



PHILIPS

SERVICE

Scientific & Analytical Equipment
 Test & Measuring Instruments
 Industrial Automation
 Advanced Automation Systems
 Welding

Scientific &
 Industrial
 Equipment
 Division

820515

PM 6673...76

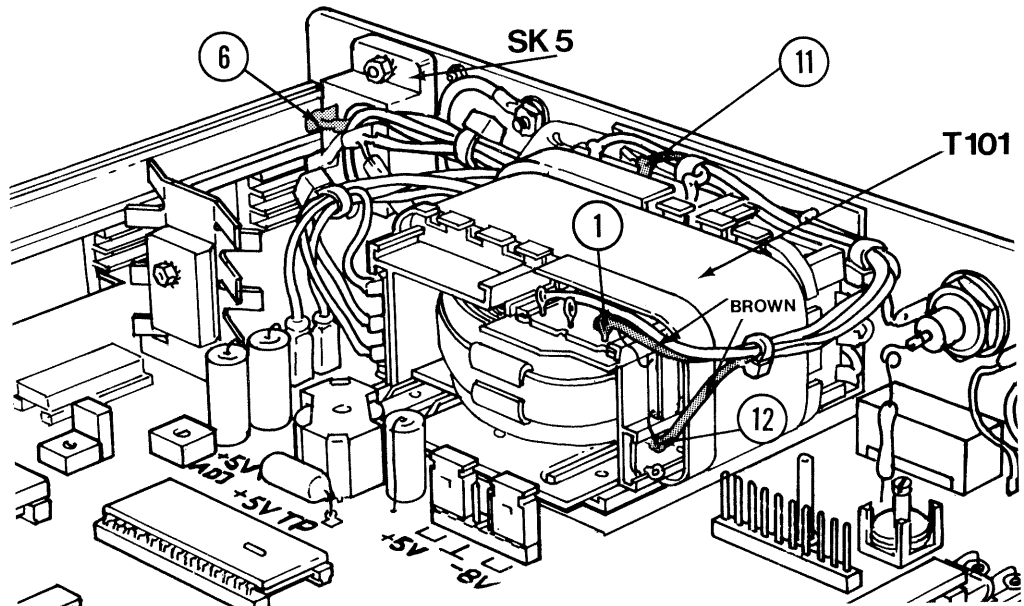
SPC 44

9499 468 03811

Important information regarding the safety of the instrument.

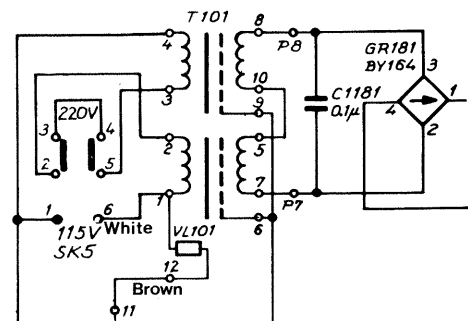
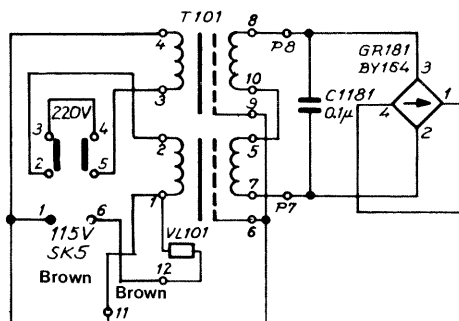
Among the first 200 delivered units of the new launched frequency counters PM 6673, PM 6674 and PM 6676, there are some units with a wrong connected thermal fuse. The reason is an unlucky choice of color on some cables.

The two brown cables connected to T101:1 and T101:12, see below, must change places in the wrongly connected instruments. To prevent the same mistake in the future, e.g. when replacing the transformer, please replace the cable between SK5:6 and T101:1 with a white cable.



Wrong

Correct



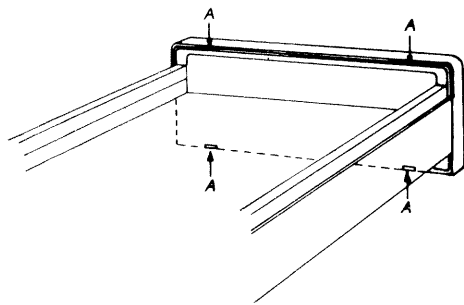
6. REPLACING PARTS

Molex contacts

- In the spare parts list, only a 13 pins contact is listed. However, the contact is easy to cut into required length.

Text plate and front rim

- Remove the knobs for Measuring Time and Sensitivity.
- Put a screw driver between the front rim and the front frame at points A as shown below.



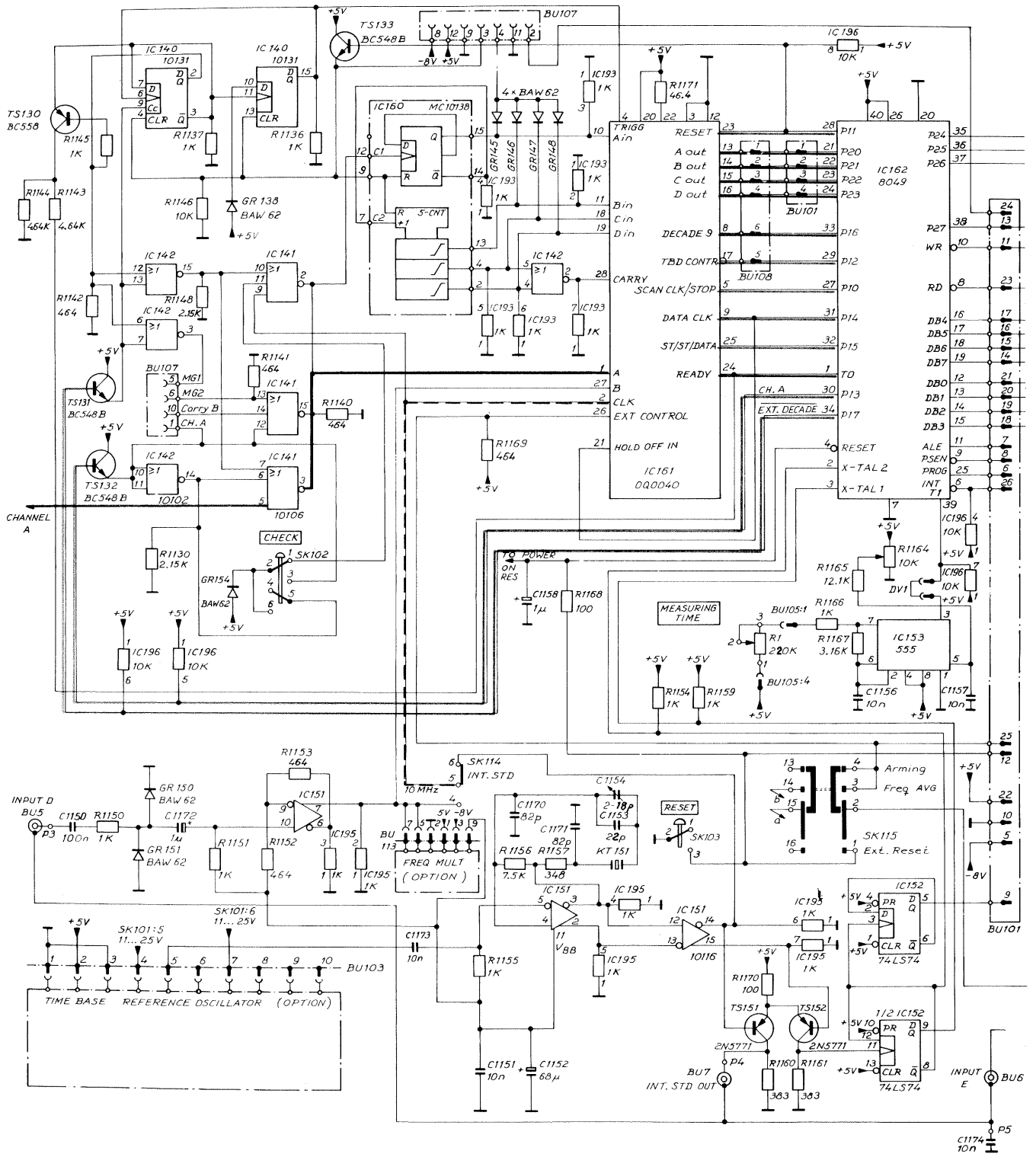
- Pry gently until the front rim comes off.
- Remove the text plate.

Handle

- Remove the two plastic knobs using a tiny screw driver or a pair of pliers.
- Unscrew the two screws and pull out the handle.
- Before assembling, grease the lock washer, screw hole and teeth of the handle very slightly with vaselin.

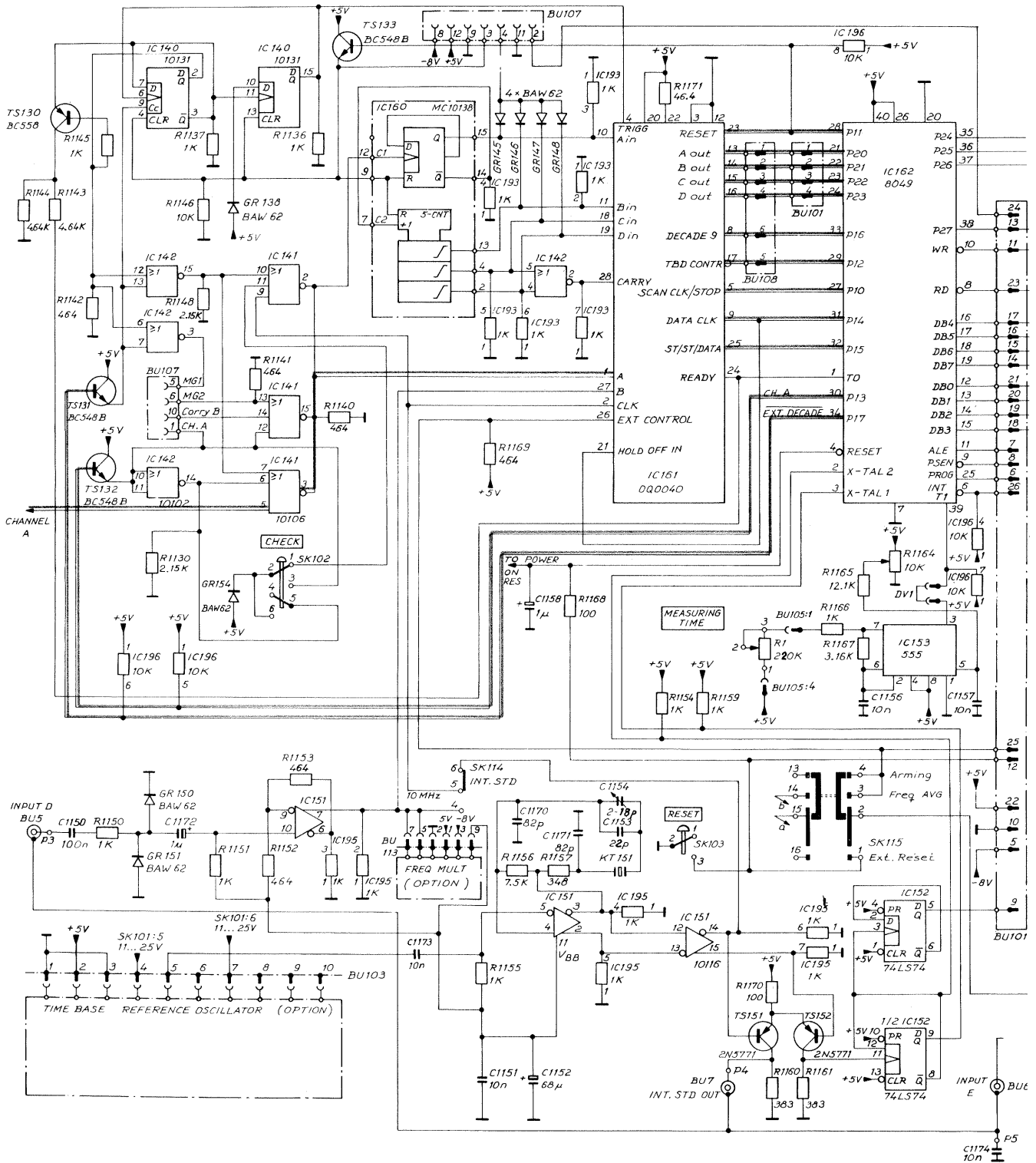
Power supply

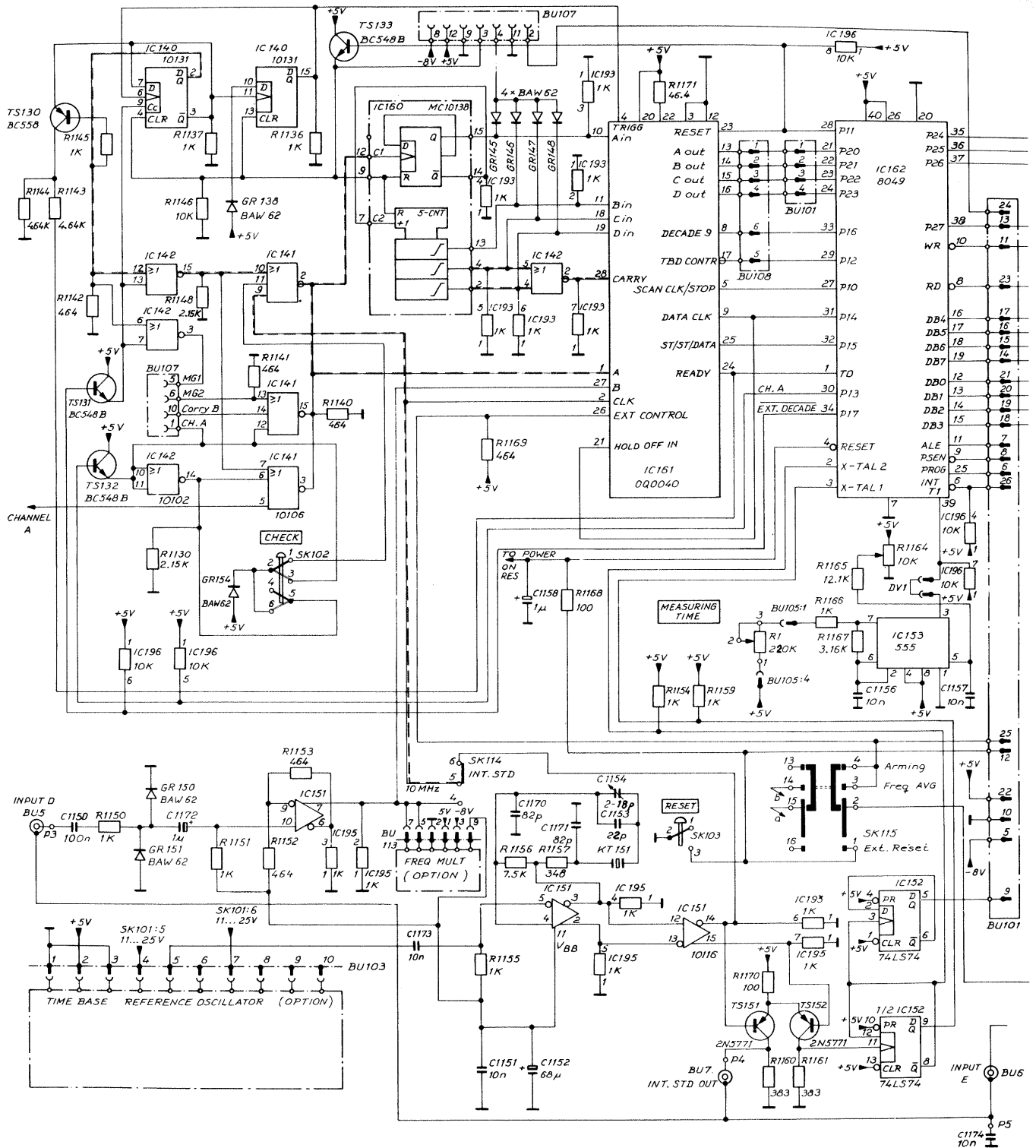
- When replacing parts in the power supply, in particular IC180, check the +5V voltage. Refer to Section 3, Adjustments.



- Signal to be measured
- Control signal from the microcomputer
- Respons signal to the microcomputer
- - - Internal 10MHz standard

Fig. 1.7 Period A measurement.





- Internal 10MHz standard used as measurement signal
- Main gate signal
- Internal 10MHz standard

Fig. 1.9 Check.

