Noblitt-Sparks Industries, Inc.

Model: 182TFM	Chassis:	Year: Pre 1949
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 19 - CHANGES 19-4
Riders Volume 17 - ARVIN 17-9
Riders Volume 17 - ARVIN 17-10
Riders Volume 17 - ARVIN 17-11
Riders Volume 17 - ARVIN 17-12
Riders Volume 17 - ARVIN 17-13
Riders Volume 17 - ARVIN 17-14
Riders Volume 17 - ARVIN 17-15

Majestic 5AK781

This model is the same as model 5AK731 found on *pages 17-3 and 17-4 of Rider's Volume XVII,* except for the following changes in the parts list.

Part No.	Description
S-1441	Dial cord assembly
S-1448	Output transformer
21-29	Aero record changer
115-49-1	Cabinet, (Aero cut out) Blonde, walnut, or mahogany
122-47	Escutcheon plate, metal
128-62	Knobs, tuning and volume
128-80	Knob, phono - radio
101-485	Screw, mounting chassis
106-124	Washer, mounting chassis

Majestic 7BK758

This model is the same as Model 7JK777R appearing on *pages 17-5 and 17-6 of Rider's Volume XVII,* except for the dial scale. The dial scale used is part no. 117-78.

Majestic 12FM782, Chassis 12C20E

This model is the same as Model 12FM778, Chassis 12B26E, appearing on *pages 17-27, 28 to 17-33 of Rider's Volume* XVII, except that it does not have push-buttons and indicator lights for "Records and "F.M."

The following additions should be made to the parts list.

Part #	Description
115-45-2	Cabinet—console combination
21-32	Changer, oak
22-43	Speaker, 12" including output transformer
20-27	A-m loop antenna (less cover)
122-20	Escutcheon glass (large)
122-44	Dial grill
128-37	Knob (vol-tuning-tone)
128-85	Knob (band switch)
128-46	Spring insert for above knob

Midwest 98

This model is the same as model RM-8, appearing on *pages 18-1 through 18-3 of Rider's Volume XVIII,* except that two pilot lamps have been added. Each #46 pilot lamp is in series with a 10-ohm resistor, and each series combination is in parallel with the other. One end of the parallel combination is connected to the 6.3-volt filament line and the other end is grounded.

Noblitt-Sparks 182TFM, Chassis RE-237

This model appears in *Rider's Volume XVII, pages 17-9,10 through 17-15.* At the start of production, the glass oscillator trimmer "14" was mounted to the bracket on the variable capacitor with a brass nut and had a locking nut to hold tension on the adjusting screw. When this locking nut was tightened down enough to prevent it from working loose while adjusting the trimmer, the tension on the screw was too great for production alignment. To correct this trouble, the locking nut was tightened down to give the proper tension and then soldered to the bracket to prevent it from working loose. This was a difficult solder operation, and the trimmer screw would still work loose after being run in and out a few times, due to a cutting action between the lock nut and the threads on the screw. To correct this trouble, the locking nut was removed and the bracket revised to use a piece of No. 14 music wire to apply tension to the adjusting screw. (See Fig. 1.) The trimmer is much more stable with the new arrangement

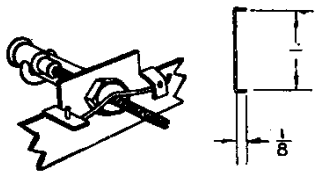


Fig. 1, left, shows the music wire spring applied to the adjusting screw.
Fig. 2, right, shows the music wire spring.

On some trimmers, the threads for the mounting nut did not go down far enough to allow the nut to tighten down against the bracket. A No. 12 lockwasher has been added under the mounting nut to assure a good tight contact between the trimmer and the bracket. If a set is found where the capacity of the oscillator trimmer changes or the trimmer is noisy, the following procedure is recommended:

See that the trimmer mounting to the bracket is tight. Since the trimmer glass is almost sure to break if an attempt is made to tighten the mounting nut after the opposite end of the trimmer has been soldered in place, it is suggested that the trimmer be soldered to the back side of the bracket before attempting to tighten the nut (use care in soldering, apply heat from soldering iron to the bracket to prevent breaking trimmer glass).

Remove the locking nut and replace it with the music wire spring, part number A21902, Fig. 3, by soldering the two metal lugs, part number A21889, Fig. 2 on the present bracket, as shown in Fig. 1.

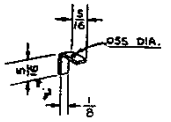


Fig. 3. Two lugs of this type are used as shown in Fig. 1 above.

AM-IF Alignment

Two peaks may be obtained with the 455 i-f slugs; one with the slug tuned almost all the way in and another with the slug tuned almost all the way out. When such is the case, the peak with the slug tuned out should be used.

Noisy F-M Reception

If the set is noisy on f.m., check the six ground leads from the variable capacitor to the chassis to make sure none of them are broken. One broken ground lead will not only make the set noisy, but can also effect the alignment of the set.

