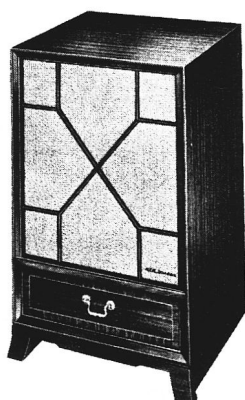




Model 3-HES-5



Speaker SPK-8



RCA VICTOR



HIGH FIDELITY RECORD PLAYER

Model 3-HES-5

SERVICE DATA

— 1953 No. 22 —

HOME INSTRUMENT SERVICE DIVISION
RCA VICTOR COMPANY, LTD
MONTREAL, CANADA

FOR RECORD CHANGER SERVICE INFORMATION
—REFER TO 124330 SERIES SERVICE DATA.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

TUBE COMPLEMENT

- (1) RCA 6C4 1st A.F. Amplifier
- (2) RCA 12AX7 2nd A.F. Amplifier & Phase Inv.
- (3) RCA 50C5 Output
- (4) RCA 50C5 Output

POWER SUPPLY RATING

115 volts, 60 cycles 50 watts

POWER OUTPUT

100 cycles—10,000 cycles

2 watts with less than 1% distortion

At 1000 cycles

2.5 watts with less than 1% distortion

LOUDSPEAKER

Size & type 8 inch wide range

Voice coil impedance 4 ohms @ 400 cycles

RECORD CHANGER (930800-4 or -5 SERIES)

Turntable speed 33 $\frac{1}{3}$, 45 or 78 r.p.m.

Record capacity Up to fourteen 7 inch RCA type

or twelve 10 inch.

or ten 12 inch.

or ten 10 in. and 12 in. intermixed.

Pickup (Stock No. 78748) Ceramic

DIMENSIONS (Overall)

Height 15 $\frac{1}{2}$ "

Width 21 $\frac{1}{2}$ "

Depth 19"

GENERAL DESCRIPTION

The 3-HES-5 is a high fidelity table model phonograph having four tubes and a selenium rectifier operating on 105-125 volts, 60 cycles A.C. It has a modern style cabinet in mahogany, walnut, blond mahogany, or oak finish.

A 3 speed (33 $\frac{1}{3}$, 45, and 78 RPM) record changer is used. It utilizes a plug in head equipped with a ceramic dual-stylus pickup to mate with its die-cast aluminum tone arm. A well for the 45 RPM spindle is provided in the cabinet.

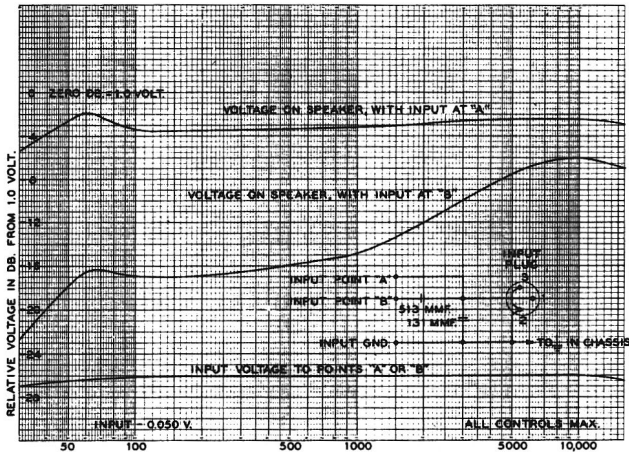
The amplifier has three controls marked "LOUDNESS", "BASS", and "TREBLE", which operate in a clockwise direction for maximum response. Each control is marked with numbers from 0 to 10. The amplifier is designed to give two watts output with less than 1% distortion from 100 cycles to 10,000 cycles. This is accomplished by using a well designed output transformer and 12.5DB of negative feedback

applied from the transformer secondary to the stage ahead of the phase inverter.

The instrument is provided with a means of using an external loudspeaker, (SPK-8). A switch located in the rear of the cabinet selects the internal loudspeaker, external loudspeaker, or both. The load impedance is properly matched at all times during switching by selecting the proper taps on the output transformer. The system is polarized to maintain proper phasing of the loudspeakers.

