

Index to Rider's "How It Works"
For Volumes 08 (VIII) Through 20 (XX)

INDEX TO A-M AND F-M DATA IN RIDER'S "HOW IT WORKS"

BOOKS FOR VOLUMES VIII THROUGH XX

This subject listing has been prepared to be used as a convenient reference for all technical material which has appeared in "HOW IT WORKS" books to date.

	<i>Page</i>		<i>Page</i>
Alignment			
Volume 9			
Conventional Alignment Procedure	3	Phase Inversion Action	148
What Is Alignment?	3	Motorola Model CR6	150
When Does a Receiver Need Alignment?	4	Spiegel Model W-106	150
What Causes the Need for Realignment?	5	Zenith Model 12H090	151
General Notes	6	RCA Model Q34	152
"Trimmer" Adjustments	6	Brunswick Model BJ6836	152
Adjusting Trimmers	6	G.E. Model X181, Two Types of Coupling Used	154
Signal Generator Connection	6	Sparton Model 7-46	154
Output Meter Considerations	7	Minerva Model W-117-3	155
I-F Alignment	9	Testing Phase Inverters	157
Parallel I.F.	10	Increased Audio Power Output from Push-Pull Operation	157
Dial Alignment	11	Effects of Input Signals	158
Wave-Trap Adjustment	11	Antennas	
Change of I-F Peak	12	Volume 16	
R-F and Oscillator Adjustments	12	F-M Receiving Antennas	1
The Low-Frequency Oscillator Adjustment "Rocking"	12	Voltage and Current Distribution	1
Broadcast Band Alignment	14	Antenna Resistances	2
High-Frequency Alignment	14	Resonance and Impedance Relations	2
Image Check	15	Impedance Matching	3
Ultra-Short-Wave Alignment	16	The Folded Dipole	4
Order of Alignment	16	Orientation of F-M Receiving Antennas	5
Dummy Antenna	16	Dipole with a Reflector	6
10-kc Filter Adjustment	17	Length of Half-Wave Antenna	7
Visual Alignment	17	Maximum Voltage Input	8
Volume 15		Noise Reduction	8
Aligning without Manufacturer's Data	1	Indoor F-M Antenna RCA Model 68R1 — Farnsworth Model GK-140	9
Determining Unknown I-F Peaks	1	F-M Antenna in G.E. Model 417	9
Determining Frequency of R-F Circuits	2	Audio Circuit Features	
Locating Trimmers	3	Volume 19	
Correcting Dial Calibration	3	Espey Model 512	25
Checking Oscillator Frequency	4	Farnsworth Model P7	25
Determining Wave-Trap Frequency	5	Lear Models 861-PC, 281-PC	28
High-Frequency Alignment	5	Firestone Model 4-A-60	29
High-Fidelity Band-pass Response	6	Philco P-4735 Packard	29
Aligning Triple-Tuned I-F Transformer	7	Zenith 9F22	32
Resistance Loaded I-F Transformers	7	Montgomery Ward 84HA-1810A	32
Aligning Detuned I-F Transformers	8	Wilcox-Gay Models 7D42, 7D44	32
Variable Selectivity I-F Transformers	8	Templetone G-1430	33
The Low-Frequency Oscillator Adjustment, "Rocking"	9	Philco 48-1274	33
Alignment Coupling Methods	10	Audio Degeneration	
Volume 17		Volume 8	
General A-M Alignment Procedure	32	Degeneration in G.E. E-155	26
Explanation of Columns	32	Audio Noise Suppression	
Signal Generator Connection	32	Volume 18	
Signal Generator Frequency	33	Philco Electronic Scratch Eliminator	25
Wave-Band Switch Position	33	Scott "Metropolitan" Receiver	27
Trimmers Adjusted	33	Garod 306	29
Alignment Procedure A	33	Automatic Frequency Control	
Alignment Procedure B	34	Volume 8	
Alignment Procedure E	35	How AFC Works	52
Amplifiers			
Volume 11			
Amplifier (Radio-Piano)	15		
Volume 15			
Amplifier (Feedback in)	137		

