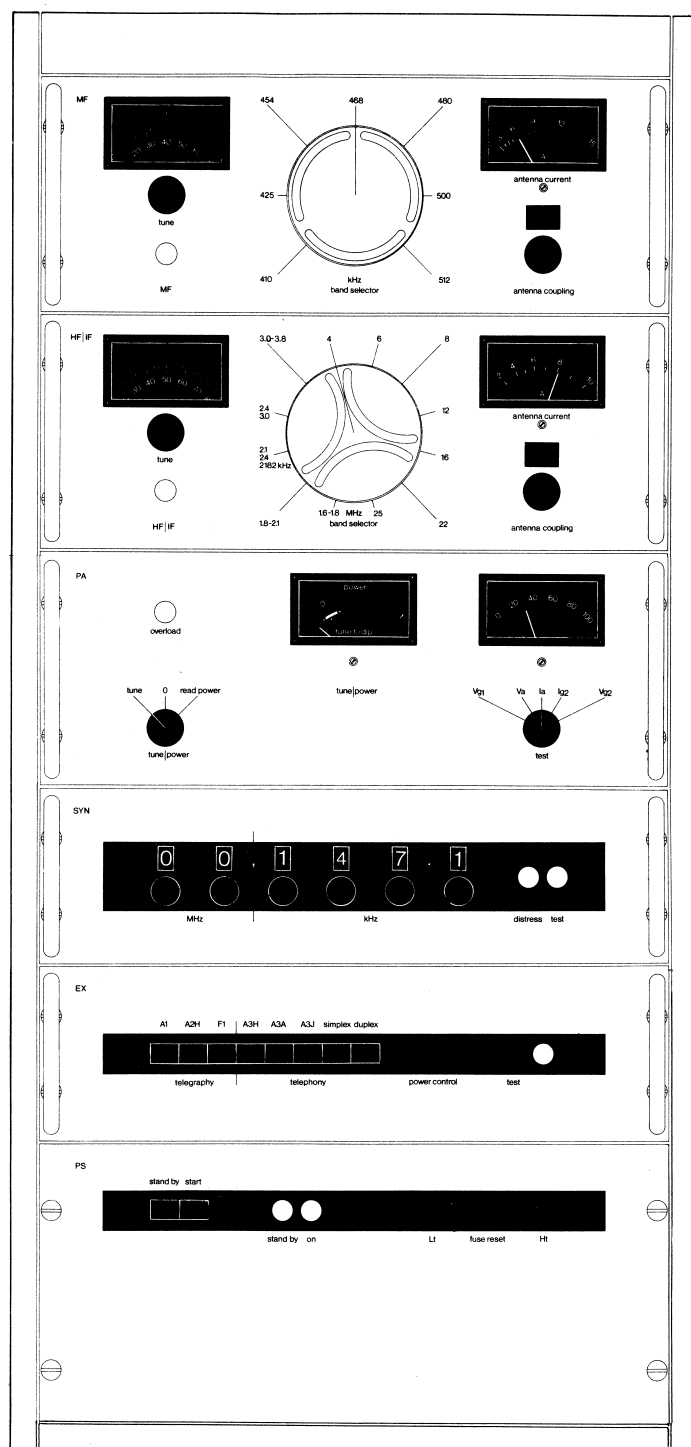


instruction manual

MAIN RADIO TELEGRAPH AND TELEPHONE TRANSMITTER

ZEALAND S1250

part 2. diagrams (7.71)



KELVIN HUGHES
A DIVISION OF SMITHS INDUSTRIES LIMITED



New North Road, Hainault, Ilford, Essex
Telephone: 01-500 1020 Telex: 896401 Grams/Cables: Marinst Ilford Telex
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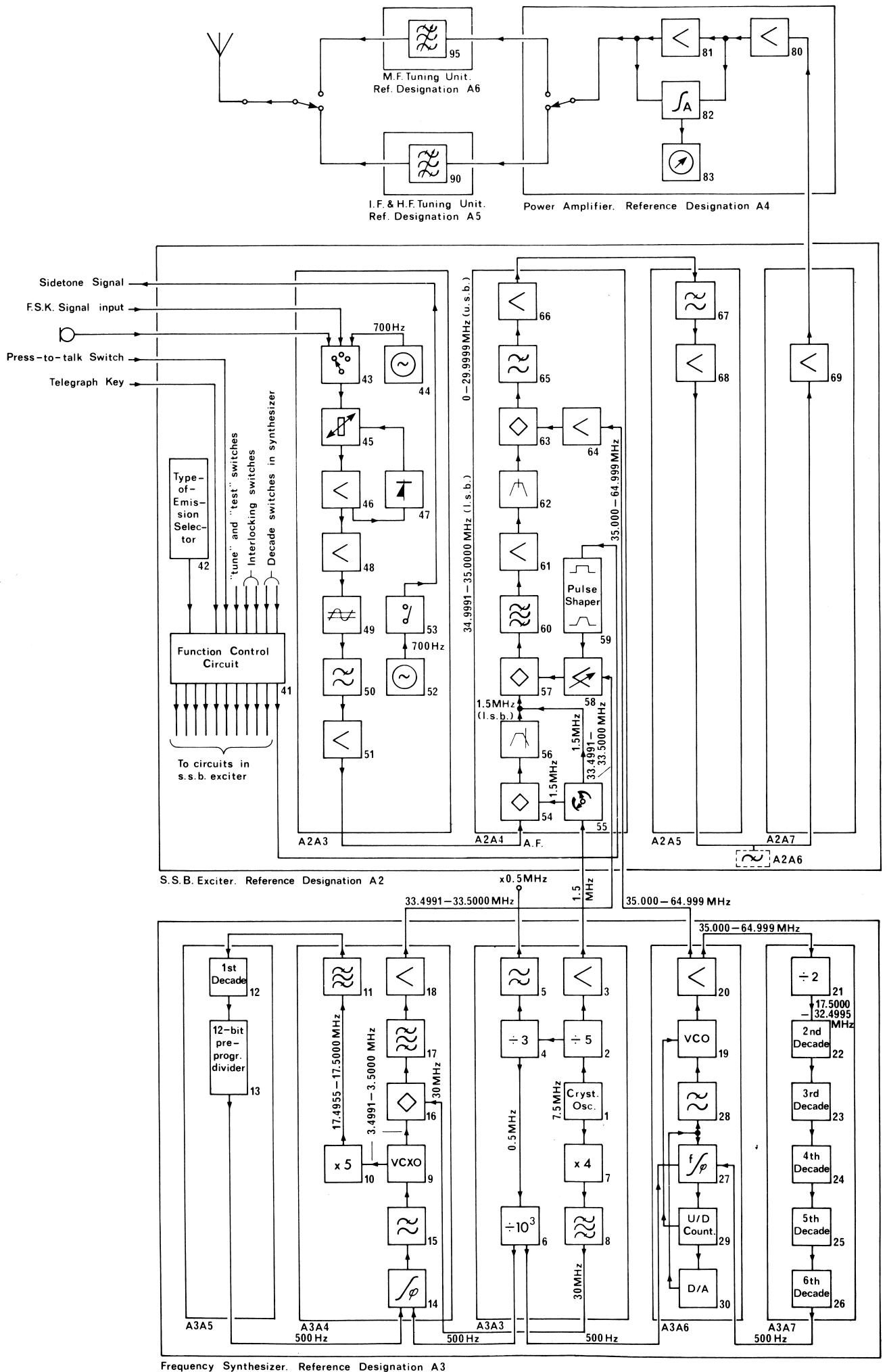
TABLE OF CONTENTS

Part 2 of the Instruction Manual

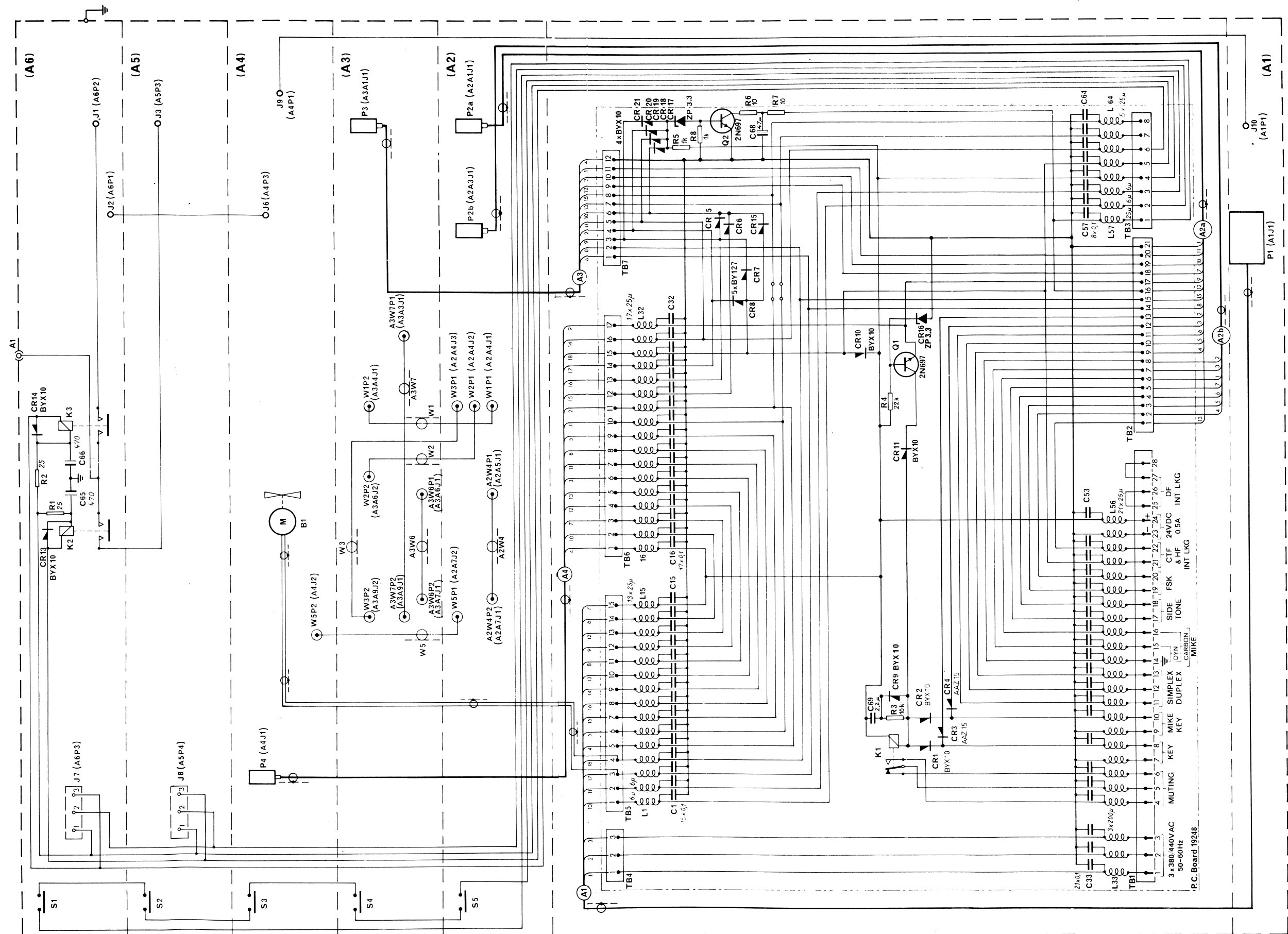
For the Sections 1 to 9, see Part 1 of the Instruction Manual

SECTION 10. - CIRCUIT DIAGRAMS, PHOTOS AND DRAWINGS

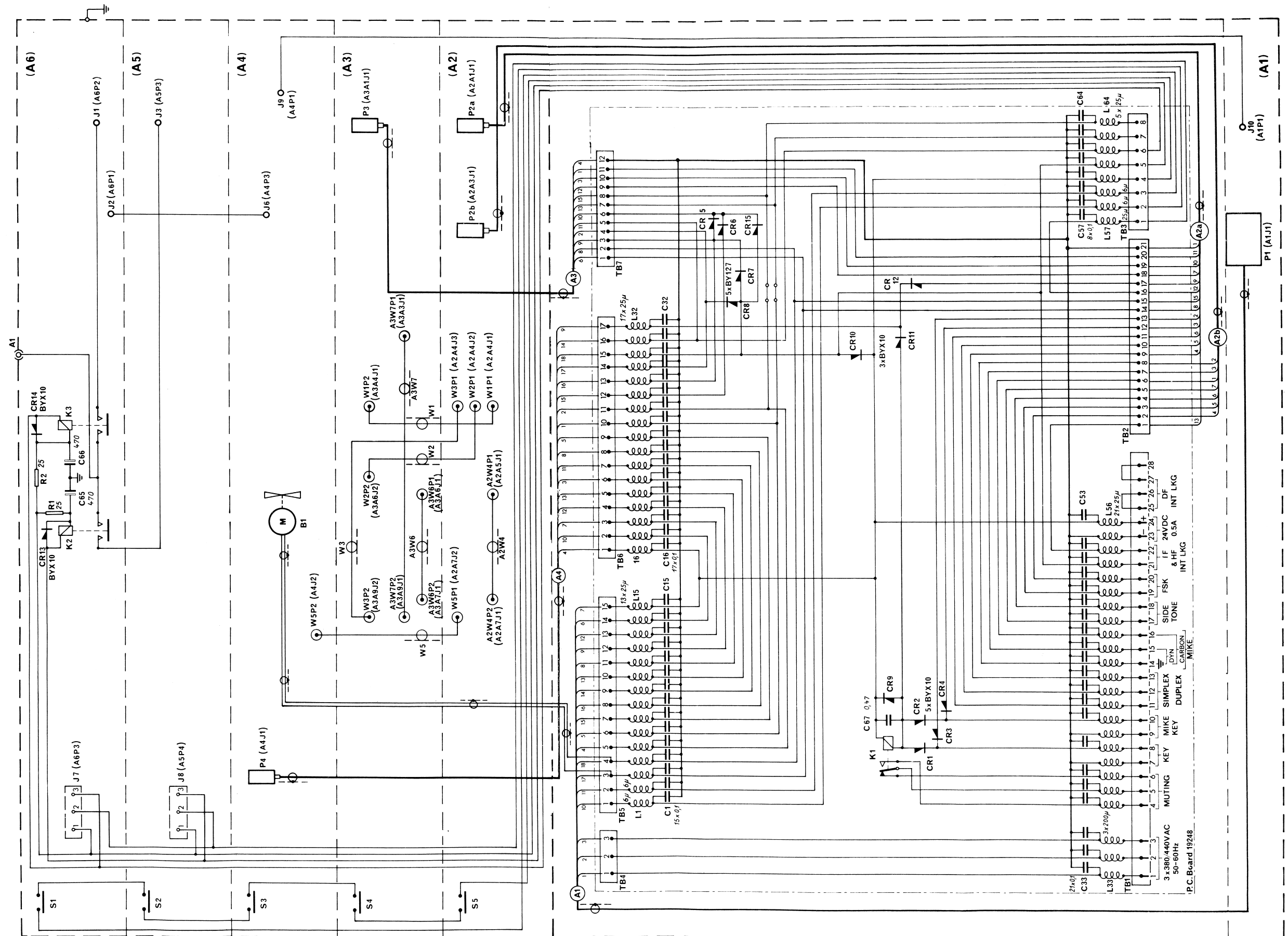
Block Diagram of Radio Telegraph and Telephone Transmitter	Diag.No.4050
Cabinet Rack Wiring	Diag.No.4217
Main Power Supply Assembly. Ref.Desig. A1, A1A1 and A1A2. Photos.	
Main Power Supply Assembly. Ref.Desig. A1, A1A1 and A1A2	Diag.No.4045A
Single-Sideband Exciter Panel-and-Chassis Assembly. Ref.Desig. A2	Diag.No.4056
Radio-Frequency Filter Circuits for External Wiring. Ref.Desig. A2A1	Diag.No.4051
S.S.B. Exciter Power Supply. Ref.Desig. A2A2	Diag.No.4213
Audio-Frequency Signal Processing Circuits. Ref.Desig. A2A3	Diag.No.4052
Modulator, Filter and Mixer Circuits. Ref.Desig. A2A4	Diag.No.4059
Three-Stage Wide-Band Amplifier. Ref.Desig. A2A5	Diag.No.4057
Two-Stage Wide-Band Amplifier. Ref.Desig. A2A7	Diag.No.4058
Function Control Circuit. Ref.Desig. A2A8	Diag.No.4055
Frequency Synthesizer Panel-and-Chassis Assembly. Ref.Desig. A3	Diag.No.4053
Rectifier Circuits. Ref.Desig. A3A1	Diag.No.4042
Voltage-Regulator Circuits. Ref.Desig. A3A2	Diag.No.4043
Frequency Standard. Ref.Desig. A3A3	Diag.No.4040
33.4991-33.5000 MHz Phase-Locked Loop. Ref.Desig. A3A4	Diag.No.4041
33.4991-33.5000 MHz Variable-Ratio Frequency Divider. Ref.Desig. A3A5..	Diag.No.4038
35.000-64.999 MHz Phase-Locked Loop. Ref.Desig. A3A6	Diag.No.4044
35.000-64.999 MHz Variable-Ratio Frequency Divider. Ref.Desig. A3A7....	Diag.No.4039
Output Gate-Off Circuit. Ref.Desig. A3A8	Diag.No.4086
1.5 MHz Signal-Level Control Circuit. Ref.Desig. A3A9	Diag.No.4087
Power Amplifier Circuit. Ref.Desig. A4, A4A1, and A4A2. Photo. Top View.	
Power Amplifier Circuit. Ref.Desig. A4, A4A1 and A4A2. Photo. Bottom View.	
Power Amplifier Circuit. Ref.Desig. A4, A4A1 and A4A2	Diag.No.4046
I.F. and H.F. Antenna Matching Network. Ref.Desig. A5. Photo. Top View.	
I.F. and H.F. Antenna Matching Network. Ref.Desig. A5. Photo. Bottom View.	
I.F. and H.F. Antenna Matching Network. Ref.Desig. A5	Diag.No.4049
M.F. Antenna Matching Network. Ref.Desig. A6. Photo. Top View.	
M.F. Antenna Matching Network. Ref.Desig. A6	Diag.No.4048
Handset Type HS 1250. Circuit Diagram	Diag.No.4157
Handset Type HS 1250. Outline Dimensions	Dwg.No.20613
Handset Type HS 1250 and Handset Holder. Outline and Mounting Dimensions.	Dwg.No.20806
Outlet Box Type 20653. Outline and Mounting Dimensions	Dwg.No.20805
Main Radio Telegraph and Telephone Transmitter	
Outline Dimensions and Method of Mounting	Dwg.No.20510
ANTENNA SELECTOR SWITCH	Parts List and Diag.No.4101
Main Radio Telegraph and Telephone Transmitter and Antenna Selector Switch	
Outline Dimensions and Method of Mounting	Dwg.No.20290

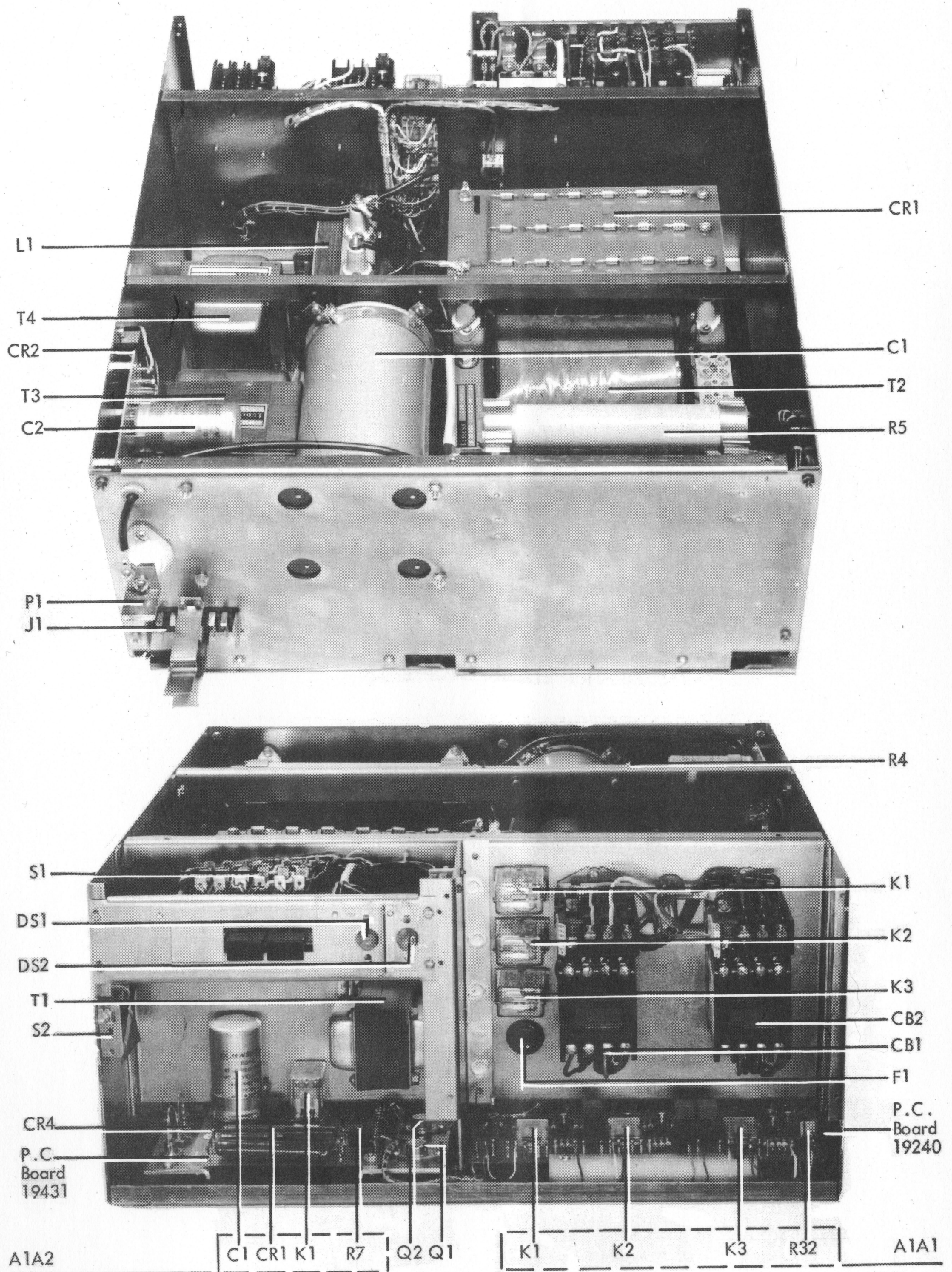


Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.



