

Admiral

SERVICE DATA No. ST828-1

for
DUAL CHANNEL
Stereophonic

HIGH-FIDELITY FM-AM-PHONOGRAPH

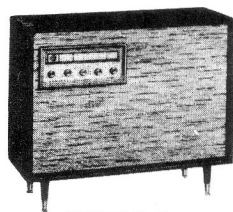
using

12B1 -12B1A -5T4A CHASSIS

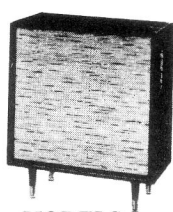
MODEL IDENTIFICATION CHART

MODEL NUMBER	MASTER UNIT			AUXILIARY STEREO UNIT	
	MODEL NAME	FM-AM TUNER CHASSIS	RECORD CHANGER	MODEL NUMBER	AMPLIFIER CHASSIS
632	KENSINGTON	12B1	RC 688-16S, -18S	SS622	5T4A
633	KENSINGTON	12B1	RC 688-16S, -18S	SS623	5T4A
634	KENSINGTON	12B1	RC 688-16S, -18S	SS624	5T4A
642	ESSEX	12B1	RC 688-16S, -18S	SS642	5T4A
643	ESSEX	12B1	RC 688-16S, -18S	SS643	5T4A
644	ESSEX	12B1	RC 688-16S, -18S	SS644	5T4A
649	CHANTE	12B1, 12B1A	RC 688-16S, -18S	SS649	5T4A
654	TUSCANY	12B1	RC 688-16S, -18S	SS654	5T4A
662	IMPERIAL	12B1	RC 688-17S, -18S	*	5T4A
663	IMPERIAL	12B1	RC 688-17S, -18S	*	5T4A
664	IMPERIAL	12B1	RC 688-17S, -18S	*	5T4A
671	TITIAN	12B1	RC 688-17S, -18S	SS671	5T4A

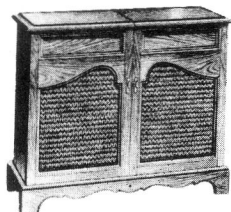
The auxiliary channel (including 5T4A chassis and speaker system) is incorporated into the Master unit in Models 662, 663 and 664



MODELS
632
633
634



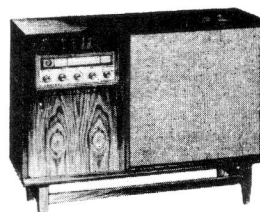
MODELS
SS622
SS623
SS624



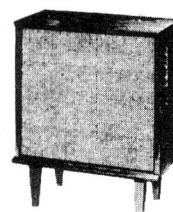
MODEL
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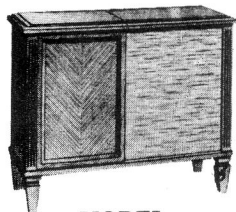
MODEL
SS649



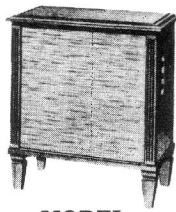
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644



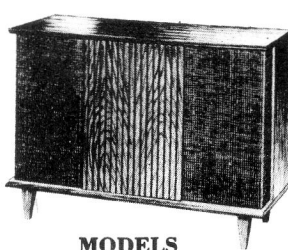
MODELS
SS642
SS643
SS644



MODEL
654



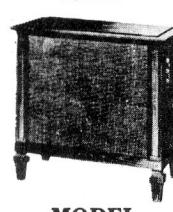
MODEL
SS654



MODELS
662
663
664



MODEL
671



MODEL
SS671

Canadian Admiral CORPORATION, LTD.

PORT CREDIT, ONT.

Form ST828-1

SPECIFICATIONS

FREQUENCY RESPONSE—Master amplifier and Auxiliary amplifier flat from 40 cycles to 20,000 cycles within 1 db.

CONTROLS—Chassis 12B1
Off-On-Treble, Loudness (dual), Bass, Record Compensator, Selector and Tuning.
—Chassis 5T4A
Balance, Bass and Treble.

HARMONIC DISTORTION—Chassis 12B1
Less than 1% at normal listening levels. Less than 3% at 9 watts output.
—Chassis 5T4A
Less than 1% at normal listening levels. Less than 3% at 9 watts output.

POWER CONSUMPTION — 12B1 radio chassis, 115 watts. 5T4A amplifier chassis, 60 watts. Record Changer, 25 watts.

