

A WORLD OF LISTENING
— AT YOUR COMMAND



Chapman

Chapman on your radio equipment shows that it has been made to a standard of excellence reflected in its continual reliable performance year after year.

- ★ **The finest British components**
- ★ **Fully tropicalised throughout**
- ★ **Use of sound design techniques**
- ★ **Stringent quality control and testing**
- ★ **Always up to specifications**

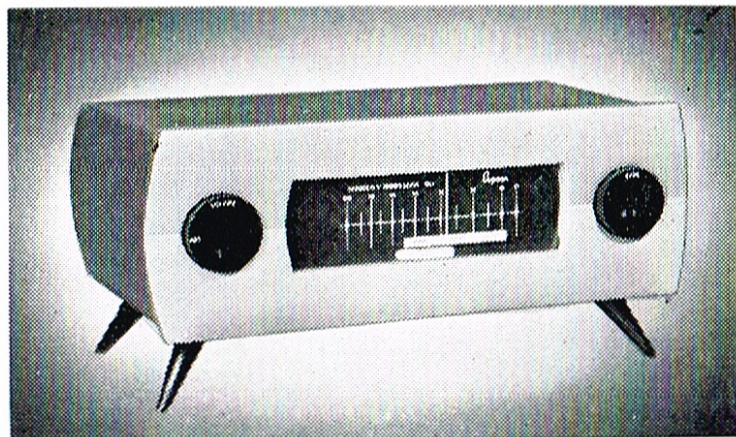
These are some of the reasons why the original high performance is maintained so constantly, and why CHAPMAN equipment is used by the discriminating listener throughout the world.

In fact, for those prepared to spend a little more initially, the result is an outstanding long term investment.

C. T. CHAPMAN (REPRODUCERS) LTD.

**High Wycombe, Buckinghamshire
ENGLAND**

Telephone: HIGH WYCOMBE 2474



THE FM91 V.H.F. F.M. TUNER

The FM 91 is a V.H.F. F.M. receiver designed to provide a high quality input for modern wide-range amplifiers and recorders etc.

This tuner is a high gain, low noise, and low radiation receiver, and is fully tunable over the range of 87.5— 100 Mc/s and can be used on the National Network of V.H.F. stations erected by the B.B.C. The high gain being of particular use at distances of over 60 miles from the transmitter.

The FM 91 is of advanced design and is the outcome of many years experience in the design and manufacture of V.H.F. Frequency Modulation tuning units.

CIRCUIT DESCRIPTION.

An aperiodic broad band transformer couples the dual aerial input, 75 ohms unbalanced or 300 ohms balanced, to the grid of an R.F. pentode, which is coupled with a variably tuned transformer to the grid of a self oscillating additive mixer, which is fully temperature compensated, and has an adequate amount of A.F.C. to give completely stable tuning.

Two I.F. stages are used with specially designed I.F. transformers for the correct wide band width and absolute minimum of A.M. distortion caused by stray capacitive couplings. Both stages are arranged as cascade limiters, and maintain an almost constant output with large variations of input, due to aircraft flutter etc., and reduce sporadic interference such as car ignition etc., to a very low level indeed. This is followed by a ratio detector, accurately adjusted on special equipment, feeding the normal de-emphasis network and fully variable volume control.

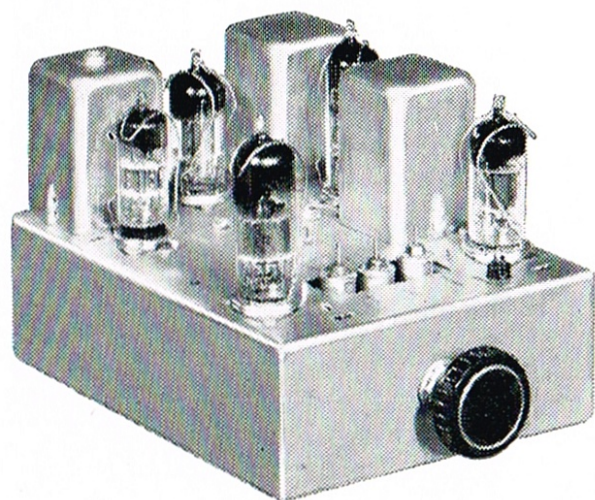
The new Mullard EM84 Bright Line tuning indicator is used, enabling easy but accurate tuning, and a measurement of signal strength, particularly useful when installing the aerial. The FM 91 can be supplied either powered or unpowered, the unpowered version having a switched volume control that can disconnect the H.T. and L.T. current from ancillary equipment, as well as having its own decoupling resistor and electrolytic condenser.

The FM 91, which matches the 105 or 305 amplifiers in appearance, is supplied ready for shelf mounting, and can be easily fitted into a cabinet with other equipment if desired.

TECHNICAL SPECIFICATION

Sensitivity	- - - -	Better than 2 micro. Volts for 20db quieting.
Output	- - - -	Almost constant at 1 v at 100 k.
Consumption	- - - -	30m/a at 250v and 2A at 6.3v or 40 watts at 200-250v A.C.
Connections	- - - -	3 core cable for heaters and H.T.+, output lead, aerial socket.
Mains Voltage	- - - -	When self-powered, 200 to 250v 50/60 cps. or 110v 50/60 cps.
Controls	- - - -	Volume/on-off and Tuning.
Dimensions	- - - -	12" x 4½" x 6¼" deep.
Weight	- - - -	5½ lbs. (2.49 kilos) unpowered, and 9 lbs. (4.08 kilos) self-powered.
Valves	- - - -	EF85, ECF80, 2x EF80, EB91, EM84, and when self-powered an EZ80.
Finish	- - - -	Cast escutcheon and knobs finished in Black and Matt Gold. Cabinet metal plated and covered in Vynyl. Plated chassis. Fully tropicalised throughout.
Range	- - - -	87.5 - 100 mcs. or 88 - 108 mcs.
Price	- - - -	Unpowered £23. 8s. 0d. incl. P.T. or £27. 7s. 6d. incl. P.T. powered.

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THE FM90 Switched V.H.F. F.M. FEEDER

The FM 90 is a V.H.F. F.M. receiver designed to provide a high quality input for modern Wide Range Amplifiers and Recorders, etc.

This Tuner is a high gain, low noise and low radiation receiver, and station selection is by the turn of a switch, selecting either the Home, Third or Light B.B.C. F.M. Broadcasts, and is simply adjustable to cover the area frequencies throughout the United Kingdom.

