

A History of Kef Drive Units from the 1960s and 70s

When KEF was founded in 1961, by Raymond Cooke and a small group of like-minded colleagues, the prime objectives were to design loudspeakers using the latest materials technology and with the best engineering methods. The 1960s was a hotbed of innovation in drive unit technology with significant contributions from a number of commercial companies as well as the BBC's Research and Design departments.

The first drive units designed and developed by KEF formed the K1 series of products. They comprised the B1814 bass unit, with a flat diaphragm of polystyrene with aluminium foil laminated to the front and rear surfaces, the M64 elliptical midrange with the same polystyrene/aluminium foil laminate structure, and the T15 tweeter with a dome made from aluminized melinex. The early brochures make a point of emphasising that all drive units in KEF loudspeakers have diaphragms of synthetic materials. Most loudspeakers at the time had diaphragms made of paper compounds, which could suffer from sound colouring resonances, sensitivity to climatic conditions and batch-to-batch variations in production; and the thought was that plastic materials ought to offer significant advantages. The fact that bextrene and later polypropylene came to dominate the market for serious Hi-Fi drivers pays tribute to this vision. Credit ought to be given also to those who continued to develop the technology behind paper and fabric diaphragms as they now have an equal standing with plastics and metals in high-end audio.

Hot on the heels of the B1814 came the B139 (13 by 9.25 inches in size), probably the most famous of the KEF drive units. Again the diaphragm was polystyrene with aluminium foil laminated to the front and rear surfaces. Its midrange performance was just about good enough to integrate directly with the T15 tweeter allowing the K2 series of 2-way products to be designed including the Celeste and Duette.

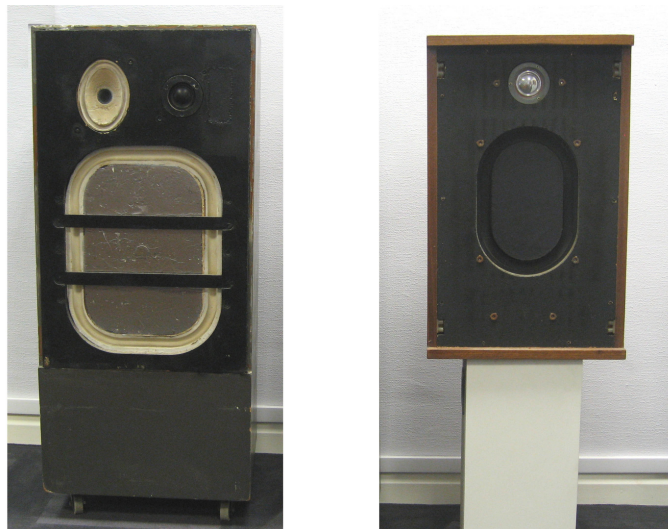


Photo 1: K1 Monitor (left), Duette (right)

In 1966 KEF produced the first commercially available drive unit with a bextrene cone, the B110, 5" bass/midrange. This new cone material was a form of rubberised polystyrene which, when coated with a doping compound called plastiflex, achieved the required mechanical properties necessary to obtain smooth, low colouration

acoustic performance. KEF termed this new diaphragm construction 'Acoustilene' in the early brochures. Also, around the same time came two more drivers: the T27, a 19mm tweeter with melinex diaphragm with a smooth response that extended well beyond 20kHz, and the M65 midrange unit with a 2.5" bextrene dome acoustically loaded on its rear surface by a 33" tube damped with acoustic absorbent. The M65 found application in the short-lived Carlton - a three-way system with the latest B1814 and the T27 tweeter. The T27 and B110 were put to immediate use in the Cresta, and the B139/B110/T27 combination formed the Concerto system.

KEF's 8" bextrene unit, the B200, appeared in 1970 and along with the B139, B110, T15 and T27, comprised a range of drive units, under continual development, that formed the mainstay of KEF systems from 1967 through to the late 1970s. The B200 and T27 were combined in the two-way Chorale in 1970, which replaced the Celeste as the company's best selling product; and the B110 and T27 were chosen for the famous BBC designed LS3/5A broadcast monitor. A significant part of the drive unit business at this time was on the OEM side with KEF supplying a plethora of audio companies with systems, baffles and drivers as well as the home constructor market with separate units and the KEFKIT baffles.



