FIRST VIDEO PRE-AMPLIFIER LDK 4805/00

SECOND VIDEO PRE-AMPLIFIER LDK 4806/00

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A. TECHNICAL DATA.

Input impedance	: approx. 40 kΩ.
Signal to noise ratio	: 45 dB, unweighted 56 dB, weighted, measured at I_s = 225 nA and nominal streaking correction setting.
Bandwidth	: 5 MHz ± 0.5 dB 7 MHz < 4 dB.
Pulse and Bar test	: 2 T pulse K < 0.5% P/B = 98% - 102% 1 T pulse K < 2.5% P/B = 95% - 105%
Gain (maximum)	: Input current = 55 nA Outputvoltage = 0.7 V_{pp}
Gain (minimum)	: Input current = 400 nA Outputvoltage = 0,7 V_{pp}
Target voltage	: Adjustable between 0 and 50 V
Test signal	: V B, negative, input impedance 220 Ω. Max. amplitude > 400 mV_{pp}
Clamping pulse	: positive 3 - 6 V +300 V. -12.9 V

B. CHECKING AND ADJUSTING

Measuring equipment:

Test jig (Philips LDK 4825/20)
Video Sweep generator (e.g. Fernseh PGM75E)
Oscilloscope (e.g. Philips PM 3230)

Measurements:

The voltages given in the circuit diagram have been measured without an input signal and are average values.
The oscillograms drawn in the circuit diagrams are obtained by means of a test signal generated in the camera head.
Because the streaking correction has influence on the frequency response of the amplifiers, this correction will be first adjusted with a 250 KHz pulse.

a. Provisional adjustment of the streaking correction

1. Adjust the gain potentiometer R11 in the second pre-amplifier according to the setting-up procedure.
2. Remove the F.E.T. pre-amplifier and mount Test jig LDK 4815/20.
3. Mount on the test jig the F.E.T. pre-amplfier.
4. Unsolder the coaxial cable which is connected with point 3 of the second pre-amplifier. This can be effected on the side fo the camera head where the viewfinder is incorporated. Solder a resistor of 75 Ω in the same place between points 1 and 3.
5. Apply a 250 kHz pulse (output of the Sweep-generator) to the test input of the test jig.
6. Connect the oscilloscope to the 75 Ω resistor (see point 4.).
7. With the streaking correction (C2) adjust the rise time of the pulse so that the pulse shape is optimum without overshoot or bad rise time (high frequency "spikes" cannot be eliminated with this adjustment).

b. Fequency response adjustment

1. Adjust the streaking correction according point a.
2. Make a short circuit across coil L1 in the F.E.T. amplifier.
3. Apply the output of the sweep generator (sweep from 0.5 MHz to 7.5 MHz) to the test input of the test jig.
4. Adjust the frequency response with C7 to maximum range and flatness.
5. Remove the short circuit across coil L1 in the F.E.T. amplifier.
6. Adjust coil L1 so that a bandwidth of 5 MHz ± 0.5 dB, 7 MHz <4 dB is obtained.
7. Restore the amplifiers to their original state.

C. CIRCUIT DESCRIPTION

The input circuit is a cascode circuit consisting of TS3, in series with F.E.T. transistors TS1 and TS2. Double gain is obtained by parallel connection of TS1 and TS2. The input impedance is approx. 40 kΩ.
This impedance is obtained by means of feedback circuit R13-C6. L1 serves for compensation of the capacitive load presented by TS4. The target voltage is adjustable with R4.
Via R2 it is possible to apply a test signal to the input. As R2 = 1 M, 1 mV test signal corresponds to a signal current of 1 mA. The collector resistance of TS3 consists of 2 resistors. This is necessary as the voltage drop across the resistor should be restricted on account of the small dimensions.
Via C10 the signal is fed to a second amplifier. The streaking correction is included in the emitter circuit of TS2.
The RC time of R6//R7+C2+C1 is equal to that of the input of the cascode circuit in the first pre-amplifier (40 kΩ // the plumbicon capacitance). TS3 is an amplifier, R11 is the gain control. TS4-6 are amplifiers; C7 serves for adjusting the frequency response. TS5 is a so-called "soft clamp".
The transistor functions as a switch which is closed during the line flyback. Via C9 the signal is short-circuited to earth during this interval. Interference pulses which are capacitively coupled from the deflection coils to the target, are thus strongly attenuated. Via emitter follower TS7 the signal is fed to the camera cable.
The second amplifier is supplied via the first amplifier.

