

REPEATING COILS & HYBRIDS.

TYPE	DATE	R1/R2	INDUCTANCE IN HENRIES @50Hz		DC. RESISTANCE IN OHMS		LEAKAGE INDUCTANCE IN mH	MAX. LEVEL ACROSS LOW Z WINDING	T.H.D. @ 50Hz	FIG.	REMARKS
			Pri.	Sec.	Pri.	Sec.					
BB4102-13	-	600/600	6	-	-	-	1	-	-	1	STC Rep. Coil for music or control circuits.
C/4102-1	-	600/600	3	2.7	48	52	-	-	-	1	STC Rep. Coil for controls.
CD/4102-3	-	600/600	4	15	24	30	4	-	-	1	STC Rep. Coil for music circuits.
CK 4122-9	-	600/600	-	5	15	15	-	-	-	13	STC Rep. Coil - Hybrid.
CL/4137-4	-	600/600	10	-	-	-	2	-	-	1	STC Rep. Coil.
CL/4137-33	-	30/300	-	-	-	-	-	-	-	1	STC Rep. Coil.
LL/5S	1938	300/300	3.9	3.9	13.2	18.3	1.5	+10dB	1%	2	Replaced by LL/105S
LL/6S	1939	685/685	8	8	30	40	4	+12dB	1%	2	Replaced by LL/106S
LL/39S	1950	850/1500	9.4	16.5	68	80	7	+15.5 +12.5	1% 0.5%	8	600/600 or 600/300 Hybrid for mixing circuits.
LL/45S	1947	250/250	2.7	2.7	21	21	1.2	-	-	3	300/300 Rep. Coil.
LL/49S	1951	680/680	9.4	8.5	75	70	2.5	+17dB	1%	8	Hybrid.
LL/52S	1952	540/540	6	6	41	41	2.5	+15dB	2.2%	11	300/600 or 600/600 Rep. Coil.
LL/56R	1950	765/765	17	17	22	22	1.75	+20dB	0.2%	4	600/600 Rep. Coil.
LL/62S	1955	-	9.4	-	68	80	7	+15.5dB	1%	9	600/600 Hybrid. Balanced or unbalanced. Replaces LL/39S.
LL/63R	1955	765/765	10	10	30	30	3	+20dB	0.3%	4	600/600 Rep. Coil suitable only for use on music circuits.
LL/76M	1962	600/600	8.6	-	60	60	1.3	+10dB	2%	5	Miniature Rep. Coil. No Screen.
LL/83A	1962	600/600	11	-	60	82	1.3	+14dB	2%	10	600/600+600 Hybrid.

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			Pri.	Sec.	Pri.	Sec.					
LL/86M	1965	50/565	0.51	-	4	36	2.3	-6dB	0.5%	5	30/600. No Screen.
LL/87SU	1963	54/54	0.15	-	3.3	4.5	1.0	+10dB	0.8%	5	For use with Telephone recording unit 20Ω-Hi.Z. No Screen.
LL/88A	1965	600/600	10.6	-	40	65	1.5	+14dB	2%	6	600/600. No Screen.
LL/91M	1965	470/470	8.6	-	60	60	1.3	+10dB	2%	5	No Screen.
LL/105S	1943	250/250	2.7	2.7	21	21	1.2	-	-	2	300/300 Replaces 5S.
LL/106S	1943	690/690	14.7	14.7	46	46	3.1	-	-	2	600/600 Replaces 6S. *
LL/126R	1952	890/1.78	16.9	33.8	22	29	2.4	-	-	12	Hybrid 600/600 or 600/300.
LL/143S	1946	680/340	7.9	3.9	52	23	3	-	-	7	600/300 Rep. Coil.
LL/216R	1968	150/600	6.8	27	5	23	1.1	+21dB	0.3%	14	Tertiary Rep. Coil for music circuits. Z ₃ = 75Ω.
LL/222S	1970	600/600	14.7	14.7	49	49	3.1	-	-	2	As 106S but for phasing. *
LL/231R	1972	600/600	6	6	80	80	10	-	-	15	Control Line Rep. Coil.

- Notes: 1. R1/R2 are the in/out impedances at which the Rep. Coil gives equal loss at 50Hz and 10kHz.
2. ALL BBC Rep. Coils are prefixed LL/
3. The maximum level quoted in the above table corresponds to the amount of distortion given in the next column.
4. In the case of Hybrids, the maximum level quoted is across the Primary winding.
- * 5. The output of an LL/106S is 180° out of phase with the input but an LL/222S has no phase reversal.

