

SECTION 2

CONTROL, RADIO STATION
NATO STOCK NO. 5821-99-643-4475

(PLESSEY CONTROL UNIT PV1753)

FOR TRANSMITTER-RECEIVER EQUIPMENTS
USING PARALLEL DATA CONTROL

CHAPTER 1

GENERAL DESCRIPTION

CONTENTS

Para.

- 1 General
- 2 Functional description
- 4 Operating details
- 5 Physical dimensions

Table

- 1 Front panel facilities

Page

6

Fig.

- 1 Control, radio station : general view
- 2 Control, radio station : front panel facilities
- 3 Control, radio station : physical dimensions

Page

2

4

7



Fig.1 Control, radio station: general view

GENERAL DESCRIPTION

GENERAL

1. The Control, Radio Station, Nato Stock No. 5821-99-643-4475 (Plessey Control Unit PVI753) is a panel-mounted plug-in module for use with the ARI.23291 communications equipment (PTR1751) and in conjunction with the transmitter-receiver, provides the following facilities:

- Transmitter-receiver 28 V d.c. input power supply ON/OFF.
- Audio output level
- Frequency selection
- Digital indication of frequency selection
- System self-test
- Module illumination and digital indication brightness control
- Guard channel ON/OFF)
- Homer ON/OFF) Optional facilities

FUNCTIONAL DESCRIPTION

2. The function of the control, radio station is to provide a means of selecting transmitter-receiver operating modes and the operating channel, one of 3499 synthesized frequency channels at 50 kHz spacing in the range 225 to 399.950 MHz, and communicating these selections to the transmitter-receiver system. It also provides a display of the selected frequency. The front panel controls operate as follows:

- 1) Mode Switch: Energises the control, radio station and selects either transmitter-receiver only, transmitter-receiver with guard (not used), or transmitter-receiver with homer (not used).

- 2) Frequency selectors: control the frequency of the transmitter-receiver. The selected frequency is indicated by a digital display.
- 3) Dimming control: operates in conjunction with the display control circuits to control the brightness of the digital display.
- 4) Test switch: places a test tone on either the transmitter or receiver and also checks all the digital display lamps.
- 5) Volume control: controls the receiver audio output.

3. The +28 V d.c. voltage and common connections are derived from the transmitter-receiver system.

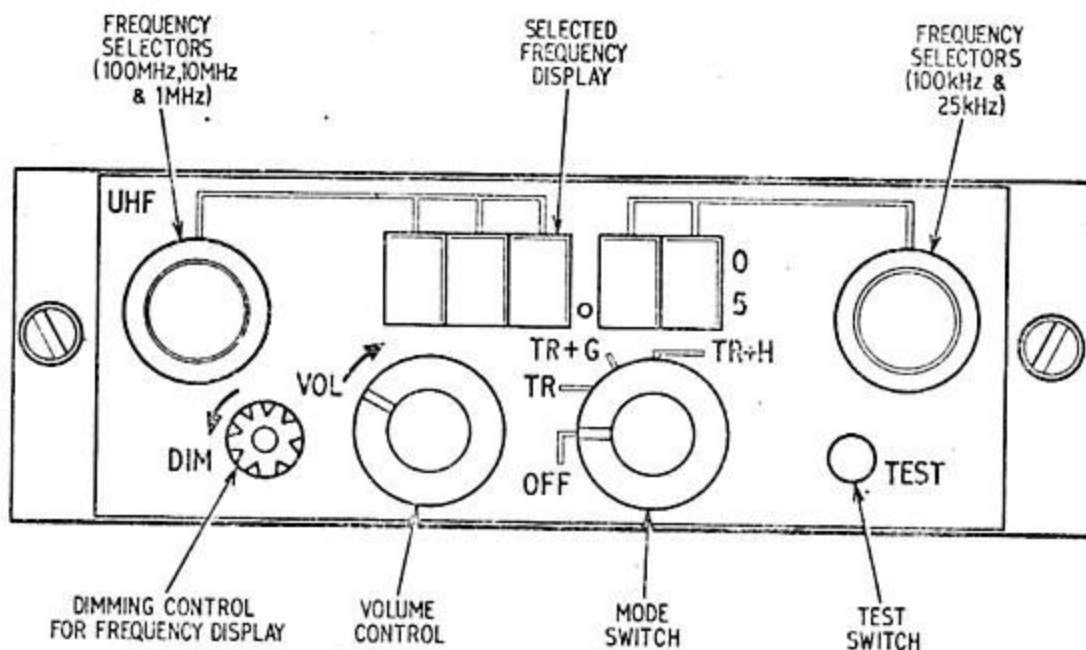


Fig. 2 Front panel facilities

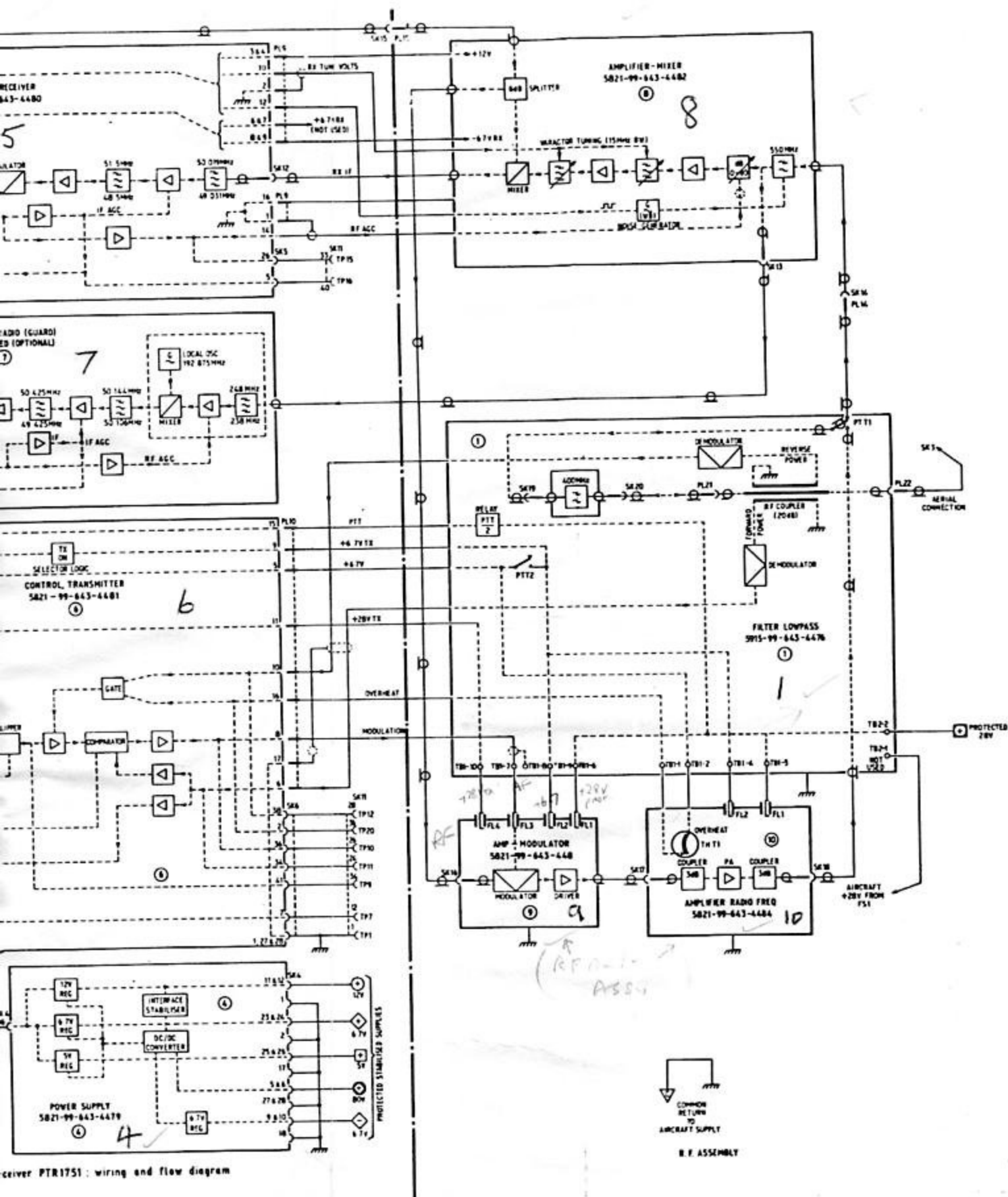


Fig.1 Transmitter-receiver PTR1751:
wiring and flow diagram

OPERATING DETAILS

4. The control, radio station front panel facilities are shown in Fig.2 and their functions are shown in Table 1.

TABLE 1
Front panel facilities

Facility on control	Position	Effect or Function
Mode Selector	OFF	Switches OFF transmitter-receiver
	TR	Switches ON transmitter-receiver
	TR + G	Switches ON transmitter-receiver and Guard channel facility (not used).
	TR + H	Switches ON transmitter-receiver and homer facility (not used).
VOL control		Varies audio output.
Frequency selectors		
(left outer)		Selects 1st and 2nd digits of frequency (hundreds and tens of MHz).
(left inner)		Selects 3rd digit of frequency (units of MHz).
(right outer)		Selects 1st decimal digit of frequency (hundreds of kHz).
(right inner)		Selects 2nd decimal digit of frequency (tens of kHz).
		Add 0 or 5 to complete last two digits of frequency, i.e. 00, 25, 50, or 75 kHz.

TABLE 1 (cont'd)

12-11-78-01-01

Facility		
on control	Position	Effect or Function
DIM control		Reduces brightness of frequency display when turned counter-clockwise. Increases brightness when turned clockwise. Ranges from total extinction to full brightness.
TEST (red button)	Pressed	On receive: injects 1.3 kHz test tone which is heard as a steady output tone if the receiver is serviceable. Display: indicates 888.88 as display lamp serviceability check.

PHYSICAL DIMENSIONS

5. The dimensions of the control, radio station are 146 x 48 x 108 mm (excluding socket and control knobs), and its weight is 1kg (see Fig.3).

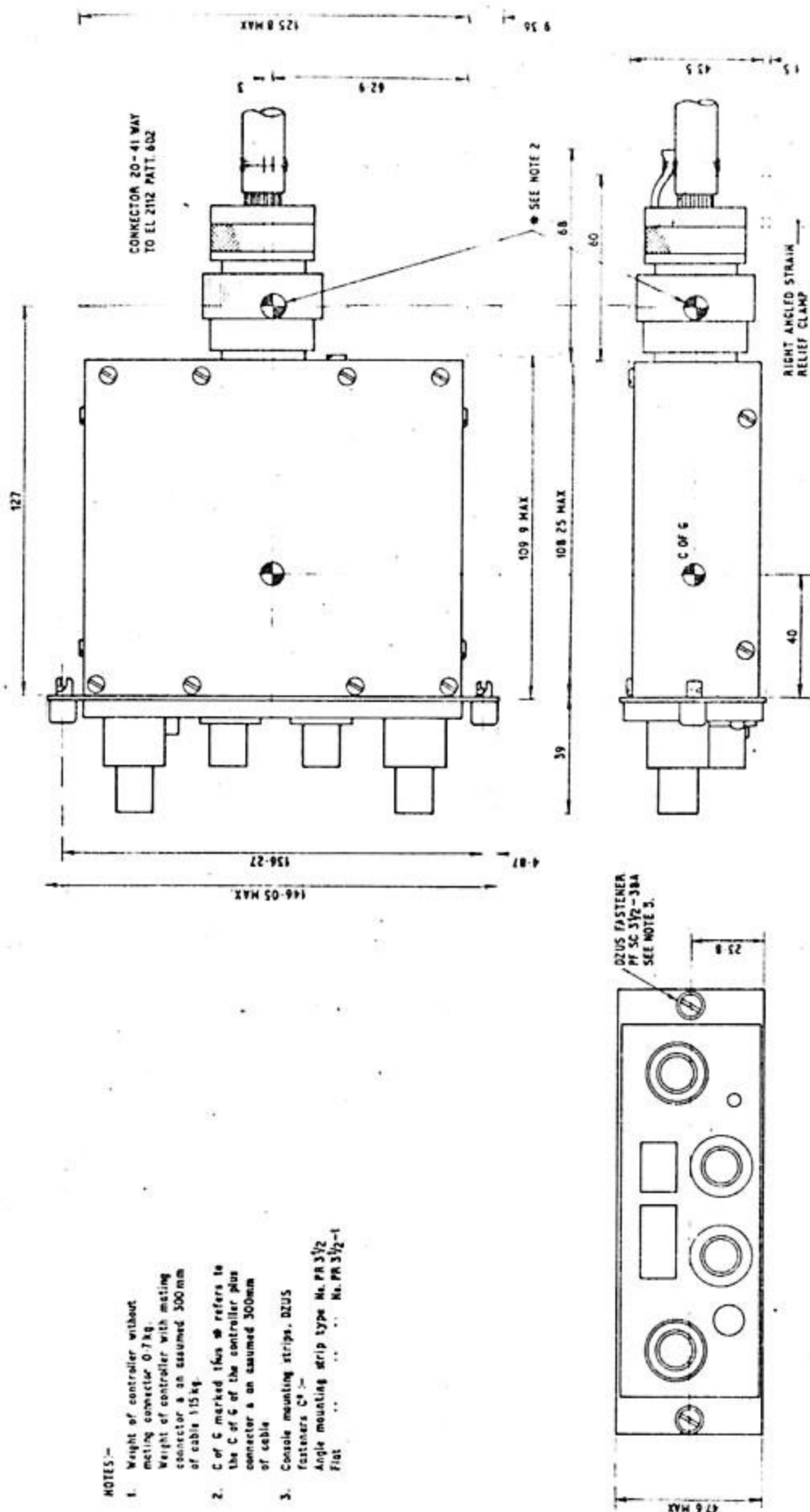


Fig.3 Control, radio station: physical dimensions

CHAPTER 2

CIRCUIT DESCRIPTION

CONTENTS

Para.

1	General
3	Circuit description
12	Test facility
13	Panel illumination
14	Mode selection
15	Gain control

Table

1	Frequency control logic codes
---	-------------------------------

Page

8

Fig.

1	Simplified functional block diagram
2	Clock pulse generator and multiplexer circuit
3	Basic timing diagram
4	Simplified clock pulse distribution
5	Frequency selection
6	Display driver
7a	Control, radio station: circuit diagram sh.1
7b	Control, radio station: circuit diagram Sh.2

Page

2

3

4

5

6

7

12

13

CIRCUIT DESCRIPTION

GENERAL

1. The control, radio station contains seven printed circuit boards, as follows:

- 1) Board DB - display driver;
- 2) Board DM - display matrix;
- 3) Board FA - dimmer;
- 4) Board OB - code output;
- 5) Board MB - multiplexer;
- 6) Board RA - 12 V d.c. power supplies;
- 7) Board SM - switch matrix;

2. Board RA interfaces with the main +28 V d.c. power supply and provides a regulated +12 V d.c. output for the logic circuits. The logic states of 1 and 0 are represented by +12 V d.c. and 0V d.c., respectively.