Note 1:
 Unless otherwise specified:-
 All resistance values are in ohms.
 All capacitance values are in microfarads.
 All inductance values are in henries.



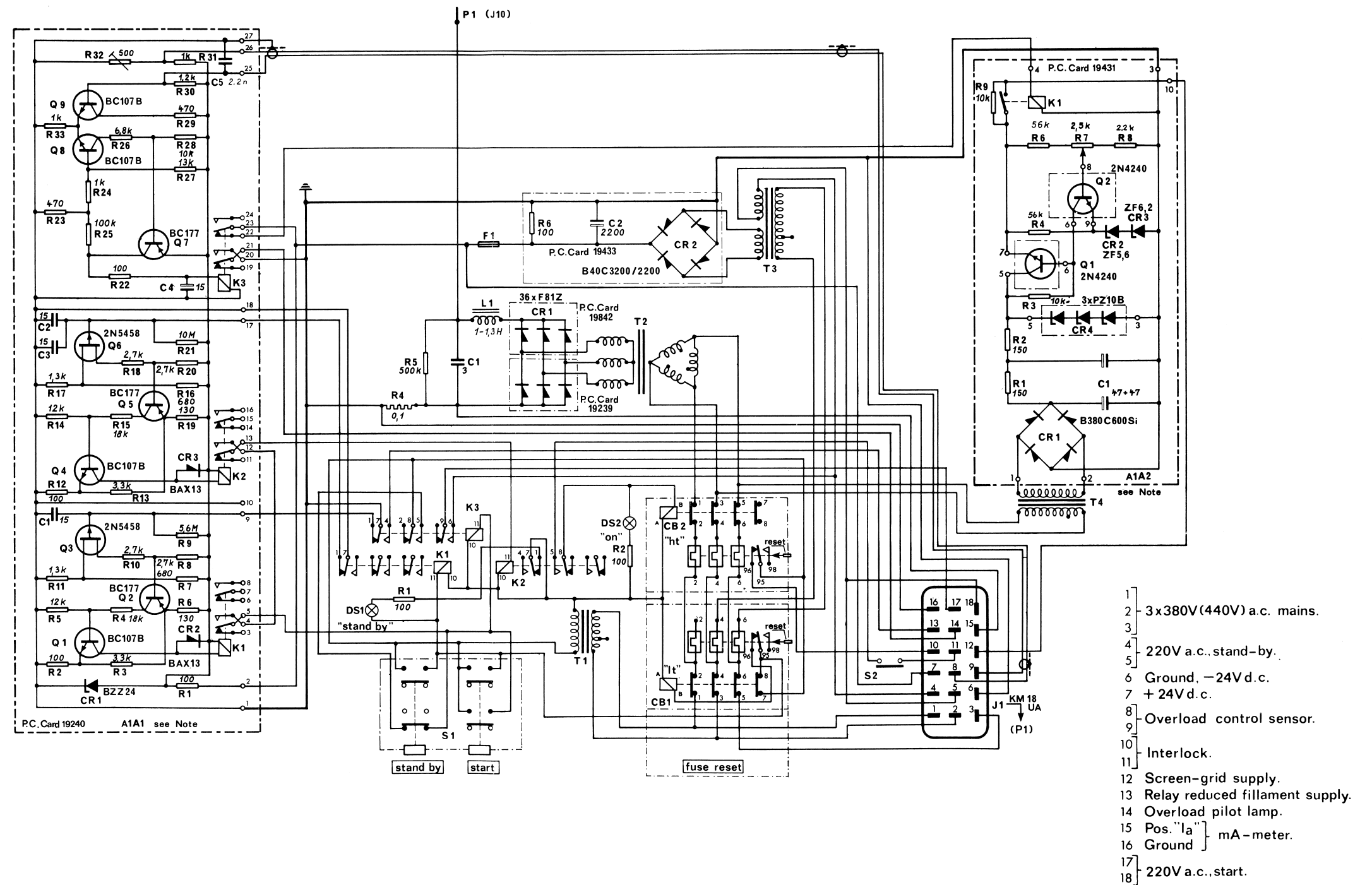


Main Power Supply Assembly

Ref. Designations A1, A1A1 and A1A2

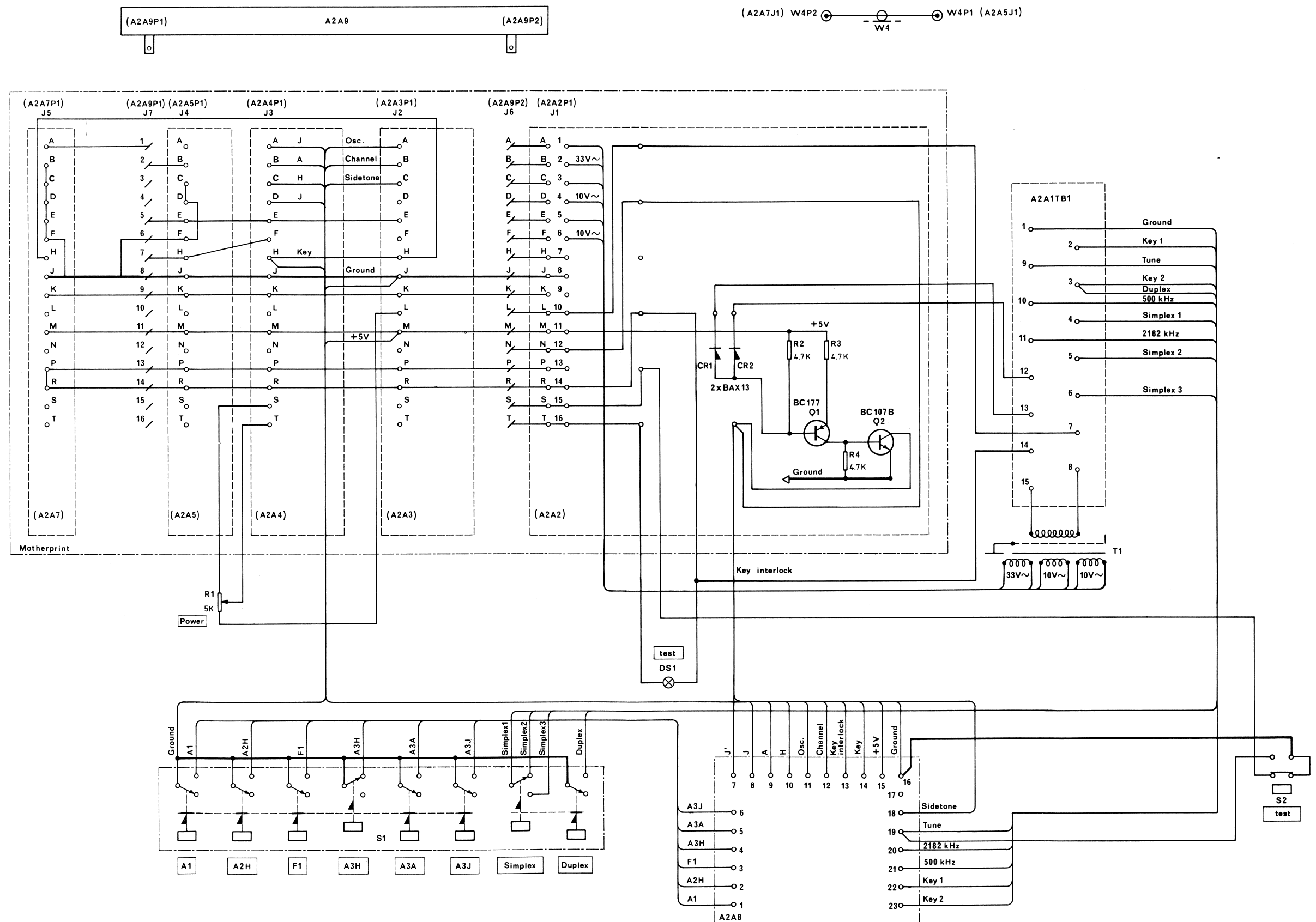
Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations, e.g.
R1 of Assembly A1 is A1R1,
R1 of Subassembly A1A1 is A1A1R1, etc.



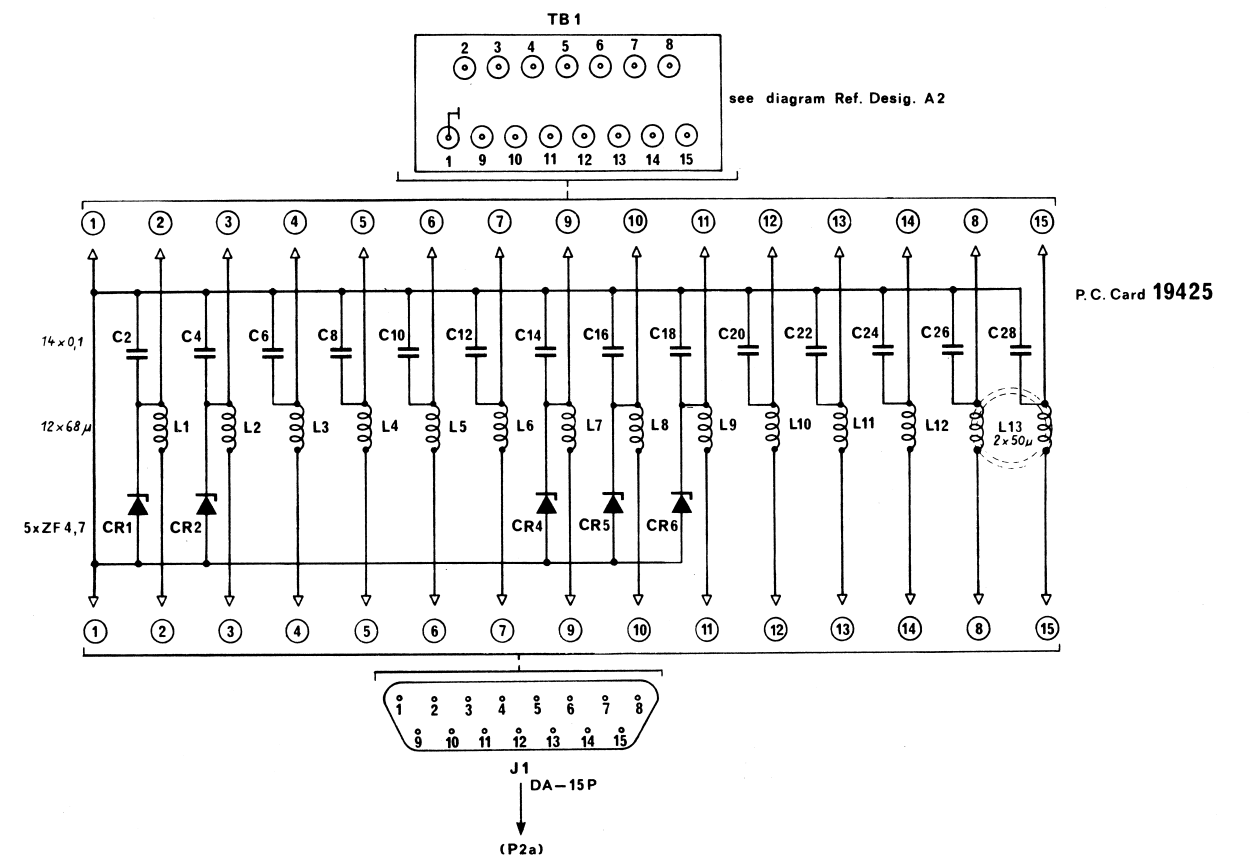
Main Power Supply Assembly

Ref. Designations A1, A1A1 and A1A2



Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

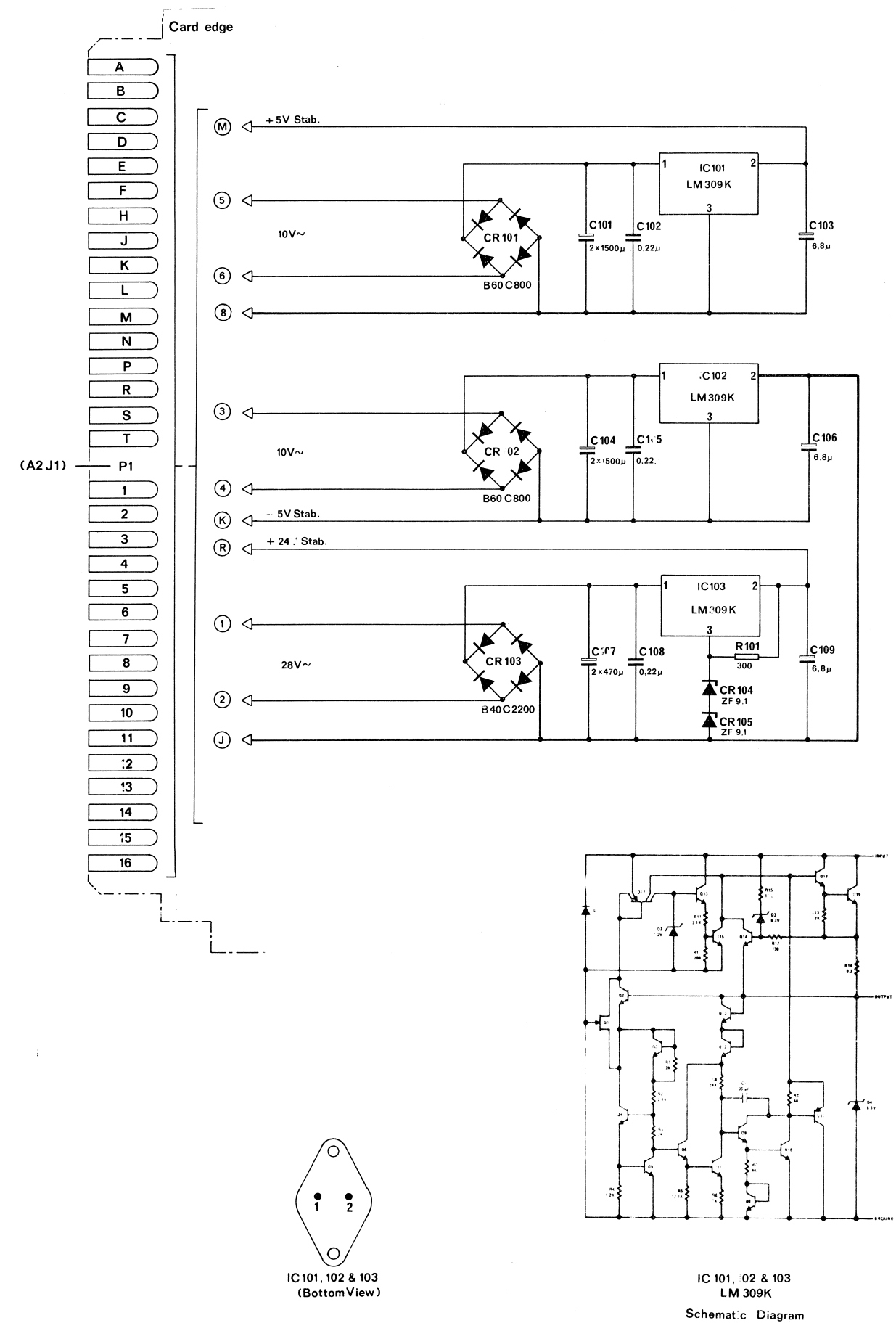
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Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.



Note 1:
 Unless otherwise specified:-
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 All inductance values are in henries.

Note 2:
 Partial Reference Designations are shown.
 For Complete Designation prefix with Assembly and Subassembly Reference Designations.