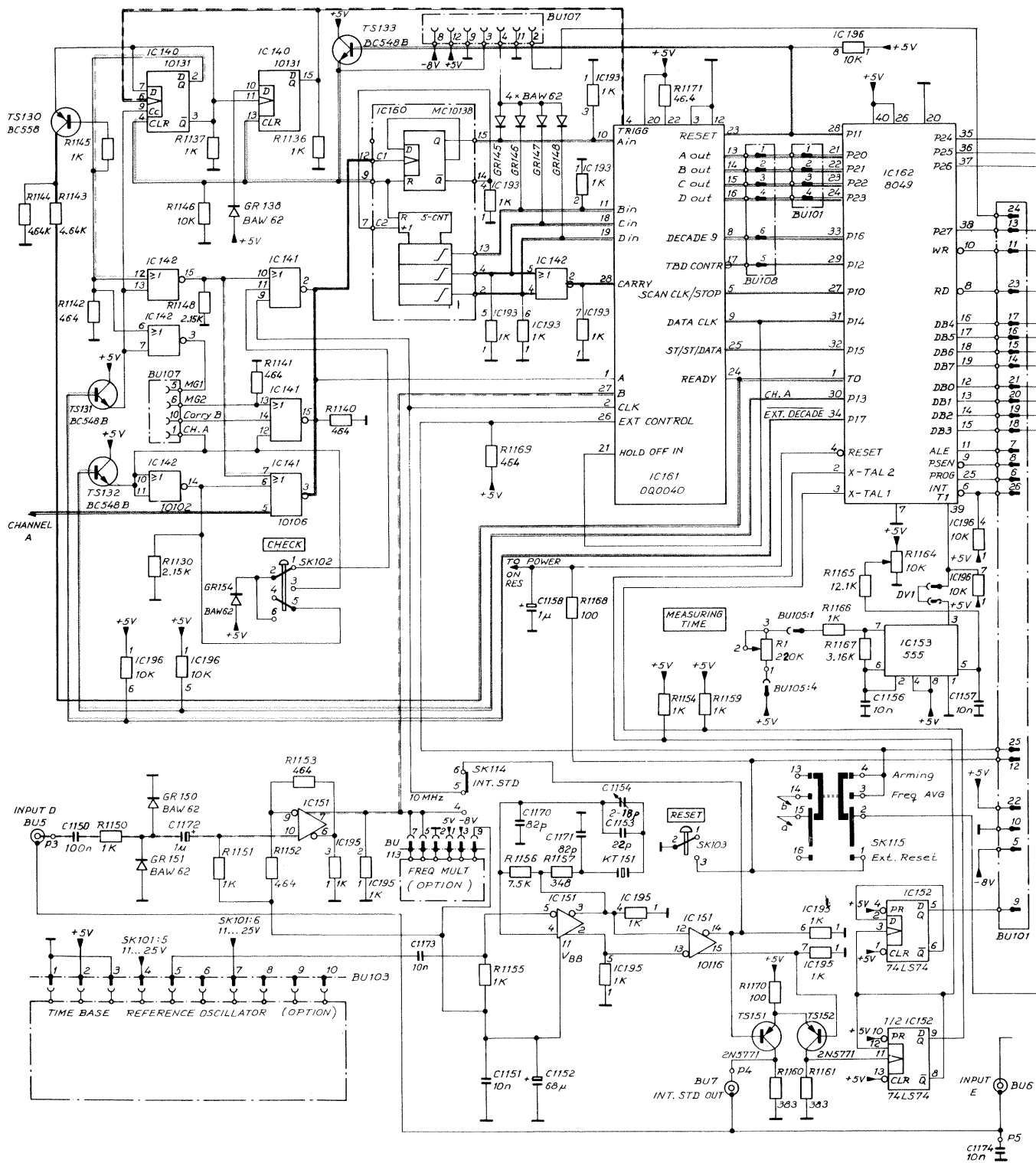
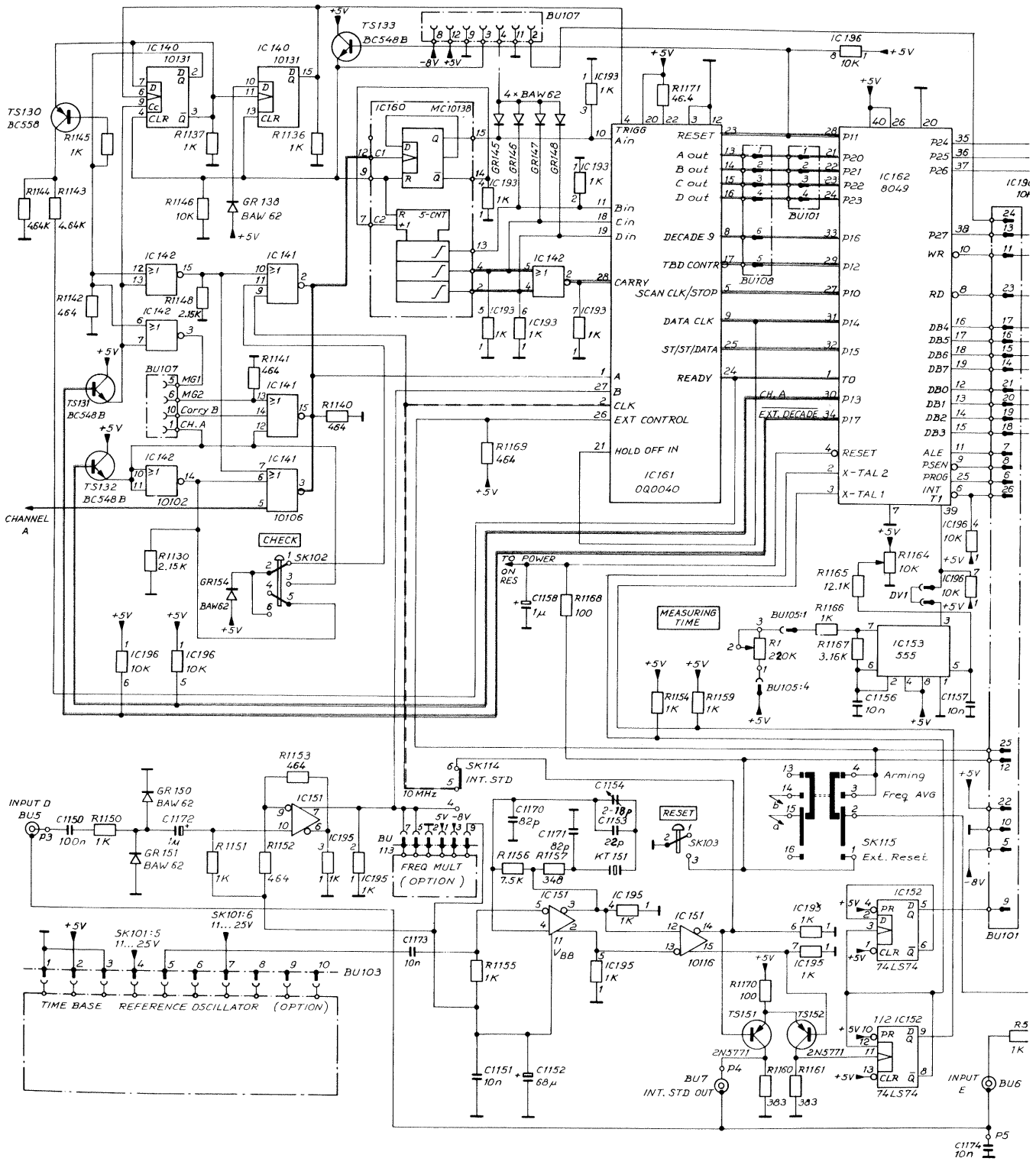


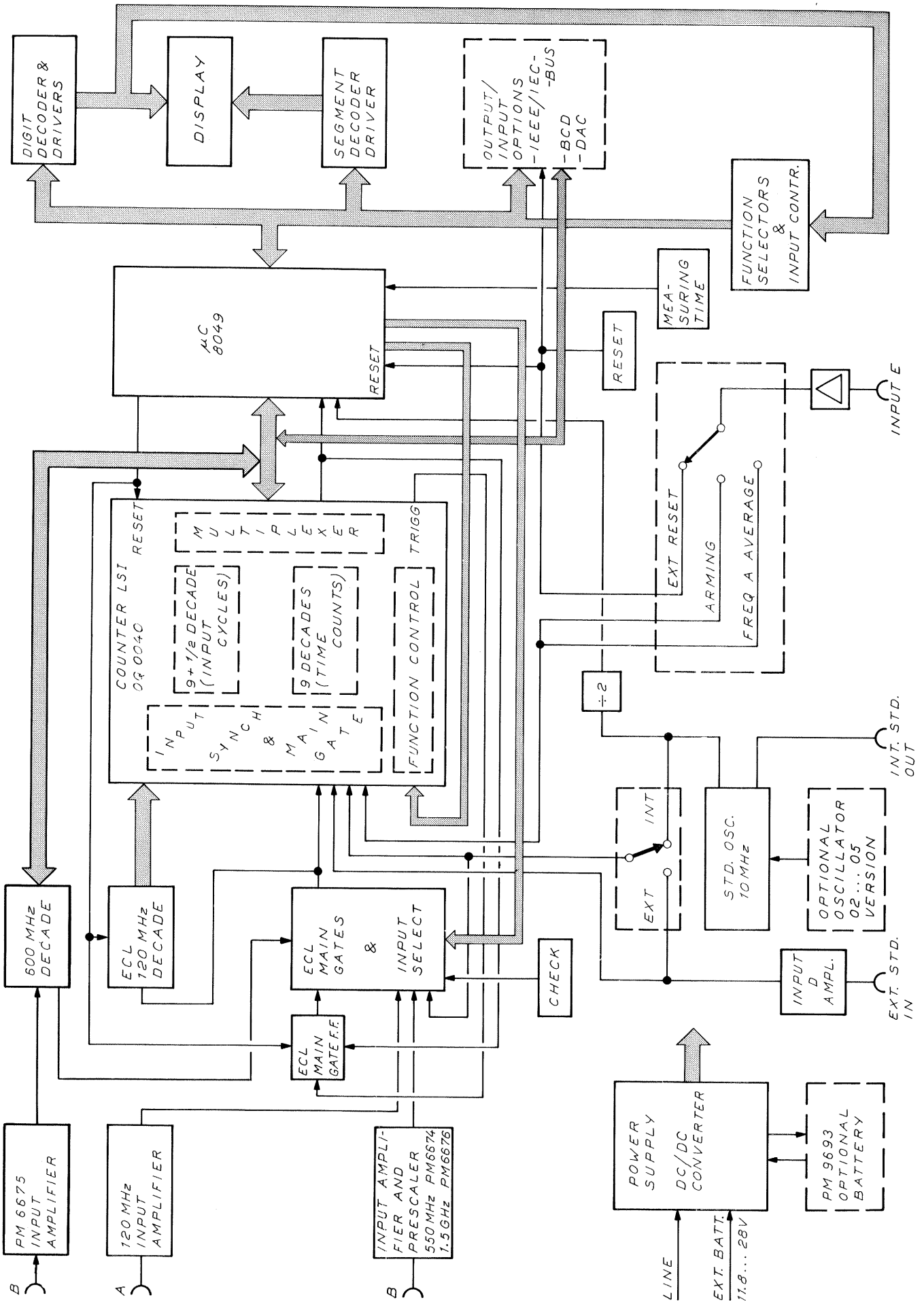
Fig. 1.10 Ratio A/D measurement.

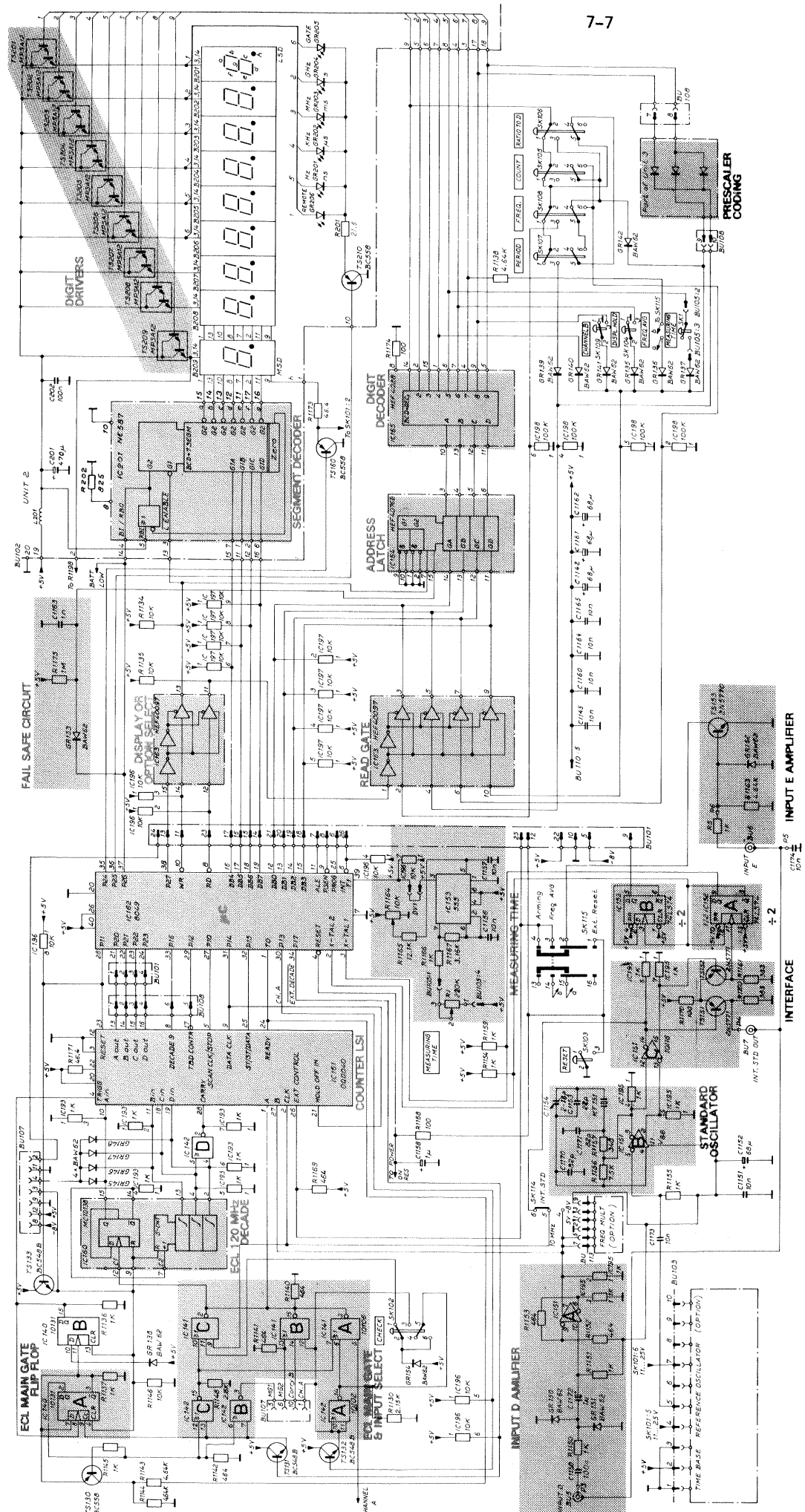


- Signal to be measured
- Control signal from the microcomputer
- Respons signal to the microcomputer
- - - Internal 10MHz standard

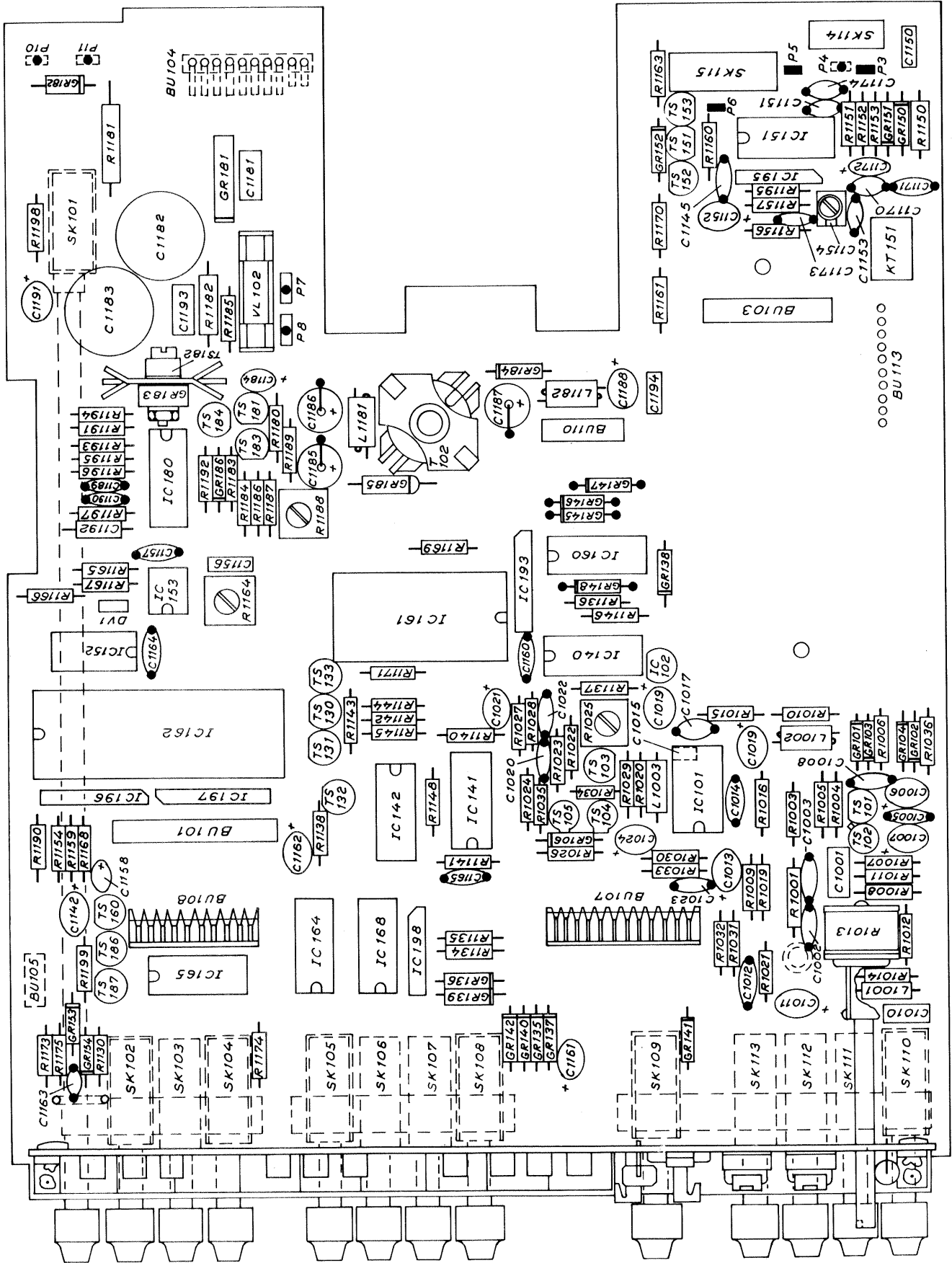
Fig. 1.11 Reciprocal mode.

