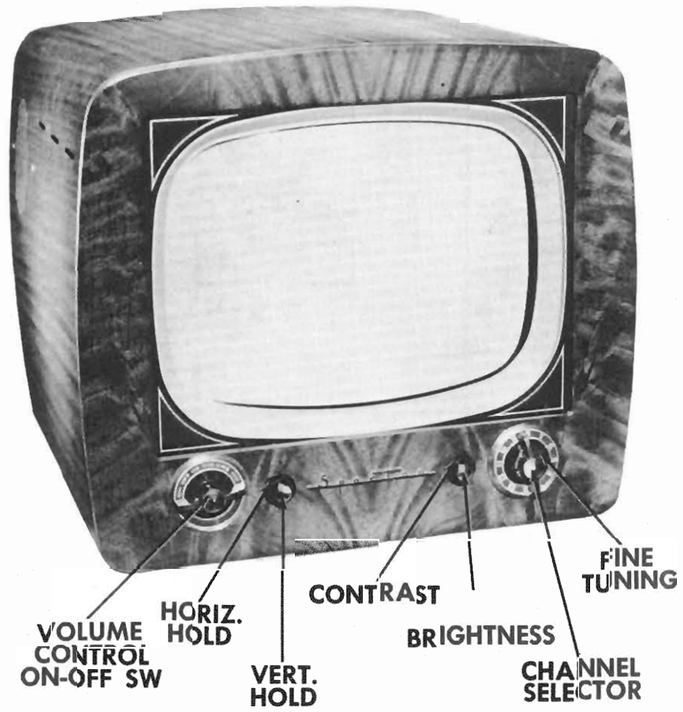
20 pg.

PHOTOFACT* Folder

*TRADE MARK

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 21S212), 5301 (Ch. 21S173-D), 5340, 5341, 5380, 5381 (Ch. 21S213)



SPARTON MODEL 5301

TRADE NAME	Sparton Models 5240, 5241, 5280, 5281 (Ch. 21S212) 5301 (Ch. 21S173-D) 5340, 5341, 5380, 5381 (Ch. 21S213).
MANUFACTURER	Sparks Withington Co., Jackson, Mich.
TYPE SET	Television Receiver
TUBES	Twenty- One
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.74 Amp @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13, Video IF 26.25MC, Sound IF 21.75MC (Intercarrier).

INDEX

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

DATE 4-53 SE 201 FOLDER 10

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 21S212), 5301 (Ch. 21S173-D), 5340, 5341, 5380, 5381 (Ch. 21S213)

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

▲ MEASURED WITH VTVM

■

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

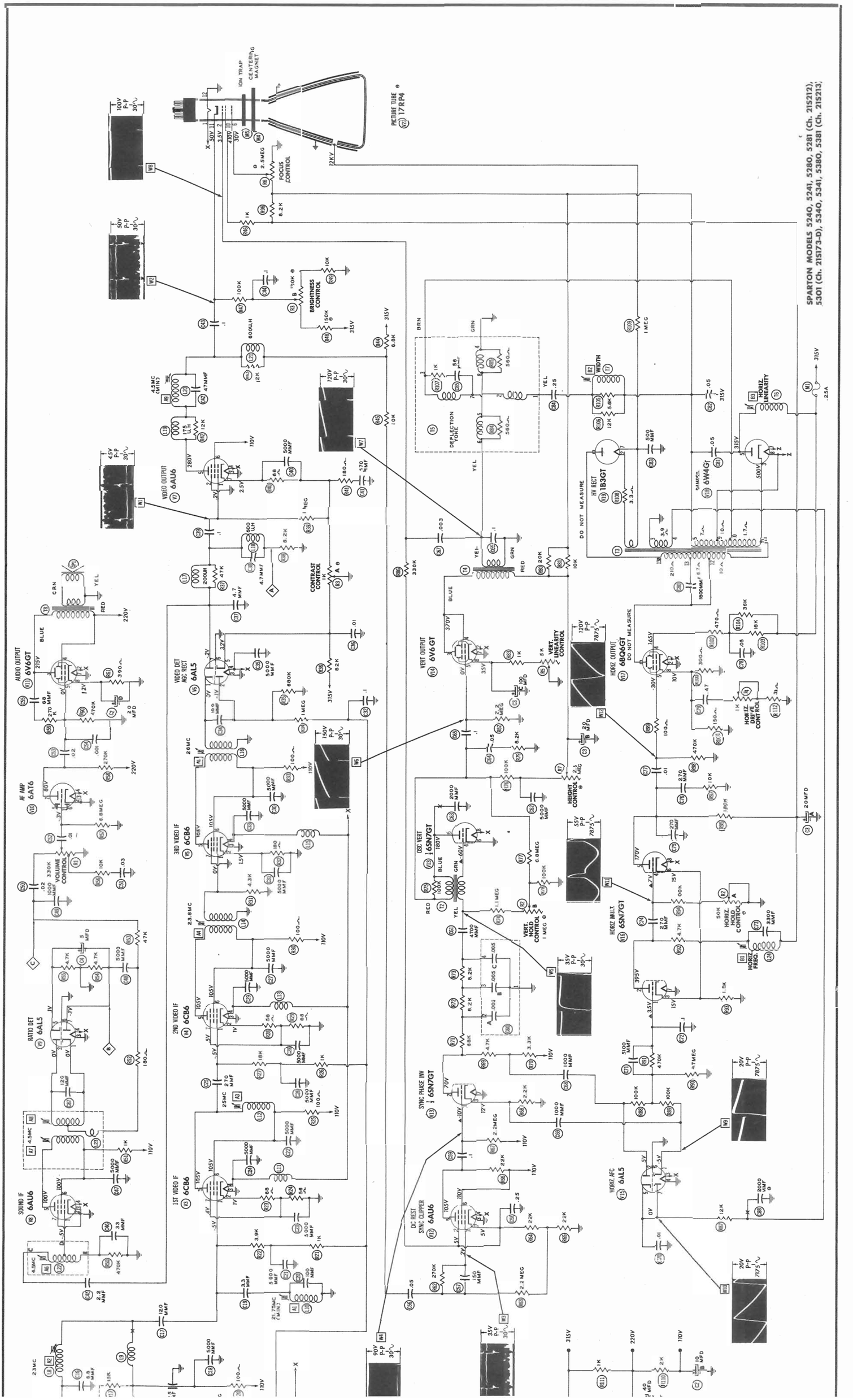
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 215212), 5301 (Ch. 215173-D), 5340, 5341, 5380, 5381 (Ch. 215213)



SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF Tuner Oscillator Circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

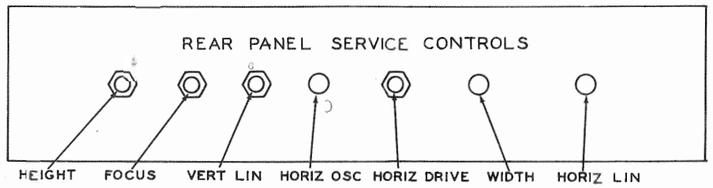
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the Horiz. Oscillator Circuit can be made from the rear panel of the chassis . Set the Horiz. Hold Control at the mid-position of its range and adjust the Horiz. Osc. slug until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector buzz, adjust the Ratio Detector Secondary L23 located on bottom of chassis. (See tube placement chart). Wire screen is removable from bottom of cabinet.

FUSES

One fuse is used for Horiz. Sweep Circuit protection. (See tube placement chart for location).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

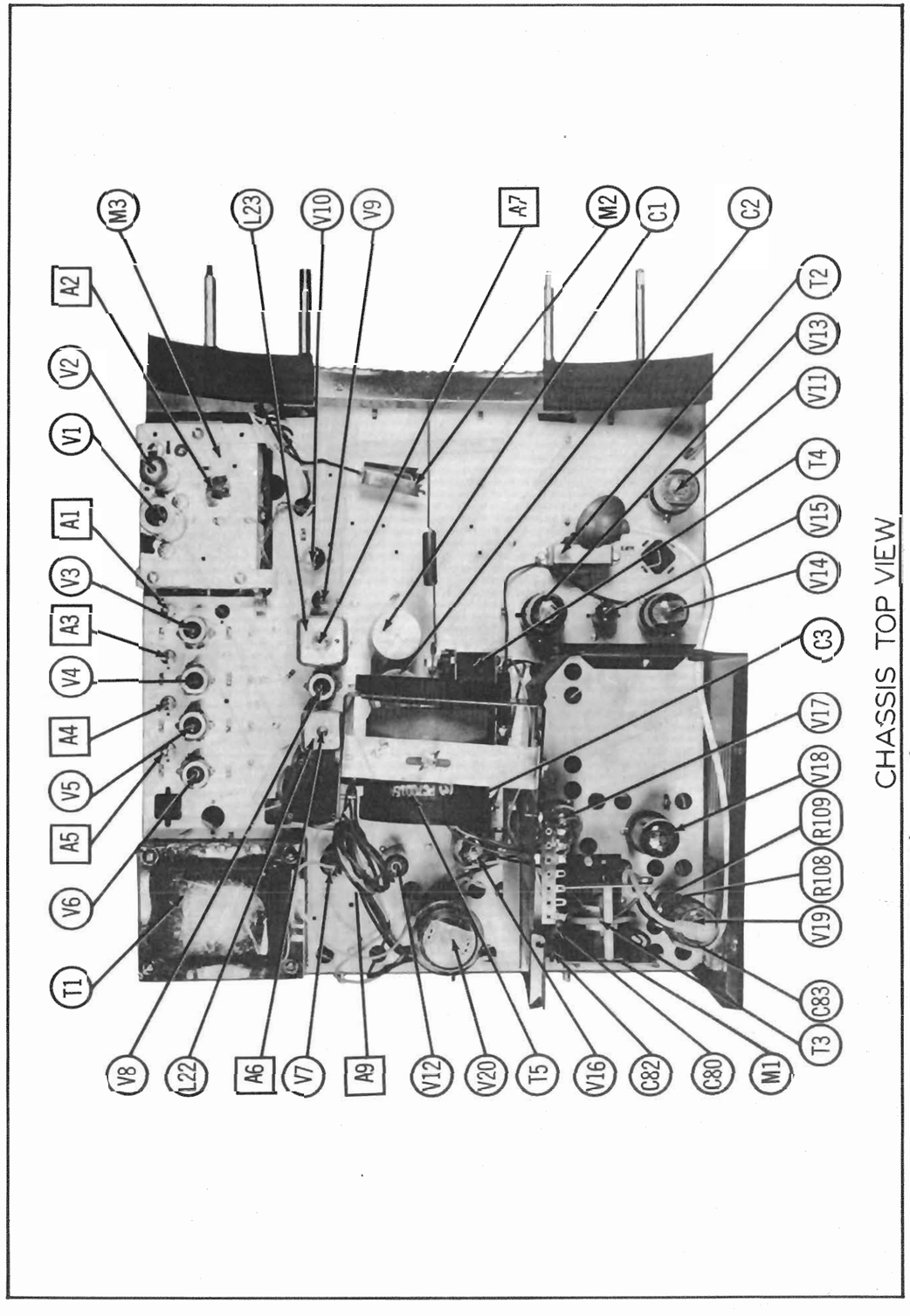
① Remove 8 push on type control knobs from front panel.

② Remove 6 wood & 1 metal screws. Remove rear cover.

③ Disconnect built-in antenna. Remove 2 wood screws. Remove antenna brkt.

④ Disconnect 2 speaker leads. Remove 2 speaker nuts. Remove speaker.

⑤ Remove 4 chassis bolts. Remove chassis.



CHASSIS TOP VIEW

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 215212), 5301 (Ch. 215173-D), 5340, 5341, 5380, 5381 (Ch. 215213)

