

SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

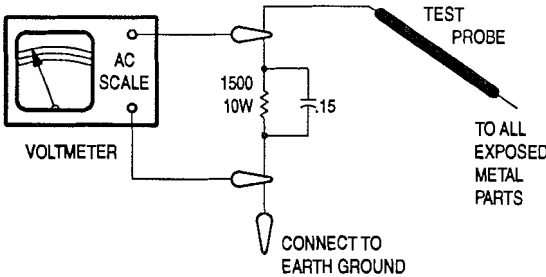
Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



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PHOTOFACT® Technical Service Data

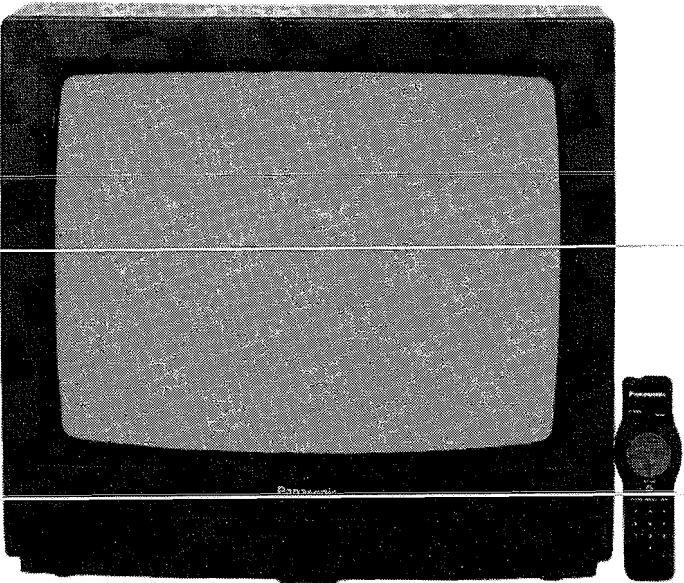
SET 3427

MODEL CT-19R11S (CHASSIS ADP237)

PANASONIC

INDEX	
GridTrace Location	
Main Board	3
IC Functions	4
Important Parts Information	1
Miscellaneous Adjustments	1
Parts List	1
Placement Chart	2
Safety Precautions	1
Schematics	
Power Supply	2
System Control	2
Television	2
Schematic Notes	4
Service Information	1
Test Equipment	4
Tuner Information	4

PANASONIC
Model CT-19R11S (Chassis ADP237)



