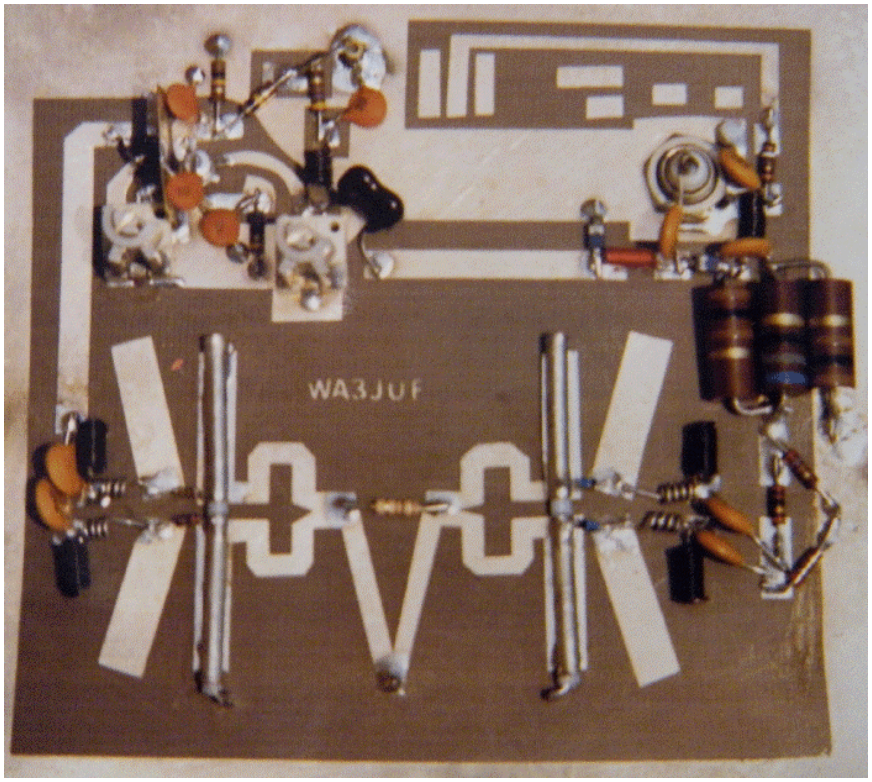

2.3 GHz
MIXER
MODULE
WA3JUF


WA3JUF