

INPUT AMPLIFYING PANEL PA1/517 SERIES

Introduction

This panel accepts a standard video signal¹ and produces a 4.5-volt blanked picture signal from a very low impedance source, three feeds of mixed-synchronising pulses, one feed each of field-blanking and delayed mixed-blanking pulses, a reference potential (intended for clamping) of -12 volts and a d.c. supply at -18 volts. Supplies of a.c. mains are required to two connectors.

The equipment comprises the following units accommodated in a Panel Type PN3/23C:

- Error-signal Amplifier AM3/501
- Pulse-distribution Amplifier AM4/506A
- Main Drive Amplifier AM5/508 (6 units)
- Processing Amplifier AM18/507
- Pulse Generator GE2/503
- Pulse Generator GE2/504
- Pulse Generator GE2/517
- Synchronising-pulse Separator UN1/510
- Automatic Time-constant Controller UN3/503
- Video Source Switch UN9/512
- Power-supplier PS2/10
- Power-supplier PS2/13C
- Power-supplier PS2/25

The panel carries the connectors and wiring which interconnects these units. The wiring is conventional except for that comprising the output connections of the main drive amplifier and of the panel; these consist of copper tape interlayered with insulating material to form a system of feeders having a characteristic impedance of one ohm. This arrangement maintains the very low output impedance which is the special feature of the amplifier.

General Specification

<i>Power Supply</i>	a.c. mains
<i>Input-signal Amplitude</i>	0.87 V p-p
<i>Input Impedance</i>	75 ohms
<i>Output-signal Amplitudes</i>	
Mixed-synchronising pulses	2 V p-p
Delayed mixed-blanking pulses	2 V p-p
Field blanking pulses	2 V p-p
Blanked picture signal	4.5 V p-p
<i>Output Impedances</i>	
Mixed-synchronising pulses	75 ohms

Delayed mixed-blanking pulses	75 ohms
Field blanking pulses	75 ohms
Blanked picture signal	1 ohm

Output Potentials

Clamping reference	-12 V (approx.)
D.C. supply	-18 V

Circuit Description

A block diagram of the panel is given in Fig. 1, and the wiring diagram in Fig. 2.

The video source switch receives only one input and connections are not made to the coils of integral switching relays. The function of the unit in this equipment is to introduce a time-delay into the video-signal path so as to bring the synchronising pulses of the delayed signal wholly within the duration of the gating pulses which are fed from the Pulse-generator Type GE2/503 to the processing amplifier.

Because the output from the panel is a picture signal, the sync-pulse input to the processing amplifier is not required and it is connected to the +4-volt supply.

In Fig. 2, connectors SK5—SK8 are shown twice; in the main part of the diagram the ordinary wiring connections are shown and the detached part of the illustration shows the specially-constructed wiring mentioned above. SK1 is, of course, the output connector of the panel.

PA1/517A

This panel differs from the basic panel in having additional attenuation in the video input circuit, enabling an input signal of 1 volt p-p to be accepted, and in not having output connectors for the field-blanking and delayed-mixed-blanking pulses from the Pulse Generator Type GE2/517. The labelling of SK1 (Fig. 2) is amended to *black-level reinsertion*.

The panel contains modified versions of some of the units, viz.:

- UN1/510A in place of UN1/510
- GE2/503B in place of GE2/503
- UN9/512A in place of UN9/512
- PS2/10A in place of PS2/10
- Unit 2A in place of unit 2 of the amplifier Type AM5/508

A block diagram of the panel is given in Fig. 3.

