A.W.A. RADIOLA TELEVISION RECEIVER CHASSIS 50-00 SERIES

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

The 50-00 series chassis is an 18-valve, vertically mounted, mains-operated, hand-wired, chassis using the easily serviced hinge-down construction. It features a 14-channel neutrode tuner, a 3-stage video I.F., ratio detector, stabilised horizontal and vertical scanning.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

INTERMEDIATE FREQUENCIES

Video I.F. Carrier Frequency .... 36.875 Mc/s

Sound I.F. Carrier Frequency .... 31.375 Mc/s

POWER CONSUMPTION .... 170 watts maximum

UNDISTORTED AUDIO POWER OUTPUT ..... 2 watts

FOCUS .... Electrostatic (Low Voltage)

DEFLECTION .... 110° Magnetic

TUNER TYPE .... TB Series
(Refer Tuner Service Manual for Electrical Specifications and Alignment Procedure.)

VALVE AND DIODE COMPLEMENT

1.	V1	Radiotron	6GK5	R.F. Amplifier
2.	V2	Radiotron	6HG8	R.F. Osc. and Mixer
3.	V101	Radiotron	6AU6	Sound I.F.
4.	V102	Radiotron	6AL5	Ratio Detector
5.	V103	Radiotron	6AV6	Audio Amp.
6.	V104	Radiotron	6AQ5	Audio Output
7.	V201	Radiotron	6BZ6	1st Video I.F.
8.	V202	Radiotron	6CB6	2nd Video I.F.
9.	V203	Radiotron	6CB6	3rd Video I.F.
10.	V204	Radiotron	6EB8	Video Amp. and Sync. Sep.
11.	V205	Radiotron	23GSP4 or 25TP4	Picture Tube
12.	V301	Radiotron	6CB6	A.G.C. Amplifier
13.	V302	Radiotron	6GV8	Vert. Osc. and Output
14.	V401	Radiotron	6AL5	Phase Discriminator
15.	V402	Radiotron	12AU7A	Horizontal Oscillator
16.	V403	Radiotron	6CM5	Horizontal Output
17.	V404	Radiotron	6AU4-GTA	Damper
18.	V405	Radiotron	1B3-GT	H.V. Rectifier
	MR201		IN87A	Video Detector
	MR202		IN3193	Spot Suppressor
	MR401		IN3194	Rectifier
	MR402		IN3194	Rectifier

April, '67

CIRCUIT A.W.A. TELEVISION RECEIVER CHASSIS — 50-00 SERIES

(Tuner Circuit see over)

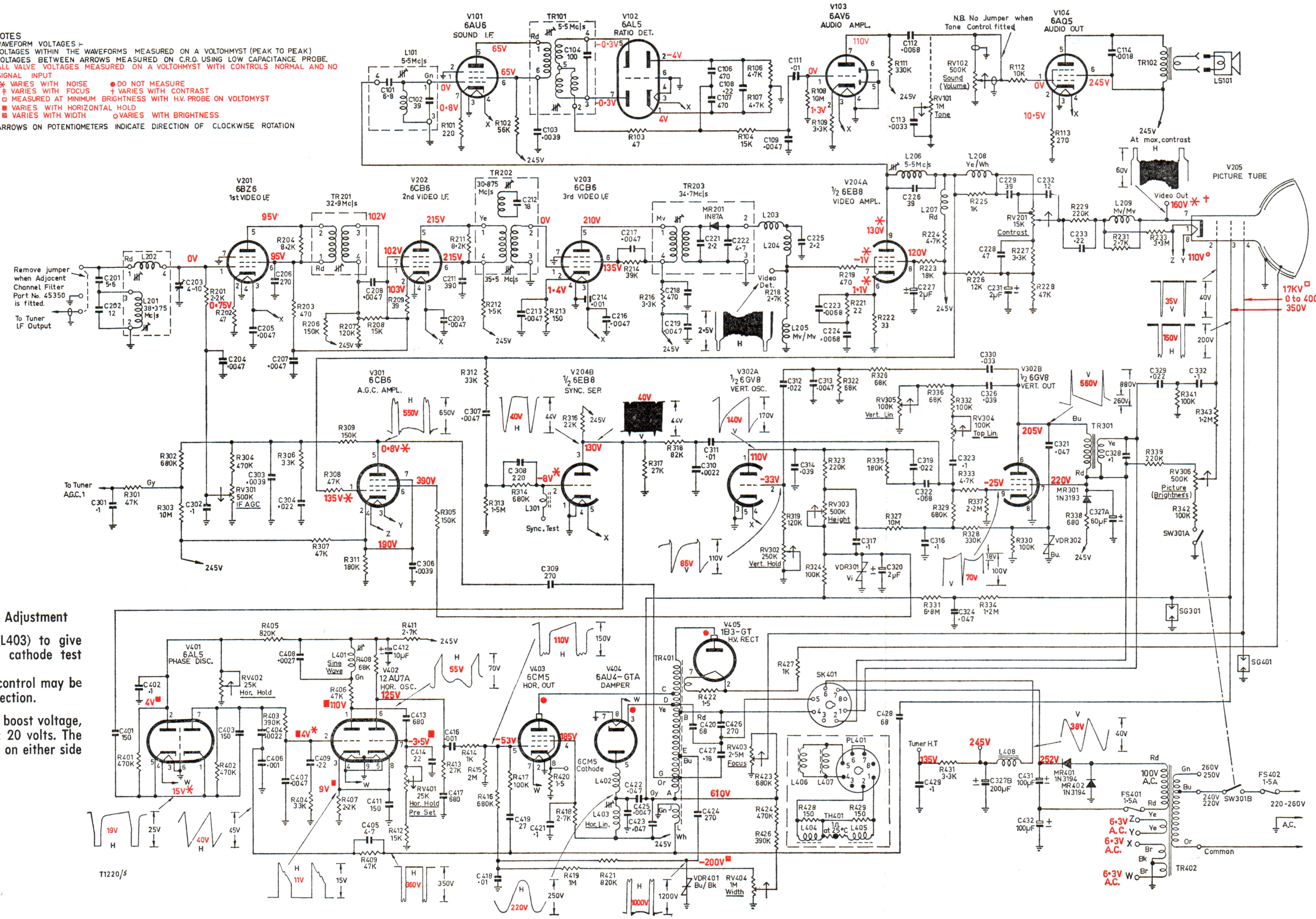
2nd Edition August, 1969

NOTES

① WAVEFORM VOLTAGES :-
VOLTAGES WITHIN THE WAVEFORMS MEASURED ON A VOLTOHMYST (PEAK TO PEAK)
VOLTAGES BETWEEN ARROWS MEASURED ON C.R.O. USING LOW CAPACITANCE PROBE.

② ALL VALVE VOLTAGES MEASURED ON A VOLTOHMYST WITH CONTROLS NORMAL AND NO SIGNAL INPUT
- ✳ VARIES WITH NOISE
- ● DO NOT MEASURE
- ǂ VARIES WITH FOCUS
- † VARIES WITH CONTRAST
- □ MEASURED AT MINIMUM BRIGHTNESS WITH H.V. PROBE ON VOLTOMYST
- ■ VARIES WITH HORIZONTAL HOLD
- ⊠ VARIES WITH WIDTH
- ○ VARIES WITH BRIGHTNESS

③ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION



Revised Horizontal Linearity and Width Adjustment

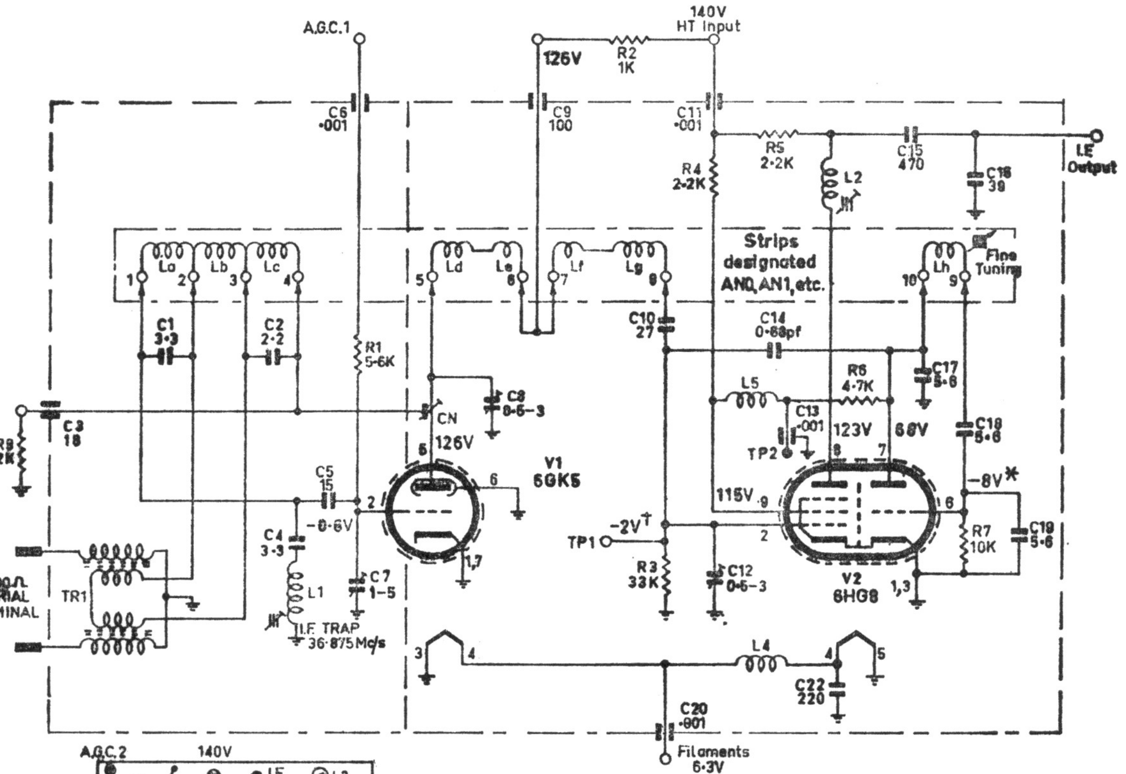
Adjust the horizontal linearity coil (L403) to give minimum voltage reading at the 6CM5 cathode test point (across R420).

N.B.—From this position the linearity control may be set no more than two turns in either direction.

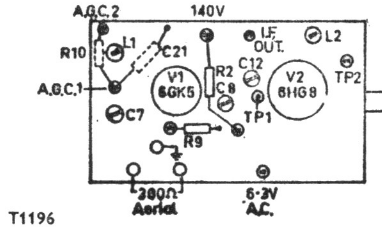
Set the width control (RV404) to give B boost voltage, at junction of C422 and C423, of 610 ± 20 volts. The width should not overscan more than ¾″ on either side with nominal 240 volts mains.

FIELD TEST SHEET 50-00 SERIES

TB Series Neutrode Turret Tuner



NOTES † Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1·4V without loss of gain.
* Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V (Ch11) to −12V (Ch0).
N.B. TP2 used for Tuner Sweep Alignment.



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COMPONENT REPLACEMENTS

	ITEM	PART or CODE No.
L101	Sound I.F.	43336
L201	38.375 Mc/s Trap	43580
L202	Video I.F. Input	43580
L203	Detector Filter	40323
L204	Detector Filter	49671
L205	Detector Peaking Coil	41423
L206	5.5 Mc/s Trap	43593
L207	Video Ampl. Shunt Peaking	40117
L208	Video Ampl. Peaking	45090
L209	Video Ampl. Series Peaking	41423
L401	Sine Wave Coil	52150
L402	H.F. Choke 1.5 μH	214516
L403	Horizontal Linearity	43264
L404–7	Yoke	43665
L408	H.T. Filter	51571/001
TR101	Ratio Detector	40077
TR102	Speaker Transformer	*
TR201	1st Video I.F.	40902
TR202	2nd Video I.F.	41407
TR203	3rd Video I.F.	41933
TR301	Vertical Output	43340/001
TR401	Horizontal Output	52536
TR402	Power Transformer	51839/003
RV101	1 Megohm Curve C Carbon, Tone	*
RV102	500K ohms Curve C Carbon, Volume	*
RV201	15K ohms Linear Carbon, Contrast	620226
RV301	200K ohms Curve A Carbon, I.F. A.G.C.	620487
RV302	500K ohms Curve A Carbon, Vert. Hold	620466
RV303	500K ohms Curve A Carbon, Height	620569
RV304	100K ohms Curve A Carbon, Top Lin.	620322
RV305	100K ohms Curve A Carbon, Vert. Lin.	620322
RV306	500K ohms Curve A Carbon, Brightness	*
RV401	50K ohms Curve A Carbon, Pre-set Hor. Hold	620293
RV402	25K ohms Curve A Carbon, Hor. Hold	620248
RV403	2.5 Megohms Curve A Carbon, Focus	620781
RV404	1 Megohm Curve A Carbon, Width	620769
C227	2μf 300VW Electrolytic	227923
C231	2μf 300VW Electrolytic	227923
C320	2μf 500VW Electrolytic	227934
C327A	60μf 275VW	229767
C327B	200μf 275VW	229767
C412	10μf 300 VW Electrolytic	228775
C431	100μf 150VW Electrolytic	229651
C432	100μf 150VW Electrolytic	229651
	Tuning Strips, Turret Tuner. (Identification ANO, AN1, etc.)	
	Channel 0	45055
	Channel 1	45056
	Channel 2	45057
	Channel 3	45058
	Channel 4	45059
	Channel 5	45060
	Channel 5A	45061
	Channel 6	45062
	Channel 7	45063
	Channel 8	45064
	Channel 9	45065
	Channel 10	45066
	Channel 11	45067

* Refer to label on cabinet back.

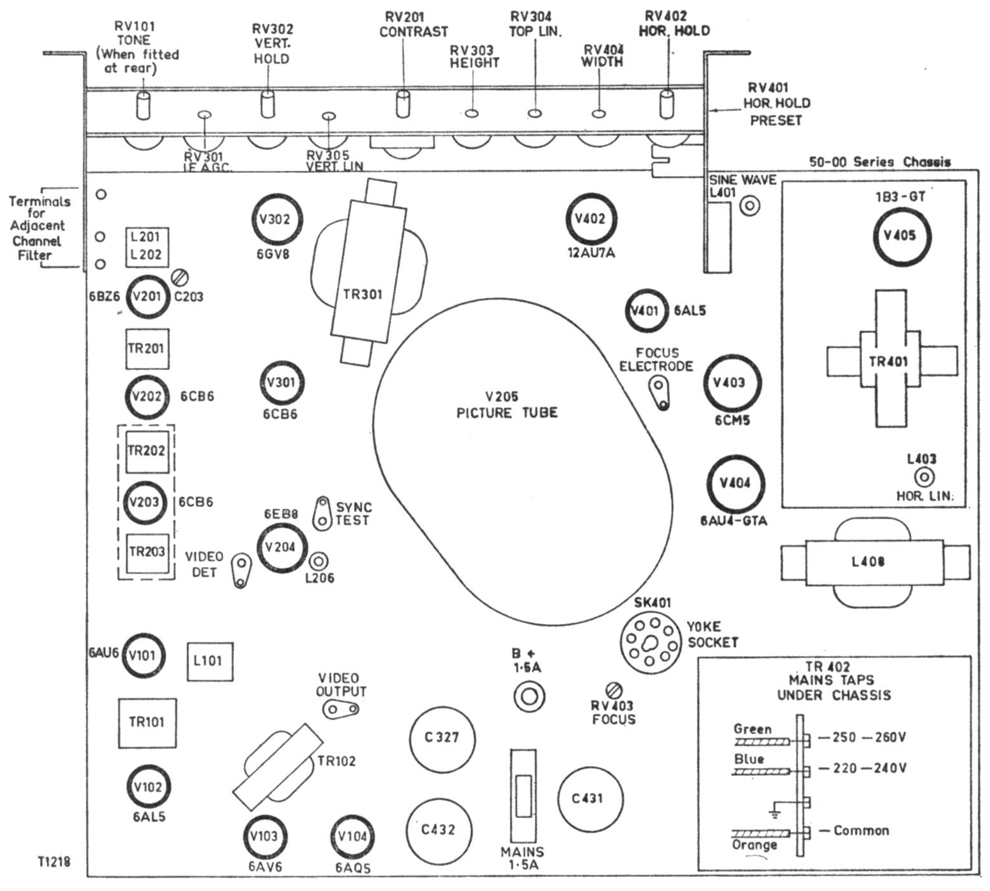
D.C. RESISTANCE OF WINDINGS

	WINDING	D.C. RESISTANCE IN OHMS
Tuner Windings		*
L101	Sound I.F.	1.3
L201	38.375 Mc/s Trap	*
L202	Video I.F. Input	*
L203	Detector Filter	1.5
L204	Detector Filter	*
L205	Detector Peaking Coil	5
L206	5.5 Mc/s Trap	7
L207	Video Amp. Shunt Peaking	6.8
L208	Video Amp. Peaking	3.2
L209	Video Amp. Series Peaking	5
L401	Sine Wave Coil	55
L402	H.F. Choke	*
L403	Horizontal Linearity	7
L404	Vertical Deflection	2.5
L405	Vertical Deflection	2.5
L406	Horizontal Deflection	17
L407	Horizontal Deflection	17
L408	H.T. Filter Choke	25
TR101	Ratio Detector	
	Primary	9.5
	Secondary	1
TR102	Speaker Transformer	
	Primary	500
	Secondary	2
TR201	1st Video I.F.	
	Primary	*
	Secondary	*
TR202	2nd Video I.F.	
	Primary	*
	Secondary	*
TR203	3rd Video I.F.	
	Primary	*
	Secondary	*
TR301	Vertical Output	
	Primary Bu-Rd	350
	Secondary Rd-Ye	1
TR401	Horizontal Output	
	Primary C-A	23
	Secondary G-B	7
	Tertiary C-Top Cap	415
	Tertiary J-L	1.5
Power Transformer		
	Primary Gn-Or	10
	Secondary Rd-Rd	4.5

