

Designs Department Manufacturing Information

No. 5.404(81)

Quadruple UHF TV Transposer TM4M/502

Written by: M.T. Ellen


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(G.G. Johnstone)
for Head of Designs Department

DDMI No. 5.404(81)
Title Sheet

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Designs Department Manufacturing Information

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Quadruple UHF TV Transposer TM4M/502

PRODUCTION TEST SCHEDULE

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PRODUCTION TEST SCHEDULE

1. DESCRIPTION

This is a four service transposer system with a common input and four separate outputs. The input may be connected directly to a receiving aerial, but the outputs must be combined by an external combiner unit before connection to a transmitting aerial. The four outputs may also be used to drive higher power amplifiers, the outputs of which are then combined to feed a transmitting aerial. The only other connection required is a mains feed to two power suppliers.

Each module in the TM4M/502 may be easily removed and apart from the FL2/558 and PALM/579A they may be transferred to a different TM4M/502 without readjustment. The FL2/558 selects the required group of input channels and the four PALM/579A's set the parameters (channels, offset, power, gain and slope) of each transposer.

The block diagram (DSK 22125 A1) contains a large amount of information on the contents, interconnections, frequency responses, division ratios and power levels of the system. It is recommended that this diagram is carefully studied to gain an overall appreciation of the system.

2. INFORMATION

- 2.1 Designed in RF Section (5), Designs Department.
- 2.2 Designers: W. Murray (OS3/509 and AM4/535)
A.R. Lewis (AM21/506)
R.J. Hart (FL2/565 and chassis system).
M.T. Ellen (AM14/561 and overall system)
- 2.3 Engineer responsible: M.T. Ellen.
- 2.4 Handbook: DD Handbook No. 5.156(81).
- 2.5 No technical instruction available 1.6.81.
- 2.6 One prototype and one pre-production model tested in DD.

3. MANUFACTURING PERFORMANCE SPECIFICATION

The TM4M/502 is an aluminium framework fitted with coded units that are tested individually and designed to interface with each other without any further adjustment. Therefore the production test schedule only specifies an RF continuity test and no performance measurements are required.

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3.1 Input requirements

RF Input SKA, CW input signal at $-60 \pm 3\text{dBm}$ set, in turn, to a frequency within each input channel.

3.2 Output requirements

RF Outputs 1 PLG, 2 PLG, 3 PLG and 4 PLG $+33 \pm 1\text{dBm}$ at frequency determined by each Personality Panel.

3.3 Power Supply

Mains input 1 PLR and 2 PLR, 240V ac nominal.

4. WARNING

The PS4/8's which are part of the TM4M/502 contains voltages above 200V ac and dc.

All outputs must be terminated when power is applied, see handbook No. 5.199(81) for further information.

5. TEST EQUIPMENT REQUIRED

UHF signal generator (e.g. Hewlett Packard Model 8640)

UHF power meter (e.g. Hewlett Packard Model 432A)

30dB, 2 watt attenuator

6. INSPECTION CHECKS

6.1 Check that the quadruple transposer has been assembled correctly in accordance with D 50025 A1 and D 50039 A1.

6.2 Check that all interconnecting leads are joined correctly as shown in the layout drawing DSK 22583 A1.

7. TEST PROCEDURE

7.1 To check RF continuity and output power

7.1.1 Set a UHF signal generator to $-60 \pm 3\text{dBm}$ and connect it to SKA, then connect a UHF power meter via a 30dB pad to 1PLG. Adjust the signal generator's frequency to be within the input passband of the first transposer, then measure the output power and observe the "Power Normal" LED. Repeat the test on the other transposers (2 PLG to 4 PLG).

7.1.2 The power should be $+33 \pm 1\text{dBm}$ and the LED should be on, to indicate that the output power is being controlled by the action of the AGC circuit.

7.1.3 If the power level is not correct, connect SKT to a Transposer Tester (TE1/38) set to the appropriate channels and with the "power" and "slope" switches set to "fixed". The "gain" switch must be set to "var" and the "gain" control must be fully clockwise. If the power level is still not correct then the fault is either due to a bad interconnection or one of the sub units has failed. If the power level is now correct then the Personality Panel is faulty.

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D50024A4

SHT. 1 OF 2 SHTS.

TM4M/502. QUADRUPLE UHF TV TRANSPOSER. PARTS LIST.

ISS.	1
CHANGE	18-6-81
	RM. 24.6.81
	1-7-81 WCB

ITEM No.	No. OFF	DESCRIPTION	CCT REF.	BBC REF. OR DRG. No.
<u>DRAWING NUMBERS</u>				
		CIRCUIT	D50023A1	
		PARTS LIST	D50024A4	
		ASSEMBLY	D50025A1	
		DETAILS	D50026-30A1	
		ENGRAVING	D50031A2	
		SUB-ASSY	D50039A1	
OTHER INFORMATION REQUIRED FOR MANUFACTURE				
ASSEMBLY INFORMATION EA10484				
SPECIFICATION ED/TM4M/502				
1	1	⊖ AM4/535		
2	1	FL2/558% (SPECIFY 'D', 'E' OR 'F' ON ORDER)		:- PLEASE NOTE THAT THIS UNIT IS NOT SUPPLIED AS PART OF TM4M/502 & IS SUBJECT TO A SEPERATE ORDER.
3	4	⊖ PA1M/579A		
4	2	⊖ PS4/8		
5	4	⊖ TM4M/503		
6				
7				
8				
9				
10	1	FRAME - SUB-ASSY. CONSISTING OF ITEMS 11-30 & 41-48, 52-54		
11	1	Δ L.H. FRONT VERTICAL, MANUFACTURED TO:		D50026A1 DET. 1
		" " " ENGRAVED TO :		D50031A2

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BBC DS/PLA4

TM4M/502. QUADRUPLE UHF TV TRANSPOSER. PARTS LIST.

DRN.	W.J.W.	DESIGNS DEPARTMENT
TPD.		
CKD.	M.T.E	D50024A4
APPD.		SHT. 1 OF 2 SHTS.