ATTENTION:

If the instrument is open, it is very sensitive as to hum, so it is necessary to make a screen arrangement connected to ground on the measuring instruments used for servicing.

1.1. DC Converter

FUNCTION SEL.: "Batt."

The scale deflection should be within the red battery area.

The DC voltage on V 15 collector (red wire on T 1) should be 1.1-1.6 V negative depended on the battery condition.

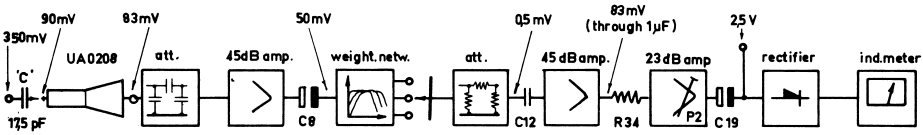
The frequency on the wire of T 1 (primary) is approx. 120 kHz when the converter is working normally.

The DC voltage on: V 16 collector is 32-50 V again depended on the battery.
V 16 emitter must be 28 V $\pm$1.5 V.

To control and adjust the setting of P 4 it is necessary to use a variable 1.5 V supply instead of the battery. Decrease the supply voltage until 28 V (on V 16 emitter) drops (at approx. 1.1 V) and check if the scale deflection is 0.2 dB below the lower red battery area.

If not adjust P 4.

Sensitivities for full scale deflection (P 2 max.sens.)



1.2. Acoustical Calibration

FUNC. SEL.: "Fast"
ATTENUATOR: "120 dB"

If a Pistonphone type 4220 is available check the sensitivity of Sound Level Meter and Microphone and adjust P 2 "Sensitivity Adjustment" to a deflection corresponding to the sound pressure from the pistonphone.

If the adjustment range of P 2 is too narrow check item 1.3.

1.3. Sensitivity

Adjust P 2 only if a pistonphone is available for acoustical calibration after repair.

FUNC. SEL.: "Fast"
ATTENUATOR: "120 dB"

a. 2205: Input signal: 83 m V, 1000 Hz
check regulation range of P 2
P 2 fully anticlockwise, deflection on Type 2205: Min 10 dB
P 2 fully clockwise , " " " " : Max 0 dB

b. 2206: Input signal: 90 m V, 1000 Hz
(UA 0208) check regulation range as under item "a".

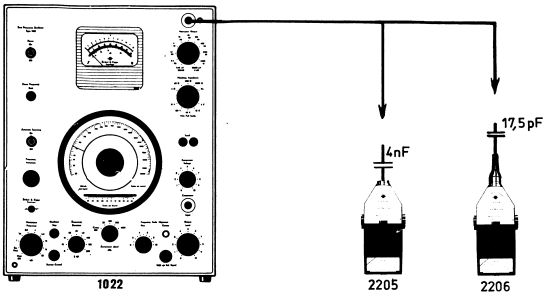
1.4. Input Impedance

2205: 10 MΩ

2206: 2000 MΩ // 45 pF

These impedances are difficult to measure unless an oscillator down to 0,5 Hz is available, but in order to check that the input impedance is high enough, the frequency response (item 1.5) should be controlled with the shown capacitors connected in series with the instruments.

continued



1.5. Frequency Response

FUNCTION SEL.: "Fast"
ATTENUATOR: "120 dB"

Adjust an input signal of 1000 Hz to give a 8 dB deflection on type 2205.

Check the A, B and C curves according to the table below.

Frequency Hz	Att. dB	Curve A	Att. dB	Curve B	Att. dB	Curve C
10	60	-9.0-0.1	90	-7.0-2.3	110	-2.0-6.2
20	70	5.5-9.5	100	1.8-5.8	120	-0.2-3.8
30	80	6.4-8.4	110	0.8-1.2	120	3.7-5.7
60	100	0.2-1.8	110	7.4-9.0	120	6.3-7.9
125	110	1.4-2.4	120	3.3-4.3	120	7.3-8.3
250	110	8.9-9.9	120	6.2-7.2	120	7.5-8.5
500	120	4.3-5.2	120	7.2-8.2	120	7.5-8.5
1000	120	7.9-8.1	120	7.9-8.1	120	7.9-8.1
2500	120	8.9-9.7	120	7.4-8.2	120	7.3-8.1
5000	120	8.0-9.0	120	6.3-7.3	120	6.2-7.2
10000	120	4.7-6.3	120	2.9-4.5	120	2.8-4.4
16000	120	0.4-2.4	120	-1.4-0.6	120	-1.5-0.5
20000	110	7.2-10.2	110	5.4-8.4	110	5.3-8.3

1.6. Output Impedance

FUNCTION SEL.: "Fast"
ATTENUATOR: "120 dB"

Adjust an input signal of 1000 Hz to a full scale deflection on type 2205.

Load the output socket with a resistor of 5 kΩ.

Deflection on type 2205: 9.8-10 dB.

1.7. Attenuator

a. FUNC. SEL.: "Fast"
ATT.: "120 dB"

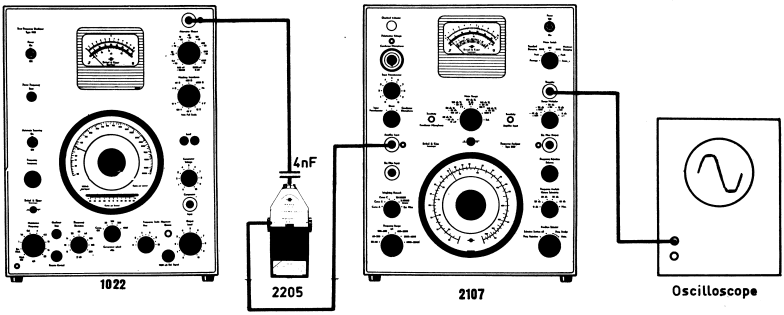
Adjust the input signal of 1000 Hz to give an 8 dB deflection on type 2205.

b. ATT.: "120-30 dB"

Compare all attenuator steps with a well known attenuator. The tolerance is 0.2 dB (tolerance of 1022: 0.2 dB).

c. +10 dB: "Pressed"

The sensitivity should decrease 10 dB $\pm$0.2 dB.



1.8. Max. Output Voltage

FUNCTION SEL.: "Fast"
ATTENUATOR: "120 dB"

Input frequency: 1000 Hz. Adjust the output voltage from type 1022 until the output of type 2205 is limitted at the top and bottom of the sine wave (approx. output from type 1022: 0.5 V).

This limitation should start at the same time at the top and bottom.

If not adjust P 3 to a symmetrical limitation.

Check that it is possible to obtain an output voltage of 8 V before the signal is limitted.

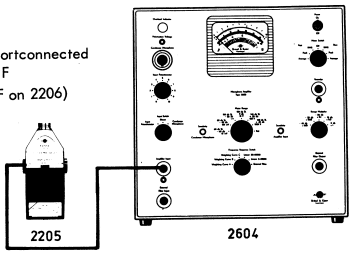
1.9. Distortion

FUNCTION SEL.: "Fast"
ATTENUATOR: "120 dB"

Input Frequency: 1000 Hz. Adjust the output voltage from type 1022 for full scale deflection on type 2205.

Switch ATTENUATOR to "110 dB" and measure the distortion: max. 0,5%.

Input shortconnected with 4 nF
(17,5 pF on 2206)



1.10. Noise

FUNCTION SEL.: "Fast"
ATTENUATOR: "30 dB"
WEIGHTING NETWORK: "A"

Shortconnect the input with a capacitor of 4 nF. (17,5 pF on 2206)

Measure the converter signal (approx. 120 kHz) across R 32 (printed circuit XC 0383) max. 1 V.

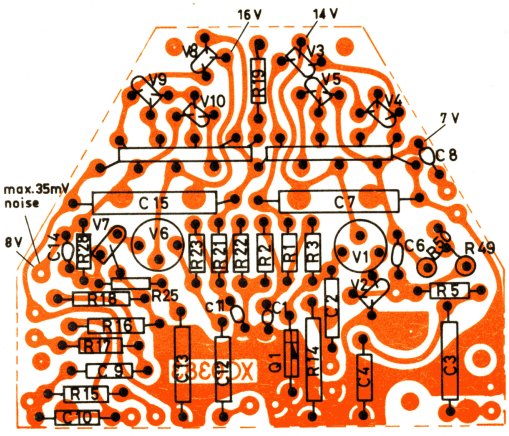
The noise on the output should be max. 0.6 V (1.1 V on 2206) corresponding to - 3 dB (+2 dB on 2206) deflection on the meter.

