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TELEFUNKEN

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STUDIO
EQUIPMENT
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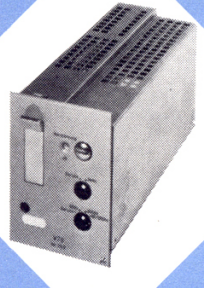
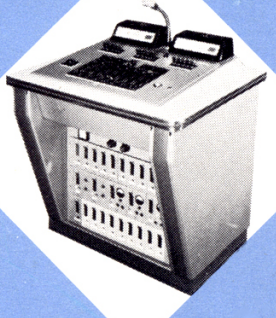
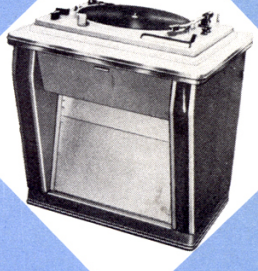
PRODUCTS







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AUDIO FIDELITY
PROFESSIONAL PRODUCTS INC.

770 ELEVENTH AVENUE, NEW YORK 19, NEW YORK

CONDENSER MICROPHONES

TELEFUNKEN NEW SERIES This series of microphones has been recently designed to fulfill the exacting needs of the broadcast, motion picture, radio and recording industries. Experience gained on the earlier type introduced some years ago has been put to great advantage in the perfection of these new models. They are all of unit construction, permitting easy replacement without use of tools, of capsules and amplifiers and in the case of the large series, (M 250 E, and the M 251 E) tubes are also replaceable. The advantages of these designs will, we feel certain, readily be apparent to the industry both technically and economically and should, we suggest, be considered for use whenever new microphones are required.

M 250

M 251

M260

M261.

M270

M 250 and M 251 — These two models are of recent development and have superior characteristics to older models which appeared some years ago.

The M250 may have the following characteristics selected: Omnidirectional, Cardioid.

The M251 in addition to the above characteristics, be switched to eight.

The three diagrams below show these microphones and an exploded view may be observed. (Fig. 7)

It will be of particular interest to note that these microphones may be readily dismounted by a technician of normal experience and will not require any tools. The tube is a plug in type, double triode 6072, which may be readily purchased in any parts house. The head assembly may also be replaced (see Fig. 7) by unscrewing same from the body of the microphone. Therefore, should a microphone be knocked over and damaged, it can be repaired in a matter of minutes without having to return it to a specialized agency. The output impedance may be set for either 200 or 50 ohms, by soldering connections on a block. Power supply unit Type M950E (Fig. 3) is used for both microphones and is fitted with a Cannon UA output connector. A sener diode circuit is incorporated within the power supply so that there is no change in potentials when a microphone is removed from the circuit without switching off the power. This feature guarantees long life of the electrolytic condensors due to the fact that no surge can take place. This unit may also be adjusted to accommodate a variety of line voltages. The very wide frequency range is pictured below in Figures 1 and 2. The microphone is normally supplied for the response shown in Figure 1, but may be supplied to special order with a capsule of response shown in Figure 2. It is of particular interest to note that the frequency response is independent of the directional characteristic selected. The low end is gradually attentuated to avoid mechanical feedback as is commonly encountered under normal studio conditions.

Each microphone is supplied with a frequency curve.

Front to back ratio will be noted from the Polar Diagram (Figure 5).

Residual noise is 20 phons (measured in accordance with DIN 5045). This figure shows that even extremely low level sounds can be recorded without being subdued in "mush", being particularly desirable in motion picture work. The cable between the microphone and power supply is normally 30 ft., but may be extended up to 300 ft. However, in this case, it is necessary to make an adjustment within the power supply to compensate for the loss of heater voltage.
Sensitivity at one KC is equal to 1.2 mv/Microbar for omni-directional and 0.9 mv/Microbar for Eight with an output impedance of 200 ohms.
Non-Linear Distortion — Measured with replacement capsule of 100 pf. at 60 CPS is equal to 0.8% (at 1 KC 0.5%, at 5 KC, 0.5%).

Working resistance — 1000 ohms.
Test voltage — 100 mv (at 1 KC approximately equal to 120 phons).
Generator impedance — 50 ohms.

M260, M261 — These microphones are miniature versions of the M250 and M251 previously described. The M260 has a cardioid characteristic only, whereas the M261 may be switched between omni, cardioid and eight. The capsules may be removed by unscrewing them from the body of the amplifier and may, as in the case of the M250 and 251, be replaced immediately (Fig. 6)

Special polyester film is employed within the capsule which gives a considerable degree of protection against humidity and temperature, making this microphone particularly useful in television studios, it will operate without any loss in efficiency up to temperatures of 80°C. Suitable construction protects them against interference of high frequency stray fields so that no limitation is placed upon their location.