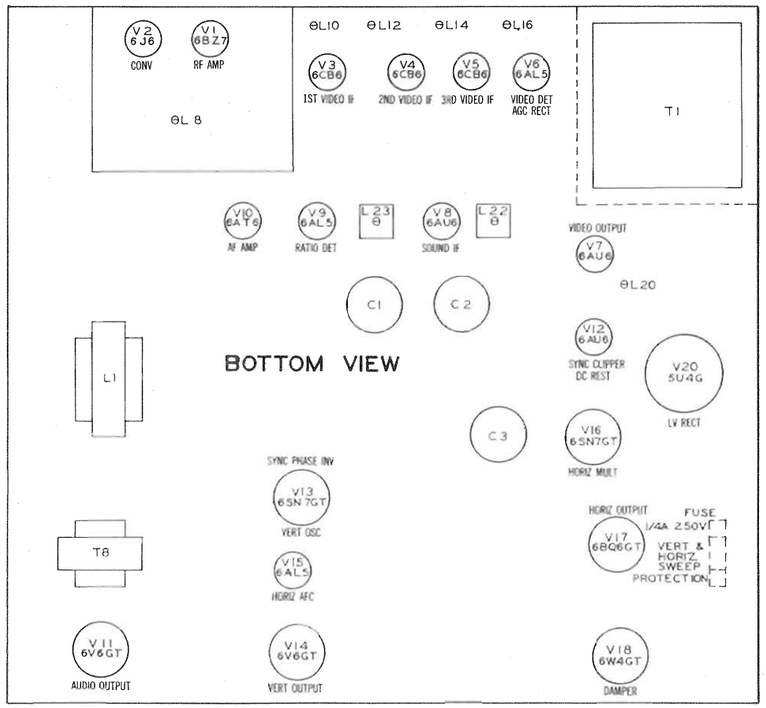
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

RESISTANCE READINGS

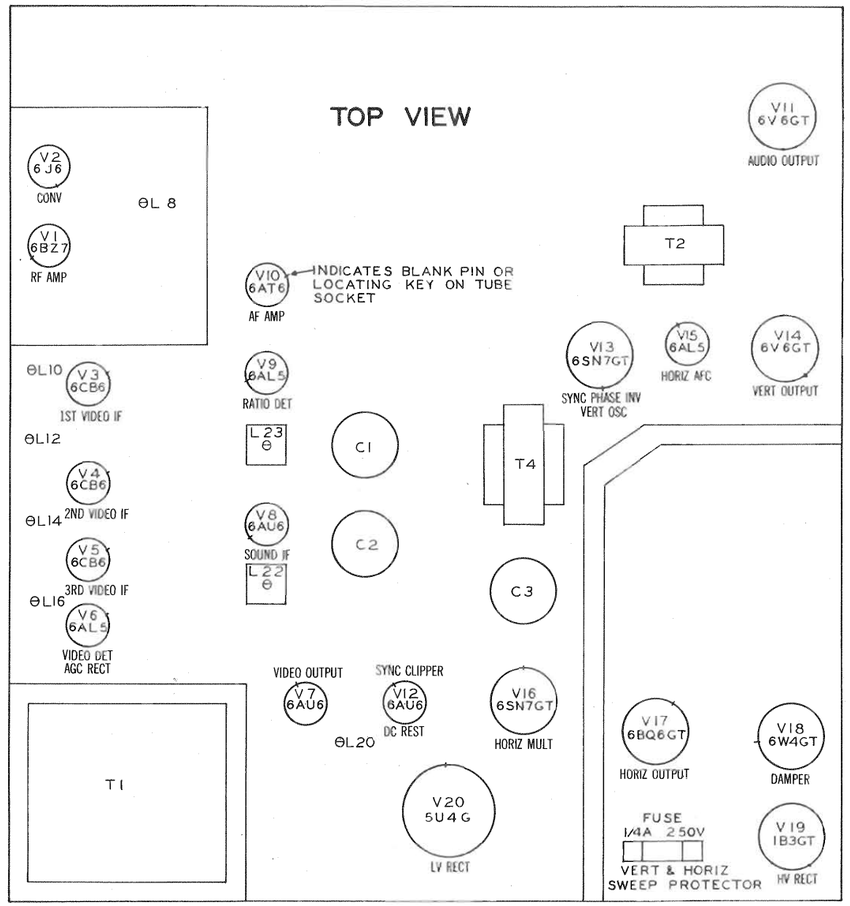
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	1.7Meg	0Ω	.1Ω	0Ω	†2.5KΩ	†160KΩ	INF	0Ω
V 2	6J6	†18KΩ	†3.2KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	1.7Meg	124Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	56Ω		
V 4	6CB6	1.7Meg	124Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	68Ω		
V 5	6CB6	.2Ω	180Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	0Ω		
V 6	6AL5	.2Ω	680KΩ	0Ω	.1Ω	900Ω	0Ω	8.2KΩ		
V 7	6AU6	1 Meg	0Ω	0Ω	.1Ω	†6.9KΩ	†3.1KΩ	140Ω		
V 8	6AU6	470KΩ	0Ω	0Ω	.1Ω	†4.1KΩ	†4.1KΩ	0Ω		
V 9	6AL5	INF	INF	0Ω	.1Ω	4.7KΩ	0Ω	4.7KΩ		
V 10	6AT6	6.8Meg	0Ω	0Ω	.2Ω	INF	INF	†270KΩ		
V 11	6V6GT	INF	.1Ω	†1.4KΩ	†1.1KΩ	470KΩ	740KΩ	0Ω	390Ω	
V 12	6AU6	2.4Meg	44KΩ	0Ω	.1Ω	†25KΩ	†3.1KΩ	44KΩ		
V 13	6SN7GT	†2.2Meg	†11KΩ	2.2KΩ	1.8Meg	#800KΩ	0Ω	0Ω	.1Ω	
V 14	6V6GT	INF	.1Ω	#7.3KΩ	#7.3KΩ	2.2Meg	INF	0Ω	1.8KΩ	
V 15	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	12KΩ	0Ω	12KΩ		
V 16	6SN7GT	5.1Meg	#13KΩ	1.5KΩ	130KΩ	#180KΩ	1.5KΩ	0Ω	.1Ω	
V 17	6BQ6GT	†12KΩ	0Ω	INF	†12KΩ	470KΩ	470KΩ	.1Ω	100Ω	Top Cap #10Ω
V 18	6W4GT	INF	INF	240KΩ	INF	†116Ω	INF	#12Ω	#12Ω	
V 19	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #226Ω
V 20	5U4G	INF	50KΩ	#9.2KΩ	34Ω	INF	31Ω	5Ω	50KΩ	
V 21	17RP4	.1Ω	370KΩ	Pin 6 150KΩ	Pin 10 #9.2KΩ	Pin 11 150KΩ	Pin 12 0Ω			

† MEASURED FROM PIN 8 OF V20.
# MEASURED FROM PIN 3 OF V 18.