Photo 2: Concerto (left), Chorale (centre), Cresta (right)

The T15 was superseded by the T52 in 1975, and in 1979 KEF introduced the T33, a 1" fabric dome tweeter, which matched the smooth high frequency response of the T27 with the extra sensitivity required for the more modern speaker designs. It was also at this time that paper cone drivers started to appear in the KEF range for the cheaper systems – improved technology allowing them to have good performance at moderate cost, an important consideration as the Hi-Fi market evolved through the 1980s.

1984 KEF made their first driver with a polypropylene cone - the 5" B110 for the KM1. Polypropylene was developed by the BBC for their studio monitors and has the advantage over bextrene of higher internal damping, removing the need for the cone to be coated with a damping compound and greater resilience to high g-forces.



Photo 3: Reference Series Model 105.2

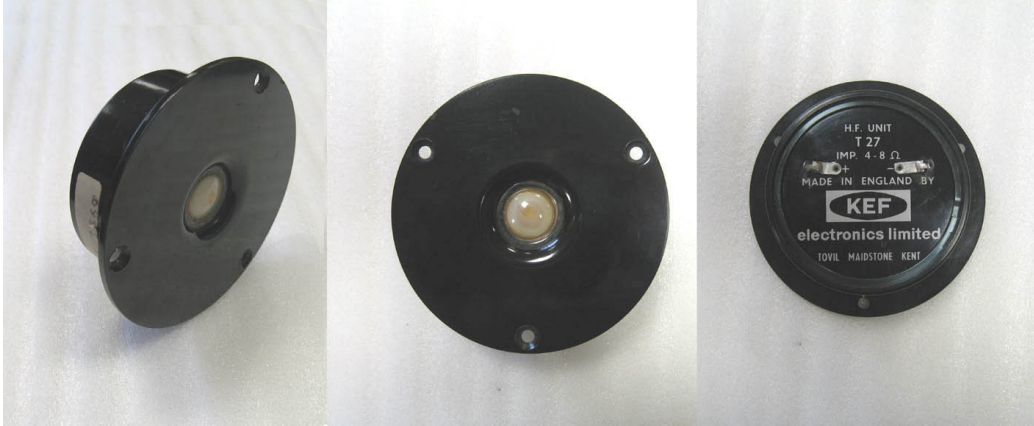
The fact that KEF is one of the most respected brands in the audio industry is, to a large part, due to the drivers that it produced in the 1960s and 70s. They were always around the best on the market, they used the latest materials, and were manufactured in a controlled way to be consistent and reliable. They were utilised not only in the famous KEF systems of the time but also in those of a plethora of other manufacturers and the home constructors who chose to build their own. They have gone down in history as a highly significant contribution that KEF has made to the audio industry.

What follows is a reference section for KEF drive units covering the 1960s, 70s and 80s. It focuses on what we might call the 'classic' units: the melinex domed tweeters, bextrene coned bass/midrange units and the polystyrene diaphragm bass drivers. From the late 1970s it diverges slightly and includes only those units from the Reference range of systems.