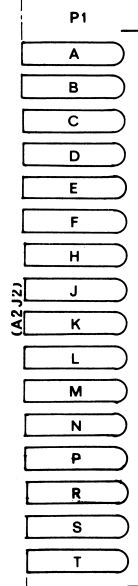
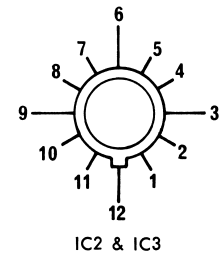
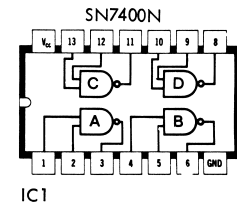
Radio-Frequency Filter Circuits for External Wiring



S.S.B. Exciter Power Supply

Ref. Designation A2A2

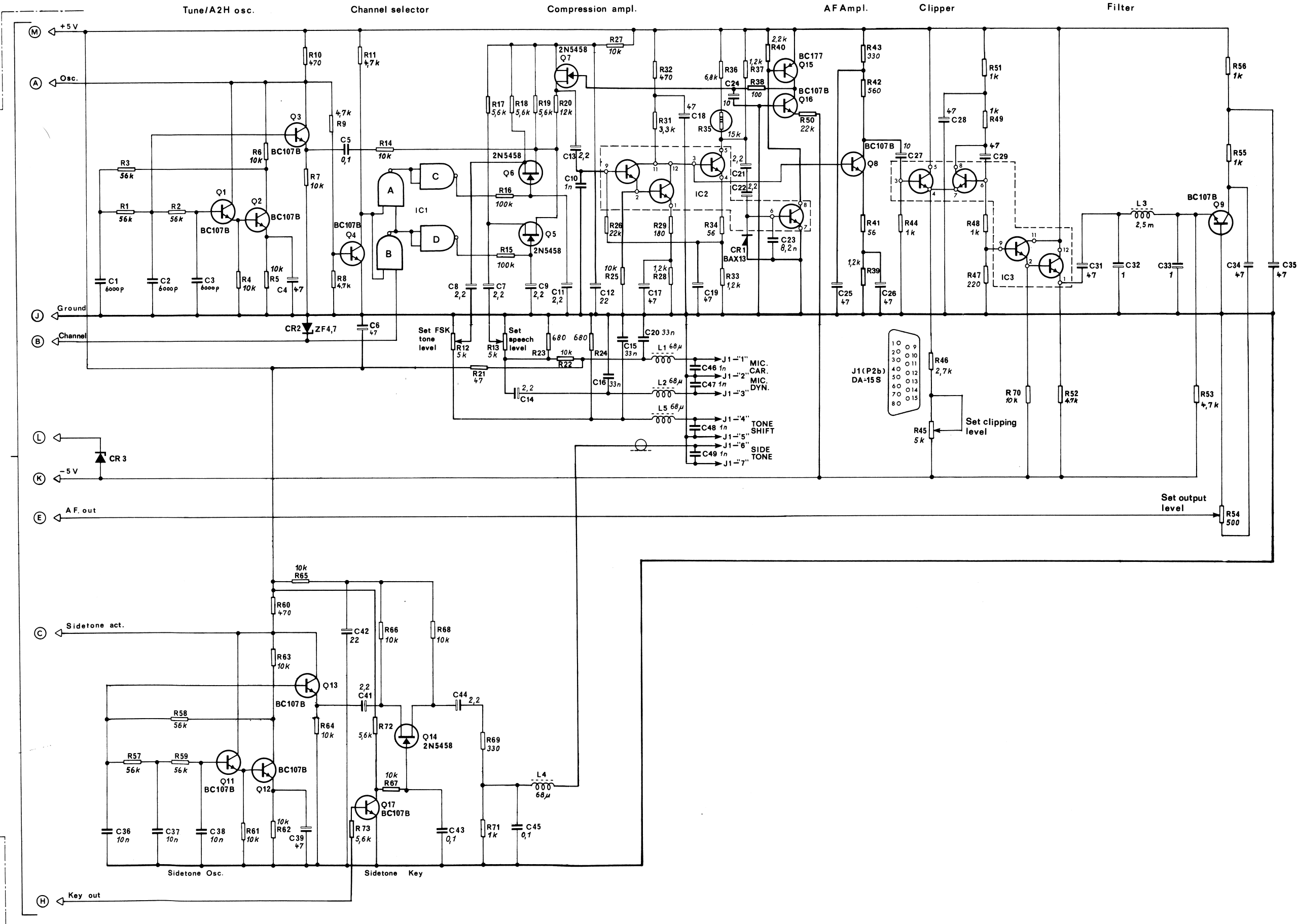
P.C. CARD 19428



Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries

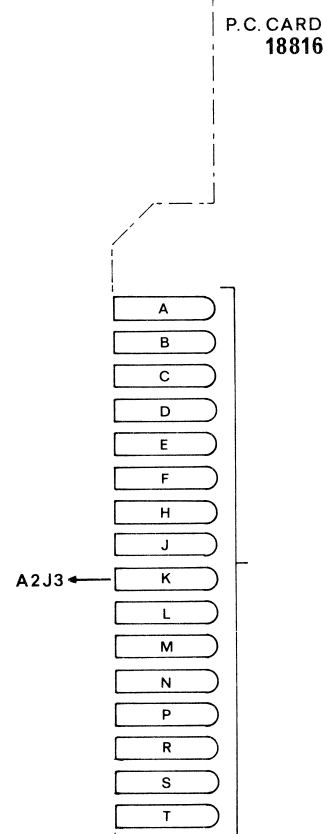
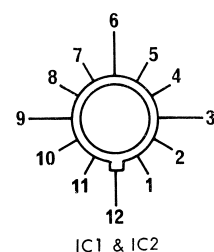
Note 2:
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For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.



Audio-Frequency Signal Processing Circuits

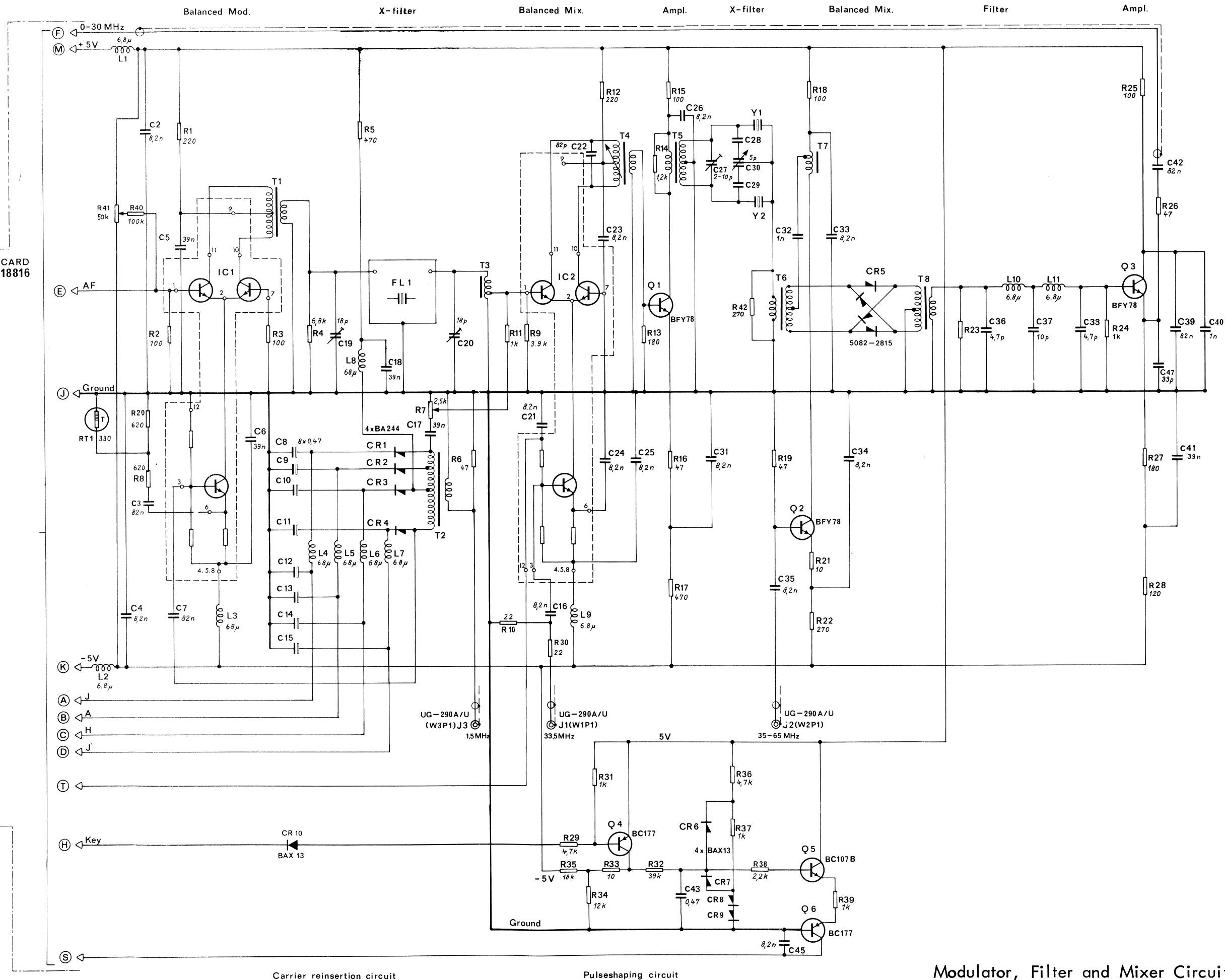
Ref. Designation A2A3



Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

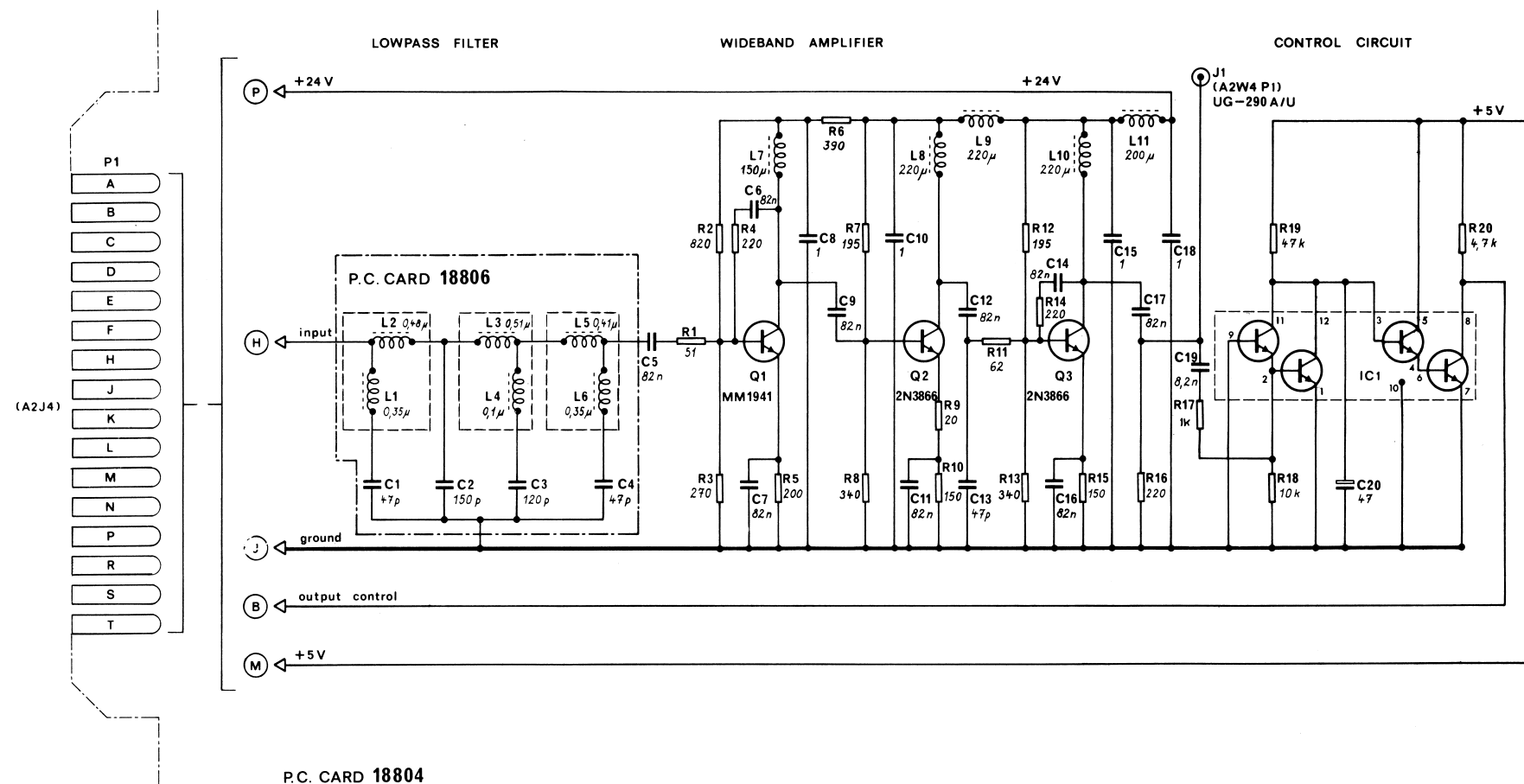
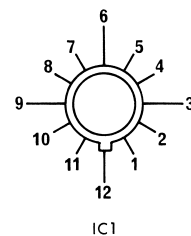
Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.



Modulator, Filter and Mixer Circuits

Ref. Designation A2A4

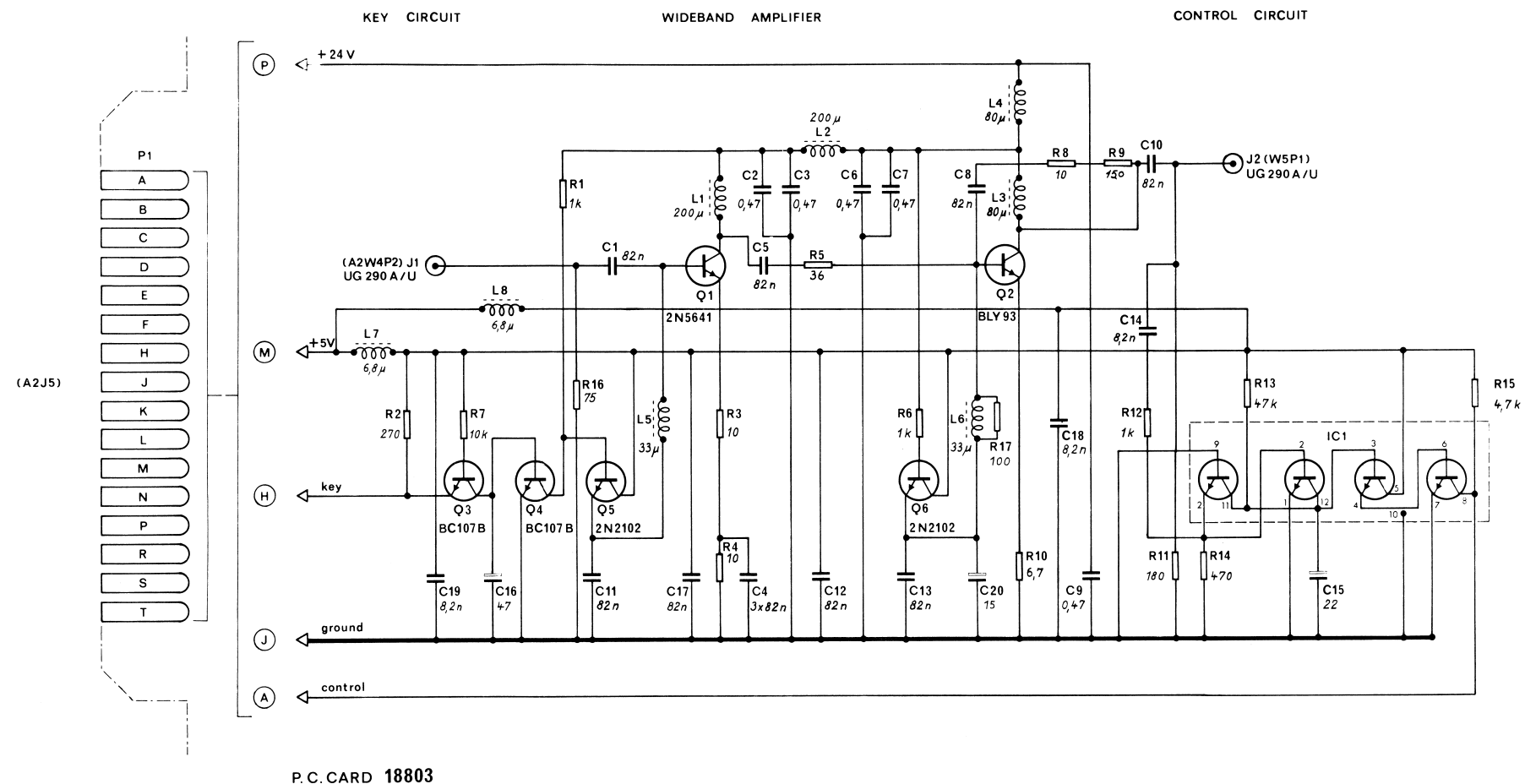
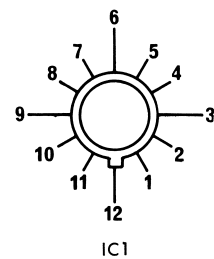


Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Three-Stage Wide-Band Amplifier

Ref. Designation A2A5

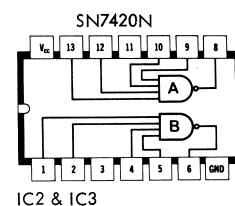
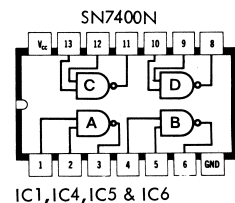


Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Two-Stage Wide-Band Amplifier

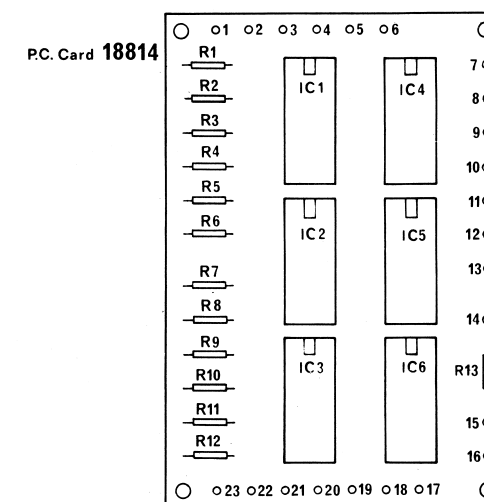
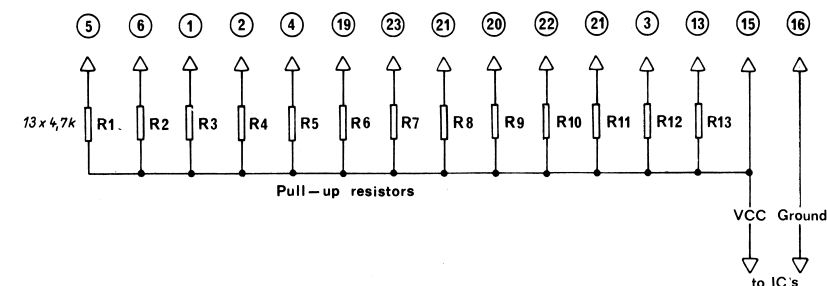
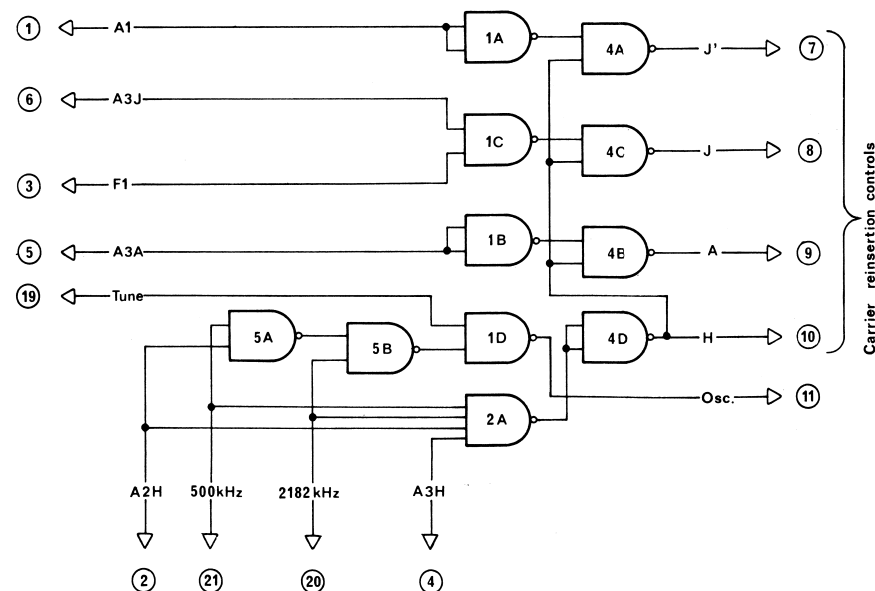
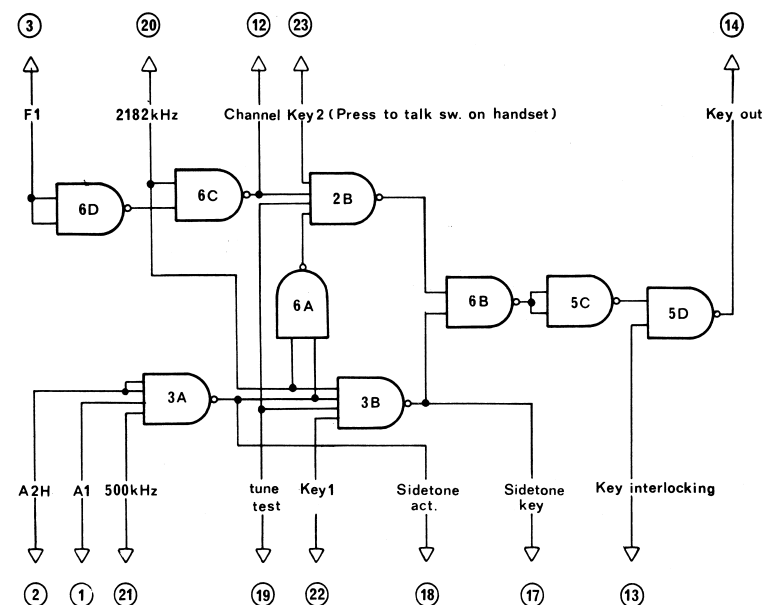
Ref. Designation A2A7



Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

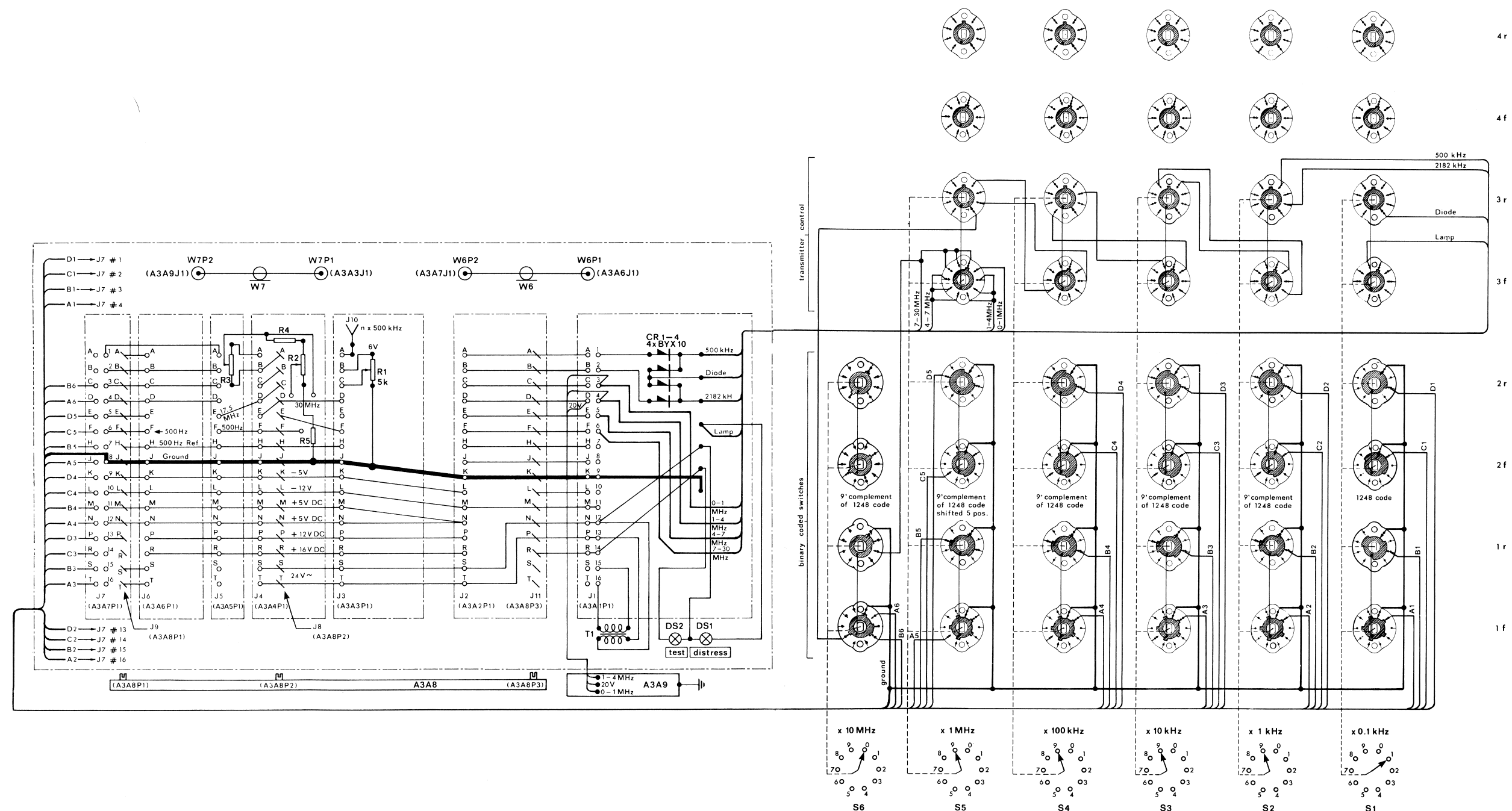
Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.



Function Control Circuit

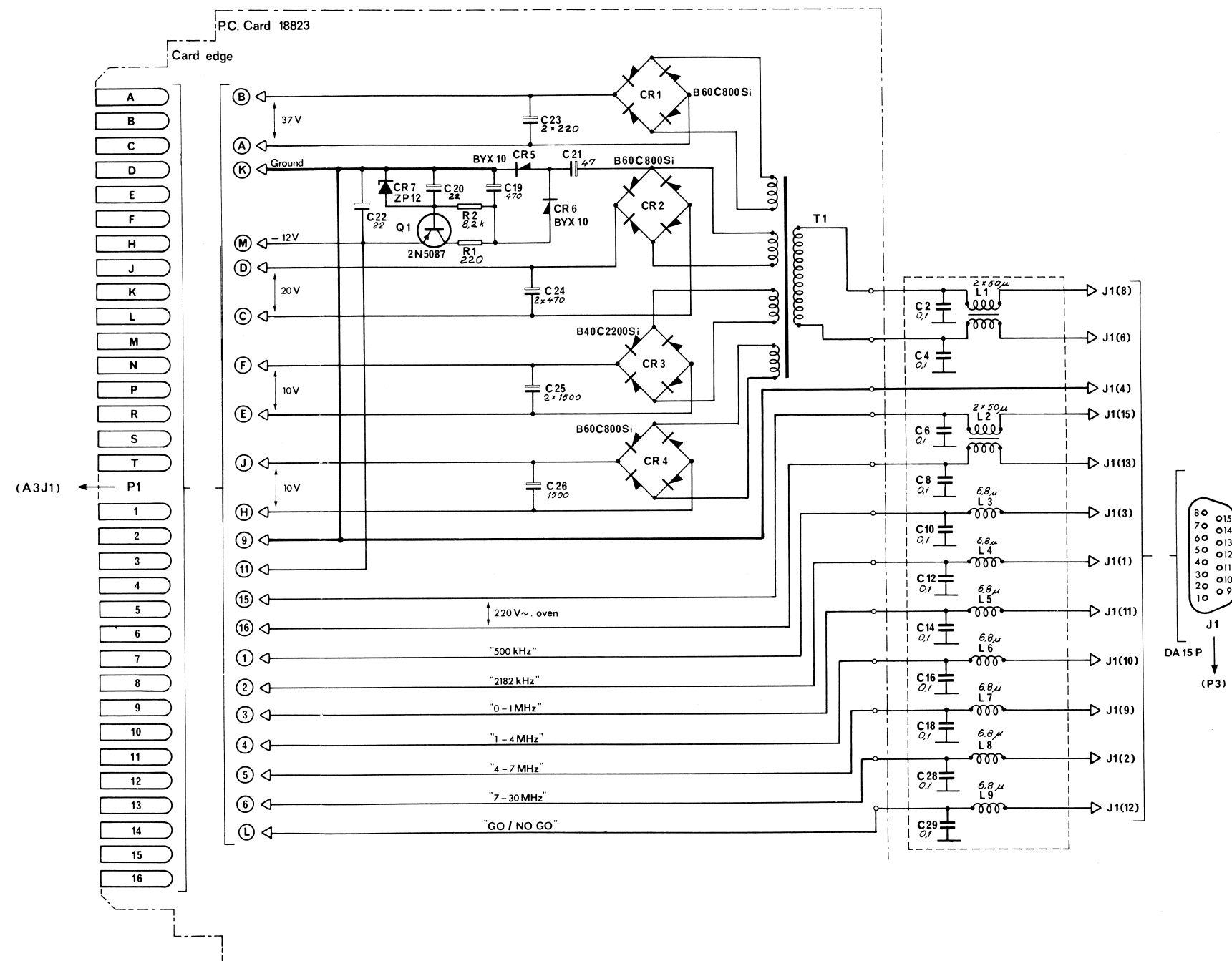
Ref. Designation A2A8



Frequency Synthesizer Panel-and-Chassis Assembly

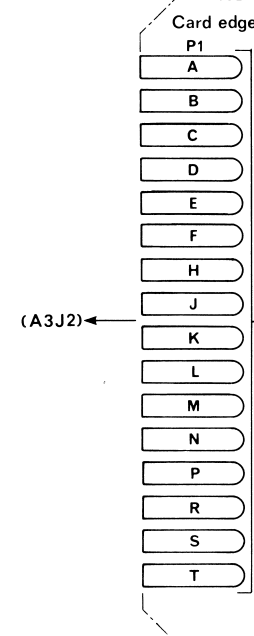
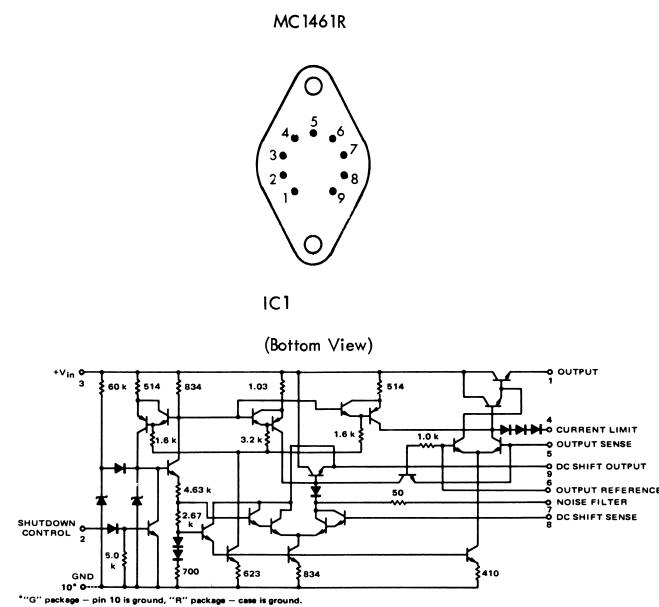
Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.



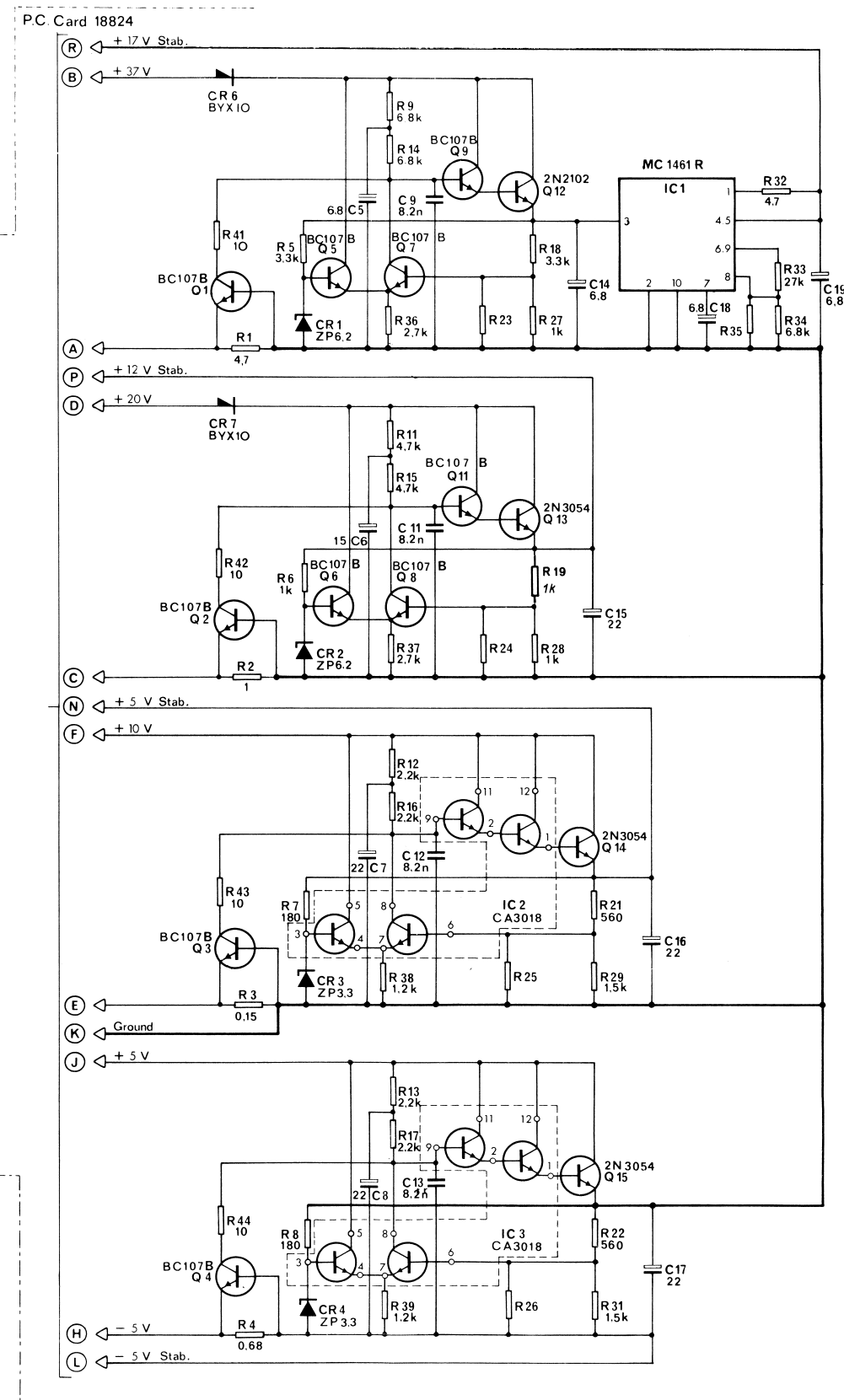
Rectifier Circuits

Ref. Designation A3A1



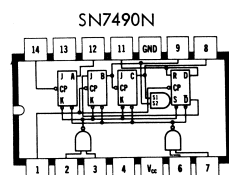
Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

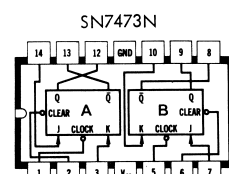


Voltage-Regulator Circuits

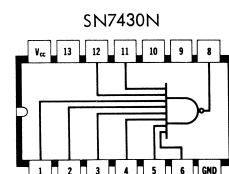
Ref. Designation A3A2



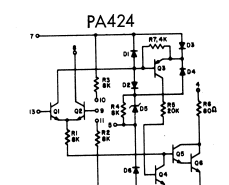
IC2, IC4, IC5 & IC6



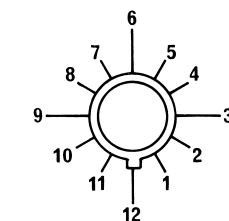
IC3



IC7



IC8

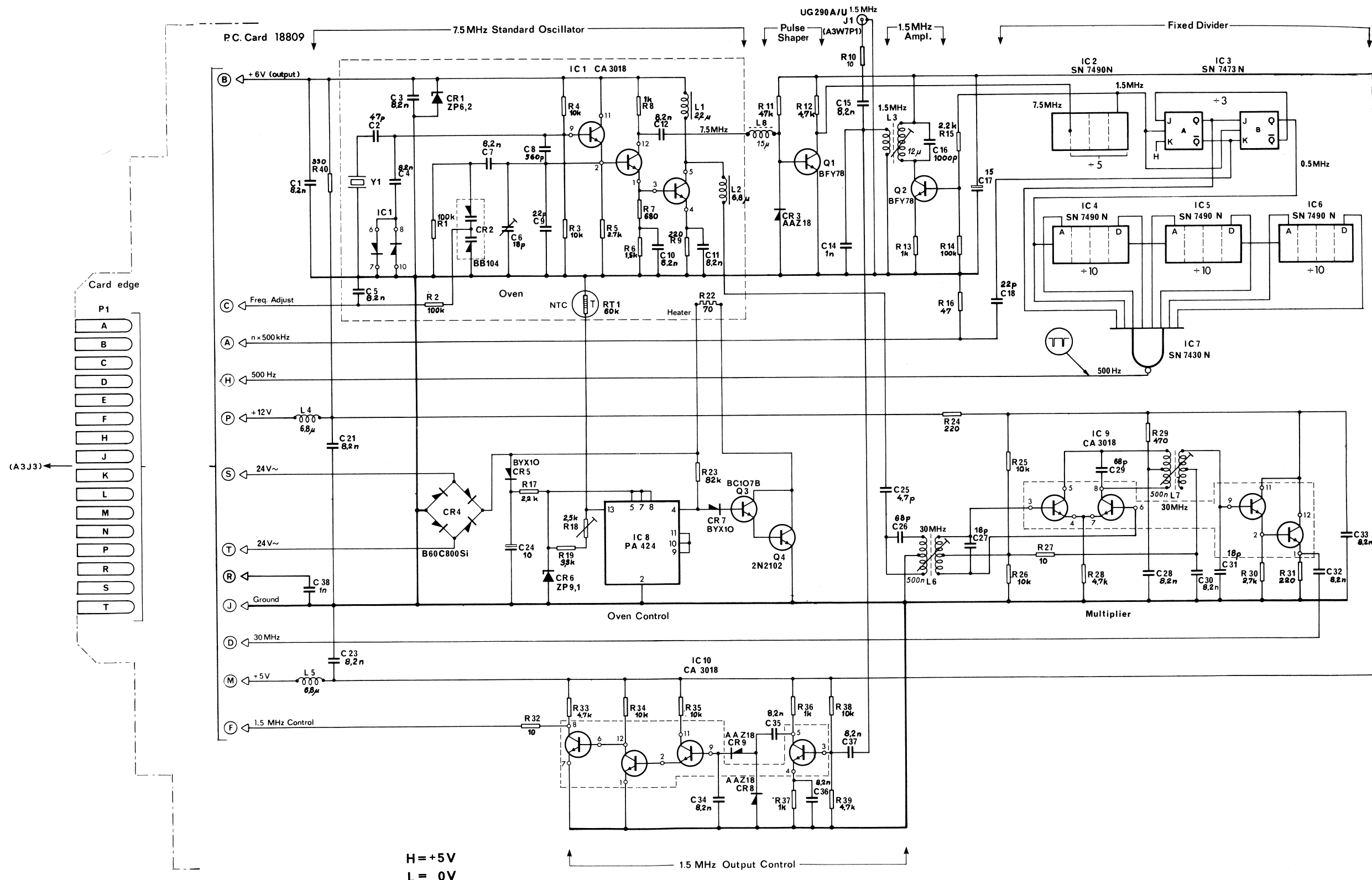


IC1, IC9 & IC10

Note 1:
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All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
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For Complete Designation prefix with Assembly and Subassembly Reference Designations.

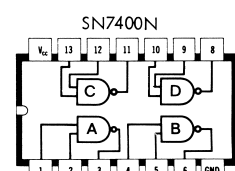
Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.



