



Colour TV

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- Colour television is based on the theory of additive colour mixing, where all colours including white can be created by mixing red, green, and blue lights.
- The colour camera provides video signals for the red, green, and blue information. These are combined and transmitted along with the brightness (monochrome) signal.
- Each colour TV system is compatible with the corresponding monochrome system. Compatibility means that colour broadcasts can be received as black and white on monochrome receivers.
- Conversely colour receivers are able to receive black and white TV broadcasts. This is illustrated. where the transmission paths from the colour and monochrome cameras are shown to both colour and monochrome receivers.

- At the receiver, the three colour signals are separated and fed to the three electron guns of colour picture tube.
- The screen of the picture tube has red, green, and blue phosphors arranged in alternate dots.
- Each gun produces an electron beam to illuminate the three colour phosphors separately on the fluorescent screen.
- The eye then integrates the red, green and blue colour information and their luminance to perceive the actual colour and brightness of the picture being televised.

COLOUR RECEIVER CONTROLS

- NTSC colour television receivers have two additional controls, known as Colour and Hue controls. These are provided at the front panel along with other controls.
- The colour or saturation control varies the intensity or amount of colour in the reproduced picture. For example, this control determines whether the leaves of a tree in the picture are dark green or light green, and whether the sky in the picture is dark blue or light blue.
- The tint or hue control selects the correct colour to be displayed. This is primarily used to set the correct skin colour, since when flesh tones are correct, all other colours are correctly reproduced.
- It may be noted that PAL colour receivers do not need any tint control while in SECAM colour receivers, both tint and saturation controls are not necessary.
- The reasons for such differences are explained in chapters exclusively devoted to colour television.

Responsivity

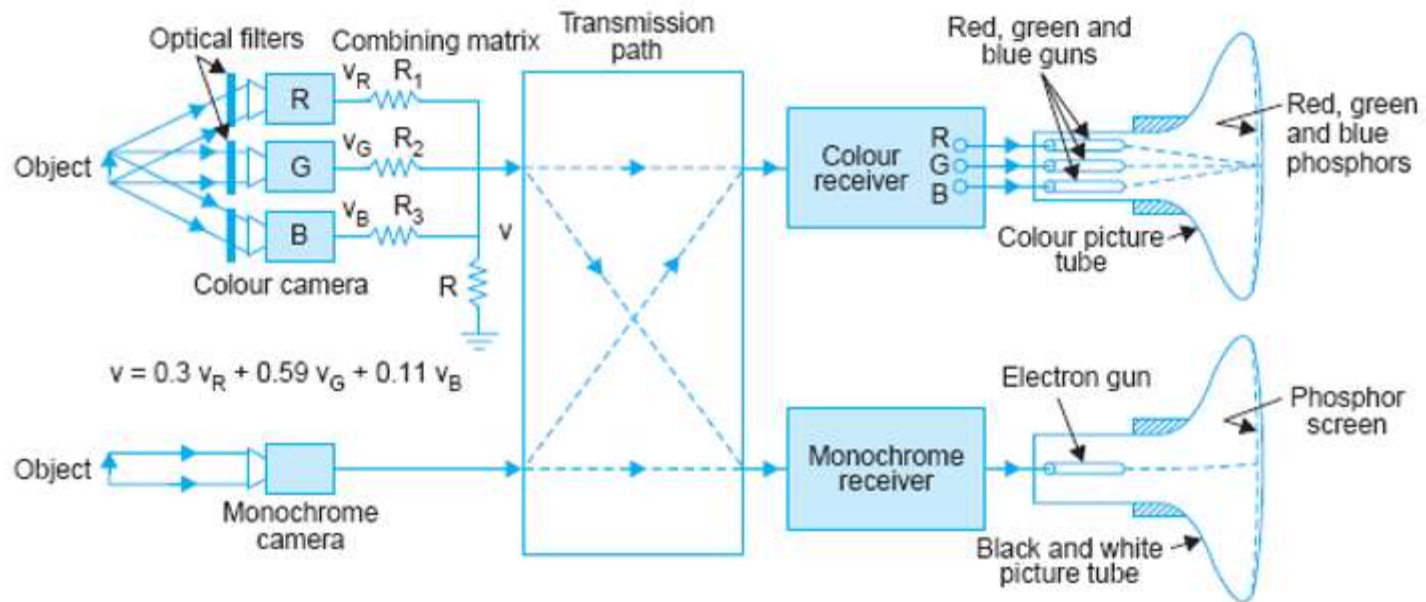


Fig 2.6 Signal transmission paths illustrating compatibility between colours and monochrome TV systems.

Color transmission and reception

- A colour TV transmitter is essentially the same as the monochrome transmitter except for the additional need that colour (chroma) information is also to be transmitted.
- Any colour system is made compatible with the corresponding monochrome system.
- For this, the luminance (brightness) signal is transmitted in a colour system in the same way as in the monochrome system and with the same bandwidth.