The T27 Series: 3/4" (19mm) Melinex dome tweeter

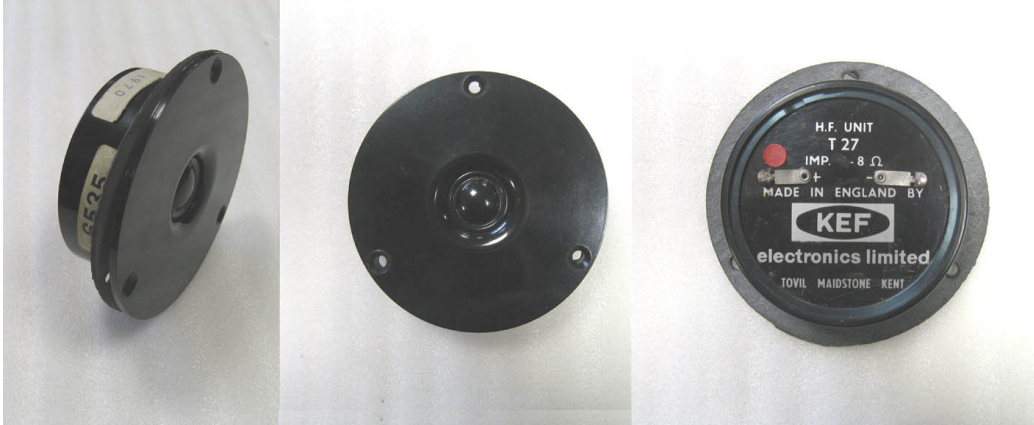
There were three versions of this tweeter, culminating in the SP1032, one of the most famous and widespread of the KEF units.

Type 6340 (1967, 4-8Ohm)



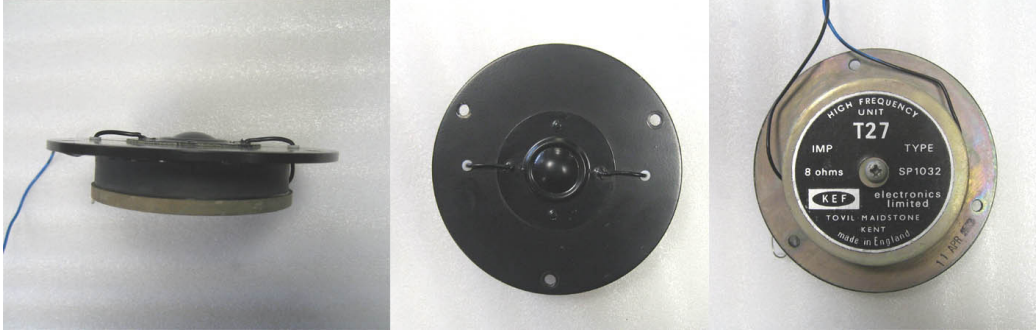
Utilised in the following systems: *Cresta*(1967), *Carlton*(1967), *Concerto*(1969), *KEFKIT4*(1969)

Type 6535 (1968, 80hm)



This was predominantly an OEM unit, some of which had the clear dome.

SP1032 (1971, 80hm)



Utilised in the following systems: Cadenza(1970), Calinda(1976), Cantor(1971), Caprice(1973), Chorale(1970), Coda(1971), Concerto(1969), Corelli(1976), Cresta II(1970), 101(1979), 104(1973), 104aB(1976), CS1(1981), CS1A(1981), KEFKIT1(1974), KEFKIT 3(1969), 104aB KIT(1979), LS3/5A OEM(1975)

The T15 Series: 1.5" (39mm) aluminized melinex dome tweeter

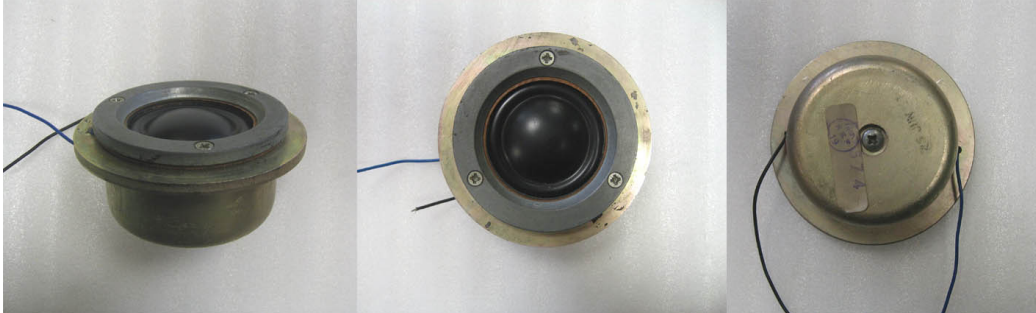
The T15 was the first tweeter made by KEF. There were two versions of this unit: the Mark 2 having a revised magnet structure and acoustical circuit. Although the early brochures classed these as 15 ohms, the coil d.c. resistance was around 7ohms (equivalent to a modern 8ohm unit). Very early samples had a clear melinex diaphragm without the aluminized coating. Throughout the mid and late 1960s the dome was aluminized melinex and in 1970 a black paint finish was added to the front surface of the aluminized dome. This unit was superseded in 1975 by the T52.