Ceramic Capacitors

Care must be taken in placement of ceramic capacitors to prevent shorts which would occur if any part of the capacitor touched other metal parts.

FADING . . . If fading occurs, check the shielded audio leads. One lead should be connected from the center lug of the volume control to the audio coupling capacitor on the stand-off insulator. The other lead should be connected from the right-hand terminal of the control to the band-change switch. If these two leads are reversed, the AVC will be ineffective.

ANTENNA . . . On some of the first sets produced, the primary and secondary windings of the antenna-coupling transformers T1, were shorted together, causing the antenna terminals on the back of the set to be grounded to the chassis. This should be carefully checked before connecting an external antenna to the set, because one position of the a-c plug in the outlet will place 110 volts between the antenna and any grounded object. This would be a shock hazard, and if the antenna became grounded the r-f choke in the a-c leads in the set would burn out.

OSCILLATION . . . If oscillation is encountered, try dressing the yellow filament leads, in the i-f section of the receiver, down against the chassis and away from the tube sockets. Also, see that all grounded leads on the variable capacitor are soldered and not broken.

Some cases of regeneration in the FM i-f circuit have been encountered. This can be detected by a high discriminator voltage, and also a high avc voltage with no signal input. Replacing the 0.005-μf 2nd i-f cathode-bypass capacitor, C32, with a 0.002-μf 350-volt ceramic capacitor will correct this in most cases.

22-OHM RESISTOR BURNS . . . Some receivers have a ¼-watt 22-ohm fusing resistor in the B-plus circuit. If this resistor burns, replace it with a 1-watt resistor. CAUTION . . . First check the B-plus current to see that it does not exceed approximately 100 milliamperes. If the current is greater than this value, some other trouble exists in the receiver and this must be corrected in order to prevent damage to other parts in the receiver.

FLOATING R-F UNIT . . . . On some sets the complete r-f assembly is mounted on rubber to prevent microphonics. When servicing these sets, be sure that the ground leads between the r-f assembly and the chassis are securely soldered.

INSULATING CONTROL SHAFTS . . . Some sets have been found with the flat metal washer under the insulating fibre washer on the tone control, volume control and band switch. This would be a shock hazard if a knob was left off the shaft and should be corrected by removing the metal washer and placing it on top of the fibre washer.

The following changes should be made on the schematic diagram:

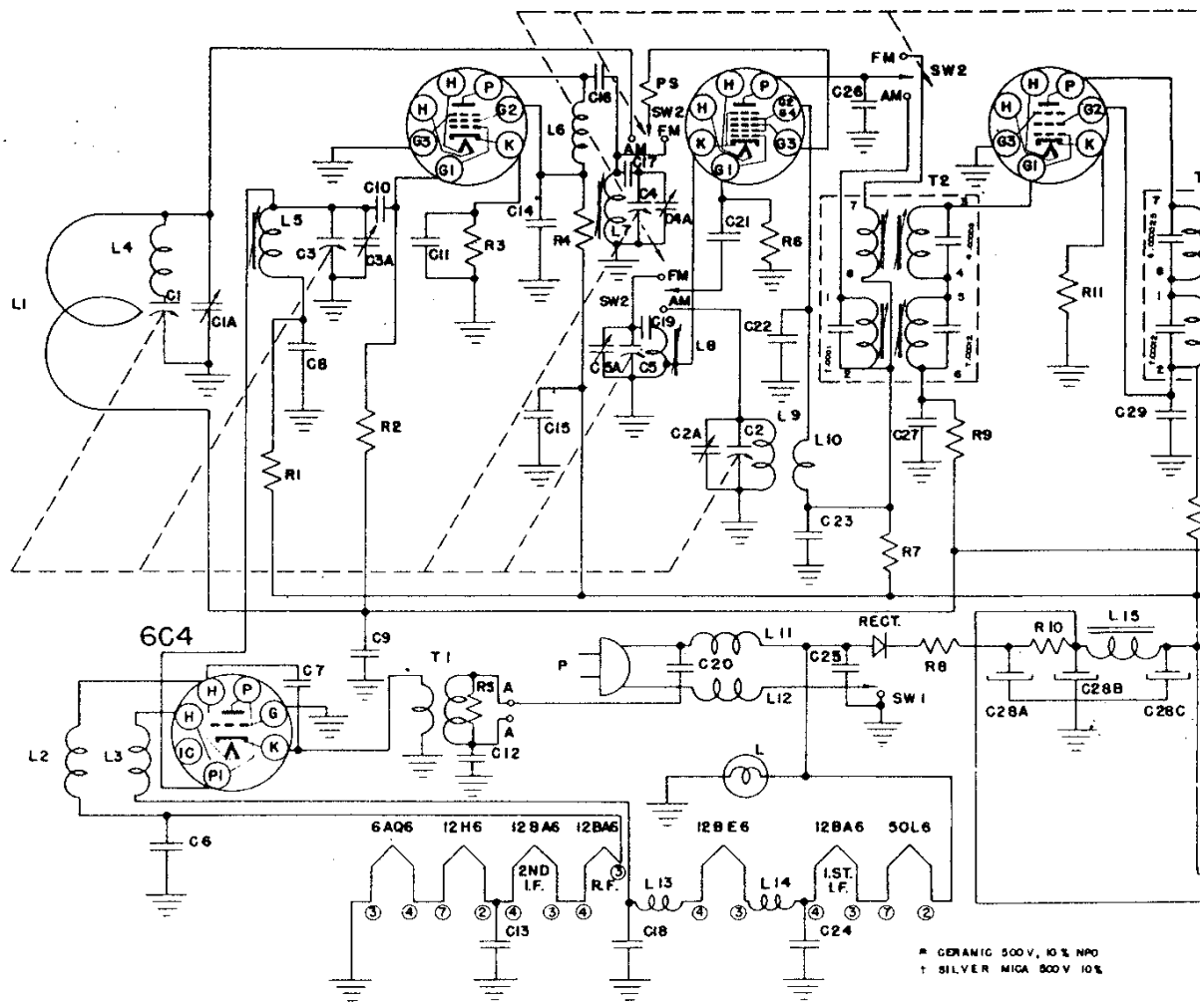
1. A B- connection was added between R10 and L15.
2. A 220-ohm resistor, R15, has been added across the antenna terminals.
3. Antenna coil L4 has been relocated. In the original schematic it was in series with C1, and the series combination was shunted by C1A. The modification consists of placing C1 and C1A in shunt with each other, and placing L4 in series with this shunt combination and the top connection of L1, the point which is connected to the AM terminal of the selector switch.