ATTENUATOR to "70 dB"

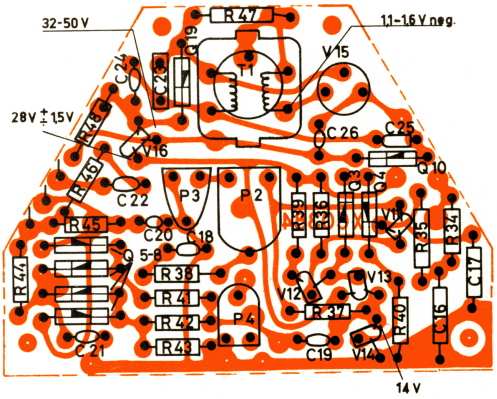
Noise on the output socket: Max. 18 mV.

Position of Components

valid from serial no. 239739

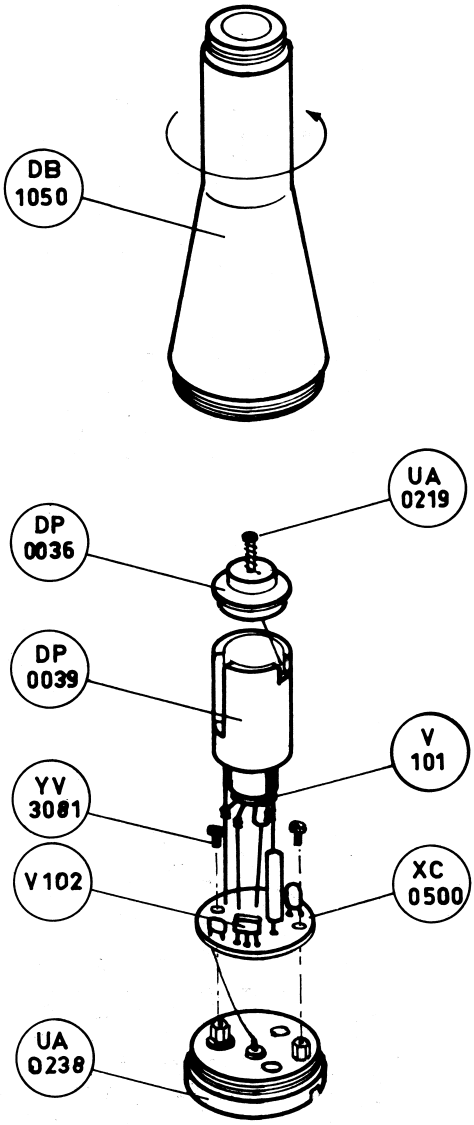


XC 0383

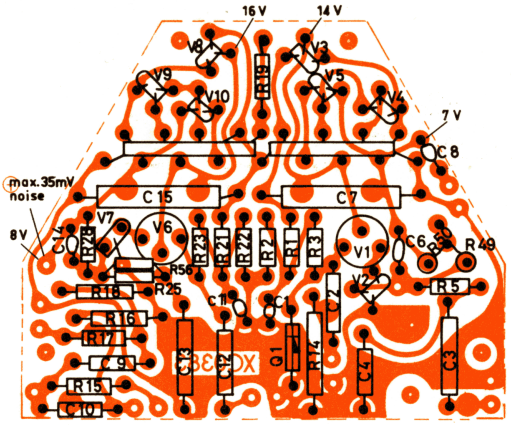


XC 0384

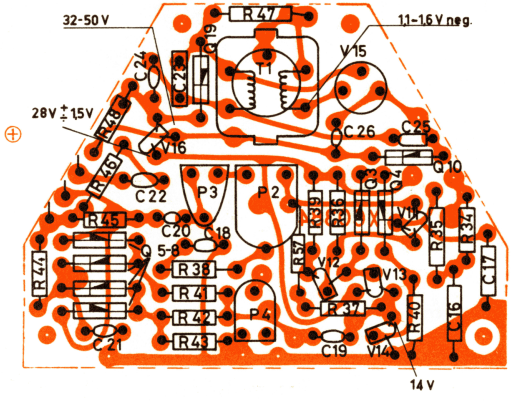
continued



Exploded view

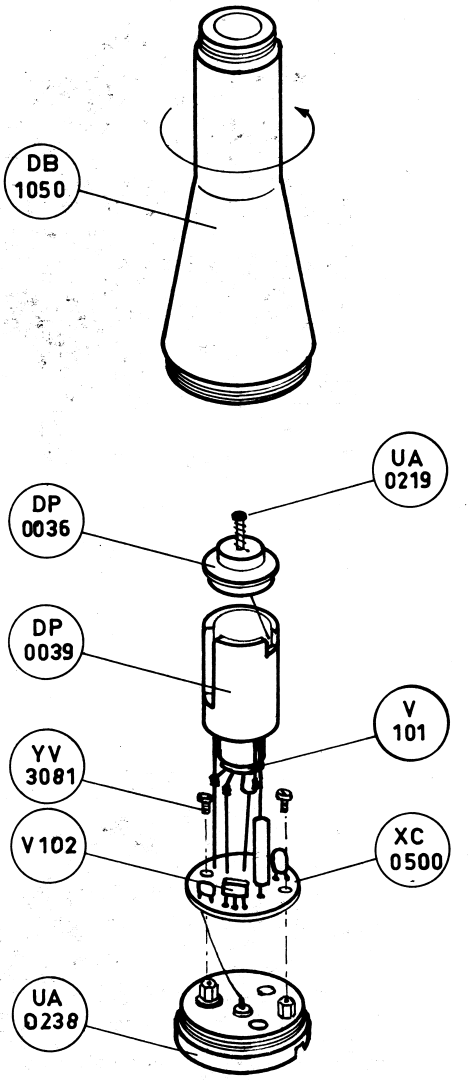


XC 0383



XC 0384

continued



Exploded view

Preamplifier UA 0208

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
CAPACITORS:					
C 1	Tantalum		1.5 µF/ 35 V	CF	0008
C 2	Polyester		47 nF/250 V	CS	0401
C 3	Electrolytic		12.5 µF/ 25 V	CE	0416
C 4	Polyester		0.1 µF/250 V	CS	0044
C 6	Ceramic		3.9 pF/400 V	CK	0390
C 7	Electronic		50 µF/ 25 V	CE	8965
C 8	Tantalum		1.5 µF/ 35 V	CF	0008
C 9,10	Polyester		15 nF/250 V	CS	0045
C 11	Tantalum		1.5 µF/ 35 V	CF	0008
C 12	Polystyrene		820 pF/ 63 V	CT	1532
C 13	Tantalum		4.7 µF/ 10 V	CF	0021
C 14	Ceramic		1 pF/400 V	CK	0100
C 15	Electrolytic		50 µF/ 25 V	CE	8965
C 16	Polystyrene		390 pF/ 63 V	CT	1531
C 17	"		50 pF/ 63 V	CT	1530
C 18	Tantalum		15 µF/ 20 V	CF	0010
C 19	"		6.8 µF/ 35 V	CF	0009
C 20,21	"		3.3 µF/ 20 V	CF	0014
C 22	"		68 µF/ 3 V	CF	0011
C 23	Ceramic		470 pF/400 V	CK	2470
C 24	"		5 nF/100 V	CK	0096
C 25	"		8.2 nF/ 40 V	CK	3820
C 26	Tantalum		1.5 µF/ 35 V	CF	0008
C 31	Polystyrene	1%	143.2 pF/ 63 V	CT	1533
C 32	"	"	425 pF/ 63 V	CT	1534
C 33,34	"	"	4 nF/ 63 V	CT	1536

