

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

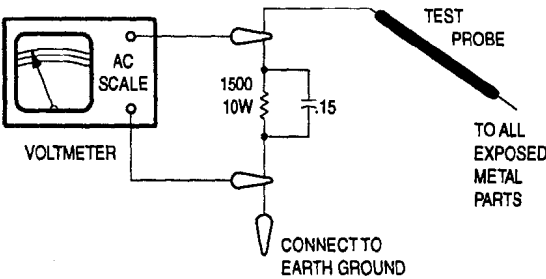
Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with 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

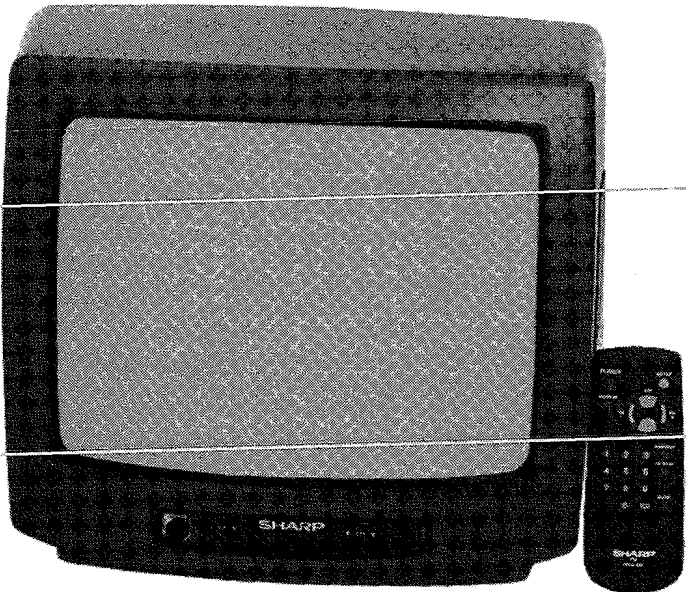
SET 3402

MODELS 13F-M40/50/100/150

SHARP

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

SHARP  
Model 13F-M100



Essential coverage  
for servicing a television receiver...

- Schematics
- Component locations
- Parts list

Coverage includes these additional models:

MODEL  
13F-M40  
13F-M50  
13F-M150

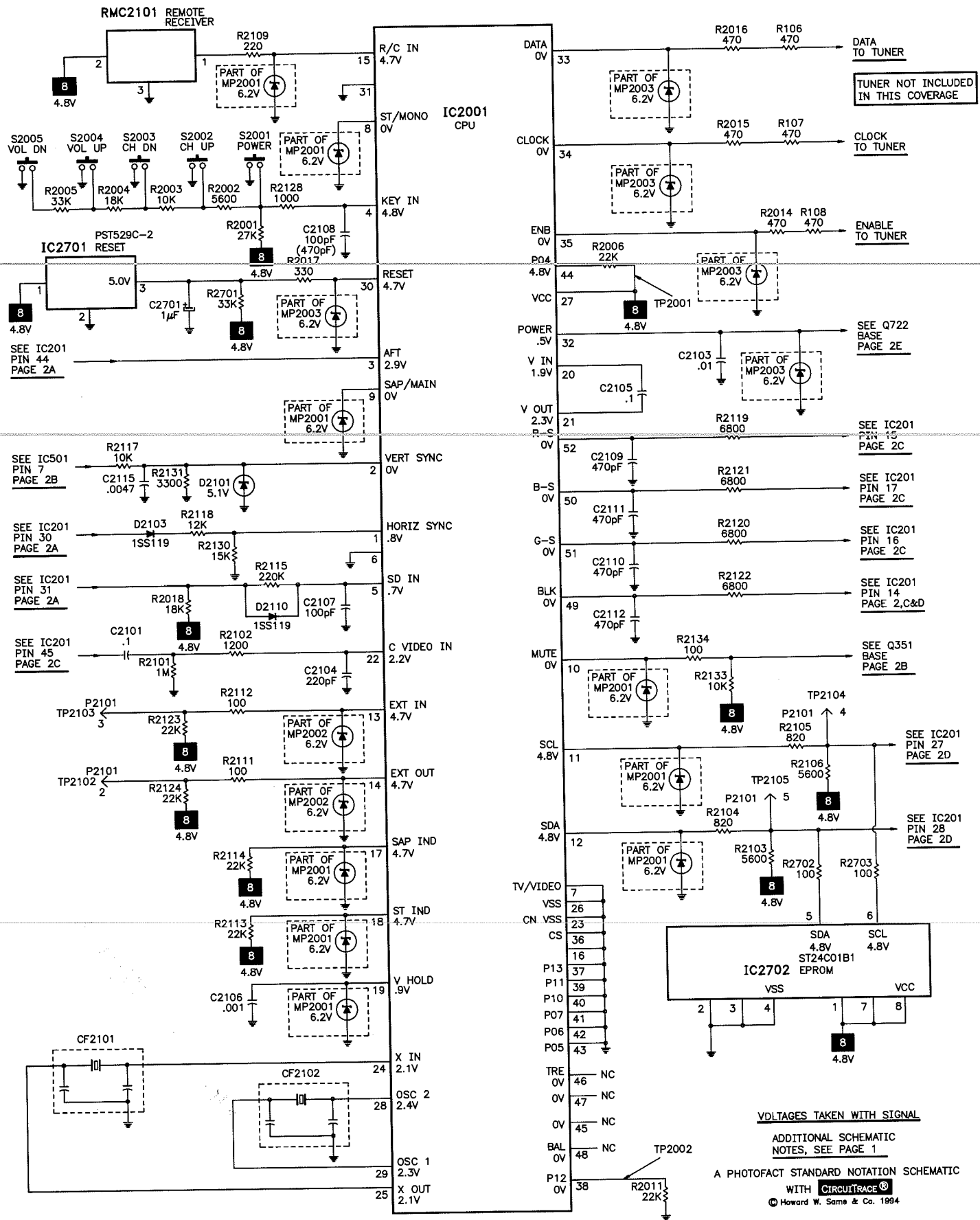


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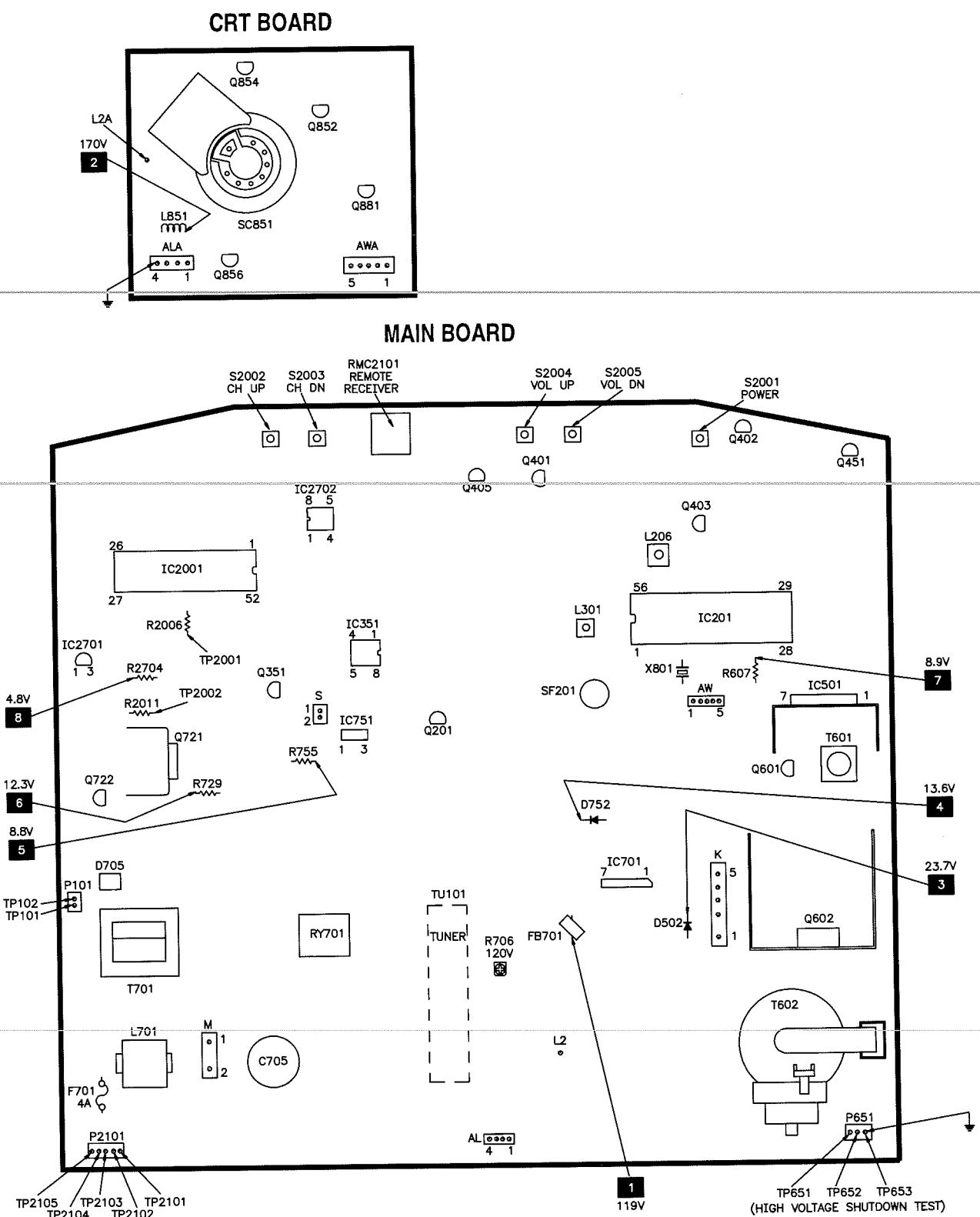
NOVEMBER 1994 SET 3402

