

1459

## E R T SERVICE CHART

PHILIPS EL3300

**COMPACT**, portable, twin-track battery-operated tape recorder using permanently threaded tape housed in cartridge.

**Batteries.** Five Ever Ready U11, or equivalent.

**Battery life.** 20 hours approximately.

**Tape speed.** 1½ips.

**Frequency response.** 120-6000c/s. ±3dB.

**Output.** 250mW.

**Tape cassette.** Cartridge with special ½in. tape, part number EL1903.

**Inputs.** Five-pole DIN sockets. Microphone 0.3mV across 2K. Radio/gram 225mV across 1M5.

**Outlet.** Six-pole DIN socket. Personal phone 200mV across 1K5.

**Transistors.** TR1 AC126 or AC125, TR2 AC126 or AC125, TR3 AC126 or AC125, TR4 AC126, TR5 AC128, TR6 AC128, TR7 AC126 or AC125.

**Playing time (each track).** 30 minutes.

**Rewind time.** Forward or back approximately 70 seconds.

**Tape deck.** Philips.

**Heads.** K1 record/playback, K2 erase. Twin track across ½in. tape.

**Oscillator frequency.** 33kc/s approximately.

**Microphone.** Philips EL3797/00, with remote control facility.

**Dimensions.** 7½ x 4½ x 2½in.

**Weight.** 4lb.

**Manufacturer.** Philips Electrical Ltd.

**Service department.** Amalgamated Electrical Services Ltd., Waddon Factory Estate, Croydon, Surrey. Tel.: Croydon 7722.

## DISMANTLING

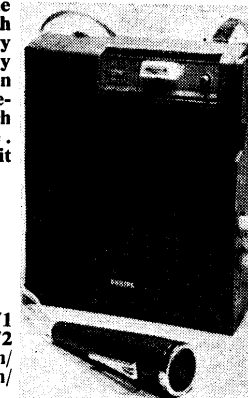
**Cabinet removal.** Remove cartridge, battery cover, batteries, lower part of case (two captive screws) and pull off tape transport knob. Withdraw the screw located between

the turntables and the four screws securing the chassis to the upper part of the case. The cabinet can now be removed. Re-assemble in the reverse order.

**Printed panel removal.** Uncase the machine as described. Remove the three screws securing the printed panel. Free the leads tied down to chassis then gently raise and turn the panel through about 90 degrees. If the main belt is removed, the chassis replaced in its case, the batteries refitted and the printed panel insulated from the chassis the recorder can be operated electrically to enable repairs to be carried out.

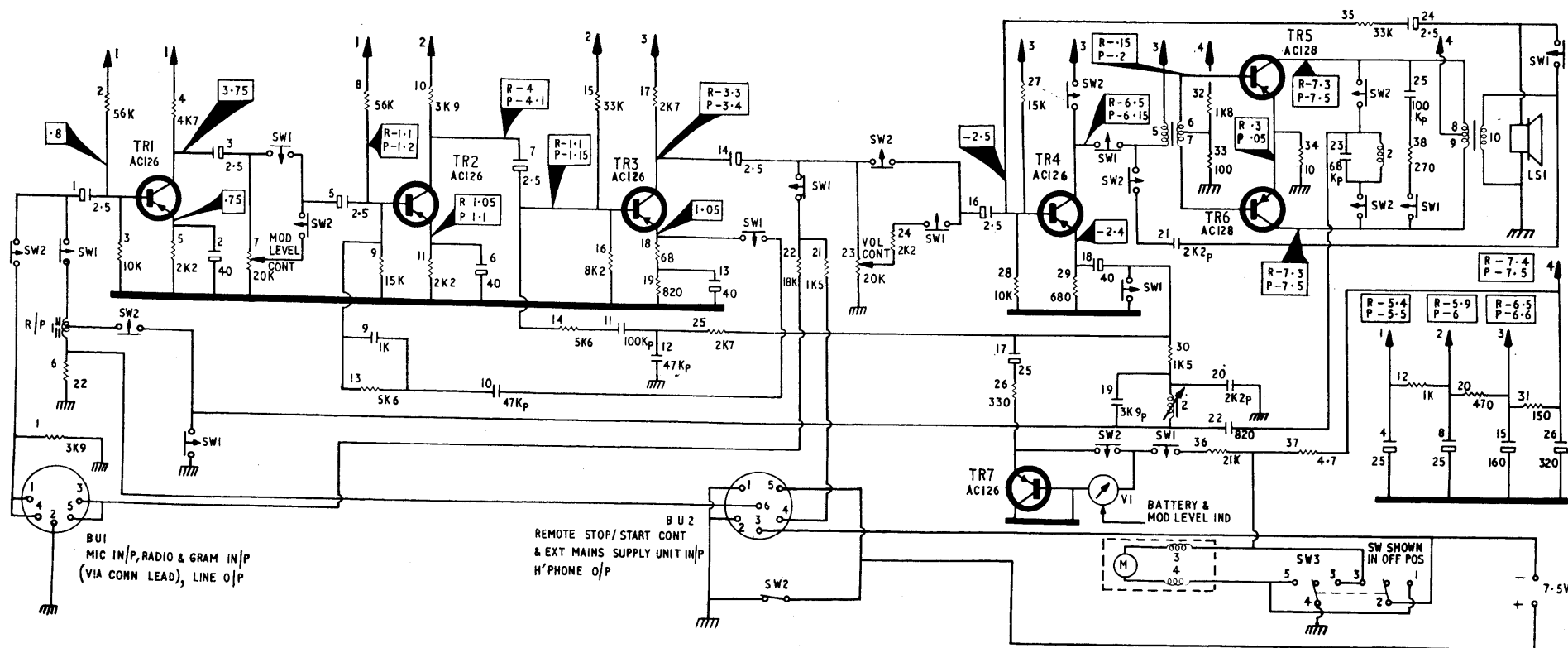
The printed panel can be removed completely by disconnecting various leads from solder posts and the switch. When refitting ensure that the end of the switch lever engages with the slider.

