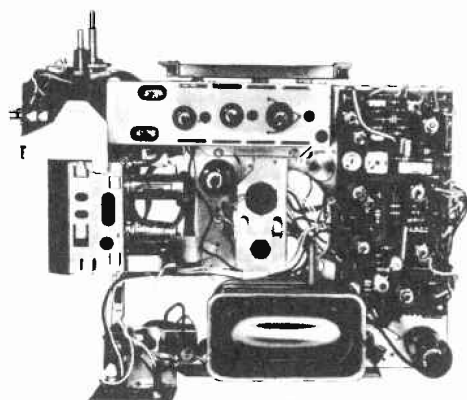


Model No.	Chassis	Model No.	Chassis
G-4242M	9L37	G-4710M	9L38
G-4242L	9L37	G-4710L	9L38
UG-4242M	9L37U	UG-4710M	9L38U
UG-4242L	9L37U	UG-4710L	9L38U
G-4654M	9L37	G-4720M	9L38A
G-4654W	9L37	UG-4720M	9L38AU
UG-4654M	9L37U	G-4720L	9L38A
UG-4654W	9L37U	UG-4720L	9L38AU

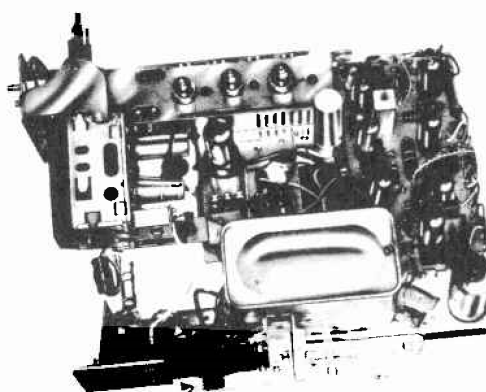
PHILCO

9L37 and 9L37U, 9L38 and 9L38U CHASSIS

Schematic diagrams and certain other service information on these sets are presented on the next ten pages. Since these chassis are similar to 9L35, -U, for the following information refer to Volume TV-15, Early 1959 TV Manual: horizontal oscillator adjustment, page 124; alignment, page 121; video IF printed wiring panel, page 123.



Chassis 9L37



Chassis 9L38

DISASSEMBLY OF CRT HOUSING— CRT REMOVAL PROCEDURE

NOTE: The illustrations and procedure refer to the 9L37 — the 9L38 is similar.

Access to the yoke and its associated parts is obtained by removing the small cover on the rear of the CRT shell. This cover is secured by four screws. Removal of the cover exposes the neck of the CRT and the yoke assembly thus permitting adjustment of the yoke without removal of the complete rear shell assembly. Removal of the cover also exposes the vertical and horizontal centering magnets and the horizontal linearity adjustment. In the 9L38, the interlock must be jumped when the CRT rear cover is removed. The 2nd video amplifier, a 3CB6, and the focus connector are also accessible. See figure 1.

Figure 1. Adjustment Access Cover Removed — 9L38

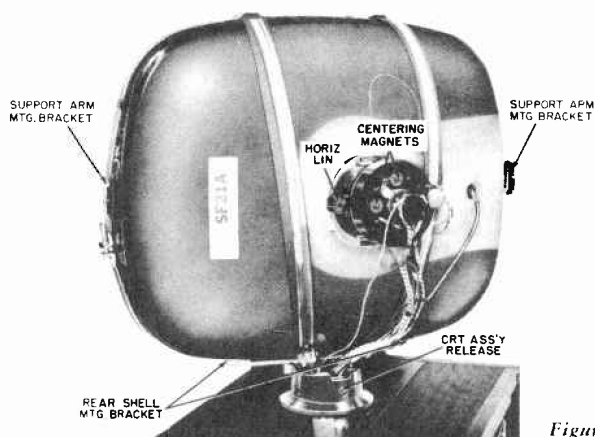


Figure 2B

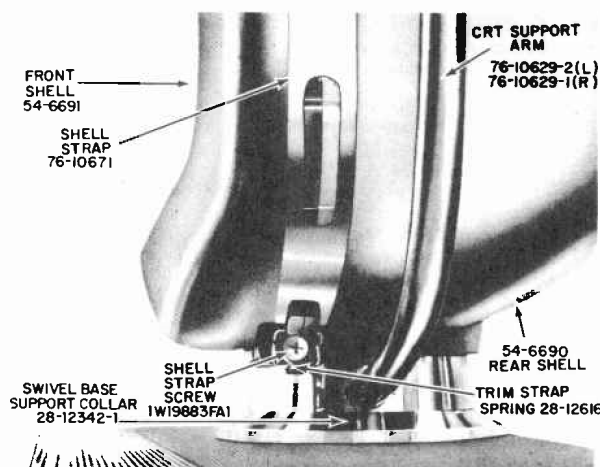


Figure 2A

PHILCO Chassis 9L37, -U, 9L38, -U, Service Information, Continued

To disassemble the CRT assembly, remove the small ornamental trim piece under the picture tube by removing the two small screws from the lower front. Remove the plastic trim around the CRT shell. This plastic trim is held in place with a spring at the bottom of the assembly. Remove the two screws at the bottom of the shell strap, remove the strap and the front mask. Remove the end caps on the side support arms and then remove the self-tapping screws which fasten the support arms and the rear shell to the picture tube frame. The base of the support arms, which are keyed, are inserted into sockets in the pivot assembly under the CRT. To remove the support arms, move each arm so that the arm key lines up with the slot in the socket and then pull the arm out of the socket. The picture tube is still secured by the pivot assembly to the cabinet.

