

Maintenance manual (Part 2)

RA.1771/72 HF Communications Receivers

DANGER

LETHAL VOLTAGES

*Although every reasonable precaution has been observed
in design to safeguard operating personnel
this warning is . . .*

VITAL !

ADJUSTMENTS

EXERCISE GREAT CARE

DO NOT ADJUST ALONE

If possible, when making adjustments, ensure the presence of another person capable of rendering aid.

SERVICING

SWITCH OFF

**DO NOT TAMPER
WITH INTERLOCKS**

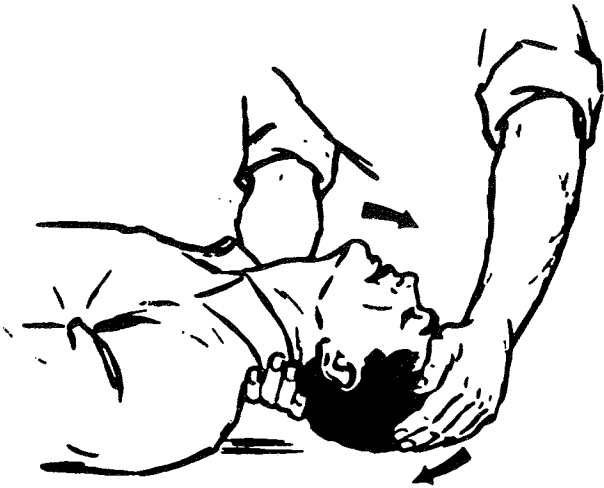
Only authorised personnel should be allowed to remove or neutralise the effect of interlocks. Do not rely on interlock switches for protection.

DO NOT SERVICE ALONE

If possible, when servicing, ensure the presence of another person capable of rendering aid.

SEE OVER FOR RESUSCITATION INSTRUCTIONS

FIRST AID in case of Electric Shock



1. Lay victim on his back.
2. Clear victim's mouth and throat.
3. Tilt victim's head back as far as possible and raise his head.
4. Pinch victim's nostrils.
5. Take a deep breath.
6. Cover the victim's mouth with yours and blow, watching his chest rise. Note: Blow forcefully into adults, but gently into children.
7. Move your face away to allow victim to breathe out, watching his chest fall.
8. Repeat first five to ten breaths at a rapid rate; thereafter, take one breath every three to five seconds.
9. Keep victim's head back as far as possible all the time.

Have someone else send for a Doctor

Keep patient warm and loosen his clothing

**DO NOT Give liquids
until patient is conscious**

HANDBOOK AMENDMENTS

Amendments to this handbook (if any), which are on coloured paper for ease of identification, will be found at the rear of the book. The action called for by the amendments should be carried out by hand as soon as possible.

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LIST OF COMPONENTS

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NOTE: Component values are quoted as follows:-

Resistors

No suffix = ohms
Suffix k = kilohms
Suffix M = megohms

Capacitors

No suffix = microfarads
Suffix p = picofarads

ORDERS FOR SPARE PARTS

In order to expedite handling of spare part orders, please quote:-

- (1) Type and serial number of equipment.
- (2) Circuit reference, description, Racal part number, and manufacturer of part required.
- (3) Quantity required.

NOTE: If the equipment is designed on a modular basis, please include the type and description of the module for which the replacement part is required.

ALTERNATIVES

Certain recommended alternative components are listed below. These alternative components may be used when the appropriate item given in the following components list is no longer available.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>SECOND MIXER BOARD PM336</u>						
R7	12k	Metal oxide			908274	Electrosil TR4
TR1		N-Channel FET			917507	Texas 2N4416
<u>34MHz GENERATOR BOARD PM339</u>						
TR3		N-Channel FET			917507	Texas 2N4416
<u>FIRST MIXER BOARD PM335</u>						
TR8		N-Channel FET			917507	Texas 2N4416
<u>HF LOOP BOARD PS337</u>						
D13,) D14,) D15)		PIN Silicon			924162	Ferranti ZC 2800
<u>FILTER BOARD PS367</u>						
3kHz USB Filter: BD45274 in place of BD45858						
3kHz LSB Filter: BD45275 in place of BD45859						

DIODES TYPE 1N4149

All silicon diodes type 1N4149 may be replaced on failure with Mullard type BAW62 (Racal 918982).

ALTERNATIVES

Certain recommended alternative components are listed below. These alternative components may be used when the appropriate item given in the following components list is no longer available.

Cct. Ref	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>FIRST MIXER BOARD PM335</u>						
R39	50k	Variable, preset		10	924870	Bourns VA05H
<u>IF/AF BOARD PM364</u>						
C46	.01	Silver Mica	125V	1	926046	ITT 454/254
<u>UPPER LOOP BOARD PM454</u>						
C11	.01	Silver Mica	125V	1	926046	ITT 454/254
<u>OPTICAL SHAFT ENCODER</u>						
C1	1.0	Tantalum	50V	10		ITT TAAA/1.0/ K50
<u>AF & MEMORY REGULATOR BOARD PS427/1</u>						
R3	2.5k	Variable, preset		10	925138	Bourns VA05H
<u>CHASSIS COMPONENTS</u>						
1R6, 1R8	10k	Variable, lin.			921276	Plessey type M
<u>FSK BOARD PM368</u>						
R45	25k	Variable, preset			925139	Bourns VA05H
<u>FIRST MIXER BOARD PM335</u>						
R24, R29	47	Metal Oxide		2	918744	Electrosil TR5

ALTERNATIVES

Certain recommended alternative components are listed below. These alternative components may be used when the appropriate item given in the following components list is no longer available.

Cct. Ref	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>DISC CERAMIC CAPACITORS .033 ERIE 831/T/18V</u>						
All .033 disc ceramic capacitors, 911883, Erie 831/T/18V, are being replaced with:						
	.047	Disc Ceramic	25	+50 -25	919510	Erie 801/T/25V
<u>DISC CERAMIC CAPACITORS .01 ERIE 831/T/25V</u>						
All .01 disc ceramic capacitors, 911845, Erie 831/T/25V, are being replaced with:						
	.01	Disc Ceramic	25	+50 -25	926386	Erie 861/T/25V

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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MAIN CHASSIS COMPONENTS

(Figures 46 and 50 to 53)

Resistors

	Ohms		Watts			
1R1	500	Potentiometer, Lin. (IF gain)			926243	Plessey type MH1
1R2	180	Metal Oxide		5	909125	Electrosil TR4
1R3	560	Metal Oxide		5	909841	Electrosil TR4
1R4	39	Metal Oxide		5	917062	Electrosil TR4
1R5	10k	Potentiometer, Lin. (BFO)			922208	AB Metals type 45
1R6	10k	Potentiometer, Lin. (LSB Line Level)			920730	Plessey type MH1
1R7	10k	Potentiometer, Lin. (AF GAIN)			926218	Plessey type MH1
1R8	10k	Potentiometer, Lin. (AM/USB Line Level)			920730	Plessey type MH1
1R9	10k	Wirewound	2.5	5	920837	Welwyn W21
1R10	10k	Wirewound	2.5	5	920837	Welwyn W21
1R11 *	270	Metal Oxide		5	908284	Electrosil TR4
1R12 ≠	4.7	Wirewound	2.5	5	917145	Welwyn W21
1R13 ≠	1.0	Wirewound	6	5	914884	Welwyn W22
1R14 ≠	4.7	Wirewound	2.5	5	917145	Welwyn W21
1R15 ≠	4.7	Wirewound	2.5	5	917145	Welwyn W21
1R16 ≠	1.0	Wirewound	6	5	914884	Welwyn W22
1R17 ≠	1k	Metal Oxide		2	913489	Electrosil TR4
1R18 ≠	1k	Metal Oxide		2	913489	Electrosil TR4
1R19 ≠	1k	Metal Oxide		2	913489	Electrosil TR4

Capacitors

			Volts			
1C1	10000	Electrolytic	40	+50 -10	922805	Mullard 071-15103
1C2	10000	Electrolytic	40	+50 -10	922805	Mullard 071-15103
1C3	6800	Electrolytic	25	+50 -10	924979	Mullard 071-16682
1C4	4700	Electrolytic	40	+50 -10	922804	Mullard 071-17472
1C5	680	Electrolytic	100	+50 -10	924982	Plessey 439/1/65855/071

* RA. 1771 only

≠ Later Versions only

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
1C6	680	Electrolytic	100	+50 -10	924982	Plessey 439/1/65855/071
1C7	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C8	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C9	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C10	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C11	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C12	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C13	6.8	Tantalum	35	10	914465	Plessey 402/8/50832/038
1C14	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C15	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C16	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C17	.001	Feedthrough	500	+80 -20	921171	Erie K2600/361
1C18	.01	Ceramic	2000		916072	Erie K6994 CPI
1C19	.01	Ceramic	2000		916072	Erie K6994 CPI
1C20	.01	Ceramic	2000		916072	Erie K6994 CPI
1C21	.01	Ceramic	2000		916072	Erie K6994 CPI
1C22	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
1C23	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
1C24	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
1C25	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100
1C26	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100
1C27	470	Electrolytic	25	+100 -20	921180	Erie 21103-100-0471- OT -0250
1C28	0.1	Polyester	100	20	914173	STC PMT2R0.1M100
1C29	470	Electrolytic	25	+100 -20	921180	Erie 21103-100-0471- OT -0250

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors</u>						
1L1	90 μ H	Choke			45856	Racal
1L2	90 μ H	Choke			45856	Racal
<u>Transformers</u>						
1T1					45568	Racal
<u>Switches</u>						
1SA		Rotary (MODE)			BSW45745	Racal
1SB		Rotary (FILTER)			BSW45748	Racal
1SC		Rotary (AGC)			BSW45746	Racal
1SD		Slide, 2-position (LO)			912063	EMI S5
1SE		Slide, 2-position (34MHz)			912063	EMI S5
1SF		Slide, 2-position (1MHz)			912063	EMI S5
1SG		Slide, 3-position (80V/6V)			914073	EMI S6
1SH		Slide, 3-position (N+/P/N-)			914073	EMI S6
1SJ *		Decade (100kHz)			BSW45845	Racal
1SL *		Decade (10kHz)			BSW45845	Racal
1SM *		Decade (1kHz)			BSW45845	Racal
1SN *		Decade (100Hz)			BSW45845	Racal
1SP *		Decade (10Hz)			BSW45845	Racal
1SQ		Slide, 2-position (LS)			912063	EMI S5
1SR \neq		Rotary (TUNING RATE)			BSW45747	Racal
1SS		Toggle DPDT (POWER)			921186	Arrow 81058/G8A3
1ST		Toggle DP, 3-position (AFC)			921338	Arrow 93F/102B/8A3

MHz Switch - see Logic Board
METER Switch - see Meter Switching Board

* RA.1771 only

\neq RA.1772 only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes</u>						
1D1		Silicon			914898	STC 1N4149
1D2		Silicon			914898	STC 1N4149
1D3		Silicon			914898	STC 1N4149
1D4		Silicon			914898	STC 1N4149
1D5		Zener, 15V, 10W			923066	Texas 1S6015
		Alternative for 1D5			923065	Mullard BZY93C15R
*1D6		Zener, 6.8V, 10W			918491	Texas 1S6006A
1D7		Silicon			914898	STC 1N4149
1D8		Silicon			914898	STC 1N4149
1D9		Silicon			914898	STC 1N4149
1D10		Silicon			914898	STC 1N4149
1D11		Silicon			914898	STC 1N4149
1D12		Silicon			914898	STC 1N4149
* Alternative for 1D6					922301	Mullard BZY93C6V8R

Transistors

1TR1		NPN Silicon			925077	Fairchild 2N6055
1TR2		NPN Silicon			925077	Fairchild 2N6055
1TR3		NPN Silicon			925077	Fairchild 2N6055
		Earlier Versions only			921273	Fairchild 2N3055
		Insulating set, T0-3			906757	Mullard 56201B
		Transistor Cover			920026	Jermyn A22-2003

Connectors

1PL1		Plug, fixed, 3 pin (POWER)			912573	Bulgin P429
		Mating socket and power cable			BA.77207	Racal
		Socket, Bulkhead, BNC, 50 ohm			906125	Transradio BN 12/5
		(First mixer input)				
		Mating BNC Plug, .080CE			921294	Transradio CBN1/5
		Socket, Bulkhead, BNC, 50 ohm			906125	Transradio BN 12/5
		(Second mixer output)				
		Mating BNC Plug, .080CE			921294	Transradio CBN1/5
MAIN IF OUT		Socket, Bulkhead, BNC, 50 ohm			919499	Transradio CBN 6/5A
ISB IF OUT		Socket, Bulkhead, BNC, .080CE			919499	Transradio CBN 6/5A
1MHz IN/OUT		Socket, Bulkhead, BNC, .080CE			919499	Transradio CBN 6/5A

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Connectors (contd.)</u>						
	34MHz IN/OUT	Socket, Bulkhead, BNC, .080CE			919499	Transradio CBN6/5A
	LO IN/OUT	Socket, Bulkhead, BNC, .080CE			919499	Transradio CBN6/5A
		Mating Plugs, BNC, 50 ohm			900038	Transradio BN1/5
ANTENNA - see RF Unit						
1JK1		Phone Jack Socket			921267	Rendar J521/A/F2/SU/1/C
1JK2		Phone Jack Socket			921267	Rendar J521/A/F2/SU/1/C
		Mating Plug			922117	Rendar R22600
<u>Fuses</u>						
1FS1		Fuselink 150mA (TEL)			914055	Belling Lee L562
		Fuseholder			900412	Belling Lee L575
1FS2		Fuselink 2A (STD/+12V)			917751	Beswick TDC134
		Fuseholder			900412	Belling Lee L575
1FS3		Fuselink 1A Slow-blow (POWER)			912052	Beswick TDC134
		Fuseholder			900412	Belling Lee L575
		Spare Fuse Holders (later versions)			908352	Belling Lee L1383
ANTENNA FUSE - see RF Unit						
<u>Lamps</u>						
1LP1		Lamp and holder (LED) (OUT-OF-LOCK, Red)			921628	Bulgin D984
1LP2 ≠		Filament, W/E, 14V			924466	Vitality 690 W/E
1LP3 ≠		Filament, W/E, 14V			924466	Vitality 690 W/E
1LPA ≠		Filament, W/E, 14V			924466	Vitality 690 W/E
Earlier Versions						
1LP2, 3 & 4		Filament, LES, 14V, .04A, 0.56W			908605	Vitality 690
		Lampholder			915524	Bulgin LVS64
1LP5		Lamp and holder (LED) (AFC LOCK, Green)			921627	Bulgin D983
1LP6*		Lamp and holder (LED) (POWER, Red)			921628	Bulgin D984
*RA.1771 only		≠ RA.1772 only				

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Printed Circuit Boards</u>						
		RF Board (Wideband) PM582/3			DA 47348/D	Racal
		RF Board (Tuned) PM582/1			DA 47348/B	Racal
		First Mixer PM335			DA 44984/A	Racal
		Second Mixer PM336			DA 44987/A	Racal
		Filter Board PS367			DA 45801/A	Racal
		Power Regulator Board PM370			DA 44969/D	Racal
		AFC Board PM369			DA 44756/A	Racal
		AF and Memory Regulator Board PS427/1 ≠			BA 46172/B	Racal
		AF Regulator Board PS427/1 *			BA 46172/A	Racal
		Meter Switching Board PS419			CA 45509/A	Racal
		Out-of-Lock Indicator Board PS423 *			AA 45849/B	Racal
		Main IF/AF Board PM364/1			DA 44750/B	Racal
		ISB IF/AF Board PM364/3			DA 44750/C	Racal
		Low Frequency Board PM588			EA 47432/C	Racal
		Upper Loop Board PM589			EA 47410/C	Racal
		Transfer Loop Board PS338			DA 44981/B	Racal
		HF Loop Board PS337			DA 44978/B	Racal
		34MHz Generator Board PM339			DA 44990/C	Racal
		Logic Board PS365			DA 44759/A	Racal
		Display Board PM371 ≠			DA 44975/B	Racal
		Shaft Encoder assembly ≠			CA 44180	Racal
		Frequency Standard Assembly:				
		TXCO AD 45872			CA 45452/A	Racal
		9400 Standard			CA 45452/B	Racal
		9420 Standard			CA 45452/C	Racal
		FSK Board PM368			DA 47016/B	Racal

* RA.1771 only

≠ RA.1772 only

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Miscellaneous</u>						
TS1		Terminal Strip, 9-way			909984	Carr Fastener 44/79/593/9M
TS2		Terminal Strip, 9-way			909984	Carr Fastener 44/79/593/9M
		Mating fanning strip			921225	Carr Fastener R44/81800/RH/M9
RLA		Relay (FSK versions only)			922081	Fairey Electronics ATR24BC01
		Barretter (FSK versions only)			908026	STC L102/2K
		Barretter Base, B9A			900107	McMurdo XM9/UC1
M1		Meter			AD45689	Racal
LS1		Loudspeaker 2.5 in., 15 ohm			906891	Elac 2ST Tropicalised
		Trimming Tool (Tuned RF only)			908067	Neosid HS3
		Trimming Tool			909934	Neosid TT1
		Socket wrench 1.5mm A/F			920582	Unbrako RPS1028/103
		Socket wrench 1/16 in A/F			900357	Unbrako W1 RPS1028/103
FB1		Ferrite Bead			907488	Mullard FX1242
FB2		Ferrite Bead			907488	Mullard FX1242
FB3		Ferrite Bead			907488	Mullard FX1242
VS1		Voltage Selector			906385	Mc Murdo B279002A

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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RF UNIT (Fig. 17)

Filter Tray Assembly (BA46261/A)

Capacitors

			Volts			
2C1	47p	Disc ceramic	500	10	917418	Erie 831/N1500
2C2	47p	Disc ceramic	500	10	917418	Erie 831/N1500

Inductors

2L1	0.15μH	Choke		20	920913	Delevan 1537-00
2L2	0.33μH	Choke		20	921161	Delevan 1537-04
2L3	0.15μH	Choke		20	920913	Delevan 1537-00

Connectors

Antenna Socket	Coaxial				906125	UG 1094 A/U
	Mating Plug, coaxial				900038	UG 88/U
Output Plug	Coaxial				921294	Transradio CBN 1/5 .080 CE

Fuses

Antenna Fuse	Fuselink 500mA				900768	Belling Lee L574
	Fuseholder				900412	Belling Lee L575

Miscellaneous

2SG1	Spark gap				911141	Siemens B1-A230
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RF Board PM582 (DA 47348)

Resistors

			Watts			
R1	33	Carbon Film	0.3	5	925205	Steatite SU2
R2	2.2M	Carbon Film	0.3	5	925233	Steatite SU2
R3	1k	Carbon Film	0.3	5	925185	Steatite SU2
R4	470	Carbon Film	0.3	5	925214	Steatite SU2
R5	10k	Carbon Film	0.3	5	925183	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
				Watts		
R6	100k	Carbon Film	0.3	5	925193	Steatite SU2
R7	56k	Carbon Film	0.3	5	925276	Steatite SU2
R8	12k	Carbon Film	0.3	5	925217	Steatite SU2
R9	100k	Carbon Film	0.3	5	925193	Steatite SU2
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	100k	Carbon Film	0.3	5	925193	Steatite SU2
R12	1k	Carbon Film	0.3	5	925185	Steatite SU2
R13 *	2.2M	Carbon Film	0.3	5	925233	Steatite SU2
R14 *	33	Carbon Film	0.3	5	925205	Steatite SU2
R15 *	1k	Carbon Film	0.3	5	925185	Steatite SU2
R16 *	470	Carbon Film	0.3	5	925214	Steatite SU2
R17	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R18	5.6k	Carbon Film		5	925209	Steatite SU2
R19	470	Metal Oxide		2	920758	Electrosil TR4
R20	10	Carbon Film	0.3	5	925202	Steatite SU2
R21	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R22	47	Metal Oxide		2	918744	Electrosil TR5
R23	27	Metal Oxide		2	908473	Electrosil TR4
R24	68	Carbon Film	0.3	5	925213	Steatite SU2
R25	330	Carbon Film	0.3	5	925207	Steatite SU2
R26	10	Carbon Film	0.3	5	925202	Steatite SU2
R27	18	Metal Oxide		2	916545	Electrosil TR4
R28 *	100k	Carbon Film	0.3	5	925193	Steatite SU2
R29 *	56k	Carbon Film	0.3	5	925276	Steatite SU2
R30	120	Carbon Film	0.3	5	925229	Steatite SU2
R31 *	120	Carbon Film	0.3	5	925229	Steatite SU2
R32 *	12k	Carbon Film	0.3	5	925217	Steatite SU2
R33 *	68k	Carbon Film	0.3	5	925189	Steatite SU2
R34	1k	Carbon Film	0.3	5	925185	Steatite SU2
R35	68k	Carbon Film	0.3	5	925189	Steatite SU2
R36	10	Carbon Film	0.3	5	925202	Steatite SU2

* Tuned version only

Cct Ref.	Value	Description	Rat. α	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors</u>						
			Volts			
C1	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C2 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C3 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C4 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C5 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C6 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C7	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C8 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C9 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C10 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C11 *	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C12 *	.033	Disc Ceramic	18	+50-25	911883	Erie 831/T/18V
C13 ≠	8.2p	Disc Ceramic	500	0.5p	917745	Erie 831/NPO
C13 *	2.2p	Disc Ceramic	500	0.5p	917734	Erie 831 P100
C14	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C15	33p	Silver Mica	125	1p	923678	Lemco MS119/M/R
C16	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C17	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C18	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C19	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C20	15p	Silver Mica	125	1p	925318	Lemco MS119/M/R
C21	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C22 *	8.5- 176p	Variable, 4-gang			921198	Jackson 004 5318/4/LH
C23 *	8.5- 176p	Variable, 4-gang			921198	Jackson 004 5318/4/LH

* Tuned version only ≠ Wideband version only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C24 *	4-30p	Trimmer			921199	DAU 107-3911-027
C25 *	4-30p	Trimmer			921199	DAU 107-3911-027
C26 *	4-30p	Trimmer			921199	DAU 107-3911-027
C27 *	4-30p	Trimmer			921199	DAU 107-3911-027
C28 *	4-30p	Trimmer			921199	DAU 107-3911-027
C29	.003	Silver Mica	50	2	925315	J&M C12E
C30	470p	Silver Mica	400	1	907001	STC 545-63-470-1%-400V
C31	4-30p	Trimmer			921199	DAU 107-3911-027
C32	470p	Disc Ceramic	500	10	917453	Erie 831/K170051
C33 *	4-30p	Trimmer			921199	DAU 107-3911-027
C34 *	4-30p	Trimmer			921199	DAU 107-3911-027
C35 *	4-30p	Trimmer			921199	DAU 107-3911-027
C36 *	4-30p	Trimmer			921199	DAU 107-3911-027
C37 *	4-30p	Trimmer			921199	DAU 107-3911-027
C38 *	4-30p	Trimmer			921199	DAU 107-3911-027
C39	.003	Silver Mica	50	2	925315	J&M C12E
C40	1.0	Polycarbonate	100	20	917212	STC PMC2R1.0M100
C41 *	8.2p	Disc Ceramic	500	0.5p	917745	Erie 831/NP0
C42	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C43 *	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C44	0.1	Disc Ceramic	18	+50 -25	920567	Erie 811/T/18V
C45	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C46 *	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C47	15	Tantalum	20	20	910060	Union Carbide K15J20S
C48 *	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C49	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C50	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C51	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C52	85p	Polystyrene	30	2	921231	Suflex EP3 30V
C53	6p	Polystyrene	30	2	921232	Suflex EP9 30V
C54	1.0	Polycarbonate	100	20	917212	STC PMC2R1.0M100
C55	117p	Polystyrene	30	2	921234	Suflex EP9 30V

* Tuned version only

Cct Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C56	0.1	Disc Ceramic	18	+50 -25	920567	Erie 811/T/18V
C57	43p	Polystyrene	30	2	921235	Suflex EP9 30V
C58	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C59	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C60	83p	Polystyrene	30	2	921237	Suflex EP9 30V
C61	79p	Polystyrene	30	2	921238	Suflex EP9 30V
C62	0.1	Disc Ceramic	18	+50 -25	920567	Erie 811/T/18V
C63	73p	Polystyrene	30	2	921239	Suflex EP9 30V
C64	65p	Polystyrene	30	2	921240	Suflex EP9 30V
C65	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C66 *	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C67	96p	Polystyrene	30	2	921241	Suflex EP9 30V
C68	24p	Polystyrene	30	2	921242	Suflex EP9 30V
C69	70p	Polystyrene	30	2	921243	Suflex EP9 30V
C70 ≠	22p	Silver Mica	125	2	921443	Lemco MS119/M/R
C71	.033	Disc Ceramic	18	+50-25	911883	Erie 831/T/18V
C72	33	Tantalum	10	20	907735	Union Carbide K33J10S
C73	4.7p	Disc Ceramic	500	0.5p	917741	Erie 831/NP0
C74	0.1	Disc Ceramic	30	+50-20	906675	Erie 811/T/30V

Inductors

L1	1mH	Choke		5	919033	Delevan 2500/28
L2 *	1mH	Choke		5	919033	Delevan 2500/28
L3 *	1mH	Choke		5	919033	Delevan 2500/28
L4 *	1mH	Choke		5	919033	Delevan 2500/28
L5 *	1mH	Choke		5	919033	Delevan 2500/28
L6 *	1mH	Choke		5	919033	Delevan 2500/28
L7		Coil Assembly			CT45545	Racal
L8	2.2μH	Choke		10	918985	Delevan 1537-32
L9		Coil Assembly			CT45544	Racal
L10		Coil Assembly			CT45540	Racal

* Tuned versions only ≠ Wideband versions only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors (contd.)</u>						
L11 *	2.2 μ H	Choke		10	918985	Delevan 1537-32
L12	1mH	Choke		5	919033	Delevan 2500/28
L13	1mH	Choke		5	919033	Delevan 2500/28
L14	470 μ H	Choke		10	921211	Delevan 2500/12
L15		Coil Assembly			CT45534	Racal
L16		Coil Assembly			CT45535	Racal
L17		Coil Assembly			CT45537	Racal
L18		Coil Assembly			CT45536	Racal
L19		Coil Assembly			CT45535	Racal
L20	1mH	Choke		5	919033	Delevan 2500/28

Transformers

T1 *					CT45562	Racal
T2 *					CT45558	Racal
T3 *					CT45559	Racal
T4 *					CT45560	Racal
T5 *					CT45561	Racal
T6 \neq					CT47156	Racal

Switches

SA *		Microswitch			921001	Unimax 2LML-C SPDT
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* Tuned versions only

\neq Marine (RA.1776) versions only

Cct. Ref.	Values	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors</u>						
TR1		N-Channel FET			916946	Mullard BFW10
TR2		NPN Silicon			906842	Mullard 2N2369
TR3		NPN Silicon			914900	Mullard BC109
TR4 *		N-Channel FET			916946	Mullard BFW10
TR5		PNP Silicon			915231	SGS BFX48
TR6		NPN Silicon			920012	Mullard BFW17A
TR7 *		NPN Silicon			906842	Mullard 2N2369
TR8 *		NPN Silicon			914900	Mullard BC109
 <u>Diodes</u>						
D1		Silicon			914898	Mullard 1N4149
D2 *		Silicon			914898	Mullard 1N4149
D3 *		Silicon			914898	Mullard 1N4149
D4 *		Silicon			914898	Mullard 1N4149
D5 *		Silicon			914898	Mullard 1N4149
D6 *		Silicon			914898	Mullard 1N4149
D7		Silicon			914898	Mullard 1N4149
D8		Silicon			914898	Mullard 1N4149
D9		Silicon			914898	Mullard 1N4149
D10		Silicon			914898	Mullard 1N4149
D11 *		Silicon			914898	Mullard 1N4149
D12 *		Silicon			914898	Mullard 1N4149
D13 *		Silicon			914898	Mullard 1N4149
D14		Silicon			924012	Fairchild BAY74
D15		Silicon			924012	Fairchild BAY74

* Tuned versions only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Connectors</u>						
	RF input	Socket, coaxial			906125	UG1094/AU
<u>Relays</u>						
				Volts		
RLA		Reed	12		921195	Pickering 90-1-A-12/1
RLB		Reed	12		921195	Pickering 90-1-A-12/1
RLC *		Reed	12		921195	Pickering 90-1-A-12/1
RLD *		Reed	12		921195	Pickering 90-1-A-12/1
RLE *		Reed	12		921195	Pickering 90-1-A-12/1
RLF *		Reed	12		921195	Pickering 90-1-A-12/1
RLG *		Reed	12		921195	Pickering 90-1-A-12/1
RLH *		Reed	12		921195	Pickering 90-1-A-12/1
RLJ *		Reed	12		921196	Pickering 90-2-A-12/1
RLK *		Reed	12		921196	Pickering 90-2-A-12/1
RLL *		Reed	12		921196	Pickering 90-2-A-12/1
RLM *		Reed	12		921196	Pickering 90-2-A-12/1
RLN		Reed	12		921195	Pickering 90-1-A-12/1
RLP		Reed	12		921195	Pickering 90-1-A-12/1
RLQ		Reed	12		921197	Astralux AD61A-1120-140-0112V
RLR *		Reed	12		921197	Astralux AD61A-1120-140-0112V

* Tuned versions only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Ferrite Beads

FB1					907488	Mullard FX1242
FB2					907488	Mullard FX1242
FB3					907488	Mullard FX1242
FB4					907488	Mullard FX1242
FB5					907488	Mullard FX1242
FB6					907488	Mullard FX1242
FB7					907488	Mullard FX1242

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>FIRST MIXER BOARD PM335 (DA44984/A) - Fig. 20</u>						
<u>Resistors</u>						
				Watts		
R1	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R2	1k	Carbon Film	0.3	5	925185	Steatite SU2
R3	1k	Carbon Film	0.3	5	925185	Steatite SU2
R4	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R5	22k	Carbon Film	0.3	5	925184	Steatite SU2
R6	22k	Carbon Film	0.3	5	925184	Steatite SU2
R7	1k	Carbon Film	0.3	5	925185	Steatite SU2
R8	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R9	1k	Carbon Film	0.3	5	925185	Steatite SU2
R10	22k	Carbon Film	0.3	5	925184	Steatite SU2
R11	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R12	22k	Carbon Film	0.3	5	925184	Steatite SU2
R13	10	Carbon Film	0.3	5	925202	Steatite SU2
R14	150	Carbon Film	0.3	5	925216	Steatite SU2
R15	10	Carbon Film	0.3	5	925202	Steatite SU2
R16	8.2k	Metal Oxide		5	908275	Electrosil TR4
R17	10k	Metal Oxide		5	900986	Electrosil TR4
R18	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R19	1k	Carbon Film	0.3	5	925185	Steatite SU2
R20	10	Carbon Film	0.3	5	925202	Steatite SU2
R21	82	Carbon Film	0.3	5	925226	Steatite SU2
R22	820	Metal Oxide		5	917065	Electrosil TR4
R23	270	Carbon Film	0.3	5	925187	Steatite SU2
R24	47	Metal Oxide		5	907495	Electrosil TR5
R25	270k	Carbon Film	0.3	5	925190	Steatite SU2
R26	270k	Carbon Film	0.3	5	925190	Steatite SU2
R27	1k	Carbon Film	0.3	5	925185	Steatite SU2
R28	1k	Metal Oxide		5	908267	Electrosil TR4
R29	47	Metal Oxide		5	907495	Electrosil TR5
R30	270	Carbon Film	0.3	5	925187	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Resistors (contd.)

R31	820	Metal Oxide		5	917065	Electrosil TR4
R32	1k	Carbon Film	0.3	5	925185	Steatite SU2
R33	270k	Carbon Film	0.3	5	925190	Steatite SU2
R34	270k	Carbon Film	0.3	5	925190	Steatite SU2
R35	47k	Carbon Film	0.3	5	925215	Steatite SU2
R36	330	Carbon Film	0.3	5	925297	Steatite SU2
R37	390	Carbon Film	0.3	5	925211	Steatite SU2
R38	27k	Carbon Film	0.3	5	925191	Steatite SU2
R39	47k	Variable, preset		10	920313	Bourns VA05H
R40	10k	Carbon Film	0.3	5	925183	Steatite SU2

Capacitors

Volts

C1	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C2	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C3	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C4	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C5	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C6	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C7	56p	Polystyrene	30	2	921024	Suflex EP9
C8	112p	Polystyrene	30	2	921283	Suflex EP9
C9	94p	Polys tyrene	30	2	921284	Suflex EP9
C10	33p	Polystyrene	30	2	921226	Suflex EP9
C11	1p	Tubular Ceramic	750	10	921292	Erie AD/P100K
C12	247p	Polystyrene	30	2	921285	Suflex EP9
C13	128p	Polystyrene	30	2	921286	Suflex EP9
C14	100p	Polystyrene	30	2	921026	Suflex EP9
C15	82p	Polystyrene	30	2	921066	Suflex EP9

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C16	1p	Tubular Ceramic	750	10	921292	Erie AD/P100K
C17	15p	Polystyrene	30	2	921287	Suflex EP9
C18	52p	Polystyrene	30	2	921288	Suflex EP9
C19	76p	Polystyrene	30	2	921289	Suflex EP9
C20	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C21	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C22	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C23	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C24	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C25	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C26	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C27	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C28	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C29	NOT USED					
C30	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C31	330p	Disc Ceramic	500	10	917738	Erie 831/N5600
C32	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C33	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C34	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C35	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
C36	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C37	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C38	.001	Disc Ceramic	500	10	915243	Erie 831/K2600
C39	.001	Disc Ceramic	500	10	915243	Erie 831/K2600
C40	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C41	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C42	.001	Disc Ceramic	500	10	915243	Erie 831/K2600
C43	.001	Disc Ceramic	500	10	915243	Erie 831/K2600
C44	2.2p	Disc Ceramic	500	±.05p	917734	Erie 831/P100
C45	330p	Disc Ceramic	500	10	917738	Erie 831/N5600
C46	.001	Disc Ceramic	500	10	915243	Erie 831/K2600
C47	NOT USED					
C48	330p	Disc Ceramic	500	10	917738	Erie 831/N5600
C49	330p	Disc Ceramic	500	10	917738	Erie 831/N5600
C50	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C51	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C52	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C53	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C54	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100

Inductors

L1	10μH	Choke		10	921209	Delevan 1537-36
L2	10μH	Choke		10	921209	Delevan 1537-36
L3	10μH	Choke		10	921209	Delevan 1537-36
L4		Coil Assembly			CT45547	Racal
L5		Coil Assembly			CT45546	Racal

<u>Cct. Ref.</u>	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors (contd.)</u>						
L6		Coil Assembly			CT45552	Racal
L7		Coil Assembly			CT45548	Racal
L8		Coil Assembly			CT45547	Racal
L9		Coil Assembly			CT45547	Racal
L10	10 μ H	Choke		10	921209	Delevan 1537-36
L11	10 μ H	Choke		10	921209	Delevan 1537-36
L12	10 μ H	Choke		10	921209	Delevan 1537-36
L13	10 μ H	Choke		10	921209	Delevan 1537-36
L14	1 μ H	Choke		10	915849	Delevan 1537-12
L15	10 μ H	Choke		10	921209	Delevan 1537-36
L16	10 μ H	Choke		10	921209	Delevan 1537-36
L17	10 μ H	Choke		10	921209	Delevan 1537-36
L18	10 μ H	Choke		10	921209	Delevan 1537-36
L19	6.8 μ H	Choke		10	919469	Delevan 1537-32

Transformers

T1					CT45551	Racal
T2					CT45551	Racal
T3					CT45556	Racal
T4					CT45541	Racal
T5					CT45566	Racal
T6					CT45567	Racal
T7					CT45566	Racal

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Transistors

TR1		NPN Silicon			917219	Mullard 2N3866
TR2		NPN Silicon			917219	Mullard 2N3866
TR3		N-Channel FET			918424	Mullard BSV81
TR4		N-Channel FET			918424	Mullard BSV81
TR5		NPN Silicon			917219	Mullard 2N3866
TR6		N-Channel FET			918424	Mullard BSV81
TR7		N-Channel FET			918424	Mullard BSV81
TR8		N-Channel FET			916946	Mullard BFW10

Diodes

D1		Silicon			914898	Mullard 1N4149
D2		Silicon			914898	Mullard 1N4149
D3		Silicon			914898	Mullard 1N4149
D4		Silicon			914898	Mullard 1N4149
D5		Silicon			914898	Mullard 1N4149

Crystals

XL1	35.398MHz				921485	Def Stan 59-1 Style J
XL2	35.400MHz				921486	Def Stan 59-1 Style J
XL3	35.402MHz				921487	Def Stan 59-1 Style J

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Filter

FL1	35.4 MHz				BD44454	Racal
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Ferrite Beads

FB1					907488	Mullard FX1242
FB2					907488	Mullard FX1242
FB3					907488	Mullard FX1242
FB4					907488	Mullard FX1242

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>SECOND MIXER BOARD PM336 (DA44987/A)</u>						
Fig. 22						
<u>Resistors</u>						
			Watts			
R1	470	Carbon Film	0.3	5	925214	Steatite SU2
R2	56	Carbon Film	0.3	5	925212	Steatite SU2
R3	100	Carbon Film	0.3	5	925186	Steatite SU2
R4	6.8k	Metal Oxide		2	910112	Electrosil TR4
R5	470	Carbon Film	0.3	5	925214	Steatite SU2
R6	39k	Carbon Film	0.3	5	925225	Steatite SU2
R7	12k	Metal Oxide		2	917952	Electrosil TR4
R8	10k	Variable, Preset		5	920312	Bourns VA05H
R9	10k	Metal Oxide		2	914042	Electrosil TR4
R10	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R11	4.7k	Metal Oxide		2	913490	Electrosil TR4
R12	15k	Metal Oxide		2	908280	Electrosil TR4
R13	82	Carbon Film	0.3	5	925226	Steatite SU2
R14	1k	Metal Oxide		2	913489	Electrosil TR4
R15	4.7k	Metal Oxide		2	913490	Electrosil TR4
R16	1k	Metal Oxide		2	913489	Electrosil TR4
R17	4.7k	Metal Oxide		2	913490	Electrosil TR4
R18	470	Carbon Film	0.3	5	925214	Steatite SU2
R19	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R20	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R21	100	Carbon Film	0.3	5	925186	Steatite SU2
R22	100	Carbon Film	0.3	5	925186	Steatite SU2
R23	470	Carbon Film	0.3	5	925214	Steatite SU2
R24	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R25	1.2k	Metal Oxide		5	908285	Electrosil TR4
R26	4.7k	Metal Oxide		5	900989	Electrosil TR4
R27	1k	Metal Oxide		5	908267	Electrosil TR4

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors</u>						
C1	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C2	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C3	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C4	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C5	120p	Silver Mica	400	1	921085	STC 454-63-120-1%-400V
C6	39p	Silver Mica	125	1p	925319	Lemco MS119/M/R
C7	390p	Silver Mica	400	1	908093	STC 454-63-390-1%-400V
C8	NOT USED					
C9	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C10	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C11	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C12	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C13	470p	Silver Mica	400	1	907001	STC 454-63-470-1%-400V
C14	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C15	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C16	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C17	330p	Silver Mica	125	1	921207	STC 454-62-330-1%-125V
C18	15	Tantalum	20	20	910060	Union Carbide K15J20S
C19	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C20	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C21	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C22	330p	Silver Mica	125	1	921207	STC 454-62-330-1%-125V
C23	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C24	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C25	330p	Silver Mica	125	1	921207	STC 454-62-330-1%-125V
C26	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C27	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C28	1800p	Silver Mica	200	2	925320	J&M C12E
C29	330p	Silver Mica	125	1	921207	STC 454-62-330-1%-125V
C30	100p	Silver Mica	125	2	920264	Lemco MS119/M/R

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
C31	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C32	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C33	82p*	Silver Mica	125	1p	923672	Lemco MS119/M/R
C34	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C35	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C36	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C37	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C38	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C39	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C40	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C41	22p	Silver Mica	125	0.5p	921443	Lemco MS119/M/R
C42	43p	Silver Mica	350	1	925407	STC 454-62
C43	120p	Silver Mica	400	1	921085	STC 454-62-120-1%-400V

Inductors

L1		Coil Assembly			CT45569	Racal
L2	10 μ H	Choke		10	921209	Delevan 1537-36
L3	470 μ H	Choke		10	921211	Delevan 2500-12
L4	47 μ H	Choke		10	919466	Delevan 1537-60
L5	47 μ H	Choke		10	919466	Delevan 1537-60
L6		Coil Assembly			CT45542	Racal
L7		Coil Assembly			CT45563	Racal
L8		Coil Assembly			CT45563	Racal
L9		Coil Assembly			CT45563	Racal
L10		Coil Assembly			CT45564	Racal

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors (contd.)</u>						
L11		Coil Assembly			CT45563	Racal
L12		Coil Assembly			CT45564	Racal
L13		Coil Assembly			CT45564	Racal
L14		Coil Assembly			CT45564	Racal
L15		Coil Assembly			CT45533	Racal
L16	47 μ H	Choke		10	919466	Delevan 1537-60
L17	1 μ H	Choke		10	915849	Delevan 1537-12
L18		Coil Assembly		10	CT47519	Racal
L19	47 μ H	Choke		10	919466	Delevan 1537-60
L20	1 μ H	Choke		10	915849	Delevan 1537-12
L21	1 μ H	Choke		10	915849	Delevan 1537-12

Transistors

TR1		N-Channel FET			924847	Siliconex 2N5397
TR2		NPN Silicon			914900	Mullard BC109
TR3		NPN Silicon			914900	Mullard BC109
TR4		NPN Silicon			914900	Mullard BC109
TR5		NPN Silicon			916627	Mullard BFX89
TR6		PNP Silicon			915231	SGS BFX48
TR7		NPN Silicon			914900	Mullard BC109
TR8		NPN Silicon			914900	Mullard BC109
TR9		NPN Silicon			916627	Mullard BFX89
TR10		NPN Silicon			916627	Mullard BFX89
TR11		NPN Silicon			916627	Mullard BFX89

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Diodes

D1		PIN Silicon			921200	Hewlett Packard HP5082-3080
D2		PIN Silicon			921200	Hewlett Packard HP5082-3080

Ferrite Beads

FB1					907488	Mullard FX1242
FB2					907488	Mullard FX1242

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
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IF FILTER BOARD PS367 (DA45801)

Fig. 24

Resistors

			Watts			
R1	1.2k	Carbon Film	0.3	5	925201	Steatite SU2
R2	33k	Carbon Film	0.3	5	925197	Steatite SU2
R3	33k	Carbon Film	0.3	5	925197	Steatite SU2
R4	33k	Carbon Film	0.3	5	925197	Steatite SU2
R5	33k	Carbon Film	0.3	5	925197	Steatite SU2
R6	33k	Carbon Film	0.3	5	925197	Steatite SU2
R7	33k	Carbon Film	0.3	5	925197	Steatite SU2
R8	1k	Carbon Film	0.3	5	925185	Steatite SU2
R9	1k	Carbon Film	0.3	5	925185	Steatite SU2
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	1k	Carbon Film	0.3	5	925185	Steatite SU2
R12	1k	Carbon Film	0.3	5	925185	Steatite SU2
R13	1k	Carbon Film	0.3	5	925185	Steatite SU2
R14	33k	Carbon Film	0.3	5	925197	Steatite SU2
R15	33k	Carbon Film	0.3	5	925197	Steatite SU2
R16	33k	Carbon Film	0.3	5	925197	Steatite SU2
R17	33k	Carbon Film	0.3	5	925197	Steatite SU2
R18	33k	Carbon Film	0.3	5	925197	Steatite SU2
R19	33k	Carbon Film	0.3	5	925197	Steatite SU2
R20	1.2k	Carbon Film	0.3	5	925201	Steatite SU2

Capacitors

			Volts			
C1	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C2	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C3	.033	Disc Ceramic	500	25	917437	Erie 831/K7004
C4	.033	Disc Ceramic	500	25	917437	Erie 831/K7004
C5	.033	Disc Ceramic	500	25	917437	Erie 831/K7004

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C6	.033	Disc Ceramic	500	25	917437	Erie 831/K7004
C7	.033	Disc Ceramic	500	25	917437	Erie 831/K7004
C8	.033	Disc Ceramic	500	25	917437	Erie 831/K7004
*C9	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C10	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C11	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C12	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C13	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C14	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C15	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C16	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C17	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C18	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C19	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C20	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C21	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C22	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C23	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C24	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C25	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C26	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C27	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C28	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C29	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C30	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C31	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C32	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C33	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C34	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C35	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C36	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C37	1.0	Tantalum	35	20	908462	STC 472/LWA/400KA
*C38	33p	Disc Ceramic	500	5	919459	Erie 831/N750
C39	33p	Disc Ceramic	500	5	919459	Erie 831/N750
C40	33p	Disc Ceramic	500	5	919459	Erie 831/N750

*For receivers fitted with 2.7kHz filters (BD602856) value of C9 is changed to 15p Disc Ceramic 500V 5% 917747 Erie 831/NPO and C38 is omitted.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C41	33p	Disc Ceramic	500	5	919459	Erie 831/N750
C42	33p	Disc Ceramic	500	5	919459	Erie 831/N750
C43	33p	Disc Ceramic	500	5	919459	Erie 831/N750

Inductors

L1	100 μ H	Choke		10	919471	Delevan 1537-76
L2	100 μ H	Choke		10	919471	Delevan 1537-76
L3	100 μ H	Choke		10	919471	Delevan 1537-76
L4	100 μ H	Choke		10	919471	Delevan 1537-76
L5	100 μ H	Choke		10	919471	Delevan 1537-76
L6	100 μ H	Choke		10	919471	Delevan 1537-76
L7	1mH	Choke		5	919033	Delevan 2500-28
L8	1mH	Choke		5	919033	Delevan 2500-28
L9	1mH	Choke		5	919033	Delevan 2500-28
L10	1mH	Choke		5	919033	Delevan 2500-28
L11	1mH	Choke		5	919033	Delevan 2500-28
L12	1mH	Choke		5	919033	Delevan 2500-28
L13	1mH	Choke		5	919033	Delevan 2500-28
L14	1mH	Choke		5	919033	Delevan 2500-28
L15	1mH	Choke		5	919033	Delevan 2500-28
L16	1mH	Choke		5	919033	Delevan 2500-28
L17	1mH	Choke		5	919033	Delevan 2500-28
L18	1mH	Choke		5	919033	Delevan 2500-28
L19	1mH	Choke		5	919033	Delevan 2500-28
L20	1mH	Choke		5	919033	Delevan 2500-28
L21	100 μ H	Choke		10	919471	Delevan 1537-76

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Diodes

D1		Silicon			914898	STC 1N4149
D2		Silicon			914898	STC 1N4149
D3		Silicon			914898	STC 1N4149
D4		Silicon			914898	STC 1N4149
D5		Silicon			914898	STC 1N4149
D6		Silicon			914898	STC 1N4149
D7		Silicon			914898	STC 1N4149
D8		Silicon			914898	STC 1N4149
D9		Silicon			914898	STC 1N4149
D10		Silicon			914898	STC 1N4149
D11		Silicon			914898	STC 1N4149
D12		Silicon			914898	STC 1N4149

Filters

Carrier	BD45253	Racal
13kHz Symmetrical	BD45806	Racal
8kHz Symmetrical	BD45248	Racal
6kHz Symmetrical	BD	Racal
3kHz Symmetrical	BD45249	Racal
1kHz Symmetrical	BD45250	Racal
300Hz Symmetrical	BD45251	Racal
2.7kHz USB	BD602856	Racal
3kHz USB	BD45858	Racal
6kHz USB	BD45695	Racal
3kHz LSB	BD45859	Racal
6kHz LSB	BD45694	Racal
3kHz USB/ISB	BD45274	Racal
3kHz LSB/ISB	BD45275	Racal

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>IF/AF BOARD PM364 (DA44750)</u>						
Fig. 26						
<u>Resistors</u>						
R1	1k	Metal Oxide		2	913489	Electrosil TR4
R2	22	Carbon Film	0.3	5	925220	Steatite SU2
R3	2k	Variable, Preset			911765	Morganite 81E
R4	1k	Variable, Preset		10	920315	Bourns VA05H
R5	10k	Metal Oxide		10	914042	Electrosil TR4
R6	2.7k	Metal Oxide		2	916548	Electrosil TR4
R7	5.6k	Metal Oxide		2	913497	Electrosil TR4
R8	3.3k	Metal Oxide		2	910111	Electrosil TR4
R9	20k	Variable, Preset			914169	Morganite 81E
R10	100k	Carbon Film	0.3	5	925193	Steatite SU2
R11	560	Carbon Film	0.3	5	925194	Steatite SU2
R12	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R13	68k	Metal Oxide		2	916478	Electrosil TR4
R14	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R15	1.5M	Carbon Film		5	925232	Steatite SU2
R16	1.2k	Carbon Film	0.3	5	925201	Steatite SU2
R17	68k	Metal Oxide		2	916478	Electrosil TR4
R18	1k	Carbon Film	0.3	5	925185	Steatite SU2
R19	10k	Carbon Film	0.3	5	925183	Steatite SU2
R20	22k	Metal Oxide		2	913493	Electrosil TR4
R21	1M	Carbon Film	0.3	5	925231	Steatite SU2
R22	390	Carbon Film	0.3	5	925211	Steatite SU2
R23	NOT USED					
R24	100k	Carbon Film	0.3	5	925193	Steatite SU2
R25	NOT USED					
R26	820	Carbon Film	0.3	5	925192	Steatite SU2
R27	680	Carbon Film	0.3	5	925218	Steatite SU2
R28	10k	Metal Oxide		2	914042	Electrosil TR4
R29	39k	Carbon Film	0.3	5	925225	Steatite SU2
R30	120k	Carbon Film	0.3	5	925230	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
				Watts		
R31	10k	Variable, Preset		10	920312	Bourns VA05H
R32	2.7k	Metal Oxide		2	916548	Electrosil TR4
R33	5.6k	Metal Oxide		2	918128	Electrosil TR4
R34	820	Metal Oxide		2	917065	Electrosil TR4
R35	68k	Metal Oxide		2	916478	Electrosil TR4
R36	4.7k	Metal Oxide		2	913490	Electrosil TR4
R37	120k	Carbon Film	0.3	5	925230	Steatite SU2
R38	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R39	15k	Metal Oxide		2	920645	Electrosil TR4
R40	3.3k	Metal Oxide		2	910111	Electrosil TR4
R41	56k	Metal Oxide		2	913497	Electrosil TR4
R42	10k	Variable, Preset			920312	Bourns VA05H
R43	120k	Carbon Film	0.3	5	925230	Steatite SU2
R44	120k	Carbon Film	0.3	5	925230	Steatite SU2
R45	120k	Carbon Film	0.3	5	925230	Steatite SU2
R46	470	Carbon Film	0.3	5	925214	Steatite SU2
R47	68k	Carbon Film	0.3	5	925189	Steatite SU2
R48	15k	Carbon Film	0.3	5	925188	Steatite SU2
R49	22k	Carbon Film	0.3	5	925184	Steatite SU2
R50	1M	Carbon Film	0.3	5	925231	Steatite SU2
R51	1M	Carbon Film	0.3	5	925231	Steatite SU2
R52	68k	Carbon Film	0.3	5	925189	Steatite SU2
R53	100k	Carbon Film	0.3	5	925193	Steatite SU2
R54	NOT USED					
R55	100k	Carbon Film	0.3	5	925193	Steatite SU2
R56	100k	Carbon Film	0.3	5	925193	Steatite SU2
R57	NOT USED					
R58	2.2M	Carbon Film	0.3	5	925233	Steatite SU2
R59	33k	Carbon Film	0.3	5	925197	Steatite SU2
R60	10k	Carbon Film	0.3	5	925183	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R61	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R62	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R63	1k	Carbon Film	0.3	5	925185	Steatite SU2
R64	150	Carbon Film	0.3	5	925216	Steatite SU2
R65 *	12k	Metal Oxide		2	917952	Electrosil TR4
R66 *	47k	Metal Oxide		2	913496	Electrosil TR4
R67	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R68	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R69 *	3.9k	Metal Oxide		2	915074	Electrosil TR4
R70 *	47k	Metal Oxide		2	913496	Electrosil TR4
R71	39k	Metal Oxide		2	900993	Electrosil TR4
R72 *	3.9k	Metal Oxide		2	915074	Electrosil TR4
R73	27k	Metal Oxide		2	913494	Electrosil TR4
R74	6.8k	Metal Oxide		2	910112	Electrosil TR4
R75 *	47	Metal Oxide		2	917063	Electrosil TR4
R76 *	10k	Carbon Film	0.3	5	925183	Steatite SU2
R77 *	1.8k	Metal Oxide		2	911148	Electrosil TR4
R78	12k	Metal Oxide		2	917952	Electrosil TR4
R79	1k	Metal Oxide		2	913489	Electrosil TR4
R80	18k	Metal Oxide		2	900994	Electrosil TR4
R81 *	560	Carbon Film	0.3	5	925194	Steatite SU2
R82 *	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R83 *	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R84 *	1k	Variable, Preset			920315	Bourns VA05H
R85 *	560	Carbon Film	0.3	5	925194	Steatite SU2
R86	100	Carbon Film	0.3	5	925186	Steatite SU2
R87	68	Carbon Film	0.3	5	925213	Steatite SU2
R88 *	100	Carbon Film	0.3	5	925186	Steatite SU2
R89	10k	Metal Oxide		2	914042	Electrosil TR4
R90	10k	Metal Oxide		2	914042	Electrosil TR4
R91 *	100	Carbon Film	0.3	5	925186	Steatite SU2
R92 *	1.0	Wirewound	2.5	5	919137	Welwyn W21
R93	10	Carbon Film	0.3	5	925202	Steatite SU2
R94	10	Carbon Film	0.3	5	925202	Steatite SU2
R95 *	1.0	Wirewound	2.5	5	917137	Welwyn W21

* Not fitted to ISB versions (PM364/3)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Resistors (contd.)