The following changes should be made in the parts list:

1. R5 should be C20060-221 resistor, 220 ohms, ¼ watt
2. P.S. — A21709 parasitic suppressor should be added
3. C10 should be C20204-500 capacitor, 0.00005-μf., 500 V, ceramic
4. R8, 22-ohm fusing resistor should be 1 watt, C20103-220
5. A19328-4 grommet, rubber, Mtg., RF Assy.
6. A19138-3 eyelet spacer, Mtg., RF Assy.

12-9,10

NOBLITT-SPARKS



A—IF ALIGNMENT—AM

1. Turn the band switch to AM (To the left).
2. Connect the signal generator output lead to the converter grid, with an .05 uf. dummy and the generator ground lead to the receiver chassis.
3. Connect output meter across the speaker voice coil.
4. Tune the signal generator to 455 KC and adjust 455 KC IF slugs (1)-(2)-(3)-(4) for maximum output.

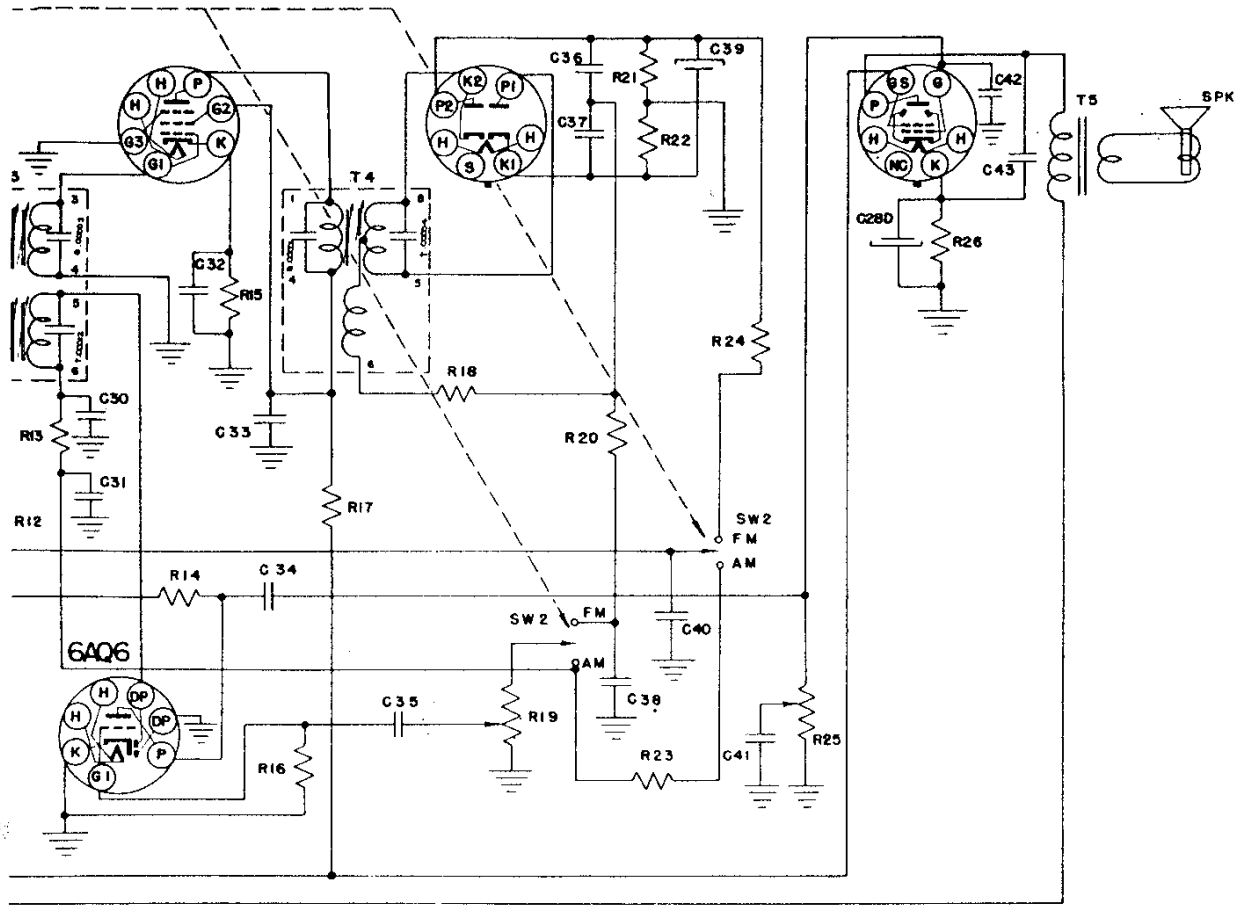
B—IF ALIGNMENT—FM

1. Turn the band switch to FM (To the right).
2. *Connect 10.7 megacycle FM signal generator output lead to 2nd IF grid and the generator ground lead to receiver chassis.
3. Connect a D. C. vacuum tube volt meter to the A. V. C. line and adjust slug no. (5) (primary, bottom of detector transformer) for maximum A. V. C. Voltage.
4. Connect the D. C. V. T. V. M. to the audio output of detector (high side of volume control) and adjust slug no. (6) (secondary, top of detector transformer), for zero voltage.
5. Connect 10.7 megacycle FM signal generator to the converter grid.
6. Connect D. C. V. T. V. M. to the A. V. C. line and adjust the 10.7 IF slugs (7)-(8)-(9)-(10) for maximum A. V. C. voltage.

*If a 10.7 MC.-F. M. generator is not available, an unmodulated signal of 10.7 M. C. from an accurately calibrated conventional AM type generator may be used.