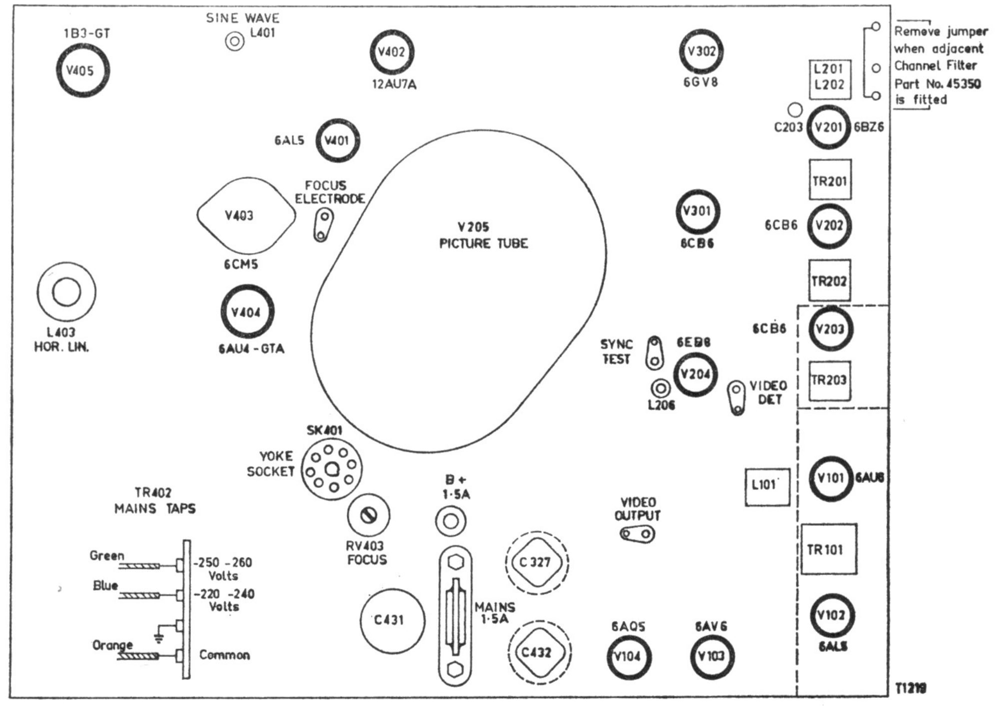
* Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

CHASSIS LAYOUT



TOP CHASSIS VIEW



UNDER CHASSIS VIEW

CIRCUIT VARIATIONS:

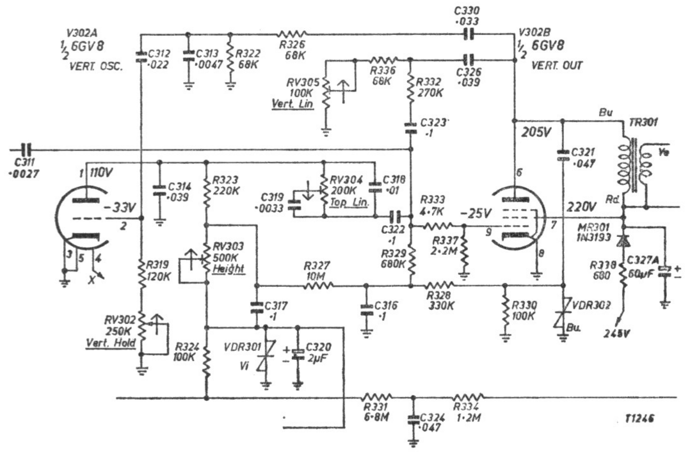
The following changes have been incorporated in this chassis since the release of the initial service information.

To improve picture tube spot suppression:
The series network, consisting of MR202 (1N3193), R232 (47Ω) and C234 (0.47μf) between the 245 volt line and the picture tube cathode, was deleted.
The present MR301 (1N3193) was added.
R339 was disconnected from the 245 volt line, connected to C327A, and changed from 270KΩ to 220KΩ ± 10% ½ watt.
C331 (2μf from RV306 side of R339) was deleted.
The following components changed in value:
R221 from 10Ω to 22Ω ± 10% ½ watt.
R231 from 3.9KΩ to 2.7KΩ ± 10% ½ watt.
R411 from 1KΩ to 2.7KΩ ± 10% ½ watt.
C223 from 0.022μf to 0.0068μf ± 10% 400VW polyester.
C224 from 0.01μf to 0.0068μf ± 10% 400VW polyester.
C324 from 0.1μf to 0.047μf ± 10% 1000VW paper.
C412 from 24μf to 10μf 300VW Electrolytic.

To improve 6CM5 valve life:
R415 (1MΩ ± 10% ½ watt) was added.

To improve centring of vertical hold control:
R319 changed from 82KΩ to 120KΩ ± 10% 1 watt.

To prevent a vertical jitter when some receivers were not synchronised:
The vertical circuit was changed to the configuration shown below.
Components affected by this change were:
R330 (100KΩ ± 10% 1 watt) added.
C330 (0.033μf ± 10% 630VW polyester) added.
R321 1MΩ deleted.
R326 from 33KΩ to 68KΩ ± 10% 1 watt.
R327 from 33MΩ to 10MΩ ± 10% 1 watt.
R328 from 680KΩ to 330KΩ ± 10% 1 watt.
C311 from 0.0082μf to 0.0027μf ± 10% 400VW polyester.
C313 from 0.018μf to 0.0047μf ± 10% 400VW polyester.
C321 from 0.047μf to 0.047μf ± 10% 630VW polyester.



To facilitate the horizontal linearity control adjustment for minimum 6CM5 cathode current:
R420 (1.5Ω ± 10% ½ watt W.W.) was added.

Due to a change in production method:
The colour coding of L205 and L209 (Coil 41423) was changed from White to Mauve/Mauve.

To provide easier adjustment of top linearity:
The vertical circuit was rearranged as shown in the latest circuit diagram.
Components affected by this change were:
C318 (0.01μf across RV304) deleted.
R335 (180KΩ ± 5% 1 watt IRC only) added.
RV304 from 200KΩ to 100KΩ curve A carbon 620322.
R332 from 270KΩ to 100KΩ ± 10% 1 watt Morganite or Ducon only.
C311 from 0.0027μf to 0.01μf ± 10% 400VW polyester.
C319 from 0.0033μf to 0.022μf ± 5% 400VW polyester.
C322 from 0.1μf to 0.068μf ± 10% 400VW polyester.

To improve reliability:
C206, C211 and C218 have been changed from polystyrene to ceramic disc capacitors.

To reduce dissipation in horizontal output stage:
C420 (68pf ± 10% 4000VW N750 disc) added.
C405 (4.7pf ± 10% 500VW N750 disc) added.
R415 changed from 1MΩ to 2.2MΩ.

For revised horizontal linearity and width adjustment see underleaf.

CIRCUIT A.W.A. TELEVISION RECEIVER CHASSIS — 50-00 SERIES (Tuner Circuit see over)

3rd Edition June, 1971

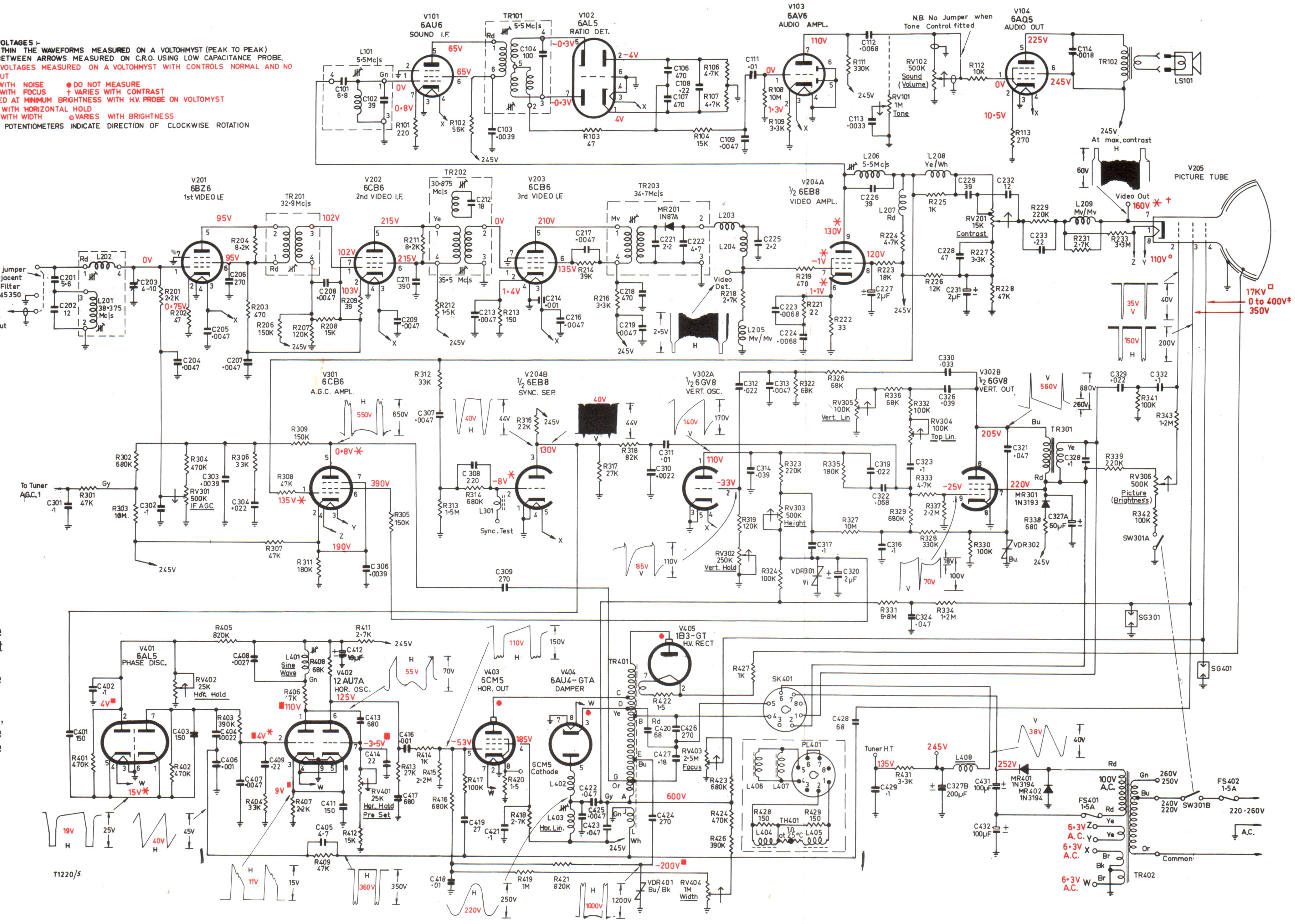
NOTES

① **WAVEFORM VOLTAGES :-**
VOLTAGES WITHIN THE WAVEFORMS MEASURED ON A VOLTOHMYST (PEAK TO PEAK)
VOLTAGES BETWEEN ARROWS MEASURED ON C.R.O. USING LOW CAPACITANCE PROBE.

② ALL VALVE VOLTAGES MEASURED ON A VOLTOHMYST WITH CONTROLS NORMAL AND NO SIGNAL INPUT

- ✱ VARIES WITH NOISE
- ● DO NOT MEASURE
- ‡ VARIES WITH FOCUS
- † VARIES WITH CONTRAST
- □ MEASURED AT MINIMUM BRIGHTNESS WITH H.V. PROBE ON VOLTOMYST
- ■ VARIES WITH HORIZONTAL HOLD
- ■ VARIES WITH WIDTH
- ⊙ VARIES WITH BRIGHTNESS

③ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION



Revised Horizontal Linearity and Width Adjustment

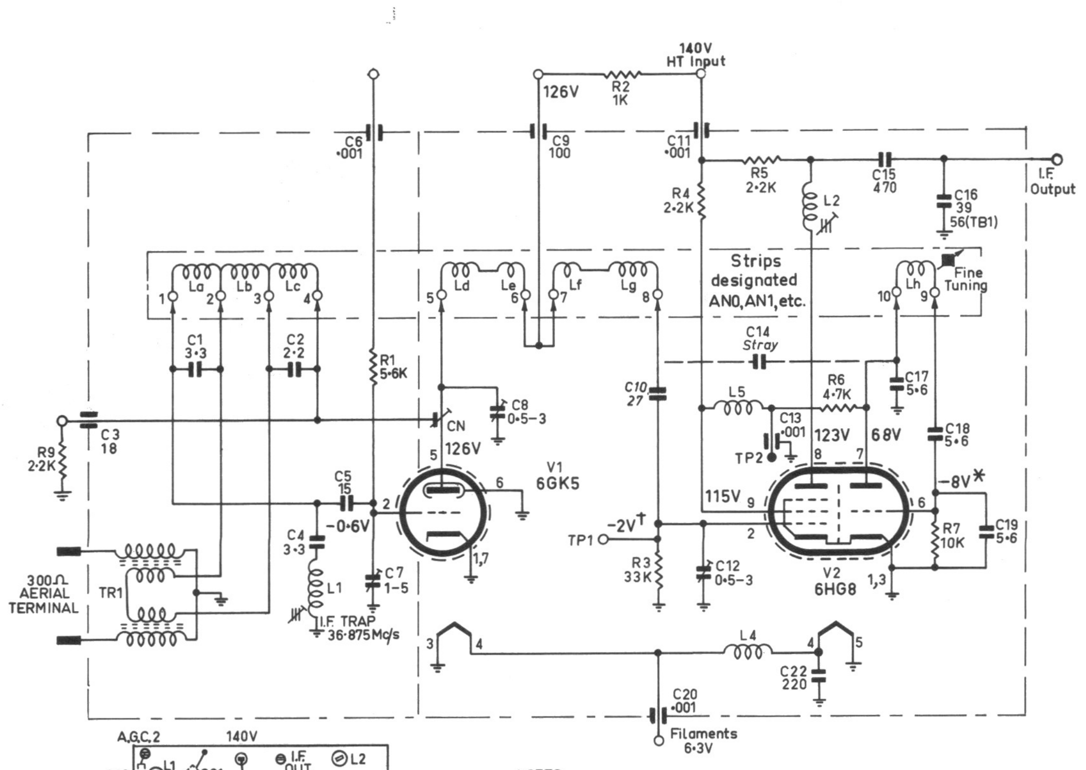
Adjust the horizontal linearity coil (L403) to give minimum voltage reading at the 6CM5 cathode test point (across R420).

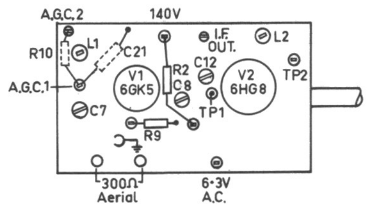
N.B.—From this position the linearity control may be set no more than two turns in either direction.

Set the width control (RV404) to give B boost voltage, at junction of C422 and C423, of 610 ± 20 volts. The width should not overscan more than ¾″ on either side with nominal 240 volts mains.

FIELD TEST SHEET 50-00 SERIES

TB Series Neutrode Turret Tuner





NOTES:

† Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1.4V without loss of gain.

* Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V(Ch11) to −12V(Ch0).

N.B. TP2 used for Tuner Sweep Alignment.

COMPONENT REPLACEMENTS

	ITEM	PART or CODE No.
L101	Sound I.F.	43336
L201	38.375 Mc/s Trap	43580
L202	Video I.F. Input	
L203	Detector Filter	40323
L204	Detector Filter	49671
L205	Detector Peaking Coil	41423
L206	5.5 Mc/s Trap	43593
L207	Video Ampl. Shunt Peaking	40117
L208	Video Ampl. Peaking	45090
L209	Video Ampl. Series Peaking	41423
L401	Sine Wave Coil	52150
L402	H.F. Choke 1.5 µH	214516
L403	Horizontal Linearity	43264
L404–7	Yoke	43665
L408	H.T. Filter	51571/001
TR101	Ratio Detector	40077
TR102	Speaker Transformer	*
TR201	1st Video I.F.	40902
TR202	2nd Video I.F.	41407
TR203	3rd Video I.F.	41933
TR301	Vertical Output	43340/001
TR401	Horizontal Output	52536
TR402	Power Transformer	51839/003
RV101	1 Megohm Curve C Carbon, Tone	*
RV102	500K ohms Curve C Carbon, Volume	*
RV201	15K ohms Linear Carbon, Contrast	620226
RV301	500K ohms Curve A Carbon, I.F. A.G.C.	620569
RV302	250K ohms Curve A Carbon, Vert. Hold	620472
RV303	500K ohms Curve A Carbon, Height	620569
RV305	100K ohms Curve A Carbon, Top Lin.	620322
RV304	100K ohms Curve A Carbon, Vert. Lin.	620322
RV306	500K ohms Curve A Carbon, Brightness	*
RV401	25K ohms Curve A Carbon, Pre-set Hor. Hold	620249
RV402	25K ohms Curve A Carbon, Hor. Hold	620248
RV403	2.5 Megohms Curve A Carbon, Focus	620781
RV404	1 Megohm Curve A Carbon, Width	620769
C203	4-10pf trimmer	231123
C227	2µf 300VW Electrolytic	227923
C231	2µf 300VW Electrolytic	227923
C320	2µf 500VW Electrolyic	227934
C327A	60µf 275VW	229767
C327B	200µf 275VW	
C412	10µf 300 VW Electrolytic	228775
C431	100µf 150VW Electrolytic	229651
C432	100µf 150 VW Electrolytic	229651
	Tuning Strips, Turret Tuner. (Identification ANO, ANI, etc.)	
	Channel 0	45055
	Channel 1	45056
	Channel 2	45057
	Channel 3	45058
	Channel 4	45059
	Channel 5	45060
	Channel 5A	45061
	Channel 6	45062
	Channel 7	45063
	Channel 8	45064
	Channel 9	45065
	Channel 10	45066
	Channel 11	45067

*Refer to label on cabinet back.