D. SERVICE PARTS

1. Mechanical

	Description	Code number Code-Nummer
	Supply cable for FET-Amplifiers	4822 321 20145
	Supply cable for second pre-amplfiers	4822 321 20146
	Nylon spacer for transistors	4822 255 40006
	Gain control Knob	4822 413 30392
	Knob for streaking correction	4822 413 30156

2. Electrical

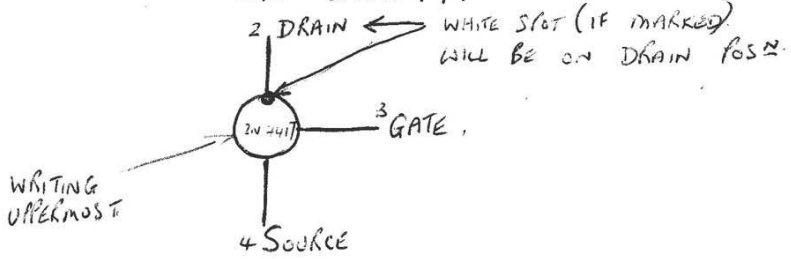
a. FET Amplfiers

Item Pos	Description	Code number Code-Nummer
Ts1 - 2	FET Transistor BFW 10	4822 130 40424
Ts3 - 4	Transistor BF 173	4822 130 40326
L1	Coil	4822 156 20203
C3 - 7 - 8	Electr. cap. 47 µF - 20 V	4822 124 10026
C4	Electr. cap. 6.4 µF - 150 V	4822 124 20059
C9	Electr. cap. 15 µF - 20 V	4822 120 10017
C10	Electr. cap. 25 µF - 25 V	4822 124 20366
R4	Pot. meter lin. 50 kΩ	4822 100 10095

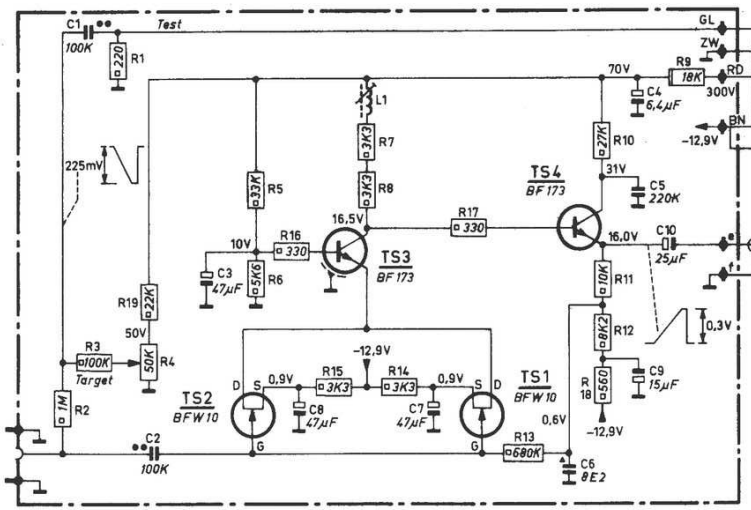
b. Second Pre-amplifiers

Ts1-2-4-7	Transistor BCY 70	4822 130 40324
Ts3	Transistor BF 173	4822 130 40326
Ts5	Transistor BFY 50	4822 130 40294
Ts6	Transistor BSY 39	4822 130 40125
GR1	Diode BAY 38	4822 130 40256
C2	Trimmer 200 pF	4822 125 20138
C3-5	Electr. cap. 82 µF - 10 V	4822 124 10089
C4	Electr. cap. 47 µF - 10 V	4822 124 10026
C7	Trimmer 60 pF	4822 125 50017
C11-12	Electr. cap. 150 µF - 15 V	4822 124 10074
R11	Pot. meter. log. 1 kΩ	4822 100 30007