Remove the two mounting screws at the bottom of the CRT which hold the rear shell, then remove the rear shell. Figure 2B shows the assembly with the rear shell removed. Now the CRT can be removed by loosening the bolts, one on either side of the picture tube front frame, near the support arm mounting brackets. In the 9L37 chassis the yoke and CRT cables plug into receptacles in the center of the chassis. The anode lead plugs into a jack at the top front of the 1G3GT socket.

The pivot or swivel assembly can also be removed by removing the single screw at the rear and then lifting the assembly off the cabinet or base.

CHASSIS REMOVAL PROCEDURE

To remove the chassis from the cabinet remove all control knobs, pull the monopole antenna part-way out so that the base section does not interfere with the chassis removal. Remove the two lower chassis mounting screws and the two screws holding the vertical support bracket. This bracket is a shipping brace and need not be replaced in the 9L37. In the 9L38, remove the top bracket to cabinet screw only. The bracket must be retained as it is part of the chassis assembly. Remove the chassis by pulling it straight back.

The front of the chassis contains two plastic seats into which are inserted two prongs or guides mounted on the cabinet and which hold the chassis in proper position. When installing the chassis in the cabinet these guides must be properly engaged by the plastic seats before the chassis can be fully inserted.

CRITICAL LEAD DRESS INFORMATION

A. To Prevent Lead Burning

- (1) All leads must be dressed clear of WR1, WR2, WR3, WR4, WR5, 2 watt width divider resistor and filament thermistor.
- (2) Brown filament lead from L3C to V.O.S. panel must be dressed away from 12D4 and WR5.
- (3) R7, filament thermistor, must dress away from wiring panel, clear of all lugs by at least 1/2". Body of thermistor must be dressed over tuner cut-out in chassis. No leads to be run between panel and thermistor.
- (4) All leads must be dressed clear of S1-3, yoke socket, or tie lugs carrying yoke or damper leads.
- (5) WR3, filament dropping resistor, must dress along B5 wiring panel on tuner cut-out side at approximately 45° angle with panel. No leads to be run between WR3 and B5.

B. To Prevent Pinched Leads

- (1) All leads must dress between end of E1 and side of chassis. No leads to be dressed under E1.

C. To Prevent Breakdown

- (1) 3KV disk condenser must be dressed at least 1/4" away from all wires, lugs, components and chassis.

D. To Prevent Corona

- (1) S3 socket must be kept free of points or sharp edges due to wiring and soldering.
- (2) Rotate S3 cap to absorb any excess lead. Lead must be at least 3/4" from metal of high voltage cage.
- (3) 9L38 only — Radiating fins on H.O.T. must be dressed away from transformer winding and against side of H.V. cage.
- (4) All unused lugs of S3 socket must be bent down toward center of socket.

E. To Prevent Regeneration

- (1) All leads connecting to the I-F panel must be as short as possible and any slack pulled from under the I-F shield.

F. To Prevent Depadding

- (1) All leads must be dressed clear of the quadrature coil.

G. To Prevent Unstable Sync

- (1) The white AGC lead from the tuner cable, J1, must dress under wiring panel at end of E2, between E2 and E1 and chassis, to B1-1.

H. To Reduce Vertical and Horizontal Drift

- (1) The following components on the V.O.S. panel must be dressed perpendicular to the panel: N1, N2, N3, N4, N5 and C5U (C4N of 9L38).

I. Underwriters Requirements

- (1) Aquadag grounding spring must dress between C.R.T. straps and must not touch either strap.

- (2) The UHF tuner link cable must dress under lug on UHF tuner.

- (3) The VHF pilot lamp cable must dress as follows: 9L37, on tuner side of S1 socket and along with tuner power cable, J1, around B4 panel and under dress lug mounted on rear of VHF tuner bracket; 9L38, between S1 socket and B5 panel, around B2 panel and under CL11.

J. To Prevent Lead Burning and Pick-Up

- (1) VHF tuner filament lead and UHF pilot lamp leads must dress between the antenna taper line assy. and the 4BC8 R-F tube.
- (2) Speaker leads must dress under dress lug mounted on right hand (facing rear of cab.) speaker mounting stud and be stapled approximately in center of bottom, side cabinet rail. These leads connect to lugs L9U and L10U in the 9L37 and to L7N and L8N in the 9L38.

CHASSIS 9L37 & 9L37U

K. To Prevent Pickup

- (1) CRT and yoke cable (less CRT cathode lead) must dress under long dress lug on left tube strap (facing rear of tube).
- (2) CRT cathode lead must dress under lug on right tube strap.
- (3) Fishpaper separator must be inserted in the support collar of tube assy. to keep the CRT cathode lead separated from all other leads.
- (4) CRT and yoke cable (less CRT cathode lead) must dress directly back from spindle to clamp mounted on top rear cabinet rail. All slack to be pulled through clamp.
- (5) CRT cathode lead must dress directly from spindle to dress lug mounted on top, side cabinet rail, to L3U. Excess lead to be hanked under the dress lug.

CHASSIS 9L38 & 9L38U

L. To Prevent Parasitic Oscillation

- (1) Vertical output cathode lead from L3N to E3-3, must dress under V.O.S. panel between panel and chassis, through hole in chassis, under E1 to E3-3. The lead must be kept as short as possible.