D.C. RESISTANCE OF WINDINGS

	WINDING	D.C. RESISTANCE IN OHMS
	Tuner Windings	*
L101	Sound I.F.	1.3
L201	38.375 Mc/s Trap	*
L202	Video I.F. Input	*
L203	Detector Filter	1.5
L204	Detector Filter	*
L205	Detector Peaking Coil	5
L206	5.5 Mc/s Trap	7
L207	Video Amp. Shunt Peaking	6.8
L208	Video Amp. Peaking	3.2
L209	Video Amp. Series Peaking	5
L401	Sine Wave Coil	55
L402	H.F. Choke	*
L403	Horizontal Linearity	7
L404	Vertical Deflection	2.5
L405	Vertical Deflection	2.5

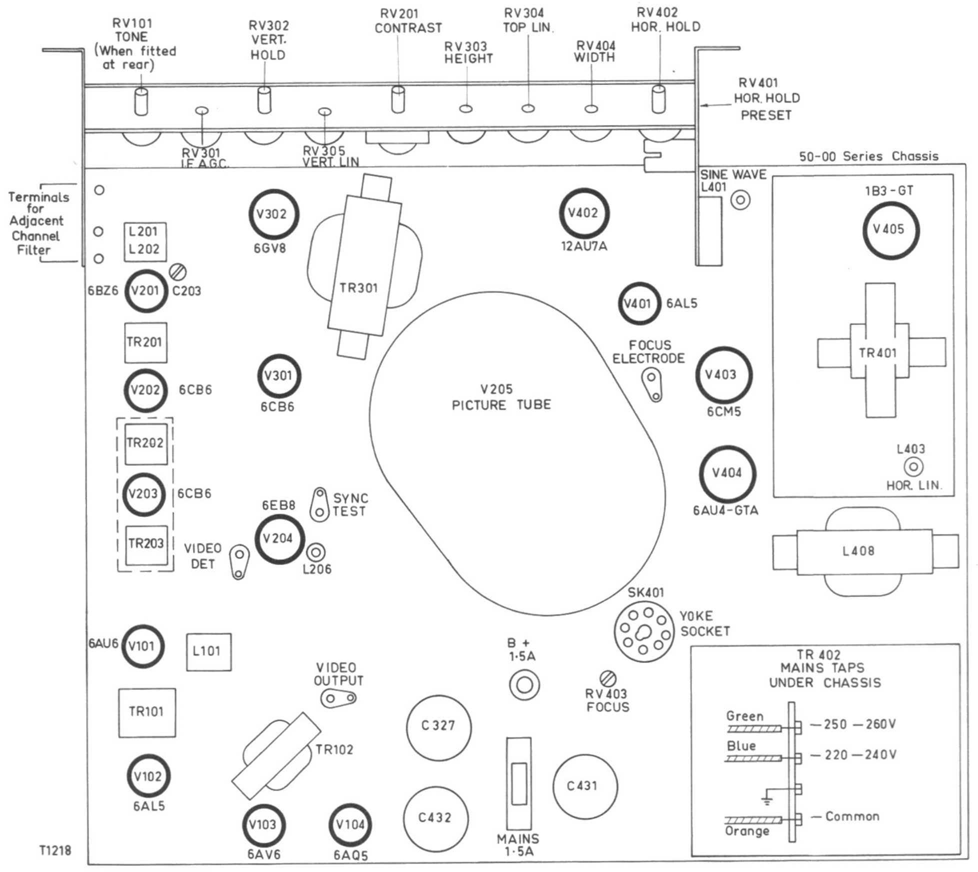
	WINDING	D.C. RESISTANCE IN OHMS
L406	Horizontal Deflection	17
L407	Horizontal Deflection	17
L408	H.T. Filter Choke	25
TR101	Ratio Detector	
	Primary	9.5
	Secondary	1
TR102	Speaker Transformer	
	Primary	500
	Secondary	2
TR201	1st Video I.F.	
	Primary	*
	Secondary	*
TR202	2nd Video I.F.	
	Primary	*
	Secondary	*

	WINDING	D.C. RESISTANCE IN OHMS
TR203	3rd Video I.F.	
	Primary	*
	Secondary	*
TR301	Vertical Output	
	Primary Bu-Rd	350
	Secondary Rd-Ye	1
TR401	Horizontal Output	
	Primary C-A	23
	Secondary G-B	7
	Tertiary C-Top Cap	415
	Tertiary J-L	1.5
	Power Transformer	
	Primary Gn-Or	10
	Secondary Rd-Rd	4.5

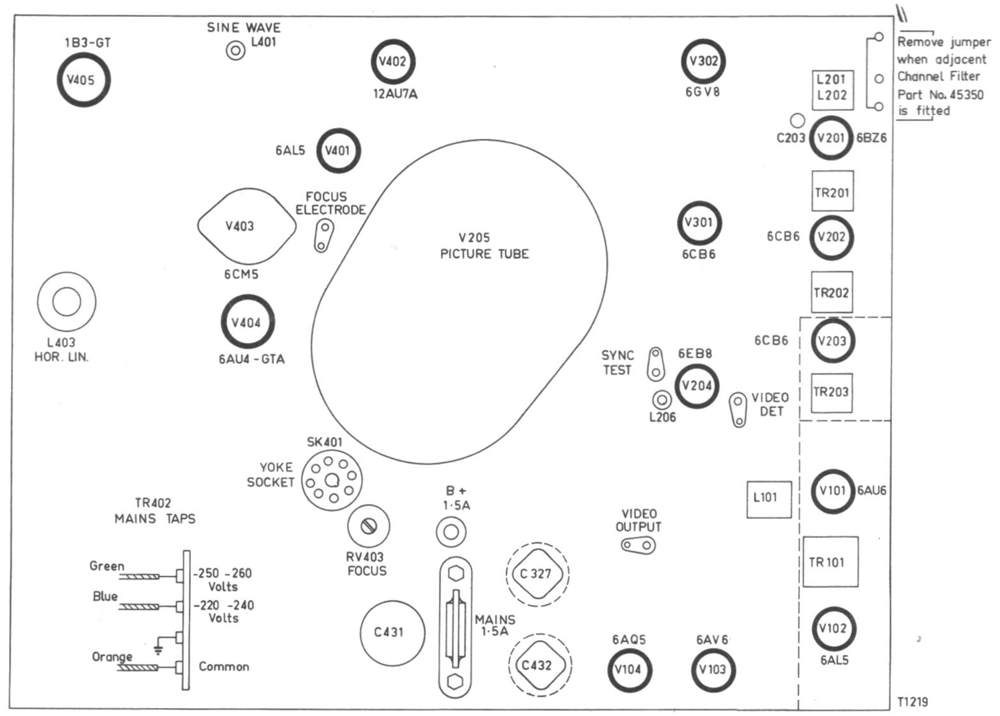
*Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

CHASSIS LAYOUT



TOP CHASSIS VIEW



UNDER CHASSIS VIEW

CIRCUIT VARIATIONS:

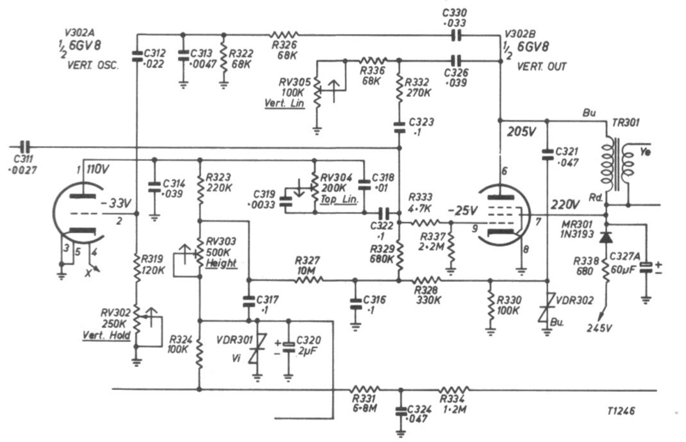
The following changes have been incorporated in this chassis since the release of the initial service information.

To improve picture tube spot suppression:
The series network, consisting of MR202 (1N3193), R232 (47Ω) and C234 (0.47µf) between the 245 volt line and the picture tube cathode, was deleted.
The present MR301 (1N3193) was added.
R339 was disconnected from the 245 volt line, connected to C327A, and changed from 270KΩ to 220KΩ ± 10% ½ watt.
C331 (2µf from RV306 side of R339) was deleted.
The following components changed in value:
R22 from 10Ω to 22Ω ± 10% ½ watt.
R231 from 3.9KΩ to 2.7KΩ ± 10% ½ watt.
R411 from 1KΩ to 2.7KΩ ± 10% ½ watt.
C223 from 0.022µf to 0.0068µf ± 10% 400VW polyester.
C224 from 0.01µf to 0.0068µf ± 10% 400VW polyester.
C324 from 0.1µf to 0.047µf ± 10% 1000VW paper.
C412 from 24µf to 10µf 300VW Electrolytic.

To improve 6CM5 valve life:
R415 (1MΩ ± 10% ½ watt) was added.

To improve centring of vertical hold control:
R319 changed from 82KΩ to 120KΩ ± 10% 1 watt.

To prevent a vertical jitter when some receivers were not synchronised:
The vertical circuit was changed to the configuration shown below.
Components affected by this change were:
R330 (100KΩ ± 10% 1 watt) added.
C330 (0.033µf ± 10% 630VW polyester) added.
R321 1MΩ deleted.
R326 from 33KΩ to 68KΩ ± 10% 1 watt.
R327 from 33MΩ to 10MΩ ± 10% 1 watt.
R328 from 680KΩ to 330KΩ ± 10% 1 watt.
C311 from 0.0082µf to 0.0027µf ± 10% 400VW polyester.
C313 from 0.018µf to 0.0047µf ± 10% 400VW polyester.
C321 from 0.47µf to 0.47µf ± 10% 630VW polyester.



To facilitate the horizontal linearity control adjustment for minimum 6CM5 cathode current:
R420 (1.5Ω ± 10% ½ watt W.W.) was added.

Due to a change in production method:
The colour coding of L205 and L209 (Coil 41423) was changed from White to Mauve/Mauve.

To provide easier adjustment to top linearity:
The vertical circuit was rearranged as shown in the latest circuit diagram.
Components affected by this change were:
C318 (0.01µf across RV304) deleted.
R335 (180KΩ ± 5% 1 watt IRC only) added.
RV304 from 200KΩ to 100KΩ curve A carbon 620322.
R332 from 270KΩ to 100KΩ ± 10% 1 watt Morganite or Ducon only.
C311 from 0.0027µf to 0.01µf ± 10% 400VW polyester.
C319 from 0.0033µf to 0.022µf ± 5% 400VW polyester.
C322 from 0.1µf to 0.068µf ± 10% 400VW polyester.

To improve reliability:
C206, C211 and C218 have been changed from polystyrene to ceramic disc capacitors.

To reduce dissipation in horizontal output stage:
C420 (68pf ± 10% 4000VW N750 disc) added.
C405 (4.7pf ± 10% 500VW N750 disc) added.
R415 changed from 1MΩ to 2.2MΩ.

For revised horizontal linearity and width adjustment see underleaf.

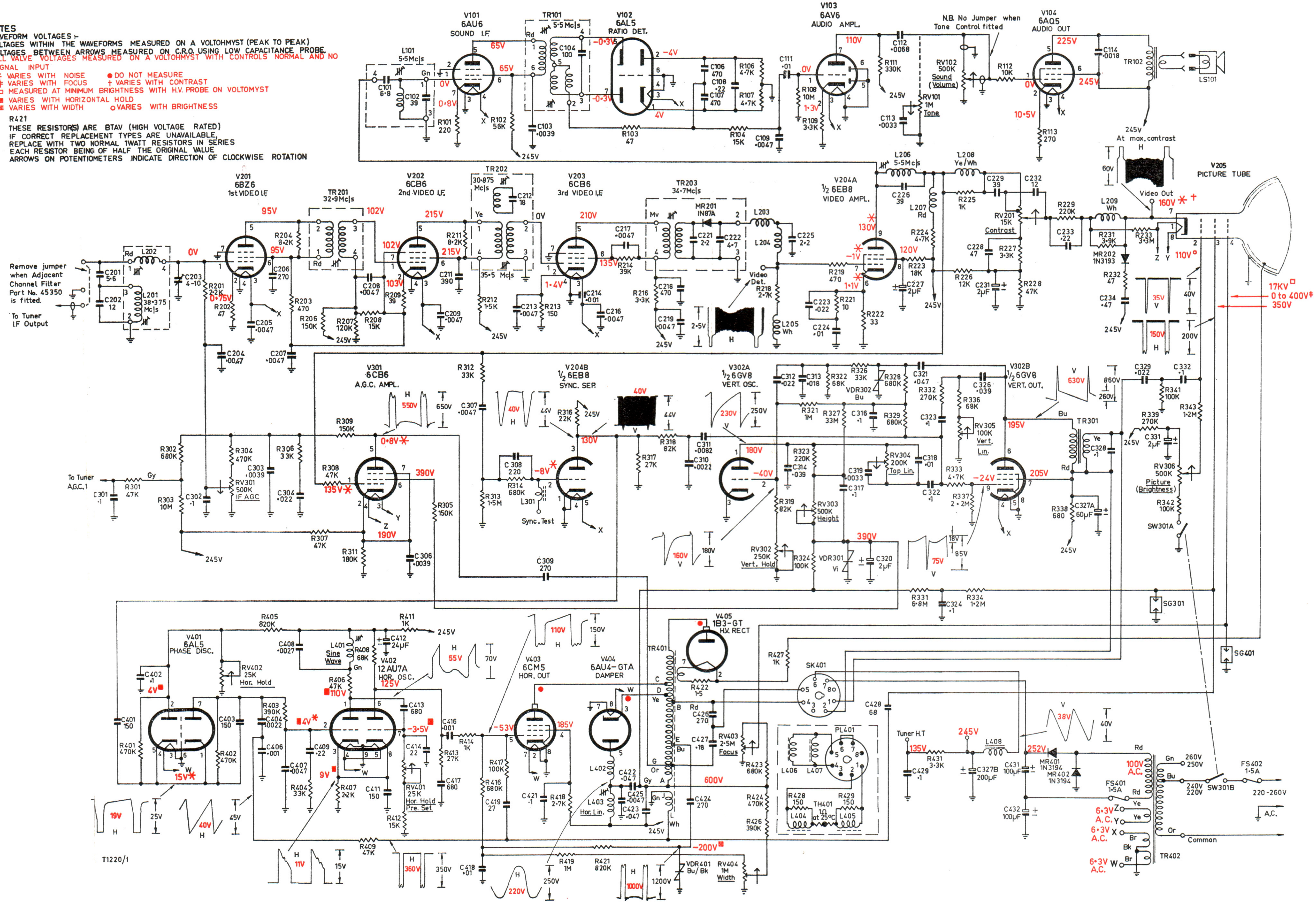
CIRCUIT A.W.A. TELEVISION RECEIVER CHASSIS – 50-00 SERIES

(Tuner Circuit see over)

NOTES

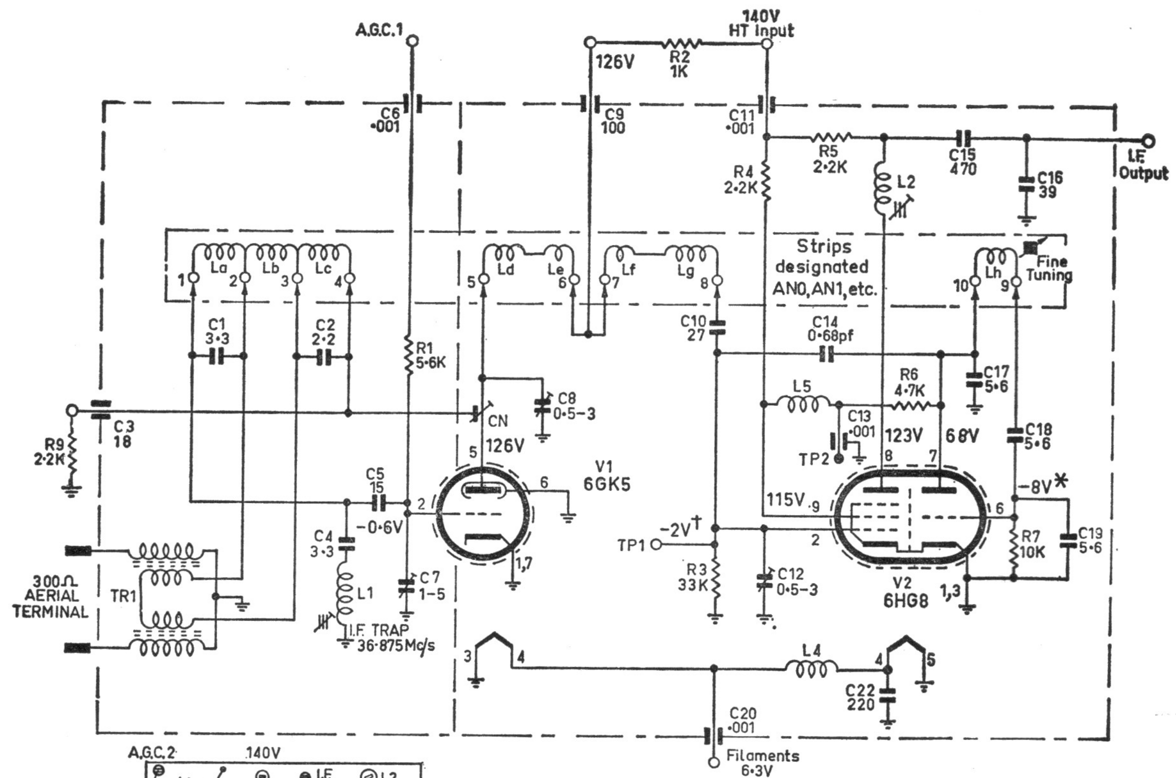
1. WAVEFORM VOLTAGES :-
   VOLTAGES WITHIN THE WAVEFORMS MEASURED ON A VOLTOHMYST (PEAK TO PEAK)
   VOLTAGES BETWEEN ARROWS MEASURED ON C.R.O. USING LOW CAPACITANCE PROBE.
2. ALL VALVE VOLTAGES MEASURED ON A VOLTOHMYST WITH CONTROLS NORMAL AND NO SIGNAL INPUT
   - ✳ VARIES WITH NOISE
   - ● DO NOT MEASURE
   - ‡ VARIES WITH FOCUS
   - † VARIES WITH CONTRAST
   - □ MEASURED AT MINIMUM BRIGHTNESS WITH H.V. PROBE ON VOLTOMYST
   - ■ VARIES WITH HORIZONTAL HOLD
   - ⊠ VARIES WITH WIDTH
   - ○ VARIES WITH BRIGHTNESS
3. R421
   THESE RESISTOR(S) ARE BTAV (HIGH VOLTAGE RATED)
   IF CORRECT REPLACEMENT TYPES ARE UNAVAILABLE,
   REPLACE WITH TWO NORMAL 1WATT RESISTORS IN SERIES
   EACH RESISTOR BEING OF HALF THE ORIGINAL VALUE

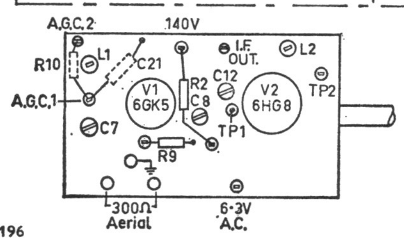
⊙ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION



FIELD TEST SHEET 50-00 SERIES

TB Series Neutrode Turret Tuner





T1196

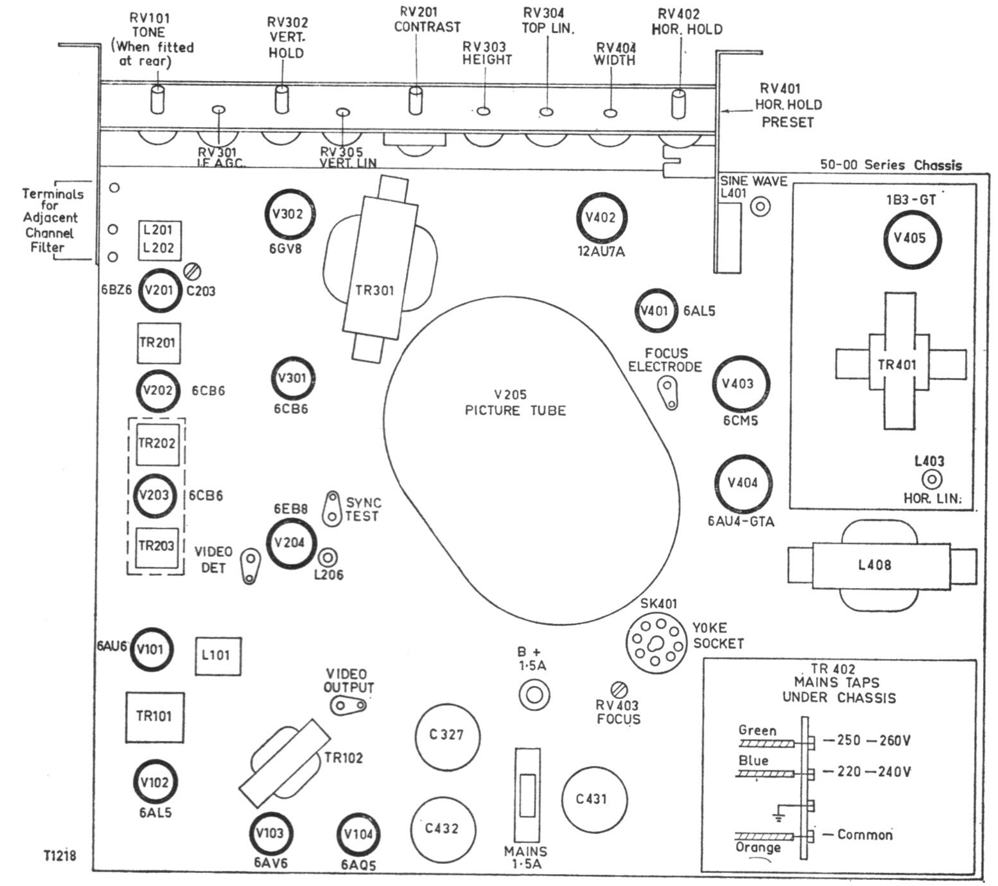
NOTES † Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1·4V without loss of gain.
* Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V (Ch11) to −12V (Ch0).
N.B. TP2 used for Tuner Sweep Alignment.

COMPONENT REPLACEMENTS

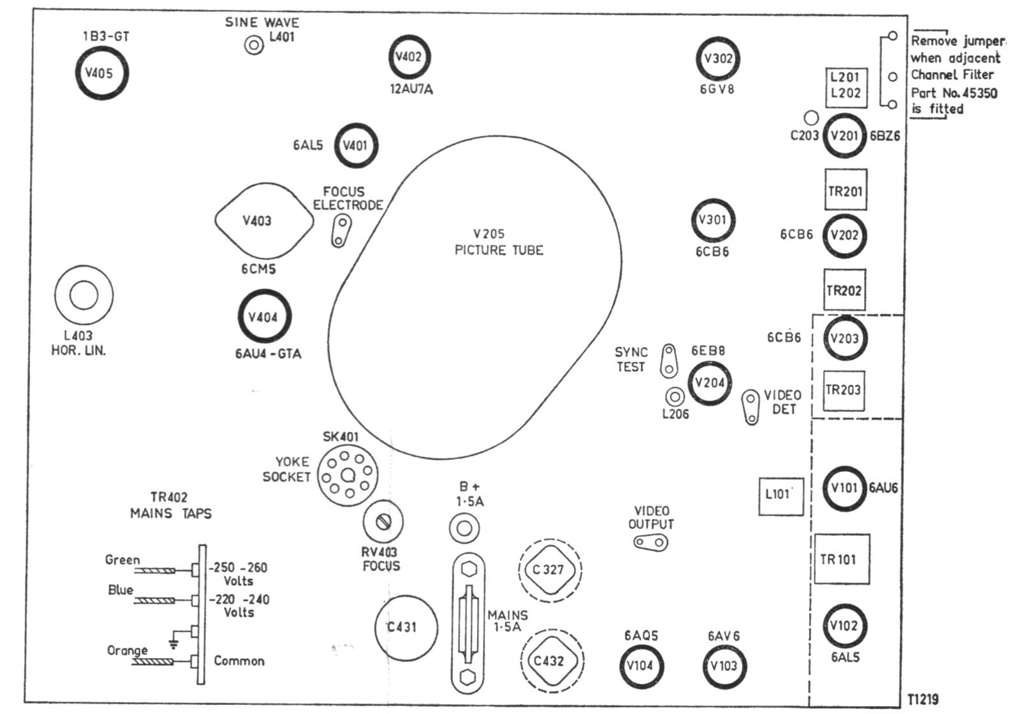
	ITEM	PART or CODE No.
L101	Sound I.F.	43336
L201	38.375 Mc/s Trap	43580
L202	Video I.F. Input	43580
L203	Detector Filter	52720
L204	Detector Filter	49671
L205	Detector Peaking Coil	41423
L206	5.5 Mc/s Trap	43593
L207	Video Ampl. Shunt Peaking	40117
L208	Video Ampl. Peaking	45090
L209	Video Ampl. Series Peaking	41423
L401	Sine Wave Coil	52150
L402	H.F. Choke 1.5 µH	214516
L403	Horizontal Linearity	43264
L404–7	Yoke	43665
L408	H.T. Filter	51571/001
TR101	Ratio Detector	40077
TR102	Speaker Transformer	*
TR201	1st Video I.F.	40902
TR202	2nd Video I.F.	41407
TR203	3rd Video I.F.	41933
TR301	Vertical Output	43340/001
TR401	Horizontal Output	52536
TR402	Power Transformer	51839/003
RV101	1 Megohm Curve C Carbon, Tone	*
RV102	500K ohms Curve C Carbon, Volume	*
RV201	15K ohms Linear Carbon, Contrast	620226
RV301	200K ohms Curve A Carbon, I.F. A.G.C.	620487
RV302	500K ohms Curve A Carbon, Vert. Hold	620466
RV303	500K ohms Curve A Carbon, Height	620569
RV304	200K ohms Curve A Carbon, Top Lin.	620487
RV305	100K ohms Curve A Carbon, Vert. Lin.	620322
RV306	500K ohms Curve A Carbon, Brightness	*
RV401	50K ohms Curve A Carbon, Pre-set Hor. Hold	620293
RV402	25K ohms Curve A Carbon, Hor. Hold	620248
RV403	2.5 Megohms Curve A Carbon, Focus	620781
RV404	1 Megohm Curve A Carbon, Width	620769
C227	2µf 300VW Electrolytic	227923
C231	2µf 300VW Electrolytic	227923
C306	2µf 300VW Electrolytic	227923
C327A	60µf 275VW	229767
C327B	200µf 275VW	229767
C331	2µf 200VW Electrolytic	227933
C412	24µf 300VW Electrolytic	222812
C431	100µf 150VW Electrolytic	229651
C432	100µf 150VW Electrolytic	229651
	Tuning Strips, Turret Tuner. (Identification AN0, AN1, etc.)	
	Channel 0	45055
	Channel 1	45056
	Channel 2	45057
	Channel 3	45058
	Channel 4	45059
	Channel 5	45060
	Channel 5A	45061
	Channel 6	45062
	Channel 7	45063
	Channel 8	45064
	Channel 9	45065
	Channel 10	45066
	Channel 11	45067

* Refer to label on cabinet back.

CHASSIS LAYOUT



TOP CHASSIS VIEW



UNDER CHASSIS VIEW

D.C. RESISTANCE OF WINDINGS

WINDING		D.C. RESISTANCE IN OHMS
Tuner Windings		*
L101	Sound I.F.	1.3
L201	38.375 Mc/s Trap	*
L202	Video I.F. Input	*
L203	Detector Filter	1.5
L204	Detector Filter	*
L205	Detector Peaking Coil	5
L206	5.5 Mc/s Trap	7
L207	Video Amp. Shunt Peaking	6.8
L208	Video Amp. Peaking	3.2
L209	Video Amp. Series Peaking	5
L401	Sine Wave Coil	55
L402	H.F. Choke	*
L403	Horizontal Linearity	7
L404	Vertical Deflection	2.5
L405	Vertical Deflection	2.5

WINDING		D.C. RESISTANCE IN OHMS
L406	Horizontal Deflection	17
L407	Horizontal Deflection	17
L408	H.T. Filter Choke	25
TR101	Ratio Detector	
	Primary	9.5
	Secondary	1
TR102	Speaker Transformer	
	Primary	500
	Secondary	2
TR201	1st Video I.F.	
	Primary	*
	Secondary	*
TR202	2nd Video I.F.	
	Primary	*
	Secondary	*

WINDING		D.C. RESISTANCE IN OHMS
TR203	3rd Video I.F.	
	Primary	*
	Secondary	*
TR301	Vertical Output	
	Primary Bu-Rd	350
	Secondary Rd-Ye	1
TR401	Horizontal Output	
	Primary C-A	23
	Secondary G-B	7
	Tertiary C-Top Cap	415
	Tertiary J-L	1.5
Power Transformer		
	Primary Gn-Or	10
	Secondary Rd-Rd	4.5

* Less than 1 ohm.

The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

50 SERIES CIRCUIT IMPROVEMENT

Under some conditions including incorrect width and horizontal linearity settings, it is possible for high EHT to be developed in the 50 series TV chassis. When high EHT is generated, greater than 18KV (zero beam) premature failure of EHT rectifier valves may result. This failure will normally burn up R427 lk ohm ½w resistor, which is in series with the EHT lead. In some cases in the field, because of wax being noted as having dropped from the EHT transformer, the transformer, as well as the EHT rectifier and the lk resistor, has been replaced. Our observations have shown that wax dripping from the EHT transformer, is not often an indication of transformer failure. Our tests on transformers replaced as defective for this reason indicate that the majority are in no way defective.

In current production of 50 series chassis, this problem has been overcome by addition of a 68pf 4Kv capacitor from cathode of 6AU4–GTA valve (pin 3) to junction of C426 and C427 and by increasing R415 from 1meg to 2.2meg (grid resistor on 6CM5).

It is recommended that above alterations be carried out whenever earlier 50 series chassis are serviced in the field, in which the EHT at zero beam current is greater than 18KV.

For the convenience of our clients, these parts are available in kit form, 1 only lk ½w resistor for EHT socket – 1 only 2.2meg ½w resistor for 6CM5 grid leak – 1 only 68pf 4Kv ceramic condenser. Part number for this kit is 47047 and the trade price is 55 cents plus 25% tax.

It is important that the horizontal linearity and width controls be correctly adjusted after carrying out these alterations. The correct adjustment of the horizontal linearity will be not more than 2 turns from minimum current through the line output valve. This current can be checked by measuring the voltage across a 1.5 ohm resistor inserted in the 6CM5 cathode circuit, or could be checked by inserting a 12 volt dial light in the 6CM5 plate circuit and adjusting for minimum globe brightness. The width control should be adjusted for 610 volts ± 20 volts which should correspond to about ¾" overscan either side on 23" or 25" picture tube.

HIGH VOLTAGE WARNING

Operation of this receiver outside the cabinet involves a shock hazard from the receiver power supplies. Work on the receiver should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Do not operate the receiver with the high voltage compartment shield removed. Make sure that the earth strap between the chassis and the picture tube assembly is securely fastened before turning the receiver on.

PICTURE TUBE HANDLING PRECAUTIONS

Do not install, remove or handle the picture tube in any manner unless shatter-proof goggles are worn. Keep the picture tube away from the body while handling.

When the receiver is switched off after operating for a time, the picture tube will retain a certain charge. Therefore it is advisable to discharge it before handling.

DEFLECTION YOKE ADJUSTMENT

If the lines of the raster are not horizontal or squared with the picture tube, rotate the deflection yoke until this condition is obtained. Tighten the yoke clamp.

FOCUS ADJUSTMENT

This adjustment has been made at the factory and it should only be necessary to re-adjust if the picture tube is replaced. In this case, adjust the focus control, RV403, until maximum definition of the line structure of the raster is obtained.

HORIZONTAL OSCILLATOR ADJUSTMENT

The adjustment of the horizontal oscillator is not considered to be part of the alignment procedure. The adjustment is made at the factory and should not require re-adjustment in the field. However, the adjustment should be carried out whenever components in the horizontal oscillator circuit are changed.

The horizontal oscillator may be adjusted by the following method:

1. Short circuit the sine wave coil, L401, and earth the sync. test point.
2. Set the horizontal hold control, RV402, to its mid position.
3. Adjust the horizontal hold pre-set control, RV401, until the picture is synchronised with the signal, i.e., picture sides are straight.
4. Remove the short circuit from the sine wave coil.
5. Adjust the core of the sine wave coil until the picture is synchronised with the signal.
6. Remove the earth from the sync. test point.

CENTRING ADJUSTMENT

As the majority of test patterns transmitted contain horizontal and vertical bars, the correct procedure for centring adjustment, horizontally or vertically, is that the corresponding bars progressing outwards from the centre should have the same amount of pin-cushion distortion (if any).

The centring magnets are in the form of two discs mounted on the rear of the deflection yoke cap. When the magnets are rotated around the tube neck so that the levers are opposite, minimum centring effect with either lever is produced. To obtain correct centring of the picture, the magnets are alternatively rotated with respect to each other.

CAUTION

Under no circumstances should the receiver be switched on with the deflection yoke removed from the picture tube. This produces an undeflected spot which may damage the screen.

WIDTH AND HORIZONTAL LINEARITY ADJUSTMENTS

The width and horizontal linearity controls, RV404 and L403, in conjunction with the vertical adjustments, are adjusted to produce best linearity for a picture of the correct aspect ratio with normal picture brightness.

HEIGHT AND VERTICAL LINEARITY ADJUSTMENTS

Adjust the height control, RV303, for minimum height.

Set the top linearity control, RV304, to its mean position.

Adjust the vertical linearity control, RV305, for best overall linearity.

Re-adjust the height control, RV303, for correct height, i.e., approximately $\frac{1}{2}''$ of picture extending beyond the top and bottom of the picture tube mask.

Finally, if necessary, adjust, in conjunction with each other, the height, top linearity and vertical linearity controls for best linearity and correct height.

A.G.C. ADJUSTMENT

The following adjustments should only be performed after all other receiver adjustments have been satisfactorily carried out.

With the receiver tuned to a medium strength signal (about 1 mV or suitable attenuated signal) make the following adjustment.

With a picture of normal brightness and contrast, adjust the I.F. A.G.C. control RV301 for snow threshold.

Note: Clockwise rotation of the I.F. A.G.C. control increases snow.

REPLACEMENT OF FUSES

Two 1.5 amp. fuses are provided for mains and H.T. protection. Their location and function are indicated on the layout diagram.

Testing Instruments

To properly service the television receiver it is recommended that the following test equipment be available:

1. A.W.A. Television Sweep Generator, type A56036.
2. A.W.A. Cathode Ray Oscilloscope (c.r.o.), type A56031.
3. A.W.A. Voltohmyst, type 2A56074.
4. A.W.A. Voltohmyst Probe, type 2R56075.
5. A.W.A. Television Calibrator, type A56057.

Sound and Video I.F. Alignment

Note: When two positions of the core appear to give the correct adjustment, the following apply:

*Coil tuned with core close to the chassis.

†Coil tuned with core close to the can top, i.e., remote from chassis.

Sound I.F. Alignment

Connect the output of the television calibrator to the video detector test point and set the frequency to 5.5 Mc/s.

Connect the voltohmyst d.c. probe to pin 2 of V102 (6AL5) and set the range switch to -5 volts d.c.

Short circuit pin 1 of V203 (3rd video I.F. grid) to ground.

Adjust the following cores for peak output varying the input to maintain a reading of about -2 volts.

TR101 secondary (ratio detector bottom core)*

TR101 primary (top core)†

L101 (sound take off coil)*

L206 (sound trap)*

Repeat this sequence once.

Transfer the Voltohmyst probe to the junction of R104 and C109.

Re-adjust TR101 secondary (bottom core) for zero reading on the Voltohmyst.

Set the calibrator modulation switch to 600 c/s.

Connect the c.r.o. to the video out test point through a crystal probe (Voltohmyst probe 2R56075 is suitable).

Set the contrast control at its maximum position.

Re-adjust L206 (sound trap) * for minimum 600 c/s on the c.r.o.

Remove television calibrator, Voltohmyst and short circuit on V203 grid.

Video I.F. Alignment

Short circuit the junction of R304 and R306 to earth.

Connect a source of -3 volts bias to the junction of R201 and C204.

With the tuner on the blank channel, connect the sweep generator (30-39 Mc/s sweep, correctly terminated) to the mixer grid of the tuner, through the network shown in Fig. 1.

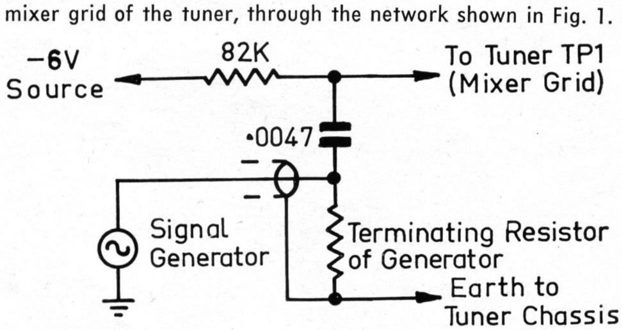


FIG. 1

Connect the crystal detector probe (Fig. 2) to pin 5 of V201 (1st Video I.F. plate) and also by-pass pin 5 of V202 using the by-pass lead provided.