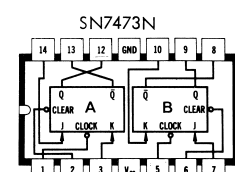
H = +5V
L = 0V

Frequency Standard

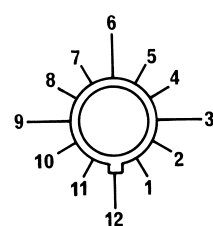
Ref. Designation A3A3



IC3



IC4



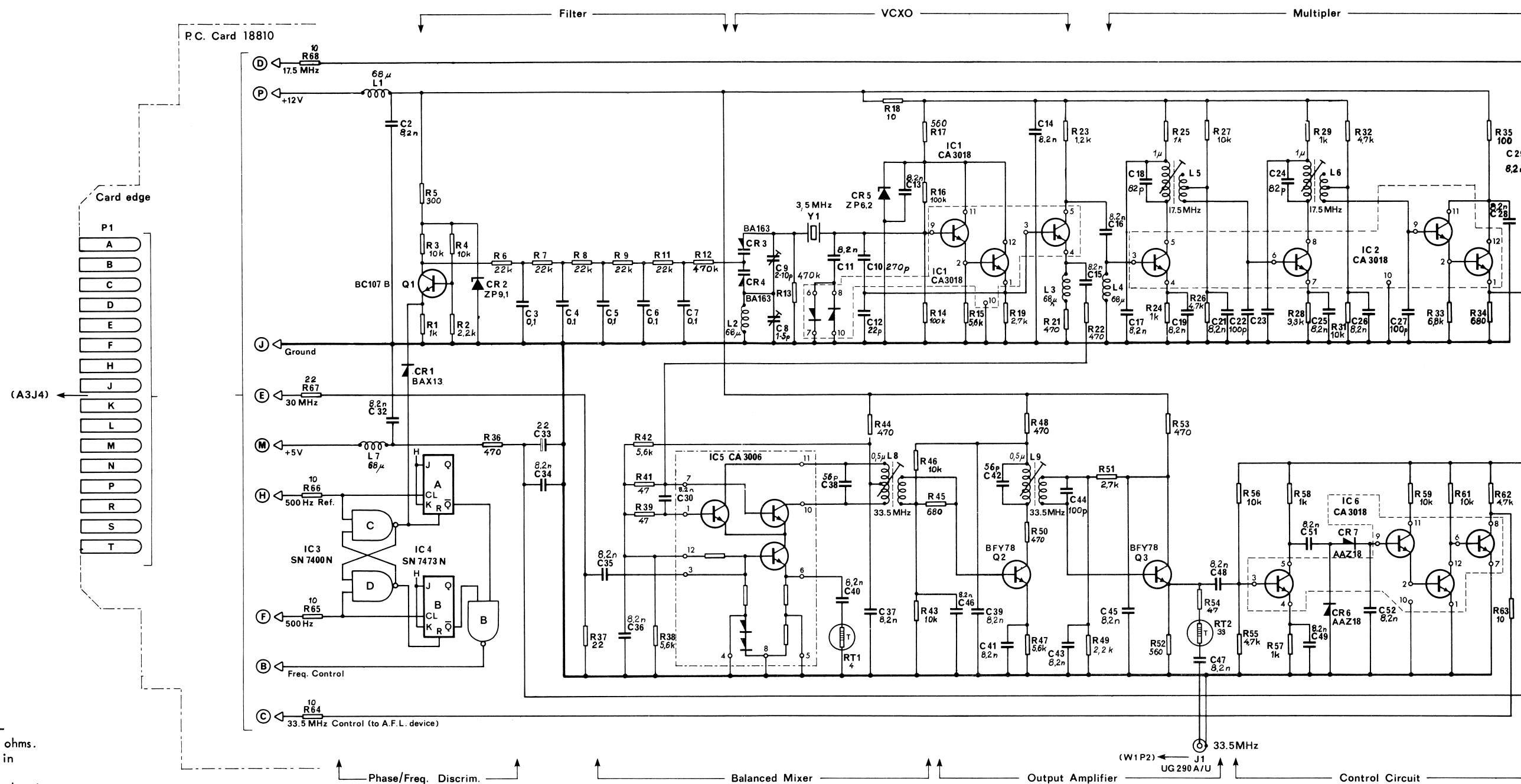
IC1, IC2, IC5 & IC6

H = +5V
L = 0V

Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

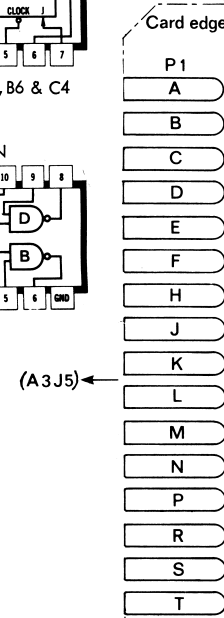
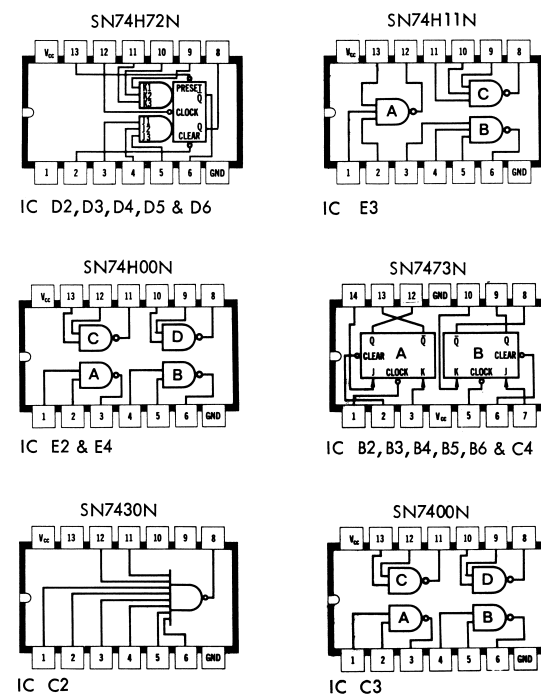
Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.



33.4991-33.5000 MHz Phase-Locked Loop

Ref. Designation A3A4

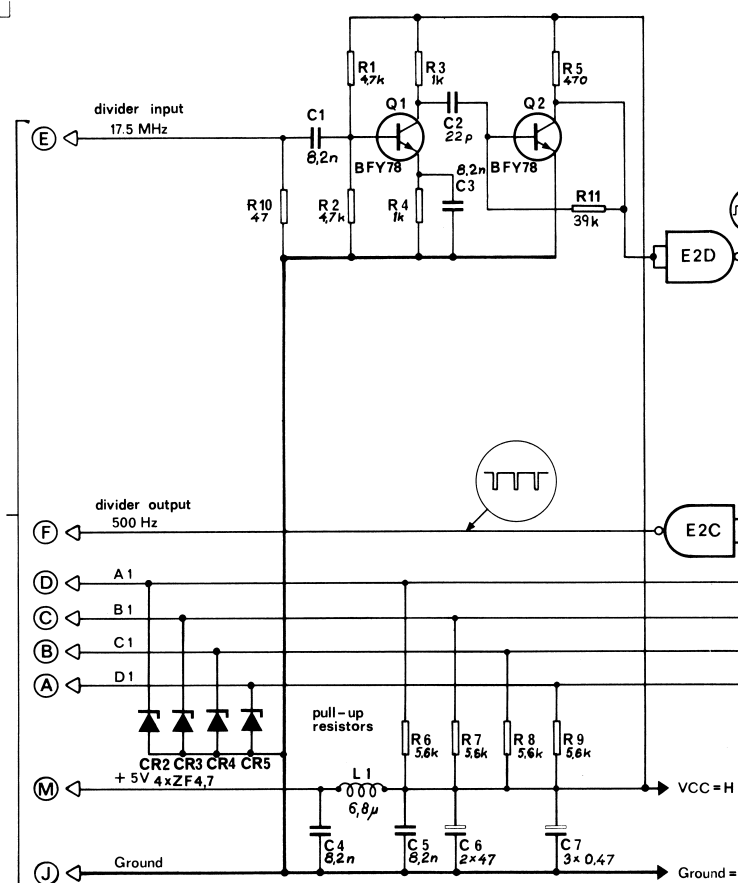


Note 1:
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All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols, e.g. E3C is gate C contained in ICE3. The first letter and the following number are also used as coordinates to specify the physical location of the IC on the p.c. card.

P.C. Card 18808

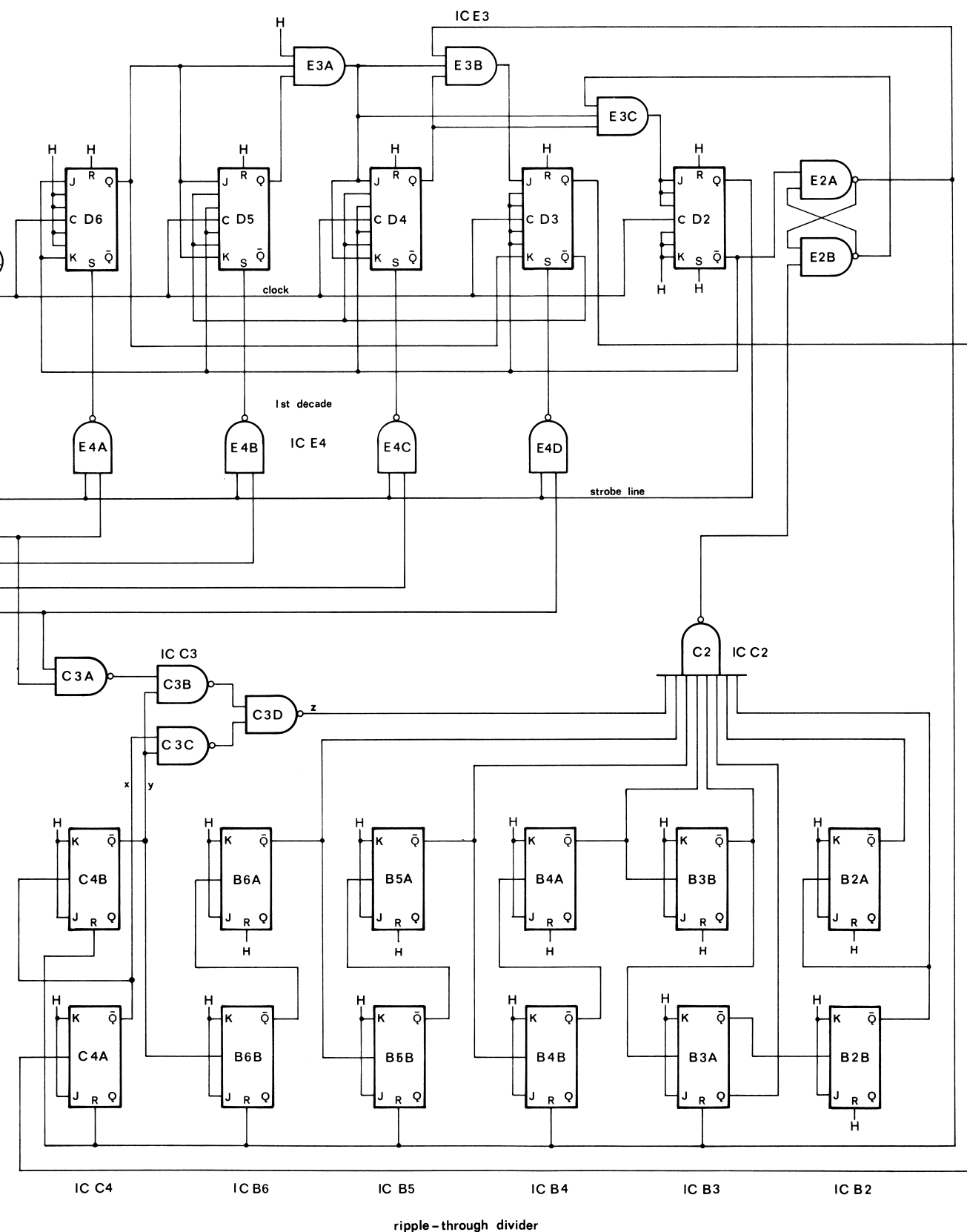


H = +5V
L = 0V

Dial	A	B	C	D
0	1	0	0	1
1	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	1	1	0	0
5	0	0	1	0
6	1	0	1	0
7	0	1	1	0
8	1	1	1	0
9	0	0	0	1

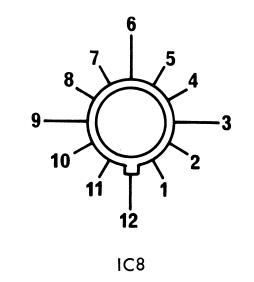
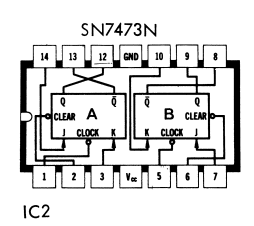
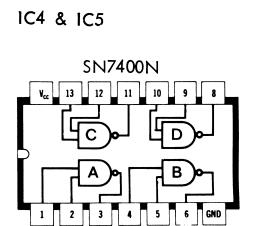
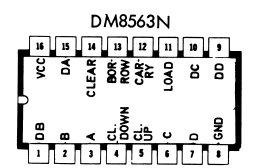
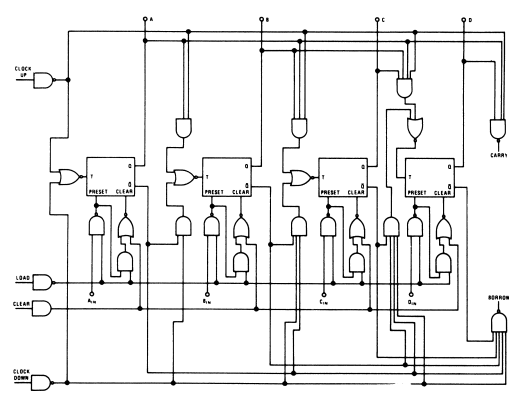
Truth Table for the preset lines.

S1	x	y	z
Dial	x	y	z
0	0	0	0
1	0	1	0
2	0	0	1
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1



33.4991-33.5000 MHz Variable-Ratio Frequency Divider

Ref. Designation A3A5

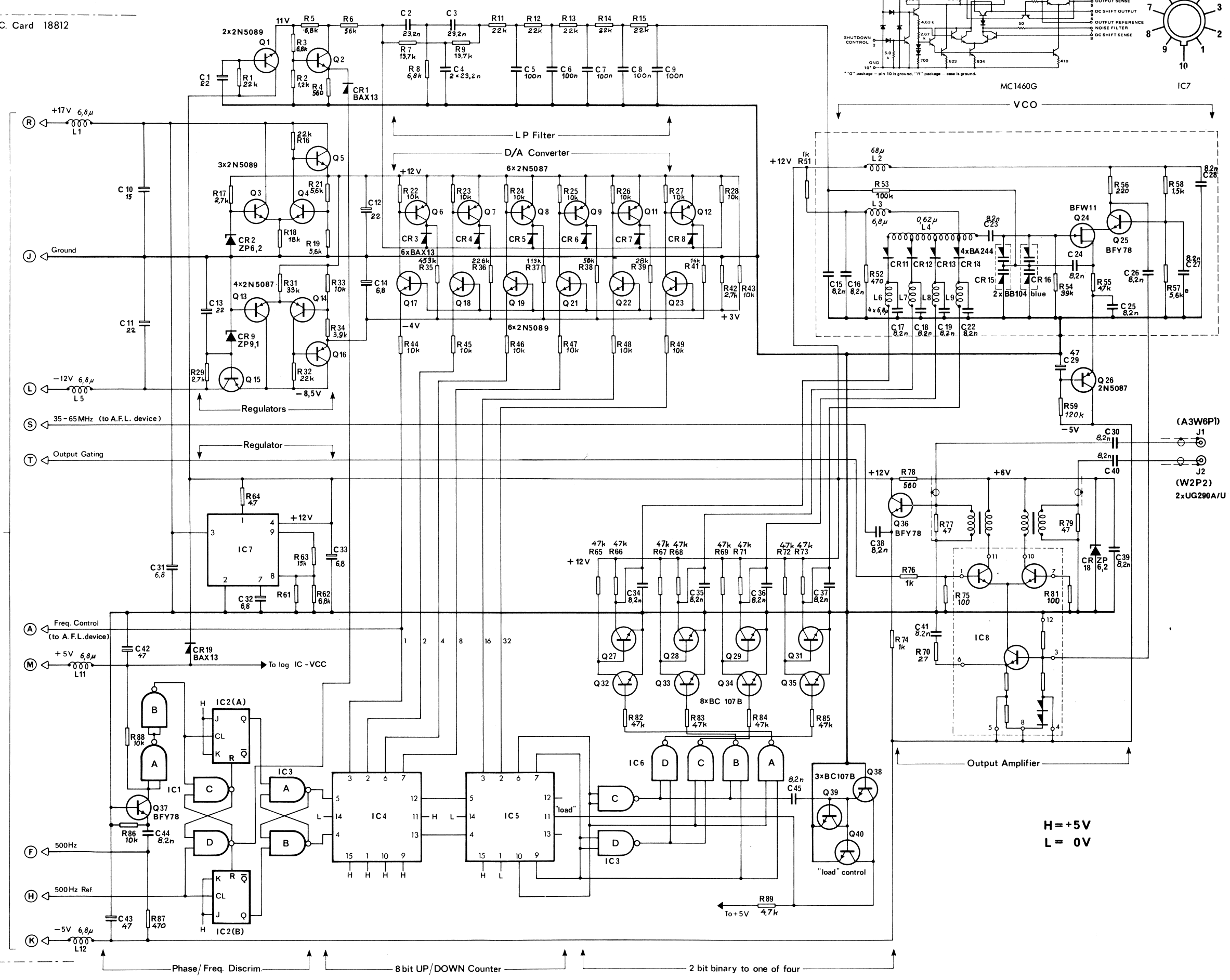


Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

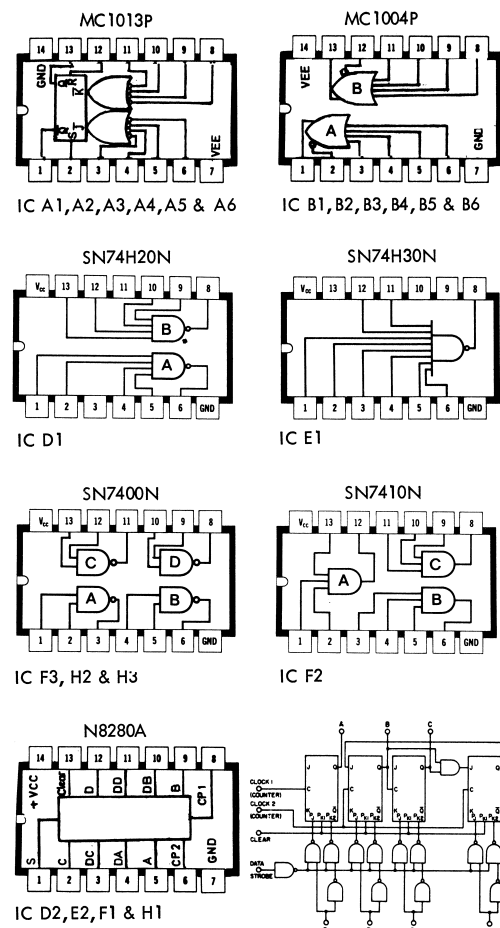
Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols.

P.C. Card 18812



35.000-64.999 MHz Phase-Locked Loop

Ref. Designation A3A6

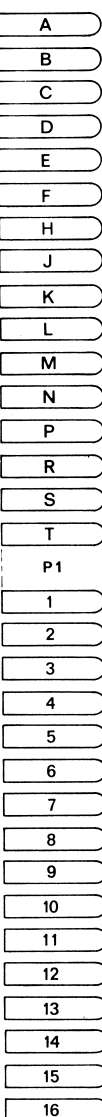


Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

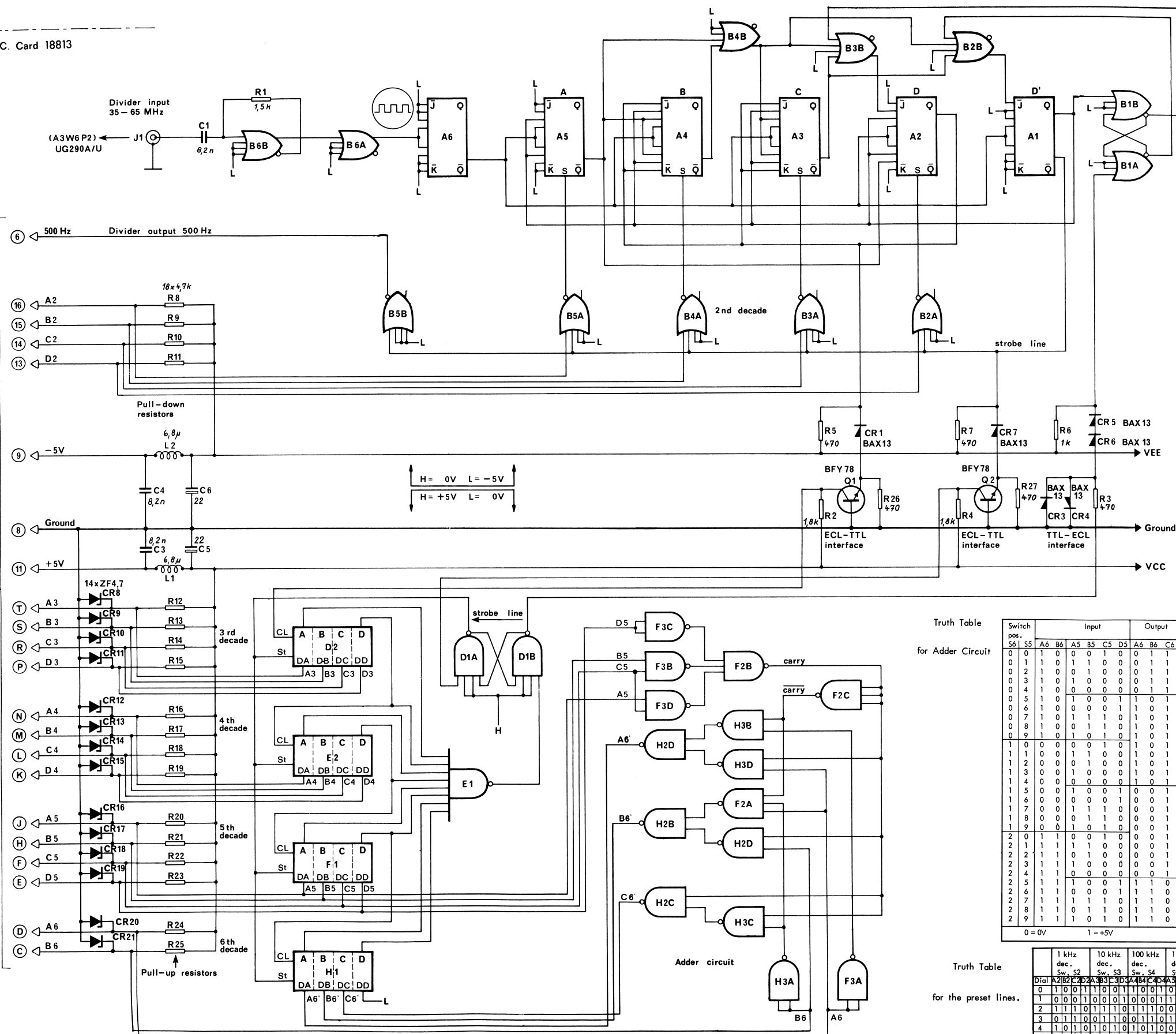
Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Note 3:
Gates, flip-flops, etc. contained in an integrated-circuit package (IC) are identified by ref. designations shown on the individual logic-circuit symbols, e.g. B3A is gate A contained in IC B3. The first letter and the following number are also used as coordinates to specify the physical location of the IC on the p.c. card.

