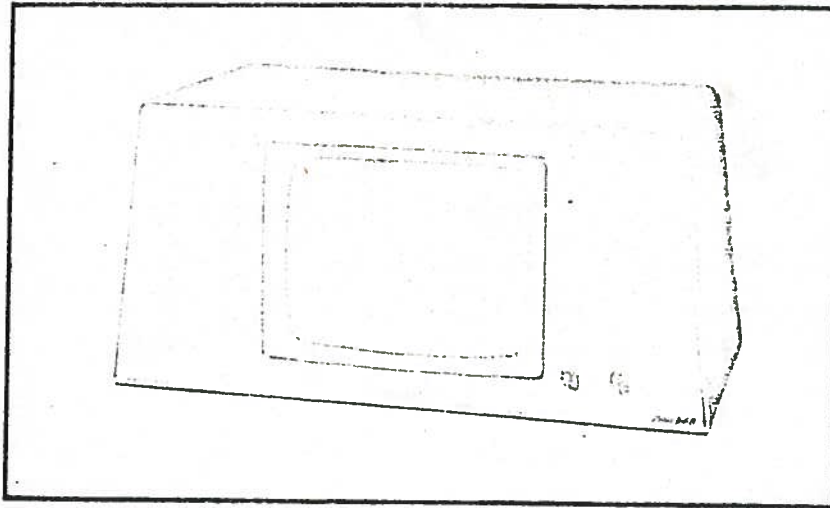




service manual

VIATRON MODEL 3001

CHASSIS 9TS-469



GENERAL INFORMATION

Model 3001 is a 9 inch unistorized CC TV black and white CRT chassis monitor.

Chassis circuitry includes three stages of video amplification, sync and deflection circuits, and a 12.5 volt regulated power supply.

Composite video is fed to the monitor through a type BNC coaxial connector mounted on the rear of the cabinet.

Front panel controls include brightness and contrast.

The picture tube is a 9 inch 85 degree deflection CRT with tinted faceplate and implosion protection.

The chassis utilizes etched board construction having components mounted on the top side and plated wiring on the bottom. Component reference numbers and circuit legend are printed on the board to aid in servicing.

Horizontal and vertical output transistors are mounted on a vertical bracket located on one side of the chassis, which serves as a heat sink as well as a chassis support.

The voltage regulator is mounted on a

vertical heat sink bracket on the opposite side of the chassis.

ELECTRICAL SPECIFICATIONS

Power Rating: 30 watts.

Source: 120 volts, 60 cycle AC.

Input Impedance: 75 ohms

CAUTION

NO WORK SHOULD BE ATTEMPTED ON AN EXPOSED TELEVISION CHASSIS BY ANYONE NOT FAMILIAR WITH SERVICING PROCEDURES AND PRECAUTIONS.

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SAFETY WARNING

CAUTION: NO WORK SHOULD BE ATTEMPTED ON AN EXPOSED TELEVISION CHASSIS BY ANYONE NOT FAMILIAR WITH SERVICING PROCEDURES AND PRECAUTIONS.

1. **SAFETY PROCEDURES** should be developed by habit so that when the technician is rushed with repair work, he automatically takes precautions.

2. A **GOOD PRACTICE**, when working on a receiver, is to use only one hand when testing circuitry. This will avoid the possibility of carelessly putting one hand on chassis or ground and the other on an electrical connection which could cause a severe electrical shock.

3. Extreme care should be used in **HANDLING THE PICTURE TUBE** as rough handling may cause it to implode due to atmospheric pressure (14.7 lbs. per sq. in.). Do not nick or scratch glass or subject it to any undue pressure in removal or installation. When handling, use safety goggles and heavy gloves for protection. Discharge picture tube by shorting the anode connection to chassis ground (not cabinet or other mounting parts). When discharging . . . go from ground to anode or use a well insulated piece of wire.

Avoid prolonged exposure at close range to unshielded areas of the cathode ray tube. Possible danger of personal injury from unnecessary exposure to X-ray radiation may result.

4. An **ISOLATION TRANSFORMER** should always be used during the servicing of a receiver whose chassis is common to one side of the power line. Use a transformer of adequate power rating as this protects the serviceman from accidents resulting in personal injury from electrical shocks. It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

5. Always **REPLACE PROTECTIVE DEVICES**, such as fishpaper, isolation resistors and capacitors and shields after working on the receiver.

6. Do not operate the unit with the **HIGH VOLTAGE COMPARTMENT OPEN** or the cage removed. The cover must be in place and fastened in order to assure proper shielding. This will protect against the possibility of personal injury resulting from unnecessary exposure to X-ray radiation from the high voltage rectifier tube.

7. The **HIGH VOLTAGE** should always be **ADJUSTED** to the level recommended by the manufacturer. If the voltage is increased above the normal setting, exposure to unnecessary X-ray radiation could result. High voltage can accurately be measured with a high voltage meter connected from the anode lead to chassis.