The frequency response is virtually identical to the M250 and 251 previously mentioned and as before these are normally supplied with capsules having a frequency response as shown in figure 1 but may be supplied to special order having a frequency response as shown in figure 2. Once again it should be mentioned that the directional characteristic has virtually no influence upon the frequency response and may be expected to be identical for the three characteristics. The polar response is also considered to be identical.

In order that these microphones may become even less obtrusive when used by commentators in television programs, etc., where it is necessary to show close up shots and it is impractical to hide the microphone, it is possible to make these units very small in comparison to other microphones currently available by use of the extension tubes which are supplied with each unit, (Fig. 4) a suitable place being provided for housing it in the fitted hard wood case.

Windshields are available enabling the microphone to be used in the open air or very close to a speaker

M270—a stereophonic microphone for use where intensity techniques are employed and may be used for the 'MS' or 'XY' systems.

This microphone is to all intents and purposes identical in every way to the M261 excepting, of course, that there are two units employed. The upper capsule may be rotated between 0 and 180°. In this case, however, the characteristics are altered from the power supply which may be of either the Cassette type, or normal portable box.

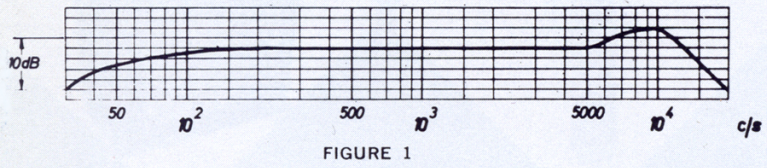


FIGURE 1

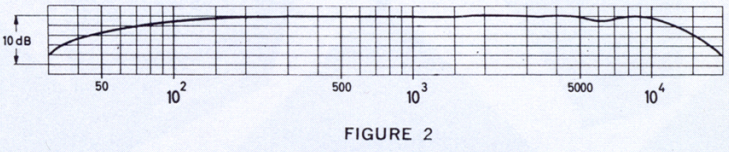


FIGURE 2

FIGURE 3

M950 POWER SUPPLY FOR M250 AND M251

FIGURE 4

MICROPHONE EXTENSION TUBE FOR M260 AND M261

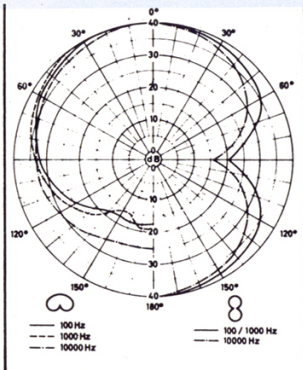


FIGURE 5

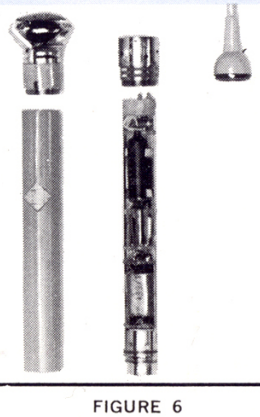


FIGURE 6

EXPLODED VIEW OF MICROPHONE TYPES M260 AND M261

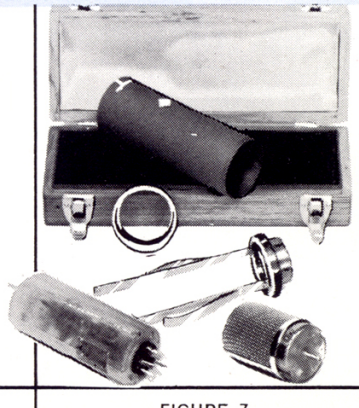
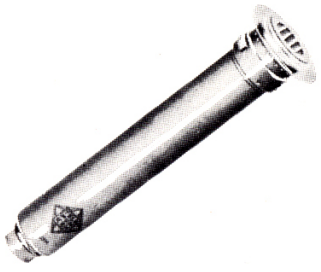


FIGURE 7

EXPLODED VIEW OF MICROPHONE TYPES M250 AND M251

CONDENSER MICROPHONES

TELEFUNKEN-SCHOEPPS SERIES



M155
OMNIDIRECTIONAL CARDIOID

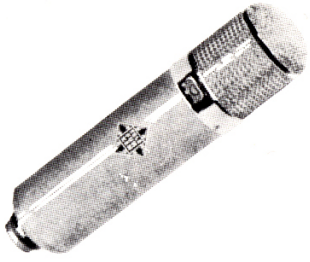
This is a particularly low noise microphone which will work satisfactorily at temperatures up to 80° C and in high humidity.