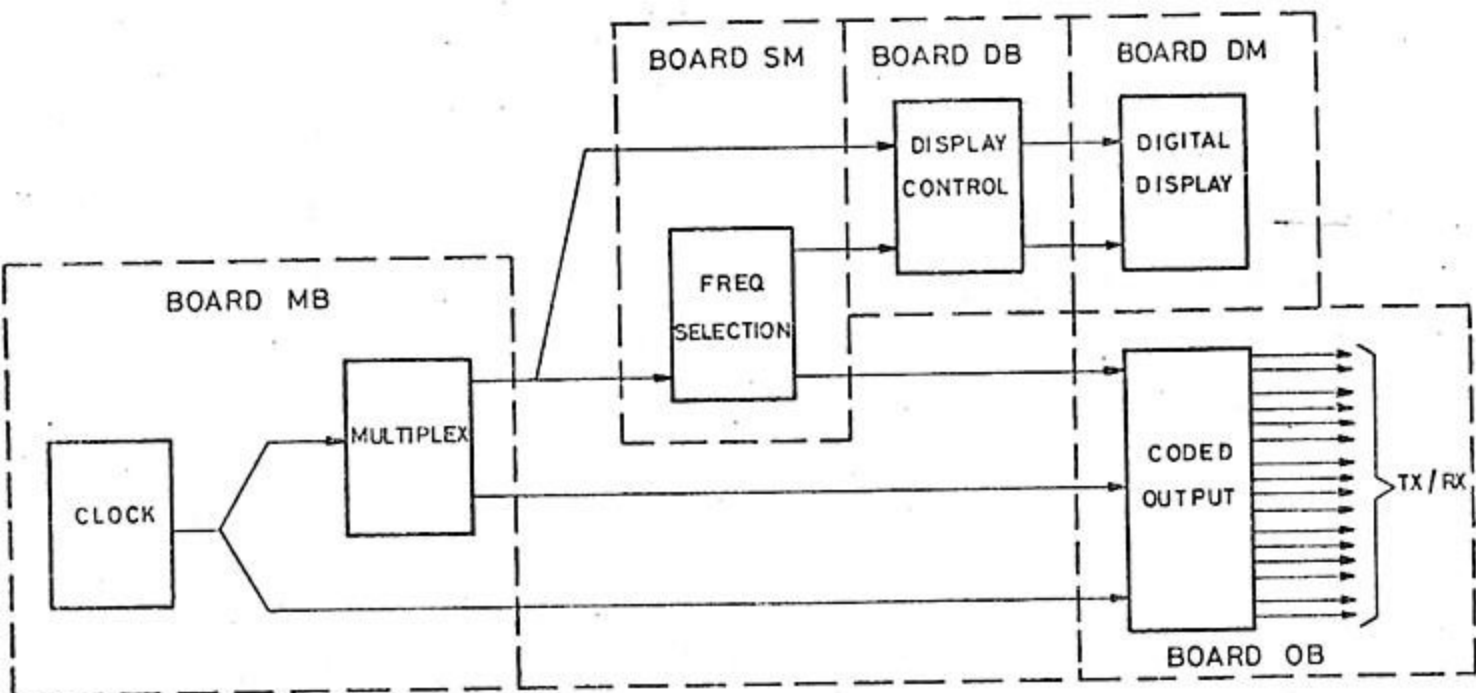


Fig.1 Simplified functional block diagram

CIRCUIT DESCRIPTION (FIG. 7)

3. The clock generator (Fig.2) produces sequential output pulses at a nominal 10 kHz rate which are multiplexed and routed to the frequency selection circuits, the display inhibit gates and to the output stage latches, which interface with the transceiver.

4. The clock pulses are derived from the decade counter/driver IC1, NAND gate IC1a and RC oscillator (R18 and C4), and alternate between 1 and 0.

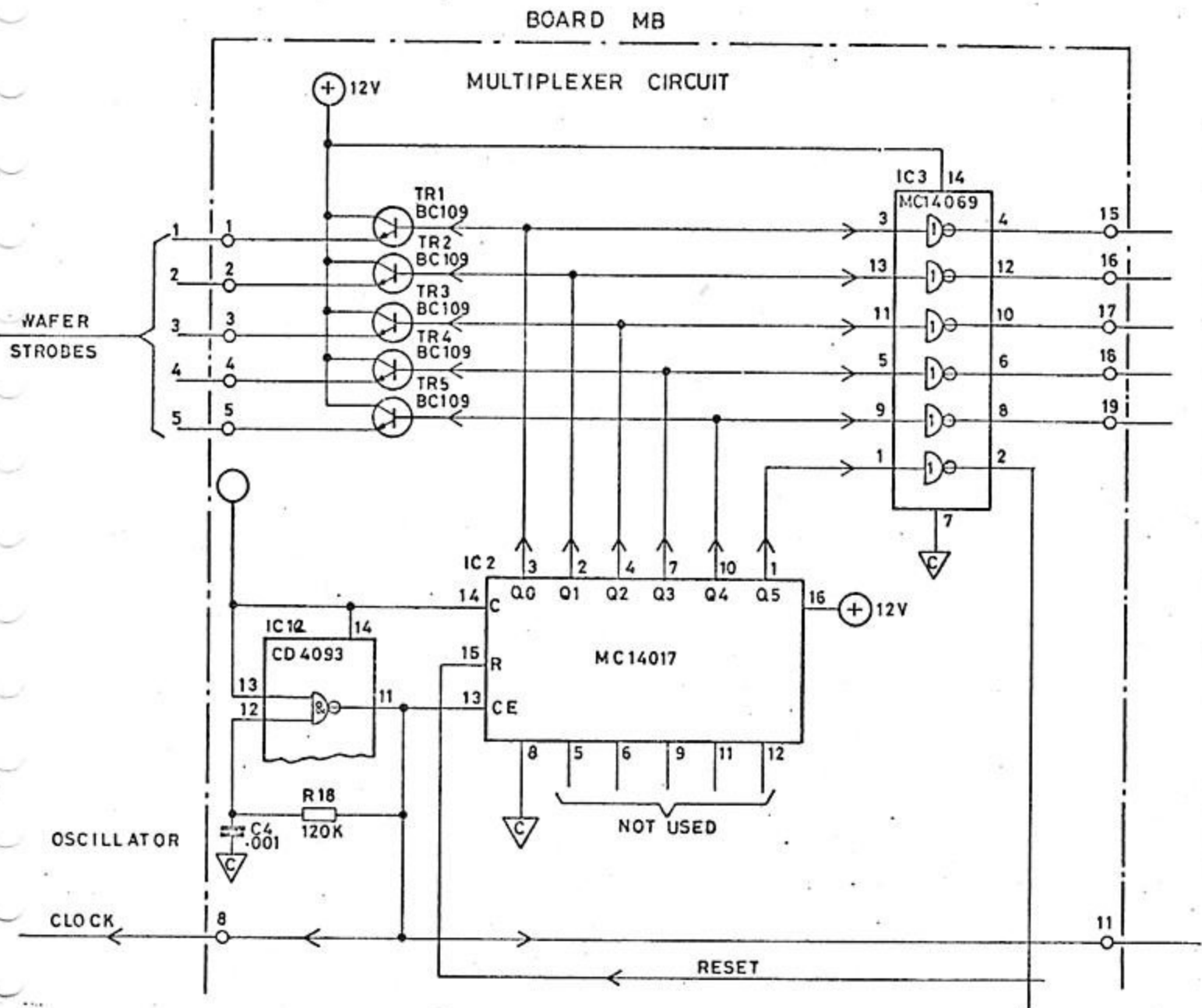


Fig.2 Clock pulse generator and multiplexer circuit

5. When a 1 output from the oscillator is received at both clock (C) and clock enable (CE) gates of IC2 it produces a 1 output at Qn. When clock enable changes from 1 to 0, the 1 output advances from Qn to Qn+1. Subsequent changes of input to clock enable produce a 1 from Q0 to Q5 in sequence (Fig.3).

These outputs are routed to six inverters in IC3, and to the transistor switches (TR1 to TR5).

6. The output from Q5 (IC2) is inverted in IC3 and routed via NAND gate IC1b, which produces a reset pulse (1). This pulse switches the 1 output from Q5 to Q0, allowing the entire sequence to be repeated.

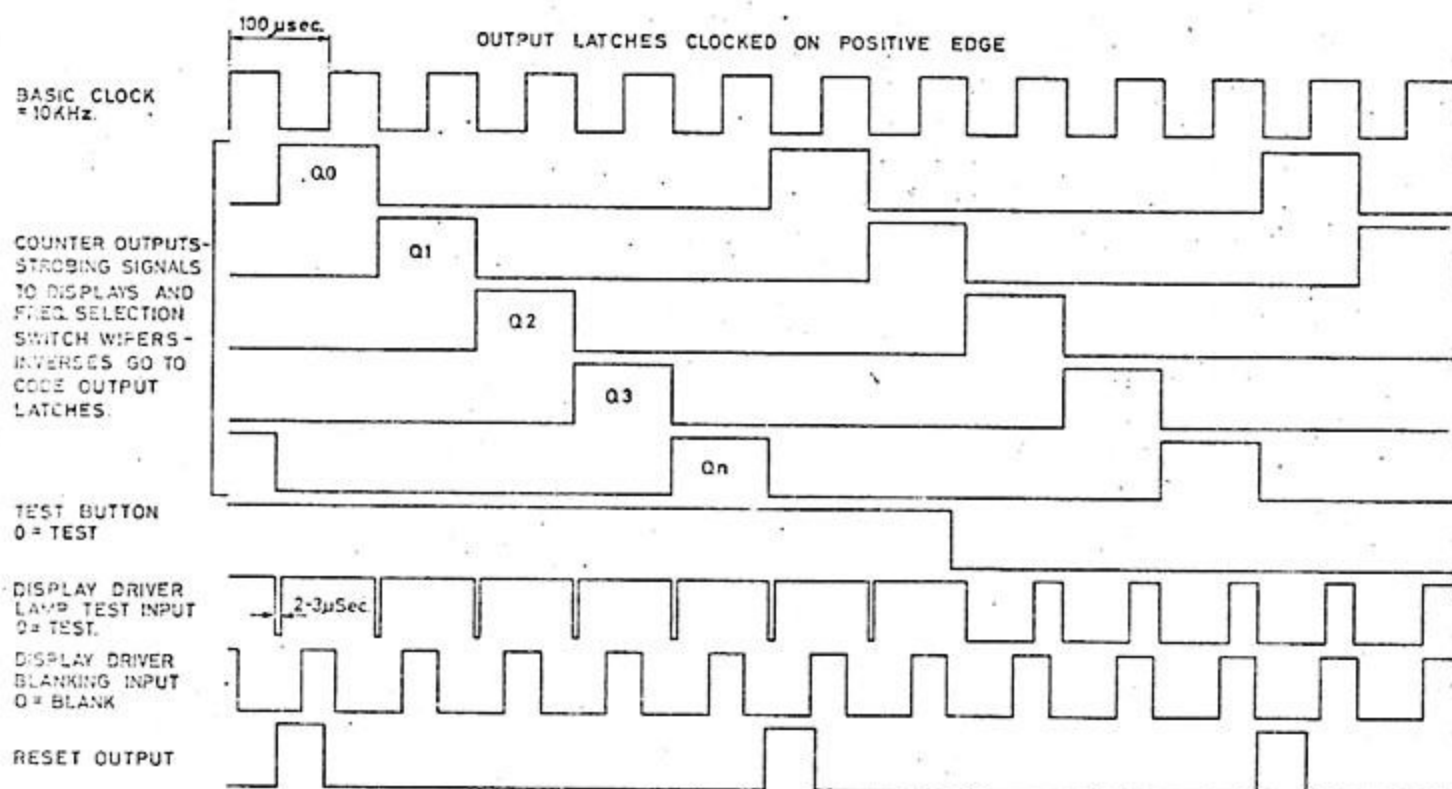


Fig.3 Basic timing diagram

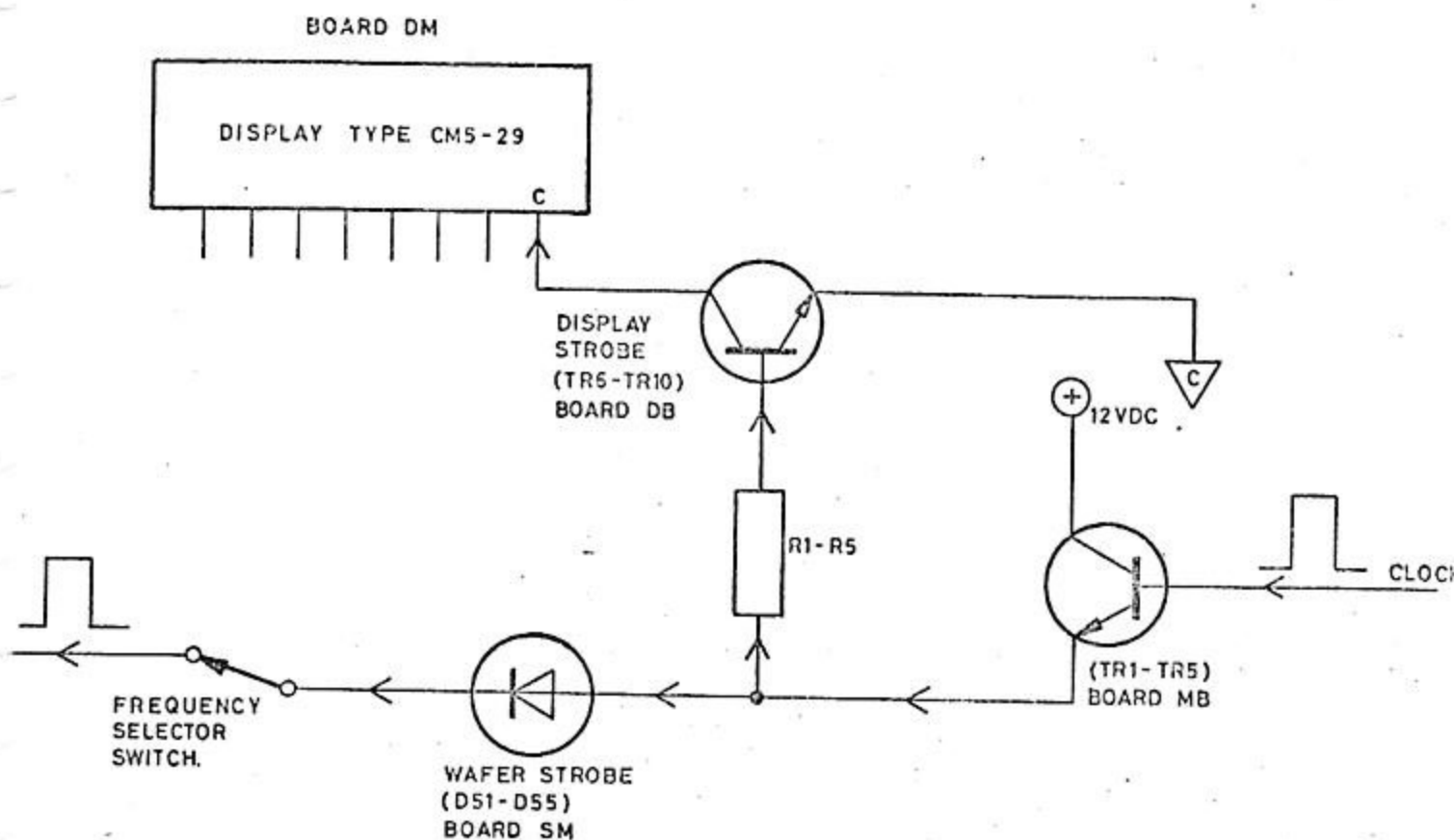


Fig.4 Simplified clock pulse distribution

7. Sequential 1 outputs from transistor switches TR1 to TR5 (Board MB), are routed to the display strobes TR6 to TR10 (Board DB) and (Fig.4). Sequential conduction of TR6 to TR10 strobes the commons of the displays (LP3 to LP7) in the display matrix (Board DM).