Essential coverage
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

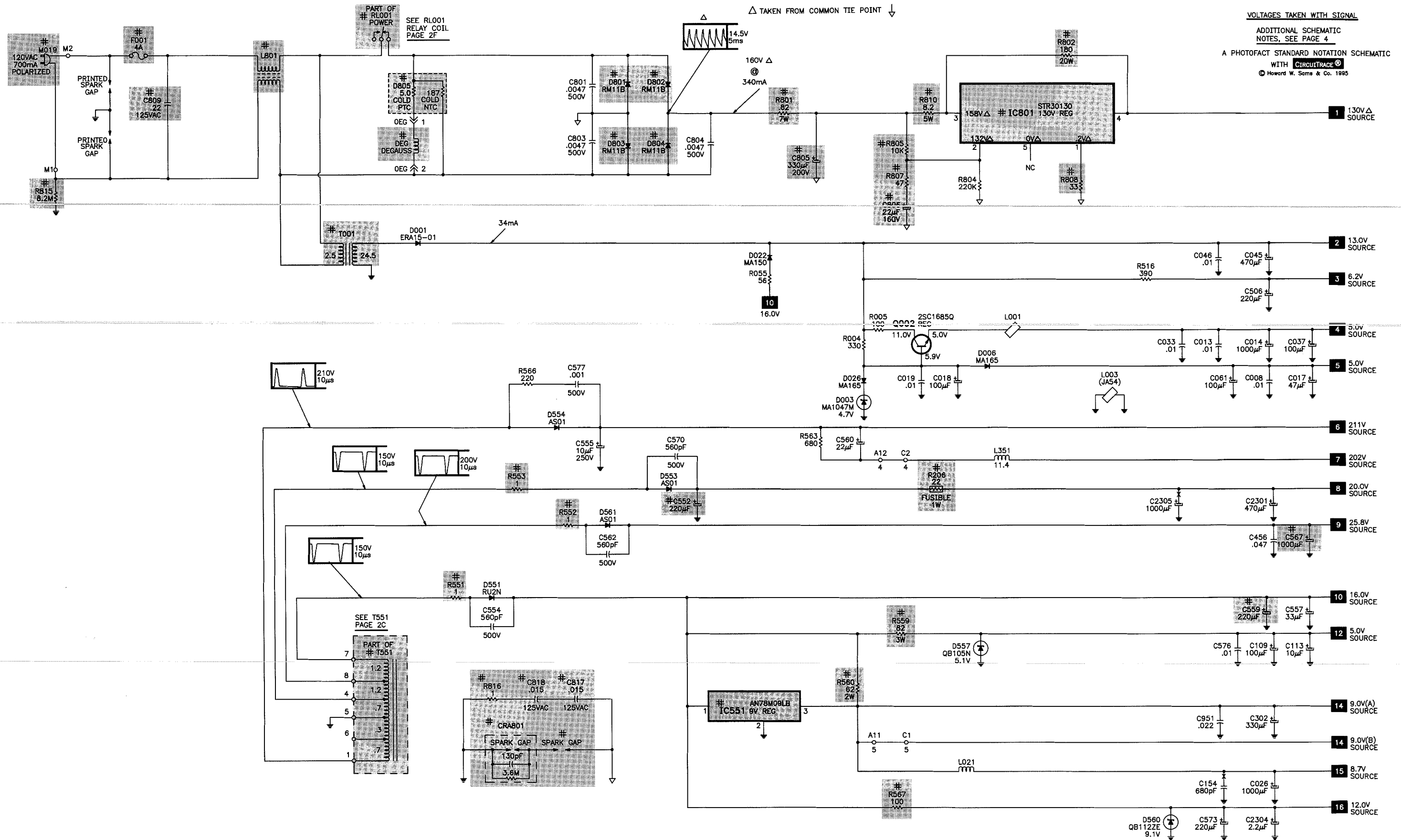


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JANUARY 1995 SET 3427

For Supplier Address,
See PHOTOFACT Annual Index

POWER SUPPLY SCHEMATIC



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PARTS LIST continued

CONTROLS & RESISTORS			
Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# D805	5.0 Cold PTC, 187 Cold NTC	TRPW5B0M050D	-
R050	10K 1% 1/4W	ER0S2CKF1002	-
# R065	1000 5% 1/4W	ERDS2TJ102	QW210
R106	10K RF AGC	EVND1AA00B14	-
# R206	22 5% 1W Fusible	ERQ1CJP220	F1W022
R453	50K Vertical Size	EVND1AA00B54	-
# R510	910 5% 2W	ERG2ANJ911	2W191
# R511	910 5% 2W	ERG2ANJ911	2W191
# R531	47 5% 1/4W	ERD25FJ470	QW047
# R532	43.2K 1% 1/4W	ER0S2CKF4322	-
# R533	7150 1% 1/4W	ER0S2CKF7151	-
# R534	680K 5% 1/4W	ERD25TJ684	QW468
# R539	680 5% 1/4W	ERDS2TJ681	QW168
# R551	1 5% 1/2W	ERDS1FJ1R0	HW1D0
# R552	1 5% 1/2W	ERDS1FJ1R0	HW1D0
# R553	1 5% 1/2W	ERDS1FJ1R0	HW1D0
R558	1.2 5% 1W Fusible	ERQ1CJP1R2	F1W1D2
# R559	82 5% 3W	ERG3ANJ820	3W082
# R560	62 5% 2W	ERG2ANJ620	2W062
# R567	100 5% 1/2W	ERDS1TJ101	QW110
# R801	.82 10% 7W Wirewound	ERF7ZKR82	-
# R802	180 5% 20W Wirewound	ERF20ZJ181	-
# R805	10K 5% 1/2W	ERDS1FJ103	HW310
# R807	47 5% 1/4W	ERD25FJ470	QW047
# R808	33 5% 1/4W	ERD25FJ330	QW033
# R810	8.2 10% 5W Wirewound	ERF5ZK8R2	5W8D2
# R811	4.7 5% 3W	ERX3ANJP4R7	3W4D7
# R815	8.2M 20% 1/2W	ERC12ZGM825	HW582
# R816	1 10% 1/2W	ERW12PK1R0	HW1D0
# For SAFETY use only equivalent replacement part.			

COILS & TRANSFORMERS			
Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
# DEG	Degaussing	OLK19016M	-
# DY	Yoke 90°	OLY15308F	OLY15308F
	Horiz 3mH		
	Vert 36mH		
L001	Ferrite Bead	EXCELSA24	-
L003	Ferrite Bead	EXCELSA39	-
L011	1µH	TLUABTA1R0K	-
L021	39µH	TLUABTA390K	-
L101	15µH	TLUABTA150K	-
L103	AFT	EIV7EN041B	-
L105	VCO	EIV7EN053B	-
L106	1.2µH	TLQ012K205C	-
L107	1.2µH	TLQ012K205C	-
L108	1µH	TLUABTA1R0K	-
L201	Quadrature	EIS7ES004B	-
L351	150µH	TLUABTA151K	-
L541	150µH	TLUABTA151K	-
# L551	Horizontal Linearity	TLH15654P	654P
L552	Ferrite Bead	EXCELSA35	-
L553	Ferrite Bead	EXCELSA35	-
L558	Ferrite Bead	EXCELSA35	-
L559	Ferrite Bead	EXCELSA39	-
L601	10µH	TLUABTA100K	-
# L801	Line Filter	TLP15578J	-
LC301	Trap	ELB5A082	-
# T001	Standby Power	TLP16297	TLP16297
T501	Horizontal Driver	ETH19Y70AYM	H70
# T502	Coupling	ETE19Z30AY	E1930
# T551 (1)	Horizontal Output	TLF15615F	TLF15615F
# For SAFETY use only equivalent replacement part.			
(1) Focus and screen controls are part of T551.			

MISCELLANEOUS			
Item No.	Description	Mfr. Part No.	Notes
# F001	Fuse	0BA1C40NU100	4Amp, 125V/250V, Slow Blow
IC1052	Receiver	0NQ1409	Remote
# M019	Line Cord	TSX3134X	AC, Polarized
# RL001	Relay	TSE1864	Power
S001	Switch	EVQQBH12T	Power
S002	Switch	EVQQBH12T	Volume Down
S003	Switch	EVQQBH12T	Volume Up
S004	Switch	EVQQBH12T	Channel Down
S005	Switch	EVQQBH12T	Channel Up
S006	Switch	EVQQBH12T	Action (Menu)
SP1	Speaker	EAS12D516KG	2" X 5", 16 Ohms (2D516K-G)
# V1	CRT	-	A48AFN00X
X001	Crystal	TSS2080MX	12MHz
X101	Filter	EFCH45MVK12N	SAW
X102	Trap	EFCS4R5MW3BA	4.5MHz
X201	Filter	EFCS4R5MS4	4.5MHz
X501	Crystal	EF0A503KS41	503kHz
X601	Crystal	TS816M32	3.58MHz
#	CRT Socket	TJS1A5150	-
	Magnet	0FMK014ZZ	Purity/Convergence
	PC Board (1)	0NP15007	CRT
	PC Board (1)	0NP190016DA	Main
	Transmitter	EUR501050A	Remote
#	Tuner (1)	ENV568L4G3	UHF/VHF
	Wedge	TMM2A30202	Yoke Positioning (3 Used)
	Yoke	TLC2042-3	Convergence
# For SAFETY use only equivalent replacement part.			
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.			

PANASONIC

MODEL CT-19R11S (CHASSIS ADP237)