In addition to the normal fully compensated and completely stable oscillator circuit, used in all our F.M. Tuners, the FM 90 is additionally fitted with Automatic Frequency Control to compensate for tolerances in the switch indexing mechanism.

The FM 90 is of advanced design and is the outcome of many years experience in the design and manufacture of V.H.F. Frequency Modulation and Amplitude Modulation tuning units.

CIRCUIT DESCRIPTION.

An aperiodic broad band transformer couples the low impedance (75 ohms) balanced aerial to the grid of a variable-mu R.F. pentode, which is coupled with a variably tuned transformer to the grid of a self oscillating additive mixer, which is fully temperature compensated and fitted with A.F.C.

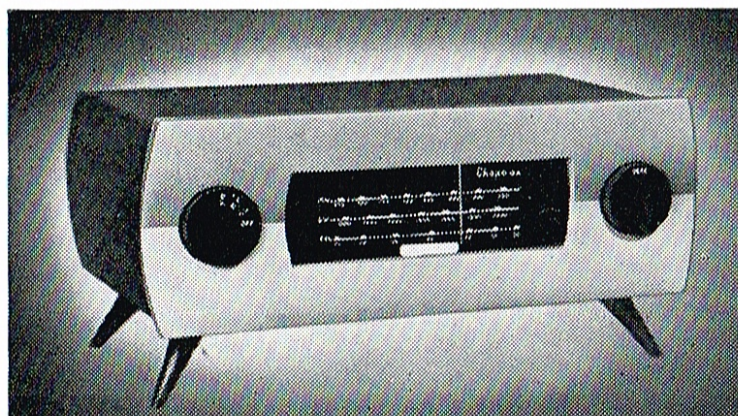
Two I.F. stages are used with specially designed I.F. transformers for the correct wide band width and absolute minimum of A.M. distortion caused by stray capacitive couplings. Both stages are arranged as cascade limiters and maintain an almost constant output with large variations of input due to aircraft flutter, etc., and still further reducing sporadic interference, such as, car ignition, etc., in low signal areas. This is followed by a ratio detector, accurately adjusted on special equipment, feeding the normal de-emphasis network.

The method of installing this Tuner is extremely simple, and full instructions are supplied with each tuner.

TECHNICAL SPECIFICATION

Sensitivity	-	-	-	-	Better than 2 microvolts for 20 db quieting and 75 Kc/s deviation.
Output	-	-	-	-	1v Cathode Follower.
Consumption	-	-	-	-	2 A. at 6.3 v., 40 m/a at 250 v.
Connections	-	-	-	-	4-core coloured cable for Heaters and HT+ and HT- with 2-pin socket for Aerial input and for Tuner output.
Controls	-	-	-	-	Station Selector: Light, Third, Home and Aux.
Dimensions	-	-	-	-	5" × 4½" × 6½" deep.
Escutcheon	-	-	-	-	Attractive finished in Gold and Black (not illustrated).
Weight	-	-	-	-	2½ lbs.
Finish	-	-	-	-	Chassis cadmium plated, escutcheon Gold and Black.
Valves used	-	-	-	-	ECF80, EF85, EB91, 2 × EF80.
Price	-	-	-	-	£19. 10s. 0d. — (including P.T.).

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FM95

AM/FM TUNER

Of similar appearance to the 105 and 305 amplifiers, the new FM95 tuner provides first class drift free Frequency Modulation reception, and excellent reception of the more powerful Continental stations on Medium and Long wavebands. It is the ideal tuner for incorporation into a domestic high fidelity system, and also an economical answer for the requirements of the high fidelity enthusiast.

The tuner is available either self powered or unpowered. The unpowered version is suitable for direct connection to the 105 and 305 amplifiers, and if used with other types of amplifier, a voltage dropper resistance can be fitted at no extra cost.

The self powered tuner can be used with any type of amplifier or high quality radio-gram, and is particularly suitable for use with tape recorders.

With completely stable drift free tuning, the FM band covers 87.5 to 100 Mc/s and has a sensitivity of $4\mu\text{V}$ for 20 db quieting. The circuit includes a tuned low radiation R.F. stage, high level noise limiter and A.V.C. The Medium and Long Wavebands cover from 195 m. to 550 m. and 800 m. to 2,000 m. and using special delayed Amplified A.V.C. circuits provide high quality reception of good Continental broadcasts. The FM95 is fitted with a Cathode Ray tuning indicator which operates on AM and FM.

CIRCUIT DESCRIPTION.

The FM circuits include a low radiation tuned R.F. stage, 2 I.F. stages, A.V.C. and High Level Limiter and A.F.C. On AM specially designed I.F. transformers give the "square topped" characteristic necessary for high quality with the minimum of inter-station interference, plus delayed Amplified A.V.C.

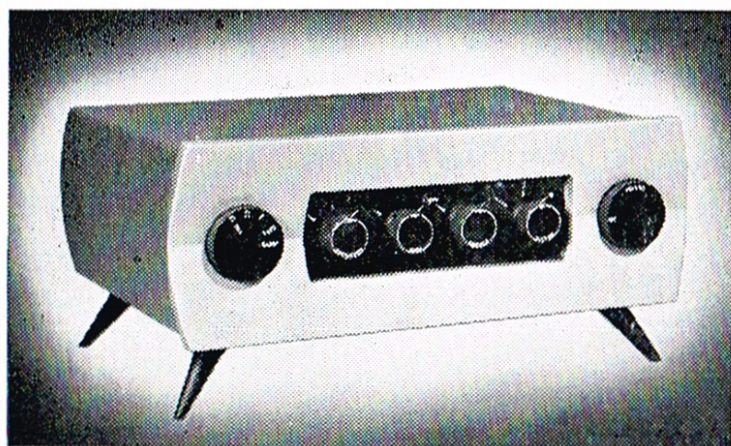
The new Mullard EM84 Cathode Ray Tuning indicator is fitted, operating on all bands, enabling easy but accurate tuning to be obtained.

The FM95, which matches the 105 and 305 amplifiers in appearance, is supplied ready for shelf mounting, and can be easily fitted into a cabinet with other equipment if desired.