FREQ SELECTION SWITCHES (MHz)
 SWITCH Nos. DENOTE SWITCH POSITION
 STARTING AT THE ANTICLOCKWISE POS.)

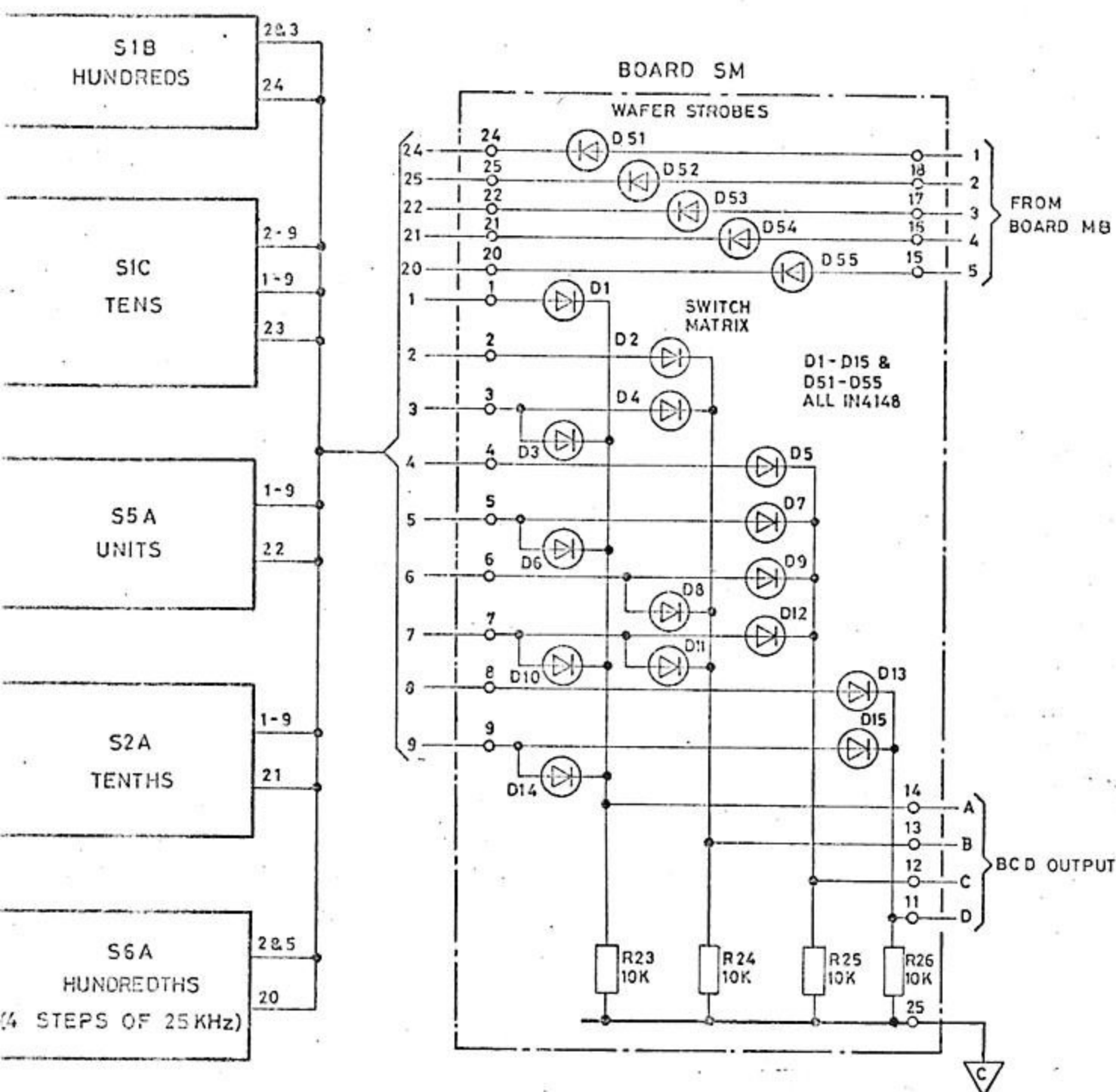


Fig.5 Frequency selection

8. The sequential I outputs from TR1 to TR5 are also routed via wafer strobe diodes D51 to D55 (Board SM), frequency selection switches, and the switch matrix (D1 to D15) to resistor network R23 to R26 (Fig.5). The permutation of voltage drops across the resistor network forms logic inputs (BCD Code) to latch/decoder/driver IC16 (Board DB) and latches IC6 to IC10 (Board OB).

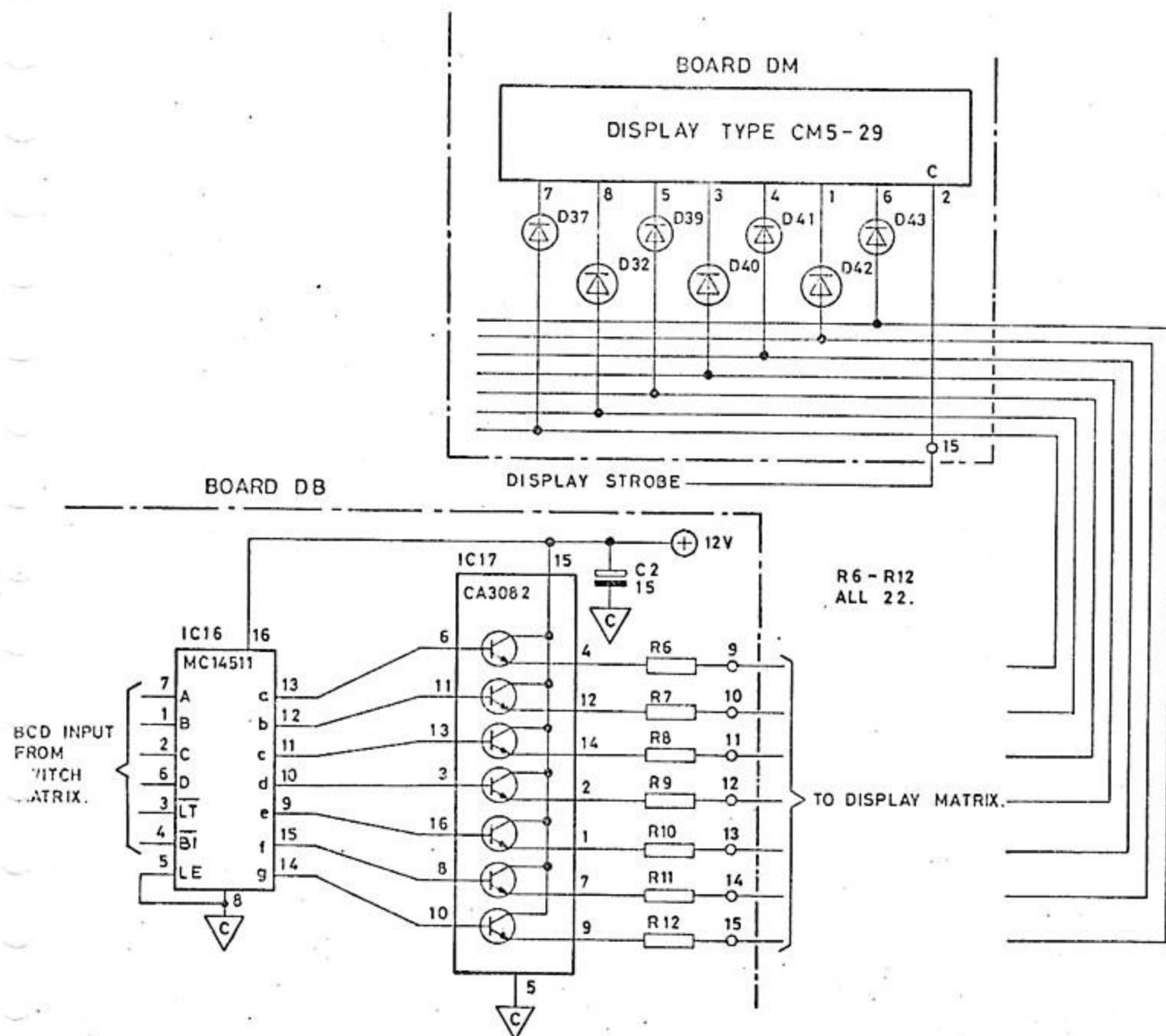


Fig.6 Display driver

9. The BCD-to-7 segment latch/decoder/driver energises the required bases of IC17 and causes 1 outputs via resistors R6 to R12 to energise the correct segments of the digital displays (Fig.6). Diodes D16 to D50 prevent ghosting (unwanted lighting of lamps).

10. The display inhibit function transferred from Board MB to IC15b (dual monostable multivibrator) and RV2 (display dimmer), provides a manually operated dimming facility for the digital display.

11. Inverted sequential output pulses from IC3 (Board MB) and the BCD output from the switch matrix are fed to the latch circuits (Board OB) which produces a fan out of the BCD code, inverted by output buffers

IC11 to IC13. This output BCD code is fed to the transceiver to select and operate the frequency selection circuits. See Table 1 for the frequency control logic codes.

TABLE 1
Frequency control logic codes

- NOTES:
1. Logic 0 is nominal 12 V
Logic 1 is nominal 0 V
 2. * VHF systems only (not used)
 3. @25 kHz bandwidth systems only (not used)

Frequency control	Output designator letter and logic outputs				Frequency digit
100 MHz	A		B		
	0		1		1-- . --- *
	1		0		2-- . ---
	1		1		3-- . ---
10 MHz	C		D		
	0		0		-0- . ---
	0		0		-1- . ---
	0		1		-2- . ---
	0		1		-3- . ---
	0		0		-4- . ---
	0		1		-5- . ---
	0		1		-6- . ---
	0		1		-7- . ---
	1		0		-8- . ---
	1		0		-9- . ---
	1		1		-9- . ---
1 MHz	H		J		
	0		0		--0 . ---
	0		0		--1 . ---
	0		1		--2 . ---
	0		1		--3 . ---

TABLE 1 (cont'd)

Frequency control	Output designator letter and logic outputs				Frequency digit
1 MHz	H	J	K	L	
	0	1	0	0	--4 . ---
	0	1	0	1	--5 . ---
	0	1	1	0	--6 . ---
	0	1	1	1	--7 . ---
	1	0	0	0	--8 . ---
100 kHz	1	0	0	1	--9 . ---
	M	N	P	R	
	0	0	0	0	--- . 0--
	0	0	0	1	--- . 1--
	0	0	1	0	--- . 2--
	0	0	1	1	--- . 3--
	0	1	0	0	--- . 4--
	0	1	0	1	--- . 5--
	0	1	1	0	--- . 6--
	0	1	1	1	--- . 7--
	1	0	0	0	--- . 8--
	1	0	0	1	--- . 9--
25 kHz	S	T			
	0	0			--- . - 0 0
	0	1			--- . - 2 5 0
	1	0			--- . - 5 0
	1	1			--- . - 7 5 0

TEST FACILITY

12. The TEST switch S4, when operated, provides a common return for diodes D57 and D58, which is applied via inverters in IC4 to the LT input of IC16 and causes, via IC17, all the digital segments of the digital display to be energised, thus providing a display check. In addition, the return via D57 (TEST signal) causes 1.3 kHz tone to be heard from the receiver, so providing an operational check.

PANEL ILLUMINATION

13. The panel is illuminated by LP1 and LP2. The brightness of these lamps is controlled by variable resistor RV3 (on the front panel). Board FA contains anti-surge components (D160, L2 and C22) for the panel lamps.

MODE SELECTION

14. The mode switch (S3) has four positions:

- (1) OFF - removes the common earth return from the transmitter-receiver circuit.
- (2) TR - connects the common earth return (via S1A) to the transmitter-receiver control circuit. This constitutes a UHF ON signal which switches on the transceiver internal power supplies.
- (3) TR+G - intended to switch on the transmitter-receiver (as for TR) plus guard receiver facilities (not available in ARI.23291).
- (4) TR+H - intended to switch on the transmitter-receiver (as for TR) plus (via TR11) homer facilities (not available in ARI.23291).