M. To Prevent Component Damage

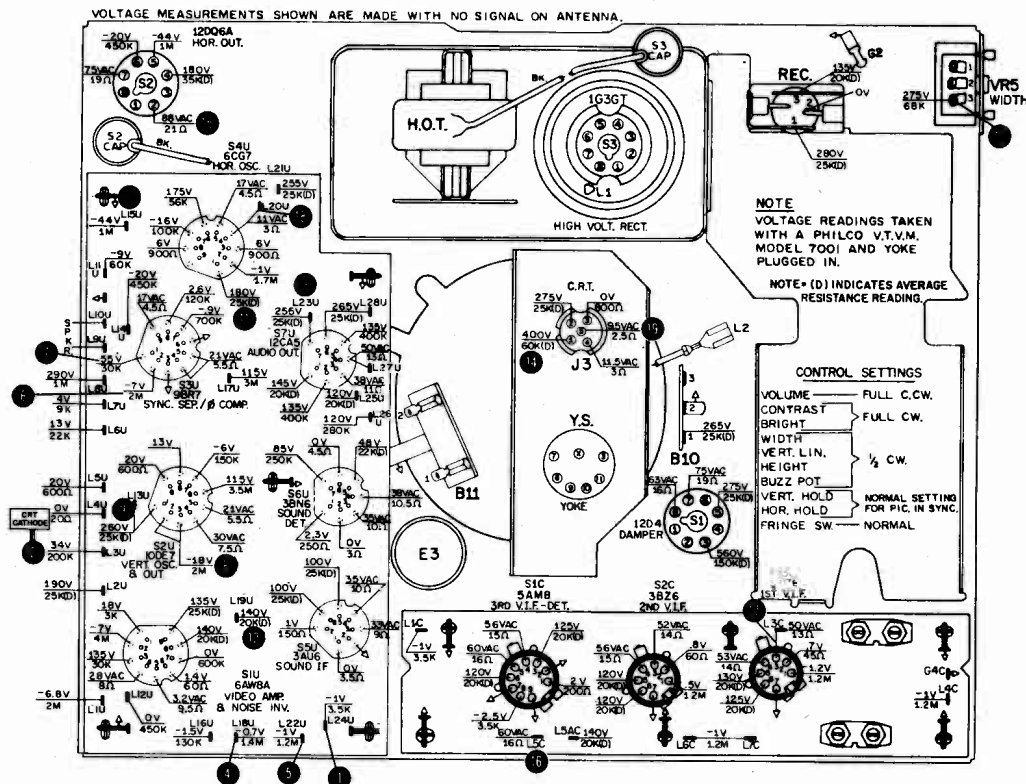
- (1) X3, on 2nd video amp. assy., must be dressed down toward chassis but must be kept at least 1/4" away from chassis; to prevent damage to coil when plastic housing is assembled.

N. Underwriters Requirements

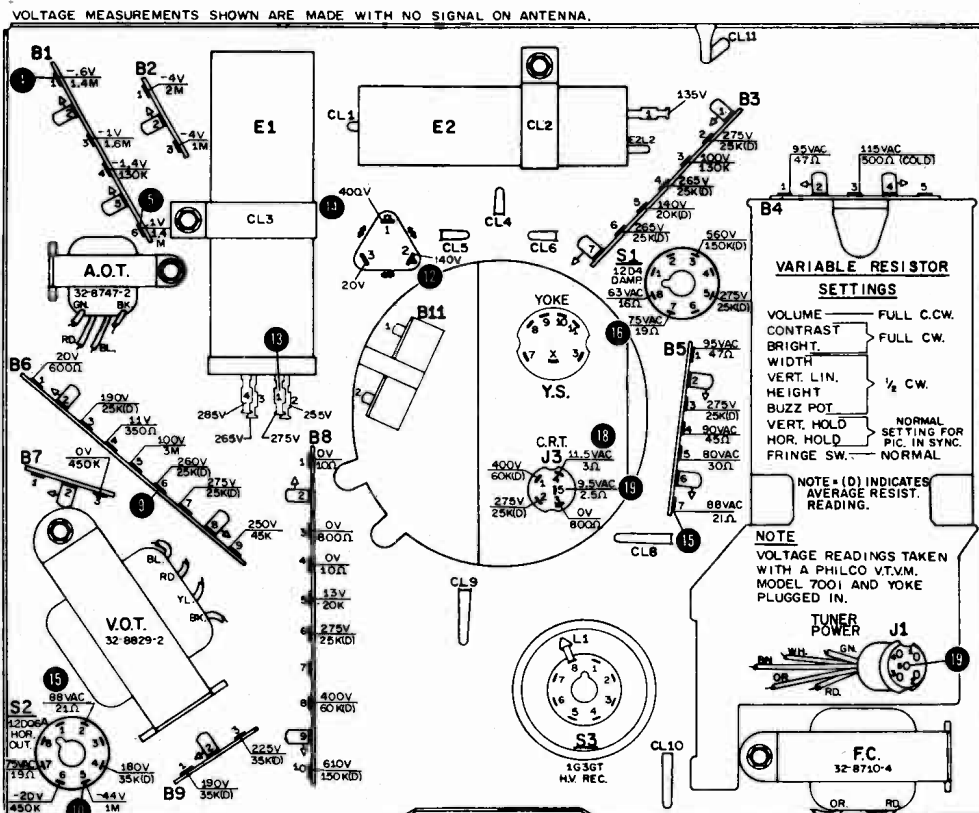
- (1) VHF tuner I-F link must dress under lug mounted on top, front of VHF tuner.
- (2) Tuner power cable, J1, must dress under CL13, around B3 panel on side away from R7, and between S1 socket and B5 panel.

