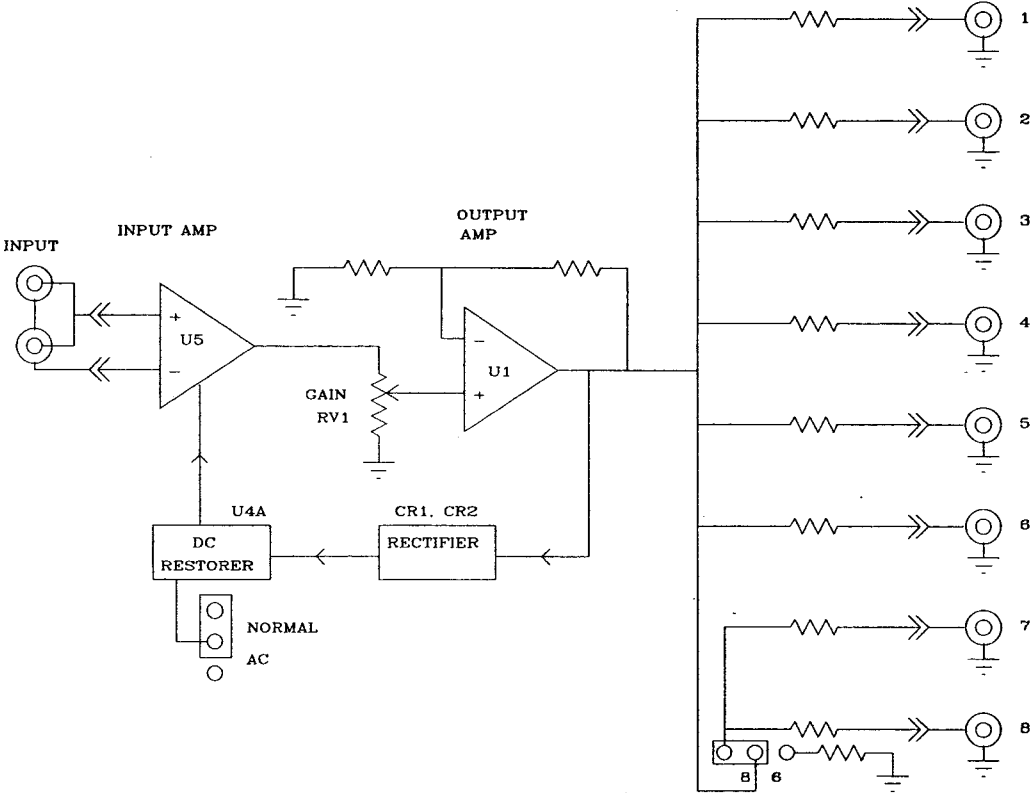


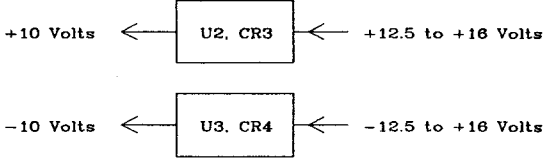
**VDA-7501**  
**Video Distribution Amplifier**

VM-7501-03

# VDA 7501 Block Diagram



**POWER REGULATORS**



## **Operation**

The only user-operated control is GAIN. This is set as required for the situation and cable length. Use any suitable test signal which would enable the signal gain to be correctly set. (e.g. pulse & bar or color bar).

The Coupling jumper is set as follows:

Normal:

Used for composite video signals.

A/C:

Used for component video signals.

Frame Type:

This amplifier provides 8 outputs in a Ross tray when JP1 is set to the 8-output position. If it is to be installed in a 6 output GVG \* tray, set JP1 to the 6-output position.

\* GVG is a trade mark of The Grass Valley Group Inc.

## **Circuit Description**

When reading this description, also refer to the block diagram (on the facing page) and the schematic diagram.

The video input and input shield are connected to an input buffer amplifier U5. This provides a medium impedance, low capacitance input to ensure a good input return loss.

