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HOME RADIO SERVICE DATA

HI-FI COMBINATIONS-MODELS

1701MX, 1771MX,
1772MX, 1773MX

These models are similar in appearance to Models 1701, 1771, 1772 and 1773, covered in Philco Service Manual PR 3835C.

Chassis in MX models incorporate FM MULTIPLEX with A.F.C.

FM TUNER part no. 76-12756-1 service information covered in PR 3835C.

TUBE COMPLEMENT

V1	12AX7A	Stereo Pre-Amp	V5	25F5A	Audio, Power Amp.
V2	6BH6	19KC Doubler	V6	6BJ6	AM-FM, I-F
V3	12AX7A	19KC Amp & Invertor	V7	12BA6	FM, I-F
V4	12BE6	AM Convertor	V8	25F5A	Audio Power Amp.
				17C9	FM Tuner

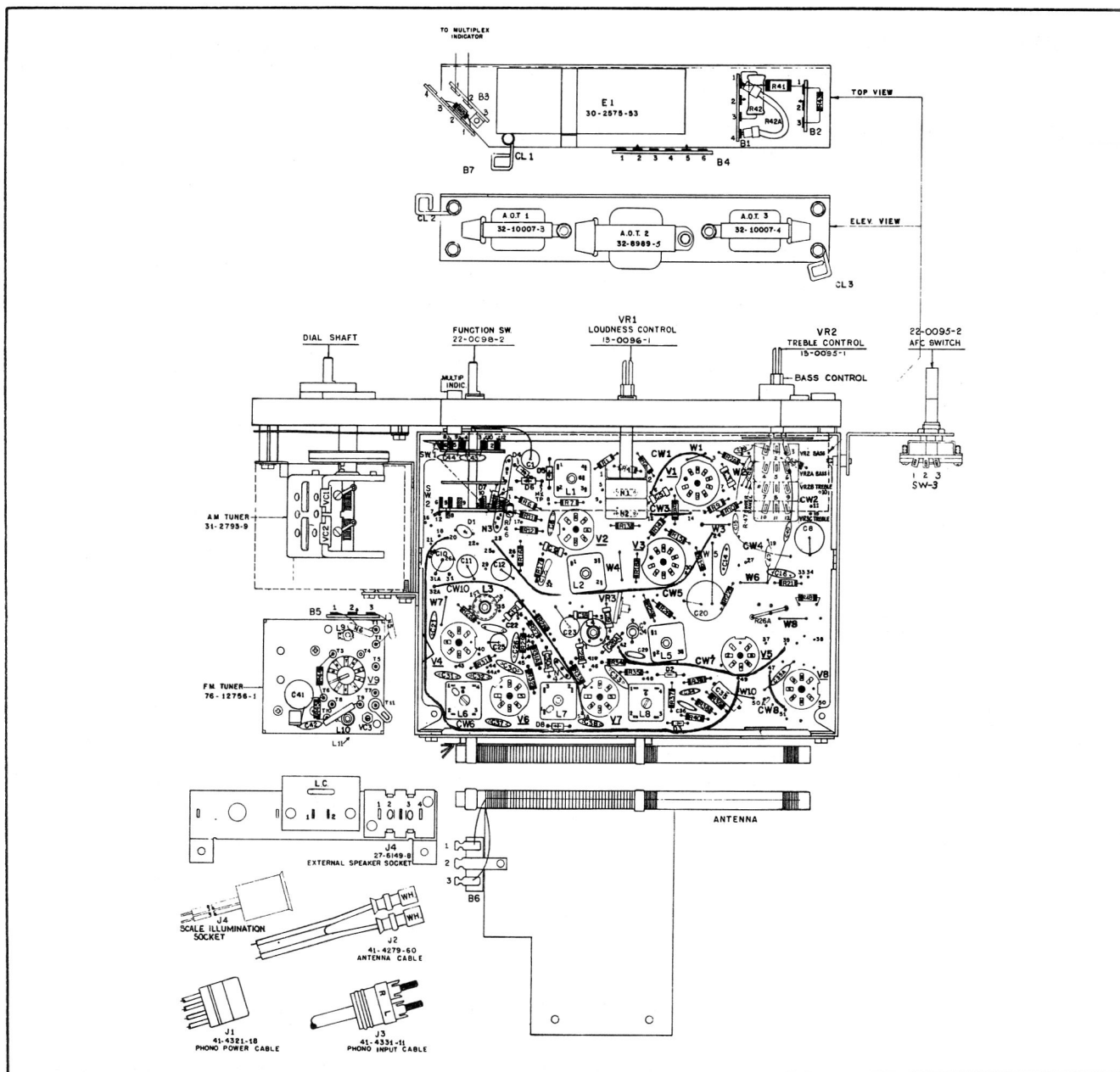
RECORD CHANGERS

Service and Parts Data Refer to Changer Manual PR 3841C Model CM3

Replacement Needle and Cartridge	325-8076
Replacement Needle	325-8299D.S.