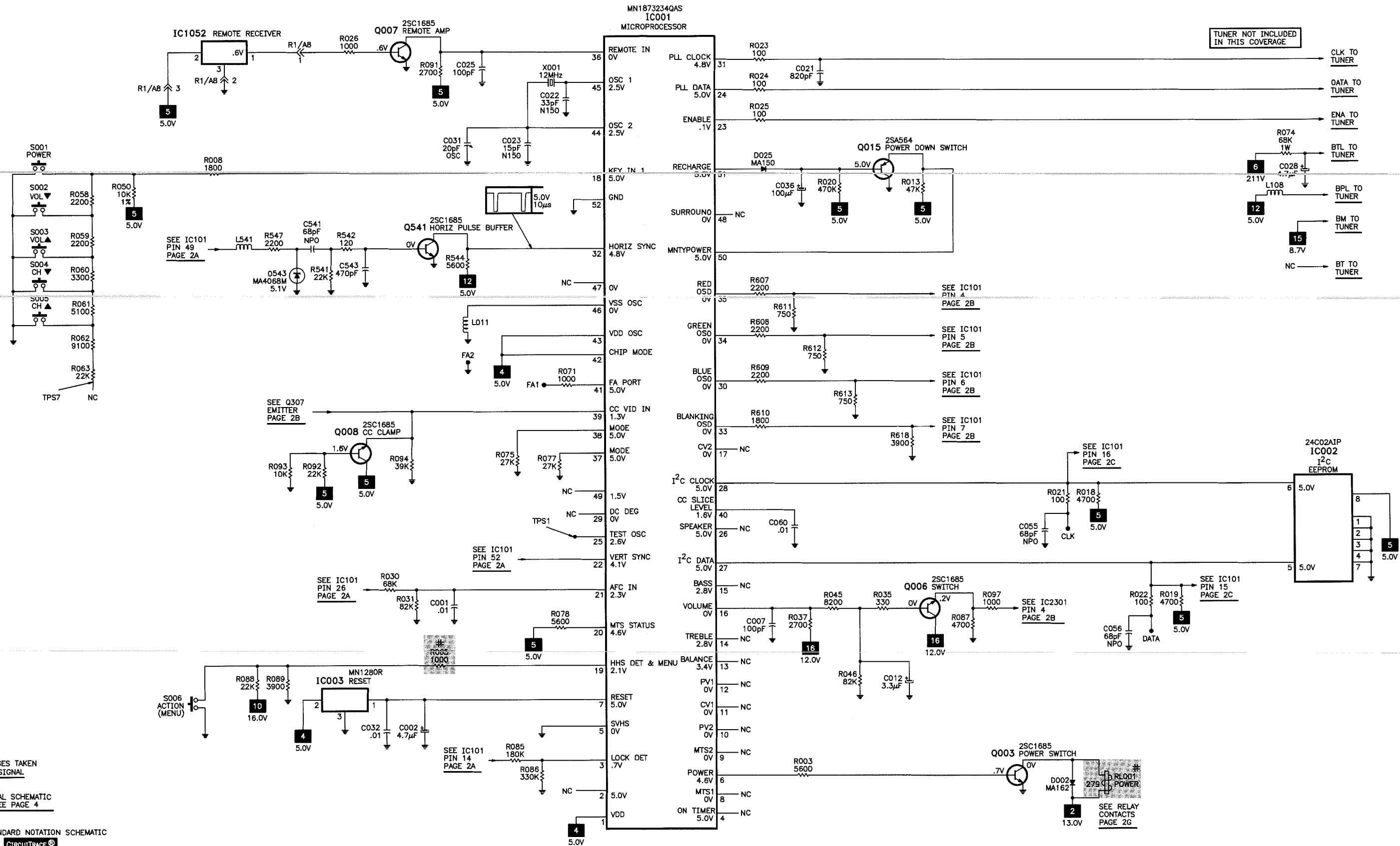
CABINET PARTS	
Item	Mfr. Part No.
Cabinet Back	TXFKU2493SER
Cabinet Front	TKFKY1793SER
Door, Control	TKP1811831M
Speaker Grille	TKP1757881
REMOTE TRANSMITTER	
Battery Cover	UR50EC1027



Created with pride by the
employees of Howard W. Sams
& Company.

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SYSTEM CONTROL SCHEMATIC



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MISCELLANEOUS ADJUSTMENTS

ENTERING SERVICEMAN MODE

Turn on receiver and momentarily connect test point FA1 to FA2. The receiver will enter aging mode, volume up and down buttons will adjust rapidly. Press the action button and volume up buttons on receiver control panel simultaneously. The receiver will enter the serviceman mode, the volume up and down buttons will adjust normally and all customer controls are set to normal. Press power button on remote transmitter to select one of three service modes.

- B= DAC Adjustments
- C= CRT Adjustments
- Normal = Normal operation of channel and volume buttons

EXIT SERVICEMAN MODE

NOTE: Always exit serviceman mode when finished making adjustments.

Press action and power buttons on receiver control panel simultaneously for approximately 2 seconds to exit serviceman mode. The receiver will shutoff then come back on with audio on channel 3.

DAC ADJUSTMENTS

NOTE: Write down original values in detail before making any adjustments in case a misadjustment occurs.

Press channel up or down buttons on remote to select any of 6 service adjustment addresses. Press volume up or down buttons on remote transmitter to change level of adjustment.

DAC Adjustment Range and Default Levels		
Adjustment	Range	Default Level
Sub Brightness (B0)	0-127	67
Sub Color (B1)	0-63	33
Sub Tint (B2)	0-63	33
Sub Picture (B3)	0-63	35
Video Detector Level (B4)	0-15	8
Sound Out (B5)	0-15	8

Sub Brightness (B0)

This adjustment must be made after sub picture and color temperature adjustments are made. DO NOT adjust screen after sub brightness is set. Connect a color bar signal with pure white and pure black to the antenna input. Set color to minimum. Enter serviceman mode and select DAC adjustment. Select sub brightness (B0). Adjust until the black bars start to turn gray, then decrease adjustment until bars turn black.

Sub Color (B1)

Tune in a color bar signal. Connect oscilloscope to pin 1 of connector C1 on the CRT board. Connect a 1000 ohms resistor from TPD1 to pin 3 of IC551. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub color (B1). Adjust waveform for 6.0Vp-p ±.05Vp-p. Remove resistor and jumper.

Sub Tint (B2)

Tune in a color bar signal. Connect oscilloscope to pin 1 of connector C1 on the CRT board. Connect a 1000 ohms resistor from TPD1 to pin 3 of IC551. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub tint (B2). Adjust waveform so the 1st and 4th peaks are of equal amplitude. Remove resistor and jumper.

Sub Picture (B3)

NOTE: This adjustment is factory set, DO NOT adjust unless CRT or CRT board is replaced.

Connect a color bar signal to the antenna input. Connect oscilloscope to pin 2 of connector C1 on CRT board. Connect a 1000 ohms resistor from TPD1 to pin 3 of IC551. Connect TPD2 to ground. Enter serviceman mode and select DAC adjustment. Select sub picture (B3). Adjust for 3.0Vp-p ±.1 Vp-p from white to black level. Do not include sync tip in measurement. Remove resistor and jumper.

Video Detector Level (B4)

Connect a color bar signal to the antenna input. Connect oscilloscope to TP12. Enter serviceman mode and select DAC adjustment. Select video detector level (B4). Adjust for 1.0Vp-p ± .2Vp-p.

Sound Out (B5)

This adjustment is factory set, do not adjust unless IC002 or IC101 has been replaced. Connect a generator with a 1kHz mono audio tone to the antenna terminal. Connect an oscilloscope to junction of R202 and R204. Enter serviceman mode and select DAC adjustment. Select sound out (B5). Adjust for 720mV ±20mV.

CRT ADJUSTMENTS

Follow same procedure used for DAC adjustments.

