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The invention relates to a circuit arrangement in respect of the automatic switching of the control speed of the phase control circuit as a function of the reproduction of television transmitter signals and recorded signals.

With the reproduction of television transmitter signals a low control speed is required so that synchronization operates free from interference and is not influenced negatively through interference pulses, which exist with grainy transmitter signals, because in view of the high control speed synchronization would immediately respond to these interference pulses. The image reproduced would thus become 'jittery'. This form of interference is known by the term 'jitter' and shows on the screen in the form of a horizontal 'tearing out' of vertical lines. With regard to video recorder signals, for example, the control speed must be high, so that phase deviations between the horizontal oscillator pulses and the sync pulses fed in from the video recorder can be corrected quickly.

Larger phase deviations occur in particular in the area of vertical flyback of the electron beams since during that time the heads scanning the recording carrier are switched over. If in case of video signals from a recording carrier the control speed of the phase control circuit is not increased, interference in line synchronization becomes noticeable during the first lines of the picture. The control speed is either achieved by switching the time constant of the filter in the control circuit or by increasing the control current for charging or discharging a capacitor which supplies the control voltage. The switch of control speed is usually done by providing certain programme sites where - if they are assigned a VCR signal source - the switch occurs automatically. One is then tied, though, to these defined programme sites. In case of so-called AV operation, either via the SCARD or the AV socket,

at present only operation with high control speeds is possible, though this is not always absolutely necessary or required. As is known, a low control speed has the advantage that interference suppression is considerably higher. On receipt of a transmitter signal a switch to this low control speed therefore occurs.

The invention is based upon the task to avoid expensive switching without having to put up with any appreciable loss in quality or any negative effects. This task is solved by the invention set out in the patent claims.

An example of the invention is explained hereunder and shown in the drawing.

The drawing shows a phase control circuit for horizontal deflection in a television set. Such a phase control circuit is set up with two sources of constant current, 1 and 2, which are switched on alternately from the edge of signal to be regulated of oscillator 3 and the sync signal SY, until the charge current and discharge current for capacitor 8 are in equilibrium. A possible controller for contacts 6 and 7 is set up from logic combinatorial circuits in the form of an AND gate 9 and a NOR gate 10 which has an inverse input, to which the sync signals are fed. The sync and oscillator signals are fed to the input of gates 9 and 10. Their logic combinations result in the required control voltage on control circuits 4 and 5 for contacts 6 and 7. Power sources 1 and 2 charge or discharge capacitor 8 where the control voltage for the control of oscillator 3 occurs. During the sweep the control current and thus the control speed is of a fixed magnitude. The magnitude of the control current and thus the control speed is switchable. The switch occurs during the vertical flyback of the electron beams in the tube, i.e. the invisible part of the picture. Trigger pulse 11 for switching the control current is taken advantageously from controller 12 which already exists in the receiver, as described in

DE-C-31 27 493 ¹. It has, for example, a duration of 22 line periods. In this manner, phase control is rapidly carried out in that part of the time range in which it must be done quickly and can be slow in that part of the time range in which a low control speed makes sense. The frequency response of the filter in the phase control circuit must in this case be adjusted in such a way that switching control speeds does not cause interference during the sweep.

The control speed of the phase control circuit may of course also be changed in a different way, for example by changing over the value of the filter capacitor.

¹(according to EP-A-0069863)

Patent Claim

Circuit arrangement for automatic switching of the control speed of a phase control circuit in an oscillator circuit of a television receiver with a controller which increases the control speed within the vertical flyback of the electron beams by increasing the control current of the phase control circuit, characterized in that there is provided a first controllable source of constant current (1) which charges a capacitor (8) of the phase control circuit via a controllable switch (6), and a second source of constant current (2) which discharges the capacitor (8) of the phase control circuit via a controllable switch (7), and in that with the help of control signals (4, 5) from a controller the controllable switches (6, 7) are triggered alternately, the controller consisting of a logic circuit which has an AND gate (9) and a NOR gate (10), whereby the output signal of the oscillator circuit (3) is fed to the first input of the AND gate (9), and the sync pulse of the television signal is fed to the second input of the AND gate (9), and the output signal (4) of the AND gate (9) controls switch (6), and in that the output signal of the oscillator circuit (3) is fed to a first input of the NOR gate (10) and the inverted sync pulse of the television signal is fed to a second input signal, and the output signal (5) of the NOR gate (10) controls switch (7).