VOLUME TV-16, ADDITIONAL 1959 TELEVISION SERVICING INFORMATION

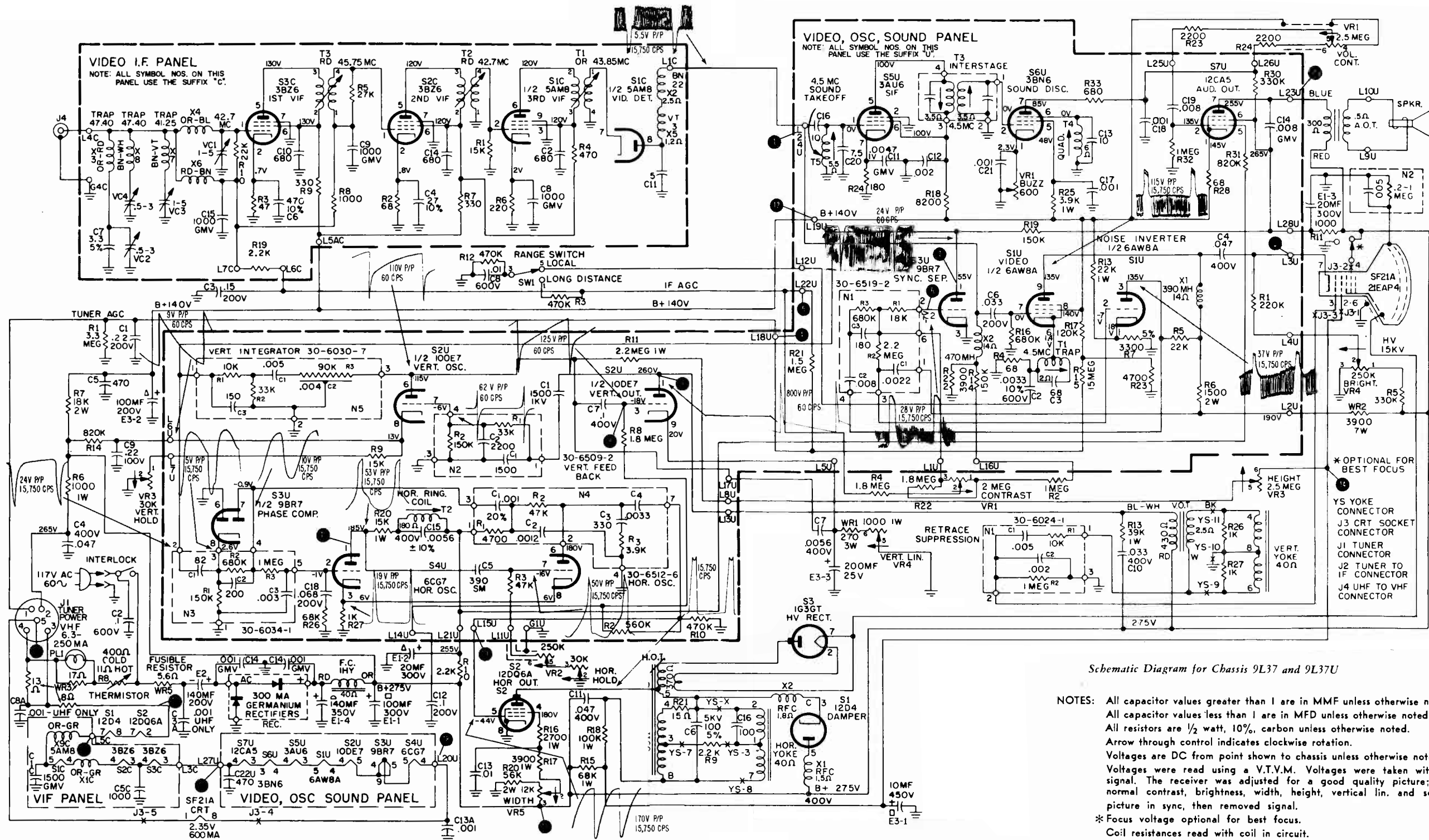
PHILCO Chassis 9L37 Service Information, Continued



9L37 Voltage-Resistance Readings—Top View



9L37 Voltage-Resistance Readings—Bottom View



Schematic Diagram for Chassis 9L37 and 9L37U

- NOTES: All capacitor values greater than 1 are in MMF unless otherwise noted.
 All capacitor values less than 1 are in MFD unless otherwise noted.
 All resistors are 1/2 watt, 10%, carbon unless otherwise noted.
 Arrow through control indicates clockwise rotation.
 Voltages are DC from point shown to chassis unless otherwise noted.
 Voltages were read using a V.T.V.M. Voltages were taken with no signal. The receiver was adjusted for a good quality picture; i.e., normal contrast, brightness, width, height, vertical lin. and sound, picture in sync, then removed signal.
 * Focus voltage optional for best focus.
 * Coil resistances read with coil in circuit.
 * Indicates a coil resistance of less than 1 ohm.

RECEIVER SET-UP CONTROL LOCATIONS

1. Vertical Linearity—Adjust with a thin screwdriver through the hollow brightness shaft.
2. Height—Adjust with a thin screwdriver through the hollow vertical hold shaft.
3. Horizontal Hold Centering—Adjust with a thin screwdriver through the hollow horizontal hold control shaft.

4. Width—Remove back. Width control is at the side in front of Range Switch.
5. Fusible B+ resistor—Remove back. Resistor is a plug-in at left center of chassis, in front of high voltage cage.
6. Tubes—All tubes (except CRT) are accessible after removing back and partly removing chassis. 1G3GT, high voltage rectifier is in cage. 9L38 only—3CB6, 2nd video Amp., is mounted with CRT; remove CRT rear access cover.