GAIN CONTROL

15. A panel mounted variable resistor (RV1) provides audio frequency gain control.

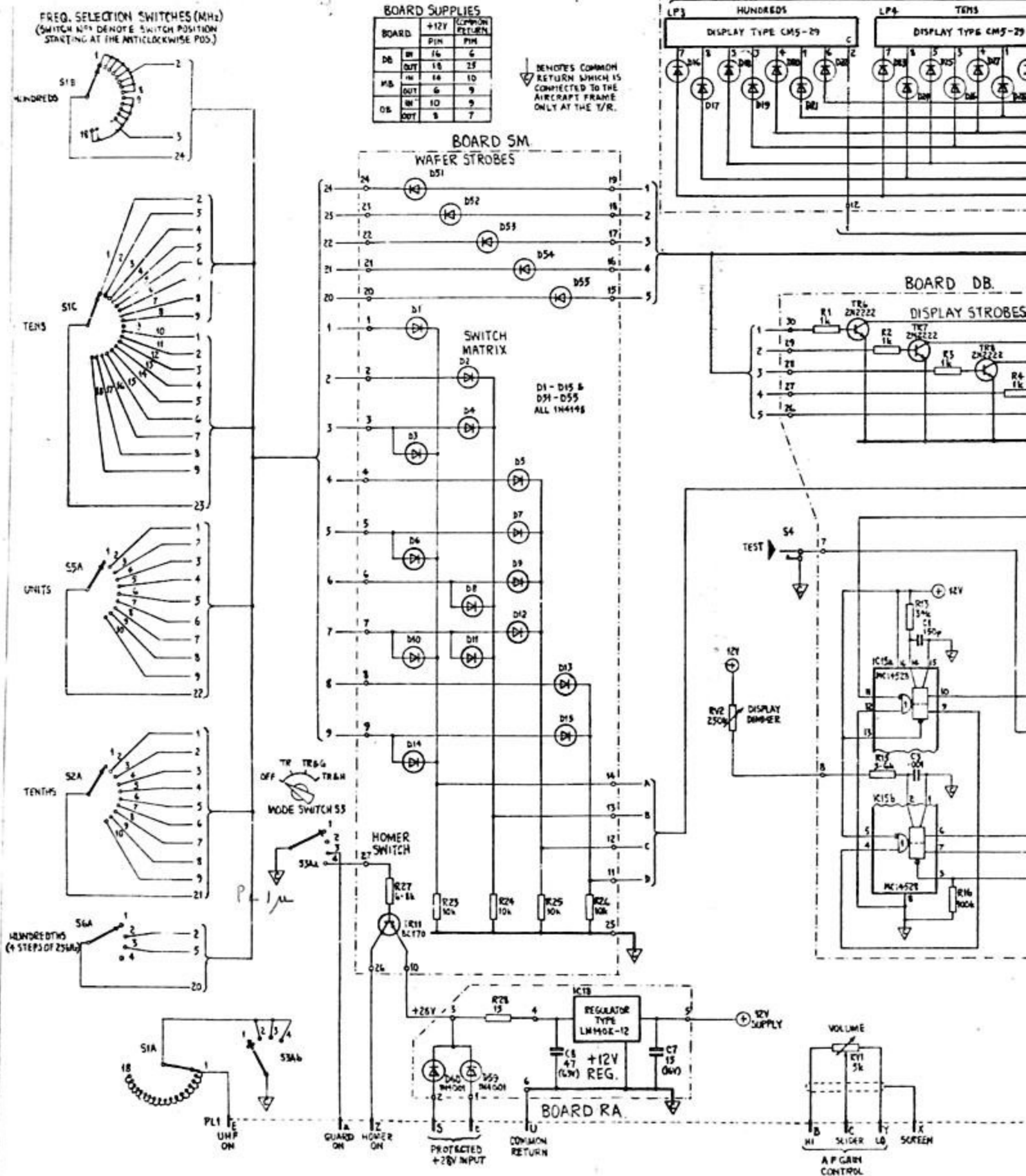
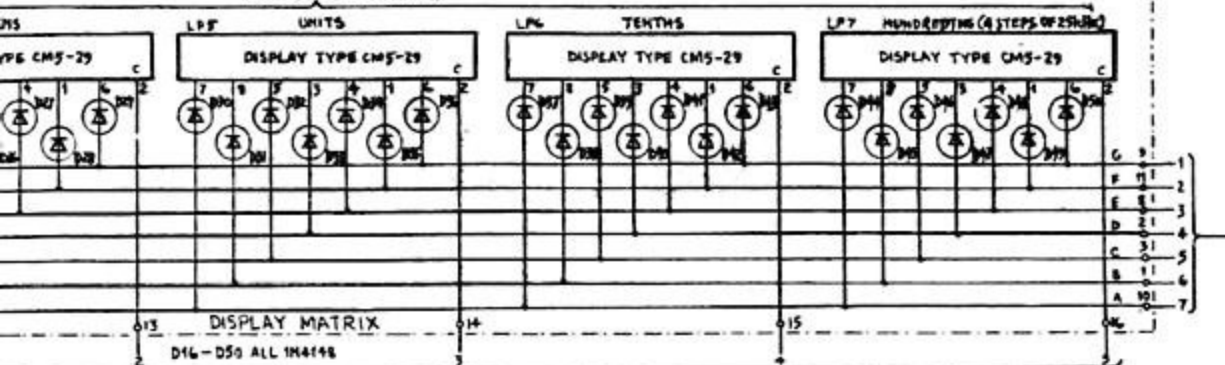


Fig. 7a Control, radio station: circuit diagram Sh.1

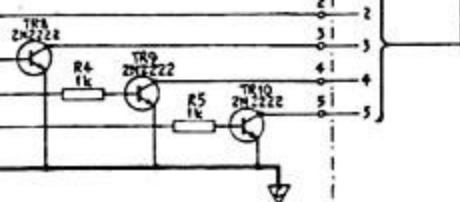
BOARD DM.

FREQ. INDICATORS (MHz)

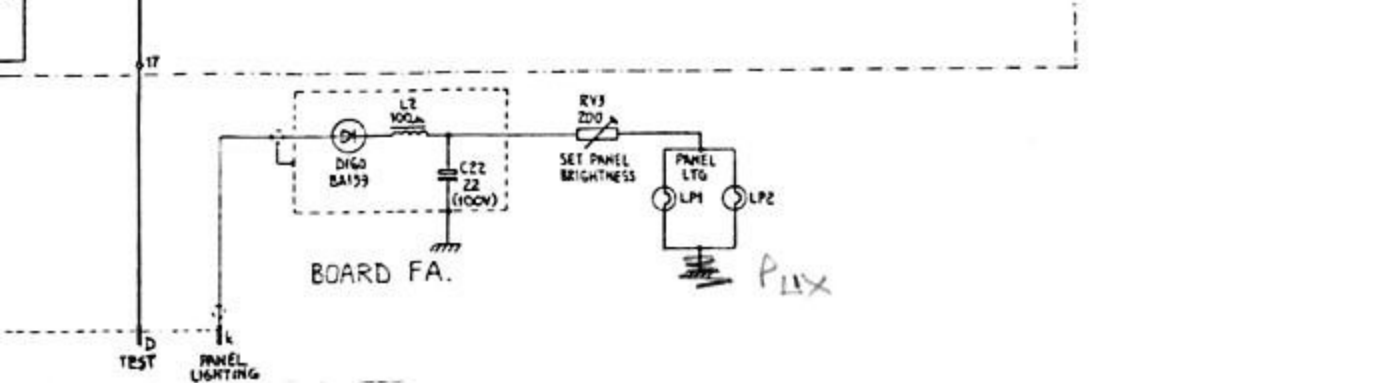
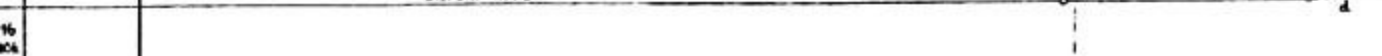
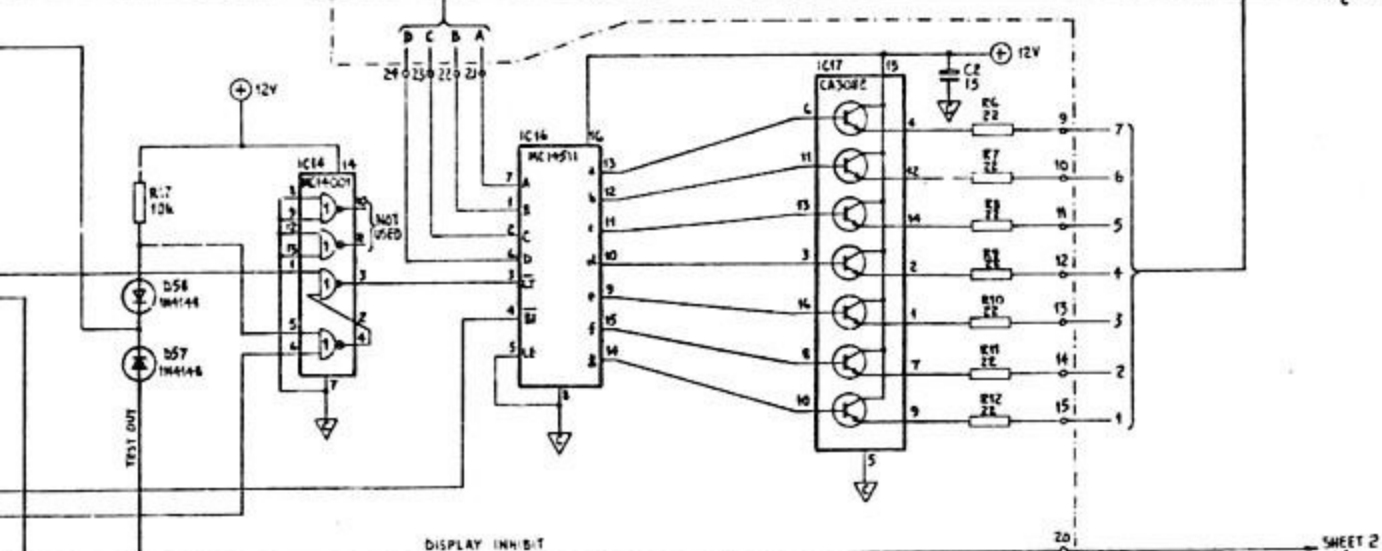
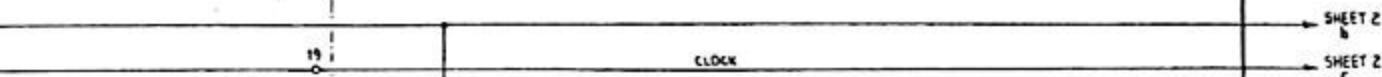


DB.

