

S E R V I C E N O T E

SUPERSEDES: None

**37721A Digital Transmission Analyzer**

Serial Numbers: 3243U01701 / 3243U02082

**Modification to correct CCITT return loss specification**

To Be Performed By: Agilent-Qualified Personnel

**Parts Required:**

Part No.	Description	Qty.
0757-0180	Resistor 31.6 ohms	1

**Situation:**

37721A units within the serial range are unable to meet CCITT Return-Loss specifications. This can cause mismatch to equipment under test and result in waveform distortion and increased signal levels at the 37721A input. In extreme cases it is possible for the 37721A to indicate frame/sync loss or wrongly count bit errors.

*Continued*

DATE: October 1995

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
<b>MODIFICATION RECOMMENDED</b>			
ACTION CATEGORY:	<input checked="" type="checkbox"/> IMMEDIATELY <input type="checkbox"/> ON SPECIFIED FAILURE <input type="checkbox"/> AGREEABLE TIME	STANDARDS:	Labor 1.5 hrs
LOCATION CATEGORY:	<input type="checkbox"/> CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE <input checked="" type="checkbox"/> SERVICE CENTER	SERVICE INVENTORY:	<input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input checked="" type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	USED PARTS:	<input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input checked="" type="checkbox"/> SEE TEXT
AUTHOR: ER	ENTITY: 1400	AGILENT RESPONSIBILITY UNTIL: October 1995	
		ADDITIONAL INFORMATION:	

**Solution:**

The Return-Loss can be brought back within CCITT specifications by following the procedure described below. The fix reduces the input gain slightly (approx 2dB), but instrument performance is unaffected and all specifications are now met.

**Procedure:**

Note: Static Protection measures must be observed when working inside the 37721A.

1. Follow the procedure on pages 5-31 and 5-32 in the 37721A Service Manual (p/n 37721-90000) and remove the A4 Assembly.

**Note:**

Only A4 Assemblies part number 37721-60045 are liable to have the above return-loss problem.

2. Unsolder the 120 ohm Balanced Input transformer (A4T1) and remove from the A4 Assembly. See figure 1 for location of this transformer.
3. Cut off pin 5 from A4T1 then carefully file any remains of the pin flush with the transformer base.
4. Resolder transformer T2 into A4 assembly.
5. On the underside of the A4 Assembly, solder a 31.6 ohm resistor (part number 0757-0180) between T1 pin 4 and TP GND (see figure 1). Fit sleeved insulation onto the resistor wires and keep these as short as possible.
6. Refit the A4 assembly back into the 37721A and reassemble the unit.

**Testing:**

1. Run all instrument selftests (see page 5-16/5-18 in the Service Manual).
2. Select Default Settings (see page 2-47 in Operating Manual).
3. Connect an oscilloscope (54200A or equivalent) via 10:1 high-impedance probe to the centre pin of the Unbalanced 75 ohm Signal Out connector.
4. Measure the signal level - Call this Vopen.
5. Connect the Signal out to Signal In on the 37721A Front Panel.
6. Measure the new signal level - call this Vterm.
7. Calculate the Return Loss using the formula below;

$$\text{Return loss} = 20\log (V_{\text{open}} / (V_{\text{open}} - 2V_{\text{term}}))$$

8. The calculated Return Loss must be greater than 12dB.
9. Change the 37721A Termination Impedance to 120 ohm Balanced.
10. Repeat steps 1 to 6 - the oscilloscope should be connected to one pin of the Balanced Signal out connector.

Testing is now complete and the unit is ready for use.

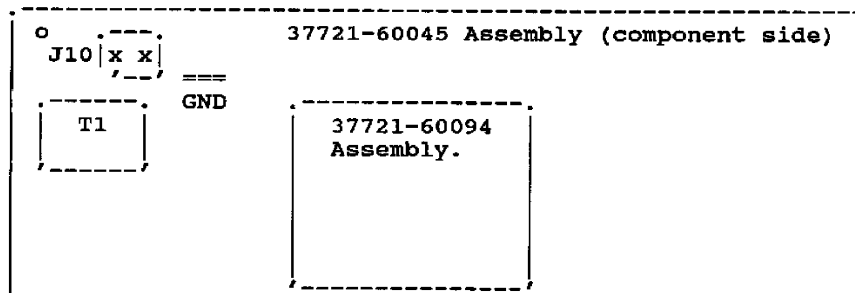


Figure 1

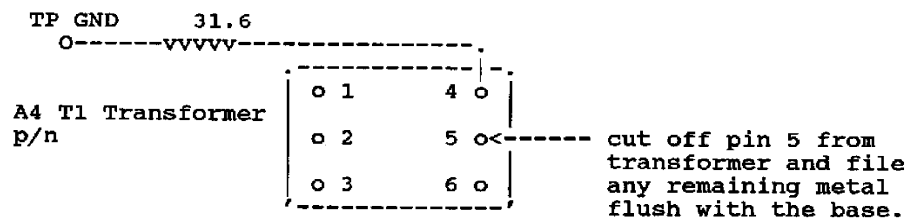


Figure 2