SOUND TALK

FROM THE MAKERS OF "SCOTCH" BRAND MAGNETIC TAPE

Bulletin No. 16

*FM INTERFERENCE

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Did you ever buy a tape recorder and find it equipped with a built-in FM receiver? Operation of portable amplifiers and tape recorders in the vicinity of an FM transmitter is often made difficult by interference of the amplitude and frequency modulations of the high frequency transmitter. Usually after spreading the equipment out on the bench, the purchaser tries various grounding and shielding tricks until the interference is eliminated. He solders in the shield, congratulates himself, and rises to get the case only to be greeted with a new burst of FM program material. Probably his work has only provided sufficient out-of-phase signal to cancel the interference until some nearby object is moved.

In the conventional input circuit the grid-to-cathode capacitance resonates with the inductance of the grid lead at a frequency near that of the transmitter. Any non-linearity in the grid circuit or in the transfer characteristic of the tube will cause detection of any amplitude modulation present in the radio frequency signal. Assuming that this circuit resonates either above or below the transmitter frequency, it will convert frequency excursions into amplitude modulation causing them to also appear in the amplifier output.

A resistor of 10,000 ohms or any similar value placed in series with the grid wire with one side connected directly to the tube socket terminal will lower the "Q" of the grid circuit at the resonant frequency sufficiently to eliminate the interference. The resistor will have little effect on the desired signal. Grid impedance of a tube is very high at audio frequencies; consequently there will be negligible voltage lost across this resistor. Fig. 1A shows a conventional amplifier circuit. Fig. 1B represents the same circuit as it appears to the high frequency signal. Fig. 1C shows the suggested modification while Fig. 1D gives the high frequency equivalent of the modification.

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Original Publication: Radio & Television News, Feb. '51