POWER SUPPLY—117 Volts AC, 60 cycles only.

POWER OUTPUT—Radio chassis 12B1, 11 watts maximum; Auxiliary Channel amplifier chassis 5T4A, 11 watts maximum.

SPEAKER SYSTEMS—

Models 632, 633, 634 and 649:
10" PM, Woofer; 5¼" PM and 4" PM Mid-Ranges; 3½" PM, Tweeter.

Models 642, 643, 644 and 671:
15" PM, Woofer; 8" PM, Mid-Range; 5¼" PM and 3½" PM, Tweeters.

Model 654:
Two, 10" PM, Woofers; 4" PM, Mid-Range; 3½" PM, Tweeter.

Models 662, 663 and 664:
12" PM, Woofer; 5¼" PM, Mid-Range; 3½" PM, Tweeter. Two identical speaker systems, composed of the listed speakers, are housed in the Master cabinet.

Models SS622, SS623, SS624 and SS649 (used with models 632, 633, 634 and 649 respectively):
10" PM, Woofer; 5¼" PM and 4" PM Mid-Ranges; 3½" PM, Tweeter.

Models SS642, SS643, SS644 and SS671 (used with models 642, 643, 644 and 671 respectively):
15" PM, Woofer; 8" PM, Mid-Range; 5¼" PM and 3½" PM, Tweeters.

Model SS654 (used with model 654):
Two, 10" PM, Woofers; 4" PM, Mid-Range; 3½" PM, Tweeter.

NOTE: For voice coil impedance values for each speaker, refer to the appropriate "CABINET PARTS" list.

TUBE LOCATIONS

12B1

Figure 1 is the top view of 12B1 chassis with tube locations shown. Refer to schematic diagram on page 16 for function of each tube and tube complement on this page.

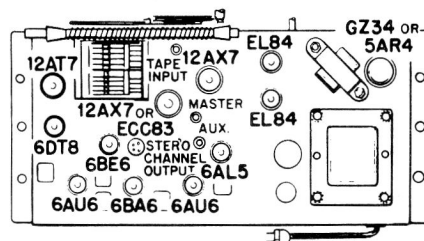


Figure 1. Top View of 12B1 - 12B1A Chassis. Tube Locations Shown.

5T4A

Figure 2 is top view of 5T4A chassis with tube locations shown. Refer to schematic diagram on page 16 for function of each tube and TUBE COMPLEMENT listing on this page.

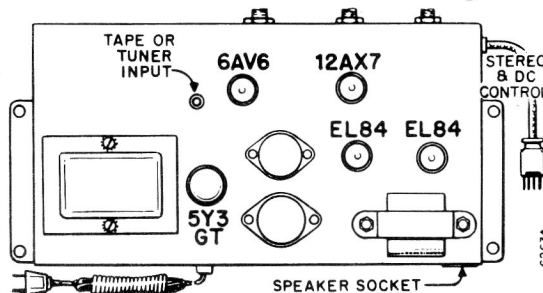


Figure 2. Top View of 5T4A Chassis, Tube Locations Shown.

TUBE REPLACEMENT

All tubes used in Master cabinets and Auxiliary cabinets are accessible for replacement. The cabinet back panels on Auxiliary cabinets need to be removed to gain access to tubes on 5T4A chassis.

On models 662, 663 and 664, the Auxiliary chassis (5T4A) is located inside the Master cabinet.

12B1 TUBE COMPLEMENT

V1A	}	FM RF Amplifier and Mixer	6DT8
V1B			
V2		1st FM IF Amplifier	6AU6
V3		FM 2nd IF Amplifier and AM 1st IF Amplifier...	6BA6
V4		FM 3rd IF Amplifier and Limiter; AM Detector...	6AU6
V5		FM Discriminator	6AL5
V6		FM Oscillator and FM Automatic Frequency Control	12AT7
V7		AM Oscillator-Mixer	6BE6
V8		Master Channel Audio Pre-amp and Stereo Channel Audio Pre-amp	
		Chassis stamped	12AX7
		Runs 10 through 13.....	ECC83
		Chassis stamped Run 14.....	ECC83
V9		Rectifier	GZ34/5AR4
V10		Audio Amplifier and Phase Inverter	12AX7
V11		Audio Output	EL84/6BQ5
V12		Audio Output	EL84/6BQ5

5T4A TUBE COMPLEMENT

V101	Audio Amplifier	6AV6
V102	Audio Amplifier and Phase Inverter	12AX7
V103	Audio Output	EL84/6BQ5
V104	Audio Output	EL84/6BQ5
V105	Rectifier	5Y3GT

SERVICING

PARTS LIST

Note: CORRECTIONS TO SERVICE DATA NO. ST828-1

Page 3 — On figure 3, the boxes labeled "LEFT" and "RIGHT" should be labeled "L" and "R" respectively.

