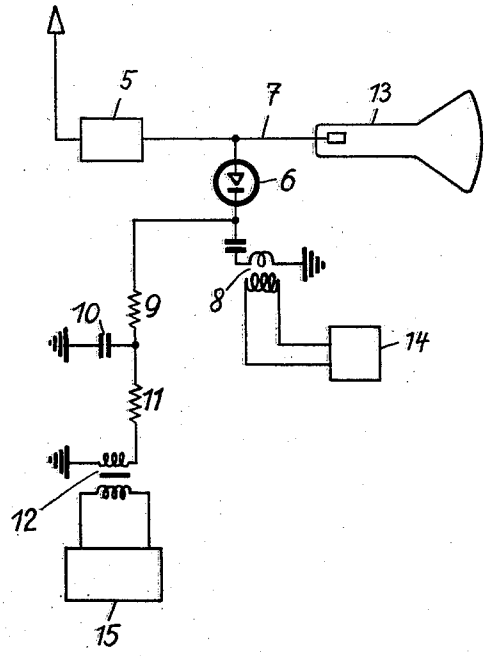
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SYNCHRONIZATION METHOD AND MEANS

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SYNCHRONIZATION METHOD AND MEANS

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1 Claim. (Cl. 178—7.5)

It is known that upon the reception of interlaced line transmissions a frequent fault which is very difficult to be avoided consists in the fact that the two part images do not fit exactly one within the other. This fault is perceived by the eye even when the displacement does not surpass a few percents and creates the impression as if the picture would contain merely half the number of lines.

This fault is caused by the fact that very slight traces of the line synchronization signals are still present at the moment when the next frame change impulse begins, and penetrate to the frame change synchronization channel. In the interlaced line method employing an odd number of lines the frame change impulses takes place alternately at once with a line impulse and with the middle between two line impulses. A residual trace of the line impulse accordingly has an unequal effect in both cases and, consequently, disturbs the symmetry of the frames. The usual method of separating both signals from another by tuning the transformers initiating the respective relaxation oscillators approximately to the frequency of the respective signals is insufficient to avoid the described fault.

The subject matter of the present invention is a method and means to avoid the described fault and consists in an improvement of the separation of both signals, more particularly in means for preventing the line signals to penetrate into the frame synchronizing channel, more particularly means in a time circuit inserted in the lead to the frame signal transformer.

The invention will be fully understood from the detailed description which will now be given of an exemplary embodiment thereof which is illustrated in the accompanying drawing which shows a diagram of a receiver connection.

In the drawing there is shown by way of example a receiver diagram which realises in practice the fundamental idea of the invention.

The mixed signals are picked up by the receiver 5. By means of an amplitude filter, for example the detector 6, the synchronization impulses are separated from the video signals. The latter are conducted via lead 7 to the image receiver, tube 13. The line impulses pass to the line transformer 8 and are conducted to the line synchronization apparatus 14 whilst the image change signals are first conducted to a filtering member, which may consist of a resistance 9 and a condenser 10. If this time circuit is approximately dimensioned (50,000 ohms and 1,000 cm.), a time constant of approximately 10^{-4} sec. which approximately corresponds to a line period of a 400-line image effects the desired filtering effect.

The frame change impulses are further conducted, via a safety resistance 11, to the transformer 12 which is tuned approximately to the duration of the image impulses and is connected with the frame change synchronization apparatus 15. The resistance 11 prevents an inductive reaction of the primary winding of 12 on the time circuit 9/10 and amounts to approximately 50,000 ohms.

All leads and apparatus carrying line impulses must be completely screened off against all leads carrying frame change impulses.

I claim:

In a television receiver, means to receive picture and synchronizing signals wherein the synchronizing signals follow a predetermined time sequence of picture signals and the synchronizing signals comprise line and frame synchronizing signals each of substantially like amplitude and different duration, detector means for separating the synchronizing signals from the combined picture and synchronizing signal energy, a transformer tuned to the frequency of the line synchronizing signals connected to the output of the detector to separate the line synchronizing signals from the frame synchronizing signals, a second transformer tuned to the frequency of the frame synchronizing signals also connected to the output of the detector to separate the frame synchronizing signals from the line synchronizing signals, a time delay circuit comprising a series resistance element and a shunt capacity element connected between the detector and the frame signal separating transformer for delaying the frame synchronizing signal by a predetermined time delay relative to the period between two successive line synchronizing impulses, resistance means connected between the second transformer and the time delay circuit for preventing reaction of the transformer upon the time delay circuit, and a relaxation oscillator means connected to receive the output energy from each of the transformers.

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