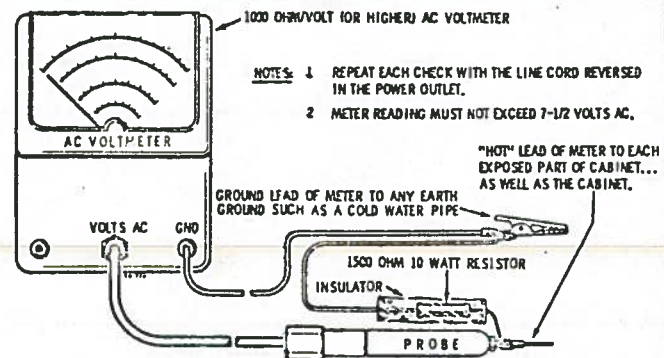
8. The **TEST PICTURE TUBE** used for servicing

the chassis at the bench should incorporate a safety glass and magnetic shield. The safety glass affords shielding from the tube viewing area against X-ray radiation as well as implosion protection. The magnetic shield limits X-ray radiation around the bell of the picture tube in addition to restricting magnetic effects.

9. **BEFORE RETURNING A SERVICED RECEIVER** (of any type) **TO THE OWNER**, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock. **DO NOT USE A LINE ISOLATION TRANSFORMER WHEN MAKING THIS TEST.**

In addition to practicing the basic and fundamental electrical safety rules, the following test, which is related to the minimum safety requirements of the Underwriters Laboratories should be performed by the service technician before any receiver which has been serviced is returned to the owner.

A 1000 ohm per volt AC voltmeter is prepared by shunting it with a 1500 ohm, 10 watt resistor. The safety test is made by contacting one meter probe to any portion of the receiver exposed to the consumer or operator such as the cabinet trim, handle, etc., controls, knobs, etc., while the other probe is held in contact with a good "earth" ground such as a cold water pipe.



Voltmeter Hook-up for Safety Check

The AC voltage indicated by the meter may not exceed 7½ volts. A reading exceeding 7½ volts indicates that a potentially dangerous leakage path exists between the exposed portion of the receiver and "earth" ground. Such a receiver represents a potentially serious shock hazard to the operator.

The above test should be repeated with the receiver power plug reversed.

NEVER RETURN A RECEIVER TO THE CUSTOMER which does not pass the safety test until the fault has been located and corrected.

ETCHED BOARD CIRCUIT TRACING

The top (component side) of the chassis board contains a complete legend of the chassis circuit that appears on the bottom and identification of all components by reference numbers that are related to the reference numbers on the schematic diagram. The circuit may be traced from the top of the chassis board and all components can be identified without making any reference to the bottom of the chassis board.

The circuit side (bottom) of the chassis board contains component reference numbers with the leads traced in to aid in circuit tracing and component location.

Transistor elements are identified as follows: E-emitter, B-base, and C-collector.

CHASSIS REMOVAL

Refer to receiver parts location photo. Six (6) screws secure the chassis to the inner bezel. They are located as

follows: two (2) at the upper left corner, two (2) at lower left and two (2) at the right side.

COMPONENT REMOVAL

Removing components from the etched board is facilitated by the fact that the circuitry (plating) appears on one side of the board only and the component leads are inserted straight through the holes and are not bent or crimped.

It is recommended that a solder extracting gun be used to aid in component removal. An iron with a temperature controlled heating element would be desirable since it would reduce the possibility of damaging the board due to over-heating.

The nozzle of the soldering gun is inserted directly over the component lead and when sufficiently heated, the solder is drawn away leaving the lead free from the copper plating. This method is particularly suitable in removing multi-terminal components.

PICTURE TUBE REPLACEMENT

Use extreme care in handling the

picture tube as rough handling may cause it to implode due to atmospheric pressure. Do not nick or scratch glass or subject it to any undue pressure in removal or installation. Use goggles and heavy gloves for protection.

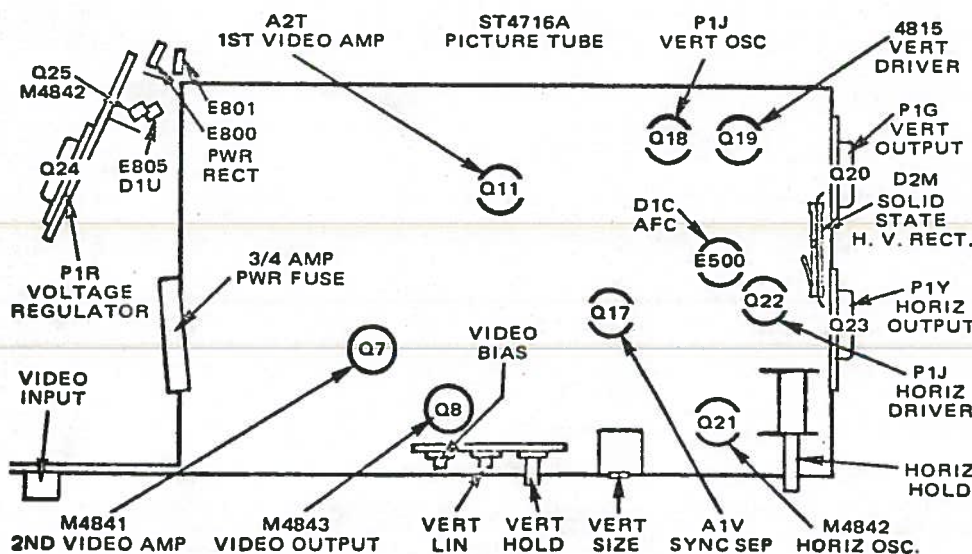
To remove picture tube, remove chassis as described above, then remove corner screws securing picture tube to bezel.