Card edge



P.C. Card 18813



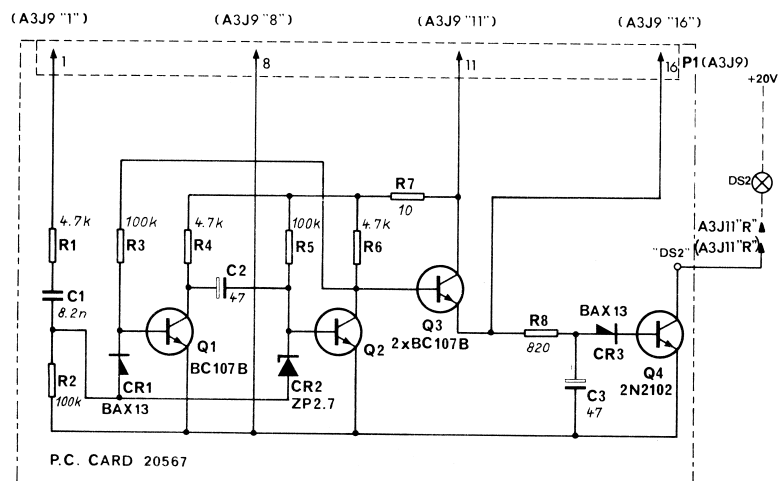
Truth Table
for Adder Circuit

Switch pos.	S6	S5	A6	B6	A5	B5	C5	D5	A6	B6	C6	Output frequency MHz
0	0	1	0	0	0	1	0	0	0	1	1	35
1	1	0	1	1	0	0	0	0	0	1	1	36
2	1	0	0	1	0	0	0	0	0	1	1	37
3	1	0	1	0	0	0	0	0	0	1	1	38
4	1	0	0	0	0	0	0	0	0	1	1	39
5	1	0	1	0	0	0	0	1	0	1	0	40
6	1	0	0	0	0	0	0	1	0	1	0	41
7	1	0	1	0	0	0	0	1	0	1	0	42
8	1	0	0	0	0	0	0	1	0	1	0	43
9	1	0	1	0	0	0	0	1	0	1	0	44
10	0	0	0	0	0	0	1	0	1	0	1	45
11	0	0	0	1	0	0	0	0	1	0	1	46
12	0	0	1	0	0	0	0	0	1	0	1	47
13	0	0	0	0	0	0	0	0	1	0	1	48
14	0	0	0	0	0	0	0	0	1	0	1	49
15	0	0	0	0	0	0	0	0	1	0	1	50
16	0	0	0	0	0	0	0	0	1	0	1	51
17	0	0	0	0	0	0	0	0	1	0	1	52
18	0	0	0	0	0	0	0	0	1	0	1	53
19	0	0	0	0	0	0	0	0	1	0	1	54
20	0	1	1	0	0	0	0	0	0	0	1	55
21	1	1	1	1	0	0	0	0	0	0	1	56
22	1	1	1	0	0	0	0	0	0	0	1	57
23	1	1	1	0	0	0	0	0	0	0	1	58
24	1	1	1	0	0	0	0	0	0	0	1	59
25	1	1	1	0	0	0	0	1	1	0	0	60
26	1	1	1	0	0	0	0	1	1	0	0	61
27	1	1	1	0	0	0	0	1	1	0	0	62
28	1	1	1	0	0	0	0	1	1	0	0	63
29	1	1	1	0	0	0	0	1	1	0	0	64

Truth Table
for the preset lines.

1 kHz dec. Sw. S2	10 kHz dec. Sw. S3	100 kHz dec. Sw. S4	1 MHz dec. Sw. S5	10 MHz dec. Sw. S6
0	1	0	1	0
1	0	0	1	0
2	1	1	0	1
3	0	1	0	1
4	1	0	1	0
5	0	0	1	0
6	1	1	0	1
7	0	1	0	1
8	1	0	1	0
9	0	0	1	0

35.000-64.999 MHz Variable-Ratio Frequency Divider



Note 1:

Unless otherwise specified: -

All resistance values are in ohms.

All capacitance values are in microfarads.

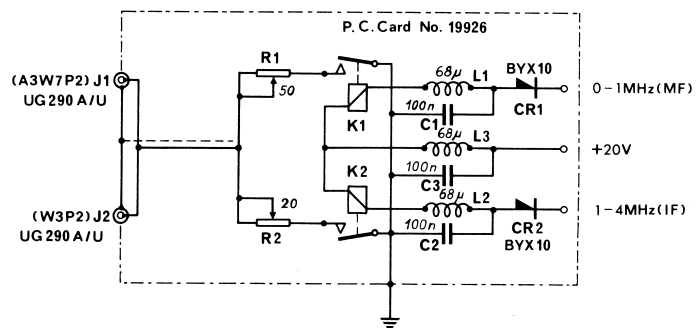
All inductance values are in henries.

Note 2:

Partial Reference Designations are shown.

For Complete Designation prefix with Assembly and Subassembly Reference Designations.

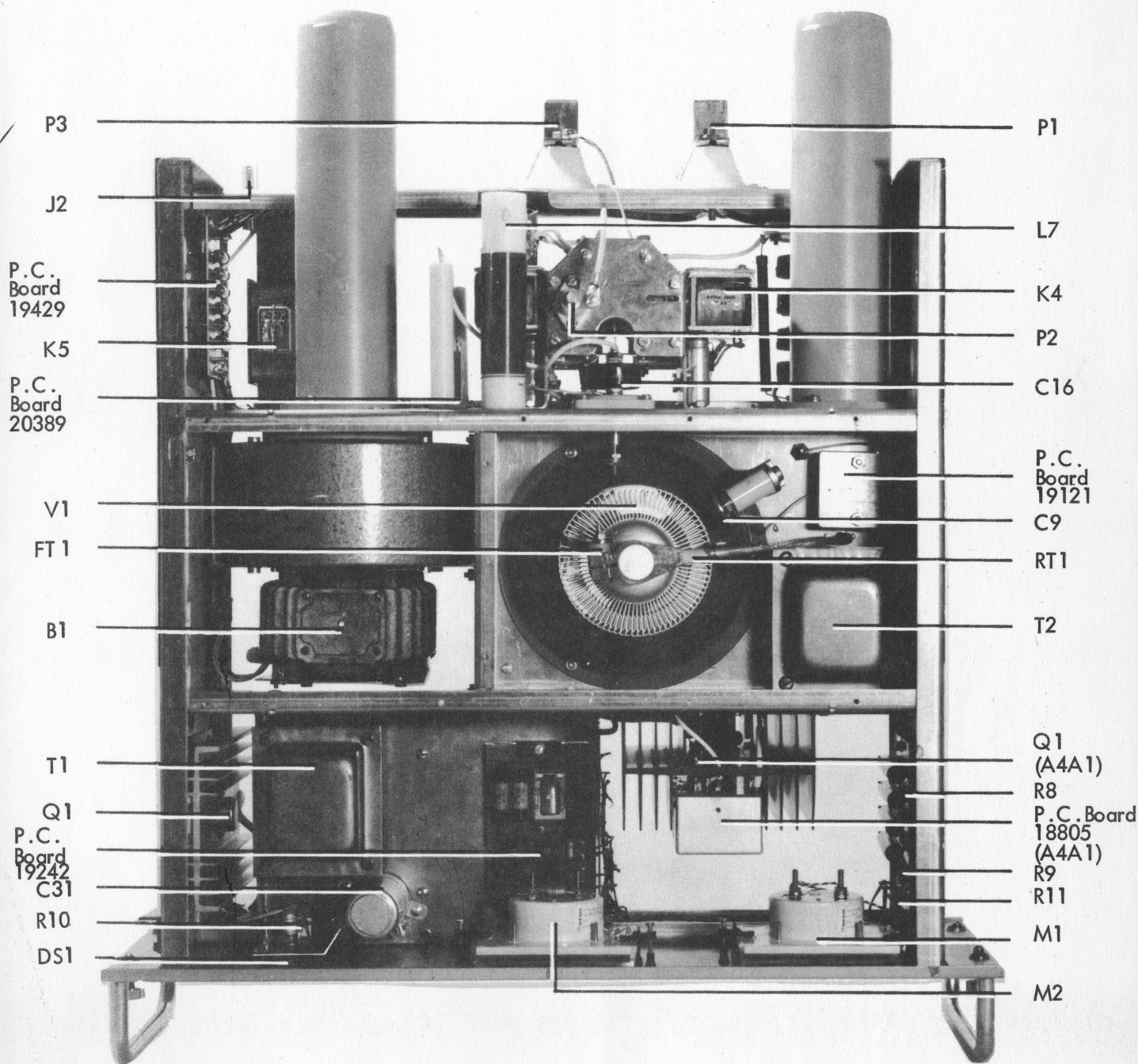
Output Gate-Off Circuit



Note 1:
Unless otherwise specified:-
All resistance values are in ohms.
All capacitance values are in microfarads.
All inductance values are in henries.

Note 2:
Partial Reference Designations are shown.
For Complete Designation prefix with Assembly and Subassembly Reference Designations.

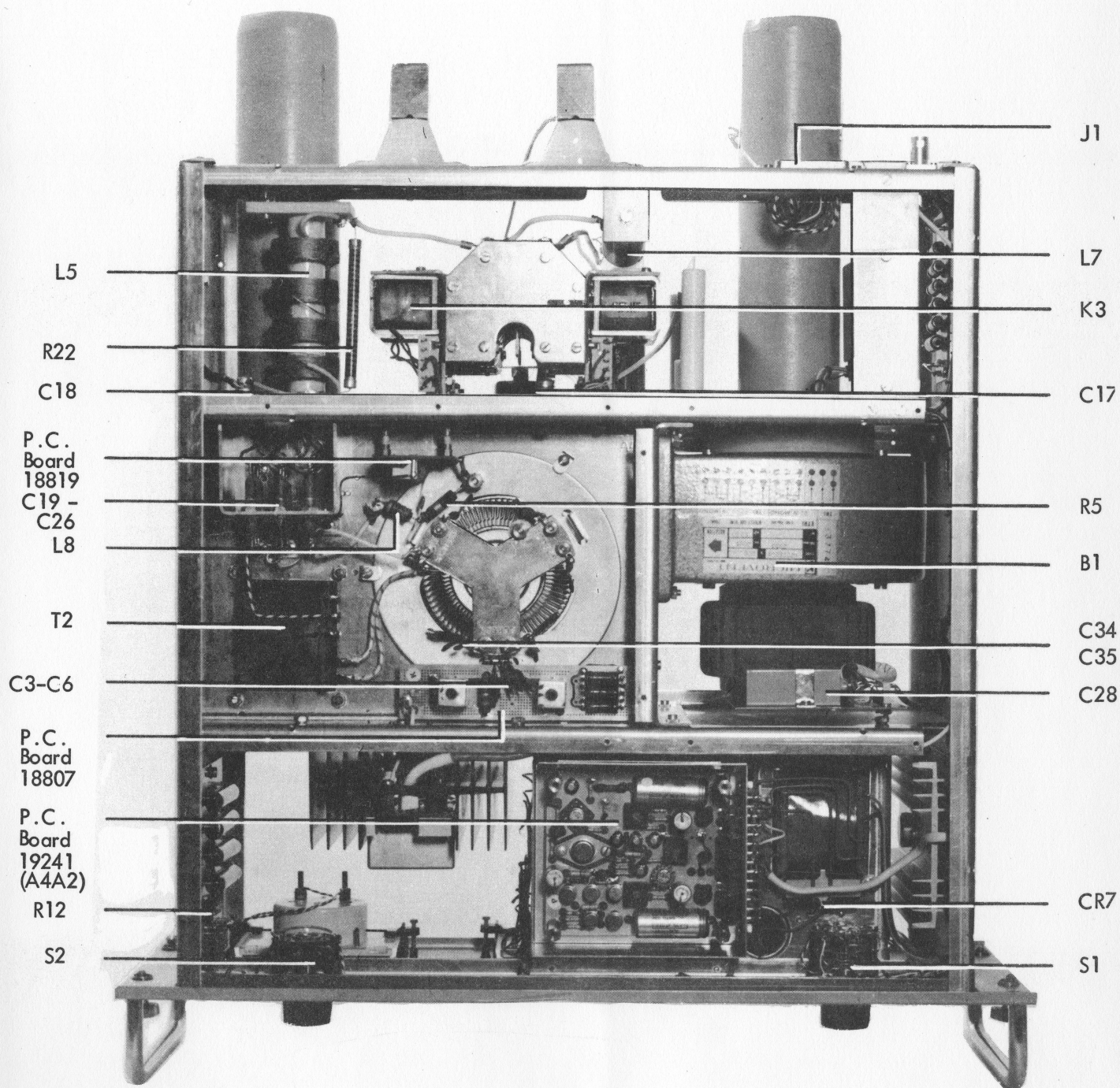
1.5-MHz Signal-Level Control Circuit



Power Amplifier Circuit

Top View

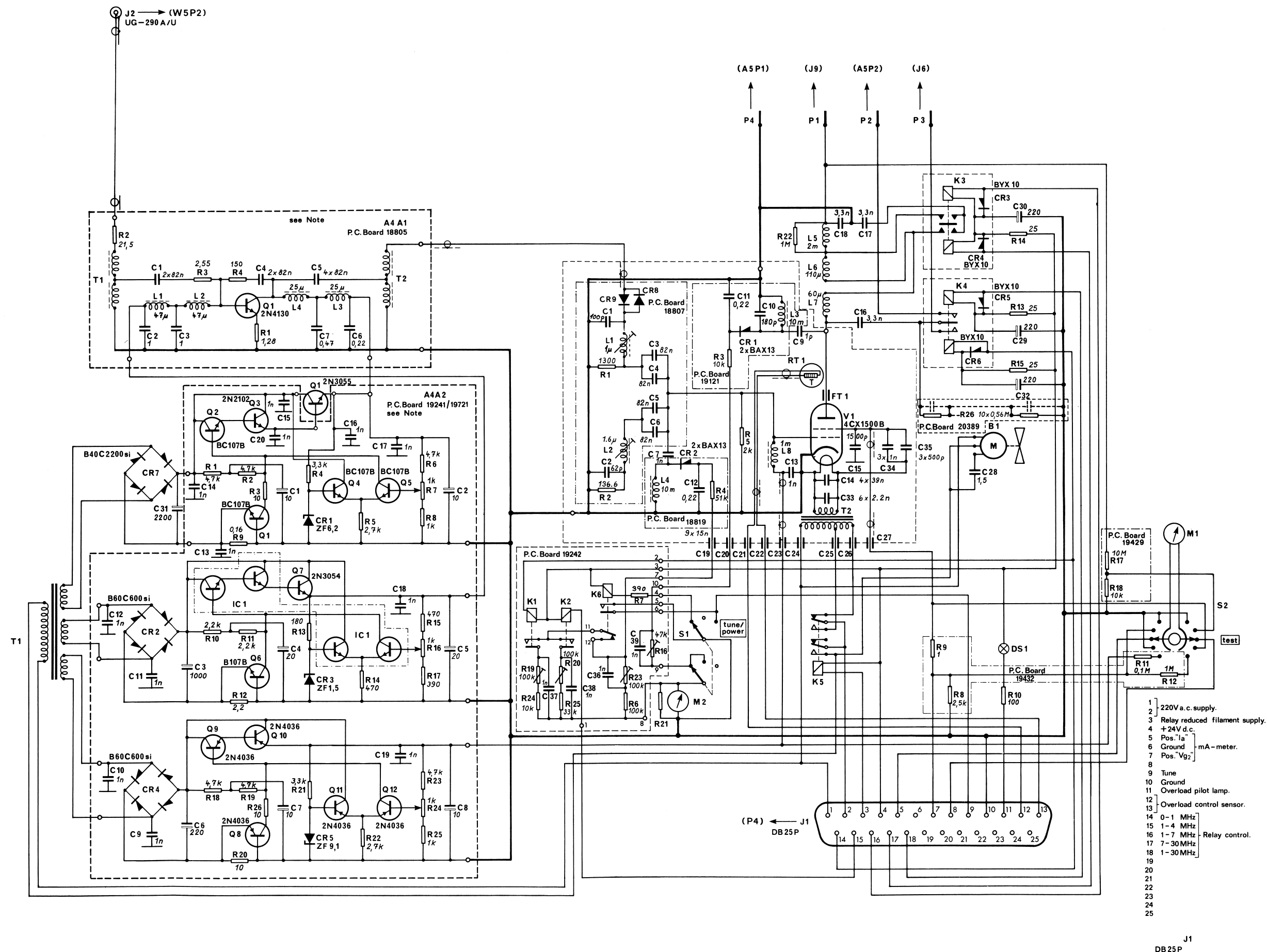
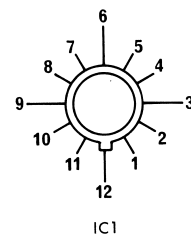
Ref. Designations A4, A4A1 and A4A2