For Supplier Address,  
See PHOTOFACT Annual Index

SYSTEM CONTROL SCHEMATIC



PLACEMENT CHART



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.

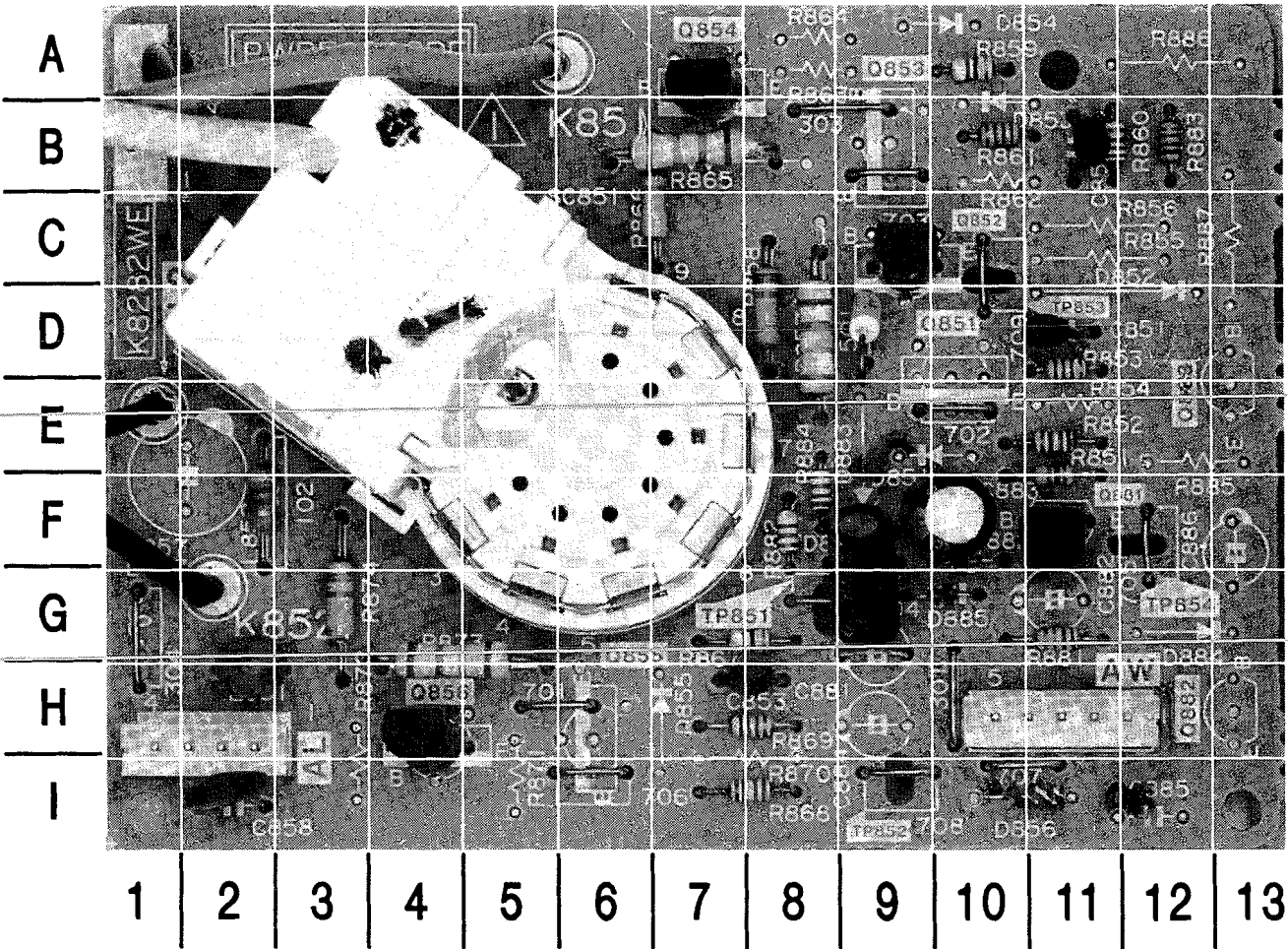
Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92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

SCHEMATIC NOTES

- # 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.
- A— 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.