INDEX TO A-M AND F-M DATA

	Page		Page
Discriminator Circuit	53	Motorola Model CR6	77
Oscillator Control Circuit	53	Goodrich Model 664PM	77
G.E. E-155	54	Hoffman Model A-501	77
Crosley 1516	56	Magnavox Model CR-187	78
AFC in Double Superheterodynes	57		
The Limiter Amplifier Stage	58	Coupled Circuits	
G.E. FA-80	59	Volume 20	
Grunow 12B, 12W	60	Motorola 309	4
Grunow 15W	61	Hallicrafters S-72	5
RCA 812K	61	Motorola 79XM21	6
		RCA 9BX5	7
Automatic Volume Control		RCA 9X641	8
Volume 8	40	Hallicrafters S-72	8
Automatic-Volume-Control Circuits	40	RCA 9X571	9
RCA 9K3	40		
Motorola 9	40	Detector Circuits	
Volume 16		Volume 18	1
Special AVC Circuits	20	Detector Circuits in A-M F-M Receivers	1
Magnavox Model CR-183	20	Admiral Model 9B14-9B16	1
Ward Airline 74BR-1812A	21	Farnsworth GK-085 and Firestone 4-A-12	2
Volume 19			
Automatic-Volume-Control (AVC) and		Electronic Piano	
Tuning-Eye Circuits	19	Volume 9	34
Farnsworth Model 400M	19	Automatic Envelope	34
AVC for the F-M Band	20	Wide-Range Tone Control and the Triple	
Meissner Model 2961	22	Pickup	35
Bendix Models 1217B and 1217D	22		
Regal Model 7251	23	Emphasis	
General Electric Models 354, 355	23	Volume 16	17
		Pre-Emphasis and De-Emphasis	17
Battery Charging Circuits		Montgomery Ward Model 74WG-2505-A	19
Volume 16	31		
A Rectifier-Tube Battery Charger	31	Filtering Action	
A Copper-Oxide Battery Charger	34	Volume 15	93
Battery Economizer Circuit	35	Magnavox Model CR-187	94
		Emerson Model 506	95
Battery-Operated Receivers		Olympic Model 6-501 W-V	95
Volume 8	42	Espey Model 581	96
Sentinel-Erla 49B	42	Howard Model 901-A	96
Montgomery-Ward 62-327	44		
		Frequency Modulation	
Beam Power Tubes		Volume 10	52
Volume 8	36	Advantages	52
The 6L6 Beam Power Tube	37	How Noise Is Reduced	52
The 6V6 Beam Power Tube	37	What the Limiter Does	53
The 25L6 Beam Power Tube	38	Special Detector Used	53
		How the Discriminator Detects	54
Biasing Methods		The G.E. GM-125 Receiver	54
Volume 15	35	Alignment	55
Garod Model 6DPS8	36	Volume 17	
Howard Model 920	36	F-M Tuners	10
Goodrich Model R643W, Stewart Warner Model		The Fidelotuner	10
62T16, Galvin Model 10T	36	The Tuning System	11
Remler Model MP5-5-3	37	Other Interesting Features	12
RCA Model 56X-5	38	The Pilotuner	12
		The R-F and Oscillator Padder	13
Control Circuits		The Ratio Detector Transformer	14
Volume 15	73	Single Tube F-M Detector and Audio Amplifier	16
Chevrolet Model 985986	73	Phase Discriminator Circuit	16
Detrola Model 571X	73	Coupling Methods	17
Pilot Model T-500	74	Use of 6AQ7-GT Tube	18
Buick Model 980745	74	Diode Sections	18
Chevrolet Model 985986 Tone Control	75	The F-M Fremodyne Circuit	29
Crosley Model 66CA	76		

	Page
The Hazeltine F-M Circuit	29
Howard Model 474	29
Tracing the Detected Signal	31
Volume 18	
Oscillators for F-M Sets	15
GE210, 211, and 212	16
United Motors Models R-1253, R-1254, and R-1355	17
Volume 19	
F-M Circuit Features	1
DeWald Model B-612	1
Farnsworth 400M Series	2
Motorola E-33-T and E-34-T A-M F-M Tuner ..	4
Farnsworth Models N4, P4	5

Gimmicks

Volume 15	84
RCA Model 55F, Firestone Model 7398-9	85
Emerson Model 506	86
DeWald Model A602	86
Espey Model XFJ-97	87
Detrola Model 571X	88
Spiegel Model 433	88
Crosley Model 56FA	89
Firestone Model 4A24	90
Montgomery Ward Model 54WG-2700A	90
Galvin Model 65L11	91
Farnsworth Model CT-060	91

Grounded-Grid Input Circuits

Volume 18	19
The Grounded-Grid Circuit	19
Admiral 9B14	20
Noblitt-Sparks 280 TFM	20
Westinghouse H-164	21