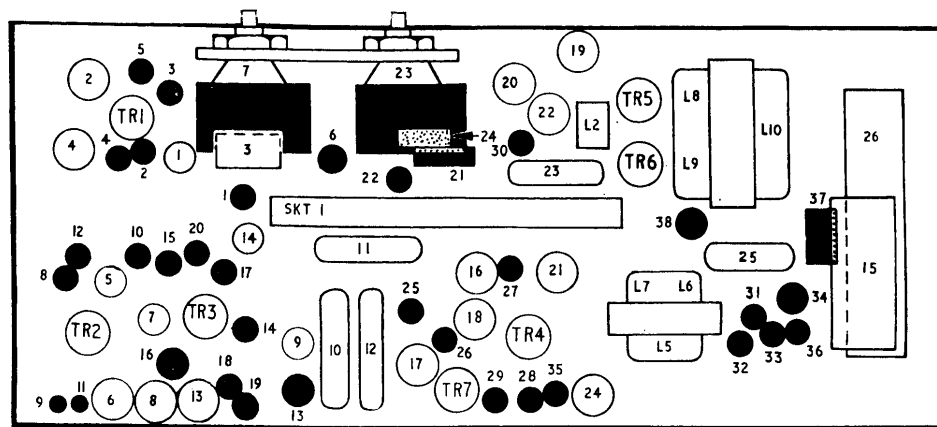
Cabinet is two-tone grey polystyrene with real leather carry case. Operation is by single push-button on recorder or from remote control switch on microphone. Mains supply unit optional extra



Switches (below). SW1 record/playback. SW2 auxiliary battery on/off, SW3 battery on/off

Continued overleaf





### SERVICE NOTES

**Replacing main drive belt.** Remove flywheel lower bearing (three screws) and the motor bottom plate (one screw). The drive belt can now be removed. Replace in the reverse order. When refitting the flywheel lower bearing ensure that the groove in the flywheel is in line with that in the motor pulley so that the belt runs parallel with the chassis.

**Cleaning heads.** Magnetic heads and capstan should be cleaned at regular intervals. Heads can be cleaned with a soft cloth wrapped around a wood stick and moistened with methylated spirits or industrial alcohol. Metal objects should not be allowed to come into contact with them.

**General cleaning.** After about six months' use, it is advisable to clean the following parts with methylated spirits or industrial alcohol. Tape guides, record and erase heads, capstan, drive belts, all friction driven surfaces, brake shoes and braking surfaces of turntables.

**Lubrication.** All machines are fully lubricated during manufacture and further attention should normally be required only after a long period of service. If this is the case, or upon replacement of any mechanical components, lubricant may be applied sparingly to the following positions. Light graphite oil to turntable spindles, guide roller, flywheel spindle, clutch pulley bearing, drive pulley spindle, guide pin at rear of tape transport arm and brake bracket stop pins.