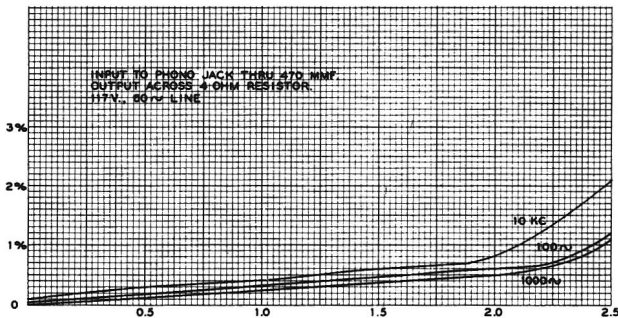
SPK-8

The SPK-8 is a companion loudspeaker for the 3-HES-5, and is provided in a console cabinet. Fifty (50) feet of cable which plugs into the back of the main cabinet is supplied. The loudspeaker mechanism is the same as that used in the complete instrument.

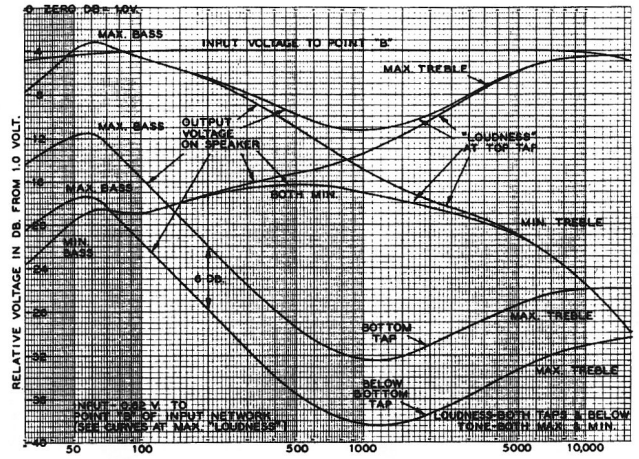


Overall Frequency Response using "Dummy Pickup"

The "dummy pickup" is used to connect a signal generator to the amplifier input without materially changing the response characteristics.



Power Output vs. Distortion

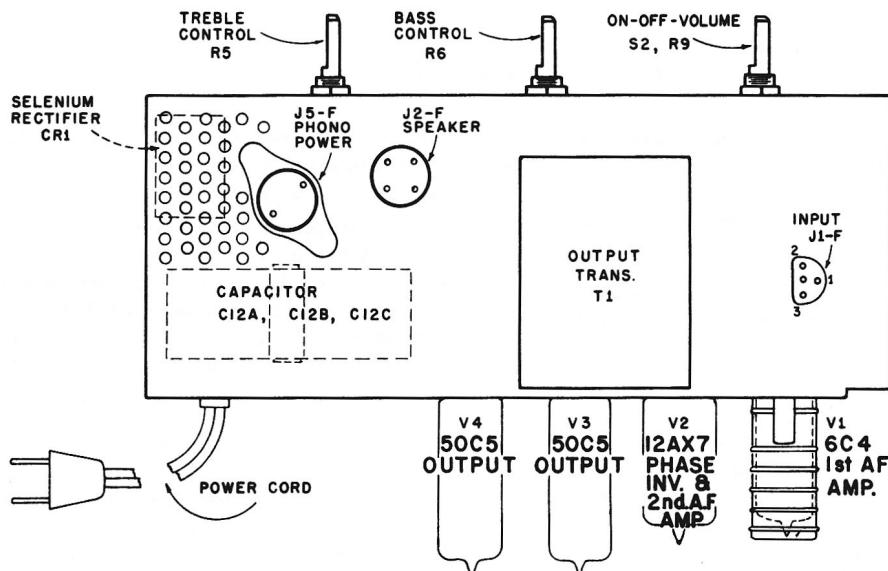


Tone Control and Loudness Positions vs. Frequency Response.