Page 4 — The last two lines in the last paragraph should read:

("B". This demonstrates the ability of one groove to selectively reproduce a signal into one amplifier channel.)

— The last three lines of the lower left hand block of text in figure 10 should read: ("B" DEVELOPS A SIGNAL & "A" DOES NOT BECAUSE OF THEIR RELATIVE POSITIONS.)

SERVICE HINTS

POSSIBLE SOURCES OF HUM

If hum appears in the output when the set is operated in the "STEREO" position, make note of the hum level. By reversing the AC line cords in wall outlets of either or both chassis, hum can be reduced. Leave the AC line cords connected to the wall outlets in the position giving least hum.

For models having both chassis (12B1 and 5T4A) in one cabinet, AC line cords for each chassis should be tried in various positions in the duplex receptacle. The AC line cord to the wall outlet can be changed. Leave set connected with plugs in position giving least hum.

BALANCING THE STEREOPHONIC SOUND OUTPUTS

For proper stereophonic listening, the audio output from each channel (Master and Auxiliary) should be adjusted so that the reproduced sound appears to originate from each cabinet and the space between cabinets. This effect can be described as a "wall" of sound.

The two cabinets should be placed from 8 to 12 feet apart. The proper listening location is from 8 to 12 feet in front of the cabinets.

To adjust the Loudness and Balance controls for proper listening, proceed as follows:

1. Locate the cabinets in position. Try to maintain proper distance between cabinets as closely as possible. Adjust the Function switch on the FM tuner to "PHONO" position.
2. Play a regular single-channel (monaural) record or Stereophonic record. As the record is playing, adjust the Loudness control on the Master unit for a comfortable over-all listening level. NOTE: The Loudness control consists basically of two ganged potentiometers. These potentiometers control the Loudness level for each channel. Adjust the Balance control on the Auxiliary unit to approximate mid-rotation.
3. A properly balanced system will now give the effect of the sound originating from a point midway between cabinets. An imbalance of audio outputs will reveal itself as one audio output being louder and overriding the balanced output condition. If necessary, adjust the Balance control so that the sound appears to originate from half-way between the cabinets.
4. Play a Stereophonic record with the Function switch set to "STEREO" position. The sound output of the Stereo system should give a genuine effect of depth and direction to reproduced sound. Because of a room's dimensions and furnishings and the position of the Stereophonic system, the Balance control may have to be readjusted slightly for optimum performance.

On models having both channels in one cabinet, the Balance control is also adjusted for depth and direction of sound.

When servicing 12B1-12B1A, refer to the parts listing below and then to the "PARTS LIST" in ST828-1

Refer to replaceable parts.

RESISTORS

Sym.	Description	Part No.
R33	330,000 ohms, ½ watt (Run 10)	60B 8-334
	390,000 ohms, ½ watt (Runs 11, 12 & 13)	60B 8-394
	100,000 ohms, ½ watt (Run 14)	60B 8-104
R34	220,000 ohms, ½ watt (Run 10)	60B 8-224
	100,000 ohms, ½ watt (Runs 11, 12 & 13)	60B 8-104
	390,000 ohms, ½ watt (Run 14)	60B 8-394
R45	39,000 ohms, 2 watts (Runs 10, 11 & 12)	60B 20-393
R71	33,000 ohms, 2 watts (Run 13 and higher)	60B 20-333
R72	75,000 ohms, ½ watt, 5% (Run 14 and higher)	60B 7-753
R73	75,000 ohms, ½ watt, 5% (Run 14 and higher)	60B 7-753
R74	100,000 ohms, 1 watt (Run 14 and higher)	60B 14-104
R75	10 ohms, ½ watt (Run 15 and higher)	60B 8-100