VOLTAGE REGULATOR ADJUSTMENT

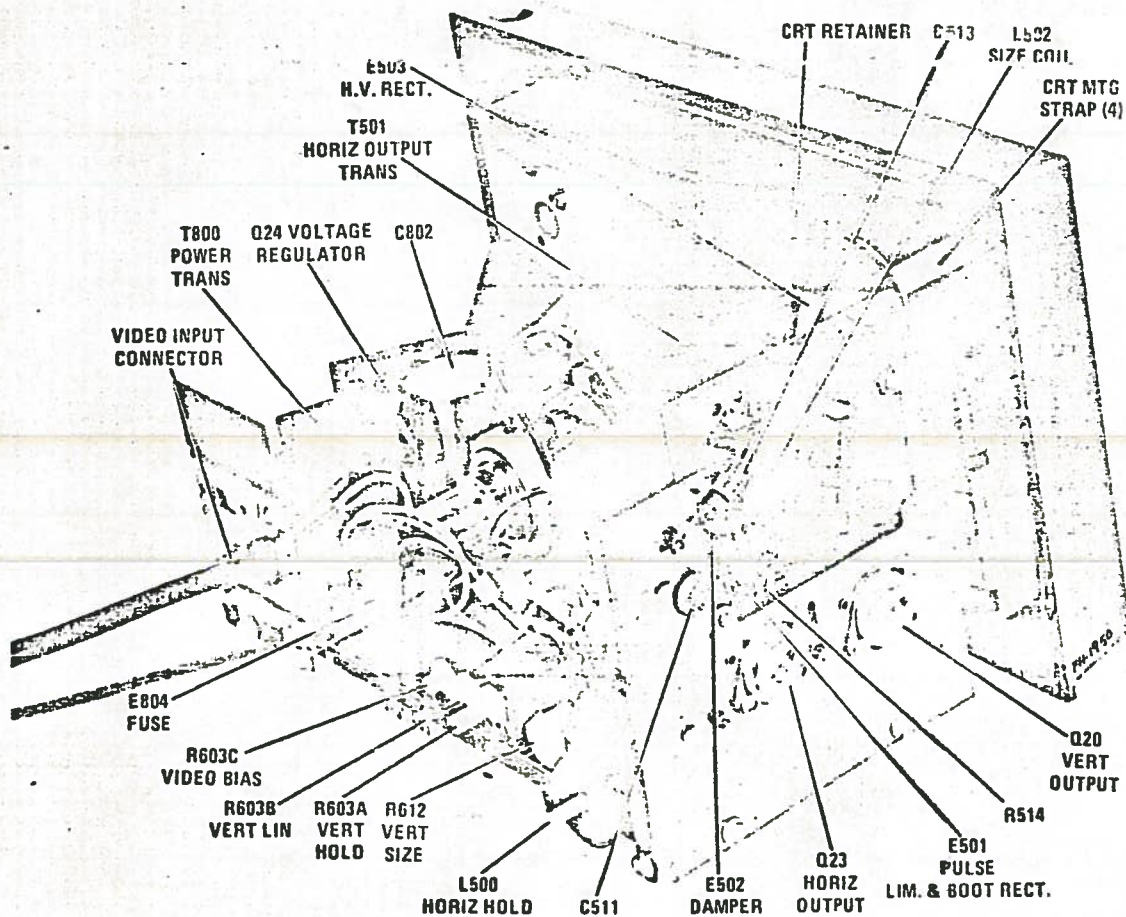
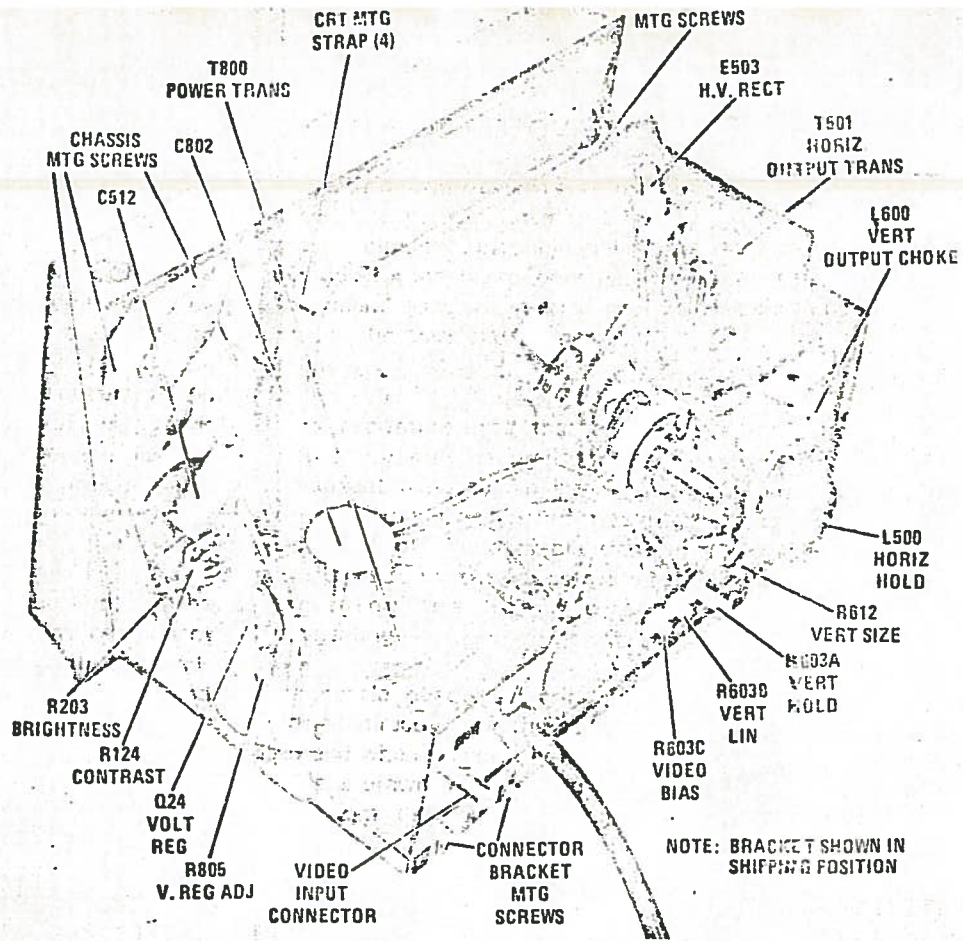
1. Set line voltage input to 122V AC using a variable transformer.
2. Adjust R805, located on the voltage regulator bracket, to give 12.5 volts B++ at junction of R802 and R800.