			Watts			
R96 *	1.0	Wirewound	2.5	5	917137	Welwyn W21
R97 *	12	Carbon Film	0.3	5	925227	Steatite SU2
R98	150	Carbon Film	0.3	5	925216	Steatite SU2
R99	100	Metal Oxide		2	910388	Electrosil TR4
R100	39	Carbon Film	0.3	5	925228	Steatite SU2
R101	47	Carbon Film	0.3	5	925224	Steatite SU2

Capacitors

			Volts			
C1	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C2	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C3	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C4	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C5	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C6	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C7	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C8	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C9	440p	Silver Mica	125	2	925321	Lemco MS119/M/R
C10	27p	Silver Mica	125	2	925322	Lemco MS119/M/R

* Not fitted to ISB versions (PM364/3)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C11	560p	Silver Mica	125	1	919949	STC 454-LWA-63
C12	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C13	33	Tantalum	10	20	907735	Union Carbide K33J10S
C14	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C15	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C16	33	Tantalum	10	20	907735	Union Carbide K33J10S
C17	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C18	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C19	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C20	33	Tantalum	10	20	907735	Union Carbide K33J10S
C21	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C22	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C23	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C24	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C25	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C26	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C27	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C28	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C29	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C30	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C31	3300p	Disc Ceramic	500	25	917437	Erie 831/K7004
C32	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C33	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C34	3300p	Disc Ceramic	500	25	917437	Erie 831/K7004
C35	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C36	0.1	Disc Ceramic	18	+50 -25	920567	Erie 811/T/18V
C37	0.1	Disc Ceramic	30	+50 -25	906675	Erie 831/T/30V
C38	33	Tantalum	10	20	907735	Union Carbide K33J10S
C39	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C40	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C41	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C42 *	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C43 *	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C44	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C45	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C46 *	10000p	Silver Mica	200	1	925312	Lemco MS1510/M/R
C47 *	3300p	Silver Mica	50	2	925314	J&M C12E
C48	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C49	1000p	Silver Mica	125	1	906801	STC 454-LWA-63
C50 *	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151

* Not fitted to ISB versions (PM364/3)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C51 *	22p	Disc Ceramic	500	5	921624	Erie 831/N220
C52	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C53 *	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C54	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C55	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C56	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C57	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C58	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C59	150	Electrolytic	16	+50 -10	921531	Mullard 016 15151
C60	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C61 *	470	Electrolytic	25		921180	Erie 21102-100-0471- AP-250
C62	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C63	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C64 *	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C65	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C66 *	470	Electrolytic	25		921180	Erie 21102-100-0471- AP-250
C67 *	470	Electrolytic	25		921180	Erie 21102-100-0471- AP-250
C68	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C69	33	Tantalum	10	20	907735	Union Carbide K33J10S

* Not fitted to ISB versions (PM364/3)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Inductors

L1		Coil Assembly			CT46278	Racal
L2		Coil Assembly			CT46279	Racal
L3	1mH	Choke			919033	Delevan 2500-28
L4	470 μ H	Choke			921211	Delevan 2500-12
L5	1mH	Choke			919033	Delevan 2500-28
L6	1mH	Choke			919033	Delevan 2500-28
L7	100 μ H	Choke			919471	Delevan 1537-76

Transformers

T1					CT45554	Racal
T2					CT45557	Racal

Transistors

TR1		NPN Silicon			914900	Mullard BC109
TR2		N-Channel FET			916946	Mullard BFW10
TR3		N-Channel FET			921213	Mullard BFW11
TR4		NPN Silicon			914900	Mullard BC109
TR5	NOT USED					
TR6		NPN Silicon			914900	Mullard BC109
TR7		NPN Silicon			914900	Mullard BC109
TR8		N-Channel FET			916946	Mullard BFW10
TR9		PNP Silicon			915231	SGS BFX48
TR10		NPN Silicon			914900	Mullard BC109

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors (contd.)</u>						
TR11		NPN Silicon			914900	Mullard BC109
TR12	NOT USED					
TR13		PNP Silicon			915231	SGS BFX48
TR14		NPN Silicon			914900	Mullard BC109
TR15		NPN Silicon			914900	Mullard BC109
TR16		PNP Silicon			915231	SGS BFX48
TR17 *		PNP Silicon			915231	SGS BFX48
TR18 *		NPN Silicon			914900	Mullard BC109
TR19 *		NPN Silicon			914900	Mullard BC109
TR20 *		NPN Silicon			908753	Mullard BFY51
TR21 *		PNP Silicon			915267	Mullard BFX29
TR22		NPN Silicon			914900	Mullard BC109
TR23		PNP Silicon			915231	SGS BFX48
TR24 *		NPN Silicon			908753	Mullard BFY51
TR25 *		NPN Silicon			908753	Mullard BFY51

Diodes

D1		Germanium			900071	Mullard OA91
D2		Germanium			900071	Mullard OA91
D3		Germanium			900071	Mullard OA91
D4		Germanium			900071	Mullard OA91
D5		Germanium			900071	Mullard OA91
D6		Germanium			900071	Mullard OA91
D7		Silicon			914898	Mullard 1N4149
D8		Silicon			914898	Mullard 1N4149
D9		Silicon			914898	Mullard 1N4149
D10		Silicon			914898	Mullard 1N4149

* Not fitted to ISB versions (PM364/3)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes (contd.)</u>						
D11		Silicon			914898	Mullard 1N4149
D12	NOT USED					
D13		Zener, 5.6V, 400mW			912747	Mullard BZY88C5V6
D14		Zener, 4.7V, 400mW			914067	Mullard BZY88C4V7
D15		Zener, 4.7V, 400mW			914067	Mullard BZY88C4V7
D16		Silicon			914898	Mullard 1N4149
D17		Silicon			914898	Mullard 1N4149

Integrated Circuits

ML1		Gain Controlled Amplifier			921201	Fairchild μ A757
ML2		Operational Amplifier			917510	Fairchild μ A741C
ML3		Operational Amplifier			917510	Fairchild μ A741C
ML4		Operational Amplifier			917510	Fairchild μ A741C
ML5		Operational Amplifier			917510	Fairchild μ A741C

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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FREQUENCY STANDARD ASSEMBLY (CA45452/V)

Figs. 42, 43 & 44

Resistors

R1	1k	Variable, Preset (Fitted to CA45452/A only)		10	920315	Bourns VA05H
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Frequency Standards

	TXCO (CA45452/A only)	AD45872	Racal
	9400 (CA45452/B only)	922082	Racal
	9420 (CA45452/C only)	921601	Racal

Miscellaneous

	Common Printed Circuit Board Valve Base, B7G (CA45452/B and /C only)	CA45451 907140	Racal Mc Murdo XM7U
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Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
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LOW FREQUENCY LOOP BOARD PM588 (EA47432/C) Fig. 6

Resistors

			Watts			
R1	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R2	330	Carbon Film	0.3	5	925207	Steatite SU2
R3	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R4	10k	Carbon Film	0.3	5	925183	Steatite SU2
R5	1k	Carbon Film	0.3	5	925185	Steatite SU2
R6	470	Carbon Film	0.3	5	925214	Steatite SU2
R7	220	Carbon Film	0.3	5	925203	Steatite SU2
R8	220	Carbon Film	0.3	5	925203	Steatite SU2
R9	1k	Carbon Film	0.3	5	925185	Steatite SU2
R10	680	Carbon Film	0.3	5	925218	Steatite SU2
R11	470	Carbon Film	0.3	5	925214	Steatite SU2
R12	680	Carbon Film	0.3	5	925218	Steatite SU2
R13	470	Carbon Film	0.3	5	925214	Steatite SU2
R14	22k	Carbon Film	0.3	5	925184	Steatite SU2
R15	NOT USED					
R16	NOT USED					
R17	22k	Carbon Film	0.3	5	925184	Steatite SU2
R18	NOT USED					
R19	NOT USED					
R20	22k	Carbon Film	0.3	5	925184	Steatite SU2
R21	NOT USED					
R22	NOT USED					
R23	22k	Carbon Film	0.3	5	925184	Steatite SU2
R24	NOT USED					
R25	NOT USED					
R26	22k	Carbon Film	0.3	5	925184	Steatite SU2
R27	NOT USED					
R28	NOT USED					
R29	22k	Carbon Film	0.3	5	925184	Steatite SU2
R30	NOT USED					

Cct. Ref.	Value	Description	Rat	Tol. %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R31	NOT USED					
R32	22k	Carbon Film	0.3	5	925184	Steatite SU2
R33	NOT USED					
R34	NOT USED					
R35	22k	Carbon Film	0.3	5	925184	Steatite SU2
R36	NOT USED					
R37	NOT USED					
R38	22k	Carbon Film	0.3	5	925184	Steatite SU2
R39	NOT USED					
R40	NOT USED					
R41	22k	Carbon Film	0.3	5	925184	Steatite SU2
R42	NOT USED					
R43	NOT USED					
R44	22k	Carbon Film	0.3	5	925184	Steatite SU2
R45	NOT USED					
R46	NOT USED					
R47	22k	Carbon Film	0.3	5	925184	Steatite SU2
R48	NOT USED					
R49	NOT USED					
R50	1k	Carbon Film	0.3	5	925185	Steatite SU2
R51	220	Carbon Film	0.3	5	925203	Steatite SU2
R52	220	Carbon Film	0.3	5	925203	Steatite SU2
R53	100	Carbon Film	0.3	5	925186	Steatite SU2
R54	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R55	1k	Carbon Film	0.3	5	925185	Steatite SU2
R56	470	Carbon Film	0.3	5	925214	Steatite SU2
R57	1k	Carbon Film	0.3	5	925185	Steatite SU2
R57	1k	Carbon Film	0.3	5	925185	Steatite SU2
R59	470	Carbon Film	0.3	5	925214	Steatite SU2
R60	100	Carbon Film	0.3	5	925186	Steatite SU2
R61	100	Carbon Film	0.3	5	925186	Steatite SU2
R62	220	Carbon Film	0.3	5	925150	Steatite SU2
R63	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R64	10k	Carbon Film	0.3	5	925183	Steatite SU2
R65	100	Carbon Film	0.3	5	925186	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R66	1k	Carbon Film	0.3	5	925185	Steatite SU2
R67	22k	Carbon Film	0.3	5	925184	Steatite SU2
R68	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R69	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R70	330	Carbon Film	0.3	5	925207	Steatite SU2
R71	1k	Carbon Film	0.3	5	925185	Steatite SU2
R72	220	Carbon Film	0.3	5	925203	Steatite SU2
R73	220	Carbon Film	0.3	5	925203	Steatite SU2
R74	100	Carbon Film	0.3	5	925186	Steatite SU2
R75	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R76	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R77	2.7k	Carbon Film	0.3	5	925200	Steatite SU2
R78	2.7k	Carbon Film	0.3	5	925200	Steatite SU2
R79	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R80	100k	Carbon Film	0.3	5	925193	Steatite SU2
R81	100k	Carbon Film	0.3	5	925193	Steatite SU2

Capacitors

Cct. Ref.	Value	Description	Volts	Rat.	Tol %	Racal Part Number	Manufacturer
C1	1000p	Silver Mica	125	2		920091	Lemco MS119/M/R
C2	1000p	Silver Mica	125	2		920091	Lemco MS119/M/R
C3	1000p	Silver Mica	200	2		906801	Lemco MS119/M/R
C4	1.0	Polycarbonate	100	20		915370	STC PMC2R1.0M100
C5	0.22	Polycarbonate	100	20		917442	STC PMC2R0.22M100
C6	0.1	Polycarbonate	100	20		914173	STC PMC2R0.1M100
C7	NOT USED						
C8	NOT USED						
C9	NOT USED						
C10	NOT USED						
C11	NOT USED						
C12	NOT USED						
C13	NOT USED						
C14	NOT USED						
C15	NOT USED						

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C16	NOT USED					
C17	NOT USED					
C18	NOT USED					
C19	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C20	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C21	220p	Disc Ceramic	500	10	914916	Erie 831/N4200
C22	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C23	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C24	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C25	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C26	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C27	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C28	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C29	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C30	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C31	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C32	220p	Disc Ceramic	500	10	914916	Erie 831/N4200
C33	.01	Polycarbonate	400	20	914171	STC PMC2R.01M400
C34	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C35	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C36	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C37	33	Tantalum	10	20	907735	Union Carbide K33J10S
C38	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C39	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C40	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C41	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C42	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C43	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C44	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C45	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C46	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C47	33	Tantalum	10	20	907735	Union Carbide K33J10S
C48	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C49	.001	Disc Ceramic	500	20	915243	Erie 831/K2600

Inductors

L1		Coil Variable			CT76489	Racal
L2	330 μ H	Choke		5	920212	Delevan 2500-04
L3	4700 μ H	Choke		5	921257	Delevan 2500-60
L4	1 μ H	Choke		10	915849	Delevan 1537-12
L5	4.7 μ H	Choke		10	919466	Delevan 1537-60

Transformers

T1					CT76493	Racal
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Transistors

TR1		NPN Silicon			914900	Mullard BC109
TR2		NPN Silicon			906842	Mullard 2N2369
TR3		PNP Silicon			915231	SGS BFX48
TR4		NPN Silicon			906842	Mullard 2N2369
TR5		NPN Silicon			906842	Mullard 2N2369

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors (contd.)</u>						
TR6	NOT USED					
TR7	NOT USED					
TR8	NOT USED					
TR9	NOT USED					
TR10	NOT USED					
TR11	NOT USED					
TR12	NOT USED					
TR13	NOT USED					
TR14	NOT USED					
TR15	NOT USED					
TR16	NOT USED					
TR17	NOT USED					
TR18		NPN Silicon			914900	Mullard BC109
TR19		NPN Silicon			914900	Mullard BC109
TR20		NPN Silicon			914900	Mullard BC109
TR21		NPN Silicon			906842	Mullard 2N2369
TR22		PNP Silicon			915231	SGS BFX48
TR23		NPN Silicon			906842	Mullard 2N2369
TR24		FET			920331	Siliconex 2N4338
TR25		FET			920331	Siliconex 2N4338
<u>Diodes</u>						
D1		Varactor			920267	Ferranti ZC714
D2		Silicon			914898	Mullard 1N4149
D3		Zener, 5.6V, 400mW			912727	Mullard BZY88C5V6

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits</u>						
ML1		Quad 2-input NAND			918366	Transitron SN7400J
ML2		Decade Counter			917494	Transitron SN7490J
ML3		Decade Counter			924535	Texas SN74LS196J
ML4		Decade Counter			917494	Transitron SN7490J
ML5		Decade Counter			924535	Texas SN74LS196J
ML6		Decade Counter			924535	Texas SN74LS196J
ML7		Decade Counter			917494	Transitron SN7490J
ML8		Dual D flip-flop			917509	Transitron SN7474J
ML9		8-input NAND			919492	Transitron SN7430J
ML10		Decade Counter			924535	Texas SN74LS196J
ML11		Dual J-K flip-flop			921277	Transitron SN74107J
ML12		Triple 3-input NAND			918361	Transitron SN7410J
ML13		Mixer			919747	Fairchild μ A796C
ML14		Decade Counter			924535	Texas SN74LS196J
ML15		Decade Counter			924535	Texas SN74LS196J
ML16		Dual D flip-flop			917509	Transitron SN7474J
ML17		Dual 4-input Schmitt			921278	Transitron SN7413J
ML18		Dual 4-input NAND			919493	Transitron SN7420J
ML19		Decade Counter			924535	Texas SN74LS196J
ML20		Dual J-K flip-flop			921277	Transitron SN74107J
ML21		Triple 3-input NAND			918361	Transitron SN7410J

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>UPPER LOOP BOARD PM589 (EA47410/D) Fig. 8</u>						
<u>Resistors</u>						
			Watts			
R1	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R2	470	Carbon Film	0.3	5	925214	Steatite SU2
R3	330	Carbon Film	0.3	5	925207	Steatite SU2
R4	330	Carbon Film	0.3	5	925207	Steatite SU2
R5	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R6	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R7	22k	Carbon Film	0.3	5	925184	Steatite SU2
R8	NOT USED					
R9	NOT USED					
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	220	Carbon Film	0.3	5	925203	Steatite SU2
R12	220	Carbon Film	0.3	5	925203	Steatite SU2
R13	1k	Carbon Film	0.3	5	925185	Steatite SU2
R14	1k	Carbon Film	0.3	5	925185	Steatite SU2
R15	22k	Carbon Film	0.3	5	925184	Steatite SU2
R16	NOT USED					
R17	NOT USED					
R18	22k	Carbon Film	0.3	5	925184	Steatite SU2
R19	NOT USED					
R20	NOT USED					
R21	22k	Carbon Film	0.3	5	925184	Steatite SU2
R22	NOT USED					
R23	NOT USED					
R24	22k	Carbon Film	0.3	5	925184	Steatite SU2
R25	NOT USED					
R26	NOT USED					
R27	22k	Carbon Film	0.3	5	925184	Steatite SU2
R28	NOT USED					
R29	NOT USED					
R30	22k	Carbon Film	0.3	5	925184	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R31	NOT USED					
R32	NOT USED					
R33	22k	Carbon Film	0.3	5	925184	Steatite SU2
R34	NOT USED					
R35	NOT USED					
R36	22k	Carbon Film	0.3	5	925184	Steatite SU2
R37	NOT USED					
R38	NOT USED					
R39	22k		0.3	5	925784	Steatite SU2
R40	NOT USED					
R41	NOT USED					
R42	100	Carbon Film	0.3	5	925186	Steatite SU2
R43	470	Carbon Film	0.3	5	925214	Steatite SU2
R44	680	Carbon Film	0.3	5	925218	Steatite SU2
R45	100	Carbon Film	0.3	5	925186	Steatite SU2
R46	470	Carbon Film	0.3	5	925214	Steatite SU2
R47	680	Carbon Film	0.3	5	925218	Steatite SU2
R48	220	Carbon Film	0.3	5	925150	Steatite SU2
R49	100	Carbon Film	0.3	5	925186	Steatite SU2
R50	100	Carbon Film	0.3	5	925186	Steatite SU2
R51	220	Carbon Film	0.3	5	925150	Steatite SU2
R52	1k	Carbon Film	0.3	5	925185	Steatite SU2
R53	10k	Carbon Film	0.3	5	925183	Steatite SU2
R54	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R55	100k	Carbon Film	0.3	5	925193	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors</u>						
			Volts			
C1	220p	Disc Ceramic	500	10	914916	Erie 831/N4200
C2	1000p	Silver Mica	125	2	920091	Lemco MS119/M/R
C3	1000p	Silver Mica	125	2	920091	Lemco MS119/M/R
C4	33	Tantalum	10	20	907735	Union Carbide K33J10S
C5	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C6	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C7	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C8	.01	Polycarbonate	400	20	914171	STC PMC2R.01M400
C9	4.7	Tantalum	10	20	905388	Union Carbide K4R7J10S
C10	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C11	.01	Silver Mica	125	1	926046	Lemco MS119/I/R
C12	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C13	470p	Silver Mica	400	1	907001	STC 454-63-470-1%-400V
C14	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C15	NOT USED					
C16	NOT USED					
C17	NOT USED					
C18	NOT USED					
C19	NOT USED					
C20	NOT USED					
C21	NOT USED					
C22	NOT USED					
C23	NOT USED					
C24	NOT USED					
C25	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C26	220p	Disc Ceramic	500	10	914916	Erie 831/N4200
C27	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C28	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C29	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C30	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C31	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C32	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C33	0.22	Polycarbonate	100	20	917442	STC PMC2R0.22M100
C34	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100
C35	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C36	33	Tantalum	10	20	921224	Union Carbide K33E10
C37	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C38	33	Tantalum	10	20	907735	Union Carbide K33J10S

Inductors

L1		Coil Variable			CT76490	Racal
L2	15 μ H	Choke		10	915850	Delevan 1537-40
L3	1mH	Choke		5	919033	Delevan 2500-28
L4		Coil Variable			CT47552	Racal
L5	1mH	Choke		5	919033	Delevan 2500-28
L6	1 μ H	Choke		10	915849	Delevan 1537-12
L7	47 μ H	Choke		5	919466	Delevan 1537-60
L8	10 μ H	Choke		10	921209	Delevan 1537-36

Transformers

T1					CT76492	Racal
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Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors</u>						
TR1		NPN Silicon			914900	Mullard BC109
TR2		NPN Silicon			914900	Mullard BC109
TR3	NOT USED					
TR4		NPN Silicon			914900	Mullard BC109
TR5		NPN Silicon			914900	Mullard BC109
TR6		NPN Silicon			906842	Mullard 2N2369
TR7	NOT USED					
TR8	NOT USED					
TR9	NOT USED					
TR10	NOT USED					
TR11	NOT USED					
TR12	NOT USED					
TR13	NOT USED					
TR14	NOT USED					
TR15	NOT USED					
TR16		NPN Silicon			906842	Mullard 2N2369
TR17		PNP Silicon			915231	SGS BFX48
TR18		NPN Silicon			906842	Mullard 2N2369
TR19		NPN Silicon			914900	Mullard BC109
TR20		FET			920331	Siliconex 2N4338
<u>Diodes</u>						
D1		Zener, 5.6V, 400mW			912747	Mullard BZY88C5V6
D2		Varactor			920267	Ferranti ZC714
D3		Zener, 5.6V, 400mW			912747	Mullard BZY88C5V6
D4		Varactor			920267	Ferranti ZC714

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits</u>						
ML1		Quad 2-input NAND			918366	Transitron SN7400J
ML2		Decade Counter			924535	Texas SN74LS196J
ML3		Decade Counter			924535	Texas SN74LS196J
ML4		Decade Counter			917494	Transitron SN7490J
ML5		Decade Counter			924535	Texas SN74LS196J
ML6		Decade Counter			917494	Transitron SN7490J
ML7		8-input NAND			919492	Transitron SN7430J
ML8		Dual D flip-flop			917509	Transitron SN7474J
ML9		Dual D flip-flop			917509	Transitron SN7474J
ML10		Quad 2-input NAND			918366	Transitron SN7400J
ML11		Triple 3-input NAND			918361	Transitron SN7410J
ML12		Triple 3-input NAND			918361	Transitron SN7410J

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>TRANSFER LOOP BOARD PS 338 (DA44981/B)</u>						
			Fig. 10			
<u>Resistors</u>			Watts			
R1	68	Carbon Film	0.3	5	925213	Steatite SU2
R2	470	Carbon Film	0.3	5	925214	Steatite SU2
R3	470	Carbon Film	0.3	5	925214	Steatite SU2
R4	100	Carbon Film	0.3	5	925186	Steatite SU2
R5	470	Carbon Film	0.3	5	925214	Steatite SU2
R6	47	Carbon Film	0.3	5	925224	Steatite SU2
R7	1k	Carbon Film	0.3	5	925185	Steatite SU2
R8	330	Carbon Film	0.3	5	925207	Steatite SU2
R9	330	Carbon Film	0.3	5	925207	Steatite SU2
R10	10	Carbon Film	0.3	5	925202	Steatite SU2
R11	1k	Carbon Film	0.3	5	925185	Steatite SU2
R12	68	Carbon Film	0.3	5	925213	Steatite SU2
R13	220	Carbon Film	0.3	5	925203	Steatite SU2
R14	100	Carbon Film	0.3	5	925186	Steatite SU2
R15	1k	Carbon Film	0.3	5	925185	Steatite SU2
R16	220	Carbon Film	0.3	5	925203	Steatite SU2
R17	10	Carbon Film	0.3	5	925202	Steatite SU2
R18	100	Carbon Film	0.3	5	925186	Steatite SU2
R19	470	Carbon Film	0.3	5	925214	Steatite SU2
R20	100	Carbon Film	0.3	5	925186	Steatite SU2
R21	68	Carbon Film	0.3	5	925213	Steatite SU2
R22	10	Carbon Film	0.3	5	925202	Steatite SU2
R23	470	Carbon Film	0.3	5	925214	Steatite SU2
R24	470	Carbon Film	0.3	5	925214	Steatite SU2
R25	470	Carbon Film	0.3	5	925214	Steatite SU2
R26	470	Carbon Film	0.3	5	925214	Steatite SU2
R27	1k	Carbon Film	0.3	5	925185	Steatite SU2
R28	470	Carbon Film	0.3	5	925214	Steatite SU2
R29	150	Carbon Film	0.3	5	925216	Steatite SU2
R30	10	Carbon Film	0.3	5	925202	Steatite SU2
R31	470	Carbon Film	0.3	5	925214	Steatite SU2
R32	22k	Carbon Film	0.3	5	925184	Steatite SU2
R33	22k	Carbon Film	0.3	5	925184	Steatite SU2
R34	10	Carbon Film	0.3	5	925202	Steatite SU2
R35	2.2k	Carbon Film	0.3	5	925199	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R36	10	Carbon Film	0.3	5	925202	Steatite SU2
R37	10	Carbon Film	0.3	5	925207	Steatite SU2
R38	47	Carbon Film	0.3	5	925224	Steatite SU2
R39	10	Carbon Film	0.3	5	925207	Steatite SU2
R40	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R41	10	Carbon Film	0.3	5	925207	Steatite SU2
R42	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R43	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R44	10	Carbon Film	0.3	5	925207	Steatite SU2
R45	220	Carbon Film	0.3	5	925203	Steatite SU2
R46	220	Carbon Film	0.3	5	925203	Steatite SU2
R47	10k	Carbon Film	0.3	5	925183	Steatite SU2
R48	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R49	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R50	220	Carbon Film	0.3	5	925203	Steatite SU2
R51	220	Carbon Film	0.3	5	925203	Steatite SU2
R52	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R53	560	Carbon Film	0.3	5	925194	Steatite SU2
R54	10	Carbon Film	0.3	5	925207	Steatite SU2

Capacitors

Cct. Ref.	Value	Description	Volts	Tol %	Racal Part Number	Manufacturer
C1	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C2	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C3	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C4	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C5	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C6	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C7	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C8	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C9	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C10	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C11	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C12	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C13	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C14	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C15	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C16	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C17	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C18	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C19	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C20	10p	Disc Ceramic	500	10	914912	Erie 831/NPO
C21	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C22	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C23	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C24	10p	Disc Ceramic	500	10	914912	Erie 831/NPO
C25	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts.			
C26	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C27	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C28	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C29	3300p	Silver Mica	50	2	925314	J&M C12E
C30	3300p	Silver Mica	50	2	925314	J&M C12E
C31	3300p	Silver Mica	50	2	925314	J&M C12E
C32	3300p	Silver Mica	50	2	925314	J&M C12E
C33	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C34	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C35	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C36	2200p	Silver Mica	125	2	916296	Lemco MS119/M/R
C37	150	Electrolytic	16	+50 -10	921531	Mullard 016/15151
C38	.0047	Silver Mica	125	2	925313	Lemco MS119/I/R
C39	2200p	Silver Mica	125	2	916296	Lemco MS119/M/R
C40	33	Tantalum	10	20	907735	Union Carbide K33J10S
C41	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C42	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C43	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C44	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C45	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C46	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C47	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C48	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C49	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C50	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C51	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100
C52	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C53	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C54	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Inductors

L1	220 μ H	Choke		10	918986	Delevan 1537-92
L2	220 μ H	Choke		10	918986	Delevan 1537-92
L3	220 μ H	Choke		10	918986	Delevan 1537-92
L4	220 μ H	Choke		10	918986	Delevan 1537-92
L5	220 μ H	Choke		10	918986	Delevan 1537-92
L6	220 μ H	Choke		10	918986	Delevan 1537-92
L7	220 μ H	Choke		10	918986	Delevan 1537-92
L8	220 μ H	Choke		10	918986	Delevan 1537-92
L9	15 μ H	Choke		10	915850	Delevan 1537-40
L10	15 μ H	Choke		10	915850	Delevan 1537-40
L11	1mH	Choke		10	915849	Delevan 1537-12
L12	1mH	Choke		10	915849	Delevan 1537-12
L13	15 μ H	Choke		10	915850	Delevan 1537-40
L14	1mH	Choke		10	915849	Delevan 1537-12
L15	5.6 μ H	Choke		10	922275	Delevan 1537-28

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors</u>						
TR1		NPN Silicon			906842	Mullard 2N2369
TR2		NPN Silicon			906842	Mullard 2N2369
TR3		NPN Silicon			906842	Mullard 2N2369
TR4		NPN Silicon			906842	Mullard 2N2369
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			914900	Mullard BC109
TR7		NPN Silicon			906842	Mullard 2N2369
TR8		NPN Silicon			914900	Mullard BC109
TR9		PNP Silicon			915231	SGS BFX48
TR10		NPN Silicon			906842	Mullard 2N2369
<u>Diodes</u>						
D1		Silicon			914898	Mullard 1N4149
D2		Silicon			914898	Mullard 1N4149
D3		Silicon			914898	Mullard 1N4149
D4		Zener, 12V, 400mW			914310	Mullard BZY88C12
<u>Integrated Circuits</u>						
ML1		Decade Counter			924535	Texas SN74LS196J
ML2		Decade Counter			924535	Texas SN74LS196J
ML3		Mixer			919747	Fairchild μ A796C
ML4		Quad 2-input NAND			918366	Transitron SN7400J
ML5		8-input NAND			919492	Transitron SN7430J
ML6		Dual D flip-flop			917509	Transitron SN7474J
ML7		Dual 4-input Schmitt			921278	Transitron SN7413J
ML8		Dual D flip-flop			917509	Transitron SN7474J
ML9		Monostable			921258	Transitron SN74121J
ML10		Monostable			921258	Transitron SN74121J

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits (contd.)</u>						
ML11		Dual D flip-flop			917509	Transitron SN7474J

Ferrite Beads

FB1					907488	Mullard FX1242
FB2					907488	Mullard FX1242

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>HF LOOP BOARD PS337 (EA44978/B)</u>						
			Fig. 12 (Issue 7 onwards) Fig. 12a (Issue 5 only)			
<u>Resistors</u>						
			Watts			
R1	100k	Carbon Film	0.3	5	925193	Steatite SU2
R2	47k	Carbon Film	0.3	5	925215	Steatite SU2
R3	22k	Carbon Film	0.3	5	925184	Steatite SU2
R4	100k	Carbon Film	0.3	5	925193	Steatite SU2
R5	47k	Carbon Film	0.3	5	925215	Steatite SU2
R6	22k	Carbon Film	0.3	5	925184	Steatite SU2
R7	100k	Carbon Film	0.3	5	925193	Steatite SU2
R8	47k	Carbon Film	0.3	5	925215	Steatite SU2
R9	22k	Carbon Film	0.3	5	925184	Steatite SU2
R10	220	Carbon Film	0.3	5	925203	Steatite SU2
R11	220	Carbon Film	0.3	5	925203	Steatite SU2
R12	220	Carbon Film	0.3	5	925203	Steatite SU2
R13	680	Carbon Film	0.3	5	925218	Steatite SU2
R14	680	Carbon Film	0.3	5	925218	Steatite SU2
R15	680	Carbon Film	0.3	5	925218	Steatite SU2
R16	220	Carbon Film	0.3	5	925203	Steatite SU2
R17	680	Carbon Film	0.3	5	925218	Steatite SU2
R18	220	Carbon Film	0.3	5	925203	Steatite SU2
R19	680	Carbon Film	0.3	5	925218	Steatite SU2
R20	220	Carbon Film	0.3	5	925203	Steatite SU2
R21	680	Carbon Film	0.3	5	925218	Steatite SU2
R22	1k	Carbon Film	0.3	5	925185	Steatite SU2
R23	220	Carbon Film	0.3	5	925203	Steatite SU2
R24	390	Carbon Film	0.3	5	925211	Steatite SU2
R25	470	Carbon Film	0.3	5	925214	Steatite SU2
R26	10k	Carbon Film	0.3	5	925183	Steatite SU2
R27	10k	Carbon Film	0.3	5	925183	Steatite SU2
R28	220	Carbon Film	0.3	5	925203	Steatite SU2
R29	330	Carbon Film	0.3	5	925207	Steatite SU2
R30	10k	Carbon Film	0.3	5	925183	Steatite SU2
R31	150	Carbon Film	0.3	5	925216	Steatite SU2
R32	100	Carbon Film	0.3	5	925186	Steatite SU2
R33	330	Carbon Film	0.3	5	925207	Steatite SU2
R34	100k	Carbon Film	0.3	5	925193	Steatite SU2
R35	220	Carbon Film	0.3	5	925203	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
* R36	220	Carbon Film	0.3	5	925203	Steatite SU2
≠ R36	1k	Carbon Film	0.3	5	925185	Steatite SU2
R37	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R38	10k	Variable, Preset		10	920312	Bourns VA05H
R39	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R40	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R41	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R42	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R43	680	Carbon Film	0.3	5	925218	Steatite SU2
R44	1k	Variable, Preset		10	920315	Bourns VA05H
R45	390	Carbon Film	0.3	5	925211	Steatite SU2
R46	470	Carbon Film	0.3	5	925214	Steatite SU2
R47	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R48	680	Carbon Film	0.3	5	925218	Steatite SU2
R49	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R50	1k	Variable, Preset		10	920315	Bourns VA05H
R51	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R52	390	Carbon Film	0.3	5	925211	Steatite SU2
R53	470	Carbon Film	0.3	5	925214	Steatite SU2
R54	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R55	1k	Carbon Film	0.3	5	925185	Steatite SU2
R56	220	Carbon Film	0.3	5	925203	Steatite SU2
R57	220	Carbon Film	0.3	5	925203	Steatite SU2
R58	220	Wirewound	2.5	5	913604	Welwyn W21
R59	560	Carbon Film	0.3	5	925194	Steatite SU2
* R60	220	Carbon Film	0.3	5	925203	Steatite SU2
≠ R60	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R61	47	Carbon Film	0.3	5	925224	Steatite SU2
R62	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R63	100	Carbon Film	0.3	5	925186	Steatite SU2
R64	680	Carbon Film	0.3	5	925218	Steatite SU2
R65	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R66	220	Carbon Film	0.3	5	925203	Steatite SU2
R67	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R68	470	Carbon Film	0.3	5	925214	Steatite SU2
R69	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R70	18k	Carbon Film	0.3	5	925223	Steatite SU2

* Later versions (Issue 7 onwards)

≠ Earlier versions (Issue 5 only)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Resistors (contd.)</u>						
			Watts			
R71	1k	Carbon Film	0.3	5	925185	Steatite SU2
R72	22k	Carbon Film	0.3	5	925184	Steatite SU2
R73	680	Carbon Film	0.3	5	925218	Steatite SU2
R74	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R75	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R76	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R77	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R78	100	Carbon Film	0.3	5	925186	Steatite SU2
R79	680	Carbon Film	0.3	5	925218	Steatite SU2
R80	56	Carbon Film	0.3	5	925212	Steatite SU2
R81	56	Carbon Film	0.3	5	925212	Steatite SU2
R82	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R83	1k	Carbon Film	0.3	5	925185	Steatite SU2
* R84	220	Carbon Film	0.3	5	925203	Steatite SU2

Capacitors

			Volts			
C1	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C2	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C3	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C4	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C5	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C6	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C7	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C8	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C9	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C10	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C11	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C12	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C13	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C14	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C15	.001	Disc Ceramic	500	20	915243	Erie 831/K2600

* Later versions only (Issue 7 onwards)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C16	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C17	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C18	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C19	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C20	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C21	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C22	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C23	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C24	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C25	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C26	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
* C27	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C27	0.1	Disc Ceramic	30	+50-20	906675	Erie 811/T/30V
C28	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C29	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C30	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
* C31	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C31	0.33	Polyester	100	20	918968	STC PMT2R.03M100
C32	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C33	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C34	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C35	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C36	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C37	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
* C38	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C38	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C39	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C40	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C41	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C42	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C43	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C44	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C45	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
* Later Versions (Issue 7 onwards)						
≠ Earlier Versions (Issue 5 only)						

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C46	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C47	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C48	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C49	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
* C50	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C50	2200p	Disc Ceramic	500	25	917438	Erie 831/K7004
C51	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C52	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C53	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C54	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C55	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C56	33	Tantalum	10	20	907735	Union Carbide K33J10S
C57	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C58	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C59	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C60	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C61	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C62	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
* C63	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C63	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
* C64	47	Electrolytic	25	+50 -10	921525	Mullard 016 16479
≠ C64	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
* C65	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C65	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C66	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C67	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C68	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C69	3300p	Silver Mica	50	2	925314	J&M C12E
C70	.001	Silver Mica	125	2	920091	Lemco MS119/M/R

* Later Versions (Issue 7 onwards)

≠ Earlier Versions (Issue 5 only)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C71	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C72	33	Tantalum	10	20	907735	Union Carbide K33J10S
C73	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C74	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C75	.001	Silver Mica	125	2	920091	Lemco MS119/M/R
C76	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C77	1.0	Polycarbonate	100	20	915370	STC PMC2R1.0M100
C78	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C79	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C80	3300p	Silver Mica	50	2	925314	J&M C12E
C81	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C82	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C83	33	Tantalum	10	20	907735	Union Carbide K33J10S
C84	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C85	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
* C86	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C86	.01	Disc Ceramic	25	+50-25	911845	Erie 831/T/25V
* C87	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
* C88	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C88	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C89	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C90	33	Tantalum	10	20	907735	Union Carbide K33J10S
* C91	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
≠ C91	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
* C92	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
* C93	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
* C94	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
<u>Inductors</u>						
L1-L3	15μH	Choke		10	915850	Delevan 1537-40
L4		Coil Assembly			CT45549	Racal
L5		Coil Assembly			CT45550	Racal
L6		Coil Assembly			CT45543	Racal
L7	4.7μH	Choke		10	919468	Delevan 1537-28
L8	4.7μH	Choke		10	919468	Delevan 1537-28
L9	4.7μH	Choke		10	919468	Delevan 1537-28
L10	4.7μH	Choke		10	919468	Delevan 1537-28
* Later Versions (Issue 7 onwards)						
≠ Earlier Versions (Issue 5 only)						

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors (contd.)</u>						
L11	4.7 μ H	Choke		10	919468	Delevan 1537-28
L12	1mH	Choke		5	919033	Delevan 2500-28
L13	1mH	Choke		5	919033	Delevan 2500-28
L14	4.7 μ H	Choke		10	919468	Delevan 1537-28
L15	4.7 μ H	Choke		10	919468	Delevan 1537-28
L16	4.7 μ H	Choke		10	919468	Delevan 1537-28
L17	15 μ H	Choke		10	915850	Delevan 1537-40
L18	4.7 μ H	Choke		10	919468	Delevan 1537-28
L19	1mH	Choke		5	919033	Delevan 2500-28
L20		Coil Assembly			CT45446	Racal
L21	15 μ H	Choke		10	915850	Delevan 1537-40
L22	15 μ H	Choke		10	915850	Delevan 1537-40
L23	15 μ H	Choke		10	915850	Delevan 1537-40
L24	4.7 μ H	Choke		10	919468	Delevan 1537-28
L25	5.6 μ H	Choke		10	922275	Delevan 1537-30

Transistors

TR1		PNP Silicon			915231	SGS BFX48
TR2		PNP Silicon			915231	SGS BFX48
TR3		PNP Silicon			915231	SGS BFX48
TR4		N-Channel FET			916946	Mullard BFW10
TR5		N-Channel FET			916946	Mullard BFW10
TR6		N-Channel FET			916946	Mullard BFW10
TR7		NPN Silicon			906842	Mullard 2N2369
TR8		NPN Silicon			906842	Mullard 2N2369
TR9		NPN Silicon			906842	Mullard 2N2369
TR10		NPN Silicon			916627	Mullard BFX89
TR11		NPN Silicon			906842	Mullard 2N2369
TR12		NPN Silicon			906842	Mullard 2N2369
TR13		NPN Silicon			914900	Mullard BC109
TR14		NPN Silicon			916627	Mullard BFX89
TR15		NPN Silicon			916627	Mullard BFX89

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors (contd.)</u>						
TR16		NPN Silicon			906842	Mullard 2N2369
TR17		NPN Silicon			914900	Mullard BC109
TR18		PNP Silicon			915231	SGS BFX48
TR19		NPN Silicon			906842	Mullard 2N2369
TR20		NPN Silicon			906842	Mullard 2N2369
TR21		NPN Silicon			914900	Mullard BC109
TR22		NPN Silicon			914900	Mullard BC109
 <u>Diodes</u>						
D1		Silicon			914898	Mullard 1N4149
D2		Silicon			914898	Mullard 1N4149
D3		Silicon			914898	Mullard 1N4149
D4		Varactor			920267	Ferranti ZC714
D5		Varactor			920267	Ferranti ZC714
D6		Varactor			920267	Ferranti ZC714
D7		Varactor			920267	Ferranti ZC714
D8		Varactor			920267	Ferranti ZC714
D9		Varactor			920267	Ferranti ZC714
D10		Silicon			914898	Mullard 1N4149
D11		Silicon			914898	Mullard 1N4149
D12		Silicon			914898	Mullard 1N4149
D13		PIN Silicon			920062	Hewlett Packard HP5082/2800
D14		PIN Silicon			920062	Hewlett Packard HP5082/2800
D15		PIN Silicon			920062	Hewlett Packard HP5082/2800
D16		Silicon			918982	Mullard BAW62
D17		Silicon			918982	Mullard BAW62
D18		Silicon			918982	Mullard BAW62
D19		Varactor			920267	Ferranti ZC714
D20		Silicon			914898	Mullard 1N4149

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes (contd.)</u>						
D21		Silicon			914898	Mullard 1N4149
D22		Silicon			914898	Mullard 1N4149
D23		Zener, 4.7V, 400mW			914067	Mullard BZY88C4V7

Integrated Circuits

ML1		Voltage Regulator			920682	Fairchild μ A723HM
ML2		Dual J-K flip-flop			920332	Transitron SN74S112J
ML3		Decade Counter			924537	Texas SN74196J
ML4		Dual 4-input NAD			921266	Transitron SN74H21J
ML5		Decade Counter			924535	Texas SN74LS196J
ML6		Quad 2-input NAND			921221	Texas SN74H00J
ML7		Dual D-type flip-flop			917509	Transitron SN7474J
≠ ML8		Monostable			921258	Transitron SN74121J
ML9		Dual J-K flip-flop			921268	Transitron SN74H103J
≠ ML10		Dual D-type flip-flop			917509	Transitron SN7474J
ML11		Monostable			921258	Transitron SN74121J
ML12		Dual D-type flip-flop			917509	Transitron SN7474J

Miscellaneous

FB1		Ferrite bead			907488	Mullard FX1242
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≠ Earlier Versions Only (Issue 5)

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>34MHz GENERATOR BOARD PM339 (EA44990/C)</u>						
Figs. 14 and 15						
<u>Resistors</u>						
R1	56	Carbon Film	0.3	5	925212	Steatite SU2
R2	1k	Carbon Film	0.3	5	925185	Steatite SU2
R3	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R4	10k	Variable, Preset		10	920312	Bourns VA05H
R5	1k	Carbon Film	0.3	5	925185	Steatite SU2
R6	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R7	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R8	22k	Carbon Film	0.3	5	925184	Steatite SU2
R9	820	Carbon Film	0.3	5	925192	Steatite SU2
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	22k	Carbon Film	0.3	5	925184	Steatite SU2
R12	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R13	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R14	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R15	10	Carbon Film	0.3	5	925202	Steatite SU2
R16	1k	Carbon Film	0.3	5	925185	Steatite SU2
R17	150	Carbon Film	0.3	5	925216	Steatite SU2
R18	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R19	330	Carbon Film	0.3	5	925207	Steatite SU2
R20	390	Carbon Film	0.3	5	925211	Steatite SU2
R21	100	Carbon Film	0.3	5	925186	Steatite SU2
R22	100k	Carbon Film	0.3	5	925193	Steatite SU2
R23	100k	Carbon Film	0.3	5	925193	Steatite SU2
R24	100	Carbon Film	0.3	5	925186	Steatite SU2
R25	470	Carbon Film	0.3	5	925214	Steatite SU2
R26	330	Carbon Film	0.3	5	925207	Steatite SU2
R27	330	Carbon Film	0.3	5	925207	Steatite SU2
R28	10	Carbon Film	0.3	5	925202	Steatite SU2
R29	22k	Carbon Film	0.3	5	925184	Steatite SU2
R30	330	Carbon Film	0.3	5	925207	Steatite SU2
R31	470	Carbon Film	0.3	5	925214	Steatite SU2
R32	120	Carbon Film	0.3	5	925229	Steatite SU2
R33	1k	Carbon Film	0.3	5	925185	Steatite SU2
R34	470	Carbon Film	0.3	5	925214	Steatite SU2
R35	1.8k	Carbon Film	0.3	5	925206	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
			Watts			
R36	100k	Carbon Film	0.3	5	925193	Steatite SU2
R37	1k	Carbon Film	0.3	5	925185	Steatite SU2
R38	3.9k	Carbon Film	0.3	5	927196	Steatite SU2
R39	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R40	470	Carbon Film	0.3	5	925214	Steatite SU2
R41	33	Carbon Film	0.3	5	925205	Steatite SU2
R42	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R43	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R44 *	56k	Carbon Film	0.3	5	925276	Steatite SU2
R45 *	100k	Carbon Film	0.3	5	925193	Steatite SU2
R46	NOT USED					
R47 *	470	Carbon Film	0.3	5	925214	Steatite SU2
R48 *	470	Carbon Film	0.3	5	925214	Steatite SU2
R49	68	Carbon Film	0.3	5	925213	Steatite SU2
R50 *	100k	Carbon Film	0.3	5	925193	Steatite SU2
R51	56	Carbon Film	0.3	5	925212	Steatite SU2
R52 *	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R53	2.7k	Carbon Film	0.3	5	925200	Steatite SU2
R54	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R55	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R56	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R57	1.2k	Carbon Film	0.3	5	925201	Steatite SU2
R58	330	Carbon Film	0.3	5	925207	Steatite SU2
R59	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R60	560	Carbon Film	0.3	5	925194	Steatite SU2
R61	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R62	10	Carbon Film	0.3	5	925202	Steatite SU2
R63	22k	Carbon Film	0.3	5	925184	Steatite SU2
R64	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R65	10k	Variable, Preset		10	920312	Bourns VA05H
R66	220	Carbon Film	0.3	5	925203	Steatite SU2
R67	470	Carbon Film	0.3	5	925214	Steatite SU2
R68	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R69	100	Carbon Film	0.3	5	925186	Steatite SU2
R70	6.8k	Carbon Film	0.3	5	925219	Steatite SU2

* Optional 1.4MHz crystal oscillator

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R71	NOT USED					
R72	680	Carbon Film	0.3	5	925218	Steatite SU2
R73	680	Carbon Film	0.3	5	925218	Steatite SU2
R74	47	Carbon Film	0.3	5	925224	Steatite SU2
R75	1k	Carbon Film	0.3	5	925185	Steatite SU2
R76	10k	Carbon Film	0.3	5	925183	Steatite SU2
R77	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R78	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R79	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R80	680	Carbon Film	0.3	5	925218	Steatite SU2
R81	680	Carbon Film	0.3	5	925218	Steatite SU2
R82	680	Carbon Film	0.3	5	925218	Steatite SU2
R83	680	Carbon Film	0.3	5	925218	Steatite SU2
R84	5.6k	Carbon Film	0.3	5	925209	Steatite SU2
R85	5.6k	Carbon Film	0.3	5	925209	Steatite SU2
R86	390	Carbon Film	0.3	5	925211	Steatite SU2
R87	390	Carbon Film	0.3	5	925211	Steatite SU2
R88	1k	Carbon Film	0.3	5	925185	Steatite SU2
R89	220	Carbon Film	0.3	5	925203	Steatite SU2

Capacitors

			Volts			
C1	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C2	33	Tantalum	10	20	901100	Union Carbide K33J10S
C3	0.1	Polycarbonate	100	20	914173	STC PMC2R0. 1M100
C4	1000p	Disc Ceramic	500	20	915243	Erie 831/K2600
C5	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
C6	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C7	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C8	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C9	330p	Silver Mica	125	1	921207	STC 454-LWA-62
C10	NOT USED					
C11	47p	Silver Mica	350	1p	918975	STC 454-LWA-62
C12	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C13	12p	Polystyrene	30	2	921230	Suflex EP9
C14	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C15	100p	Silver Mica	125	2	920264	Lemco MS119/M/R
C16	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C17	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C18	NOT USED					
C19	NOT USED					
C20	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C21	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C22	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C23	1000p	Silver Mica	125	2	920091	Lemco MS119/M/R
C24	270p	Polystyrene	30	2	921071	Suflex EP9
C25	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C26	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C27	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C28	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C29	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C30	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C31	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C32	1000p	Disc Ceramic	500	20	915243	Erie 831/K2600
C33	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C34	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C35 *	2-22p	Trimmer	50		918757	Mullard 808-00006

* Optional 1.4mHz crystal oscillator.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C36 *	27p	Polystyrene	30	+1p	921065	Suflex EP9
C37	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C38	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C39	3300p	Silver Mica	50	2	925314	J&M C12E
C40	.01	Disc Ceramic	25	+50	911845	Erie 831/T/25V
				-25		
C41 *	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C42 *	270p	Polystyrene	30	2	921071	Suflex EP9
C43	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C44	3300p	Silver Mica	50	2	925314	J&M C12E
C45 *	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C46	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C47 *	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C48 *	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C49	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C50	.01	Disc Ceramic	25	+50	911845	Erie 831/T/25V
				-25		
C51	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C52	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C53	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C54	150p	Silver Mica	125	2	920726	Lemco MS119/M/R
C55	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C56	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C57	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C58	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C59	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
				-25		
C60	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100

* Optional 1.4MHz crystal oscillator.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C61	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C62	470p	Silver Mica	350	1	907001	STC 454-LWA-63
C63	1000p	Silver Mica	125	2	920091	Lemco MS119/M/R
064	.01	Polycarbonate	400	20	914171	STC PMC2R.01M400
C65	100p	Disc Ceramic	500	10	917417	Erie 831/K3300
C66	.033	Disc Ceramic	18	+50	911883	Erie 831/T/18V
C67	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C68	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C69	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C70	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C71	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C72	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C73	.01	Polycarbonate	400	20	914171	STC PMC2R.01M400
C74	.01	Polycarbonate	400	20	914171	STC PMC2R.01M400
C75	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C76	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C77	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C78	33	Tantalum	10	20	901100	Union Carbide K33J10S
C79	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C80	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C81	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C82	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C83	.001	Disc Ceramic	500	20	915243	Erie 831/K2600
C84	47p	Disc Ceramic	500	10	917418	Erie 831/N1500
C85	.001	Disc Ceramic	500	20	915243	Erie 831/K2600

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Inductors</u>						
L1	5.6 μ H	Choke		10	922275	Delevan 1537-30
L2		Coil Assembly			CT45553	Racal
L3	15 μ H	Choke		10	915850	Delevan 1537-40
L4		Coil Assembly			CT45538	Racal
L5	220 μ H	Choke		10	918986	Delevan 1537-92
L6	1mH	Choke			919033	Delevan 2500-28
L7	15 μ H	Choke		10	915850	Delevan 1537-40
L8	220 μ H	Choke		10	918986	Delevan 1537-92
L9	15 μ H	Choke		10	915850	Delevan 1537-40
L10 *	1mH	Choke		5	919033	Delevan 2500-28
L11	220 μ H	Choke		10	918986	Delevan 1537-92
L12	NOT USED					
L13	220 μ H	Choke		10	918986	Delevan 1537-92
L14	220 μ H	Choke		10	918986	Delevan 1537-92
L15	220 μ H	Choke		10	918986	Delevan 1537-92
L16	5.6 μ H	Choke		10	922275	Delevan 1537-30
L17	470 μ H	Choke			921211	Delevan 2500-12

Transformers

T1					CT45555	Racal
T2					CT45565	Racal

* Optional 1.4MHz crystal oscillator.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors</u>						
TR1		NPN Silicon			914900	Mullard BC109
TR2		NPN Silicon			906842	Mullard 2N2369
TR3		N-Channel FET			916946	Mullard BFW10
TR4		NPN Silicon			906842	Mullard 2N2369
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			916627	Mullard BFX89
TR7		NPN Silicon			916627	Mullard BFX89
TR8		NPN Silicon			914900	Mullard BC109
TR9		NPN Silicon			906842	Mullard 2N2369
TR10 *		NPN Silicon			914900	Mullard BC109
TR11		NPN Silicon			906842	Mullard 2N2369
TR12		NPN Silicon			906842	Mullard 2N2369
TR13		NPN Silicon			906842	Mullard 2N2369
TR14		NPN Silicon			906842	Mullard 2N2369
TR15		NPN Silicon			906842	Mullard 2N2369
TR16		NPN Silicon			906842	Mullard 2N2369
TR17		PNP Silicon			915231	SGS BFX48
TR18		NPN Silicon			906842	Mullard 2N2369
TR19		NPN Silicon			906842	Mullard 2N2369
TR20		NPN Silicon			914900	Mullard BC109
TR21		NPN Silicon			914900	Mullard BC109

Diodes

D1		Silicon			914898	Mullard 1N4149
D2		Zener, 5.6V, 400mW			912747	Mullard BZY88C5V6
D3		Varactor			920266	Ferranti ZC706
D4		Varactor			920266	Ferranti ZC706
D5		Silicon			918982	Mullard BAW62

* Optional 1.4MHz crystal oscillator.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes (contd.)</u>						
D6		Silicon			918982	Mullard BAW62
D7		Silicon			918982	Mullard BAW62
D8		Zener, 9.1V, 400mW			914899	Mullard BZY88C9V1
D9		Silicon			914898	Mullard 1N4149
D10		Silicon			914898	Mullard 1N4149
D11		Silicon			914898	Mullard 1N4149

Integrated Circuits

ML1		Decade Counter			917494	Transitron SN7490J
ML2		Quad 2-input NAND			921221	Texas SN74H00J
ML3 [≠]		Dual J-K flip-flop			924006	Texas SN74H103J
ML4		Decade Counter			924537	Texas SN74196J
ML5		Quad 2-input NAND			918366	Transitron SN7400J
ML6		Dual D-type flip-flop			917509	Transitron SN7474J
ML7		Quad 2-input NAND			918366	Transitron SN7400J
ML8		Decade Counter			917494	Transitron SN7490J

Crystals

* XL1	To customer specification					
XL2	1399.9kHz	Quartz			AD75885	Racal
XL3	1399.9kHz	Quartz			AD75885	Racal

[≠] Use Texas only, other suppliers not suitable.