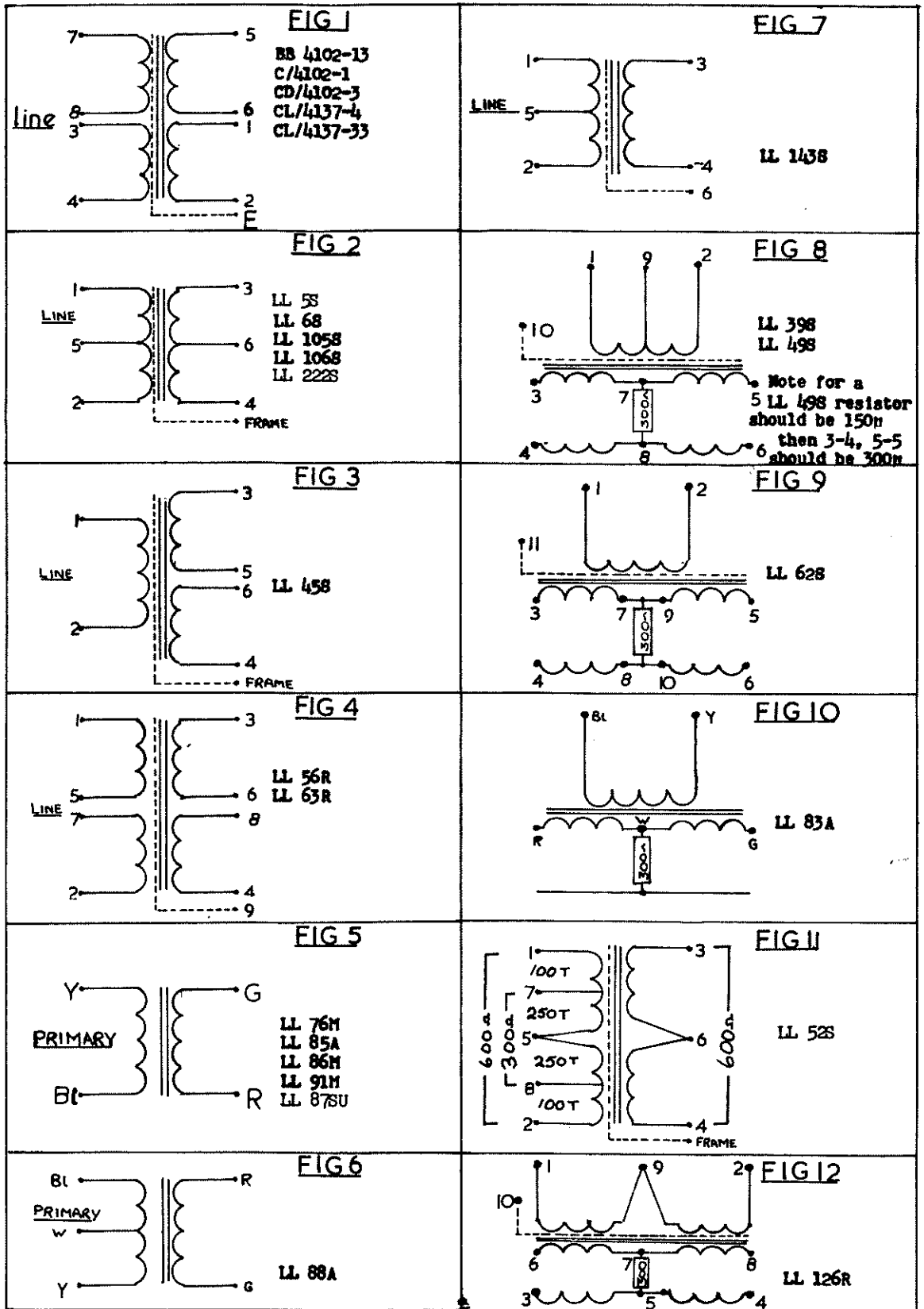


FIG 13

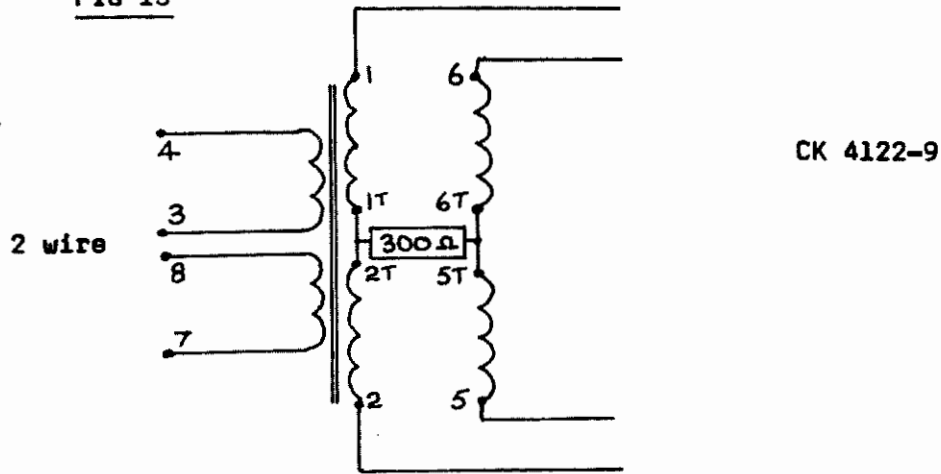


FIG 14

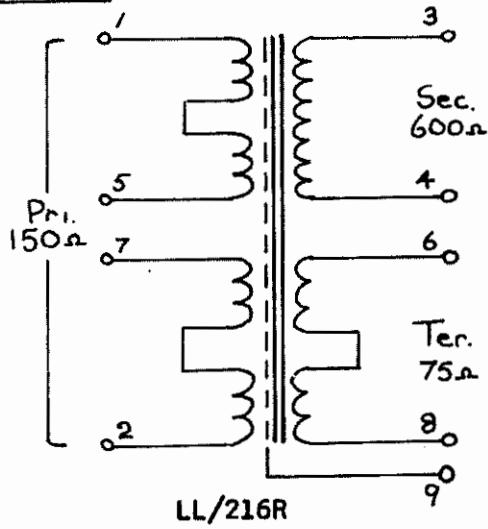
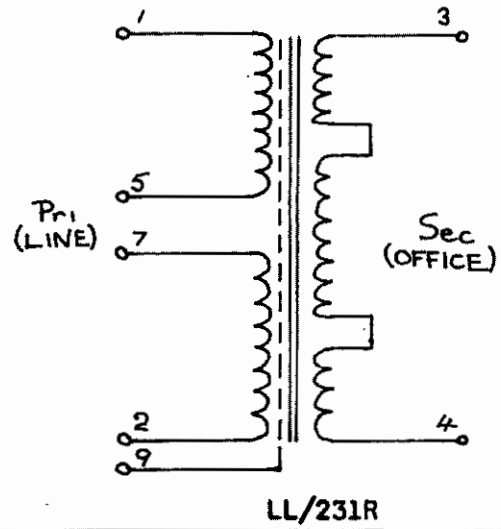


FIG 15



EXPLANATION OF TRANSFORMER LEGEND

Letters preceding the oblique stroke indicate the use of the transformer, e.g. AL = anode to line, AAG = 2 anodes to grid, AAL = 2 anodes to line, AGG = anode to 2 grids, LG = line to grid, LL = line to line.

The letters C, P, R, S, etc, following the design number indicate the size of core. Cores of twice the normal thickness are indicated by 2C, 2P, etc.

R and S size transformers are available in various assemblies and a particular assembly is denoted by a suffix letter as follows:-

R size A = Mumetal case, underside wiring
 B = Mumetal case, topside wiring
 C = Bakelite case, underside wiring
 D = Bakelite case, topside wiring
 E = Open assembly with mounting brackets, topside wiring

S size A = Mumetal case, 6 tags max, topside or underside wiring
 E = Open assembly, side mounting, 6 tags max, topside wiring
 G = Open assembly, end mounting, 6 tags max, topside wiring
 H = Open assembly, end mounting, 6 tags max, underside wiring
 K = Open assembly, end mounting, 14 tags, underside and topside wiring

 N = Mumetal case, 12 tags, topside wiring
 T = Open assembly, inverted mounting, 12 tags max
 U = Open assembly, without tagboard, for use with printed wiring
 Also applies to 2P size.

A & M size miniature transformers are available in assemblies denoted by the following suffix letters:-

 S = Mumetal can without fixing bush
 SC = Mumetal can with fixing bush
 C = Open assembly with clamp without flanges
 CF = Open assembly with clamp with flanges
 PC = Open assembly with clamp and long pins on bobbin