STROBES

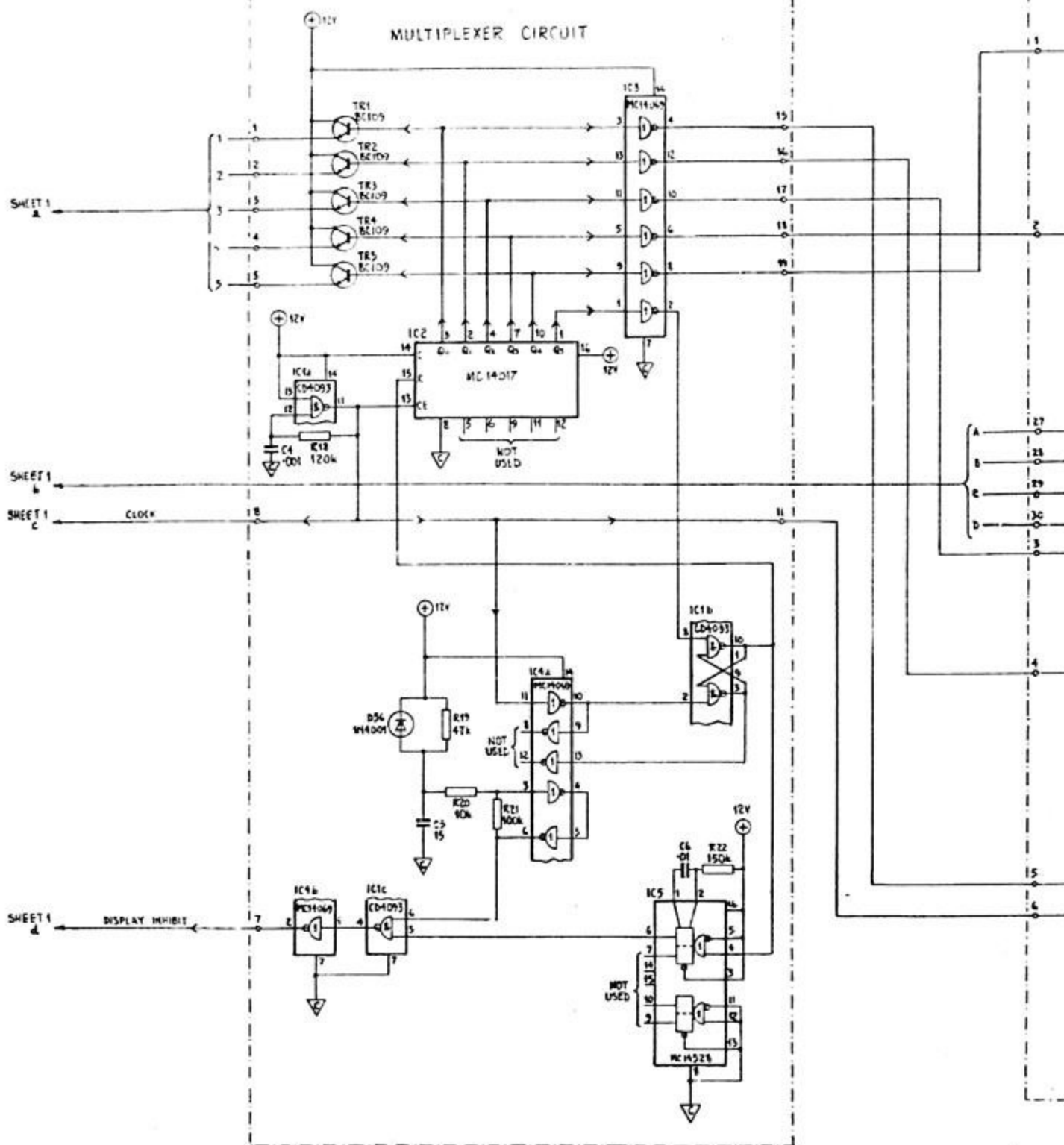


FILAMENT DRIVES



BOARD MB

MULTIPLEXER CIRCUIT



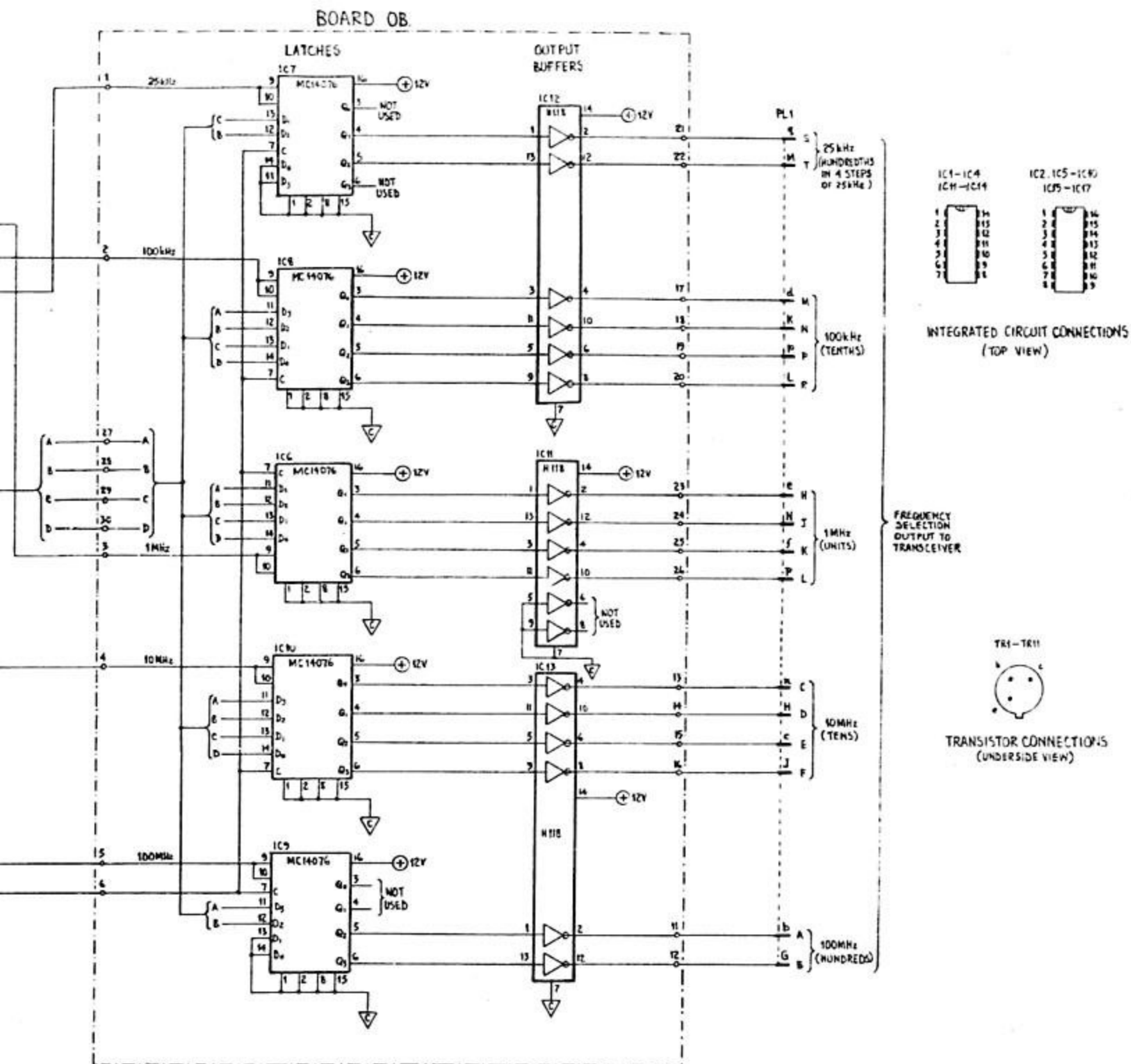


Fig.7b Control, radio station: circuit diagram sh.2

GENERAL

1. The control, radio station contains the following replaceable modules:

- (1) Board DM (Display matrix)
- (2) Board SM (Switch matrix)
- (3) Board DB (Display driver)
- (4) Board MB (Multiplexer)
- (5) Board OB (Code output)
- (6) Board FA (Dimmer)
- (7) Board RA (12 V d.c. power supply)
- (8) Rotary switch assembly 2 wafer (kHz frequency selector)
- (9) Rotary switch assembly 3 wafer (MHz frequency selector)
- (10) Plug PL1 (Part of wiring harness)

2. In addition to the replaceable modules the front panel mounted switches and indicators may be changed if required.

3. After any repair, all cable forms must be secured in the specified manner, since failure to observe this precaution may lead to problems caused by vibration.

DISASSEMBLY

4. To gain access to the replaceable modules, lay the control, radio station flat and disassemble as instructed, dependant on which module is to be replaced. Reference should be made to Fig.1 and 2 during these operations.

Replacement of front panel components

5. Replace knobs and indicators as follows:

- (1) Remove four plastic caps from ends of the control knobs, using a small screwdriver to dislodge them from the recesses in the knobs. Removal of these caps exposes the knob retaining collet screw in the centre of each knob.
- (2) Loosen the knob collet screws. Remove the centre knobs from the frequency controls, the mode switch knob and washer, and the VOL control knob and washer. Keep the VOL control knob separate as it must be returned to the same position (the spindle is slightly larger than the others).
- (3) Remove the two frequency control outer knobs by inserting the special key spanner and twisting it counterclockwise.
- (4) Remove the four black screws and crinkle washers which secure the indicator panel to the front of the control unit. Remove the indicator panel.
- (5) For replacement of digital display miniature lamps, simply unplug the defective unit and plug in a replacement.
- (6) For replacement of one of the two panel illumination lamps, carefully unscrew the white lens then pull out the lamp, or invert the unit and give the front panel a light tap with the hand to cause the lamp to fall out. Insert a replacement lamp and replace the lens.
- (7) Reposition the indicator panel at the front of the control unit. Secure it with the four screws and crinkle washers removed in (4).

- (8) Replace the frequency control outer knobs and secure them by using the special key spanner to twist the centre collet screw clockwise.
- (9) Replace the frequency control centre knobs, the mode switch knob and the VOL control knob, taking care to replace the original knob on the VOL control. Secure the knob with the screw loosened in (2).
- (10) Insert the four plastic caps removed in (1) in the ends of the control knobs.

Replacement of modules (Refer to Fig. 1, 2 and 3)

6. In order to replace any of the modules, first remove the top cover of the control, radio station. This top cover is secured by twelve fixing screws, which must be removed. Removal of the top cover allows access to the modules. The disassembly procedures for each module are described in para.12 to 19.

Note....To replace most modules the front panel must first be partially separated from the main equipment chassis.

Replacement of front panel controls

7. Before replacing the DIM control, VOLUME control, mode selector or TEST button, the following procedure must be carried out:

- (1) Remove the knobs and the indicator panel as described in sub-para. (1) to (4).
- (2) Remove the bottom three screws which secure the front panel assembly to the main equipment chassis. Carefully pull out the front panel assembly, ensuring no damage is caused to the cableforms.
- (3) The front panel assembly can now be manipulated to allow access to the control which is to be replaced.

8. DIM control (RV2) Disconnect the two wires connected to variable resistor RV2. Remove the nut which secures the variable resistor to the front panel. The resistor can now be removed by withdrawing it from the rear of the front panel. To reassemble, carry out the above procedure in reverse order.
9. VOLUME control (RV1) Disconnect the three wires connected to the variable resistor RV1. Remove the nut which secures the variable resistor to the front panel. The resistor can now be removed by withdrawing it from the rear of the front panel. To reassemble, carry out the above procedure in reverse order, making use of the wiring diagram if necessary.
10. Mode selector (S3) Disconnect the wires from the switch wafer. Remove the nut which secures the switch to the front panel assembly. The switch can now be removed by withdrawing it from the front panel. To reassemble, carry out the above procedure in reverse order making use of the wiring diagram to reconnect the wires and shorting links.
11. TEST button (S4) Disconnect the two wires from switch S4. Remove the nut which secures the switch to the front panel. The switch can now be removed by withdrawing it from the rear of the front panel. To reassemble, carry out the above procedure in reverse order.

Replacement of display matrix board (Board DM) (Refer to Fig.5)

12. The display matrix board can be replaced by carrying out the following procedure:
 - (1) Partially remove the front panel assembly as described in sub-para. (1) to (2).
 - (2) Disconnect the wiring from Board DM.

- (3) Remove the three screws which secure the board to the front panel. Remove the board.
- (4) Reassemble in reverse order, taking care to consult the wiring diagram when reconnecting the wires.

Replacement of dimmer board (Board FA) Refer to Fig. 9

13. The dimmer board can be replaced by carrying out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para (1) to (2).
- (2) Disconnect the two wires from the board.
- (3) Remove the two screws which secure the board to the chassis. Remove the board.
- (4) Reassemble in reverse order, taking care to consult the wiring diagram when connecting the wires.

Replacement of the three wafer rotary switch assembly (SW1)

Refer to Fig.2)

14. The MHz frequency selector switch assembly S1 can be replaced by carrying out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para. (1) to (2).
Remove the nut which secures the switch assembly (S1) to the front panel.
- (3) Disconnect all wires from the three wafers of the switch.
- (4) The switch assembly can now be withdrawn from the unit by withdrawing it from the rear of the front panel.
- (5) Reassembly in reverse order, making use of the wiring diagram when reconnecting the wires to the switch wafers.

Replacement of the two wafer rotary switch assembly (S2) (refer to Fig.2)

15. The kHz frequency selector switch assembly S2 can be replaced by carrying out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para. (1) and (2)
- (2) Disconnect the wires from the two wafers of the switch assembly.
- (3) Remove the nut which secures the switch assembly to the front panel assembly.
- (4) Partially withdraw the switch assembly from the front panel (care should be taken to avoid damage to cableforms; the switch assembly must be withdrawn so that there is sufficient room to allow access to the screws which secure board SM to the switch assembly).
- (5) Remove the two screws which secure board SM to the switch assembly. Retain screws, nuts and washers.
- (6) Remove the switch assembly by withdrawing it from the rear of the front panel. (Care must be taken to ensure no damage is done to board SM in this process).
- (7) To reassemble, it is necessary to partially insert the switch assembly into the front panel, then to secure board SM to the switch assembly by means of two screws, two washers and two nuts.
- (8) When board SM is secure to the switch assembly, refit the assembly to the front panel and reconnect the wires to the wafers of the switch. The wiring diagram should be consulted during this procedure.

Replacement of switch matrix board (Board SM) (Refer to Fig.5)

16. The switch matrix board can be replaced by carrying out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para. (1) and (2).
- (2) Remove the nut which secures the rotary switch assembly (S2) to the front panel.
- (3) Partially remove S2 by withdrawing it from the rear of the front panel. (Care must be taken so as to avoid damage to wiring; the switch assembly must be withdrawn so that there is sufficient room to allow access to the screws which secure Board SM to the switch assembly).
- (4) Remove the screws which secure the board to the switch assembly.
- (5) Disconnect wires from the board.
- (6) Remove the mounting plate from the board after removing two screws and nuts.
- (7) Replace the board and reassemble in reverse order, taking care to tie cable forms correctly. Consult the wiring diagram for details of connections.

Replacement of 12 V d.c. power supply board (Board PA) (Refer to Fig.10)

17. The 12 V d.c. power supply board can be replaced by carrying out the following procedure:

Remove the two securing nuts and their associated washers.

- (2) Disconnect the wires from the board.
- (3) The board can now be removed.
- (4) Reassemble in reverse order, making use of the wiring diagram if necessary when reconnecting the wires.

Replacement of the display driver board, the multiplexer board and the code output board (Refer to (6), (7) and (8)).

18. Boards DB, MB and OB are located in the centre of the unit. Access may be gained to these boards by carrying out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para. (1) and (2).
- (2) Remove the four retaining screws which secure the boards to the chassis.
- (3) Lift out the three boards to the full extent allowed by the cableforms.
- (4) Separate the boards as required, depending on which board is to be replaced. If necessary cut the lacing on the cableforms, but make a note of the position of the cableforms.
- (5) Disconnect the wires from the board which is to be replaced.
- (6) Remove the board and replace it with the new board.
- (7) Reassemble in reverse order, taking care to reconnect the wires as shown on the wiring diagram. Ensure that the cableforms are tied in the specified manner.

Replacement of plug (PL1)

19. To replace the plug (PL1), carry out the following procedure:

- (1) Partially remove the front panel assembly as described in sub-para. (1) and (2).
- (2) Disconnect the wires from the rear of the plug.
- (3) Remove Boards DB, MB and OB as described in sub-para. (2) and (3).
- (4) Remove the four retaining screws from the plug. Retain the associated nuts and washers.
- (5) Withdraw the plug from rear of the chassis.
- (6) Replace new plug and reassemble in reverse order, using the wiring diagram as necessary.

REASSEMBLY

20. After module replacement, check that all cableforms are correctly secured and that all wires are connected.

21. Replace the top cover and secure by means of the twelve retaining screws. Ensure all front panel knobs and controls are correctly mounted.

SPARE PARTS AND CONSUMABLE MATERIALS

22. Table 1 lists the part numbers of spare parts and consumable material for the control, radio station. s

TABLE 1

Spare parts and consumable materials

Nato number or Drawing Number	Description
419/1/25354	Panel, electronic circuit, (Board DM)
419/1/25357	Panel, electronic circuit switch matrix (Board SM)
419/1/40281	Panel, electronic circuit, display driver (Board DB)
419/1/40284	Panel, electronic circuit, multiplexer (Board MB)
419/1/40287	Panel, electronic circuit, code output (Board OB)
419/1/40349	Panel, electronic circuit, dimmer (Board FA)
630/1/37963	Board, terminal assembly, 12 V d.c. power supply.