CRT Adjustment Range and Default Levels		
Adjustment	Range	Default Level
Horizontal Centering (C0)	0-15	8
Red Cutoff (C1)	*0-511	128
Green Cutoff (C2)	*0-511	128
Blue Cutoff (C3)	*0-511	128
Red Drive (C4)	0-255	128
Blue Drive (C5)	0-255	128
* Range indicated in 2 steps (0-255) -> (H0 - H255).		

Horizontal Centering (C0)

Tune in a crosshatch pattern. Enter serviceman mode. Select horizontal centering (C0) and adjust crosshatch pattern for correct horizontal centering.

Color Temperature (C1 thru C5)

NOTE: Observe low and high brightness areas of a B/W picture for proper tracking. Enter DAC mode and select CRT adjustments. Set the red cutoff (C1), green cutoff (C2), and blue cutoff (C3) for a gray picture. Set the red drive (C4) and blue drive (C5) for correct white areas.

REMOTE OPERATION

Picture Adjustments

1. Press the action button to display the main menu.
2. Press the channel down button to select the picture icon.
3. Press the action button to display the picture adjustment menu.
4. Press the channel up or down button to select the desired picture adjustment.
5. Press the volume up or down button to adjust selection.

6. Press the action button twice to exit picture adjustment.

Normalize Settings

1. Press the action button to display the main menu.
2. Press the channel down button to select the picture icon.
3. Press the action button to display the picture adjustment menu.
4. Press channel up or down button to select picture norm.
5. Press volume up or down button to reset picture adjustments.

NOTE: This receiver employs digital customer controls. All adjustments are at normalized position unless otherwise indicated.

SERVICE INFORMATION

HORIZONTAL OSCILLATOR DISABLE

The high voltage is monitored by D531 rectifying pulses from T551. Should the high voltage increase, the rectified voltage at the cathode of D531 will also increase. This causes the horizontal oscillator frequency to increase which lowers the high voltage. To troubleshoot, remove D531. Use a variable AC power supply to supply 90VAC and turn on the receiver. Slowly increase AC voltage as required to isolate and repair the malfunction. Return D531 to the circuit.

NOTE: Care should be taken in defeating the high voltage shutdown circuit, as this may cause excessive X-radiation and damage to the CRT, T551, and associated components.

Voltag

IC001	
Pin 19	3.4V
IC101	
Pin 49	3.9V
Pin 51	4.7V

HORIZONTAL OSCILLATOR DISABLE TEST

Connect the positive lead of a voltmeter to TPD1 and the negative lead to TPD2. Apply 120VAC and turn on receiver. Normalize video menu and adjust brightness to zero, and adjust picture for .9V. Turn receiver off and connect a jumper between pins 3 and 4 of IC801. Set AC supply to 100VAC. Monitor the high voltage with a high

voltage probe. Turn receiver on and slowly increase AC supply. Confirm the high voltage does not exceed 33.0kV when horizontal just begins to pull out of sync. If the high voltage should exceed 33.0kV or the receiver fails to lose horizontal sync, refer to the "Horizontal Oscillator Disable" of this Troubleshooting guide.

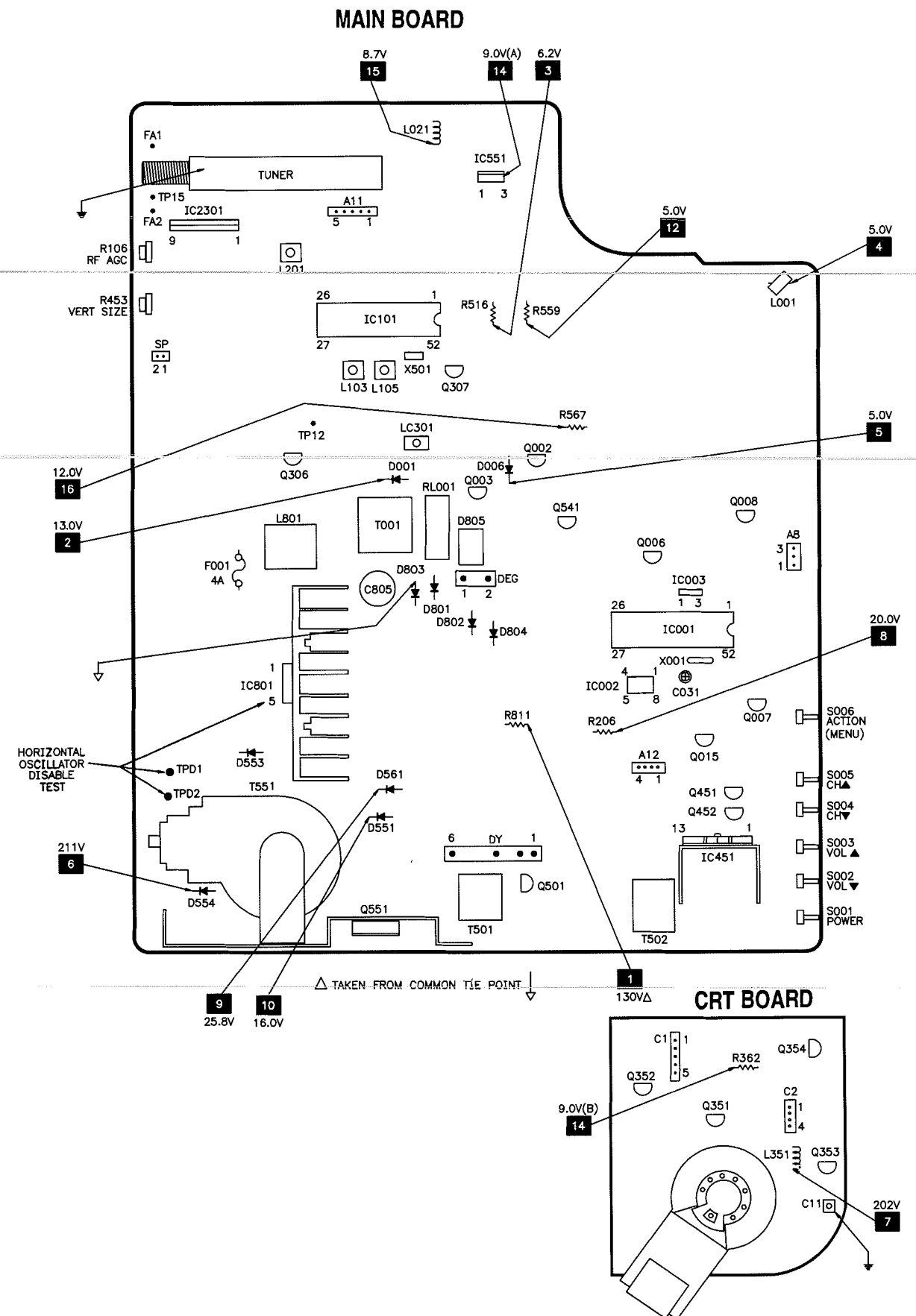
POWER SUPPLY PROTECTION CIRCUIT

The 16.0V power supply voltage is monitored at pin 19 of IC001. Normal operating voltage at pin 19 is .6V to 3.1V. If a major power supply failure occurs the voltage at pin 19 will increase above 3.2V and cause pin 6 to go low, which triggers Q003, and de-energizes RL001 turning off the receiver. This condition will remain until AC power is momentarily disconnected.