Frequency range — 30 CPS—15KCS
Output impedance — 50 or 200 ohms
Sensitivity — At 1 kc/s with 1,000 ohms load. Cardioid: 1.2mv per dyne/cm². Omnidirectional: 1 mv per dyne/cm² or —58 db. 0 db=0.775 volts
Rear attenuation — 25 db.
Power supply — Unit type ELA 931.
Power consumption — 12 watts.
Output connector — UA cannon.

CM 65
OMNIDIRECTIONAL CARDIOID

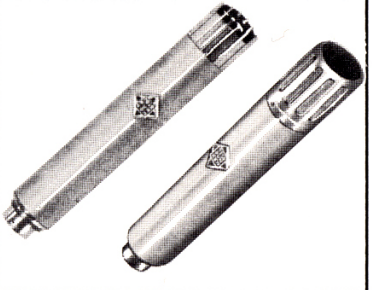
Frequency range — 30 cp/s to 15 kc/s ±2 db.
Output impedance — 50 or 200 ohms.
Tube — 6 AU 6.
Distortion at 1 kc with 1,000 ohms loading — 0.3%.
Output — Connector Cannon UA.

TELEFUNKEN-NEUMANN SERIES



U 47
OMNIDIRECTIONAL CARDIOID

Frequency response — 30 CPS—15 KCS.
Output impedance — 50 or 200 ohms.
Sensitivity — At 1 kc/s across 1,000 ohms. Cardioid: 2.5 mv per dyne/cm².
Non-Linear Distortion — below 1% up to sound levels of 110 db.
Power supply — Type NG.
Cable — UC4.



KM 54A
CARDIOID

Output impedance — 50 or 200 ohms.
Output level — at 1 kc/s across 1,000 ohms 1.2 mv per dyne/cm².
Noise level — 18 phon.
Rear attenuation — 30 db.
Power supply — NKM.
Output connector — Cannon UA.

KM 53
Similar to KM 54 except characteristic is omnidirectional.

M 49
INFINITELY VARIABLE FROM OMNIDIRECTIONAL THROUGH CARDIOID TO EIGHT

Frequency response — 30 CPS—15 KCS.
Output impedance — 50/200 ohms.
Output level — across 1,000 ohms at 1 kc/s 0.7 mv per dyne/cm².
Distortion — < 0.6% up to a sound level of 114 db between 40 cp/s and 15 kc/s.
Output connector — Cannon UA.

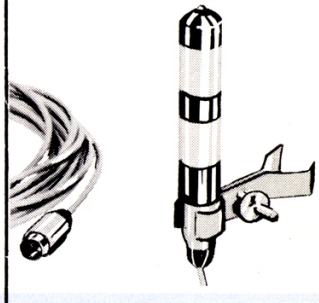
KM 56
OMNIDIRECTIONAL CARDIOID EIGHT

Output impedance — 50 or 200 ohms.
Output level — at 1 kc/s across 1,000 ohms 1.2 mv per dyne/cm².
Noise level — 18 phon.
Rear attenuation — 30 db.
Power supply — NKM.
Output connector — Cannon UA.

SM 2
VARIABLE FROM OMNIDIRECTIONAL THROUGH CARDIOID TO EIGHT

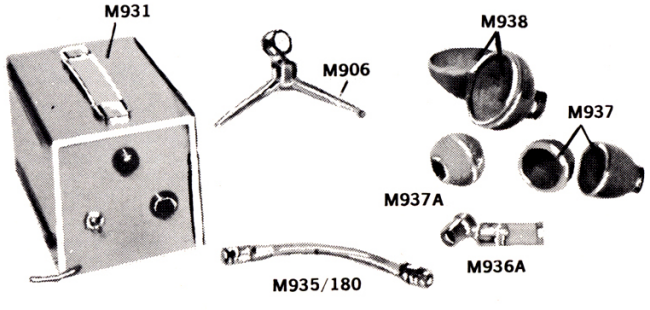
Frequency response — 30 CPS—15 KCS.
Output — 1 mv per dyne/cm².
Power supply — NSM.
Power consumption — 12 watts.