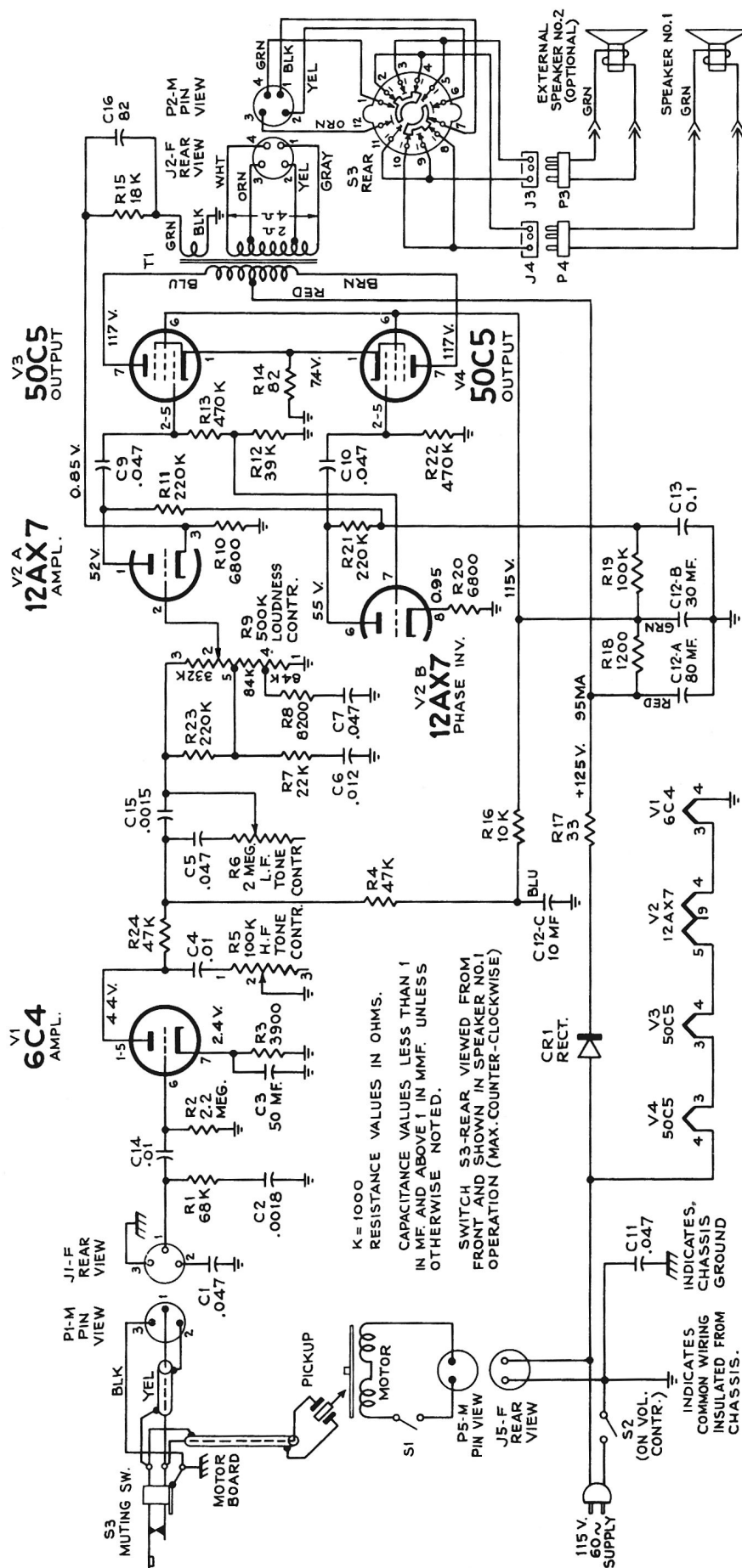
THE PERFORMANCE CURVES SHOWN WERE TAKEN FROM PRODUCTION INSTRUMENTS AND ARE CONSIDERED TYPICAL SLIGHT VARIATIONS IN RESPONSE CAN BE EXPECTED WITH OTHER UNITS.

CRITICAL LEAD DRESS

1. Dress all capacitors except C4 and C5 against chassis.
2. Dress R17 at least $\frac{1}{2}$ " away from C11 and C12.
3. Dress all leads away from R18.
4. Keep all leads on R1, R2, C2, and C14 as short as possible.
5. Dress all filament wiring against chassis.