NDUSTRIES, INC. MODEL 182TFM

12BA6 12H6 50L6GT Chassis RE237

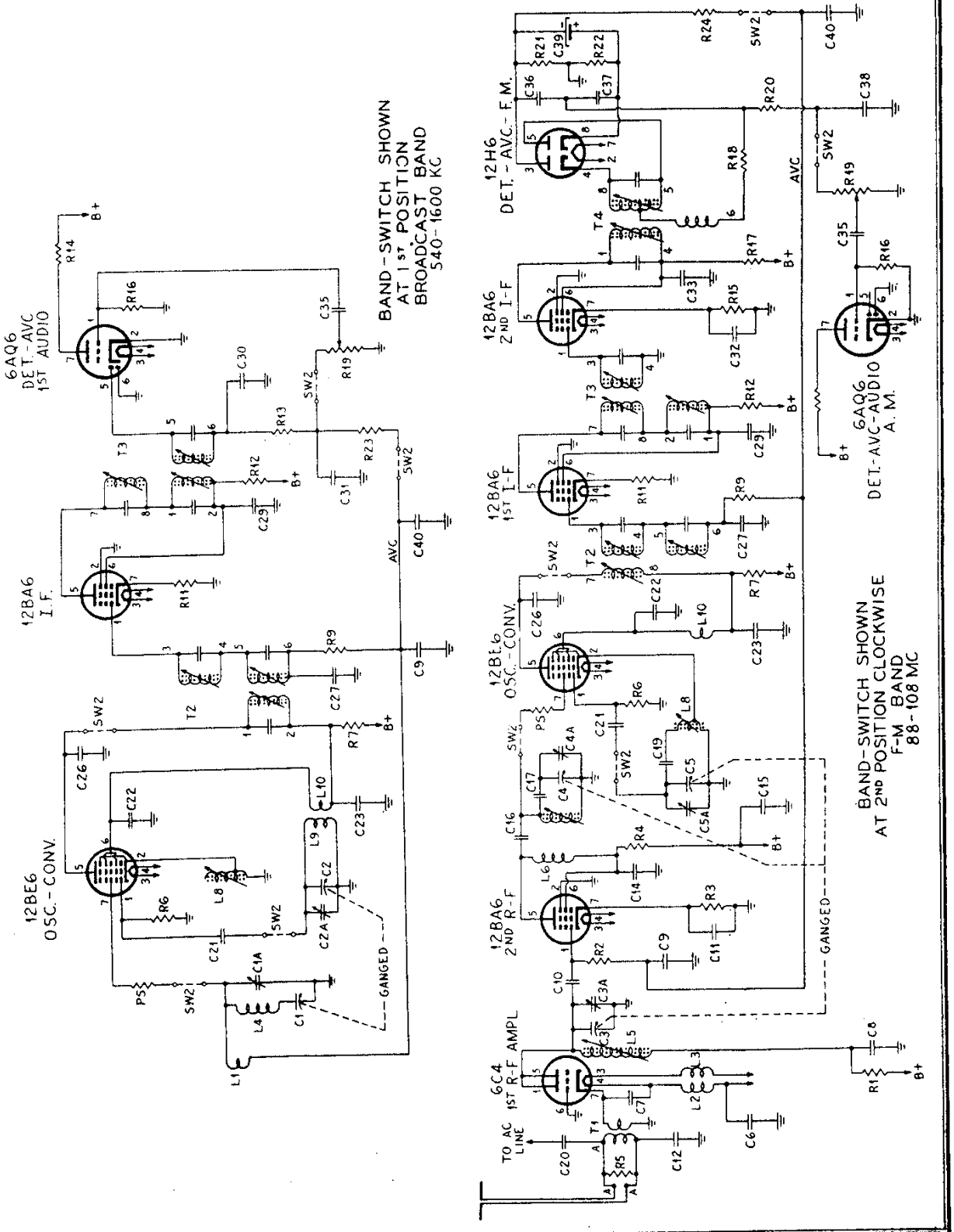


C—RF ALIGNMENT—AM

1. Turn band switch to AM (To the left)..
2. Connect signal generator to a standard Hazeltine test loop, Model 1150, placed 2' from the set loop, or three turns of wire about six inches in diameter placed about one foot from the set loop.
3. Tune the generator to 1620 KC and tune the receiver to the high frequency end of the dial.
4. Connect output meter across the speaker voice coil.
5. Adjust oscillator trimmer (11) on variable condenser for maximum output.
6. Tune signal generator to 1400 KC, and tune receiver to pick up this signal.
7. Adjust antenna trimmer (12) on variable condenser for maximum output.
8. Check tracking at 1000 KC and 600 KC.

D—RF ALIGNMENT—FM

1. Turn band switch to FM (To the right).
2. Connect FM signal generator to FM antenna terminals through a 220 ohm dummy.
3. Set signal generator to 88 megacycles, using 23 KC deviation.
4. Set receiver dial to 88 megacycles.
5. Adjust FM oscillator slug (13) for maximum signal.
6. Set signal generator to 108 M. C.
7. Set receiver dial to 108 M. C.
8. Adjust the FM oscillator trimmer (14) for maximum signal.
9. Repeat 3 to 8; check and recheck until proper coverage is obtained.
10. Set signal generator to 91 M. C., and adjust RF slugs (15) & (16) for maximum signal.
11. Set signal generator to 105 M. C. and adjust RF trimmers (17) & (18) for maximum signal.