For intensity stereo

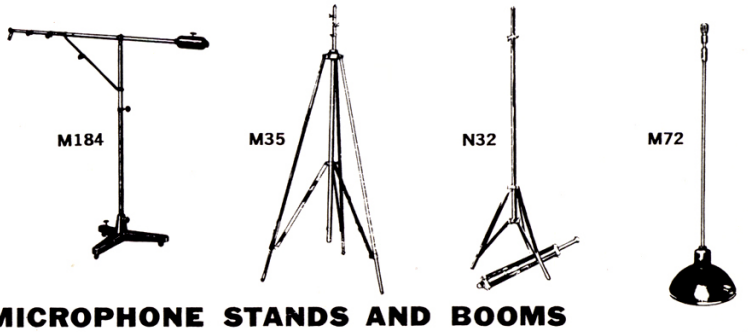


CF 3
RED AND GREEN LIGHT SIGNAL

This device is fastened with a mounting clip Z 24 to a microphone stand or boom and is supplied with 6, 12 or 24 volt lamps and is operated from the control room to warn the performers to stand by and proceed.



M936A — Microphone clamp having backwards and forwards motion.
M931 — Power supply for KM53, KM54A, KM56, M260, M261, M155.
M906 — Desk stand.
M935/180 — Flexible mounting
M937 — M937A — M938 — Close range protector for use when the microphone is used by singers at a distance of a few inches or in the open air.



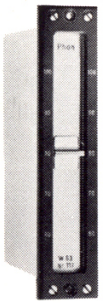
MICROPHONE STANDS AND BOOMS

M184 — Mounted on rubber wheels, Adjustable vertically for 6′ - 8′ 3″ and horizontally from 4′ - 9′ 6″. Weight approximately 100 lbs.
M35 — Collapsible microphone stand. Adjustable from 5′ - 17′. Weight 19 lbs.
G35 — Boom attachment for above. (Not illus.) Extendable to 8′ 3″ (or longer to special order). Weight 16½ lbs.
N32 — Collapsible stand variable between 3′ and 6′. Weight 6 lbs.
M72 — This stand is designed for use with microphone types M49 which fit directly into the top of the stand. Base is very heavy and the cable is attached at the bottom. This stand extends to 6½′. By use of adaptors Z16 and Z17 miniature microphones may be used with this stand, Z17 being a flexible type.

ATTENUATORS AND EQUALIZERS

A whole series of attenuators and equalizers is offered to suit every requirement, some of which are shown here. These are of the 'slider type' and are held on a panel by two screws, connection being made to the rear by one plug.

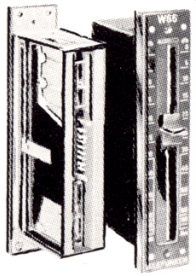
NOTE: IT IS IMPOSSIBLE TO LIST THE COMPLETE RANGE HERE, BUT FULL DETAILS WILL BE SUPPLIED UPON REQUEST.



W 63

The W 63 is a compensated attenuator used for studio monitoring. According to DIN standards normal listening level is 80 phons. Where greater or lesser levels are required frequency response compensation is effected.

H type ladder network with close tolerance resistors.

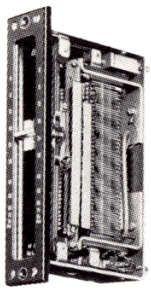


W66

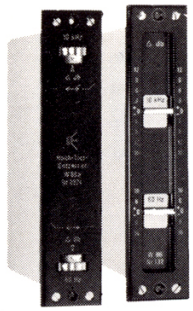
The frequency response between 0 and 15 Kc/s is better than ± 1 db referred to 1 kc/s, attenuation being between 0 and 85 db.
Insertion loss — 1.5 db.
Insulation resistance to ground — 100 M ohms.
Weight — 2 lbs. 10 ozs.
Impedance — 200 ohms.

W85 ONLY — This fader is recommended for use where absolute noise free operation is required around the clock. It is silicone-oil filled and guaranteed to be absolutely noiseless.

H type ladder network with close tolerance resistors.

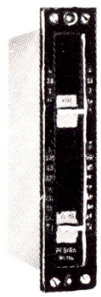


W85



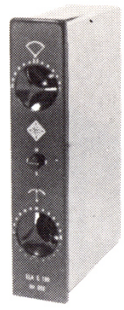
W86 & W86A

Are equalizers having an insertion loss of 34 db and are normally used in conjunction with a V72 (for curves see accompanying diagrams)



PF5/8H

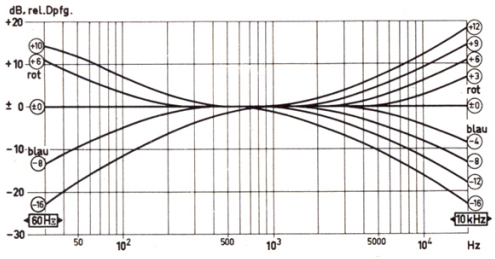
PF5/8H — a presence filter having an insertion loss of 34 dbs. It is physically identical to the units described previously and must work in conjunction with a 34 db amplifier; e.g. V72. This unit together with the other equalizers have detented action. (For curves see graphs.)



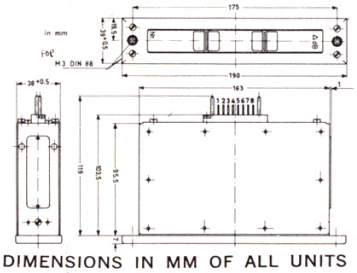
E 130 - Stereo Regulator

This unit is of considerable value if not a 'must' where intensity stereo techniques are employed. It is posssible to regulate the width and horizontal position occupied by a soloist or group.
It will be readily appreciated that by the use of this device a solid block can be provided to the listener, for example, a section of violins instead of an apparent point source. It is not normally appreciated that one very great advantage of the intensity method is to insure that the localization is virtually constant with respect to the listener, provided that the listener subtends an angle of not more than 60° to the loudspeaker.

W86 and W86A

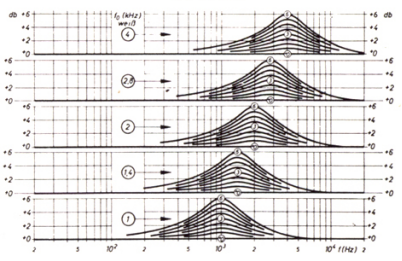


Physical dimensions

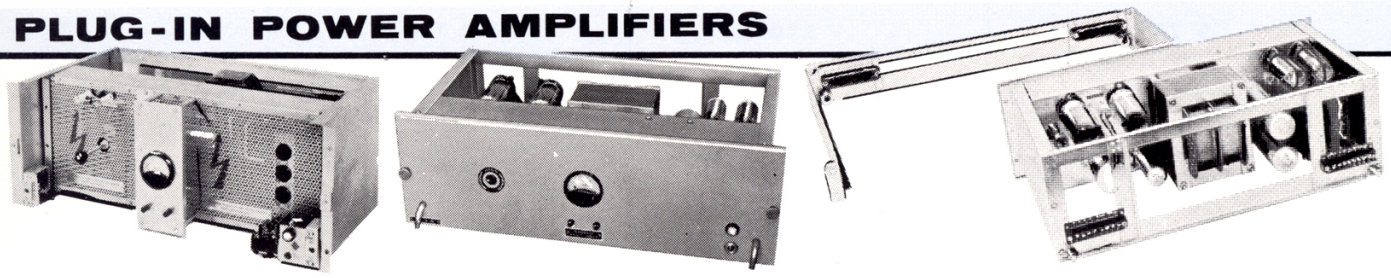


DIMENSIONS IN MM OF ALL UNITS

PF5/8H



PLUG-IN POWER AMPLIFIERS



The following power amplifiers are offered to plug into a tray assembly type RTI 249. These units are held in position by 2 locks operated by keys which are located in the bottom of the amplifiers left and right (see diagram).

V 69 A — Output — 25 watts (European rating); Input impedance — 60 ohms; Output impedance — 4, 16 and 64 ohms; Frequency range — 40 cp/s-15 kc/s ± 1 db; Noise level — < 0.3 mv through ear response filter according to CCIR standards. Total < 0.4 mv:— **V 101** — Similar to above but having power output of 100 watts (European rating).

ELA SERIES AMPLIFIERS

The ELA series of amplifiers is designed for use where plug-in facilities are not required. These amplifiers are secured by 4 screws to suitable shelf assemblies, connections being made to the rear by plugs.

ELAV 101 (illus.)
Pre-amplifier with 2 inputs. One input may be used for either a dynamic or condensor microphone of low impedance, the other being high impedance.

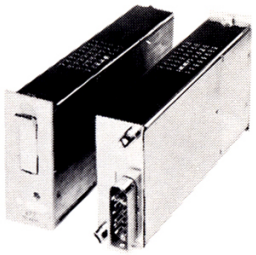
ELAV 102 (illus.) Pre-amplifier — one input for low impedance.

ELAV 103 (illus.) Limiting amplifier.
ELAV 104 Peak to peak modulation meter.
ELAV 203 Power amplifier, 25 watts (European rating).
ELAV 204 3-watt monitoring or isolation amplifier.
ELAV 304 10-watt (European rating) power amplifier having inputs for high impedance microphones. Sensitivity 0.8 mv, 450 mv, 1 volt.
ELAV 305 25-watt (European rating).
ELAV 311 100-watt (European rating).

