

FOLDER 3
SET 614

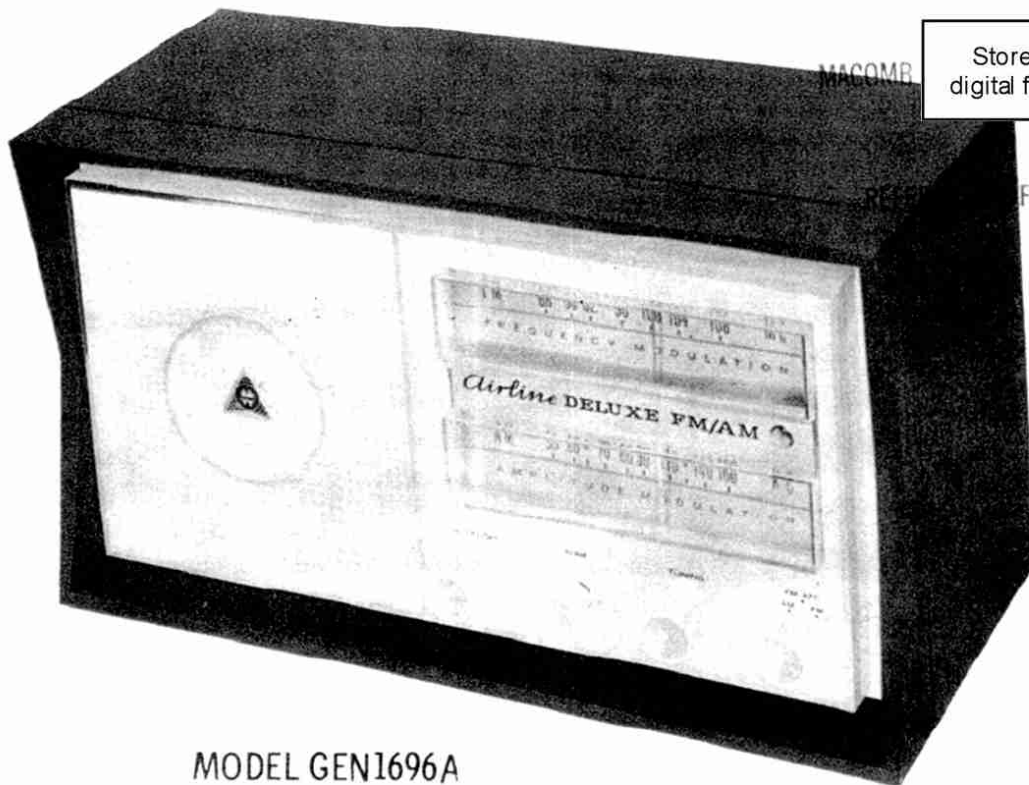
PHOTOFACT® Folder



AIRLINE MODELS GEN1678A, GEN1686A,
GEN1696A, GEN1699A, GEN1826A

Stored in
digital format

AIRLINE MODELS GEN1678A, GEN1686A,
GEN1696A, GEN1699A, GEN1826A

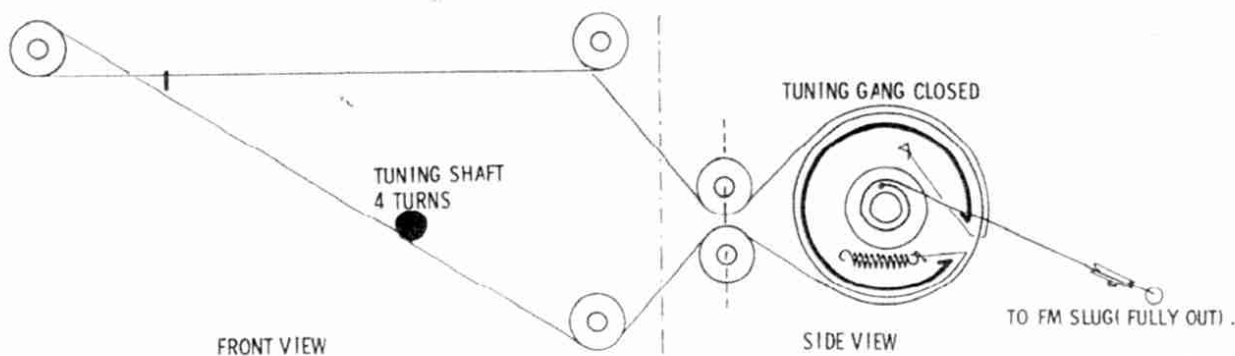


MODEL GEN1696A

TRADE NAME	Airline Models GEN1678A, GEN1686A, GEN1696A, GEN1699A, GEN1826A		
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois		
TYPE SET	AC-DC Operated 6 Tube AM-FM Receiver (GEN1826A is Clock Version)		
POWER SUPPLY	105 - 120 Volts AC-DC	RATING	32 Watts, .3 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 - 1620KC	FREQ. MOD.	88 - 108MC

GEN1696A, GEN1699A, GEN1826A

DIAL CORD STRINGING



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



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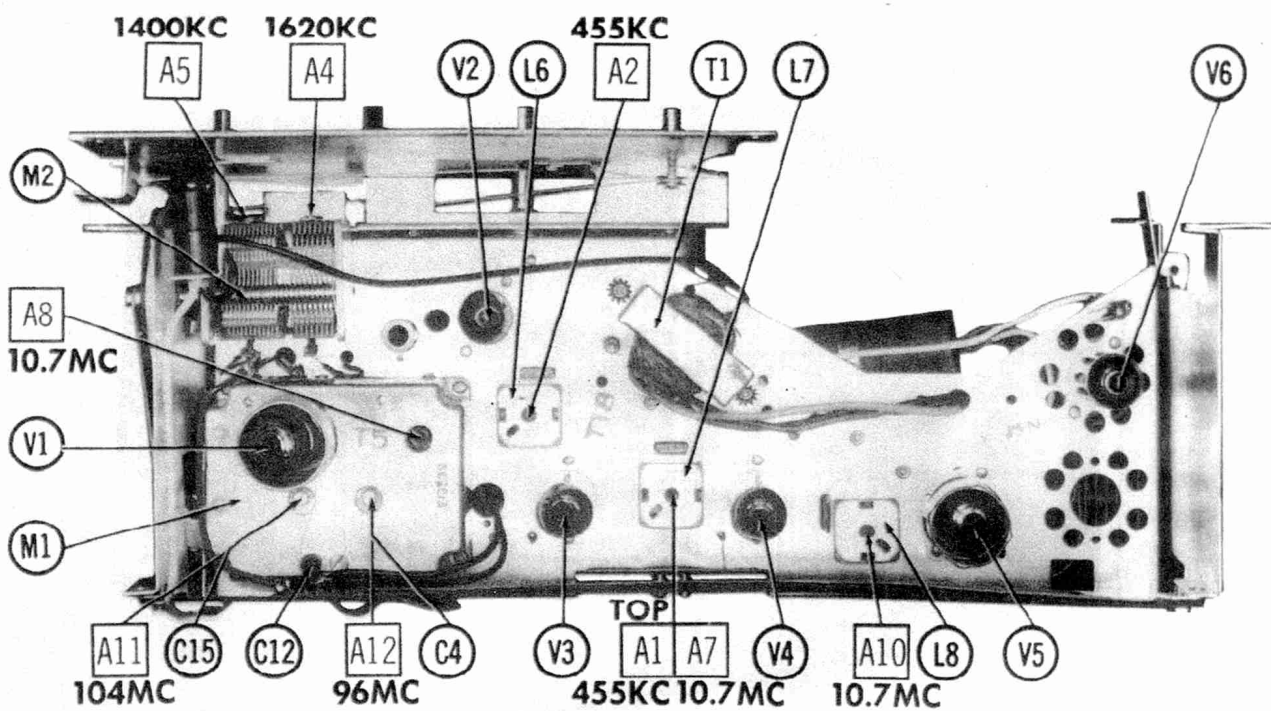
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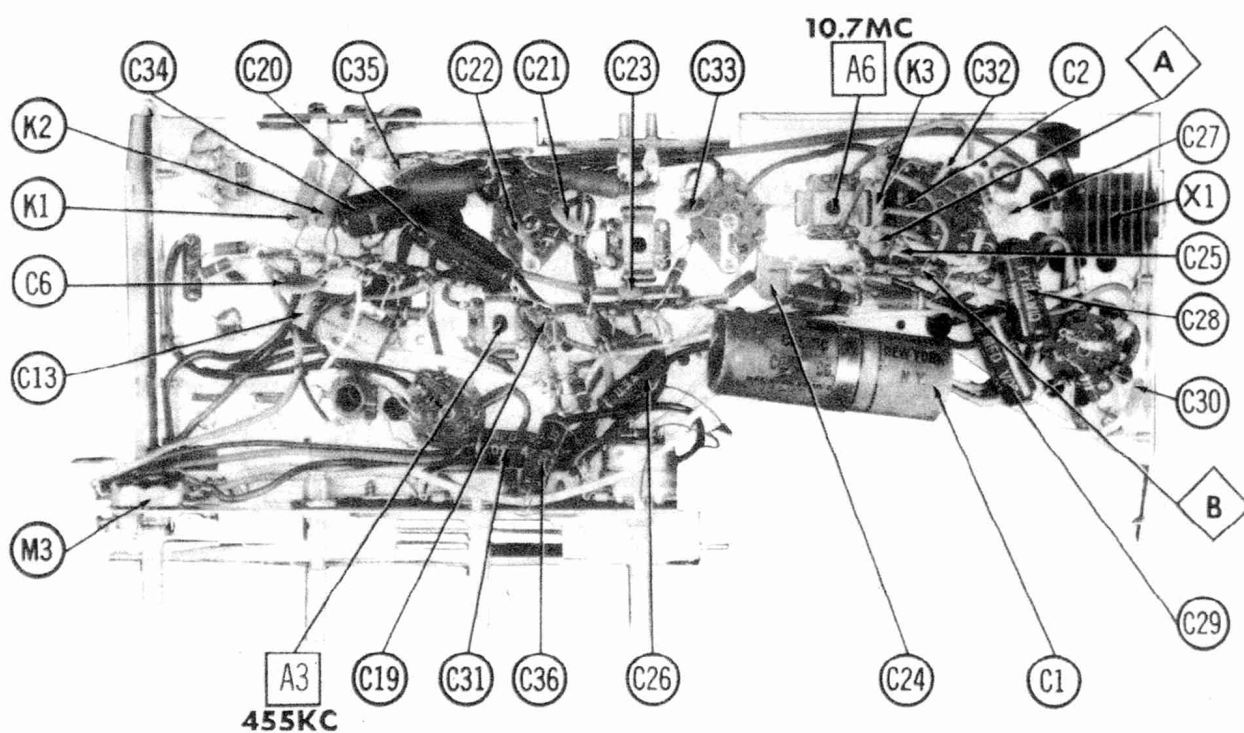


DATE 1-63

SET 614 FOLDER 3



CHASSIS - TOP VIEW



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

- A1, A7..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
 WALSCO #2526, 2543, 2544, 2545
 A2, A3, A6, A10..... GENERAL CEMENT #5097, 8727
 WALSCO #2515
 A4, A5, A11, A12..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
 A8, A9..... GENERAL CEMENT #8282, 8606, 8606-L, 9091
 WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter, low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC VTVM across volume control.	A1, A2, A3	Adjust for maximum deflection.
2.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1620KC	Tuning gang fully open.	"	A4	"
3.	"	1400KC	1400KC Signal.	"	A5	"

FM IF ALIGNMENT USING SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
4.	High side to ungrounded tube shield over FM Converter, low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe of VTVM to point A, common to chassis.	A6, A7, A8, A9	Adjust for maximum deflection.
5.	"	"	"	DC probe to point B, common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

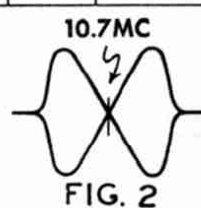
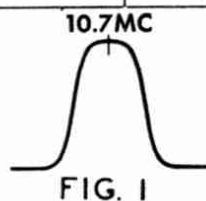
FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

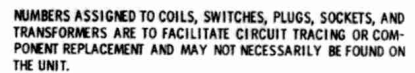
Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120V sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
4.	High side to ungrounded tube shield over FM Converter, low side to chassis.	10.7MC (450KC Swp.)	(FM) Point of non-interference.	Vert. amp. of scope to point A, low side to chassis.	A6, A7, A8, A9	Disconnect Stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C2.
5.	"	"	"	Vert. amp. to point B, low side to chassis.	A10	Adjust to place marker at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
6.	Across FM antenna terminals with 120Ω in each lead.	104MC (Unmod.)	(FM) 104MC	DC probe of VTVM to point A, common to chassis.	A11	Adjust for maximum deflection.
7.	"	96MC	96MC	"	A12	"



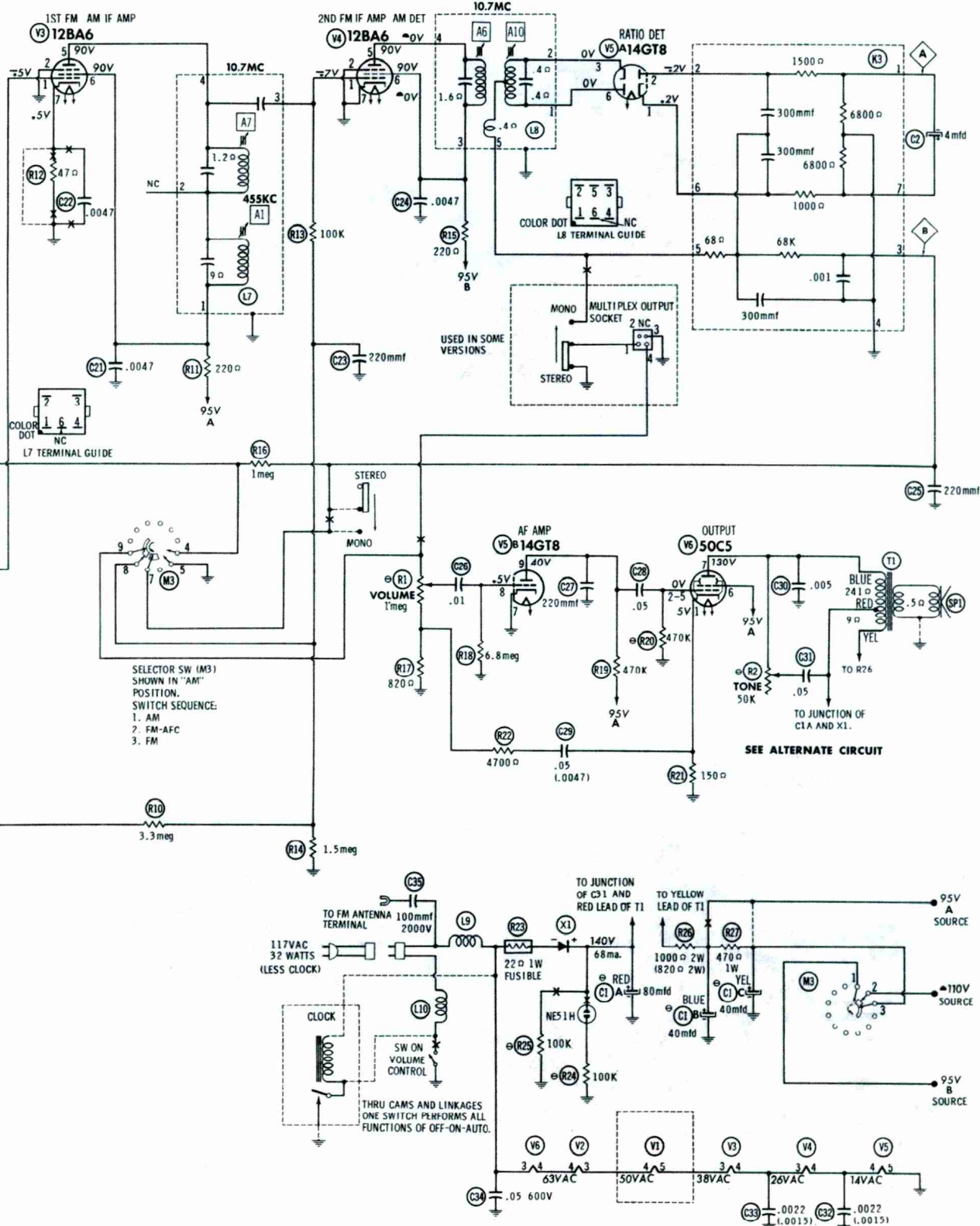


ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.

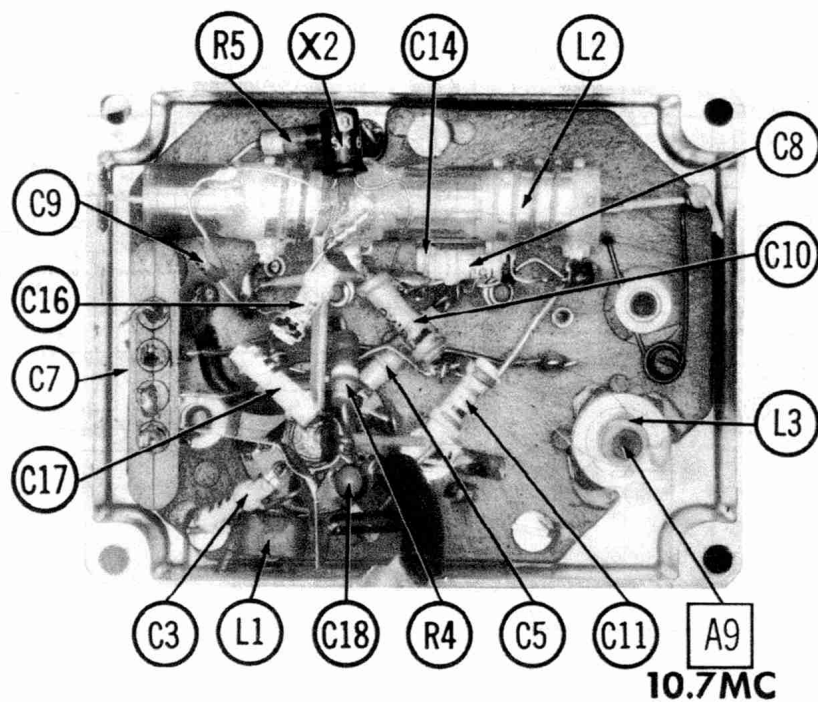
† MEASURED FROM OUTPUT OF X1. • MEASURED IN "AM" POSITION. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

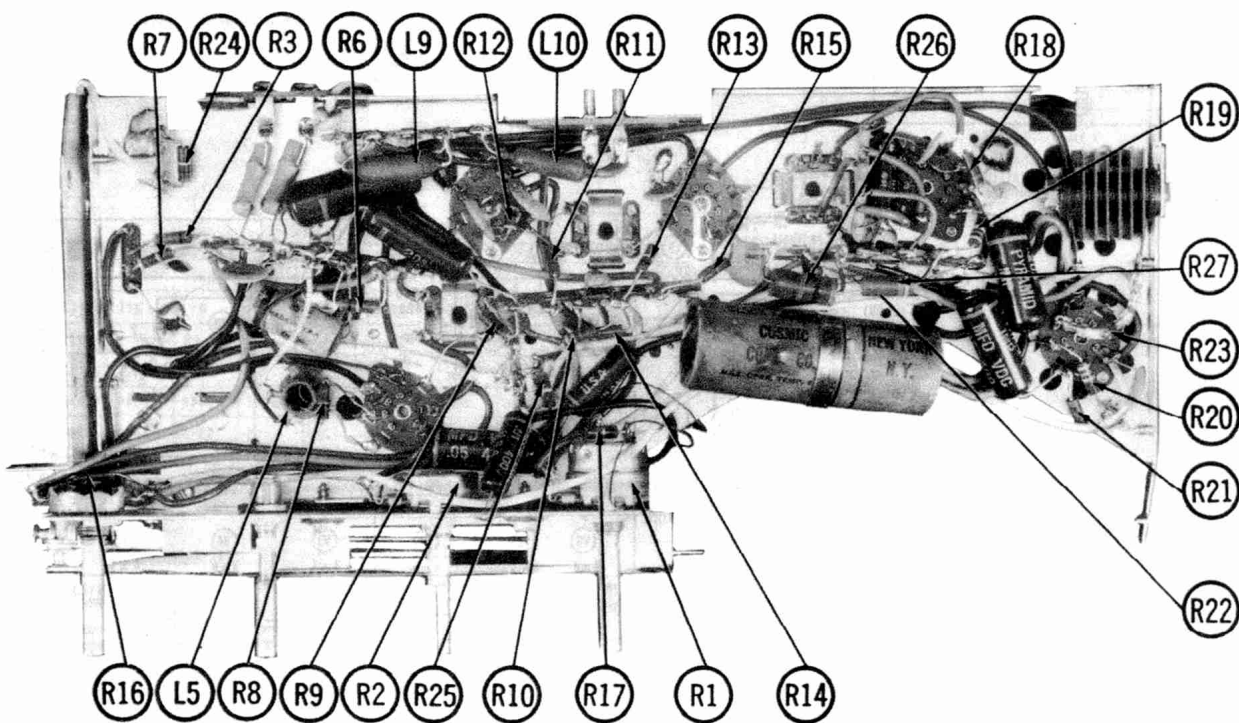
1999



AIRLINE MODELS GENI678A, GENI686A,
GENI696A, GENI699A, GENI826A



FM RF SUBCHASSIS



CHASSIS BOTTOM VIEW — RESISTOR & INDUCTOR IDENT.

PARTS LIST AND DESCRIPTION

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Power Cord	8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type)	17106 (Plastic) or 17126 (Rubber) - 6 Ft.
	17109 (Plastic) or 17129 (Rubber) - 9 Ft.
	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	HCC85	V4	2nd FM IF Amp. - AM Det.	12BA6
V2	AM Converter	12BE6	V5	Ratio Det. - AF Amp.	14GT8
V3	1st FM - AM IF Amp.	12RA6	V6	Output	50C5

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS RCA PART No.	SARKES TARZIAN PART No.	DIODES	NOTES
X1	.068A	E146A	1N540	Model 100A		Selenium
X2		BA102				FM AFC, Silicon (Variable Capacitance)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	80	150	E3251 ①	PRS3800	BBRT84215	QT4-2	TCT3118	TDL-8040/20-150
B	40	150		PRS1440	BBR20-150			TD-20-150
C	40	150						TD-4-50
C2	4	50	E3244	PTT90	NLW4-50	MT1-3	TT50X4	TE-1302.1

① Some versions may use 100-50-20mfd in this application (Part #E3243).

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10 N750	(36, 47) †	N750-SI 10	DTN-10	C10Q1U	CCTN-100	CN7-410
C4							
C5	.001		SI 1000	DD-102	BYA10D1	CCD-102	B-210
C6	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247
C7	.001	(1, 3) †	SI 1000	DD-102	BYA10D1	CCD-102	B-210
C8	15 NPO		NPO-SI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415
C9	1.5						
C10	8.2		NPO-SI 8.2	DD-100	L10Q1	CCD-100	GP410
C11	68 N750 2%		N750-SI 68	DTN-68	C10Q68U	CCTN-680	CN7-468
C12	.0015	(.001) †	EF-1-1500	FT-1500	CCF-152	B-215	5HK-D15
C13	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415
C14	15 NPO		NPO-SI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415
C15							
C16	15 NPO	(10) †	NPO-SI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415
C17	10 N470 10%	(15) †					
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210
C19	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247
C20	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415
C21	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247
C22	.0047	Note 1	BPD-0047	DD-472	BYA10D47M	CCD-472	B-247
C23	220		DI-220	DD-221	L10T22	CCD-221	B-322
C24	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247
C25	220		DI-220	DD-221	L10T22	CCD-221	B-322
C26	.01 400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411
C27	220		DI-220	DD-221	L10T22	CCD-221	B-322
C28	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415
C29	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415
C30	.005 1000V	(.0047) †	BPD-005	DD-502	BYA10D5	CCD-502	B-250
C31	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415
C32	.0022	(.0015) †	BPD-0022	DD-222	BYA10D22	CCD-222	B-222
C33	.0022	(.0015) †	BPD-0022	DD-222	BYA10D22	CCD-222	B-222
C34	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615
C35	100 2000V		HVD-30-100	DD30-101	HVB20T1	3CCD-101	2HV-310
C36	.01 600V		P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-611

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Alternate Value.

Note 1. Not used in some versions.

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg	E2559A ①	B-70-S, or (F2-1meg, SU204, KR-1)	A47-1meg-Z, FS-3, SWE-12	Q13-137, 76-1 or (BUL, C F26, SSI, GC)*	U53, US-26, or (UA16A, SL3500, US-41)
R2	Tone	50K	E2562 ②	B-31 or (F1-50K, SU204)	A47-50K-S, FS-3	Q11-123, or (BUL, C F12, SSI, DC1)*	U35, or (UA54L, SL3500)

* "SNAPTROL"

① Part #E2568A (less switch) used in Model GENI826A.

② Part #E2567 (500K) used in Models GENI678A, GENI686A, GENI699A, GENI826A

AIRLINE MODELS GENI678A, GENI686A, GENI696A, GENI699A, GENI826A

FOLDER 3

PARTS LIST AND DESCRIPTION (CONTINUED)

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	1000Ω				R16	1meg			
R4	220K				R17	820Ω			
R5	1meg				R18	6.8meg			
R6	100K				R19	470K			Note 1
R7	4700Ω			(3300Ω) †	R20	470K			
R8	12K			(22K) †	R21	150Ω			
R9	1meg				R22	4700Ω			
R10	3.3meg				R23	22Ω 1W		F22	Fusible
R11	220Ω				R24	100K			Note 1
R12	47Ω			Note 1	R25	100K			Note 1
R13	100K				R26	1000Ω 2W			
R14	1.5meg				R27	470Ω 1W			
R15	220Ω								

Note 1. Not used in some versions.
† Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	FM Ant.						
L2A	FM RF						
B	FM Osc.						
L3	1st FM IF						
L4	Loop. Ant.	E8041-C	BC-393	69-OSC*	RTC-8646*	T504	* Drill 1/4" Mtg. Hole
L5	AM Osc.	E6146-A	BC-352	12-C9	RTC-8636	T612	
L6	1st AM IF	E6256-1 ①					
L7A	2nd FM IF	E6284-A					
B	2nd AM IF						
L8	Ratio Detector	E8283	FM-255	1465	RTC-8600	T635	
L9	Line Choke (2.7uh)	E6148	SW-630	4606	RTC-8517	T857	
L10	Line Choke (2.7uh)	E6148	SW-630	4606	RTC-8517	T857	

① Part #E6256-3 used in Model GEN1826A.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PR.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1950Ω	3-4Ω	E1137B	A-3031	A-3336	24S89	S-16X	
	Tap @ 2.7Ω							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QIAM PART No.	
SP1	6"	PM	3-4Ω	E1064C	6A15	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA
K1	FM Antenna Matching	470mmf, .3-1meg	E3410	Centralab RC-471
K2	FM Antenna Matching	470mmf, .3-1meg	E3410	Sprague ACI-1
K3	Ratio Detector Network	(3) 300mmf, .001mfd, 68Ω, 1000Ω, 1500Ω, (2) 6800Ω, 68K	E3038	Centralab RC-471
				Sprague ACI-1
				Aerovox PA-694
				Centralab PC-342
				Sprague C-12

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	FM Tuner	E3539C	Complete
M2	AM Tuning Capacitor	E3534B	2 Gang
M3	Switch	E1216	Band Selector
	Switch	E1219A	Mono-Stereo (Slide Type DPDT) Models GEN1678A/86A/99A
	Timer	E1321	Telechron #4403-001

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Plastic Window	E50210C	Dial
Knob	E50185B	Tuning, Off-On-Volume, Tone
Knob	E50212B	Selector
Cabinet Shell	E70235D	Walnut, Models GEN1696A, GEN1826A
Cabinet Front	E70236D	White, Model GEN1696A
Cabinet Shell	E70361D	Mahogany, Model GEN1678A
Cabinet Shell	E70362D	Maple, Model GEN1686A
Cabinet Shell	E70235D	Walnut, Model GEN1699A
Cabinet Front	E98046	Models GEN1678A/86A/99A
Cabinet Front	E70368D	Model GEN1826A
Dial Window	E50310C	Model GEN1826A