WARNING: DO NOT press the Action Button on the receiver when the above symptom occurs. Pin 19 of IC001 is a dual function pin and will prevent over voltage protection and may cause severe damage to the entire receiver.

CRT PROTECTION

The CRT protection circuit is made up of Q451 and Q452. This circuit blanks out the CRT if vertical deflection failure occurs. It is important for the life of the CRT that this circuit be tested before returning the receiver to the customer. To test, short the base of Q452 to ground. The screen should go blank, if not, the circuit needs repair.



PARTS LIST

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

SEMICONDUCTORS					
(Select the replacement that gives the best results.)					
Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D001	ERA15-01	-	NTE552	ECG552	SK9000
D002	MA162	-	NTE519	ECG519	SK3100
D003	MA1047M	-	NTE5009A	ECG5009A	SK4A7
D006	MA165	-	NTE519	ECG519	SK3100
D022, 25	MA150	-	NTE177	ECG177	SK9091
D026	MA165	-	NTE519	ECG519	SK3100
D351	MA165	-	NTE519	ECG519	SK3100
D451	ERA15-01V3	-	NTE552	ECG552	SK9000
D452, 53	MA165	-	NTE519	ECG519	SK3100
D455	MA4120M	-	NTE5021T1	ECG5021T1	SK9971
D501	QA208C	TVSQA208C	NTE5016A	ECG5016A	SK8A2
D531	AS01VO	-	-	-	-
# D532	QA206M	TVSQA206M	NTE5012A	ECG5012A	SK6A0
D543	MA4068M	-	NTE5014A	ECG5014A	SK6A8
D551	RU2N	-	NTE552	ECG552	SK9000
D553, 54	AS01	-	NTE552	ECG552	SK9000
D555	MA165	-	NTE519	ECG519	SK3100
D556	MA4360H	-	-	-	-
D557	QB105N	TVSQB105N	NTE135A	ECG135A	SK5V1
D560	QB112ZE	TVSQB112ZE	-	-	-
D561	AS01	-	NTE552	ECG552	SK9000
D562, 63	MA165	-	NTE519	ECG519	SK3100
# D801 Thru					
# D804	RM11B	-	NTE125	ECG125	SK3081
	EM02BM	-	NTE125	ECG125	SK3081
IC001	MN1873234QAS	-	-	-	-
IC002	24C02AIP	-	-	-	-
IC003	MN1280R	-	NTE15044	-	SK9854
# IC101	AN5163K	-	-	-	-
IC451	LA7835-TV	-	NTE1855	ECG1855	SK10085
# IC551	AN78M09LB	-	NTE1902	ECG1902	SK3962
# IC801	STR30130	TVSSSTR30130	NTE1777	ECG1777	SK9870
IC2301	AN5265	-	-	-	-
Q002, 03	2SC1685QRS	-	NTE85	ECG85	SK9229
	JC501PQ	-	NTE85	ECG85	SK3124A
Q006, 07, 08	2SC1685QRS	-	NTE85	ECG85	SK9229
	JC501PQ	-	NTE85	ECG85	SK3124A
Q015	2SA564AQRS	-	NTE290A	ECG290A	SK3932
	JA101PQ	-	NTE290A	ECG290A	SK3932
Q306, 07	2SC1685QRS	-	NTE85	ECG85	SK9229
	JC501PQ	-	NTE85	ECG85	SK3124A
Q351, 52, 53	2SC1573QNC	-	NTE399	ECG399	SK9352
Q354	2SA564AQRS	-	NTE290A	ECG290A	SK3932
	JA101PQ	-	NTE290A	ECG290A	SK3932
Q451, 52	2SC1685QRS	-	NTE85	ECG85	SK9229
	JC501PQ	-	NTE85	ECG85	SK3124A
Q501	2SC1573AH	-	NTE399	ECG399	SK9352
Q541	2SC1685QRS	-	NTE85	ECG85	SK9229
	JC501PQ	-	NTE85	ECG85	SK3124A
# Q551	BU2506DFLB	-	-	-	-
# For SAFETY use only equivalent replacement part.					

CAPACITORS & ELECTROLYTICS		
Item No.	Rating	Mfr. Part No.
C022	33pF 5% 50V N150	ECCF1H330JP
C023	15pF 5% 50V N150	ECCF1H150JP
C031	20pF Trimmer	ECRHA020D41
C055	68pF 5% 50V NPO	ECCF1H680JC
C056	68pF 5% 50V NPO	ECCF1H680JC
C105	27pF 5% 50V NPO	ECCF1H270JC
C108	10µF 16V NP	ECEA1CN100S
C123	1pF ±.25pF 50V NPO	ECCF1H010CC
C152	82pF 5% 50V NPO	ECCF1H820JC
C201	56pF 5% 50V NPO	ECCF1H560JC
C207	10µF 16V NP	ECEA1CN100S
C309	1µF 50V NP	ECEA1HN010S
C355	.001 10% 2kV	ECKD3D102KB
C403	1µF 50V NP	ECEA1HN010S
# C451	220µF 16V	ECEA1CGE221
C452	1µF 25V Tantalum	ECSF1EE105
C509	220µF 5% 50V N750	ECCF1H221JU
C541	68pF 5% 50V NPO	ECCF1H680JC
# C552	220µF 25V	ECEA1EU221
# C559	220µF 25V	ECEA1EFS221
# C563	.0082 5% 1.2kV	ECWH12H822JS
# C564	680pF 5% 2kV	ECKD3D681JB
# C566	180pF 5% 2kV	ECKD3D181JB
# C567	1000µF 35V	ECEA1VGE102
# C569	.3 5% 200V	ECQF2H304JS
C602	15pF 5% 50V N750	ECCF1H150JU
# C805	330µF 200V	ECOS2DG331G4
# C806	22µF 160V	ECEA2CU220
# C809	.22 10% 125VAC	ECQU1A224KH
# C812	33µF 160V	ECEA160V33Z
# C817	.015 10% 125VAC	ECQU1A153KH
# C818	.015 10% 125VAC	ECQU1A153KH
# CRA801	130pF/3.6M	EXNG131P365
# For SAFETY use only equivalent replacement part.		