Light grease, preferably containing graphite, may be applied to the sliding surfaces and grooves of the carriage plate assembly and the ball bearings under the assembly. Great care should be taken to avoid lubricant getting onto any driving surface.

The motor must not be lubricated as the penetration of oil between commutator and

brushes will considerably reduce its life.

**Circuit variations.** In some sets R33 is 470ohms, C15 200mF and C26 400mF. Replacements should be made with types and values as fitted.

### ELECTRICAL ADJUSTMENTS

**Azimuth adjustment.** Uncase the machine as described then replace lower part of case and battery cover to retain the batteries. Connect valve voltmeter to pins 2 and 3 of input socket. Fit pre-recorded 5kc/s test tape to machine and switch to playback. Adjust spring-loaded screw securing head for maximum output, then seal with locking paint.

**Bias adjustment.** Switch to record and turn modulation level control to minimum. There should be an AC voltage of 20mV between pins 2 and 6 of outlet socket BU2. Adjustment is effected by altering the core of S2, access to which is obtained by removing printed panel.

**Sensitivity (Playback).** Replace speaker with 30hms resistor. Apply 1kc/s signal between pins 2 and 6 of BU2 via 22K resistor. Turn volume to maximum, switch to playback and adjust input signal to give an output of 390mV measured across the 30hms resistor. Generator output voltage should be 55mV  $\pm$  2dB. Line output voltage between pins 2 and 3 of BU1 should be 40mV  $\pm$  2dB with the same input voltage.

**Sensitivity (Record).** Connect 470ohms resistor to pins 1 and 2 of BU1 and apply a 1kc/s signal via a 470K resistor to these pins. Turn modulation level control to maximum and connect an AC millivoltmeter between pins 2 and 6 of BU2. Stop the bias oscillator by connecting unearthed end of S10 to chassis. Switch to Record and adjust input signal to give reading of 4mV on the meter. Generator output voltage should be 200mV  $\pm$  2dB.

## \*CENTRALISED BUYING SAVES MONEY!

Direct TV Replacements Ltd. have developed a unique system of coding for Line Output Transformers. This enables you to order a Line Output Transformer under a code number, and it also enables you to see very quickly all the Models and Makes for which it is suitable. These items are DTV replacements for the sets mentioned. Please order by code numbers and description to avoid errors and note that prices given are net, each.

ALBA	L1707. T641.	T644.	EMERSON	L1891. E700, E701, E704	38/6
	L1707. T724FM, T741FM	47/3			
L1901.	T909	37/10	FERGUSON	L1710. 320T, 204T, 206T	46/6
L1893.	T717	37/10		L1713. 306T, 308T	38/6
BUSH	L1694. Rewind. TV53,			L1728. 305T, 307T, 315T,	61/5
	TV56, TUG58,				
	M59, TUG59,				
	TV63, TV67	50/-	FERRANTI	L1703. T1001	38/6
COSSOR	L1092. R17A, 930, 931,			L1881. T1002	38/6
	933, 934, 935, 937,			L1951. T1002/1, T1011	38/6
	938, 938A, 939FA,			L1898. T1004, T1005	38/6
	940, 943, 946	39/3	H.M.V.		
L1715.	945	42/6		L1713. 1865, 1869	38/6
L1896.	945F	42/6		L1895. 1870, 1872, 1874,	
L1715.	949	42/6		1876	61/5
DECCA	L8125. DM1, DM2/C,		MARCONI	L1713. VT153, VT155,	
	DM3, DM4,			VT156	38/6
	DM4/C, DM5,				
	DM14, 444, 555	54/5	PHILCO		
L1978.	DM55, DM45	56/10		L1840. 1000	61/5
L1972.	DM21/C	56/10		L1896. 1010	61/5
L1889.	DM22/C	56/10		L9007. 1019	61/5
DYNATRON	L1698. TV30	38/6	SOBELL		
L1951.	TV33, TV34	38/6		L1805. T21, T22	49/6
	TV35	38/6		L1805. T171	54/-
L1953.	TV38 to 45, TV41	51/-		L1801. T227, T228	38/6
	to 44	51/-		L1958. SC24, TP8180	38/-
EKO	L1098. TC208, TU209,		ULTRA		
	T209/1, T231,			L1647. V814	64/2
	T231F, TC267,			L1846. V815	64/2
	TC267/1, T284,			L1848. V817	64/2
	T293, TG3C16	38/6		L1827. V915	64/2
L1862.	T221, T283	38/6		L1825. V917	64/2
L1831.	T311, T327	38/6		L1958. 14/53, VP14/53	42/6
L1703.	T326	38/6		L1831. V1560	50/9
L1704.	TMB272	62/6		L1832. V17/50, VR17/52	40/6
L1950.	TC312, T313,			L1830. V1760, VR17/62,	
	T313F, T335	51/-		VR17/62	50/9
L1951.	T330, T330F,			L1894. V1763, V1764	60/9
	T341	38/6		L1959. V21/50, V21/52	40/6
L1953.	T344, T348F,			L1833. V21/60	50/-
	T348, T348F,				
	T356	51/-			