* Optional 1.4MHz crystal oscillator.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Ferrite Beads</u>						
FB1					907488	Mullard FX1242
FB2					907488	Mullard FX1242

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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LOGIC BOARD PS365 (DA44759/A)

Fig. 34

Resistors

			Watts			
R1	390	Carbon Film	0.3	5	925211	Steatite SU2
R2	390	Carbon Film	0.3	5	925211	Steatite SU2
R3	390	Carbon Film	0.3	5	925211	Steatite SU2
R4	390	Carbon Film	0.3	5	925211	Steatite SU2
R5	390	Carbon Film	0.3	5	925211	Steatite SU2
R6	390	Carbon Film	0.3	5	925211	Steatite SU2
R7	390	Carbon Film	0.3	5	925211	Steatite SU2
R8	390	Carbon Film	0.3	5	925211	Steatite SU2

Capacitors

			Volts			
C1	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100

Switches

SA		Rotary (MHz)			AD45505	Racal
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Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes</u>						
D1		Silicon			914898	STC 1N4149
D2		Silicon			914898	STC 1N4149
D3		Silicon			914898	STC 1N4149
D4		Silicon			914898	STC 1N4149
D5		Silicon			914898	STC 1N4149
D6		Silicon			914898	STC 1N4149
D7		Silicon			914898	STC 1N4149
D8		Silicon			914898	STC 1N4149
D9		Silicon			914898	STC 1N4149
D10		Silicon			914898	STC 1N4149
D11		Silicon			914898	STC 1N4149
D12		Silicon			914898	STC 1N4149
D13		Silicon			914898	STC 1N4149
D14		Silicon			914898	STC 1N4149
D15		Silicon			914898	STC 1N4149
D16		Silicon			914898	STC 1N4149
D17		Silicon			914898	STC 1N4149
D18		Silicon			914898	STC 1N4149
D19		Silicon			914898	STC 1N4149
D20		Silicon			914898	STC 1N4149
D21		Silicon			914898	STC 1N4149
D22		Silicon			914898	STC 1N4149
D23		Silicon			914898	STC 1N4149
D24		Silicon			914898	STC 1N4149
D25		Silicon			914898	STC 1N4149
D26		Silicon			914898	STC 1N4149
D27		Silicon			914898	STC 1N4149
D28		Silicon			914898	STC 1N4149
D29		Silicon			914898	STC 1N4149
D30		Silicon			914898	STC 1N4149
D31		Silicon			914898	STC 1N4149
D32		Silicon			914898	STC 1N4149
D33		Silicon			914898	STC 1N4149
D34		Silicon			914898	STC 1N4149
D35		Silicon			914898	STC 1N4149

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes (contd.)</u>						
D36		Silicon			914898	STC 1N4149
D37		Silicon			914898	STC 1N4149
D38		Silicon			914898	STC 1N4149
D39		Silicon			914898	STC 1N4149
D40		Silicon			914898	STC 1N4149
D41		Silicon			914898	STC 1N4149
D42		Silicon			914898	STC 1N4149
D43		Silicon			914898	STC 1N4149
D44		Silicon			914898	STC 1N4149
D45		Silicon			914898	STC 1N4149
D46		Silicon			914898	STC 1N4149
D47		Silicon			914898	STC 1N4149
D48		Silicon			914898	STC 1N4149
D49		Silicon			914898	STC 1N4149
D50		Silicon			914898	STC 1N4149
D51		Silicon			914898	STC 1N4149
D52		Silicon			914898	STC 1N4149
D53		Silicon			914898	STC 1N4149
D54		Silicon			914898	STC 1N4149
D55		Silicon			914898	STC 1N4149
D56		Silicon			914898	STC 1N4149
D57		Silicon			914898	STC 1N4149
D58		Silicon			914898	STC 1N4149
D59		Silicon			914898	STC 1N4149
D60		Silicon			914898	STC 1N4149
D61		Silicon			914898	STC 1N4149
D62		Silicon			914898	STC 1N4149
D63		Silicon			914898	STC 1N4149
D64		Silicon			914898	STC 1N4149
D65		Silicon			914898	STC 1N4149
D66		Silicon			914898	STC 1N4149
D67		Silicon			914898	STC 1N4149
D68		Silicon			914898	STC 1N4149
D69		Silicon			914898	STC 1N4149
D70		Silicon			914898	STC 1N4149

Cct. Ref.	Value	Description	Rat.	Tol. %	Rcal Part Number	Manufacturer
<u>Diodes (contd.)</u>						
D71		Silicon			914898	STC 1N4149
D72		Silicon			914898	STC 1N4149
D73		Silicon			914898	STC 1N4149
D74		Silicon			914898	STC 1N4149
D75		Silicon			914898	STC 1N4149
D76		Silicon			914898	STC 1N4149
D77		Silicon			914898	STC 1N4149
D78		Silicon			918982	Mullard BAW62
D79		Silicon			918982	Mullard BAW62
D80		Silicon			918982	Mullard BAW62
D81		Silicon			918982	Mullard BAW62
D82		Silicon			918982	Mullard BAW62
D83		Silicon			914898	STC 1N4149
D84		Silicon			914898	STC 1N4149
D85		Silicon			914898	STC 1N4149
D86		Silicon			914898	STC 1N4149
D87		Silicon			914898	STC 1N4149
D88		Silicon			914898	STC 1N4149

Integrated Circuits

ML1		Quad 2-input AND			921250	Transitron SN7408
ML2		Quad 2-input AND			921250	Transitron SN7408

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>OPTICAL SHAFT ENCODER (RA.1772 only)</u>						
Fig. 36						
<u>Potentiometer Board (CA47380)</u>						
R1	1k	Variable, Preset			920315	Bourns VA05H
R2	1k	Variable, Preset			920315	Bourns VA05H
R3	390	Metal Oxide		2	909771	Electrosil TR5
R4	390	Metal Oxide		2	909771	Electrosil TR5
C1	1.0	Tantalum	35V	20	908462	Union Carbide K1J35S
TH1		Thermistor, 120°C, 1W			925684	Mullard VA1039
TH2		Thermistor, 120°C, 1W			925684	Mullard VA1039
D1		Zener, 4.7V, 400mW			914067	Mullard BZY88C4V7
LP1		Filament, W/E, 14V			924466	Vitality 690W/E
LP2		Filament, W/E, 14V			924466	Vitality 690W/E
<u>Sensor Board</u>						
TR1		NPN Photo-transistor			924312	Ferranti ZM100
TR2		NPN Photo-transistor			924312	Ferranti ZM100

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
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DISPLAY BOARD PM371 (EA44975)
Fig. 37

Resistors

			Watts			
R1	10k	Carbon Film	0.3	5	925183	Steatite SU2
R2	10k	Carbon Film	0.3	5	925183	Steatite SU2
R3	10k	Carbon Film	0.3	5	925183	Steatite SU2
R4	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R5	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R6	68	Carbon Film	0.3	5	925213	Steatite SU2
R7	10k	Carbon Film	0.3	5	925183	Steatite SU2
R8	10k	Carbon Film	0.3	5	925183	Steatite SU2
R9	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R10	33k	Carbon Film	0.3	5	925197	Steatite SU2
R11	22k	Carbon Film	0.3	5	925184	Steatite SU2
R12	22k	Carbon Film	0.3	5	925184	Steatite SU2
R13	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R14	NOT USED					
R15	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R16	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R17	12k	Carbon Film	0.3	5	925217	Steatite SU2
R18	150	Carbon Film	0.3	5	925216	Steatite SU2
R19	470	Carbon Film	0.3	5	925214	Steatite SU2
R20	470	Carbon Film	0.3	5	925214	Steatite SU2
R21	470	Carbon Film	0.3	5	925214	Steatite SU2
R22	22k	Carbon Film	0.3	5	925184	Steatite SU2
R23	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R24	150	Carbon Film	0.3	5	925216	Steatite SU2
R25	47k	Carbon Film	0.3	5	925215	Steatite SU2
R26	22	Carbon Film	0.3	5	925220	Steatite SU2
R27	22	Carbon Film	0.3	5	925220	Steatite SU2
R28	22	Carbon Film	0.3	5	925220	Steatite SU2
R29	1k	Carbon Film	0.3	5	925185	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors</u>						
			Volts			
C1	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C2	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C3	33	Tantalum	10	20	907735	Union Carbide K33J10S
C4	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C5	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C6	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C7	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C8	1000p	Disc Ceramic	500	20	917419	Erie 831/K350081
C9	NOT USED					
C10	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C11	NOT USED					
C12	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C13	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C14	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C15	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C16	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C17	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C18	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C19	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C20	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Capacitors (contd.)

			Volts			
C21	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C22	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C23	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C24	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C25	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C26	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C27	6.8	Tantalum	35	20	910129	Union Carbide K6R8E35S
C28	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C29	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C30	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C31	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Inductors

L1	1 μ H	Choke		10	915849	Delevan 1537/12
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Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Transistors

TR1		PNP Silicon			915231	SGS BFX48
TR2		NPN Silicon			914900	Mullard BC109
TR3		NPN Silicon			914900	Mullard BC109
TR4		NPN Silicon			906842	Mullard 2N2369
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			906842	Mullard 2N2369
TR7		NPN Silicon			906842	Mullard 2N2369

Diodes

D1		Silicon			914898	Mullard 1N4149
D2		Silicon			914898	Mullard 1N4149
D3		Silicon			914898	Mullard 1N4149
D4		Silicon			914898	Mullard 1N4149
D5		Silicon			914898	Mullard 1N4149
D6		Silicon			914898	Mullard 1N4149
D7		Silicon			914898	Mullard 1N4149

Integrated Circuits

ML1		Up/Down Counter			920512	Texas SN74192J
ML2		Up/Down Counter			920512	Texas SN74192J
ML3		Up/Down Counter			920512	Texas SN74192J
ML4		Up/Down Counter			920512	Texas SN74192J
ML5		Up/Down Counter			920512	Texas SN74192J

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits</u>						
ML6		Up/Down Counter			920512	Texas SN74192J
ML7	NOT USED					
ML8		Triple 3-input NAND			918361	Transitron SN7410J
ML9	NOT USED					
ML10	NOT USED					
ML11		Quad 2-input NAND			918366	Transitron SN7400J
ML12		Quad 2-input NAND			918366	Transitron SN7400J
ML13	NOT USED					
ML14	NOT USED					
ML15	NOT USED					
ML16	NOT USED					
ML17		Quad 2-input NAND			918366	Transitron SN7400J
ML18		Quad 2-input NAND			918366	Transitron SN7400J
ML19	NOT USED					
ML20	NOT USED					
ML21	NOT USED					
ML22	NOT USED					
ML23	NOT USED					
ML24	NOT USED					
ML25	NOT USED					
ML26	NOT USED					
ML27		Dual 4-input schmitt NAND			921278	Transitron SN7413J
ML28		Retriggerable Monostable			921321	Transitron SN74123N
ML29	NOT USED					
ML30	NOT USED					
ML31	NOT USED					
ML32	NOT USED					
ML33		Retriggerable Monostable			921321	Transitron SN74123N
ML34		Quad 2-input NAND			921250	Transitron SN7408J
ML35		Quad 2-input OR			921251	Transitron SN7432J
ML36	NOT USED					
ML37	NOT USED					
ML38	NOT USED					
ML39	NOT USED					
ML40	NOT USED					

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits (contd.)</u>						
ML41		Solid State Display			921252	Hewlett Packard HP5082-7300
ML42		Solid State Display			921252	Hewlett Packard HP5082-7300
ML43		Solid State Display			921252	Hewlett Packard HP5082-7300
ML44		Solid State Display			921252	Hewlett-Packard HP5082-7300
ML45		Solid State Display			921252	Hewlett-Packard HP5082-7300

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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METER SWITCHING BOARD (CA45509)

Fig. 40

Resistors

			Watts			
R1	470	Carbon Film	0.3	5	925214	Steatite SU2
R2	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R3	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R4	10k	Carbon Film	0.3	5	925183	Steatite SU2
R5	33k	Carbon Film	0.3	5	925197	Steatite SU2
R6	150k	Metal Oxide		2	917954	Electrosil TR4
R7	82k	Metal Oxide		2	915189	Electrosil TR4
R8	180k	Metal Oxide		2	920644	Electrosil TR4
R9	NOT USED					
R10	82k	Metal Oxide		2	915189	Electrosil TR4
R11	NOT USED					
R12	27k	Carbon Film	0.3	5	925191	Steatite SU2
R13	NOT USED					
R14	10k	Variable, Preset		10	920312	Bourns VA05H
R15	82k	Metal Oxide		2	915189	Electrosil TR4
R16	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R17	10k	Variable, Preset		10	920312	Bourns VA05H
R18	270	Carbon Film	0.3	5	925187	Steatite SU2
R19	140k	Glass		1	923254	Electrosil C5

Capacitors

			Volts			
C1	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C2	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C3	.001	Disc Ceramic	500	20	915243	Erie 831/K2600

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Switches

SA		Rotary (METER)			BSW45744	Racal
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Transistors

TR1		NPN Silicon			914900	Mullard BC109
TR2		NPN Silicon			914900	Mullard BC109

Diodes

D1		Germanium			900071	Mullard OA91
D2		Germanium			900071	Mullard OA91
D3		Germanium			900071	Mullard OA91
D4		Germanium			900071	Mullard OA91
D5		Germanium			900071	Mullard OA91
D6		Germanium			900071	Mullard OA91
D7		Germanium			900071	Mullard OA91
D8		Germanium			900071	Mullard OA91

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
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POWER REGULATOR BOARD PM370 (DA44969)

Fig. 46

Resistors

R1	3.3k	Metal Oxide		2	910111	Electrosil TR4
R2	680	Metal Oxide		2	910113	Electrosil TR4
R3	1k	Variable, Preset		10	920315	Bourns VA05H
R4	2.2k	Metal Oxide		2	916546	Electrosil TR4
R5	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R6	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R7	12k	Metal Oxide		2	917952	Electrosil TR4
R8	10k	Variable, Preset		10	920312	Bourns VA05H
R9	15k	Metal Oxide		2	920645	Electrosil TR4
R10	4.7k	Metal Oxide		2	913490	Electrosil TR4
R11	8.2k	Metal Oxide		2	918202	Electrosil TR4
R12	18k	Carbon Film	0.3	5	925223	Steatite SU2
R13	3.3k	Metal Oxide		2	910111	Electrosil TR4
R14	5.6k	Carbon Film	0.3	5	925209	Steatite SU2
R15	1k	Carbon Film	0.3	5	925185	Steatite SU2
R16	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R17	1k	Variable, Preset		10	920315	Bourns VA05H
R18	10k	Carbon Film	0.3	5	925183	Steatite SU2
R19	10k	Variable, Preset		10	920312	Bourns VA05H
R20	1k	Carbon Film	0.3	5	925185	Steatite SU2
R21	1k	Carbon Film	0.3	5	925185	Steatite SU2
R22	1k	Carbon Film	0.3	5	925185	Steatite SU2
R23	3.3k	Metal Oxide		2	910111	Electrosil TR4
R24	1k	Carbon Film	0.3	5	925185	Steatite SU2
R25	18k	Metal Oxide		2	900994	Electrosil TR4
R26 *	4.7	Wirewound	2.5	5	917145	Welwyn W21
R27 *	1.0	Wirewound	6	5	914884	Welwyn W22
R28	10	Carbon Film	0.3	5	925202	Steatite SU2
R29 *	4.7	Wirewound	2.5	5	917145	Welwyn W21
R30 *	4.7	Wirewound	2.5	5	917145	Welwyn W21

* Earlier versions only

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
R31*	1.0	Wirewound	6	5	914884	Welwyn W22
R32	4.7	Wirewound	2.5	5	917145	Welwyn W21
R33	12	Wirewound	1.5	5	913574	Welwyn W21
R34	18	Carbon Film	0.3	5	925234	Steatite SU2

Capacitors

Cct. Ref.	Value	Description	Volts	Tol. %	Racal Part Number	Manufacturer
C1	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C2	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C3	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C4	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C5	.01	Disc Ceramic	25	+50	911845	Erie 831/T/25V
C6	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C7	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C8	1500p	Disc Ceramic	500	+40 -20	911850	Erie 831/K350081
C9	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C10	470	Electrolytic	25	+100 -20	921180	Erie 21103-100- 0471-AM-250
C11	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C12	.001	Disc Ceramic	500	20	915243	Erie 831/K2600

* Earlier versions only.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors</u>						
TR1*		NPN Silicon			908753	Mullard BFY51
TR2*		NPN Silicon			908753	Mullard BFY51
TR3		NPN Silicon			923068	RCA 40412
 <u>Diodes</u>						
D1		Bridge Rectifier			918158	International Rectifiers 10DB05A
D2		Bridge Rectifier			921185	International Rectifiers 5SB05
D3		Bridge Rectifier			921185	International Rectifiers 5SB05
D4		Bridge Rectifier			921183	International Rectifiers BSB4
D5		Bridge Rectifier			921184	International Rectifiers 1SB20
D6		Rectifier			909879	International Rectifiers 10D1
D7		Rectifier			909879	International Rectifiers 10D1
D8		Rectifier			909879	International Rectifiers 10D1
D9		Germanium			900071	Mullard OA91
 <u>Integrated Circuits</u>						
ML1		Voltage Regulator			920682	Fairchild μ A723/HM
ML2		Voltage Regulator			920682	Fairchild μ A723/HM
ML3		Voltage Regulator			920682	Fairchild μ A723/HM
ML4		Voltage Regulator			920682	Fairchild μ A723/HM

* Earlier versions only.

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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AF AND MEMORY REGULATOR BOARD PS427/1 (BA46172/V)

Fig. 48

Resistors

		Watts				
R1	1k	Metal Oxide		2	913489	Electrosil TR4
R2	2.2k	Metal Oxide		2	916546	Electrosil TR4
R3	2.2k	Variable, Preset			920310	Bourns VA05H
R4	5.6k	Metal Oxide		2	918128	Electrosil TR4
R5 *	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R6 *	220	Carbon Film	0.3	5	925203	Steatite SU2
R7 *	1k	Carbon Film	0.3	5	923185	Steatite SU2
R8 *	100	Wirewound	2.5	5	913596	Welwyn W21

Capacitors

		Volts				
C1	0.33	Polycarbonate	100	20	918968	STC PMC2R0.33M100
C2	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C3 *	0.33	Polycarbonate	100	20	918968	STC PMC2R0.33M100
C4 *	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100

Transistors

TR1 *	NPN Silicon	914900	Mullard BC109
TR2 *	PNP Silicon	922517	SGS BFX39
TR3 *	NPN Silicon	914900	Mullard BC109

* RA.1772 only (BA 46172/B)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Diodes</u>						
D1 *		Rectifier, Silicon			909879	International Rectifier 10D1
D2 *		Rectifier, Silicon			909879	International Rectifier 10D1
<u>Integrated Circuits</u>						
ML1		Operational Amplifier			917510	Fairchild μ A741C
ML2		Regulator			922259	Fairchild μ A7805
ML3 *		Regulator Alternative for ML2, ML3			922259	Fairchild μ A7805 National Semiconductors LM309K

* RA.1772 only (BA 46243/B)

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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OUT-OF-LOCK INDICATOR BOARD PS423 (AA45849/B)

Fig. 39

(RA.1771 only)

Resistors

			Watts			
R1	10k	Carbon Film	0.3	5	925183	Steatite SU2
R2	150	Carbon Film	0.3	5	925216	Steatite SU2

Capacitors

			Volts			
C1	33	Tantalum	10	20	907735	Union Carbide K33J10S
C2	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Transistors

TR1		PNP Silicon			915231	SGS BFX48
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Diodes

D1		Silicon			914898	STC 1N4149
D2		Silicon			914898	STC 1N4149
D3		Silicon			914898	STC 1N4149

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>AFC BOARD PM369 (DA44756/B)</u>						
Figs. 29 and 30						
<u>Resistors</u>						
			watts			
R1	100k	Carbon Film	0.3	5	925193	Steatite SU2
R2	22k	Carbon Film	0.3	5	925184	Steatite SU2
R3	33k	Carbon Film	0.3	5	925197	Steatite SU2
R4	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R5	1k	Carbon Film	0.3	5	925185	Steatite SU2
R6	33k	Carbon Film	0.3	5	925197	Steatite SU2
R7	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R8	5.6k	Carbon Film	0.3	5	925209	Steatite SU2
R9	22k	Carbon Film	0.3	5	925184	Steatite SU2
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	1k	Carbon Film	0.3	5	925185	Steatite SU2
R12	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R13	1k	Carbon Film	0.3	5	925185	Steatite SU2
R14	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R15	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R16	1k	Carbon Film	0.3	5	925185	Steatite SU2
R17	22k	Carbon Film	0.3	5	925184	Steatite SU2
R18	22k	Carbon Film	0.3	5	925184	Steatite SU2
R19	8.2k	Carbon Film	0.3	5	925210	Steatite SU2
R20	22k	Carbon Film	0.3	5	925184	Steatite SU2
R21	1k	Carbon Film	0.3	5	925185	Steatite SU2
R22	47k	Carbon Film	0.3	5	925215	Steatite SU2
R23	47k	Carbon Film	0.3	5	925215	Steatite SU2
R24	1k	Carbon Film	0.3	5	925185	Steatite SU2
R25	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R26	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R27	270	Carbon Film	0.3	5	925187	Steatite SU2
R28	270	Carbon Film	0.3	5	925187	Steatite SU2
R29	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R30	10k	Carbon Film	0.3	5	925183	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
				watts		
R31	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R32	1k	Carbon Film	0.3	5	925185	Steatite SU2
R33	470	Carbon Film	0.3	5	925214	Steatite SU2
R34	1k	Carbon Film	0.3	5	925185	Steatite SU2
R35	1k	Carbon Film	0.3	5	925185	Steatite SU2
R36	1.2k	Carbon Film	0.3	5	925201	Steatite SU2
R37	270	Carbon Film	0.3	5	925187	Steatite SU2
R38	330	Carbon Film	0.3	5	925207	Steatite SU2
R39	330	Carbon Film	0.3	5	925207	Steatite SU2
R40	1k	Carbon Film	0.3	5	925185	Steatite SU2
R41	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R42	1k	Carbon Film	0.3	5	925185	Steatite SU2
R43	6.8k	Carbon Film	0.3	5	925218	Steatite SU2
R44	47	Carbon Film	0.3	5	925224	Steatite SU2
R45	270	Carbon Film	0.3	5	925187	Steatite SU2
R46	270	Carbon Film	0.3	5	925187	Steatite SU2
R47	1k	Carbon Film	0.3	5	925185	Steatite SU2
R48	1k	Carbon Film	0.3	5	925185	Steatite SU2
R49	33k	Carbon Film	0.3	5	925197	Steatite SU2
R50	10k	Variable, Preset			919444	Electrim ET50P - 103
R51	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R52	18k	Carbon Film	0.3	5	925223	Steatite SU2
R53	27k	Carbon Film	0.3	5	925191	Steatite SU2
R54	1k	Carbon Film	0.3	5	925185	Steatite SU2
R55	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R56	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R57	18k	Carbon Film	0.3	5	925223	Steatite SU2
R58	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R59	270	Carbon Film	0.3	5	925187	Steatite SU2
R60	15k	Carbon Film	0.3	5	925188	Steatite SU2
R61	27k	Carbon Film	0.3	5	925191	Steatite SU2
R62	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R63	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R64	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R65	10k	Carbon Film	0.3	5	925183	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Resistors (Cont.)</u>						
R66	10k	Carbon Film	0.3	5	925183	Steatite SU2
R67	330k	Carbon Film	0.3	5	925244	Steatite SU2
R68	1k	Carbon Film	0.3	5	925185	Steatite SU2
R69	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R70	4.7k	Carbon Film	0.3	5	925195	Steatite SU2
R71	68k	Carbon Film	0.3	5	925189	Steatite SU2
R72	22k	Carbon Film	0.3	5	925184	Steatite SU2
R73	10k	Carbon Film	0.3	5	925183	Steatite SU2
R74	10k	Variable, Preset			919444	Electrim ET50P-103
R75	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R76	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R77	820	Carbon Film	0.3	5	925192	Steatite SU2
R78	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R79	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R80	1k	Carbon Film	0.3	5	928285	Steatite SU2
R81	180k	Carbon Film	0.3	5	925243	Steatite SU2
R82	10k	Variable, Preset			919444	Electrim ET50P-103
R83	22k	Carbon Film	0.3	5	925184	Steatite SU2
R84	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R85	15k	Carbon Film	0.3	5	925188	Steatite SU2
R86	10k	Carbon Film	0.3	5	925183	Steatite SU2
R87	10k	Variable, Preset			919444	Electrim ET50P-103
R88	3.3k	Carbon Film	0.3	5	925198	Steatite SU2
R89	330k	Carbon Film	0.3	5	925244	Steatite SU2
R90	100k	Carbon Film	0.3	5	925193	Steatite SU2
R91	10k	Carbon Film	0.3	5	925183	Steatite SU2
R92	100	Carbon Film	0.3	5	925186	Steatite SU2
R93	150	Carbon Film	0.3	5	925216	Steatite SU2
R94	1k	Carbon Film	0.3	5	925185	Steatite SU2
R95	100	Carbon Film	0.3	5	925186	Steatite SU2
R96	1k	Carbon Film	0.3	5	925185	Steatite SU2
R97	1k	Variable, Preset			919454	Electrim ET50P-103
R98	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R99	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R100	2.2k	Carbon Film	0.3	5	925199	Steatite SU2

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Resistors (contd.)</u>						
			Watts			
R101	10k	Carbon Film	0.3	5	925183	Steatite SU2
R102	10k	Carbon Film	0.3	5	925183	Steatite SU2
R103	10k	Carbon Film	0.3	5	925183	Steatite SU2
R104	220	Carbon Film	0.3	5	925203	Steatite SU2
R105	1.8k	Carbon Film	0.3	5	925206	Steatite SU2
R106	68k	Carbon Film	0.3	5	925189	Steatite SU2
R107	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R108	2.2M	Carbon Film	0.3	5	925233	Steatite SU2
R109	680k	Carbon Film	0.3	5	925245	Steatite SU2

Capacitors

			Volts			
C1	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C2	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C3	2-22p	Trimmer			918757	Mullard 808 00006
C4	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C5	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C6	470p	Silver Mica	350	1	907001	STC 454-LWA-63
C7	270p	Silver Mica	125	1	920430	STC 454-LWA-62
C8	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C9	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C10	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>Capacitors (Cont.)</u>						
			Volts			
C11	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C12	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C13	6.8	Tantalum	35	20	910129	Union Carbide K 6R8J35S
C14	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C15	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C16	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C17	0.1	Polycarbonate	100	20	914173	STC PMC2R0. 1M100
C18	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C19	.033	Disc Ceramic	18	+50 -25	911883	Eries 831/T/18V
C20	0.1	Polycarbonate	100	20	914173	STC PMC2R0. 1M100
C21	57p	Silver Mica	125	2	925323	Lemco MS119/M/R
C22	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C23	68p	Silver Mica	125	2	921377	Lemco MS119/M/R
C24	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C25	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C26	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C27	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C28	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C29	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C30	1000p	Silver Mica	125	2	920091	Lemco MS119/M/R

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
				Volts		
C31	330p	Silver Mica	125	1	921207	STC 454-LWA-62
C32	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C33	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C34	.01	Polycarbonate	100	20	922291	STC PMC2R.01M100
C35	3300p	Silver Mica	50	2	925314	J&M C12E
C36	330p	Silver Mica	125	1	921207	STC 454-LWA-62
C37	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C38	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C39	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C40	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C41	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C42	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C43	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C44	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C45	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C46	10p	Disc Ceramic	500	+ -0.5p	917746	Erie 831/NPO
C47	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C48	3300p	Silver Mica	50	2	925314	J&M C12E
C49	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C50	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C51	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C52	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C53	39p	Disc Ceramic	500	+ -0.5p	919488	Erie 831/NPO
C54	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C55	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C56	68p	Disc Ceramic	500	10	917737	Erie 831/N2200
C57	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C58	68p	Disc Ceramic	500	10	917737	Eire 831/N2200
C59	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C60	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C61	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C62	680p	Disc Ceramic	500	10	917429	Erie 831/K170051
C63	4.7	Polycarbonate	63	20	913461	Wima MKB3
C64	0.47	Polycarbonate	100	20	917452	STC PMC2R0.47M100
C65	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C66	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C67	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C68	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C69	33	Tantalum	10	20	907735	Union Carbide K33J10S
C70	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C71	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C72	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C73	100p	Disc Ceramic	500	10	917417	Erie 831/N3300
C74	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C75	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C76	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C77	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C78	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C79	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C80	33	Tantalum	10	20	907735	Union Carbide K33J10S

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Capacitors (contd.)</u>						
			Volts			
C81	33	Tantalum	10	20	907735	Union Carbide K33J10S
C82	.01	Disc Ceramic	25	+5 -25	911845	Erie 831/T/25V
C83	1000p	Disc Ceramic	500	20	915243	Erie 831/K2600
C84	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V

Inductors

L1	1mH	Choke			919033	Delevan 2500-28
L2	220 μ H	Choke			918986	Delevan 1537-92
L3	1mH	Choke			919033	Delevan 2500-28
L4	1mH	Choke			919033	Delevan 2500-28
L5	1mH	Choke			919033	Delevan 2500-28
L6	1mH	Choke			919033	Delevan 2500-28
L7	220 μ H	Choke			918986	Delevan 1537-92
L8		Coil Assembly			CT45833	Racal
L9		Coil Assembly			CT45832	Racal
L10	1mH	Choke			919033	Delevan 2500-28
L11	220 μ H	Choke			918986	Delevan 1537-92
L12	220 μ H	Choke			918986	Delevan 1537-92
L13	220 μ H	Choke			918986	Delevan 1537-92
L14	5.6 μ H	Choke			922275	Delevan 1537-28

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
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Transformers

T1					CT45834	Racal
T2					CT45831	Racal

Transistors

TR1		NPN Silicon			914900	Mullard BC109
TR2		NPN Silicon			914900	Mullard BC109
TR3		NPN Silicon			906842	Mullard 2N2369
TR4		NPN Silicon			914900	Mullard BC109
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			906842	Mullard 2N2369
TR7		NPN Silicon			914900	Mullard BC109
TR8		NPN Silicon			906842	Mullard 2N2369
TR9		NPN Silicon			906842	Mullard 2N2369
TR10		NPN Silicon			914900	Mullard BC109
TR11		PNP Silicon			915231	SGS BFX48
TR12		NPN Silicon			906842	Mullard 2N2369
TR13		N-Channel FET			916946	Mullard BFW10
TR14		NPN Silicon			906842	Mullard 2N2369
TR15		N-Channel FET			916946	Mullard BFW10
TR16		NPN Silicon			906842	Mullard 2N2369
TR17		PNP Silicon			915231	SGS BFX48
TR18		NPN Silicon			906842	Mullard 2N2369
TR19		N-Channel FET			916946	Mullard BFW10
TR20		NPN Silicon			906842	Mullard 2N2369
TR21		N-Channel FET			916946	Mullard BFW10
TR22		NPN Silicon			906842	Mullard 2N2369
TR23		PNP Silicon			915231	SGS BFX48
TR24		NPN Silicon			914900	Mullard BC109
TR25		NPN Silicon			914900	Mullard BC109

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Transistors (contd.)</u>						
TR26		NPN Silicon			906842	Mullard 2N2369
TR27		NPN Silicon			906842	Mullard 2N2369
TR28		NPN Silicon			906842	Mullard 2N2369
 <u>Diodes</u>						
D1		Silicon			914898	STC 1N4149
D2		Silicon			918982	Mullard BAW62
D3		Silicon			918982	Mullard BAW62
D4		Silicon			918982	Mullard BAW62
D5		Silicon			914898	STC 1N4149
D6		Silicon			914898	STC 1N4149
D7		Silicon			914898	STC 1N4149
D8		Silicon			914898	STC 1N4149
D9		Varactor			920267	Ferranti ZC714
D10		Silicon			914898	STC 1N4149
D11		Varactor			922493	Ferranti ZC702
D12		Silicon			914898	STC 1N4149
D13		Silicon			914898	STC 1N4149
D14		Silicon			914898	STC 1N4149
D15		Silicon			914898	STC 1N4149
D16		Silicon			914898	STC 1N4149
D17		Zener, 4.7V, 400mW			914067	Mullard BZY88C4V7
D18		Silicon			914898	STC 1N4149
D19		Silicon			914898	STC 1N4149

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits</u>						
ML1		Quad 2-input NAND			918366	Transitron SN7400J
ML2		Quad 2-input NAND			918366	Transitron SN7400J
ML3		Gain controlled amplifier			921201	Fairchild μ A757
ML4		Decade Counter			924535	Texas SN74LS196J
ML5		Decade Counter			924535	Texas SN74LS196J
ML6		Binary Counter			925298	Texas SN74LS197J
ML7		Binary Counter			925298	Texas SN74LS197J
ML8		Dual-D flip-flop			917509	Transitron SN7474J
ML9		Dual-D flip-flop			917509	Transitron SN7474J
ML10		Monostable			922367	Transitron SN74122J
ML11		Dual-D flip-flop			917509	Transitron SN7474J
ML12		Gain controlled amplifier			921201	Fairchild μ A757
ML13		Quad 2-input NAND			918366	Transitron SN7400J
ML14		Dual-D flip-flop			917509	Transitron SN7474J
ML15		Operational Amplifier			917510	Fairchild μ A741
ML16		Operational Amplifier			917510	Fairchild μ A741
ML17		Triple 3-input NAND			918361	Transitron SN7410J
ML18		Monostable			922367	Transitron SN74122J
ML19		Operational Amplifier			917510	Fairchild μ A741
ML20		Dual 4-input NAND			919493	Transitron SN7420J
ML21		Operational Amplifier			917510	Fairchild μ A741
ML22		Operational Amplifier			917510	Fairchild μ A741
ML23		Operational Amplifier			917510	Fairchild μ A741
ML24		Operational Amplifier			917510	Fairchild μ A741

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Relays</u>						
RLA		Changeover	Volts 12		922201	Pickering 90-1-C-12/3
<u>Crystals</u>						
XL1	7MHz	Quartz			45879	Racal
XL2	1.4MHz	Quartz			75885	Racal

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
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FSK BOARD PM368 (DA47016) Fig. 32

Resistors

watts

R1	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R2	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R3	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R4	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R5	1k	Carbon Film	0.3	5	925185	Steatite SU2
R6	6.8k	Carbon Film	0.3	5	925219	Steatite SU2
R7	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R8	2.2k	Carbon Film	0.3	5	925199	Steatite SU2
R9	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R10	1k	Carbon Film	0.3	5	925185	Steatite SU2
R11	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R12	1k	Carbon Film	0.3	5	925185	Steatite SU2
R13	1k	Carbon Film	0.3	5	925185	Steatite SU2
R14	1k	Carbon Film	0.3	5	925185	Steatite SU2
R15	680k	Carbon Film	0.3	5	925245	Steatite SU2
R16	1k	Carbon Film	0.3	5	925185	Steatite SU2
R17	1k	Carbon Film	0.3	5	925185	Steatite SU2
R18	1k	Carbon Film	0.3	5	925185	Steatite SU2
R19	680k	Carbon Film	0.3	5	925245	Steatite SU2
R20	1k	Metal Oxide		5	908267	Electrosil TR4
R21	220	Metal Oxide		2	910390	Electrosil TR4
R22	820	Metal Oxide		1	914039	Electrosil TR4
R23	18k	Metal Oxide		1	915226	Electrosil TR4
R24	27k	Metal Oxide		1	919771	Electrosil TR4
R25	1.5k	Metal Oxide		1	917115	Electrosil TR4
R26	10k	Carbon Film	0.3	5	925183	Steatite SU2
R27	1.5k	Metal Oxide		1	917115	Electrosil TR4
R28	27k	Metal Oxide		1	919771	Electrosil TR4
R29	2.7k	Metal Oxide		1	914196	Electrosil TR4
R30	2.7k	Metal Oxide		1	914196	Electrosil TR4

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
R31	68k	Metal Oxide		1	917222	Electrosil TR4
R32	1k	Carbon Film	0.3	5	925185	Steatite SU2
R33	330	Carbon Film	0.3	5	925297	Steatite SU2
R34	33k	Metal Oxide		1	923629	Electrosil TR4
R35	330k	Metal Oxide		1	923630	Electrosil C5
R36	1k	Carbon Film	0.3	5	925185	Steatite SU2
R37	4.7k	Metal Oxide		1	923631	Electrosil TR4
R38	1k	Carbon Film	0.3	5	925185	Steatite SU2
R39	10k	Metal Oxide		2	914042	Electrosil TR4
R40	10k	Metal Oxide		2	914042	Electrosil TR4
R41	10k	Metal Oxide		2	914042	Electrosil TR4
R42	82k	Metal Oxide		2	915189	Electrosil TR4
R43	470	Metal Oxide		2	920758	Electrosil TR4
R44	22k	Metal Oxide		2	913493	Electrosil TR4
R45	22k	Variable, preset			920314	Bourns VA05H
R46	10k	Metal Oxide		2	914042	Electrosil TR4
R47	470	Metal Oxide		2	920748	Electrosil TR4
R48	10k	Metal Oxide		2	914042	Electrosil TR4
R49	82k	Metal Oxide		2	915189	Electrosil TR4
R50	10k	Metal Oxide		2	914042	Electrosil TR4
R51	1k	Carbon Film	0.3	5	925185	Steatite SU2
R52	1k	Carbon Film	0.3	5	925185	Steatite SU2
R53	47	Wirewound	2.5	5	913588	Welwyn W21
R54	1k	Carbon Film	0.3	5	925185	Steatite SU2
R55	1k	Carbon Film	0.3	5	925185	Steatite SU2
R56	120	Wirewound	2.5	5	913598	Welwyn W21
R57	1.5k	Carbon Film	0.3	5	925208	Steatite SU2
R58	1k	Carbon Film	0.3	5	925185	Steatite SU2
R59	10k	Carbon Film	0.3	5	925183	Steatite SU2

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>Capacitors</u>						
C1	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C2	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C3	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C4	82p	Silver Mica	125	1p	923672	Lemco MS119/M/R
C5	3300p	Disc Ceramic	500	+50 -25	917437	Erie 831/K7004
C6	1200p	Silver Mica	125	2	925324	Lemco MS119/M/R
C7	12p	Silver Mica	1p	1p	925325	Lemco MS119/M/R
C8	82p	Silver Mica	1p		923672	Lemco MS119/M/R
C9	1200p	Silver Mica	125	2	925324	Lemco MS119/M/R
C10	3300p	Disc Ceramic	500	+50 -25	917437	Erie 831/K7004
C11	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100
C12	3300p	Disc Ceramic	500	+50 -25	917437	Erie 831/K7004
C13	.01	Disc Ceramic	25	+50 -25	811845	Erie 831/T/25V
C14	.01	Disc Ceramic	25	+50 -25	811845	Erie 831/T/25V
C15	.01	Silver Mica	125	1	926046	Lemco MS611/I/R
C16	.01	Silver Mica	125	1	926046	Lemco MS611/I/R
C17	2-22p	Trimmer, preset			918757	Mullard 808-00006
C18	18p	Silver Mica	125	1p	922646	Lemco MS119/M/R
C19	2200p	Silver Mica	50	2	916296	J&M C12E
C20	.01	Silver Mica	125	1	926046	Lemco MS611/I/R
C21	.01	Silver Mica	125	1	926046	Lemco MS611/I/R
C22	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C23	2200p	Silver Mica	50	2	916296	J&M C12E
C24	.01	Disc Ceramic	25	+50 -25	911845	Erie 831/T/25V
C25	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C26	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C27	0.1	Polycarbonate	100	20	914173	STC PMC2R0.1M100

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
C28	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C29	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C30	33	Tantalum	10	20	907735	Union Carbide K33J10S
C31	6.8	Tantalum	35	20	910129	Union Carbide K6R8J35S
C32	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C33	33	Tantalum	10	20	907735	Union Carbide K33J10S
C34	0.1	Polycarbonate	100	20	914173	STC PMC2R0-1M100
C35	1000p	Disc Ceramic	500	20	915243	Erie 831/K2600
C36	470	Electrolytic	25	+100 -20	921180	Erie 21103/100/0471/ OT/0250
C37	470	Electrolytic	25	+100 -20	921180	Erie 21103/100/0471/ OT/0250

Inductors

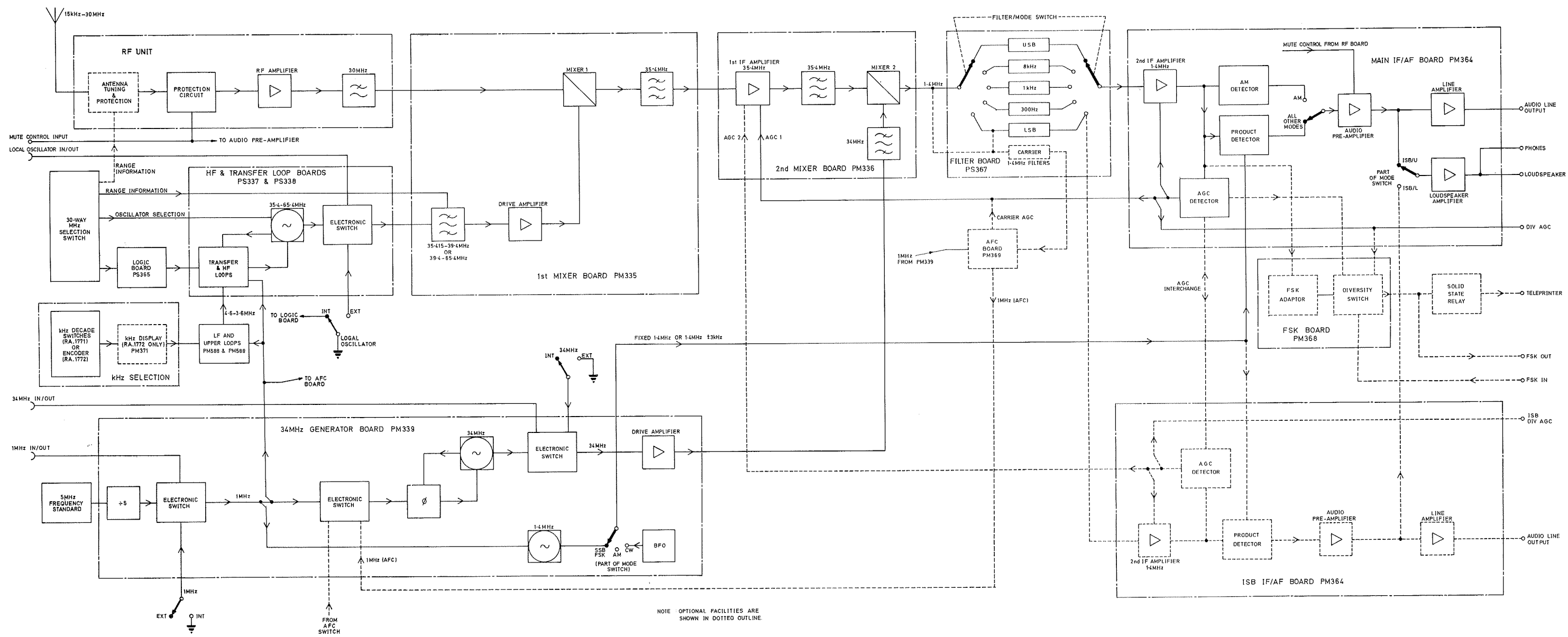
L1		Coil Assembly			CT46162	Racal
L2		Coil Assembly			CT46162	Racal
L3	100 μ H	Choke			919471	Delevan 1537-76
L4	100 μ H	Choke			919471	Delevan 1537-76
L5	10 μ H	Choke			921209	Delevan 1537-36

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>Diodes</u>						
D1		Zener, 9.1V, 400mW			921143	Mullard BZY88C9V1
D2		Germanium			900071	Mullard OA91
D3		Germanium			900071	Mullard OA91
D4		Germanium			900071	Mullard OA91
D5		Germanium			900071	Mullard OA91
D6		Zener, 4.7V, 400mW			914076	Mullard BZY88C4V7
D7		Zener, 4.7V, 400mW			914076	Mullard BZY88C4V7
D8		Zener, 6.2V, 400mW			911682	Mullard BZY88C6V2
D9		Zener, 6.2V, 400mW			911682	Mullard BZY88C6V2
<u>Transistors</u>						
TR1		PNP Silicon			915231	SGS BFX48
TR2		NPN Silicon			906842	Mullard 2N2369
<u>Integrated Circuits</u>						
ML1		Mixer			919747	Motorola MC1496C
ML2		Operation Amplifier			917510	Fairchild μ A741HC

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
ML3		Operational Amplifier			917510	Fairchild μ A741HC
ML4		Operational Amplifier			917510	Fairchild μ A741HC
ML5		Operational Amplifier			917510	Fairchild μ A741HC
ML6		Operational Amplifier			917510	Fairchild μ A741HC
ML7		Operational Amplifier			917510	Fairchild μ A741HC
ML8		Operational Amplifier			917510	Fairchild μ A741HC
ML9		Operational Amplifier			917510	Fairchild μ A741HC
ML10		Operational Amplifier			917510	Fairchild μ A741HC
ML11		Quad 2-input NAND			918366	Transition SN7400J
ML12		Quad 4-input Schmitt NAND			921278	Transition SN7413J
ML13		J-K flip-flop			921475	Transition SN7470J
ML14		Quad 2-input NAND			918366	Transition SN7400J
ML15		Quad 2-input NAND			918366	Transition SN7400J
ML16		Dual-D Flip-flop			917509	Transition SN7474J
ML17		Quad 2-input NAND			918366	Transition SN7400J
ML18		Operational Amplifier			917510	Fairchild μ A741HC

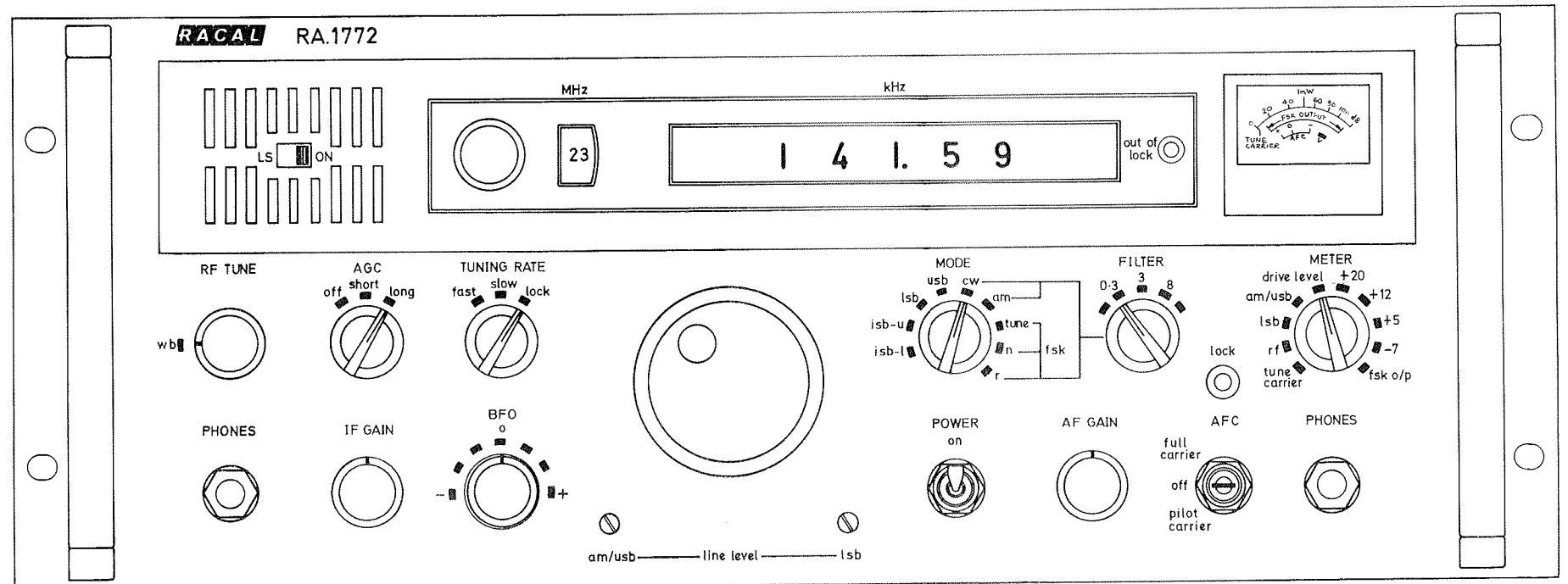
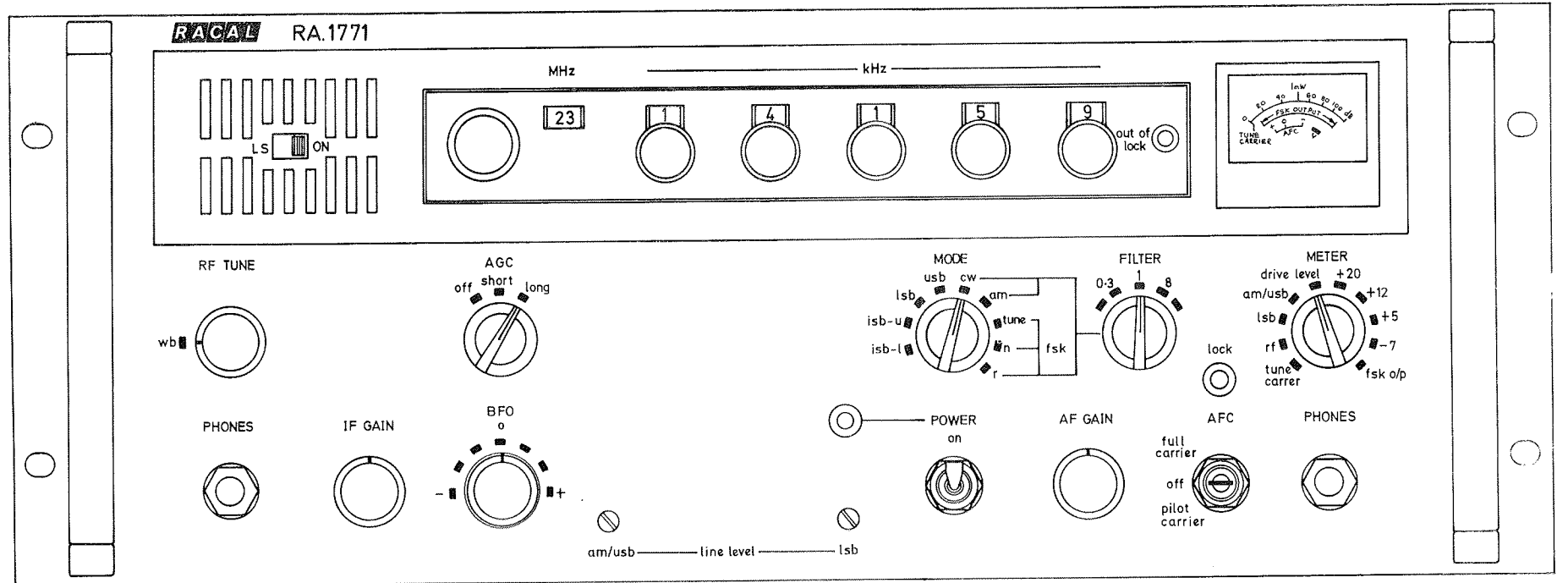
Crystals

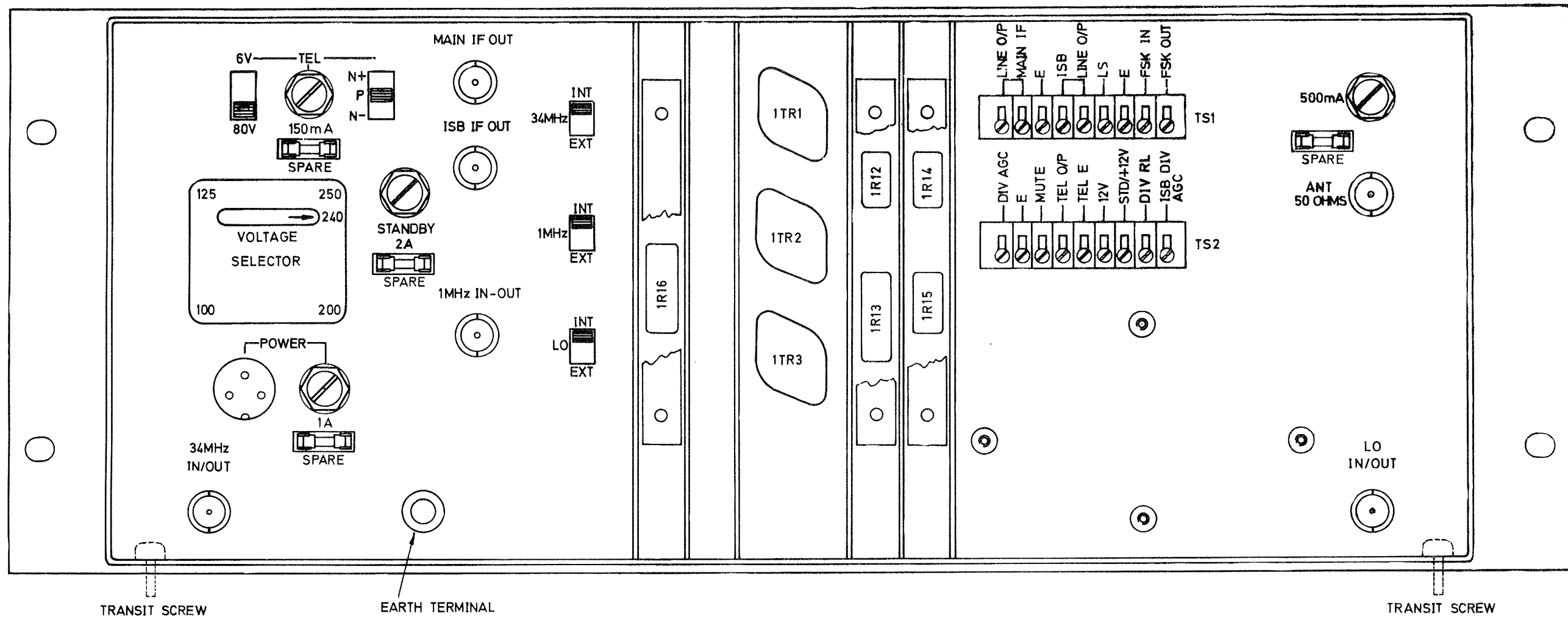
XL1	1398kHz Quartz	AD46950	Racal
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Block Diagram : RA.1771/RA.1772 HF Communications Receiver