CRT BOARD



A HOWARD W. SAMS **GRIDTRACE**™ PHOTO

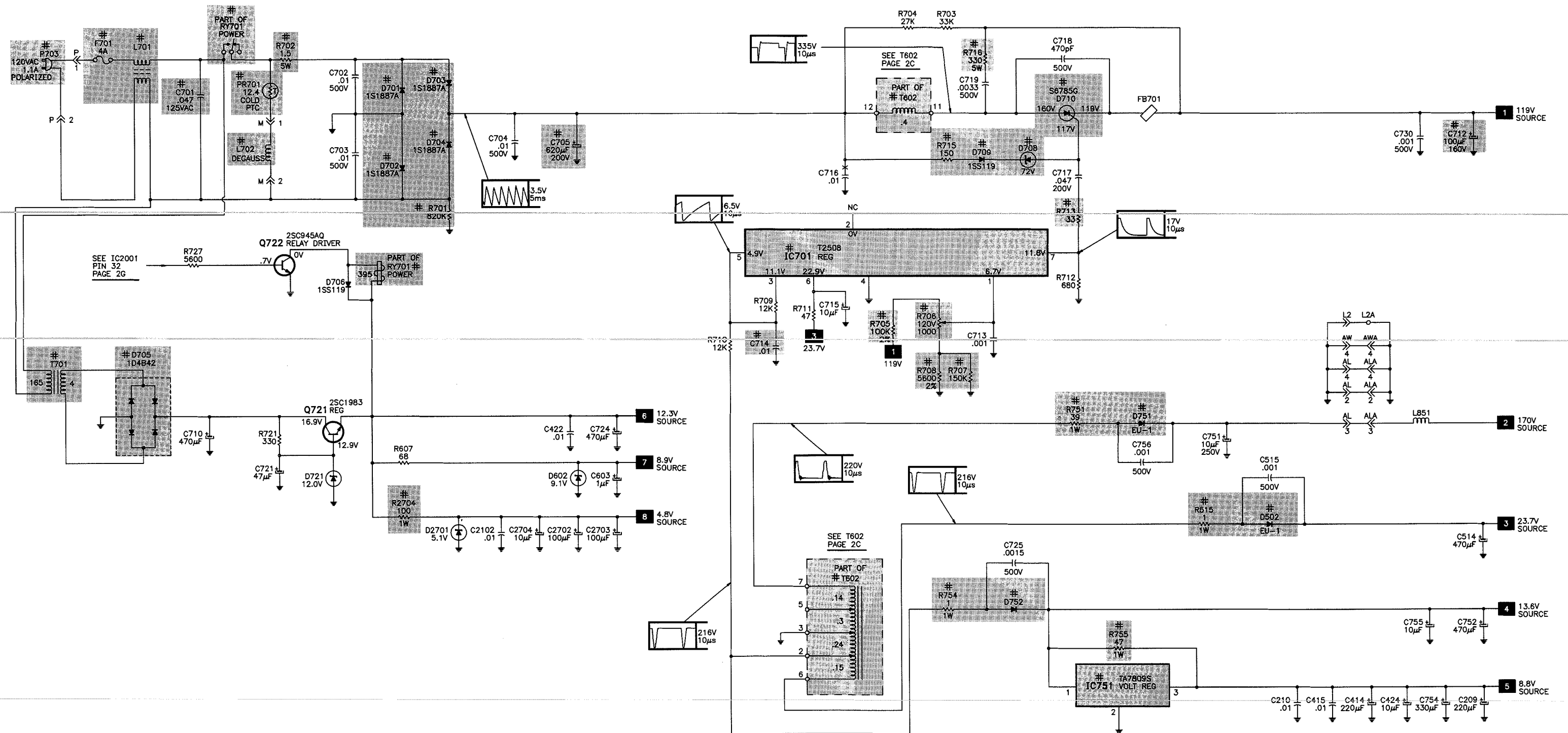
CRT BOARD, GRIDTRACE LOCATION GUIDE

ALA	H-2	C883	F-10	Q854	A-7	R859	A-10	R873	G-4
AWA	H-11	D881	F-9	Q856	H-4	R860	B-11	R874	G-3
C851	D-11	D882	F-10	Q881	F-11	R861	B-10	R881	G-11
C852	B-11	D885	G-10	R851	F-11	R865	B-7	R882	F-8
C853	H-8	L2A	E-1	R852	E-11	R866	C-6	R883	B-12
C854	A-1	L851	H-2	R853	D-11	R867	G-8	R884	F-8
C858	I-2	L852	F-2	R857	D-8	R868	I-8	SC851	E-5
C881	G-9	Q852	C-9	R858	D-8	R869	H-8		

SHARP

MODELS 13F-M40/50/100/150

# POWER SUPPLY SCHEMATIC



VOLTAGES TAKEN WITH SIGNAL  
 ADDITIONAL SCHEMATIC  
 NOTES, SEE PAGE 1  
 A PHOTOFAC STANDARD NOTATION SCHEMATIC  
 WITH CIRCUITRACE®  
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## MISCELLANEOUS ADJUSTMENTS

### 120V

Adjust R706 for 119V  $\pm$ 1V at the positive end of C712.

### HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, color, picture, and screen control to minimum. Connect a high voltage probe to CRT anode. High voltage must never exceed 25KV.

### HIGH VOLTAGE SHUTDOWN TEST

Check for about 20.5V at TP651. Apply an external 26.5V to TP651, the set should shut down. If the set fails to go into shutdown, the high voltage shutdown circuit requires repair. To return to normal operation, momentarily short TP652 to TP653.

### ENTERING SERVICE MODE

Turn on receiver and use reset function in the video adjustment menu to ensure that customer controls are in their proper reset position. Momentarily short test point TP2001 to test point TP2002 to enter the service mode.

NOTE: Shorting test points TP2001 and TP2002 causes the receiver to toggle between service and normal modes.

When in the service mode a letter S with a number is displayed in the lower left part of the screen and a letter D with a number is displayed in the lower right part of the screen. The S number is the service adjustment and it is changed by pressing the channel up / down buttons on the receiver or remote transmitter. The D number is the present data value of the service adjustment and it can be changed by pressing the volume up / down buttons on the receiver or remote transmitter. For a complete listing of the service adjustments, refer to the "Service Mode Adjustment Chart".

### EXIT SERVICE MODE

To exit service mode when finished making adjustments, turn off the power or unplug the set.

### RF AGC

Tune in a picture. Enter the service mode, select service adjustment S8. Set the data value to a point where no snow (noise) appears in picture. Exit the service mode to select another channel. Check all channels for proper operation.

### VCO

Connect a digital voltmeter to pin 44 of IC201 and ground. Tune in a local channel. Enter the service mode, select service adjustment S10. Set the data value to 60. Adjust the L206 to obtain 4.0V on the digital voltmeter.

### SUB PICTURE

Tune in a picture. Set brightness to minimum. Set picture to maximum. Enter the service mode, select service adjustment S1. Set the data value to achieve normal contrast range.

### SUB TINT

Tune in a picture. Set tint at center of its range level. Enter the service mode, select service adjustment S2. Set the data value to achieve normal flesh tones.

### SUB COLOR

Tune in a picture. Set color at center of its range level. Enter the service mode, select service adjustment S3. Set the data value to achieve normal color level.

### SUB BRIGHTNESS

Tune in a picture. Set brightness at reset level. Enter the service mode, select service adjustment S4. Set the data value to achieve normal brightness level.

### VERTICAL SIZE

Tune in a crosshatch pattern. Enter the service mode, select service adjustment S9. Set the data value to achieve proper vertical size and best vertical linearity.

### VERTICAL PHASE

Tune in a crosshatch pattern. Enter the service mode, select service adjustment S6. Set the data value to 0.

### HORIZONTAL POSITION

Tune in a crosshatch pattern. Enter the service mode, select service adjustment S7. Set the data value for the best centering on screen.

### CAPTION POSITION

Tune in a local channel. Enter the service mode, select service adjustment S25. A black box will appear on the screen. Set the data value to center the black box on the screen.

### WHITE BALANCE

Operate the receiver for 15 minutes. Enter the service mode, select service adjustment S3. Set the data value to 0. Set brightness for a visible raster. Alternately adjust data value of S14 and S15 until a good gray scale with normal white is obtained. Select service adjustment S3. Set the data value to achieve normal color level.

### GRAY SCALE

Connect a digital voltmeter to both ends of R852 on the CRT board. Tune in an active channel. Set color, brightness, and picture to minimum. Enter the service mode, select service adjustment S3. Set the data value to 0. Select service adjustment S19, adjust the data value to 1, this turns off the luminance signal (Y mute). Select service adjustment S4, adjust the data value to obtain .15V on the digital voltmeter. Adjust screen control, if necessary, to obtain a barely visible raster. Adjust service adjustments S11 (red), S12 (green), S13 (blue), until a good gray scale with normal white at high and low brightness is obtained. Select service adjustment S19, adjust the data value to 0. Select service adjustment S3, adjust the data value to normal color level. Adjust screen control for normal brightness.

### HORIZONTAL AFC

Tune in a local channel. Enter the service mode, select service adjustment S20. Set data value to 1, which is normal AFC gain. If increased horizontal gain is required, adjust data value to 0.

### BLANKING

Tune in a local channel. Enter the service mode, select service adjustment S18. Set data value to 0, which is normal blanking. If data value is set to 1, blanking will be turned off.

### WPL (WHITE PEAK LIMITER)

Tune in a local channel. Enter the service mode, select service adjustment S21. Set data value to 1 to turn on WPL or to 0 to turn it off.

### 3.58MHz TRAP

Tune in a local channel. Enter the service mode, select service adjustment S16. Set data value to 0 to turn on 3.58MHz trap or to 1 to turn it off.

### BPF (BANDPASS FILTER)

Tune in a local channel. Enter the service mode, select service adjustment S17. Set data value to 0 to turn on bandpass filter or to 1 to turn it off.

### SHARPNESS

Tune in a local channel. Enter the service mode, select service adjustment S5. Set data value to 32 which is center of data range.

### AUDIO BALANCE

Tune in a local channel. Enter the service mode, select service adjustment S24. Set data value to 32 which is center of data range.

### VOLUME

Tune in a local channel. Enter the service mode, select service adjustment S23. Set data value to 26 or for normal listening volume.

### 60Hz

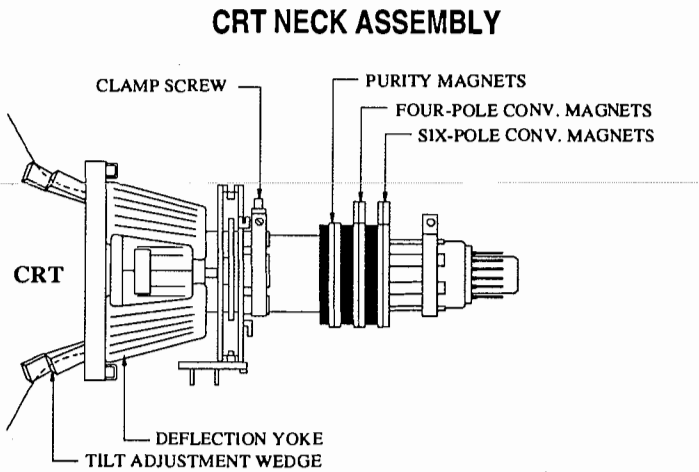
Tune in a local channel. Enter the service mode, select service adjustment S22. Set data value to 0 which is normal viewing.