UHF CROSSOVER NETWORK

A UHF-VHF antenna crossover network is available for use with the 9L37U & 9L38U chassis sets. This network should be ordered through our Accessory Division by part no. 426-3034.

This UHF-VHF crossover kit is complete with mounting hardware and installation instructions.

CAUTION: Use an isolation transformer for "on the bench" servicing as one side of the line is connected to the chassis.

INSTRUCTIONS FOR CLEANING WINDOW

If the transparent window in the front of the picture tube occasionally needs cleaning, use only mild soap and water on a damp cloth. Rinse, then dry with a soft flannel cloth.

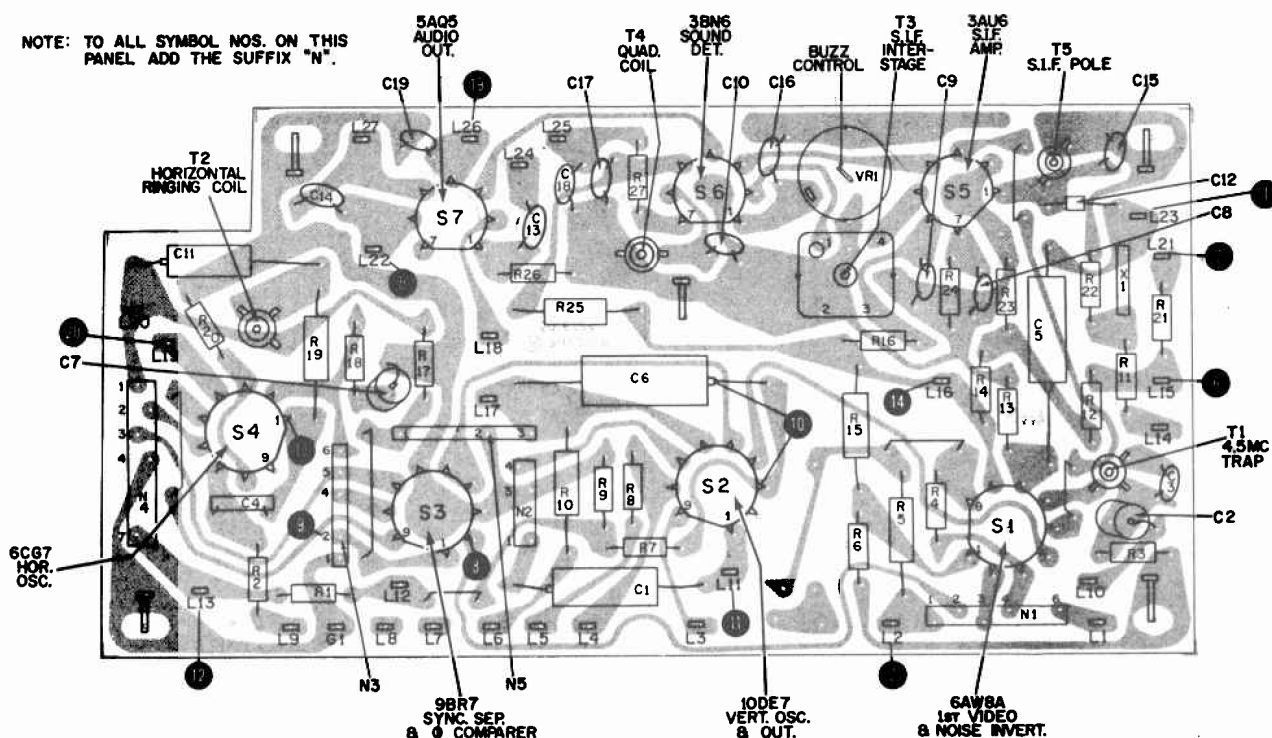
DO NOT ATTEMPT TO CLEAN WITH ABRASIVES OR CLEANING FLUIDS.

For the 9L38 the interconnecting cable may be cleaned the same as the window.

VOLUME TV-16, ADDITIONAL 1959 TELEVISION SERVICING INFORMATION

PHILCO Chassis 9L37, -U, 9L38, -U, Service Information, Continued

NOTE: TO ALL SYMBOL NOS. ON THIS PANEL ADD THE SUFFIX "N".