1ST VIDEO AMPLIFIER BIAS ADJUSTMENT

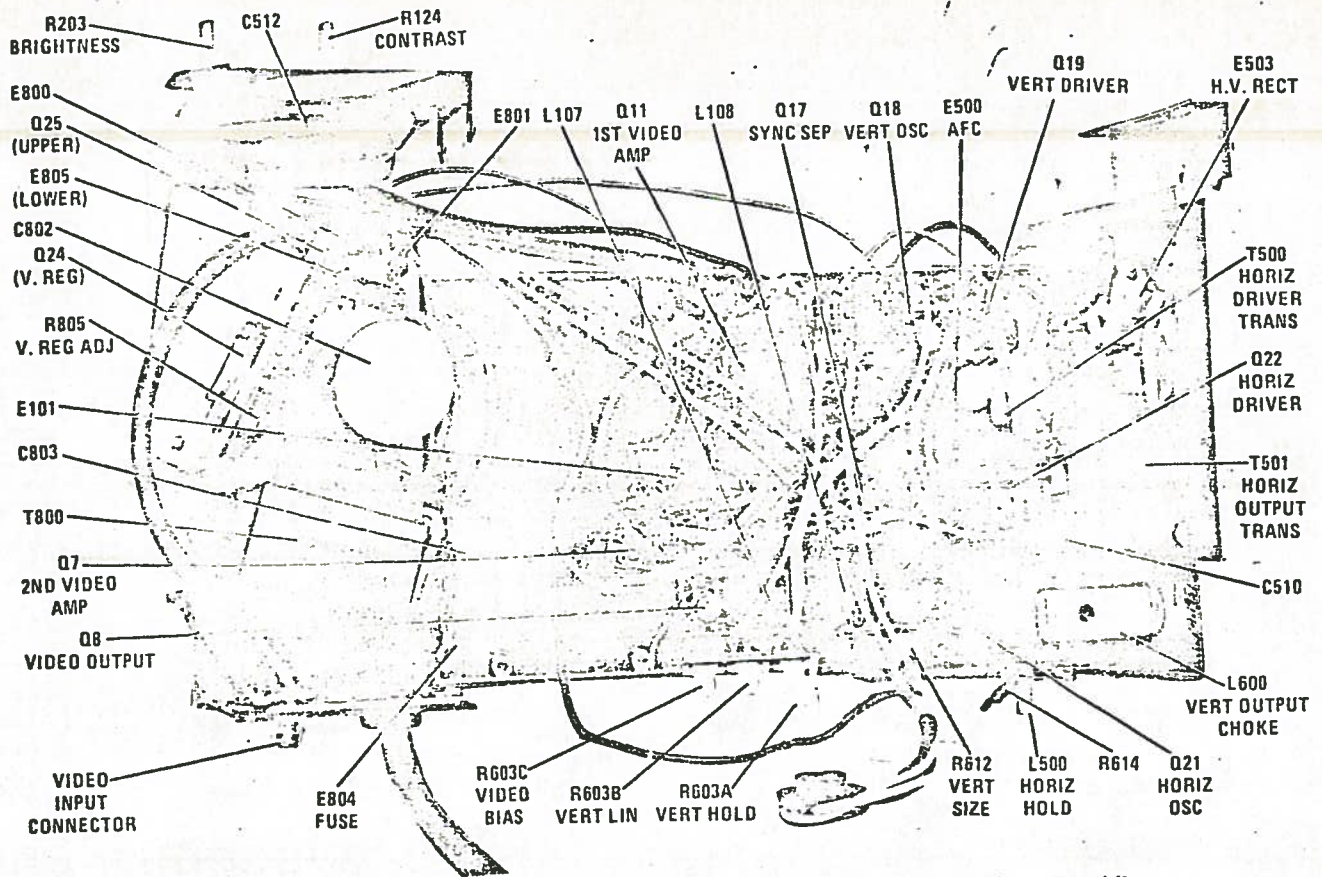
1. Set contrast control fully clockwise.
2. Feed a 1V PP, 30% sync, video signal into the video input connector.
3. Adjust video bias control R603C to a point just out of white limiting.