SEE IC001 PIN 21 PAGE 2E

TUNER NOT INCLUDED IN THIS COVERAGE

RF AGC RANGE 4.8V TO 6.2V

AGC TO TUNER

VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 4

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITACE®

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IC101 PART OF AN5163K IF/SIF/LUMA/CHROMA/SYNC

IC2301 AN5265 AUDIO OUT

Q306 2SC1685 VIDEO AMP

Q307 2SC1685 CC VIDEO AMP

Q451 2SC1685 VERT BLANK

Q452 2SC1685 VERT BLANK

IC451 LA7835-TV VERT OUT

Q501 2SC1573 HORIZ DRIVE

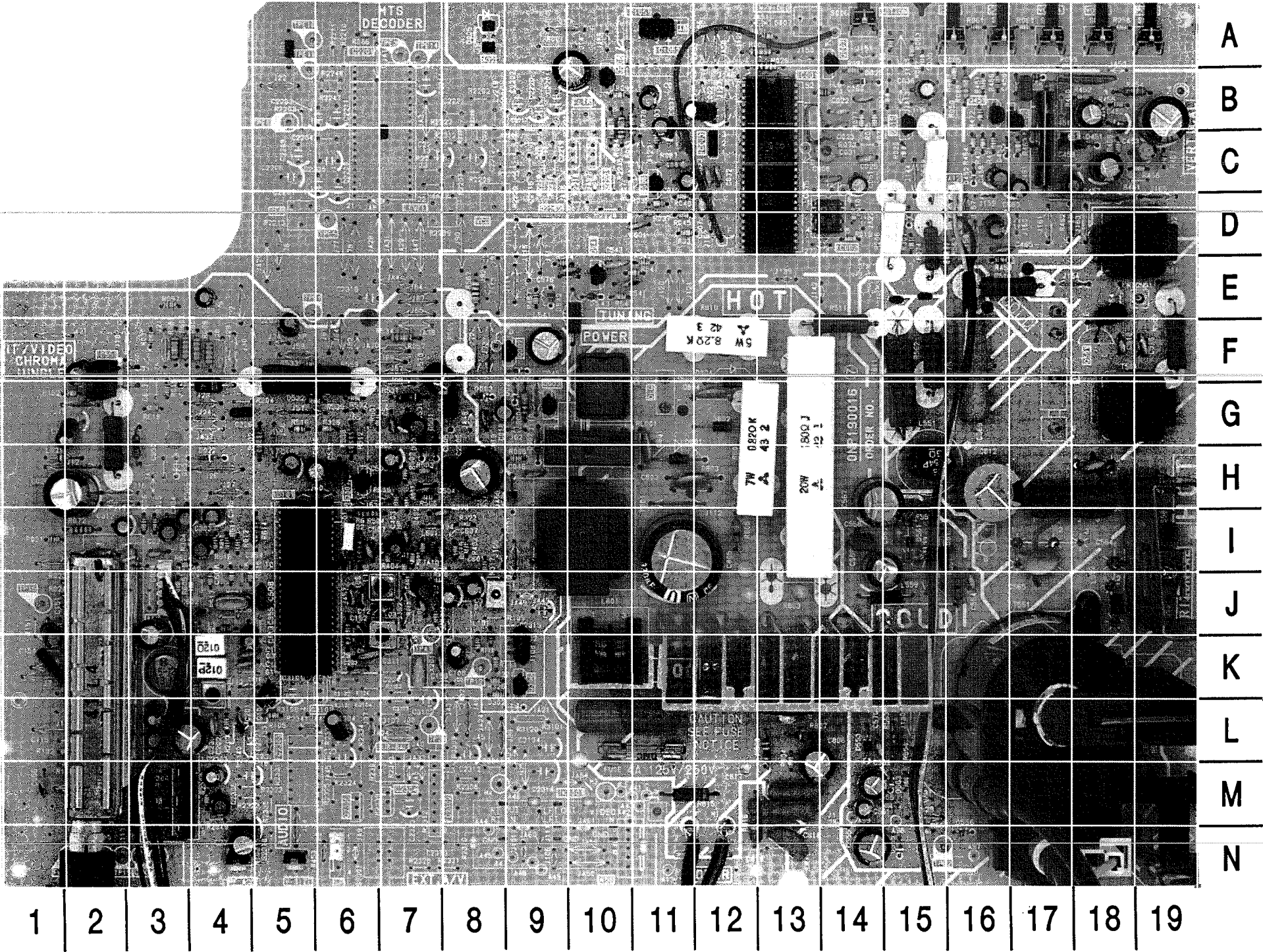
T501 15V 100mA

T551 BOTTOM VIEW

DO NOT MEASURE

△ TAKEN FROM COMMON TIE POINT

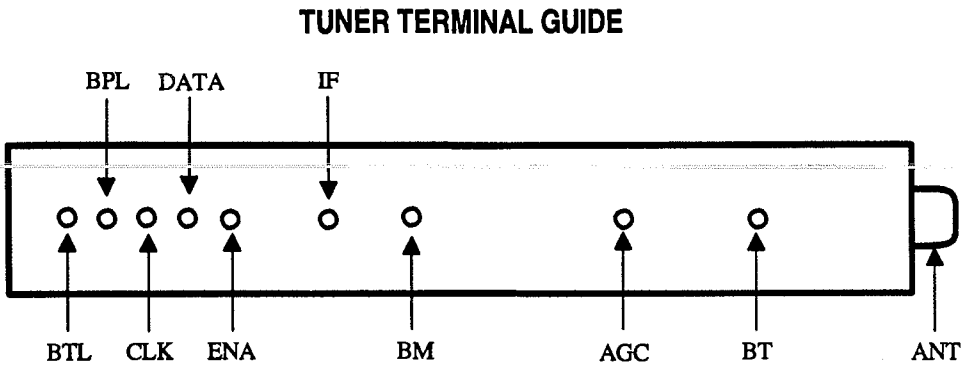
MAIN BOARD



TUNER INFORMATION

SCHEMATIC NOTES

TUNER VOLTAGE CHART							
Pin	VHF Low Band	VHF High Band	UHF Band	Pin	VHF Low Band	VHF High Band	UHF Band
BT	1.5V	4.1V	5.4V	CLK	4.2V	4.2V	5.0V
AGC	4.8V	4.8V	4.8V	BPL	5.0V	5.0V	5.0V
BM	8.7V	8.7V	8.7V	BTL	4.5V	7.1V	8.3V
IF	0V	0V	0V	NOTE: VHF Low Band voltages taken on channel 2. VHF High Band voltages taken on channel 7. UHF Band voltages taken on channel 14.			
ENA	.2V	.2V	.2V				
DATA	5.0V	5.0V	5.0V				