Table 1 (cont'd)

Nato number or Drawing Number	Description
408/9/32706	Switch, rotary wafer, 3/1 pole, 23/12 pos, shorting/non, 3A max, 2 concentric switches, Radiatron Type H1-203-3X23-1X12UMA
408/9/32708	Switch, rotary wafer, 1 pole, 12 positions, non-shorting, 3A max, 2 concentric switches, Radiatron Type H1-203-1X12UMA-1X12UMA Plug (PL1)
418/4/42221/003	Knob, adjustable, W/O panel, stop finger, collet shaft, round, metal silver. West Hyde Type 532-06 (inner frequency selector knobs)
418/4/42220/001	Knob, non-adjustable, W/O panel, stop finger, collet shaft, round, metal, silver. West Hyde Type 531-3 (outer frequency selector knobs and mode control knob).
418/4/42220/002	Knob, non-adjustable, W/O panel, stop finger, collet shaft, round, metal, silver. West Hyde Type 531-3.2 (volume control knob).
418/4/42222/003	Cap, friction, grey, West Hyde 499-6-44. (dust cap for knobs)
992/4/01112/001	Compound, casting resin, part A, Emerson & Cuming Type Stycast CPC-18.
992/4/01112/002	Compound, casting resin, part B, Emerson & Cuming Type Stycast CPC-18
998/4/82804/000	Cable electrical 7/0.005 in. Unscreened outer sheath PVC O/D 0.006in, Raychem 44A0114-23-2L EL2109 OVF Type 9-23

Chap.3

Page 12

Table 1 (cont'd)

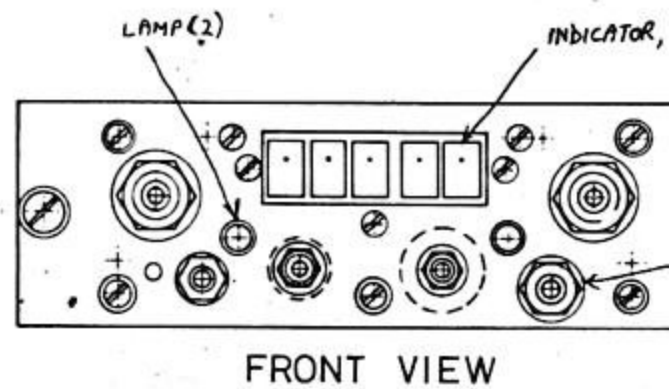
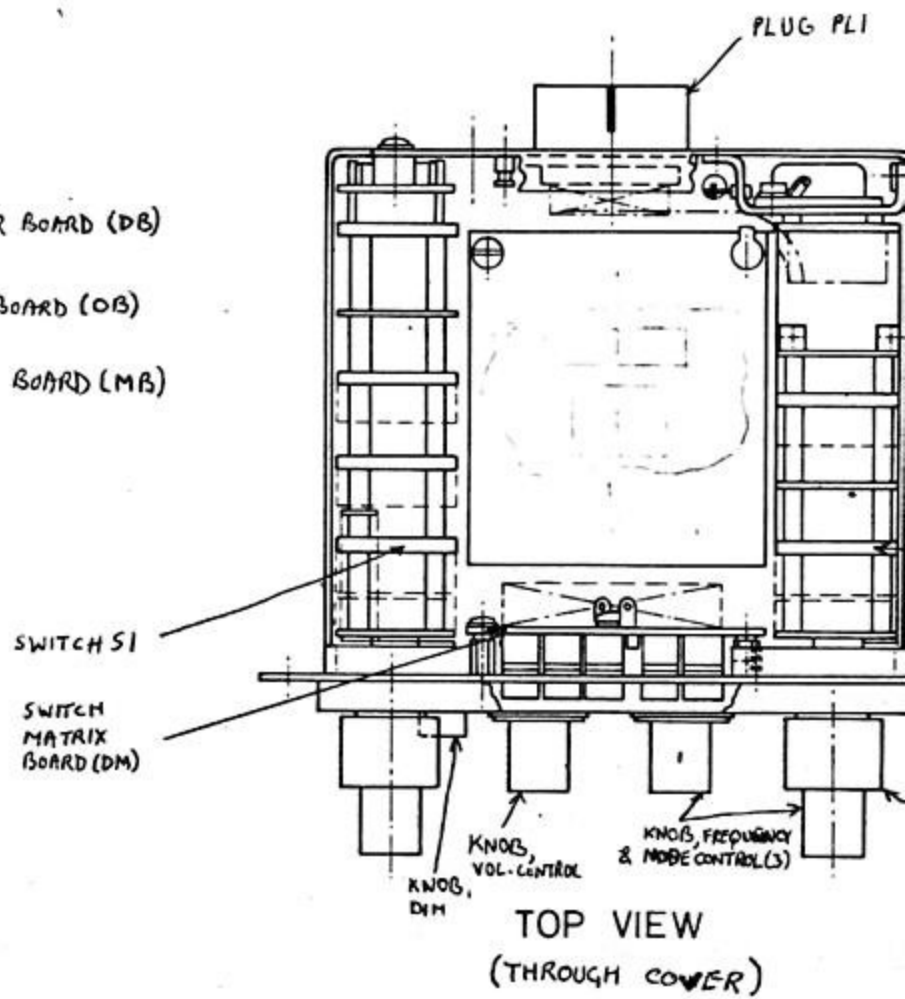
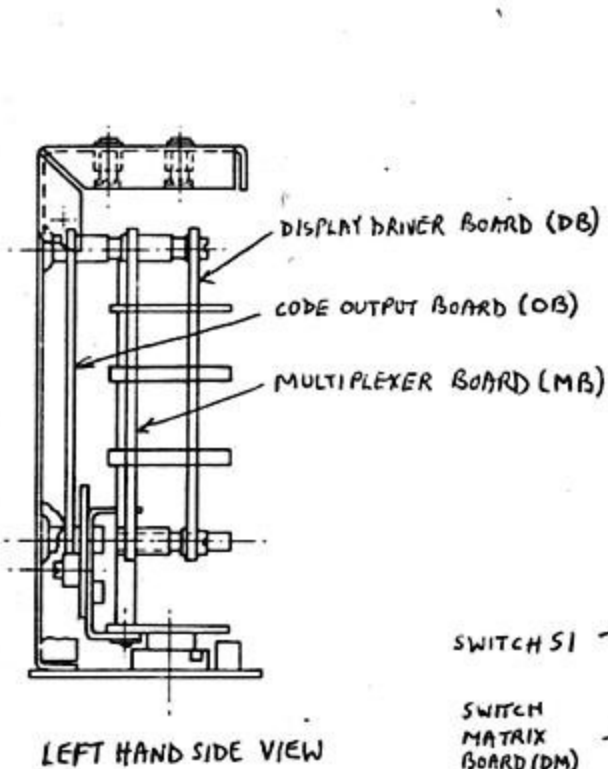
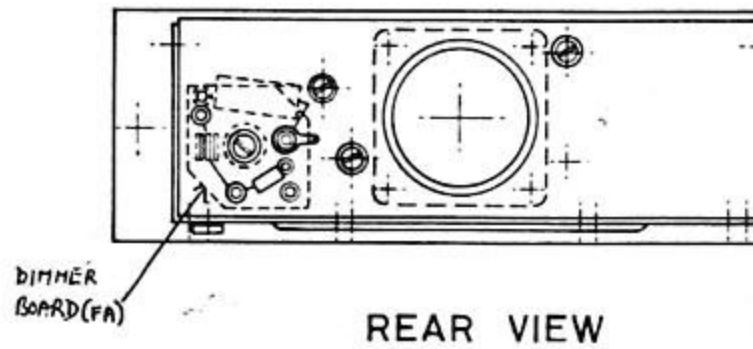
Nato number or Drawing Number	Description
991/4/01548/034	Screw, machine, cheese slotted, M2.5 5mm.
5305-99-135-0470	Screw, machine, countersunk slotted, M2 8mm
5305-99-135-0680	Screw, machine, pan slotted, M2.5 6mm
5205-99-135-0681	Screw, machine, pan slotted, M2.5 8mm
5305-99-135-0479	Screw, machine, countersunk slotted, 10mm
5305-99-135-0476	Screw, machine, countersunk slotted, M2.5 5mm
5305-99-135-0477	Screw, machine, countersunk slotted, M2.5 6mm
5310-99-135-2351	Washer, spring tension crinkle, M2
991/4/01269/030	Washer, spring tension crinkle, 0.375 in.
5310-99-135-2536	Washer, spring tension crinkle, M6
5310-99-135-0763	Nut, plain hexagon, M2
5310-99-135-0764	Nut, plain hexagon, M2.5
5310-99-122-8410	Washer, flat form A, M2.5
5305-99-135-0687	Screw, machine, pan slotted, M3 6mm
5310-99-135-2543	Washer, spring tension, M2
5310-99-135-2544	Washer, spring tension, M2.5
5310-99-135-2545	Washer, spring tension, M3
5310-99-135-2532	Washer, spring tension crinkle, M2.5
991/4/0380/002	Screw, pan slotted, M2.5 6mm
5310-99-122-8061	Washer, flat form A, M2
992/4/70139/001	Cord, lacing, polyester, size 0.003 in X 0.050 in, black Gudebrod 21D
992/4/01055	Laquer, blue, anti-tampering, Flessey Spec. 1600/SC/00665

Table 1 (cont'd)

Nato number or Drawing Number	Description
992/4/01056	Sealing compound, thermal, Hermatite, Kenilworth Man. Co. Type RS 2453
992/4/01045	Sealing compound, screw locking, Loctite 221
998/4/15006/111	Insulation sleeving electrical, flexible pink, I/D 0.75mm wall, 0.25/0.45mm, PTFE, 2000 V r.m.s.
992/4/01042	Adhesive, general purpose, medium viscosity, Loctite IS12
992/4/01043	Sealing compound, retaining, bearings and bushes, Loctite 270
992/4/01048	Sealing compound, nuts locking, Loctite 241
998/4/15006/211	Insulation sleeving, electrical, flexible, pink, I/D 1.0mm, wall 0.25/0.45mm, PTFE, 2000 V r.m.s.
5305-99-136-2883	Screw, machine, pan slotted, M2 5mm
404/9/05066	Resistor, variable, non wire-wound, panel mtg, round, 5K ohm 20% 0.500W (R1 volume control)
408/9/32704/001	Switch, push, 1 pole, 1 way, normally open, 1A max. Greyhill Type 30-15 Red. (S4 Test button)
408/9/32705	Switch, rotary wafer, 2 poles, 6 way, 6 positions, shorting, 3A max, Radiatron Type 01-2x6 (mode selector switch)

Table 1 (cont'd)

Nato number or Drawing Number	Description
404/9/07645	Resistor, variable, non wire-wound, panel mtg, sealed, 250K 10% 0.500W log. (R2 dimmer control)
445/9/02365	I.C., linear, TO-3, National Type LM140K-12 (power supply regulator)
517/9/92305/001	Lamp, filament, 28 V, 0.0 24A S/filament, clear Thorn Type L1336
418/9/42204/005	Light, indicator, with lens for T 1 flange lamps. Russenberger Type L57B-T white 178449
402/4/55739/001	Capacitor, fixed, electrolytic, polar (AL) 47u 50% - 10%, insulated case, 63 V d.c., axial leads, ITT EN 12.12 size J
5905-99-014-0517	Resistor, fixed, wire-wound, 15ohms 5% 2.5W non-insulated style J
415/9/98466/001	Semiconductor device, diode rectifier, 50 V IF (AV), max 1.0A, Type IN 4001
415/4/98745/002	Semiconductor device, high speed switching diode, ITT BA 159
402/4/50724/104	Capacitor, fixed electrolytic, polar (liquid), 22u 10% - 10%, case size T2, 100 V d.c. axial lead
5910-99-017-2450	Capacitor, fixed, electrolytic polar (solid) 15u 10% - 10%, 16 V d.c. axial leads.
434/9/94512	Indicator, digital display, Chicago miniature lamp Type CM5-29-202.



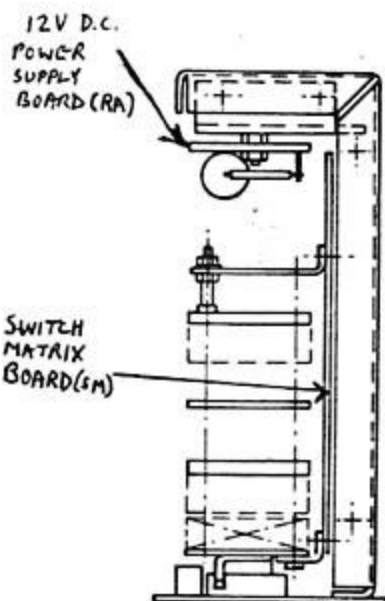


PL1



SWITCH
S2

KNOB, ADJUSTABLE,
FREQUENCY CONTROL (2)



RIGHT HAND SIDE VIEW

INDICATOR, DIGITAL DISPLAY (5)



TEST SWITCH

Fig.1 Control, radio station: location diagram

TIE TO SW. PILLAR

TIE TO SW. PILLAR

TIE TO LINK TO LINK RAIL
ON U/SIDE OF SW WAFER.

S1

WAF 4.

WAF 3

WAF 2

WAF 1

CABLES TIE TO POSTS.

CABLE FORM TIED TO TAG

PINS 10
TO 19 ON
U/SIDE.

PINS 9
TO 30
ON U/SIDE.

CABLE FORMS TIED TO
POSTS.