Block diagram

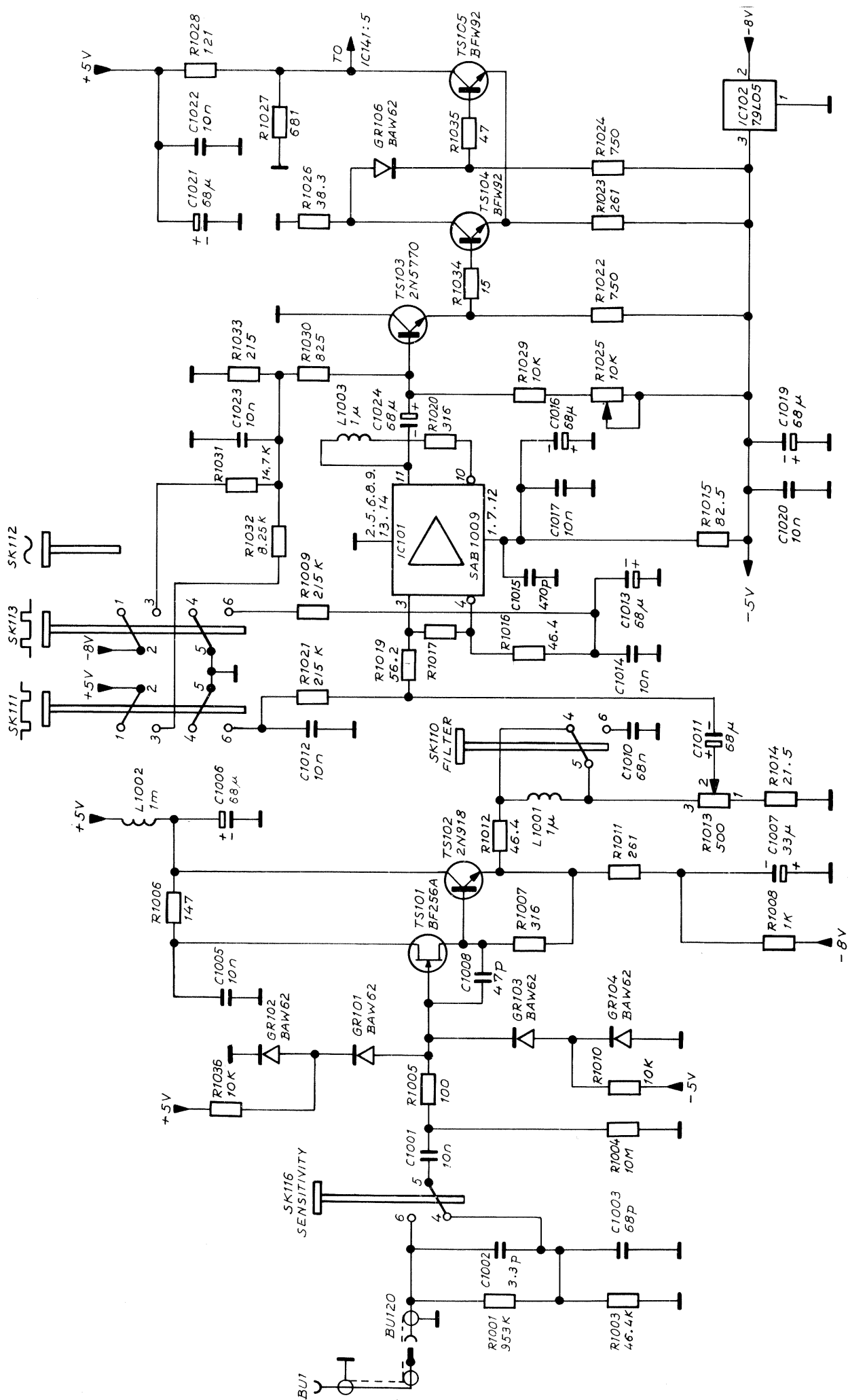




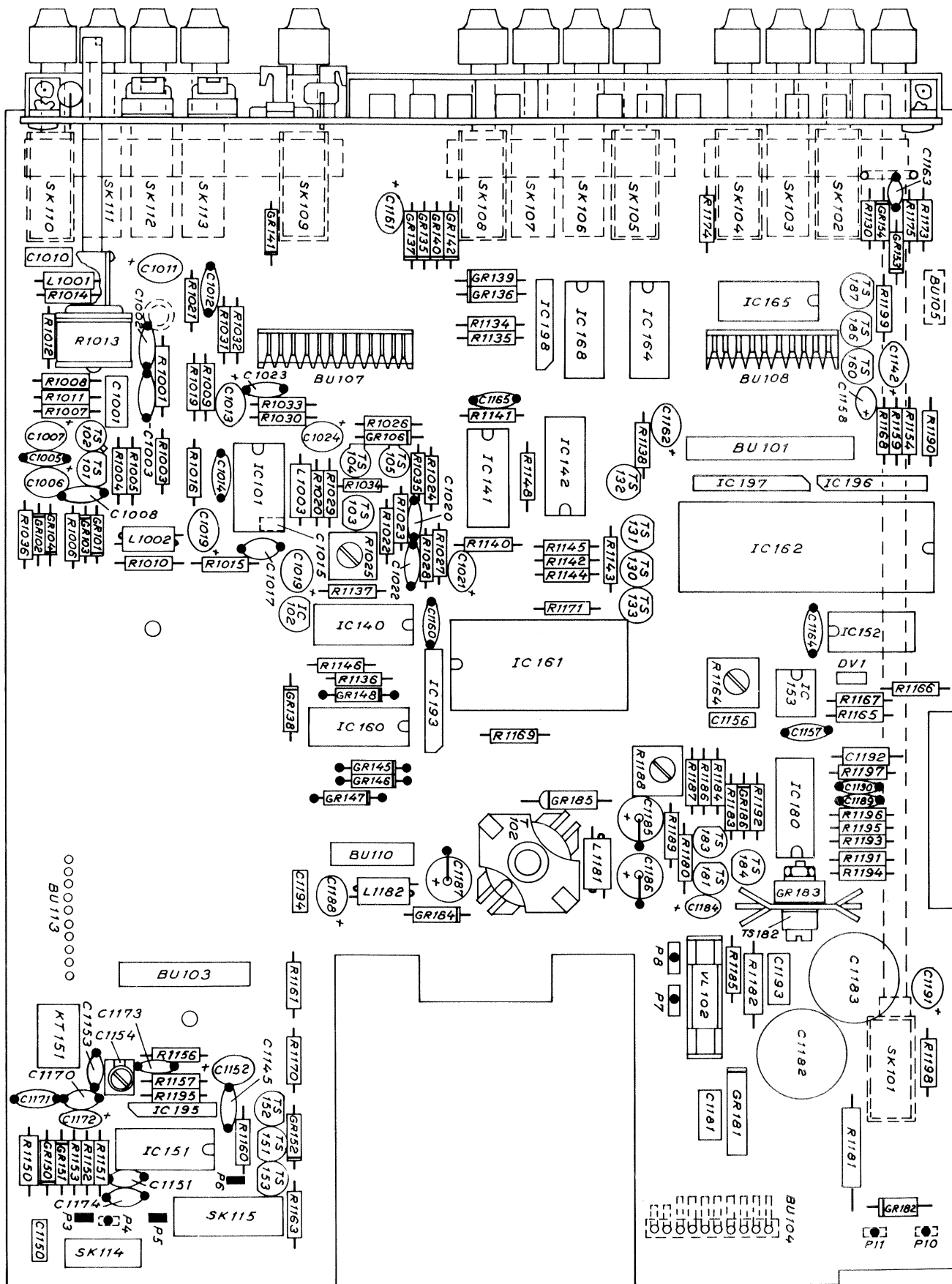
Functional block diagram



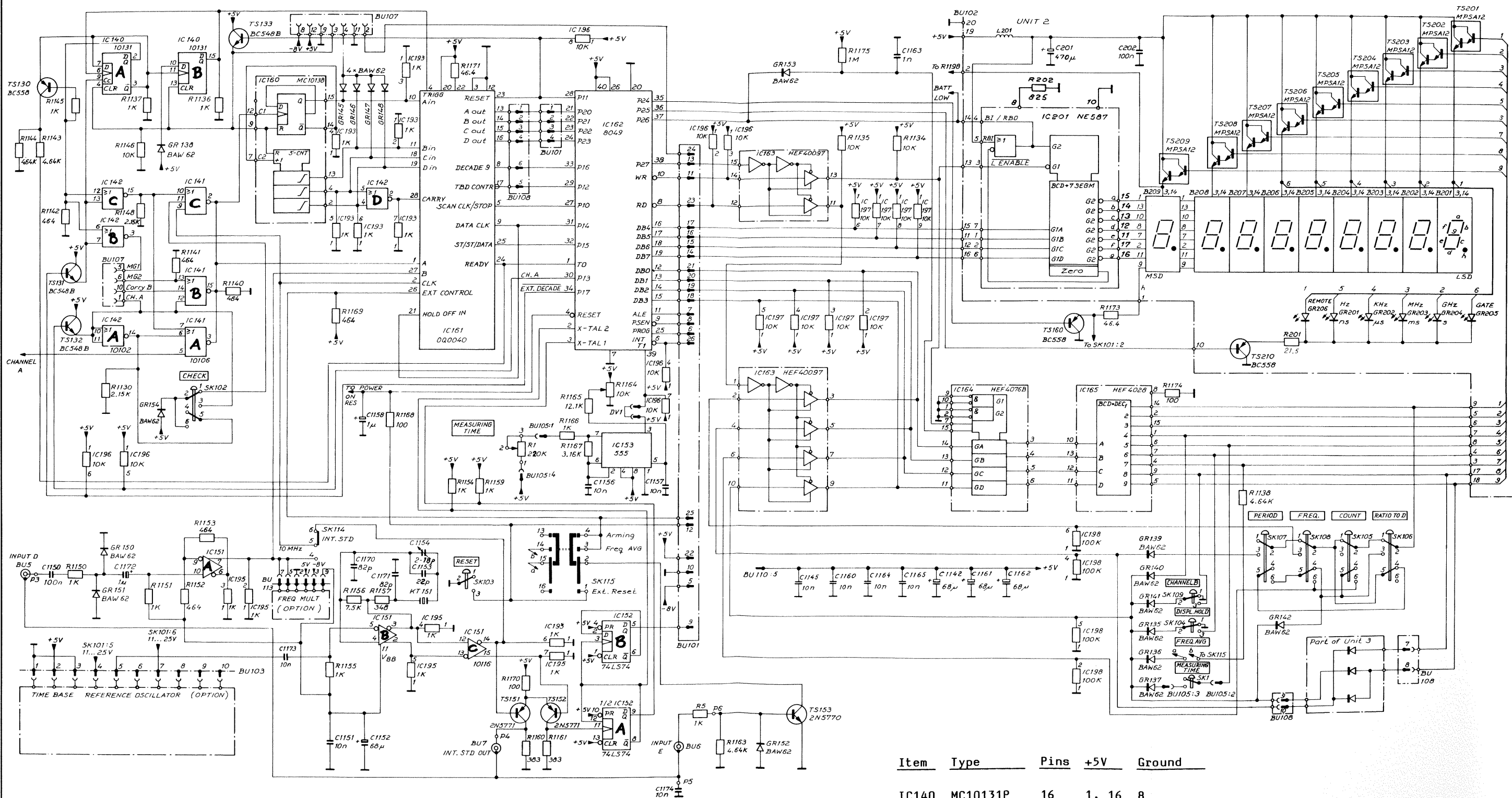
Input amplifier, logic and power supply



Input amplifier



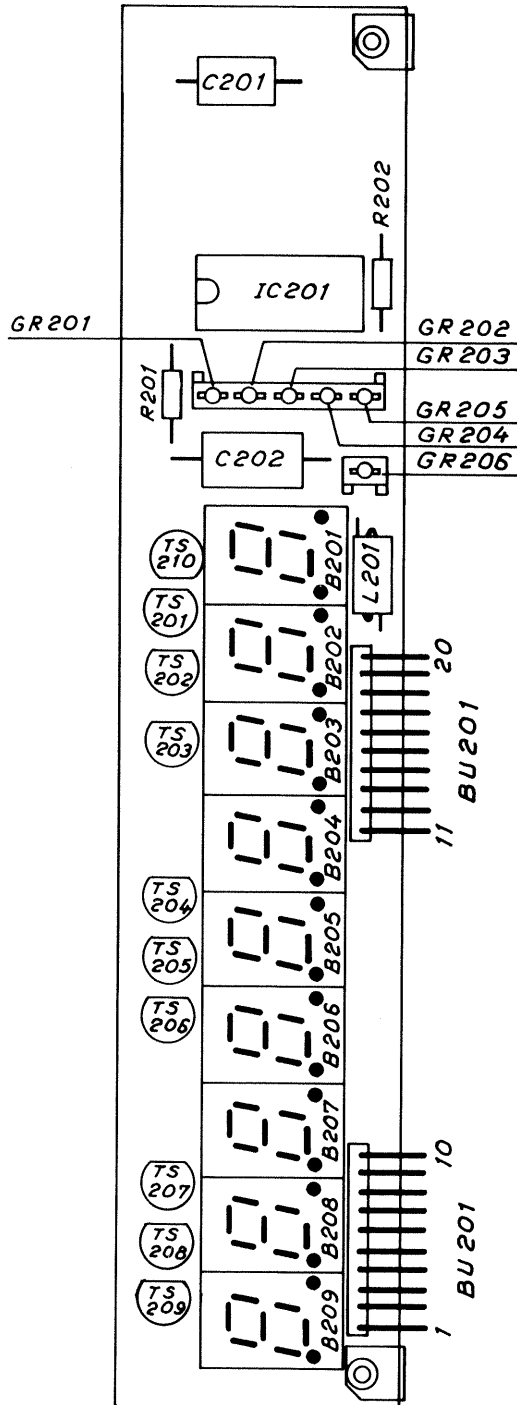
Input amplifier, logic and power supply



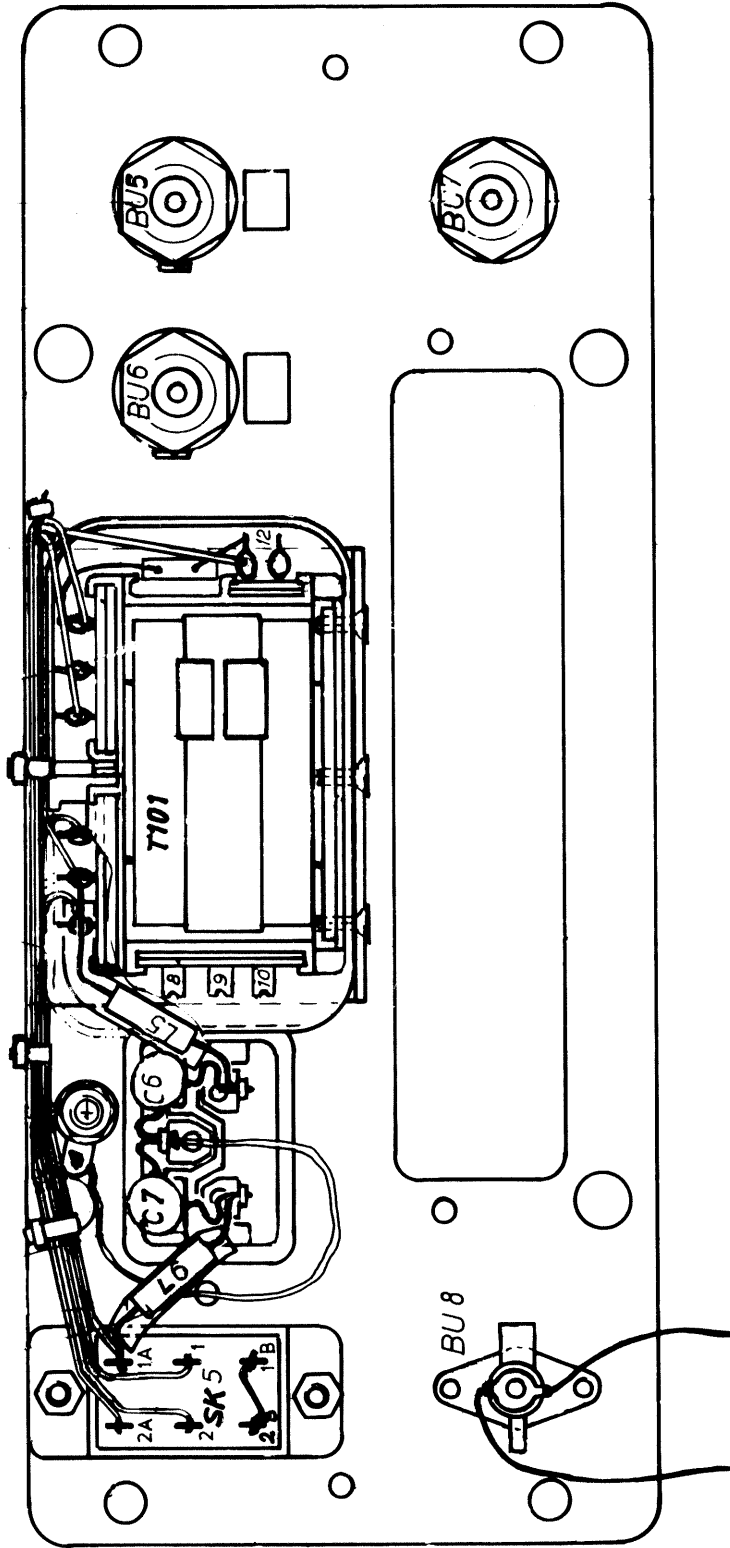
Note: To achieve a better performance at high temperatures, a diode GR155 of type BAW62 has been connected parallel to R1155 with its cathode towards C1155.