RUN CHANGES

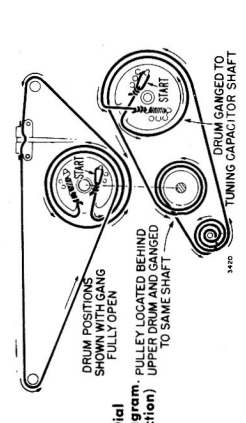
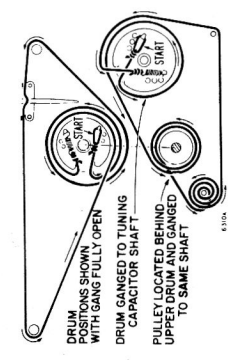
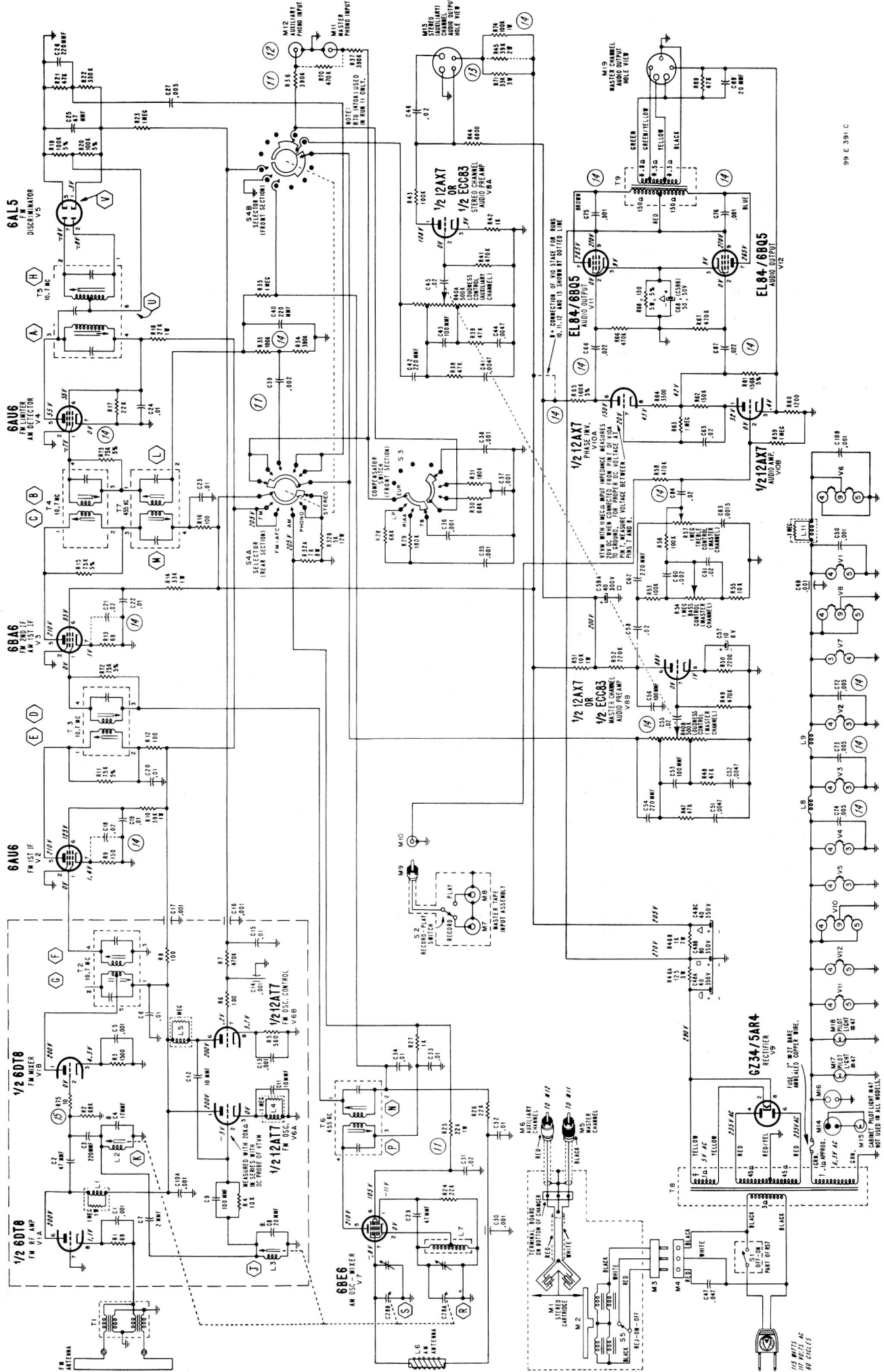
- 10 Start of production 12B1.
- 11 R25 (15K, 1W) changed to (22K, 1W) to permit full interchangeability 6BE6 tubes. R33 changed to (390K, 1/2W); R34 to (100K, 1/2W); and C39 to (.002MF) to improve AM operation. R70 (470K, 1/2W) added between M11 and M12 to minimize rumble.
- 12 R70 (470K, 1/2W) removed to increase channel separation for stereo operation.
- 13 To insure proper operation of OFF-ON-POWER relay at low line voltages, R45 (39K, 2W) removed and R71 (33K, 2W) added in its place.
- 14 To reduce possibility of regeneration in strong signal areas, C18 (.02MF) and C21 (.02MF) removed, R72 (75K, 5%) and R73 (75K, 5%) added to IF section. R65 (160K) connected to B+ 200V. For standardization of parts, C19A and B (dual .004MF; V2 screen and filament bypass) removed. C19 (.01MF) V2 screen bypass and C72 (.005MF) V2 filament bypass added. C22A and B (dual .004MF; V3 screen and filament bypass) removed. C22 (.01MF) V3 screen bypass and C73 (.005MF) V3 filament bypass added. C24A and B (dual .004MF; V4 screen and filament bypass) removed. C24 (.01MF) V4 screen bypass and C74 (.005MF) V4 filament bypass added. V8 changed to ECC83. For improved frequency response, C55 changed to .02MF, C64 changed to .02MF, C66 and C67 each changed to .022MF. C75 (.001MF) added from plate to screen of V1. C76 (.001MF) added from plate to screen of V12. To increase AM audio output, R33 changed to 100K and R34 changed to 390K. R74 (100K, 1W) added.
- 15 R75 (10 ohms, 1/2 watt) added between pin 2 of V1B and R2 to reduce possibility of RF regeneration.