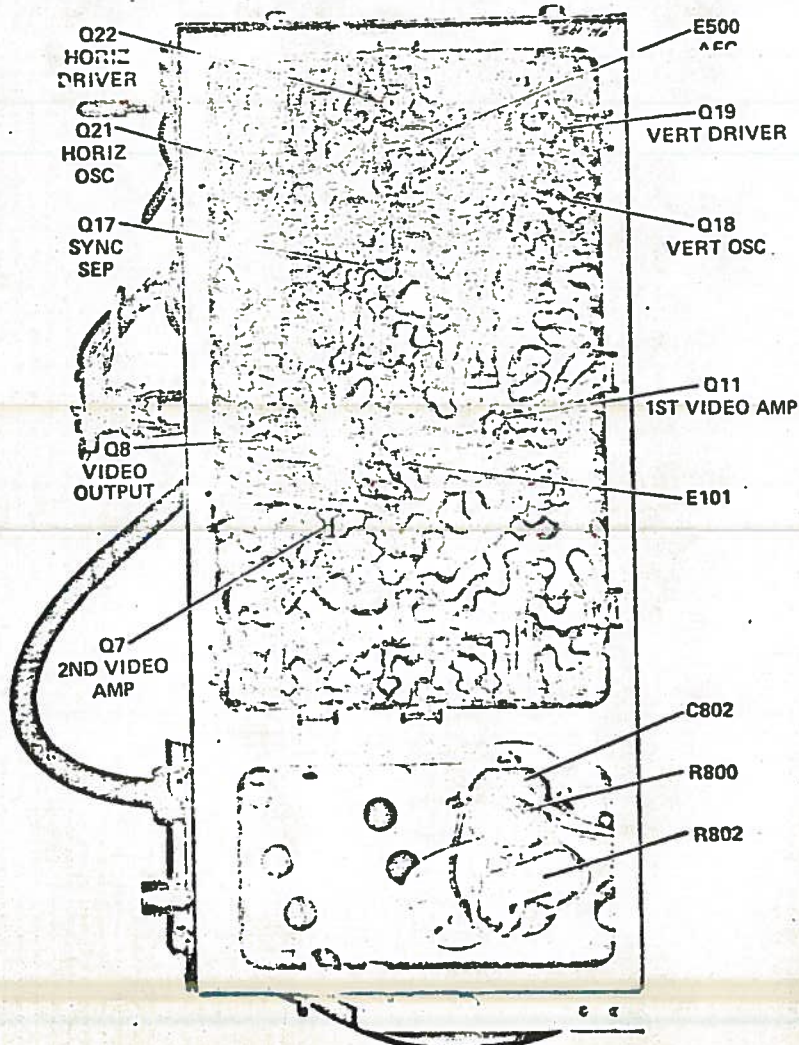
Transistor Location Detail



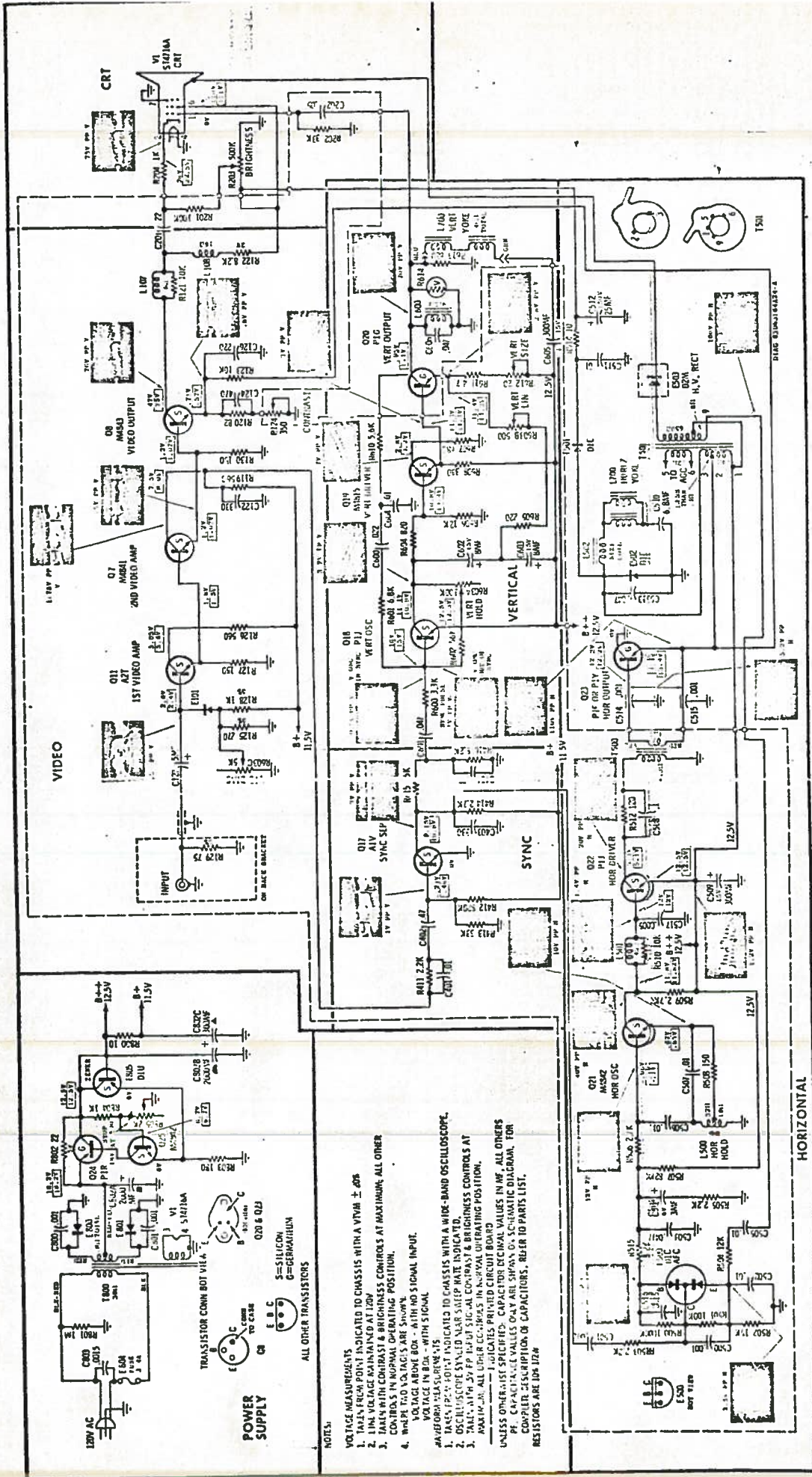
Chassis Parts Location And Control Identification - Rear View



Chassis Parts Location - Top View



*Chassis Parts Location
Bottom View*



Schematic Diagram

VOLTAGE MEASUREMENTS

1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM $\pm .05$
2. LINE VOLTAGE MAINTAINED AT 120V
3. TAKEN WITH CONTRAST & BRIGHTNESS CONTROLS AT MAXIMUM, ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
4. WHERE TWO VOLTAGES ARE SHOWN

VOLTAGE ABOVE BOX - WITH NO SIGNAL INPUT.
VOLTAGE IN BOX - WITH SIGNAL.

ANALOG MEASUREMENTS

1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE.
2. LINE VOLTAGE MAINTAINED AT 120V
3. TAKEN WITH CONTRAST & BRIGHTNESS CONTROLS AT MAXIMUM, ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
4. WHERE TWO VOLTAGES ARE SHOWN

UNLESS OTHERWISE SPECIFIED, CAPACITOR DECIMAL VALUES IN MF, ALL OTHERS IN PF. CAPACITANCE VALUES ONLY ARE SHOWN ON SCHEMATIC DIAGRAM. FOR COMPLETE DESCRIPTION OF CAPACITORS, REFER TO PARTS LIST. RESISTORS ARE 10% 17A