SUPPLEMENTRY SERVICE BULLETIN
FOR FILING WITH PHILCO 1964 HI-FI MANUAL PR 3835C

MODELS 1701MX, 1771MX, 1772MX, 1773MX AMPLIFIER & TUNER

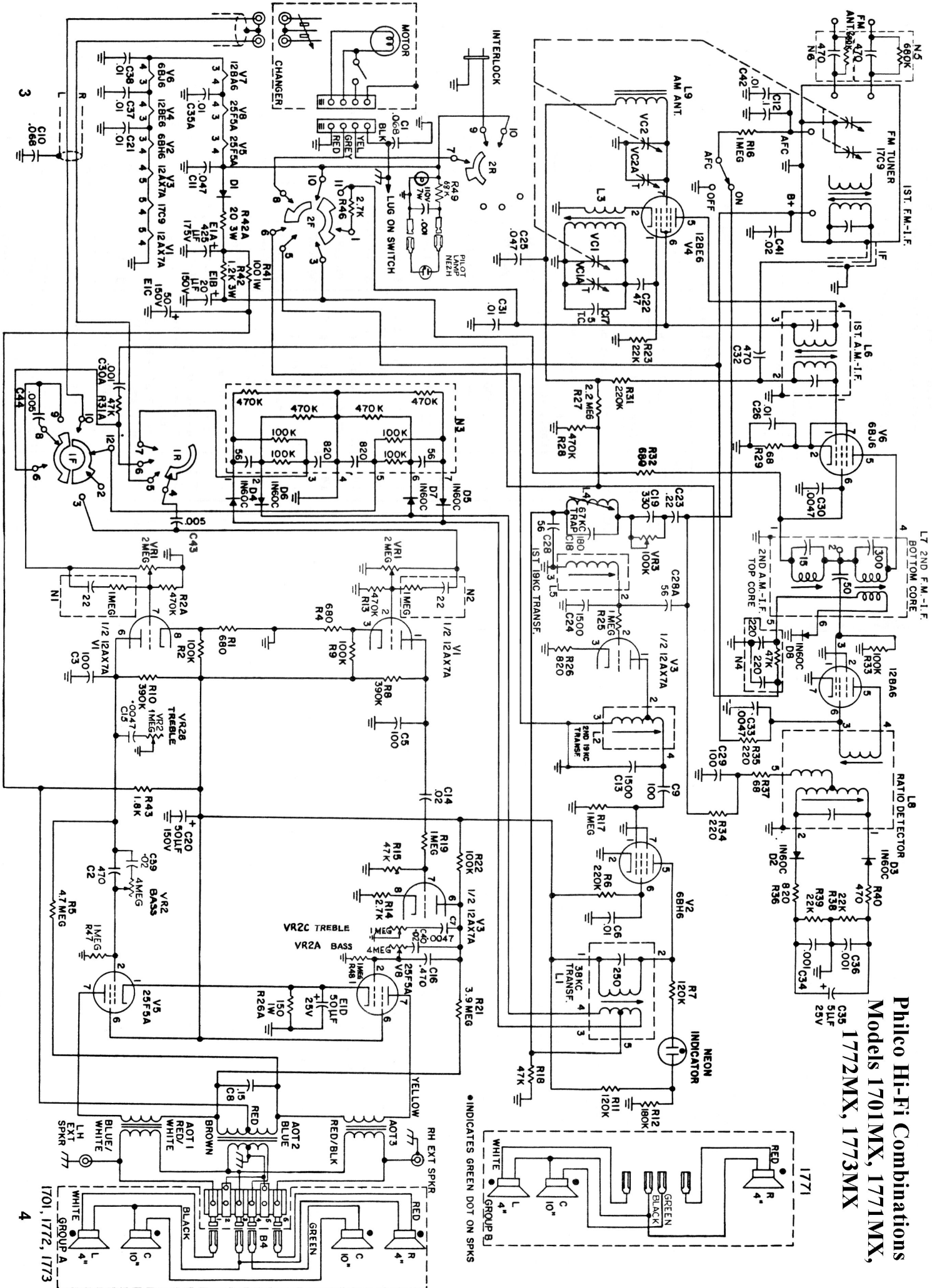


Top View Component Location

PRELIMINARY ALIGNMENT INFORMATION

1. Connect amplifier through isolation transformer to eliminate dangerous shock hazard.
2. Allow receiver and test equipment 15 minutes to warm up and stabilize.
3. For AM Alignment -
 - A. Connect VTVM across one external speaker jack.
 - B. Use 30% modulation on generator for AM alignment.
 - C. Proceed with alignment steps as illustrated in alignment chart.
4. For FM Alignment -
 - A. Connect FM generator, through a 72 ohm to 300 ohm matching network, to antenna terminals.
 - B. Use ± 120 KC sweep deviation for FM alignment.
 - C. Keep generator output as low as possible throughout FM alignment procedure.
 - D. Adjust top and bottom core of T2T, bottom core of L7 and bottom core of L8 for a symmetrical maximum amplitude "S" curve with 10.7 mc marker in the middle. Curve must be obtained in T2T with tuning slugs nearest to end of coil form.
 - E. Add VTVM across scope connections to adjust only the top of L8.
 - F. Proceed with alignment steps as illustrated in alignment chart.

Philco Hi-Fi Combinations



FM MULTIPLEX ALIGNMENT

MODELS 1701MX, 1771MX, 1772MX, 1773MX

This procedure is for alignment of the FM multiplex circuits. Good multiplex operation requires proper alignment of the FM R-F, I-F and detector circuits also: See FM alignment chart.

Allow receiver and test equipment 15 minutes to warm up and stabilize.

Receiver function switch should be in FM multiplex position.

Connect amplifier through isolation transformer to eliminate dangerous shock hazard.

Instruments required: 1. Multiplex Stereo Generator (Precision Model E-490 or equivalent)
2. Oscilloscope
3. RF generator

STEP	GENERATOR SETTING	INJECTION POINT	SCOPE CONNECTION	ADJUST	REMARKS
1	RF generator set at 67KC, no modulation.	Junction of C23 & C28A	Junction of R18 & C28	L4 - 67KC trap	Adjust for minimum. Increase signal input if necessary.