Item	Type	Pins	+5V	Ground
IC140	MC10131P	16	1, 16	8
IC141	GXB10106P	16	1, 16	8
IC142	MC10102L	16	1, 16	8
IC151	GXB10116P	16	1, 16	8
IC152	SN74LS74N	14	14	7
IC160	MC10138P	16	1, 16	8
IC163	HEF40097BP	16	16	8
IC164	HEF4076BP	16	16	8
IC165	HEF4028BP	16	16	via R1174
IC201	NE587N	18	18	9, 10

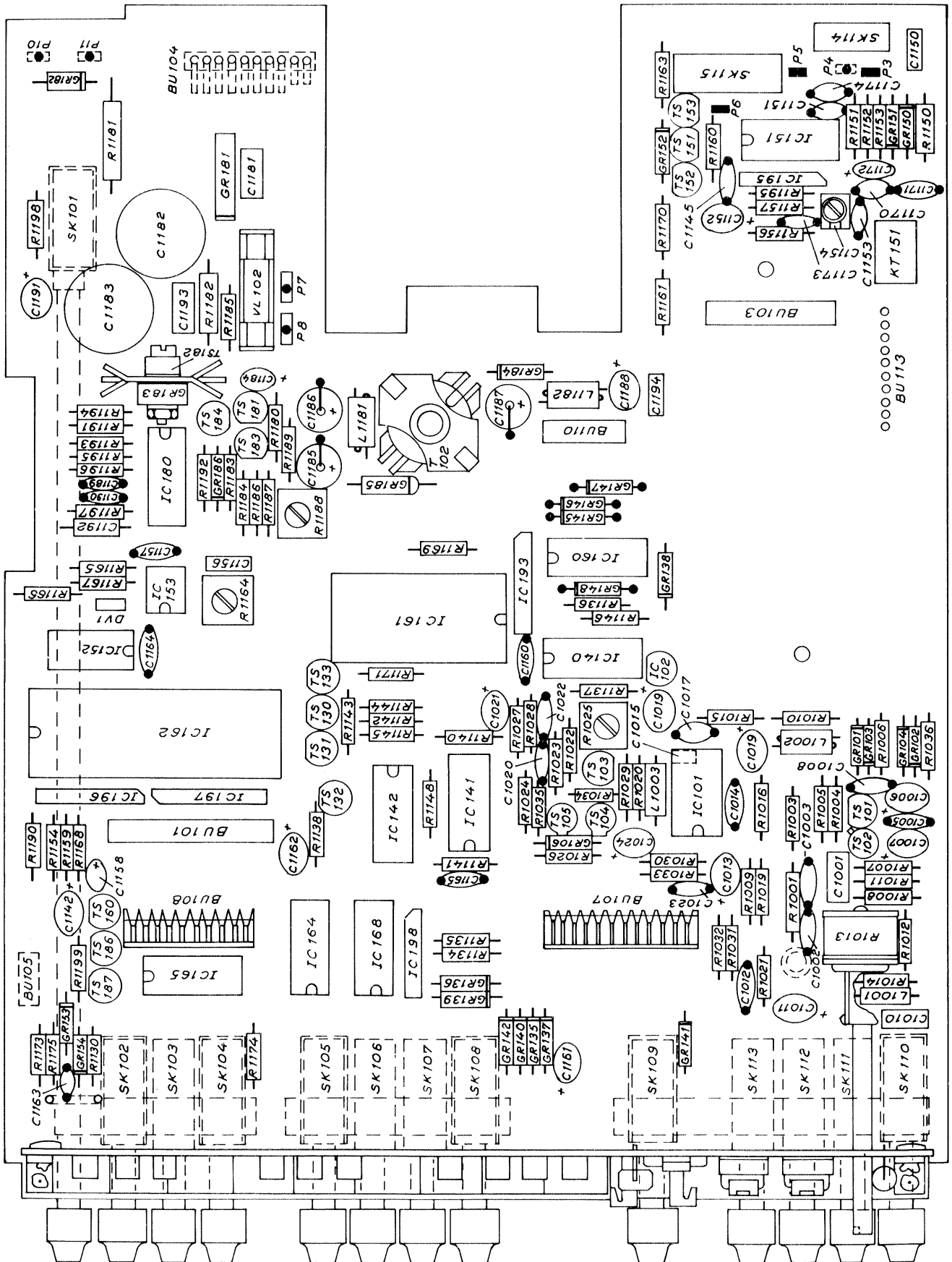
Display and logic



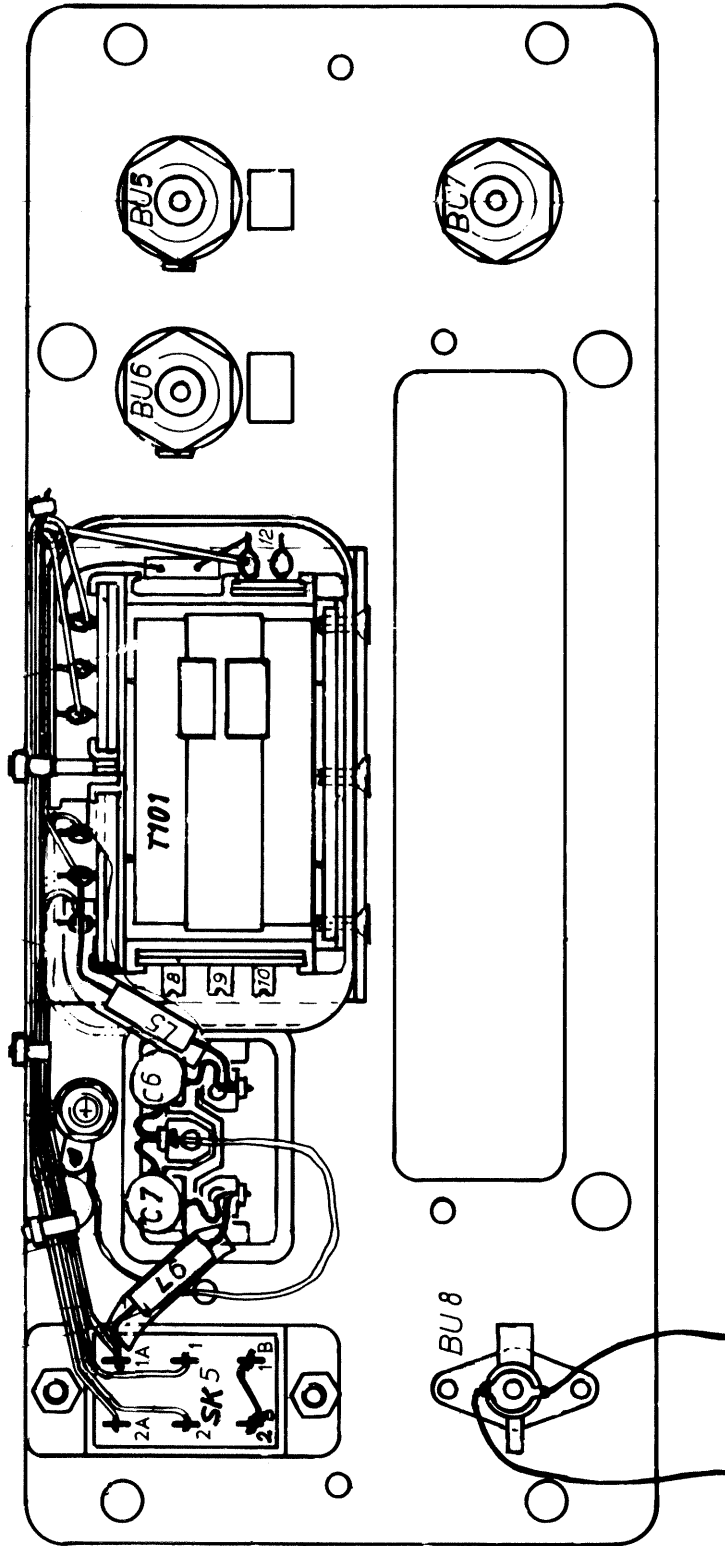
Mount the LEDs GR201...GR206
with the anode up towards R201