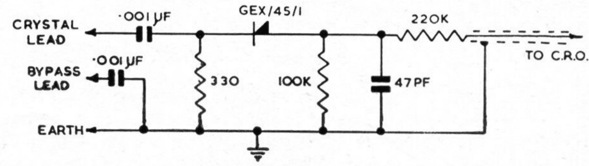


FIG. 2—CRYSTAL DETECTOR PROBE

Set the sweep generator output to give maximum deflection on the c.r.o. of 0.3 volts p-p. It is suggested that the marker generator be connected to the centre spigot on the socket of V201 and the earth lead connected to the chassis.

Set the marker generator to 38.375 Mc/s and adjust L201† so that the marker appears in the dip of the response produced by the trap, i.e., tune the trap to 38.375 Mc/s.

Adjust L2*, L202* and trimmer C203 to produce the response on the c.r.o. shown in Fig. 3.

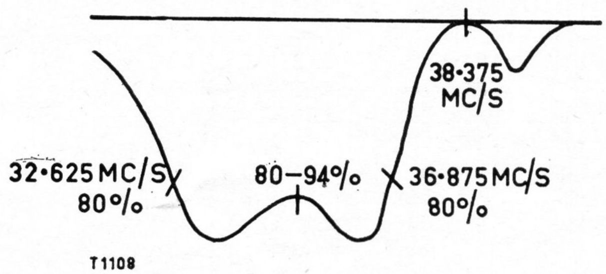


FIG. 3

L2* mainly affects 36.875 marker position.
L202* mainly affects tilt.
C203 mainly affects the band width.

Overall Alignment

Remove the crystal probe and connect the c.r.o. to the video detector test point using the network shown in Fig. 4. It is suggested that the marker generator remain connected to the centre spigot of V201 socket.

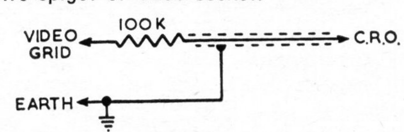


FIG. 4

View overall response with approximately 3 volts p-p output and adjust the accompanying sound trap TR202 (top core) † for minimum response at 30.875 Mc/s increasing the c.r.o. gain if necessary for easier adjustment of the trap.

Re-set the c.r.o. gain to give 3 volts p-p and adjust for a response as shown in Fig. 5.

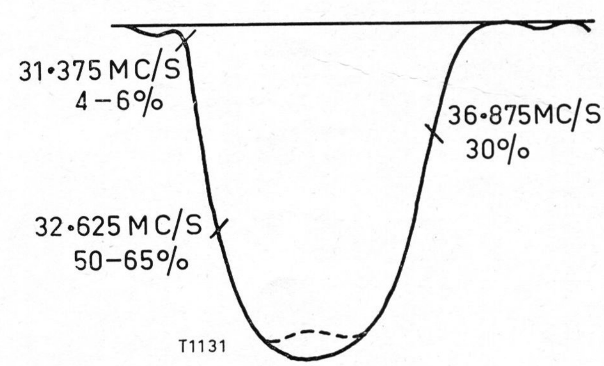


FIG. 5

Marker 36.875 Mc/s at 30% TR202*

Marker 31.375 Mc/s at 4% - 6% TR201*

No tilt TR203*

Check that the 32.625 Mc/s marker is at 50% - 65%, otherwise re-adjust TR201* and correct tilt with TR203* if necessary.

CIRCUIT CODE—50-00 Series TV Chassis

RESISTORS

All Resistors composition type unless otherwise stated.

Code No.	DESCRIPTION			Part No.
R1	5.6K ohms	±20%	½ watt	
R2	1K ohms	±20%	½ watt	
R3	33K ohms	±20%	½ watt	
R4	2.2K ohms	±10%	1 watt	
R5	2.2K ohms	±20%	½ watt	
R6	4.7K ohms	±10%	1 watt	
R7	10K ohms	±20%	½ watt	
R8	Not used			
R9	2.2K ohms	±20%	½ watt	
R101	220 ohms	±10%	½ watt	
R102	56K ohms	±10%	2 watts	
R103	47 ohms	±10%	½ watt	
R104	15K ohms	±10%	½ watt	
R105	Not used			
R106	4.7K ohms	± 5%	½ watt	
R107	4.7K ohms	± 5%	½ watt	
R108	10 Megohms	±10%	½ watt	
R109	3.3K ohms	±10%	½ watt	
R110	Not used			
R111	330K ohms	±10%	½ watt	
R112	10K ohms	±20%	½ watt	
R113	270 ohms	±10%	1 watt	
R201	2.2K ohms	±10%	½ watt	
R202	47 ohms	±10%	½ watt	
R203	470 ohms	±10%	½ watt	
R204	8.2K ohms	± 5%	½ watt	
R205	Not used			
R206	150K ohms	±10%	½ watt	
R207	120K ohms	±10%	½ watt	
R208	15K ohms	±10%	½ watt	
R209	39 ohms	±10%	½ watt	
R210	Not used			
R211	8.2K ohms	± 5%	½ watt	
R212	1.5K ohms	±20%	½ watt	
R213	150 ohms	±10%	½ watt	
R214	39K ohms	±10%	1 watt	
R215	Not used			
R216	3.3K ohms	±10%	1 watt	
R217	Not used			
R218	2.7K ohms	±10%	½ watt	
R219	470 ohms	±10%	½ watt	
R220	Not used			
R221	10 ohms	±10%	½ watt	
R222	33 ohms	±10%	½ watt	
R223	18K ohms	±10%	2 watts	
R224	4.7K ohms	± 5%	7 watts W.W.	
R225	1K ohm	±10%	½ watt	
R226	12K ohms	±10%	1 watt	
R227	3.3K ohms	±10%	½ watt	
R228	47K ohms	±10%	2 watts	
R229	220K ohms	±10%	½ watt	
R230	Not used			
R231	3.9K ohms	±10%	½ watt	
R232	47 ohms	±10%	½ watt (Ducon or Morg.)	
R233	3.3 Megohms	±20%	½ watt	
R301	47K ohms	±10%	½ watt	
R302	680K ohms	±10%	½ watt	
R303	10 Megohms	±10%	1 watt	
R304	470K ohms	±10%	½ watt	
R305	150K ohms	±10%	½ watt	
R306	33K ohms	±10%	½ watt	
R307	47K ohms	± 5%	1 watt	
R308	47K ohms	±10%	½ watt	
R309	150K ohms	±10%	1 watt	
R310	Not used			
R311	180K ohms	± 5%	1 watt	
R312	33K ohms	±10%	½ watt	

RESISTORS (cont.)

Code No.	DESCRIPTION			Part No.
R313	1.5 Megohms	±10%	½ watt	
R314	680K ohms	±10%	½ watt	
R315	Not used			
R316	22K ohms	±10%	2 watts	
R317	27K ohms	±10%	2 watts	
R318	82K ohms	±10%	½ watt	
R319	82K ohms	±10%	1 watt	
R320	Not used			
R321	1 Megohm	±10%	½ watt	
R322	68K ohms	±10%	½ watt	
R323	220K ohms	±10%	1 watt (IRC)	
R324	100K ohms	±10%	1 watt	
R325	Not used			
R326	33K ohms	±10%	1 watt	
R327	33 Megohms	±10%	1 watt	
R328	680K ohms	±10%	1 watt (Ducon or Morg.)	
R329	680K ohms	±10%	½ watt (Ducon or Morg.)	
R330	Not used.			
R331	6.8 Megohms	±10%	1 watt	
R332	270K ohms	±10%	1 watt (IRC)	
R333	4.7K ohms	±10%	½ watt	
R334	1.2 Megohms	±10%	1 watt	
R335	Not used.			
R336	68K ohms	±10%	1 watt (Ducon or Morg.)	
R337	2.2 Megohms	±10%	1 watt (IRC)	
R338	680 ohms	±10%	5 watts W.W.	
R339	270K ohms	±10%	½ watt	
R340	Not used.			
R341	100K ohms	±10%	½ watt	
R342	100K ohms	±10%	½ watt	
R343	1.2 Megohms	±10%	½ watt	
R344				
R401	470K ohms	±10%	½ watt	
R402	470K ohms	±10%	½ watt	
R403	390K ohms	±10%	½ watt	
R404	33K ohms	±10%	½ watt	
R405	820K ohms	±10%	1 watt	
R406	47K ohms	±10%	1 watt	
R407	2.2K ohms	± 5%	1 watt	
R408	68K ohms	±10%	1 watt	
R409	47K ohms	±10%	½ watt	
R410	Not used.			
R411	1K ohm	±20%	½ watt	
R412	15K ohms	±10%	1 watt	
R413	27K ohms	±10%	½ watt	
R414	1K ohm	±20%	½ watt	
R415	Not used.			
R416	680K ohms	±10%	½ watt	
R417	100K ohms	±10%	½ watt	
R418	2.7K ohms	±10%	5 watts W.W.	
R419	1 Megohm	±10%	1 watt	
R420	Not used.			
R421	820K ohms	±10%	1 watt BTAV	
R422	1.5 ohms	±10%	½ watt W.W.	
R423	680K ohms	±20%	½ watt	
R424	470K ohms	±10%	1 watt	
R425	Not used.			
R426	390K ohms	±10%	1 watt	
R427	1K ohm	±20%	½ watt	
R428	150 ohms	±10%	½ watt } In	
R429	150 ohms	±10%	½ watt } Yoke	
R430	Not used.			
R431	3.3K ohms	±10%	7 watts W.W.	
RV101	1 Megohm Curve C Carbon, Tone			*
RV102	500K ohms Curve C Carbon, Volume			*
RV201	15K ohms Curve A Carbon, Contrast			620226
RV301	500K ohms Curve A Carbon, I.F. A.G.C.			620569
RV302	250K ohms Curve A Carbon, Vert. Hold			620472
RV303	500K ohms Curve A Carbon, Height			620569
RV304	200K ohms Curve A Carbon, Top Linearity			620487
RV305	100K ohms Curve A Carbon, Vert. Linearity			620322
RV306	500K ohms Curve A Carbon, Brightness			*
RV401	25K ohms Curve A Carbon, Hor. Hold Pre-set			620249
RV402	25K ohms Curve A Carbon, Hor. Hold			620248
RV403	2.5 Megohms Curve A Carbon, Focus			620781
RV404	1 Megohm Curve A Carbon, Width			620769

* Varies with models.

CAPACITORS

Code No.	DESCRIPTION	Part No.
C1	3.3pF ±10% NPO disc	
C2	2.2pF ±5% NPO disc	
C3	18pF ±5% NPO feed thru	
C4	3.3pF ±10% NPO disc	
C5	15pF ±5% NPO disc	
C6	0.001μF +100% —0% Hi-K feed	
C7	1-5pF trimmer	
C8	0.5-3 pF trimmer	
C9	100pF ±7½% N3300 feed thru	
C10	27pF ±5% NPO disc	
C11	0.001μF +100% —0% Hi-K feed thru	
C12	0.5-3pF trimmer	
C13	0.001μF +100% —0% Hi-K feed thr	
C14	0.68pF special	
C15	470pF ±20% K2000 tubular	
C16	56pF ±10% N750 tubular (TBI)	
C17	5.6pF +5% —0% N150 disc	
C18	5.6pF ±2½% N150 disc	
C19	5.6pF +0% —5% N150 disc	
C20	0.001μF +100% —0% Hi-K feed thru	
C22	220pF ±20% Hi-K disc	
CN	Neutralising capacitance	
C101	6.8pF ±5% NPO tubular (in L101)	
C102	39pF ±5% N220 disc (in L101)	
C103	0.0039μF ±10% 400VW polyester	
C104	100pF ±5% 630VW polystyrene (in TR101)	
C105	Not used.	
C106	470pF ±5% 630VW polystyrene	
C107	470pF ±5% 630VW polystyrene	
C108	0.22μF +80% —20% 25VW Hi-K disc	
C109	0.0047μF ±10% 400VW polyester	
C110	Not used.	
C111	0.01μF ±10% 160VW polyester	
C112	0.0068μF ±10% 400VW polyester	
C113	0.0033μF ±10% 400VW polyester	
C114	0.0018μF ±10% 400VW polyester	
C201	5.6pF ±5% NPO disc	
C202	12pF ±5% NPO tubular	
C203	4-10pF trimmer	231123
C204	0.0047μF +100% —0% K5000 disc	
C205	0.0047μF +100% —0% K5000 disc	
C206	270pF ±5% 630VW polystyrene	
C207	0.0047μF +100% —0% K5000 disc	
C208	0.0047μF +100% —0% K5000 disc	
C209	0.0047μF +100% —0% K5000 disc	
C210	Not used.	
C211	390pF ±5% 630VW polystyrene	
C212	18pF ±5% NPO tubular (in TR202)	
C213	0.0047μF +100% —0% K5000 disc	
C214	0.001μF +100% —0% K5000 feed thru	
C215	Not used.	
C216	0.0047μF +100% —0% K5000 disc	
C217	0.0047μF +100% —0% K5000 disc	
C218	470pF ±5% 630VW polystyrene	
C219	0.0047μF +100% —0% K5000 disc	
C220	Not used.	
C221	2.2pF ±20% NPO disc (in TR203)	
C222	4.7pF ±10% N750 bead (in TR203)	
C223	0.022μF ±10% 160VW polyester	
C224	0.01μF ±10% 160VW polyester	
C225	2.2pF ±20% NPO disc	
C226	39pF ±10% N220 disc	
C227	2μF 300VW Electrolytic	227923
C228	47pF ±10% N750 tubular	
C229	39pF ±10% N750 tubular	
C230	Not used.	
C231	2μF 300VW Electrolytic	227923
C232	12pF ±10% N750 tubular	
C233	0.22μF ±10% 160VW polyester	
C234	0.47μF ±10% 160VW polyester	
C301	0.1μF ±10% 160VW polyester	
C302	0.1μF ±10% 160VW polyester	
C303	0.0039μF ±10% 400VW polyester	
C304	0.022μF ±10% 400VW polyester	
C305	Not used.	
C306	0.0039μF ±10% 400VW polyester	
C307	0.0047μF ±10% 400VW polyester	

CAPACITORS (cont.)

Code No.	DESCRIPTION	Part No.
C308	220pF ±10% 630VW polystyrene	
C309	270pF ±10% N750 tubular	
C310	0.0022μF ±10% 400VW polyester	
C311	0.0082μF ±10% 400VW polyester	
C312	0.022μF ±10% 400VW polyester	
C313	0.018μF ±10% 400VW polyester	
C314	0.039μF ±10% 400VW polyester	
C315	Not used.	
C316	0.1μF ±10% 160VW polyester	
C317	0.1μF ±10% 400VW polyester	
C318	0.01μF ±10% 400VW polyester	
C319	0.0033μF ±10% 400VW polyester	
C320	2μF 500VW Electrolytic	227934
C321	0.047μF ±10% 600VW paper	
C322	0.1μF ±10% 400VW polyester	
C323	0.1μF ±10% 400VW polyester	
C324	0.1μF ±20% 1000VW paper	
C325	Not used.	
C326	0.039μF ±10% 400VW polyester	
C327A	60μF 275VW } Electrolytic	229767
C327B	200μF 275VW }	
C328	0.1μF ±10% 160VW polyester	
C329	0.022μF ±10% 400VW polyester	
C330	Not used.	
C331	2μF 200VW Electrolytic	227933
C332	0.1μF ±10% 400VW polyester	
C401	150pF ±10% 400VW polystyrene	
C402	0.1μF ±10% 160VW polyester	
C403	150pF ±10% 400VW polystyrene	
C404	0.0022μF ±10% 400VW polyester	
C405	Not used.	
C406	0.001μF ±10% 400VW polyester	
C407	0.0047μF ±10% 400VW polyester	
C408	0.0027μF ±10% 400VW polyester	
C409	0.22μF ±10% 160VW polyester	
C410	Not used.	
C411	150pF ±10% 630VW polystyrene	
C412	24μF 300VW Electrolytic	222812
C413	680pF ±5% 630VW polystyrene	
C414	22pF ±10% NPO tubular	
C415	Not used.	
C416	0.001μF ±10% 400VW polyester	
C417	680pF ±5% 630VW polystyrene	
C418	0.01μF ±10% 160VW polyester	
C419	27pF ±10% N1500 tubular	
C420	Not used	
C421	0.1μF ±10% 400VW polyester	
C422	0.047μF ±10% 1000VW paper	
C423	0.047μF ±10% 1000VW paper	
C424	270pF ±10% 2500VW N750 tubular	
C425	0.0047μF +100% —0% 25VW K5000 disc	
C426	270pF ±10% 2500VW N750 tubular	
C427	0.18μF +10% 400VW paper	
C428	68pF ±10% 2000VW N750 tubular	
C429	0.1μF ±10% 400VW polyester	
C430	Not used.	
C431	100μF 150VW Electrolytic	229651
C432	100μF 150VW Electrolytic	229651

Code No.	DESCRIPTION	Part No.
	INDUCTORS	
L1	36.875 Mc/s Trap	41859
L2	Converter I.F. Coil	41859
L3	Not used	
L4	Oscillator Filament Choke	41866
L5	Screen Inductor Coil	45017
La-Lh	Tuning Coil Assembly	
	Channel 0	45055
	Channel 1	45056
	Channel 2	45057
	Channel 3	45058
	Channel 4	45059
	Channel 5	45060
	Channel 5A	45061
	Channel 6	45062
	Channel 7	45063
	Channel 8	45064
	Channel 9	45065
	Channel 10	45066
	Channel 11	45067
V1	Radiotron 6GK5	
V2	Radiotron 6HG8	
L101	Sound I.F.	43336
L201 L202	38.375 Mc/s Trap I.F. Input	43580
L203	Detector Filter	40323
L204	Detector Filter	49671
L205	Detector Peaking	41423
L206	Sound I.F. Trap 5.5 Mc/s	43593
L207	Video Ampl. Shunt Peaking	40117
L208	Video Peaking	45090
L209	Video Ampl. Series Peaking	41423
L301	Ferrox Cube Bead	132011
L401	Sine Wave	52150
L402	H.F. Choke 1.5μF	214516
L403	Horizontal Linearity	43264
L404 L405 L406 L407	Vertical Deflection Coil Vertical Deflection Coil Horizontal Deflection Coil Horizontal Deflection Coil — Yoke	43665
L408	H.T. Filter Choke	51571/001
	TRANSFORMERS	
TR1	Balun Assembly	44009
TR101	Ratio Detector	40077
TR102	Speaker Transformer	*
TR201	1st Video I.F.	40902
TR202	2nd Video I.F.	41407
TR203	3rd Video I.F.	41933
TR301	Vertical Output	43340/001
TR401	E.H.T. Transformer	52536
TR402	Power Transformer	53547/001