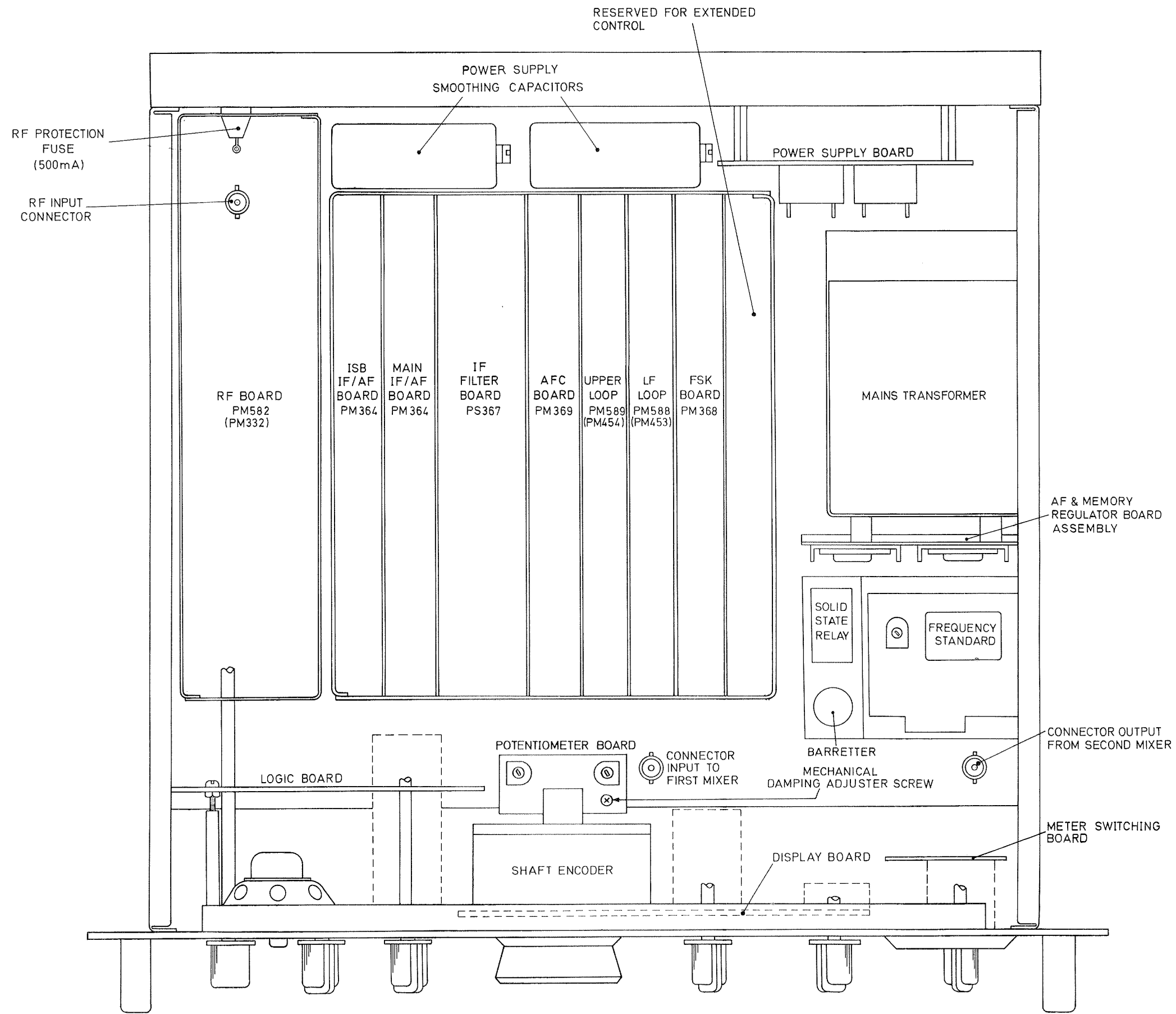
Fig 1





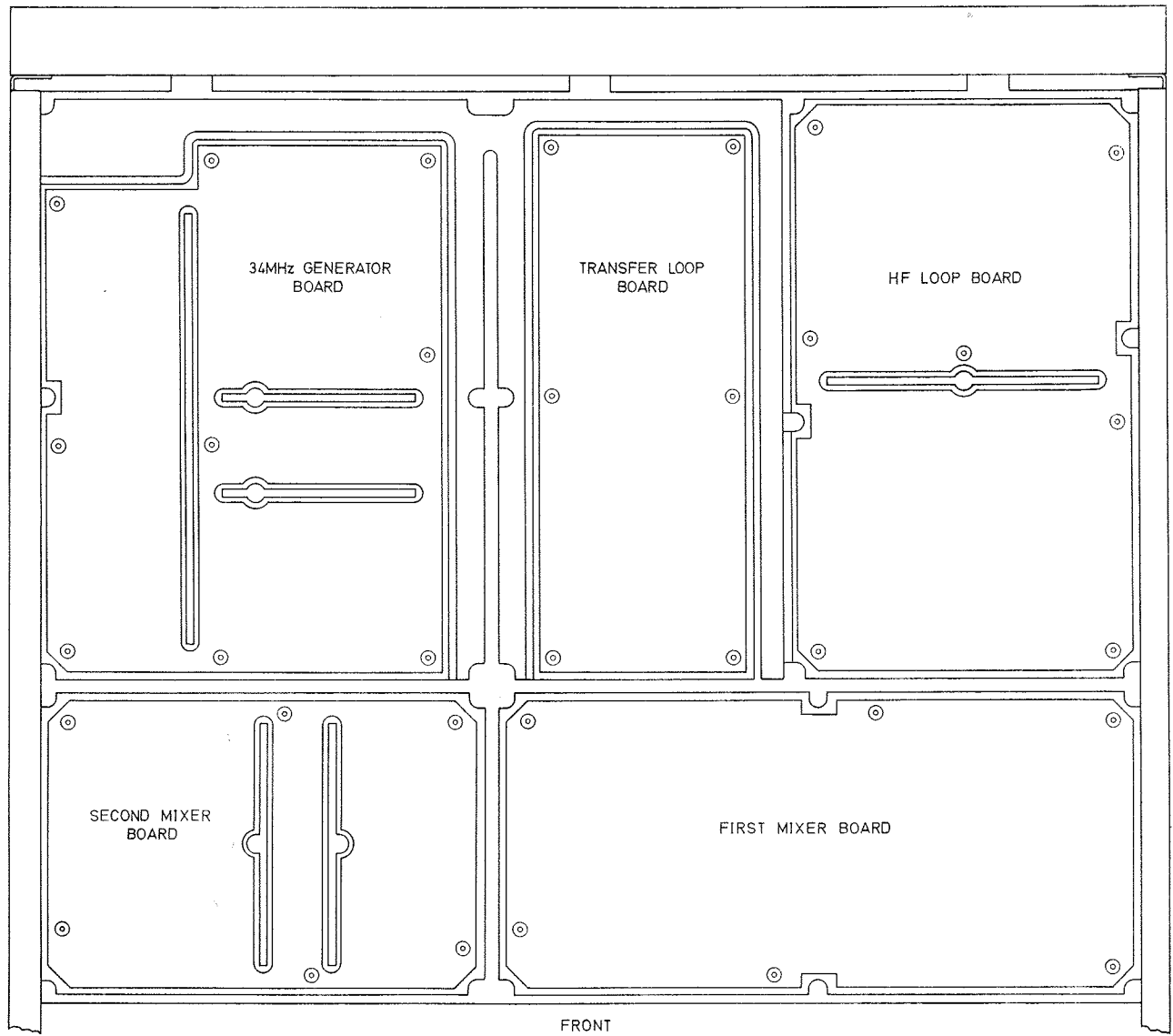
NOTE : RESISTORS 1R12 TO 1R16 FITTED TO LATER VERSIONS ONLY.

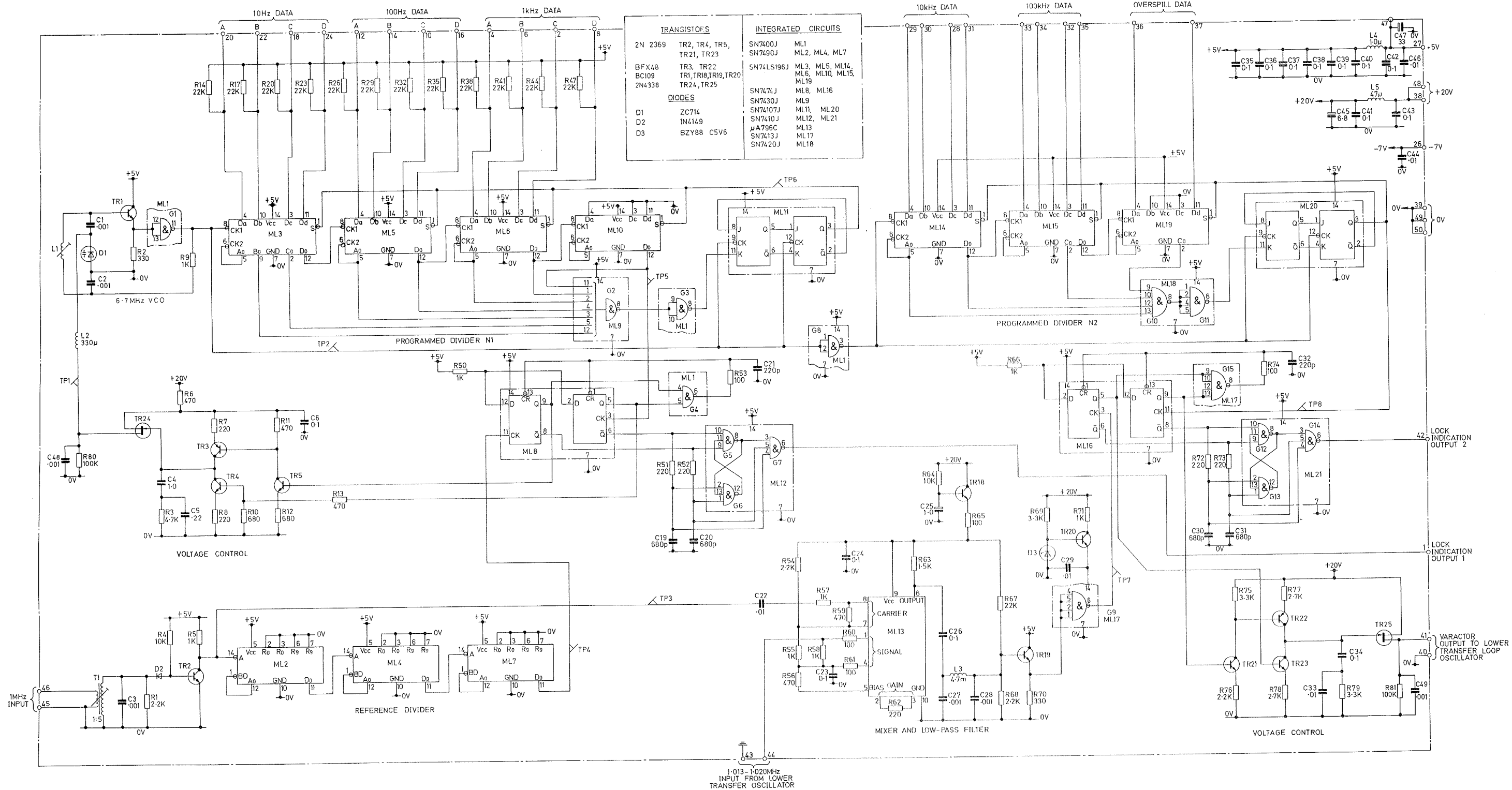
Layout : Rear Panel RA.1771/RA.1772



Chassis Layout : Top View RA.1772

Fig. 4

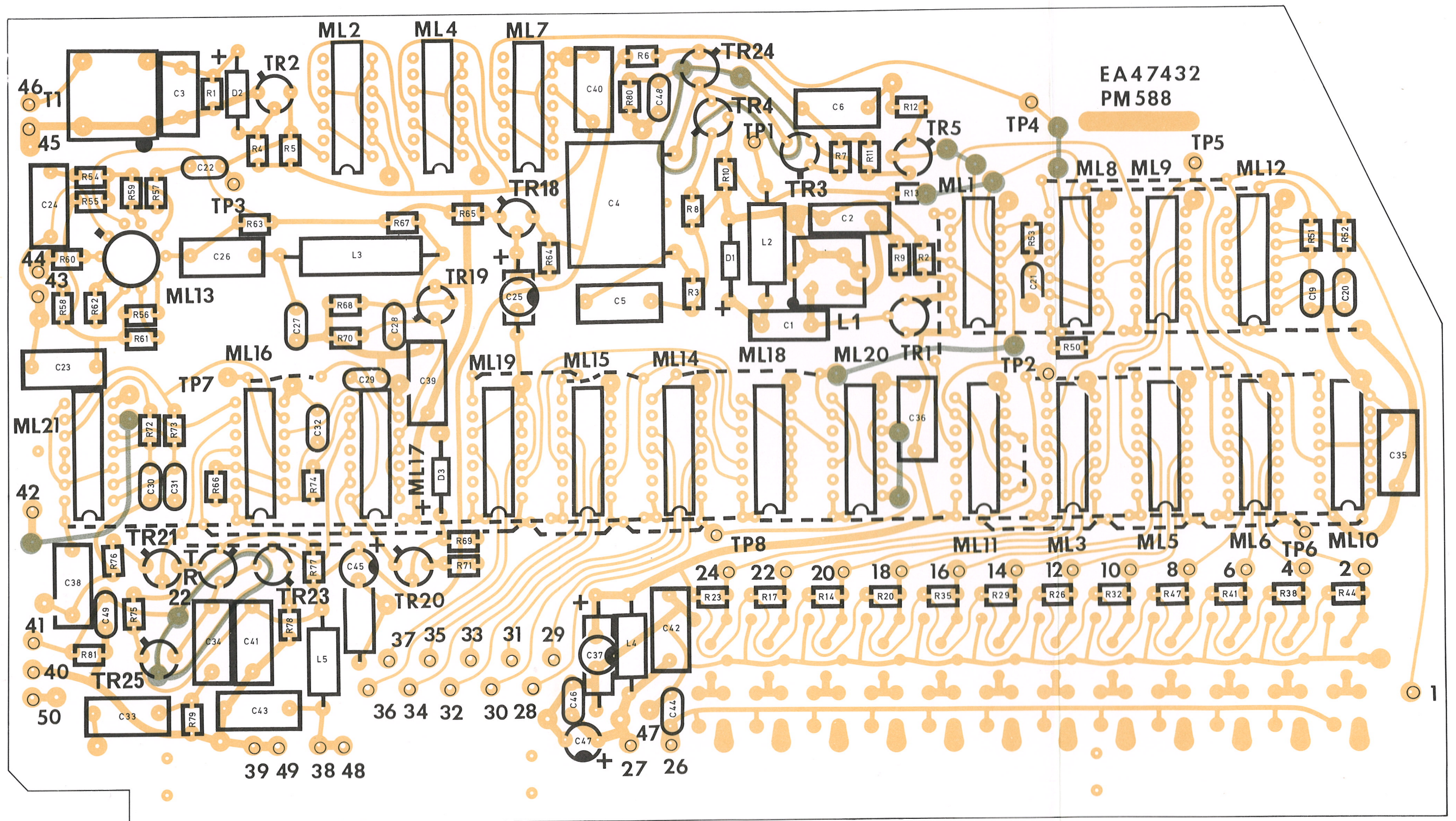




Circuit : Low Frequency Loop Board PM588

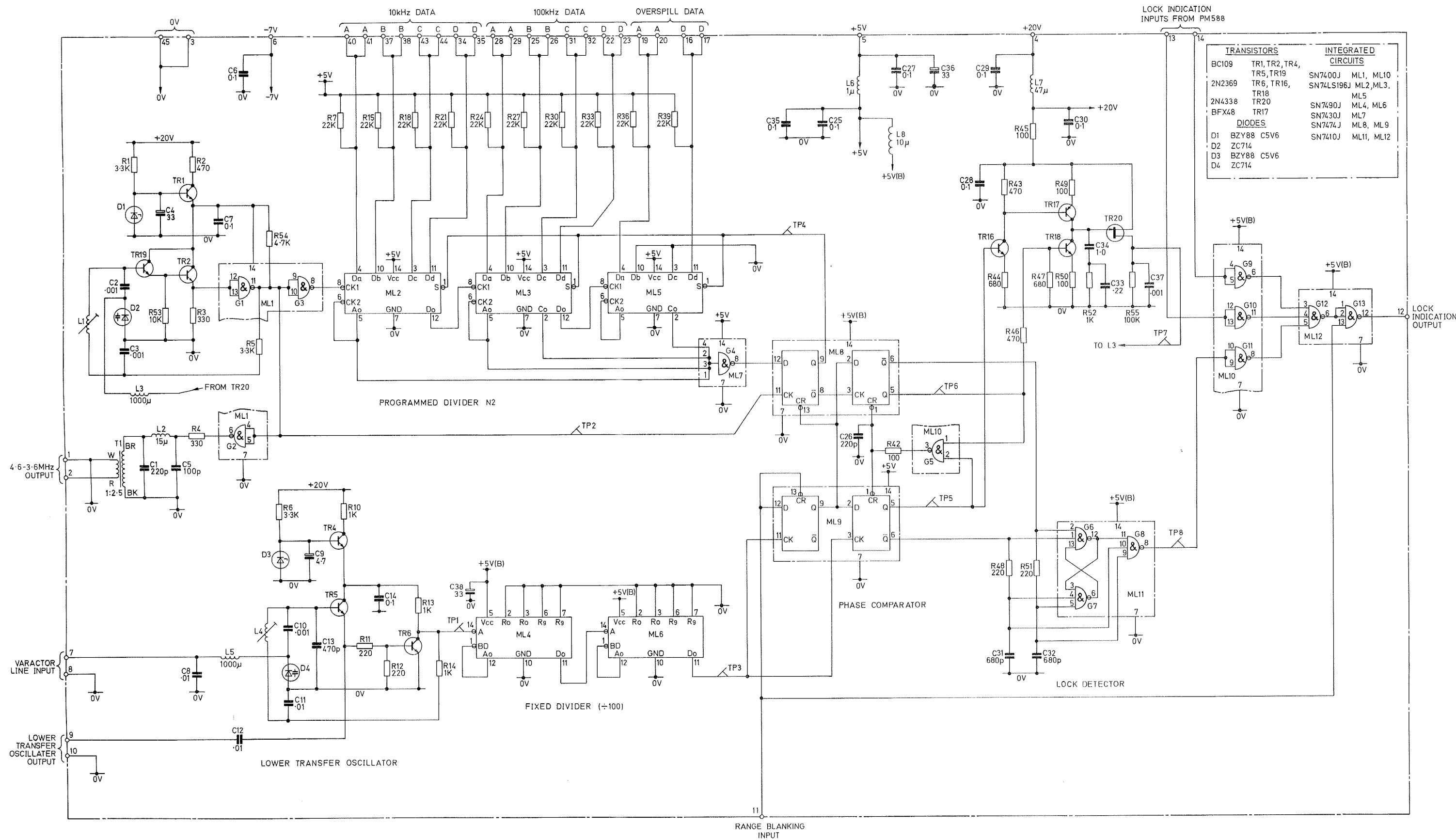
LF Loop Fig. 6

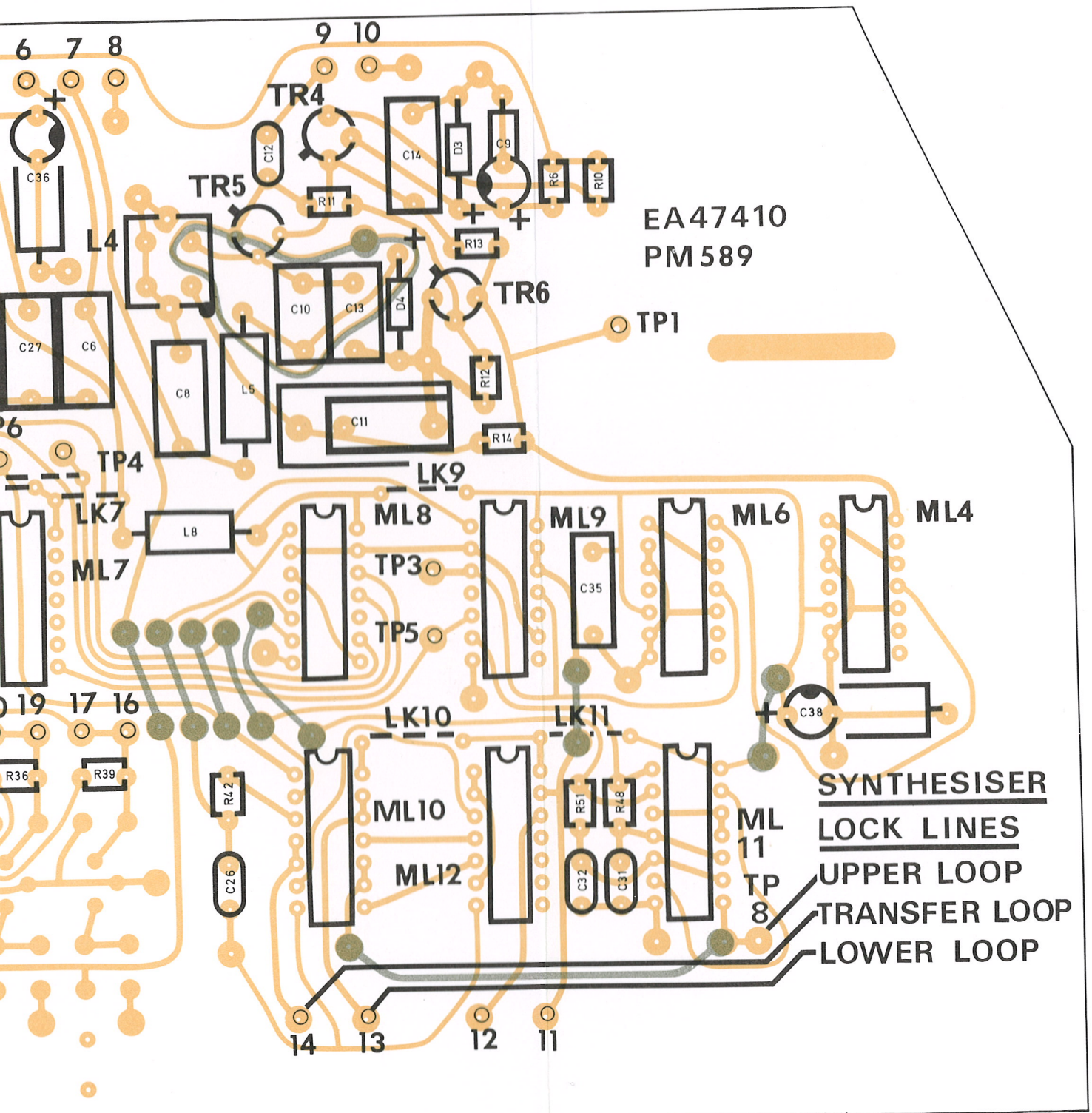
W0H3076 | OC47432/D
[612]



Layout : Low Frequency Loop Board PM588

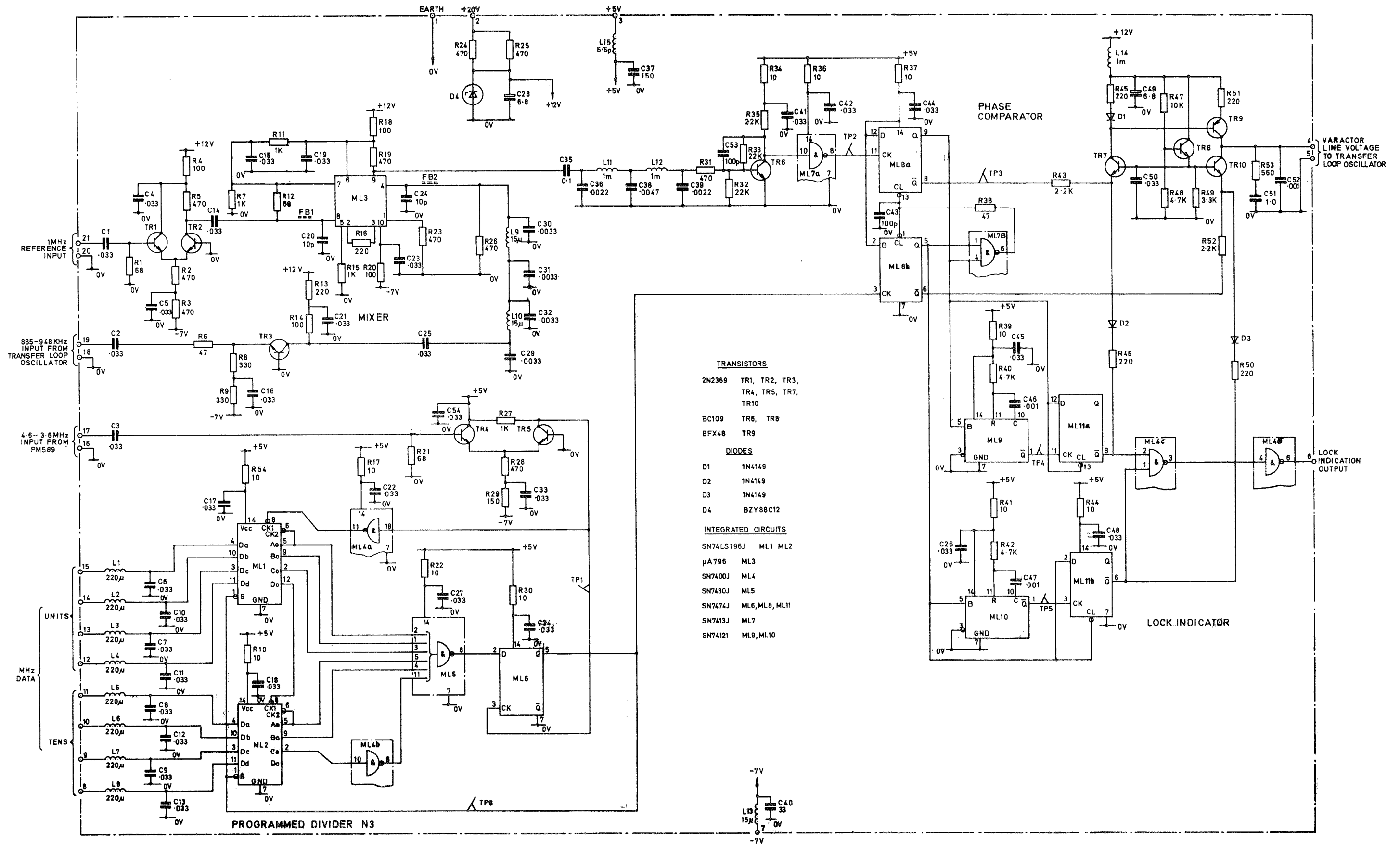
Fig. 7





ut : Upper Loop Board PM589

Fig. 9

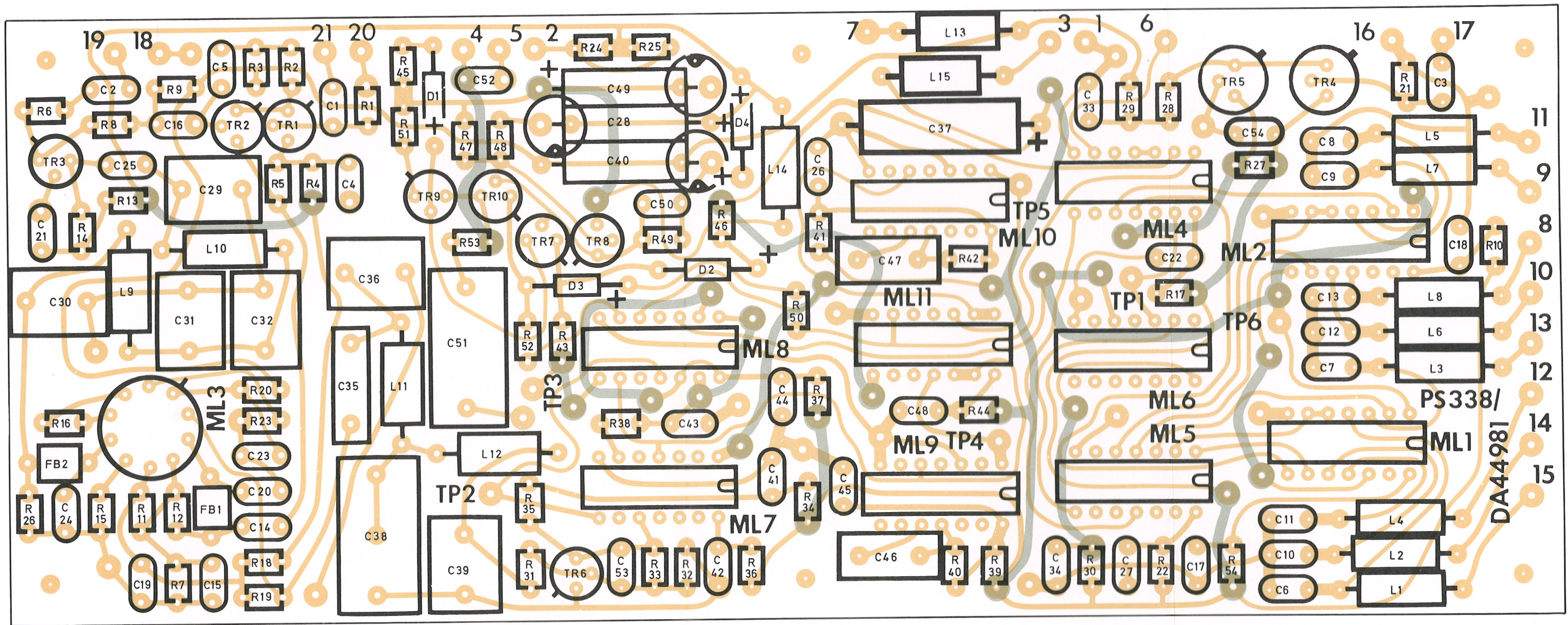


WOH 307462 DC44881
C11234

Circuit: Upper Transfer Loop Board PS338

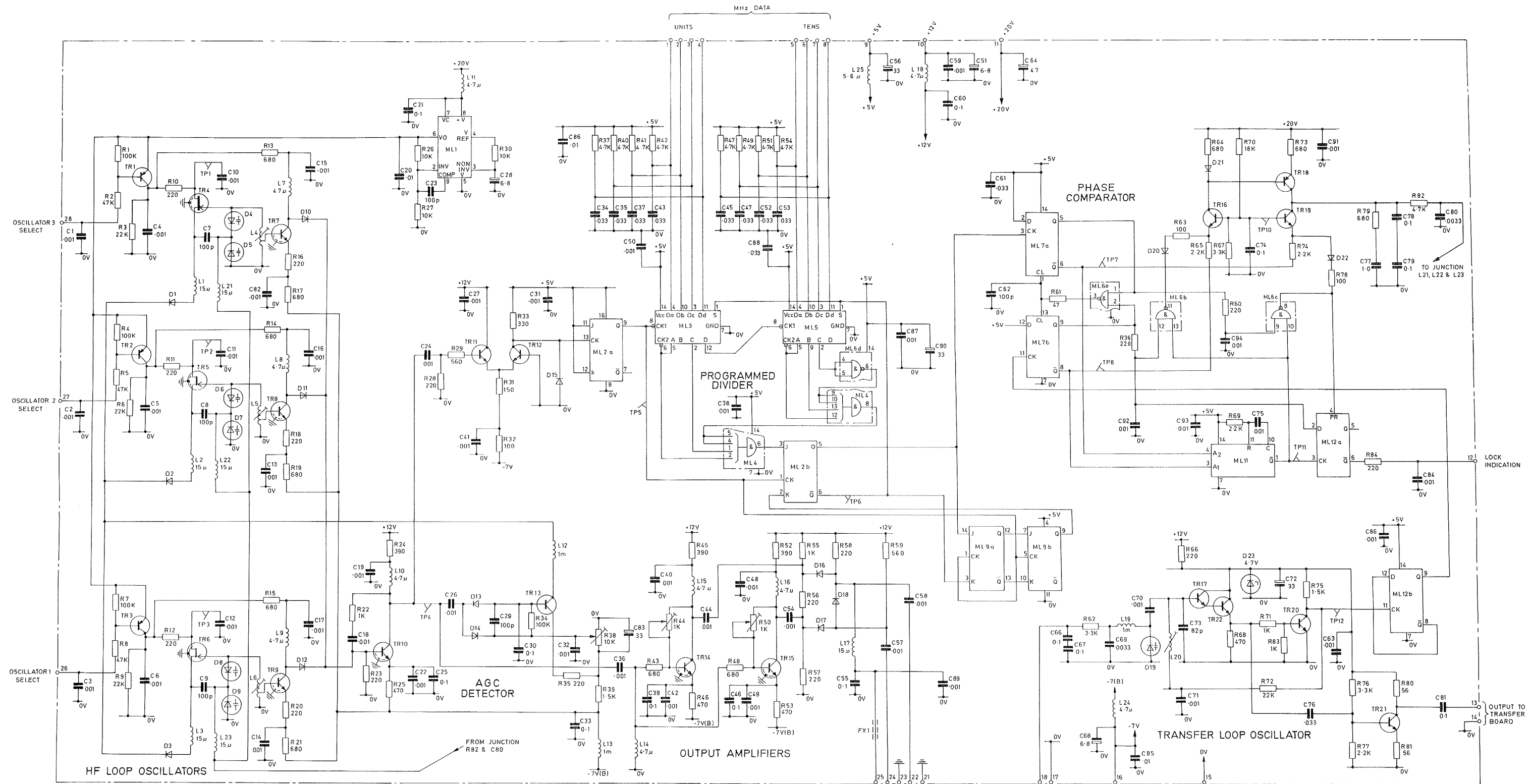
Transfer Loop

Fig.10



WOH 3076	DA44981	WOH 3076	DD44979	SHT 2	WOH 3076	DD44979	SHT 3
3	4	5	2	3	4	5	6

Layout : Transfer Loop Board PS338

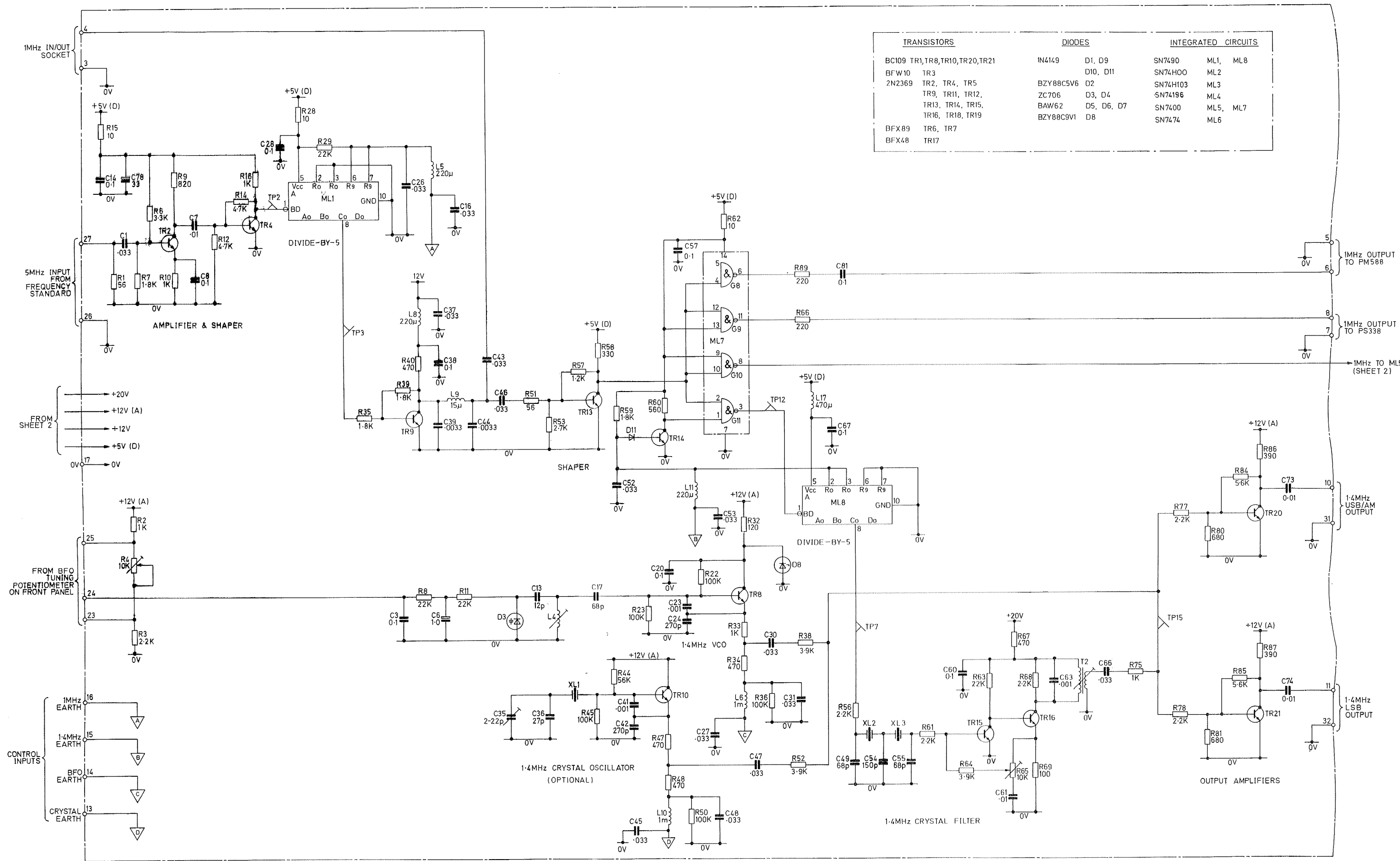


TRANSISTORS	DIODES	INTEGRATED CIRCUITS
BFX 48 TR1, TR2, TR3, TR18	1N 4149 D1, D2, D3, D10, D11	μA723HM ML1
BFW10 TR4, TR5, TR6	D12, D20, D21, D22	SN74S112J ML2
BFX 89 TR10, TR14, TR15	MV1650 D4, D5, D6, D7	SN74196J ML3
2N2369 TR7, TR8, TR9, TR11 TR12, TR16, TR19, TR20	D8, D9, D19	SN74H21J ML4
BC109 TR13, TR17, TR21, TR22	HP 2800 D13, D14, D15	SN74LS196J ML5
	BAW 62 D16, D17, D18	SN74H00 ML6
	BZY88C4V7 D23	SN7474J ML7, ML12
		SN74121J ML11
		SN74H103J ML8
		ML8 AND ML10 NOT USED

WQH3076 EC44878
5 7

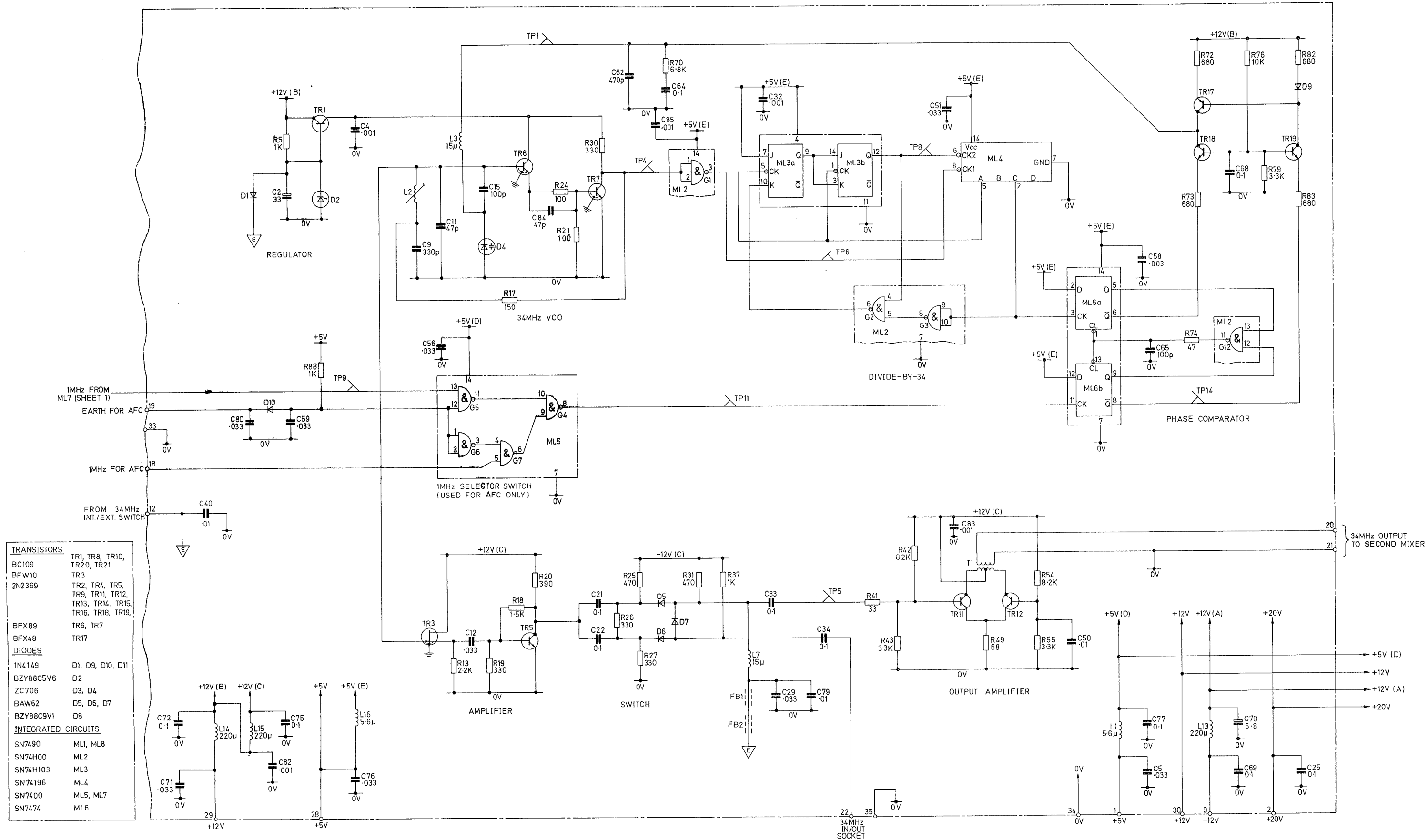
Circuit: HF Loop Board PS 337

Fig. 12



WOH3076 EC44990/V
B|2|5|7|9|10|

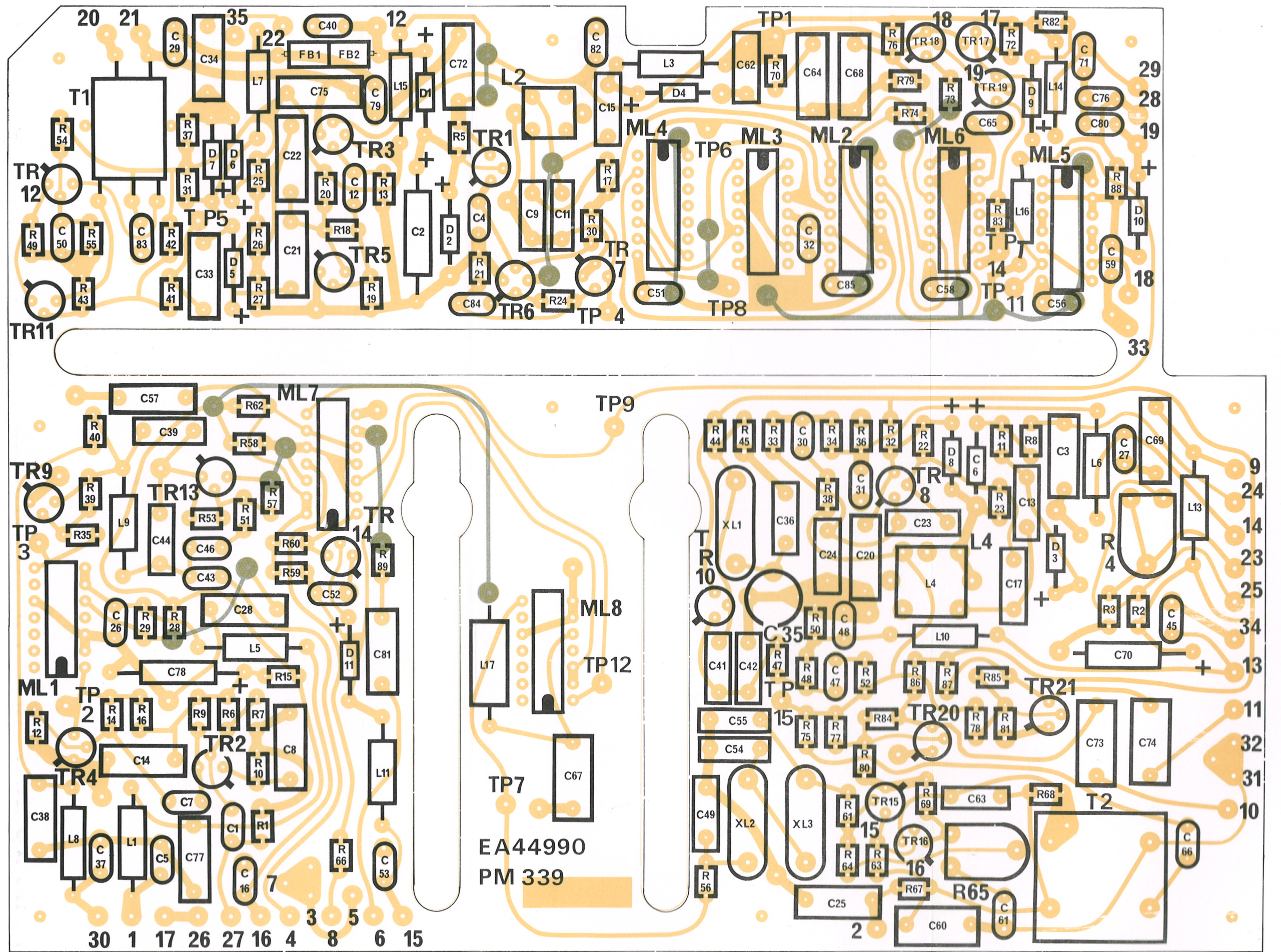
Circuit: 34MHz Generator Board PM339 (Sheet 1)

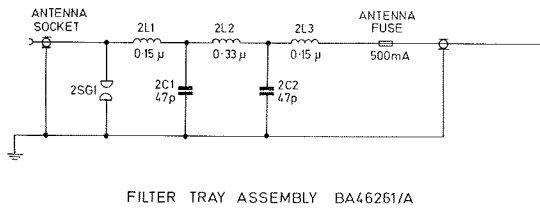
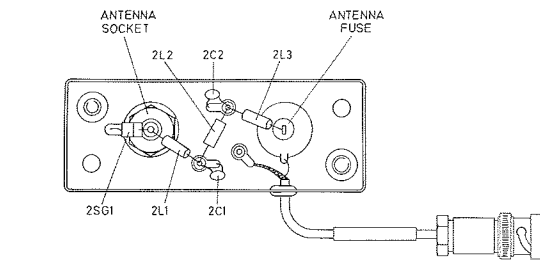


TRANSISTORS	
BC109	TR1, TR8, TR10, TR20, TR21
BFW10	TR3
2N2369	TR2, TR4, TR5, TR9, TR11, TR12, TR13, TR14, TR15, TR16, TR18, TR19
BFX89	TR6, TR7
BFX48	TR17
DIODES	
1N4149	D1, D9, D10, D11
BZY88C5V6	D2
ZC706	D3, D4
BAW62	D5, D6, D7
BZY88C9V1	D8
INTEGRATED CIRCUITS	
SN7490	ML1, ML8
SN74H00	ML2
SN74H103	ML3
SN74196	ML4
SN7400	ML5, ML7
SN7474	ML6

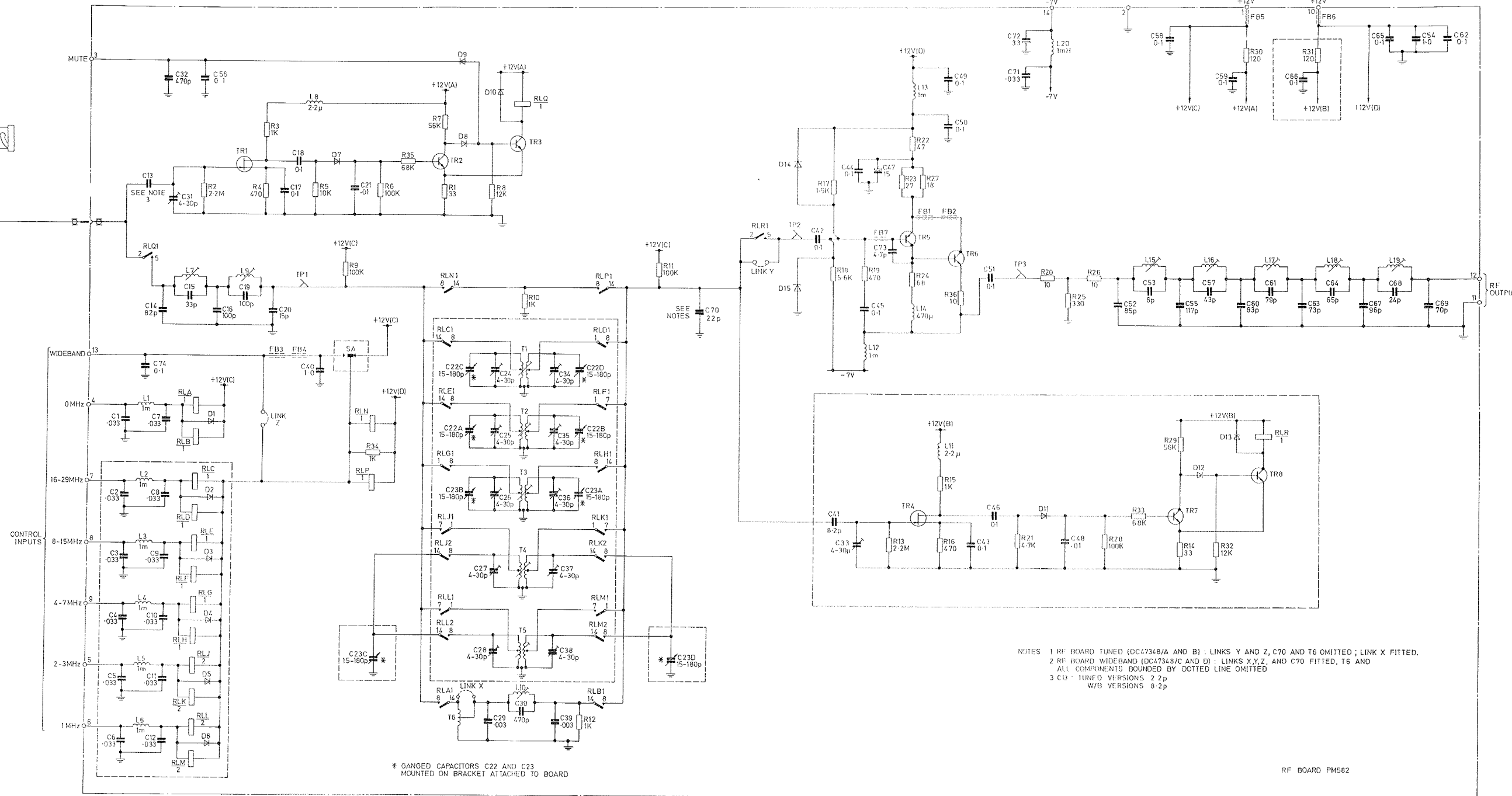
WOH3076 EC44990/V
B 2 5 9 10

Circuit: 34MHz Generator Board PM339 (Sheet 2)