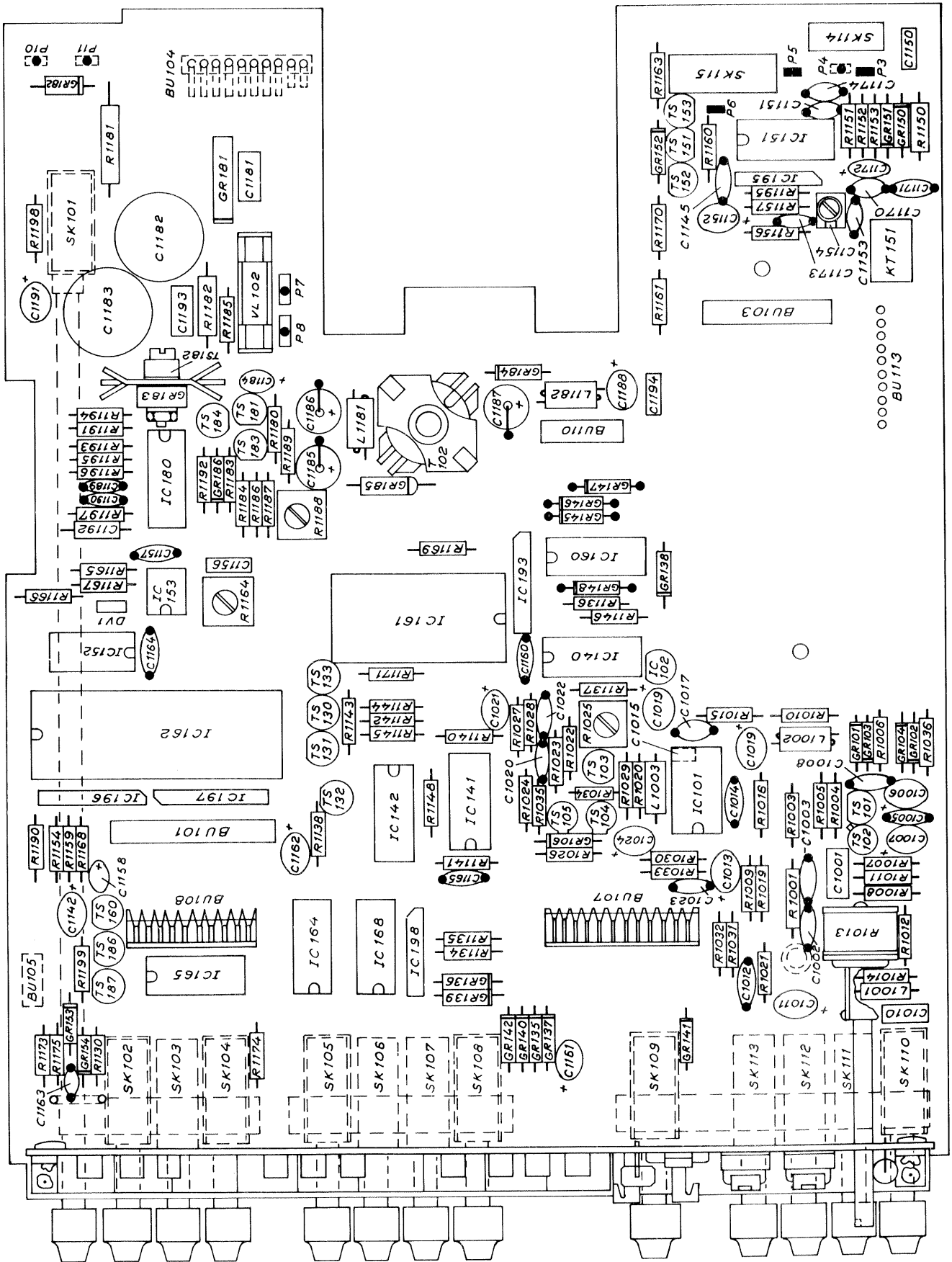
Rear panel



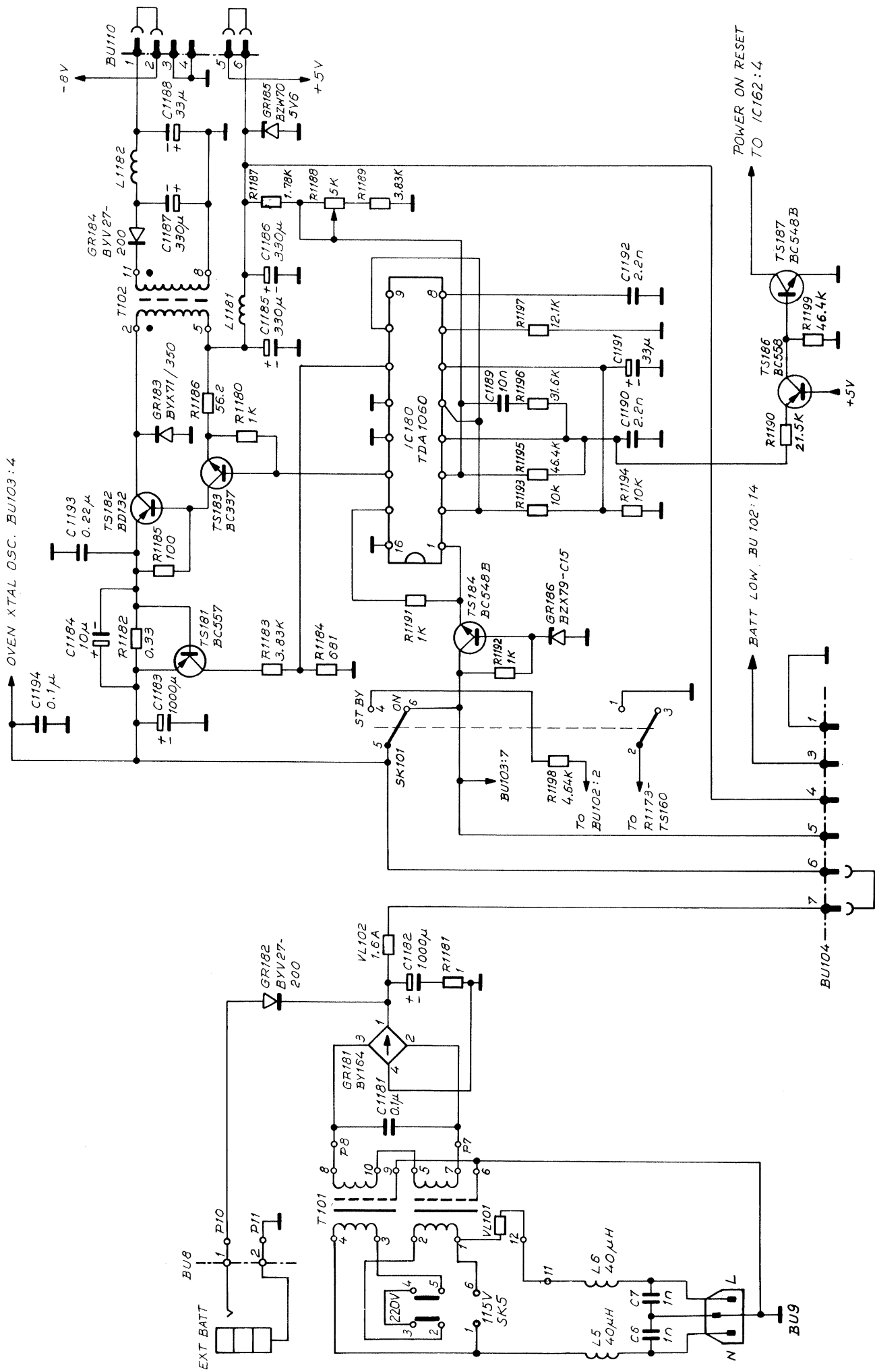
Input amplifier, logic and power supply



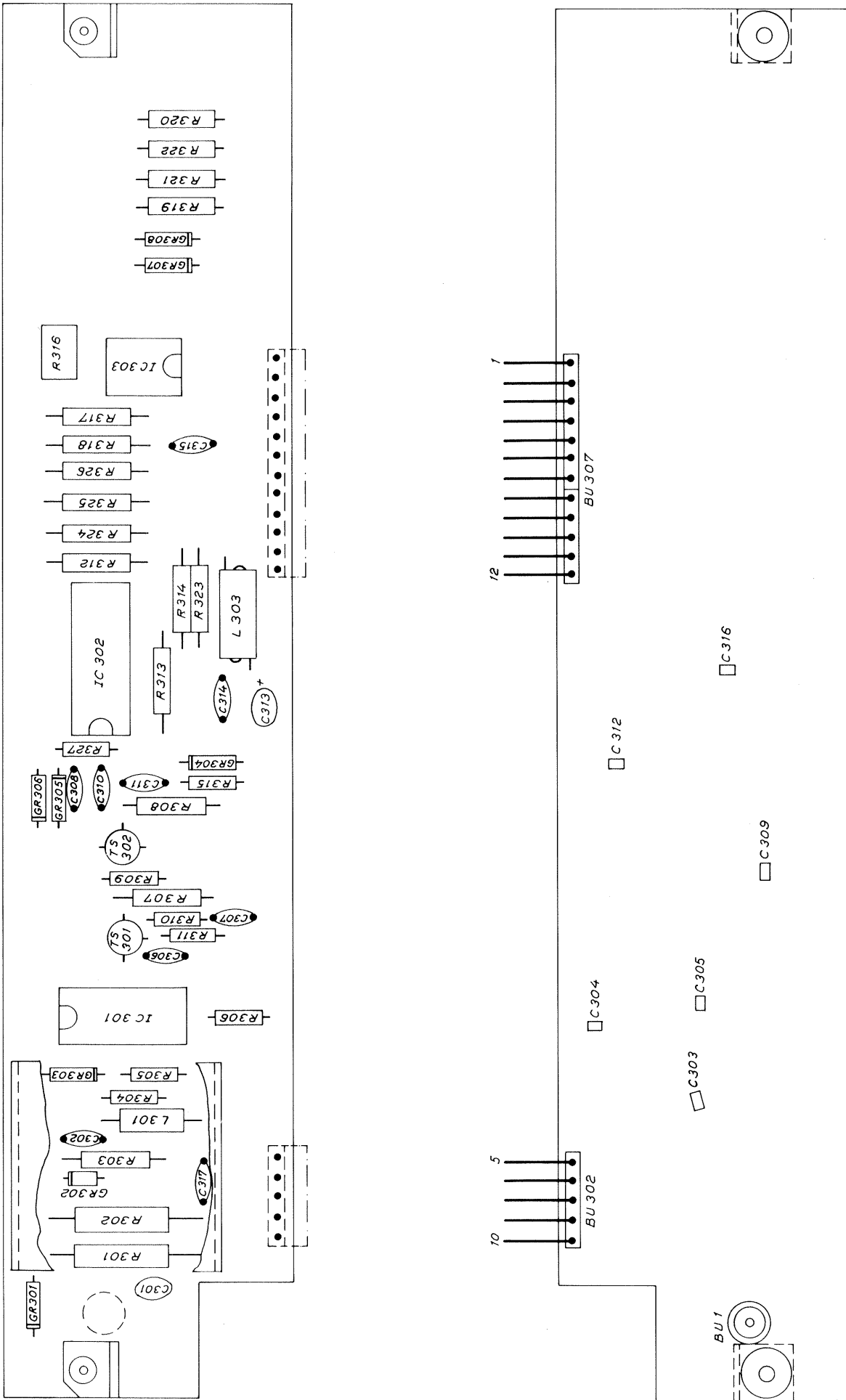
Rear panel

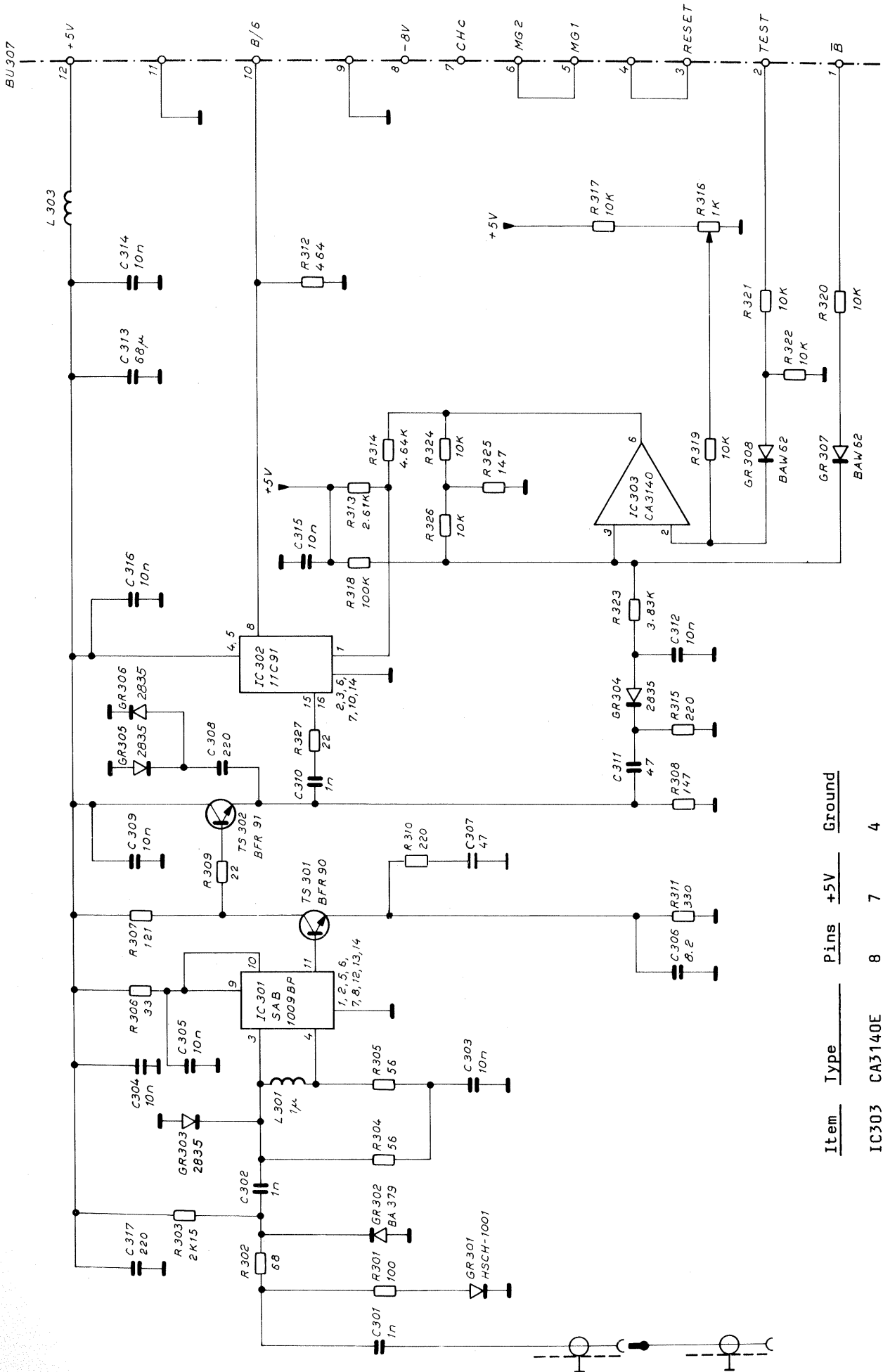


Input amplifier, logic and power supply

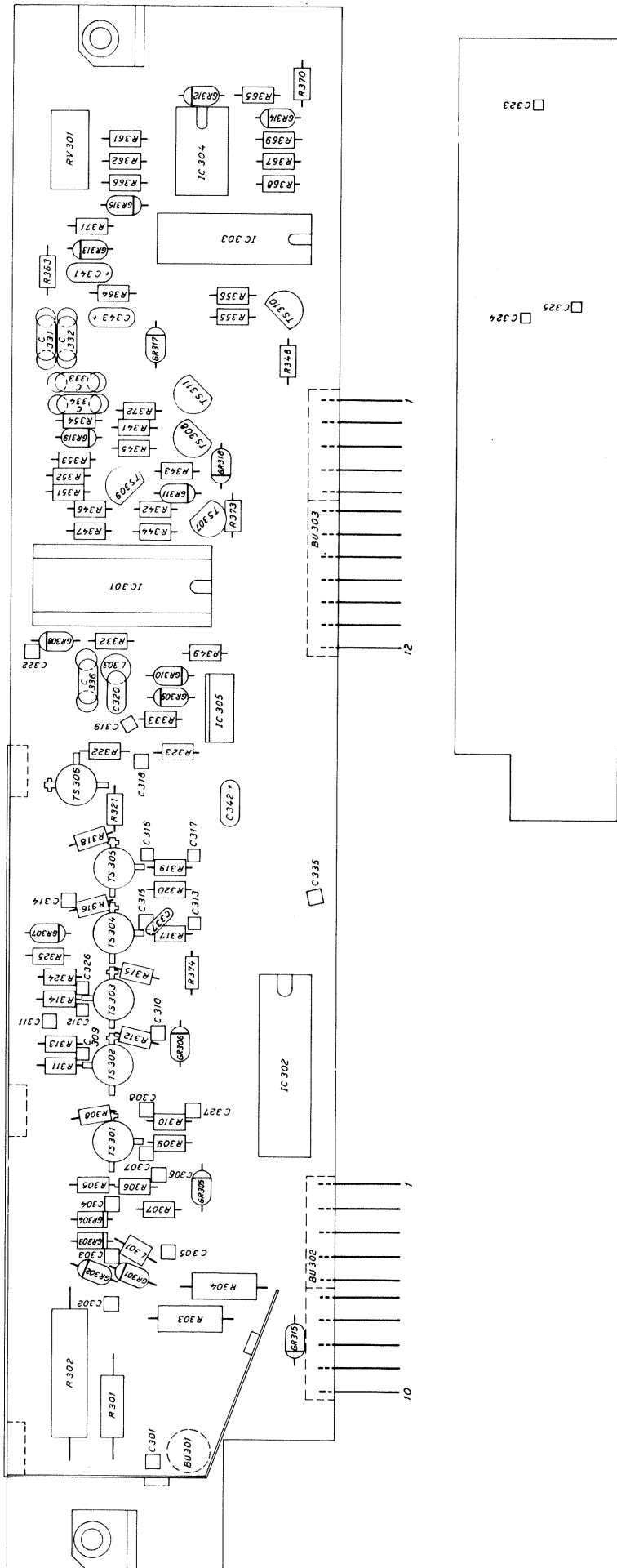


Power supply

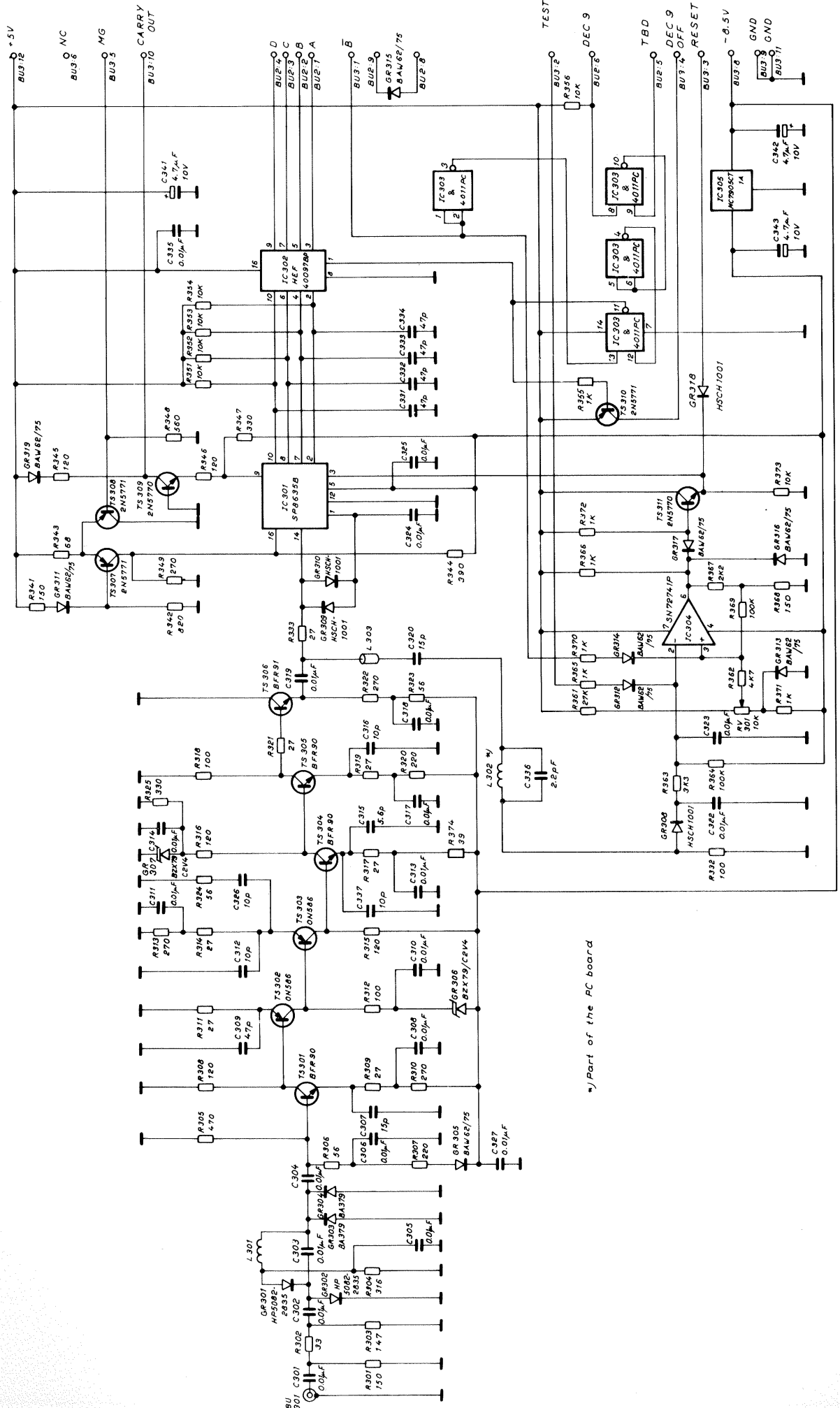




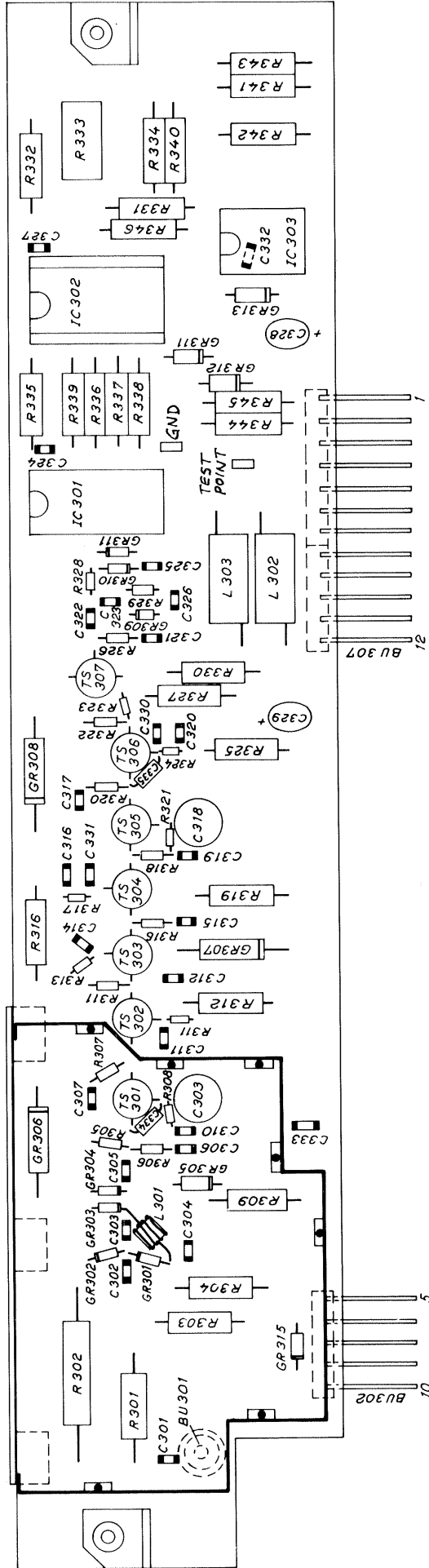
Item	Type	Pins	+5V	Ground
IC303	CA3140E	8	7	4

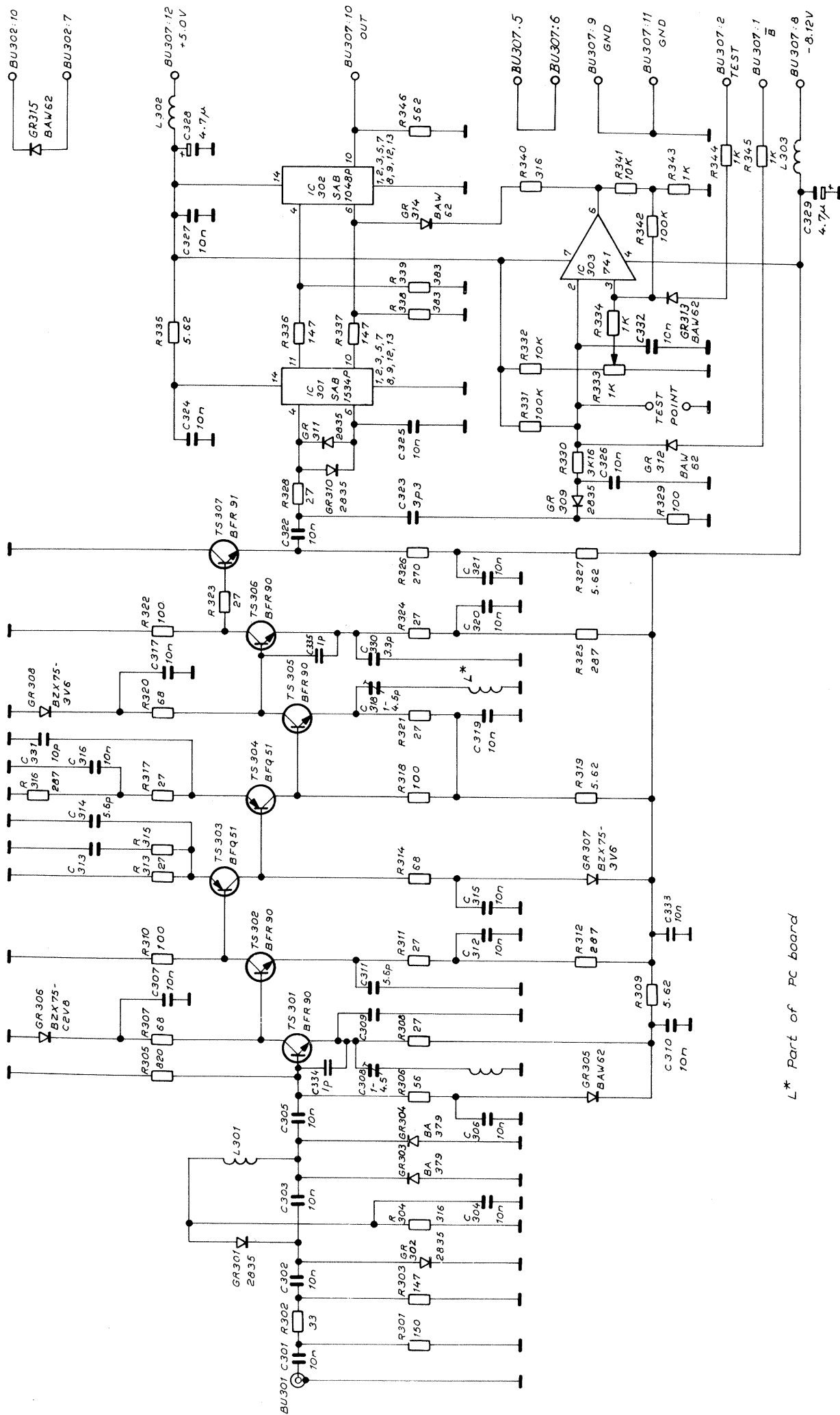


Direct gated input PM 6675



*/Part of the PC board





Prescaler PM 6676

L* Part of PC board

Note: In units with a serial number above 1710, a carbon resistor R347 of 150 ohm, 5%, 0.2W has been connected in series with the diode GR309. The order number for the new resistor is 4822 111 30325.