RESISTORS:						
R 1	Carbon	1/5 W	10%	1.5 MΩ	RA	0027
R 2	"	"	"	820 kΩ	RA	0028
R 3	"	"	"	10 MΩ	RA	0025
R 5	Metal	1/4 W	1%	2.05 kΩ	RF	3205
R 8	Carbon	1/5 W	10%	4.7 MΩ	RA	0004
R 14	"	1/4 W	"	100 MΩ	RH	0004
R 15	Metal	"	1%	38.3 kΩ	RF	4383
R 16	Carbon	"	5%	330 kΩ	RB	5330
R 17	Metal	"	1%	36.5 kΩ	RF	4365
R 18	"	"	"	107 kΩ	RF	5107
R 19	Carbon	1/5 W	10%	3.3 kΩ	RA	0005
R 21	"	"	"	1.5 MΩ	RA	0027
R 22	"	"	"	820 kΩ	RA	0028
R 23	"	"	"	10 MΩ	RA	0025
R 25	"	"	"	1.5 kΩ	RA	0031
R 28	"	"	"	390 kΩ	RA	0032
R 34	Metal	1/4 W	1%	33.2 kΩ	RF	4332
R 35	"	"	"	221 kΩ	RF	5221
R 36	Carbon	"	5%	15 kΩ	RB	4150
R 37	Metal	"	1%	82.5 kΩ	RF	4825
R 38	Carbon	"	5%	3.3 kΩ	RB	3330
R 39	"	"	"	1 kΩ	RB	3100
R 40	"	"	"	82 kΩ	RB	4820
R 41	Metal	"	1%	10 kΩ	RF	4100
R 42	"	"	"	8.25 kΩ	RF	3825
R 43	"	"	"	3.92 kΩ	RF	3392
R 44	"	"	"	33.2 kΩ	RF	4332
R 45	"	"	"	31.6 kΩ	RF	4316
R 46	Carbon	"	5%	2.7 kΩ	RB	3270
R 47	"	"	"	100 kΩ	RB	5100
R 48	"	"	"	150 kΩ	RB	5150
R 51	Metal	"	1%	100 kΩ	RF	5100
R 52	"	"	"	31.6 kΩ	RF	4316
R 53	"	"	"	10 kΩ	RF	4100
R 54	"	"	"	3.16 kΩ	RF	3316
R 55	"	"	"	1.47 kΩ	RF	3147

CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
SPEC. RESISTORS:				
R 4,6-7	Thin Film Circuit			RZ 1000
R 9-13	"			RZ 1000
R 24,26-27	"			RZ 1000
R 29-33	"			RZ 1000
POTENTIOMETERS:				
P 2	Sensitivity	Adj.	10 kΩ lin.	PG 3103
P 3	Max. Output	"	100 kΩ "	PG 4106
P 4	Battery Ind.	"	50 kΩ "	PG 3507
SEMICONDUCTORS:				
V 1	N-Channel FET		2N 4302	VB 2045
V 2	PNP Silicon transistor		2N 4289	VB 0049
V 3,4	NPN "	"	2N 4287	VB 0055
V 5	PNP "	"	2N 4289	VB 0049
V 6	N-Channel FET		2N 4302	VB 0045
V 7	PNP Silicon transistor		2N 4289	VB 0049
V 8,9	NPN "	"	2N 4287	VB 0055
V 10	PNP "	"	2N 4289	VB 0049
V 11	NPN "	"	2N 4287	VB 0055
V 12	PNP "	"	2N 4289	VB 0049
V 13	NPN "	"	2N 4287	VB 0055
V 14	PNP "	"	2N 4289	VB 0049
V 15	PNP Germanium trans.		2N 2374	VB 3022
V 16	NPN Silicon transistor		2N 4287	VB 0055
Q 1	Silicon diode		300 V/200 mA	QV 0209
Q 3,4	"		300 V/200 mA	QV 0209
Q 5-8	Germanium diode		10 V/ 30 mA	QV 0100
Q 9	"	"	100 V/ 30 mA	QV 0099
Q 10	Zener	"	28.5 V/ 10 mA	QV 1108
SWITCHES:				
O 1	Attenuator			OP 2205
O 2	+10 dB			NT 0201
O 3	Weighting Network			NN 0018
O 4	Function Selector			OQ 2205
PRINTED CIRCUITS:				
	45 dB Amplifier			XC 0383
	DC Conv., Meter Circuit, Outp.Amp.			XC 0384
	Attenuator Circuit			XC 0414
	Weighting Network Switch			XC 0416
	XC 0383 with components			ZE 0021
	XC 0384 "			ZZ 0002
	XC 0414 "			RZ 0001
MISCELLANEOUS:				
	Battery 1.5 V			QB 0009
	Lid for battery container			DD 0068
T 1	Coil for DC converter			LB 0633
	Front Housing for 2205			DD 0067
	" " fastening disc			DB 0952
	Insulating ring for do			YJ 0363
	Knob for Attenuator			SN 0710
	" " Func. Sel.			SN 0711
	Pushbutton for +10 dB			SN 0020
I	Moving coil instrument (50 µA)			IM 0010
	Housing for do			IL 0189
	Nylon box			KE 0060
	Rubber covered bottom plate			GU 0498
	Screw for do			DB 0981
	Wrist-strap			DH 0128
	Pistol-grip handle			DH 0129
	Ceramic Microphone			4117

continued

PRECISION SOUND LEVEL METER 2206

CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
CAPACITORS:				
C 101	Polystyrol	1 nF/ 63 V	CT	1132
C 102	"	45 pF/ 63 V	CT	1538
C 103	Tantalum	3.3 µF/ 16 V	CF	0014
C 104	Polyester	10 nF/250 V	CS	0553
C 105	Tantalum	3.3 µF/ 16 V	CF	0014
C 106	"	45 µF/ 30 V	CF	0020
C 107	Ceramic	4.7 nF/100 V	CK	0096
TRANSISTORS:				
V 101	N - Channel FET	2N 3821	VB	1001
V 102	Silicon PNP	2N 4289	VB	0049

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
RESISTORS:					
R 101	Carbon Film	1/4 W	10%	200 MΩ	RH 0005
R 102,103	Carbon "	"	"	40 MΩ	RH 0003
R 104	" "	"	"	200 MΩ	RH 0005
R 105	Metal "	"	1%	9.76kΩ	RF 3967
R 106	" "	"	"	26.7kΩ	RF 4267
R 107	Carbon "	"	10%	200 MΩ	RH 0005
R 108	" "	1/8 W	"	47 kΩ	RA 0011
MISCELLANEOUS:					
	Front Housing for 2206				DD 0077
	Teflon Insulator for Socket				DP 0036
	Teflon Mounting Base				DP 0039
	Preamplifier				UA 0208
	Condenser Microphone				4148

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
CAPACITORS:					
C 1	Tantalum		1.5 µF/ 35 V	CF	0008
C 2	Polyester		47 nF/250 V	CS	0401
C 3	Electrolytic		12.5 µF/ 25 V	CE	0416
C 4	Polyester		0.1 µF/250 V	CS	0044
C 6	Ceramic		3.9 pF/400 V	CK	0390
C 7	Electronic		50 µF/ 25 V	CE	8965
C 8	Tantalum		1.5 µF/ 35 V	CF	0008
C 9,10	Polyester		15 nF/250 V	CS	0045
C 11	Tantalum		1.5 µF/ 35 V	CF	0008
C 12	Polystyrene		820 pF/ 63 V	CT	1532
C 13	Tantalum		4.7 µF/ 10 V	CF	0021
C 14	Ceramic		1 pF/400 V	CK	0100
C 15	Electrolytic		50 µF/ 25 V	CE	8965
C 16	Polystyrene		390 pF/ 63 V	CT	1531
C 17	"		50 pF/ 63 V	CT	1530
C 18	Tantalum		15 µF/ 20 V	CF	0010
C 19	"		6.8 µF/ 35 V	CF	0009
C 20,21	"		3.3 µF/ 20 V	CF	0014
C 22	"		68 µF/ 3 V	CF	0011
C 23	Ceramic		470 pF/400 V	CK	2470
C 24	"		5 nF/100 V	CK	0096
C 25	"		8.2 nF/ 40 V	CK	3820
C 26	Tantalum		1.5 µF/ 35 V	CF	0008
C 31	Polystyrene	1%	143.2 pF/ 63 V	CT	1533
C 32	"	"	425 pF/ 63 V	CT	1534
C 33,34	"	"	4 nF/ 63 V	CT	1536
RESISTORS:					
R 1	Carbon	1/5 W 10%	1.5 MΩ	RA	0027
R 2	"	" "	820 kΩ	RA	0028
R 3	"	" "	10 MΩ	RA	0025
R 5	Metal	1/4 W 1%	2.05 kΩ	RF	3205
R 8	Carbon	1/5 W 10%	4.7 MΩ	RA	0004
R 14	"	1/4 W "	100 MΩ	RH	0004
R 15	Metal	" 1%	38.3 kΩ	RF	4383
R 16	Carbon	" 5%	330 kΩ	RB	5330
R 17	Metal	" 1%	36.5 kΩ	RF	4365
R 18	"	" "	107 kΩ	RF	5107
R 19	Carbon	1/5 W 10%	3.3 kΩ	RA	0005
R 21	"	" "	1.5 MΩ	RA	0027
R 22	"	" "	820 kΩ	RA	0028
R 23	"	" "	10 MΩ	RA	0025
R 25	"	" "	1.5 kΩ	RA	0031
R 28	"	" "	390 kΩ	RA	0032
R 34	Metal	1/4 W 1%	33.2 kΩ	RF	4332
R 35	"	" "	221 kΩ	RF	5221
R 36	Carbon	" 5%	15 kΩ	RB	4150
R 37	Metal	" 1%	82.5 kΩ	RF	4825
R 38	Carbon	" 5%	3.3 kΩ	RB	3330
R 39	"	" "	1 kΩ	RB	3100
R 40	"	" "	82 kΩ	RB	4820
R 41	Metal	" 1%	10 kΩ	RF	4100
R 42	"	" "	8.25 kΩ	RF	3825
R 43	"	" "	3.92 kΩ	RF	3392
R 44	"	" "	33.2 kΩ	RF	4332
R 45	"	" "	31.6 kΩ	RF	4316
R 46	Carbon	" 5%	2.7 kΩ	RB	3270
R 47	"	" "	100 kΩ	RB	5100
R 48	"	" "	150 kΩ	RB	5150
R 51	Metal	" 1%	100 kΩ	RF	5100
R 52	"	" "	31.6 kΩ	RF	4316
R 53	"	" "	10 kΩ	RF	4100
R 54	"	" "	3.16 kΩ	RF	3316
R 55	"	" "	1.47 kΩ	RF	3147

CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.
SPEC. RESISTORS:			
R 4,6-7	Thin Film Circuit		RZ 1000
R 9-13	"		RZ 1000
R 24,26-27	"		RZ 1000
R 29-33	"		RZ 1000
POTENTIOMETERS:			
P 2	Sensitivity Adj.	10 kΩ lin.	PG 3103
P 3	Max. Output "	100 kΩ "	PG 4106
P 4	Battery Ind. "	50 kΩ "	PG 3507
SEMICONDUCTORS:			
V 1	N-Channel FET	2N 4302	VB 2045
V 2	PNP Silicon transistor	2N 4289	VB 0049
V 3,4	NPN " "	2N 4287	VB 0055
V 5	PNP " "	2N 4289	VB 0049
V 6	N-Channel FET	2N 4302	VB 0045
V 7	PNP Silicon transistor	2N 4289	VB 0049
V 8,9	NPN " "	2N 4287	VB 0055
V 10	PNP " "	2N 4289	VB 0049
V 11	NPN " "	2N 4287	VB 0055
V 12	PNP " "	2N 4289	VB 0049
V 13	NPN " "	2N 4287	VB 0055
V 14	PNP " "	2N 4289	VB 0049
V 15	PNP Germanium trans.	2N 2374	VB 3022
V 16	NPN Silicon transistor	2N 4287	VB 0055
Q 1	Silicon diode	300 V/200 mA	QV 0209
Q 3,4	"	300 V/200 mA	QV 0209
Q 5-8	Germanium diode	10 V/ 30 mA	QV 0100
Q 9	" "	100 V/ 30 mA	QV 0099
Q 10	Zener "	28.5 V/ 10 mA	QV 1108
SWITCHES:			
O 1	Attenuator		OP 2205
O 2	+10 dB		NT 0201
O 3	Weighting Network		NN 0018
O 4	Function Selector		OQ 2205
PRINTED CIRCUITS:			
	45 dB Amplifier		XC 0383
	DC Conv$_e$, Meter Circuit, Outp.Amp.		XC 0384
	Attenuator Circuit		XC 0414
	Weighting Network Switch		XC 0416
	XC 0383 with components		ZE 0021
	XC 0384 "		ZZ 0002
	XC 0414 "		RZ 0001
MISCELLANEOUS:			
	Battery 1.5 V		QB 0009
	Lid for battery container		DD 0068
T 1	Coil for DC converter		LB 0633
	Front Housing for 2205		DD 0067
	" " fastening disc		DB 0952
	Insulating ring for do		YJ 0363
	Knob for Attenuator		SN 0710
	" " Func. Sel.		SN 0711
	Pushbutton for +10 dB		SN 0020
I	Moving coil instrument (50 µA)		IM 0010
	Housing for do		IL 0189
	Nylon box		KE 0060
	Rubber covered bottom plate		GU 0498
	Screw for do		DB 0981
	Wrist-strap		DH 0128
	Pistol-grip handle		DH 0129
	Ceramic Microphone		4117

continued

PRECISION SOUND LEVEL METER 2206

CAPACITORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.
C 101	Polystyrol	1 nF/ 63 V	CT 1132
C 102	"	45 pF/ 63 V	CT 1538
C 103	Tantalum	3.3 µF/ 16 V	CF 0014
C 104	Polyester	10 nF/250 V	CS 0553
C 105	Tantalum	3.3 µF/ 16 V	CF 0014
C 106	"	45 µF/ 30 V	CF 0020
C 107	Ceramic	4.7 nF/100 V	CK 0096

TRANSISTORS:

V 101	N - Channel	FET	2N 3821	VB 1001
V 102	Silicon	PNP	2N 4289	VB 0049

RESISTORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
R 101	Carbon Film	1/4 W	10%	200 MΩ	RH 0005
R 102,103	Carbon	"	"	40 MΩ	RH 0003
R 104	"	"	"	200 MΩ	RH 0005
R 105	Metal	"	1%	9.76kΩ	RF 3967
R 106	"	"	"	26.7kΩ	RF 4267
R 107	Carbon	"	10%	200 MΩ	RH 0005
R 108	"	1/8 W	"	47 kΩ	RA 0011

MISCELLANEOUS:

Front Housing for 2206	DD 0077
Teflon Insulator for Socket	DP 0036
Teflon Mounting Base	DP 0039
Preamplifier	UA 0208
Condenser Microphone	4148

CAPACITORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
C 1	Tantalum			1.5 µF/ 35 V	CF 0008
C 2	Polyester			47 nF/250 V	CS 0401
C 3	Electrolytic			12.5 µF/ 25 V	CE 0416
C 4	Polyester			0.1 µF/250 V	CS 0044
C 6	Ceramic			3.9 pF/400 V	CK 0390
C 7	Electronic			50 µF/ 25 V	CE 8965
C 8	Tantalum			1.5 µF/ 35 V	CF 0008
C 9,10	Polyester			15 nF/250 V	CS 0045
C 11	Tantalum			1.5 µF/ 35 V	CF 0008
C 12	Polystyrene			820 pF/ 63 V	CT 1532
C 13	Tantalum			4.7 µF/ 10 V	CF 0021
C 14	Ceramic			1 pF/400 V	CK 0100
C 15	Electrolytic			50 µF/ 25 V	CE 8965
C 16	Polystyrene			390 pF/ 63 V	CT 1531
C 17	"			50 pF/ 63 V	CT 1530
C 18	Tantalum			15 µF/ 20 V	CF 0010
C 19	"			6.8 µF/ 35 V	CF 0009
C 20,21	"			3.3 µF/ 20 V	CF 0014
C 22	"			68 µF/ 3 V	CF 0011
C 23	Ceramic			470 pF/400 V	CK 2470
C 24	"			5 nF/100 V	CK 0096
C 25	"			8.2 nF/ 40 V	CK 3820
C 26	Tantalum			1.5 µF/ 35 V	CF 0008
C 31	Polystyrene		1%	143.2 pF/ 63 V	CT 1533
C 32	"	"		425 pF/ 63 V	CT 1534
C 33,34	"	"		4 nF/ 63 V	CT 1536

RESISTORS:

R 1	Carbon	1/5 W	10%	1.5 MΩ	RA	0027
R 2	"	"	"	820 kΩ	RA	0028
R 3	"	"	"	10 MΩ	RA	0025
R 5	Metal	1/4 W	1%	2.05 kΩ	RF	3205
R 8	Carbon	1/5 W	10%	4.7 MΩ	RA	0004
R 14	"	1/4 W	"	100 MΩ	RH	0004
R 15	Metal	"	1%	38.3 kΩ	RF	4383
R 16	Carbon	"	5%	330 kΩ	RB	5330
R 17	Metal	"	1%	36.5 kΩ	RF	4365
R 18	"	"	"	107 kΩ	RF	5107
R 19	Carbon	1/5 W	10%	3.3 kΩ	RA	0005
R 21	"	"	"	1.5 MΩ	RA	0027
R 22	"	"	"	820 kΩ	RA	0028
R 23	"	"	"	10 MΩ	RA	0025
R 25	"	"	"	1.5 kΩ	RA	0026
R 28	"	"	"	390 kΩ	RA	0032
R 34	Metal	1/4 W	1%	33.2 kΩ	RF	4332
R 35	"	"	"	221 kΩ	RF	5221
R 36	Carbon	"	5%	15 kΩ	RB	4150
R 37	Metal	"	1%	82.5 kΩ	RF	4825
R 38	Carbon	"	5%	3.3 kΩ	RB	3330
R 39	"	"	"	1 kΩ	RB	3100
R 40	"	"	"	82 kΩ	RB	4820
R 41	Metal	"	1%	10 kΩ	RF	4100
R 42	"	"	"	8.25 kΩ	RF	3825
R 43	"	"	"	3.92 kΩ	RF	3392
R 44	"	"	"	33.2 kΩ	RF	4332
R 45	"	"	"	31.6 kΩ	RF	4316
R 46	Carbon	"	5%	2.7 kΩ	RB	3270
R 47	"	"	"	100 kΩ	RB	5100
R 48	"	"	"	150 kΩ	RB	5150
R 51	Metal	"	1%	100 kΩ	RF	5100
R 52	"	"	"	31.6 kΩ	RF	4316
R 53	"	"	"	10 kΩ	RF	4100
R 54	"	"	"	3.16 kΩ	RF	3316
R 55	"	"	"	1.47 kΩ	RF	3147
R 56	NTC	Resistor		47 kΩ	RN	0001
R 57	"	"		500 Ω	RN	0006