9L38 video-oscillator-sound perma-circuit panel

RUN CHANGE INFORMATION

9L37 and 9L37U Chassis

Main Chassis

- Run 1—First Production (used Run 5 of V.I.F. panel)
- Run 2—Use of Run 6 V.I.F. panel to eliminate channel 8 beat
- Run 3—Use of Run 2 V.O.S. panel to reduce stretch.
Y. S. (yoke socket) rotated 45° CCW. S1 socket (damper tube) rotated 45° CW. C6 moved from yoke socket (Y.S.) and wired across damper socket S1-3 to S1-5. Damper socket lug S1-4 must be bent toward center or inside of socket. C4 moved from B3-4 and B3-7 to B3-4 and B3-1. A two lug wiring panel (B4A) was added near E3. The orange lead from J3-1 was changed from B8-8 to the new panel B4A-1. A 47,000 ohms, 1/2 W resistor, R8A was added from B4A-1 to E3-1. This places a 47,000 resistor in series with the CRT screen between the screen and 400V boost to prevent CRT damage by arcing. Red lead from B10-1 (B+ focus connection) changed from B3-6 (275V) to J3-1. A dress lug was added between B3-7 and S1. The tuner cable leads and pilot lamp lead must dress between B5 wiring panel and S1 socket and under added dress lug.
- Run 4—Use of Run 3 V.O.S. panel. VR-3 height control changed to 3.4 megohms, part number 33-5592-28. To improve centering of height control.
- Run 5—Use of Run 4 V.O.S. panel to prevent blocking of noise inverter stage.
- Run 6—R10, 2200 ohm hor. osc. de-coupling resistor, is removed from E1-1 and E1-2. C4, .047 ufd tuner B+ de-coupling condenser, is removed from B3-1 and B3-4. B7, the three lug wiring panel is removed. An orange wire is added from E1-2 to B3-4. This makes E1-2 the de-coupling filter condenser for tuner B+ and hor. osc. B+. The following wiring points were changed with no change in circuitry. R12 changed from B7-2 and B7-3 to B4-4 and B4-5. C8 changed from B7-3 and B6-8 to B4-2 and B4-5. The black lead from SW1-3 changes from B7-3 to B4-5.
- Run 7—VR1, contrast/vol./on-off control, changed to 33-5592-42. This changes the contrast section from 2 megohms to 1 megohm and removes R22 from across the contrast control.

V.I.F. Panel

- Run 5—Green dot, first production 9L37 chassis.
- Run 6—Blue Dot. Special lead dress of filament choke X9C to eliminate channel 8 beat. X9C was raised up from panel to give greater spacing between choke and copper foil; thus radiation from foil to choke was reduced.

V.O.S. Panel

- Run 3—Orange Dot. R11U, vertical osc. plate load resistor, changed in value to 2.7 megohms, 1 watt, part number 66-5274340. To improve centering of height control.
- Run 4—Yellow Dot. R7U, noise inverter cathode resistor, changed in value to 3600 ohms, 5%, part number 66-2368240. To prevent blocking.