12. Repeat 10 & 11 until proper tracking is obtained.



MODEL 182TFM

NOBLITT-SPARKS INDUSTRIES, INC.

APPROXIMATE VOLTAGE AND RESISTANCE MEASUREMENTS
TUBE SOCKET LUGS TO CHASSIS GROUND

			VOLTAGE				RESISTANCE							
Tube	Function	Band Switch	Plate	Screen	Cath-ode	Grid	1	2	3	4	5	6	7	8
6C4	1st RF Amp	FM-AM	95	—	0	0	*	Inf.	51	46	*	0	0	
12BA6	2nd RF Amp	FM	100	100	.9	0	2meg	0	45	35	*	*	68	
		AM	100	100	.9	0	4meg	0	45	35	*	*	68	
12BE6	Oscillator Converter	FM	100	100	0	**	22 K	0	52	62	*	*	0	
		AM	100	100	0	***	22 K	0	52	62	*	*	3meg	
12BA6	1st IF Amp	FM	92	92	.9	0	1meg	0	62	72	*	*	68	
		AM	92	92	.9	0	3.2meg	0	62	72	*	*	68	
12BA6	2nd IF Amp	FM-AM	92	92	.9	0	.9	0	35	24	*	*	68	
6AQ6	AF Amp	FM	42	—	0	-0.6	6.8meg	0	0	10	Inf.	0	*	
	Det, AVC, AF Amp	AM	42	—	0	-0.6	6.8meg	0	0	10	1meg	0	*	
12H6	Det, AVC	FM	—	—	—	—	0	24	6800	1meg	1meg	*	10	6800
		AM	—	—	—	—	0	24	6800	Inf.	Inf.	*	10	6800
50L6	AF Output	FM-AM	115	105	7.5	0	Inf.	72	*	*	500K	1meg	100	220

All voltage readings are positive unless otherwise indicated.

All voltage measurements are made with an electronic voltmeter with a line voltage of 117V, AC.

*No reading given here, due to the wide variations in readings which would be obtained, due to the electrolytic condensers in the B+ circuit.

**G3,0; G1 Varies from approx. -1.5V to -4V, depending on the setting of the variable condenser, variations in tubes, coils, etc.

***G3,0; G1, Voltage varies from approx. -5V with variable condenser closed to approx. -7.5V with variable condenser open.

