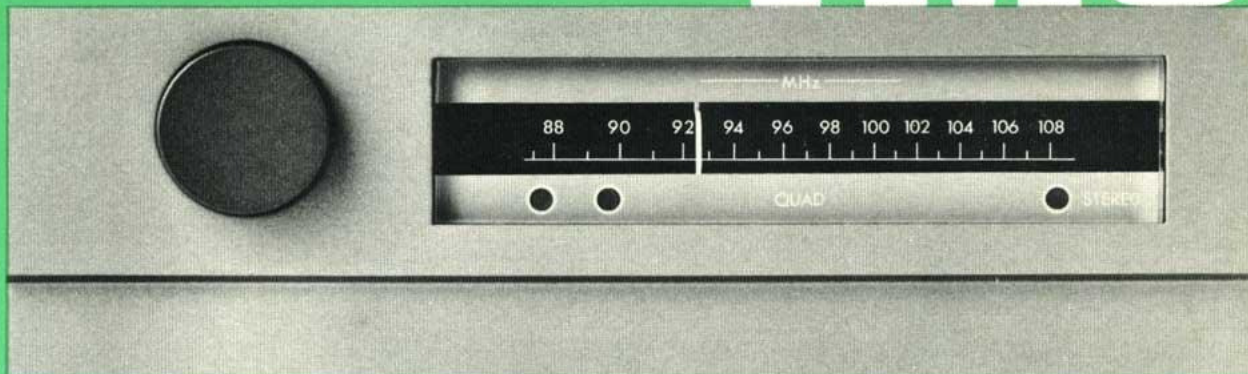


# QUAD FM3 STEREO TUNER

# FM3



The purpose of VHF/FM broadcasting is to provide reception, within the service area of the transmitter (normally 50 to 100 miles), free of interference and capable of reproduction at very high quality. The QUAD FM3 tuner will completely fulfil this purpose with any transmission which arrives at the aerial in a condition capable of full quality recovery.

Outside the service area of the transmitter it is the nature of VHF/FM for signal strength to fall rapidly and there will be a tendency to fading but the high sensitivity of the FM3 tuner enables it to receive such signals with two reservations: (a) no tuner can improve the signal:noise ratio of the signal as it arrives at the aerial and (b) the considerable bandwidth essential for low distortion reproduction means that a weak station can be resolved only if it is sufficiently separated (i.e. by at least 400 kHz) from any other more powerful signal.

In most areas the local VHF/FM services are normally receivable at reasonable signal levels. Between these stations on the tuning scale, among the background noise, there will usually be distant stations spilling over from other areas. Because the FM3 inter-station noise suppression circuit is adjustable the owner can decide where to set the suppression level between complete silence between one strong station and the next, on the

one hand, and no suppression at all so as to rake in every scrap of signal (and noise) on the other. Also as the suppression system provides muting until the station is correctly tuned, not only is background "hash" suppressed but the unpleasant noises associated with tuning through the sidebands of the station are also avoided, and with strong stations it is possible to proceed from one perfectly tuned programme through silence to the next perfectly tuned programme.

Operating the FM3 is simple, the only control on the front of the FM3 tuner being the tuning knob (which is also used for setting the station markers) and no others are required. The noise suppression adjustment is a pre-set control at the rear of the tuner and all other controls, volume stereo-mono switching, mono hold, on/off, are provided by the associated QUAD 33 control unit.

The positions on the scale of any five stations may be indicated by pre-set markers. These are positioned by pressing the tuning knob to engage its pointer with each marker in turn, tuning to the stations to be marked and releasing the knob. The markers then stay in position for future reference.

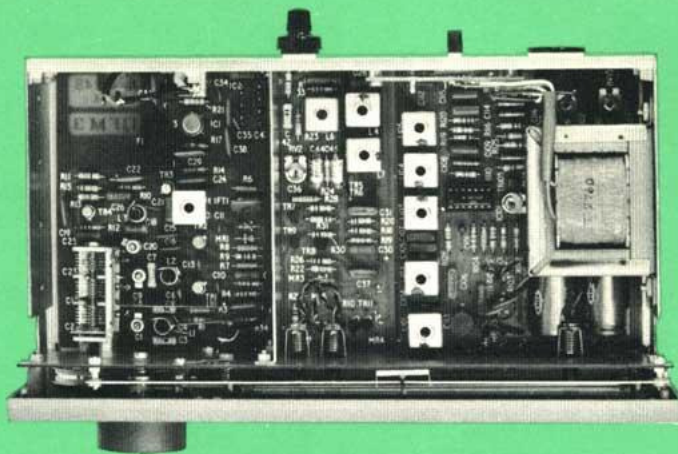
The tuning indicator is the original QUAD twin lamp\* system which provides for simple, positive and highly accurate tuning.

