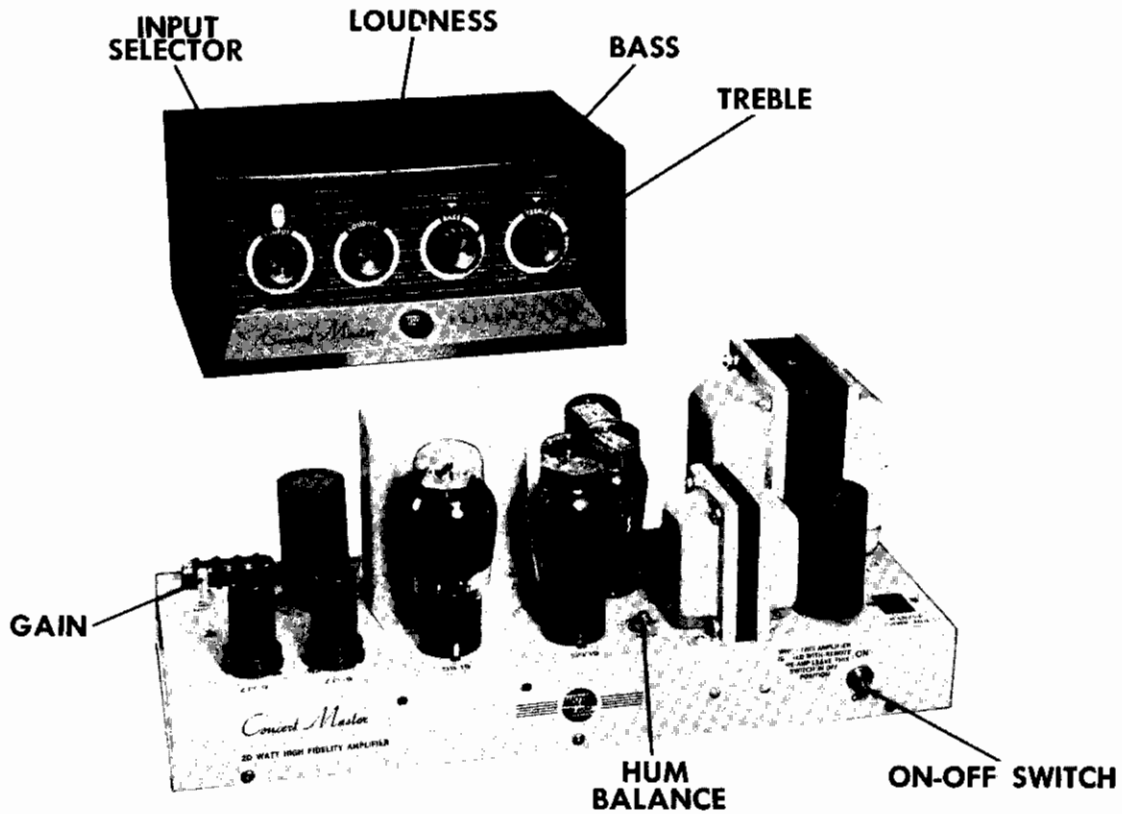




MASCO  
MODELS CM-20, PR-1



MASCO  
MODELS CM-20, PR-1

TRADE NAME	Masco Models CM-20 (Power Chassis), PR-1 (Pre-Amp. Chassis)	
MANUFACTURER	Mark Simpson Mfg. Co., 32-08 Forty-ninth St., Long Island City 3, N. Y.	
TYPE SET	AC Operated 20 Watt Audio Amplifier with Remote Pre-Amplifier	
TUBES (Nine)	Types 12AX7 Pre-Amp., (2) 12AU7 AF Amp., 6SJ7 AF Amp., 6SJ7 Phase Inv., (2) 6L6G Audio Output, (2) 5V4G Rectifiers	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.3 Amp. @ 117 Volts AC

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

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DATE 10 -53

SET 218

FOLDER 6

# PARTS LIST AND DESCRIPTIONS MODEL PR-1

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
V1	Pre-Amplifier	12AX7	12AX7	9A	
V2	AF Amplifier	12AU7	12AU7	9A	
V3	AF Amplifier	12AU7	12AU7	9A	