APPROXIMATE DC RESISTANCE OF COILS AND TRANSFORMERS

L1	Loop Antenna		.6 ohms	T2,3 IF		FM Pri Lugs 7 to 8	.9 ohms
L2,3,4	RF Chokes		.6 ohms		Trans-	AM Pri Lugs 1 to 2	15 ohms
6,13,14					formers	FM Sec. Lugs 3 to 4	.9 ohms
L11,12	RF Chokes		.2 ohms			AM Sec. Lugs 5 to 6	15 ohms
L9,10	AM Osc Coil	L9	5 ohms				
		L10	.5 ohms	T4	Detector	Pri Lugs 1 to 4	1 ohm
L15	B+ Filter Choke		220 ohms		Trans-	Sec Lugs 8 to 5	.1 ohm
					former	Lugs 8 to 6	.3 ohm
T5	Output Transformer	(Pri)	110 ohms			Lugs 5 to 6	.3 ohm
		(Sec.)	.3 ohms				

All resistance measurements of coils were made with the coils wired in the circuit.

All coils and transformers not listed have a resistance too low to be measured with an ohmmeter.

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
R1-12-17	C20060-102	Resistor, 1000 ohm, ¼ W
R2-24	C20060-105	Resistor, 1 megohm, ¼ W
R3-11-15	C20060-680	Resistor, 68 ohm, ¼ W
R4-7	C20060-331	Resistor, 330ohm, ¼ W
R5	C20060-100	Resistor, 10 ohm, ¼ W
R6-13-20	C20060-223	Resistor, 22,000 ohm, ¼ W
R8	C20060-220	Resistor, 22 ohm, ¼ W
R9	C20060-104	Resistor, 100,000 ohm, ¼ W
R10	C20103-101	Resistor, 100 ohm, 1 W
R14	C20060-334	Resistor, 300,000 ohm, ¼ W
R16	C20060-685	Resistor, 6.8 megohm, ¼ W
R18	C20060-101	Resistor, 100 ohm, ¼ W
R-19	C21401-1	Volume Control, 1 megohm
R21-22	C20120-682	Resistor, 6800 ohm, ¼ W
R23	C20060-225	Resistor, 2.2 megohm, ¼ W
R25	C21405-1	Tone Control and Switch, 500,000 ohm
R26	C20060-221	Resistor, 220 ohm, ¼ W
C1-C1A)	AC21401-1	Variable Condenser
C2-C2A)		(With Trimmers)
C3-C3A)		
C4-C4A)		
C5-C5A)	D21409	Variable Condenser (Less Trimmers)
C3A-4A	A21440	Trimmer Condenser, 1.6-18 uuf. Compression Type
C5A	A21439	Trimmer Condenser, 1-8 uuf, Glass
C6-11-18-24	C20204-500	Condenser, .00005 uf, 500V, Ceramic
C7-20-30-31	C20204-101	Condenser, .0001 uf, 500V, Ceramic
C8-10	C20226-501	Condenser, .0005 uf, 350V, Ceramic
C9-12-13-14-22	C20226-102	Condenser, .001 uf, 350V, Ceramic
C15-23-27-29-32-33	C20226-502	Condenser, .005 uf, 350V, Ceramic
C16	C20204-100	Condenser, .00001 uf, 500V, Ceramic
C17	C20206-201	Condenser, .0002 uf, 500V, Mica
C19	C20205-2	Condenser, .0001 uf, 500V, Ceramic
C21	C20204-270	Condenser, .000027 uf, 500V, Ceramic
C25-34	C20068-503	Condenser, .05 uf, 400 V, P. T.
C26	C20205-3	Condenser, .00002 uf., 500 V, Ceramic