SPEC. RESISTORS:

R 4,6-7	Thin Film Circuit	RZ	1000
R 9-13	"	RZ	1000
R 24,26-27	"	RZ	1000
R 29-33	"	RZ	1000

POTENTIOMETERS:

P 2	Sensitivity Adj.	10 kΩ lin.	PG	3103
P 3	Max. Output "	100 kΩ "	PG	4106
P 4	Battery Ind. "	50 kΩ "	PG	3507

SEMICONDUCTORS:

V 1	N-Channel FET	2N 4302	VB	2045
V 2	PNP Silicon transistor	2N 4289	VB	0049
V 3,4	NPN " "	2N 4287	VB	0055
V 5	PNP " "	2N 4289	VB	0049
V 6	N-Channel FET	2N 4302	VB	0045
V 7	PNP Silicon transistor	2N 4289	VB	0049
V 8,9	NPN " "	2N 4287	VB	0055
V 10	PNP " "	2N 4289	VB	0049
V 11	NPN " "	2N 4287	VB	0055
V 12	PNP " "	2N 4289	VB	0049
V 13	NPN " "	2N 4287	VB	0055
V 14	PNP " "	2N 4289	VB	0049
V 15	PNP Germanium trans.	ASY 80	VB	0070
V 16	NPN Silicon transistor	2N 4287	VB	0055
Q 1	Silicon diode	300 V/200 mA	QV	0209
Q 3,4	"	300 V/200 mA	QV	0209
Q 5-8	Germanium diode	10 V/ 30 mA	QV	0100
Q 9	" "	100 V/ 30 mA	QV	0099
Q 10	Zener "	28.5 V/ 10 mA	QV	1108

SWITCHES:

O 1	Attenuator	OP	2205
O 2	+10 dB	NT	0201
O 3	Weighting Network	NN	0018
O 4	Function Selector	OQ	2205

PRINTED CIRCUITS:

	45 dB Amplifier	XC	0383
	DC Conv., Meter Circuit, Outp.Amp.	XC	0384
	Attenuator Circuit	XC	0414
	Weighting Network Switch	XC	0416
	XC 0383 with components	ZE	0021
	XC 0384 "	ZZ	0002
	XC 0414 "	RZ	0001

MISCELLANEOUS:

	Battery 1.5 V	QB	0009
	Lid for battery container	DD	0068
T 1	Coil for DC converter	LB	0633
	Front Housing for 2205	DD	0067
	" " fastening disc	DB	0952
	Insulating ring for do	YJ	0363
	Knob for Attenuator	SN	0710
	" " Func. Sel.	SN	0711
	Pushbutton for +10 dB	SN	0020
I	Moving coil instrument (50 µA)	IM	0010
	Housing for do	IL	0189
	Nylon box	KE	0060
	Rubber covered bottom plate	GU	0498
	Screw for do	DB	0981
	Wrist-strap	DH	0128
	Pistol-grip handle	DH	0129
	Ceramic Microphone		4117

continued

PRECISION SOUND LEVEL METER 2206

CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.
CAPACITORS:			
C 101	Polystyrol	820 pF/ 63 V	CT 1121
C 102	"	45 pF/ 63 V	CT 1538
C 103	Tantalum	3.3 µF/ 16 V	CF 0014
C 104	Polyester	10 nF/250 V	CS 0553
C 105	Tantalum	3.3 µF/ 16 V	CF 0014
C 106	"	45 µF/ 30 V	CF 0020
C 107	Ceramic	0,1 µF/ 25 V	CK 5101
TRANSISTORS:			
V 101	N - Channel FET	U 2002	VB 0505
V 102	Silicon PNP	2N 4289	VB 0049

CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
RESISTORS:				
R 101	Carbon Film	1/4 W	10%	200 MΩ RH 0005
R 102,103	Carbon "	"	"	40 MΩ RH 0003
R 104	" "	"	"	200 MΩ RH 0005
R 105	Metal "	"	1%	9.76kΩ RF 3967
R 106	" "	"	"	26.7kΩ RF 4267
R 107	Carbon "	"	10%	200 MΩ RH 0005
R 108	" "	1/8 W	"	47 kΩ RA 0011
MISCELLANEOUS:				
	Front Housing for 2206			DD 0077
	Teflon Insulator for Socket			DP 0036
	Teflon Mounting Base			DP 0039
	Preamplifier			UA 0208
	Condenser Microphone			4148

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
CAPACITORS:					
C 1	Tantalum		1.5 µF/ 35 V	CF	0008
C 2	Polyester		47 nF/250 V	CS	0401
C 3	Tantalum		15 µF/ 20 V	CE	0024
C 4	Polyester		0.1 µF/250 V	CS	0044
C 6	Ceramic		3.9 pF/400 V	CK	0390
C 7	Electronic		50 µF/ 25 V	CE	8965
C 8	Tantalum		1.5 µF/ 35 V	CF	0008
C 9,10	Polyester		15 nF/250 V	CS	0045
C 11	Tantalum		1.5 µF/ 35 V	CF	0008
C 12	Polystyrene		1nF/ 63 V	CT	1546
C 13	Tantalum		4.7 µF/ 10 V	CF	0021
C 14	Ceramic		1 pF/400 V	CK	0100
C 15	Electrolytic		50 µF/ 25 V	CE	8965
C 16	Polystyrene		390 pF/ 63 V	CT	1531
C 17	"		50 pF/ 63 V	CT	1530
C 18	Tantalum		15 µF/ 20 V	CF	0010
C 19	"		6.8 µF/ 35 V	CF	0009
C 20,21	"		3.3 µF/ 20 V	CF	0014
C 22	"		68 µF/ 3 V	CF	0011
C 23	Ceramic		470 pF/400 V	CK	2470
C 24	"		5 nF/100 V	CK	0096
C 25	"		8.2 nF/ 40 V	CK	3820
C 26	Tantalum		1.5 µF/ 35 V	CF	0008
C 31	Polystyrene	1%	143.2 pF/ 63 V	CT	1533
C 32	"	"	425 pF/ 63 V	CT	1534
C 33,34	"	"	4 nF/ 63 V	CT	1536

RESISTORS:						
R 1	Carbon	1/5 W	10%	1 MΩ	RA	0014
R 2	"	"	"	560 kΩ	RA	0040
R 3	"	"	"	10 MΩ	RA	0902
R 5	Metal	1/4 W	1%	2.05 kΩ	RF	3205
R 8	Carbon	1/5 W	10%	4.7 MΩ	RA	0004
R 14	"	1/4 W	"	100 MΩ	RH	0004
R 15	Metal	"	1%	36.5 kΩ	RF	4365
R 16	Carbon	"	5%	330 kΩ	RB	5330
R 17	Metal	"	1%	36.5 kΩ	RF	4365
R 18	"	"	"	34 kΩ	RF	4340
R 19	Carbon	1/5 W	10%	3.3 kΩ	RA	0005
R 21	"	"	"	1 MΩ	RA	0014
R 22	"	"	"	560 kΩ	RA	0040
R 23	"	"	"	10 MΩ	RA	0902
R 25	"	"	"	1.5 kΩ	RA	0026
R 28	"	"	"	390 kΩ	RA	0032
R 34	Metal	1/4 W	1%	33.2 kΩ	RF	4332
R 35	"	"	"	221 kΩ	RF	5221
R 36	Carbon	"	5%	15 kΩ	RB	4150
R 37	Metal	"	1%	82.5 kΩ	RF	4825
R 38	Carbon	"	5%	3.3 kΩ	RB	3330
R 39	"	"	"	1 kΩ	RB	3100
R 40	"	"	"	82 kΩ	RB	4820
R 41	Metal	"	1%	10 kΩ	RF	4100
R 42	"	"	"	8.25 kΩ	RF	3825
R 43	"	"	"	3.92 kΩ	RF	3392
R 44	"	"	"	33.2 kΩ	RF	4332
R 45	"	"	"	28.7 kΩ	RF	4287
R 46	Carbon	"	5%	2.7 kΩ	RB	3270
R 47	"	"	"	33 kΩ	RB	4330
R 48	"	"	"	150 kΩ	RB	5150
R 51	Metal	"	1%	100 kΩ	RF	5100
R 52	"	"	"	31.6 kΩ	RF	4316
R 53	"	"	"	10 kΩ	RF	4100
R 54	"	"	"	3.16 kΩ	RF	3316
R 55	"	"	"	1.47 kΩ	RF	3147
R 56	NTC	Resistor		47 kΩ	RN	0001
R 57	"	"		500 Ω	RN	0006

CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
SPEC. RESISTORS:				
R 4,6-7	Thin Film Circuit		RZ	1000
R 9-13	"		RZ	1000
R 24,26-27	"		RZ	1000
R 29-33	"		RZ	1000
POTENTIOMETERS:				
P 2	Sensitivity Adj.	10 kΩ lin.	PG	3103
P 3	Max. Output "	100 kΩ "	PG	4106
P 4	Battery Ind. "	50 kΩ "	PG	3507
SEMICONDUCTORS:				
V 1	N-Channel FET	2N 4302	VB	2045
V 2	PNP Silicon transistor	2N 4289	VB	0049
V 3,4	NPN " "	2N 4287	VB	0523
V 5	PNP " "	2N 4289	VB	0049
V 6	N-Channel FET	2N 4302	VB	0045
V 7	PNP Silicon transistor	2N 4289	VB	0049
V 8,9	NPN " "	2N 4287	VB	0055
V 10	PNP " "	2N 4289	VB	0049
V 11	NPN " "	2N 4287	VB	0055
V 12	PNP " "	2N 4289	VB	0049
V 13	NPN " "	2N 4287	VB	0055
V 14	PNP " "	2N 4289	VB	0049
V 15	PNP Germanium trans.	ASY 80	VB	0070
V 16	NPN Silicon transistor	2N 4287	VB	0055
Q 1	Silicon diode	150 V/160 mA	QV	0202
Q 3,4	"	300 V/200 mA	QV	0209
Q 5-8	Germanium diode	10 V/ 30 mA	QV	0100
Q 9	" "	100 V/ 30 mA	QV	0099
Q 10	Zener "	28.5 V/ 10 mA	QV	1108
SWITCHES:				
O 1	Attenuator		OP	2205
O 2	+10 dB		NT	0201
O 3	Weighting Network		NN	0018
O 4	Function Selector		OQ	2205
PRINTED CIRCUITS:				
	45 dB Amplifier		XC	0383
	DC Conv., Meter Circuit, Outp.Amp.		XC	0384
	Attenuator Circuit		XC	0414
	Weighting Network Switch		XC	0416
	XC 0383 with components		ZE	0021
	XC 0384 "		ZZ	0002
	XC 0414 "		RZ	0001
MISCELLANEOUS:				
	Battery 1.5 V		QB	0009
	Lid for battery container		DD	0068
T 1	Coil for DC converter		LB	0633
	Front Housing for 2205		DD	0067
	" " fastening disc		DB	0952
	Insulating ring for do		YJ	0363
	Knob for Attenuator		SN	0710
	" " Func. Sel.		SN	0711
	Pushbutton for +10 dB		SN	0020
I	Moving coil instrument (50 µA)		IM	0010
	Housing for do		IL	0189
	Nylon box		KE	0060
	Rubber covered bottom plate		GU	0498
	Screw for do		DB	0981
	Wrist-strap		DH	0128
	Pistol-grip handle		DH	0129
	Ceramic Microphone			4117

continued

PRECISION SOUND LEVEL METER 2206

CAPACITORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE		STOCK REF.
C 101	Polystyrol	820 pF/ 63 V	CT 1121
C 102	"	27 pF/ 63 V	CT 0503
C 103	Tantalum	3.3 µF/ 16 V	CF 0014
C 104	Polyester	10 nF/250 V	CS 0553
C 105	Tantalum	3.3 µF/ 16 V	CF 0014
C 106	"	45 µF/ 30 V	CF 0020
C 107	Ceramic	0,1 µF/ 25 V	CK 5101

TRANSISTORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE			STOCK REF.
V 101	N - Channel	FET	2N 4867A	VB 1018
V 102	Silicon	PNP	2N 4289	VB 0049

RESISTORS:

CIRCUIT DIAGRAM REF.	COMPONENT TYPE				STOCK REF.
R 101	Carbon Film	1/4 W	10%	200 MΩ	RH 0005
R 102,103	Carbon	"	"	40 MΩ	RH 0003
R 104	"	"	"	200 MΩ	RH 0005
R 105	Metal	"	1%	9.76kΩ	RF 3967
R 106	"	"	"	26.7kΩ	RF 4267
R 107	Carbon	"	10%	200 MΩ	RH 0005
R 108	"	1/8 W	"	47 kΩ	RA 0011

MISCELLANEOUS:

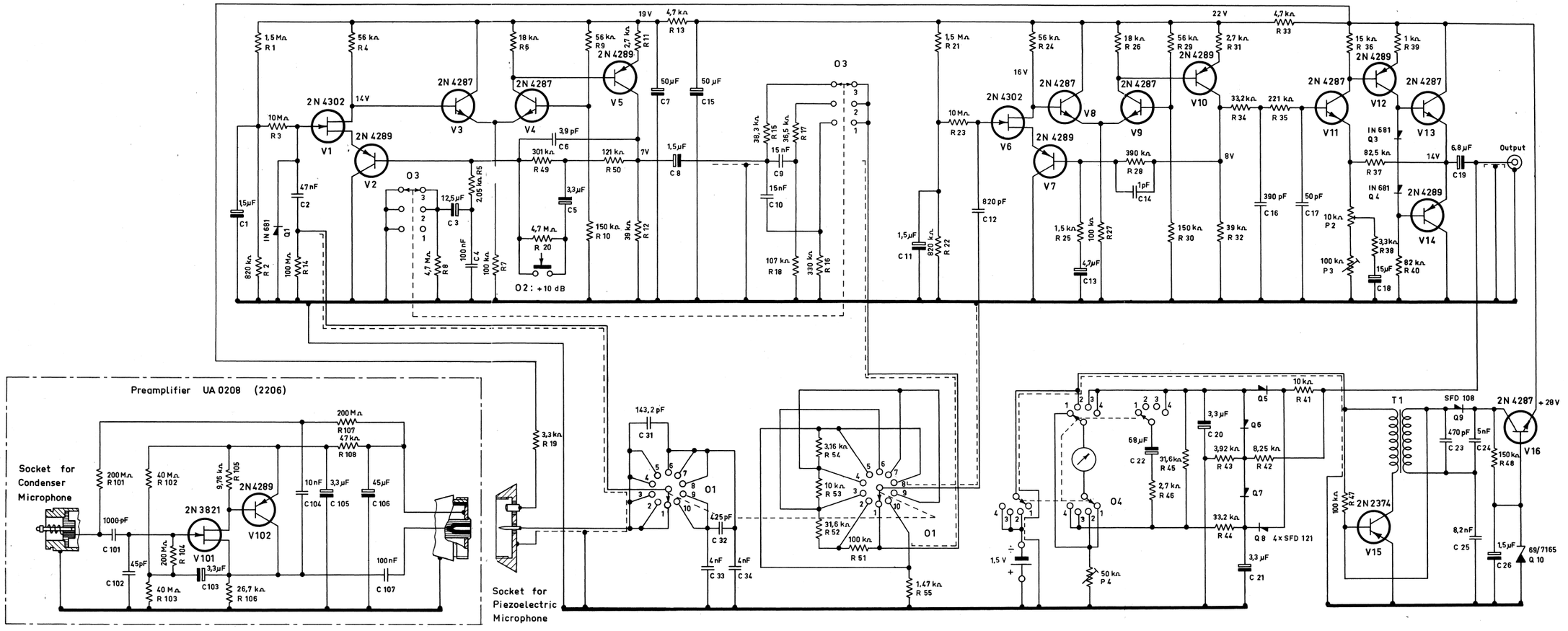
		STOCK REF.
	Front Housing for 2206	DD 0077
	Teflon Insulator for Socket	DP 0036
	Teflon Mounting Base	DP 0039
	Preamplifier	UA 0208
	Condenser Microphone	4148