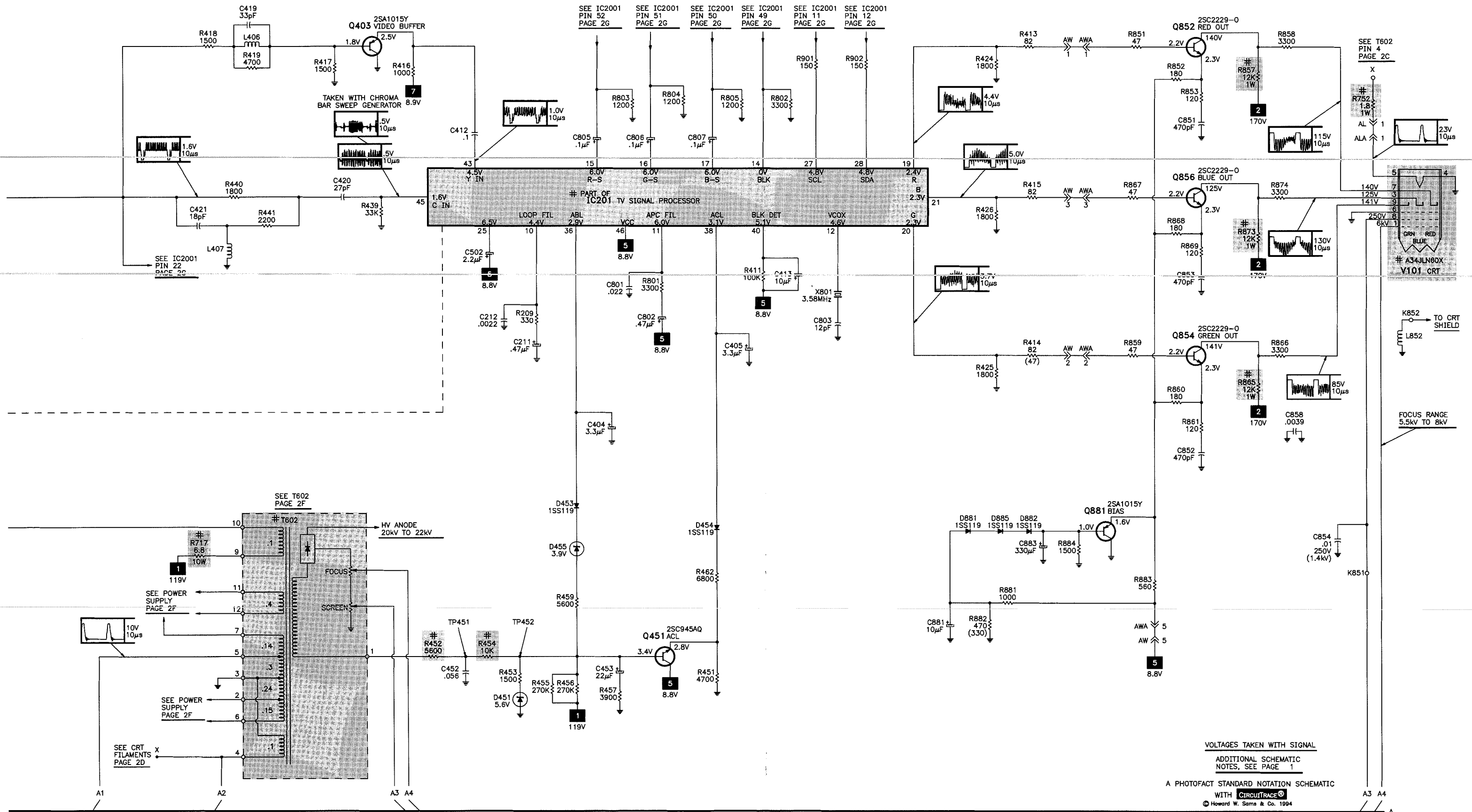
### CONVERGENCE

Operate the receiver for 15 minutes. Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust the 4-pole magnet tabs to converge the red and blue dots at the center of the screen. Adjust the 6-pole magnet tabs to converge the red/blue dots over the green dots at the center of the screen.

NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge vertically and rotate both tabs in the same direction to converge horizontally. The 4-pole and 6-pole magnets interact, repeat adjustment until center convergence is correct.

Tune in a crosshatch pattern and remove the rubber wedges between the deflection yoke and the CRT. Tilt the deflection yoke up or down to converge the vertical lines at top and bottom of screen and the horizontal lines at the right and left sides of the screen. Tilt the deflection yoke right or left to converge horizontal lines at top and bottom of screen and the vertical lines at the right and left sides of the screen. Repeat convergence procedure if necessary to obtain best overall convergence. Apply adhesive to wedges and carefully replace on the CRT.





SERVICE MODE ADJUSTMENT CHART

Service Adjustment	Function	Data Value Range	Initial Data Value	Notes
S1	Sub Picture	0 - 127	80	
S2	Sub Tint	0 - 127	64	
S3	Sub Color	0 - 127	45	
S4	Sub Brightness	0 - 127	64	
S5	Sharpness	0 - 63	32	
S6	Vertical Phase	0 - 7	0	Must be set to 0.
S7	Horizontal Position	0 - 31	20	
S8	RF AGC	0 - 63	32	0 Produces a black raster.
S9	Vertical Size	0 - 63	32	
S10	VCO	0 - 127	45	
S11	Red Cutoff	0 - 255	0	
S12	Green Cutoff	0 - 255	0	
S13	Blue Cutoff	0 - 255	0	
S14	Green Gain	0 - 255	128	
S15	Blue Gain	0 - 255	128	
S16	3.58 MHz Trap	0 - 1	0	0 = On, 1 = Off
S17 (1)	BPF	0 - 1	1	0 = Bandpass, 1 = Takeoff.
S18 (1)	Blanking	0 - 1	0	0 = Normal, 1 = No blanking
S19	Y - Mute / Vertical Collapse	0 - 3	0	0 = Normal raster, 1 = No Y, 2 = Test mode, 3 = No vertical
S20 (1)	Horizontal AFC	0 - 1	1	0 = X2 gain, 1 = Normal gain.
S21	WPL	0 - 1	1	0 = Off, 1 = On
S22 (1)	60Hz	0 - 1	0	0 = Normal viewing, 1 = Not available
S23	Volume	8 - 58	26	
S24	Audio Balance	0 - 63	32	
S25	Caption Position	0 - 15	7	

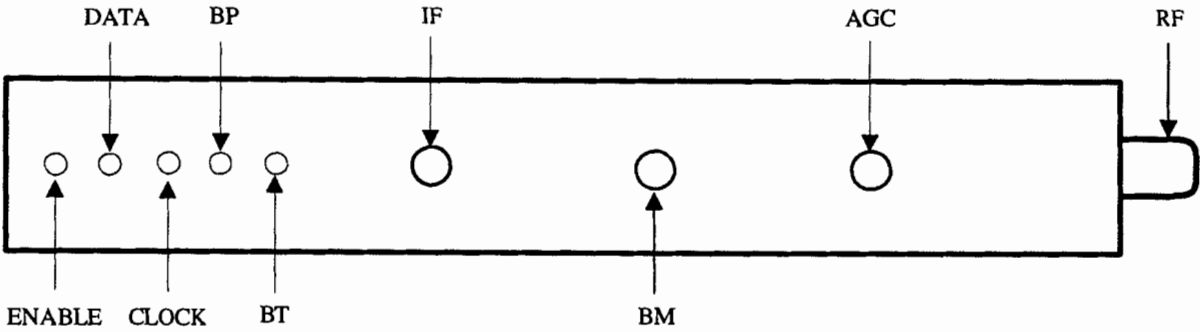
(1) IC2001 automatically makes the proper setting to these adjustments.