POWER SUPPLY

TRANSISTOR CONN BOT VILA
E B C
TO CASE

Q01 & Q02
E B C
TO CASE

ALL OTHER TRANSISTORS

HORIZONTAL

VIDEO

VERTICAL

SYNC

1ST VIDEO AMP

2ND VIDEO AMP

ON ANSAD VIDEO OUTPUT

ON ANSAD VIDEO OUTPUT

BRIGHTNESSES

CRT

PIF OR PLY HOR EQUIPMENT

PIF OR PLY HOR EQUIPMENT

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PIF OR PLY HOR EQUIPMENT

PIF OR PLY HOR EQUIPMENT

PIF OR PLY HOR EQUIPMENT

PIF OR PLY HOR EQUIPMENT

Schematic Diagram

REPLACEMENT PARTS LIST

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
ELECTRICAL PARTS			TRANSISTORS		
CAPACITORS - NOTE: The capacitors in this list are recommended replacement types for the original equipment; all are ceramic disc type unless otherwise specified.			Q-7	48S134841	2ND VIDEO AMP (M4841)
C-122	21S180C67	330 pf 20% 100V Z5U (USE 21-135301)	Q-8	48S134843	VIDEO OUTPUT (M4843)
C-124	21S180C68	470 pf 10% 100V Z5U (USE 21-135311)	Q-11	48S134970	1ST VIDEO AMP (A2T)
C-126	21S180D10	220 pf 20% 100V X5F (USE 21-132503)	Q-17	48S134933	SYNC SEPARATOR (A1V)
C-127	23S10229A28	5 mf +40-20% 10V lytic	Q-18	48S134943	VERT OSCILLATOR (P1J)
C-201	8S10212A12	.22 mf 20% 250V mtlz poly class "D" (USE 8S10221A19)	Q-19	48S134815	VERT DRIVER (M4815 - USE 48S134910)
C-202	21S180C70	.05 mf 20% 50V Z5V cer disc	Q-20	48S134938	VERT OUTPUT (P1G)
C-401	21S180A52	.01 mf 20% 500V Z5U	Q-21	48S134842	HORIZ OSC (M4842 - USE 48S134992)
C-402	8S10212A09	.74 mf 20% 100V mtlz poly	Q-22	48S134943	HORIZ DRIVER (P1J)
C-403	21S180C67	330 pf 20% 100V Z5U (USE 21-135301)	Q-23	48S137001	HORIZ OUTPUT (P1Y)
C-404	21S135659	.02 mf 20% 100V Z5U (USE 21-132000)	Q-24	48S134974	VOLTAGE REGULATOR (P1R)
C-500	21S129821	.001 mf 20% 500V Z5F	Q-25	48S134842	VOLTAGE REGULATOR (M4842 - USE 48S134992)
C-501	21S129821	.001 mf 20% 500V Z5F	RESISTORS		
C-502	21S180A52	.01 mf 20% 500V Z5U	R-119	6S122802	560 10% 1/2W
C-503	8S10191A34	.047 mf 10% 160V polyester class "D"	R-120	6S127516	820 10% 1/2W
C-504	23S10229A14	3 mf +40-20% 6V lytic	R-122	17S753337	8200 10% 2W fxd mtl film
C-505	21S180A52	.01 mf 20% 500V Z5U	R-123	6S119932	10K 10% 1/2W
C-506	8S10191A35	.01 mf 10% 160V polyester class "D"	R-125	6S10053C19	270 5% 1/2W
C-507	8S10191A35	.01 mf 10% 160V polyester class "D"	R-126	6S122802	560 10% 1/2W
C-508	8S10191A38	.1 mf 10% 160V polyester class "D" (USE 8S10191A46)	R-127	6S124797	150 10% 1/2W
C-509	23C60496A14	300 mf 15V lytic	R-128	6S10053C33	1000 5% 1/2W
C-510	8S10212A19	6.8 mf 20% 250V mtlz poly	R-129	6S10053C06	75 5% 1/2W
C-511	21S131994	.01 mf +80-20% 500V Z5U	R-130	6S124797	150 10% 1/2W
C-512	23C62914A07	25 mf 150V lytic	R-201	6S125534	100K 10% 1/2W
C-513	8S10191D07	.047 mf 10% 400V polyester class "D"	R-202	6S127632	33K 10% 1/2W
C-514	21S135870	1000 pf +100-0% 500V Z5U feed thru	R-204	6S121301	1000 10% 1/2W
C-515	21S135870	1000 pf +100-0% 500V Z5U feed thru	R-411	6S129875	2200 10% 1/2W