8. SPARE PARTS LIST

- The list is sorted by item number.
 - Spare parts for the prescalers can be found at the end of this list.

<u>Order number</u>	<u>Description</u>	<u>Specification</u>	<u>Item</u>
5322 130 90074	Display	7651	B201
5322 130 90074	Display	7651	B202
5322 130 90074	Display	7651	B203
5322 130 90074	Display	7651	B204
5322 130 90074	Display	7651	B205
5322 130 90074	Display	7651	B206
5322 130 90074	Display	7651	B207
5322 130 90074	Display	7651	B208
5322 130 90074	Display	7651	B209
5322 267 10004	Plug, Coax Female		BU1
5322 267 10004	Plug, Coax Female		BU2
5322 267 10004	Plug, Coax Female		BU5
5322 267 10004	Plug, Coax Female		BU6
5322 267 10004	Plug, Coax Female		BU7
5322 268 10147	Battery Input		BU8
5322 265 40181	Connector	13 Pins	BU101
5322 265 64028	Connector	10 Pins	BU103
5322 265 40178	Connector	10 Pins	BU104
5322 265 40181	Connector	4 Pins	BU105
5322 267 50335	Connector	12 Poles	BU107
5322 267 50336	Connector	10 Poles	BU108
5322 265 40181	Connector	6 Pins	BU110
5322 267 34043	PCB connector, Coax		BU120
5322 265 40178	Connector	10 Pins	BU202
5322 267 50334	Connector		BU203
5322 267 30393	Connector		BU204
5322 122 44019	Capacitor, Ceram	1nF 20% 250V	C6
5322 122 44019	Capacitor, Ceram	1nF 20% 250V	C7
4822 124 20673	Capacitor, Foil	470uF 6,3V	C201
4822 121 40036	Capacitor, Foil	100nF 10% 250V	C202
5322 121 44291	Capacitor, Foil	10nF 10% 400V	C1001
4822 122 31188	Capacitor, Ceram	3,3pF ±0,25pF 500V	C1002
4822 122 31349	Capacitor, Ceram	68pF 2% 100V	C1003
4822 122 31414	Capacitor, Ceram	10nF 100V	C1005
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1006
4822 124 20945	Capacitor, Elec.	33uF 40% 10V	C1007
4822 122 31072	Capacitor, Ceram	47pF 2% 100V	C1008
4822 121 41156	Capacitor, Foil	68nF 10% 250V	C1010
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1011
4822 122 31414	Capacitor, Ceram	10nF 100V	C1012
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1013
4822 122 31414	Capacitor, Ceram	10nF 100V	C1014
5322 122 34099	Capacitor, Chip	470pF 20% 50V	C1015
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1016
4822 122 31414	Capacitor, Ceram	10nF 100V	C1017
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1019
4822 122 31414	Capacitor, Ceram	10nF 100V	C1020
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1021
4822 122 31414	Capacitor, Ceram	10nF 100V	C1022
4822 122 31414	Capacitor, Ceram	10nF 100V	C1023
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C1024

4822	124	20941	Capacitor, Elec.	68uF	40%	6,3V	C1142
4822	122	31414	Capacitor, Ceram	10nF		100V	C1145
5322	121	40323	Capacitor, Foil	100nF	10%	100V	C1150
4822	122	31414	Capacitor, Ceram	10nF		100V	C1151
4822	124	20941	Capacitor, Elec.	68uF	40%	6,3V	C1152
			Capacitor, Ceram	22pF	2%	100V	C1153
5322	125	50051	Capacitor, Trimm	18pF			C1154
5322	121	44291	Capacitor, Foil	10nF	10%	400V	C1156
4822	122	31414	Capacitor, Ceram	10nF		100V	C1157
4822	124	20944	Capacitor, Elec.	1uF	40%	25V	C1158
4822	122	31414	Capacitor, Ceram	10nF		100V	C1160
4822	124	20941	Capacitor, Elec.	68uF	40%	6,3V	C1161
4822	124	20941	Capacitor, Elec.	68uF	40%	6,3V	C1162
4822	122	30027	Capacitor, Ceram	1nF	10%	100V	C1163
4822	122	31414	Capacitor, Ceram	10nF		100V	C1164
4822	122	31414	Capacitor, Ceram	10nF		100V	C1165
4822	122	31243	Capacitor, Ceram	82pF	2%	100V	C1170
4822	122	31243	Capacitor, Ceram	82pF	2%	100V	C1171
4822	124	20944	Capacitor, Elec.	1uF	40%	25V	C1172
4822	122	31414	Capacitor, Ceram	10nF		100V	C1173
4822	122	31414	Capacitor, Ceram	10nF		100V	C1174
5322	121	40323	Capacitor, Foil	100nF	10%	100V	C1181
			Capacitor, Elec.	1000uF		40V	C1182
			Capacitor, Elec.	1000uF		40V	C1183
5322	124	14066	Capacitor, Elec.	10uF	50%	6,3V	C1184
			Capacitor, Elec.	470uF	50%	10V	C1185
			Capacitor, Elec.	470uF	50%	10V	C1186
			Capacitor, Elec.	470uF	50%	10V	C1187
4822	124	20945	Capacitor, Elec.	33uF	40%	10V	C1188
4822	122	31414	Capacitor, Ceram	10nF		100V	C1189
4822	122	30114	Capacitor, Ceram	2,2nF	10%	100V	C1190
4822	124	20945	Capacitor, Elec.	33uF	40%	10V	C1191
5322	121	54071	Capacitor, Foil	2,2nF	1%	250V	C1192
			Capacitor, Foil	220nF	20%	63V	C1193
5322	121	40323	Capacitor, Foil	100nF	10%	100V	C1194
5322	263	64007	Jumper				DV1
4822	130	30613	Diode	BAW62			GR101
4822	130	30613	Diode	BAW62			GR102
4822	130	30613	Diode	BAW62			GR103
4822	130	30613	Diode	BAW62			GR104
4822	130	30613	Diode	BAW62			GR106
4822	130	30613	Diode	BAW62			GR135
4822	130	30613	Diode	BAW62			GR136
4822	130	30613	Diode	BAW62			GR137
4822	130	30613	Diode	BAW62			GR138
4822	130	30613	Diode	BAW62			GR139
4822	130	30613	Diode	BAW62			GR140
4822	130	30613	Diode	BAW62			GR141
4822	130	30613	Diode	BAW62			GR142
4822	130	30613	Diode	BAW62			GR145
4822	130	30613	Diode	BAW62			GR146
4822	130	30613	Diode	BAW62			GR147
4822	130	30613	Diode	BAW62			GR148
4822	130	30613	Diode	BAW62			GR150
4822	130	30613	Diode	BAW62			GR151
4822	130	30613	Diode	BAW62			GR152
4822	130	30613	Diode	BAW62			GR153
4822	130	30613	Diode	BAW62			GR154
4822	130	30414	Diode	BY164			GR181
			Diode	BYV27/200			GR182

4822	130	30865	Diode	BYX71/350	GR183
			Diode	BYV27/200	GR184
5322	130	31503	Diode	BZW70-C5V6	GR185
4822	130	34281	Diode	BZX79-B15	GR186
5322	130	31502	LED		GR202
5322	130	31502	LED		GR203
5322	130	31502	LED		GR204
5322	130	31502	LED		GR205
5322	130	31502	LED		GR206
5322	209	86202	Integrated Circuit	SAB1009BP	IC101
5322	209	80956	Integrated Circuit	MC79L05CP	IC102
5322	209	85802	Integrated Circuit	MC10131P	IC140
5322	209	86266	Integrated Circuit	GXB10106P	IC141
5322	209	84643	Integrated Circuit	MC10102L	IC142
5322	209	86441	Integrated Circuit	GXB10116P	IC151
5322	209	84986	Integrated Circuit	SN74LS74N	IC152
5322	209	80958	Integrated Circuit	ICM7555IPA	IC153
5322	209	86203	Integrated Circuit	MC10138P	IC160
5322	209	10164	Integrated Circuit	OQ0040	IC161
5322	209	10166	Integrated Circuit	P8049	IC162
5322	209	14433	Integrated Circuit	HEF40097BP	IC163
4822	209	10051	Integrated Circuit	HEF4076BP	IC164
5322	209	14056	Integrated Circuit	HEF4028BP	IC165
5322	209	85662	Integrated Circuit	TDA1060	IC180
5322	111	94015	Resistor Network	1K x 6 10% 1/8W	IC193
5322	111	94015	Resistor Network	1K x 6 10% 1/8W	IC195
5322	111	90079	Resistor Network	10K x 8 10% 1/8W	IC196
5322	111	90079	Resistor Network	10K x 8 10% 1/8W	IC197
5322	111	90081	Resistor Network	100K x 6 10% 1/8W	IC198
			Integrated Circuit	NE587N (see section Trouble-shooting)	IC201
5322	242	74372	Crystal /01 version	10MHz	KT151
5322	121	44235	Coil		L5
5322	121	44235	Coil		L6
5322	158	10052	Coil		L201
5322	152	20505	Coil, Choke	1uH	L1001
5322	158	10052	Coil	1000uH	L1002
5322	152	20505	Coil, Choke	1uH	L1003
5322	158	10052	Coil		L1181
5322	158	10052	Coil		L1182
5322	462	30207	Potentiometer + Switch	220K Lin.	R1
5322	116	54909	Resistor, M.Film	1K 5% 1,6W	R5
5322	116	50677	Resistor, M.Film	21E5 1% 0,4W	R201
5322	116	54541	Resistor, M.Film	825E 1% 0,4W	R202
5322	116	55257	Resistor, M.Film	953K 1% 0,5W	R1001
5322	116	50557	Resistor, M.Film	46K4 1% 0,4W	R1003
4822	110	72214	Resistor, Carbon	10M 10% 0,33W	R1004
4822	116	51098	Resistor, M.Film	100E 5% 1,6W	R1005
5322	116	50766	Resistor, M.Film	147E 1% 0,4W	R1006
5322	116	54511	Resistor, M.Film	316E 1% 0,4W	R1007
5322	116	54549	Resistor, M.Film	1K 1% 0,4W	R1008
5322	116	54728	Resistor, M.Film	215K 1% 0,4W	R1009
4822	116	51253	Resistor, M.Film	10K 1% 0,4W	R1010
5322	116	54502	Resistor, M.Film	261E 1% 0,4W	R1011
5322	116	50492	Resistor, M.Film	46E4 1% 0,4W	R1012
5322	101	94008	Potentiometer + Switch	500E Log.	R1013
5322	116	50677	Resistor, M.Film	21E5 1% 0,4W	R1014

5322	116	54462	Resistor, M.Film	82E5	1%	0,4W	R1015
5322	116	50492	Resistor, M.Film	46E4	1%	0,4W	R1016
5322	116	54446	Resistor, M.Film	56E2	1%	0,4W	R1019
5322	116	54511	Resistor, M.Film	316E	1%	0,4W	R1020
5322	116	54728	Resistor, M.Film	215K	1%	0,4W	R1021
5322	116	54536	Resistor, M.Film	750E	1%	0,4W	R1022
5322	116	54502	Resistor, M.Film	261E	1%	0,4W	R1023
5322	116	54536	Resistor, M.Film	750E	1%	0,4W	R1024
			Potentiometer, Trim	20K	Cerm	lin. 0,5W	R1025
5322	116	50954	Resistor, M.Film	38E3	1%	0,4W	R1026
4822	116	51233	Resistor, M.Film	681E	1%	0,4W	R1027
5322	116	54426	Resistor, M.Film	121E	1%	0,4W	R1028
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1029
5322	116	54541	Resistor, M.Film	825E	1%	0,4W	R1030
5322	116	54632	Resistor, M.Film	14K7	1%	0,4W	R1031
5322	116	54558	Resistor, M.Film	8K25	1%	0,4W	R1032
5322	116	55274	Resistor, M.Film	215E	1%	0,4W	R1033
5322	111	44153	Resistor, Carbon	15E	5%	0,2W	R1034
4822	111	30245	Resistor, Carbon	47E	5%	0,2W	R1035
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1036
5322	116	50767	Resistor, M.Film	2K15	1%	0,4W	R1130
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1134
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1135
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1136
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1137
5322	116	50484	Resistor, M.Film	4K64	1%	0,4W	R1138
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1140
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1141
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1142
5322	116	50484	Resistor, M.Film	4K64	1%	0,4W	R1143
5322	116	50484	Resistor, M.Film	4K64	1%	0,4W	R1144
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1145
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1146
5322	116	50767	Resistor, M.Film	2K15	1%	0,4W	R1148
5322	116	54909	Resistor, M.Film	1K	5%	1,6W	R1150
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1151
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1152
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1153
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1154
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1155
5322	116	54608	Resistor, M.Film	7K5	1%	0,4W	R1156
5322	116	54515	Resistor, M.Film	348E	1%	0,4W	R1157
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1159
5322	116	54518	Resistor, M.Film	383E	1%	0,4W	R1160
5322	116	54518	Resistor, M.Film	383E	1%	0,4W	R1161
5322	116	50484	Resistor, M.Film	4K64	1%	0,4W	R1163
5322	101	14194	Potentiometer, Trim	10K	Cerm	lin. 0,5W	R1164
5322	116	50572	Resistor, M.Film	12K1	1%	0,4W	R1165
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1166
5322	116	50579	Resistor, M.Film	3K16	1%	0,4W	R1167
5322	116	54469	Resistor, M.Film	100E	1%	0,4W	R1168
5322	116	50536	Resistor, M.Film	464E	1%	0,4W	R1169
5322	116	54469	Resistor, M.Film	100E	1%	0,4W	R1170
5322	116	50492	Resistor, M.Film	46E4	1%	0,4W	R1171
5322	116	50492	Resistor, M.Film	46E4	1%	0,4W	R1173
5322	116	54469	Resistor, M.Film	100E	1%	0,4W	R1174
5322	116	55535	Resistor, M.Film	1M	1%	0,4W	R1175
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1180
4822	113	60084	Resistor, W.W.	1E	5%	1,0W	R1181
5322	116	60129	Resistor, M.Oxide	0,33E	10%	0,7W	R1182
5322	116	54589	Resistor, M.Film	3K83	1%	0,4W	R1183
4822	116	51233	Resistor, M.Film	681E	1%	0,4W	R1184

5322	116	54469	Resistor, M.Film	100E	1%	0,4W	R1185
5322	116	54446	Resistor, M.Film	56E2	1%	0,4W	R1186
5322	116	50515	Resistor, M.Film	1K78	1%	0,4W	R1187
5322	101	14272	Potentiometer, Trim	5K	Cerm lin.	0,5W	R1188
5322	116	54589	Resistor, M.Film	3K83	1%	0,4W	R1189
5322	116	50451	Resistor, M.Film	21K5	1%	0,4W	R1190
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1191
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R1192
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1193
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R1194
5322	116	50557	Resistor, M.Film	46K4	1%	0,4W	R1195
5322	116	54657	Resistor, M.Film	31K6	1%	0,4W	R1196
5322	116	50572	Resistor, M.Film	12K1	1%	0,4W	R1197
5322	116	50484	Resistor, M.Film	4K64	1%	0,4W	R1198
5322	116	50557	Resistor, M.Film	46K4	1%	0,4W	R1199
5322	462	30207	Potentiometer + Switch	220K	Lin.		SK1
5322	276	10913	Switch, Pushbut				SK101
5322	276	10913	Switch, Pushbut				SK102
5322	276	10913	Switch, Pushbut				SK103
5322	276	10913	Switch, Pushbut				SK104
5322	276	10913	Switch, Pushbut				SK105
5322	276	10913	Switch, Pushbut				SK106
5322	276	10913	Switch, Pushbut				SK107
5322	276	10913	Switch, Pushbut				SK108
5322	276	10913	Switch, Pushbut				SK109
5322	276	10913	Switch, Pushbut				SK110
5322	276	10913	Switch, Pushbut				SK111
5322	276	10913	Switch, Pushbut				SK112
5322	276	10913	Switch, Pushbut				SK113
5322	276	10911	Switch				SK114
5322	276	10912	Switch				SK115
5322	101	94008	Potentiometer + Switch	500E	Log.		SK116
5322	146	10001	Transformer, Line				T101
5322	146	10002	Transformer, Switch				T102
5322	130	44418	Transistor	BF256A			TS101
5322	130	40379	Transistor	BFW30			TS102
5322	130	44435	Transistor	2N5770			TS103
5322	130	40745	Transistor	BFW92			TS104
5322	130	40745	Transistor	BFW92			TS105
4822	130	44197	Transistor	BC558B			TS130
4822	130	40937	Transistor	BC548B			TS131
4822	130	40937	Transistor	BC548B			TS132
4822	130	40937	Transistor	BC548B			TS133
5322	130	44845	Transistor	2N5771			TS151
5322	130	44845	Transistor	2N5771			TS152
5322	130	44435	Transistor	2N5770			TS153
4822	130	44197	Transistor	BC558B			TS160
4822	130	44256	Transistor	BC557			TS181
5322	130	40753	Transistor	BD132			TS182
4822	130	40855	Transistor	BC337			TS183
4822	130	40937	Transistor	BC548B			TS184
4822	130	44197	Transistor	BC558B			TS186
4822	130	40937	Transistor	BC548B			TS187
5322	130	41682	Transistor	MPS-A12			TS201
5322	130	41682	Transistor	MPS-A12			TS202
5322	130	41682	Transistor	MPS-A12			TS203