TUNER INFORMATION

TUNER VOLTAGE CHART			
Pin	VHF Low Band	VHF High Band	UHF Band
ENABLE	0V	0V	0V
DATA	0V	0V	0V
CLOCK	0V	0V	0V
BP	5.2V	5.2V	5.2V
BT	32.5V	32.5V	32.5V
IF	0V	0V	0V
BM	8.8V	8.8V	8.8V
AGC	5.2V	4.8V	5.2V


NOTE: VHF Low Band voltages taken on channel 2.  
VHF High Band voltages taken on channel 7.  
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE



SERVICE TIPS

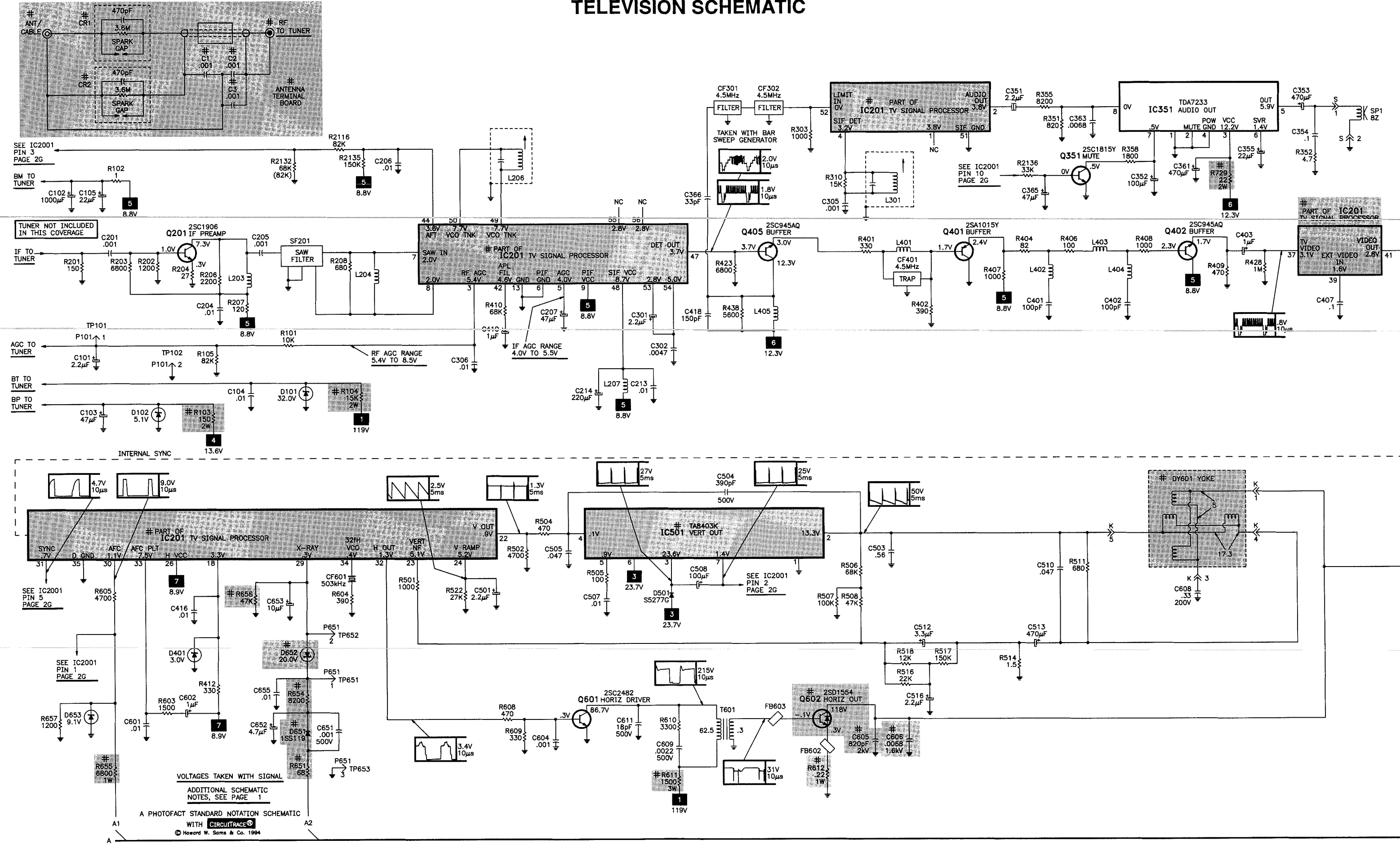
Item Replaced	Need to Perform Service Mode Adjustments	Notes
IC201	Yes	Adjustment is necessary to compensate for tolerance of parts including IC201.
IC2001	No	The data is still stored in IC2702.
IC2702	Yes	Initial data value is written from IC2001, adjust for best results.
V101	Yes	Only service mode adjustments related to CRT need to be performed.



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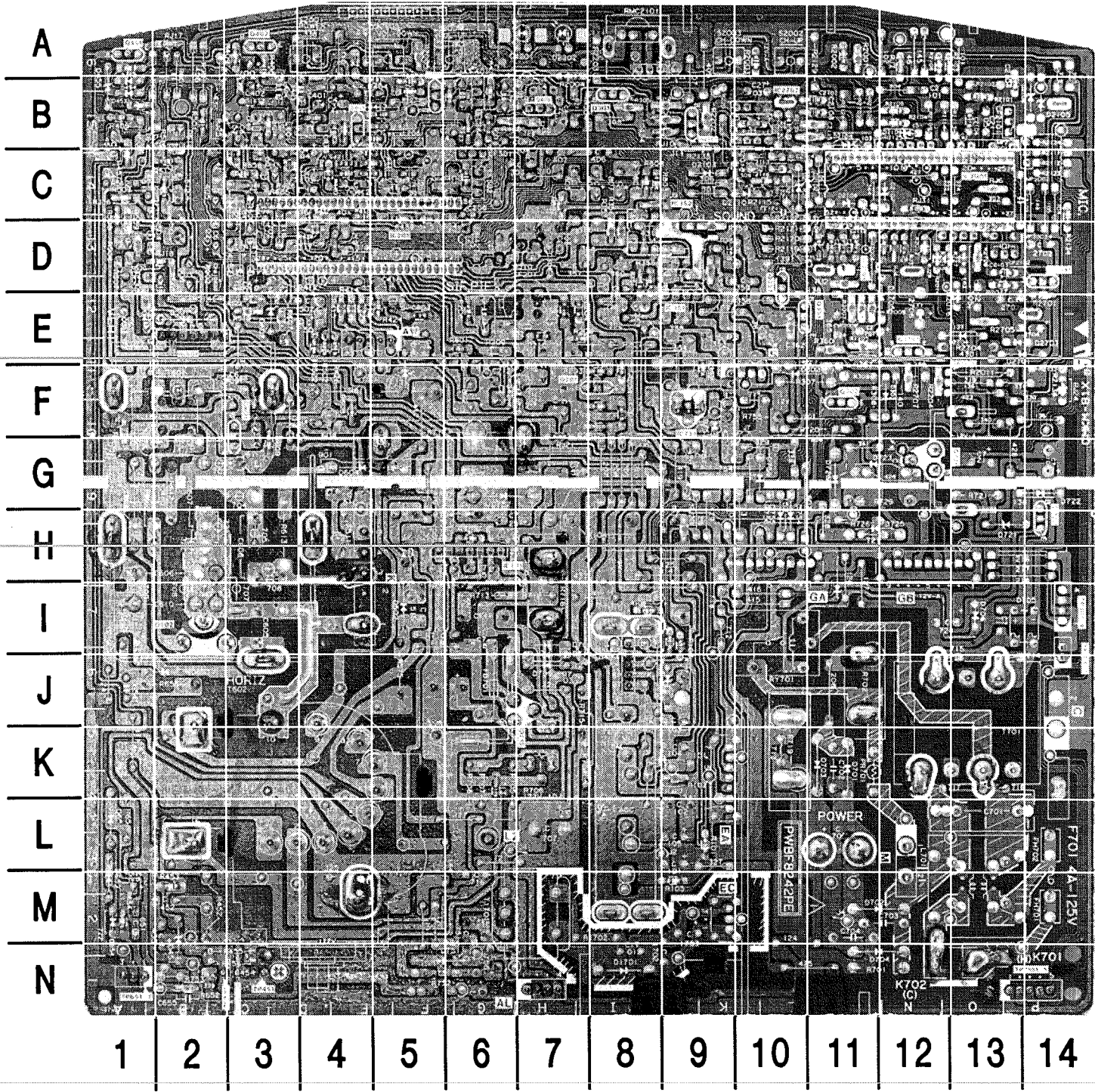
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M. Herkless, J. Kocha,  
J. Limp, F. Malek, B. Medaris,  
R. Raus, B. Skinner, J. Young

TELEVISION SCHEMATIC





MAIN BOARD - BOTTOM VIEW

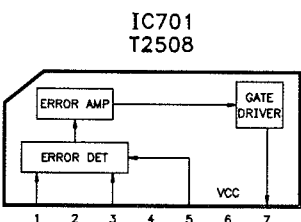
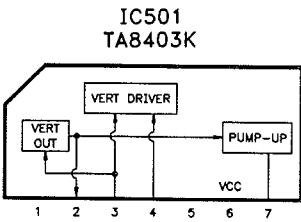


MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C204	E-7	C2109	D-11	R402	B-6	R457	C-1	R902	D-2
C205	E-7	C2110	D-11	R404	B-5	R459	B-1	R2002	A-11
C206	C-6	C2111	D-11	R407	B-5	R462	A-1	R2003	A-10
C210	E-7	C2112	D-11	R408	A-3	R501	B-2	R2004	B-7
C212	E-6	R101	L-9	R409	A-3	R502	E-4	R2014	D-12
C213	C-5	R105	M-9	R410	C-4	R505	D-2	R2015	D-12
C401	B-4	R106	I-9	R411	C-4	R508	D-2	R2016	E-13
C402	B-3	R107	I-9	R416	B-5	R517	C-2	R2017	D-13
C415	C-5	R108	I-8	R417	B-5	R522	E-4	R2018	C-10
C416	D-4	R201	F-8	R418	B-4	R604	B-3	R2101	B-13
C419	B-4	R202	F-8	R419	B-4	R605	C-3	R2103	A-12
C420	C-5	R203	F-8	R423	B-6	R608	F-4	R2104	B-12
C421	C-4	R204	F-8	R424	E-5	R609	G-3	R2105	B-12
C713	K-6	R206	E-7	R426	E-4	R654	M-1	R2106	A-12
C803	E-5	R208	E-6	R428	C-4	R656	C-3	R2116	C-10
C2103	D-13	R303	C-6	R439	C-5	R709	H-6	R2130	B-10
C2104	B-13	R351	D-8	R440	C-4	R727	D-13	R2134	C-14
C2106	B-13	R352	F-9	R441	C-5	R801	E-6	R2135	B-9
C2107	B-11	R355	D-8	R451	B-1	R803	C-8	R2136	F-14
C2108	B-11	R401	B-6	R453	M-2	R804	C-8	R2701	E-14

SHARP

IC FUNCTIONS



MODELS 13F-M40/50/100/150

A HOWARD W. SAMS GRIDTRACE™ PHOTO

PARTS LIST continued

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
# C1 (1)	.001	-
# C2 (1)	.001	-
# C3 (1)	.001	-
C105	22µF 16V Tantalum	VCSATA1CE226K
C351	2.2µF 20% 50V NP	VCE9GA1HW225M
C424	10µF 16V Tantalum	VCSATA1CE106K
C501	2.2µF 16V Tantalum	VCSATA1CE225K
# C605	820pF 10% 2kV	RC-KZ0040CEZZ
# C606	.0068 5% 1.6kV	VCFPPD3CA682J
# C701	.047 20% 125VAC	RC-QZ005SCEZZ
	.047 20% 125VAC	RC-FZ004SCEZZ
# C705	620µF 200V	RC-EZ0183CEZZ
# C712	100µF 160V	RC-EZ0378CEZZ
# C714	.01 10% 50V	VCQYTA1HM103K
C854	.01 250V	-
	.01 1.4kV	RC-KZ0016CEZZ

# For SAFETY use only equivalent replacement part.  
(1) Part of antenna terminal board part no. QTANZ0145CEZZ

CONTROLS & RESISTORS continued

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# R754	1 5% 1W	VRN-RV3AB1R0J	1W1D0
# R755	47 5% 1W	VRS-VV3AB470J	1W047
# R857	12K 5% 1W	VRS-VV3AB123J	1W312
# R865	12K 5% 1W	VRS-VV3AB123J	1W312
# R873	12K 5% 1W	VRS-VV3AB123J	1W312
# R2704	100 5% 1W	VRS-VV3AB101J	1W110

# For SAFETY use only equivalent replacement part.

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
CF301	Filter	RFILC0001AJZZ	4.5MHz
CF302	Filter	RFILC0267CEZZ	4.5MHz
CF401	Trap	RFILC0002AJZZ	4.5MHz
CF601	Crystal	RFILA0034CEZZ	503kHz
CF2101	Crystal	RFILC0121GEZZ	-
CF2102	Crystal	RFILC0327GEZZ	-
# CR1, 2 (1)	Component Combination	-	470pF, 3.6M, Spark Gap
# F701	Fuse	QFS-B4023CEZZ	4Amp, 125VAC, Slow Blow
	Fuse	QFS-B4021CEZZ	4Amp, 125VAC, Slow Blow
# P703	Line Cord (2)	QACCD3030CESA	AC, Polarized
	Line Cord (3)	QACCD3030CESB	AC, Polarized
RMC2101	Receiver	RRMCU0207CEZZ	Remote
# RY701	Relay	RRLYU0022CEZZ	Power
	Relay	RRLYU0031CEZZ	Power
S2001	Switch	QSW-K0079GEZZ	Power
S2002	Switch	QSW-K0079GEZZ	Channel Up
S2003	Switch	QSW-K0079GEZZ	Channel Down
S2004	Switch	QSW-K0079GEZZ	Volume Up
S2005	Switch	QSW-K0079GEZZ	Volume Down
SC851	Socket	QSOCV0829CEZZ	CRT
SF201	Filter	RFILC0137CEZZ	SAW
SP1	Speaker	VSP0080P-H28A	3", 8 Ohms, 2W
# TU101	Tuner (4)	VTUVTSH6UZFC/	UHF / VHF (VTSH6UZFC)
# V101	CRT	VBA34JLN60X-S	A34JLN60X
	CRT	VBA34KPU02X-S	A34KPU02X
	CRT	VBA34EAE01X-S	A34EAE01X
	CRT	VB370BV1BK1U-S	370BV1BK1
	CRT	VB370BVBK1*S	370BVBK1U
	CRT	VB37GDA86X/1E	37GDA86X
X801	Crystal	RCRSB0001PEZZ	3.58MHz
	Fuse Holder	QFSDH1013CEZZ	For F701
	Fuse Holder	QFSDH1014CEZZ	For F701
#	Jack (1)	-	Antenna / Cable Input
	Magnet	PMAGF3006CEZZ	Purity / Static, Assembly
	PC Board (4)	DUNT8282WEVO	CRT
	PC Board (4)	DUNT8242WEVO	Main
#	Plug (1)	-	RF Input to UHF / VHF Tuner
#	Terminal Board	QTANZ0145CEZZ	Antenna
	Transmitter (5)	RRMCG1018CESA	Remote
	Transmitter (3)	RRMCG1018CESB	Remote
	Transmitter (6)	RRMCG1017CESA	Remote
	Wedge	PSPAG0004PEZZ	Yoke Positioning (3 Used)

REMOTE TRANSMITTER

Battery                      UBATU0001MEZZ                      Remote Transmitter

# For SAFETY use only equivalent replacement part.  
(1) Part of antenna terminal board.  
(2) Used in models 13F-M40, 13F-M50, and 13F-M100.  
(3) Used in model 13F-M150.  
(4) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.  
(5) Used in models 13F-M40 and 13F-M100.  
(6) Used in model 13F-M50.

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# PR701	12.4 Cold PTC	RMPTP0026CEZZ	-
# R103	150 5% 2W	VRS-VV3DB151J	2W115
# R104	15K 5% 2W	VRS-VV3DB153J	2W315
# R452	5600 10% 1/2W	VRC-MA2HG562K	HW256
# R454	10K 5% 1/2W	VRS-SV2HC103J	HW310
# R515	1 5% 1W	VRN-VV3AB1R0J	1W1D0
# R611	1500 5% 3W	VRS-SV3LB152J	3W215
# R612	.22 5% 1W	VRN-VV3ABR22J	1WD22
# R651	68 5% 1/4W	VRD-RA2EE680J	QW068
# R654	8200 5% 1/8W SMT	VRD-MN2BE822J	-
# R655	6800 5% 1W	VRS-VV3AB682J	1W268
# R656	47K 5% 1/8W SMT	VRD-MN2BE473J	-
# R701	820K 5% 1/2W	VRD-RM2HD824J	HW482
# R702	1.5 10% 5W Wirewound	VRW-KQ3HC1R5K	5W1D5
# R705	100K 2% 1/4W	VRD-RA2EE104G	QW410
# R706	1000 120V	RVR-M4328CEZZ	-
# R707	150K 5% 1/8W	VRD-RA2BE154J	EW415
# R708	5600 2% 1/4W	VRD-RA2EE562G	QW256
# R713	33 5% 1/2W	VRD-RM2HD330J	HW033
# R715	150 5% 1/2W	VRS-SV2HC151J	HW115
# R716	330 10% 5W Wirewound	VRW-KQ3HC331K	5W133
# R717	6.8 10% 10W Wirewound	VRW-KQ4AC6R8K	10W6D8
# R729	22 5% 2W	VRS-VV3DB220J	2W022
# R751	39 5% 1W	VRS-VV3AB390J	1W039
# R752	1.8 5% 1W	VRS-VV3AB1R8J	1W1D8