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V20

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V21
Has pic, no sound-V8, V9, V10, V11
Overloaded picture-V6

SYNC FAILURE
No vert. sync.-V13
No horiz. sync.-V13, V15, V16
No vert. or horiz. sync.-V12, V13

SWEEP FAILURE
No raster, has sound-V16, V17, V18, V19, V21 Fuse (M1)
No vertical deflection-V13, V14
Poor vert. linearity or foldover-V13, V14
Poor horiz. linearity or foldover-V16, V17, V18
Narrow picture-V16, V17, V18, V19, V20
Vert. off freq.-V13
Horiz. off freq.-V13, V15, V16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removal of the horizontal multivibrator tube (V16) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C32. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	Highs side to an ungounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.75MC (Unmod)	Any	DC probe to point (A) Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	23MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	25MC	"	"	A3	"
4.	"	"	23.8MC	"	"	A4	"
5.	"	"	26MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Leave the 3 volt bias battery connected as under Video IF Alignment.
Connect a 47KΩ resistor in series with the high lead to the vertical amplifier of the scope. Connect a 50MMF capacitor across the input terminals of the vertical amplifier.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24.5MC (10MC Swp)	23.25MC 24MC 25.5MC 26.25MC	Any	Vert amp. thru 47KΩ to point (A) Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A2 thru A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (B) Common to chassis.	A6, A7	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point (C) Common to chassis.	A8	Adjust for a zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp to point (B) Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C4. Adjust for curve of maximum amplitude and symmetry as per Fig. 2.
8.	"	"	"	"	"	Vert. amp to point (C) Low side to chassis.	A8	Reconnect capacitor C4. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to pin 1 (grid) of 6AU6 (V7). Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru crystal diode detector (Fig. 4) to pin 11 of picture tube Common to chassis.	A9	Adjust for MINIMUM deflection.

THE TUNER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD. IF THE TUNER IS DEFINITELY KNOW TO BE MIS-ALIGNED RETURN THE ENTIRE TUNER TO THE FACTORY.

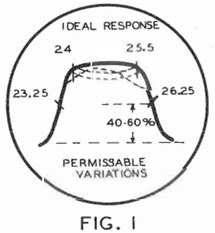


FIG. 1

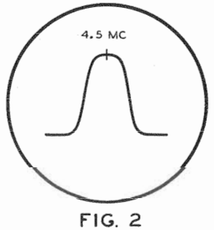


FIG. 2

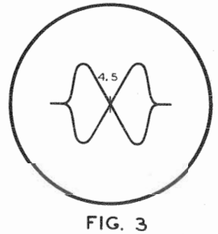


FIG. 3

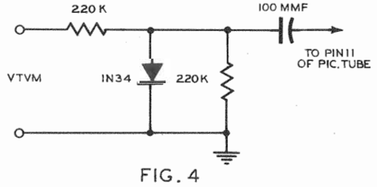
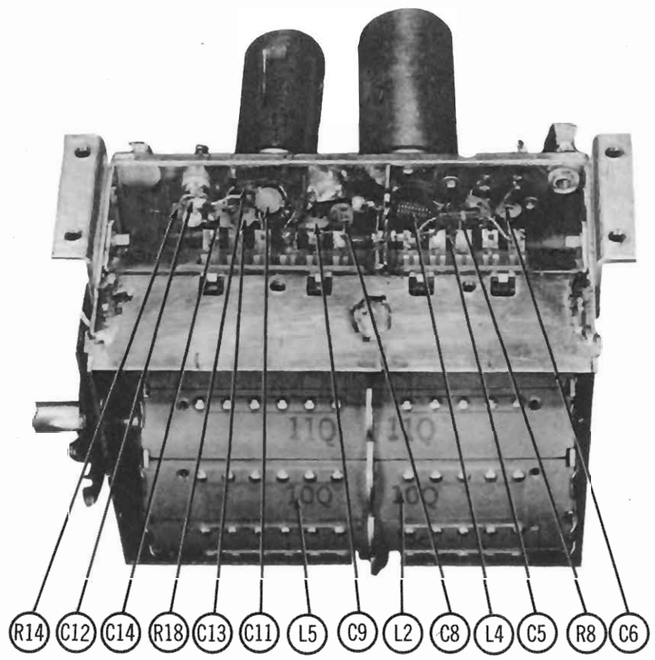
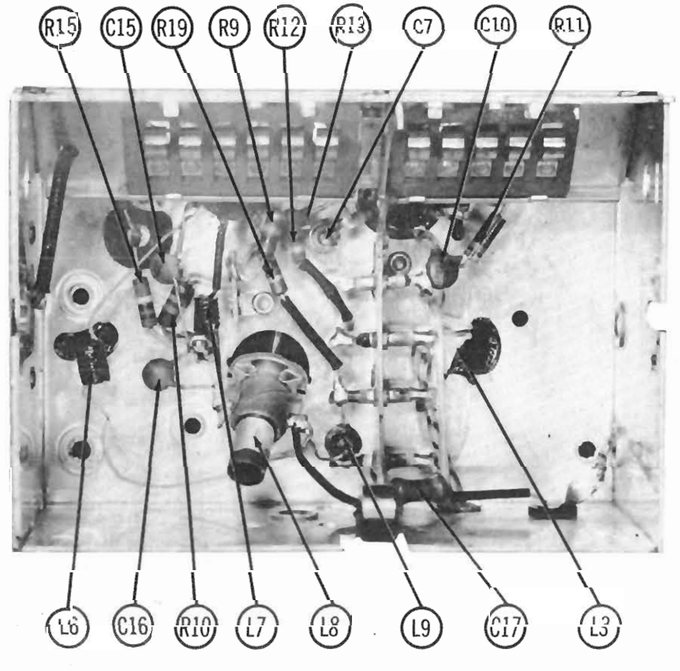


FIG. 4



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 21S212), 5301 (Ch. 21S173-D), 5340, 5341, 5380, 5381 (Ch. 21S213)

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP:

Check yoke for open. Check T7 for open.
Check C84 for open.

INSUFFICIENT SWEEP:

Check setting of horizontal drive control, horizontal linearity, (B3, and width, (B2).
If adjustment of (B2), (B3), and horizontal drive do not correct this trouble, check wave form at W12.

If Satisfactory	If Unsatisfactory
Substitute V17 and V18. Check T3 and other components associated with V17 and V18	Substitute V16. Check associated circuit components.

DRIVE LINES:

Check setting of horizontal drive control.
Substitute V17 and V18. Check C75, C76 and C79.

FOLDS:

Substitute V18. Check C81 and C82.