5322 130 41682	Transistor	MPS-A12	TS204
5322 130 41682	Transistor	MPS-A12	TS205
5322 130 41682	Transistor	MPS-A12	TS206
5322 130 41682	Transistor	MPS-A12	TS207
5322 130 41682	Transistor	MPS-A12	TS208
5322 130 41682	Transistor	MPS-A12	TS209
4822 130 44197	Transistor	BC558B	TS210
4822 253 20022	Fuse	1,6A Fast 5x20mm	VL102
4822 252 20007	Thermal fuse		VL101

MISCELLANEOUS

<u>Order number</u>	<u>Description</u>	<u>Specification</u>
5322 265 30066	Line Input	
5322 272 10217	Line Voltage Selector	
5322 256 34104	Fuse holder for V1102	
5322 268 20097	Socket, for IC301 PM6676	
5322 255 40233	Socket, IC	40 Poles
5322 255 40234	Socket, IC	28 Poles
5322 255 40235	Socket, IC	18 Poles
5322 255 40236	Socket, IC	16 Poles
5322 255 40237	Socket, IC	14 Poles
5322 267 34043	PCB connector, Coax	
5322 321 20504	Coax cable+Connector to U3	
5322 321 20505	Coax Cable+Connector to U1	

CABINET

<u>Order number</u>	<u>Description</u>	<u>Specification</u>
5322 414 34091	Knob for potentiometer	
5322 414 74015	Cap for potentiometer knob	
5322 414 25851	Button, Push	Green/Grey
5322 414 26019	Button, Push	Light Grey
5322 447 90006	Cover, Top	
5322 447 90007	Cover, Bottom	
5322 462 44179	Bottom foot	
5322 462 44431	Plug in bottom foot	
5322 462 44181	Rear foot	
5322 466 85335	Front rim	
5322 459 24054	Rear rim	
5322 498 50127	Handle	
5322 528 34101	Lock washer in handle	
5322 520 34164	Bearing bush to the handle	
5322 414 64053	Knob to the handle	
5322 530 84075	Spring to the handle	
5322 535 94637	Extention Bar for SK101	
5322 492 64337	Clip to Extention Bar	
5322 466 60835	Cabinet side profile	
5322 477 90011	Cover, rear panel slot	
5322 462 34127	Guide rail for U1	
5322 456 10004	Text plate PM6673	
5322 456 10005	Text Plate PM6674	
5322 456 10006	Text plate PM6676	
5322 447 84642	Front cover	

PM 6674, UNIT 3

Order number	Description	Specification	Item
5322 265 40182	Connector	7 Pins	BU302
5322 265 40182	Connector	7 Pins	BU307
4822 122 31175	Capacitor, Ceram	1nF 10% 500V	C301
4822 122 30027	Capacitor, Ceram	1nF 10% 100V	C302
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C303
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C304
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C305
	Capacitor, Ceram	8,2pF ±0,25pF 100V	C306
4822 122 31072	Capacitor, Ceram	47pF 2% 100V	C307
4822 122 30094	Capacitor, Ceram	220pF 10% 100V	C308
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C309
4822 122 30027	Capacitor, Ceram	1nF 10% 100V	C310
4822 122 31072	Capacitor, Ceram	47pF 2% 100V	C311
4822 122 31414	Capacitor, Ceram	10nF 100V	C312
4822 124 20941	Capacitor, Elec.	68uF 40% 6,3V	C313
4822 122 31414	Capacitor, Ceram	10nF 100V	C314
4822 122 31414	Capacitor, Ceram	10nF 100V	C315
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C316
4822 122 30094	Capacitor, Ceram	220pF 10% 100V	C317
5322 130 34877	Diode	HSCH1001	GR301
5322 130 34364	Diode	BAW379	GR302
5322 130 34283	Diode	HP5082-2835	GR303
5322 130 34283	Diode	HP5082-2835	GR304
5322 130 34283	Diode	HP5082-2835	GR305
5322 130 34283	Diode	HP5082-2835	GR306
4822 130 30613	Diode	BAW62	GR307
4822 130 30613	Diode	BAW62	GR308
5322 209 86202	Integrated Circuit	SAB1009BP	IC301
5322 209 80957	Integrated Circuit	11C91DC	IC302
5322 209 86201	Integrated Circuit	CA3140E	IC303
5322 158 10311	Coil		L301
5322 158 10052	Coil		L303
5322 116 54392	Resistor, M.Film	100E 5% 2,5W	R301
5322 116 54396	Resistor, M.Film	68E 5% 2,5W	R302
5322 116 50767	Resistor, M.Film	2K15 1% 0,4W	R303
5322 111 30074	Resistor, Carbon	56E 5% 0,2W	R304
5322 111 30074	Resistor, Carbon	56E 5% 0,2W	R305
4822 111 30067	Resistor, Carbon	33E 5% 0,2W	R306
5322 116 54426	Resistor, M.Film	121E 1% 0,4W	R307
5322 116 50766	Resistor, M.Film	147E 1% 0,4W	R308
5322 111 30396	Resistor, Carbon	22E 5% 0,2W	R309
4822 111 30327	Resistor, Carbon	220E 5% 0,2W	R310
4822 111 30328	Resistor, Carbon	330E 5% 0,2W	R311
5322 116 50536	Resistor, M.Film	464E 1% 0,4W	R312
5322 116 50671	Resistor, M.Film	2K61 1% 0,4W	R313
5322 116 50484	Resistor, M.Film	4K64 1% 0,4W	R314
4822 111 30327	Resistor, Carbon	220E 5% 0,2W	R315

5322	101	14299	Potentiometer, Trim	1K			R316
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R317
4822	116	51268	Resistor, M.Film	100K	1%	0,4W	R318
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R319
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R320
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R321
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R322
5322	116	54589	Resistor, M.Film	3K83	1%	0,4W	R323
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R324
5322	116	50766	Resistor, M.Film	147E	1%	0,4W	R325
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R326
5322	111	30396	Resistor, Carbon	22E	5%	0,2W	R327
5322	130	44179	Transistor	BFR90			TS301
5322	130	44181	Transistor	BFR91			TS302

PM 6675, UNIT 3

<u>Order number</u>	<u>Description</u>	<u>Specification</u>	<u>Item</u>
5322 267 34043	Plug, Coax, Female		BU301
5322 122 34098	Capacitor	10nF 20% 50V	C301
5322 122 34098	Capacitor	10nF 20% 50V	C302
5322 122 34098	Capacitor	10nF 20% 50V	C303
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C304
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C305
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C306
5322 122 34097	Capacitor	15pF 10% 50V	C307
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C308
5322 122 34043	Capacitor	47pF 10% 50V	C309
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C310
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C311
5322 122 34046	Capacitor	10pF 10% 50V	C312
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C313
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C314
5322 122 34096	Capacitor	5.6pF 10% 50V	C315
5322 122 34046	Capacitor	10pF 10% 50V	C316
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C317
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C318
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C319
	Capacitor	15pF 2% 100V	C320
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C322
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C323
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C324
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C325
5322 122 34046	Capacitor	10pF 10% 50V	C326
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C327
4822 122 31072	Capacitor	47pF 2% 100V	C331
4822 122 31072	Capacitor	47pF 2% 100V	C332
4822 122 31072	Capacitor	47pF 2% 100V	C333
4822 122 31072	Capacitor	47pF 2% 100V	C334
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C335
	Capacitor	2.2pF ±0.25pF 100V	C336
	Capacitor	10pF 2% 100V	C337
	Capacitor	4.7uF ±20% 10V	C341
	Capacitor	4.7uF ±20% 10V	C342
	Capacitor	4.7uF ±20% 10V	C343

5322	130	34283	Diode	HP5082-2835		GR301	
5322	130	34283	Diode	HP5082-2835		GR302	
5322	130	34364	Diode	BAW379		GR303	
5322	130	34364	Diode	BAW379		GR304	
4822	130	30613	Diode	BAW62		GR305	
4822	130	31253	Diode	BZX79/C2V4		GR306	
4822	130	31253	Diode	BZX79/C2V4		GR307	
5322	130	34877	Diode	HSCH1001		GR308	
5322	130	34877	Diode	HSCH1001		GR309	
5322	130	34877	Diode	HSCH1001		GR310	
4822	130	30613	Diode	BAW62		GR311	
4822	130	30613	Diode	BAW62		GR312	
4822	130	30613	Diode	BAW62		GR313	
4822	130	30613	Diode	BAW62		GR314	
4822	130	30613	Diode	BAW62		GR315	
4822	130	30613	Diode	BAW62		GR316	
4822	130	30613	Diode	BAW62		GR317	
5322	130	34877	Diode	HSCH1001		GR318	
4822	130	30613	Diode	BAW62		GR319	
5322	209	85204	Integrated circuit	SP8635B		IC301	
5322	209	14433	Integrated circuit	HEF40097BP		IC302	
			Integrated circuit	4011PC		IC303	
5322	209	85254	Integrated circuit	UA741CN		IC304	
5322	209	85456	Integrated circuit	MC7905CT		IC305	
4822	526	10025	FXC-tube	4B		L303	
4822	116	51142	Resistor, M.Film	150E	5%	1,6W	R301
4822	116	51087	Resistor, M.Film	33E	5%	2,5W	R302
5322	116	50766	Resistor, M.Film	147E	1%	0.4W	R303
5322	116	54511	Resistor, M.Film	316E	1%	0,4W	R304
4822	111	30331	Resistor, Carbon	470E	5%	0.2W	R305
5322	111	30074	Resistor, Carbon	56E	5%	0,2W	R306
4822	111	30327	Resistor, Carbon	220E	5%	0,2W	R307
5322	111	30298	Resistor, Carbon	120E	5%	0.2W	R308
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R309
4822	111	30323	Resistor, Carbon	270E	5%	0.2W	R310
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R311
4822	111	30324	Resistor, Carbon	100E	5%	0.2W	R312
4822	111	30323	Resistor, Carbon	270E	5%	0.2W	R313
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R314
5322	111	30298	Resistor, Carbon	120E	5%	0.2W	R315
5322	111	30298	Resistor, Carbon	120E	5%	0.2W	R316
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R317
4822	111	30324	Resistor, Carbon	100E	5%	0.2W	R318
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R319
4822	111	30327	Resistor, Carbon	220E	5%	0,2W	R320
4822	111	30348	Resistor, Carbon	27.E	5%	0.2W	R321
4822	111	30323	Resistor, Carbon	270E	5%	0.2W	R322
5322	111	30074	Resistor, Carbon	56E	5%	0.2W	R323
5322	111	30074	Resistor, Carbon	56E	5%	0.2W	R324
4822	111	30328	Resistor, Carbon	330E	5%	0.2W	R325
4822	111	30324	Resistor, Carbon	100E	5%	0.2W	R332
4822	111	30348	Resistor, Carbon	27E	5%	0.2W	R333
4822	111	30325	Resistor, Carbon	150E	5%	0,2W	R341
4822	111	30271	Resistor, Carbon	820E	5%	0,2W	R342
5322	111	30383	Resistor, Carbon	68E	5%	0.2W	R343
4822	111	30329	Resistor, Carbon	390E	5%	0.2W	R344

5322	111	30298	Resistor, Carbon	120E	5%	0.2W	R345
5322	111	30298	Resistor, Carbon	120E	5%	0.2W	R346
4822	111	30328	Resistor, Carbon	330E	5%	0.2W	R347
4822	111	30309	Resistor, Carbon	560E	5%	0.2W	R348
4822	111	30323	Resistor, Carbon	270E	5%	0.2W	R349
4822	111	30273	Resistor, Carbon	10.K	5%	0.2W	R351
4822	111	30273	Resistor, Carbon	10K	5%	0.2W	R352
4822	111	30273	Resistor, Carbon	10K	5%	0.2W	R353
4822	111	30273	Resistor, Carbon	10K	5%	0.2W	R354
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R355
4822	111	30273	Resistor, Carbon	10K	5%	0.2W	R356
5322	111	30278	Resistor, Carbon	27K	5%	0.2W	R361
4822	111	30312	Resistor, Carbon	4.7K	5%	0.2W	R362
4822	111	30263	Resistor, Carbon	3.3K	5%	0.2W	R363
4822	111	30296	Resistor, Carbon	100K	5%	0.2W	R364
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R365
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R366
4822	111	30265	Resistor, Carbon	2.2K	5%	0.2W	R367
4822	111	30325	Resistor, Carbon	150E	5%	0.2W	R368
4822	111	30296	Resistor, Carbon	100K	5%	0.2W	R369
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R370
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R371
4822	111	30269	Resistor, Carbon	1K	5%	0.2W	R372
4822	111	30273	Resistor, Carbon	10K	5%	0.2W	R373
4822	111	30069	Resistor, Carbon	39E	5%	0.2W	R374

5322	101	14254	Potentiometer	10K	10%		RV301
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5322	130	44179	Transistor	BFR90			TS301
5322	130	41683	Transistor	ON586 = BFQ51			TS302
5322	130	41683	Transistor	ON586 = BFQ51			TS303
5322	130	44179	Transistor	BFR90			TS304
5322	130	44179	Transistor	BFR90			TS305
5322	130	44181	Transistor	BFR91			TS306
5322	130	44845	Transistor	2N5771			TS307
5322	130	44845	Transistor	2N5771			TS308
5322	130	44435	Transistor	2N5770			TS309
5322	130	44845	Transistor	2N5771			TS310
5322	130	44435	Transistor	2N5770			TS311

PM 6676, UNIT 3

Order number	Description	Specification	Item
5322 267 34043	Plug, Coax, Female		BU301
5322 265 40182	Connector	7 Pins	BU302
5322 265 40182	Connector	7 Pins	BU307
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C301
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C302
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C303
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C304
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C305
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C306
5322 122 34098	Capacitor, Chip	10nF 20% 50V	C307
5322 125 54055	Capacitor, Trimmer	4,5pF	C308

5322	122	34098	Capacitor, Chip	10nF	20%	50V	C310
5322	122	34096	Capacitor, Chip	5,6pF	10%	50V	C311
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C312
5322	122	34096	Capacitor, Chip	5,6pF	10%	50V	C314
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C315
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C316
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C317
5322	125	54055	Capacitor, Trimmer	4,5pF			C318
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C319
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C320
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C321
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C322
5322	122	31594	Capacitor, Ceram	3,3pF	10%	50V	C323
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C324
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C325
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C326
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C327
5322	124	14064	Capacitor, Elec.	4,7uF	20%	25V	C328
5322	124	14064	Capacitor, Elec.	4,7uF	20%	25V	C329
5322	122	31594	Capacitor, Ceram	3,3pF	10%	50V	C330
5322	122	34046	Capacitor, Chip	10pF	10%	50V	C331
5322	122	34098	Capacitor, Chip	10nF	20%	50V	C332
			Capacitor	1nF	20%	50V	C333
			Capacitor	1pF	±0,25pF	100V	C334
			Capacitor	1pF	±0,25pF	100V	C335
5322	130	34283	Diode	HP5082-2835			GR301
5322	130	34283	Diode	HP5082-2835			GR302
5322	130	34364	Diode	BAW379			GR303
5322	130	34364	Diode	BAW379			GR304
4822	130	30613	Diode	BAW62			GR305
4822	130	34048	Diode	BZX75-C2V8			GR306
4822	130	30765	Diode	BZX75-C3V6			GR307
4822	130	30765	Diode	BZX75-C3V6			GR308
5322	130	34283	Diode	HP5082-2835			GR309
5322	130	34283	Diode	HP5082-2835			GR310
5322	130	34283	Diode	HP5082-2835			GR311
4822	130	30613	Diode	BAW62			GR312
4822	130	30613	Diode	BAW62			GR313
4822	130	30613	Diode	BAW62			GR314
4822	130	30613	Diode	BAW62			GR315
5322	209	86264	Integrated Circuit	SAB1534P			IC301
5322	209	86263	Integrated Circuit	SAB1048			IC302
5322	209	85254	Integrated Circuit	uA741CN			IC303
5322	158	14119	Coil				L301
5322	158	10052	Coil				L302
5322	158	10052	Coil				L303
4822	116	51142	Resistor, M.Film	150E	5%	1,6W	R301
4822	116	51087	Resistor, M.Film	33E	5%	2,5W	R302
5322	116	50766	Resistor, M.Film	147E	1%	0,4W	R303
5322	116	54511	Resistor, M.Film	316E	1%	0,4W	R304
4822	111	30271	Resistor, Carbon	820E	5%	0,2W	R305
5322	111	30074	Resistor, Carbon	56E	5%	0,2W	R306
5322	111	30383	Resistor, Carbon	68E	5%	0,2W	R307