TRANSISTORS	
BFW10	TR1, TR4
2N2369	TR2, TR7
BFX46	TR5
BFW17A	TR6
BC 109	TR3, TR8
DIODES	
1N4149	D1 to D13
PAV74	D14, D15



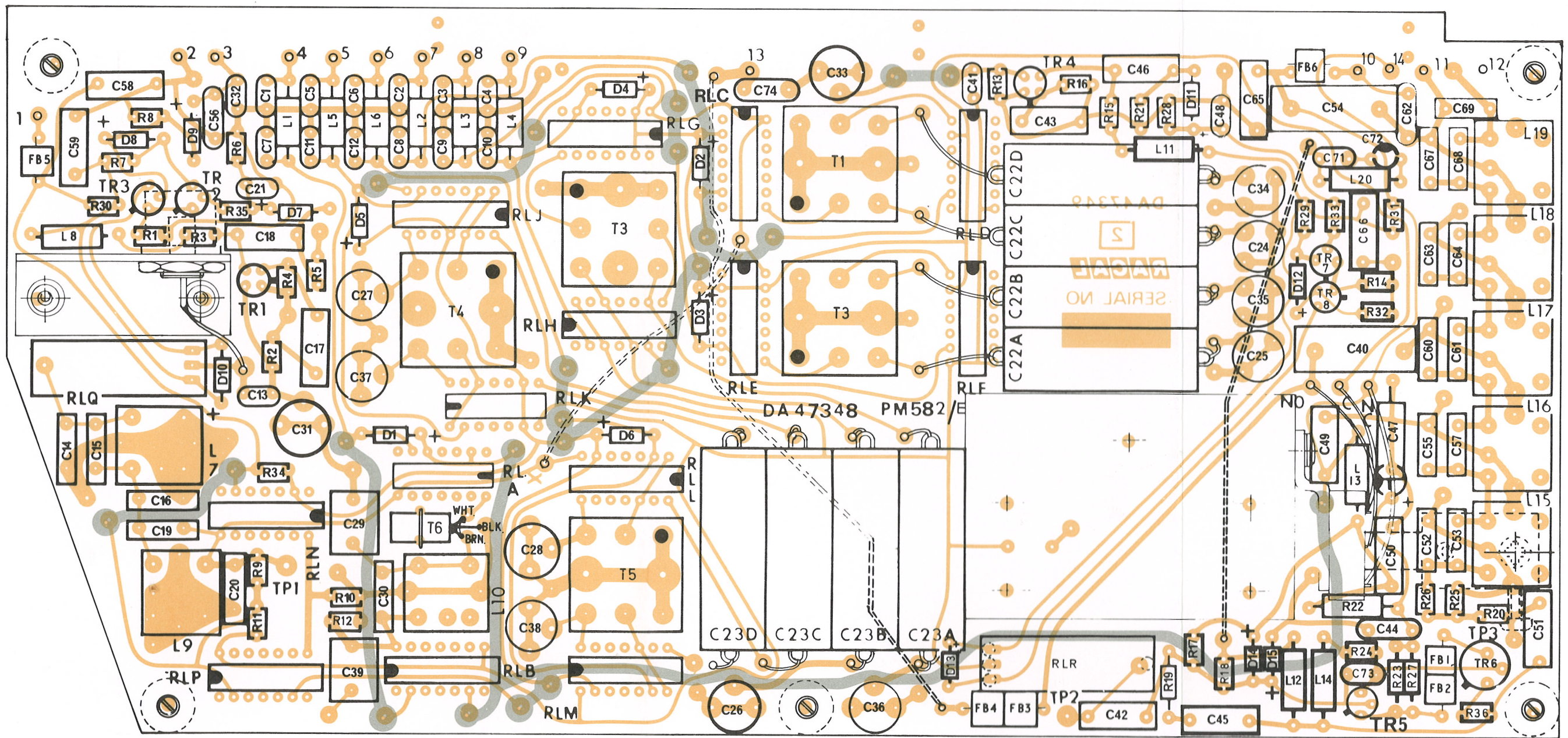
NOTES 1 RF BOARD TUNED (DC47348/A AND B) : LINKS Y AND Z, C70 AND T6 OMITTED ; LINK X FITTED.
 2 RF BOARD WIDEBAND (DC47348/C AND D) : LINKS X,Y,Z, AND C70 FITTED, T6 AND ALL COMPONENTS BOUNDED BY DOTTED LINE OMITTED
 3 C13 - TUNED VERSIONS 2.2p
 W/B VERSIONS 8.2p

* GANGED CAPACITORS C22 AND C23 MOUNTED ON BRACKET ATTACHED TO BOARD

WOH3076 DC47348/VAR 1/2/2

Circuit: RF Unit

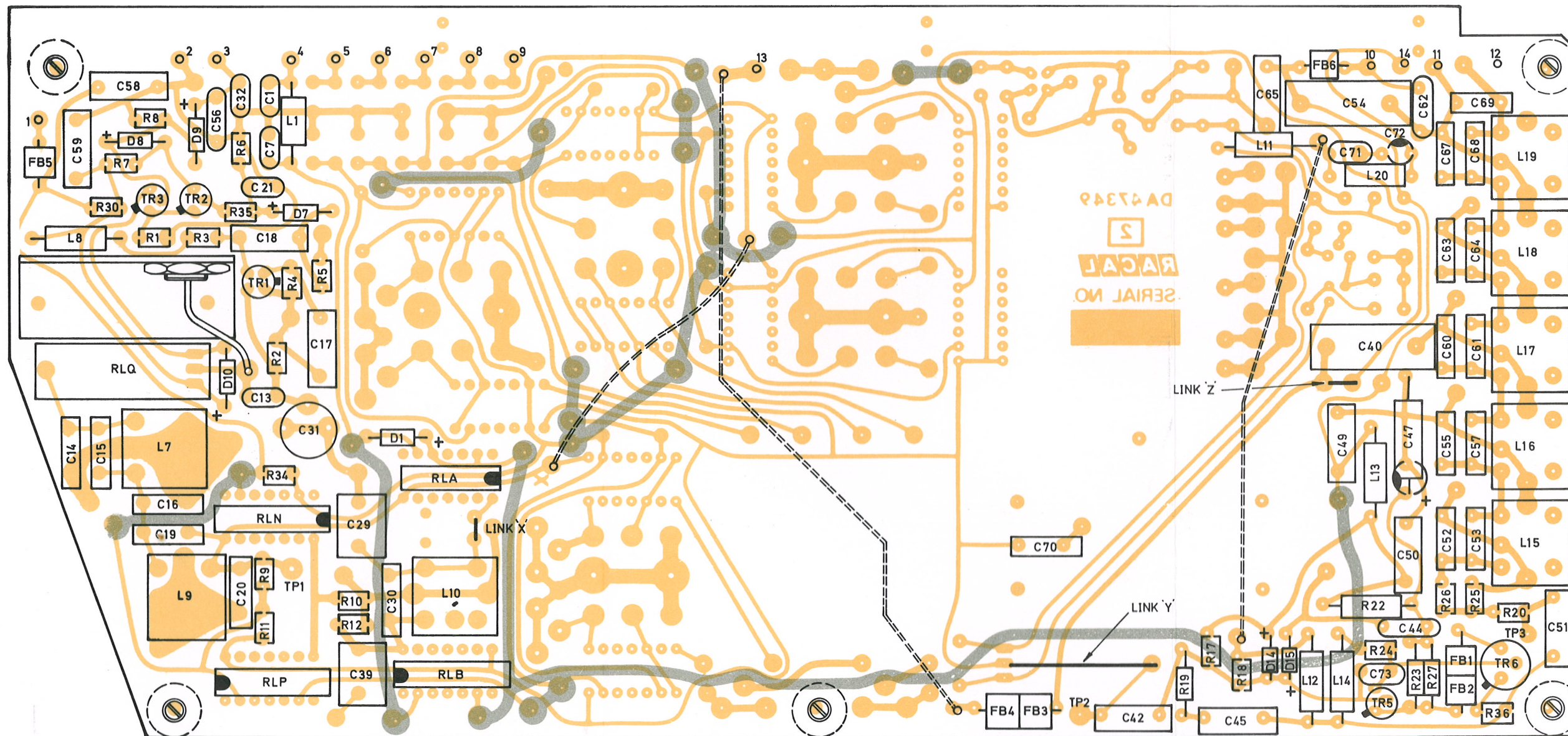
RF Fig. 17



WOH3076	DA47348	18	WOH3076	DD47350	SHT 2	18	WOH3076	DD47350	SHT 3
A	1	3	4	2	5	6	2	5	

Layout : R.F. Board PM582 (Tuned)

Fig.18



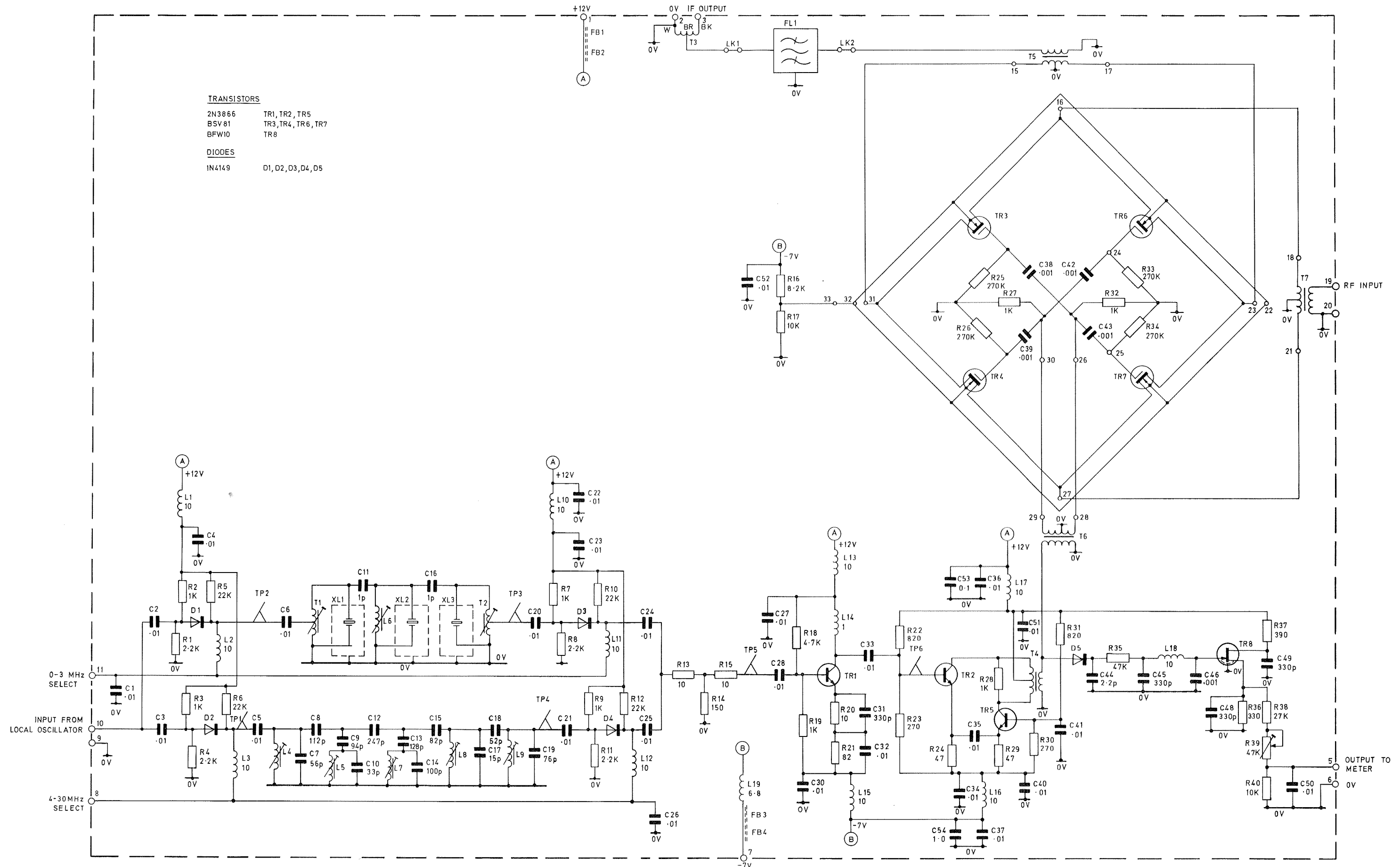
WOH3076	DA47348	19
A 1 3		1/3

WOH3076	DD47350	SHT 2	19
2 5			2/3

WOH 3076	DD47350	19
2 5		3/3

Layout : R.F Board PM582 (Wideband)

Fig.19



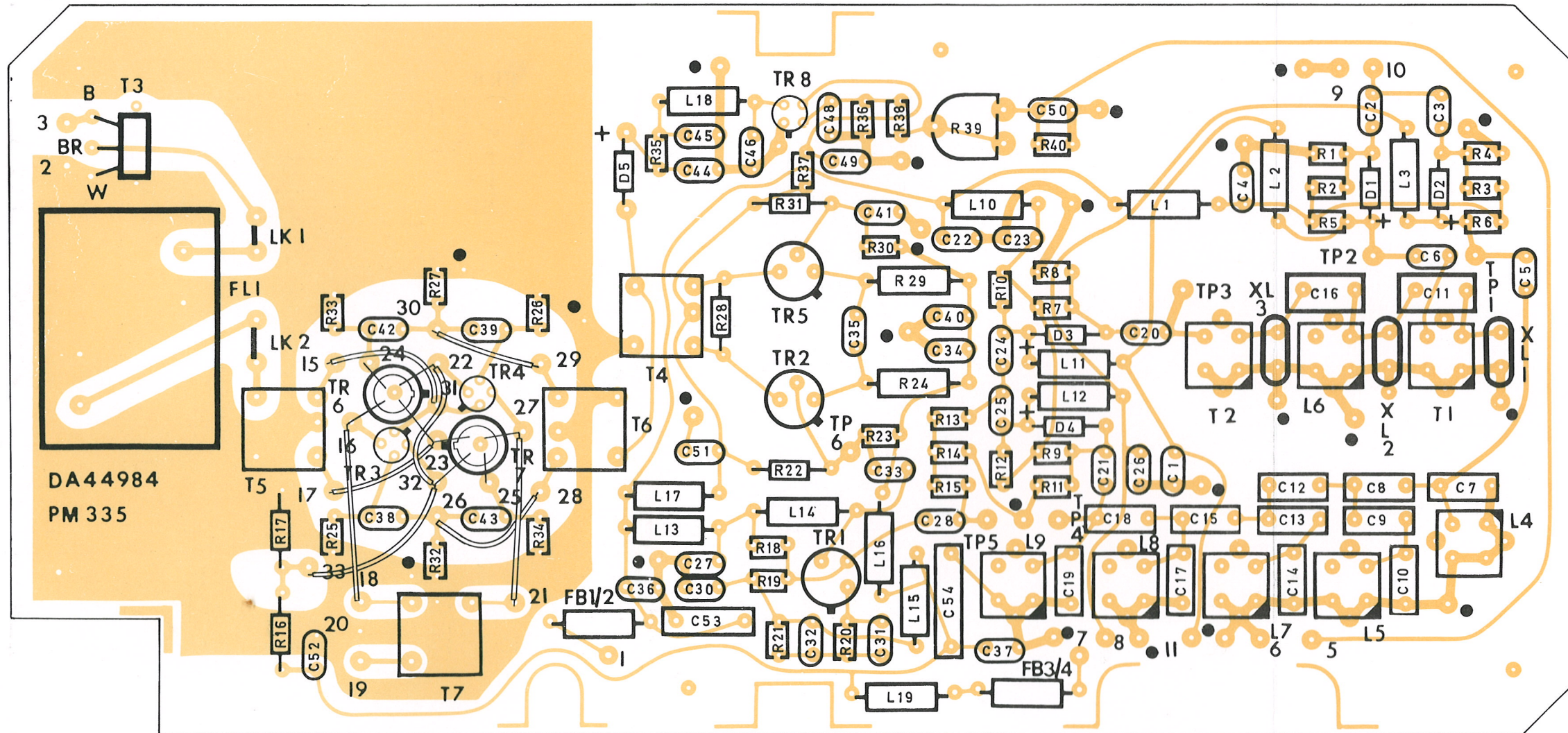
- TRANSISTORS**
- 2N3866 TR1, TR2, TR5
 - BSV 81 TR3, TR4, TR6, TR7
 - BFW10 TR8
- DIODES**
- 1N4149 D1, D2, D3, D4, D5

1st. Mixer

Circuit: First Mixer / Drive Amplifier PM335

Fig. 20

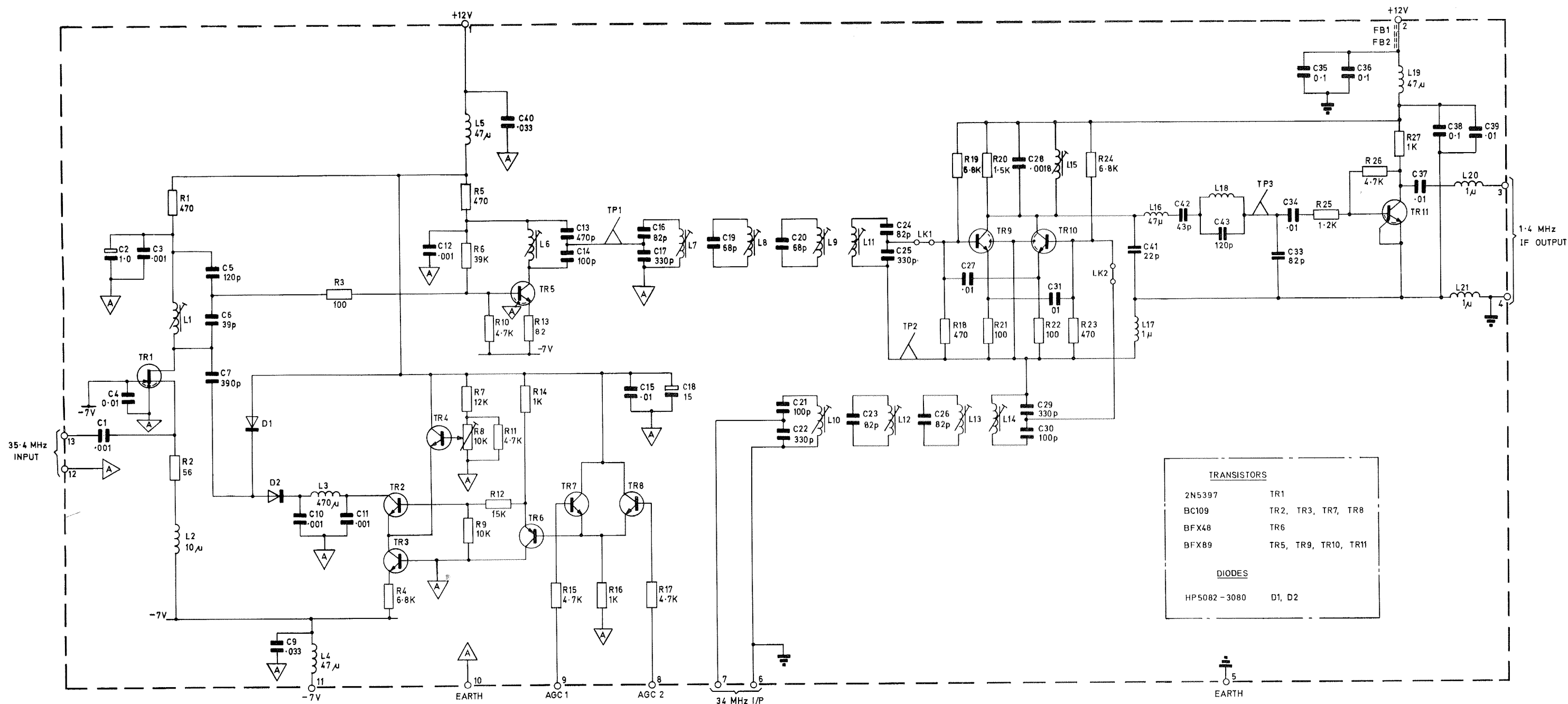
WOH 3076	DC 44984
C	1 3 5



WOH 3076	DD44982 SHT 2	WOH 3076	DD44982 SHT 4
1	2	1	2

Layout : First Mixer Board PM 335

Fig. 21

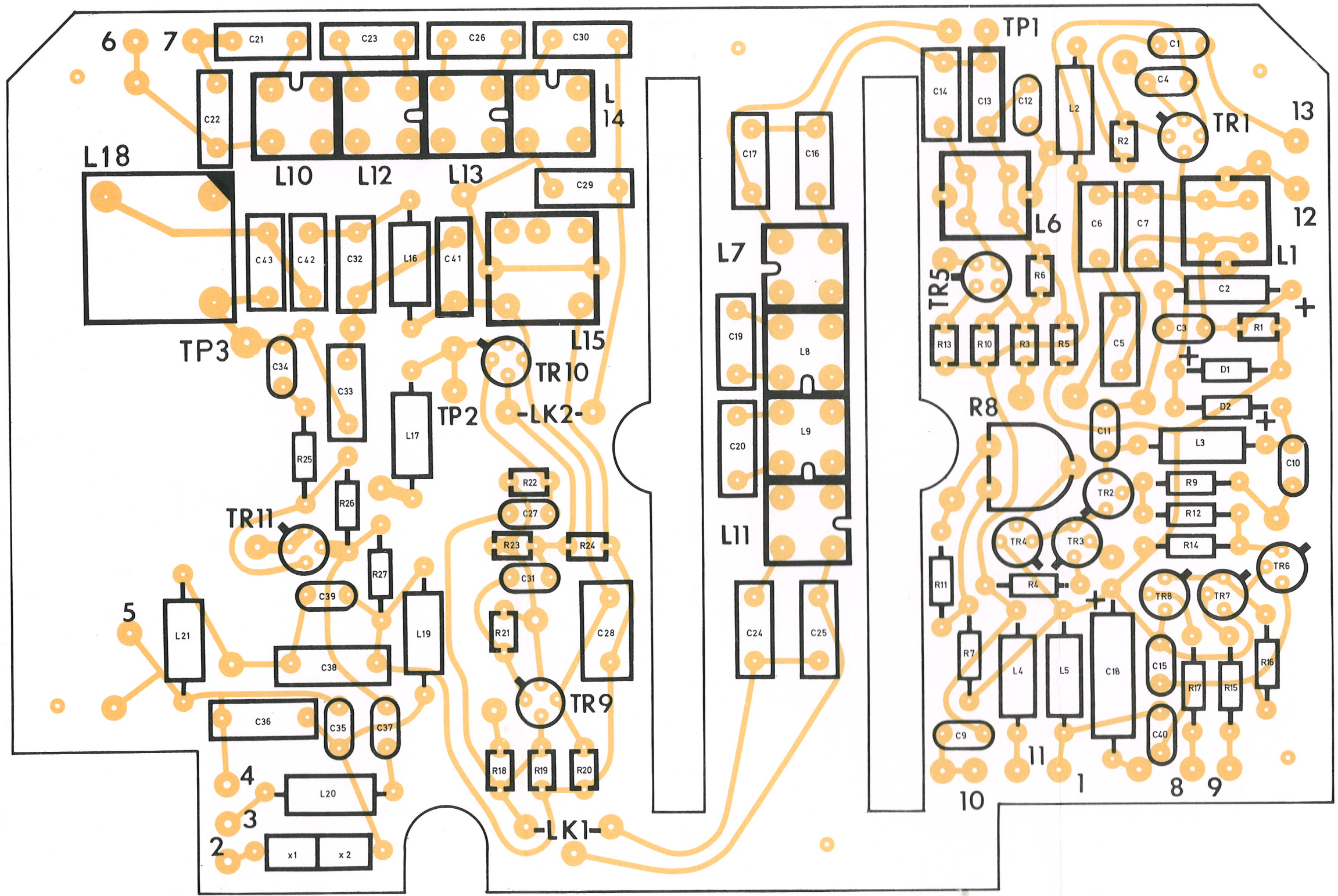


Second Mixer

Fig. 22

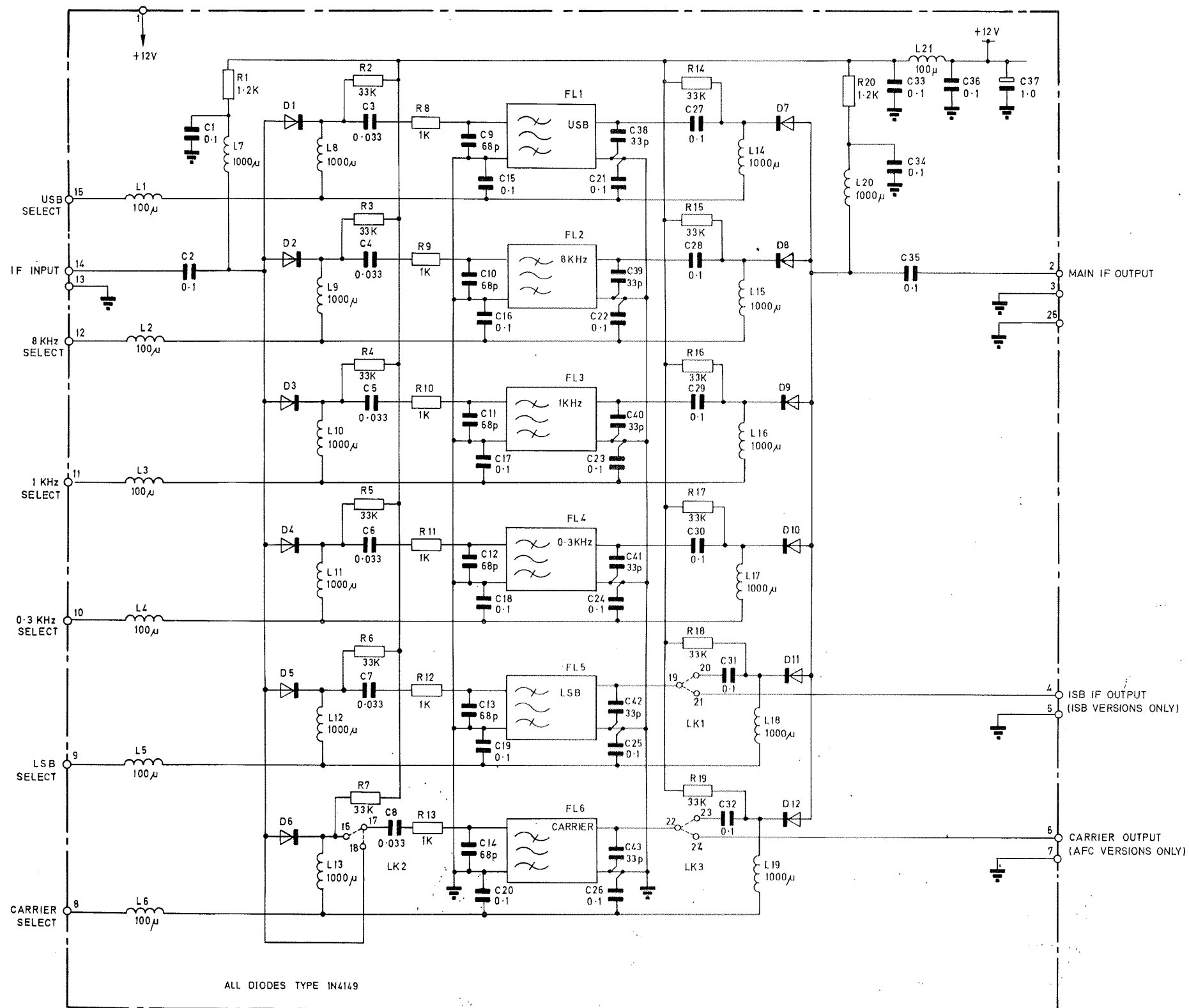
WOH 3076 DC 44987
D 1 3 4

Circuit: First IF Amplifier & Second Mixer PM336



Layout : Second Mixer Board PM.336

Fig. 23

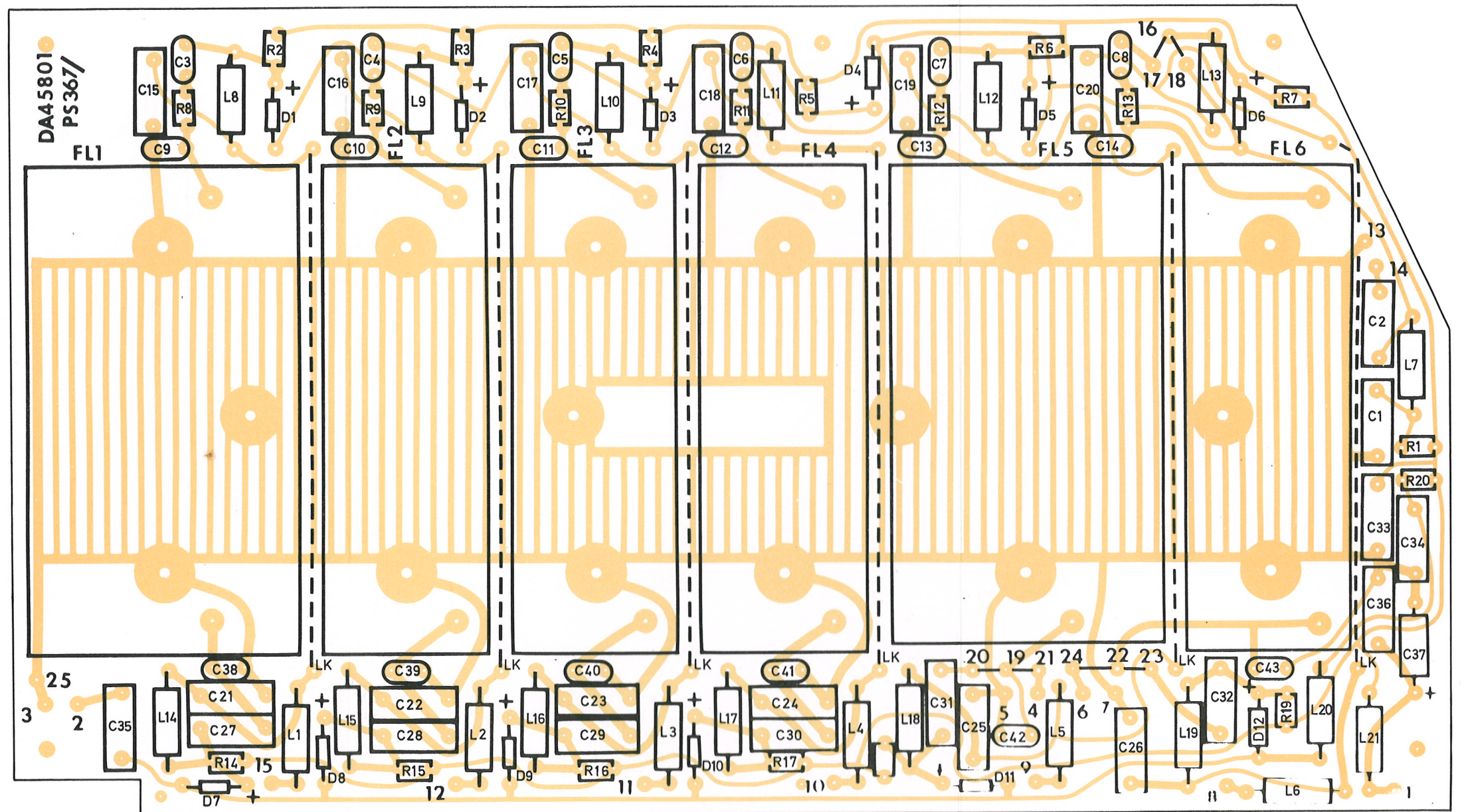


ALL DIODES TYPE IN4149

- NOTES**
1. DUE TO INVERSION IN RECEIVER USB FILTER FL1 HAS LSB CHARACTERISTICS AND LSB FILTER FL5 HAS USB CHARACTERISTICS.
 2. LINK PINS 19-20 FOR SSB ONLY, LINK PINS 19-21 FOR ISB.
 3. LINK PINS 22-24 & PINS 17-18 ONLY WHEN CARRIER FILTER USED OTHERWISE LINK 22-23 & 16-17
 4. FILTERS SHOWN ARE TYPICAL ONLY

Circuit : IF Filter Board PS367

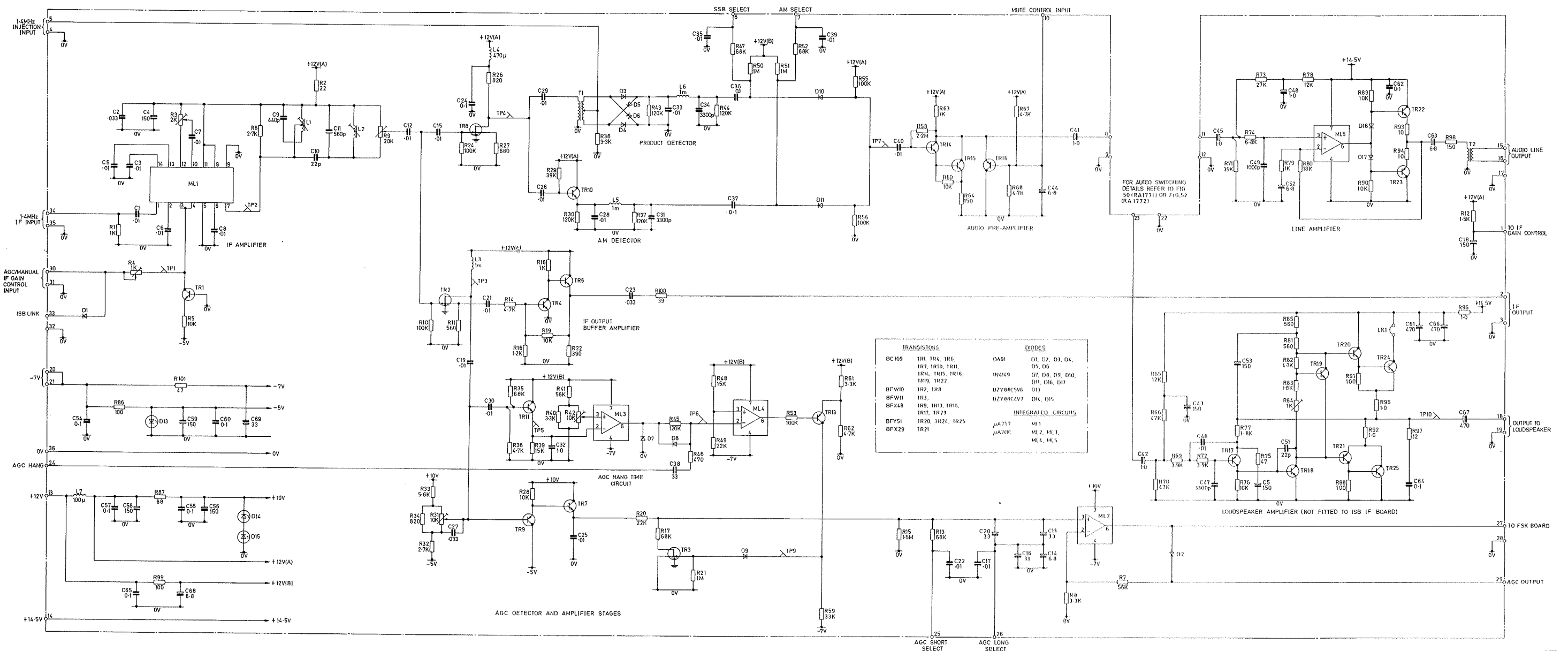
WOH 3076	DC45801
C 1 2	



WOH3076	DD44964 SHT 2	WOH3076	DD44964 SHT 3
1		1	

Layout: Filter Board PS367

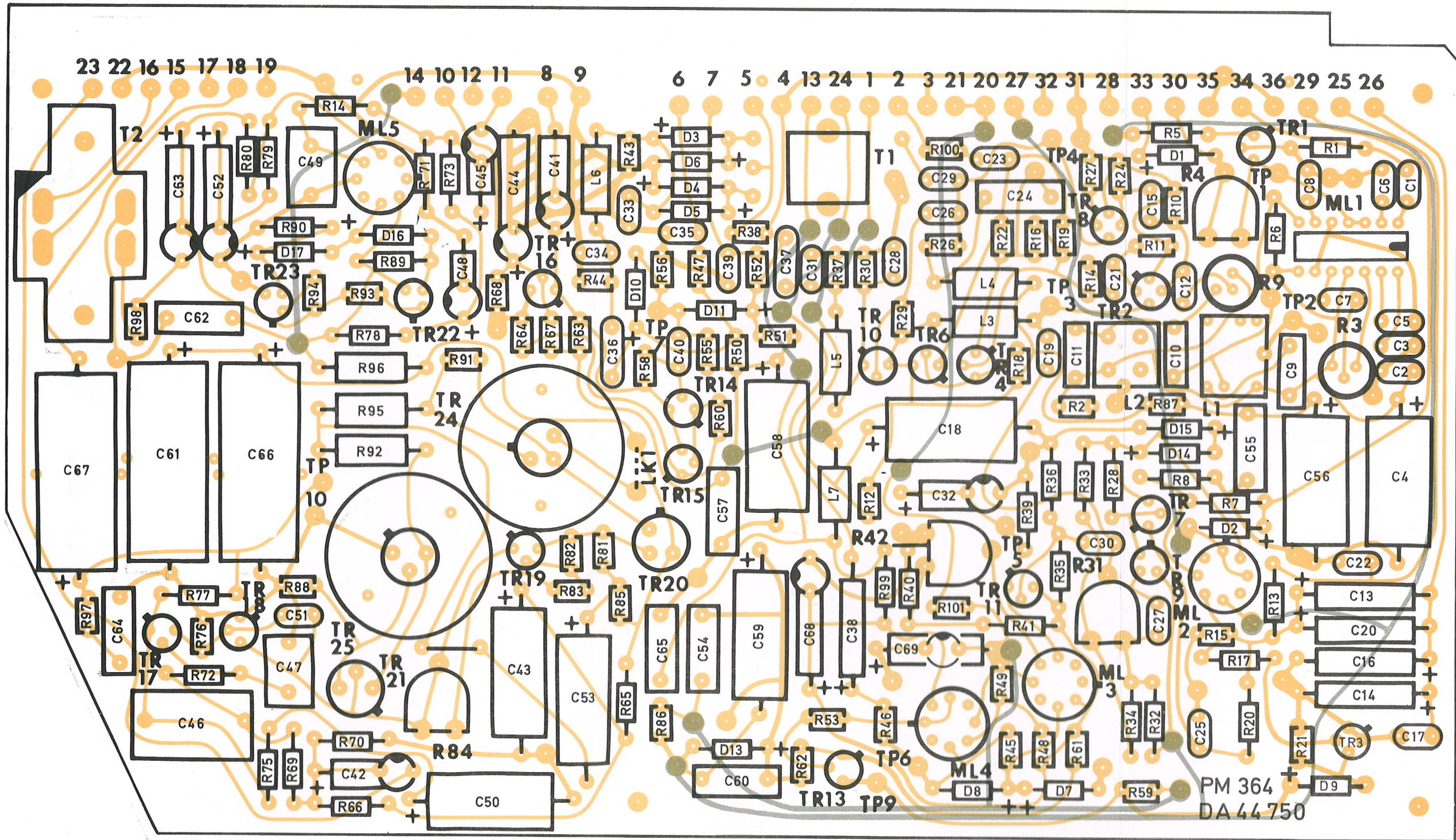
Fig. 25



W0430761 EC42750/A/B/C/D
81112101

Circuit : IF/AF Board PM364

IF
Fig. 26

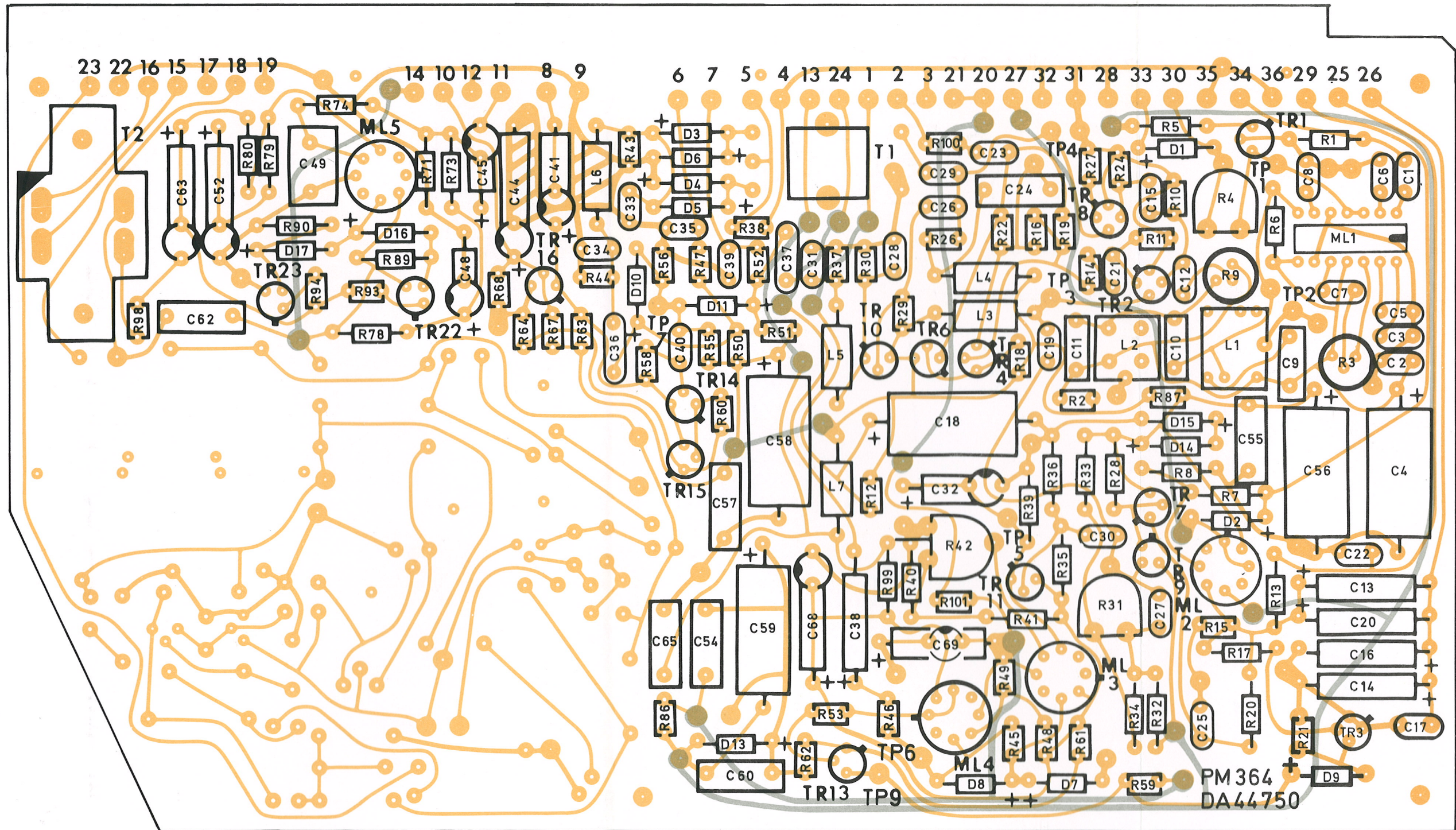


PM 364
DA 44 750

WOH3076	DD44748 SHT 3	WOH3076	DD44748 SHT 2	WOH3076	DD44748 SHT 4
1	5	7		5	7

Layout : Main IF/AF Board PM364/1

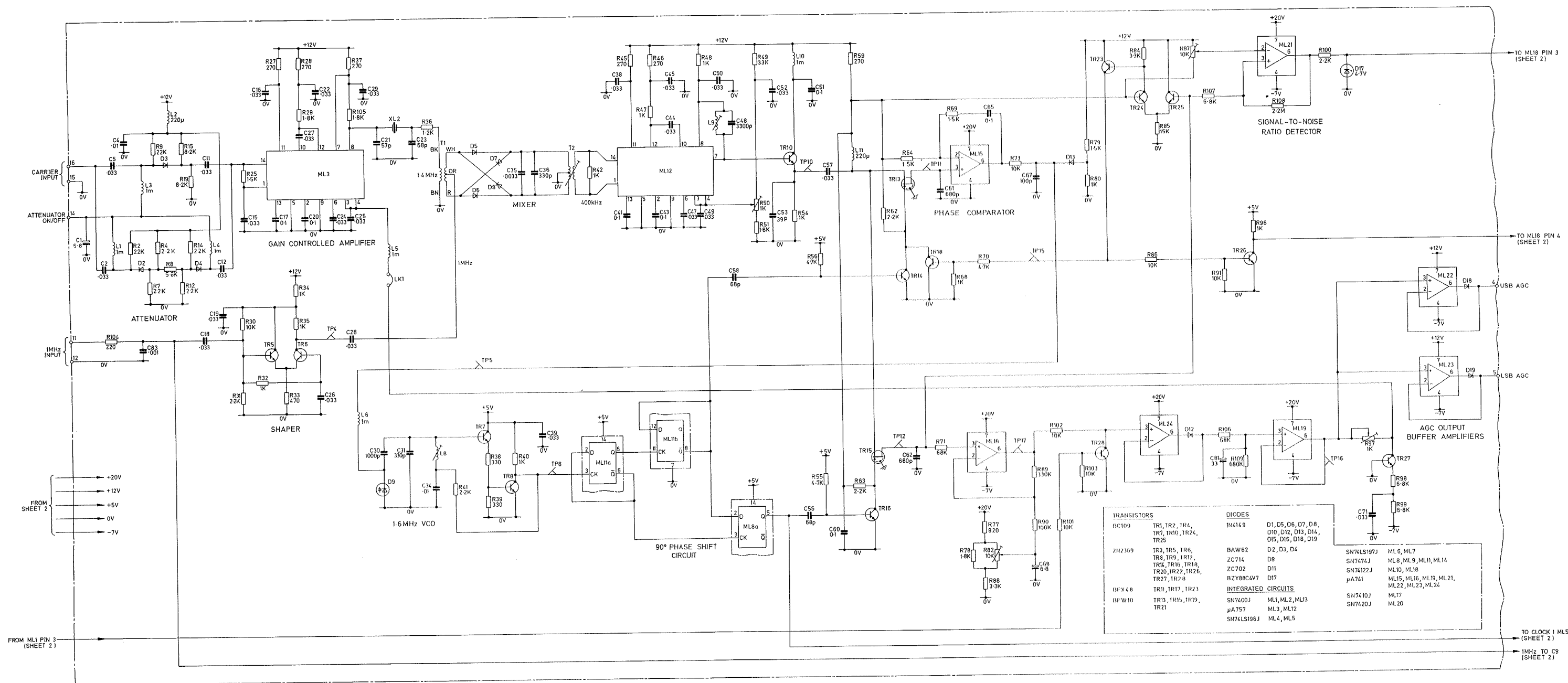
Fig. 27



WOH3076	DD44748 SHT 3	WOH3076	DD44748 SHT 2	WOH3076	DD44750
1	5	7		4	7

Layout: ISB IF/AF Board PM364/3

Fig. 28

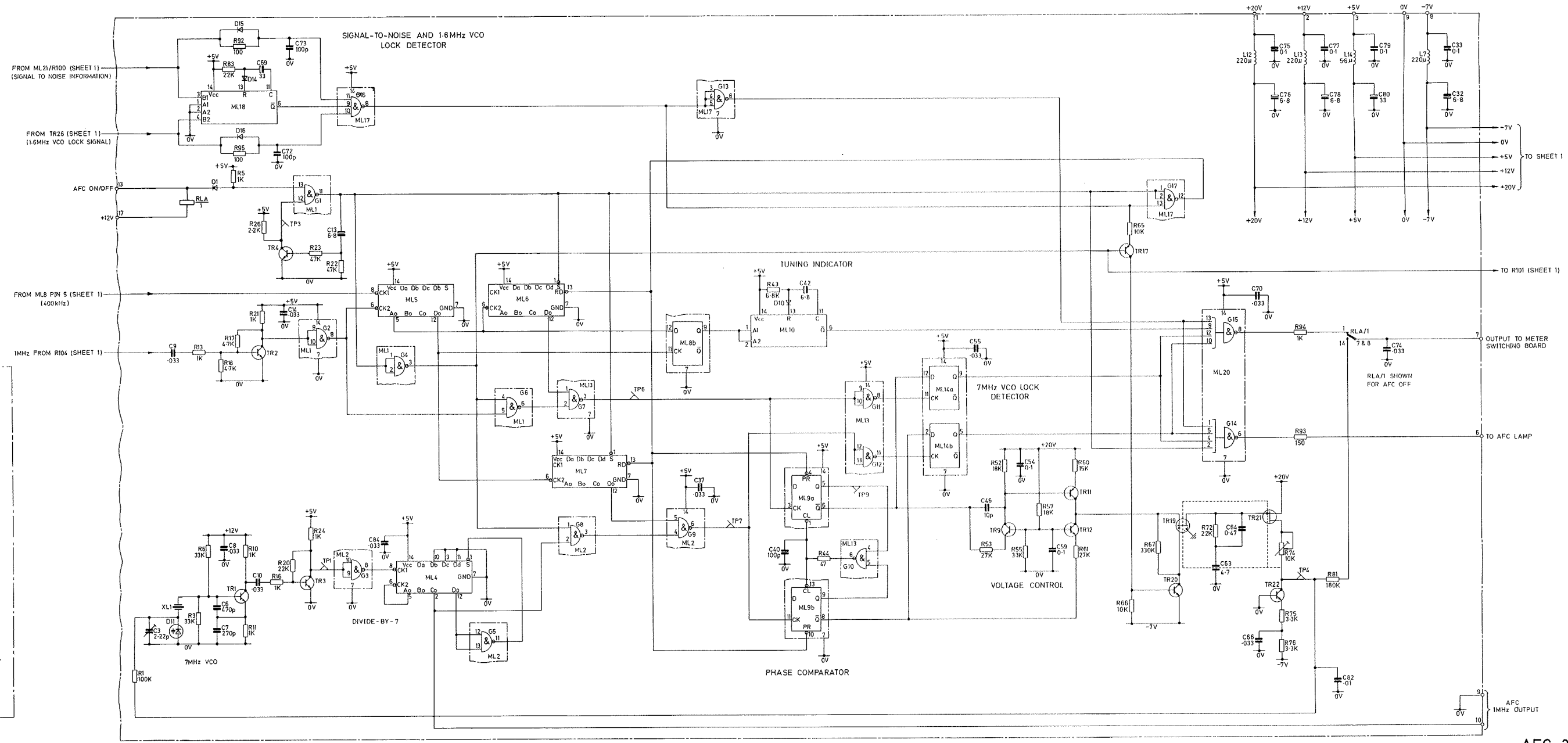


Circuit: AFC Board PM369 (Sheet 1)

AFC-1
Fig. 29

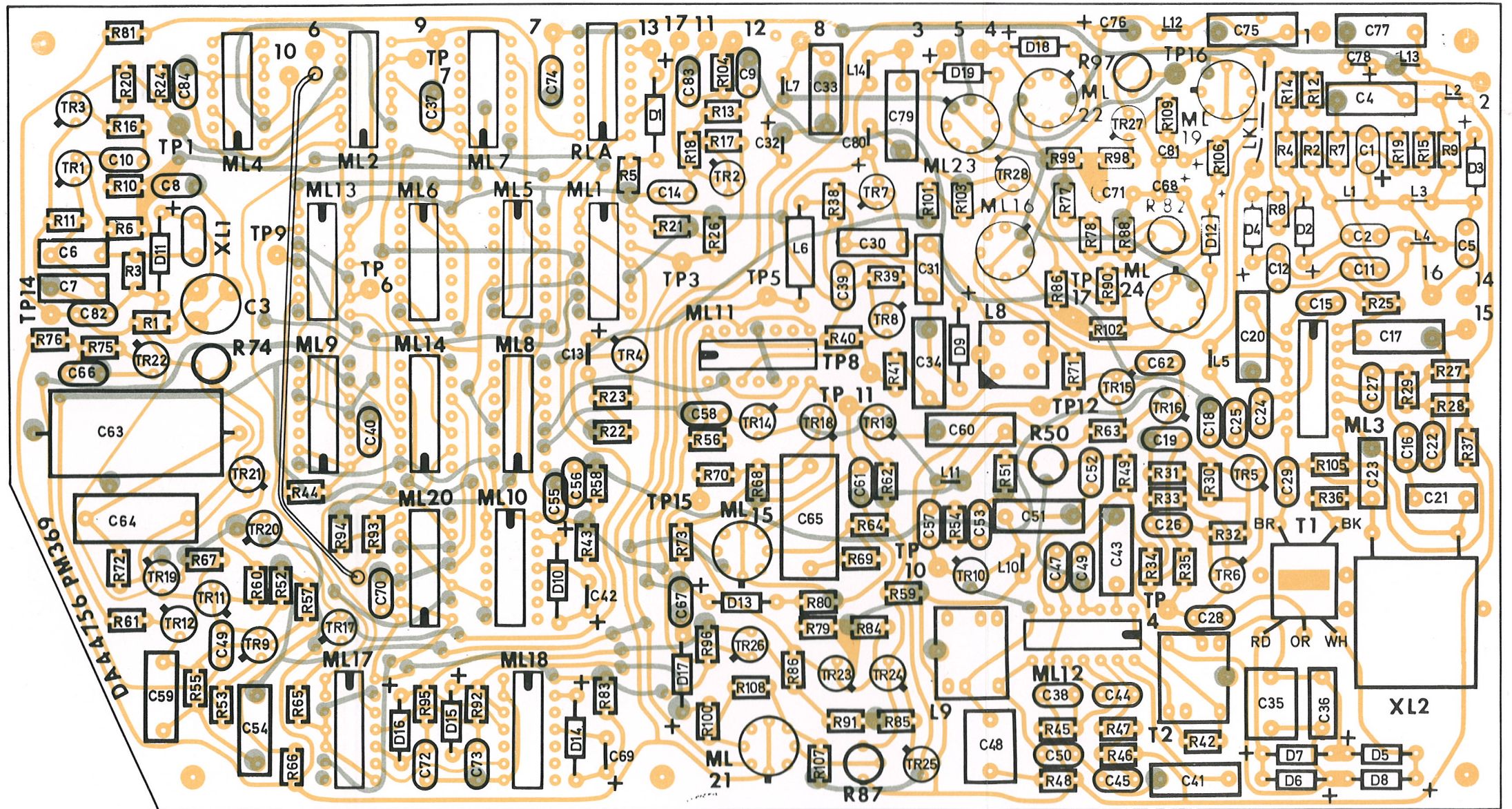
WOH3076 EC44756
PL1121341

TRANSISTORS	
BC109	TR1, TR2, TR4, TR7, TR10, TR24, TR25
2N2269	TR3, TR5, TR6, TR8, TR9, TR12, TR14, TR16, TR18, TR20, TR22, TR26, TR27, TR28
BFX48	TR11, TR17, TR23
BFW10	TR13, TR15, TR19, TR21
DIODES	
1N4149	D1, D5, D6, D7, D8, D10, D12, D13, D14, D15, D16, D18, D19
BAW62	D2, D3, D4
ZC714	D9
ZC702	D11
BZY88C4V7	D17
INTEGRATED CIRCUITS	
SN7400J	ML1, ML2, ML13
μA757	ML3, ML12
SN74LS196J	ML4, ML5
SN74LS197J	ML6, ML7
SN7474J	ML8, ML9, ML11, ML14
SN74122J	ML10, ML18
μA7X1	ML15, ML16, ML19, ML21, ML22, ML23, ML24
SN7410J	ML17
SN7420J	ML20