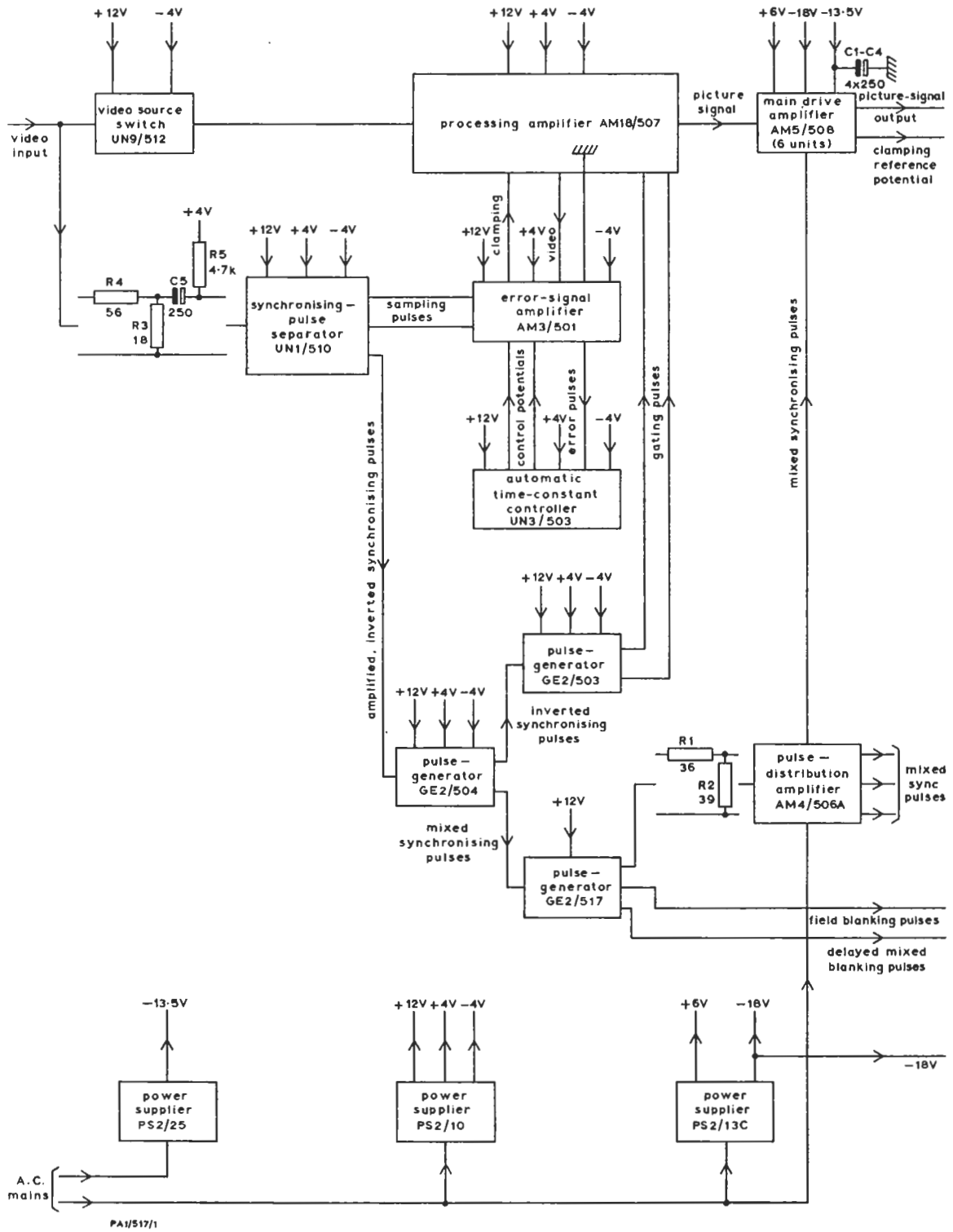


Fig. 1 Block Diagram of the PA1/517

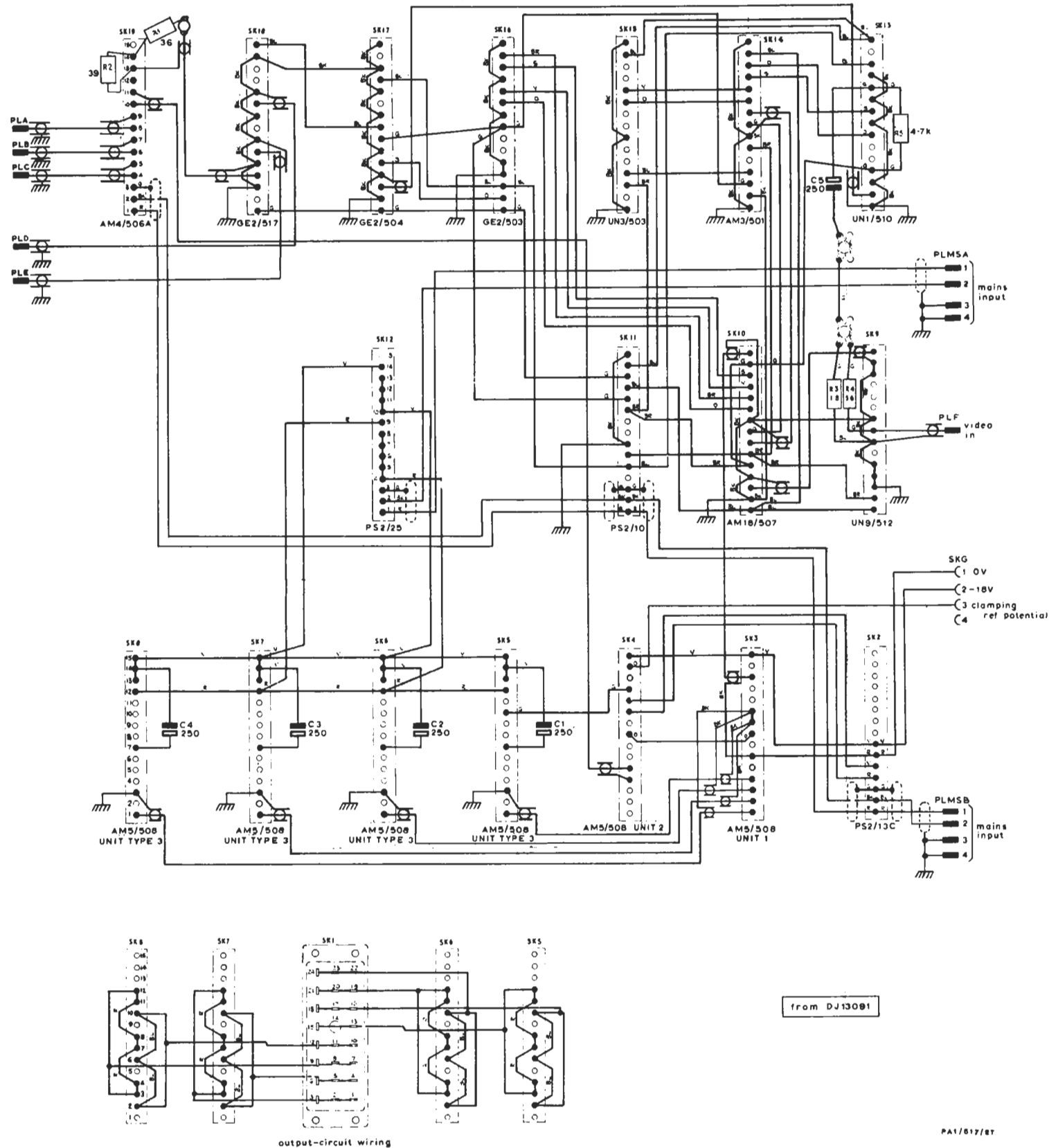


Fig. 2 Circuit of the PA1/517

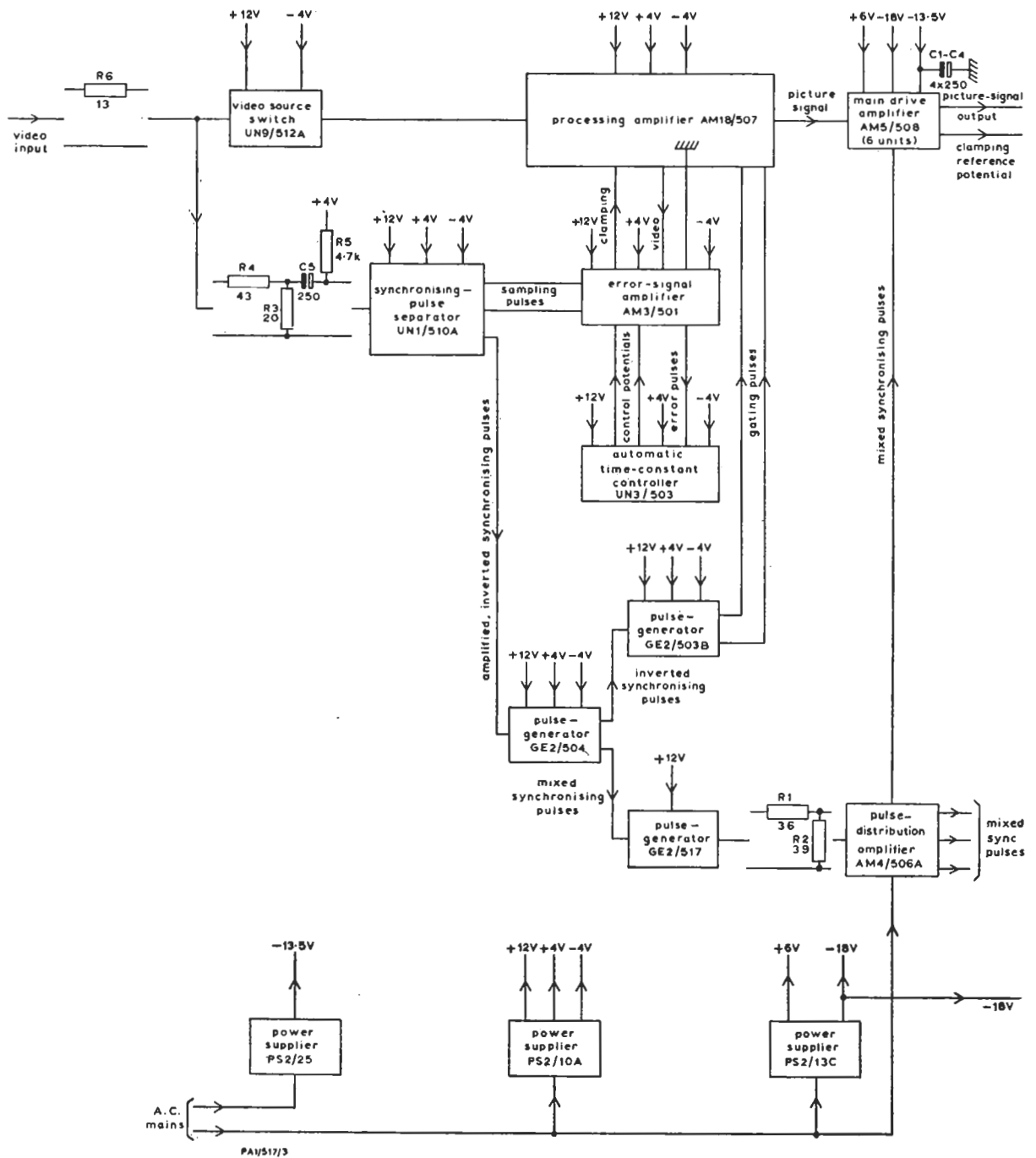


Fig. 3 Block Diagram of the PA1/517B

Maintenance

Apparatus required

Cathode-ray oscilloscope

Avometer, Model 8

Non-linearity Test Signal Generator GE4/505A

Non-linearity Measurement Filter FL1/509B

Non-linearity Measurement Processing Amplifier
AM1/505

Dummy load constructed as shown in Fig. 4

Source of 625-line mixed-synchronising pulses

A.C. mains supply

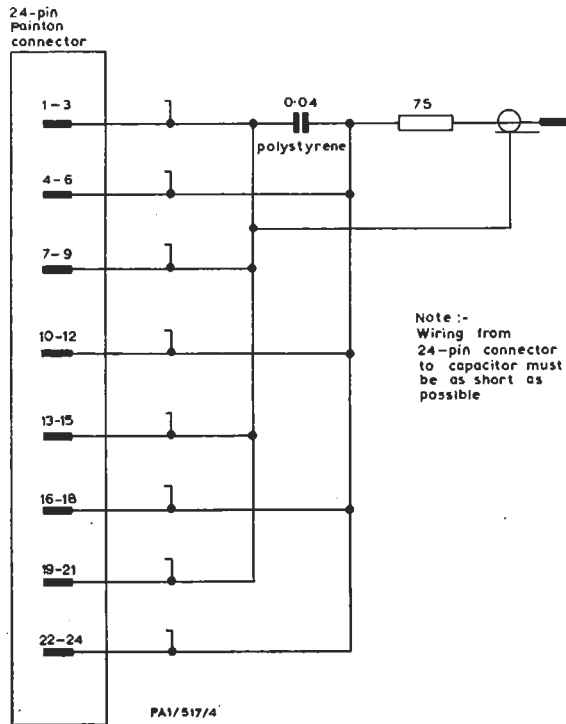


Fig. 4 Test Dummy Load

Test Procedure