REF. NO.	PART NO.	DESCRIPTION
C28,A,B, C,D	A21402	Condenser, Electrolytic, 40-40-80 uf, 150V, 20 uf., 25V
C35	C20068-103	Condenser, .01 uf, 400V, P. T.
C36-37	C20205-5	Condenser, .00005 uf, 500V, Ceramic 10% N750
C38	C20203-202	Condenser, .002 uf, 350V, Ceramic
C39	A21403	Condenser, Electrolytic, 8 uf, 50V
C40	C20067-503	Condenser, .05 uf, 200V, P. T.
C41	C20067-502	Condenser, .005 uf, 200V. P. T.
C42	C20065-251	Condenser, .00025 uf, 500V, Mica
C43	C20069-502	Condenser, .005 uf, 600V, P. T.
L1	AE21395-1	Antenna Loop, Rear Cover, and Line Cord Assy.
L2-3-4 6-13-14	AA21445-1	High Frequency Choke
L5	AC21399-1	1st R. F. Coil (FM)
L7	AC21400-1	2nd R. F. Coil (FM)
L8	AC21397-1	Oscillator Coil (FM)
L9-10	AC21396-1	Oscillator Coil (AM)
L11-12	AA21444-1	High Frequency Choke
L15	AC21394-1	B+ Filter Choke
T1	AA21398-1	Antenna Coupling Transformer
T2	AC21390-1	1st I. F. Coil
T3	AD21391-1	2nd I. F. Coil
T4	AD21392-1	Detector Transformer
T5	AC21393-1	Output Transformer
Sw2	C21406	Band Switch
Spk	C21331	Speaker, 5¼" P. M.
Rect	A20207-3	Rectifier, Selenium, 150 MA
P	B20064-5	Line Cord & Plug Assy
L	A19135	Dial Lamp, Mazda C7
	R21379	Cabinet Assy., Complete
	A21330	Name Plate, Brass
	D21365	Escutcheon, Clear Lucite
	C21428	Knob, Tuning
	C21427	Knob, Volume
	C21430	Knob, Tone
	C21429	Knob, A.M.-F.A. Switch
	A21431	Carton Complete with Fillers
	C21426	Speaker Grille
	C21498	Grille Felt, on Front Cabinet Baffle
	A20217	Socket, Antenna Loop
	D21372	Dial Scale Backing Plate
	A21382	Tuning Shaft Insulator (Rear Phenolic) (Quantity of 5)
	A20196-2	Rivet, Tubular Shoulder (For Mtg. Idler Pulley) (Quantity of 5)
	A20196-4	Rivet, Tubular Shoulder (For Mtg. Idler Pulley) (Quantity of 5)
	A20202-2	Idler Pulley, 3/8" x 1/8" x 1/2", (Quantity of 5)
	A21422	Tuning Shaft
	D21389	Dial Scale, .050 Clear Acetate
	A19132	Cord, Dial Drive
	A19361	Hairpin Clip (On Tuning Shaft)
	A19295	Spring, Dial Drive Cord
	A21384	Terminal Strip, Double, L. H.
	A19141	Terminal Strip, Double,, Center Mtg.
	A19140	Terminal Strip, Single, L. H.
	A21385	Terminal Strip, Triple with Center Mtg. Lug Grounded
	A19236	Terminal Strip, Triple with Separate Mtg. Lug
	A21457	Insulator (Chassis Fibre, Mtg. Screw)
	A20077-3	Grommet, Rubber (Under Variable Cond.)
	A19138-1	Eyelet, Spacer (Under Variable Cond.)
	A20218	Plug, 2-Prong (Chassis Back Flange-Interlock Plug)
	A21189	Terminal, Female (Quantity of 10)
	A21388	Control Shaft Insulator, Phenolic
	A21443	Tuning Shaft Insulator, Front, Phenolic (Quantity of 5)
	A21225	Antenna Lead Insulator, Phenolic (Quantity of 5)
	A20118-1	Socket, Tube, Miniature, Molded Black)
	A20197-1	Socket, Tube, Miniature, Molded (Low Loss Bakelite)
	A18254-1	Socket, Tube, Plain, Wafer
	A19579	Socket, Speaker
	A19134-4	Socket, Dial Lamp
	A21408	Washer, Insulating, 3/8" I. D. x 3/4" O.D., Phenolic (Quantity of 5)
	AC21377-1	Dial Pointer Assy.

Fading

If fading occurs, check the shielded audio leads. One lead should be connected from the center lug of the volume control to the audio coupling condenser on stand-off insulator. The other one should be connected from the right hand terminal of the control to the band change switch. If these two leads are reversed, the A.V.C. will be ineffective.

Antenna

On some of the first sets produced, the primary and secondary windings of the antenna coupling transformer T1, were shorted together. This would cause the antenna terminals on the back of the set to be grounded to the chassis. This should be carefully checked before connecting an external antenna to the set, because one position of the A.C. plug in the electric outlet would place 110 volt A.C. between the antenna and any grounded object. This would be a shock hazard, and if the antenna became grounded, would burn out the R.F. choke in the AC leads in the set.

Oscillation

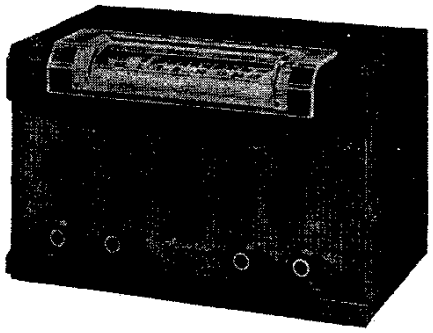
If oscillation is encountered, try dressing the yellow filament leads, in the IF section of the set, down against the chassis and away from the tube sockets.

Regeneration

Some cases of regeneration in the FM - IF circuit have been encountered. This can be detected by a high discriminator voltage, and also a high A.V.C. voltage, with no input signal. Replacing the .005 mfd. 2nd IF cathode bypass condenser, C32, with a .002 mfd., 350 volt, ceramic condenser will correct this in most cases.

MODEL 182TFM

NOBLITT-SPARKS INDUSTRIES, INC.



