

# Presentation on : Monochrome TV system Receiver

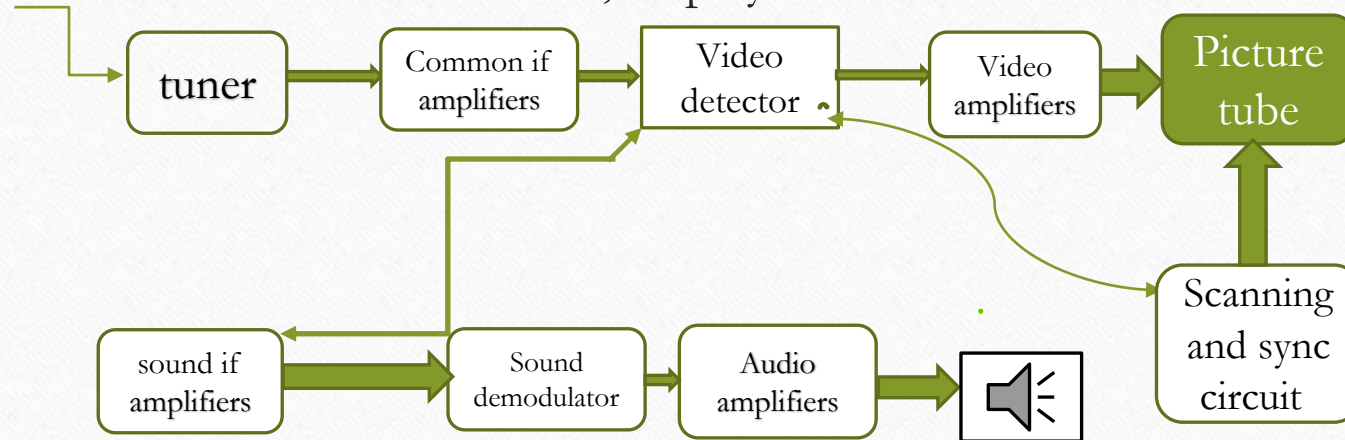
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# Monochrome TV system Receiver:

- Data transmitted by monochrome tv transmitter will be received by monochrome tv receiver. In Monochrome tv , display is a black and white television with shades of gray .



- Basic diagram monochrome tv system receiver

# Fundamentals

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- TV receivers use the superheterodyne principle. In addition, however, there is extensive pulse circuitry to ensure that the demodulated video is displayed correctly. To that extent the TV receiver is quite similar to a radar receiver, but radar scan is generally simpler, nor are sound and color normally required for radar. It is also worth making the general comment that TV receivers of current manufacture are likely to be either solid-state or hybrid.

# COMMON, VIDEO AND SOUND CIRCUITRY:

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- **Tuners:**
- A modern television Monochrome Television Receiver block diagram has two tuners.
  - 1.VHF Tuners.(Very high frequency)
  - 2.UHF Tuners.(Ultra high frequency)



# VHF tuner:

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- Must cover the frequency range from 54 to 216MHz Band.
- Antenna most frequently used for reception is the Yagi-uda, consisting at its simplest of a reflector, four dipoles and up to six directors.
- Often used a turret principle. in which 12 sets of (RF, mixer and local oscillator) coils are mounted in spring-loaded brackets around a central shaft.

# UHF tuner

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- Must cover the frequency range from 470 to 890 MHz Band.
- The antenna used is quite likely to be a log-periodic, with the one antenna covering the whole band.
- Active stages are a diode mixer and a bipolar or FET local oscillator.
- Used coaxial transmission lines instead of coils, and they are tuned by means of variable capacitors.
- Alternative means of UHF tuning consists of having varactor diodes to which fixed DC increments are applied to change capacitance, instead of variable capacitors. One of the advantages of this arrangement is that it facilitates remote control channel changing.

Three things happen when the VHF tuner is set to the UHF tuner position:

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- The UHF local oscillator is enabled.
- The VHF local oscillator is disabled.
- The VHF tuner RF and mixer tuned circuits are switched to 45.75MHz



# Picture IF Amplifiers:

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- The picture IF amplifiers are almost invariably double tuned, because of the high percentage bandwidth required. As in other receivers, the IF amplifiers provide the majority of the sensitivity and gain before demodulation, consequently, three or four stages of amplification are normally used. The IF stages provide amplification for the luminance, chrominance and sound information.
- If a TV receiver is misaligned or purposely mistuned, the sound carrier may correspond to a point higher on the IF response curve. If this happens, the extra gain at this frequency will counteract the subsequent 4.5MHz filtering, and some of the sound signal will appear in the output of the video amplifiers. This will result in the appearance of distracting horizontal sound bars across the picture, moving in tune with sound frequency changes.



# Video stages:

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- It will be seen that the last picture IF amplifier is followed by the video detector and two video amplifiers, whose output drives the picture tube, at various points in this sequence, signals are taken off for sound IF, AGC and sync separation.
- Two functions of transformer in the emitter of the first video amplifier:
  - 1.To provide the sound IF takeoff point.
  - 2.The sound IF transformer thus acts as a trap, to attenuate 4.5MHz signals in the video output. Preventing the appearance of the sound bars.

# The sound section:

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- The sound section of a television receiver is identical to an FM receiver. The ratio detector is used for demodulation far more often than not. Note that the intercarrier system for obtaining the FM sound information is always used, although it is slightly modified in color receivers.