 for printed boards.

Post Office Line Transformers

Suffix	Impedance Ratio Line: Office	Line Impedance Range (ohms.)
G	0.133 : 1	Below 120
F	0.286 : 1	120 - 200
E	0.38 : 1	200 - 260
J	0.5 : 1	260 - 330
D	0.62 : 1	330 - 470
A	1 : 1	470 - 760
B	1.6 : 1	760 - 1100
H	2.0 : 1	1100 - 1380
C	2.6 : 1	Above 1380

The following table gives the P.O. code for the impedance ratios of the transformers they use on programme circuits. The types of circuit listed alongside each ratio are those which the P.O. indicate for normal cases. In specific instances due to plant shortage or perhaps to ease equalisation, a particular type of circuit may be fitted at one or more points with a different ratio transformer from that indicated. If, as is usual, the line winding is in two equal parts, this is indicated by a repetition of the code letter e.g. WBT-11-AA.

In general, when the P.O. use their amplifier type 135, a line transformer is not used; the amplifier being set up to provide the correct terminating impedance for the line plant in use.

CODE LETTER	IMPEDANCE RATIO (LINE: APP.)	CONSTRUCTION OF CIRCUIT ON WHICH TRANSFORMER IS TO BE USED
A	1.1	16/1.828 16/.914 22/1.828 22/.914mH/Mile 16/1.136 16/.568 22/1.136 22/.568mH/km loaded circuits.
F	0.286:1	20lb.(0.9mm) and 40lb.(1.27mm) U/L, less than 20 miles (32km) of c/ph., and short bunched pair circuits.
G	0.133:1	More than 20 miles (32km) of c/ph., normal length bunched pairs, and long distance U/L circuits of 70lb.(1.684mm) and over.
H	2:1	22/.284mH/mile) 22/.457mH/km) loaded circuits.

TYPE A is considered suitable for any circuit under 5 miles (8km) long although it is usual practice for unloaded local ends to the BBC to be fitted with TYPE F transformers where P.O. receiving or sending amplifier is fitted.