XMAS TREE EFFECT:

Check C73 for short. Check L24 for short.

VERTICAL

LOSS OF SWEEP:

Substitute V13 and V14. Check waveform at W6.

If Satisfactory	If Unsatisfactory
Check C66, T4 and yoke.	Check C65, R83 and R5 for open. Check T2 for open or shorted winding.

INSUFFICIENT SWEEP:

Check waveform at W6.

If Satisfactory	If Unsatisfactory
Substitute V14. Check C3B and C66 for leakage.	Substitute V13. Check C64, C62 and other components of the vertical oscillator circuit.

COMPRESSED AT BOTTOM:

Substitute V14. Check C3C and C65.

COMPRESSED AT TOP:

Substitute V14. Check components associated with V14. Check T4.

FOLDS:

Substitute V14. Check C65 for leakage.

SYNC

HORIZONTAL

LOSS OF SYNC:

Substitute V12, V13 and V15. Check waveform at W9.

If Satisfactory	If Unsatisfactory
Check components associated with V15.	Check C69, C68 and other components associated with V12 and V13A.

CRITICAL SYNC:

Substitute V12, V13, V15 and V16.

VERTICAL

LOSS OF SYNC:

Substitute V12 and V13. Check signal at W5.

If Satisfactory	If Unsatisfactory
Check C61 and other components associated with V13B.	Check vertical integrator network and components associated with V12 and V13A.

CRITICAL SYNC:

Substitute V12 and V13. Proceed as outlined under Vertical, Loss of Sync.

TRIGGERING:

Substitute V13. Check components associated with V13B. Check filament dress near vertical oscillator and sync tubes.

VIDEO

SOUND BARS:

Check adjustment of 4.5MC trap, (A9). Check adjustment of local oscillator.

POOR RESOLUTION:

Substitute V1, V2, V3, V4 and V5. Check components of the video IF strip for change of value.
Check alignment as outlined in the alignment table.

POOR CONTRAST:

Substitute V6 and V7. Check components associated with V6 and V7.
Check bypass capacitors associated with V3, V4, V5, V6 and V7.

SMEAR:

Substitute V6 and V7. Check peaking coils L17, L18, L19 and L21 for open. Check R44 and R45 for change of value. Check video coupling capacitors C39 and C43.

ONE WIDE BLACK BAR ACROSS PICTURE:

Check RF tuner, video IF and video tubes for heater to cathode leakage.

TWO WIDE BLACK BARS ACROSS PICTURE:

Check L1 for short. Check filter capacitors C1 and C2 for open.

TROUBLE SHOOTING AIDS – CONT.

AUDIO

WEAK OR NO SOUND:

Substitute V8, V9, V10 and V11. Check associated circuit components. Check sound IF alignment and adjustment of ratio detector.

BUZZ:

Check adjustment of ratio detector secondary (A8). If this does not correct troubles substitute V9 and readjust (A8).

DISTORTED:

Substitute V8, V9, V10 and V11. Check audio amplifier and output stages using audio signal generator. If no distortion is present check circuits of V8 and V9. Check associated components.

POWER

SMALL RASTER:

Substitute V20. Check component of B+ circuit.

DIM PICTURE WEAK SOUND:

Substitute V20. Check filter network for leakage of capacitors and shorts.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE:

Substitute V16, V17, V18 and V19. Check waveform at W12.

If Satisfactory	If Unsatisfactory
Check C80, T3 and other components associated with V17, V18 and V19.	Check C74, C75 and C77. Check other components associated with V16.

WEAK HIGH VOLTAGE:

Substitute V16, V17, V18 and V19. Proceed as outlined under LOSS OF HIGH VOLTAGE.

BLOOMING:

Substitute V19. Check R108, R109 and C83.
Check high voltage transformer, (T3).

GENERAL

NO PICTURE, NO SOUND, NO SNOW:

Substitute V1 and V6.

WEAK PICTURE, WEAK SOUND: (STRONG SIGNAL AREAS)

Substitute V2, V3, V4 and V5.

SOUND, NO PICTURE:

Substitute V7. Check components of video amplifier stage.

SNOWY PICTURE, GOOD SOUND: (STRONG SIGNAL AREAS)

Substitute V2, V3, V4 and V5. Check components of video IF stages.

INTERMITTANT STREAKS:

Check high voltage section for corona discharge and arcing.

Symptoms shown above are assumed and are not indicative of the quality and workmanship of this receiving equipment.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SPARTON PART No.	REPLACEMENT DATA MILLER PART No.	NOTES
L2	Ant. Coils	0ΩCT	0Ω			
L3	Fil. Choke	0Ω				
L4	Neutr. Coil	0Ω				
L5	RF Mixer Grid & Osc. Coils	0Ω				
L6	Fil. Choke	0Ω				
L7	RF Choke	0Ω				
L8	1st Video IF	1.2Ω				
L9	RF Choke	1.5Ω				
L10	Sound Trap	0Ω		AB43523-14	6171	
L11	Fil. Choke	0Ω		AA6651-1		
L12	2nd Video IF	.1Ω		AA6408-1	6188	
L13	Fil. Choke	0Ω		AA6651-1		
L14	3rd Video IF	.2Ω	.2Ω	AA6409-1		
L15	Fil. Choke	0Ω		AA6651-1		
L16	4th Video IF	.2Ω	.2Ω	AA6409-1		
L17	Series Peaking Coil	10Ω		AA6613-4	6180	200 Microhenries.
L18	Shunt Peaking Coil	18.5Ω		AA6613-8	4650	600 Microhenries.
L19	Series Peaking Coil	9.5Ω		AA6613-9	6180	175 Microhenries.
L20	4.5MC Trap	2Ω		AA6407-1	1470	
L21	Shunt Peaking Coil	18.5Ω		AA6613-8		600 Microhenries.
L22	Sound IF	5.8Ω		AA6667-6		Tapped @ 3.2Ω.
L23	Ratio Det.	4.8Ω	1.5ΩCT	AA6684-4	6205†	Tertiary Winding .6Ω.
L24	Horiz. Osc.	77Ω		AA6410-1	6210	

† Use adaptor plate.