BRÜEL & KJÆR
Nærum - Denmark

Circuit Diagram

valid from serial no. 239739

2205.4



27-9-1968	239739		

Brüel & Kjær
Copenhagen

Sound Level Meter
Type 2205/2206

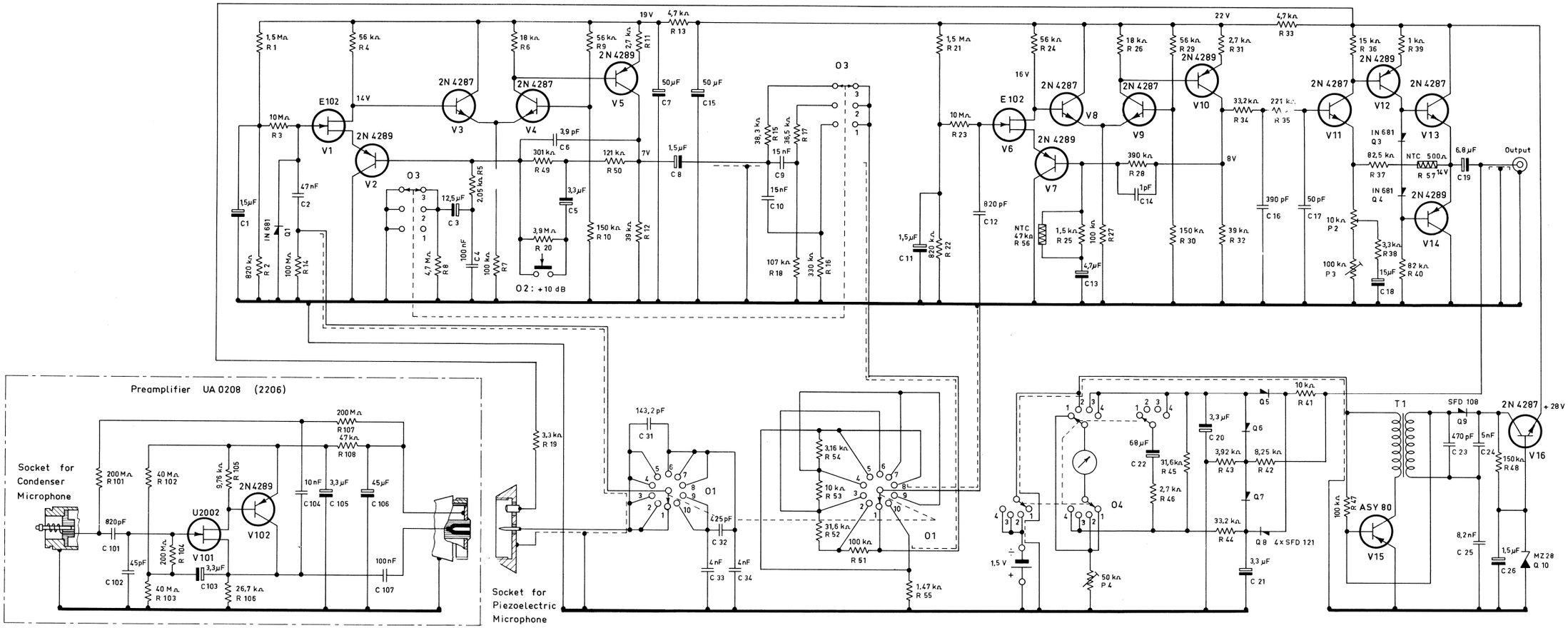
BD 0051-11

BRÜEL & KJÆR
Nærum - Denmark

Circuit Diagram

valid from serial no. 269270

2205.4



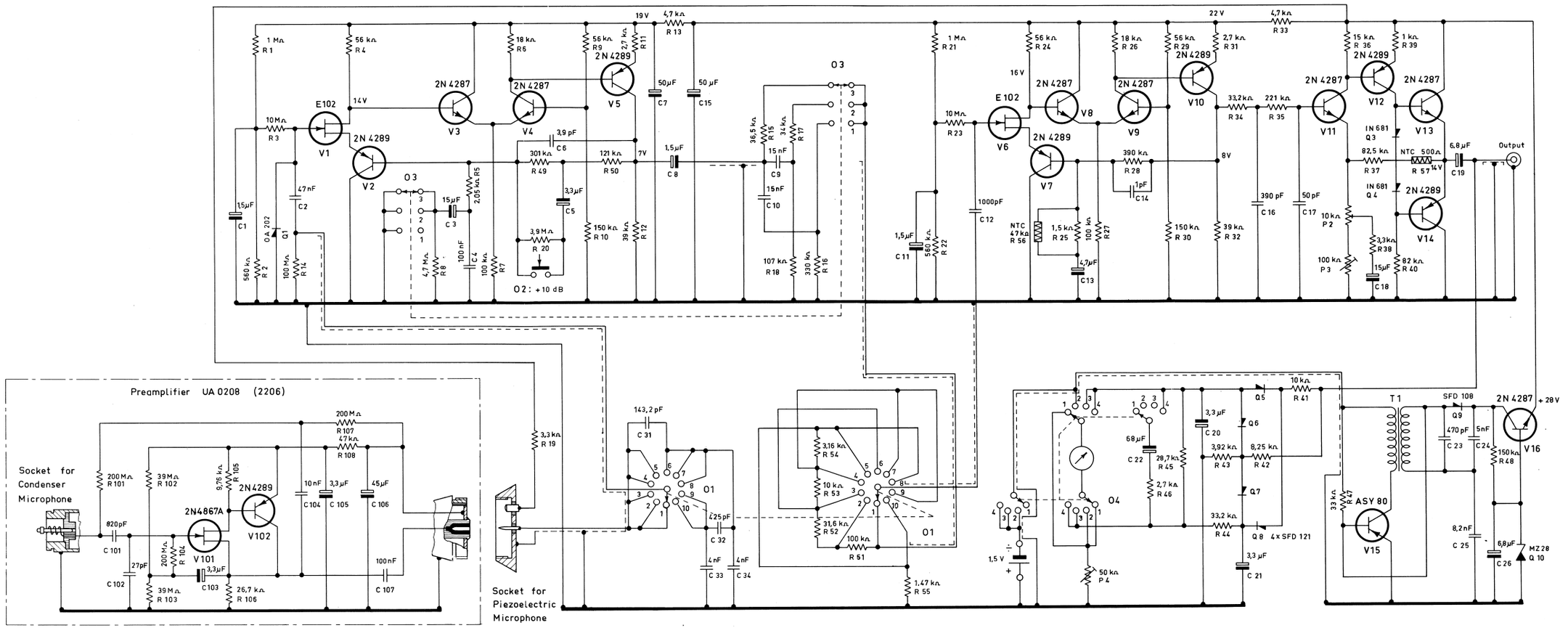
27-9-1968	239739		
25-2-1969	269270		

Brüel & Kjær
Copenhagen

Sound Level Meter
Type 2205/2206

Circuit Diagram

valid from serial no. 285753



27-9-1968	239739		
25-2-1969	269270		
9-9-1969	285753		

Brüel & Kjær
Copenhagen

Sound Level Meter
Type 2205/2206

BD 0051

BRÜEL & KJÆR
Nærum - Denmark

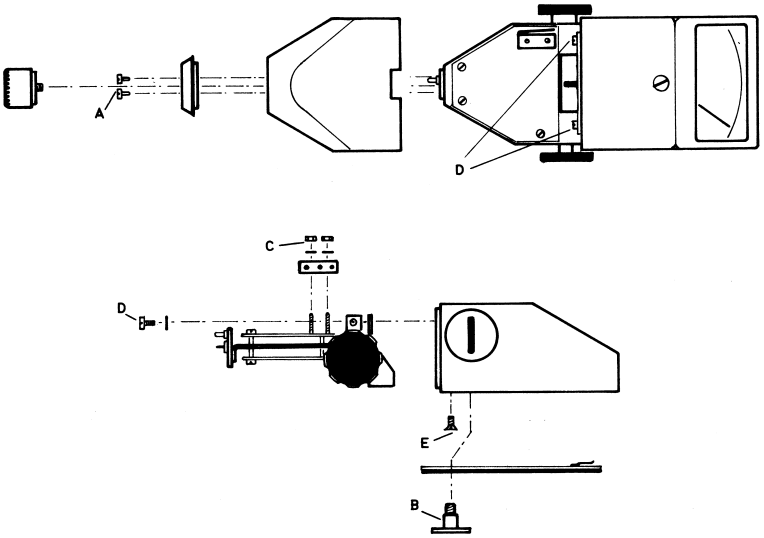
Service Instructions
Sound Level Meter

2205
2206

The Precision Sound Level Meter Type 2206 is basicly the same instrument as the Sound Level Meter Type 2205 but with following Exceptions:

The front housing is printed: Precision Sound Level Meter 2206".
The Ceramic Microphone is replaced by a Condenser Microphone Type 4148
A Preamplifier UA 0208 is adopted between the Microphone and the Sound Level Meter

Consisting of:



How to Open the Instrument

Dismount the nose cone by unscrewing the microphone and the two screws A at the top end. The front housing can now be removed and the whole electronic section is serviceable.