I-F Circuits

Volume 8	24
Variable Selectivity in the Fada 312	24
Variable Selectivity in the Fairbanks-Morse 12C6	25
Variable Selectivity in the Gamble-Skogmo 47LL	25
Variable Selectivity in the Garod 1650 series	25
Three-Winding I-F Transformers	26
Variable Coupling Circuits	26
Volume 17	26
Special I-F Transformer	24
Magnetic Shielding	24
The Fixed Capacitances	25
I-F Wavetrap Formed by Special Capacitor	26
Usual B-Minus I-F Trap Construction	26
Construction of a Paper Capacitor	27
Design of the Special Capacitor	27
Effective Inductance of Outside Foil	28
Volume 15	
Mechanical Arrangements of I-F Transformers in Recent Receivers	132
Volume 18	10
Unusual I-F Amplifier Circuits	10
Crosley Models 9-119, 9-120 W	10
Philco Model 48-300	10
Philco Model 48-360	11
Philco Model 48-464	11
General Electric Models 210, 211, and 212	12

	Page
Image Frequency	
Volume 11	12
Alignment Checks of Image Frequency	14

Impedance Matching

Volume 20	
Impedance Matching of Receivers to Transmission Lines	1
Matching Considerations	1
Range of Frequencies	1
Quarter-Wave Line	1
Impedance Calculations	2
Free-Space Length	2
Tap Location	2
Band Changing	3

Locked-In Oscillator

Volume 18	5
Philco 48-482	5
Circuit Construction	5
Operating Conditions	6
Incoming Signal Changing in Frequency	7
Lock-In Action	7
Incoming Signal Lower Than Center I.F.	8
Incoming Signal Higher Than Center I.F.	8
Obtaining the Audio	9
Suppression of A.M.	9
Linearity and Bandwidth	9

Loop Antennas

Volume 11	1
Loops	1
Philco 40-510 Loop	1
Belmont 411	1
Montgomery Ward 93WG-382	1
GE Super Beam-O-Scope	2
Zenith Wavemagnet	2

Magnetic Wire Recording

Volume 17	1
Basic Operation of Magnetic Wire Recording ..	1
Magnetizing the Wire	2
Methods of Magnetization	4
The Magnetization Transfer Characteristic	5
A-C Bias	6
The Reproducing Process	7
Erasing	8
Head Construction	8

Negative Feedback

Volume 11	5
New Negative Feedback	5
Farnsworth C4-1 Series	5

Neutralization

Volume 15	39
Interelectrode Capacitances	39
Space-Charge Coupling	40
G.E. Model X-181 Series	41
Montgomery Ward Model 54WG-2500A	41
Montgomery Ward Model 93WG-800	42