FUSES

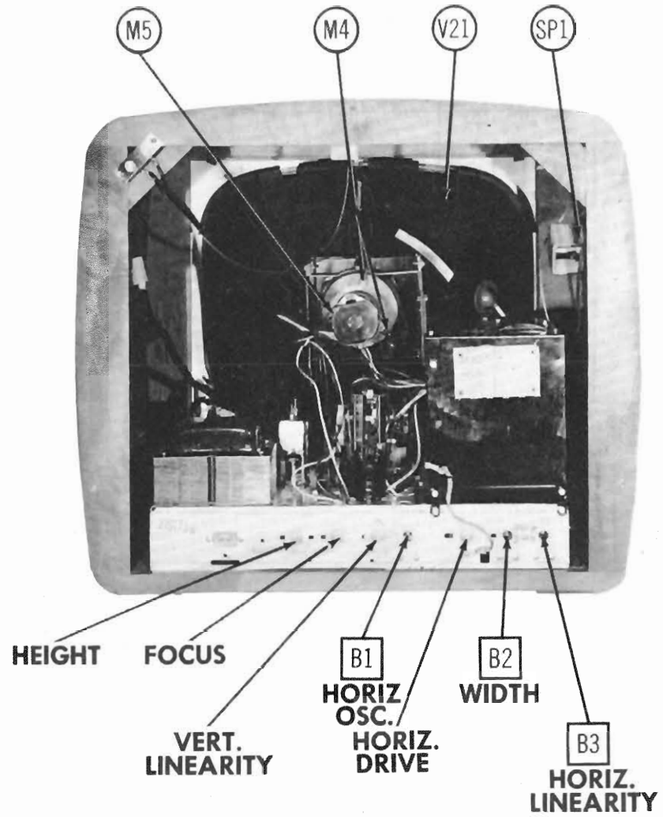
ITEM No.	TYPE	RATING	REPLACEMENT DATA SPARTON PART No. FUSE	SPARTON PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG P/T	1/4A 250V	PA4212-1		318.250 (3AG-1/4A P/T)		GJV 1/4	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SPARTON PART No.		NOTES
M2	Bayonet	6-8	.15	Brown			Type No. 47.

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
M3	RF Tuner	PD93174	
M4	Centering Magnet		
M5	Ion Trap	PA1248-4	
	Knob	AA6392-1	Off/On Volume (Model 5240, 5241, 5280, 5281).
	Knob	PA4436-3	Off/On Volume (Model 5301).
	Knob	AB43596-1	Off/On Volume (Model 5340, 5380).
	Knob	AB43596-2	Off/On Volume (Model 5341, 5381).
	Knob	PB40332	Channel Selector (Model 5240, 5241, 5280, 5281).
	Knob	AB43593-1	Channel Selector (Model 5301).
	Knob	AB43593-1	Channel Selector (Model 5340, 5380).
	Knob	AB43593-2	Channel Selector (Model 5341, 5381).
	Knob	PB40346	Fine Tuning (Model 5240, 5241, 5280, 5281).
	Safety Glass	PB40354-3	Models 5240, 5241, 5280, 5281, 5340, 5341, 5380, 5381.
	Safety Glass	PD93036-1	Model 5301.
	Mask	PD93058	Models 5240, 5241, 5280, 5281, 5340, 5341, 5380, 5381.
	Mask	PD93035-2	Model 5301.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the mid-point of its range and adjust the horizontal oscillator slug (B1) until the picture synchronizes horizontally.

Turn the horizontal drive control to the maximum clockwise rotation without compression of the center of the picture.

Adjust the width slug (B2) for a picture slightly wider than enough to fill the picture mask.