To reach the back side of the two selectors it is necessary to dismount the rubber covered bottom plate by removing the big bottom screw B and slide the plate towards the front end. Remove the screws C and lift the +10 dB switch out of position, then unscrew the two screws D on each side of the "Weighting Network" switch, the two screws at the front part of the bottom and pull out the top piece with the printed circuits.

When remounting the top piece, great care must be taken with positioning of the screened wire to the battery, because this carries a 120 kHz signal from the DC Converter and this signal might cause too much crosstalk to the amplifiers.

Trouble Shooting

If the reason for a fault is not an obvious one such as a broken component, a missing power supply etc., then first test the voltages according to the block diagram (section 1.3) in order to localize the defect to be in one certain circuit. Should this method of finding the fault prove unsuccessful, then check the instrument by adopting the method described in the adjustment procedure. When the trouble has been found and remedied the voltages and adjustments which are influenced by the remedy must be rechecked.

continued

The tolerances stated in the instructions can only be used as a guide for adjustment and control, but any deviations must not be corrected without being sure that the tolerances of the instruments used for making the adjustment are so small as to have no influence on the measurements.

The instructions in this manual are given purely as a guide to the service of equipment with minor faults. Some faults, as f.inst. small deviations in tolerances require for their correction special control equipment and extensive experience, and in these cases it is necessary to send the instrument to the factory.

Instruments Necessary for Service and Repair

Multimeter (50 µA)
Beat Frequency Oscillator type 1022
Electronic Voltmeter type 2409 (2604)
Frequency Analyzer type 2107 (2112)
Pistonphone type 4220
Oscilloscope

Service Instructions

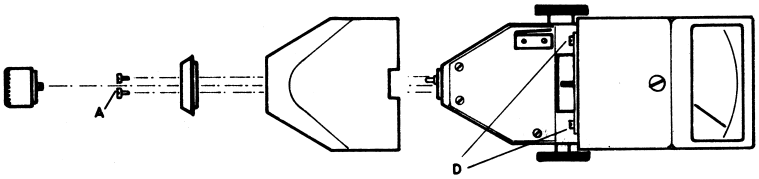
Sound Level Meter

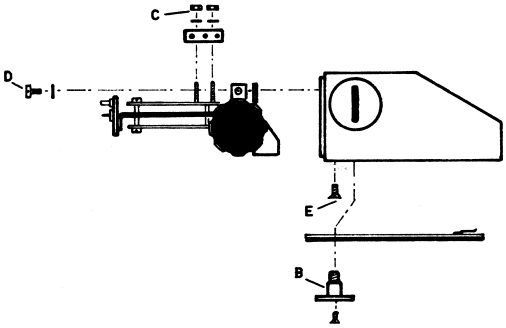
2205
2206

The Precision Sound Level Meter Type 2206 is basicly the same instrument as the Sound Level Meter Type 2205 but with following Exceptions:

The front housing is printed: Precision Sound Level Meter 2206".
The Ceramic Microphone is replaced by a Condenser Microphone Type 4148
A Preamplifier UA 0208 is adopted between the Microphone and the Sound Level Meter

Consisting of:





How to Open the Instrument

Dismount the nose cone by unscrewing the microphone and the two screws A at the top end. The front housing can now be removed and the whole electronic section is serviceable.

To reach the back side of the two selectors it is necessary to dismount the rubber covered bottom plate by removing the big bottom screw B and slide the plate towards the front end. Remove the screws C and lift the +10 dB switch out of position, then unscrew the two screws D on each side of the "Weighting Network" switch, the two screws at the front part of the bottom and pull out the top piece with the printed circuits.

When remounting the top piece, great care must be taken with positioning of the screened wire to the battery, because this carries a 120 kHz signal from the DC Converter and this signal might cause too much crosstalk to the amplifiers.

Trouble Shooting

If the reason for a fault is not an obvious one such as a broken component, a missing power supply etc., then first test the voltages according to the block diagram (section 1.3) in order to localize the defect to be in one certain circuit. Should this method of finding the fault prove unsuccessful, then check the instrument by adopting the method described in the adjustment procedure. When the trouble has been found and remedied the voltages and adjustments which are influenced by the remedy must be rechecked.

continued

The tolerances stated in the instructions can only be used as a guide for adjustment and control, but any deviations must not be corrected without being sure that the tolerances of the instruments used for making the adjustment are so small as to have no influence on the measurements.

The instructions in this manual are given purely as a guide to the service of equipment with minor faults. Some faults, as f.inst. small deviations in tolerances require for their correction special control equipment and extensive experience, and in these cases it is necessary to send the instrument to the factory.

Instruments Necessary for Service and Repair

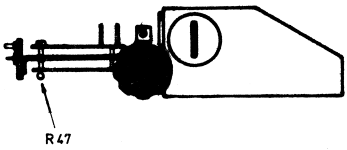
Multimeter (50 μA)
Beat Frequency Oscillator type 1022
Electronic Voltmeter type 2409 (2604)
Frequency Analyzer type 2107 (2112)
Pistonphone type 4220
Oscilloscope

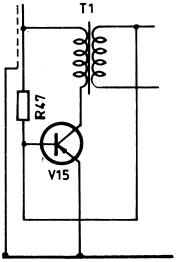
Temperature Drift

In Sound Level Meters:
Type 2205 with serial number lower than 269403
- 2206 - - - - - 265334
- 2207 - - - - - 235424
the following fault may occur:

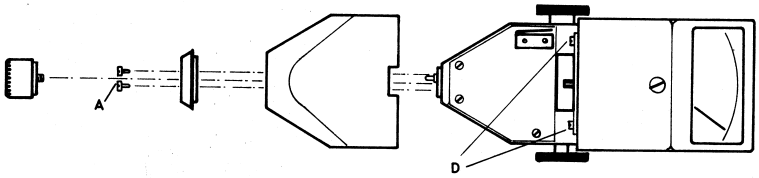
When the instruments are operated, especially when overloaded, in temperatures lower than 0°C, the DC converter may stop oscillating, which causes a collapse of the supply voltage.

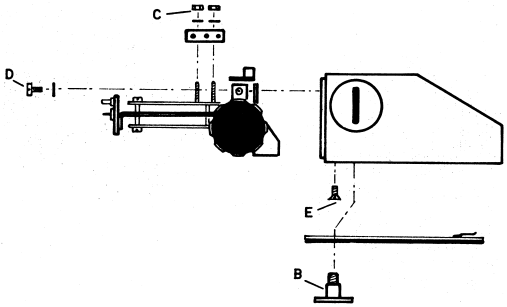
This fault can be corrected by changing the resistor R 47, 100 kΩ to the value of 33 kΩ. (Stock ref.no. RB 4330).





Consisting of:





How to Open the Instrument

Dismount the nose cone by unscrewing the microphone and the two screws A at the top end. The front housing can now be removed and the whole electronic section is serviceable.

To reach the back side of the two selectors it is necessary to dismount the rubber covered bottom plate by removing the big bottom screw B and slide the plate towards the front end. Remove the screws C and lift the +10 dB switch out of position, then unscrew the two screws D on each side of the "Weighting Network" switch, the two screws at the front part of the bottom and pull out the top piece with the printed circuits.

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Trouble Shooting

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The tolerances stated in the instructions can only be used as a guide for adjustment and control, but any deviations must not be corrected without being sure that the tolerances of the instruments used for making the adjustment are so small as to have no influence on the measurements.

continued

The instructions in this manual are given purely as a guide to the service of equipment with minor faults. Some faults, as f.inst. small deviations in tolerances require for their correction special control equipment and extensive experience, and in these cases it is necessary to send the instrument to the factory.

Instruments Necessary for Service and Repair

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