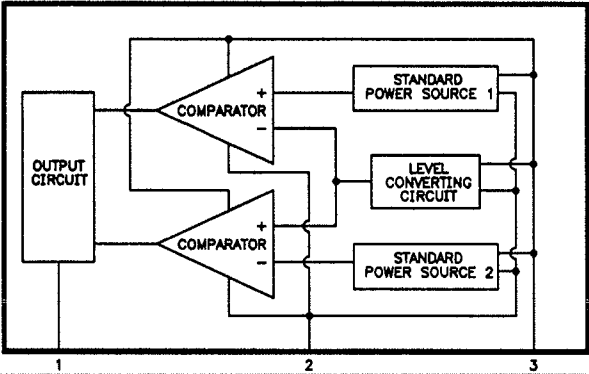


- # For SAFETY use only equivalent replacement part, see parts list.
 - ✖ Circuitry not used in some versions.
 - Circuitry used in some versions.
 - ⏏ Ground
 - ⏏ Chassis ground
 - ⏏ Common tie point
 - △ Taken from common tie point
 - 3 Schematic **CIRCUITRACE**®: Voltage source tie point.
 - ⏏ Cabling. Heavy lines reduce use of multiple lines.
- Waveforms and voltages are taken from ground, unless noted otherwise.
- Waveforms taken with triggered scope and colorbar signal.
- Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
- Supply voltages maintained as seen at input.
- Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern, applied to antenna terminal.
- Controls adjusted for normal operation.
- Capacitors are 50 volts or less, 5% or greater unless noted.
- Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
- Resistors are 1/2W or less, 5% or greater unless noted.
- Value in () used in some versions.
- Measurements with switching as shown, unless noted.
- Rated voltage shown on zener diodes.

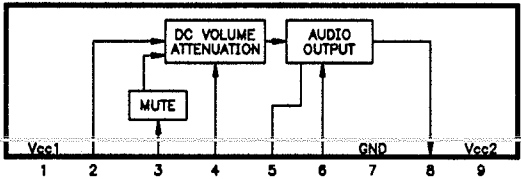
MAIN BOARD, GRIDTRACE LOCATION GUIDE													
A8	A-11	C306	I-4	C804	G-12	IC451	B-17	R035	D-11	R452	B-18	R605	J-3
A11	J-3	C309	E-4	C805	I-11	IC551	F-2	R037	D-11	R453	N-5	R606	J-3
A12	D-16	C312	I-2	C806	M-13	IC801	L-13	R045	D-11	R454	B-18	R607	F-3
C001	D-11	C313	I-7	C809	L-10	IC2301	M-3	R046	D-11	R455	B-18	R608	F-4
C002	B-12	C401	J-7	C812	H-16	JA7	G-15	R050	B-15	R456	C-18	R609	F-4
C007	D-12	C402	I-7	C817	M-13	L001	A-5	R055	G-3	R457	C-19	R610	G-3
C008	C-14	C403	I-7	C818	M-13	L003	E-10	R058	A-18	R458	C-19	R611	I-4
C012	C-11	C451	B-18	C951	K-6	L011	B-14	R059	A-17	R459	E-16	R612	I-4
C013	C-11	C452	B-18	C2301	L-3	L021	H-1	R060	A-17	R462	D-17	R613	I-4
C014	B-10	C453	C-19	C2302	L-3	L101	K-8	R061	A-16	R463	C-17	R614	I-5
C017	B-11	C454	B-19	C2303	M-4	L103	K-7	R062	A-15	R464	C-16	R615	J-4
C018	G-8	C455	C-18	C2304	N-6	L105	J-7	R063	A-15	R466	B-16	R616	J-4
C019	G-8	C456	B-17	C2305	H-8	L106	K-4	R065	A-15	R467	E-9	R617	J-4
C021	I-3	C457	C-18	C2306	M-4	L107	K-4	R071	A-13	R470	C-16	R618	G-3
C022	B-14	C458	C-16	C2308	M-3	L108	J-4	R072	I-2	R471	C-16	R619	I-8
C023	B-14	C461	C-17	C2309	N-4	L201	K-4	R074	D-15	R472	B-16	R801	G-13
C025	C-14	C465	D-16	CRA801	N-13	L541	E-9	R075	B-14	R501	G-6	R802	G-13
C026	H-2	C501	G-7	D001	H-9	L551	H-15	R077	B-14	R502	H-7	R804	L-13
C028	G-2	C502	H-7	D002	G-9	L552	J-18	R078	B-11	R503	H-7	R805	I-12
C031	C-14	C503	H-7	D003	G-8	L553	J-19	R085	F-3	R504	I-6	R807	L-13
C032	C-12	C504	H-7	D006	F-9	L558	I-19	R086	A-6	R505	I-7	R808	L-13
C033	C-12	C505	H-8	D022	H-4	L559	J-15	R087	C-11	R506	H-7	R810	F-12
C036	B-15	C506	H-5	D025	B-14	L601	I-7	R088	B-16	R507	H-7	R811	F-15
C037	B-11	C507	I-6	D026	G-9	L801	K-10	R089	B-16	R508	H-7	R815	M-12
C045	F-9	C508	J-5	D451	C-18	LC301	J-8	R091	B-14	R509	F-19	R816	N-12
C046	H-9	C509	I-6	D452	C-16	M1	N-12	R092	B-10	R510	E-17	R2302	M-4
C055	N-2	C510	F-18	D453	C-16	M2	N-11	R093	B-10	R511	F-14	R2303	L-3
C056	M-1	C511	E-19	D455	B-17	Q002	F-9	R094	B-10	R516	G-5	R2304	M-3
C060	B-14	C515	F-19	D501	G-7	Q003	G-9	R097	E-3	R517	F-5	R2305	M-3
C061	C-14	C531	G-7	D531	G-7	Q006	C-11	R102	L-1	R531	G-7	R2306	M-3
C101	K-4	C532	H-6	D532	G-5	Q007	A-14	R103	L-2	R532	G-6	RL001	H-10
C102	L-3	C541	E-11	D543	E-10	Q008	A-10	R104	J-7	R533	F-5	S001	A-19
C103	K-4	C543	E-10	D551	I-15	Q015	B-15	R105	L-5	R534	F-7	S002	A-18
C104	L-5	C552	M-14	D553	L-14	Q306	K-9	R106	N-4	R538	G-6	S003	A-17
C105	J-6	C554	J-16	D554	L-19	Q307	H-6	R107	M-1	R539	G-6	S004	A-16
C106	J-7	C555	N-14	D555	N-15	Q451	B-16	R111	K-8	R541	E-11	S005	A-16
C107	J-8	C557	F-2	D556	N-16	Q452	B-17	R112	K-8	R542	E-11	S006	A-14
C108	K-8	C558	I-14	D557	G-4	Q501	E-18	R152	G-2	R544	E-9	SP	N-6
C109	H-5	C559	I-15	D560	G-8	Q541	E-10	R201	K-8	R547	E-10	T001	I-10
C110	N-3	C560	D-16	D561	I-15	Q551	J-19	R202	G-5	R551	J-16	T501	G-18
C113	K-4	C561	M-14	D562	D-15	R003	C-11	R203	L-4	R552	I-15	T502	D-18
C123	J-6	C562	I-15	D563	M-15	R004	G-9	R206	D-15	R553	L-15	T551	L-17
C151	K-1	C563	H-17	D801	H-11	R005	H-9	R304	I-3	R554	L-15	TP12	K-8
C152	K-6	C564	I-17	D802	G-12	R008	A-13	R305	I-3	R555	M-15	TP15	N-2
C153	K-7	C566	H-18	D803	H-12	R013	B-15	R306	I-3	R556	M-15	TPD1	N-15
C154	K-1	C567	H-14	D804	G-12	R018	D-14	R307	D-15	R557	N-15	TPD2	N-15
C201	L-4	C569	F-16	D805	G-10	R019	D-14	R317	I-8	R558	C-15	TPS1	D-12
C202	L-4	C570	L-14	DEG	G-11	R020	C-15	R318	J-7	R559	F-5	TPS8	N-2
C203	K-6	C573	F-8	DY	E-17	R021	I-1	R326	K-8	R560	G-2	TUNER	L-2
C206	G-4	C576	E-10	F001	L-11	R022	I-1	R327	I-8	R562	F-15	X001	B-13
C207	F-5	C577	M-19	FA1	N-2	R023	J-2	R328	G-6	R563	D-16	X101	K-3
C301	J-8	C601	J-8	FA2	N-3	R024	J-2	R339	K-6	R566	L-19	X102	K-9
C302	K-3	C602	J-4	IC001	B-13	R025	J-2	R401	I-7	R567	E-8	X201	K-7
C303	I-4	C607	I-7	IC002	D-14	R026	A-13	R402	I-8	R601	I-7	X501	I-6
C304	I-3	C801	H-11	IC003	C-12	R030	F-3	R404	I-7	R602	I-6	X601	J-4
C305	I-3	C803	H-12	IC101	I-5	R031	D-11	R451	B-16	R604	I-3		