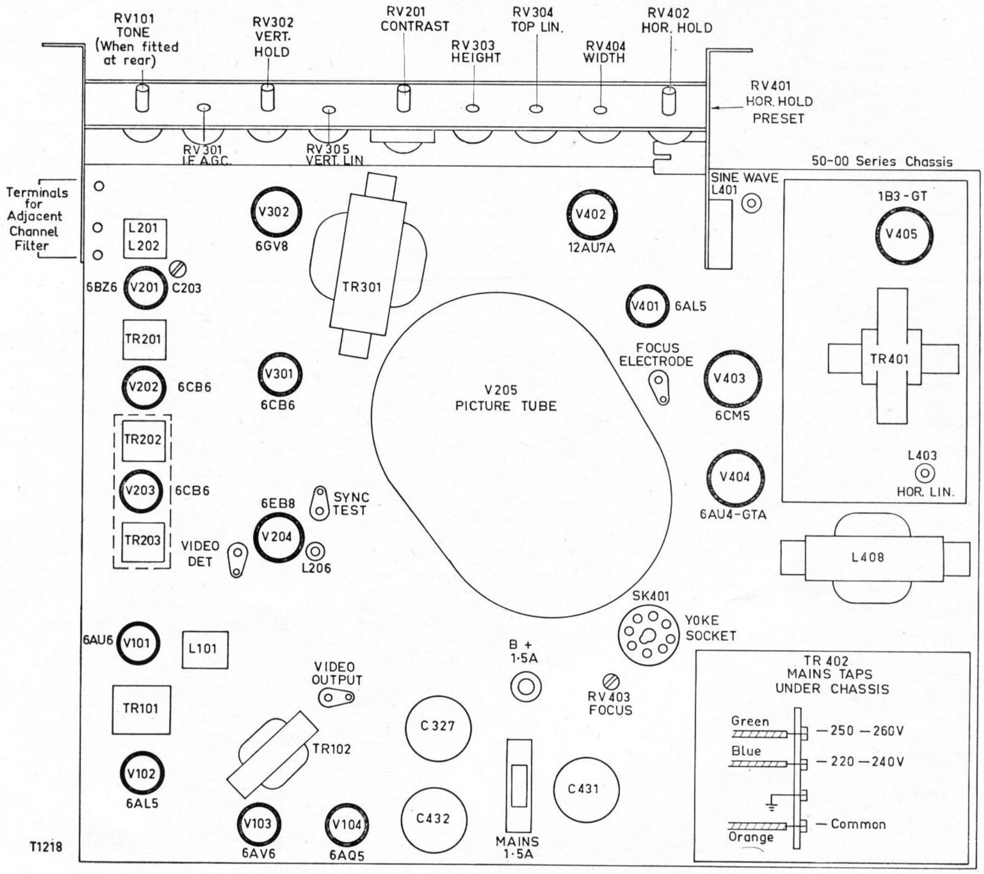
Code No.	DESCRIPTION	Part No.
	VALVES AND DIODES	
V101	Radiotron 6AU6	
V102	Radiotron 6AL5	
V103	Radiotron 6AV6	
V104	Radiotron 6AQ5	
V201	Radiotron 6BZ6	
V202	Radiotron 6CB6	
V203	Radiotron 6CB6	
V204	Radiotron 6EB8	
V205	Radiotron Picture Tube *	
V301	Radiotron 6CB6	
V302	Radiotron 6GV8	
V401	Radiotron 6AL5	
V402	Radiotron 12AU7A	
V403	Radiotron 6CM5	
V404	Radiotron 6AU4-GTA	
V405	Radiotron 1B3-GT	
MR201	AWV IN87A	
MR202	AWV IN3193	
MR401	AWV IN3194	
MR402	AWV IN3194	
	MISCELLANEOUS	
VDR301	Voltage Dependent Resistor E298ED/A262	619507
VDR302	Voltage Dependent Resistor E298ED/A260	619561
VDR401	Voltage Dependent Resistor E29822/06	619562
FS401	1.5 Amp. Fuse	370023
FS402	1.5 Amp. Fuse	370023
SW301	Power On-Off Switch	*
SG301	Spark Gap (BTS Blank)	600000
SG401	Spark Gap (BTS Blank)	600000

MECHANICAL

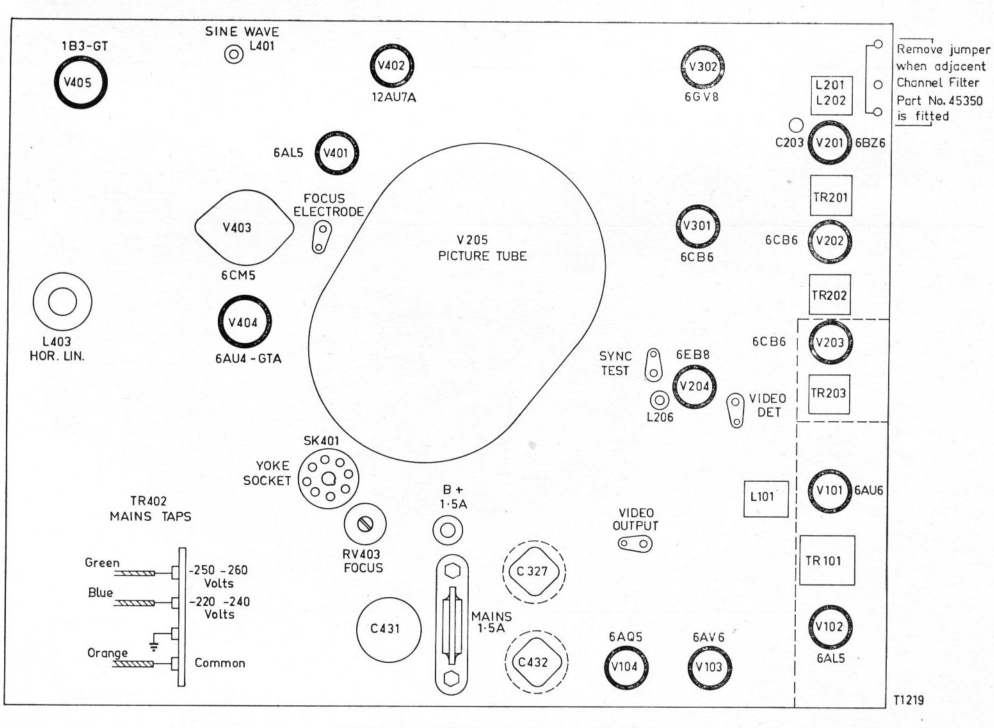
Anode Cap and Lead, Hor. Output	40044
Cap Ass'y, Yoke	41185
Clamp Body, Power Cable	208056
Clamp Lock, Power Cable	208507
Clamp, Yoke Cap	41186
E.H.T. Box, Lid	41310
E.H.T. Box, Side	41309
Fuse Holder H.T.	49075
Fuse Holder, Mains	40845
Lead Ass'y, Ultor	49545
Screen, Valve (4)	653013
Screen, Valve (1)	653014
Shield Ass'y, Corona	41062
Shield Ass'y, Video Det.	42378
Shield, Sound I.F.	45141
Shield, Tunnel	42429
Socket, Kinescope	794629
Socket, 7 pin	794616
Socket, 7 pin with Saddle	794615
Socket, 7 pin with Skirt	794569
Socket, 7 pin Moulded Push-in	794579
Socket, 8 pin Wafer	793033
Socket, 8 pin Mica Filled	794582
Socket, 9 pin Moulded	794599
Test Point Ass'y	41085

* Varies with models.

CHASSIS LAYOUT

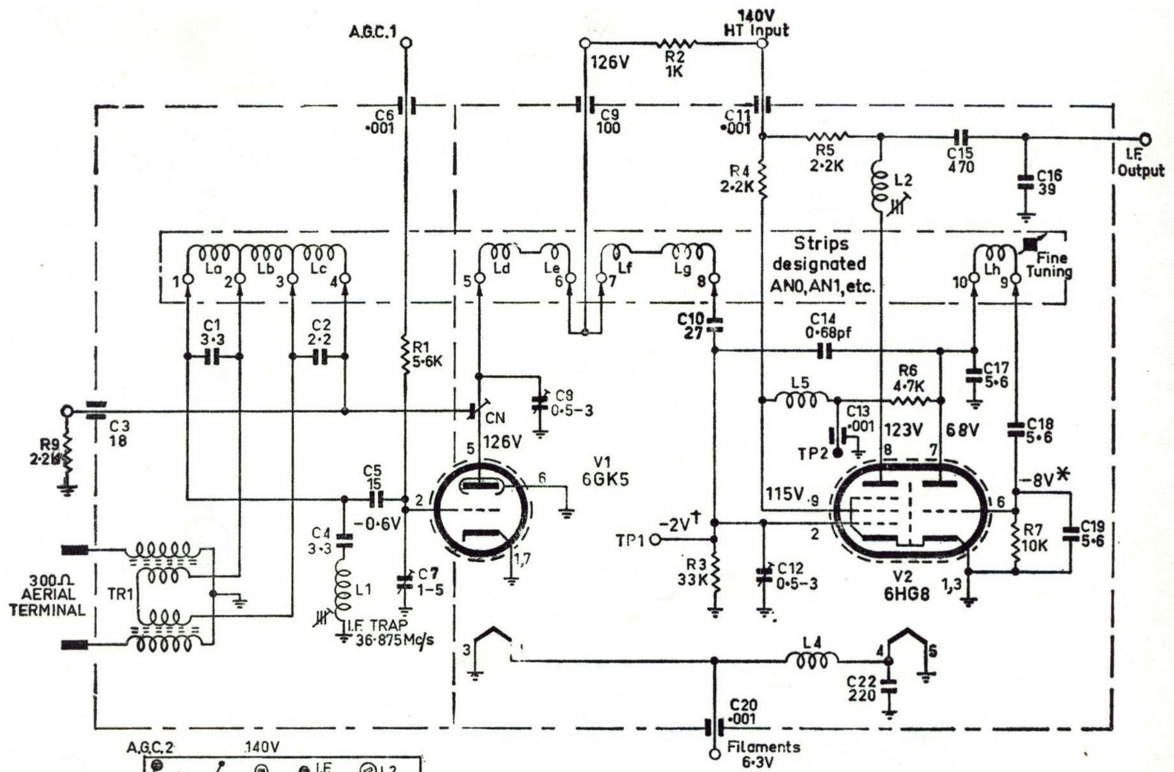


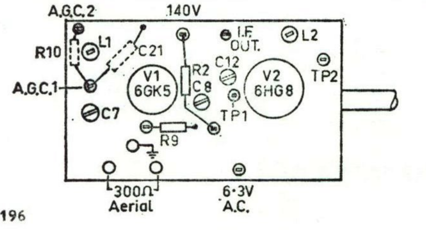
TOP CHASSIS VIEW



UNDER CHASSIS VIEW

TB Series Neutrode Turret Tuner





T1196

NOTES † Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1·4V without loss of gain.
* Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V(Ch11) to −12V(Ch0).

N.B. TP2 used for Tuner Sweep Alignment.

50-00 SERIES TELEVISION RECEIVER CHASSIS CIRCUIT

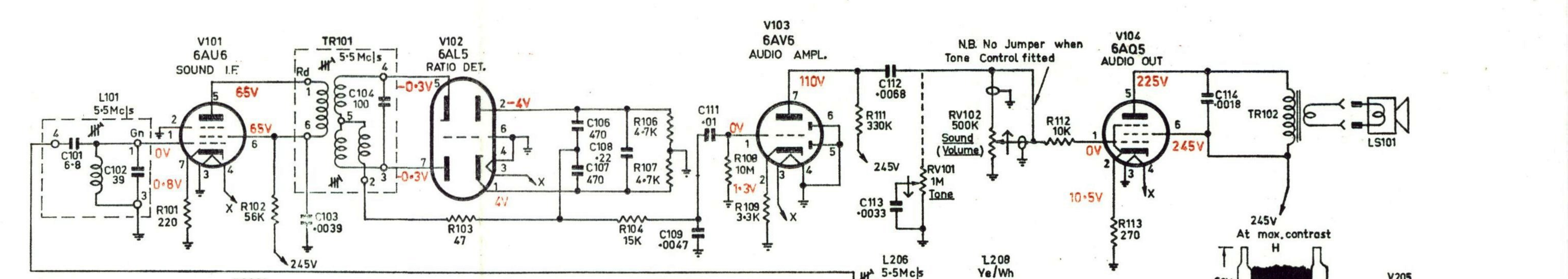
NOTES

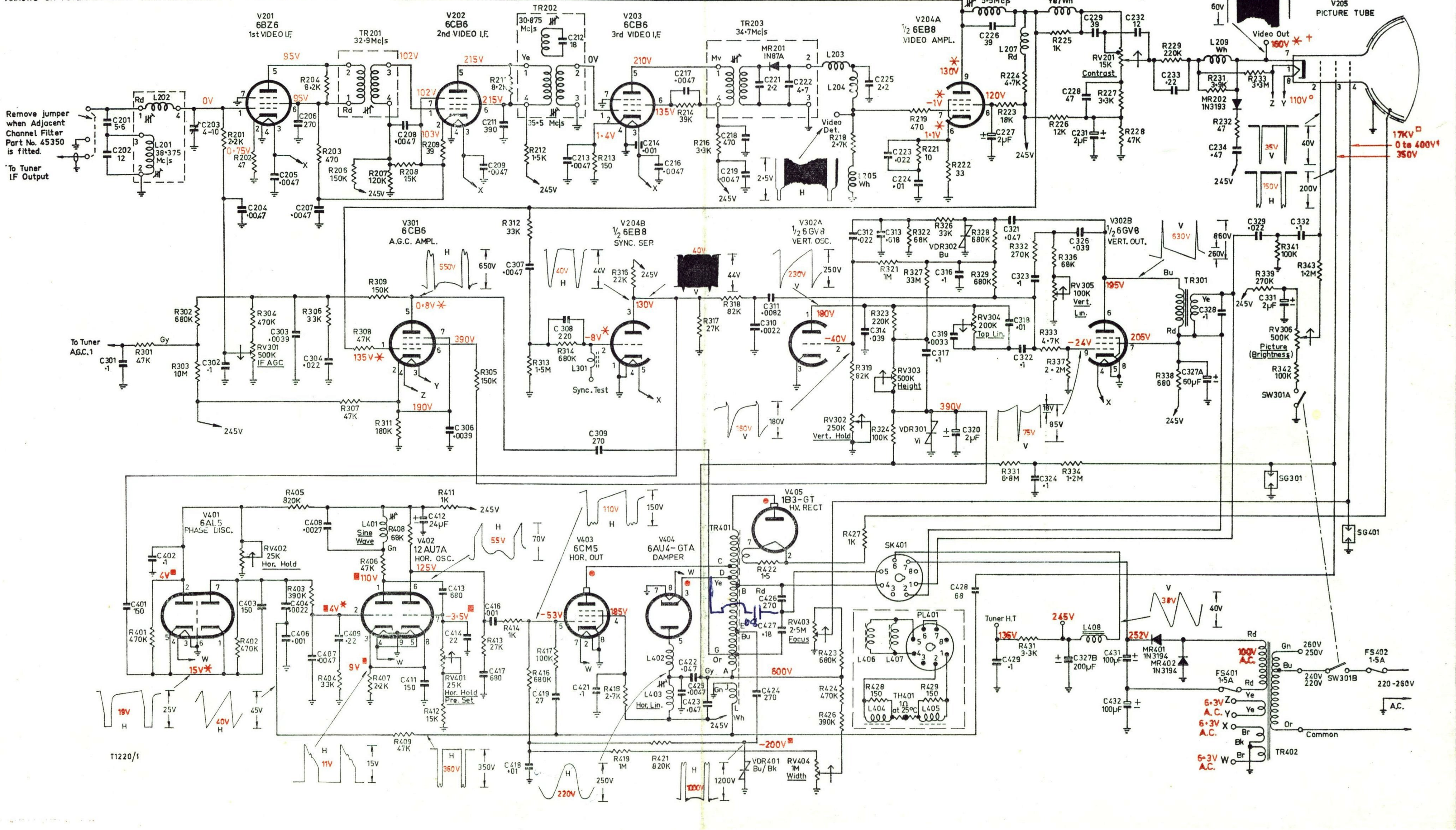
① WAVEFORM VOLTAGES :-
VOLTAGES WITHIN THE WAVEFORMS MEASURED ON A VOLTOHMYST (PEAK TO PEAK)
VOLTAGES BETWEEN ARROWS MEASURED ON C.R.O. USING LOW CAPACITANCE PROBE.

② ALL VALVE VOLTAGES MEASURED ON A VOLTOHMYST WITH CONTROLS NORMAL AND NO SIGNAL INPUT
* VARIES WITH NOISE ● DO NOT MEASURE
‡ VARIES WITH FOCUS † VARIES WITH CONTRAST
□ MEASURED AT MINIMUM BRIGHTNESS WITH H.V. PROBE ON VOLTOMYST
■ VARIES WITH HORIZONTAL HOLD
■ VARIES WITH WIDTH ○ VARIES WITH BRIGHTNESS

③ R421
THESE RESISTOR(S) ARE BTAV (HIGH VOLTAGE RATED)
IF CORRECT REPLACEMENT TYPES ARE UNAVAILABLE,
REPLACE WITH TWO NORMAL 1WATT RESISTORS IN SERIES
EACH RESISTOR BEING OF HALF THE ORIGINAL VALUE

④ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION





D.C. RESISTANCE OF WINDINGS

WINDING		D.C. RESISTANCE IN OHMS
Tuner Windings		*
L101	Sound I.F.	1.3
L201	38.375 Mc/s Trap	*
L202	Video I.F. Input	*
L203	Detector Filter	1.5
L204	Detector Filter	*
L205	Detector Peaking Coil	5
L206	5.5 Mc/s Trap	7
L207	Video Amp. Shunt Peaking	6.8
L208	Video Amp. Peaking	3.2
L209	Video Amp. Series Peaking	5
L401	Sine Wave Coil	55
L402	H.F. Choke	*
L403	Horizontal Linearity	7
L404	Vertical Deflection	2.5
L405	Vertical Deflection	2.5
L406	Horizontal Deflection	17
L407	Horizontal Deflection	17
L408	H.T. Filter Choke	25
TR101	Ratio Detector	
	Primary	9.5
	Secondary	1

WINDING		D.C. RESISTANCE IN OHMS
TR102	Speaker Transformer	
	Primary	500
	Secondary	2
TR201	1st Video I.F.	
	Primary	*
	Secondary	*
TR202	2nd Video I.F.	
	Primary	*
	Secondary	*
TR203	3rd Video I.F.	
	Primary	*
	Secondary	*
TR301	Vertical Output	
	Primary Bu-Rd	350
	Secondary Rd-Ye	1
TR401	Horizontal Output	
	Primary C-A	23
	Secondary G-B	7
	Tertiary C-Top Cap	415
	Tertiary J-L	1.5
TR402	Power Transformer	
	Primary Gn-Or	10
	Secondary Rd-Rd	4.5

*Less than 1 ohm.