The output stage, U1, is a video op-amp with an internal power output stage. This is operated with a total gain of 7 dB. This provides 6db to drive the 75 ohm output resistors. CV1 and RV1 provide adjustment for basic frequency response.

Op-amp U4A is used to stabilize the D.C. component of the output video signal. Jumper JP1 is used to select the most appropriate mode of operation.

The Normal mode maintains the back porch nominally at ground level regardless of changes in the average picture level. This is achieved by clamping the sync tip to -0.3 volts. The sync tip is rectified by CR1 and the voltage stored in C2. U4A compares this voltage with ground level and corrects the input bias of U5 to maintain this condition.

The A.C. mode ensures that the D.C. component of any picture is equal to ground level.

Voltage regulation of the incoming raw DC (13.5 volts) is accomplished by regulators U2 and U3 which output -10 volts and +10 volts respectively.

### **Settings for JP1 Coupling Jumper Plug**

Composite Video: Use "NORMAL" setting.

Component Video: Use A.C. setting.

## Alignment

**IMPORTANT:** All Ross distribution amplifiers have been very accurately calibrated at the factory. Alignment should only be attempted if absolutely necessary and the required precision sweep measuring equipment is available.

### 1. TEST SETUP

Put the amplifier on the extender board and turn power on.

### 2. POWER REGULATORS

Use a voltmeter to test for the presence of regulated +10 volts at TP1 and -10 volts at TP3. (9.5 to 10.2 volts).

### 3. GAIN CALIBRATION

Set up a method of accurately measuring amplifier gain, using a window or pulse & bar signal. Adjust the gain control (RV2) to obtain unity gain.

### 4. FREQUENCY RESPONSE

Set up a method of accurately measuring amplifier frequency response using a sweep or multiburst signal. Adjust CV1 and RV1 for flattest response to 14 MHz.

## VDA 7501 Technical Specifications

<b>Input</b>	
Video input level	1 Vpp nominal
Input impedance	75 ohms bridging
Input return loss	46 dB to 5 MHz (41 dB GVG * tray)
Max DC on input	±11V
Max common mode signal	7 V pp
Common mode rejection	60 dB at 60 Hz
<b>Output</b>	
Number of outputs	6 or 8
Output impedance	75 ohms
Output return loss	40 dB to 5MHz
Output isolation	42 dB to 5MHz
D.C. Offset	< 50 mV
Output loading per termination at 10MHz	0.02 dB
<b>Performance</b>	
Gain range	± 3 dB
Gain stability	< 0.1% per 10°C
Frequency response	± 0.02 dB to 10 MHz typically -0.2 dB at 20 MHz
Line rate window tilt	< 0.2%
Field rate window tilt	< 0.2%
50/60 Hz square wave tilt	< 0.1%
Bounce (black to white)	< 0.1%
Differential gain (10%-90% APL)	< 0.1%
Differential phase (10%-90% APL) all outputs loaded	< 0.1°
RMS noise 0-5 MHz (unweighted)	68 dB
Chrominance/luminance delay	< 2.0 ns
K rating 1T	0.3%

Specifications and designs are subject to change without notice.