TECHNICAL SPECIFICATION

Sensitivity	- - - -	FM better than 4 micro volts for 20 db quieting. AM better than 80 micro volts for 20 db signal/noise ratio.
Output	- - - -	FM and AM 1 v approx.
Consumption	- - - -	30 m/a at 250 volts and 2 amps at 6.3 volts or 40 watts at 200-250 A.C.
Mains voltage	- - - -	When self powered, 200/250 v. 50-60 cps or 110 v. 50-60 cps.
Connections	- - - -	3 core cable for heaters and H.T.+ output lead, aerial sockets.
Controls	- - - -	Wavechange and tuning.
Dimensions	- - - -	12" x 4½" x 8½" deep.
Weight	- - - -	7 lbs. (3.19 kilos), self powered 10½ lbs. (4.76 kilos).
Valves	- - - -	EF80, 2×EF85, EB91, ECH81, EBF80, EM84 plus an EZ80 when self powered.
Finish	- - - -	Cast escutcheon and knobs finished in Black and Matt Gold. Cabinet metal plated and covered in Vynyl. Plated chassis. Fully tropicalised throughout.
Price	- - - -	£27. 2s. 6d. incl. P.T. or £31. 2s. 6d. incl. P.T. Self-powered.

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'Tranquillo' 105

COMPLETE AMPLIFIER

Elegance and simplicity of styling coupled with outstanding performance are the keynotes of the Tranquillo design.

Although rated at 10 watts, the exceptionally smooth overload characteristic of the ultra-linear output stage enables levels of 20 watts to be tolerated in comfort. This unusual feature is due to the natural high efficiency of this type of stage coupled to a five-loop feedback circuit feeding a multi-section grain orientated Partridge transformer. The rated output is easily maintained over the full audio band-width, and the inherent margin of stability will more than satisfy the present and future requirements of electrostatic loudspeakers.

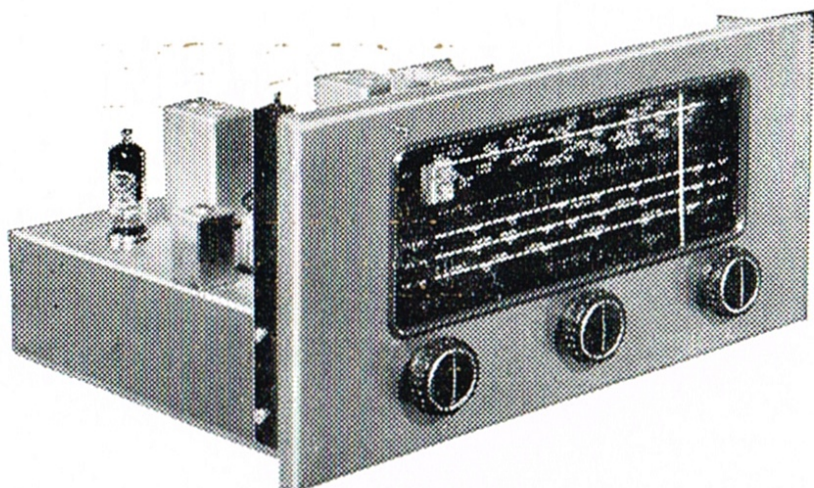
While these high performance figures are desirable in a quality amplifier, it must not be overlooked that the normal domestic listening level is in the region of perhaps two watts or less. With this important requirement in mind, the Tranquillo has been fitted with a three position loudness control which accurately reproduces the Fletcher-Munson contours, most conducive to relaxed low level listening. The listener can, by adjusting the switch choose whichever level is required, with the knowledge that the correct circuit constants are automatically in operation. Three record playback characteristics are available, two of which cover modern 33, 45, and 78 pressings, and the other suits most early LP's. Modifications to these curves can be made with the variable bass and treble controls. Background noise or distortion from either record, tape or radio can be reduced by using the three position filter control which operates in the upper harmonic band, and has no effect on the treble control setting, or the inherent brilliance of the reproduction.

The amplifier is supplied ready for shelf mounting, and can be easily fitted into a cabinet with other equipment if desired.

TECHNICAL SPECIFICATION

Input sensitivities	- - -	Pick up 1: 10mV at 100K ohms. - Pick up 2: 50mV at 500K ohms.
Tape outlet	- - -	Radio: 100mV at 100K ohms. - Tape: 100mV at 100K ohms.
Low Pass filter	- - -	500mV not affected by volume or tone controls.
High Pass filter	- - -	Operates at 5K, 10K and 20K cps. 12-15db/octave.
Treble and Bass controls	- - -	Fixed roll-off at 30cps. to reduce motor rumble.
Record Playback	- - -	Fully variable.
Characteristics	- - -	RIAA, AES, Col LP.
Loudness control	- - -	Three position switch with pre-set contours.
Power output	- - -	10 watts over the range 30-20,000 cps.
Frequency response	- - -	Within 0.2db 30-20,000 cps., without filters.
Distortion	- - -	Harmonic at 10 watts, less than 0.1% at 1,000 cps.
	- - -	Intermodulation at 10 watts, less than 1% with mixed frequencies.
Hum and Noise	- - -	Down 80db referred to 10 watts.
Output Matching	- - -	15 ohms and 3 ohms.
Mains voltage	- - -	200 to 250v 50-60 cps. or 110v 50/60 cps.
Consumption	- - -	60 watts excluding spare supplies.
Spare power available	- - -	250v 30m/a H.T. and 6.3v 2½A L.T.
Valves	- - -	EF86, 2x ECC83, 2x EL84, EZ81.
Dimensions	- - -	12" x 4½" x 8½" deep.
Weight	- - -	18 lbs. (8.16 kilos.)
Finish	- - -	Cast escutcheon and knobs finished in Black and Matt Gold. Cabinet metal plated and covered in Vynyl. Plated chassis. Fully tropicalised throughout.
Price	- - -	£29. 18s. 0d. complete.

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S 5/FM S 5E/FM

AM/FM FEEDER UNITS

The S5/FM series de luxe AM/FM tuner units have been continually developed and improved since their introduction over five years ago, they are in use in nearly every country in the world, and are acknowledged to be a very successful high performance design.

Nothing is sacrificed that will affect the quality on AM or FM, the reproduction being limited only by either conditions or the quality of the broadcast.

The 8 valve circuit using top quality components provides first class reception of good Continental broadcasts. World wide coverage on Short waves PLUS high quality interference free VHF frequency modulated transmissions.

A tuned R.F. stage is used on all AM bands ensuring the best possible reception of difficult stations such as Luxembourg, etc. A Cathode Ray tuning indicator is fitted and operates on all bands for accurate tuning.

The tuner is available either self powered or unpowered. The unpowered version is suitable for direct connection to the 105 and 305 amplifiers and if used with other types of amplifier, a voltage dropper resistance can be fitted at no extra cost.

The self powered tuner can be used with any type of amplifier or high quality radio-gram, and is particularly suitable for use with tape recorders.

CIRCUIT DESCRIPTION.