2	L or R function, left chan. only, pilot on, int. modulation and adjust gen. output level to between 6 to 8 volts p/p.	Junction of C23 & C28A	Gen. pilot sync to scope external sync, scope input to pin 3 of L1, scope gd. lead to chassis gd., scope in external sync pos. and adjust for a stable 38KC waveform.	L5 - 19KC input L2 - 19KC inter-stage L1 - 38KC output	Adjust for maximum 38KC amplitude waveform on scope. When adjusting, L5 is very sharp, be careful to set properly.
3	Same as Step 2	Same as Step 1	Scope to left chan. output, scope input through a low pass filter to B4-1 and gd. lead to B4-3, change scope external sync lead to audio sync terminal of gen. and adjust scope for stable 1KC waveform.	L5 - 19KC input L2 - 19KC inter-stage	Adjust for maximum left channel output with left channel only input, adjust L2 first then L5; end with L2 for final touch up.
4	Same as Step 2 except channel switch set to right channel only position.	Same as Step 1	Same as Step 2	VR3 - separation control	Adjust for minimum left channel output.
5	Measure Left Channel Separation (See Note 1).				
6			Connect scope to right channel output, scope input lead through a low pass filter to B4-6 and ground lead to B4-3.		Measure right channel separation (See Note 1).

NOTES: 1. Separation is measured as follows:

Measure output of channel with correct channel input then with opposite channel input.

$$\text{Separation in db} = 20 \log_{10} \frac{\text{output} - \text{correct channel input}}{\text{output} - \text{opposite channel input}}$$

Output may be in scope divisions, volts RMS or volts p/p. It is the ratio of the two

which is of interest and not the absolute values. When available, the readings may be made with a VTVM using an a-c scale calibrated in db. When using db meters, the separation is merely the difference between the two readings.

Example: Left channel output with left channel input measures 20 scope divisions. Left channel output with right channel input measures 1 scope division.

$$\text{Separation in db} = 20 \log_{10} \frac{20}{1} = 20 \log 20 = 20 \times 1.301 = 26.02 \text{ db.}$$

2. It is usual, due to circuit variations, for the two channel separation figures to differ by a couple of db. If there is a difference of more than several db, re-adjust separation control to more nearly balance them. If there is a wide difference, check for circuit trouble.