SPECIFICATIONS & SERVICE NOTES

FREQUENCY RANGE

Broadcast Band	540-1600 KC
AM-IF	455 KC
FM Band	88-108 MC
FM-IF	10.7 MC

TUBES & FUNCTIONS

6C4	1st RF Amp FM
12BA6	2nd RF Amp FM
12BE6	Oscillator Converter AM-FM
12BA6	1st IF Amp AM-FM
12BA6	2nd IF Amp FM
6AQ6	Det. AVC. AF Amp AM
	AF Amp FM
12H6	Detector, AVC. FM
50L6	AF Output AM-FM

POWER OUTPUT

Undistorted	1.4 Watts
Maximum	2.5 Watts
Plate Load	2000 Ohms

POWER SUPPLY

105-125 Volts, AC-DC	45 Watts

SPEAKER

Cone Size	5¼"
Cone Resonance in Air-Approx.	197 Cycles
Type	Permanent Magnet
Magnet Size	1.47 oz. Alnico V
Voice Coil Impedance	3.2 Ohms

OPERATING CONTROLS

Extreme Left Knob	Volume
Left Center	On-Off Switch, Tone Control
Right Center	AM-FM Band Switch
Extreme Right	Tuning

PHYSICAL DIMENSIONS

Length	14"
Heighth	8½"
Depth	8 5/16"

APPROX. SENSITIVITIES

FM Converter Grid 10.7 M. C.	300 uv
FM Antenna Terminals 105 MC (23KC Deviation)	40 uv
AM Converter Grid 455 KC	150 uv
AM Loop 1400 KC	240 uv/m

THE ANTENNA

This set has a loop antenna for AM Broadcast reception. For local FM reception, a built-in (line cord) antenna is provided. An external antenna connection is provided for areas where reception is difficult. To connect the external antenna, remove the green wire from the antenna terminal on the back of the set, and connect a dipole antenna to the antenna terminals. When the line cord antenna is used, the green wire must be connected to the outside terminal on the antenna terminal board.

GROUND

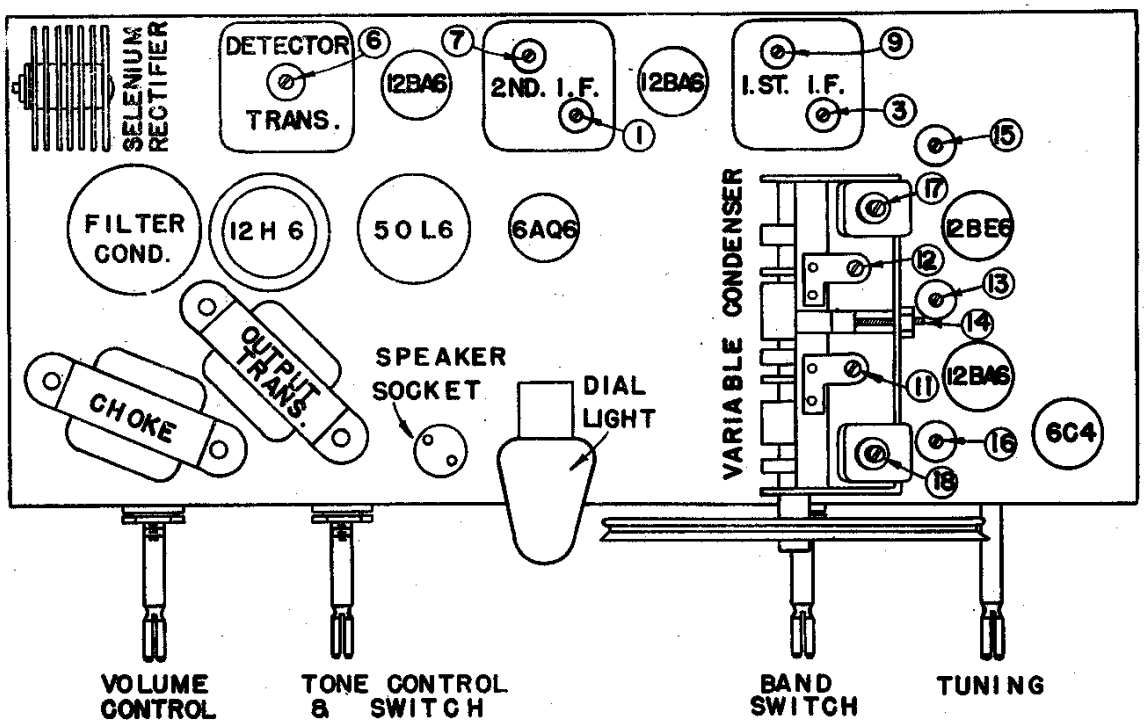
This set is designed to operate without a ground connection and no attempt should be made to use one.

CAUTION

The chassis of this receiver is connected to one side of the power line. Therefore, to prevent a shock hazard, all control shafts, mounting screws and exposed rivets have been insulated from the chassis. When servicing this set and replacing parts, be sure all the necessary insulators are in place to isolate the chassis from all exposed metal parts.

IF & DETECTOR TRANSFORMER REPLACEMENTS

To insure properly matched units for best performance, it is recommended that the IF transformers and FM detector transformer be replaced as complete assemblies, rather than attempt to repair or replace parts of these assemblies.



TUBE LAYOUT AND LOCATION OF TRIMMERS ON TOP OF CHASSIS.