## CAPACITORS

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

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	
C1A	.40	450		AFH2-56		BO44		FP396.2	TVL-3780
B	.20	450							
C2A	.40	450		AFH2-56		BO44		FP396.2	TVL-3780
B	.20	450							
C3	.05	600		P688-05	DF-503	PTE685		PT615	6TM-85
C4	.05	600		P688-05	DF-503	PTE685		PT615	6TM-85
C5	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2
C6	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1
C7	1000	500		1468-001	D6-102	1W5D1	GP2L-102	MC255	IFM-21
C8	470			SI470	D6-471		GP2K-471	UC-5347	5GA-T47
C9	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5
C10	82			SI82	D6-820		GP1K-820		5GA-Q82
C11	.03	600		P688-03		PTE683		PT613	6TM-83
C12	.05	600		P688-05	DF-503	PTE685		PT615	6TM-85
C13	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1
C14	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1
C15	10000			BPD-01	DD-103	TM5S1	8L1-01	DC-511	5HK-S1
C16	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2
C17	.03	600		P688-03		PTE6S3		PT613	6TM-83
C18	.1	200		P288-1	DF-104	PJ2P1		PT401	2TM-P1

## CONTROLS

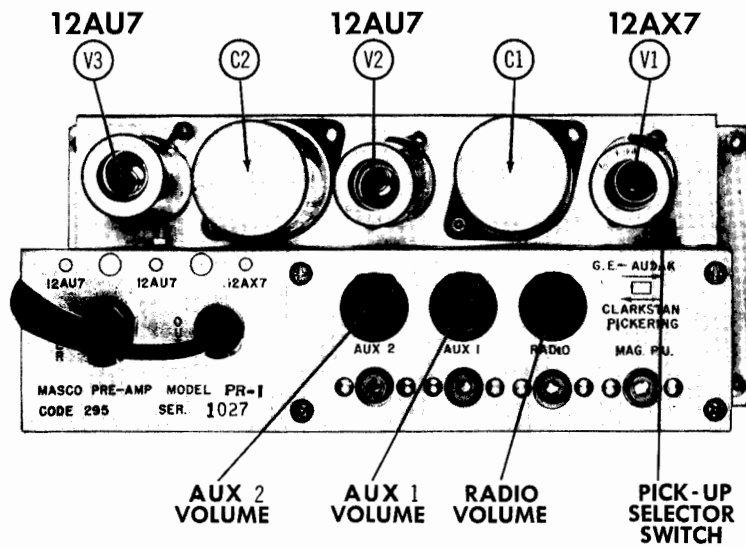
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	1/2	BA012-229	Q13-133	AG-80-Z	B-60-S	U-48	Trebble Attach to R1A
B	Shaft		Not Req.	RS-2	Not Req.	Not Req.	Not Req.	
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	
R2A	500KΩ	1/2	BA011-547	Q13-133	AG-80-Z	B-60	U-48	Bass Attach to R2A
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	
R3A	500KΩ	1/2		Q11-133				Loudness
B	1Meg			M13-137				
C	100KΩ			M13-128				
D	Shaft			PQ				
R4	500KΩ	.1						Auxiliary #1 Auxiliary #2 Radio
R5	500KΩ	.1						
R6	500KΩ	.1						

## RESISTORS

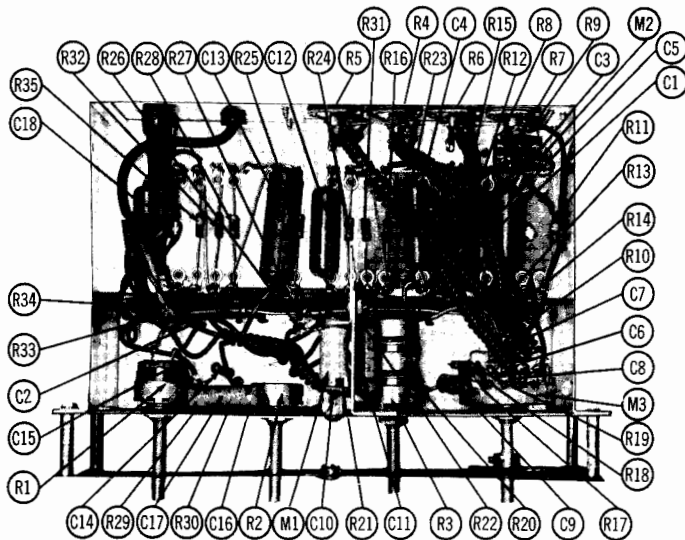
ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MASCO PART No.	IRC PART No.			OHMS	WATT	MASCO PART No.	IRC PART No.	
R7	27KΩ	1/2		BTS-27K		R22	10KΩ	1/2		BTS-10K	
R8	27KΩ	1/2		BTS-27K		R23	1500Ω	1/2		BTS-1500	
R9	47KΩ	1/2		BTS-47K		R24	47KΩ	1/2		BTS-47K	
R10	4700Ω	1/2		BTS-4700		R25	47KΩ	1/2		BTS-47K	
R11	100KΩ	1/2		BTS-100K		R26	470KΩ	1/2		BTS-470K	
R12	100KΩ	1/2		BTS-100K		R27	470Ω	1/2		BTS-470	
R13	470KΩ	1/2		BTS-470K		R28	47KΩ	1/2		BTS-47K	
R14	4700Ω	1/2		BTS-4700		R29	10KΩ	1/2		BTS-10K	
R15	100KΩ	1/2		BTS-100K		R30	150KΩ	1/2		BTS-150K	
R16	100KΩ	1/2		BTS-100K		R31	47KΩ	1/2		BTS-47K	
R17	27KΩ	1/2		BTS-27K		R32	15KΩ	1/2		BTS-15K	
R18	100KΩ	1/2		BTS-100K		R33	2700Ω	1/2		BTS-2700	
R19	150KΩ	1/2		BTS-150K		R34	10KΩ	1/2		BTS-10K	
R20	100KΩ	1/2		BTS-100K		R35	100KΩ	1/2		BTS-100K	
R21	10Meg	1/2		BTS-10Meg							

## MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M1	Pilot Light		Type #47
M2	Switch		Pick-up Selector
M3	Switch		Input Selector



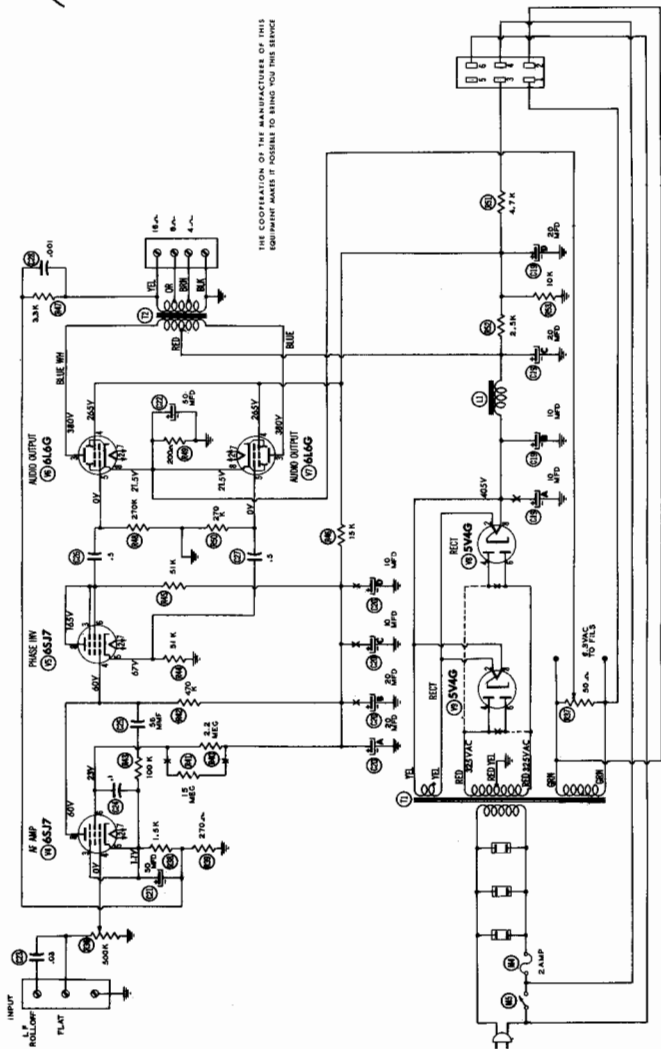
**REAR VIEW - MODEL PR - 1**



**BOTTOM VIEW - MODEL PR - 1**

MASCO  
MODELS CM-20, PR-1





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

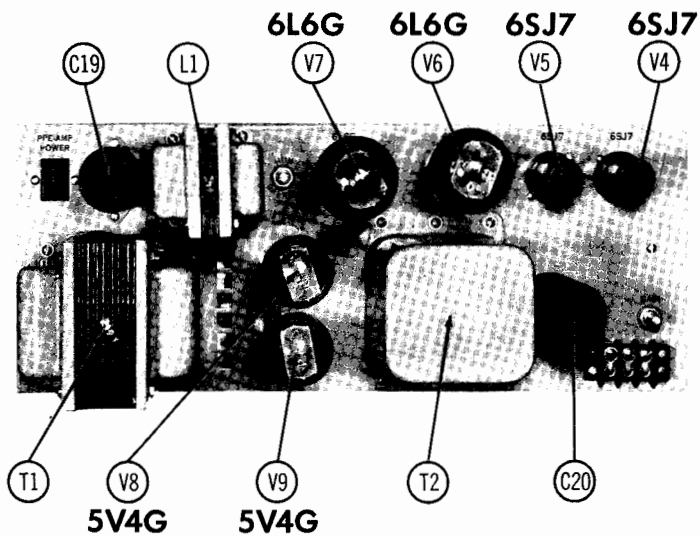
- 1 - DC Voltage measurements are 40,000 ohms per volt, AC voltage measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Measured values are from socket pin to common positive.
- 5 - Nominal tolerance on component values makes possible a variation of ±1% in voltage and resistance readings.
- 6 - All controls at minimum, proper output load connected.

RESISTANCE READINGS

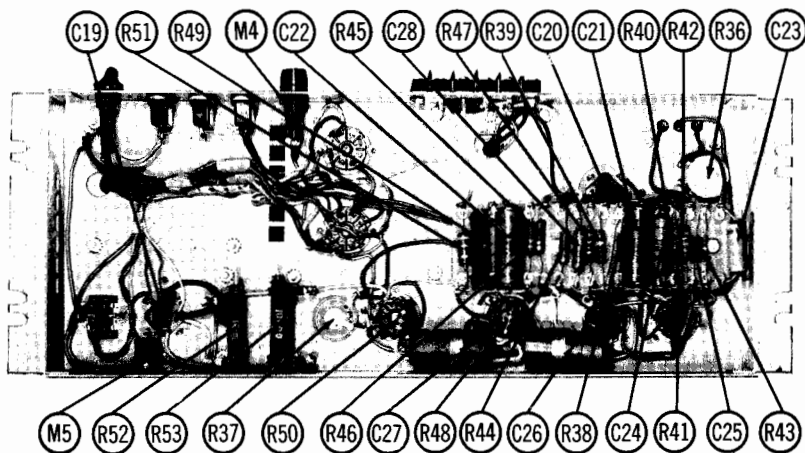
Pin	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V+	500	1,000	500	1,000	100K	500	100K	100K
V-	500	1,000	500	1,000	100K	500	100K	100K
V+	500	1,000	500	1,000	100K	500	100K	100K
V-	500	1,000	500	1,000	100K	500	100K	100K
V+	500	1,000	500	1,000	100K	500	100K	100K
V-	500	1,000	500	1,000	100K	500	100K	100K
V+	500	1,000	500	1,000	100K	500	100K	100K
V-	500	1,000	500	1,000	100K	500	100K	100K

RESISTANCE READINGS FROM PIN 1 TO PIN 8

A PHOTOFAC STANDARD NOTATION KYMATIC  