Mark 1 (1962, 15 Ohm nominal, 7 ohm dcr)



Utilised in the following systems: K1 Monitor(1962), K1 Baffle(1962), K1 Slimline(1961), Celeste(1962), Celeste Portable(1963), K2 Baffle(1962), Duette(1962), Duette deluxe(1965), Group 4 Cantata(1965)

Mark 2 Type 6236 (1966, 15 Ohm nominal, 7 Ohm dcr – from around 1970 onwards the nominal impedance classification was revised to 8 ohms)

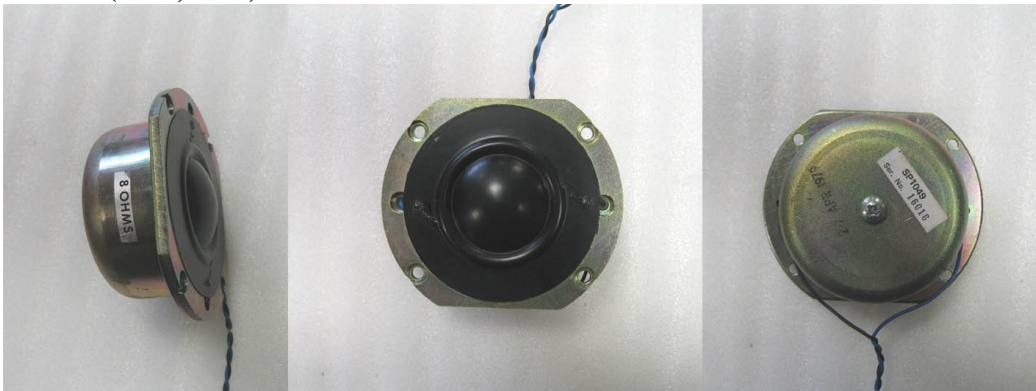


Utilised in the following systems: Celeste II(1966), Concord(1966), KEFKIT2(1969), K1 Baffle(1962), K2 Baffle(1962)

The T52 Series: 1.5" (39mm) melinex dome tweeter

The derivative of the T15.

SP1049 (1975, Ohm)



Utilised in the following systems: Cantata(1976), 103(1976), 105(1977), 105.2(1979), Cantata KIT(1978)

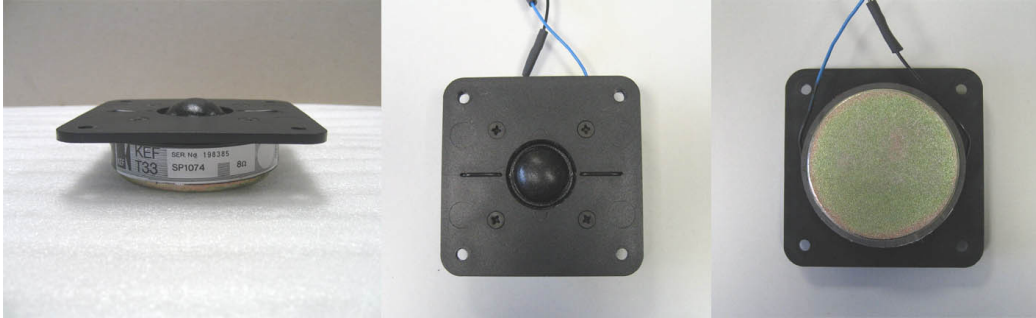
SP1072 T52B (1979, 80hm)



Utilised in the following systems: 105.2(1979), CS9(1981)