CASSETTE EQUIPMENT

This equipment is of plug-in design and is invaluable in those installations where rapidity and ease of replacement are of primary importance. They also offer the advantage of being interchangeable with one another in a matter of seconds, by the simple expedient of pulling down one lever which will be noted on the front panel. It has been found after a number of years' experience that these amplifiers guarantee maximum efficiency. The conception of this design has now been extended to cover such units as modulation meters, power supplies, oscillators and filters. All these units are housed in the shelf assembly type S67 which holds 10 Cassette units. However, these may be supplied having more or less positions to special order. The following units are currently available:

GENERAL: These units work on a block system, whereby it is impossible to place units of one type into sockets wired for another.

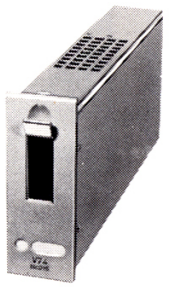


V 72
GENERAL PURPOSE AMPLIFIER

Input impedance — 200 ohms.
Output impedance — 35 ohms. Gain at 1 kc/s 34 db ± 0.2 db. Maximum output voltage with output terminated into 300 ohms at 1 kc, 5.5 volts. Distortion < 0.3%.
Frequency response — 40 cp/s to 15 kc/s ± 0.3 db. Noise level (through CCIR ear response filter) < 0.075 mv. Total noise level < 0.1 mv.
Power consumption — 9 watts.
Weight — 7 lbs.

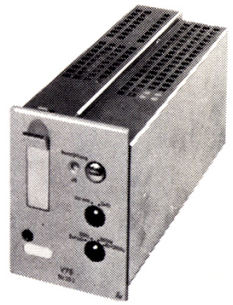
V 73
POWER AMPLIFIER DOUBLE CASSETTE

Output — 4 watts (European rating).
Input impedance — 200 ohms.
Output impedance — 4/16 ohms.
Frequency response — 40 cp/s—15 kc/s ± 1 db.
Power consumption — 33 watts.



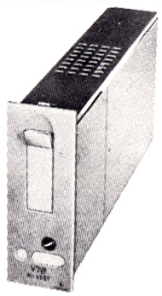
V 74
DISTRIBUTION AMPLIFIER

Single Cassette—This unit supplies 3 independent outputs and will be found invaluable for such uses as feeding simultaneously a program line, monitoring circuit and tape machine. By use of this device it is possible to alter the load on any one of the outputs without effecting another.



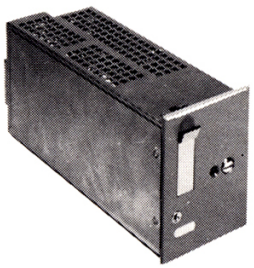
W 76
MICROPHONE AMPLIFIER

Double Cassette—Having a gain of 76 db variable by means of a switch on the front panel and is recommended for use where microphones having varying gains are employed, so that overload of the associated equipment is avoided. This unit also contains switchable low and high frequency filters.



V 78
GENERAL PURPOSE AMPLIFIER

Similar to V72 excepting that gain is variable from 50 to 70 db. Used mainly for talk-back circuits.



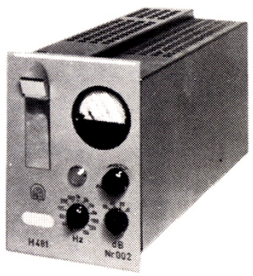
V 530
BRIDGING AMPLIFIER

Double Cassette—This unit has 6 inputs and is used to bridge the outputs of a number of V 72's or V 76's where it is not practical to lose the gain of these amplifiers as would be the case should they be bridged together with resistors.

U 70
PEAK TO PEAK MODULATION METER AMPLIFIER

Double Casette—This unit is used in conjunction with a light beam indicator as shown in the accompanying drawings. This type of unit is used as standard throughout the European broadcast networks and allied industries, as it is found to afford absolute protection against overload.

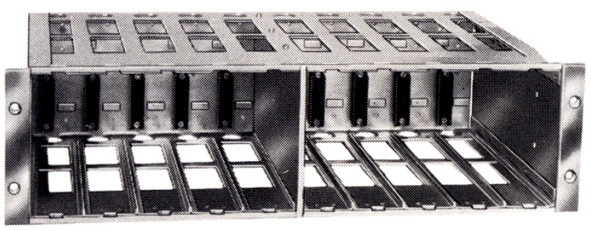
U70S is available for 2-channel stereo. An additional single Cassette unit serves to integrate the two channels and displays the higher signal at all times.