Power Amplifier Circuit

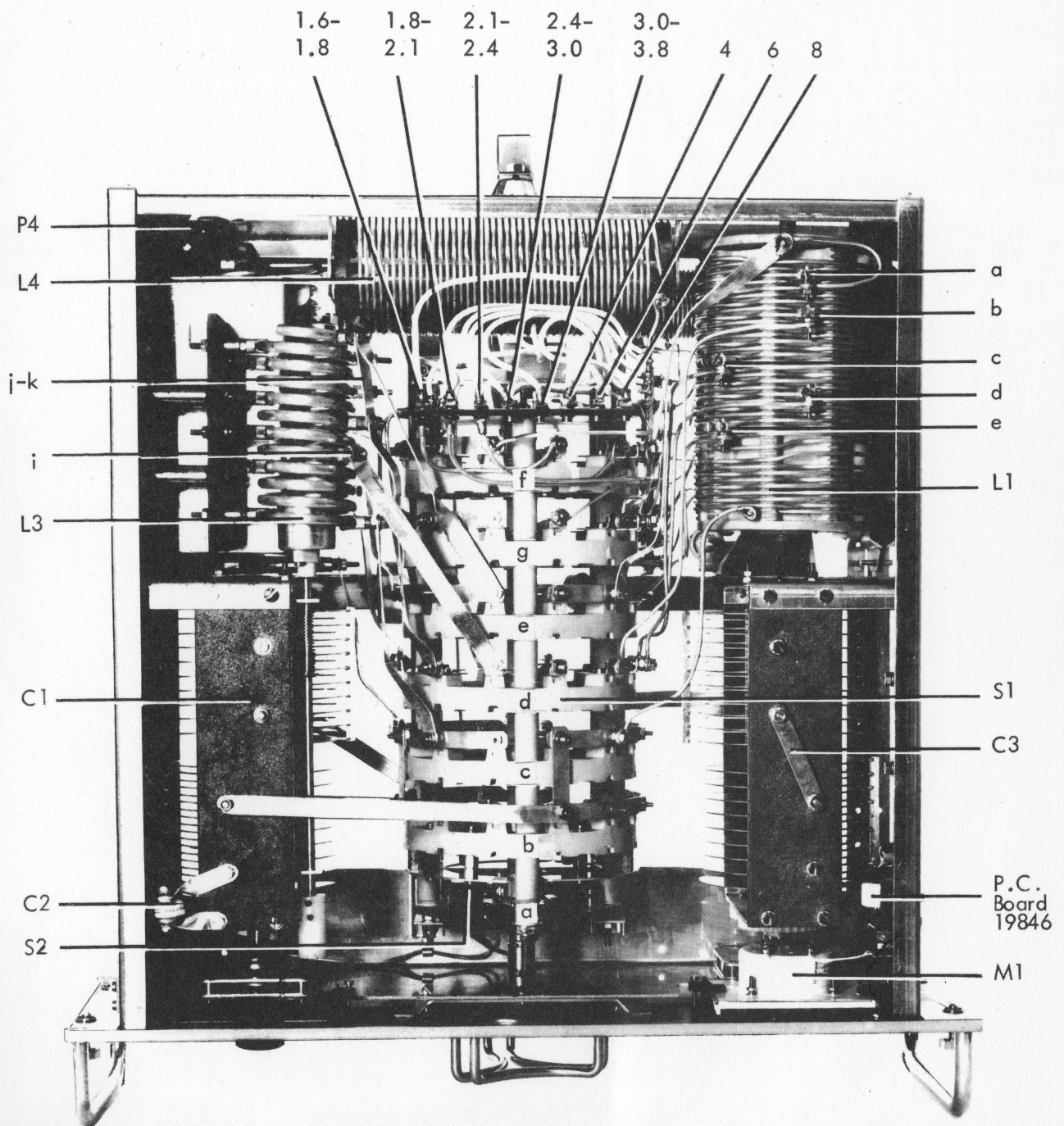
Bottom View

Ref. Designations A4, A4A1 and A4A2



Power Amplifier Circuit

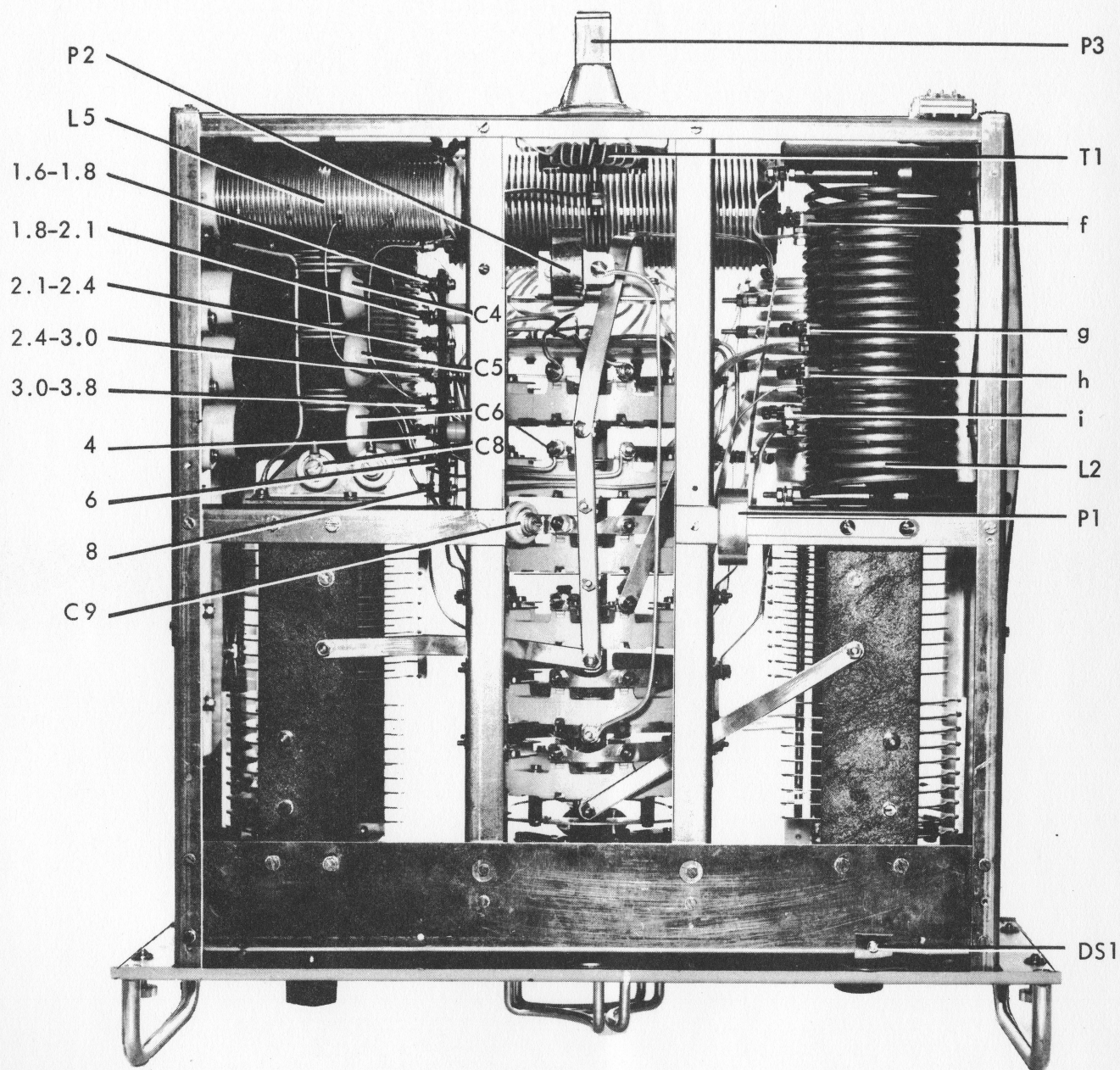
Ref. Designations A4, A4A1 and A4A2



Intermediate-Frequency and High-Frequency
Antenna Matching Network

Top View

Ref. Designation A5

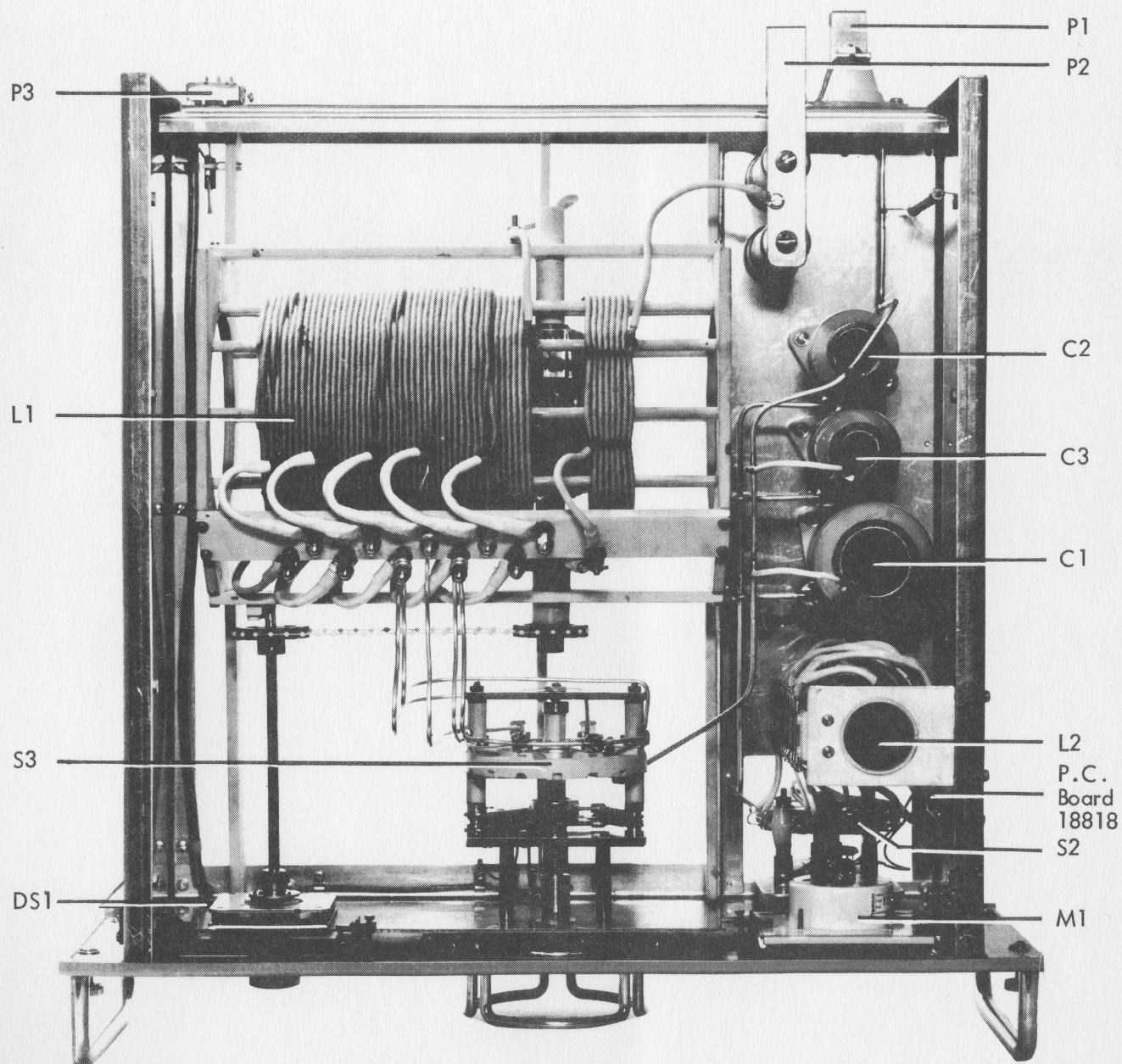


Intermediate-Frequency and High-Frequency
Antenna Matching Network

Bottom View

Ref. Designation A5

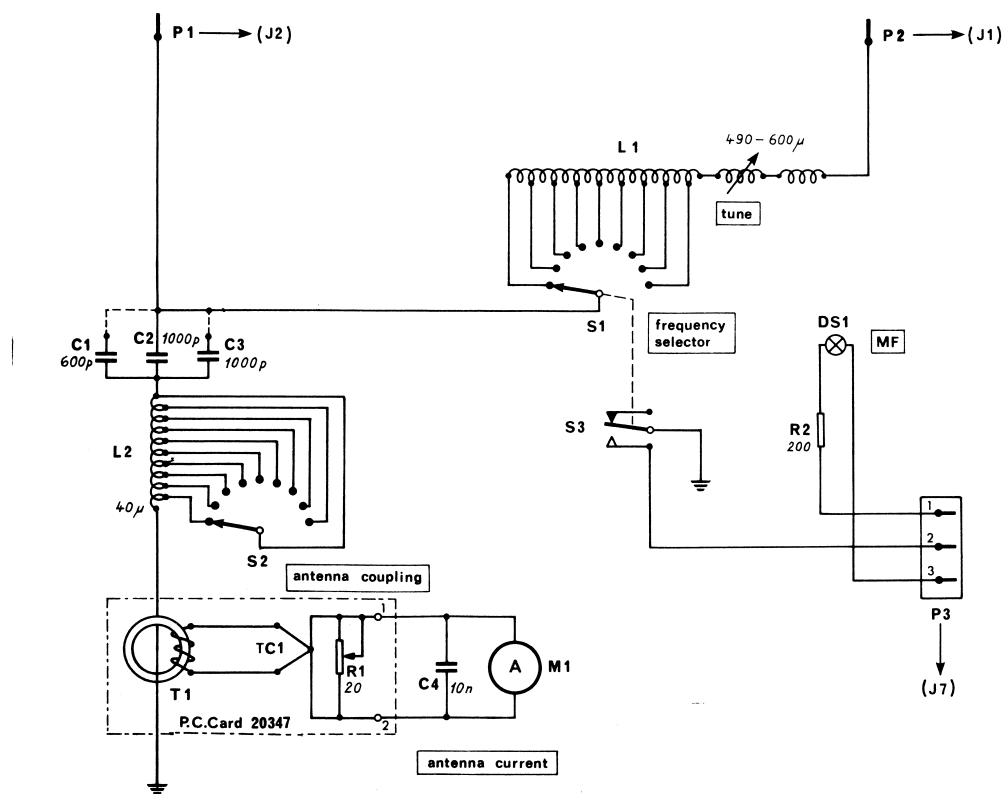




Medium-Frequency Antenna Matching Network

Top View

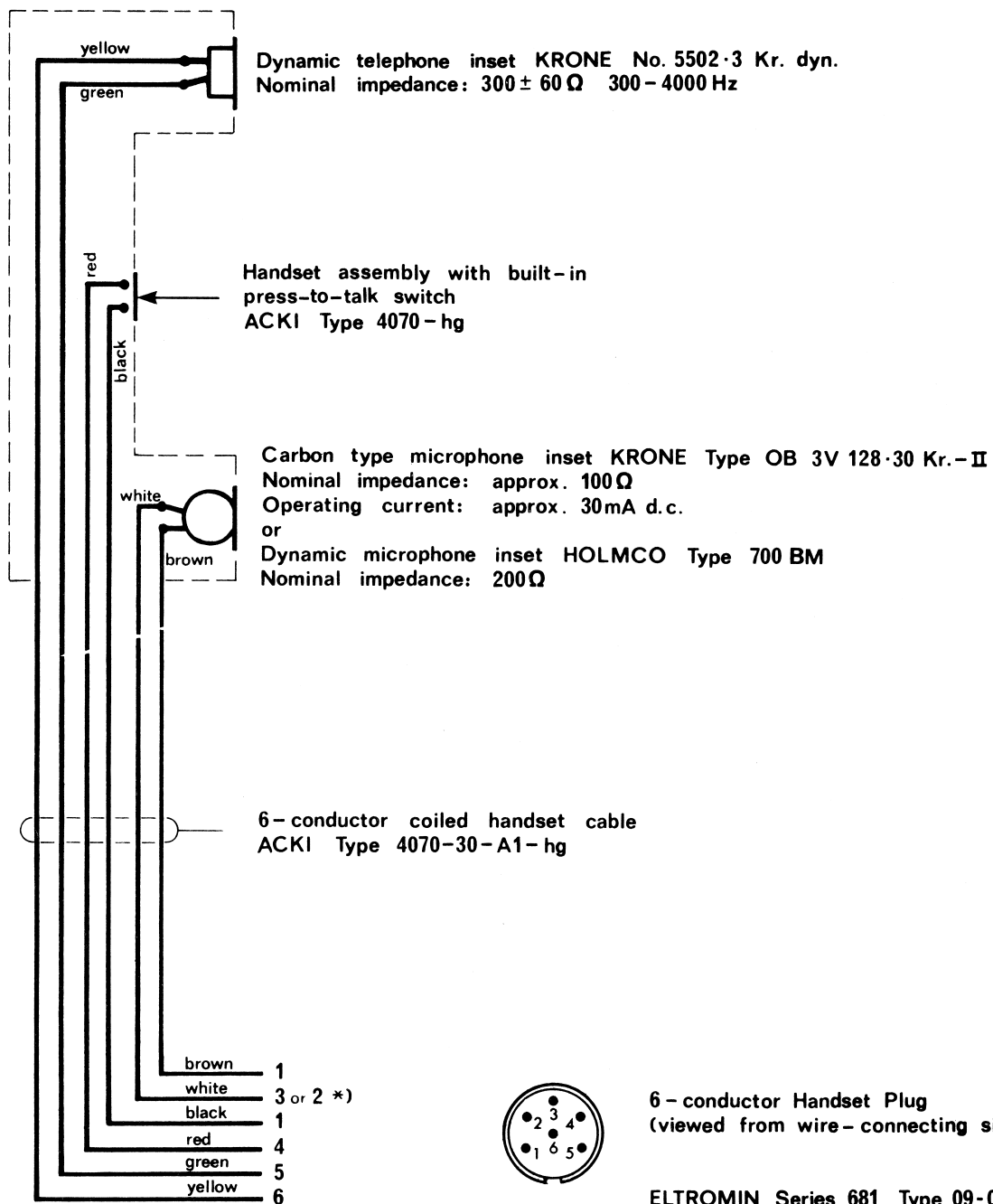
Ref. Designation A6



Note 1:
 Unless otherwise specified:-
 All resistance values are in ohms.
 All capacitance values are in microfarads.
 All inductance values are in henries.

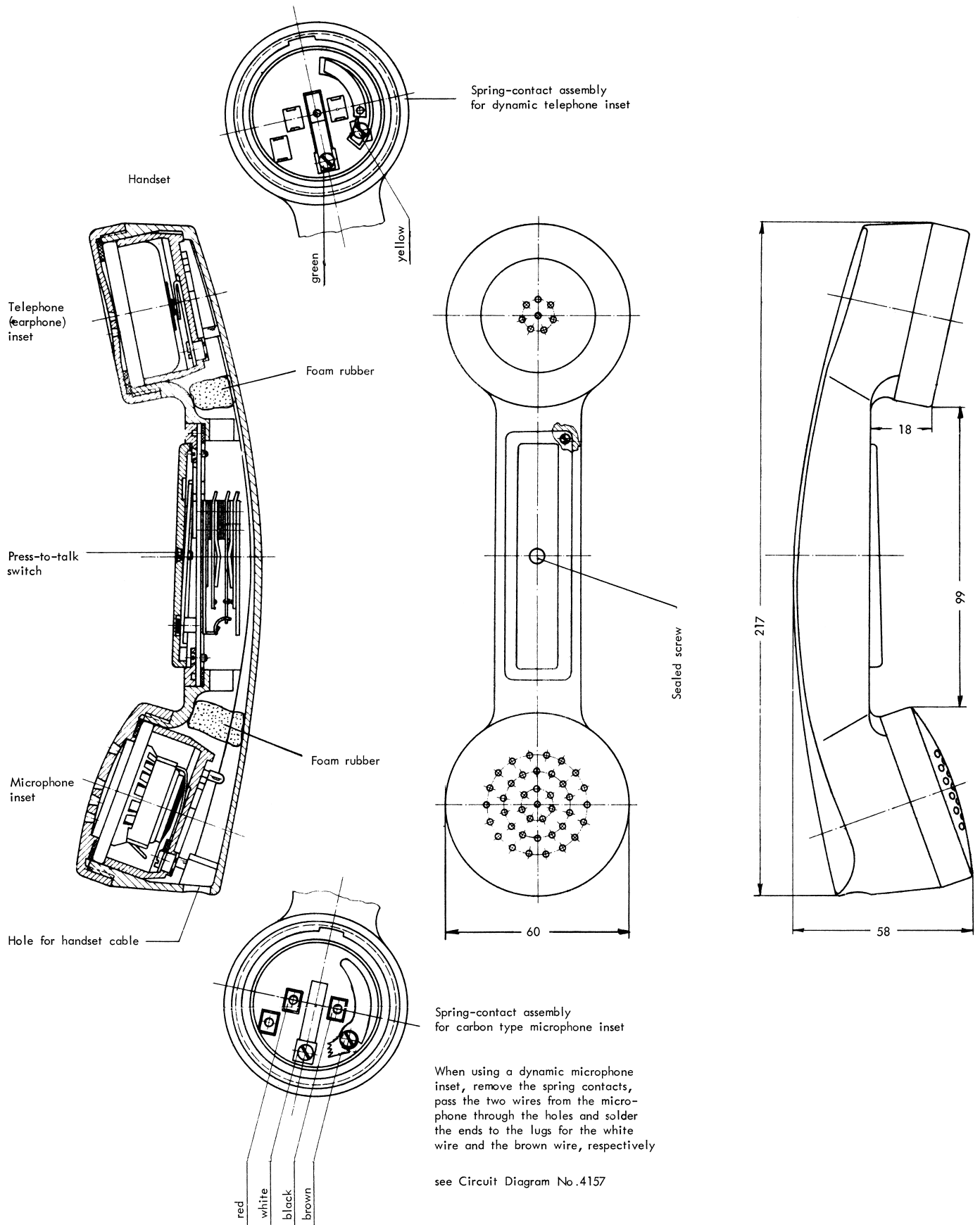
Note 2:
 Partial Reference Designations are shown.
 For Complete Designation prefix with Assembly and Subassembly Reference Designations.