TIE

R2

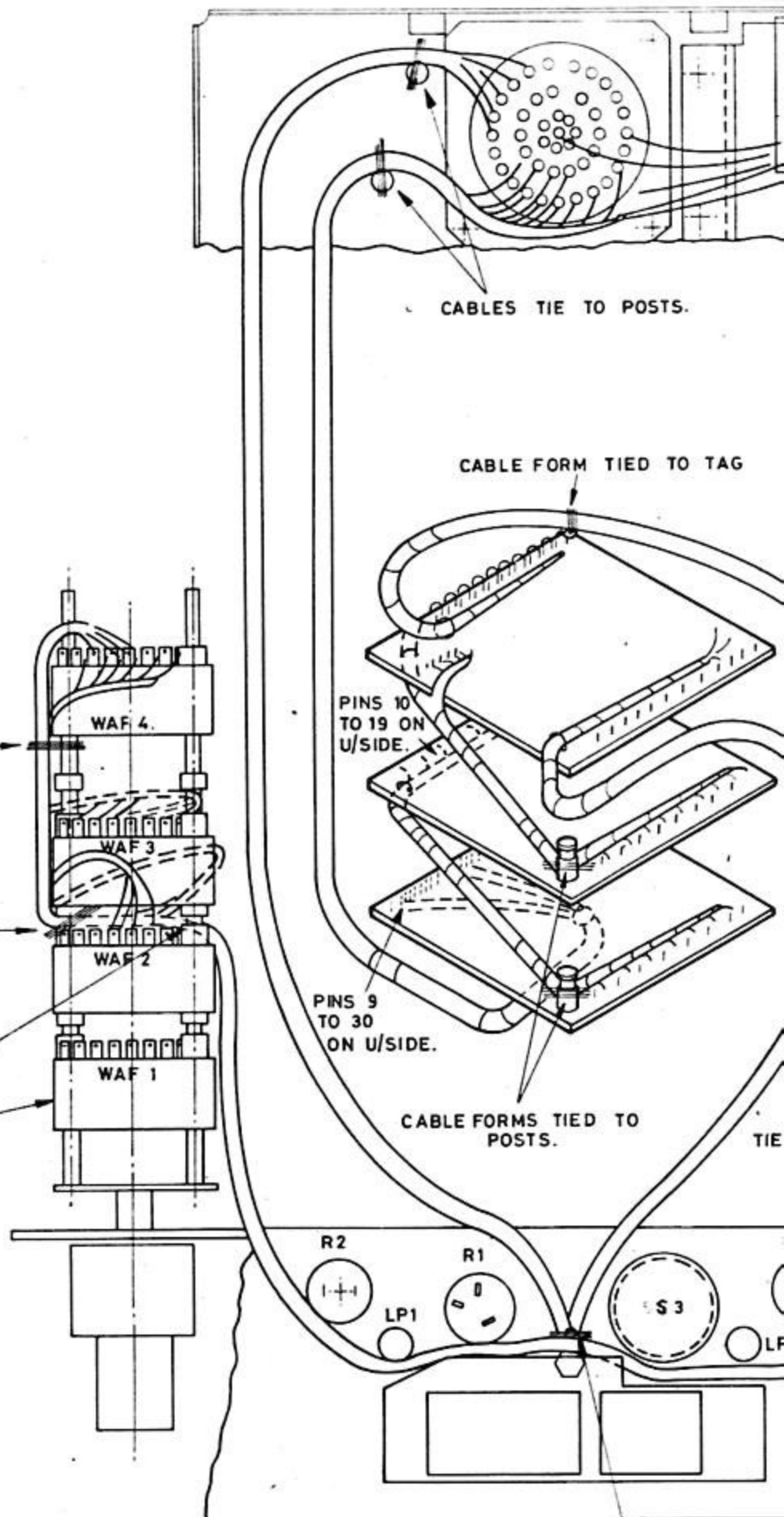
R1

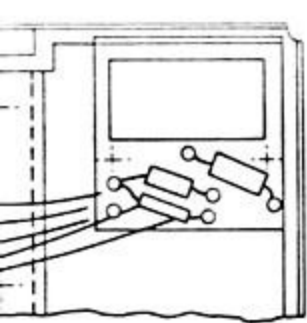
LP1

S3

LP

CABLE FORMS TO B
ATTACHED TO HEXA





TAG

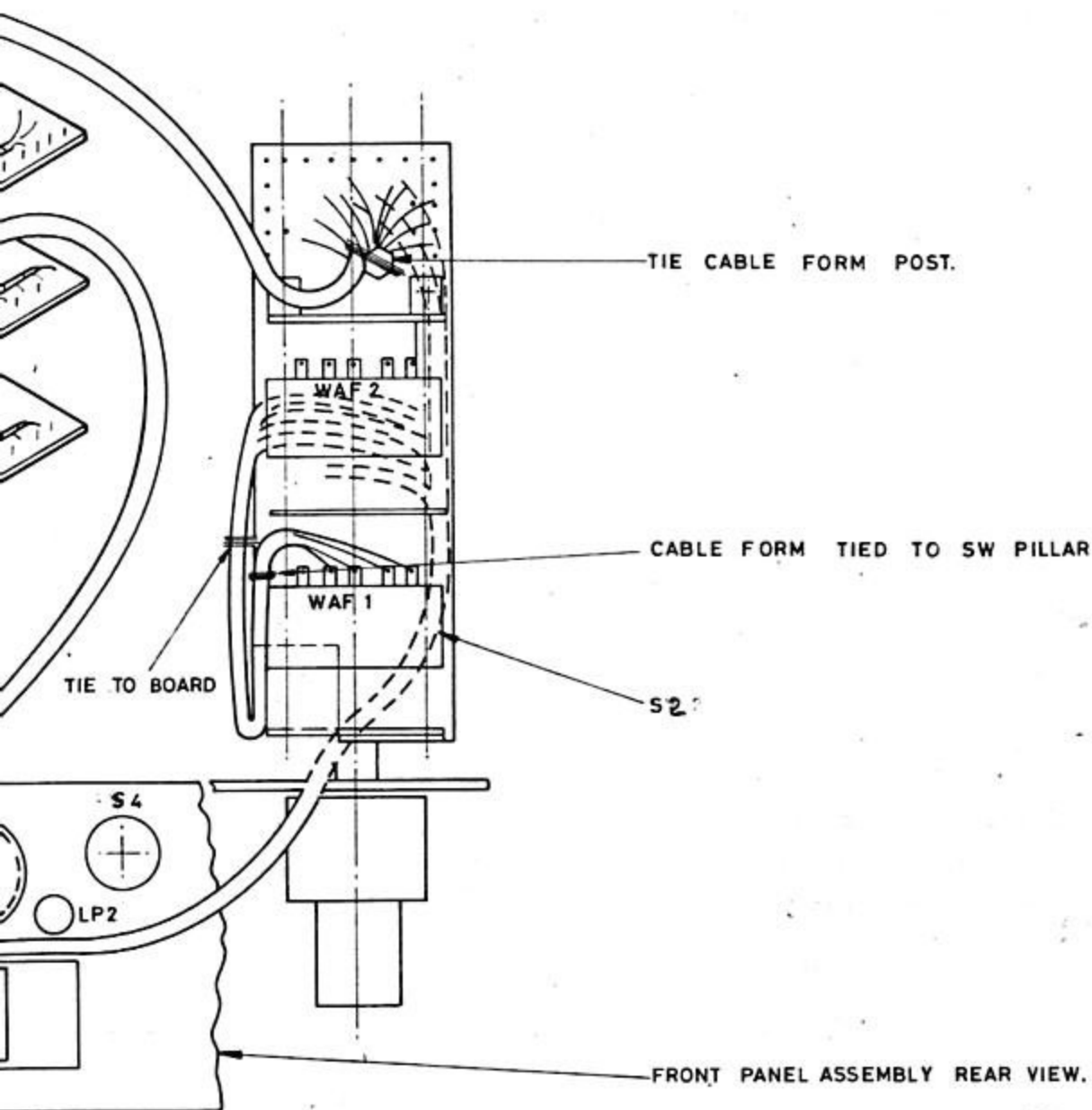
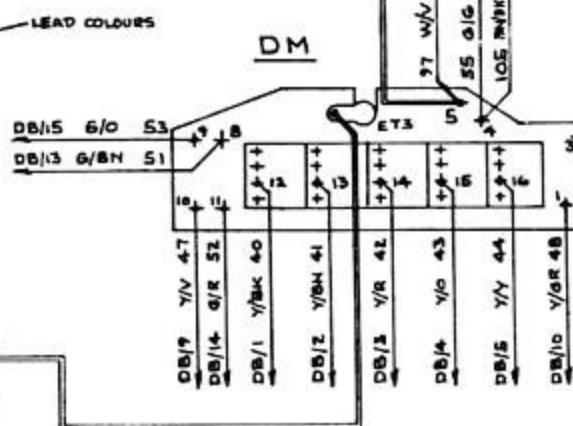
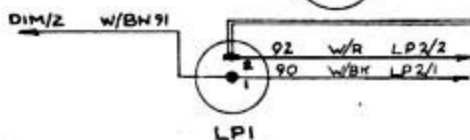
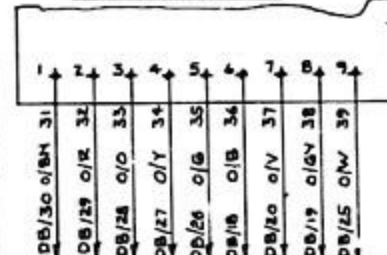
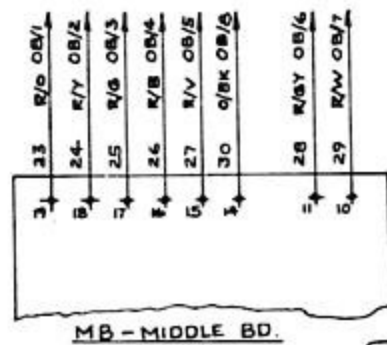
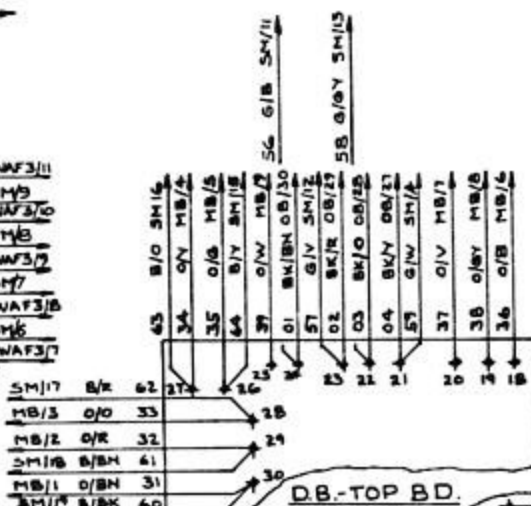
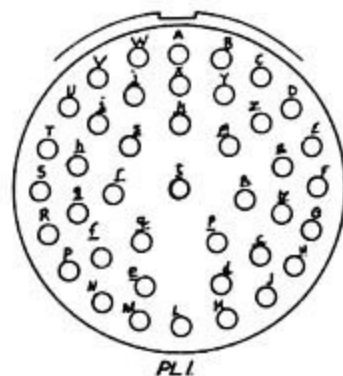


Fig.2. Cutaway drawing showing major assemblies

MS TO EARTH TAG
TO HEXAGON POST.



000000

NOTES:

1. CONNECTIONS SHOWN THUS:

— USE WIRE ELECTRICAL, 998/4/82834/009

— USE CABLE ELECTRICAL, 998/4/82864/000

LEAD NO DESTINATION
W/W RA/S CABLE IN A WIRING HARNESS.
COLOUR OF SLEEVES

2. CHARACTERS THUS P ARE UPPER CASE
CHARACTERS THUS L ARE LOWER CASE

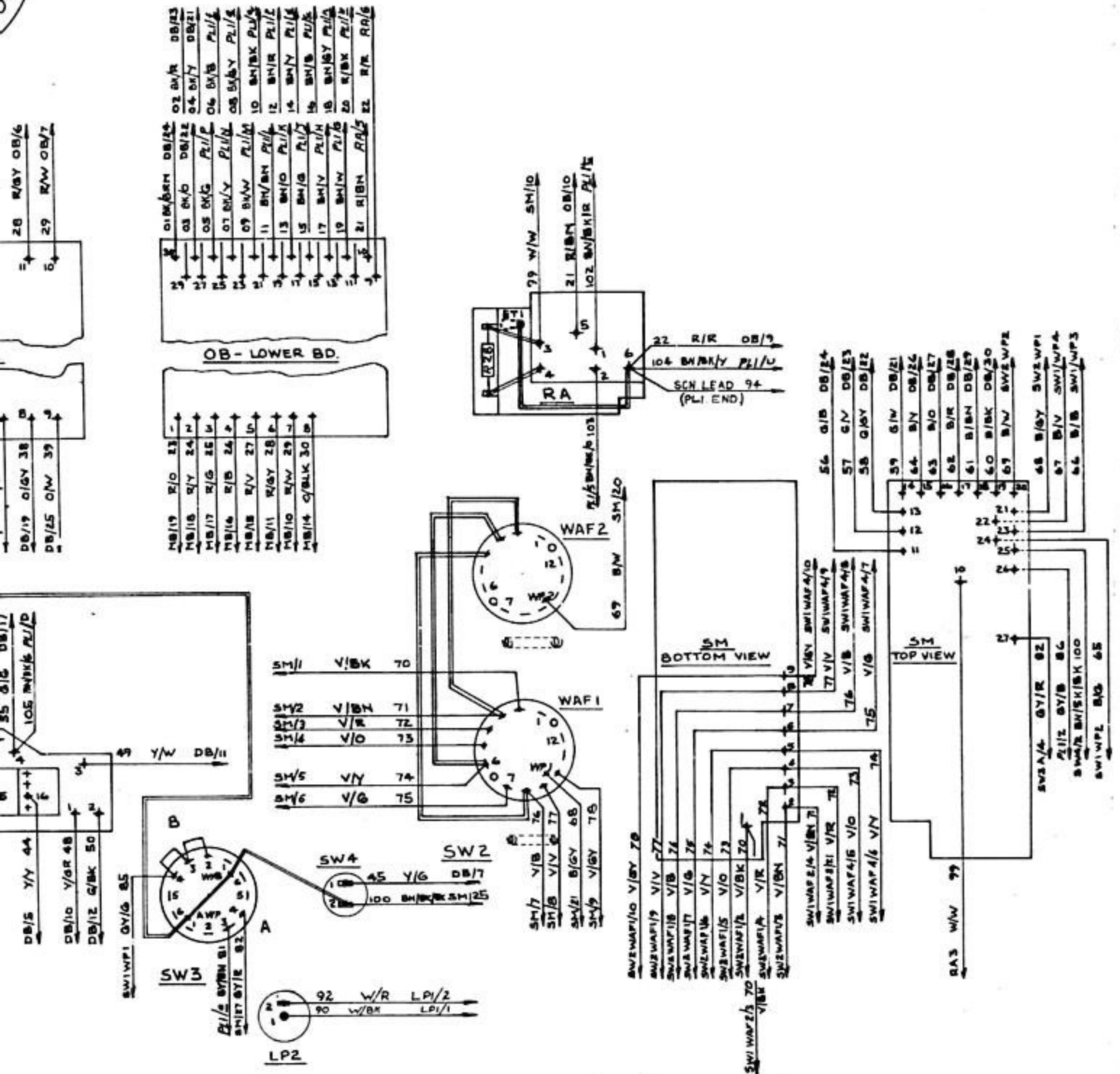


Fig.3 Control, radio station: wiring diagram

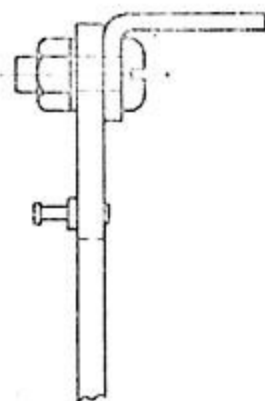
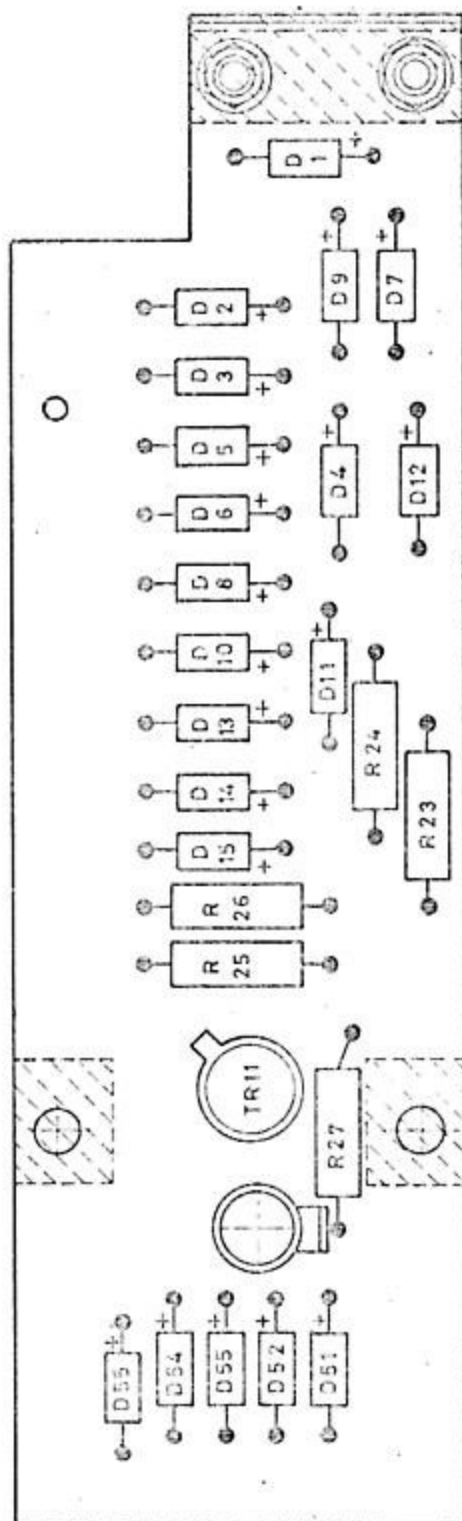