REPLACEMENT PARTS LIST - MODELS 1701MX, 1771MX, 1772MX, 1773MX

SYM-BOL	LOCATION	DESCRIPTION	SERVICE PART NO.	SYM-BOL	LOCATION	DESCRIPTION	SERVICE PART NO.
A.O.T. 1	L8	Transf., audio out., R.H.	32-10007-3	C24	F9	Cap., 1500 pf, 19KC tuning	30-1262-10
A.O.T. 2	L10	Transf., audio out., center	32-8989-5	C25	G5	Cap., .047 mf, AVC	30-4650-45
A.O.T. 3	L12	Transf., audio out., L.H.	32-10007-4	C26	F6	Cap., .01 mf, 6BJ6 cathode	30-1262
C1	C6	Cap., .068 mf, B- to chassis gd.	30-4650-63	C28	G7	Cap., 56 pf, 67KC filt.	30-1287-5
C2	C11	Cap., 470 pf, audio coup.	30-1238-34	C28A	F8	Cap., 56 pf, 19KC grid	30-1287-5
C3	C10	Cap., 100 pf, pre-amp. plate	30-1285-4	C29	F8	Cap., 100 pf, ratio det.	30-1263-9
C5	D9	Cap., 100 pf, pre-amp. plate	30-1285-4	C30	G6	Cap., .0047 mf, B+	30-1263-3
C7	D11	Cap., .0047 mf, tone	30-1238-42	C30A	G7	Cap., .001 mf, AM out.	30-1285-12
C8	E12	Cap., .15 mf, cross-over	30-4650-48	C31	G4	Cap., .01 mf, B+	30-1262
C9	E7	Cap., 100 pf, doubler grid	30-1285-4	C32	G5	Cap., 470 pf, FM I-F	30-1262-19
C10	E4	Cap., .068 mf, pickup to B+	30-4650-63	C33	G8	Cap., .0047 mf, B+	30-1262-3
C11	E5	Cap., .047 mf, line bypass	30-4650-45	C34	G10	Cap., .001 mf, ratio det.	30-1262-12
C12	E6	Cap., .1 mf, AFC	30-4650-47	C35	G10	Cap., elec., 5/25V ratio det.	30-2588-13
C13	E7	Cap., 1500 pf, 19KC tuning	30-1262-10	C35A	G11	Cap., .01 mf, fil. bypass	30-1238-2
C14	E10	Cap., .02 mf, audio coup.	30-1262-62	C36	H10	Cap., .001 mf, ratio det.	30-1262-12
C15	E11	Cap., .0047 tone	30-1238-42	C37	H5	Cap., .01 mf, fil. bypass	30-1262
C16	E11	Cap., 470 pf, audio coup.	30-1238-34	C38	H8	Cap., .01 mf, fil. bypass	30-1262
C17	F6	Cap., 5 pf, AM osc.	30-1287-1	C43		Cap., .005 mf, coup.	30-1238-20
C18	F7	Cap., 180 pf, 67KC filt.	30-1285-6	C44		Cap., .005 mf, coup.	30-1238-20
C19	F8	Cap., 330 pf, 67KC filt.	30-1285-9	D1		Diode, rect. silicon	14-0072-2
C20	F10	Cap., elec., 50/150V	30-2596-17	D2	G9	Diode, ratio det.	34-8022-6
C21	F4	Cap., .01 mf, fil. bypass	30-1262	D3	H9	Diode, ratio det.	34-8022-6
C22	F5	Cap., 47 pf, osc. grid	30-1230-4	D4	C6	Diode, mult. det.	34-8022-6
C23	F7	Cap., .22 mf, audio coup.	30-4650-49	D5	C6	Diode, mult. det.	34-8022-6
				D6	C6	Diode, mult. det.	34-8022-6
				D7	C5	Diode, mult. det.	34-8022-6
				D8	H7	Diode, AM det.	34-8022-6
				E1		Cap. elec., B+ filt. 425/175V, 50/150V, 50/25V	30-2573-53
				LA1		Ant. AM magnecore	32-4692-17
				L1	C7	Transf., 38KC out., all models	32-4829-2

REPLACEMENT PARTS LIST (cont.)