WOH3076 EC44756
PL1121

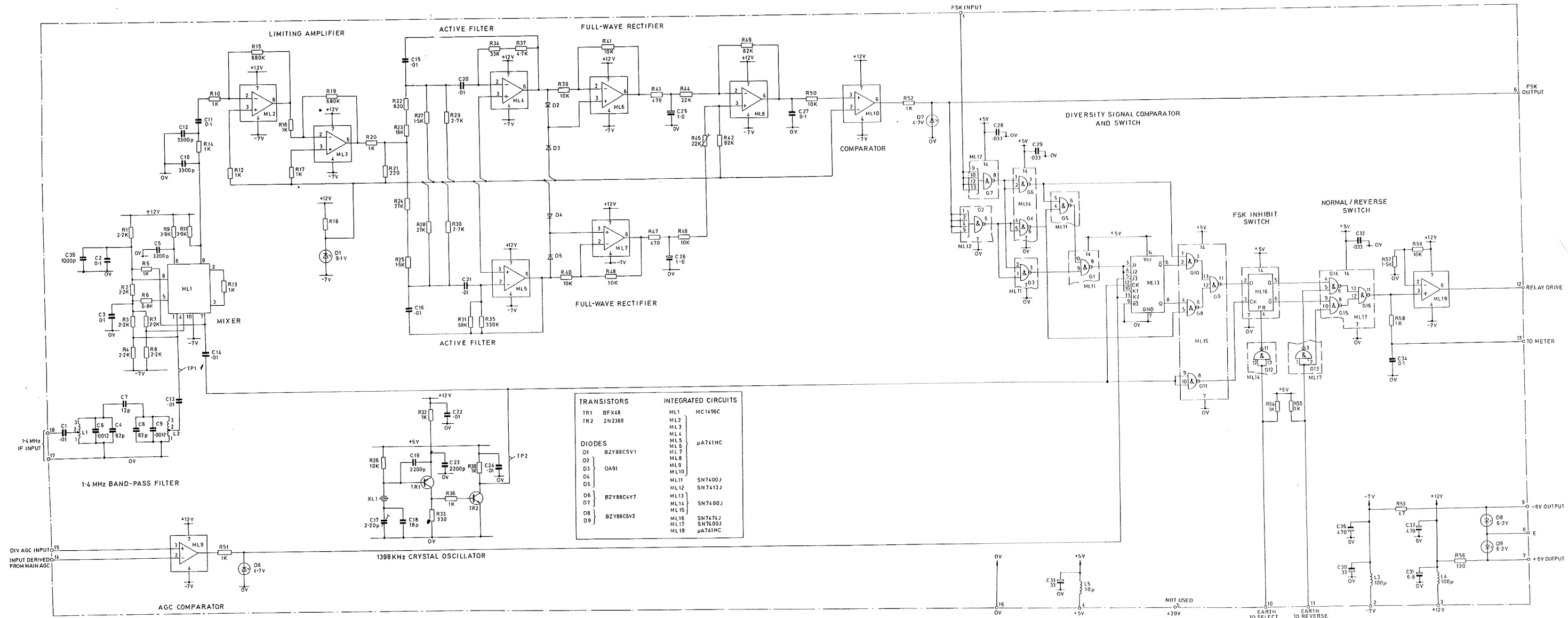
Circuit: AFC Board PM369 (Sheet 2)



WOH3076	DD44754	SHT 3	WOH3076	DD44754	SHT 2	WOH3076	DD44754	SHT 4
1			1	3		1	2	

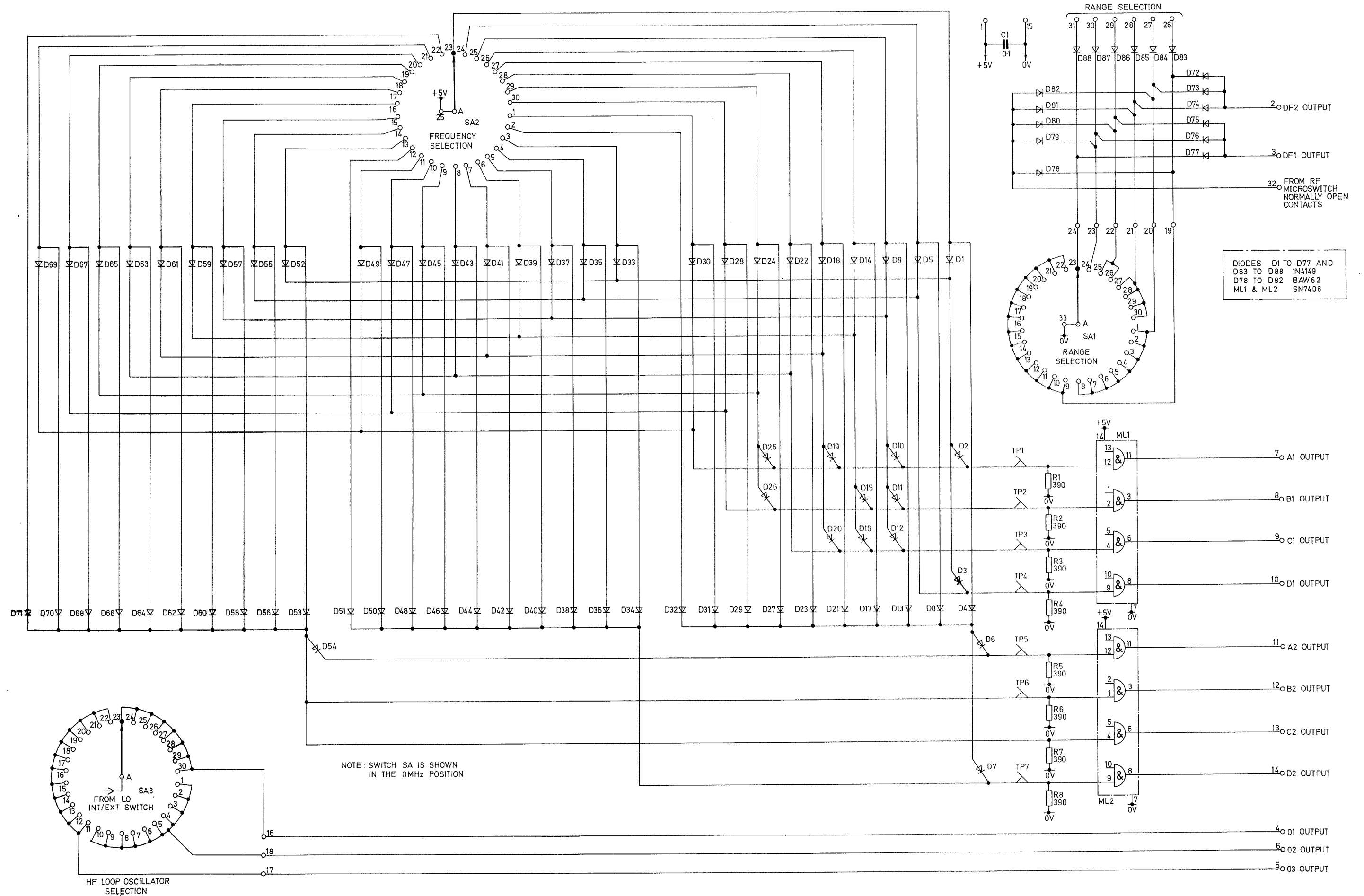
Layout: AFC Board PM369

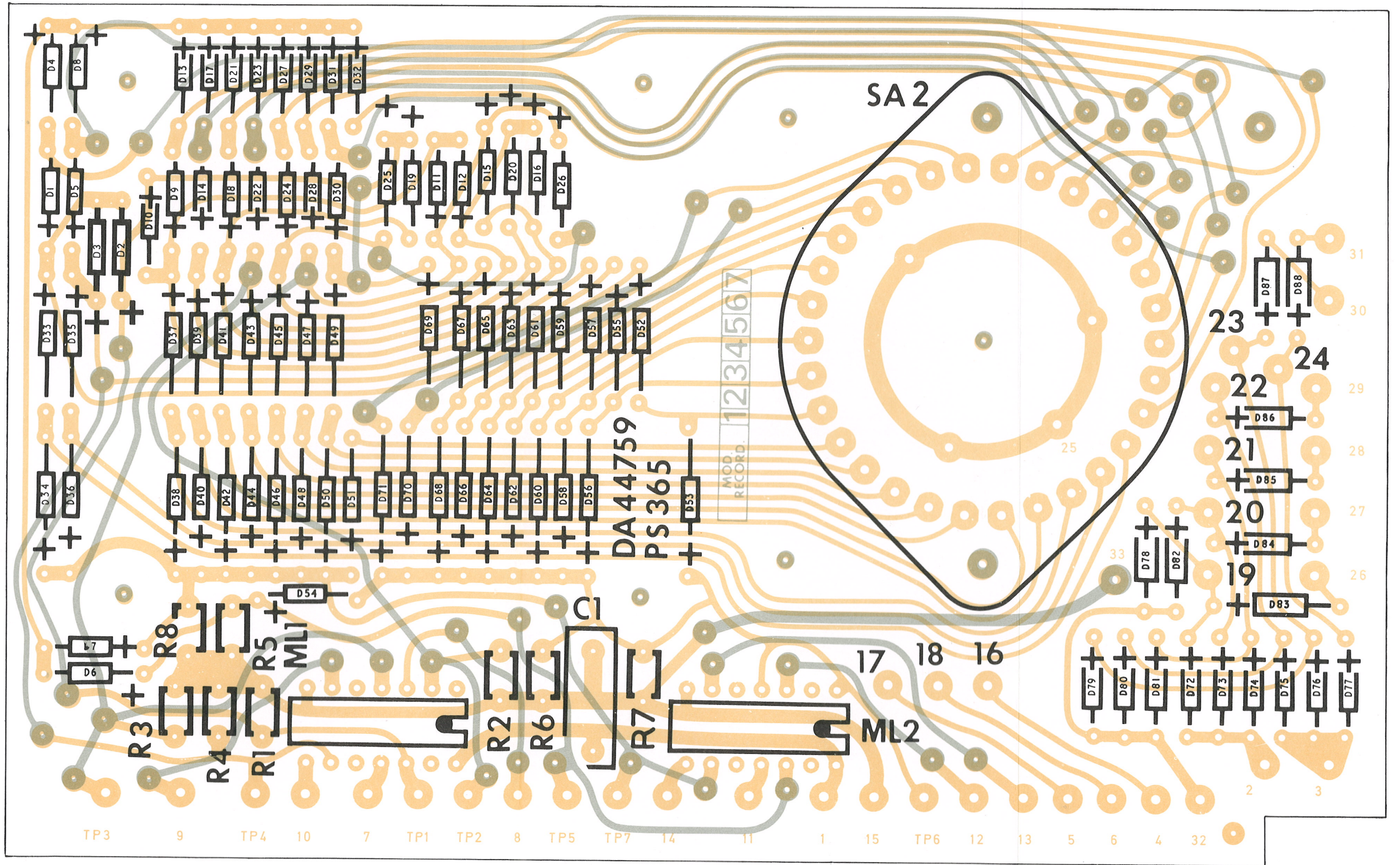
Fig. 31



WOH3076 DC47016/A
1 3 4 5

Circuit: FSK Demodulator PM368

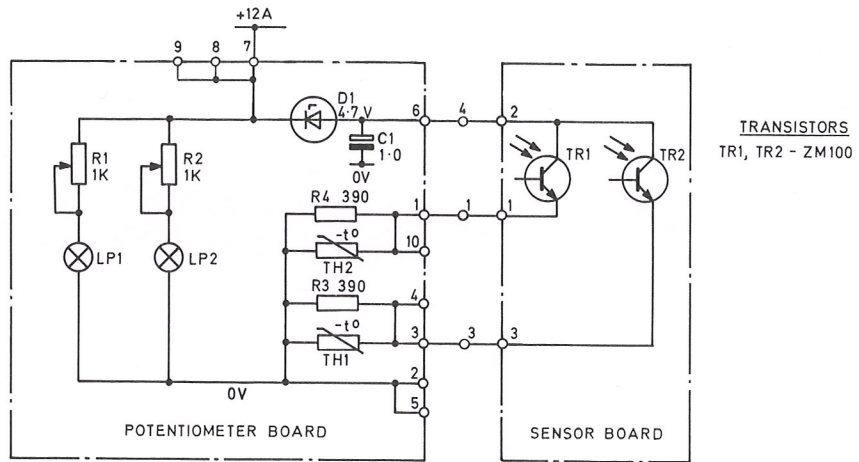




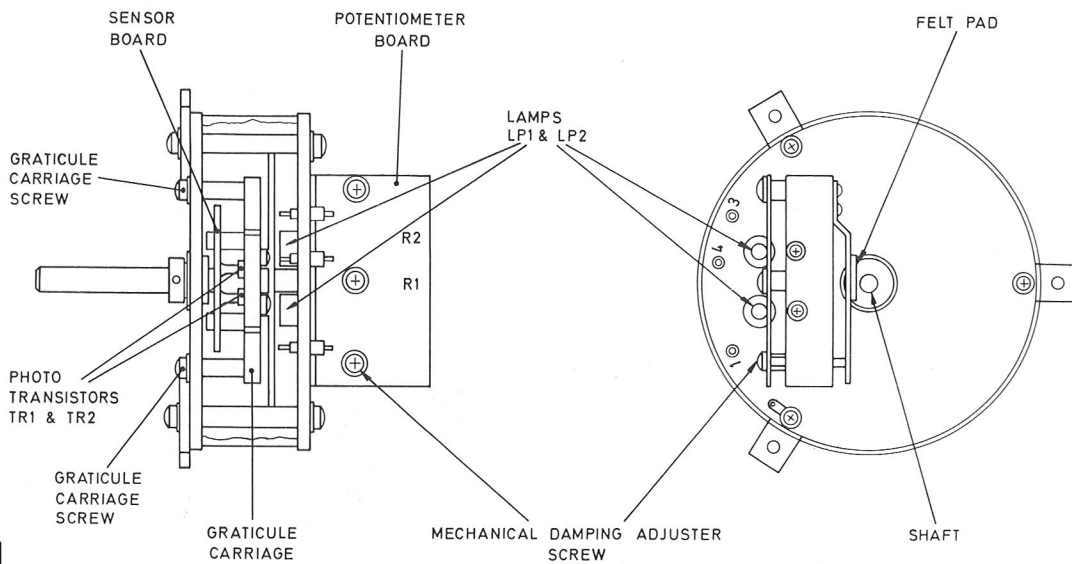
WOH 3076	D44757	SHT 3	WOH 3076	D44757	SHT 2	WOH 3076	DA 44759
1	3		3			1	2

Layout Logic Board PS 365

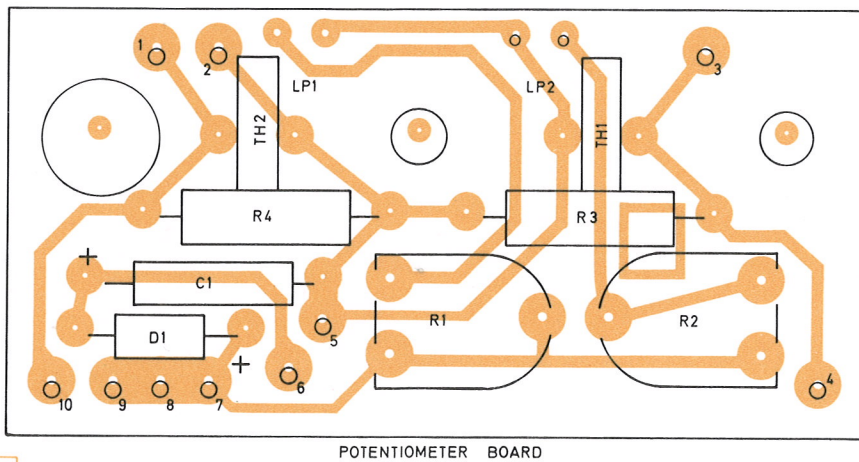
Fig. 35



AC44180
4 5



CA44180
2



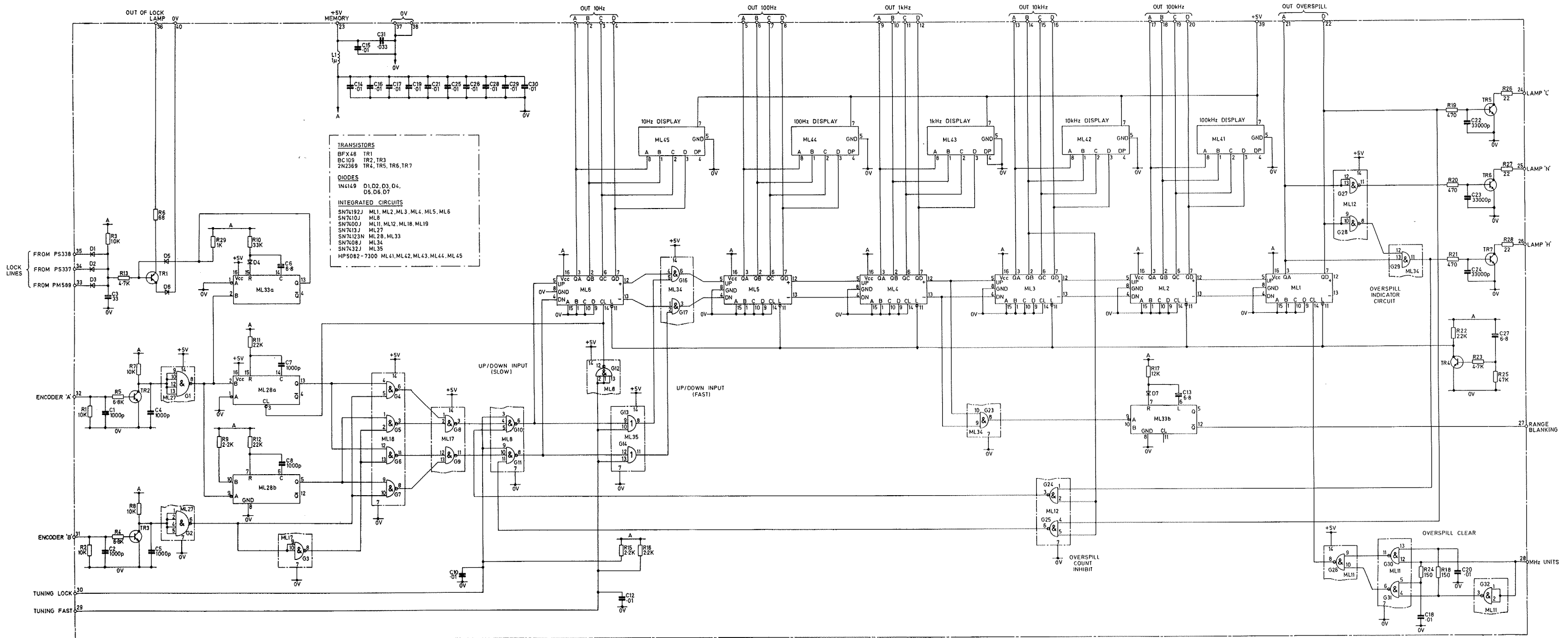
CA47380
3

CD47382	SHT 2	36
2		2/2

WOH 3076

Optical Shaft Encoder

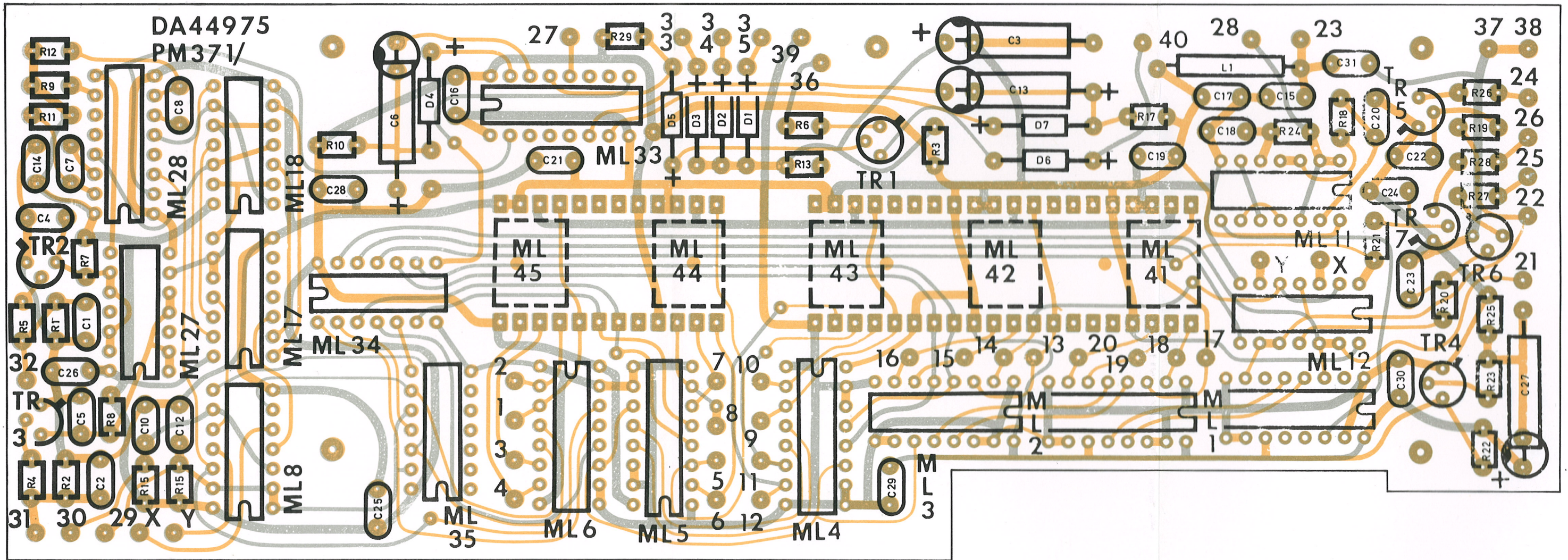
Fig. 36



WOH3076 EC44976
 C11

Circuit: Display Board PM371

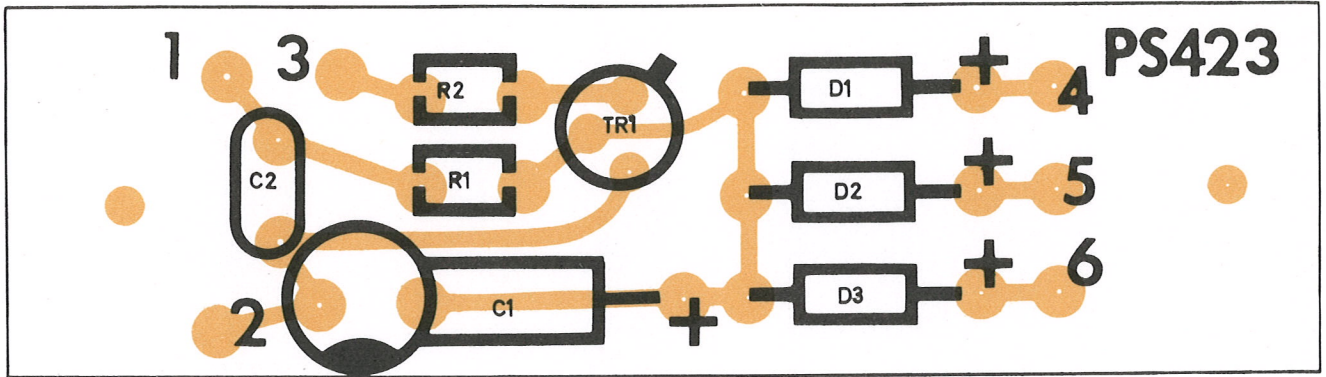
Display
 Fig. 37



WOH 3076	DD44975	WOH 3076	DD44973 SHT. 2	WOH 3076	DD44973 SHT. 3
1		1		1	

Layout : Display Board PM371

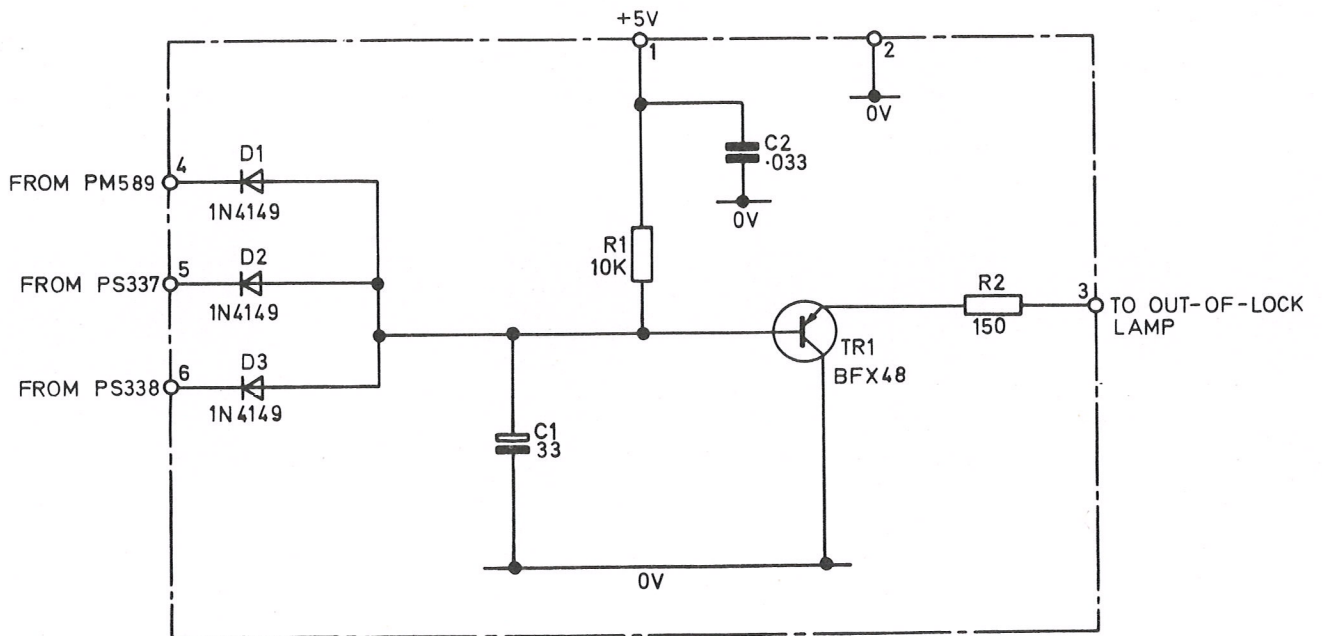
Fig. 38



CD45847 SHT. 3
1

CD45847 SHT 2
1

LAYOUT

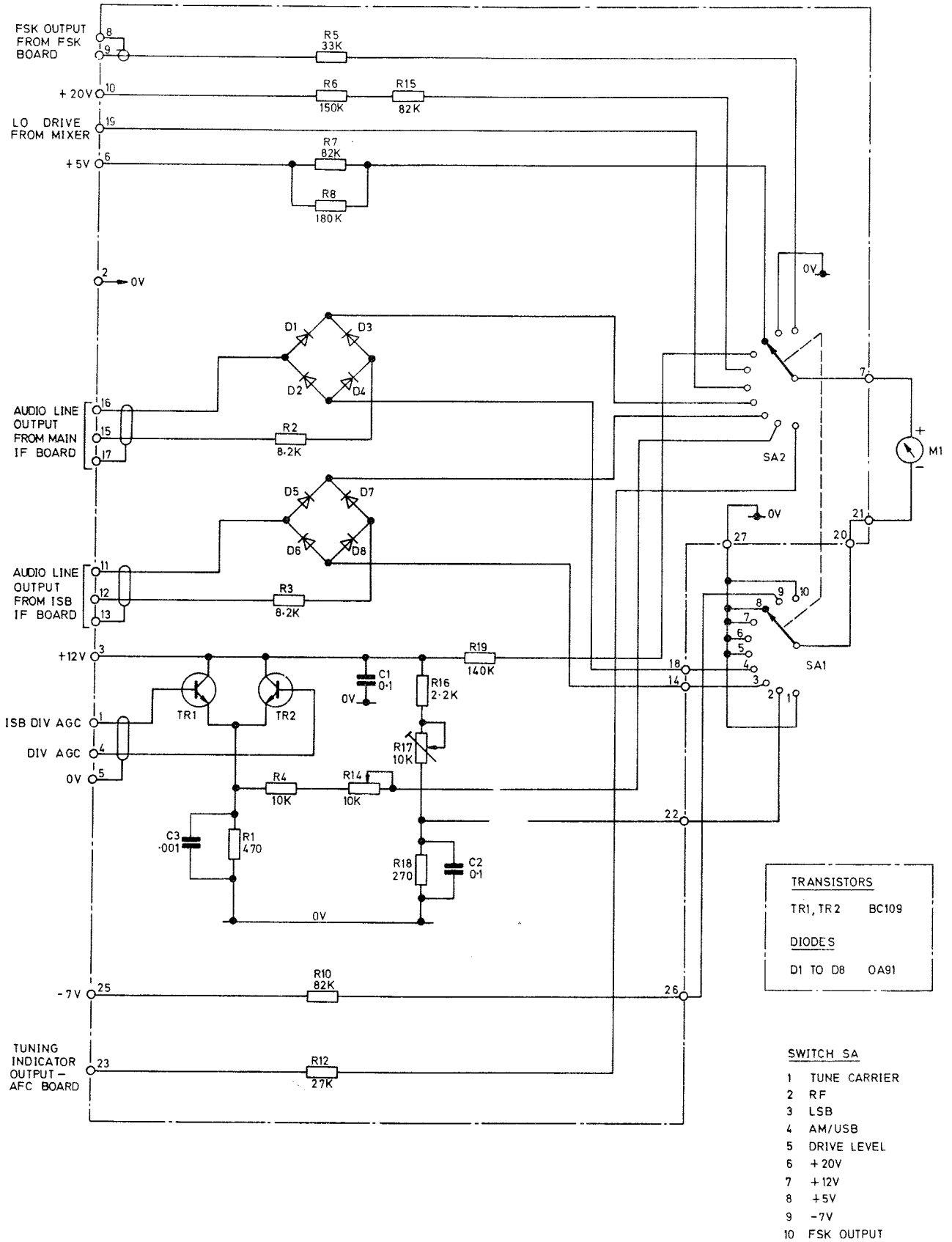


AC45849
1

CIRCUIT

Out-of-Lock Indicator Board PS423
(RA.1771 Only)

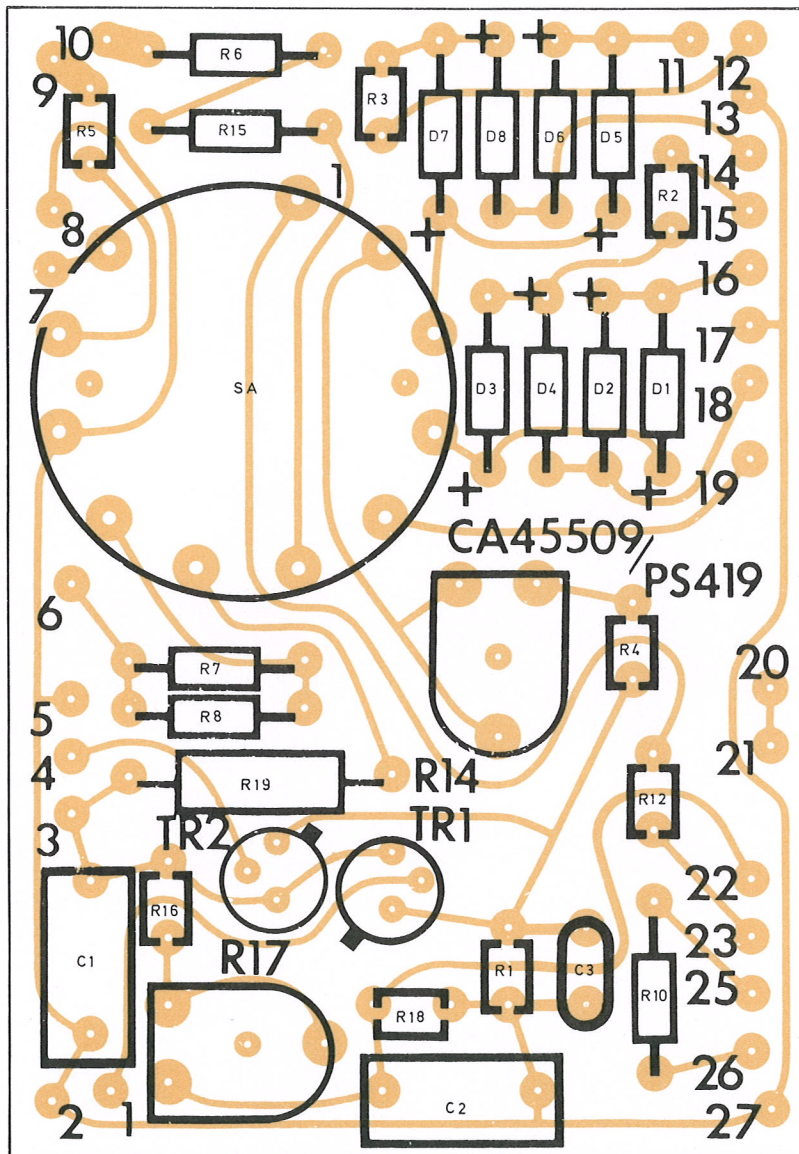
WOH3076

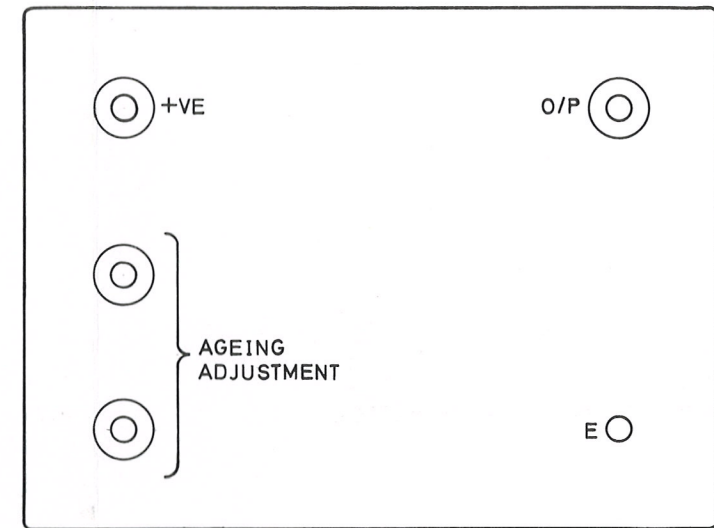
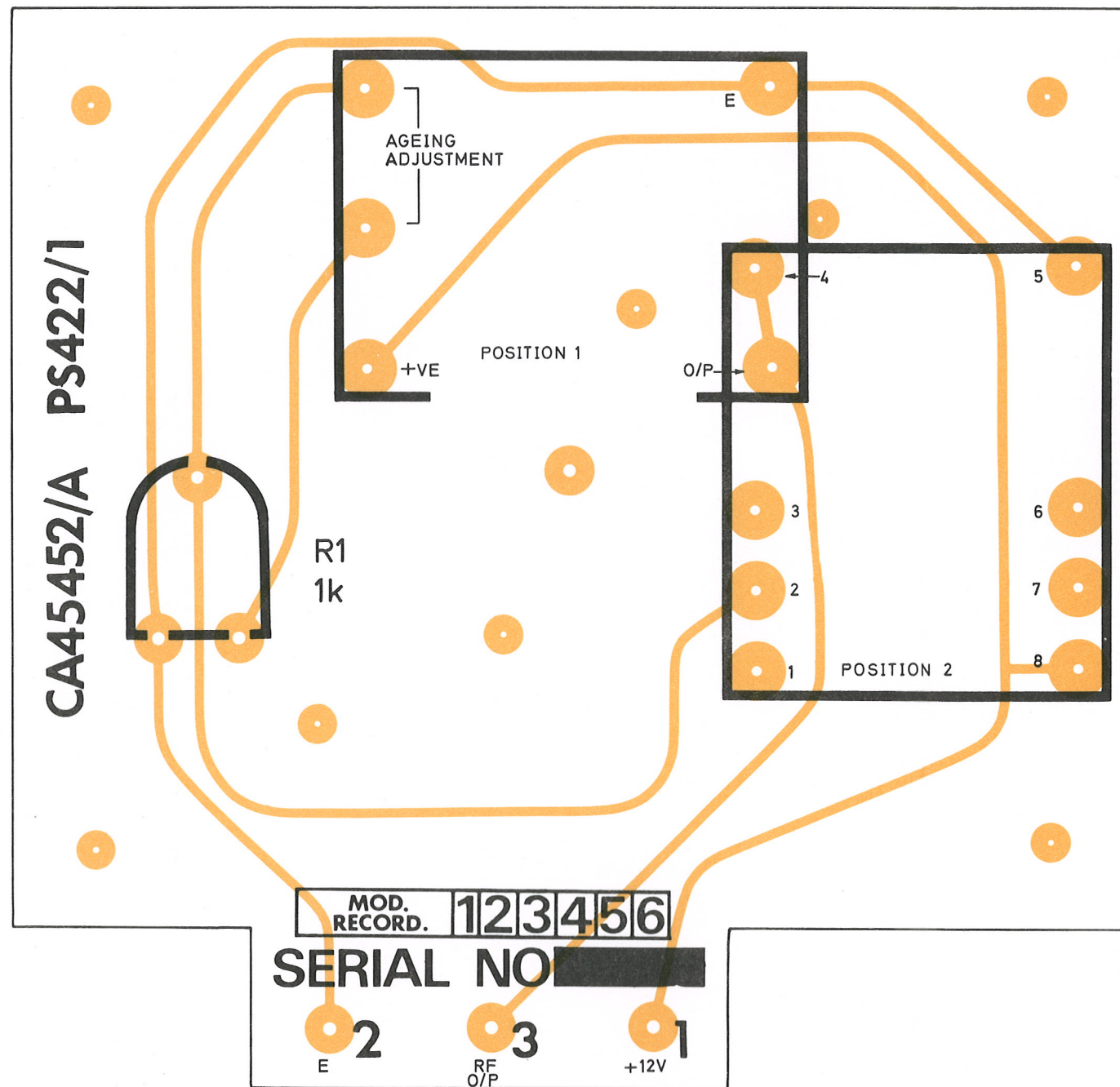


WOH3076 CC45509
 B1314

Circuit : Meter Switching Board

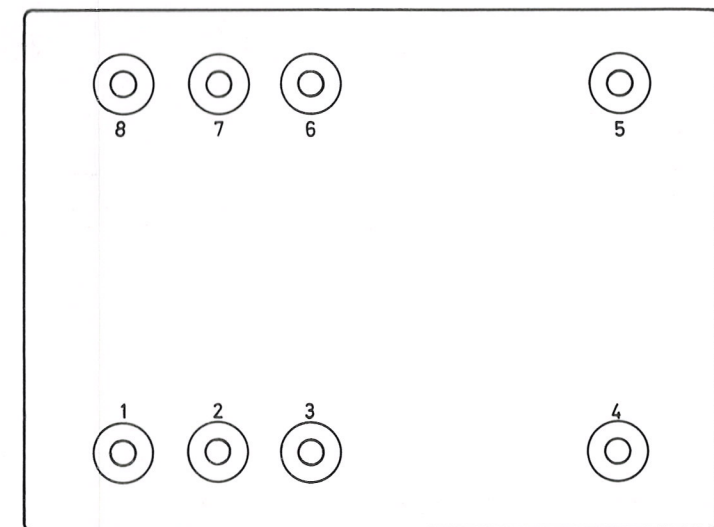
Fig.40





POSITION 1.

ALTERNATIVE CASE STYLE



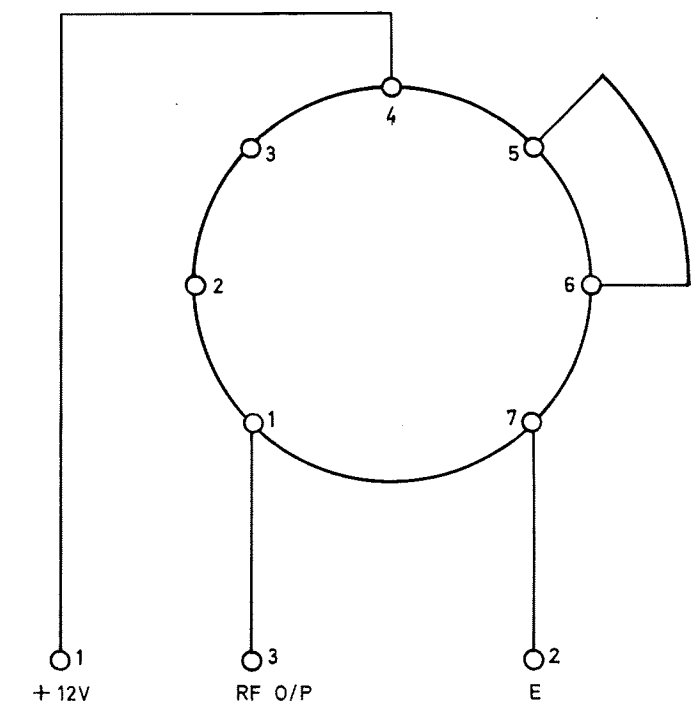
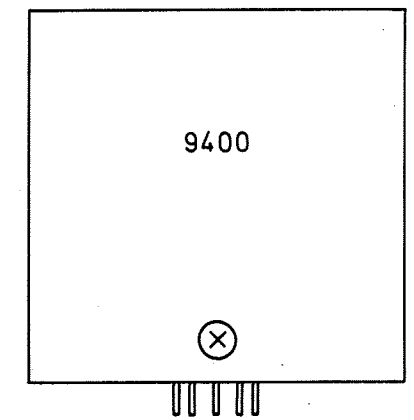
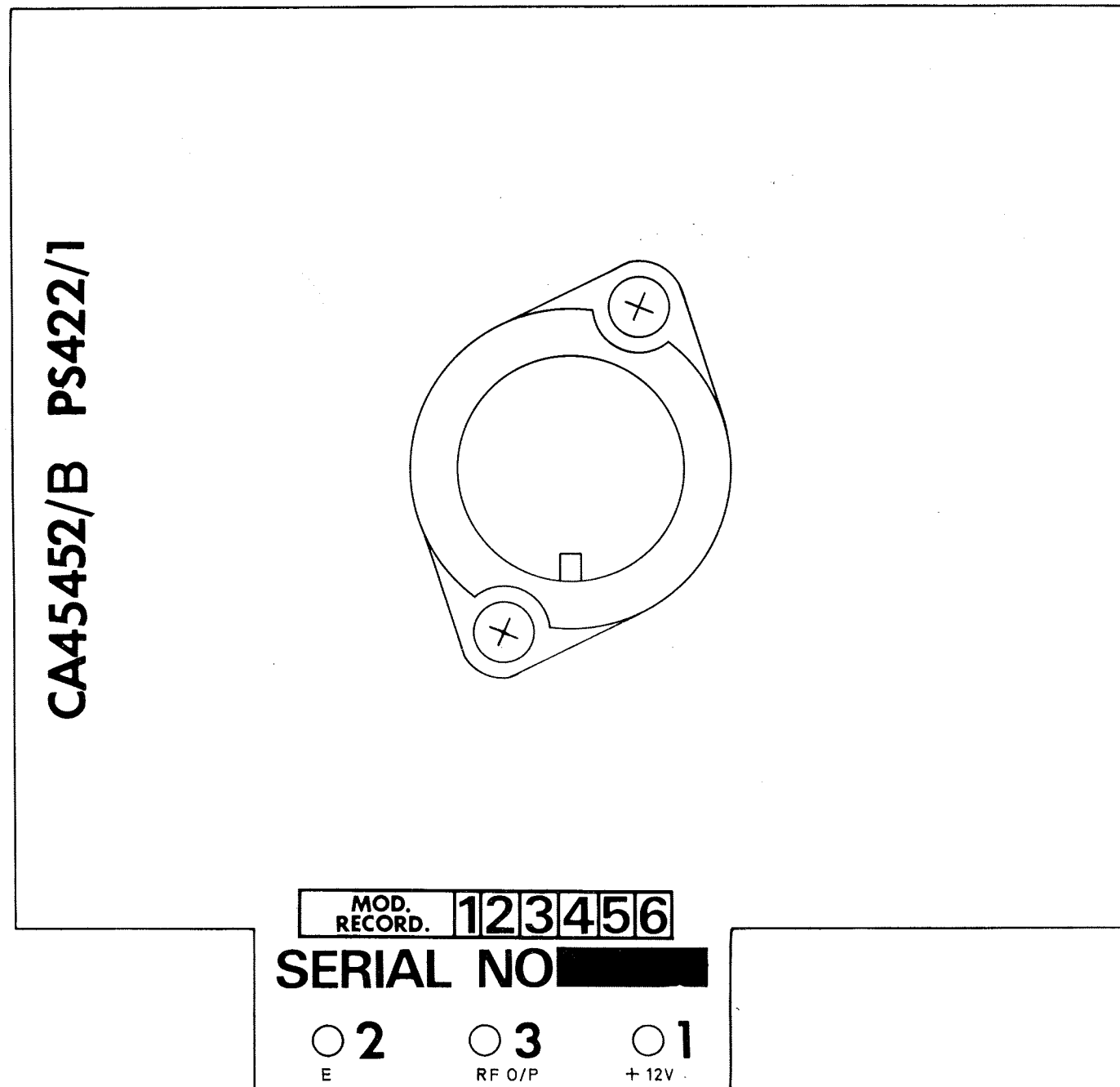
POSITION 2.

