Abstracts

A Simple Technique for the Generation of Short Rectangular RF Pulses from a CW Source (Correspondence)

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A gated traveling wave amplifier or klystron amplifier can be used to produce pulses from an essentially CW source. In the case of the TWT amplifier, rise times as short as a few millimicroseconds have been observed. This communication points out how millimicrosecond RF pulses have been produced using an inexpensive mercury contact switch installed in the center conductor of a coaxial line. The first use of a mercury contact switch for discharging a transmission line to generate rectangular dc pulses was reported by Garwin. Such pulsers based on this switch are now commercially available. With an appropriate transmission line configuration using the switch in the center conductor, RF pulses can be generated from a CW source. With reference to Fig. 1, the switching element from a Western Electric 276 mercury contact relay was removed and installed in the 3/8-inch center conductor of a 50-omega rigid transmission line. The active element of the switch is caused to move from one set of contacts to the other by a 60 cycle magnetic field. Fig. 2 shows the complete assembly.

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