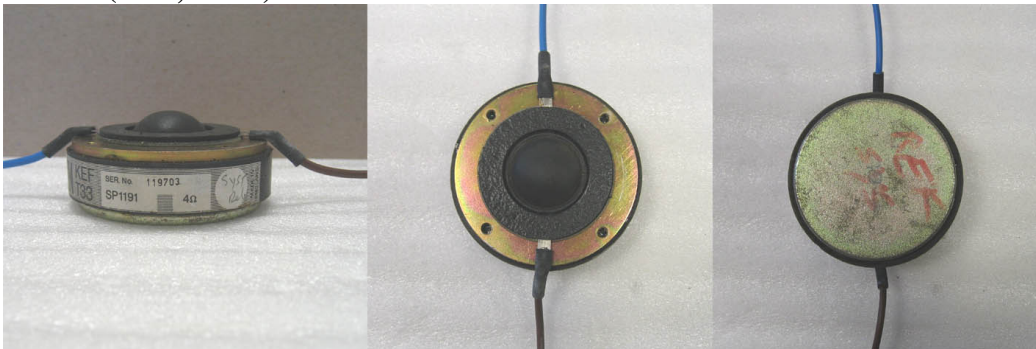
The T33 Series: 1" (25mm) doped fabric dome tweeter

SP1074 T33A (1979, 80hm)



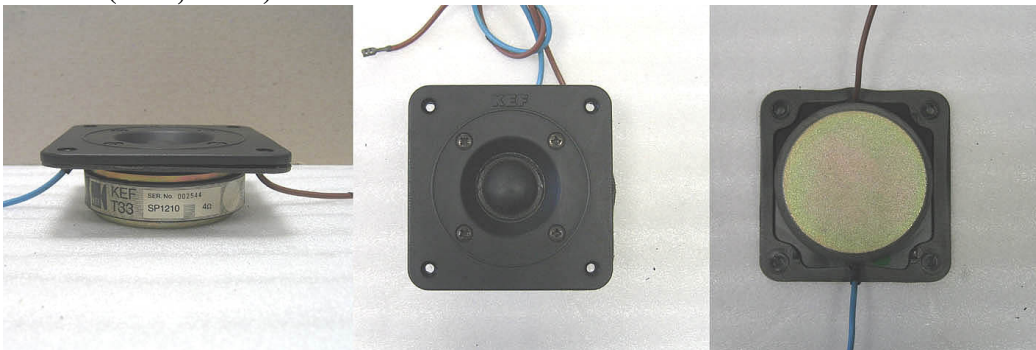
Utilised in the following systems: Caprice II(1981), Carlton II (1981), Carlton III(1983), Celeste IV(1981), Concord IV(1980), CS3, 5, 7(1981), 103.2(1980), 105.4(1980)

SP1191 (1984, 4ohm)



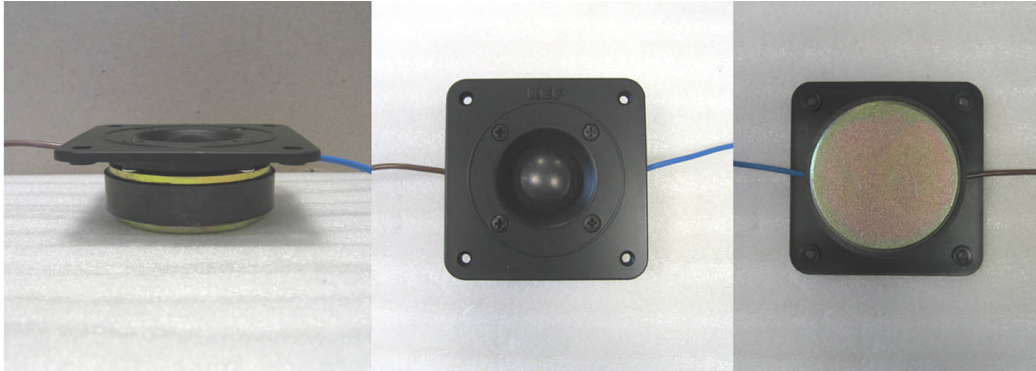
Utilised in the following systems: 104/2(1984)

SP1210 (1986, 4ohm)



Utilised in the following systems: 107(1986), 103/3(1986), 102(1986)

SP1265 (1990, 4ohm)



Utilised in the following systems: 107/2(1990)

The B110 Series: 5" (127mm) bextrene cone bass/midrange unit

Type 6362 (1966, 4-80hm)

The first of the B110s, it can be distinguished from later models by the flatter dust-cap. Early versions of the B110 also had the voice coil lead-out wire looped through the front of the cone.