Adjust the horizontal linearity slug (B3) for a picture that is symmetrical from left to right.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BZ7	6BZ7	9AJ	
B	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector - AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	6AU6	6AU6	7BK	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AF Amplifier	6AT6	6AT6	7BT	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	Sync. Clipper - DC Restorer	6AU6	6AU6	7BK	
V13	Sync. Phase Inv. - Vert. Oscillator	6SN7GT	6SN7GT	6BD	
V14	Vert. Output	6V6GT	6V6GT	7S	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6SN7GT	6SN7GT	6BD	
V17	Horiz. Output	6BQ7GT	6BQ7GT	6AM	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V21A	17RP4	17RP4		12C	
B	17HP4	17HP4		12C	
C	17KP4			12C	
D	21FP4A	21FP4A		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	475	PA4307-13	AFH2-72		BO45		FP262	TVL-2830	
B	▲40	475								
C2A	▲40	450	PA4307-27	AFH4-84		DO65		FP429	TVL-4736	
B	▲10	350								
C	■40	400								
D	20	25								
C3A	▲20	450	PA4307-30	AFH4-80		DO53		FP437	TVL-4740	
B	▲20	450								
C	100	50								
C4	5	50	PA4308-2	PRS150/4		BR550		TC30	TVA-1303	
C5	2.2				TCZ-2.2		NP0K-2R2			5TCCB-V22
C6	3-9				829-10					
C7	.5-3				829-3			CT565A		
C8	1.5			SI15.NP0	TCZ-1.5		NP0K-1R5	ZT-5515		5TCCB-V15
C9	47			BPD-000047	D6-470	TM5Q5	GP1K-470	UC-5447		5GA-Q47
C10	1000			BPD-001	DD-102	TM5D1	811-001	DC-521		5HK-D1
C11	47			BPD-000047	D6-470	TM5Q5	GP1K-470	UC-5447		5GA-Q47
C12	.5-3				829-3			CT565A		
C13	10			SI10NP0	TCZ-10		NP0K-100	ZT-541		5TCC-Q1
C14	5			SI5N750	TCN-5		N750K-050	NT-555		5TCU-V5
C15	1000			BPD-001	DD-102	TM5D1	811-001	DC-521		5HK-D1
C16	3.8			SI6.8N1P0	TCZ-6.8		NP0K-6R8	ZT-5568		5TCCB-V68
C17	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312		5GA-T12
C18	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C19	3.3		PA4326-4	SI3.3N1P0	TCZ-3.3		NP0K-3R3	ZT-5533		5TCCB-V33
C20	100		PA4332-3	SI100NP0	TCZ-100		NP0-333-101	ZT-531		5TCC-T1
C21	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C22	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C23	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C24	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C25	270		HK36M-271	SI270	D6-271		GP2K-271	UC-5327		5GA-T27
C26	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C27	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C28	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C29	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C30	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C31	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525		5HK-D5
C32	.1	200	PC40GK-104	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C33	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C34	100		HK36M-101	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C35	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C36	.01	400	PC40GL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C37	4.7		PA4328-11	SI4.7N1P0	TCZ-4.7		NP0K-4R7	ZT-555	5TCCB-V47	
C38	4.7		PA4321-11	SI4.7N1P0	TCZ-4.7		NP0K-4R7	ZT-555	5TCCB-V47	
C39	.1	200	PC40HK-104	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C40	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C41	470	500	MC60F-471	1468-0005	D6-471	5W5T5	GP1K-471	MC245	1FM-35	
C42	47		CC30A-470F	SI47NP0	TCZ-47		NP1K-470	ZT-5447	5TCC-Q47	
C43	.1	400	PC40HL-104	P488-1	DF-104	PTE4P1		PT401	2TM-P1	
C44	.1	200	PC40HK-104	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C45	2.2		PA4326-1		TCZ-2.2		NP0K-2R2			5TCCB-V22
C46	33	500	MC60E-330							
C47	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C48	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C49	1000		HK36M-102	SI1000	D6-102	TM5D11	GP1L-102	UC-521	5HK-D1	
C50	.02	400	PC40HL-203	P488-02	DF-203	PTE4S2		PT402	4TM-S2	
C51	.03	200	PC40GK-303	P488-03		PTE4S3		PT413	4TM-S3	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C52	.01	400	PC40HL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C53	.02	600	PC40HM-203	P888-02	DF-203	PTE6S2		PT612	6TM-S2	
C54	.001	600	PC40GM-102	P888-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C55	68	500	MC60E-680	1469-00007	D6-680	5W5Q7	GP1K-680	UC-5468	5GA-Q68	
C56	.05	400	PC40GL-503	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C57	150	500	MC60F-151	1468-00015	D6-151	5W5T15	GP2K-151	MC236	1FM-315	
C58	.25	200	PC40HK-254	P488-25		PTE4P25		PT4025	2TM-P25	
C59	.1	400	PC40GL-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C60A	.002			P888-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
B	.005		PA4339-4	P888-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C	.005	500		P888-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C61	4700	500	MC61F-472	1464-009		1DR5D5		MCB465	MS-25	
C62	5000		PA4334-1	BPD-005	DB-502	TM5D5	811-005	DC-525	5HK-D5	
C63	2000	500	MC61E-202	1464-003		1DR5D2		MCB457	MS-22	
C64	.05	400	PC40GL-503	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C65	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C66	.1	200	PC42GK-104	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C67	.002	600	PC40GM-302	P888-002	DF-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C68	1000	500	MC61E-102	1467-001	D6-102	1W5D1	GP2L-102	MC255	1FM-21	
C69	1000	500	MC61E-102	1467-001	D6-102	1W5D1	GP2L-102	MC255	1FM-21	
C70	.01	400	PC40FL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C71	5100	500	MC61E-512							
C72	.1	200	PC40FK-104	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C73	3300	500	MC63F-332							
C74	270	500	MC60E-271							
C75	270	500	MC60E-271							
C76	270	500	MC60E-271							
C77	.01	400	PC40GL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C78	.05	400	PC40HL-503	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C79	.47	200	PC42GK-474	P288-47		PTE4P47		PT405	2TM-P47	
C80	1800	500	MC61E-182							
C81	.05	400	PC40GL-503	P488-05		PTE4S5		PT415	4TM-S5	
C82	.05	400	PC40GL-503	P488-05		PTE4S5		PT415	4TM-S5	
C83	500	20000	PA4342-2	HV20C	TV3-502	MM-C20T5	413-501		20DK-T5	
C84	.25	400	PC40GL-254	P488-25		PTE4P25		PT4025	4TM-P25	
C85	56	2000	PA4334-5							
C86	.047	600	PA4346-1	689ZX-05		PJ6S47		PT6147	6TM-S47	
C87	120		PA4332-4		TCZ-120		NP0-333-121			
C88	2000	500		1464-002		1DR5D2		MCB467	MS-22	Note 1

Note 1. Not used in all Models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	330KΩ	½	PA4436-3	Q18-132X	AK-69		UT-425	Volume Tap ⓐ 60KΩ-Note 1
B	Shaft		PA4436-4 ①	C3	KSS-5		DS-36	Attach to R1A
C	Switch			76-1	SWB		US-26	Attach to R1A
R2A	50KΩ	½	PA4456-IC	QJ-431*			UF54L	Horiz. Hold -Panel-Note 4
B	1 Meg	½	PA4456 ①				UR16L	Vert. Hold - Rear
R3A	1000Ω	2	PA4458-1	QJ-432**			VF13	Contrast-Wire Wound-Panel-Note 5
B	100KΩ	½	PA4458 ①				UR15L	Brightness-Rear
R4A	10000	2	PA4446	WK-1000	A43-1000		R1000L	Horiz. Drive-Wire Wound
E	Shaft		Not Req.	Not Req.	FKS-1/4		Not Req.	Attach to R4A
R5A	5000Ω	2	PA4411	WK-5000	A43-5000	VK-135	R5000L	Vert. Linearity-Wire Wound
E	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R5A
R6A	2.5Meg	½	PA4454	Q11-239	AG-84-S	AB-83	SU-565	Focus-Note 2
E	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	2.5Meg	½	PA4454	Q11-239	AG-84-S	AB-83	SU-565	Height-Note 3
E	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A

① Used only in chassis No. 215213.

Note 1. Chassis No. 215212 uses alternate control part No. PA4436-1 in this application.
Note 2. Chassis No. 215212 uses alternate control part No. PA4452 in this application.
Note 3. Chassis No. 215212 uses alternate control part No. PA4431 in this application.
Note 4. Chassis No. 215212 uses single controls. Horiz. hold part No. PA4444-3. Vert. hold part No. PA4443-3.
Note 5. Chassis No. 215212 uses single controls. Contrast part No. PA4453-1. Brightness part No. PA4445-3.

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-123 & P2-226 (Panel) 811-137 & R1-308 (Rear).