SYM-BOL	LOCA-TION	DESCRIPTION	SERVICE PART NO.
L1	C7	Transf., 38KC out.,	32-4829-2
L2	E7	Transf., 19KC inter-stage	32-4828-2
L3	F5	Transf., AM osc.	32-4693-13
L4	F7	Transf., 67KC filt.	32-4754-3
L5	F9	Transf., 19KC input	32-4828-3
L6	G5	Transf., AM I-F	32-4834-2
L7	H7	Transf., AM-FM I-F	32-4825-3
L8	G9	Transf., ratio det.	32-4827-1
N1	D8	RC Network, pre-amp grid	30-6039-8
N2	D8	RC Net., pre-amp grid	30-6039-8
N3	D6	RC Net., multiplex samp.	30-6043-1
N4	G7	RC Net., AM out.	30-6045-1
R1	C8	Res., 680 ohms, V1 cath.	
R2	C8	Res., 100K, V1 cath.	
R2A	C10	Res., 470K, V1 grid	
R4	C8	Res., 680 ohms, V1 cath.	
R5	C11	Res., 4.7 meg, cross-feed	
R6	D6	Res., 220K, V2 screen	
R7	D7	Res., 120K, V2 plate	
R8	D9	Res., 390K, V1 plate	
R9	D10	Res., 100K, V1 cath.	
R10	D10	Res., 390K, V1 plate	
R11	D6	Res., 120K, neon bias	
R12	D6	Res., 180K, neon bias	
R13	D8	Res., 470K, V1 grid	
R14	D9	Res., 2.7K, V3 cath.	
R15	D9	Res., 47K V3 grid	
R16	E6	Res., 1 meg, AFC	
R17	E6	Res., 1 meg, V2 grid	
R18	E8	Res., 47K, 38KC out.	
R19	E10	Res., 1 meg, V3 grid	
R21	E11	Res., 3.9 meg, cross-feed	
R22	F10	Res., 100K, V3 plate	

SYM-BOL	LOCA-TION	DESCRIPTION	SERVICE PART NO.
R23	F5	Res., 22K, osc. grid	
R25	F9	Res., 1 meg, 19KC grid	
R26	F9	Res., 820 ohms, 19KC cath.	
R26A	F11	Res., 150 ohms, 1 watt, aud. out. cath.	33-1334-26
R27	F6	Res., 2.2 meg, AVC	
R28	F7	Res., 470K, AVC	
R29	G6	Res., 68 ohms, V6 cath.	
R31	G5	Res., 220K, AVC	
R31A	G6	Res., 47K, AM out.	
R32	G6	Res., 680 ohms, B+	
R33	G7	Res., 100K, V7 grid	
R34	G8	Res., 220 ohms, ratio det.	
R35	G9	Res., 220 ohms, B+	
R36	G10	Res., 820 ohms, ratio det.	
R37	G9	Res., 68 ohms, ratio det.	
R38	H10	Res., 22K, ratio det.	
R39	H10	Res., 22K, ratio det.	
R40	H10	Res., 470 ohms, ratio det.	
R41		Res., 100 ohms, 1W, B+	33-1363-42
R42		Res., 1.2K, 3W, B+	33-1334-17
R42A		Res., 20 ohms, 3W, B+	
R43		Res., 1.8K, B+	
R46		Res., 2.7K, V4 screen	
SW1	A4	Switch, AFC	22-0095-2
VC	D3	Cap., var., AM tuning	31-2793-9
VR1	D8	Cont., loudness, 2 meg	13-0096-1
VR2	D11	Cont., Tone 4 section Treble 1M, Bass 4M	13-0095-1
VR3	F8	Cont. sep., 100K	33-5607-1
WS		Func. sw., all models	22-0098-2
R49		Resistor 68K Pilot Lamp	
		Perma-Circuit Panel	27-10468-7

MISCELLANEOUS PART LIST COMMON TO ALL MODELS (Except Where Noted)

DESCRIPTION	PART NO.
Back plate	76-13187-2
Bezel	08-1229-2
Back 1701 MX	07-0941-5
Back 1771 MX	07-0941-6
Back 1772 MX	07-0941-7
Back 1773 MX	07-0941-8
Cable, phono input	41-433-1
Cable, power	41-4321-18
Cart. and Needle	325-8076
Needle only	325-8299D.S.
Coupler, Tuning Shaft	424-8495
Knob, Bass, Loudness (inner)	07-0927-1
Knob, Treble, Loudness (outer)	07-0928-3
Knob, Function, AFC	27-10315-5
Knob, Tuning	27-10315-6
Knob, Spring, Bass, Loudness	28-9374
Knob, Spring, Tun, Funct. AFC	1W60696
Knob, Spring, Treble, Loudness	1W60708
Line Cord	41-4270-31
Leg Assy (1701) MX	18-2686-1
Lamp, neon Multiplex	76-12886-3
Lamp, retainer	1W56926
Lamp, neon, indicator (cabinet)	K14-0069-17
Lamp, holder, 110v	07-0908-3
Lamp, dial, 110v 7W	34-2605
Pulley 1/2"	12W29741
Pulley 3/8"	12W29739
Pointer	28-14366-2
Support Lid	
Scale	07-0930-2
Speaker 10" 1771 MX	36-1653-8
Speaker 10"	36-1653-11
Speaker 4"	36-1673-29
User Instructions	19-1115-2