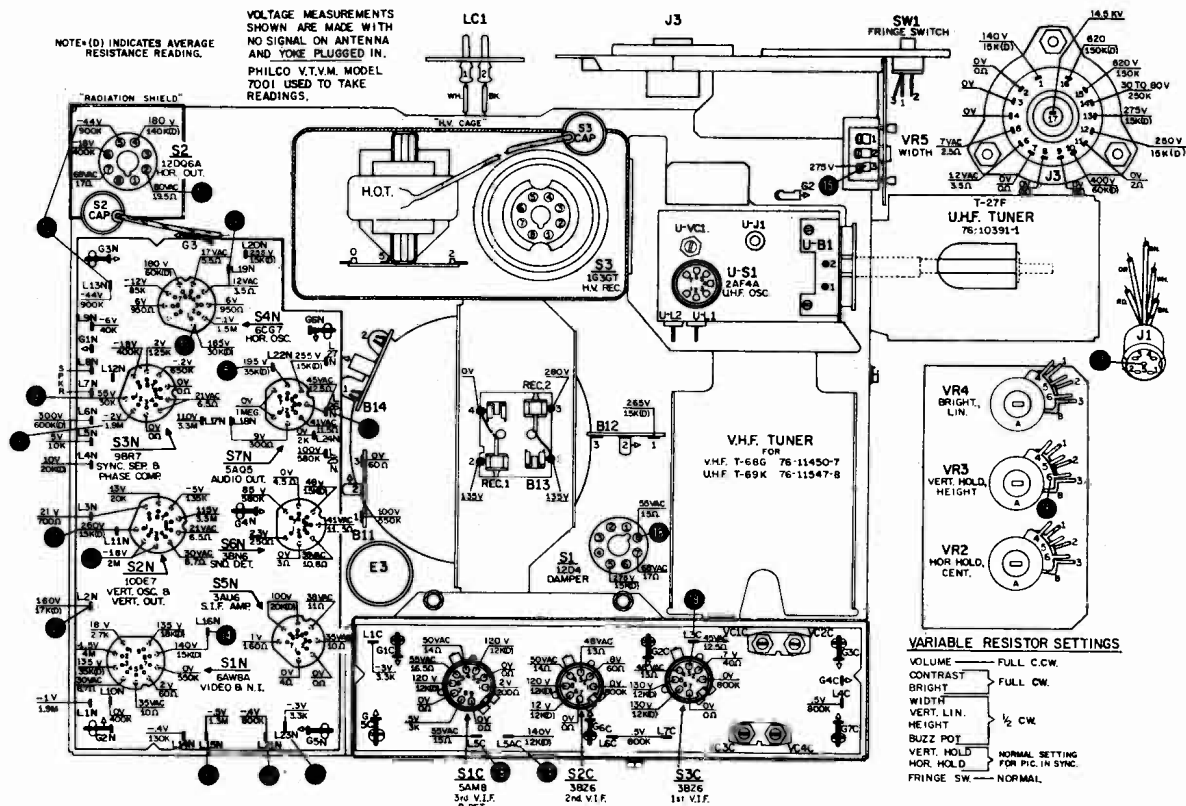
9L38 and 9L38U Chassis

Main Chassis

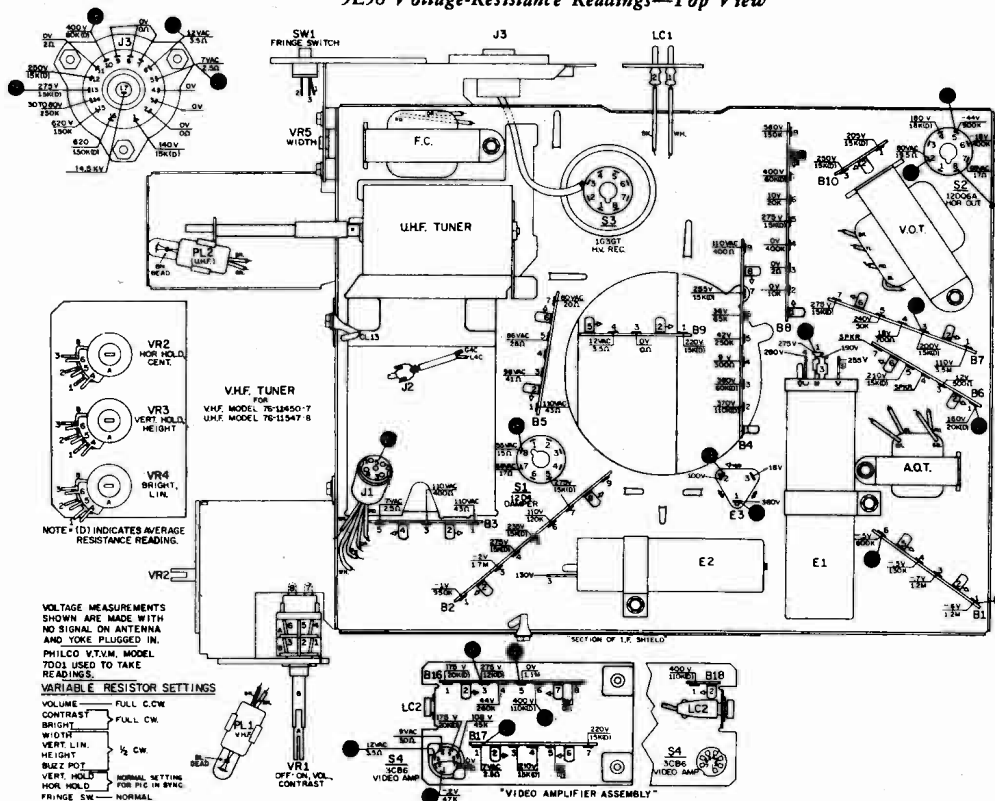
- Run 2—A two lug wiring panel, B4A, was added next to and parallel to E5 on the chassis bottom. C5 was moved to wire from B2-9 to B4A-2. The value of C5 was changed from 250 mmf, 3KV, ceramic disk to 320 mmf, 3KV, ceramic disk, part number 30-1246-24. A resistor, R6A, was added from B4A-2 to S1-3. R6A is 470 ohms, 2 watts, part number 66-1476340. To reduce horizontal ringing.
- Run 3—Pilot lamp socket and cable assy. and tuner power socket and cable assy. lead lengths changed.
Two .01 ufd tubular condensers and a 10,000 ohm resistor removed and a resistor-condenser network, N1, added in their place for retrace suppression. Part number of N1 is 30-6037-1. N1 wires to B8-3, B8-2 and B8-1. At this time R15 changed wiring points from B4-5 and B4-6 to B4-6 to B8-2. The blue lead from J3-14 changed from B4-5 to B8-2. To improve wiring and to use retrace suppression network.
- Run 4—R11, the 2200 ohm hor. osc. de-coupling resistor, is removed from E1-1 and E1-2. C4, .047 ufd tuner B+ de-coupling condenser, is removed from B2-2 and B2-5. An orange lead is added between E1-2 and B2-5.
- Run 6—VR1, contrast/vol./on-off control changed to 33-5592-42. This changes the contrast section from 2 megohms to 1 megohm and removes R22 from across the contrast control.

VOLUME TV-16, ADDITIONAL 1959 TELEVISION SERVICING INFORMATION

PHILCO Chassis 9L38 Service Information, Continued



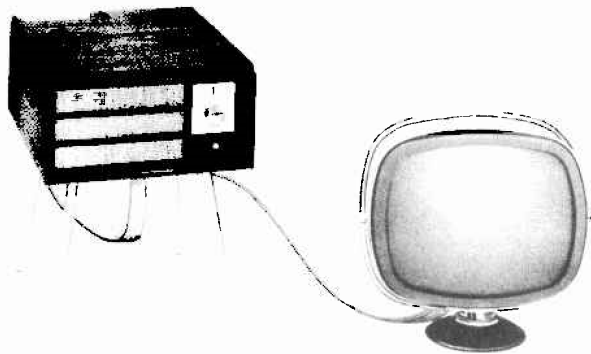
9L38 Voltage-Resistance Readings—Top View



9L38 Voltage-Resistance Readings—Bottom View

PHILCO Chassis 9L38 Service Information, Continued





PHILCO TELEVISION

PREDICTA TANDEM TV MODEL G-4720 9L38A & AUDIO AMPLIFIER

DESCRIPTION

Models G-4720 and UG-4720 are Predicta Tandem TV featuring the separate picture tube and a 4 watt audio amplifier. These models match, and are intended to be used with, model G-1606-S, high fidelity phono-graph consolette, for stereophonic reproduction.

The TV portion of model G-4720 uses a type 9L38A chassis. See page 116 for description.

The audio amplifier section uses a 6AU6 as first audio, a pair of 6AQ5's as audio output and a 6X4 rectifier. The function switch has three positions: center is "Off"; CCW is the "Phono" position which turns on the amplifier only; CW is the "TV" position which turns on both the amplifier and TV, selects the TV audio and completes the circuit from the amplifier output to the remote C.R.T. socket for the extension speaker jack. The speakers used are a 6" pm woofer and an "S" type electrostatic.