Fig. 4 Switch matrix board (Plessey Stock No. 419/1/25357):

location diagram

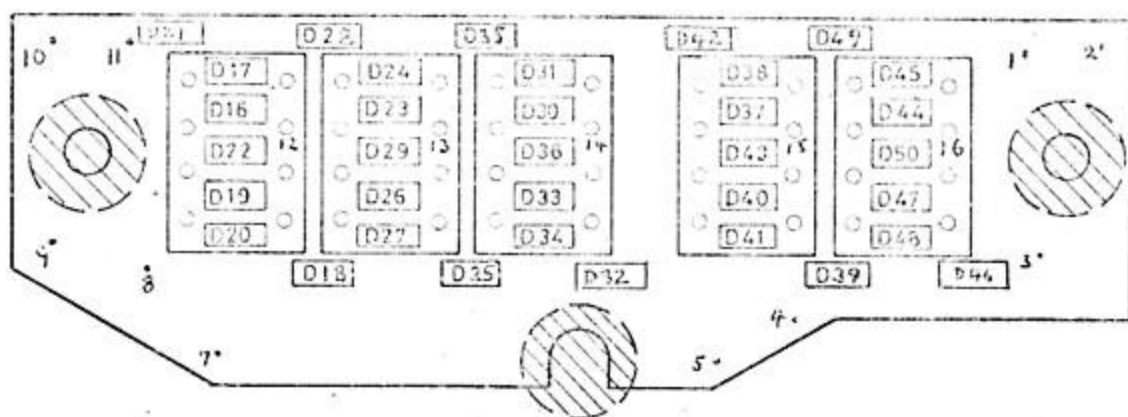


Fig.5 Display matrix board (Plessey Stock No. 419/1/25354):
location diagram

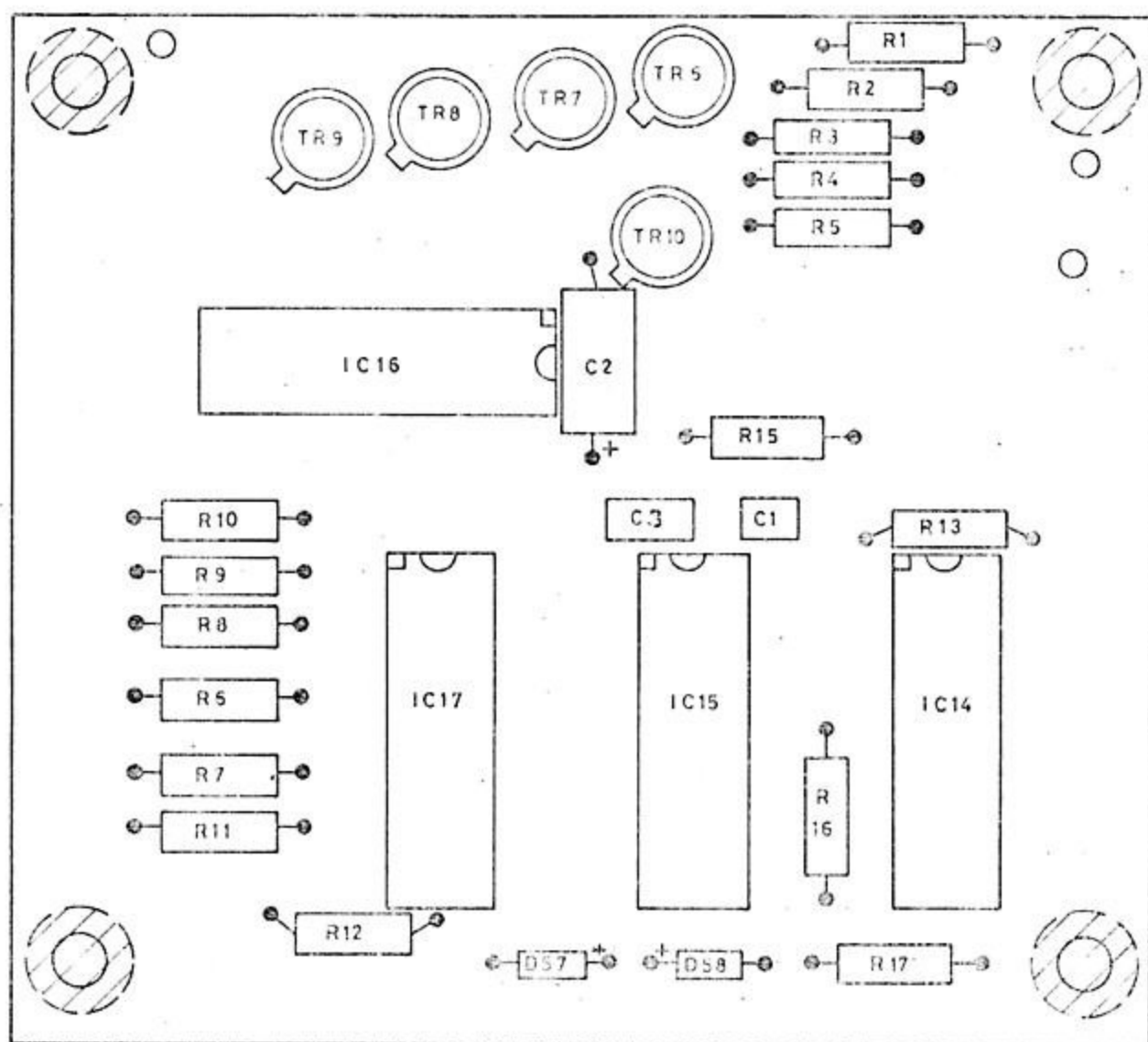


Fig.6 Display driver board (Plessey Stock No. 419/1/40281):
location diagram

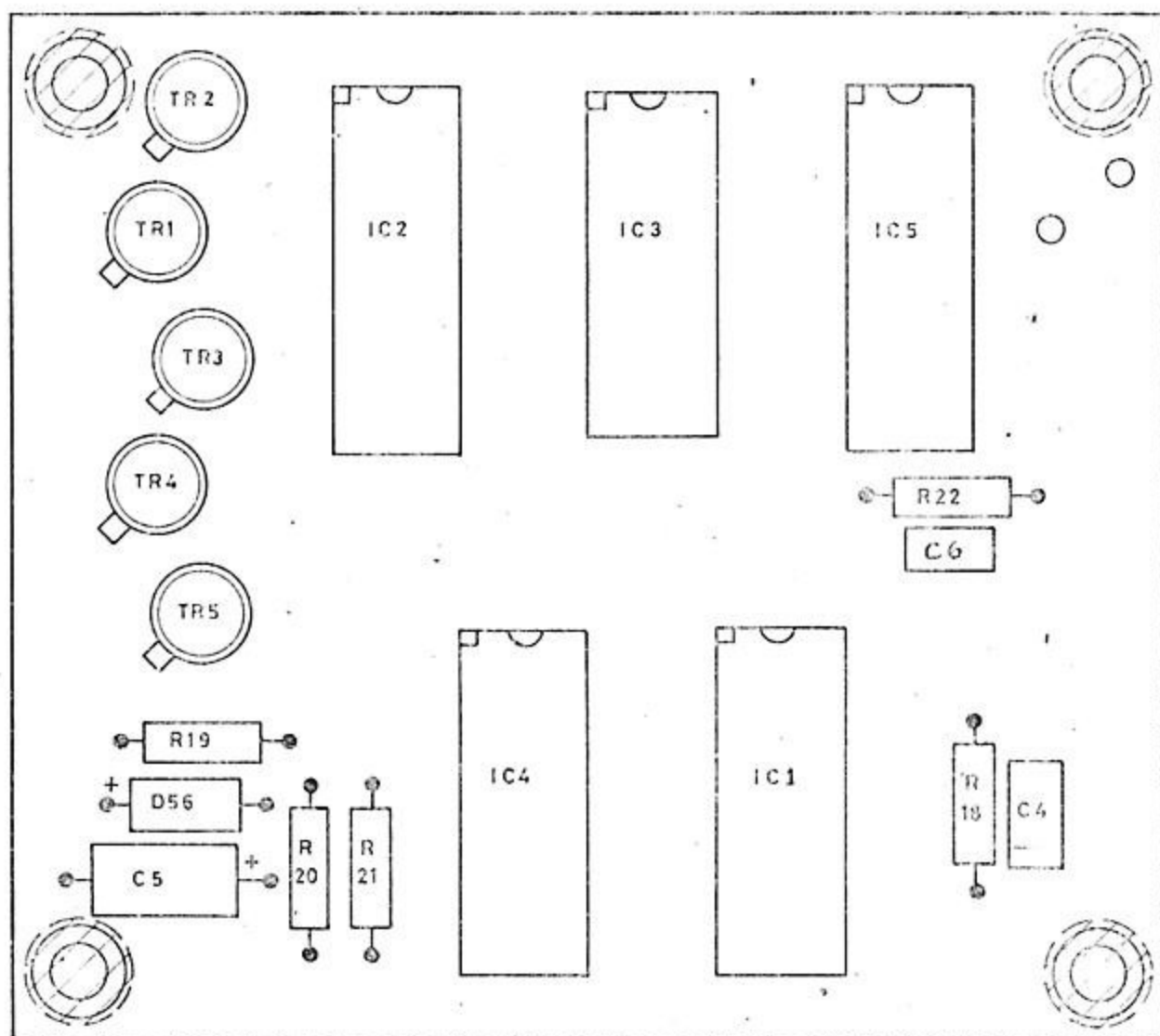


Fig.7 Multiplexer board (Plessey Stock No. 419/1/40284):

location diagram

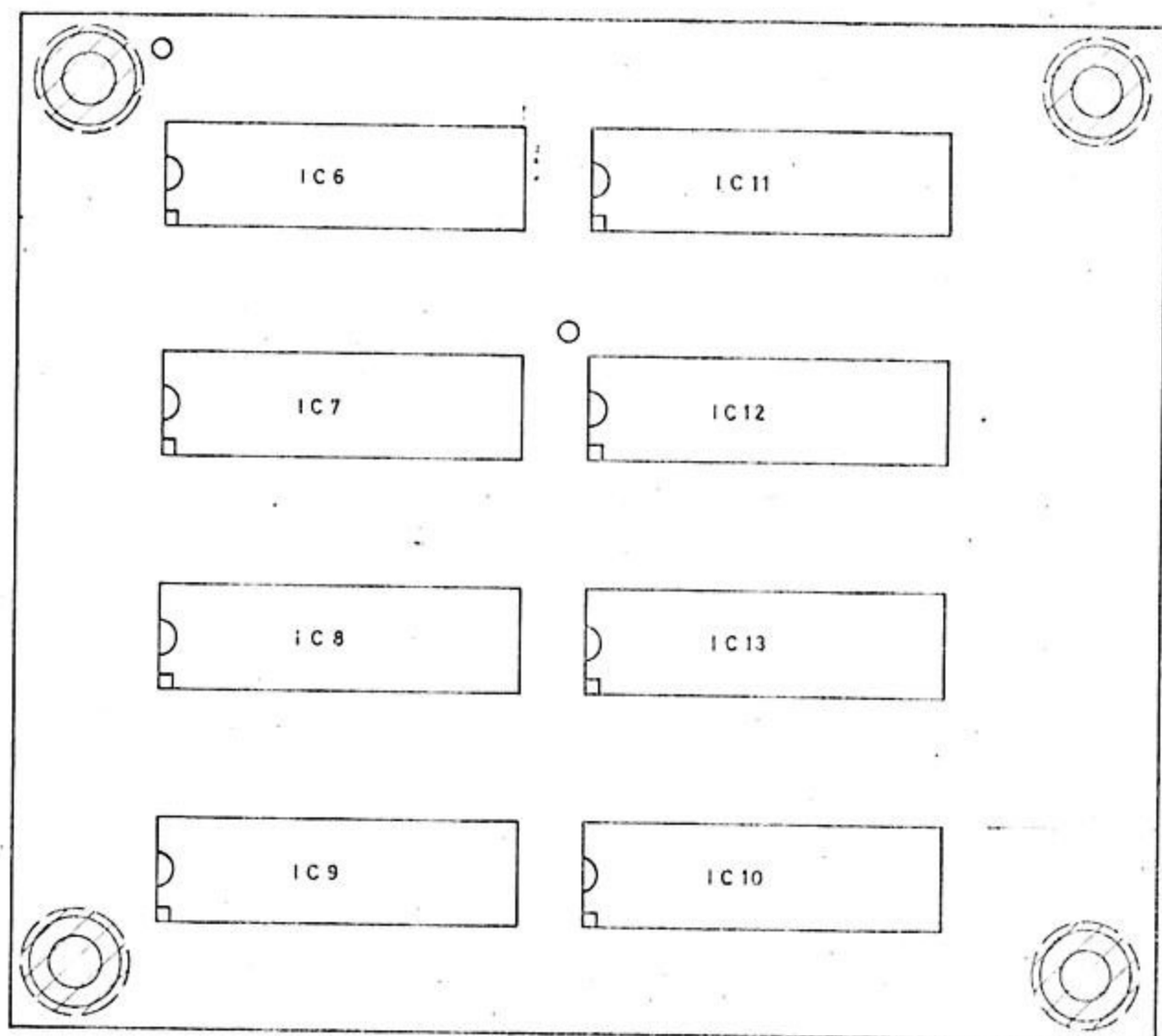


Fig.8 Code output board (Plessey Stock No. 419/1/40287):

location diagram

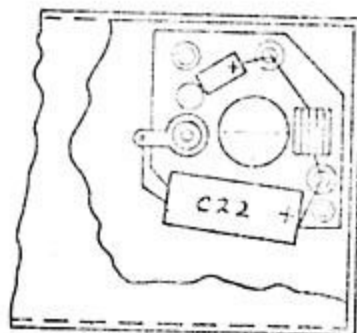


Fig.9 Dimmer board (Plessey Stock No. 419/1/40349):
location diagram

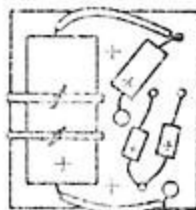


Fig.10 12 V d.c. power supply board (Plessey Stock No. 630/1/37963):
location diagram