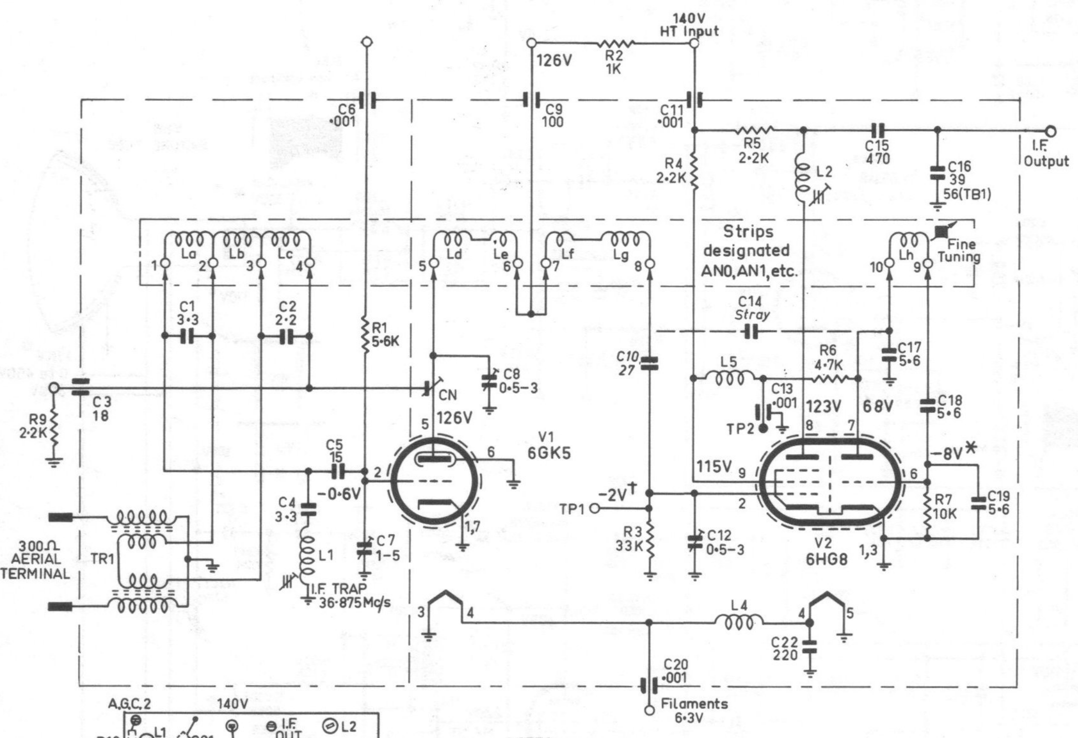
The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

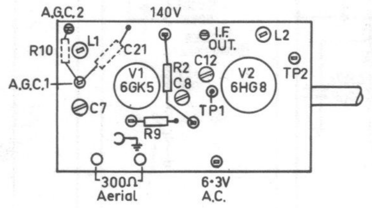
A. W. BOUNDS PTY. LTD., PRINTERS, GLEBE, SYDNEY

AWA

FIELD TEST SHEET 50-00 SERIES

TB Series Neutrode Turret Tuner





NOTES:

† Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1·4V without loss of gain.

* Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V (Ch.11) to −12V (Ch.0).

N.B. TP2 used for Tuner Sweep Alignment.

Rod Humphris
22 Cardiff Street
Boronia, 3155
Tel.: 729 7104

COMPONENT REPLACEMENTS

	ITEM	PART or CODE No.
L101	Sound I.F.	43336
L201	38.375 Mc/s Trap	43580
L202	Video I.F. Input	43580
L203	Detector Filter	40323
L204	Detector Filter	49671
L205	Detector Peaking Coil	41423
L206	5.5 Mc/s Trap	43593
L207	Video Ampl. Shunt Peaking	40117
L208	Video Ampl. Peaking	45090
L209	Video Ampl. Series Peaking	41423
L401	Sine Wave Coil	52150
L402	H.F. Choke 1.5 μH	214516
L403	Horizontal Linearity	43264
L404–7	Yoke	43665
L408	H.T. Filter	51571/001
TR101	Ratio Detector	40077
TR102	Speaker Transformer	*
TR201	1st Video I.F.	40902
TR202	2nd Video I.F.	41407
TR203	3rd Video I.F.	41933
TR301	Vertical Output	43340/001
TR401	Horizontal Output	52536
TR402	Power Transformer	51839/003
RV101	1 Megohm Curve C Carbon, Tone	*
RV102	500K ohms Curve C Carbon, Volume	*
RV201	15K ohms Linear Carbon, Contrast	620226
RV301	500K ohms Curve A Carbon, I.F. A.G.C.	620569
RV302	250K ohms Curve A Carbon, Vert. Hold	620472
RV303	500K ohms Curve A Carbon, Height	620569
RV305	100K ohms Curve A Carbon, Top Lin.	620322
RV304	100K ohms Curve A Carbon, Vert. Lin.	620322
RV306	500K ohms Curve A Carbon, Brightness	*
RV401	25K ohms Curve A Carbon, Pre-set Hor. Hold	620249
RV402	25K ohms Curve A Carbon, Hor. Hold	620248
RV403	2.5 Megohms Curve A Carbon, Focus	620781
RV404	1 Megohm Curve A Carbon, Width	620769
C203	4-10pf trimmer	231123
C227	2μf 300VW Electrolytic	227923
C231	2μf 300VW Electrolytic	227923
C320	2μf 500VW Electrolyic	227934
C327A	60μf 275VW	229767
C327B	200μf 275VW	229767
C412	10μf 300 VW Electrolytic	228775
C431	100μf 150VW Electrolytic	229651
C432	100μf 150 VW Electrolytic	229651
	Tuning Strips, Turret Tuner. (Identification AN0, AN1, etc.)	
	Channel 0	45055
	Channel 1	45056
	Channel 2	45057
	Channel 3	45058
	Channel 4	45059
	Channel 5	45060
	Channel 5A	45061
	Channel 6	45062
	Channel 7	45063
	Channel 8	45064
	Channel 9	45065
	Channel 10	45066
	Channel 11	45067

*Refer to label on cabinet back.

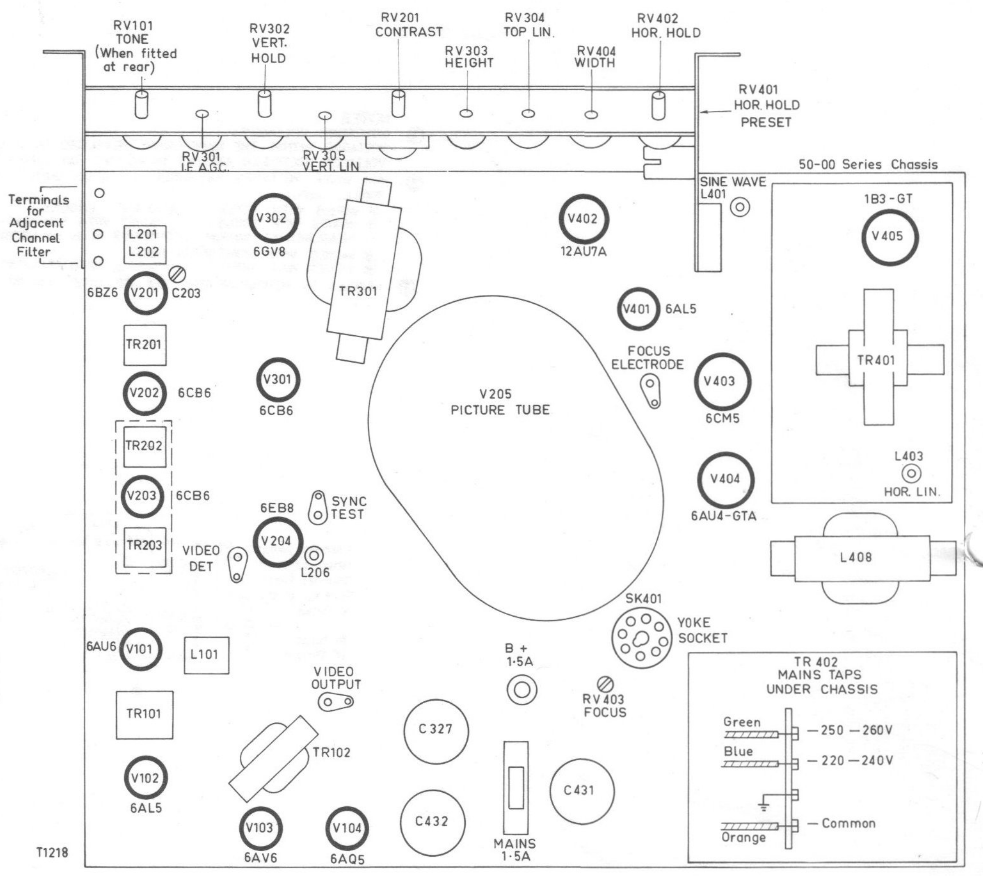
D.C. RESISTANCE OF WINDINGS

WINDING		D.C. RESISTANCE IN OHMS
Tuner Windings		*
L101	Sound I.F.	1.3
L201	38.375 Mc/s Trap	*
L202	Video I.F. Input	*
L203	Detector Filter	1.5
L204	Detector Filter	*
L205	Detector Peaking Coil	5
L206	5.5 Mc/s Trap	7
L207	Video Amp. Shunt Peaking	6.8
L208	Video Amp. Peaking	3.2
L209	Video Amp. Series Peaking	5
L401	Sine Wave Coil	55
L402	H.F. Choke	*
L403	Horizontal Linearity	7
L404	Vertical Deflection	2.5
L405	Vertical Deflection	2.5
L406	Horizontal Deflection	17
L407	Horizontal Deflection	17
L408	H.T. Filter Choke	25
TR101	Ratio Detector	
	Primary	9.5
	Secondary	1
TR102	Speaker Transformer	
	Primary	500
	Secondary	2
TR201	1st Video I.F.	
	Primary	*
	Secondary	*
TR202	2nd Video I.F.	
	Primary	*
	Secondary	*
TR203	3rd Video I.F.	
	Primary	*
	Secondary	*
TR301	Vertical Output	
	Primary Bu-Rd	350
	Secondary Rd-Ye	1
TR401	Horizontal Output	
	Primary C-A	23
	Secondary G-B	7
	Tertiary C-Top Cap	415
	Tertiary J-L	1.5
Power Transformer		
	Primary Gn-Or	10
	Secondary Rd-Rd	4.5

*Less than 1 ohm.

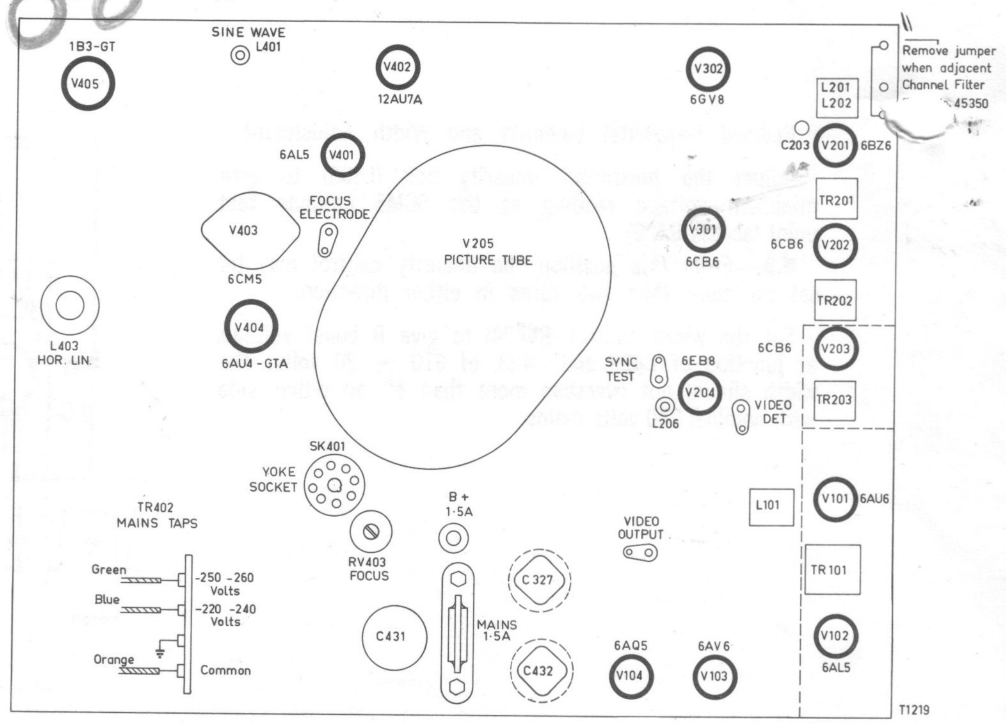
The above readings were taken on a standard chassis, but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

CHASSIS LAYOUT



TOP CHASSIS VIEW

AWA
50-00



UNDER CHASSIS VIEW

CIRCUIT VARIATIONS:

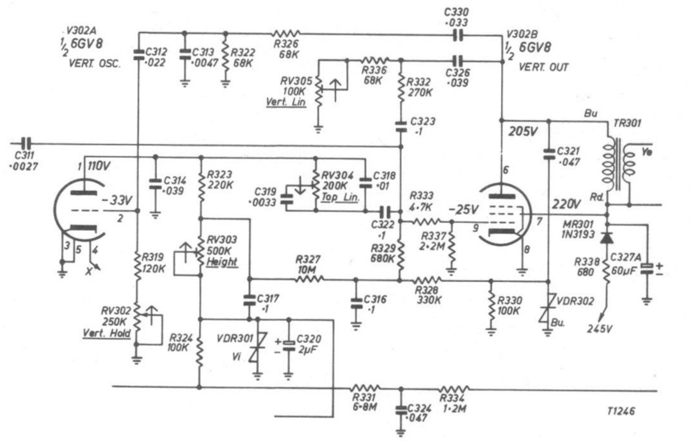
The following changes have been incorporated in this chassis since the release of the initial service information.

To improve picture tube spot suppression:
The series network, consisting of MR202 (1N3193), R232 (47Ω) and C234 (0.47μf) between the 245 volt line and the picture tube cathode, was deleted.
The present MR301 (1N3193) was added.
R339 was disconnected from the 245 volt line, connected to C327A, and changed from 270KΩ to 220KΩ ± 10% ½ watt.
C331 (2μf from RV306 side of R339) was deleted.
The following components changed in value:
R22 from 10Ω to 22Ω ± 10% ½ watt.
R231 from 3.9KΩ to 2.7KΩ ± 10% ½ watt.
R411 from 1KΩ to 2.7KΩ ± 10% ½ watt.
C223 from 0.022μf to 0.0068μf ± 10% 400VW polyester.
C224 from 0.01μf to 0.0068μf ± 10% 400VW polyester.
C324 from 0.1μf to 0.047μf ± 10% 1000VW paper.
C412 from 24μf to 10μf 300VW Electrolytic.

To improve 6CM5 valve life:
R415 (1MΩ ± 10% ½ watt) was added.

To improve centring of vertical hold control:
R319 changed from 82KΩ to 120KΩ ± 10% 1 watt.

To prevent a vertical jitter when some receivers were not synchronised:
The vertical circuit was changed to the configuration shown below.
Components affected by this change were:
R330 (100KΩ ± 10% 1 watt) added.
C330 (0.033μf ± 10% 630VW polyester) added.
R321 1MΩ deleted.
R326 from 33KΩ to 68KΩ ± 10% 1 watt.
R327 from 33MΩ to 10MΩ ± 10% 1 watt.
R328 from 680KΩ to 330KΩ ± 10% 1 watt.
C311 from 0.0082μf to 0.0027μf ± 10% 400VW polyester.
C313 from 0.018μf to 0.0047μf ± 10% 400VW polyester.
C321 from 0.47μf to 0.47μf ± 10% 630VW polyester.



To facilitate the horizontal linearity control adjustment for minimum 6CM5 cathode current:
R420 (1.5Ω ± 10% ½ watt W.W.) was added.

Due to a change in production method:
The colour coding of L205 and L209 (Coil 41423) was changed from White to Mauve/Mauve.

To provide easier adjustment to top linearity:
The vertical circuit was rearranged as shown in the latest circuit diagram.
Components affected by this change were:
C318 (0.01μf across RV304) deleted.
R335 (180KΩ ± 5% 1 watt IRC only) added.
RV304 from 200KΩ to 100KΩ curve A carbon 620322.
R332 from 270KΩ to 100KΩ ± 10% 1 watt Morganite or Ducon only.
C311 from 0.0027μf to 0.01μf ± 10% 400VW polyester.
C319 from 0.0033μf to 0.022μf ± 5% 400VW polyester.
C322 from 0.1μf to 0.068μf ± 10% 400VW polyester.

To improve reliability:
C206, C211 and C218 have been changed from polystyrene to ceramic disc capacitors.

To reduce dissipation in horizontal output stage:
C420 (68pf ± 10% 4000VW N750 disc) added.
C405 (4.7pf ± 10% 500VW N750 disc) added.
R415 changed from 1MΩ to 2.2MΩ.

For revised horizontal linearity and width adjustment see underleaf.