VDA-7501  
Bill Of Materials

7501A-001 Issue 3

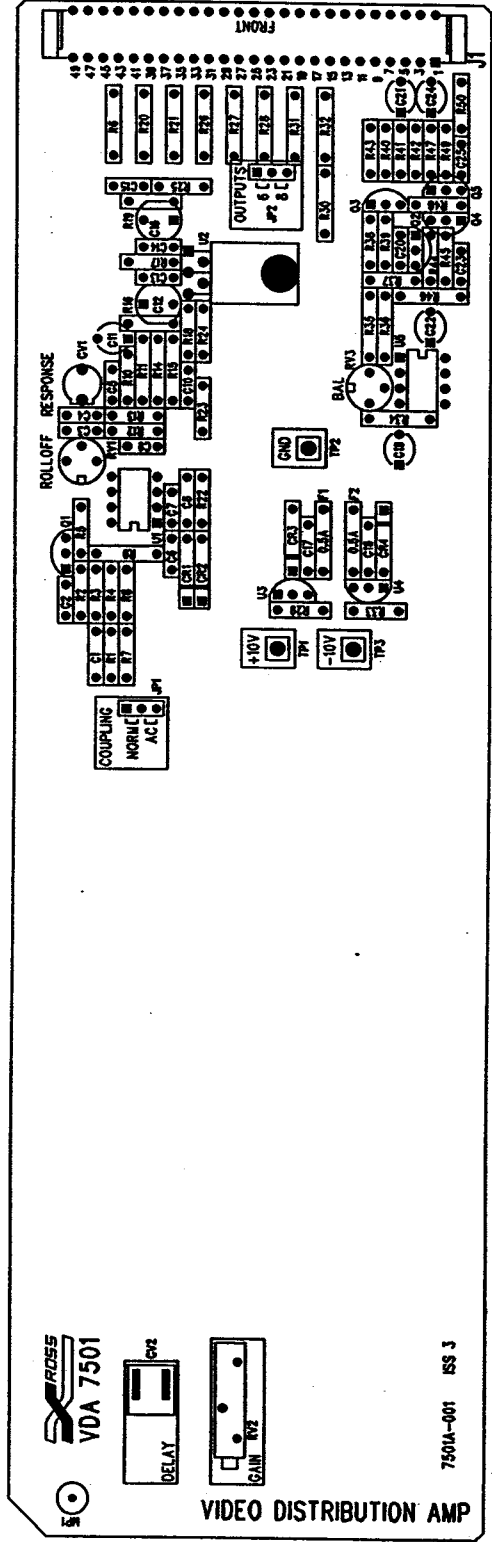
Item	QTY	REF	Part	Description	Part Number
1	1	R11	NVR	NO VALUE RESISTOR, 5%	-----
2	2	TP3,TP1	NVTP	NO VALUE TEST POINT	-----
3	1	C19	2p7	CAPACITOR, CERAMIC, 100V, 0.25PF, 2p7	200-270
4	1	C1	5p6	CAPACITOR, CERAMIC, 100V, 0.25PF, 5p6	200-560
5	2	C3,C20	27p	CAPACITOR, CERAMIC, 100V, 2%, 27p	201-270
6	3	C5,C6,C16	1u 206-100	CAPACITOR, CERAMIC, 50V, 20%, 1u0	206-100
7	1	C2	100n 210-007	CAPACITOR, FILM, 63V, 10%, 100n	210-007
8	1	C7	2n2 210-017	CAPACITOR, FILM, 400V, 10%, 2n2	210-017
9	3	C9,C10,C18	100n	CAPACITOR, GLASS, 100n	225-100
10	4	C11,C12,C13,C15	4u7	CAPACITOR, TANTALUM, 4u7	250-007
11	2	C17,C14	6u8	CAPACITOR, TANTALUM, 25V, 6u8	250-008
12	2	C8,C4	22u 250-011	CAPACITOR, ALUMINUM, 16V, 22u	250-011
13	1	CV1	2p8-10p	VARIABLE, CAPACITOR, 2p8-10p	270-006
14	1	J1	311-035	CONNECTOR, 2X25P, PCB MNT, 90 DEG	311-035
15	1	CR1	1N4148	DIODE, SIGNAL, GP, 1N4148	360-005
16	3	CR2,CR3,CR4	1N4733A	DIODE, ZENER, 1N4733A	360-012
17	1	MP1	365-001	PCB, EJECTOR	365-001
18	2	JP1,JP2	403-013-03	HEADER, 3 PIN, 1 ROW, MALE, PL.23, BL.1, LL.1	403-013-03
19	1	U2	LM78L05	POSITIVE, VOLTAGE REGULATOR	500-024
20	1	U3	LM79L05	NEGATIVE, VOLTAGE REGULATOR	500-025
21	1	U4	TL082	DUAL, JFET, INPUT OPER AMP, SUF "ACP"	500-075
22	1	U1	EL2099C	70MHz, 1A VIDEO AMPLIFIER	504-097
23	1	U5	AD810	AMP, VID, 100MHz, TEMP/STAB	504-100