H 481
OSCILLATOR

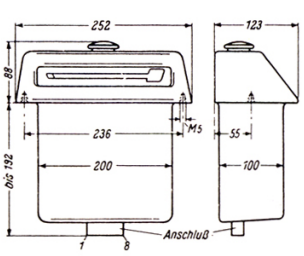
Double Cassette — 12 pre-set frequencies. This unit is identical to the **H480** excepting that 12 spot frequencies are available instead of 6.

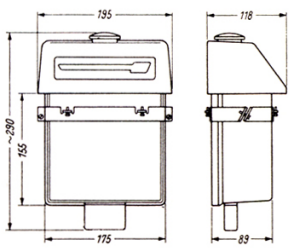
H480 —Double Cassette — This oscillator has 6 pre-set frequencies and is very useful for checking through the entire equipment. The output is variable up to ± 6 db and may be monitored across a built-in meter.



S67

This is the standard shelf assembly holding 10 block units. Suitable wiring supports are mounted on the rear. 2 stops are fitted to each section and may be set in one out of 16 possible combinations to suit the cassette.



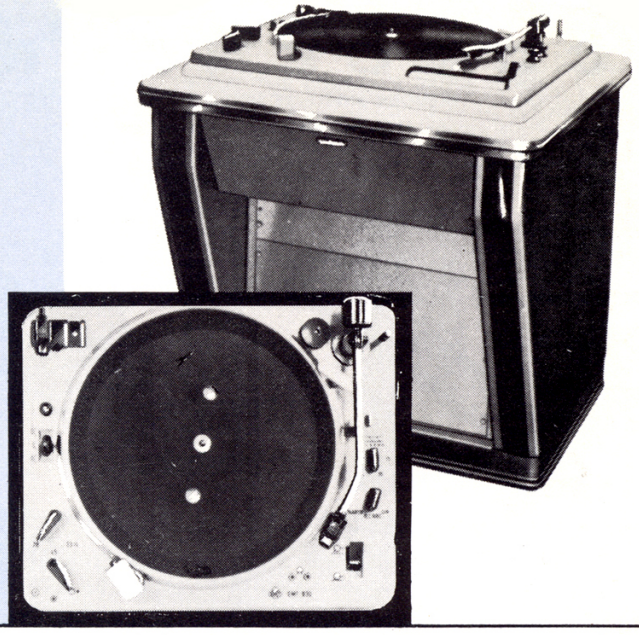


2 light beam indicators are available — J456 being the larger, J476 the smaller.

DISC PLAYBACK MACHINES

EMT 927 and 930 are professional playback record reproducers for use in studios where the highest possible quality is required.

General: This unit may be supplied for monaural or stereophonic operation. In the latter case 3 cartridges are supplied, having 0.7 thou, 1 thou and 3 thou diamond styli. A built-in scale shows by operation of a light beam indicator the exact groove location, so that pre-selected passages may be returned to at will. The pickup is raised and lowered by a lever on the right hand side of the turntable. A small light on the edge of the turntable may be operated by means of a pushbutton to insure that grooves are located accurately, which can be viewed through a built-in magnifying glass on the front of the pickup head. A brush is installed on the underside insuring that the surface of the record is free from dust. A 3-position key switch is incorporated on the left hand side of the machine which starts and stops the machine from the turntable, or in its third position offers remote control facilities. Starting time in each case as previously stated. These units are normally operated in a console into which may be installed other apparatus, or they can be supplied separately. The 927 may be supplied with or without the light beam indicator. It may not however be fitted to the 930.

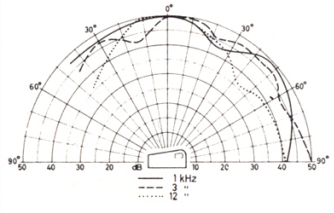


Technical data:

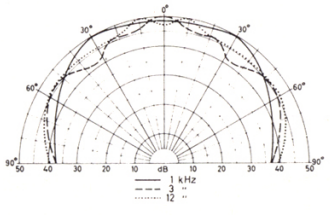
WOW and flutter — 0.1% peak to peak or 0.04% rms. Rumble < 50 db. Hum better than — 65 db.
Power supply — 110/220 volts 60 cycles (50 cycles available to special order).
Power consumption — Approximately 40 watts.
Speed — 78, 45 and 33⅓ rpm ± 0.3% (measured at 20°C after 10 minutes of operation. Speed check shown by stroboscope on outer edge of disc illuminated by neon lamp.
Speed change — After 7 hours of operation < 0.2%.
Precision of start control — 0.1 second or less than half a syllable.
Record size — Up to 17¼". (927) 13" for 930.
Weight — 90 lbs. 927. 51 lbs. 930.
Characteristics — Controlled by switch DIN, BBC, IEC, NARTS.
Level variation — Between equalized positions 0.5 db at 1 kc/s.
Frequency response — 30 cp/s — 15 kc/s within — 1 db of equalization curve. Noise filter adjustable between 15 kc/s and 2 kc/s (noiseless operation). Attenuation of filter approximately 10 db octave above limiting frequency.
Output impedance — Balanced 40 ohms.
Matching load — 200-1,000 ohms.
Output level — 1.55 volts (+ 6 db).
Intermodulation distortion — 0.5% at 100 and 7,000 cps and 12 db ratio at 1.55 volts.
Hormonic distortion — 0.5% under transmission range of 1.55 volts.
Maximum output — 5 volts. Signal to noise ratio 70 db, weighted.
Monitor output — Unbalanced for high impedance headphones.

MICROPORT

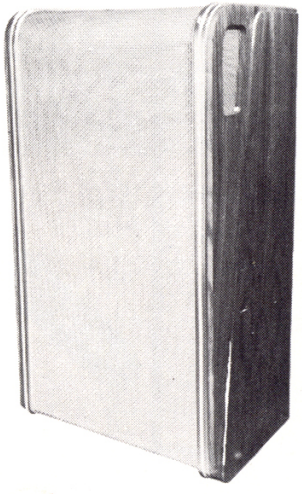
This is a small FM radio transmitter and receiver unit which has many applications for PA, television, motion picture and radio purposes. The transistor type transmitter SK 1002 operates from a single 22.5 battery having approximately 10 hours' life. This unit may be placed easily in a pocket. A range of microphones is available to cover all requirements. The frequency response is essentially flat up to 15 kc/s and the unit may be operated up to distances of ¼ mile from the receiver. The receiver has a built-in monitoring loudspeaker and offers a line output for feeding studio equipment.



Vertical Characteristics

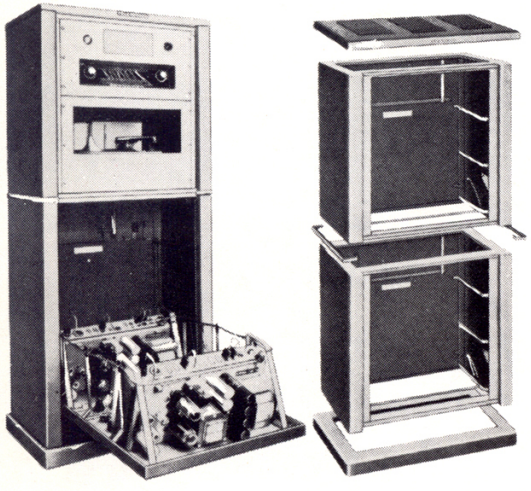


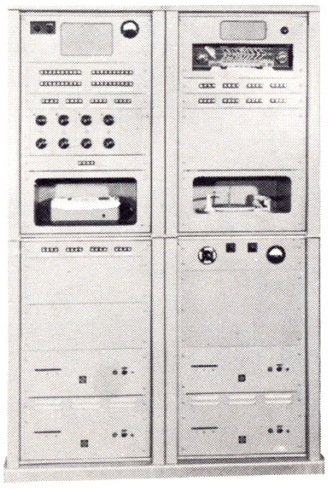
Horizontal Characteristics

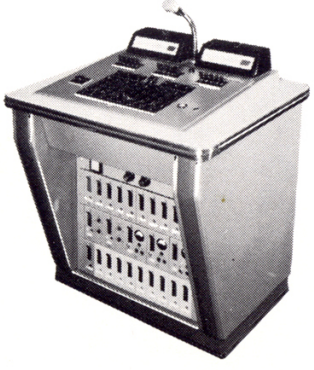


STUDIO LOUD SPEAKERS

These loudspeakers are designed for use where the maximum fidelity is required for studio monitoring purposes and have extremely flat frequency response. The vertical and horizontal polar diagrams are shown.







CONSOLES AND RACKS

Details of the complete range of consoles and racks may be obtained upon request. These are assembled out of units to suit individual requirements, one being shown in the accompanying diagram.

Complete service facilities are being maintained in New York

Complete studios may be designed and supplied to your specifications. For further information please write to:

AUDIO FIDELITY PROFESSIONAL PRODUCTS INC.

770 ELEVENTH AVENUE, NEW YORK 19, NEW YORK