- PIN
1. TEST POINT
 2. AGEING ADJUSTMENT
 3. TEST POINT
 4. RF OUTPUT
 5. DC AND RF NEGATIVE
 6. TEST POINT
 7. TEST POINT
 8. DC POSITIVE

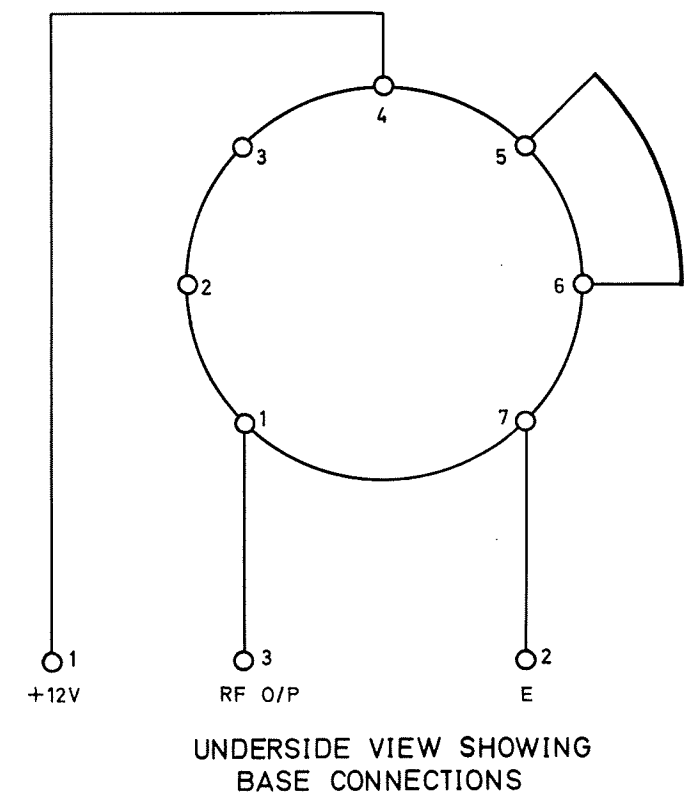
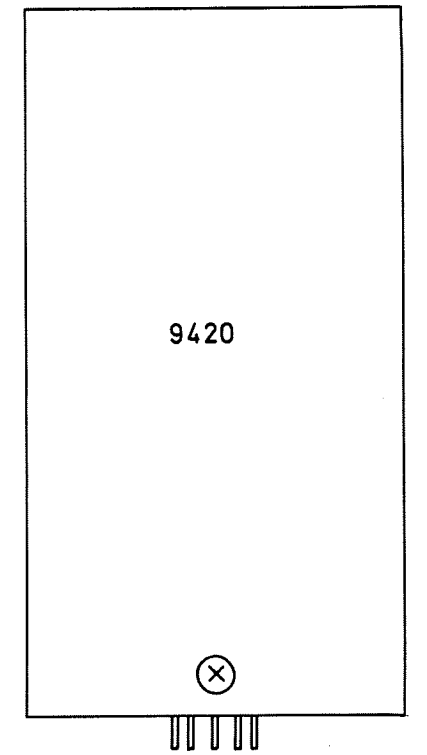
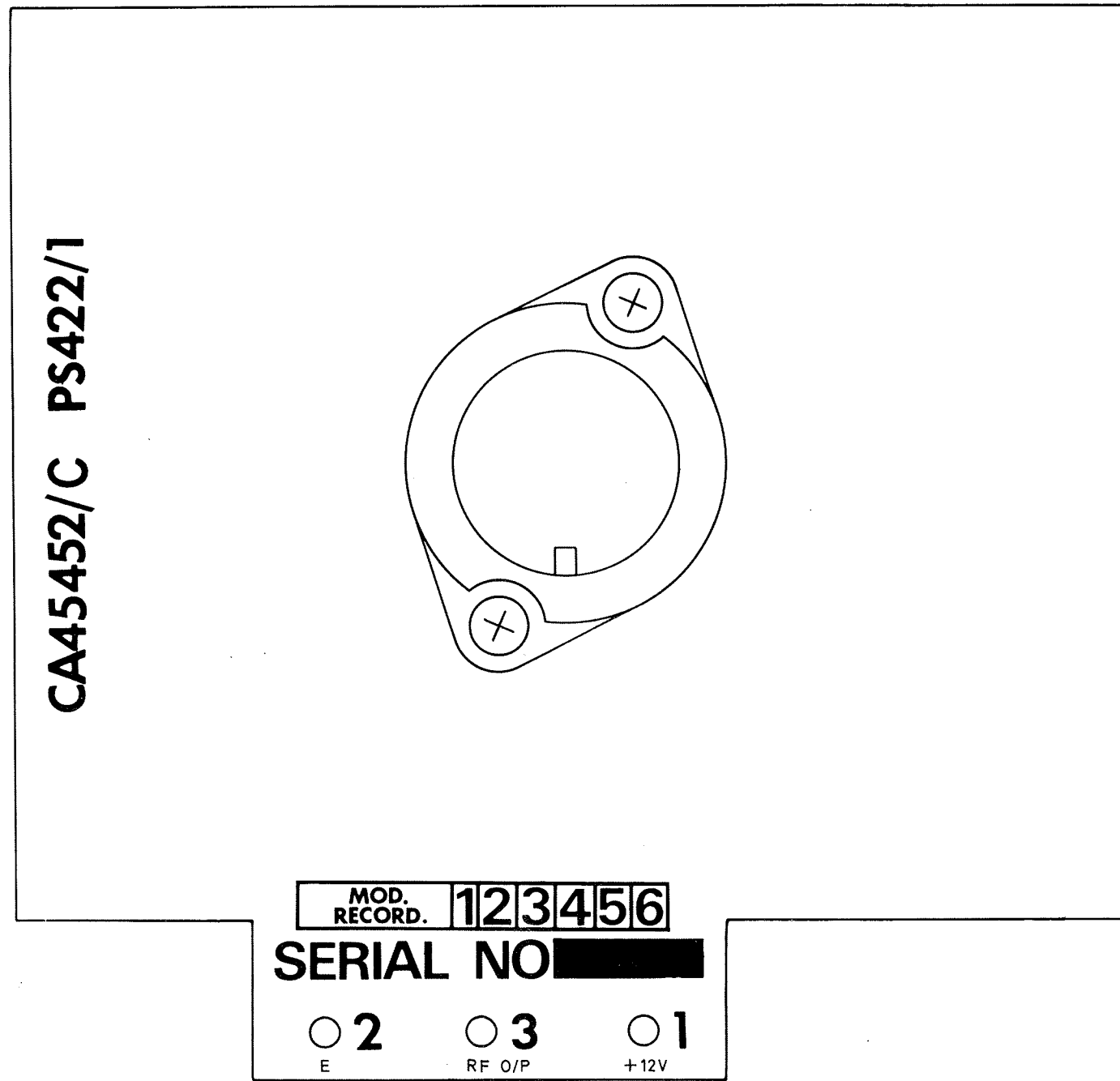
WOH3076	CD45450 SHT 2	WOH3076	CD45450 SHT.3
1	2	1	

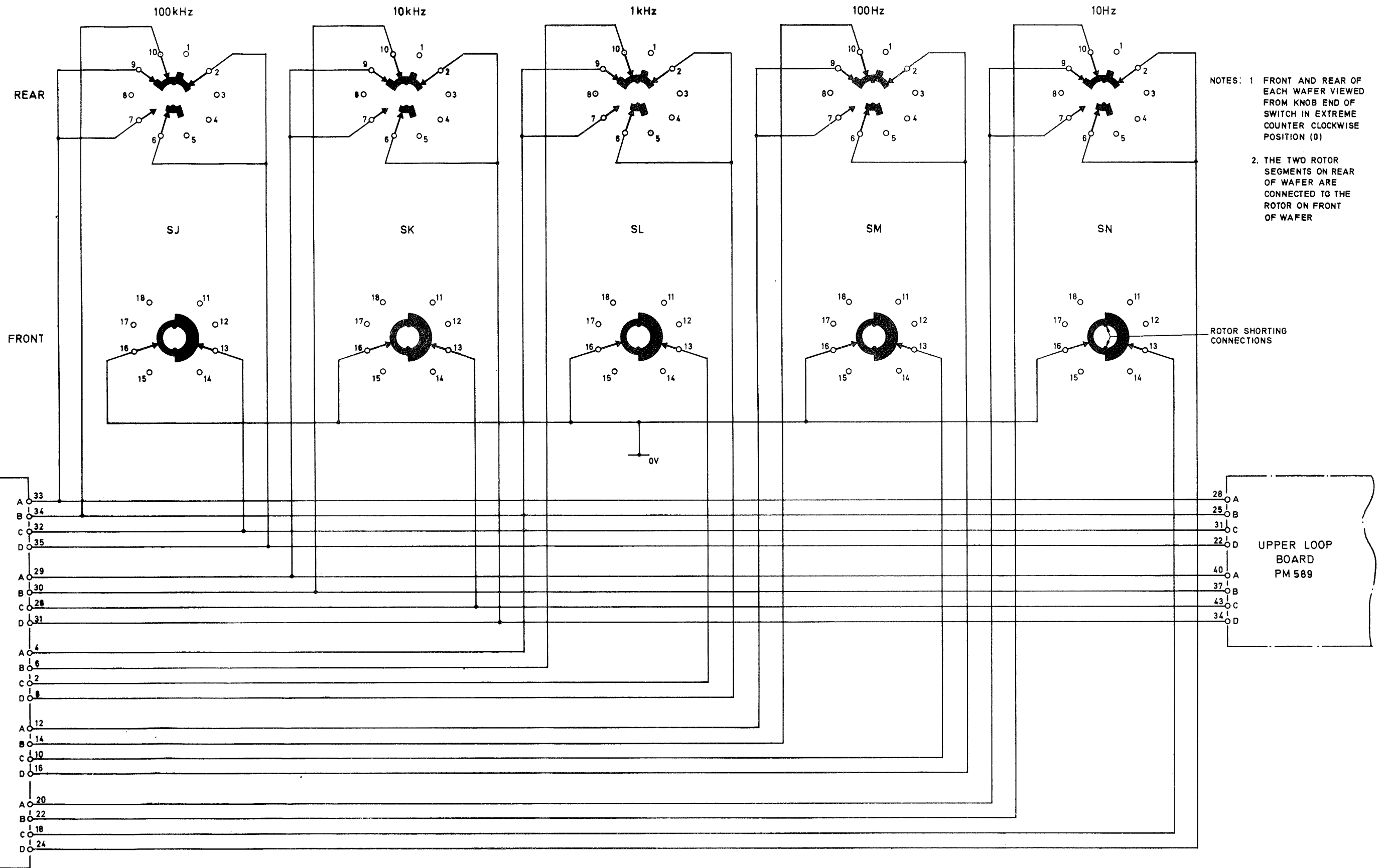
Layout: TCXO Frequency Standard Board

Fig. 42



UNDERSIDE VIEW SHOWING
BASE CONNECTIONS





- NOTES: 1 FRONT AND REAR OF EACH WAFER VIEWED FROM KNOB END OF SWITCH IN EXTREME COUNTER CLOCKWISE POSITION (0)
2. THE TWO ROTOR SEGMENTS ON REAR OF WAFER ARE CONNECTED TO THE ROTOR ON FRONT OF WAFER

ROTOR SHORTING CONNECTIONS

LF LOOP BOARD
PM 588

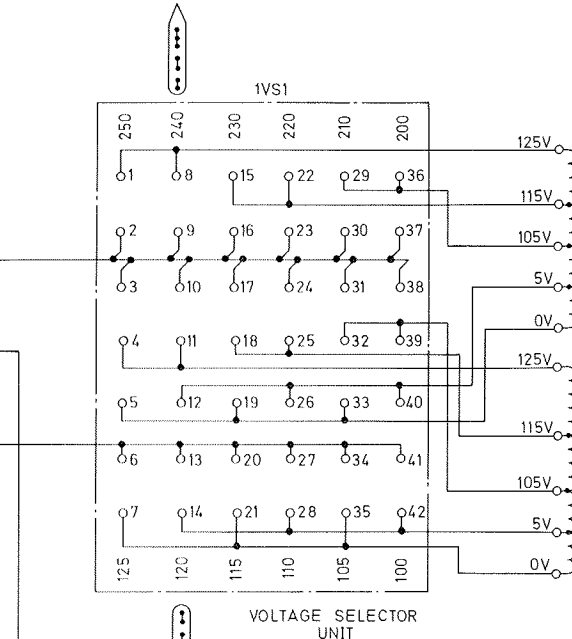
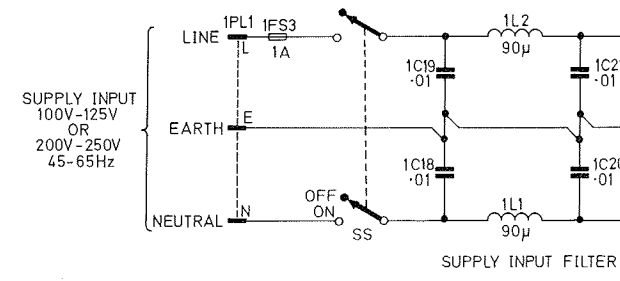
UPPER LOOP BOARD
PM 589

Decade Switches

Circuit : Decade Frequency Switches (RA.1771 only)

Fig.45

TRANSISTORS	
TR1, TR2 (Earlier Versions)	BFY51
1TR1, 1TR2, 1TR3	2N6055
Earlier Versions	2N3055
TR3	RCA40412
DIODES	
D1	10DB05 A
D2, D3	5SB05
D4	BSB4
D5	1SB20
D6, D7, D8	10D1
D9	0A91
INTEGRATED CIRCUITS	
ML1, ML2, ML3, ML4	μ A723HM

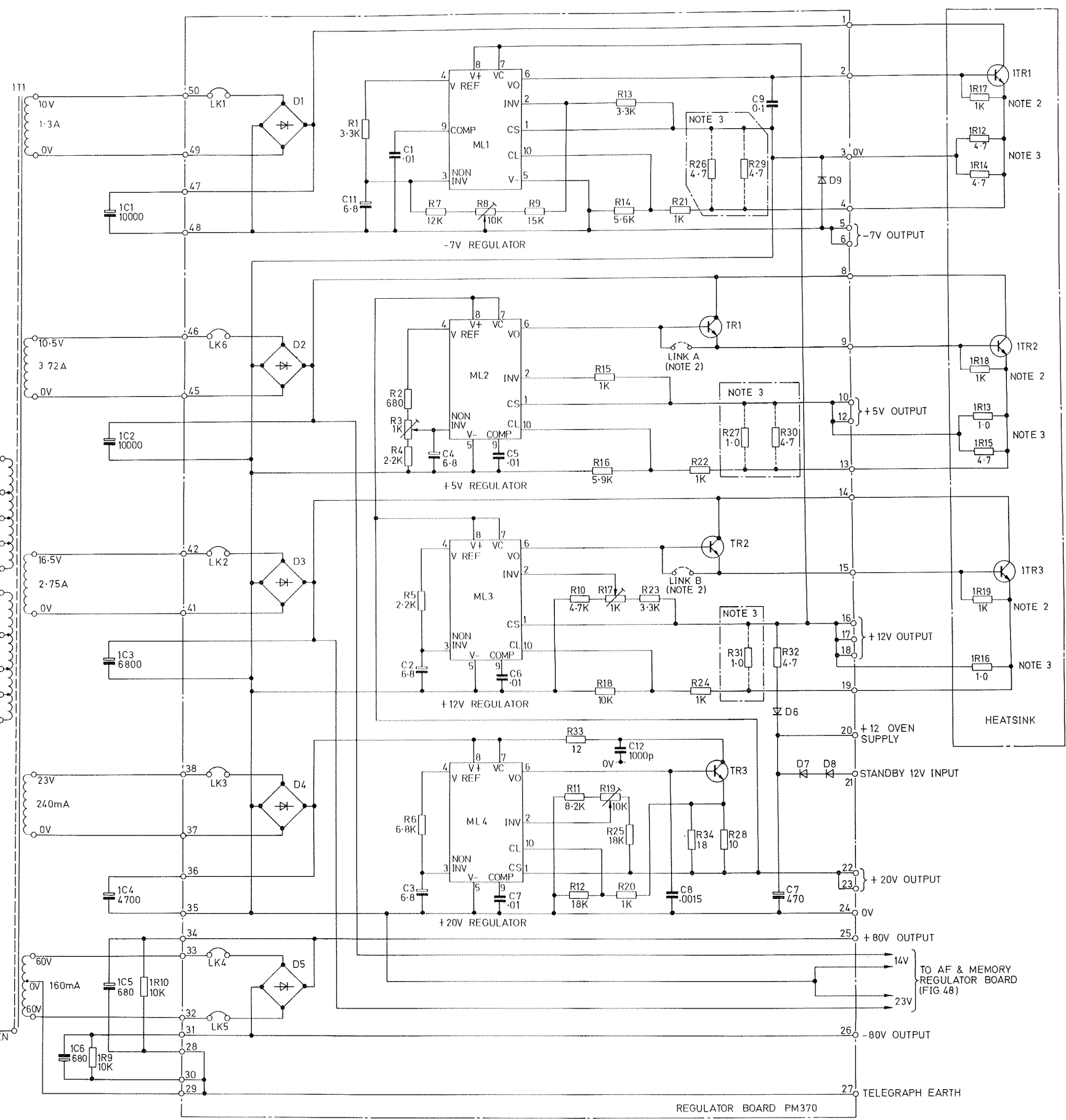


NOTE 1: COMPONENTS PREFIXED 1 ARE NOT MOUNTED ON THE BOARD.

NOTE 2: IN LATER VERSIONS, WHERE 1TR1, 1TR2 AND 1TR3 ARE TYPE 2N6055, TR1, TR2 OMITTED, LINKS A & B MADE & 1R17, 1R18, 1R19 ADDED.

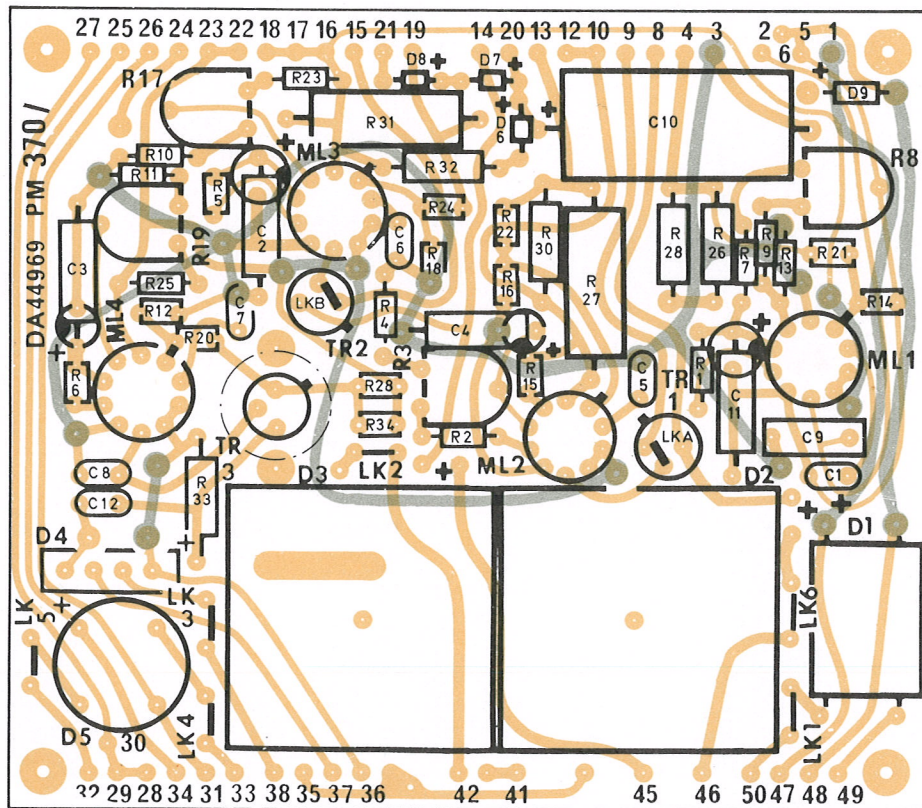
NOTE 3: IN LATER VERSIONS, RESISTORS R26, R27, R29, R30 AND R31 REMOVED TO HEATSINK AND BECOME 1R12 TO 1R16 RESPECTIVELY.

NOTE 4: LK1 TO LK6 ARE FUSEABLE LINKS



Circuit : Power Supplies

Power Supplies
Fig. 46

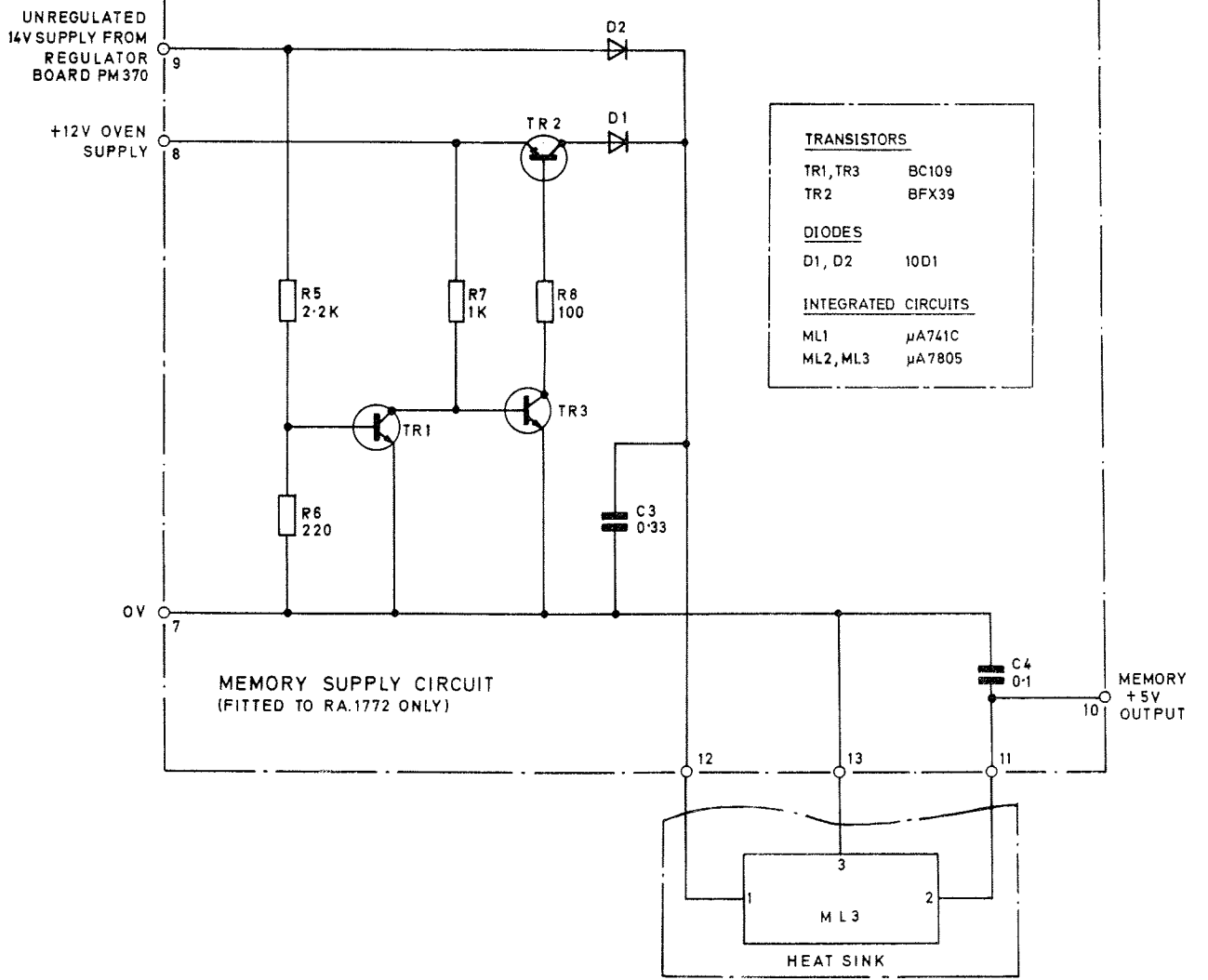
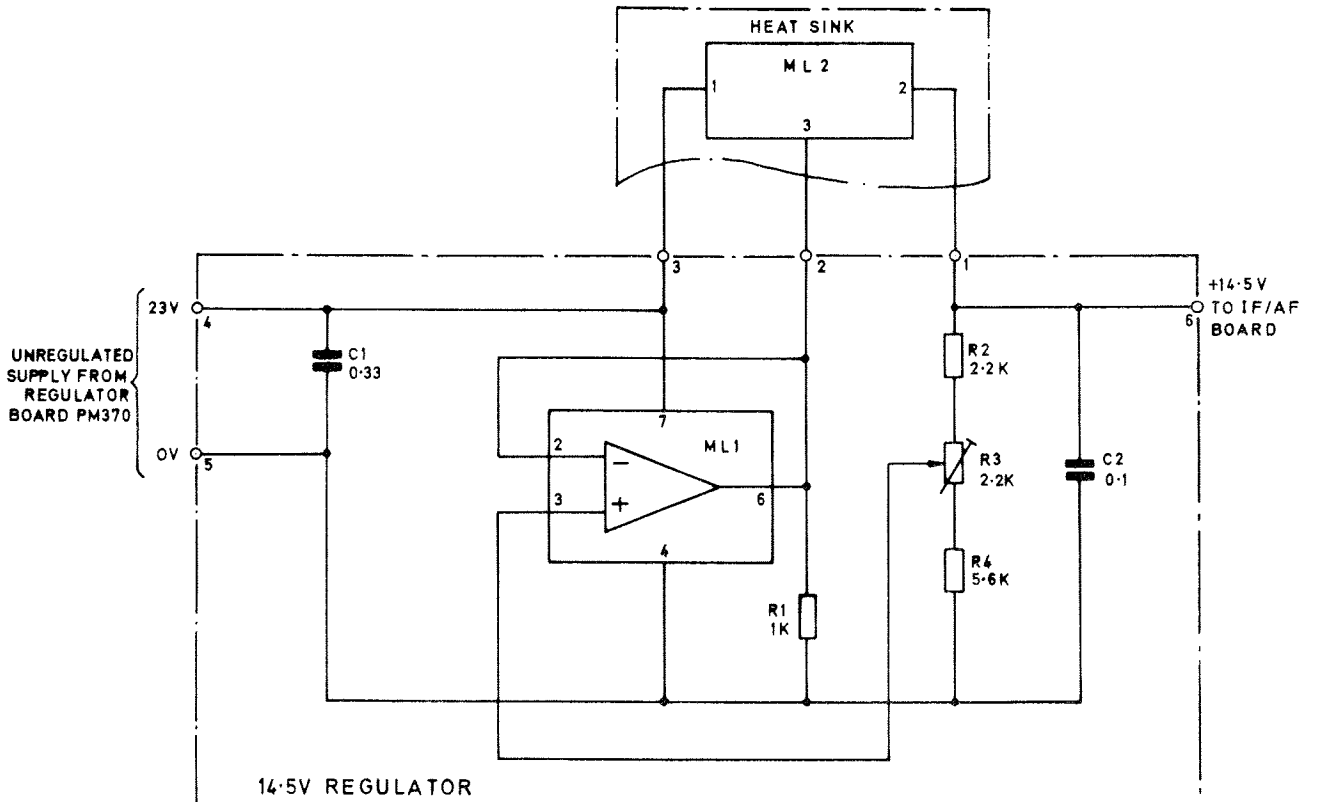


- NOTES: 1. DA44969/C & /D - LINKS A AND B FITTED IN PLACE OF TR1 AND TR2.
 2. DA44969/D - RESISTORS R26, R27, R29, R30 AND R31 NOT FITTED.

WOH3067	DD44967 SHT 3
2	
WOH3076	DD44967 SHT 2
2	
WOH 3076	DA 44969
2	4

Layout: Regulator Board PM370

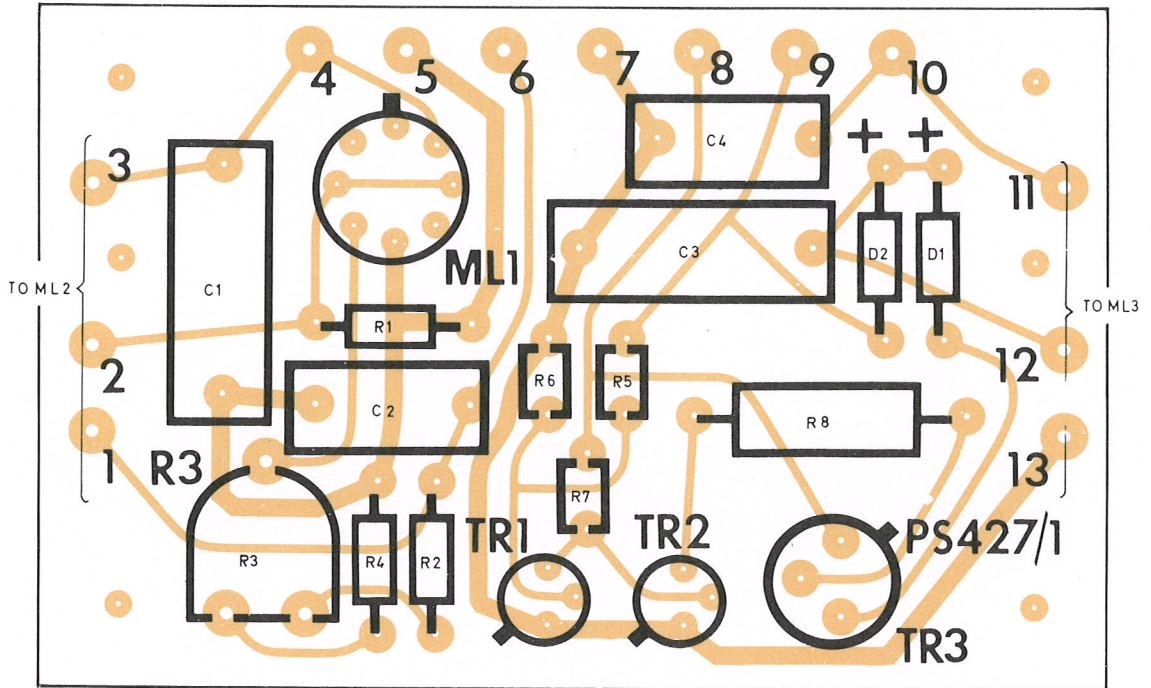
Fig.47



TRANSISTORS	
TR1, TR3	BC109
TR2	BFX39
DIODES	
D1, D2	10D1
INTEGRATED CIRCUITS	
ML1	μ A741C
ML2, ML3	μ A7805

WOH3076 BC46172/V
PL 1

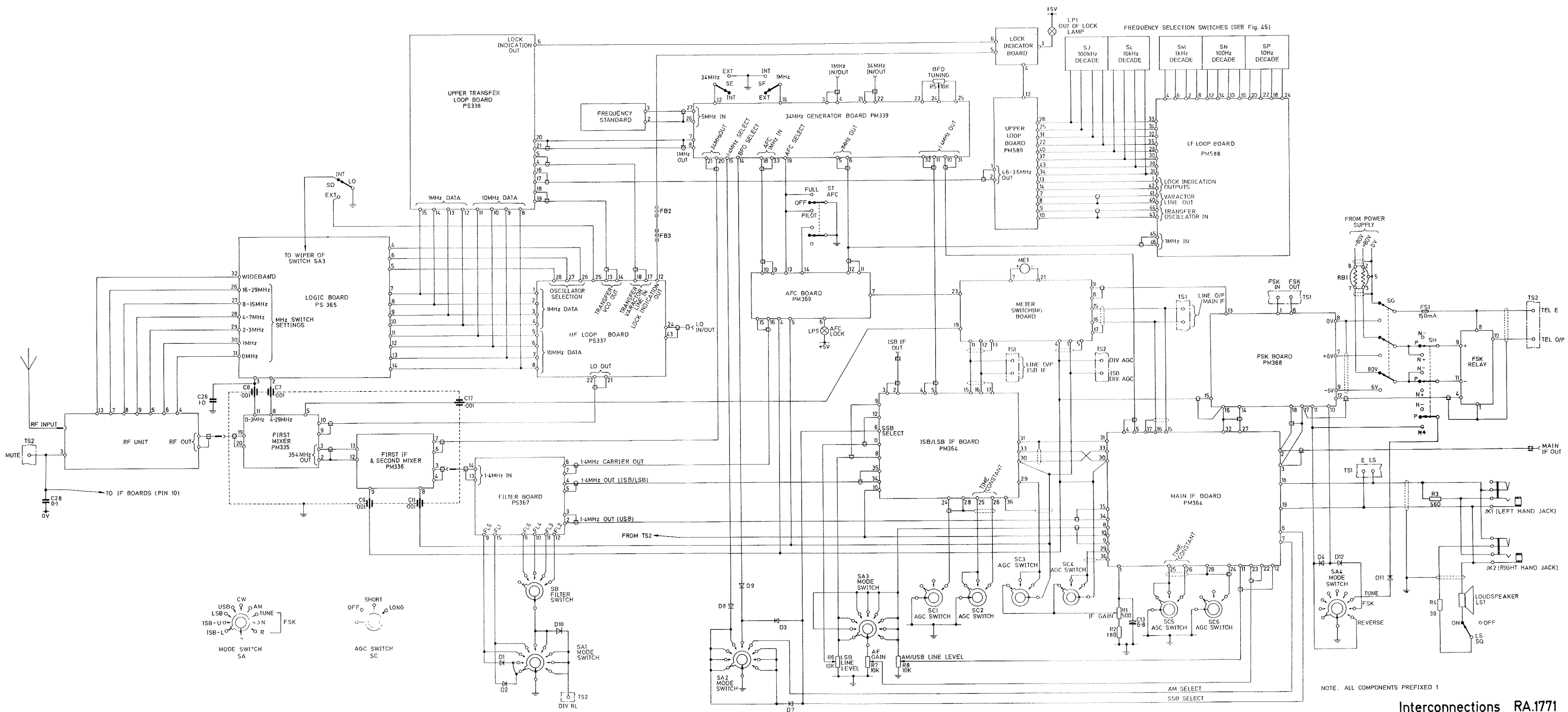
Circuit
AF and Memory Regulator Board PS427/1 Fig. 48



WOH 3076	CD46241 SHT 2
1	

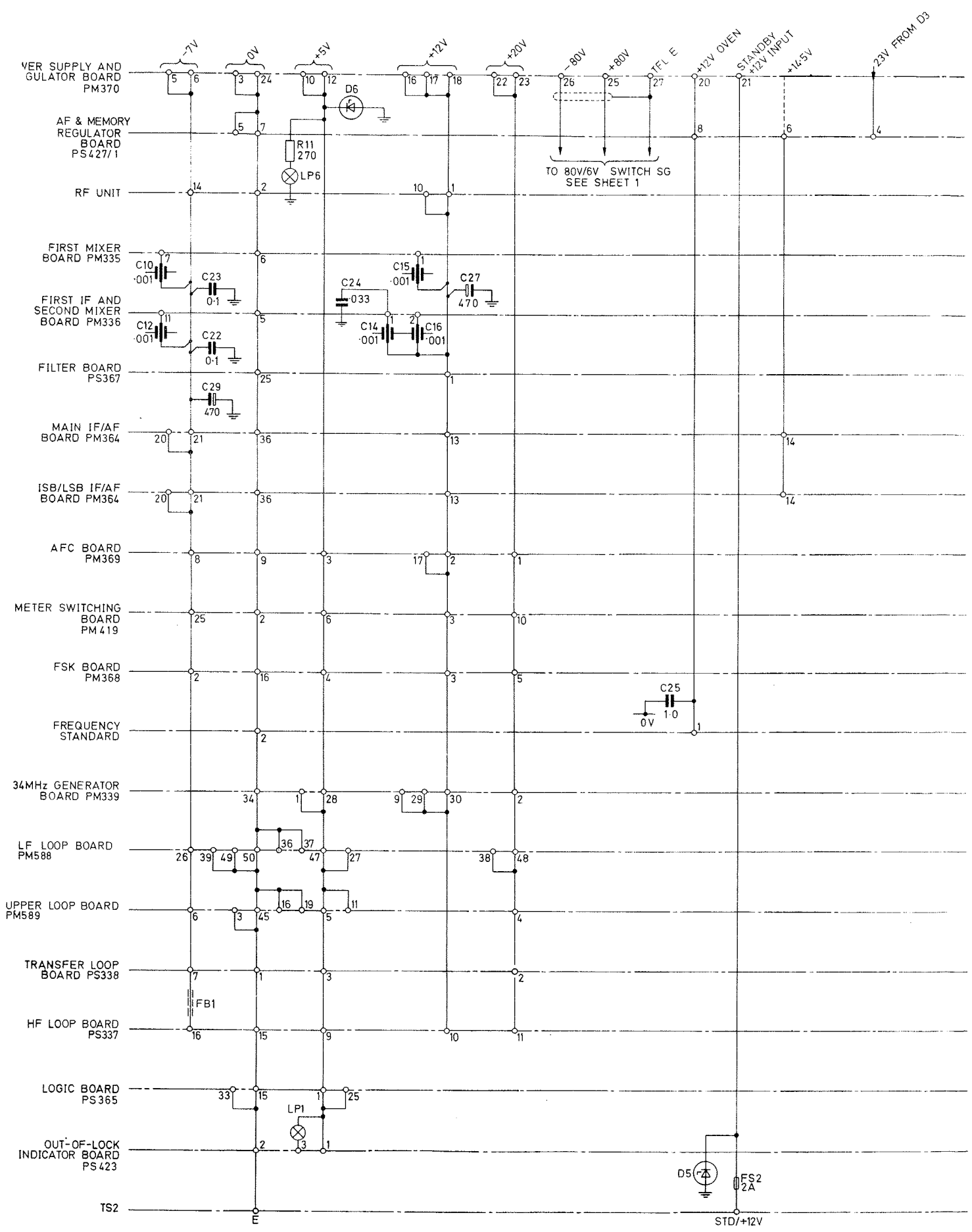
WOH 3076	BA46172 / V
1	

Layout : AF & Memory Regulator Board PS427/1 Fig.49



Interconnection Diagram: RA.1771 (Sheet 1)
 (See Sheet 2 (Fig.51) for Power Supply Connections)

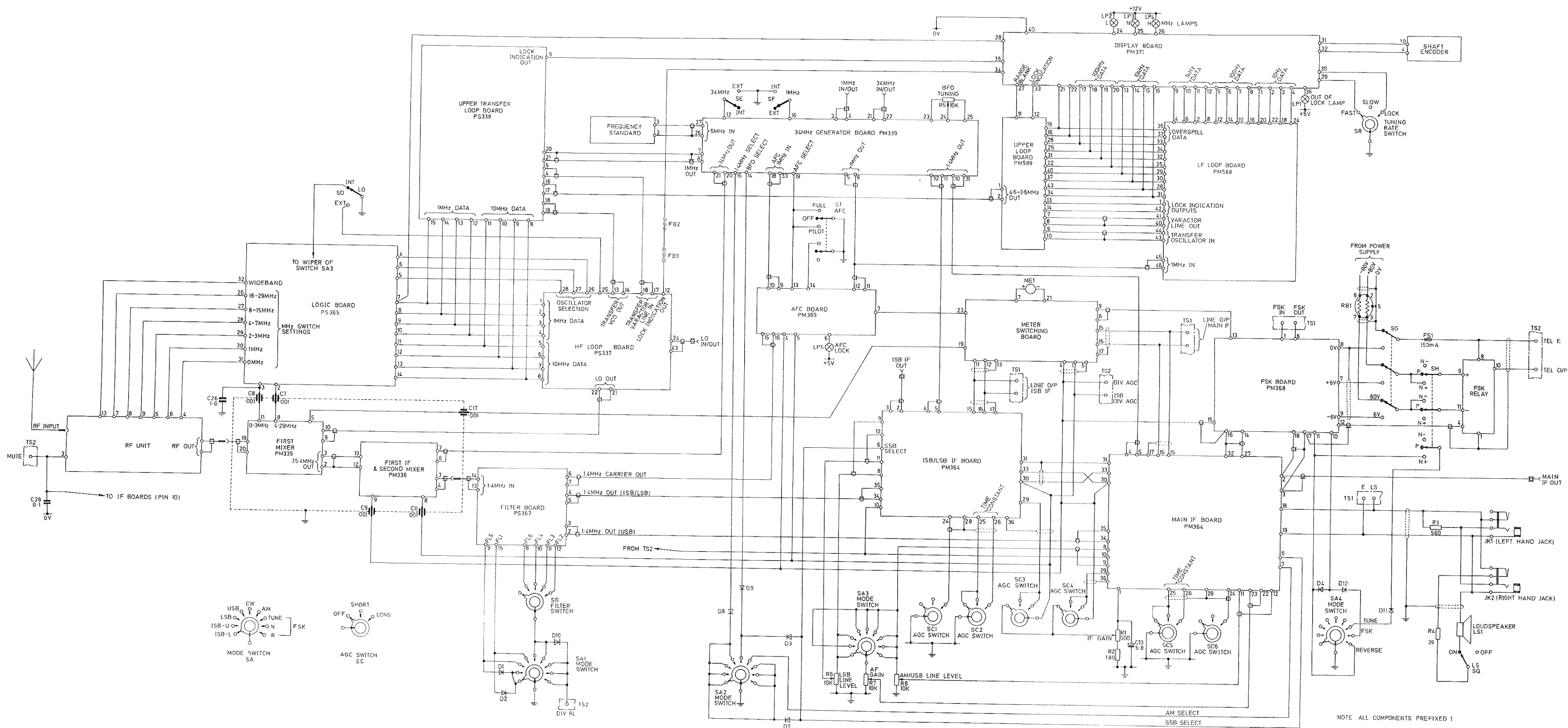
Interconnections RA.1771
 Fig. 50



WOH3076

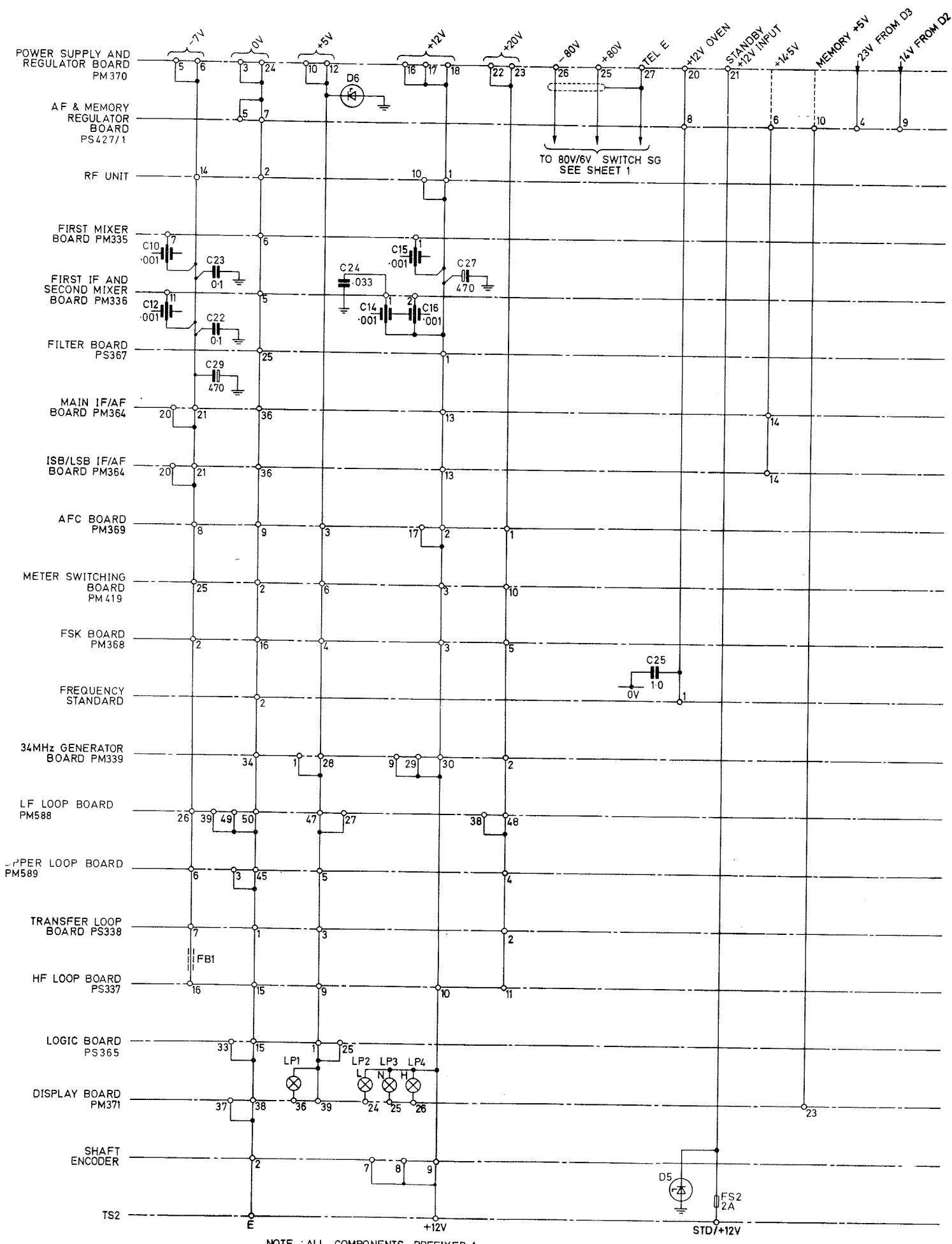
Interconnection Diagram: RA.1771 (Sheet 2)
Power Supplies

Fig.51



Interconnection Diagram: RA.1772 (Sheet 1)
 (See Sheet 2 (Fig. 53) for Power Supply Connections)

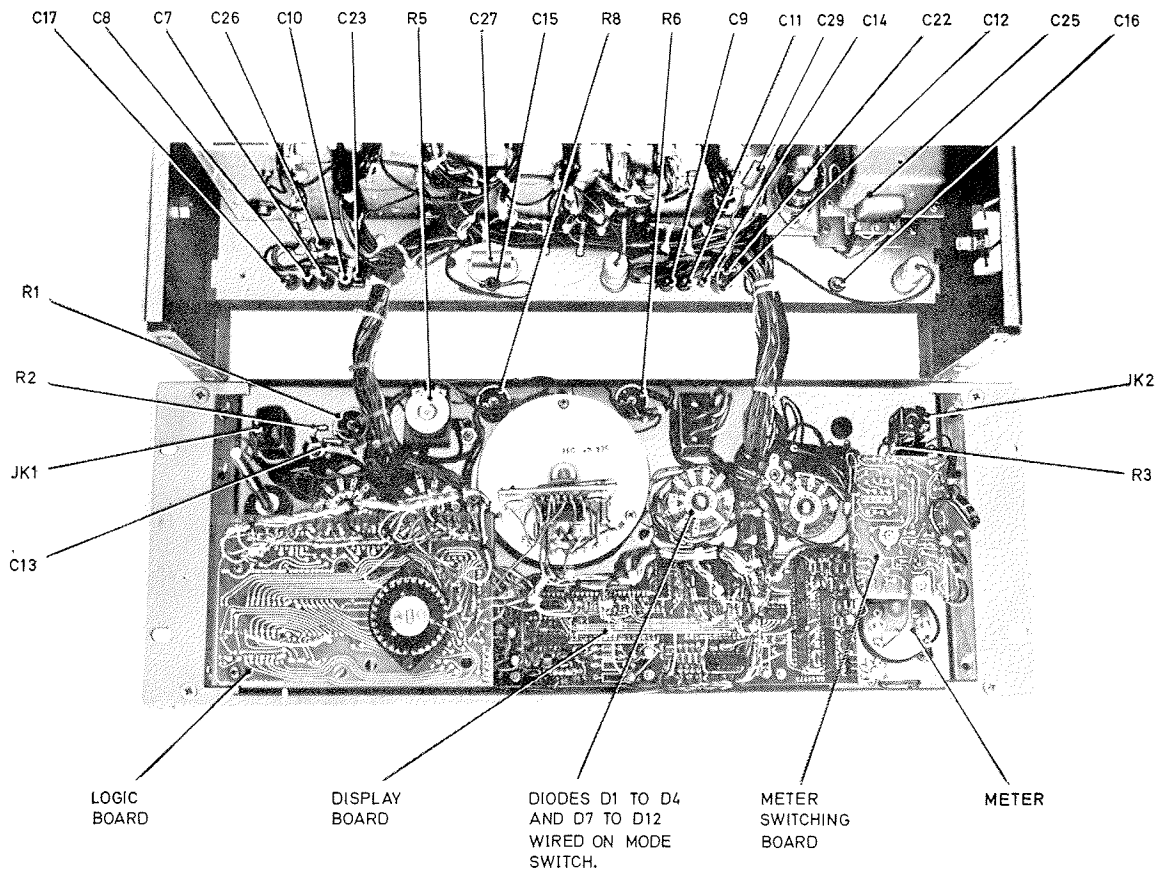
Interconnections RA.1772
 Fig. 52



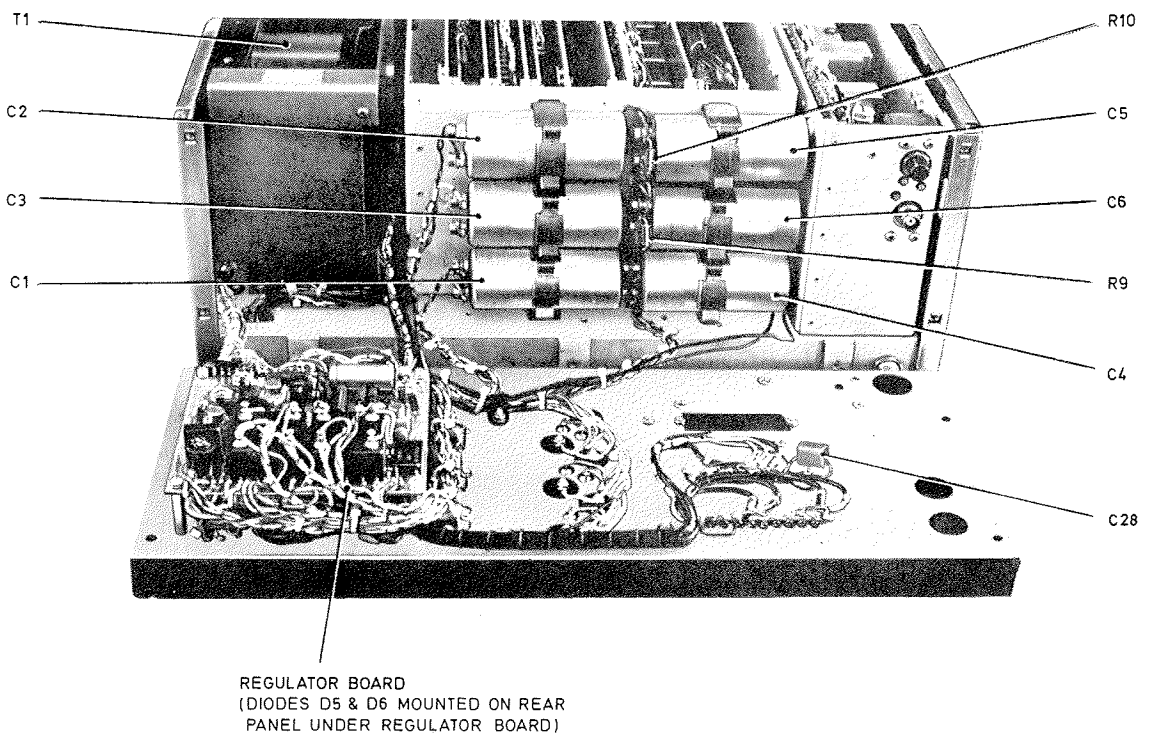
WOH3076

Interconnection Diagram: RA.1772 (Sheet 2)
Power Supplies

Fig 53



FRONT PANEL ASSEMBLY LOWERED



REAR PANEL LOWERED

APPENDIX 1

COMBINER TYPE CA.612

INTRODUCTION

1. The combiner is called for, as an item of test equipment, when performing the inband intermodulation and cross modulation checks detailed in Chapter 4. It is used to combine the output signals from two separate signal generators and covers the frequency range 1 to 30MHz.

CONSTRUCTION

Fig. App. 1.1

2. The combiner consists of two identical single-transistor isolation stages and an output transformer assembly, with each section individually screened. The layout of a single isolation stage is given although this is not critical. A stabilised +30V supply should be used (total current consumption 300mA \pm 50mA).

COMBINER TEST PROCEDURE

Test Equipment

3. (1) Signal Generator
Frequency Range: 1 to 30MHz
Output Level: 200mV e.m.f.
Output Impedance: 50 ohms
(Example: Hewlett Packard Type 606B).
or Racal Type 9061/62
- (2) HF Electronic Voltmeter
Range: 3mV to 100mV r.m.s.
Frequency Range: 1 to 30MHz
Input Impedance: 50 ohms
(Example: Airmec 301A)
- (3) 50 ohms BNC termination.

Procedure

4. (1) Connect the output of the signal generator to INPUT A (SK1)
(2) Connect the 50 BNC termination to INPUT B (SK2).
(3) Connect the HF electronic voltmeter, 50 ohms impedance, to the OUTPUT socket (SK3).
(4) Set the signal generator output level to 200mV e.m.f.

- (5) Set the signal generator, in turn, to the following frequencies and ensure that the HF electronic voltmeter indication is within the limits specified.

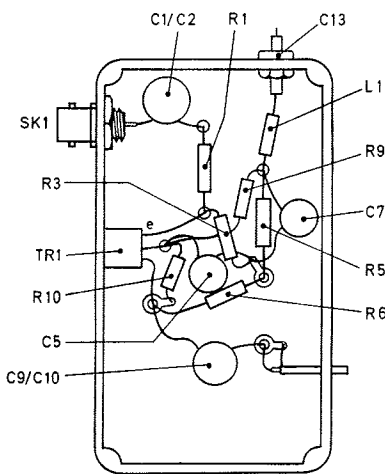
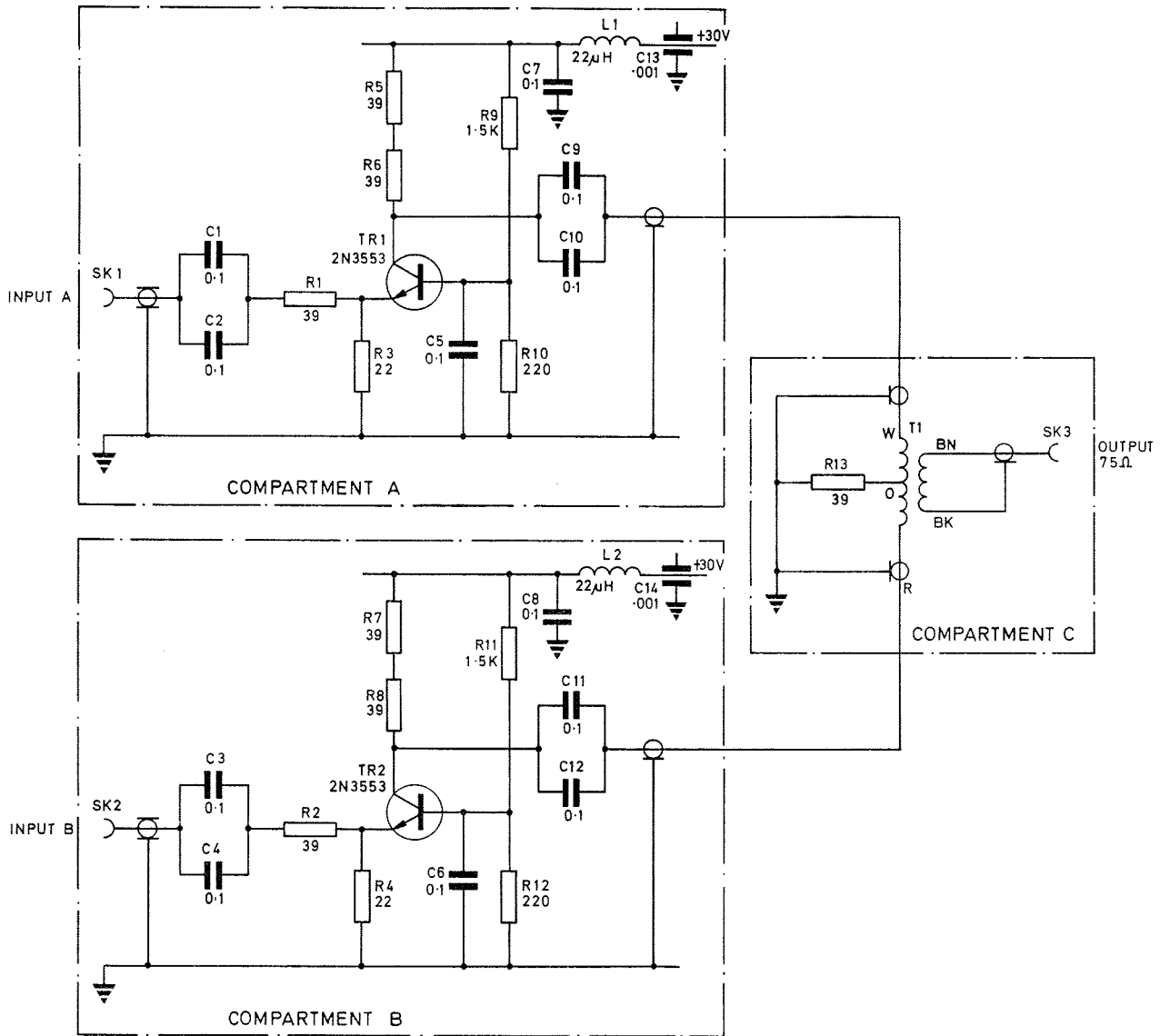
1MHz	40 to 80mV
10MHz	30 to 60mV
30MHz	20 to 40mV

- (6) Transfer the signal generator output to INPUT B and transfer the 50 ohm BNC termination to INPUT A.
- (7) Repeat steps (4) and (5).
- (8) Remove the 50 ohm BNC termination from INPUT A and connect in its place the HF electronic voltmeter (50 ohm impedance).
- (9) Connect the 50 ohm BNC termination to the OUTPUT socket.
- (10) Set the signal generator to a frequency of 30MHz and an output level of 200mV e.m.f. Ensure that the HF electronic voltmeter indication is not greater than 3mV.
- (11) Transfer the signal generator output to INPUT A and the HF electronic voltmeter to INPUT B.
- (12) Repeat step (10).
- (13) Switch off and disconnect all test equipment.