C-516	21S180D24	.0015 mf 10% 100V X5F	R-412	6S128230	820K 10% 1/2W
C-517	21S180C71	.005 mf 20% 100V Z5U cer disc	R-413	6S127632	33K 10% 1/2W
C-600	8S10191A21	.022 mf 20% 160V polyester class "D"	R-414	6S119926	2700 10% 1/2W
C-601	8S10191A32	.047 mf 10% 160V polyester class "D"	R-415	6S124551	15K 10% 1/2W
C-602	23C66135A16	8 mf +30-10% 15V lytic	R-416	6S119931	8200 10% 1/2W
C-603	23C66135A16	8 mf +30-10% 15V lytic	R-500	6S125534	100K 10% 1/2W
C-604	21S180A52	.01 mf 20% 500V Z5U	R-501	6S125534	100K 10% 1/2W
C-605	23C60496A14	300 mf 15V lytic	R-502	6S124551	15K 10% 1/2W
C-606	8S10191B07	.047 mf 10% 400V polyester class "D"	R-503	6S129875	2200 10% 1/2W
C-800	21S180C56	.001 mf +80-20% 500V Z5U	R-504	6S124680	12K 10% 1/2W
C-801	21S180C56	.001 mf +80-20% 500V Z5U	R-505	6S129875	2200 10% 1/2W
C-802	23C65807A28	2000/20V, 2000/20V, 300/20V lytic	R-506	6S119926	2700 10% 1/2W
C-803	21S132419	.0015 mf +100-0% 1.4KV Z5U	R-507	6S125179	33K 10% 1/2W
MISCELLANEOUS ELECTRICAL PARTS			R-508	6S10053C13	150 5% 1/2W
E-101	48C65837A02	DIODE, crystal	R-509	6S119926	2700 10% 1/2W
E-500			R-512	6S123226	120 10% 1/2W
A&B	48S134917	DIODE, dual (phase detector)	R-514	6S124668	10 10% 1/2W
E-501	48S134939	RECTIFIER, silicon: horiz pulse rectifier (D1E)	R-515	6S119931	8200 10% 1/2W
E-502	48S134939	RECTIFIER, silicon: damper (D1E)	R-600	6S124506	3300 10% 1/2W
E-503	48S137081	RECTIFIER, silicon: HV rectifier (D2M)	R-601	6S119930	6800 10% 1/2W
E-800	48S191A05	RECTIFIER, silicon: 500 ma (USE 48S191A07)	R-602	6S127541	56K 10% 1/2W
E-801	48S191A05	RECTIFIER, silicon: 500 ma (USE 48S191A07)	R-604	6S127534	820 10% 1/2W
E-804	65S136038	FUSE: 3/4 amp, 125V	R-605	6S127099	220 10% 1/2W
E-805	48S137021	DIODE, Zener (D1U)	R-606	6S124680	12K 10% 1/2W
COILS AND CHOKES			R-607	6S129101	680 10% 1/2W
L-107	*24D68801A28	COMPENSATING: 180 uh/10K	R-608	6S127940	330 10% 1/2W
L-108	*24D68801A31	COMPENSATING: 550 uh	R-610	6S127005	5600 10% 1/2W
L-500	24D68130A02	HORIZONTAL OSC: incl core	R-611	6S132036	4.7 10% 1/2W
L-501	24D68801A29	HORIZ PULSE SHAPING: 3600 uh/1.8K	R-613	6S129101	680 10% 1/2W
L-502	24D69044A02	HORIZ SIZE	R-614	6C65702A01	VARISTOR (vertical)
L-600	25D67554A13	CHOKER, vert output	R-800	6S124668	10 10% 1/2W
L-700	24D68531A01	YOKE, deflection: 90°	R-801	6S124494	1 meg 10% 1/2W
			R-802	17S544530	22 10% 5W WW
			R-803	6S128952	180 10% 1/2W
			R-804	6S121301	1000 10% 1/2W
			CONTROLS		
			R-124	18D67559A47	CONTRAST: 350Ω
			R-203	*18D67559A46	BRIGHTNESS: 500K
			R-603	18D67678A04	VERT HOLD, VERT LINE, VIDEO BIAS:
			A,B&C		100K 500Ω, 5K
			R-612	18D68447A05	VERT SIZE: 20Ω WW
			R-805	17D65820A29	VOLTAGE REG ADJ: 2K
			TRANSFORMERS		
			T-500	25D67440A04	HORIZONTAL DRIVER
			T-501	24D69791A01	HORIZONTAL OUTPUT & HV: complete; less solid state rectifier & 2nd anode lead
			T-800	*25D68499A03	POWER
			MECHANICAL PARTS		
				*1V68632A57	BOARD, plated chassis; less components

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
	43C61214A11	BUSHING, strain relief, AC line cord		9DC68498A04	SOCKET, CRT: 7 pin (V1)
	42C68847A02	CLIP, plastic; solid state H.V. rectifier mtg		9K561755	SOCKET, transistor (Q20, Q23 & Q24 mtg - USE 9-43089A01)
	28C66202A11	CONNECTOR, recept: BNC; video input		41B68549A01	SPRING, special: CRT aquadag gnd
	1V68628A98	CONNECTOR, 2nd anode: incl clip, lead & sleeving			CABINET PARTS
	30D59912A01	CORD, AC line		*16E69679A01	CABINET FRONT
	14C68842A03	INSULATOR, molded rubber (covers solid state rectifier cap from HV trans)		36C69224A01	KNOB, brightness
	14A562353	INSULATOR (Q20 & Q24 mtg - USE 14-543810)		36C69224A01	KNOB, contrast
	2S121771	NUT, hex; 3/8-32 x 9/16 x 3/32; BNC conn ret		42C68476A01	RETAINER, wire: CRT
	47G66082A02	ROD adjust: horiz hold		3S122828	SCREW, tpg: CRT retainer (#8-15 x 1-1/4)
	3K560695	SCREW, tpg: special (Q20, Q23, & Q24 mtg)		2S10054A36	SPRING NUT, clip on (CRT retainer)
				42B68477A01	STRAP, CRT mtg (secures CRT retainer to cabinet front - 4 req'd)

*DENOTES NEW ITEM APPEARING ON ANY LIST FOR FIRST TIME.