# For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
# DY601 (1)	Yoke 90° Horiz 3.3mH Vert 30.3mH	RCiLH0014PEZZ	H0014PE-M
(2)	Yoke	RCiLH0016PEZZ	-
(3)	Yoke	RCiLH0008PEZZ	-
(4)	Yoke	RCiLH1606CEN5	-
FB602	Ferrite Bead	RBLN-0037CEZZ	-
FB603	Ferrite Bead	RBLN-0037CEZZ	-
FB701	Ferrite Bead	RBLN-0037CEZZ	-
L203	.82µH	VP-XFR82K0000	-
L204	.68µH	VP-ZFR68K0000	-
L206	VCO	RCiLi0588CEZZ	-
L207	180MHz Filter	RCiLP0094CEZZ	-
L301	SIF	RCiLi0591CEZZ	-
L401	12µH	VP-MK120K0000	-
L402	10µH	VP-MK100K0000	-
L403	10µH	VP-MK100K0000	-
L404	6.8µH	VP-MK6R8K0000	-
L405	8.2µH	VP-0F8R2K0000	-
L406	68µH	VP-MK680K0000	-
L407	68µH	VP-MK680K0000	-
# L701	Line Filter	RCiLF0254CEZZ	F0254Rm
	Line Filter	RCiLF0003PEZZ	-
# L702	Degaussing	RCiLG0386PEZZ	-
L851	220µH	VP-MK221K0000	-
L852	4.7µH	VP-DF4R7K0000	-
T601	Horizontal Driver	RTRNZ0073CEZZ	073
# T602	Horizontal Output	RTRNF0057PEZZ	F0057PE-M
# T701	Power	RTRNP0416CEZZ	P0416CE

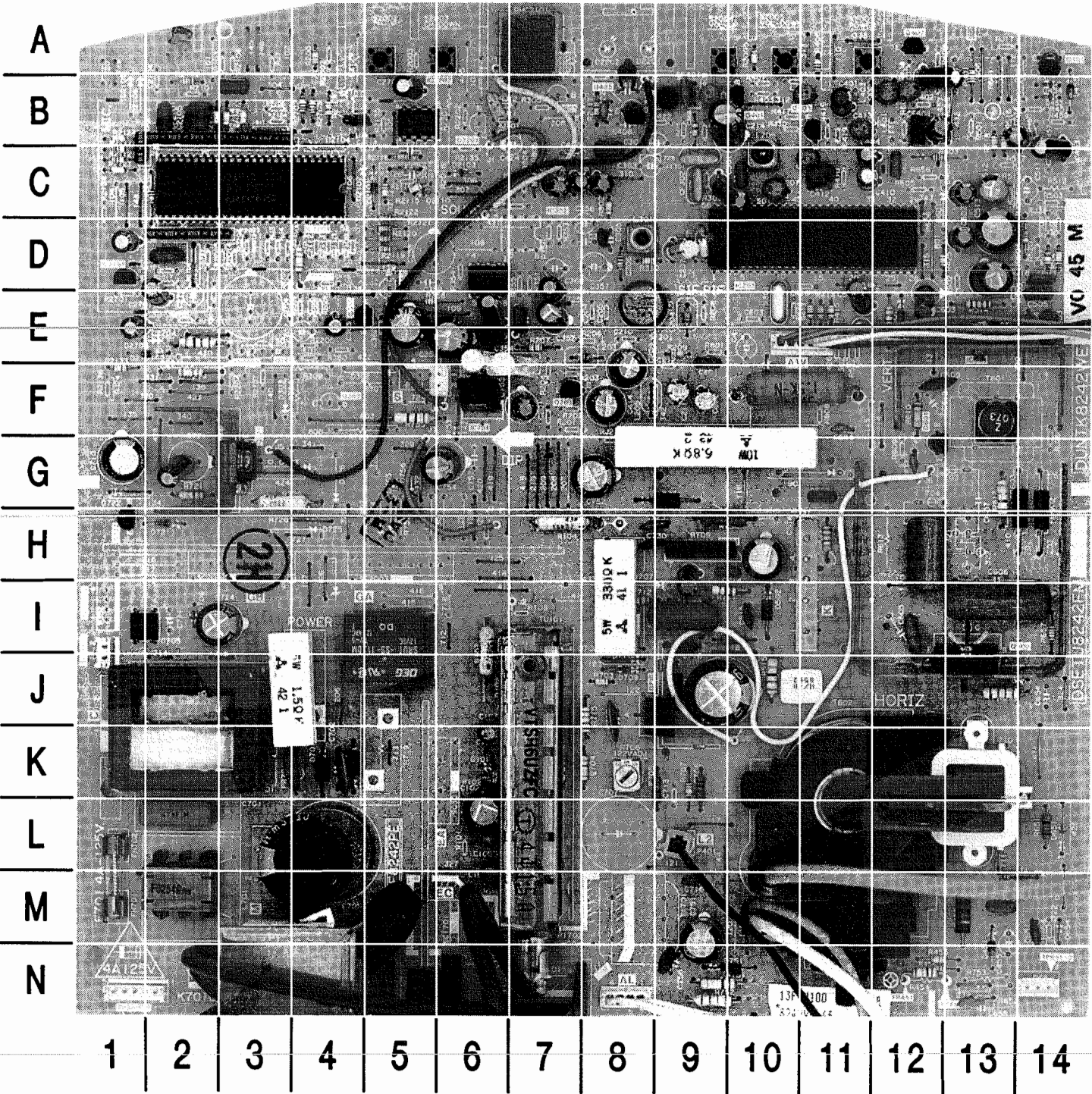
# For SAFETY use only equivalent replacement part.  
(1) Used with CRT A34JLN60X, A34KPU02X, or 37GDA86X.  
(2) Used with CRT A34EAE01X.  
(3) Used with CRT 370BV1BK1.  
(4) Used with CRT 370BVBK1U.