Medium-Frequency Antenna Matching Network

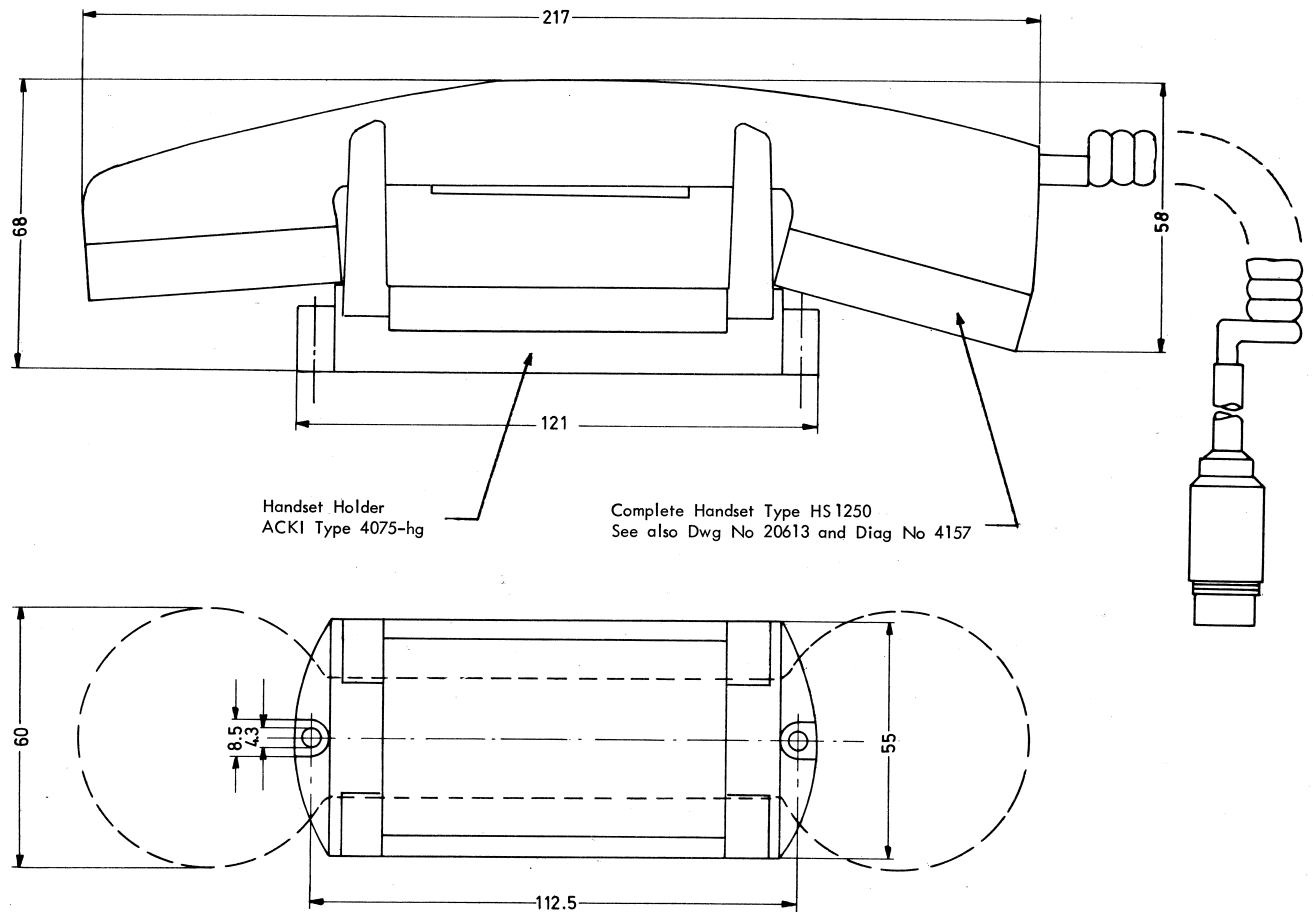


*) For handsets with carbon type microphone connect the white wire to plug contact No.3
For handsets with dynamic microphone connect the white wire to plug contact No.2

Handset Type HS 1250
Circuit Diagram

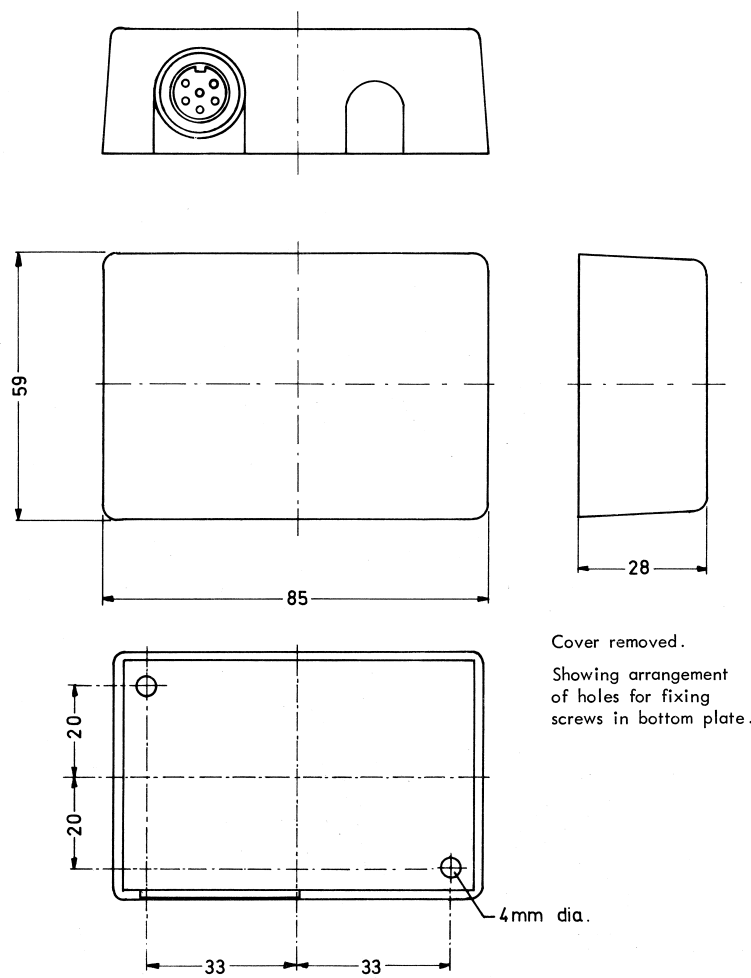


All dimensions are in mm (NTS)



All dimensions are in mm (NTS)

Handset Type HS 1250 and Handset Holder
Outline and Mounting Dimensions



All dimensions are in mm (NTS)

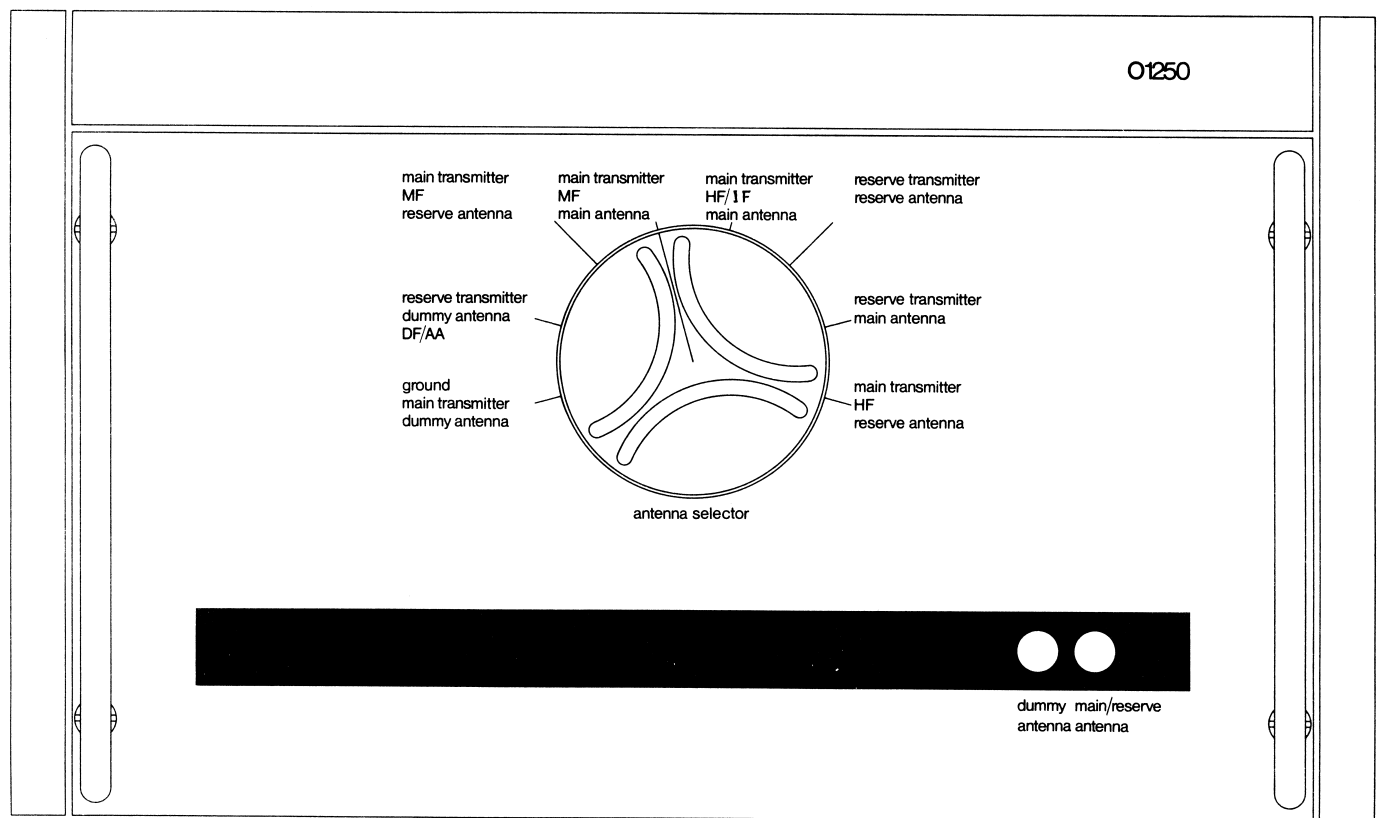
When the main receiver associated with the main transmitter is mounted together with the auto alarm, reserve transmitter, reserve receiver, etc. in a common rack, the handset holder and the handset socket are located on the common rack. For installations where other arrangements for the receivers are used, the outlet box Type 20653 shown above can be supplied on special order.

Outlet Box Type 20653

Outline and Mounting Dimensions

instruction manual

ANTENNA SELECTOR SWITCH



KELVIN HUGHES
A DIVISION OF SMITHS INDUSTRIES LIMITED



New North Road, Hainault, Ilford, Essex
Telephone: 01-500 1020 Telex: 896401 Grams/Cables: Marinst Ilford Telex
London Showrooms: St. Clare House, Minorities, EC3 Telephone: 01-481 8741

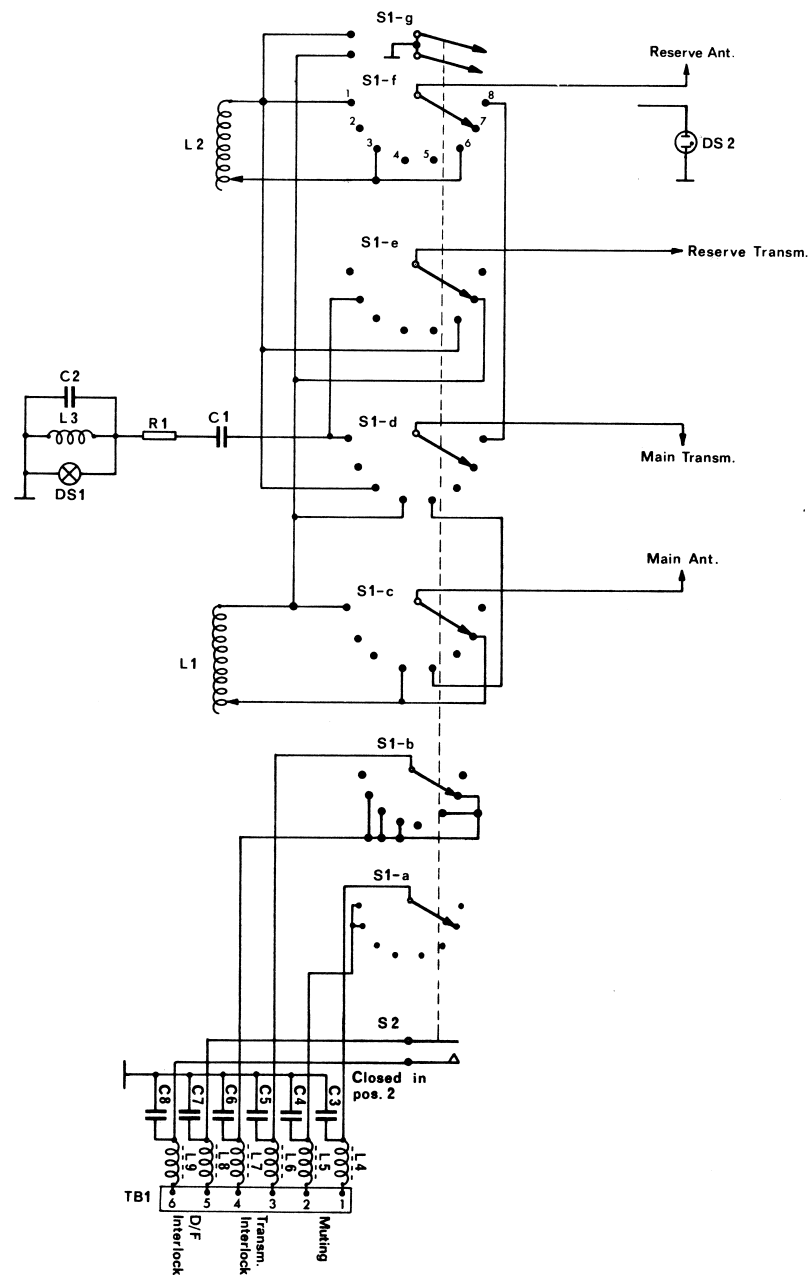
PARTS LIST

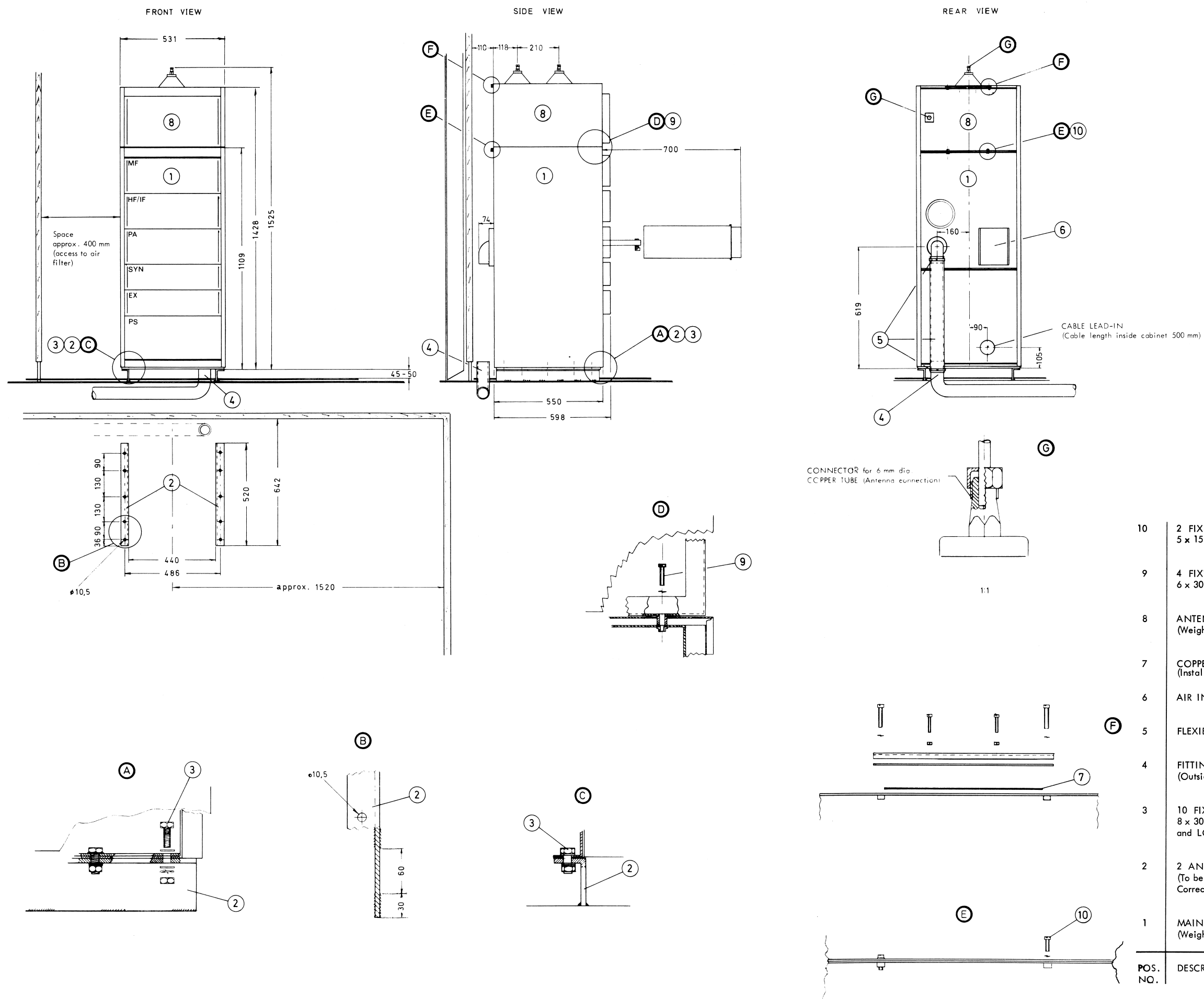
Antenna Selector Switch

Diagram No. 4101

Symbol	Description	Specification	Type	Manufact.
C1	Capacitor	600pF±20%	85 Tc 65/90	RIG
C2	Capacitor	six 0.022μF 750V DCW par.	9/0138,9	Ferroperm
C3	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
C4	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
C5	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
C6	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
C7	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
C8	Capacitor	0.1μF 20% 630V	2222 342 60 104	Philips
DS1	Indicator lamp	10V 0.2A	8034	Philips
DS2	Indicator lamp, neon		J 449	TS
L1	Series coil		T.16490	Elektrom.
L2	Series coil		T.16490	Elektrom.
L3	Coil		T.16037	Elektrom.
L4	Coil	80 μH	B82501-C-C13	Siemens
L5	Coil	80 μH	B82501-C-C13	Siemens
L6	Coil	200 μH	B82501-C-C14	Siemens
L7	Coil	200 μH	B82501-C-C14	Siemens
L8	Coil	80 μH	B82501-C-C13	Siemens
L9	Coil	80 μH	B82501-C-C13	Siemens
R1	Resistor	4 Ω	T.20569	Elektrom.
S1-a	Switch wafer		T.5254	Elektrom.
S1-b	Switch wafer		T.5254	Elektrom.
S1-c to S1-f	Switch wafer		T.20157	Elektrom.
S1-g	Earthing switch wafer		T.15927 + two T.15926	Elektrom.
S2	Micro switch		CLR	Burgess
TB1	Terminal board	10-terminal	TGS 1/10	CAW

1. ground - main transmitter - dummy antenna
2. reserve transmitter - dummy antenna - DF/AA
3. main transmitter - MF - reserve antenna
4. main transmitter - MF - main antenna
5. main transmitter - HF/CT - main antenna
6. reserve transmitter - reserve antenna
7. reserve transmitter - main antenna
8. main transmitter - HF - reserve antenna





All dimensions are in mm (NTS)