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**TOP VIEW - MODEL CM - 20**



**BOTTOM VIEW - MODEL CM - 20**

## PARTS LIST AND DESCRIPTIONS MODEL CM-20 TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		MARCO PART No.	STANDARD REPLACEMENT		
V4	AF Amplifier	6B7	6B7	8N	
V5	Phase Inverter	6B7	6B7	8N	
V6	Audio Output	6L6G	6L6G	7B	
V7	Audio Output	6L6G	6L6G	7B	
V8	Rectifier	5Y4G	5Y4G	5L	
V9	Rectifier	5Y4G	5Y4G	5L	

### CAPACITORS

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA				NOTES
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CONHELL-DUMBER PART No.	
C18A	.10 450		AFB5-36		CO27	FP376.5 TVL-3780 Note 1
B	.10 450					
C	.20 450					
D	.20 450					
C20A	.20 450		AFH1-54		A050	FP376.5 TVL-3780 Note 2
B	.20 450					
C	.10 450					
D	.10 450					
C21	.50 50		PR950/50		BR505	TC39 TVA-1308
C22	.50 50		PR950/50		BR505	TC39 TVA-1308
C23	.03 500		P888-03		PTE683	PT613 6TM-63
C24	.1 200		P888-1	DF-104	P72P1	PT401 27M-P1
C25	.5 500					
C26	.5 400		P488-5		PTE4P5	PT405 47M-P5
C27	.5 400		P488-5		PTE4P5	PT405 47M-P5
C28	.001 500		P888-001	D5-102	PTE6D1	PT651 67M-D1

Note 1. Some Models combine C18A and C18B in one section.  
Note 2. Some Models combine C20A, C20B, C20C, C20D in single section unit.

