

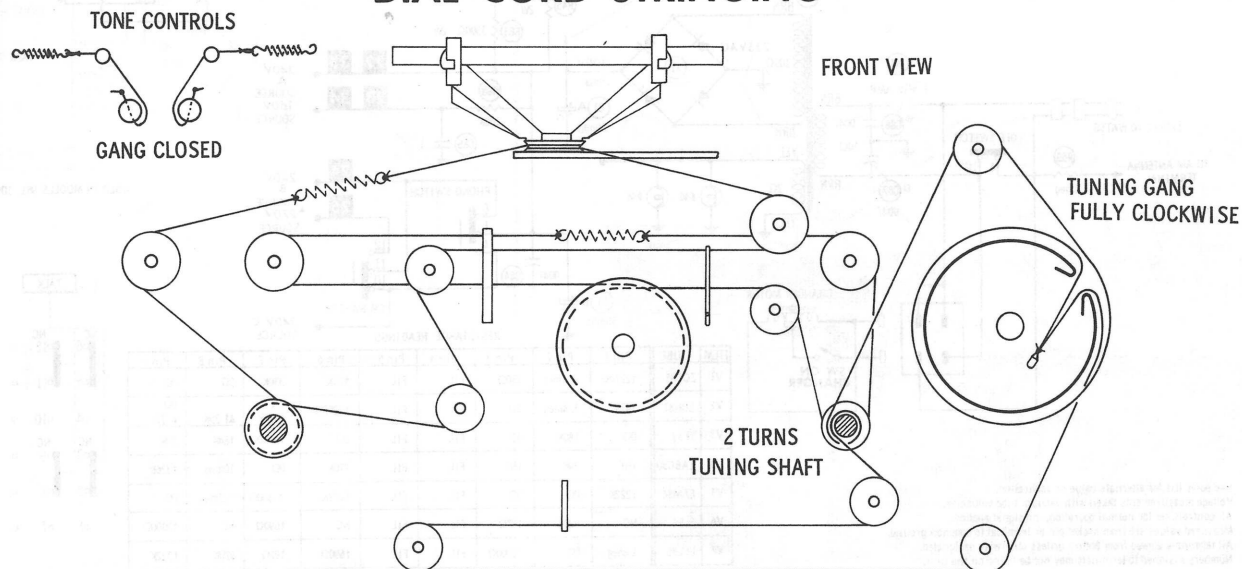


MODEL 961

TRADE NAME	Korting and Delmonico Models 931, 941, 951, 961, 981, 1091, 1221		
SUPPLIER	Delmonico International, Div. of Thompson-Starrett Co., Inc., 120-20 Roosevelt Avenue, Corona 66, New York		
TYPE SET	AC Operated 7 Tube BC-SW-FM Receiver with Stereo Amplifier and 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	60 Watts, .58 Amp. @ 117Volts AC
TUNING RANGE—BROADCAST	515-1620KC	FREQ MOD	88-108MC
LOW WAVE	150-360KC	SHORTWAVE	5.85-19.3MC

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE SIMILAR TELEFUNKEN TW504S—PHOTOFACT SET651 FOLDER 12

## DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



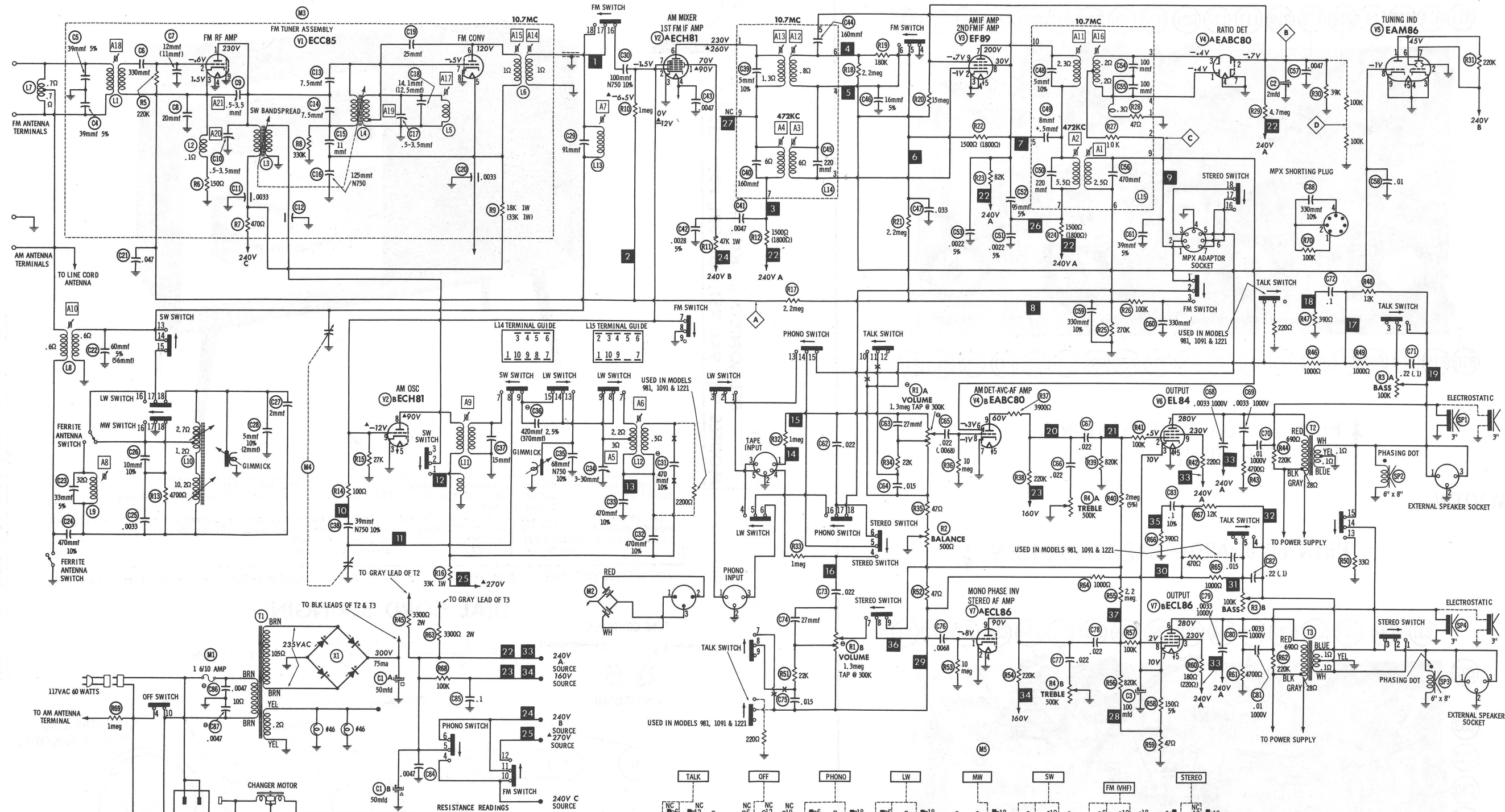
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MN196