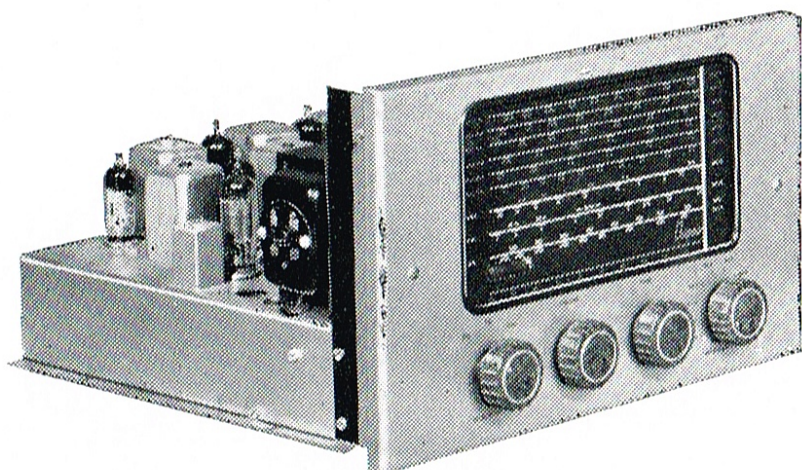
The FM band covers 87.5 – 100 M/cs. and has a sensitivity of $2\mu\text{v}$ for 20db quieting. The low radiation, tuned R.F. stage is followed by a temperature compensated self-oscillating additive mixer, giving completely stable tuning and three specially designed and carefully aligned I.F. stages are used, ensuring the minimum of AM distortion caused by high stray capacities. The second I.F. valve operating as a limiter is followed by a ratio detector, ensuring very high AM rejection and the minimum of distortion due to "multi path" radiation.

The AM bands use a high gain tuned R.F. stage on all bands, Variable Selectivity with an Audio band width of 7 and 10 Kc: Delayed Amplified A.V.C. Very low distortion detector. The AM section of this tuner is available with different ranges, as shown in the Technical Specification.

TECHNICAL SPECIFICATION

Sensitivity	- - - -	FM better than $2\mu\text{v}$ for 20 db quieting. AM better than $8\mu\text{v}$ for 20 db Signal Noise Ratio.
Output	- - - -	FM and AM 1v at 100k.
Controls	- - - -	Tuning, Wavechange, Variable selectivity/off.
Dimensions	- - - -	Escutcheon $13\frac{1}{2}'' \times 6\frac{1}{2}''$ depth behind escutcheon 9".
Weight	- - - -	10½ lbs., Self powered 14 lbs.
Finish	- - - -	All metal parts are plated and the escutcheon is finished in an attractive Gold, with Walnut knobs.
Valves	- - - -	Mullard 2×EF85, EF80, ECH81, EF89, EBF80, EB91, EM84 plus EZ80 on powered version
Consumption	- - - -	2/2½ Amps at 6.3v., 40/50 m/amps at 200/250v.
Connections	- - - -	4 Core coloured cable for Heaters and HT + and - or self-powered - for 200/250v, 40/60 c.p.s. and 110v 60 cycles.
S5/FM	- - - -	16-50m; 195-550m; 800-2,000m; 87.5-100Mc/s.
S5E/FM	- - - -	12.5-37m; 35-100m; 90-250m; 190-550m. FM coverage 87.5 – 100mc/s or 88-108 mc/s.
Price	- - - -	£34 or £38 self-powered incl. P.T.

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S6BS/FM

SIX STAGE AM BANDSPREAD & HIGH GAIN FM

The S6BS/FM is the finest Tuner in our range, combines the circuits of the highly successful S6BS and FM 91 Tuners, without any compromise on any range.

The 9 band AM section consists of 6 electrical band spread wave bands covering from 11m – 31m, 2 short wave bands covering 13m – 140m, and normal medium waves 175m – 570m, ensures reliable World Wide long distance reception, combining the stability and sensitivity of a first class communication type receiver with the very low distortion and wide frequency response required by the modern High Fidelity Amplifier.

The FM section with a $2\mu\text{v}$ sensitivity, twin cascade limiters, plus Temperature compensated Oscillator, A.F.C. and a very high AM reject ratio provides a quality of input only limited by the transmission.

CIRCUIT DESCRIPTION AM.

A high gain Tuned RF amplifier precedes the frequency changer on all bands. The oscillator is temperature compensated. The variable selectivity circuits consist of switched tertiary windings on all the IF transformers in the 2 I.F. amplifier stages, giving an audio band width of 5 kc., 7 kc., and 10 kc. Delayed Amplified A.V.C. operates on the R.F. stage, frequency changer and both I.F. valves, giving excellent A.V.C. control even on rapidly fading signals and with the minimum of differential distortion.

CIRCUIT DESCRIPTION FM.

An aperiodic broad band transformer couples the dual aerial input 75 ohms unbalanced or 300 ohms balanced to the grid of a grounded Cathode R.F. Amplifier, which is coupled by a variably tuned transformer to the grid of a self oscillating additive mixer, which is fully temperature compensated and also has an adequate amount of A.F.C. with completely stable tuning.

Two I.F. stages with specially designed transformers are arranged as cascade limiters which maintain almost constant output with large input variations of input due to Aircraft flutter, etc., with very high A.M. rejection, followed by a ratio detector adjusted on special equipment feeding the standard de-emphasis network.

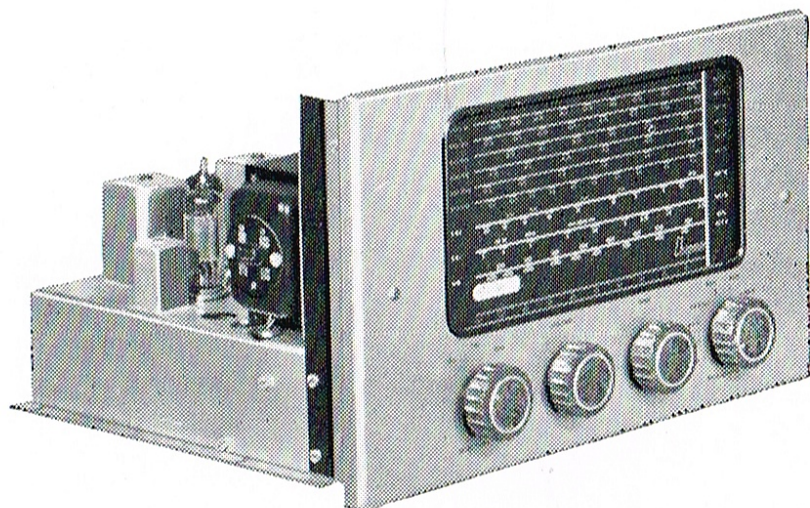
CIRCUIT DESCRIPTION GENERAL.