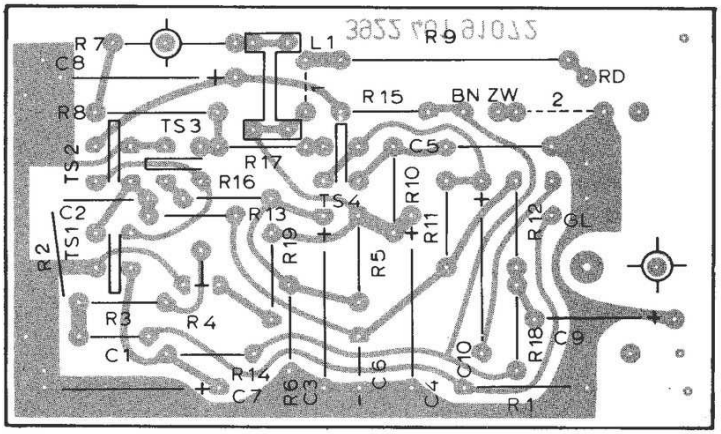
FET. CONNS. FOR TS1 & TS2.
TYPE 2N4417



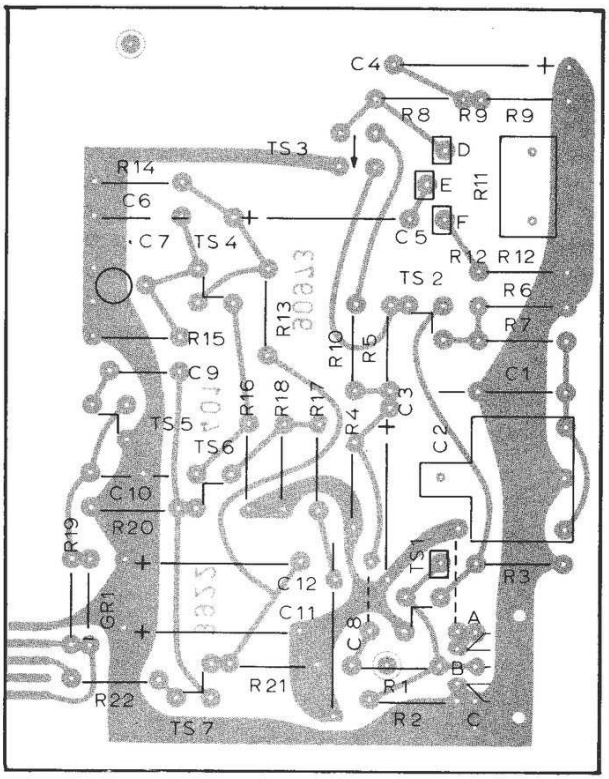
Video Head Amplifier CJ-CK-CL



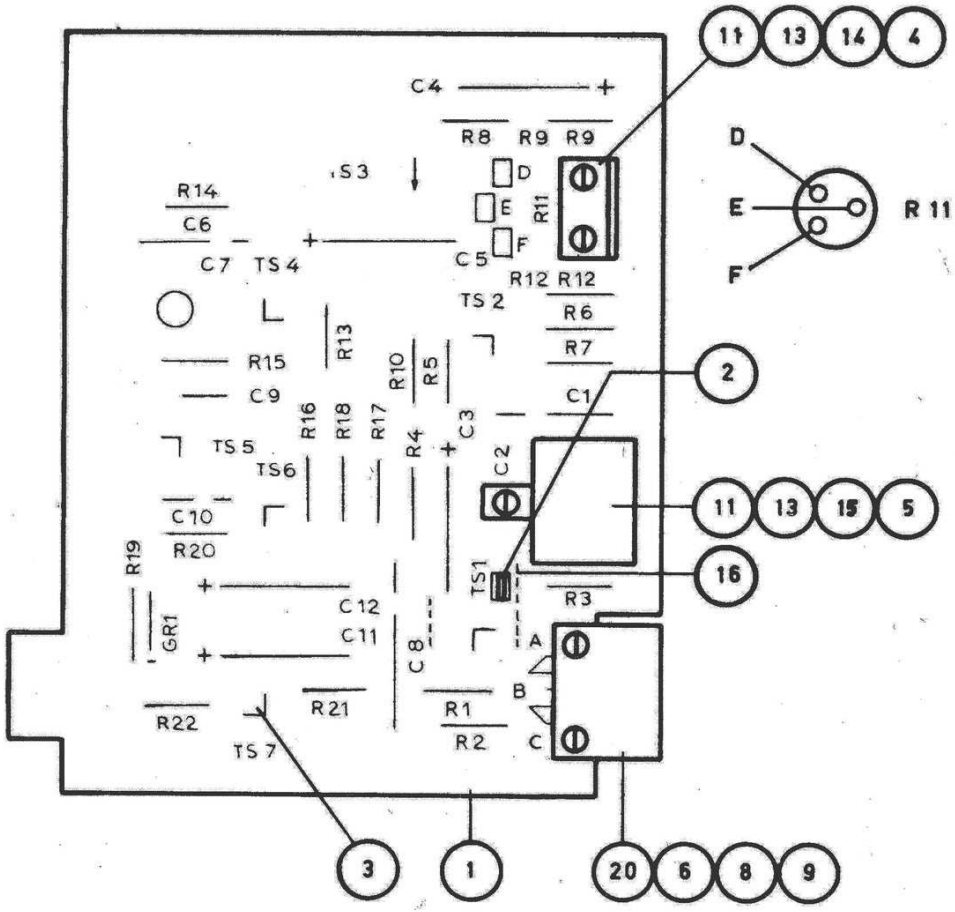
Video Head Amplifier CF-CG-CH

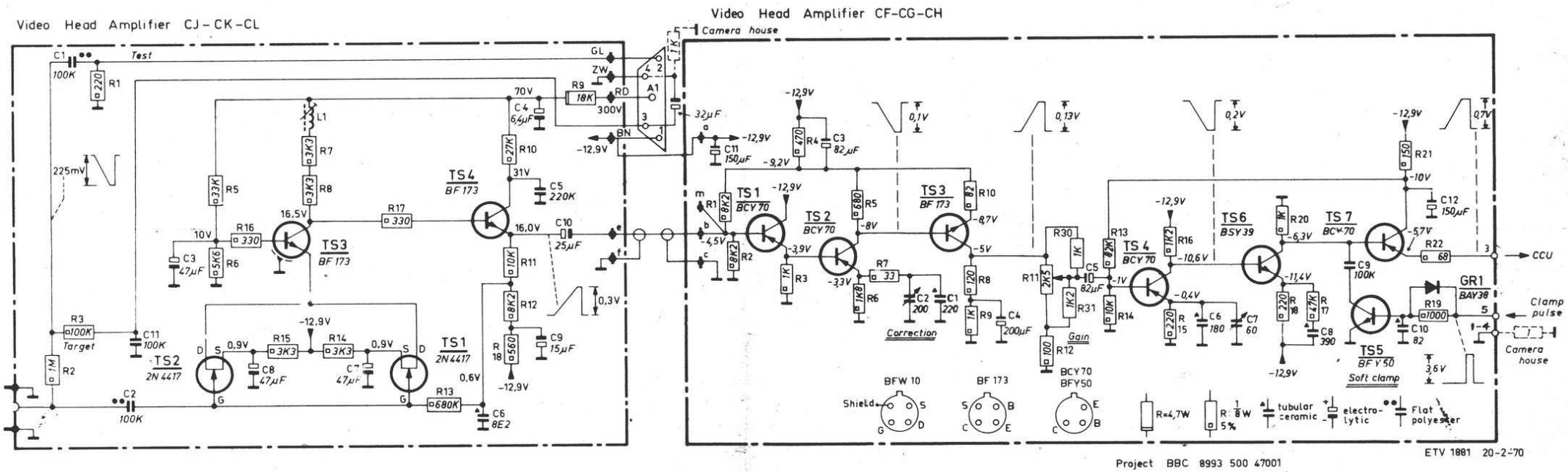


ETV 2549



ETV 2550


11
13
14
4
C4
R8
R9
R9
D
E
F
R11
R 11
TS3
R14
C6
C7
TS4
C5
R12
R12
TS2
R6
R7
R15
C9
R13
R10
R5
C1
2
R16
R18
R17
R4
C3
C2
TS5
TS6
C10
R20
11
13
15
5
R19
GR1
C12
C11
C8
TS1
R3
16
A
B
C
R22
R21
R1
R2
TS7
3
1
20
6
8
9


Video Head Amplifier CJ – CK – CL
Video Head Amplifier CF–CG–CH
Camera house
Test
Target
TS1 2N4417
TS2 2N4417
TS3 BF 173
TS4 BF 173
TS1 BCY 70
TS2 BCY 70
TS3 BF 173
TS4 BCY 70
TS6 BSY 39
TS7 BCW 70
TS5 BFY 50
Soft clamp
Correction
Gain
GR1 BAY 38
Clamp pulse
Camera house
CCU
BFW 10
BF 173
BCY 70 BFY 50
Shield
R=4,7W
tubular ceramic
electro-lytic
Flat polyester
Project BBC 8993 500 47001
ETV 1881 20-2-70