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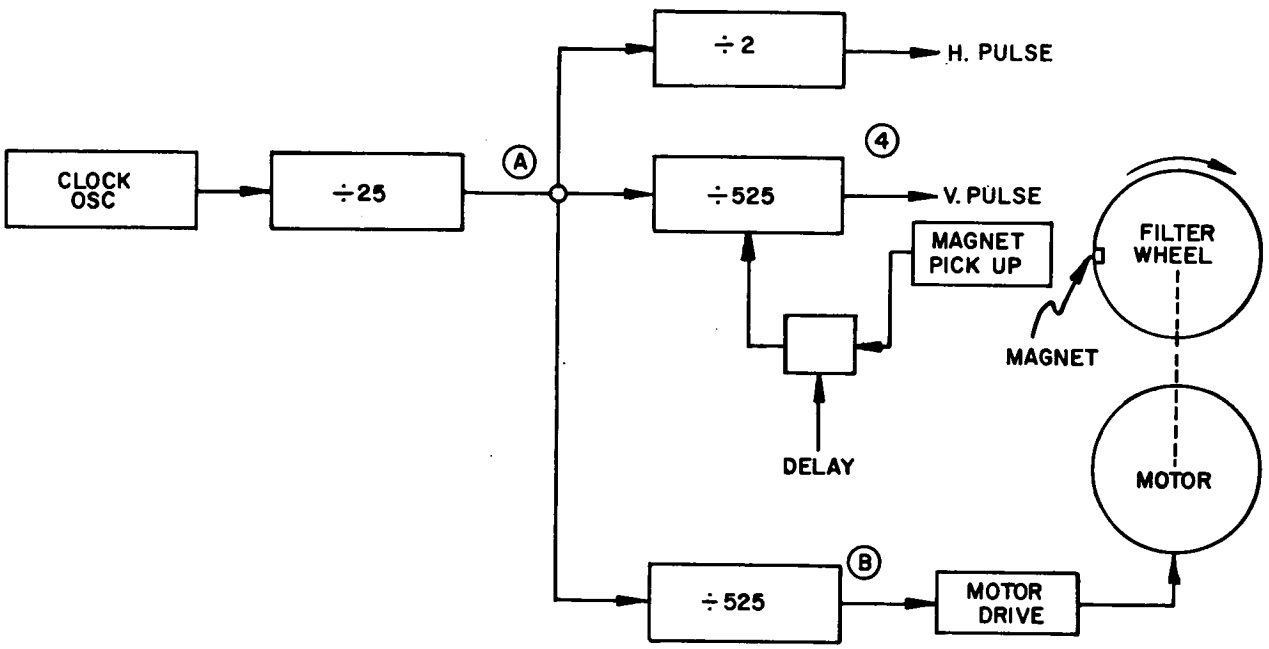
NASA TECH BRIEF

Manned Spacecraft Center

Phase Locking of Field Sequential Color Wheel for Small TV Camera



The fabrication of small color TV cameras with rotating filter wheels, requires a method of phase locking the color wheel to the TV's deflection system. A system such as this has been designed employing a synchronous motor driven by the deflection waveform of the TV and connected directly to the color filter wheel.

The synchronous motor with fixed poles will align itself to some phase angle and a physical position on its shaft referenced to the input waveform. Knowing the shaft position, the filter wheel can be positioned in the proper phase relationship to the input waveform and this with the vertical scanner. Since it is not possible to pre-select the phase relationship and because of the high number of possible positions, the wheel must be located initially. To do this a pulse is obtained from the wheel from a magnetic sensor and compared to the vertical waveform. A difference in time is used to change the frequency and for speed of the motor until a phase lock is achieved.

It should be noted that motor phase changes will cause loss of sync lock and temporary loss of display. Or if recording equipment is used, it can cause losses proportional to the recorder lock system.

This innovation should be useful in stabilizing color response of small TV cameras and should be of interest to manufacturers of such cameras. The system

(continued overleaf)

allows for small, lightweight installations and appears to be a modification that can be made by field engineers or systems maintenance personnel.

Note:

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Manned Spacecraft Center, Code JM7
Houston, Texas 77058
Reference: B71-10326

Patent status:

No patent action contemplated by NASA.

Source: L. L. Niemyer
Westinghouse Electric Corp.
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