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DATE 12 -63

SET 668 FOLDER 4



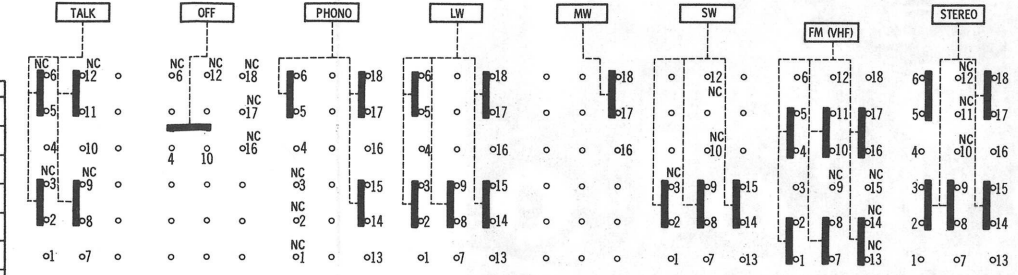
- See parts list for alternate value or application.  
 1. Voltage measurements taken with vacuum tube voltmeter.  
 2. All controls set for normal operation, no signal applied.  
 3. Measured values are from socket pin or terminal to common ground.  
 4. All terminals viewed from bottom unless otherwise designated.  
 5. Numbers assigned to terminals may not be found on the unit.  
 6. Supply voltage maintained at rated value for voltage readings.

A PHOTOFACT STANDARD NOTATION SCHEMATIC  
 with CIRCUITRACE

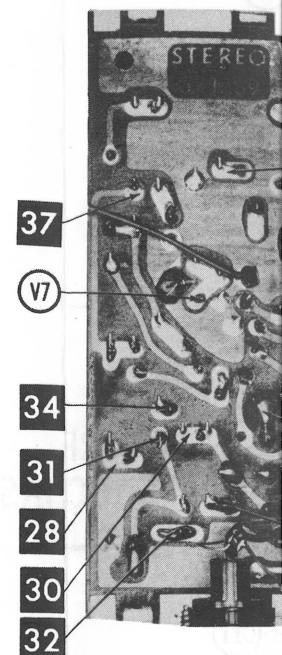
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ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	12270Ω	2.5meg	150Ω	FIL	FIL	120K	330K	0Ω	0Ω
V2	AECH81	147K	3.4meg	0Ω	FIL	FIL	13200Ω	0Ω	0Ω	0Ω
V3	EF89	0Ω	180K	0Ω	FIL	FIL	0Ω	27K	35K	27K
V4	EABC80	1N	39K	1N	FIL	FIL	270K	0Ω	10meg	132K
V5	EAM84	1222K	0Ω	0Ω	FIL	FIL	1222K	11600Ω	2.3meg	0Ω
V6	EL84	NC	920K	197Ω	FIL	FIL	NC	1690Ω	NC	12000Ω
V7	ECL86	10meg	0Ω	12000Ω	FIL	FIL	1690Ω	197Ω	920K	132K

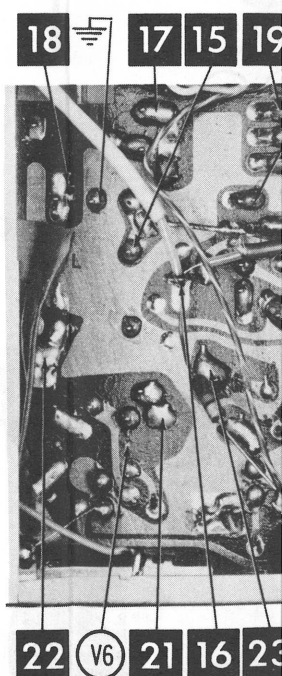
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED. NC NO CONNECTION  
 MEASURED IN "A" POSITION. MEASURED FROM OUTPUT OF X1.



DELMONICO or KORTING  
 MODELS 931, 941, 951, 961, 981, 1091, 1221



A Howard W. Sams CIRCUITRACE



A Howard W. Sams CIRCUITRACE





ARROWS INDICATING TUBE LOCATIONS ARE  
POINTING TO PIN 1 UNLESS OTHERWISE INDICATED







PARTS LIST AND DESCRIPTION

TUBES

♦ AMPEREX ♦		♦ GENERAL ELECTRIC ♦		♦ RCA ♦		♦ RAYTHEON ♦		♦ SYLVANIA ♦	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE			
V1	FM RF Amp-FM Conv.	ECC85		V5	Tuning, Indicator	EAM86			
V2	AM Mix Osc-1st FM IF Amp	ECC81		V6	Output	EL84			
V3	1st AM-2nd FM IF Amp	EF80		V7	Stereo AF Amp-	ECL86			
V4	AM Det-AVC-Ratio Det- AF Amp	EABC80		Mono Phase Inverter- Output					

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.075A	2060041	FW500	1N1763 or 1N3194①	F-4 or 40H ①

① 4 Required

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Delmonico PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	50	350	1610022	AFB2-40-50				
B	50	350						
C2	2	70	1600049	CRE901	NLW2-100	MT1-2	MLV2-100	TE-1401
C3	100	30	1600013	PR81360	BR100-50	QT1-23	TD-100-50	TVA-1310

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C4	39	5%	(11)†	DI-330	TCZ-39 TCZ-39 DD-331	C10Q39C C10Q39C L10T33	CCD-331	CNO-439 CNO-439 GP333	10TCC-Q39 10TCC-Q39 10TS-T33
C5	39	5%							
C6	330								
C7	12								
C8	20								
C9	.5-3.5mmf								
C10	.5-3.5mmf								
C11	.0033								
C12	7.5								
C13	7.5								
C14	11		(12.5)†	P488N-047	TCZ-33 CPR-470J DD-332	C10Q33C WFMF4D88E L10Q1 C10V2C L10V5	4DP-3-473	GEM-4147	4TM-S47
C15	125	N750							
C16	.5-3.5								
C17	14.1								
C18	25								
C19	.0033								
C20	.047	250V							
C21	60	5%							
C22	33	5%							
C23	470	10%							
C24	.0033	400V	(2)†	P488N-0033	DD-100	WFMF4D88E L10Q1 C10V2C L10V5	6DP-1-332	PVC4233	6TM-D33
C25	10	10%							
C26	2mmf								
C27	5mmf	10%							
C28	91	10%							
C29	100	N750							
C30	470	10%							
C31	470	10%							
C32	470	10%							
C33	470	10%							
C34	3-30		(370)† Note 2	N750-SI100	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C35	68	N750							
C36	420	125V 2.5%							
C37	15								
C38	39	N750							
C39	5	10%							
C40	160								
C41	.0047								
C42	.0028	500V							
C43	.0047								
C44	160		Note 1	SI4700	D6-472	L10D47	CCD-472	B-247	5HK-D47
C45	220								
C46	16	5%							
C47	.033	125V							
C48	5	10%							
C49	8	±.5mmf							
C50	220								
C51	.0022	500V							
C52	95	5%							
C53	.0022	500V							
C54	100		(, 0068)† Note②	P488N-01	D6-472	L10D47	CCD-472	B-247	5HK-D47
C55	100								
C56	470								
C57	.0047								
C58	.01	250V							
C59	330	10%							
C60	330	10%							
C61	39	5%							
C62	.022	125V							
C63	27								
C64	.015	500V	(, 0068)† Note②	P288N-022	DD-203	CUB4S22	4DP-2-223	PVC2122	2TM-S22
C65	.022	250V							
C66	.022	500V							
C67	.022	400V							
C68	.0033	1000V							
C69	.0033	1000V							
C70	.01	1000V							

FIXED CAPACITORS (cont)

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C71	.22	125V	(, 1)†	P288N-22	DD-203	CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C72	.1	125V 10%							
C73	.022	400V							
C74	27								
C75	.015	500V							
C76	.0088	500V							
C77	.022	500V							
C78	.022	400V							
C79	.0033	1000V							
C80	.0033	1000V							
C81	.01	1000V	Note 3	P488N-01	DD-103	CUB10S1	16DP-3-103	GEM-1011	10TM-S10
C82	.22	125V							
C83	.1	125V 10%							
C84	.0047								
C85	.1	250V							
C86	.0047	250VAC							
C87	.0047	250VAC							
C88	330	10%							

Note 1 Not used in model 1091-1221-981 Note 2 Alternate Value used in Model 1091-1221-981  
Note 3 Some versions use one dual disc ceramic. † Alternate Value

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			Delmonico PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume, Left	1.3meg	1800-239 ①				
B	Volume, Right	300K Tap	(4-5370)				
R2	Stereo Balance	1.3meg					
		300K Tap	1800-199				
		500Ω	(4-8876)				
R3A	Bass, Left	100K	1800-219				
B	Bass, Right	100K	(4-5217)				
R4A	Treble, Left	500K	1800-218				
B	Treble, Right	500K	(4-5216)				

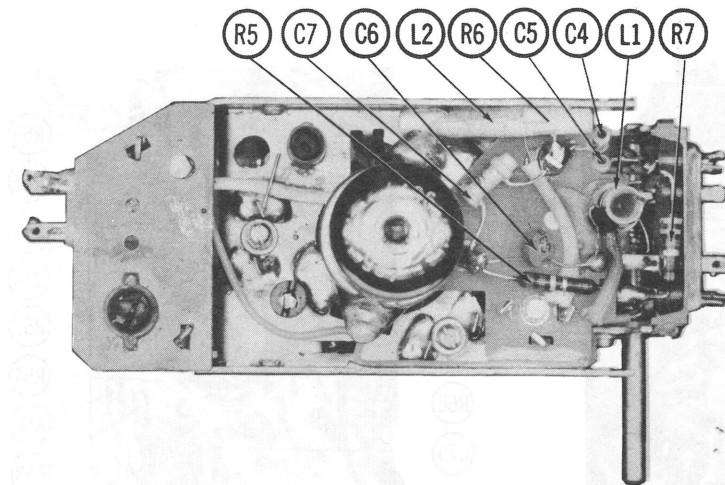
① Models 981, 1091, 1221 May use control Part #1800-191(4-4691) or 1800-217 (4-5166)

COILS (RF-IF)

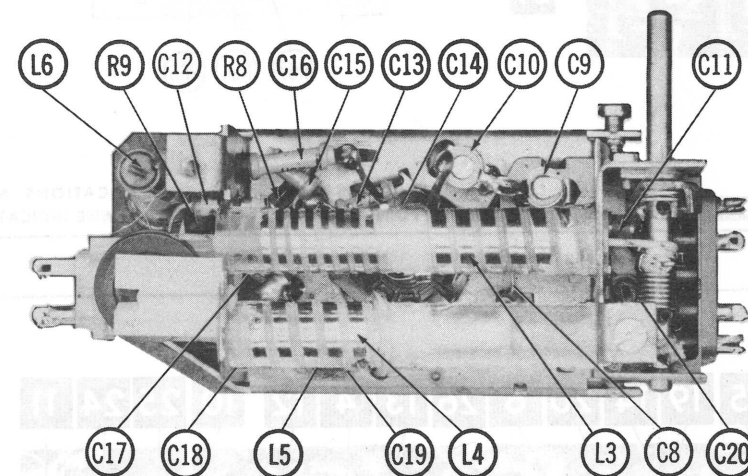
ITEM No.	USE	REPLACEMENT DATA	NOTES
		Delmonico PART No.	
L1	FM Ant.	SP602	
L2	AF Choke	SP603	
L3	S.W. Band Spread	SP609	
L4	FM Osc.	SP610, 608	
L5	Adjustable Choke		
L6	1st FM IF	SP611, 612	
L7	FM Input	BV652	
L8	AM Ant.	BV725	
L9	I. W. Ant.	BV810/II	
L10	Loopstick	BV4079	
L11	S.W. Osc.	BV4055	
L12	M.W. Osc.	BV4070	
L13	IF Filter	BV4050	
L14	2nd FM IF	BV835	
L15	Ratio Detector - 2nd AM IF	BV4087	

TRANSFORMER (POWER)

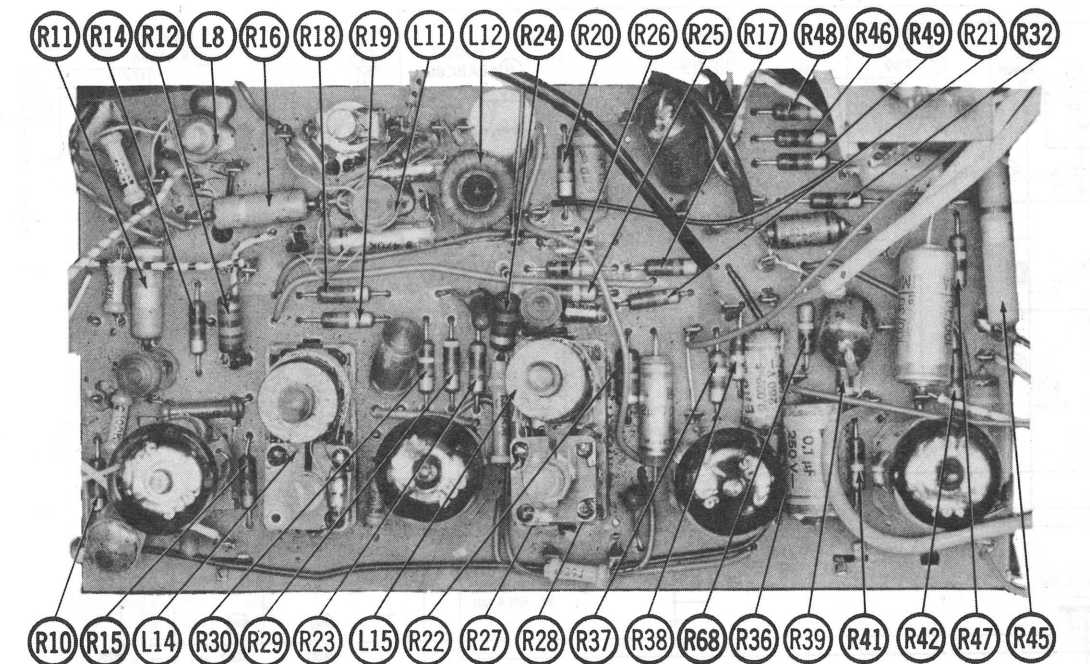
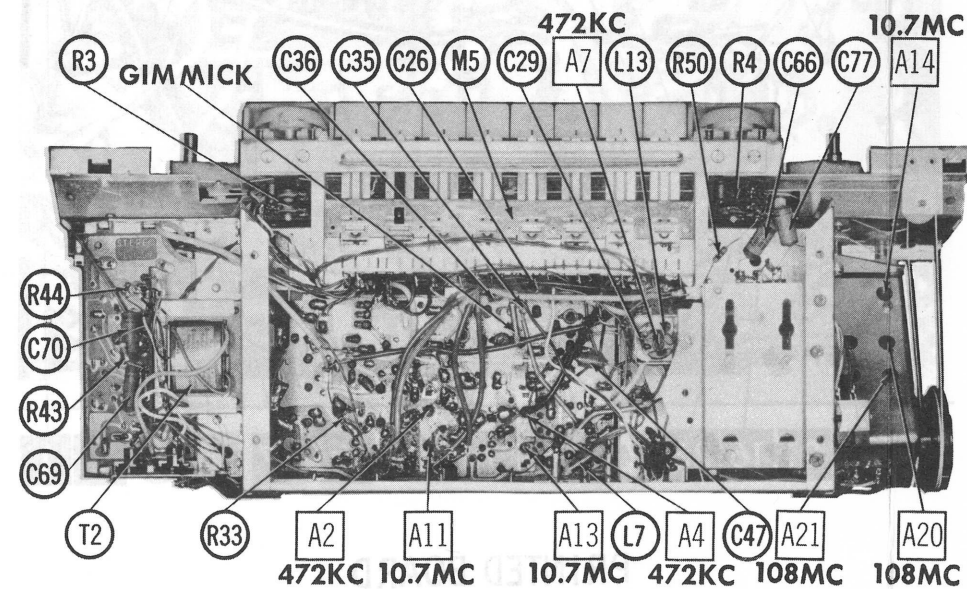
ITEM No.	RATING		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Delmonico PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	
T1	117VAC	235VAC	8.6VAC	2400 056 (BV1167)				
	②	②	②					
	.58A	.075ADC	.3A					



FM RF  
SUBCHASSIS

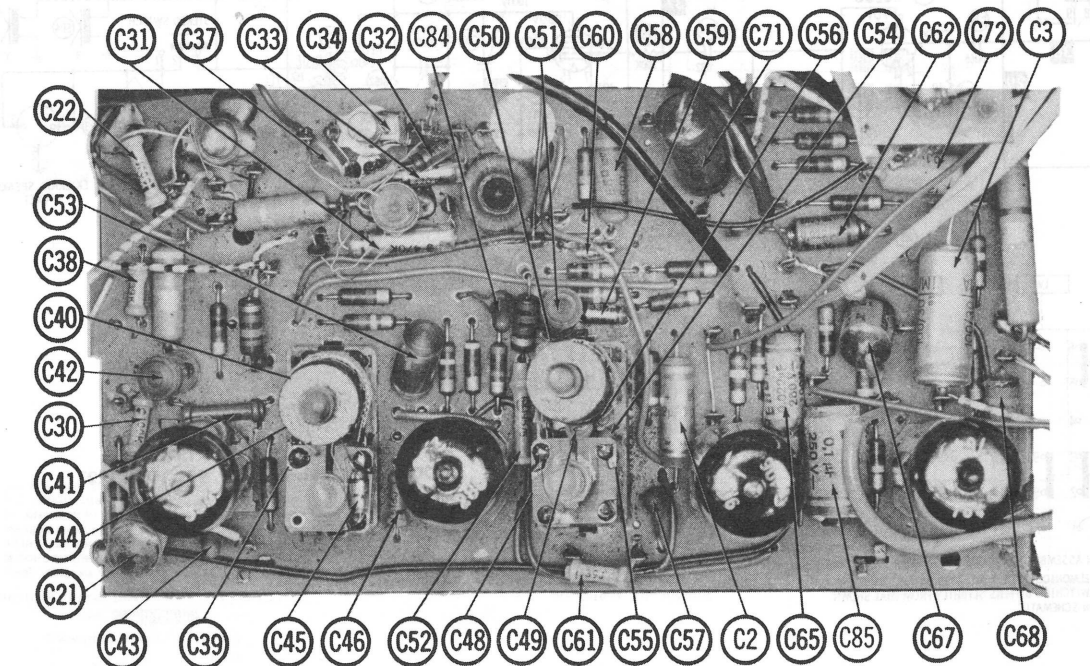


CHASSIS BOTTOM VIEW



PRINTED BOARD—RESISTOR &  
INDUCTOR IDENT

PRINTED BOARD—CAPACITOR IDENT



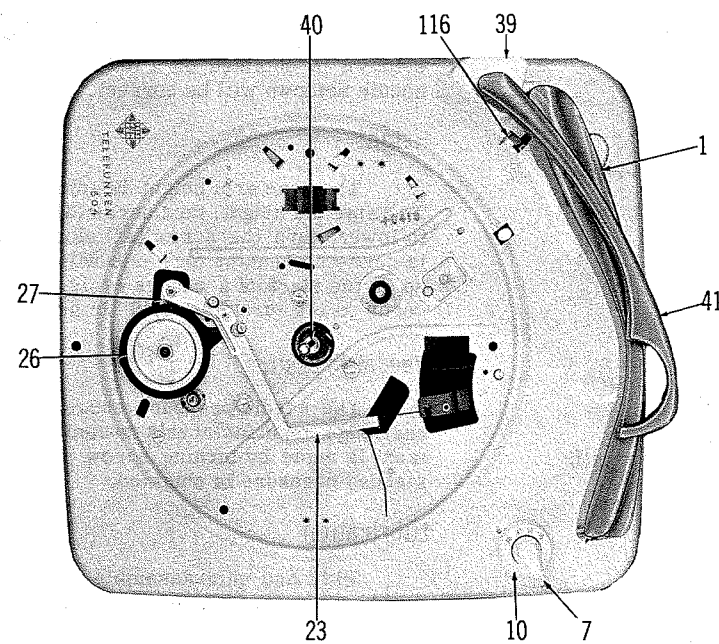


TROUBLE CHART - CON'T.		
SYMPTOM	CAUSE	REMEDY
Change cycle is repeated.	1. Starter spring on off-on switch linkage (90) is bent, holding trip link (62) in so it contacts the trip pawl on main gear (80) and starts another change cycle. 2. Trip lever (61) not being pushed back; therefore, trip pawl on main gear (80) is held in position to trip the mechanism.	1. Bend starter spring so there is sufficient clearance between it and the trip link (62) when the function knob is released from the reject position. 2. Small pin on main gear (80) broken. Replace main gear (80).
Changer does not shut off after the last record is played.	1. Record support arm (41) binding.	1. Clean record support shaft and lubricate with oil so it will slide below the off-set shoulder of the spindle. Clean out dirt and make sure the shut-off lever (121) operates smoothly.

MECHANICAL PARTS LIST CONT					
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
54.	7043622W	Linkage, Rod	99.		Screw
55.	7269906W	Rod Linkage, Speed Setting	100.	7021451W	Touching Lever, 10" Record
56.		Screw	101.	7030896	Cylindrical Screw M3X6D1N84-5S
57.		Mounting Plate, Shut-Off Lever	102.	7272413W	Spring, Slide and Cam Assembly
58.		Mounting Stud	103.		Pin, Ejector
59.		Spacer	104.	7044034W	Ejector Link-Bottom Half
60.		Washer	105.		Screw, Ejector Link Adjusting
61.		Trip Lever	106.		Snap Ring
62.		Trip Link	107.		Hex Nut
63.		Compression Spring	108.	7131287	Cylindrical Screw
64.		Bracket			BZ4. 2X9. 5D1N7971ST
65.		Snap Ring	109.		Pin, Record Support Arm
66.		Flat Washer	110.	7272417W	Spring, Record Support Arm
67.	7042076W	Hex Nuts	111.		Actuating Lever, Shut-Off
		Clutch, Complete(Includes Ref. Nos. 61 thru 67)	112.		Pin for Ref. No. 111
68.		Screw	113.		Bracket, Record Support Arm
69.	7030273	Hex Nut M3D1N934-5S	114.		Spring
70.		Stud	115.		Screw
71.		Pin	116.	7044213	Record Selector, 12"
72.		Roller	117.	7031723	Snap Ring 2. 3D1N6799
73.		Snap Ring	118.		Washer
74.		Flat Washer	119.	7272415W	Spiral Spring, 12" Record Selector
75.	7022882W	Rod Linkage	120.		Mounting Pin, 12" Record Selector
76.		Stop Bracket, Trip Link	121.	7044024W	Shut-Off Lever
77.		Adjusting Bracket, Trip Link Stop Bracket	122.		Mounting Plate, Shut-Off Lever
78.		Screw	123.	7030896	Cylindrical Screw M3X6D1N84-5S
79.	7030896	Cylindrical Screw M3X6D1N84-5S	124.		Snap Ring
80.	7042334W	Main Gear	125.	7821815W	Return Spring, Reset Lever
81.	7044026W	Slide and Cam Assembly	126.	7821819W	Return Spring, Shut-Off Lever
82.	7269446W	Spring, Zero Return	127.	7821839W	Return Spring, Control Lever for AC Switch
83.	7272416W	Ejector Spring	128.	7042083W	Control Lever, AC Switch
84.	7044034W	Ejector Link-Top Half	129.		Mounting Plate
85.	7022529W	Spindle Nut	130.	7031723	Snap Ring 2. 3D1N6799
86.		Bracket, Speed Change	131.	7022916W	Control Link, Slide and Cam Assembly
87.		Guide, Speed Change Bracket	132.	7269439W	Spring, Control Link
88.		Compression Spring, Speed Change	133.		Mounting Bracket, Return Spring
89a	7043771W	Linkage, On-Off Switch	134.		Return Spring
89b			135.		Return Spring, Tone Arm
91.	7023027W	Rod Linkage	136.	7042081W	Return Locator Plate, Tone Arm
92.	7031872	SnapRing 5D1N6799	137.	7825252W	Snap Ring, Return Locator Plate
93.		Base, Change Mechanism	138.		Lift Pin
94.	7821866W	Return Spring, Touching Lever	139.	7042079W	Tone Arm Finger and Shaft
95.	7022356W	Reset Lever	140.		Washer
96.		Cupped Washer	141.	9272220W	Tone Arm Steering
97.		Flat Washer	142.	7821826W	Spring, Lift Pin
98.		Cupped Washer	143.		Washer
			144.	7031723	Snap Ring 2. 3D1N6799



TRADE NAME	Telefunken Model TW504S
SUPPLIER	American Elite, Inc., 48-50 34th Street, Long Island City 1, New York
TYPE SET	AC Operated 4 Speed Automatic Record Changer for Playing 7", 10", or 12" Records, which may be intermixed if they are of the same speed.
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles



TOP VIEW WITH TURNTABLE REMOVED  
**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana



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C608

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DATE 8-63

SET 651 FOLDER 12

OPERATING INSTRUCTIONS

- Start
- Turn the function knob to the first position to turn the changer on.
- Reject
- Turn the function knob all the way to the left to reject a record.
- Speed
- Turn the speed knob so the desired speed, shown on the knob, is in line with the red dot on the changer baseplate.
- Loading
1. Lift the record support arm as far as it will go.

2. Swing the record support arm all the way to the right.

3. Place up to ten records on the spindle.

4. Lift record support arm as far as it will go and swing it in over the records and lower onto the records.
- Single Record Continuous Play
1. Lift the record support arm and swing all the way to the right.

2. Place a record onto the turntable.

3. Lift record support arm and swing it half way in. It will lock in this position.

4. Turn the function knob to the first position to start the changer.

5. Lift the tone arm and set it down so the needle is in the lead-in groove of the record.

6. For continuous play of a 12" record, push the 12" feeler lever (116) toward the tone arm as soon as the tone arm has moved completely to the right.

ADJUSTMENTS

Setdown

The set-down position of the needle is adjusted by set-down adjustment screw (37). With a 10" record on the turntable, turn the set-down adjustment screw (37) to the left or right until the needle will set down in the lead-in groove of the record. When the correct setdown is obtained on a 10" record, the 7" and 12" needle setdown will be correct.

Height

The tone arm height is adjusted by screw (32). To raise the height, turn screw (32) counterclockwise; to lower, turn the screw (32) clockwise. The height is correct when the tone arm will raise 3/8" straight up at the start of a change cycle with a stack of records on the turntable 15/16" in height.

Needle Pressure

The needle pressure should be adjusted to the cartridge manufacturer's recommendation. Adjustment is made by turning screw (46) until the recommended pressure is obtained.

Lubrication

Slide and cam assembly (81) should be lubricated with a good grade grease in the slot and on the cam surface.

Use a good grade oil on the lift pin (138).

Cleaning

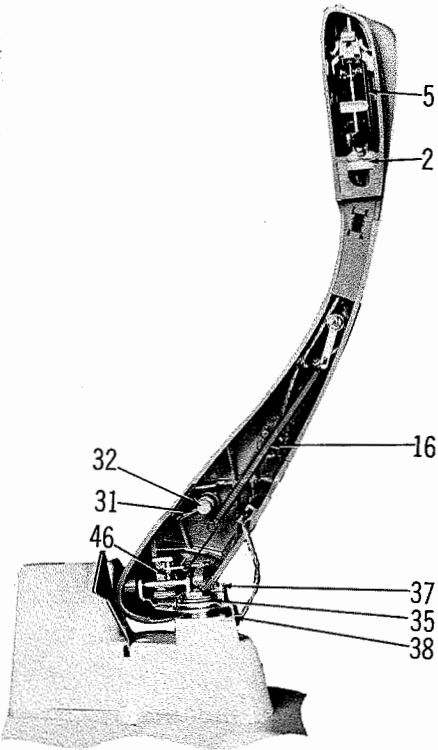
The inside of the turntable rim and idler wheel (26) should be cleaned occasionally with alcohol to remove any foreign matter that may accumulate.

TROUBLE CHART - CONT.

SYMPTOM	REMEDY	CAUSE
	2. Guide of spindle (40) binding.	2. Clean guide of spindle (40) or straighten so it will drop freely.
No output.	1. Defective cartridge. 2. Broken wire from cartridge. 3. Defect in amplifier.	1. Replace. 2. Check wire for breaks or shorts and replace if necessary. 3. Check voltages and resistances per schematic.
Turntable stalls or moves erratic during change cycle.	1. Grease on inner rim of turntable, on step pulley of motor (51), or on idler wheel 926). 2. Spindle (40) damaged, causing the mechanism to jam. 3. Slide and cam assembly (81) bent. 4. Bearing shaft of lift-off lever (23) jamming or damaged. 5. Idler wheel (26) bearing binding. 6. Motor (51) defective.	1. Clean these parts with alcohol. 2. Replace spindle (40). 3. Replace. 4. Clean and lubricate or replace. 5. Clean with alcohol and lubricate 6. Replace.
Distorted output.	1. Defective cartridge. 2. Needle pressure insufficient. 3. Defect in amplifier	1. Replace cartridge. 2. Adjust pressure to cartridge manufacturer's recommendation by adjusting screw (46). 3. Check voltages and resistances per schematic.
Noise while playing a record such as a rumbling sound or hiss.	1. Foreign matter in turntable ball bearings, balls jamming in ball bearing spacer, or rough surface on washers. 2. Needle damaged or record worn.	1. Clean and lubricate or replace. 2. Replace.
Changer trips too early, or not at all.	1. Stop bracket (76) for trip link (62) misadjusted. 2. Trip pawl on main gear (80) jamming.	1. Adjust stop bracket (76) so the trip link (62) will trip the hanger in the 5 3/16" range. Trip link (62) should move freely in the stop. Replace main gear (80).
Records fail to drop to turntable.	1. Record support arm (41) not parallel with records.	1. If record support arm (41) or its shaft is bent, replace.
Tone arm does not lift from its rest post and change cycle does not start.	1. Starter spring on off-on switch linkage (90) is bent. 2. Trip pawl on main gear (80) jammed.	1. Adjust starter spring, by bending, so it will push the trip link (62) as far as it will go when the function control is in the reject position. 2. Replace main gear (80).
Wow or flutter.	1. Turntable bearing (22.) 2. Idler wheel (26) binding. 3. Oil or grease on rubber tire of idler wheel (26) and inner rim of turntable. 4. Records warped.	1. Clean and lubricate. 2. Clean idler wheel bearing and lubricate. 3. Clean with alcohol or replace. 4. Replace records.

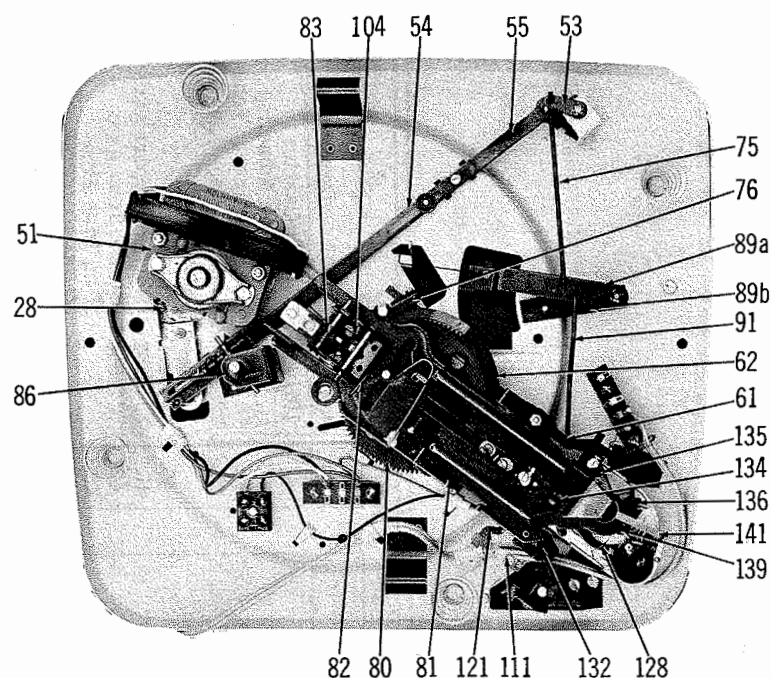
TELEFUNKEN  
MODEL TW504S

FOLDER 12



TONE ARM ADJUSTMENTS





BOTTOM VIEW

projection on the turntable hub until the needle enters the fast finishing groove of the record.

The faster motion of the pickup arm, when the needle enters the fast finishing groove, causes the trip finger cam (139) to exert enough pressure on the trip lever (61) to force the trip link (62) against the trip pawl on main gear (80) hard enough so the trip pawl will make contact with the projection on the turntable hub. Main gear (81) will be moved far enough so its teeth will mesh with the teeth on the turntable hub. When these are meshed together a change cycle is started.

#### Automatic Shutoff

When the last record drops onto the turntable, the record support arm (41) falls below the spindle

shelf. In turn, it presses on the shutoff lever of the guide pilot and activates the shutoff assembly by the steel spring. The rectangular tab of shutoff lever (121) contacts the blocking lever which is riveted to the slide and cam assembly (81). This prevents the tab from going into the slot and the shutoff lever (121) is prevented from contacting the return locator plate (136). As the last record is played and the change is completed, the shutoff lever (121) is released from the blocking lever and drops into the slot. The shutoff lever (121) will then contact the return locator plate (136) from below. When the shutoff lever (121) drops into the slot, it lifts the control link (131) by means of the tab on its side. The upper edge of the control link (131) contacts the control lever (128), due to the reverse movement of the slide and cam assembly (81), and activates the AC switch, turning the power off.

#### TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Turntable does not revolve.	1. Tension spring (28) for idler wheel (26) unhooked or weak.	1. Rehook or replace tension spring (28).
Tone arm sets down in wrong position.	1. Tone arm adjustment changed.	1. See "Setdown" under "Adjustments".
Tone arm strikes records on the spindle or turntable.	1. Height adjustment incorrect. Tone arm hinge bracket (38) bent.	1. See "Height" under "Adjustments". 2. Straighten or replace.
Needle jumps out of record groove.	1. Needle worn or clogged with dust. 2. Needle pressure too low.	1. Replace or clean needle.
More than one record drops at a time.	1. Thickness of record not standard or center hole is too large.	1. Replace records.

#### CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the turntable by hand. The action described can then be readily followed and the function of each part be more easily understood.

This changer is provided with a velocity trip mechanism. The change cycle is started by the fast inward motion of the pick-up arm when the needle enters the lead-out groove at the end of the record. Only records with a fast-finishing groove will operate this trip.

At the start of the change cycle, main gear (80) starts rotating and drives the slide and cam assembly (81) forward and backward on the cross slide mechanism gear (80) which is sliding in the cross slot of slide and cam assembly (81). The motion of the slide and cam assembly (81) performs the following functions:

##### 1. Lifting the Pick-up Arm

During its sliding motion, the cam surface at the rear of the slide and cam assembly (81) lifts the pick-up arm from its rest post or from the record by means of the lift of lift pin (138).

##### 2. Swinging the Pick-up Arm to the Outside

During this upward motion, the trip finger cam (139) is pressed against the pick-up return locator plate (136) by spring (142) being compressed by lift pin (138).

##### 3. Engagement of Trip Finger Cam with Return Locator Plate

When the trip finger cam (139) and return locator plate (136) are caught by the tab of the slide and cam assembly (81), the lip on trip finger cam (139) drops into the slotted hole in the return locator plate (136). This action takes place in conjunction with that described in step 2.

##### 4. Record Drops

The cam on the front of the slide and cam assembly (81) contacts the ejector link (84) which actuates the pushing shaft in the spindle (40). In turn, the bottom record of the stack resting on the step in the changer spindle is pushed to the side and drops onto the turntable. The spindle guide in the top part of the changer spindle (40) holds the remainder of the stack so only one record will drop.

At this point, the main gear (80) has rotated 180° and the slide and cam assembly (81) starts its backward motion.

##### 5. Inward Motion of the Pick-up Arm

Tab on the slide and cam assembly (81) will release trip finger cam (139) which is still engaged with the return locator plate (136). The pickup arm return spring (135) rotates both the trip finger cam (139) and the return locator plate (136) until one of the three steps of the return locator plate (136) contacts the reset lever (95). The rotary motion of the trip finger cam (139) moves the pickup arm to the correct set-down position.

##### 6. Setting Down of the Pick-up Arm Onto the Record

The slide and cam assembly (81) has now moved back so the lift pin (138) will slide down the cam surface at the end of the slide and cam assembly (81). When the pickup arm is lowered, the trip finger cam (139) is disengaged from the return locator plate (136). The trip finger cam (139) is now free to follow the inward motion of the pickup arm while a record is being played.

As the main gear (80) nears its zero position, the trip pawl on main gear (80) is pushed back by the cam on the base assembly (93). A small pin on the bottom of the main gear (80) forces the trip lever (61) back. The trip lever (61), due to friction coupling, forces the trip link (62) back so they cannot be caught by the projection on the turntable hub. The main gear hub will rotate in the free portion of the main gear.

##### 7" Record Setdown

When a 7" record is being changed, the 10" set-down lever (100) can move up freely so the other end can fall into a hole in main gear (80). Simultaneously, the reset lever (95) is lifted to its top position by the lateral projection of the 10" set-down lever (100), which determines the correct set-down position of the pickup arm. Thus the pickup arm moves into the edge of a 7" record.

##### 10" Record Setdown

When a 10" record is being changed, the 10" set-down lever (100) cannot raise free enough for a 7" record setdown. Therefore, reset lever (95) remains in its mid-position, 10" setdown, and the second notch of the return locator plate will engage with the reset lever (95) and the tone arm will set down in the lead-in groove of the 10" record.

##### 12" Setdown

When a 12" record is being changed, the record strikes the 12" record selector (116) and pivots it toward the rear of the changer. The end of the reset lever (95) is disengaged from the edge of the 12" record selector (116) and reset lever (95) is permitted to drop into the recess at the bottom of the 12" record selector (116). The reset lever (95) will now engage the bottom notch of the return locator plate (136) and the pickup arm will lower into the lead-in groove of a 12" record.

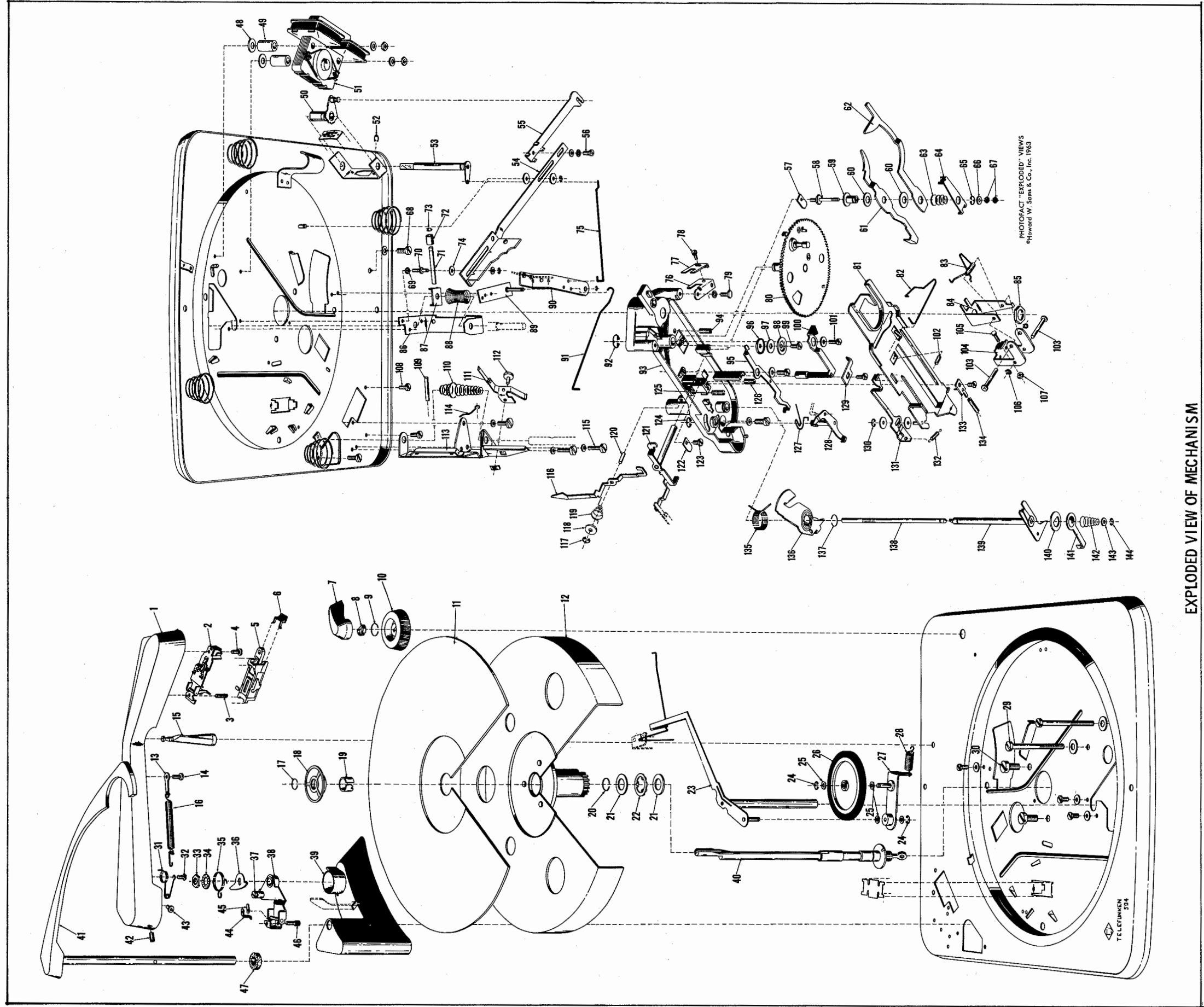
##### Automatic Trip

The record groove slowly pulls the pickup arm toward the center of the record and the trip finger cam (139) is turning also. When pickup arm reaches a distance of approximately 2 inches from the spindle (40), the trip finger cam (139) contacts trip lever (61). The trip pawl on main gear (80) is now being turned toward the turntable hub by trip lever (61) and trip link (62) which are coupled by a slipping clutch.

As long as the needle is following the modulated groove, the motion of the trip pawl on main gear (80) is not sufficient to engage with the projection on the turntable hub. The trip pawl on main gear (80) trip link (62) and trip lever (61) are pushed back by the

TELEFUNKEN  
MODEL TW504S

FOLDER 12



EXPLODED VIEW OF MECHANISM

Ref. No.	Part No.	Description
1.	7044135	Tone Arm
2.	7043277W	Support, Cartridge
3.		Screw, Cartridge Support
4.		Mounting, Screw, Cartridge Support
5.		Cartridge
6.	7044056W	Guard, Needle
7.		On, Off, Reject Knob
8.		Spring, Knob
9.	7269908W	Flat Spring
10.	7272403W	Knob, Speed Change
11.	7272400W	Mat, Turntable
12.	7044052W	Turntable
13.		Lug, Spring Connector
14.		Screw
15.	7272893	Rest Post, Tone Arm
16.		Balance Spring, Tone Arm
17.	7269476W	Snap Ring
18.	7272409W	Centering Disk, Turntable

FOLDER 12

Ref. No.	Part No.	Description
19.	7669475W	Sleeve, Turntable
20.		Snap Ring
21.		Thrust Washer
22.	7621818W	Ball Bearing
23.		Lift-off Lever
24.	7031723	Snap Ring
25.	7021909W	Fiber Washer
26.	7042090W	Idle Wheel
27.		Lever, Idle Wheel
28.	7269436W	Tension Spring, Idle Wheel
29.	7031268	Cylindrical Screw
30.	7031305	CM4X40DIN84MS58h
31.		Cylindrical Screw
32.		M5X10DIN84-5S
33.	7022481W	Tension Spring, Height
34.	7030294	Screw, Height Adjusting
35.	9265663W	Hex Nut M6DIN934-5S
		Spring Washer
		Spring, Carrier

MODEL TW504S

Ref. No.	Part No.	Description
36.	7021436W	Plate, Carrier
37.		Set Down Adjusting Screw
38.		Hinge Bracket, Tone Arm
39.	7272896	Casting, Tone Arm and Balance Arm
40.	7272414W	Spindle
41.	7044203	Record Support Arm
42.	7272895	Screw, Tone Arm
43.		Pin, Tone Arm
44.		Guide
45.		Adjusting Nut, Needle Pressure
46.		Adjusting Screw, Needle Pressure
47.		Washer, Felt
48.	7021665W	Washer, Motor
49.		Spacer Motor
50.	7043694W	Locking Disk, Speed Setting.
51.	7271104W	Motor
52.		Snap Ring
53.	7269909W	Shaft

CONT'D ON PAGE 8