A bright line tuning indicator is used on both AM and FM. The dial is illuminated and accurately calibrated in kcs., or mcs., as appropriate and is complete with an 0–100 logging scale. The S6BS/FM is only available self powered.

TECHNICAL SPECIFICATION

Sensitivity	- - - -	AM 2 micro/volts for 20db signal/noise ratio FM 2 micro/volts for 20db quieting.
Output	- - - -	Fully variable from 500 m/v on AM or FM.
Wave Range	- - - -	AM. – 11m, 13m, 16m, 19m, 25m and 31m in six band spread ranges, 13–43m, 43–140m, 175–570m. FM – 87.5 mcs – 108mcs.
Controls	- - - -	Variable selectivity/FM Tuning, Volume/Off, Wave change.
AM Rejection	- - - -	FM only – $30\mu\text{v}$ Input 32 db. $300\mu\text{v}$ Input 40 db
Weight	- - - -	16½ lbs.
Mains Voltage	- - - -	110v and 200/250v 50 c.p.s.
Consumption	- - - -	65 watts.
Finish	- - - -	All steel parts plated, escutcheon plated and stove enamelled gold and marked knob functions.
Valves used	- - - -	3×EF89, ECH81, EM84, EF85, ECF80, 2×EF80, EB91, EZ80 and EBF80.
Price	- - - -	£67. 10s. 0d. incl. P.T.

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THE S6 SIX STAGE A.M. FEEDER UNIT

The S6 tuner is a de luxe unit with high sensitivity, good thermal stability, and the very low distortion and wide frequency response required by the modern High Fidelity amplifier and will provide reliable long distance reception with the best possible fidelity.

A high gain R.F. amplifier precedes the frequency changer and is operative on all wave bands.

The variable selectivity circuits consist of switched tertiary windings on the I.F. coupling transformers, giving band widths of 5Kc., 7Kc., and 10Kc. The Delayed Amplified A.V.C. operates in suitable proportions on the R.F. stage, Frequency Changer, and both I.F. valves giving really excellent control even on rapidly fading signals, and with the minimum of differential distortion.

All coils are of the iron cored high efficiency type with excellent thermal stability and a Cathode Ray tuning indicator is fitted and operates on all bands.

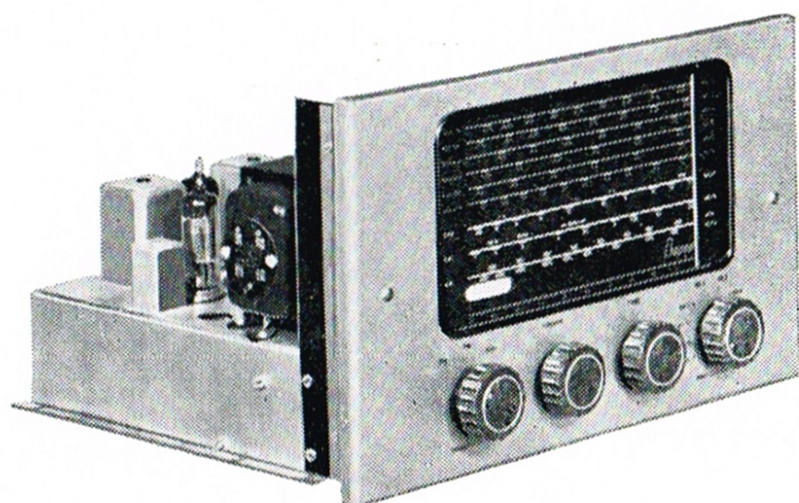
Large illuminated glass scale 9" × 4½" complete with gold escutcheon.

TECHNICAL SPECIFICATION

Output	- - - - -	500 m/v approx. into 100,000/500,000 ohms.
Sensitivity	- - - - -	2 micro/Volts for 20db signal/noise ratio.
Wave Range	- - - - -	Two models are available:— S6: 16–50 m., 195–550 m., 800–2,000 m. S6E: 12.5–37 m., 35–100 m., 90–250 m., 190–550 m.
Consumption	- - - - -	1½ amps. as 6.3 v., 30/40 m/a. at 250 v.
Connections	- - - - -	4-core coloured cable for Heaters, and H.T.+ and H.T.– with three 2-pin sockets for Aerial/Earth, Tuner output.
Controls	- - - - -	Tuning, Wave Range, Variable Selectivity, Volume/off.
Dimensions	- - - - -	13½ in. wide 11 in. deep, 8½ in. high.
Finish	- - - - -	All metal parts are plated and the Escutcheon is finished in an attractive Gold with Walnut knobs.
Valves used	- - - - -	Mullard 3 × EF89, ECH81, EBF80, EM84.
Price	- - - - -	£30. 7s. 6d. or £36. 9s. 0d. self-powered including P.T.

Separate power unit, type PU1, £4. 10s. 0d.

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THE S6BS

SIX STAGE A.M. BANDSPREAD FEEDER UNIT

The nine band S6BS has been specially designed for World Wide long distance reception with quality of reproduction of a high standard when connected to a wide range amplifier system.

This tuning Unit combines the stability and sensitivity of a first class communication type receiver with the very low distortion and wide frequency response required by the modern High Fidelity amplifier.

CIRCUIT DESCRIPTION :

A High Gain R.F. amplifier precedes the frequency changer and is operative on all wave bands.

The variable selectivity circuits consist of switched tertiary windings on the transformers in the 2 I.F. amplifier stages giving an audio band width of 5 Kc., 7 Kc. and 10 Kc. The Delayed Amplified A.V.C. operates on the R.F. stage, Frequency Changer, and both I.F. valves giving really excellent control even on rapidly fading signals, and with the minimum of differential distortion.

All coils are of the iron cored high efficiency type with excellent thermal stability.

A Cathode Ray tuning indicator is fitted and operates on all wave bands, complete with "Logging Scale" and all the important short wave bands covered on six electrically band spread positions, plus complete coverage on 2 Short Wave bands from 13m-140m and normal Medium Waves 175m-570m reliable long distance reception with the best possible fidelity is readily available.