INDEX TO A-M AND F-M DATA

	Page		Page
New Radio Symbols		Phase-Inverter Circuits	
Volume 9	21	Volume 11	9
Noise Suppression		Modern Phase	9
Volume 18	25	Inverter Circuits RCA 9Q4	9
(See Audio Noise Suppression)		RCA 8Q2 Phase Inverter	9
Oscillators		Push-Pull Parallel Operation	9
Volume 15	47	Philco Mystery Control	
General Discussion of Superheterodyne		Volume 9	18
Oscillators	47	Control Box	18
Image Frequency	47	Control Amplifier	18
Oscillator Circuits	48	Stepper Assembly	19
"Feedback" or Regeneration	48	Volume Control	19
Limitation of Losses	49	Range	20
Oscillator Tubes	49	Control Frequencies	20
The Tank Circuit	50	Portable Receivers	
Analysis of the Tank Circuit	50	(Battery or Line Operated)	
The Tickler-Coil Oscillator	51	Volume 11	16
The Hartley Oscillator	52	Combination 3 in 1 Receivers	16
The Colpitts Oscillator	53	Power-Supply Filter Systems	
Galvin Model 405	53	Volume 11	4
Stewart Warner Models 72CR16 and 62T16	55	General Electric HM-136	4
Lear Model 6614	56	RCA 46X21	5
Crosley Model 46FA	57	Printed Circuits	
Detrola Model 420 Series	58	(Applications of)	
Spiegel Model 433	59	Volume 18	23
RCA Model 56X	59	Majestic 6FM714, 6FM773	23
Stewart Warner Model 61TR36	60	What Is a Printed Circuit?	23
Stromberg Carlson Models 1020, 1120	61	The Serviceman's Viewpoint	24
RCA Model 56X10	61	Recording	
Stewart Warner Model 9001C	63	(Home)	
Notes on Oscillator Tests. Superheterodyne		Volume 15	23
Oscillator Signal Voltage	64	Recordio Models 6B Series, Record Radio	23
Testing Superheterodyne Oscillators	64	Switching Features	24
Hum and Other Troubles	65	Monitoring the Audio Signal	24
Oscillator Voltage for Bias Control		Record Microphone	25
Volume 11	3	Tracing the Audio Signal	26
Parasitic Resistors		Packard Bell Phonocord Model 1052	26
Volume 15	43	Volume Compression	27
Bendix Model 736B	44	Radio Record Position	28
Detrola Model 568	44	The Volume Compression Circuit	29
Pilot Model T-511	44	Microphone Record	30
Zenith Model 9H079	45	Mixed Program	31
G.E. Model X-181	45	Spiegel Model TR-640	33
Westinghouse Model H-104	45	Recording	
Phase Inversion		(Magnetic Wire)	
Volume 15	147	Volume 17	1
Phase Inversion in Push-Pull Amplifiers	147	Basic Operation	1
Phase-Inversion Action	148	Magnetizing the Wire	1
Motorola Model CR6	150	Methods of Magnetization	4
Spiegel Model W-106	150	The Magnetization	5
Zenith Model 12H090	151	Transfer Characteristic A-C Bias	6
RCA Model Q34	152	The Reproducing Process	7
Brunswick BJ6836	152	Erasing	8
General Electric Models X181 and XC181	153	Head Construction	8
Sparton Model 7-46	154		
Minerva Model W-117-3	155		
Testing Phase Inverters	157		
Increased Audio Power Output from			
Push-Pull Operation	157		
Effects of Input Signals	158		

	Page
Record Players	
(Wireless)	
Volume 10	55
Rectifiers	
(Selenium)	
Volume 16	13
Installing Selenium Rectifiers	14
Rectifier Tube Replacements in A-C Receivers	14
Rectifier Tube Replacements A-C D-C Receivers	14
Rectifier Tube Replacements A-C D-C Battery Receivers	16
Remote Control	
Volume 8	
R-F Circuit in Philco 38-116	15
R-F Circuit in the RCA 811K	20
6L7 Mixer	23
Volume 11	17
RCA Model 5 x 5	17
R-F Coupling Circuits	
Volume 11	7
Power Sensitivity	7
Farnsworth AC-70	7
Eliminating Oscillator Grid Condenser	8
Volume 15	
Radio-Frequency Coupling	98
Series Resonance	98
Parallel Resonance	100
"Q" or Figure of Merit	102
Selectivity Characteristics	103
Effect of Resistance on a Series-Tuned Circuit	103
Effect of Resistance on a Parallel-Tuned Circuit	104
Self-Inductance and Mutual Inductance	105
Reflected Impedance	107
Resistance-Capacitance Coupling	108
(A) The Plate-Load Resistance R_p	110
(B) The Grid-Leak Resistor R_g	110
(C) The Coupling Capacitor C_c	111
The Time Constant	111
Gain Mathematics	112
Gain of an R-C Coupled Amplifier	112

	Page
Gain of a Transformer-Coupled Amplifier	113
Motorola Model 39B-2	114
Admiral Model 6E1	114
Zenith Model 6G001	115
Globe Model 62	117
Zenith Model 7ML080	118
Tuners	
Volume 17	10
F.M.	10
Tuning Assemblies	
Volume 15	
Tuning Assemblies	67
Admiral Model 6A1	67
Belmont Model 8A59	67
Ray-Energy Model AD-4	69
Zenith Model 8H032	69
Galvin Model FD6	70
Tuning of the Receiver	72
Tuning Indicators	
Volume 9	23
Tuning Indicators for F-M Receivers	23
Volume 16	
Types of Tuning Indicators	23
The Meter Indicator	23
Operational Difficulties	24
Stromberg-Carlson 1135-A	25
Transfer of Tuning Indication Voltage	26
Operation of Tuning Indication System	26
Saturable Core Type	29
Volume 11	
Tuning Indicator (F.M.)	11
Volume 16	
F-M Type	23
Volume 17	
F-M and A-M Tuning Indicator	20
Used with Limiter and Discriminator Voltages	20
Used with Discriminator Alone	22
Used in A.M.	23
Voltage Distribution	
Volume 8	46
Philco 38-116	46