CIRCUIT A.W.A. TELEVISION RECEIVER CHASSIS — 50-00 SERIES

(Tuner Circuit see over)

3rd Edition June, 1971

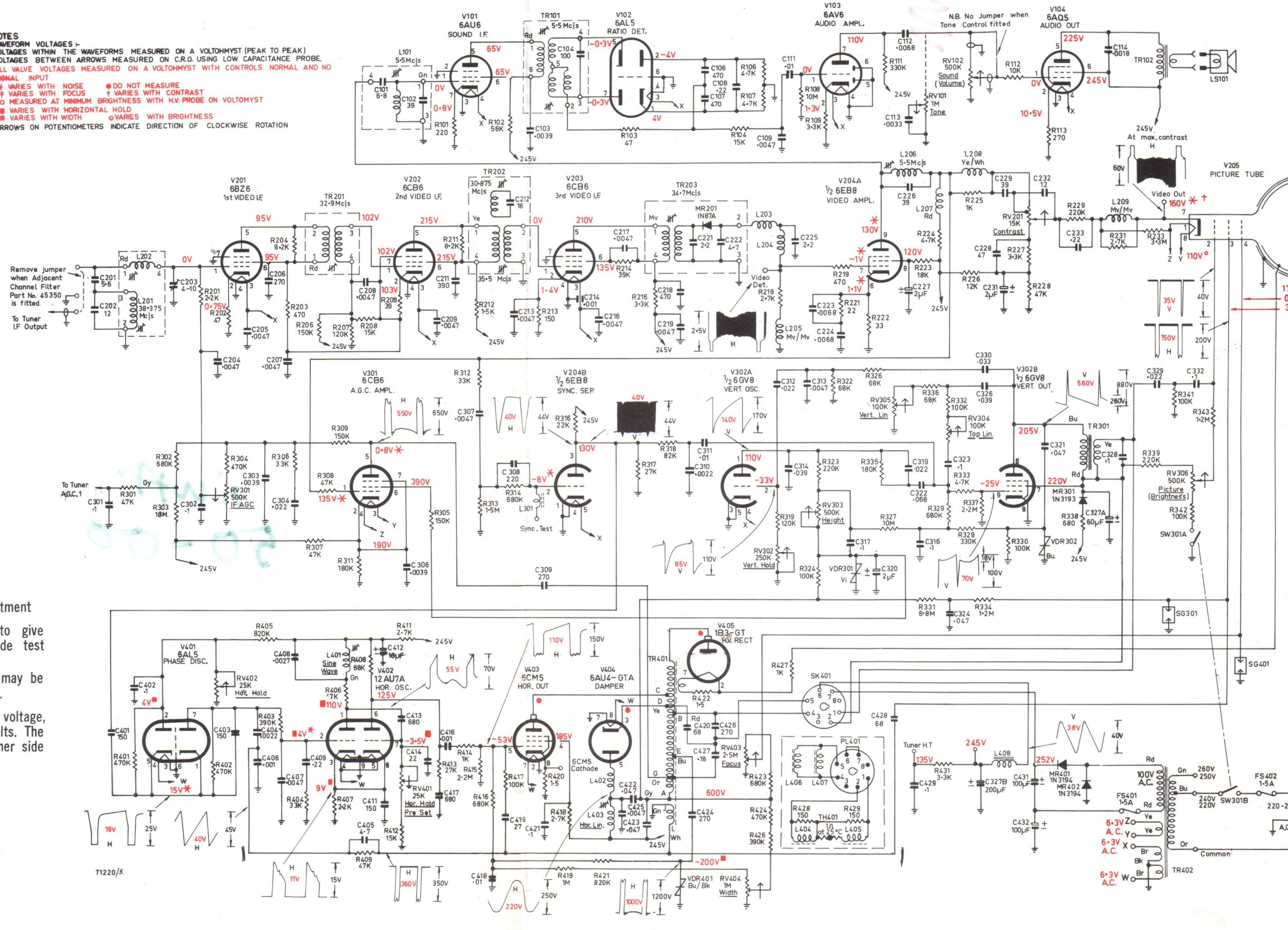
NOTES

① WAVEFORM VOLTAGES :-
VOLTAGES WITHIN THE WAVEFORMS MEASURED ON A VOLTOHMYST (PEAK TO PEAK)
VOLTAGES BETWEEN ARROWS MEASURED ON C.R.O. USING LOW CAPACITANCE PROBE.

② ALL VALVE VOLTAGES MEASURED ON A VOLTOHMYST WITH CONTROLS NORMAL AND NO SIGNAL INPUT

- ✱ VARIES WITH NOISE
- ● DO NOT MEASURE
- ‡ VARIES WITH FOCUS
- † VARIES WITH CONTRAST
- □ MEASURED AT MINIMUM BRIGHTNESS WITH H.V. PROBE ON VOLTOMYST
- ■ VARIES WITH HORIZONTAL HOLD
- ■ VARIES WITH WIDTH
- ⊙ VARIES WITH BRIGHTNESS

③ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION



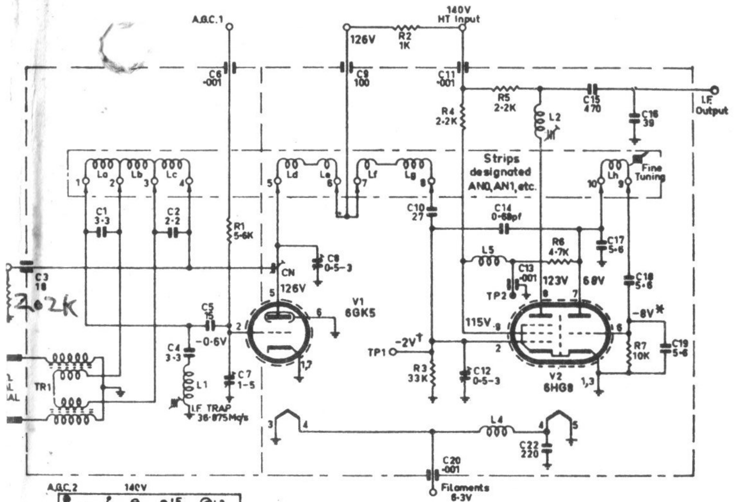
Revised Horizontal Linearity and Width Adjustment

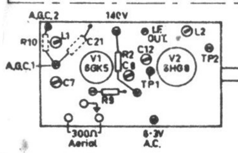
Adjust the horizontal linearity coil (L403) to give minimum voltage reading at the 6CM5 cathode test point (across R420).

N.B.—From this position the linearity control may be set no more than two turns in either direction.

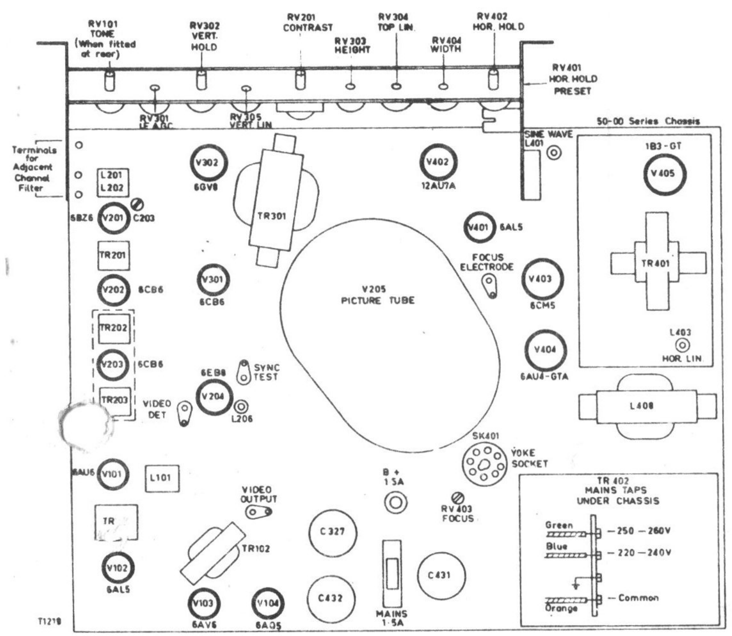
Set the width control (RV404) to give B boost voltage, at junction of C422 and C423, of 610 ± 20 volts. The width should not overscan more than ¾" on either side with nominal 240 volts mains.

TB. Series Neutrode Tuner





NOTES † Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between −5V and −1·4V without loss of gain.
✱ Oscillator plate and grid voltages measured as above. Grid voltage varies from −6V (Ch11) to −12V (Ch0).
N.B. TP2 used for Tuner Sweep Alignment.



50-00 SERIES TV CHASSIS

PROVISIONAL INFORMATION ONLY

50-00 SERIES TV CHASSIS

Retain for Service

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▣ VARIES WITH WIDTH ○ VARIES WITH BRIGHTNESS

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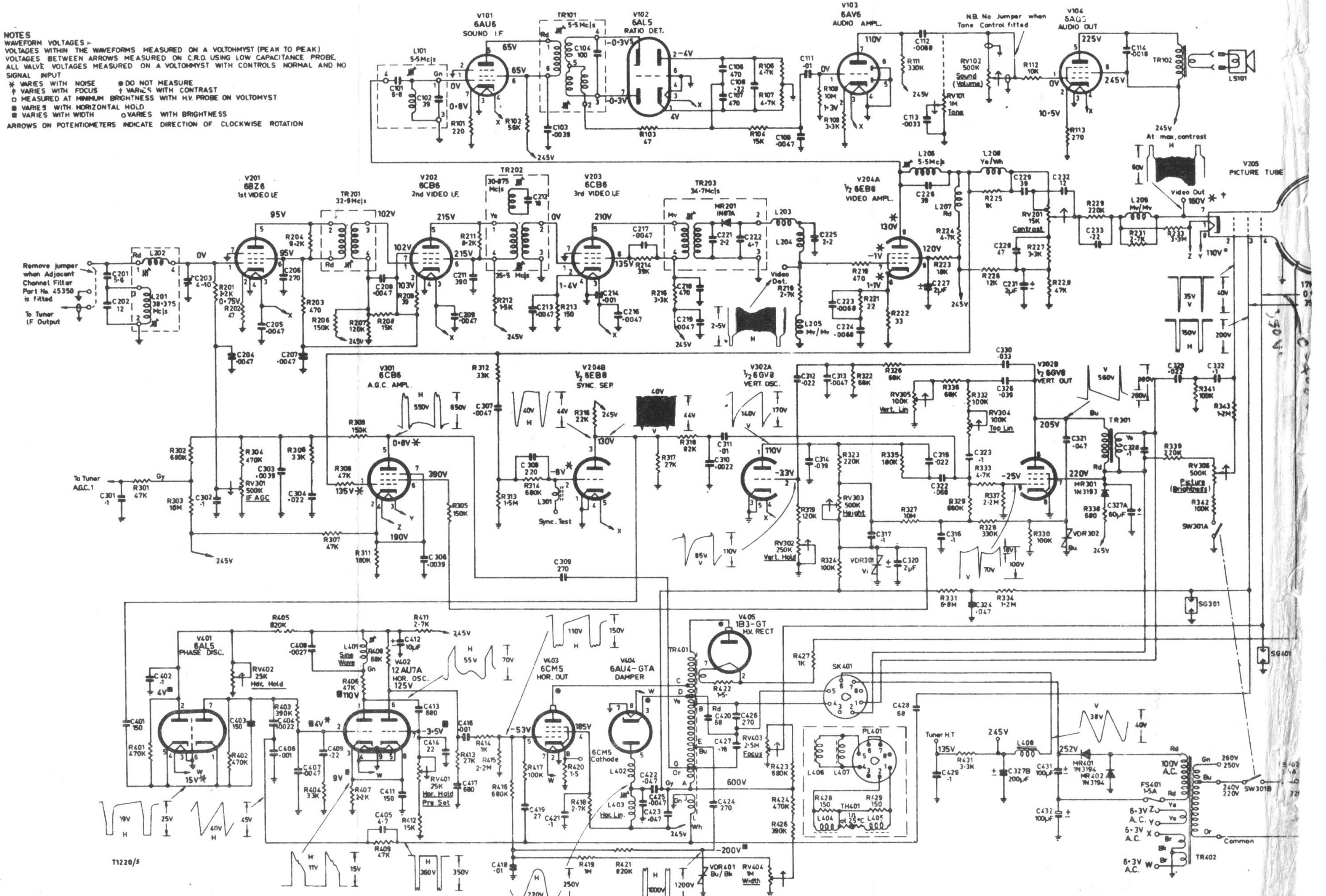

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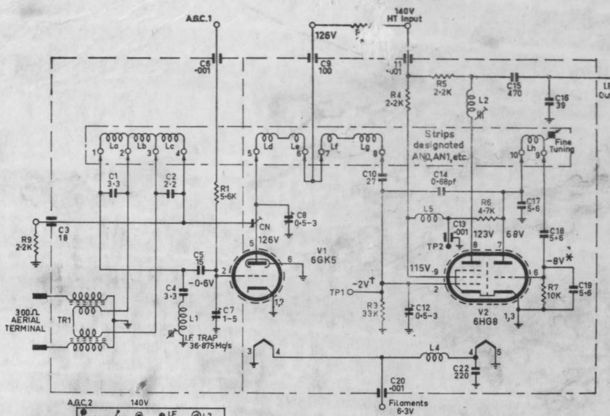
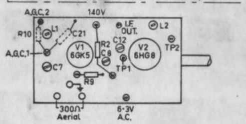
50-00 SERIES TV CHASSIS

TB. Series Neutrode Tuner





NOTES † Voltage at TP1 measured with 100K resistor, with short leads, in series with VTVM. This voltage may vary between -5V and -14V without loss of gain.

✱ Oscillator plate and grid voltages measured as above, Grid voltage varies from -6V (Ch11) to -12V (Ch0).

N.B. TP2 used for Tuner Sweep Alignment.

T1196

NOTES

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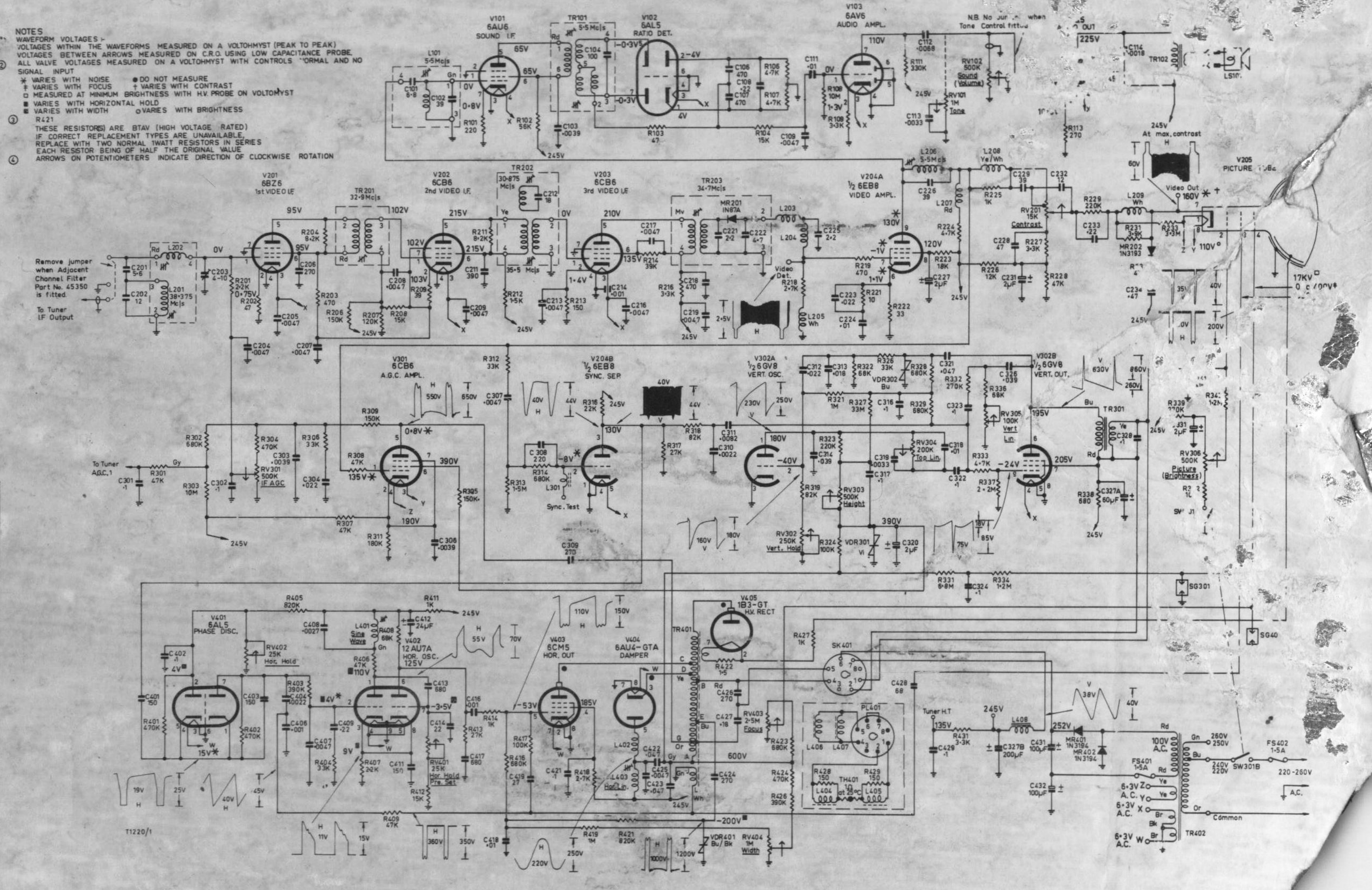
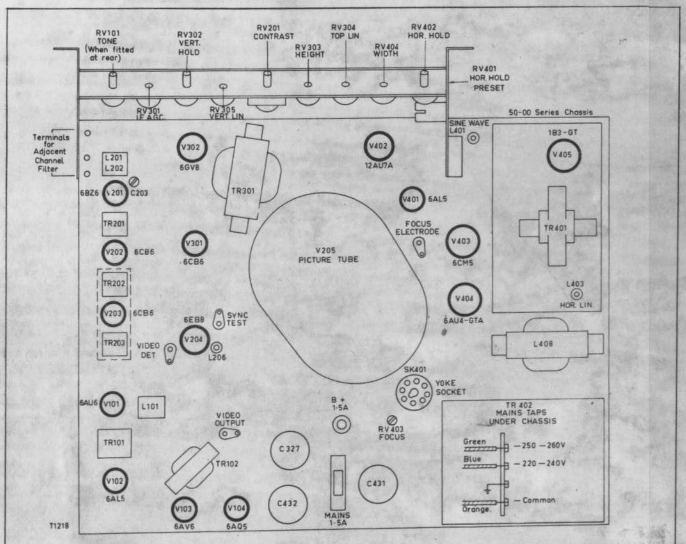
■ VARIES WITH HORIZONTAL HOLD
▲ VARIES WITH WIDTH ○ VARIES WITH BRIGHTNESS

③ R421
THESE RESISTORS ARE BTAV (HIGH VOLTAGE RATED)
IF CORRECT REPLACEMENT TYPES ARE UNAVAILABLE, REPLACE WITH TWO NORMAL 1WATT RESISTORS IN SERIES EACH RESISTOR BEING OF HALF THE ORIGINAL VALUE

④ ARROWS ON POTENTIOMETERS INDICATE DIRECTION OF CLOCKWISE ROTATION





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