TECHNICAL SPECIFICATION

Output	- - - -	500/mv approx. into 100,000/500,000 ohms.
Sensitivity	- - - -	2micro/Volts for 20db signal/noise ratio.
Wave Range	- - - -	11m., 13m., 16m., 19m., 25m., and 31m. in six bandspread ranges and 13m.-43m., 43m.-140m., 157m.-570m., all displayed on a large glass scale.
Consumption	- - - -	1½ amps. at 6.3v., 30/40 m/a at 250v.
Connections	- - - -	4-core coloured cable for Heater and H.T. + and H.T. - with three 2-pin sockets for Aerial/Earth, Tuner output and Gramophone input.
Controls	- - - -	Tuning, Wave Range/Gram., Variable Selectivity, and Volume/Off (Sensitivity pre-set).
Dimensions	- - - -	13½ in. wide × 11 in. deep × 8½ in. high.
Weight	- - - -	13½ lbs. (6.57 Kilos) - Self Power 18 lb. (8.16 Kilos).
Finish	- - - -	Chassis cadmium plated, escutcheons plated and lacquered in Gold with knob operation silk screened.
Valves used	- - - -	3 × EF89, ECH81, EBF80, EM84 and EZ80 if self-powered.
Price	- - - -	£44. 10s. 0d. or £50. 10s. 0d.

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305

STEREO CONTROL UNIT

The 305 is a comprehensive stereo or single channel control unit, providing every facility for high quality radio, gram., and tape reproduction. It is supplied ready for connection to the 305 Stereo Main amplifier which will give 8 watts per channel on stereo and 16 watts in parallel. Alternatively, it can be used with a pair of 205 amplifiers which will give 30 watts per channel on stereo and 60 watts in parallel.

The sensitivity of the 305 is high enough to accept the signal from a tape head direct. This means that a tape deck could be used for reproduction of pre-recorded tapes without the need of a separate tape pre-amplifier. An auxiliary input is available for use with the output from a tape amplifier, and pre-set volume controls are incorporated to obtain correct input levels.

Operation of the 305 is extremely simple, requiring the minimum amount of adjustment to obtain first class results. An important control, is the Function switch which can select either Stereo, Stereo reverse, Input A to both channels, Input B to both channels. The other controls are Volume, Balance, Bass, Treble, Filter, and Programme selector. The mains on-off is incorporated in the Function switch, so that the rest of the controls need not be disturbed when switching off. The Volume, Bass and Treble controls are of the ganged type, therefore an adjustment on each one would have an equal effect on both channels. The Balance control has sufficient variation to compensate for the unequal sound signals which may be encountered from the use of unmatched loudspeakers, etc.

The 305 Stereo Control unit, which matches the FM91 and FM95 tuners in appearance, is supplied ready for shelf mounting, and can easily be fitted into a cabinet with other equipment if desired.

TECHNICAL SPECIFICATION

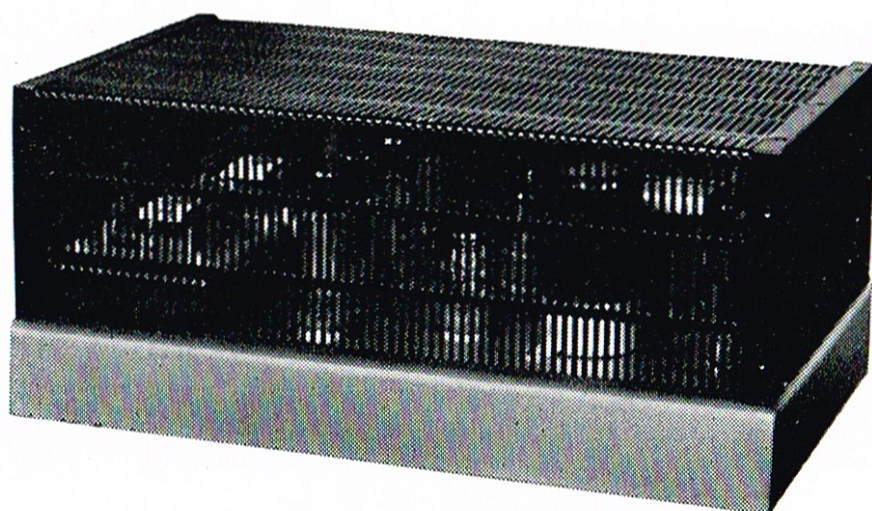
Inputs sensitivities					
Stereo or Monaural	-	-	-	-	Pick-up 4.5 m/V at 100 K ohms, RIAA curve with pre-set controls. Tape 4.5 m/V at 100K ohms., CCIR curve. Radio: 100 m/V at 100K ohms. Aux.: 100 m/V at 100K ohms., with pre-set controls.
Frequency Response	-	-	-	-	Within 0.2 db 30-20,000 cps., without filters.
Output per channel	-	-	-	-	350 m/V.
Tape record outlet	-	-	-	-	500 m/V, not affected by volume or tone controls.
Distortion	-	-	-	-	Less than 0.1% total.
Controls	-	-	-	-	Selector: for Tape, Rad'o, Gram, Aux. Function: for Stereo, Stereo reverse, Channel A, Channel B, Off. Volume: Ganged. Balance: To off, on each channel. Bass: Fully variable. Treble: Fully variable. Filter: Two position, 8Kc and 20Kc.
High Pass Filter	-	-	-	-	Fixed roll off at 30 cps to reduce motor rumble.
Hum and noise	-	-	-	-	Down 50 db on all channels.
Valves	-	-	-	-	2X EF86, 2X ECC83.
Consumption	-	-	-	-	10 m/a at 250v. and 1.5A at 6.3v.
Dimensions	-	-	-	-	12" x 4 1/4" x 6 1/4" deep.
Weight	-	-	-	-	5 1/2 lbs. (2.49 kilos).
Finish	-	-	-	-	Cast escutcheon and knobs finished in Black and Matt Gold. Cabinet metal plated and covered in Vynyl. Plated chassis. Fully tropicalised throughout.
Price	-	-	-	-	£18. 18s. 0d.

Chapman

305

STEREO

MAIN AMPLIFIER



A compact double push pull amplifier rated at 8 watts per channel, designed for use in a high quality stereo system.

Each channel has ultra-linear output stage comprising two EL84 valves in push pull feeding a grain orientated Partridge transformer. This is the type of output stage normally used in high quality monaural amplifiers, providing no compromise in performance and reliability, and ensuring long life and long term stability.

The amplifier can be used for monaural listening on one channel only, giving more than enough power for normal domestic requirements. Alternatively, the two channels can be used together on monaural to provide a rated 16 watts of power. In all cases, the rated outputs are conservative figures, and due to the smooth overload characteristics of the ultra-linear output stages these powers can even be exceeded without causing excessive distortion.