Utilised in the following systems: Concerto(1969), Cresta(1967), KEFKIT4(1969)

Type 6542 (1968, 240hm OEM only)

SP1003 B110A (1969, 8 Ohm)

A refinement of the 6542 and famous for being incorporated into the BBC designed LS3/5A. It remained in production for over 18 years, when it was replaced for LS3/5A use by SP1228.

Photo 1: Early sample

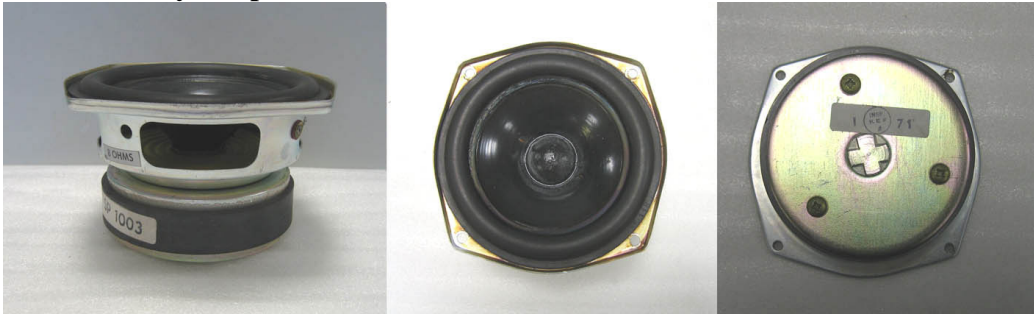


Photo 2: Later sample (late 1970s)



Utilised in the following systems: Caprice(1973), Coda(1971), Concerto(1969), Cresta II(1970), CS1A(1981), KEFKIT3(1969) LS3/5A OEM(1975)

SP1057 B110B (1976, 8 Ohm)

Utilised in the following systems: Cantata(1976), 101(1979), 105(1977), 105.2(1979), 105.4(1980), CS1(1981), CS7(1981), CS9(1981)

SP1083 (1981, 4 Ohm) OEM only

SP1186 (1984) Utilised in KMI(1984)

SP1209 (1985, 4 Ohm) Utilised in 107(1986), 107/2(1990)

SP1228 B110C (1987, 8 Ohm) Utilised in LS3/5A OEM(1987), LS3/5A KEF(1993)

Photo: SP1057(left), SP1209(centre), SP1228 (right)



SP1190 (1984, 8ohm)

The SP1190 units did not have a conventional chassis, they were built directly into the 104/2 baffle.



Utilised in the following systems: 104/2(1984)

The B200 Series: 8" (203mm) bextrene cone bass/midrange unit

SP1014 B200A (1970, 80hm)



Utilised in the following systems: Cantor(1971), Chorale(1970), KEFKIT1(1974)
SP1022 (1970, 80hm)



Utilised in the following systems: Cadenza(1970)

SP1039 (1972, 80hm) This unit had a short coil/long gap motor system.