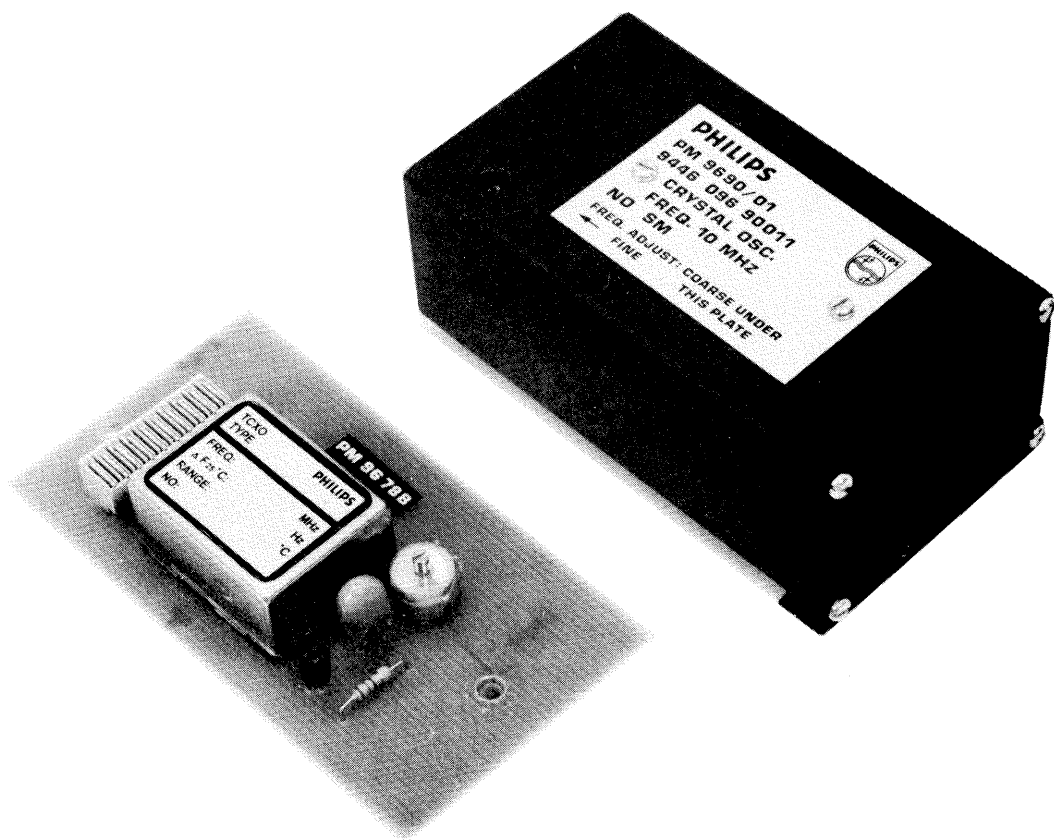
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R308
5322	116	54128	Resistor, M.Film	5E62	1%	0,4W	R309
4822	111	30324	Resistor, Carbon	100E	5%	0,2W	R310
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R311
5322	116	54506	Resistor, M.Film	287E	1%	0,4W	R312
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R313
5322	111	30383	Resistor, Carbon	68E	5%	0,2W	R314
5322	116	54506	Resistor, M.Film	287E	1%	0,4W	R316
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R317
4822	111	30324	Resistor, Carbon	100E	5%	0,2W	R318
5322	116	54128	Resistor, M.Film	5E62	1%	0,4W	R319
5322	111	30383	Resistor, Carbon	68E	5%	0,2W	R320
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R321
4822	111	30324	Resistor, Carbon	100E	5%	0,2W	R322
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R323
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R324
5322	116	54506	Resistor, M.Film	287E	1%	0,4W	R325
4822	111	30323	Resistor, Carbon	270E	5%	0,2W	R226
5322	116	54128	Resistor, M.Film	5E62	1%	0,4W	R327
5322	111	90078	Resistor, Chip	27E	5%	0,15W	R328
4822	111	30324	Resistor, Carbon	100E	5%	0,2W	R329
5322	116	50579	Resistor, M.Film	3K16	1%	0,4W	R330
4822	116	51268	Resistor, M.Film	100K	1%	0,4W	R331
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R332
5322	101	14299	Potentiometer, Trim	1K			R333
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R334
5322	116	54128	Resistor, M.Film	5E62	1%	0,4W	R335
5322	116	50766	Resistor, M.Film	147E	1%	0,4W	R336
5322	116	50766	Resistor, M.Film	147E	1%	0,4W	R337
5322	116	54518	Resistor, M.Film	383E	1%	0,4W	R338
5322	116	54518	Resistor, M.Film	383E	1%	0,4W	R339
5322	116	54511	Resistor, M.Film	316E	1%	0,4W	R340
4822	116	51253	Resistor, M.Film	10K	1%	0,4W	R341
4822	116	51268	Resistor, M.Film	100K	1%	0,4W	R342
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R343
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R344
5322	116	54549	Resistor, M.Film	1K	1%	0,4W	R345
5322	116	54009	Resistor, M.Film	562E	1%	0,4W	R346
5322	130	44179	Transistor	BFR90			TS301
5322	130	44179	Transistor	BFR90			TS302
5322	130	41683	Transistor	ON586 =	BFQ51		TS303
5322	130	41683	Transistor	ON586 =	BFQ51		TS304
5322	130	44179	Transistor	BFR90			TS305
5322	130	44179	Transistor	BFR90			TS306
5322	130	44181	Transistor	BFR91			TS307

OPTIONAL OSCILLATORS

- PM 9678B**
- PM 9679E**
- PM 9690**
- PM 9691**

Instruction Manual

820615



9. OPTIONAL OSCILLATORSTechnical specification

	<u>02 version</u> <u>PM 9678B</u>	<u>03 version</u> <u>PM 9679E</u>	<u>04 version</u> <u>PM 9690</u>	<u>05 version</u> <u>PM 9691</u>
Nominal frequency	10MHz	10MHz	10MHz	10MHz
Trimming range (1)	$>\pm 20\text{Hz}$	$-100\dots+40\text{Hz}$	$-7\dots+3\text{Hz}$	$-7\dots+3\text{Hz}$
Output voltage into 1 kohm	$>100\text{mV}_{\text{RMS}}$	$>1\text{V}_{\text{RMS}}$	$>150\text{mV}_{\text{RMS}}$	$>150\text{mV}_{\text{RMS}}$
Supply voltage, DC	$+11.5\dots28\text{V}$	$+11.5\dots28\text{V}$	$+11.5\dots28\text{V}$	$+11.5\dots28\text{V}$
Power consumption (+23°C)				
- Continuous operation	$<15\text{mA}$ (2)	$<100\text{mA}$ (3)	$<125\text{mA}$ (2)	$<125\text{mA}$ (2)
- Stand-by	none	$<100\text{mA}$ (3)	$<125\text{mA}$ (2)	$<125\text{mA}$ (2)
- Warm-up	none	$<400\text{mA}$	$<400\text{mA}$	$<400\text{mA}$
Stability against:				
- Ageing /24h	NA	NA	$<1.5\times 10^{-9}$ (4)	$<5\times 10^{-10}$ (4)
/month	$<1\times 10^{-7}$	$<1\times 10^{-7}$	$<3\times 10^{-8}$	$<1\times 10^{-8}$
/year	$<5\times 10^{-7}$	$<5\times 10^{-7}$	$<1.5\times 10^{-7}$	$<7.5\times 10^{-8}$
- Temperature 0...50°C ref. to 23°C	$<1\times 10^{-6}$	$<1\times 10^{-7}$	$<3\times 10^{-8}$	$<5\times 10^{-9}$
- Line voltage $\pm 10\%$	$<1\times 10^{-9}$	$<1\times 10^{-9}$	$<5\times 10^{-10}$	$<5\times 10^{-10}$
- Change of measuring mode and change between line and ext/int battery	$<5\times 10^{-8}$	$<1\times 10^{-8}$	$<3\times 10^{-9}$	$<3\times 10^{-9}$
Warm-up time to reach 1×10^{-7}	NA	$<10\text{ min}$	$<15\text{ min}$	$<15\text{ min}$
Dimensions	93x50x15mm	100x52x35mm	100x52x35mm	100x52x35mm
Weight	25g	100g	100g	100g
Environmental conditions	All oscillators meet the same specifications as the PM 6670 series of counters.			

(1) The trimming range will cover at least 10 years of operation since the ageing will decrease substantially after the first 6 months. For PM 9690 and PM 9691 the indicated values apply only to the fine trimming range. However, a coarse trimmer is available.

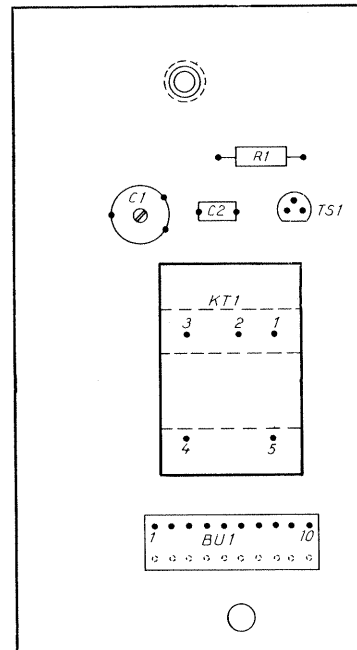
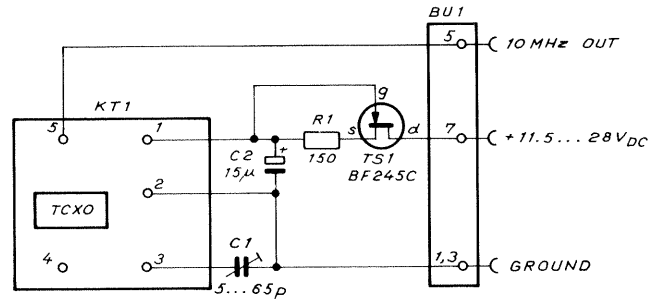
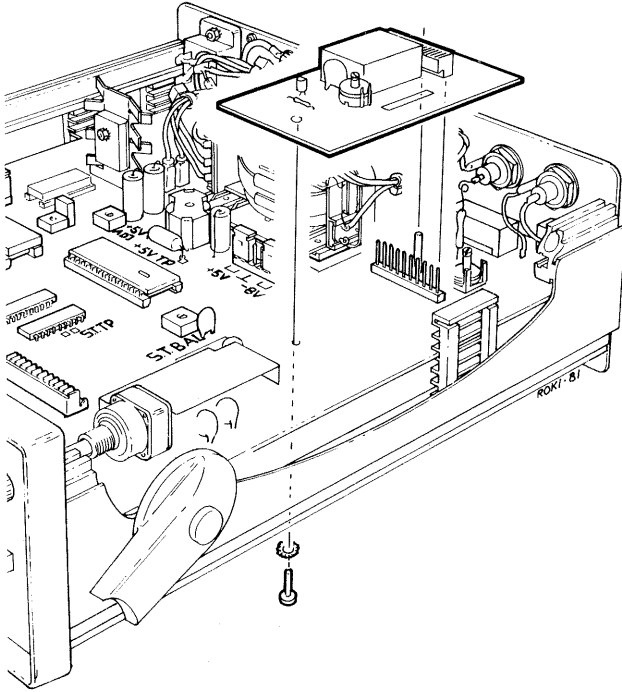
(2) At 11.5...28V

(3) At 11.5V. Less than 60mA at 28V

(4) After 48 hours of continuous operation.

Installation of PM 9678B

Remove the x-tal KT151 before installing the oscillator PM 9678B.



Frequency adjustment of PM 9678B

This adjustment requires a reference oscillator with an accuracy of $<1 \times 10^{-7}$. Philips oven enclosed oscillators PM 9680, PM 9681, PM 9690 and PM 9691 meet this requirement, if calibrated. The adjustment should preferably be made at an ambient temperature of $+23^\circ\text{C}$.

- Connect the reference signal to Input A of the counter to be adjusted.
- Set the measuring time to 1s and press the \square pushbutton.
- Adjust trimming capacitor C1 on the oscillator board until the display read-out is:
10000.000kHz \pm 1Hz.
- Set the measuring time to 10s and check that the display read-out is the same as before. If not, adjust C1 slightly to obtain the correct read-out.

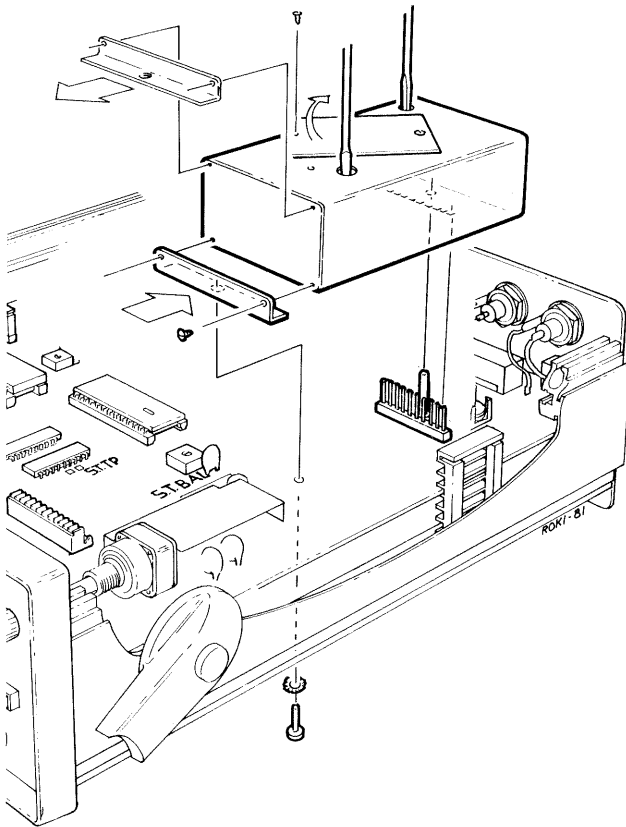
Spare parts list

Order number	Description	Specification	Item
5322 267 50336	Connector	10 poles	BU1
4822 125 50017	Cap, Trim.	5.5-65pF 100V	C1
4822 124 20977	Cap, Elec.	15uF 16V	C2
5322 216 94047	Osc, TCXO	10MHz	KT1
4822 110 63085	Res, Carbon	150E 5% 0.33W	R1
4822 130 41065	Trans, FET	BF245C	TS1

Installation of PM 9679E, PM 9690 and PM 9691

Remove the x-tal KT151 before installing the optional oscillator. Only the bracket with the rivet nut should be mounted on the oscillator.

Note: Before installing an older version of these oven enclosed oscillators, measure if pole 1 and 2 of the oscillator are short circuit. If so, cut pin 1 and 2 on BU103 in the counter.



Frequency adjustment of PM 9679E

This adjustment requires a reference oscillator with an accuracy of $<3 \times 10^{-8}$. Philips oven enclosed oscillators PM 9680, PM 9681, PM 9690 and PM 9691 meet this requirement, if calibrated. The adjustment should preferably be made at an ambient temperature of 23°C and the oscillator must have been operating continuously for 48 hours before any adjustment is made. An isolated trimming screw driver is also necessary.

- Connect the reference signal to EXT TRIGG of a 50MHz oscilloscope, e.g. Philips PM 3215.
- Connect the oscillator signal available at socket INT STD OUT of the counter to be adjusted, to Input Y of the oscilloscope.
- Set the oscilloscope to 100ns/div and adjust the trimmer until the waveform moves with a velocity of max 1div/3s (0.3Hz).

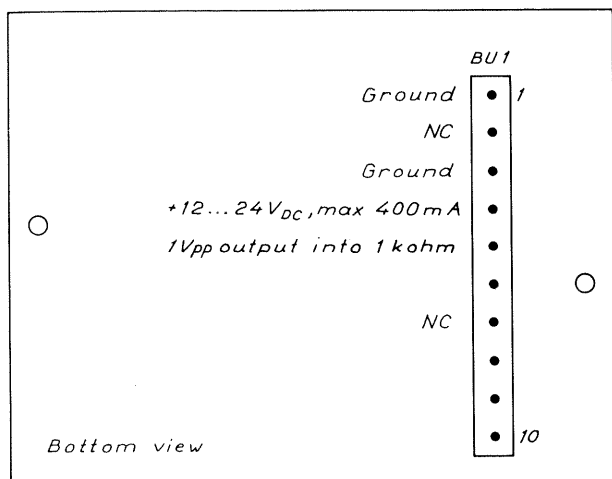
Frequency adjustment of PM 9690 and PM 9691

This adjustment requires a reference oscillator with an accuracy of $<1 \times 10^{-9}$. Hewlett-Packard quartz frequency standard HP105 meets this requirement, if calibrated. The adjustment should preferably be made at an ambient temperature of 23°C and the oscillator must have been operating continuously for 48 hours before any adjustment is made. An isolated trimming screw driver is also necessary.

- Connect any of the three reference signals available at sockets 5MHz, 1MHz and 100kHz of the HP105 to EXT TRIGG of a 50MHz oscilloscope, e.g. Philips PM 3215.
- Connect the oscillator signal available at socket INT STD OUT of the counter to be adjusted, to Input Y of the oscilloscope.
- Set the oscilloscope to 100ns/div and adjust the fine trimmer in the oscillator until the waveform moves with a velocity of max 1div/10s (0.1Hz).

If the adjustment range is too narrow, proceed as follows:

- Set the fine trimmer fully clockwise.
- Remove the two screws fixing the oscillator's text plate to the unit.
- Remove the small plastic cylinder beneath the text plate using a pair of tweezers.
- Connect an external counter via a 10Mohm probe to socket INT STD OUT of the counter to be adjusted.
- Adjust the coarse trimmer until the display read-out of the external counter is:
10000003Hz.
- Refit the plastic cylinder and the text plate.
- Recheck that the waveform velocity is 1div/10s, see above.

Pinning of PM 9679E, PM 9690 and PM 9691

Note: Pin 6, 8, 9 and 10 are for factory use only

Repair of oscillator PM 9679E, PM 9690 and PM 9691

Repair of these oscillators may not be carried out by the local service organization. The complete sealed oscillator unit has to be sent to the factory for repair.

Factory address:

PHILIPS Elektronikindustrier AB
 Industrial Operations
 Supply Centre Service Department
 S-175 88 JÄRFÄLLA
 Sweden