### CONTROLS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA				INSTALLATION NOTES
		MARCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R36A	500KΩ ±	33-010-188	Q33-133	AG-90-Z	B-60	Gain Attach to R36A
B Shaft	500	Not Req.	Not Req.	RB-2	Not Req.	Hum Balance-wire wound
R37A	500			A45-60	RS0L *	Attach to R37A
B Shaft	2			FK3-1/4	Not Req.	

\* Use Mallory washers #903 and #212 to insulate control from chassis.

### RESISTORS

ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES	ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES
		MARCO PART No.	IRC PART No.				MARCO PART No.	IRC PART No.	
R38	100KΩ ±		B7S-1500		R46	15KΩ		B7A-15K	
R39	100KΩ		B7A-270		R47	330KΩ		B7A-330K	
R40	2.2Meg		B7A-2.2Meg		R48	270KΩ		B7A-270K	
R41	10Meg		B7S-10Meg	Note	R49	200Ω		1/2(A)-200	
R42	470KΩ		B7A-470K		R50	270KΩ		B7A-270K	
R43	100KΩ		B7S-100K		R51	4700Ω		B7B-4700	
R44	15KΩ 5%		B7A-15K 5%		R52	2500Ω		1/2(A)-2500	
R45	15KΩ 5%		B7A-15K 5%		R53	10KΩ		2D-10K	

Note: Not used in all Models.

### TRANSFORMER (POWER)

ITEM No.	RATING PH. SEC. 1 SEC. 2 SEC. 3	REPLACEMENT DATA			
		MARCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC 550VCT 1.140ADC ① 1.2A ② 4A ③ 3.5A	5VAC ④ 6A	6.3VAC ⑤ 3.5A		

① Drill new mounting holes.  
② Parallel 5 V windings.  
③ Use low taps on high voltage secondary.

### TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PH. SEC. DC RES. PH. SEC.	REPLACEMENT DATA				NOTES
		MARCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T2	6KΩ 100Hz 320Ω 1.20 CT ① 80, ② 40 CT ③ .850 tap ④ .460		A-330T ①	A-310K ②	PCO-80③	S-35A ④

① Drill new mounting holes.  
② Use low primary taps, tape extra leads.

### FILTER CHOKE

ITEM No.	RATING TOTAL DIRECT CURRENT RESISTANCE	D. C. RESISTANCE	INDUCTANCE (D. CURRENT 1000 mA)	REPLACEMENT DATA			
				MARCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
L1	.140ADC	150Ω	6.25 H.		C-1421 ①		R-7150 ②

① Drill one new mounting hole.

### FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			MARCO PART No.	LITTLIFUSE PART No.	BUSS PART No.	
M4	3AG (810-B10)	2A ① 125V	FUSE HOLDER	FUSE HOLDER	FUSE HOLDER	HXP
				313002 (RAG-2Amp. 910-310)	342005	MDL2

### MISCELLANEOUS

ITEM No.	PART NAME	MARCO PART No.	NOTES
M5	Switch		OE/On

## RECORD EQUALIZATION CHART

SELECTOR SWITCH SETTING	RECORD TYPE	TECHNICAL CHARACTERISTICS
1	COLUMBIA LP'S	500 cps turnover, 16 db rolloff at 10 kc, playback equalization for constant velocity below 100 cps.
2	AES (Audio Engineering Society Recording Curve) ALL RCA VICTOR'S (78, 45, LP)	400 cps turnover, 12 db rolloff at 10 kc.
3	NAB (National Association of Broadcasters Recording Curve) MOST RECENT-AMERICAN DISCS (EXCEPT AS NOTED)  COLUMBIA 78's LONDON FFRR LP's OLDER AMERICAN LP's	500 cps turnover, 16 db rolloff at 10 kc.
4	DECCA FFRR 78's LONDON FFRR 78's	400 cps turnover, 6 db rolloff at 10 kc.
5	MOST EUROPEAN 78's HMV BRITISH COLUMBIA CAPITOL-TELEFUNKEN OLDER AMERICAN 78's	350 cps turnover, flat at high end.

## HUM BALANCE ADJUSTMENT

Replacement of tubes will necessitate readjustment of the Hum Balance Control on the CM-20 Amplifier.  
To adjust the Hum Balance Control, turn equipment on, set all controls to maximum, selector switch in Col LP position (no input connected), and readjust the Hum Balance potentiometer with a screwdriver for minimum hum as heard in the speaker.

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