IC FUNCTIONS

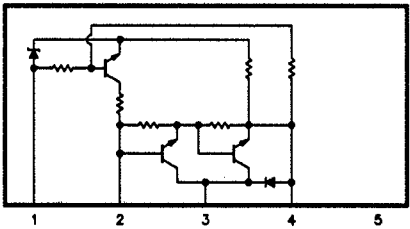
IC003
MN1280R



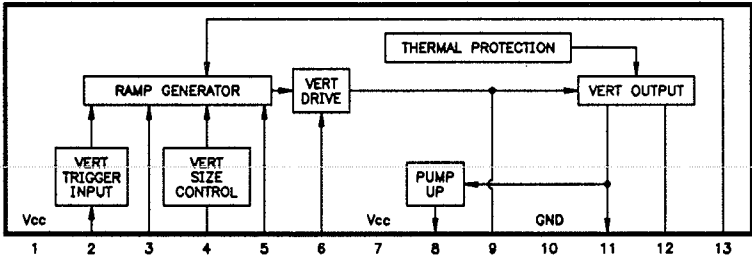
IC2301
AN5265



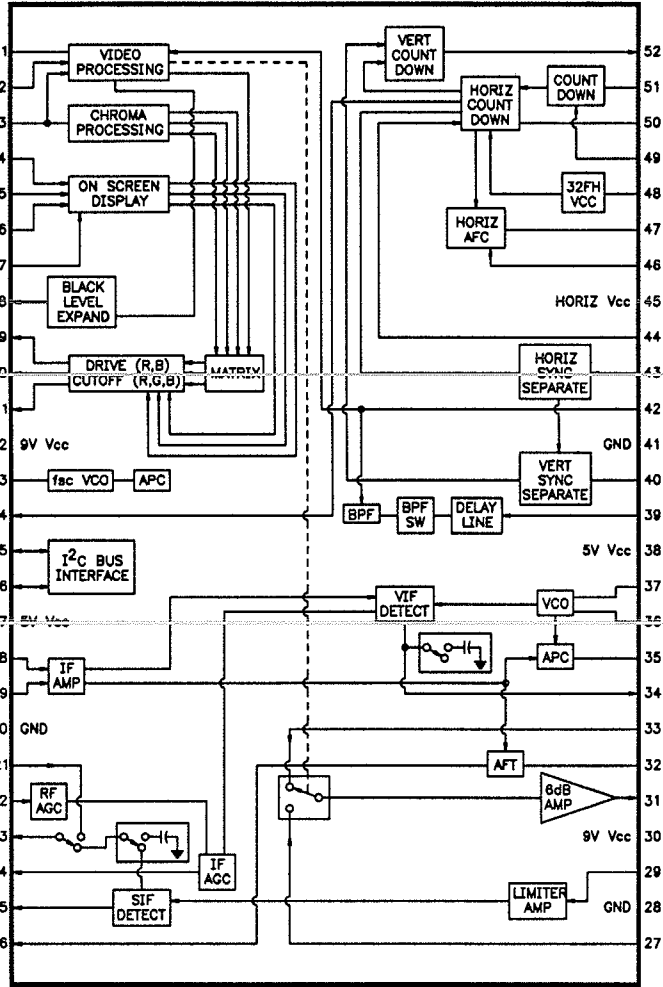
IC801
STR30130



IC451
LA7835-TV



IC101
AN5163K



TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.
Oscilloscope	SC3100
Generators	
RGB	CM2000
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR57
Capacitance Analyzer	LC101, LC102
CRT Analyzer	CR70
AC Leakage Tester	PR57
Inductance Analyzer	LC101, LC102
Flyback Yoke Tester	TVA92
TV Stereo Power Monitor	SR68, PA81
Field Strength Meter	SL750
Transistor Tester	TF46
Video Analyzer	VG91, TVA92