The tuner is self powered.

*\*First developed by QUAD in 1955.*



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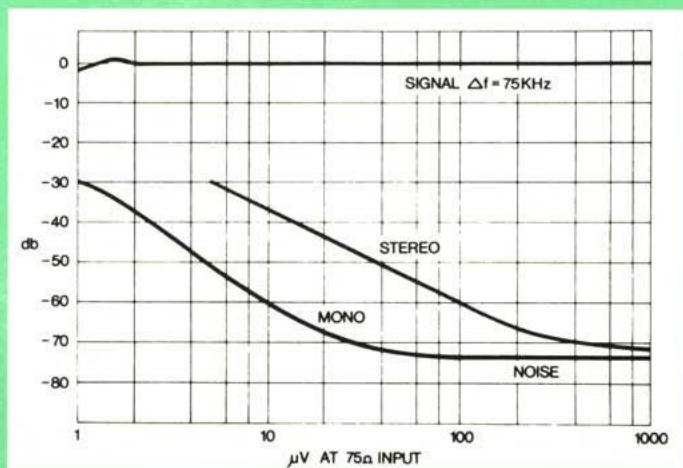
**CIRCUIT DETAIL** The RF and frequency changer stages use protected, dual gate MOS FET, and the IF stages and decoder section I.C. devices. Tuning is by means of a three gang capacitor and the stability is such that AFC is unnecessary.

To achieve (and maintain) the desired bandwidth and shape the tuner employs ceramic filtering.

The audio output is via a 5 pin DIN plug on which pins 3 and 5 carry either mono or left and right stereo channels respectively, according to the incoming programme. In addition pin 1 carries a separate mono output, useful if an over-ride facility is required.

## Specification

<b>Frequency range:</b>	88-108 MHz	<b>Distortion:</b>	at 1 kHz and $\pm 40$ kHz deviation : 0-2%
<b>Sensitivity:</b>	see graph	<b>Output:</b>	100mV per channel for 30% modulation
<b>Aerial input:</b>	75 $\Omega$ coaxial 300 $\Omega$ balanced	<b>Source impedance:</b>	5k $\Omega$
<b>Full limiting:</b>	from less than 2 $\mu$ V	<b>Recommended load impedance:</b>	Greater than 50k $\Omega$
<b>Image rejection:</b>	56dB	<b>Recommended load capacity:</b>	Less than 1000pF
<b>IF rejection:</b>	80dB	<b>De-emphasis:</b>	50 $\mu$ Sec or 75 $\mu$ Sec as required
<b>400 kHz selectivity:</b>	46dB	<b>Power input:</b>	100-125/200-250V 50-60 Hz 6VA
<b>Capture ratio:</b>	3dB	<b>Dimensions:</b>	Width 10 $\frac{1}{4}$ " (260 mm) Height 3 $\frac{3}{8}$ " (92 mm) free standing 3 $\frac{1}{4}$ " (83 mm) panel only
<b>IF bandwidth:</b>	Less than -3dB at $\pm 120$ kHz greater than -60dB at $\pm 400$ kHz		Depth 6 $\frac{1}{2}$ " (165 mm) free standing 5 $\frac{1}{2}$ " (140 mm) behind cabinet panel when mounted (allow 2 $\frac{1}{2}$ " (64 mm) beyond rear panel for connectors)
<b>Output at 38 kHz and above:</b>	-50dB	<b>Weight:</b>	6 lb. (2.7 Kg)
<b>Frequency response:</b>	$\pm 1$ dB 20 Hz - 15 kHz		
<b>Channel separation:</b>	40dB at 1 kHz		



# QUAD

for the closest approach  
to the original sound

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