24	2	JPP2,JPP1	603-005	JUMPER, 2-POSITION, LOW PROFILE	603-005
25	1	NUTU1	650-012	NUT HEX	650-012
26	1	RV3	100R 1T	VARIABLE, RESISTOR, 1/4 DIA, 1-TURN, 100R	710-002
27	1	RV1	1K 1T	VARIABLE, RESISTOR, 1/4 DIA, 1-TURN, 1K	710-005
28	1	RV2	100R 720-005	VARIABLE, RESISTOR, 20-TURN, 100R	720-005
29	1	PCB	7501-001-01	VIDEO DISTRIBUTION AMP	7501-001-01
30	1	R5	3M3 1/4W	RESISTOR, 1/4W, 5%, 3M3	806-330
31	2	F1,F2	1R 1%	RESISTOR, 1/4W, 1%, 1R	810-100
32	1	R16	174R 1%	RESISTOR, 1/4W, 1%, 174R	812-174
33	1	R7	200R 1%	RESISTOR, 1/4W, 1%, 200R	812-200
34	2	R30,R32	3K32 1%	RESISTOR, 1/4W, 1%, 3K32	813-332
35	1	R26	4K75 1%	RESISTOR, 1/4W, 1%, 4K75	813-475
36	2	R29,R28	9K53 1%	RESISTOR, 1/4W, 1%, 9K53	813-953
37	1	R1	4R7	RESISTOR, 1/2W, 5%, 4R7	824-470
38	2	R27,R33	10R	RESISTOR, 1/2W, 5%, 10R	825-100
39	1	R12	15R	RESISTOR, 1/2W, 5%, 15R	825-150
40	1	R10	36R	RESISTOR, 1/2W, 5%, 36R	825-360
41	3	R6,R15,R17	100R	RESISTOR, 1/2W, 5%, 100R	826-100
42	1	R9	750R	RESISTOR, 1/2W, 5%, 750R	826-750
43	2	R25,R21	10K	RESISTOR, 1/2W, 5%, 10K	828-100
44	1	R3	47K	RESISTOR, 1/2W, 5%, 47K	828-470
45	1	R31	220K	RESISTOR, 1/2W, 5%, 220K	829-220
46	1	R4	270K	RESISTOR, 1/2W, 5%, 270K	829-270
47	9	R2,R13,R14,R18, R19,R20,R22,R23, R24	75R 0.5%	RESISTOR, 1/4W, 0.5%, 75R	840-004
48	1	SCRWU1	850-040	SCREW, 4-40, 1/4, BIND, PHILIPS	850-040
49	1	TP2	910-010	TEST POINT	910-010
50	1	WSHRU1	960-015	WASHER, SPRING, 4-40	960-015