Utilised in the following systems: 103(1976), 104(1973), 104aB(1976)

SP1047 (1974) Utilised in the following systems: *KEFKIT 1(1974)*

SP1054 (1976, 80hm)



Utilised in the following systems: Calinda(1976)

SP1063 (1976, 8ohms)



Utilised in the following systems: Caprice(1977), Corelli(1976), C40(1979), C65(1979)

SP1075 B200G (1979, 50hm)



Utilised in the following systems: Caprice II(1981), Carlton II(1981), Carlton III(1983), 103.2 (1980)

SP1076 (1979, 40hm)



Utilised in the following systems: 105.4(1980)

The B139 Series: 13x9.25" (330x235mm) polystyrene/aluminium laminate bass driver

B139 Mk1, (1962, Nominal 15 Ohm, 7 Ohm dcr)

Utilised in the following systems: Celeste(1962), Celeste Portable(1963), K2 Baffle(1962), Duette(1962), Duette deLuxe(1965)

Mk2 Type 6171 (1965, 8 Ohms, 7 Ohms dcr) Initially classed as 15 Ohms nominal, revised to 8 Ohms. This version used a neoprene surround.



Utilised in the following systems: Celeste II (1966), Concerto(1969), Concord(1966), KEFKIT2(1969), KEFKIT3(1969), K2 Baffle(1962), Group 4 Cantata(1965)

Type A6527 (1968, 16 Ohm, OEM only)

New Chassis type: 12x8.25" (300x210mm)

SP1044 B139B (1973, 80hm)



Utilised in the following systems: Cantata(1976), CS7(1981), Cantata KIT(1978)

SP1212 (1985, 4ohm) Utilised in C80.

SP1333 (1993, 8ohm) Updated version of SP1044. Modified chassis.

The BD139 Series: 12x8.25" (300x210mm) passive radiator

SP1023 (1970)

Utilised in the following systems: Cadenza(1970)

SP1037 (1972)

Utilised in the following systems: Cadenza(1970)

SP1042 (1972)



Utilised in the following systems: Cadenza(1970), Calinda(1976), 104(1973), 104aB(1976), 104aB KIT(1979)

SP1082 BD138B (1981)



Utilised in the following systems: Carlton II(1981), Carlton II(1983), CS5(1981)

SP1332 (1993) Updated version of SP1082 – Modified chassis.

The B300 Series: 12" (300mm) bextrene cone bass driver

SP1060 (1977, 8ohms)



Utilised in the following systems: 105(1977)

SP1071 B300B (1979, 8ohms)

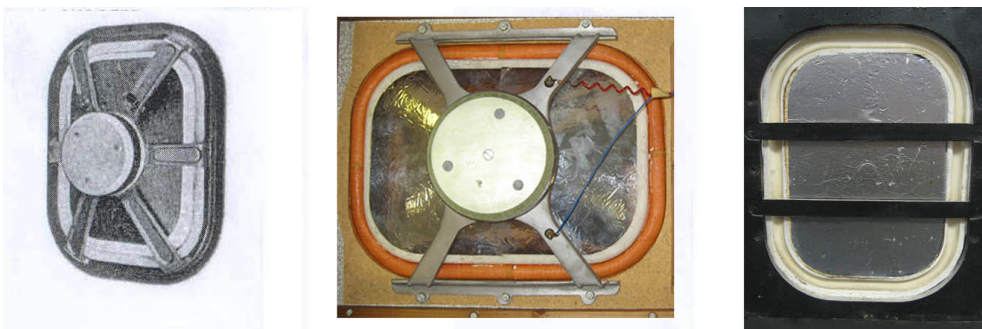


Utilised in the following systems: 105.2(1979), CS9(1981)

The B1814 Series: 18x14" (460x356mm) polystyrene/aluminium laminate bass driver

Mk1 (1961, 150hm)

Utilised in the following systems: K1 Monitor(1962), K1 Baffle(1962), K1 Slimline(1961)



Type 6179 (1965, 150hm)

Utilised in the following systems: K1 Monitor(1962), K1 Baffle(1962), K1 Slimline(1961), Carlton(1967)

M64: 6x4" polystyrene/aluminium cone midrange unit

Mk1 (1961)

Utilised in the following systems: K1 Monitor(1962), K1 Baffle(1962), K1 Slimline(1961)



M65: 2.5" dome midrange unit

The photo shows an early sample with an aluminium dome. This was later changed to bextrene due to manufacturing issues.

Type 6432 (1967)

Utilised in the following systems: Carlton (1967)