SHARP

MODELS 13F-M40/50/100/150



MAIN BOARD - TOP VIEW



A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

AL	N-8	C652	M-14	D705	I-1	R104	H-7	R2109	B-3
AW	E-10	C653	B-12	D706	I-2	R207	E-7	R2111	C-1
C101	L-6	C655	N-13	D708	J-8	R209	E-9	R2112	C-1
C102	L-6	C701	L-2	D709	J-8	R310	D-8	R2113	B-2
C103	K-6	C702	K-4	D710	J-8	R358	E-5	R2114	B-3
C104	K-6	C703	M-3	D721	H-2	R406	A-11	R2115	C-5
C105	L-6	C704	N-3	D751	N-10	R412	D-11	R2117	B-8
C201	F-7	C705	L-4	D752	G-9	R413	E-11	R2118	C-5
C207	D-9	C710	G-1	D2101	C-5	R414	E-11	R2119	D-5
C209	F-8	C712	J-9	D2103	C-6	R415	E-11	R2120	D-5
C211	F-9	C714	H-9	D2110	C-5	R425	D-12	R2121	D-5
C214	B-10	C715	H-9	D2701	E-1	R438	B-8	R2122	D-5
C301	C-9	C716	M-9	F701	M-1	R452	M-13	R2123	C-1
C302	C-10	C717	I-9	FB602	G-14	R454	N-12	R2124	B-1
C305	D-8	C718	I-9	FB603	G-14	R455	N-12	R2128	B-4
C306	D-8	C719	J-8	FB701	J-9	R456	N-12	R2131	B-4
C351	D-7	C721	G-2	IC201	D-11	R504	D-14	R2132	C-5
C352	E-7	C724	I-3	IC351	D-6	R506	D-14	R2133	F-1
C353	E-6	C725	H-9	IC501	E-13	R507	D-14	R2702	B-4
C354	E-6	C730	H-9	IC701	H-9	R511	H-11	R2703	B-4
C355	E-6	C751	M-9	IC751	F-6	R514	E-13	R2704	E-2
C361	E-5	C752	G-8	IC2001	C-3	R515	J-10	RMC2101	A-7
C363	E-7	C754	G-6	IC2701	D-1	R516	B-13	RY701	I-5
C365	E-4	C755	F-7	IC2702	B-5	R518	B-13	S	F-6
C366	B-9	C756	N-9	K	I-11	R603	C-12	S2001	A-11
C403	B-12	C801	E-9	L2	L-9	R607	E-12	S2002	A-5
C404	C-11	C802	F-9	L203	E-8	R610	F-12	S2003	A-6
C405	C-13	C805	C-8	L204	E-9	R611	F-10	S2004	A-9
C407	C-8	C806	C-7	L206	C-10	R612	G-13	S2005	A-10
C410	C-11	C807	C-7	L207	C-10	R651	L-14	SF201	E-8
C412	C-11	C2101	B-3	L301	D-8	R655	J-13	T601	F-13
C413	B-11	C2102	C-2	L401	B-9	R657	I-14	T602	L-11
C414	F-8	C2105	B-2	L402	B-11	R701	N-3	T701	K-2
C418	A-8	C2115	B-4	L403	B-12	R702	J-3	TP101	J-1
C422	B-8	C2701	D-2	L404	B-12	R703	J-8	TP102	I-1
C424	B-7	C2702	D-1	L405	B-9	R704	K-8	TP651	N-14
C452	M-13	C2703	B-5	L406	B-11	R705	K-9	TP652	N-14
C453	B-14	C2704	E-1	L407	C-11	R706	K-8	TP653	N-14
C501	E-11	CF301	C-9	L701	M-2	R707	K-9	TP2001	D-4
C502	E-11	CF302	C-9	M	M-3	R708	K-9	TP2002	F-3
C503	E-14	CF401	B-9	MP2001	B-2	R710	I-10	TP2101	N-2
C504	E-14	CF601	B-12	MP2002	C-1	R711	I-9	TP2102	N-1
C505	E-14	CF2101	B-2	MP2003	D-2	R712	I-8	TP2103	N-1
C507	D-14	CF2102	D-2	P101	J-1	R713	I-9	TP2104	N-1
C508	D-13	D101	K-6	P651	N-14	R715	J-8	TP2105	N-1
C510	G-11	D102	J-6	P701	L-3	R716	I-8	TU101	I-7
C512	C-13	D401	F-10	P2101	N-2	R717	G-9	X801	E-10
C513	D-13	D451	N-13	PR701	K-3	R721	G-2		
C514	H-10	D453	B-14	Q201	F-7	R729	G-3		
C515	I-10	D454	B-14	Q351	E-4	R751	N-9		
C516	B-13	D455	B-14	Q401	B-10	R752	N-9		
C601	C-12	D501	E-13	Q402	A-12	R754	H-9		
C602	D-13	D502	I-10	Q403	B-11	R755	F-5		
C603	E-12	D602	E-12	Q405	B-8	R802	C-8		
C604	F-11	D651	L-14	Q451	A-14	R805	C-7		
C605	I-12	D652	M-14	Q601	G-12	R901	A-13		
C606	I-13	D653	J-13	Q602	J-13	R2001	A-4		
C608	H-12	D701	K-4	Q721	G-3	R2005	A-10		
C609	F-12	D702	M-3	Q722	H-1	R2006	D-4		
C611	G-12	D703	K-4	R102	K-6	R2011	F-2		
C651	M-14	D704	N-3	R103	I-7	R2102	B-2		

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.
D101	-	RH-EX0701GEZZ	-	-	-
D102	-	RH-EX0294CEZZ	-	-	-
D401	-	RH-EX0280CEZZ	-	-	-
D451	-	RH-EX0103CEZZ	NTE5011A	ECG5011A	SK5A6
D453, 54	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D455	-	RH-EX0092CEZZ	NTE5006A	ECG5006A	SK3A6
D501	S5277G	RH-DX0110CEZZ	NTE116	ECG116	SK3312
# D502	EU-1	RH-DX0131CEZZ	NTE552	ECG552	SK9000
D602	-	RH-EX0312CEZZ	-	-	-
# D651	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D652	-	RH-EX0130CEZZ	NTE5029A	ECG5029A	SK20A
D653	-	RH-EX0313CEZZ	-	-	-
# D701 Thru					
# D704	1S1887A	RH-DX0154CEZZ	NTE552	ECG552	SK9000
# D705	1D4B42	RH-DX0200CEZZ	NTE5332	ECG5332	SK9232
D706	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D708	-	RH-EX0238CEZZ	-	-	-
# D709	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
# D710	S6785G	VHSS6785GLB2E	-	-	-
D721	-	RH-EX0019TAZZ	NTE5022A	ECG5022A	SK13A
# D751	EU-1	RH-DX0131CEZZ	NTE552	ECG552	SK9000
# D752	-	RH-DX0240CEZZ	-	-	-
D881, 82, 85	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2101	-	RH-EX0294CEZZ	-	-	-
D2103, 10	1SS119	VHD1SS119//-1	NTE519	ECG519	SK3100
	1N4148	RH-DX0045GEZZ	NTE519	ECG519	SK3100
D2701	-	RH-EX0294CEZZ	-	-	-
# IC201	-	RH-iX2429CEZZ	-	-	-
IC351	TDA7233	VH1AD7233/-1	-	-	-
# IC501	TA8403K	RH-iX1011CEZZ	-	-	-
# IC701	T2508	RH-iX0137CEZZ	NTE1751	ECG1751	-
# IC751	TA7809S	VH1TA7809S/-1	-	-	-
IC2001	-	RH-iX2428CEZZ	-	-	-
IC2701	PST529C-2	VH1PST529C2-1	-	-	-
IC2702	ST24C01B1	RH-iX2447CEZZ	-	-	-
MP2001	-	RMPTJ0152CEZZ	-	-	-
MP2002	-	RMPTJ0154CEZZ	-	-	-
MP2003	-	RMPTJ0153CEZZ	-	-	-
Q201	2SC1906	VS2SC1906//1E	NTE107	ECG107	SK3293
Q351	2SC1815Y	VS2SC1815YW-1	NTE85	ECG85	SK3124A
Q401	2SA1015Y	VS2SA1015Y/1E	NTE290A	ECG290A	SK9132
Q402	2SC945AQ	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
	2SC1815Y	VS2SC1815YW-1	NTE85	ECG85	SK3124A
Q403	2SA1015Y	VS2SA1015Y/1E	NTE290A	ECG290A	SK9132
Q405	2SC945AQ	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
	2SC1815Y	VS2SC1815YW-1	NTE85	ECG85	SK3124A
# For SAFETY use only equivalent replacement part.					

SEMICONDUCTORS continued					
(Select the replacement that gives the best results.)					
Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
Q451	2SC945AQ	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
	2SC1815Y	VS2SC1815YW-1	NTE85	ECG85	SK3124A
Q601	2SC2482	VS2SC2482//-1	NTE399	ECG399	SK9352
# Q602	2SD1554	VS2SD1554//1E	NTE2302	ECG2302	SK9422
Q721	2SC1983	VS2SC1983//-2	NTE56	ECG56	SK3929
Q722	2SC945AQ	VS2SC945AQ/-1	NTE85	ECG85	SK3124A
	2SC1815Y	VS2SC1815YW-1	NTE85	ECG85	SK3124A
Q852 Thru					
Q856	2SC2229-O	VS2SC22290/1E	NTE399	ECG399	SK3244
Q881	2SA1015Y	VS2SA1015Y/1E	NTE290A	ECG290A	SK9132
# For SAFETY use only equivalent replacement part.					

CABINET PARTS	
Item	Part No.
<b>MODEL 13F-M40</b>	
Button - Channel	
Up / Down	JBTN-0134PESA
Button - Power, Volume	
Up /Down	JBTN-0133PESA
Cabinet Front Complete	CCABA2221WEV0
Cabinet Rear	GCABB2185PEKA
Window Remote Receiver	GMADT0130PEKA
<b>MODEL 13F-M50</b>	
Button - Channel	
Up / Down	JBTN-0127PESA
Button - Power, Volume	
Up /Down	JBTN-0126PESA
Cabinet Front Complete	CCABA2214WEV0
Cabinet Rear	GCABB2185PEKA
Window Remote Receiver	GMADT0128PEKA

CABINET PARTS continued	
Item	Part No.
<b>MODEL 13F-M100</b>	
Button - Channel	
Up / Down	JBTN-0136PESA
Button - Power, Volume	
Up /Down	JBTN-0135PEKA
Cabinet Front Complete	CCABA2222WEV0
Cabinet Rear	GCABB2185PEKA
Window Remote Receiver	GMADT0131PEKA
<b>MODEL 13F-M150</b>	
Button - Channel	
Up / Down	JBTN-0134PESB
Button - Power, Volume	
Up /Down	JBTN-0133PESB
Cabinet Front Complete	CCABA2221WEV2
Cabinet Rear	GCABB2185PEKB
Window Remote Receiver	GMADT0130PEKA