**NOTES**

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- CV1 = RESPONSE
- CV2 = DELAY
- JP1 = COUPLING AC/NORMAL
- JP2 = OUTPUTS 6/8
- RV1 = GAIN
- RV2 = ROLLOFF
- RV3 = BALANCE
- TP1 = +10V
- TP2 = GND
- TP3 = -10V



REV	DATE	BY	CHKD	APP'D	DESCRIPTION
01	10/10/83	J.P.	J.P.	J.P.	INITIAL DESIGN
02	11/10/83	J.P.	J.P.	J.P.	REVISED FOR MANUFACTURE
03	12/10/83	J.P.	J.P.	J.P.	REVISED FOR MANUFACTURE

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**ROSS**  
VDA 7501



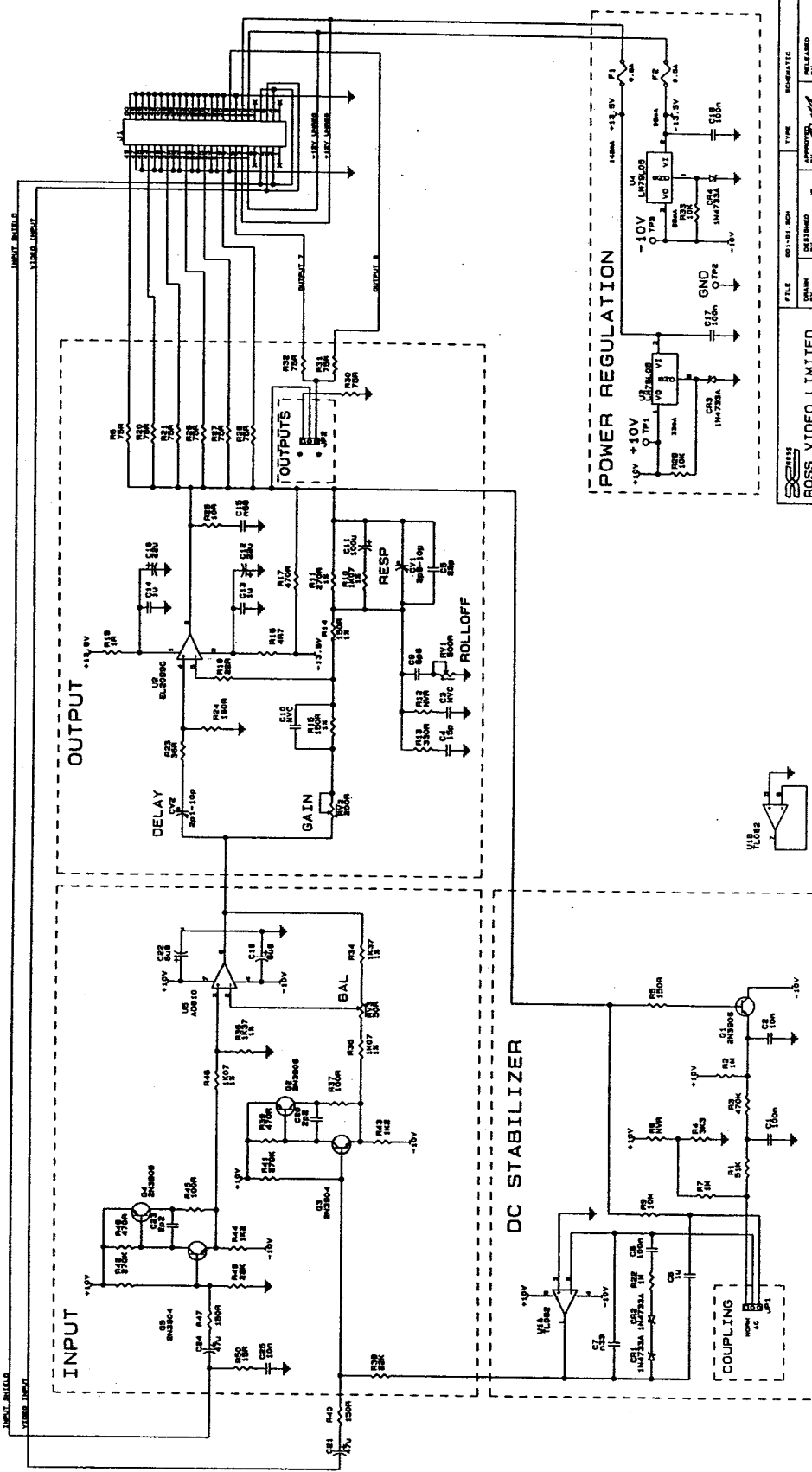
7501A-001 6SS 3

VIDEO DISTRIBUTION AMP



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 PARTS LIST TO THE CUSTOMER FOR APPROVAL  
 AND SIGNATURE OF THE CUSTOMER'S  
 QUALITY CONTROL REPRESENTATIVE

EDGE CONNECTOR



FILE	60191.000	TYPE	SCHEMATIC
DRAWN BY	JR	APPROVED BY	SL-003
DATE	18 DEC 98	DATE	2.1.96
FUNCTION	VIDEO DISTRIBUTION AMP	NUMBER	7501A-001
TITLE	VDA-7501	ISSUE	03
		SHEET	1 OF 1

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