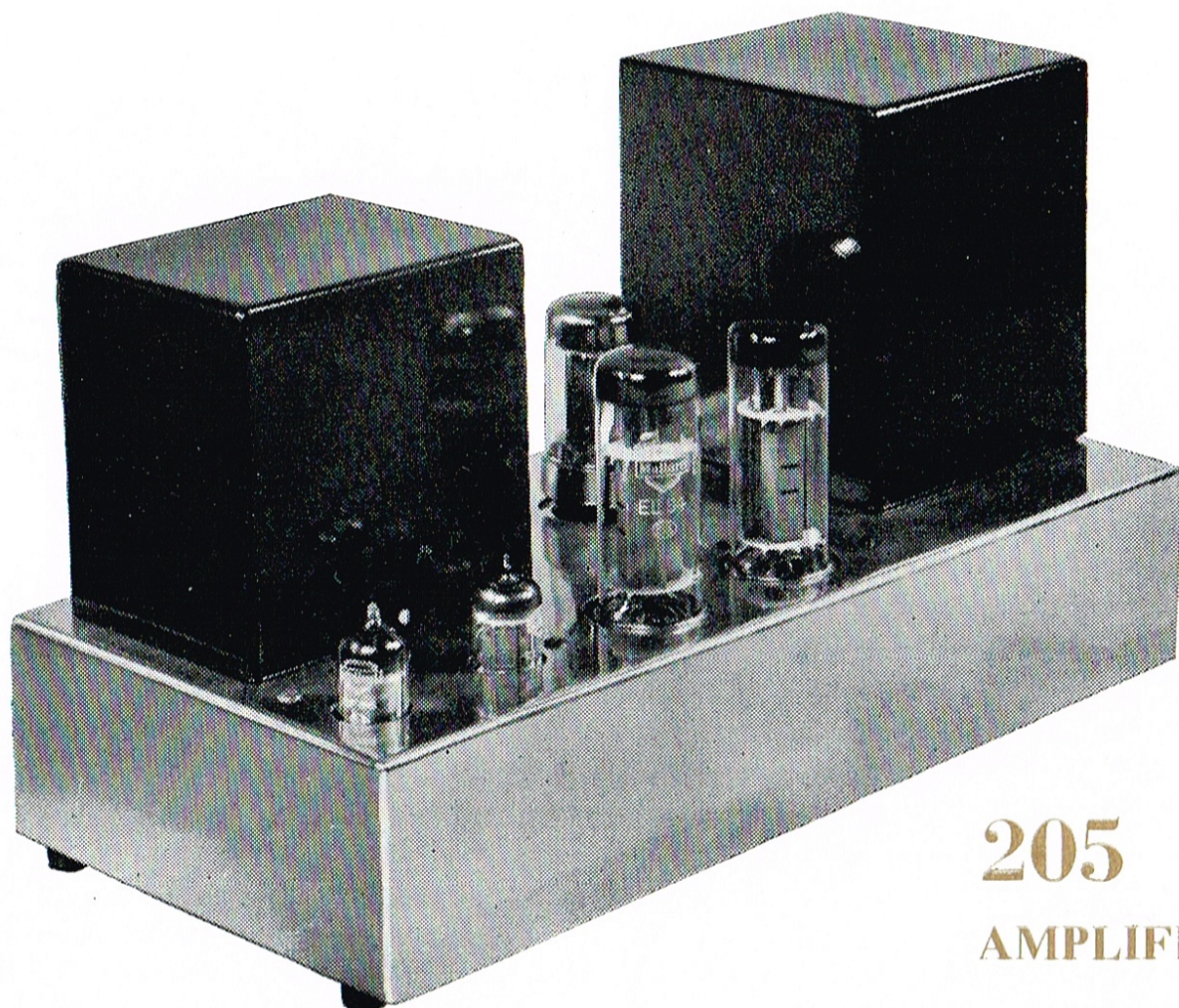
The amplifier is supplied complete with a ventilated cover, and has sufficient spare HT and LT current to supply power to a stereo control unit and a radio tuner.

SPECIFICATION - PER CHANNEL

Input sensitivity	- - -	350 m/V. RMS for 8 watts output.
Frequency response	- -	Within 0.2 db 30-20,000 cps.
Power output	- - -	8 watts over the range 30-20,000 cps.
Distortion	- - -	Harmonic at 8 watts, less than .1% at 1Kcps Intermodulation at 8 watts less than 1% with mixed frequencies.
Hum and noise	- - -	Down 80 db referred to 8 watts.
Output matching	- -	15 ohms and 3 ohms.
Mains voltage	- - -	200 to 250V. 50/60 cps. or 100/120V. 50/60 cps.
Consumption	- - -	100 watts excluding spare supplies.
Spare power available	-	250V. 30 m/a H.T. and 6.3V 2 A L.T.
Valves	- - - -	2 × ECC83, 4 × EL84, EZ81.
Dimensions	- - -	12" × 7" × 5".
Weight	- - - -	15 lbs.
Finish	- - - -	Steel chassis sprayed matt gold with black ventilated cover.
Price	- - - -	20 gns.

The Chapman Stereo control unit is designed for direct connection.

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205 AMPLIFIER

There exists two distinct categories in amplifier output power ratings. Firstly the 10 watt, or thereabouts amplifier which is the ideal size for most domestic high fidelity systems, and secondly the 20/30 watt amplifier which satisfies the requirements of larger rooms. The 205 amplifier belongs in the second category, and will provide 20-30 watts with virtually no distortion, over long periods of time.

The output stage uses EL34 valves in a balanced ultra-linear circuit feeding a grain orientated output transformer, and the amplifier is unconditionally stable. The construction throughout is of a very high standard, all components having a large safety factor and in particular the massive Partridge transformers, which contribute in no small way to the outstanding performance.

It is interesting to note the amazing power response over the audio bandwidth, especially at the low frequency end where 20 watts are produced at 20 cps.

For monaural reproduction, the 205 Control unit is available for direct connection, and for stereo the 305 Stereo control unit would be an ideal choice.

TECHNICAL SPECIFICATION

Power output	- - -	30 watts from 20 cps to 20,000 cps.
Power response	- - -	Within 0.5 db of 1k/c level at 20 watts from 20 cs-20kc.
Frequency response	- - -	(1 watt level) within 1 db of 1kc/s level 2 c/s-100kc.
Harmonic distortion	- - -	0.05% at 20 watts, 0.1% at 30 watts.
Intermodulation distortion	- - -	0.7% at 20 watts, 1% at 30 watts.
Hum and noise	- - -	Down 90 db relative to 20 watts.
Sensitivity	- - -	220mV for 20 watts output.
Damping Factor	- - -	50.
Output matching	- - -	15 ohms and 3 ohms.
Spare power available	- - -	220v 30 m/a H.T. and 6.3v 2A L.T.
Valves	- - -	EF86, ECC83, 2×EL34, GZ34.
Mains voltage	- - -	Fully tapped from 100-250 volts 40/60 cps.
Dimensions	- - -	14" × 7½" × 8½".
Weight	- - -	40 lbs. (18.14 kilos).
Finish	- - -	Polished copper chassis and black transformer covers
Price	- - -	£34.