** CONCENTRIKIT EQUIVALENT - KIT K-3, BASE ELEMENTS & SHAFTS W11-108 & P3-226 (Panel) 811-128 & R1-312 (Rear).

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R8	15KΩ			BTS-15K	
R9	100KΩ				
R10	160KΩ-5%			BTS-160K-5%	
R11	47KΩ				
R12	1500Ω			BTS-1500	
R13	100KΩ-5%			BTS-100K-5%	
R14	10KΩ				
R15	220KΩ			BTS-220K	
R16	10Ω				
R17	15KΩ				
R18	10KΩ				
R19	15KΩ				
R20	100Ω			BTS-100	
R21	1000Ω			BTS-1000	
R22	3900Ω-5%			BTS-3900-5%	
R23	68Ω				
R24	56Ω				
R25	100Ω			BTS-100	
R26	1000Ω			BTS-1000	
R27	18KΩ-5%			BTS-18K-5%	
R28	56Ω				
R29	68Ω				

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R30	100Ω			BTS-100	
R31	4300Ω-5%			BTS-4300-5%	
R32	180Ω			BTS-180	
R33	100Ω			BTS-100	
R34	1 Meg			BTS-1 Meg	
R35	680KΩ			BTS-680K	
R36	82KΩ	2		BTS-82K	
R37	47KΩ-5%			BTS-47K-5%	
R38	8200Ω-5%			BTS-8200-5%	
R39	1 Meg			BTS-1 Meg	
R40	68Ω				
R41	180Ω-5%			BTS-180-5%	
R42	12KΩ-5%			BTS-12K-5%	
R43	12KΩ-5%			BTS-12K-5%	
R44	6800Ω-5%	1		BTA-6800-5%	
R45	10KΩ			BTS-10K	
R46	1000Ω			BTS-1000	
R47	100KΩ			BTS-100K	
R48	150KΩ			BTS-150K	
R49	10KΩ			BTS-10K	
R50	470KΩ				
R51	1000Ω			BTS-1000	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R52	180Ω-5%			BTS-180-5%	
R53	47KΩ			BTS-47K	
R54	4700Ω-5%			BTS-4700-5%	
R55	4700Ω-5%			BTS-4700-5%	
R56	10KΩ			BTS-10K	
R57	6.8Meg			BTS-6.8Meg	
R58	270KΩ			BTS-270K	
R59	270KΩ			BTS-270K	
R60	470KΩ			BTS-470K	
R61	390Ω	1		BTA-390	
R62	270KΩ			BTS-270K	
R63	2.2Meg			BTS-2.2Meg	
R64	22KΩ			BTS-22K	
R65	22KΩ			BTS-22K	
R66	22KΩ			BTS-22K	
R67	2.2Meg			BTS-2.2Meg	
R68	22000Ω-5%			BTS-3200-5%	
R69	4700Ω-5%			BTS-4700-5%	
R70	3300Ω-5%			BTS-3300-5%	
R71	82KΩ			BTS-82K	
R72	8200Ω			BTS-8200	
R73	8200Ω			BTS-8200	
R74	1.1Meg-5%			BTS-1.1Meg-5%	
R75	100KΩ			BTS-100K	
R76	100KΩ			BTS-100K	
R77	6.8Meg			BTS-6.8Meg	
R78	100KΩ			BTS-100K	
R79	8200Ω			BTS-8200	
R80	20KΩ	1			
R81	10KΩ	2		BTB-10K	
R82	2.2Meg	½		BTS-2.2Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	NOTES
R83	1000Ω	1		BTA-1000	
R84	560Ω			BTS-560	
R85	560Ω			BTS-560	
R86	330KΩ			BTS-330K	
R87	12KΩ	2		BTB-12K	
R88	100KΩ			BTS-100K	
R89	100KΩ			BTS-100K	
R90	4.7Meg			BTS-4.7Meg	
R91	470KΩ			BTS-470K	
R92	4700Ω-5%			BTS-4700-5%	
R93	1500Ω-5%			BTS-1500-5%	
R94	100KΩ	2		BTS-100K	
R95	180KΩ-5%			BTS-180K-5%	
R96	8200Ω	2		BTB-8200	
R97	10KΩ			BTS-10K	
R98	470KΩ			BTS-470K	
R99	100Ω				
R100	300Ω-5%	1		BW-1-300-5%	
R101	150Ω	2		BW-2-150	
R102	470Ω	2			
R103	18KΩ	2		BTB-18K	
R104	36KΩ-5%	1		BTA-36K-5%	
R105	5600Ω	2		BTB-5600	
R106	12KΩ	1		BTA-12K	
R107	1000Ω	1		BTS-1000	
R108	3.3Ω	1			
R109	1 Meg	1			
R110	2000Ω	10		3/4A-200	
R111	1000Ω	10		3/4A-100	
R112	39Ω	1			

Note : Some models use a 180KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC.	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA Type No.
T1	117VAC @1.74A	680VCT .210ADC	5VAC @ 3A	6.3VAC @1.2A SEC. 4 6.3VAC @ 7.4A	AB44027-1		P-3070		R-39BC	

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	RCA Type No.	NOTES
T2	150Ω	820Ω	AB44060-3	A-8111	A-3000	TBO-5 ①	A-97X	208T2 ③	Vert. Osc. Trans.
T3	245Ω tap @ 7Ω, 17Ω, 18.7Ω, 28.7Ω, 35.4Ω	SEC. 2 0Ω	PC-70015B						Horiz. Output Trans.
T4	670Ω	6.2Ω	AB44062-5	A-8115 ①	A-3035 ①	TSO-1 ①	A-107X①	204T2 ①	Vert. Output Trans.
T5 A	15Ω		PC70016A	DY-9A	MDF-70	TY-5	Y-21	206D1	Horiz. Deflection Coils
B	60Ω								Vert. Deflection Coils
T6	8Ω		AA6400-5				YC-12	213R1	Horiz. Lin. Coil
T7	5Ω		AA6400-4		MWC-2 ②				Width Coil

① Drill one new mounting hole.
② Enlarge mounting hole.
③ Mount on top of chassis.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T8	6.4KΩ	3.6Ω	26Ω	.32Ω	AB44066-3	A-3823	A-3020	RO-13 ①	S-92	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V.C. IMP.	REPLACEMENT DATA: SPARTON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.6Ω	PC63000-43	ST-105 Mod. P5-X	5A07	① 10" Speaker

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ~(.)	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.210A	108Ω	3HY	AB-47009-1		C-2994	TF-3300 ①	C-15X

① Drill one new mounting hole.

SPARTON MODELS 5240, 5241, 5280, 5281 (Ch. 215212), 5300 (Ch. 215173-D), 5340, 5341, 5380, 5381 (Ch. 215213)