CHASSIS REMOVAL

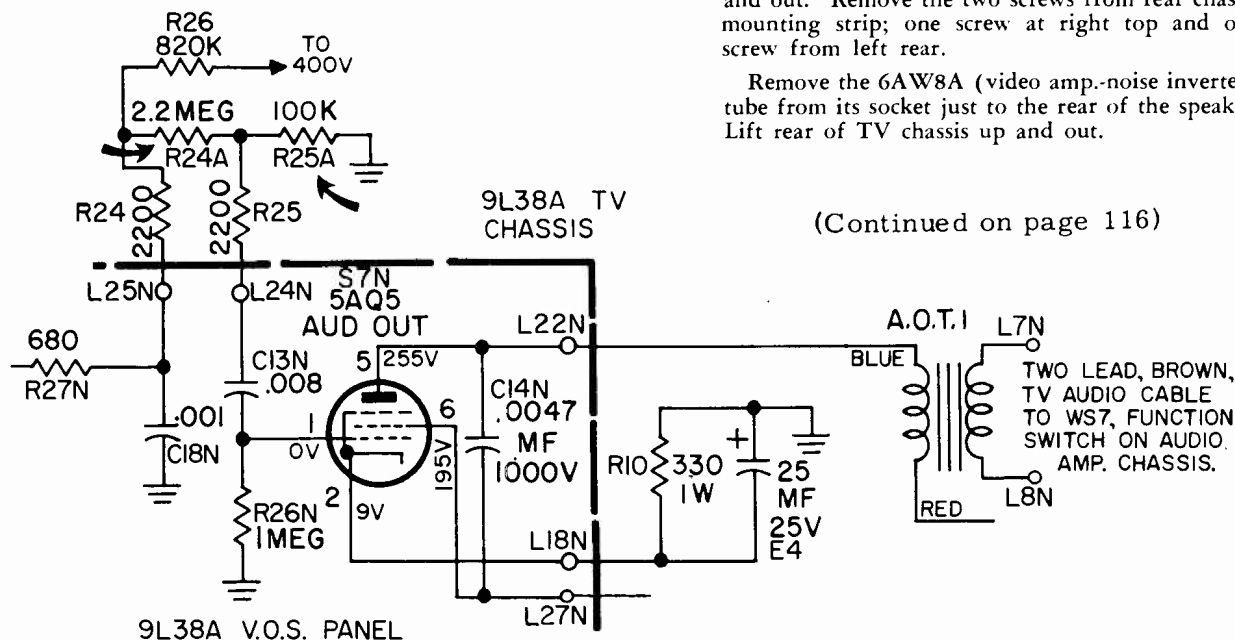
To Remove Top—Remove amplifier knobs (4), remove the two top retaining screws at top rear. Slide cabinet top back (approx. 1") to disconnect the AC interlock and to free the guides at center top of each side. Lift top off and set aside. The line cord is held by two cable clamps.

The entire TV and audio amplifier chassis are now exposed for service checks, tube replacement, etc.

To Remove Amplifier Chassis—Remove cabinet top. Remove the two screws from top edge of chassis. Disconnect the TV a.c., phono input and speaker leads. Pilot lamp removes from front clip. Unsolder the two leads from B21-1 and 2 that connect to the CRT remote socket (J3) and the TV audio leads connecting to TV V.O.S. panel lugs L7N & L8N. The amplifier is now free to lift out. The bottom lip of chassis fits in a groove of cabinet bottom.

To Remove TV Chassis—Remove cabinet top. Remove knobs. Disconnect TV a.c. and antenna leads and unsolder the two remote speaker leads from amp. chassis terminal panel B21-1 and 2 and the TV audio leads. Remove the two front chassis mounting screws from cabinet bottom. Remove the two screws from the top rear retaining plate. Remove left hand back section; three screws, lift back up and out. Remove the two screws from rear chassis mounting strip; one screw at right top and one screw from left rear.

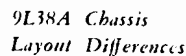
Remove the 6AW8A (video amp.-noise inverter) tube from its socket just to the rear of the speaker. Lift rear of TV chassis up and out.



9L38A Audio Circuit Showing Added Audio Divider Resistors

(Continued on page 116)

PHILCO TV MODEL G-4720, Continued



The 9L38A TV chassis is identical to the 9L38 chassis with the following exceptions.

The on-off switch is shorted by a jumper wire, the on-off action is accomplished by the function switch on the audio amplifier chassis.

The TV volume control is present but not wired into the circuit. In place of the volume control two resistors (R24A and R25A) have been added as a fixed audio divider, see figures.

The secondary of the TV audio output transformer is wired over to the audio amplifier chassis where it is loaded by R49 and presented to the audio amplifier's volume control circuit. V.O.S. panel lugs L7N and L8N are the terminals for this two wire cable.

The remote speaker jack, provided on the C.R.T. base, is fed through the function switch and works only when the function switch is in "TV" position.



NOTES:

All resistors are 1/2 watt, 10%, carbon unless otherwise noted.
All capacitor values greater than 1 are in MMF unless otherwise noted.

All capacitor values less than 1 are in MFD.

Arrow through control indicates clockwise rotation.

Coil resistances read with coil in circuit.

Voltages are DC from point shown to chassis.

Voltages were read with a 20,000 ohms/volt meter.

Test conditions: 117 volt, 60 Ω line; volume, bass and treble controls maximum clockwise; no signal input; function switch in either TV or phono position; 3.2 ohm speaker or resistance load.

*VR6, first production value was 1 megohm.

P. T. 2 secondary voltage is 450V RMS, total.