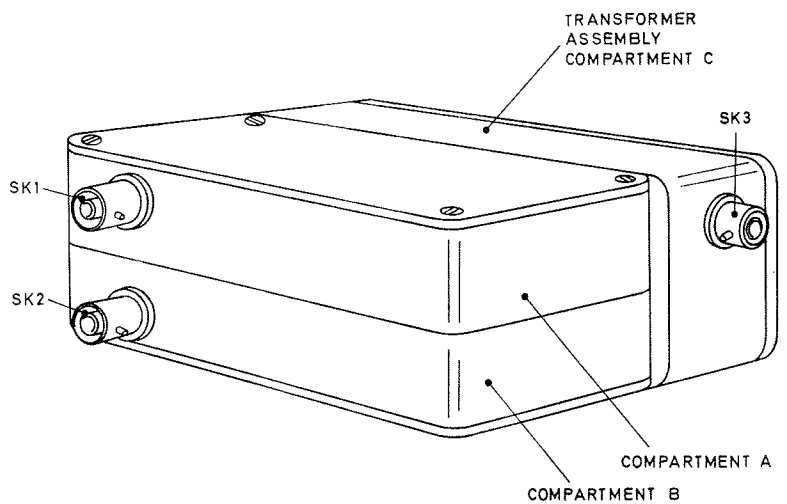
COMPONENTS LIST - CA.612 COMBINER

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>Resistors</u>						
R1	39	Metal oxide		5	910491	Electrosil TR4
R2	39	Metal oxide		5	910491	Electrosil TR4
R3	22	Metal oxide		5	911495	Electrosil TR4
R4	22	Metal oxide		5	911495	Electrosil TR4
R5	39	Metal oxide		5	910491	Electrosil TR4
R6	39	Metal oxide		5	910491	Electrosil TR4
R7	39	Metal oxide		5	910491	Electrosil TR4
R8	39	Metal oxide		5	910491	Electrosil TR4
R9	1.5k	Metal oxide		5	908296	Electrosil TR4
R10	220	Metal oxide		5	900988	Electrosil TR4
R11	1.5k	Metal oxide		5	908296	Electrosil TR4
R12	220	Metal oxide		5	900988	Electrosil TR4
<u>Capacitors</u>			<u>Volts</u>			
C1	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C2	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C3	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C4	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C5	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C6	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C7	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C8	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C9	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C10	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C11	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C12	0.1	Ceramic plate	100	10	921368	Erie 8131M100
C13	.001	Feed through	500	+80-20	914173	Erie K2600/361
C14	.001	Feed through	500	+80-20	914173	Erie K2600/361
<u>Inductors</u>						
L1	22 μ H	Choke		10	919479	Delevan 1537-44
L2	22 μ H	Choke		10	919479	Delevan 1537-44

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>Transformers</u>						
T1					B4557	Racal
<u>Transistors</u>						
TR1		NPN VHF Silicon			916730	Mullard 2N3553
TR2		NPN VHF Silicon			916730	Mullard 2N3553
<u>Connectors</u>						
SK1		Socket, Bulkhead, BNC			923160	Transradio BN12/5
SK2		Socket, Bulkhead, BNC			923160	Transradio BN12/5
SK3		Socket, Bulkhead, BNC			923160	Transradio BN12/5
		Mating Plugs, BNC			900038	Transradio BN1/5
<u>Miscellaneous</u>						
		Die cast box 114mm x 64mm x 30mm (3 off)				RS Components Ltd. Box 993
		Stand-off insulators 6BA (14 off)			900111	Jackson 4972
		Earth Tags 6BA (7 off)			901638	Ross Courtney 43/6BA
		Low capacity heat sink			917162	Jermyn A1004AX



LAYOUT: EACH ISOLATION STAGE



APPENDIX 2
AUDIO SWITCHING UNIT MM532

CONTENTS

	<u>Para.</u>
INTRODUCTION	1
MECHANICAL DESCRIPTION	2
DIVERSITY COMBINER BOARD PM533/1	
Circuit Description	3
Zero-Crossover Detector	4
AGC Comparator	7
Audio Switching	9
COS-MOS HANDLING PRECAUTIONS	13
COMPONENTS LIST	

ILLUSTRATIONS

	<u>Fig. No.</u>
Layout: Audio Switching Unit MM532	App. 2.1
Circuit: Diversity Combiner Board PM533/1	App. 2.2
Layout: Diversity Combiner Board PM533/1	App. 2.3

APPENDIX 2

AUDIO SWITCHING UNIT MM532

INTRODUCTION

1. The audio switching unit is used, in conjunction with a pair of receivers, for diversity reception. Two versions are available; version A contains a single diversity combiner board for single-channel (SSB) operation, whereas the B version contains a pair of boards for dual-channel (ISB) operation. For interconnection details reference should be made to the RA.1771/72 Operators Manual. The adjustment procedures for the receiver diversity AGC output levels are given in Chapter 5 of this, the RA.1771/72 Maintenance Manual.

MECHANICAL DESCRIPTION

2. The unit consists of a flanged base plate with brackets for mounting two printed circuit boards. The base plate is attached to the receiver rear panel with two screws and a cover is held in place with two Dzus fasteners. A pair of flying leads are provided which connect with the receiver +12V and E terminals, whilst the audio input, audio output and AGC connections are made to a terminal strip (two for the B version). The layout of the unit is given in Fig. App. 2.1.

DIVERSITY COMBINER BOARD PM533/1

Circuit Description

Fig. App. 2.2

3. The audio line output signals from the two receivers are applied to the board at pins 10, 11 (input A) and pins 5, 6 (input B). Transformer T1 couples audio input A to a zero-crossover detector, TR3, TR5, TR7, and to a pair of switching transistors, TR9, TR10. A similar arrangement exists for audio input B, i.e. transformer T2, zero-crossover detector TR4, TR6, TR8, and switching transistors TR11, TR12. The switching transistors are controlled by a dual D-type flip-flop ML2, and this in turn is controlled by the output from the AGC comparator TR1, TR2, and also by the output signals from the two zero-crossover detectors.

Zero-Crossover Detector

4. Since the two zero-crossover detector circuits are identical, only that for audio input A will be described.
5. Transistors TR3 and TR5 are connected as a differential amplifier; with no audio input signal present, the potential at the base of TR3 is equal to that at the base of TR5, by virtue of the stabilised voltage A (approximately +8V from TR13) at the centre-tap of transformer T1, and TR7 is held off.
6. When an audio signal applied to T1 passes through the zero-crossover point in a direction to cause an increase in the voltage at the base of TR5 with a corresponding




decrease in the voltage at the base of TR3, TR7 conducts and applies a positive voltage to ML1b pin 14. ML1b consists of two, series-connected, non-inverting, buffer stages connected as a schmitt trigger (feedback resistor R10) which produces a fast-rising positive-going pulse to clock the D-type flip-flop, ML2a.

AGC Comparator

7. Transistors TR1 and TR2 are connected as a differential amplifier where the AGC input for channel A is applied to the base of TR1 and that for channel B is applied to the base of TR2. ML1a consists of two, series connected, non-inverting, buffer stages connected as a schmitt trigger (feedback resistor R9). When the AGC A input is more positive than the AGC B input (denoting a stronger channel A antenna input signal), the output from the schmitt trigger will be a positive voltage (logic '1'). Conversely, when the AGC B input is more positive than the AGC A input, the output from ML1a will be at zero volts (logic '0').
8. When FSK diversity reception is required it is necessary for the DIV AGC terminal of the master or A receiver to be connected to the DIV AGC terminal of the slave or B receiver. Where the master or A receiver is equipped with the audio switching module, the DIV AGC connection is automatically made by relay RLA/1 (via the DIV RL terminal) when FSK is selected at the master receiver.

Audio Switching

9. ML2 is a dual D-type flip-flop. Each flip-flop has independent D (data), set, reset and clock inputs. The logic level at the D input is transferred to the Q output during the positive-going transition of the clock pulse. Setting or re-setting is independent of the clock and is accomplished by a high level (logic '1') on the set or reset line respectively. The truth table for a single flip-flop is given below.

CK	D	R	S	Q	\bar{Q}	
	0	0	0	0	1	
	1	0	0	1	0	
	X	0	0	Q	\bar{Q}	NC
X	X	1	0	0	1	
X	X	1	1	*	*	
X	X	0	1	1	0	

NC No change

X Don't care case

* Invalid condition

10. Consider the case when the AGC A input becomes more positive than the AGC B input, denoting a better channel A signal plus noise-to-noise ratio. The resulting low-to-high level transition of the AGC comparator output (ML1a pin 10) is applied to both D inputs of ML2. At this point channel B, which was superior, is still selected; the \overline{Q} output of ML2b is at logic '1' and diodes D3 and D4 are reverse biased to allow conduction of the switching transistors TR11 and TR12. The logic '1' \overline{Q} output of ML2b is also applied to the reset input of ML2a; this sets the Q output of ML2a to logic '0', and switching transistors TR9 and TR10 are held off via diodes D1 and D2.
11. The next low-to-high level transition at ML1 pin 2, caused by an equivalent transition of the audio signal at the B input, clocks the D input of ML2b to the Q output. The \overline{Q} output of ML2b changes to logic '0' and TR11 and TR12 are turned off via D3 and D4. Simultaneously, the reset input is removed from ML2a; the next low-to-high level transition at ML1 pin 12, caused by an equivalent transition of the audio signal at the A input, clocks the logic '1' D input of ML2a to the Q output, and TR9 and TR10 are switched on via D1 and D2. The logic '1' Q output of ML2a is also applied to the set input of ML2b.
12. Should the AGC B input become more positive than the AGC A input, the circuit, being symmetrical, switches on channel A and switches off channel B. It should be noted that the circuit operation is specifically designed to switch off the unwanted channel prior to switching on the wanted channel with the switching actions occurring when the respective audio input signals are at the zero voltage cross-over point and going positive. The use of this switching system avoids the introduction of spikes which would otherwise occur due to sudden changes in the instantaneous voltage levels at the moment of switching.

COS-MOS HANDLING PRECAUTIONS

13. The integrated circuits used in the audio switching unit are of the COS-MOS type. This type of device may have an input impedance of the order of 10^{14} ohms whereas the breakdown voltage of the oxide within the device is about 100 volts. Since static voltages of up to 4kV can be generated by stroking silk, nylon or certain plastic containers, it is essential that the following precautions are taken to prevent high voltages occurring at the leads of COS-MOS type devices.
- (1) The tips of soldering irons should be earthed to the earth plane of the board being soldered.
 - (2) The devices should not be stored in plastic bags or containers (unless the plastic has been especially treated with anti-static chemicals).
 - (3) Operators should not wear nylon or plastic gloves, or rubber-soled shoes.
 - (4) As many leads as possible should be 'shorted' with the fingers during handling.
 - (5) Do not remove the input connection with the device connected to the supply rail.

COMPONENTS LIST

Cct. Ref.	Value	Description	Rat	Tol. %	Racal Part Number	Manufacturer
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MODULE COMPONENTS

Diversity Combiner Board PM533/1	DA47013/A	Racal
Terminal Strip	909984	Cinch R44/79/593/9M
*Screw, M4X8, Steel, pan head	917697	Racal
*Washer, crinkle, M4, Ber. Cu.	917706	Racal

DIVERSITY COMBINER BOARD PM533/1 COMPONENTS

<u>Resistors</u>			<u>W</u>			
R1	680	Carbon Film	0.3	5	925218	Steatite SU2
R2	27k	Carbon Film	0.3	5	925191	Steatite SU2
R3	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R4	3.9k	Carbon Film	0.3	5	925196	Steatite SU2
R5	680	Carbon Film	0.3	5	925218	Steatite SU2
R6	680	Carbon Film	0.3	5	925218	Steatite SU2
R7	10k	Carbon Film	0.3	5	925183	Steatite SU2
R8	10k	Carbon Film	0.3	5	925183	Steatite SU2
R9	560k	Carbon Film	0.3	5		Steatite SU2
R10	47k	Carbon Film	0.3	5	925215	Steatite SU2
R11	47k	Carbon Film	0.3	5	925215	Steatite SU2
R12	100k	Carbon Film	0.3	5	925193	Steatite SU2
R13	100k	Carbon Film	0.3	5	925193	Steatite SU2
R14	100k	Carbon Film	0.3	5	925193	Steatite SU2
R15	100k	Carbon Film	0.3	5	925193	Steatite SU2
R16	560	Carbon Film	0.3	5	925194	Steatite SU2

<u>Capacitors</u>			<u>V</u>			
C1	1.0	Tantalum	35	20	908462	Union Carbide K1J35S
C2	.033	Disc Ceramic	18	+50 -25	911883	Erie 831/T/18V
C3	4.7	Tantalum	35	20	910274	Union Carbide K4R7J35S
C4	33	Tantalum	10	20	907735	Union Carbide K33J10S

* Module mounting hardware, supplied in linen bag.

Cct. Ref.	Value	Description	Rat	Tol. %	Racal Part Number	Manufacturer
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Transformers

T1					CT46735	Racal
T2					CT46735	Racal
T3					CT46735	Racal

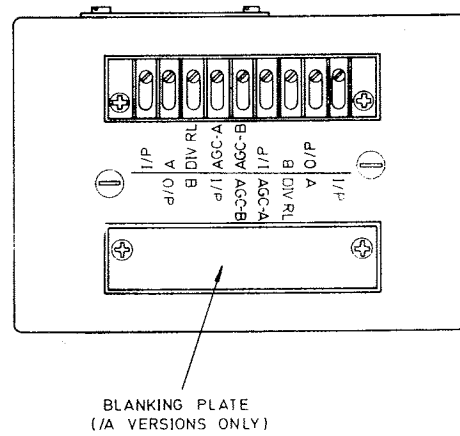
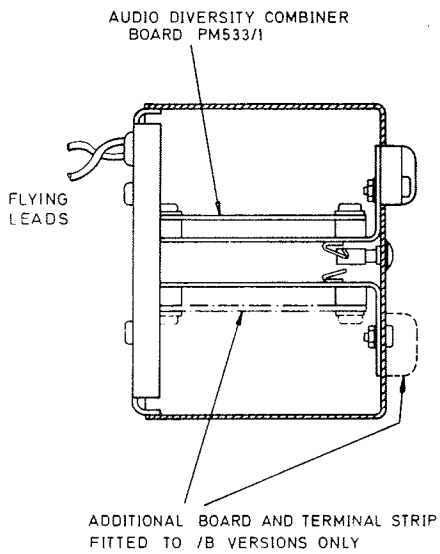
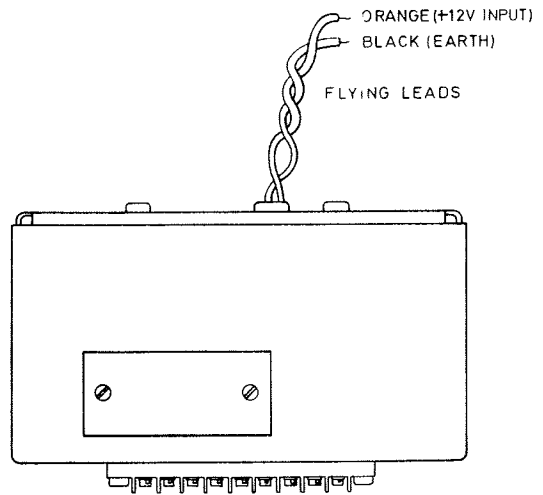
Transistors

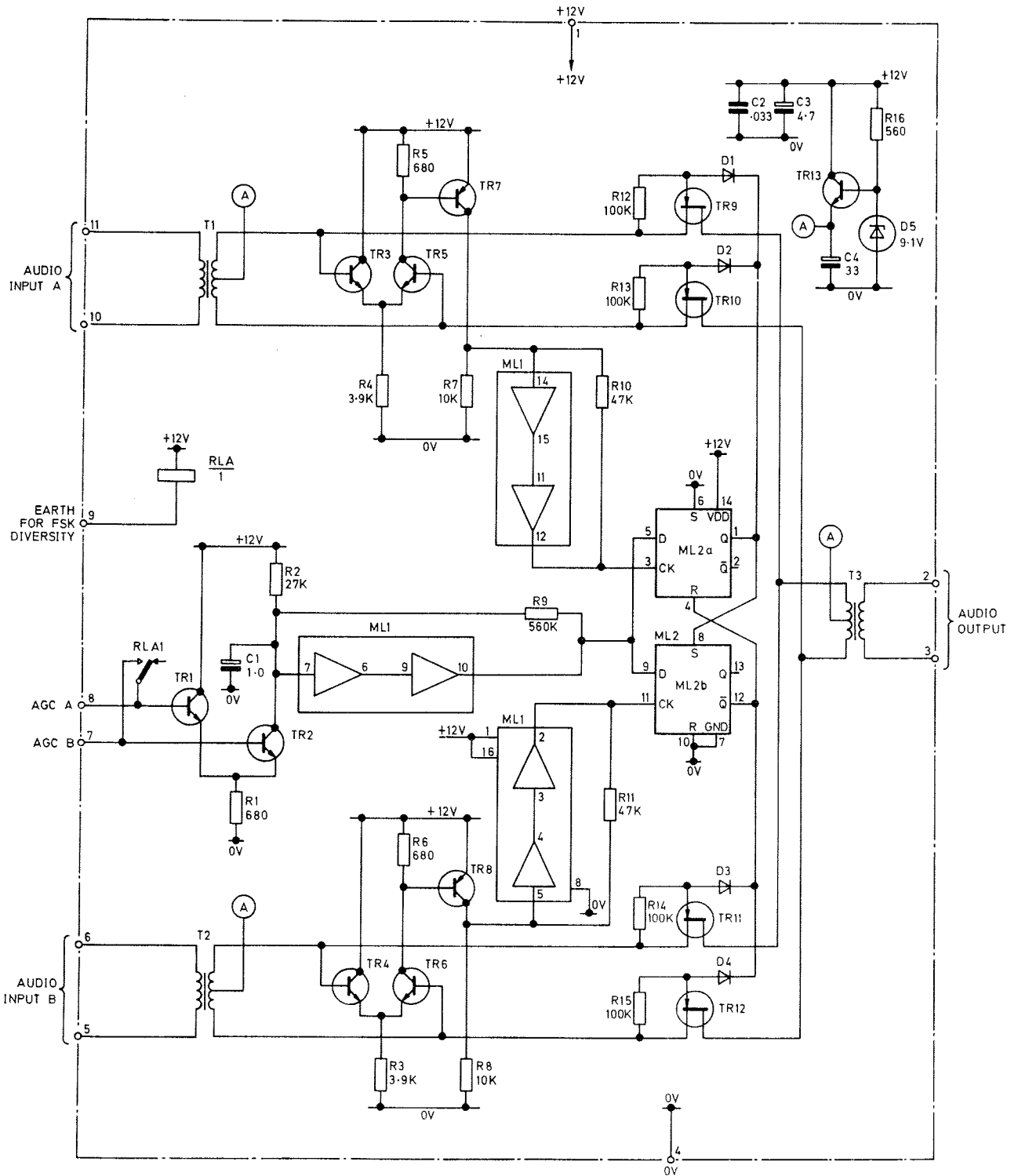
TR1		NPN Silicon			906842	Mullard 2N2369
TR2		NPN Silicon			906842	Mullard 2N2369
TR3		NPN Silicon			906842	Mullard 2N2369
TR4		NPN Silicon			906842	Mullard 2N2369
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			906842	Mullard 2N2369
TR7		PNP Silicon			915231	SGS BFX48
TR8		PNP Silicon			915231	SGS BFX48
TR9		FET			914907	Union Carbide 2N4392
TR10		FET			914907	Union Carbide 2N4392
TR11		FET			914907	Union Carbide 2N4392
TR12		FET			914907	Union Carbide 2N4392
TR13		NPN Silicon			906842	Mullard 2N2369

Diodes

D1		Silicon			914898	Mullard 1N4149
D2		Silicon			914898	Mullard 1N4149
D3		Silicon			914898	Mullard 1N4149
D4		Silicon			914898	Mullard 1N4149
D5		Zener, 9.1V, 400mW			915265	Mullard BZY88C9V1

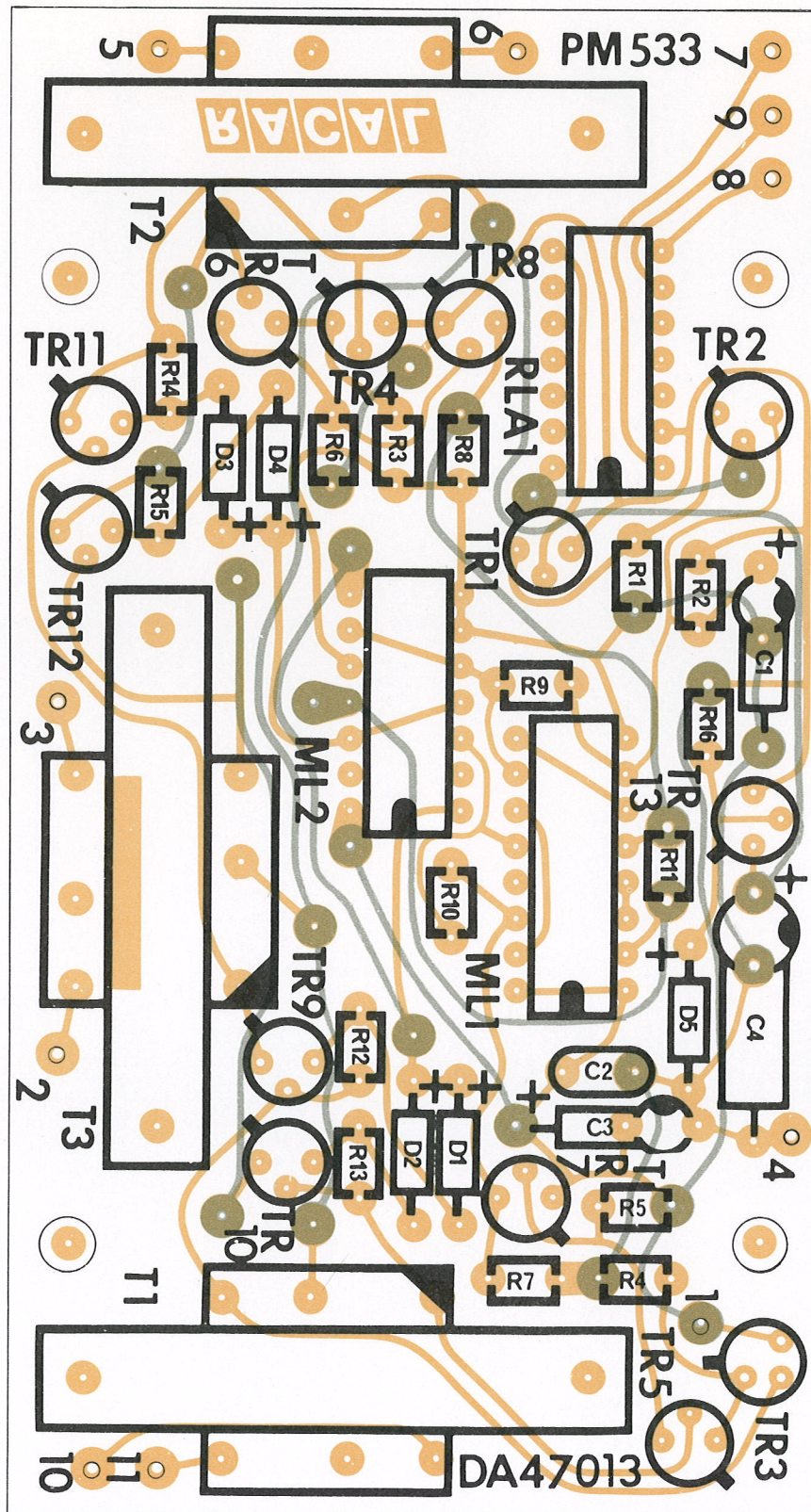
Cct. Ref.	Value	Description	Rat	Tol. %	Racal Part Number	Manufacturer
<u>Integrated Circuits</u>						
ML1		COS/MOS Non.Inv.Hex. Buffer			923306	RCA CD4010AE
ML2		COS/MOS Dual D flip-flop			922996	RCA CD4013AE
<u>Relays</u>						
RLA		Reed, 12V			921195	Pickering 90-1-A-12/4





TRANSISTORS		DIODES		INTEGRATED CIRCUITS	
TR1, 2, 3, 4, 5, 6 & 13	2N2369	D1, 2, 3 & 4	1N4149	ML1	CD4010AE
TR9, 10, 11 & 12	2N4392	D5	BZY88 C9V1	ML2	CD4013AE
TR7 & 8	BFX48				

Circuit
Audio Diversity Combiner Board PM533/1 Fig. App. 2-2



WOH3076	DD47011/3	App
PL		2-3/3
WOH3076	DD47011/2	App
PL		2-3/2
WOH3076	DA47013	App
PL		2-3/1

Layout : Diversity Combiner Board PM533

Fig. App. 2-3

APPENDIX 3

12V BATTERY MODULE MS540

CONTENTS

	<u>Para.</u>
INTRODUCTION	1
MECHANICAL DESCRIPTION	2
CIRCUIT DESCRIPTION	3
5 kHz Square-Wave Oscillator	4
Current Pump	5
Supply Detector	6
Electronic Switch	7
RECEIVER SWITCHING-OFF PROCEDURE	12

COMPONENTS LIST

LIST OF ILLUSTRATIONS

	<u>Fig. No.</u>
Layout: 12V Battery Module MS540	App. 3.1
Circuit: 12V Battery Module MS540	App. 3.2
Layout: Battery Module PCB PS546	App. 3.3

APPENDIX 3

12V BATTERY MODULE MS540

INTRODUCTION

1. When the POWER switch on the RA.1772 is set from OFF to ON, the kHz portion of the digital frequency display is automatically reset to 00.000. It follows this that should a brief interruption of the power supply input occur, the kHz portion of the receiver frequency will again be reset to zero. In order to retain the frequency setting information of the receiver during a brief interruption of the supply input, and so avoid a possible loss of received information, the 12V battery module is available as an optional extra.

NOTE: The module is capable of operation from a nominal 110V or 240V supply input without need of adjustment.

MECHANICAL DESCRIPTION

2. The battery module consists of a small metal box housing a re-chargeable nickel-cadmium battery and a printed circuit board. The module is mounted on the rear panel of the receiver and is held in place with two screws. The main power supply input is connected to the module POWER I/P plug and the POWER O/P socket, on a flying lead, is connected to the receiver POWER plug. Two further flying leads provide for the connection (at TS2 on the receiver rear panel) of the 12V output to the receiver +12V/STD terminal (red) and the +12V input from the receiver +12V terminal (orange). A battery ON/OFF switch and a DATE OF LAST CHARGE label are included. The layout of the module is given in Fig. App. 3.1.

CIRCUIT DESCRIPTION

Fig. App. 3.2

3. The +12V supply from the receiver is used to power the 5 kHz square-wave oscillator, the current pump and the electronic switch.

5 kHz Square-wave Oscillator

4. The 5 kHz square-wave oscillator ML1 is a free running astable multivibrator with capacitor C2 and resistor R2 as the timing components. The output at pin 10 on ML1 is a 12V peak-to-peak 1 : 1 ratio square-wave which is fed to the current pump transistors TR1 and TR2.

Current Pump

5. When the output from ML1 causes TR2 to conduct, it charges capacitor C3 via diode D2 and the current limiting resistor R1. When the output from ML1 causes TR1 to conduct, it transfers the charge on capacitor C3 to the battery via resistor R6, diode D4 and switch SW1.

Supply Detector

6. The main supply input at board pins 8 and 6 is full-wave rectified by D1 and is then applied via R5 to an optical coupler, ML2. This consists of a light-emitting diode (LED) and a photo-transistor. When the supply is present the light-emitting diode illuminates for the photo-transistor to conduct and effectively connect ML2 pin 5 to 0V to ensure that TR5 will be cut off.

Electronic Switch

7. The requirements of the electronic switch are as follows:-

- (1) To allow the battery to charge when the receiver is working normally.
- (2) To allow the battery to provide a +12V supply at board pin 4 should a main supply failure occur whilst the receiver is in use (i.e. receiver POWER switch set to ON).
- (3) To prevent discharge of the battery when the receiver POWER switch is set to OFF.
- (4) To prevent further battery discharge should the battery voltage fall below approximately 10V.

The action of the electronic switch for each of the above requirements is given below.

8. When the receiver is working normally, the presence of the +12V supply at board pin 3 causes TR6 to conduct (via R11) which in turn switches on TR3 and TR4. The +15V (approximately) output from the current pump charges the battery via the battery ON/OFF switch and is also applied to the receiver +12V/STD terminal via TR4, D6 and board pin 4.

9. Should the main supply subsequently fail whilst the receiver is in use, the light-emitting diode extinguishes and the photo-transistor in ML2 of the supply detector ceases to conduct, and, provided the battery voltage is greater than 10V, the resultant current flow through R9 produces approximately 0.7V at the base of TR5 causing this transistor to conduct. TR6 ceases to conduct (since the +12V supply from the receiver is no longer available) but the conduction of TR3 and TR4 is maintained via TR5 and the battery is allowed to discharge via TR4, D6 and board pin 4.

10. When, whilst the main supply is available and connected, the receiver POWER switch is set to OFF, both TR5 and TR6 are held off to prevent conduction of TR3 and TR4, and so isolate the battery. If, however, the main supply is disconnected whilst the receiver POWER switch is set to ON, then the battery will become fully discharged in approximately 30 minutes, it is important to ensure that does not occur (e.g. during transportation etc.).
11. If the on-load battery voltage falls below 10V, D5 ceases to conduct, TR5 switches off and this in turn switches off TR3 and TR4 to isolate the battery. The electronic switch may be reset only by restoring the mains supply and switching on the receiver.

RECEIVER SWITCHING-OFF PROCEDURE

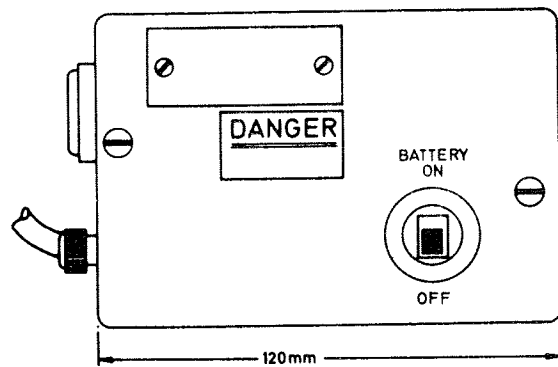
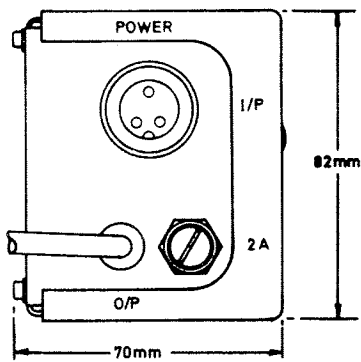
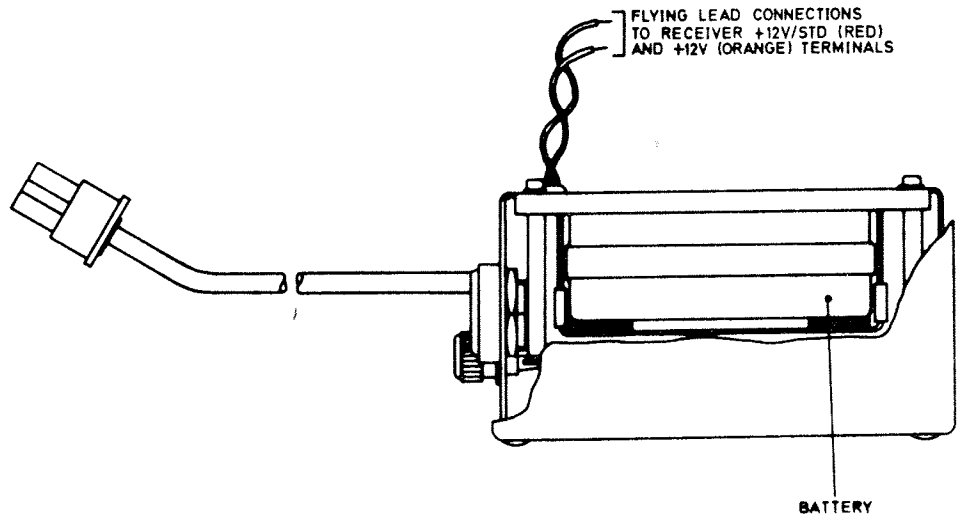
12. To prevent discharge of the battery during periods of inactivity or transportation the following switching-off procedure should be adopted:-
13. (1) Set the receiver SUPPLY switch to OFF.
- (2) Disconnect the receiver from the main source of power or trip the external circuit breaker, as required.
- (3) The battery ON/OFF switch is provided as a safeguard for use when the battery module is not fitted to the receiver.

Cct. Ref.	Value	Description	Rat.	Tol %	Racal Part Number	Manufacturer
<u>COMPONENTS LIST - MS 540</u>						
<u>MODULE COMPONENTS</u>						
B1	12V	P.C. Board Assembly PS546			DA47082/A	Racal
FS1	2A	Battery			AD47364	Racal
		Fuse link, Slow Blow			917751	Beswick TDN134
		Fuseholder			900412	Belling Lee L575
PL1		Plug, Fixed, 3 pin			912573	Bulgin P429
		Socket, free, 3 way			912550	Bulgin P430

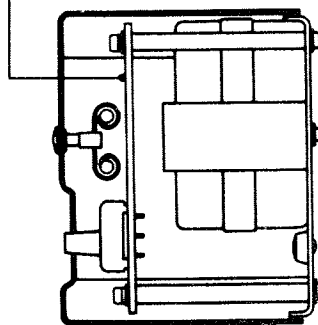
P.C. BOARD COMPONENTS

<u>Resistors</u>			<u>watts</u>			
R1	22	Metal Oxide		2	920743	Electrosil TR4
R2	10k	Metal Oxide		2	914042	Electrosil TR4
R3	22k	Metal Oxide		2	913493	Electrosil TR4
R4	22k	Metal Oxide		2	913493	Electrosil TR4
R5	18k	Wirewound	6	5	920842	Welwyn W22
R6	100	Metal Oxide		2	910388	Electrosil TR4
R7	470	Metal Oxide		2	920758	Electrosil TR4
R8	4.7k	Metal Oxide		2	913490	Electrosil TR4
R9	2.2k	Metal Oxide		2	916546	Electrosil TR4
R10	4.7k	Metal Oxide		2	913490	Electrosil TR4
R11	100k	Metal Oxide		2	915190	Electrosil TR4
<u>Capacitors</u>			<u>volts</u>			
C1	15	Tantalum	35	20	919458	Union Carbide K15 J35S
C2	.047	Disc Ceramic	25	+50 -25	919510	Erie 801/T/25V
C3	6.8	Tantalum	35	20	910129	Union Carbide K6R8 J35S
C4	33	Tantalum	10	20	901100	Union Carbide K33 J10S
C5	47	Tantalum	35	20	917478	Union Carbide K47 J35S
<u>Inductors</u>						
L1	1 mH	Choke			919033	Delevan 2500-28

Cct. Ref.	Value	Description	Rat.	Tol. %	Racal Part Number	Manufacturer
<u>Switches</u>						
SW1		Slide, two position (DPDT)			912063	EMI type S5
<u>Transistors</u>						
TR1		PNP Silicon			915231	SGS BFX 48
TR2		NPN Silicon			914900	Mullard BC109
TR3		PNP Silicon			915231	SGS BFX 48
TR4		NPN Silicon			908753	Mullard BFY51
TR5		NPN Silicon			906842	Mullard 2N2369
TR6		NPN Silicon			906842	Mullard 2N2369
<u>Diodes</u>						
D1		Bridge Rectifier			923805	I.R. Type BS6
D2		Rectifier			909879	I.R. Type 10D1
D3		Rectifier			909879	I.R. Type 10D1
D4		Rectifier			909879	I.R. Type 10D1
D5		Zener, 6.2V, 400 mW			911682	Mullard BZY88 C6V2
D6		Rectifier			909879	I.R. Type 10D1
<u>Integrated Circuits</u>						
ML1		COS/MOS Multivibrator			926864	RCA CD4047AY
ML2		Optical Coupler			923806	Fairchild FCD 820B
<u>Miscellaneous</u>						
TS1		3-way Terminal Strip			926866	Waycom 8030V/ 3GDSKK



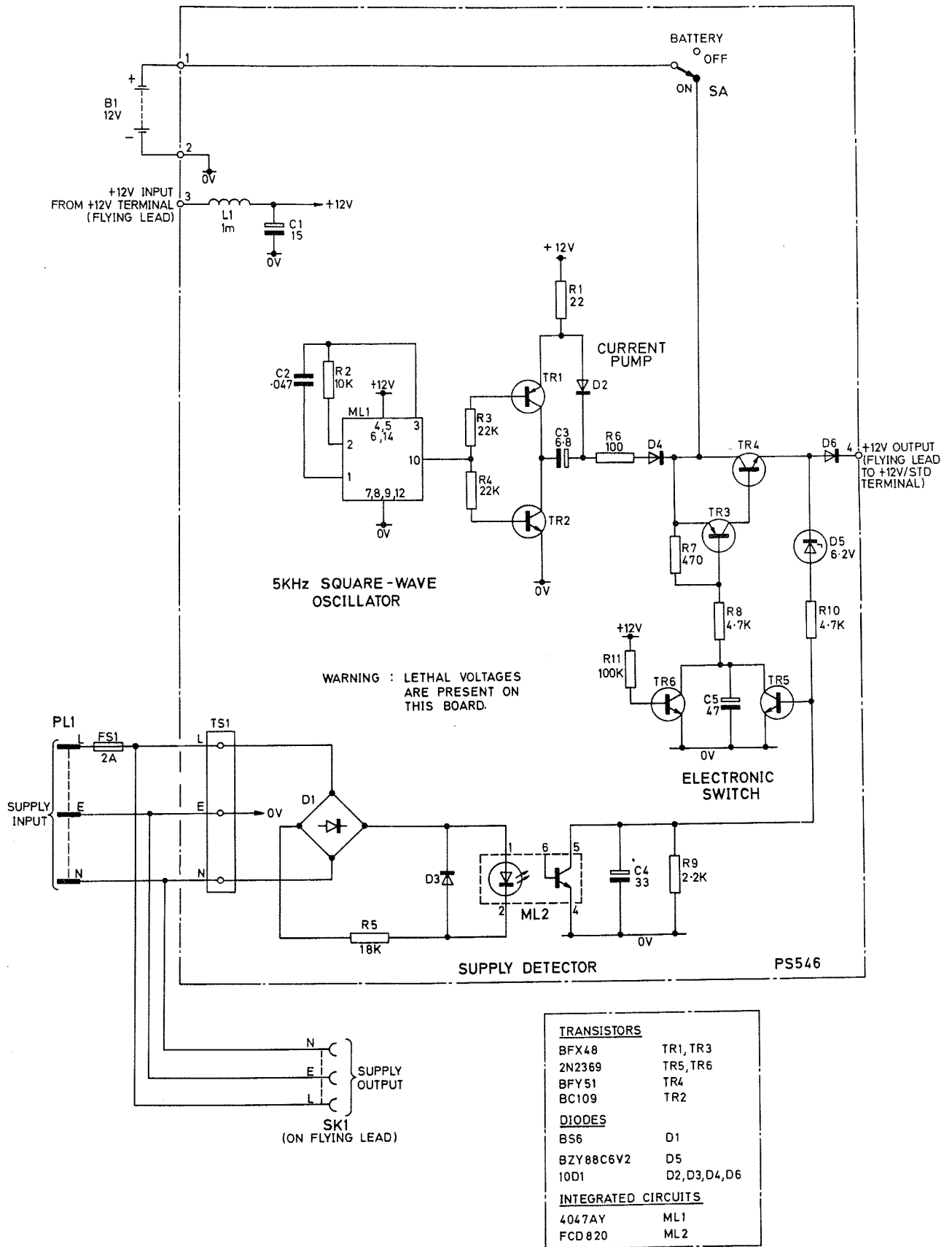
PRINTED CIRCUIT BOARD PS546



SECTIONAL VIEW

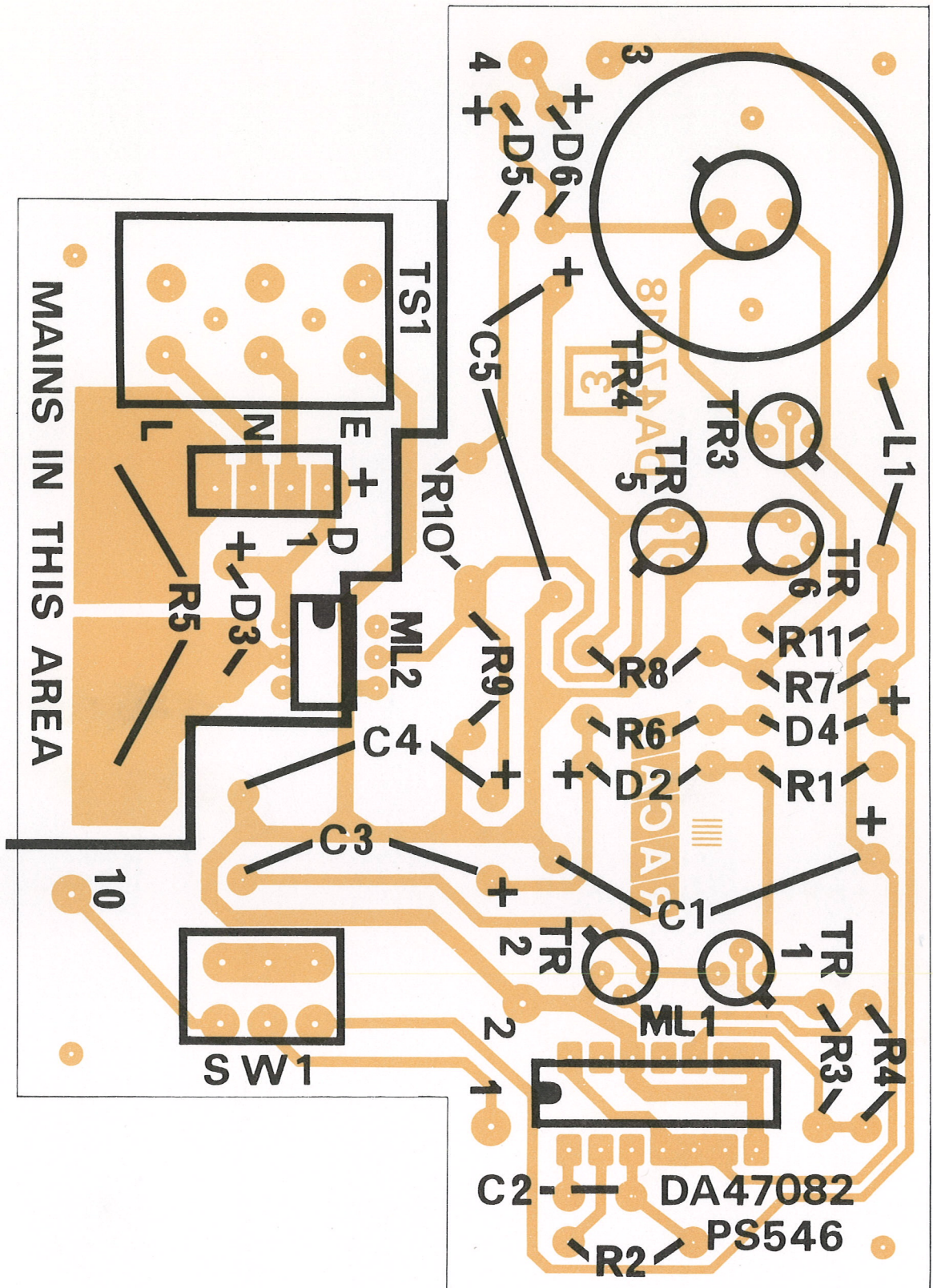
Layout
12V Battery Module MS540

Fig App.3.1



WOH3076
 CC47082 3
 BC46492 2

Circuit : 12V Battery Module MS540



WOH 3076	DD47018 SHT2
213	
WOH 3076	DA47082
213	

Layout
Battery Module PCB PS546

Fig. App. 3-3

APPENDIX 4

SOLID STATE FSK RELAY ATR - 24

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APPENDIX 4

SOLID STATE FSK RELAY ATR - 24

INTRODUCTION

1. The FSK relay used in the RA. 1770 series of receivers is a centre-stable solid state type. The circuit diagram of the relay (Fig. App 4.1), together with the components list are reproduced in this appendix with the authority of the manufacturers, Fairey Electronics Limited.

PRINCIPLES OF OPERATION

2. The relay consists of two square-wave, push-pull, transformer-coupled oscillators and two cross-coupled latching circuits, where each oscillator may be started or stopped by the input signal. Due to the cross-coupled latching circuits, when one oscillator starts, the other is automatically stopped, and, being a centre-stable type relay, with no input signal applied there is no output signal. When an oscillator is started, the output circuit presents a low impedance path and because of the push-pull square waveform, the mean current is equivalent to direct current.

3. Oscillator switching is accomplished by a control winding on each oscillator transformer, and this provides the required degree of isolation between the input and output circuits. When both oscillators are stopped, a small leakage current flows in the output circuit to ensure correct starting conditions. For this reason the relay will only function correctly when an external low-impedance load is connected across the output circuit.

CIRCUIT DESCRIPTION

4. The circuit description should be read in conjunction with the circuit diagram, Fig. 1. The component layout for each of the two identical printed circuit boards is given in Fig. 2.

5. For double current (polar) operation, with no input signal applied (to pin 4 of the relay) and with a low-impedance load connected between the TEL OP and TEL E terminals of TS2, both oscillators (TR3, TR4) run at a very low level. The resulting low-level voltage induced into the control winding of T1 (terminals 6, 9 and 7) on Board A is rectified by D6 and D7 and is then applied to the collector of TR2 and also to the base of TR2 on Board B via R4 and diodes D5 and D4. Similarly, the low-level voltage induced into the control winding of T1 on Board B is rectified and applied to the collector of TR2 and also to the base of TR2 on Board A via R4, D5 and D4. Under this condition a small current flows in the control winding of each transformer (due to the conduction of the respective transistor TR2) and partial current saturation occurs to inhibit further conduction of the oscillator transistors.

6. If a positive input signal is now applied to pin 4, TR1 on Board B conducts (current flow from TR1 emitter, pin 2 Board B, pin 2 Board A, D1, R1 and to 0V via the FSK board), and turns off TR2 on Board B. The partial current saturation of T1 on Board B is removed and the oscillator output level increases. The resulting increased positive output voltage from the rectifier diodes D6, D7 on Board B is applied to the base of TR2 on Board A. TR2 bottoms and presents a low impedance across T1 on Board A; T1 current saturates and Board A oscillator is inhibited. The output signal from oscillator B, which is fed from the positive telegraph supply, produces a positive output signal to the external telegraph equipment.
7. The operation of the circuit for a negative input signal is similar to the above except that TR1 on Board A conducts (current flow from TR1 emitter, pin 2 Board A, pin 2 Board B, D1, R1 and to the negative output signal from the FSK board). TR2 on Board A is turned off, the output signal from oscillator A increases and oscillator B is turned off via TR2 on Board B. The output signal from oscillator A, which is fed from the negative telegraph supply, produces a negative output signal to the external telegraph equipment.
8. The zener diode D10 sets the forward bias for transistors TR3 and TR4 whilst R5 limits the base current when the oscillator is inhibited.
9. For single current (neutral and negative or neutral and positive) operation, the telegraph supply is removed from one of the oscillators and the cross-coupled latching circuit function is no longer required.

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
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COMPONENTS LIST

Printed Circuit Board (2 off)

Fairey Electronics
AT294B

Base Connector

TMC S42461

Relay Can

TMC S49202

PCB Components (AT294B)

Resistors

R1	15k	Metal Oxide		2	920645	Electrosil TR4
R2	NOT FITTED					
R3	22k	Metal Oxide		2	913493	Electrosil TR4
R4	270	Metal Oxide		2	910391	Electrosil TR4
R5	150k	Metal Oxide		2	917954	Electrosil TR4
R6	180k	Metal Oxide		2	920644	Electrosil TR4

Capacitors

Volts

C1	.001	Tubular Ceramic	100	-0 +100	917769	Erie Style 390
C2	.001	Disc Ceramic	500	20	917419	Erie 831/K350081

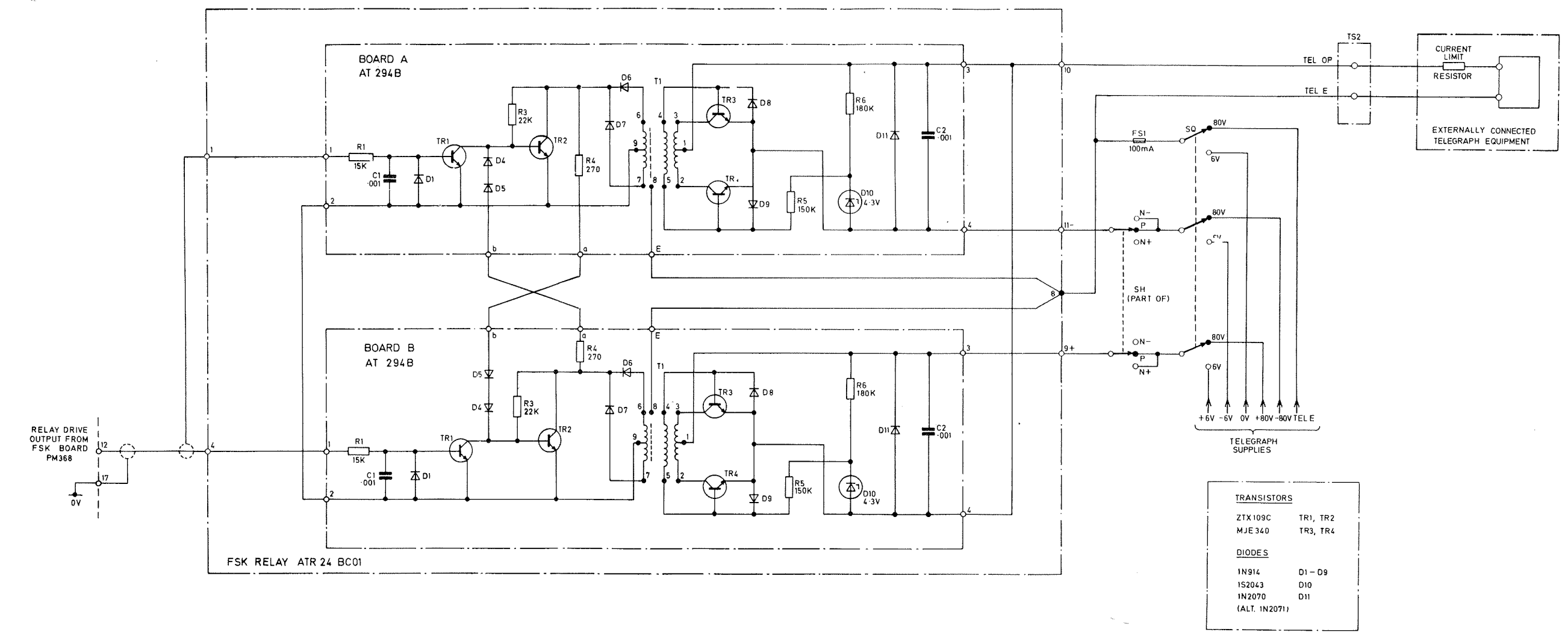
Transformers

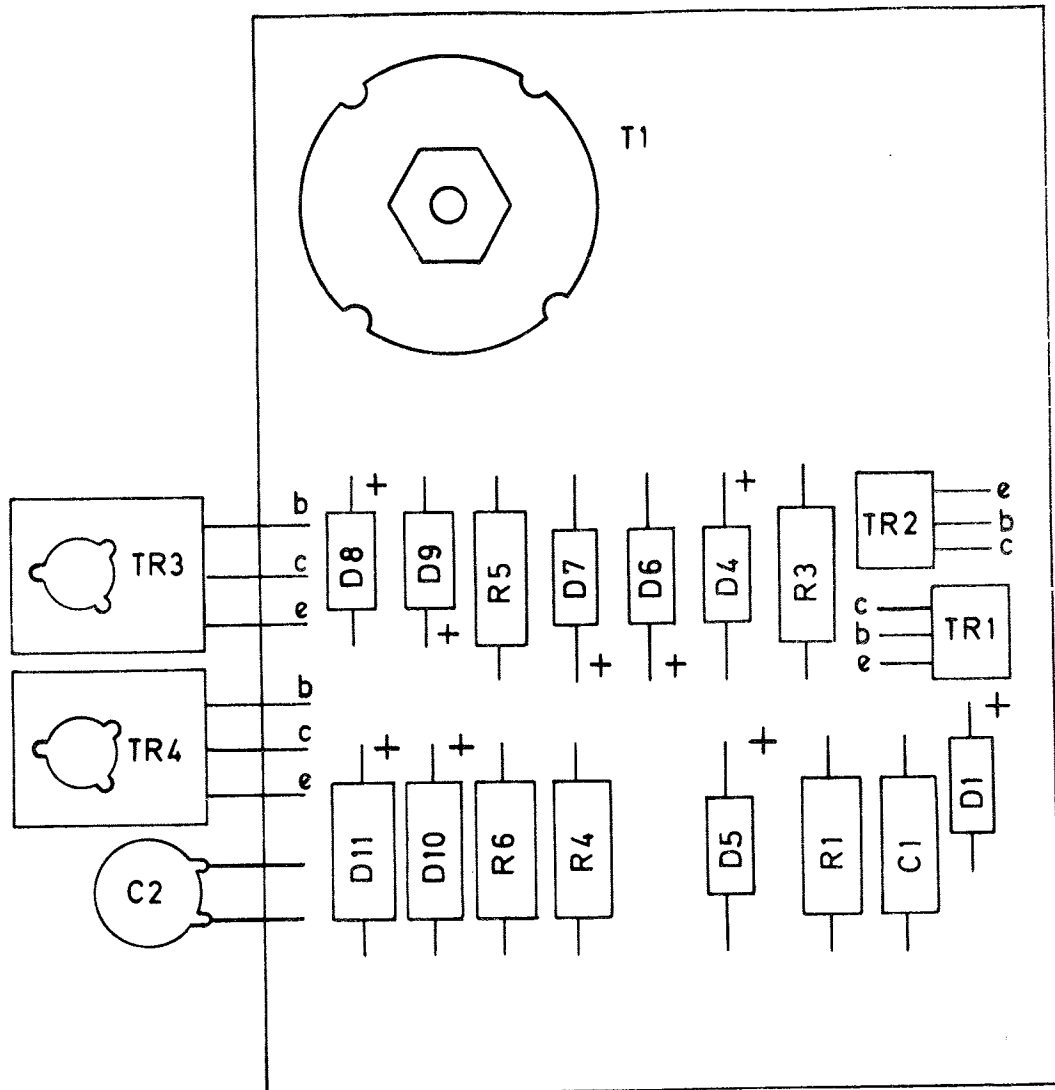
T1		Transformer Assembly				Fairey Electronics AT222A
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Transistors

TR1		NPN Silicon				Ferranti ZTX109C
TR2		NPN Silicon				Ferranti ZTX109C
TR3		NPN Silicon				Motorola MJE 340
TR4		NPN Silicon				Motorola MJE 340

Cct. Ref.	Value	Description	Rat	Tol %	Racal Part Number	Manufacturer
<u>Diodes</u>						
D1		Silicon			900651	Texas 1N914
D2	NOT FITTED					
D3	NOT FITTED					
D4		Silicon			900651	Texas 1N914
D5		Silicon			900651	Texas 1N914
D6		Silicon			900651	Texas 1N914
D7		Silicon			900651	Texas 1N914
D8		Silicon			900651	Texas 1N914
D9		Silicon			900651	Texas 1N914
D10		Zener, 4.3V, 400mW				Texas 1S2043
D11		Silicon				Texas 1N2070 or Texas 1N2071





COLOUR CODE	
T1	CONNECTIONS
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GREY
9	WHITE