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205 CONTROL UNIT



One of the main advantages of a high fidelity system, is that a facsimile of the original sound can be reproduced accurately, under domestic conditions. This is quite a tall order, and demands, together with certain other qualifications, a fairly flexible control unit. The average home decor does not lend itself to the so called 'concert hall atmosphere' which most listeners want, and when room size, carpets, curtains and furniture tend to interfere with the response and balance of sound, the difficulties are quite apparent.

The 205 Control unit is extremely flexible, and has every facility available to overcome the above problems. In addition to the normal Bass, Treble, Filter and Volume controls, the 205 is equipped with a very efficient Loudness control which accurately reproduces the famous Fletcher Munson Contours. At low volume levels or for quiet background music, the sound quality tends to become thin, and under these conditions the Loudness control automatically compensates and provides a sound balance which is most conducive to relaxed low level listening. The low pass filter at 5K, 10K and 20K cps., is useful for reducing noise and distortion from programme material, and by operating in the upper harmonic bands, does not affect the treble control setting or the inherent brilliance of the reproduction.

Inputs are available for pick-up, microphone, radio and tape, there being two pick-up inputs, one high gain and one low gain to cover all types of pick-up heads. A tape record outlet supplies a signal which is not affected by the use of the volume or tone controls, so that these may be used while monitoring a recording without unbalancing the input into the recorder. Two record playback characteristics positions cover all the requirements of 33, 45 and 78 rpm., discs, and conform to the now standard R.I.A.A. curves. The 205 Control Unit obtains its power from the 205 Amplifier.

TECHNICAL SPECIFICATION

Input sensitivities	- - -	Pick-up 1: 4 m/V., Pick-up 2: 50 m/V., at 100K ohms. Microphone: 1.5 m/V at 1M ohm. Radio: 100 m/V at 100K ohms. Tape: 100 m/V at 100K ohms.
Tape outlet	- - -	200 m/V not affected by volume or tone controls.
Low Pass filter	- - -	Operates at 5K, 10K, and 20K cps. 12-15 db/octave.
High Pass filter	- - -	Fixed roll-off at 35 cps., to reduce motor rumble.
Treble and Bass controls	- - -	Fully variable, + or -15 db. 10,000 cps., and 50 cps.
Record Playback characteristics	- - -	R.I.A.A. and E.M.I.
Distortion	- - -	Less than 0.1% on all positions, at 220 m/v output.
Consumption	- - -	250v. at 3mA and 6.3v at 0.6A.
Valves	- - -	3 x EF86.
Dimensions	- - -	13½" x 3" x 6½".
Weight	- - -	6 lbs. (2.72 kilos).
Finish	- - -	Black and Gold with edge-lit panel.
Price	- - -	£12.

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Aerial Requirements

- ● ● Without doubt one of the most neglected items in a high fidelity installation is the all important aerial. In the case of V.H.F. receivers, little attention and consideration to the aerial could lead to a poor signal-to-noise ratio and prevent noise free reception. Certainly, a modern sensitive F.M. receiver will appear to work well on a modest indoor aerial, but if freedom from ignition interference and other man made static is required, then it is essential to use an aerial which is a little better than really necessary rather than one that is just adequate. No doubt a high powered motor car could work on commercial petrol, but no one would expect to get optimum performance.
- ● ● Generally, in areas of high signal strength up to 30 miles from the transmitter, a simple room or loft aerial will usually give enough signal for clean reception. Positioning can be critical under these conditions, and it is advisable to move the aerial around and check for maximum reception, a few feet one way or another could make all the difference. The construction of a home made aerial from lengths of lighting flex, would give satisfactory reception in areas fairly close to the transmitting station, but the use of a proper indoor dipole complete with a suitable length of feeder cable is recommended. At distances greater than 30 miles from the transmitter, it is advisable to use an outdoor dipole mounted as high as possible, and at 60 miles or more, a dipole with reflector or reflector and director, would be a wise choice. At these distances it becomes most important to have a highly efficient aerial installation, so that careful attention to aerial height and position and the use of the correct feeder cable will keep signal losses to an absolute minimum.
- ● ● The aerial for A.M. reception on Long, Medium and Short wavebands can take the form of an 'inverted L'. The horizontal section should be mounted as high as possible and 20 to 30 feet long. The vertical lead in should be protected from physical contact with the side of the building. In areas of high interference, one of the so called 'anti static' aerials, properly installed, should make a worthwhile improvement to the signal-to-noise ratio.
- ● ● A tuner cannot deliver a signal that it does not receive to begin with. What it receives, depends upon the ability of the aerial system to collect the maximum amount of signal, and pass it on efficiently.

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H.T. REQUIREMENTS FOR UNPOWERED TUNERS

MODEL	300 Volts	350 Volts	400 Volts	450 Volts
FM90	1·5K	3K	4·5K	6K
FM91	1·5K	3K	4·5K	6K
FM95	1·5K	3K	4·5K	6K
S5E/FM	2·5K	3·5K	5K	6K
FM85	3K	4·5K	6K	7·5K
S6	4K	6K	8K	10K
S6BS	4K	6K	8K	10K

When powering a tuner from the spare power socket of an audio amplifier, it is most important to ensure that the H.T. voltage is not too high. All unpowered tuners are supplied ready to connect to a 200/250 volt H.T. line and will need a dropper resistance, of a value indicated in the above panel, in series with the H.T. lead, when used with a higher voltage. The correct resistance can be fitted without charge at the works before delivery, provided the type of H.T. supply is specified. All of the above dropper resistors have a 6 watt rating.



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EQUIPMENT is guaranteed for a period of 12 months (except for valves which have 90 days guarantee) from date of purchase, against defects in material or workmanship, provided that the equipment was purchased at the full current retail price, and was used in accordance with the instructions.

Contractors to H.M. Admiralty, War Office, Air Ministry.

Suppliers of radio equipment to the B.B.C. and Overseas Broadcasting Services.

SUPPLIED BY:

MANUFACTURED BY:

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