1. Remove the Power Supplier PS2/25 from the panel, leaving all the other units in place.
2. Apply to the *Video In* connector of the panel a feed of mixed-synchronising pulses having an amplitude of 0.3 V p-p. Check the presence of mixed-synchronising pulses, mixed-blanking pulses and field-blanking pulses at the connectors labelled *M. Sync. Out*, *M. Supp. Out* and *Fld. Supp. Out*, respectively.
3. Re-insert the Power Supplier PS2/25 and connect the dummy load to SK2 of the panel.
4. Set the test meter to indicate *D.C. Volts* and connect it across the capacitor in the dummy load. Adjust R13 in Unit 2 (or R5 in Unit 2A) of the AM5/508 to obtain an indication of 12 volts.
5. Connect the signal generator Type GE4/505A to the *Video In* connector of the panel and the filter and processing amplifier to the co-axial connector of the dummy load. Adjust the input-signal level to obtain an output-signal level of 4.5 V p-p. Using these signal amplitudes, check the non-linearity distortion of the panel in the normal manner.

Adjustment of the equalising network in Unit 1 of the AM5/508 cannot be made at this stage; this must be done during the adjustment of the complete equipment of which the panel forms a part.

Reference

1. Line-store Standards Converter CO6/501A
2. Designs Department Specification No. 7.29(64)

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