CAPACITORS

Sym.	Description	Part No.
C19A	.004 mf, 450 volts} dual ceramic disc;	65A 17-1
C19B	.004 mf, 450 volts} Runs 10, 11, 12 and 13.....	
C19	.01 mf, 500 volts, cer. disc (Run 14 and higher).....	65D 10-3
C22A	.004 mf, 450 volts} dual ceramic disc;	65A 17-1
C22B	.004 mf, 450 volts} Runs 10, 11, 12 and 13.....	
C22	.01 mf, 500 volts, cer. disc (Run 14 and higher).....	65D 10-3
C24A	.004 mf, 450 volts} dual ceramic disc;	65A 17-1
C24B	.004 mf, 450 volts} Runs 10, 11, 12 and 13.....	
C24	.01 mf, 500 volts, cer. disc (Run 14 and higher).....	65D 10-3
C55	.005 mf, 500 volts, cer. disc (Runs 10, 11, 12 and 13).....	65D 10-1
	.02 mf, 500 volts, cer. disc (Run 14 and higher).....	65D 10-28
C64	.005 mf, 500 volts, cer. disc (Runs 10, 11, 12 and 13).....	65D 10-1
	.02 mf, 500 volts, cer. disc (Run 14 and higher).....	65D 10-28
C66	.1 mf, 400 volts, molded, mylar dielec. (Runs 10, 11, 12 and 13).....	64C 25-32
	.022 mf, 600 volts, molded (Run 14 and higher).....	64B 8-11
C67	.1 mf, 400 volts, molded, mylar dielec. (Runs 10, 11, 12 and 13).....	64C 25-32
	.022 mf, 600 volts, molded (Run 14 and higher).....	64B 8-11
C72	.005 mf, 500 volts, cer. disc.....	65D 10-1
C73	.005 mf, 500 volts, cer. disc.....	65D 10-1
C74	.005 mf, 500 volts, cer. disc.....	65D 10-1
C75	.001 mf, 600 volts, molded (Run 14 and higher).....	64B 8-19
C76	.001 mf, 600 volts, molded (Run 14 and higher).....	64B 8-19

RECORD CHANGER PARTS RC688-16S, -17S and -18S

Kit, 50 Cycle Conversion (for 407D29 motor)	98C 15-109
Replacement Parts for Record Changer Motor 407D29	
Idler Wheel, Molded (including tire)	98C 15-105
Idler Spring	98C 15-58
Drive Belt, 16 and 33 RPM	98C 15-107
Drive Shaft, 16 and 33 RPM	98C 15-108



99 E 391 C