PROJECTION E.H.T. CAN. Standard projection E.H.T. Can completely sealed in oil with 3x5Y51 valves. Mfd. by the Mullard Co. Capable of producing 25 kv. max. current rating. \$4 nett.

### NEW CHEMICALS

#### Frost Aid

A service aid for locating thermal intermittent components. Saves hours in tracing elusive faults. If a fault or set becomes faulty when it warms up, just spray the suspected component with Frost Spray 8 oz. Aerosol Spray 18/-.

#### No Arc

High voltage insulator is used to prevent arcing and to eliminate corona shorts...with better than 20,000 volts dielectric strength.

8 oz. Aerosol Spray 23/6.

#### Tun-O-Lube

This is an activated tuner cleaner used by servicemen to clean and lubricate all types of tuners. New Formula will not affect plastic parts!

8 oz. Aerosol Spray 18/-.

complete with free flexible stainless steel needle.

## L.O.P. TRANSFORMERS AT REDUCED PRICES!

The following list of Line Output Transformers covers a wide range of older receivers. The indicated price reductions will enable you to offer a realistic service charge for many of these older models. The quality of the components is of the highest order.

Model	No.	DTV Part No.	Was	Reduced Price
Peto Scott	197A	L1461	38/6	20/-
Ferguson	958	L1227	40/6	30/-
Ferranti	1405	L1243	40/8	20/-
Ferranti	129	L1239	28/-	12/6
Baird	T39	L1044	31/6	12/6
Baird	167	L1051	38/6	15/-
Baird	172	L1052	38/6	20/-
Baird	1192	L1059	38/6	15/-
G.E.C.	BT4640	L1259	38/6	15/-
G.E.C.	BT7092	L1263	44/6	20/-
G.E.C.	BT247	L1265	29/-	15/-
H.M.V.	1803-1804	L1280	33/9	20/-
K.B.	CV40	L1335	38/6	20/-
K.B.	EV30	L1336	89/2	75/-
Murphy	V200	L1427	47/3	30/-
Peto Scott	124	L1455	38/6	20/-
Raymond	F49	L1559	38/6	12/6
Raymond	F60	L1564	38/6	12/6
Raymond	F104	L1884	38/6	35/-

### LINE OSCILLATOR TRANSFORMERS

H.M.V.	1831	P1287	17/9	10/-
Eko	TC207/1	P1701	7/8	3/-
Pye	177/C817	P1747	14/6	9/-

### FRAME OSCILLATOR TRANSFORMERS

Philips	2337A	O1489	15/-	9/6
H.M.V.	1847	O1288	12/6	9/6

NOTE.—We have stocks of all the popular Eko, Ferranti, Dynatron Line Output Transformers.

The above are only a few examples of LINE OUTPUT TRANSFORMERS selected from our comprehensive ranges of Replacement Components of all types. Ask for Free Data Charts.

For same day service  
phone before 3 p.m.

# GIP 6166 (PBX)

Day and Night Ansafone Service

TERMS OF BUSINESS: C.W.O., C.O.D., or Monthly Deposit Account. On prepaid orders please add postage as follows: up to £1, 2/6 (C.O.D. 4/8); Up to £5, 3/6 (C.O.D. 6/4); Up to £10, 5/- (C.O.D. 8/8) (C.O.D. Charges include postage); Over £10, no postage (C.O.D. 3/8).

direct TV Replacements LTD.

A Member of the DTV Group of Companies

Dept. E.R.T., 126 HAMILTON ROAD,  
WEST NORWOOD, LONDON, S.E.27