Top View of Amplifier



Schematic Diagram

REPLACEMENT PARTS FOR MODEL 3-HES-5

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

STOCK No.	PART DESCRIPTION	STOCK No.	PART DESCRIPTION
	Amplifier Assemblies		Miscellaneous
	Capacitors—Fixed, ceramic, insulated, High "K":	X3349	Cloth—Grille cloth for mahogany instruments
74850	1800 mmf., $\pm 10\%$, 500 volts (C2)	X3371	Cloth—Grille cloth for oak instruments
75785	82 mmf., $\pm 20\%$, 500 volts (C16)	75474	Connector—Single contact male connector for speaker cable
	Capacitors—Electrolytic:	74879	Connector—2 contact (polarized) female connector for speaker leads (J3, J4)
78573	50 mfd., 6 volts (C3)	74882	Connector—2 contact (polarized) male connector for speaker cable (P3, P4)
78617	comprising: 1 section of 80 mfd., 150 volts, 1 section of 30 mfd., 150 volts and 1 section of 10 mfd., 150 volts (C12A, C12B, C12C)	74192	Connector—3 contact male connector for pickup cable (P1)
	Capacitors—Fixed, tubular, paper:	39153	Connector—4 contact male connector less shell for speaker cable (P2)
	.0015 mfd., 600 volts (C15)	78611	Decal—Control function decal for mahogany instruments
	.01 mfd., 400 volts (C4, C14)	78612	Decal—Control function decal for oak instruments
	.012 mfd., 200 volts (C6)	74273	Decal—"Victrola" decal
	.047 mfd., 200 volts (C7)	78377	Foot—Felt foot
	.047 mfd., 400 volts (C1, C5, C9, C10, C11)	78613	Grille—Metal grille for mahogany instruments
	0.1 mfd., 400 volts (C13)	78614	Grille—Metal grille for oak instruments
	Connector—2 contact female connector for motor cable (J5)	77735	Knob—Speaker switch knob—brown—for mahogany instruments
36422	Connector—3 contact female connector for pickup cable (J1)	77736	Knob—Speaker switch knob—medium beige—for oak instruments
38853	Connector—4 contact female connector for speaker (J2)	78576	Knob—Volume or tone control knob—maroon—for mahogany instruments
78616	Control—H.F. tone control (R5)	78577	Knob—Volume or tone control knob—medium beige—for oak instruments
78615	Control—L.F. tone control (R6)	72692	Hinge—Cabinet lid hinge for mahogany instruments
78588	Control—Volume control and power switch (R9, S2)	78609	Hinge—Cabinet lid hinge for oak instruments
S-4367	Cord—Power cord and plug	77012	Nameplate—"RCA Victor" nameplate
74838	Grommet—Power cord strain relief (1 set)	73634	Nut—Speednut for speaker mounting screw
78101	Rectifier—Selenium rectifier (CR1)	76894	Nut—Spring nut for record changer mounting stud
	Resistors—Fixed, composition:	76837	Spring—Retaining spring for knobs
	33 ohms, $\pm 10\%$, 1 watt (R17)	76893	Stud—#10-32 x 1 1/4" special stud for record changer
	82 ohms, $\pm 10\%$, 1 watt (R14)	71824	Stud—Hinge stud and screw (1 set)
	1200 ohms, $\pm 10\%$, 1 watt (R18)	77221	Support—Lid support for mahogany instruments
	3900 ohms, $\pm 10\%$, 1/2 watt (R3)	78610	Support—Lid support for oak instruments
	6800 ohms, $\pm 10\%$, 1/2 watt (R10, R20)	78618	Switch—Speaker switch (S4)
	8200 ohms, $\pm 10\%$, 1/2 watt (R8)		External Speaker Assemblies
	10,000 ohms, $\pm 10\%$, 1/2 watt (R16)		SPK-8
	18,000 ohms, $\pm 10\%$, 1/2 watt (R15)	X3349	Cloth—Grille cloth for mahogany or walnut instruments
	22,000 ohms, $\pm 10\%$, 1/2 watt (R7)	X3371	Cloth—Grille cloth for oak instruments
	39,000 ohms, $\pm 10\%$, 1/2 watt (R12)	75474	Connector—Single contact male connector for external speaker cable
	47,000 ohms, $\pm 10\%$, 1/2 watt (R4, R24)	74882	Connector—2 contact (polarized) male connector for external speaker cable
	68,000 ohms, $\pm 10\%$, 1/2 watt (R1)	78594	Nameplate—"RCA Victor" nameplate
	100,000 ohms, $\pm 10\%$, 1/2 watt (R19)	73634	Nut—Speednut for speaker mounting screws
	220,000 ohms, $\pm 10\%$, 1/2 watt (R11, R21, R23)	77013	Nut—Speednut for "RCA Victor" nameplate
	470,000 ohms, $\pm 10\%$, 1/2 watt (R13, R22)	78606	Pull—Door pull for mahogany or walnut instruments
	2.2 megohm, $\pm 10\%$, 1/2 watt (R2)	78607	Pull—Door pull for oak instruments
73584	Shield—Tube shield for V1		
73117	Socket—Tube socket, 7 pin, miniature, wafer for V1, V3, V4		
76971	Socket—Tube socket, 9 pin, wafer for V2		
78587	Transformer—Output transformer (T1)		
	Speaker Assemblies		
78597	Speaker—8" PM speaker complete with cone and voice coil		

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS