

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	REPLACEMENT DATA			NOTES
	RATING	PART No.	MALLORY PART No.	
ITEM No.	CAP.	VOLT.	CENTRALAB PART No.	ERIE PART No.
C42	2200	500	DD-103	81L-01
C43	10000		D6-101	GPIK-101
C44	100		DD-103	81L-01
C45	10000		D6-101	GPIK-101
C46	100		DD-103	81L-01
C47	2800		D6-272	GP2-333-272
C48	1000		DD-102	80L-001
C49	.1	200	DF-104	GP3-333-103
C50	.01	400	DF-103	GP3-333-103
C51	.1	200	DF-104	GP3-333-103
C52	.01	500	DF-103	GP3-333-103

Note 1. Some versions use 2500MMF in this application.

Note 2. Not used in some versions.

CONTROLS

ITEM No.	REPLACEMENT DATA			INSTALLATION NOTES
	RATING	PART No.	MALLORY PART No.	
ITEM No.	RESIST-ANCE	WATTS	CENTRALAB PART No.	CLAROSTAT PART No.
R1A	1Meg	1/2	Q13-137	A47-1Meg-Z
R1B	1Meg	1/2	Not Req.	FS-3
R1C	5Meg	1/2	Not Req.	SWE-12
R2A	5Meg	1/2	Not Req.	A47-5Meg-S
R2B	10K	1/2	Not Req.	FS-3
R3A	10K	1/2	Not Req.	A47-10K-S
R3B	10K	1/2	Not Req.	XSS-3

RESISTORS

ITEM No.	REPLACEMENT DATA			NOTES
	RATING	PART No.	MALLORY PART No.	
ITEM No.	OHMS	WATT	CENTRALAB PART No.	CLAROSTAT PART No.
R4	270K	1/2	BTS-270K	Q13-137
R5	12K	1/2	BTS-12K	Not Req.
R6	1Meg	1/2	BTS-1Meg	Not Req.
R7	12K	1/2	BTS-12K	Not Req.
R8	22K	1/2	BTS-22K	Not Req.
R9	10K	1/2	BTS-10K	Not Req.
R10	10K	1/2	BTS-10K	Not Req.
R11	1Meg	1/2	BTS-1Meg	Not Req.
R12	2.2Meg	1/2	BTS-2.2Meg	Not Req.
R13	2.2Meg	1/2	BTS-2.2Meg	Not Req.
R14	430K 5%	1/2	BTS-430K 5%	Not Req.
R15	430K 5%	1/2	BTS-430K 5%	Not Req.
R16	470K	1/2	BTS-470K	Not Req.
R17	680	1/2	BTS-680	Not Req.
R18	6800	1/2	BTS-6800	Not Req.
R19	470	1/2	BTS-470	Not Req.
R20	27K	1/2	BTS-27K	Not Req.
R21	270	1/2	BTS-270	Not Req.
R22	3000 5%	1/2	BTS-3000 5%	Not Req.
R23	82K	1/2	BTS-82K	Not Req.
R24	100K	1/2	BTS-100K	Not Req.
R25	270K	1/2	BTS-270K	Not Req.
R26	12K	1/2	BTS-12K	Not Req.
R27	100K	1/2	BTS-100K	Not Req.

Note 1. Some versions use a 22K 1/2W resistor in this application.

Note 2. Some versions use a 33 1W resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	NOTES
	PRI.	SEC. 1	SEC. 2		
T1	117VAC @ .52A	5VAC @ 2A	6.3VCT @ 2A	55-43	

CHASSIS—BOTTOM VIEW

COILS (RF-IF)

ITEM No.	USE	DC RES.		PILOT PART No.	REPLACEMENT DATA		NOTES
		PRI.	SEC.		MEISSNER PART No.	MILLER PART No.	
L1	FM Ant. Coil	0	0	70-80	19-1004	4529	5 Microhenries
L2	Coil	1	1	75-33	19-1004	4529	5 Microhenries
L3	RF Choke	1	1	75-33	19-1004	4529	5 Microhenries
L4	FM RF Coil	0	0	71-40	19-1001	4604	1.6 Microhenries
L5	FM Choke	0	0	75-19	19-1001	4529	5 Microhenries
L6	Coil	1	1	75-33	19-1004	4529	5 Microhenries
L7	FM Choke	1	1	75-33	19-1001	4529	5 Microhenries
L8	RF Choke	1	1	75-33	19-1004	4529	5 Microhenries
L9	FM Osc. Coil	0	0	72-76	19-1001	4529	5 Microhenries
L10	BC Ant. Coil	0	0	270-53	19-1004	4529	5 Microhenries
L11	455KC Trap	260	260	79-102	19-1001	4529	5 Microhenries
L12	BC RF Coil	6.8	6.8	71-41	19-1001	4529	5 Microhenries
L13	BC Osc.	2.8	2.8	72-75	19-1001	4529	5 Microhenries
L14	1st. AM IF	.7	.7	273-151	19-1001	4529	5 Microhenries
L15	2nd. AM IF	.7	.7	273-152	19-1001	4529	5 Microhenries
L16	2nd. AM IF	.7	.7	273-152	19-1001	4529	5 Microhenries
L17	2nd. AM IF	.7	.7	273-152	19-1001	4529	5 Microhenries
L18	3rd. AM IF	.7	.7	273-151	19-1001	4529	5 Microhenries
L19	3rd. AM IF	.7	.7	273-151	19-1001	4529	5 Microhenries
L20	FM Limiter	.8	.8	273-151	19-1001	4529	5 Microhenries
L21	Discriminator	.8	.8	273-151	19-1001	4529	5 Microhenries
L22	10KC Filter	3200	3200	79-106	19-1001	4529	5 Microhenries
L23	Line Choke	0	0	75-19	19-1001	4529	5 Microhenries
L24	Line Choke	0	0	75-19	19-1001	4529	5 Microhenries

\* Drill mounting hole.

■ Use primary and drill mounting hole.

▲ Use secondary winding only.

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	RATINGS	INDUCTANCE (D.C. RESISTANCE 1000 Ω)	PILOT PART No.	REPLACEMENT DATA		Triad PART No.
					Holldorfen PART No.	Stancor PART No.	
L25	.068A	1250	4HY	57-16	C-2977Q	20C59	

① Use original shield.

MISCELLANEOUS

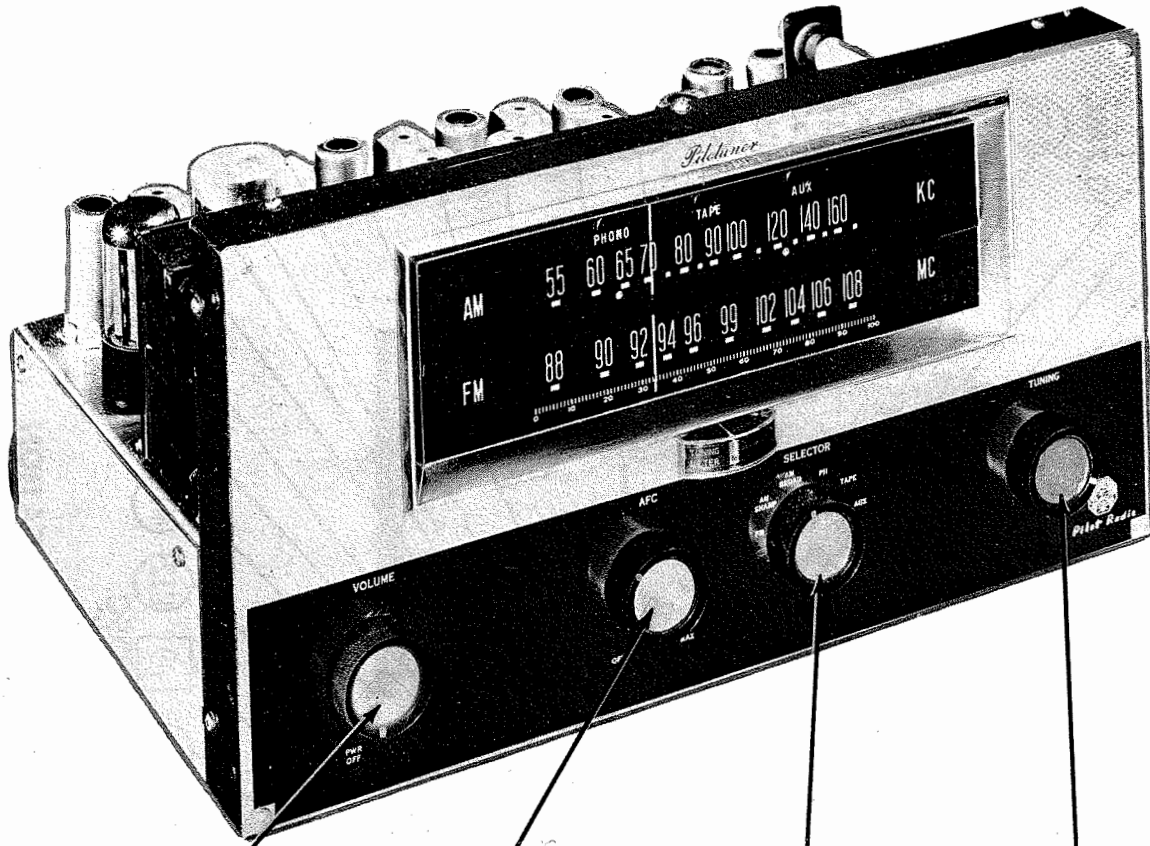
ITEM No.	PART NAME	PILOT PART No.	NOTES
M1	Dial Light	88-6	#47-FM Dial
M2	Dial Light	88-6	#47-FM Dial
M3	Dial Light	88-6	#47-FM Dial
M4	Dial Light	88-6	#47-FM Dial
M5	Dial Light	88-6	#47-FM Dial
M6	Dial Light	88-6	#47-FM Dial
M7	Dial Light	88-6	#47-FM Dial
M8	Dial Light	88-6	#47-FM Dial
M9	Tuning Cap.	28-59	#47-Aux. position indicator
M10	Switch	100-96	6 Gang-AM Sections (32-495MMF, 32-495MMF, 22-165MMF)
M11	Meter	110-490	AM-FM (3 pole-3 position slide type) Mechanically ganged to M10

PILOT MODEL AF-850

PHOTOFACT\* Folder



PILOT MODEL AF-850



ON-OFF SWITCH  
VOLUME CONTROL

AFC CONTROL

SELECTOR SWITCH

TUNING

PILOT MODEL AF-850

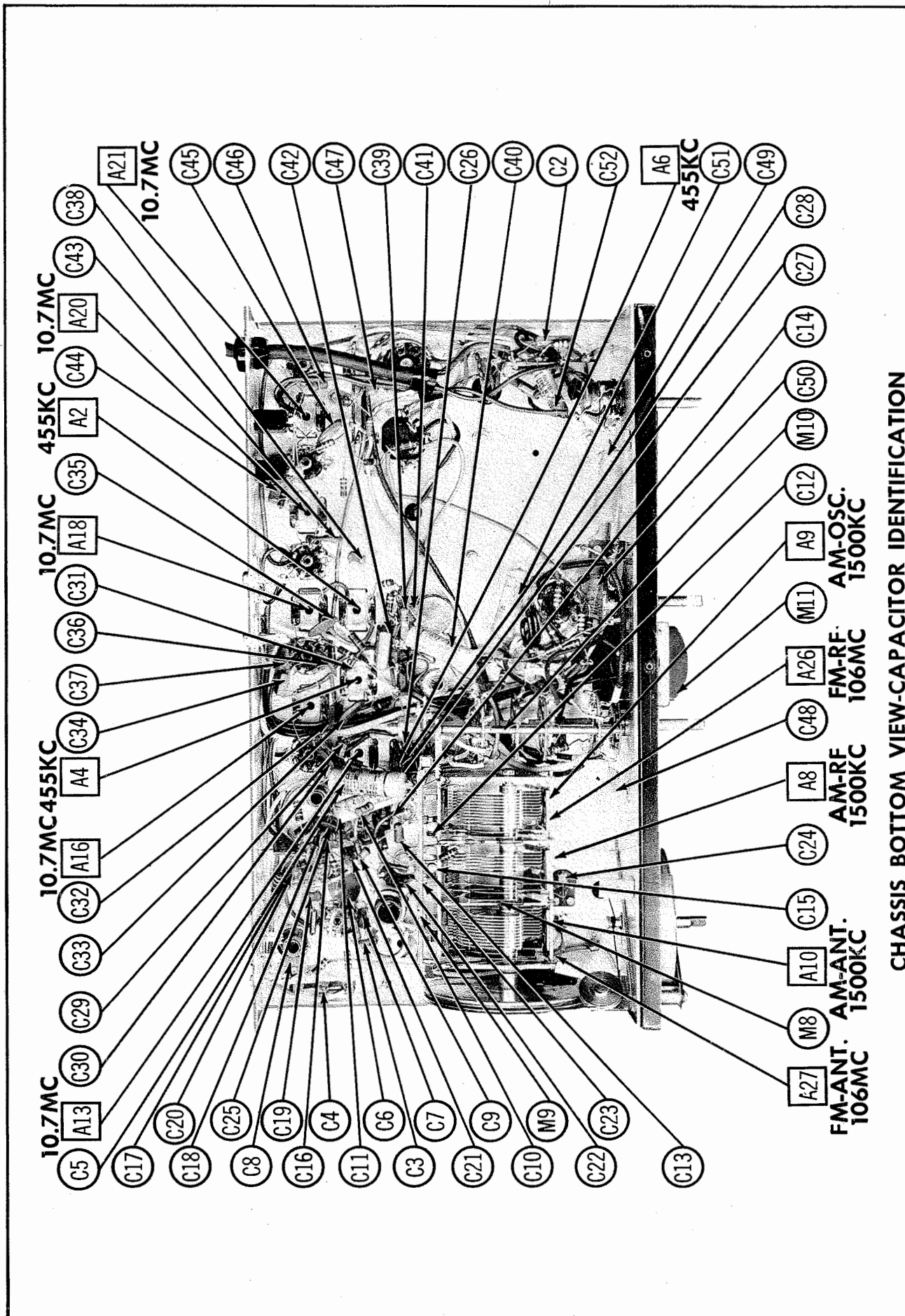
TRADE NAME	Pilot Model AF-850	
MANUFACTURER	Pilot Radio Corp., 37-06 36th St., Long Island City 1, N. Y.	
TYPE SET	AC Operated AM-FM Superheterodyne Tuner for Custom Installation	
TUBES	Ten	
POWER SUPPLY	105-120 Volts AC-60 Cycles	RATING .52 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540KC-1700KC	Freq. Mod. 88MC-108MC

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

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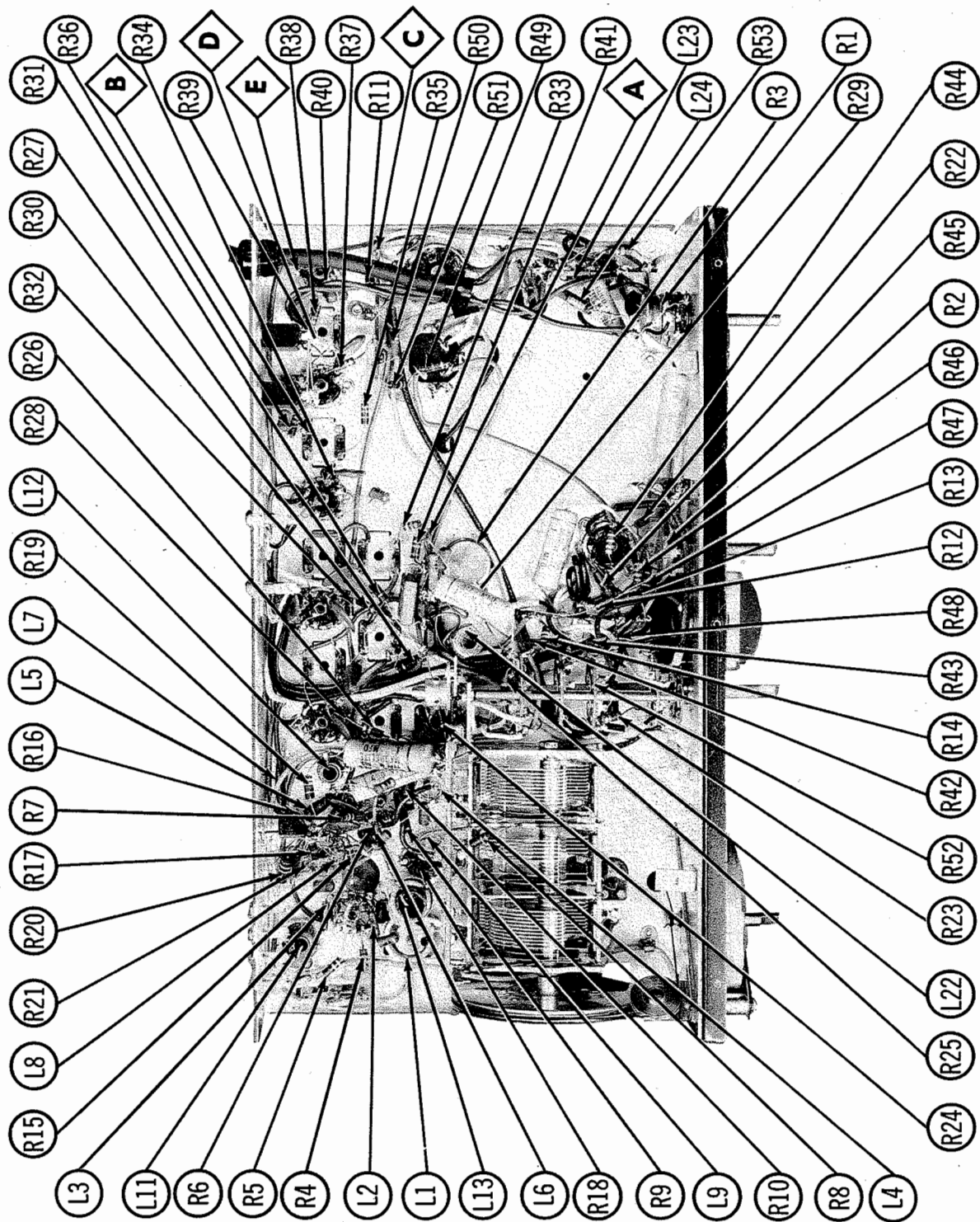
ITEM No.	USE	REPLACEMENT DATA			REPAIR DATA	NOTES
		PILOT PART No.	STANDARD REPLACEMENT			
V1	FM/AM RF Amp.	6BA6	6BA6	7BK		
V2	FM/AM Osc. - Mixer	6U8	6U8	9AE		
V3	FM AFC	12AT7	12AT7	9A		
V4	1st FM/AM IF Amp	6BA6	6BA6	7BK		
V5	2nd FM/AM IF Amp	6BA6	6BA6	7BK		
V6	1st FM Limiter - AM Det.	6AU6	6AU6	7BK		
V7	2nd FM Limiter	6AU6	6AU6	7BK		
V8	Discriminator	6AL5	6AL5	6BT		
V9	AF Amp. - Cathode Follower	12AU7	12AU7	9A		
V10	Rect.	5Y3GT	5Y3GT	5T		

ELECTROLYTIC CAPACITORS						
ITEM NO.	RATING		REPLACEMENT DATA			NOTES
	CAP.	VOLT.	PILOT PART No.	MALLOY PART No.	PYRAVID PART No.	
1	40	300		FP420.38		
2	40	250			TTM-240-300 TID-800-350	
3	40	250			FM-2540	

## FIXED CAPACITORS

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

CAPACITORS, AND IN MINOR, MICRA AND CERAMIC CAPACITORS.							
ITEM No.		RATING		REPLACEMENT DATA			NOTES
		CAP.	VOLT.	PILOT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.
C2	30	1000			DD-330	IR5KV-330	DC30433
C3	50				D6-500	GPIK-500	UC-545
C4	10000				DD-103	81L-01	DC-511
C5	1	400			DF-104		PT401
C6	10000				DD-103	81L-01	DC-511
C7	82				D6-820	GPIK-820	
C8	50				TCZ-50	NPO-338-500	ZT-545
C9	20				TCZ-20	NPOK-200	ZT-542
C10	20				TCZ-20	NPOK-200	ZT-542
C11	.047	400			DF-503		PT4147
C12	50				D6-500	GPIK-500	UC-545
C13	5				TCN-5	N750A-050	NT-555
C14	800				DD-801	831-801	DC-521
C15	50				D6-500	GPIK-500	UC-545
C16	10000				DD-103	81L-01	DC-511
C17	800				DD-801	831-801	DC-521
C18	100				D6-101	GPIK-101	UC-531
C19	500				D6-501	GP2K-501	UC-535
C20	10000				DD-103	81L-01	DC-511
C21	30				TCN-30	N750K-300	
C22	10				TCZ-100	NPO-337-101	ZT-531
C23	100				822-FZ	557-3	575-553-Z
C24	3-12				DD-103	81L-01	DC-511
C25	10000				TCZ-3R3	NPOA-3R3	ZT-5533
C26	3-3				TCN-510	N750-334-511	
C27	510	500			DD-103	81L-01	
C28	10000				TCN-510	N750-334-511	DC-511
C29	510	500			DD-103	81L-01	
C30	10000				TCZ-3R3	NPOA-3R3	DC-511
C31	3-3				TCN-510	N750-334-511	ZT-5533
C32	510	500			DD-103	81L-01	
C33	10000				TCN-510	N750-334-511	DC-511
C34	510	500			DD-103	81L-01	
C35	10000				TCN-510	N750-334-511	DC-511
C36	10000				DD-103	81L-01	DC-511
C37	10000				DD-103	81L-01	DC-511
C38	337	10000			D6-500	GPIK-500	UC-545
C39	50				D6-101	GPIK-101	UC-531
C40	.047	400			DF-503		PT4147
C41	500				DD-501	GP2K-501	UC-535



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PILOT  
Model A F-850

## ALIGNMENT INSTRUCTIONS

### ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.  
Allow 30 minute warm-up period for receiver & equipment.  
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.  
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

#### AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1. .01MFD	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	455KC (400v Mod.)	AM (Sharp)	55	DC probe to point $\diamond$ . Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2. 200MMF	High side to AM antenna terminal. Low side to chassis.	"	"	"	"	A7	Adjust for MINIMUM deflection.
3. "	"	1500KC	"	150	"	A8, A9 A10	Adjust for MAXIMUM deflection.
4. "	"	600KC	"	60	"	A11	Adjust for MAXIMUM deflection while rocking tuning gang.

#### WHISTLE FILTER ADJUSTMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5. "	High side to point A. Low side to chassis.	10.0KC	"	55	AC probe to audio output. Common to chassis.	A12, R3 (Whistle filter control)	Adjust for MINIMUM deflection.

#### FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6. .01MFD	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	88	DC probe to point $\diamond$ . Common to chassis.	A13, A14 A15, A16 A17, A18	Adjust for MAXIMUM deflection.
7. "	"	"	"	"	DC probe to point $\diamond$ . Common to chassis.	A19, A20	"
8. "	"	"	"	"	DC probe to point $\diamond$ . Common to chassis.	A22	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9. "	"	"	"	"	"	A21	Adjust for MAXIMUM deflection. Readjust A22.

#### FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

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

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
6. .01MFD	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (450KC Swp.)	FM	88	Vert. Amp. thru 25K to point $\diamond$ . Low side to chassis.	A13, A14 A15, A16 A17, A18 A19, A20 A21	Adjust for curve of MAXIMUM amplitude and symmetry, similar to Fig. 1.
7. "	"	"	"	"	Vert. Amp. to point $\diamond$ .	A22	Adjust so that 10.7MC occurs at center of crossover lines, similar to Fig. 2. SLIGHTLY retouch A22 for MAXIMUM amplitude and straightness of crossover lines. Proceed with step 10.

#### FM RF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10. 270 $\Omega$ Carbon Resistor	High side thru 120 $\Omega$ to FM antenna terminal. Low side to chassis.	90MC (Unmod.)	FM (AFC off)	90	DC probe to point $\diamond$ . Common to chassis.	A23, A24	Adjust for MAXIMUM deflection.
11. "	"	106MC	"	106	"	A25, A26 A27	"

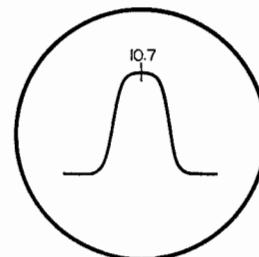


FIG. 1

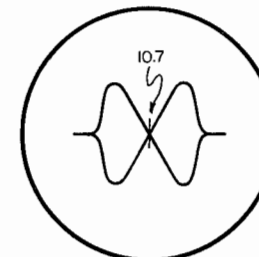
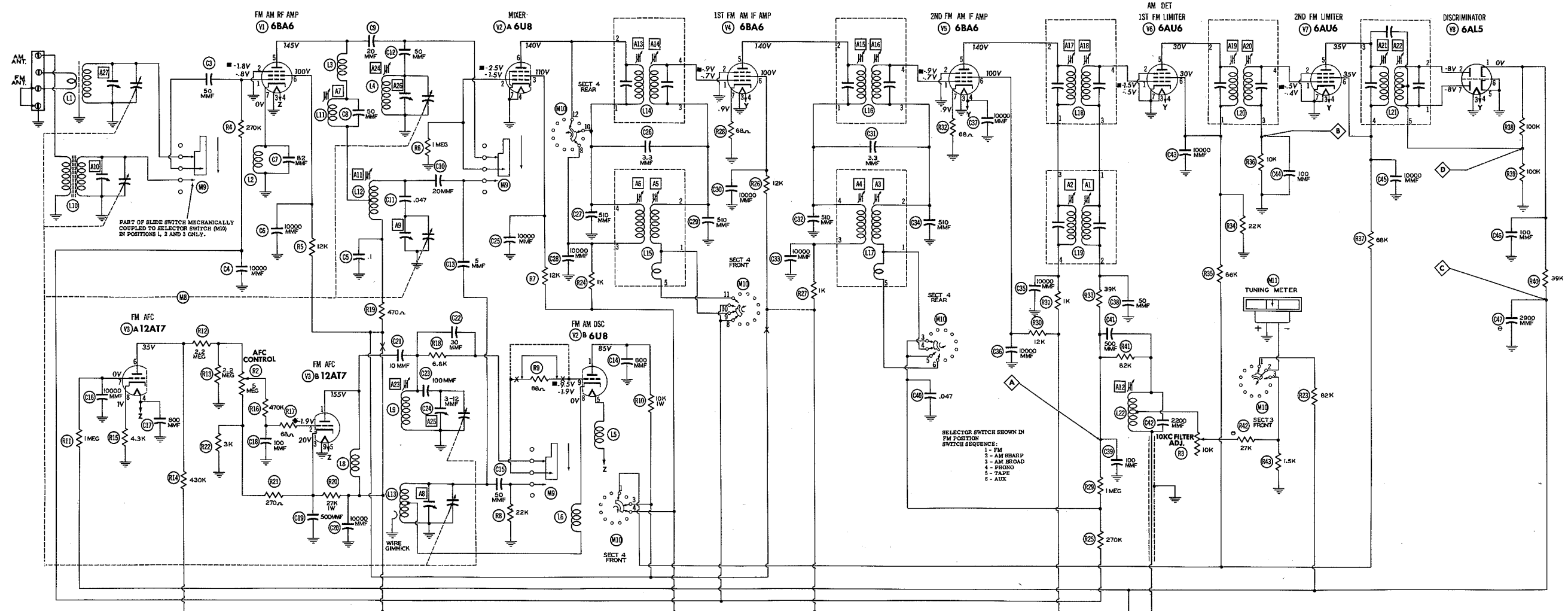


FIG. 2





AM IF=455KC  
FM IF=10.7MC

#### RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	1.6Meg	0Ω	0Ω	.1Ω	†600Ω	†12KΩ	1Ω		5.6KΩ 22KΩ
V 2	6U8	†10.1KΩ	1Meg	†12.1KΩ	0Ω	.1Ω	†1.1KΩ	0Ω	1.5Ω	
V 3	12AT7	†120Ω	470KΩ	†127KΩ	.1Ω	.1Ω	†430KΩ	1Meg	4.3KΩ	0Ω
V 4	6BA6	1.3Meg	0Ω	0Ω	.1Ω	†1.1KΩ	†12.1KΩ	68Ω		
V 5	6BA6	1Meg	0Ω	0Ω	.1Ω	†1.1KΩ	†12.1KΩ	68Ω		
V 6	6AU6	150KΩ	0Ω	0Ω	.1Ω	†30KΩ	†30KΩ	0Ω		
V 7	6AU6	10KΩ	0Ω	0Ω	.1Ω	†68KΩ	†68KΩ	0Ω		
V 8	6AL5	200KΩ	100KΩ	0Ω	.1Ω	0Ω	0Ω	100KΩ		
V 9	12AU7	†43KΩ	1Meg	1.6KΩ	27KΩ	27KΩ	†5.7KΩ	480KΩ	10.4KΩ	27KΩ
V 10	5Y3GT	NC	20KΩ	NC	50Ω	NC	50Ω	NC	20KΩ	

ALL MEASUREMENTS IN FM POSITION UNLESS DESIGNATED OTHERWISE.  
 † MEASURED IN AM SHARP POSITION.  
 ‡ MEASURED WITH AFC CONTROL IN MAXIMUM COUNTER CLOCKWISE POSITION.  
 § MEASURED WITH AFC CONTROL IN MAXIMUM CLOCKWISE POSITION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages 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. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes a possible variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

